91·d

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
CUY-90-10.40
CITY OF CLEVELAND
CUYAHOGA COUNTY

I-90-1(50)19

FHWA REGION	STATE	PROJECT	
5	OHIO	I-90-1(50)19	

1
713

CUYAHOGA COUNTY
CUY-90-10.40

Sheet 438 revised
12-15-75 EBL

CONVENTIONAL SIGNS

Water Line	—W—
Gas Line	—G—
Combination Sanitary Sewer	—CS—
Storm Sewer	—SS—
Center Line	—℄—
Corporation Line	—·—·—
Fence Line	—×—×—
Guard Rail (existing)	○—○—○
Guard Rail (proposed)	●—●—●
Railroad	++++++++++++
Power Poles	⌀ ⌀ ⌀
Telephone Poles	⌀ ⌀
Power or Telephone Poles with guys	←⌀ ←⌀
Property Line	—℗—
Trees or Stumps (existing)	○ ⌂ ○ ⌂ ○
Limited Access	—L/A—
Right of Way	—R/W—
Limited Access & Right of Way	—L/A & R/W—

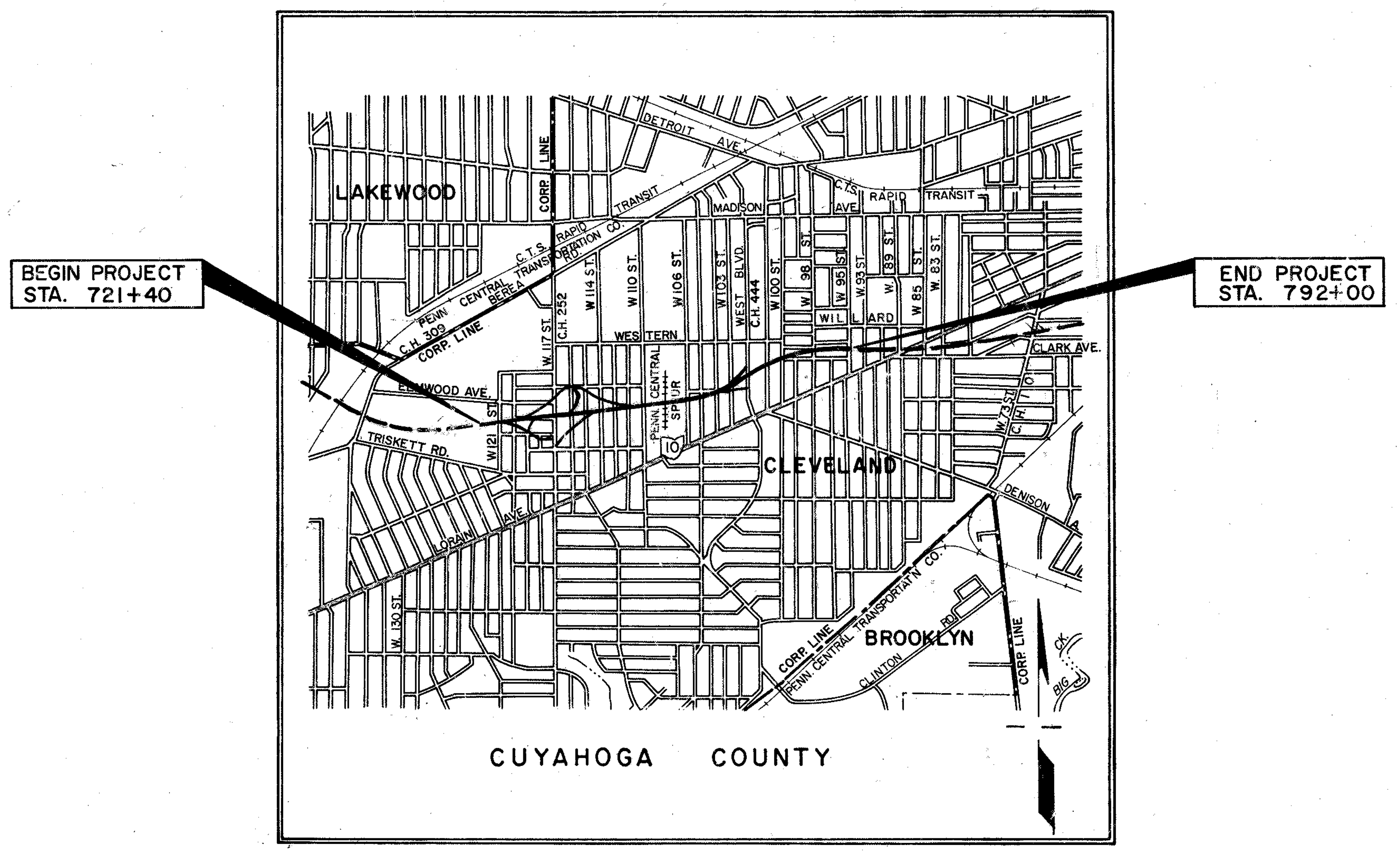
INDEX OF SHEETS

SHEETS DELETED 298, 333 & 529-541 & 646

00373R

LINE DATA		
BEGIN PROJECT	STATION	721+40
END PROJECT	STATION	792+60
NET LENGTH OF PROJECT		7,060.00 LIN. FT. 1.337 MILES
ADD FOR APPROACHES (SEE SHEET 29)		6,995.96 LIN. FT.
TOTAL LENGTH OF WORK		14,055.96 LIN. FT. 2.662 MILES

FILE NO.
CUYAHOGA COUNTY CUY-90-10.40
DATE OF LETTING ________________ 19
CONTRACT NO. ____________________



LOCATION MAP

0 ½ 1 2
SCALE OF MILES

PORTION TO BE IMPROVED
STATE ROADS
OTHER ROADS

SCALE

PLAN: 0 20 40 60
PROFILE: HORIZONTAL: 0 50 100 150 / 0 100 200 300

CROSS SECTIONS: HORIZ. & VERT.: 0 10 20 30
PROFILE: VERTICAL: 0 5 10 15 / 0 10 20 30

1975 SPECIFICATIONS

-LIMITED ACCESS-

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

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF THE HIGHWAY TO TRAFFIC AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THESE PLANS AND ESTIMATES.

APPROVED Ralph Tyler
DATE 4-24-75 DIRECTOR OF PUBLIC SERVICE, CITY OF CLEVELAND

APPROVED Thomas M. Krall
DATE 4-24-75 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED Robert B. Pfeifer ew
DATE 5-15-75 ENGINEER, BUREAU OF BRIDGES

APPROVED E. J. Schaefer
DATE 7-10-75 ENGINEER, BUREAU OF ROADWAY DESIGN

APPROVED John B. Ellis
DATE 7-10-75 ASSISTANT DEPUTY DIRECTOR FOR HIGHWAY DESIGN

APPROVED W. W. Billingsley
DATE 7/10/75 ASSISTANT DEPUTY DIRECTOR FOR REAL ESTATE

APPROVED Howard E. Nolan
DATE 7-10-75 ASSISTANT DEPUTY DIRECTOR FOR PROGRAM DEVELOPMENT

APPROVED R. E. Catlin
DATE 7-10-75 CHIEF ENGINEER, DESIGN

APPROVED David L. Weir
DATE 7-10-75 ASSISTANT DIRECTOR, DEPARTMENT OF TRANSPORTION

APPROVED Richard D. Jackson
DATE 7-11-75 DIRECTOR, DEPARTMENT OF TRANSPORTATION

PREPARED AND RECOMMENDED BY

DALTON DALTON · LITTLE
ARCHITECTS ENGINEERS PLANNERS AKRON CLEVELAND OHIO

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-1	6-1-65	CB-8	9-1-69	TC-18.26	10-1-74	MC-6	6-1-65	HL-2	7-27-73
BP-2	12-1-68	CB-7	6-1-65	TC-21.10	10-1-74	MC-7	10-1-68	HL-3	7-27-73
BP-3	1-1-71	F-1	6-1-72	TC-21.30	10-1-74	MC-9	1-1-74	HL-4	9-6-73
BP-4	1-1-71	F-3	3-10-69	TC-22.10	10-1-74	MH-1	10-1-68	HL-5	9-6-73
BP-5	5-1-72	F-5	3-10-69	I-3	1-20-70	MH-1A	10-1-68	HL-7	9-6-73
BP-7	1-1-66	F-6	10-1-66					HL-8	9-6-73
BP-10	1-3-75	GR-2A	1-1-71	I-2A	6-6-69	HL-15	4-6-73	HL-9	9-6-73
BP-9	1-1-71	GR-2B	11-9-71	L-1	6-1-73	BR-1-67 (Sht 1)	10-15-71	HL-10	9-6-73
CB-2-2-A&B	6-1-65	GR-3	11-9-71			RB-1-55	2-2-59	HL-11	4-6-73
CB-5	9-1-69	GR-4	11-9-71	MC-1	6-13-69	SD-1-69	6-12-69	HL-12	4-6-73
CB-6	6-1-65	GR-5	1-1-71	MC-3	6-1-73	AS-1-72	6-30-72	HL-16	4-6-73
CB-458A	6-6-68	GR-6	1-1-71	MC-4	6-13-69	HL-6	9-6-73	HL-17A	4-6-73
CB-3	6-1-65	TC-12.30	10-1-74	MC-5	6-1-65	HL-1	9-6-73	HL-17B	4-6-73

SUPPLEMENTAL SPECIFICATIONS	
941	11-28-73
S625	1-11-74
808	1-1-71
815	9-20-72
816	9-20-72
S713	1-11-74
934	1-1-69
836	3-12-75
839	11-25-70
1001	9-20-72
For additional spec. see Supp.	
Spec. M.E.L.P. included with plan	

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ENGINEER DATE

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

MICROFILMED
SEP 28 1982

MICROFILMED
DEC 28 1982

NOTE:
THE TYPICAL SECTION OF THE ADJACENT PROJECT IS SIMILAR TO THE TYPICAL SECTION FOR THIS PROJECT.

DESIGN DESIGNATION

DESIGN YEAR A.D.T. 1990 = 144,104
D.H.V. (PEAK FACTOR) 10%
D. (DIRECTIONAL DISTRIBUTION) 67%
T. (PERCENT B & C TRUCKS) 10%
V. (DESIGN SPEED) 60 M.P.H.

NOTE: 72052 INDICATES 1990 A.D.T.

STRUCTURE DATA CUY-90-1076
W. 114 PEDESTRIAN BRIDGE

TYPE: CONTINUOUS WELDED STEEL PLATE GIRDERS WITH REINF. CONCRETE SLAB AND SUBSTRUCTURES
REINFORCED CONCRETE RAMPS
SKEW 00°-00'-00"
SPANS: 30'-0", 124'-6", 47'-0", 117'-6" c/c BRGS.
WALKWAY: 8'-0" F/F 1'-0" CURBS
LOADING: 85 P.S.F. LIVE LOAD
WEARING SURFACE: 1" MONOLITHIC
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION. CONCRETE

B.M.# TBM MB-6 W. 117 ST. LT. STA. 56+00±
CROSS ON N.E. COR. OF LOWER STONE STEP OF ENTRANCE TO BRICK BLDG. # 3084 W. 117 ST. ELEV. 739.899

B.M. #2 MB-9 TBM-4 W. 117 ST. LT. STA. 37+70±
CROSS ON N. END OF IRON C.B. ON E. CURB OF W. 117 ST. APPROX. 29 FT. E. OF € OF W. 117 ST. AND 33 FT. S. OF € OF TRISKETT RD. ELEV. 771.539

B.M. TBM (SET) W. 112 ST. STA. 49+60
N. HYD. BOLT ON HYD. 960 FT. N. OF ARDEN AVE. 16 FT.± RT. OF € W. 112 ST. ELEV. 739.748

B.M. TBM (SET) W. 117 ST STA. 63+15±
ON S.W. ANCHOR BOLT FOR SHELL SIGN 3' N. OF N. RIGHT OF WAY LINE WESTERN AVE. & 3' E. OF E. RIGHT OF WAY LINE W. 117 ST. ELEV. 737.90

B.M. TBM (SET) W. 121 ST. STA. 44+85±
"M" IN MATHEWS HYD. 13 FT. W. OF € OF W. 121 ST. 85 FT. N. OF CLOVERDALE. ELEV. 748.17

STRUCTURE DATA CUY-90-1057
W. 117TH STREET

TYPE: CONTINUOUS WELDED STEEL PLATE GIRDERS WITH REINF. CONCRETE DECK AND SUBSTRUCTURES.
SKEW: 7°54'19" R.F.
SPANS: 93'-6", 47'-5½", 93'-6"
ROADWAY: 84' F/F CURBS WITH 6' SIDEWALKS 4' MEDIAN
LOADING: HS 20-44
WEARING SURFACE: 1½" Asphalt Concrete
APPROACH SLABS: 30' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION: NONE

SCHEMATIC PLAN, DESIGN DESIGNATION & PROFILE

FORM D D A - RW

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

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CUYAHOGA COUNTY
CUY-90-10.40

EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
323,145	266

PROFILE I-90 MAINLINE

CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 1-72

PROFILE I-90 STATION 717+00 - STATION 750+00

FORM D D A - RW

FED. RD.	STATE	PROJECT
2	OHIO	I-90-I(50) 19

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713

CUYAHOGA COUNTY
CUY-90-10.40

CURVE DATA
℄ I-90
P.I. STA. 763+43.32
Δ = 18°-30'-00" LT.
Dc = 1°-28'-00"
R = 3906.53'
T = 636.22'
Lc = 1261.36'
Ch = 1255.89'
E = 51.47'

CURVE DATA
I-90
Δ = 25°21'57" RT.
TS = 630.52'
Es = 51.34'
θs = 6°00'00"
Ls = 400'
L.T. = 266.82'
S.T. = 133.47'
Δc = 13°21'57" RT.
Dc = 3°00'00"
R = 1909.86'
T = 223.78'
Lc = 445.53'
Ch = 444.52'
E = 13.07'
P.I. STA. = 781+88.41

B.M. # O.M. 1094 CLEVELAND REGIONAL GEODETIC MONUMENT
APPROX. 20 FT. W. OF W. 100 ST. AND 26 FT. S. OF
℄ OF WESTERN AVE. 33.8 FT. S.W. OF ℄ OF
MON. AT ℄ INT. 46.25 FT. S. OF N. & V. IN C.E.I. POLE
11641 ON N.W. COR. ELEV. 708.385

STRUCTURE DATA CUY-90-1085
W 110 ST.

TYPE: CONTINUOUS STEEL BEAMS
WITH REINFORCED CONCRETE
DECK AND SUBSTRUCTURES
SKEW: 6°-59'-37" R.F.
SPANS: 85'-3", 47'-4¼", 85'-3"
ROADWAY: 28'-0" F/F CURBS W/6'-0" SIDEWALKS
LOADING: HS 20-44
WEARING SURFACE: 1½" *Asphalt Concrete*
APPROACH SLABS: 30' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION: NONE REQUIRED

STRUCTURE DATA CUY-90-1105
W 106 ST.

TYPE: CONTINUOUS STEEL WELDED PLATE
GIRDERS WITH REINFORCED CONCRETE
DECK AND SUBSTRUCTURES.
SKEW: 9°16'41" RF. TO LOC. TAN.
SPANS: 88'0", 47'-7½", 88'-0"
ROADWAY: 28' F/F CURBS W/6'-0" SIDEWALKS
LOADING: H.S. 20-44
WEARING SURFACE: 1½" *Asphalt Concrete*
APPROACH SLABS: 30' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION: NONE REQUIRED

STRUCTURE DATA - CUY-90-1127
WEST BLVD.

TYPE: CONTINUOUS STEEL BEAMS WITH
REINFORCED CONCRETE DECK
AND SUBSTRUCTURES.
SKEW: 25°-28'-28" LF.
SPANS: 44'-6", 87'-6", 53'-0"
ROADWAY: *69'-6"* F/F PARAPETS *W.B. Lanes*
70'-9" F/F Parapets E.B. Lanes
LOADING: HS 20-44 AND INT. ALT. LOADING.
WEARING SURFACE: 1½" *Asphalt Concrete*
APPROACH SLABS: 25' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: TRANSITION
SLOPE PROTECTION: CONCRETE SLOPE PAVING

STRUCTURE DATA - CUY-90-1146
RELOC. W. 100 ST.

TYPE: CONTINUOUS STEEL *BEAMS*
WITH REINFORCED CONCRETE
DECK & SUBSTRUCTURES,
SKEW: 27° 27'21" R.F. *To Reference Line*
SPANS: 50'-0", 62'-6", 50'-0" *c/c Brg.*
ROADWAY: *70'-9"* F/F PARAPETS, *W.B. Lanes*
69'-6" *F/F PARAPETS E.B. Lanes*
LOADING: HS 20-44 *and Int. Alt. Loading*
WEARING SURFACE: *2½" Asphalt Concrete*
APPROACH SLABS: 25' LONG (AS-1-72)
ALIGNMENT: SPIRAL & 3° CURVE RT.
SUPERELEVATION: TRANSITION
SLOPE PROTECTION: CONC. SLOPE PAVING

B.M. # 2 NO-5 TBM-2
CROSS ON N.W. COR. OF LOWER STONE STEP OF SIDEWALK
ENTRANCE TO 2 STORY FRAME HOUSE #11013 ON S. SIDE
OF WESTERN AVE. APPROX. 150' W. OF ℄ OF W. 110 ST.
ELEV. 736.371

B.M. # O.M. 1095 CLEVELAND REGIONAL GEODETIC MONUMENT
APPROX. 26 FT. S. OF ℄ OF WESTERN AVE. AND 27 FT.
E. OF ℄ OF W. 103 ST. 7.87 FT. S.E. OF MELP POLE
#24932. 23.48 FT. N.W. OF N.W. COR. OF PORCH OF
RESIDENCE #3023 W. 103 ST. ELEV. 712.423

EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU YDS.
330,864	230,136

CALCULATED BY F.A.E. DATE 8-71
CHECKED BY H.C.S. DATE 12-71

FORM D D A - RW

SCHEMATIC PLAN, DESIGN DESIGNATION & PROFILE

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

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713

CUYAHOGA COUNTY
CUY-90-10.40

NOTE: FOR TYPICAL SECTION OF ADJACENT PROJECT SEE SHEET No. 22

CURVE DATA
I-90
Δ = 25°21'57" RT.
Ts = 630.52'
Es = 51.34'
θs = 6°00'00"
Ls = 400'
LT. = 266.82'
ST. = 133.47
P.I. STA. = 781+88.41

Δ = 13°21'57" RT.
Dc = 3°00'00"
R = 1909.86'
T = 223.78'
Lc = 445.53'
Ch = 444.52'
E = 13.07
P.I. STA. = 781+88.41

CURVE DATA
I-90
Δ = 9°49'25" LT.
Dc = 0°45'00"
R = 7639.44
T = 656.52'
Lc = 1309.82'
CH = 1308.21'
E = 28.16'

STA. 157+89.06 W. 100 ST. EXT.
STA. 44+95.19 W. 98 ST.

STRUCTURE DATA - CUY-90-1152
W 98 ST.
TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.
SKEW: 6°29'09" LF. TO Reference Line
SPANS: 47'-0", 67'-6", 47'-0" C/C Brg.
ROADWAY: 70'-9" F/F PARAPETS W.B. Lanes
69'-6" F/F PARAPETS E.B. Lanes
LOADING: HS 20-44 & INT. ALT. LOAD'G
WEARING SURFACE: 1½" Asphalt Conc.
APPROACH SLABS: 25' LONG (AS-1-72)
ALIGNMENT: 3°00'00" CURVE RT.
SUPERELEVATION: TRANSITION
SLOPE PROTECTION: CONC. SLOPE PAVING.

B.M. #O.M. 1217 CLEVELAND GEODETIC MONUMENT
APPROX. 27 FT. S. OF ℄ OF LORAIN AVE. AND 18 FT. W.
OF ℄ OF W. 90 ST. 9.53 FT. N.E. OF N.E. COR. OF BLDG.
#9005 LORAIN. 31.62 FT. N.W. OF TOP AND CENTER
OF HYD. ON S.E. CORNER. ELEV. 706.479

EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,477	56,033

SCHEMATIC PLAN, DESIGN DESIGNATION & PROFILE

FORM D D A - RW

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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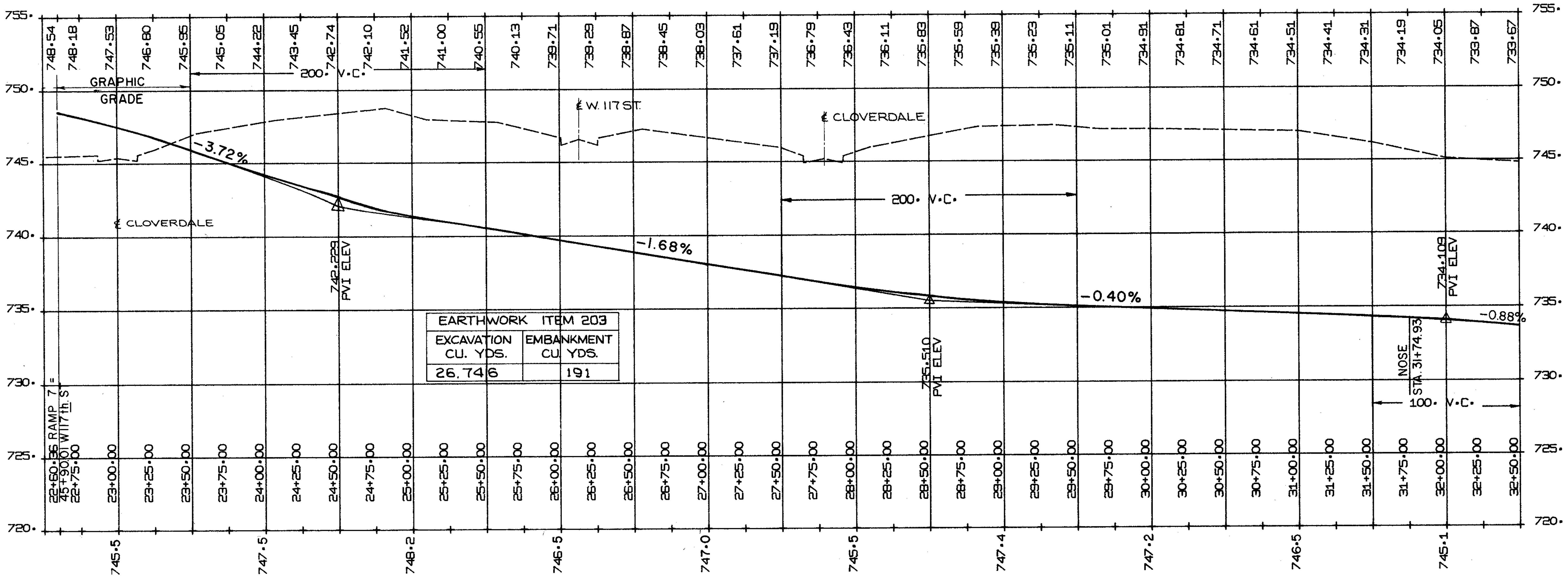
CUYAHOGA COUNTY
CUY - 90 - 10.40



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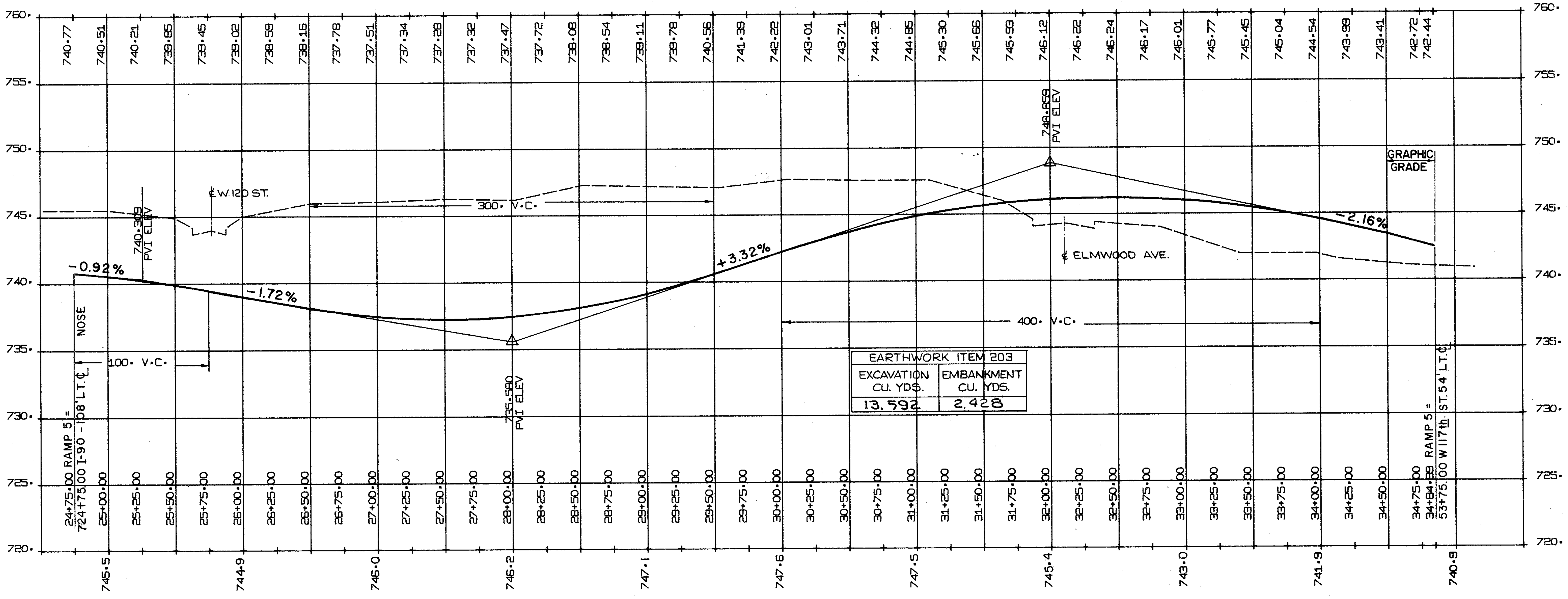
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
26,746	191

RAMP Nº7



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
13,592	2,428

RAMP Nº5

CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 12-71

PROFILE RAMPS Nº 5 & 7.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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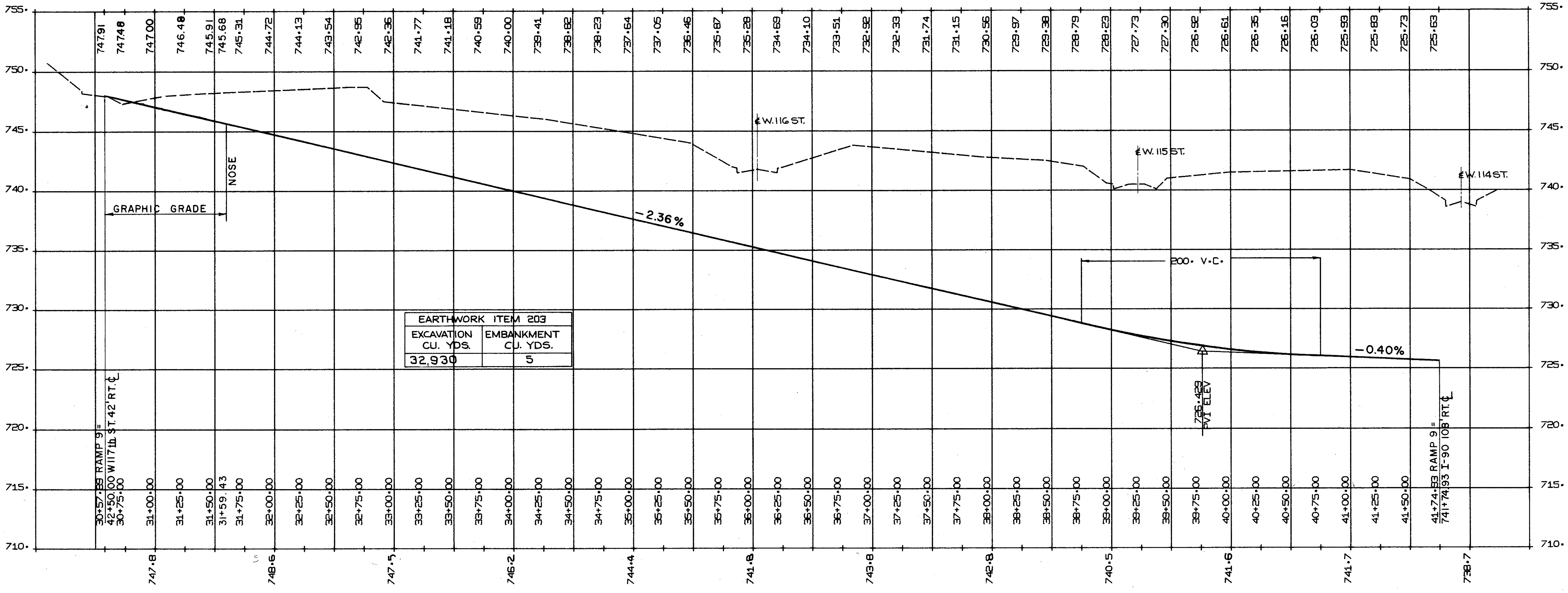
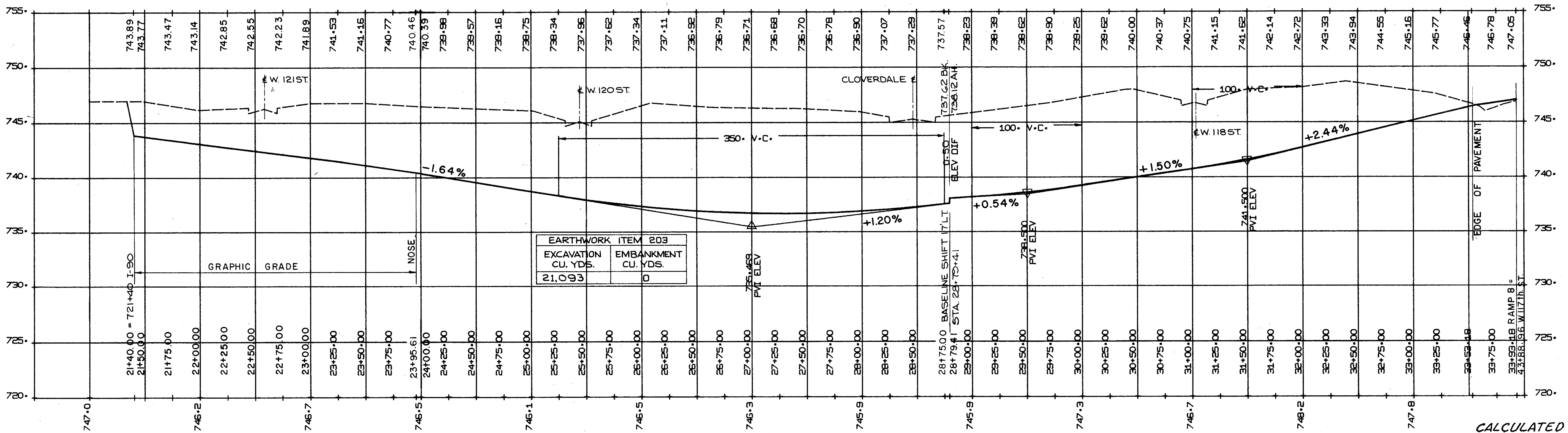
CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
32,930	5

RAMP Nº 9



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
21,093	0

RAMP Nº 8

CALCULATED BY FAE. DATE 8-71
CHECKED BY H.C.S. DATE 12-71

PROFILE RAMPS Nº 8 & 9.

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50) 19

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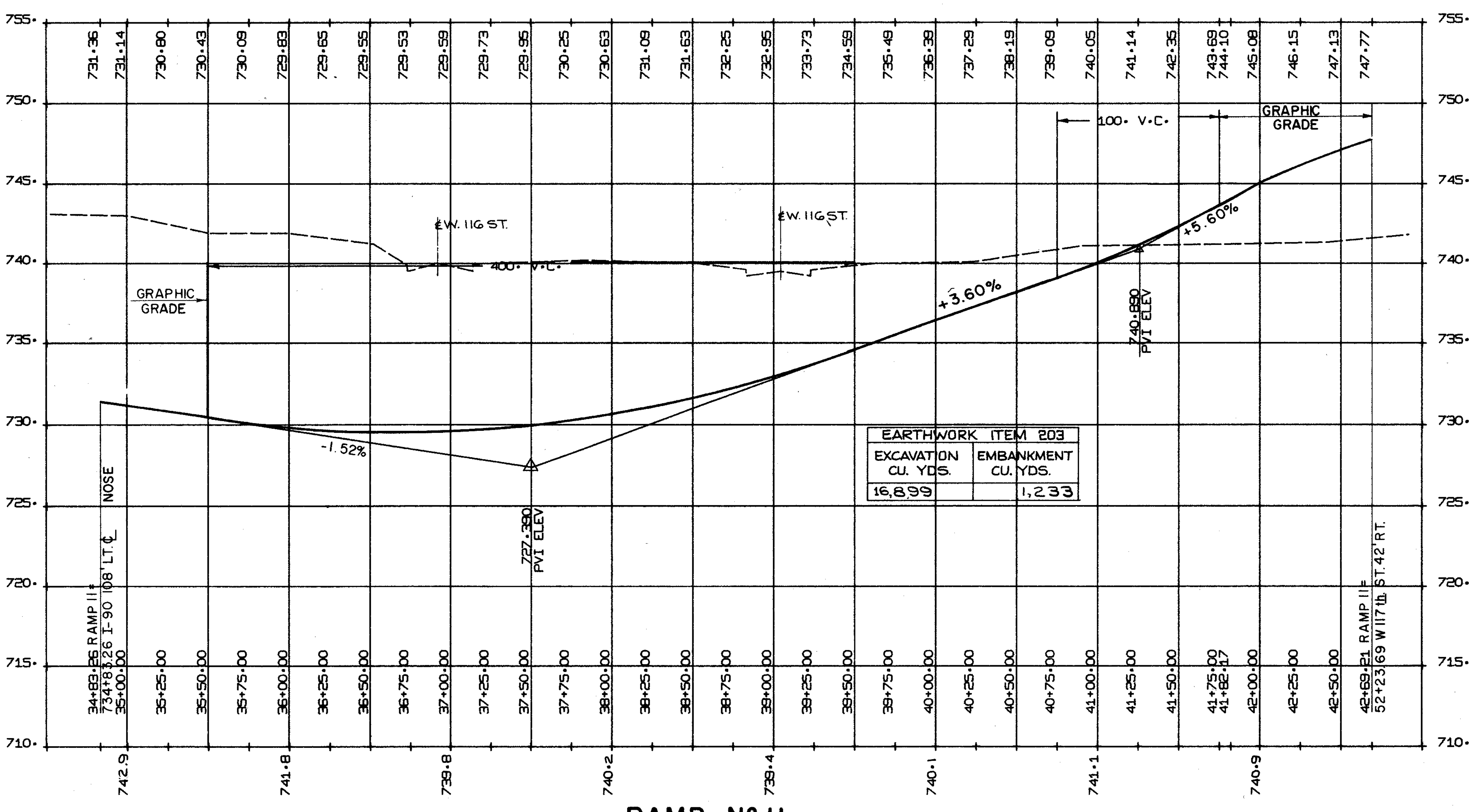
CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
16,899	1,233

RAMP Nº 11

EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
38,398	25

RAMP Nº 12

CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

PROFILE RAMPS Nº 11 & 12.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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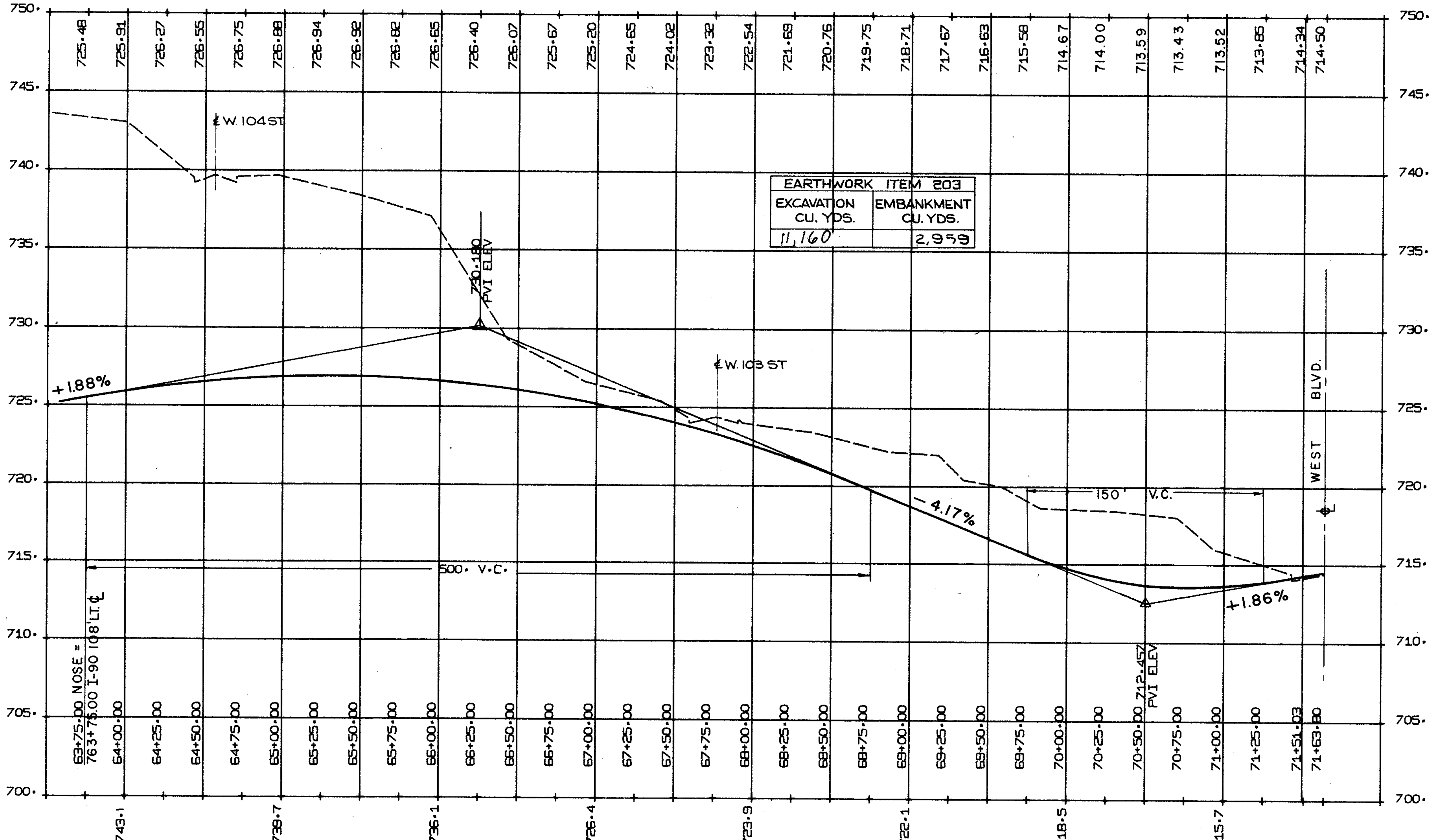
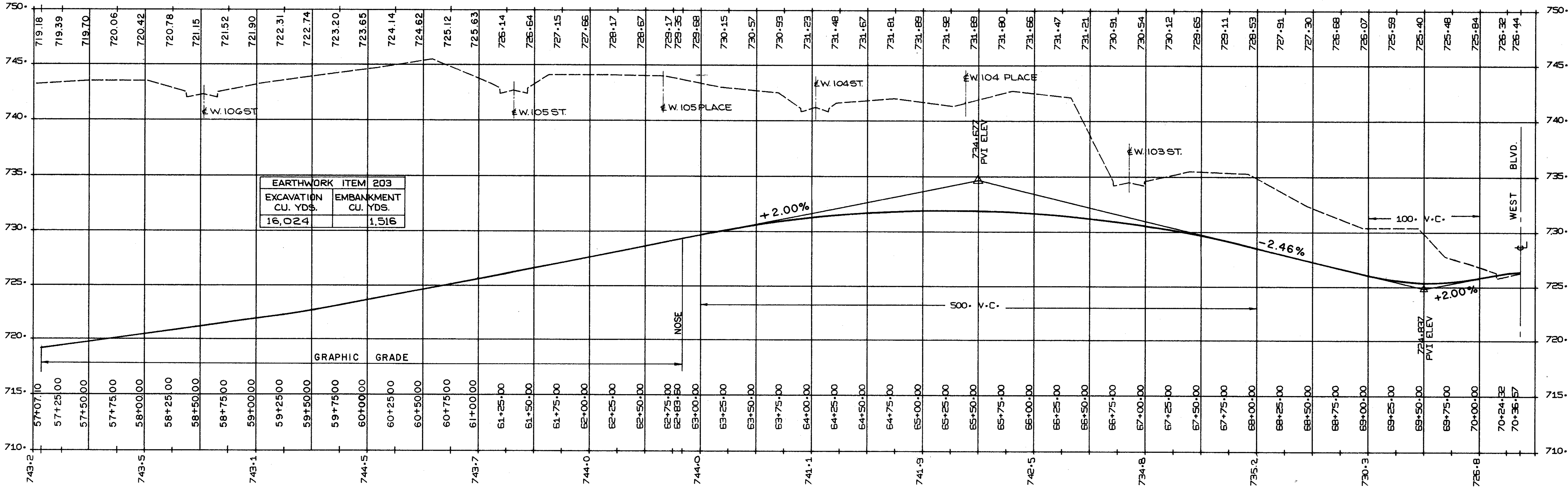
CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
11,160	2,959

RAMP Nº 13



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
16,024	1,516

RAMP Nº 14

CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 1-72

PROFILE RAMPS Nº 13 & 14.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

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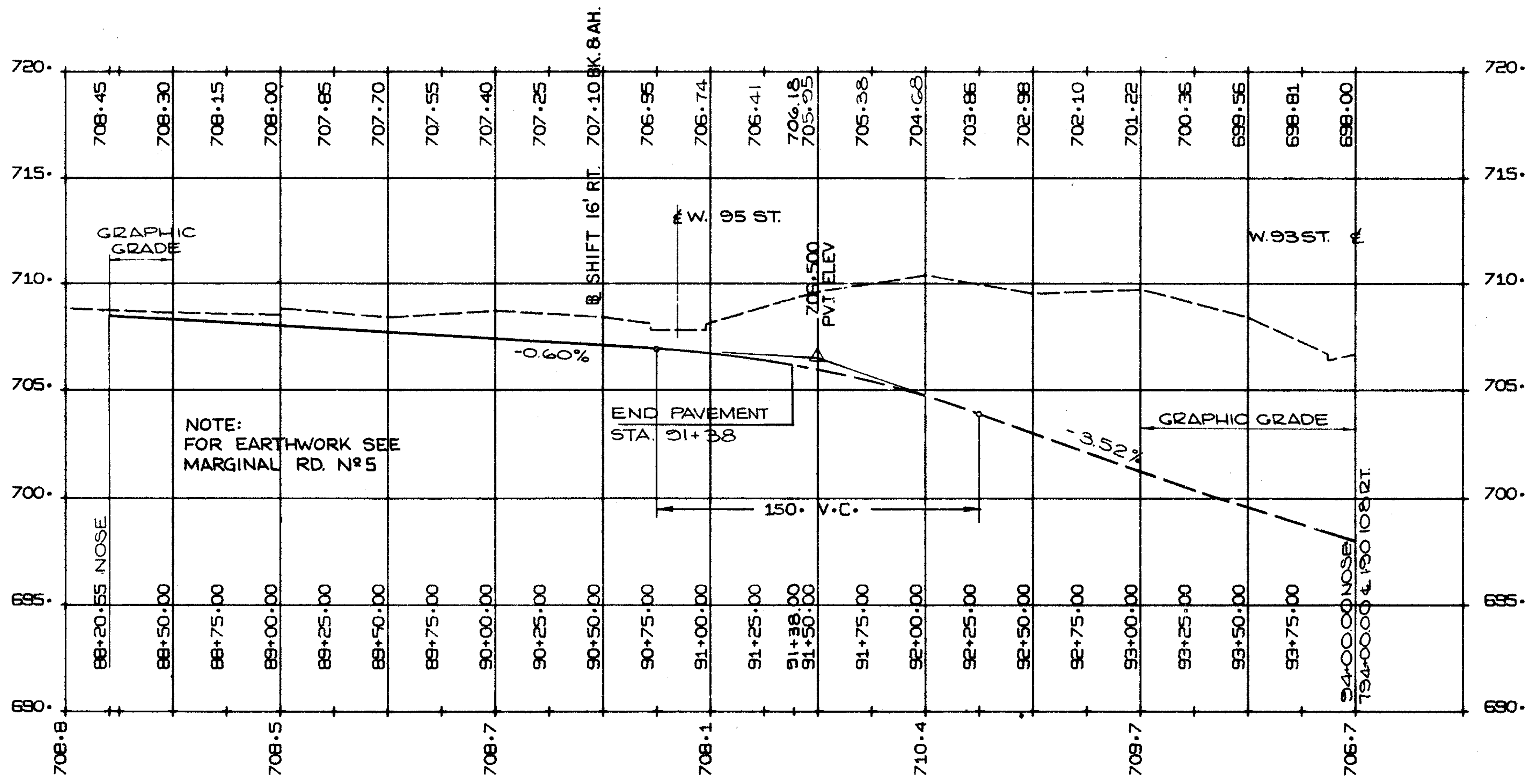
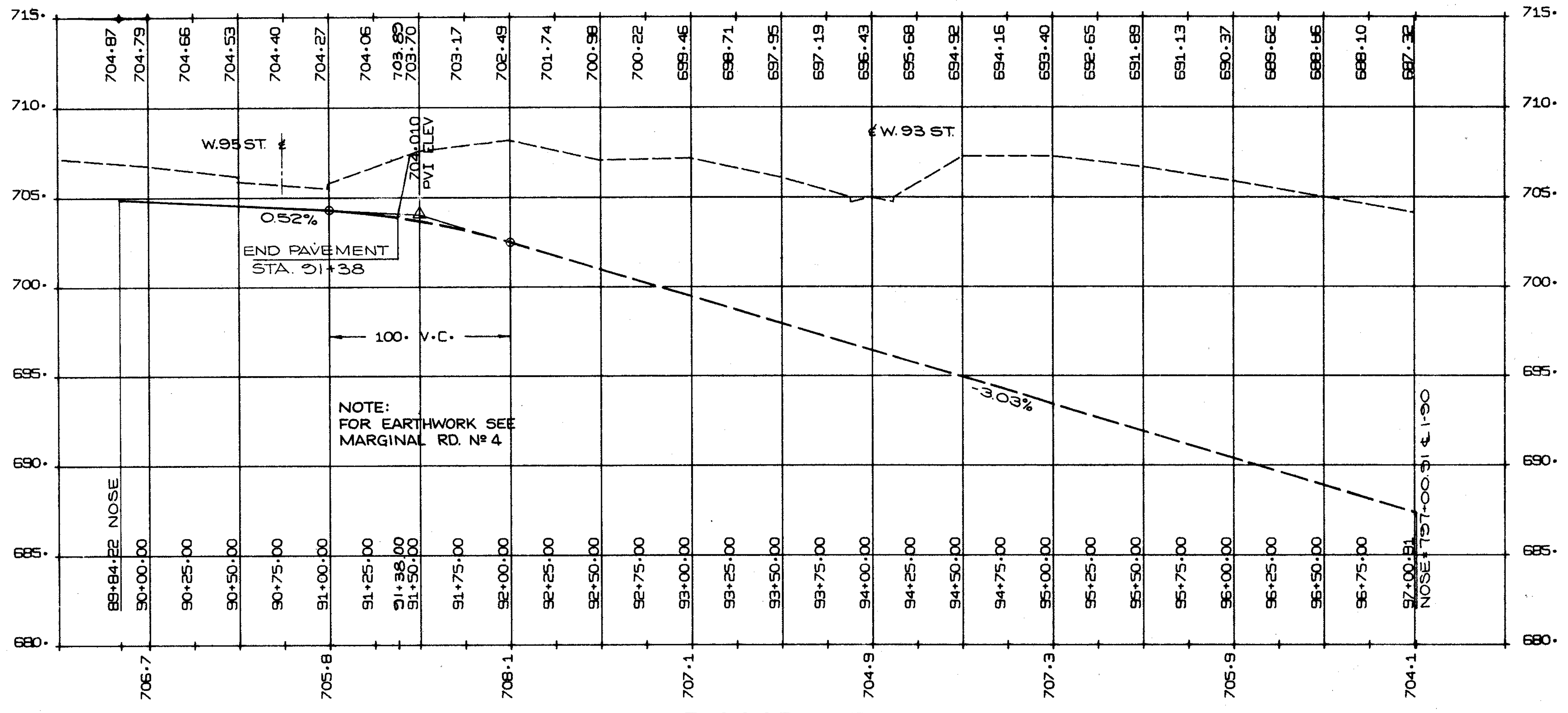
CUYAHOGA COUNTY
CUY - 90 - 10.40



RAMP 16



RAMP 15

PROFILE RAMPS Nº 15 & 16.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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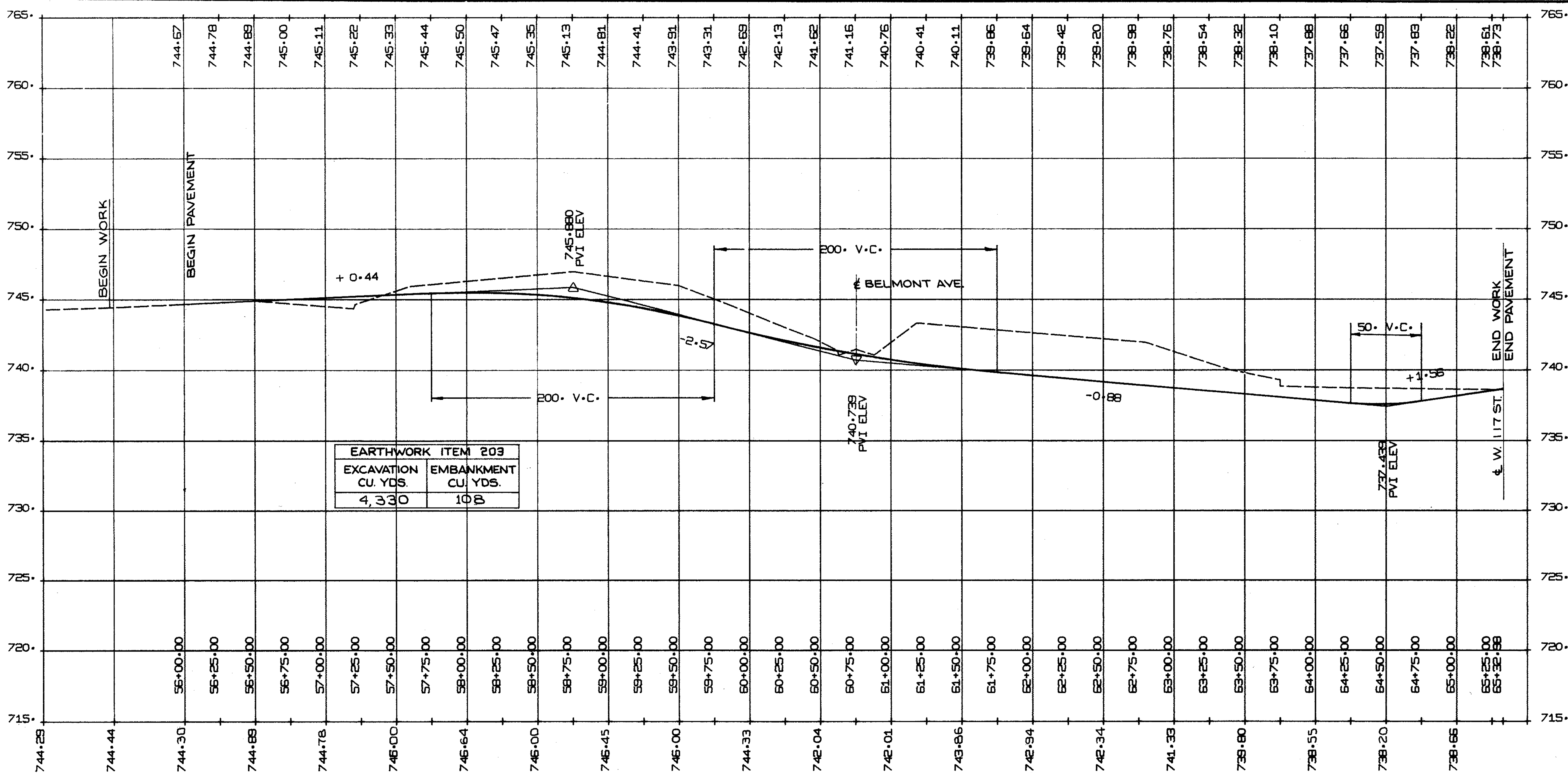
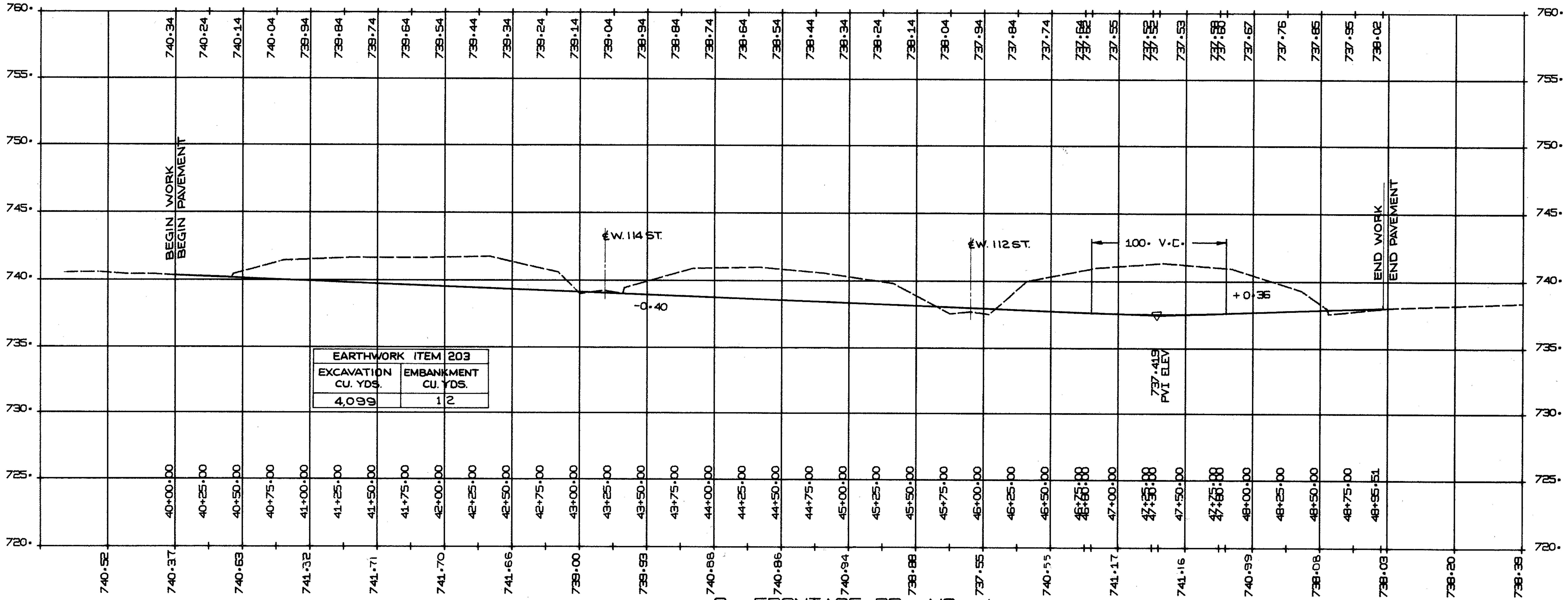
CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
4,330	108

ELMWOOD SECTOR CONNECTOR



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
4,099	12

S. FRONTAGE RD. NO. 1

CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 1-72

ELMWOOD-SECTOR CONNECTOR
AND S. FRONTAGE RD. NO. 1

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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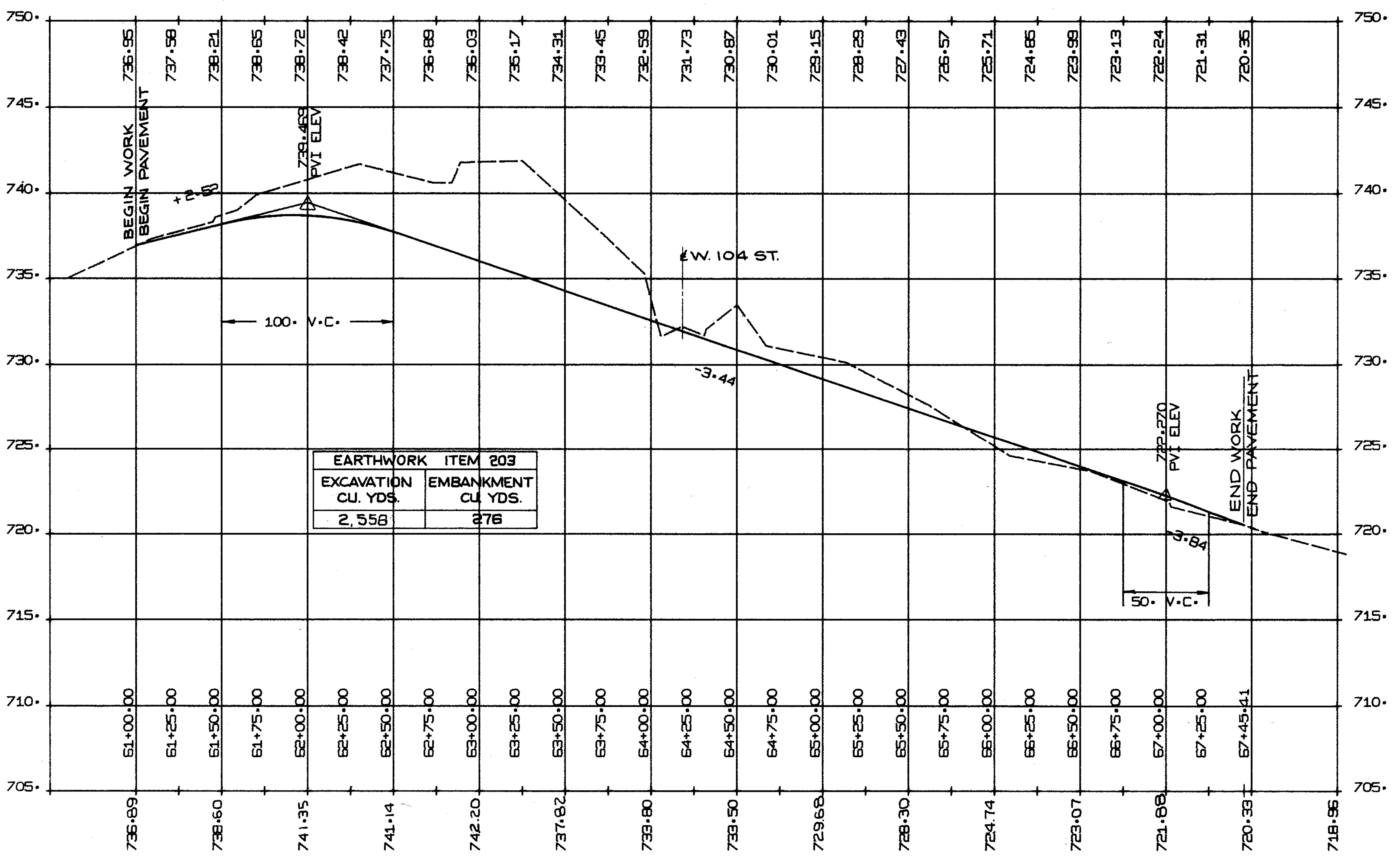
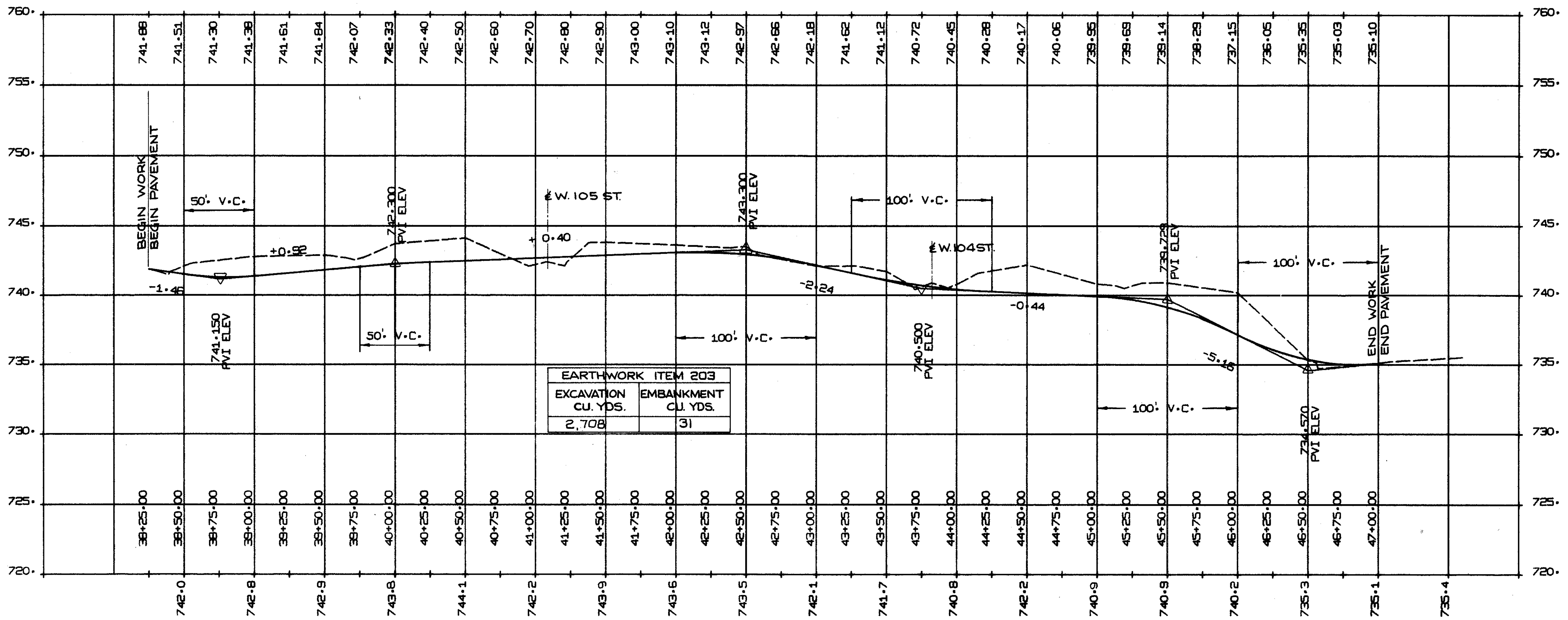
CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,558	276

N. FRONTAGE RD. NO. 2



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,708	31

S. FRONTAGE RD NO. 3

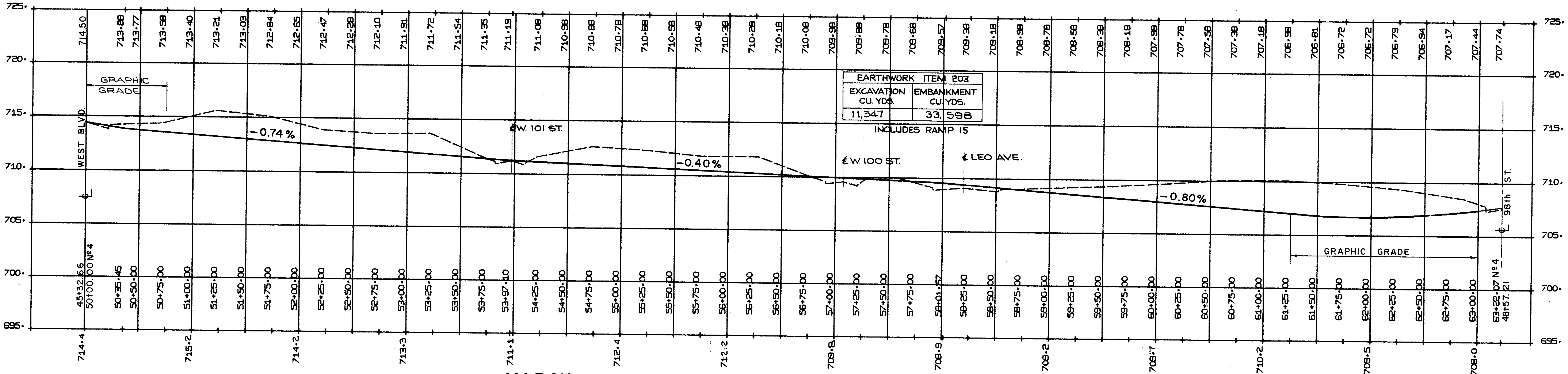
CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 1-72

N. FRONTAGE RD. NO. 2
S. FRONTAGE RD. NO. 3

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

13/713

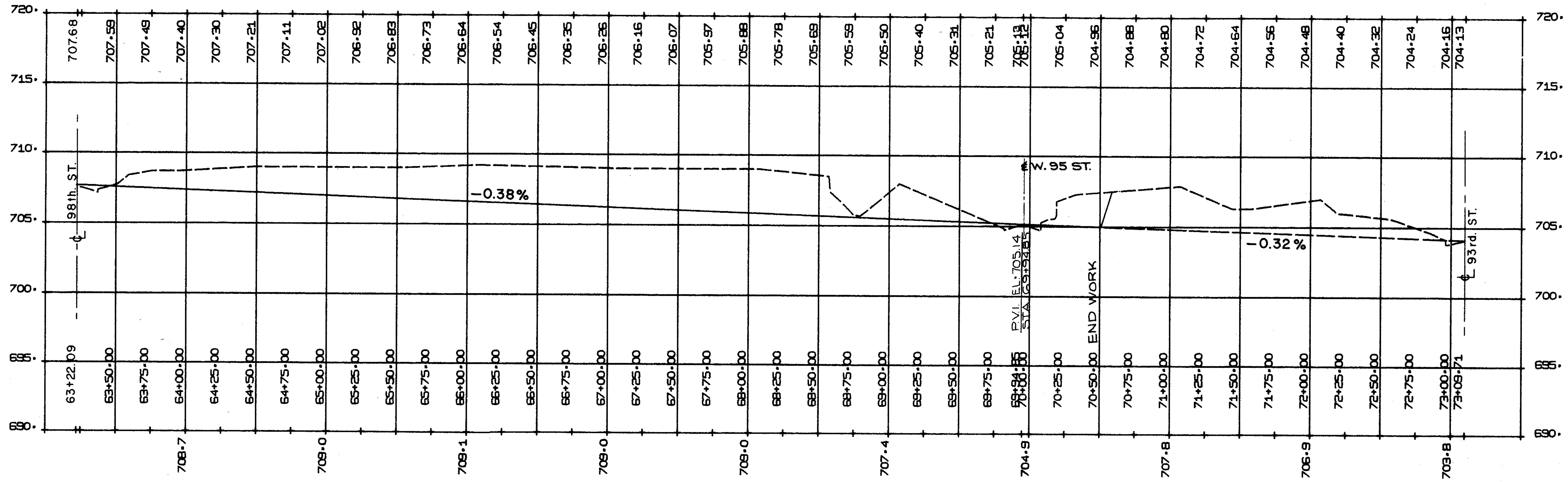
CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
11,347	33,598

INCLUDES RAMP 15

MARGINAL RD. - WEST BLVD. TO 98th. ST.



MARGINAL RD. - 98th. ST. TO 93rd. ST.

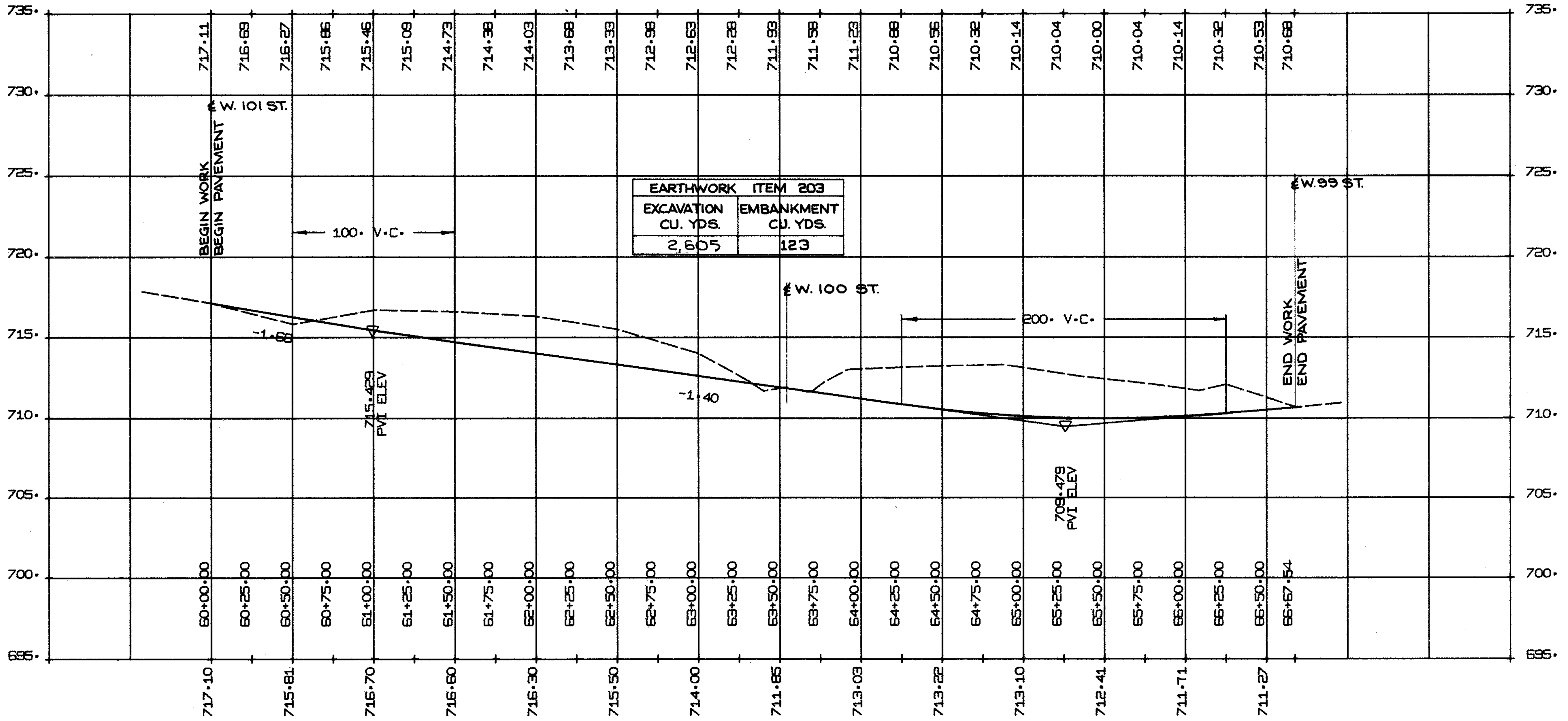
CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 1-72

PROFILES MARGINAL RD. Nº 4

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

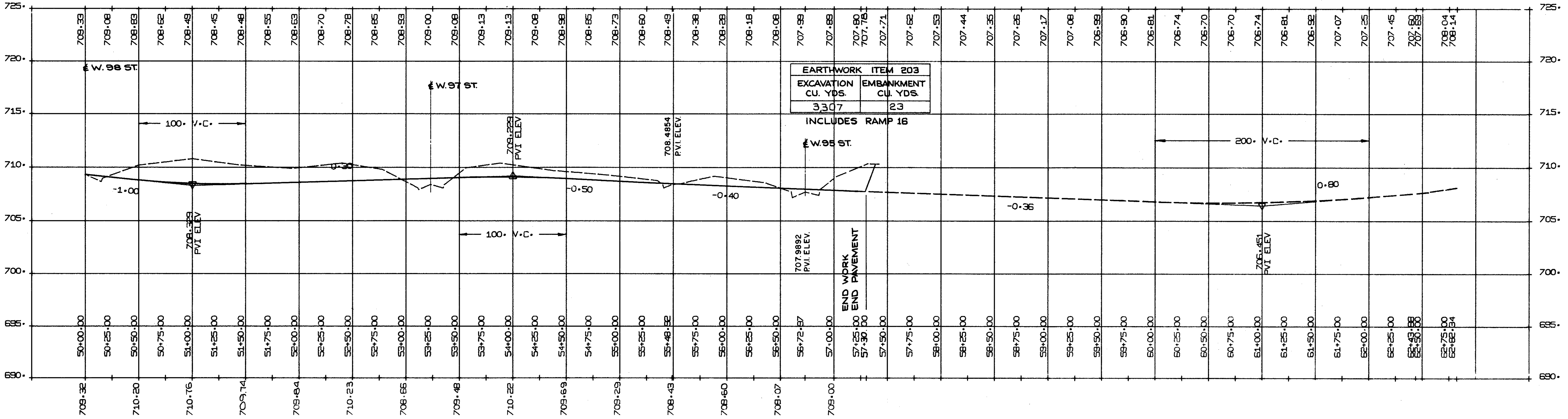
14
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,605	123

S. FRONTAGE RD. NO. 4A



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
3307	23

INCLUDES RAMP 16

MARGINAL RD. NO. 5

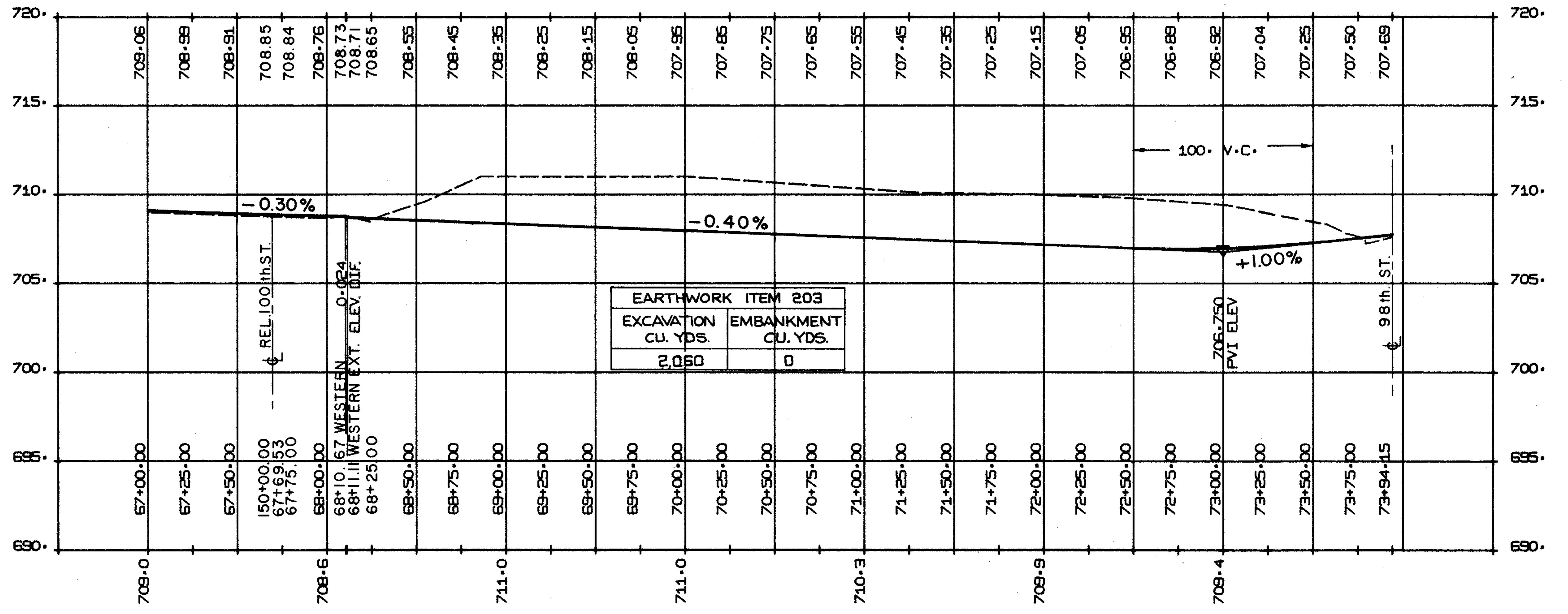
CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 1-72

MARGINAL RD. NO. 5
S. FRONTAGE RD. NO. 4A

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

15
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,060	0

WESTERN AVE. EXTENDED - 100th. ST. TO 98th. ST.

