THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 REVISED CODE OF OHIO.

CONVENTIONAL SIGNS

LIMITED ACCESS LINE — LA
RIGHT OF WAY LINE — R/W
EXISTING RIGHT OF WAY
TOWNSHIP LINE
SECTION LINE
CENTER LINE
CORPORATION LINE
FENCE LINE
GUARD RAIL (EXISTING)
GUARD RAIL (PROPOSED)
RAILROAD
POWER POLES
TELEPHONE POLES
POWER & TELEPHONE POLES
TELEGRAPH POLES
TREES EXISTING — (Deciduous) (Coniferous)
VALVE
FIRE HYDRANT
WELL
SEPTIC TANK
CISTERN
WATER LINE — W — 2" — W
GAS LINE — G — 4" — G
LOT NO. — 12
PARCEL NO. — 120-LA

INDEX OF SHEETS

LINE DATA

	PROJECT	WORK
BEGIN	STA 1260+00 ℄ INTERSTATE	STA 1260+00 ℄ INTERSTATE
END	STA 1394+21.90 ℄ INTERSTATE	STA 1395+20 ℄ INTERSTATE.
DEDUCT FOR EQUATION Sta. 1339+48.48 Back = Sta. 1339+57.48 Ahead	9.00 LIN. FT.	9.00 LIN. FT.
ADD FOR WEST ST.		869.6 LIN. FT.
NET LENGTH	13,412.9 FT. OR 2.540 MILES	14,380.6 FT. OR 2.723 MILES

PREPARED AND RECOMMENDED BY

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

K. H. Bergendoff

H.G. SOURS
ASSOCIATE
COLUMBUS

FILE NO.	BELMONT COUNTY BEL-40-23.89
	SEC. BEL.-40-23.89
	DATE OF LETTING _____ 196 ___
	CONTRACT NO. _____

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

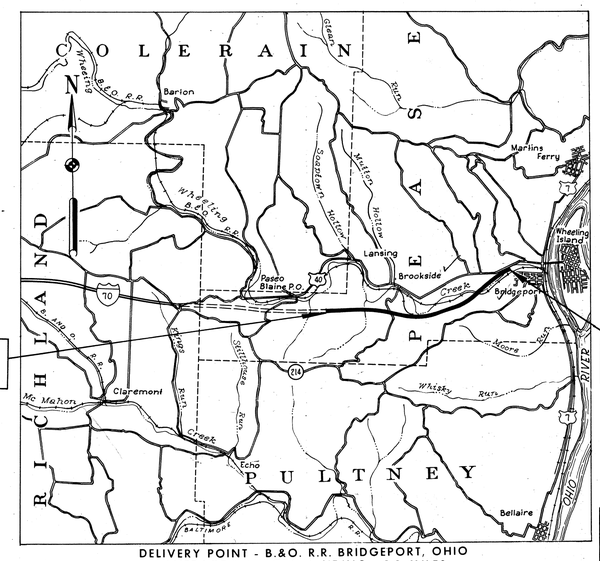
BEL - 40 - 23.89

BELMONT COUNTY

PEASE TOWNSHIP

VILLAGES OF BROOKSIDE & BRIDGEPORT

GRADE SEPARATION WITH THE B.&O. RAILROAD



BEGIN PROJECT STA. 1260+00

END PROJECT STA. 1394+21.90

DELIVERY POINT - B.&O. R.R. BRIDGEPORT, OHIO
AVERAGE HAUL FROM SIDING - 1.2 MILES

LOCATION MAP

0 1/4 1/2 1 2 3 4
SCALE IN MILES

SCALES

PLAN	1"=50 FT.
PROFILE HOR.	1"=50 FT.
PROFILE VERT.	1"=10 FT.
CROSS SECTION	1"=10 FT.

PORTION TO BE IMPROVED
OTHER HIGHWAYS

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
18	R.6-15-59	CE-101.04	5-22-56
I-127	R.1-15-62	M-106.6(d)	R.4-1-58
B-112	8-21-61	I-128	7-31-59
M-107.18	R.4-3-61	I-129	R.4-5-61
M-109.28	R.8-12-59	S-307	8-23-60
I-212	R.6-23-61	S-207.10	4-25-61

342

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO	I-70-8(8)225	

1 / 199

BEL-40-23.89
BELMONT COUNTY

NOTE:
FEDERAL NUMBER I-70-8(8)223 APPEARING THROUGHOUT THE PLANS SHALL BE CONSIDERED TO BE I-70-8(8)225.
NOTE:
TOTAL SHEET NUMBERS APPEARING THROUGHOUT THE PLANS AS 197 SHALL BE CONSIDERED TO BE 199.

I-70-8(8)225
LIMITED ACCESS

1961 SPECIFICATIONS

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 THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH IN THE PLANS AND ESTIMATE.

THE RIGHT OF WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

APPROVED DATE Mar. 14, 1962	Wm. P. McKenna — DIVISION DEPUTY DIRECTOR
APPROVED DATE 4-17-62	D.H. Overman — ENGINEER OF BRIDGES
APPROVED DATE 4-19-62	W. Freeman — ENGINEER OF LOCATION AND DESIGN
APPROVED DATE 4-19-62	C.W. McCarthy — DEPUTY DIRECTOR OF DESIGN AND CONSTRUCTION
APPROVED DATE 4-18-62	W.M. Zinn — DEPUTY DIRECTOR OF RIGHT OF WAY
APPROVED DATE 4-19-62	Guy E. Vesper — DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING
APPROVED DATE 4-19-62	J.H. Perry — FIRST ASSISTANT DIRECTOR
APPROVED DATE 4-19-62	E.L. Sexton — DIRECTOR OF HIGHWAYS
APPROVED DATE _____	_____ CHIEF ENGINEER, BALTIMORE & OHIO RAILROAD

STANDARD DRAWINGS

NUMBER	DATE	NUMBER	DATE
HW-A&B	7-15-57	I-8 MH NO. 2	1-26-59
HW, C	7-15-57	I-12	7-1-54
I-1	11-15-60	I-15 NO. 1	11-15-60
		I-21-23	8-1-56
I-8 CB NO.3	1-26-59	L-1	4-1-50
I-8 CB NO.3A	1-26-59	L-3A	4-1-50
I-8 CB NO.4	7-1-58	B-T-70-71	11-15-60
I-8 CB NO.6	1-26-59	B-T-71R	3-2-53
I-8 I NO.2-A	4-23-59	F-1	9-1-59
I-8 M.H. NO.1	1-26-59	F-3	9-1-59
I-14G	1-22-52	G-7.07	6-1-56
I-15 NO.2A	8-17-60	I-8 C.B. NO. 5	7-1-58
L-3	4-1-50	I-15 NO. 6	7-1-59
T-35	1-2-56	AS-1-54	12-1-54
R1-1	7-15-58	F-2	10-1-58
L.J. NO.1	7-1-55	I-8 C.B. 2-2-A&B	3-2-59
T.J.	9-12-60	FACI-1	12-27-61
RB-1-55	2-2-59	FACI-2	12-27-61
AR-1-57	12-12-60		
CSB-2-56 SH.2	2-2-59		
CSB-2-56 SH.3	2-2-59	HW-E	11-15-60
DR-1	1-3-55	I-8 MH NO.1-A	10-2-61

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED: _____

DIVISION ENGINEER _____ DATE _____

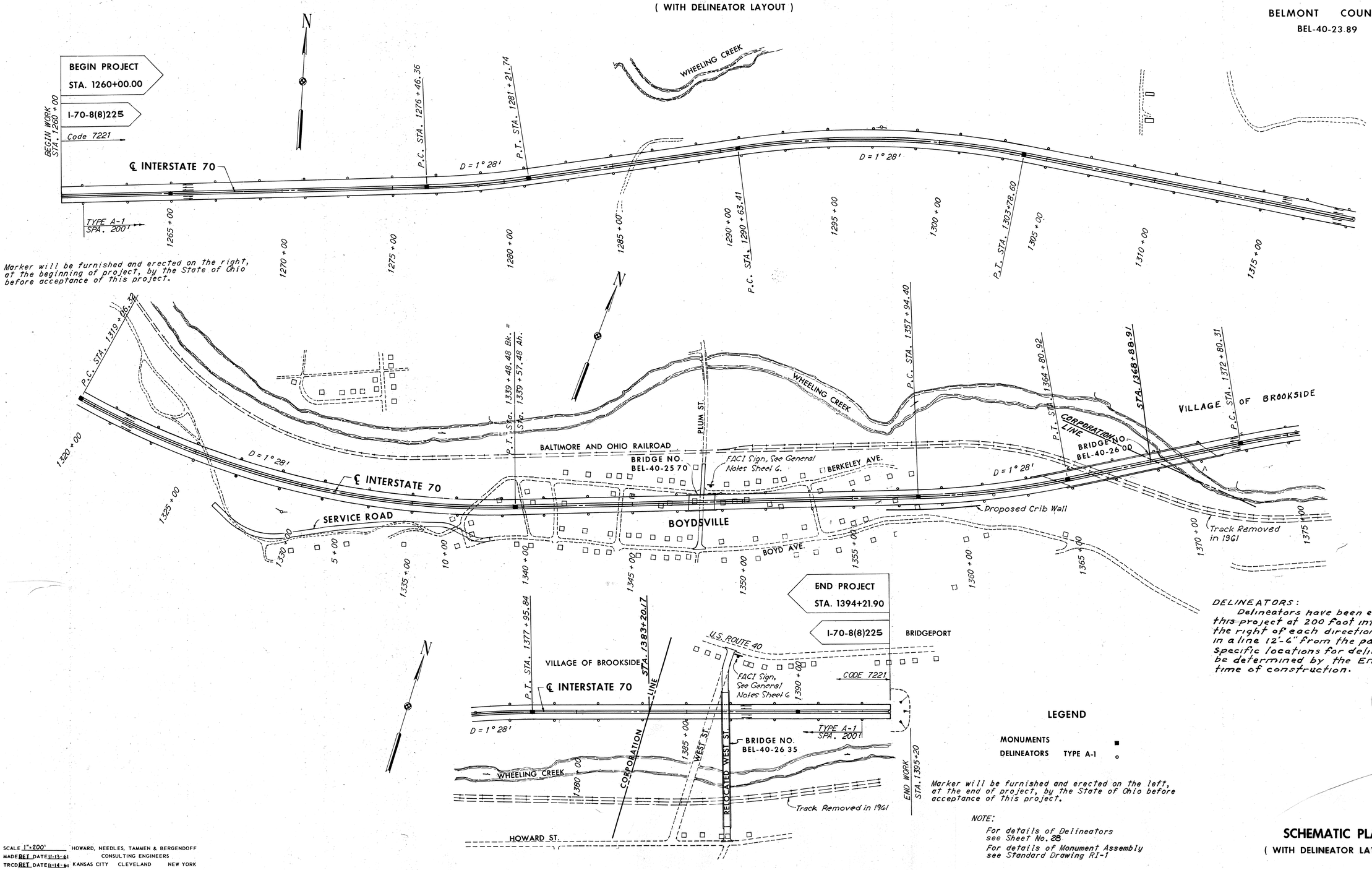
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

SCHEMATIC PLAN

(WITH DELINEATOR LAYOUT)

BELMONT COUNTY

BEL-40-23.89



DELINEATORS:

Delineators have been estimated on this project at 200 foot intervals along the right of each directional pavement in a line 12'-6" from the pavement edge. Specific locations for delineators shall be determined by the Engineer at the time of construction.

LEGEND

MONUMENTS ■

DELINEATORS TYPE A-1 ○

Marker will be furnished and erected on the left, at the end of project, by the State of Ohio before acceptance of this project.

NOTE:

For details of Delineators see Sheet No. 28

For details of Monument Assembly see Standard Drawing R1-1

SCALE 1" = 200'
MADE RET DATE 11-15-61
TRCD RET DATE 11-14-61
CKD RRM DATE 11-15-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

SCHEMATIC PLAN

(WITH DELINEATOR LAYOUT)

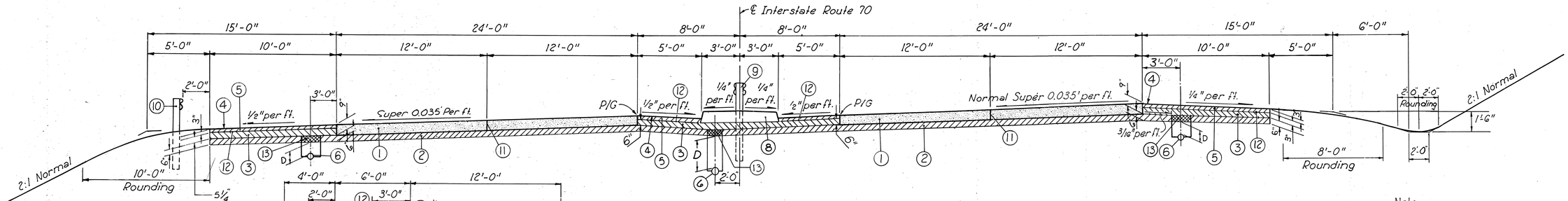
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

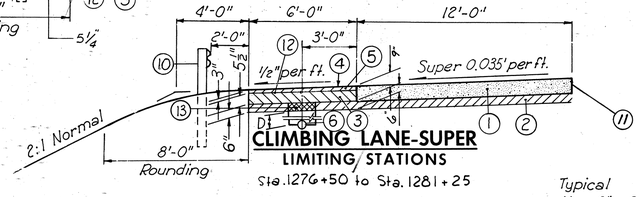
3
197

TYPICAL SECTIONS
RAISED MEDIAN
TYPE T-71

SCALE 1/4" = 1'-0"

BELMONT COUNTY
BEL-40-23.89



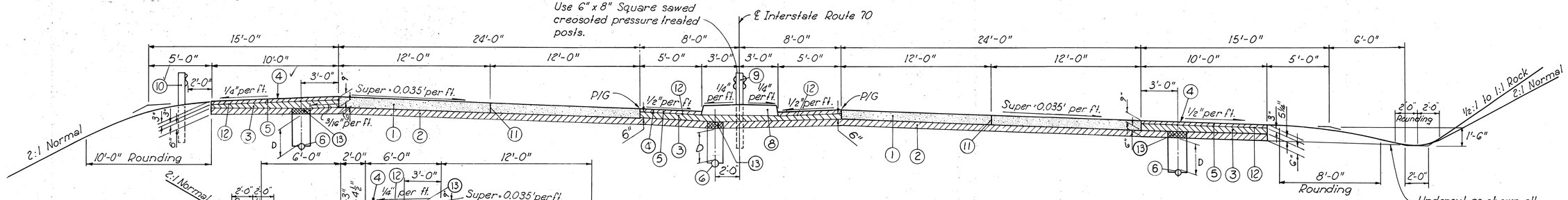


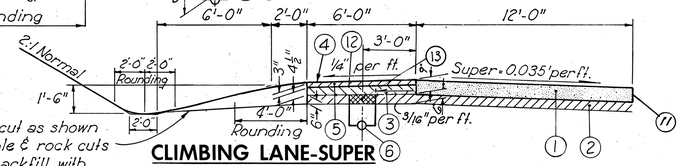
CLIMBING LANE-SUPER
LIMITING STATIONS
Sta. 1276+50 to Sta. 1281+25

SUPERELEVATED SECTION
LIMITING STATIONS
Sta. 1276+50 to Sta. 1281+25
Sta. 1319+00 to Sta. 1339+50
Sta. 1358+00 to Sta. 1364+00

Note:
Refer to cross sections for special benching and back slopes in cut and fill sections.

Typical
Use 6" x 8" Square sawed creosoted pressure treated posts.



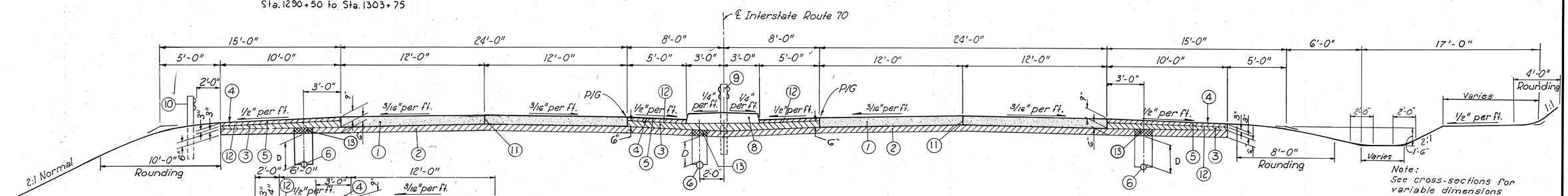


Undercut as shown all shale & rock cuts and backfill with earth.

CLIMBING LANE-SUPER
LIMITING STATIONS
Sta. 1290+50 to Sta. 1303+75

SUPERELEVATED SECTION
LIMITING STATIONS
Sta. 1290+50 to Sta. 1303+75
Sta. 1371+50 o Sta. 1378+00

Undercut as shown all shale & rock cuts & backfill with earth.



CLIMBING LANE-NORMAL
LIMITING STATIONS
Sta. 1260+00 to Sta. 1276+50
Sta. 1281+25 to Sta. 1290+50
Sta. 1303+75 to Sta. 1317+00

NORMAL SECTIONS
LIMITING STATIONS
Sta. 1260+00 to Sta. 1276+50
Sta. 1281+25 to Sta. 1290+50
Sta. 1303+75 to Sta. 1319+00
Sta. 1339+50 to Sta. 1347+25
Sta. 1349+00 to Sta. 1358+00
Sta. 1378+00 to Sta. 1394+25

Note:
Dimension "D" is 12" in Rock Cut and 30" elsewhere.
Use 6" M-6.4(h) Rock only.
Warp Median Shoulders at Bridge Approaches Within a 50 ft. length to Match Cross Slope of Bridge at Abutment

Note:
See cross-sections for variable dimensions

Note:
Refer to cross sections for special benching and back slopes in cut and fill sections.

SCALE 1/4" = 1'-0"
MADE RBM DATE 8-16-61
TRCD T.E.R. DATE 8-22-61
CKD R.V.C. DATE 8-22-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

TYPICAL SECTIONS

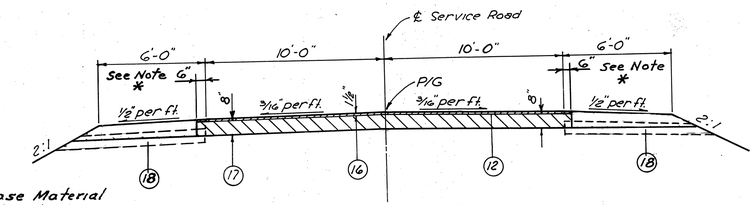
TYPICAL SECTIONS
TYPE T-35 ON B-19

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

4 / 197

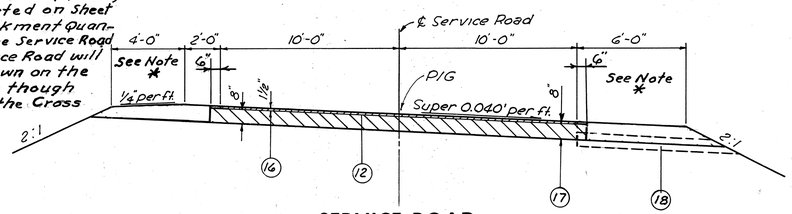
BELMONT COUNTY

BEL-40-23.89

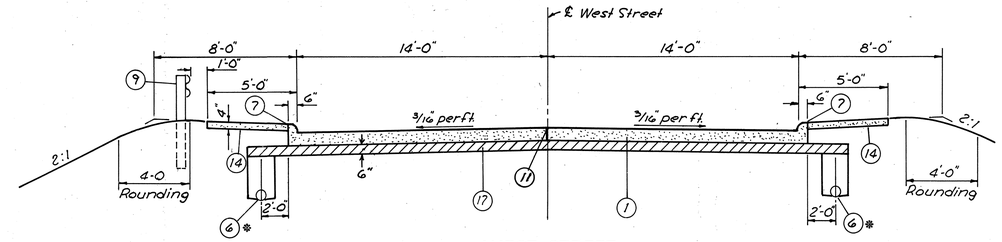


SERVICE ROAD NORMAL SECTION

NOTE:
* The B-19 Aggregate Base Material was eliminated from the shoulders of the Service Road and Boyd Avenue, and Embankment Material was added. The B-19 Quantity was revised as indicated on Sheet No. 1, and the Embankment Quantity was added to the Service Road on Sheet No. 8. The Service Road will be constructed as shown on the Typical Sections even though shown otherwise on the Cross Sections.



SERVICE ROAD SUPERELEVATED SECTION

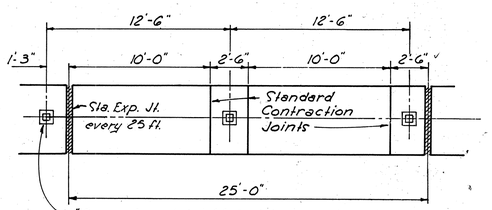


WEST STREET

STONE UNDERDRAINS NO. 2
Stone Underdrains shall be placed at fifty (50) foot intervals on each side of normal crowned sections and at twenty-five (25) foot intervals on low side only of superelevated sections, except where I-1 Class I-3 Pipe has been provided.

DRAINAGE OF BASE MATERIAL
Where the base material is drained by I-9 Stone Underdrains, the Contractor shall finish, seed and mulch the slopes so as not to impede drainage of the base material. The actual outcrop of the I-9 Underdrains shall not be seeded.

* Note:
Underdrains used on North end of West Street only.



1/4" Expansion Joint Material around posts to be Included for Payment in Item I-21.

JOINT DETAIL AT GUARD RAIL POSTS IN CONCRETE MEDIAN PAV'T

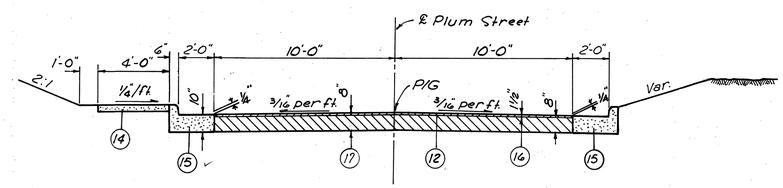
No Scale

Note:
In lieu of spacing requirements of standard drawing I-21-23, expansion and contraction joints shall be provided in Item I-21 Median Pavement, as detailed hereon, whenever guard rail is called for.

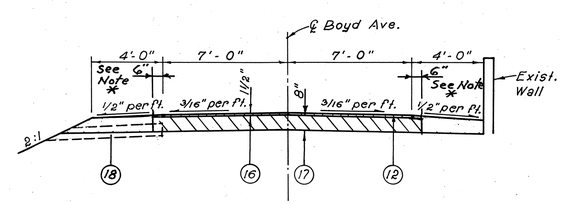
LEGEND

1. T-71 9" R.P.C.C. Pavement.
2. I-22 Subbase (6" except as shown). Grading A or B Modified as per General Note.
3. B-112 Porous Base Course.
4. T-31 Bituminous Surface Treatment using 0.008 Cu. Yd. No. 6 aggregate per Sq. Yd. and 0.25 Gal. bituminous material per Sq. Yd. (See Note in Proposal).
5. * B-21-3" Waterproofed Aggregate Base Course. (Type "A" T-35 material may be used in Construction of this course, See Note in Proposal). Thickness as shown is "designed" thickness as described in Sec. B-21.01.
6. I-1 6" Pipe Class 1-3 (For type & location see Underdrain Tabulations Sheet 40).
7. I-12 Standard Type 2-A Concrete Curb, Modified (See Sheet 28).
8. I-21 Standard Type 2 P.C. Concrete Traffic Divider.
9. I-15 Guard Rail, Steel Beam Barrier Type (Deep) as per plan.
10. I-15 Guard Rail, Steel Beam Standard Type (Deep), as per plan.
11. Standard Longitudinal joint.
12. T-30 Bituminous Prime Coat Sec. M-57, R.T.-2 or R.T.-3. applied at the rate of 0.40 Gal. per Sq. Yd.
13. Remove Subbase for width of Item I-1 trench and replace with either Class 3 back fill or with porous base material immediately prior to placing the Item B-112 Porous Base Course. Cost shall be included in price bid Per lin. ft. for Item I-1.
14. I-13 4" P.C.C. Sidewalk.
15. I-12 Combination Curb & Gutter, Standard Type 2.
16. * T-35 1 1/2" Asphaltic Concrete Surface Course (Type A) (85-100).
17. B-19 Aggregate Base Course.
18. I-9 Stone Underdrains No. 2

* Thickness Shown is "Designed" Thickness as described in Section T-35.01 & B-21.01



PLUM STREET



BOYD AVENUE

SCALE 1/4" = 1'-0"
MADE R&M DATE 11-8-61
TRCD RET DATE 11-10-61
CKD JJVS DATE 11-22-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

TYPICAL SECTIONS
Rev 7-6-62

SUPERELEVATION TRANSITION TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

BELMONT COUNTY

BEL-40-23 89

CURVE NO. 5

P. C. = 1276 + 46.36 S = .035 ′/′ P. T. = 1281 + 21.74
Dc = 1° 28′ Δ = 6° 58′ 20″ Lt.

WEST BOUND LANES					EAST BOUND LANES	
Elev. Climbing Lane	Elev. Lt. Edge	℄	Profile	Station	℄	Elev. Rt. Edge
844.74	844.93	845.12	844.93	1274 + 50	845.12	844.93
843.97	844.16	844.36	844.18	+ 75	844.37	844.19
843.17	843.36	843.55	843.43	1275 + 00	843.62	843.49
842.36	842.55	842.74	842.68	+ 25	842.87	842.81
841.55	841.74	841.93	841.93	+ 50	842.12	842.12
840.74	840.93	841.12	841.18	+ 75	841.37	841.44
839.93	840.12	840.31	840.43	1276 + 00	840.62	840.75
839.09	839.29	839.51	839.68	+ 25	839.88	840.08
838.18	838.44	838.68	838.93	+ 50	839.17	839.43
837.26	837.58	837.87	838.18	+ 75	838.49	838.80
836.34	836.72	837.06	837.43	1277 + 00	837.79	838.15
835.49	835.90	836.68	836.68	+ 25	837.08	837.47
834.69	835.11	835.51	835.93	+ 50	836.34	836.76
833.92	834.34	834.76	835.18	+ 75	835.60	836.02
827.17	827.59	828.01	828.43	1280 + 00	828.85	829.27
826.44	826.85	827.25	827.68	+ 25	828.07	828.47
825.76	826.14	826.53	826.93	+ 50	827.30	827.68
825.14	825.48	825.83	826.18	+ 75	826.52	826.86
824.54	824.83	825.12	825.43	1281 + 00	825.71	825.99
823.97	824.20	824.44	824.68	+ 25	824.91	825.14
823.35	823.55	823.75	823.93	+ 50	824.12	824.29
822.69	822.88	823.07	823.18	+ 75	823.37	823.48
822.00	822.19	822.38	822.43	1282 + 00	822.62	822.66
821.32	821.51	821.70	821.68	+ 25	821.87	821.85
820.63	820.82	821.01	820.93	+ 50	821.12	821.04
819.93	820.12	820.31	820.18	+ 75	820.37	820.23
819.23	819.42	819.61	819.43	1283 + 00	819.62	819.45
818.49	818.68	818.87	818.68	+ 25	818.87	818.68

CURVE NO. 6

P. C. = 1290 + 63.41 S = 0.035 ′/′ P. T. = 1303 + 78.60
Dc = 1° 28′ Δ = 19° 17′ 22″ Rt.

WEST BOUND LANES					EAST BOUND LANES	
Edge of Climbing Lane	Elev. Lt. Edge	℄	Profile	Station	℄	Elev. Rt. Edge
801.99	802.18	802.37	802.18	1288 + 75	802.37	802.18
801.27	801.45	801.62	801.43	1289 + 00	801.60	801.41
800.62	800.75	800.87	800.68	+ 25	800.81	800.62
799.99	800.06	800.12	799.93	+ 50	800.00	799.80
799.37	799.37	799.37	799.18	+ 75	799.18	799.00
798.74	798.68	798.62	798.43	1290 + 00	798.37	798.18
798.12	798.00	797.87	797.68	+ 25	797.56	797.37
797.51	797.33	797.13	796.93	+ 50	796.75	796.54
796.93	796.68	796.44	796.18	+ 75	795.94	795.68
796.36	796.05	795.73	795.43	1291 + 00	795.13	794.81
795.76	795.40	795.04	794.68	+ 25	794.33	793.97
795.11	794.72	794.32	793.93	+ 50	793.53	793.14
794.42	794.01	793.60	793.18	+ 75	792.77	792.35
793.69	793.27	792.85	792.43	1292 + 00	792.01	791.59
762.19	761.77	761.35	760.93	1302 + 50	760.51	760.09
761.42	761.01	760.60	760.18	+ 75	759.78	759.36
760.62	760.22	759.82	759.43	1303 + 00	759.04	758.64
759.76	759.40	759.04	758.68	+ 25	758.33	757.98
758.86	758.56	758.24	757.93	+ 50	757.63	757.32
757.93	757.68	757.43	757.18	+ 75	756.94	756.69
757.00	756.82	756.63	756.43	1304 + 00	756.25	756.04
756.12	756.00	755.87	755.68	+ 25	755.56	755.37
755.25	755.18	755.12	754.93	+ 50	754.87	754.68
754.37	754.37	754.37	754.18	+ 75	754.18	754.00
753.49	753.56	753.62	753.43	1305 + 00	753.50	753.31
752.62	752.76	752.87	752.68	+ 25	752.81	752.62
751.78	751.95	752.12	751.93	+ 50	752.11	751.92
750.99	751.18	751.37	751.18	+ 75	751.37	751.18

CURVE NO. 7

P. C. = 1319 + 06.32 S = 0.035 ′/′ P. T. = 1339 + 48.48 Bk. =
Dc = 1° 28′ Δ = 29° 57′ 06.3″ Lt. 1339 + 57.48 Ah.

WEST BOUND LANES					EAST BOUND LANES	
Edge of Climbing Lane	Elev. Lt. Edge	℄	Profile	Station	℄	Elev. Rt. Edge
717.24	717.43	717.62	717.43	1317 + 00	717.62	717.43
716.50	716.67	716.86	716.68	+ 25	716.87	716.69
715.74	715.88	716.07	715.93	+ 50	716.12	715.98
714.96	715.07	715.26	715.18	+ 75	715.37	715.29
714.18	714.26	714.45	714.43	1318 + 00	714.62	714.60
713.41	713.45	713.64	713.68	+ 25	713.87	713.92
712.63	712.63	712.82	712.93	+ 50	713.12	713.23
	711.80	712.00	712.18	+ 75	712.38	712.55
	710.95	711.19	711.43	1319 + 00	711.66	711.89
	710.08	710.38	710.68	+ 25	710.98	711.27
	709.24	709.58	709.93	+ 50	710.28	710.62
	708.40	708.40	708.18	+ 75	709.57	709.95
	707.61	708.01	708.43	1320 + 00	708.84	709.24
	706.84	707.26	707.68	+ 25	708.10	708.52
	690.28	690.70	691.12	1338 + 25	691.54	691.96
	690.70	691.10	691.53	+ 50	691.95	692.35
	691.13	691.52	691.94	+ 75	692.32	692.69
	691.58	691.94	692.31	1339 + 00	692.66	692.99
	692.03	692.32	692.64	+ 25	692.93	693.23
	692.41	692.66	692.91	+ 48	693.16	693.40
	692.68	692.88	693.09	+ 75	693.31	693.50
	692.97	693.16	693.31	1340 + 00	693.51	693.63
	693.22	693.41	693.50	+ 25	693.68	693.74
	693.44	693.62	693.63	+ 50	693.82	693.82
	693.61	693.78	693.73	+ 75	693.92	693.87
	693.73	693.90	693.79	1341 + 00	693.97	693.87
	693.78	693.97	693.81	+ 25	693.99	693.84
	693.78	693.97	693.78	+ 50	693.96	693.79

CURVE NO. 8

P. C. = 1357 + 94.40 S = .035 ′/′ P. T. = 1364 + 80.92
Dc = 1° 28′ Δ = 10° 04′ 08.7″

WEST BOUND LANES				EAST BOUND LANES	
Elev. Lt. Edge	℄	Profile	Station	℄	Elev. Rt. Edge
711.90	712.09	711.90	1356 + 00	712.09	711.90
712.11	712.30	712.11	1356 + 25	712.30	712.13
712.23	712.42	712.28	+ 50	712.47	712.35
712.29	712.48	712.41	+ 75	712.60	712.53
712.31	712.50	712.50	1357 + 00	712.69	712.69
712.30	712.49	712.55	+ 25	712.74	712.81
712.25	712.44	712.57	+ 50	712.76	712.88
712.17	712.36	712.55	+ 75	712.74	712.93
712.01	712.25	712.49	1358 + 00	712.74	712.97
711.79	712.10	712.40	+ 25	712.70	713.00
711.52	711.88	712.26	+ 50	712.63	712.99
711.27	711.68	712.09	+ 75	712.51	712.90
711.05	711.47	711.89	1359 + 00	712.31	712.73
710.80	711.22	711.64	1359 + 25	712.06	712.48
701.20	701.62	702.04	1363 + 50	702.46	702.88
700.47	700.88	701.29	+ 75	701.70	702.11
699.76	700.15	700.54	1364 + 00	700.93	701.31
699.10	699.44	699.79	+ 25	700.13	700.49
698.45	698.74	699.04	+ 50	699.33	699.62
697.81	698.05	698.29	+ 75	698.52	698.75
697.16	697.36	697.54	1365 + 00	697.74	697.91
696.48	696.67	696.79	+ 25	696.98	697.09
695.80	695.99	696.04	+ 50	696.23	696.28
695.12	695.31	695.29	+ 75	695.48	695.47
694.43	694.62	694.54	1366 + 00	694.73	694.66
693.74	693.93	693.79	+ 25	693.98	693.85
693.03	693.22	693.04	+ 50	693.23	693.05
692.29	692.48	692.29	+ 75	692.48	692.29

CURVE NO. 9

P. C. = 1372 + 80.31 S = 0.035 ′/′ P. T. = 1377 + 95.84
Dc = 1° 28′ Δ = 7° 33′ 40″ Rt.

WEST BOUND LANES				EAST BOUND LANES	
Elev. Lt. Edge	℄	Profile	Station	℄	Elev. Rt. Edge
680.29	680.48	680.29	1370 + 75	680.48	680.29
679.55	679.73	679.54	1371 + 00	679.72	679.53
678.84	678.98	678.79	+ 25	678.93	678.74
678.15	678.23	678.04	+ 50	678.12	677.93
677.46	677.48	677.29	+ 75	677.30	677.11
676.77	676.73	676.54	1372 + 00	676.49	676.30
676.08	675.98	675.79	+ 25	675.68	675.49
675.40	675.23	675.04	+ 50	674.87	674.67
674.76	674.52	674.29	+ 75	674.06	673.82
674.13	673.84	673.54	1373 + 00	673.24	672.95
673.49	673.14	672.79	+ 25	672.44	672.10
672.84	672.45	672.04	+ 50	671.66	671.28
672.17	671.75	671.33	+ 75	670.93	670.51
671.49	671.07	670.65	1374 + 00	670.23	669.81
666.32	665.90	665.48	1376 + 75	665.06	664.64
666.05	665.63	665.21	1377 + 00	669.81	664.41
665.80	665.40	664.98	+ 25	664.61	664.24
665.54	665.18	664.79	+ 50	664.48	664.14
665.27	664.96	664.63	+ 75	664.38	664.08
665.00	664.76	664.50	1378 + 00	664.29	664.05
664.76	664.58	664.38	+ 25	664.21	664.01
664.55	664.44	664.25	+ 50	664.14	663.95
664.36	664.31	664.12	+ 75	664.07	663.88
664.17	664.19	664.00	1379 + 00	664.01	663.82
663.98	664.06	663.87	+ 25	663.95	663.76
663.80	663.94	663.75	+ 50	663.89	663.70
663.63	663.81	663.62	+ 75	663.80	663.61
663.49	663.68	663.49	1380 + 00	663.68	663.49

SCALE None HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE MWV DATE 10-12-61 CONSULTING ENGINEERS
TRCD RRT DATE 11-15-61 KANSAS CITY CLEVELAND NEW YORK
CKD JDG DATE 12-15-61 SHEET.

SUPERELEVATION TRANSITON TABLES

GENERAL NOTES

GENERAL

DESIGN SPEED The geometrics for this project have been planned for a design speed of 60 miles per hour.

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

FIELD OFFICE The Contractor shall, in accordance with Sec. S-0.01 (b), provide, for the exclusive use of the State's employees, a suitable field office having a minimum of 500 sq. ft. of floor space. The Contractor shall have a telephone installed and maintained in this field office during the construction of this project. The Contractor shall also provide and install wiring and outlets suitable for connecting electric lights and office equipment in the field office and provide 110-volt alternating current to the office during the entire period of construction of this project.

This field office shall be provided within 10 days after start of construction.

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS The Contractor shall furnish, erect, maintain and subsequently remove Federal Aid Construction Identification signs at each of the following locations

1. Corner of Plum St. and Berkeley Ave.
2. Corner of West St. and U. S. Route 40.

Sign details shall be as specified on Standard Drawing FAC1-1, "Code N-43(2)-144", and shall be erected in accordance with Standard Drawing FAC1-2. Additional requirements shall be in accordance with notes in the proposal.

ROADWAY

REMOVAL OF TREES AND STUMPS All trees and stumps over 12" Diameter lying within the construction limits of this project shall be removed under the lump sum price bid for Item E-9, Removal of Trees and Stumps, except that those trees and stumps for which protection and preservation work is indicated elsewhere in these plans shall not be removed.

The following is an approximate estimate of the number of trees and stumps to be removed.

Sizes	No. Trees	No. Stumps
12" - 18"	235	20
18" - 24"	80	15
24" - 30"	55	10
30" - 36"	40	5
36" - 42"	15	0
42" - 48"	20	0
Over 48"	5	0

The above estimate is approximate and the State of Ohio reserves the right to order the removal of additional trees or stumps outside of the limits of construction but within the right-of-way and or easement lines. Payment for the removal of these additional trees or stumps shall be included in the lump sum price bid for Item E-9, Removal of Trees and Stumps.

CONSTRUCTION OF EMBANKMENT The following provisions shall govern the construction of embankment on this project.

Rock, i.e., broken sandstone or limestone essentially free from admixtures of shale or soil, shall be placed in layers not to exceed 18 inches in depth. Rock which cannot be incorporated in an 18 inch lift shall be reduced in size until it can be so incorporated. Rock fill made up principally of small rock shall be rolled as directed by the Engineer. All other provisions governing the placement of rock embankment of Sec. E-1.08 shall remain in effect.

Shale - In addition to the requirements of Sec. E-1.08 each shale layer shall be sprinkled as directed by the Engineer to bring the moisture content within a range of optimum minus 3 per cent and optimum. Each layer shall be rolled with at least 4 complete coverages of a fully ballasted tamping roller and at least two complete coverages of a fully ballasted 50 ton Pneumatic tired roller as specified in Supplemental Specification C.E. 101.04. Cost of this rolling both for the tamping roller and the 50 ton Pneumatic Tired roller shall be included in the price bid for Item E-1, Roadway Excavation. All other provisions of Sec. E-1.08 relating to the construction of embankment and of S.S.C.E. - 101.04 shall remain in effect.

Mixtures of shale and rock shall be placed in accordance with the above noted provisions for shale. Rock which cannot be incorporated in the 8 inch layer shall be reduced in size so that it can be so incorporated.

SEED MIXTURE The seed mixture for this project shall be as follows, sown at the rate of 3 pounds per 1,000 square feet, in lieu of the mixtures listed in Section L-9.11:

15% Kentucky Blue Grass
25% Kentucky 31 Fescue
25% Perrinial Rye Grass
25% Yellow Blossom Sweet Clover
10% Crown Vetch

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS The rounded corners shown on Standard Drawing RI-1, as modified by the typical sections, apply to all cross sections, even though otherwise shown on these plans.

SEEDING From Sta. 1262+00 to Sta. 1337+00, quantities for seeding are calculated for the soil areas between lines ten (10) feet outside the work limits, as shown on the cross sections, or to the right-of-way line if such line is less than ten (10) feet from the work limits.

From Sta. 1337+00 to Sta. 1394+00, quantities for seeding are calculated for soil areas between the right-of-way fence lines, between the right-of-way lines in unfenced areas, and within the work limits for areas outside the right-of-way lines covered by work agreement or slope easement.

ESTIMATED QUANTITIES Specific locations and usage of estimated quantities set up on this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion of this project.

ROADWAY EXCAVATION In the event slides should occur on this project, due to no fault of the Contractor, the displaced material shall be removed at the direction of, and in amounts determined by, the Engineer in accordance with Item E-1, Roadway Excavation, at the contract unit price bid for this item.

Also, it is expected that it may be necessary during construction for the Engineer to direct flattening of certain slopes in heavy cut sections because of probable variations in top of rock elevations. An estimated quantity of 150,000 cu. yds. of excavation has been included in the total E-1 quantity to allow for such contingencies. Payment shall be based on final meas.

SCARIFICATION OF EXISTING FLEXIBLE PAVEMENT Within the limits of construction where the existing flexible pavement will have less than six (6) inches of fill placed upon it, the pavement shall be throughly scarified for its full depth, mixed with sufficient soil and properly recompacted to insure the elimination of any planes of separation between it and the embankment placed thereon. Payment for scarification as described above shall be included in the unit price bid for Item E-1, Roadway Excavation.

NON-RIGID PAVEMENT REMOVAL Removal and disposal of existing non-rigid pavement, unless otherwise indicated on these plans, shall be measured and paid for as Item E-1, Roadway Excavation.

REMOVAL OF EXISTING PIPE The removal of all existing pipe drains within the limits of proposed excavation items shall be included for payment in the unit prices bid for the respective excavation items, unless otherwise itemized in the plans.

PLUGGING PIPE The upstream ends of all pipe or tile lines intercepted by earthwork operations and, where indicated, the ends of pipe lines to be abandoned in place shall be effectively blocked and covered. Broken pieces and portions of pipe or tile shall be removed until a whole length is encountered which shall be blocked with concrete, flat stone or brick laid in mortar, or a precast clay or concrete stopper. Payment for the above work shall be included in the unit price bid for Item E-1, Roadway Excavation.

CONSTRUCTION LAYOUT STAKES See note in proposal describing the work included in this lump sum pay item.

ITEM S.S. CE-101.04 An estimated quantity for this item has been included in the General Summary, for use as directed by the Engineer, in proof rolling of all subgrade except for areas where rock or shale is encountered. A 50 ton grass load shall be used for the final proof rolling.

ITEM SPECIAL, FILL COMPACTION USING HEAVY PNEUMATIC-TIRED ROLLERS An estimated quantity of 200 hours is carried to the General Summary for this item to be performed at the direction of the Engineer, between approximate stations 1275 and 1394+21.90. (See Note in Proposal)

BENCHING OF FOUNDATION SLOPES Although cross sections on this plan indicate specific widths and depths of proposed benching of the embankment foundation in certain areas, no waiver of the specifications is intended and all other sloped foundation areas shall be benched as set forth in Sec. E-1.04. No additional payment will be made for benching required by the provisions of Sec. E-1.04.

PAVEMENT

I-22 SUBBASE - GRADING A OR B The material furnished for this item shall meet the requirements of Grading A or B of Section I-22.02 except that for either grading not more than 10% of the material shall pass a No. 200 sieve after all operations of placement and compaction have been completed

PAVEMENT REMOVAL OUTSIDE NORMAL CONSTRUCTION LIMITS After the existing West St. Bridge has been removed, the area under the Bridge (See Note-Sheet 26) shall be plowed, harrowed, and dragged to a smooth grade, the old ditches filled, and the entire area sloped to drain and left in a neat condition ready for seeding. Payment for this work shall be included in the unit price bid for Roadway Excavation, Item E-1. Seeding shall be measured and paid for in accordance with Item L-9. A quantity of 420 Sq. Yds. of Seeding has been included in Item L-9, West Street, for use as directed by the Engineer at the existing West Street Bridge Site.

ROCK SUBGRADE The Contractor shall be paid for the thickness of I-22 material shown on the typical sections in rock excavation areas. Any pockets in the rock below the plan subgrade elevation shall drain either longitudinally or laterally and all irregularities in the rock below this elevation shall be filled with I-22 material at no additional cost to the State.

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

SEQUENCE OF CONSTRUCTION OPERATIONS

Underdrains shall be installed and backfilled to subgrade elevation, immediately prior to construction of the subbase, except that, where subsurface conditions are such that improvement of an unstable subgrade can be accomplished through the drying action of deep underdrains, the project engineer may authorize or require the Contractor to delay the construction of the subbase as necessary.

The subbase shall then be constructed under the conc. pavement area and extended out to cover the porous backfill for the underdrain.

Pavement shall be constructed.

After the surface of the subbase in the shoulder area is in place and compacted as specified, and immediately prior to placing the porous base course, the material located above and within the underdrain trench shall be removed to the depth necessary to expose clean Class 3 backfill. The trench so excavated shall be backfilled with new Class 3 backfill material, or if the Contractor so elects, he may substitute material meeting the requirements of Item B-112, Porous Base Course. (See Continuation at bottom of Column 4)

Porous base course shall be constructed and construction of the waterproofed aggregate course shall follow immediately.

Payment for all the above shall be included in the pertinent items affected.

DRAINAGE

SOD ADJACENT TO PAVED GUTTERS Eighteen (18) inches of sod shall be used on all slopes adjacent to paved gutter.

SPRING DRAINS Reference is made to the detailed drawing on Sheet 38 showing the method of draining any spring that may be encountered during construction.

The following estimated quantities have been provided in the General Summary for this purpose.

Item I-9 Stone Underdrains No. 1	15 Lin. Ft.
Item I-1 6" Class I-3 Perforated Helical Corrugated Metal Pipe, Sec. M-6.4(h)	250 Lin. Ft.

STEPS IN DEEP CATCH BASINS All catch basins six (6) feet deep or greater shall have steps. The steps shall be built in accordance with Standard Drawing I-8 Manhole No. 1. The price of all material and work for building these steps shall be included in the bid price per each of the catch basins.

FIELD DRAINS All farm tiles which are encountered during construction shall be provided with unobstructed outlets under the direction of the Engineer. Existing collectors which are located below the roadway ditch elevations and which cross the roadway shall be replaced within the construction limits by Item I-1 Class A-1 pipe, Sec. M-6.6(b) or M-6.8(b). Existing collectors and isolated farm tiles which are encountered above the elevation of the roadway ditches shall be outletted into the roadway ditch. The optimum outlet elevation shall be, if possible, one foot above the flowline elevation of the ditch.

The location, type, size and grade of required replacements shall be determined by the Engineer during construction and payment shall be made on final measurements.

The following estimated quantities have been included in the General Summary for the work noted above.

Item I-1 6" Class A-1 Sec. M-6.6(b) or M-b.8(b) Pipe	100 Lin. Ft.
Item I-1 8" Class A-1 Sec. M-6.6(b) or M-6.8(b) Pipe	100 Lin. Ft.
Item I-1 10" Class A-1 Sec. M-6.6(b) or M-6.8(b) Pipe	100 Lin. Ft.
Item I-1 6" Class F-1 Pipe	100 Lin. Ft.
Item I-1 8" Class F-1 Sec. M-6.4(c) Pipe	100 Lin. Ft.
Item I-1 10" Class F-1 Pipe	100 Lin. Ft.

REINFORCED ENDS ON CORRUGATED METAL PIPE Reinforced ends will be required on all corrugated metal Class F-1, Sec. M-6.4(c) pipe for driveways and underdrain outlets if the pipe ends are unprotected by headwalls, catch basins or manholes.

EROSION CONTROL Items I-10, I-14 and L-10 are provided in these plans for erosion control. Rock of a stable nature will not be removed in order to place any of these items. The Engineer shall check and non-perform quantities or adjust locations and quantities for these items where indicated by field conditions during construction.

CONNECTIONS TO EXISTING DRAINAGE FACILITIES Where the plans propose connecting new structures, pipes or underdrains to existing pipes, it shall be the Contractor's responsibility to locate the pipe, both as to line and grade, before he starts construction. The cost of this operation shall be included in the pertinent bid item.

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SEALING OF PIPE JOINTS Where connections are made between rigid and flexible pipe sections or between pipe sections of different kind or type of end fabrication, whether required by the plans, arising from permissible use of optional materials, or encountered in connection to existing facilities, the joint shall be sealed, if sealing is required by the specifications, by means of a Class "E" concrete collar having a minimum thickness of 6 inches and a minimum length of 12 inches. Payment for sealing as described above shall be included in the unit price bid for the pertinent pipe item. See Detail Sheet 38.

REINFORCED CONCRETE CATCH BASINS Catch basins over 12 feet in depth shall be built of Class "C" concrete reinforced by placing 1" diameter bars 12" center to center both vertically and horizontally with a 2" clearance from the inside face of the wall. Payment for furnishing and placing the reinforcing steel shall be included in the unit price bid for Item I-8, Reinforced Concrete Catch Basins.

SPECIAL DITCHES For special ditch grades, see cross sections and drainage plans.

MISCELLANEOUS

AGRICULTURAL LIMING MATERIALS Agricultural Liming Materials shall be used in connection with Seeding and Sodding at the rate of 100 pounds per 1,000 sq. ft.

MISCELLANEOUS REMOVALS All walls, steps and other miscellaneous structures not listed for removal as a pay item shall be removed in accordance with Sec. E-1.03(d) of the Specifications. All pertinent areas between normal construction limits and the Right of Way line shall be site graded to drain and seeded as directed by the Engineer. An estimated quantity of 2.000 cubic yards of embankment has been included in the calculations for filling basements.

MAINTAINING TRAFFIC

GENERAL The Contractor's responsibility for maintenance of the existing pavement per Sec. G-7.07 of the specifications shall be limited to those portions of the existing pavement lying within the proposed work limits.

Compensation for Maintenance of Traffic shall be paid for in accordance with Sec. G-4.05 of the specifications.

SERVICE ROAD - PART WIDTH CONSTRUCTION Because of the necessity of building the Service Road that is adjacent to the centerline of Interstate 70 from Sta. 1327 to Sta. 1337, under a limited amount of traffic, the Contractor shall construct the Service Road so that one-way traffic is maintained at all times. A quantity of M-10 and T-10 has been provided in the quantities to be used in maintaining traffic at the direction of the Engineer.

Construction of the Service Road shall be so scheduled that it is completed before the fill material for Interstate 70 is placed in the vicinity of Sta. 1325 cutting off access by way of the existing road in this area.

Construction of the Service Road, grading and surfacing, shall be pursued vigorously by the Contractor to completion in a maximum of thirty (30) calendar days from the time construction starts.

BOYD AVENUE The excavation for the construction of the crib type retaining wall on the right side of Interstate 70 between Sta. 1356+50 and Sta. 1360+75 will eliminate a portion of Boyd Avenue during construction. An existing retaining wall in the center of Boyd Avenue between Sta. 1353+75 and Sta. 1358+50 separates traffic in opposite directions on two levels.

During construction of the crib type retaining wall the upper level of Boyd Avenue will be kept open for one way traffic only. A flagman or temporary traffic lights in accordance with Sec. G-7.07 of the specifications shall be provided. Also, a quantity of T-10 and M-10 has been provided in the quantities to be used at the direction of the Engineer.

WEST STREET The existing West Street bridge is being replaced by a new structure in a new location. To keep the disruption of traffic to a minimum the Contractor will complete all of the substructure units except the north abutment prior to closing existing West Street to traffic.

The removal of the old bridge and completion of the new bridge, open to traffic, shall be done in a period of time not to exceed six calendar months starting at the time West Street is closed to traffic.

PLUM STREET The regrading and resurfacing of Plum Street between Berkeley Avenue and Boyd Avenue shall be done in such a manner as to maintain one way traffic at all times. A quantity of T-10 and M-10 has been provided in the quantities to be used at the direction of the Engineer.

During construction of the Interstate 70 bridge over Plum Street, the Contractor shall safeguard the traveling public on Plum Street by providing platforms, nets, or other suitable protection above the traveled lanes. Payment for this protection shall be included in the lump sum price for "Maintaining Traffic".

SEQUENCE OF CONSTRUCTION OPERATIONS (Continued)

If, after testing the subbase material for composition, it is found that removal of contaminated material from the surface is necessary, such material shall be replaced, in the shoulder area, with material meeting the requirements of Item B-112, Porous Base Course, at the expense of the contractor.

GENERAL NOTES

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T-35 1 1/2" ASPHALTIC CONCRETE SURFACE COURSE

B-21 WATERPROOFED AGGREGATE BASE COURSE — T-30, T-31 BITUMINOUS SURFACE TREATMENT

STATION	DISTANCE	WIDTH	CALCULATION	AREA - SQ. YDS.	B-21 CU. YD.	T-31 BITUMINOUS MATERIAL GAL.	T-31 AGGREGATE CU. YD.	T-30 BITUMINOUS PRIME COAT GAL.	T-35 ASPH. CONC. SURFACE CU. YD.
Freeway					(A÷12)	(A x 0.25)	(A x .008)	(A x 0.4)	(A÷24)
1260+00 to 1317+00	5700.0	26'	5700x26 ÷ 9 =	16,466.67	1,372.22	4,116.67	131.73	6,586.67	
1317+00 to 1318+50	150.0	28'	150x28 ÷ 9 =	466.67	38.89	116.67	3.73	186.67	
1318+50 to 1339+48.48	2098.48	30'	2098.48x30 ÷ 9 =	6,994.93	582.91	1,748.73	55.96	2,797.97	
1339+57.48 to 1347+54.42	796.94	30'	796.94x30 ÷ 9 =	2,656.47	221.37	664.12	21.25	1,062.59	
1348+78.94 to 1361+57.61	1278.67	30'	1278.67x30 ÷ 9 =	4,262.23	355.19	1,065.56	34.10	1,704.89	
1361+57.61 to 1363+27.61 (Lt.)	170.00	12.87'	170x12.87 ÷ 9 =	243.10	20.26	60.77	1.94	97.24	
1361+57.61 to 1363+07.84 (Rt.)	150.23	15'	150.23x15 ÷ 9 =	250.38	20.86	62.60	2.00	100.15	
1363+07.84 to 1364+77.84 (Rt.)	170.00	7.87'	170x7.87 ÷ 9 =	148.65	12.39	37.16	1.19	59.46	
1363+07.84 to 1363+27.61 (Rt.)	19.77	5'	19.77x5 ÷ 9 =	10.98	0.92	2.75	0.09	4.39	
1363+27.61 to 1364+31.88 (℄)	104.27	10'	104.27x10 ÷ 9 =	115.85	9.65	28.96	0.93	46.34	
1371+14.70 to 1372+84.70 (Lt.)	170.00	7.87'	170x7.87 ÷ 9 =	148.65	12.39	37.16	1.19	59.46	
1371+33.81 to 1373+63.75 (℄)	229.94	10'	229.94x10 ÷ 9 =	255.49	21.29	63.87	2.04	102.20	
1371+93.75 to 1373+63.75 (Rt.)	170.00	7.87'	170x7.87 ÷ 9 =	148.65	12.39	37.16	1.19	59.46	
1372+84.70 to 1373+63.75 (Lt.)	79.05	10'	79.05x10 ÷ 9 =	87.83	7.32	21.96	0.70	35.13	
1373+63.75 to 1394+21.90	2058.15	30'	2058.15x30 ÷ 9 =	6,860.50	571.71	1,715.12	54.88	2,744.20	
Boyd Ave.	-	-	2881.5 ÷ 9 =	320.17				128.07	13.34
Ser.Rd. -1+00 to 10+03.65	1103.65	20'	1103.65x20 ÷ 9 =	2,452.56				981.02	102.19
10+03.65 to 11+08.93	105.28	18'	105.28x18 ÷ 9 =	210.56				84.22	8.77
11+08.93 to 12+06.66	97.73	16'	97.73x16 ÷ 9 =	173.74				69.50	7.24
Plum Street									
13+25 to 17+03	378.00	20'	378x20 ÷ 9 =	840.00				336.00	35.00
Pavement Widening	268 S.F.		268 ÷ 9 =	29.78				11.91	1.24
			TOTAL =		3,259.76	9,779.26	312.92	17,257.54	167.78

*Revised Quantities of B-19 Aggregate Base Course due to changes in Typical Sections of Service Road and Boyd Avenue - Sheet No.4

B-19 AGGREGATE BASE COURSE

STATION	AREA	AVG. AREA	DISTANCE	CU. YD.	CU.YD.(Revised)
Service Road					
-1+00	22.66				
to		22.66	83.31	~~69.91~~	
-0+16.69	22.66				
-0+16.69	23.24				
to		23.24	273.33	~~235.27~~	
2+56.64	23.24				
2+56.64	22.66				
to		22.66	243.39	~~204.27~~	
5+00.03	22.66				
5+00.03	23.24				
to		23.24	100.00	~~86.07~~	
6+00.03	23.24				
6+00.03	22.66				
to		22.66	80.37	~~67.45~~	
6+80.40	22.66				
6+80.40	23.24				
to		23.24	48.33	~~41.60~~	
7+28.73	23.24				
7+28.73	22.66				
to		22.66	175.75	~~147.50~~	
9+04.48	22.66				
9+04.48	23.24				
to		23.24	99.17	~~85.36~~	
10+03.65	23.24				
10+03.65	22.66				
to		16.66	105.28	~~64.96~~	
11+08.93	10.67				
11+08.93	10.67				
to		10.67	97.73	~~38.62~~	
12+06.66	10.67				
		Service Road Subtotal =		~~1041.01~~	*674.00
Plum St. Sta.13+25 to Sta.17+03		378 L.F.x20'x2/9 ÷ 9 =		186.67	186.67
Widening		134 S.F.x2 x 2/9 ÷ 9 =		6.62	6.62
Boyd Ave.		= 4,089.86 S.F.x2/9÷9 =		~~100.98~~	* 75.00
West St. Sta.12+20.53 to Sta.14+16.25		= 195.72 L.F.x34'÷9 ÷6 =		123.23	123.23
Pavement Widening 134 S.F.+75 S.F.		= 209 S.F.x2 ÷9 ÷6 =		7.74	7.74
Sta.20+05.75 to Sta.20+90.17		= 84.42 L.F.x34' ÷9 ÷6 =		53.15	53.15
Pavement Widening		= 259 S.F.x2 ÷9 ÷6 =		9.59	9.59
			Total =	~~1,528.99~~	*1,136.00

B-112 POROUS BASE COURSE

STATION	AREA	AVG. AREA	DISTANCE	CU. YDS.	STATION	AREA	AVG. AREA	DISTANCE	CU. YDS.
1260+00	14.625				1319+06.32	16.812			
to		14.625	1646.36	891.78	to		16.812	2042.16	1271.58
1276+46.36	14.625				1339+48.48	16.812			
1276+46.36	15.00				1339+57.48	15.875			
to		15.00	475.38	264.10	to		15.875	796.94	468.57
1281+21.74	15.00				1347+54.42	15.875			
1281+21.74	14.625				1348+78.94	15.875			
to		14.625	941.67	510.07	to		15.875	915.46	538.26
1290+63.41	14.625				1357+94.40	15.875			
1290+63.41	15.687				1357+94.40	16.812			
to		15.687	1315.19	764.12	to		16.812	637.48	396.94
1303+78.60	15.687				1364+31.88	16.812			
1303+78.60	14.625				1371+33.81	15.875			
to		14.625	1321.40	715.76	to		15.875	146.50	86.14
1317+00	14.625				1372+80.31	15.875			
1317+00	14.625				1372+80.31	16.812			
to		15.25	150.00	84.72	to		16.812	515.53	321.00
1318+50	15.875				1377+95.84	16.812			
1318+50	15.875				1377+95.84	15.875			
to		15.875	56.32	33.11	to		15.875	1626.06	956.06
1319+06.32	15.875				1394+21.90	15.875			
								Total =	7302.21

*Service Road
1104' x 21' = 23,184 Sq.Ft.
105' x 19' = 1,995
98' x 18' = 1,764
Total 26,943 Sq.Ft.
26,943 Sq.Ft. ÷ 9 = 3,000 SQ.YDS.
3,000 SQ.YDS. x 9½" ÷ 36 = 792 CU.YDS.
Less 1½" T-35 118
Total 674 CU.YDS.

*Boyd Avenue
206' x 15' = 3,090 Sq.Ft.
3,090 Sq.Ft. ÷ 9 = 343 SQ.YDS.
343 x 9½" ÷ 36 = 88 CU.YDS.
Less 1½" T-35 13
Total 75 CU.YDS.

I-22 SUBBASE

Freeway				
Sta.1260+00 to Sta.1317+00	=	5700 L.F.x92' ÷ 9 ÷ 6	=	9,711.11 C.Y.
Sta.1317+00 to Sta.1318+50	=	150 L.F.x88' ÷ 9 ÷ 6	=	244.44
Sta.1318+50 to Sta.1347+54.42 (-9' Equa.)	=	2895.42x84' ÷ 9 ÷ 6	=	4,503.99
Sta.1348+78.94 to Sta.1361+57.61	=	1278.67x84' ÷ 9 ÷ 6	=	1,989.04
Sta.1361+57.61 to Sta.1363+27.61 (Lt.)	=	170'x39.87' ÷ 9 ÷ 6	=	125.52
Sta.1363+27.61 to Sta.1364+05.77 (Lt.)	=	78.16x37.75 ÷ 9 ÷ 6	=	54.64
Sta.1361+57.61 to Sta.1363+07.84 (Rt.)	=	150.23x42' ÷ 9 ÷ 6	=	116.85
Sta.1363+07.84 to Sta.1364+67.97 (Rt.)	=	160.13x39.87 ÷ 9 ÷ 6	=	118.23
Sta.1371+11.40 to Sta.1372+84.70 (Lt.)	=	173.30x39.87 ÷ 9 ÷ 6	=	127.95
Sta.1371+49.14 to Sta.1373+63.75 (Rt.)	=	214.61x39.87 ÷ 9 ÷ 6	=	158.45
Sta.1372+84.70 to Sta.1373+63.75 (Lt.)	=	79.05x42' ÷ 9 ÷ 6	=	61.48
Sta.1373+63.75 to Sta.1394+21.90	=	2058.15x84' ÷ 9 ÷ 6	=	3,201.57
		Total		20,413.27 C.Y.

T-71 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

Freeway	Sta.1260+00 to Sta.1317+00	= 5700 L.F. - (60' Width)	=	5700x60 ÷ 9	= 38,000.0 S.Y.
	Sta.1317+00 to Sta.1318+50	= 150 L.F. - (54' Ave.Wd.)	=	150x54 ÷ 9	= 900.0 S.Y.
	Sta.1318+50 to Sta.1339+48.48	= 2098.48 L.F. - (48' Width)	=	2089.48x48 9	= 11,143.9 S.Y.
	Sta.1339+57.48 to Sta.1347+29.42	= 771.94 L.F. - (48' Width)	=	771.94x48 ÷ 9	= 4,117.0 S.Y.
	Sta.1349+03.94 to Sta.1364+06.88	= 1502.94 L.F. - (48' Width)	=	1502.94x48 ÷ 9	= 8,015.7 S.Y.
	Sta.1371+58.81 to Sta.1394+21.90	= 2263.09 L.F. - (48' Width)	=	2263.09x48 ÷ 9	= 12,069.8 S.Y.
West St.	Sta.12+20.53 to Sta.13+91.25	= 170.72 L.F. - (29' Width)	=	170.72x29 ÷ 9	= 550.1 S.Y.
	Pavement widening = 190 S.F. x 2 ÷ 9				= 42.2 S.Y.
	Sta.20+30.75 to Sta.20+90.17	= 59.42 L.F. - (29' Width)	=	59.42x29 9	= 191.6 S.Y.
	Pavement widening = 240 S.F. x 2 ÷ 9				= 53.3 S.Y.
				Total	= 75,083.6 S.Y.

SCALE _____ HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.C.O. DATE 1-15-62 CONSULTING ENGINEERS
TRCD R.E.T. DATE 2-27-62 KANSAS CITY CLEVELAND NEW YORK
CKD J.D.G. DATE 2-28-62 SHEET.

QUANTITY CALCULATIONS

I-21 STANDARD TYPE 2 TRAFFIC DIVIDER

Sta.1260+00 to Sta.1339+48.48 = 7948.48x6 ÷ 9 = 5298.99
Sta.1339+57.48 to Sta.1347+54.42 = 796.94x6 ÷ 9 = 531.29
Sta.1348+78.94 to Sta.1364+31.88 = 1552.94x6 ÷ 9 = 1035.29
Sta.1371+33.81 to Sta.1394+21.90 = 2288.09x6 ÷ 9 = 1525.39
Total = 8390.96 S.Y.

I-12 INTEGRAL TYPE 2-A CURB, MODIFIED

West St.
Sta.12+47.53 to Sta.13+91.25 = 143.72x2 = 287.44
Curb Returns - 39'x2 78'
Sta.20+30.75 to Sta.20+61.17 = 30.42'x2 = 60.84'
Curb Returns - 39'x2 = 78'
Total 504.28 L.F.

I-12 STANDARD TYPE 2 CURB & GUTTER

Plum St.
Sta.13+25 to Sta.16+76 = 351 L.F.x2 = 702
Curb Returns - 39 L.F.x2 = 78
Total = 780 L.F.

I-13 4" PORTLAND CEMENT CONCRETE SIDEWALK

West St.
Sta.12+47.53 to Sta.14+04.0 = 156.47x4.5x2 = 1408.23
Curb Returns - 39x4.5x2 = 351.00
Sta.20+24.50 to Sta.20+61.17 = 36.67x4.5x2 = 330.03
Curb Returns - 39x4.5x2 = 351.00

Plum St.
Sta.13+25 to Sta.16+76 = 351 L.F.x4' = 1404.00
Curb Return - 39'x4' = 156.00
Total = 4000.26 S.Y.

L-9 COMMERCIAL FERTILIZER

274,562 Sq.Yds. Seeding + 12,123 Sq.Yds. Sodding
286,685 Sq.Yds. x 9 x 20 ÷ 1000 ÷ 2000 = 25.80 Tons

L-9 LIME

286,685 Sq.Yds. x 9 x 100 ÷ 1000 ÷ 2000 = 129.00 Tons

E-1 COMPACTED SUBGRADE

Area of I-22 Subbase = 21,942.77 x 6 = 131,656.62 S.Y.
Less Estimated Rock Subbase
Sta.1260+00 to Sta.1270+00 = 1000 L.F.x92 ÷ 9 = -10,222.22
Sta.1271+00 to Sta.1276+00 = 500 L.F.x92 ÷ 9 = -5,111.11
Sta.1287+00 to Sta.1293+00 = 600 L.F.x88'(Ave.)÷9x2/3= -3,911.11
Sta.1293+00 to Sta.1304+00 = 1100 L.F.x92 ÷ 9 = -11,244.44
Total = 101,167.74 S.Y.

E-8 SIDEWALK REMOVAL

U.S. 40 at Rel. West St.
East Side 18.5'x7.5' = 138.75
West Side 22.0x6.0' = 132.00
Howard St. at Rel. West St.
North Side 81'x4' = 324.00
Total = 594.75 S.F.

E-8 CURB REMOVAL

U.S. 40 at Rel. West St.
East Side = 16'
West Side = 27'
Howard St. at Rel. West St.
North Side = 81'
Total = 124 Lin.Ft.

E-8 PAVEMENT REMOVAL

U. S. 40 at Rel. West St.
78'x2.5' ÷ 9 = 21.67 S.Y.
Howard St. at Rel. West St.
82'x4.5' ÷ 9 = 41.00 S.Y.
Total = 62.67 S.Y.

SS-18 FENCE TYPE "C"

Sta.1331+73 to Sta.1335+00 Rt. = 344 Lin.Ft.
Sta.1335+00 to Sta.1347+50 Rt. = 1,315
Sta.1348+70 to Sta.1350+00 Rt. = 171
Sta.1350+00 to Sta.1365+00 Rt. = 1,538
Sta.1386+90 to Sta.1395+75 Lt. = 910
Total 4,278 Lin.Ft.

SS-18 FENCE TYPE "D"

Sta.1293+00 to Sta.1316+00 Lt. = 2,390 Lin.Ft.
Sta.1370+35 to Sta.1370+90 Lt. = 149
Sta.1370+35 to Sta.1381+00 Lt. = 1,088
Sta.1381+00 to Sta.1386+50 Lt. = 557
Total 4,184 Lin.Ft.

E-11 WATER

Embankment 2,187,601 C.Y. + Subbase 20,413 C.Y. = 2,208,014 C.Y. x 5 ÷ 1000 = 11,040M Gals.

I-9 UNDERDRAIN NO. 2

Service Road 55 Drains
Boyd Avenue 4 "
Total 59 Drains x 8 Lin. Ft = 472 Lin. Ft.
(To General Summary Sheet No. 10)

EARTHWORK, SEEDING

STATION FROM	STATION TO	ROADWAY EXC. CU. YDS.	EMBANKMENT CU. YDS.	L-9 SEEDING SQ. YDS.	UNSUITABLE MATERIAL CU. YDS.
1260+00	1265+00	——	——	2,830	
* 1265+00	1274+00	222,399	448	8,306	
1274+00	1286+00	29,654	556,842	26,944	
1286+00	1298+00	609,378	33,456	15,223	
1298+00	1310+00	490,805	175,141	21,075	
1310+00	1322+00	3,678	580,002	38,499	
1322+00	1334+00	7,093	257,842	31,450	7,969
1334+00	1346+00	10,325	97,302	26,874	2,263
1346+00	1358+00	11,357	122,208	26,325	
1358+00	1370+00	15,891	18,290	11,020	3,267
1370+00	1382+00	2,026	166,481	25,316	
1382+00	1395+20	756	146,822	30,991	
Service Road		345	17,614	5,525	
West Street		22	15,147	3,532	
Plum Street		1,056	6	652	
From Sheet 6		150,000	2,000		
Total		1,554,785	2,183,601	274,562	13,499

Emb. +14% = 2,496,145 c.y.
Excav. = 1,554,785 c.y.
Borrow = 941,360 c.y.
Use 940,000 cubic yards

*Note: Start earthwork on this project at Station 1265+00

SCALE _____ HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE LCG DATE 1-15-62 CONSULTING ENGINEERS
TRCD NET DATE 2-21-62 KANSAS CITY CLEVELAND NEW YORK
CKD JDG DATE 2-28-62 SHEET.

QUANTITY CALCULATIONS
Rev. 7-6-62

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

BELMONT COUNTY

BEL-40-23.89

GENERAL SUMMARY ESTIMATED QUANTITIES

TYPE CODE 7221

SHEET NUMBER 2	6	7	8	11	12	13	15	16	18	19	20	21	22	23	24	26	41	198	ITEM NO.	UNIT	TOTAL QUAN.	DESCRIPTION
																						ROADWAY
			940,000																E-4	Cu.Yds.	940,000	Borrow
			1,568,284.*																E-1	Cu.Yds.	1,568,284	Roadway Excavation, Method B, as per plan.
			101,168																E-1	Sq.Yds.	101,168	Compacted Subgrade
			595																E-8	Sq.Ft.	595	Removal and Disposal of Existing Sidewalk
			124																E-8	Lin.Ft.	124	Removal and Disposal of Existing Curb
	Lump																		E-9	Lump	Lump	Removal of Trees and Stumps
			11,040																E-11	M.Gals.	11,040	Water
12																			I-8	Each	12	Monument Assemblies, Standard
			4000																I-13	Sq.Ft.	4000	4" Portland Cement Concrete Sidewalk
						1825	650	869.5	2400	2400	1602.5	1817.5	223	2089	2411	462.5			I-15	Lin.Ft.	16,750	Guardrail, Steel Beam Std. Type (Deep), as per plan
				200	1200	1200	1200	1200	1200	1200	1200	1075.48	631.88	1066.19	1200				I-15	Lin.Ft.	12,573.55	Guardrail, Steel Beam Barrier Type (Deep), as per plan
126																			I-127	Each	126	Std. Delineators, Type A-1, Post Mounted
8																			I-127	Each	8	Std. Delineators, Type A-1, Bracket Mounted
			274,562																L-9	Sq.Yds.	274,562	Seeding and Protecting, as per plan
			25.80																L-9	Tons	25.80	Commercial Fertilizer (12-12-12)
			129.00																L-9	Tons	129.00	Agricultural Liming Material
																			E-11	M.Gals.	100	Water for Dust Control
			4,278																SS-18	Lin.Ft.	4278	Fence, Type "C"
			4,184																SS-18	Lin.Ft.	4184	Fence, Type "D"
	200																		Spec.	Hours	200	Fill Compaction using Heavy Pneumatic Tired Roller
	50																		SS CE-101.04	Hours	50	Compaction using Heavy Pneumatic Tired Roller
			63																E-8	Sq.Yds.	63	Removal and Disposal of Existing Pavement
																	Lump		E-2	Lump	Lump	Cofferdams, Cribs and Sheeting
																	4413		I-17	Sq.Ft.	4413	Galvanized Metal or Reinforced Concrete Cellular Retaining Wall
	30																		M-10	Tons	30	Calcium Chloride Furnished and Applied, for Maintaining Traffic
	500																		T-10	Cu.Yds.	500	Traffic Compacted Surface Course, for Maintaining Traffic
																	Lump Sum		S-25	Lump Sum	Lump Sum	Highway Lighting Service and Control Panel
																	2		S-25	Each	2	Ground Mount Lighting Unit
																	200		S-25	Lin. Ft.	200	Multiple Underground Cable
																	60		S-25	Lin. Ft.	60	Multiple Duct Cable
																						PAVEMENT
		3,260																	B-21	Cu.Yds.	3260	Waterproofed Aggregate Base Course
		7,302																	B-112	Cu.Yds.	7302	Porous Base Course
			504																I-12	Lin.Ft.	504	Standard Type 2-A Curb, Modified
			780																I-12	Lin.Ft.	780	Standard Type 2 Combination Curb and Gutter
			8391																I-21	Sq.Yds.	8391	Standard Type 2 P.C. Concrete Median Pavement
		20,413																	I-22	Cu.Yds.	20,413	Subbase (Grading A or B) Modified as per plan
		17,258																	T-30	Gals.	17,258	Bituminous Prime Coat, Sec. M-5.7 R.T.-2 or R.T.-3
		313																	T-31	Cu.Yds.	313	Bituminous Surface Treatment No. 6 Aggregate
		9,779																	T-31	Gals.	9779	Bituminous, Surface Treatment, Bit. Mat., as per plan
		168																	T-35	Cu.Yds.	168	Asphaltic Concrete Surface Course (Type A) (85-100)
		75,132																	T-71	Sq.Yds.	75,132	9" Reinforced Portland Cement Concrete Pavement
												266.7	151.1	152.2		157.7			I-7	Sq.Yds.	727.7	Reinforced Concrete Approach Slabs (T = 13")
		1,529																	B-19	Cu.Yds.	1529	Aggregate Base Course
																						STRUCTURES OVER 20 FEET
																				See Sheet 162 for Estimated Quantities for Bridge No. BEL-40-25 70		
																				See Sheet 160 for Estimated Quantities for Bridge No. BEL-40-26 00		
																				See Sheet 160 for Estimated Quantities for Bridge No. BEL-40-26 35		
	Lump																			Lump	Lump	Construction Layout Stakes

*Note This quantity includes 13,499 Cu.Yds. of unsuitable material excavation.

SCALE _____ HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE LCO DATE 1-15-62 CONSULTING ENGINEERS
TRCD RET DATE 2-27-62 KANSAS CITY CLEVELAND NEW YORK
CKD JDG DATE 2-28-62 SHEET.

GENERAL SUMMARY OF QUANTITIES

Rev 7-6-62

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

9A
197

BELMONT COUNTY
BEL-40-23.89

GENERAL SUMMARY ESTIMATED QUANTITIES

TYPE CODE 7221

ITEM NO.	UNIT	TOTAL QUAN.	DESCRIPTION
			BUILDING REMOVALS
E-10	Lump	Lump	One Frame Garage, One 2 Story Frame Residence
			2 Frame Sheds, Parcels No. 122 and 122-LA.
E-10	Lump	Lump	One 1 Story Frame Residence, Parcels No. 125 and
			125-LA.
E-10	Lump	Lump	One Frame Garage, Parcel No. 139 A-LA
E-10	Lump	Lump	One Tile Block Garage, Parcel No. 140 A-LA
E-10	Lump	Lump	One 1 Story Frame Residence, Two Frame Sheds,
			Parcel No. 123 A-LA.
E-10	Lump	Lump	One 1 Story Frame Residence, One Frame Shed,
			Parcel No. 123 B-LA.
E-10	Lump	Lump	One 2 Story Frame Residence, Parcel No. 142-LA.
E-10	Lump	Lump	One 1 Story Brick Residence-Business, Parcel No.
			145-LA.
E-10	Lump	Lump	One 1 Story Frame Residence, One Frame Garage, One
			Frame Shed, Parcel No. 146-LA.

ITEM NO.	UNIT	TOTAL QUAN.	DESCRIPTION
			BUILDING REMOVALS
E-10	Lump	Lump	One Frame Garage, Parcel No. 121-LA
E-10	Lump	Lump	One Concrete Block Garage, Parcel No. 190-LA
E-10	Lump	Lump	One 1 Story Frame Residence, Parcel No. 165-LA.
E-10	Lump	Lump	One 1 Story Frame Residence, Parcel No. 170-LA
E-10	Lump	Lump	One 3 Story Brick and Frame Residence, Parcel No. 183
E-10	Lump	Lump	One Frame Garage, Parcels No. 184 and 184-WA.
E-10	Lump	Lump	One 1½ Story Frame Residence, One Frame Shed, Parcel
			No. 188.

SCALE _____ HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE JCS DATE 2-26-62 CONSULTING ENGINEERS
TRCD RET DATE 2-27-62 KANSAS CITY CLEVELAND NEW YORK
CKD JDG DATE 2-28-62 SHEET.

GENERAL SUMMARY OF QUANTITIES

REV. 4-25-62

GENERAL SUMMARY ESTIMATED QUANTITIES

TYPE CODE 7221

BELMONT COUNTY
BEL-40-23.89

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

SHEET NUMBER 6	11	12	13	15	16	18	19	20	21	22	23	24	26	29	30	31	32	33	34	35	36	37	40	41	ITEM NO.	UNIT	TOTAL QUAN.	DESCRIPTION
																												DRAINAGE
																							28,092		I-1	Lin.Ft.	28,092	6" Pipe, Class I-3
100																									I-1	Lin.Ft.	100	6" Pipe, Class A-1 Sec. M-6.6(b) or M-6.8(b)
250																							9,193	430	I-1	Lin.Ft.	9,873	6" Pipe, Class I-3 Sec. M-6.4(h)
100																							540	30	I-1	Lin.Ft.	670	6" Pipe, Class F-1
100																							216		I-1	Lin.Ft.	316	8" Pipe, Class A-1 Sec. M-6.6(b) or M-6.8(b)
100																							260		I-1	Lin.Ft.	360	8" Pipe, Class F-1 Sec. M-6.4(c)
100																									I-1	Lin.Ft.	100	10" Pipe, Class A-1 Sec. M-6.6(b) or M-6.8(b)
100																									I-1	Lin.Ft.	100	10" Pipe, Class F-1
													52				188	140	166	92	340	100			I-1	Lin.Ft.	1,078	12" Pipe, Class A-1 Sec. M-6.6(a) or M-6.8(b)
		447	245	444	446	96	146	95	61	24	66	72						18	18	214	18	36			I-1	Lin.Ft.	2,446	12" Pipe, Class E-1
																	316	330	166	178	318	54			I-1	Lin.Ft.	1,362	12" Pipe, Class F-1
																	54	46	50		46				I-1	Lin.Ft.	196	15" Pipe, Class A-1 Sec. M-6.6(a) or M-6.8(b)
																						186			I-1	Lin.Ft.	186	15" Pipe, Class E-1
																	26	60			86				I-1	Lin.Ft.	172	15" Pipe, Class F-1
																	164		52						I-1	Lin.Ft.	216	18" Pipe, Class A-1 Sec. M-6.6(a) or M-6.8(b)
					328																				I-1	Lin.Ft.	328	18" Pipe, Class E-1
																	68								I-1	Lin.Ft.	68	18" Pipe, Class F-1
																						164			I-1	Lin.Ft.	164	18" Pipe, Class A-1 Sec. M-6.6(d)
																			160						I-1	Lin.Ft.	160	21" Pipe, Class A-1 Sec. M-6.6(d)
																				248					I-1	Lin.Ft.	248	21" Pipe, Class E-1
																				108					I-1	Lin.Ft.	108	24" Pipe, Class A-1 Sec. M-6.6(a) or M-6.8(b)
																186									I-1	Lin.Ft.	186	24" Pipe, Class A-1 Sec. M-6.6(d)
																			60						I-1	Lin.Ft.	60	24" Pipe, Class E-1
																			48						I-1	Lin.Ft.	48	24" Pipe, Class F-1 Sec. M-6.4(c)
																				152					I-1	Lin.Ft.	152	24" Pipe Class A-1 Sec. M-6.6(b) or M-6.8(b)
																			116						I-1	Lin.Ft.	116	30" Pipe, Class A-1 Sec. M-6.6(a) or M-6.8(b)
																				168					I-1	Lin.Ft.	168	30" Pipe, Class A-1 Sec. M-6.6(d)
																			42	64					I-1	Lin.Ft.	106	30" Pipe, Class F-1
																						170			I-1	Lin.Ft.	170	36" Pipe, Class A-1 Sec. M-6.6(d)
															212										I-1	Lin.Ft.	212	84" Pipe, Class A-1 Sec. M-106.6(d) As Per Plan
														566											I-1	Lin.Ft.	566	60" Pipe, Class A-1 Sec. M-6.4(g)(c) 1/-1 Gage As Per Plan
																206									I-1	Lin.Ft.	206	72"x44" Pipe, Class G-1 Sec. M-6.4(i)(d)
					0.9									40.1	138.0	10.4	6.9	1.0	3.9	3.1	2.2	9.8			I-2	Cu.Yds.	216.3	Masonry
															128										I-1	Lin.Ft.	128	84" Pipe, Class A-1 Sec. M-106.6(d) Under Railroad, As Per Plan
																							25		I-5	Each	25	6" Pipe Specials Class I-3
																							40	1	I-5	Each	41	6" Pipe Specials Class F-1
																	8	6	4	4	12	2			I-5	Each	36	12" Pipe Specials Class F-1
																	2	2			2				I-5	Each	6	15" Pipe Specials Class F-1
																	2								I-5	Each	2	18" Pipe Specials Class F-1
																							5		I-5	Each	5	8" Pipe Specials Class A-1 Sec. M-6.6(b) or M-6.8(b)
																			2	2					I-5	Each	4	30" Pipe Specials Class F-1
				1	1		1		4	1	1	2													I-8	Each	11	Standard No. 2-8-A Paved Shoulder Inlet
		2	4	4	2	4	1			1	3	2					1	1	1	1	1				I-8	Each	28	Standard No. 2-10-A Paved Shoulder Inlet
							1	1					1					1	1		2	1			I-8	Each	8	Standard No. 3 Catch Basin
							2	1	1				1					2	2	1	4	2			I-8	Each	16	Standard No. 3-A Catch Basin
																			3			1			I-8	Each	4	Standard No. 4 Catch Basin
																			1						I-8	Each	1	Standard No. 2-2-B Catch Basin
					1												1		2	2					I-8	Each	6	Standard No. 5 Catch Basin
																				1					I-8	Each	1	Standard No. 6 Catch Basin
																				3					I-8	Each	3	Standard No. 1 Manhole
																						2			I-8	Each	2	Standard No. 2 Manhole w/o Drop Pipe
																									I-9	Lin.Ft.	472	Stone Underdrain No. 2
15																									I-9	Lin.Ft.	15	Stone Underdrain, No. 1, As Per Plan
														41	90	105									I-10	Sq.Yds.	236	Riprap
			733		354	70		16		70	92	25				9.3	68.5	29.6	59.5	68.8	72.3	18.5			I-10	Cu.Yds.	1,686.5	Dumped Rock Channel Protection
															39										I-10	Sq.Yds.	39	Riprap, Using 6" Reinforced Concrete Slab
		255	690																						I-14	Lin.Ft.	945	Standard Type 1 Paved Gutter, Modified, As Per Plan
									520																E-12	Lin.Ft.	520	Removal of Pipe, Over 15"
															415	400									E-3	Cu.Yds.	815	Channel Excavation
								Lump	Lump																S-24	Lump	Lump	Removal of Existing Structures
	97	217	244		188	3067	3514	1022	651		2302	692		21	65	29	13.8								L-10	Sq.Yds.	12,123	Sodding, As Per Plan
					16			448	450				544												E-12	Lin.Ft.	1,458	Removal of Pipe, 15" and Under
								3	6				2												I-16	Each	11	Catch Basins ..... Abandoned

FED. RD. DIVISION	STATE	PROJECT	
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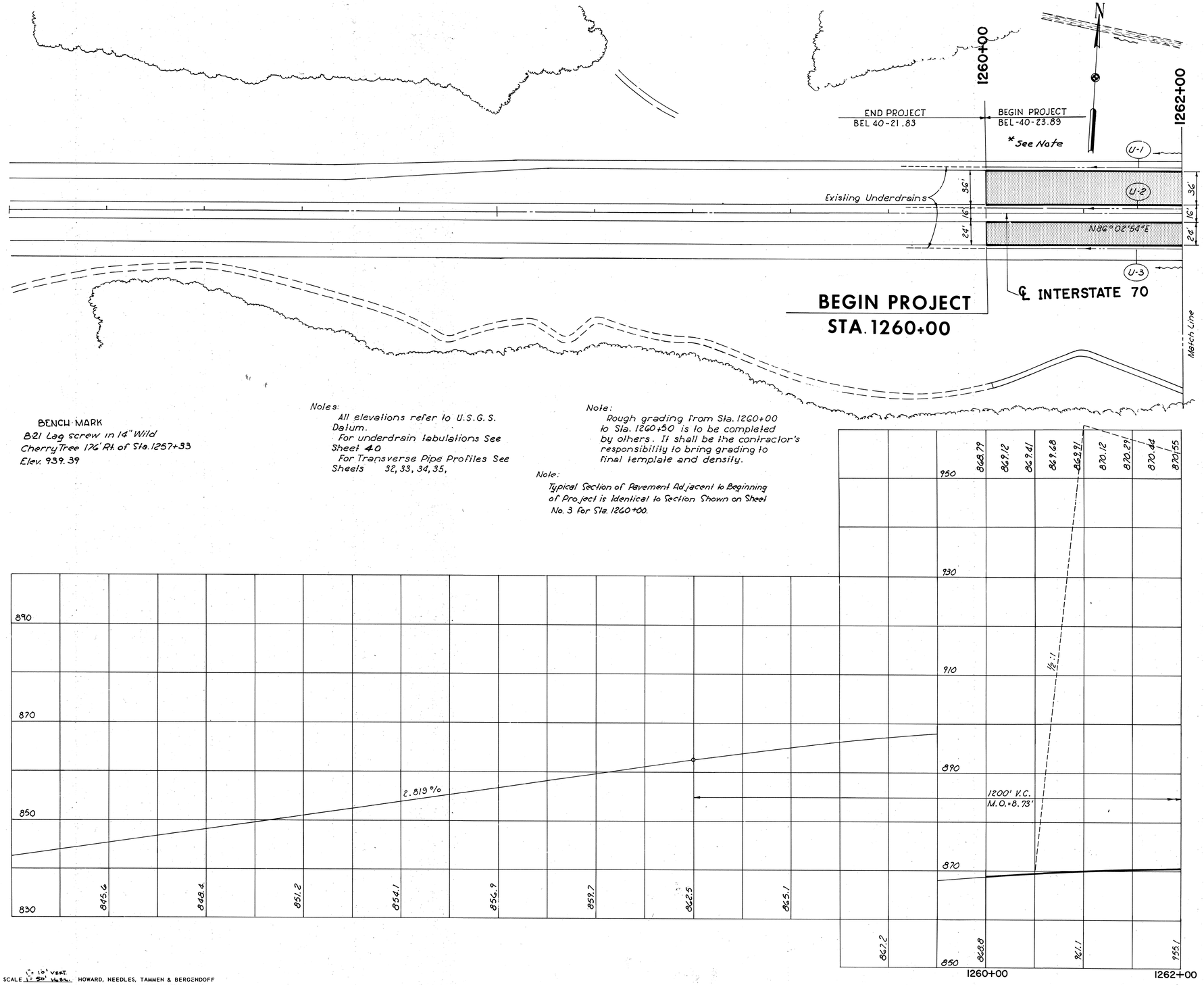
BELMONT COUNTY

BEL-40-23.89

NOTE:
* Earthwork not in Contract from Sta. 1260+00 to Sta. 1265+00



BENCH MARK
B21 Lag screw in 14" Wild Cherry Tree 176' Rt. of Sta. 1257+33
Elev. 939.39

Notes:
All elevations refer to U.S.G.S. Datum.
For underdrain tabulations See Sheet 40
For Transverse Pipe Profiles See Sheets 32, 33, 34, 35,

Note:
Rough grading from Sta. 1260+00 to Sta. 1260+50 is to be completed by others. It shall be the contractor's responsibility to bring grading to final template and density.

Note:
Typical Section of Pavement Adjacent to Beginning of Project is Identical to Section Shown on Sheet No. 3 for Sta. 1260+00.

ABBREVIATIONS USED IN DRAINAGE PLANS AND PROFILES

- A Proposed Storm Structure
- C Proposed Culvert
- ECP Erosion Control Pad
- P Proposed Storm Pipe
- NG Normal Gutter Elevation
- U Proposed Underdrain

LEGEND

- UNDERDRAIN (U-1)
- CULVERTS OR STORM DRAIN (P-38)
- INLET OR CATCH BASIN (A-1)
- ROADWAY & INTERCEPTOR DITCH
  - PAVED
  - SEEDED
  - SODDED
  - DUMPED ROCK CHANNEL PROTECTION
- EXISTING STRUCTURE TO BE ABANDONED OR REMOVED

ESTIMATED QUANTITIES

Code	Location	Item No.	L-10 Sodding Sq. Yds.	Ditch Protection Remarks	Guardrail Steel Beam Barrier Type (Deep) Lin. Ft.
	1260+60 to 1262+00 Lt.	L-10	97	D = 0.5'	
	1260+00 to 1262+00 ℄				200
	TOTAL		97		200

SCALE 1" = 10' VERT. 1" = 50' HORZ.
MADE JDW DATE 10-31-61
TRCD JDS DATE 11-7-61
CKD PSG DATE 11-13-61

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PLAN PROFILE

STA. 1260+00 TO STA. 1262+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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BELMONT COUNTY
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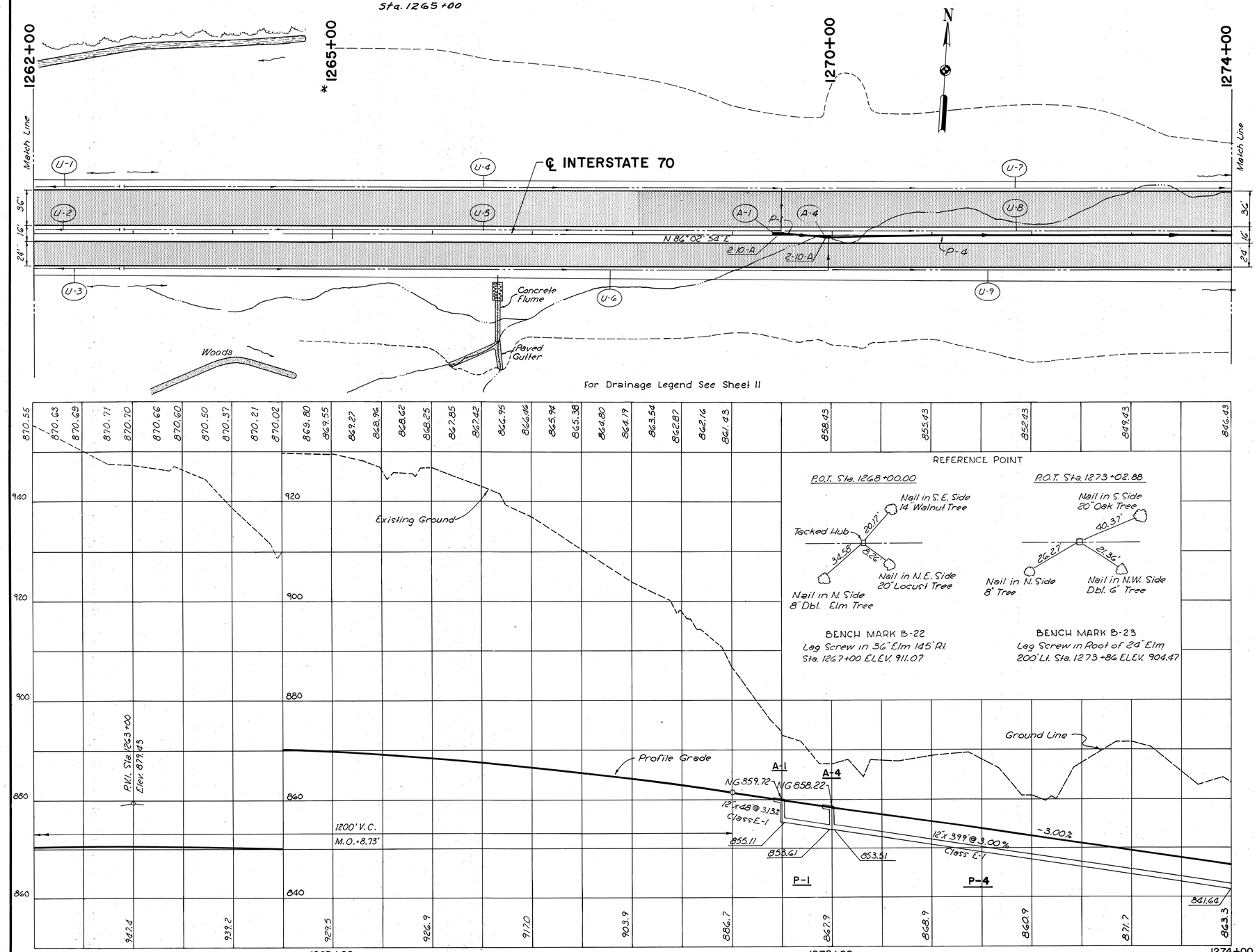
NOTE:
* Start Earthwork this Contract at Sta. 1265+00



SHEET REFERENCE		
Code	Sheet	
U-	40	
CONC. FLUME	32	

ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS AND C.B.'S: 2-10-A Pvd. Shlder. Inlet	PIPES: 12" Class E-1	DITCH PROTECTION: L-10 Sodding	DITCH PROTECTION: Type 1 Mod. Pvd. Gutter	DITCH PROTECTION: Remarks	GUARDRAIL: Steel Beam Barrier Type (Deep)
			Each	Lin. Ft.	Sq. Yds.	Lin. Ft.		Lin. Ft.
A-1	1269+50	I-8	1					
P-1	3' Lt.	I-1						
A-4	1270+00	I-8	1	48				
P-4	3' Rt.	I-1						
	1262+00 To 1265+00 Lt.	L-10		399	140		D = 0.5'	
	1263+00 To 1264+75 Rt.	I-14			* 53	175	D = 0.5'	
	1266+17 To 1266+68 Rt.	I-14			* 24	80	D = 0.5'	
	1262+00 To 1274+00 ℄	I-15						1200
	Total		2	447	217	255		1200

*To be placed with Mod. Paved Gutter

SCALE H: 1"=50'; V: 1"=10'
MADE ICO DATE 11-16-61
TRCD JDS DATE 10-23-61
CKD. P.E.B. DATE 11-6-61

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PLAN PROFILE

STA. 1262+00 TO STA. 1274+00

FED. RD. DIVISION	STATE	PROJECT	
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BELMONT COUNTY

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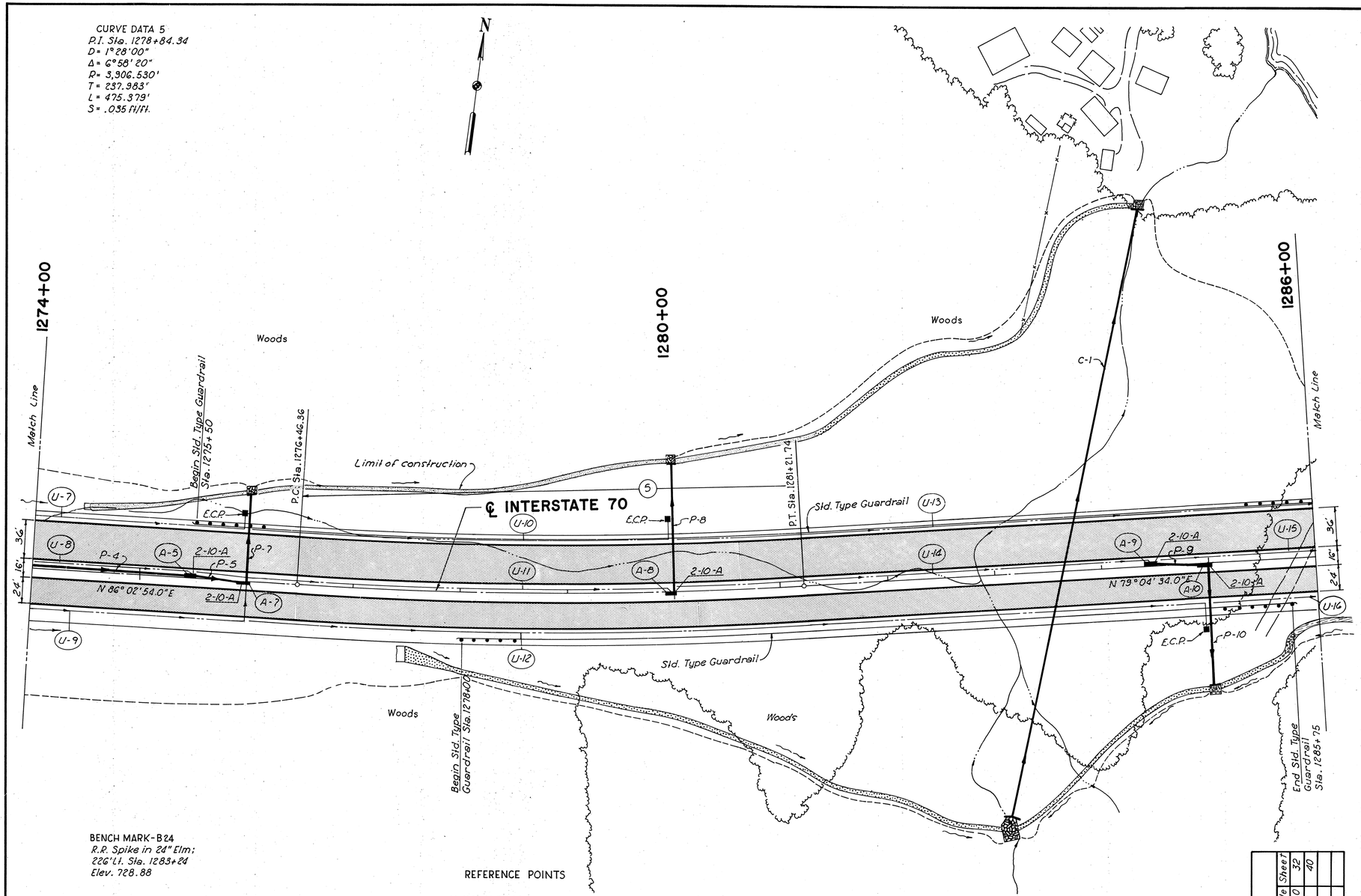
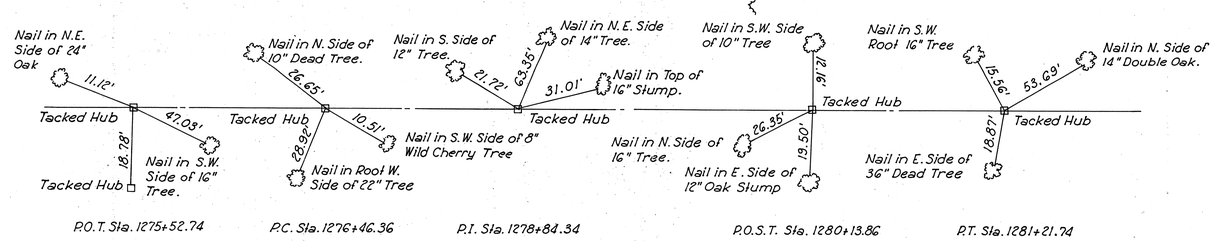
CURVE DATA 5
P.I. Sta. 1278+84.34
D= 1°28'00"
Δ= 6°58'20"
R= 3,906.530'
T= 237.983'
L= 475.379'
S= .035 ft/ft.



BENCH MARK-B24
R.R. Spike in 24" Elm;
226' Lt. Sta. 1283+24
Elev. 728.88

REFERENCE POINTS



P.O.T. Sta. 1275+52.74 P.C. Sta. 1276+46.36 P.I. Sta. 1278+84.34 P.O.S.T. Sta. 1280+13.86 P.T. Sta. 1281+21.74

For Drainage Legend See Sheet 11

SHEET REFERENCE							
Code	Sheet	Code	Sheet	Code	Sheet	Code	Sheet
P-7	32	A-8	32	P-10	32		
C-1	29	P-8	32	U-	40		

ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS: 2-10-A Pvd. Shldr. Inlet	PIPES: 12" Class E-1	DITCH PROTECTION: L-10 Sodding	DITCH PROTECTION: Type 1 Pvd. Gutter	DITCH PROTECTION: Dumped Rock Channel Protect.	DITCH PROTECTION: Remarks	GUARDRAIL: Steel Beam Grd. Type (Deep)	GUARDRAIL: Steel Beam Barrier Type (Deep)
			Each	Lin.Ft.	Sq.Yds.	Lin.Ft.	Cu.Yds.		Lin.Ft.	Lin.Ft.
		I-1		149						
P-4		I-8	1							
A-5	1275+50	3'Lt.								
P-5		I-1		48						
A-7	1276+00	3'Rt.								
A-9	1284+50	3'Lt.	1							
P-9		I-8	1							
A-10	1285+00	3'Rt.		48						
		I-8	1							
	1277+50 to 1283+00 Rt.	I-10								
	1283+00 to 1285+75 Rt.	I-10								
	1285+75 to 1286+00 Rt.	I-10			14					
	1274+50 to 1276+00 Lt.	I-14			*50	150		D=.5'		
	1276+00 to 1281+40 Lt.	I-14			*180	540		D=1.0'		
	1281+40 to 1284+50 Lt.	I-10					188	D=1.0'		
	1274+00 to 1286+00	I-15							1200	
	1275+50 to 1286+00 Lt.	I-15								
	1278+00 to 1285+75 Rt.	I-15								
	Total		4	245	244	690	733		1200	1825
									1050	
									775	

*To be placed with Mod. Paved Gutter

SCALE 1" = 10' VERT. 1" = 50' HORIZ.
MADE W.J.O. DATE 11-15-61
TRCD. J.W.S. DATE 12-13-61
CKD. R.E.S. DATE 12-6-61

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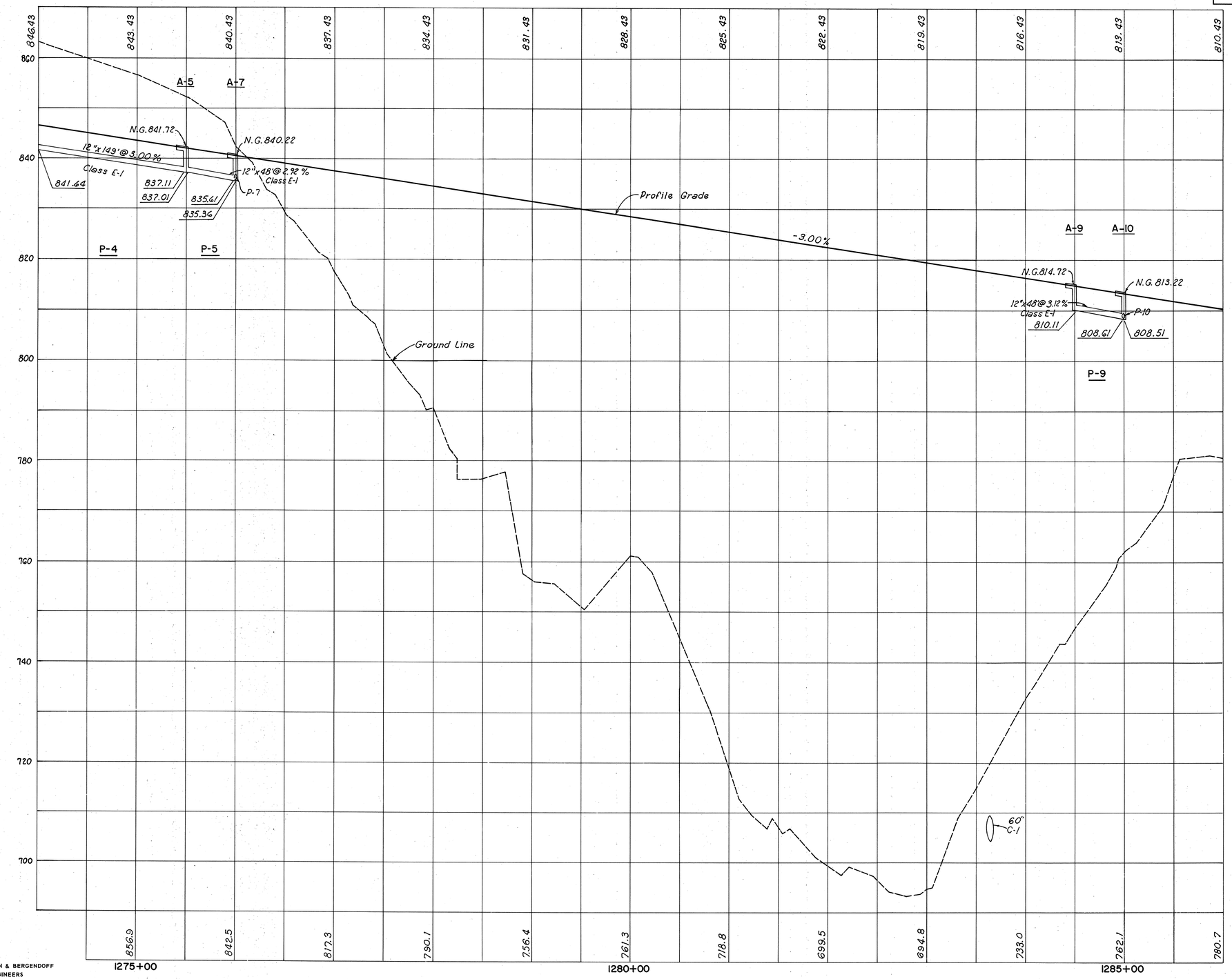
PLAN

STA. 1274+00 TO STA. 1286+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

BELMONT COUNTY

BEL-40-23.89



SCALE 1" = 10' VERT. 1" = 50' HORZ.

MADE JCO DATE 10-17-6

TRCD JDS DATE 10-23-5

CKD VEK DATE 11-3-6

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PROFILE

STA. 1274+00 TO STA. 1286+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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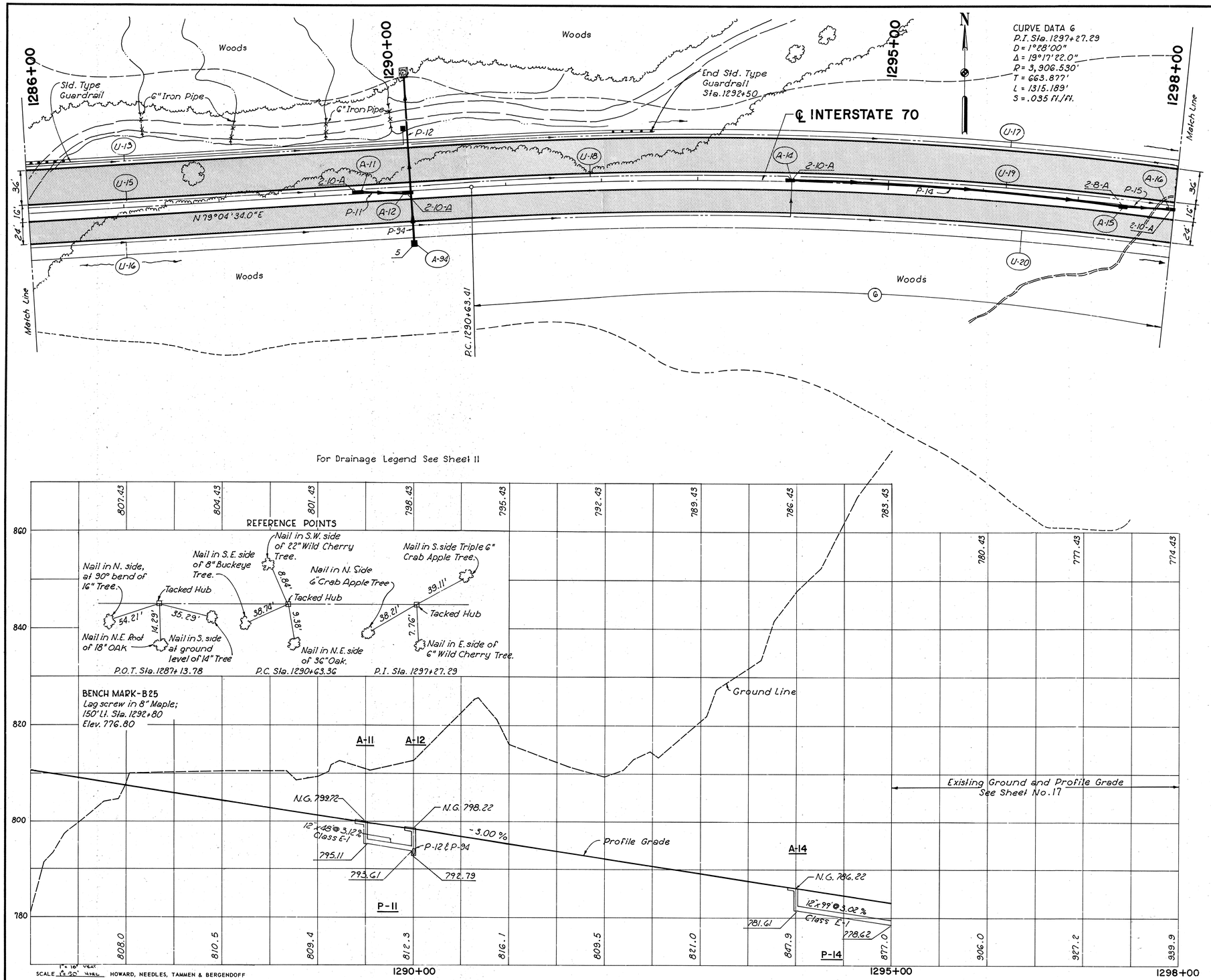
BELMONT COUNTY

BEL-40-23.89



SCALE 1" = 50' HORZ. 1" = 10' VERT.
MADE JCO DATE 10-16-61
TRCD. TEP DATE 10-23-61
CKD. PEG DATE 10-6-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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SHEET

SHEET REFERENCE			
Code	Sheet	Code	Sheet
A-94	32	U-	40
P-94	32		
P-12	32		

ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS: 2-8-A Pvd. Shldr. Inlets	INLETS: 2-10-A Pvd. Shldr. Inlets	PIPES: 12" Class E-1	DITCH PROTECTION: L-10 Sodding	DITCH PROTECTION: Dumped Rock Channel Protect.	DITCH PROTECTION: Remarks	GUARDRAIL: Steel Beam Guardrail Type (Deep)	GUARDRAIL: Steel Beam Guardrail Type (Deep)	GUARDRAIL: Steel Beam Guardrail Type (Deep)
			Each	Each	Lin. Ft.	Sq. Yd.			Lin. Ft.	Lin. Ft.	Lin. Ft.
A-11	1289+50	3' Lt.	I-8	1							
P-11			I-1								
A-12	1290+00	3' Rt.	I-8	1	48						
A-14	1294+00	3' Lt.	I-8	1							
P-14			I-1								
A-15	1297+50	3' Rt.	I-8	1	348						
P-15			I-1								
A-16	1298+00	3' Lt.	I-8	1	48						
	1286+00 to 1298+00 ℄		I-15								
	1286+00 to 1292+50 Lt.		I-15								
	Total		1	4	444				1200	650	1200

PLAN PROFILE

STA. 1286+00 TO STA. 1298+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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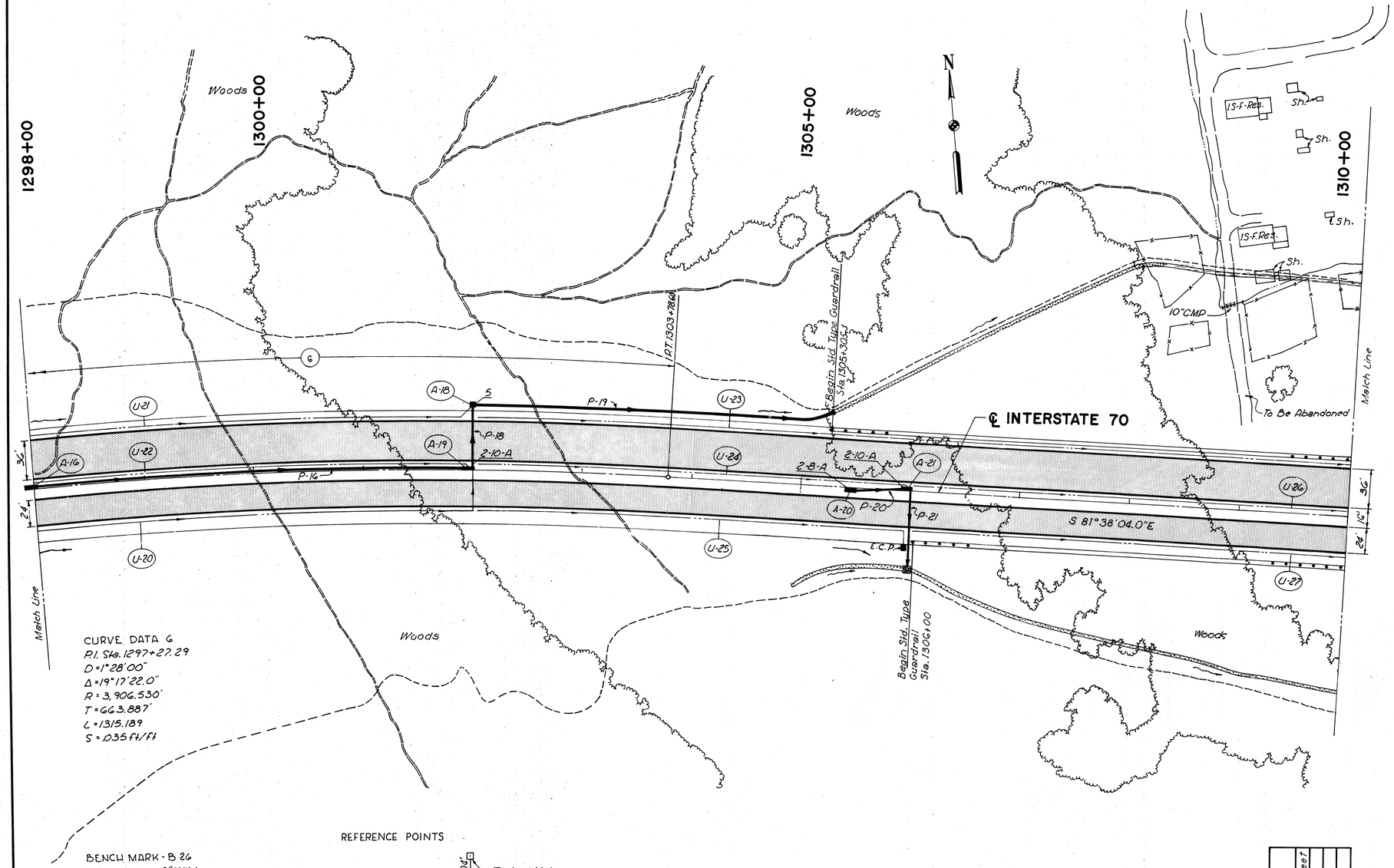
BELMONT COUNTY

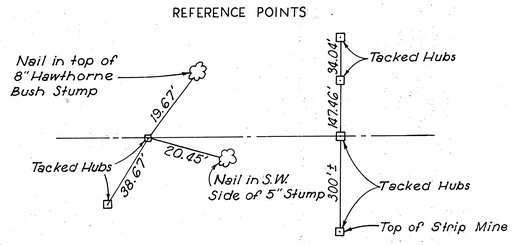
BEL-40-23.89



CURVE DATA 6
P.I. Sta. 1297+27.29
D = 1°28'00"
Δ = 19°17'22.0"
R = 3,906.530'
T = 663.887'
L = 1315.189
S = .035 ft/ft

BENCH MARK - B 26
Lag screw in 3" Wild Crab Apple, 270' Lt.
Sta. 1302+00
Elev. 819.61

REFERENCE POINTS



P.O.S.T. Sta. 1297+77.93

P.T. 1303+78.60

SHEET REFERENCE					
Code	Sheet	Code	Sheet	Code	Sheet
P-18	32	U-	40		
P-21	32				

ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS AND C.B.'S: 2-8-A Pvd. Shldr. Inlet	INLETS AND C.B.'S: 2-10-A Pvd. Shldr. Inlet	INLETS AND C.B.'S: 5 Catch Basin	PIPES: 18" Class E-1	PIPES: 12" Class E-1	DITCH PROTECTION: L-10 Sodding	DITCH PROTECTION: Dumped Rock Channel Protect.	DITCH PROTECTION: Remarks	MISCELLANEOUS: I-2 Masonry	GUARDRAIL: Steel Beam Std. Type (Deep)	GUARDRAIL: Steel Beam Barrier Type (Deep)	STR. REMOVAL: Pipe
		Each	Each	Each	Each	Lin. Ft.	Lin. Ft.	Sq. Yds.	Cu. Yds.		Cu. Yds.	Cu. Yds.	Lin. Ft.	Lin. Ft.
P-16		I-1												
A-19	1302+00 3'Lt.	I-8		1							0.90			
P-19		I-1				328								
A-20	1305+50 3'Rt.	I-8	1											
P-20		I-1					48							
A-21	1306+00 3'Lt.	I-8		1										
A-18	1302+00 59'Lt.	I-8			1									
	1304+95 to 1310+00 Rt.	I-10							244					
	1305+25 to 1308+00 Lt.	I-10							110					
	1308+00 to 1310+00 Lt.	L-10						188						
	1298+00 to 1310+00 ℄	I-15										1200		
	1305+30.5 to 1310+00 Lt.	I-15											469.5	
	1306+00 to 1310+00 Rt.	I-15											400	
	1308+75 183' Lt.	E-12												16
	Total		1	2	1	328	446	188	354		0.90	1200	869.5	16

SCALE 1" = 50' V, 1" = 10' HORIZ.
MADE WWV DATE 10-20-61
TRCD. JDS DATE 10-23-61
CKD. PFB DATE 10-25-61

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For Drainage Legend See Sheet 11

PLAN

STA. 1298+00 TO STA. 1310+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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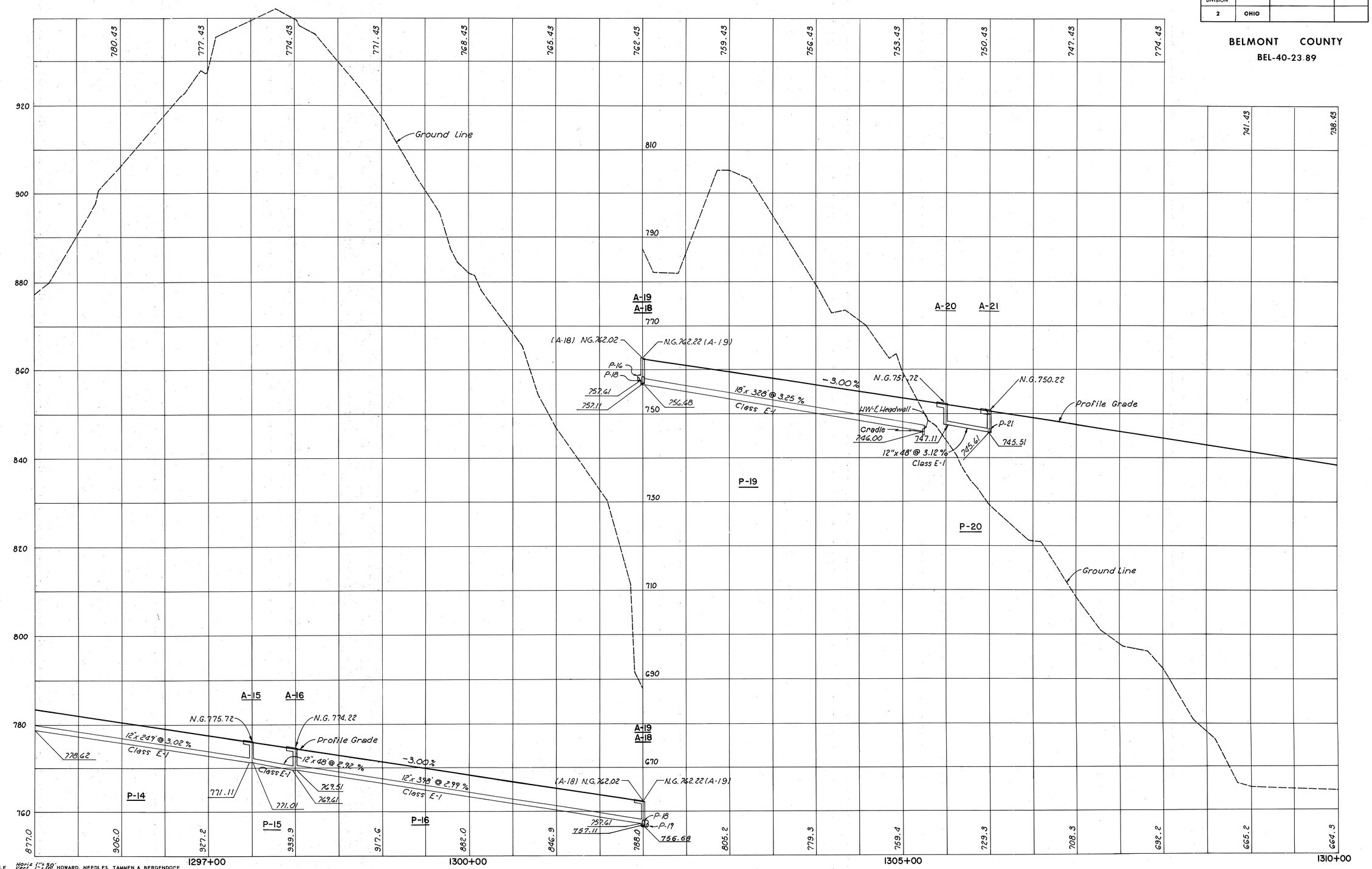
BELMONT COUNTY

BEL-40-23.89



SCALE Horiz 1" = 50' Vert 1" = 10'
MADE MJV DATE 10-20-61
TRCD TER DATE 10-24-61
CKD JDO DATE 11-2-61

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PROFILE

STA. 1295+00 TO STA. 1310+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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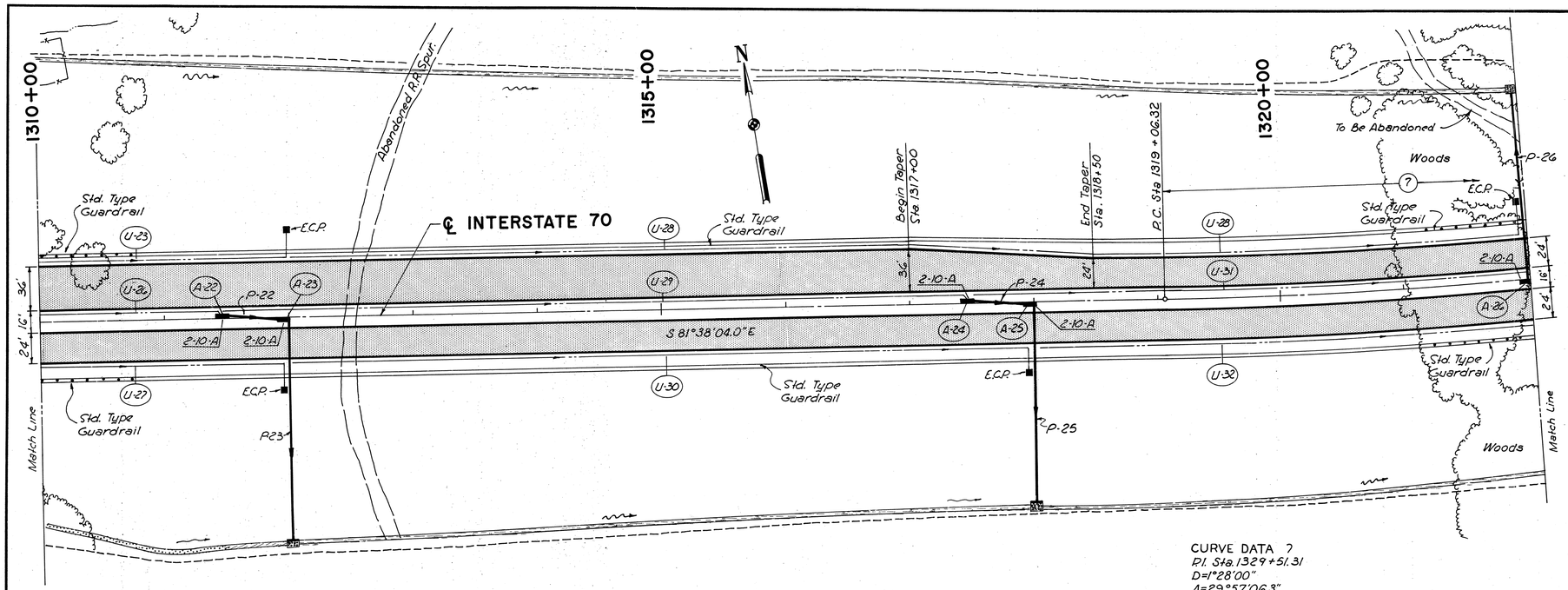
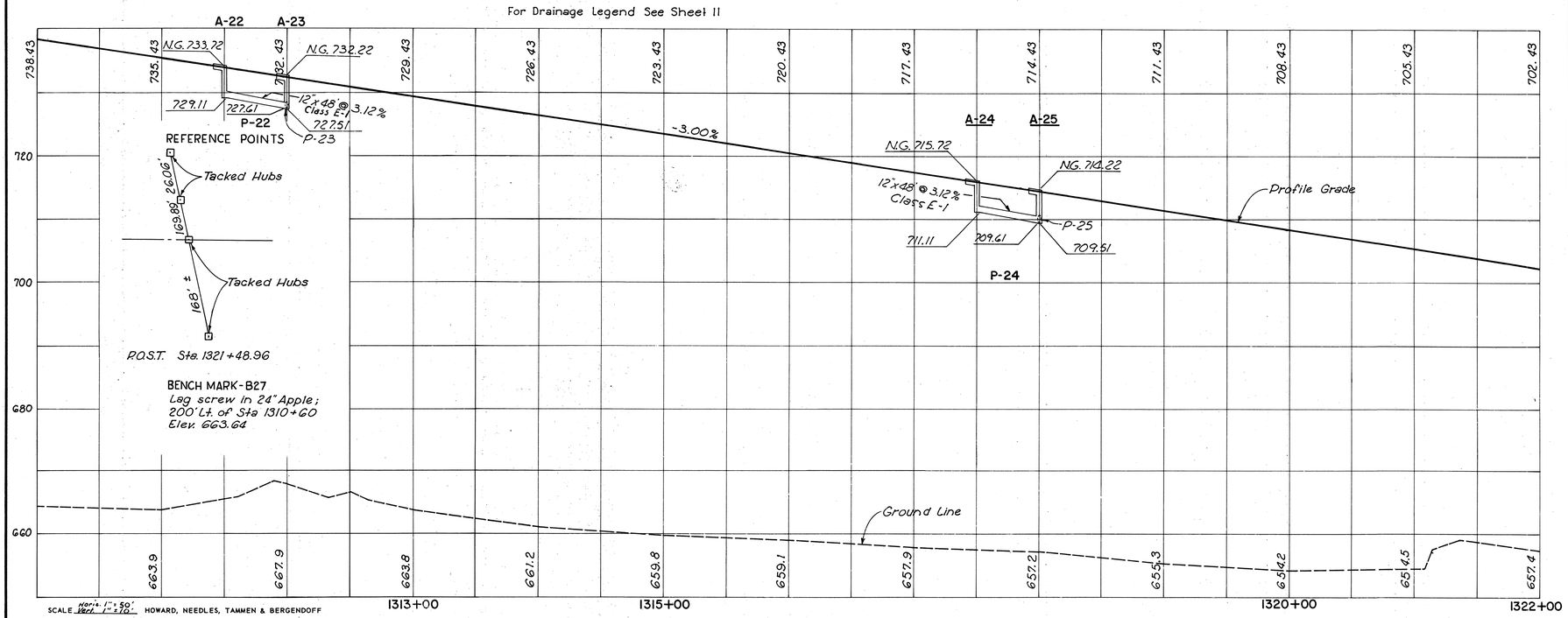
BELMONT COUNTY

BEL-40-23.89



CURVE DATA 7
P.I. Sta. 1329+51.31
D=1°28'00"
Δ=29°57'06.3"
R=3,906.530
T=1044.990'
L=2,042.162
S=.035 ft/ft

For Drainage Legend See Sheet 11



REFERENCE SHEET					
Code	Sheet	Code	Sheet	Code	Sheet
P-23	32	A-26	33	U-	40
P-25	33	P-26	33		

ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS: 2-10-A Pvd. Shldr. Inlet	PIPES: 12" Class E-1	DITCH PROTECTION: L-10 Sodding	Dumped Rock Channel Protect.	Remarks	GUARDRAIL: Steel Beam Str. Type (Deep)	Steel Beam Barrier Type (Deep)
			Each	Lin. Ft.	Sq. Yds.	Cu. Yds.		Lin. Ft.	Lin. Ft.
A-22	1311+50 3' Lt.	I-8	1						
P-22		I-1		48					
A-23	1312+00 3' Rt.	I-8	1						
A-24	1317+50 3' Lt.	I-8	1						
P-24		I-1		48					
A-25	1318+00 3' Rt.	I-8	1						
	1310+00 to 1322+00 Lt.	L-10			1430				
	1310+00 to 1311+50 Rt.	L-10				70	D = 1.5'		
	1311+50 to 1317+00 Rt.	L-10			792		D = 1.0'		
	1317+00 to 1322+00 Rt.	L-10			845		D = 2.0'		
	1310+00 to 1322+00 Lt.	I-15					D = 2.5'	1200	
	1310+00 to 1322+00 Lt.	I-15							1200
	1310+00 to 1322+00 Rt.	I-15							1200
	1310+00 to 1322+00 Rt.	I-15							2400
	Total		4	96	3067	70		1200	1200

SCALE Horiz. 1" = 50' Vert. 1" = 10'
MADE LCO DATE 10-23-61
TRCD JDS DATE 10-25-61
CKD PFB DATE 10-27-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

PLAN PROFILE

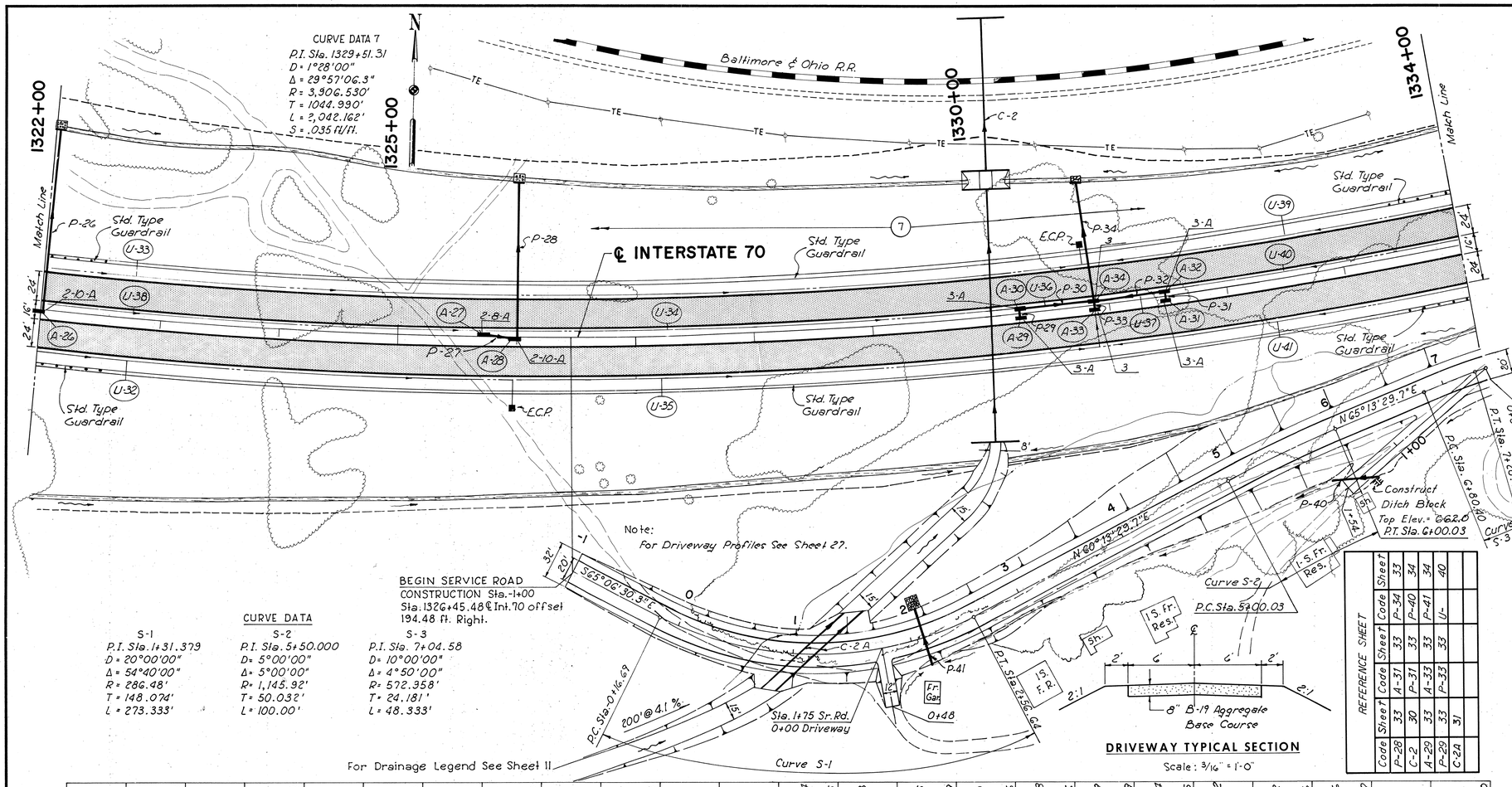
STA. 1310+00 TO STA. 1322+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-70-5(3)223	

19 / 197

BELMONT COUNTY

BEL-40-23.89



Code	Sheet	Code	Sheet	Code	Sheet	Code	Sheet
P-28	33	A-31	33	P-34	33	P-41	34
C-2	30	P-31	33	P-40	34	U-	40
A-29	33	A-33	33	P-33	33		
P-29	33	P-33	33				
C-2A	31						

ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS AND CATCH BASINS: 2-8-A Pvd. Shldr. Inlet	2-10-A Pvd. Shldr. Inlet	Std. No. 3-A C.B.	Std. No. 3 C.B.	PIPES: 12" Class E-1	DITCH PROTECTION: L-10 Sodding	Remarks	GUARDRAIL: Steel Beam Std. Type (Deep)	Steel Beam Barrier Type (Deep)
			Each	Each	Each	Each	Lin. Ft.	Sq. Yds.		Lin. Ft.	Lin. Ft.
A-27	1325+75 3' LT.	I-8	1								
P-27		I-1									
A-28	1326+00 3' RT.	I-8		1							
A-30	1330+25 3' LT.	I-8			1						
P-30		I-1									
A-34	1330+90.25 3' LT.	I-8				1					
P-32		I-1									
A-32	1331+50 3' LT.	I-8			1		24				
	1322+00 to 1330+00 LT.	L-10						1150	D = 2.0' 4' FBD		
	1322+00 to 1330+00 RT.	L-10						1350	D = 2.5' 4' FBD		
	1330+00 to 1334+00 RT.	L-10					64	478	D = 1.5' 4' FBD		
	1330+00 to 1334+00 LT.	L-10						276	D = 0.5' 4' FBD		
	2+10 to 5+87 Ser. Rd. RT.	L-10					58	260	D = 0.5' Var.-FBD		
	1322+00 to 1334+00 LT.	I-15								1200	
	1322+00 to 1334+00 ℄	I-15									1200
	1322+00 to 1334+00 RT.	I-15								1200	
Total			1	1	2	1	146	3514		2400	1200

SCALE Horz. 1" = 50' Vert. 1" = 10' HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE GCS DATE 10-16-61 CONSULTING ENGINEERS
TRCD T.E.R. DATE 10-19-61 KANSAS CITY CLEVELAND NEW YORK
CKD PFB DATE 10-20-61 SHEET.

PLAN PROFILE

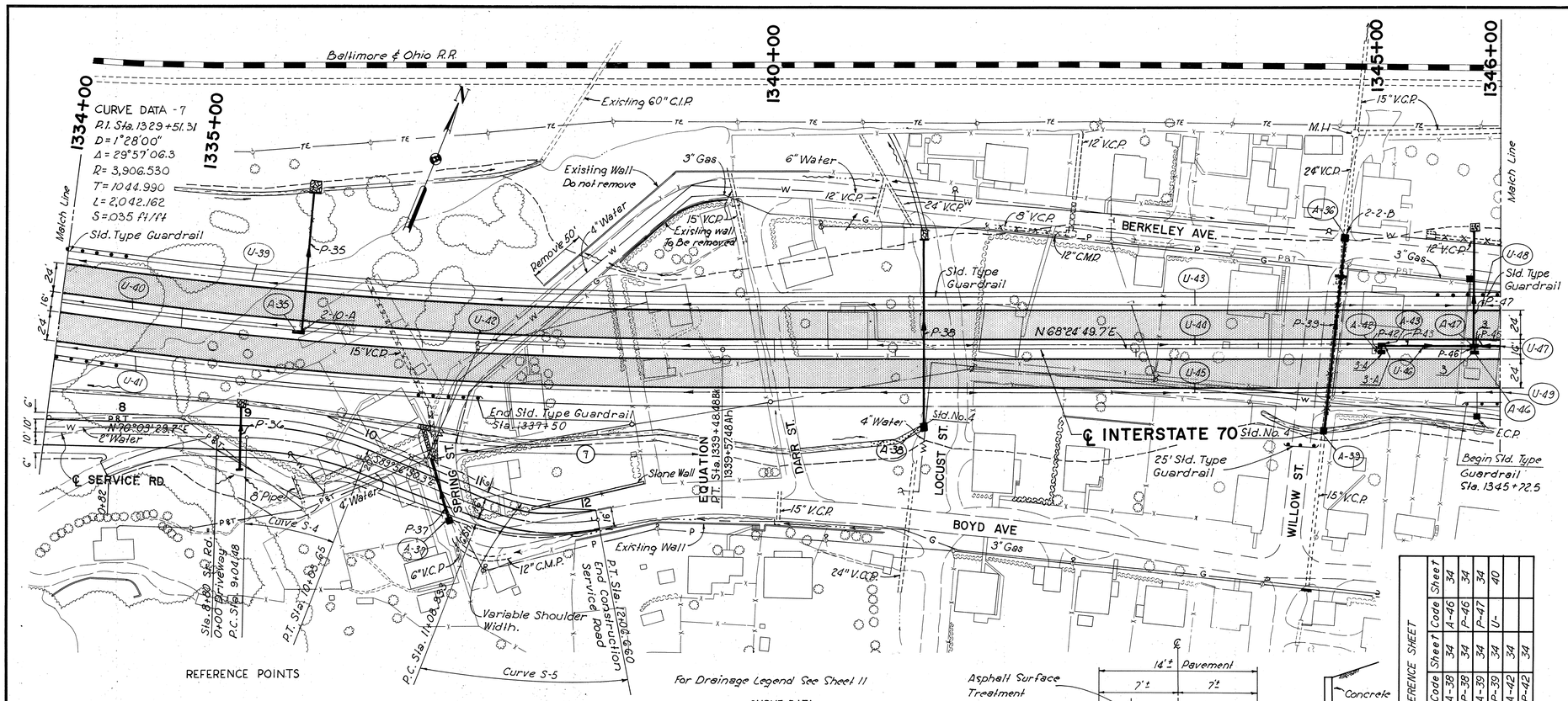
STA. 1322+00 TO STA. 1334+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

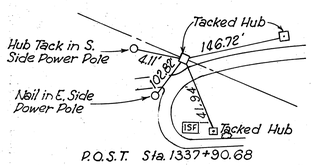
20 / 137

BELMONT COUNTY

BEL-40-23.89



REFERENCE POINTS



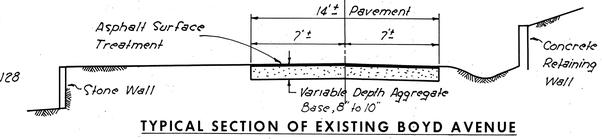
P.O.S.T. Sta. 1337+90.68

BENCH MARK-B 30
Lag Screw in tel. Pole
S. of R.R. Approx. 900'
W. Plum St Pole #610
120' Lt. Sta. 1340+00
Elev. 664.58

For Drainage Legend See Sheet 11

CURVE DATA

S-4	S-5
P.I. Sta. 9+55.00	P.I. Sta. 11+59.128
D = 20° 10'	D = 33° 00'
Δ = 20° 00'	Δ = 32° 15'
R = 284.11'	R = 173.62'
T = 50.523'	T = 50.195'
L = 99.174'	L = 97.727'



TYPICAL SECTION OF EXISTING BOYD AVENUE

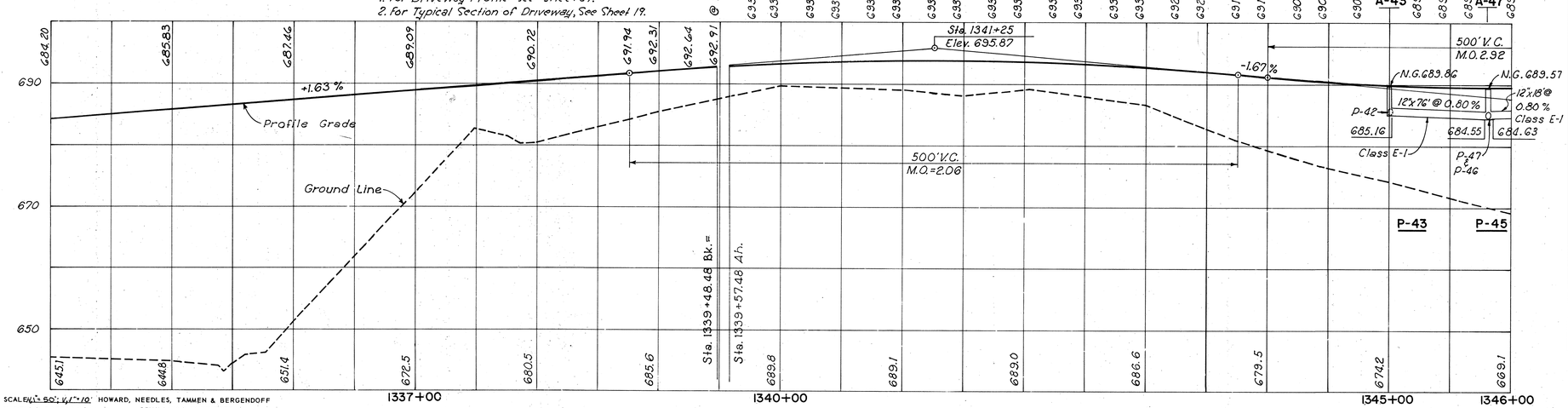
RT. OF STATION 1338+50

Scale: 3/16" = 1'-0"

REFERENCE SHEET

Code	Sheet	Code	Sheet	Code	Sheet
A-35	34	A-38	34	A-46	34
P-35	34	P-38	34	P-46	34
A-36	34	A-39	34	P-47	34
P-36	34	P-39	34	U-	40
A-37	34	A-42	34		
P-37	34	P-42	34		

Notes:
1. For Driveway Profile see Sheet 27.
2. For Typical Section of Driveway, See Sheet 19.



SCALE 1" = 50' H, 1" = 10' V
MADE ISO DATE 10-15-61
TRCD JDS DATE 10-23-61
CKD JDG DATE 11-10-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

ESTIMATED QUANTITIES

Code	Location	Item No.	CATCH BASINS 3-4 C.B. Each	CATCH BASINS 3 C.B. Each	PIPE 12" Class E-1 Lin. Ft.	PIPE L-10 Sodding Sq. Yds.	DITCH PROTECTION Dumped Rock Channel Protect. Cu. Yds.	DITCH PROTECTION Remarks	GUARDRAIL Steel Beam Std. Type (Deep) Lin. Ft.	GUARDRAIL Steel Beam Barrier Type (Deep) Lin. Ft.	REMOVAL Pipe Lin. Ft.	ABANDON Catch Basins Each	REMOVAL Wall Lump
A-43	1.345+00 3' Lt.	I-8	1										
P-43	1.345+79 3' Lt.	I-1			76								
A-47		I-8		1									
P-45		I-1			19								
	1.334+00 to 1.337+95 Lt.	L-10				265		D = 0.5'					
	1.334+00 to 1.337+00 Rt.	L-10				357		D = 1.5'					
	1.337+00 to 1.340+80 Rt.	L-10				262		D = 0.5'					
	1.340+80 to 1.341+24 Rt.	I-10					16	D = 0.5'					
	1.344+00 to 1.346+00 Rt.	L-10				138		D = 0.5'					
	1.334+00 to 1.346+00 Lt.	I-15							1200				
	1.334+00 to 1.346+00 ℄	I-15								1200			
	1.334+00 to 1.337+50 Rt.	I-15							350				
	1.337+97 to 1.339+35 Lt.	S-24											Lump
	1.338+65 to 1.339+45 Lt.	S-24											Lump
	1.344+35 83' Rt.	I-15									25		
	1.334+00 to 1.346+00	E-12									448		
	1.334+00 to 1.346+00	I-16										3	
	1.345+72.5 to 1.346+00 Rt.	I-15											Lump
	Total		1	1	95	1022	16		27.5	1200	448	3	3
			1	1	95	1022	16		1602.5	1200	448	3	Lump

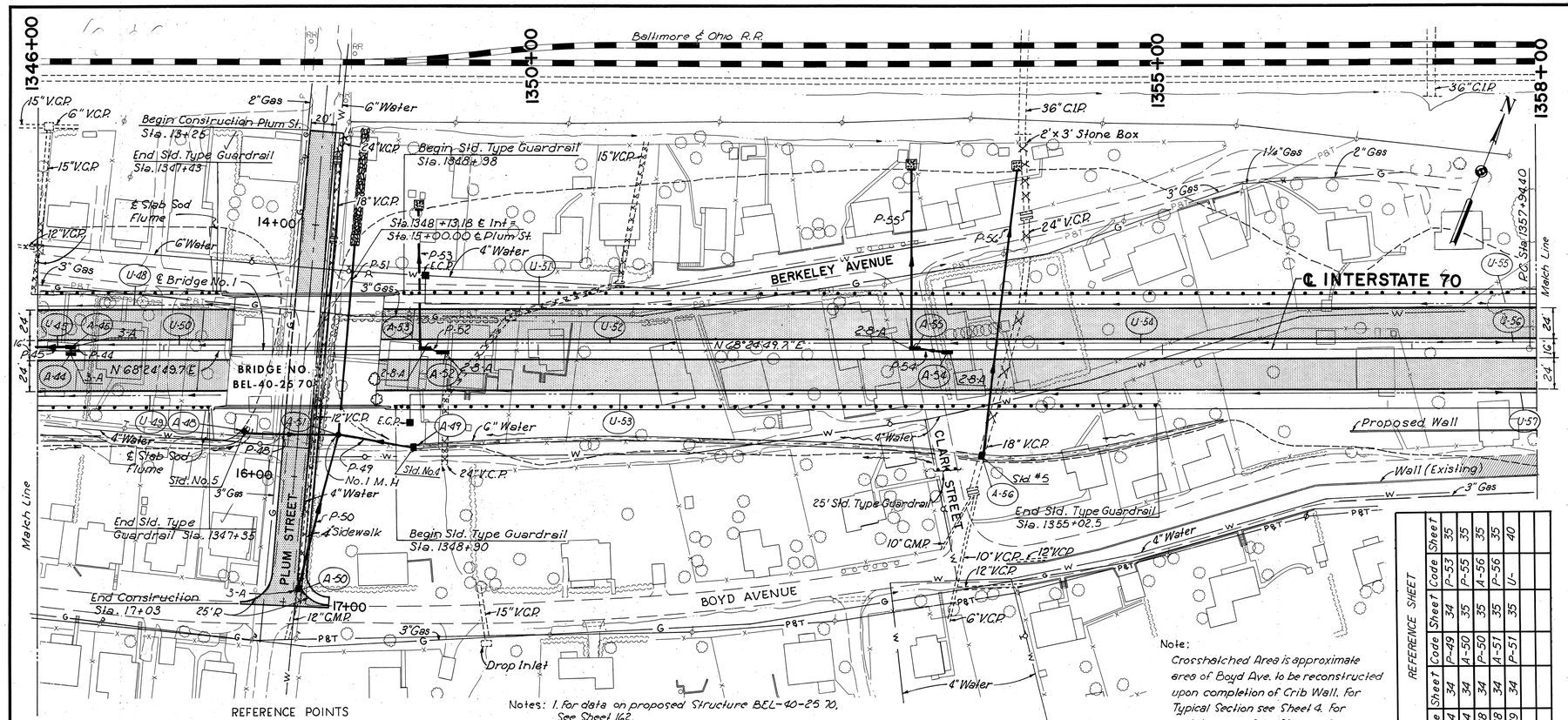
PLAN PROFILE

STA. 1334+00 TO STA. 1346+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

21
197

BELMONT COUNTY
BEL-40-23.89

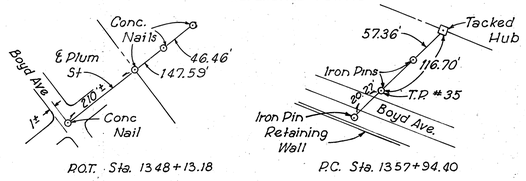


Notes: 1. For data on proposed Structure BEL-40-2570, See Sheet 162.
2. For details of Approach Slabs, See Sheet 28A.

Note:
Crosshatched Area is approximate area of Boyd Ave. to be reconstructed upon completion of Crib Wall. For Typical Section see Sheet 4. For maintenance of traffic see General Notes Sheet 6.

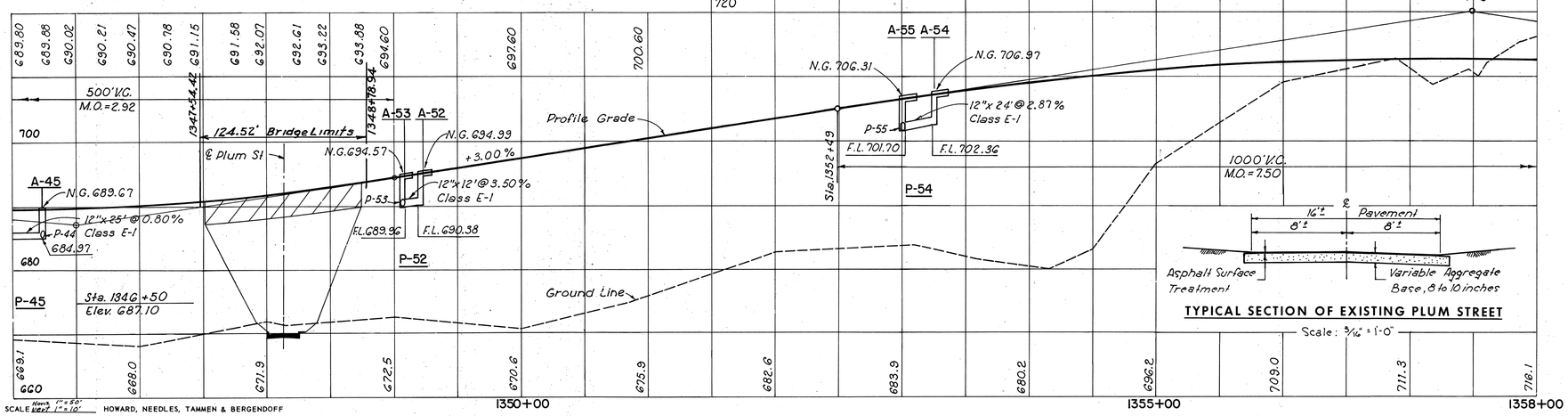
REFERENCE SHEET							
Code	Sheet	Code	Sheet	Code	Sheet	Code	Sheet
A-44	34	P-44	34	P-49	34	P-53	35
A-48	34	P-48	34	A-50	35	P-55	35
A-49	34			P-50	35	A-56	35
				A-51	35	P-56	35
				P-51	35	U-	40

REFERENCE POINTS



BENCH MARK-B31
Lag Screw in tel. Pole
E. Side of Plum St. ℄ 47'
S. of R.R. tracks. 182'
Lt. Sta. 1348+31
ELEV. 663.64

For Drainage Legend See Sheet 11



TYPICAL SECTION OF EXISTING PLUM STREET

Scale: 3/16" = 1'-0"

SCALE Horiz. 1" = 50' Vert. 1" = 10'
MADE ICO DATE 10-18-61
TRCD. JDS DATE 10-23-61
CKD. JDG DATE 10-24-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS AND C.B.'S: 2-8-A Pvd. Shldr. Inlet	INLETS AND C.B.'S: Std. No. 7-A C.B.	PIPES: 12" Class E-1	REMOVAL: Pipe	REMOVAL: 2'x3' Stone Box	ABANDON: Catch Basins	MISC.: Approach Slabs
			Each	Each	Lin. Ft.	Lin. Ft.	Lump	Each	Sq. Yds.
A-45	1346+25 3'LT.	I-8		1					
P-45		I-1			25				
A-52	1349+20 3'RT.	I-8		1					
P-52		I-1			12				
A-53	1349+06 3'LT.	I-8		1					
A-54	1353+25 3'RT.	I-8		1					
P-54		I-1			24				
A-55	1353+00 3'LT.	I-8		1					
	1346+00 to 1347+65 RT.	L-10							
	1349+00 to 1353+00 RT.	L-10							
	1346+00 to 1347+43 LT.	I-15							
	1346+00 to 1347+35 RT.	I-15							
	1346+00 to 1347+54.42	I-15							
	1348+98 to 1358+00 LT.	I-15							
	1348+78.9 to 1358+00 ℄	I-15							
	1348+90 to 1355+02.5 RT.	I-15							
	1353+31 108' RT.	I-15							
	1346+00 to 1358+00	E-12							
	1346+00 to 1358+00 LT.	I-16							
	1353+50 160' LT.	S-24							
	1347+41 LT.	L-10							
	1347+33 RT.	L-10							
	Approach Slabs	I-7							266.7
	Total		4	1	61	970	Lump	6	266.7

Code	Location	Item No.	DITCH PROTECTION: L-10 Sodding	DITCH PROTECTION: Remarks	GUARDRAIL: Steel Beam Std. Type (Deep)	GUARDRAIL: Steel Beam Barrier Type (Deep)	REMOVAL: Pipe	REMOVAL: 2'x3' Stone Box	ABANDON: Catch Basins	MISC.: Approach Slabs
			Sq. Yds.		Lin. Ft.	Lin. Ft.	Lin. Ft.	Lump	Each	Sq. Yds.
A-45	1346+25 3'LT.	I-8								
P-45		I-1								
A-52	1349+20 3'RT.	I-8								
P-52		I-1								
A-53	1349+06 3'LT.	I-8								
A-54	1353+25 3'RT.	I-8								
P-54		I-1								
A-55	1353+00 3'LT.	I-8								
	1346+00 to 1347+65 RT.	L-10	113	D=0.5'						
	1349+00 to 1353+00 RT.	L-10	376	D=1.0'						
	1346+00 to 1347+43 LT.	I-15			143					
	1346+00 to 1347+35 RT.	I-15			135					
	1346+00 to 1347+54.42	I-15				154.42				
	1348+98 to 1358+00 LT.	I-15			902	921.06				
	1348+78.9 to 1358+00 ℄	I-15								
	1348+90 to 1355+02.5 RT.	I-15			612.5					
	1353+31 108' RT.	I-15			25					
	1346+00 to 1358+00	E-12					970			
	1346+00 to 1358+00 LT.	I-16						6		
	1353+50 160' LT.	S-24	111	Sod Flume						
	1347+41 LT.	L-10								
	1347+33 RT.	L-10	51	Sod Flume						
	Approach Slabs	I-7								266.7
	Total		651		1817.5	1075.48	970	Lump	6	266.7

PLAN PROFILE

STA. 1346+00 TO STA. 1358+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

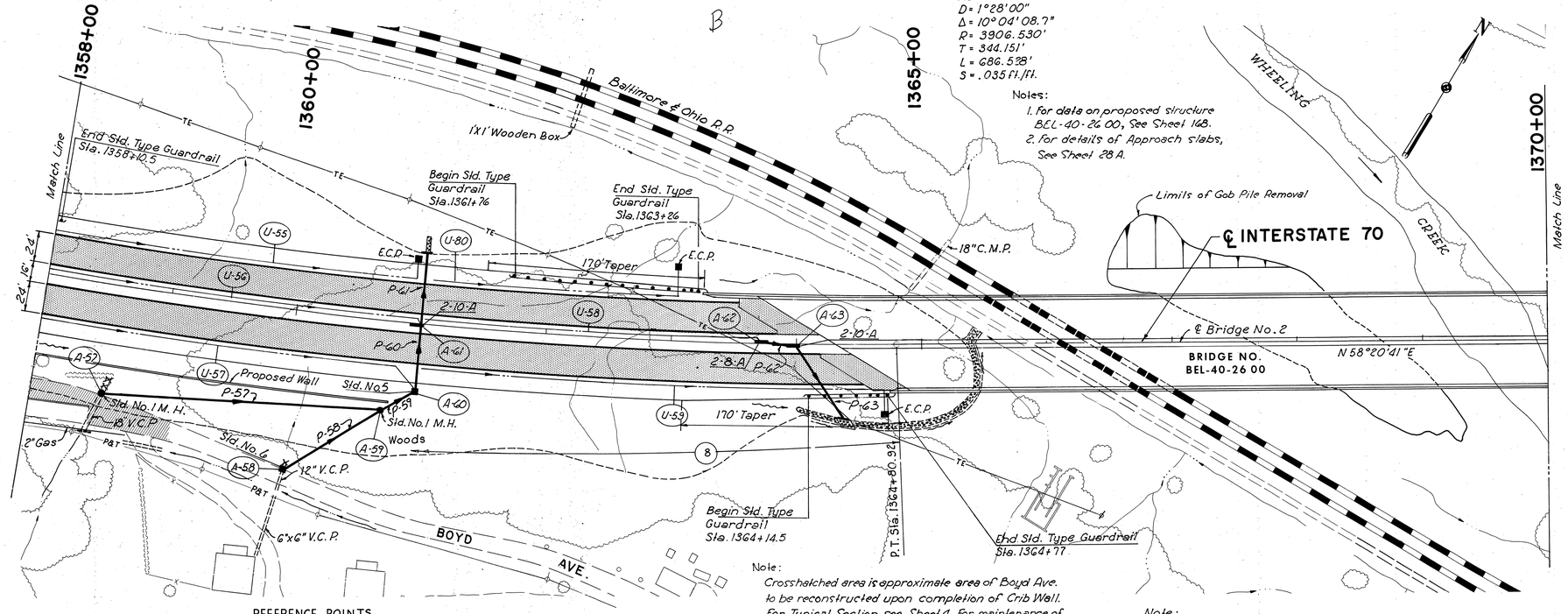
22
197

BELMONT COUNTY

BEL-40-23.89

CURVE DATA 8
P.I. Sta. 1361+38.55
D = 1°28'00"
Δ = 10°04'08.7"
R = 3906.530'
T = 344.151'
L = 686.528'
S = .035 ft./ft.

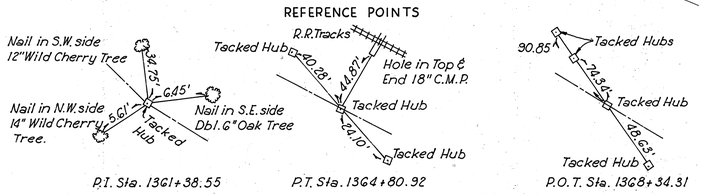
Notes:
1. For data on proposed structure BEL-40-26 00, See Sheet 16B.
2. For details of Approach slabs, See Sheet 28A.



Note:
Crosshatched area is approximate area of Boyd Ave. to be reconstructed upon completion of Crib Wall. For Typical Section see Sheet 4. For maintenance of traffic see General Notes sheet 6.

Note:
Guardrail shall start or end 1' from end of wingwall & taper to normal section in 170'. The P.I. of shoulder shall remain a constant 3' from face of Guardrail. Edge of paved shoulder shall taper from the normal section to 6" from face of Guardrail at the end of wingwall.

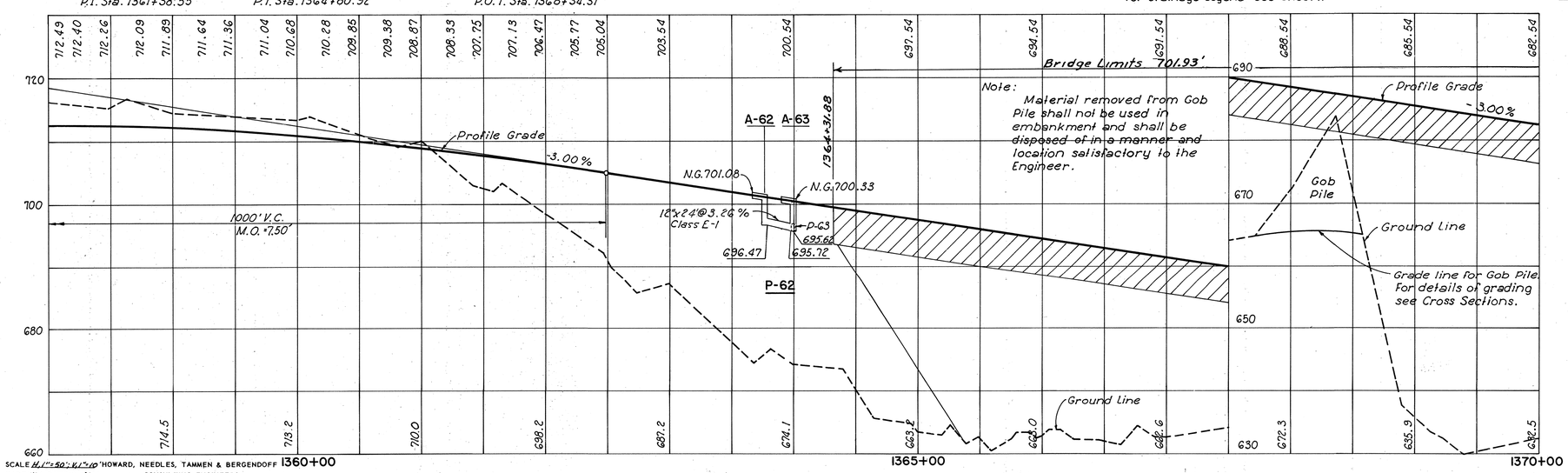
REFERENCE POINTS



BENCH MARK-B32
Lag Screw in Sycamore
50' N. of N.R.R. Track
Approx. 1200' E. of Plum St.
300' Lt. Sta. 1359+94.
Elev. 666.03.

BENCH MARK-B33
Lag Screw in Tel. Pole
74' S. of S.R.R. Track
465' E. along R.R. Fence
Sta. 1366+00
Pole #530
Elev. 664.34

For Drainage Legend See Sheet 11



SCALE H. 1" = 50'; V. 1" = 10'
MADE NMV DATE 10-18-61
TRCD T.E.R. DATE 10-24-61
CKD J.D.G. DATE 11-27-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

REFERENCE SHEET							
Code	Sheet	Code	Sheet	Code	Sheet		
A-57	35	A-59	35	A-61	35		
P-57	35	P-59	35	P-61	35		
A-58	35	A-60	35	P-63	36		
P-58	35	P-60	35	U-	40		

ESTIMATED QUANTITIES																	
			INLETS		PIPES	DITCH	PROTECTION		GUARDRAIL			MISC.					
Code	Location	Item No.	2-8-A 2-10-A Pvd. Shldr.	Pvd. Shldr.	12" Class E-1	Dumped Rock Channel Protect.	Remarks		Steel Beam Guardrail Type (Deep)	Steel Beam Guardrail Type (Deep)		Approach Slabs					
			Each	Each	Lin. Ft.	Cu. Yds.			Lin. Ft.	Lin. Ft.		Sq. Yds.					
A-62	1363+75 3'Lt.	I-8	1														
P-62		I-1			24												
A-63	1364+00 3'Rt.	I-8		1													
	1364+00 52'Rt. to 1365+50 11'Lt.	I-10				70	D=0.5'		10.5								
	1358+00 To 1358+10.5 Lt.	I-15								631.88							
	1358+00 to 1364+31.88 Rt.	I-15								150							
	1361+76 to 1363+26 Lt.	I-15								62.5							
	1364+14.5 to 1364+77 Rt.	I-15															
	Approach Slabs	I-7		1	24		70		223	631.88		151.1					
	TOTAL			1								151.1					

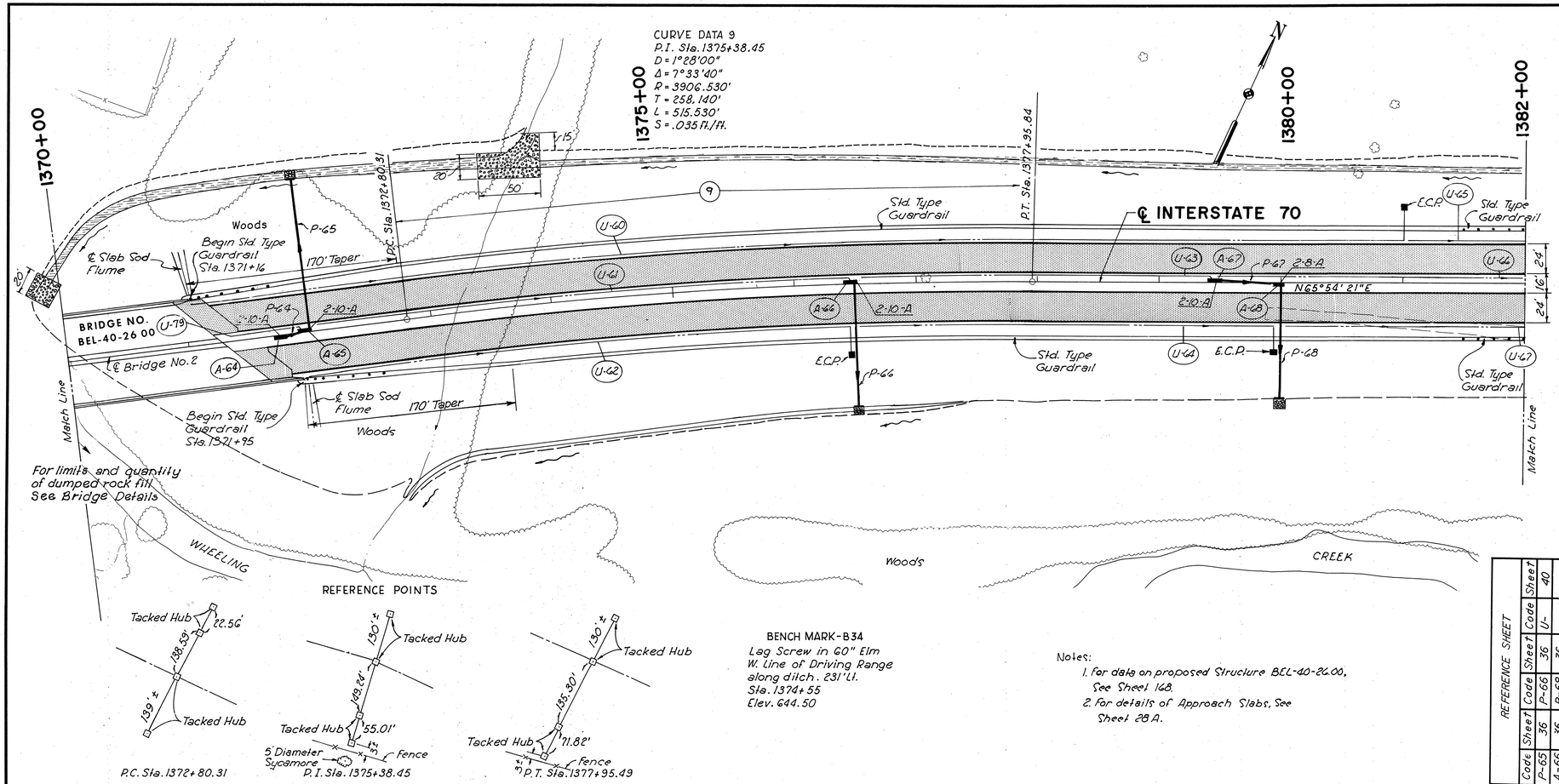
PLAN PROFILE

STA. 1358+00 TO STA. 1370+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

23 / 197

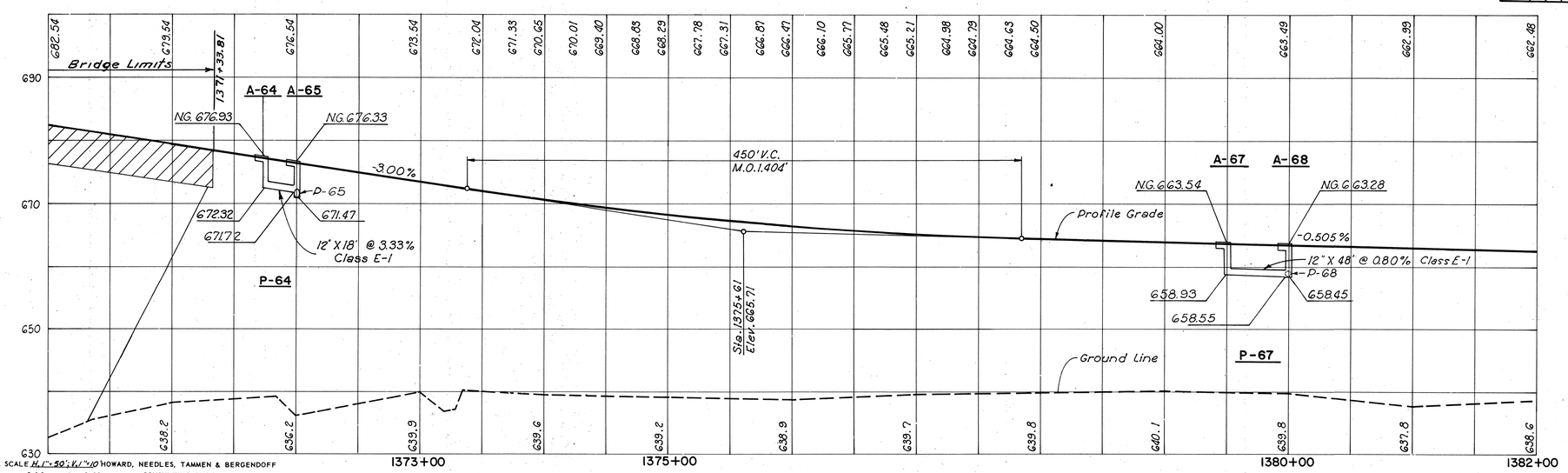
BELMONT COUNTY
BEL-40-23.89



BENCH MARK-B34
Lag Screw in 60" Elm
W. Line of Driving Range
along ditch. 231' Lt.
Sta. 1374+55
Elev. 644.50

Notes:
1. for data on proposed Structure BEL-40-26.00. See Sheet 168.
2. for details of Approach Slabs, See Sheet 28A.

REFERENCE SHEET						
Code	Sheet	Code	Sheet	Code	Sheet	
P-65	36	P-66	36	U-	40	
A-66	36	P-68	36			



Code	Location	Item No.	2-8-A Pvd. Shldr. Inlet Each	2-10-A Pvd. Shldr. Inlet Each	12" Class E-1 Lin. Ft.	L-10 Sodding Sq. Yd.	Dumped Rock Channel Protect. Cu. Yds.	Remarks	Steel Beam Std. Type (Deep) Lin. Ft.	Steel Beam Barrier Type (Deep) Lin. Ft.	Approach Slabs Sq. Yds.
A-64	1371+80 3'Rt.	I-8		1							
P-64		I-1									
A-65	1372+00 3'Lt.	I-8		1	18						
A-67	1379+50 3'Lt.	I-8		1							
P-67		I-1			48						
A-68	1380+00 3'Rt.	I-8	1								
	1370+00 to 1373+50 Lt.	L-10				1010		D=4.0' 8'F.B.D.			
	1373+50 to 1374+00 Lt.	I-10					70				
	1374+00 to 1382+00 Lt.	L-10				1150		D=2.0' 4'F.B.D.			
	1369+80 to 1370+00 Lt.	I-10					22				
	1371+17 Lt.	L-10				75		Sod Flume			
	1371+96 Rt.	L-10				67		Sod Flume			
	1371+16 to 1382+00 Lt.	I-15							1084	1066.19	
	1371+33.81 to 1382+00 ℄	I-15									
	1371+95 to 1382+00 Rt.	I-15							1005		152.2
	Approach Slabs	I-7		3	66	2302	92		2089	1066.19	152.2
	TOTAL		1								

SCALE H. 1"=50'; V. 1"=10' HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE G.C.S. DATE 10-19-61 CONSULTING ENGINEERS
TRCD T.E.R. DATE 10-25-61 KANSAS CITY CLEVELAND NEW YORK
CKD J.D.G. DATE 11-29-61 SHEET.

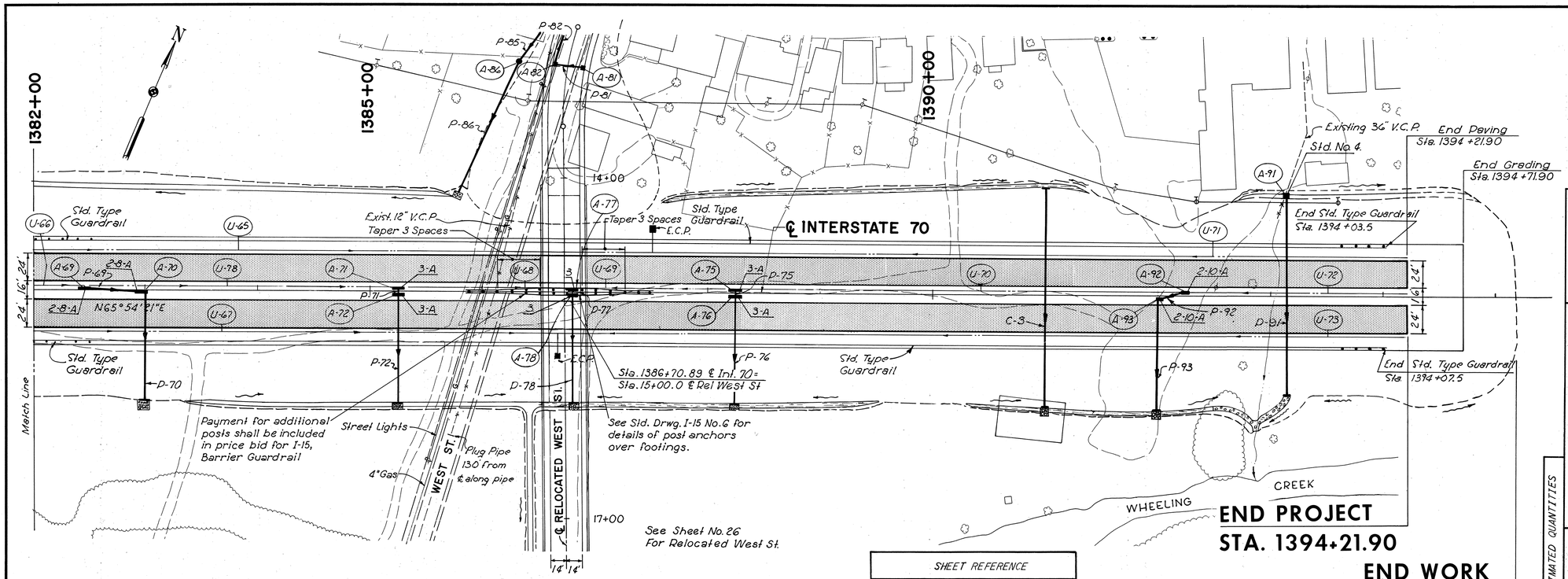
PLAN PROFILE

STA. 1370+00 TO STA. 1382+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

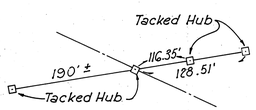
24
197

BELMONT COUNTY
BEL-40-23.89

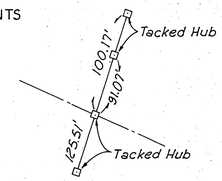


END PROJECT
STA. 1394+21.90
END WORK
STA. 1395+20

REFERENCE POINTS



P.O.T. Sta. 1392+61.44



End Project Sta. 1394+22.44

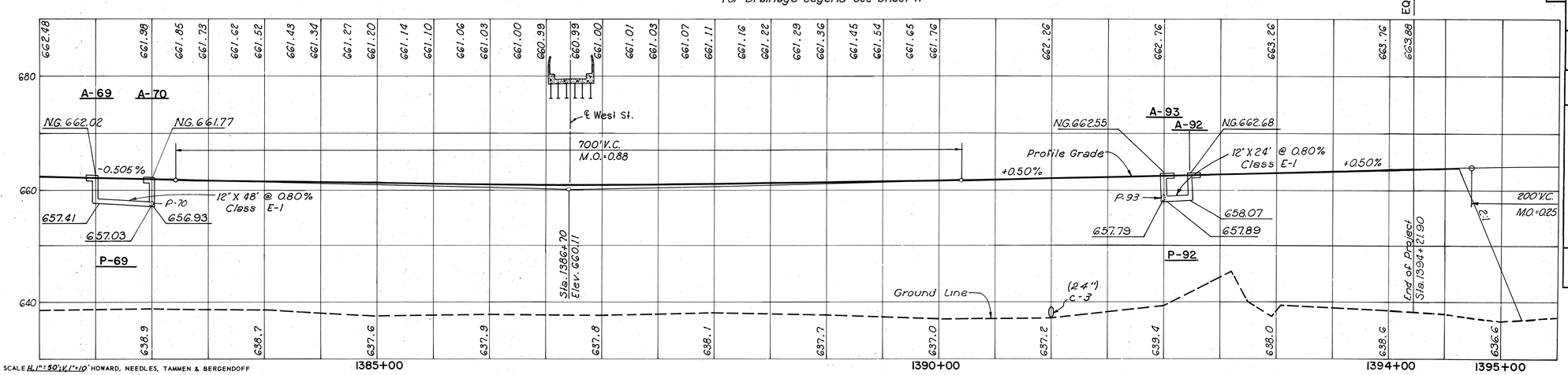
BENCH MARK - B 35
R.R. Spike in Tree ⊙ N. end W. St. Bridge 100' Lt. Sta. 1386+27
Elev. 650.28

SHEET REFERENCE					
Code	Sheet	Code	Sheet	Code	Sheet
P-70	36	A-75	36	P-85	37
A-71	36	P-75	36	A-86	37
P-71	36	A-76	36	P-86	37
A-72	36	P-76	36	C-3	31
P-72	36	A-77	36	P-93	37
A-81	37	P-77	36	A-91	37
P-81	37	A-78	36	P-91	37
A-82	26	P-78	36	U-	40
P-82	26				

Note:
Typical Section of Pavement Adjacent to End of Project is Identical to Section Shown on Sheet No. 3 for Sta. 1394+25.

EQUATION: H.N.T.B. Sta. 1394+21.90 Elev. 663.87 (U.S.G.S.)
H.E.H. Sta. 330+00.00 Elev. 663.49 (1929 M.S.L.)

For Drainage Legend See Sheet 11



Code	Location	Item No.	2-8-A Pvd. Shldr. Inlet Each	2-10-A Pvd. Shldr. Inlet Each	INLETS	PIPE 12" Class E-1 Lin. Ft.	L-10 Sodding Sq. Yds.	Dumped Rock Channel Protect. Cu. Yd.	DITCH PROTECTION Remarks	GUARDRAIL Steel Beam Stiffened Barrier Type (Deep) Lin. Ft.	GUARDRAIL Steel Beam Stiffened Barrier Type (Deep) Lin. Ft.
A-69	1382+50	I-8	1								
P-69	3' Lt.	I-1									
A-70	1383+00	I-8	1			48					
A-92	3' Rt.	I-8		1							
P-92	1392+25	I-1									
A-93	3' Lt.	I-8		1		24					
1392+00	3' Rt.	I-8		1							
1387+50 to 1391+40 Lt.		L-10					270		D=0.5'		
1386+45 to 1389+50 Rt.		L-10					211		D=0.5'		
1390+25 to 1392+50 Rt.		L-10					211		D=1.0'		
1392+50 to 1393+20 Rt.		I-10						25	D=0.5'		
1382+00 to 1394+03.5 Lt.		I-15								1203.5	
1382+00 to 1394+00 ℄		I-15									1200
1382+00 to 1394+07.5 Rt.		I-15								1207.5	1200
TOTAL			2	2		72	692	25		2411	

SCALE H. 1" = 50'; V. 1" = 10'
MADE LCO DATE 10-20-61
TRCD T.E.R. DATE 10-24-61
CKD J.D.G. DATE 11-30-61

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SHEET.

PLAN PROFILE

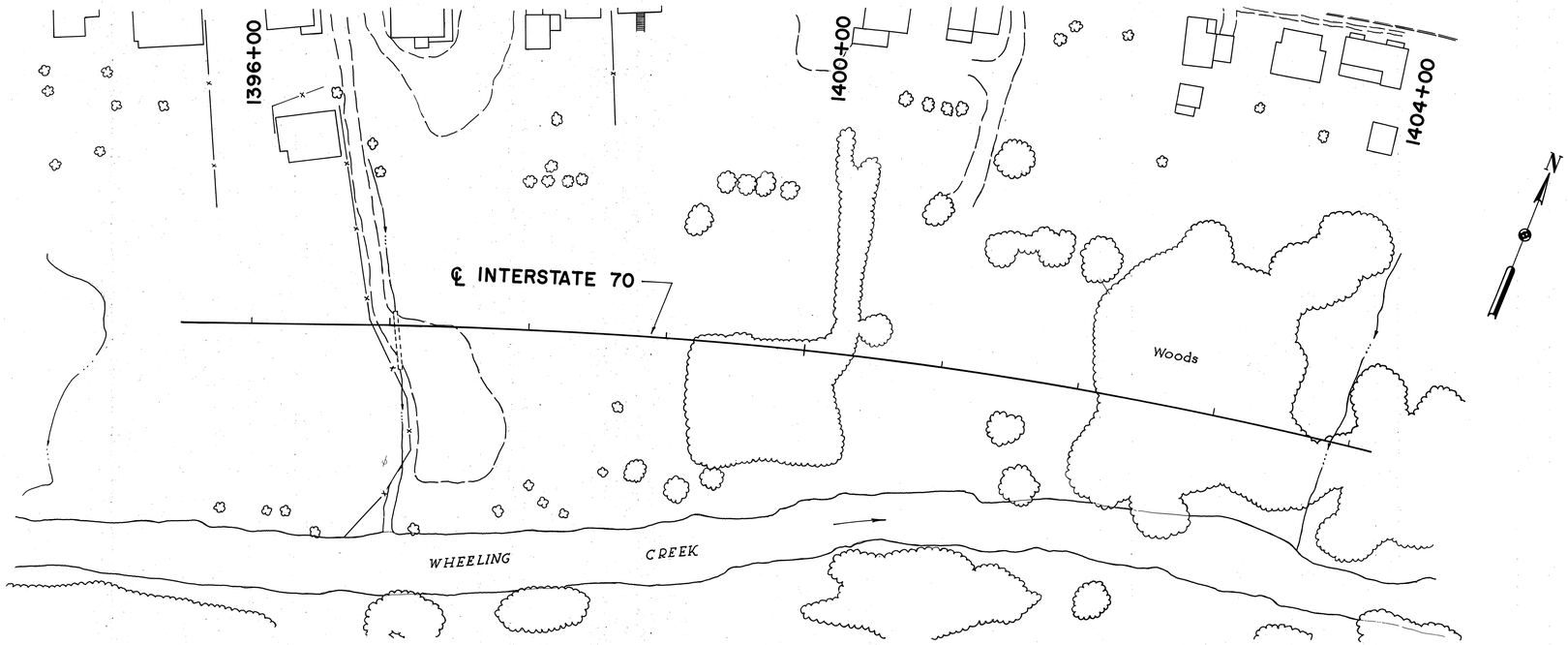
STA. 1382+00 TO STA. 1395+50

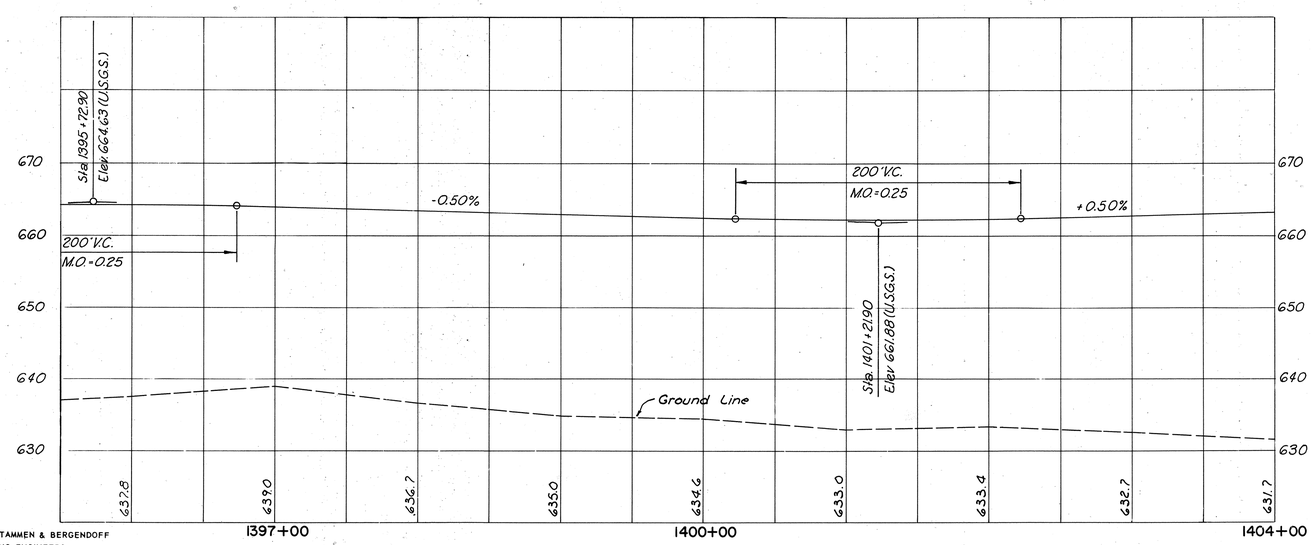
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

25
197

BELMONT COUNTY

BEL-40-23.89





SCALE H 1"=50' ; V 1"=10'
MADE MMW DATE 11-6-61
TRCD TER DATE 11-9-61
CKD JDS DATE 11-6-61

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ALIGNMENT AND GROUND LINE

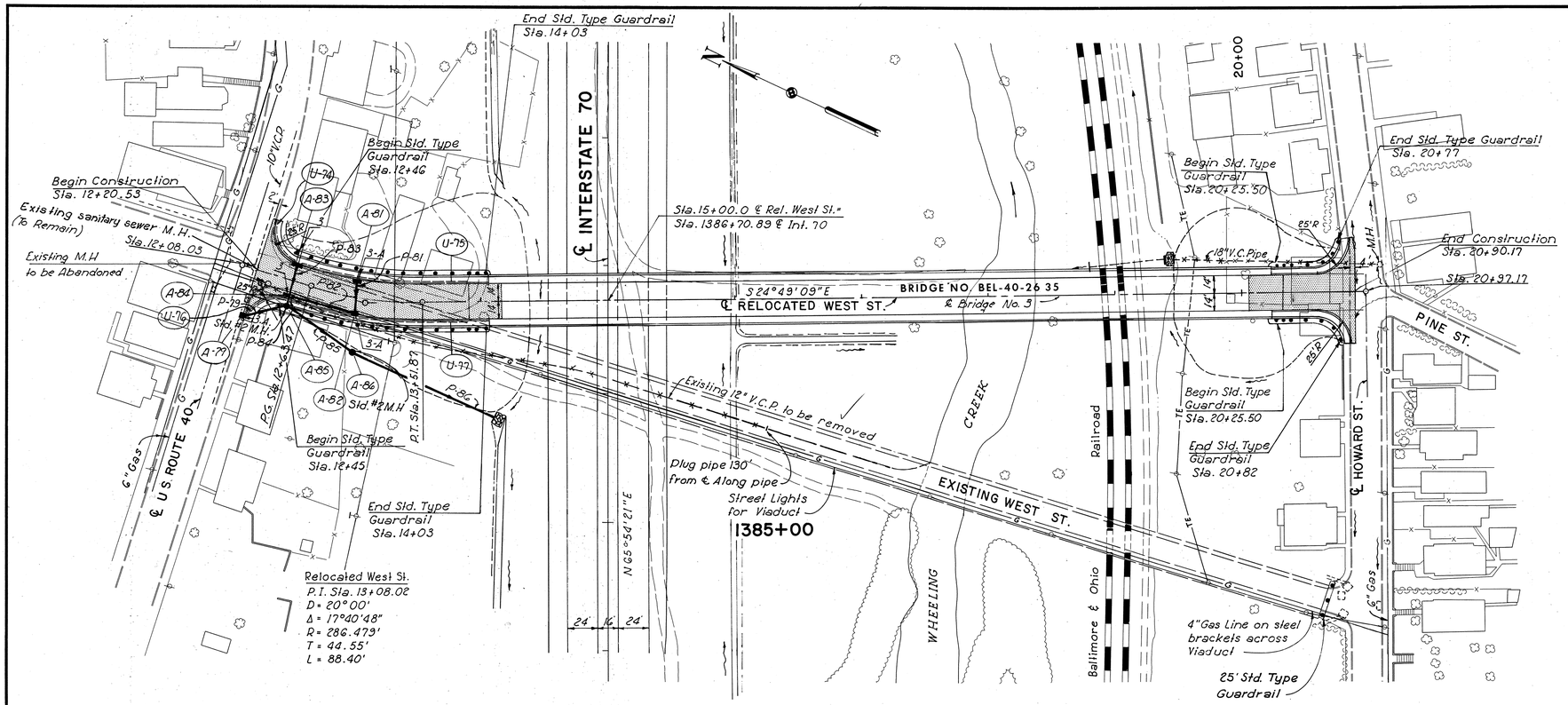
STA. 1395+50 TO STA. 1404+00

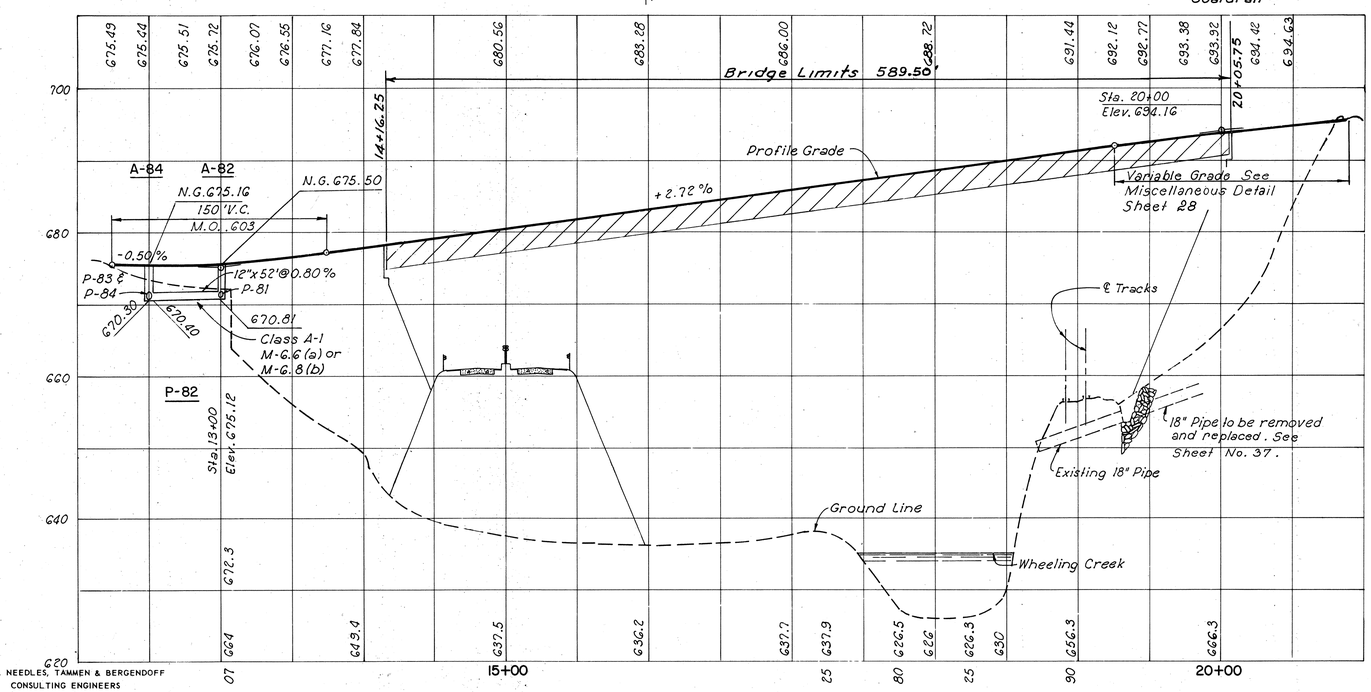
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

26
197

BELMONT COUNTY
BEL-40-23.89

Notes:
1. For data on proposed Structure BEL-40-26.35, See Sheet 18B.
2. For details of Approach Slabs See Sheet 28A.





SHEET REFERENCE							
Code	Sheet	Code	Sheet	Code	Sheet		
A-79	37	P-83	37	A-86	37		
P-79	37			P-86	37		
A-81	37	P-84	37	U-	40		
P-81	37	A-85	37				
A-83	37	P-85	37				

Note:
After the existing West Street bridge has been removed, the area under the bridge between the railroad and the abutment at Howard Street shall be cleaned of all debris, graded to drain and seeded as directed by the Engineer.

ESTIMATED QUANTITIES

Code	Location	CATCH BASIN: Item No. No. 3-A C.B. Each	CATCH BASIN: No. 3 C.B. Each	PIPE: 12" Class A-1 M-6.6(a) or M-6.8(a) Lin. Ft.	GUARDRAIL: Steel Beam Std. Type (Deep) Lin. Ft.	REMOVAL: Pipe Lin. Ft.	ABANDON: Catch Basins and Manholes Each	MISC.: Approach Slabs Sq. Yds.
A-82	13+00 Rel. W. St. 14' Rt.	1-8 1						
P-82	12+48.3 Rel. W. St. 14' Rt.	1-1		52				
A-84	12+46. to 14+03 Lt.	1-8	1		150			
	12+45. to 14+03 Rt.	1-15			162.5			
	20+25.50 to 20+77 Lt.	1-15			62.5			
	20+25.50 to 20+82 Rt.	1-15			62.5			
	Rel. West St.	E-12				544		
	Rel. West St. at Rte. 40	1-16					2	
	South End Existing West ST	1-15			25			
	Approach Slabs	1-7	1					157.7
	Total			52	462.5	544	2	157.7

SCALE H. 1" = 50' V. 1" = 10'
MADE LGO DATE 10-17-61
TRCD T.E.R. DATE 10-23-61
CKD J.D.G. DATE 11-9-61

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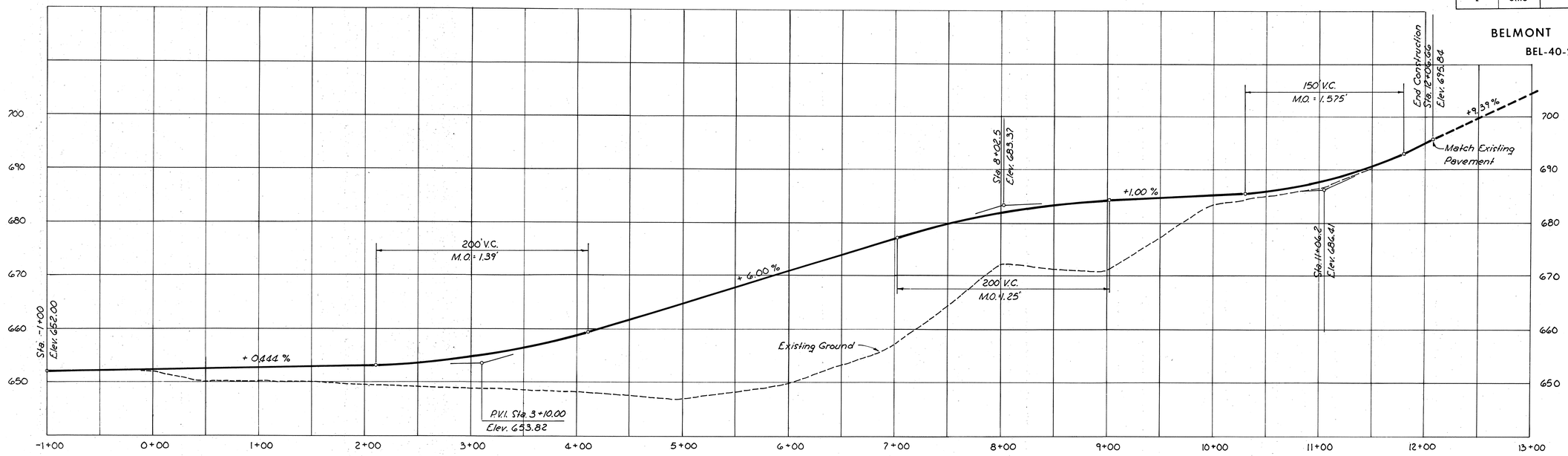
PLAN PROFILE
RELOCATED WEST STREET

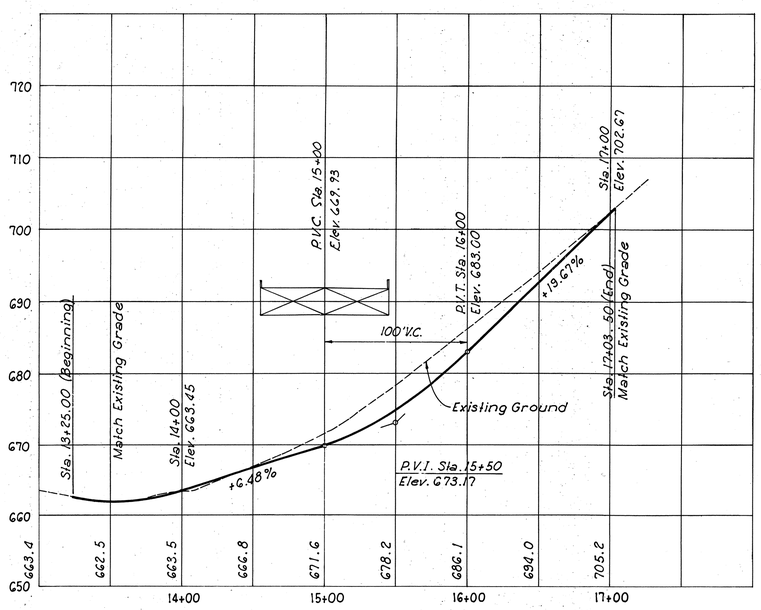
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

BELMONT COUNTY

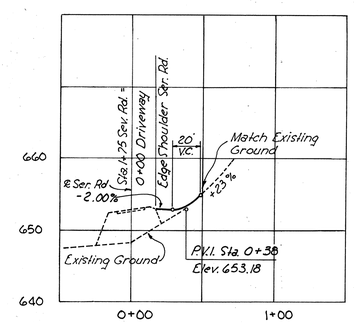
BEL-40-23.89



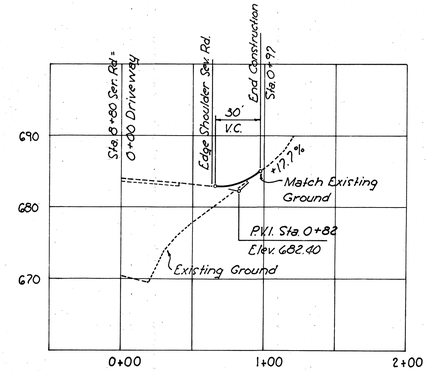
PROFILE SERVICE ROAD



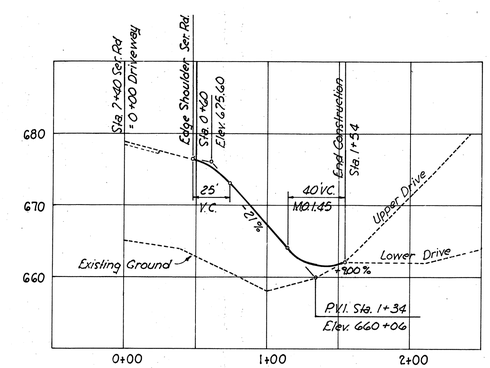
PROFILE PLUM STREET



PROFILE DRIVEWAY RT. STA. 1+75 SR. RD.



PROFILE DRIVEWAY RT. STA. 8+80 SR. RD.



PROFILE DRIVEWAY RT. STA. 7+40 SR. RD.

SCALE Horz. 1" = 50' Vert. 1" = 10'
MADE CGS DATE 10-9-61
TRCD RRP DATE 10-6-61
CKD PFB DATE 10-10-61

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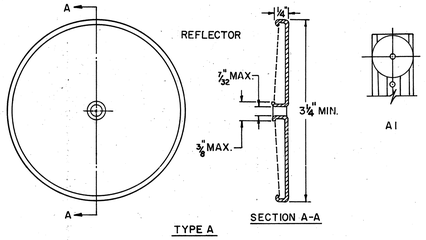
SERVICE ROAD PLUM ST. DRIVEWAY PROFILES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

28
197

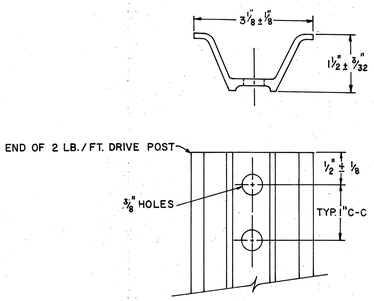
BELMONT COUNTY

BEL-40-23.89



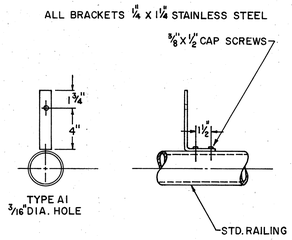
DELINEATOR TYPE

Scale: 3/4" = 1'



DELINEATOR POST

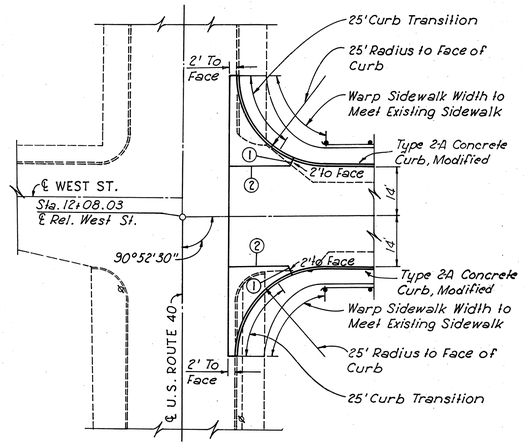
Scale: 3/4" = 1'



BRIDGE RAIL BRACKET

Scale: 3/4" = 1'

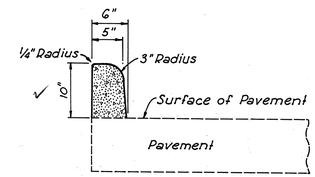
DELINEATOR DETAILS



① Expansion Joint without Dowels
② Standard Key Joint without tie bars

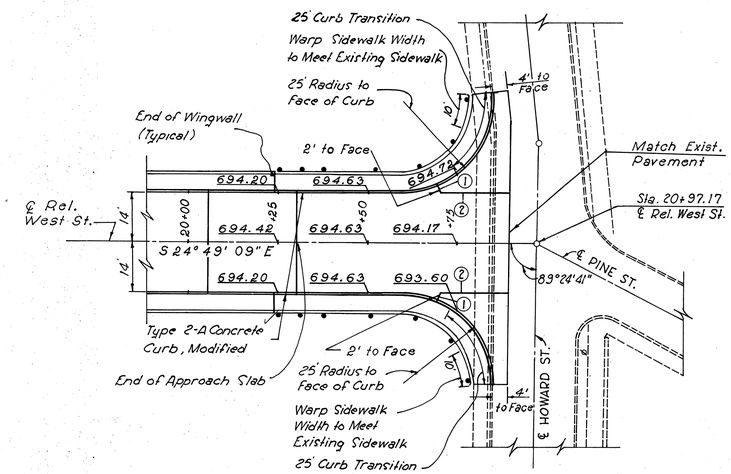
INTERSECTION DETAIL
RELOCATED WEST ST. AT EXISTING U.S. ROUTE 40

Scale: 1" = 20'



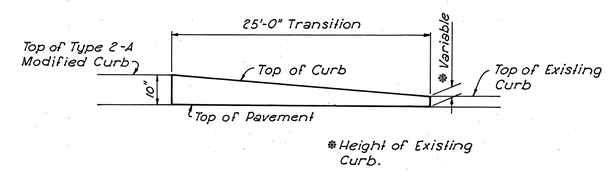
TYPE 2-A
CONCRETE CURB, MODIFIED

No Scale



INTERSECTION DETAIL
RELOCATED WEST ST. AT HOWARD ST.

Scale: 1" = 20'



TYPICAL CURB TRANSITION

No Scale

SCALE as shown
MADE J.D.G. DATE 12-7-61
TRCD T.E.R. DATE 12-8-61
CKD _____ DATE _____

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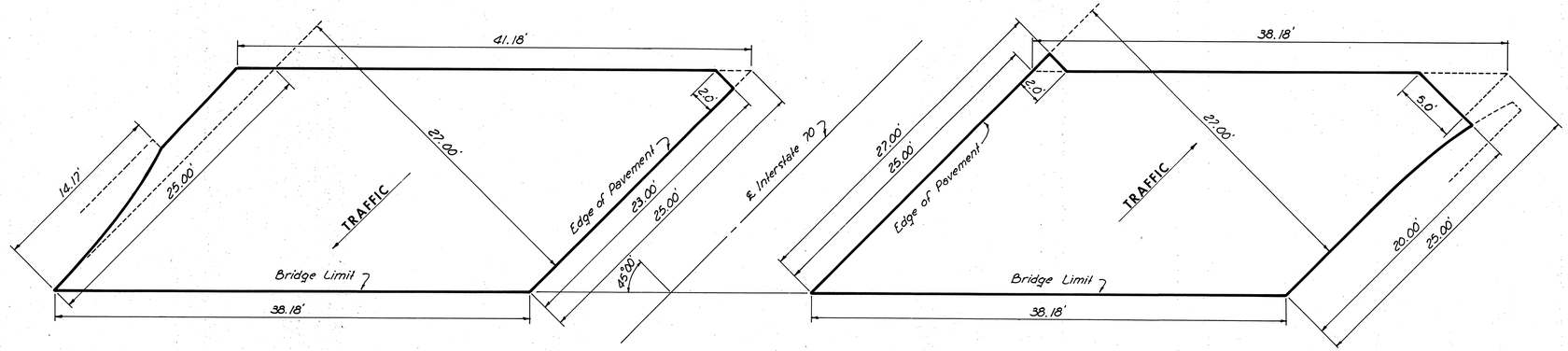
MISCELLANEOUS DETAIL

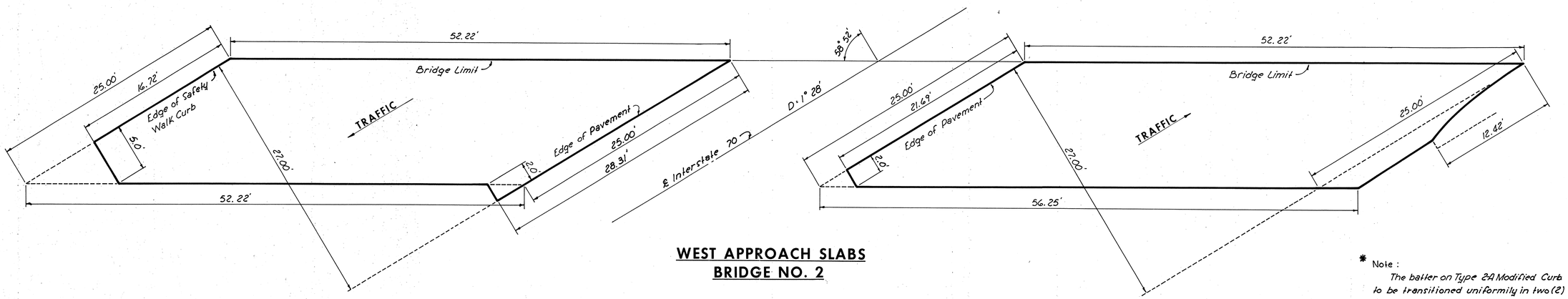
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

28A
197

BELMONT COUNTY
BEL-40-23.89



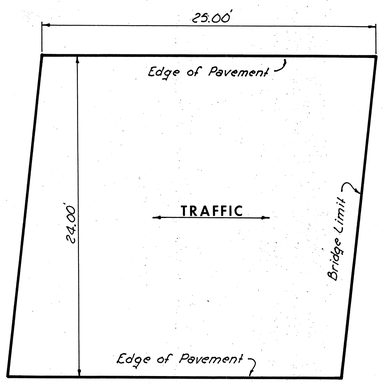
EAST APPROACH SLABS
BRIDGE NO. 2



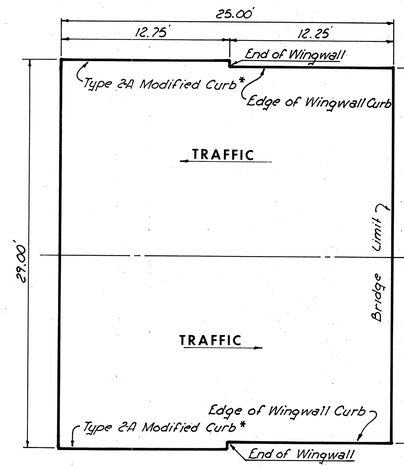
WEST APPROACH SLABS
BRIDGE NO. 2

* Note :
The batter on Type 2A Modified Curb to be transitioned uniformily in two (2) feet to match batter on Wingwall curb.

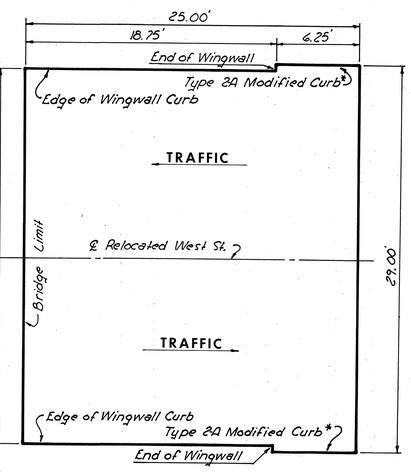
Note :
1. Approach slabs shall meet construction requirements as shown on State of Ohio Standard Drawing No. AS-1-54.
2. Payment for curb sections on approach slabs shall be included in the unit price bid for item I-7.



TYPICAL APPROACH SLAB
BRIDGE NO.1



NORTH APPROACH SLAB
BRIDGE NO. 3



SOUTH APPROACH SLAB
BRIDGE NO. 3

SCALE 3/16" = 1'-0"
MADE JDG DATE 1-26-66
TRCD RGT DATE 1-27-66
CKD JOO DATE 1-28-66

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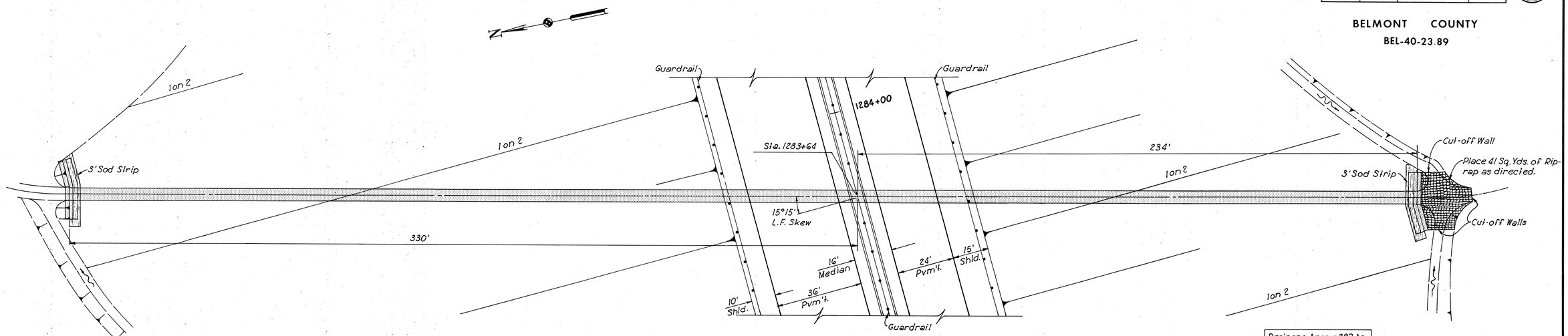
SHEET.

APPROACH SLABS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

BELMONT COUNTY

BEL-40-23.89



Drainage Area = 397 Ac.
Q_{50} = 203 c.f.s.

PLAN

Scale : 1" = 20'

CULVERT DATA

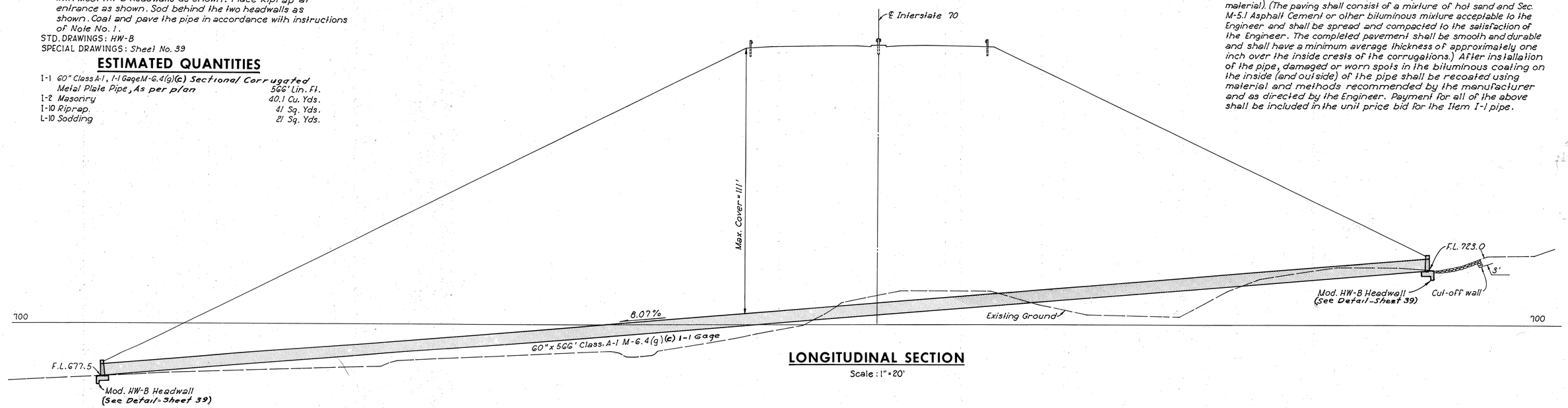
TYPE: *Pipe Culvert Class A-1*
SIZE: *60" x 566'*
WORK REQUIRED: *Build a 60" x 566' Sectional Plate Pipe Culvert with Mod. HW-B Headwalls as shown. Place Riprap at entrance as shown. Sod behind the two headwalls as shown. Coat and pave the pipe in accordance with instructions of Note No. 1.*
STD. DRAWINGS: *HW-B*
SPECIAL DRAWINGS: *Sheet No. 39*

ESTIMATED QUANTITIES

I-1	*60" Class A-1, 1-1 Gage M-6.4(g)(c) Sectional Corrugated Metal Plate Pipe, As per plan*	*566' Lin. Ft.*
I-2	*Masonry*	*40.1 Cu. Yds.*
I-10	*Riprap.*	*41 Sq. Yds.*
L-10	*Sodding*	*21 Sq. Yds.*

NOTES

1. The sectional corrugated metal pipe shall be shop coated in accordance with Sec. M-6.4(c) (and field paved with a bituminous material). (The paving shall consist of a mixture of hot sand and Sec. M-5.1 Asphalt Cement or other bituminous mixture acceptable to the Engineer and shall be spread and compacted to the satisfaction of the Engineer. The completed pavement shall be smooth and durable and shall have a minimum average thickness of approximately one inch over the inside crests of the corrugations.) After installation of the pipe, damaged or worn spots in the bituminous coating on the inside (and outside) of the pipe shall be recoated using material and methods recommended by the manufacturer and as directed by the Engineer. Payment for all of the above shall be included in the unit price bid for the Item I-1 pipe.



LONGITUDINAL SECTION

Scale : 1" = 20'

SCALE *As shown*
MADE *J.D.G.* DATE *10-19-61*
TRCD *T.E.R.* DATE *12-26-61*
CKD *P.F.B.* DATE *1-8-62*

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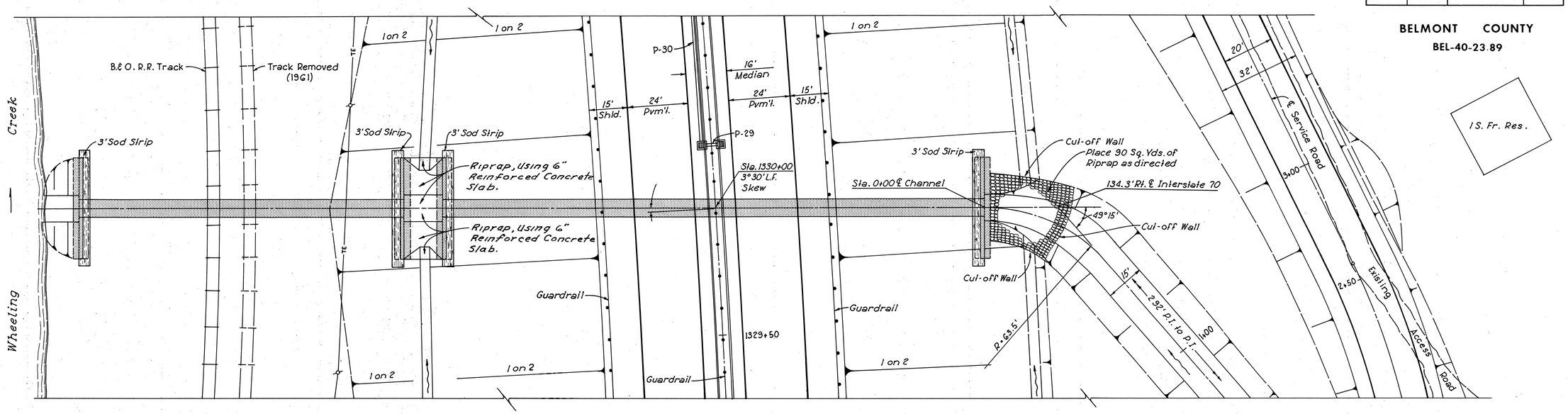
C-1
CULVERT PLAN & PROFILE
STA. 1283+64

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

30
197

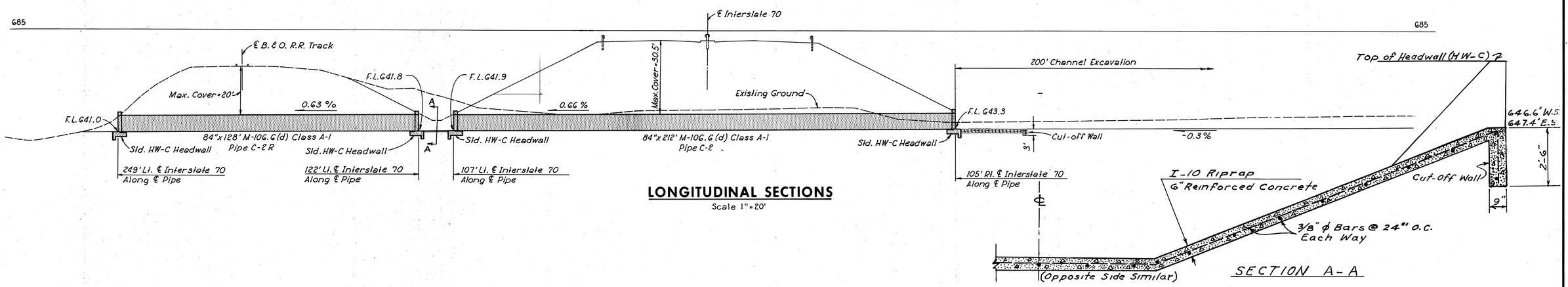
BELMONT COUNTY
BEL-40-23.89



Drainage Area = 633 Ac.
Q50 = 328 c.f.s.

PLAN
Scale 1" = 20'

Drainage Area = 580 Ac.
Q50 = 305 c.f.s.