CALCULATED BY C.C.W. DATE 8-71
CHECKED BY F.A.E. DATE 1-72

PROFILES-WESTERN AVE. EXTENDED

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

16
713

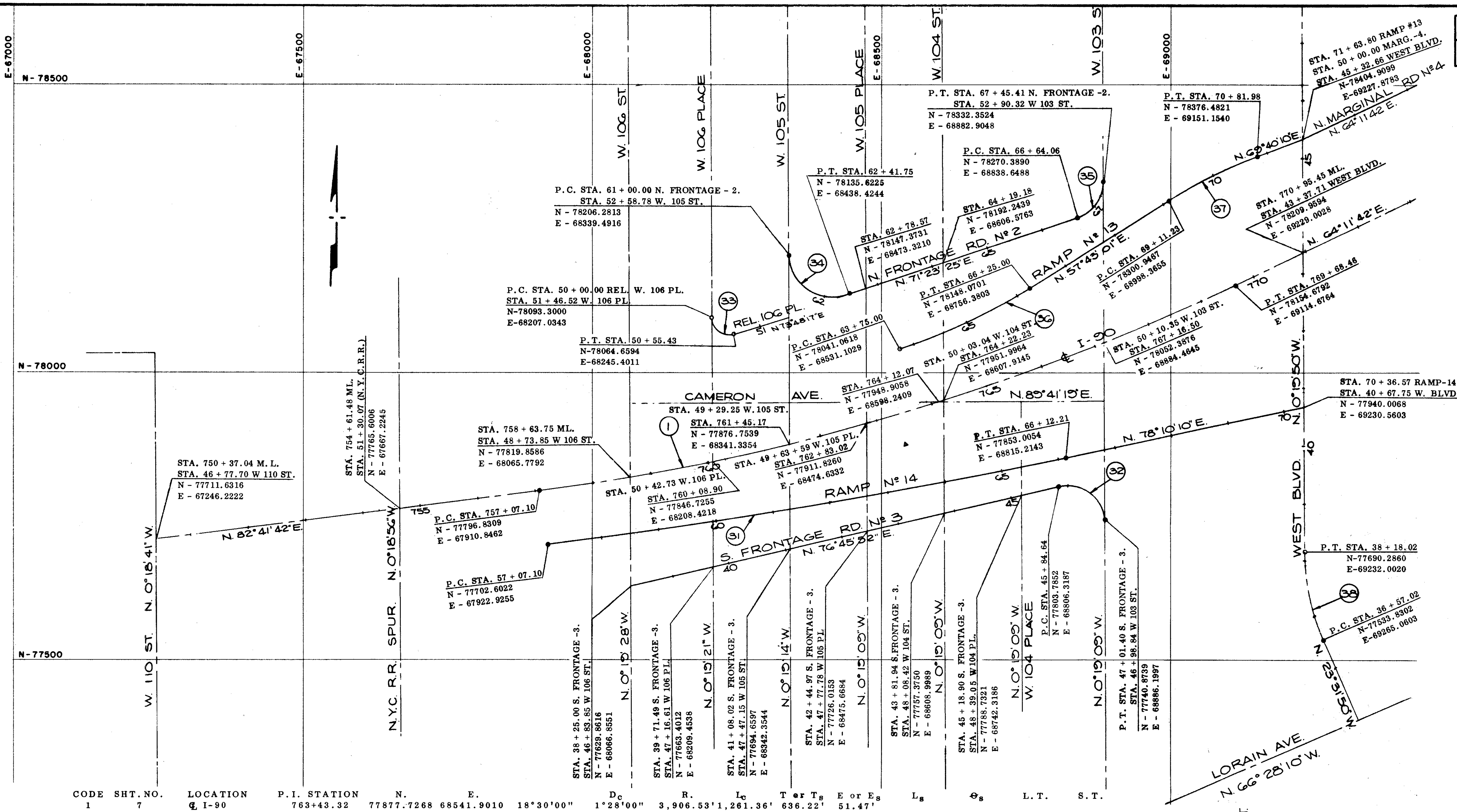
CUYAHOGA COUNTY
CUY-90-10.40

NOTE:
SEE SHEET No 17 FOR CURVE DATA

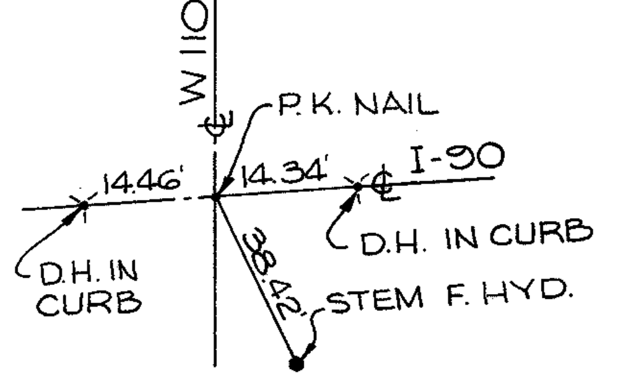
GEOMETRIC LAYOUT

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

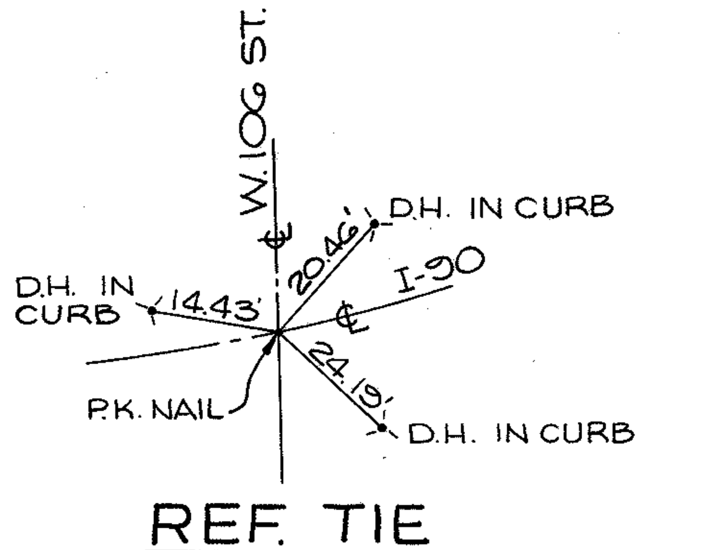
CUYAHOGA COUNTY
CUY - 90 - 10.40



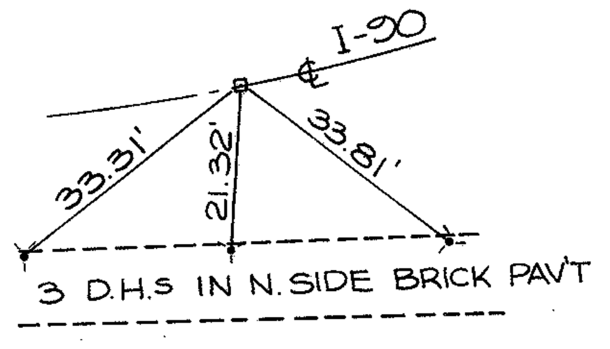
CODE	SHT. NO.	LOCATION	P.I. STATION	N.	E.		D_c	R.	L_c	T or T_s	E or E_s	L_s	Θ_s	L.T.	S.T.
1	7	℄ I-90	763+43.32	77877.7268	68541.9010	18°30'00"	1°28'00"	3,906.53'	1,261.36'	636.22'	51.47'				
2	8	℄ I-90	781+88.41	78648.4573	70221.6637	25°21'57"	3°00'00"	1,909.86'	445.53'	630.52'	51.34'	400.00'	6°00'00"	266.82'	133.47'
3	6	RAMP #5	25+75.09	77508.1937	64790.1817	6°00'00"	3°00'00"	1,909.86'	200.00'	100.09'	2.62'				
4	6	RAMP #5	30+80.36	77636.7712	65278.9978	24°50'10"	6°30'00"	881.47'	382.10'	194.10'	21.12'				
5	6	RAMP #5	33+84.05	77834.1344	65517.7949	49°49'35"	23°00'00"	249.11'	216.64'	115.70'	25.56'				
6	6	ELM, W'D. CONN.	58+71.02	77724.1650	65379.6313	89°12'54"	25°00'00"	229.18'	356.86'	226.06'	92.73'				
7	6	ELM, W'D. CONN.	63+10.83	78259.2136	65385.2378	24°37'11"	48°58'15"	117.00'	50.27'	25.53'	2.75'				
8	6	ELM, W'D. CONN.	63+81.71	78324.0569	65415.7786	64°35'40"	78°29'15"	73.00'	82.30'	46.14'	13.36'				
9	6	SECTOR AVE.	48+22.38	78323.8074	65338.6004	11°35'42"	19°05'55"	300.00'	60.71'	30.46'	1.54'				
10	6	SECTOR AVE.	48+29.45	78310.3571	65405.2478	28°05'42"	38°11'50"	150.00'	73.55'	37.53'	4.62'				
11	6	RAMP #7	30+43.64	77347.1449	65278.9613	--	--	--	--	--	--	200.00'	32°00'00"	135.58'	68.71'
12	6	RAMP #7	--	--	--	228°39'45"	32°00'00"	179.05'	714.57'	--	--				
13	6	RAMP #8	23+18.73	77271.7674	64562.0570	14°13'28"	4°00'00"	1,432.39'	355.61'	178.72'	11.11'				
14	6	RAMP #8	25+96.93	77238.0292	64840.0639	16°06'17"	8°00'00"	716.20'	201.31'	101.32'	7.13'				
15	6	RAMP #8	27+88.94	77162.4076	65018.0083	18°14'56"	10°00'00"	572.96'	182.49'	92.02'	7.34'				
16	6	RAMP #8	32+46.65	76966.3793	65267.1252	40°40'22"	28°29'54"	201.05'	142.72'	74.52'	13.36'				
17	6	CLOVERDALE C.	50+00.00	77123.3439	65049.9180	90°47'10"	57°17'45"	100.00'	158.45'	101.38'	42.40'				
18	6	RAMP #9	31+09.78	76079.1222	66622.4549	29°05'17"	28°38'49"	200.00'	101.54'	51.89'	6.62'				
19	6	RAMP #9	36+09.81	77312.1158	65852.5281	38°08'08"	8°00'00"	716.20'	476.70'	247.55'	41.58'				
20	6	RAMP #9	40+07.72	77469.2558	66238.0474	13°26'20"	4°00'00"	1,432.39'	335.97'	168.76'	9.91'				
21	6	RAMP #11	36+19.80	77641.9330	65826.2909	--	--	--	--	--	--	200.00'	38°00'00"	136.54'	69.59'
22	6	RAMP #11	--	--	--	222°39'45"	38°00'00"	150.78'	585.95'	--	--				
23	6	RAMP #12	35+66.47	77939.7295	66097.6211	31°31'47"	33°09'41"	172.78'	95.08'	48.78'	6.79'				
24	6	RAMP #12	38+82.69	77799.5524	66085.1914	19°00'39"	8°00'00"	716.20'	237.64'	119.92'	9.97'				
25	6	RAMP #12	41+39.45	77740.7740	66337.3943	11°05'19"	4°00'00"	1,432.39'	277.22'	139.04'	6.73'				
26	6	RAMP #12	45+89.51	77748.7817	66788.8784	9°20'08"	1°30'00"	3,819.72'	622.37'	311.88'	12.71'				
27	6	S. FRONTG. NO. 1	40+58.76	77375.4397	66153.2369	76°09'26"	76°23'40"	75.00'	99.69'	58.76'	20.28'				
28	6	S. FRONTG. NO. 1	42+08.23	77416.3953	66315.4550	5°25'23"	2°30'00"	2,291.83'	216.92'	108.54'	2.57'				
29	6	S. FRONTG. NO. 1	47+21.97	77494.5431	66823.3865	3°48'08"	2°30'00"	2,291.83'	148.76'	74.40'	1.21'				
30	6	S. FRONTG. NO. 1	48+61.47	77506.7730	66962.3984	94°42'28"	95°29'35"	60.00'	99.18'	65.14'	28.56'				
31	7	RAMP #14	61+59.89	77760.1747	68372.0403	4°31'32"	0°30'00"	11,459.16'	905.11'	452.79'	8.94'				
32	7	S. FRONTG. NO. 3	46+66.24	77788.7321	68742.3186	102°54'59"	88°08'50"	65.00'	116.75'	81.59'	39.32'				
33	7	REL. 106 PL.	50+39.72	78053.5812	68207.2579	105°52'22"	190°59'09"	30.00'	55.43'	39.72'	19.78'				
34	7	N. FRONTG. NO. 2	62+03.78	78102.5045	68340.0722	108°17'21"	76°23'40"	75.00'	141.75'	103.78'	53.04'				
35	7	N. FRONTG. NO. 2	67+11.03	78285.3794	68883.1664	71°42'33"	88°08'50"	65.00'	81.35'	46.97'	15.20'				
36	7	RAMP #13	65+00.60	78080.9854	68650.1936	13°45'00"	5°30'00"	1,041.74'	250.00'	125.60'	7.54'				
37	7	RAMP #13	69+96.92	78346.7117	69070.8058	11°57'09"	7°00'00"	818.51'	170.75'	85.69'	4.47'				
38	7	WEST BLVD.	37+38.64	77608.6653	69232.4730	23°12'00"	14°24'37"	397.60'	161.00'	81.62'	8.29'				



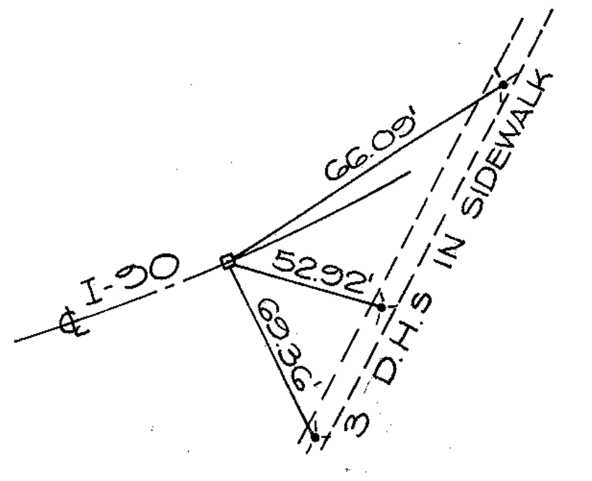
REF. TIE
STA. 750+37.04



REF. TIE
STA. 758+63.75



REF. TIE
STA. 765+00

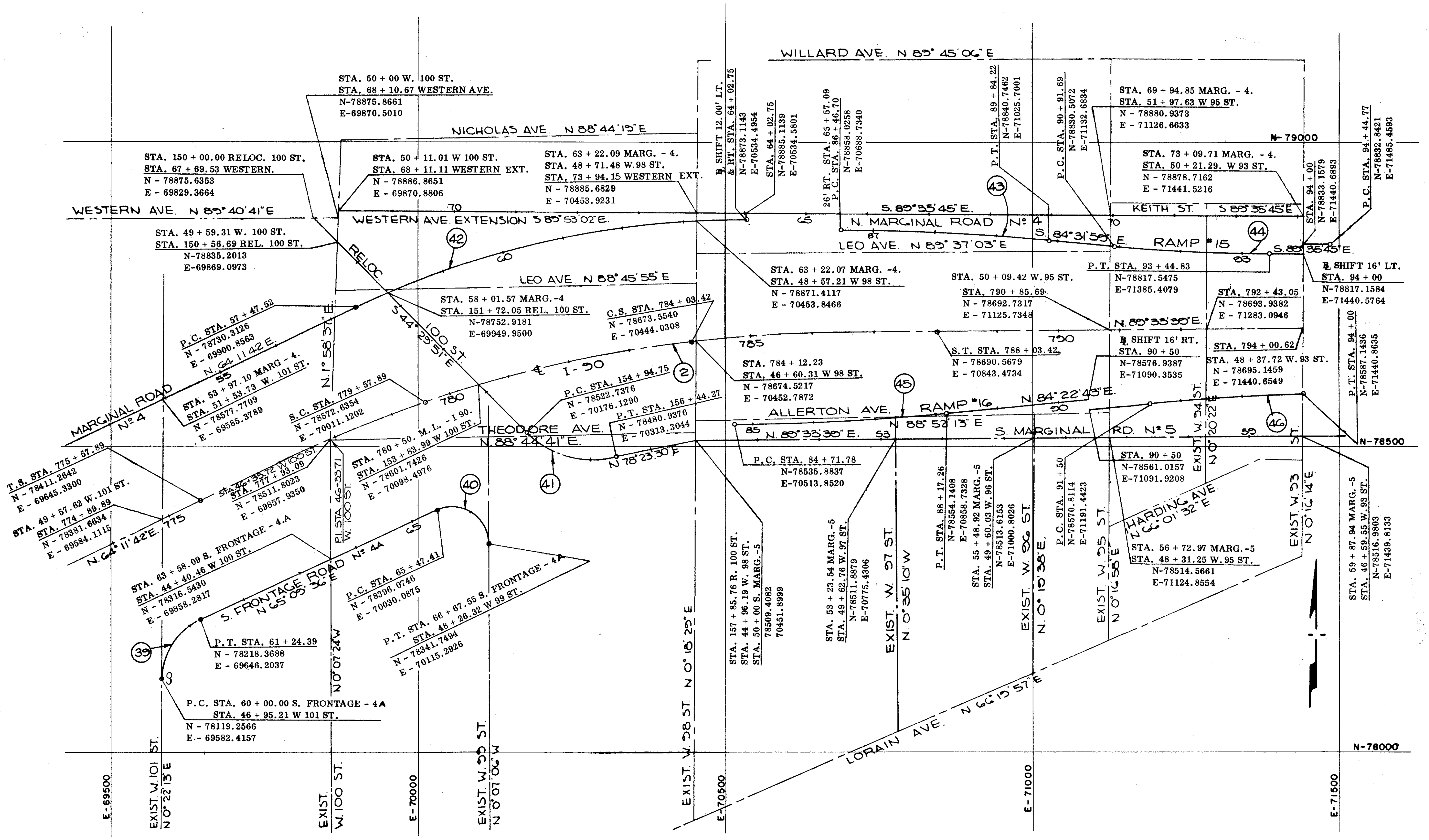


REF. TIE
P.T. STA. 769+68.46

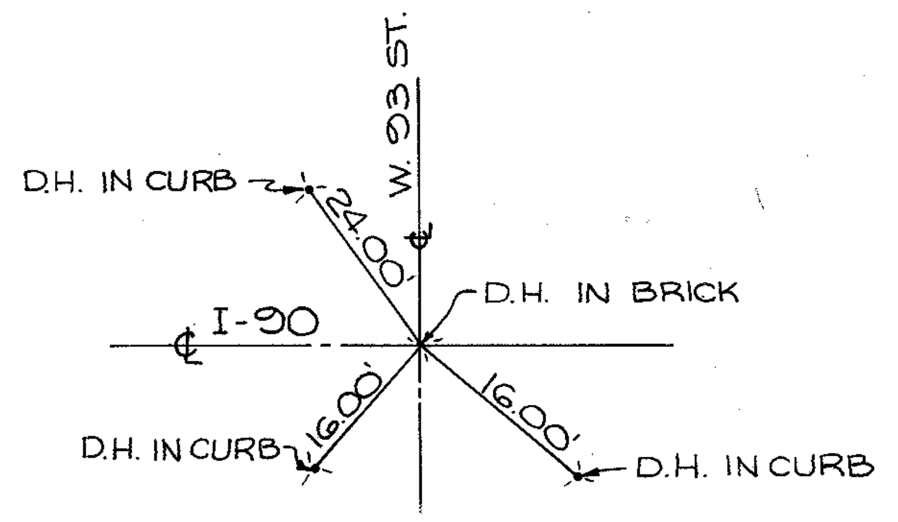
GEOMETRIC LAYOUT

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

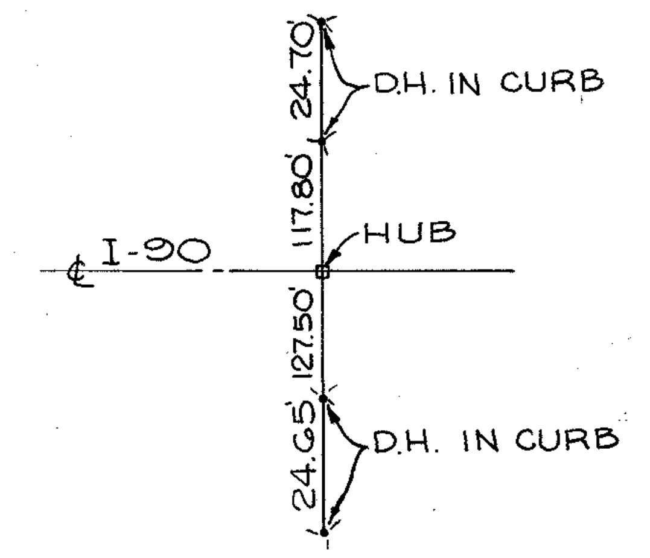
CUYAHOGA COUNTY
CUY-90-10.40



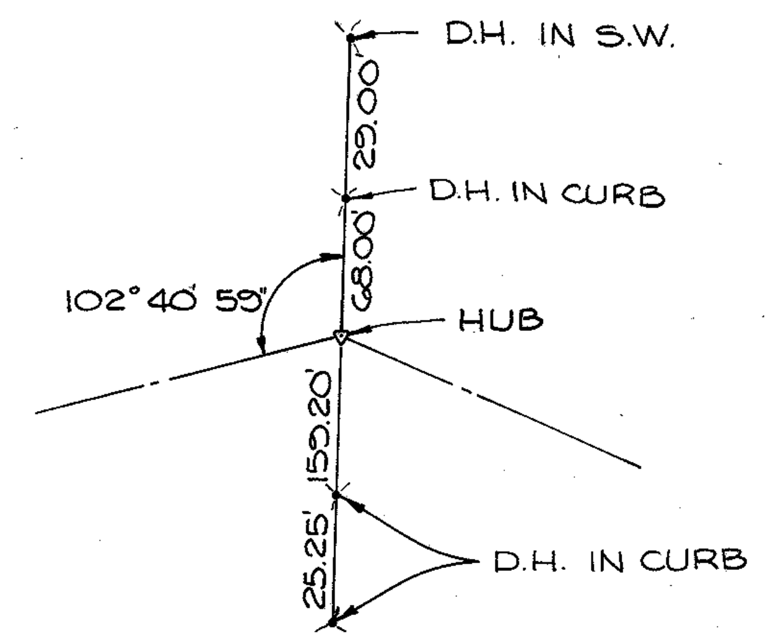
CODE	SHT. NO.	LOCATION	P.I. STATION	N.	E.	Δ	D_c	R.	L_c	T or T_s	E or E_s	L_s	θ_s	L.T.	S.T.
39	8	S.FRONTG.NO.4A	60+69.79	78189.0492	69582.8668	64°47'23"	52°00'31"	110.00'	124.38'	69.79'	20.27'				
40	8	S.FRONTG.NO.4A	66+41.09	78435.4278	70115.0993	114°43'18"	95°29'35"	60.00'	120.14'	93.68'	51.25'				
41	8	REL.100ST.	155+76.38	78464.5117	70233.3426	57°06'39"	38°11'50"	150.00'	149.52'	81.63'	20.77'				
42	8	N.MARG.RD.NO.4	60+80.97	78875.4662	70201.0543	26°12'33"	4°00'00"	1,432.39'	655.23'	333.45'	38.30'				
43	8	RAMP #15	88+15.57	78856.8346	70857.5989	5°03'46"	1°30'00"	3,819.72'	337.52'	168.87'	3.73'				
44	8	RAMP #15	92+91.69	78818.4409	71258.7593	5°03'46"	2°00'00"	2,864.79'	253.14'	126.65'	2.80'				
45	8	RAMP #16	86+44.64	78537.2086	70686.7053	5°10'56"	1°30'00"	3,819.72'	345.48'	172.86'	3.91'				
46	8	RAMP #16	92+75.04	78583.0601	71315.8858	3°45'00"	1°30'00"	3,819.72'	249.96'	125.04'	2.05'				



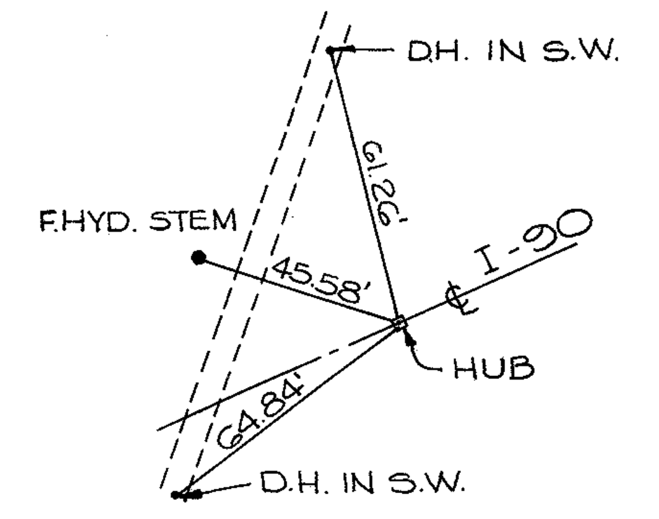
REF. TIE
STA. 704+00.62



REF. TIE
ST. STA. 788+03.42



REF. TIE
P.I. STA. 781+88.41



REF. TIE
T.S. STA. 775+57.89

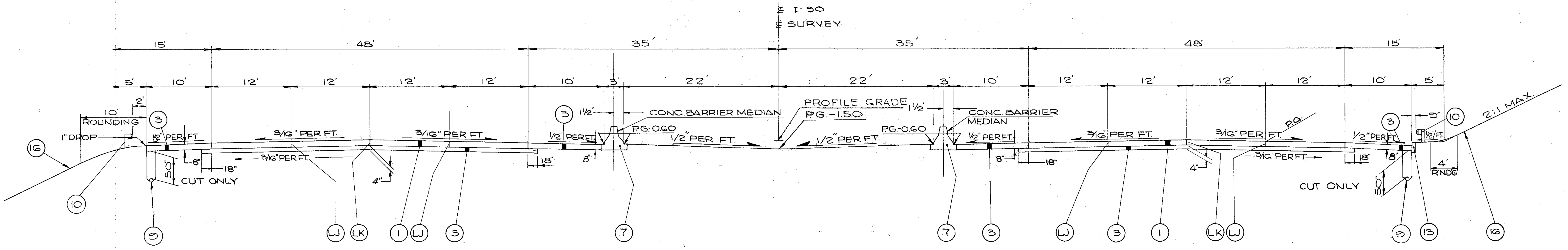
GEOMETRIC LAYOUT

TYPICAL SECTIONS
TYPE 451
REINFORCED CONCRETE PAVEMENT

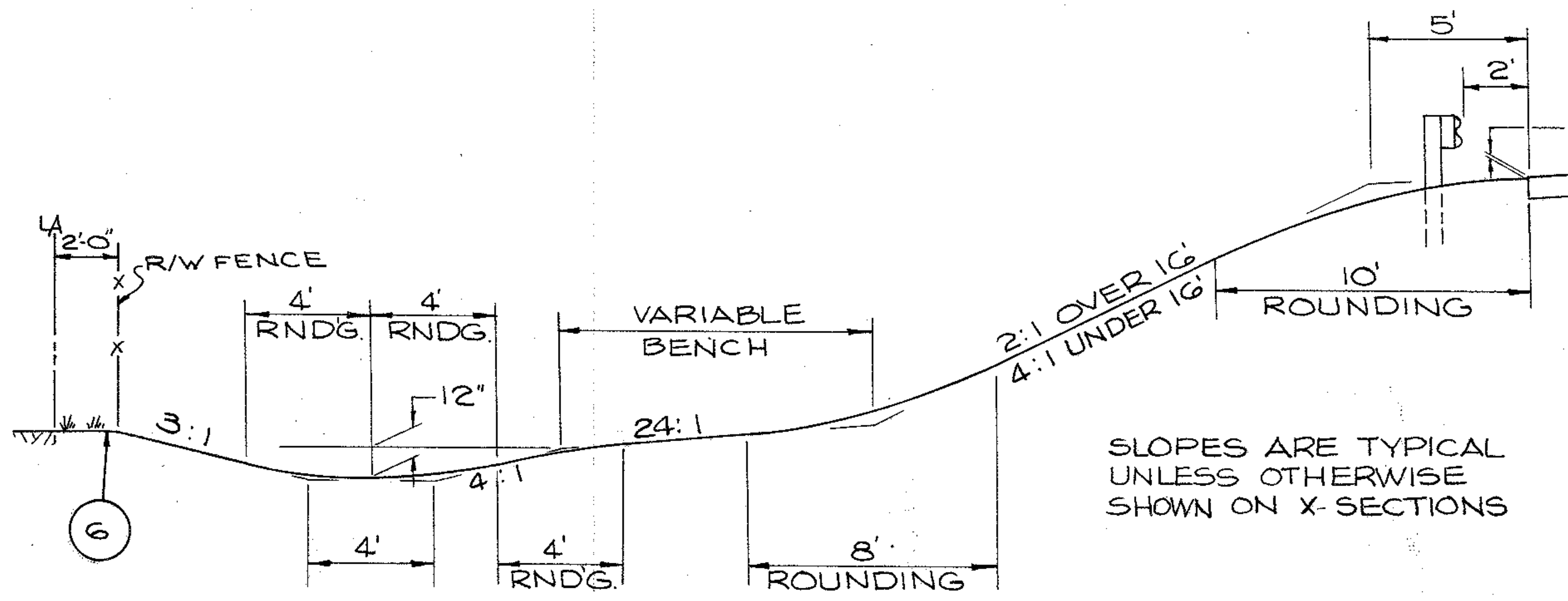
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

19
713

CUYAHOGA COUNTY
CUY-90-10.40

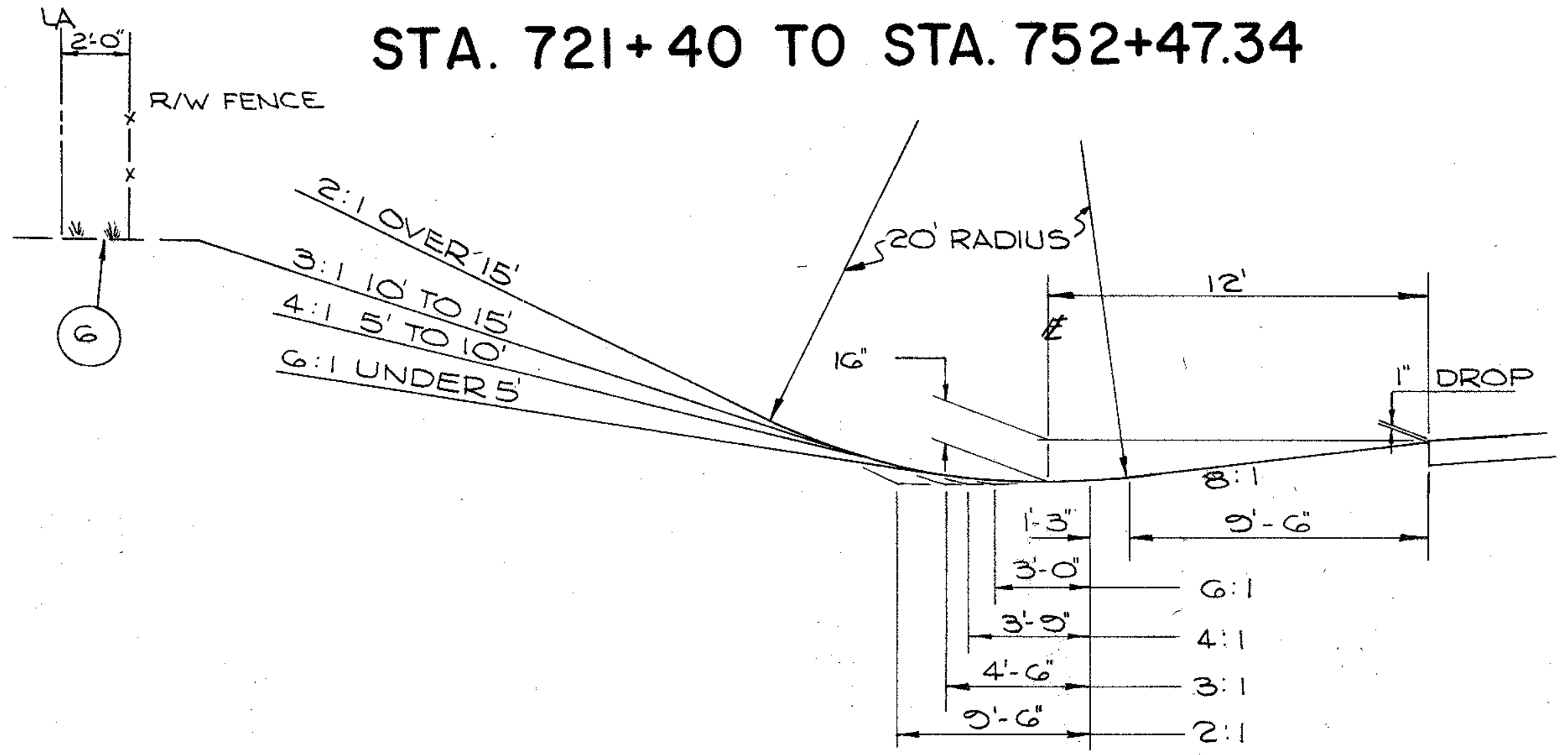


NORMAL SECTION
LIMITING STATIONS
STA. 721+40 TO STA. 752+47.34

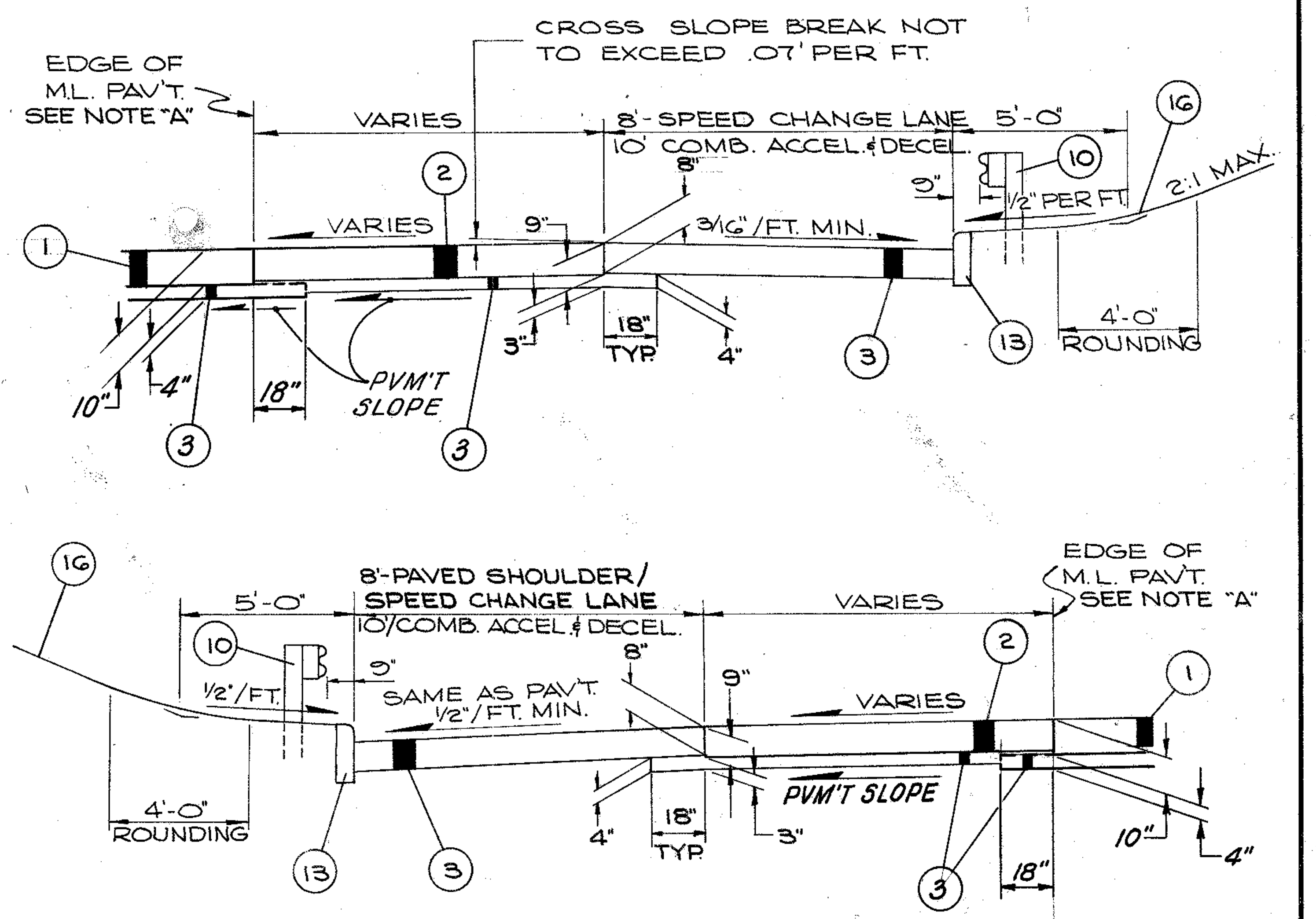


SLOPES ARE TYPICAL UNLESS OTHERWISE SHOWN ON X-SECTIONS

NORMAL FILL SLOPE



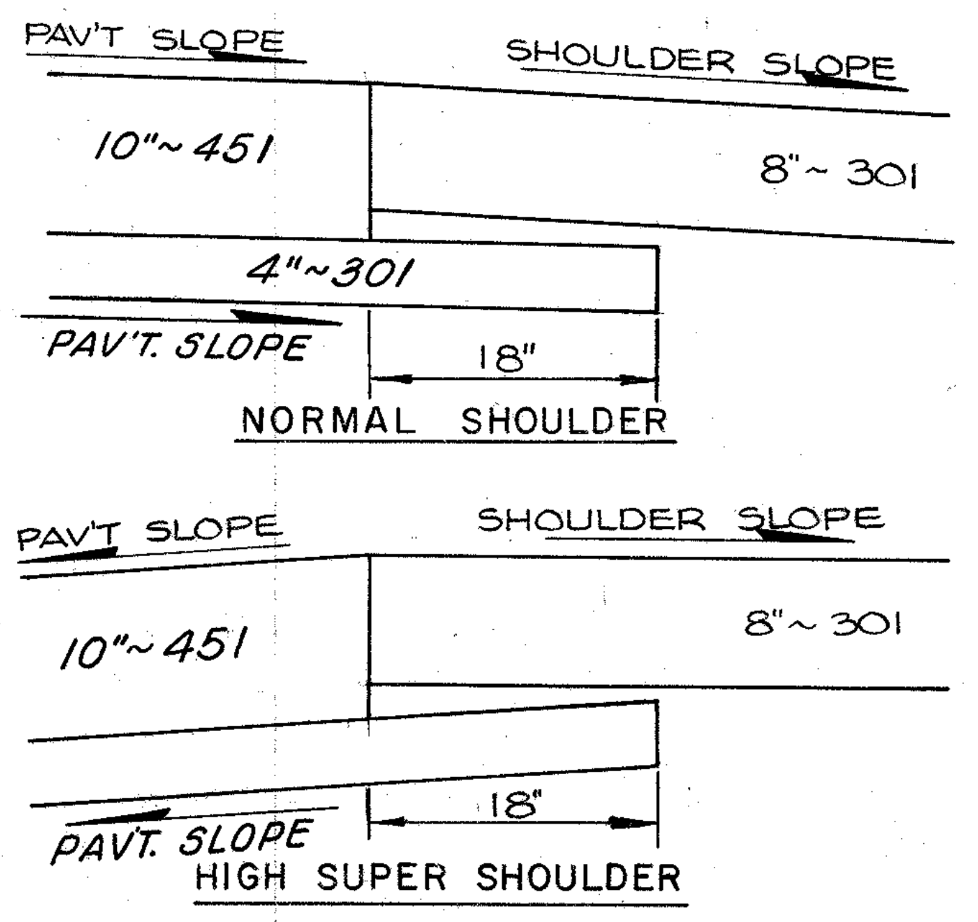
NORMAL CUT SLOPE



SPEED CHANGE LANES & ACCELERATION-DECELERATION LANES

LEGEND
SHEETS 19-21

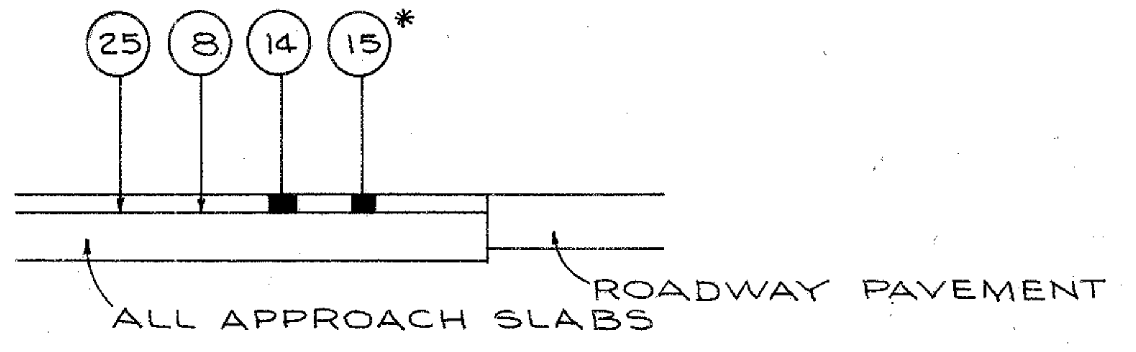
①	451	*10" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT*
②	451	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
③	301	BITUMINOUS AGGREGATE BASE; 702.01 *AC-20*; *OR* 702.09, RT-11 OR RT-12 (THICKNESS AS SHOWN)
⑥	660	SODDING
⑦	622	CONCRETE BARRIER STANDARD TYPE B
⑧	407	COVER AGGREGATE
⑨	605	6" PIPE UNDERDRAINS
⑩	606	GUARD RAIL, TYPE 5
⑬	609	CURB, STANDARD TYPE 6
⑭	404	1 1/2" ASPHALT CONCRETE AC-20
⑮	404	2 1/2" ASPHALT CONCRETE AC-20
⑯	659	SEEDING AND MULCHING *(See General Note)*
㉕	407	TACK COAT: 702.02, *RC-250; or 702.04, SS-1, SS-1H, MS-2 or RS-1* APPLIED AT THE RATE OF 0.10 GAL. PER SQ. YDS.
㉗	609	CURB, STANDARD TYPE 2-A
㉙	612	4" CONCRETE MEDIAN (AS PER PLAN)
㉚	612	CONCRETE MEDIAN
(LJ)		STANDARD LONGITUDINAL JOINT
(LK)		STANDARD KEY JOINT WITHOUT TIE BARS



NORMAL SHOULDER

HIGH SUPER SHOULDER

DETAIL OF 301 BASE AND SHOULDER CONSTRUCTION



APPROACH SLAB TREATMENT

* APPROACH SLABS ON I-90 OVER W. 100 ST. EXTENDED

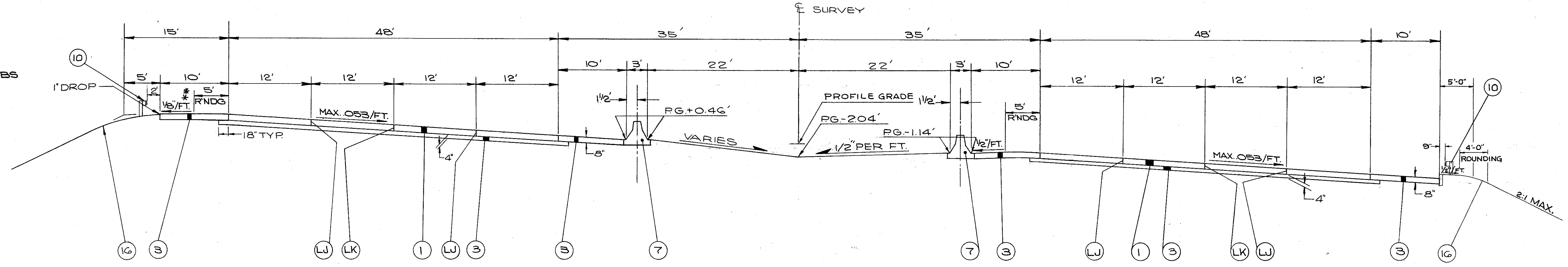
TYPICAL SECTIONS

FORM DD A-8

TYPICAL SECTIONS
TYPE 451
REINFORCED CONCRETE PAVEMENT

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40



(Dc = 3°00')

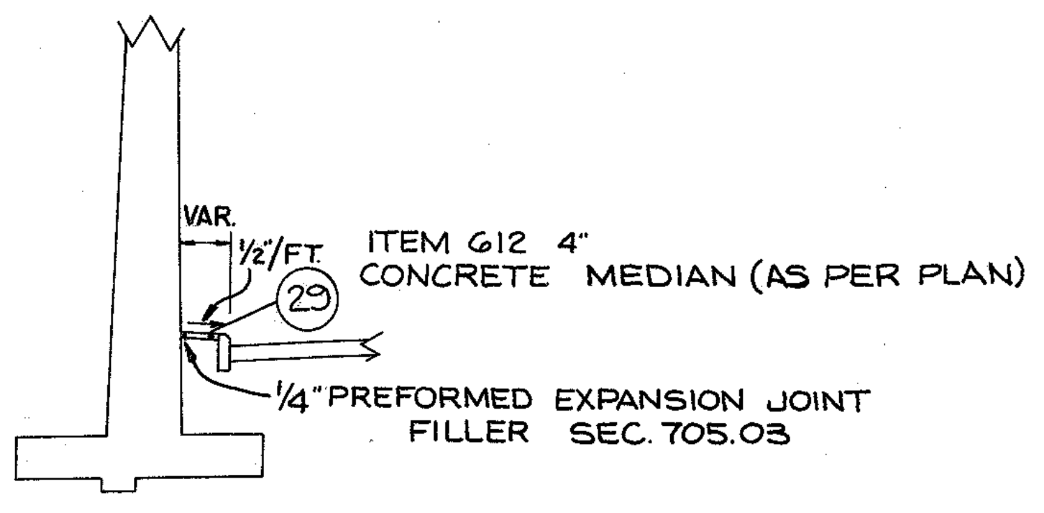
SUPERELEVATED SECTION

LIMITING STATIONS

NOTE: SUPERELEVATED SECTION IS OBTAINED BY REVOLVING THE PAVEMENTS ABOUT THE CENTERLINE OF THE REVERSIBLE LANES AND HOLDING THE EDGES OF CONCRETE BARRIER MEDIAN LEVEL.

STA. 772+53.03 - STA. 779+42.53
STA. 781+57.33 - STA. 783+05.26
STA. 785+18.83 - STA. 792+00

FOR LEGEND SEE SHT. NO. 19.

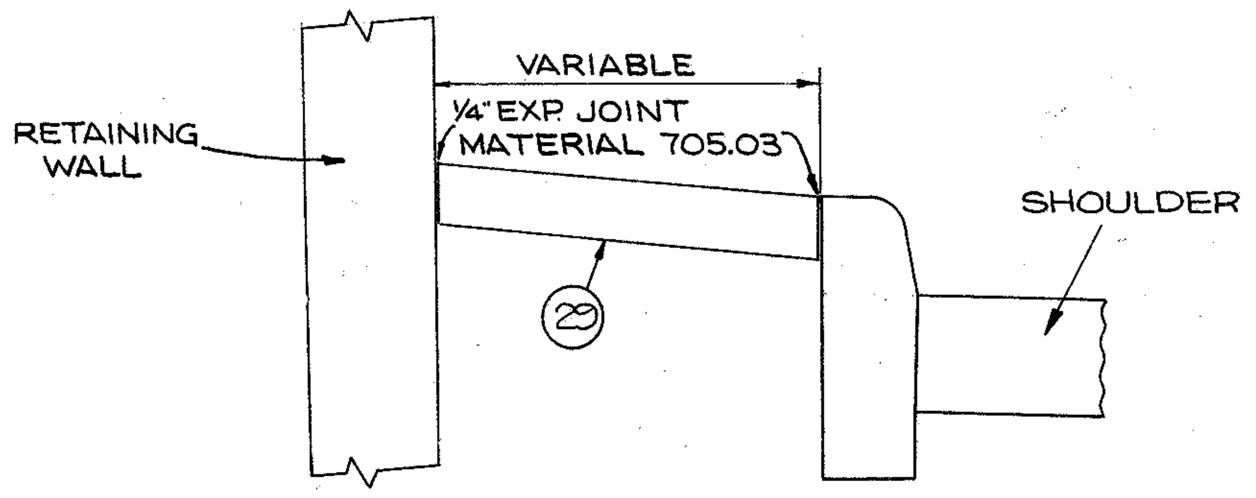


RETAINING WALL LIMITING STATIONS

LT.: STA.750+73.05 TO STA.758+58.89
RT.: STA.750+46.52 TO STA.758+24.08

BRIDGE & APPROACH SLAB LIMITS

STA. 769+81.09 TO STA. 772+18.31
STA. 779+42.53 TO STA. 781+57.33
STA. 783+05.26 TO STA. 785+18.83

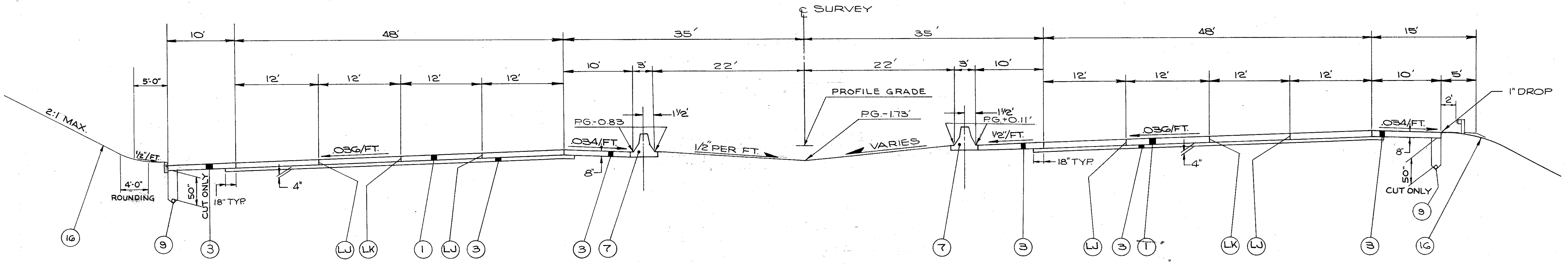


JOINTS:— 1/4 INCH EXPANSION JOINTS SHALL BE CONSTRUCTED AT 20 FT. INTERVALS. METAL SEPARATOR PLATES OR TEMPLETS SHALL BE USED IF NECESSARY TO HOLD THE JOINT MATERIAL IN ACCURATE POSITION DURING THE PLACING OF THE CONCRETE.

SEPARATOR PLATES OR TEMPLETS, IF USED, SHALL BE REMOVED AS SOON AS THE CONCRETE IS IN PLACE TO INSURE THE ACCURATE RETENTION OF THE JOINT MATERIAL.

EXPANSION JOINT MATERIAL SHALL MEET THE REQUIREMENTS OF 705.03.

IN ADDITION TO THE 1/4 INCH EXPANSION JOINTS, CONTRACTION JOINTS, CONSISTING OF 1 1/2 INCH MINIMUM DEPTH IMPRESSED JOINT FORMED AND SEALED AS PER STANDARD DRAWING BP-3, SHALL BE PLACED IN THE CONCRETE MEDIAN AT INTERVALS NOT TO EXCEED 10 FEET.



(Dc = 1° 28')

SUPERELEVATED SECTION

LIMITING STATIONS

STA. 752+47.34 - STA. 769+81.09
STA. 772+18.31 - STA. 772+53.03

TYPICAL SECTIONS

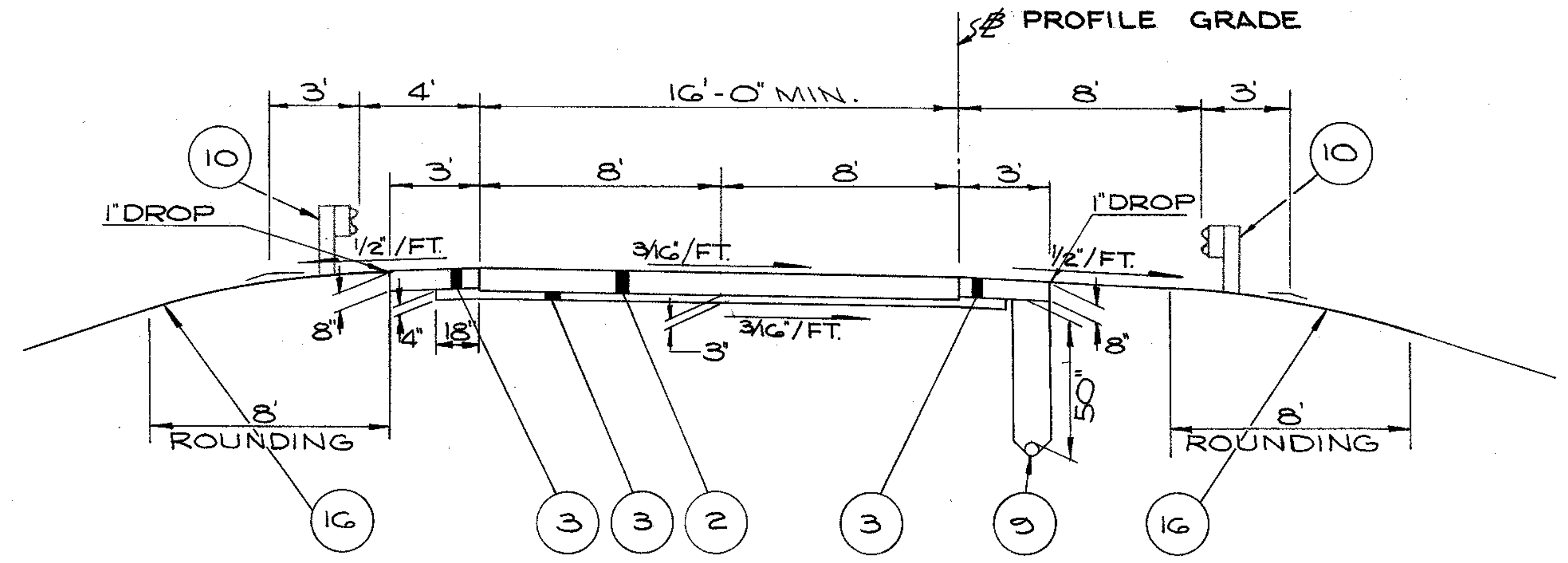
FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

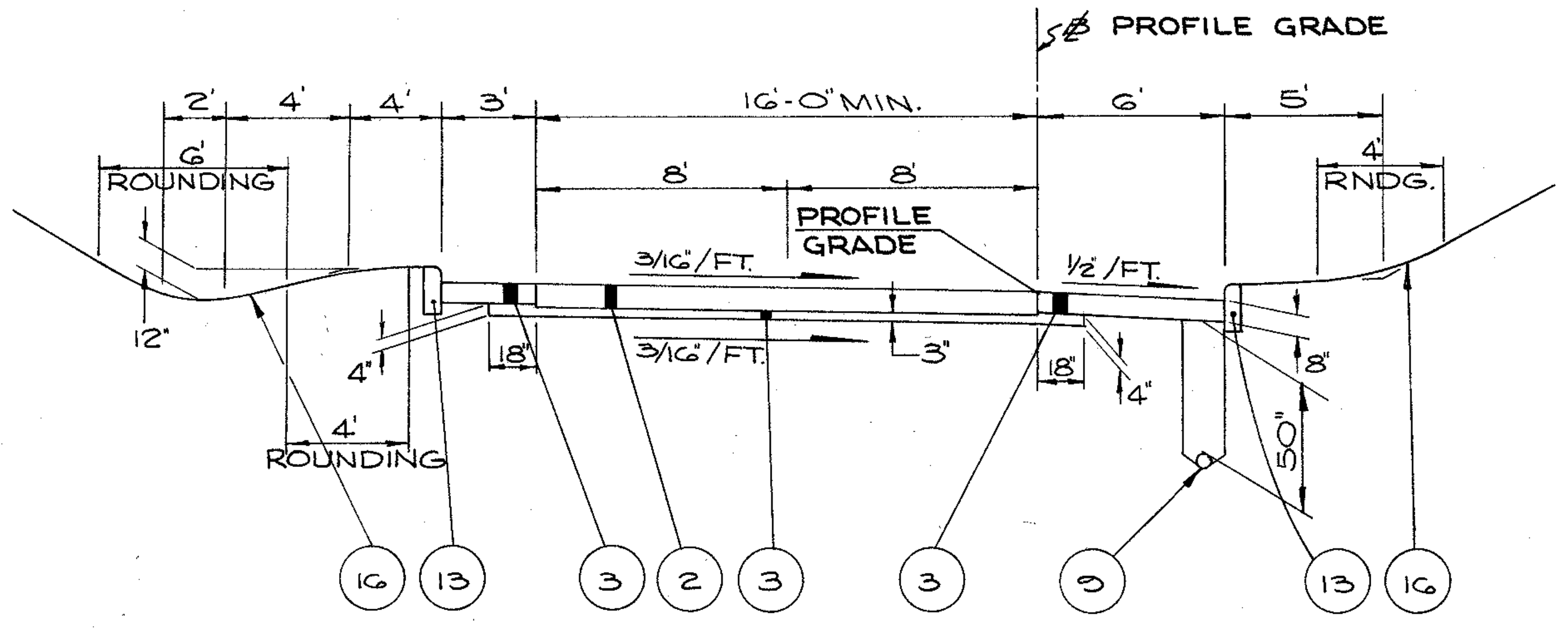
21
713

CUYAHOGA COUNTY
CUY-90-10.40

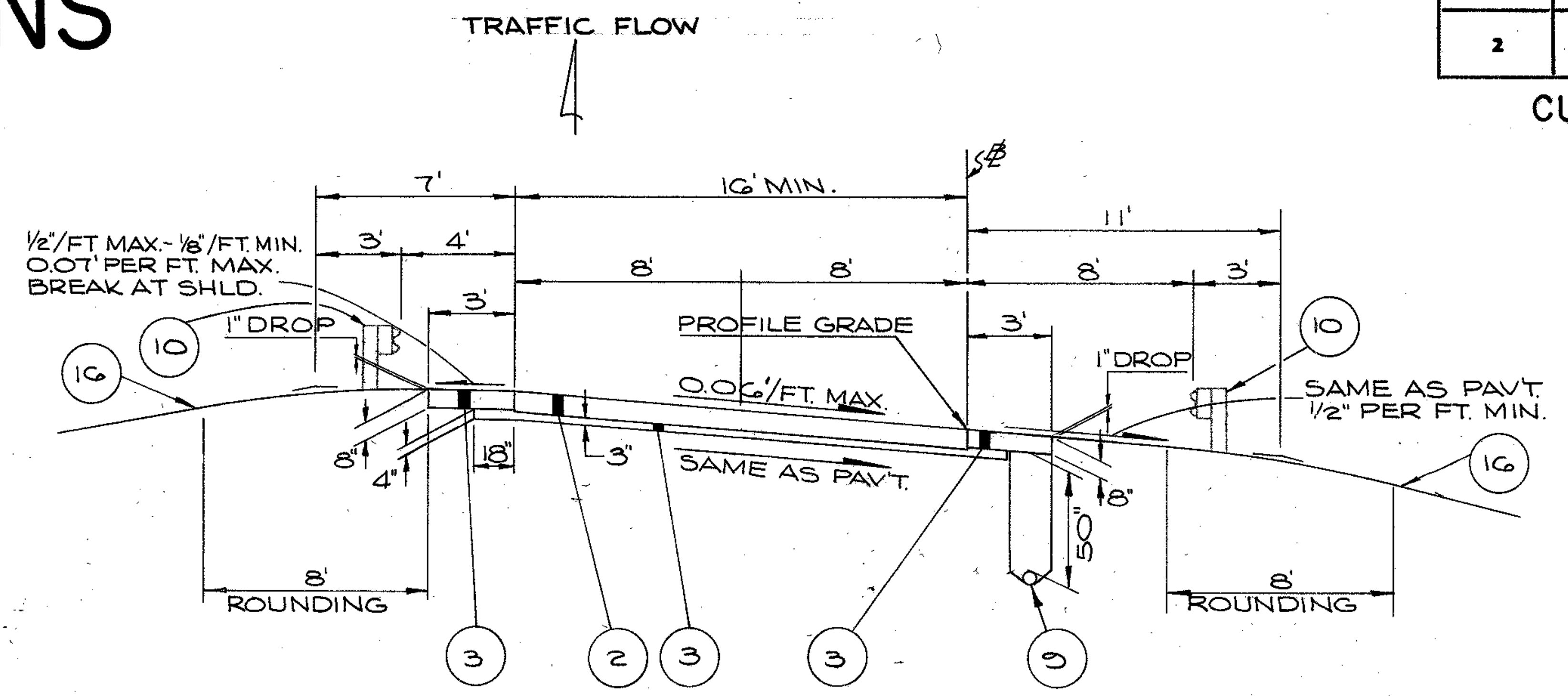
TYPICAL SECTIONS
TYPE 451



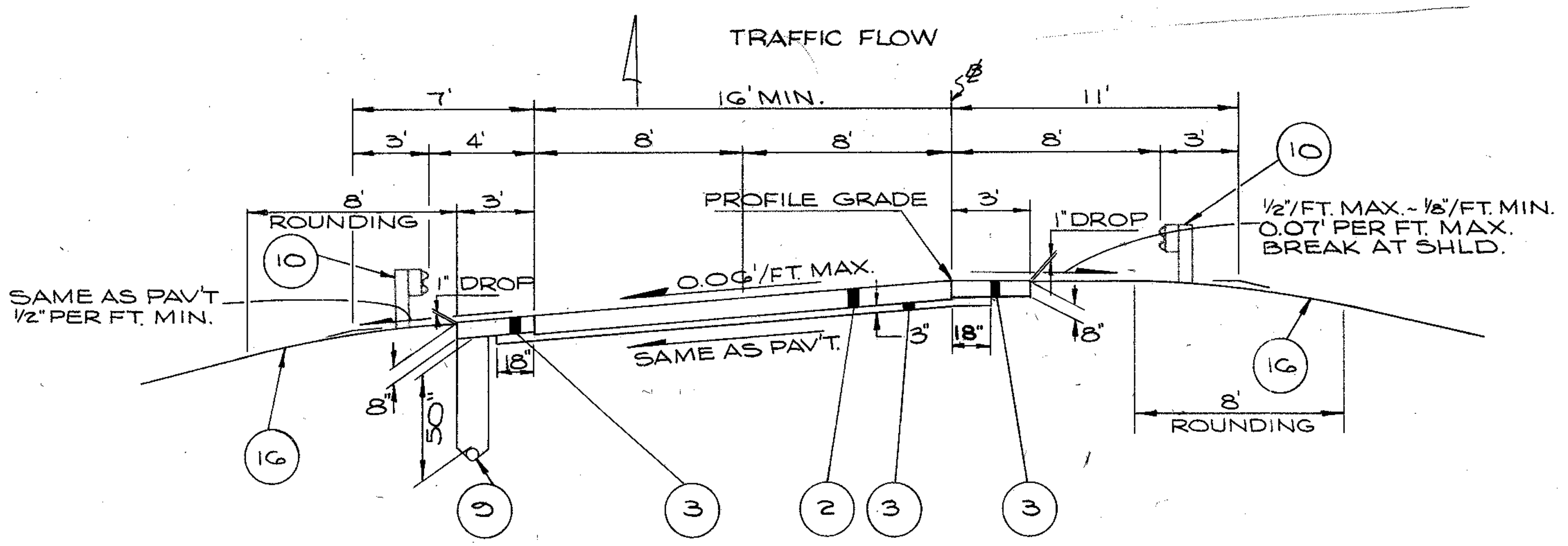
NORMAL SECTION



NORMAL SECTION (CURBED)

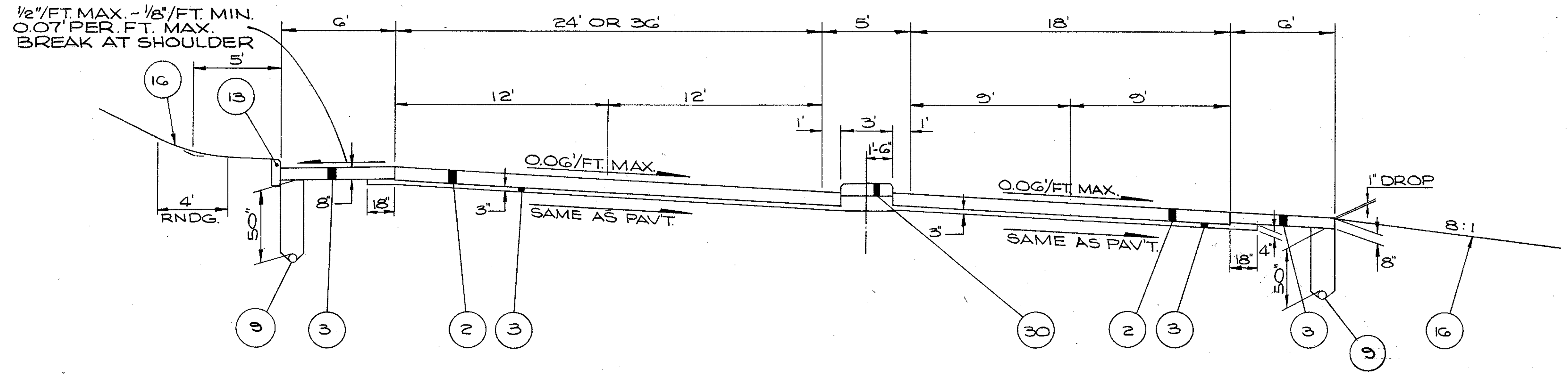


SUPERELEVATED SECTION RIGHT

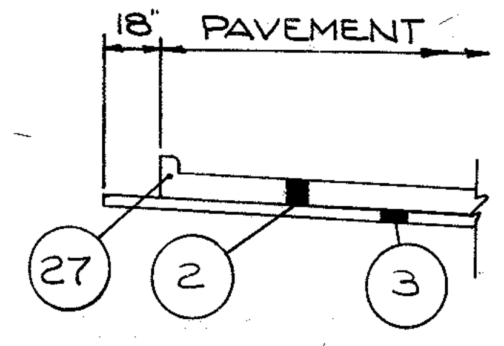


SUPERELEVATED SECTION LEFT

FOR LEGEND, SEE SHEET Nº 19

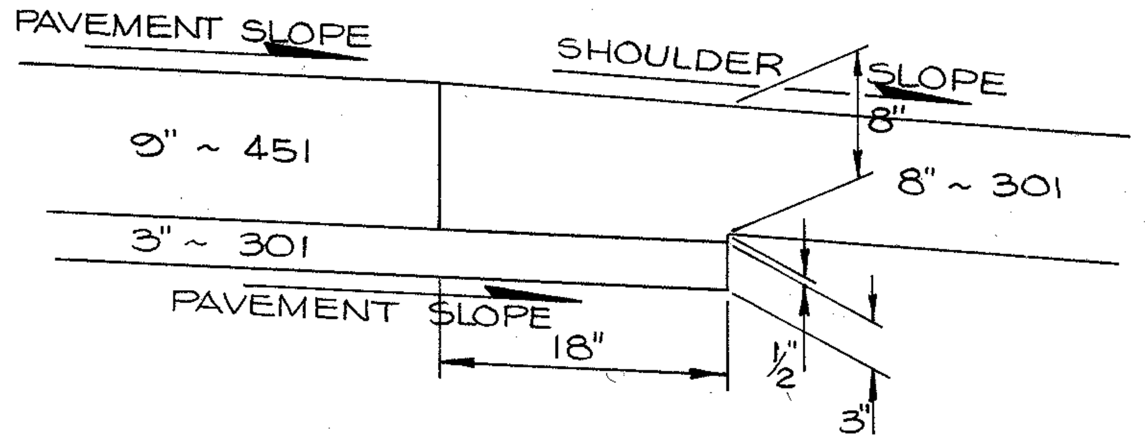


SUPERELEVATED TWO WAY SECTION

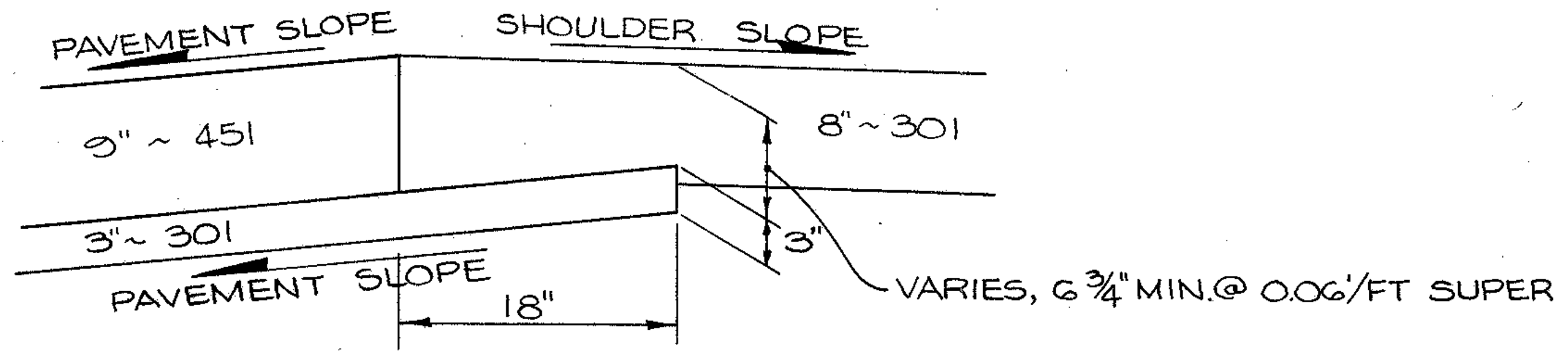


RAMP SECTION
W/O SHOULDER

NOTE:
TYPICALS APPLICABLE TO RAMPS Nos 5,6,7,8,9,11,12,13 & 14



NORMAL SHOULDER



HIGH SUPER SHOULDER

DETAIL OF 301 BASE AND SHOULDER CONSTRUCTION

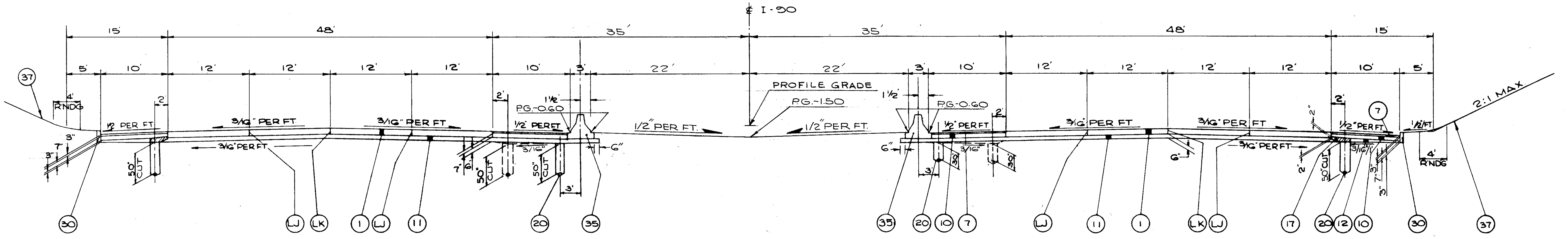
RAMP
TYPICAL SECTIONS

FORM D D A-8

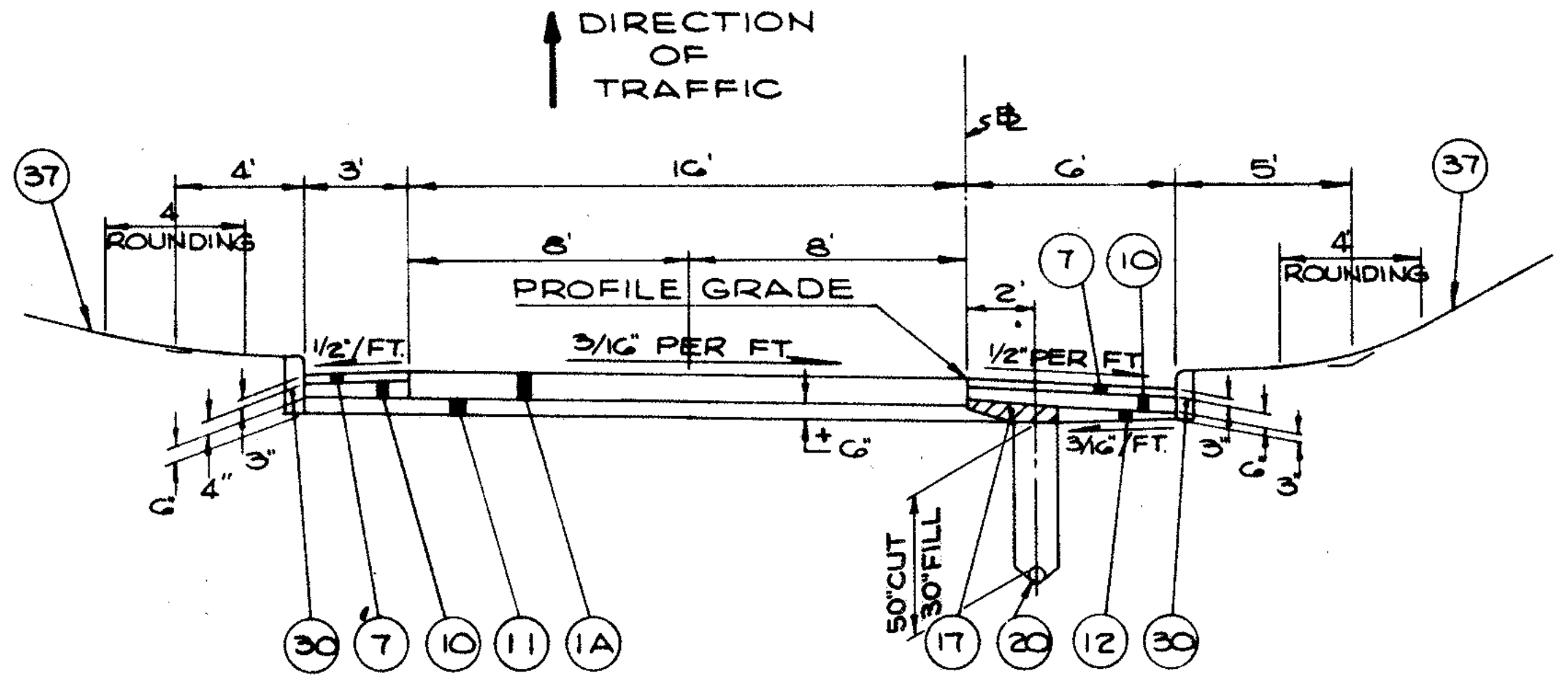
TYPICAL SECTIONS
TYPE 451

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

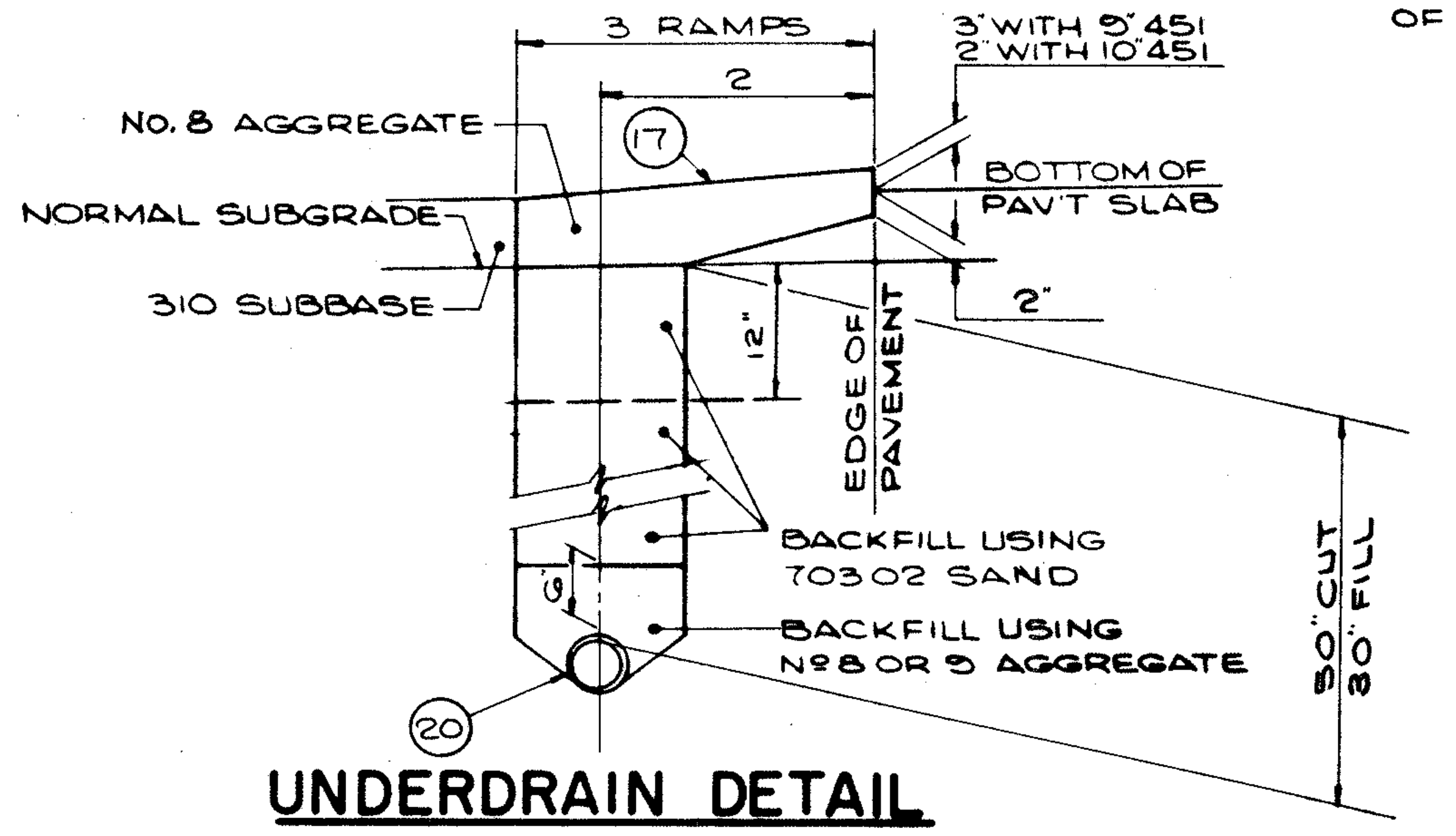


NORMAL SECTION
LIMITING STATIONS
TYPICAL FOR ADJACENT PROJECT STA.792+00



NORMAL SECTION (CURBED)
TYPICAL FOR ADJACENT PROJECT
& RAMPS 15 & 16

* SUBBASE UNDER PAVED SHOULDERS SHALL MEET THE GRADING REQUIREMENTS OF REGULAR GRADING 310. THE LIMITS FOR REGULAR GRADING 310 ARE FROM THE UNDERDRAIN TRENCH (OR ONE FOOT BEYOND THE SLAB EDGE WHERE UNDERDRAINS ARE NOT USED) TO THE EDGE OF THE SHOULDER.