LONGITUDINAL SECTIONS
Scale 1" = 20'

CULVERT DATA

TYPE: Pipe Culvert Class A-1
SIZE: 1-84" x 128' and 1-84" x 212'
WORK REQUIRED: Build an 84" x 128' Pipe Culvert with Std. HW-C Headwalls under the B.& O. Railroad. Build an 84" x 212' Pipe Culvert with Std. HW-C Headwalls under Interstate 70. Sod behind all headwalls as shown. Place Riprap at entrance to the culvert as shown. Use 6" Concrete Slope Protection between the two headwalls as shown in plan. Excavate a channel between the Service Road and Interstate 70 as shown in plan.
STD. DRAWINGS: HW-C.

ESTIMATED QUANTITIES

	Pipe C-2	Pipe C-2R	Total
E-3 Channel Excavation	415 Cu. Yds.	—	415 Cu. Yds.
I-1 84" Class A-1 M-106.6(d) Heavy Duty Reinforced Concrete Culvert Pipe, As Per Plan	212 Lin. Ft.	128 Lin. Ft.	340 Lin. Ft.
I-2 Masonry	69 Cu. Yds.	69 Cu. Yds.	138 Cu. Yds.
I-10 Riprap	90 Sq. Yds.	—	90 Sq. Yds.
I-10 Riprap, Using 6" Reinforced Concrete Slab	39 Sq. Yds.	—	39 Sq. Yds.
L-10 Sodding	32.5 Sq. Yds.	32.5 Sq. Yds.	65 Sq. Yds.

NOTES

The two runs of Heavy Duty Reinforced Concrete Culvert Pipe, Sec. M-106.6(d) at Station 1330+00 shall be factory lined with two (2) coats of Bitumastic Super Service Black, as manufactured by the Tar Products Division of Koppers Company, Inc. Pittsburgh 12, Pa. or two (2) coats of Rexon Coating No. 2 as manufactured by the Hamilton Kent Manufacturing Company, Kent, Ohio or approved equal. The entire interior of the pipe, the interior and end of the bell, and outside end end of the tongue shall be coated. Payment for work shall be made at the contract unit price per lineal foot bid for "Item I-1 Heavy Duty Reinforced Concrete Culvert Pipe, as per plan, Class A-1" and shall include all material and labor necessary to complete the lining.

SCALE As shown
MADE J.D.G. DATE 11-13-61
TRCD T.E.R DATE 1-23-62
CKD R.F.B. DATE 11-15-61

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KANSAS CITY CLEVELAND NEW YORK
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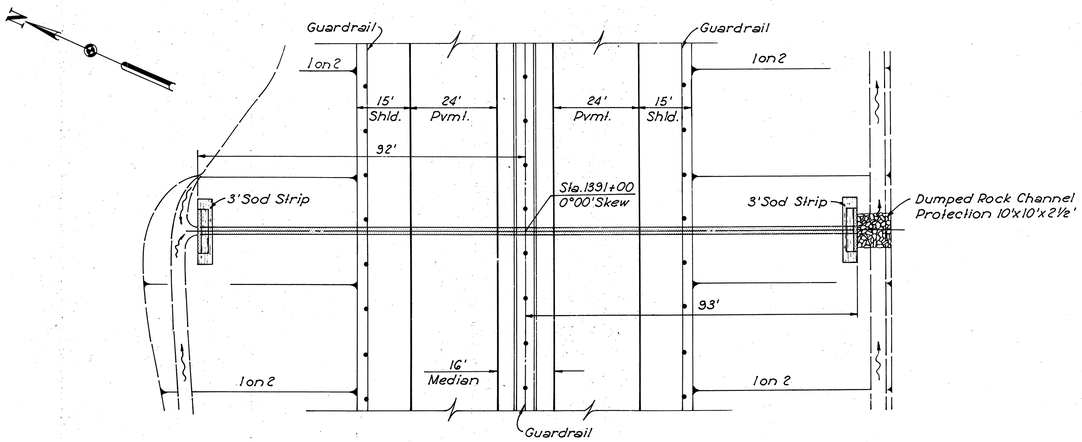
C-2
CULVERT PLAN & PROFILE
STA. 1330+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

31 / 197

BELMONT COUNTY

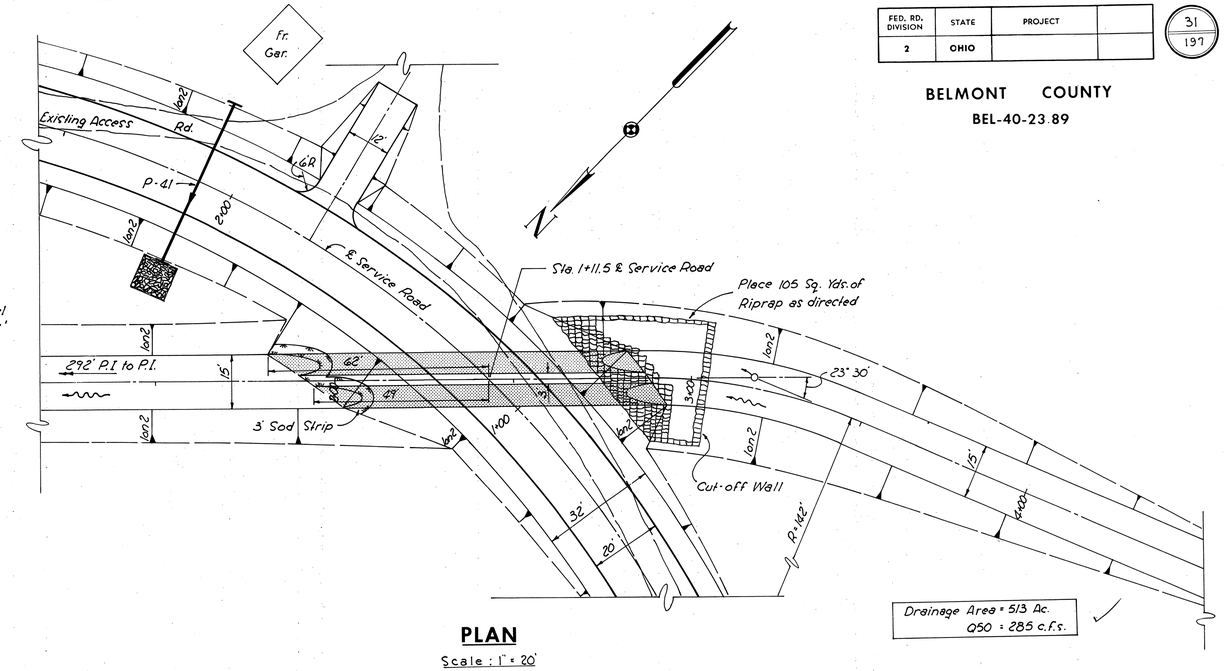
BEL-40-23.89



PLAN

Scale : 1" = 20'

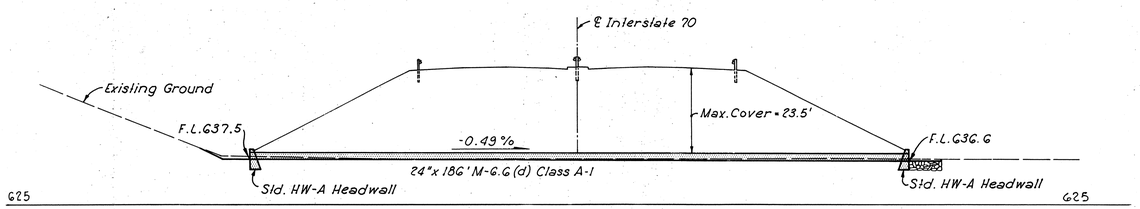
Drainage Area = 2.7 Ac.
Q50 = 12.7 c.f.s.



PLAN

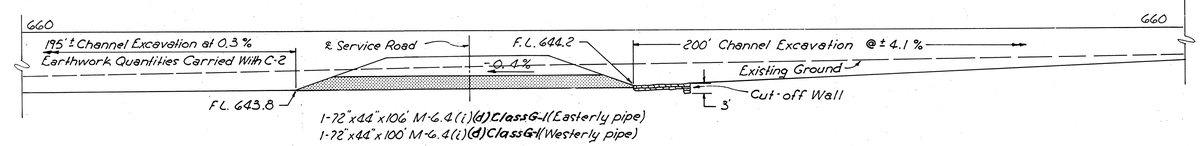
Scale : 1" = 20'

Drainage Area = 513 Ac.
Q50 = 285 c.f.s.



LONGITUDINAL SECTION

Scale : 1" = 20'



LONGITUDINAL SECTION

Scale : 1" = 20'

CULVERT DATA

TYPE : Pipe Culvert Class A-1
SIZE : 24" x 186'
WORK REQUIRED : Build a 24" x 186' Pipe Culvert with Std. HW-A Headwalls. Sod behind Headwalls as shown. Place Dumped Rock Channel Protection at outlet as shown.
STD. DRAWINGS : HW-A & B

ESTIMATED QUANTITIES

1-1	24" Class A-1 M-6.6 (d) Reinforced Concrete Pipe	186 Lin. Ft.
1-2	Masonry	10.4 Cu. Yds.
1-10	Dumped Rock Channel Protection	9.3 Cu. Yds.
L-10	Sodding	14 Sq. Yds.

CULVERT C-3

CULVERT DATA

TYPE : Pipe Culvert Class A-1
SIZE : 1-72" x 44" x 106' and 1-72" x 44" x 100'
WORK REQUIRED : Place two 72" x 44" Pipe Culverts as shown. Use no Headwalls. Miter both ends of both pipes to match finished side slopes and cut off ends of pipes as shown. Place Riprap at entrance as shown and sod around outlet of pipe as shown. Excavate 200' of channel to entrance as shown in plan and profile.
STD. DRAWINGS : None

ESTIMATED QUANTITIES

E-3	Channel Excavation	400 Cu. Yds.
1-1	72" x 44" M-6.4 (i)(d) Class G-1 Corrugated Metal Arch with Integral Base	206 Lin. Ft.
1-10	Riprap	105 Sq. Yds.
L-10	Sodding	15 Sq. Yds.

CULVERT C-2A

SCALE As shown
MADE J.O.G. DATE 1-5-61
TRCD T.E.K. DATE 12-28-61
CKD P.F.B. DATE 1-8-62

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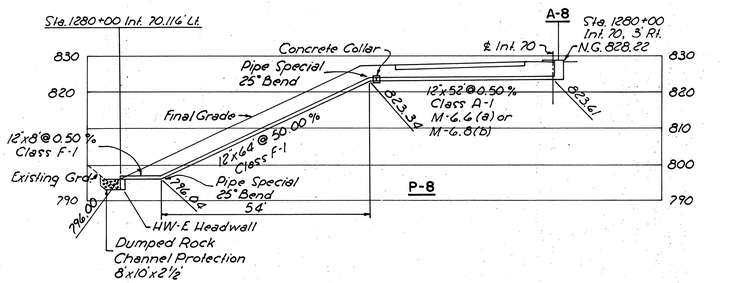
C-2A & C-3
CULVERT PLAN PROFILES
STA. 1+11.5 ℄ SER. ROAD
STA. 1391+00

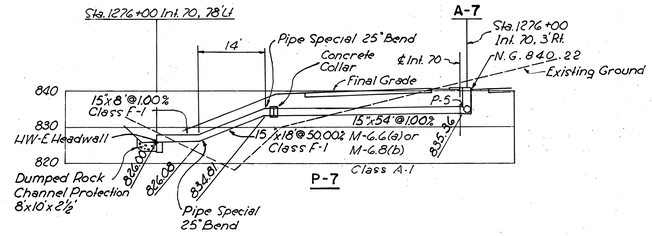
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

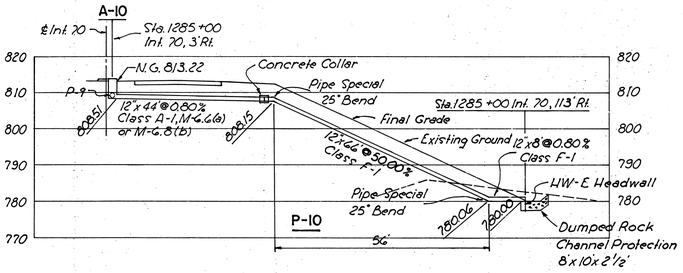
32
197

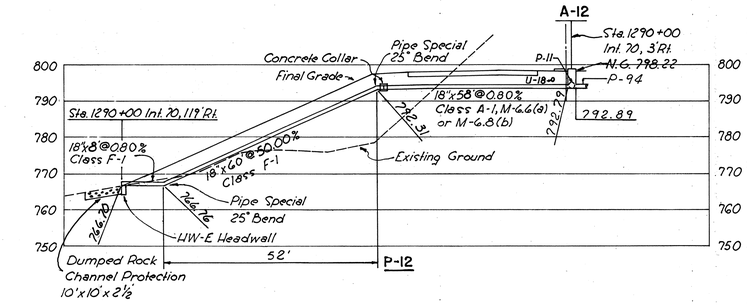
BELMONT COUNTY

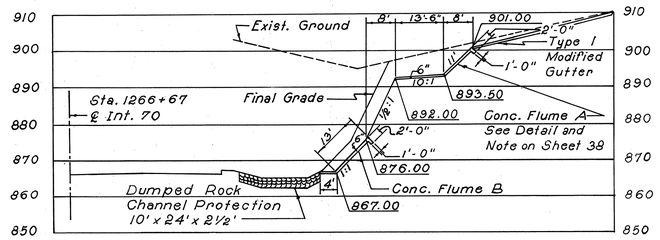
BEL-40-23.89





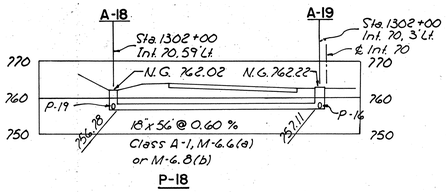


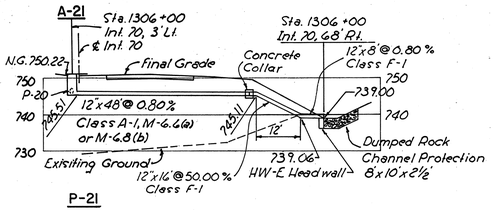


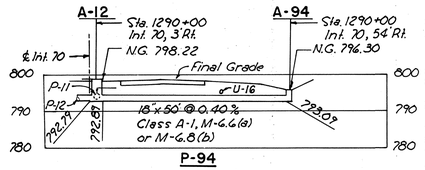


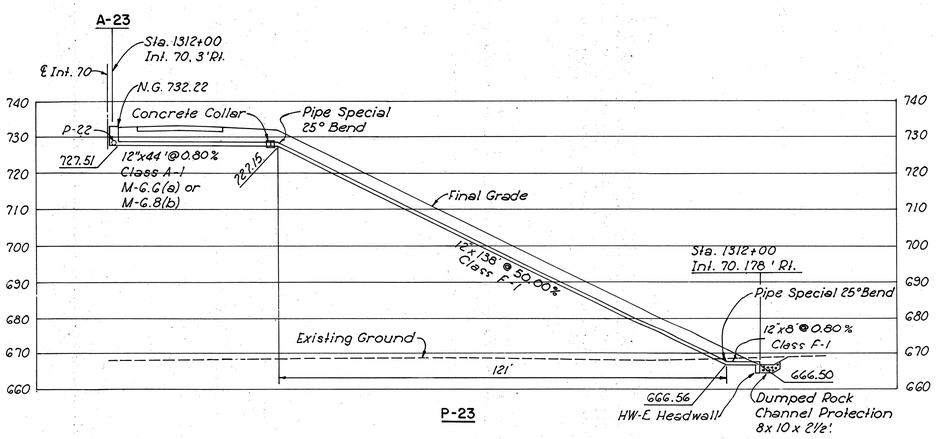
Note:
Transition Gutter to Flume Section in 5'.

CONCRETE FLUME









ESTIMATED QUANTITIES

Code	Location	Item No.	INLETS AND C.B.'S: 2-10-A Pvd. Shldr. Inlet Each	No. 5 Catch Basin Each		PIPE: 12" Class A-1 M-6.6(a) or M-6.8(b) Lin.Ft.	15" Class A-1 M-6.6(a) or M-6.8(b) Lin.Ft.	18" Class A-1 M-6.6(a) or M-6.8(b) Lin.Ft.	12" Class F-1 Lin.Ft.	15" Class F-1 Lin.Ft.	18" Class F-1 Lin.Ft.			MISC.: L-10 Sodding Sq.Yd.	I-2 Masonry Cu.Yd.	I-5 Pipe Special Each	I-10 Dumped Rock Channel Protect. Cu.Yd.
Conc. Flume	1266+67 Rt.	I-2												13.8	5.40		22.2
P-7		I-1					54			26					.26	2(15")	7.4
A-8	1280+00 3' Rt.	I-8	1														
P-8		I-1				52			72						.23	2(12")	7.4
P-10		I-1				44			74						.23	2(12")	7.4
P-12		I-1						58			68				.30	2(18")	9.3
P-18		I-1						56									
P-21		I-1				48			24						.23	2(12")	7.4
P-23		I-1				44			146						.23	2(12")	7.4
A-94	1290+00 54' Rt.	I-8		1													
P-94		I-1						50									
	Total		1	1		188	54	164	316	26	68			13.8	6.88	8(12"), 2(18") 2(15")	68.5

SCALE 1" = 20'
MADE GCS DATE 11-14-61
TRCD TEB DATE 11-20-61
CKD JDG DATE 11-24-61

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SHEET.

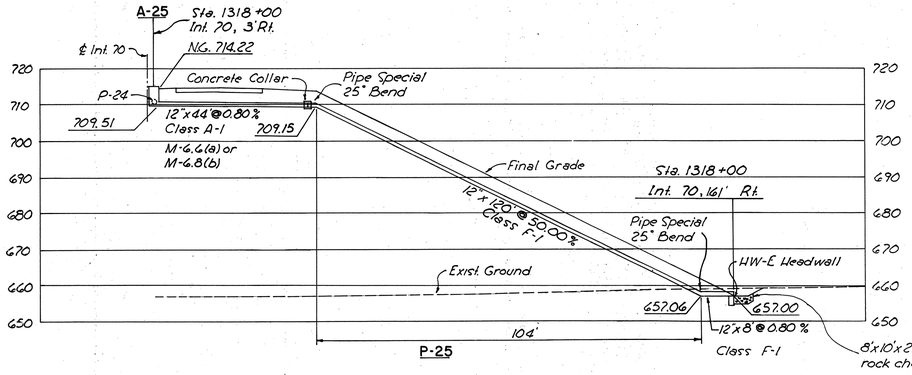
PIPE PROFILE

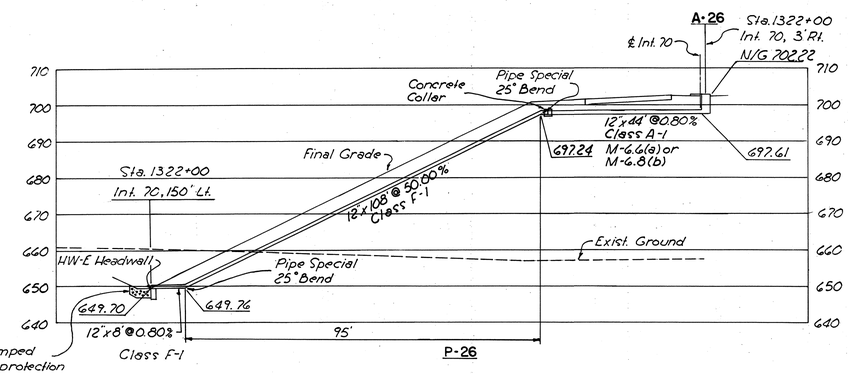
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

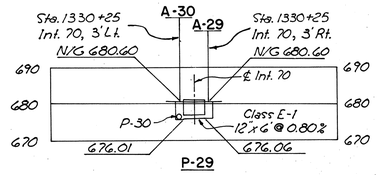
33 / 197

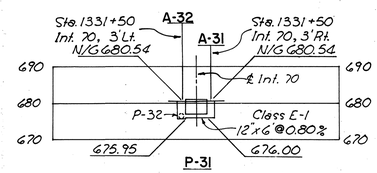
BELMONT COUNTY

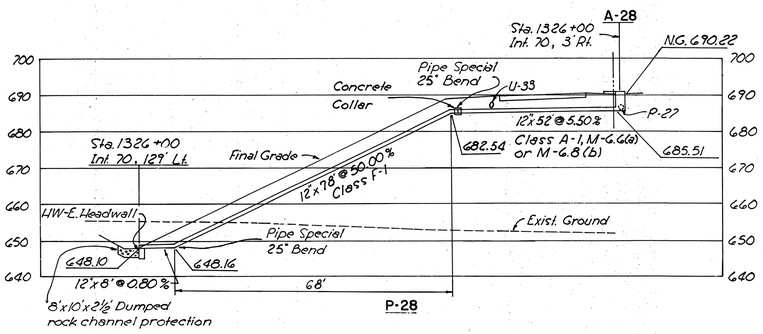
BEL-40-23.89

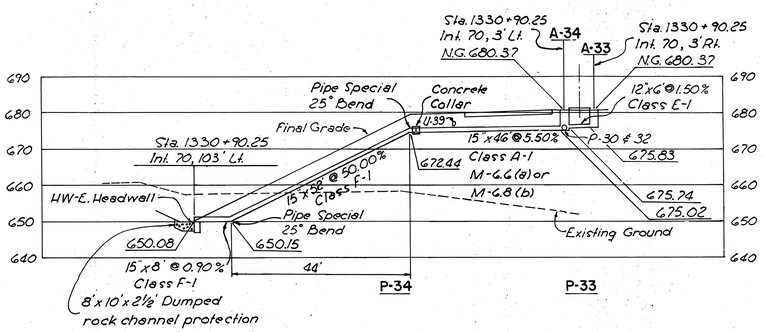












ESTIMATED QUANTITIES

Code	Location		Item No.	INLETS AND CATCH BASINS: 2-10-A Pvd. Shldr. Inlet	3-A Catch Basin	3 Catch Basin		PIPE: 12" Class A-1 M-6.6(a) or M-6.8(b)	12" Class E-1	12" Class F-1	15" Class A-1 M-6.6(a) or M-6.8(b)	15" Class F-1		MISCELLANEOUS: I-2 Masonry	I-5 Pipe Special	I-10 Dumped Rock Channel Protect.
				Each	Each	Each		Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.		Cu.Yd.	Each	Cu.Yd.
P-25			I-1					44		128				.23	2(12")	7.4
A-26	1322+00	3' Rt.	I-8	1												
P-26			I-1					44		116				.23	2(12")	7.4
P-28			I-1					52		86				.23	2(12")	7.4
A-29	1330+25	3' Rt.	I-8		1											
P-29			I-1						6							
A-31	1331+50	3' Rt.	I-8		1											
P-31			I-1						6							
A-33	1330+90.25	3' Rt.	I-8			1										
P-33			I-1						6							
P-34			I-1								46	60		.26	2(15")	7.4
	Total			1	2	1		140	18	330	46	60		.95	6(12"); 2(15")	29.6

SCALE 1" = 20'
MADE GCS DATE 11-15-61
TRCD B&T DATE 11-20-61
CKD JDG DATE 11-21-61

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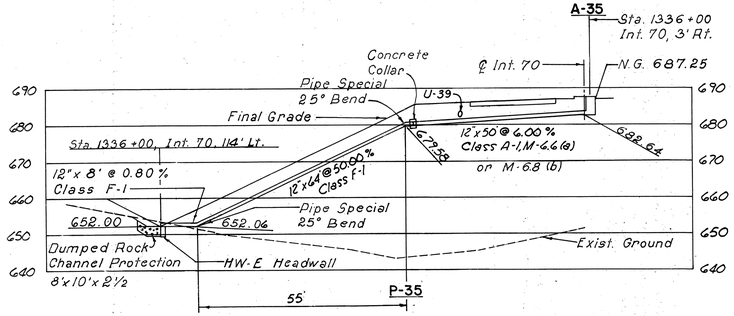
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

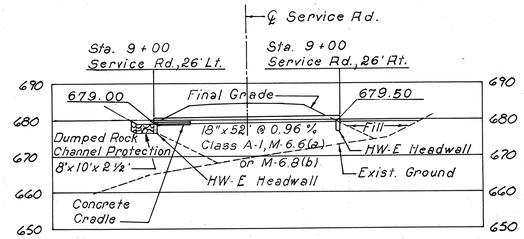
PIPE PROFILE

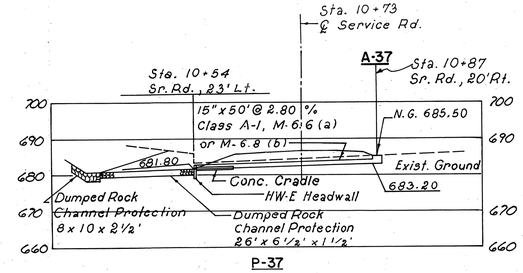
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

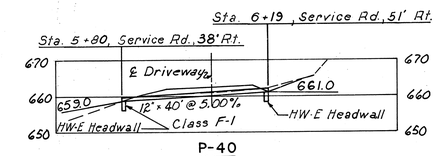
BELMONT COUNTY

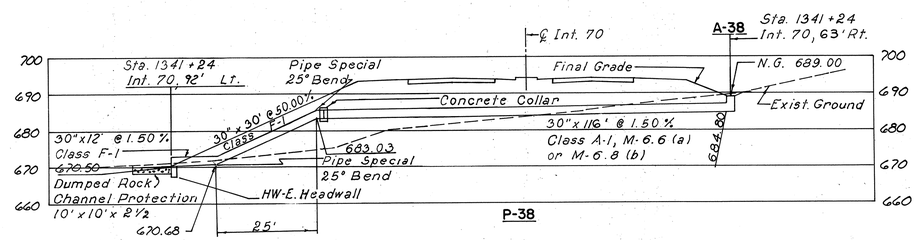
BEL-40-23.89

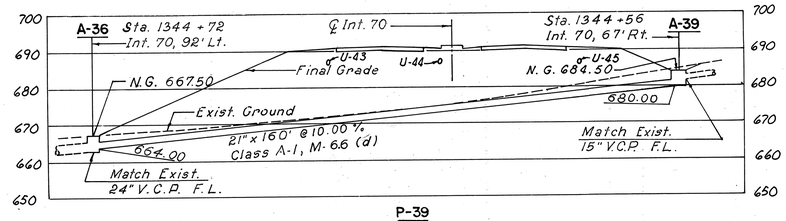


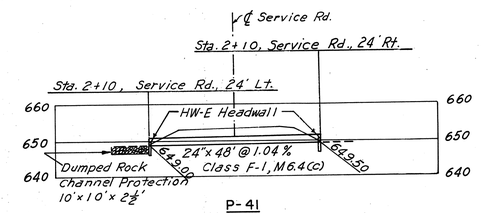


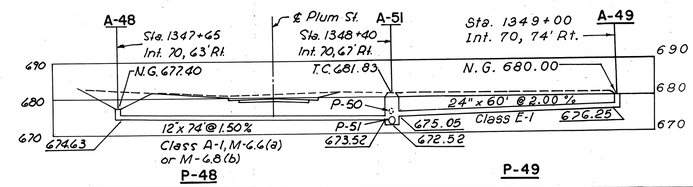


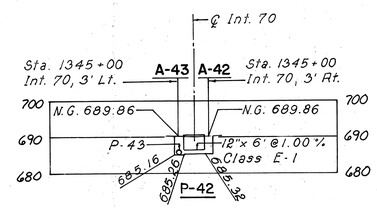


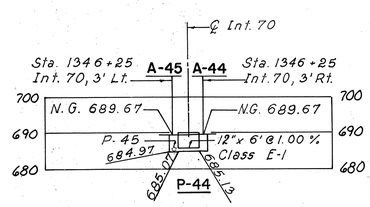


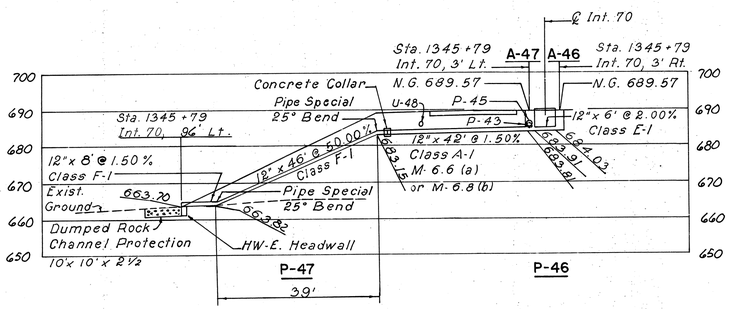












			ESTIMATED QUANTITIES																	
			INLETS, C.B.'S. AND M.H.'S						PIPE										MISCELLANEOUS	
Code	Location	Item No.	2-10-A Pvd. Shldr. Inlet	2-2-B Catch Basin	3 Catch Basin	3-A Catch Basin	4 Catch Basin	5 Catch Basin	12" Class A-1 M-6.6(a) or M-6.8(b)	15" Class A-1 M-6.6(a) or M-6.8(b)	18" Class A-1 M-6.6(a) or M-6.8(b)	21" Class A-1 M-6.6(a)	30" Class A-1 M-6.6(a) or M-6.8(b)	12" Class E-1	24" Class E-1	12" Class F-1	24" Class F-1 M-6.4(c)	30" Class F-1	I-2 MAsonry	I-5 Pipe Special	I-10 Dumped Rock Channel Protect.
			Each	Each	Each	Each	Each	Each	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Cu.Yd.	Cu.Yd.	Each	Cu.Yd.
A-35	1336+00 3'Rt.	I-8	1																		
P-35		I-1							50							72			.23	2(12")	7.4
P-36		I-1									52								1.00		7.4
A-37	10+87 Ser.Road 20'Rt.	I-8						1													
P-37		I-1								50									.68		16.8
A-38	1341+24 63'Rt.	I-8					1														
P-38		I-1											116					42	.51	2(30")	9.3
A-39	1344+56 67'Rt.	I-8					1														
P-39		I-1										160									
A-36	1344+72 92'Lt.	I-8		1																	
P-40		I-1														40			.46		
P-41		I-1															48		.82		9.3
A-42	1345+00 3'Rt.	I-8				1															
P-42		I-1												6							
A-44	1340+25 3'Rt.	I-8				1															
P-44		I-1												6							
A-46	1345+79 3'Rt.	I-8			1																
P-46		I-1												6							
P-47		I-1							42							54			.23	2(12")	9.3
A-49	1349+00 74'Rt.	I-8					1														
P-49		I-1													60						
A-48	1347+65 63'Rt.	I-8						1													
P-48		I-1							74												
	Total		1	1	1	2	3	2	166	50	52	160	116	18	60	166	48	42	3.93	4(12"); 2(30")	59.5

SCALE 1" = 20'
MADE GCS DATE 11-16-61
TRCD MWV DATE 11-20-61
CKD JDG DATE 11-21-61

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CONSULTING ENGINEERS
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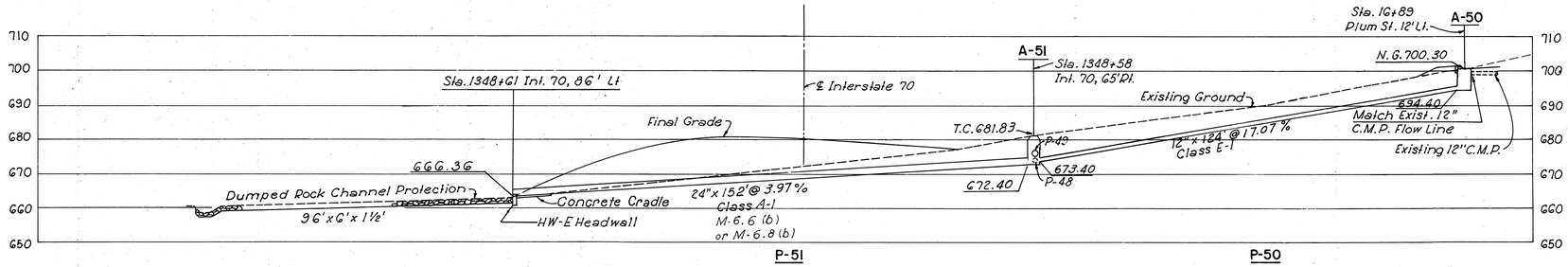
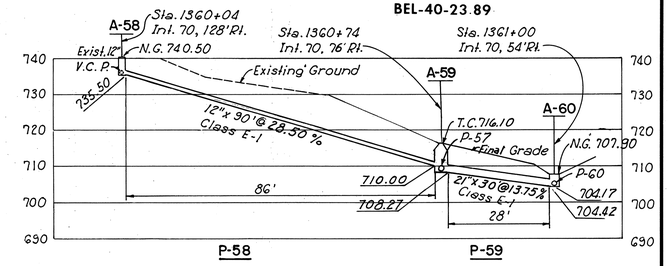
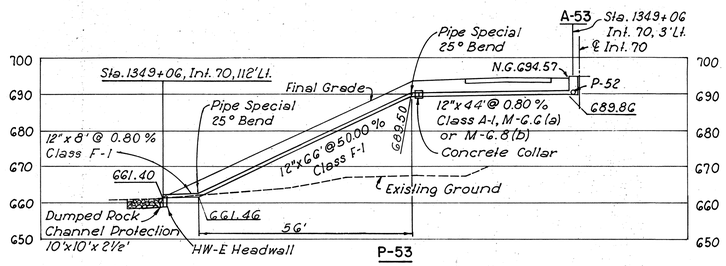
PIPE PROFILE

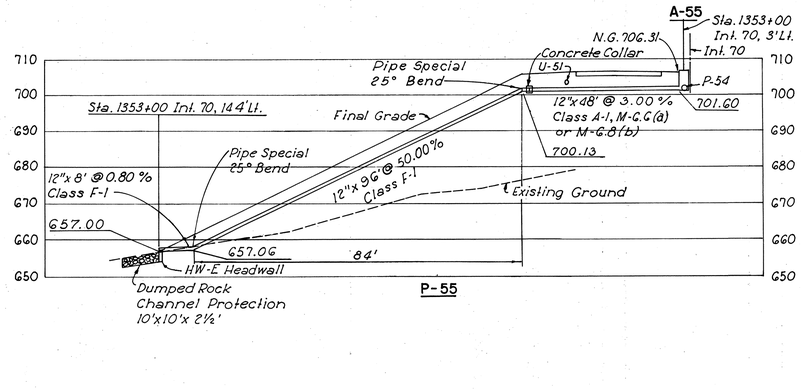
BELMONT COUNTY

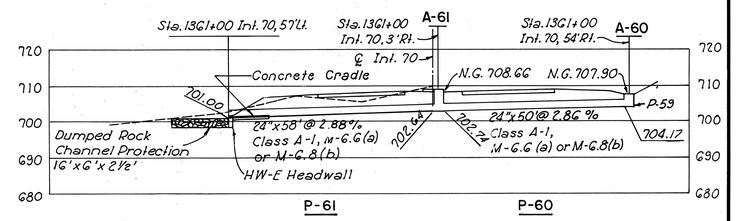
BEL-40-23.89

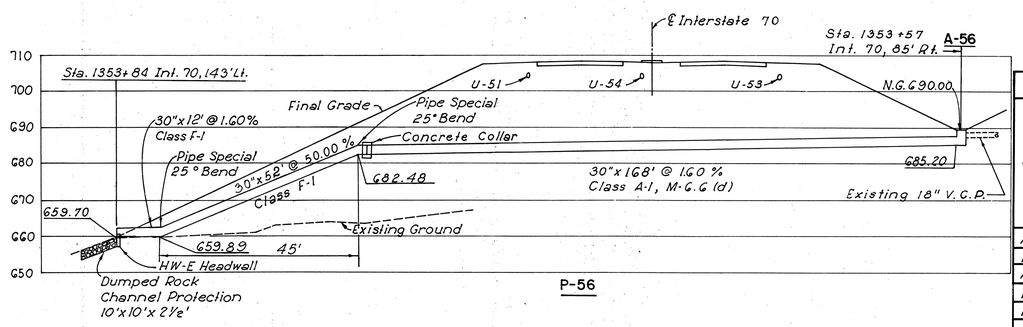


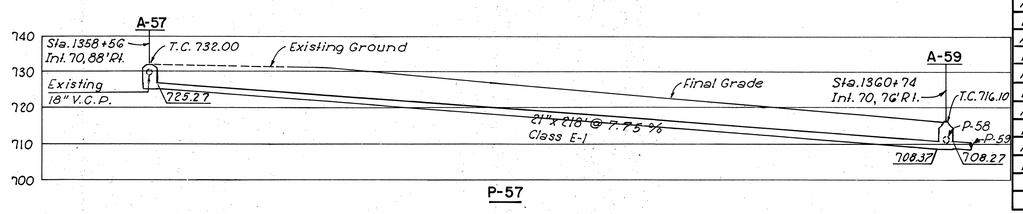












Code	Location	Item No.	INLETS, C.B.'S AND M.H.'S: 2-10-A Pvd. Shldr. Inlet	5 Catch Basin	6 Catch Basin	3A Catch Basin	No. 1 M.H.	PIPES: 12" Class A-1 M-6.6(a) or M-6.8(b)	12" Class E-1	12" Class F-1	21" Class E-1	24" Class A-1 M-6.6(a) or M-6.8(b)	24" Class A-1 M-6.6(b) or M-6.8(b)	30" Class A-1 M-6.6(d)	30" Class F-1	MISCELLANEOUS: I-2 Masonry	I-5 Pipe Special	I-10 Dumped Rock Channel Protect.
			Each	Each	Each	Each	Each	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Cu.Yd.	Each	Cu.Yd.
A-50	16+89 Plum St. 12' Lt.	I-8				1												
P-50		I-1							124									
A-51	1348+58 65' Rt.	I-8					1											
P-51		I-1											152			1.07		32.0
P-53		I-1						44		74						.23	2(12")	9.3
P-55		I-1						48		104						.23	2(12")	9.3
A-56	1353+57 85' Rt.	I-8		1														
P-56		I-1												168	64	.51	2(30")	9.3
A-57	1358+56 88' Rt.	I-8					1											
P-57		I-1									218							
A-58	1360+04 128' Rt.	I-8			1													
P-58		I-1							90									
A-59	1360+74 76' Rt.	I-8					1											
P-59		I-1									30							
A-60	1361+00 54' Rt.	I-8		1														
P-60		I-1										50						
A-61	1361+00 3' Rt.	I-8	1															
P-61		I-1										58				1.07		8.9
	TOTAL		1	2	1	1	3	92	214	178	248	108	152	168	64	3.11	4(12"), 2(30")	68.8

SCALE 1" = 20'
MADE GCS DATE 11-13-61
TRCD TER DATE 11-22-61
CKD JDG DATE 11-27-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

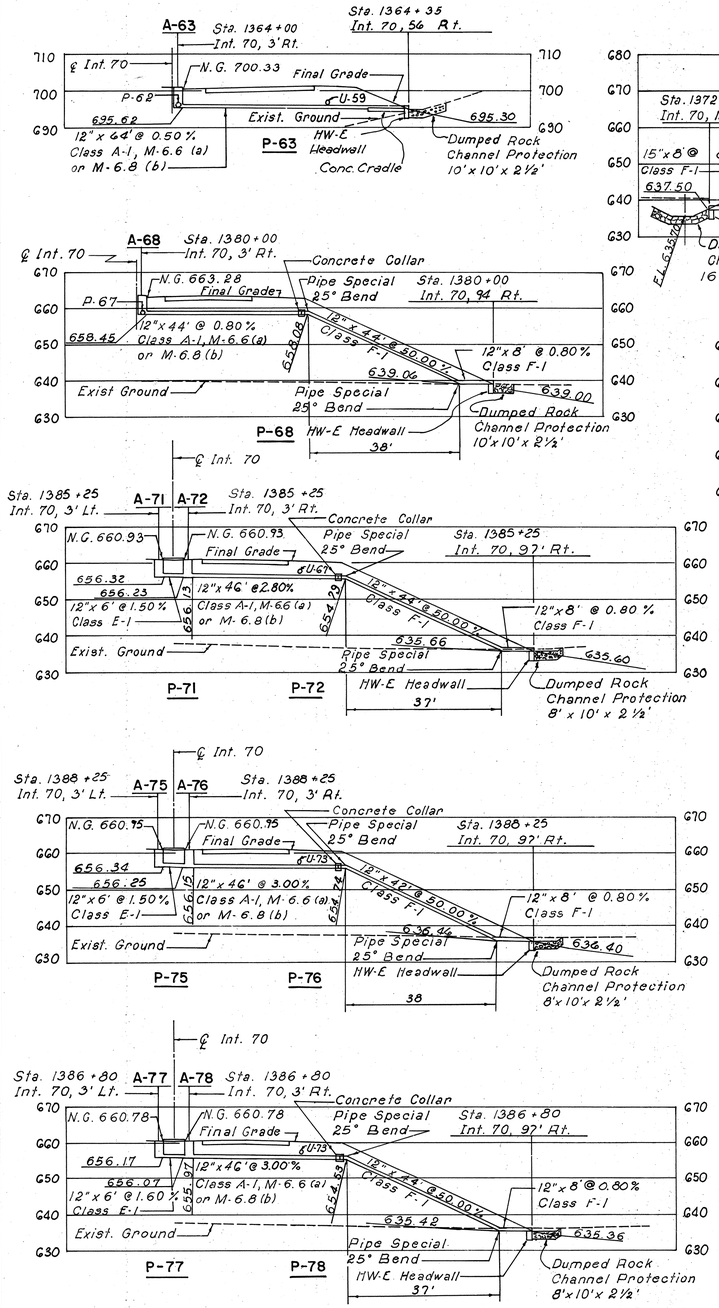
PIPE PROFILE

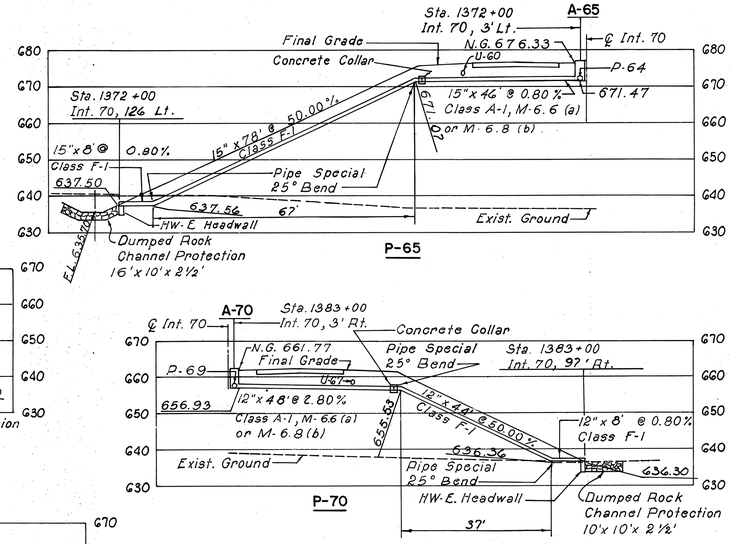
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

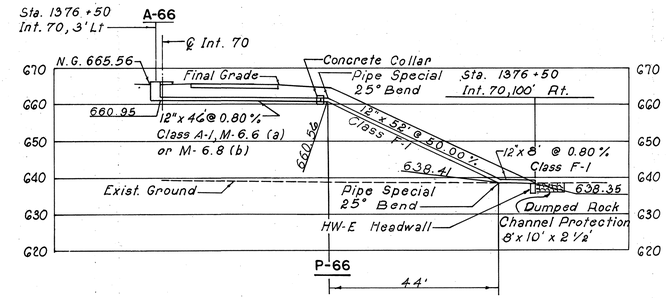
36 / 197

BELMONT COUNTY

BEL-40-23.89







				ESTIMATED QUANTITIES												
				INLETS AND CATCH BASINS				PIPE							MISCELLANEOUS		
Code	Location		Item No.	2-10-A Pav. Shldr. Inlet Each	3-A Catch Basin Each	3 Catch Basin Each		12" Class A-1 M-6.6(a) or M-6.8(b) Lin. Ft.	12" Class E-1 Lin. Ft.	12" Class F-1 Lin. Ft.	15" Class A-1 M-6.6(a) or M-6.8(b) Lin. Ft.	15" Class F-1 Lin. Ft.			I-2 Masonry Cu. Yd.	I-5 Pipe Special Each	I-10 Dumped Channel Cu. Yd.
P-63			I-1					64							.58		9.3
P-65			I-1								46	86			.26	2(15")	14.8
A-66	1376+50	3' Lt.	I-8	1													
P-66			I-1					46		60					.23	2(12")	7.4
P-68			I-1					44		52					.23	2(12")	9.3
P-70			I-1					48		52					.23	2(12")	9.3
A-71	1385+25	3' Lt.	I-8		1												
P-71			I-1						6								
A-72	1385+25	3' Rt.	I-8		1												
P-72			I-1					46		52					.23	2(12")	7.4
A-75	1388+25	3' Lt.	I-8		1												
P-75			I-1						6								
A-76	1388+25	3' Rt.	I-8		1												
P-76			I-1					46		52					.23	2(12")	7.4
A-77	1386+80	3' Lt.	I-8			1											
P-77			I-1						6								
A-78	1386+80	3' Rt.	I-8			1											
P-78			I-1					46		52					.23	2(12")	7.4
	TOTAL			1	4	2		340	18	318	46	86			2.22	12(12");2(15")	72.3

SCALE 1" = 20'
MADE GCS DATE 11-13-61
TRCD MMV DATE 11-15-61
CKD JDG DATE 11-17-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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SHEET.

PIPE PROFILE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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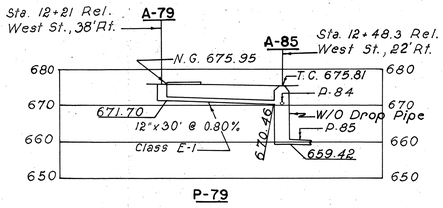
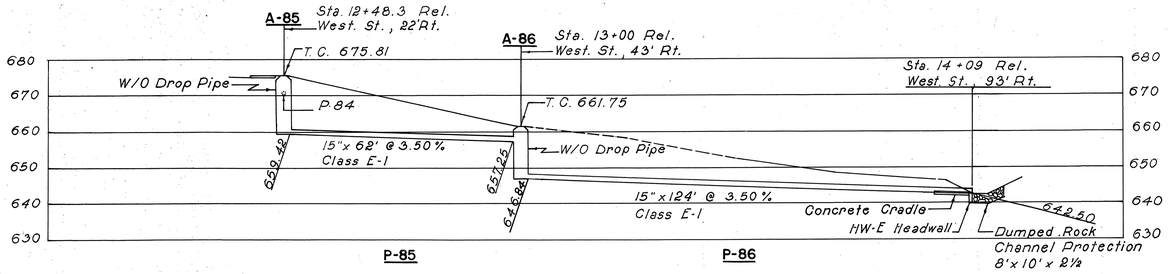
197

BELMONT COUNTY

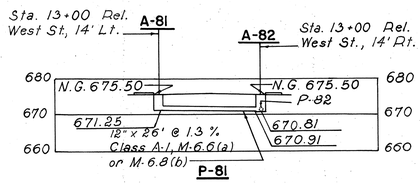
BEL-40-23.89



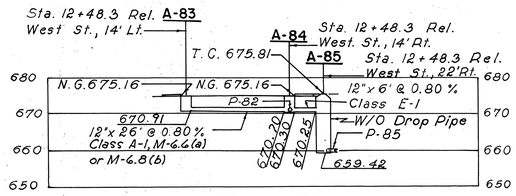
P-79



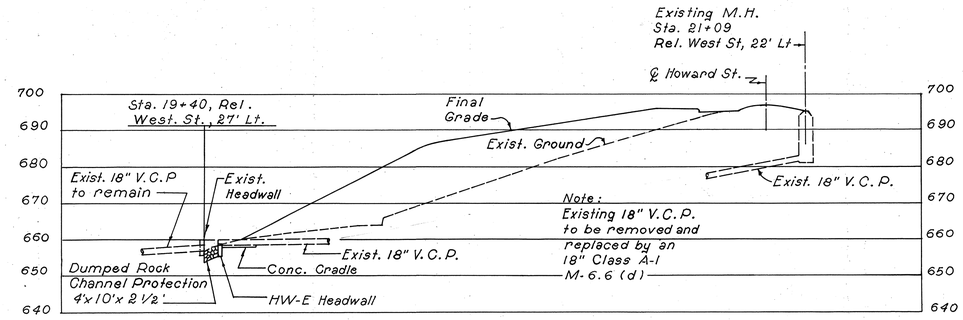
P-85 P-86



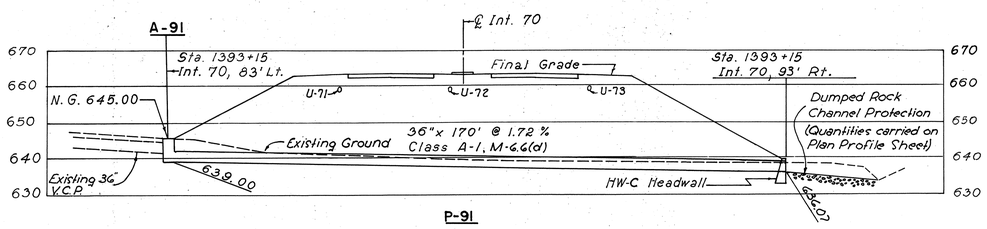
P-81



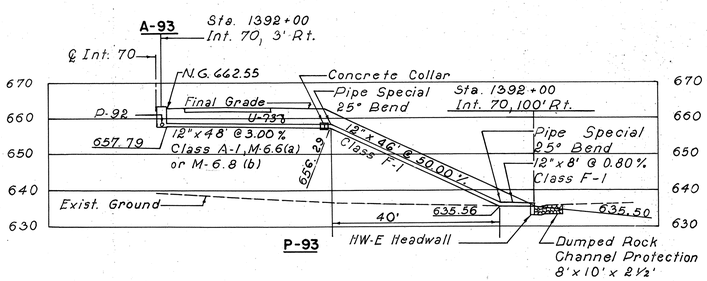
P-83 P-84



P-88



P-91



P-93

			ESTIMATED QUANTITIES															
			C.B.'S. and M.H.'S					PIPE							MISCELLANEOUS		
Code	Location	Item No.		3-A Catch Basin	3 Catch Basin	4 Catch Basin	Std. No.2 M.H. W/O D.P.		12" Class A-1 M-6.6(a) or M-6.8(b)	12" Class E-1	15" Class E-1	12" Class F-1	36" Class A-1 M-6.6(d)	18" Class A-1 M-6.6(d)		I-2 Masonry	I-5 Pipe Special	I-10 Dumped Rock Channel Protect.
				Each	Each	Each	Each		Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.			Cu.Yd.	Each	Cu.Yd.
A-79	12+21 Rel. W.St. 38' Rt.	I-8		1														
P-79		I-1								30								
A-81	13+00 Rel. W.St. 14' Lt.	I-8		1														
P-81		I-1							26									
A-83	12+48.3 Rel. W.St. 14' Lt.	I-8			1													
P-83		I-1							26									
P-84		I-1								6								
A-85	12+48.3 Rel. W.St. 22' Rt.	I-8					1											
P-85		I-1									62							
A-86	13+00 Rel. W.St. 43' Rt.	I-8					1											
P-86		I-1									124					.68		7.4
A-91	1393+15 83' Lt.	I-8				1												
P-91		I-1											170			8.0		
P-93		I-1							48			54				.23	2(12")	7.4
P-88		I-1												164		.90		3.7
	TOTAL			2	1	1	2		100	36	186	54	170	164		9.81	2(12")	18.5

SCALE 1" = 20'
MADE GCS DATE 11-15-61
TRCD MMR DATE 11-19-61
CKD JDG DATE 11-15-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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KANSAS CITY CLEVELAND NEW YORK
SHEET.

PIPE PROFILE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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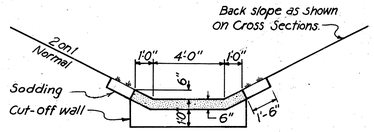
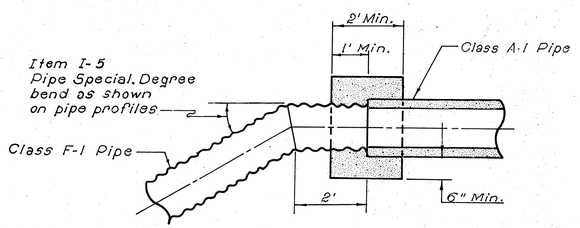
BELMONT COUNTY

BEL-40-23.89

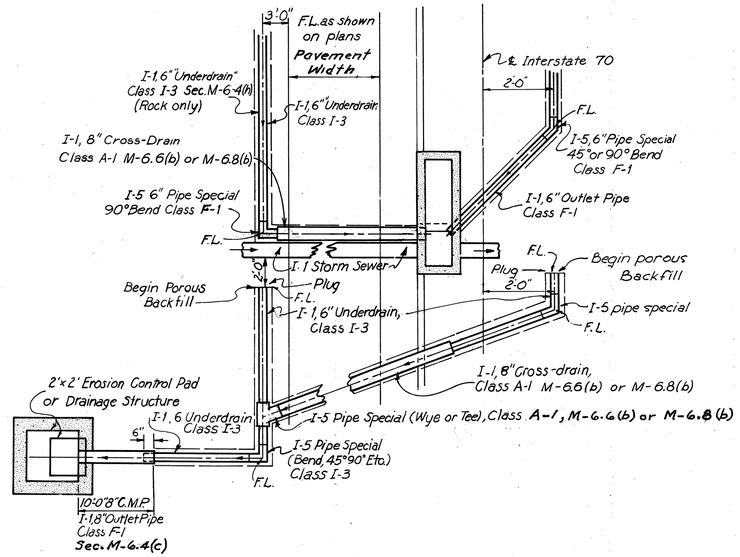


TYPE I
MODIFIED GUTTER

Note:
1. For details of Type 1 Modified Gutter not shown, see Ohio Standard Construction Drawings I-14-G
2. 18" strips of L-10 sodding shall be laid above the gutter

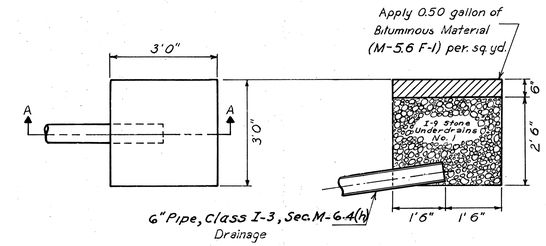


CONCRETE COLLAR
Not to Scale



TYPICAL UNDERDRAIN PIPE DETAIL

Note:
Closed joints shall be maintained at all connections between Type A-1 pipe and I-5 pipe specials.



PLAN

SECTION A-A

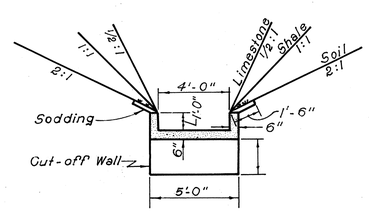
SPRING DRAIN — DETAIL

Note:
No. 34 Aggregate shall be used with a 6" layer of No. 6 Aggregate over the top and sealed with Bituminous Material.

Aggregates, Bituminous Material and necessary Excavation for Spring Drains shall be paid for at the Unit Price Bid per Linear Feet of "Item I-9, Stone Underdrains, No. 1, as per plan." Spring Drains are to be placed at locations designated by Engineer.

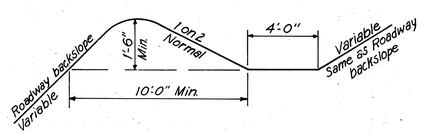
Estimated Quantities of 15 Linear Feet of I-9, Stone Underdrains, No. 1, and 250 Linear Feet of 6" Pipe, Class I-3 Sec. M-6.4(h) are carried in the General Summary for draining springs. This item shall be non-performed in the event that none are encountered. Payment shall be made on final measurement.

The Class I-3 Pipe for Spring Drainage shall be covered with Class 3 porous backfill material to a height of one (1) foot above the top of the pipe. The remainder of the backfill for this item shall meet the specification requirements for Class 2 Backfill.



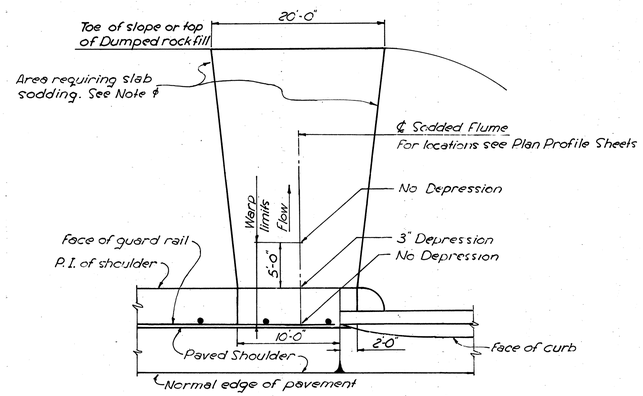
CONCRETE FLUME A & B

Note:
1. If rock is encountered, the concrete flume A & cut-off wall will be non-performed.
2. 18" Strips of L-10 Sodding shall be laid above the concrete flume.



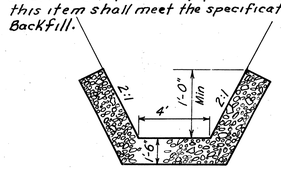
ROADWAY INTERCEPTOR DITCH

Note:
1. Sodding, Paving, Dumped Rock Channel Protection, & Rip Rap is provided for on the plans for erosion control. The Engineer shall check and make adjustments in location and Quantities for these items where indicated by field conditions during construction.
2. For flow line and depth of ditch see Roadway cross sections.



SLAB SOD FLUME
Not to Scale

♯ NOTE:
Prior to placement of sod, galvanized Straight Line Poultry Fence or equivalent having 2" mesh and all wires No. 20 Gauge shall be placed on the finished grade. The 4' wide strands shall be placed at right angles to the direction of flow. The edges of each strand shall be staked with 1"x1"x 24" wood stakes placed at a maximum spacing of 4' and driven flush with finished grade. The strands of fencing shall be fastened together at twelve inch intervals by means of hog rings. The fence shall be secured to the wood stakes by metal staples.
Sod shall be laid in accordance with Construction and Material Specifications Section L-10.07. The price bid per Sq. Yd. for Sodding (including 2" galvanized wire mesh) shall constitute full compensation for furnishing all labor, equipment, tools and incidentals necessary to complete this item in place, completed and accepted.



DUMPED ROCK CHANNEL PROTECTION FOR INTERCEPTOR DITCH

Note:
For flow line and depth of ditch, see cross sections.

SCALE None
MADE PFB DATE 9-20-61
TRCD J.L. DATE 9-25-61
CKD JDG DATE 9-29-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

DRAINAGE DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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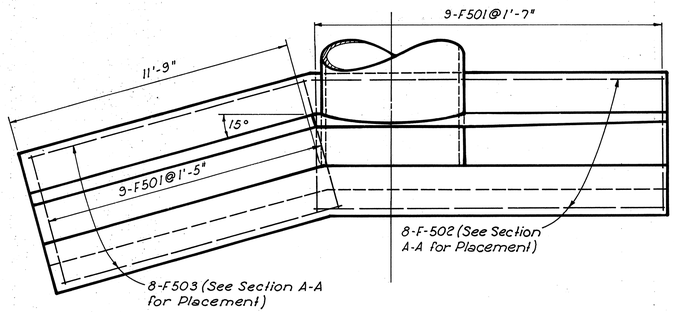
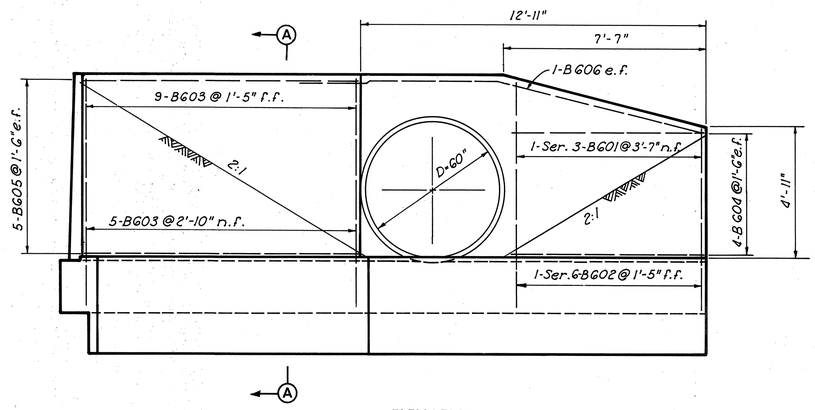
BELMONT COUNTY

BEL-40-23.89



PLAN



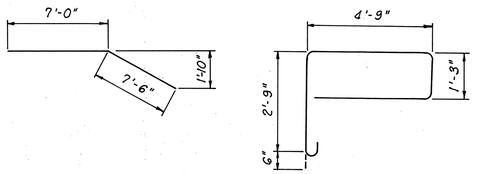
ELEVATION

DETAILED HEADWALLS
Sta. 1283+64 Lt. & Rt.

STANDARD HEADWALLS	
Sta.	Std. Drw.
1330+00 Lt. & Rt.	HW-C
1391+00 Lt. & Rt.	HW-A

STEEL LIST & QUANTITIES					
MARK	NO.	LENGTH	TYPE	STEEL LBS.	CONCRETE C.Y.
2 REQ.					
F 501	18	14'-0"	120		
F 502	8	13'-0"	Str.		
F 503	8	12'-0"	↓		
B 601	1 Ser. 3	6'-6" to 8'-3"			
B 602	1 Ser. 6	6'-6" to 8'-3"			
B 603	14	8'-3"			
B 604	8	7'-3"	↓		
B 605	10	11'-9"	Str.		
B 606	2	14'-6"	108		
Total (per headwall)				1,054	20.05

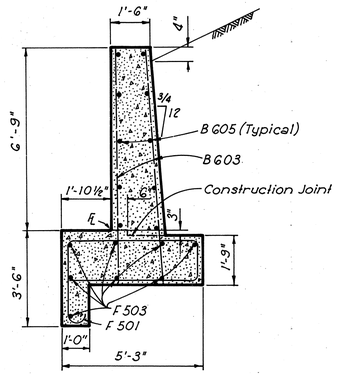
BENDING DIAGRAMS



108 120

LEGEND

n.f. = Near Face
f.f. = Far Face
e.f. = Each Face



SECTION A-A

Note: All Reinforcing 3" Clear

SCALE See Note HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.D.G. DATE 1-9-62 CONSULTING ENGINEERS
TRCD T.E.R. DATE 1-9-62 KANSAS CITY CLEVELAND NEW YORK
CKD _____ DATE _____ SHEET.

NOTE: This drawing is not to scale. Follow dimensions.

HEADWALL DETAILS

BELMONT COUNTY

BEL-40-23.89

*Sec. M-6.6(b) or M-6.8(b)

CODE	STATION	TO STATION	SIDE	FLOW LINE ELEV. UPPER	FLOW LINE ELEV. LOWER	ITEM I-1 6" PIPE - CLASS I-3 SHALLOW LIN. FT.		ITEM I-1 6" PIPE - CLASS I-3 M6.4(h) LIN. FT.	ITEM I-1 OUTLET PIPE - CL. F-1 6" LIN. FT.		ITEM I-1 OUTLET PIPE - CL. F-1 8" ※※ LIN. FT.	I-1 CL. A-1※ 8" LIN. FT.	ITEM I-5 6" PIPE SPEC. T-3 45° EA.	ITEM I-5 6" PIPE SPEC. T-3 90° EA.	ITEM I-5 8" PIPE* SPEC. A-1 TEE EA.	ITEM I-5 8" PIPE* SPEC. A-1 WYE EA.	ITEM I-5 6" PIPE SPEC. F-1 45° EA.	ITEM I-5 6" PIPE SPEC. F-1 90° EA.	ITEM I-5 6" PIPE SPEC. F-1 TEE EA.	
U-1	1260+00	1262+79	Lt	867.56	865.56			279												
U-2	1260+00	1262+79	Lt-℄	867.72	865.69			279												
U-3	1260+00	1262+79	Rt	867.75	865.75			279												
U-4	1262+81	1269+50	Lt	867.56	856.78			669				44		1					1	
U-5	1262+81	1269+50	Lt-℄	867.72	856.94			659	10											
U-6	1262+81	1270+00	Rt	867.75	855.47			719						1						
U-7	1269+52	1275+98	Lt	856.71	837.34			651			10			1						
U-8	1269+52	1275+50	Lt-℄	856.88	838.94			588	10								1			
U-9	1270+02	1275+00	Rt	855.41	837.47			598				32		1						
U-10	1276+02	1279+98	Lt	837.22	822.71	401					10			1						
U-11	1275+52	1280+00	Lt-℄	838.88	824.24	385		43	20								1			
U-12	1276+02	1284+98	Rt	837.41	809.03	901					10			1						
U-13	1280+02	1289+98	Lt	822.59	793.84	1001					10			1						
U-14	1280+02	1284+50	Lt-℄	824.12	810.44	438			10								1			
U-15	1284+52	1289+50	Lt-℄	810.38	796.94	248		240	10								1			
U-16	1285+02	1294+00	Rt	808.91	782.57	198		698	10			32		1						
U-17	1290+02	1298+00	Lt	793.72	772.73	298		500				44						1	1	
U-18	1289+52	1294+00	Lt-℄	796.88	783.35			428	20								1			
U-19	1294+02	1298+00	Lt-℄	783.29	771.35			388	10											
U-20	1294+02	1302+00	Rt	782.51	758.67			798				32		1						
U-21	1298+02	1302+00	Lt	772.67	761.09			395			10		1							
U-22	1298+02	1302+00	Lt-℄	771.29	759.35			388			10						1			
U-23	1302+02	1312+00	Lt	760.67	727.78	805		198			10			1						
U-24	1302+02	1306+00	Lt-℄	759.29	747.44	190		198	10								1			
U-25	1302+02	1305+98	Rt	758.51	747.53	203		198			10			1						
U-26	1306+02	1311+50	Lt-℄	747.38	729.44	538			10								1			
U-27	1306+02	1311+98	Rt	747.41	728.03	601					10			1						
U-28	1312+02	1321+98	Lt	727.72	697.13	1001					10			1						
U-29	1311+52	1317+50	Lt-℄	729.38	711.44	588			10								1			
U-30	1312+02	1317+98	Rt	727.91	710.03	601					10			1						
U-31	1317+52	1322+00	Lt-℄	711.38	698.24	438			10								1			
U-32	1318+02	1326+00	Rt	709.91	686.81	803					10			1						
U-33	1322+02	1330+86	Lt-℄	697.01	675.23	879			10		10				1					
U-34	1326+02	1330+25	Lt-℄	686.12	676.53	403			10								1			
U-35	1326+02	1330+90	Rt	686.75	676.97	488						32							1	
U-36	1330+27	1330+88	Lt-℄	676.51	676.34	51			10								1			
U-37	1330+92	1331+48	Lt-℄	676.48	676.34	46			10								1			
U-38	1322+02	1325+75	Lt-℄	698.12	686.93	363			10								1			
U-39	1330+86	1341+21	Lt	689.35	675.23	1015			20											
U-40	1331+50	1335+98	Lt-℄	683.18	676.50	438			10								1			
U-41	1330+90	1341+21	Rt	689.35	676.97	1031														
U-42	1336+00	1341+21	Lt-℄	689.32	683.21	511			10								1			
U-43	1341+23	1345+77	Lt	689.35	685.32	459					10				1					
U-44	1341+23	1345+00	Lt-℄	689.32	685.58	367			10								1			
U-45	1341+23	1345+79	Rt	689.35	685.32	501					10				1					
U-46	1345+02	1345+77	Lt-℄	685.56	685.29	65			10								1			
U-47	1345+81	1346+23	Lt-℄	685.39	685.29	32			10								1			
U-48	1345+77	1347+53	Lt	686.74	685.32	166			10											
U-49	1345+79	1347+47	Rt	686.64	685.32	168														
U-50	1346+25	1347+50	Lt-℄	686.66	685.39	115			10								1			
U-51	1349+10	1357+49	Lt	708.11	690.44	834			10		10			1						
U-52	1349+10	1352+98	Lt-℄	701.98	690.41	378			10								1			
U-53	1348+94	1357+49	Rt	708.11	689.96	860					10			1						
U-54	1353+00	1357+49	Lt-℄	708.08	702.03	439			10								1			
U-55	1357+51	1360+98	Lt	708.11	703.55	352					10			1						
U-56	1357+51	1361+00	Lt-℄	708.08	704.62	339			10								1			
U-57	1357+51	1361+00	Rt	708.11	705.65	347					10		1							
U-58	1361+02	1363+75	Lt-℄	704.58	697.04	263			10								1			
U-59	1361+02	1364+75	Rt	705.21	696.00†	378					10			1						
U-60	1371+10	1381+00	Lt	674.78	658.53	985			10		10			1						
U-61	1372+02	1376+50	Lt-℄	671.99	661.19	438			10								1			
U-62	1371+95	1376+48	Rt	672.23	660.44	458					10			1						
U-63	1376+52	1379+50	Lt-℄	661.16	659.25	288			10								1			
U-64	1376+52	1379+98	Rt	660.38	659.04	351					10			1						
U-65	1381+02	1387+50	Lt	658.52	656.53	653					10				1					
U-66	1379+52	1382+50	Lt-℄	659.24	657.74	288			10								1			
U-67	1380+02	1386+61	Rt	659.02	656.53	624			40		10				1					
U-68	1385+27	1386+60	Lt-℄	656.64	656.50	123			10								1			

*Sec. M-6.6(b) or M-6.8(b)

CODE	STATION	TO STATION	SIDE	FLOW LINE ELEV. UPPER	FLOW LINE ELEV. LOWER	ITEM I-1 6" PIPE - CLASS I-3 SHALLOW LIN. FT.		ITEM I-1 6" PIPE - CLASS I-3 M 6.4(h) LIN. FT.	ITEM I-1 OUTLET PIPE - CL. F-1 6" LIN. FT.		ITEM I-1 OUTLET PIPE - CL. F-1 8" ※※ LIN. FT.	I-1 CL. A-1※ 8" LIN. FT.	ITEM I-5 6" PIPE SPEC. T-3 45° EA.	ITEM I-5 6" PIPE SPEC. T-3 90° EA.	ITEM I-5 8" PIPE* SPEC. A-1 TEE EA.	ITEM I-5 8" PIPE* SPEC. A-1 WYE EA.	ITEM I-5 6" PIPE SPEC. F-1 45° EA.	ITEM I-5 6" PIPE SPEC. F-1 90° EA.	ITEM I-5 6" PIPE SPEC. F-1 TEE EA.	
U-69	1386+64	1388+23	Lt-℄	656.66	656.50	149			10								1			
U-70	1388+25	1392+23	Lt-℄	658.38	656.68	388			10								1			
U-71	1387+50	1394+21	Lt	659.41	656.53	671														
U-72	1392+25	1394+21	Lt-℄	659.38	658.39	186			10								1			
U-73	1386+61	1394+21	Rt	659.41	656.53	730			30											
U-74	12+20 West St.	12+50 West St.	Lt	670.90	670.76	30			10								1			
U-75	12+50 "	13+90 "	Lt	672.89	670.76	125			10								1			
U-76	12+20 "	12+50 "	Rt	671.80	670.76	30			10								1			
U-77	12+50 "	13+90 "	Rt	672.89	670.76	130			10								1			
U-78	1382+52	1385+25	Lt-℄	657.73	656.66	263			10								1			
U-79	1371+42	1372+00	Lt-℄	673.79	672.05	48			10											
U-80	1361+02	1363+05	Lt.	703.47	698.03	208					10					1				
		TOTAL				28,092		9,193	540		260	216	2	23	5		36	1	3	

SCALE None
MADE JCC DATE 11-15-61
TRCD GCS DATE 11-17-61
CKD JDG DATE 11-20-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

†Elevation set to clear Pipe P-63

※Class A-1 pipe shall be M-6.6(b) or M-6.8(b).
※※ 8" Class F-1 pipe shall be M-6.4(c).

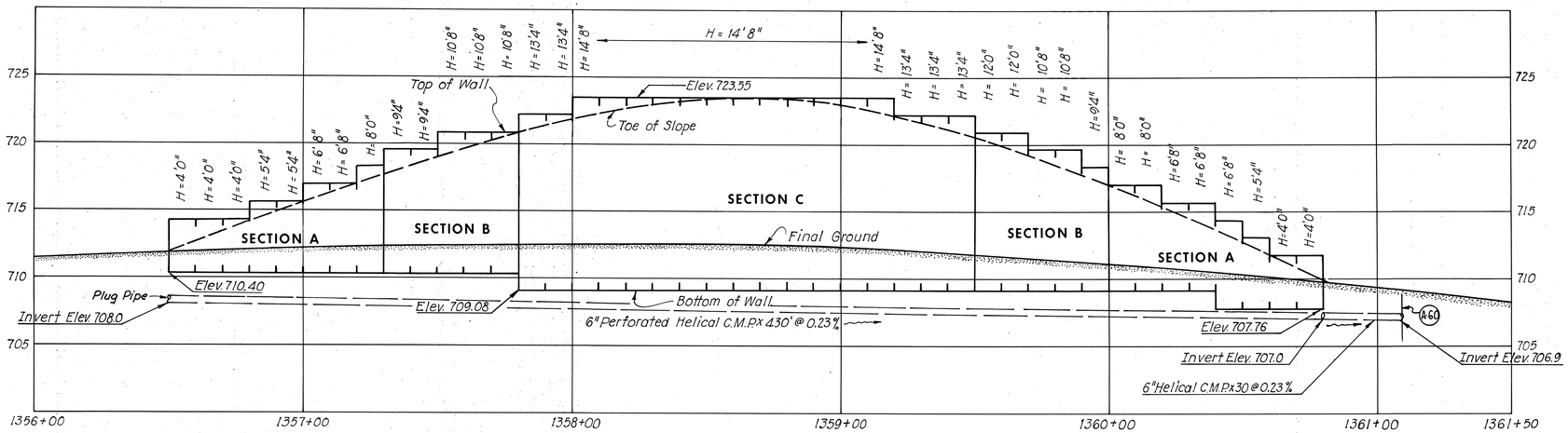
UNDERDRAIN TABULATION

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

41
197

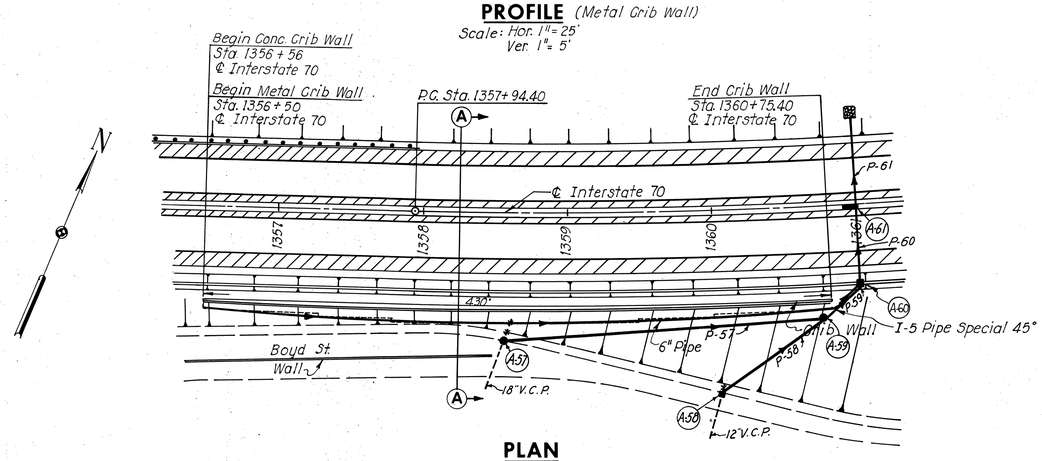
BELMONT COUNTY

BEL-40-23.89



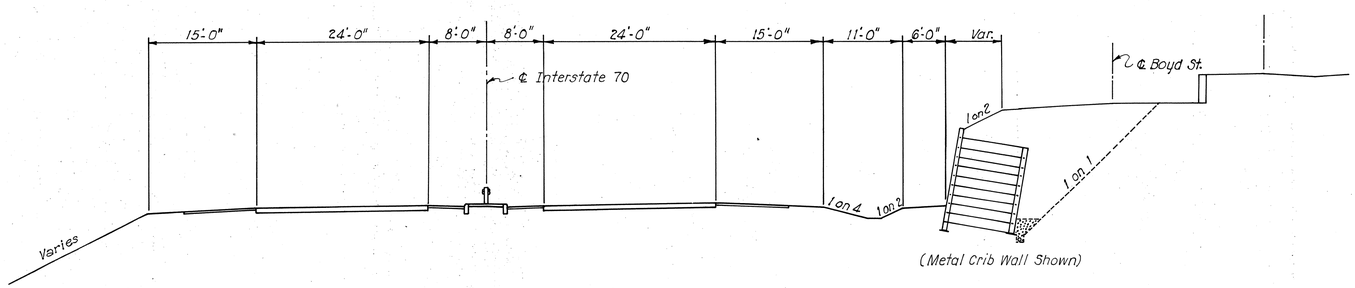
PROFILE (Metal Crib Wall)

Scale: Hor. 1" = 25'
Ver. 1" = 5'



PLAN

Scale: 1" = 50'



SECTION A-A
STATION 1358+25

Scale: 1" = 10'

Metal Crib Wall:

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY	
E-2	Cofferdams, Cribs and Sheeting	Lump Sum	——	
I-1	6" Pipe Class I-3, Sec. M-6.4 (h)	Lin. Ft.	430	
I-1	6" Pipe Class F.1	Lin. Ft.	30	
I-5	6" Pipe Specials Class F-1	Each	1	
I-17	Galvanized Metal or Reinforced	Sq. Ft.	4,413	
	Conc. Cellular Retaining Wall			

NOTE:
Construction of wall shall be advanced in stages not to exceed 50' of open trench at any one time.
Sheeting shall be used where necessary so that the existing retaining wall along Boyd St. will not be damaged.
All of the porous backfill as shown on the plans shall be either No. 6 or 6a aggregate.

SCALE As Shown
MADE GMG DATE 12-6-61
TRCD. R.R. DATE 12-7-61
CKD. ____ DATE ____

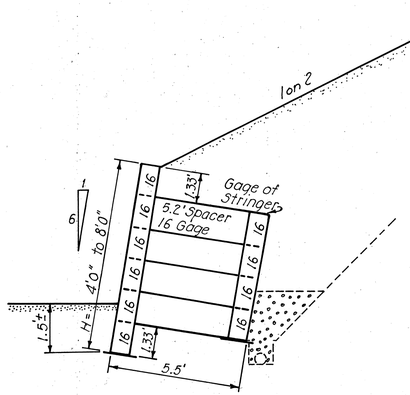
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

CRIB WALL DETAILS

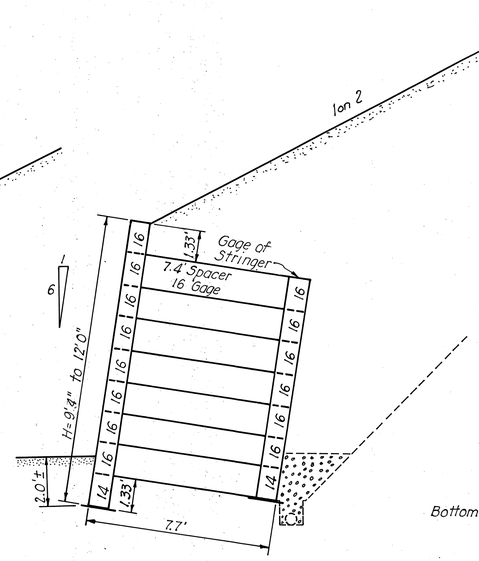
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

BELMONT COUNTY

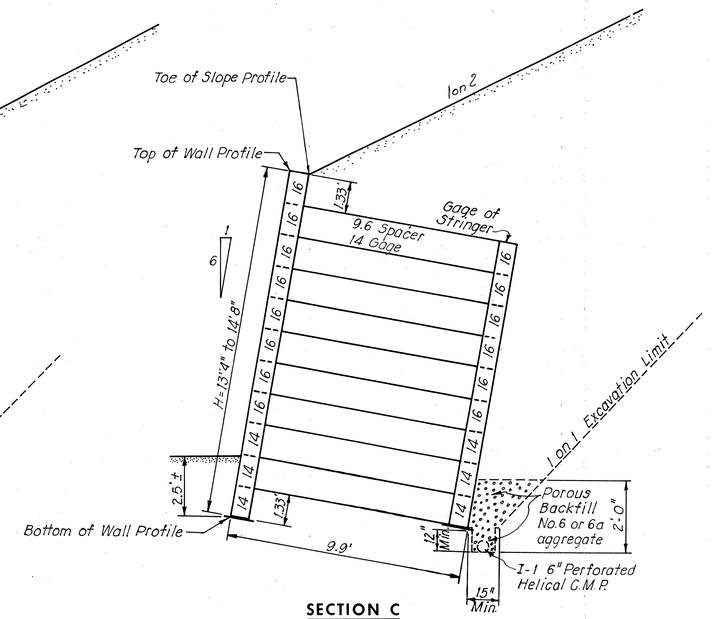
BEL-40-23.89



SECTION A



SECTION B

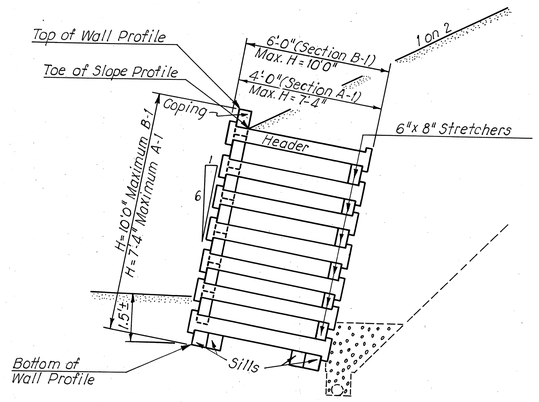


SECTION C

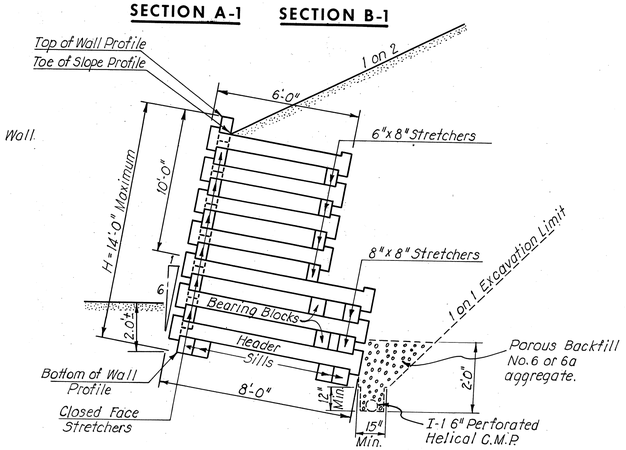
CRIB WALL SECTIONS

Scale: 1" = 3'0"

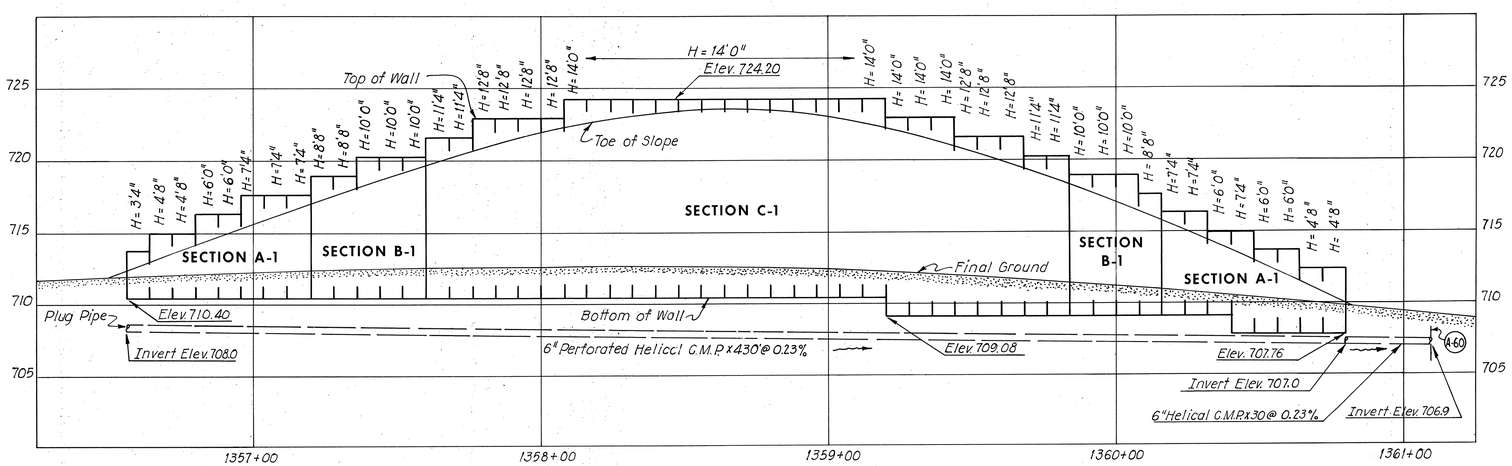
Sections A, B and C-Metal Crib Wall.
Sections A-1, B-1 and C-1 Concrete Crib Wall.



SECTION A-1 SECTION B-1



SECTION C-1



PROFILE (Concrete Crib Wall)

Scale: Hor. 1" = 25'
Ver. 1" = 5'

NOTES:

1. ¼" thick Asphalt Bearing Pads shall be placed between all flat bearing surfaces.
2. Dimensions, unless otherwise shown are as follows:
   - Coping: 6"x 12"
   - Sills: 8"x 8"
   - Bearing Blocks: 8"x 8"x 8"
   - Stretchers at Face of Wall: 6"x 16"
   - Headers (Intermediate): 8"x 8"
   - Headers (Closed Face End): 8"x 16"
3. Bearing Blocks shall be set in mortar.
4. Panel Length = 8 feet.
5. Underdrain pipe material shall be 6" Pipe, Class I-3, Sec. M-6.4 (h).

SCALE As Shown
MADE G.M.G. DATE 12-6-61
TRCD. R.P. DATE 12-7-61
CKD. ____ DATE ____

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

CRIB WALL DETAILS

LOCATION PLAN

INTERSTATE ROUTE 70 BELMONT COUNTY, OHIO

BEL-40-23.89

RICHLAND TWP. R.3, T.6 SEC 21

PEASE TWP. R.3, T.6 SEC'S. 15, 9, & 3 R.2, T.3 SEC'S 27 28 & 33

This improvement has been declared a limited access highway from Station 1151+25 to Sta. 1394+21.90, by action of the Director of Highways and recorded in volume 46, page 508 of the Director's Journal pursuant to law.

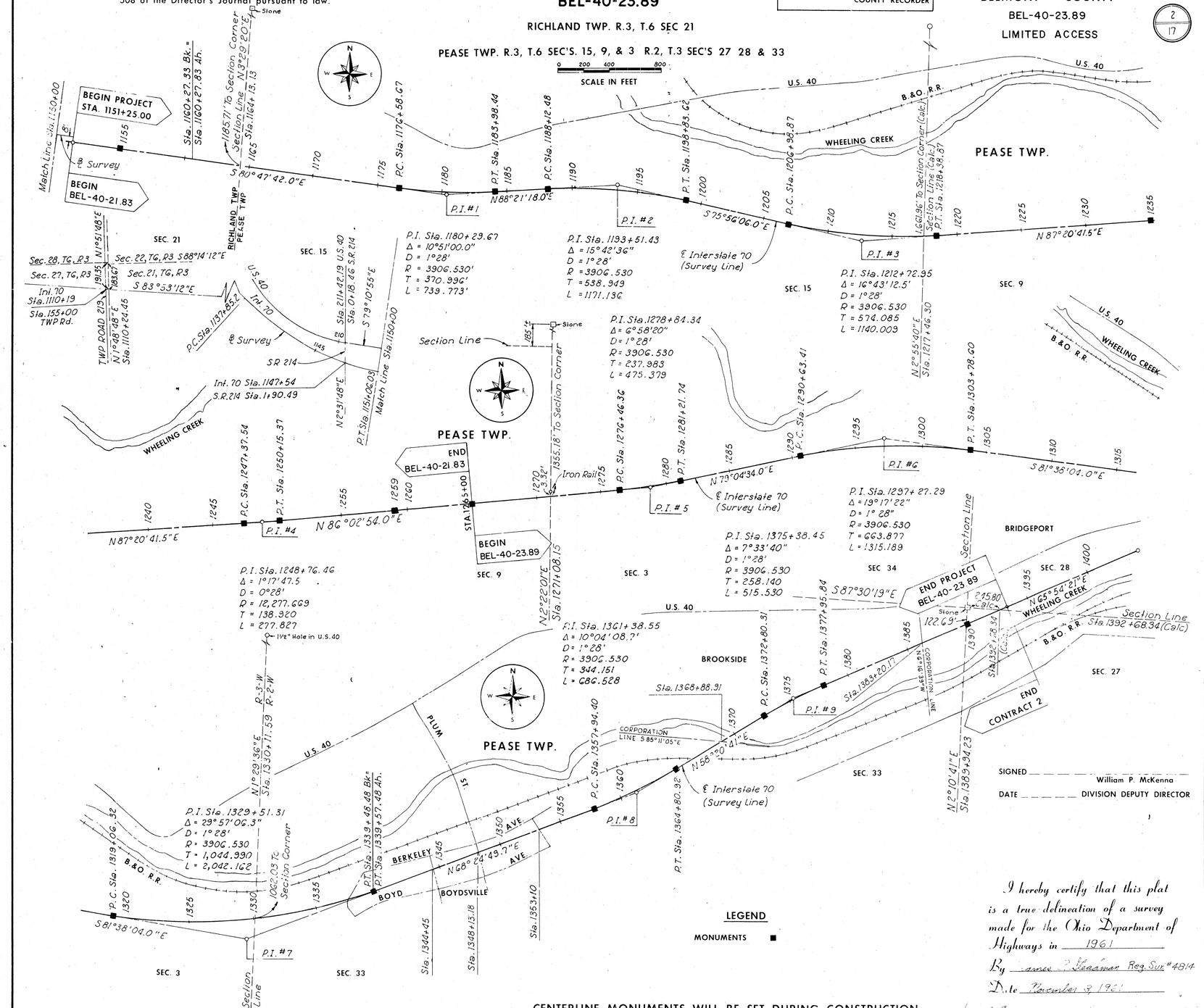
RECEIVED _____ 19__
RECORDED _____ 19__
BOOK _____ PAGE _____
_____ COUNTY RECORDER

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

144/197

BELMONT COUNTY
BEL-40-23.89
LIMITED ACCESS

2/17



SIGNED _____ William P. McKenna
DATE _____ DIVISION DEPUTY DIRECTOR

I hereby certify that this plat is a true delineation of a survey made for the Ohio Department of Highways in 1961
By James J. Heaman Reg. Sur. #4814
Date November 3, 1961

CENTERLINE MONUMENTS WILL BE SET DURING CONSTRUCTION

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

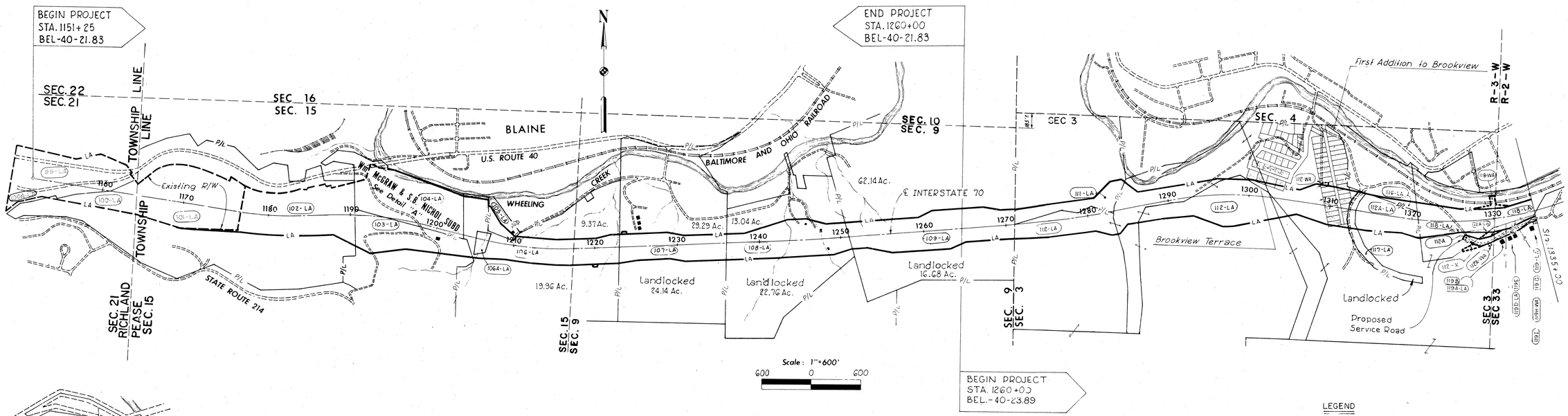
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

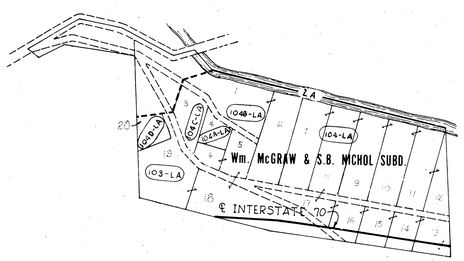
145 / 197

3 / 17

BELMONT COUNTY
BEL-40-23.89

PROPERTY MAP



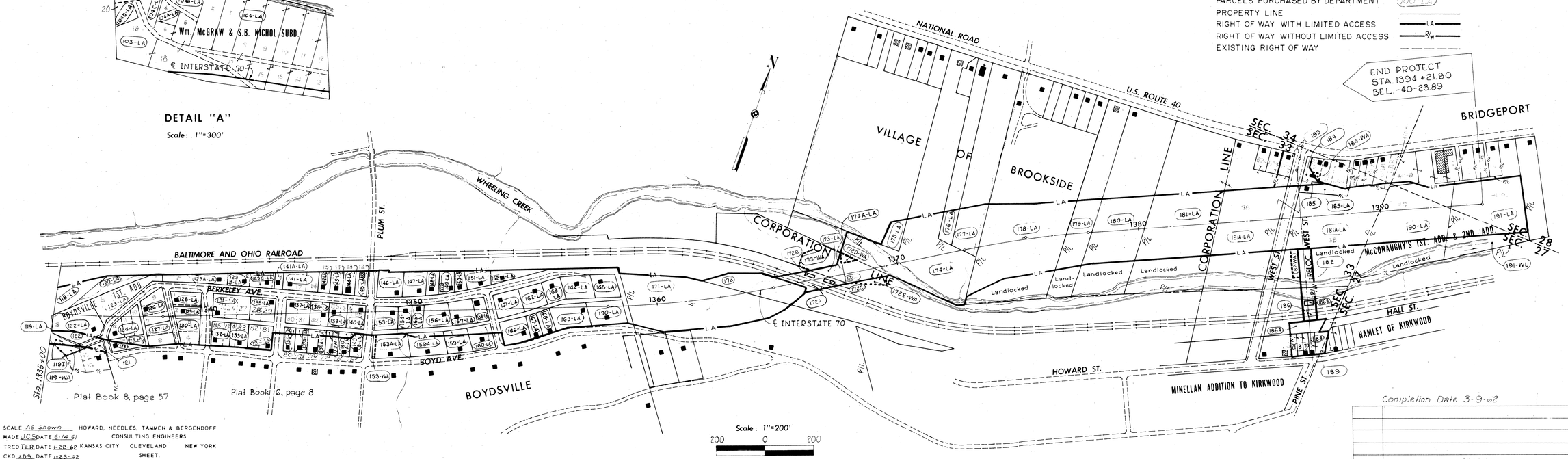


DETAIL "A"

Scale: 1"=300'

LEGEND

- DWELLING UNIT
- COMMERCIAL BUILDING
- CHURCH
- PARCELS PURCHASED BY DEPARTMENT (100-LA)
- PROPERTY LINE
- RIGHT OF WAY WITH LIMITED ACCESS — LA —
- RIGHT OF WAY WITHOUT LIMITED ACCESS — R/W —
- EXISTING RIGHT OF WAY



SCALE As Shown
MADE JCS DATE 6-14-61
TRCD TER DATE 1-22-62
CKD JDS. DATE 1-23-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

Completion Date 3-9-62

MADE	REVISION	DATE

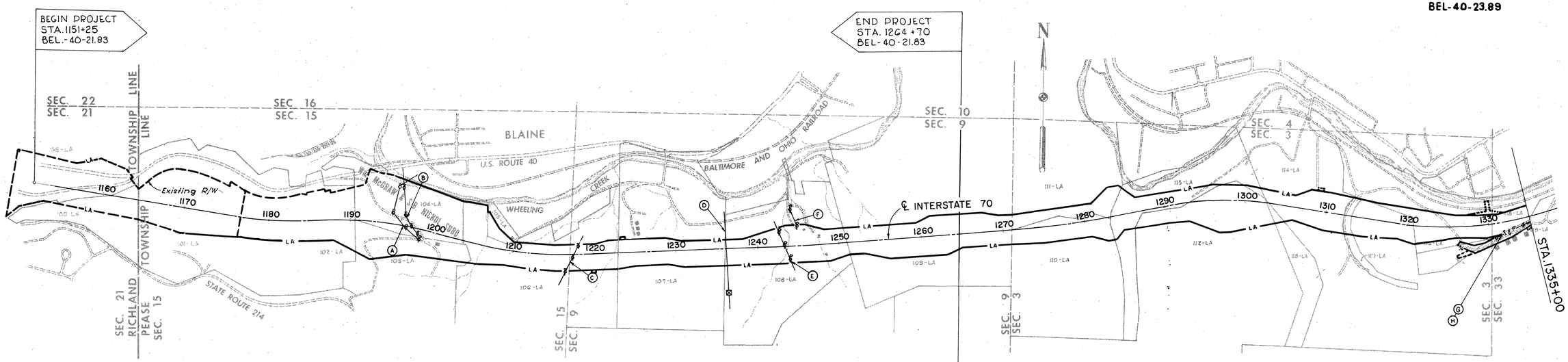
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

145A / 197

3A / 17

UTILITIES PLAN

BELMONT COUNTY
BEL-40-21.83
BEL-40-23.89



Scale: 1"=600'

MARK	OWNER	UTILITY	REMARKS
(A)	The Ohio Power Company	Power Service Line	2 Wire 1 Ø 7.2 k.v.
(B)	The Ohio Bell Telephone Co.	Telephone Line	2 Wire Single Service
(C)	The Ohio Bell Telephone Co.	Telephone Cable	200 Pr. Trunk Cable & 6 Pr. Cable
(D)	The Ohio Power Company	Transmission Lines	Clearance Sufficient
(E)	The Ohio Power Company	Power Service Line	2 Wire 1 Ø 7.2 k.v.
(F)	The Ohio Power Company	Power Service Line	3 Wire 220 v. Secondary
(G)	The Ohio Bell Telephone Co.	Telephone Lines	51 Pr. Cable 26 Pr. Cable
(H)	The Ohio Power Company	Power Service Lines	3 Wire 220 v. Secondary 1 Ø 7.2 kv. & 2 Wire Arc Circuit
(I)	Belmont Sanitary Sewer Dist. No.	Water Lines	Boydsville
(J)	The Ohio Valley Gas Company	Gas Lines	Boydsville
(K)	Baltimore And Ohio Railroad	Telegraph Lines	R.R. R/W
(L)	The Ohio Bell Tellephone Co.	Telephone Cable	51 Pr. Cable, 600 Pr. Cable 900 Pr. Cable (200 are Trunk)
(M)	The Ohio Power Company	Street Lights	2 Wire Arc Circuit
(N)	The Ohio Valley Gas Company	Gas Line	Hung on West St. Bridge

LEGEND

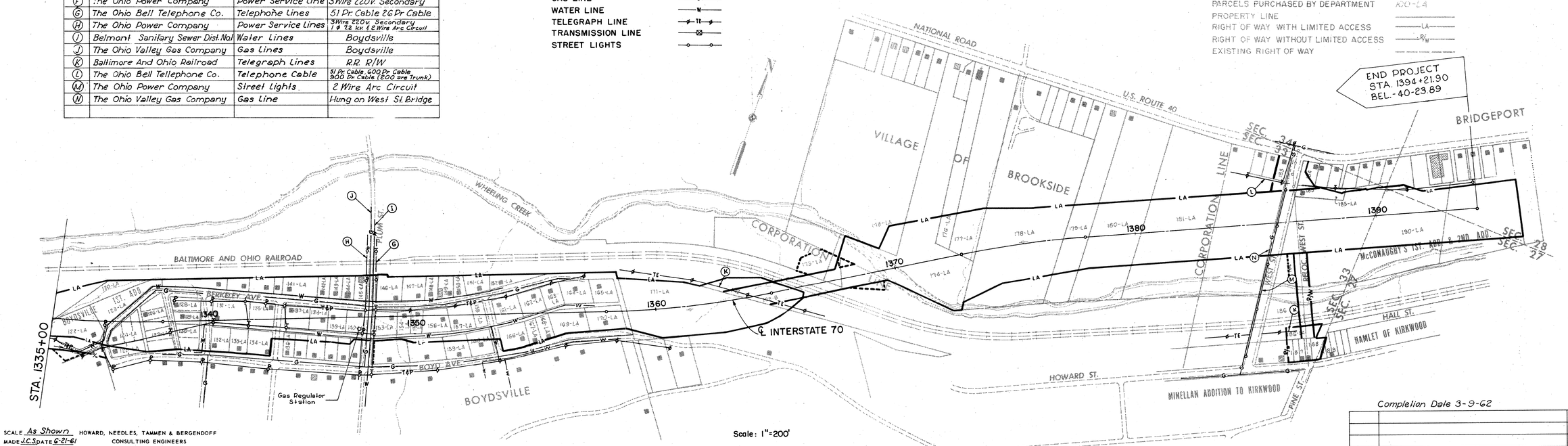
- POWER LINE
- TELEPHONE LINE
- TELEPHONE & POWER LINES
- GAS LINE
- WATER LINE
- TELEGRAPH LINE
- TRANSMISSION LINE
- STREET LIGHTS

BEGIN PROJECT
STA. 1264+70
BEL.-40-23.89

LEGEND

- DWELLING UNIT
- COMMERCIAL BUILDING
- CHURCH
- PARCELS PURCHASED BY DEPARTMENT
- PROPERTY LINE
- RIGHT OF WAY WITH LIMITED ACCESS
- RIGHT OF WAY WITHOUT LIMITED ACCESS
- EXISTING RIGHT OF WAY

END PROJECT
STA. 1394+21.90
BEL.-40-23.89



Scale: 1"=200'

SCALE As Shown HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.C.S. DATE 6-21-61 CONSULTING ENGINEERS
TRCD T.E.R. DATE 1-23-62 KANSAS CITY CLEVELAND NEW YORK
CKD M.M.V. DATE 1-24-62 SHEET. U-101

Completion Date 3-9-62

MADE	REVISION	DATE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

BELMONT COUNTY

BEL-40-23.89

BEL-40-21.83 → BEL-40-23.89 →

PARCEL NO	OWNER	DEED RECORD BOOK	DEED RECORD PAGE	DEED AREA	TO BE ACQUIRED LAND	TO BE ACQUIRED BLDG	RESIDUE LEFT	RESIDUE RIGHT	SHEET NO.	REMARKS
99-LA	Margaret S. Kennedy			5.40 Acres					5	Previously acquired by the State
100A-LA	Hugh N. Stobbs	354	272	Limited Access Only	ACQ. UNDER BEL-40-20.14				5	Previously acquired by the State
100-LA	Hugh N. Stobbs	354	272	4.75 Acres					5	Previously acquired by the State
101-LA	Job S. Burton	405	420	19.06					6	Previously acquired by the State
102-LA	Job S. Burton	405	420	89.129 Acres	18.06 Acres	N	0	71.07 Ac	7	
103-LA	Herman Pfrogner	427	611	37 Acres	13.02 Acres	Y	0	23.98 Ac	8	Tracts 2, 4, & 5 of Deed
103-WA					.08 Acres	N	0	0	8	Remove Barn
104-LA	Pauline Paluch	424	499	Not Given	7.92 Acres	N	0	0	8	
104A-LA	George Jr. & Norma Falula	448	841	13,195 Sq Ft.	.35 Acres	Y	0	0	8	
104B-LA	Mary Pfrogner			Not Given	2.37 Acres	Y	0	0	8	
104C-LA	Mike Grabecki	315	72	10,979 Sq. Ft.	.302 Acres	N	0	0	8	Tract 1
104D-LA	Anna Mortz	428	410	Not Given	.34 Acres	N	0	0	8	Tract 2
105-LA	Milton E. Porter	452	194	2.436 Acres	1.39 Acres	Y	1.047 Ac	0	9	
106-LA	William A. Allen Jr.	326	208	45.494 Acres	15.16 Acres	N	9.37 Ac	19.96 Ac	8-9	
106-X					.03 Acres	N	0	0	9	Construct Ditch Protection
106A-LA	The Lorain Coal and Dock Company	224	11	1.00 Acre	1.00 Acres	N	0	0	9	
107-LA	Harry L. Downing & Charles Norman	450	606	67.228 Acres	12.80 Acres	N	29.29 Ac	24.14 Ac(LL)	10-11	
107-X					.06 Acres		0	0	10	Construct Ditch Protection
108-LA	William Farr	421	467	50.52 Acres	14.72 Acres	Y	13.04 Ac	22.76 Ac(LL)	11-12	
109-LA	Edwin C. Lytton	442	557	97.75 Acres	18.93 Acres	N	51.22 Ac	27.60 Ac(LL)	12-13	
110-LA	Parcel No. Not Used									
111-LA	John & Hermina Polomik	271	70	37.50 Acres	6.06 Acres	N	31.54 Ac	0	6	
112-LA●	Joseph E. Zini, Edward A. Zini & Josephine H. Zini	403	230	373.533 Acres	34.49 Acres	Y	25.88	297.39 Ac	7-9	
112A-LA	● & Baltimore Coal Corporation (Only)				7.06 Acres	N			9-10	
112-T					.62 Acres	N	0	0	10	Temporary Right of Way
112-X					.11 Acres	N	0	0	10	Channel Change
112-WA					.03 Acres	Y	0	0	9	Remove House
112A-WA					.02 Acres	N	0	0	10	Build Driveway
113-LA	John J. & Angela Dewey	459	310	54.777 Sq.Ft.	14.385 Sq.Ft.	N	40,392 Sq.Ft.	0	8	
116-LA	The Real Estate and Improvement Company of Baltimore City	148	111		.39 Acres	N		0	9	
117-LA	The Baltimore and Ohio Railroad Company	218	598	2.90 Acres	.84 Acres	N	.05 Ac.	2.01 Ac(LL)	16	
118-LA	The Baltimore and Ohio Railroad Company				9.79 Acres	N		0	10	
118-WA					.42 Acres	N	0	0	10-11	Construct Drainage Pipes & Slopes
119-LA	Unknown				.16 Acres	N	0	0	10	
119-WA	Unknown				.07 Acres	N			10	Build Driveway
119A-LA	Mary K. and Alex S. Nagy	427	603	1 Acre	.10 Acres	N	0	.70 Ac.	10	
119B					.20 Acres	N			10	Highway Easement
						N			10	
119D-LA	Ruth V. Williams	322	612	4.314 Acres	.23 Acres	N	0	3.72 Ac.	10	
119E					.36 Acres	N			10	Highway Easement
119G	Roman & Nellie Zilinski	423	514	2.875 Acres	.10 Acres	N	0	2.77 Ac.	10	Highway Easement
119H-WA					.02 Acres	N	0	0	10	Slope Easement
119I	Unknown				.32 Acres	N	0	0	10-12	Highway Easement
120-LA	State of Ohio			Not Given	.20 Acres	N	0	0	12	
121	Louis Sustersic	268	395	28,424 Sq. Ft.	2,021 Sq. Ft.	Y	0	20,403 Sq.Ft.	12	Highway Easement
122-LA	Louis Straus & Caroline Straus	235	412	30,115 Sq. Ft.	©23,930 Sq.Ft.	Y	0	0	12	© Correct Area
122					5,045 Sq.Ft.	Y	0	0	12	Highway Easement
123-LA	John Koeneg & Francis Krocker	454	580	1.12 Acres	© .52 Acres	Y	0	0	12	© Correct Area
123A-LA	Joseph & Veronica Tempka	240	533	10,485 Sq.Ft.	10,374 Sq. Ft.	Y	0	0	12	
123B-LA	Joseph & Mary Nowosadski	410	158	4,974.41 Sq.Ft.	©4,738.80 Sq.Ft.	Y	0	0	12	© Correct Area
123C-LA	Mary Kroflich	383	267	Not Given	.15 Acres	Y	0	0	12	
124-LA	John Koeneg	332	618	Not Given	.28 Acres	Y	0	0	12	
125-LA	Edward R. & Rose Mary Polli	457	176	Not Given	.08 Acres	N	0		12	
126-LA	Rose M. Bender ET AL	410	428	Not Given	.28 Acres	Y	0	0	12	
127-LA	Francis Brescel ET AL	353	492	8,400 Sq.Ft.	© 9,246 Sq.Ft.	N	0	0	12	© Correct Area
128-LA	Henry & Mary Bottocletti	235	342	Not Given	.17 Acres	Y	0	0	12	
129-LA	Rudolph & Christine C. Parrish	410	298	Not Given	.12 Acres	Y	0	0	12	
130-LA	Joseph John Stampfel	430	160	Not Given	.21 Acres	N	0	0	12	
131-LA	Ralph & Julia Kohutek	308	425	15,000 Sq.Ft.	© 15,285 Sq.Ft.	Y	0	0	12	© Correct Area
132-LA	Edward & Rose Volan	332	514	Not Given	.17 Sq.Ac.	Y	0	0	12	

PARCEL NO.	OWNER	DEED RECORD BOOK	DEED RECORD PAGE	DEED AREA	TO BE ACQUIRED LAND	TO BE ACQUIRED BLDG	RESIDUE LEFT	RESIDUE RIGHT	SHEET NO.	REMARKS
133-LA	Louis F. Jr. & Johanna J. Straues	392	101	7,500 Sq.Ft.	© 7,638 Sq.Ft.	Y	0	0	12	© Correct Area
134-LA	Frank Jr. & Helen C. Krapa	386	317	10,000 Sq.Ft.	© 10,117 Sq.Ft.	Y	0	0	12	© Correct Area
135-LA	Frank & Laura Gregorcic	444	268	Not Given	.23 Acres	Y	0	0	12	
136-LA	Anna Schulte	410	470	5,000 Sq.Ft.	1,462 Sq.Ft.	N	0	3,538 Sq.Ft.	12	
137-LA	Sanford W & Ella June Church	450	30	10,000 Sq.Ft.	10,000 Sq.Ft.	Y	0	0	12	
137A-LA	Edward Bellem	410	417	Not Given	1,500 Sq.Ft.	N	0	3,500 Sq.Ft.	12	
138-LA	Charles Hasper	267	232	7,500 Sq.Ft.	7,481 Sq.Ft.	Y	0	0	12	
138A-LA	Justine M. Berus	382	142	7,500 Sq.Ft.	2,175 Sq.Ft.	N	0	5,325 Sq.Ft.	12	
139-LA	Irene Fornal	453	183	Not Given	.17 Acres	Y	0	0	12	
139A-LA	William J. & Stella Gliver	380	73	Not Given	1,450 Sq.Ft.	Y	0	3,550 Sq.Ft.	12	
140-LA	Emmett V. McNinch ET AL	438	321	Not Given	.17 Acres	Y	0	0	12	
140A-LA	John J. & Louis N. Luzar	433	649	Not Given	1,479 Sq.Ft.	Y	0	3,521 Sq.Ft.	12	
140B-LA	Jack Kuklevice	290	103	5,000 Sq.Ft.	361 Sq.Ft.	Y	0	4,639 Sq.Ft.	12	
141-LA	Wilferd J. Ledergerber	350	536	Not Given	.26 Acres	Y	0	0	12	
141A-LA	Willa Grace Hodgkin & Nellie Hetzel	432	11	2,750 Sq.Ft.	© 2,466 Sq.Ft.	Y	0	0	12	© Correct Area
142-LA	Andrew G. & Eleanor L. Pittner	380	87	Not Given	.10 Acres	Y	0	0	12	
143-LA	Mary Klep ET AL	367	200	Not Given	.11 Acres	Y	0	0	12	
144-LA	Vicenzo Montagna	400	526	4,903.79 Sq.Ft.	4,967.50 Sq.Ft.	Y	0	0	12	
145-LA	William & Mary Chesnik	368	114	Not Given	.12 Acres	Y	0	0	12	
146-LA	Joseph & Rose Shercell	280	452	.434 Acres	© .24 Acres	Y	0	0	12	© Correct Area
147-LA	Charles E. & Mary Rose Hungerman	361	301	10,000 Sq.Ft.	9,976 Sq.Ft.	Y	0	0	12-13	
148-LA	John M. & Esther Sadowski	299	222	5,000 Sq.Ft.	5,198 Sq.Ft.	Y	0	0	13	
149-LA	Joe & Mary Anuskewic	254	544	.115 Acres	.14 Acres	Y	0	0	13	
150-LA	Frank & Blanch Kovack	292	460	4,361 Sq.Ft.	4,232 Sq.Ft.	Y	0	0	13	
151-LA	Joseph J & Annette Simoncic	317	613	7,702.79 Sq.Ft.	7,875.62 Sq.Ft.	Y	0	0	13	
152-LA	Joseph & Jennie Gliver	409	171	.17 Acres	.25 Acres	Y	0	0	13	
153-LA	Frances B Fisher	389	298	9,420 Sq.Ft.	9,230 Sq.Ft.	Y	0	0	12	
153A-LA	Frank Sulek	252	466		195 Sq.Ft.	N	0		12	
153-SL					1,000 Sq.Ft.	N	0	0	12	Slope Easement
154-LA	Helen Marie Roscovich	380	305	5,580 Sq.Ft.	5,453 Sq.Ft.	Y	0	0	12	
155-LA	Mary P. Polli	439	288	5,000 Sq.Ft.	4,926 Sq.Ft.	Y	0	0	12-13	
156-LA	Joseph F. Jr. & Nancy V. Anuskewic	410	566		10,624 Sq.Ft.	Y	0	0	13	
157-LA	Joseph J. & Annelle Simoncic	410	569	9,932 Sq.Ft.	© 9,698 Sq.Ft.	Y	0	0	13	© Correct Area
158-LA	Anna F. Lang	432	492	5,000 Sq.Ft.	5,142 Sq.Ft.	Y	0	0	13	
159-LA	Joseph A. Harris	318	497	10,000 Sq.Ft.	2,130 Sq.Ft.	N	0	7,870 Sq.Ft.	13	
159A-LA	Angela Kusic	369	98	6,700 Sq.Ft.	2,524 Sq.Ft.	N	0	4,176 Sq.Ft.	12-13	
160-LA	William & Jennie Kubovich	325	243	10,000 Sq.Ft.	3,305 Sq.Ft.	Y	0	6,695 Sq.Ft.	13	
161-LA	Mary Dolence ET AL	342	530	11,000 Sq.Ft.	©10,296 Sq.Ft.	Y	0	0	13	© Correct Area
162-LA	Agnes Romish	442	153	10,000 Sq.Ft.	9,967 Sq.Ft.	Y	0	0	13	
163-LA	Emma & William Albright	410	69	7,500 Sq.Ft.	© 7,877 Sq.Ft.	Y	0	0	13	© Correct Area
164-LA	Frances Grell ET AL	381	551	15,000 Sq.Ft.	© 13,122 Sq.Ft.	Y	0	0	13	© Correct Area
165-LA	Angela Ehigh	426	183	10,000 Sq.Ft.	© 9,588 Sq.Ft.	Y	0	0	13	© Correct Area
166-LA	Anton & Steffice Kolar	359	187	.25 Acres	.24 Acres	Y	0	0	13	
167-LA	Dan & Mary Bradac	450	135		4,837 Acres	Y	0	0	13	
168-LA	Joe & Ella Bradac	450	133	5,200 Sq.Ft.	5,064 Sq.Ft.	Y	0	0	13	
169-LA	Helen Ann & Edward Smith	442	135	14,689 Sq.Ft.	©14,949 Sq.Ft.	Y	0	0	13	© Correct Area
170-LA	Martha J. Stratter	440	142	15,000 Sq.Ft.	14,565 Sq.Ft.	Y	0	0	13	
171-LA	George J. Holler	397	407	31.384 Acres	2.66 Acres	N	0	28.729 Ac.	13-14	
172	The Baltimore and Ohio Railroad Company	147	184		.76 Acres	N	-	-	14	Slope Easement
172A					.49 Acres	N	-	-	14	Aerial Easement
172B					.01 Acres	N	-	-	14	Pier Easement
172C					.01 Acres	N	-	-	14	Pier Easement
172D-WA					.03 Acres	N	-	-	14	
173-LA	David H. Dankworth	366	394	1.4082 Acres	.06 Acres	N	1.35	0	14	
174-LA	Frank Mazoch ET AL	437	33	4.9207 Acres	2.25 Acres	N	2.67 Ac.	0	15	
174A-LA				.0923 Acres	.09 Acres	N	0	0	15	
175-LA	Bridgeport Board of Education	315	550	6.05 Acres	.26 Acres	N	5.79 Ac.	0	15	
176-LA	Church of God	280	263	1.093 Acres	.17 Acres	N	.926 Ac.	0	15	
177-LA	Thomas C & Mary E. Gonot	308	335	2.155 Acres	.46 Acres	N	1.696 Ac.	0	15	
178-LA	Clara M. Dukes	409	306	7.20 Acres	2.70 Acres	N	3.86 Ac.	.64 Ac.(LL)	15	
179-LA	Wilma F. Sutton	431	211	2.02 Acres	.68 Acres	N	1.08 Ac.	.26 Ac.(LL)	15	
180-LA	Joseph A. & Martha George	428	334	3.76 Acres	1.31 Acres	N	1.88 Ac.	.57 Ac.(LL)	15	

Note: Parcel No. 114-LA and 115-LA Not Used

LEGEND

LL = Landlocked
* = Parcel out of numerical order
N = No Buildings
Y = Buildings

Completion Date 3-9-62

MADE	REVISION	DATE

SCALE None
MADE J.C.S. DATE 11-6-61
TRCD T.E.R. DATE 11-9-61
CKD M.M.V. DATE 1-31-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

Sheet 1 of 2

FED. RD. DISTRICT NO.	STATE	PROJECT	
2	OHIO		

147/197

BELMONT COUNTY

BEL-40-23.89

5/17

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

PARCEL NO.	OWNER	DEED RECORD BOOK	DEED RECORD PAGE	DEED AREA	TO BE ACQUIRED LAND	TO BE ACQUIRED BLDG.	RESIDUE LEFT	RESIDUE RIGHT	SHEET NO.	REMARKS
181-LA	Charles T. Meyer	353	628	10.116 Acres	1.77 Acres	N	2.67 Ac.	2.89Ac(LL)	15-16	
182					.19 Acres	N	-	-	16	Highway Easement
182-WA					.07 Acres	N	-	-	16	Construct Drainage Ditch
183					.17 Acres	Y	0	0	16	Highway Easement
184	George J. Huggins	353	360	Not Given	.08 Acres	Y		0	16	Highway Easement
185	Mary E. Hendershot	250	496	10,000 Sq.Ft.	1,175 Sq.Ft.	Y	0	0	16	Highway Easement
185-LA					8,926 Sq.Ft.	Y	0	0	16	
186	The Baltimore & Ohio Railroad Company	148	248		.16 Acres	N	-	-	17	Aerial Easement
186A					.16 Acres	N	-	-	17	Slope Easement
186B					.02 Acres	-	-	-	17	Pier Easement
187	Alfred P. & Ann L. Harding	422	195	Not Given	.16 Acres	Y	0	0	16	Highway Easement
188	Olive Lanning	410	310	Not Given	.13 Acres	Y	0	0	16	Highway Easement
189	Earl Ray & Edna Mae Harlan	352	41	Not Given	.02 Acres	N	0		16	Highway Easement
190-LA	Charles A. Maroon	380	366	Not Given	1.54 Acres	N	.96 Ac.	.82 Ac(LL)	16	
191-LA	Estella A. Lytton	334	127	2.29 Acres	1.61 Acres	N	.27 Ac.	.41 Ac.(LL)	16	
* 125	Edward R. & Rose Mary Polli	457	176	Not Given	.09 Acres	Y	0	0	12	Highway Easement
* 172E-WA	The Baltimore & Ohio Railroad Company	147	184		.08 Acres	N	-	-	14	
* 173-WA	David H. Dankworth	366	394	1.4082 Acres	.24 Acres	N	-	-	14	
* 184-WA	George J. Huggins	353	360	Not Given	.01 Acres	Y	-	-	16	Remove Garage
* 181A-LA	Charles T. Meyer	353	628		3.70 Acres	N	-	-	16	
* 112B-LA	Joseph E. Zini, Edward A Zini & Josephine Zini				0.16 Acres	N			10	
* 112-Y	Joseph E. Zini, Edward A Zini & Josephine Zini				0.20 Acres	N			10	

LEGEND

LL = Landlocked
* = Parcel out of numerical order
N = No Buildings
Y = Buildings

Completion Date 3-9-62

MADE	REVISION	DATE

SCALE None
MADE JCS DATE 11-7-61
TRCD TCR DATE 11-9-61
CKD MMV DATE 1-31-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

Sheet 2 of 2

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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BELMONT COUNTY

BEL-40-23 89

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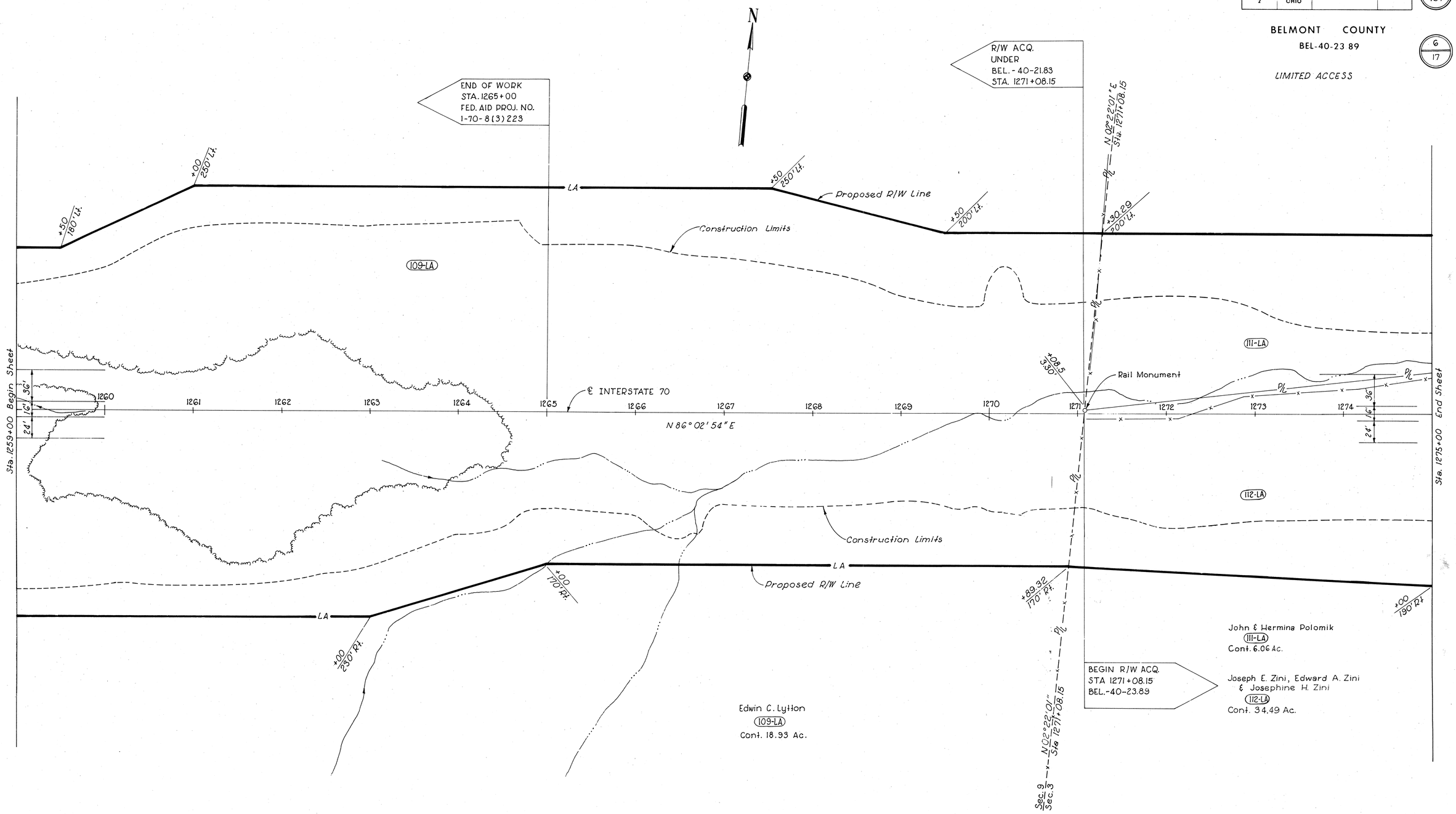
LIMITED ACCESS

PEASE TWP - SEC. 9 - TWP 6 - R3
PEASE TWP - SEC. 3 - TWP 6 - R3



Completion Date 3-9-62

MADE	REVISION	DATE

SCALE 1" = 50'
MADE J.C.S. DATE 10-24-61
TRCD JDS DATE 12-29-61
CKD M.M.V. DATE 1-22-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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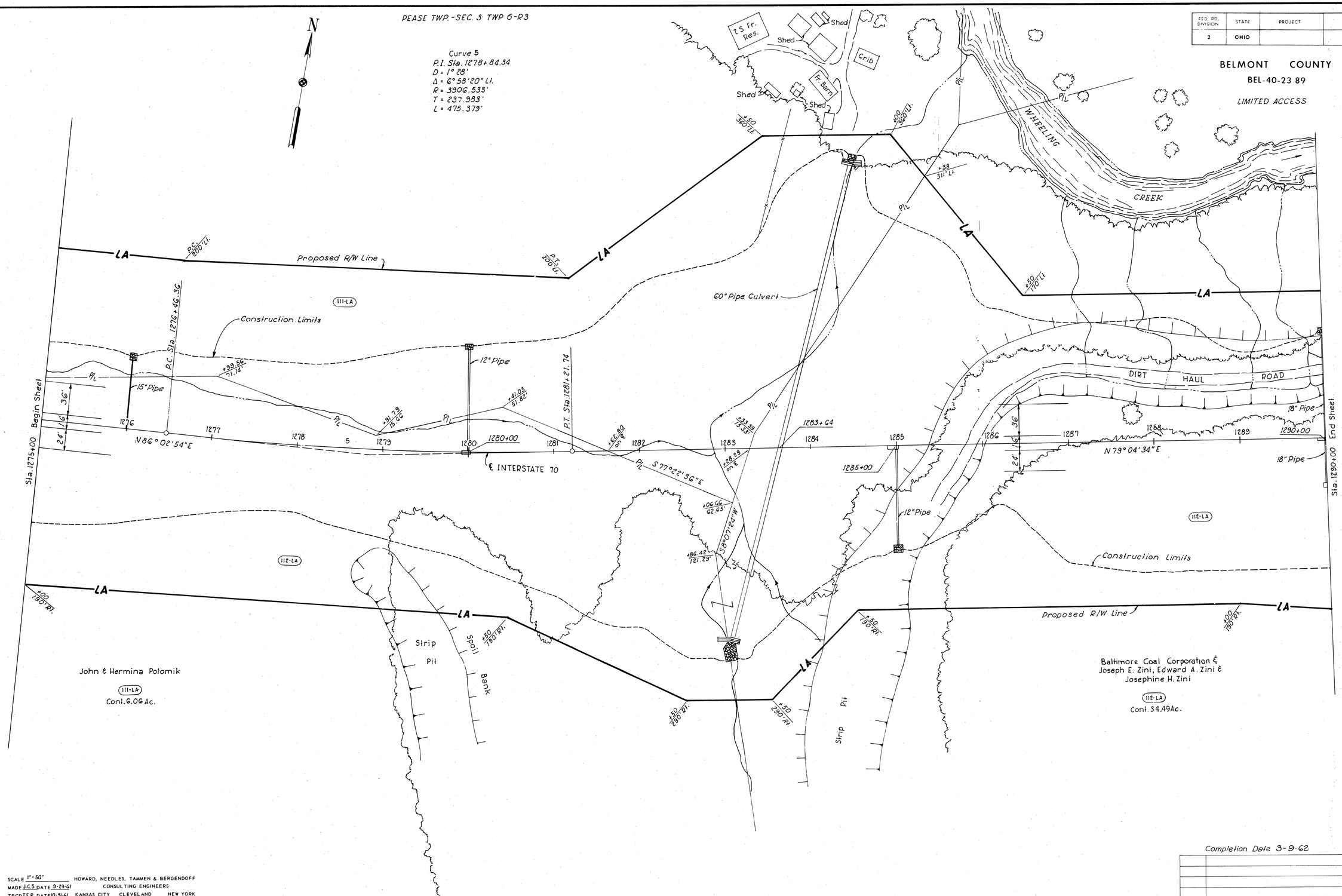
BELMONT COUNTY

BEL-40-23 89

LIMITED ACCESS



Completion Date 3-9-62

MADE	REVISION	DATE

SCALE 1" = 50'

MADE J.C.S. DATE 9-29-61

TRCD T.E.P. DATE 10-31-61

CKD M.M.V. DATE 1-22-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

PEASE TWP-SEC. 3-TWP 6-R3

	STATE	PROJECT	
7	OHIO		

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BELMONT COUNTY

BEL-40-23 89

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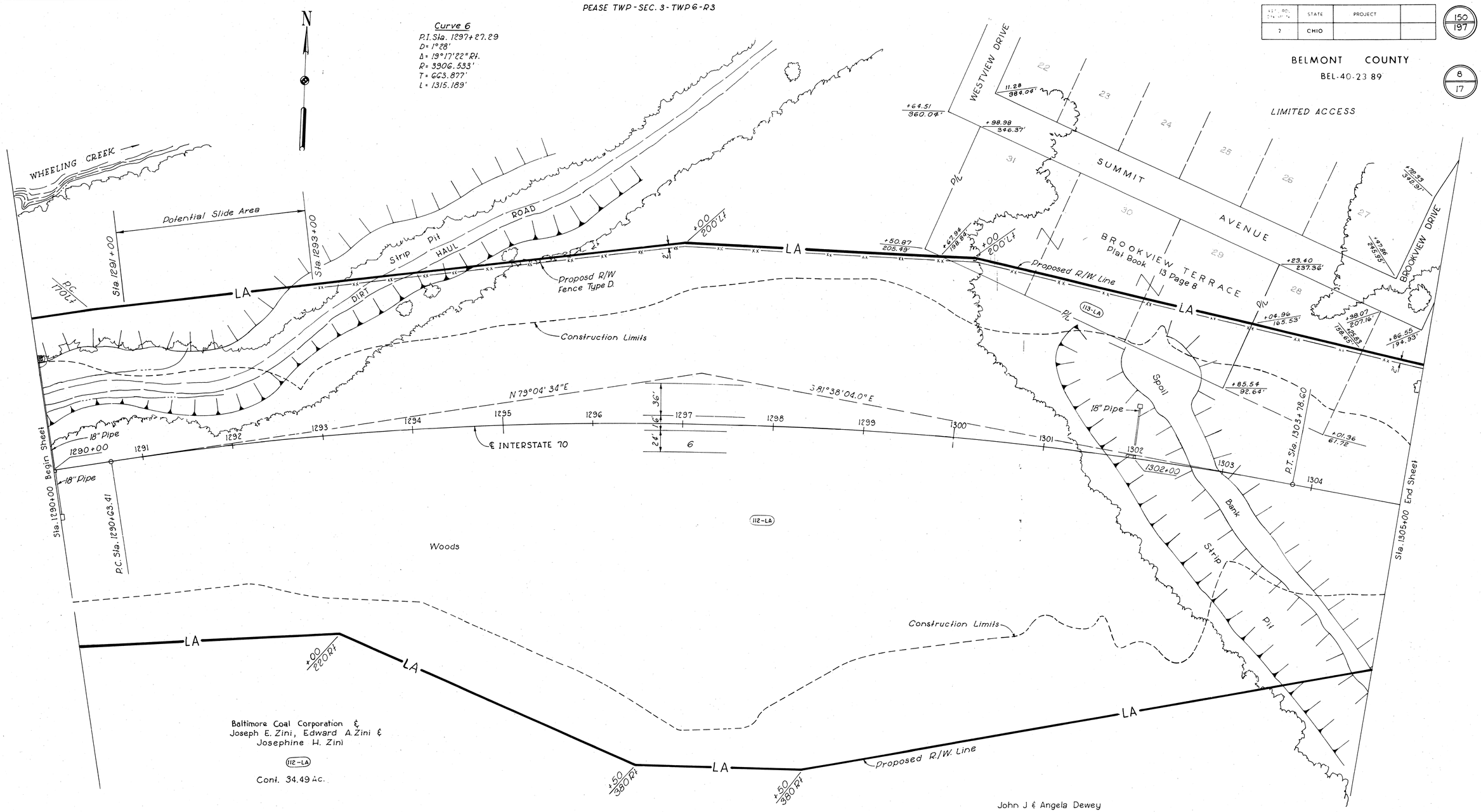

Completion Date 3-9-62

MADE	REVISION	DATE

SCALE 1" = 50'
MADE J.C.S. DATE 10-26-61
TRCD. JDS DATE 10-23-61
CKD MM.V DATE 1-23-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

PEASE TWP.-SEC.3-TWP 6-R3

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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BELMONT COUNTY
BEL-40-23 89

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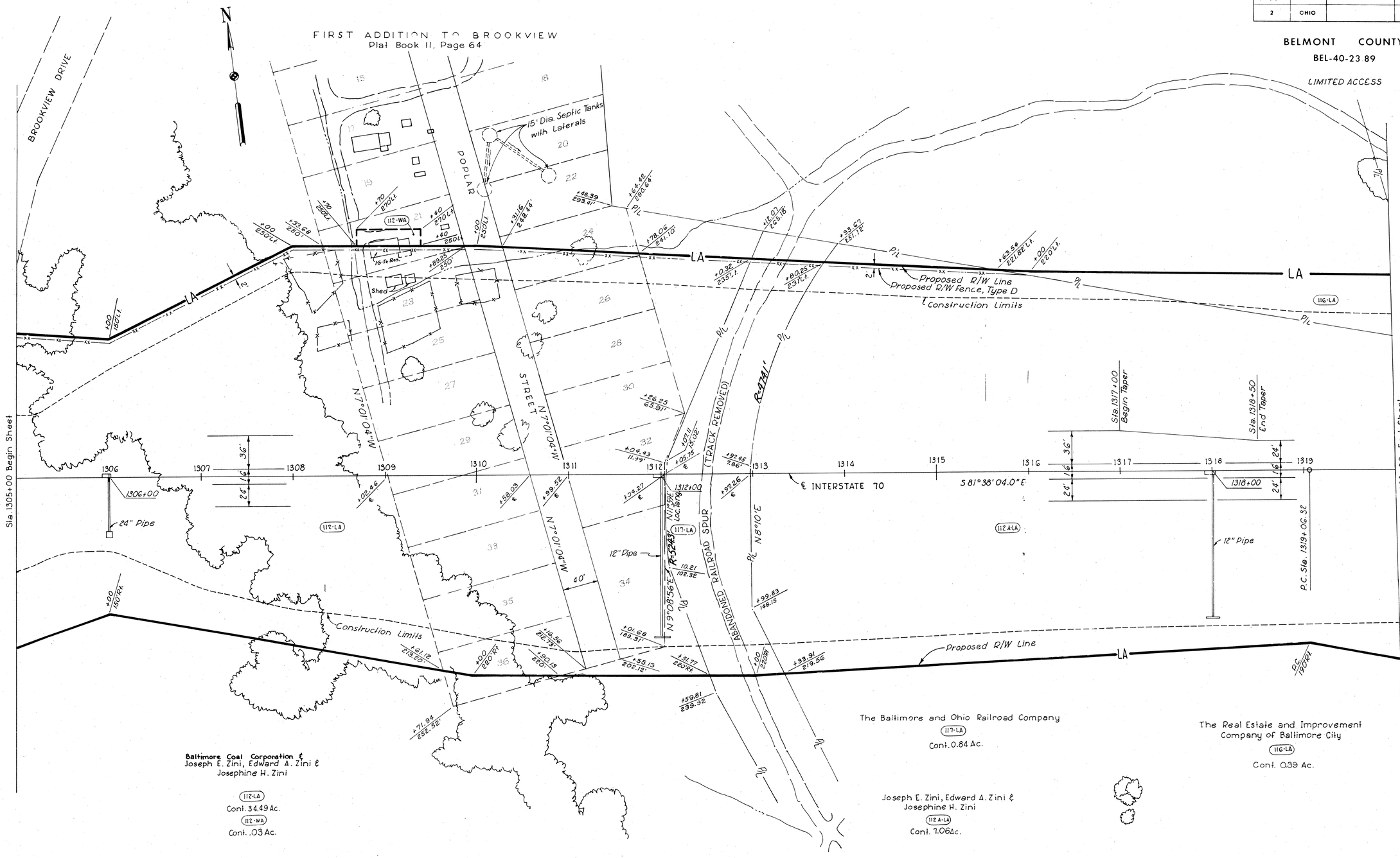

Completion Date 3-9-62

J.C.S.	Added Septic Tanks & Lot Numbers	3-16-62
MADE	REVISION	DATE

SCALE 1" = 50'
MADE J.C.S. DATE 10-3-61
TRCD T.E.R. DATE 11-2-61
CKD M.M.V. DATE 1-24-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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KANSAS CITY CLEVELAND NEW YORK

FED. RD. DIVISION	STATE	PROJECT	
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BELMONT COUNTY

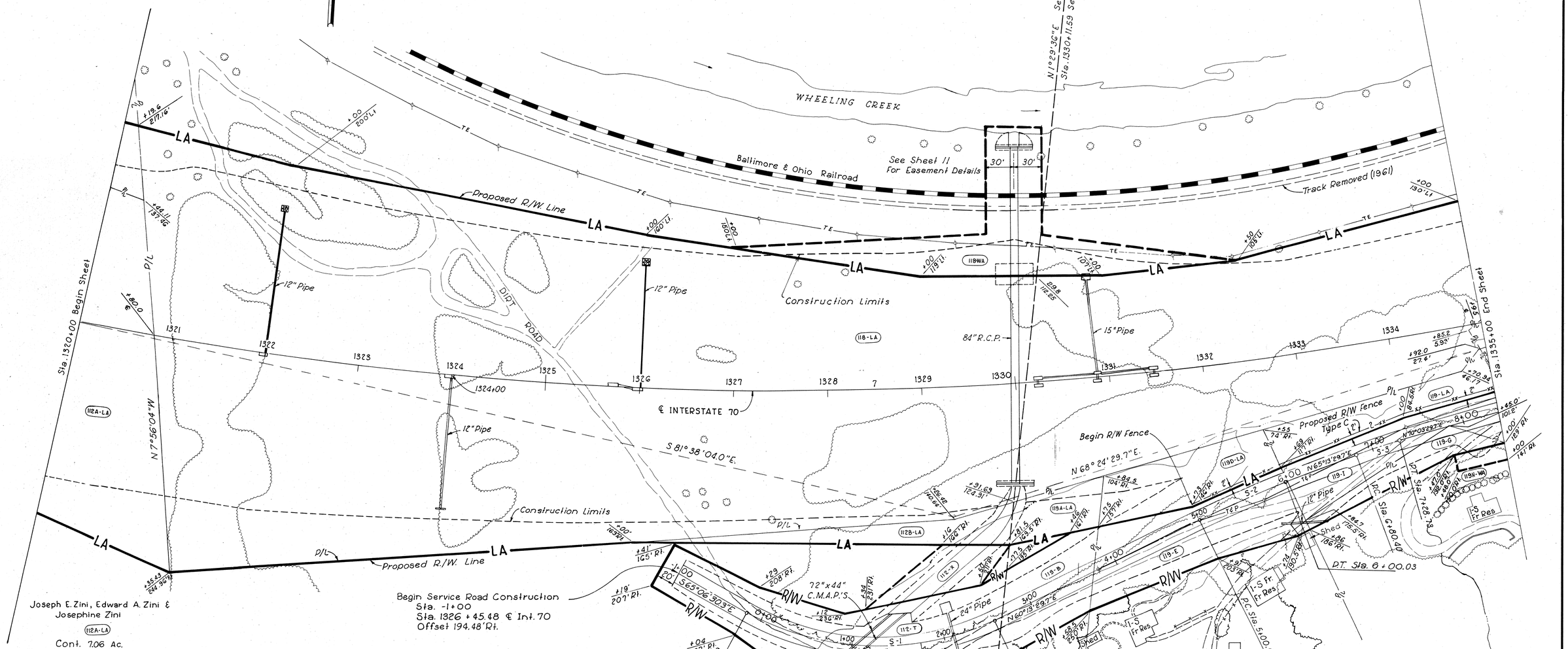
BEL-40-23.89

LIMITED ACCESS

PEASE TWP. - SEC. 3 - TWP. 6 - R3
PEASE TWP. - SEC. 33 - TWP. 3 - R2

CURVE DATA

7	S-1	S-2	S-3
P.I. Sta. 1329+51.31	P.I. Sta. 1+31.38	P.I. Sta. 5+50.00	P.I. Sta. 7+04.58
D = 1° 28'	D = 20°00'00"	D = 5°00'00"	D = 10°00'00"
Δ = 29°57'06.3'	Δ = 54°40'00"	Δ = 5°00'00"	Δ = 4°50'00"
R = 3,906.530'	R = 286.48'	R = 1,145.92'	R = 572.958'
T = 1044.990'	T = 148.074'	T = 50.032'	T = 24.181'
L = 2,042.162'	L = 273.333'	L = 100.00'	L = 48.333'



Completion Date 3-9-62

MADE	REVISION	DATE

SCALE 1" = 50'
MADE JCS DATE 10-27-61
TRCD T.E.R. DATE 10-30-61
CKD M.M.V. DATE 1-25-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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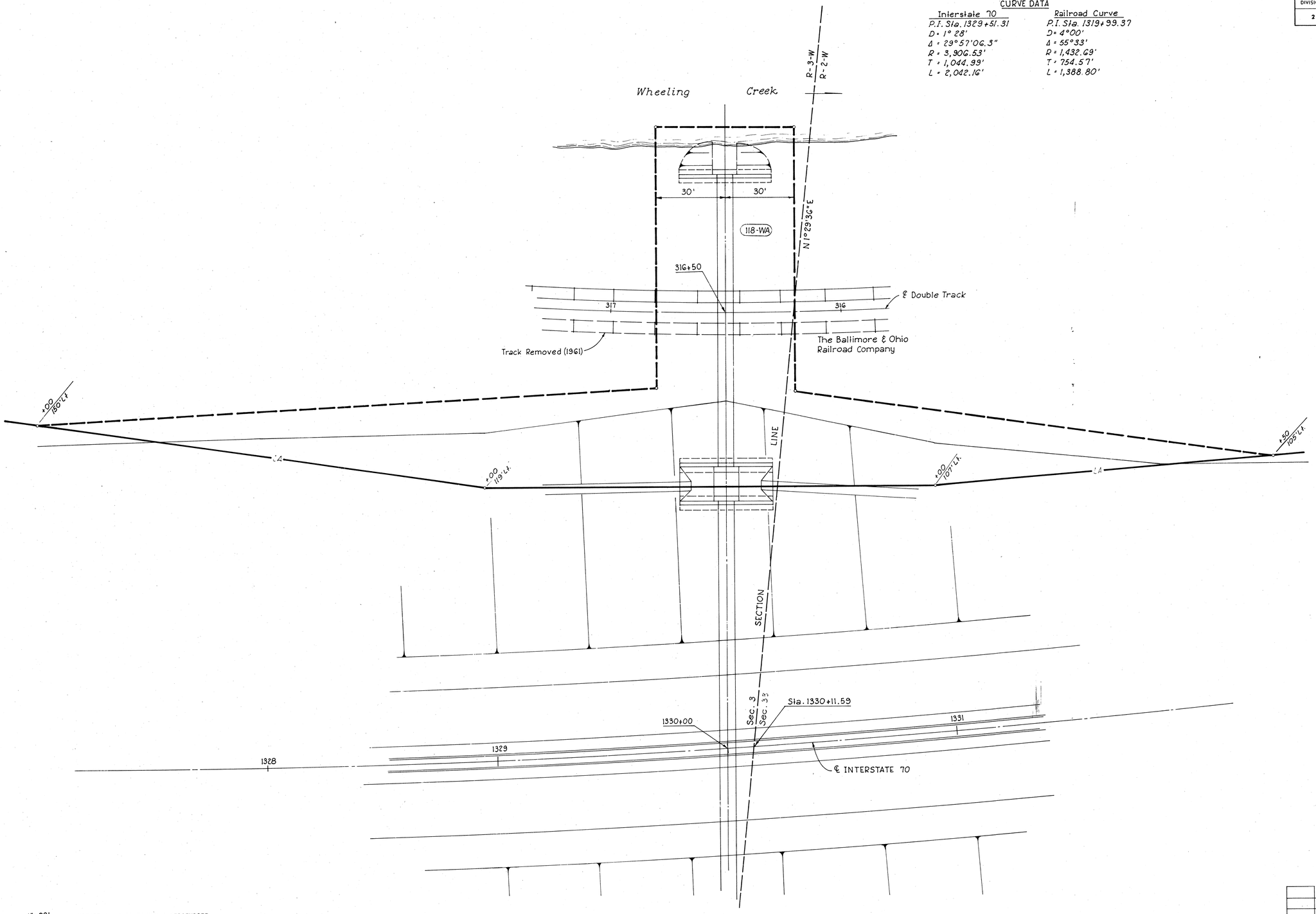
BELMONT COUNTY

BEL-40-23.89

MAINLINE
BALTIMORE & OHIO RAILROAD

CURVE DATA

Interstate 70	Railroad Curve
P.I. Sta. 1329+51.31	P.I. Sta. 1319+99.37
D = 1° 28'	D = 4°00'
Δ = 29°57'06.3"	Δ = 55°33'
R = 3,906.53'	R = 1,432.69'
T = 1,044.99'	T = 754.57'
L = 2,042.16'	L = 1,388.80'



SCALE 1" = 20'
MADE J.C.S. DATE 1-23-62
TRCD T.E.R. DATE 1-26-62
CKD J.D.S. DATE 1-29-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

MADE	REVISION	DATE

PEASE TWP - SEC. 33 - TWP 3 - R 2

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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BELMONT COUNTY

BEL-40-23.89

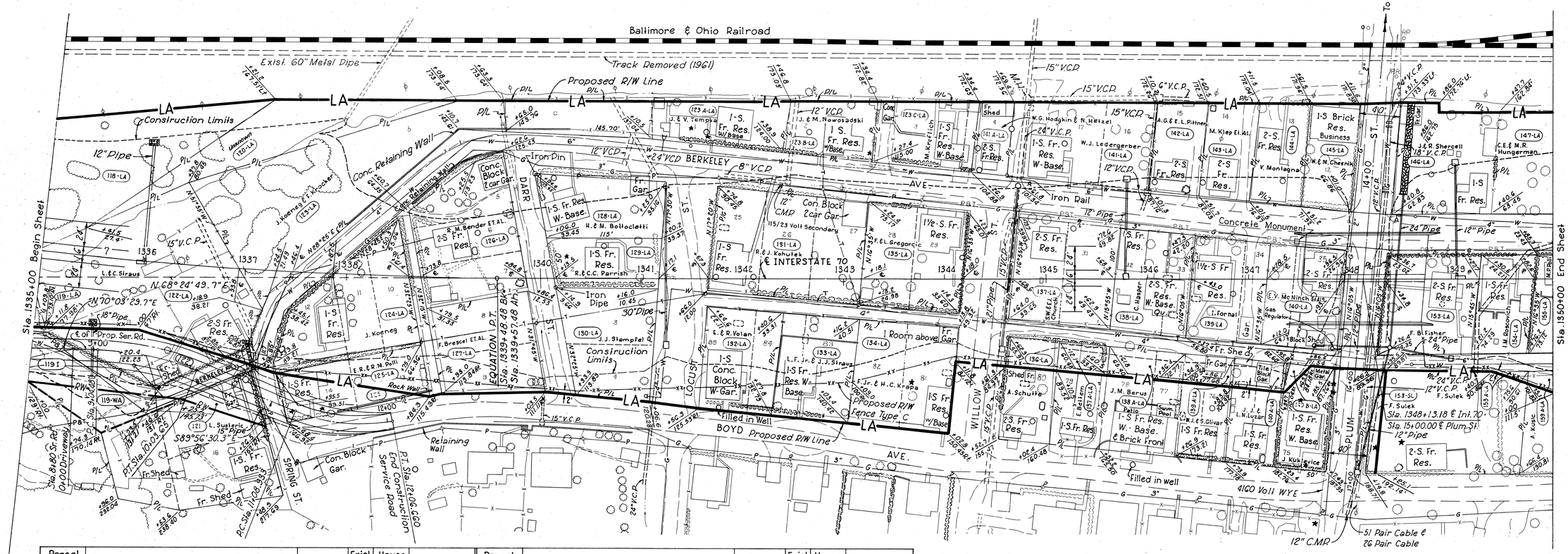
LIMITED ACCESS

EQUATION

Sta. 1339 + 48.48 Bk. =
Sta. 1339 + 57.48 Ah.

CURVE DATA

Curve 7	S-4	S-5
P.I. Sta. 1329 + 51.31	P.I. Sta. 9 + 55.00	P.I. Sta. 11 + 59.13
D = 1° 28'	D = 20° 10'	D = 33° 00'
Δ = 29° 57' 06.3"	Δ = 20° 00'	Δ = 32° 15'
R = 3,906.530'	R = 284.11'	R = 173.62'
T = 1,044.990'	T = 50.523'	T = 50.195'
L = 2,042.162'	L = 99.174'	L = 97.727'



Parcel No.	Owner	Area	Exist. Bldg.	House No.	Remarks
119I	Unknown	.32 Ac			
120-LA	Unknown	.20 Ac.			
121	Louis Sustersic	2,021 Sq.Ft.	Yes		
122-LA	Louis & Caroline Straus	23,930 Sq.Ft.	Yes	44	
123-LA	John Koeneg & Francis Krocker	.52 Ac.			
123A-LA	Joseph & Veronica Tempka	10,374 Sq.Ft.	Yes	28	
123B-LA	Joseph & Mary Nowosadski	4,738.80 Sq.Ft.	Yes		
123C-LA	Mary Kroflich	.15 Ac.	Yes	20	
124-LA	John Koeneg	.28 Ac.	Yes	40	
125-LA	Edward R. & Rose Mary Polli	.08 Ac.			
126-LA	Rose M. Bender ET AL	.28 Ac.	Yes	35	
127-LA	Francis Brescel ET AL	9,246 Sq.Ft.			
128-LA	Henry & Mary Bottocletti	.17 Ac.	Yes	33	
129-LA	Rudolph & Chrisline C. Parrish	.12 Ac.	Yes		
130-LA	Joseph John Stampfel	.21 Ac.			
131-LA	Ralph & Julia Kohutek	15,285 Sq.Ft.	Yes	33	
132-LA	Edward & Rose Volan	.17 Ac.	Yes	20	
133-LA	Louis F. Jr. & Johanna J. Straus	7,638 Sq.Ft.	Yes		
134-LA	Frank Jr. & Helen C. Krapa	10,117 Sq.Ft.	Yes	16	
135-LA	Frank & Laura Gregorcic	.23 Ac.	Yes		
136-LA	Anna Schutte	1,462 Sq.Ft.		14	
137-LA	Sanford W. & Ella June Church	10,000 Sq.Ft.	Yes	13	
137A-LA	Edward Bellem	1,500 Sq.Ft.			
138-LA	Charles Hasper	7,481 Sq.Ft.	Yes		
138A-LA	Justine M. Berus	2,175 Sq.Ft.			
139-LA	Irene Fornal	.17 Ac.	Yes		
139A-LA	William J. & Stella Glivar	1,450 Sq.Ft.	Yes	6	
140-LA	Emmett V. McNinch ET AL	.17 Ac.	Yes	1	
140A-LA	John J. & Louis N. Luzar	1,479 Sq.Ft.	Yes	4	
140B-LA	Jack Kuklevice	361 Sq.Ft.	Yes	2	
141-LA	Wilferd J. Ledergerber	.26 Ac.	Yes		
141A-LA	Willa Grace Hodgkin & Nellie Hetzel	2,466 Sq.Ft.	Yes		
142-LA	Andrew G. & Eleanor L. Pittner	.10 Ac.	Yes		
143-LA	Mary Klep ET AL	.11 Ac.	Yes	8	
144-LA	Vincenzo Montagna	4,967.50 Sq.Ft.	Yes		
145-LA	William & Mary Chesnik	.12 Ac.	Yes		
146-LA	Joseph & Rose Shercell	.24 Ac.	Yes	3	
147-LA	Charles E. & Mary Rose Hungerman	9,976 Sq.Ft.	Yes		
153-LA	Frances B. Fisher	9,230 Sq.Ft.	Yes		
153A-LA	Frank Sulek	195 Sq.Ft.			
153-WA		1,000 Sq.Ft.			
154-LA	Helen Mary Roscovich	5,453 Sq.Ft.	Yes	6	
155-LA	Mary P. Polli	4,926 Sq.Ft.	Yes		
159A-LA	Angela Kusic	2,524 Sq.Ft.	Yes		
※122	Louis Straus & Caroline Straus	5,045 Sq.Ft.	Yes		
※125	Edward R. & Rose Mary Polli	.09 Ac.	Yes		
※119-WA	Unknown	.07 Ac.			

Legend
※ - Parcel out of Numerical order

UTILITY OWNERS

Telephone - The Ohio Bell Telephone Company
Power - The Ohio Power Company
Water - Belmont Sanitary Sewer District No. 1
Gas - The Ohio Valley Gas Company

SCALE 1" = 50'
MADE J.C.S. DATE 10-25-61
TRCD T.E.R. DATE 10-27-61
CKD M.M.V. DATE 1-24-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

Completion Date 3-9-62

MADE	REVISION	DATE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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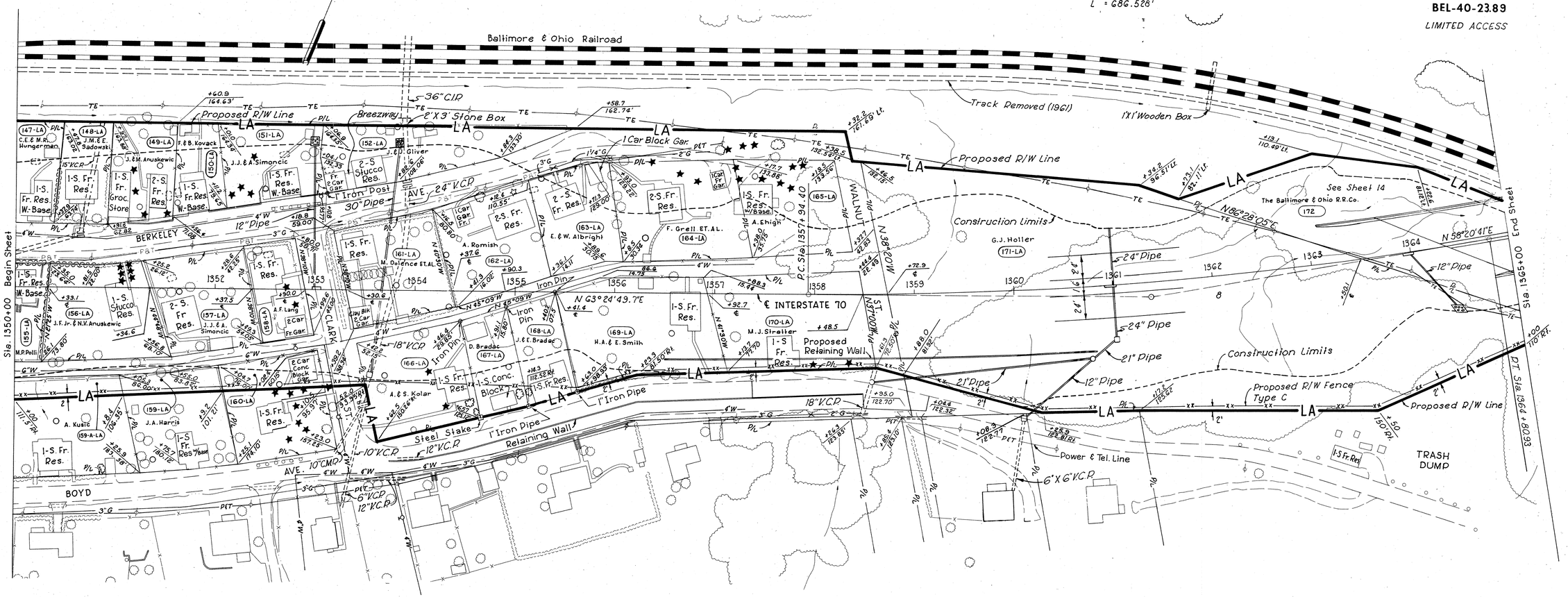
BELMONT COUNTY
BEL-40-23.89
LIMITED ACCESS

PEASE TWP - SEC. 33 - TWP 3 - R 2

Curve 8
P.I. Sta. 1361+38.55
D = 1°28'
Δ = 10°04'08.7" Lt.
R = 3906.530'
T = 344.151'
L = 686.528'



Parcel No.	Owner	Area	Exist. Bldg.	House No.	Remarks	Parcel No.	Owner	Area	Exist. Bldg.	House No.	Remarks
147-LA	Charles E. & Mary Rose Hungerman	3,976 Sq.Ft.	Yes			167-LA	Dan Bradac	4,837 Sq. Ft.	Yes		
148-LA	John M. & Esther Sadowski	5,198 Sq.Ft.	Yes	11		168-LA	Joe & Ella Bradac	5,064 Sq. Ft.	Yes	25	
149-LA	Joe & Mary Anuskewic	.14 Ac.	Yes	13		169-LA	Helen Ann & Edward Smith	14,949 Sq. Ft.	Yes		
150-LA	Frank & Blanch Kovack	4,232 Sq.Ft.	Yes	15		170-LA	Martha J. Stroller	14,565 Sq.Ft.	Yes	33	
151-LA	Joseph J. & Annette Simoncic	7,875.62 Sq.Ft.	Yes	19		171-LA	George J. Holler	2.66 Ac.	No		
152-LA	Joseph & Jennie Gliver	.25 Ac.	Yes	23		172	The Baltimore and Ohio Railroad Company		No		See Sheet 14
155-LA	Mary P. Polli	4,926 Sq.Ft.	Yes								
156-LA	Joseph F. Jr. & Nancy V. Anuskewic	10,624 Sq.Ft.	Yes	12							
157-LA	Joseph J. & Annette Simoncic	9,698 Sq.Ft.	Yes								
158-LA	Anna F. Lang	5,142 Sq.Ft.	Yes								
159-LA	Joseph A. Harris	2,130 Sq.Ft.	Yes								
159 A-LA	Angela Kusic	2,524 Sq.Ft.	Yes								
160-LA	William & Jennie Kubovich	3,305 Sq.Ft.	Yes								
161-LA	Mary Dolence ET AL	10,296 Sq.Ft.	Yes	20							
162-LA	Agnes Romish	9,967 Sq.Ft.	Yes	26							
163-LA	Emma & William Albright	7,877 Sq.Ft.	Yes	28							
164-LA	Frances Grell ET AL	13,122 Sq.Ft.	Yes	30							
165-LA	Angela Ehigh	9,588 Sq.Ft.	Yes	43							
166-LA	Anton & Steffie Kolar	.24 Ac.	Yes								

UTILITY OWNERS

Telephone = The Ohio Bell Telephone Company
Power = The Ohio Power Company
Water = Belmont Sanitary Sewer District No.1
Gas = The Ohio Valley Gas Company

SCALE 1"=50'
MADE J.C.S. DATE 10-30-61
TRCD. J.D.S. DATE 10-31-61
CKD. M.N.V. DATE 1-25-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

Completion Date 3-9-62

MADE	REVISION	DATE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

156

BELMONT COUNTY

BEL-40-23.89

MAINLINE

BALTIMORE & OHIO RAILROAD

14 / 17

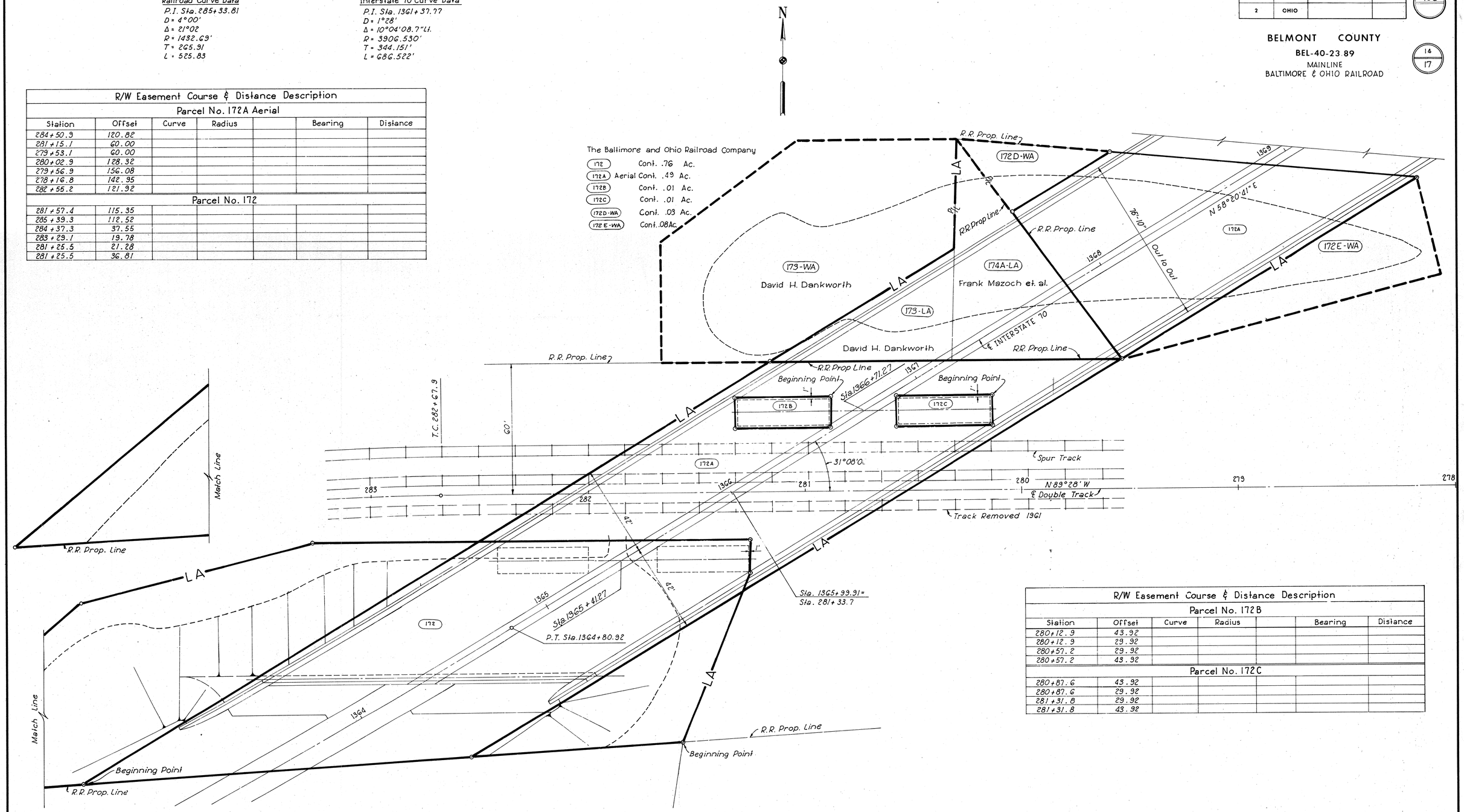
Railroad Curve Data

P.I. Sta. 285+33.81
D = 4°00'
Δ = 21°02
R = 1432.69'
T = 265.91
L = 525.83

Interstate 70 Curve Data

P.I. Sta. 1361+37.77
D = 1°28'
Δ = 10°04'08.7" Lt.
R = 3906.530'
T = 344.151'
L = 686.522'

R/W Easement Course & Distance Description						
Parcel No. 172A Aerial						
Station	Offset	Curve	Radius		Bearing	Distance
284+50.9	120.82					
281+15.1	60.00					
279+53.1	60.00					
280+02.9	128.32					
279+56.9	156.08					
278+16.8	142.95					
282+55.2	121.92					
Parcel No. 172						
281+57.4	115.35					
285+39.3	112.52					
284+37.3	37.55					
283+29.1	19.78					
281+25.5	21.28					
281+25.5	36.81					



R/W Easement Course & Distance Description						
Parcel No. 172B						
Station	Offset	Curve	Radius		Bearing	Distance
280+12.9	43.92					
280+12.9	29.92					
280+57.2	29.92					
280+57.2	43.92					
Parcel No. 172C						
280+87.6	43.92					
280+87.6	29.92					
281+31.8	29.92					
281+31.8	43.92					

SCALE 1"=20'
MADE J.C.S. DATE 10-31-61
TRCD. T.C.R. DATE 11-2-61
CKD. J.D.S. DATE 2-1-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

See Sheet 13 of R/W Plans

MADE	REVISION	DATE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

157 / 197

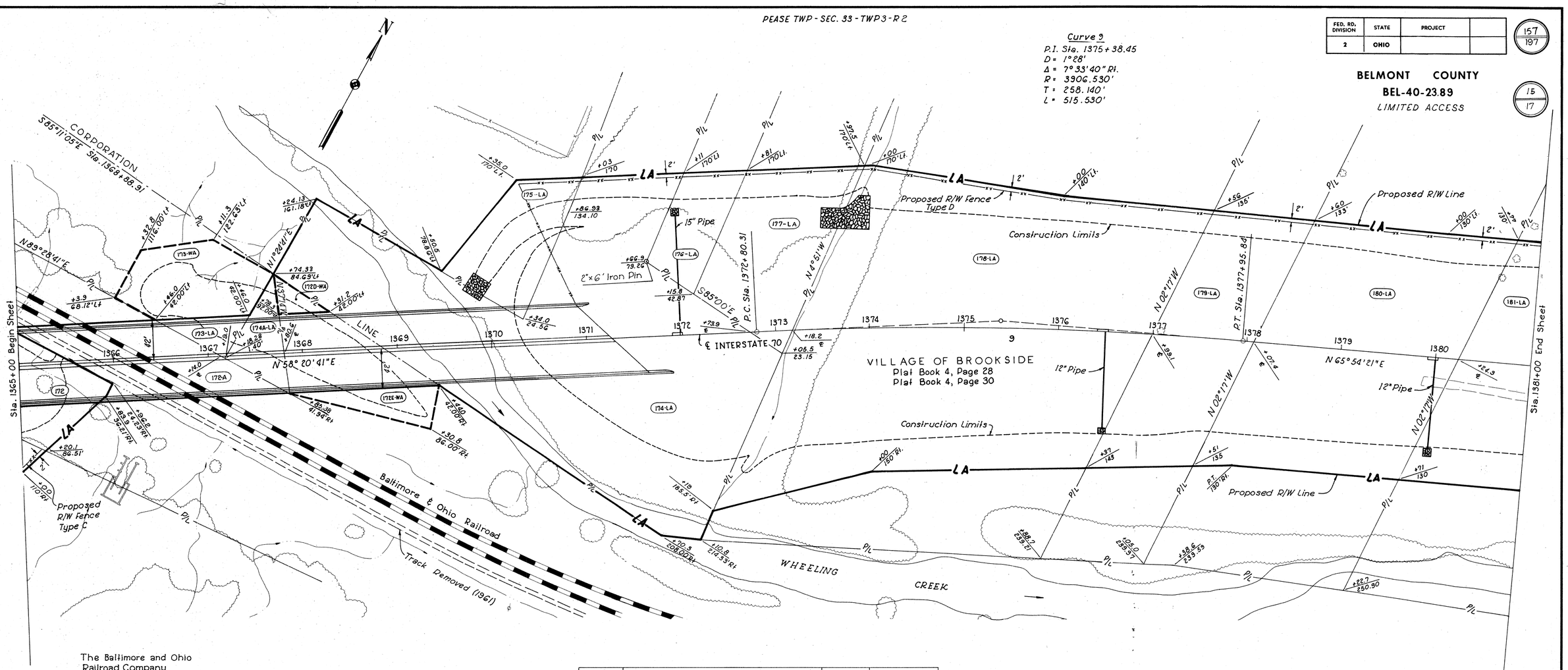
15 / 17

BELMONT COUNTY

BEL-40-23.89

LIMITED ACCESS

PEASE TWP - SEC. 33 - TWP 3 - R 2



The Baltimore and Ohio Railroad Company See Sheet 13 For Easement Details

Parcel No.	Owner	Area	Remarks
172	The Baltimore and Ohio Railroad Company	.76 Ac.	Slope Easement
172 A		.49 Ac.	Aerial Easement
172 B		.01 Ac.	Pier Easement
172 C		.01 Ac.	Pier Easement
172D-WA		.03 Ac.	
172E-WA		.08 Ac.	
173-LA	David H. Dankworth	.06 Ac.	
173-WA		.24 Ac.	
174-LA	Frank Mazoch ETAL	2.25 Ac.	
174A-LA		.09 Ac.	
175-LA	Bridgeport Board of Education	.26 Ac.	
176-LA	Church of God	.17 Ac.	
177-LA	Thomas C. & Mary E. Gonot	.46 Ac.	
178-LA	Clara M. Dukes	2.70 Ac.	
179-LA	Wilma F. Sutton	.68 Ac.	
180-LA	Joseph A. & Martha George	1.31 Ac.	
181-LA	Charles T. Meyer	1.77 Ac.	

Completion Date 3-9-62

MADE	REVISION	DATE

SCALE 1"=50'
MADE J.C.S. DATE 10-25-61
TRCD T.E.R. DATE 10-27-61
CKD M.M.V. DATE 1-25-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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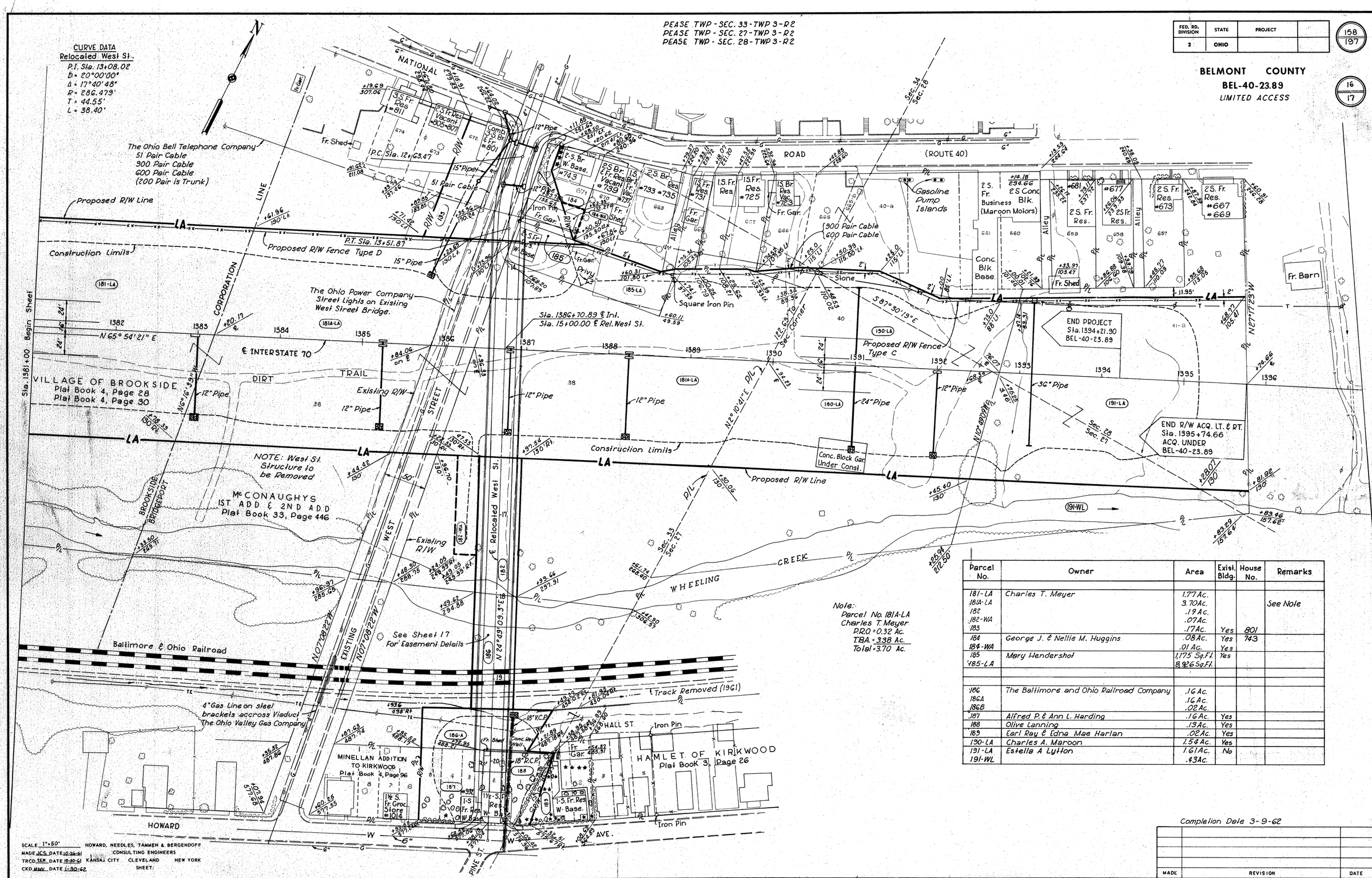
BELMONT COUNTY

BEL-40-23.89

LIMITED ACCESS

PEASE TWP - SEC. 33 - TWP 3 - R2
PEASE TWP - SEC. 27 - TWP 3 - R2
PEASE TWP - SEC. 28 - TWP 3 - R2



Note:
Parcel No. 181A-LA
Charles T. Meyer
P.R.O. = 0.32 Ac.
T.B.A. = 3.38 Ac.
Total = 3.70 Ac.

Parcel No.	Owner	Area	Exist. Bldg.	House No.	Remarks
181-LA	Charles T. Meyer	1.77 Ac.			
181A-LA		3.70 Ac.			See Note
182		.19 Ac.			
182-WA		.07 Ac.			
183		.17 Ac.	Yes	801	
184	George J. & Nellie M. Huggins	.08 Ac.	Yes	743	
184-WA		.01 Ac.	Yes		
185	Mary Hendershot	1,175 Sq.Ft.	Yes		
185-LA		8,926 Sq.Ft.			
186	The Baltimore and Ohio Railroad Company	.16 Ac.			
186A		.16 Ac.			
186B		.02 Ac.			
187	Alfred P. & Ann L. Harding	.16 Ac.	Yes		
188	Olive Lanning	.13 Ac.	Yes		
189	Earl Ray & Edna Mae Harlan	.02 Ac.	Yes		
190-LA	Charles A. Maroon	1.54 Ac.	Yes		
191-LA	Estella A Lytton	1.61 Ac.	No		
191-WL		.43 Ac.			

Completion Date 3-9-62

MADE	REVISION	DATE

SCALE 1" = 50'
MADE JCS DATE 10-26-61
TRCD. TER DATE 10-30-61
CKD. MMV DATE 1-30-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET:

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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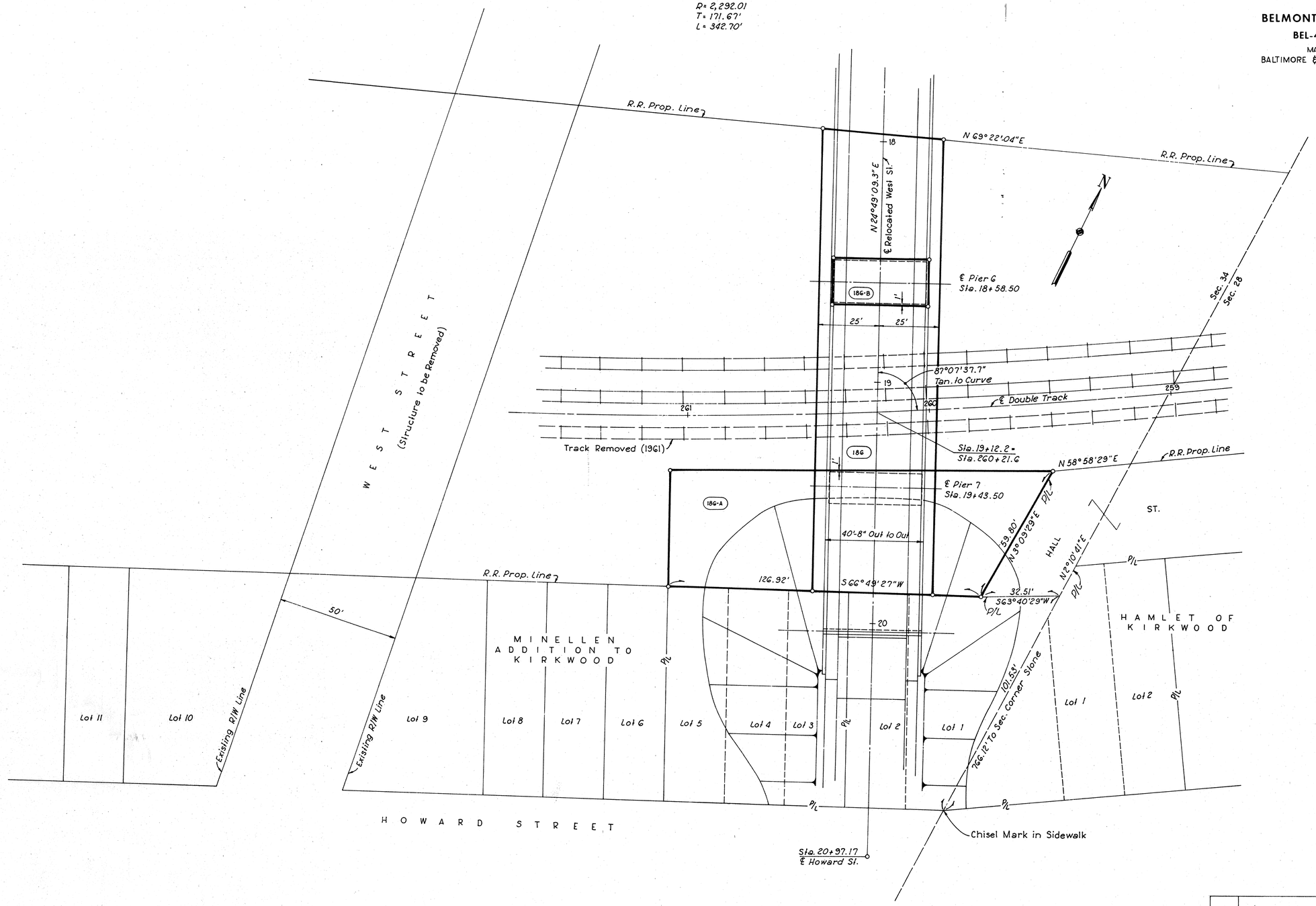
17
17

BELMONT COUNTY

BEL-40-23.89

MAINLINE
BALTIMORE & OHIO RAILROAD

Railroad Curve Data
P.I. Sta. 260+55.87
D = 2°30'
Δ = 8°34'
R = 2,292.01
T = 171.67'
L = 342.70'



SCALE 1" = 20'
MADE J.C.S. DATE 10-5-61
TRCD. T.E.R. DATE 10-9-61
CKD. J.D.S. DATE 1-26-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET.

MADE	REVISION	DATE

BELMONT COUNTY
BEL-40-23.89

DESIGN SPECIFICATIONS

Design Specifications for Highway Structures of the State of Ohio, Department of Highways, dated September 1, 1957, and revised February 21, 1958.

SUPPLEMENTAL SPECIFICATIONS

Reference shall be made to Supplemental Specifications No. S-307, Radiographic Examination of Welds, dated August 23, 1960 and to No. S-207.10, High Strength Bolts, dated 4-25-61.

REFERENCE DRAWINGS

Reference shall be made to Standard Drawing Numbers RB-1-55 revised 2-2-59, AR-1-57, revised 12-12-60, CSB-2-56 (Sheet 2 of 6 and 3 of 6) revised 2-2-59, AS-1-54 revised 12-1-54 and to I-15 (No. 2-A) revised 8-17-60.

DIMENSIONS

Dimensions given are measured horizontally and at 60° F. unless otherwise noted.

UTILITIES

Any existing privately owned utility facilities encountered at the site of the work which will interfere with portions of the finished roadways or structures will be removed or relocated by others. The Contractor shall coordinate his operations with the work of the utility owners or others who may be making the relocations, and shall notify the owners of the utilities of his schedule sufficiently in advance to permit them to make the necessary alterations.

EXCAVATION AND BACKFILL

Br. No. BEL-40-2570

The embankment shall be placed and compacted to the finished spill-thru slope and to the level of the subgrade, as shown on the plans, for a distance of at least 200 feet back of the abutments before excavation or any construction work is started on the abutments or piers.

Br. No. BEL-40-2600

The embankment shall be placed and compacted to the finished spill-thru slope and to the level of the subgrade, as shown on the plans, for a distance of at least 200 feet back of the abutments before excavation or any construction work is started on the abutments or Piers 1 and 5.

Br. No. BEL-40-2635

The full length of the embankments on relocated West St. shall be placed and compacted to the finished spill-thru slopes and to the level of the subgrade and the embankment for I-70 in the vicinity of the bridge shall be placed and compacted up to the level of the subgrade before excavation or any construction work is started on the abutments or Piers 1, 2, 3 and 7.

FOUNDATIONS

All 10BP42 steel piles have a design load of 35 tons per pile except piles at Piers 1 and 2 of Bridge No. 2 have a design load of 30 tons per pile and all 12BP53 steel piles have a design load of 40 tons per pile. Piles shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is not less than the following values for a pile hammer of the indicated energy rating and for the indicated design loads:

Hammer Size	Design Loads 30 Ton	35 Ton	40 Ton
11,000 Ft. Lbs.	50	45	50
15,000 Ft. Lbs.	45	40	45

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation.

In order to obtain firm contact with rock, preboring may be used for all piles at the Contractor's option and expense, except preboring is required at Piers 1, 2, and 3 and at both abutments of Bridge No. 3. Backfill, after the piles are driven where preboring is used, shall conform to Item 1-22 of the construction specifications. Where preboring and backfill are required, their cost shall be included in the price bid per lineal foot of piles.

The estimated length of piles shown on the plans is based on a study of the borings and is approximate only. The Contractor shall assume full responsibility for lengths of piles selected for driving.

The design load for the spread footings of Piers 4 and 5 of Bridge No. 2 is 3 tons per square foot.

CONCRETE DECK

a. The welded girders shall be fabricated with camber, as specified on the plans, to compensate for the deflections due to weight of concrete and steel, and vertical curvature. The theoretical deflections are tabulated on the plans. Beams need not be cambered.

b. The final surface of the roadway shall conform as nearly as practicable to the elevations shown on the plans. To compensate for deflections due to dead load of the concrete the screeds used to strike off the surface of the concrete to the final desired grade line shall be adjusted by amounts equal to deflections shown for this dead load. Screeds may require further adjustments due to irregularities in the fabricated steel.

c. The depth of concrete over each beam (top of concrete to top of flange) and girder (top of concrete to top of web) at the supports is given on the plans. The concrete slab shall be of uniform thickness between beams or girders, with adjustments obtained by varying the thickness of the haunches over the beams or girders.

d. The aforementioned depth of concrete over each beam or girder is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange may not have the exact camber or conformation required to place it parallel to the finished grade.

e. In order to facilitate water curing of the concrete, its placement shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

REINFORCING STEEL

a. All bars are designated on the plans by bar numbers. The bar size is indicated by the first digit of three-digit numbers and by the first two digits of four-digit numbers.

All bar dimensions are given out to out.
All bars of a series shall vary in length by a constant increment.

b. The clear distance between reinforcing steel and face of concrete shall be 3" at bottom of footings, 2½"± at bar mats under shoes, 1" in parapets and curbs and 2" elsewhere unless otherwise shown on the plans.

c. If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Test Laboratory, test samples as provided in Section S-4.02 need not be furnished, and replacement bars will not be required.

WATERPROOFING

All contraction and expansion joints in back face of substructure against which earth is to be placed shall be waterproofed with a premolded sealing strip as shown on the plans.

WELDING

Welds shown as field welds may, at the option of the Contractor, be made in the shop. All welds shall be Class "A" except as otherwise shown. Class "B" welds are shown thus B

CONSTRUCTION ADJACENT TO RAILROAD TRACKS

a. Minimum temporary construction clearance of 19 feet vertically above top of rail and 8 feet horizontally from centerline of the track shall be maintained at all times.

b. Before construction is started, the Contractor shall submit eight sets of prints showing details of sheeting and bracing to be used for excavation adjacent to any railroad track to the Director for approval by the Department of Highways and by the Railroad Company affected as determined from the plans.

c. After the Contractor has completed all excavation and backfill adjacent to the track in compliance with Section E-2.04 and E-2.08 of the Construction and Material Specifications, subject to the supervision of the affected Railroad Company, nothing in Sections E-2.04, E-2.08 or G-8.07 of the Specifications shall be construed to hold the Contractor liable for aligning and resurfacing the railroad track.

SHOP PAINTING STEEL

The surface preparation of all steel, requiring shop painting as per the Plans and Specifications, shall be accomplished by blast cleaning or power tool cleaning, except as noted in the Specifications regarding the use of Chromate Primers.

ESTIMATED QUANTITIES

Item	Description	Unit	BRIDGE NO. BEL-40-2600 Abutments	Piers	Super-structure	General	Total			BRIDGE NO. BEL-40-2635 Abutments	Piers	Super-structure	General	Total		
E-2	Excavation for structures (Unclassified)	Cu. Yds.	700	3270			3970			267	1128			1395		
E-2	Cofferdams, cribs and sheeting	Lump Sum					Lump Sum							Lump Sum		
S-1	Class C Concrete, superstructure	Cu. Yds.			1835		1835					855		855		
S-1	Class C Concrete (pier caps and columns)	Cu. Yds.									82			82		
S-1	Class C Concrete (pier caps and shafts)	Cu. Yds.		1330			1330				495			495		
S-1	Class E Concrete stub abutments (above footing)	Cu. Yds.	353				353			128				128		
S-1	Class E Concrete, footings (abutments and piers)	Cu. Yds.	220	852			1072			76	284			360		
S-1	Class E Concrete (seal course)	Cu. Yds.		705			705									
S-3	Waterproofing, premolded sealing strip	Lin. Ft.	85				85									
S-4	Reinforcing steel	Lbs.	35,840	217,590	467,820		721,250			13,800	98,410	204,650		316,860		
S-7	Structural steel	Lbs.			2,392,000		2,392,000					825,500		825,500		
S-8	Field painting of structural steel	Lbs.			2,392,000		2,392,000					825,500		825,500		
S-9	½" Preformed gray rubber expansion joint filler	Sq. Ft.	91				91									
S-14	Type "A" Aluminum railing (including parapet)	Lin. Ft.	104		1396		1500									
S-14	Type "C" Aluminum railing (including parapet)	Lin. Ft.								67	1173			1240		
S-14	Barrier railing (I-151) rails with galv. steel posts and bolts)	Lin. Ft.			701.93		701.93									
S-16	First test pile	Lump Sum					Lump Sum							Lump Sum		
S-18	Steel bearing piles, 10BP42	Lin. Ft.	4330	4400			8730			1360				1360		
S-18	Steel bearing piles, 12BP53	Lin. Ft.									6730			6730		
S-24	Removal of existing structure	Lump Sum												Lump Sum		
S-29	Porous backfill	Cu. Yds.	148				148			28				28		
S-29	Scuppers	Each			27		27					14		14		
I-10	Crushed aggregate slope protection, Sec. I-10.04	Sq. Yd.				1285	1285						470	470		
I-10	Dumped rock fill, Sec. I-10.06, Type A	Cu. Yd.				975	975									
Special	Water reducing, set-retarding admixture *	Each			1835		1835					855		855		
S-25	See sheet 198 for lighting quantities															

* See Proposal

H.N.T.B. BRIDGE NO.	STATE BRIDGE NO.	DESCRIPTION
1	BEL-40-2570	I-70 over relocated Plum St.
2	BEL-40-2600	I-70 over B&O Railroad and Wheeling Creek.
3	BEL-40-2635	Relocated West St. over I-70, Wheeling Creek, and B&O R.R.

Note:
For estimated quantities of Bridge No. BEL-40-2570 see Sheet 162.
For estimated Lighting Quantities on Bridge No. Bel-40-2635 see sheet 198.

BRIDGES 1, 2 AND 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO. BEL-40-2570
BRIDGE NO. BEL-40-2600
BRIDGE NO. BEL-40-2635

BELMONT COUNTY OHIO

DRAWN G.D.	TRACED	CHECKED JF	REVIEWED JF	REVISED
DATE 12-5-61	DATE	DATE 11-17-61	DATE 12-14-61	949 SHEET 160

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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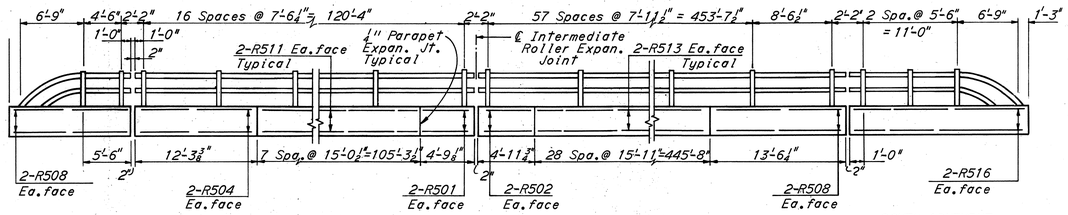
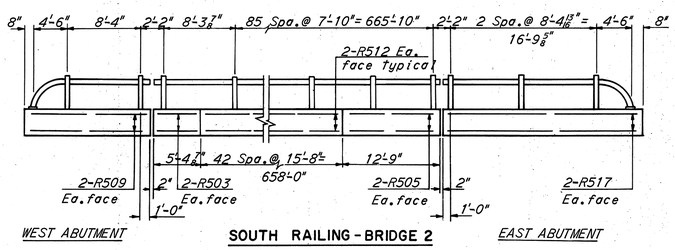
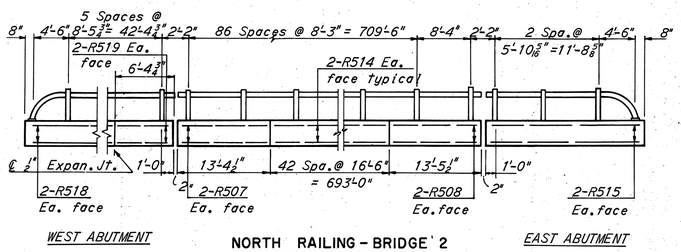
BELMONT COUNTY
BEL-40-23.89



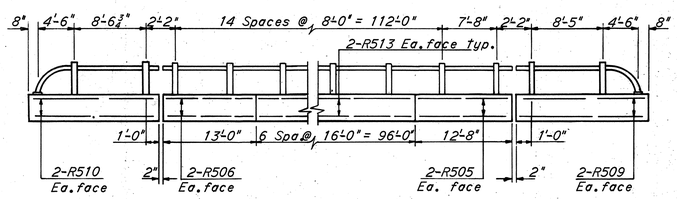
EAST AND WEST RAILING – BRIDGE-3



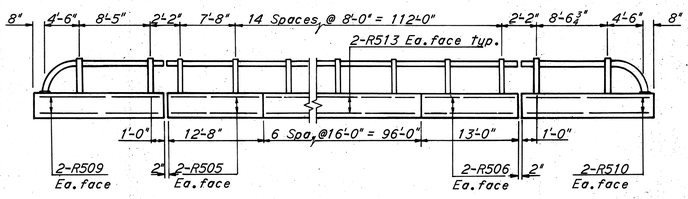
SOUTH RAILING – BRIDGE 2



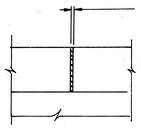
NORTH RAILING – BRIDGE 2



SOUTH RAILING – BRIDGE 1



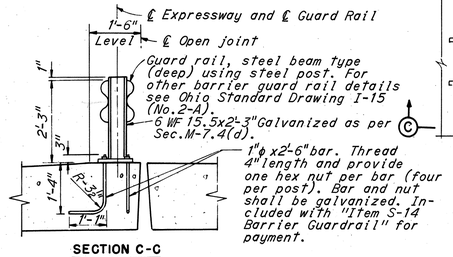
NORTH RAILING – BRIDGE-1



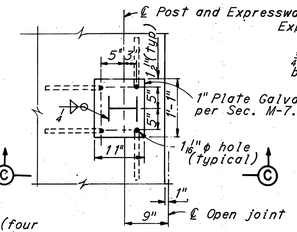
¼" Preformed gray rubber expansion joint filler, meeting the requirements of Section M-1002 (type 1). Include for pavement in unit price bid for Item S-14.

Note:
Expansion joints in superstructure parapets shall be at midpoints of alternate railing panels. See railing post spacing.

PARAPET JOINT DETAILS
⅜" = 1'-0"

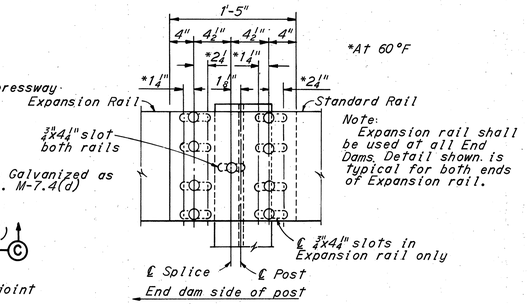


SECTION C-C
½" = 1'-0"

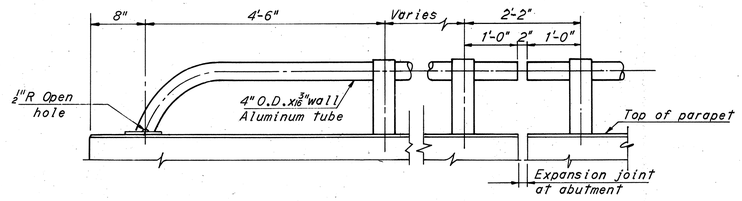


PLAN
No Scale

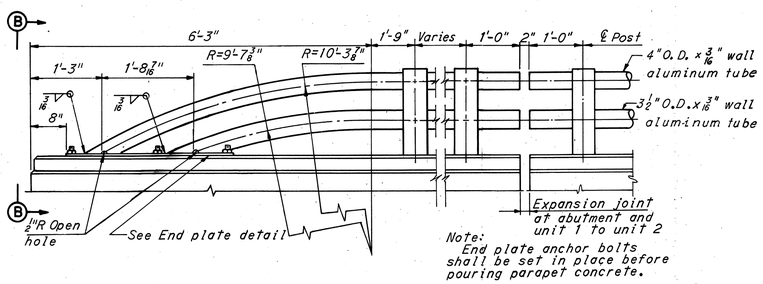
MEDIAN BARRIER GUARD RAIL DETAILS



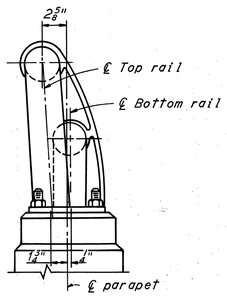
SPECIAL PANEL AT EXPANSION JOINTS
No Scale



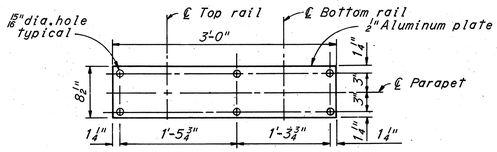
TYPE A RAILING END DETAILS
¾" = 1'-0"



TYPE C RAILING END DETAILS
¾" = 1'-0"



VIEW B-B
1½" = 1'-0"



END PLATE DETAIL
No Scale

REINFORCEMENT SCHEDULE			
MARK	NO.	LENGTH	TYPE
501	4	4'-6"	Str.
502	4	4'-9"	Str.
503	4	5'-0"	Str.
504	4	12'-0"	Str.
505	12	12'-6"	Str.
506	8	12'-9"	Str.
507	4	13'-0"	Str.
508	12	13'-3"	Str.
509	12	14'-3"	Str.
510	8	14'-6"	Str.
511	28	14'-9"	Str.
512	168	15'-6"	Str.
513	160	15'-9"	Str.
514	168	16'-3"	Str.
515	4	17'-6"	Str.
516	4	19'-9"	Str.
517	4	22'-9"	Str.
518	4	41'-9"	Str.
519	4	6'-0"	Str.

RAILING NOTES:

Railing shall be fabricated in lengths not less than three panels each and finished railing shall be free of burrs, sharp corners and rough surfaces.

Railing posts shall be normal to grade and the final adjustment of the railing shall be such that the top rail shall not depart more than ⅛" from correct line and grade.

Payment for railing shall be made at the contract unit price bid for "Item S-14, Aluminum Railing (including parapet)." Pay length shall be the overall length of the parapets and shall include cost of shims, nuts, anchor bolts, set screws, etc. necessary to complete the installation of railing.

Concrete and longitudinal reinforcing steel in the parapets shall be included in "Item S-14, Aluminum Railing (including parapet)" for payment. All other reinforcing steel in parapet shall be included in "Item S-4" for payment.

For additional details and notes regarding railing, see Ohio Standard Drawing AR-1-57, revised 12-12-60.

BRIDGES 1, 2 AND 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

RAILING DETAILS

BRIDGE NO. BEL-40-2570
BRIDGE NO. BEL-40-2600
BRIDGE NO. BEL-40-2635

SCALE: NO SCALE
BELMONT CO. OHIO

DRAWN H.D.P.	TRACED	CHECKED SMA	REVIEWED JT	REVISED
DATE 11/14/61	DATE	DATE 11-15-61	DATE 12-14-61	949 SHEET 161

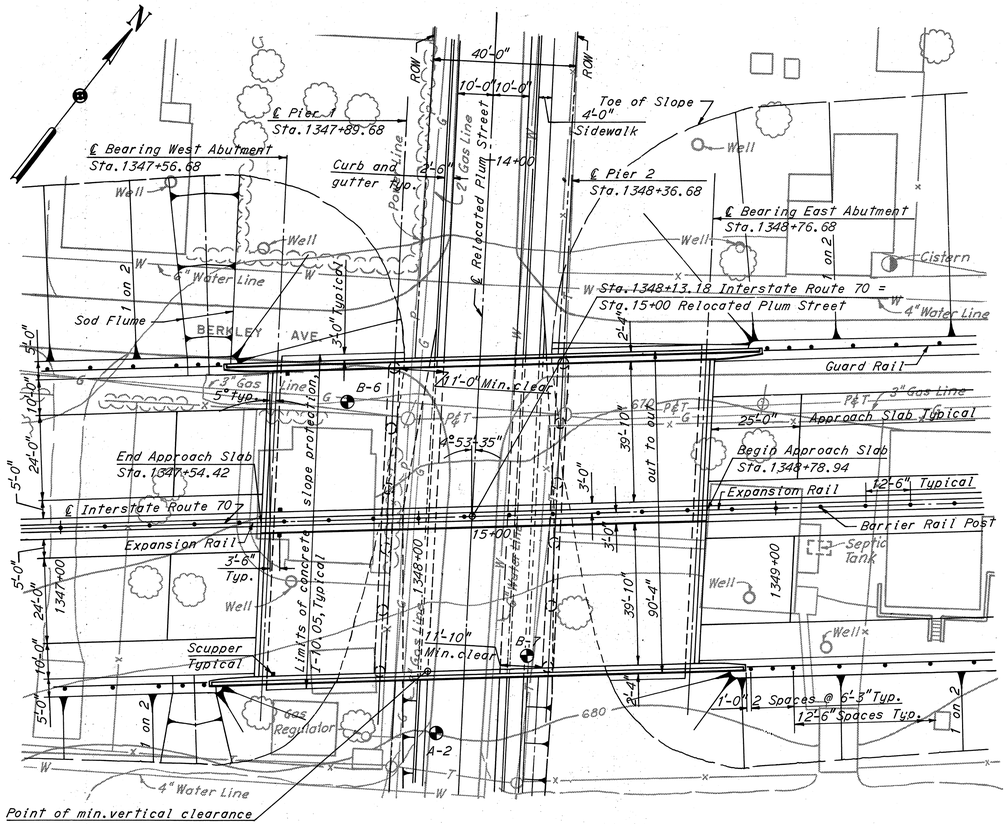
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

162 / 197

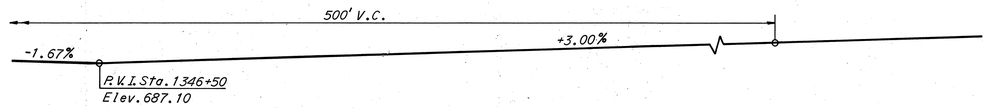
BELMONT COUNTY
BEL-40-23.89

BORING LOCATIONS

B-6	1347+81	33' Lt.
A-2	1348+03	60' Rt.
B-7	1348+29	39' Rt.



PLAN



PROFILE INTERSTATE ROUTE 70

ESTIMATED QUANTITIES

Item	Description	Unit	Piers	Abutments	Super-structure	General	Total		
E-2	Excavation for Structures (Unclassified)	Cu.Yd.	265	435			700		
S-1	Class "C" Concrete (pier caps and columns)	Cu.Yd.	120				120		
S-1	Class "C" Concrete, superstructure	Cu.Yd.			350		350		
S-1	Class "E" Concrete, stub abutments (above footing)	Cu.Yd.		173			173		
S-1	Class "E" Concrete, footings (abutments and piers)	Cu.Yd.	90	145			235		
S-3	Waterproofing, premolded sealing strip	Lin.Ft.		17			17		
S-4	Reinforcing Steel	Lbs.	32,610	19,490	92,500		144,600		
S-7	Structural Steel	Lbs.			232,000		232,000		
S-8	Field Painting of Structural Steel	Lbs.			232,000		232,000		
S-9	½" Preformed gray rubber expansion joint filler	Sq.Ft.		48			48		
S-14	Type "A" Aluminum Railing (including parapet)	Lin.Ft.		59	243		302		
S-14	Barrier Railing (I-15.11 rails with galvanized steel posts and bolts)	Lin.Ft.			124.52		124.52		
S-16	First Test Pile	Lump Sum					Lump Sum		
S-18	Steel Bearing Piles, 10BP42	Lin.Ft.		2420			2420		
S-18	Steel Bearing Piles, 12BP53	Lin.Ft.	2520				2520		
S-29	Porous Backfill	Cu.Yd.		56			56		
S-29	Scuppers	Each			4		4		
I-10	Concrete slope protection, Sec. I-10.05	Sq.Yd.				695	695		
Special	Water reducing, set retarding admixture *	Each			350		350		

* See Proposal.

Notes:

The following items are not included in the bridge plans. See roadway plans for details:

Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading pavements and slabs.
Guard rails except on bridge.

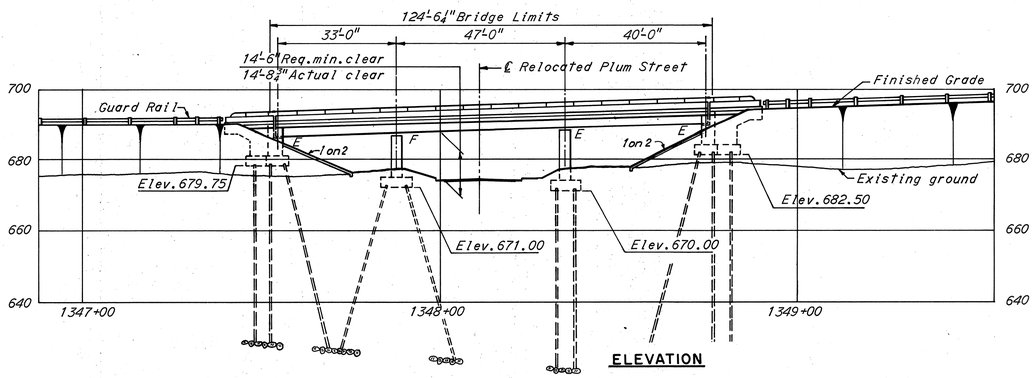
Piles for piers to be 12BP53 with an estimated average vertical length of 45' for piers 1 and 2. Piles for abutments to be 10BP42 with an estimated average vertical length of 55'. These estimates are based on boring data and are approximate only. The contractor shall assume full responsibility for lengths of piling selected for driving.

◓ Denotes boring.

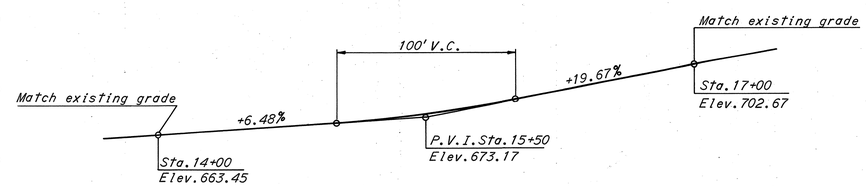
Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State does not guarantee the accuracy thereof.

PROPOSED STRUCTURE

Type: 3 Span continuous rolled beam with reinforced concrete deck and substructure.
Spans: 33'-0", 47'-0" and 40'-0" = 120'-0" ctr. to ctr. end bearings.
Roadway: 2 @ 39'-10" f.f. of 1'-2" safety curb and 6'-0" median.
Loading: CF 2000 (Adequate for AASHO alternate loading.)
Skew: 4°53'-35"
Alignment: Tangent (Expressway).
Surface Course: 1" Monolithic concrete.
Approach Slabs: AS-1-54 (25'-0" long).



ELEVATION



PROFILE RELOCATED PLUM STREET

BRIDGE NO. 1

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SITE PLAN

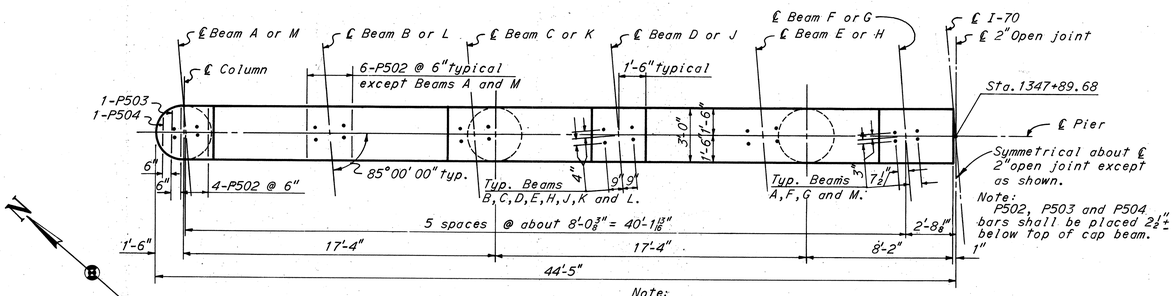
I-70 OVER RELOCATED PLUM STREET

BR. NO. BEL-40-2570 STA. 1347+54.42
SCALE: 1" = 20' STA. 1348+78.94
BELMONT CO. OHIO

DRAWN S.M.A.	TRACED	CHECKED KHS	REVIEWED JF	REVISED
DATE 8-21-61	DATE	DATE 11-14-61	DATE 12-14-61	949 SHEET 162

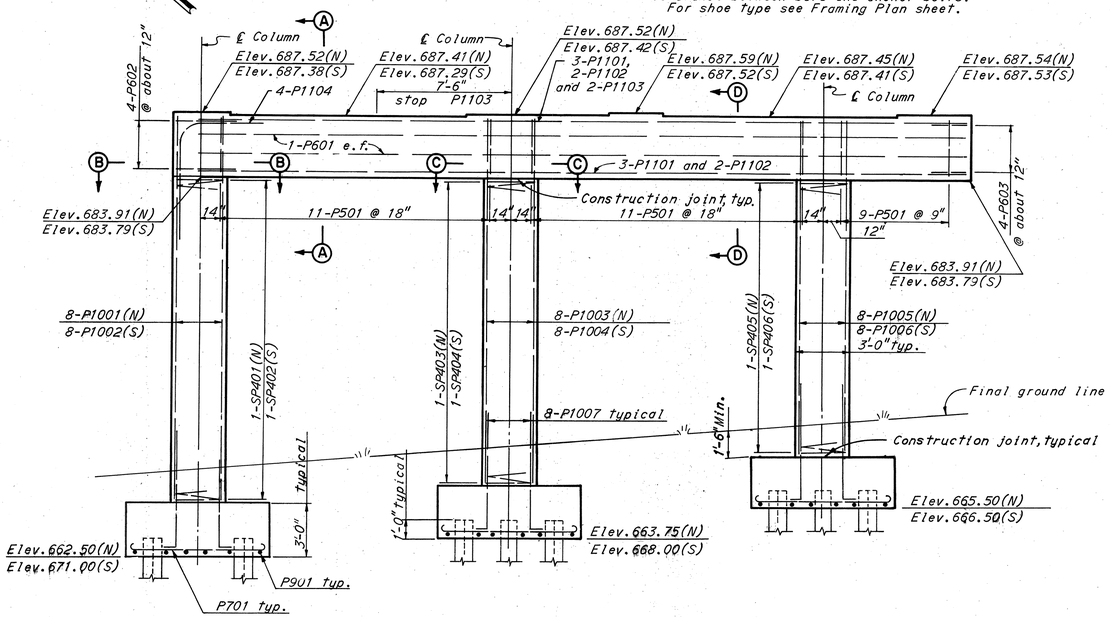
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

BELMONT COUNTY
BEL-40-23.89

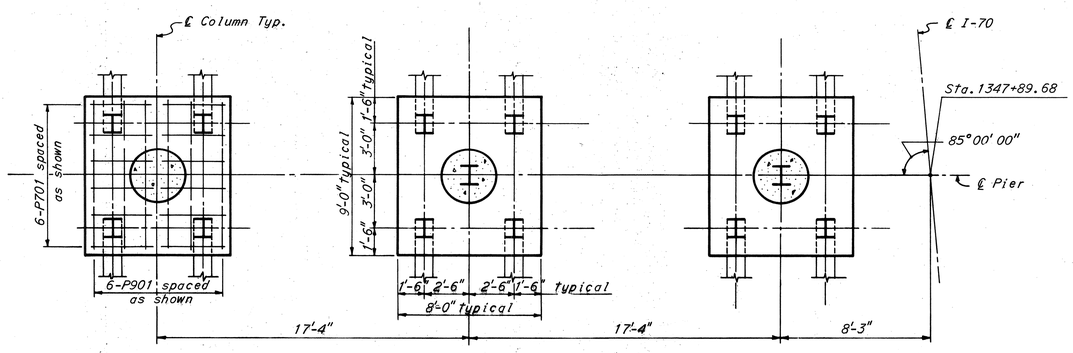


PLAN

Note:
Special care shall be taken in placing reinforcing steel in cap beam to allow clearance between bars and anchor bolts. For shoe type see Framing Plan sheet.

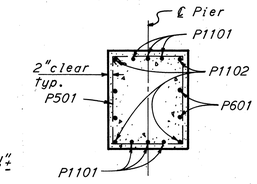


ELEVATION

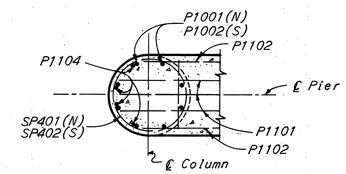


FOOTING PLAN

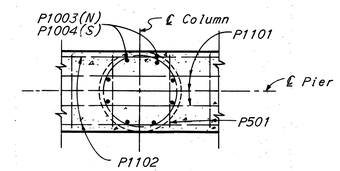
Pier 1-N shown. Pier 1-S similar except as noted



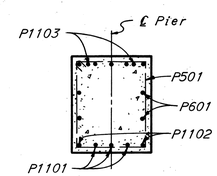
SECTION A-A
⅜"=1'-0"



SECTION B-B
⅜"=1'-0"



SECTION C-C
⅜"=1'-0"

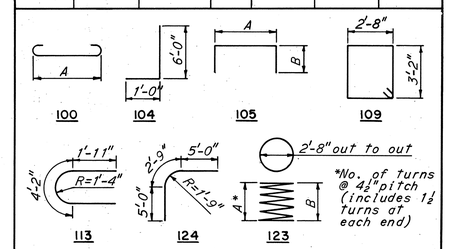


SECTION D-D
⅜"=1'-0"

Notes:
All battered piles are battered 3 in 12.
All piles are 12 BP 53.
Pile spacings are measured along bottom of footings.
(N) Denotes Pier 1-N.
(S) Denotes Pier 1-S.
For anchor bolt details, see Ohio Standard Drawing RB-1-55.
For replacement bar schedule see Sheet 197.
All bar dimensions are given out to out.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
SP401	1	429'-3"	123	52	18'-4½"	337
SP402	1	239'-5"	123	29	9'-9"	287
SP403	1	396'-3"	123	48	17'-1"	311
SP404	1	305'-5"	123	37	12'-9"	239
SP405	1	363'-3"	123	44	15'-4½"	285
SP406	1	338'-6"	123	41	14'-3"	265
P501	62	12'-2"	109			787
P502	68	4'-5"	105	2'-8"	1'-0"	313
P503	2	4'-0"	105	2'-3"	1'-0"	8
P504	2	2'-11"	105	1'-2"	1'-0"	6
P601	8	43'-0"	Str.			517
P602	8	8'-0"	113			96
P603	8	6'-2"	105	2'-8"	1'-11"	74
P701	36	9'-4"	100	7'-8"		687
P901	36	11'-2"	100	8'-8"		1367
P1001	8	21'-6"	Str.			740
P1002	8	13'-0"	Str.			448
P1003	8	20'-3"	Str.			697
P1004	8	16'-0"	Str.			552
P1005	8	18'-6"	Str.			638
P1006	8	17'-6"	Str.			603
P1007	48	6'-9"	104			1394
P1101	12	43'-9"	Str.			2789
P1102	8	43'-0"	Str.			1828
P1103	4	32'-9"	Str.			696
P1104	8	12'-9"	124			545
				Total		16,510



Spiral reinforcement shall not have deformations but shall in other respects conform to Item S-4. Four steel channel, tee or angle spacers, weighing approximately 0.68 pounds per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The spacers shall be paid for as reinforcing steel and their weight has been included in the tabulated weights of the spiral bars.

BENDING DIAGRAMS

BRIDGE NO. 1

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS I-N AND I-S

I-70 OVER RELOCATED PLUM STREET

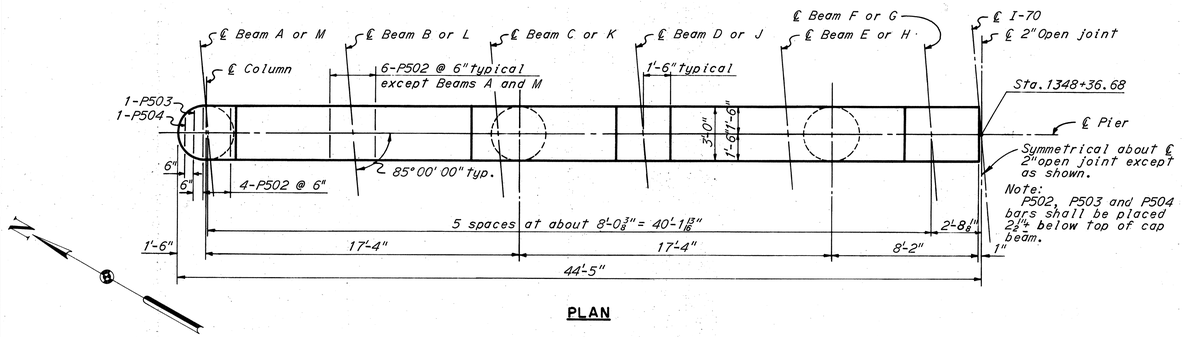
BR. NO. BEL-40-2570 STA. 1347+54.42
SCALE: 1/4" = 1'-0" STA. 1348+78.94
BELMONT CO. OHIO

DRAWN EHP	TRACED	CHECKED KRMS	REVIEWED JT	REVISED
DATE 8-18-61	DATE	DATE 10-24-61	DATE 12-14-61	949 SHEET 163

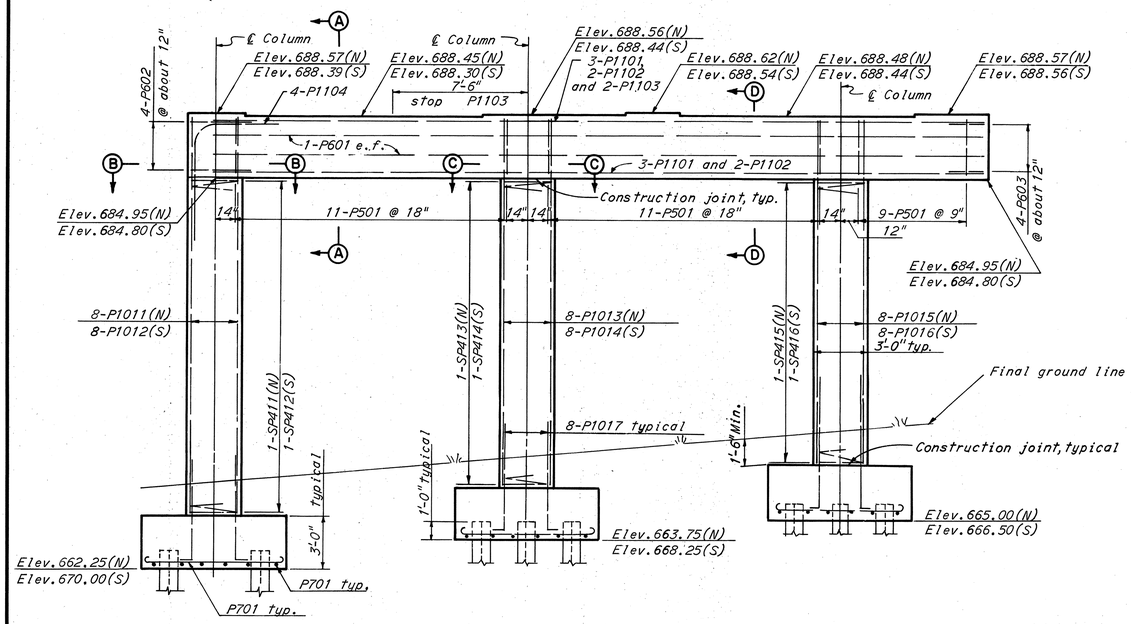
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

164
197

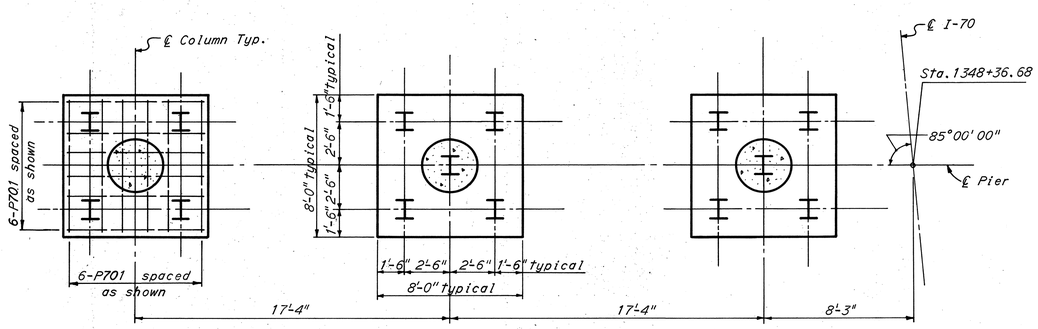
BELMONT COUNTY
BEL-40-23.89



PLAN

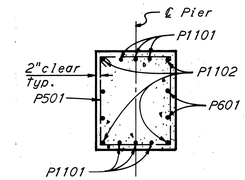


ELEVATION

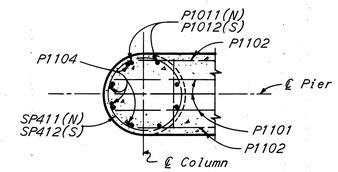


FOOTING PLAN

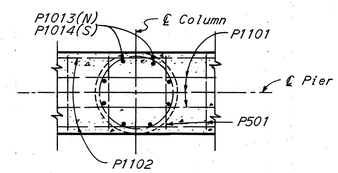
Pier 2-N shown. Pier 2-S similar except as noted.



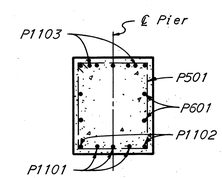
SECTION A-A
3/8" = 1'-0"



SECTION B-B
3/8" = 1'-0"



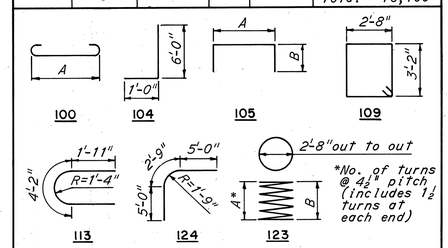
SECTION C-C
3/8" = 1'-0"



SECTION D-D
3/8" = 1'-0"

Notes:
All piles are 12 BP 53.
(N) denotes Pier 2-N.
(S) denotes Pier 2-S.
For replacement bar schedule see sheet 197.
For shoe type see Framing Plan, sheet 167.
All bar dimensions are given out to out.