UNDERDRAIN DETAIL

NOTE:

SEQUENCE OF OPERATIONS: (1) INSTALL PIPE UNDERDRAIN ON OUTSIDE SHOULDER. INSTALLATION OF SHALLOW UNDERDRAIN IN MEDIAN MAY BE DEFERRED UNTIL 451 IS PLACED. (2) PLACE SUBBASE TO OUTSIDE EDGE OF UNDERDRAIN OR TO ONE FOOT BEYOND EDGE OF PAVEMENT WHERE NO UNDERDRAIN IS PRESENT PAYMENT SHALL BE MADE FOR ALL SUBBASE PLACED IN THIS OPERATION. (3) CONSTRUCT 451 (4) REMOVE SUBBASE AND ANY CONTAMINATED BACKFILL OVER DRAIN AND REPLACE WITH Nº 8 AGGREGATE AS SHOWN BY ⑰ (5) COMPLETE SHOULDER CONSTRUCTION.

DEPTHS: 30" COVER FROM BOTTOM OF SUBBASE TO TOP OF PIPE IN FILL (UNLESS OTHERWISE
50" COVER FROM BOTTOM OF SUBBASE TO TOP OF PIPE IN CUT SHOWN ON THE PLANS)

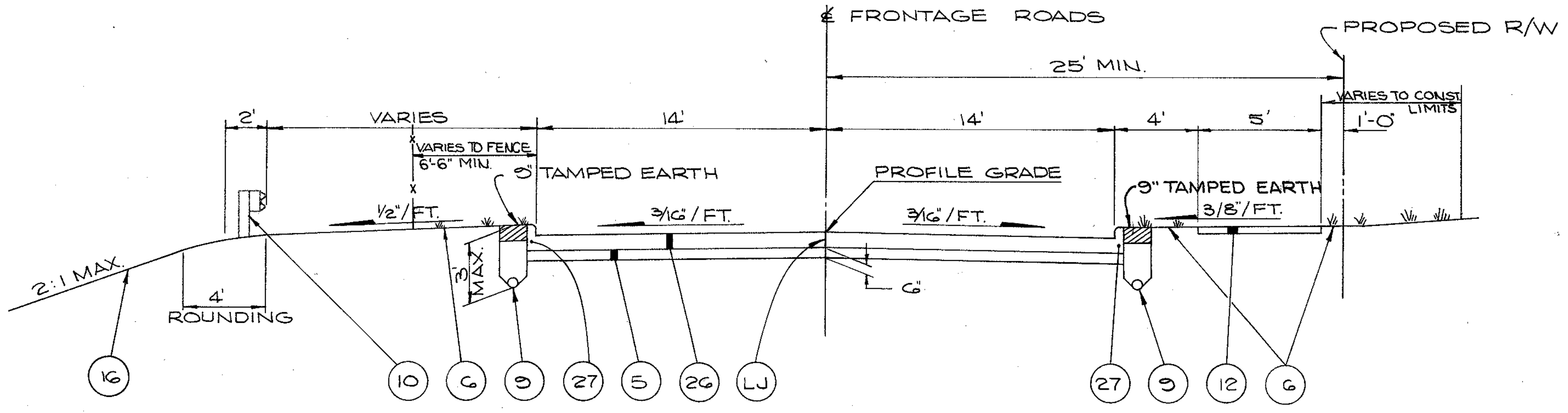
LEGEND (THIS SHEET ONLY)

①	ITEM 451	10" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
(1A)	ITEM 451	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
⑦	ITEM 301	3" BITUMINOUS AGGREGATE BASE; 702.01 AC-20 702.09, RT-11 OR RT-12, "SEE NOTE IN PROPOSAL"
⑩	ITEM 304	AGGREGATE BASE
⑪	ITEM 310	SUBBASE GRADING A, AS PER PLAN
⑫	ITEM 310	SUBBASE, REGULAR GRADING
⑰	ITEM	SPECIAL DRAINAGE CONNECTION USING NO. 8 AGGREGATE
⑳	ITEM 605	6" SHALLOW, DEEP OR UNCLASSIFIED UNDERDRAIN
㉚	ITEM 609	CONCRETE CURB, STANDARD TYPE 6
㉟	ITEM 622	CONCRETE BARRIER STANDARD TYPE B
㊲	ITEM 659	SEEDING AND MULCHING (*See General Note*)
(LJ)	STANDARD	LONGITUDINAL JOINT
(LK)	STANDARD	LONGITUDINAL JOINT WITHOUT TIE BARS

TYPICAL SECTIONS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

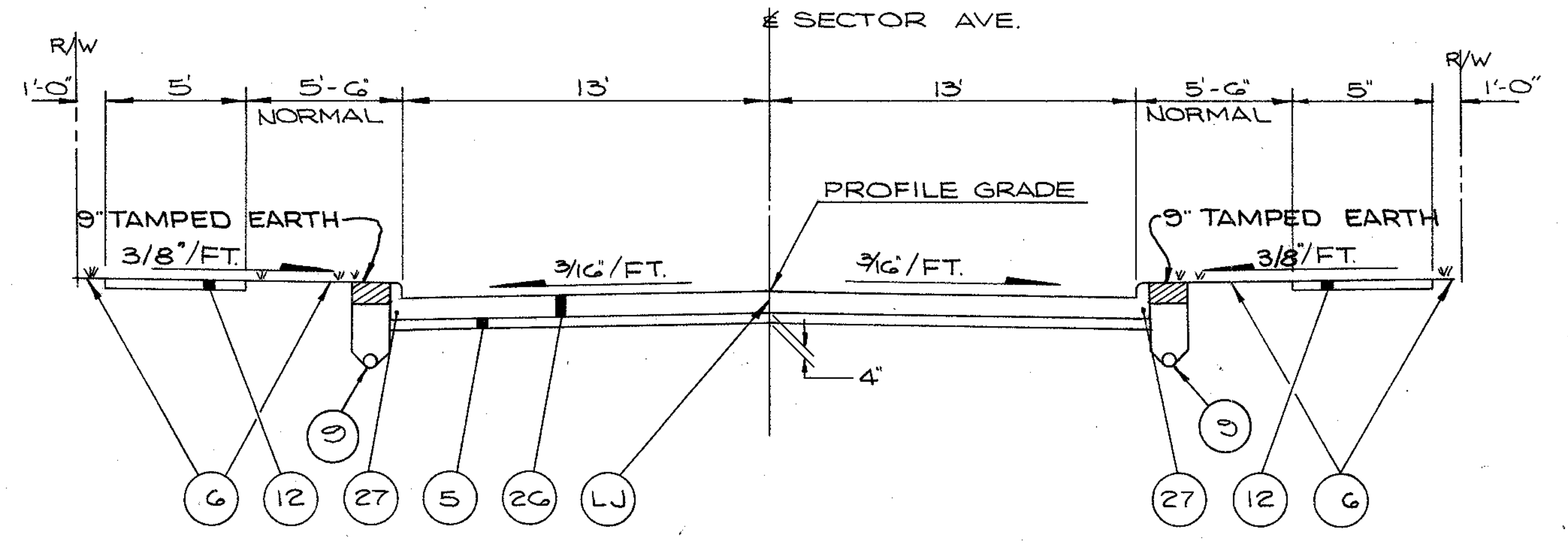
CUYAHOGA COUNTY
CUY-90-10.40



FRONTAGE RDS.

LIMITING STATIONS

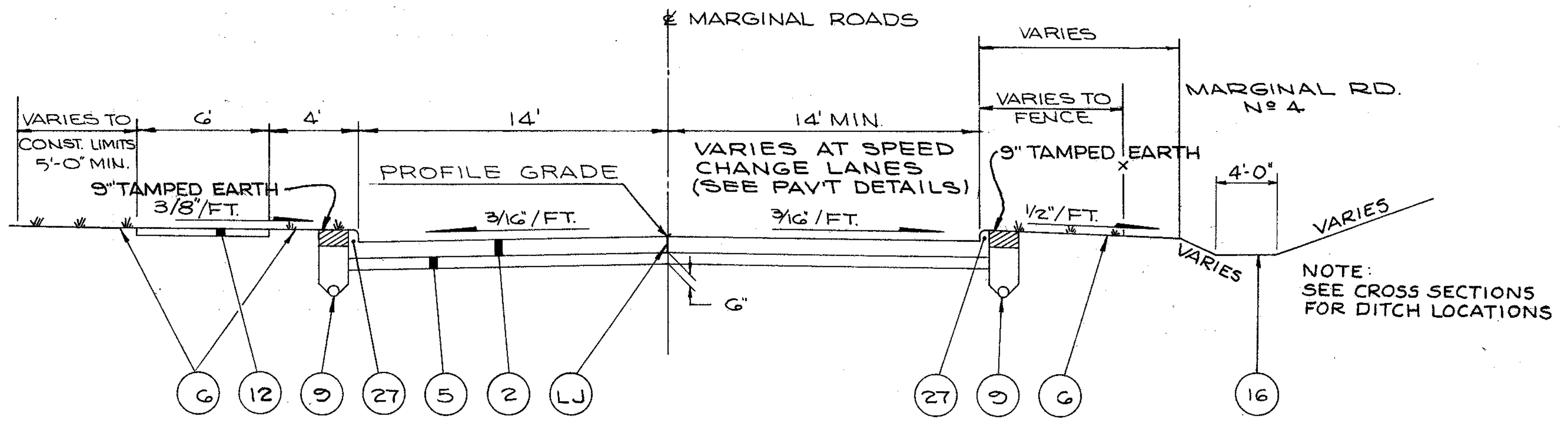
STA.40+00 TO STA.48+95.51 S. FRONTAGE RD. NO.1
STA.61+00 TO STA.67+45.41 N. FRONTAGE RD. NO.2
STA.38+39.36 TO STA.47+00 S. FRONTAGE RD. NO.3
STA.60+00 TO STA.66+67.54 S. FRONTAGE RD. NO.4A



SECTOR AVE.

LIMITING STATIONS

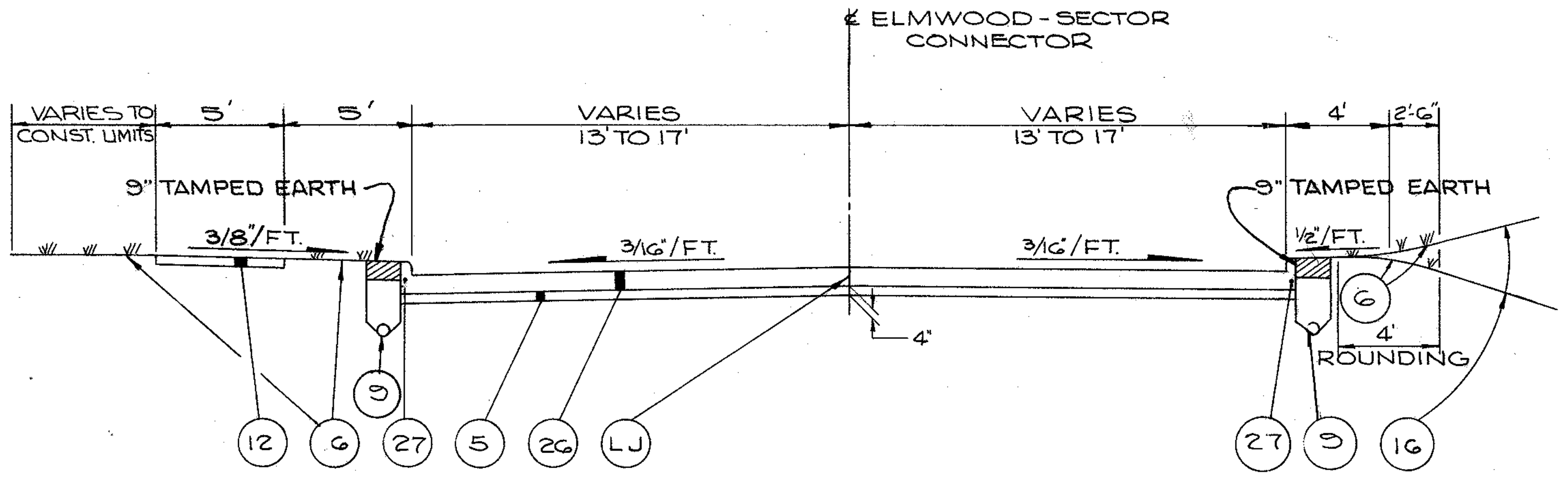
STA.47+25 TO STA.48+65.47



MARGINAL RDS.

LIMITING STATIONS

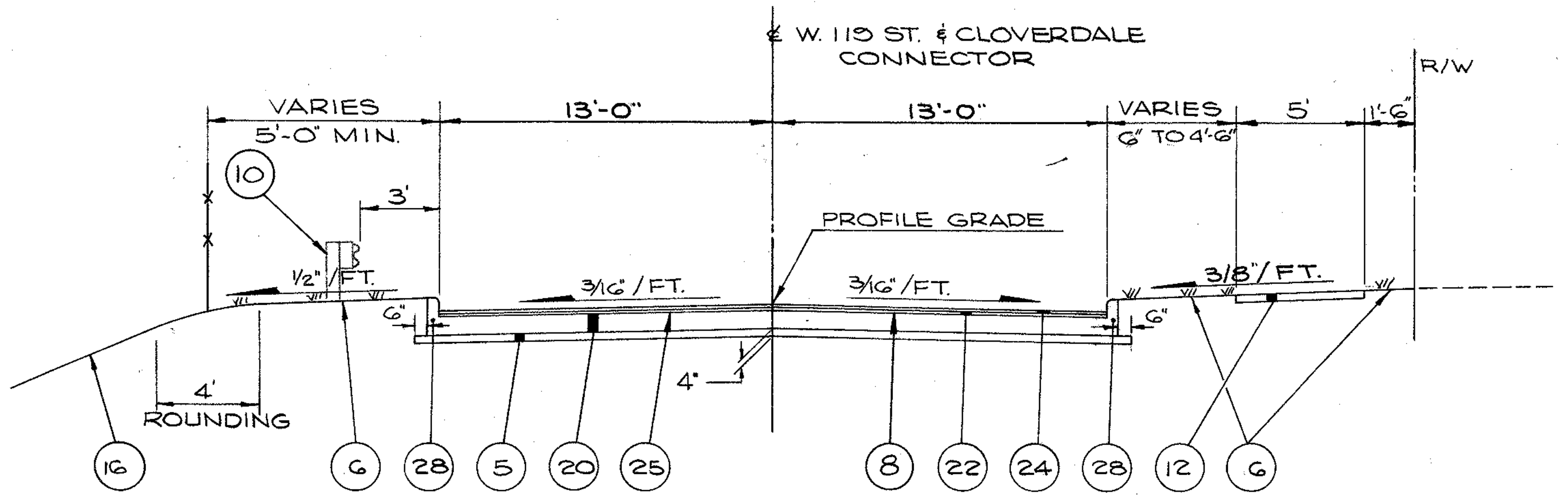
STA.50+35.45 TO STA.70+50 N. MARGINAL RD. NO.4
STA.50+26.00 TO STA.57+30 S. MARGINAL RD. NO.5



ELMWOOD-SECTOR CONNECTOR

LIMITING STATIONS

STA.56+00 TO STA.64+81

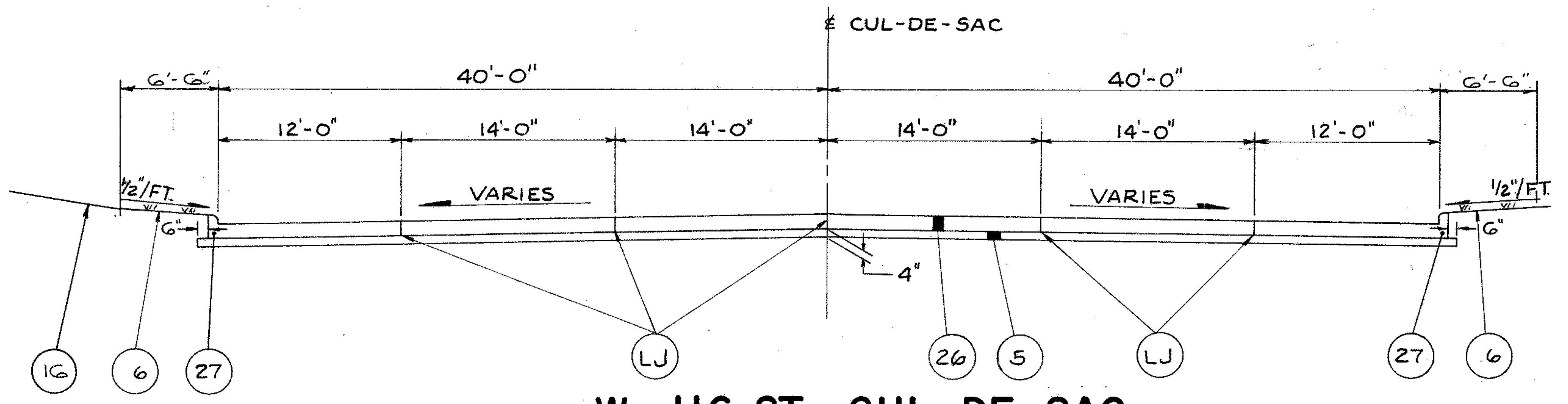


W. - 119 ST. - CLOVERDALE CONNECTOR

LIMITING STATIONS

STA.48+88.62 TO STA.50+57.07

NOTE:
FOR LEGEND SEE SHEET Nº 24



W. - 116 ST. - CUL-DE-SAC CONNECTOR

LIMITING STATIONS

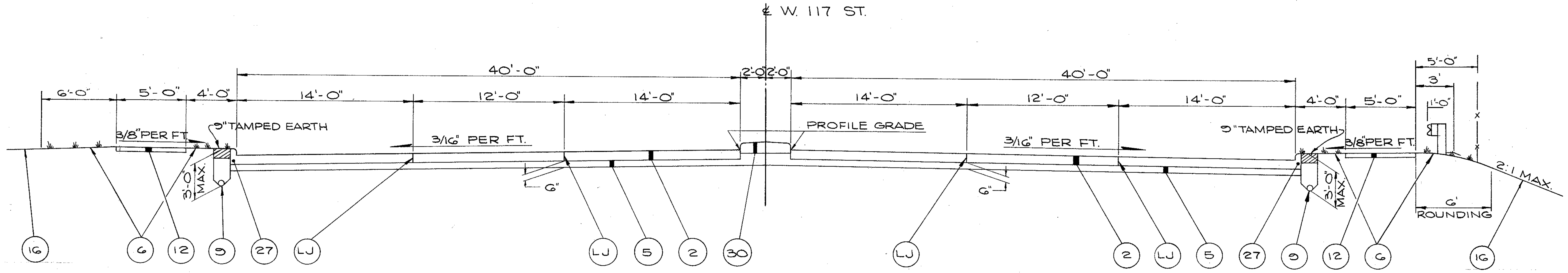
STA.43+24.67 TO STA.44+17.46

TYPICAL SECTIONS

TYPICAL SECTIONS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

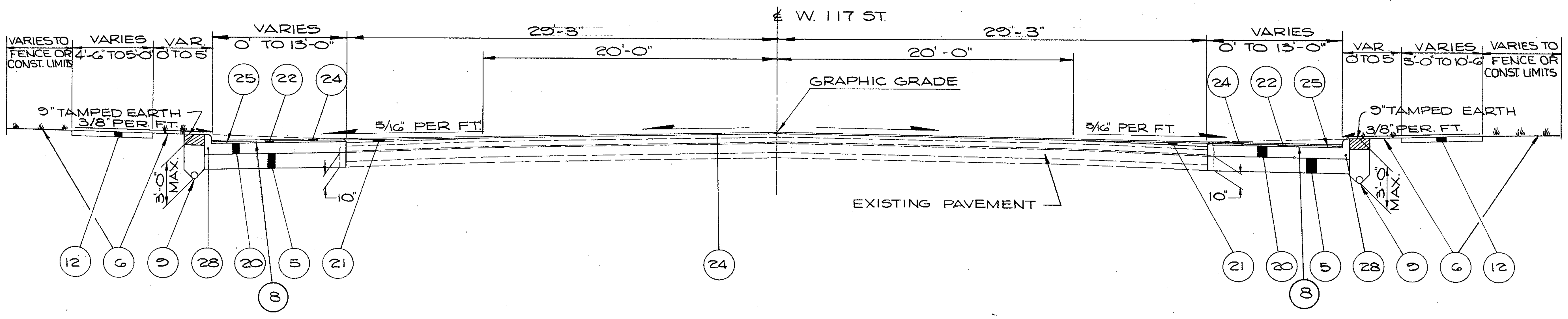


WEST 117 ST.

LIMITING STATIONS
STA. 42+00 TO STA. 47+72.74
STA. 50+71.74 TO STA. 57+50.33

BRIDGE & APPROACH SLAB LIMITS

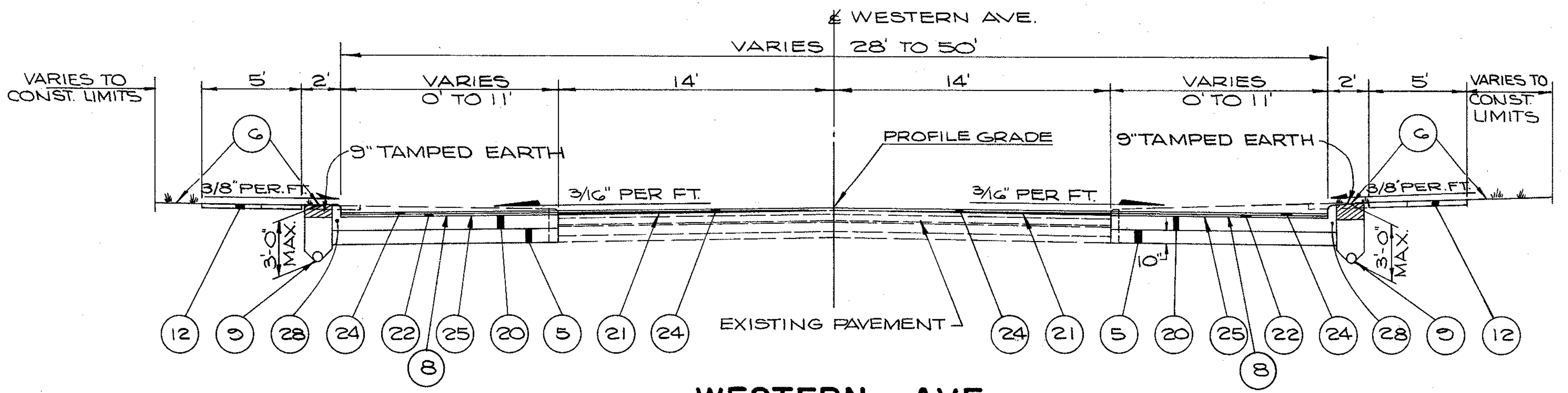
STA. 47+72.74 TO STA. 50+71.74



WEST 117 ST.

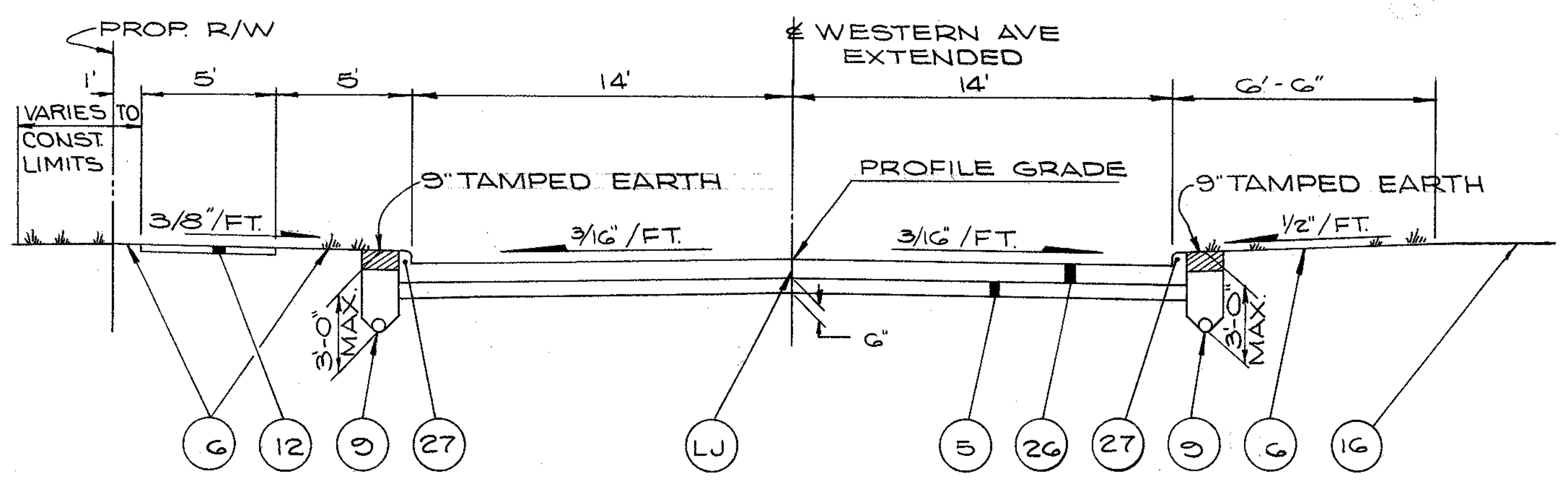
LIMITING STATIONS

STA. 40+00 TO STA. 42+00 RT.
STA. 40+50 TO STA. 42+00 LT.
STA. 57+50.33 TO STA. 63+00



WESTERN AVE.

LIMITING STATIONS
STA. 58+20.06 TO STA. 61+33.34
STA. 61+97.34 TO STA. 67+32.03



WESTERN AVE. EXTENDED

LIMITING STATIONS
STA. 68+26.61 TO STA. 73+68.15

LEGEND

SHEETS 24 - 25

②	451	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
⑤	310	SUBBASE, GRADING "A" AS PER PLAN
⑩	606	GUARD RAIL, TYPE 5
⑥	660	SODDING
⑨	605	6" PIPE UNDERDRAIN, AS PER PLAN
⑫	608	4" CONCRETE WALK
⑯	659	SEEDING AND MULCHING
⑳	305	8" PORTLAND CEMENT CONCRETE BASE
㉑	402	ASPHALT CONCRETE AC-20 (VAR. DEPTH)
㉒	402	1¼" ASPHALT CONCRETE AC-20
㉓	404	1" ASPHALT CONCRETE AC-20
㉔	404	1¼" ASPHALT CONCRETE AC-20
㉕	407	TACK COAT : 702.02, RC-250; or 702.04, SS-1, SS-1H, MS-2 or RS-1 APPLIED AT THE RATE OF 0.1 GAL. PER SQ.YD.
㉖	451	8" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
㉗	609	CURB, STANDARD TYPE 2-A
㉘	609	CURB, STANDARD TYPE 2-B
⑧	407	COVER AGGREGATE
㉚	612	CONCRETE MEDIAN
(LJ)		STANDARD LONGITUDINAL JOINT
(EJ)		STANDARD EXPANSION BOLT JOINT

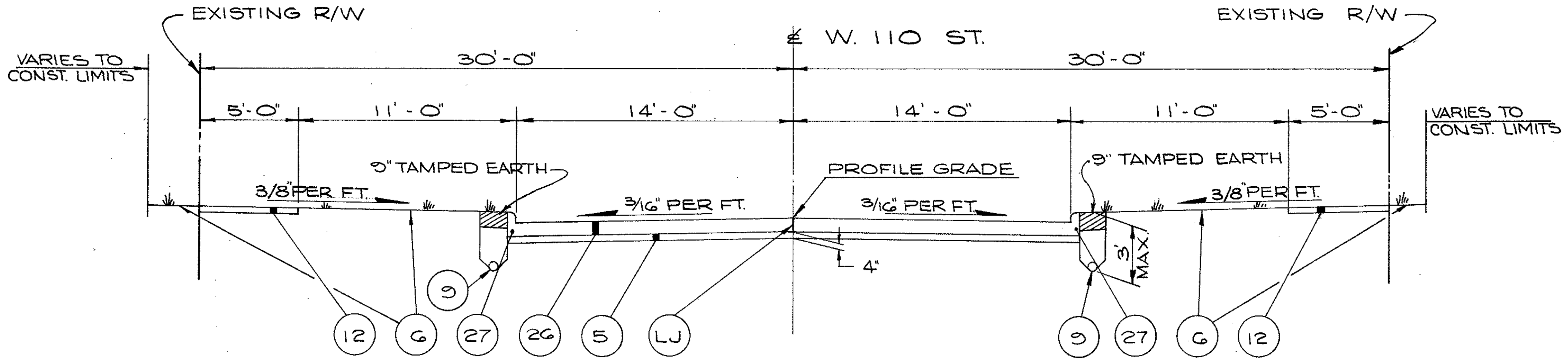
FORM D D A-8

TYPICAL SECTIONS

FED. RD.	STATE	PROJECT		
2	OHIO	I-90-1(50) 19		

25
713

CUYAHOGA COUNTY
CUY-90-10.40



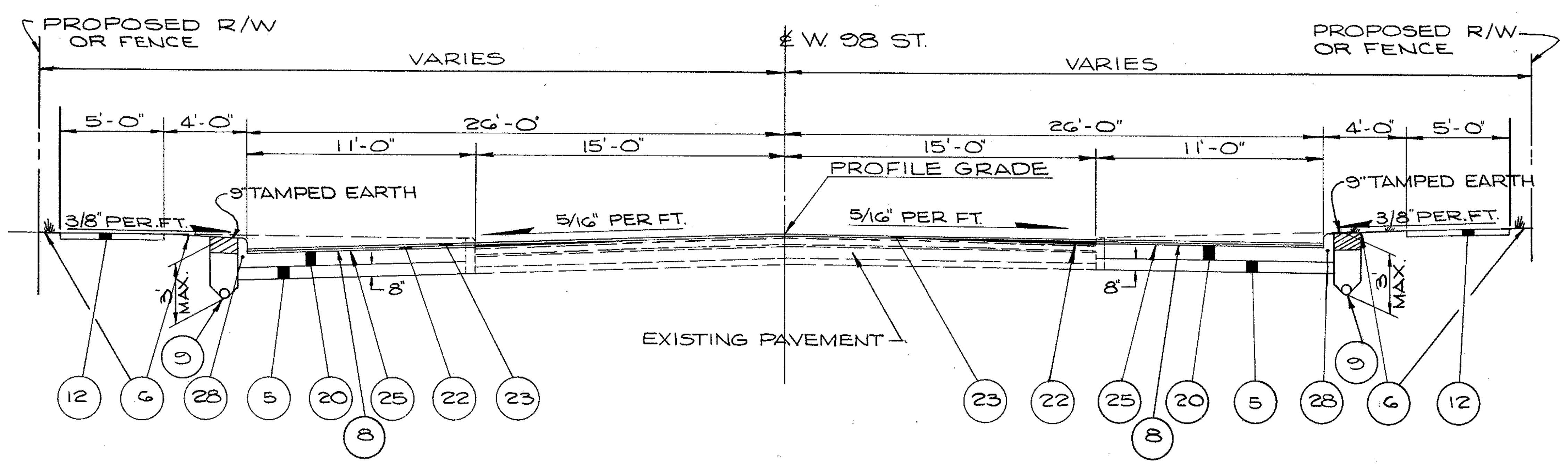
BRIDGE & APPROACH SLAB LIMITS

STA. 45+36.51 TO STA. 48+18.90

WEST 110 ST.

LIMITING STATIONS

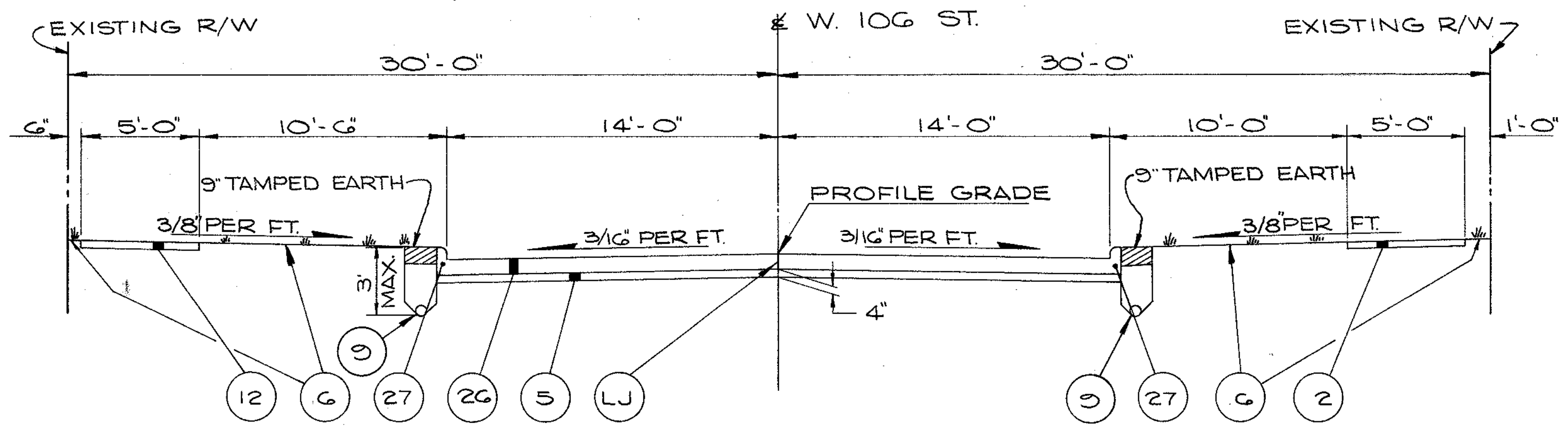
STA.44+00 TO STA.45+36.51
STA.48+18.90 TO STA.49+75



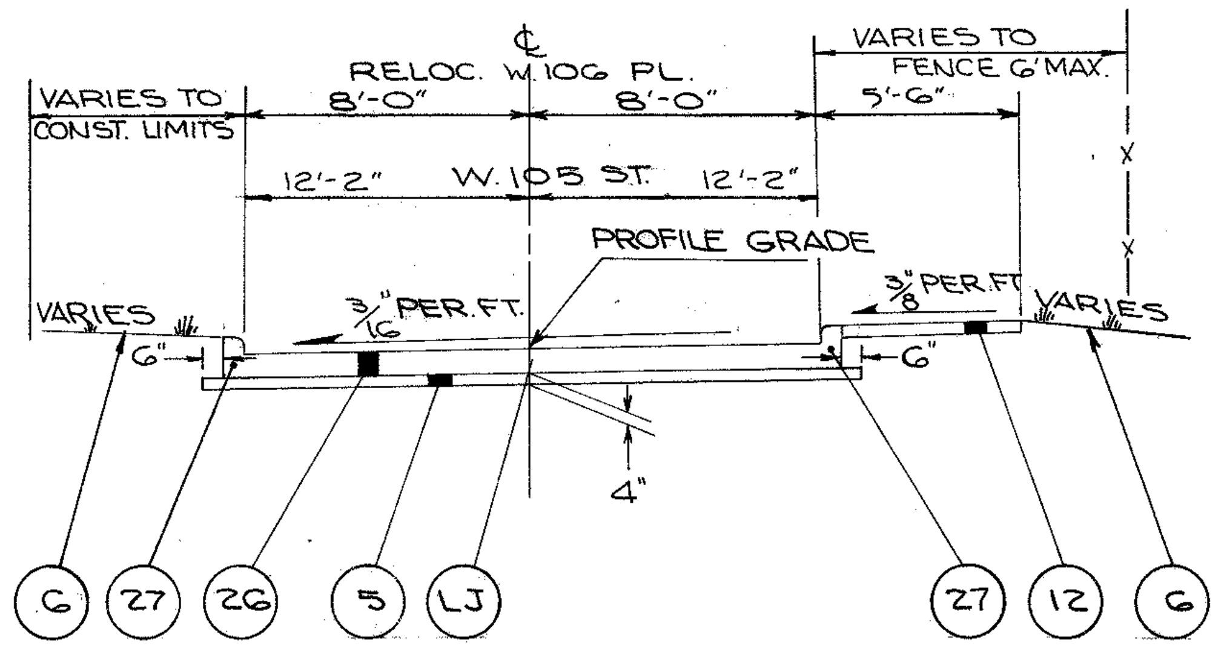
WEST 98 ST.

LIMITING STATIONS

STA. 43+00 TO STA.50+00



FOR LEGEND SEE SHEET Nº 24



BRIDGE & APPROACH SLAB LIMITS

STA.47+29.76 TO STA.50+17.95

WEST 106 ST.

LIMITING STATIONS

STA.46+48.80 TO STA.47+29.76
STA.50+17.95 TO STA.51+00

RELOC. WEST 106 PL.

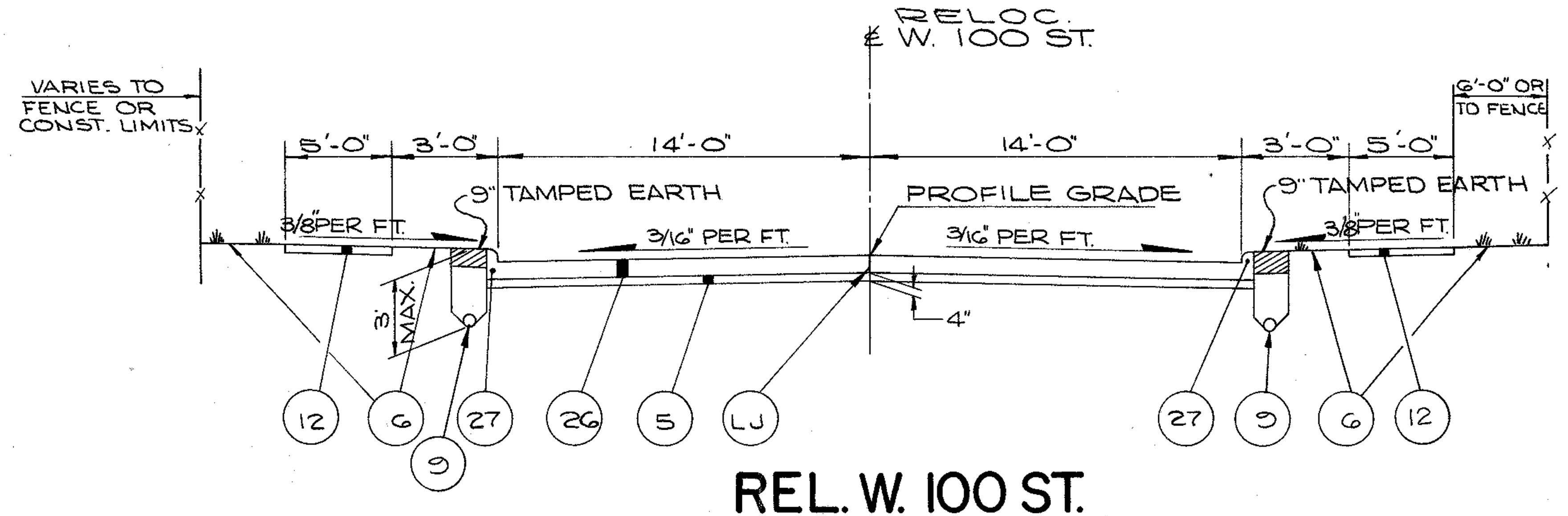
LIMITING STATION

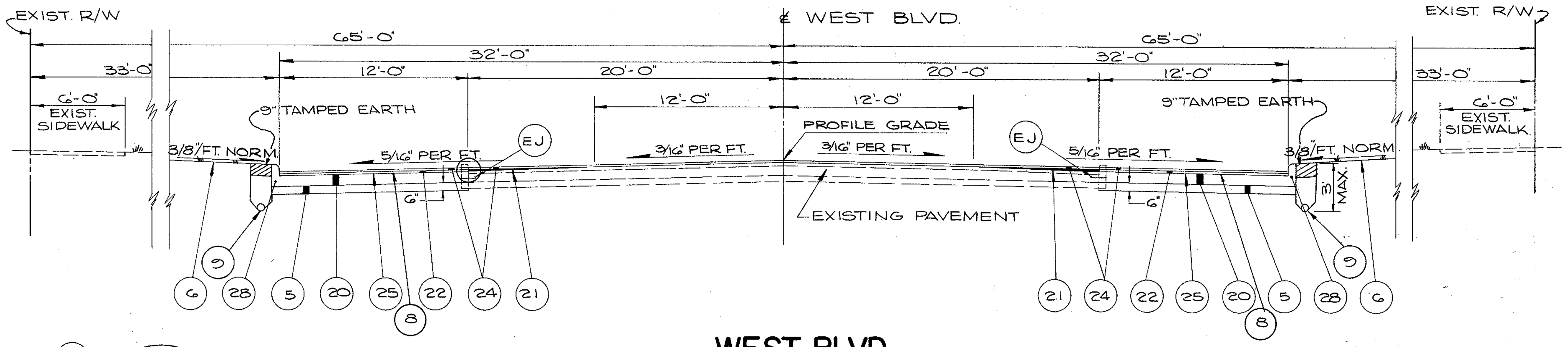
STA.50+00 TO STA.51+41.39

WEST 105 ST.

LIMITING STATION

STA. 51+24.67 TO STA. 52+58

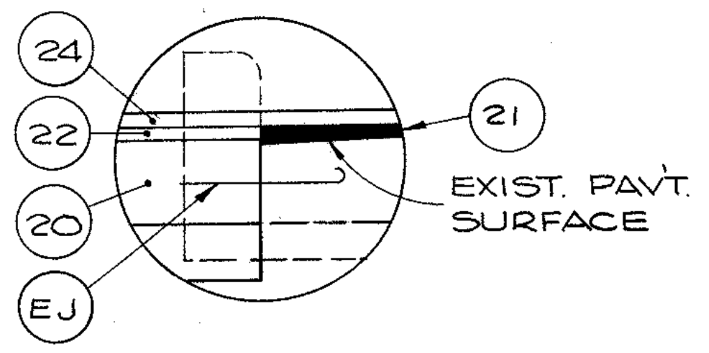




REL. W. 100 ST.

LIMITING STATIONS

STA. 150+56.69 TO STA. 157+63



WEST BLVD.

LIMITING STATIONS

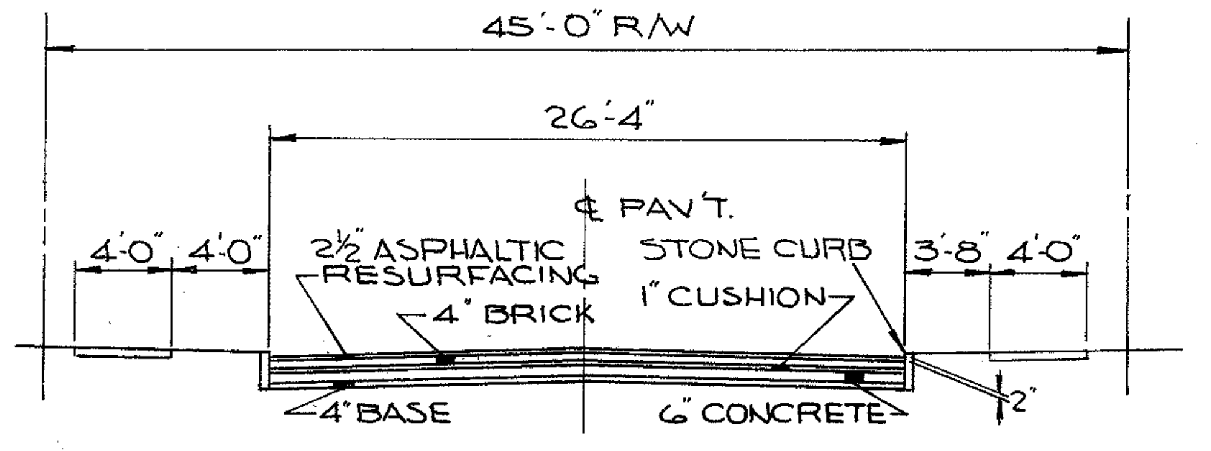
STA. 36+57.02 TO STA. 54+50

TYPICAL SECTIONS

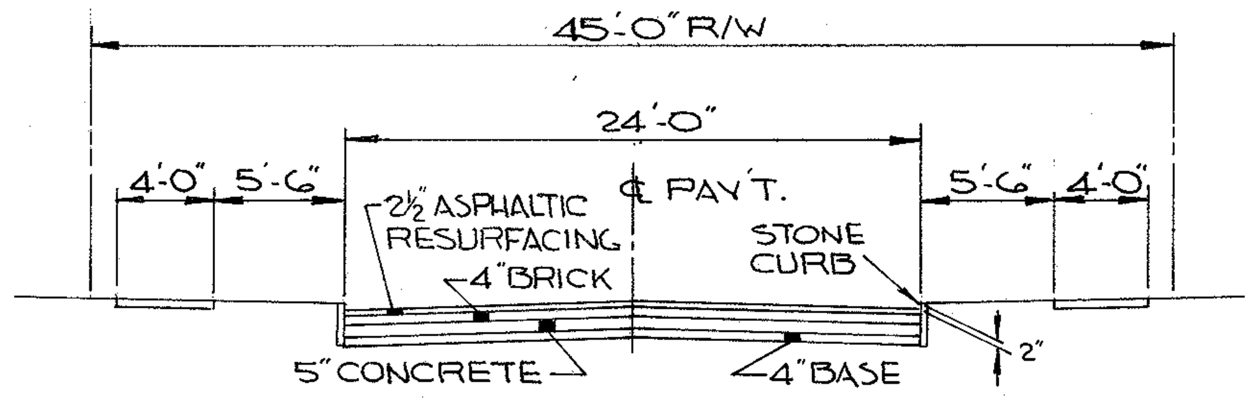
FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40



WEST 100 STREET



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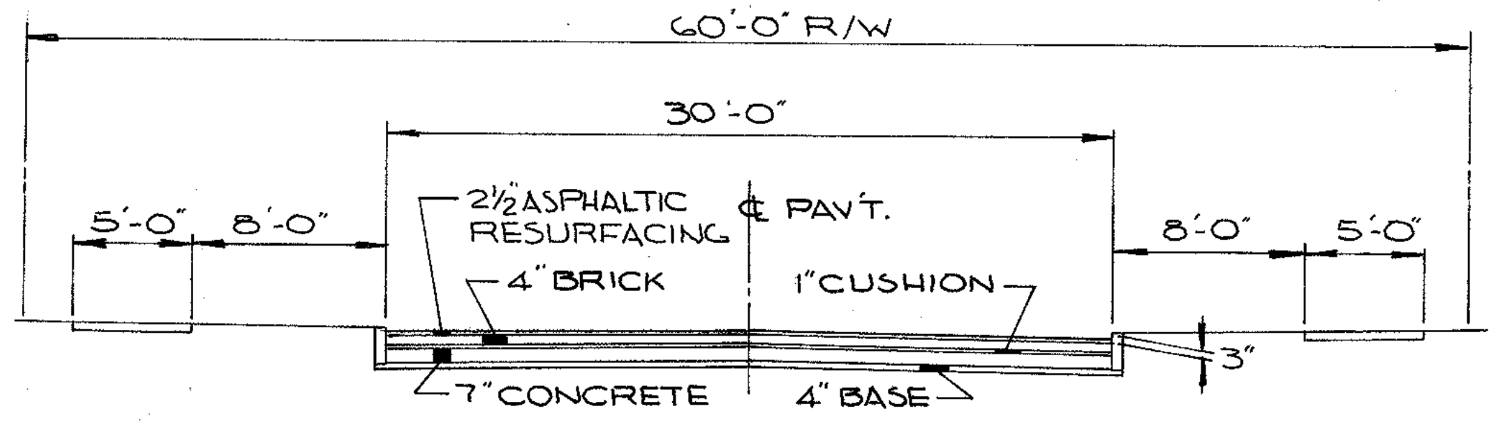
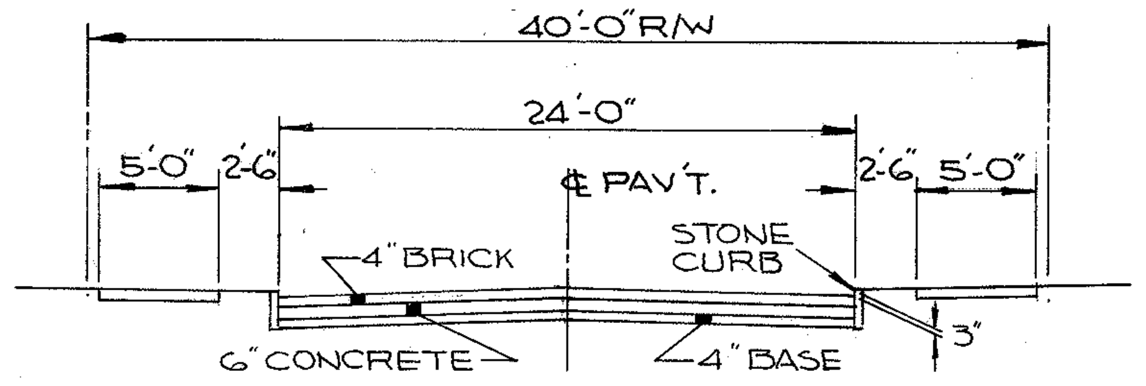


WEST 98 STREET



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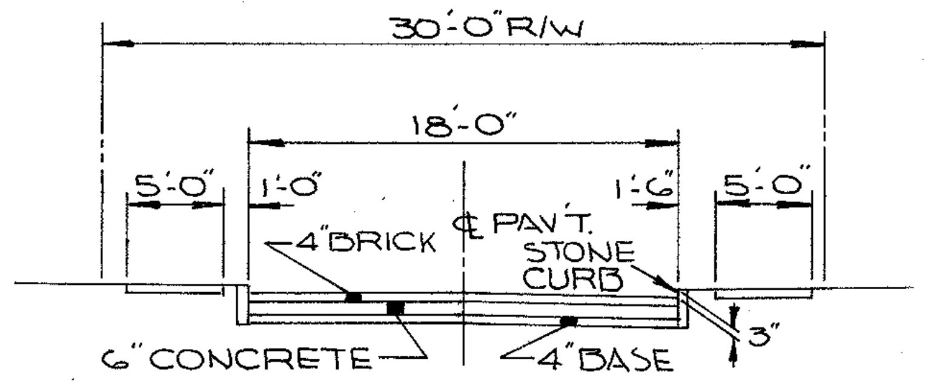
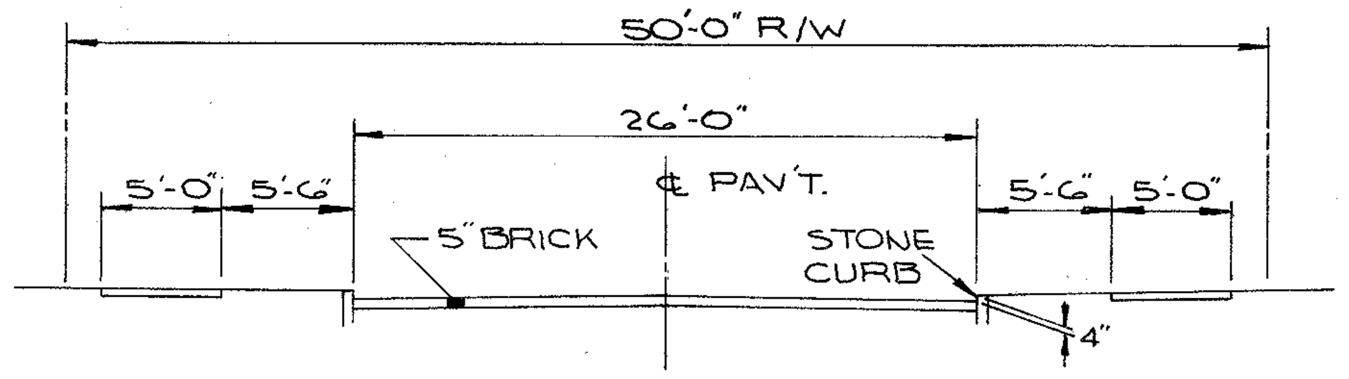
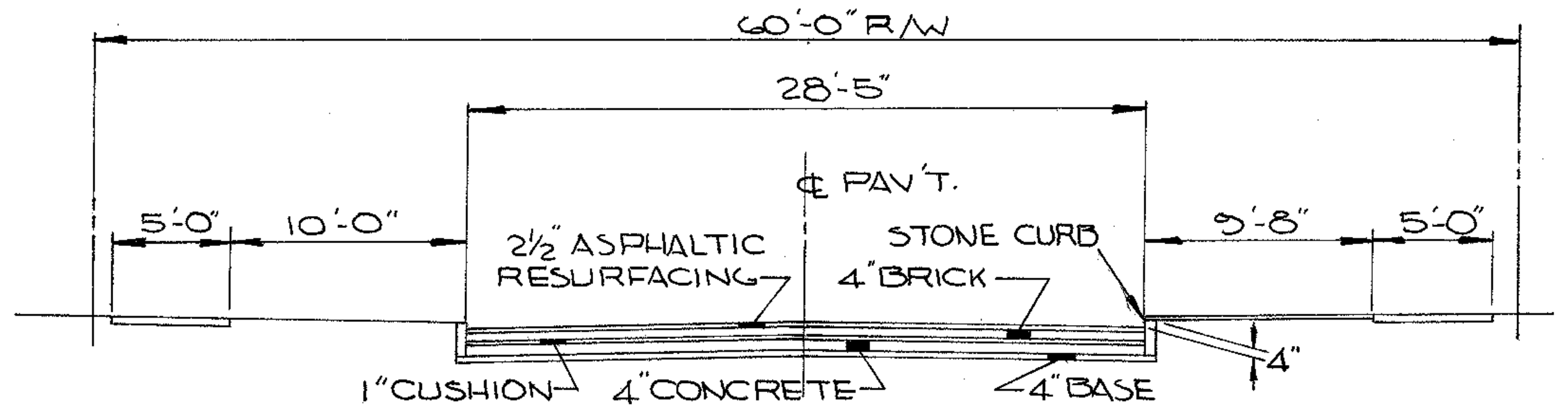


WEST 96 STREET



WEST 95 STREET



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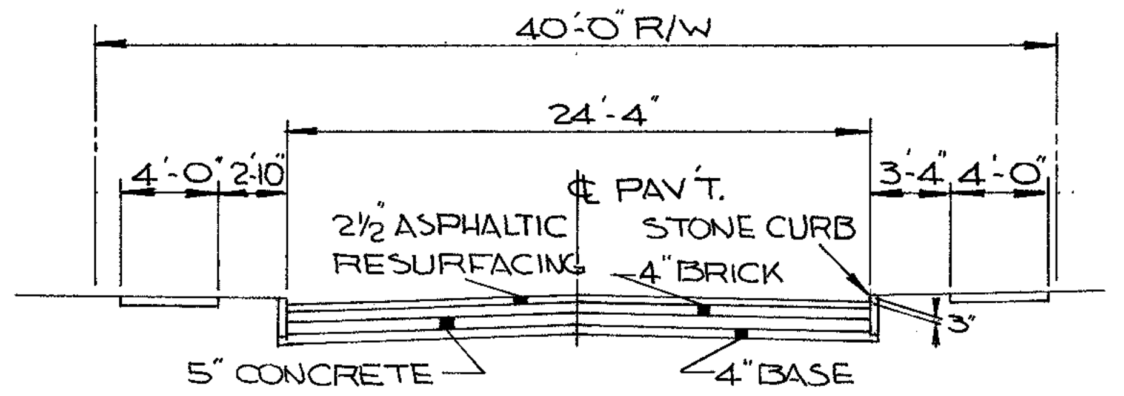

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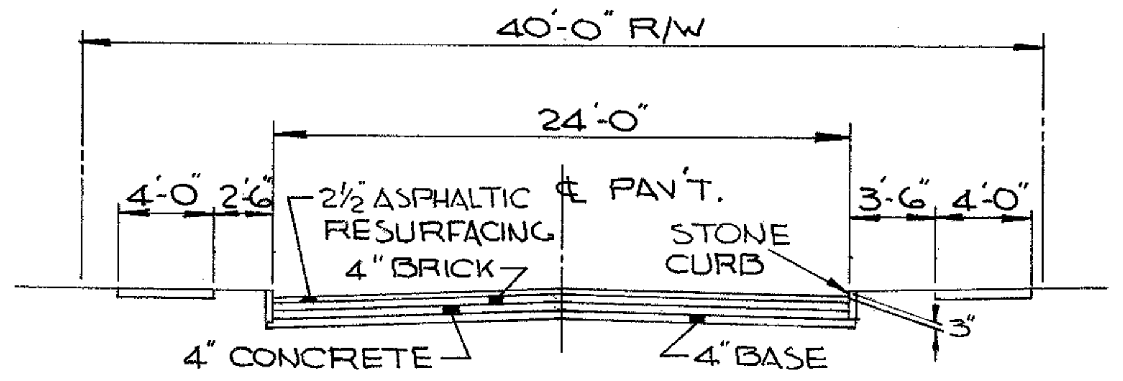

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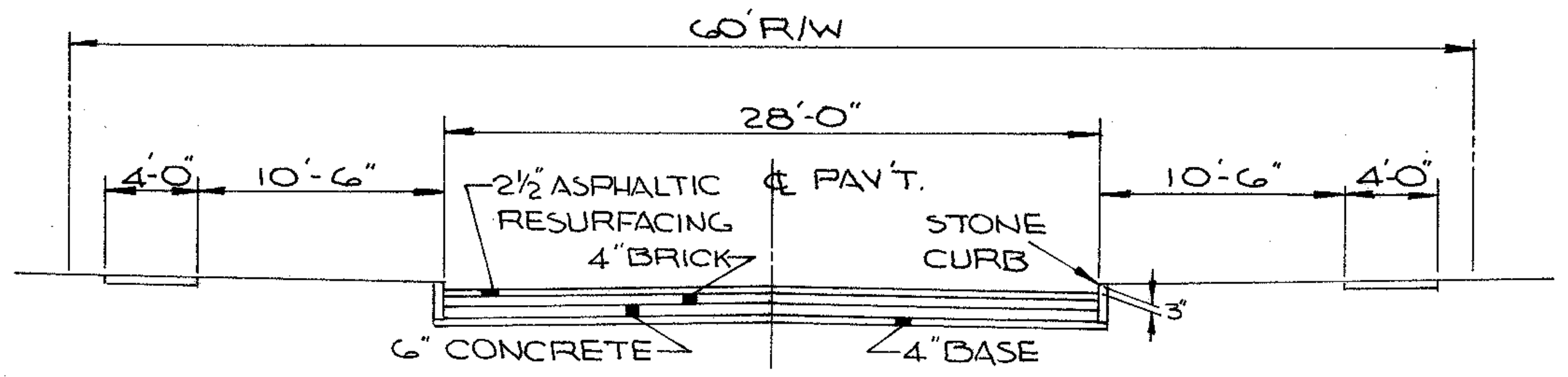
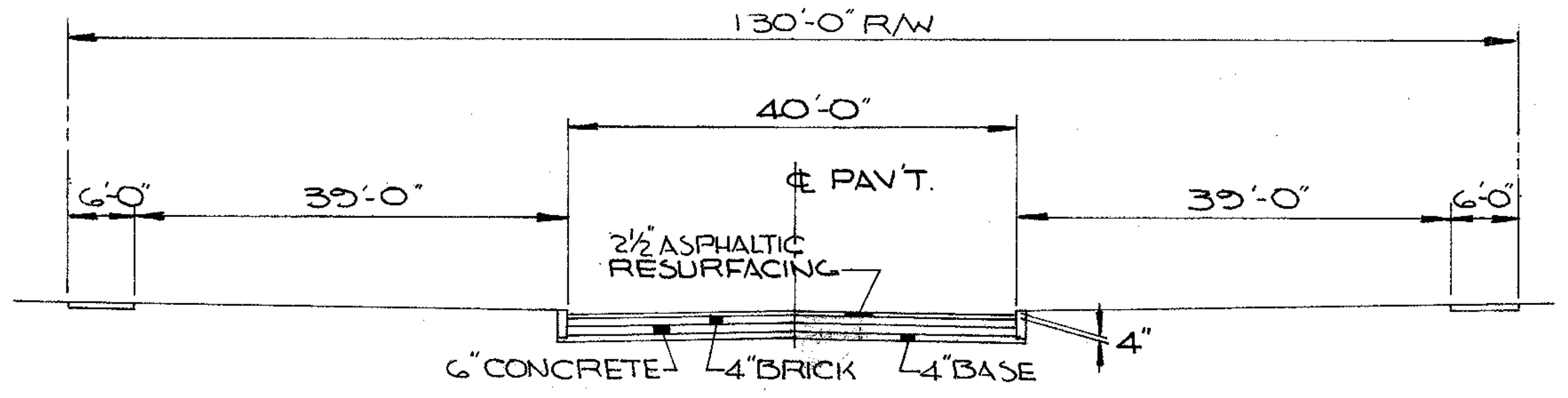
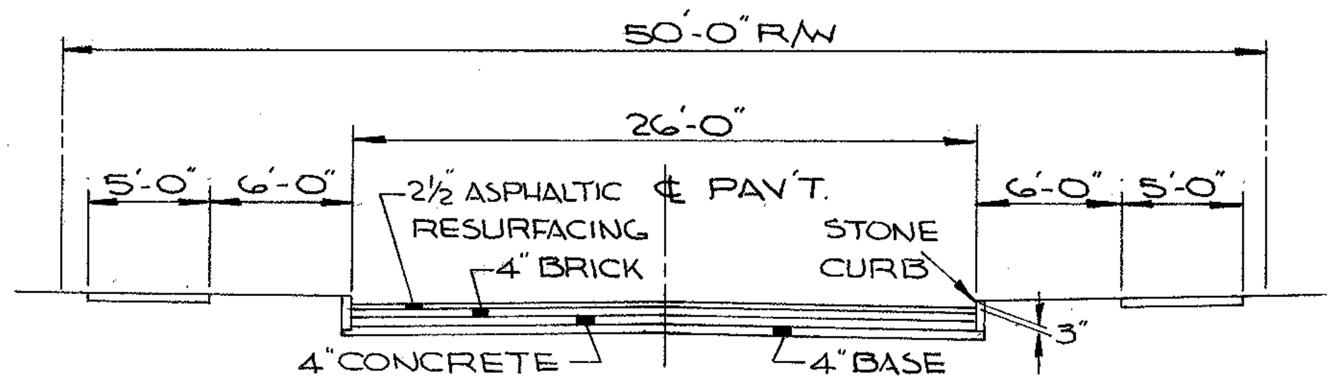


WEST 103 STREET



WEST BLVD.