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
SP411	1	454'-0"	123	55	19'-8"	356
SP412	1	280'-8"	123	34	11'-9"	219
SP413	1	421'-0"	123	51	18'-2"	330
SP414	1	321'-11"	123	39	13'-6"	252
SP415	1	396'-3"	123	48	16'-11"	311
SP416	1	355'-0"	123	43	15'-3"	278
P501	62	12'-2"	109			787
P502	68	4'-5"	105	2'-8"	1'-0"	313
P503	2	4'-0"	105	2'-3"	1'-0"	8
P504	2	2'-11"	105	1'-2"	1'-0"	6
P601	8	43'-0"	Str.			517
P602	8	8'-0"	113			96
P603	8	6'-2"	105	2'-8"	1'-11"	74
P701	72	9'-4"	100	7'-8"		1374
P1011	8	22'-9"	Str.			783
P1012	8	15'-0"	Str.			516
P1013	8	21'-3"	Str.			732
P1014	8	16'-9"	Str.			577
P1015	8	20'-0"	Str.			688
P1016	8	18'-6"	Str.			637
P1017	48	6'-9"	104			1394
P1101	12	43'-9"	Str.			2789
P1102	8	43'-0"	Str.			1828
P1103	4	32'-9"	Str.			696
P1104	8	12'-9"	124			539
					Total	16,100



Spiral reinforcement shall not have deformations but shall in other respects conform to Item S-4. Four steel channel, tee or angle spacers, weighing approximately 0.68 pounds per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The spacers shall be paid for as reinforcing steel and their weight has been included in the tabulated weights of the spiral bars.

BENDING DIAGRAMS

BRIDGE NO. 1

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 2-N AND 2-S

I-70 OVER RELOCATED PLUM STREET

BR. NO. BEL-40-2570 STA. 1347+54.42
SCALE: 1/4" = 1'-0" STA. 1348+78.94
BELMONT CO. OHIO

DRAWN EHP	TRACED	CHECKED RMS	REVIEWED JT	REVISED
DATE 8-18-61	DATE	DATE 10-24-61	DATE 12-14-61	949 SHEET 164

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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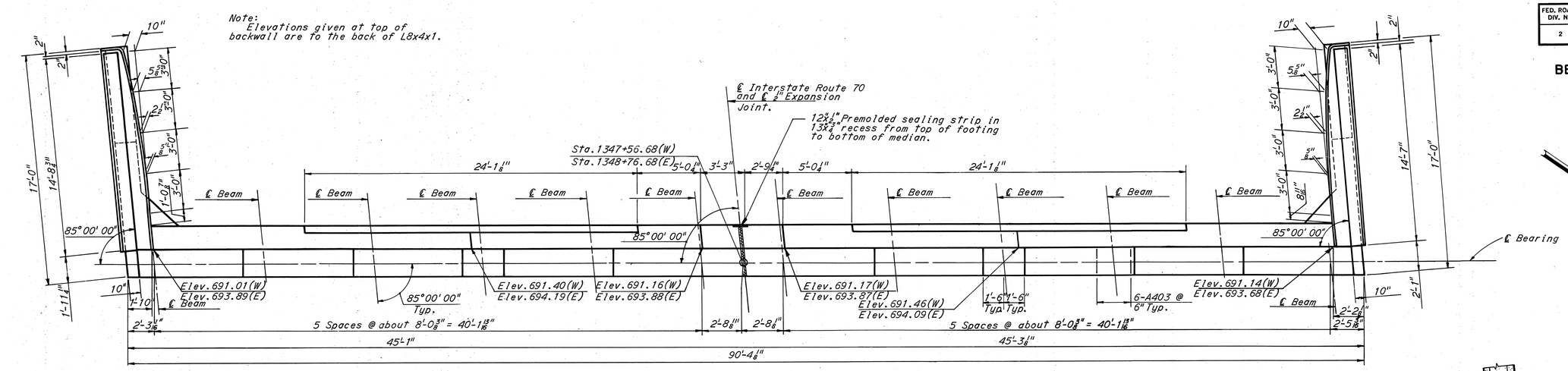
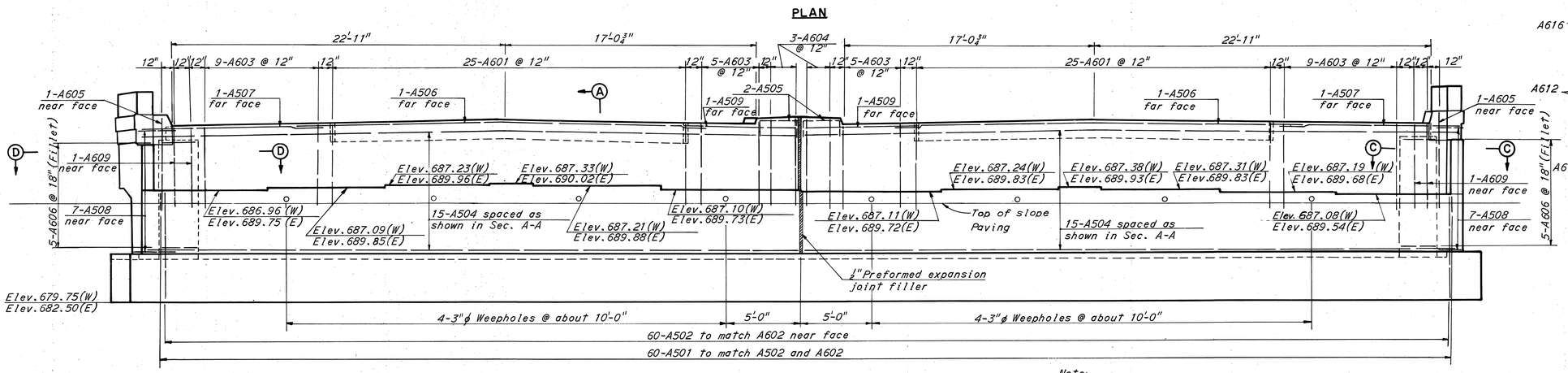
BELMONT COUNTY
BEL-40-23.89

Note:
Elevations given at top of backwall are to the back of L8x4x1.



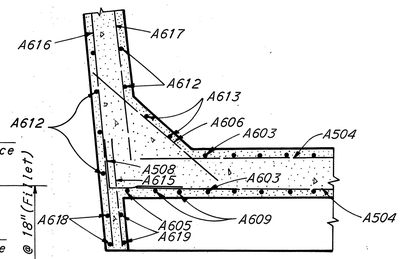
PLAN



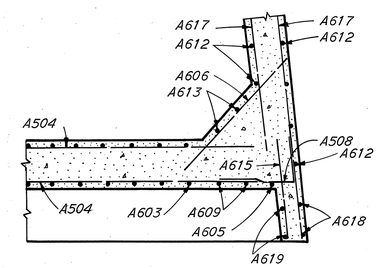
ELEVATION

Note:
West abutment shown. East abutment similar except as shown.
(W) denotes West abutment.
(E) denotes East abutment.

Note:
Piles not shown in elevation.

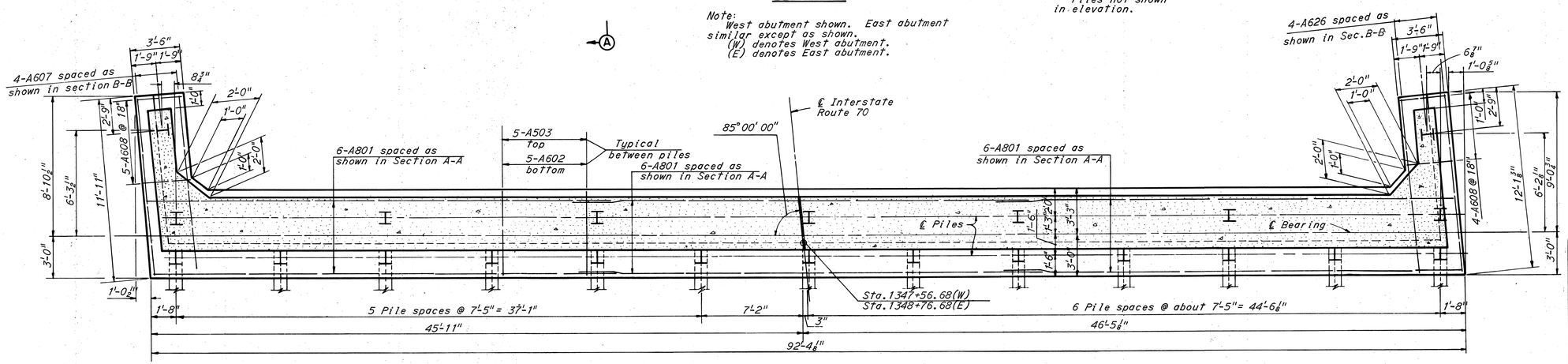


SECTION D-D



SECTION C-C

Notes:
All piles are 10 BP 42.
Batter all battered piles 3 in 12.
For Section A-A see Sheet 166.
For bar list and bending diagrams see Sheet 166.
For wingwall details see Sheet 166.
For other notes see Sheet 166.



FOOTING PLAN

BRIDGE NO. 1

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENTS

I-70 OVER RELOCATED PLUM STREET

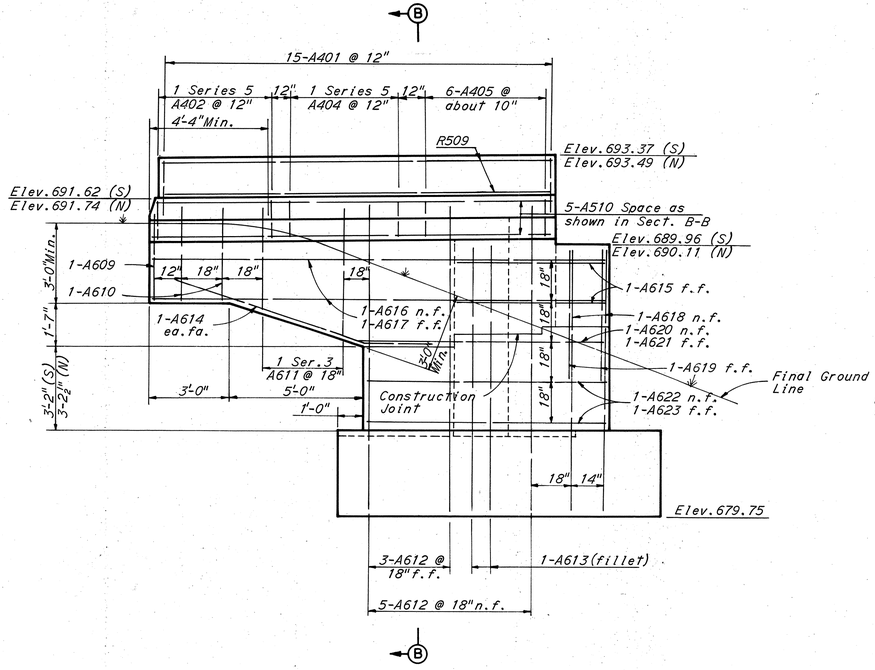
BR. NO. BEL-40-2570 STA. 1347+54.42
SCALE: 1/4" = 1'-0" STA. 1348+78.94
BELMONT CO. OHIO

DRAWN SJT	TRACED	CHECKED EDB	REVIEWED JT	REVISED
DATE 8-25-61	DATE	DATE 10-17-61	DATE 12-14-61	949 SHEET 165

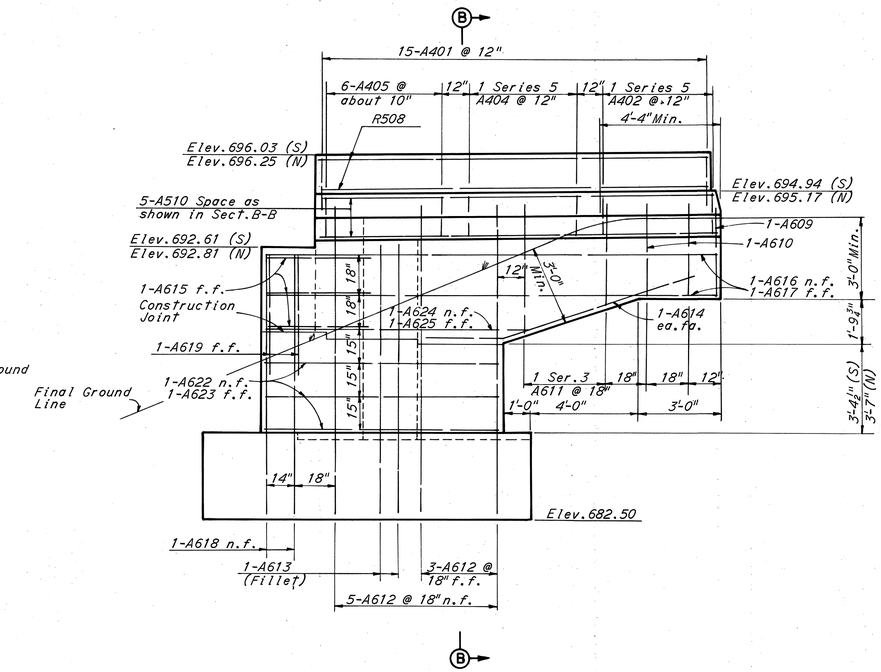
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

166
197

BELMONT COUNTY
BEL-40-23.89



SOUTH WINGWALL ELEVATION - WEST ABUTMENT

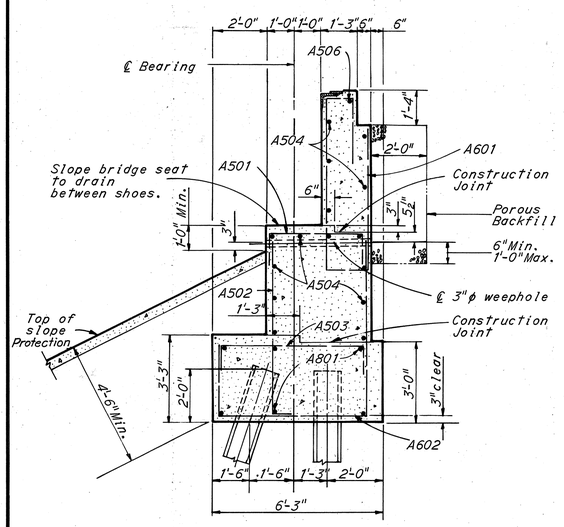


SOUTH WINGWALL ELEVATION - EAST ABUTMENT

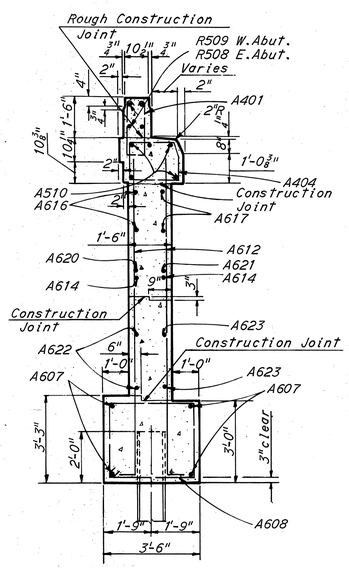
Note:
Piles not shown in elevations.

REINFORCEMENT SCHEDULE

MARK	NUMBER EAST	NUMBER WEST	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	WEIGHT
A401	30	30	5'-7"	110				224
A402	2 Ser. 5	2 Ser. 5	5'-4" to 6'-2"	116	1'-0" to 1'-5"			76
A403	72	72	4'-2"	104	3'-3 1/2"	1'-0"		400
A404	2 Ser. 5	2 Ser. 5	6'-4" to 6'-10"	116	1'-6" to 1'-9"			88
A405	12	12	7'-0"	116	1'-10"			112
A501	60	60	6'-4"	105	3'-5"	1'-7"		792
A502	60	60	7'-5"	104	6'-6 1/2"	1'-0"		928
A503	60	60	8'-8"	105	5'-9"	1'-7"		1086
A504	30	30	44'-8"	Str.				2800
A505	4	4	5'-7"	105	2'-8"	1'-7"		48
A506	2	2	27'-3"	Str.				114
A507	2	2	13'-0"	Str.				54
A508	14	14	3'-11"	104	2'-0 1/4"	2'-0 1/4"		114
A509	2	2	7'-9"	Str.				32
A510	10	10	14'-6"	Str.				302
A601	50	50	15'-2"	117				2278
A602	60	60	14'-1"	106	2'-7"	5'-4"	6'-6"	2538
A603	28	28	14'-10"	109	1'-5"	5'-9"		1248
A604	6	6	15'-10"	109	1'-5"	6'-3"		286
A605	2	2	6'-6"	Str.				40
A606	10	10	6'-0"	Str.				180
A607	4	4	11'-3"	Str.				136
A608	9	9	12'-2"	109	3'-3"	2'-7"		330
A609	6	6	5'-9"	106	1'-10"	1'-2"	3'-1"	104
A610	4	4	6'-2"	106	1'-11"	1'-2"	3'-5"	74
A611	2 Ser 3	2 Ser 3	8'-4" to 10'-4"	105	1'-2"	3'-9" to 4'-9"		168
A612	16	16	12'-3"	104	11'-5"	1'-0"		588
A613	4	4	10'-9"	104	9'-11"	1'-0"		128
A614	4	4	9'-3"	108				112
A615	4	4	4'-0"	Str.				48
A616	4	4	16'-6"	Str.				198
A617	4	4	13'-3"	Str.				160
A618	4	4	10'-7"	104	9'-9"	1'-0"		128
A619	4	4	5'-0"	Str.				60
A620	–	2	9'-0"	Str.				27
A621	–	2	5'-6"	Str.				17
A622	5	5	8'-6"	Str.				102
A623	5	5	5'-3"	Str.				64
A624	2	–	9'-9"	Str.				30
A625	2	–	6'-0"	Str.				18
A626	4	4	11'-6"	Str.				138
A801	18	18	32'-6"	Str.				3120
					Total Reinf. Steel			19,490

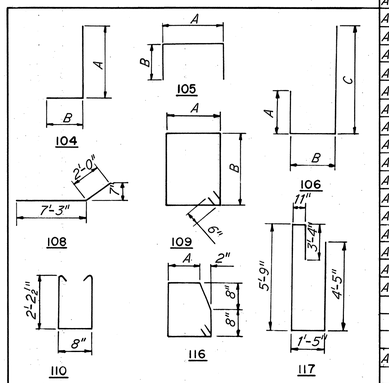


SECTION A-A



SECTION B-B

Section thru Southwest wingwall shown.
Section thru Southeast wingwall similar except for bar marks and number of horizontal bars.



Notes:
For longitudinal parapet steel see Railing Details, Sheet 161.
South wingwall elevations are shown. North wingwalls are similar except as noted.
S denotes South wingwall.
N denotes North wingwall.
e.f. denotes each face.
n.f. denotes near face.
f.f. denotes far face.
Bars of a series shall vary by a constant increment.
All bar dimensions are given out to out.
For replacement bar list see Sheet 197.

BRIDGE NO. 1

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT DETAILS

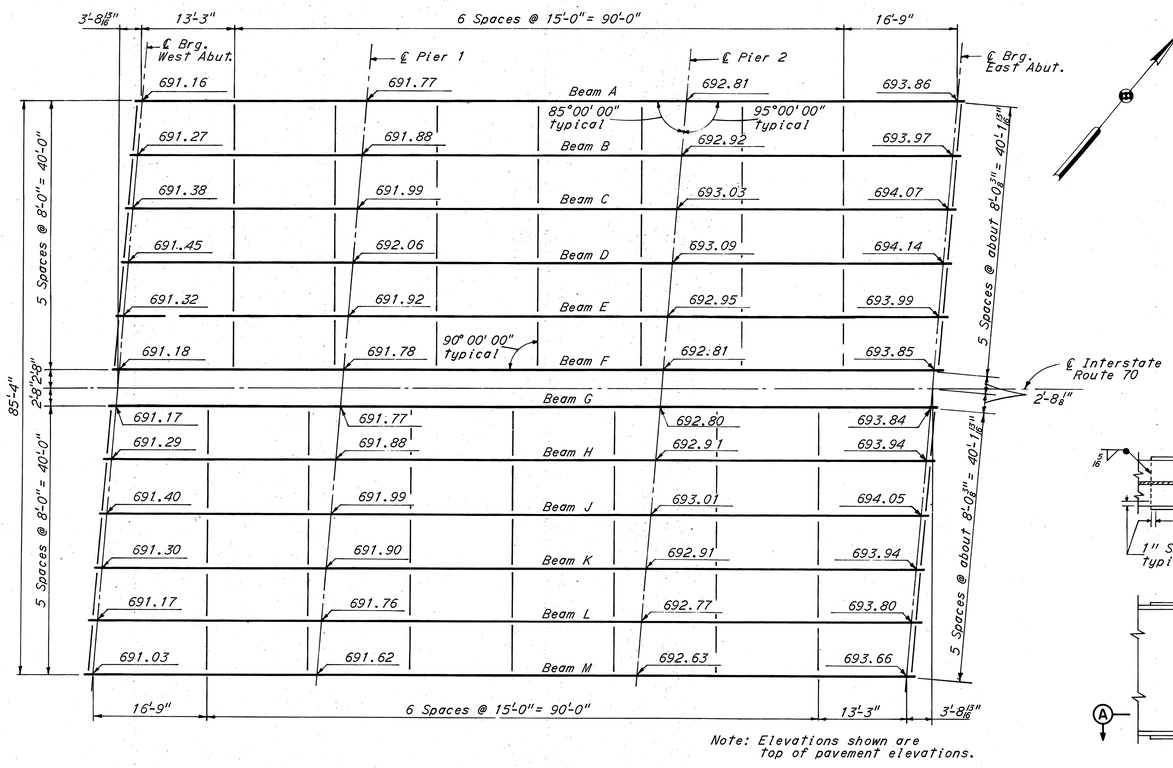
I-70 OVER RELOCATED PLUM STREET

BR. NO. BEL-40-2570 STA. 1347+54.42
SCALE: 3/8" = 1'-0" STA. 1348+78.94
BELMONT CO. OHIO

DRAWN SJT	TRACED	CHECKED EDB	REVIEWED JT	REVISED
DATE 8-25-61	DATE	DATE 10-19-61	DATE 12-14-61	949 SHEET 166

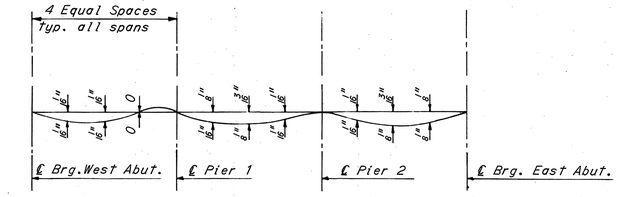
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

BELMONT COUNTY
BEL-40-23.89



Note: Elevations shown are top of pavement elevations.

FRAMING PLAN

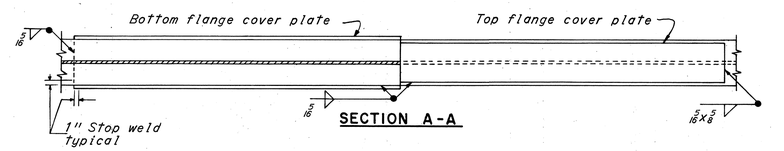


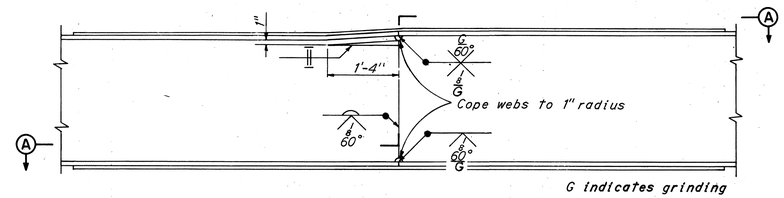
DEAD LOAD DEFLECTION DIAGRAM
No Scale

Note:
Deflections shown above the baseline are those due to total dead load. Those shown below the baseline are due to dead load of concrete only.
Deflections are measured to the nearest 1/16 inch.

Camber Note:
The beams do not require camber but shall be fabricated so that any curved beam will be placed with the convex flange up.

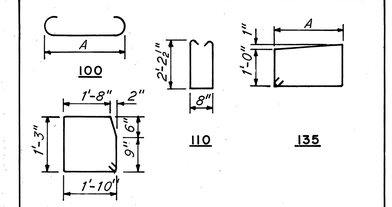
REINFORCEMENT SCHEDULE					
MARK	NO.	LENGTH	TYPE	DIMENSION A	WEIGHT
S401	244	5'-7"	110		910
S402	244	6'-6"	116		1059
S403	122	9'-1"	135	3'-3"	740
S404	122	6'-1"	135	1'-9"	496
S501	243	46'-6"	100	45'-4"	11,785
S502	243	45'-0"	100	43'-10"	11,405
S601	495	41'-9"	Str.		31,045
S602	243	45'-3"	Str.		16,546
S603	243	43'-9"	Str.		15,999
S604	67	12'-0"	Str.		1207
S605	67	13'-0"	Str.		1308
				Total	92,500





BEAM SPLICE DETAILS
No Scale

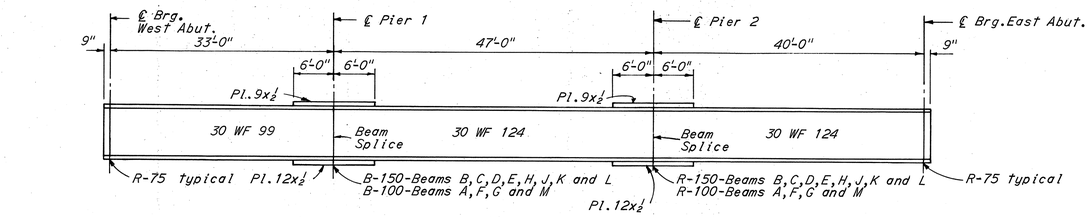
Note:
Beam splice shown is for splice at Pier 1.
For details of beam splice at Pier 2 see Ohio Standard drawing CSB-2-56, sheet 3 of 6, except do not grind web welds.



BENDING DIAGRAMS

Notes:
For end cross frame for beam spacing of 8'-0" or less see Ohio Standard Drawing CSB-2-56, sheet 2 of 6.

For railing post and parapet joint spacing and longitudinal parapet steel see sheet 161.
For details of rockers and bolsters see Ohio Standard Drawing RB-1-55.
Bar dimensions are given out to out.
For replacement bar list see sheet 197.
For location of scuppers see Site Plan sheet 162.
For details of scuppers see Ohio Standard Drawing CSB-2-56, sheet 3 of 6.



TYPICAL BEAM ELEVATION

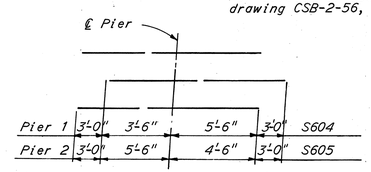
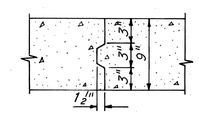
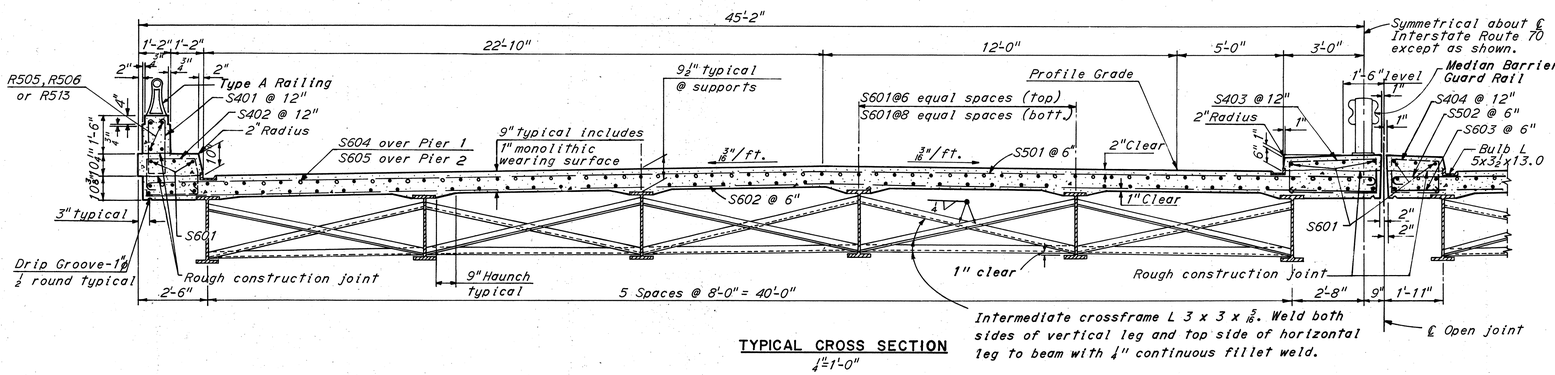


DIAGRAM SHOWING STAGGER OF S604 AND S605 BARS OVER PIERS
No Scale



OPTIONAL CONSTRUCTION JOINT
No Scale



Intermediate crossframe L 3 x 3 x 5/16. Weld both sides of vertical leg and top side of horizontal leg to beam with 1/4" continuous fillet weld.

TYPICAL CROSS SECTION
1/4"=1'-0"

BEAM SPLICE WELDING PROCEDURE

1. Weld bottom flange cover plate to beam on one side of joint only, at both Piers 1 and 2.
2. Raise beam end 3/8" at West Abutment and follow steps 3,4,5 and 6 at Pier 1.
3. Butt weld the beam flanges and web using the following sequence: make two passes on each flange, then two on the web; repeat, using one pass at each location until the welds are complete.
4. Weld the top cover plate on each side of joint.
5. Complete welding of bottom cover plate.
6. Lower beam end to final position.
7. Raise end of beam 3/8" at East abutment and follow steps 3,4,5 and 6 at Pier 2.

Note:
The haunch in the deck slab adjacent to the top of the steel beams, which is shown as 9" wide, may vary from this dimension with a minimum of 6" and maximum of 12". Maximum slope of haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.

BRIDGE NO. 1

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SUPERSTRUCTURE

I-70 OVER RELOCATED PLUM STREET

BR. NO. BEL-40-2570 STA. 1347+54.42
SCALE: 3/32" = 1'-0" STA. 1348+78.94
BELMONT CO. OHIO

DRAWN R.M.S	TRACED	CHECKED J.D.B.	REVIEWED J.T.	REVISED	
DATE 10-25-61	DATE	DATE 11-6-61	DATE 12-14-61	949 SHEET	167

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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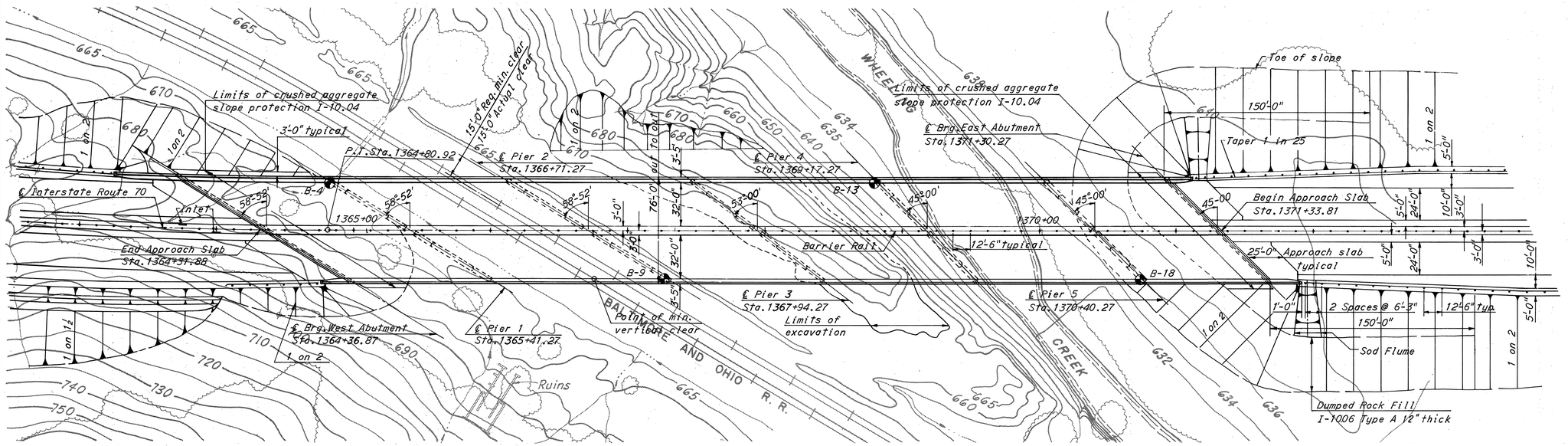
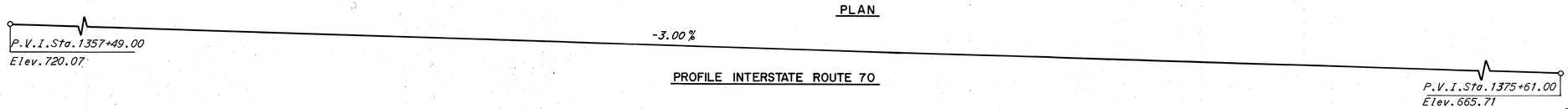
197

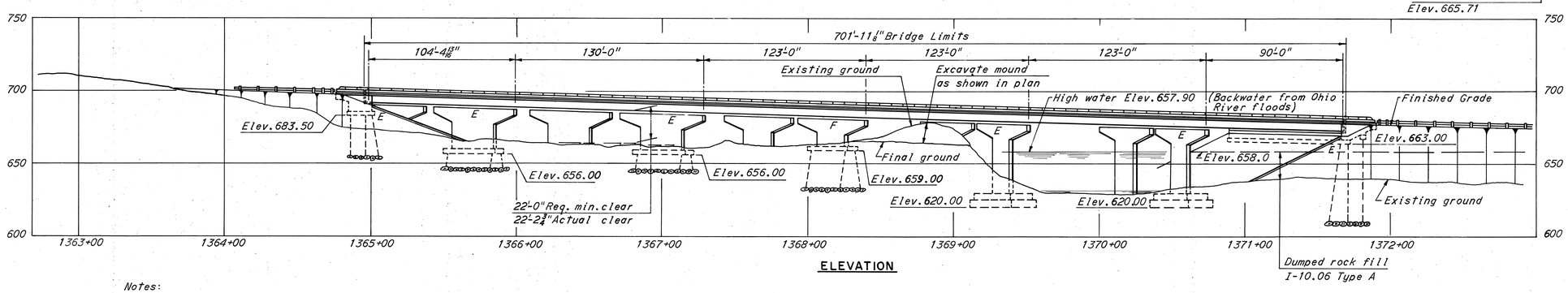
BELMONT COUNTY
BEL-40-23.89



PLAN



PROFILE INTERSTATE ROUTE 70



ELEVATION

CURVE DATA

$D = 1^\circ 28' 00''$
$\Delta = 10^\circ 04' 08.7''$
$R = 3906.53'$
$T = 344.15'$
$L = 686.52'$

PROPOSED STRUCTURE

Type: 6 Span continuous welded girder unit with reinforced concrete deck and substructure.
Spans: 104'-4 13/16", 130'-0", 123'-0", 123'-0", 123'-0", 90'-0" = 693'-4 13/16" ctr. to ctr. end bearings.
Roadway: 2 @ 32'-0" f./f. of 2'-3" safety curb and 6'-0" median.
Loading: CF 2000 (Adequate for AASHO alternate loading).
Skew: Varies 45°00' to 58°52'
Alignment: 1°-28' Curve left @ ℄ Interstate Route 70.
Surface Course: 1" Monolithic concrete
Approach Slabs: AS-1-54 (25'-0" long).

Notes:

The following items are not included in the bridge plans. See roadway plans for details:

Approach grading, pavements and slabs.
Guard rails except on bridge.
Excavation of mound of material between piers 3 and 4 shall be removed to limits as shown in plan view and shall be paid for as Item E-1, Roadway Excavation.
Piles for piers to be 10BP42 with an estimated average vertical length of 11' for piers 1 and 2 and 30' for pier 3. Piles for abutments to be 10BP42 with an estimated average vertical length of 30' for West abutment and 55' for East abutment. These estimates are based on boring data and are approximate only.

The contractor shall assume full responsibility for lengths of piling selected for driving.

◓ Denotes boring.

Foundation design and foundation quantities are based on a study of rod soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office but the State does not guarantee the accuracy thereof.

BORING LOCATIONS

B-4	1364+83	35' Lt.
B-9	1367+27	35' Rt.
B-13	1368+80	35' Lt.
B-18	1370+74	35' Rt.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SITE PLAN
I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1" = 40' STA. 1371+33.81
BELMONT CO. OHIO

DRAWN S.M.R.	TRACED	CHECKED R.M.S.	REVIEWED J.T.	REVISED
DATE 9-8-61	DATE	DATE 11-14-61	DATE 12-14-61	949 SHEET 168

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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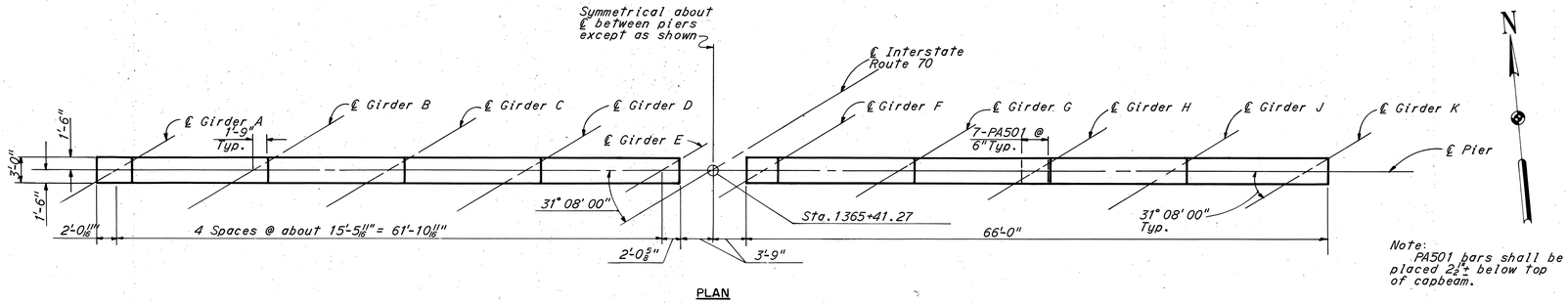
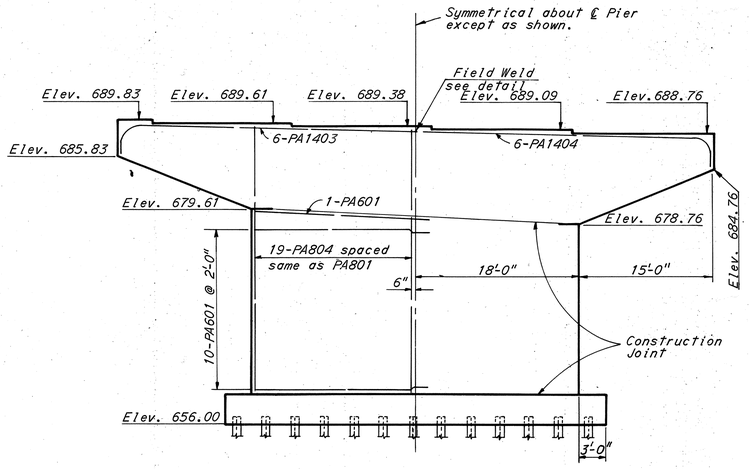
BELMONT COUNTY
BEL-40-23.89

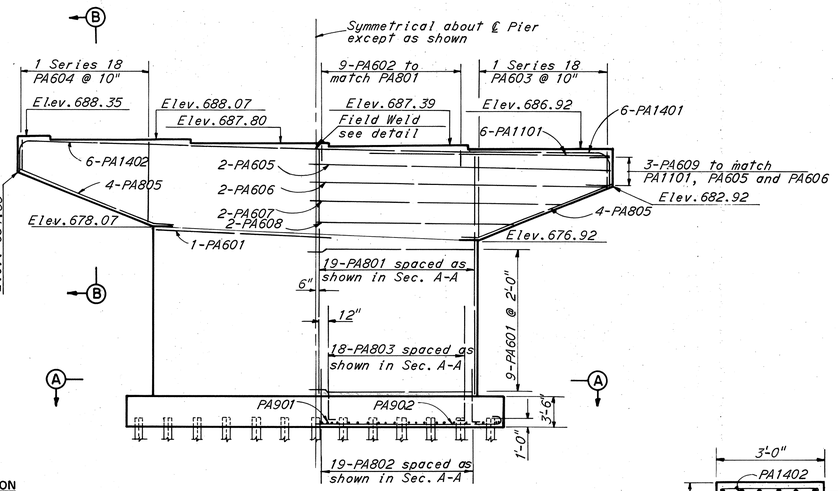


PLAN

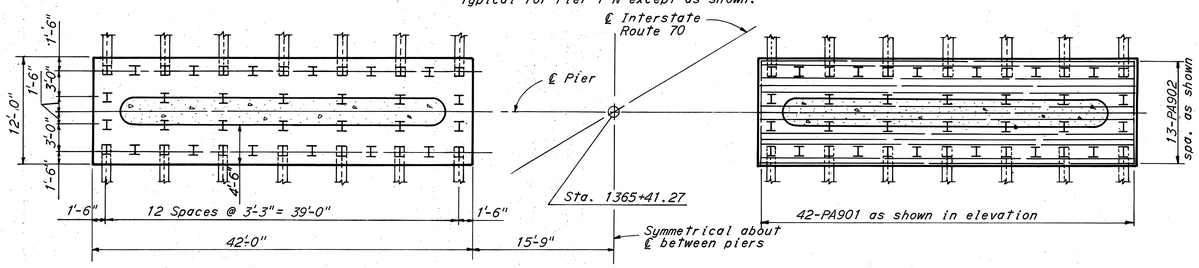
Note:
PA501 bars shall be placed 2½"± below top of capbeam.



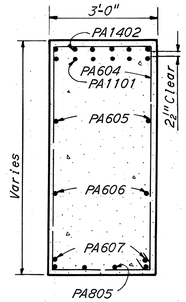
ELEVATION



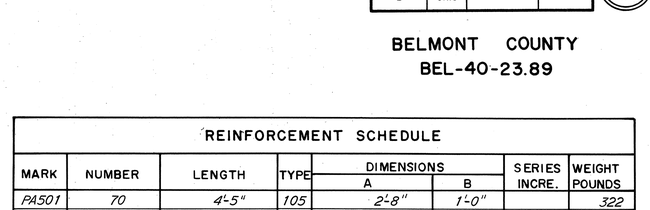
Note:
Dimensions shown for Pier 1-N are typical for Pier 1-S except as shown.
Reinforcing steel shown for Pier 1-S is typical for Pier 1-N except as shown.



FOOTING PLAN



SECTION B-B
½" = 1'-0"

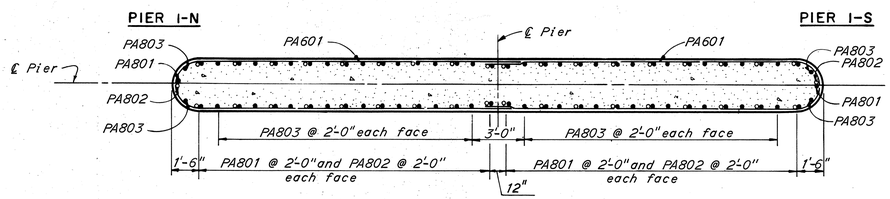


BENDING DIAGRAMS

Notes:
Batter all battered piles 3 in 12.
All piles are 10BP42.
Pile dimensions are measured along bottom of footing.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see sheet 197.

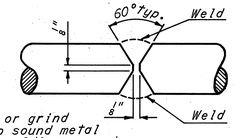
REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCRE.	WEIGHT POUNDS
PA501	70	4'-5"	105	2'-8"	1'-0"		322
PA601	40	39'-1"	113				2350
PA602	36	6'-4"	105	2'-8"	2'-0"		342
PA603	2 Series 18	13'-0" to 25'-0"	109	3'-7" to 9'-7"		8½"	1028
PA604	2 Series 18	13'-6" to 24'-2"	109	3'-10" to 9'-2"		7½"	1019
PA605	8	33'-9"	Str.				405
PA606	8	33'-6"	Str.				403
PA607	8	28'-0"	Str.				336
PA608	4	41'-0"	Str.				246
PA609	12	6'-2"	105	2'-6"	2'-0"		110
PA801	38	27'-3"	Str.				2765
PA802	76	6'-6"	104	5'-8"			1318
PA803	72	14'-0"	104	13'-2"			2691
PA804	38	29'-6"	Str.				2984
PA805	16	18'-5"	108				786
PA901	84	14'-0"	100	11'-6"			4000
PA902	26	44'-0"	100	41'-6"			3890
PA1101	24	28'-6"	Str.				3635
PA1401	6	35'-7"	126	10"			1630
PA1402	6	35'-11"	125	7"			1650
PA1403	6	35'-11"	125	6"			1650
PA1404	6	35'-7"	126	8"			1630
						Total	35,190



SECTION A-A
¼" = 1'-0"

Note:
Sections A-A and B-B taken thru Pier 1-S. Sections thru Pier 1-N similar except as shown.



Note:
Chip or grind root to sound metal before welding second or root side.

DETAIL FOR FIELD WELDING OF NO. 14 REINF. BARS
No Scale

Note:
Size 14S bars shall be intermediate or hard grade steel and conform to ASTM Spec. A408 and to applicable portions of Item S-4 of the Specifications. Payment will be based on the weight of 7.650 Lbs. per foot. Bars which are to be welded shall be of a composition suitable for welding and the contractor shall obtain information on the chemical composition to aid in the development of a satisfactory welding procedure. Welds shall be free of cracks or other visible flaws and shall conform to Item S-7 of the specifications.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 1-N AND 1-S

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/8" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN J.J.P.	TRACED	CHECKED JMA	REVIEWED JP	REVISED
DATE 11-6-61	DATE	DATE 11-9-61	DATE 12-14-61	949 SHEET 169

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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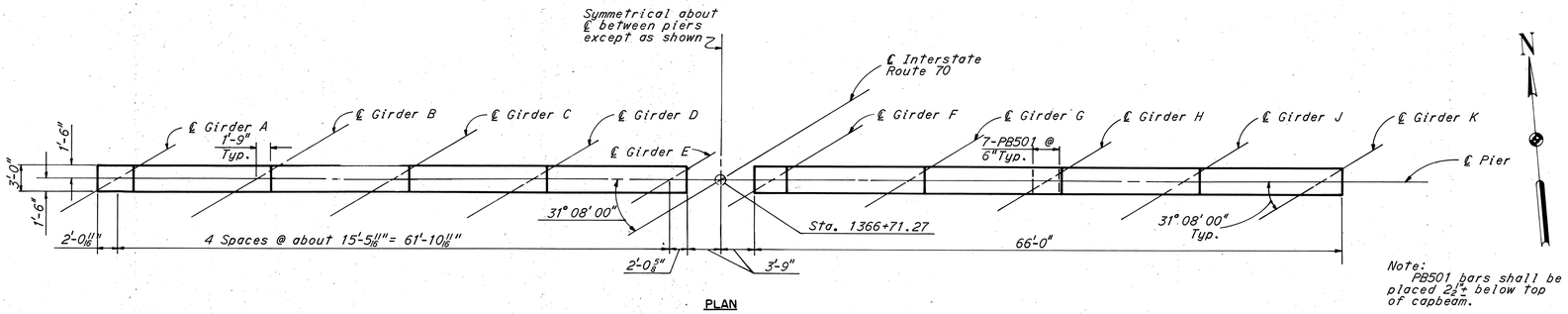
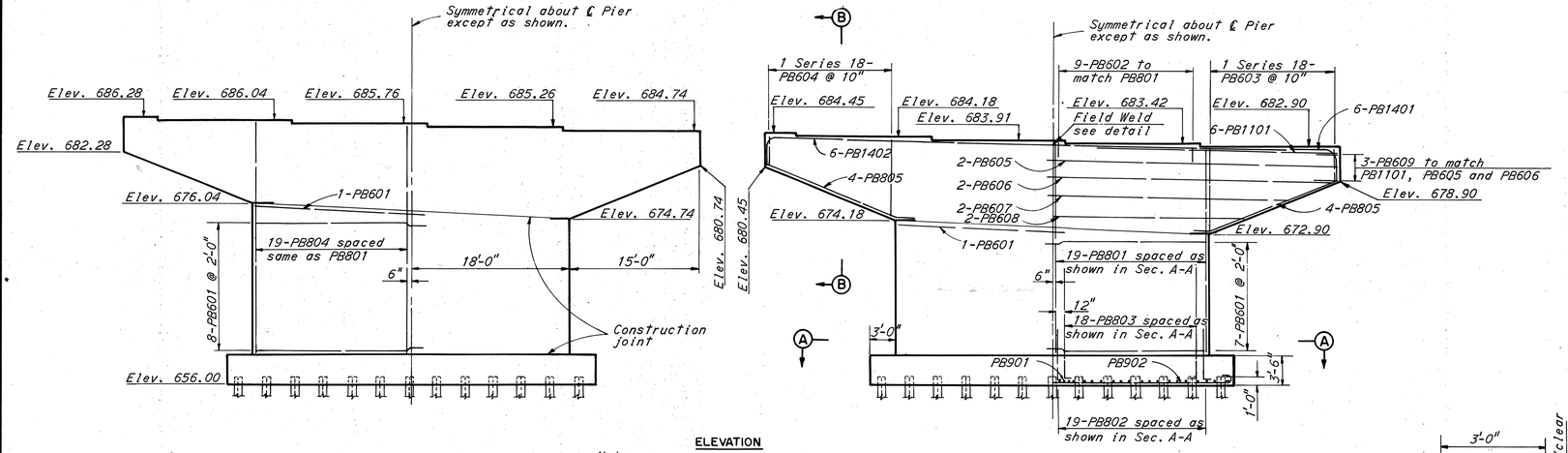
BELMONT COUNTY
BEL-40-23.89



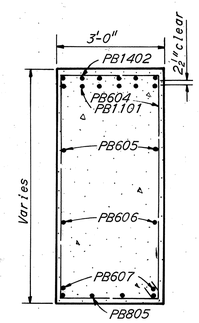
PLAN

Note:
PB501 bars shall be placed 2½" below top of capbeam.

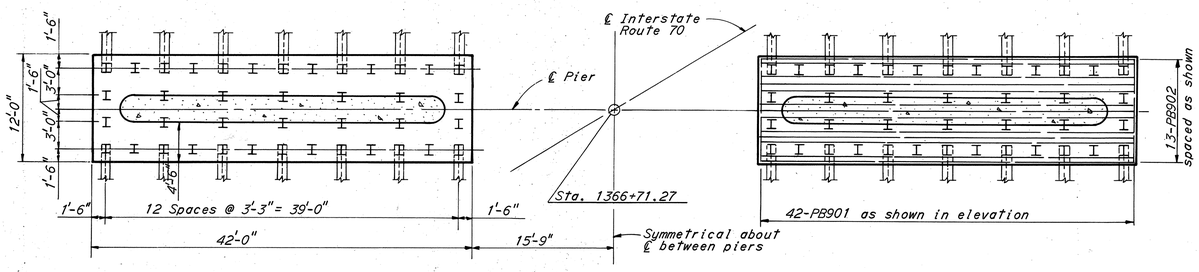


ELEVATION

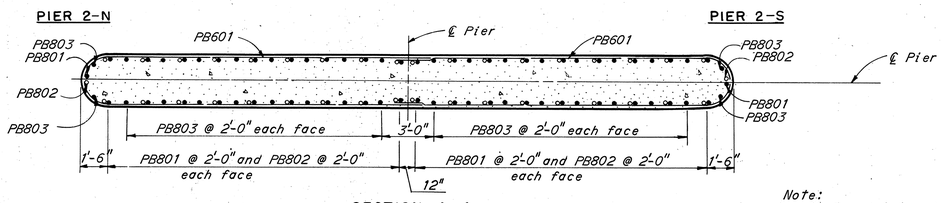
Note:
Dimensions shown for Pier 2-N are typical for Pier 2-S except as shown.
Reinforcing steel shown for Pier 2-S is typical for Pier 2-N except as shown.



SECTION B-B
½" = 1'-0"



FOOTING PLAN

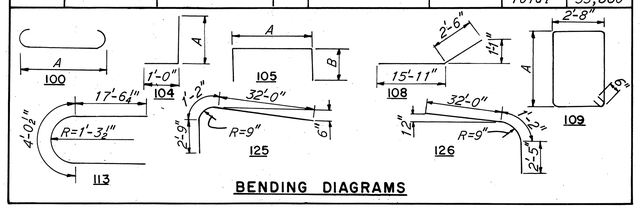


SECTION A-A
¼" = 1'-0"

Note:
Sections A-A and B-B taken thru Pier 2-S. Sections thru Pier 2-N similar except for bar marks.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCRE.	WEIGHT POUNDS
PB501	70	4'-5"	105	2'-8"	1'-0"		322
PB601	32	39'-1"	113				1879
PB602	36	6'-4"	105	2'-8"	2'-0"		342
PB603	2 Series 18	13'-0" to 25'-0"	109	3'-7" to 9'-7"		8½"	1028
PB604	2 Series 18	13'-6" to 24'-2"	109	3'-10" to 9'-2"		7½"	1019
PB605	8	33'-9"	Str.				405
PB606	8	33'-6"	Str.				403
PB607	8	28'-0"	Str.				336
PB608	4	41'-0"	Str.				246
PB609	12	6'-2"	105	2'-6"	2'-0"		110
PB801	38	23'-3"	Str.				2365
PB802	76	6'-6"	104	5'-8"			1318
PB803	72	14'-0"	104	13'-2"			2691
PB804	38	25'-0"	Str.				2535
PB805	16	18'-5"	108				786
PB901	84	14'-0"	100	11'-6"			4000
PB902	26	44'-0"	100	41'-6"			3890
PB1101	24	28'-6"	Str.				3635
PB1401	12	35'-7"	126				3270
PB1402	12	35'-11"	125				3300
						Total	33,880



BENDING DIAGRAMS

Notes:
Batter all battered piles 3 in 12.
All piles are 10BP42.
Pile dimensions are measured along bottom of footing.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see Sheet 197.
For detail showing field weld of No. 14S reinforcing bars see Sheet 169.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 2-N AND 2-S

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

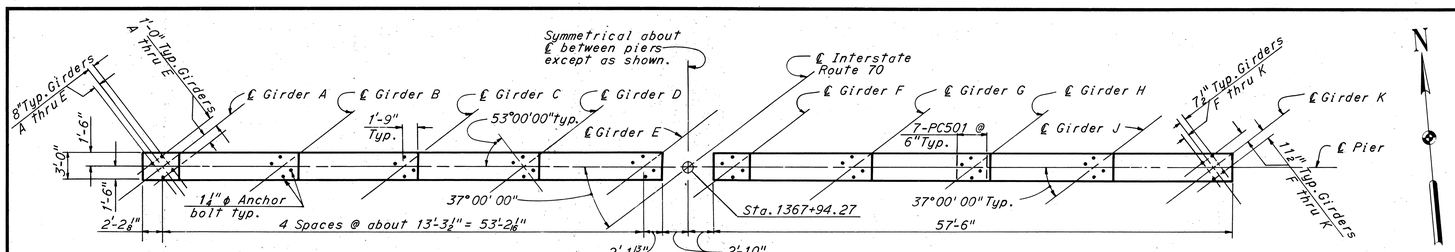
BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/8" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN SJT	TRACED	CHECKED SMA	REVIEWED JT	REVISED
DATE 11-9-61	DATE	DATE 11-13-61	DATE 12-14-61	949 SHEET 170

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

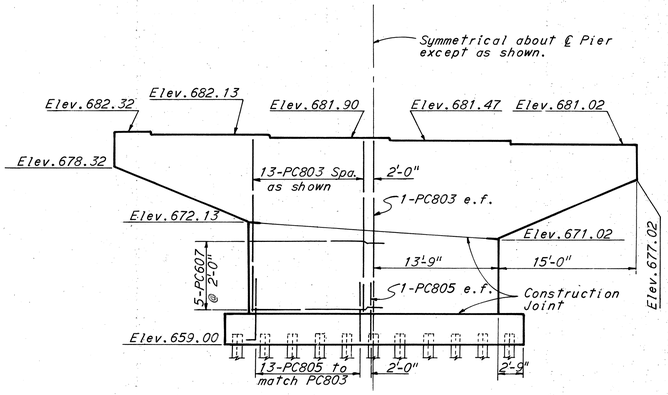
171 / 197

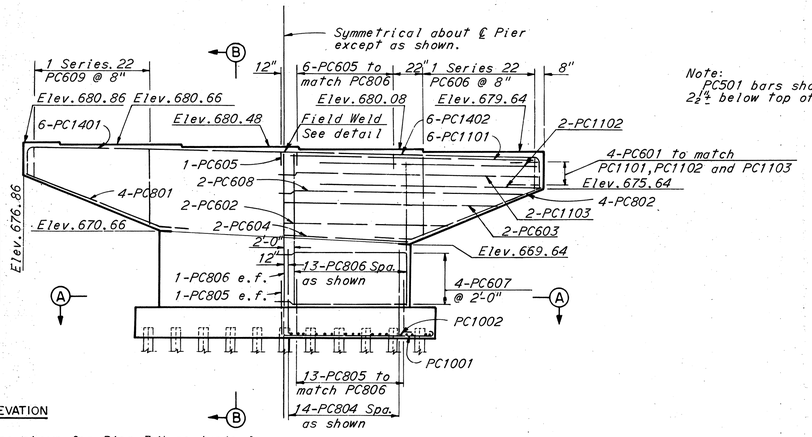
BELMONT COUNTY
BEL-40-23.89



PLAN

Note:
Special care shall be taken in placing capbeam reinforcing steel so as not to interfere with setting of anchor bolts.

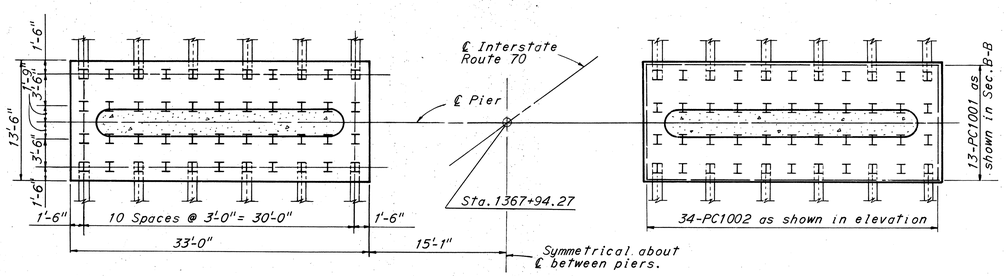




ELEVATION

Note:
Dimensions shown for Pier 3-N are typical for Pier 3-S except as shown.
Reinforcing steel shown for Pier 3-S is typical for Pier 3-N except as shown.

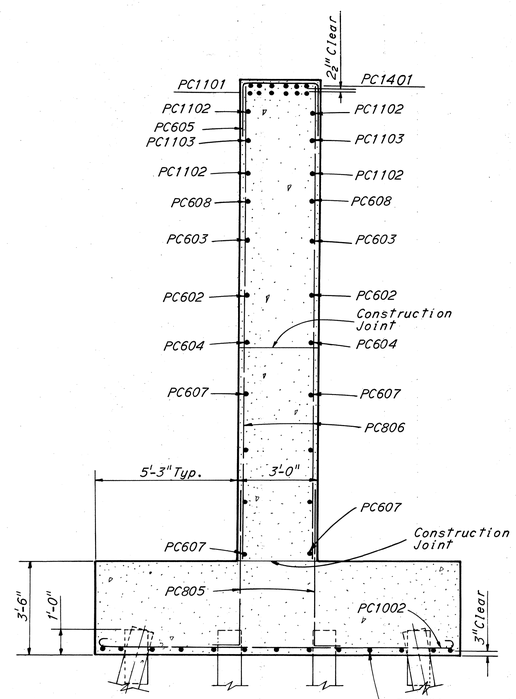
Note:
PC501 bars shall be placed 2¼" below top of capbeam.



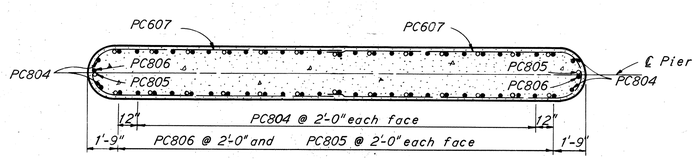
FOOTING PLAN

PIER 3-N

PIER 3-S



SECTION B-B
⅜" = 1'-0"

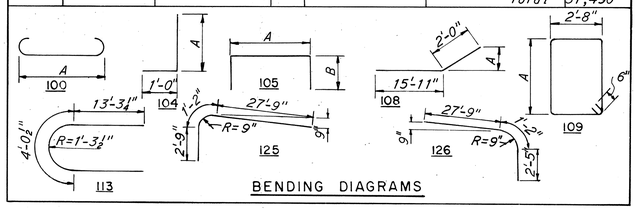


SECTION A-A
4" = 1'-0"

Note:
Sections A-A and B-B taken thru Pier 3-S. Sections thru Pier 3-N similar except for bar marks.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCRE.	WEIGHT POUNDS
PC501	70	4'-5"	105	2'-8"	1'-0"		320
PC601	16	6'-2"	105	2'-6"	2'-0"		148
PC602	4	35'-6"	Str.				213
PC603	4	44'-6"	Str.				267
PC604	4	27'-6"	Str.				165
PC605	26	6'-4"	105	2'-8"	2'-0"		247
PC606	2 Series 22	13'-0" to 25'-0"	109	3'-7" to 9'-7"		6⅞"	1,255
PC607	18	30'-7"	113				827
PC608	8	27'-9"	Str.				333
PC609	2 Series 22	13'-6" to 24'-2"	109	3'-10" to 9'-2"		5⅝"	1,215
PC801	8	17'-11"	108	8"			383
PC802	8	17'-11"	108	11"			383
PC803	28	18'-3"	Str.				1,358
PC804	56	11'-0"	104	10'-2"			1,645
PC805	28	6'-6"	104	5'-8"			486
PC806	28	17'-0"	Str.				1,270
PC1001	26	35'-4"	100	32'-6"			3,953
PC1002	68	15'-10"	100	13'-0"			4,632
PC1101	24	27'-6"	Str.				3,507
PC1102	16	21'-6"	Str.				1,828
PC1103	8	30'-0"	Str.				1,275
PC1401	12	31'-8"	125				2,915
PC1402	12	31'-4"	126				2,865
						Total	31,490



Notes:
Batter all battered piles 3 in 12.
All piles are 10 BP 42.
Pile dimensions are measured along bottom of footing.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see Sheet 197.
For detail showing field weld of No. 14S reinforcing bars see Sheet 169.
e.f. denotes each face.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 3-N AND 3-S

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/8" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN SJT	TRACED	CHECKED EDB	REVIEWED JT	REVISED
DATE 10-9-61	DATE	DATE 10-13-61	DATE 12-14-61	949 SHEET 171

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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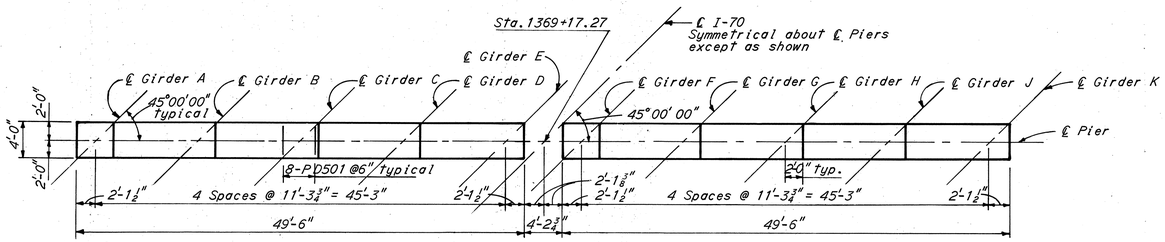
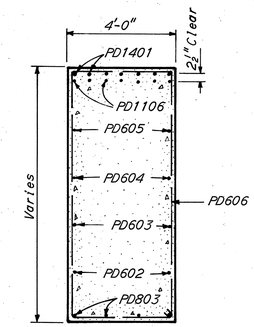
BELMONT COUNTY
BEL-40-23.89

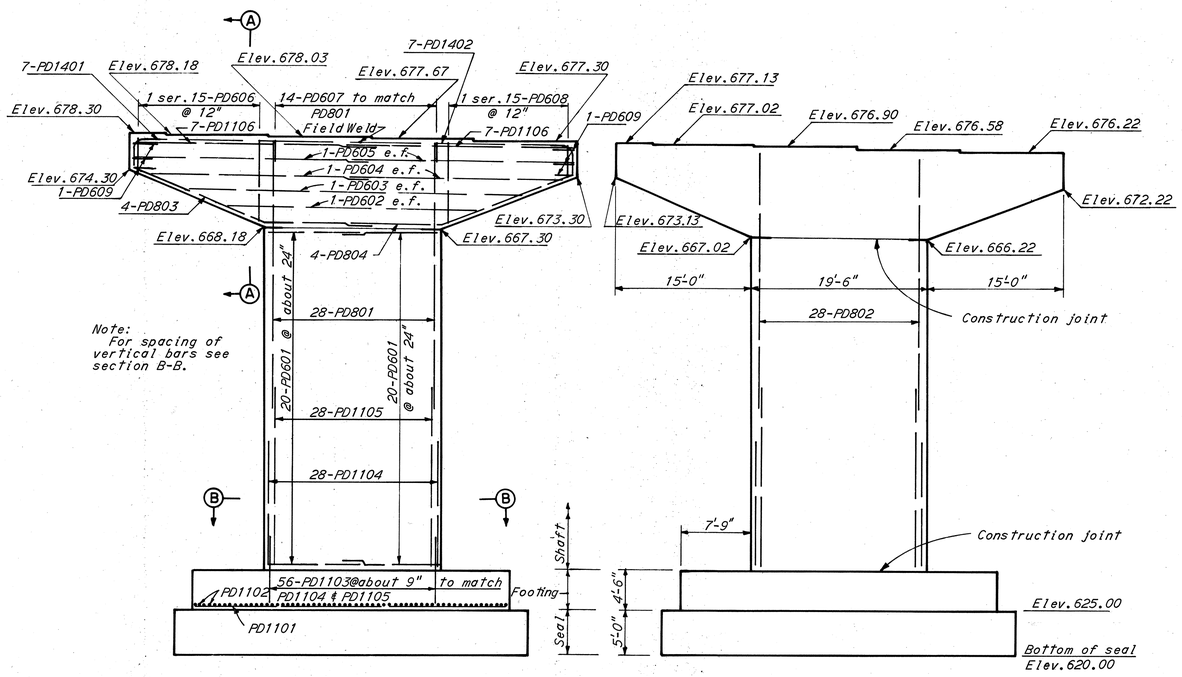


PLAN

Note:
Bars PD501 shall be placed 2½" ± below top of capbeam.

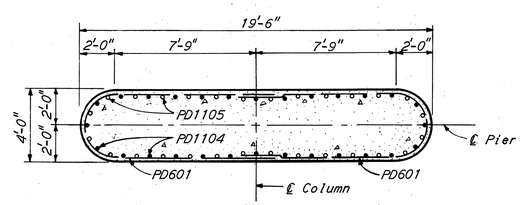


SECTION A-A
⅜" = 1'-0"



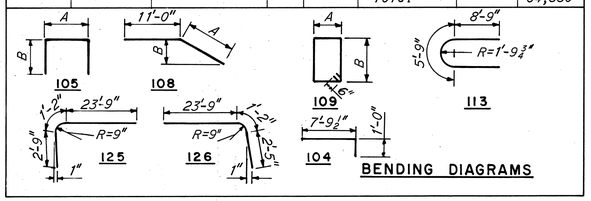
Note:
For spacing of vertical bars see section B-B.

ELEVATION

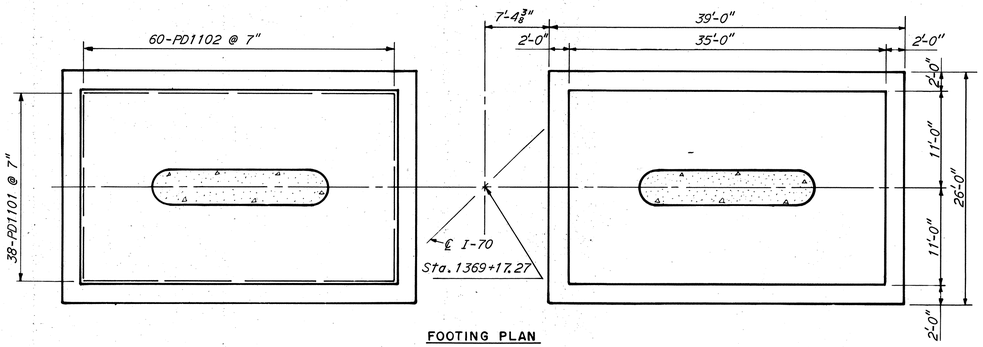


SECTION B-B
¼" = 1'-0"

REINFORCEMENT SCHEDULE							
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCRE.	WEIGHT POUNDS
PD501	80	5'-5"	105	3'-8"	1'-0"		452
PD601	80	23'-3"	113				2794
PD602	4	30'-0"	Str.				180
PD603	4	38'-6"	Str.				231
PD604	8	23'-9"	Str.				285
PD605	8	25'-9"	Str.				309
PD606	2 Ser. 15	15'-0" to 27'-6"	109	3'-8"	3'-7" to 9'-10"	10¾"	958
PD607	28	7'-4"	105	3'-8"	2'-0"		308
PD608	2 Ser. 15	15'-4" to 27'-0"	109	3'-8"	3'-9" to 9'-7"	10"	954
PD609	12	7'-2"	105	3'-6"	2'-0"		129
PD801	28	30'-6"	Str.				2280
PD802	28	29'-6"	Str.				2205
PD803	8	27'-0"	108	16'-0"	5'-11"		577
PD804	8	26'-10"	108	15'-10"	5'-9"		573
PD1101	76	34'-6"	Str.				13,931
PD1102	120	21'-6"	Str.				13,710
PD1103	112	8'-6"	104				5058
PD1104	56	14'-0"	Str.				4165
PD1105	56	20'-0"	Str.				5951
PD1106	28	26'-6"	Str.				3942
PD1401	14	27'-8"	125				2962
PD1402	14	27'-4"	126				2926
					Total		64,880



BENDING DIAGRAMS



FOOTING PLAN

PIER 4-N

PIER 4-S

Notes:
Reinforcing steel shown for Pier 4-N is typical for Pier 4-S except as shown.
Dimensions shown for Pier 4-S are typical for Pier 4-N except as shown.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see sheet 197.
For detail showing field weld of No. 14S reinforcing bars see sheet 169.
e.f. denotes each face.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 4-N AND 4-S

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/8" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN JEMS	TRACED	CHECKED SMA	REVIEWED JT	REVISED
DATE 11-1-61	DATE	DATE 11-7-61	DATE 12-14-61	949 SHEET 172

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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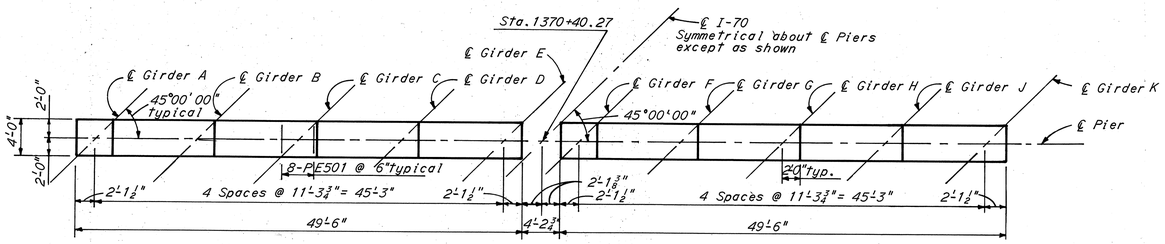
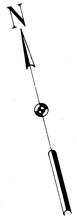
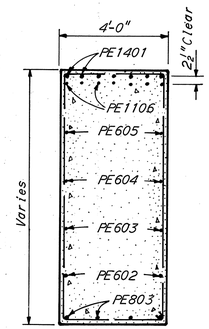
BELMONT COUNTY
BEL-40-23.89



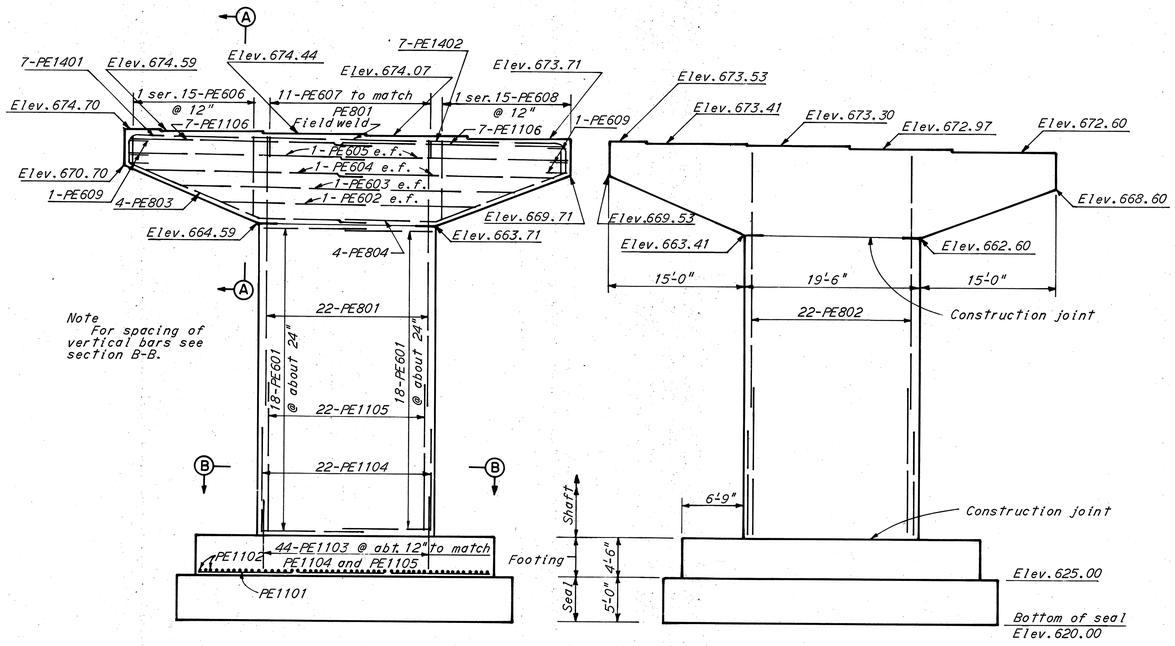
PLAN

Note:
Bars PE501 shall be placed 2½" ± below top of capbeam.

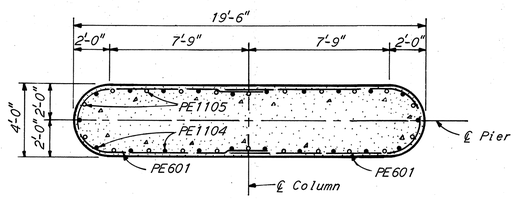




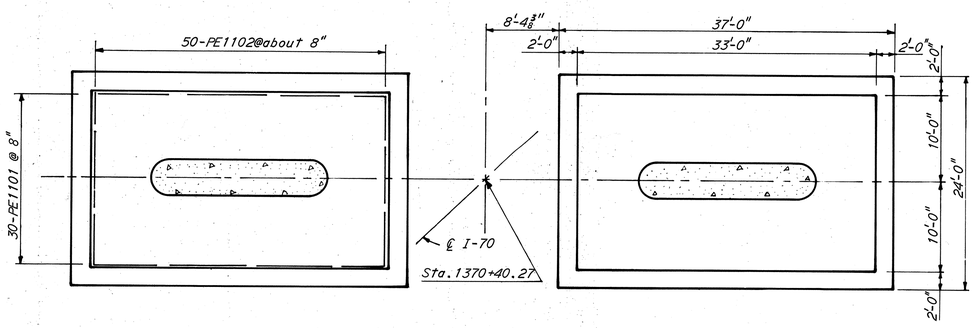
SECTION A-A
⅜" = 1'-0"



ELEVATION



SECTION B-B
¼" = 1'-0"



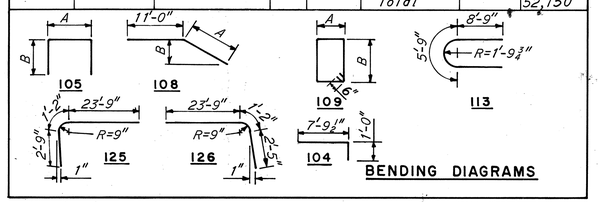
FOOTING PLAN

PIER 5-N

PIER 5-S

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCRE.	WEIGHT POUNDS
PE501	80	5'-5"	105	3'-8"	1'-0"		452
PE601	72	23'-3"	113				2514
PE602	4	30'-0"	Str.				180
PE603	4	38'-6"	Str.				231
PE604	8	23'-9"	Str.				285
PE605	8	25'-9"	Str.				309
PE606	2 Ser. 15	15'-0" to 27'-6"	109	3'-8"	3'-7" to 9'-10"	10¾"	958
PE607	22	7'-4"	105	3'-8"	2'-0"		248
PE608	2 Ser. 15	15'-4" to 27'-0"	109	3'-8"	3'-9" to 9'-7"	10"	954
PE609	12	7'-2"	105	3'-6"	2'-0"		129
PE801	22	29'-9"	Str.				1748
PE802	22	28'-9"	Str.				1689
PE803	8	27'-0"	108	16'-0"	5'-11"		577
PE804	8	26'-10"	108	15'-10"	5'-9"		573
PE1101	60	32'-6"	Str.				10,360
PE1102	100	19'-6"	Str.				10,360
PE1103	88	8'-6"	104				3974
PE1104	44	12'-0"	Str.				2805
PE1105	44	17'-0"	Str.				3974
PE1106	28	26'-6"	Str.				3942
PE1401	14	27'-8"	125				2962
PE1402	14	27'-4"	126				2926
					Total		52,150



BENDING DIAGRAMS

Notes:
Reinforcing steel shown for Pier 5-N is typical for Pier 5-S except as shown.
Dimensions shown for Pier 5-S are typical for Pier 5-N except as shown.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see sheet 197.
For detail showing field weld of No. 14S reinforcing bars see sheet 169.
e.f. denotes each face.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 5-N AND 5-S

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/8" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

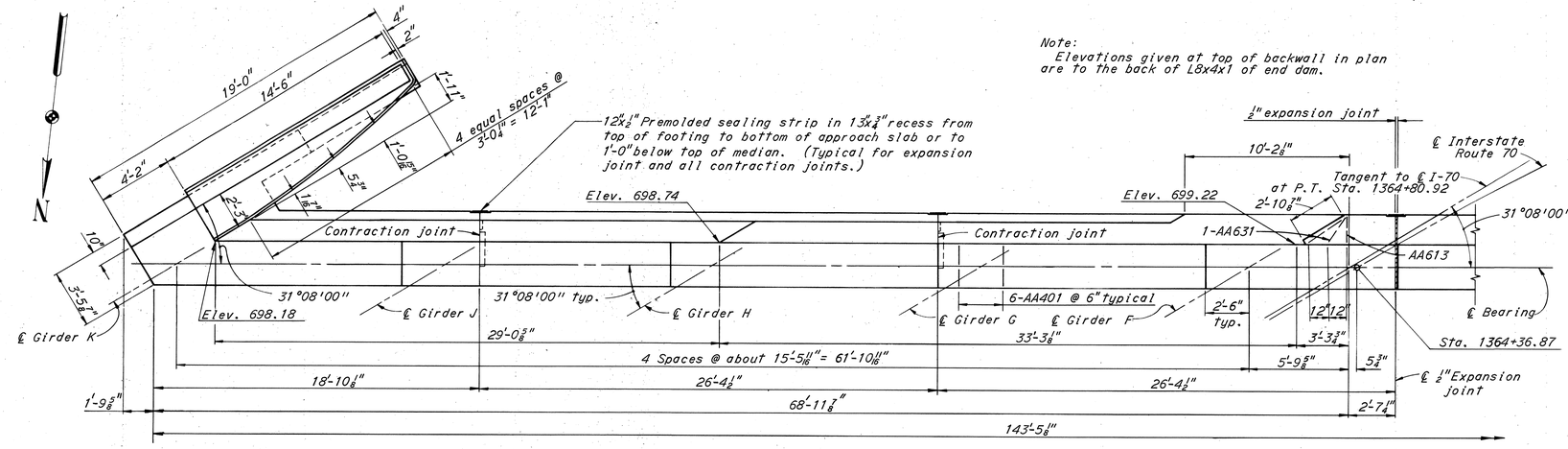
DRAWN R.M.S.	TRACED	CHECKED DMA	REVIEWED JT	REVISED
DATE 11-3-61	DATE	DATE 11-8-61	DATE 12-14-61	949 SHEET 173

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

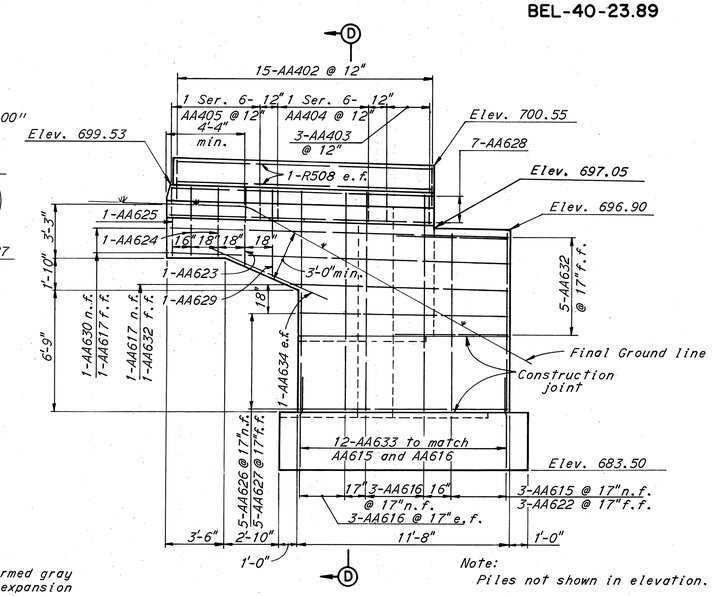
174 / 197

BELMONT COUNTY
BEL-40-23.89

Note:
Elevations given at top of backwall in plan are to the back of L8x4x1 of end dam.

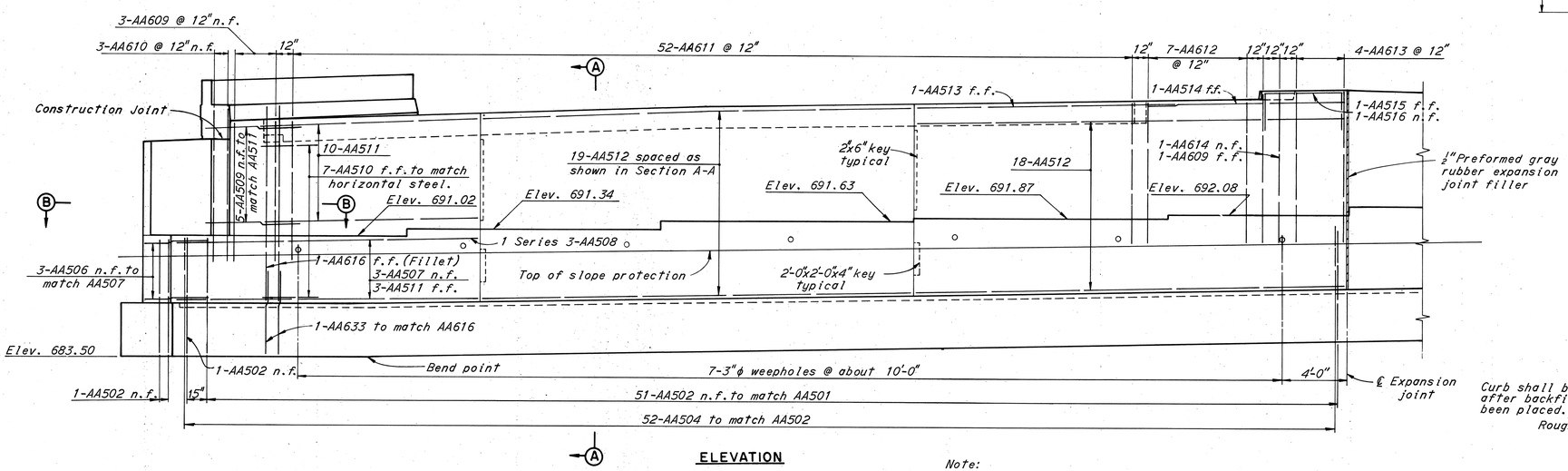


PLAN



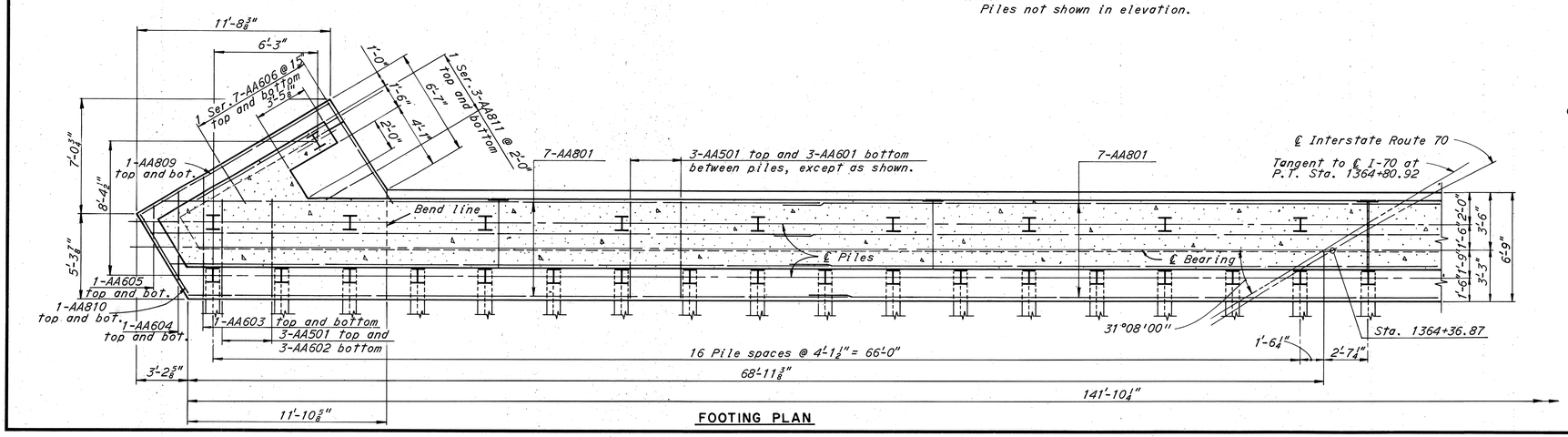
Note:
Piles not shown in elevation.

SOUTH WINGWALL ELEVATION

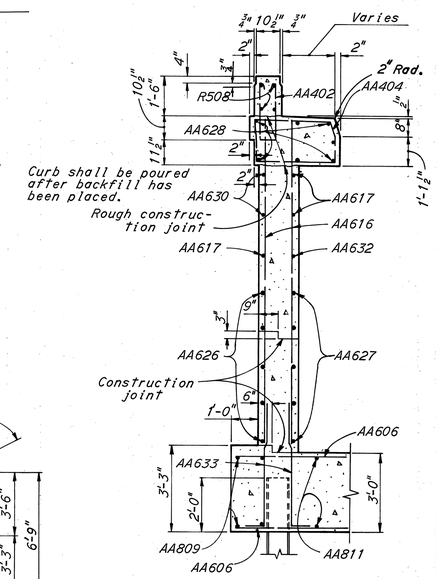


ELEVATION

Note:
Piles not shown in elevation.



FOOTING PLAN



SECTION D-D

⅜" = 1'-0"

Notes:
n.f. denotes near face; f.f. denotes far face and e.f. denotes each face.
For Sections A-A and B-B see Sheet 175

For reinforcement schedule see Sh. 176.
For bending diagrams see Sh. 178.
For **railing** post spacing and longitudinal reinforcement in parapet, see Sheet 161.
All piles are 10BP42.
All battered piles shall be battered 3 in 12.
All pile dimensions are measured at bottom of footing.
For roadway end dam details, see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.
For details of expansion joint at median, see Sheet 182.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

WEST ABUTMENT

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

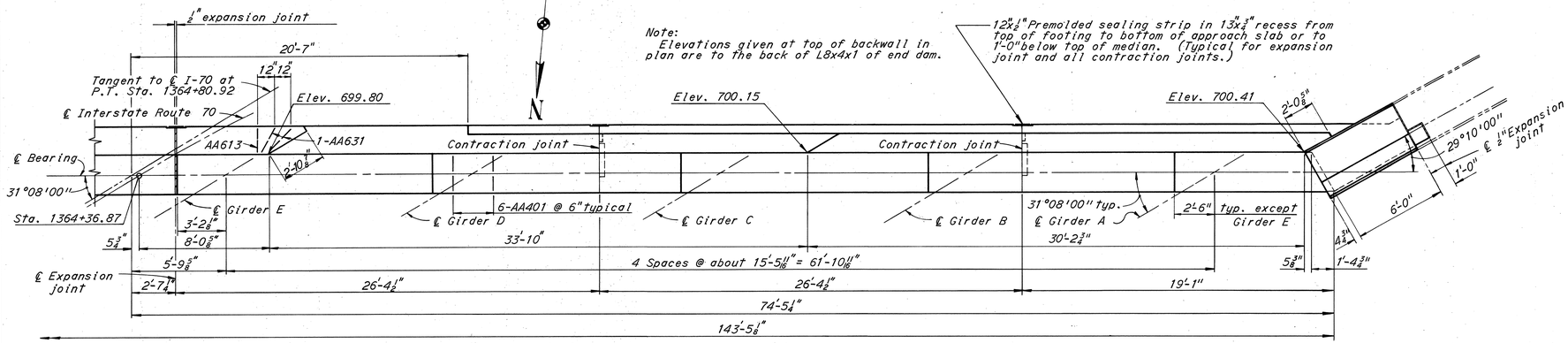
BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: ¼" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN R.W.A.	TRACED	CHECKED	REVIEWED	REVISED	
DATE 10-6-61	DATE	DATE 10-31-61	DATE 12-14-61	949	SHEET 174

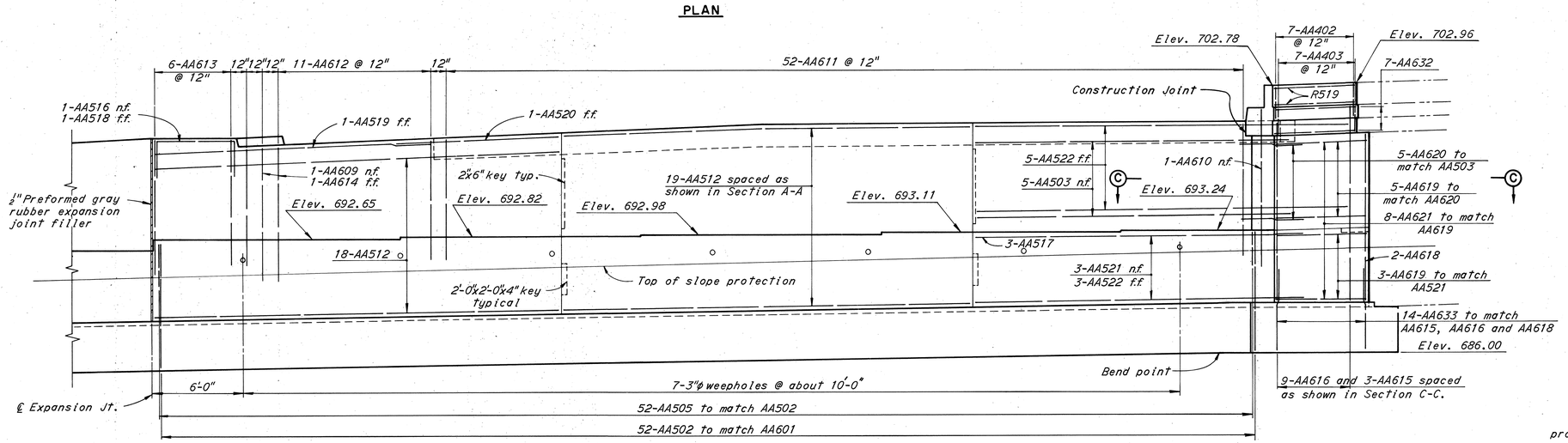
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

175 / 197

BELMONT COUNTY
BEL-40-23.89

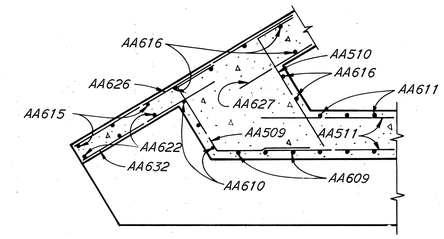


PLAN

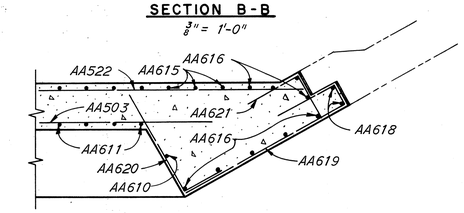


ELEVATION

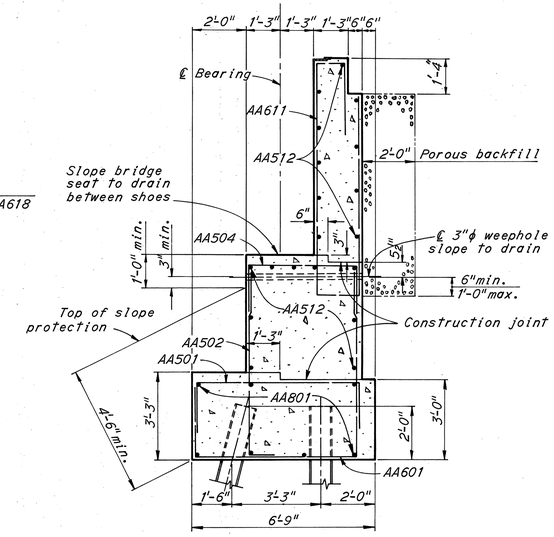
Note:
Piles not shown in elevation.



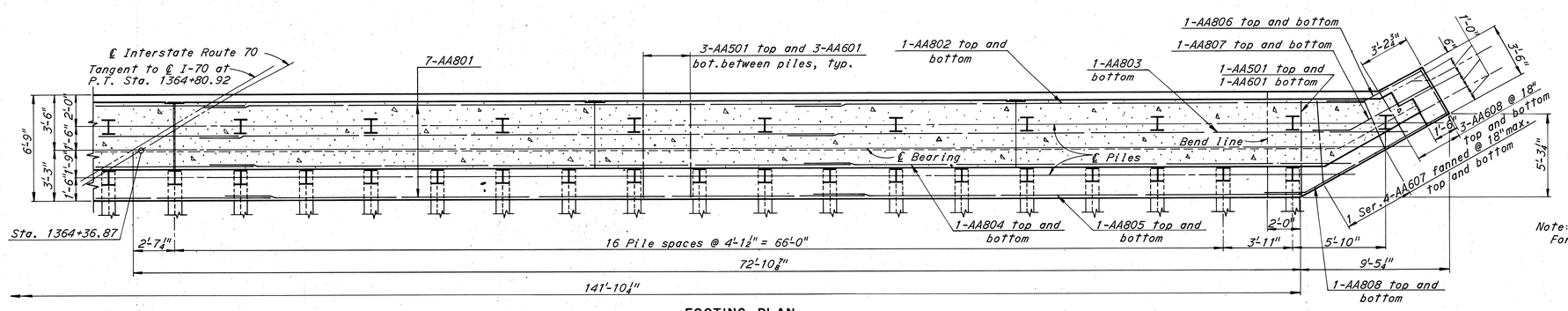
SECTION B-B
3/8" = 1'-0"



SECTION C-C
3/8" = 1'-0"



SECTION A-A
3/8" = 1'-0"



FOOTING PLAN

Note:
For notes see Sheet 174.

BRIDGE NO. 2

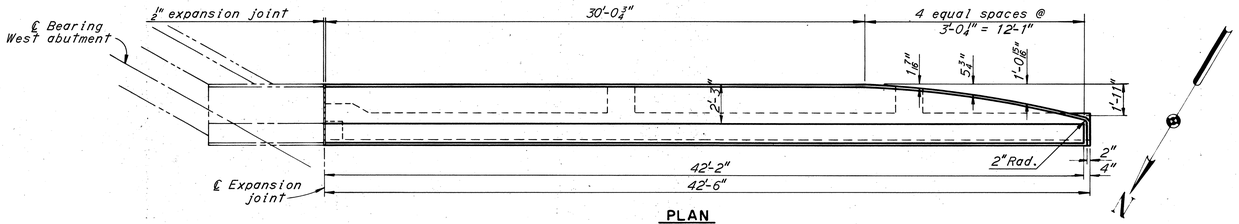
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

WEST ABUTMENT

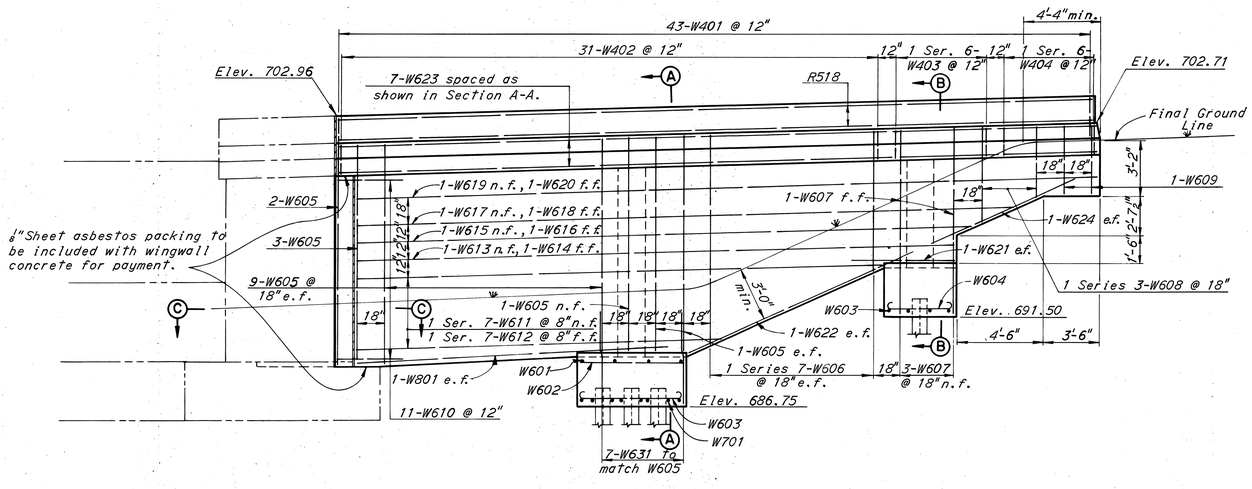
I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/4" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

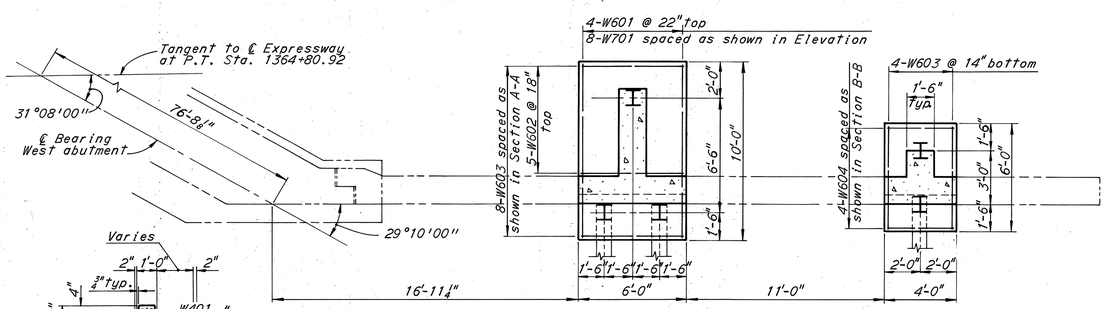
DRAWN RWR	TRACED	CHECKED DB	REVIEWED JT	REVISED	
DATE 10-6-66	DATE	DATE 10-31-66	DATE 12-14-66	949	SHEET 175



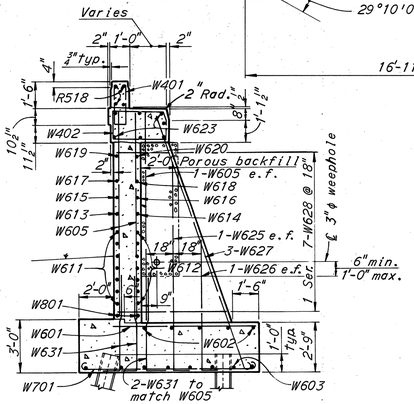
PLAN



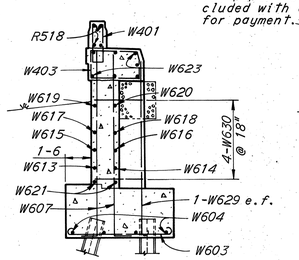
ELEVATION



FOOTING PLAN

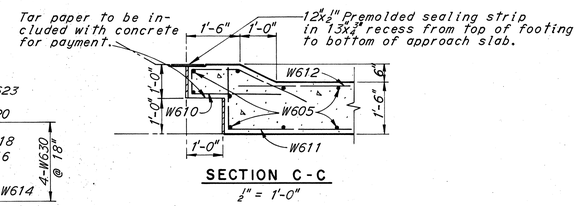


SECTION A-A



SECTION B-B

Note: Dimensions not shown are same as for Section A-A.



SECTION C-C

1/2" = 1'-0"

Notes:

For longitudinal parapet reinforcement and railing post spacing, see Sheet 161.

All piles are 10BP42.

All pile dimensions are given along bottom of footing.

n.f. denotes near face; f.f. denotes far face, and e.f. denotes each face.

All battered piles are battered 3 in 12.

For bending diagrams see Sheet 178.

REINFORCEMENT SCHEDULE-WEST ABUTMENT

MARK	NUMBER	LENGTH	TYPE	DIMENSION A	DIMENSION B	DIMENSION C	SERIES INCRE.	WEIGHT POUNDS
AA401	60	3'-3"	104	2'-4 1/2"	1'-0"			130
AA402	22	5'-7"	110	2'-2 1/2"				82
AA403	10	8'-11"	116	2'-10 1/2"				60
AA404	1 Ser. 6	7'-11" to 8'-9"	116	2'-5" to 2'-10"			2"	33
AA405	1 Ser. 6	5'-3" to 7'-7"	116	1'-1" to 2'-3"			5/8"	26
AA501	103	8'-9"	105	1'-7"	5'-10"			940
AA502	106	7'-7"	104	6'-8 1/2"	1'-0"			840
AA503	5	19'-6"	Str.					102
AA504	52	7'-6"	105	1'-11"	3'-11"			407
AA505	52	8'-2"	105	2'-3"	3'-11"			443
AA506	3	4'-9"	108	3'-2"	1'-7"	1'-4"		15
AA507	3	18'-6"	Str.					58
AA508	1 Ser. 3	19'-0" to 20'-0"	Str.				6"	61
AA509	5	7'-9"	127	2'-10"	3'-5 1/2"	3'-0"		40
AA510	7	6'-5"	104	4'-11 1/2"	1'-7"			47
AA511	13	13'-3"	Str.					180
AA512	74	26'-0"	Str.					2010
AA513	1	15'-0"	Str.					16
AA514	1	12'-6"	Str.					13
AA515	1	6'-2"	105	1'-11"	2'-7"			6
AA516	2	8'-7"	105	1'-11"	5'-0"			18
AA517	3	20'-3"	Str.					63
AA518	1	11'-11"	105	1'-11"	8'-4"			12
AA519	1	17'-6"	Str.					18
AA520	1	10'-0"	Str.					10
AA521	3	20'-4"	108	18'-9"	1'-7"	9"		63
AA522	8	23'-0"	Str.					192
AA601	100	14'-10"	106	5'-10"	2'-8"	6'-8"		2230
AA602	3	10'-10"	105	2'-8"	5'-10"			49
AA603	2	7'-3"	Str.					22
AA604	2	5'-6"	Str.					17
AA605	2	2'-6"	Str.					8
AA606	2 Ser. 7	2'-6" to 7'-0"	Str.				9"	103
AA607	2 Ser. 4	3'-3" to 5'-3"	Str.				8"	51
AA608	6	3'-0"	Str.					27
AA609	7	9'-0"	Str.					95
AA610	4	10'-0"	Str.					60
AA611	104	20'-6"	117	8'-5"	7'-1"			3200
AA612	18	20'-0"	109	1'-5"	8'-4"			541
AA613	10	21'-0"	109	1'-5"	8'-10"			316
AA614	4	9'-6"	Str.					57
AA615	6	9'-9"	Str.					88
AA616	20	12'-0"	Str.					361
AA617	3	12'-6"	Str.					56
AA618	2	10'-3"	Str.					31
AA619	8	10'-0"	106	8"	2'-11"	6'-9"		120
AA620	5	6'-2"	104	4'-5"	1'-11"			46
AA621	8	4'-5"	104	2'-11"	1'-8"			53
AA622	3	7'-6"	Str.					34
AA623	1	8'-2"	105	3'-8"	1'-2"			12
AA624	2	7'-10"	105	3'-6"	1'-2"			24
AA625	1	6'-4"	106	1'-2"	3'-6"	2'-0"		10
AA626	5	11'-3"	Str.					85
AA627	5	5'-3"	Str.					39
AA628	7	14'-3"	Str.					150
AA629	1	9'-8"	105	4'-5"	1'-2"			15
AA630	2	18'-6"	Str.					56
AA631	4	5'-5"	105	2'-0"	1'-9"			33
AA632	6	6'-3"	Str.					56
AA633	28	5'-10"	104	5'-0"	1'-0"			245
AA634	2	8'-0"	Str.					24
AA801	21	40'-0"	Str.					2242
AA802	2	35'-0"	Str.					187
AA803	1	37'-9"	Str.					100
AA804	2	33'-6"	Str.					179
AA805	2	29'-0"	Str.					155
AA806	2	6'-9"	108	4'-3"	2'-6"	1'-3"		36
AA807	2	8'-5"	108	5'-11"	2'-6"	1'-3"		45
AA808	2	12'-11"	108	10'-5"	2'-6"	1'-3"		69
AA809	2	13'-3"	Str.					71
AA810	2	5'-9"	Str.					31
AA811	2 Ser. 3	3'-3" to 10'-0"	Str.				3'-4 1/2"	106
							Total	17,420

REINFORCEMENT SCHEDULE-NORTHWEST WINGWALL

MARK	NUMBER	LENGTH	TYPE	DIMENSION A	DIMENSION B	DIMENSION C	SERIES INCRE.	WEIGHT POUNDS
W401	43	5'-7"	110	2'-2 1/2"				160
W402	31	9'-0"	116	2'-11"				187
W403	1 Ser. 6	7'-11" to 8'-9"	116	2'-5" to 2'-10"			2"	33
W404	1 Ser. 6	5'-1" to 7'-9"	116	1'-0" to 2'-4"			6 3/8"	26
W601	4	8'-3"	Str.					50
W602	5	5'-6"	Str.					40
W603	12	6'-10"	100	5'-6"				123
W604	4	4'-10"	100	3'-6"				29
W605	30	12'-0"	Str.					541
W606	2 Ser. 7	7'-9" to 11'-6"	Str.				7 1/2"	202
W607	5	11'-2"	104	10'-4"	1'-0"			84
W608	1 Ser. 3	7'-10" to 11'-4"	105	3'-6" to 5'-3"	1'-2"		1'-9"	43
W609	2	6'-4"	106	1'-2"	3'-6"	2'-0"		19
W610	11	7'-7"	129					125
W611	1 Ser. 7	21'-1" to 30'-5"	104	19'-7" to 28'-11"	1'-8"		1'-6 11/16"	271
W612	1 Ser. 7	19'-6" to 29'-0"	Str.				1'-5"	255
W613	1	34'-8"	104	33'-2"	1'-8"			52
W614	1	33'-3"	Str.					50
W615	1	36'-8"	104	35'-2"	1'-8"			55
W616	1	35'-3"	Str.					53
W617	1	38'-6"	104	37'-0"	1'-8"			58
W618	1	37'-3"	Str.					56
W619	1	42'-8"	104	41'-2"	1'-8"			64
W620	1	41'-3"	Str.					62
W621	2	5'-9"	Str.					17
W622	2	14'-0"	Str.					42
W623	7	41'-9"	Str.					439
W624	2	9'-3"	Str.					28
W625	2	12'-6"	104	11'-8"	1'-0"			38
W626	2	8'-0"	104	7'-2"	1'-0"			24
W627	3	15'-5"	101	14'-9"				70
W628	1 Ser. 7	8'-4" to 14'-4"	121	2'-11" to 5'-11"			1'-0"	119
W629	2	10'-5"	101	9'-9"				31
W630	4	7'-10"	121	2'-8"				47
W631	9	5'-6"	104	4'-8"	1'-0"			74
W701	8	11'-2"	100	9'-6"				183
W801	2	15'-0"	Str.					80
							Total	3830

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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BELMONT COUNTY
BEL-40-23.89

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTHWEST WINGWALL

I-70 OVER B. & O. RAILROAD
AND WHEELING CREEK

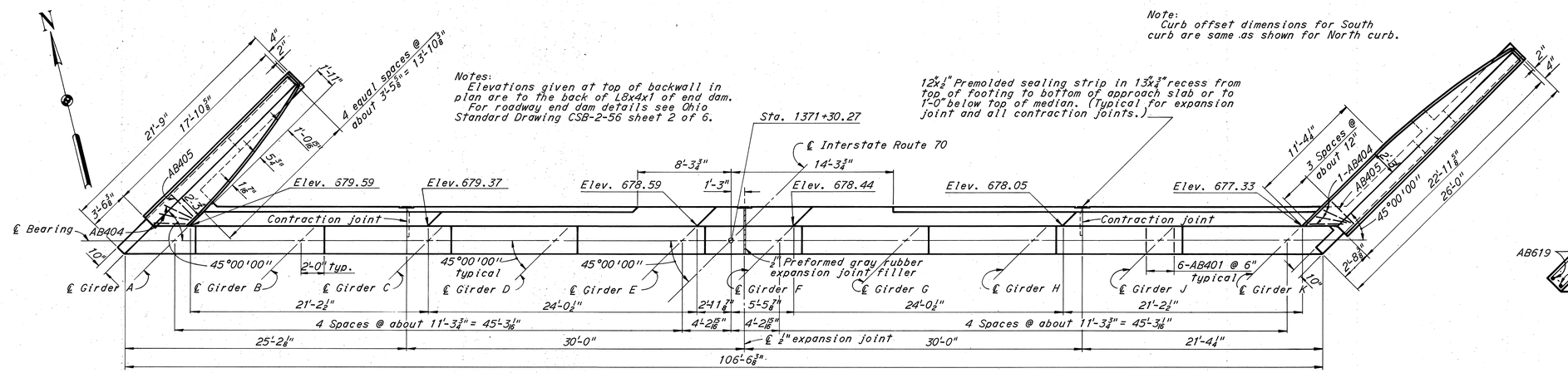
BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/4" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN R.W.P.	TRACED	CHECKED E.D.B.	REVIEWED J.T.	REVISED
DATE 10-18-64	DATE	DATE 11-6-61	DATE 12-14-61	949 SHEET 176

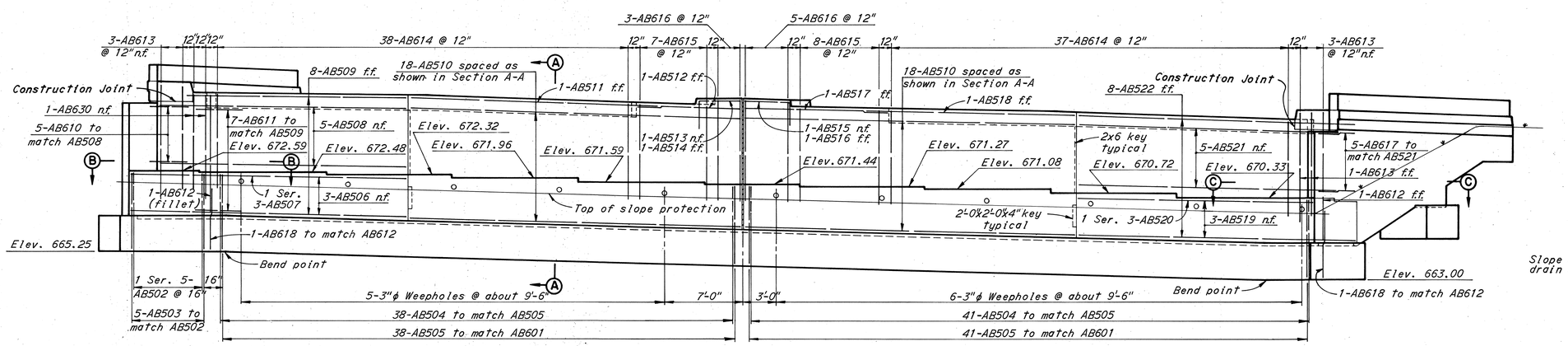
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

177
197

BELMONT COUNTY
BEL-40-23.89

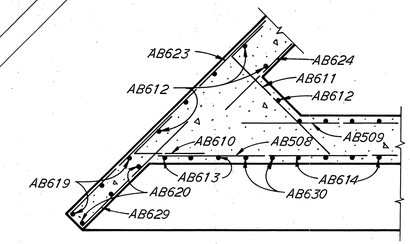


PLAN

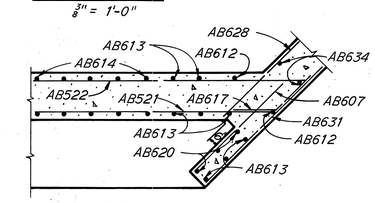


ELEVATION

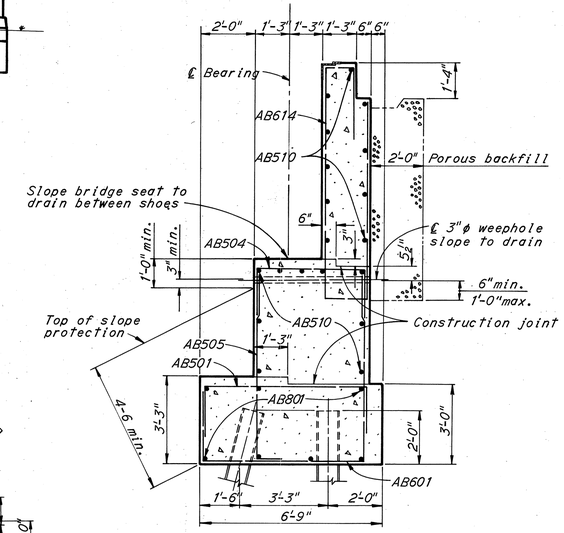
Note:
Piles not shown in Elevation.



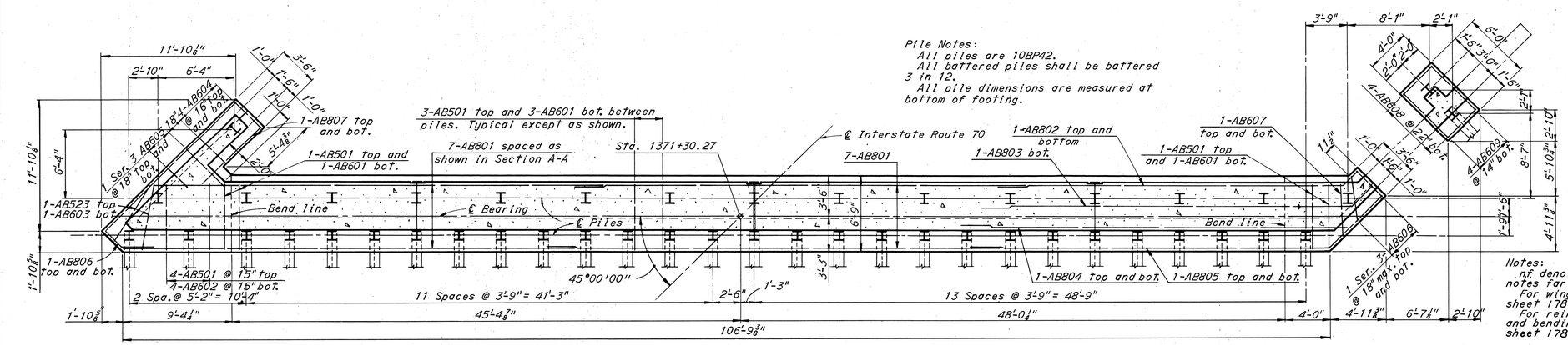
SECTION B-B
3/8" = 1'-0"



SECTION C-C
3/8" = 1'-0"



SECTION A-A
3/8" = 1'-0"



FOOTING PLAN

Notes:
n.f. denotes near face; f.f. denotes far face.
For wingwall details see sheet 178.
For reinforcement schedule and bending diagrams see sheet 178.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

EAST ABUTMENT

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 3/16" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN R.W.P.	TRACED	CHECKED EDB	REVIEWED JT	REVISED
DATE 10-31-61	DATE	DATE 11-14-61	DATE 12-14-61	949 SHEET 177

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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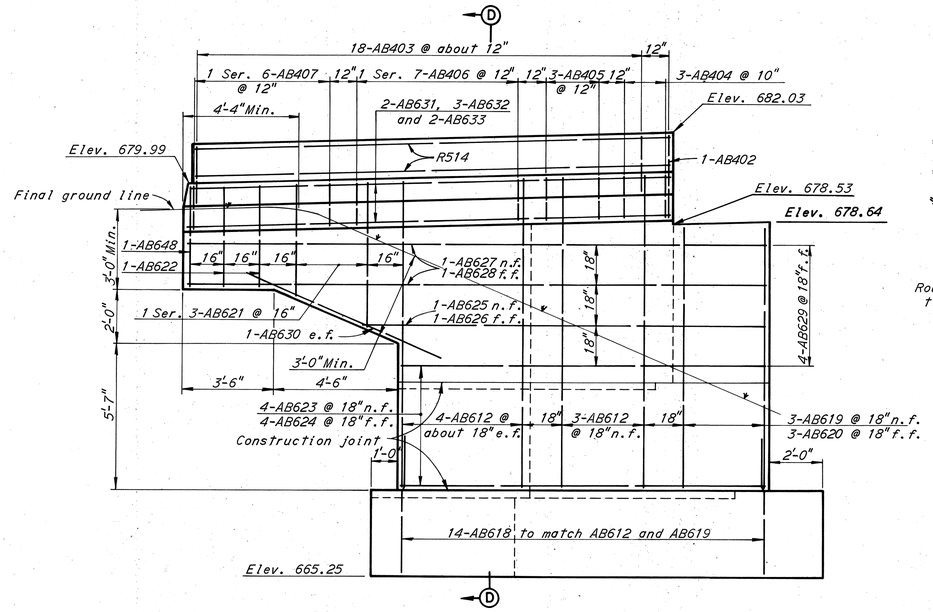
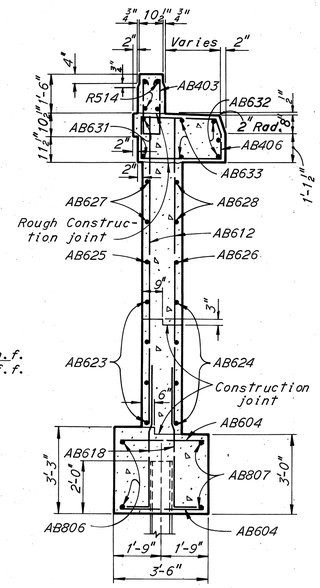
BELMONT COUNTY
BEL-40-23.89

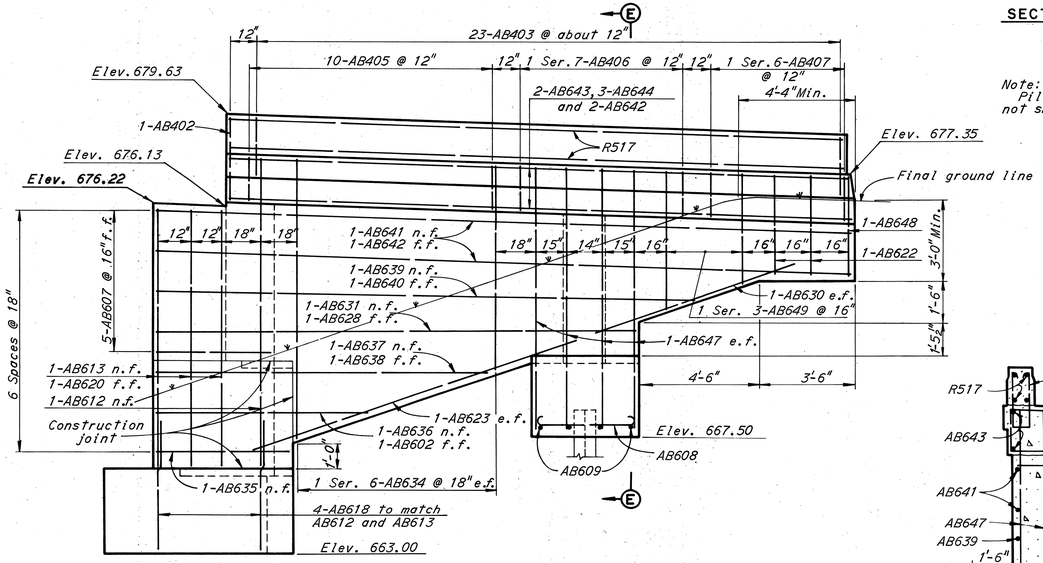


NORTH WINGWALL ELEVATION

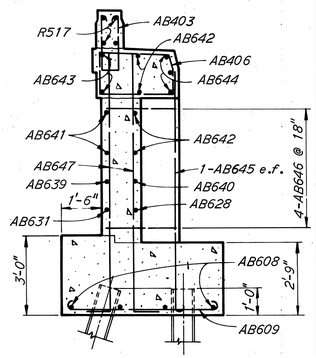


SECTION D-D

Note:
Piles in abutment footing not shown in Elevations.



SOUTH WINGWALL ELEVATION



SECTION E-E

Note: Dimensions not shown are same as for Section D-D.

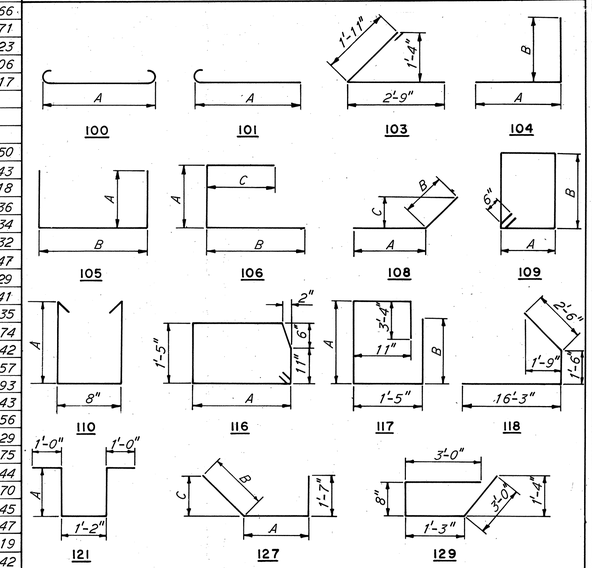
Notes:
For longitudinal parapet reinforcement and **railing** post spacing see Sheet 161.
n.f. denotes near face; f.f. denotes far face and e.f. denotes each face.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see Sheet 197.
For other notes see Sheet 177.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSION A	DIMENSION B	DIMENSION C	SERIES INCRE.	WEIGHT POUNDS
AB401	60	3'-3"	104	2'-4½"	1'-0"			130
AB402	2	7'-2"	110	3'-0"				10
AB403	41	5'-7"	110	2'-2½"				153
AB404	6	4'-2"	104	2'-10"	1'-5½"			17
AB405	13	9'-0"	116	2'-11"				78
AB406	2 Ser. 7	7'-10" to 8'-10"	116	2'-4" to 2'-10"			2"	78
AB407	2 Ser. 6	5'-2" to 7'-6"	116	1'-0" to 2'-2"			5⅝"	51
AB501	83	8'-9"	105	1'-7"	5'-10"			759
AB502	1 Ser. 5	4'-4" to 6'-3"	106	2'-0" to 3'-11"	1'-7"	1'-0"	5¾"	28
AB503	5	7'-9"	104	6'-10½"	1'-0"			40
AB504	79	8'-8"	105	2'-6"	3'-11"			715
AB505	79	7'-6"	104	6'-7"	1'-0½"			618
AB506	3	25'-0"	Str.					78
AB507	1 Ser. 3	23'-3" to 25'-0"	Str.				10½"	75
AB508	5	22'-3"	Str.					116
AB509	8	19'-0"	Str.					159
AB510	36	29'-6"	Str.					1110
AB511	1	22'-6"	Str.					23
AB512	1	9'-3"	Str.					10
AB513	1	7'-4"	105	1'-11"	3'-9"			8
AB514	1	5'-10"	105	1'-11"	2'-3"			6
AB515	1	7'-8"	105	1'-11"	4'-1"			8
AB516	1	9'-1"	105	1'-11"	5'-6"			9
AB517	1	12'-9"	Str.					13
AB518	1	18'-9"	Str.					20
AB519	3	21'-0"	Str.					66
AB520	1 Ser. 3	22'-0" to 23'-6"	Str.				9"	71
AB521	5	23'-6"	Str.					123
AB522	8	24'-9"	Str.					206
AB523	2	8'-4"	104	5'-9½"	2'-8"			17
AB601	79	14'-9"	106	5'-10"	6'-7"	2'-8"		1750
AB602	5	5'-9"	Str.					43
AB603	2	6'-0"	Str.					18
AB604	8	3'-0"	Str.					36
AB605	2 Ser. 3	2'-6" to 5'-0"	Str.				1'-3"	34
AB606	2 Ser. 3	3'-0" to 4'-0"	Str.				6"	32
AB607	7	4'-6"	Str.					47
AB608	4	4'-10"	100	3'-6"				29
AB609	4	6'-10"	100	5'-6"				41
AB610	5	4'-8"	103					35
AB611	7	7'-0"	104	5'-3"	1'-11"			74
AB612	14	11'-6"	Str.					242
AB613	11	9'-6"	Str.					157
AB614	75	20'-4"	117	8'-4"	7'-0"			2293
AB615	15	19'-8"	109	1'-5"	8'-2"			443
AB616	8	21'-4"	109	1'-5"	9'-0"			256
AB617	5	3'-10"	108	1'-11"	1'-11"	1'-4"		29
AB618	20	5'-10"	104	5'-0"	1'-0"			175
AB619	3	9'-9"	Str.					44
AB620	6	7'-9"	Str.					70
AB621	1 Ser. 3	8'-10" to 11'-4"	105	4'-0" to 5'-3"	1'-2"		1'-3"	45
AB622	4	7'-10"	105	3'-6"	1'-2"			47
AB623	6	13'-3"	Str.					119
AB624	4	7'-0"	Str.					42
AB625	1	14'-9"	Str.					22
AB626	1	8'-3"	Str.					12
AB627	2	21'-3"	Str.					64
AB628	3	15'-0"	Str.					68
AB629	4	5'-6"	Str.					33
AB630	6	8'-9"	Str.					79
AB631	3	17'-6"	Str.					79
AB632	3	15'-6"	Str.					70
AB633	2	16'-6"	Str.					50
AB634	2 Ser. 6	7'-3" to 10'-0"	Str.				6⅝"	156
AB635	1	4'-9"	Str.					7
AB636	1	8'-0"	Str.					12
AB637	1	12'-3"	Str.					18
AB638	1	10'-0"	Str.					15
AB639	1	19'-0"	Str.					29
AB640	1	16'-9"	Str.					25
AB641	2	25'-6"	Str.					77
AB642	4	23'-3"	Str.					140
AB643	2	22'-9"	Str.					68

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSION A	DIMENSION B	DIMENSION C	SERIES INCRE.	WEIGHT POUNDS
AB644	3	24'-9"	Str.					112
AB645	2	9'-8"	101	9'-0"				29
AB646	4	7'-6"	121	2'-6"				45
AB647	8	10'-4"	104	9'-6"	1'-0"			124
AB648	2	5'-8"	106	1'-2"	3'-1"	1'-9"		16
AB649	1 Ser. 3	8'-4" to 10'-4"	105	3'-9" to 4'-9"	1'-2"		1'-0"	42
AB801	14	40'-0"	Str.					1497
AB802	2	32'-5"	108	30'-9"	1'-8"	1'-2"		173
AB803	1	35'-6"	108	33'-0"	2'-6"	1'-9"		95
AB804	2	34'-9"	Str.					186
AB805	2	38'-4"	108	31'-9"	6'-7"	4'-8"		204
AB806	2	20'-1"	118					107
AB807	2	7'-6"	Str.					40
							Total	14,590



BENDING DIAGRAMS

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

EAST ABUTMENT DETAILS

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

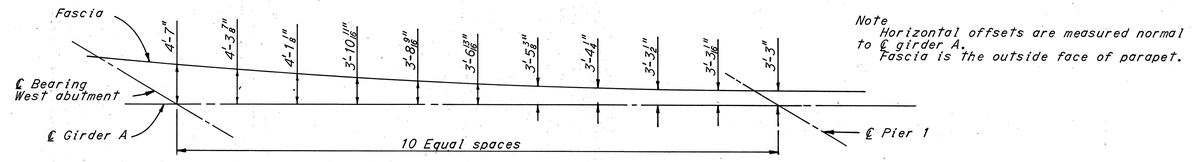
BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 3/8" = 1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN RWR	TRACED	CHECKED LDB	REVIEWED JT	REVISED
DATE 11-7-61	DATE	DATE 11-14-61	DATE 12-14-61	949 SHEET 178

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

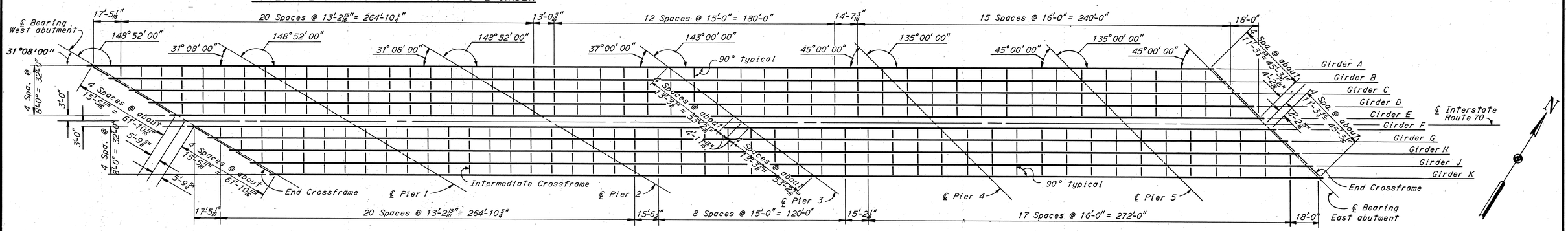
179
197

BELMONT COUNTY
BEL-40-23.89

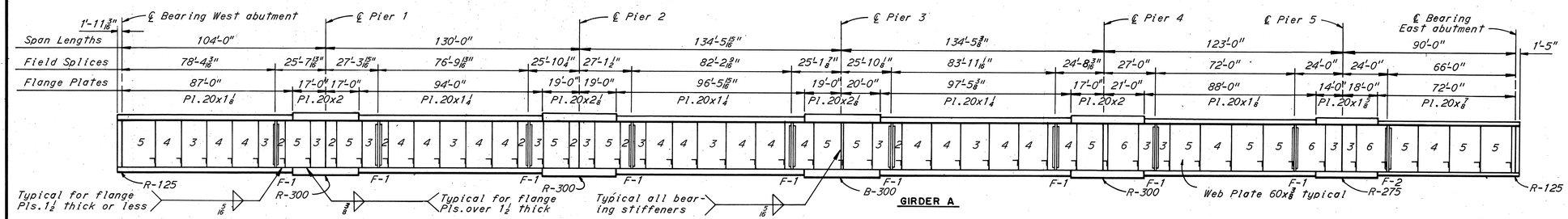


Note
Horizontal offsets are measured normal to ℄ girder A.
Fascia is the outside face of parapet.

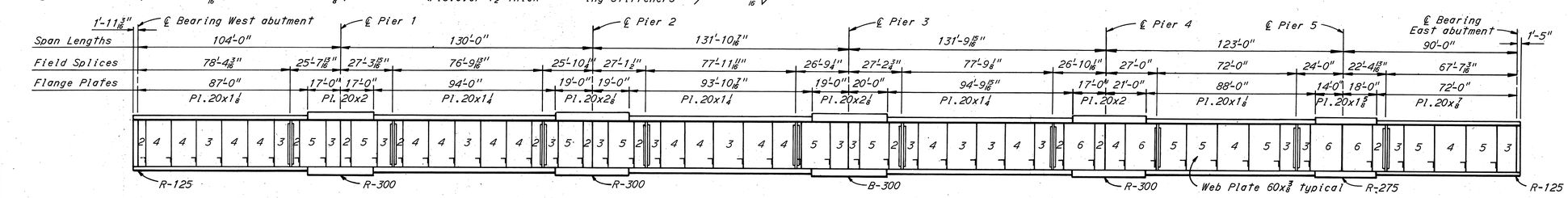
HORIZONTAL OFFSETS FROM FASCIA TO ℄ GIRDER



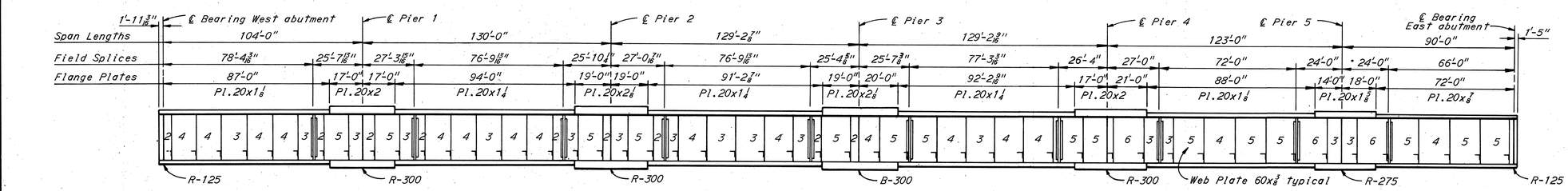
FRAMING PLAN



GIRDER A



GIRDER B



GIRDER C

GIRDER ELEVATIONS

Notes:
For other girder elevations see Sheets 180 and 181.
For end crossframe details, see Ohio Standard Drawing, CSB-2-56, Sheet 2 of 6.
For top of pavement elevations and girder deflections see Sheet 181.
Numbers shown on girder webs indicate the number of stiffener spaces between crossframes or crossframes and field splices or crossframes and bearing stiffeners. Where no number is indicated, one stiffener space is required.
All intermediate stiffeners shall be Pls. 8x1/2 on both sides of all girders.
Bearing stiffeners shall be as follows: at all piers - 2 Pls. 8x1/2, at East abutment - 2 Pls. 7x1/2; at West abutment - 2 Pls. 6x1.
The intermediate stiffeners shall not be welded to the girder flanges but shall be fitted to the flanges in close enough contact that the shop paint will fill and close the openings.
All intermediate stiffener to web welds shall be 3/16" Cont. fillets both sides of stiffener.
The bearing stiffeners at piers and abutments shall be fully grooved and butt welded to the lower flange and fitted in close contact with the upper flange.
Welding shown for Girder A is typical for Girders B thru K.
For details of rockers and bolsters, see Ohio Standard Drawing RB-1-55.
For detail of field splice, see Sheet 182.
Top and bottom flanges are identical.
For details of roadway end dams, see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6. The supporting L6x4x1/2 in the Roadway End Dam Table shall be increased to L8x4x1/2.
At field splices, L8x4x1/2 shall be used in lieu of Pls. 8x1/2 **for stiffeners**.
For details of butt welds of flanges and of web plates, see Sheet 182.
Field splices shown for Girder A are typical for Girders B and C.
For Girder End Details see Sheet 180.
All stiffeners shall be placed normal to profile grade.
For intermediate crossframe details, see Sheet 183.
Shop splices in web plates shall be located as required by available plate lengths.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN AND GIRDER ELEVATIONS
I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

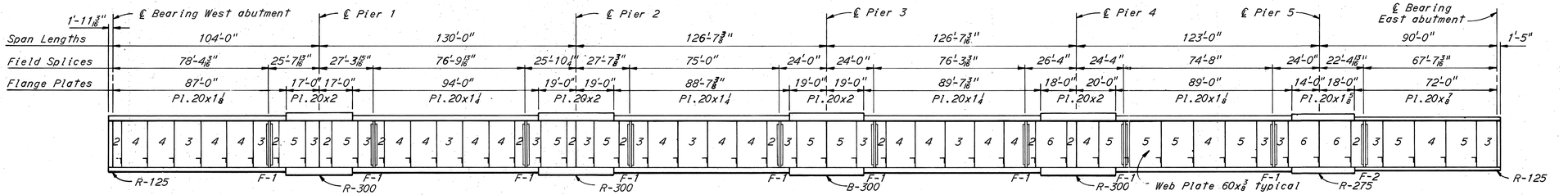
BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: NO SCALE STA. 1371+33.81
BELMONT CO. OHIO

DRAWN RWR	TRACED	CHECKED EDB	REVIEWED JT	REVISED
DATE 8-8-61	DATE	DATE 8-16-61	DATE 12-14-61	949 SHEET 179

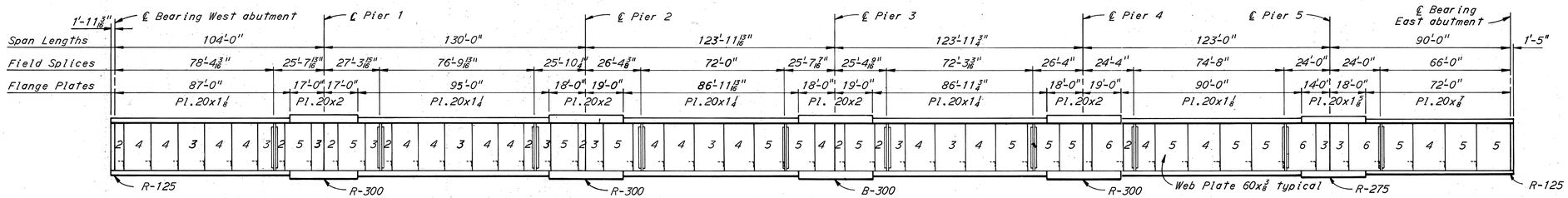
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

180 / 197

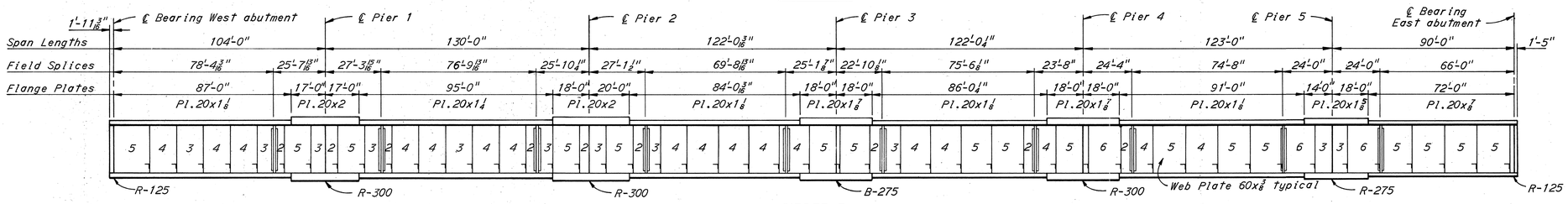
BELMONT COUNTY
BEL-40-23.89



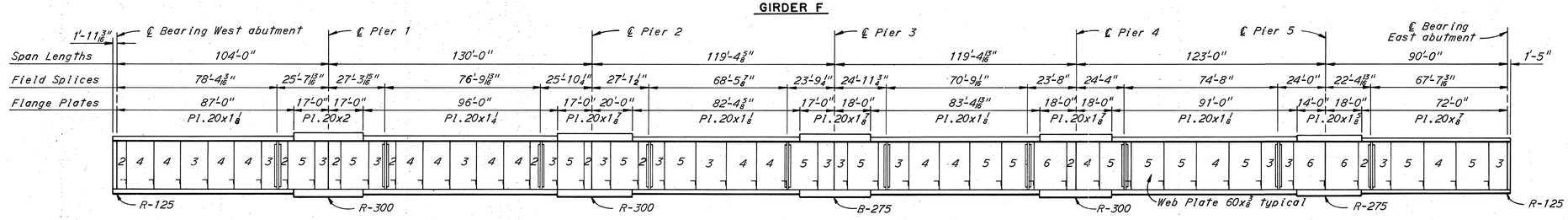
GIRDER D



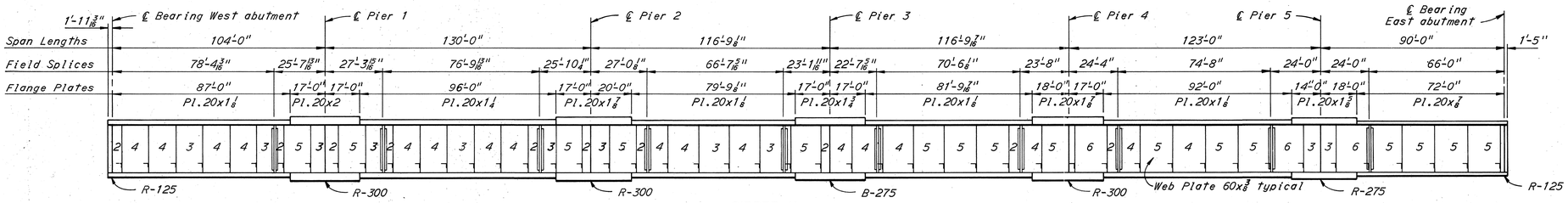
GIRDER E



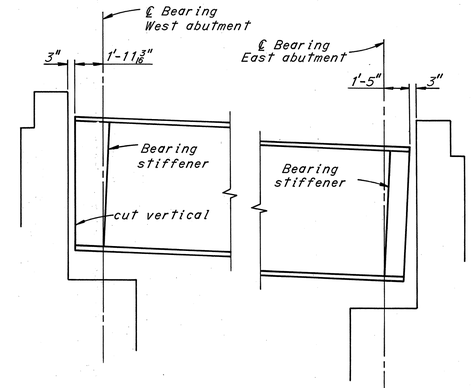
GIRDER F



GIRDER G



GIRDER H



GIRDER END DETAILS

Notes:

Field splices shown for Girder D are typical for Girders E thru H.

For other girder elevations see Sheets 179 and 181.

For top of pavement elevations and girder deflections see Sheet 181.

For other notes see Sheets 179 and 181.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GIRDER ELEVATIONS

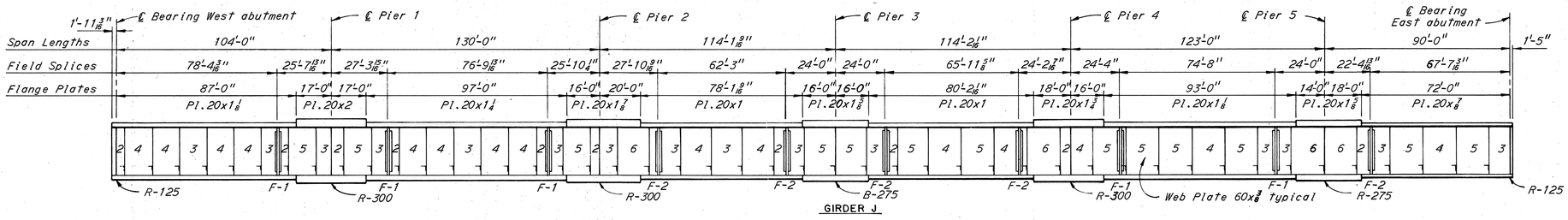
I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: NONE STA. 1371+33.81
BELMONT CO. OHIO

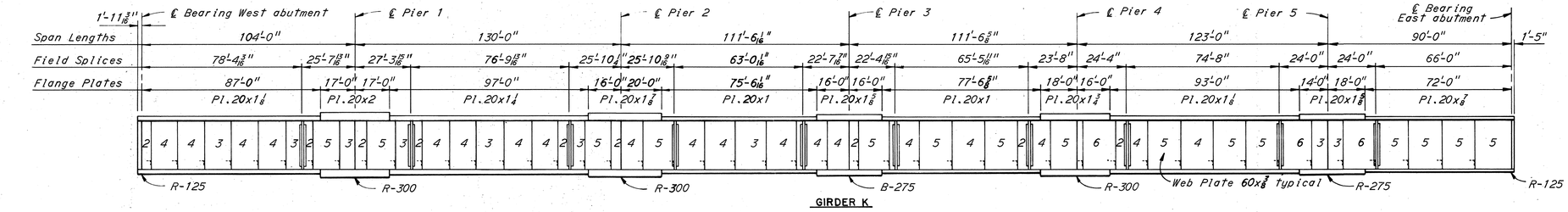
DRAWN S.W.R.	TRACED	CHECKED EDB	REVIEWED JT	REVISED	
DATE 8-16-61	DATE	DATE 9-14-61	DATE 12-14-61	949 SHEET	180

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

BELMONT COUNTY
BEL-40-23.89



GIRDER J



GIRDER K

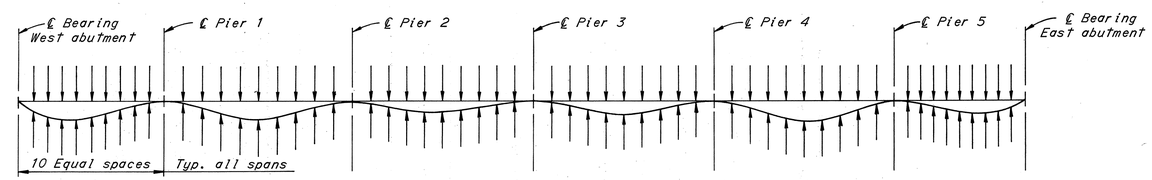
GIRDER ELEVATIONS

Girder Notes:
The girders shall be fabricated to lines parallel to profiles formed by top of pavement elevations directly over the girders, plus the camber required to compensate for dead load deflections.
Field splices shown for Girder J are typical for Girder K.
For other girder elevations see Sheets 179 and 180.
For Girder End Details see Sheet 180.
For other girder notes see Sheet 179.

TOP OF PAVEMENT ELEVATIONS

Girder	W.Abut.	1	2	3	4	5	6	7	8	9	Pier 1	1	2	3	4	5	6	7	8	9	Pier 2	1	2	3	4	5	6	7	8	9	Pier 3	1	2	3	4	5	6	7	8	9	Pier 4	1	2	3	4	5	6	7	8	9	Pier 5	1	2	3	4	5	6	7	8	9	Pier 4
A	700.31	700.01	699.71	699.42	699.14	698.86	698.59	698.33	698.08	697.82	697.56	697.22	696.88	696.52	696.16	695.81	695.45	695.09	694.73	674.38	694.02	693.65	693.27	692.88	692.48	692.08	691.68	691.27	690.87	690.46	690.06	689.66	689.25	688.85	688.45	688.04	687.64	687.24	686.83	686.43	686.03																				
B	700.18	699.88	699.58	699.29	699.01	698.73	698.45	698.18	697.90	697.62	697.34	696.99	696.64	696.28	695.92	695.57	695.21	694.85	694.49	694.14	693.78	693.40	693.02	692.63	692.24	691.84	691.45	691.05	690.66	690.26	689.87	689.47	689.08	688.68	688.28	687.89	687.49	687.10	686.70	686.31	685.91																				
C	700.05	699.74	699.44	699.14	698.85	698.56	698.27	697.98	697.68	697.39	697.11	696.75	696.39	676.03	695.67	695.31	694.95	694.59	694.23	693.87	693.50	693.12	692.74	692.35	691.97	691.58	691.19	690.80	690.42	690.03	689.64	689.25	688.86	688.48	688.09	687.70	687.31	686.93	686.54	686.15	685.76																				
D	699.90	699.58	699.27	698.96	698.66	698.35	698.04	697.73	697.43	697.13	696.82	696.44	696.06	695.67	695.29	694.91	694.53	694.15	693.76	693.38	692.99	692.62	692.24	691.86	691.48	691.10	690.72	690.34	689.96	689.58	689.20	688.82	688.44	688.06	687.68	687.30	686.92	686.54	686.16	685.78	685.40																				
E	699.72	699.39	699.07	698.74	698.42	698.10	697.78	697.46	697.13	696.81	696.48	696.08	695.68	695.27	694.87	694.47	694.06	693.66	693.26	692.87	692.47	692.10	691.73	691.36	690.99	690.61	690.24	689.87	689.50	689.13	688.75	688.38	688.01	687.64	687.27	686.89	686.52	686.15	685.78	685.41	685.03																				
F	699.15	698.84	698.54	698.24	697.94	697.63	697.32	697.01	696.70	696.39	696.07	695.68	695.29	694.90	694.51	694.12	693.73	693.34	692.95	692.56	692.17	691.81	691.44	691.08	690.71	690.34	689.98	689.61	689.25	688.88	688.51	688.15	687.78	687.42	687.05	686.68	686.32	685.95	685.59	685.22	684.85																				
G	698.94	698.63	698.31	697.99	697.67	697.36	697.05	696.74	696.43	696.11	695.80	695.41	695.02	694.63	694.24	693.85	693.46	693.07	692.68	692.29	691.90	691.54	691.19	690.83	690.47	690.11	689.75	689.40	689.04	688.68	688.32	687.96	687.60	687.25	686.89	686.53	686.17	685.81	685.45	685.10	684.74																				
H	698.70	698.36	698.03	697.71	697.40	697.09	696.78	696.47	696.15	695.84	695.53	695.14	694.75	694.36	693.97	693.58	693.19	692.80	692.41	692.02	691.63	691.28	690.93	690.58	690.23	689.88	689.53	689.18	688.83	688.48	688.13	687.78	687.43	687.08	686.73	686.38	686.02	685.67	685.32	684.97	684.62																				
J	698.41	698.07	697.73	697.41	697.08	696.75	696.43	696.10	695.77	695.45	695.12	694.71	694.30	693.90	693.49	693.09	692.70	692.31	691.92	691.53	691.14	690.80	690.46	690.11	689.77	689.43	689.09	688.74	688.40	688.06	687.72	687.37	687.03	686.69	686.35	686.00	685.66	685.32	684.98	684.63	684.29																				
K	698.10	697.74	697.40	697.05	696.71	696.37	696.02	695.68	695.34	694.99	694.65	694.22	693.79	693.38	692.97	692.57	692.18	691.79	691.40	691.01	690.62	690.29	689.95	689.62	689.28	688.95	688.61	688.28	687.94	687.61	687.27	686.94	686.61	686.27	685.94	685.60	685.27	684.93	684.60	684.26	683.93																				
Girder	1	2	3	4	5	6	7	8	9	Pier 5	1	2	3	4	5	6	7	8	9	E.Abut.																																										
A	685.66	685.29	684.92	684.55	684.18	683.81	683.45	683.08	682.71	682.34	682.07	681.80	681.53	681.26	680.99	680.72	680.45	680.18	679.91	679.64																																										
B	685.54	685.17	684.80	684.44	684.07	683.70	683.33	682.96	682.59	682.22	681.95	681.68	681.41	681.14	680.87	680.60	680.33	680.06	679.79	679.53																																										
C	685.39	685.03	684.66	684.29	683.92	683.55	683.18	682.81	682.44	682.07	681.80	681.53	681.26	680.99	680.72	680.45	680.18	679.91	679.64	679.37																																										
D	685.03	684.66	684.29	683.92	683.55	683.18	682.82	682.45	682.08	681.71	681.44	681.17	680.90	680.63	680.36	680.09	679.82	679.55	679.28	679.01																																										
E	684.66	684.30	683.93	683.56	683.19	682.82	682.45	682.08	681.71	681.34	681.07	680.80	680.53	680.26	679.99	679.72	679.45	679.18	678.91	678.64																																										
F	684.48	684.12	683.75	683.38	683.01	682.64	682.27	681.90	681.53	681.16	680.89	680.62	680.35	680.08	679.81	679.55	679.28	679.02	678.75	678.49																																										
G	684.37	684.00	683.63	683.26	682.89	682.52	682.16	681.79	681.42	681.05	680.78	680.51	680.24	679.97	679.70	679.43	679.15	678.88	678.60	678.33																																										
H	684.25	683.89	683.52	683.15	682.78	682.41	682.04	681.67	681.30	680.93	680.66	680.39	680.12	679.85	679.57	679.29	679.01	678.72	678.43	678.13																																										
J	683.92	683.55	683.18	682.82	682.45	682.08	681.71	681.34	680.97	680.60	680.33	680.06	679.79	679.51	679.23	678.94	678.65	678.36	678.06	677.77																																										
K	683.56	683.19	682.82	682.45	682.08	681.71	681.35	680.98	680.61	680.24	679.97	679.69	679.42	679.13	678.85	678.56	678.27	677.97	677.68	677.39																																										

Note:
Elevations are given at tenth points of spans along ℄ girders.



TYPICAL DEFLECTION DIAGRAM

TABLE OF DEFLECTIONS

Girder		W.Abut.	1	2	3	4	5	6	7	8	9	Pier 1	1	2	3	4	5	6	7	8	9	Pier 2	1	2	3	4	5	6	7	8	9	Pier 3	1	2	3	4	5	6	7	8	9	Pier 4	1	2	3	4	5	6	7	8	9	Pier 5	1	2	3	4	5	6	7	8	9	E.Abut.
A	T	0	3/8	5/8	7/16	15/16	15/16	4/16	2/16	4/16	0	0	1/16	4/16	9/16	3/16	3/16	11/16	2/16	4/16	0	0	1/16	4/16	9/16	3/16	13/16	3/16	1/16	4/16	0	0	1/16	4/16	9/16	15/16	7/16	13/16	10/16	15/16	4/16	0	0	1/16	4/16	10/16	15/16	7/16	13/16	10/16	15/16	4/16	0	0	1/16	4/16	10/16	15/16	7/16	13/16	10/16	15/16	4/16	0
	C	0	1/4	1/8	5/16	11/16	11/16	9/16	3/16	3/16	1/16	0	1/16	3/16	7/16	9/16	9/16	1/8	3/16	3/16	1/16	0	1/16	3/16	7/16	9/16	5/16	9/16	3/16	3/16	1/16	0	1/16	3/16	7/16	5/16	11/16	5/16	7/16	4/16	1/16	0	0	1/16	5/16	7/16	1/2	1/2	3/8	4/16	1/16	0	0	1/16	3/16	5/16	3/8	7/16	3/16	5/16	3/16	0
B	T	0	3/8	5/8	13/16	7/16	15/16	1/8	4/16	1/16	0	0	1/16	4/16	2/16	11/16	3/16	11/16	2/16	4/16	0	0	1/16	4/16	2/16	11/16	5/16	3/16	3/16	1/16	0	0	1/16	4/16	1/2	3/16	13/16	4/16	2/16	4/16	1/16	0	0	1/16	3/16	5/16	11/16	1/16	2/16	5/16	1/16	0	0	0	1/8	4/16	1/8	1/2	1/2	1/8	4/16	0
	C	0	1/4	1/16	3/8	11/16	3/8	1/2	3/8	3/16	1/16	0	1/16	3/16	3/16	1/2	1/2	1/2	3/16	3/16	1/16	0	1/16	3/16	3/16	1/2	1/2	3/16	3/16	3/16	1/16	0	1/16	3/16	3/16	9/16	9/16	3/16	3/16	3/16	1/16	0	0	1/16	6/16	1/16	1/2	1/2	3/8	4/16	1/16	0	0	1/16	3/16	3/8	3/8	3/8	3/8	3/16	3/16	0
C	T	0	5/16	5/8	13/16	7/16	15/16	11/16	1/2	4/16	1/16	0	1/16	5/16	9/16	3/16	13/16	3/16	2/16	4/16	1/16	0	1/16	3/16	7/16	5/16	11/16	5/16	7/16	3/16	1/16	0	1/16	4/16	2/16	11/16	3/16	11/16	1/2	4/16	1/16	0	0	1/16	3/16	7/16	5/16	3/16	4/16	11/16	2/16	5/16	1/16	0	0	1/16	4/16	3/8	1/2	1/2	1/2	3/8	4/16	0
	C	0	1/4	7/16	5/16	11/16	5/16	1/2	3/8	3/16	1/16	0	1/16	4/16	7/16	9/16	9/16	3/8	3/16	3/16	1/16	0	1/16	3/16	5/16	1/2	1/2	5/16	7/16	5/16	1/16	0	1/16	3/8	3/8	1/2	9/16	1/2	3/8	4/16	1/16	0	0	1/16	3/16	1/8	9/16	1/2	3/8	4/16	1/16	0	0	1/16	3/16	3/4	3/8	3/8	3/8	5/16	3/16	0
D	T	0	5/16	5/8	13/16	7/16	15/16	11/16	7/16	1/16	0	0	1/16	5/16	9/16	3/16	13/16	3/16	2/16	5/16	1/16	0	1/16	3/16	7/16	5/16	11/16	5/16	7/16	4/16	1/16	0	1/16	4/16	7/16	5/16	11/16	5/16	7/16	4/16	1/16	0	0	1/16	3/16	7/16	5/16	3/16	4/16	1/16	0	0	0	1/16	3/16	1/2	1/2	5/16	3/16	1/16	0
	C	0	1/4	1/16	3/8	11/16	3/8	1/2	3/8	3/16	1/16	0	1/16	4/16	7/16	9/16	9/16	3/8	3/16	4/16	1/16	0	1/16	3/16	5/16	1/2	1/2	5/16	7/16	4/16	1/16	0	1/16	3/8	3/8	1/2	9/16	9/16	7/16	4/16	1/16	0	0	1/16	3/16	1/8	9/16	9/16	7/16	4/16	1/16	0	0	1/16	3/16	3/8	3/8	3/8	3/8	3/16	3/16	0
E	T	0	5/16	5/8	13/16	7/16	15/16	11/16	7/16	1/16	0	0	1/16	5/16	9/16	3/16	13/16	3/16	2/16	5/16	1/16	0	1/16	3/16	7/16	5/16	11/16	5/16	7/16	3/16	1/16	0	1/16	4/16	2/16	11/16	3/16	11/16	2/16	5/16	1/16	0	0	1/16	3/16	7/16	5/16	3/16	4/16	11/16	2/16	5/16	1/16	0	0	1/16	4/16	7/16	1/2	1/2	1/2	3/8	4/16	0
	C	0	1/4	7/16	9/16	5/8	5/8	1/2	5/16	3/16	1/16	0	1/16	4/16	7/16	9/16	9/16	5/8	3/16	4/16	1/16	0	1/16	4/16	3/16	7/16	7/16	4/16	1/16	1/16	0	0	1/16	3/16	5/16	7/16	2/16	7/16	5/16	4/16	1/16	0	0	1/16	3/8	1/2	9/16	9/16	7/16	4/16	1/16	0	0	1/16	3/8	1/4	3/8	3/8	3/8	4/16	3/16	0
F	T	0	5/16	5/8	9/16	7/16	15/16	11/16	7/16	1/16	0	0	1/16	5/16	9/16	3/16	13/16	3/16	2/16	5/16	1/16	0	1/16	3/16	7/16	5/16	11/16	5/16	7/16	3/16	1/16	0	1/16	3/16	7/16	5/16	9/16	5/16	7/16	4/16	1/16	0	0	1/16	3/16	7/16	5/16	9/16	5/16	7/16	4/16	1/16	0	0	1/16	3/8	1/2	3/8	7/16	1/2	1/2	3/16	0
	C	0	1/4	7/16	9/16	5/8	5/8	1/2	5/16	3/16	1/16	0	1/16	4/16	7/16	9/16	9/16	5/8	3/16	4/16	1/16	0	1/16	4/16	3/16	7/16	7/16	4/16	1/16	1/16	0	0	1/16	4/16	2/16	7/16	2/16	7/16	5/16	4/16	1/16	0	0	1/16	3/8	1/2	9/16	9/16	7/16	4/16	1/16	0	0	1/16	3/8	1/4	3/8	3/8	3/8	4/16	3/16	0
G	T	0	5/16	9/16	3/4	13/16	13/16	5/16	7/16	3/16	1/16	0	1/16	5/16	5/16	13/16	7/16	7/8	5/8	3/16	1/16	0	0	1/16	1/16	7/16	1/2	1/2	5/16	3/16	1/16	0	1/16	3/16	3/8	9/16	9/16	1/2	3/8	4/16	1/16	0	0	1/16	5/16	9/16	3/16	13/16	13/16	5/16	8/16	1/16	0	0	1/16	3/16	5/16	7/16	1/2	7/16	3/8	3/16	0
	C	0	1/4	1/16	3/8	5/8	5/8	1/2	1/16	5/16	1/16	0	1/16	4/16	1/2	3/8	11/16	5/8	1/2	4/16	1/16	0	0	1/16	3/16	3/8	3/8	4/16	1/16	1/16	0	0	1/16	3/16	7/16	7/16	3/8	3/8	4/16	1/16	0	0	1/16	4/16	9/16	5/16	9/16	7/16	3/8	4/16	1/16	0	0	1/16	4/16	5/16	3/8	3/8	3/8	4/16	3/16	0
H	T	0	5/16	9/16	3/4	13/16	13/16	5/16	7/16	3/16	1/16	0	1/16	5/16	5/16	13/16	7/16	7/8	5/8	3/16	1/16	0	0	1/16	1/16	7/16	1/2	1/2	5/16	3/16	1/16	0	1/16	3/16	3/8	9/16	9/16	1/2	3/8	4/16	1/16	0	0	1/16	5/16	9/16	3/16	13/16	13/16	5/16	8/16	1/16	0	0	1/16	3/16	5/16	7/16	1/2	7/16	3/8	3/16	0
	C	0	1/4	1/16	3/8	5/8	5/8	1/2	1/16	5/16	1/16	0	1/16	4/16	1/2	3/8	11/16	5/8	1/2	4/16	1/16	0	0	1/16	3/16	3/8	3/8	4/16	1/16	1/16	0	0	1/16	3/16	7/16	7/16	3/8	3/8	4/16	1/16	0	0	1/16	4/16	9/16	5/16	9/16	7/16	3/8	4/16	1/16	0	0	1/16	4/16	5/16	3/8	3/8	3/8	4/16	3/16	0
J	T	0	5/16	9/16	3/4	13/16	3/4	5/16	7/16	3/16	1/16	0	1/16	3/16	11/16	7/16	15/16	15/16	11/16	7/16	1/16	0	0	1/16	3/16	5/16	7/16	3/8	4/16	1/16	1/16	0	1/16	3/16	3/8	1/2	1/2	7/16	4/16	1/16	0	0	1/16	3/16	5/16	13/16	7/16	5/8	3/8	6/16	1/16	0	0	1/16	3/16	5/16	7/16	1/2	7/16	3/8	3/16	0
	C	0	1/4	1/16	3/8	5/8	5/8	1/2	1/16	5/16	1/16	0	1/16	4/16	1/2	3/8	11/16	5/8	1/2	4/16	1/16	0	0	0	1/8	4/16	5/16	3/8	4/16	1/16	1/16	0	1/16	3/8	3/8	1/2	5/16	3/8	4/16	1/16	0	0	1/16	4/16	9/16	5/16	9/16	7/16	3/8	4/16	1/16	0	0	1/16	4/16	5/16	3/8	3/8	3/8	4/16	3/16	0
K	T	0	5/16	9/16	3/4	13/16	3/4	5/16	7/16	3/16	1/16	0	1/16	3/16	11/16	7/16	15/16	1	13/16	7/16	1/16	0	0	1/16	3/16	5/16	7/16	3/8	4/16	1/16	1/16	0	1/16	3/16	3/8	1/2	1/2	7/16	4/16	1/16	0	0	1/16	3/16	5/16	13/16	7/16	5/8	3/8	6/16	1/16	0	0	1/16	3/16	5/16	7/16	1/2	7/16	3/8	3/16	0
	C	0	1/4	1/16	3/8	5/8	5/8	1/2	1/16	5/16	1/16	0	1/16	4/16	1/2	3/8	11/16	5/8	1/2	4/16	1/16	0	0	0	1/8	4/16	5/16	3/8	4/16	1/16	1/16	0	1/16	3/8	3/8	1/2	5/16	3/8	4/16	1/16	0	0	1/16	4/16	9/16	5/16	9/16	7/16	3/8	4/16	1/16	0	0	1/16	4/16	5/16	3/8	3/8	3/8	4/16	3/16	0

Deflection Notes:
Deflections are given to nearest 1/16 inch.
All deflections are given at tenth points of spans.
In the table of deflections, T indicates the deflection due to total dead loads and C indicates the deflection due to dead load of concrete only.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GIRDER ELEVATIONS

I-70 OVER B. & O. RAILROAD
AND WHEELING CREEK

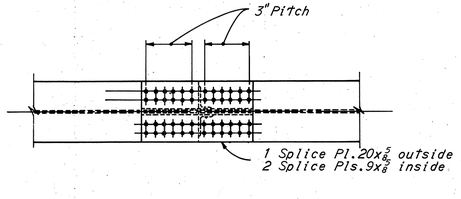
BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: NONE STA. 1371+33.81
BELMONT CO. OHIO

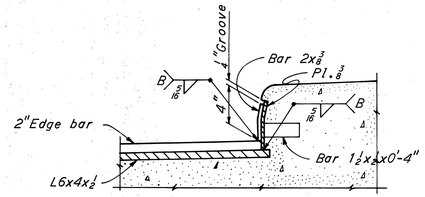
DRAWN R.W.R.	TRACED	CHECKED E.P.B.	REVIEWED J.F.	REVISED
DATE 8-23-61	DATE	DATE 9-15-61	DATE 12-14-61	949 SHEET 181

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

182
197

BELMONT COUNTY
BEL-40-23.89

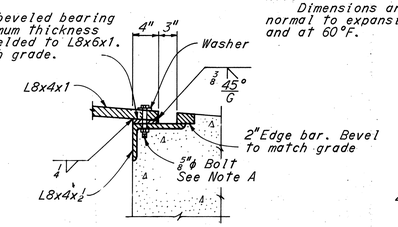




DETAIL AT ABUTMENT BACKWALL

Continuous 3" beveled bearing bar with minimum thickness of 1/4", to be welded to L8x6x1. Bevel to match grade.

Note:
Dimensions are measured normal to expansion joint and at 60°F.

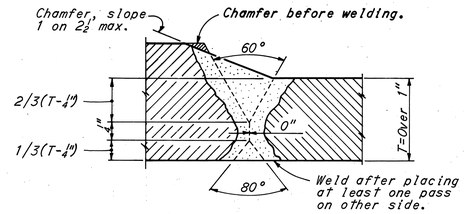


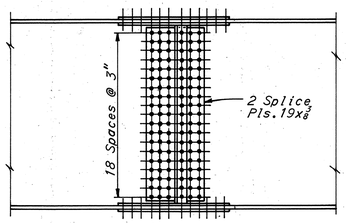
BEVELED BEARING BAR DETAIL

1 1/2" = 1'-0"

Note:
Beveled bearing bars are required at both abutments.
For other details of expansion joint see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.

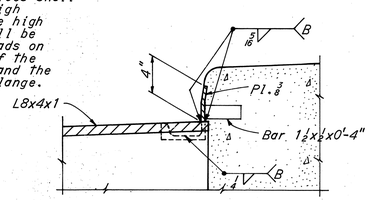
Note A.
5/8" ϕ x 3" bolts at 2'-0" centers with nuts tack welded to lower angle, and 1 1/16" ϕ holes in upper angle. Turn bolts tight and release one-half turn. Remove bolts as soon as possible, preferably within two hours after placing. Fill holes with bituminous material.



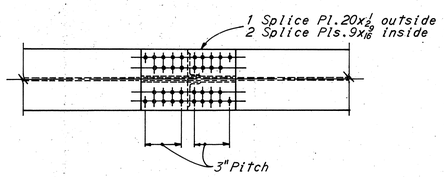


F-1

Note:
Web splice shown for F-1 splice is typical for F-2 splice.
Both top and bottom flange splices are identical.
Girder field splices shall be made with 3/4" ϕ high strength bolts. The high strength bolts shall be placed with the heads on the outside face of the exterior girders, and the bottom of girder flange.



DETAIL AT END DAM



F-2

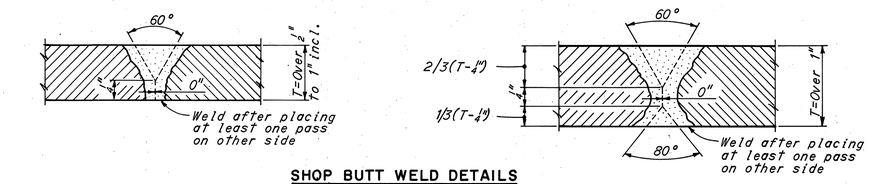
GIRDER FIELD SPLICES

1/2" = 1'-0"

DETAILS OF EXPANSION JOINT AT MEDIAN

1 1/2" = 1'-0"

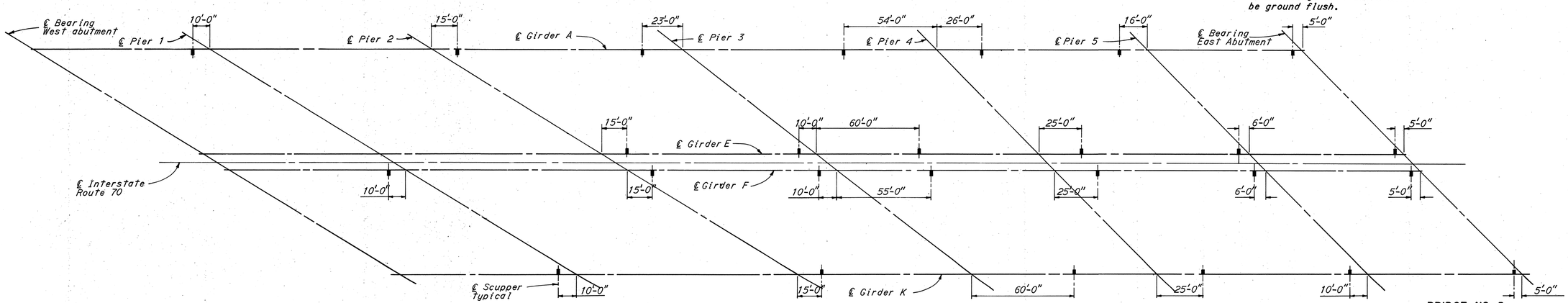
Note:
For curb plate details at exterior curbs see Ohio Standard Drawing CSB-2-56, Sheet 3 of 6. Details not shown at median same as for exterior curbs.



SHOP BUTT WELD DETAILS

No Scale

Note:
Optional shop splices will be permitted in the webs and flanges of girders but their locations shall be submitted to the Director for approval.
All flange butt-welds shall be ground flush.



SCUPPER LAYOUT SKETCH

No Scale

Note:
For details of scuppers see Ohio Standard Drawing CSB-2-56, Sheet 3 of 6, Section K-K

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

MISCELLANEOUS DETAILS
I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: AS SHOWN STA. 1371+33.81
BELMONT CO. OHIO

DRAWN E.D.B.	TRACED	CHECKED RMS	REVIEWED JF	REVISED
DATE 11-16-61	DATE	DATE 11-17-61	DATE 12-14-61	949 SHEET 182

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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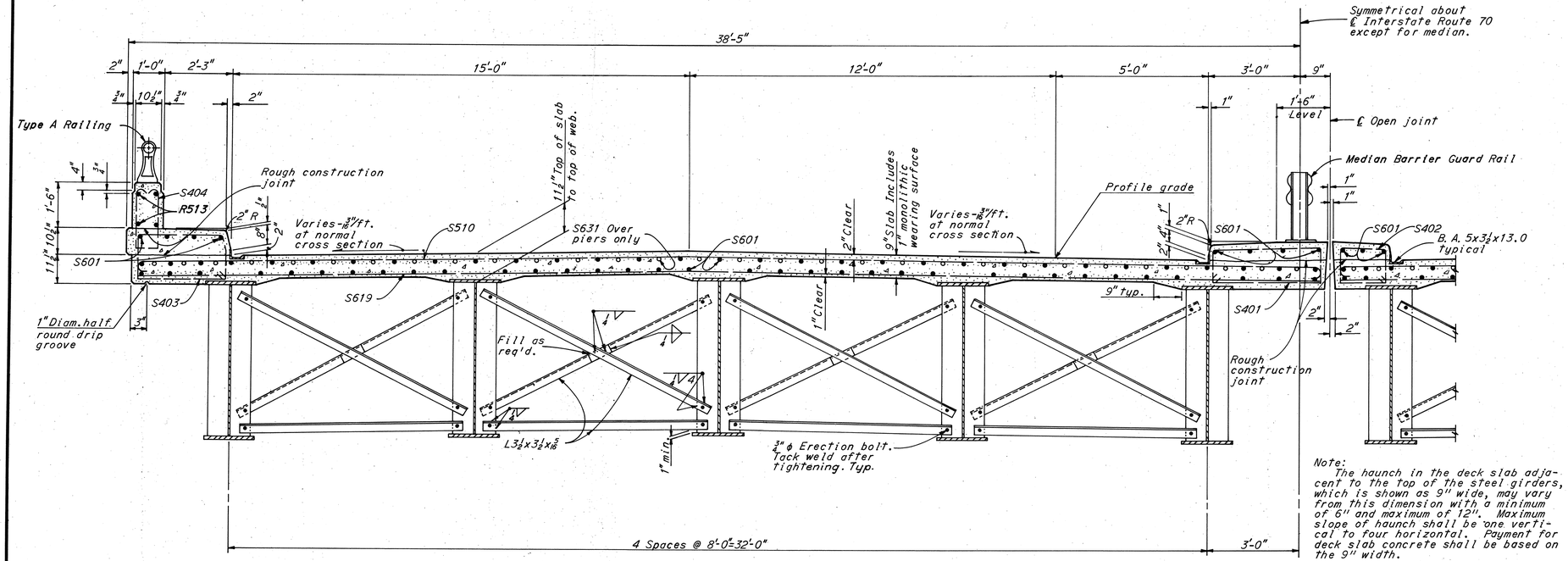
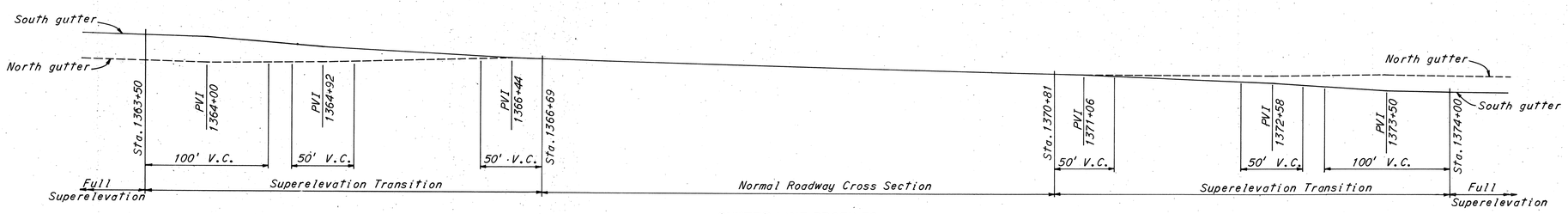
BELMONT COUNTY
BEL-40-23.89

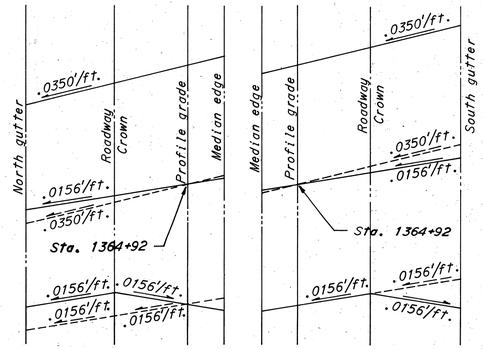


Note:
The haunch in the deck slab adjacent to the top of the steel girders, which is shown as 9" wide, may vary from this dimension with a minimum of 6" and maximum of 12". Maximum slope of haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.

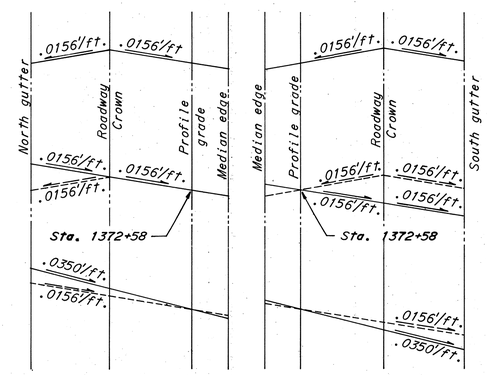
HALF SECTION A-A



GUTTER LINE PROFILES
No Scale



SUPERELEVATION TRANSITION SCHEME
STA. 1363+50 TO STA. 1366+69
No Scale

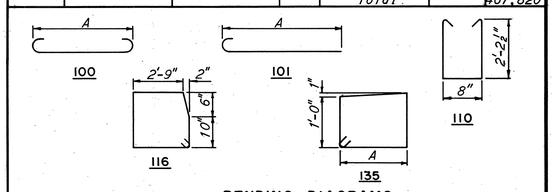


SUPERELEVATION TRANSITION SCHEME
STA. 1370+81 TO STA 1374+00
No Scale

Notes:
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see Sheet 197.
For railing details see Sheet 161.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSION A	SERIES INCRE.	WEIGHT POUNDS
S401	700	9'-3"	135	3'-3"		4325
S402	701	6'-3"	135	1'-9"		2930
S403	1398	8'-10"	116			8250
S404	1398	5'-7"	110			5210
S501	1 Ser. 60	9'-1" to 38'-7"	101	8'-6" to 38'-0"	6"	1492
S502	16	9'-1"	101	8'-6"		152
S503	1 Ser. 68	15'-7" to 35'-7"	101	15'-0" to 35'-0"	3/16"	1815
S504	50	15'-7"	101	15'-0"		812
S505	11	6'-7"	101	6'-0"		75
S506	1 Ser. 60	6'-7" to 35'-10"	101	6'-0" to 35'-3"	5/8"	1330
S507	1 Ser. 82	13'-7" to 37'-1"	101	13'-0" to 36'-6"	3/2"	2162
S508	37	13'-7"	101	13'-0"		523
S509	1323	38'-2"	100	37'-0"		52,655
S510	1276	39'-8"	100	38'-6"		52,800
S511	1	10'-7"	101	10'-0"		11
S512	1	12'-1"	101	11'-6"		13
S513	1	26'-4"	101	25'-9"		27
S514	4	46'-0"	101	45'-5"		192
S515	1	31'-8"	101	31'-1"		33
S516	1	11'-6"	101	10'-11"		12
S517	1	9'-5"	101	8'-10"		10
S601	2157	41'-9"	Str.			135,263
S602	7	22'-0"	Str.			231
S603	1 Ser. 60	8'-6" to 38'-0"	Str.		6"	2100
S604	16	8'-6"	Str.			204
S605	1 Ser. 68	15'-0" to 35'-0"	Str.		3/16"	2550
S606	50	15'-0"	Str.			1125
S607	1 Ser. 31	12'-0" to 36'-0"	Str.		9/2"	1118
S608	1 Ser. 34	12'-0" to 36'-0"	Str.		8/2"	1225
S609	1 Ser. 30	20'-9" to 44'-3"	Str.		9/2"	1465
S610	1 Ser. 33	20'-9" to 44'-3"	Str.		8/2"	1610
S611	11	6'-0"	Str.			99
S612	1 Ser. 60	6'-0" to 35'-3"	Str.		5/8"	1860
S613	1 Ser. 82	13'-0" to 36'-6"	Str.		3/2"	3040
S614	37	13'-0"	Str.			720
S615	63	39'-9"	Str.			3760
S616	136	43'-9"	Str.			8940
S617	69	29'-0"	Str.			3005
S618	1323	37'-0"	Str.			73,525
S619	1276	38'-6"	Str.			73,790
S620	2	45'-6"	Str.			137
S621	2	10'-0"	Str.			30
S622	3	11'-6"	Str.			52
S623	1	25'-9"	Str.			39
S624	5	45'-6"	Str.			340
S625	1	31'-9"	Str.			48
S626	2 Ser. 3	42'-0" to 45'-3"	Str.		1'-7½"	393
S627	1	46'-0"	Str.			69
S628	1	9'-6"	Str.			14
S629	59	35'-3"	Str.			3120
S630	58	39'-0"	Str.			3395
S631	59	38'-0"	Str.			3365
S632	59	32'-0"	Str.			2835
S633	60	37'-3"	Str.			3355
S634	2	12'-0"	Str.			36
S635	2	44'-3"	Str.			133
				Total		467,820



BENDING DIAGRAMS

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK CROSS SECTION AND REINFORCEMENT SCHEDULE
I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: 1/2"=1'-0" STA. 1371+33.81
BELMONT CO. OHIO

DRAWN EDB	TRACED	CHECKED GD	REVIEWED JF	REVISED
DATE 10-4-61	DATE	DATE 10-25-61	DATE 12-14-61	949 SHEET 183

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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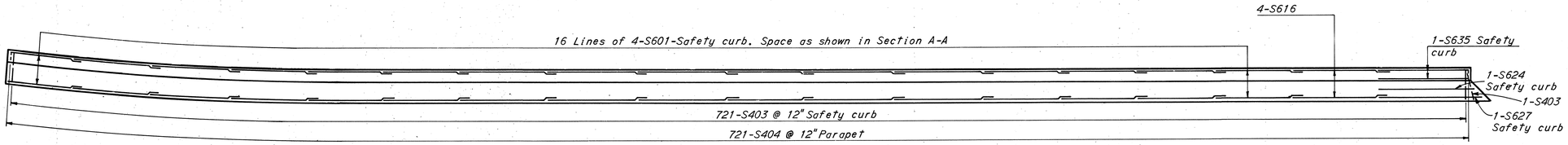
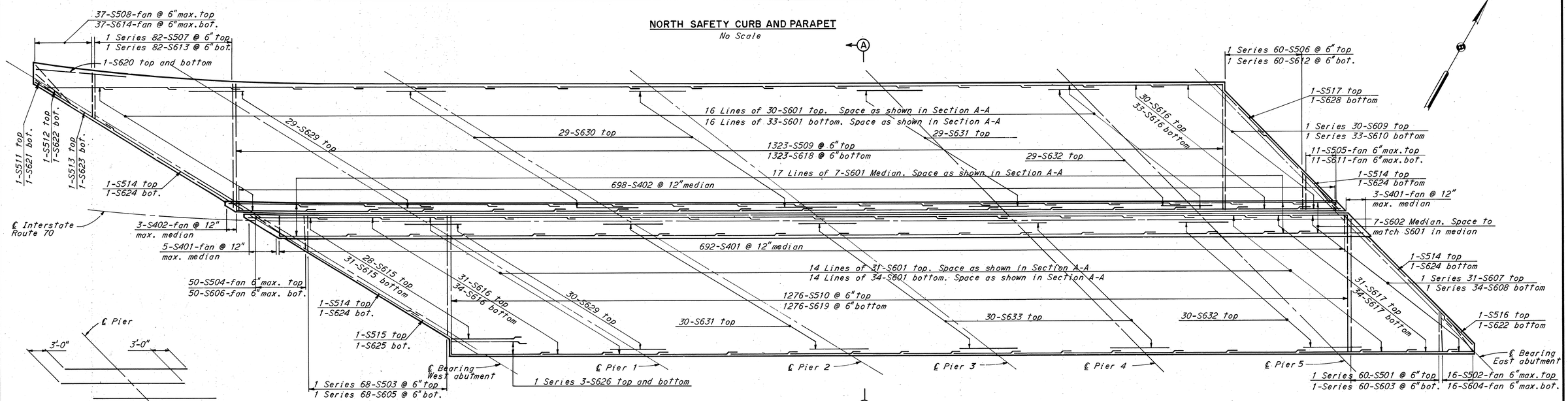
BELMONT COUNTY
BEL-40-23.89



NORTH SAFETY CURB AND PARAPET
No Scale



DECK PLAN
No Scale

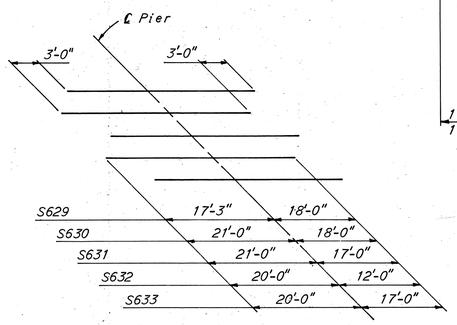
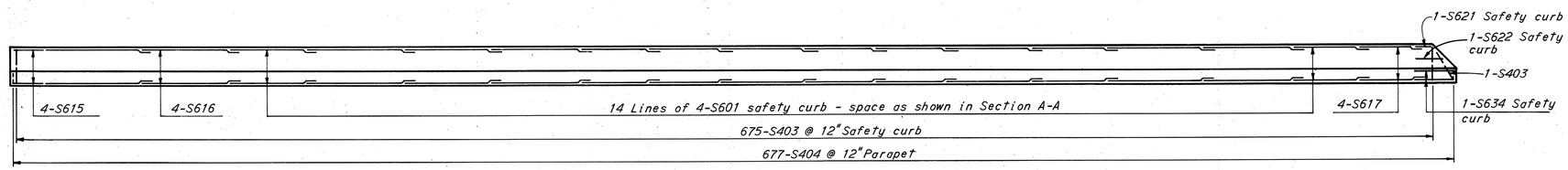
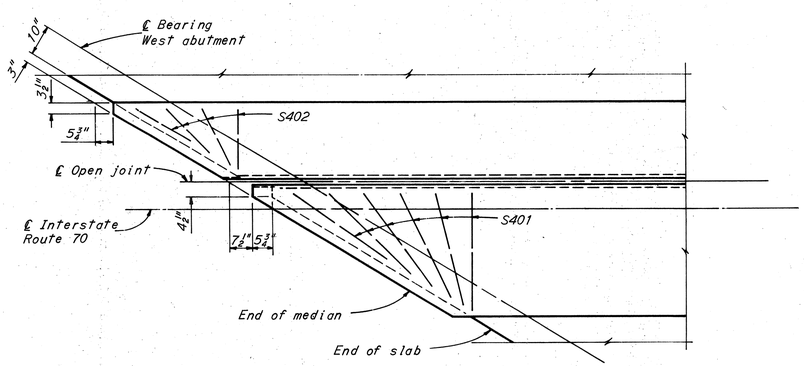


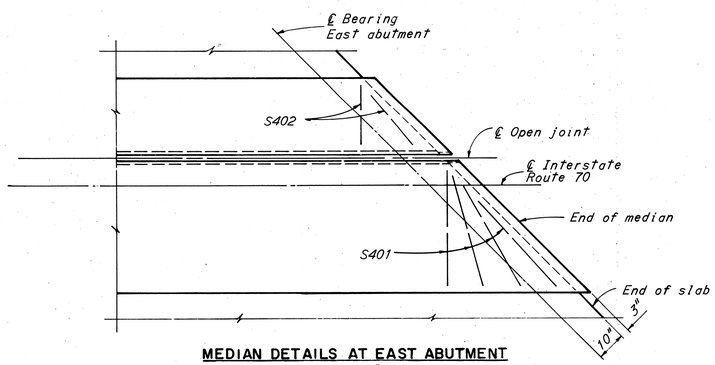
DIAGRAM SHOWING STAGGER OF S629, S630, S631, S632 AND S633 BARS OVER PIERS



SOUTH SAFETY CURB AND PARAPET
No Scale



MEDIAN DETAILS AT WEST ABUTMENT
1/2"=1'-0"



MEDIAN DETAILS AT EAST ABUTMENT
1/2"=1'-0"

Notes:
For longitudinal reinforcing in parapet see Sheet 161.
For detail of optional construction joint thru slab see Sheet 167.
For location of scuppers see Sheet 182.
For Section A-A, reinforcing steel schedule and bending diagrams see Sheet 183.
Deck reinforcing steel spacing shall be adjusted as required to clear scuppers.
For railing post spacing and details see Sheet 161.
For expansion joint details at abutments see Sheet 182.

BRIDGE NO. 2

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK REINFORCEMENT

I-70 OVER B. & O. RAILROAD AND WHEELING CREEK

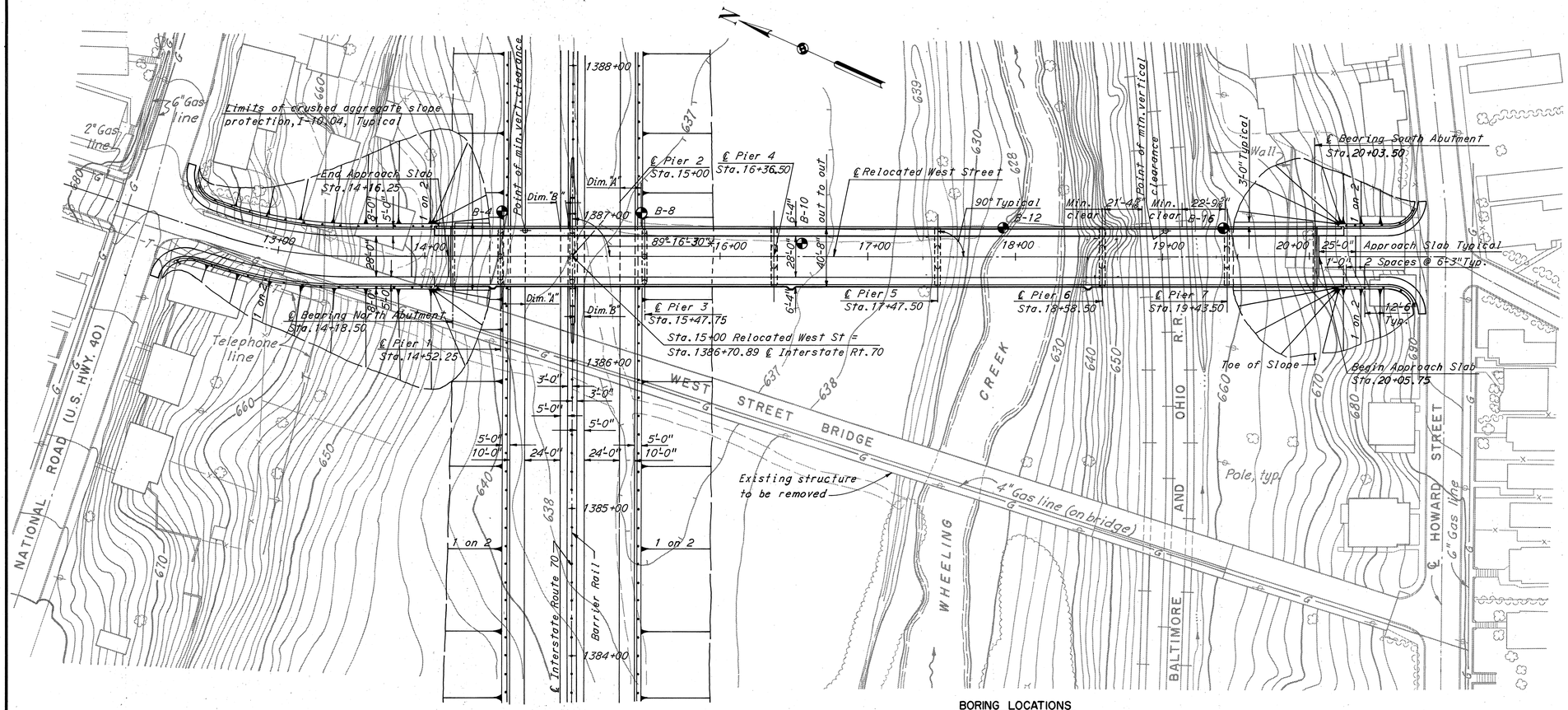
BR. NO. BEL-40-2600 STA. 1364+31.88
SCALE: AS SHOWN STA. 1371+33.81
BELMONT CO. OHIO

DRAWN EDB	TRACED	CHECKED GO	REVIEWED JT	REVISED
DATE 9-29-61	DATE	DATE 10-23-61	DATE 12-14-61	949 SHEET 184

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

185 / 197

BELMONT COUNTY
BEL-40-23.89



PLAN

* Between centerline of West Street and centerline of I-70.
Dimension "A" = 14'-0" Required clear
14'-0¼" Actual clear
Dimension "B" = 6'-0" Required clear
6'-3⅝" Actual clear

BORING LOCATIONS

B-4	14+52.5	31' Lt.
B-8	15+47.5	30' Lt.
B-10	16+55.5	9' Lt.
B-12	17+92.0	20' Lt.
B-16	19+42.0	20' Lt.

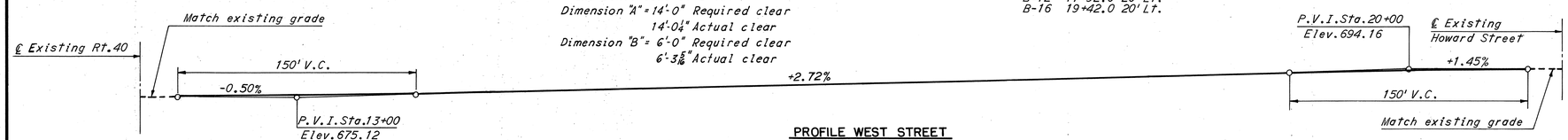
PROPOSED STRUCTURE

Type 3 span rolled beam unit and 5 span welded girder unit both continuous with reinforced concrete deck and substructure.
Spans Beam unit-33'-9", 47'-9", 39'-9" = 121'-0"
Girder unit-8'-0" cantilever, 98'-9", 111'-0", 111'-0", 85'-0", 60'-0" = 464'-0"
Ctr. to ctr. end bearings = 585'-0"
Roadway 28'-0" f/f of two 5'-2" sidewalks.
Loading CF 400
Skew 0°
Alignment Tangent
Surface Course 1" Monolithic concrete.
Approach Slabs AS-1-54 (25'-0" long).

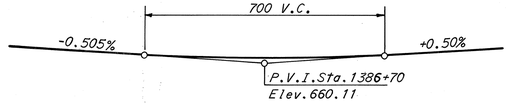
Notes:
The following items are not included in the bridge plans. See roadway plans for details
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading pavements and slabs.
Guard rails except on bridge.
Piles for piers to be 12BP53 with an estimated average vertical length of 50' for piers 1, 2 and 3, 35' for piers 4 and 5, 20' for pier 6, and 40' for pier 7. Piles for abutments to be 10BP42 with an estimated average vertical length of 40' for North abutment and 50' for South abutment. These estimates are based on boring data and are approximate only. The contractor shall assume full responsibility for lengths of piling selected for driving.
● Denotes boring.
Foundation design and foundation quantities are based on a study of rod soundings and soil sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State does not guarantee the accuracy thereof.
Curbs shall be provided on approach slabs at both ends of the structure. They shall be smoothly transitioned in height within the distance from the end of bridge curb to the end of approach slab, from the 6" height of roadway curb to the 10" height of the bridge curb.
The existing bridge is to be removed as a part of this contract, Item S-24.

EXISTING STRUCTURE

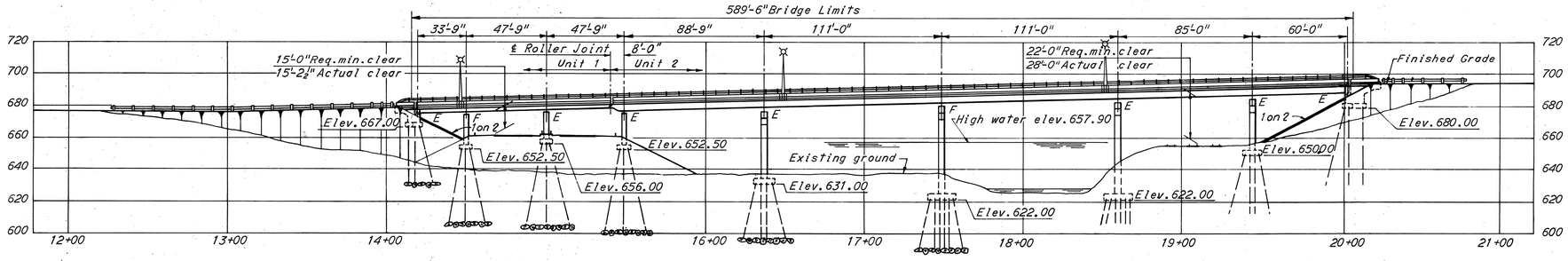
Type Steel viaduct spans and 1 pony truss span on concrete pedestals.
Spans 12 @ 33'± = 400'±, 1 @ 90'±, 1 @ 30'± and 1-95'± truss span.
Roadway 17'± and 5'± walk one side.



PROFILE WEST STREET



PROFILE INTERSTATE ROUTE 70



ELEVATION

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SITE PLAN

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 1" = 40' STA. 20+05.75
BELMONT CO. OHIO

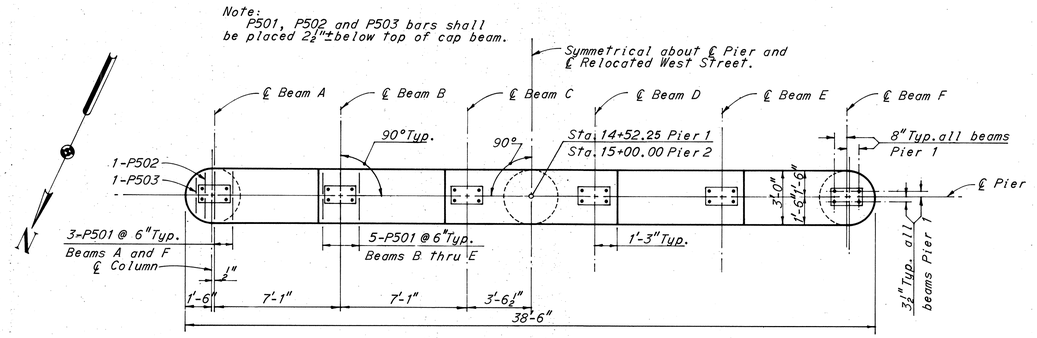
DRAWN S.M.A.	TRACED	CHECKED RMS	REVIEWED JT	REVISED
DATE 11-5-61	DATE	DATE 11-18-61	DATE 12-14-61	949 SHEET 185

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

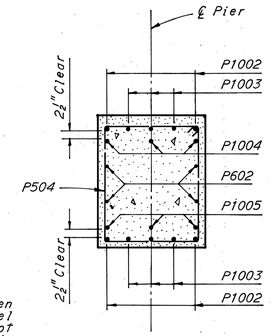
186
19,7

343

BELMONT COUNTY
BEL-40-23.89

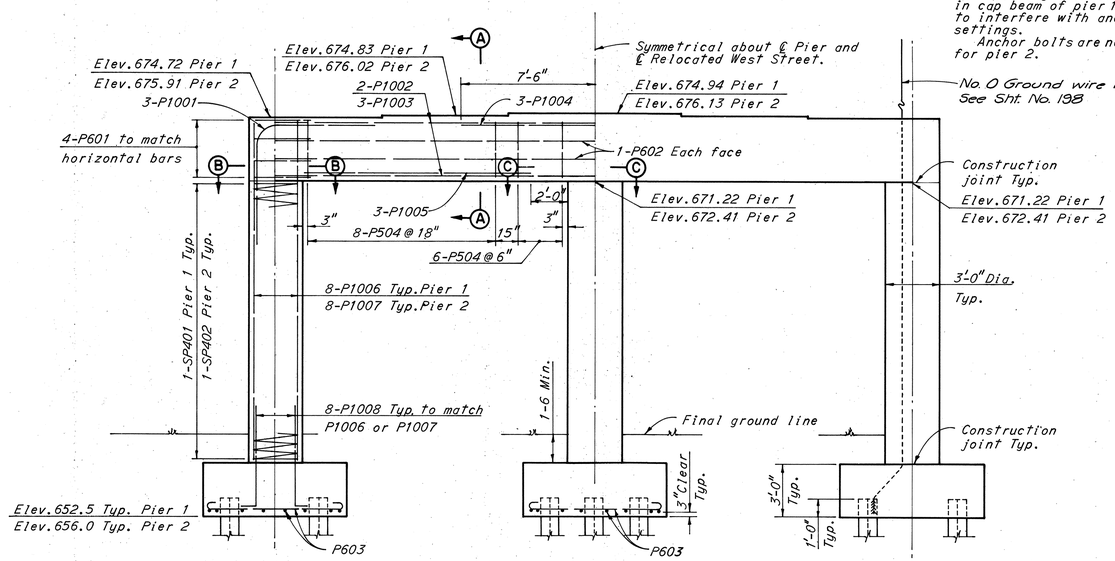


PLAN

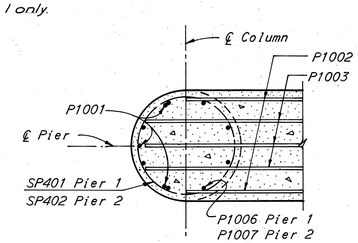


SECTION A-A

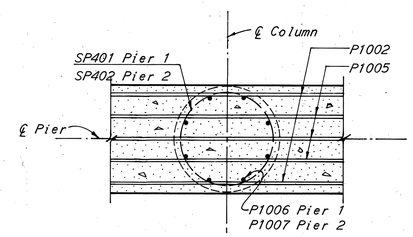
Note:
Special care shall be taken when placing reinforcing steel in cap beam of pier 1 so as not to interfere with anchor bolt settings.
Anchor bolts are not required for pier 2.



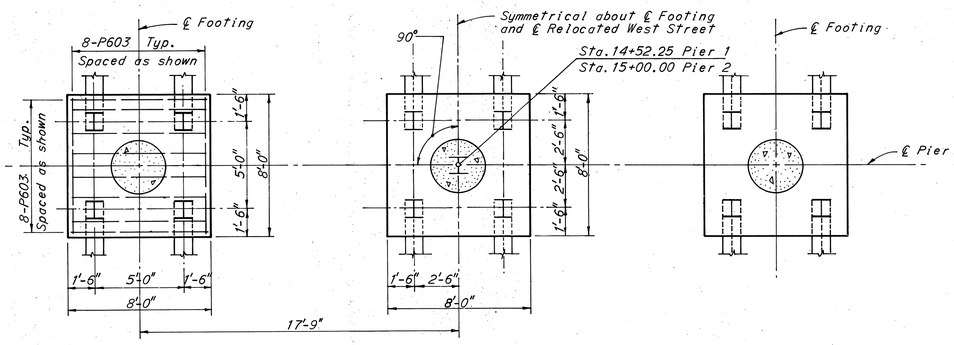
ELEVATION



SECTION B-B



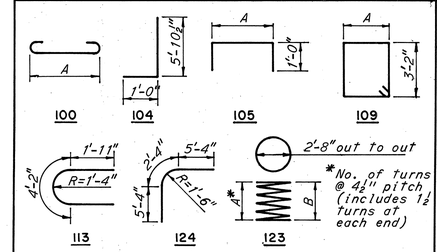
SECTION C-C



FOOTING PLAN

REINFORCEMENT SCHEDULE

MARK	NUMBER PIER 1	NUMBER PIER 2	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
SP401	3		371'-3"	123	45	15'-9"	873
SP402		3	321'-11"	123	39	13'-6"	755
P501	26	26	4'-2"	105	2'-5"		226
P502	2	2	4'-1"	105	2'-4"		18
P503	2	2	3'-6"	105	1'-9"		14
P504	28	28	12'-2"	109	2'-8¼"		712
P601	8	8	8'-0"	113			192
P602	4	4	35'-6"	Str.			426
P603	48	48	8'-10"	100	7'-6"		1274
P1001	6	6	13'-0"	124			672
P1002	4	4	35'-6"	Str.			1222
P1003	6	6	37'-6"	Str.			1936
P1004	3	3	15'-0"	Str.			388
P1005	6	6	12'-9"	Str.			658
P1006	24		19'-0"	Str.			1962
P1007		24	16'-6"	Str.			1702
P1008	24	24	6'-7"	104			1360
						Total	14,390



Spiral reinforcement shall not have deformations but shall in other respects conform to Item S-4. Four steel channel, tee or angle spacers, weighing approximately 0.68 pounds per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The spacers shall be paid for as reinforcing steel and their weight has been included in the Tabulated weights of the spiral bars.

BENDING DIAGRAMS

Notes:
All piles are 12BP53.
Pile spacings are measured along bottom of footings.
For replacement bar list see Sheet 197.
All bar dimensions are given out to out.
All battered piles are battered 3 in 12.
Piers 1 and 2 similar except as shown.
For electrical grounding requirements at Pier 1 see sheet 198.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 1 AND 2

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 1/4" = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

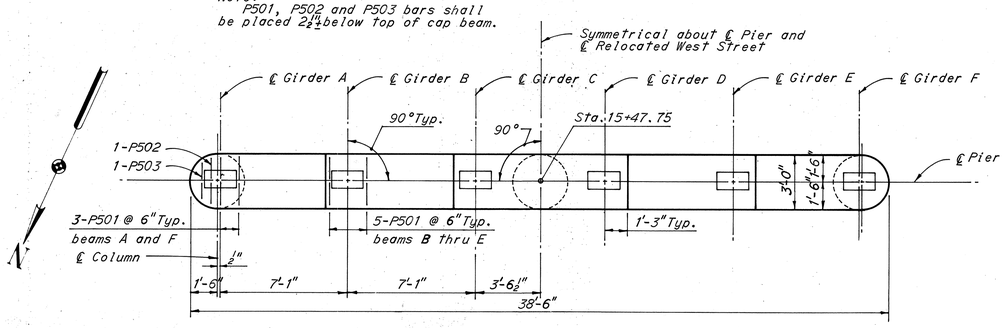
DRAWN D.E.T.	TRACED	CHECKED EDB	REVIEWED JT	REVISED	
DATE 8-29-61	DATE	DATE 9-18-61	DATE 12-14-61	949 SHEET	186

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

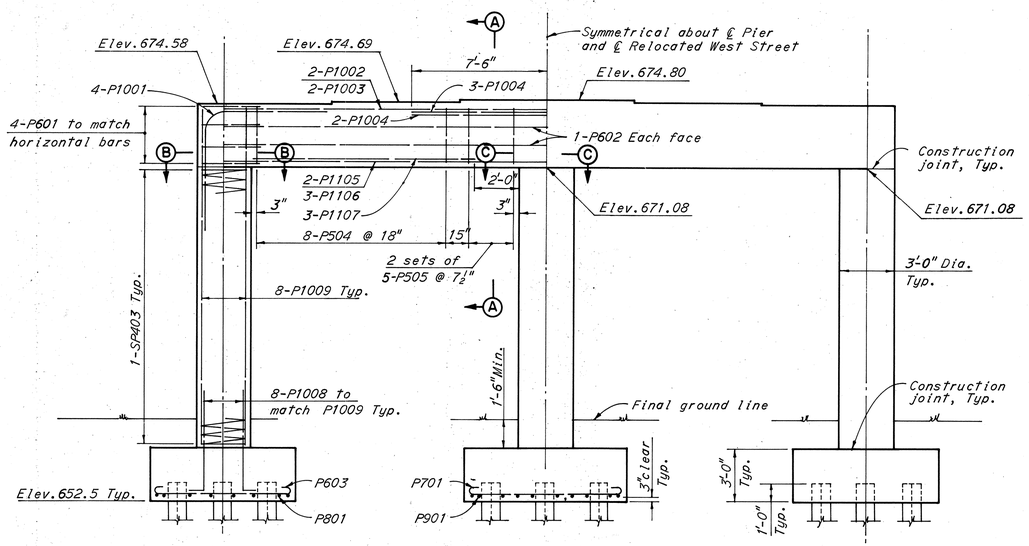
187
197

BELMONT COUNTY
BEL-40-23.89

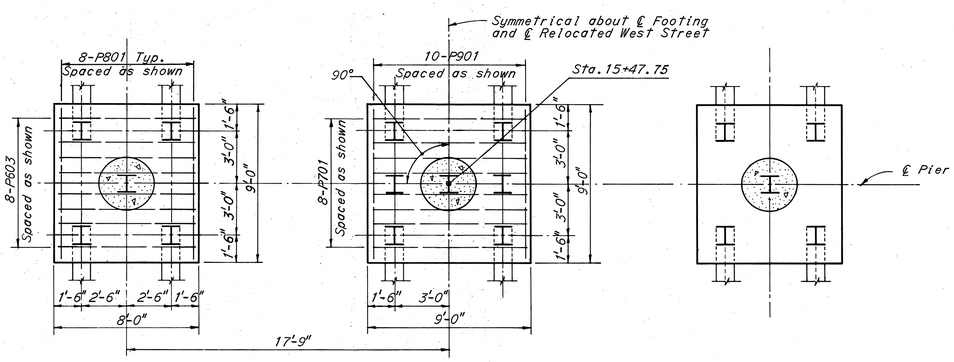
Note:
P501, P502 and P503 bars shall be placed $2\frac{1}{2}''$ below top of cap beam.



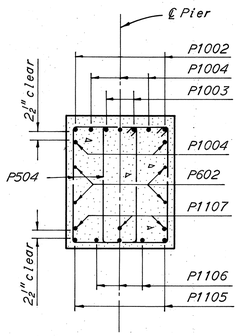
PLAN



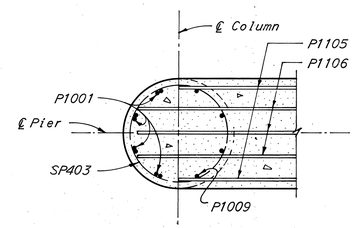
ELEVATION



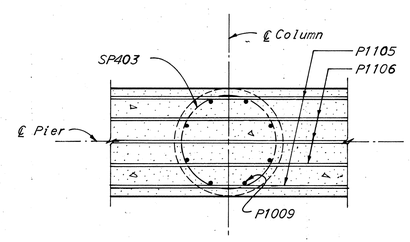
FOOTING PLAN



SECTION A-A



SECTION B-B



SECTION C-C

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
SP403	3	363'-3"	123	44	15'-4½"	854
P501	26	4'-2"	105	2'-5"		113
P502	2	4'-1"	105	2'-4"		9
P503	2	3'-6"	105	1'-9"		7
P504	16	12'-2"	109	2'-8¼"		203
P505	20	10'-6"	109	1'-10¼"		219
P601	8	8'-0"	113			96
P602	4	35'-6"	Str.			213
P603	16	8'-10"	100	7'-6"		212
P701	8	10'-2"	100	8'-6"		166
P801	16	10'-8"	100	8'-6"		456
P901	10	11'-0"	100	8'-6"		374
P1001	8	13'-0"	124			448
P1002	2	35'-6"	Str.			306
P1003	2	37'-6"	Str.			323
P1004	5	15'-0"	Str.			323
P1008	24	6'-7"	104			678
P1009	24	18'-9"	Str.			1936
P1105	2	35'-6"	Str.			377
P1106	3	37'-6"	Str.			599
P1107	6	12'-9"	Str.			408
					Total	8320

Notes:
All piles are 12BP53.
Pile spacings are measured along bottom of footings.
For replacement bar list see sheet 197.
All bar dimensions are given out to out.
All battered piles are battered 3 in 12.
For bending diagrams see sheet 186.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 3

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

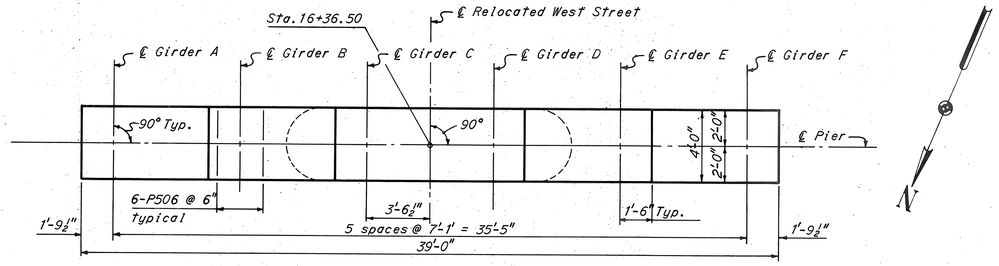
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 1/4" = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

DRAWN D.E.T.	TRACED	CHECKED EDB	REVIEWED JT	REVISED
DATE 9-7-61	DATE	DATE 9-18-61	DATE 12-14-61	949 SHEET 187

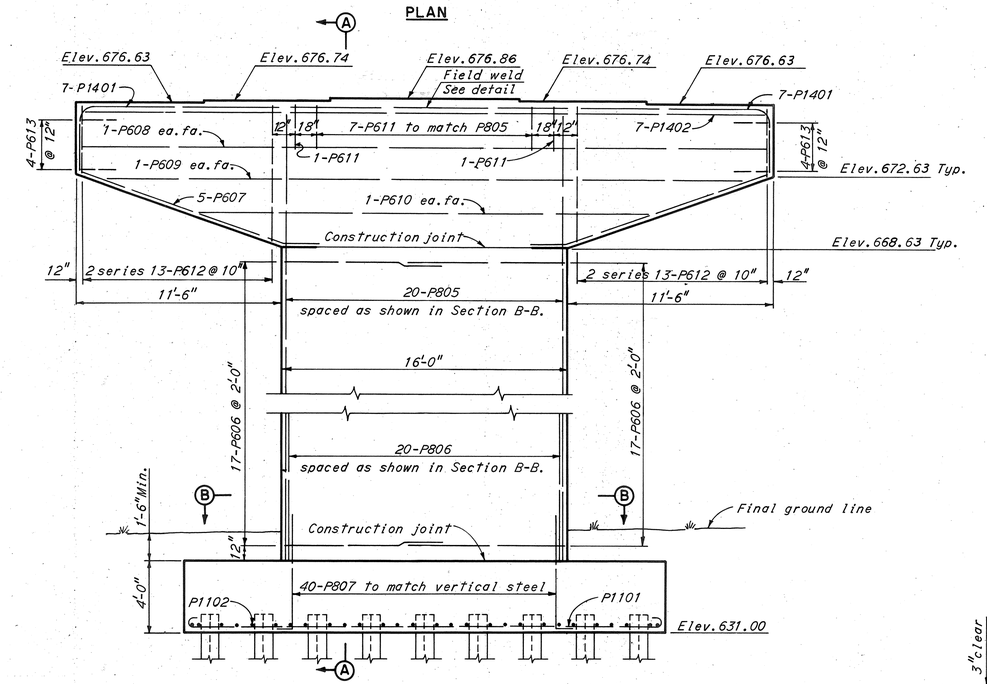
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

188 / 197

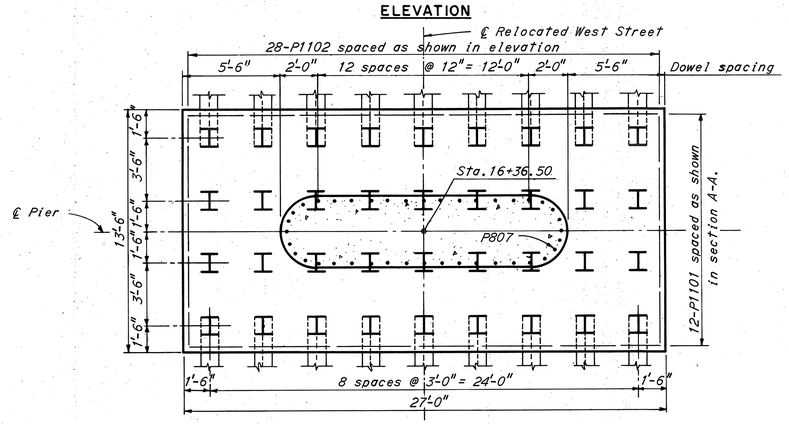
BELMONT COUNTY
BEL-40-23.89



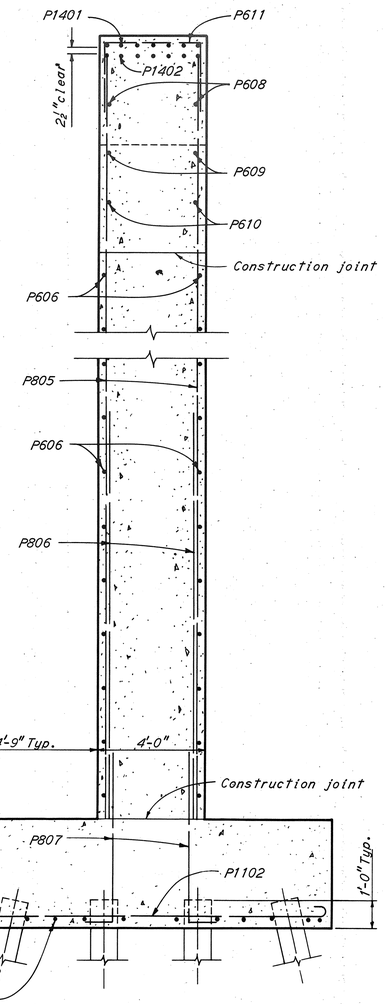
PLAN



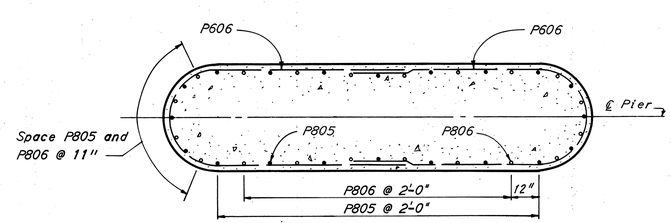
ELEVATION



FOOTING PLAN

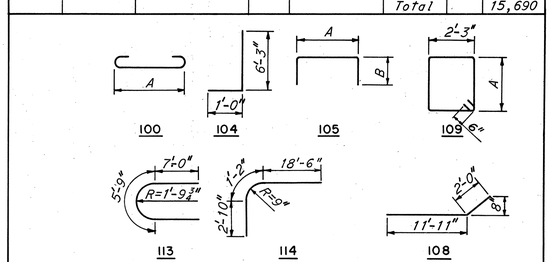


SECTION A-A
⅜" = 1'-0"



SECTION B-B
⅜" = 1'-0"

REINFORCEMENT SCHEDULE							
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SER INC.	WEIGHT POUNDS
P506	36	5'-5"	105	3'-8"	1'-0"		203
P606	34	19'-9"	113				1012
P607	10	13'-11"	108				209
P608	2	38'-0"	Str.				114
P609	2	36'-3"	Str.				109
P610	2	25'-9"	Str.				77
P611	9	7'-4"	105	3'-8"	2'-0"		99
P612	4 Ser. 13	12'-10" to 20'-2"	109	3'-11" to 7'-7"		7½"	1290
P613	8	7'-2"	105	3'-6"	2'-0"		86
P805	20	41'-0"	Str.				2190
P806	20	15'-0"	Str.				800
P807	40	7'-1"	104				756
P1101	12	29'-8"	100	26'-6"			1890
P1102	28	16'-2"	100	13'-0"			2410
P1401	14	22'-6"	114				2410
P1402	7	38'-0"	Str.				2035
					Total		15,690



BENDING DIAGRAMS

Notes:

All piles are 12BP53.

Batter all battered piles 3 in 12.

Bar dimensions are given out to out.

Bars of a series shall vary by a constant increment.

For replacement bar list see sheet 197.

Pile spacings are given along bottom of footing.

Field weld P1401 bars at centerline of pier. See Sh. 189 for detail of weld.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 4

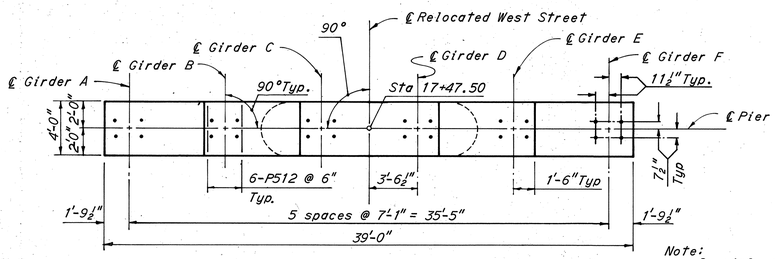
RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 1/4" = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

DRAWN EHP	TRACED	CHECKED EDB	REVIEWED JF	REVISED
DATE 9-1-61	DATE	DATE 9-20-61	DATE 12-14-61	949 SHEET 188

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		189 / 197
2	OHIO			

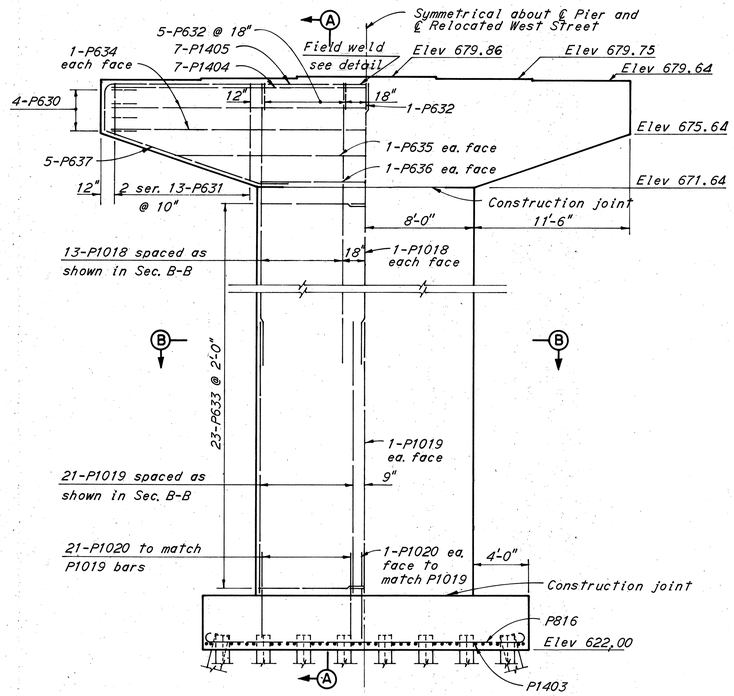
BELMONT COUNTY
BEL-40-23.89



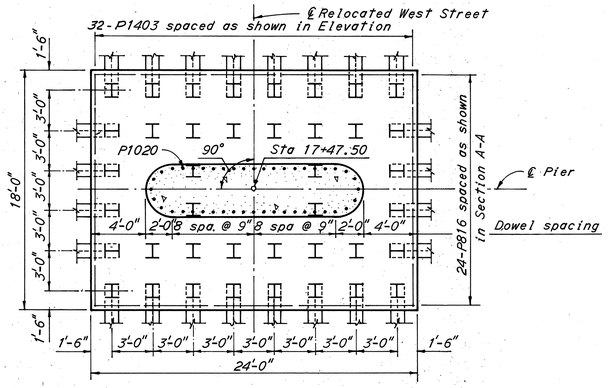
Note:
P512 bars shall be placed 2½" ± below the top of cap beam.