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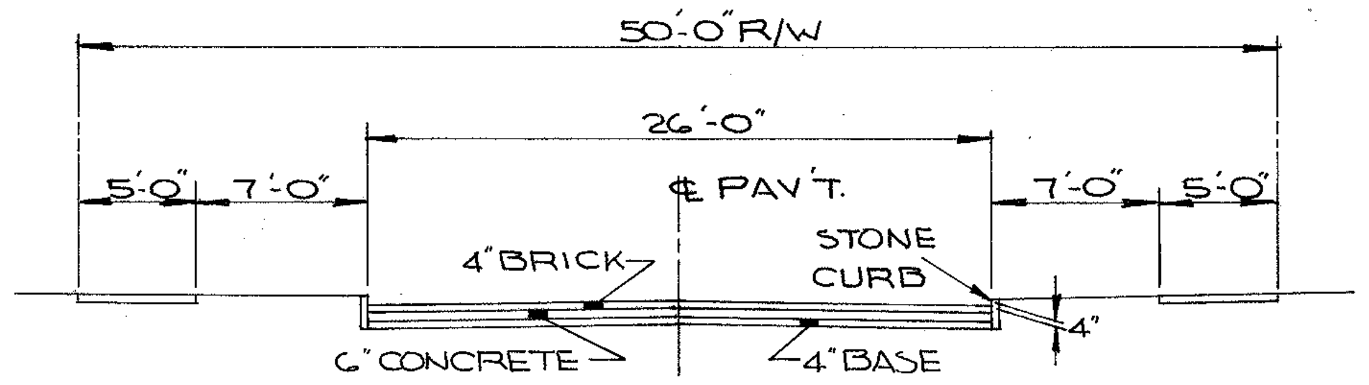
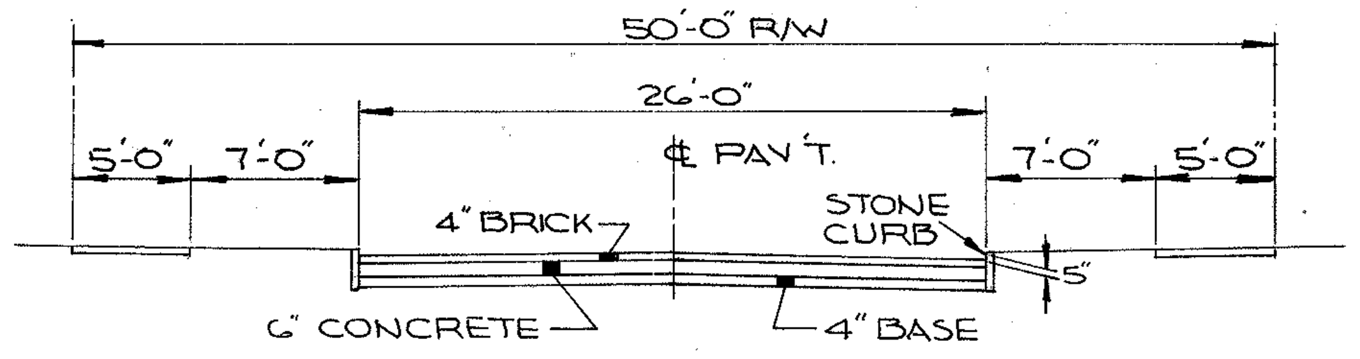
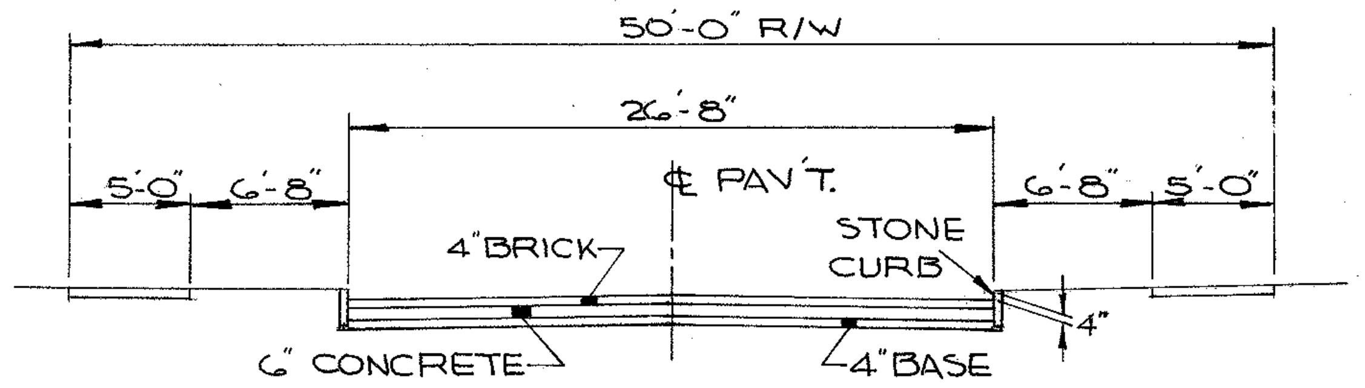


WEST 116 STREET



WEST 115 STREET



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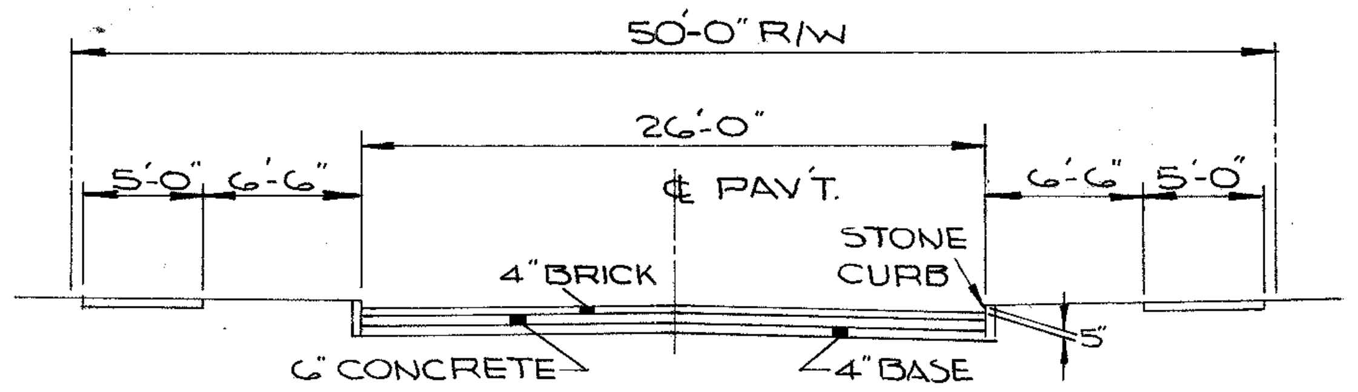
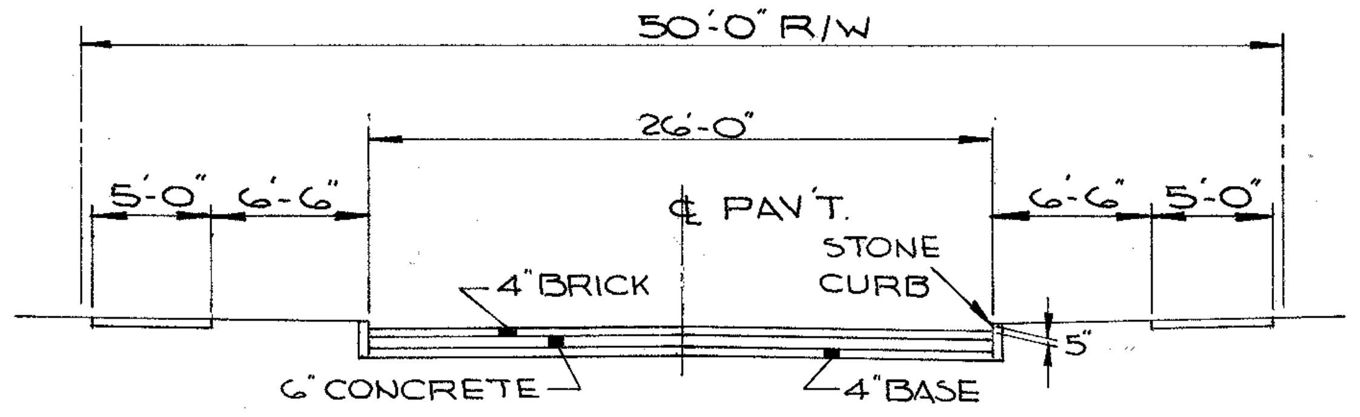
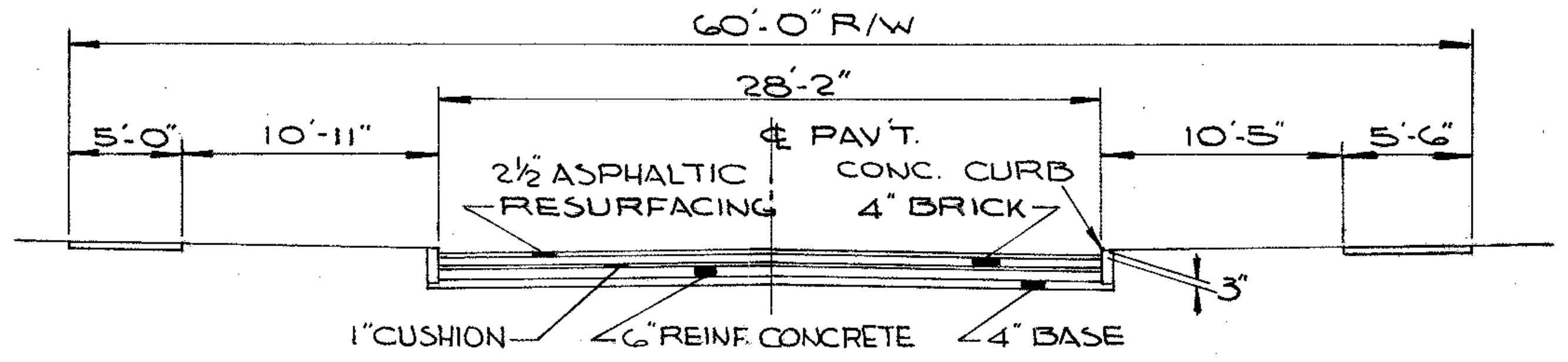


WEST 112 STREET



WEST 111 STREET



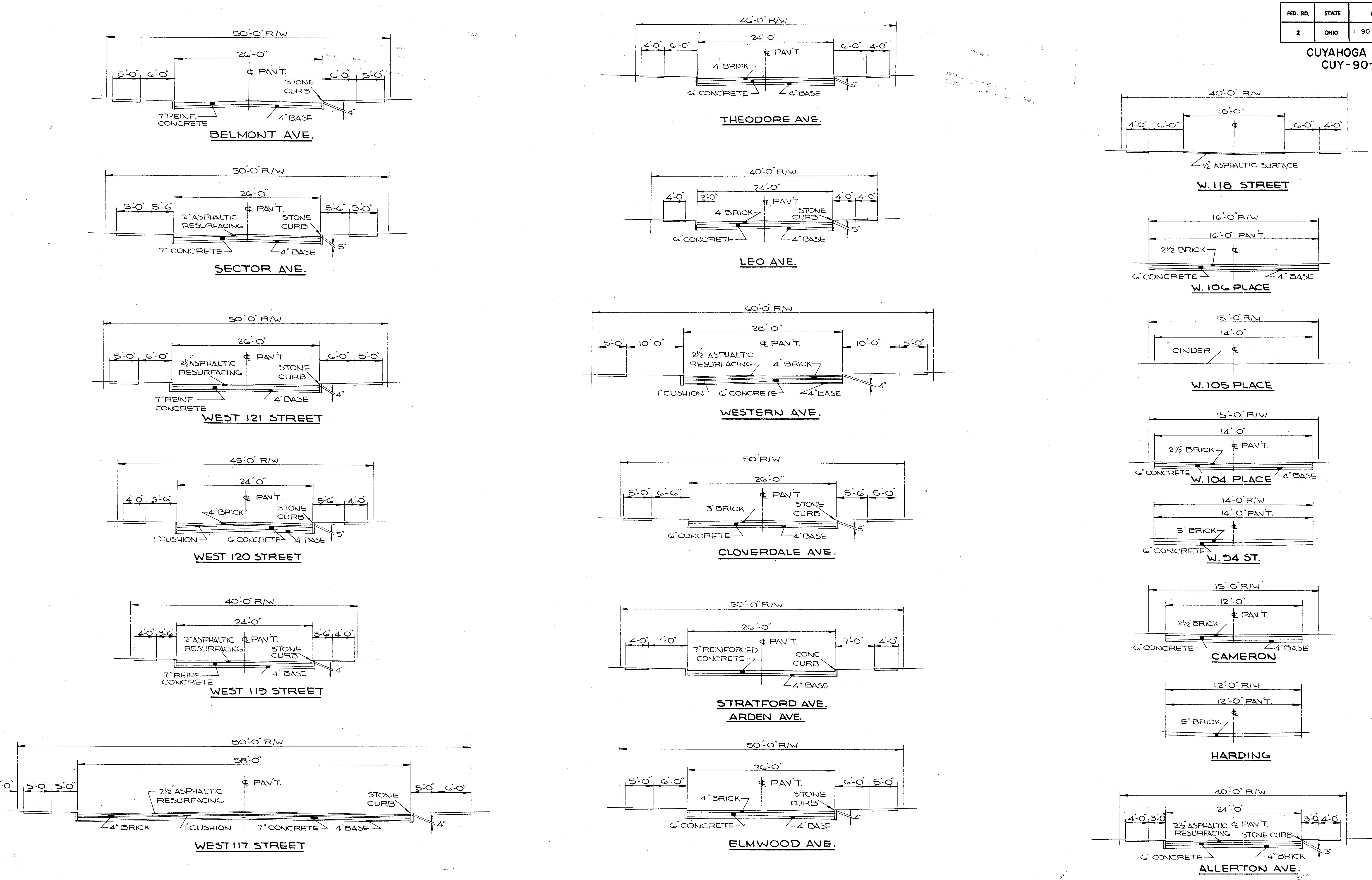
WEST 110 STREET

EXISTING TYPICAL SECTIONS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

27
713

CUYAHOGA COUNTY
CUY-90-10.40



EXISTING
TYPICAL SECTIONS

FORM DD A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

GENERAL NOTES

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 800 SQ. FT. OF FLOOR SPACE AND IN ADDITION TO THE REQUIREMENTS OF ITEM 619, HE SHALL PROVIDE AND MAINTAIN SANITARY PROVISIONS AS PER 107.06. ALL THE ABOVE IS INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 619, FIELD OFFICE.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS, APPLY TO ALL CROSS SECTIONS. EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

CONTRACTION AND EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN EXPANSION AND CONTRACTION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL IN ALL CASES BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWINGS AND THE SPECIFICATIONS.

PAVEMENT REMOVAL OUTSIDE NORMAL CONSTRUCTION LIMITS

THE EXISTING PAVEMENT AS INDICATED ON THE PLANS SHALL BE REMOVED AND DISPOSED OF, THE OLD ROADWAY GRADED TO THE LEVEL OF THE SURROUNDING GROUND, THE OLD DITCHES FILLED, AND THE DISTURBED AREAS SLOPED TO DRAIN AND LEFT IN A NEAT CONDITION READY FOR SEEDING. SEEDING SHALL BE MEASURED AND PAID FOR IN ACCORDANCE WITH ITEM 659 SEEDING AND MULCHING. PAYMENT FOR THE ABOVE WORK, EXCEPT SEEDING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 (203).

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE 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.

REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201 CLEARING AND GRUBBING, EXCEPT THAT THOSE TREES 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. OF TREES	NO. OF STUMPS
18"	186	1
30"	62	1
48"	1	0
60"	0	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 201 CLEARING AND GRUBBING.

LOCATIONS OF GUARDRAIL

THE LOCATIONS OF GUARDRAIL RUNS AS SHOWN IN THESE PLANS ARE SUBJECT TO ADJUSTMENT TO ASSURE THAT THE PLANNED INSTALLATIONS WILL AFFORT MAXIMUM PROTECTION FOR TRAFFIC.

ITEM 203 PROOF ROLLING

AN ESTIMATED QUANTITY FOR THIS ITEM HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE IN PROOF ROLLING OF SUBGRADE FOR THE MAINLINE AND RAMP PAVEMENTS. AND FOR PAVED SHOULDERS,

ITEM 310 SUBBASE, GRADING A, AS PER PLAN

MATERIAL FOR THIS ITEM SHALL MEET THE REQUIREMENTS OF GRADING A OF 310.02

AFTER ALL OPERATIONS OF PLACING AND COMPACTING HAVE BEEN COMPLETED.

ITEM 310 UNDER APPROACH SLABS

THE AREA BETWEEN THE SUBGRADE AND THE APPROACH SLAB SHALL BE FILLED WITH 6" OF ITEM 310 SUBBASE, GRADING "A" AS PER PLAN.

TEMPORARY WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR EROSION AND SILTATION CONTROL MEASURES.

207	TEMPORARY SEEDING	37,400 SQ. YDS.
659	COMMERCIAL FERTILIZER (12-12-12)	8 TONS
207	WATER	81 M-GALS.
207	TEMPORARY SLOPE DRAINS	240 LIN. FT.
207	TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS	364 CU. YDS.
659	REPAIR SEEDING AND MULCHING	9,350 SQ. YDS.
207	MOWING	420 M-SQ. FT.

SEEDING AND MULCHING, AS PER PLAN & SEEDING AND JUTE MATTING, AS PER PLAN

THE AREAS OUTLINED ON SHEETS 113 THRU 118 SHALL BE SEEDED WITH PENNGIFT CROWN VETCH (CORONILLA VARIA). IN ADDITION TO THE SEED MIXTURE LISTED IN 659.09 FOR THESE OUTLINE AREAS, ONE (1) POUND OF PENNGIFT CROWN VETCH SHALL BE THOROUGHLY MIXED WITH EACH, THREE (3) POUNDS OF THE SEED MIXTURE LISTED IN 659.09 AND THEN EVENLY SOWN OVER THE PREPARED AREA AT THE RATE OF THREE (3) POUNDS PER 1,000 SQ. FT., IN LIEU OF THE RATE OF APPLICATION LISTED IN 659.09. PAYMENT FOR CROWN VETCH SEED. MIXING, AND SOWING SHALL BE INCLUDED IN ITEM 659, AS PER PLAN & ITEM 667, AS PER PLAN.

THE ESTIMATED QUANTITY FOR ITEM 659 SEEDING AND MULCHING, AS PER PLAN, LISTED IN THE GENERAL SUMMARY INCLUDES THE AREAS TO BE SEEDED WITH CROWN VETCH. THE ESTIMATED AREA TO BE SEEDED WITH CROWN VETCH IS 56,520 SQ. YDS. THE TOTAL ESTIMATED QUANTITY FOR ITEM 667 SEEDING AND JUTE MATTING, AS PER PLAN LISTED IN THE GENERAL SUMMARY IS TO BE SEEDED WITH CROWN VETCH.

PLUGGING OIL AND GAS WELLS

ALL OIL AND GAS WELLS LOCATED WITHIN THE LIMITS OF THE RIGHT-OF-WAY, EXCEPT THOSE WHICH HAVE BEEN PLUGGED TO THE SATISFACTION OF THE DEPARTMENT OF NATURAL RESOURCES, SHALL BE PLUGGED BY THE CONTRACTOR BEFORE ANY OTHER CONSTRUCTION IS STARTED IN THE VICINITY OF THE WELLS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE OF OHIO, DEPARTMENT OF NATURAL RESOURCES, DIVISION OF OIL AND GAS, FOUNTAIN SQUARE, COLUMBUS, OHIO, 43224. ALL WORK CONNECTED WITH PLUGGING OF THE WELLS MUST BE PERFORMED UNDER THE SUPERVISION OF A REPRESENTATIVE OF THE DIVISION OF OIL AND GAS. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE DIVISION OF OIL AND GAS AT LEAST 14 DAYS IN ADVANCE OF THE DATE ON WHICH HE INTENDS TO BEGIN WORK.

RECORDED INFORMATION REGARDING THESE WELLS AND PERMITS TO PLUG THE WELLS SHALL BE OBTAINED BY THE CONTRACTOR AT THE DIVISION OF OIL AND GAS.

PAYMENT FOR THE WORK SHALL BE MADE PER EACH UNDER "ITEM SPECIAL PLUGGING OIL AND GAS WELL", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR, TOOLS AND EQUIPMENT, AND ALL INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE FOLLOWING ESTIMATED QUANTITY OF "PLUGGING OIL AND GAS WELLS" WAS CARRIED TO THE GENERAL SUMMARY IN THE EVENT THE CONTRACTOR ENCOUNTERS ADDITIONAL WELLS REQUIRING PLUGGING OR THE ENGINEER REQUIRES WELLS THAT WERE PLUGGED PRIOR TO THIS PROJECT, TO BE REPLUGGED. ALL OR PART OF THIS QUANTITY MAY BE NONPERFORMED.

ITEM SPECIAL 2 EACH PLUGGING OIL OR GAS WELLS

VENTING OIL AND GAS WELLS

ALL OIL AND GAS WELLS LOCATED WITHIN THE LIMITS OF THIS PROJECT, WHETHER PLUGGED AS PART OF THIS PROJECT OR PLUGGED BY OTHERS, SHALL BE VENTED AS DETAILED ON SHEET NO. 296.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR VENTING THESE WELLS.

ITEM 602 CONCRETE MASONRY, AS PER PLAN 8 CU. YDS.

ITEM 603 3" CONDUIT, TYPE F, 707.08
STANDARD WEIGHT BITUMINOUS COATED 600 LIN. FT.

GRAPHIC GRADES

A GRAPHIC GRADE IS SHOWN IN THE PROFILES OF W. 117TH STREET OVER I-90, W. 110TH STREET OVER I-90, AND W. 98TH STREET OVER I-90. THE GRAPHIC GRADE DIFFERS FROM ELEVATIONS DERIVED FROM USING PROFILE GRADE PERCENTS. A SEVENTY-FIVE FOOT GRAPHIC GRADE BEYOND THE ENDS OF THE APPROACH SLABS HAS BEEN INCLUDED TO ACCOMMODATE A 1-1/2 INCH ASPHALT SURFACE ADDED TO THE APPROACH SLABS AND BRIDGE DECK. ELEVATIONS GIVEN IN THE GRAPHIC AREAS SHALL BE USED AS PROFILE GRADE FOR CONSTRUCTION.

REGIONAL GEODETIC MONUMENTS

THE CONTRACTOR SHALL SALVAGE ANY REGIONAL GEODETIC MONUMENT CASTINGS AND BRONZE MARKERS SCHEDULED FOR ABANDONMENT. THE COST OF SALVAGING SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 203.

THE CONTRACTOR SHALL NOTIFY THE CLEVELAND REGIONAL GEODETIC SURVEY, PHONE 861-5211, EXT. 267, WHEN THE SALVAGED CASTINGS AND MARKERS ARE IN ONE LOCATION READY TO BE PICKED UP.

EXISTING TREES TO REMAIN

BEFORE MAJOR GRADING OPERATIONS BEGIN THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER FOR LOCATIONS OF EXISTING TREES TO REMAIN. THESE TREES WILL BE MARKED SO AS NOT TO INJURE THE TREES BUT IN A NOTABLE FASHION SO THAT GRADING OPERATIONS DO NOT INTERFERE WITH THE TREES OR CAUSE LIMB BREAKAGE. THE EXISTING GRADE OVER THE ROOTS OF THESE TREES SHALL NOT BE CHANGED MORE THAN (6") SIX INCHES. EXISTING TREES WILL BE PRUNED AND SHAPED PER STANDARD DRAWING L-1.

POROUS BACKFILL

POROUS BACKFILL MEETING THE REQUIREMENTS OF ITEM 518 SHALL BE PLACED BEHIND THE WALL, STATION 751 + 50 TO STATION 754 + 00 RT., FROM THE TOP OF THE FOOTER TO WITHIN TWO FEET OF THE TOP OF THE FINISH GRADE AND THE WIDTH OF THE TRENCH FOR THE 42" COMBINED SEWER. THIS BACKFILL SHALL BE INCLUDED IN THE UNIT BID PRICE FOR 203 EMBANKMENT.

CONCRETE BARRIER, TYPE B, MODIFIED AS PER PLAN

CARE SHOULD BE TAKEN BY THE CONTRACTOR SO AS NOT TO CONSTRUCT THE CONCRETE BARRIER PER STANDARD DRAWING MC-9 JANUARY 1, 1974 IN THE AREA OF LIGHT POLES. A 2'-6" SECTION IS DEDUCTED FROM THE CONCRETE BARRIER AT LIGHT POLES INSTEAD OF THE 14'-0 CALLED FOR ON STANDARD DRAWINGS MC-9. REFERENCE TO THE HIGHWAY LIGHTING PLANS SHOULD BE MADE FOR DETAILS.

ITEM 607 FENCE, TYPE CL, REUSED, AS PER PLAN
ITEM 607 GATE, TYPE CL (14'-0"), REUSED, AS PER PLAN

All reused materials shall be installed in accordance with the applicable specifications for Item 607. All additional labor and materials required to install reused fence and gate shall be included in the cost for the Unit Price Bid for Item 607, Fence, Type CL, Reused, as per plan and Item 607, Gate, Type CL (14'-0"), Reused, as per plan.

EARTHWORK REVISION

Subsequent to the completion of these plans, the pavement thickness was increased from 8" to 10," resulting in the following earthwork adjustment, which is carried to Sht. No. 34.

EXCAVATION: ADD 3,054 Cu.Yds. ~ EMBANKMENT: DEDUCT 1,512 Cu.Yds.

CALCULATED BY F.A.E. DATE 11-71
CHECKED BY H.C.S. DATE 2-72

GENERAL NOTES

FORM D D A-5

GENERAL NOTES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

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713

CUYAHOGA COUNTY
CUY - 90 - 10.40

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE THE CITY AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING STORM, SANITARY , AND COMBINED SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINENT 603 CONDUIT ITEMS OF THE CONTRACT.

ELEVATION DATUM

ALL ELEVATIONS SHOWN ON THESE PLANS ARE IN FEET ABOVE THE CLEVELAND REGIONAL GEODETIC SURVEY DATUM PLANE.

COORDINATES

ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE CLEVELAND REGIONAL GEODETIC SURVEY SYSTEM.

UTILITIES

FOLLOWING IS A LIST OF THE UTILITIES WITHIN THE LIMITS OF THIS PROJECT:

DEPARTMENT OF PUBLIC UTILITIES, BUREAU OF WASTE WATER COLLECTION, 1825 LAKESIDE AVENUE, CLEVELAND, OHIO 44114.

DEPARTMENT OF PUBLIC UTILITIES, DIVISION OF LIGHT AND POWER, 1825 LAKESIDE AVENUE, CLEVELAND, OHIO 44114.

DEPARTMENT OF PUBLIC UTILITIES, DIVISION OF WATER AND HEAT, 1825 LAKESIDE AVENUE, CLEVELAND, OHIO 44114.

CLEVELAND ELECTRIC ILLUMINATING CO., 55 PUBLIC SQUARE, CLEVELAND, OHIO 44113.

OHIO BELL TELEPHONE COMPANY, 100 ERIEVIEW PLAZA, CLEVELAND, OHIO 44114.

EAST OHIO GAS COMPANY, 1201 EAST 55TH STREET, CLEVELAND, OHIO 44103.

DEPARTMENT OF PUBLIC SAFETY, POLICE AND FIRE COMMUNICATION SYSTEM, 310 CARNEGIE AVENUE, CLEVELAND, OHIO 44115.

DEPARTMENT OF PUBLIC UTILITIES, DIVISION OF UTILITIES ENGINEERING, 1825 LAKESIDE AVENUE, CLEVELAND, OHIO 44114.

DEPARTMENT OF PUBLIC SERVICE, ROOM 227 CITY HALL, 601 LAKESIDE AVENUE, CLEVELAND, OHIO 44114.

DEPARTMENT OF PUBLIC SAFETY, DIVISION OF TRAFFIC ENGINEERING AND PARKING, 4160 SOUTH MARGINAL ROAD, CLEVELAND, OHIO 44114

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

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. ESTIMATED QUANTITIES OF MATERIALS SHALL NOT BE ORDERED FOR DELIVERY TO THE PROJECT UNLESS AUTHORIZED BY THE ENGINEER.

SURFACE TEXTURING OF CONCRETE PAVEMENT

The pavement surface shall be textured by use of a burlap drag in the longitudinal direction followed by an approved device that will produce a relatively uniform pattern of grooves in the transverse direction. The grooves shall be spaced at approximately ½" between centers and shall be 0.10" to 0.20" deep and 0.08" to 0.12" wide.

The above requirements for surface texture applies to the mainline pavement. However, if the Contractor so elects he may also use the same method for finishing the ramp pavement.

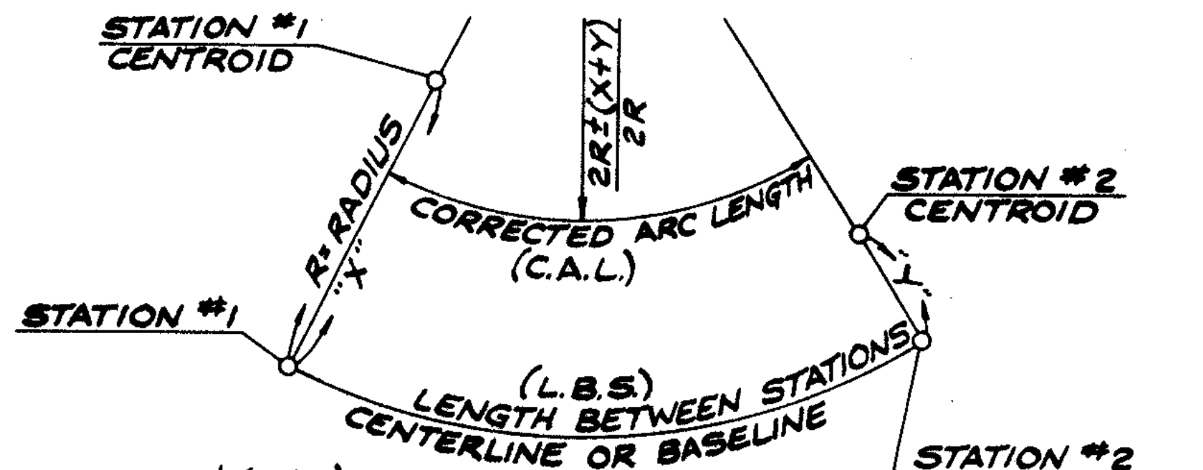
EARTHWORK COMPUTATIONS - CURVED ALIGNMENTS

WHEN THE ROADWAY IS ON A CURVED ALIGNMENT THE CENTER OF GRAVITY OR THE CENTROID FOR THE END AREA, MAY NOT BE ON OR NEAR THE BASE LINE OR CENTER LINE. THEREFORE A CORRECTION FOR THE TRUE ARC LENGTH BETWEEN STATIONS HAS BEEN MADE TO OBTAIN A TRUE MEASUREMENT OF EARTHWORK.

THE DIAGRAM SHOWN INDICATES THE METHOD USED TO DETERMINE THE CORRECTED ARC LENGTH FOR COMPUTING THE TRUE MEASUREMENT OF EARTHWORK.

THE CORRECTED ARC LENGTHS & EARTHWORK TABULATIONS APPEAR ON THE AFFECTED CROSS SECTION SHEETS

THE C.A.L. HAS BEEN APPLIED TO "ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION" AND "ITEM 203 EMBANKMENT".



$$\frac{2R\pm(X+Y)}{2R}\,(L.B.S.)=C.A.L.$$

REMOVAL OF TRACKS

THE CONTRACTOR SHALL REMOVE AND DISPOSE OF, AS HEREINAFTER SPECIFIED OR OTHERWISE DIRECTED BY THE ENGINEER,. ALL EXISTING TRACK AND APPURTENANCES IN AREAS AS INDICATED ON THE PLANS. ALL TRACK MATERIALS REMOVED FROM THE ABANDON ED RAILROAD TRACKS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. TIES SHALL BE DISPOSED OF BY COMPLETE REMOVAL FROM THE PROJECT LIMITS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 202, LENEAL FEET, RAILROAD TRACK REMOVED.

AGRICULTURAL LIMING, AS PER PLAN

THE LOCATION AND NEED FOR AGRICULTURAL LIMING WILL BE DETERMINED BY LABORATORY TESTS, AFTER ROUGH GRADING OPERATIONS HAVE BEEN PERFORMED. QUANTITIES OF AGRICULTURAL LIMING, AS SHOWN ON THE PLANS, ARE SUFFICIENT FOR THE ENTIRE PROJECT, BUT WILL BE NONPERFORMED FOR THE AREAS WHERE TESTS SHOW THAT THE LIMING IS NOT REQUIRED.

REMOVAL OF GUARDRAIL AND FENCE

ALL EXISTING GUARDRAIL AND FENCE WITHIN THE RIGHT OF WAY LIMITS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

PAYMENT SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE PERTINENT 203 ITEM.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE PERFORMED ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH TEMPORARY GUIDE MARKERS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

ADJACENT CONTRACTS

CONTRACTS FOR CONSTRUCTION OF ADJACENT PROJECTS MAY BE LET PRIOR TO CONSTRUCTION OF THIS CONTRACT.
THE CONTRACTOR FOR THIS PROJECT SHALL COORDINATE HIS OPERATIONS WITH THAT OF THE CONTRACTOR FOR ANY ADJACENT PROJECTS SO AS TO COMPLETE ALL PROJECTS WITHOUT UNDUE DELAY OR INTERFERENCE TO THE OTHER CONTRACTORS.

DRIVEWAYS AND DRIVE APPROACHES

ALL DRIVE APPOACHES SHALL BE CONCRETE. EXISTING DRIVES SHALL BE REPLACED WITH 6" CONCRETE PAVEMENT UNLESS OTHERWISE INDICATED ON THE PLANS. SEE SHEET NO. 297 FOR DRIVEWAY TYPICAL AND DRIVE APPROACH TYPICAL.

LINE DATA CALCULATIONS FOR ROADS & APPROACHES

CUY 90-10.40

MAINLINE APPROACHES
BEGIN WORK STA. 720 + 00
BEGIN PROJECT STA. 721 + 40
APPROACH LENGTH 140 LIN. FT.

END PROJECT STA. 792 + 00
END WORK 792 + 50
APPROACH LENGTH 50 LIN. FT.
TOTAL APPROACHES 190 LIN. FT.

WEST 117TH STREET

BEGIN WORK STA. 38 + 50
END WORK STA. 63 + 15
WORK LENGTH 2465 LIN. FT.

WEST BOULEVARD

BEGIN WORK STA. 36 + 57.02
END WORK STA. 54 + 50
WORK LENGTH 1792.98 LIN. FT.

ELMWOOD - SECTOR CONNECTOR

BEGIN WORK STA 55 46
END W[illegible] 2.89
WORK LENGTH 986.89 LIN. FT.

WESTERN AVENUE

BEGIN WORK STA. 58 + 33.06
END WORK STA. 73 + 94.15
WORK LENGTH 1561.09 LIN. FT.

TOTAL LENGTH WORK & APPROACHES 6995.96 LIN. FT.

CALCULATED BY FAE **DATE** 1-1-71
CHECKED BY HCS. **DATE** 2-14-72

Rev. 8-15-75

GENERAL NOTES

GENERAL NOTES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

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CUYAHOGA COUNTY
CUY - 90 - 10.40

SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS

THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT, ANY EXISTING OR NEW DRAINAGE INTO THE HIGHWAY STORM DRAINAGE SYSTEM WHEN SUCH DRAINS CARRY FLOW FROM ANY PLUMBING FIXTURES INCLUDING FLOOR DRAINS, SINK DRAINS OR POLLUTED WATER OF ANY KIND.

EXISTING PIPE CARRYING FLOW WHICH COMES WITHIN THE CATEGORY OUTLINED ABOVE SHALL BE CONNECTED TO AN EXISTING SANITARY OR COMBINATION SEWER, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE, AS DIRECTED BY THE ENGINEER, IN MAKING THE ABOVE DESCRIBED CONNECTIONS.

ITEM 603 - 6" CONDUIT TYPE B 706.08 WITH 706.12 JOINTS	200 LIN. FT.

NECESSARY PIPE BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

REMOVAL OF EXISTING PIPE

THE REMOVAL OF ALL EXISTING PIPE DRAINS WHICH WOULD NORMALLY BE REMOVED IN VARIOUS EXCAVATION ITEMS SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICES BID FOR THE RESPECTIVE EXCAVATION ITEMS, UNLESS OTHERWISE ITEMIZED IN THE PLANS.

REMOVAL OF EXISTING DRAINAGE STRUCTURES

ALL EXISTING MANHOLES, CATCH BASINS, AND INLETS LOCATED WITHIN THE LIMITS OF EXCAVATION AND NOT SPECIFICALLY ITEMIZED FOR REMOVAL SHALL BE REMOVED AND PAID FOR UNDER ITEM 203 EXCAVATION.

CONNECTIONS TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

INTERCEPTOR DRAIN

REFERENCE IS MADE TO THE DETAILED DRAWING ON SHEET NO. 294 SHOWING THE METHOD TO BE USED FOR INTERCEPTING CUT SLOPE SEEPAGE WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION. THE LOCATIONS AND LIMITS SHALL BE AS DETERMINED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

ITEM 603 6"	CONDUIT, TYPE F AS PER PLAN	100 LIN. FT.
ITEM 605 6"	UNCLASSIFIED PIPE UNDERDRAIN, 707.01 TYPE III OR 707.12 AS PER PLAN	1000 LIN. FT.

IF NONE ARE NEEDED THE ITEM SHALL BE NONPREFORMED

MANHOLE STEPS

STEPS SHALL BE PROVIDED IN ALL INLETS OR CATCH BASINS, WITH MINIMUM DIMENSIONS OF 2' 8" X 2" 8", HAVING A DEPTH OF 4 FEET OR GREATER, OR AT THE DIRECTION OF THE ENGINEER. PAYMENT FOR STEPS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER EACH ITEM 604. THE STEPS SHALL BE BUILT IN ACCORDANCE WITH STANDARD DRAWING MH-1.

EXISTING FRAMES, GRATES AND COVERS FROM ABANDONED STRUCTURES

WHERE EXISTING MANHOLES, CATCH BASINS OR INLETS ARE TO BE REMOVED OR ABANDONED, THE EXISTING FRAMES, GRATES, COVERS AND OTHER APPURTENANCES WILL BECOME THE PROPERTY OF THE CONTRACTOR AND ARE TO BE DISPOSED OF OUTSIDE THE LIMITS OF THE WORK AT THE CONTRACTOR'S EXPENSE.

USED FRAMES, GRATES AND COVERS SHALL NOT BE USED ON THIS PROJECT EXCEPT AS SPECIFICALLY AUTHORIZED IN THE PLANS OR BY THE ENGINEER.

JUNCTION CHAMBERS NO. 1, NO. 2, NO. 3 AND NO. 4

THE WORK SHALL CONSIST OF CONSTRUCTING A REINFORCED CONCRETE JUNCTION CHAMBER WITH AN ACCESS MANHOLE IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 604 AND AS DETAILED ON PLAN SHEET NO. 69 NO. 70 AND NO. 79.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH "ITEM 604 - JUNCTION CHAMBER" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK IN PLACE.

MANHOLES "MODIFIED" AS PER PLAN

ALL MANHOLES NOTED AS "MODIFIED" TO BE CONSTRUCTED ON THIS PROJECT, SHALL HAVE CITY OF CLEVELAND STANDARD MANHOLE FRAME AND COVER AS DETAILED ON SHEETS -, - 292, & 293, IN LIEU OF STATE STANDARDS. ALL OTHER DETAILS AND NOTES SHALL CONFORM TO THE RESPECTIVE CONSTRUCTION DRAWING.

MANHOLES, ADJUSTED TO GRADE

ANY CASTINGS THAT ARE DAMAGED DURING REMOVAL SHALL BE REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH CITY OF CLEVELAND STANDARDS AND AT THE CONTRACTOR'S EXPENSE.

ANY CASTING FOUND UNACCEPTABLE FOR ADJUSTMENT SHALL BE REPLACED. PAYMENT FOR REPLACEMENT SHALL BE MADE UNDER ITEM 604. THE DISPOSAL OF THE UNACCEPTABLE FRAME AND COVER CASTINGS BY THE CONTRACTOR SHALL BE INCLUDED IN THIS ITEM OF WORK.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY; 2 EACH

ITEM 604 FURNISHING FRAME & COVER CASTING (CLEVELAND STANDARD) AS PER PLAN.

THE CONTRACTOR SHALL NOT ORDER THE ABOVE MATERIALS UNTIL AUTHORIZED BY THE ENGINEER AND IN THE EVENT NO UNACCEPTABLE CASTINGS ARE FOUND, THE ITEM SHALL BE NON-PERFORMED.

PLUGGING PIPE

ALL SEWER HOUSE CONNECTIONS SHALL BE BULKHEADED AT THE CURB LINE WHERE HOUSE CONNECTIONS ARE TO BE ABANDONED AND THE TRUNK SEWER OF LESS THAN 4 FEET IN DIAMETER WILL REMAIN IN SERVICE. VITRIFIED PIPE STOPPERS BACKED WITH 6 INCHES OF CLASS C CONCRETE MAY BE USED TO BULKHEAD EXISTING PIPES 12 INCHES OR LESS IN DIAMETER.

ALL ABANDONED HOUSE CONNECTIONS CONNECTED TO SEWERS 4 FEET AND OVER IN DIAMETER THAT WILL REMAIN IN SERVICE SHALL BE BULKHEADED WITH BRICK HEADER COURSES FROM THE INSIDE OF THE SEWER.

ALL BULKHEADING OF PIPES SHALL BE IN ACCORDANCE WITH DETAILS SHOWN ON SHEET NO. 294.

PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 ROADWAY EXCAVATION

MANHOLES LOCATED IN BACKSLOPES

THE COVERS FOR ALL MANHOLES LOCATED IN BACKSLOPES OF 4:1 AND FLATTER SHALL BE PLACED FLUSH WITH THE SURFACE OF THE GROUND. ON BACKSLOPES STEEPER THAN 4:1 THE COVER SHALL BE PLACED ON A PLANE NORMAL TO THE CENTERLINE OF THE MANHOLE.

PROPOSED SEWERS UNDER EXISTING PAVEMENTS

NO SPECIFIC OR SEPARATE PAYMENT WILL BE MADE FOR PAVEMENT, REMOVALS AND REPLACEMENT, BUT THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS OF SEWER WORK TO BE DONE UNDER THIS CONTRACT.

PAVEMENT REPLACEMENT AS STATED ABOVE SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEET NO. 297, AND WILL ONLY BE REQUIRED IN AREAS WHERE THE PLANS DO NOT OTHERWISE PROPOSE NEW CONSTRUCTION OF PAVEMENT.

TYPE-3 CATCH BASIN-MODIFIED AS PER PLAN

SPECIAL POCKETS ARE PROVIDED IN THE RETAINING WALL FOOTERS TO RECEIVE A TYPE-3 CATCH BASIN.

THE MODIFICATION OF THE STANDARD TYPE-3 CATCH BASIN CONSISTS OF CONSTRUCTING THE CATCH BASIN BASE, TO THE DIMENSIONS AS DETAILED ON THE RETAINING WALL PLANS. THE SIDE AND BACKWALLS OF THE CATCH BASIN SHALL BE EXTENDED FROM THE TOP OF THE RETAINING WALL FOOTER TO THE ELEVATIONS CALLED FOR ON THE DRAINAGE PLANS.

PAYMENT SHALL BE THE UNIT BID PRICE PER EACH FOR ITEM 604 - STANDARD TYPE-3 CATCH BASIN, MODIFIED AS PER PLAN.

NO. 6 CATCH BASIN, MODIFIED AS PER PLAN

MODIFICATION SHALL CONSIST OF DEPRESSING THE GRATE AN ADDITIONAL 2 INCHES. WARP SHOULDER PAVEMENT FOR A DISTANCE OF 5 FEET AROUND THE BASIN.

PIPE CUT-OFF

WHEN BELL AND SPIGOT PIPE IS USED, ANY NECESSARY PIPE CUT-OFFS WILL BE MADE AT THE SPIGOT END OF THE LENGTH OF PIPE ADJACENT TO THE END LENGTH. WHEN TONGUE AND GROOVE PIPE IS USED, THE LENGTH OF PIPE NEXT TO THE END LENGTH SHALL BE CUT AND BUTT JOINT FORMED WITH A CONCRETE COLLAR AS DETAILED IN STANDARD DRAWING NO. MC-4.

EROSION CONTROL

ITEMS 601, 660 AND 667 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OR TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER [illegible] OF THESE ITEMS. THE ENGINEER SHALL CHECK AND NON-PERFORM [illegible] QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

EXISTING UNDERDRAINS

ALL EXISTING UNDERDRAINS ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS INTO THE EXISTING OR PROPOSED DRAINAGE SYSTEM UNDER THE DIRECTION OF THE ENGINEER.

WHENEVER POSSIBLE, UNDERDRAINS ENCOUNTERED SHALL BE CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET AT AN EXISTING OR PROPOSED DRAINAGE STRUCTURE, USING ITEM 605 UNCLASSIFIED UNDERDRAINS. THE LAST TEN (10) FEET OF THE PROPOSED OUTLET INTO A DRAINAGE STRUCTURE SHALL BE ITEM 603 TYPE F CONDUIT.

IF IT BECOMES NECESSARY TO CROSS UNDER THE ROADWAY TO PROVIDE AN ADEQUATE OUTLET AT AN EXISTING OR PROPOSED DRAINAGE STRUCTURE THE CONDUIT LOCATED WITHIN THE LIMITS OF THE ROADWAY SHALL BE ITEM 603 TYPE B CONDUIT

THE LOCATION, TYPE, SIZE, AND GRADE OF REQUIRED OUTLETS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENT.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603 6"	CONDUIT, TYPE B	200 LIN. FT.
ITEM 603 6"	CONDUIT, TYPE F	100 LIN. FT.
ITEM 605 4"	UNCLASSIFIED PIPE UNDERDRAINS	200 LIN. FT.
ITEM 605 6"	UNCLASSIFIED PIPE UNDERDRAINS	200 LIN. FT.

NECESSARY PIPE SPECIALS SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL REQUESTED BY THE ENGINEER.

ITEM SPECIAL - FILL AND PLUG EXISTING 48" COMB. SEWER W. 117TH STREET

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS [illegible] THE EXISTING 48" PIPE AND FILLING THE AREA THUS SEALED OFF WITH SAND OR OTHER GRANULAR MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE OR PLACED BY SOME OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CULVERT FOR ITS ENTIRE LENGTH SHALL BE FILLED. THE FOOTAGE OF FILLED AND PLUGGED PIPE TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAR FEET (MEASURED ALONG THE CENTERLINE OF THE PIPE FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

THE FOOTAGE, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR "ITEM SPECIAL, FILL AND PLUG EXISTING 48" PIPE", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING, HAULING, AND PLACING ALL THE NECESSARY MATERIALS, AND FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

DRAINAGE LEGEND

●	PROPOSED MANHOLE
○	EXISTING MH ADJUSTED/RECONSTRUCTED
▷	EXISTING CB ADJUSTED/RECONSTRUCTED
◦	EXISTING MANHOLE
▮	PROPOSED 1-2A INLET
▙	PROPOSED 1-2A (MOD.)
▛	PROPOSED 1-3B MED. INLET
■	PROPOSED STATE C.B.
◗	PROPOSED CITY C.B.
▷	EXISTING C.B.
——→——	PROPOSED STORM SEWER
━━→━━	PROPOSED COMB. SEWER
— — —	EXISTING SEWER
—— - - - ——	UNDERDRAIN
—●——●—+—●	HOUSE CONNECTION PLUG

Ⓓ	STORM SEWER
Ⓢ	SANITARY COMBINATION STORM
Ⓡ	RECONSTRUCTED OR ADJUSTED TO GRADE
Ⓧ	REMOVAL
Ⓤ	UNDERDRAIN
Ⓔ	EROSION CONTROL ITEM

CALCULATED BY F.A.E. DATE 1-1-71
CHECKED BY H.C.S. DATE 1-14-72

GENERAL NOTES

MAINTENANCE OF TRAFFIC

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

31
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

MAINTAINING TRAFFIC AND SEQUENCE OF CONSTRUCTION

IT IS THE INTENT OF THESE NOTES THAT THE FOLLOWING FRONTAGE ROADS, MARGINAL ROADS, AND CITY STREETS SHALL BE CONSTRUCTED AND OPEN TO TRAFFIC AS THE FIRST ORDER OF WORK AND SO PERFORMED AS TO SAFELY MAINTAIN LOCAL VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE CONSTRUCTION OF THIS PROJECT,

CLOVERDALE - WEST 119TH STREET CONNECTOR
SOUTH FRONTAGE ROAD NO. 1
RELOCATED WEST 106TH PLACE
NORTH FRONTAGE ROAD NO. 2
SOUTH FRONTAGE ROAD NO. 3
SOUTH FRONTAGE ROAD NO.4-A
NORTH MARGINAL ROAD NO. 4
WESTERN AVENUE EXTENDED
SOUTH MARGINAL ROAD NO. 5

THE FOLLOWING STREETS WILL BE SEVERED BY THE CONSTRUCTION OF THIS PROJECT AND MAY BE CLOSED TO THROUGH TRAFFIC UNLESS OTHERWISE NOTED.

STREET	LOCATION
WEST 121ST STREET	CLOVERDALE TO ELMWOOD
WEST 120TH STREET	CLOVERDALE TO ELMWOOD
STRATFORD STREET	WEST 120TH TO WEST 117TH
WEST 116TH STREET	ARDEN TO BELMONT
WEST 115TH STREET	ARDEN TO BELMONT
WEST 114TH STREET	ARDEN TO BELMONT
WEST 112TH STREET	ARDEN TO BELMONT
WEST 111TH STREET	ARDEN TO BELMONT
WEST 106TH PLACE	LORAIN TO WESTERN
WEST 105TH STREET	LORAIN TO WESTERN
WEST 105TH PLACE	LORAIN TO WESTERN
WEST 104TH STREET	LORAIN TO WESTERN
WEST 103RD STREET	LORAIN TO WESTERN
CAMERON AVENUE	WEST 106TH TO WEST 103RD
WEST 101ST STREET	LORAIN TO WESTERN
WEST 100TH STREET	LORAIN TO WESTERN
WEST 99TH STREET	LORAIN TO THEODORE
THEODORE AVENUE	WEST 100TH TO WEST 98TH
LEO AVENUE	WEST 100TH TO WEST 95TH
ALLERTON	WEST 98TH TO WEST 95TH
WEST 95TH STREET	LORAIN TO WILLARD
WEST 118TH STREET	ARDEN TO CLOVERDALE
ARDEN AVENUE	WEST 118TH TO WEST 117TH
BELMONT AVENUE	WEST 116TH TO WEST 117TH

NOTICE OF INTENT TO CLOSE STREET

THE CONTRACTOR SHALL BE REQUIRED TO GIVE THE ENGINEER AND THE DIVISION OF TRAFFIC ENGINEERING AND PARKING OF THE CITY OF CLEVELAND A NOTICE IN WRITING TEN (10) DAYS IN ADVANCE OF ANY SUCH CLOSING OF ANY EXISTING STREET. NO STREET OR ALLEY WILL BE CLOSED OR SIGNS AND BARRICADES PLACED WITHOUT THE WRITTEN APPROVAL FROM THE DIVISION OF TRAFFIC ENGINEER CITY OF CLEVELAND.

WEST 117TH STREET

TWO WAY TRAFFIC (TWO LANES IN EACH DIRECTION) VEHICULAR AND PEDESTRIAN SHALL BE MAINTAINED ON WEST 117TH STREET AT ALL TIMES DURING CONSTRUCTION OF THE WEST 117TH STREET STRUCTURE AND APPROACHES.

THIS SHALL BE ACCOMPLISHED BY MEANS OF A "TEMPORARY ROAD" AND PART WIDTH CONSTRUCTION ON WEST 117TH APPROACHES AS DETAILED ON THE PLANS.

PAYMENT SHALL BE MADE UNDER

ITEM 615 TEMPORARY ROADS - LUMP SUM
ITEM 615 TEMPORARY PAVEMENT, CLASS "A" - SQ. YDS.

WEST 121ST. STREET

WEST 121ST STREET SHALL REMAIN OPEN TO THROUGH TRAFFIC BETWEEN ELMWOOD AVENUE AND TRISKETT ROAD UNTIL THE ELMWOOD AVENUE - SECTOR AVENUE,CONNECTOR ROAD TO WEST 117TH STREET HAS BEEN COMPLETED AND OPEN TO TRAFFIC.

WEST 110TH STREET

WEST 110TH STREET MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN BELMONT AVENUE AND ARDEN AVENUE DURING THE CONSTRUCTION OF THE WEST 110TH STREET STRUCTURE AND APPROACHES. WEST 110TH STREET AND WEST 106TH STREET SHALL NOT BE CLOSED TO THROUGH TRAFFIC SIMULTANEOUSLY.

WEST 106TH STREET

WEST 106TH STREET MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN WESTERN AVENUE AND LORAIN AVENUE DURING THE CONSTRUCTION OF THE WEST 106TH STREET STRUCTURE AND APPROACHES. WEST 106TH STREET AND WEST 110TH STREET SHALL NOT BE CLOSED TO THROUGH TRAFFIC SIMULTANEOUSLY.

WEST BOULEVARD

WEST BOULEVARD SHALL REMAIN OPEN TO THROUGH TRAFFIC AT ALL TIMES DURING THE CONSTRUCTION OF THIS IMPROVEMENT. TWO LANES, ONE LANE FOR EACH DIRECTION OF TRAFFIC SHALL BE AVAILABLE AT ALL TIMES.

THIS SHALL BE ACCOMPLISHED BY MEANS OF UTILIZING PART WIDTH CONSTRUCTION ON WEST BOULEVARD.

WEST 100TH STREET

WEST 100TH STREET MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN NICHOLAS AVENUE AND LORAIN AVENUE DURING THE CONSTRUCTION OF RELOCATED 100TH STREET.

WEST 98TH STREET

WEST 98TH STREET SHALL REMAIN OPEN TO THROUGH TRAFFIC AT ALL TIMES DURING THE CONSTRUCTION OF THIS IMPROVEMENT.

TWO LANES, ONE LANE FOR EACH DIRECTION OF TRAFFIC SHALL BE AVAILABLE AT ALL TIMES.

THIS SHALL BE ACCOMPLISHED BY MEANS OF UTILIZING PART WIDTH CONSTRUCTION ON WEST 98TH STREET.

CLOVERDALE - WEST 119TH STREET CONNECTOR

CLOVERDALE AVENUE MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN WEST 120TH STREET AND WEST 117TH STREET DURING THE CONSTRUCTION OF THE WEST 119TH STREET - CLOVERDALE CONNECTOR.

ELMWOOD AVENUE-SECTOR AVENUE CONNECTOR ROAD

ELMWOOD AVENUE-BELMONT AVENUE AND SECTOR AVENUE MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN WEST 120TH STREET AND WEST 117TH STREET DURING THE CONSTRUCTION OF THE ELMWOOD AVENUE-SECTOR AVENUE CONNECTOR ROAD.

WEST 121ST SHALL REMAIN OPEN TO THROUGH TRAFFIC BETWEEN TRISKETT ROAD AND ELMWOOD AVENUE UNTIL THE ELMWOOD AVENUE-SECTOR AVENUE CONNECTOR ROAD IS COMPLETED AND OPEN TO TRAFFIC TO WEST 117TH STREET.

SOUTH FRONTAGE ROAD NO. 1

WEST 111TH, 112TH, 114TH AND 115TH STREETS MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN ARDEN AVENUE AND BELMONT AVENUE DURING THE CONSTRUCTION OF SOUTH FRONTAGE ROAD NO. 1.

NORTH FRONTAGE ROAD NO. 2 AND RELOC. WEST 106TH PLACE SOUTH FRONTAGE ROAD NO. 3

WEST 106TH PLACE, WEST 105TH STREET AND PLACE, WEST 104TH AND WEST 103RD STREETS MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN WESTERN AVENUE AND LORAIN AVENUE DURING THE CONSTRUCTION OF RELOC. WEST 106TH PLACE AND NORTH FRONTAGE ROAD NO. 2 AND SOUTH FRONTAGE ROAD NO. 3.

SOUTH FRONTAGE ROAD NO. 4-A

WEST 101ST STREET, WEST 100TH AND WEST 99TH STREETS MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN WESTERN AVENUE, OR THEODORE AVENUE AND LORAIN AVENUE DURING THE CONSTRUCTION OF SOUTH FRONTAGE ROAD NO. 4-A.

NORTH MARGINAL ROAD NO. 4 AND WESTERN AVENUE EXTENDED

WEST 101ST, WEST 100TH, AND WEST 95TH STREETS BETWEEN WESTERN AVENUE OR WILLARD AVENUE AND LORAIN AVENUE MAY BE CLOSED TO THROUGH TRAFFIC DURING THE CONSTRUCTION OF NORTH MARGINAL ROAD NO. 4 AND WESTERN AVENUE EXTENDED.

WESTERN AVENUE

WESTERN AVENUE BETWEEN WEST 103RD STREET AND WEST 100TH STREET SHALL REMAIN OPEN TO THROUGH TRAFFIC DURING THE CONSTRUCTION OF THIS IMPROVEMENT. TWO LANES, ONE LANE FOR EACH DIRECTION OF TRAFFIC SHALL BE AVAILABLE AT ALL TIMES.

SOUTH MARGINAL ROAD NO. 5

WEST 97TH, WEST 96TH AND WEST 95TH STREETS MAY BE CLOSED TO THROUGH TRAFFIC BETWEEN ALERTON AVENUE AND LORAIN AVENUE DURING THE CONSTRUCTION OF SOUTH MARGINAL ROAD NO. 5.

USE OF TEMPORARY ROADWAYS FOR MAINTAINING LOCAL TRAFFIC

THE LIMITS AND DURATION OF USE OF TEMPORARY ROADWAYS SHALL BE HELD TO AN ABSOLUTE MINIMUM, AND IN ALL CASES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

LANE WIDTH

WHERE A "LANE" IS REFERRED TO IN THE PLAN IT SHALL BE A MINIMUM OF 10' IN WIDTH.

SIGNING SEQUENCE IN CONJUNCTION WITH SEQUENCE OF CONSTRUCTION

THE CONTRACTOR SHALL, IN ADDITION TO THE GENERAL REQUIREMENTS OF ITEM 614 ON THIS PROJECT, PROVIDE, ERECT, SUPPLY AND BEAR EXPENSES OF POWER TO FLASHERS, AND MAINTAIN THE FOLLOWING SIGNS, SIGN SUPPORTS AND FLASHERS AS INDICATED BELOW;

I. STANDARD W-120-36, "ROAD CLOSED AHEAD," 36 X 36 WITH FLASHERS ABOVE AND BELOW AT THE FOLLOWING LOCATIONS: W.110, W.106, AND W.101 STREETS AT BOTH LORAIN AND WESTERN AVENUES.

II. STANDARD W-120-30 "ROAD CLOSED AHEAD" 30 X 30 AT THE FOLLOWING LOCATIONS:

- A. W.120 AND W.121 STREETS AT BOTH ELMWOOD AND CLOVERDALE AVENUES.
- B. ARDEN AVENUE AT BOTH W.118 AND W.116 STREETS.
- C. W.118 STREET AT ARDEN AVENUE.
- D. BELMONT AVENUE AT W.116 STREET.
- E. CLOVERDALE AVENUE AT W.121 STREET.
- F. W.119 STREET AT TRISKETT AVENUE.
- G. W.116, W.115, W.114, W.112, W.111, AND W.110 STREETS AT BOTH ARDEN AND BELMONT AVENUES.
- H. W.105, W.104, W.103, W.100 AND W.95 STREETS AT BOTH WESTERN AND LORAIN AVENUES.
- I. W.106 PLACE AT WESTERN AVENUE.
- J. W.99, W.96, AND W.97 STREETS AT LORAIN AVENUE.

III. STANDARD W-48, "NO OUTLET" 30 X 30 SIGNS SHALL REPLACE THE "ROAD CLOSED AHEAD SIGNS" FOLLOWING COMPLETION OF CONSTRUCTION OF FRONTAGE ROADS, MARGINAL ROADS AND CITY STREETS AT THE FOLLOWING LOCATIONS.

- A. W.120 AND W.121 STREETS AT BOTH ELMWOOD AND CLOVERDALE AVENUES.
- B. ARDEN AVENUE AT BOTH W.116 AND W.118 STREETS.
- C. W.118 STREET AT ARDEN AVENUE.
- D. BELMONT AVENUE AT W.116 STREET.
- E. W.115, W.114, W.112, AND W.111 STREETS AT BELMONT AVENUE.
- F. W.106 PLACE AND WESTERN AVENUE.

IV. CITY OF CLEVELAND STANDARD "NOT A THRU STREET - LOCAL ACCESS ONLY" 24 X 48" BLACK ON SILVER SCOTCHLITE SIGNS SHALL REPLACE THE "ROAD CLOSED AHEAD" FOLLOWING COMPLETION OF CONSTRUCTION OF FRONTAGE ROADS, MARGINAL ROADS AND CITY STREETS AT THE FOLLOWING LOCATIONS:

- A. W.115, W.114, W.112 AND W.111 STREETS AT ARDEN AVENUE.
- B. W.105, W.104, W.103, W.101, AND W.95 STREETS AT BOTH LORAIN AND WESTERN AVENUES.
- C. W.100, W.99, W.97, AND W.96 AT LORAIN AVENUE.
- D. W.105 PLACE AT WESTERN AVENUE.

V. "ROAD CLOSED AHEAD" (AND FLASHERS WHERE INSTALLED) SHALL BE REMOVED AT POSTED LOCATIONS UPON COMPLETION OF THE FOLLOWING:

- A. THE CLOVERDALE - W.119 STREET CONNECTOR.
- B. THE W. 106 STREET STRUCTURE.
- C. THE W.110 STREET STRUCTURE.
- D. S. FRONTAGE ROAD NO. 4.
- E. MARGINAL ROAD NO. 4.

VI. STANDARD W-128-36, "ROAD CONSTRUCTION AHEAD" 36 X 36 SIGNS SHALL BE INSTALLED PRIOR TO STARTING ANY CONSTRUCTION AT THE FOLLOWING LOCATIONS:

- A. WEST BOULEVARD APPROXIMATELY:
  1. 200 FEET NORTH OF LORAIN AVENUE.
  2. 200 FEET SOUTH OF WESTERN AVENUE.
- B. W.98 STREET APPROXIMATELY:
  1. 200 FEET NORTH OF LORAIN
  2. S.E. CORNER AT WILLARD
- C. WESTERN AVENUE APPROXIMATELY:
  1. S.W. CORNER AT W.103 STREET.
  2. N.W. CORNER AT W.100 STREET.

SIGN SUPPORTS AND LIGHTS FOR THE ABOVE SIGNS SHALL BE AS OUTLINED IN THE "OHIO MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," CURRENT SECTION - LATEST REVISION.

PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING LIGHTS, SIGNS, AND SIGN SUPPORTS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "ITEM 614 MAINTAINING TRAFFIC".

STANDARD W-48-30. "NO OUTLET" 30 x 30 SIGNS AND CITY OF CLEVELAND STANDARD "NOT A THRU STREET-LOCAL ACCESS ONLY" 24 x 48 BLACK ON SILVER SCOTCHLITE SIGNS AS ITEMIZED IN THE TRAFFIC CONTROL PLANS SHALL REPLACE THE "ROAD CLOSED AHEAD" SIGNS FOLLOWING COMPLETION OF CONSTRUCTION OF THE CITY STREETS. THE "ROAD CLOSED AHEAD" SIGNS SHALL NOT BE REMOVED UNTIL THE "NO OUTLET" SIGNS HAVE BEEN ERECTED.

SAFE PEDESTRIAN TRAFFIC

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NEED FOR PROVIDING ADEQUATE PROTECTION TO SCHOOL CHILDREN AND OTHER PEDESTRIAN TRAFFIC IN THE VICINITY OF THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUCH TEMPORARY PROTECTION FACILITIES AS THE ENGINEER DEEMS NECESSARY TO ACCOMMODATE IN A REASONABLE AND SAFE MANNER, ALL PEDESTRIAN TRAFFIC.

THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED FOR TEMPORARY WALKS AND SNOW FENCE AND SHALL BE USED AS DIRECTED BY THE ENGINEER.

ITEM 608 BITUMINOUS WALK -10,000 SQ. FT.
ITEM 607 TEMPORARY FENCE, TYPE-SNOW, AS PER PLAN 5,000 L.F.

THIS BITUMINOUS WALK WILL BE A MINIMUM DEPTH OF 2" OF ITEM 404 ASPHALT CONCRETE.

ITEM 607 TEMPORARY FENCE - (SNOW)

TEMPORARY FENCE SHALL BE PROVIDED BY THE CONTRACTOR AT THE LOCATIONS SPECIFIED AND ONLY WITH THE WRITTEN AUTHORIZATION OF THE ENGINEER. TEMPORARY FENCE SHALL BE OF THE "SNOW TYPE" MEETING THE FOLLOWING SPECIFICATIONS IN ADDITION TO SECTION 607.

(A) WOOD PICKETS SHALL BE OF SPRUCE, POPLAR OR JACK PINE AND SHALL HAVE ONE SHOP COAT OF RED PAINT.

(B) WOOD PICKETS SHALL HAVE A MINIMUM THICKNESS OF ONE-HALF (1/2") INCH, A MINIMUM WIDTH ONE AND ONE-HALF (1-1/2") INCHES AND MINIMUM LENGTH OF FOUR (4') FEET.

(C) WOOD PICKETS SHALL BE WOVEN INTO PLACE WITH FIVE (5) DOUBLE STRANDS OF 12 1/2 GAUGE LOW CARBON GALVANIZED WIRE. SPACING BETWEEN PICKETS SHALL BE A MAXIMUM OF TWO (2")INCHES.

(D) THE FENCE SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 607 USING STEEL LINE POSTS PER SECTION 710. 11/

PAYMENT FOR FURNISHING, INSTALLATION, MAINTENANCE, REMOVAL AND ALL INCIDENTALS NECESSARY TO COMPLETE THIS ITEM SHALL BE PAID FOR IN THE UNIT PRICE BID FOR LINEAL FEET OF ITEM 607 TEMPORARY FENCE, TYPE-SNOW, AS PER PLAN.

DUST CONTROL & TEMPORARY ROADWAYS FOR MAINTAINING TRAFFIC

TEMPORARY ROADWAYS SHALL BE SURFACED WITH 410 TRAFFIC COMPACTED SURFACE AND STABILIZED WITH 616 CALCIUM CHLORIDE ITEMS 616 AND 410 SHALL BE APPLIED WHERE DIRECTED AND IN AMOUNTS REQUESTED BY THE ENGINEER.

THE ESTIMATED QUANTITIES FOR DUST CONTROL & TEMPORARY ROADWAYS ARE AS FOLLOWS:

404 ASPHALT CONCRETE OR AN APPROVED BITUMINOUS PREMIXED SURFACE COURSE FOR MAINTAINING TRAFFIC		200 CU.YD.
410 TRAFFIC COMPACTED SURFACE A OR B	, TYPE	500 CU. YD.
410 TRAFFIC COMPACTED SURFACE	TYPE C	500 CU. YD.
616 CALCIUM CHLORIDE		500 TON
616 WATER		10,000 M-GAL.

ALTERNATE METHODS

IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC PROVIDED THE INTENT OF THE ABOVE PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THEREFROM. NO ALTERNATE PLAN SHALL BE PLACED INTO EFFECT UNTIL APPROVAL HAS BEEN GRANTED, IN WRITING, BY THE DIRECTOR.

CALCULATED BY F.A.E. DATE 11-71
CHECKED BY H.C.S. DATE 2-72

MAINTENANCE OF TRAFFIC

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

ITEM 202 SIDEWALK REMOVED

LOCATION	STATION FROM	STATION TO	SIDE	LENGTH FT.	WIDTH FT.	AREA SQ.FT.
WEST 121 STREET	44 + 91	48 + 10	RT.	328	5	1640
	47 + 50	47 + 82	LT.	32	5	160
	46 + 94		RT.	6	2.5	15
WEST 120 STREET	44 + 24	48 + 56	LT.	432	5	2160
	44 + 12	46 + 88	RT.	276	4	1104
	47 + 13	48 + 50	RT.	137	4	548
	46 + 18		RT.	5	2	10
	45 + 16		LT.	7	3	21
STRATFORD AVENUE	W.120ST	W.117ST	RT.	721	4	2884
	W.120ST	W.117ST	LT.	721	4	2884
CLOVERDALE AVENUE	52 + 60	52 + 68	LT.	8	5	40
	52 + 97	60 + 32	LT.	735	5	3675
	54 + 46	55 + 27	RT.	81	5	405
	55 + 59	57 + 58	RT.	199	5	995
	57 + 83	60 + 32	RT.	249	5	1245
	55 + 67		LT.	7	3	21
	57 + 29		RT.	6	2	12
WEST 119 STREET	48 + 94	49 + 79	RT.	85	4	340
	48 + 94	49 + 84	LT.	90	4	360
SECTOR AVENUE	47 + 25	49 + 59	RT.	234	5	1170
	49 + 15	49 + 59	LT.	44	5	220
BELMONT AVENUE	47 + 61	49 + 59	RT&LT	198	5	990
	50 + 29	50 + 56	LT.	24	5	120
	50 + 29	51 + 56	RT.	125	11.5	1438
	51 + 57	52 + 80	RT.	123	5	615
	53 + 20	54 + 41	RT.	121	5	605
	55 + 56.2	55 + 62.7	RT.	6.5	5	32.5
	55 + 88.7	55 + 95.2	RT.	6.5	7AVG.	45.5
	58 + 26.2	58 + 32.7	RT.	6.5	7AVG.	45.5
	58 + 58.7	58 + 65.2	RT.	6.5	5	32.5
ELMWOOD AVENUE	56 + 40	60 + 22	RT.	382	5	1910
	56 + 58	60 + 22	LT.	364	5	1820
WEST 118 STREET	50 + 24	52 + 79	RT.	250	4	1000
	50 + 68	52 + 79	LT.	206	4	824
	50 + 66		RT.	5	2.5	13
ARDEN AVENUE	54 + 42	54 + 75	RT&LT	66	4	264
	55 + 54	55 + 75	RT&LT	42	5	210
WEST 117 STREET	40 + 00	41 + 48	RT.	148	6	888
	41 + 48	41 + 89	RT.	41	31	1271
	41 + 89	42 + 30	RT.	38	11	418
	42 + 70	43 + 34	RT.	59	11	649
	43 + 34	54 + 25	RT.	1091	6	6546
	54 + 64	57 + 27	RT.	263	6	1578
	57 + 27	59 + 00	RT.	173	11	1903
	40 + 50	42 + 40	LT.	190	5	950
	42 + 70	45 + 36	LT.	255	5	1275
	45 + 64	48 + 37	LT.	269	5	1345
	48 + 65	51 + 36	LT.	262	11	2882
	51 + 63	54 + 36	LT.	277	5	1385
	54 + 63	57 + 37	LT.	278	5	1390
	57 + 64	60 + 05	LT.	237	11	2607
	60 + 05	63 + 00	LT.	295	5	1475
	41 + 01		RT.	4.5	3	13.5
WEST 116 STREET	43 + 09	51 + 80	LT.	877	5	4385
	43 + 29	51 + 80	RT.	857	5	4285
WEST 115 STREET	44 + 85	51 + 83	RT&LT	1396	5	6980
WEST 114 STREET	45 + 48	51 + 83	RT&LT	1270	5	6350
	49 + 50		LT.	6.5	3	19.5
WEST 112 STREET	45 + 89	49 + 78	LT.	389	5	1945
	45 + 89	50 + 16	RT.	427	5	2135
	47 + 23		RT.	6.5	3	19.5
	46 + 02		LT.	6.5	2	13
	46 + 04		RT.	6.5	1.5	10
WEST 111 STREET	46 + 05	50 + 19	LT.	414	5	2070
	46 + 64	50 + 15	RT.	351	5	1755
	48 + 70		LT.	6	3	18
	49 + 03		RT.	6	4	24
	49 + 20		LT.	6	2	12
	49 + 84		RT.	6	2	12
WEST 110 STREET	44 + 00	49 + 47	LT.	547	5	2735
	44 + 55		LT.	12	4.5	54
	48 + 74		LT.	10	3.5	35
	49 + 06		LT.	10	4.5	45
	44 + 00	44 + 14	RT.	14	15.5	217
	44 + 50	45 + 72	RT.	122	15.5	1891.0
	46 + 04	47 + 93	RT.	189	15.5	2929.5
	48 + 16	48 + 36	RT.	20	15.5	310
	48 + 36	49 + 47	RT.	111	5	555
	44 + 14	44 + 50	RT.	36	5	180
	45 + 72	46 + 04	RT.	32	5	160
	47 + 93	48 + 16	RT.	23	5	115

ITEM 202 SIDEWALK REMOVED

LOCATION	STATION FROM	STATION TO	SIDE	LENGTH FT.	WIDTH FT.	AREA SQ.FT.
WEST 106 STREET	46 + 98	51 + 00	LT.	402	5	2010
	46 + 49	51 + 00	RT.	451	5	2255
	46 + 63		LT.	9.5	4	38
	48 + 00		RT.	9	3	27
	48 + 47		RT.	9	2.5	22.5
	49 + 24		RT.	9	3	27
WEST 105 STREET	46 + 92	51 + 52	LT.	450	4	1800
	46 + 92	52 + 59	RT.	547	4	2188
WEST 104 STREET	47 + 54	53 + 04	RT&LT	1076	4	4304
	50 + 27		RT.	3	2	6
WEST 103 STREET	47 + 11	52 + 81	LT.	559	4	2236
	47 + 83	53 + 08	RT.	525	4	2100
WEST BOULEVARD	39 + 68	46 + 26	LT.	658	6	3948
	41 + 70	46 + 72	RT.	502	6	3012
	49 + 30	49 + 70	RT.	40	3	120
	50 + 67		LT.	21	2	42
	48 + 36		RT.	5.5	2	11
WEST 101 STREET	46 + 99	51 + 88	LT.	489	5	2445
	46 + 95	52 + 60	RT.	565	5	2825
	48 + 78		RT.	5.5	2	11
	53 + 95	54 + 36	RT.&LT.	41	5	205
	54 + 75	55 + 06	RT.&LT.	31	5	155
WESTERN AVENUE	58 + 35	61 + 40	RT&LT	691	5	3455
	61 + 89	65 + 10	RT&LT	731	5	3655
	60 + 29		LT.	2.5	15.5	39
	60 + 00		RT.	2	15.5	31
	60 + 30		RT.	3.5	12.5	44
	61 + 02		RT.	6	19	114
	61 + 02		LT.	6	19	114
	62 + 25		LT&RT	6	23	138
	63 + 10		LT.	2	15.5	31
	65 + 38	67 + 88	RT&LT	540	5	2700
WEST 100 STREET	43 + 72	49 + 77	LT.	605	4.5	2722.5
	50 + 23	50 + 56	LT.	33	5	165
	43 + 72	46 + 25	RT.	257	4	1028
	46 + 50	48 + 72	RT.	230	5	1150
	48 + 95	50 + 56	RT.	163	5	815
	46 + 15		LT.	3.5	4	14
	47 + 60		LT.	3.5	3	10.5
	48 + 00		LT.	3.5	2	7
	48 + 63		LT.	3.5	4	14
	43 + 80		RT.	3.5	2	7
	44 + 14		RT.	3.5	2	7
WEST 99 STREET	48 + 26	49 + 80	LT.	154	4	616
	48 + 26	49 + 80	RT.	154	4	616
	49 + 50		LT.	5	3	15
THEODORE AVENUE	W.100ST	W.98ST	RT&LT	1086	4	4344
LEO AVENUE	W.100ST	W.98ST	RT&LT	1077	4	4308
	W.98ST	W.98ST	RT&LT	1252	4	5008
WEST 98 STREET	43 + 21	45 + 10	RT.	189	5	945
	44 + 90		RT.	7.5	4	30
	45 + 50	47 + 92	RT.	252	5	1260
	48 + 16	49 + 66	RT.	158	5	790
	46 + 06		RT.	8	3	24
	47 + 40		RT.	8.5	4	34
	48 + 42		RT.	8.5	3.5	30
	48 + 77		RT.	8.5	2	17
	49 + 25		RT.	8.5	1.5	13
	49 + 60		RT.	8.5	2.5	21
	43 + 43	44 + 98	LT.	165	5	825
	45 + 21	47 + 44	LT	233	5	1165
	45 + 52		LT.	7	3	21
	45 + 82		LT.	6.5	4	26
	46 + 31		LT.	6.5	2.5	16
	47 + 15		LT.	6	2.5	15
	47 + 67	49 + 88	LT.	245	5	1225
WEST 97 STREET	49 + 19	49 + 83	RT&LT	64	5	320
WEST 96 STREET	49 + 16	49 + 82	LT.	66	4	264
	49 + 16	49 + 79	RT.	63	8	504
ALLERTON AVENUE	W.98ST	W.95ST	RT&LT	1361	4	5444
WEST 95 STREET	47 + 87	48 + 53	LT.	66	10	660
	48 + 94	51 + 28	LT.	240	5	1200
	51 + 52	52 + 42	LT.	95	5	475
	49 + 51		LT.	3	4	12
	49 + 96		LT.	4	4	16
	50 + 32		LT.	3.5	4	14
	47 + 87	52 + 42	RT.	455	5	2275
	48 + 10		RT.	2	5	10
	51 + 57		RT.	5	4.5	22.5
	51 + 95		RT.	5	4.5	22.5
	50 + 22		RT.	2	4.5	9
				TOTAL		176,589.5

176,590 S. F. SIDEWALK REMOVED x .33' x 1/27 = 2,158 CU. YDS.*

* TOTAL SUBTRACTED FROM ITEM 203 EXCAVATION, SEE SHEET NO. 34

* 707.01, Type III or 707.12

PRESSURE RELIEF JOINTS AND ASSOCIATED UNDERDRAINS

LOCATION	SIDE	Item Special Pressure Relief Joints, Type A Lin. Ft.	Item 605 Shallow Pipe Underdrains * Lin. Ft.		SEE SHEET NO.
I-90					
Sta. 769+21	Rt.	50	76		57
Sta. 769+82	Lt.	50	70		57
Sta. 772+17	Rt.	50	72		57
Sta. 772+79	Lt.	50	68		59
Sta. 778+85	Lt.	50	80		60
Sta. 779+41	Rt.	50	70		60
Sta. 785+61	Lt.	50	78		62
Sta. 785+51	Rt.	50	72		63
W. 117th St.					
Sta. 47+40	R&L	88	88		238
Sta. 51+04	R&L	88	88		238
TOTALS		576	762		

ITEM 202 STRUCTURES REMOVED.

SHEET NO.	LOCATION		SIDE	QUANTITY
281	W. 117 ST.	51 + 50 to 54 + 30	170' LT	LUMP
283	I-90	753 + 91	RT & LT	LUMP
283	I-90	754 + 65	125' RT	LUMP
283	I-90	765 + 20 to 766 + 40	200' LT	LUMP
284	I-90	768 + 30 to 769 + 20	200' RT	LUMP
			TOTAL	LUMP

ITEM 202 PORTIONS OF STRUCTURES REMOVED

SHEET NO.	LOCATION	SIDE	QUANTITY
238	W. 117 ST. 41 + 40	LT.	LUMP
		TOTAL	LUMP

ITEM 202 R.R. TRACK REMOVED

SHEET NO.	LOCATION	SIDE	LIN. FT.
283	I-90 754 + 61.48	RT & LT	702
		TOTAL	702

ITEM 606

SHEET NO.	TYPE 5 GUARD RAIL LIN. FT.	BARRICADE TYPE 5 GUARD RAIL LIN. FT.	TYPE A BRIDGE TERMINAL ASSEMBLY EACH	ANCHOR ASSEMBLY EACH
38		100		
40		125		
41	375	25	3	3
42	375		3	2
43		50		
45		50		1
46		100		
47		50		1
48	875			
49	375	50		1
50	125		1	1
51	200		4	
52	212.5	50	2	1
53	50		2	
54	300	150		1
55	862.5			1
57	125		3	
59	1,496.5		1	
60			3	
61	248.8		2	
62	462.5	12.5	1	
63	353.7		2	1
64			—	1
SUB TOTALS	6,436.5 +	762.5 =		
TOTALS	7,199.0		27	14

CALCULATED BY F.A.E. DATE 4-7-70
CHECKED BY H.C.S. DATE 1-12-72

Rev. 8-21-75

QUANTITY COMPUTATIONS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

33
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

ITEM 202 PAVEMENT REMOVED

LOCATION	STATION FROM	STATION TO	SIDE	LENGTH FT.	WIDTH FT.	AREA SQ YDS	DEPTH FT	VOLUME* CU YDS
WEST 121 STREET	44 + 95.5	47 + 80	RT&LT	284.5	26	821.9	1.13	309.6
	45 + 40	48 + 16	DRS.RT	67	6	44.7	0.5	7.4
	45 + 02		LT.	17	12	22.7	0.5	3.8
	47 + 57		LT.	24	6	16.0	0.5	2.7
WEST 120 STREET	44 + 12	44 + 75	RT&LT	63	24	168.0		
	INTERS@CLOVERDALE		RT&LT			5.0		
	44 + 75	48 + 44	RT&LT	369	24	984.0	1.25	410.0
	44 + 41	48 + 17	DRS. LT	97.5	7	75.8	0.5	12.6
	44 + 94	48 + 44	DRS. RT	38	5.5	23.2	0.5	3.9
WEST 119 STREET	48 + 88	49 + 87	RT&LT	98	24	261.3		
	INTERS@CLOVERDALE		RT&LT			5.0		
CLOVERDALE AVENUE	54 + 46	55 + 10	RT&LT	64	26	184.9		
	55 + 10	60 + 32	RT&LT	522	26	1508.0	1.1	552.9
	INTERS@W.117 ST.		RT&LT			5.0	1.1	1.8
	INTERS@W. 118 ST.		RT&LT			35.6	1.1	13.0
	52 + 60	53 + 09	LT.	49	13	70.7	1.1	26.0
	53 + 83		LT.	9	6	6.0		
	54 + 22		LT.	9	6	6.0		
	54 + 63		LT.	9	6	6.0		
	54 + 59		RT.	8	5	4.4		
	54 + 95		RT.	9.5	5	5.3		
	55 + 04	58 + 75	DRS.LT	101.5	6	67.7	0.5	11.3
	56 + 36	60 + 01	DRS.RT	110	6	73.3	0.5	12.2
STRATFORD AVENUE	W.120ST	W.117ST	RT&LT	736	26	2126.2	0.9	637.9
	INTERS @ W.120 ST		RT&LT			5.0	0.9	1.5
	INTERS @ W.117 ST		RT&LT			5.0	0.9	1.5
	W.120ST	W.117ST	DRS.RT	134	6	89.3	0.5	14.9
	W.120ST	W.117ST	DRS.LT	171	6	114.0	0.5	19.0
ARDEN AVENUE	54 + 55	54 + 85	RT	30	13	43.3		
	53 + 38.8	54 + 85	LT	146.2	13	211.2	1.0	14.4
	54 + 37	54 + 53	DRS.RT	16	6.5	11.6	1.0	70.4
	55 + 43	56 + 22	RT&LT	79	26	228.2		76.1
	INTERS @ W.117 ST		RT&LT			10.		3.3
ELMWOOD AVENUE	56 + 00	60 + 32	RT&LT	432	26	1248.0	1.2	499.2
	INTERS @ W.117ST		RT&LT			5.0	1.2	2.0
	55 + 54		RT.	9.5	5.5	5.8		
	55 + 94		RT.	10	5.5	6.1		
	56 + 21		LT.	9	5.5	5.5		
	56 + 36		RT.	11	5.5	6.7		
	56 + 63	58 + 70	DRS.LT	70	5.5	42.8	0.5	7.8
	56 + 75	59 + 00	DRS.RT	77	5.5	42.4	0.5	7.8
BELMONT AVENUE	47 + 61	49 + 70	RT&LT	209	26	603.8	0.9	181.1
	INTERS @ W.117 ST		RT&LT			10.0	0.9	3.0
	47 + 96	49 + 00	LT.	45	5	25.0	0.5	4.2
	48 + 10		RT.	11.5	5	6.1	0.5	1.1
	50 + 29	51 + 20	RT&LT	91	26	262.9	0.9	78.9
SECTOR AVENUE	47 + 25	49 + 50	LT.	225	13	325.0	1.1	119.2
	47 + 25	49 + 71	RT.	246	13	355.3	1.1	130.3
	INTERS @ W.117 ST		RT.			3.5	1.1	1.3
	47 + 60		LT.	10	4.5	5.0	0.5	0.8
	47 + 62		RT.	9	4.5	4.5	0.5	0.8
	48 + 00		RT.	10	4.5	5.0	0.5	0.8
	48 + 13.5		RT.	16	4.5	8.0	0.5	1.3
	48 + 13.5		LT.	21	4.5	10.5	0.5	1.8
WEST 117 STREET	42 + 00	57 + 50	LT&RT	1550	58	9988.9	1.5	4994.4
	40 + 31	57 + 18	RT.	411	4	182.7	0.5	30.4
	40 + 68	62 + 20	LT.	683	4.5	341.5	0.5	56.9
WEST 116 STREET	43 + 25	51 + 82	RT&LT	857	26	2475.8	1.2	990.3
	INTERS @ BELMONT		RT&LT			6.0	1.2	2.4
	42 + 86	BELMONT	DRS.LT	226	6.5	163.2	0.5	27.2
	43 + 48	BELMONT	DRS. RT	204	6.5	147.3	0.5	24.6
WEST 115 STREET	44 + 85	51 +83	RT&LT	698	26	2016.4	1.2	806.6
	44 + 98	50 + 82	DRS.LT	172	6.5	124.2	0.5	20.7
	45 + 07	49 + 00	DRS.RT	108.5	6.5	78.4	0.5	13.1
	INTERS @ BELMONT		RT&LT			6.0	1.2	2.4
WEST 114 STREET	45 + 48	51 + 83	RT&LT	635	26	1834	1.2	733.8
	45 + 69	49 + 17	DRS.LT	103.5	6.5	74.8	0.5	12.5
	45 + 85	50 + 91	DRS.RT	138	6.5	99.7	0.5	16.6
	INTERS @ BELMONT		RT&LT			6.0	1.2	2.4
WEST 112 STREET	45 + 89	49 + 78	RT&LT	388	26	1120.9	1.2	448.3
	46 + 25	49 + 40	DRS.RT	84	6.5	60.7	0.5	10.1
	46 + 25	49 + 40	DRS.LT	83	6.5	59.9	0.5	10.0
WEST 111 STREET	46 + 05	50 + 01	RT&LT	396	26	1144.0	1.2	457.6
	46 + 25	49 + 80	DRS.LT	88	6	58.7	0.5	9.8
	46 + 25	50 + 02	DRS.RT	90.5	6	60.3	0.5	10.0
WEST 110 STREET	44 + 00	49 + 75	RT&LT	575	28	1788.9	1.5	894.4
	44 + 08	48 + 96	DRS.LT	125.5	10.5	146.4	0.5	24.4
	44 + 32	48 + 96	DRS.RT	116	10	128.9	0.5	21.5
WEST 106STREET	46 + 49	51 + 00	RT&LT	451	28	1403.1	1.3	608.0
	47 + 10	50 + 10	DRS.LT	84	10	93.3	0.5	15.6
	46 + 69	47 + 40	DRS.RT	19	10	21.1	0.5	3.5
WEST 106 PLACE	46 + 93	51 + 47	RT&LT	454	16	807.1	1.0	269.0
WEST 105 STREET	46 + 92	52 + 59	RT&LT	567	24	1512.0	1.3	655.2
	47 + 34	50 + 70	DRS.LT	42.5	3	14.1	0.5	2.4
	51 + 05		DRS.RT	8	7	6.2	0.5	1.0
WEST 104 STREET	47 + 54	53 + 04	RT&LT	550	24	1466.7	1.2	586.7
	47 + 64		DRS.LT	8	2.5	2.2	0.5	0.4
	50 + 42	53 + 00	DRS.RT	88	3	29.3	0.5	4.9
WEST 104 PLACE	48 + 15	49 + 95	RT&LT	180	15	300.	1.0	100.0
WEST 103 STREET	47 + 11	52 + 90	RT&LT	579	28	1801.3	1.4	840.6
	49 + 95	52 + 77	DRS.LT	80	10.2	90.7	0.5	15.1
	47 + 17	52 + 74	DRS.RT	147	10	163.3	0.5	27.2
CAMERON AVENUE	W.106ST	W.103ST	RT&LT	728	12	970.7	1.0	323.6
	INTERS @ W.106-103		RT&LT			6.0	1.0	2.0
WEST BOULEVARD	37 + 02	54 + 25	DRS.LT	898	AVG 8.23	821.1	0.5	136.8
	38 + 30	54 + 33	DRS.RT	736	AVG 8.44	690.2	0.5	115.1
WEST 101 STREET	46 + 95	52 + 24	RT&LT	529	26	1528.2	1.3	662.2
	47 + 03	51 + 81	DRS.LT	117	5.5	71.5	0.5	11.9
	47 + 04	51 + 85	DRS.RT	122	5.5	74.6	0.5	12.4
WESTERN AVENUE	59 + 39	66 + 56	DRS.LT	60.5	AVG14	94.1	0.5	15.7
	59 + 42	66 + 83	DRS.RT	108.5	AVG14.7	177.2	0.5	29.5
	67 + 32	67 + 96	RT&LT	64	28	199.1	1.5	99.6
	INTERS @ W.100 ST		RT&LT			25	1.5	12.5
WEST 100 STREET	43 + 72	50 + 56	RT&LT	684	26	1976.0	1.5	988.0
	43 + 68	49 + 27	DRS.LT	143	3.5	55.6	0.5	9.3
	44 + 03	50 + 27	DRS.RT	110	3.5	42.8	0.5	7.1
WEST 99 STREET	48 + 26	49 + 88	RT&LT	162	24	432.0	1.3	187.2
	INTERS@THEODORE		RT&LT			5.0	1.3	2.2
	48 + 34	49 + 05	DRS.LT	27	5	15.0	0.5	2.5
	48 + 34	49 + 05	DRS. RT	29	5	16.1	0.5	2.7
LEO AVENUE	W.100ST	W.98ST	RT&LT	559	24	1490.7	1.2	596.3
	W.100ST	W.98ST	DRS.LT	89	1.5	14.8	0.5	2.5
	W.100ST	W.98ST	DRS.RT	85	3.5	33.1	0.5	5.6
	INTERS@W.100&98STS		RT&LT			10.0	1.2	4.0
	W.98ST	W.95ST	RT&LT	646	24	1722.7	1.2	689.1
	INTERS@W.98&95STS		RT&LT			10.0	1.2	4.0
	W.98ST	W.95ST	DRS.LT	126	1.5	21.0	0.5	3.5
	W.98ST	W.95ST	DRS.RT	121	3.5	47.1	0.5	7.8
THEODORE AVENUE	W.100ST	W.98ST	RT&LT	566	24	1509.3	1.2	603.7
	INTERS@W.100&98STS		RT&LT			12.0	1.2	4.8
	W.100ST	W.98ST	DRS.LT	84	5.5	51.3	0.5	8.6
	W.100ST	W.98ST	DRS.RT	65	5.5	39.7	0.5	6.6
ALLERTON AVENUE	W.98ST	W.95ST	RT&LT	645	24	1720.0	1.0	573.3
	INTERS@W.98&95STS		RT&LT			12.0	1.0	4.0
	W.98ST	W.95ST	DRS.LT	161	2.5	44.7	0.5	7.5
	W.98ST	W.95ST	DRS.RT	56	2.5	15.6	0.5	2.6
WEST 97 STREET	49 + 19	49 + 88	RT&LT	69	24	184.0	1.2	73.6
	INTERS@ALLERTON		RT&LT			2.0	1.2	0.8
WEST 96 STREET	49 + 16	49 + 88	RT&LT	72	18	144.0	1.2	57.6
	INTERS@ALLERTON		RT&LT			3.0	1.2	1.2
WEST 98 STREET	44 + 58	49 + 04	DRS. LT	80	7.5	66.7	0.5	11.1
	43 + 01	50 + 00	DRS.RT	71	7.5	59.2	0.5	9.9
WEST 95 STREET	49 + 35	51 + 98	DRS LT	47	4.5	23.5	0.5	3.9
	48 + 34	52 + 18	DRS RT	104	4.5	52.0	0.5	8.7
TOTAL						54, 545.2		21,308.6*

*TOTAL SUBTRACTED FROM ITEM 203 EXCAVATION, SEE SHEET NO. 34

ITEM 202 CURB REMOVED

LOCATION	STATION FROM	STATION TO	SIDE	LENGTH FEET
WEST 121 STREET	44 + 95.5	47 + 80	LT.	284.5
	44 + 95.5	47 + 93	RT.	297.5
	48 + 06	48 + 22	RT.	16
WEST 120 STREET	44 + 12	48 + 44	LT.	440
	44 + 12	46 + 80	RT.	276
	47 + 20	48 + 50	RT.	130
STRATFORD AVENUE	W.120 ST	W117ST	RT&LT	1500
CLOVERDALE AVENUE	54 + 46	60 + 33	LT.	595
	54 + 46	55 + 23	RT.	77
	55 + 70	57 + 47	RT.	177
	57 + 94	60 + 33	RT.	248
	53 + 76	53 + 91	LT.	15
	54 + 14	54 + 30	LT	16
WEST 119 STREET	48 + 89	49 + 88	RT&LT	214
SECTOR AVENUE	47 + 25	49 + 71	RT&LT	504
BELMONT	47 + 61	49 + 71	RT&LT	432
	50 + 29	51 + 20	RT&LT	97
	50 + 29	52 + 50	RT	227
	52 + 80	53 + 30	RT	50
	54 + 17	54 + 41	RT	24
ARDEN AVENUE	54 + 55	54 + 85	RT.	30
	53 + 39	54 + 85	LT.	146
	55 + 43	56 + 22	RT&LT	85
ELMWOOD	55 + 85	60 + 32	RT.	453
	56 + 00	60 + 32	LT.	438
	55 + 46	55 + 58	RT.	12
WEST 118 STREET	50 + 68	52 + 79	RT&LT	434
WEST 117 STREET	40 + 50	42 + 31	LT.	181
	42 + 79	45 + 23	LT.	244
	45 + 76	48 + 27	LT.	251
	48 + 74	51 + 27	LT.	253
	51 + 74	54 + 27	LT.	253
	54 + 77	57 + 25	LT.	248
	57 + 74	63 + 00	LT.	526
	40 + 00	42 + 30	RT.	230
	42 + 79	54 + 26	RT.	1147
	54 + 77	59 + 00	RT.	423
WEST 116 STREET	43 + 11	51 + 82	LT.	877
	43 + 25	51 + 82	RT.	863
	42 + 76	42 + 91	LT.	15
	42 + 39	42 + 50	LT.	11
WEST 115 STREET	44 + 85	51 + 83	RT&LT	1396
	44 + 57	44 + 68	LT.	11
WEST 114 STREET	45 + 48	51 + 83	RT&LT	1270
	45 + 21	45 + 41	LT.	20
WEST 112 STREET	45 + 89	49 + 78	LT.	389
	45 + 89	50 + 13	RT.	424
	45 + 79	45 + 89	LT.	10
WEST 111 STREET	46 + 05	50 + 01	RT&LT	792
WEST 110 STREET	44 + 00	49 + 75	RT&LT	1150
WEST 106 STREET	46 + 49	51 + 00	RT&LT	902
WEST 105 STREET	46 + 92	52 + 59	LT&RT	1134
WEST 104 STREET	47 + 54	53 + 04	LT.	550
	47 + 54	53 + 09	RT.	555
WEST 103 STREET	47 + 11	52 + 90	RT&LT	1158
WEST BLVD.	36 + 57	49 + 63	LT.	1306
	50 + 31	54 + 50	LT.	419
	38 + 18	49 + 63	RT.	1143
	50 + 31	54 + 50	RT.	419
WEST 101 STREET	46 + 95	52 + 24	LT.	529
	46 + 95	52 + 32	RT.	537
	53 + 95	54 + 36	RT&LT	98
	54 + 64	55 + 06	RT&LT	100
WESTERN AVENUE	58 + 33	61 + 45	RT&LT	717
	61 + 85	65 + 00	RT&LT	650
	66 + 50	67 + 74	RT&LT	248
WEST 100 STREET	43 + 72	50 + 56	RT.	652
	43 + 60	50 + 56	LT.	691
WEST 99 STREET	48 + 26	49 + 88	RT&LT	174
WEST 98 STREET	43 + 00	44 + 89	LT.	189
	45 + 31	47 + 36	LT.	207
	47 + 75	49 + 88	LT.	235
	43 + 00	45 + 10	RT.	210
	45 + 49	47 + 84	RT.	235
	48 + 23	50 + 00	RT.	177
I-90	751 + 50	753 + 86	RT&LT	508
LEO AVENUE	W100ST	W98ST	RT&LT	1114
	W.98ST	W95ST	RT&LT	1314
THEODORE AVENUE	W100ST	W98ST	RT&LT	1091
ALLERTON AVENUE	W98ST	W95ST	RT&LT	1285
WEST 97 STREET	49 + 19	49 + 84	RT&LT	130
	48 + 94	49 + 04	LT	10
	49 + 00	49 + 19	RT	19
WEST 96 STREET	49 + 16	49 + 78	RT&LT	124
WEST 95 STREET	47 + 87	52 + 42	RT.	455
	47 + 87	48 + 53	LT.	66
	49 + 00	51 + 21	LT.	221
	51 + 58	52 + 42	LT.	84
TOTAL				37,858.0

CALCULATED BY F.A.E. DATE 4-7-70
CHECKED BY H.C.S. DATE 1-12-72

QUANTITY COMPUTATIONS

FED. RD.	STATE	PROJECT	
2	OHIO	1-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10 40

ITEM 660 SODDING

LOCATION	CALCULATION		QUANTITY	
W. 119 ST. - CLOVERDALE CONNECTOR				
48 + 98.62 to 50 + 57.07 * RT.	188.56' x 9.5' x 1/9		199.04	S. Y.
48 + 98.62 to 50 + 22 * LT.	99.32' x 1.5' x 1/9		16.55	S. Y.
50 + 22 to 50 + 57.07 LT.	AREA BY HAND		10.61	S. Y.
		SUBTOTAL	226.20	S. Y.
ELMWOOD - SECTOR CONNECTOR				
56 + 00 to 62 + 68.64 RT.	668.64' x 6' x 1/9		445.76	S. Y.
56 + 70 to 60 + 50 LT. (8.5' AVG)	380' x 8.5' x 1/9		358.89	S. Y.
DEDUCT FOR DRIVE AT 57 + 07 LT.	9' x 8.5' x 1/9		-8.50	S. Y.
WALK BETWEEN W. 117 St & CONNECTOR	12' x 100' x 1/9		133.33	S. Y.
AREA IN RETURNS @ BELMONT	BY HAND		21.67	S. Y.
61 + 00 to 62 + 85.30 LT. (20' AVG)	20' x 185.30' x 1/9		411.78	S. Y.
S. W. RETURN @ W. 117 St.	BY HAND		136.67	S. Y.
S. W. RETURN @ SECTOR	BY HAND		135.00	S. Y.
		SUBTOTAL	1634.60	S. Y.
W. 117 STREET				
40 + 90 to 43 + 25 LT. (5.5' AVG)	5.5' x 235' x 1/9		143.61	S. Y.
AREA AROUND N. SIDE ARDEN CUL-DE-SAC	6' x 212' x 1/9		141.33	S. Y.
45 + 30 to 47 + 91 LT. (7' AVG)	7' x 261' x 1/9		203.00	S. Y.
50 + 39 to 52 + 71 LT. (7' AVG)	7' x 232' x 1/9		180.45	S. Y.
53 + 50 to 56 + 41 LT.	9.5' x 291' x 1/9		307.17	S. Y.
AREA ALONG N. SIDE SECTOR AND N. W. RETURN AT SECTOR	BY HAND		184.00	S. Y.
58 + 13 to 63 + 05 (4.5' AVG)	4.5' x 492' x 1/9		246.00	S. Y.
40 + 00 to 41 + 10 RT. (16' AVG)	16' x 110' x 1/9		195.56	S. Y.
DEDUCT FOR TWO DRIVES AND ONE WALK RT.	16' x 28' x 1/9		-49.78	S. Y.
41 + 10 to 43 + 00 RT. (4.5' AVG)	4.5' x 190' x 1/9		95.00	S. Y.
43 + 67 to 48 + 06 RT. (7' AVG)	7' x 439' x 1/9		341.44	S. Y.
50 + 53 to 52 + 65 RT. (7' AVG)	7' x 212' x 1/9		164.89	S. Y.
AREA IN RETURN AT RAMP 12	BY HAND		70.00	S. Y.
54 + 80 to 56 + 87 RT.	4.5' x 207' x 1/9		103.50	S. Y.
56 + 87 to 58 + 48 RT. (3' AVG)	3' x 161' x 1/9		53.67	S. Y.
		SUBTOTAL	2379.84	S. Y.
W. 116 STREET CUL-DE-SAC				
AROUND CUL-DE-SAC *	279.51' x 6' x 1/9		186.34	S. Y.
		SUBTOTAL	186.34	S. Y.
TEE-TURNAROUNDS				
W. 121 ST. TURNAROUND	67' x 6' x 1/9		44.67	S. Y.
W. 112 ST. TURNAROUND	102' x 6' x 1/9		68.00	S. Y.
W. 114 ST. TURNAROUND	75' x 6' x 1/9		50.00	S. Y.
		SUBTOTAL	162.67	S. Y.
S. FRONTAGE RD. NO. 1				
40 + 00 to 48 + 95.51 LT. (7' AVG)	7' x 895.51' x 1/9		696.51	S. Y.
40 + 00 to 42 + 80 RT. (10' AVG)	10' x 280' x 1/9		311.11	S. Y.
AREA IN RETURNS AT W. 114 ST.	BY HAND		27.00	S. Y.
43 + 39 to 45 + 55 RT. (8' AVG)	8' x 216' x 1/9		192.00	S. Y.
AREA IN RETURNS AT W. 112 ST.	BY HAND		18.00	S. Y.
46 + 20 to 48 + 35 RT. (14' AVG)	14' x 215' x 1/9		334.44	S. Y.
48 + 75.51 to 48 + 95.51 RT. (4' AVG)	4' x 20' x 1/9		8.89	S. Y.
		SUBTOTAL	1587.95	S. Y.
WEST 110 STREET				
45 + 17 to 45 + 67 RT (6' AVG)	6' x 50' x 1/9		33.33	S. Y.
44 + 00 to 45 + 10 LT (20' AVG)	20' x 110' x 1/9		244.44	S. Y.
DEDUCT FOR TWO DRIVES LT	20' x 18' x 1/9		-40.00	S. Y.
45 + 10 to 45 + 60 LT (7' AVG)	7' x 50' x 1/9		38.89	S. Y.
47 + 87 to 48 + 37 LT (7' AVG)	7' x 50' x 1/9		38.89	S. Y.
47 + 89 to 48 + 39 RT (12' AVG)	12' x 50' x 1/9		66.67	S. Y.
48 + 39 to 49 + 50 RT (18' AVG)	18' x 111' x 1/9		222.00	S. Y.
DEDUCT FOR ONE DRIVE RT	18' x 25' x 1/9		-50.00	S. Y.
48 + 37 to 49 + 78 LT (14' AVG)	14' x 141' x 1/9		219.33	S. Y.
DEDUCT FOR TWO DRIVES LT	14' x 18' x 1/9		-28.00	S. Y.
		SUBTOTAL	745.55	S. Y.
WEST 106 STREET				
46 + 48.80 to 47 + 53 LT (10' AVG)	10' x 104.20' x 1/9		115.78	S. Y.
AREA IN RETURNS AT FRONTAGE ROAD NO. 3	BY HAND		56.11	S. Y.
49 + 95 to 51 + 00 RT & LT	20' x 105' x 1/9		233.33	S. Y.
WALK FROM W 106 ST TO W 106 PLACE	2' x 119' x 1/9 4' x 107' x 1/9		74.00	S. Y.
		SUBTOTAL	479.22	S. Y.

LOCATION	CALCULATION		QUANTITY	
RELOC. W 106 PLACE				
50 + 25 to 50 + 55 RT	BY HAND		32.00	S. Y.
50 + 10 to 51 + 40 LT (7' AVG)	7' x 130' x 1/9		101.11	S. Y.
		SUBTOTAL	133.11	S. Y.
N. FRONTAGE ROAD NO. 2				
AREA IN RETURNS AT W. 105 ST.	BY HAND		60.00	S. Y.
61 + 75 to 67 + 45.41 RT.	6' x 570.41' x 1/9		380.27	S. Y.
61 + 75 to 64 + 02 LT. (13.5' AVG)	13.5' x 227' x 1/9		340.50	S. Y.
64 + 57 to 67 + 45 LT. (12' AVG)	12' x 288' x 1/9		384.00	S. Y.
DEDUCT FOR ONE DRIVE LT.	12' x 9' x 1/9		-12.00	S. Y.
		SUBTOTAL	1152.77	S. Y.
S. FRONTAGE ROAD NO. 3				
38 + 82 to 46 + 93.28 LT.	6' x 811.28' x 1/9		811.28	S. Y.
38 + 52 to 40 + 70 RT (5' AVG)	5' x 218' x 1/9		121.11	S. Y.
41 + 25 to 43 + 50 RT (5' AVG)	5' x 225' x 1/9		125.00	S. Y.
44 + 00 to 46 + 83 RT (6' AVG)	6' x 283' x 1/9		188.67	S. Y.
DEDUCT TWO APPROACHES	(5 x 15 x 6 x 16) 1/9		-19.00	S. Y.
		SUBTOTAL	1227.06	S. Y.
WESTERN AVENUE				
58 + 36 to 61 + 06 RT&LT	6' x 270' x 1/9		180.00	S. Y.
DEDUCT TWO DRIVES	3' x 35' x 1/9		-11.67	S. Y.
62 + 24 to 65 + 03 RT&LT	7' x 279' x 1/9		217.00	S. Y.
DEDUCT FOR FOUR DRIVES	3.5' x 63' x 1/9		-24.50	S. Y.
AREA IN RETURNS AT W. 101 ST.	BY HAND		35.00	S. Y.
65 + 52 to 67 + 88 RT&LT	7' x 236' x 1/9		183.56	S. Y.
DEDUCT TWO DRIVES	7' x 43' x 1/9		-33.44	S. Y.
		SUBTOTAL	545.95	S. Y.
WESTERN AVE. EXTENDED				
68 + 34 to 71 + 84 RT&LT (18.5' AVG)	18.5' x 350' x 1/9		719.44	S. Y.
71 + 84 to 73 + 55 LT. (12' AVG)	12' x 171' x 1/9		228.00	S. Y.
		SUBTOTAL	947.44	S. Y.
WEST BLVD				
36 + 57 to 40 + 25 LT.	26.5' x 368' x 1/9		1083.56	S. Y.
DEDUCT FOR FIVE DRIVES LT	26.5' x 42' x 1/9		-123.67	S. Y.
40 + 88 to 42 + 15 LT.	9.5' x 127' x 1/9		134.06	S. Y.
38 + 18 to 39 + 00 RT. (32.5' AVG)	32.5' x 82' x 1/9		296.11	S. Y.
DEDUCT FOR TWO DRIVES RT	32.5' x 15.5' x 1/9		-55.97	S. Y.
39 + 00 to 42 + 58 RT.	26.5' x 358' x 1/9		1054.11	S. Y.
DEDUCT FOR FIVE DRIVES RT	26.5' x 42' x 1/9		-123.67	S. Y.
44 + 27 to 44 + 89 LT.	9.5' x 62' x 1/9		65.44	S. Y.
44 + 63 to 45 + 34 RT.	9.5' x 71' x 1/9		74.94	S. Y.
45 + 55 to 49 + 65 LT.	26.5' x 410' x 1/9		1207.22	S. Y.
DEDUCT FOR SIX DRIVES LT.	26.5' x 48.5' x 1/9		-142.81	S. Y.
45 + 90 to 49 + 65 RT.	26.5' x 375' x 1/9		1104.17	S. Y.
DEDUCT FOR FIVE DRIVES RT.	26.5' x 43' x 1/9		-126.61	S. Y.
50 + 35 to 52 + 00 RT.	26.5' x 165' x 1/9		485.83	S. Y.
DEDUCT FOR ONE DRIVE RT.	26.5' x 8.5' x 1/9		-25.03	S. Y.
50 + 35 to 53 + 50 LT.	26.5' x 215' x 1/9		633.06	S. Y.
DEDUCT FOR FIVE DRIVES AND ONE WALK	26.5' x 48' x 1/9		-141.33	S. Y.
52 + 00 to 54 + 50 RT	32.5' x 250' x 1/9		902.78	S. Y.
DEDUCT FOR FIVE DRIVES RT.	32.5' x 42' x 1/9		-151.67	S. Y.
53 + 50 to 54 + 50 LT.	32.5' x 100' x 1/9		361.11	S. Y.
DEDUCT FOR TWO DRIVES LT.	32.5' x 19' x 1/9		-68.61	S. Y.
		SUBTOTAL	6443.02	S. Y.
RELOC. W. 100 STREET				
150 + 50 to 151 + 52 LT.	8.5' x 102' x 1/9		96.33	S. Y.
AREA IN N. W. RETURN AT N. MARG. RD. 4	BY HAND		239.67	S. Y.
AREA IN S. W. and S. E. RETURNS AT N. MARG. RD. 4	BY HAND		114.00	S. Y.
152 + 05 to 152 + 69 RT	3.5' x 64' x 1/9		24.89	S. Y.
152 + 32 to 152 + 82 LT	3.5' x 50' x 1/9		19.44	S. Y.
154 + 98 to 157 + 30 LT	3.5' x 232' x 1/9		90.22	S. Y.
154 + 78 to 155 + 80 RT	3.5' x 102' x 1/9		39.67	S. Y.
155 + 80 to 157 + 09 RT (8' AVG)	8' x 129' x 1/9		114.67	S. Y.
AREA IN RETURNS AT W. 98 ST.	BY HAND		35.00	S. Y.
		SUBTOTAL	773.89	S. Y.

LOCATION	CALCULATION		QUANTITY	
W. 98 STREET				
43 + 00 to 44 + 35 LT.	4.5' x 135' x 1/9		67.50	S. Y.
43 + 05 to 44 + 45 RT.	4.5' x 140' x 1/9		70.00	S. Y.
DEDUCT FOR TWO DRIVES RT.	4.5' x 17' x 1/9		-8.50	S. Y.
45 + 05 to 45 + 69 LT.	9.5' x 64' x 1/9		67.56	S. Y.
45 + 38 to 45 + 61 RT.	9.5' x 23' x 1/9		24.28	S. Y.
47 + 52 to 48 + 34 LT.	9.5' x 82' x 1/9		86.56	S. Y.
47 + 60 to 48 + 40 RT.	9.5' x 80' x 1/9		84.44	S. Y.
49 + 02 to 49 + 82 LT.	8.5' x 80' x 1/9		75.56	S. Y.
49 + 02 to 50 + 00 RT.	5.5' x 98' x 1/9		59.89	S. Y.
		SUBTOTAL	527.29	S. Y.
N. MARGINAL ROAD NO. 4				
AREA IN RETURN AT WEST BLVD	BY HAND		30.00	S. Y.
50 + 48 to 57 + 63 RT.	4.5' x 715' x 1/9		357.50	S. Y.
50 + 86 to 54 + 80 LT. (12.5' AVG)	12.5' x 394' x 1/9		547.22	S. Y.
54 + 45 to 56 + 80 LT. (15' AVG)	15' x 235' x 1/9		391.67	S. Y.
58 + 20 to 60 + 83 LT.	9.5' x 263' x 1/9		277.61	S. Y.
58 + 35 to 62 + 57 RT.	4.5' x 422' x 1/9		211.00	S. Y.
AREA IN S. W. & S. E. RETURNS AT W. 98 STREET	BY HAND		72.00	S. Y.
63 + 62 to 69 + 00 RT.	4.5' x 538' x 1/9		269.00	S. Y.
63 + 62 to 69 + 71 LT. (12' AVG)	12' x 609' x 1/9		812.00	S. Y.
AREA IN RETURNS AT W. 95 ST.	BY HAND		13.00	S. Y.
70 + 20 to 70 + 50 LT.	5' x 30' x 1/9		16.67	S. Y.
69 + 89 to 70 + 50 RT.	6' x 61' x 1/9		40.67	S. Y.
		SUBTOTAL	3038.34	S. Y.
S. FRONTAGE ROAD NO. 4A				
60 + 00 to 66 + 55 LT.	6' x 655' x 1/9		436.67	S. Y.
DEDUCT ONE DRIVE LT.	6' x 10' x 1/9		-6.67	S. Y.
ADDITIONAL AREA TO CONST LIMITS 66 + 00 to 66 + 55 LT.	BY HAND		120.00	S. Y.
60 + 00 to 63 + 03 RT. (10' AVG)	10' x 303' x 1/9		336.67	S. Y.
AREA IN RETURNS AT W. 100 ST.	BY HAND		25.00	S. Y.
63 + 53 to 66 + 67 RT. (11' AVG)	11' x 314' x 1/9		383.78	S. Y.
		SUBTOTAL	1295.45	
S. MARGINAL ROAD NO. 5				
50 + 35 to 53 + 03 RT (12' AVG)	12' x 268' x 1/9		357.33	S. Y.
53 + 43 to 55 + 32 RT (7' AVG)	7' x 189' x 1/9		147.00	S. Y.
55 + 63 to 56 + 50 RT (7.5' AVG)	7.5' x 87' x 1/9		72.50	S. Y.
AREA IN RETURNS AT W. 95 ST.	BY HAND		17.00	S. Y.
56 + 95 to 57 + 30 RT (7' AVG)	7' x 35' x 1/9		27.22	S. Y.
50 + 35 to 54 + 00 LT	5' x 365' x 1/9		202.78	S. Y.
54 + 52 to 57 + 30 LT	5' x 278' x 1/9		154.44	S. Y.
		SUBTOTAL	978.27	S. Y.
ALONG MAINLINE FENCE				
TOTAL FROM SHEET #299	2' x 18,453' x 1/9		4,100.67	S. Y.
DEDUCT LENGTH ALREADY CALC• ON NOT SODDED	2' x 10,503' x 1/9		- 2,334.00	S. Y.
		SUBTOTAL	1,766.67	S. Y.
		GRAND TOTAL	26,231.63	S. Y.

CALCULATED BY F.A.E. DATE 4-7-70
CHECKED BY H.C.S. DATE 1-12-72

ITEM 660 SODDING CALCULATIONS

QUANTITY RECAPITULATION

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

CUYAHOGA COUNTY
CUY-90-10.40

	ITEM 451 10''REINF. PORT. CEM. CONC.PAV'T SQ. YDS.	ITEM 451 9''REINF'D PORT. CEM. CONC.PAV'T SQ. YDS.	ITEM 451 8''REINF'D PORT.CEM. CONC.PAV'T SQ. YDS.	ITEM 305 8'' PORT. CEMENT CONC. BASE SQ. YDS.	ITEM 452 6'' PLAIN PORT. CEM. CONC.PAV'T SQ. YDS.	ITEM 402 ASPH.CONC. 70-85 OR AC-20 CU. YDS.	ITEM 4n4 ASPH.CoNC. DRIVES 70-85 OR AC20 CU.YDS.	ITEM 404 ASPH.CONC. 70-85 OR AC-20 CU. YDS.	ITEM 301 BITUMINOUS AGGREGATE BASE CU. YDS.	ITEM 304 AGGREGATE BASE CU. YDS.	ITEM 310 SUBBASE GRADING A CU. YDS.	ITEM 407 TACK COAT GALS.	ITEM 407 TACK COAT COVER AGG. TONS	ITEM 202 WEARING COURSE REMOVED SQ. YDS.
MAINLINE I-90	68,207.03	11839.30	0.00	0.00	0.00	0.00	0.00	0.00	14550.76	0.00	674.81	0.00	0.00	0.00
RAMP 5	0.00	1676.34	0.00	0.00	0.00	0.00	0.00	0.00	353.44	0.00	0.00	0.00	0.00	0.00
RAMP 7	0.00	1735.84	0.00	0.00	0.00	0.00	0.00	0.00	279.17	0.00	0.00	0.00	0.00	0.00
RAMP 8	0.00	2272.62	0.00	0.00	0.00	0.00	0.00	0.00	461.15	0.00	0.00	0.00	0.00	0.00
RAMP 9	0.00	1834.56	0.00	0.00	0.00	0.00	0.00	0.00	396.95	0.00	0.00	0.00	0.00	0.00
RAMP 11	0.00	1485.51	0.00	0.00	0.00	0.00	0.00	0.00	231.43	0.00	0.00	0.00	0.00	0.00
RAMP 12	0.00	3758.31	0.00	0.00	0.00	0.00	0.00	0.00	697.49	0.00	0.00	0.00	0.00	0.00
RAMP 13	0.00	1388.07	0.00	0.00	0.00	0.00	0.00	0.00	294.69	0.00	0.00	0.00	0.00	0.00
RAMP 14	0.00	1779.86	0.00	0.00	0.00	0.00	0.00	0.00	463.62	0.00	0.00	0.00	0.00	0.00
RAMP 15	0.00	375.56	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.69	73.53	0.00	0.00	0.00
RAMP 16	0.00	603.25	0.00	0.00	0.00	0.00	0.00	0.00	16.50	27.50	124.37	0.00	0.00	0.00
S. FRONTAGE RD 1	0.00	0.00	3168.96	0.00	10.00	0.00	0.00	0.00	0.00	0.00	528.16	0.00	0.00	0.00
N. FRONTAGE RD 2	0.00	0.00	2196.40	0.00	16.11	0.00	0.00	0.00	0.00	0.00	366.07	0.00	0.00	0.00
S. FRONTAGE RD 3	0.00	0.00	2974.70	0.00	84.23	0.00	0.00	0.00	0.00	0.00	495.78	0.00	0.00	0.00
S FRONTAGE RD 4A	0.00	0.00	2331.78	0.00	40.89	0.00	0.00	0.00	0.00	0.00	388.63	0.00	0.00	0.00
N. MARGINAL RD 4	0.00	7779.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1300.24	0.00	0.00	0.00
S. MARGINAL RD 5	0.00	3421.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	570.23	0.00	0.00	0.00
W. 121 ST.	0.00	0.00	0.00	11.56	49.16	0.00	0.00	0.80	0.00	0.00	7.60	1.16	0.04	0.00
W. 120 ST.	0.00	0.00	0.00	5.33	0.00	0.00	0.00	0.37	0.00	0.00	0.59	0.53	0.02	0.00
CLOVERDALE-W.119	0.00	0.00	0.00	575.02	10.00	19.31	0.00	19.31	0.00	0.00	65.97	55.63	1.95	0.00
W. 118 ST.	0.00	0.00	0.00	4.44	0.00	0.00	0.00	0.31	0.00	0.00	0.49	0.44	0.02	0.00
ELMWOOD-SECTOR	0.00	0.00	3901.33	0.00	22.78	0.00	0.00	0.00	0.00	0.00	456.75	0.00	0.00	0.00
SECTOR AVE.	0.00	0.00	0.00	0.00	37.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARDEN AVE.	0.00	0.00	606.38	5.78	0.00	0.00	0.00	0.40	0.00	0.00	68.02	0.58	0.02	0.00
W. 117 ST.	0.00	12303.44	0.00	890.29	189.39	89.72	5.06	193.93	0.00	0.00	2556.90	83.30	2.92	174.55
BELMONT AVE.	0.00	0.00	0.00	5.78	0.00	0.00	0.00	0.40	0.00	0.00	0.64	0.58	0.02	0.00
W.116 CUL-DE-SAC	0.00	0.00	793.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.16	0.00	0.00	0.00
W. 112 ST.	0.00	0.00	0.00	5.78	94.50	0.00	0.00	0.40	0.00	0.00	17.28	0.58	0.02	0.00
W. 111 ST.	0.00	0.00	0.00	5.78	0.00	0.00	0.00	0.40	0.00	0.00	0.64	0.58	0.00	0.00
W. 110 ST.	0.00	0.00	942.86	0.00	221.55	0.00	0.00	3.88	0.00	0.00	136.98	0.00	0.00	64.44
W. 106 ST.	0.00	0.00	525.25	0.00	0.00	0.00	47.22	0.00	0.00	151.11	90.58	0.00	0.00	0.00
REL. W.106 PLACE	0.00	0.00	297.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.69	0.00	0.00	0.00
W. 105 ST	0.00	0.00	267.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.76	0.00	0.00	0.00
WEST BLVD.	0.00	0.00	0.00	4604.76	490.40	292.94	0.00	439.25	0.00	0.00	767.46	442.71	15.50	0.00
WESTERN AVE.	0.00	0.00	0.00	1933.11	186.95	142.84	0.00	153.52	0.00	0.00	536.97	184.44	6.46	0.00
WESTERN AVE EXTD	0.00	0.00	1865.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	310.88	0.00	0.00	0.00
RELOC. W.100 ST.	0.00	0.00	2950.52	0.00	211.45	0.00	0.00	0.00	0.00	0.00	332.66	0.00	0.00	0.00
W. 98 ST.	0.00	0.00	0.00	1552.50	44.55	84.09	0.00	133.01	0.00	0.74	345.00	148.83	0.00	0.00
TOTAL	68,207.03	52253.31	22822.73	9600.13	1709.62	628.90	52.28	945.98	17745.62	179.30	10371.84	919.36	26.97	238.99

	ITEM 4n8 PRIME CoAT GALS.	ITEM 608 4'' CONCRETE WALK SQ. FT.	ITEM 609 CONC. CURB STANDARD TYPE 2-A LIN. FT.	ITEM 609 CONC. CURB STANDARD TYPE 2-B LIN. FT.	ITEM 609 CONC. CURB STANDARD TYPE 6 LIN. FT.	ITEM 609 CONC. CURB STANDARD TYPE 7 LIN. FT.	ITEM 609 CONC. CURB STANDARD TYPE 8 LIN. FT.	ITEM 6n9 SANDSToNE CURB LIN. FT.	ITEM 611 APPROACH SLAB (T=15") (T=17")* SQ. YDS.	ITEM 622 CONCRETE BARRIER LIN. FT.	ITEM 612 CONCRETE MEDIAN SQ. YDS.	ITEM 612 4'' CONC. MED. AS PER PLAN SQ. YDS.	ITEM 612 9'' TRAFFIC ISLAND SQ. YDS.	ITEM SPC'L DRAINAGE CONNECTION NO 8 AGG. CU. YDS.	ITEM 2n3 SUBGRADE COMPACTION SQ. YDS.
MAINLINE I-90	0.00	0.00	0.00	0.00	7953.74	0.00	0.00	0.00	2249.30	12646.32	0.00	445.60	0.00	0.00	119716.87
RAMP 5	0.00	0.00	100.00	0.00	914.30	187.00	207.62	0.00	0.00	0.00	0.00	0.00	10.22	0.00	2580.21
RAMP 7	0.00	0.00	100.00	0.00	64.93	83.20	124.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2251.11
RAMP 8	0.00	0.00	78.54	0.00	1346.62	0.00	0.00	0.00	0.00	0.00	47.57	0.00	695.11	0.00	4116.43
RAMP 9	0.00	0.00	100.00	0.00	999.25	127.61	186.93	0.00	0.00	0.00	0.00	0.00	8.44	0.00	2839.81
RAMP 11	0.00	0.00	100.00	0.00	61.93	93.20	116.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1899.53
RAMP 12	0.00	0.00	78.54	0.00	1515.06	0.00	0.00	0.00	0.00	0.00	90.11	0.00	508.88	0.00	5919.32
RAMP 13	0.00	0.00	0.00	0.00	1243.39	103.78	166.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2176.32
RAMP 14	0.00	0.00	0.00	0.00	1326.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3156.59
RAMP 15	0.00	0.00	100.00	0.00	92.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.11	0.00	440.81
RAMP 16	0.00	0.00	100.00	0.00	497.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.22	16.70	859.11
S. FRONTAGE RD 1	0.00	5064.91	1831.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3168.96
N. FRONTAGE RD 2	0.00	3706.13	1257.87	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2196.40
S. FRONTAGE RD 3	0.00	3968.54	1808.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2974.70
S FRONTAGE RD 4A	0.00	3248.07	1374.07	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	2332.45
N. MARGINAL RD 4	0.00	9998.97	3527.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.22	0.00	7801.47
S. MARGINAL RD 5	0.00	3903.50	1146.51	0.00	61.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3424.84
W. 121 ST.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00	0.00	0.00	0.00	34.72
W. 120 ST.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CLOVERDALE-W.119	0.00	673.52	0.00	336.90	0.00	0.00	0.00	80.00	0.00	0.00	0.00	0.00	0.00	0.00	579.46
W. 118 ST.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELMWOOD-SECTOR	0.00	3821.33	1988.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.78	0.00	0.00	0.00	3945.11
SECTOR AVE.	0.00	292.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARDEN AVE.	0.00	0.00	189.01	0.00	13.00	0.00	0.00	45.00	0.00	0.00	0.00	0.00	0.00	0.00	607.10
W. 117 ST.	0.00	14312.62	1993.48	1030.83	0.00	0.00	0.00	0.00	566.66*	0.00	493.78	0.00	0.00	0.00	13363.88
BELMONT AVE.	0.00	2263.87	0.00	0.00	0.00	0.00	0.00	198.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.116 CUL-DE-SAC	0.00	0.00	319.52	0.00	0.00	0.00	0.00	39.67	0.00	0.00	0.00	0.00	0.00	0.00	813.66
W. 112 ST.	0.00	0.00	96.00	0.00	0.00	0.00	0.00	26.00	0.00	0.00	0.00	0.00	0.00	0.00	94.50
W. 111 ST.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W. 110 ST.	0.00	5205.75	585.22	0.00	0.00	0.00	0.00	0.00	193.34*	0.00	0.00	0.00	0.00	0.00	1136.20
W. 106 ST.	271.99	1844.10	243.30	0.00	0.00	0.00	0.00	0.00	193.34*	0.00	0.00	0.00	0.00	0.00	718.59
REL. W.106 PLACE	0.00	1357.85	261.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	312.23
W. 105 ST	0.00	185.00	169.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	267.83
WEST BLVD.	0.00	5783.50	0.00	3197.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WESTERN AVE.	0.00	7798.90	0.00	1596.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WESTERN AVE EXTD	0.00	2575.00	858.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1865.31
RELOC. W.100 ST.	0.00	7997.60	1626.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.89	0.00	2979.41
W. 98 ST.	1.78	8425.50	0.00	1156.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1552.50
TOTAL	273.77	92427.16	20032.50	7318.42	16096.48	594.79	802.49	567.67	2249.30 953.34*	12646.32	675.24	445.60	1359.09	16.70	196125.43

ITEM 203 - EARTHWORK ANALYSIS

SHEET NO.	LOCATION	EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
3	720+00 to 750+00	323,145	266
4	750+00 to 783+00	330,864	230,136
5	783+00 to 792+50	2,477	56,033
6	RAMP 5	13,592	2,428
6	RAMP 7	26,746	191
7	RAMP 8	21,093	0
7	RAMP 9	32,930	5
8	RAMP 11	16,899	1,233
8	RAMP 12	38,398	25
9	RAMP 13	11,160	2,959
9	RAMP 14	16,024	1,516
	RAMP 15	SEE N.MARGINAL RD. NO. 4	
	RAMP 16	SEE MARGINAL RD. NO. 5	
227	CLOVERDALE CONN.	156	15
11	ELMWOOD SECTOR CONN.	4,330	108
228	SECTOR AVENUE	199	19
251	ARDEN CUL-DE-SAC	185	10
238	W.117TH ST. 40+00 TO 52+00	7,499	14,211
239	W.117TH ST. 52+00 TO 63+00	2,948	3,320
232	W.116TH ST. CUL-DE-SAC	750	0
11	S. FRONTAGE RD. NO.1	4,099	12
232	W.112TH ST. TURN-AROUND	31	0
255	W.110TH ST.	191	390
259	W.106TH ST.	387	12
232	RELOC. W.106TH PL.	370	13
232	W.105TH STREET	164	11
12	N.FRONTAGE RD. NO.2	2,558	276
12	S.FRONTAGE RD. NO.3	2,708	31
262	WEST BLVD. 34+00 TO 46+50	2,367	4,131
263	WEST BLVD. 46+50 TO 54+50	1,234	0
235	WESTERN AVENUE	2,031	0
15	WESTERN AVE. EXTENDED	2,060	0
14	S.FRONTAGE RD. NO. 4A	2,605	123
13	N.MARGINAL RD. NO.4	11,347	33,598
271	RELOCATED W.100TH ST.	2,727	9,612
277	W. 98TH ST.	2,662	4,069
14	MARGINAL RD. NO.5	3,307	23
32	SIDEWALK REMOVED	−2,158	
33	PAVEMENT REMOVED	−21,309	
28	EARTHWORK REVISION	ADD 3,054	DEDUCT 1,512
	TOTAL	869,830	363,264

ITEM 659 AS PER PLAN

THE TOTAL AREA WITHIN THE LA AND R/W LINES TO BE SEEDED HAS BEEN CALCULATED BY PLANIMETERING PLAN SHEETS AND ADJUSTING AREAS FOR SLOPES. THIS TOTAL DOES INCLUDE SEWER EASEMENTS, AND TEMPORARY EASEMENTS.

SHEET NO.	SQ. YDS
66	15,041
68	59,802
72	37,201
74	30,299
76	33,458
78	39,609
35 DEDUCT FOR SODDING	28,547
TOTAL	186,863

ITEM 203 PROOF ROLLING

145,850 S.Y. SUBGRADE COMPACTION/3000 = 49 HOURS
(RAMPS AND MAINLINE I-90 ONLY)
TOTAL 49 HOURS

ITEM 659 AGRICULTURAL LIMING

186,863 S.Y. SEEDING + 28,547
S.Y. SODDING + 2,266 S.Y. JUTE = 217,676 S.Y. X 0.00045 TONS/S.Y. 97.95 TONS
TOTAL 97.95 TONS

ITEM 659 COMMERCIAL FERTILIZER

186,863 S.Y. SEEDING + 28,547
S.Y. SODDING + 2,266. S.Y. JUTE = 217,676 S.Y. X 0.00009 TONS/S.Y. 19.59 TONS
TOTAL 19.59 TONS

CALCULATED BY FAE. DATE 1-15-71
CHECKED BY H.C.S. DATE 2-72

QUANTITY RECAPITULATION

QUANTITY SUMMARY

FED.RD.	STATE	PROJECT
2	OHIO	I-90-I(50) 19

CUYAHOGA COUNTY
CUY 90-10.40

TYPE CODE 7223 *unless otherwise shown*

ITEM																		I-90-1(50)19			
	28	31	32	33	33A	34	67	71	73	75	77	80	647	648	649	253	299	ITEM	QUANTITY	UNIT	DESCRIPTION
																					ROADWAY
	LUMP																	201	LUMP	LUMP	CLEARING AND GRUBBING
						239												202	239	SQ. YDS.	WEARING COURSE REMOVED
				54,545														202	54.545	SQ. YDS.	PAVEMENT REMOVED
				37,858														202	37.858	LIN. FT.	CURB REMOVED
			176,590															202	176,590	SQ. FT.	SIDEWALK REMOVED
			LUMP															202	LUMP	LUMP	STRUCTURES REMOVED
			LUMP															202	LUMP	LUMP	PORTIONS OF STRUCTURES REMOVED
			702															202	702	LIN. FT.	RAILROAD TRACK REMOVED
						869,830												203	869,830	CU. YDS.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
						363,264												203	363,264	CU. YDS.	EMBANKMENT
						196,125												203	196,125	SQ. YDS.	SUBGRADE COMPACTION
						49												203	49	HOURS	PROOF ROLLING
																	263	202	263	LIN. FT.	*Fence Removed For Reuse*
	2						2											SPECIAL	4	EACH	PLUGGING OIL *OR* GAS WELL
		200																404	200	CU. YDS.	ASPHALT CONCRETE *OR AN APPROVED BITUMINOUS PREMIXED* SURFACE COURSE FOR MAINTAINING TRAFFIC
																	249	607	249	LIN. FT.	*Fence, Type CL, Reused, as per plan*
		500																410	500	CU. YDS.	TRAFFIC COMPACTED SURFACE, TYPE "A" OR "B"
		500																410	500	CU. YDS.	TRAFFIC COMPACTED SURFACE, TYPE "C"
																	1	607	1	Each	*Gate, Type CL (14'-0"), Reused, as per plan*
													8	8	6			604	22	EACH	CENTERLINE REFERENCE MONUMENT
														40				604	40	EACH	MONUMENT ASSEMBLY, AS PER PLAN (CITY OF CLEVELAND)
			7199															606	7,199	LIN. FT.	GUARD RAIL, TYPE 5
			27															606	27	EACH	BRIDGE TERMINAL ASSEMBLY, *Type A*
			14															606	14	EACH	ANCHOR ASSEMBLY
																	144	607	144	LIN. FT.	FENCE, TYPE C.L. AS PER PLAN
																	17,725	607	17,725	LIN. FT.	FENCE, TYPE CL
																	3	607	3	EACH	GATE, TYPE CL
																	3	607	3	EACH	GATE, TYPE C,L, (8'-0"), AS PER PLAN
																	632	607	632	LIN. FT.	FENCE, TYPE CL. MODIFIED 12'-0", *as per plan*
						92,427												608	92,427	SQ. FT.	4" CONCRETE WALK
		10,000																608	10,000	SQ. FT.	2" *Bituminous Walk AC-20*
		LUMP																615	LUMP	LUMP	TEMPORARY ROADS
																7,724		615	7,724	SQ YDS	TEMPORARY PAVEMENT, CLASS "A"
		500																616	500	TONS	CALCIUM CHLORIDE
		10,000																616	10,000	M-GALS.	WATER
		5,000																607	5,000	LIN. FT.	TEMPORARY FENCE, TYPE-SNOW, AS PER PLAN
	8																	602	8	CU. YDS.	CONCRETE MASONRY AS PER PLAN
	600																	603	600	LIN. FT.	3" CONDUIT, TYPE F 707.08 STANDARD WEIGHT BITUMINOUS COATED
																					EROSION CONTROL Y-005
									130	625								601	755	LIN. FT.	*PAVED* GUTTER, *STANDARD TYPE 2, MODIFIED AS PER PLAN*
	8					19.59												659	27.59	TONS	COMMERCIAL FERTILIZER (12-12-12)
						97.95												659	97.95	TONS	AGRICULTURAL LIMING, AS PER PLAN
						186,863												659	186,863	SQ. YDS.	SEEDING AND MULCHING, AS PER PLAN
											91	263						660	354	SQ. YDS.	SODDING FOR SPECIAL BERM AND SLOPE PROTECTION, *AS PER PLAN*
					26,232			1341	400	361		213						660	28,547	SQ. YDS.	SODDING
											555	1,711						667	2266	SQ. YDS.	SEEDING AND JUTE MATTING, AS PER PLAN
	37,400																	207	37,400	SQ. YDS.	TEMPORARY SEEDING AND MULCHING
	81																	207	81	M-GALS.	WATER
	240																	207	240	LIN. FT.	TEMPORARY SLOPE DRAINS
	364																	207	364	CU. YDS.	TEMPORARY BENCHES, DIKES, DAMS, AND SEDIMENT BASINS
	9,350																	659	9,350	SQ. YDS.	REPAIR SEEDING AND MULCHING
	420																	207	420	M-SQ. FT.	MOWING

FOR ESTIMATED QUANTITIES OF:

- ✓ WATER WORK SEE SHT. Nº 302
- ✓ MUNICIPAL ELECTRIC LIGHT AND POWER SEE SHT. Nº 357
- ✓ TRAFFIC CONTROL AND SIGNING SEE SHT. Nº 549, 550
- ✓ LIGHTING SEE SHT. Nº 496
- *RETAINING WALLS SEE SHT. No. 490*

STRUCTURES OVER 20'-0" *SPAN For estimated quantities*

- CUY 90-1057 SEE SHT. Nº 413
- CUY 90-1076 SEE SHT. Nº 424
- CUY 90-1089 SEE SHT. Nº 433
- CUY 90-1105 SEE SHT. Nº 441
- CUY 90-1127 SEE SHT. Nº 449
- CUY 90-1146 SEE SHT. Nº 463
- CUY 90-1152 SEE SHT. Nº 477

Rev. 8-21-75

CALCULATED BY: F.A.E. DATE: 1-20-71
CHECKED BY: H.C.S. DATE: 1-12-72

ROADWAY & EROSION CONTROL QUANTITY SUMMARY

FED.RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	36 713

QUANTITY SUMMARY

DRAINAGE

CUYAHOGA COUNTY
CUY 90-10.40

TYPE CODE 7223

ITEM	30	32	34	67	71	73	75	77	80	81	I-90-1(50)19			DESCRIPTION
											ITEM	QUANTITY	UNIT	
				511	292	79	284	79			202	1245	LIN. FT.	PIPE REMOVED, 24" AND UNDER
					433	55					202	488	LIN. FT.	PIPE REMOVED, OVER 24"
				11	22	4	4	13	20		202	74	EACH	CATCH BASIN REMOVED
				1	3		2	3	6		202	15	EACH	CATCH BASIN ABANDONED
				3	7	2	2	2	13		202	29	EACH	MANHOLE REMOVED
				2	2	2		4	8		202	18	EACH	MANHOLE ABANDONED
	200				48	165					603	413	LIN. FT.	6" CONDUIT, TYPE B
				57	773		94				603	924	LIN. FT.	8" CONDUIT, TYPE B
				226	885	411	427	525	1348		603	3822	LIN. FT.	12" CONDUIT, TYPE B
				358	933	425	1105	170	595		603	3586	LIN. FT.	15" CONDUIT, TYPE B
				119		270	32		152		603	573	LIN. FT.	18" CONDUIT, TYPE B
					172	280					603	452	LIN. FT.	21" CONDUIT, TYPE B
					82	90					603	172	LIN. FT.	24" CONDUIT, TYPE B
						566	529				603	1095	LIN. FT.	54" CONDUIT, TYPE B
				240	473		25	379	62		603	1179	LIN. FT.	12" CONDUIT, TYPE C
					169			99			603	268	LIN. FT.	15" CONDUIT, TYPE C
					242						603	242	LIN. FT.	15" CONDUIT, TYPE C 706.02 CLASS V
					34						603	34	LIN. FT.	24" CONDUIT, TYPE C
				719	286						603	1005	LIN. FT.	42" CONDUIT, TYPE C
					522						603	522	LIN. FT.	48" CONDUIT, TYPE C 706.02 CLASS V OR 707.13 (0.079")
					250	1,098					603	1348	LIN. FT.	54" CONDUIT, TYPE C
								640	250		603	890	LIN. FT.	60" CONDUIT, TYPE C 706.02 CLASS III OR 707.13 (0.079")
							380	205	1315		603	1900	LIN. FT.	60" CONDUIT, TYPE C 706.02 CLASS IV OR 707.13 (0.079")
							475				603	475	LIN. FT.	60" CONDUIT, TYPE C 706.02 CLASS V OR 707.13 (0.079")
	100										603	100	LIN. FT.	6" CONDUIT, TYPE F AS PER PLAN
	100				380		380			760	603	1620	LIN. FT.	6" CONDUIT, TYPE F
									56		603	56	LIN. FT.	15" CONDUIT, TYPE F 707.05
									56		603	56	LIN. FT.	18" CONDUIT, TYPE F 707.05
				1	1	1	3		2		604	8	EACH	STANDARD Nº 8 CATCH BASIN
									1		604	1	EACH	STANDARD Nº 3 CATCH BASIN WITH TRAP, MODIFIED AS PER PLAN
					1		1				604	2	EACH	STANDARD Nº 2-2A CATCH BASIN WITH TRAP, MODIFIED AS PER PLAN
							1				604	1	EACH	STANDARD Nº 2-2B CATCH BASIN
				2			3	1	2		604	8	EACH	STANDARD Nº 3 CATCH BASIN
							3				604	3	EACH	STANDARD Nº 3 CATCH BASIN, MODIFIED AS PER PLAN
					2	1					604	3	EACH	STANDARD Nº 5 CATCH BASIN
								2			604	2	EACH	STANDARD Nº 5 CATCH BASIN, WITH TRAP, MODIFIED AS PER PLAN
					2	1		1	1		604	5	EACH	STANDARD Nº 5A CATCH BASIN
					1	2	1				604	4	EACH	STANDARD Nº 6 CATCH BASIN, MODIFIED AS PER PLAN
				2							604	2	EACH	STANDARD Nº 7 CATCH BASIN
				7	23	13	13	13	24		604	93	EACH	CITY OF CLEVELAND CATCH BASIN TYPE-1
				1	5			5	7		604	18	EACH	CITY OF CLEVELAND CATCH BASIN TYPE-2
				3	4			3	4		604	14	EACH	STANDARD Nº 2-A-6 PAVED SHOULDER INLET
					2				3		604	5	EACH	STANDARD Nº 2-A-8 PAVED SHOULDER INLET
					2	2			2		604	6	EACH	STANDARD Nº 2-A-10 PAVED SHOULDER INLET
								1			604	1	EACH	STANDARD Nº 2-A-10 PAVED SHOULDER INLET W/TRAP, MODIFIED AS PER PLAN
									2		604	2	EACH	STANDARD Nº 2-A-12 PAVED SHOULDER INLET
						2					604	2	EACH	STANDARD Nº 2-A-14 PAVED SHOULDER INLET
							1		1		604	2	EACH	STANDARD Nº 2-A-16 PAVED SHOULDER INLET
				1	1		1	1			604	4	EACH	SPECIAL Nº 2-A-6 PAVED SHOULDER INLET MANHOLE
									1		604	1	EACH	SPECIAL Nº 2-A-8 PAVED SHOULDER INLET MANHOLE
						1			2		604	3	EACH	SPECIAL Nº 2-A-10 PAVED SHOULDER INLET MANHOLE
				1				1			604	2	EACH	SPECIAL Nº 2-A-12 PAVED SHOULDER INLET MANHOLE
								1			604	1	EACH	SPECIAL Nº 2-A-14 PAVED SHOULDER INLET MANHOLE
				1		1					604	2	EACH	SPECIAL Nº 2-A-16 PAVED SHOULDER INLET MANHOLE
				2	2	2	5		4		604	15	EACH	STANDARD Nº 1-3B MEDIAN INLET
							3				604	3	EACH	STANDARD Nº 1-3B MEDIAN INLET, MODIFIED AS PER PLAN
					2	2	2		3		604	9	EACH	STANDARD Nº 1-A MANHOLE
					2				2		604	4	EACH	MANHOLE RECONSTRUCTED TO GRADE
					3	1	1	1	3		604	9	EACH	MANHOLE ADJUSTED TO GRADE
					2	2					604	4	EACH	CATCH BASIN ADJUSTED TO GRADE
	2										604	2	EACH	FURNISHING FRAME AND COVER CASTING (CLEVELAND STANDARD) AS PER PLAN
									1		604	1	EACH	STANDARD Nº 2-A-6 *paved shoulder inlet* W/TRAP, MODIFIED AS PER PLAN
					1						604	1	EACH	STANDARD Nº 5A CATCH BASIN WITH GRATE "B" W/TRAP, MODIFIED AS PER PLAN
	200										605	200	LIN. FT.	4" UNCLASSIFIED PIPE UNDERDRAINS
					4,656		4,177			401	605	9234	LIN. FT.	6" DEEP PIPE UNDERDRAINS
										170	605	170	LIN. FT.	6" SHALLOW PIPE UNDERDRAINS
	200									320	605	520	LIN. FT.	6" UNCLASSIFIED PIPE UNDERDRAINS
	1000										605	1000	LIN. FT.	6" UNCLASSIFIED PIPE UNDERDRAINS 707.01 TYPE III OR 707.12 AS PER PLAN
					4,163		4644			12,359	605	21,166	LIN. FT.	6" PIPE UNDERDRAIN, AS PER PLAN
					300						SPECIAL	300	LIN. FT.	FILL AND PLUG EXISTING 48" PIPE
		762									*605*	*762*	*LIN. FT.*	*6" Shallow Pipe Underdrains, 707.01 Type III or 707.12*

DRAINAGE SUMMARY

CALCULATED BY: C.B. DATE: 1-15-71
CHECKED BY: H.C.S. DATE: 1-12-72

FED.RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

37/713

CUYAHOGA COUNTY
CUY 90-10.40

QUANTITY SUMMARY

PAVEMENT AND SANITARY SEWER

ITEM	29	30	31	32	34	67	71	73	75	77	80	I-90-1(50)19			DESCRIPTION
												ITEM	QUANTITY	UNIT	
															SANITARY SEWER *TYPE CODE Y060*
		200										603	200	LIN. FT.	6" CONDUIT TYPE B 706.08 WITH 706.12 JOINTS
								275				603	275	LIN. FT.	27" CONDUIT TYPE B 706.02 OR 706.08 WITH 706.11 OR 706.12 JOINTS
							165					603	165	LIN. FT.	12" CONDUIT TYPE B 706.08 WITH 706.12 JOINTS
						90	169				254	603	513	LIN. FT.	15" CONDUIT TYPE B 706.08 WITH 706.12 JOINTS
							60	273				603	333	LIN. FT.	30" CONDUIT TYPE B 706.02 OR 706.08 WITH 706.11 OR 706.12 JOINTS
								273				603	273	LIN. FT.	36" CONDUIT TYPE B 706.02 OR 706.08 WITH 706.11 OR 706.12 JOINTS
						100				304	157	603	561	LIN. FT.	42" CONDUIT TYPE B 706.02 WITH 706.11 JOINTS
									837			603	837	LIN. FT.	42" CONDUIT TYPE B 706.02 CLASS IV WITH 706.11 JOINTS
											283	603	283	LIN. FT.	48" CONDUIT TYPE B 706.02 WITH 706.11 JOINTS
							1213					603	1213	LIN. FT.	48" CONDUIT TYPE B 706.02 CLASS III WITH 706.11 JOINTS
											367	603	367	LIN. FT.	54" CONDUIT TYPE B 706.02 WITH 706.11 JOINTS
							301					603	301	LIN. FT.	21" CONDUIT TYPE C 706.02 OR 706.08 E.S. WITH 706.11 OR 706.12 JOINTS
							581					603	581	LIN. FT.	30" CONDUIT TYPE C 706.02 CLASS III OR 706.08 E.S. WITH 706.11 OR 706.12 JOINTS
								289				603	289	LIN. FT.	36" CONDUIT TYPE C 706.02 CLASS III OR 706.08 E.S. WITH 706.11 OR 706.12 JOINTS
								186		542		603	728	LIN. FT.	42" CONDUIT TYPE C 706.02 CLASS III WITH 706.11 JOINTS
									648	280		603	928	LIN. FT.	42" CONDUIT TYPE C 706.02 CLASS IV WITH 706.11 JOINTS
									3	2		604	5	EACH	STANDARD Nº 1-A MANHOLE/DROP PIPE/706.11 JOINTS, MODIFIED, AS PER PLAN
						4	10	9	6	5	14	604	48	EACH	STANDARD Nº 1-A MANHOLE WITH 706.11 JOINTS, MODIFIED AS PER PLAN
							1					604	1	EACH	JUNCTION CHAMBER *No. 1 with 706.11 joints*
							1					604	1	EACH	JUNCTION CHAMBER *No. 2 with 706.11 joints*
							1					604	1	EACH	JUNCTION CHAMBER *No. 3 with 706.11 joints*
											1	604	1	EACH	JUNCTION CHAMBER *No. 4 with 706.11 joints*
															PAVEMENT TYPE CODE 7223
					17,746							301	17,746	CU. YDS.	BITUMINOUS AGGREGATE BASE; 702.01 *AC-20; OR 702.09, RT-11 OR RT-12*
					179							304	179	CU. YDS.	AGGREGATE BASE
					9,600							305	9,600	SQ. YDS.	8" PORTLAND CEMENT CONCRETE BASE
					10,372							310	10,372	CU. YDS.	SUBBASE GRADING "A", AS PER PLAN
					629							402	629	CU. YDS.	ASPHALT CONCRETE *AC-20*
					946							404	946	CU. YDS.	ASPHALT CONCRETE *AC-20*
					52							404	52	CU. YDS.	ASPHALT CONCRETE *AC-20 (DRIVEWAYS)*
					919							407	919	GALS.	TACK COAT; 702.02 *, RC-250; OR 702.04, SS-1, SS-1H, MS-2 OR RS-1*
					27							407	27	TONS	COVER AGGREGATE
					274							408	274	GALS.	BITUMINOUS PRIME COAT; *702.02, MC-30 OR MC-70; 702.03, Primer 20; OR 702.09, RT-2 OR RT-3*
					22,823							451	22,823	SQ. YDS.	8" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
					52,253							451	52,253	SQ. YDS.	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
					68,207							451	68,207	SQ. YDS.	10" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
					1,710							452	1,710	SQ. YDS.	6" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT
					20,033							609	20,033	LIN. FT.	CONCRETE CURB, STANDARD TYPE 2-A
					7,318							609	7,318	LIN. FT.	CONCRETE CURB, STANDARD TYPE 2-B
					16,096							609	16,096	LIN. FT.	CONCRETE CURB, STANDARD TYPE 6
					595							609	595	LIN. FT.	CONCRETE CURB, STANDARD TYPE 7
					802							609	802	LIN. FT.	CONCRETE CURB, STANDARD TYPE 8
					568							609	568	LIN. FT.	SANDSTONE CURB, AS PER PLAN
				576								*SPECIAL*	*576*	*LIN. FT.*	*PRESSURE RELIEF JOINT, TYPE A*
					2,249							611	2,249	SQ. YDS.	REINFORCED CONCRETE APPROACH SLABS *(T = 15")*
					953							611	953	SQ. YDS.	REINFORCED CONCRETE APPROACH SLABS *(T = 17")*
					675							612	675	SQ. YDS.	CONCRETE MEDIAN
					446							612	446	SQ. YDS.	4" CONCRETE MEDIAN, AS PER PLAN
					1,359							612	1,359	SQ. YDS.	9" CONCRETE TRAFFIC ISLAND
					12,646							622	12,646	LIN. FT.	CONCRETE BARRIER, *TYPE B, MODIFIED AS PER PLAN*
					17							SPECIAL	17	CU. YDS.	DRAINAGE CONNECTION, USING Nº 8 AGGREGATE
			LUMP									614	LUMP	LUMP	MAINTAINING TRAFFIC
	LUMP											619	LUMP	LUMP	FIELD OFFICE
	LUMP											623	LUMP	LUMP	CONSTRUCTION LAYOUT STAKES

CALCULATED BY: F.A.E. DATE: 1-20-71
CHECKED BY: H.C.S. DATE: 1-20-72

PAVEMENT & SANITARY SEWER SUMMARY

P16

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

37A/713

CUYAHOGA COUNTY
CUY-90-10.40

I-90-1(50)19

TYPE CODE 7223

ITEM	QUANT.	UNIT	DESCRIPTION
			BUILDING REMOVAL
			~~Parcel No. [illegible]-WL-T, removal of one 1-story frame residence with attached garage~~
202	lump	lump	Parcel No. 4502-WL-T, removal of one 2-car frame garage
202	lump	lump	Parcel No. 4503-WL-T, removal of one 2-car frame garage
			~~Parcel No. [illegible]-WL-T, removal of one 2-car frame garage and carport~~
			~~Parcel No. [illegible]-WL, removal of one 1-car frame garage~~
			~~Parcel No. [illegible]-WL, removal of one 1½-story brick residence~~
			~~Parcel No. [illegible]-WD-T, removal of one 2½ story frame residence, one 2-car frame garage~~
202	lump	lump	Parcel No. 4622-WL-T, removal of one 1-car frame garage
202	lump	lump	Parcel No. 4624-WL, removal of one 1-car frame garage
			~~Parcel No. [illegible]-WL, removal of one 1-story [illegible] commercial building~~
202	lump	lump	Parcel No. 4660-WL-T, removal of one 1-story block commercial building
			~~Parcel No. [illegible]-WD-T, removal of one 1½-story frame residence, one 2-car frame garage~~
			~~Parcel No. [illegible]-WD-T, removal of one 2-story frame residence~~
202	lump	lump	Parcel No. 4780-WL, removal of one 1-story brick commercial building
			~~Parcel No. [illegible]-WL, removal of one 1-story brick commercial building~~
			~~Parcel No. [illegible]-WL, removal of one 1-story brick building, one 2-story brick building, one 2-car block and brick building~~
202	lump	lump	Parcel No. 4783-WL, removal of one 1-story concrete block building
202	lump	lump	Parcel No. 4784-WL, removal of two 1-story concrete block buildings
			~~Parcel No. [illegible]-WL, removal of one 1-story block and stone building, one 1-story brick building, one frame shed~~
			~~Parcel No. [illegible]-WL, removal of one 1½-story [illegible] brick residence, one 2-car frame garage~~
202	lump	lump	Parcel No. 4820-WL-T, removal of one 1-story brick commercial building
			~~Parcel No. [illegible]-WL-T, removal of one 1-story block building~~
202	lump	lump	Parcel No. 4865-WL, removal of one 2-car frame garage
202	lump	lump	Parcel No. 4866-WL-T, removal of one 2-car frame garage
			~~Parcel No. [illegible]-WD, removal of one 1½-story frame residence, one 1-car frame garage~~
			~~Parcel No. [illegible]-WD, removal of one 2-story frame residence, one 2-car frame garage~~
202	lump	lump	Parcel No. 5061-WD, removal of one 1½-story frame residence, one 1-car frame garage
			~~Parcel No. [illegible]-WD, removal of one 2½-story frame residence, one 1-car frame garage~~
			~~Parcel No. [illegible]-WL, removal of one 2½-story frame residence, one 1½-car frame garage~~
202	lump	lump	Parcel No. 5505-WL-T, removal of part of one 1-story brick building with two 1-story frame attachments, one 1-story frame equipment building, partial removal of canopy
			~~Parcel No. [illegible]-WL, removal of one 2-story frame residence, one 1-car frame garage~~
			~~Parcel No. [illegible]-WD-T, removal of one 2½-story frame residence, one 2-car frame garage~~
			~~Parcel No. [illegible]-WD-T, removal of one 2½-story frame residence~~
202	lump	lump	Parcel No. 5778-WL, removal of one 2½-story frame residence, one 2-car brick garage
			~~Parcel No. [illegible]-WL, removal of one 2½-story frame residence, one 1½-car frame garage~~
202	lump	lump	Parcel No. 5860-WD-T, removal of one 2½-story frame residence, one 2-car frame garage
202	lump	lump	Parcel No. 5877-WD-T, removal of one 3-car frame garage
			~~Parcel No. [illegible]-WL-T, removal of one 2½-story frame apartment building~~
202	lump	lump	Parcel No. 5895-WL-T, removal of one 2-car frame garage
202	lump	lump	Parcel No. 5896-WL-T, removal of one 2-car frame garage
202	lump	lump	Parcel No. 5897-WL-T, removal of one 2-car frame garage
202	lump	lump	Parcel No. 5898-WL-T, removal of one 1½-car frame garage
202	lump	lump	Parcel No. 5899-WL-T, removal of one 1½-car frame garage
202	lump	lump	Parcel No. 5900-WL-T, removal of one 1-car frame garage
202	lump	lump	Parcel No. 5901-WD-T, removal of one 1-car frame garage
202	lump	lump	Parcel No. 5902-WL-T, removal of one 3-car block garage
202	lump	lump	Parcel No. 5912-WD-T, removal of one 2-car frame garage

Rev. 9-3-75

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

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CUYAHOGA COUNTY
CUY-90-10.40

JOINT LEGEND

Ⓐ LONGITUDINAL JOINT
Ⓑ LONGITUDINAL JOINT WITHOUT TIE BARS (SEE STANDARD DRAWING BP-9)
Ⓒ EXPANSION JOINT (SEE NOTE 2 STANDARD DRAWING BP-9)
Ⓓ CONTRACTION JOINT (SEE NOTE 2 STANDARD DRAWING BP-9)
Ⓔ KEY JOINT WITHOUT TIE BARS

PAVEMENT PLANS ~ STA. 720+00 TO STA. 726+00

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

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CUYAHOGA COUNTY
CUY-90-10.40

PAVEMENT PLANS
STA. 726+00 TO STA. 732+00 LT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

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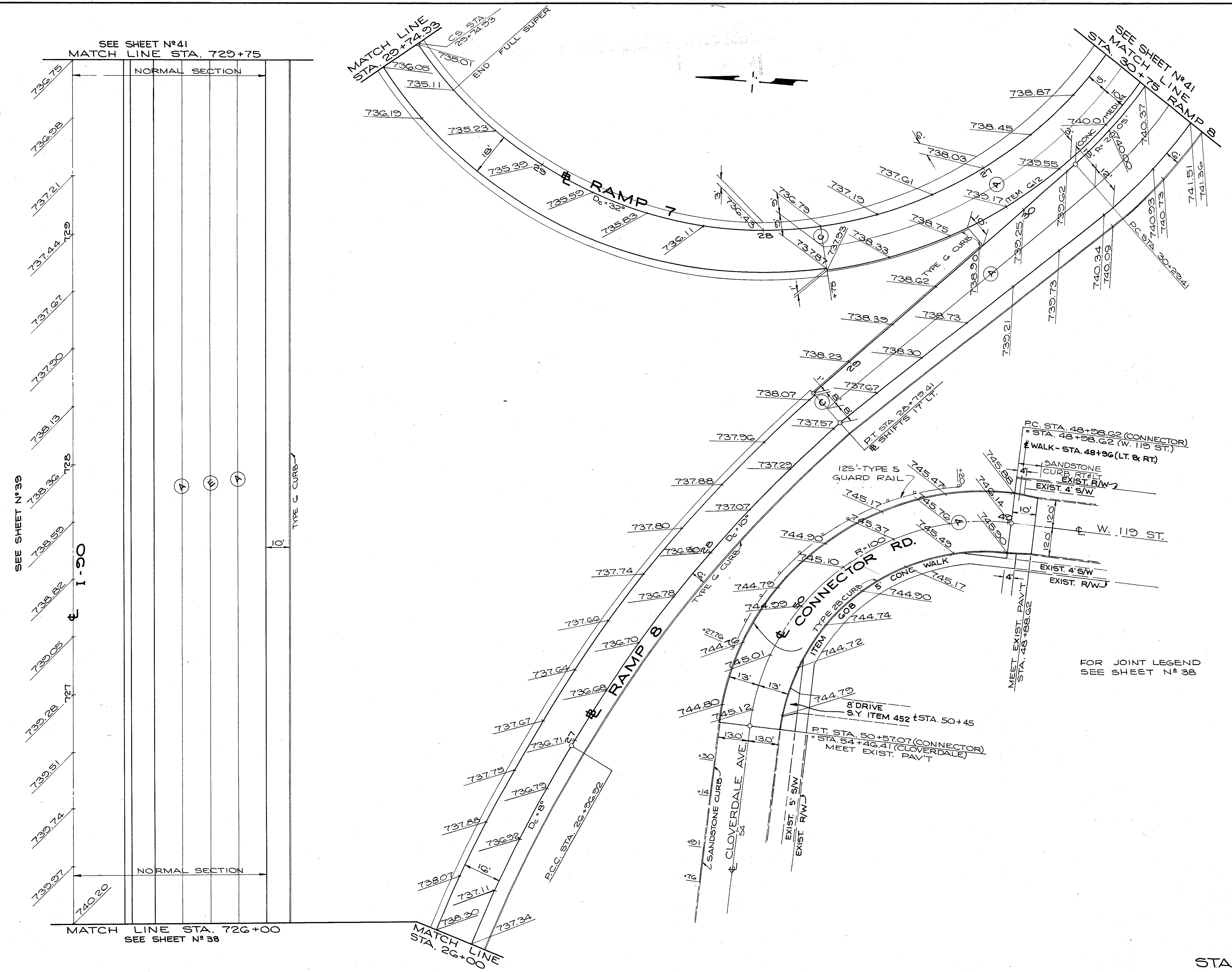
CUYAHOGA COUNTY
CUY-90-10.40



FOR JOINT LEGEND
SEE SHEET No 38

PAVEMENT PLANS
STA.726+00 TO STA.729+75 RT.