PLAN

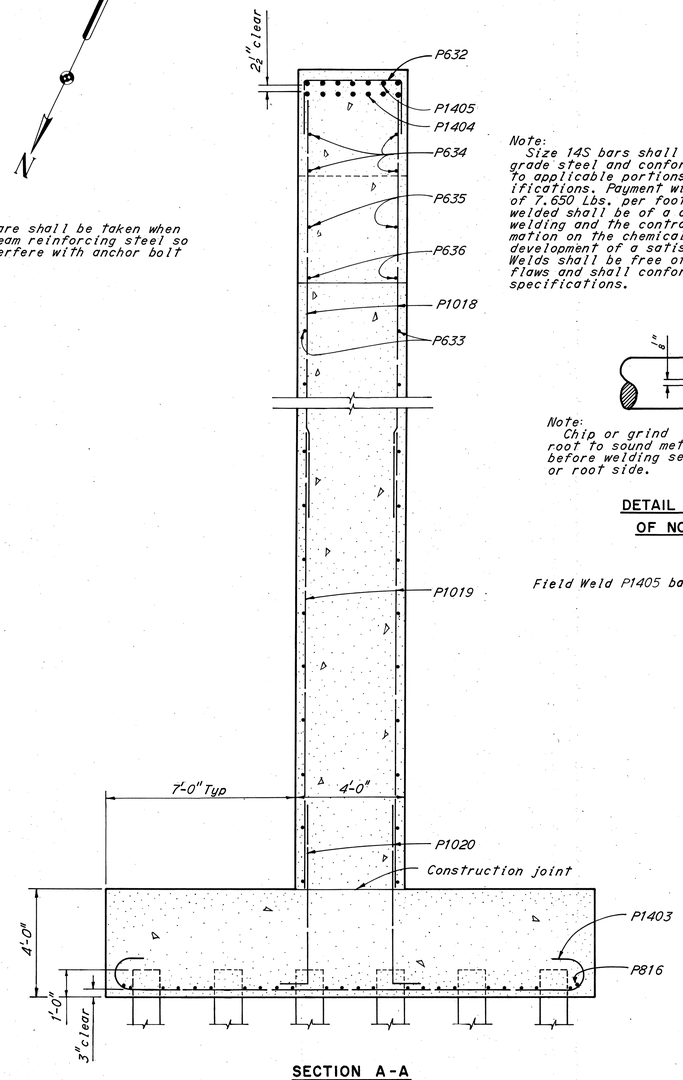
Note:
Special care shall be taken when placing cap beam reinforcing steel so as not to interfere with anchor bolt setting.



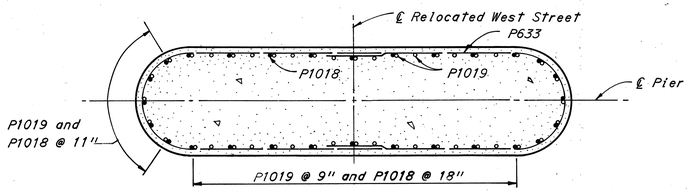
ELEVATION



FOOTING PLAN

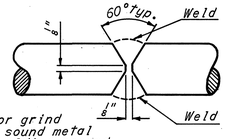


SECTION A-A
⅜" = 1'-0"



SECTION B-B
⅜" = 1'-0"

Note:
Size 14S bars shall be intermediate or hard grade steel and conform to ASTM Spec. A408 and to applicable portions of Item S-4 of the Specifications. Payment will be based on the weight of 7.650 lbs. per foot. Bars which are to be welded shall be of a composition suitable for welding and the contractor shall obtain information on the chemical composition to aid in the development of a satisfactory welding procedure. Welds shall be free of cracks or other visible flaws and shall conform to Item S-7 of the specifications.



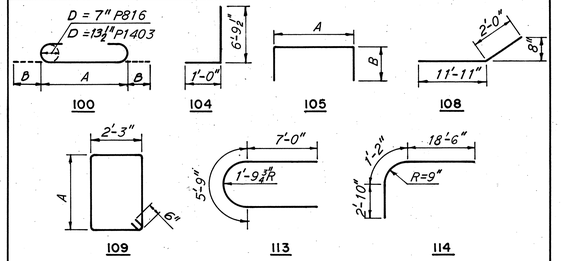
Note:
Chip or grind root to sound metal before welding second or root side.

DETAIL FOR FIELD WELDING OF NO. 14 REINF. BARS
No Scale

Field Weld P1405 bars at centerline of pier.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SER. INC.	WEIGHT POUNDS
P512	36	5'-5"	105	3'-8"	1'-0"		204
P630	8	7'-2"	105	3'-6"	2'-0"		86
P631	4 ser. 13	13'-0" to 20'-0"	109	4'-0" to 7'-6"		7"	1290
P632	11	7'-4"	105	3'-8"	2'-0"		121
P633	46	19'-9"	113				1365
P634	4	38'-0"	Str.				228
P635	2	27'-6"	Str.				83
P636	2	16'0"	Str.				48
P637	10	13'-11"	108				210
P816	24	25'-8"	100	23'-6"	1'-1"		1642
P1018	28	36'-6"	Str.				4400
P1019	44	20'-3"	Str.				3840
P1020	44	7'-6"	104				1420
P1403	32	21'-6"	100	17'-6"	2'-0"		5260
P1404	7	38'-0"	Str.				2030
P1405	14	22'-6"	114				2413
					Total		24,640



BENDING DIAGRAMS

Notes:
All piles are 12BP53.
Batter all battered piles 3 in 12.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see Sheet 197.
Pile spacings are given along bottom of footing.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 5

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

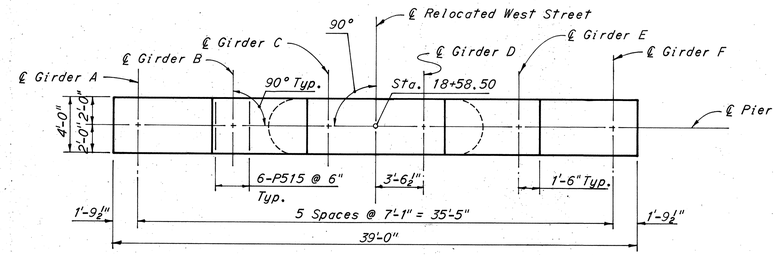
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 3/16" = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

DRAWN DET	TRACED	CHECKED EDB	REVIEWED JF	REVISED
DATE 9-18-61	DATE	DATE 9-19-61	DATE 12-14-61	949 SHEET 189

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

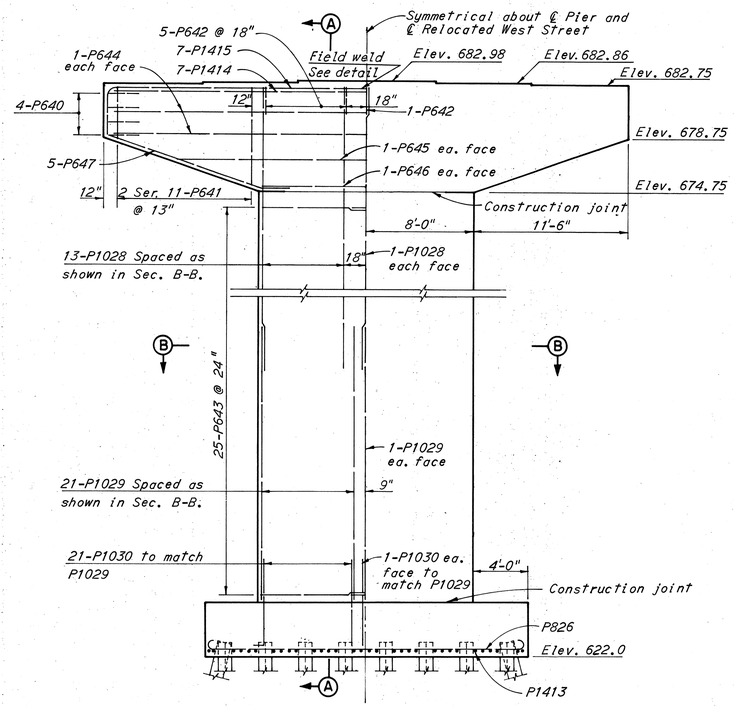
190 / 197

BELMONT COUNTY
BEL-40-23.89

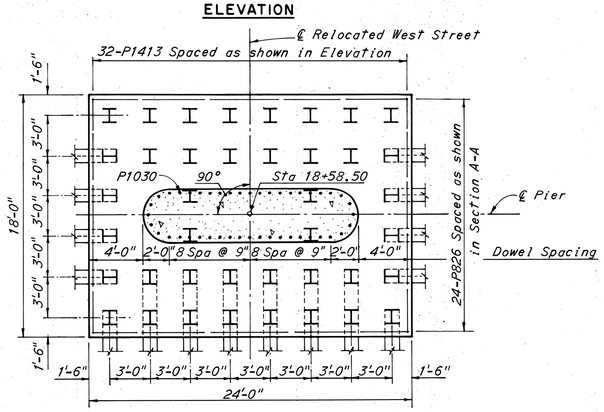


Note:
P515 bars shall be placed 2½"± below the top of cap beam.

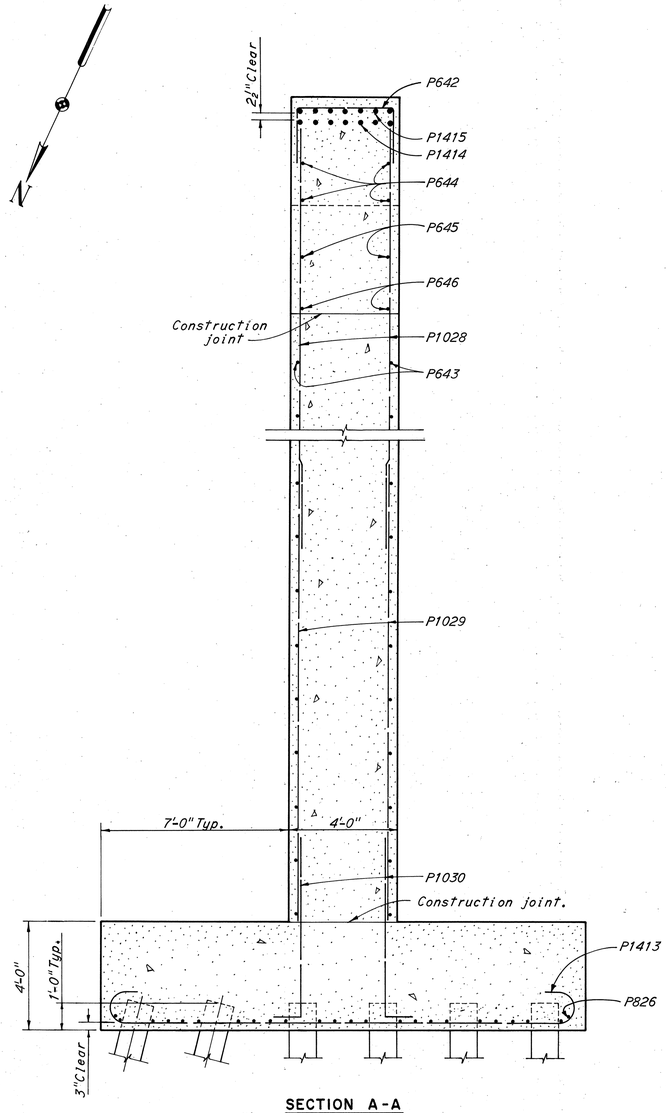
PLAN



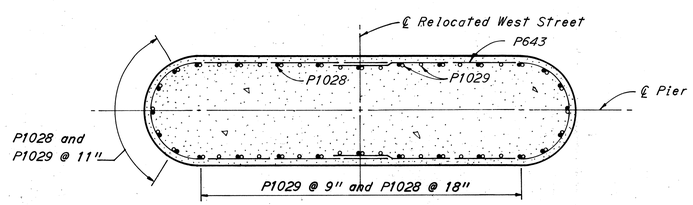
ELEVATION



FOOTING PLAN



SECTION A-A
⅜" = 1'-0"

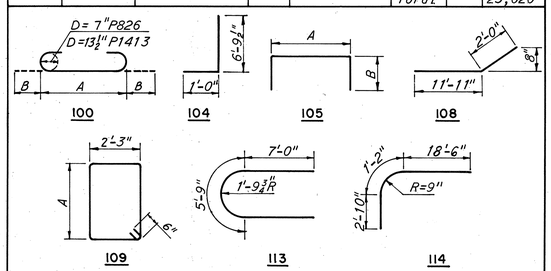


SECTION B-B
⅜" = 1'-0"

Notes:
All piles are 12BP53.
Batter all battered piles 3 in 12.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see Sheet 197.
Pile spacings are given along bottom of footing.
Field weld P1415 bars at centerline of Pier. See Sheet 189 for detail of weld.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SER. INC.	WEIGHT POUNDS
P515	36	5'-5"	105	3'-8"	1'-0"		204
P640	8	7'-2"	105	3'-6"	2'-0"		86
P641	4 Ser. 11	13'-0" to 20'-0"	109	4'-0" to 7'-6"		8⅜"	1090
P642	11	7'-4"	105	3'-8"	2'-0"		119
P643	50	19'-9"	113				1485
P644	4	38'-0"	Str.				229
P645	2	27'-6"	Str.				82
P646	2	16'-0"	Str.				48
P647	10	13'-11"	108				209
P826	24	25'-8"	100	23'-6"	1'-1"		1650
P1028	28	39'-3"	Str.				4730
P1029	44	20'-3"	Str.				3840
P1030	44	7'-6"	104				1420
P1413	32	21'-6"	100	17'-6"	2'-0"		5380
P1414	7	38'-0"	Str.				2040
P1415	14	22'-6"	114				2408
					Total		25,020



BENDING DIAGRAMS

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 6

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

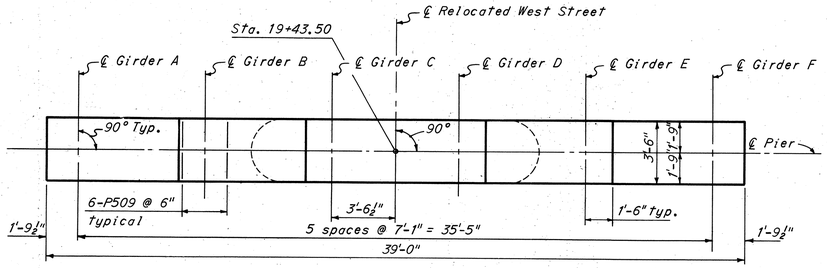
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 3/16 = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

DRAWN DET	TRACED	CHECKED EDB	REVIEWED JF	REVISED
DATE 9-25-61	DATE	DATE 10-5-61	DATE 12-14-61	949 SHEET 190

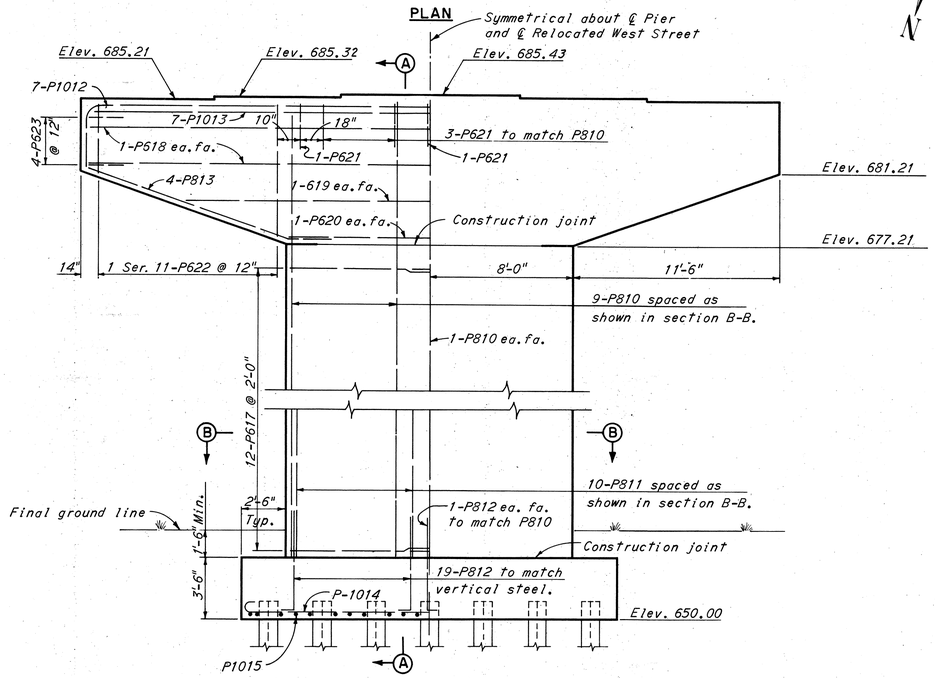
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

191 / 197

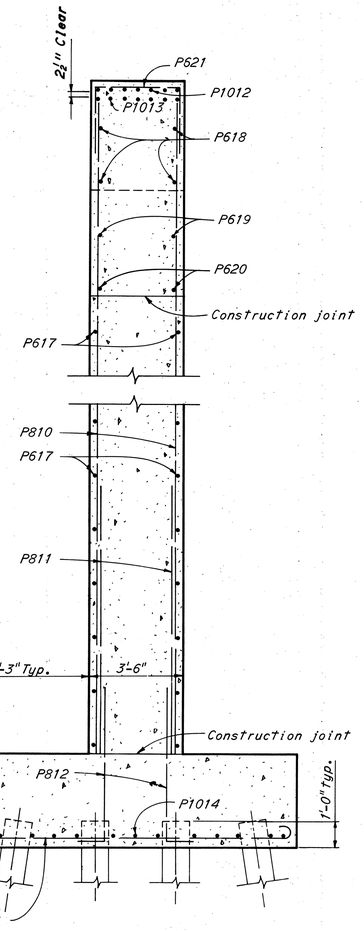
BELMONT COUNTY
BEL-40-23.89



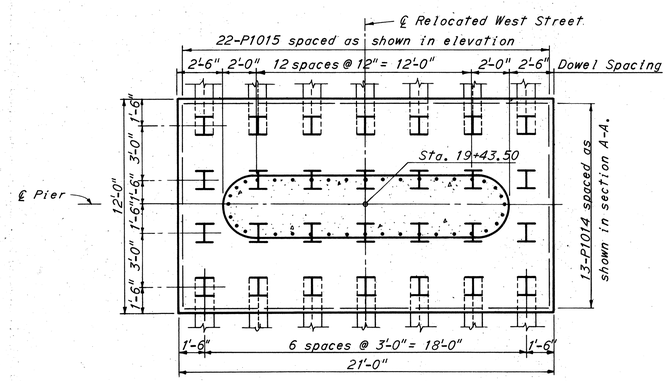
PLAN



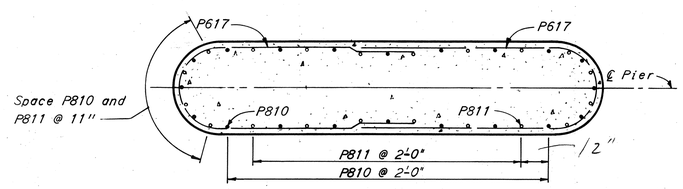
ELEVATION



SECTION A-A
⅜" = 1'-0"



FOOTING PLAN

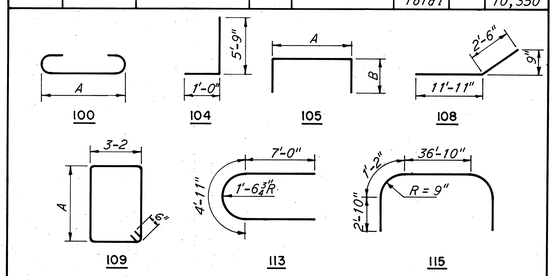


SECTION B-B
⅜" = 1'-0"

Notes:
All piles are 12 BP53.
Batter all battered piles 3 in 12.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bar list see sheet 197.
Pile spacings are given along bottom of footing.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SER. INC.	WEIGHT POUNDS
P509	36	4'-11"	105	3'-2"	1'-0"		184
P617	24	18'-11"	113				682
P618	4	38'-6"	Str				231
P619	2	27'-6"	Str				82
P620	2	16'-0"	Str				48
P621	7	6'-10"	105	3'-2"	2'-0"		72
P622	2 Ser 11	14'-10" to 22'-0"	109	4'-0" to 7'-7"		8⅝"	610
P623	8	6'-8"	105	3'-0"	2'-0"		80
P810	20	31'-3"	Str				1670
P811	20	10'-0"	Str				534
P812	40	6'-7"	104				702
P813	8	14'-5"	108				309
P1012	7	44'-10"	115				1348
P1013	7	38'-0"	Str				1140
P1014	13	23'-4"	100	20'-6"			1305
P1015	22	14'-4"	100	11'-6"			1353
					Total		10,350



BENDING DIAGRAMS

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 7

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

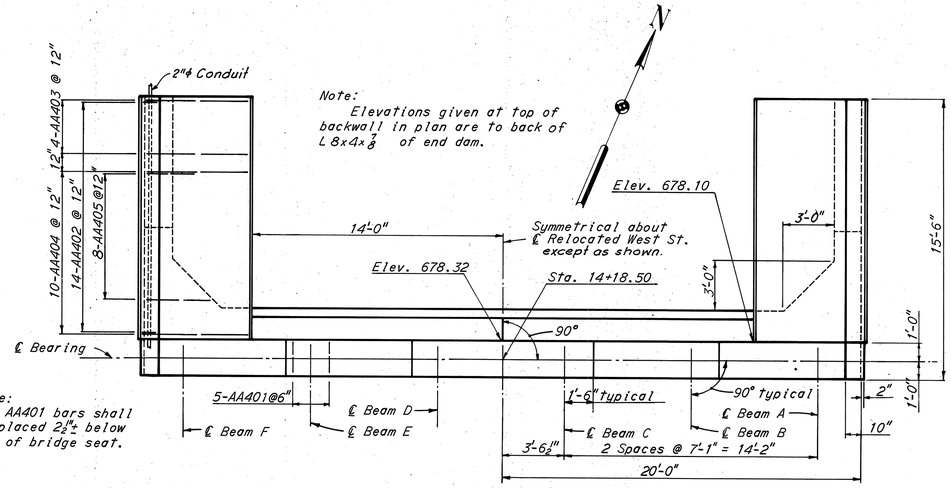
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 1/4" = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

DRAWN EHP	TRACED	CHECKED EPB	REVIEWED JF	REVISED
DATE 9-8-81	DATE	DATE 9-24-81	DATE 12-14-81	949 SHEET 191

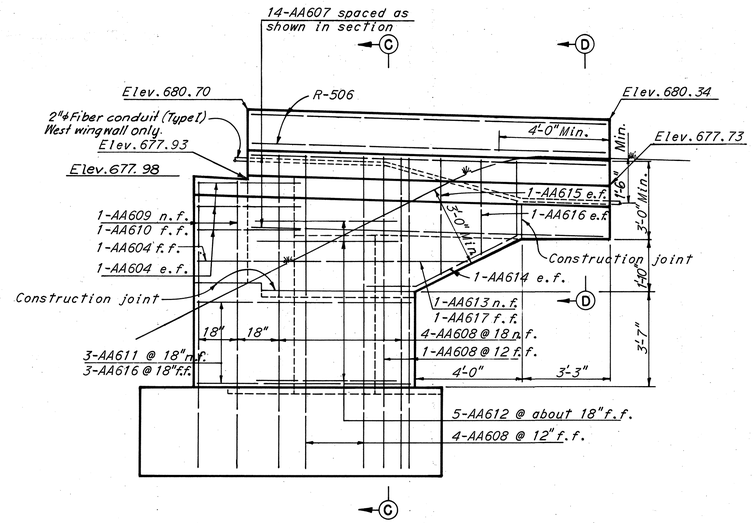
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

192 / 197

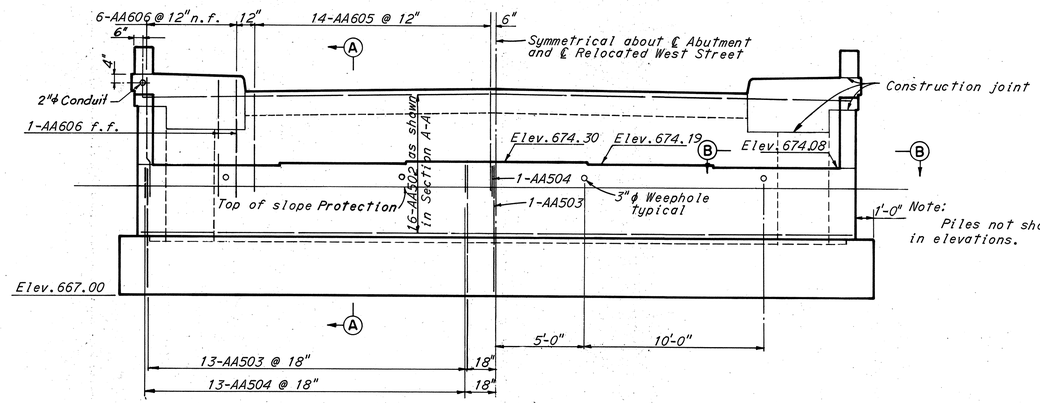
BELMONT COUNTY
BEL-40-23.89



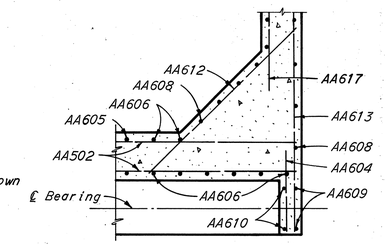
PLAN



WINGWALL ELEVATION
3/8" = 1'-0"

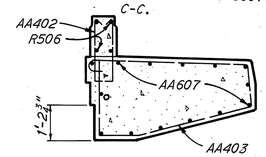


ELEVATION



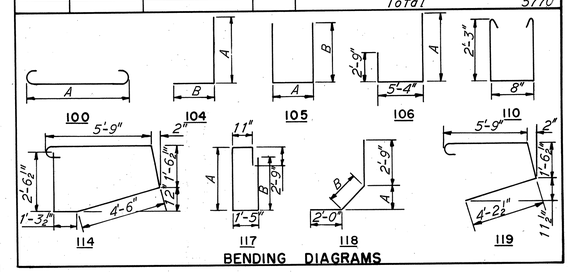
SECTION B-B
3/8" = 1'-0"

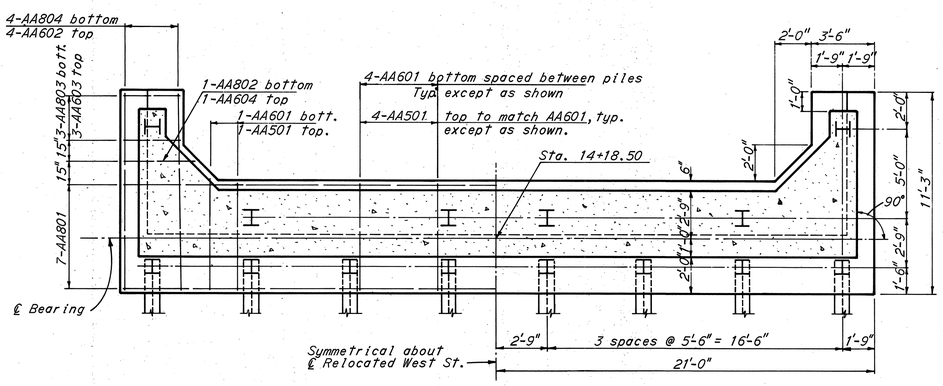
Note:
For dimensions not shown see Section C-C.



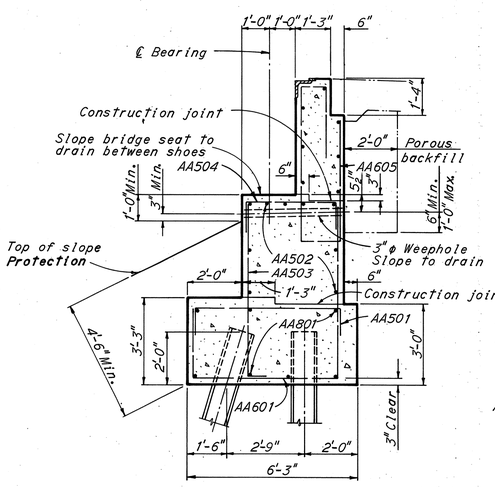
SECTION D-D
3/8" = 1'-0"

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
AA401	30	2'-11"	104	2'-0"	1'-0 1/2"	58
AA402	28	5'-8"	110			106
AA403	8	16'-0"	114			86
AA404	20	12'-0"	119			160
AA405	16	3'-0"	Str.			32
AA501	24	8'-3"	105	5'-4"	1'-7"	205
AA502	16	39'-6"	Str.			660
AA503	27	7'-6"	104	6'-7 1/2"	1'-0"	211
AA504	27	6'-4"	105	3'-5"	1'-7"	179
AA601	24	14'-3"	106	6'-6"		512
AA602	8	10'-9"	Str.			129
AA603	6	3'-0"	Str.			27
AA604	16	4'-0"	Str.			96
AA605	28	14'-5"	117	5'-8"	4'-4"	605
AA606	16	6'-9"	Str.			162
AA607	28	13'-0"	Str.			545
AA608	20	12'-3"	104	11'-5"	1'-0"	368
AA609	4	11'-4"	104	10'-6"	1'-0"	68
AA610	4	5'-6"	Str.			33
AA611	6	7'-9"	Str.			70
AA612	10	7'-6"	Str.			113
AA613	2	10'-0"	Str.			30
AA614	4	9'-0"	118	1'-10"	4'-3"	54
AA615	4	4'-3"	Str.			26
AA616	10	3'-6"	Str.			53
AA617	2	5'-3"	Str.			16
AA801	7	41'-6"	Str.			775
AA802	2	6'-1"	100	3'-11"		32
AA803	6	5'-2"	100	3'-0"		83
AA804	8	12'-11"	100	10'-9"		276
					Total	5770

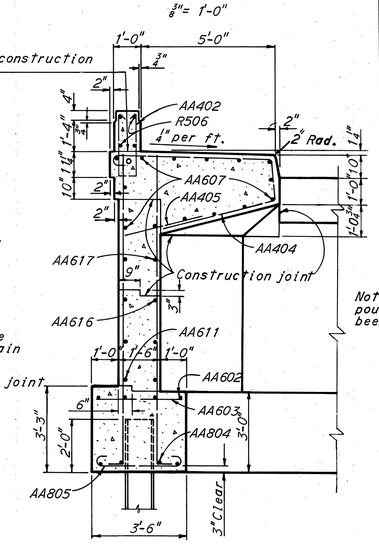




FOOTING PLAN



SECTION A-A
3/8" = 1'-0"



SECTION C-C
3/8" = 1'-0"

Note: Sidewalk shall be poured after backfill has been placed.

Notes:
For replacement bar list see Sheet 197.
Bar dimensions are given out to out.
n.f. denotes near face, f.f. denotes far face and e.f. denotes each face.
All piles shall be 10BP42.
All pile dimensions are measured at bottom of footing.
All battered piles shall be battered 3 in 12.
For end dam details see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTH ABUTMENT

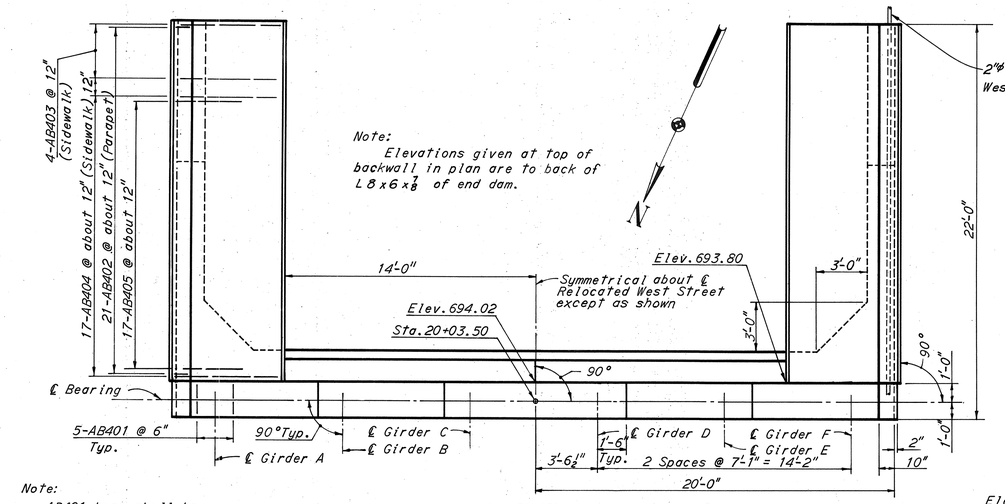
RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 1/4" = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

DRAWN G.D.	TRACED	CHECKED R.H.S.	REVIEWED J.T.	REVISED
DATE 10-6-61	DATE	DATE 1-8-61	DATE 12-14-61	949 SHEET 192

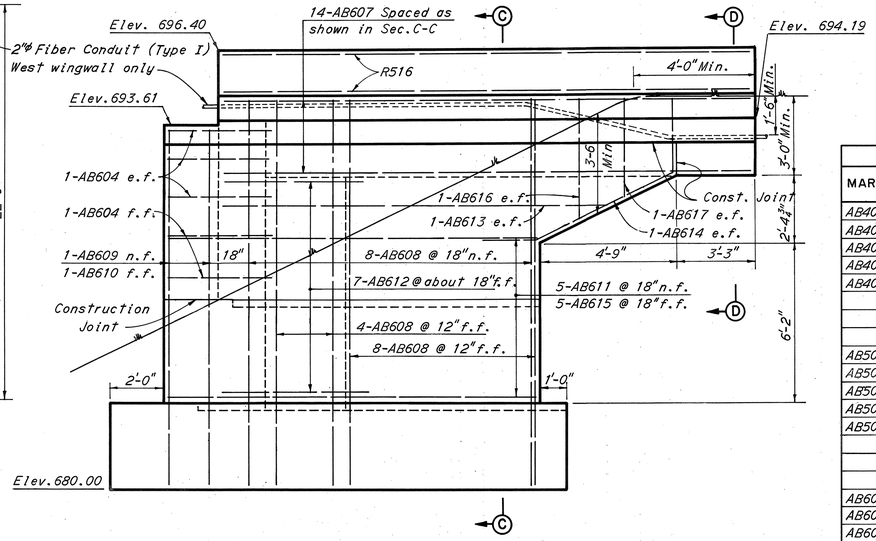
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

BELMONT COUNTY
BEL-40-23.89



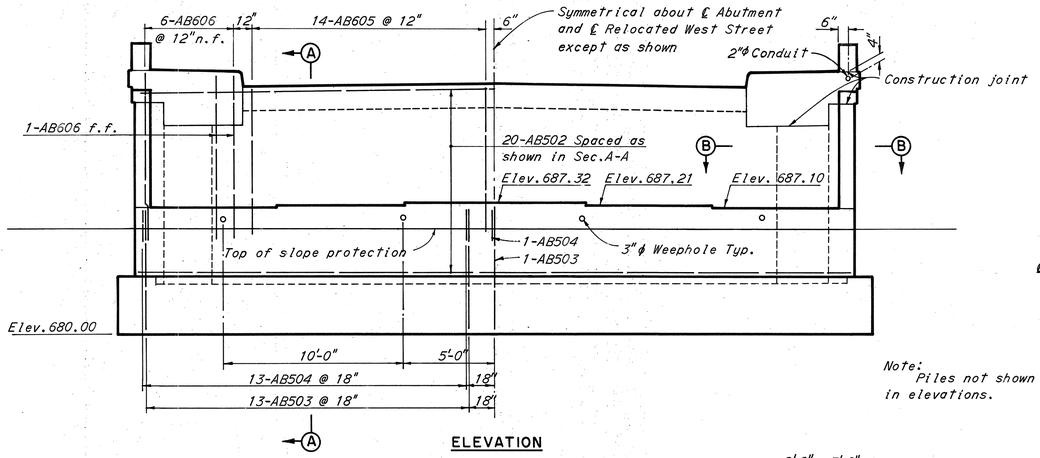
Note:
AB401 bars shall be placed 2½"± below top of bridge seat.

PLAN



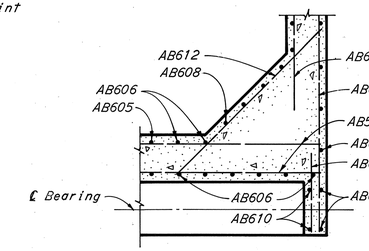
TYPICAL WINGWALL ELEVATION
⅜" = 1'-0"

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
AB401	30	2'-11"	104	2'-0"	1'-0½"	59
AB402	42	5'-8"	110			159
AB403	8	16'-0"	114			85
AB404	34	12'-0"	119			272
AB405	34	3'-0"	Str.			68
AB501	26	8'-3"	105	5'-4"	1'-7"	224
AB502	20	39'-6"	Str.			825
AB503	27	7'-7"	104	6'-8½"	1'-0"	214
AB504	27	5'-2"	105	3'-5"	1'-0"	146
AB505	2	9'-3"	105	6'-4"	1'-7"	19
AB601	26	14'-3"	106	6'-6"		556
AB602	8	16'-6"	Str.			198
AB608	16	3'-0"	Str.			72
AB604	16	4'-0"	Str.			96
AB605	28	20'-7"	117	8'-9"	7'-5"	865
AB606	16	9'-6"	Str.			228
AB607	28	19'-6"	Str.			820
AB608	40	14'-7"	104	13'-9"	1'-0"	875
AB609	4	13'-11"	104	13'-1"	1'-0"	84
AB610	4	8'-6"	Str.			51
AB611	10	13'-6"	Str.			203
AB612	14	7'-6"	Str.			158
AB613	4	14'-3"	Str.			86
AB614	4	10'-5"	118	2'-5"	5'-8"	63
AB615	10	9'-3"	Str.			139
AB616	4	4'-3"	Str.			26
AB617	4	3'-6"	Str.			21
AB618	2	11'-8"	105	6'-6"	2'-9"	35
AB801	7	41'-6"	Str.			776
AB802	2	6'-5"	100	4'-3"		34
AB803	16	5'-2"	100	3'-0"		221
AB804	8	16'-6"	Str.			352
					Total	8030



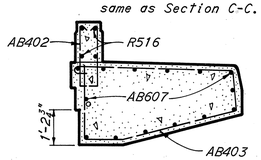
ELEVATION

Note:
Piles not shown in elevations.

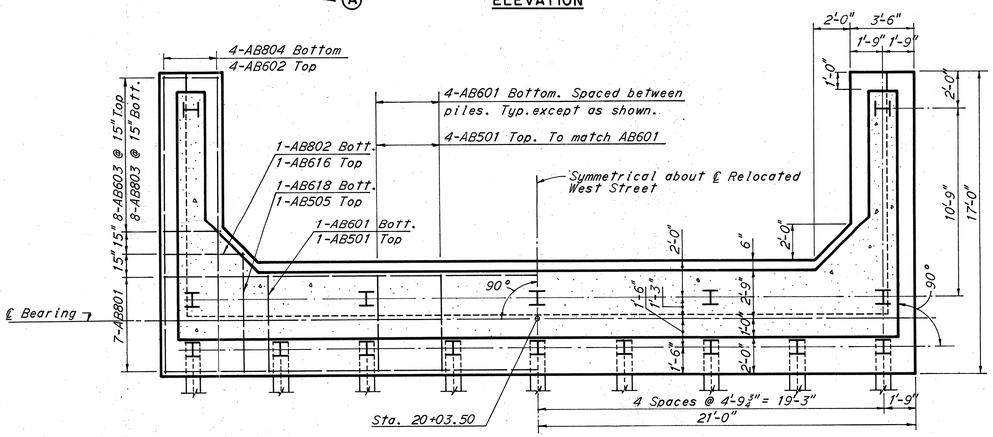


SECTION B-B
⅜" = 1'-0"

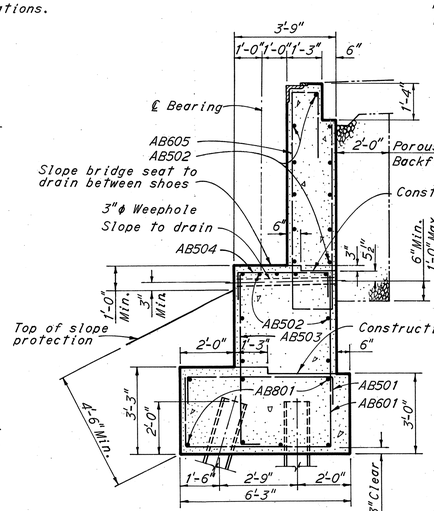
Note:
Dimensions not shown same as Section C-C.



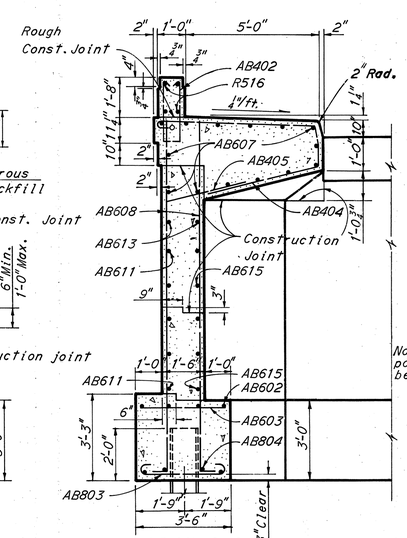
SECTION D-D
⅜" = 1'-0"



FOOTING PLAN



SECTION A-A
⅜" = 1'-0"



SECTION C-C
⅜" = 1'-0"

Note: Sidewalk shall be poured after backfill has been placed.

Notes:
For bending diagrams see Sheet 192.
For replacement bar list see Sheet 197.
Bar dimensions are given out to out.
n.f. denotes near face, f.f. denotes far face and e.f. denotes each face.
All piles shall be 10BP42.
All pile dimensions are measured at bottom of footing.
All battered piles shall be battered 3 in 12.
For end dam details see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTH ABUTMENT

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

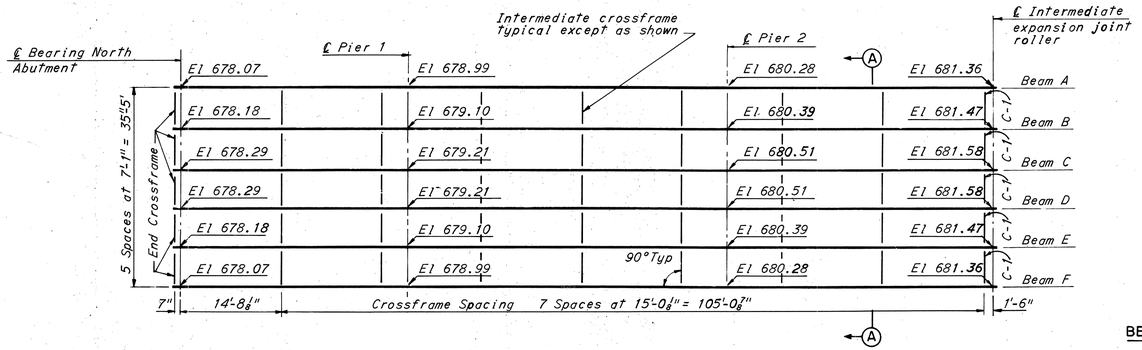
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: 1/4" = 1'-0" STA. 20+05.75
BELMONT CO. OHIO

DRAWN E.T.	TRACED	CHECKED LDB	REVIEWED JT	REVISED
DATE 10-30-61	DATE	DATE 11-3-61	DATE 12-14-61	949 SHEET 193

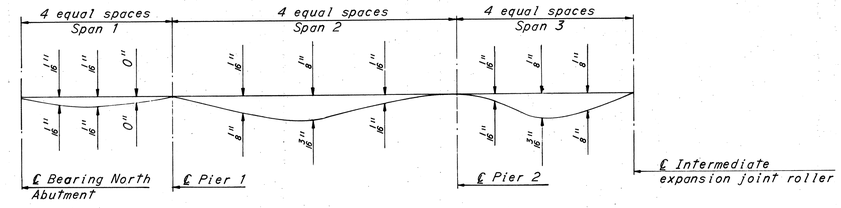
FED. ROADS DIV. NO.	STATE	FED. AID. PROJ. NO.	
2	OHIO		

BELMONT COUNTY
BEL-40-23.89

Note:
Elevations shown are to top of pavement.



FRAMING PLAN



DEAD LOAD DEFLECTION DIAGRAM

Note:
Total dead load deflections are shown below the line and deflections due to concrete only are above the line. Deflections are measured to the nearest 1/16". Beams do not require camber.

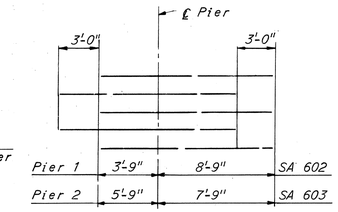
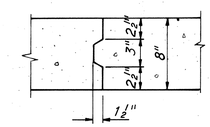


DIAGRAM SHOWING STAGGERED SA602 & SA603 BARS OVER PIERS

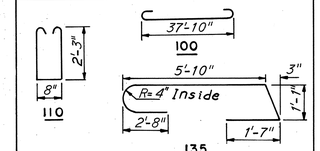
BEAM SPLICE WELDING PROCEDURE

1. Weld bottom flange cover plate to beam on one side of joint only, at Piers 1 and 2.
2. Raise beam end 3/8" at Pier 1 and follow steps 3,4,5 and 6 at Pier 2.
3. Butt weld the beam flanges and web using the following sequence: make two passes on each flange, then two on the web; repeat, using one pass at each location until the welds are complete.
4. Weld the top cover plate on each side of joint.
5. Complete welding of bottom cover plate.
6. Lower beam end to final position.
7. Raise end of beam 3/8" at North abutment and follow steps 3,4,5 and 6 at Pier 1.

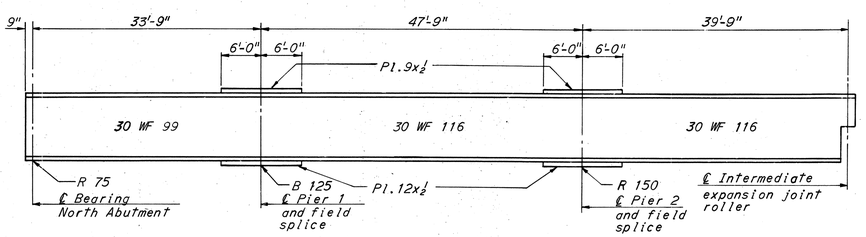


OPTIONAL TRANSVERSE CONSTRUCTION JOINT

REINFORCEMENT SCHEDULE				
MARK	NUMBER	LENGTH	TYPE	WEIGHT POUNDS
SA 401	246	5'-8"	110	929
SA 501	246	11'-8"	135	3250
SA 502	225	39'-0"	100	9150
SA 503	42	41'-6"	Str.	1815
SA 601	210	41'-6"	Str.	13,080
SA 602	32	12'-6"	Str.	600
SA 603	32	13'-6"	Str.	646
SA 604	225	37'-9"	Str.	12,740
Light	standard	support		280
		Total		42,490



BENDING DIAGRAMS

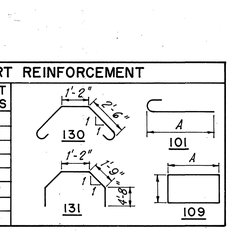


BEAM ELEVATION

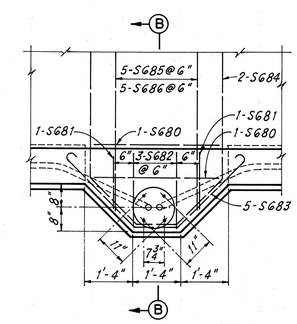
Typical for beams B,C,D and E.
Beams A and F similar except for beam transition. See Sheet 196.

LIGHT STANDARD SUPPORT REINFORCEMENT

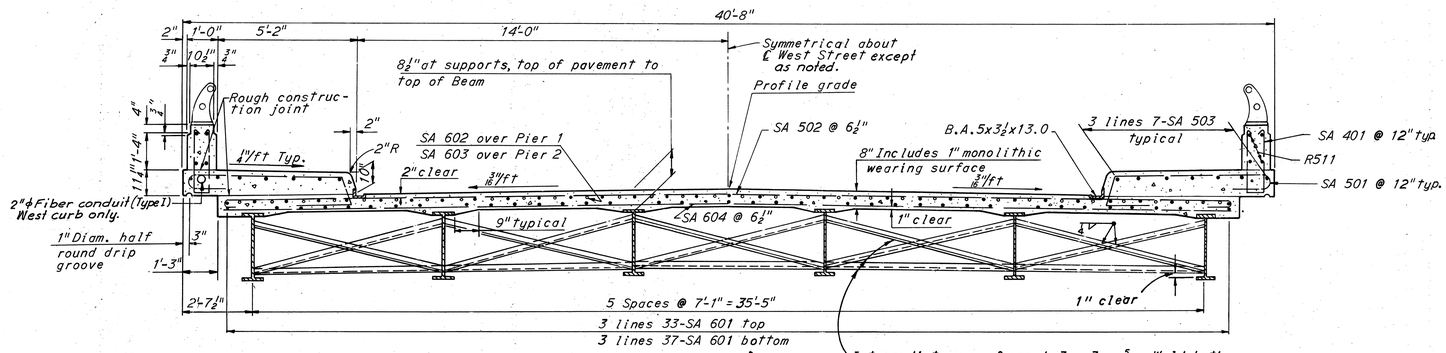
MARK	NO.	LENGTH	TYPE	DIMENSION A	DIMENSION B	WEIGHT POUNDS
S680	2	3'-9"	Str.			11
S681	2	9'-11"	109	1'-7"	3'-0"	30
S682	3	10'-9"	109	2'-0"	3'-0"	48
S683	5	7'-6"	130			55
S684	2	13'-8"	131			41
S685	5	6'-8"	101	6'-0"		50
S686	5	6'-0"	Str.			45
			Total Weight =			280



Note:
Total weights shown are for one Light Standard Support.



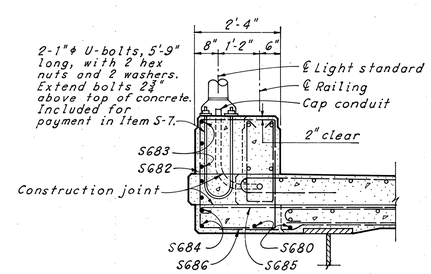
PLAN
1/2" = 1'-0"



Note:
The haunch in the deck slab adjacent to the top of the steel beams, which is shown as 9" wide, may vary from this dimension with a minimum of 6" and maximum of 12". Maximum slope of haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.

SECTION A-A
3/8" = 1'-0"

Intermediate crossframe L 3 x 3 x 5/16". Weld both sides of vertical leg and top side of horizontal leg to beam with 1/4" continuous fillet weld.



SECTION B-B
1/2" = 1'-0"

LIGHT STANDARD SUPPORT

Notes:

For end crossframe details see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.
For expansion joint details at north abutment see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.
For intermediate expansion joint details see Sheet 196.
For beam splice details at Pier 1 see Bridge No. 1, Sheet 167.
For beam splice details at Pier 2, see Ohio Standard Drawing CSB-2-56, Sheet 3 of 6, except web shall not be ground.
For railing post and parapet joint spacing see Sheet 161.
For details of rockers and bolsters see Ohio Standard Drawing RB-1-55.
For longitudinal steel in parapet see Sheet 161.
Bar dimensions are given out to out.
For replacement bar list see Sheet 197.
For details of crossframe C1 see Sh. 197.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SUPERSTRUCTURE — UNIT 1

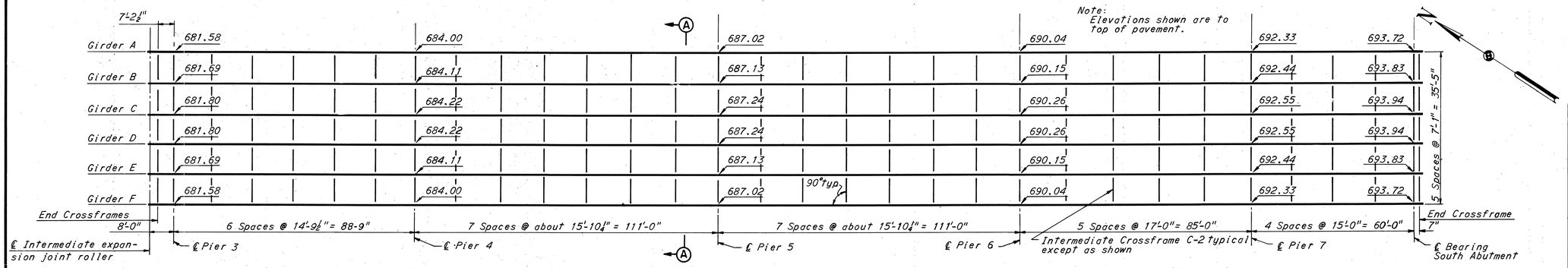
RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: NONE STA. 20+05.75
BELMONT CO. OHIO

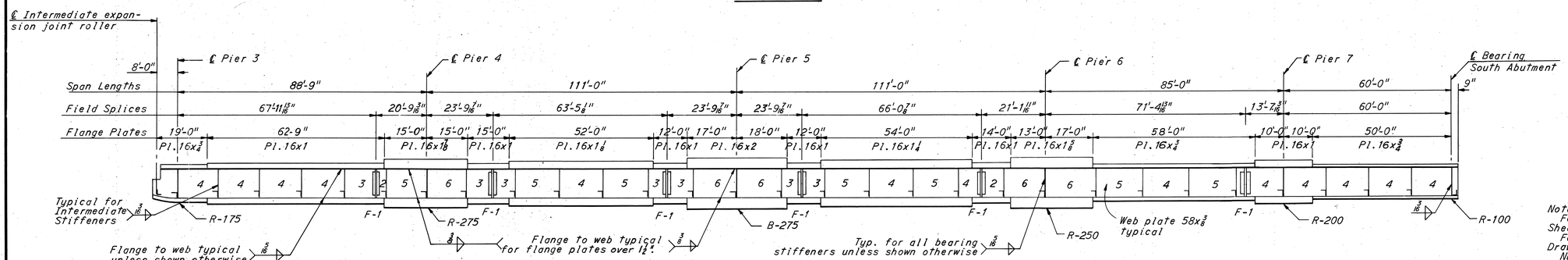
DRAWN HDP	TRACED	CHECKED SMA	REVIEWED JT	REVISED
DATE 10-6-61	DATE	DATE 10-25-61	DATE 2-14-61	949 SHEET 194

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

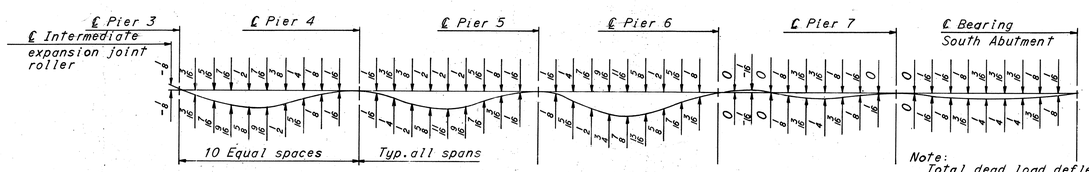
BELMONT COUNTY
BEL-40-23.89



FRAMING PLAN



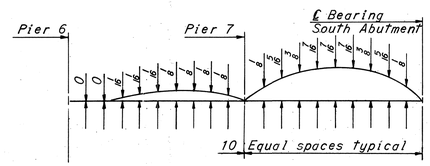
TYPICAL GIRDER ELEVATION



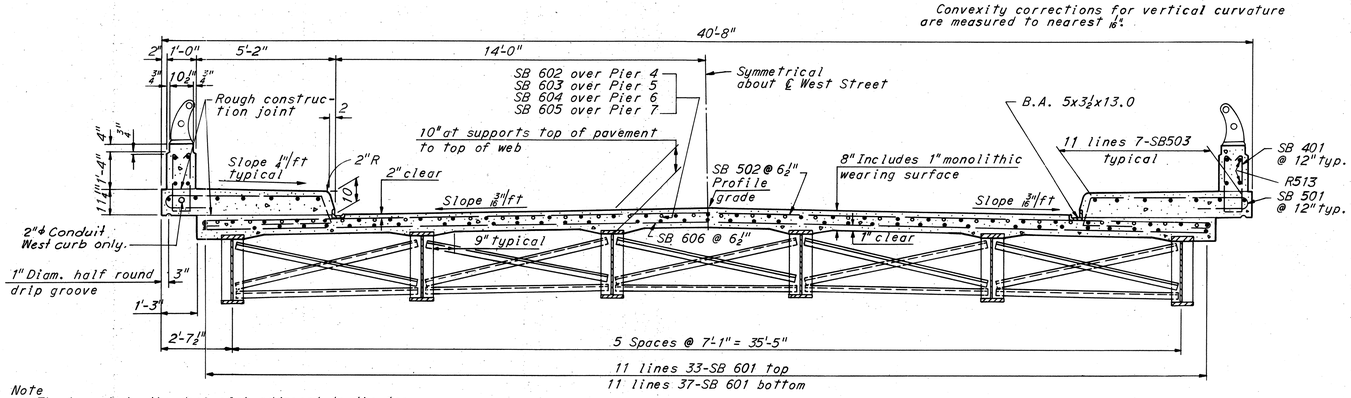
DEAD LOAD DEFLECTION DIAGRAM

Note:
Total dead load deflections are shown below the line and deflections due to concrete only are above the line. Deflections are measured to nearest 1/16".

Convexity corrections for vertical curvature are measured to nearest 1/16".



CONVEXITY CORRECTIONS FOR VERTICAL CURVATURE



SECTION A-A
3/8" = 1'-0"

Note
The haunch in the deck slab adjacent to the top of the steel girders, which is shown as 9" wide, may vary from this dimension with a minimum of 6" and maximum of 12". Maximum slope of haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.

Girder Notes:
The girders shall be fabricated to lines parallel to profiles formed by top of pavement elevations directly over the girders, plus the camber required to compensate for dead load deflections and convexity corrections.

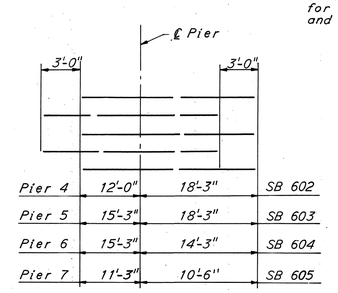
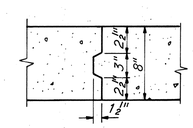


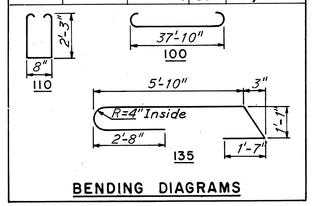
DIAGRAM SHOWING STAGGERED SB602, SB603, SB604, SB605 BARS OVER PIERS



OPTIONAL TRANSVERSE CONSTRUCTION JOINT

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	WEIGHT (POUNDS)
SB 401	930	5'-8"	110	3522
SB 501	930	11'-8"	135	11,320
SB 502	856	39'-0"	100	34,820
SB 503	154	43'-6"	Str.	6987
Light	standard	support		560
SB 601	770	44'-0"	Str.	50,888
SB 602	32	30'-3"	Str.	1454
SB 603	32	33'-6"	Str.	1610
SB 604	32	29'-6"	Str.	1420
SB 605	32	21'-9"	Str.	1048
SB 606	856	37'-9"	Str.	48,531
		Total		162,160



BENDING DIAGRAMS

Notes:
For intermediate crossframe C-2 details see Sheet 197.
For end crossframe details see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.
Numbers shown on girder webs indicate the number of stiffener spaces between crossframes or crossframes and field splices or crossframes and bearing stiffeners. Where no number is indicated, one stiffener space is required.
Intermediate stiffeners shall be plates 6x3/8 placed in pairs on all girders. At field splices, L6x4x3/8 shall be used in lieu of the Pls.6x3/8.
Bearing stiffeners shall be as follows: at Pier 3 - 2 Pls.6x3/8; Pier 4 - 2 Pls.8x3/4; Pier 5 - 2 Pls.8x3/4; Pier 6 - 2 Pls.8x3/4; Pier 7 - 2 Pls. 6x3/4; South Abutment - 2 Pls.6x3/4.
The intermediate stiffeners shall not be welded to the girder flanges but shall be fitted to the flanges in close enough contact so that the shop paint will fill and close the openings.
The bearing stiffeners at piers and abutment shall be fully grooved and butt welded to the lower flange and fitted in close contact with upper flange.
For details of rockers and bolsters, see Ohio Standard Drawing RB-1-55.
For detail of field splice, see Sheet 196.
Top and bottom flanges are identical.
For intermediate expansion joint details, see Sheet 196.
For roadway end dam details at South Abutment, see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6. The main angle 8x4x3/8 in the Roadway End Dam table shall be increased to L8x6x3/8.
For girder end transition details at intermediate expansion joint, see Sheet 196.
For details of shop butt welds of flanges and of web plates, see Sheet 197.
All stiffeners shall be placed normal to profile grade.
For details of Type C Railing, see Ohio Standard Drawing AR-1-57.
For longitudinal steel in parapet, see Sheet 161.
Bar dimensions are given out to out.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SUPERSTRUCTURE- UNIT 2

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

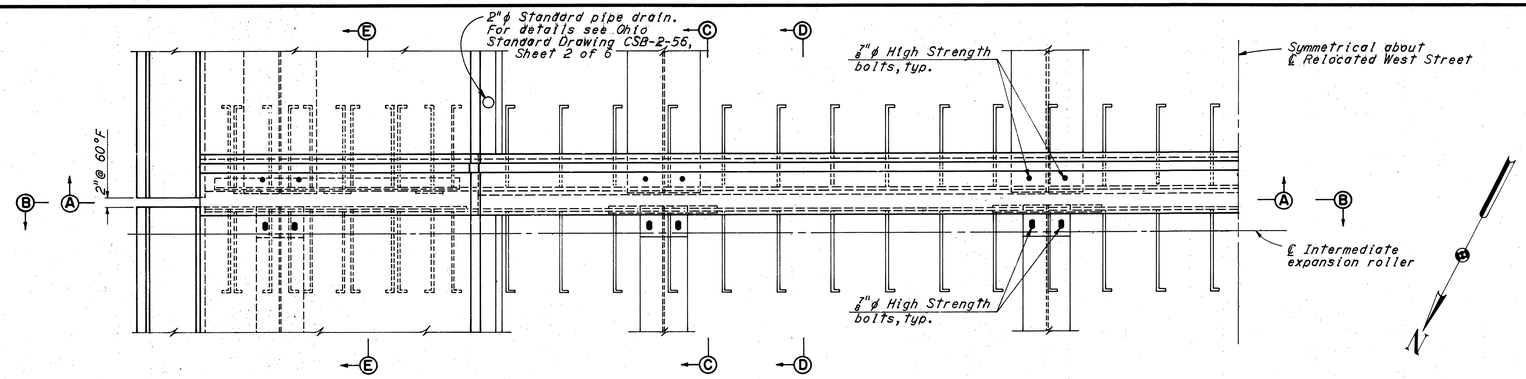
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: NONE STA. 20+05.75
BELMONT CO. OHIO

DRAWN HDP	TRACED	CHECKED SMA	REVIEWED JT	REVISED
DATE 10/12/61	DATE	DATE 10-27-61	DATE 12-14-61	949 SHEET 195

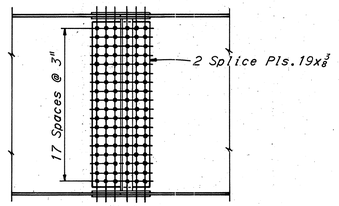
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

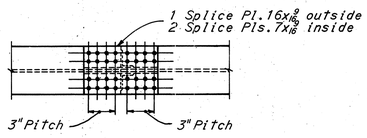
196 / 197

BELMONT COUNTY
BEL-40-23.89

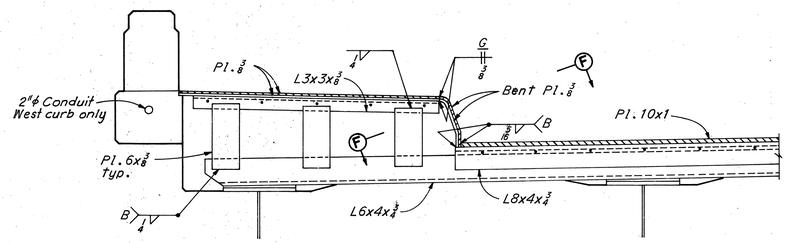


PART PLAN INTERMEDIATE EXPANSION JOINT
3/4"=1'-0"

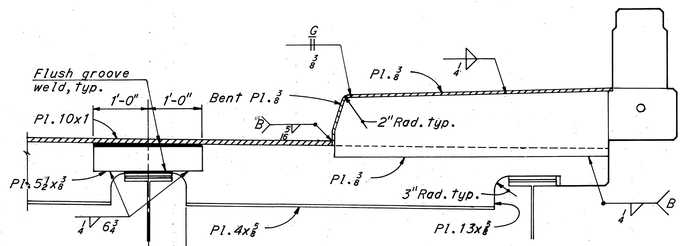




GIRDER FIELD SPLICE F-1
1/2"=1'-0"



SECTION A-A
3/4"=1'-0"



SECTION B-B
3/4"=1'-0"

Notes

The rocker plates and adjustable bearing plates shall be fabricated of alloy steel conforming to A.S.T.M. A441. The spacer plate and tooth bars shall be fabricated of structural carbon steel.

Girder field splices shall be made with 7/8"ϕ high strength bolts. The bolts shall be placed with the heads on the outside face of exterior girders and on the bottom of girder flanges.

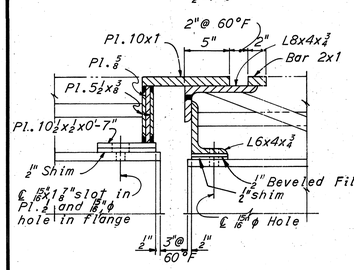
Both top and bottom flange splice plates are identical.

Shop splices may be located as required by available plate lengths.

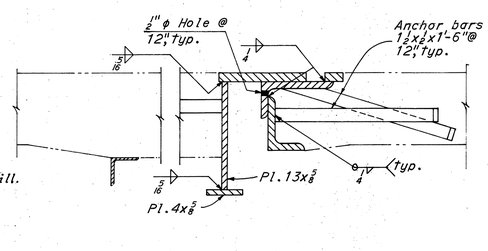
The lineal correction shown in the roller positioning diagram indicates the position of the roller to be expected if the temperature at the time of erection is other than 60°F. Any deviation in these, due to irregularities in the erected steel, shall be corrected by shifting each adjustable bearing plate one-half the total correction necessary.

For butt weld details see Sheet 197.

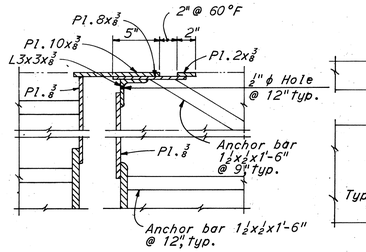
Transition all girders as shown. Only beams A and F shall be transitioned.



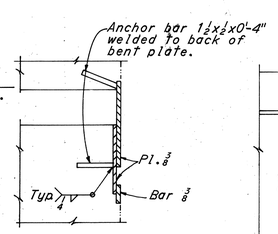
SECTION C-C
1 1/2"=1'-0"



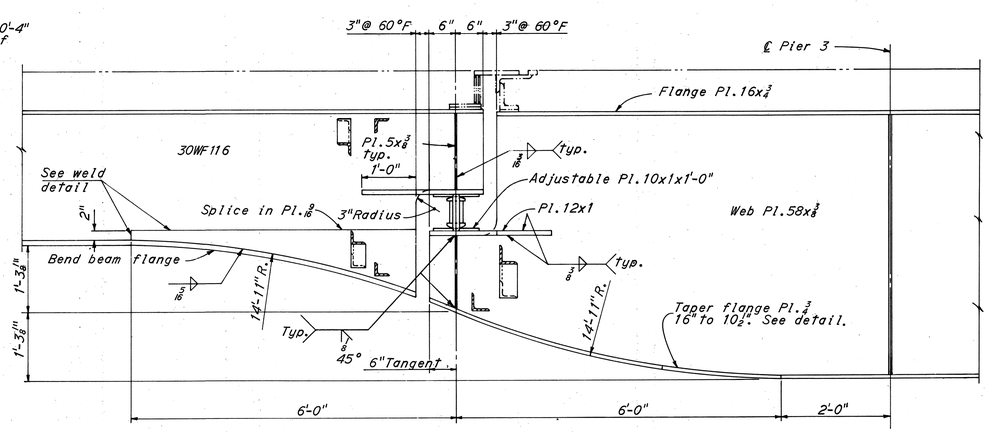
SECTION D-D
1 1/2"=1'-0"



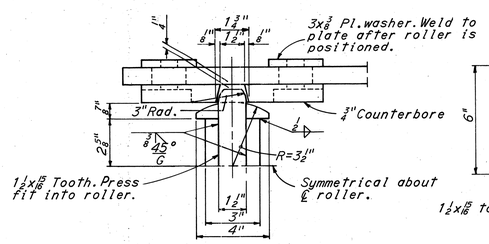
SECTION E-E
1 1/2"=1'-0"



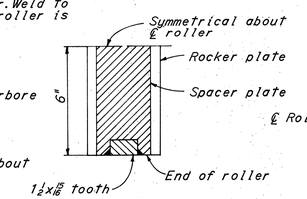
SECTION F-F
1 1/2"=1'-0"



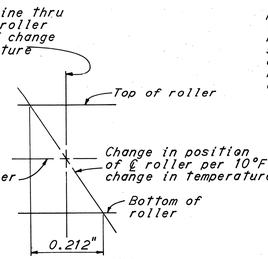
GIRDER TO BEAM TRANSITION DETAILS
3/4"=1'-0"



ROLLER ELEVATION

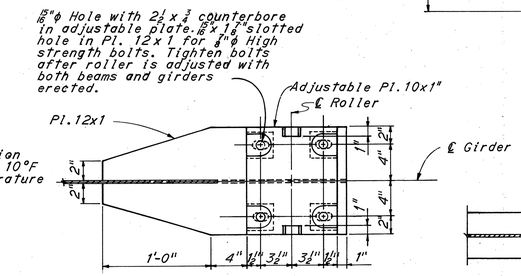


SECTION THRU ROLLER

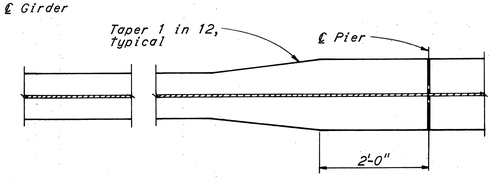


ROLLER POSITIONING

ROLLER DETAILS
3"=1'-0"



ADJUSTABLE BEARING PLATE DETAIL
1 1/2"=1'-0"



GIRDER FLANGE TAPER DETAIL
3/4"=1'-0"

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

INTERMEDIATE EXPANSION JOINT AND GIRDER FIELD SPLICES DETAILS
RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

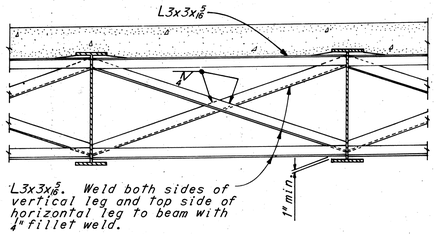
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: AS SHOWN STA. 20+05.75
BELMONT CO. OHIO

DRAWN E.D.B.	TRACED	CHECKED RMS	REVIEWED JF	REVISED	
DATE 9-6-61	DATE	DATE 10-26-61	DATE 12-14-61	949	SHEET 196

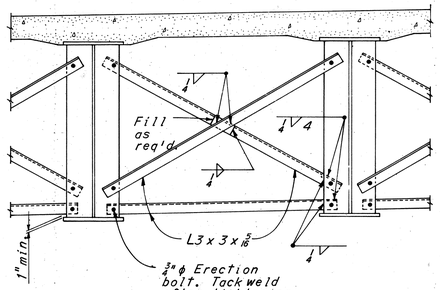
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

197
197

BELMONT COUNTY
BEL-40-23.89



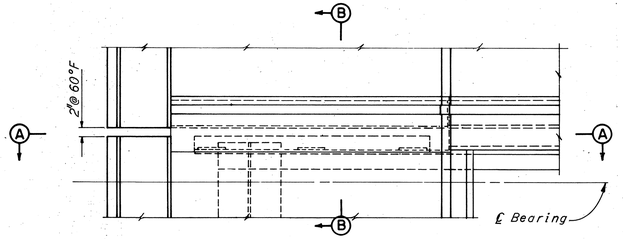
CROSSFRAME "C-1"



CROSSFRAME "C-2"

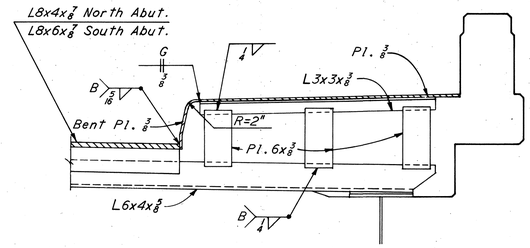
CROSSFRAME DETAILS

1/2"= 1'-0"



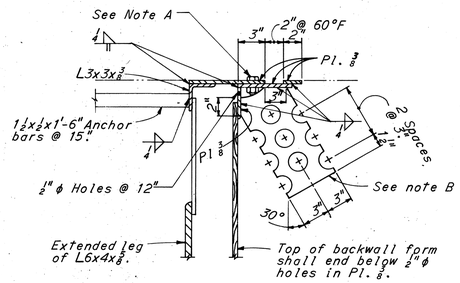
PLAN CURB EXPANSION JOINT AT ABUTMENT

3/4"= 1'-0"



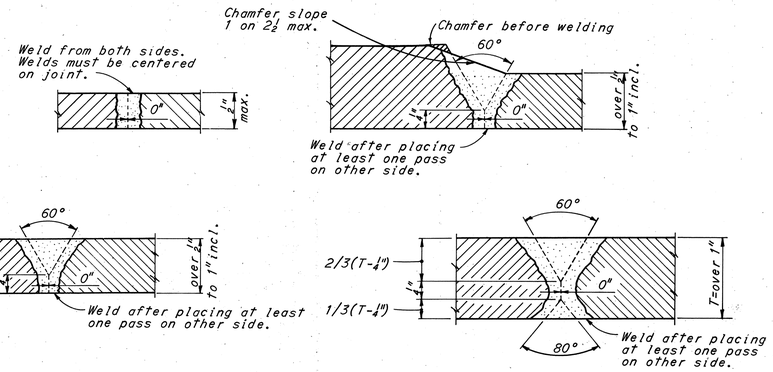
SECTION A-A

3/4"= 1'-0"



SECTION B-B

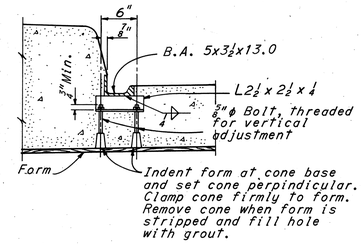
1 1/2"= 1'-0"



SHOP BUTT WELD DETAILS

No Scale

Note:
Optional shop splices will be permitted in the webs and flanges of girders but their locations shall be submitted to the Director for approval.
All flange butt-welds shall be ground flush.



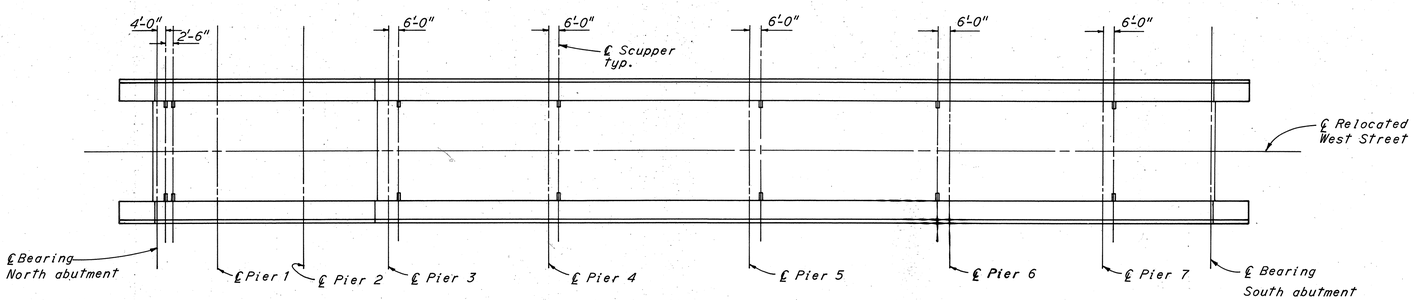
BULB ANGLE GUTTER SUPPORT DETAIL

No Scale

Notes:
For details of roadway expansion joint at abutments see Ohio Standard Drawing CSB-2-56, Sheet 2 of 6.
For details of scuppers see Ohio Standard Drawing CSB-2-56, Sheet 3 of 6. **Section K-K**

Note A:
3/4"ϕ x 2" bolts @ 2'-0" centers with nuts tack welded to lower plate, and 1 1/16"ϕ holes in upper plate. Apply flake graphite between washers and plate. Turn bolts tight and release one-half turn. Remove bolts as soon as concrete has reasonably set, preferably within two hours after placing. Fill holes with bituminous material.

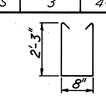
Note B:
Pls. 6x1/2x12" @ 15" centers. Holes may be burned in plates.



SCUPPER LAYOUT SKETCH

No Scale

REPLACEMENT REINFORCEMENT SCHEDULE			
SIZE	NUMBER	LENGTH	TYPE
4	2	5'-8"	110
5	12	5'-9"	Str.
6	31	4'-0"	Str.
7	1	8'-6"	Str.
8	3	6'-6"	Str.
9	1	9'-9"	Str.
10	3	7'-3"	Str.
11	6	7'-6"	Str.
14-S	3	4'-0"	Str.



110

BENDING DIAGRAM

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

MISCELLANEOUS DETAILS

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: AS SHOWN STA. 20+05.75
BELMONT CO. OHIO

DRAWN EDB	TRACED	CHECKED RHS	REVIEWED JT	REVISED	
DATE 9-12-61	DATE	DATE 10-27-61	DATE 12-14-61	949	SHEET 197

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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BELMONT COUNTY
BEL-40-23.89

HIGHWAY LIGHTING NOTES

This work shall consist of furnishing and installing all materials and equipment for five new highway lighting units on the new West Street bridge and approaches, complete and in place, consisting of lighting units, mounting bases, grounding, conduits, cables, controller, branch circuit protective devices, service entrance switch, equipment pole, including necessary brackets, hardware, fittings and attachments necessary to integrate the components into a single lighting system connected to the overhead service, all in accordance with the requirements of the Plan, the State of Ohio's Construction and Materials Specifications dated January 1, 1961.

The wiring shall consist of furnishing, installing, and testing complete underdeck and underground 120/240 volt, secondary single phase, grounded neutral, 2-conductor No. 8 AWG feeder system from the pigtails extending from the service head on the equipment pole to all lighting units, including three No. 12 conductors to photoelectric controller and two No. 10 conductors to each lighting unit from handholes in standards.

Cables shall be Butyl base ozone, moisture resistant, insulated, color coded Neoprene-jacketed power cable conforming to IPCEA suitable for operation at 600 volts at a maximum conductor temperature of 90° C., and for installation directly in the ground. The Contractor may use 90° C. thermo-setting insulation rated per IPCEA methods as General Electric "Vulkene" insulated power cable.

Underground cable shall be installed at a minimum depth of 30 inches below finished grade and laid in no less than 3 inches of compacted sand in a 3-inch sand envelope, complete with insulated bushing where cables enter conduits. Where cables enter conduits, they shall be centered and sealed with oakum and sealing compound.

Backfill shall be carefully tamped and placed in layers not exceeding 12 inches in depth. Cables shall be installed in continuous lengths without splices outside of handholes. The Contractor shall provide rigid conduits on the equipment pole. Rigid conduit shall be of a standard weight, hot-dipped galvanized or sherardized inside and outside, rigid conduit 2-inch or 3/4-inch in diameter as indicated, conforming to the requirements of American Standard Association Specifications for Rigid Steel Conduit, Designation C80.1. Conduit shall be Republic "Galvite" or approved equal.

Conduit on equipment pole shall be supported at not over 6-foot intervals by 2-hole straps or clamps. Conduits and neutral shall be grounded at the equipment pole. The underground portions of rigid conduits at the equipment pole shall be grounded with No. 6 AWG bare copper wire clamped to a 5/8" by 8' copper clad ground rod by approved clamps.

The Contractor shall furnish and install all control and protective devices for completely automatic operation of the roadway lighting system. The Contractor shall provide a switch type combination magnetic starter for service entrance protection, branch service protection, and switching the lighting circuits. The combination shall be in NEMA Type 4 watertight enclosure, complete with lockable external operating handle. Provide a five tumbler padlock with six keys. Service entrance fused safety switch shall be 60-ampere with 2-20 ampere cartridge fuses and a solid fuse in neutral. Contactor shall be 2-pole NEMA Size 1, without O.L. relays or reset button. The switch type combination starter shall be rated for 250 volts, and shall be similar to Square D Class 8538 with Type CA-3 enclosure, with modifications noted. Paint or stencil "ROADWAY LIGHTING" sign on front of enclosure.

The photoelectric switch unit shall be 240-volt, SPSTDB, normally closed, closed at night with factory-set turn-on of 5 footcandles, built-in fuses, and built-in lightning arresters. The relay shall be fail-safe, and have built-in time delays to avoid erroneous operation due to transient lights. The photoelectric controller shall be Fisher-Pierce Model 63302-C, or approved equal. The controller shall be mounted about 25 feet above ground level and oriented to the north sky. Provide a suitable galvanized bracket for mounting.

A selector switch shall be enclosed in the enclosure to switch between off-on-automatic, and shall be General Electric Type CR 2940-NA 1010, or approved equal.

The Contractor shall provide an equipment pole for mounting the protective and control devices. The pole shall be 35-foot, Class 5, complying with American Standard O5.1, either fully treated Southern Pine or butt-treated Western Red Cedar. Combination starter shall be mounted on two short sections of 3-1/4" by 4-1/4" Douglas fir crossarms, complete with gains and plates. Treat cut or bored areas of pole and crossarms with 3 coats of preservative after cutting.

Payment for lighting units on approaches will be made at the contract unit price each for Item S-25, "Ground Mount Lighting Unit", completely assembled, in place, completed and accepted, including 8" x 3.8" x 30'-0" steel pole, 31'-0" mounting height, 6-foot tapered elliptical single member bracket, anchor base, grounding lug, handhole, handhole cover, finial, two shop coats, two aluminum field coats, J-hook, cable grips, No. 10 AWG belted pole and bracket cable, 400-watt ASA-IES Type II end-mounted integral ballast luminaire, Borosilicate refractor lamp, splices, connections, concrete foundation base, excavation, 2-inch galvanized foundation conduit sleeve, galvanized anchor rods, insulated bushings, 5/8" x 8' ground rod, No. 6 copper ground lead, clamps, removing waste, finishing, plumbing, grading, two in-line fused disconnects, and all incidentals.

Payment for lighting units on bridge will be made at the contract unit price each for Item S-25, "Bridge Lighting Unit", completely assembled, in place, completed and accepted, including 8" x 4" x 28'-6" steel pole and all applicable features required for Item S-25, "Ground Mount Lighting Unit". The anchor bolt assemblies are included in Item S-7 for payment.

Payment for direct burial cable will be made at the contract unit price per lineal foot for Item S-25, "Multiple Underground Cable", in place, completed and accepted, including all direct burial cable, excavation, sand envelope, backfill, tamping, testing, and all incidentals necessary. Measurement will be made per foot of circuit in place, each foot for payment for multiple cable including two insulated conductors.

Payment for multiple cable in bridge deck will be made at the contract unit price per lineal foot for Item S-25, "Multiple Bridge Cable", in place, completed and accepted, including all No. 8 Type USE-RHH 90° C. - RHW 75° C. cables in conduit, 2-inch non-metallic Type I conduit in structure, caulking cable in conduit bushings, splicing, connections, testing, conduit bends, elbows, tees, bushings, joint sealer compound, expansion couplings, wire chairs, drains, supports, fittings, fastenings, and all incidentals. Measurement will be made per foot of circuit in place, each foot for payment for multiple cable including two insulated conductors.

Payment for multiple cable in underground concrete encased duct will be made at the contract unit price for Item S-25, "Multiple Duct Cable", in place, completed and accepted, including all No. 8 Type USE - RHH 90° C. - RHW 75° C. cables in concrete encased conduit, 2-inch non-metallic Type I concrete encased conduit, excavation, forms for concrete, concrete, backfill, tamping, adapters to rigid conduit at base and equipment pole, couplings, joint sealer, and all incidentals. Measurement will be made per foot of circuit in place, each foot for payment for multiple cable including two insulated conductors.

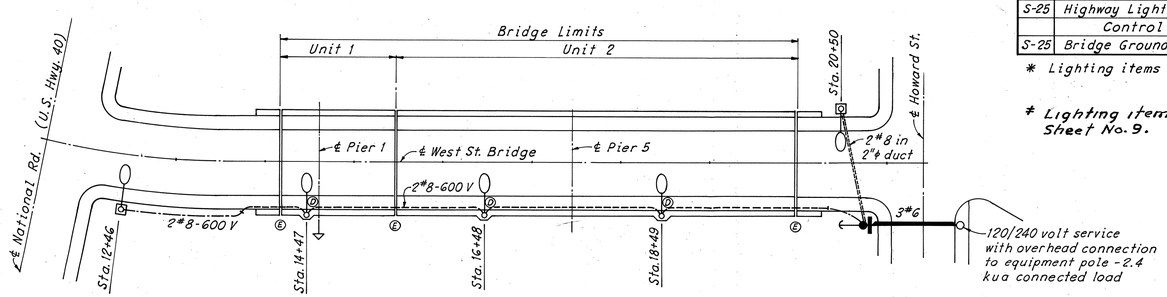
Payment for equipment at the service will be made at the lump sum price for Item S-25, "Highway Lighting Service and Control Panel", in place, completed and accepted, including connection to overhead secondary service, entrance head, conduit to panel, No. 6 service conductors, service switch, fuses, contactors, selector switch, enclosure, two coats of aluminum paint, photoelectric controller, conduit and wiring to controller, conduits and wiring down equipment pole to underground, equipment pole, crossarms, excavation, backfilling, tamping, seeding, ground wires, ground rods, grounding, ground wire moulding, clamps, grounding bushings, and all incidentals.

BRIDGE GROUNDING

The superstructure steel shall be grounded at Pier No.1 by means of a No.0 bare copper wire brazed or bolted to the flange of one beam and extending down thru the pier cap, west column and footing and brazed to one of the piles. A No.0 stranded, bare copper wire shall be suitably looped and then fastened, across the roller expansion joint at about Sta. 15+39, to the abutting girder and beam flanges of the two exterior lines of stringers. Each lighting standard shall be grounded by a No.0 bare copper wire brazed or bolted to the top flange of the nearest steel stringer at one end and to the grounding lug or anchor bolt of the standard at the other end. The lump sum price bid for Item S-25, Bridge Grounding, shall include all labor, material and incidentals necessary to properly install these grounds, including tests and restoration of paint.

HIGHWAY LIGHTING KEY

- "Ground Mount Lighting Unit", steel standard and 6-ft. bracket for 30-ft. mounting height, 400-watt integral ballast luminaire, ASA-IES Type II, ASA H33-1CD clear lamp, 240-volt CW ballast, on concrete foundation.
- "Bridge Lighting Unit", steel standard and 6-ft. bracket for 30-ft. mounting height, 400-watt integral ballast luminaire, ASA-IES Type II, ASA H33-1CD clear mercury lamp, 240-volt CW ballast, on parapet blister.
- 2#8 — "Multiple Underground Cable", 2-conductors, direct burial, 600-volt Type USE-RHH 90°C - RHW 75°C.
- 2#8 — "Multiple Bridge Cable", in 2"ϕ non-metallic Type I conduit in bridge curb, two 600-volt Type USE-RHH 90°C - RHW 75°C conductors.
- 2#8 — "Multiple Duct Cable", in 2"ϕ non-metallic Type I conduit concrete encased, two 600-volt Type USE-RHH 90°C - RHW 75°C conductors.
- 3#6 — Overhead Secondary Service between service pole and lighting service panel - by Ohio Power Co.
- "Highway Lighting Service and Control Panel", on equipment pole - c/w guy and provisions for metering if required by Ohio Power Company.
- "Bridge Grounding"



LIGHTING PLAN

ESTIMATED QUANTITIES

Item	Description		Unit	Quantity	Quantity	
S-25	Ground Mount Lighting Unit	#	Each		2	
S-25	Bridge Lighting Unit *		Each	3		
S-25	Multiple Underground Cable	#	Lin. Ft.		200	
S-25	Multiple Bridge Cable *		Lin. Ft.	640		
S-25	Multiple Duct Cable	#	Lin. Ft.		60	
S-25	Highway Lighting Service and	#				
	Control Panel		-		Lump Sum	
S-25	Bridge Grounding *		-	Lump Sum		

* Lighting items for Br. Bel-40-2635

Lighting items for Roadway carried to General Summary, Sheet No. 9.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

HIGHWAY LIGHTING SYSTEM

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

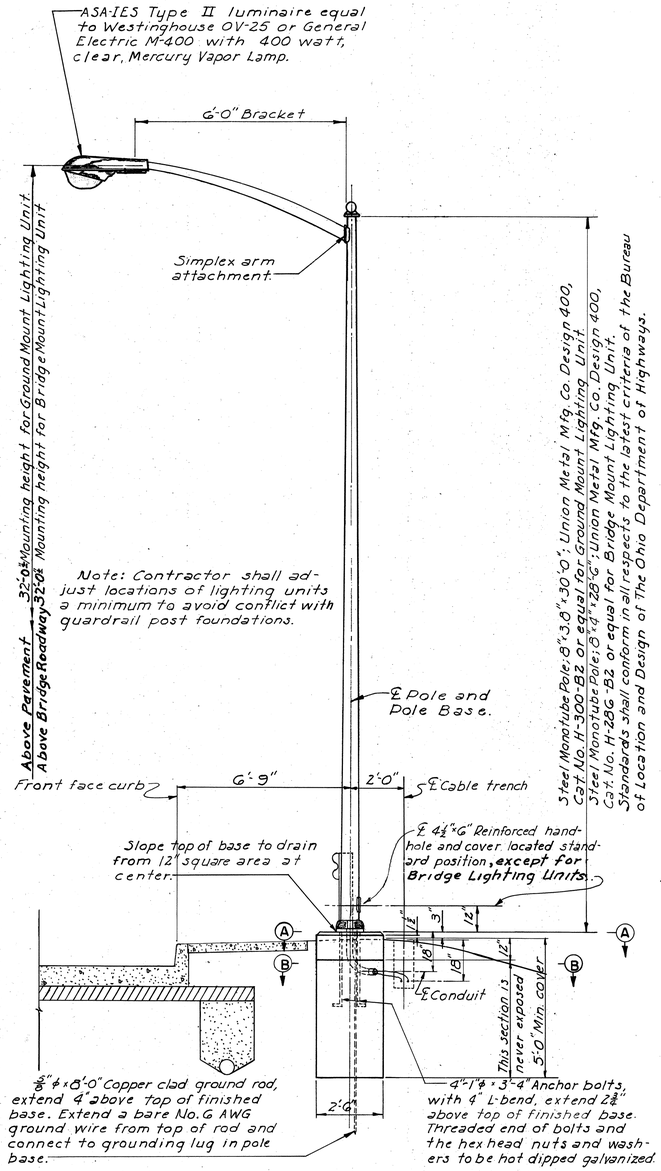
BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: NONE STA. 20+05.75
BELMONT CO. OHIO

DRAWN GJC	TRACED	CHECKED JT	REVIEWED JT	REVISED
DATE 3-1-62	DATE	DATE 3-2-62	DATE 3-5-62	949 SHEET 197A

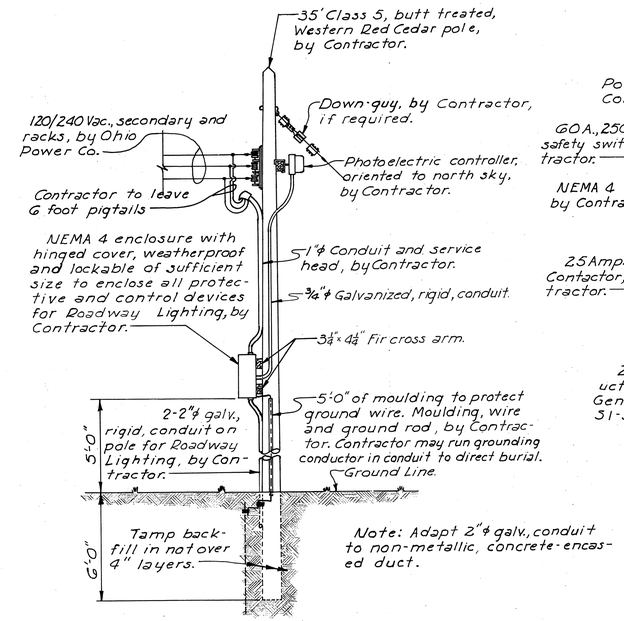
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

199
199

BELMONT COUNTY
BEL-40-23.89



GROUND MOUNT LIGHTING UNIT DETAILS
Scale: ⅜" = 1'-0"



SERVICE ARRANGEMENT
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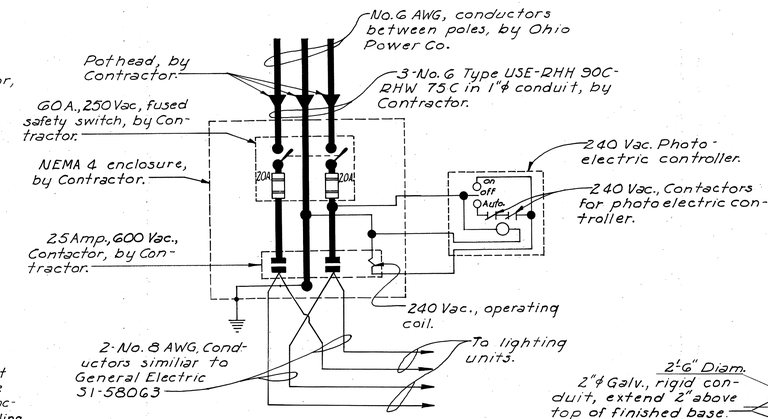

SERVICE WIRING ARRANGEMENT
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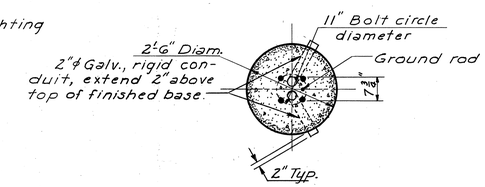
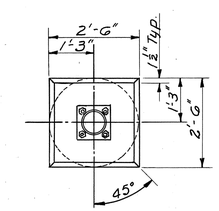
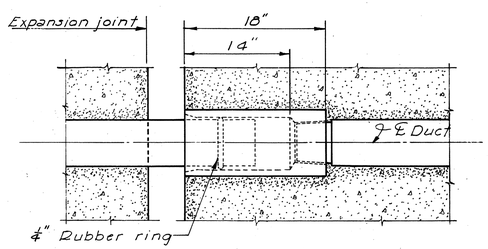


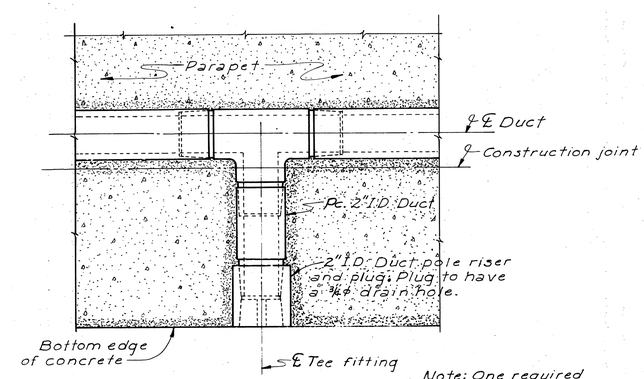
SECTION B-B
Scale: ½" = 1'-0"



SECTION A-A
Scale: ½" = 1'-0"



EXPANSION FITTING
No Scale



Note: One required between each pair of pole bases on structures.

CONDUIT DRAIN FITTING
No Scale

BRIDGE LIGHTING UNIT HANDHOLES

A 4½"x6" reinforced handhole and cover, having its center-line located 17" above the top of the concrete parapet and with the opening on the side of the pole nearest the sidewalk, shall be furnish for each "Bridge Lighting Unit". Inside the pole, opposite the handhole opening, and 18" above the top of the parapet a ½"x13" stainless steel ground nut shall be brazed to the Lighting Standard.

For details of light standard supports and location of conduit on bridge see sheets 192, 193 and 194.

BRIDGE NO. 3

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

HIGHWAY LIGHTING SYSTEM

RELOCATED WEST STREET OVER I-70, WHEELING CREEK AND B. & O. RAILROAD

BR. NO. BEL-40-2635 STA. 14+16.25
SCALE: AS SHOWN STA. 20+05.75
BELMONT CO. OHIO

DRAWN JRK	TRACED	CHECKED GOC	REVIEWED JT	REVISED
DATE 3-5-62	DATE	DATE 3-6-62	DATE 3-5-62	SHEET 197 B

TE-54-A
200-4-60

GENERAL INFORMATION

INTRODUCTION

The project consists of the major relocation of USR 40, beginning south of the community of Blaine, approximately 1.2 miles east of the USR 40-SR 21N junction, and extending eastward 3.1 miles, passing through Roydsville, terminating in Rookside, 200 feet east of Wheeling Creek.

The proposed grade indicates cut, maximum 150 feet in depth; fill embankment, maximum 127 feet in height.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

The alignment, situated within an unglaciated, highly-dissected portion of the Allegheny Plateau, traverses the valley wall and uplands south of Wheeling Creek, and for the final 0.7 mile predominantly crosses the flood plain of Wheeling Creek. Residual soil cover ranges from 0 to 30 feet in thickness, alluvium reportedly ranges from 25 to 40 feet in thickness. Local bedrock consists of clay bedrock, various shales, limestone, sandstone, and coal, of Permian and Pennsylvanian ages.

Extensive strip mining has been conducted between stations 1217+50 and 1218+50, 1255+00 and 1257+10, 1278+00 to 1280+20, 1285+40 to 1295+00 and 1301+80 to 1302+90. In conjunction with the strip mining activity, slides have occurred in the vicinity of stations 1230+45 to 1231+00 - 100 feet left to 20 feet right, 1233+00 to 1234+30 - 130 feet left to 370 feet left and 1291+00 to 1292+20 - 160 feet left to 80 feet right. It was further noted that considerable slumping has occurred on the slope between stations 1303+20 and 1309+90. Strip mining is being actively carried out between stations 1235+00 and 1243+40. A slide was observed at station 1214+50, 70 feet to 130 feet left of centerline. Evidence that underground mining has been conducted was noted in the boring at station 1218+00, 105 feet right, with the affected horizon being between elevations 800 and 822 feet. Mine entrances were observed at approximately elevation 790 feet at station 1244+35, 235 feet right and at station 1248+70, 110 feet right.

Between stations 1340+00 and 1362+00, within the community of Roydsville, the alignment apparently traverses on ancient slump-filled valley. Boyd Avenue, right of centerline, between stations 1350+00 and 1361+30 is, at the present time, slipping and breaking. Some slump is also evident left of centerline between stations 1350+00 and 1363+30.

EXPLORATION

Exploratory borings were made by means of truck mounted mechanical earth auger, hand auger (in areas of difficult access), and rotary drill rig; probing was done by means of mechanically driven steel rod, employing a 122 pound hammer with a 5-foot free fall, and a 1.315 inch diameter rod, between February 20 and March 31, 1961.

INVESTIGATIONAL DISCLOSURES

Materials immediately below grade between stations 1214+00 and 1309+00, (exclusive of the strip mined areas) consist of coal, shale and limestone bedrock. Within the mined areas, a variety of materials was encountered, consisting of clay in the A-7-6 classification, but predominantly rock fragments (shale, limestone, and coal).

From station 1309+00 to 1372+00, the material immediately below grade consists of silty clay, elastic clay, and clay, in the A-6, A-7-5, and A-7-6 classifications.

It is anticipated bedrock will be encountered in the excavations at the following locations:

Stations 1215+00 to 1218+50 - limestone at right ditchline and lower portion of right backslope.

Stations 1218+50 to 1219+50 - limestone at grade (right lanes), right ditchline, and right backslope.

Stations 1254+00 to 1255+00 - siliceous shale and limestone at grade, right lane, right ditchline, and lower portion of right backslope; coal, limestone and argillaceous shales in the upper portion of right backslope.

Stations 1255+00 to 1257+00 - limestone, coal, and siliceous and argillaceous shale at grade, ditches, and backslopes.

Stations 1257+00 to 1259+00 - limestone, coal, and siliceous and argillaceous shale at grade, ditches and lower portion of right backslope; limestone, clay bedrock, and calcareous shale in upper portion of right backslope.

Stations 1259+00 to 1269+00 - limestone, coal, and siliceous and argillaceous shales at grade, ditches, and lower portion of backslopes; limestone, clay bedrock, and calcareous shale in upper portion of both backslopes.

Stations 1269+00 to 1269+00 limestone, coal, and siliceous and argillaceous shales at grade, ditches, and lower portion of backslopes; limestone in upper portion of right backslope; limestone, calcareous shales, and clay bedrock in upper portion of left backslope.

Stations 1269+00 to 1270+00 - limestone, coal, and siliceous and argillaceous shale at grade, both ditches, and lower portion of backslopes; limestone in upper portion of backslopes.

Stations 1270+00 to 1274+00 - argillaceous and siliceous shale at grade and ditches (not at grade between stations 1270+00 and 1271+00) argillaceous and siliceous shales, coal, and limestone in lower portions of both backslopes; limestone in upper portion of both backslopes.

Stations 1274+00 to 1276+00 - argillaceous and siliceous shales at grade and ditches; argillaceous and siliceous shales, coal, and limestone in lower portion of right backslope; limestone in upper portion of right backslope.

Stations 1287+00 to 1291+00 - limestone and indurated clay at grade (right lanes), right ditchline, and lower portion of right backslope; limestone, indurated clay, sandstone, and coal in the upper portion of right backslope.

Stations 1291+00 to 1293+00 - coal and limestone at grade, ditches, and lower portion of right backslope; limestone and indurated clay in upper portion of right backslope.

Stations 1293+00 to 1297+00 - coal and limestone at grade, ditches, and lower portion of backslopes; limestone, coal, sandstone, clay bedrock, indurated clay and siliceous and argillaceous shale in upper portion of backslope.

Stations 1297+00 to 1300+00 - argillaceous and carbonaceous shale and limestone at grade, both ditches, and lower portion of both backslopes; limestone, clay bedrock, coal, indurated clay, and argillaceous and siliceous shale in upper portion of right backslope.

Stations 1300+00 to 1304+00 - argillaceous and carbonaceous shales and limestone at grade, ditches, and lower portion of both backslopes; coal, clay bedrock and limestone in the upper portion of both backslopes.

In the embankment areas between stations 1214+00 and 1309+00, foundation materials consist predominantly of clay, in the A-7-6 classification, and strip mine debris (shale fragments and coal fragments with some soil). Embankment foundation comprises shallow soil cover, overlying sloping bedrock surface between stations 1217+00 to 1218+00, 1250+00 to 1255+00, 1276+00 to 1278+00, and 1301+00 to 1302+00.

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS- 454 SAMPLES TESTED

DESCRIPTION	H. R. B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
Gravel and/or stone fragments	A-1-a (0)	A-1-a	72	7	9	5	7	31	2	17	12
Gravel and/or stone fragments with sand and silt	A-2-4 (0)	A-2-4	62	8	8	10	12	30	8	18	15
Gravel and/or stone fragments with sand, silt, and clay	A-2-6 (0)	A-2-6	60	9	8	8	15	39	13	18	9
Sandy silt	A-4 (3)	A-4a	28	8	13	26	25	35	6	21	45
Silt	A-4 (8)	A-4b	1	3	6	51	39	33	7	30	9
Elastic silt and clay without organic material unless otherwise noted	A-5 (6)	A-5	15	10	16	23	36	42	8	31	4
Silt and clay	A-6 (8)	A-6a	14	6	8	34	38	35	12	22	168
Silty clay	A-6 (10)	A-6b	15	7	7	30	41	39	18	22	21
Elastic clay without organic material unless otherwise noted	A-7-5 (15)	A-7-5	7	4	6	33	50	53	20	38	46
Clay	A-7-6 (13)	A-7-6	7	4	5	32	52	47	20	29	111
Underclay			VISUAL CLASSIFICATION								1
Random fill consisting of cinders, coal fragments, and strip mine debris.			VISUAL CLASSIFICATION								
Coal			VISUAL CLASSIFICATION								
Coal blosson			VISUAL CLASSIFICATION								1
Clay bedrock			VISUAL CLASSIFICATION								
Weathered indurated clay			VISUAL CLASSIFICATION								
Weathered shale			VISUAL CLASSIFICATION								7
Indurated clay			VISUAL CLASSIFICATION								
Shale			VISUAL CLASSIFICATION								5
Sandstone			VISUAL CLASSIFICATION								
Limestone			VISUAL CLASSIFICATION								
Various other materials			VISUAL CLASSIFICATION								

Sod and/or Topsoil=X'=Approximate depth.

Berm material.

Auger boring - plan view.

Drive sample and/or core boring - plan view.

Drive rod-plan view.

Auger boring plotted to vertical scale only.

Drive sample and/or core boring plotted to vertical scale only.

Drive rod plotted to vertical scale only.

Number of blows for "Standard Penetration" test.
X=number of blows for the first 6 inches.
Y=number of blows for the second 6 inches.

Water content nearly equal to or greater than liquid limit.

Indicates a non-plastic material with high water content.

Free water.

Indicates broken rock interval.

NOTE: Figures beside borings indicate water content in percent. e.g. 15

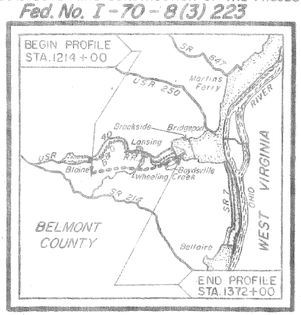
In the embankment areas between stations 1309+00 and 1372+00, foundation materials consist predominantly of silt clay, elastic clay, and clay, in the A-6a, A-7-5, and A-7-6 classifications.

Revised 8/16/61

SOIL PROFILE 1/11
BELMONT COUNTY
BEL-40-~~22.56~~ 23.89
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

NOTE. INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.

Fed. No. I-70-8(3) 223



LOCATION MAP

Recon.—C.J.K. — 3/15/61
Drilling—Auger—A.J.P., T.R.S., J.R.G.—2/20/61 to 3/29/61
Core—D.W.B., A.T.W., K.D.E., D.G.—2/23/61 to 3/31/61
Drafting—R.A.W., R.C.B., D.J.T., C.R.M.— 6/30/61

SOIL PROFILE 2/11
BELMONT COUNTY
BEL-40 - ~~2.44~~ 23.89
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

Revised 8/16/61
Revised 2/ /62

SUMMARY OF SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.
*Denotes sample taken at or near grade.