FORM DD A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

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CUYAHOGA COUNTY
CUY-90-10.40

W. 117 ST. & RAMP Nº8 RETURN DATA

N.W. RETURN

Δ = 14°08'56"
R = 50.00'
T = 6.21'
Lc = 12.35'
E = 0.38'
P.C. STA. 33+35.18 (RAMP 8)
P.C.C. STA. 33+47.40 (1.52' LT. ℄ RAMP 8)

Δ = 78°19'58"
R = 5.00'
T = 4.07'
Lc = 6.84'
E = 1.45'
P.T. STA. 43+95.54 (42' LT ℄ W. 175 ST.)

S.W. RETURN

Δ = 90°00'00"
R = 50.00'
T = 50.00'
Lc = 78.54'
E = 20.71'
P.C. STA. 33+01.18 (RAMP 8)
P.T. STA. 43+07.96 (W. 117 ST.)

FOR JOINT LEGEND SEE SHEET Nº 38

FOR DETAILS OF STREET TERMINATION SEE SHEET Nº 257

PAVEMENT PLANS
STA. 729+75 TO STA. 733+50 RT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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CUYAHOGA COUNTY
CUY-90-10.40

FOR JOINT LEGEND SEE SHEET No 38

PAVEMENT PLANS
STA. 732+00 TO STA. 734+75 LT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

ARDEN AVE.
CUL-DE-SAC TYPICAL SECTION

ARDEN AVE.
CUL-DE-SAC
CURVE DATA

CURVE "A"	CURVE "B"
Δ = 71°02'04"	Δ = 161°02'04"
R = 40.00'	R = 40.00'
T = 28.55'	T = 239.47'
Lc = 49.59'	Lc = 112.42'
E = 9.41'	E = 202.73'

⑤	ITEM 310	SUBBASE, GRADING "A", AS PER PLAN
㉖	ITEM 451	8" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
㉗	ITEM 609	CONCRETE CURB STANDARD TYPE 2A
⑥	ITEM 660	SODDING

PAVEMENT PLANS
W. 117th ST. South.
STA. 40+00 TO STA. 44+00

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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CUYAHOGA COUNTY
CUY-90-10.40

RETURN FROM W.117 ST. TO CONNECTOR

CURVE "A"
Δ=36° 52' 12"
R=100.00'
T=33.33'
L=64.35'
E=5.41'
P.C. STA. 62+68.64 (17' RT. ℄ CONNECTOR)
P.C.C. STA. 63+44.98 (25.83' RT. ℄ CONNECTOR)

CURVE "B"
Δ=106° 15' 37"
R=50.00'
T=66.67'
L=92.73'
E=33.33'
P.C.C. STA. 63+44.98 (25.83' RT. ℄ CONNECTOR)
P.C.C. STA. 57+00.76 (74' LT. ℄ W. 117 ST.)

CURVE "C"
Δ=36° 52' 12"
R=100.00'
T=33.33'
L=64.35'
E=5.41'
P.C.C. STA. 57+00.76 (74' LT. ℄ W. 117 ST.)
P.T. STA. 56+40.76 (54' LT. ℄ W. 117 ST.)

FOR JOINT LEGEND SEE SHEET Nº 38

PAVEMENT PLANS
W. 117th ST.
STA. 55+00 TO STA. 63+00

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

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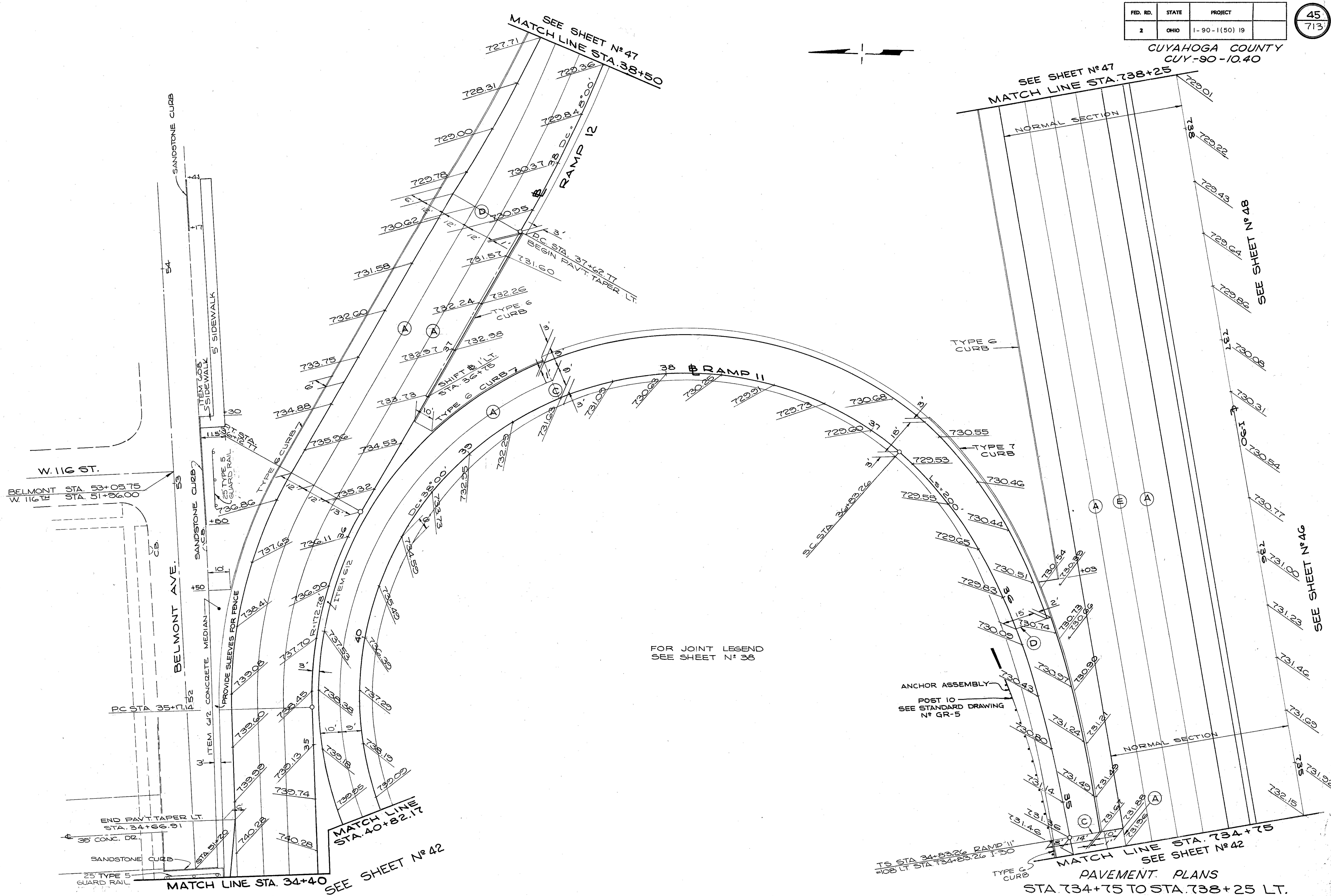
713

CUYAHOGA COUNTY
CUY.-90-10.40



PAVEMENT PLANS
STA.734+75 TO STA.738+25 LT.

FORM DD A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

℄ CUL-DE-SAC
CURVE DATA

Δ = 73°19'35"
Dc = 79°01'22"
R = 72.51'
T = 53.97'
Lc = 92.79'
E = 17.88'
P.I. STA. 43+78.64
P.T. STA. 51.20' RT. ℄ EXIST.
W. 116 ST. STA. 43+94.13

CUL-DE-SAC RETURN DATA

E. RETURN	N.W. RETURN	S.E. RETURN
Δ = 237°59'09"	Δ = 39°09'20"	Δ = 97°08'29"
R = 40.00'	R = 150.00'	R = 30.00'
Lc = 166.15'	T = 53.35'	T = 33.99'
RADIUS POINT 51.20' RT. ℄ EXIST. W. 116 ST. STA. 43+94.13	Lc = 102.51'	Lc = 50.86'
	E = 9.20'	E = 15.34'

PAVEMENT PLANS
STA. 733+50 TO STA. 737+25 RT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

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CUYAHOGA COUNTY
CUY-90-10.40

⑤ ITEM 310 SUBBASE GRADING "A" AS PER PLAN

⑧ ITEM 452 6" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT

⑥ ITEM 660 SODDING

FOR JOINT LEGEND SEE SHEET No 38

PAVEMENT PLANS
STA. 738+25 TO STA. 744+00 LT.

FORM DD A-6

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

PAVEMENT PLANS
STA. 737+25 TO STA. 743+50 RT.

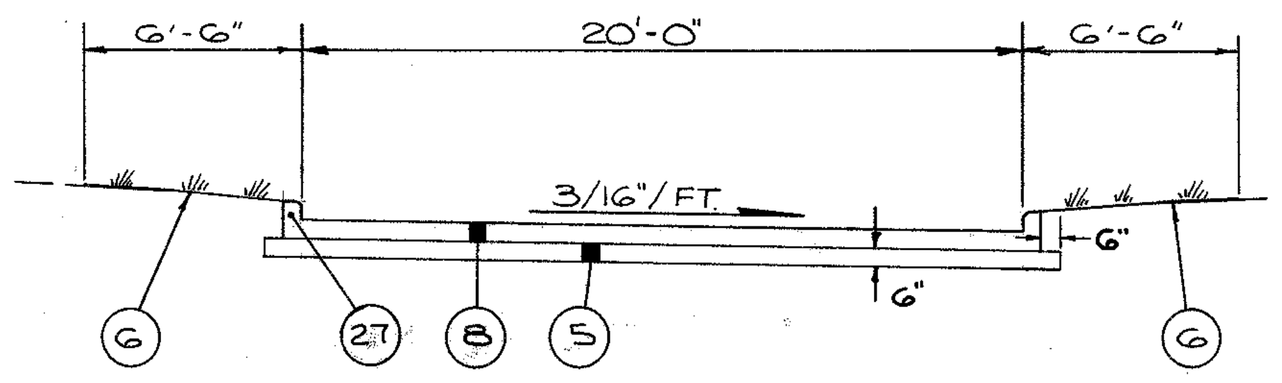
FORM D D A-8

FED. RD.	STATE	PROJECT		
2	OHIO	I-90-I(50)19		

CUYAHOGA COUNTY
CUY-90-10.40

W. 112 STREET TURNAROUND

SECTION A-A



(5) ITEM 310 SUBBASE GRADING "A" AS PER PLAN

(8) ITEM 452 6" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT

(27) ITEM 609 CURB, TYPE 2-A

(6) ITEM 660 SODDING

FOR JOINT LEGEND SEE SHEET Nº 38

FOR DETAILS OF STREET TERMINATION SEE SHEET Nº 297

PAVEMENT PLANS
STA. 744+00 TO STA. 750+00 LT.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

W. 112 ST. RETURN DATA

S.W. RETURN	S.E. RETURN
Δ = 98°26'02"	Δ = 81°33'58"
R = 30.00'	R = 30.00'
T = 34.78'	T = 25.88'
Lc = 51.54'	Lc = 42.71'
E = 15.93'	E = 9.62'
P.C. STA. 45+39.56 (FRONTAGE Nº 1)	P.C. STA. 46+01.48 (W. 112 ST.)
P.T. STA. 45+88.73 (W. 112 ST.)	P.T. STA. 46+26.50 (FRONTAGE Nº 1)

FOR JOINT LEGEND
SEE SHEET Nº 38

PAVEMENT PLANS
STA. 743+50 TO STA. 750+00 RT.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

51
713

CUYAHOGA COUNTY
CUY-90-10.40

FOR JOINT LEGEND
SEE SHEET Nº 38

PAVEMENT PLANS
STA. 750+00 TO STA. 756+50

FORM DD A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

52
713

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA-W.106 PL.

N.E. RETURN
Δ = 105° 52' 22"
R = 22.00'
T = 29.13'
Lc = 40.65'
E = 14.50'
P.C. STA. 50+00.00 (W. 106 PL.)
P.T. STA. 50+55.43 (REL. W. 106 PL.)

CURB RETURN DATA-N. FRONTAGE RD. Nº 2

N.E. RETURN
Δ = 108° 17' 21"
R = 62.00'
T = 85.79'
Lc = 117.18'
E = 43.85'
P.C. STA. 61+00.79 (122' LT. ℄ FRONTAGE RD. Nº 2)
P.T. STA. 62+41.24 (14' LT. ℄ FRONTAGE RD. Nº 2)

S.E. RETURN "A"
Δ = 118° 09' 14"
R = 15.00'
T = 25.04'
Lc = 30.93'
E = 14.19'
P.C. STA. 51+67.18 (W. 105 ST.)
P.R.C. STA. 61+81.87 (13.32' RT. ℄ FRONTAGE RD. Nº 2)

S.E. RETURN "B"
Δ = 46° 26' 35"
R = 88.00'
T = 37.76'
Lc = 71.33'
E = 7.76'
P.R.C. STA. 61+81.87 (13.32' RT. ℄ FRONTAGE RD. Nº 2)
P.T. STA. 62+42.26 (14' RT. ℄ FRONTAGE RD. Nº 2)

FOR JOINT LEGEND
SEE SHEET Nº 38

Rev. 8-21-75

PAVEMENT PLANS
STA. 756+50 TO STA. 762+50 LT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA-W.106 ST.

N.E. RETURN.
Δ = 102°54'40"
R = 30.00'
T = 37.66'
Lc = 53.88'
E = 18.14'
P.C. STA. 38+80.23 (FRONTAGE RD. Nº 3)
P.T. STA. 47+39.08 (W. 106 ST.)

S.E. RETURN.
Δ = 77°05'20"
R = 30.00'
T = 23.90'
Lc = 40.36'
E = 8.36'
P.C. STA. 46+48.80 (W. 106 ST.)
P.T. STA. 38+60.05 (FRONTAGE RD. Nº 3)

CURB RETURN DATA - W.105 ST.

S.W. RETURN.
Δ = 102°54'54"
R = 30.00'
T = 37.66'
Lc = 53.89'
E = 18.15'
P.C. STA. 40+54.64 (FRONTAGE RD. Nº 3)
P.T. STA. 46+92.33 (W. 105 ST.)

S.E. RETURN.
Δ = 77°05'06"
R = 30.00'
T = 23.90'
Lc = 40.36'
E = 8.36'
P.C. STA. 47+11.68 (W. 105 ST.)
P.T. STA. 41+41.23 (FRONTAGE RD. Nº 3)

FOR JOINT LEGEND
SEE SHEET Nº 38

PAVEMENT PLANS
STA. 756+50 TO STA. 762+50 RT.

FORM D.D. A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

54
713

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA-W.105 ST.

N.E. RETURN	S.E. RETURN
Δ=108°17'21"	Δ=46°26'35"
R= 62.00'	R= 88.00'
T= 85.79'	T= 37.76'
Lc= 117.18'	Lc= 71.33'
E= 43.85'	E= 7.76'
P.C. STA. 61+00.79 (12.2' LT. ℄ FRONTAGE RD. Nº 2)	P.R.C. STA. 61+81.87 (13.32 RT. ℄ FRONTAGE RD. Nº 2)
P.T. STA. 62+41.24 (14' LT. ℄ FRONTAGE RD. Nº 2)	P.T. STA. 62+42.26 (14' RT. ℄ FRONTAGE RD. Nº 2)

CURB RETURN DATA-W.104 ST.

N.W. RETURN.	N.E. RETURN.
Δ=71°42'34"	Δ=108°17'26"
R= 25.00'	R= 30.00"
T= 18.07'	T= 41.51'
Lc= 31.29'	Lc= 56.70'
E= 5.84'	E= 21.22'
P.C. STA. 52+72.15 (W. 104 ST.)	P.C. STA. 64+77.96 (FRONTAGE RD. Nº 2)
P.T. STA. 63+93.10 (FRONTAGE RD. Nº 2)	P.T. STA. 53+03.52 (W. 104 ST.)

PAVEMENT PLANS
STA. 762+50 TO STA. 769+00 LT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

55
713

CUYAHOGA COUNTY
CUY-90-10.40

FOR JOINT LEGEND
SEE SHEET Nº 38

CURB RETURN DATA
W. 104 ST. AT S. FRONTAGE RD#3

S.W. RETURN
Δ = 102° 54' 59"
R = 30.00'
T = 37.66'
Lc = 53.89'
E = 18.15'
P.C. STA. 43+28.76 (FRONT'G #3)
P.T. STA. 47+53.65 (W. 104 ST.)

S.E. RETURN
Δ = 77° 05' 01"
R = 30.00'
T = 23.90'
Lc = 40.36'
E = 8.36'
P.C. STA. 47+72.91 (W. 104 ST.)
P.T. STA. 44+14.94 (FRONT'G #3)

PAVEMENT PLANS
STA. 762+50 TO STA. 768+50 RT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	1-90-1(50) 19	

56
713

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA-W. BLVD. AT MARGINAL RD. Nº 4

N.E. RETURN
Δ= 115°28'28"
R= 30.00'
T= 47.52'
Lc= 60.46'
E= 26.20'
P.C. STA. 50+89.64 (MARGINAL RD. Nº 4)
P.T. STA. 46+10.93 (WEST BLVD.)

CURB RETURN DATA-WEST BLVD. AT WESTERN AVE.

N.E. RETURN
Δ= 89°59'29"
R= 30.00'
T= 30.00'
Lc= 47.12'
E= 12.42'
P.C. STA. 62+27.33 (WESTERN AVE.)
P.T. STA. 50+54.99 (W. BLVD.)

N.W. RETURN
Δ= 90°00'31"
R= 30.00'
T= 30.00'
Lc= 47.13'
E= 12.43'
P.C. STA. 50+55.01 (W. BLVD.)
P.T. STA. 61+03.33 (WESTERN AVE.)

S.E. RETURN
Δ= 90°00'31"
R= 30.00'
T= 30.00'
Lc= 47.13'
E= 12.43'
P.C. STA. 49+44.99 (W. BLVD.)
P.T. STA. 62+27.35 (WESTERN AVE.)

S.W. RETURN
Δ= 89°59'29"
R= 30.00'
T= 30.00'
Lc= 47.12'
E= 12.42'
P.C. STA. 61+03.35 (WESTERN AVE.)
P.T. STA. 49+45.01 (W. BLVD.)

CURB RETURN DATA-W. 103 ST. AT WESTERN AVE.

N.E. RETURN
Δ= 90°00'10"
R= 30.00'
T= 30.00'
Lc= 47.13'
E= 12.43'
P.C. STA. 58+65.06 (WESTERN AVE.)
P.T. STA. 58+83.29 (W. 103 ST.)

S.E. RETURN
Δ= 89°59'50"
R= 30.00'
T= 30.00'
Lc= 47.12'
E= 12.43'
P.C. STA. 57+73.29 (W. 103 ST.)
P.T. STA. 58+65.06 (WESTERN AVE.)

PAVEMENT PLANS
WEST BLVD.
STA. 45+70 TO STA. 54+50

FED. RD.	STATE	PROJECT	
2	OHIO	1-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

CURB RETURN DATA-W. BLVD. AT MARGINAL RD. Nº 4

S.E. RETURN

Δ=64°31'32"
R= 5.00'
T= 3.16'
Lc= 5.63'
E= 0.91'
P.C. STA. 45+29.24 (W. BLVD.)
P.T. STA. 50+31.93 (MARGINAL RD. Nº 4)

N.E. RETURN.

Δ=115°28'28"
R= 30.00'
T= 47.52'
Lc= 60.46'
E= 26.20'
P.C. STA. 50+89.64 (MARGINAL RD. Nº 4)
P.T. STA. 46+10.93 (W. BLVD.)

CURB RETURN DATA-RAMP Nº 13 AT W. BLVD.

N.W. RETURN

Δ=70°00'00"
R= 50.00'
T= 35.01'
Lc= 61.09'
E= 11.04'
P.C. STA. 45+62.41 (W. BLVD.)
P.T. STA. 70+96.92 (RAMP Nº 13)

S.W. RETURN.

Δ=36°47'25"
R= 50.00'
T= 16.63'
Lc= 32.11'
E= 2.69'
P.C. STA. 70+85.48 (RAMP Nº 13)
P.C.C. STA. 71+11.92 (28.96 RT. ℄ RAMP Nº 13)

Δ=73°12'35"
R= 5.00'
T= 3.71'
Lc= 6.39'
E= 1.23'
P.C.C. STA. 71+11.92 (28.96' RT. ℄ RAMP Nº 13)
P.T. STA. 44+84.12 (W. BLVD.)

PRESSURE RELIEF JOINTS

Install Type A pressure relief joints at the locations shown hereon as per Std. Dwg. BP-10. For Quantities See Sht. No. 32

FOR JOINT LEGEND
SEE SHEET Nº 38

CURB RETURN DATA - W. BLVD. AT RAMP Nº 14

S.W. RETURN

Δ=101°30'00"
R= 50.00'
T= 61.20'
Lc= 88.58'
E= 29.03'
P.C. STA. 69+41.50 (RAMP Nº 14)
P.T. STA. 39+93.92 (W. BLVD.)

N.W. RETURN.

Δ=16°19'05"
R= 50.00'
T= 7.17'
Lc= 14.24'
E= 0.51'
P.C. STA. 69+93.05 (RAMP Nº 14)
P.C.C. STA. 70+07.10 (29.01' LT. ℄ RAMP Nº 14)

Δ=62°10'55"
R= 5.00'
T= 3.02'
Lc= 5.43'
E= 0.84'
P.C.C. STA. 70+07.10 (29.01' LT. ℄ RAMP Nº 14)
P.T. STA. 40+94.73 (W. BLVD.)

PAVEMENT PLANS

STA. 768+50 TO STA. 772+25

FED. RD.	STATE	PROJECT
2	OHIO	I-90-I(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA - W. 101 ST. AT WESTERN AVE.

N.W. RETURN
Δ = 89°18'28"
R = 30.00'
T = 29.64'
Lc = 46.76'
E = 12.17'
P.C. STA. 55+04.72 (W. 101 ST.)
P.T. STA. 64+85.12 (WESTERN AVE.)

N.E. RETURN
Δ = 90°41'32"
R = 30.00'
T = 30.36'
Lc = 47.49'
E = 12.69'
P.C. STA. 65+71.13 (WESTERN AVE.)
P.T. STA. 55+05.76 (W. 101 ST.)

S.W. RETURN
Δ = 90°14'32"
R = 30.00'
T = 30.36'
Lc = 47.49'
E = 12.69'
P.C. STA. 64+83.79 (WESTERN AVE.)
P.T. STA. 53+94.72 (W. 101 ST.)

S.E. RETURN
Δ = 89°18'28"
R = 30.00'
T = 29.64'
Lc = 46.76'
E = 12.17'
P.C. STA. 53+95.76 (W. 101 ST.)
P.T. STA. 65+69.80 (WESTERN AVE.)

CURB RETURN DATA - WESTERN AVE. AT W. 100 ST. & RELOC. W. 100 ST.

N.W. RETURN
Δ = 87°42'04"
R = 30.00'
T = 28.82'
Lc = 45.92'
E = 11.60'
P.C. STA. 50+53.32 (W. 100 ST.)
P.T. STA. 67+69.84 (WESTERN AVE.)

S.W. RETURN
Δ = 45°49'28"
R = 100.00'
T = 42.27'
Lc = 79.98'
E = 8.57'
P.C. STA. 67+32.03 (WESTERN AVE.)
P.T. STA. 150+63.52 (REL. W. 100 ST.)

CURB RETURN DATA - W. 101 ST. AT N. MARGINAL RD. Nº 4

N.W. RETURN
Δ = 63°49'29"
R = 30.00'
T = 18.68'
Lc = 33.42'
E = 5.34'
P.C. STA. 51+81.62 (W. 101 ST.)
P.T. STA. 53+70.81 (N. MARGINAL RD. Nº 4)

N.E. RETURN
Δ = 116°10'31"
R = 30.00'
T = 48.17'
Lc = 60.83'
E = 26.75'
P.C. STA. 54+66.64 (N. MARGINAL RD. Nº 4)
P.T. STA. 52+23.89 (W. 101 ST.)

FOR JOINT LEGEND
SEE SHEET Nº 38

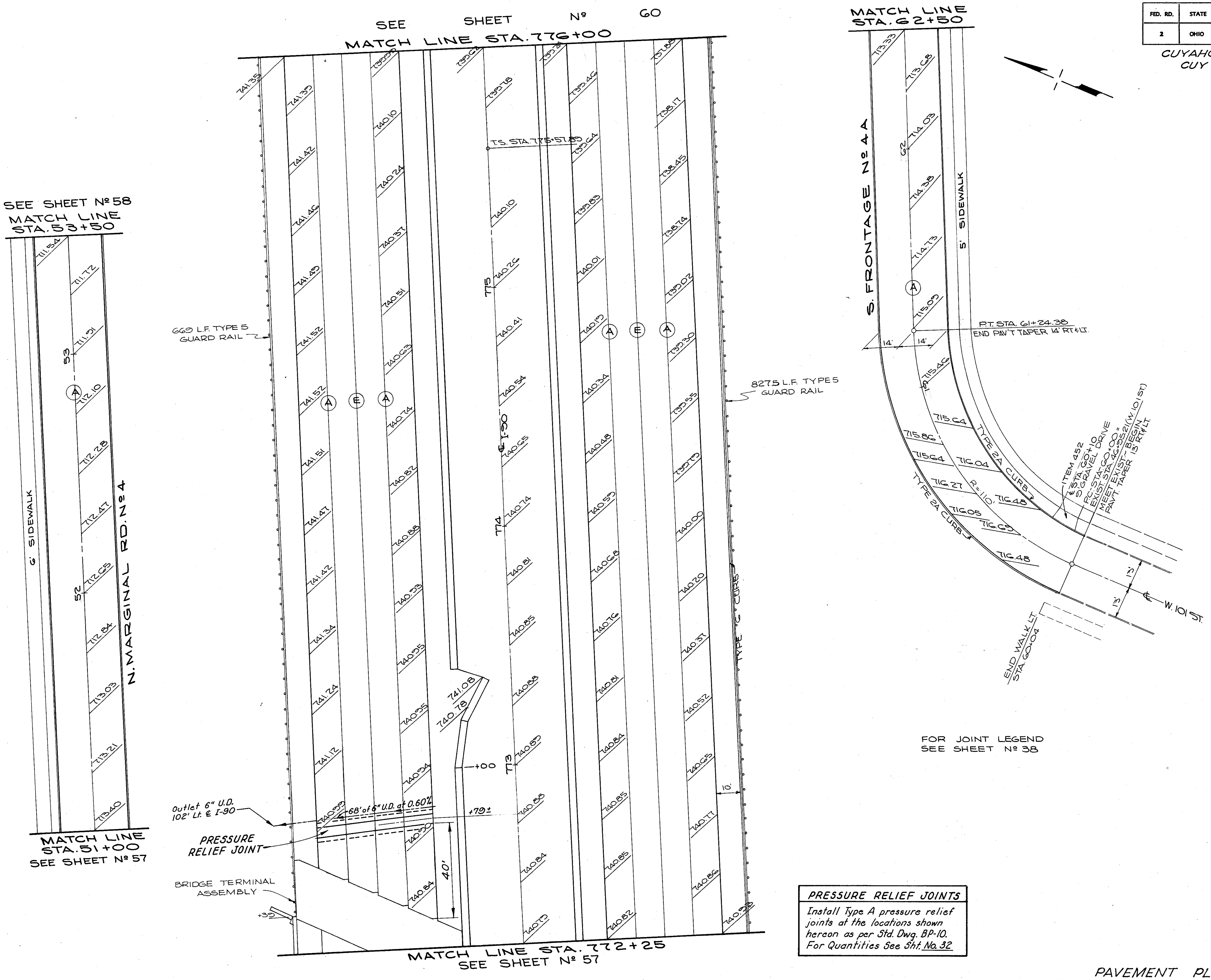
PAVEMENT PLANS
WESTERN AVE.
STA. 61+65 TO STA. 68+10.67

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

59
713

CUYAHOGA COUNTY
CUY-90-10.40



FOR JOINT LEGEND
SEE SHEET Nº 38

PRESSURE RELIEF JOINTS

Install Type A pressure relief joints at the locations shown hereon as per Std. Dwg. BP-10. For Quantities See Sht. No. 32

PAVEMENT PLANS
STA. 772+25 TO STA. 776+00

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

60
713

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA-W.100 ST. AT S. FRONTAGE RD. Nº 4A

S.W. RETURN
Δ = 114°43'00"
R = 30.00'
T = 46.83'
Lc = 60.07'
E = 25.62'
P.C. STA. 62+90.50 (S. FRONTAGE RD. Nº 4A)
P.T. STA. 43+72.23 (W. 100 ST.)

S.E. RETURN
Δ = 65°17'00"
R = 30.00'
T = 19.22'
Lc = 34.18'
E = 5.63'
P.C. STA. 44+11.95 (W. 100 ST.)
P.T. STA. 63+85.50 (S. FRONTAGE RD. Nº 4A)

PRESSURE RELIEF JOINTS

Install Type A pressure relief joints at the locations shown hereon as per Std. Dwg. BP-10 For Quantities, See Sht. No. 32

PAVEMENT PLANS
STA. 776+00 TO STA. 782+00

FORM D D A-8

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50) 19

61
713

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA-WESTERN AVE. EXT'D. AT W.100 ST. & REL.W.100 ST.

N.E.RETURN
Δ=91°51'39"
R=30.00'
T=31.42'
Lc=48.51'
E=13.44'
P.C.STA.68+56.06(WESTERN AVE.EXT'D.)
P.T.STA.50+56.45(W.100 ST.)

S.E.RETURN
Δ=46°28'28"
R=50.00'
T=21.47'
Lc=40.56'
E=4.41
P.C.STA.150+82.79(REL.W.100 ST.)
P.C.C.STA.49+87.74(13'RT.℄ W.100 ST.)
Δ=88°08'21"
R=10.00'
T=9.68'
Lc=15.38'
E=3.92'
P.C.C.STA.49+87.74(13'RT.℄ W.100 ST.)
P.T.STA.68+33.34(WESTERN AVE. EXT'D.)

CURB RETURN DATA-W.98 ST. AT N.MARGINAL RD.№4

N.W.RETURN
Δ=90°11'31"
R=30.00'
T=30.10'
Lc=47.22'
E=12.50'
P.C.STA.49+15.29(W.98 ST.)
P.T.STA.73+38.30(WESTERN AVE.EXT'D.)

S.W.RETURN
Δ=94°52'26"
R=15.00'
T=16.33'
Lc=24.84'
E=7.18'
P.C.STA.62+78.50(N.MARGINAL RD.№4)
P.T.STA.48+25.28(W.98 ST.)

CURB RETURN DATA-W.98 ST. AT NICHOLAS AVE.

S.W.RETURN
Δ=91°34'10"
R=15.00'
T=15.42'
Lc=23.97'
E=6.51'
P.C.STA.49+58.24(NICHOLAS AVE.)
P.T.STA.49+71.87(W.98 ST.)

CURB RETURN DATA-RELOC. 100 ST. AT N.MARGINAL RD.№4

N.W.RETURN
Δ=108°41'33"
R=50.00'
T=69.70'
Lc=94.85'
E=35.78'
P.C.STA.150+81.76(REL.100 ST.)
P.T.STA.57+11.99(N.MARGINAL RD.№4)

S.W.RETURN
Δ=69°57'34"
R=15.00'
T=10.50'
Lc=18.32'
E=3.31'
P.C.STA.57+81.22(N.MARGINAL RD.№4)
P.T.STA.151+92.19(REL.100 ST.)

N.E.RETURN
Δ=68°21'36"
R=15.00'
T=10.19'
Lc=17.90'
E=3.13'
P.C.STA.58+21.21(N.MARGINAL RD.№4)
P.T.STA.151+52.21(REL.100 ST.)

S.E.RETURN
Δ=112°34'58"
R=15.00'
T=22.48'
Lc=29.47'
E=12.03'
P.C.STA.152+14.81(REL.100 ST.)
P.T.STA.58+44.78(N.MARGINAL RD.№4)

PAVEMENT PLANS
STA.781+00± TO STA.784+00± LT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

62
713

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA-W. 98 ST. AT N. MARGINAL RD. Nº 4

N.E. RETURN
Δ=89°54'14"
R= 30.00'
T= 29.95'
Lc= 47.07'
E= 12.39'
P.C. STA. 63+78.02 (N. MARGINAL RD. Nº 4)
P.T. STA. 49+15.39 (W. 98 ST.)

S.E. RETURN
Δ=65°01'30"
R= 5.00'
T= 3.19'
Lc= 5.67'
E= 0.93'
P.C. STA. 48+36.19 (W. 98 ST.)
P.C.C. STA. 63+51.03 (30.71' RT. ℄ N. MARGINAL RD. Nº 4)
Δ=25°04'16"
R= 50.00'
T= 11.12'
Lc= 21.88'
E= 1.22'
P.C.C. STA. 63+51.03 (30.71' RT. ℄ N. MARGINAL RD. Nº 4)
P.T. STA. 63+72.22 (N. MARGINAL RD. Nº 4)

FOR JOINT LEGEND SEE SHEET Nº 38

THIS AREA IS WITHIN THE R/W TAKE BUT THE PAV'T IN THIS ALLEY IS NOT TO BE DISTURBED.

PRESSURE RELIEF JOINTS
Install Type A pressure relief joints at the location shown hereon as per Std. Dwg. BP-10. For Quantities See Sht. No. 32

PAVEMENT PLANS
STA. 783+00 TO STA. 788+50 LT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

W. 98 ST. AT RELOC. W. 100 ST. AND MARG. #5 CURB RETURN DATA

N.W. RETURN CURVE DATA

P.C. = 45+09.26 (W. 98 ST.)
Δ = 65° 01' 30"
R = 5.00'
T = 3.19'
L_c = 5.67'
E = 0.93
P.C.C. = 157+59.46 (15.29' LT ℄ REL. W. 100 ST.)
Δ = 13° 03' 31"
R = 50.00'
T = 5.72'
L_c = 11.40'
E = 0.33'
P.T. = 157+48.16 (REL. W 100 ST.)

N.E. RET. CURVE DATA

Δ = 90° 44' 50"
R = 30.00'
T = 30.39'
L_c = 47.52'
E = 12.71'
P.C. = 50+56.74 (MARG. #5)
P.T. = 45+51.93 (W. 98 ST.)

S.E. RET. CURVE DATA

Δ = 89° 15' 10"
R = 50.00'
T = 49.35'
L_c = 77.89'
E = 20.25'
P.C. 44+32.18 (W. 98 ST.)
P.T. = 50+75.17 (MARGINAL)

S.W. RET. CURVE DATA

Δ = 101° 54' 59"
R = 50.00'
T = 61.65'
L_c = 88.94'
E = 29.38'
P.C. = STA. 156+94.58 (REL. W 100 ST.)
P.T. = STA. 44+13.74 (W. 98 ST.)

W. 97 ST. AT MARGINAL RD. #5 CURB RETURN DATA

S.W. RET. CURVE DATA

Δ = 89° 51' 11"
R = 30.00'
T = 29.92'
L_c = 47.05'
E = 12.37
P.C. = 52+81.65 (MARGINAL)
P.T. = 49+18.87 (W. 97 ST.)

S.E. RET. CURVE DATA

Δ = 90° 08' 49"
R = 30.00'
T = 30.08'
L_c = 47.20'
E = 12.48'
P.C. = 49+18.65 (W. 97 ST.)
P.T. = 53+65.65 (MARGINAL)

FOR JOINT LEGEND SEE SHEET Nº 38

PRESSURE RELIEF JOINT

Install Type A pressure relief joints at the location shown hereon as per Std. Dwg. BP-10. For Quantities, See Sht. No. 32

PAVEMENT PLANS
STA. 782+00 TO STA. 788+50 RT.

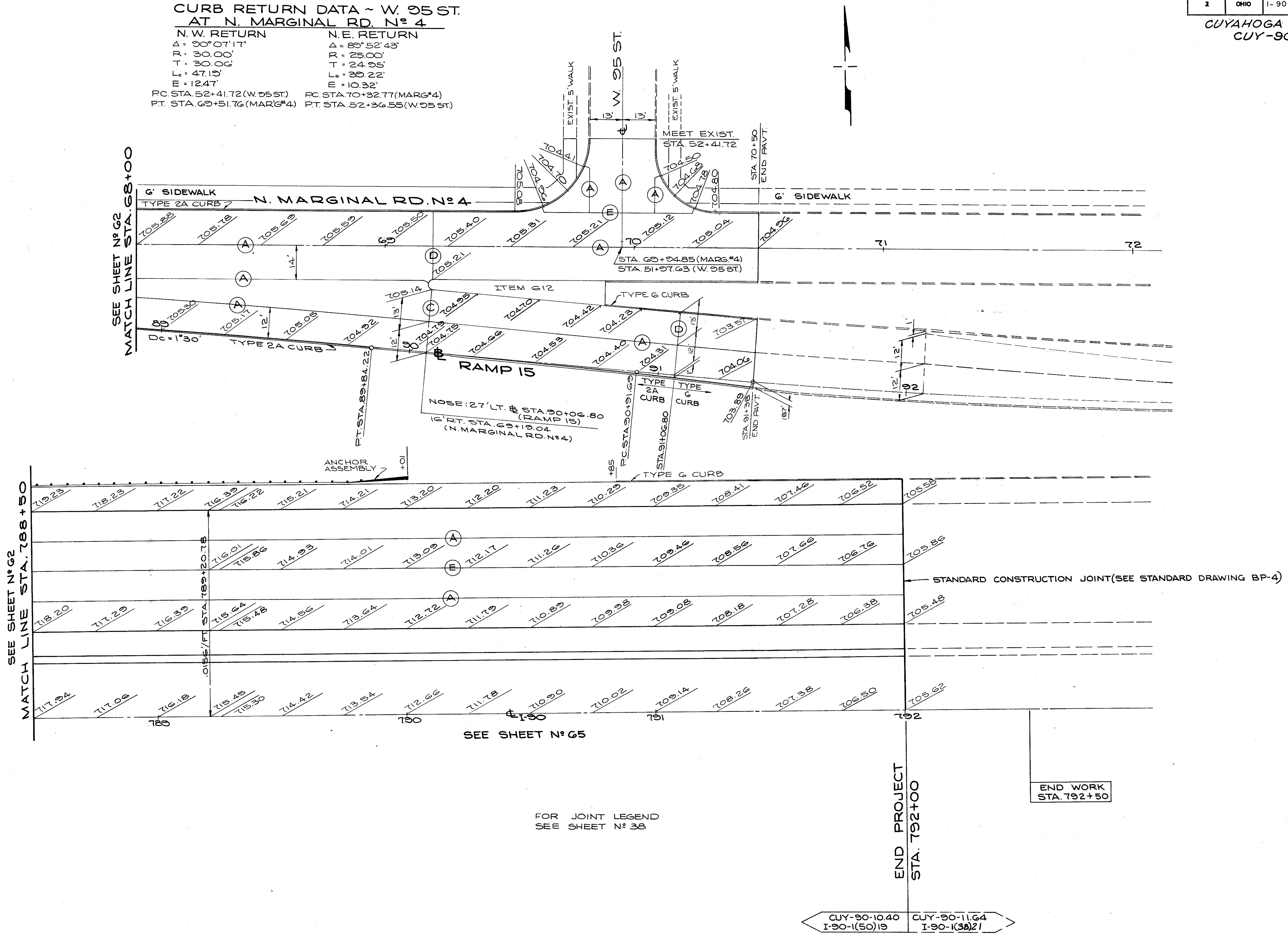
FORM DD A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

CURB RETURN DATA ~ W. 95 ST. AT N. MARGINAL RD. Nº 4

N.W. RETURN	N.E. RETURN
Δ = 90°07'17"	Δ = 89°52'43"
R = 30.00'	R = 25.00'
T = 30.06'	T = 24.95'
Lc = 47.19'	Lc = 39.22'
E = 12.47'	E = 10.32'
P.C. STA. 52+41.72 (W. 95 ST.)	P.C. STA. 70+32.77 (MARG#4)
P.T. STA. 69+51.76 (MAR'G#4)	P.T. STA. 52+36.55 (W. 95 ST.)



FOR JOINT LEGEND
SEE SHEET Nº 38

CUY-90-10.40	CUY-90-11.64
I-90-1(50)19	I-90-1(38)21

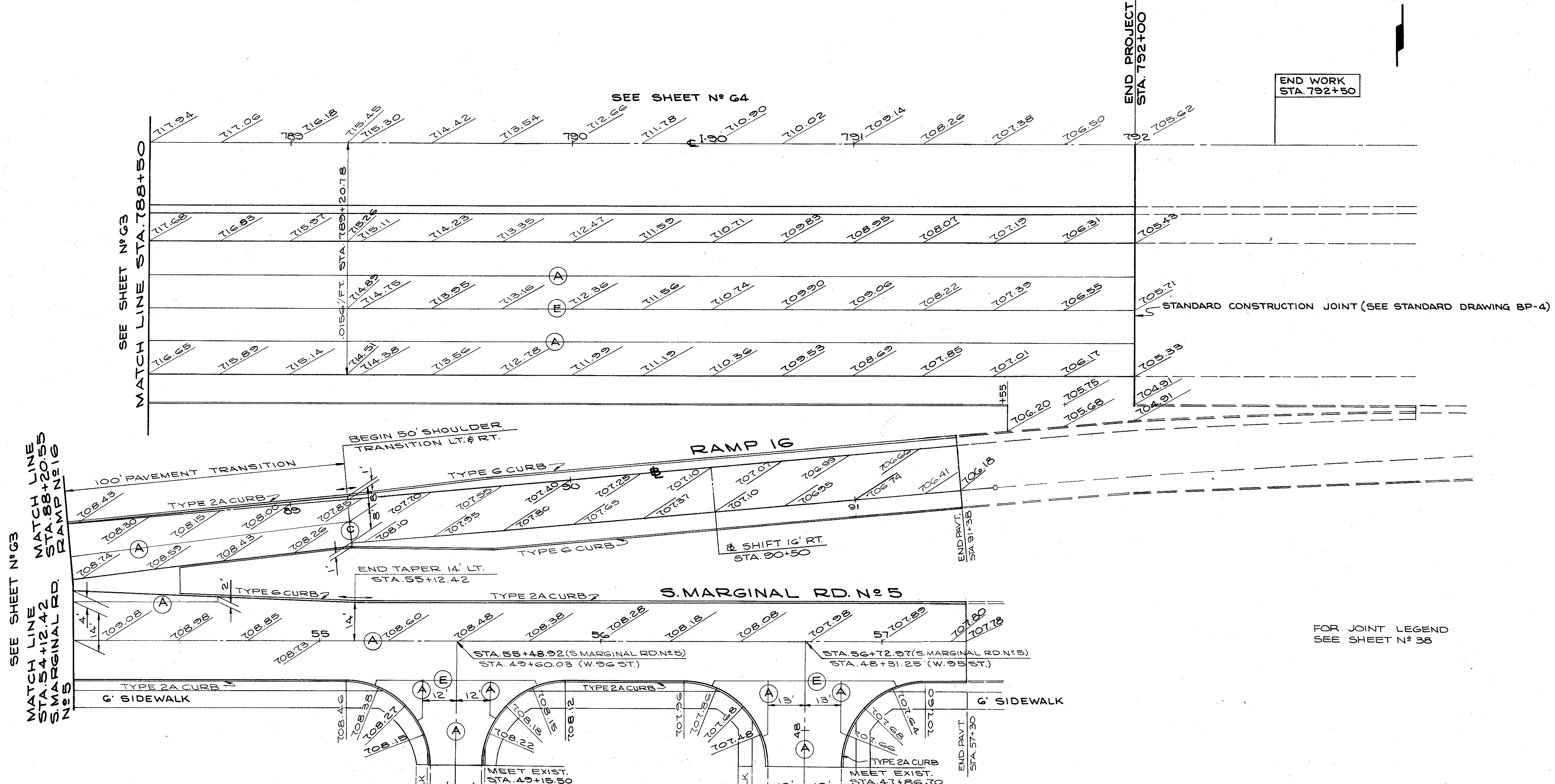
PAVEMENT PLANS
STA. 788+50 TO STA. 792+00 LT.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

65
713

CUYAHOGA COUNTY
CUY-90-10.40

CUY-90-10.40 I-90-1(50)19	CUY-90-11.64 I-90-1(38) 21



CURB RETURN DATA - W. 96 ST. AT S. MARGINAL RD. No 5

S.W. RETURN	S.E. RETURN
Δ = 90°45'59"	Δ = 89°14'01"
R = 30.00'	R = 30.00'
T = 30.40'	T = 29.60'
Lc = 47.53'	Lc = 46.72'
E = 12.71'	E = 12.15'
P.C. STA. 55+09.33 (S. MARGINAL RD. No 5)	P.C. STA. 49+16.85 (W. 96 ST.)
P.T. STA. 49+15.50 (W. 96 ST.)	P.T. STA. 55+87.33 (S. MARG. RD. No 5)

CURB RETURN DATA - W. 95 ST. AT S. MARGINAL RD. No 5

S.W. RETURN	S.E. RETURN
Δ = 90°43'19"	Δ = 89°16'41"
R = 30.00'	R = 30.00'
T = 30.38'	T = 29.62'
Lc = 47.50'	Lc = 46.75'
E = 12.70'	E = 12.16'
P.C. STA. 56+29.41 (S. MARGINAL RD. No 5)	P.C. STA. 47+87.79 (W. 95 ST.)
P.T. STA. 47+86.70 (W. 95 ST.)	P.T. STA. 57+15.42 (S. MARG. RD. No 5)

PAVEMENT PLANS
STA. 788+50 TO STA. 792+00 RT.

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

66
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

CROSS REFERENCE FOR PIPE PROFILES

D-1 thru D-3, D-6	SHEET Nº 83
D-4, D-5, D-7 thru D-11	SHEET Nº 86
D-101 thru D-104A	SHEET Nº 96
D-101A	SHEET Nº 108
S-1, S-8A	SHEET Nº 112
S-3	SHEET Nº 108

FOR QUANTITIES SEE SHEET Nº 67 & 71.

DRAINAGE PLAN

CUYAHOGA COUNTY
CUY - 90 - 10.40

SHEET Nº	REFERENCE Nº	603								604											
				TYPE "B" CONDUIT				12" TYPE "C"	42" TYPE "C"	CITY OF CLEVELAND ST'D. C.B.		ST'D. Nº 3 C.B.	ST'D. Nº 7 C.B.	STANDARD PAVED SHOULDER INLET		SPECIAL PAVED SHOULDER INLET MANHOLE				ST'D. MED. INLET I-3B	ST'D. Nº 8 C.B.
				8"	12"	15"	18"			Nº 1	Nº 2			2-A-6		2-A-6		2-A-12	2-A-16		
		LIN. FT.								EACH											
66	D101A							240													
66	D-1								95												
66	D-2								300										1		
66	D-3								125									1			
66	D-4					60								1							
66	D-5					75						1									
66	D-6								199							1					
66	D-7					50								1							
66	D-8					50						1									
66	D-9					123								1							
66	D-10						25													1	
66	D-10A						25														1
66	D-11						69													1	
66	D-101				13					1											
66	D-102				13					1											
66	D 103				30					1											
66	D-104				25					1											
66	D-104A				55					1											
238	D-221			52									1								
238	D221A			5									1								
239	D-223				48					1											
239	D-224				36					1											
239	D-224A				6						1										
TOTAL				57	226	358	119	240	719	7	1	2	2	3		1		1	1	2	1

SHEET Nº	REFERENCE Nº	603			604
		TYPE "B" CONDUIT			STANDARD Nº 1-A M.H. W/706.11 JTs. MODIFIED AS PER PLAN
		15" 706.08 W/706.12 JTs.	42" 706.02 W/706.11 JTs.		
		LIN. FT.			EACH
66	S-1	90			1
66	S-2				1
66	S-3				1
66	S-8A		100		1
TOTAL		90	100		4

			SHEET Nº 66					
REF. Nº	STATION	SIDE	202					SPECIAL PLUGGING OIL & GAS WELLS
			MANHOLE REMOVED	ABD	CATCH BASINS REMOVED	ABD	PIPE REMOVED 24" & UNDER	
			EACH		EACH		LIN. FT.	EACH
X-1	46+97 WEST 121	142' LT.			1			
X-2	46+95 WEST 121	65' LT.			1			
X-3	47+09 WEST 121	12' LT. & RT.	1		2			
X-5	44+43 WEST 120	℄		1				
X-7	47+01 WEST 120	℄	1					
X-8	50+45 STRATFORD	℄	1					
X-9	49+69 WEST 119	11' LT. & RT.		1	1	1		
X-10	55+30 CLOVERDALE	12' RT. & ℄			1			
X-126	47+03 WEST 121	212' LT			1			
X-7A	44+97 TO 48+05 WEST 120	℄					308	
X-8A	50+48 TO 52+36 STRATFORD	℄					188	
X-9A	49+85 TO 50+00 WEST 119	℄					15	
GW-1	726+41	31' RT.						1
GW-2	727+02	132' LT.						1
TOTAL			3	2	7	1	511	2

			SHEET NO. 238 & 239	
REF. Nº	STATION	SIDE	202	
				CATCH BASIN REMOVED
			EACH	EACH
X-113	41+28 WEST 117	45' LT.		1
X-114	40+73 WEST 117	40' LT.		1
X-124	60+50 WEST 117	30' LT.		1
X-125	62+32 WEST 117	30' LT.		1
TOTAL				4

CALCULATED BY C.B. DATE 10-12-71
CHECKED BY H.C.S. DATE 2-14-72

DRAINAGE QUANTITIES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

CROSS REFERENCE FOR PIPE PROFILE

S-4, S-5	SHEET № 112
S-6 thru S-13	SHEET № 93
S-18	SHEET № 94
D-12 D-15, D-18, D-25	SHEET № 83
D-13, D-14, D-16 D-17	SHEET № 86
D-19 thru D-24A	SHEET № 87
D-105 thru D-107	SHEET № 96
D-108 thru D-116	SHEET № 97
D-117 thru D-124	SHEET № 98
D-125 thru D-130	SHEET № 99
D-131 thru D-134	SHEET № 100
D-135, D-136	SHEET № 101
D-222 & S-15	SHEET № 96
S-16	SHEET № 108
D-21A, 21B, D-111A	SHEET № 111
S-14	SHEET № 98

FOR QUANTITIES SEE SHEET № 71.

FOR CONTINUATION OF W. 117 ST. DRAINAGE SEE SHEET No. 238

FOR W. 117 ST. TEMP. ROAD PLAN & PROFILE SEE SHEET Nos. 253 & 254

FOR CONTINUATION OF W. 117 ST DRAINAGE SEE SHEET № 239.

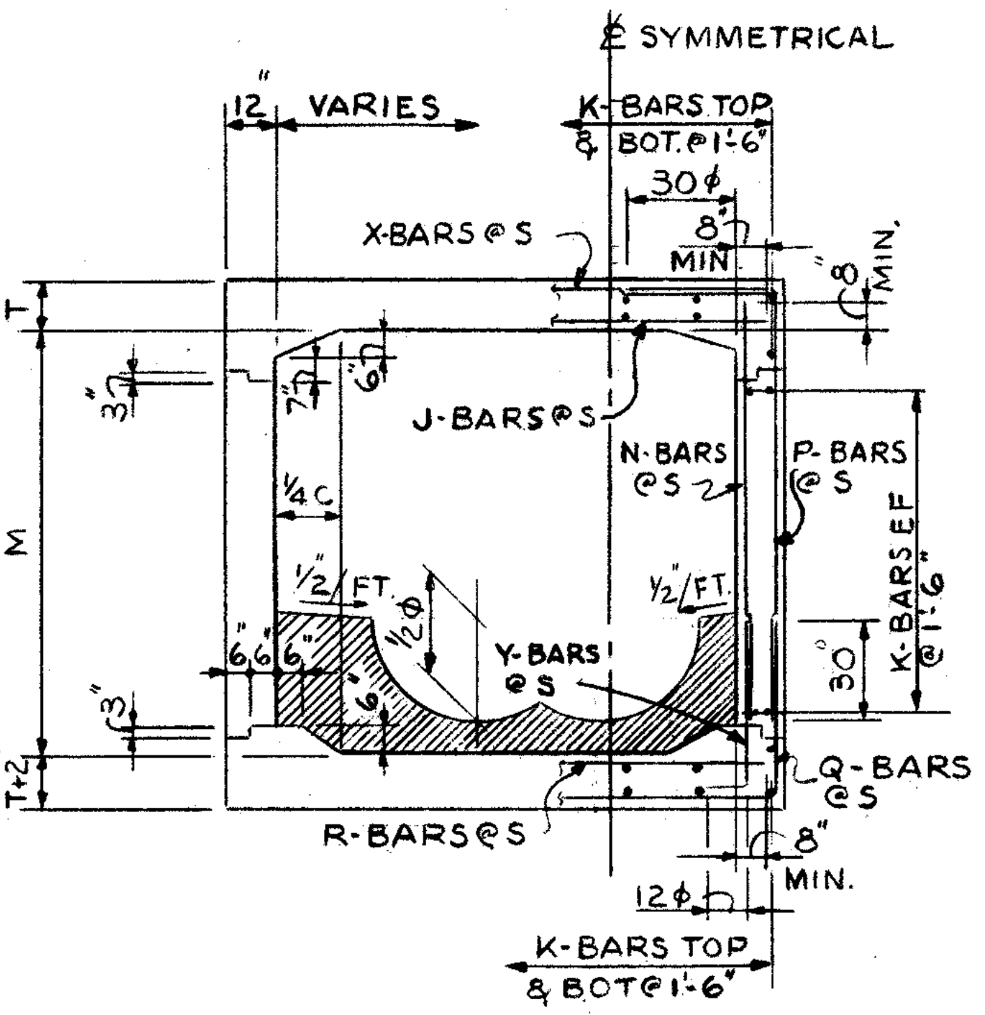
MANHOLE X-24 TO BE REMOVED AND SLAB BED AS PER DETAIL SHEET № 70.

DRAINAGE PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

69
713

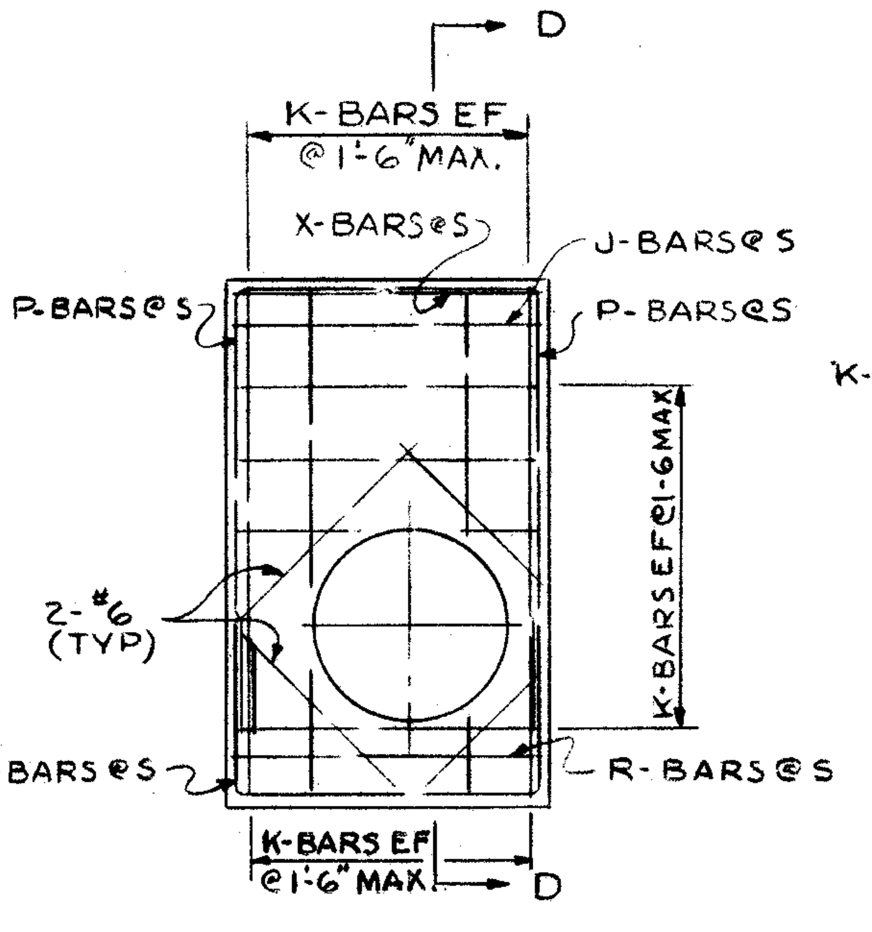
CUYAHOGA COUNTY
CUY - 90 - 10.40



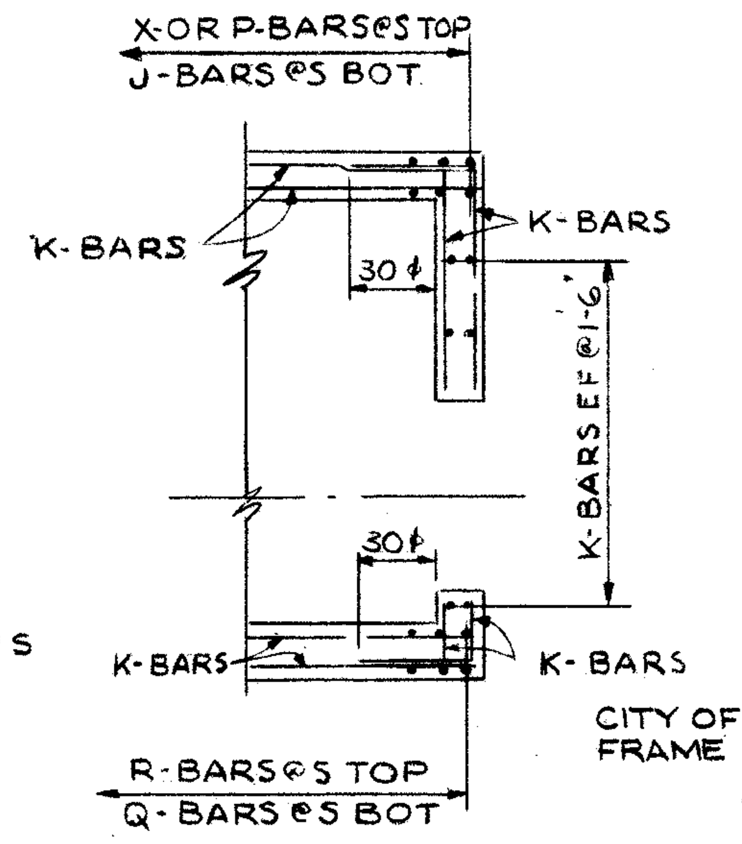
SECTION A-A

BOX CHAMBER	BAR SPACING 'S' INCHES	REINFORCING BAR SIZES								T IN.
		J	K	N	P	R	Q	X	Y	
		SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	
S-13	8	10	5	8	8	10	8	8	8	15

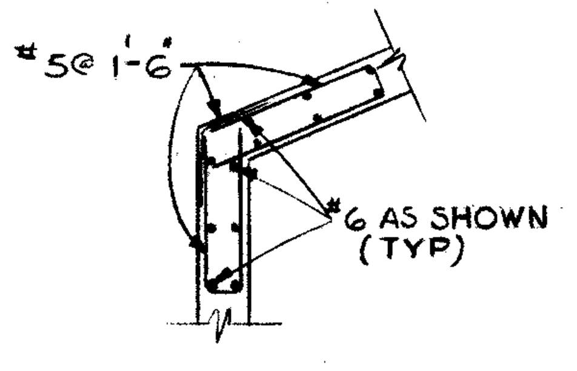
CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING M.H.-IA.



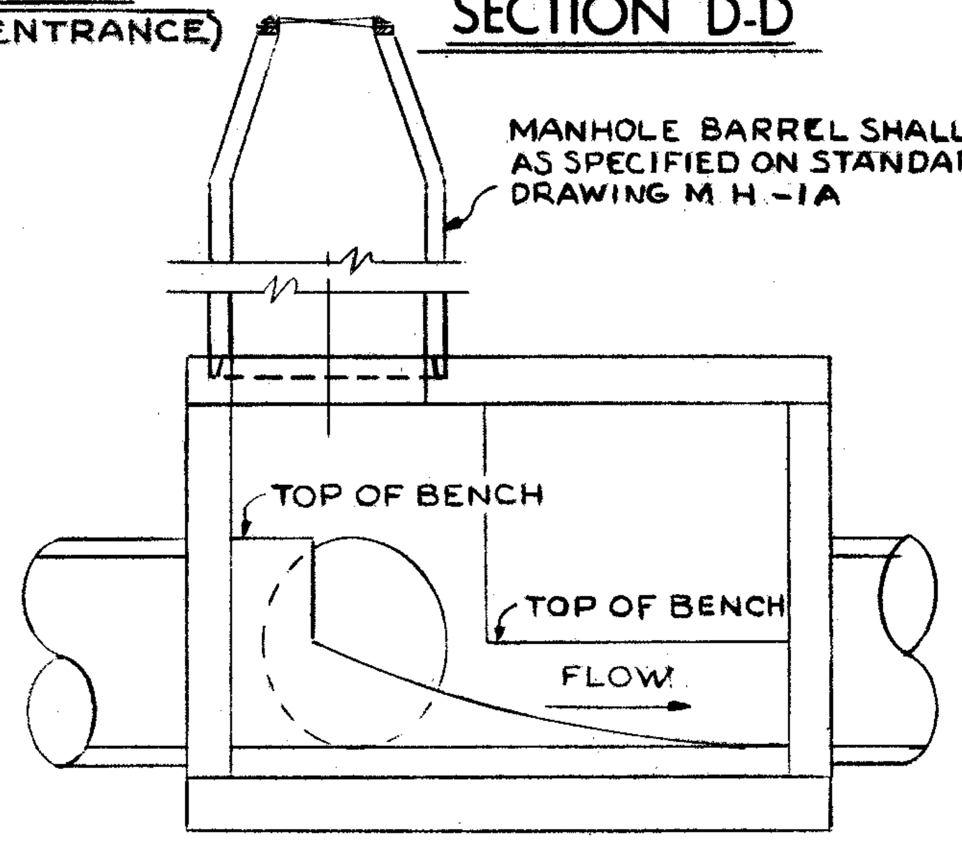
VIEW B-B
(TYPICAL @ EACH ENTRANCE)



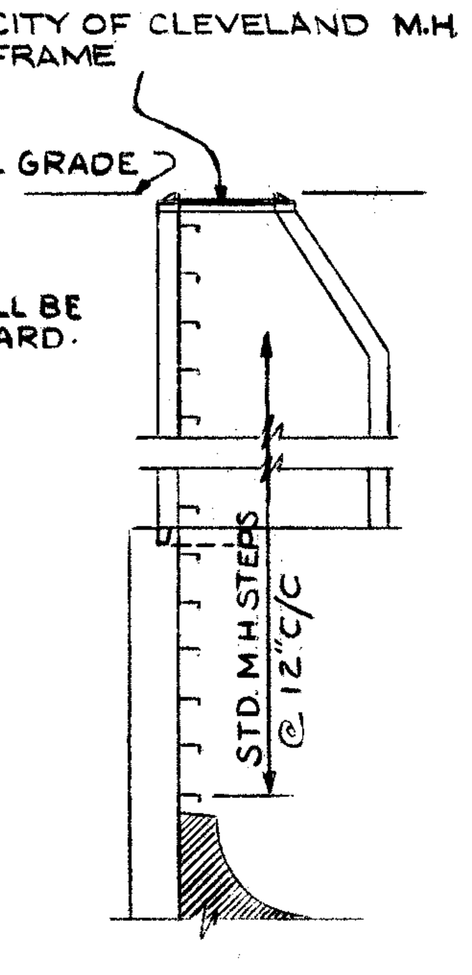
SECTION D-D



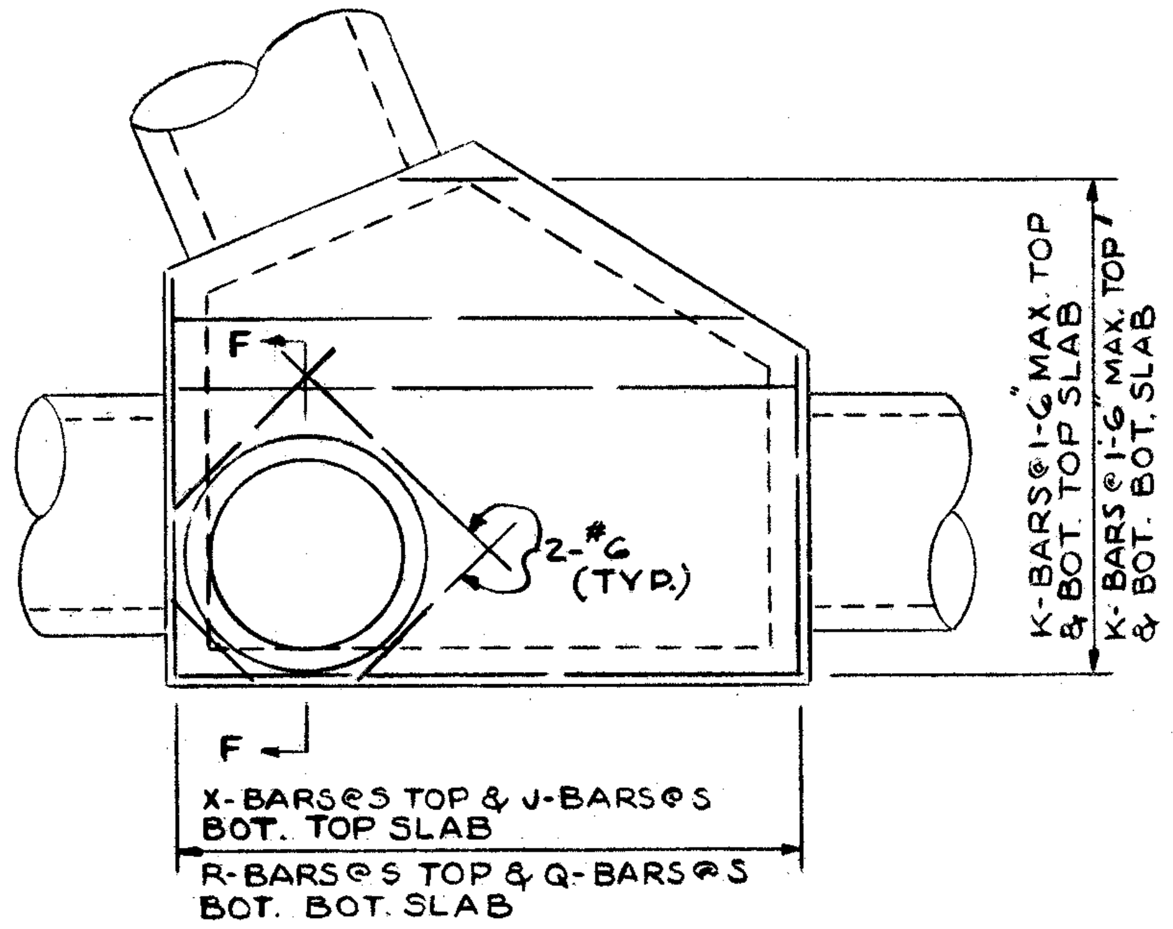
DETAIL C



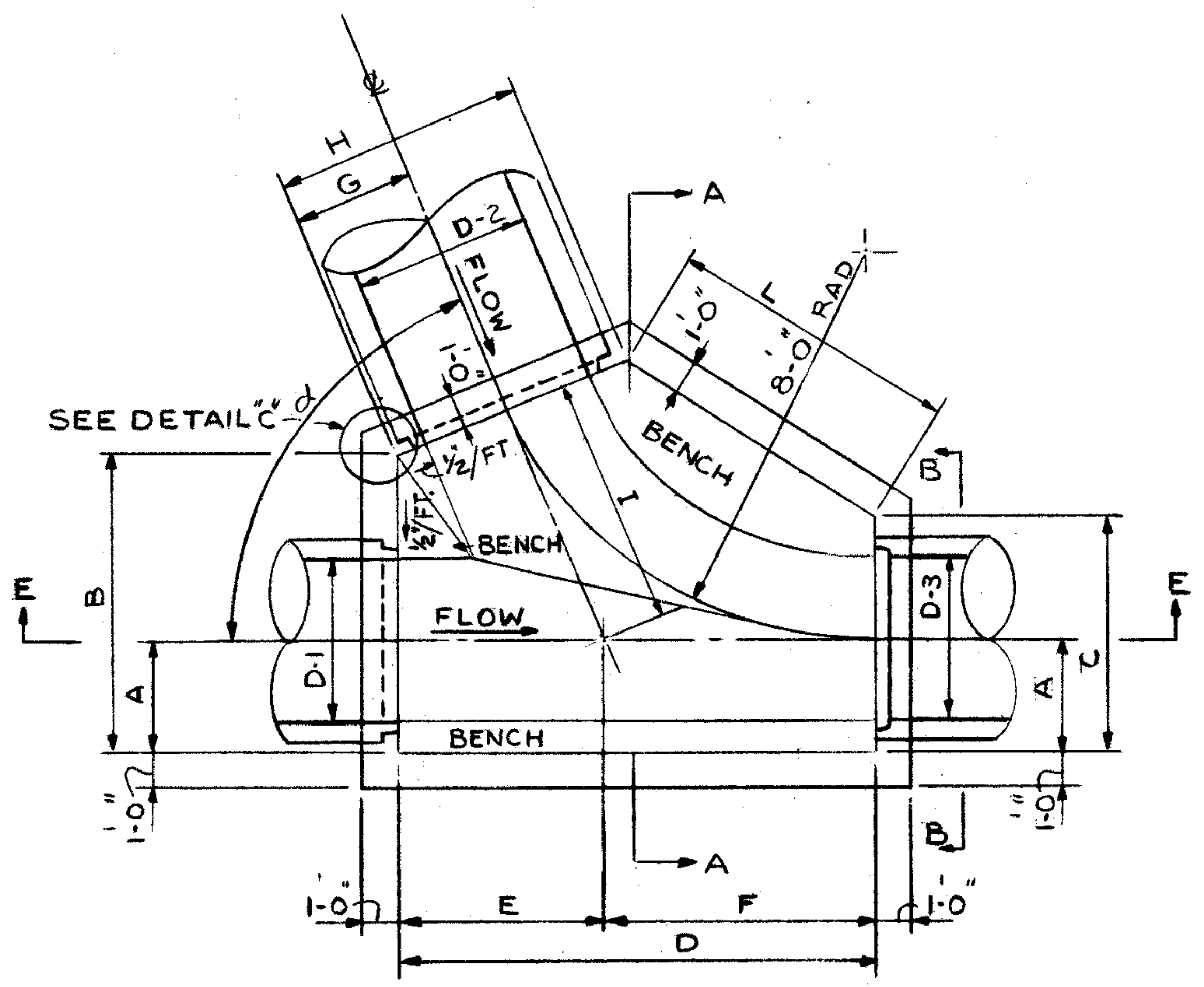
SECTION E-E



SECTION F-F



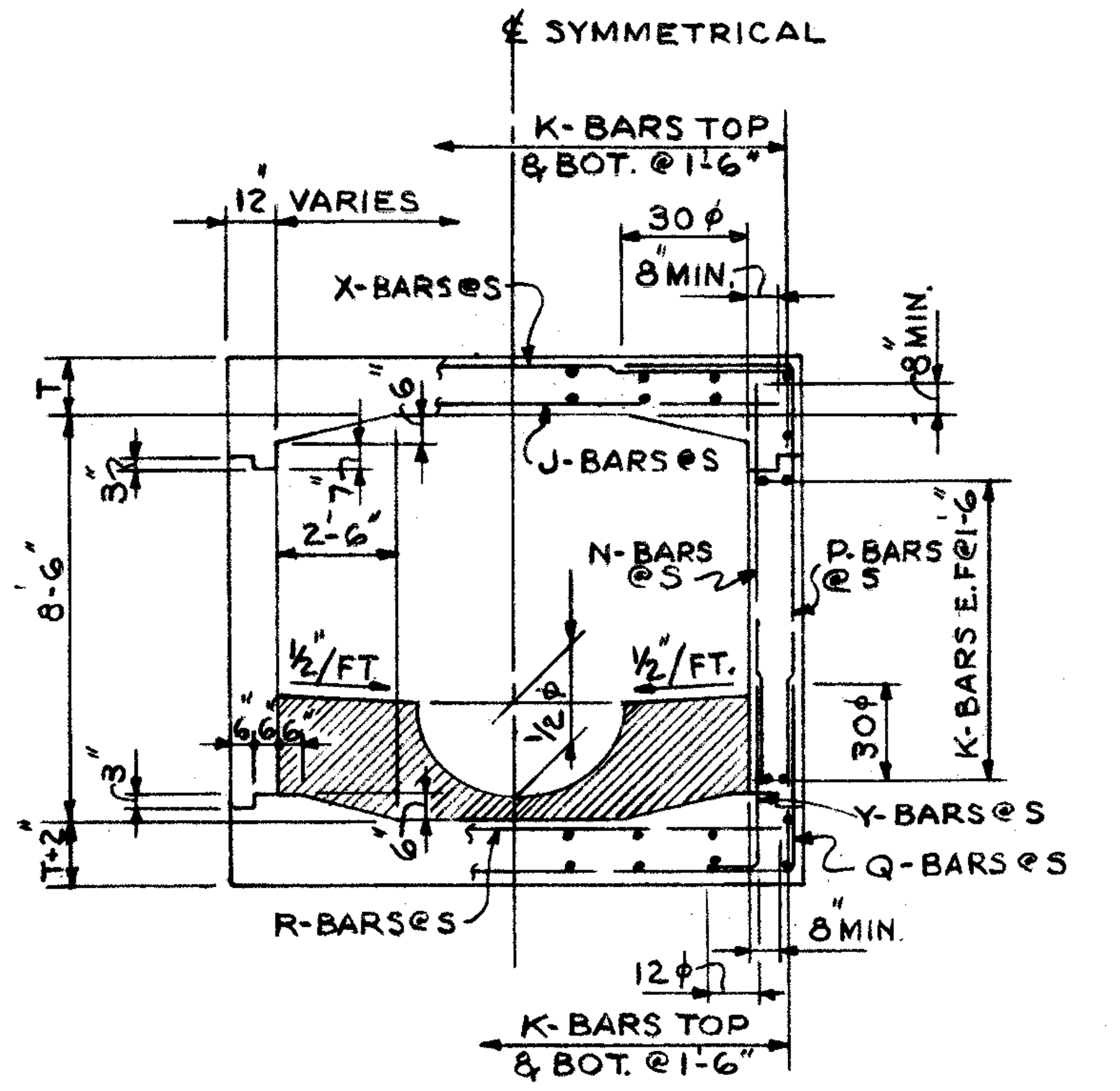
TOP & BOT. SLAB
REINFORCING PLAN



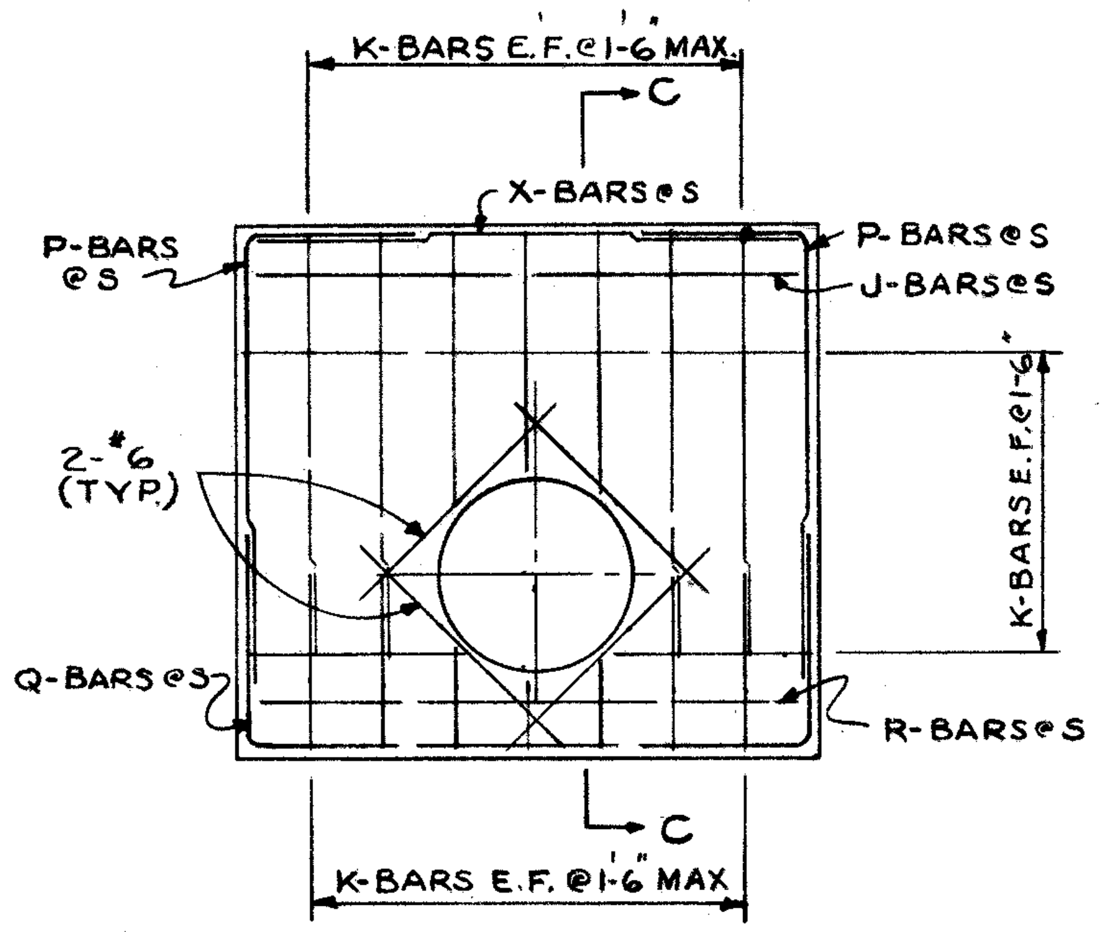
PLAN

BOX CHAMBER	α	PIPE DIAMETER			A	B	C	D	E	F	G	H	I	L	M
		D-1	D-2	D-3											
S-13	35°00'00"	48"	48"	48"	2'-9"	6'-3"	5'-3"	13'-7½"	11'-1¼"	2'-6¼"	3'-6"	6'-0"	11'-1¼	10'-6⅜"	8'-6"

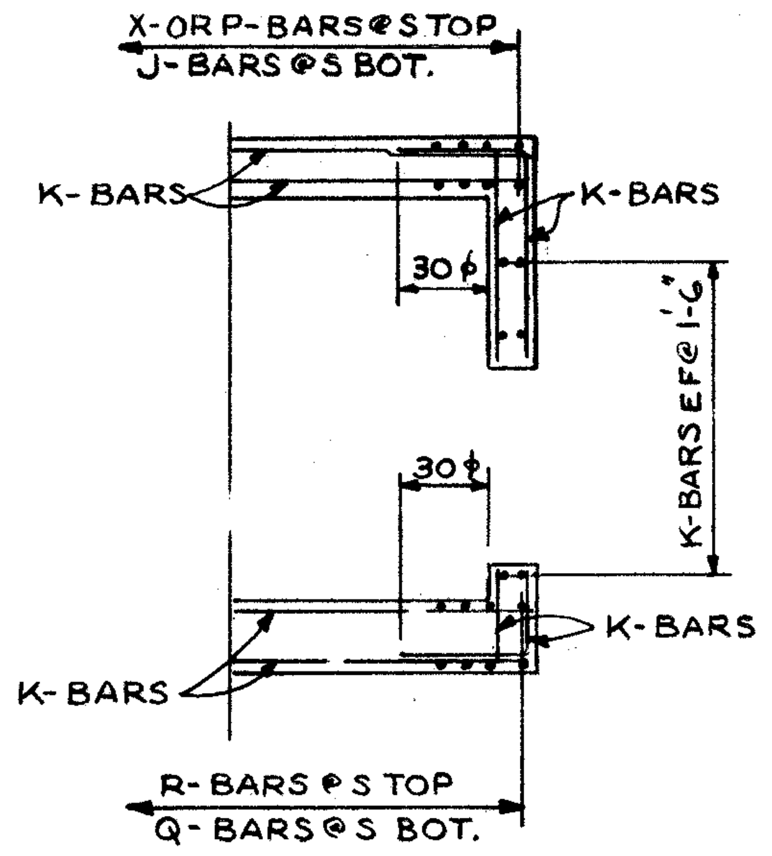
JUNCTION CHAMBER No 3 S-13 - W. 117 ST. STA. 56+11



SECTION A-A



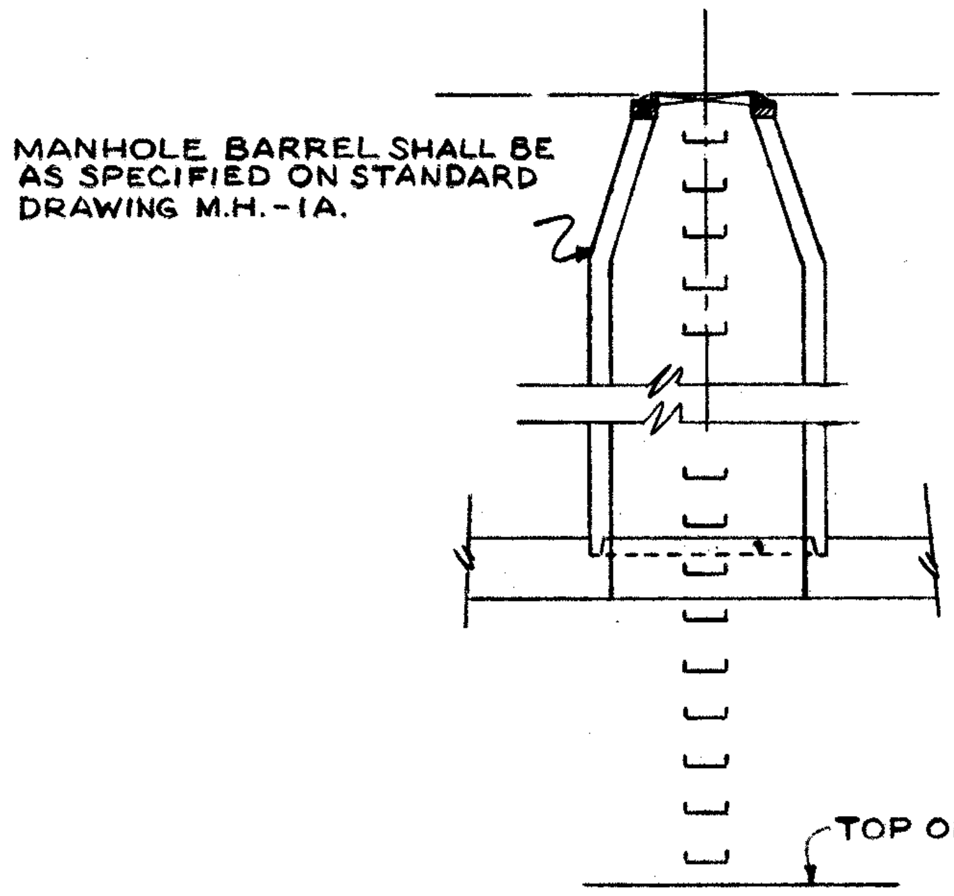
VIEW B-B
TYPICAL @ EACH ENTRANCE



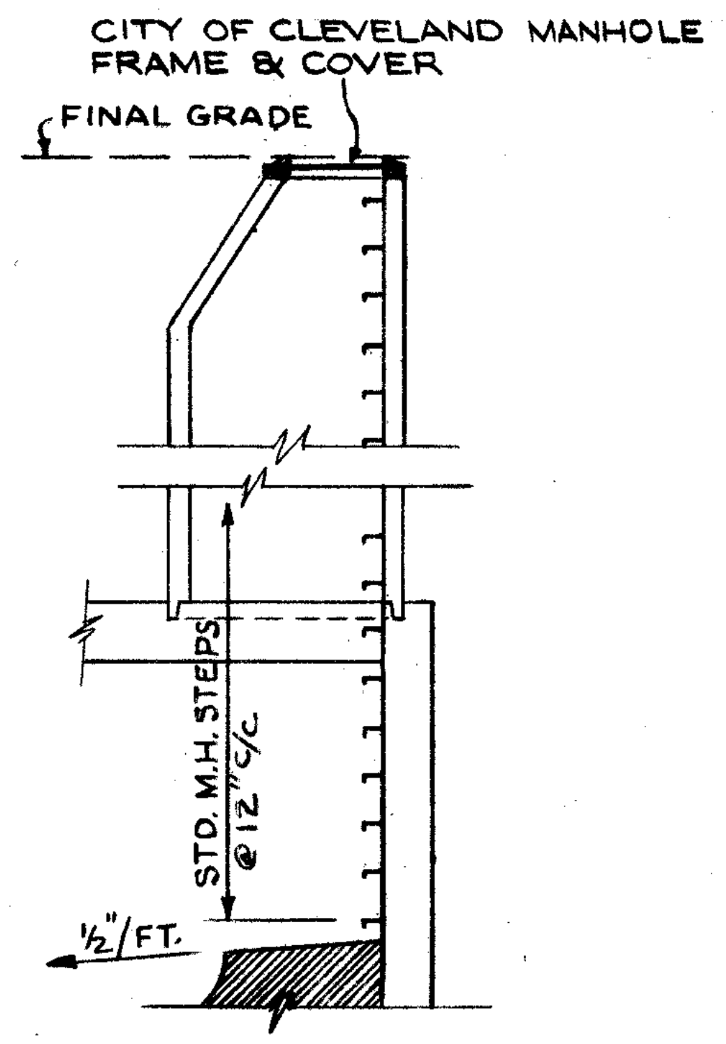
SECTION C-C

BOX CHAMBER	BAR SPACING INCHES	REINFORCING BAR SIZES								T
		J	K	N	P	R	Q	X	Y	
		SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	IN.
S-9	8	10	5	8	8	10	8	8	8	15

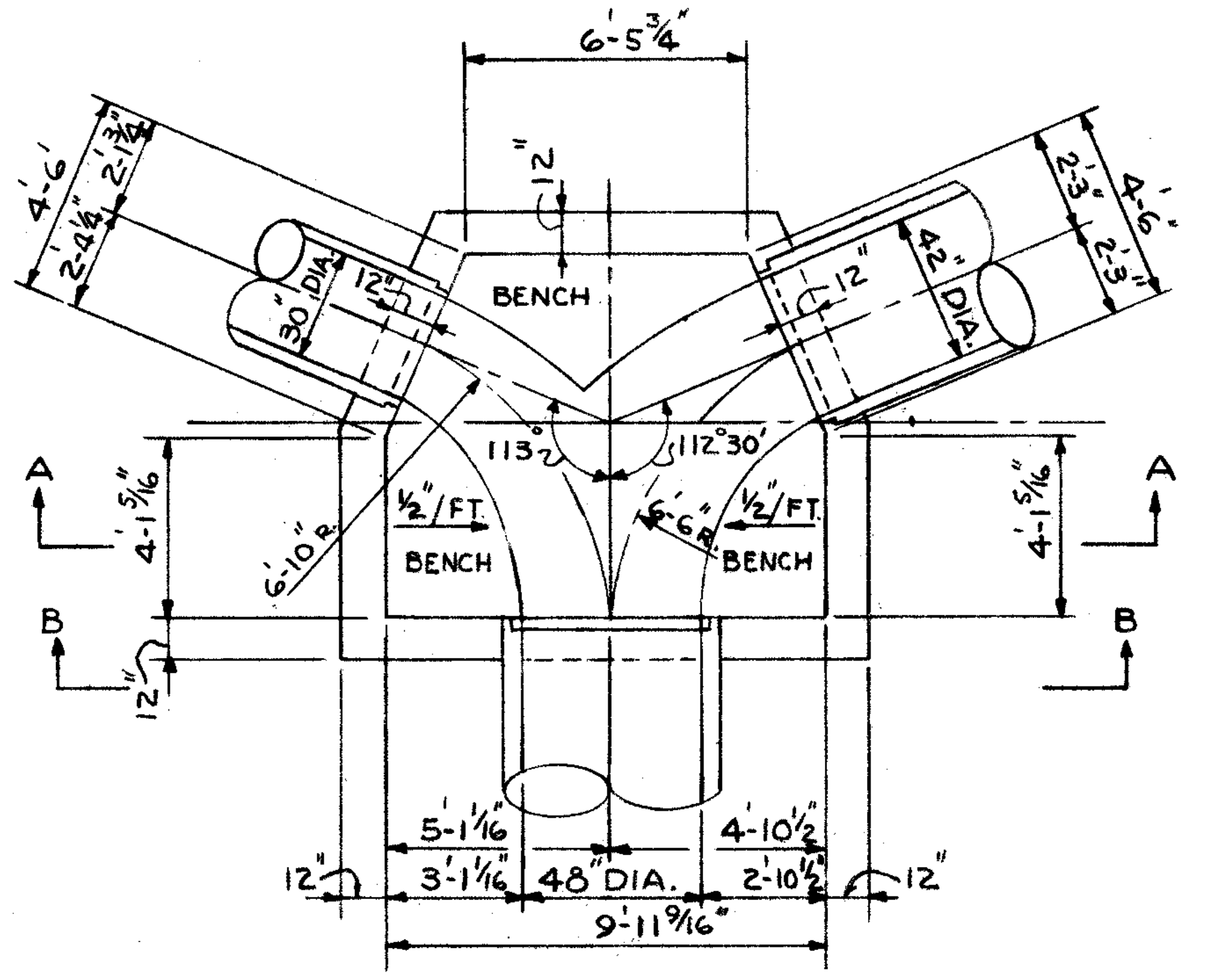
CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING M.H.-IA.



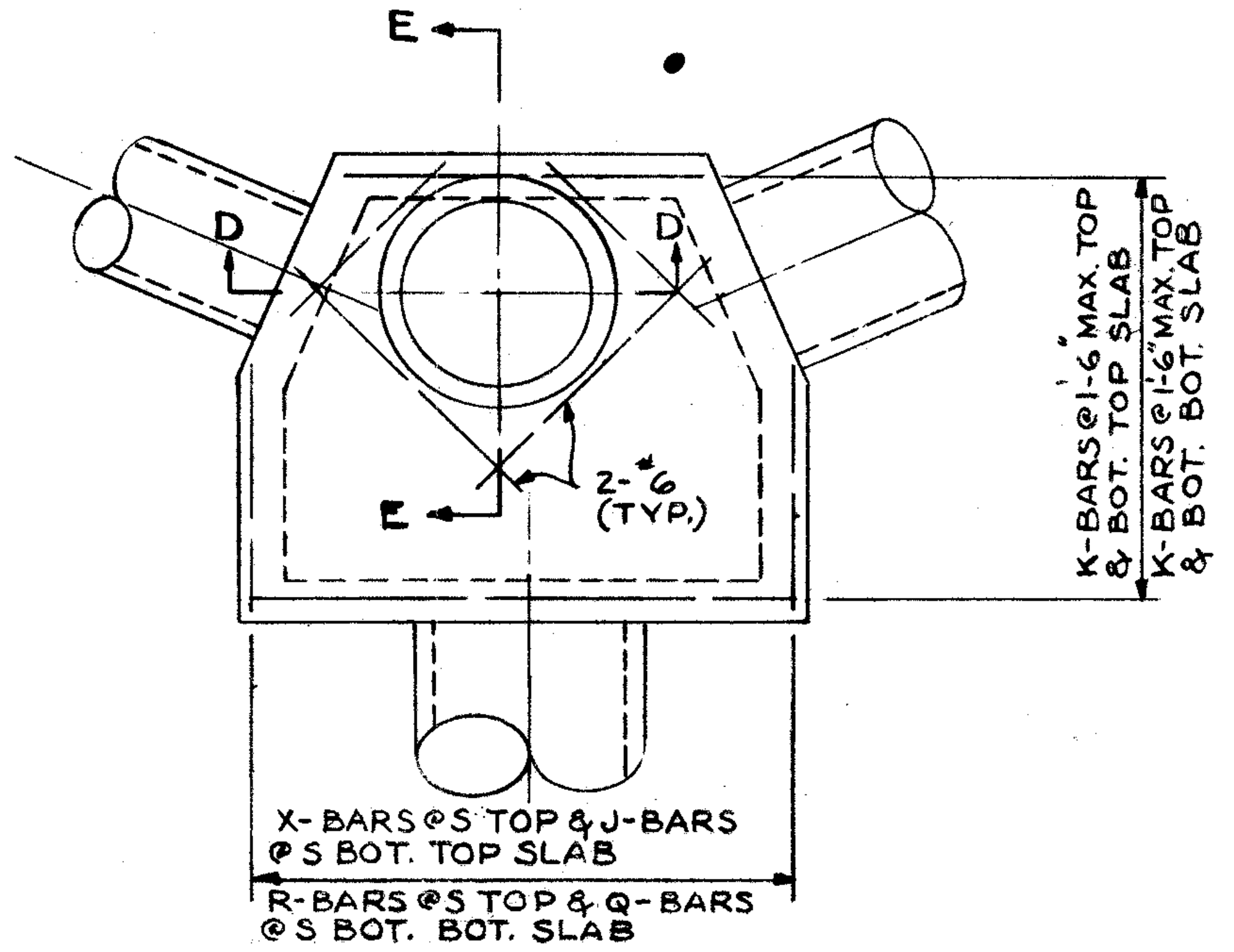
SECTION D-D



SECTION E-E



TOP & BOT. SLAB
REINFORCING PLAN



PLAN

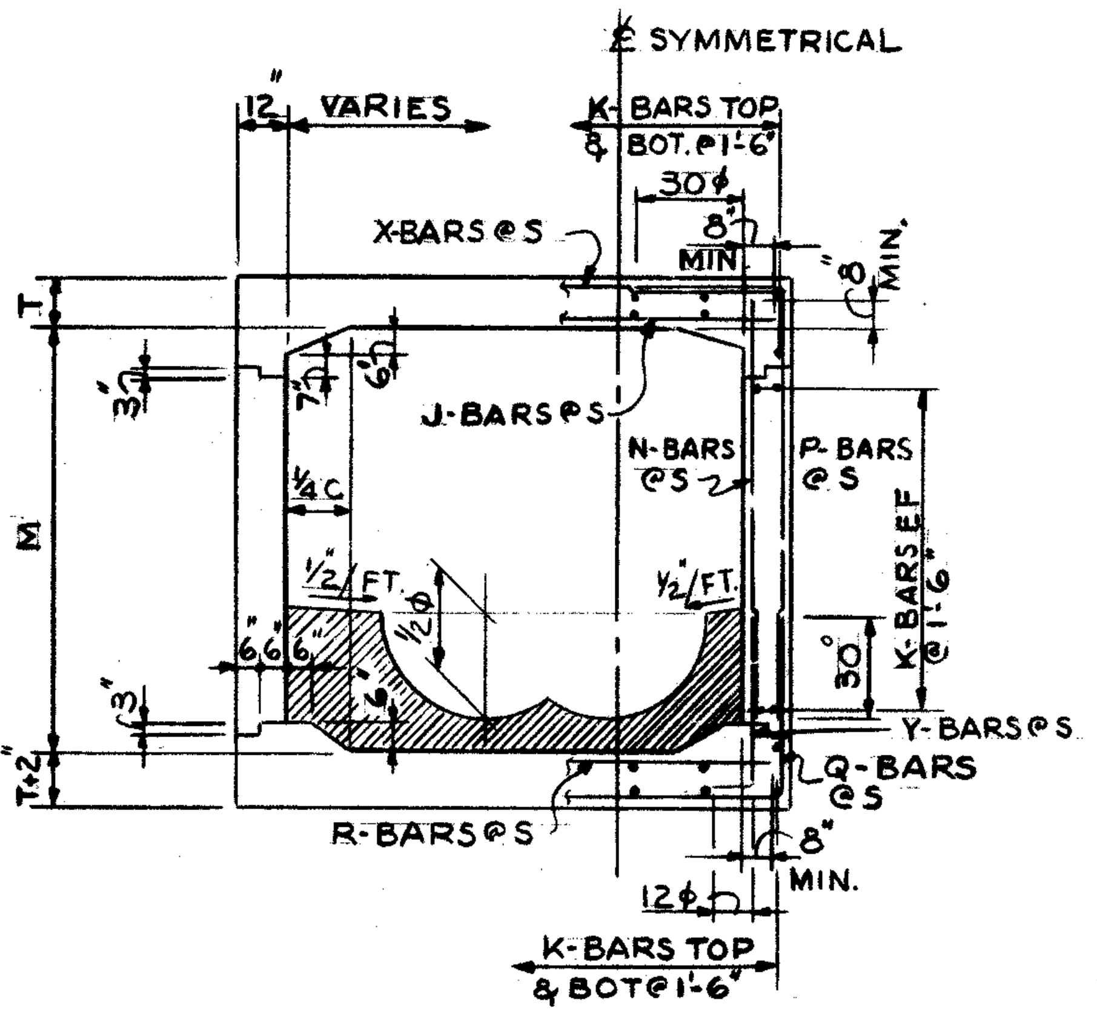
JUNCTION CHAMBER No 1 S-9 - W. 119 ST. CONNECTOR

JUNCTION CHAMBER DETAIL S-9 & S-13

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

70
713

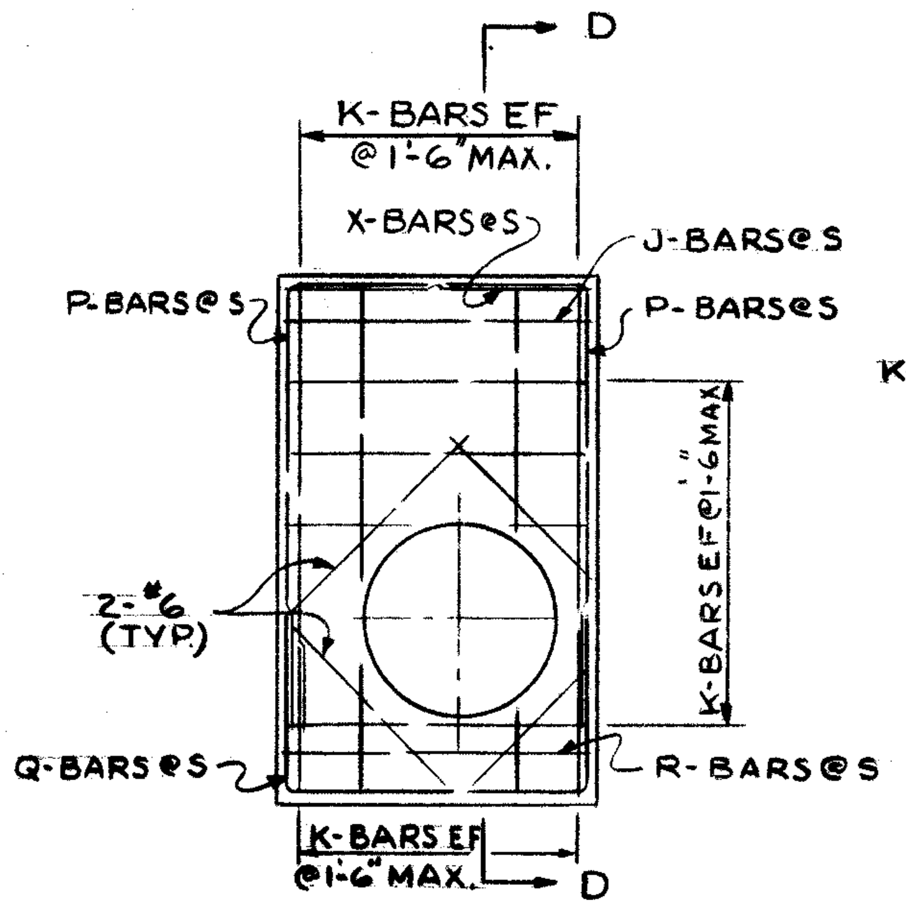
CUYAHOGA COUNTY
CUY 90-10.40



SECTION A-A

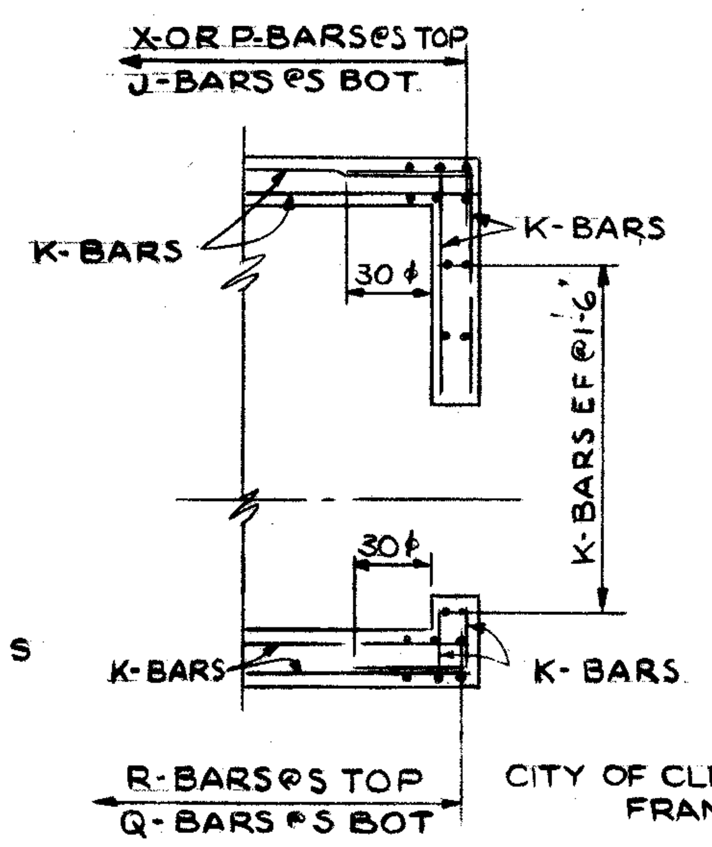
BOX CHAMBER	BAR SPACING "S" INCHES	REINFORCING BAR SIZES								T IN.
		J SIZE	K SIZE	N SIZE	P SIZE	R SIZE	Q SIZE	X SIZE	Y SIZE	
S-10	7	8	5	7	7	9	7	7	7	12

CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING M.H.-IA.

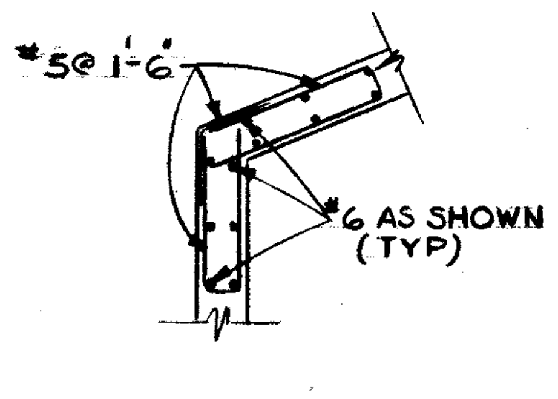


VIEW B-B

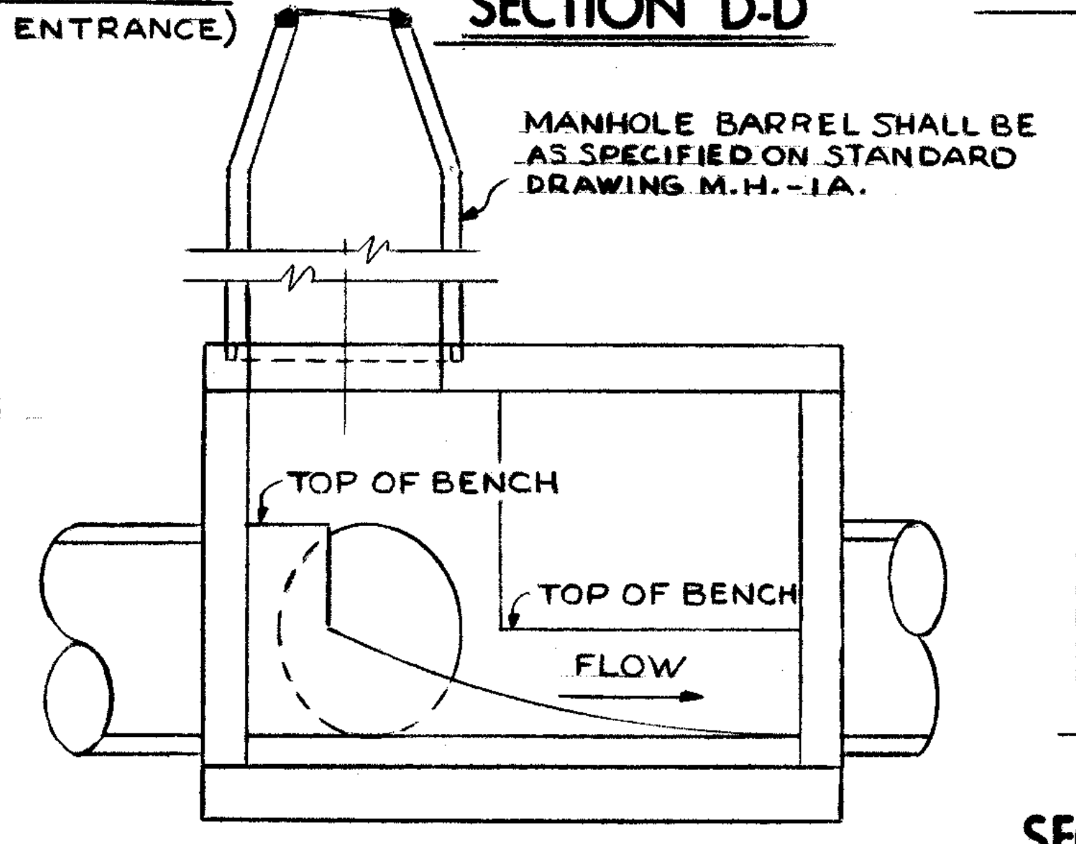
(TYPICAL @ EACH ENTRANCE)



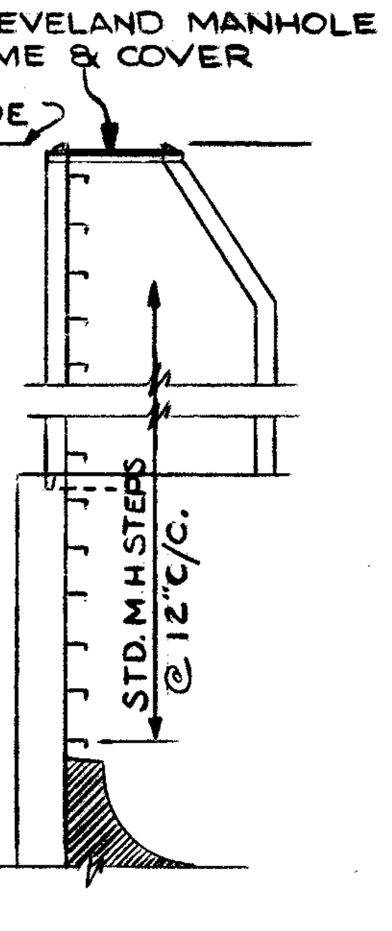
SECTION D-D



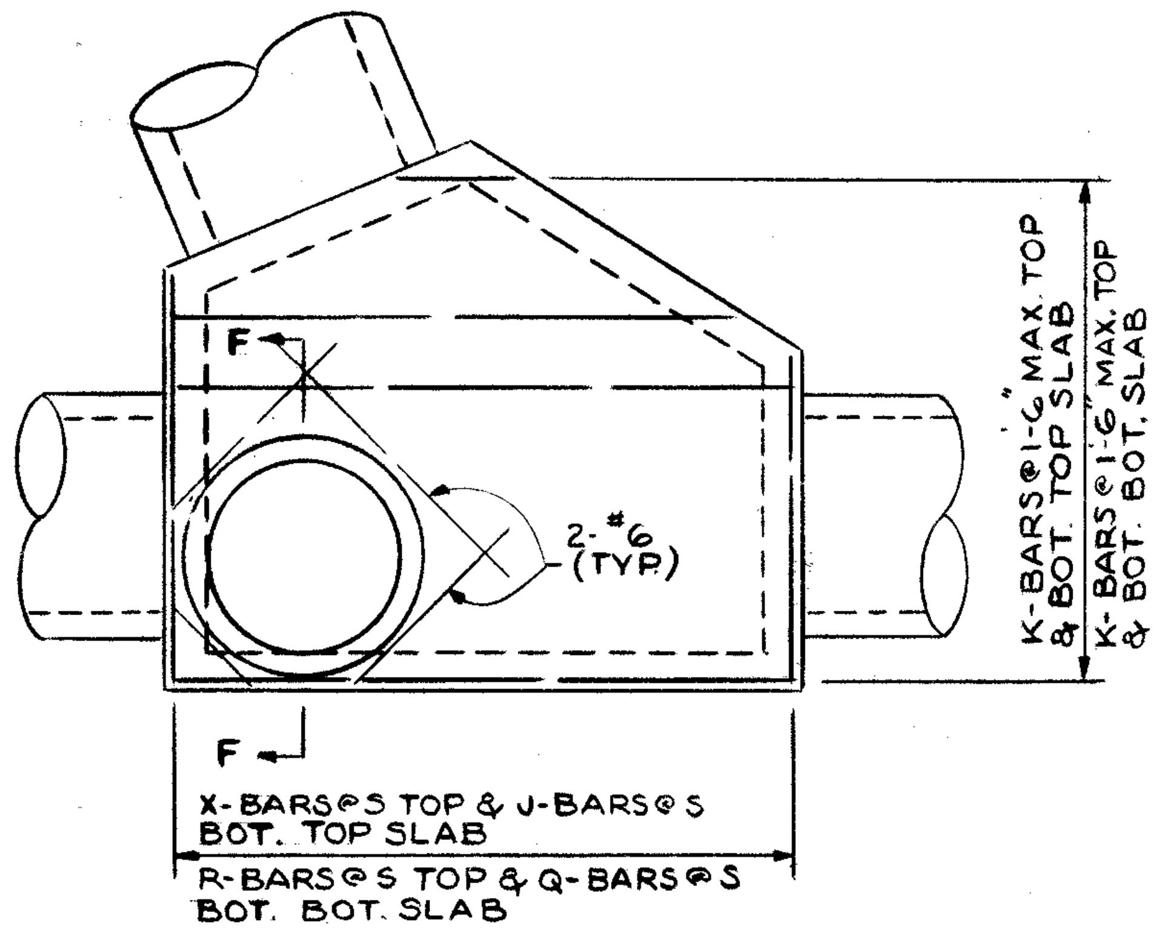
DETAIL C



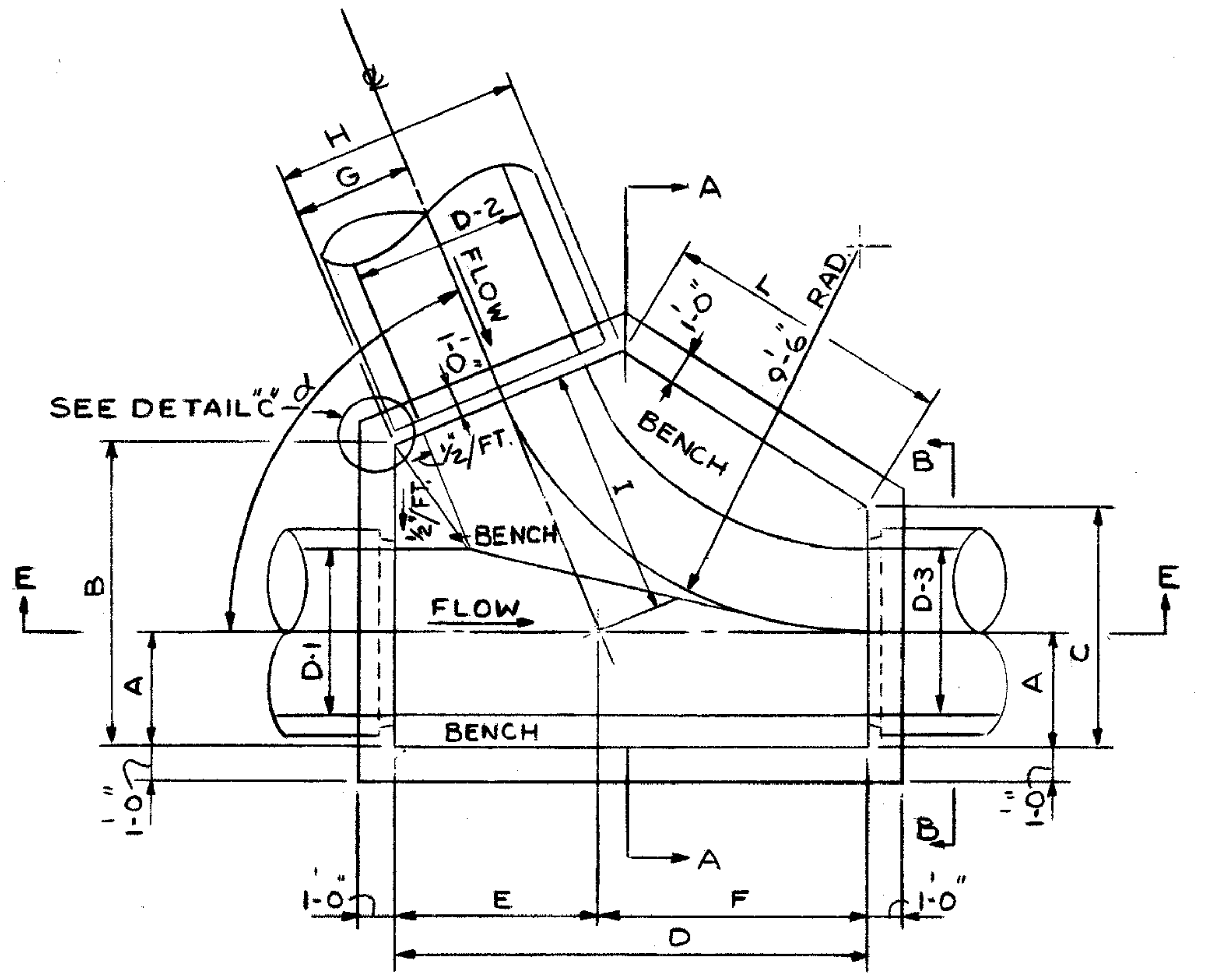
SECTION E-E



SECTION F-F



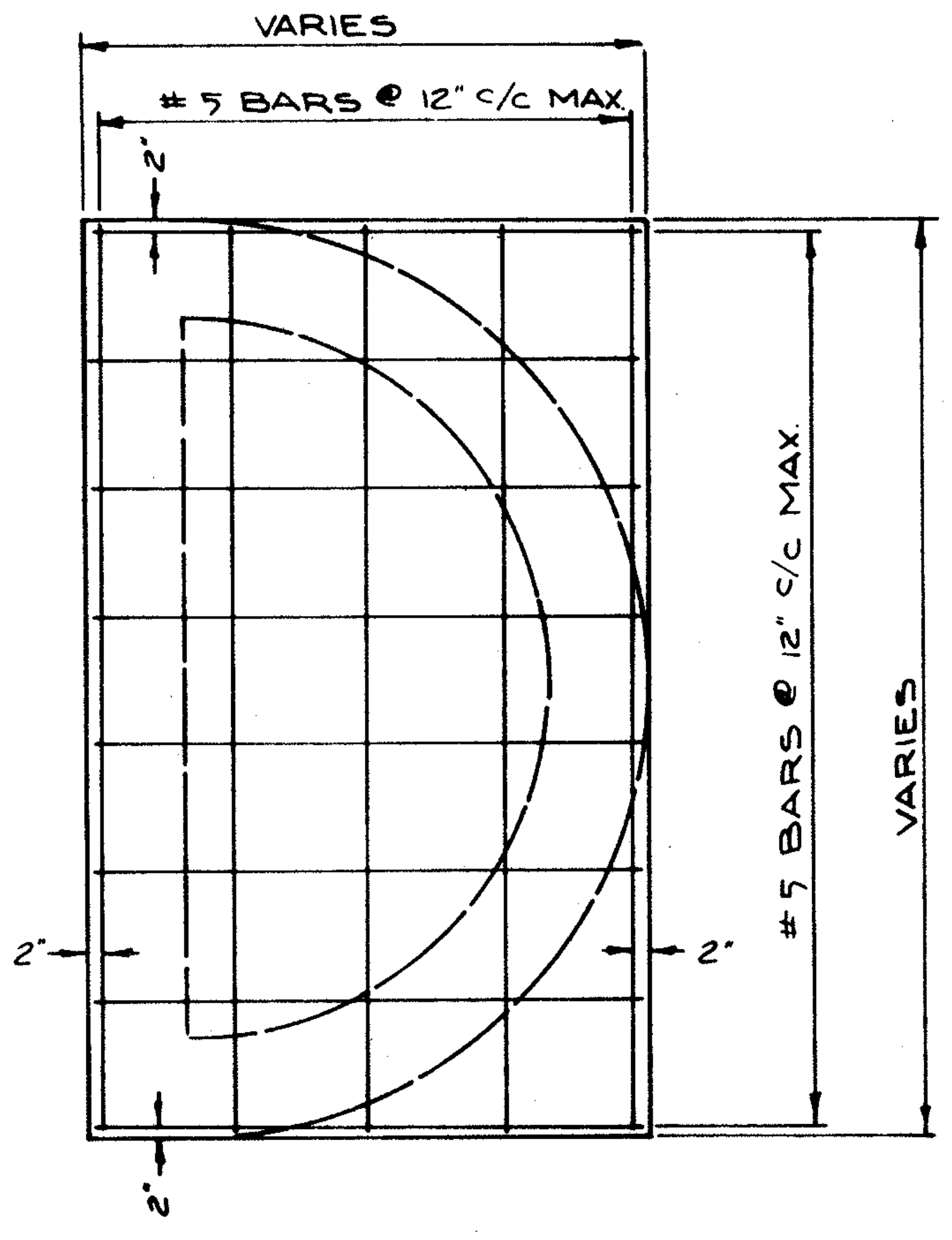
TOP & BOT. SLAB REINFORCING PLAN



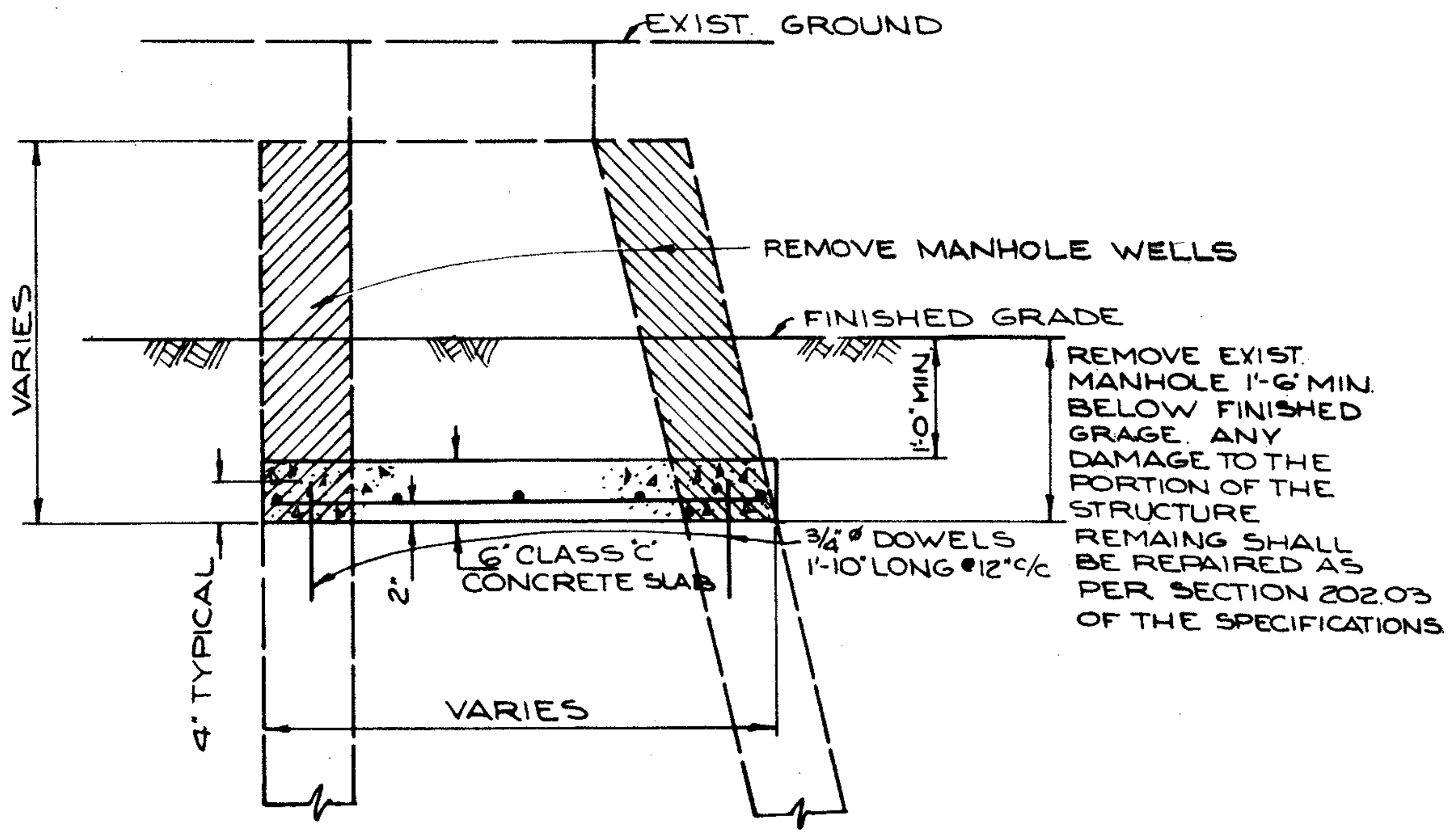
PLAN

BOX CHAMBER	α	PIPE DIAMETER			A	B	C	D	E	F	G	H	I	L	M
		D-1	D-2	D-3											
S-10	67°30'00"	48"	51"	48"	2'-9"	6'-3"	5'-3"	12'-3⅞"	5'-11 11/16"	6'-4 3/16"	3'-10"	6'-9"	6'-3 3/16"	7'-6 11/16"	8'-10"

JUNCTION CHAMBER No2 S-10-ELMWOOD AVE. STA. 57+34.87



PLAN



ELEVATION

DETAILS OF SLAB FOR MANHOLES ABANDONED W. 117 ST.

NOTE: THE COST OF PROVIDING THE SLAB AS DETAILED SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 ~ MANHOLE ABANDONED AS PER PLAN.

JUNCTION CHAMBER No2 DETAIL - S-10

SHEET Nº	REFERENCE Nº	603 TYPE 'B' CONDUIT 8"	12"	15"	21"	24"		603 TYPE 'C' CONDUIT 12"	15" 706.02 CL.V	15"	24"	42"	48" 706.02 CL.V OR 707.13	54"	604 STD. Nº 8 C.B.	CITY OF CLEVELAND STD. C.B. Nº 1	Nº 2	STD. 2-2A C.B. W/TRAP MOD. AS PER PLAN	STD. Nº 5 C.B.	STD. 5A C.B. W/TRAP, GRATE "B" MOD AS PER PLAN	STD. Nº 5A C.B.	STD. Nº 6 C.B. MOD.	STANDARD PAVED SHOULDER INLET Nº 2-A-6	Nº 2-A-8	Nº 2-A-10	SPL. PAVED SHOULDER INLET M.H. Nº 2-A-6		STD. MED. INLET 1-3B	STD. Nº 1-A M.H.
		LIN. FT.														EACH													
68	D-12											147														1			
68	D-13			75																					1				
68	D-14			267																			1						
68	D-15											139									1								
~~68~~	~~D-16~~			~~124~~																		~~1~~							
68	D-17			60																			1						
68	D-18												522								1								
68	D-19			63																				1					
68	D-20			260																			1						
68	D-21								242										1										
68	D-21A									22															1				
68	D-21B									35													1						
68	D-21C									112																			1
68	D-22				122														1										
68	D-23				25																							1	
68	D-24					82																						1	
68	D-24A										34													1					
68	D-25													250															1
68	D-105		52													1													
68	D-106		17													1													
68	D-107		17													1													
68	D-108		30													1													
68	D-109		45													1													
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68	D-115		42													1													
68	D-116		42													1													
68	D-117	206																											
68	D-118	208																											
68	D-119	187																											
68	D-120	172																											
68	D-121		48													1													
68	D-122		48													1													
68	D-123		52													1													
68	D-124		42													1													
68	D-125							60								1													
68	D-126		73													1													
68	D-127							34									1												
68	D-128		57													1													
68	D-129							32									1												
68	D-130							133									1												
68	D-131							65									1												
68	D-132							86									1												
68	D-133			84																1									
68	D-134		54													1													
68	D-135		33													1													
68	D-136							16								1													
68	D-222							47										1											
68	D-23A				25										1														
TOTAL		773	885	⑨33 809	172	82		473	242	169	34	286	522	250	1	23	5	1	2	1	2	①	4	2	2	1		2	2

SANITARY SEWERS

SHEET Nº	REFERENCE Nº	603 TYPE 'B' CONDUIT 12" 706.08 W/706.12 JOINTS	15" 706.08 W/706.12 JOINTS	30" 706.02 OR 706.08 W/706.11 OR 706.12 JTS.	48" 706.02 CL III W/706.11 JOINTS	TYPE 'C' CONDUIT 21" 706.08 ES OR 706.02 W/706.11 OR 706.12 JOINTS	30" 706.08 ES. 706.02 CL. III W/706.11 OR 706.12 JOINTS	604 STANDARD Nº 1-A. M.H. W/706.11 JOINTS MODIFIED AS PER PLAN	JUNCTION CHAMBER Nº 1 WITH 706.11 JOINTS	JUNCTION CHAMBER Nº 2 WITH 706.11 JOINTS	JUNCTION CHAMBER Nº 3 WITH 706.11 JOINTS
		LIN. FT.						EACH			
68	S-4	165						1			
68	S-5		169					1			
68	S-6						284				
68	S-7						297	1			
68	S-8			60				1			
68	S-9				630				1		
68	S-10				18					1	
68	S-11				369			1			
68	S-12				196			1			
68	S-13										1
68	S-14							1			
68	S-15							1			
68	S-16							1			
	S-17	NOT USED									
68	S-18					301		1			
TOTALS		165	169	60	1213	301	581	10	1	1	1

SHEET Nº 68

REF. Nº	STATION	SIDE	202 MANHOLE REMOVED	MANHOLE AB'D.	CATCH BASINS REMOVED	CATCH BASINS AB'D.	PIPE REMOVED 24" & UNDER	PIPE REMOVED OVER 24"	SPECIAL FILL & PLUG EXIST 48" PIPE
			EACH		EACH		LIN. FT.	LIN. FT.	LIN. FT.
X-11	52+70 STRATFORD	℄	1						
X-13	57+80 CLOVERDALE	12' LT & RT, ℄		1		2			
X-15	42+30 W. 117 ST.	30' LT & RT.			3				
X-16	45+25 W. 117 ST.	30' LT & RT			2				
X-18	60+10 CLOVERDALE	℄	1						
X-21	51+30 W. 117 ST.	30' LT & RT, ℄	1		2				
X-22	59+79 ELMWOOD	17' RT.		1					
X-23	60+15 ELMWOOD	12' LT & RT, ℄	1		2				
X-24	54+30 W. 117 ST.	30' LT & RT, ℄	1		2				
X-25	49+60 BELMONT	13' LT & RT, ℄	1		2				
X-26	49+50 SECTOR	15' RT			2				
X-27	57+50 W. 117 ST	30' RT			1				
X-28	49+50 SECTOR	13' LT			1				
X-29	47+80 BELMONT	12' LT & RT			2				
X-30	43+65 W. 116 ST	13' LT & RT			1	1			
X-34	51+58 W. 116 ST.	13' LT, RT, ℄	1		2				
X-10A	55+30 TO 57+13 CLOVERDALE	℄						183	
X-11A	52+73 TO 53+35 STRATFORD	℄					62		
X-13A	59+82 TO 60+10 CLOVERDALE	℄						28	
X-18A	60+10 TO 60+63 CLOVERDALE	℄ - 30' LT						60	
X-22A	59+79 TO 60+62 ELMWOOD	17' RT.; 9' LT						87	
X-23A	58+17 TO 58+92 ELMWOOD	17' RT						75	
X 30A	44+39 TO 45+29 W. 116 ST	℄					90		
X-34A	50+09 TO 51+49 W. 116 ST	℄					140		
–	47+70 TO 50+70	℄							300
TOTALS			7	2	22	3	292	433	300

SHEET Nº	REFERENCE Nº	603 6" TYPE "F"	605 6" PIPE UNDERDRAIN DEEP	AS PER PLAN	SHAL.	BENDS AND BRANCHES 6" PLUG	6" WYE	6" TEE	6" x 30° BEND	6" x 60° BEND	603 6" TYPE "B" COND.
		LIN. FT.				EACH					LIN. FT.
66	U-1	10	380						1		
66	U-2	10	554						1		
66	U-3	10	290			1			1		
68	U-4	10	680			1		1			
68.	U-5	10	105			1	1				
68	U-6		440			1				1	
68	U-7	10	750			1					
68	U-8	10	530			1					
68	U-9	10	927			1					
239	U-29	10		182		1					
68	U-30	10		165		1					
68	U-31	10		235		1					
68	U-32	20		70		2					
68	U-33	20		90		2					
68	U-34	20		306		2					
68	U-35	10		188		1					
68	U-36	20		207		2					
68	U-37	10		157		1					
68	U-38	30		225		3					
68	U-39	10		55		1					
68	U-40	30		215		3					
68	U-41	20		287							
68	U-10	20		400							
68	U-11	20		710		1					
68	U-12	10		33		1					
68	U-14			215		2		1			48
68	U-15	10		180		1					
68	U-16	10		45		1					
68	U-17	10		70		1					
68	U-13			128		1					
TOTALS		380	4656	4163	-	☒	☒	☒	☒	☒	48

SHEET 68

REF. Nº	STATION	SIDE	604 MANHOLES ADJ.	MANHOLES RECONST.	CATCH BASINS ADJ.	
R-1	42+54 W. 117 ST	44' LT	1			
R-2	42+54 W 117 ST.	℄		1		
R-3	57+52 W. 117 ST.	49' LT.	1			
R-4	57+86 W 117 ST.	℄	1			
R-15	56+09 ELMWOOD	13' RT			1	
R-16	56+09 ELMWOOD	13' LT			1	
R-17	56+18 ELMWOOD	℄		1		
TOTALS			3	2	2	

EROSION CONTROL

REF. Nº	STATION TO STATION	SIDE	SH'T. 68 660 SODDING	66
			SQ. YDS.	
E1	727+90 TO 729+40 M.L.	RT.	100	
E2	28+05 TO 29+55 RAMP "7"	LT.	100	
E3	29+25 TO 30+75 RAMP "7"	RT.	167	
E4	730+87 TO 732+37 M.L.	LT.	100	
E5	50+38 TO 51+61 W. 117 ST.	LT.	210	
E6	40+82.17 RAMP 11	LT	18	
E7	36+00 TO 40+50 RAMP 11	LT.	428	
E 28	24+55.99 RAMP 7	RT	18	
E-8	726+43 TO 727+93	℄		100
E-9	734+43 TO 735+93	℄	100	
TOTALS			*1341	

*INCLUDES TOTAL FROM SHEET 66 & 68.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

71/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

CALCULATED BY C. B. DATE 10-12-71
CHECKED BY H.C.S. DATE 2-14-72

DRAINAGE QUANTITIES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

72
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

CROSS REFERENCE
FOR PIPE PROFILE

D-26, D-29	SHEET No 83
D-36, D-37, D-39	SHEET No 84
D-27, D-28, D-30	SHEET No 87
D-31 thru D-35 D-38	SHEET No 88
D-137 thru D-141	SHEET No 101
D-142 thru D-150, S-29	SHEET No 102
D-225	SHEET No 96
D-227, D-228	SHEET No 111
S-19 thru S-24	SHEET No 94
S -28- 27	SHEET No 111

FOR QUANTITIES SEE
SHEET No 73 & 75

DRAINAGE PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

SHEET Nº	REFERENCE Nº	603									604														
		TYPE 'B' CONDUIT								54" TYPE 'C'	CITY OF CLEVELAND STD. C.B.		STD. Nº 2-2A C.B. W/TRAP MOD.	STD. Nº 5 C.B.	STD. Nº 5A C.B.	STD. Nº 6 C.B. MOD.	STANDARD PAVED SHOULDER INLET			SPECIAL PAVED SHOULDER INLET MANHOLE			STD. MED. INLET I-3B	STD. Nº 1-A M.H.	STD Nº 8 C.B
		6"	12"	15"	18"	21"	24"	54"			Nº 1						2-A-10	2-A-14		2-A-10	2-A-16				
		LIN. FT.									EACH														
72	D-26									198					1										
72	D-27			115												1									
72	D-28			75														1							
72	D-29									375										1					
72	D-30			235													1								
72	D-31				54									1											
72	D-32					139											1								
72	D-33					91										1									
72	D-34					25																	1		
72	D-35						90																1		
72	D-36									525														1	
72	D-37							248													1				
72	D-38				216													1							
72	D-39							318																1	
72	D-137		31								1														
72	D-138		53								1														
72	D-139		48								1														
72	D-140		26								1														
72	D-141		35								1														
72	D-142		52								1														
72	D-143		10								1														
72	D-144		21								1														
72	D-145		38								1														
72	D-146		38								1														
72	D-147	42																							
72	D-148	45																							
72	D-149	40																							
72	D-150	38																							
72	D-225		11										1												
72	D-227		12								1														
72	D-228		12								1														
72	D-142A		24								1														
72	D-34A					25																			1
TOTAL		165	411	425	270	280	90	566		1098	13		1	1	1	2	2	2		1	1		2	2	1

SHEET Nº	REFERENCE Nº	603						604
		TYPE 'B' CONDUIT			TYPE 'C' CONDUIT			STANDARD Nº 1-A M.H. W/706.11 JOINTS MODIFIED AS PER PLAN
		27" 706.02 OR 706.08 W/706.11 OR 706.12 JTS.	30" 706.02 OR 706.08 W/706.11 OR 706.12 JTS.	36" 706.02 OR 706.08 W/706.11 OR 706.12 JTS.		36" 706.08 ES OR 706.02 CL III W/ 706.12 OR 706.11 JTS	42" 706.02 CL III W/706.11 JOINTS	
		LIN. FT.						EACH
72	S-19	275						1
72	S-20		273					1
72	S-21			140				1
72	S-22			133				1
72	S-23					289		1
72	S-24						186	1
	S-25	DELETED						
	S-26	DELETED						
72	S-27							1
72	S-28							1
72	S-29							1
TOTALS		275	273	273		289	186	9

SHEET 72

REF. Nº	STATION	SIDE	604			
			MANHOLES ADJ.		CATCH BASINS ADJ.	
R-5	44 + 34 W 110 ST.	14' LT			1	
R-6	44 + 35 W. 110 ST	14' RT.			1	
R-7	44 + 40 W. 110 ST.	℄	1			
TOTALS			1		2	

SHEET Nº 72

REF. Nº	STATION	SIDE	202					
			MANHOLE		CATCH BASINS		PIPE	PIPE
			REMOVED	AB'D.	REMOVED	AB'D.	REMOVED 24" & UNDER	REMOVED OVER 24"
			EACH				LIN. FT.	
X-35	45 + 72 WEST 115	℄		1				
X-37	48 + 68 WEST 115	℄		1				
X-38	46 + 10 WEST 114	℄	1					
X-120	45 + 25 TO 45 + 49 W. 110	℄						24
X-121	47 + 94 TO 48 + 25 W. 110	℄						31
X-38A	45 + 80 TO 46 + 10 W. 114	℄					30	
X-41	46 + 32 TO 46 + 81 W. 112	℄					49	
X-12	51 + 60 TO 51 + 68 W. 115	RT, LT, ℄	1		2			
X-14	51 + 63 & 51 + 66 W. 114	RT & LT			2			
TOTALS			2	2	4		79	55

REF. Nº	STATION TO STATION	SIDE	601 PAVED GUTTER TYPE 2 MOD. AS PER PLAN	660 SODDING
E-26	750 + 60 - 751 + 90	RT.	130 LIN. FT.	
E-29	740 + 27 - 741 + 75	LT.		100 SQ. YD.
E-30	740 + 25 - 741 + 75	LT.		100 SQ. YD.
E-31	737 + 00 - 738 + 50	RT.		100 SQ. YD.
E-34	742 + 68 - 744 + 18	℄		100 SQ. YD.
TOTAL			130 LIN. FT.	400 SQ. YD.

CALCULATED BY C. B. DATE 10-12-71
CHECKED BY HCS. DATE 2-14-72

DRAINAGE QUANTITIES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

CROSS REFERENCE FOR PIPE PROFILE

D-40, D-42, D-46 D-50, D-52 & D-53, D-59	SHEET № 84
D-40, D-41, D-41A	SHEET № 88
D-43 thru D-45, D-47 thru D-49, D-51 D-54 thru D-58	SHEET № 89
D-151	SHEET № 102
D-152 thru D-158, S-36	SHEET № 103
D-159 thru D-165	SHEET № 104
D-226	SHEET № 96
S-30 thru S-33	SHEET № 94
S-34, S-35	SHEET № 95
S-37	SHEET № 111
S-38, S-39	SHEET № 104

FOR QUANTITIES SEE SHEET № 75.