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1214+00	90'Lt	0.5-1.5	0	2	1	28	69	52	27	27	A-7-6
		1.5-3.0	16	11	6	31	43	44	13	24	A-7-5
1217+05	CL	0.3-2.0	0	7	6	49	38	33	11	25	A-6a
		2.0-5.0	0	1	3	27	69	65	36	34	A-7-6
		5.0-10.0	0	2	3	43	52	39	15	22	A-6a
		10.0-11.0	23	4	6	30	37	36	11	24	A-6a
1221+00	150'Lt	0.0-2.0	0	2	2	58	46	33	12	27	A-6a
		2.0-6.0	15	5	5	29	46	39	15	22	A-6a
		6.0-8.5	21	3	4	29	43	44	20	22	A-7-6
1221+00	50'Lt	0.0-3.0	Gray Clay W/Coal Fragments								Visual
		3.0-5.0	8	3	6	37	46	36	16	19	A-6b
		5.0-8.0	24	3	6	31	36	39	15	21	A-6a
1221+00	CL	0.0-1.0	7	3	5	43	42	39	13	25	A-6a
		1.0-4.0	9	3	5	37	46	35	12	20	A-6a
1226+50	CL	0.0-4.0	28	12	7	22	33	33	11	16	A-6a
		4.0-6.0	43	4	4	19	30	35	11	19	A-6a
		6.0-14.0	8	4	3	27	58	46	21	28	A-7-6
1231+25	CL	0.0-5.0	0	3	4	29	64	43	18	26	A-7-6
		5.0-10.0	0	3	4	30	63	45	18	30	A-7-6
		10.0-15.0	0	6	5	27	62	37	13	23	A-6a
		15.0-18.5	0	2	3	30	65	56	28	31	A-7-6
1233+00	45'Lt	0.0-6.0	0	4	5	36	55	46	15	32	A-7-5
		6.0-10.0	0	2	3	41	54	44	21	24	A-7-6
		10.0-16.0	0	3	4	45	48	42	18	29	A-7-6
1235+15	CL	0.0-4.0	0	1	2	35	62	51	26	26	A-7-6
		4.0-9.0	0	1	2	33	64	46	23	28	A-7-6
		9.0-14.0	0	5	4	34	57	49	25	25	A-7-6
		14.0-20.0	0	3	3	33	61	41	14	33	A-7-6 *
1242+00	100'Lt	0.0-5.0	9	5	5	31	50	43	16	23	A-7-6
1242+00	85'Lt	0.0-5.0	(9	5	5	31	50	43	16)	—	A-7-6
		5.0-7.0	0	7	6	31	56	53	24	16	A-7-6
		7.0-8.0	0	4	5	30	61	35	11	19	A-6a
		8.0-16.0	0	6	5	27	62	55	29	24	A-7-6
		16.0-20.0	0	4	2	27	67	62	34	29	A-7-6
		20.0-25.0	0	2	2	41	55	40	16	17	A-6b
1242+00	CL	0.0-1.5	Black Broken Coal with Shale Fragments								Visual
		1.5-8.0	Black Broken Coal with Shale Fragments								Visual
1244+20	175'Lt	0.0-2.0	48	12	7	10	23	44	12	20	A-2-7
1244+20	15'Lt	0.0-5.0	17	7	5	21	50	47	15	30	A-7-5
1246+00	120'Lt	0.5-5.0	0	0	1	52	47	39	14	28	A-6a
		5.0-10.0	27	3	5	30	35	46	19	21	A-7-6
		10.0-14.0	39	6	6	20	29	44	13	24	A-7-5
1246+00	CL	0.0-6.0	0	4	7	38	51	42	18	22	A-7-6
		6.0-11.0	23	3	5	21	48	49	21	26	A-7-6
		11.0-15.5	17	5	6	27	45	36	15	21	A-6a
1247+60	150'Lt	0.0-4.0	24	6	10	33	27	44	14	37	A-7-5
		4.0-5.5	17	9	7	31	36	48	19	37	A-7-6
1247+60	CL	0.0-4.0	18	9	7	23	43	40	13	29	A-6a
1250+00	100'Lt	0.3-5.0	0	1	2	39	58	54	27	24	A-7-6
		5.0-7.0	0	1	2	37	0	42	18	22	A-7-6
		7.0-11.0	11	6	12	34	37	34	11	23	A-6a
		11.0-15.0	11	9	9	32	39	39	15	19	A-6a

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1250+00	CL	0.4-4.0	0	2	2	39	57	49	23	25	A-7-6
		4.0-8.0	0	3	4	29	64	53	28	23	A-7-6
		8.0-14.0	63	4	5	11	17	36	13	18	A-2-6
		14.0-20.0	37	8	7	21	27	40	16	18	A-6b
1252+00	CL	0.4-5.5	11	5	5	33	46	41	18	24	A-7-6
1254+00	100'Lt	0.3-3.0	6	6	5	34	49	42	16	25	A-7-6
1254+00	CL	0.3-4.0	0	2	3	24	71	69	36	38	A-7-5
		4.0-6.5	0	3	3	28	66	44	16	33	A-7-6
1261+00	CL	0.7-5.5	0	2	2	56	40	36	11	31	A-6a
1266+00	22'Lt	0.3-3.0	0	2	2	55	41	37	9	28	A-4b
		3.0-5.0	10	2	3	37	48	45	15	26	A-7-5
1270+50	120'Lt	0.3-3.5	0	2	2	50	46	40	14	25	A-6a
		3.5-5.0	0	1	1	36	62	56	23	31	A-7-5
1285+80	CL	0.0-8.0	Broken Coal and Strip Mine Debris								Visual
		8.0-9.0	Underclay								Visual
		9.0-11.0	Underclay								Visual
		11.0-12.0	Gray Broken Shale							6	Visual
1288+00	75'Lt	0.0-8.0	Black Broken Coal and Strip Mine Debris								Visual
		8.0-11.0	Underclay							11	Visual
		11.0-12.0	Gray Broken Shale							9	Visual
1292+00	75'Lt	0.0-10.0	Black Broken Coal and Strip Mine Debris								Visual
1298+00	CL	0.3-2.0	47	11	4	12	26	51	20	38	A-7-5
1309+00	CL	0.5-4.0	0	3	4	36	57	61	30	30	A-7-5
		4.0-9.0	0	0	1	45	54	56	23	22	A-7-6
		9.0-13.0	23	17	22	12	26	34	12	28	A-6a
		13.0-18.0	45	1	12	22	17	43	17	30	A-7-6
		18.0-20.0	68	10	9	6	9	35	9	22	A-2-4
1310+00	110'Lt	0.0-3.0	Black Cinders W/Brown Silty Clay								Visual
		3.0-6.0	10	7	8	37	38	30	11	18	A-6a
		6.0-13.0	29	5	6	20	40	35	17	15	A-6b
		13.0-20.0	27	7	6	26	34	29	11	15	A-6a
1311+00	CL	1.0-2.0	Cinders								Visual
		2.0-6.0	0	1	4	44	51	42	17	27	A-7-6
		6.0-10.0	0	2	57	11	30	26	2	20	A-4a
		10.0-12.0	49	19	10	5	17	41	17	21	A-2-7
		12.0-14.0	81	4	6	3	6	34	12	17	A-2-6
		14.0-16.0	77	4	6	5	8	30	10	16	A-2-4
		16.0-21.0	44	3	15	19	19	30	6	21	A-4a
		21.0-22.0	16	15	29	16	25	45	9	40	A-5
		22.0-25.0	14	13	16	35	22	22	6	9	A-4a
1313+00	CL	0.0-3.5	Cinders and Coal Fragments								Visual
		3.5-6.0	0	3	3	34	60	49	18	33	A-7-5
		6.0-9.5	40	2	2	42	34	42	NP	26	A-7-6
		9.5-13.0	58	8	10	10	14	40	11	25	A-2-6
1317+00	CL	0.0-2.5	0	1	21	35	43	33	11	23	A-6a
		2.5-6.0	26	5	32	17	20	32	10	30	A-4a
		6.0-11.0	62	4	6	2	6	35	12	17	A-2-6
		11.0-14.0	39	11	19	14	17	38	9	23	A-2-4
		14.0-15.0	14	10	19	34	23	25	3	17	A-4a
1318+75	100'Lt	0.5-4.0	0	1	27	38	34	33	11	26	A-6a
		4.0-9.0	72	6	10	6	6	NP	NP	16	A-1-a

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1319+20	CL	0.5-1.5	0	20	17	31	32	NP	NP	39	A-4a
		1.5-4.0	0	4	49	24	23	NP	NP	28	A-4a
		4.0-10.0	69	8	14	5	4	NP	NP	18	A-1-a
1319+50	200'Lt	0.0-4.5	0	2	19	41	38	31	12	24	A-6a
		4.5-7.0	0	1	3	40	56	69	36	55	A-7-5
		7.0-8.0	0	3	4	36	57	63	30	63	A-7-5
1324+00	CL	0.5-3.0	0	1	14	45	40	37	15	22	A-6a
		3.0-6.0	35	14	15	7	29	37	16	23	A-6b
		6.0-10.0	78	6	5	4	7	29	9	21	A-2-4
		10.0-16.0	57	11	11	10	11	28	8	19	A-2-4
1328+00	CL	0.0-2.0	0	1	19	37	43	37	12	20	A-6a
		2.0-4.0	43	16	13	11	17	38	14	20	A-2-6
		4.0-6.0	55	15	17	5	8	NP	NP	14	A-1-a
		6.0-12.0	71	9	8	7	7	30	4	21	A-1-a
		12.0-14.0	0	2	5	57	36	36	12	27	A-6a
		14.0-20.0	75	7	9	4	5	NP	NP	12	A-1-a
1329+75	90'Rt	0.0-2.0	0	5	12	24	59	60	16	78	A-7-5
		2.0-5.0	0	2	10	44	44	42	22	43	A-7-6
1329+85	90'Rt	0.5-2.0	0	2	5	45	48	55	16	47	A-7-5
		2.0-5.0	0	1	2	46	51	44	13	36	A-7-5
		5.0-10.0	0	0	12	33	55	68	25	46	A-7-5
		10.0-14.0	29	5	10	27	29	38	12	22	A-6a
		14.0-16.0	54	0	9	23	14	28	5	15	A-4a
1332+00	CL	0.5-5.0	10	7	4	34	45	41	17	23	A-7-6
		5.0-10.0	8	5	6	28	53	44	14	17	A-7-6
		10.0-12.0	0	2	15	42	41	40	15	27	A-6a
1332+00	70'Rt	0.0-2.5	0	1	4	50	45	46	16	42	A-7-5
		2.5-7.5	0	1	3	46	45	59	30	16	A-7-6
		7.5-8.0	73	8	7	7	5	29	9	16	A-2-4
1332+00	90'Rt	0.0-2.5	0	0	2	40	58	54	21	50	A-7-5
		2.5-6.0	0	1	2	47	50	55	23	45	A-7-5
1333+50	75'Rt	0.0-3.0	0	1	3	43	53	51	31	33	A-7-6
		3.0-6.0	0	10	1	46	50	58	26	36	A-7-5
1334+50	CL	0.0-3.5	0	0	0	44	56	46	19	35	A-7-6
		3.5-6.5	0	0	0	41	59	63	35	44	A-7-6
		6.5-8.0	25	13	16	21	25	50	19	21	A-7-5
1336+00	75'Lt	0.5-1.5	0	1	2	32	65	47	18	33	A-7-6
		1.5-4.0	0	4	4	42	50	46	20	25	A-7-6
		4.0-7.0	0	3	3	44	50	36	11	25	A-6a
1336+00	CL	0.4-2.0	0	6	7	33	54	43	34	34	A-7-6
1336+00	125'Rt	0.7-6.0	0	3	4	30	63	49	22	27	A-7-6
		6.0-10.0	0	6	5	28	61	54	25	23	A-7-6
		10.0-15.0	14	4	7	24	51	50	21	32	A-7-6
		15.0-18.0	11	8	8	27	46	37	15	24	A-6a
1337+40	CL	0.5-5.0	14	2	3	33	48	52	23	29	A-7-6
		5.0-9.0	10	7	6	28	43	46	22	32	A-7-6
		9.0-15.0	43	8	8	23	20	36	12	23	A-6a
		15.0-18.0	39	6	6	25	25	34	11	16	A-6a *

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1340+00	15'Rt	0.4-4.0	0	7	10	36	47	40	16	25	A-6b
		4.0-7.5	23	6	3	37	31	37	15	21	A-6a
		7.5-10.0	21	6	8	37	28	27	6	20	A-4a
		10.0-15.0	32	8	7	27	26	30	11	16	A-6a
		15.0-19.0	23	7	6	33	31	31	11	19	A-6a
		19.0-25.0	14	5	5	34	42	46	22	27	A-7-6 *
		25.0-30.0	16	1	3	33	45	50	26	31	A-7-6 *
1340+00	130'Rt	1.0-2.0	5	8	11	33	43	43	15	20	A-7-6
		2.0-4.0	0	5	5	39	51	45	20	23	A-7-6
		4.0-8.0	0	2	2	39	57	52	23	30	A-7-6
		8.0-13.0	10	3	2	43	42	37	14	27	A-6a
		13.0-19.0	0	1	2	56	41	30	9	21	A-4b
1340+00	275'Rt	0.5-3.0	0	4	7	32	57	40	25	30	A-7-6
		3.0-5.0	0	6	6	31	50	39	17	23	A-6b
		5.0-7.0	7	6	5	23	59 *	47	19	27	A-7-6
		7.0-11.0	0	4	5	50	41	29	7	20	A-4b
		11.0-15.0	0	8	6	48	38	30	11	20	A-6a
		15.0-16.0	Coal Blossom							19	Visual
		16.0-23.5	7	4	5	47	37	30	11	19	A-6a
1342+00	112'Lt	0.0-1.0	Brown Silty Clay W/Cinders								Visual
		1.0-2.0	7	4	8	35	46	43	19	24	A-7-6
		2.0-4.0	16	10	17	29	28	31	8	24	A-4a
		4.0-10.0	16	9	13	34	38	43	20	20	A-6a
		10.0-15.0	20	15	7	37	31	25	5	16	A-4a
1342+00	25'Rt	0.2-6.0	31	6	8	26	29	33	11	20	A-6a
		6.0-11.0	53	6	5	16	20	8	13	16	A-1a
		11.0-15.0	23	9	8	25	25	28	6	15	A-4a
		15.0-19.0	42	11	8	20	19	27	7	16	A-4a
		19.0-25.0	38	11	8	21	22	30	17	17	A-6b *
		25.0-30.0	27	9	8	30	26	31	11	19	A-6a *
		30.0-31.0	26	9	8	30	27	32	11	20	A-6a
		31.0-35.0	16	1	2	45	36	38	14	29	A-6a
1343+75	300'Rt	0.3-5.0	17	6	10	24	46	44	16	33	A-7-6
		5.0-8.0	8	1	4	40	47	33	11	26	A-6a
		8.0-9.0	45	4	5	33	13	36	11	24	A-6a
		9.0-11.0	38	10	8	29	26	33	13	20	A-6a
		11.0-15.0	4	5	4	62	27	34	10	24	A-4b
		15.0-22.0	2	4	2	30	57	38	11	24	A-6a
		22.0-24.0	0	16	8	33	43	35	13	27	A-6a
		24.0-27.0	4	12	9	30	45	38	16	16	A-6b
1343+95	165'Rt	0.4-6.0	23	8	8	33	31	43	13	26	A-7-6
		6.0-10.0	36	9	9	23	23	36	12	29	A-6a
		10.0-16.0	43	8	8	23	18	33	9	21	A-4a
		16.0-25.0	45	8	8	17	22	31	6	24	A-4a
		25.0-26.0	47	10	7	17	19	39	9	24	A-4a
		26.0-31.0	4	6	7	45	38	35	11	18	A-6a
		31.0-38.0	7	4	5	43	41	37	11	26	A-6a
1344+15	CL	0.2-6.0	19	11	12	26	32	41	9	28	A-5 *
		6.0-9.0	34	6	7	15	18	44	14	35	A-2-7
		9.0-13.5	40	8	9	20	23	33	11	16	A-4a
1344+17	CL	0.7-2.5	50	8	6	15	21	41	13	27	A-7-6 *
		2.5-8.0	22	9	11	24	34	37	13	24	A-6a
		8.0-15.0	52	10	7	19	12	28	8	17	A-2-4
		15.0-17.0	57	6	6	14	17	27	7	15	A-2-4
		17.0-21.0	38	10	8	26	22	31	11	19	A-6a
		21.0-26.0	48	7	7	17	21	29	11	18	A-6a
		26.0-30.0	0	3	5	40	52	35	13	26	A-6a

NOTE:

Classification characteristics in parentheses indicate test data for a sample determined by visual examination to have characteristics essentially the same as the sample obtained as representative of the given interval.

Continued on following sheet.

SOIL PROFILE
BELMONT COUNTY 3/11
BEL-40-~~23.45~~ 23.89
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

Revised 8/16/61

SUMMARY OF SOIL TEST DATA (Cont'd)

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicate that the material is non-plastic.
*Denotes sample taken at or near grade.

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1344+75	60'Rt	0.5-4.5	65	7	5	6	15	32	9	20	A-2-4
		4.5-10.0	52	10	8	12	18	24	5	15	A-2-4
		10.0-15.0	41	10	8	19	22	29	6	17	A-4a
		15.0-19.0	34	10	8	22	26	30	8	18	A-4a
		19.0-21.0	8	11	9	41	31	27	7	23	A-4a
		21.0-24.0	0	3	4	48	45	31	11	24	A-6a
		24.0-28.0	0	1	1	42	56	44	17	27	A-7-6
		28.0-33.0	0	2	3	41	51	31	11	33	A-6a
		33.0-38.0	0	1	1	37	61	43	18	30	A-7-6
*1345+45	180'Rt	0.0-3.0	3	5	9	45	38	32	11	19	A-6a
		3.0-10.0	22	8	7	27	36	38	13	24	A-6a
		10.0-14.0	49	4	3	23	21	34	11	27	A-6a
		14.0-20.0	17	4	5	41	33	30	11	25	A-6a
		20.0-22.0	18	12	9	32	29	28	11	20	A-6a
		22.0-24.0	0	2	3	60	35	34	12	27	A-6a
		24.0-30.0	0	1	3	39	57	47	24	26	A-7-6
		30.0-36.0	0	4	5	39	53	40	18	31	A-6b
1345+50	95'Lt	0.2-10.0	6	9	9	28	48	45	19	28	A-7-6
		10.0-15.0	0	2	5	41	52	44	16	28	A-7-6
1345+50	70'Rt	0.5-3.0	12	4	8	26	50	41	5	24	A-5
		3.0-6.5	32	7	8	22	31	29	21	21	A-6b
		6.5-9.0	36	4	8	25	27	26	5	13	A-4a
		9.0-16.0	2	1	3	35	59	40	14	22	A-6a
		16.0-20.0	0	3	4	38	55	36	12	27	A-6a
		20.0-22.0	0	0	1	40	59	41	17	25	A-7-6
		22.0-26.0	0	6	7	36	51	41	11	34	A-7-5
		26.0-30.0	0	1	1	27	71	48	21	30	A-7-6
		30.0-34.0	0	2	3	44	51	46	20	34	A-7-6
		34.0-38.0	0	2	4	44	50	46	15	30	A-7-5
		38.0-44.0	0	1	3	17	79	54	22	33	A-7-5
		44.0-47.0	0	1	2	28	69	57	26	34	A-7-5
1346+10	75'Rt	0.5-1.5	10	14	15	33	28	38	9	29	A-4a
		1.5-5.5	46	8	6	19	21	32	8	19	A-4a
		5.5-11.0	32	7	6	29	26	29	11	18	A-6a
		11.0-14.5	23	10	8	30	29	28	6	17	A-4a
1348+20	30'Lt	0.4-4.0	25	8	10	23	34	39	13	23	A-6a
		4.0-10.0	19	9	9	27	41	45	22	29	A-7-6
		10.0-17.0	7	9	9	33	42	41	16	26	A-7-6
		17.0-21.0	0	3	2	46	49	38	15	27	A-6a
		21.0-26.0	0	3	2	46	49	43	15	29	A-7-6
1348+20	60'Rt	0.5-3.0	12	6	7	40	35	53	23	29	A-7-5
		3.0-4.0	6	5	10	36	41	47	20	40	A-7-6
		4.0-6.0	22	8	9	31	30	37	11	23	A-6a
		6.0-10.0	13	4	9	37	37	32	11	25	A-6a
		10.0-13.0	0	1	2	36	61	43	19	27	A-7-6
		13.0-22.0	15	10	9	31	35	36	12	29	A-6a
		22.0-27.0	0	1	3	42	54	41	18	28	A-7-6
1349+25	235'Rt	1.0-5.0	26	5	6	29	34	43	16	28	A-7-6
		5.0-6.0	12	9	8	32	39	47	16	26	A-7-6
		6.0-15.0	24	11	10	29	26	35	11	20	A-6a
		15.0-18.0	6	10	11	40	33	29	5	24	A-4a
		18.0-25.0	15	8	8	26	43	36	12	19	A-6a
		25.0-30.0	5	9	9	33	44	39	13	23	A-6a
		30.0-35.0	7	10	9	27	47	39	14	22	A-6a
		33.0-36.0	6	3	6	32	53	47	18	34	A-7-6
		36.0-40.0	0	2	4	32	62	46	18	27	A-7-6
		40.0-47.0	15	6	7	27	45	37	11	19	A-6a

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1350+25	55'Lt	0.8-3.0	34	4	5	19	38	45	19	28	A-7-6
		3.0-6.0	4	8	8	36	44	42	13	32	A-7-6
		6.0-10.0	17	10	7	26	40	43	18	26	A-7-6
		10.0-17.0	22	8	8	29	33	40	23	28	A-6b
		17.0-19.0	25	12	9	26	28	30	11	17	A-6a
		19.0-23.0	35	9	9	17	30	30	11	18	A-6a
		23.0-24.0	0	2	2	32	64	55	19	16	A-7-5
		24.0-26.0	10	7	9	33	41	35	13	34	A-6a
		26.0-28.0	0	2	4	33	61	48	20	22	A-7-6
		28.0-30.0	0	1	1	34	64	71	36	35	A-7-5
		30.0-35.0	0	2	14	39	45	46	22	35	A-7-6
1351+00	75'Rt	0.2-12.0	38	8	8	21	25	31	7	14	A-4a
1351+00	80'Rt	0.2-13.0	19	11	9	30	31	31	11	19	A-6a
		13.0-15.0	9	12	10	32	37	35	14	17	A-6a
1353+65	165'Rt	1.0-3.0	0	5	6	32	57	52	25	26	A-7-6
		3.0-6.0	33	5	5	21	36	44	17	23	A-7-6
		6.0-7.0	8	7	6	28	51	39	18	16	A-6b
		7.0-10.0	24	10	7	23	36	38	15	21	A-6a
		10.0-11.0	Gray Weathered Shale							7	Visual
		11.0-16.0	Gray Weathered Shale							8	Visual
		16.0-17.0	Gray Weathered Shale							10	Visual
		17.0-19.0	Gray Weathered Shale							11	Visual
		19.0-22.0	Gray Weathered Shale							17	Visual
		22.0-23.5	Gray Weathered Shale							7	Visual
		23.5-25.0	Gray Weathered Shale							15	Visual
1353+80	110'Lt	0.6-3.0	Brown Sandy Clayey Silt								Visual
		3.0-6.0	11	4	4	37	44	48	22	32	A-7-6
		6.0-11.0	5	2	4	46	43	32	11	28	A-6a
		11.0-15.0	24	5	6	25	40	31	11	20	A-6a
		15.0-21.0	12	4	5	36	43	32	12	19	A-6a
1353+80	35'Rt	0.5-4.0	0	5	5	44	46	60	23	39	A-7-5
		4.0-9.0	8	10	8	36	38	32	11	22	A-6a
		9.0-16.0	7	9	8	37	39	33	11	21	A-6a
1356+00	150'Lt	1.0-4.0	0	3	4	39	54	43	17	25	A-7-6
		4.0-11.0	0	6	7	39	48	39	14	21	A-6a
		11.0-15.0	0	1	3	39	57	48	23	28	A-7-6
		15.0-16.0	0	10	21	9	60	40	23	32	A-7-6
1358+00	90'Lt	0.2-3.0	0	6	6	28	60	49	23	31	A-7-6
		3.0-5.0	0	4	9	25	62	58	28	31	A-7-5
1359+00	75'Lt	0.2-2.0	0	2	2	44	52	43	16	21	A-7-6
		2.0-4.0	0	5	4	40	51	44	17	25	A-7-6
		4.0-9.0	0	2	4	47	47	44	14	23	A-7-6
		9.0-13.0	0	2	3	42	53	44	15	27	A-7-6
		13.0-16.0	0	2	3	40	55	49	20	27	A-7-6
		16.0-25.0	0	4	5	36	55	39	13	20	A-6a
1359+00	CL	0.5-4.0	0	3	3	45	49	46	14	22	A-7-5 *
		4.0-9.0	0	4	4	36	56	48	16	23	A-7-5 *
		9.0-15.0	0	6	5	45	44	33	11	23	A-6a
		15.0-17.0	54	4	4	18	20	32	11	27	A-6a
		17.0-22.0	26	8	8	28	30	28	11	16	A-6a
1359+00	95'Rt	1.0-1.5	3	11	11	31	44	42	17	25	A-7-6
		1.5-5.0	11	13	10	25	41	47	14	30	A-7-5
		5.0-9.0	2	5	5	39	49	40	15	24	A-6a
		9.0-11.0	5	11	8	30	46	45	16	29	A-7-6
		11.0-17.5	8	7	7	33	45	39	18	18	A-6b
		17.5-22.0	11	5	6	30	48	37	13	19	A-6a
		22.0-28.0	0	3	8	34	54	36	11	14	A-6a
		28.0-30.0	7	10	6	38	39	34	12	6	A-6a
		30.0-30.5	Gray Broken Shale							5	Visual

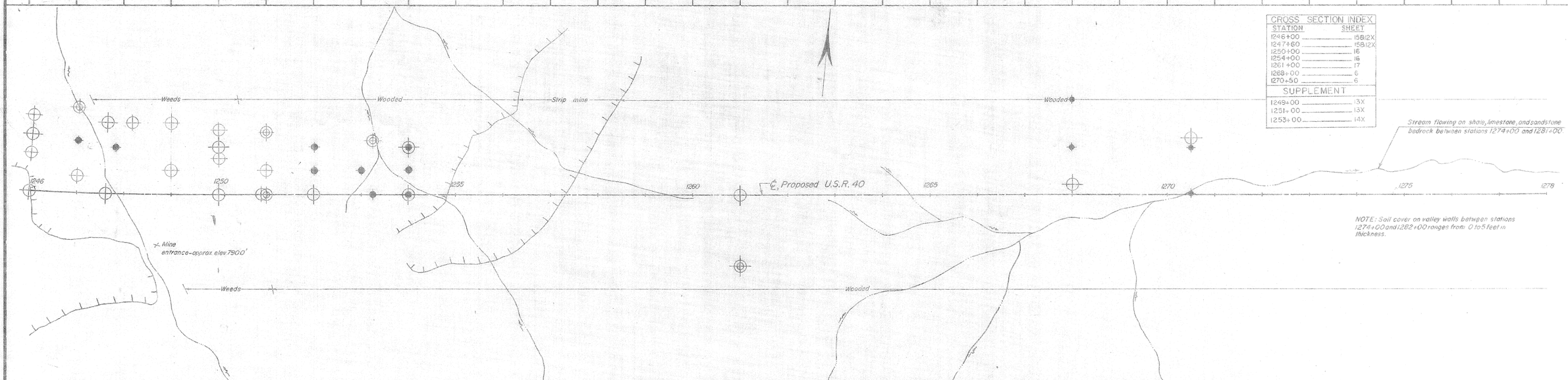
STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1360+75	30'Rt	0.6-3.0	0	2	4	41	53	45	17	30	A-7-6 *
		3.0-9.0	0	8	8	38	46	36	12	21	A-6a
		9.0-15.0	31	9	7	24	29	30	6	18	A-4a
		15.0-17.0	0	11	9	40	40	30	7	17	A-4a
		17.0-19.0	15	7	8	36	34	27	7	17	A-4a
1361+00	60'Lt	0.6-5.0	0	4	5	45	46	38	11	23	A-6a
		5.0-8.0	43	5	4	26	22	36	11	23	A-6a
		8.0-15.0	0	7	8	44	41	29	5	19	A-4a
		15.0-23.0	0	7	6	45	42	34	11	17	A-6a
1361+00	40'Rt	0.0-3.0	0	6	4	38	52	45	14	34	A-7-5
		3.0-6.0	0	7	6	39	48	45	19	23	A-7-6 *
1361+00	157'Rt	0.2-2.0	0	4	6	30	60	46	20	28	A-7-6
		2.0-6.0	32	15	8	23	22	34	11	8	A-6a
1362+10	28'Rt	0.7-2.0	0	2	3	54	41	48	18	29	A-7-5
		2.0-5.0	0	2	4	37	57	60	22	30	A-7-5
		5.0-7.0	0	2	3	37	58	43	10	27	A-5
		7.0-14.0	9	4	10	30	47	40	15	24	A-6a
		14.0-15.0	0	3	6	36	55	42	13	21	A-7-6
		15.0-17.0	22	3	4	21	50	44	11	23	A-7-5
		17.0-19.0	0	2	4	35	59	40	14	18	A-6a
		19.0-23.0	6	2	5	50	37	29	6	10	A-4b
1362+25	60'Lt	0.8-5.0	0	3	4	40	45	36	11	23	A-6a
		5.0-9.0	0	4	5	43	48	39	13	23	A-6a
		9.0-15.0	0	1	1	67	31	NP	NP	27	A-4b
		15.0-21.0	12	7	6	41	34	35	11	22	A-6a
1362+50	225'Rt	0.2-5.0	0	1	1	26	72	48	20	29	A-7-6
		5.0-8.0	Gray Broken Shale							7	Visual
1362+60	60'Lt	0.2-5.0	34	4	5	21	36	35	11	24	A-6a
1364+00	50'Lt	0.0-7.0	Black Cinders and Coal Fragments W/ Silty Clay								Visual
1365+50	50'Rt	0.2-6.0	0	8	7	31	54	36	11	26	A-6a
1366+00	30'Lt	0.2-15.0	15	7	7	37	34	43	20	20	A-7-6
		15.0-25.0	16	8	13	29	34	37	17	24	A-6b
		25.0-30.0	13	8	10	30	39	37	14	23	A-6a
1370+00	50'Lt	0.0-3.0	0	2	15	44	39	NP	NP	57	A-4a
		3.0-7.0	0	1	8	45	46	44	12	56	A-7-5
		7.0-14.0	43	3	5	5	4	32	2	16	A-1-a
		14.0-18.5	80	3	4	5	8	31	9	16	A-2-4
1371+00	50'Rt	0.0-4.0	0	3	14	50	33	NP	NP	51	A-4b
		4.0-8.0	9	3	17	35	36	39	12	44	A-6a
		8.0-13.0	77	4	7	6	6	31	6	22	A-1-a
		13.0-17.0	74	6	8	5	7	NP	NP	17	A-1-a
1371+75	CL	0.0-6.0	0	1	13	42	44	45	16	34	A-7-6
		6.0-10.5	0	0	32	31	37	33	11	35	A-6a
		10.5-13.0	0	1	22	37	40	68	26	56	A-7-5
		13.0-19.0	69	6	12	2	11	30	4	17	A-1-a

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
		DRIVE SAMPLE SOIL TEST DATA									
1218+00	105'Rt	5.0-5.5	-	6	5	19	70	53	20	22	A-7-5
1223+47	CL	5.0-6.0	18	5	5	24	48	44	17	30	A-7-6
		10.0-11.0	30	7	4	20	39	-	-	27	A-4a
		15.0-16.0	29	5	5	33	28	32	7	23	A-4a
1340+00	132'Rt	5.0-6.0	0	2	6	34	58	42	14	31	A-7-6
		10.0-11.0	0	4	8	45	43	31	11	22	A-6a
		15.0-16.0	21	3	5	40	31	30	11	23	A-6a
		20.0-21.0	42	8	6	23	21	33	11	22	A-6a
		25.0-26.0	23	8	11	24	34	30	11	26	A-6a
		30.0-31.0	16	6	8	32	38	31	13	24	A-6a
		35.0-36.0	20	4	10	22	44	36	17	22	A-6b
		40.0-41.0	41	9	10	24	16	29	6	18	A-4a
		45.0-46.0	0	2	2	44	52	35	11	21	A-6a
		50.0-51.0	0	2	4	43	51	32	11	14	A-6a
1340+00	275'Rt	5.0-6.0	0	1	5	40	54	48	23	36	A-7-6
		10.0-11.0	0	4	17	30	49	47	17	29	A-7-5
		15.0-16.0	16	4	9	41	30	29	11	20	A-6a
		20.0-20.4	0	8	7	50	35	30	5	15	A-4b
1343+75	293'Rt	5.0-6.0	15	6	11	36	32	32	11	25	A-6a
		10.0-11.0	31	3	6	33	27	32	11	27	A-6a
		15.0-16.0	39	15	7	18	27	33	12	23	A-6a
		20.0-21.0	18	10	10	27	29	33	14	26	A-6a
		25.0-26.0	11	6	6	30	47	34	11	21	A-6a
		30.0-31.0	2	37	21	21	19	21	1	24	A-4a
		35.0-35.2	8	17	7	20	48	34	11	25	A-6a
		40.0-41.0	-	9	9	33	49	33	15	28	A-6a
		45.0-46.0	19	8	7	25	41	37	14	22	A-6a
		50.0-51.0	2	5	5	30	58	40	16	24	A-6b
		55.0-55.2	25	10	9	35	21	32	15	17	A-6a
		60.0-61.0	12	25	9	19	35	35	11	25	A-6a
1341+00	71'Lt	5.0-6.0	6	2	4	50	38	32	12	23	A-6a
		10.0-11.0	49	5	3	20	23	31	13	23	A-6a
		15.0-16.0	15	3	4	39	40	34	13	21	A-6a
		20.0-21.0	48	8	4	19	24	26	5	27	A-4a
		30.0-31.0	26	4	4	23	41	42	15	26	A-7-6
		35.0-36.0	25	5	5	24	41	32	12	21	A-6a
		40.0-41.0	0	8	2	36	54	36	14	27	A-6a
		45.0-46.0	4	0	4	39	53	38	15	30	A-6a
		50.0-51.0	46	2	4	21	27	32	11	30	A-6a
1344+83	35'Lt	5.0-6.0	44	10	4	14	28	30	13	23	A-6a
		7.5-8.5	19	7	4	22	48	37	14	25	A-6a
		10.0-11.0	8	3	4	38	57	34	10	23	A-4a
		12.5-13.5	12	3	12	36	37	29	10	25	A-4a
1347+27	35'Rt	5.0-6.0	59	5	4	10	22	-	-	21	A-2-4
		7.5-8.5	36	3	4	23	34	33	11	22	A-6a
		10.0-11.0	45	3	4	16	32	30	9	26	A-4a
		12.5-13.5	44	5	4	18	32	34	17	22	A-6b
		15.0-16.0	73	4	4	6	13	34	16	23	A-2-6
1348+80	35'Lt	5.0-6.0	29	10	8	17	36	30	7	14	A-4a
		10.0-11.0	74	10	9	2	5	NP	NP	19	A-1-a
		12.5-13.5	43	18	10	11	18	28	10	10	A-2-4
		15.0-16.0	44	1	3	34	48	36	6	15	A-6b
1370+74	35'Rt	5.0-6.0	59	7	8	12	14	34	7	35	A-2-4
		10.0-11.0	79	8	6	3	4	NP	NP	19	A-1-a
		15.0-16.0	71	7	12	3	7	NP	NP	7	A-1-a

TE 54 R
1500 10 63

SOIL PROFILE 4/11
BELMONT COUNTY
BEL - 40 - ~~XXX~~ 23.89
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

Revised 8/16/61
Revised 2/5/62

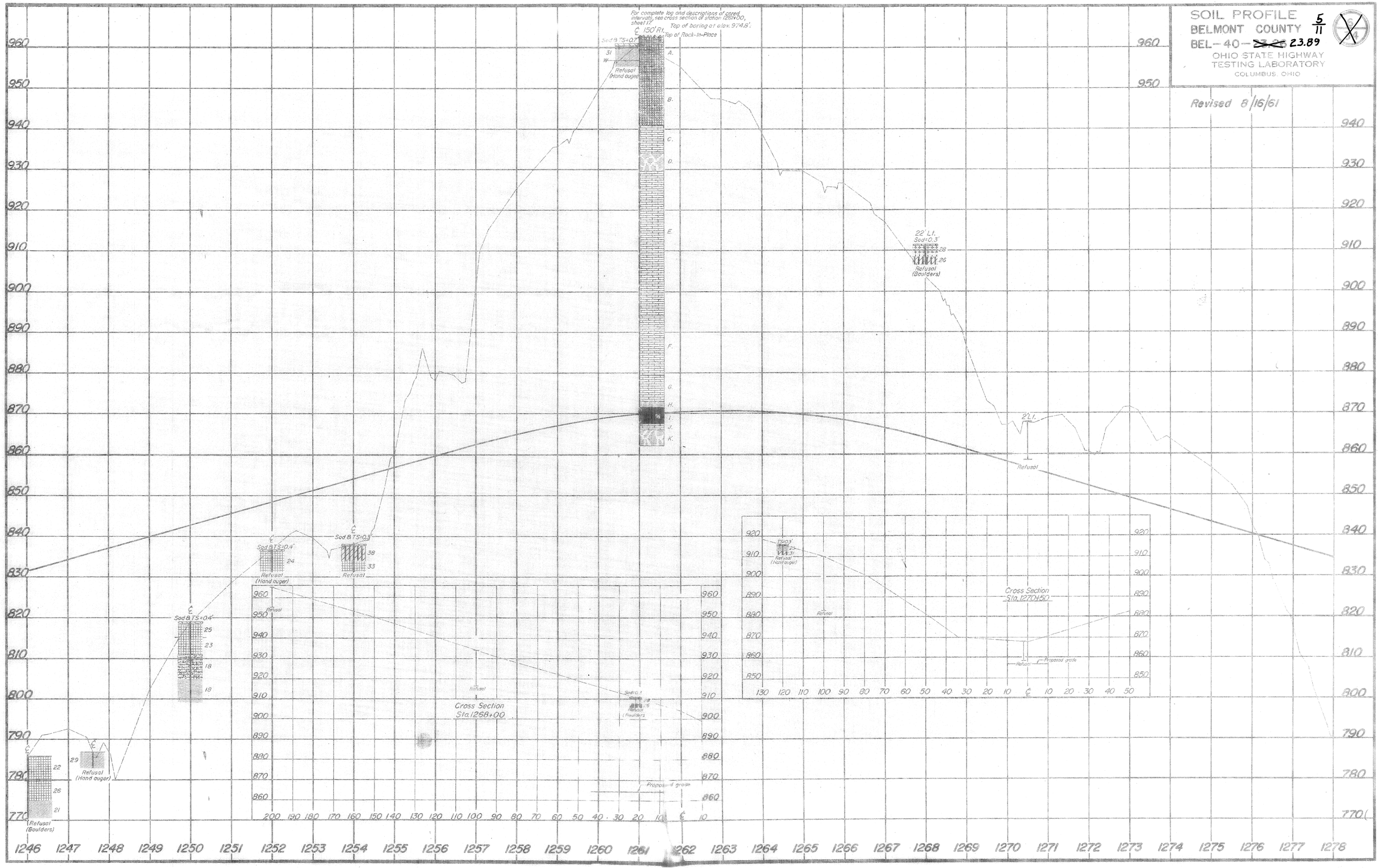


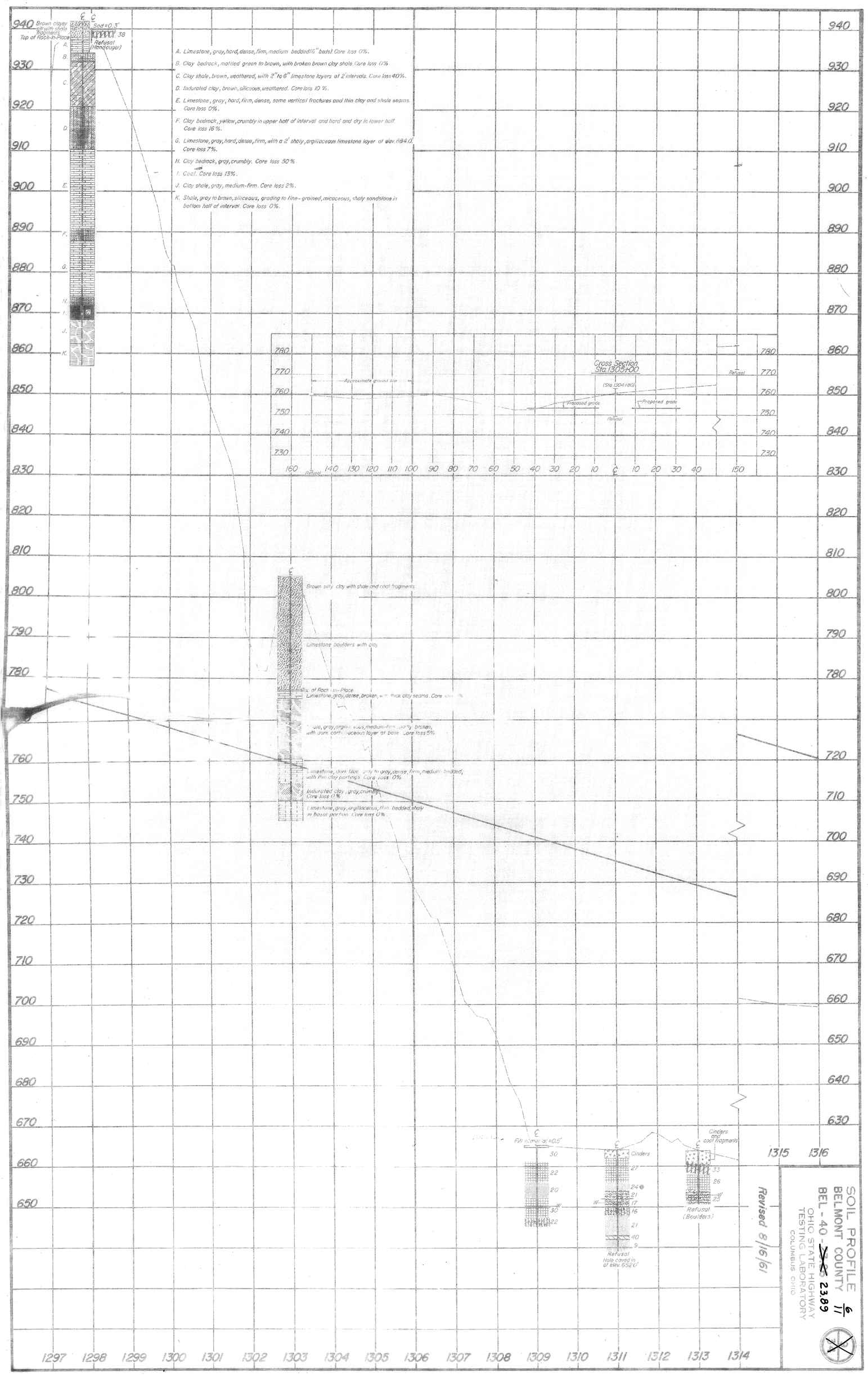
CROSS SECTION INDEX	
STATION	SHEET
1246+00	15B12X
1247+60	15B12X
1250+00	16
1254+00	16
1261+00	17
1268+00	6
1270+50	6
SUPPLEMENT	
1249+00	13X
1251+00	13X
1253+00	14X

TE 54.8
1500.10 60

SOIL PROFILE
BELMONT COUNTY 5/11
BEL-40-~~13.26~~ 23.89
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

Revised 8/16/61




Brown clayey silt with shale fragments
Top of Rock-in-Place
Sod=0.3'
38
Refusal (Hand auger)
A. Limestone, gray, hard, dense, firm, medium bedded(6" beds). Core loss 0%.
B. Clay bedrock, mottled green to brown, with broken brown clay shale. Core loss 0%.
C. Clay shale, brown, weathered, with 2" to 6" limestone layers at 2' intervals. Core loss 40%.
D. Indurated clay, brown, siliceous, weathered. Core loss 10 %.
E. Limestone, gray, hard, firm, dense, some vertical fractures and thin clay and shale seams. Core loss 0%.
F. Clay bedrock, yellow, crumbly in upper half of interval and hard and dry in lower half. Core loss 16 %.
G. Limestone, gray, hard, dense, firm, with a 2' shaly, argillaceous limestone layer at elev. 884.0'. Core loss 7%.
H. Clay bedrock, gray, crumbly. Core loss 50 %.
I. Coal. Core loss 13%.
J. Clay shale, gray, medium-firm. Core loss 2%.
K. Shale, gray to brown, siliceous, grading to fine-grained, micaceous, shaly sandstone in bottom half of interval. Core loss 0%.
Cross Section Sta.1305+00
(Sta.1304+80)
Approximate ground line
Proposed grade
Proposed grade
Refusal
Refusal
Refusal
Brown silty clay with shale and coal fragments
Limestone boulders with clay
Top of Rock-in-Place
Limestone, gray, dense, broken, with thick clay seams. Core loss 0%
Shale, gray, argillaceous, medium-firm, partly broken, with dark carbonaceous layer at base. Core loss 5%
Limestone, dark blue gray to gray, dense, firm, medium bedded, with thin clay partings. Core loss 0%
Indurated clay, gray, crumbly. Core loss 0%
Limestone, gray, argillaceous, thin bedded, shaly in basal portion. Core loss 0%
Fill (Hand auger) =0.5'
Cinders
Cinders and coal fragments
Refusal (Boulders)
Refusal
Hole caved in at elev. 652.0'
Revised 8/16/61
SOIL PROFILE
BELMONT COUNTY 6/11
BEL - 40 - ~~7.2~~ 23.89
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS OHIO

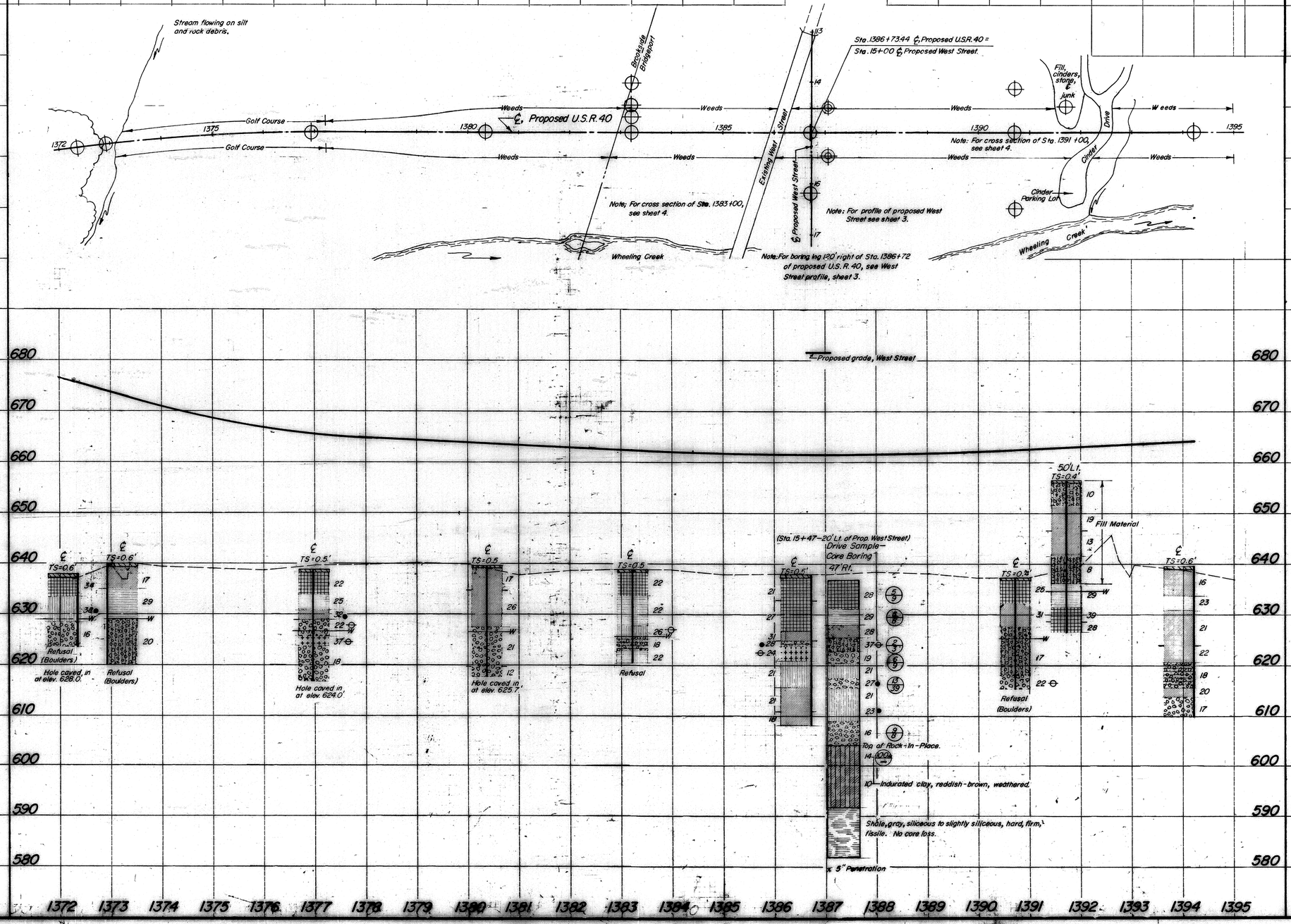
TE.54-B
900-5-59

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

2/4

OHIO STATE HIGHWAY TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

Revised 6/8/61



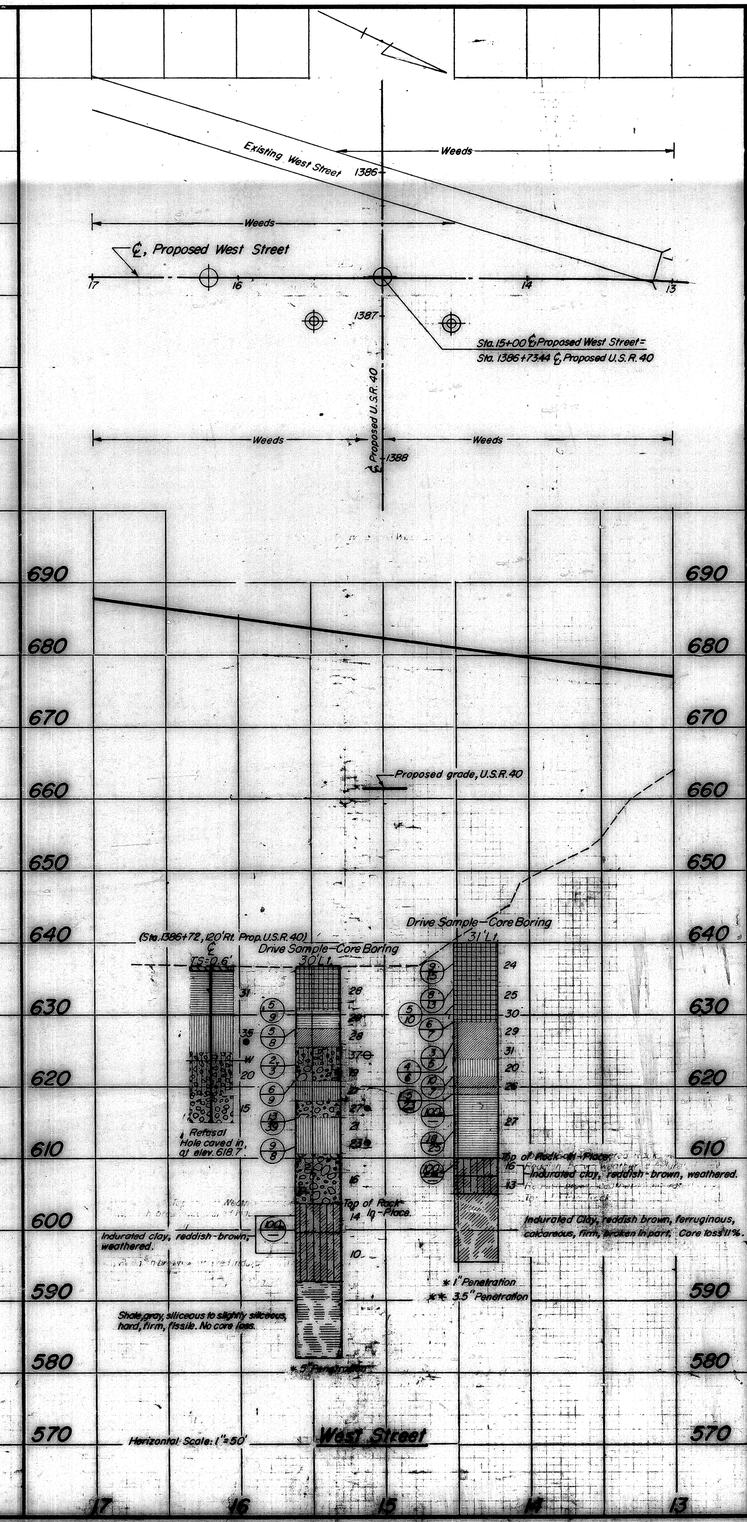
TE-54-B
900-5-59

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

3/4

Revised 6/8/61



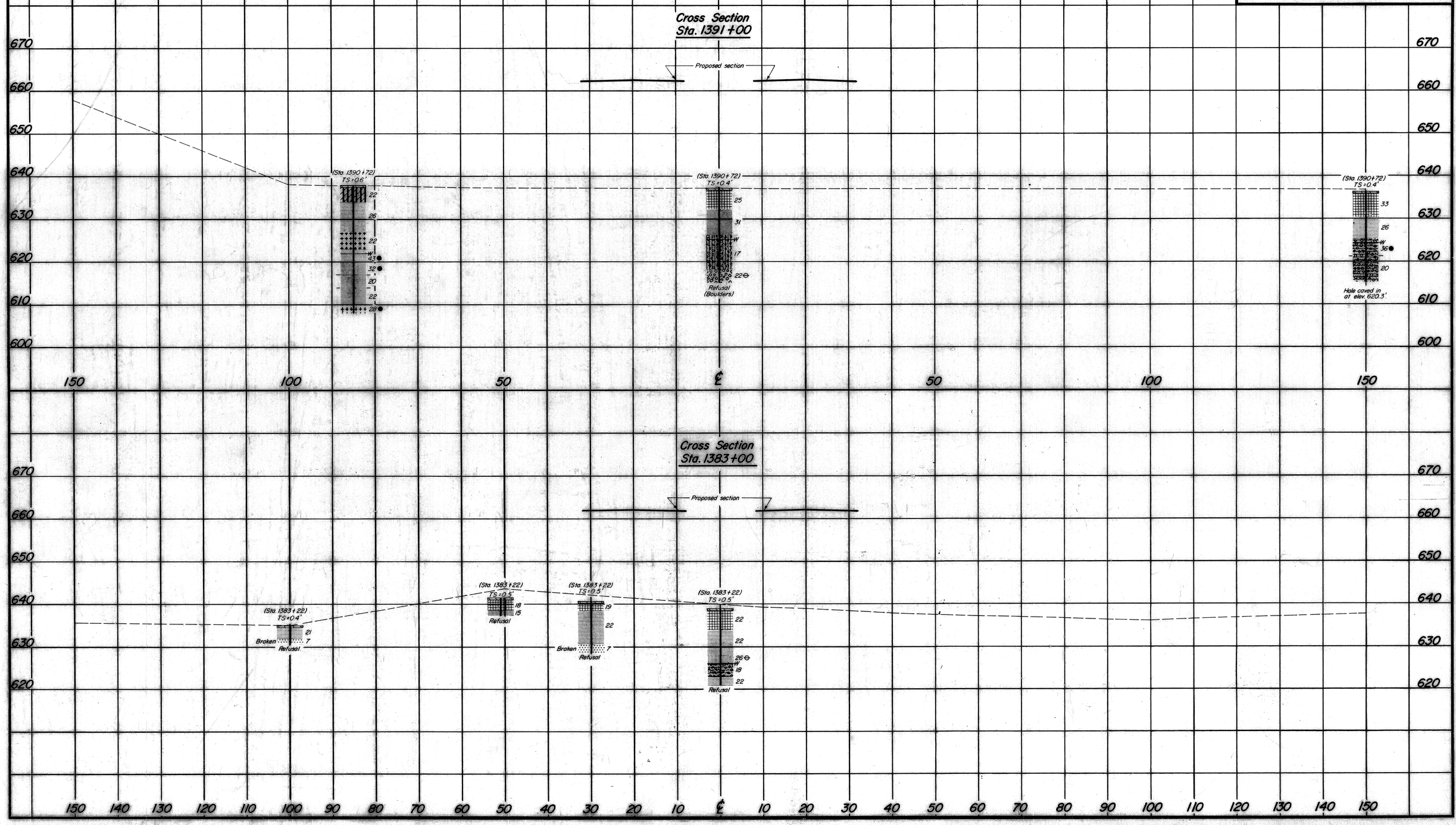
TE-54-B
1500-10-60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

4/4

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

Supplemental 6/8/61



TE54.B
1500.10.60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

1X
12X

Supplement 2/20/62

SUMMARY OF SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.

STATION & OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SOIL CLASS.
1287+00 90'Lt	0.0-6.0	Broken Coal Fragments								Visual
	6.0-10.0	Gray Underclay								Visual
	10.0-12.0	Gray Broken Shale							11	Visual
1289+00 70'Lt	0.0-9.0	Broken Coal Fragments								Visual
	9.0-11.0	Gray Underclay							11	Visual
1290+00 80'Lt	0.0-4.0	20	0	0	23	49	43	20	21	A-7-6
	4.0-10.0	Broken Coal Fragments								Visual
	10.0-14.0	Gray Underclay							7	Visual
1291+00 85'Lt	0.0-9.0	Broken Coal Fragments								Visual
	9.0-15.0	Gray Underclay							7	Visual
1318+00 200'Lt	0.0-3.0	41	14	18	10	17	32	10	18	A-2-4
	3.0-8.0	75	6	9	5	5	NP	NP	12	A-1-a
1318+00 100'Lt	0.0-4.0	43	1	14	19	23	39	19	23	A-6b
	4.0-9.0	66	12	8	7	7	31	4	20	A-1-a
	9.0-11.0	47	11	20	11	11	29	7	13	A-2-4
1319+00 200'Lt	0.0-3.0	0	2	23	37	38	57	27	51	A-7-5
	3.0-7.0	55	6	18	10	11	29	4	29	A-1-b
1319+00 100'Lt	0.0-2.0	0	3	25	35	37	40	12	32	A-6a
	2.0-8.0	67	6	13	5	9	31	6	26	A-1-a
	8.0-10.0	43	12	19	11	15	32	9	16	A-2-4
1319+00 CL	0.0-4.0	43	13	21	9	14	31	8	23	A-2-4
	4.0-9.0	75	10	7	3	5	28	2	19	A-1-a
	9.0-11.0	78	6	7	4	5	28	6	7	A-1-a
	11.0-15.0	38	12	20	14	16	31	7	19	A-2-4
1319+00 150'Rt	0.0-6.0	40	13	20	10	17	37	14	27	A-2-6
	6.0-11.0	51	5	13	14	17	27	5	16	A-2-4
	11.0-16.0	44	10	14	17	15	27	7	12	A-2-4
	16.0-22.0	53	8	13	15	11	28	6	15	A-2-4
1319+50 CL	0.0-4.0	0	1	6	45	48	46	10	44	A-5
	4.0-10.0	76	8	9	3	4	NP	NP	18	A-1-a
1319+75 200'Lt	0.0-2.5	0	2	6	29	63	57	23	56	A-7-5
	2.5-4.0	0	1	1	48	50	63	31	61	A-7-5
	4.0-6.0	51	12	17	10	10	NP	NP	17	A-1-b
1320+00 100'Lt	0.0-2.5	0	0	1	39	60	52	22	51	A-7-5
	2.5-4.0	37	9	9	21	24	44	11	46	A-7-5
	4.0-7.0	72	7	9	6	6	NP	NP	14	A-1-a
	7.0-9.0	60	8	13	9	10	NP	NP	17	A-1-b
	9.0-10.0	13	12	24	23	28	33	11	20	A-6a
1320+00 CL	0.0-3.0	0	2	8	43	47	49	12	26	A-7-5
	3.0-6.0	0	0	2	47	51	50	22	53	A-7-5
	6.0-11.0	84	6	5	- 5 -		NP	NP	21	A-1-a
	11.0-16.0	67	10	10	5	8	NP	NP	9	A-1-a
1320+00 75'Rt	0.0-4.0	2	5	11	44	38	42	14	38	A-6a
	4.0-7.0	0	3	5	40	52	60	38	55	A-7-5
	7.0-12.0	35	11	14	20	20	28	7	20	A-1-a
	12.0-17.0	45	7	14	16	18	23	6	17	A-2-4
1320+00 150'Rt	0.0-6.0	17	23	19	10	33	32	6	22	A-1-a
	6.0-11.0	37	15	15	16	17	33	8	29	A-2-4
	11.0-17.0	59	10	12	11	8	26	4	10	A-1-b
	17.0-23.0	49	7	11	15	18	29	6	21	A-2-4
1320+00 CL	0.0-4.0	4	1	2	39	54	57	26	45	A-7-5
	4.0-5.0	0	2	9	44	45	77	44	25	A-7-5
	5.0-10.0	39	9	14	17	21	32	9	23	A-1-a
	10.0-15.0	44	5	19	17	15	30	7	21	A-2-4
1321+00 150'Rt	0.0-5.0	0	2	10	45	43	39	11	33	A-6a
	5.0-10.0	34	12	13	21	20	37	11	33	A-6a
	10.0-15.0	64	8	12	8	8	NP	NP	11	A-1-b
	15.0-20.0	47	5	6	13	9	21	-3-	20	A-1-b
	20.0-26.0	57	8	11	12	12	32	6	15	A-1-b
1357+00 65'Rt	0.5-4.0	16	6	7	26	45	49	*16	36	A-7-5
	4.0-8.0	14	6	6	31	41	39	11	23	A-6a
	8.0-13.0	18	6	6	30	40	45	18	23	A-7-6
	13.0-17.0	15	9	6	31	39	44	17	37	A-7-6
	17.0-21.0	32	5	7	23	33	35	11	23	A-6a
	21.0-25.0	44	3	5	35	43	37	15	17	A-6a
	25.0-27.5	0	2	2	53	43	30	10	25	A-4b
	27.5-30.0	23	5	6	32	34	37	17	18	A-6b
1357+50 65'Rt	0.5-2.5	8	2	5	34	51	45	22	25	A-7-6
	2.5-4.5	0	1	3	35	61	53	25	31	A-7-6
	4.5-9.0	7	2	4	37	49	43	25	27	A-7-6
	9.0-13.0	6	4	3	30	57	36	13	21	A-6a
	13.0-15.0	5	1	2	37	55	50	21	29	A-7-6
	15.0-17.0	16	3	4	37	39	52	14	39	A-7-5
	17.0-22.5	49	7	5	17	22	34	11	15	A-6a
	22.5-25.0	2	0	1	74	23	NP	NP	22	A-4b
	25.0-27.5	5	2	3	49	41	31	11	22	A-6a
	27.5-29.0	0	1	1	61	36	31	8	24	A-4b
	29.0-30.0	0	1	3	41	55	52	20	39	A-7-5
	30.0-31.0	11	2	10	34	43	37	16	37	A-6b
1358+05 65'Rt	0.5-3.5	15	8	8	30	39	43	13	25	A-7-5
	3.5-7.0	0	4	4	39	53	51	25	29	A-7-6
	7.0-9.5	16	6	7	33	43	38	15	21	A-6a
	9.5-13.0	13	3	4	24	56	42	17	26	A-7-6
	13.0-18.0	3	4	4	27	62	34	13	18	A-6a
	18.0-23.0	10	3	4	32	51	38	16	21	A-6b
	23.0-25.5	29	4	4	26	37	33	11	21	A-6a
	25.5-27.5	38	2	4	34	32	39	14	22	A-6a
	27.5-29.0	Brownish Gray Clay & Shale Fragments							9	Visual
	29.0-31.0	20	4	4	31	32	37	14	13	A-6a
1359+50 65'Rt	0.5-5.0	22	6	5	30	37	38	17	24	A-6b
	5.0-8.5	9	7	7	37	40	33	12	18	A-6a
	8.5-11.0	18	2	2	44	37	34	12	19	A-6a
	11.0-16.0	13	3	3	43	38	34	13	21	A-6a
	16.0-21.0	17	5	7	34	37	27	11	13	A-6a
	21.0-26.5	8	2	5	44	41	36	14	21	A-6a
	26.5-28.5	37	3	3	24	33	38	14	20	A-6a
	28.5-30.0	54	2	2	18	24	38	15	12	A-6a
1359+00 51'Rt	0.5-5.0	7	5	6	46	36	37	11	20	A-6a
	5.0-9.5	28	4	4	34	30	37	14	12	A-6a
	9.5-15.0	19	6	6	37	32	41	15	23	A-6a
	15.0-19.5	26	2	2	44	26	32	11	21	A-6a
	19.5-25.0	36	5	4	21	32	34	11	20	A-6a
	25.0-30.0	12	2	3	44	39	34	13	20	A-6a
1359+50 57'Rt	0.5-5.0	0	4	4	39	53	51	22	25	A-7-6
	5.0-10.0	4	3	4	36	53	40	13	31	A-6a
	10.0-12.5	24	3	4	32	37	36	13	19	A-6a
	12.5-17.0	20	4	5	29	42	34	12	20	A-6a
	17.0-22.0	20	4	5	29	42	34	13	17	A-6a
	22.0-27.0	25	6	5	26	38	32	12	17	A-6a
	27.0-30.0	10	6	5	32	47	30	11	19	A-6a
	30.0-32.0	0	1	2	15	82	44	19	25	A-7-6
1360+00 60'Rt	0.3-3.0	2	1	2	70	25	46	23	23	A-7-6
	3.0-7.0	12	5	4	41	37	41	15	22	A-7-6
	7.0-9.5	23	5	5	27	40	32	14	15	A-6a
	9.5-16.5	22	7	6	19	47	33	14	15	A-6a
	16.5-17.5	0	5	4	42	49	34	11	20	A-6a
	17.5-22.0	27	3	3	36	31	35	13	19	A-6a
	22.0-25.0	16	6	5	21	52	30	11	16	A-6a
	25.0-27.5	8	5	6	40	41	32	11	19	A-6a
	27.5-29.5	44	3	7	23	23	39	11	20	A-6a
	29.5-30.0	Black Carbonaceous Shale								Visual
1360+40 77'Rt	0.5-5.0	0	2	2	46	50	49	21	24	A-7-6
	5.0-9.0	0	4	5	57	34	30	11	18	A-6b
	9.0-12.0	58	2	3	11	26	43	16	30	A-7-6
	12.0-16.5	36	7	6	12	39	32	11	14	A-6a
	16.5-20.5	18	4	6	28	42	33	13	15	A-6a
	20.5-21.5	0	2	3	56	39	39	14	20	A-6a
	21.5-22.5	38	2	2	26	32	33	11	11	A-6a
	22.5-23.0	Light Brown Broken Shale							6	Visual

DRIVE SAMPLE SOIL TEST DATA

25

STATION & OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SOIL CLASS.
1284+50 310'Lt	5.0-6.0	Brown Clayey Silty Sand With Gravel							19	Visual
1290+30 120'Lt	5.0-6.0	0	3	3	24	60	41	16	22	A-7-6
	10.0-11.0	0	2	4	32	62	39	13	18	A-6b
1296+50 65'Rt ✓	5.0-6.1	7	9	7	27	50	35	14	22	A-6a
	7.5-9.0	5	4	5	42	44	35	14	21	A-6a
	9.0-10.5	36	8	6	21	29	40	21	25	A-6b
	21.0-22.5	25	9	7	28	31	33	11	20	A-6a
	22.5-25.0	34	9	5	21	31	32	11	17	A-6a
	25.0-26.5	26	11	6	29	28	30	11	20	A-6a
	30.0-31.5	14	6	5	31	44	39	14	24	A-6a
	35.0-36.0	0	3	5	44	48	30	13	18	A-6a
1350+00 65'Rt	5.0-6.5	0	7	7	27	59	42	17	25	A-7-6
	6.5-8.0	6	3	4	36	51	39	18	16	A-7-6
	10.9-11.0	0	8	7	30	47	-	-	21	A-6a
	11.0-12.5	3	4	7	44	45	37	15	21	A-6a
	12.9-14.0	0	1	15	-84-		33	11	21	A-6a
	14.0-15.0	21	7	6	30	36	32	12	21	A-6a
	18.9-19.4	0	7	8	-85-		-	-	20	A-6b
	19.4-20.9	8	3	3	50	28	35	16	19	A-6b
	25.0-26.0	0	3	5	29	66	-	-	22	A-6b
	26.0-27.5	13	4	3	26	54	37	17	20	A-6b
	30.0-30.6	Brown Silty Clay							17	Visual
	30.6-31.6	2	2	2	39	55	30	9	13	A-4a
1350+40 65'Rt	5.0-5.5	20	11	6	30	33	36	12	22	A-6a
	10.0-11.0	21	10	7	29	33	31	11	16	A-6a
	11.0-12.5	2	7	5	35	51	31	10	19	A-4a
	14.0-15.0	5	8	6	30	51	-	-	17	A-4a
	15.0-16.5	15	7	4	32	42	29	9	19	A-4a
	17.0-17.5	0	6	4	34	56	32	14	16	A-6a
	17.5-19.0	13	8	5	28	46	33	13	18	A-6a
	20.0-21.2	8	10	7	34	41	-	-	19	A-6a
	21.2-22.7	4	6	6	31	53	-	-	20	A-6a
	25.0-26.0	4	6	6	31	53	-	-	20	A-6a
	26.0-27.5	21	8	5	32	34	-	-	19	A-6a
	30.0-31.2	0	1	2	20	67	-	-	21	A-6a
	31.2-31.7	0	3	2	26	69	36	15	18	A-6a
	35.0-36.0	0	8	9	27	56	30	9	14	A-4a
1360+75 65'Rt	6.0-7.0	0	3	2	40	55	51	23	26	A-7-6
	7.0-8.5	0	4	6	42	48	42	18	23	A-7-6
	11.0-12.0	0	4	5	33	58	36	12	23	A-6a
	12.0-13.5	0	5	5	32	58	42	18	22	A-7-6
	17.5-18.9	22	5	9	30	34	33	9	16	A-4a
	18.9-20.5	9	2	6	44	39	34	12	26	A-6a
	22.5-23.5	0	3	8	28	61	-	-	21	A-6a
	23.5-25.0	15	4	5	30	46	36	12	19	A-6a

Read 2-23-62. WHP.

TE-54 B
1500-10-60

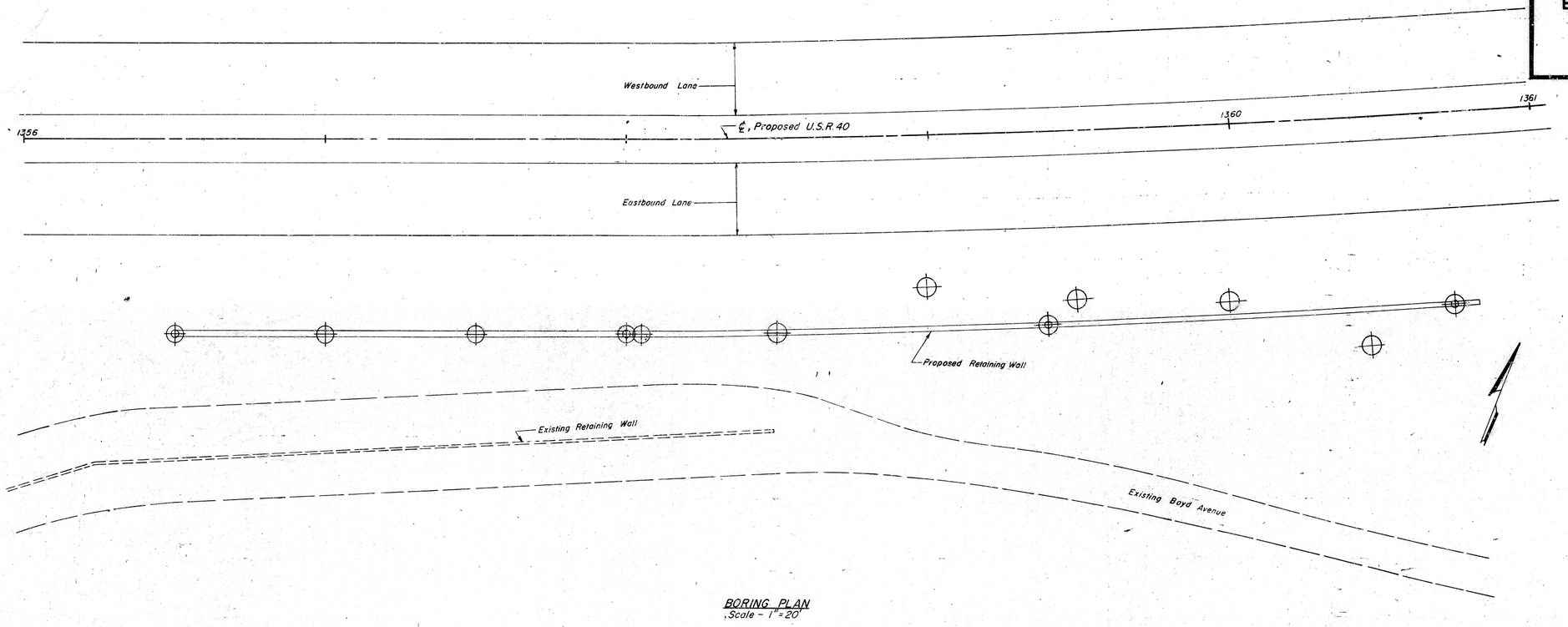
SOIL PROFILE
BELMONT COUNTY
BEL - 40 - 23.89

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

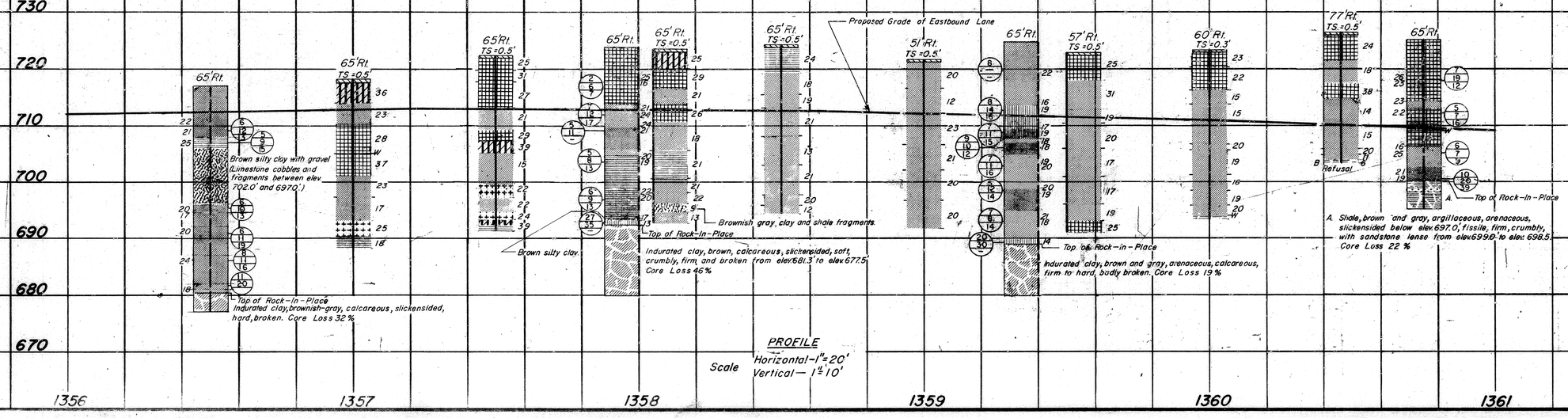
2X / 12X

1 / OLD

Revised 2/20/62



BORING PLAN
Scale - 1" = 20'



PROFILE
Scale Horizontal - 1" = 20'
Vertical - 1" = 10'

TE-54-8
1500-10-60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

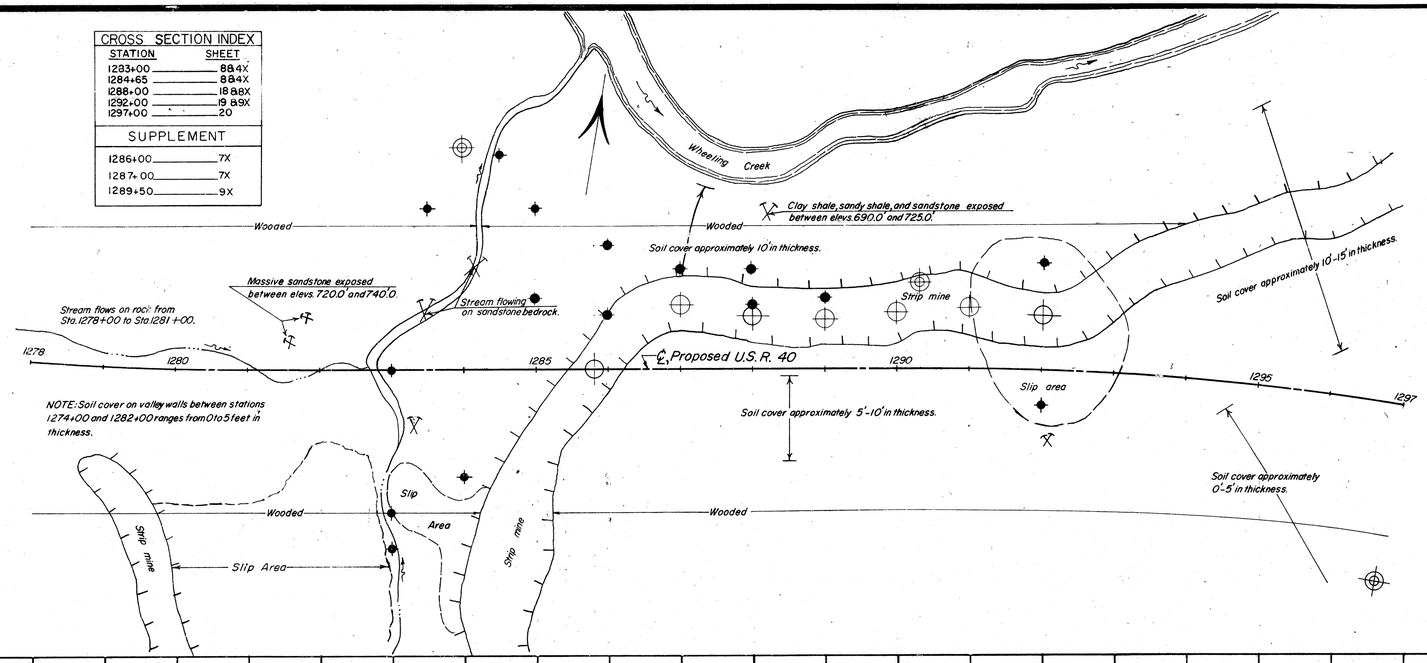
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

3X / 12X

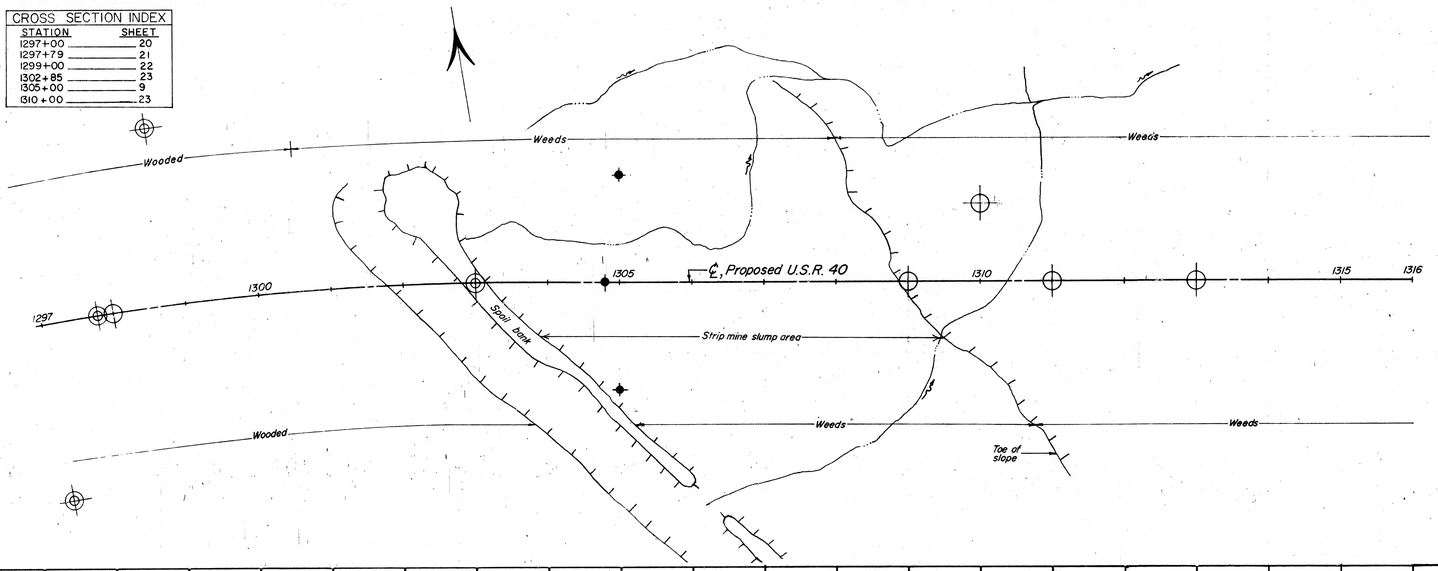
7 / 34 OLD

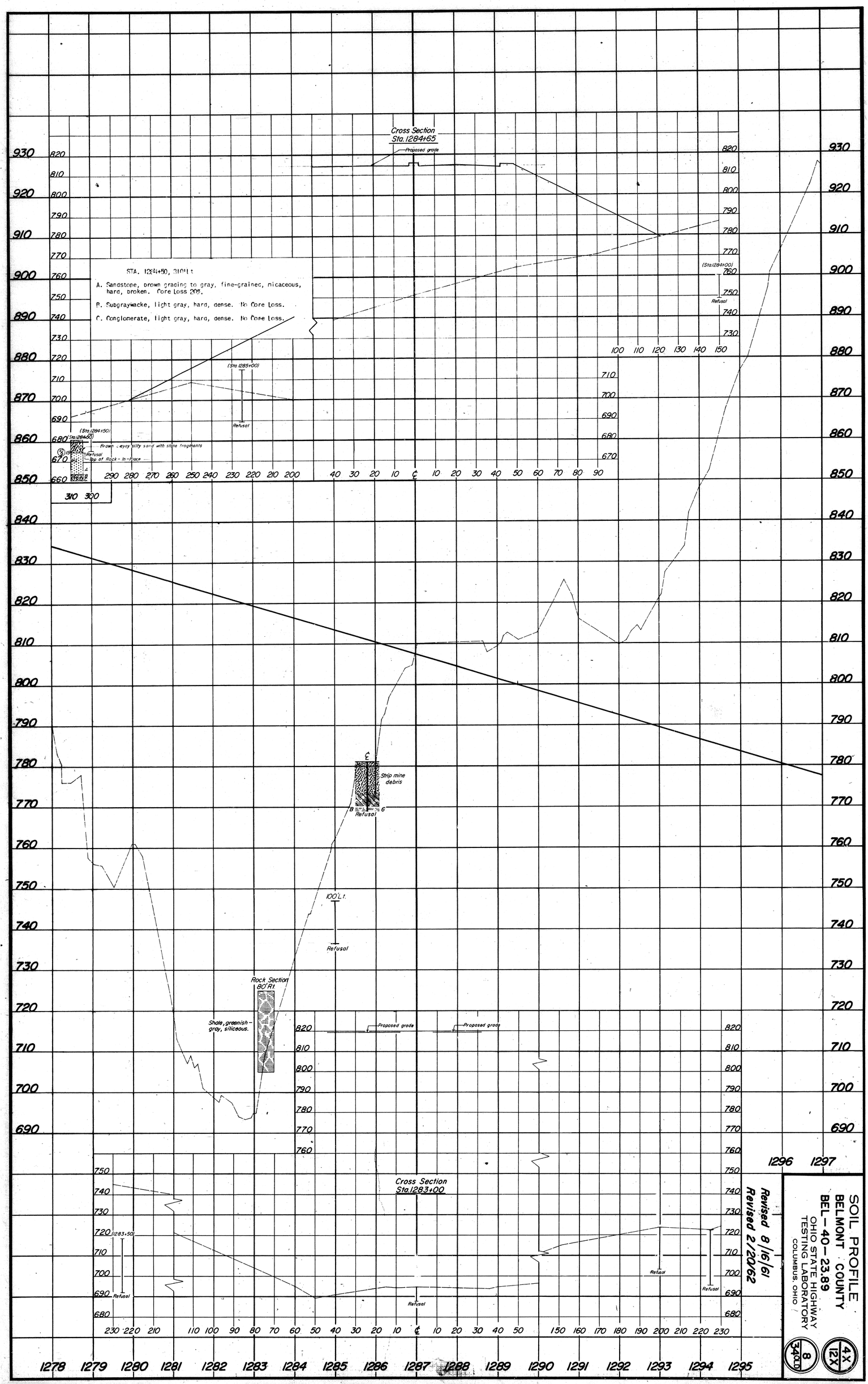
Revised 8/16/61
Revised 2/20/62

CROSS SECTION INDEX	
STATION	SHEET
1283+00	8&4X
1284+65	8&4X
1288+00	18&8X
1292+00	19&9X
1297+00	20
SUPPLEMENT	
1286+00	7X
1287+00	7X
1289+50	9X



CROSS SECTION INDEX	
STATION	SHEET
1297+00	20
1297+79	21
1299+00	22
1302+85	23
1305+00	9
1310+00	23




Cross Section
Sta. 1284+65
Proposed grade
STA. 1284+50, 310' Lt
A. Sandstone, brown grading to gray, fine-grained, micaceous, hard, broken. Core Loss 20%.
B. Subgraywacke, light gray, hard, dense. No Core Loss.
C. Conglomerate, light gray, hard, dense. No Core Loss.
(Sta. 1285+00)
Refusal
(Sta. 1284+50)
(Sta. 1284+20)
Brown, very silty sand with stone fragments
Refusal
Top of Rock - In - Place
(Sta. 1284+00)
Refusal
Strip mine debris
Refusal
100' Lt.
Refusal
Rock Section
80' Rt.
Shale, greenish-gray, siliceous.
Proposed grade
Proposed grade
Cross Section
Sta. 1283+00
(1283+50)
Refusal
Refusal
Refusal
Refusal
1278 1279 1280 1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295
1296 1297
Revised 8/16/61
Revised 2/20/62
SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO
8
340
4X
12X

TE.54.B
1500.10.60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

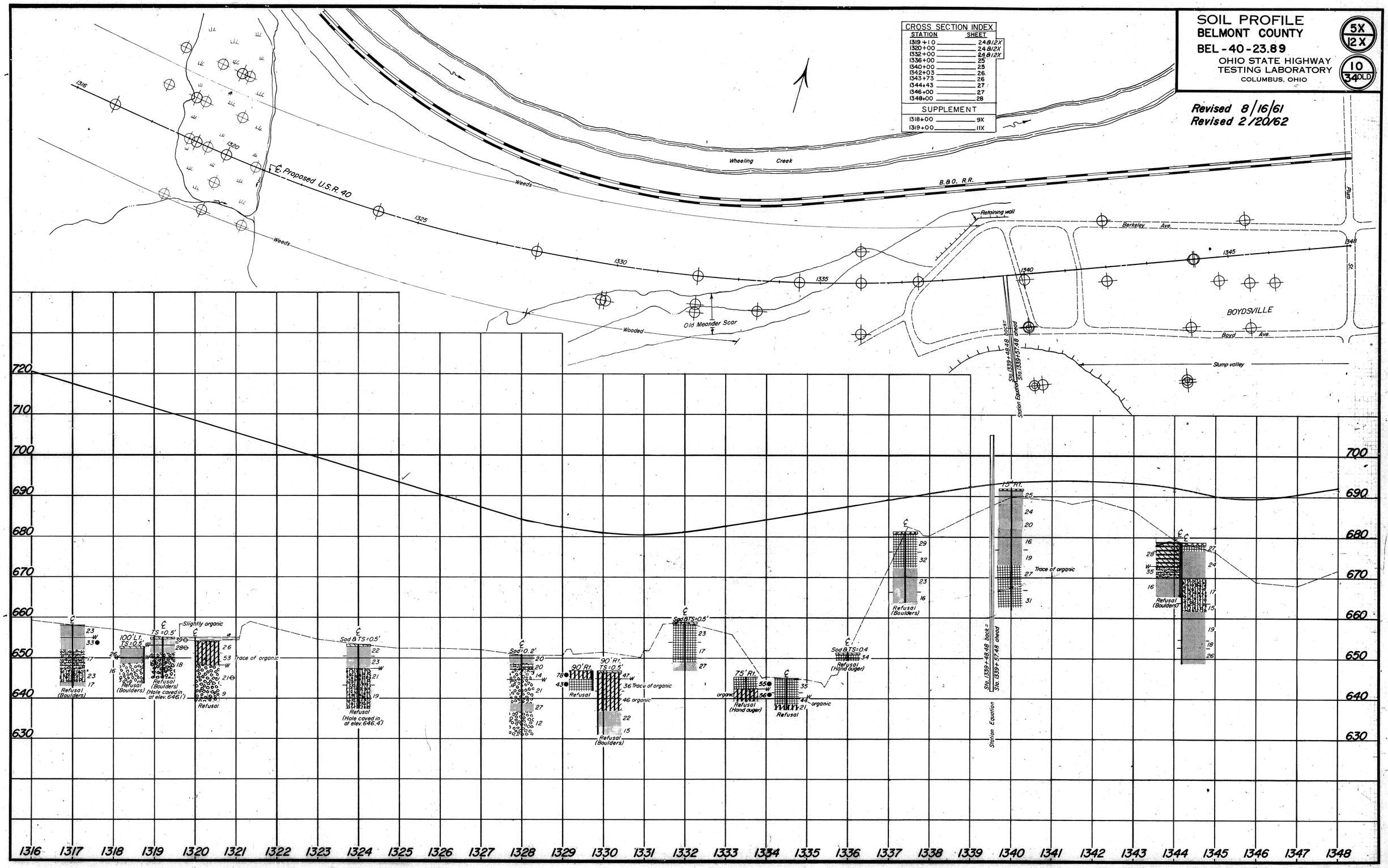
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

5X / 12X

10 / 34 OLD

Revised 8/16/61
Revised 2/20/62

CROSS SECTION INDEX	
STATION	SHEET
1319+10	24 & 12X
1320+00	24 & 12X
1332+00	24 & 12X
1336+00	25
1340+00	25
1342+03	26
1343+73	26
1344+43	27
1346+00	27
1348+00	28
SUPPLEMENT	
1318+00	9X
1319+00	11X



TE 54 B
1500-10-60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

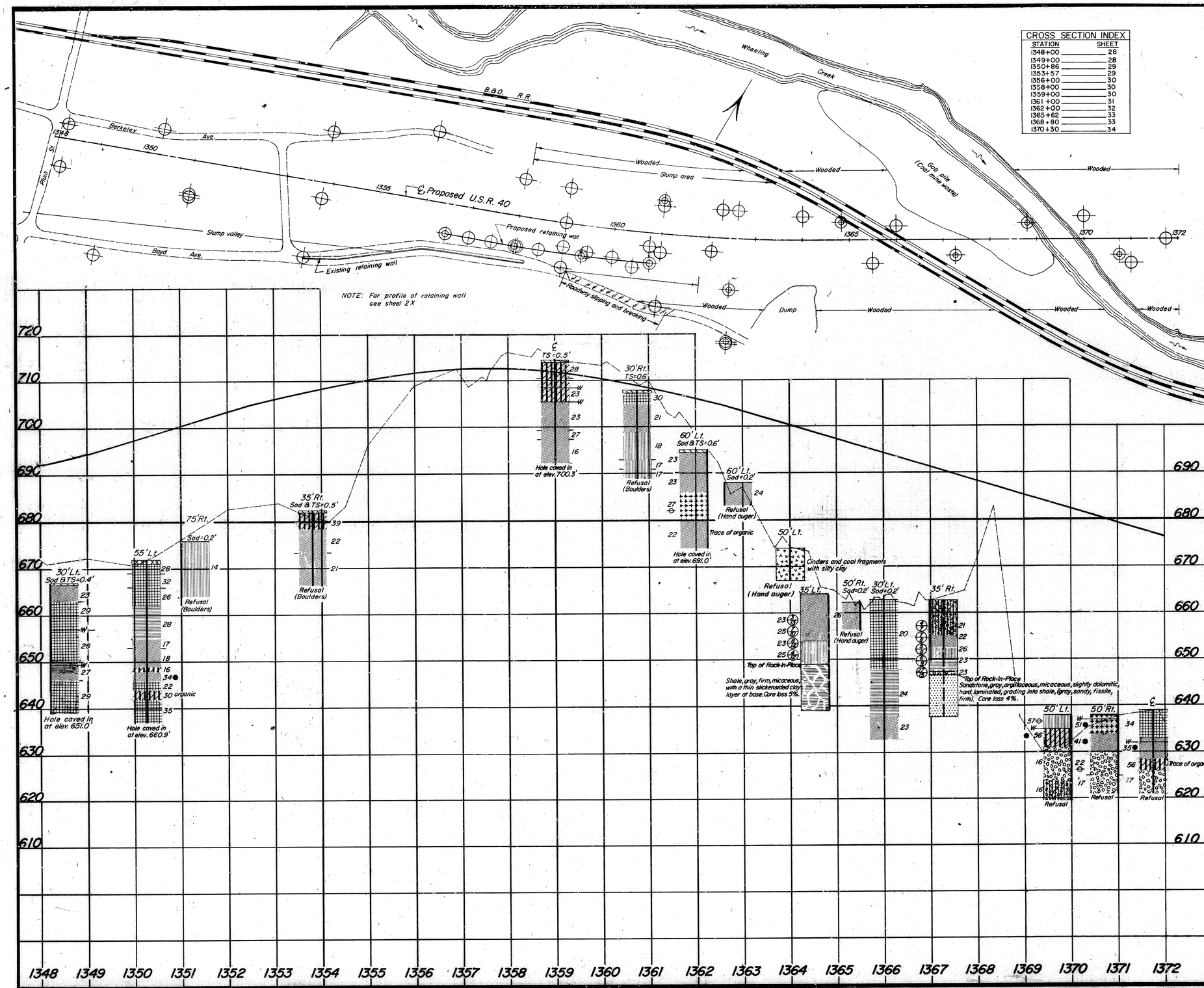
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

6X / 12X

11 / 34 OLD

Revised 8/16/61
Revised 2/20/62

CROSS SECTION INDEX	
STATION	SHEET
1348+00	28
1349+00	28
1350+86	29
1353+57	29
1356+00	30
1358+00	30
1359+00	30
1361+00	31
1362+00	32
1365+62	33
1368+80	33
1370+30	34



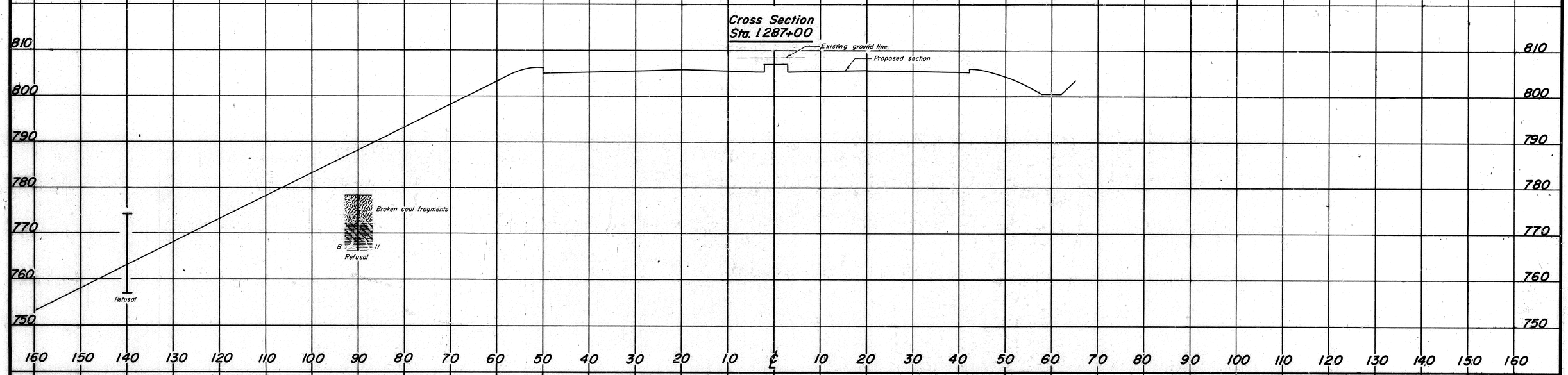
TE-54-B
1500-10-60

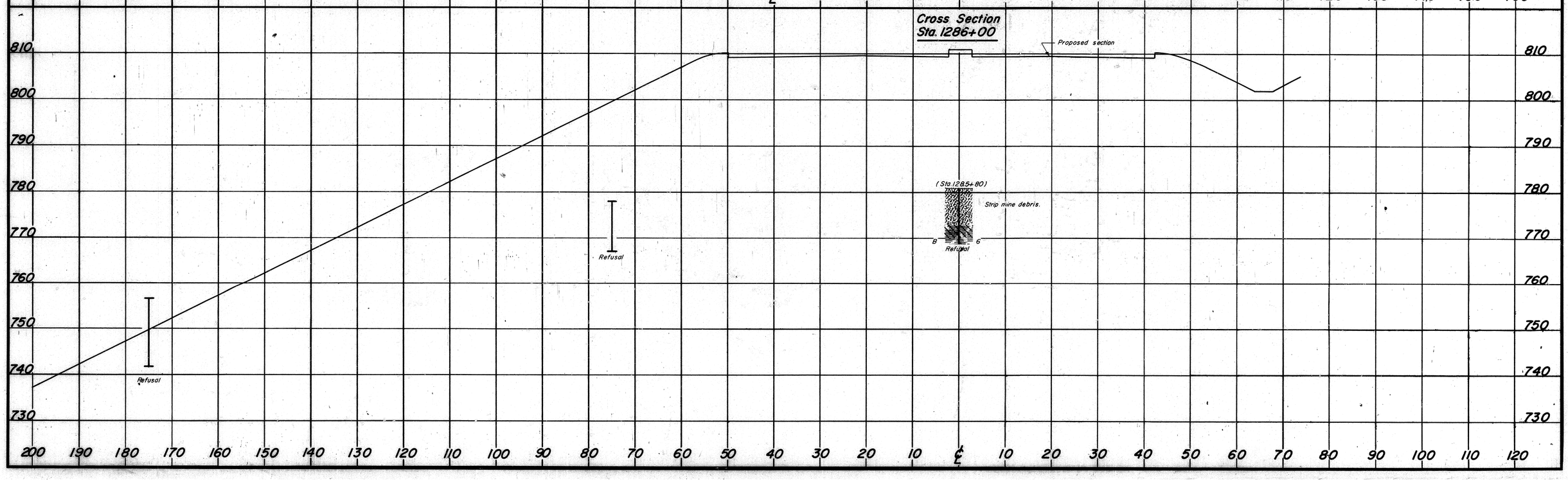
SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

7X
12X

Supplement 2/20/62





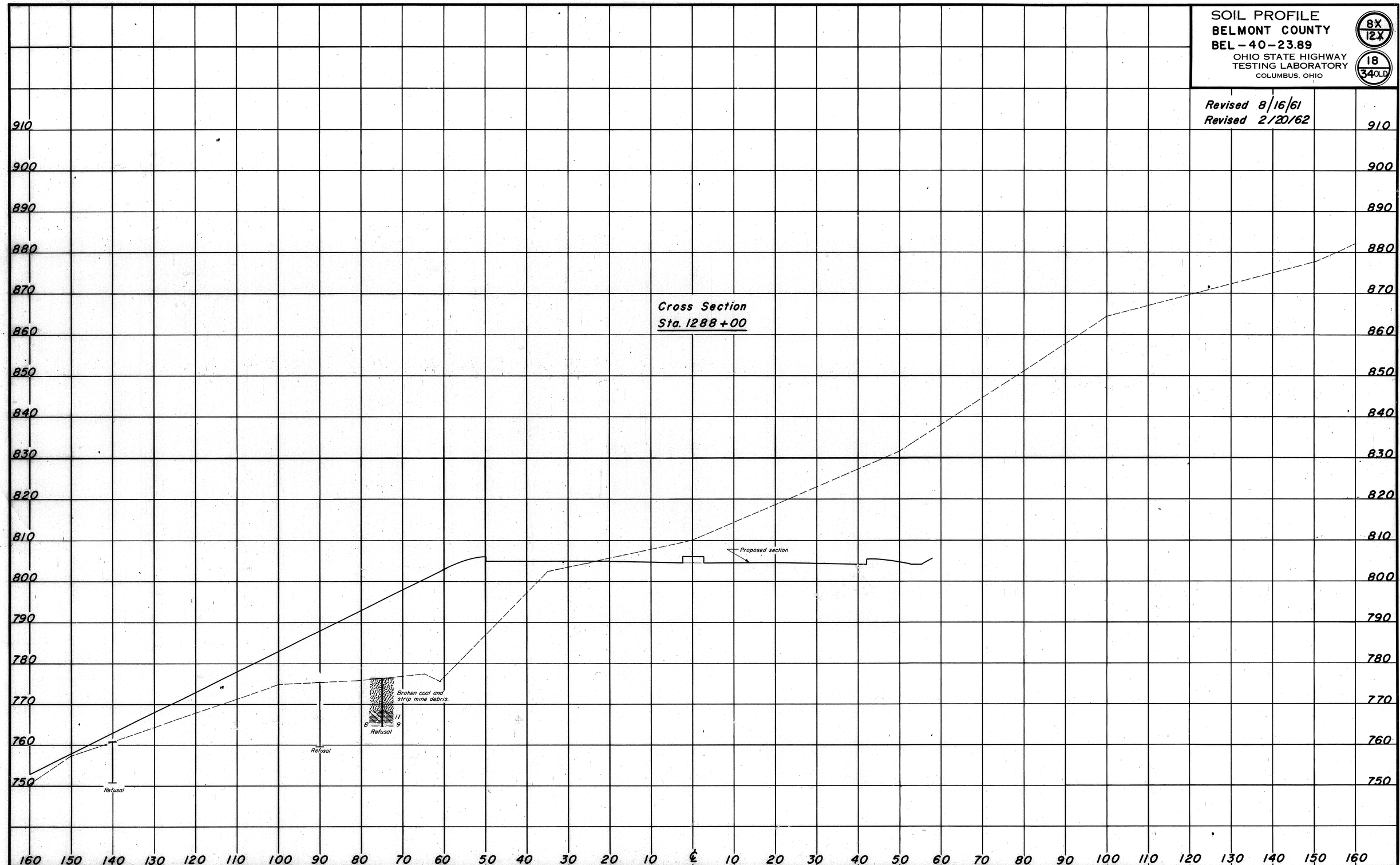
TE-54-B
1500-10-60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

8X / 12X

18 / 34 OLD

Revised 8/16/61
Revised 2/20/62



TE 54.8
1500-10 60

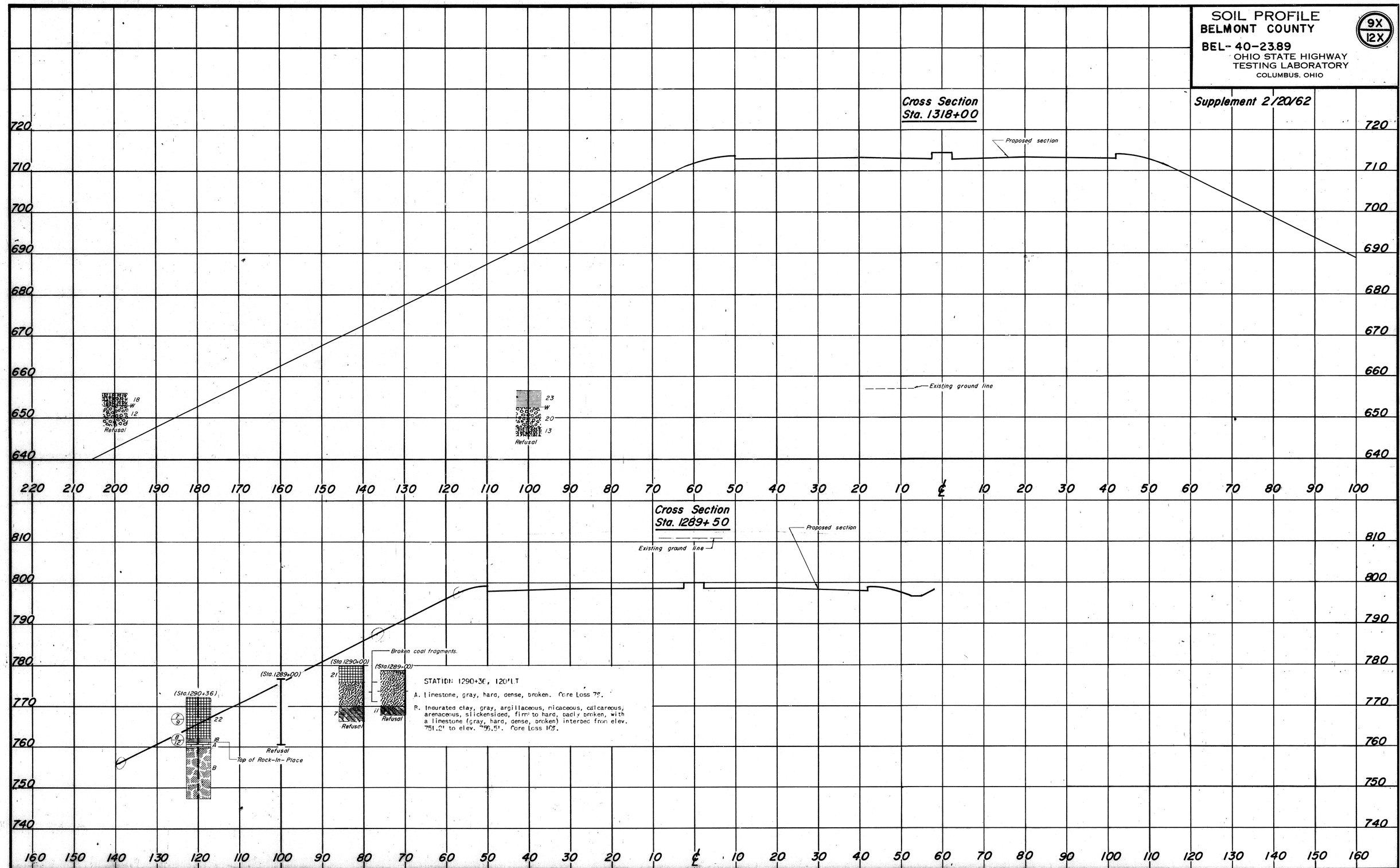
SOIL PROFILE
BELMONT COUNTY

BEL- 40-23.89

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

9X
12X

Supplement 2/20/62



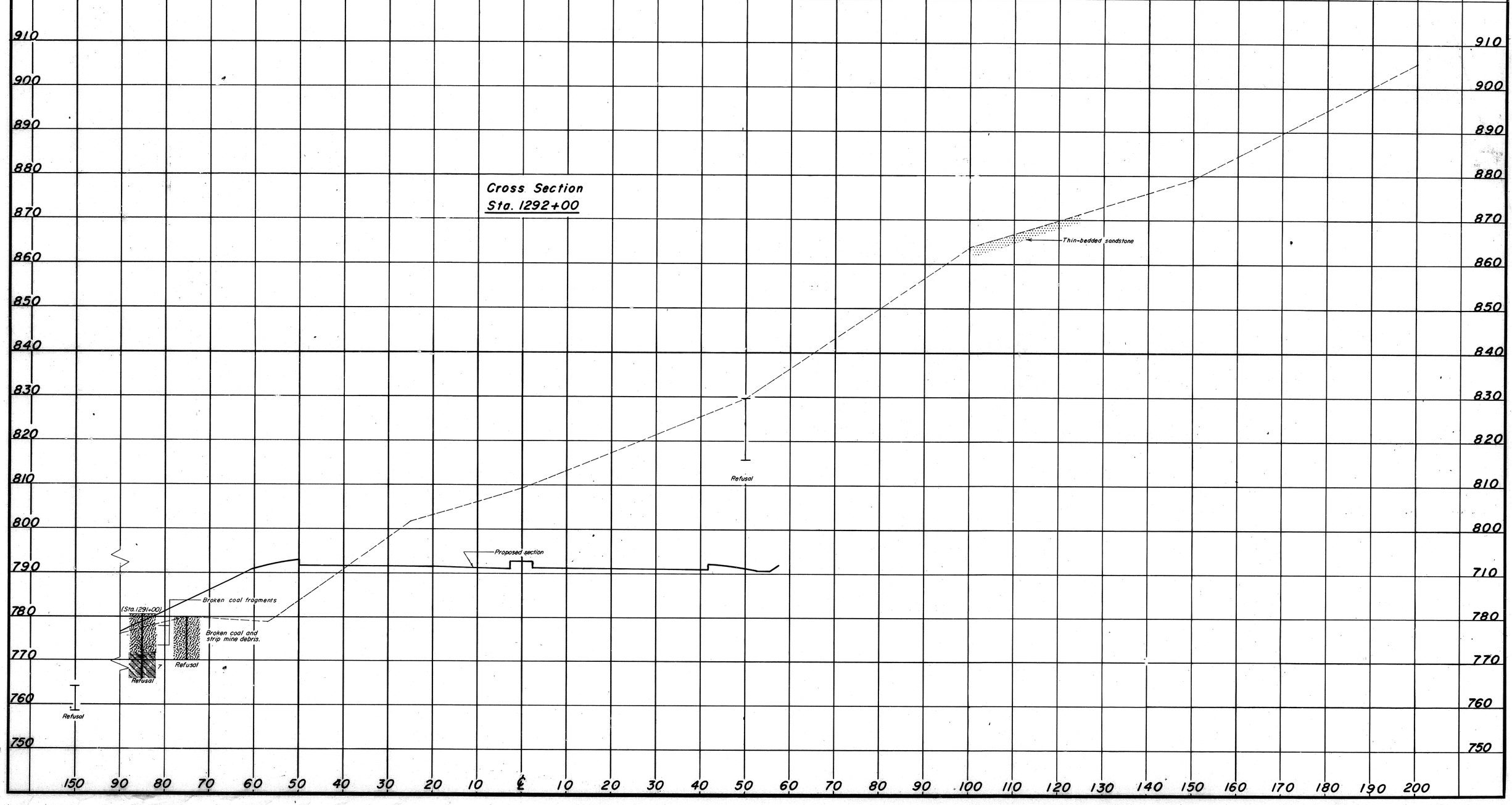
TE-54.8
1500-10-60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

10X
12X

19
34 OLD

Revised 8/16/61
Revised 2/20/62

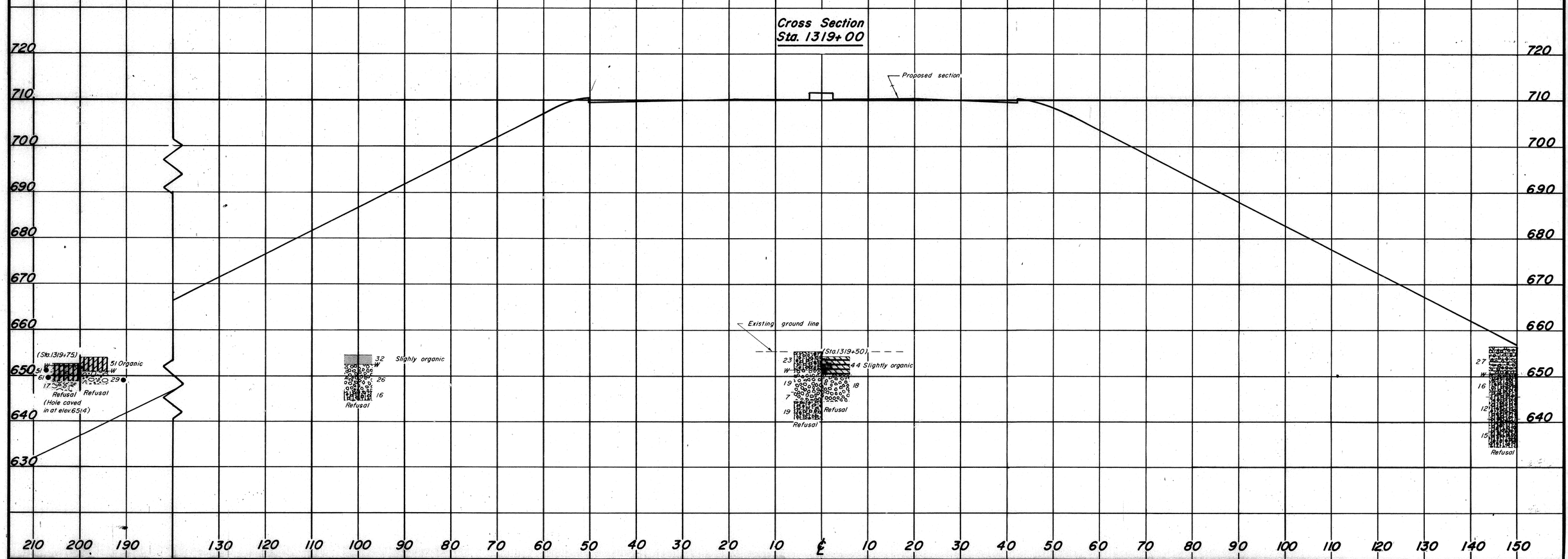


TE-54-B
1500-10-60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

11X / 12X

Supplement 2/20/62



TE.54.8
1500-10-60

SOIL PROFILE
BELMONT COUNTY
BEL-40-23.89

OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

12X / 12X

24 / 34 OLD

Revised 8/16/61
Revised 2/20/62