DRAINAGE PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

75
713

CUYAHOGA COUNTY
CUY - 90 - 10 40

SHEET Nº	REFERENCE Nº	603 TYPE 'B' CONDUIT 8"	12"	15"	18"	54"	TYPE 'C' CONDUIT 12"	60" 706.02 CL. IV OR 707.13	60" 706.02 CL. V OR 707.13	604 CITY OF CLEVE STD C.B. Nº 1	STD. Nº 3 C.B.	STD. Nº 2-2A C.B W/TRAP MOD.	STD. Nº 3 C.B. MOD.	STD. Nº 2-2-B C.B	STD. Nº 6 C.B. MOD.	STD. PAVED SHOULDER INLET 2-A-16		SPL. PAVED SHOULDER INLET M.H. 2-A-6		STD MED. INLET I-3B	STD. MED. INLET I-3B MOD.	STD. Nº 1-A M.H.	STD. Nº 8 C.B.
		LIN. FT.								EACH													
74	D-40			83							1												
74	D-41			36																1			
74	D-42					93															1		
74	D-43			94							1												
74	D-44			34																1			
74	D-45			77									1										
74	D-46					107															1		
74	D-47			108							1												
74	D-48			76																1			
74	D-49			77									1										
74	D-50					123															1		
74	D-51			80									1										
74	D-52					206																1	
74	D-53							380														1	
74	D-54			25																1			
74	D-54A			80										1									
74	D-55			68																1			
	D-56	DELETED																					
74	D-57			172												1							
74	D-58				32										1								
74	D-59								475									1					
74	D-151		55							1													
74	D-152		53							1													
74	D-153		28							1													
74	D-154		62							1													
74	D-155		10							1													
74	D-156		69							1													
74	D-157		16							1													
74	D-158		16							1													
74	D-159		18							1													
74	D-160		33							1													
74	D-161		39							1													
74	D-162		15							1													
74	D-163		13							1													
74	D-164	45																					
74	D-165	49																					
74	D-226						25					1											
74	D-41A			36																			1
74	D-44A			34																			1
74	D-55A			25																			1
TOTAL		94	427	1105	32	529	25	380	475	13	3	1	3	1	1	1		1		5	3	2	3

SHEET Nº	REFERENCE Nº	603 42" TYPE B 706.02 CL IV W/706.11 JOINTS	42" TYPE "C" 706.02 CL IV W/706.11 JOINTS	604 STANDARD Nº 1-A M.H. W/706.11 JOINTS MODIFIED AS PER PLAN	STANDARD Nº 1-A M.H. W/706.11 JOINTS MODIFIED AS PER PLAN W/DROP
		LIN. FT.		EACH	
74	S-30		427	1	
74	S-31		221	1	
74	S-32	279			1
74	S-33	274			1
74	S-34	284			1
74	S-36			1	
74	S-37			1	
74	S-38			1	
74	S-39			1	
TOTALS		837	648	6	3

REF. Nº	STATION	SIDE	SHEET Nº 74 202 MANHOLE REMOVED		CATCH BASINS REMOVED	AB'D.	PIPE REMOVED 24" & UNDER		604 MANHOLES ADJ.
			EACH				LIN. FT.		EACH
X-57	47+08 WEST 105	12'LT			1				
X-59	52+33 WEST 105	12'RT			1				
X-61	50+08 WEST 104	℄	1						
Y-62	52+58 WEST 104	12'LT & RT			2				
X-63	49+00 WEST 103	14'LT & RT ℄	1			2			
X-61A	47+95 TO 50+79 W. 105	℄					284		
R-8	52+59 W. 104 ST	℄							1
TOTALS			2		4	2	284		1

SHEET Nº	REFERENCE Nº	603 6" TYPE "F"	605 6" PIPE UNDERDRAINS DEEP	AS PER PLAN	SHAL.	BENDS AND BRANCHES 6" PLUG	6" WYE	6" TEE	6" x 30° BEND	6" x 60° BEND	6" x 90° BEND
		LIN. FT.				EACH					
72	U-10	20	877			1					1
72	U-11	10	987			1					1
	U-12	DELETED									
	U-13	DELETED									
	U-14	DELETED									
	U-15	DELETED									
74	U-16	10	550						1		
74	U-17	10	975						3		
74&76	U-18	10	443							1	
	U-19	DELETED									
	U-20	DELETED									
74&76	U-21	10	345						1		
72	U-42	30		240		3					
72	U-43	20		240		2					
72	U-44	20		270		2					
72	U-45	50		860		5					
72	U-46	10		114		1					
72	U-47	10		120		1					
72	U-48	10		170		1					
72	U-49	10		165		1					
74	U-50	20		220							
74	U-51	30		230		1					
74	U-52	20		265		2					
74	U-53	40		795		1					
74	U-54	10		165		1					
74	U 55	10		250		1					
74	U-56	20		540		2					
TOTALS		380	4177	4644	-	☒	☒	☒	☒	☒	☒

REF Nº	STATION TO STATION	SIDE	601 TYPE 2 GUTTER MOD. AS PER PLAN	660 SODDING
E-32	751+90-756+00	RT	410 LIN. FT.	
E-33	756+00-758+15	RT	215 LIN FT	
E-35	752+93-754+43	℄		100 SQ.YDS.
E-36	754+52-755+43	℄		61 SQ.YDS.
E-37	755+57-757+07	℄		100 SQ.YDS.
E-38	763+82-765+32	℄		100 SQ.YDS.
TOTALS			625 LIN. FT.	361 SQ.YDS.

CALCULATED BY C.B. DATE 10-12-71
CHECKED BY H.C.S. DATE 2-14-72

DRAINAGE QUANTITIES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

SEE SHEET No. 262 FOR CONTINUATION OF WEST BLVD. DRAINAGE

CROSS REFERENCE FOR PIPE PROFILE

D-60, D-61	SHEET Nº 84
D-67, D-68, D-70	SHEET Nº 85
D-62 thru D-66 D-69	SHEET Nº 90
D-168 thru D-170	SHEET Nº 104
D-171 thru D-177	SHEET Nº 105
D-178 thru D-185	SHEET Nº 106
D-186	SHEET Nº 107
S-35, S-40 thru S-42	SHEET Nº 95
S-43, S-44	SHEET Nº 111

FOR QUANTITIES SEE SHEET Nº 77 & 81.

DRAINAGE PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

SHEET Nº	REFERENCE Nº	603								604										
		TYPE 'B' CONDUIT			TYPE 'C' CONDUIT					CITY OF CLEVELAND STD. C.B.		STD. Nº 3 C.B	STD. Nº 5 C.B. W/TRAP MOD. AS PER PLAN	STD Nº 5A C.B.		SPECIAL PAVED SHOULDER INLET MANHOLE			STD. PAVED SHOULDER INLET	
		12"	15"		60" 706.02 CL. IV OR 707.13	12"	15"	60" 706.02 CL. III OR 707.13		Nº 1	Nº 2					2-A-6	2-A-12	2-A-14	2-A-6	2-A-10 W/TRAP MOD. AS PER PLAN
		LIN. FT.								EACH										
	D-60	DELETED																		
76	D-61				205											1				
76	D-62		48									1								
76	D-63		27																1	
76	D-64		8																1	
76	D-65	68									1									
76	D-66	68									1									
76	D-67							315						1						
76	D-68							175										1		
76	D-69	34																	1	
76	D-70							150									1			
76	D-168		87										1							
76	D-169						90													1
76	D-170					41				1										
76	D-171					49				1										
76	D-172					37				1										
76	D-173					38				1										
76	D-174					37				1										
76	D-175					37				1										
76	D-176					47				1										
76	D-177	70								1										
76	D-178					36				1										
76	D-179	58									1									
76	D-180					57				1										
76	D-181	80									1									
76	D-182	50									1									
76	D-183	24								1										
76	D-184	49								1										
76	D-185	24								1										
76	D-186						9						1							
TOTALS		525	170		205	379	99	640		13	5	1	2	1		1	1	1	3	1

SHEET Nº	REFERENCE Nº	603			604	
		42" TYPE B W/ 706.11 OR 706.12 JOINTS	42" TYPE 'C' 706.02 CL III W/ 706.11 JOINTS	42" TYPE "C" 706.02 CL IV W/706.11 JOINTS	STANDARD Nº 1-A M.H. W/706.11 JOINTS MODIFIED AS PER PLAN	STANDARD Nº 1-A M.H. W/706.11 JTS MODIFIED AS PER PLAN W/DROP
		LIN. FT.			EACH	
76	S-35			280		1
76	S-40		228			1
76	S-41		314		1	
76-78	S-42	304			1	
76	S-43				1	
76	S-44				1	
76	S-45				1	
TOTALS		304	542	280	5	2

EROSION CONTROL			SHEET Nº	76
REF Nº	STATION TO STATION	SIDE	667 SEEDING & JUTE MATTING AS PER PLAN	ITEM 660 SODDING FOR SPECIAL BERM & SLOPE PROTECTION
			SQ. YDS.	SQ. YDS.
E8	769+47	93'RT		36
E9	769+47	98'RT	136	
E10	710+09	98'LT	109	
E11	771+52	98'RT	185	
E12	772+49	98LT	125	
E13	772+49	93LT		55
TOTALS			555	91

REF Nº	STATION	SIDE	SHEET Nº 76						
			202						604
			MANHOLE		CATCH BASINS		PIPE		MANHOLE ADJ.
			REMOVED	AB'D	REMOVED	AB'D	REMOVED 24" & UNDER		
									EACH
X-64	51+32 WEST 103	14'LT&RT		1		2			
X-65	40+30 WEST BLVD	70'LT		1					
X-66	40+51 WEST BLVD	20'LT&RT			2				
X-67	43+31 WEST BLVD	70'LT.		1					
X-68	43+96 WEST BLVD	70' RT.		1					
X-69	45+42 WEST BLVD	20'LT&RT			2				
X-70	49+57 WEST BLVD	19'LT&RT			2				
X-71	53+21 WEST BLVD	19'LT&RT			2				
X-72	48+91 WEST 101	℄	1						
X-73	50+73 WEST 101	13'LT&RT			1	1			
X-74	51+41 WEST 101	℄	1						
X-75	54+13 WEST 101	14'RT			1				
X-76	64+19 WESTERN AVE	14'LT			1				
X-123	60+82 WESTERN	13'LT&RT			2				
X-64A	51+48 TO 51+91 W. 103	℄					43		
X-122	50+24 TO 50+60 WEST Bl	70' LT					36		
R-9	54+12 W. 101 ST	℄							1
TOTALS			2	4	13	3	79		1

CALCULATED BY C.B. DATE 10-12-71
CHECKED BY H.C.S. DATE 2-14-72

DRAINAGE QUANTITIES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

78
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

CROSS REFERENCE FOR PIPE PROFILE

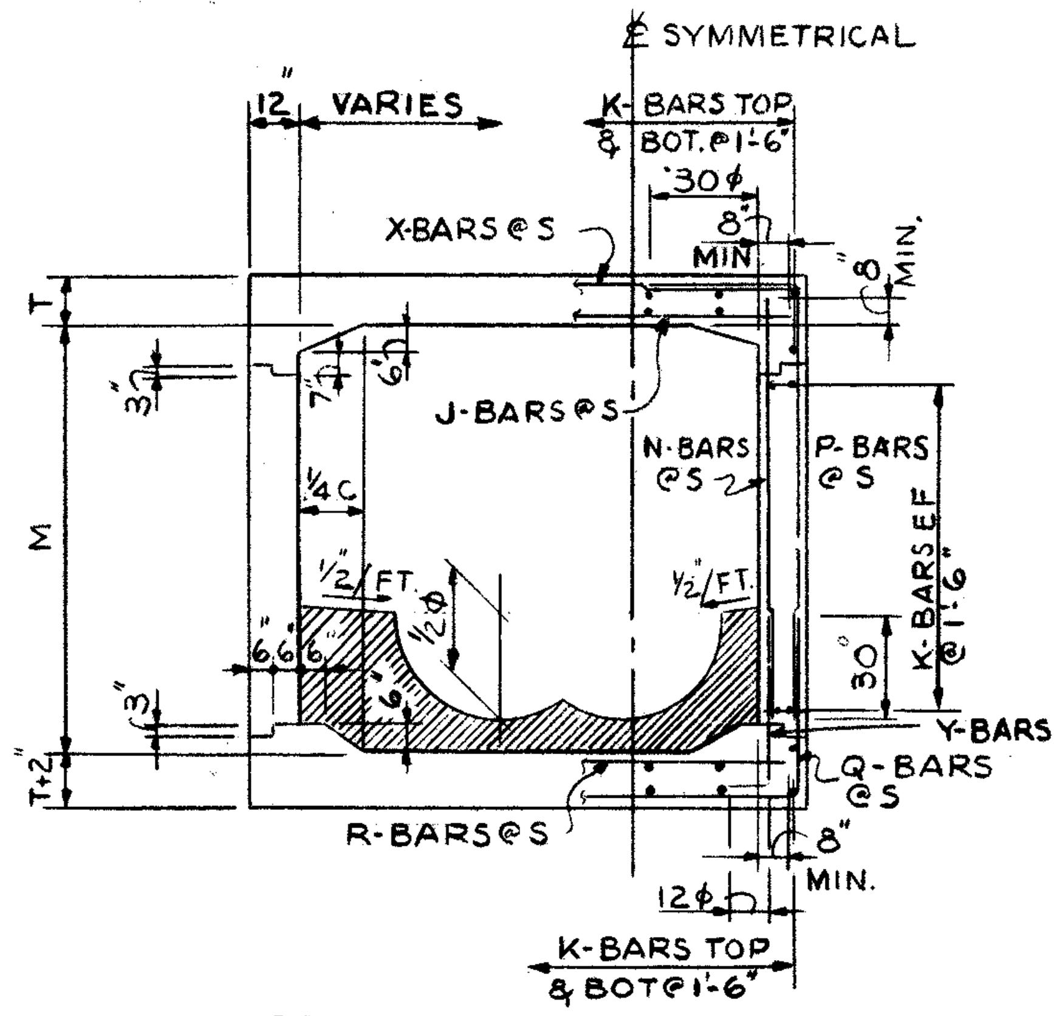
D-71, D-72, D-74, D-82, D-84, D-87, D-89	SHEET Nº 85
D-73, D-75, D-77, D-79	SHEET Nº 90
D-76, D-78, D-85, D-86, D-80, D-81, D-83, D-88, D-90, D-91	SHEET Nº 91
D-187 thru D-195	SHEET Nº 107
D-196 & D-197	SHEET Nº 108
D-205 & S-61	SHEET Nº 111
D-204, D-206 thru D-214, S-56 & S-58	SHEET Nº 109
D-215 thru D-220	SHEET Nº 110
S-54, S-55	SHEET Nº 112
S-46 thru S-53	SHEET Nº 95
D-92 thru D-95 D-198 thru D-199	SHEET Nº 92
D-201 thru D-203	SHEET Nº 108
S-57, S-59 & S-60	SHEET Nº 109

FOR QUANTITIES SEE
SHEET Nº 80 & 81

DRAINAGE PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

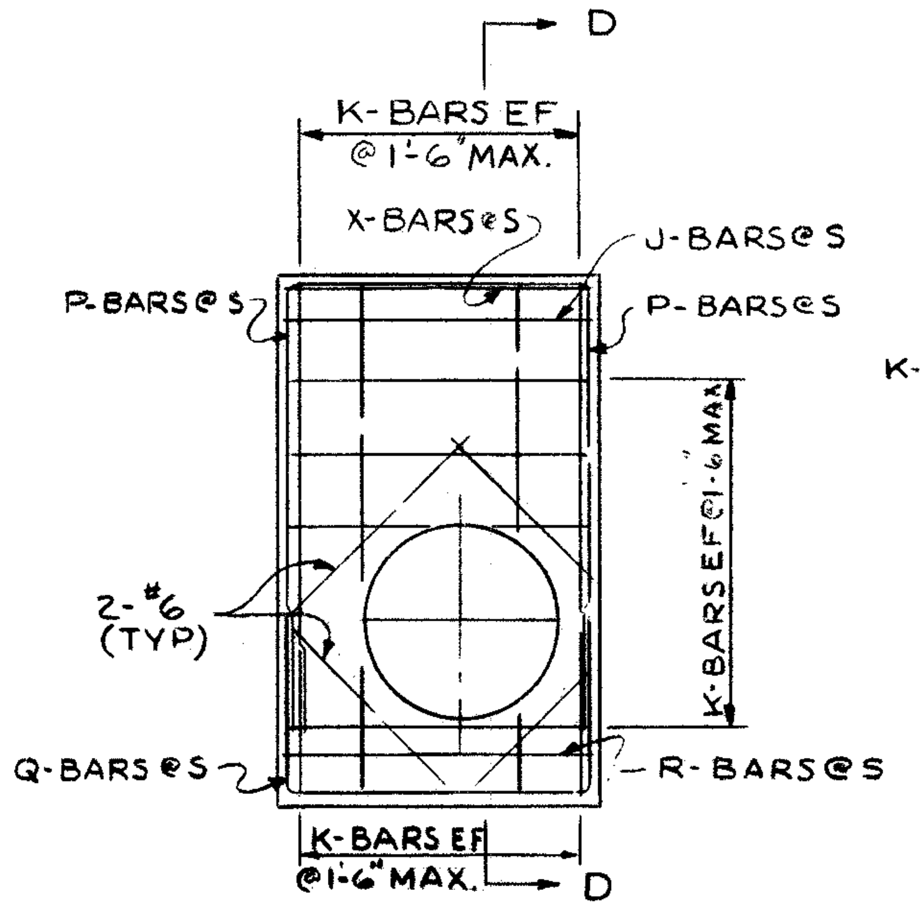
CUYAHOGA COUNTY
CUY 90-10.40



SECTION A-A

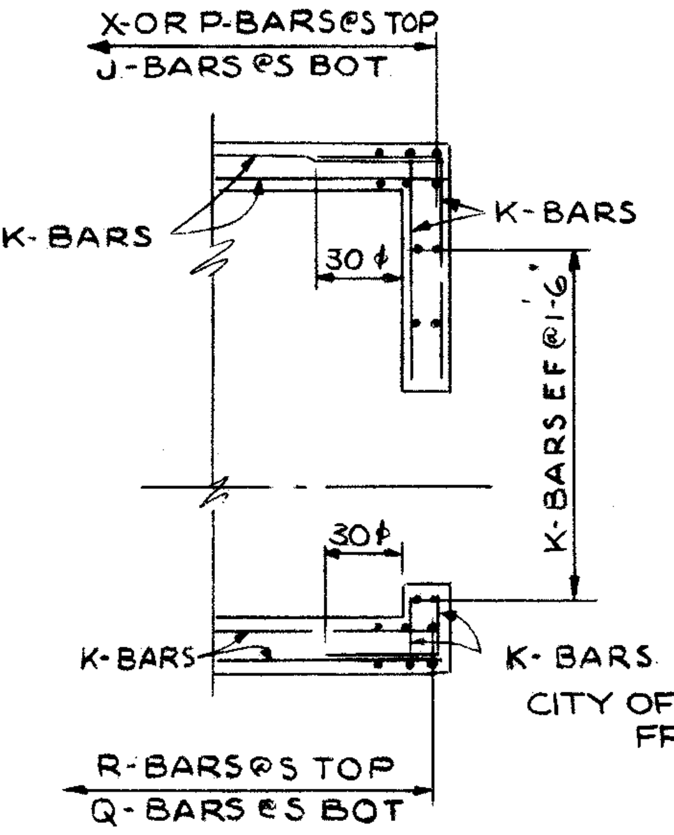
BOX CHAMBER	BAR SPACING 'S' INCHES	REINFORCING BAR SIZES								T IN.
		J	K	N	P	R	Q	X	Y	
		SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	SIZE	
S-53	6½	10	5	8	8	10	8	8	8	18

CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING M.H.-1A.

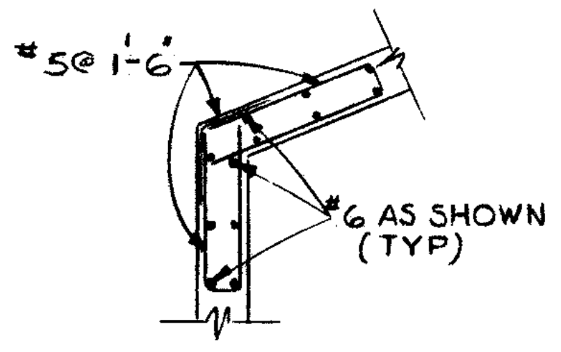


VIEW B-B

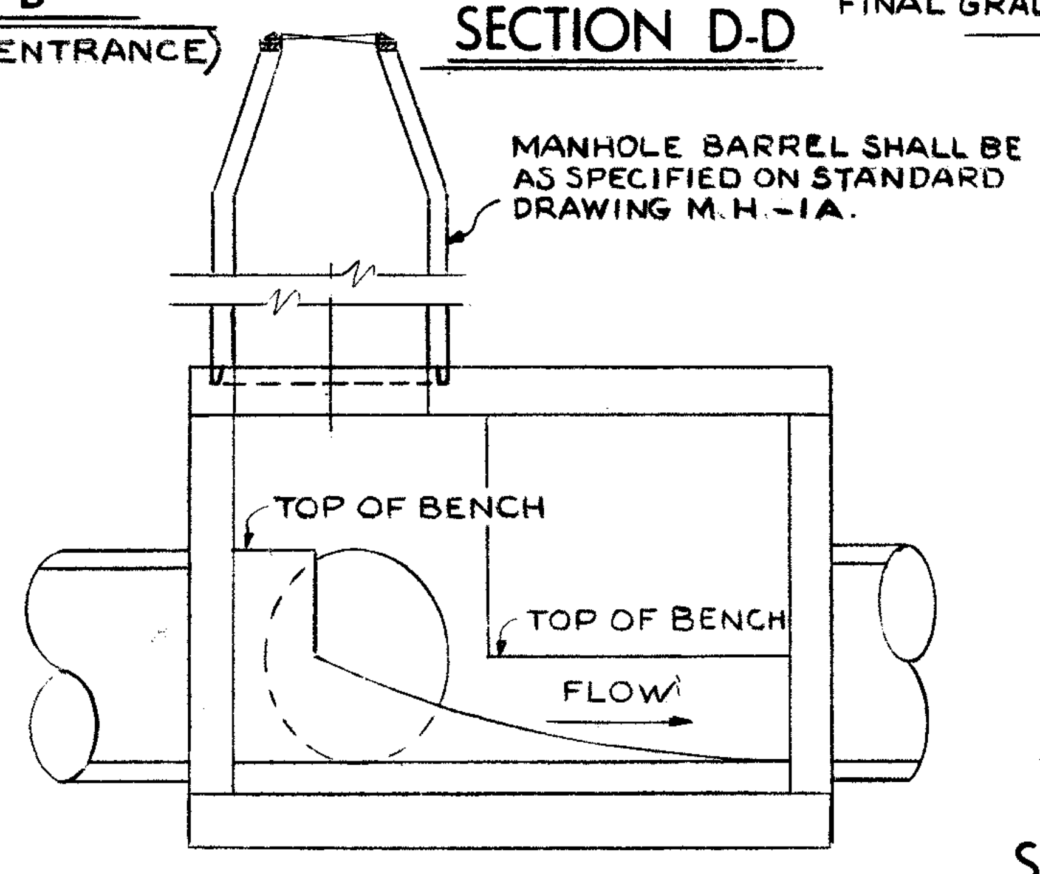
(TYPICAL @ EACH ENTRANCE)



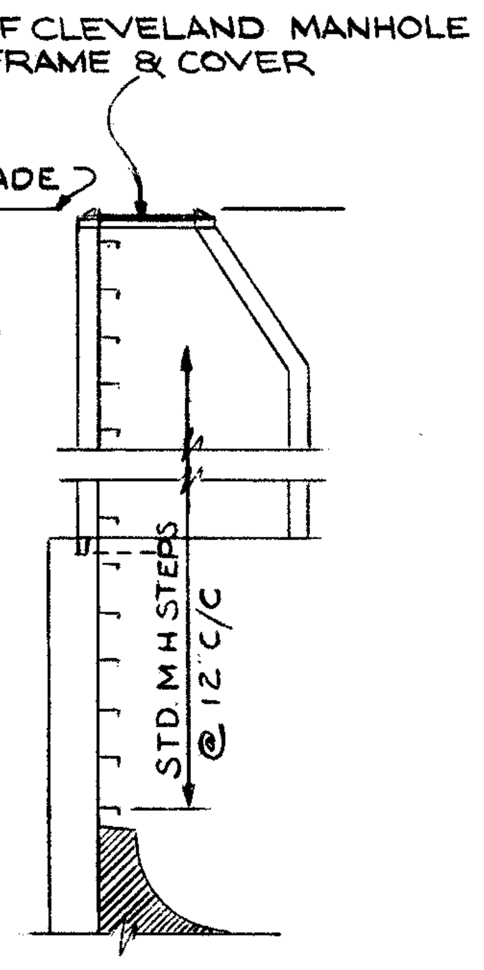
SECTION D-D



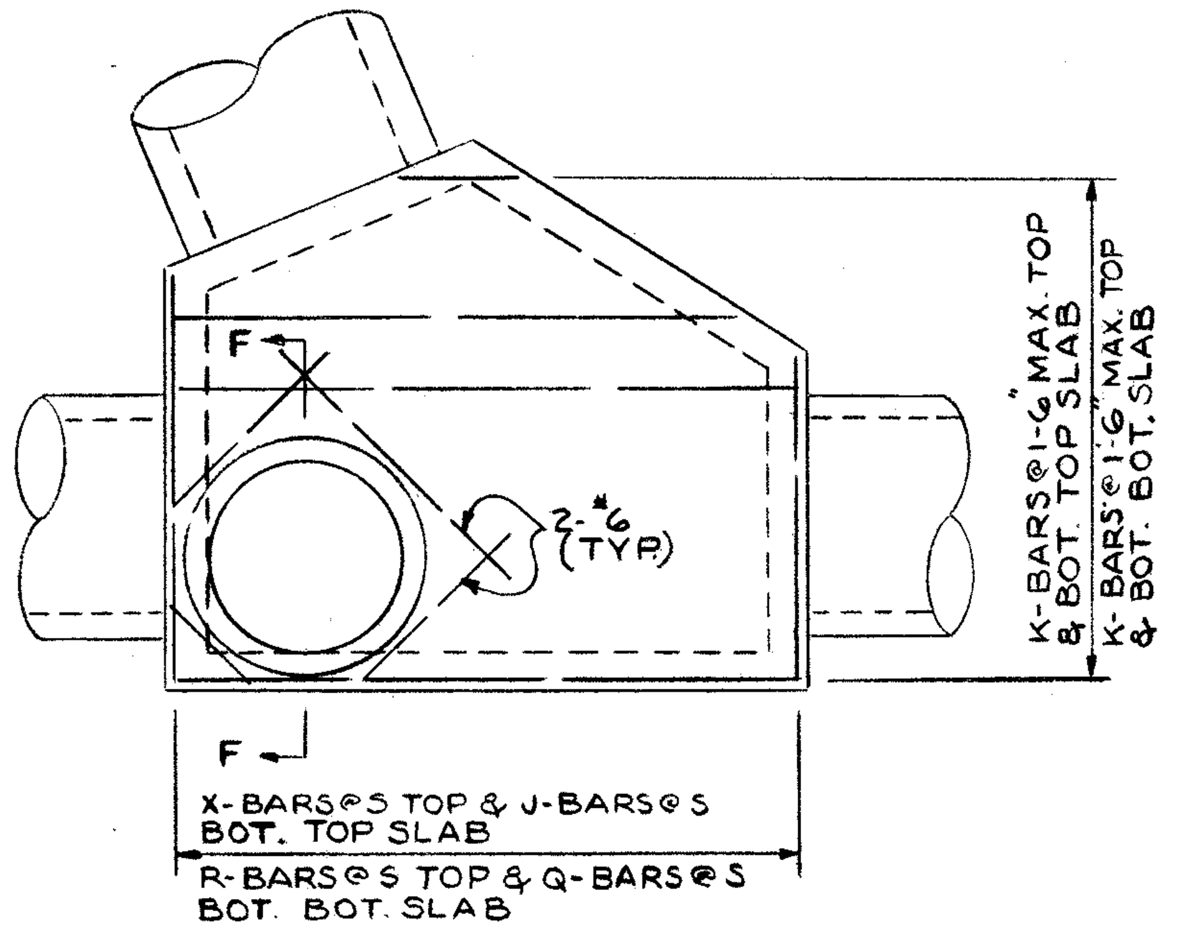
DETAIL C



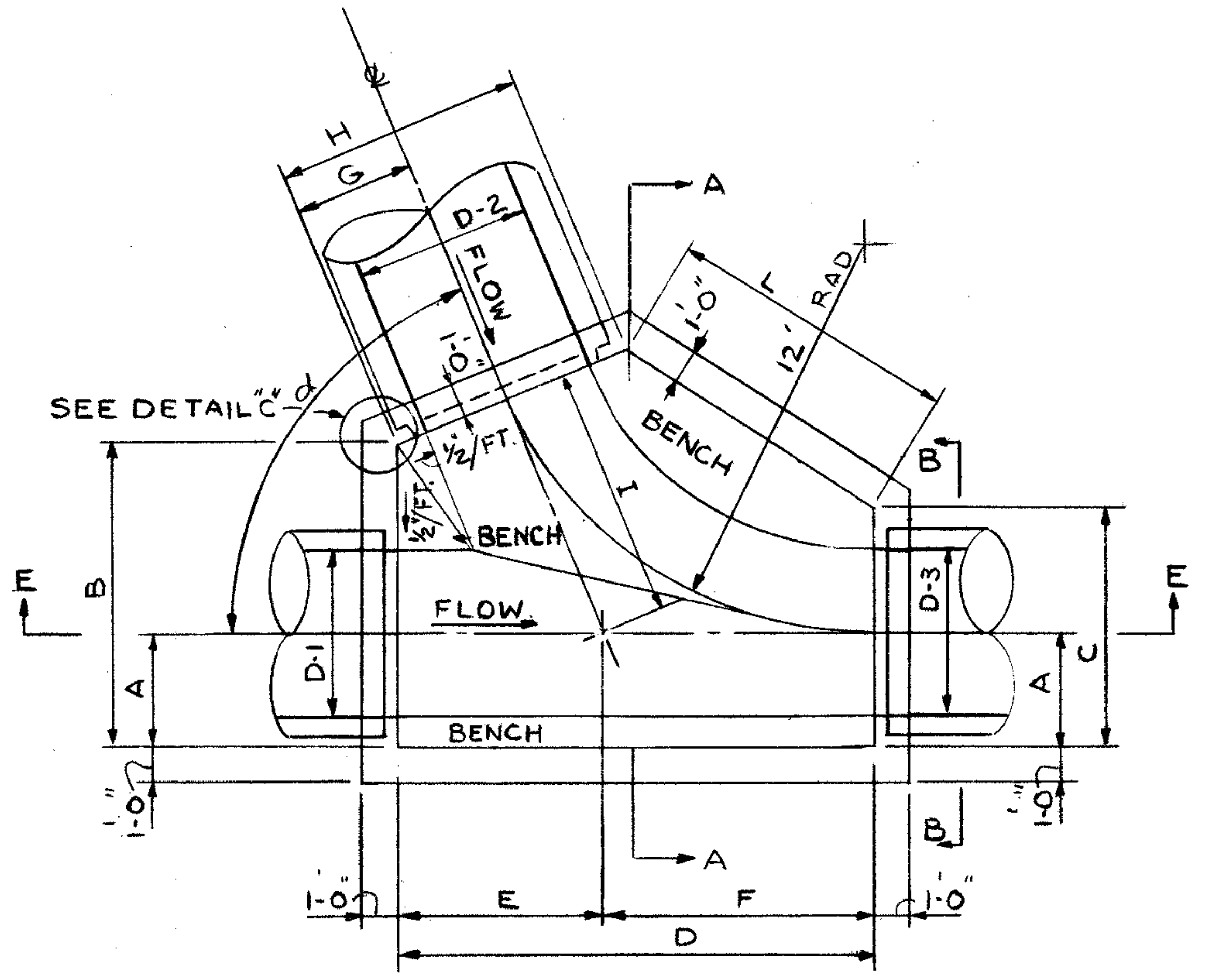
SECTION E-E



SECTION F-F



TOP & BOT. SLAB
REINFORCING PLAN



PLAN

BOX CHAMBER	α	PIPE DIAMETER			A	B	C	D	E	F	G	H	I	L	M
		D-1	D-2	D-3											
S-53	59°30'00"	84"	54"	84"	4'-8"	10'-4"	9'-4"	14'-6⅝"	7'-8 5/16"	6'-10 5/16"	3'-9"	6'-7"	8'-9 7/16"	9'-10⅝"	10'-8"

JUNCTION CHAMBER Nº4 S-53-W.98 ST. STA.45+47.3

JUNCTION CHAMBER DETAIL-S-53

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

80
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

SHEET Nº	REFERENCE Nº	603								604										BENDS & BRANCHES		604						
		TYPE 'B' CONDUIT			TYPE 'C' CONDUIT			TYPE 'F'		CITY OF CLEVELAND STD. C.B.		STD. Nº 3 C.B.	STANDARD PAVED SHOULDER INLET						STD. Nº 1-A MH.	15" x 15° TYPE 'F'	18" x 20° TYPE 'F'	STD. Nº 3 C.B. W/TRAP MOD. AS PER PLAN	STD. Nº 5A C.B.	STD MED. INLET I-3B	SPECIAL PAVED SHOULDER INLET MANHOLE			STD Nº 8 C.B.
		12"	15"	18"	12"	60" 706.02 OR CL. III 707.13	60" 706.02 OR CL. IV 707.13	15" 707.05	18" 707.05	Nº 1	Nº 2		2-A-6 W/TRAP MOD. AS PER PLAN	2-A-6	2-A-8	2-A-10	2-A-12	2-A-16							2-A-8	2-A-10		
		LIN. FT.								EACH															EACH			
78	D-71					150																				1		
78	D-72					100																				1		
78	D-73	70												1														
78	D-74						367																		1			
78	D-75	72									1																	
78	D-76	50									1																	
78	D-77	40													1													
78	D-78	100														1												
78	D-79	27															1											
78	D-80	57									1																	
78	D-81	38										1																
78	D-82						395												1									
78	D-83	15												1														
78	D-84						200												1									
78	D-85		59											1														
78	D-86		20											1														
78	D-87						160												1									
78	D-88		11												1													
78-82	D-89						193																1					
78	D-90		22												1													
78-82	D-91		192															1										
78	D-92		91					56												2				1				
78	D-93		80														1											
78	D-94			27																				1				
78	D-95			98					56												2			1				
78	D-187	8								1																		
78	D-188	78								1																		
78	D-189	15								1																		
78	D-190	42								1																		
78	D-191	23								1																		
78	D-192	8									1																	
78	D-193	8								1																		
78	D-194	28									1																	
78	D-195				15					1																		
78	D-196	15								1																		
78	D-197	15								1																		
78	D-198		25																					1				
78	D-199		70													1												
	D-200	DELETED																										
78	D-201	77									1																	
78	D-202	62									1																	
78	D-203	80								1																		
78	D-204	35								1																		
78	D-205				35					1																		
78	D-206	27								1																		
78	D-207	31								1																		
78	D-208	31								1																		
78	D-209	20								1																		
78	D-210	36								1																		
78	D-211	40										1																
78	D-212				12																	1						
78	D-213	42								1																		
78	D-214	42								1																		
78	D-215	17								1																		
78	D-216	14								1																		
78	D-217	14								1																		
78	D-218	8								1																		
78	D-219	15								1																		
78	D-220	48											1															
78	D-94A																											1
				27																								
78	D-198A		25																									1
TOTALS		1348	595	152	62	250	1315	56	56	24	7	2	1	4	3	2	2	1	3			1	1	4	1	2		2

SHEET Nº	REFERENCE Nº	603				604	
		TYPE 'B' CONDUIT				STANDARD Nº 1-A M.H. W/ 706.11 JOINTS MODIFIED AS PER PLAN	JUNCTION CHAMBER Nº 4 W/706.11 JOINTS
		15" 706.08 E.S W/ 706.12 JOINTS	42" W/ 706.11 OR 706.02 JOINTS	48" W/ 706.11 OR 706.02 JOINTS	54" W/706.11 OR 706.02 JOINTS		
		LIN. FT.				EACH	
78	S-46		157			1	
78	S-47			93		1	
78	S-48			100		1	
78	S-49			90		1	
78	S-50				105	1	
78	S-51				102	1	
78	S-52				160	1	
78	S-53						1
78	S-54	225				1	
78	S-55	29					
78	S-56					1	
78	S-57					1	
78	S-58					1	
78	S-59					1	
78	S-60					1	
78	S-61					1	
TOTALS		254	157	283	367	14	1

EROSION CONTROL			SHEET Nº 78		
REF Nº	STATION TO STATION	SIDE	667 SEEDING & JUTE MATTING AS PER PLAN	ITEM 660 SODDING	ITEM 660 SODDING FOR SPECIAL BERM & SLOPE PROTECTION
			SQ. YDS.	SQ. YDS.	SQ. YDS.
E 14	779+27	93' LT			72
E 15	779+27	98' LT	264		
E 16	780+83	98' LT	404		
E 17	780+83	93' LT			63
E 18	780+18	98' RT.	112		
E 19	781+91	98' RT	108		
E 20	783+42	93' LT			64
E 21	783+42	98' LT	357		
E 22	784+97	93' LT	224		
E 23	784+97	98' LT			64
E 24	783+18	98' RT	155		
E 25	784+86	98' RT	87		
E-39	777+67 TO 779+17	℄		100	
E-40	779+31 TO 779+51	℄		13	
E-41	781+48 TO 782+68	℄		80	
E-42	782+82 TO 783+12	℄		20	
TOTALS			1711	213	263

REF. Nº	STATION	SIDE	SHEET Nº 78					
			202				604	
			MANHOLE		CATCH BASINS		MANHOLE ADJ.	MANHOLE RECONST.
			REMOVED	AB'D.	REMOVED	AB'D.		
			EACH		EACH		EACH	EACH
X-77	67+80 WESTERN AVE	14' LT & RT			2			
X-78	49+60 WEST 100	14' LT			1			
X-79	48+49 WEST 100	13' RT			1			
X-80	46+74 WEST 100	℄	1					
X-81	46+23 WEST 100	15' RT	1					
X-82	46+06 WEST 100	13' LT & RT, ℄	1		2			
X-83	51+39 LEO	℄	1					
X-84	52+69 LEO	11' LT				1		
X-85	52+73 LEO	11' RT				1		
X-86	52+73 THEODORE	11' RT		1				
X-87	49+70 WEST 99	℄		1				
X-88	53+56 LEO	℄		1				
X-89	54+96 THEODORE	5' LT.		1				
X-90	55+55 LEO	13' LT & ℄		1		1		
X-91	45+73 WEST 98	13' LT & 8' LT	1		1			
X-92	55+63 THEODORE	14' LT & RT	1		1	1		
X-93	49+70 WEST 98	12' LT	1		1			
X-94	47+74 WEST 98	15' RT			1			
X-95	47+35 WEST 98	7 & 12' LT	2					
X-96	47+21 WEST 98	14' LT			1			
X-97	46+35 WEST 98	4' RT	1					
X-98	45+02 WEST 98	5' & 15' RT.	1		1			
X-99	57+73 LEO	℄		1				
X-100	3+08 ALLERTON	13' LT				1		
X-101	2+98 ALLERTON	14' RT			1			
X-102	60+27 LEO	℄		1				
X-103	3+47 ALLERTON	13' RT			1			
X-104	49+88 WEST 96	21' LT				1		
X-105	49+71 WEST 96	9' RT			1			
X-106	50+00 WEST 96	1' LT	1					
X-107	51+51 WEST 95	2.9' LT			1			
X-108	51+39 WEST 95	℄	1					
X-109	51+14 WEST 95	13' LT & RT.			2			
X-110	49+48 WEST 95	℄		1				
X-111	6+40 ALLERTON	14' LT			1			
X-112	48+55 WEST 95	17' LT			1			
R-10	49+50 W. 100 ST	℄						1
R-11	48+40 W. 98 ST	℄					1	
R-12	45+29 W. 98 ST	34.5' RT					1	
R-13	49+75 W. 97 ST	℄						1
R-14	53+08 S MARG RD #5	37' LT					1	
TOTALS			13	8	20	6	3	2

CALCULATED BY C.B. DATE 10-12-71
CHECKED BY H.C.S. DATE 2-14-72

DRAINAGE QUANTITIES

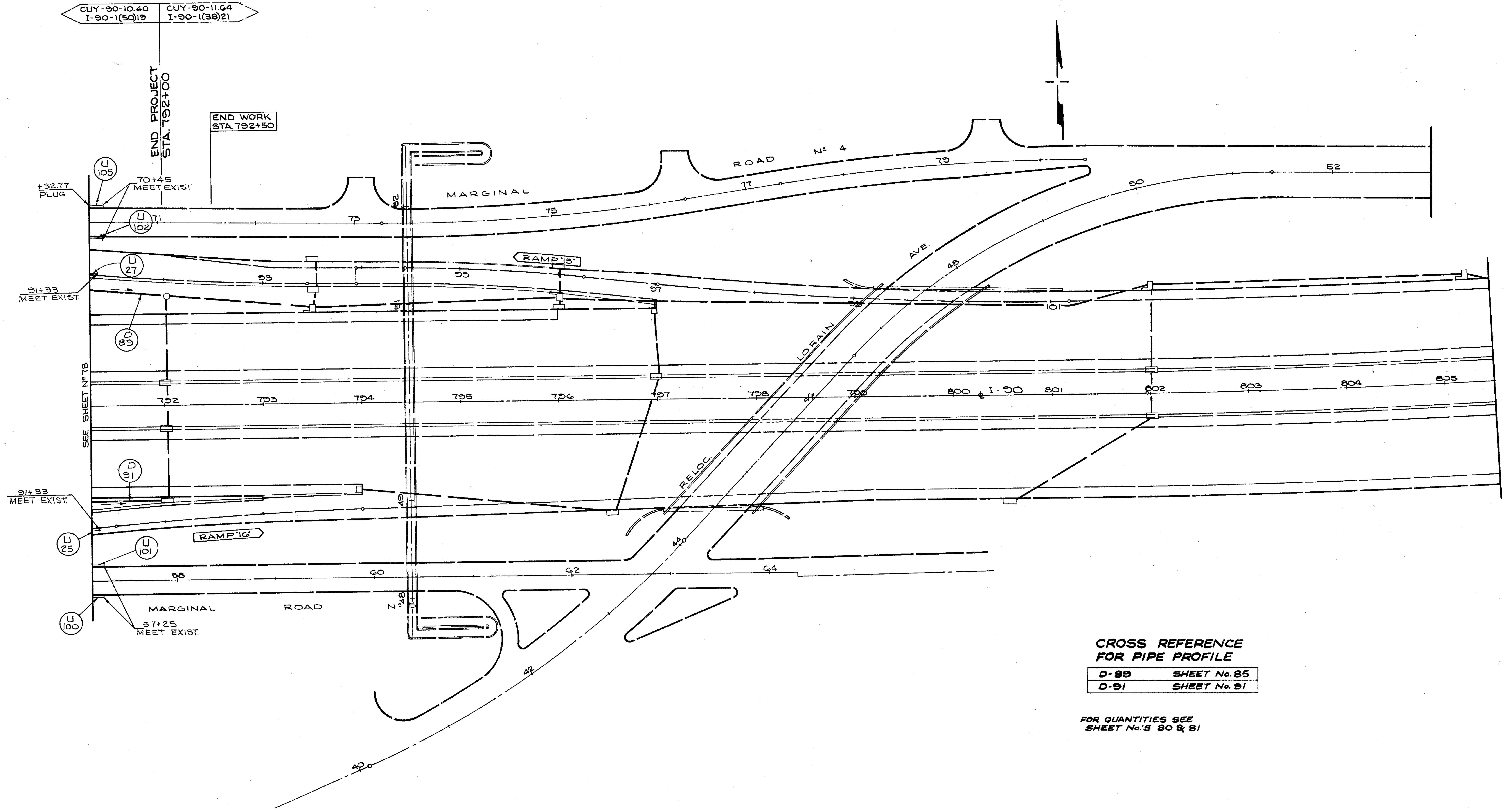
SHEET No	REFERENCE No	603	605 6" PIPE UNDERDRAINS				BENDS AND BRANCHES			
		6" TYPE "F"	DEEP	SHAL.	UN-CLASS.	AS PER PLAN	6" PLUG	6" TEE	6" x 30° BEND	
		LIN. FT.					EACH			
	U-22	DELETED								
78	U-23	10		170	95		1	1		
78	U-24	10			80					
78-82	U-25		133				1			
78	U-26	10	160				1			
78-82	U-27		108				1			
78	U-28	10			65		1			
76	U-57	10				333	1			
76	U-58	10				240	1			
76	U-59	10				370	1			
76	U-60	10				440	1			
76	U-61	40				405	4			
76	U-62	20				358	1			
76	U-63	10				253	1			
76	U-64	10				245	1			
76	U-65	10				302	1			
76	U-66	10				280				
76	U-67	40				283	3			
76	U-68	10				265				
76-78	U-69	30				270	3			
76-78	U-70	10				190	1			
76	U-71	10				260				
76-78	U-72	30				290	1			
76	U-73	10				150	1			
76	U-74	10				155	1			
76&78	U-75	10				135	1			
78	U-76	10				135	1			
78	U-77	10				85	1			
76-78	U-78	20				304	2			
78	U-79	30				292	3			
76&78	U-80	50				630	5			
78	U-81	20				450	2			
78	U-82	20				380	1			
78	U-83	30				580	1			
78	U-84	20				340	3	1		
78	U-85	20				380				
78	U-86	30			80	225	2			
78	U-87	10				100	1		1	
78	U-88	10				175	1			
78	U-89	10				180	1			
78	U-90	10				312	1			
78	U-91	10				235	1			
78	U-92	10				305				
78	U-93	10				303				
78	U-94	10				110				
78	U-95	10				125	1			
78	U-96	20				250	2	1		
78	U-97	10				185	1			
78	U-98	20				235	1		2	
78	U-99	10				115	1			
78-82	U-100	10				47				
78-82	U-101					300	1			
78-82	U-102					120	1			
78	U-103	10				100	1			
78	U-104	10				125	1			
82	U-105					12	1			
TOTALS		760	401	170	320	12,359				

CALCULATED BY C.B. DATE 11-2-71
CHECKED BY H.C.S. DATE 2-14-72

DRAINAGE QUANTITIES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

CUYAHOGA COUNTY
CUY - 90 -10.40



CROSS REFERENCE FOR PIPE PROFILE

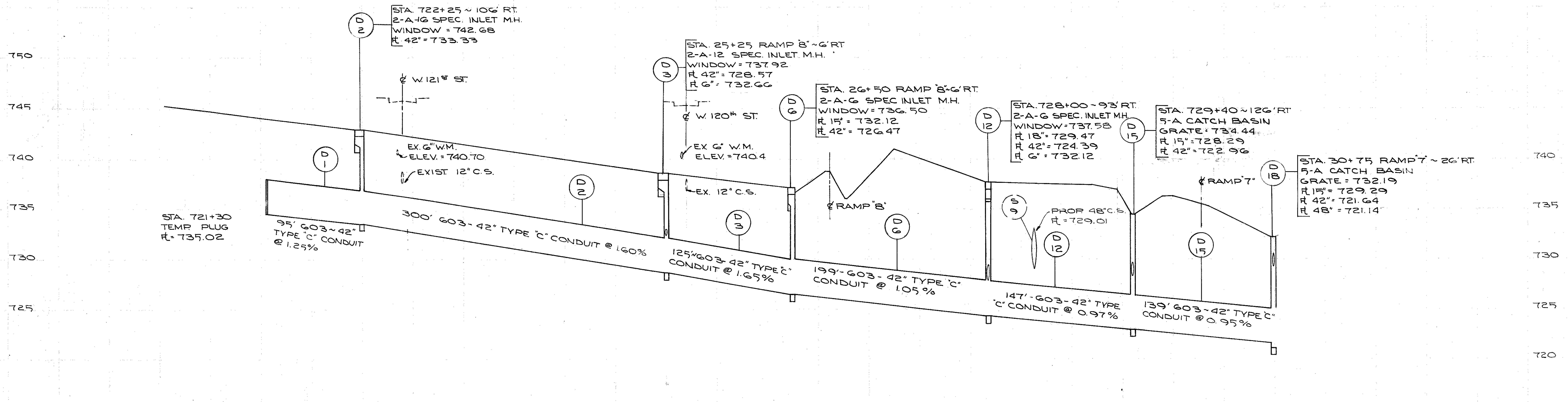
D-89	SHEET No. 85
D-91	SHEET No. 91

FOR QUANTITIES SEE
SHEET No.'S 80 & 81

DRAINAGE PLAN

FORM D D A-8

CUYAHOGA COUNTY
CUY-90-10.40



SEWER PROFILES

84
713

1-90-1(50) 19

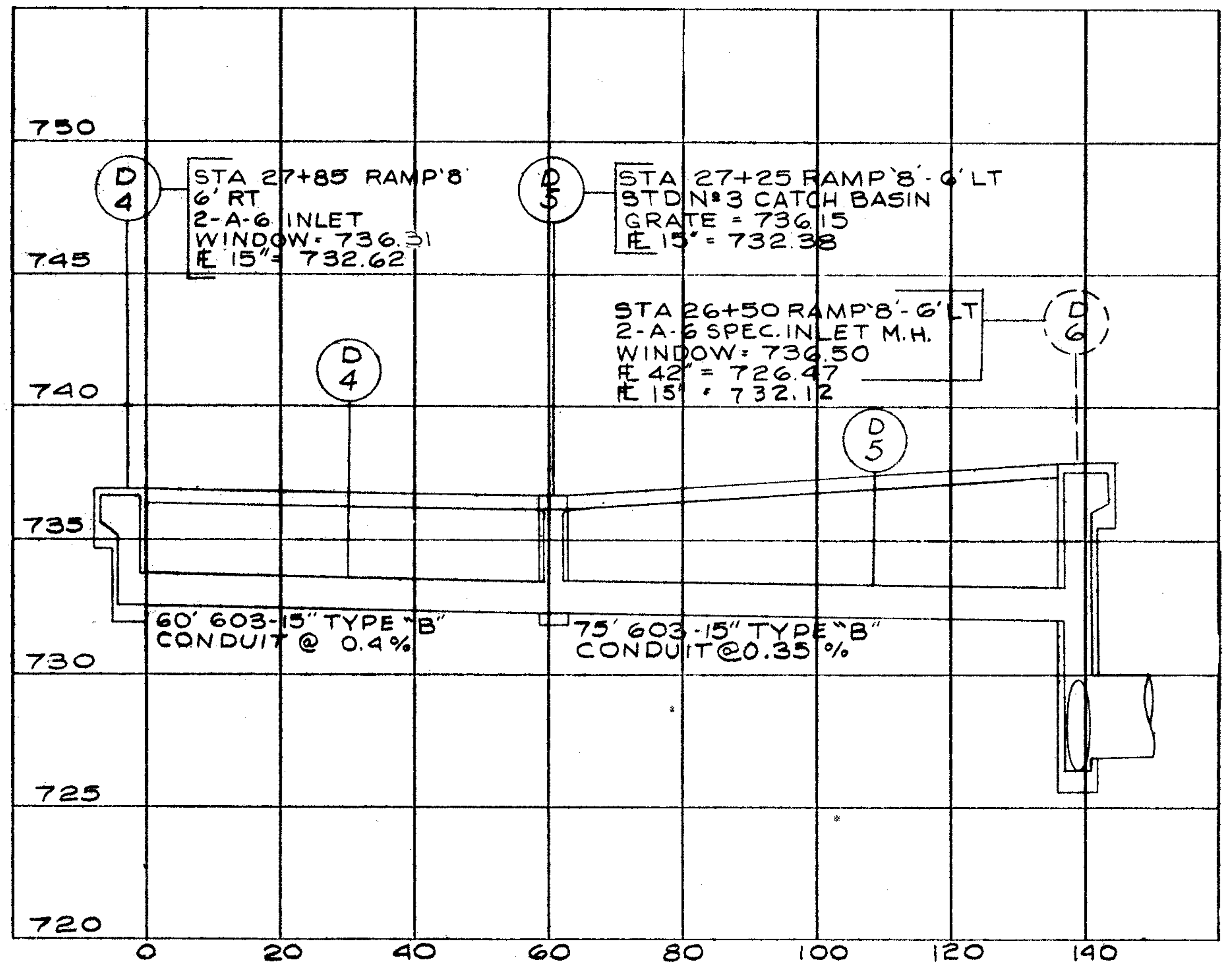
CUYAHOGA COUNTY
CUY-90-10.40

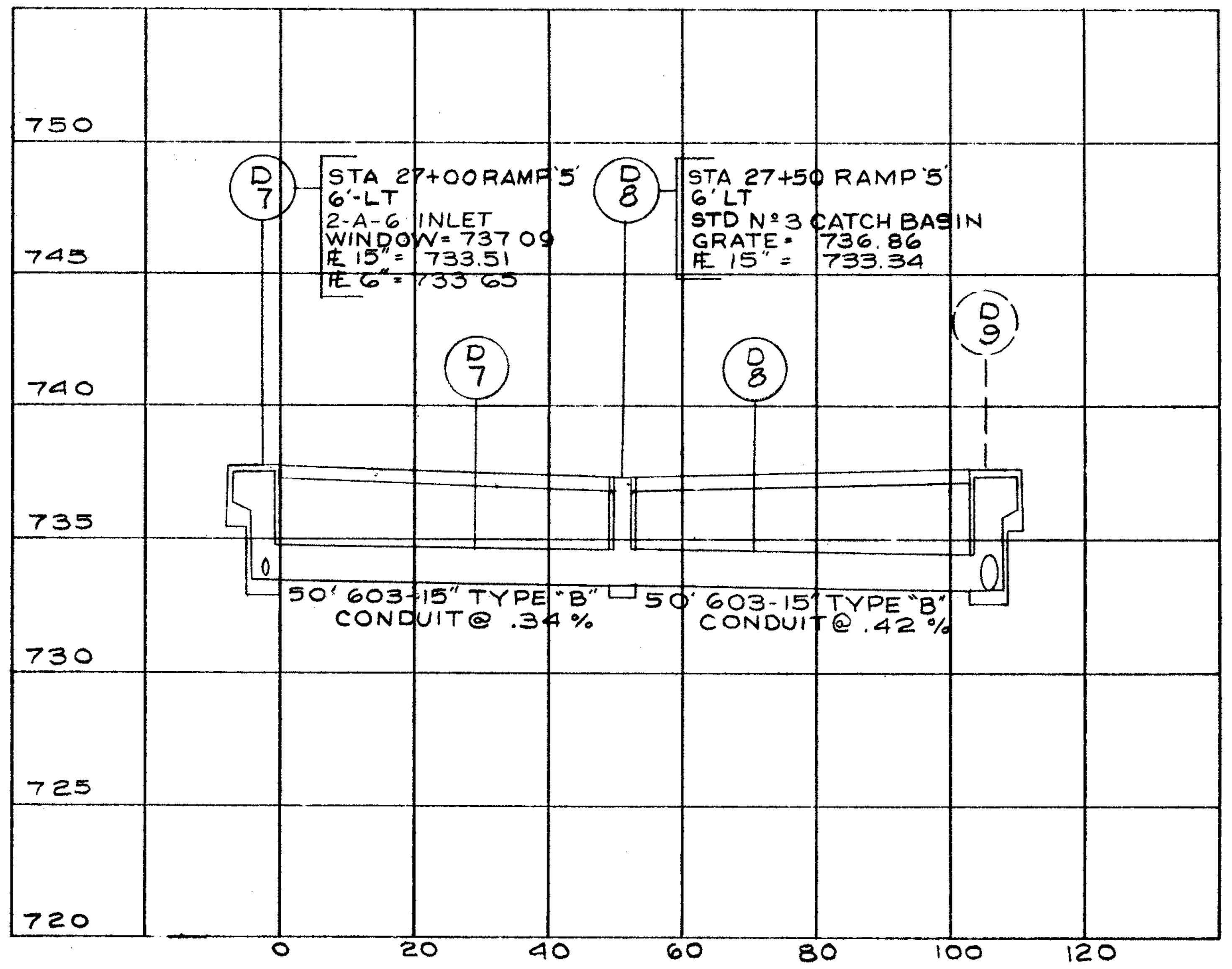
SEWER PROFILES

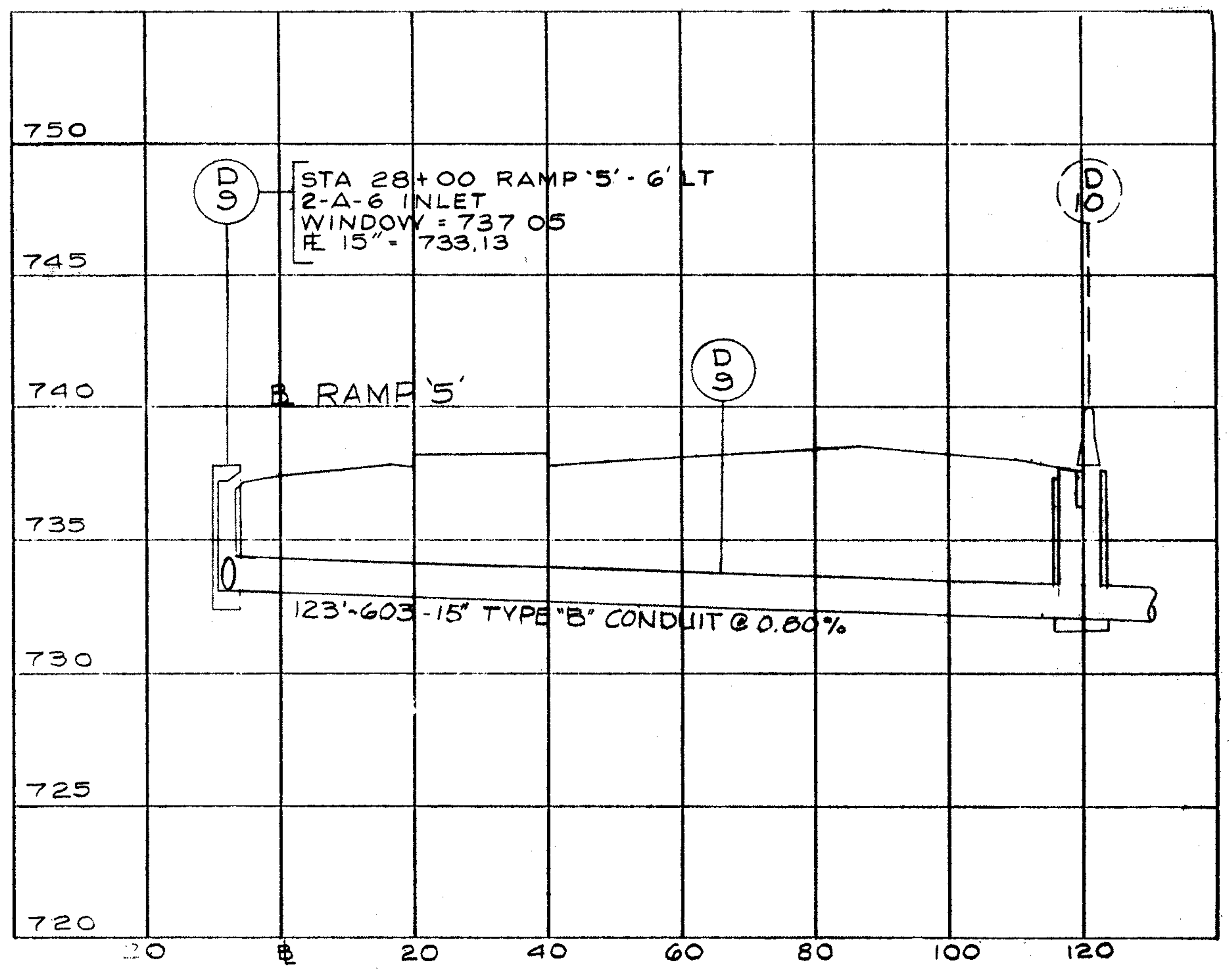
SEWER PROFILES

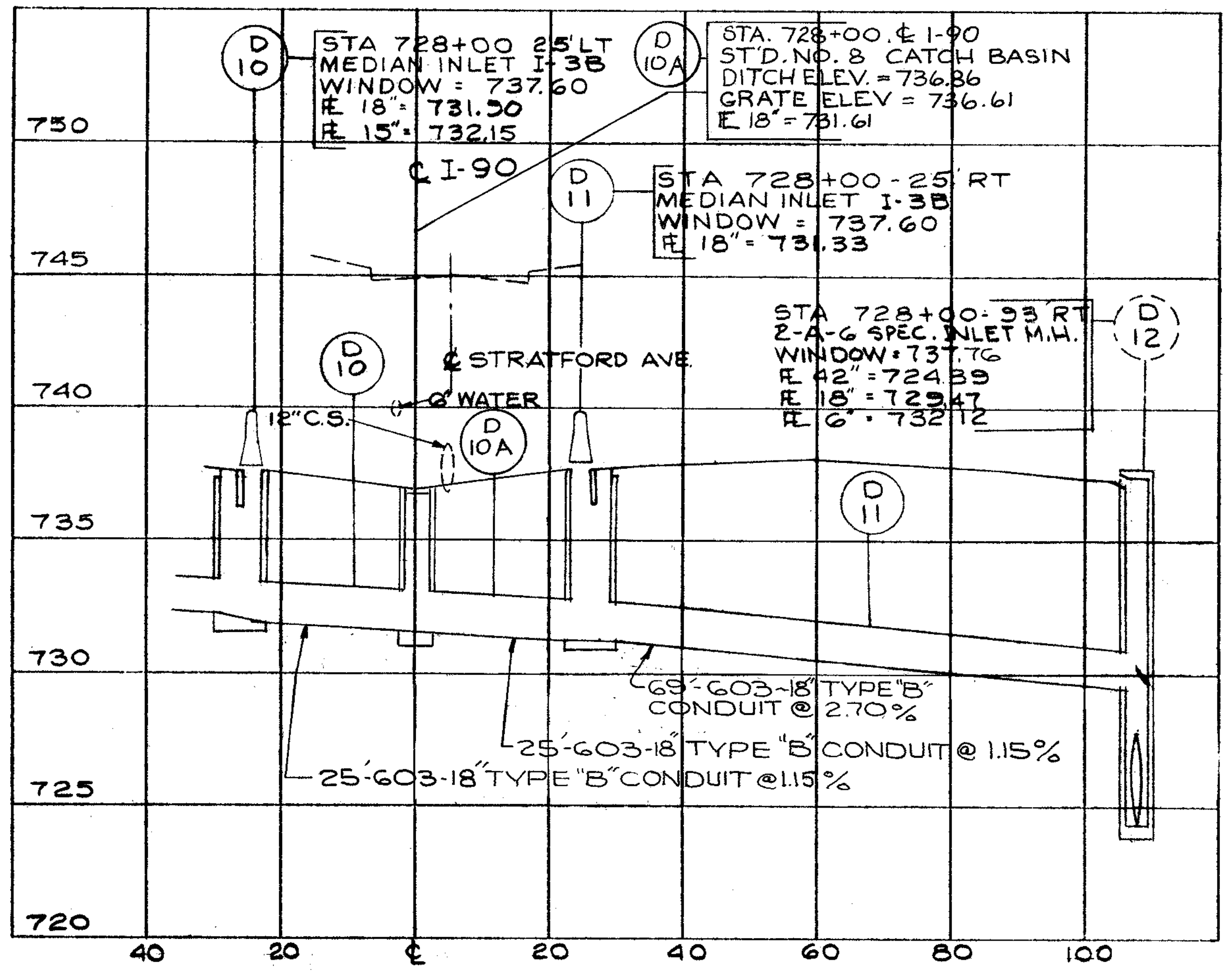
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

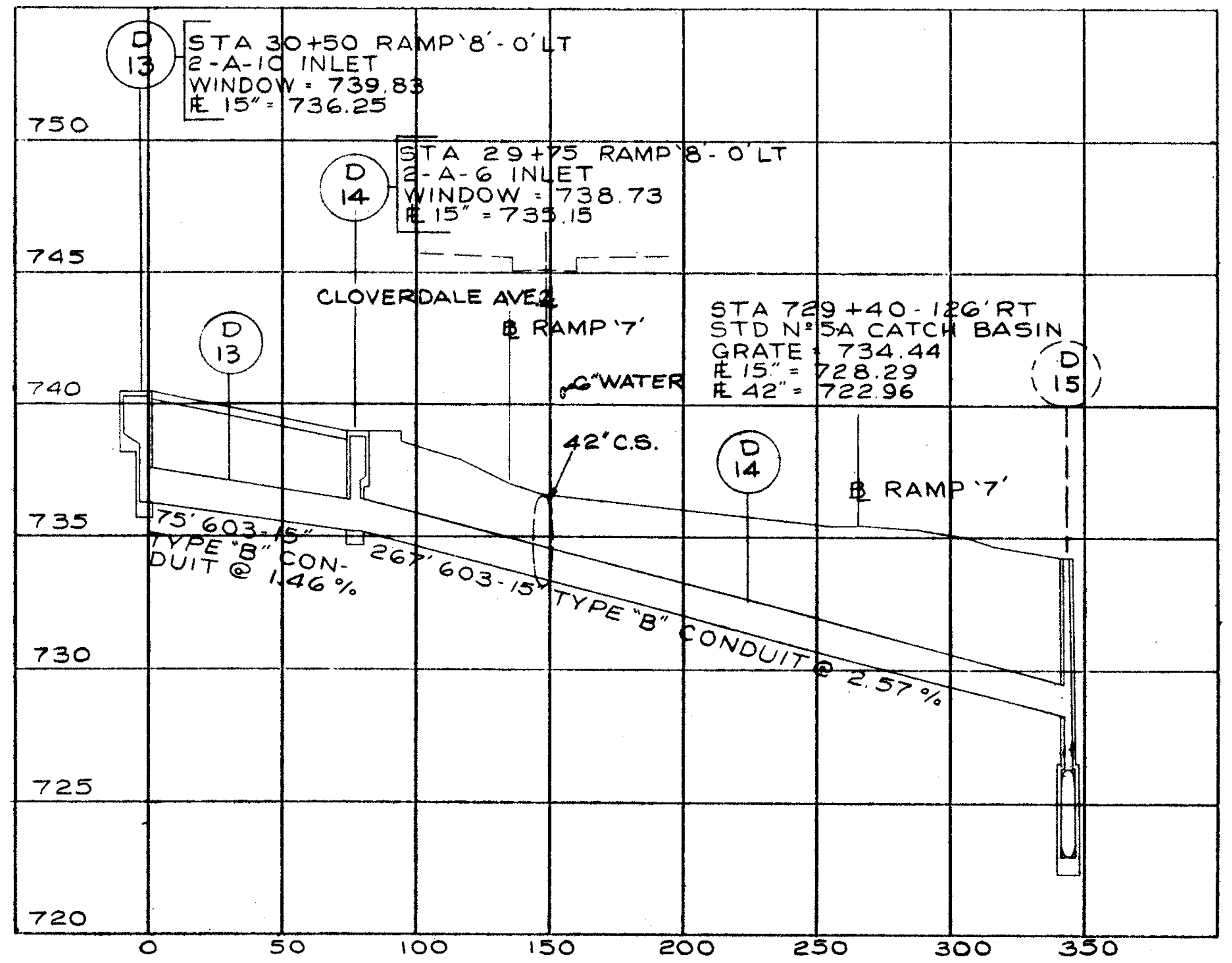
CUYAHOGA COUNTY
CUY 90-104

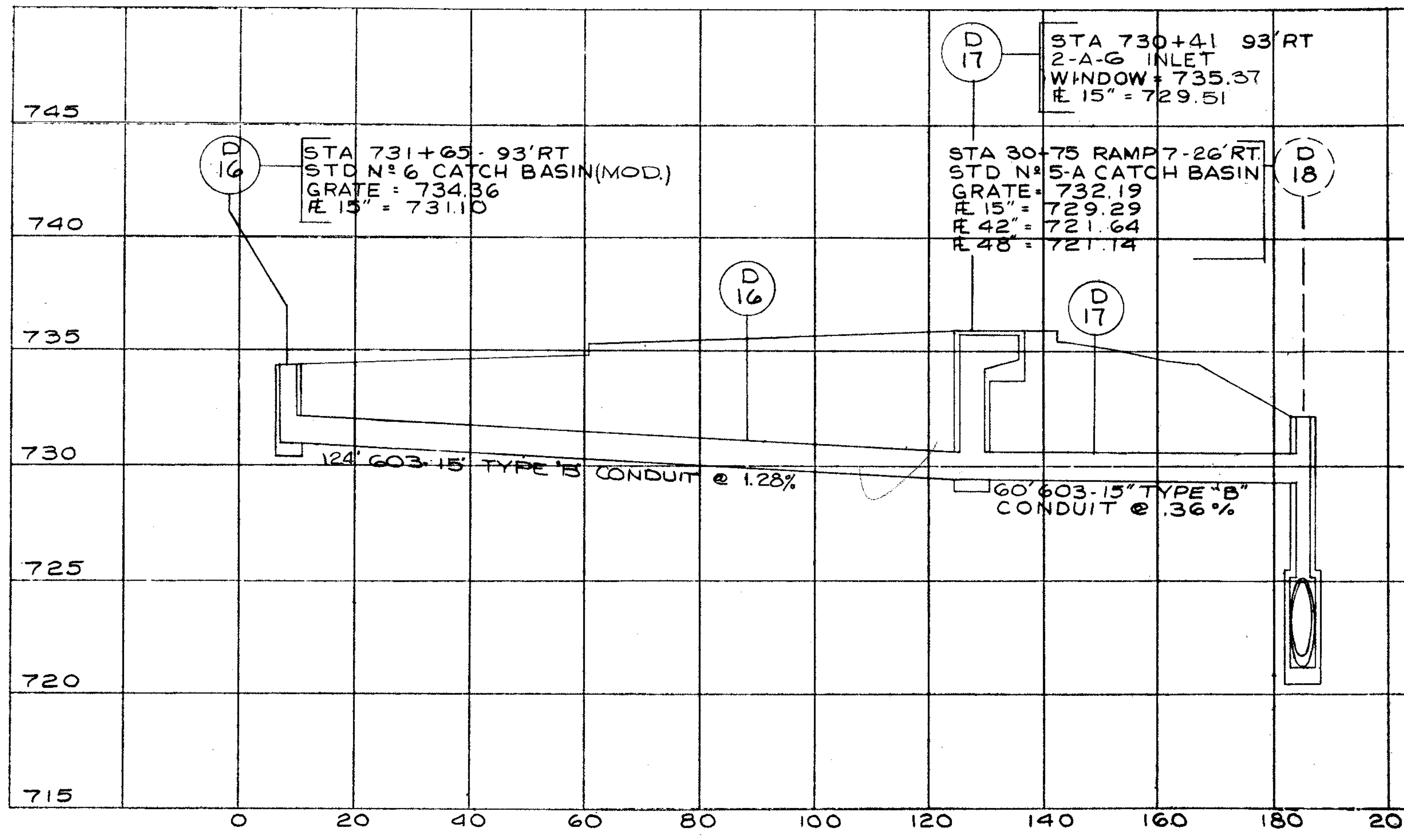










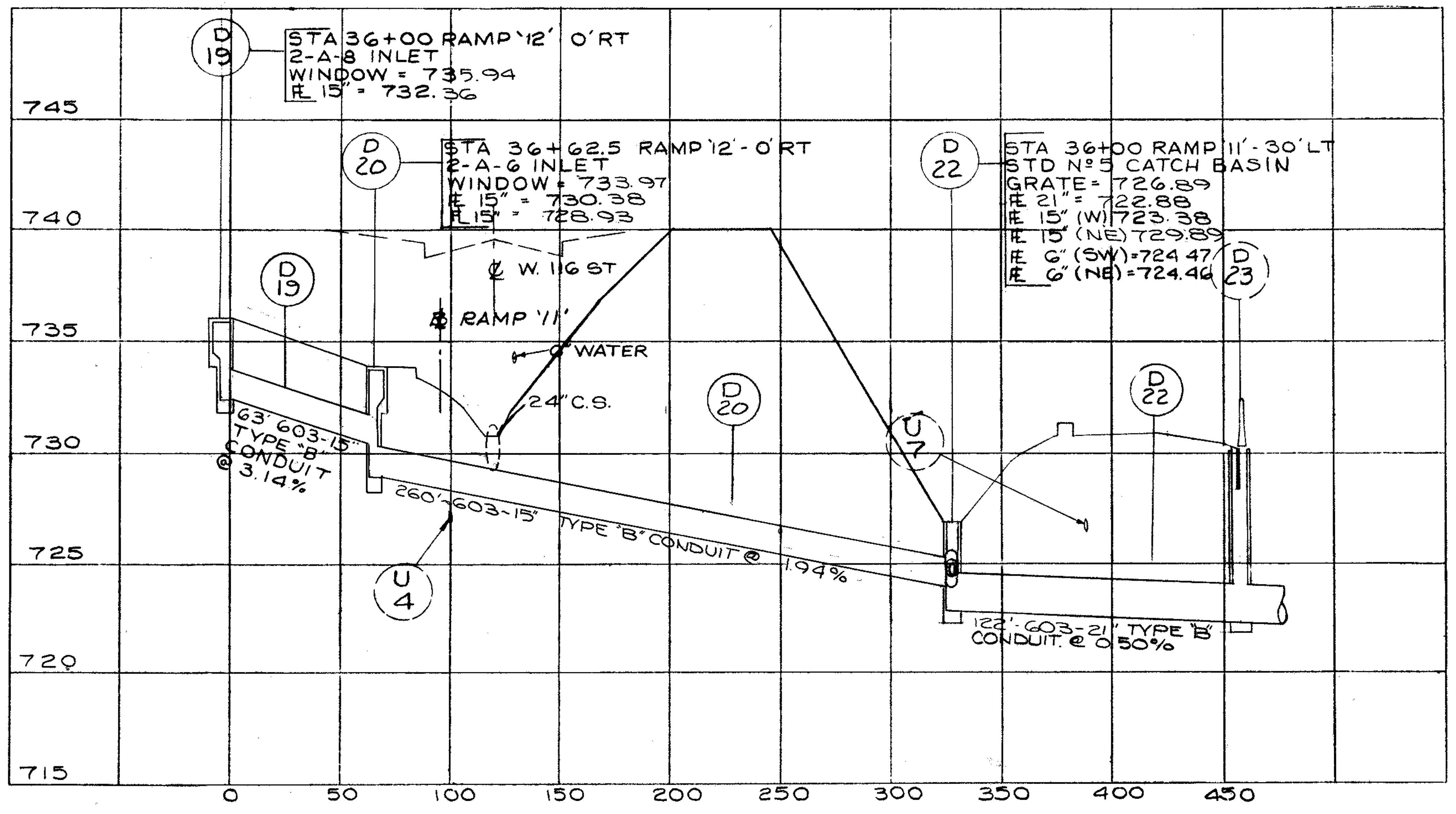


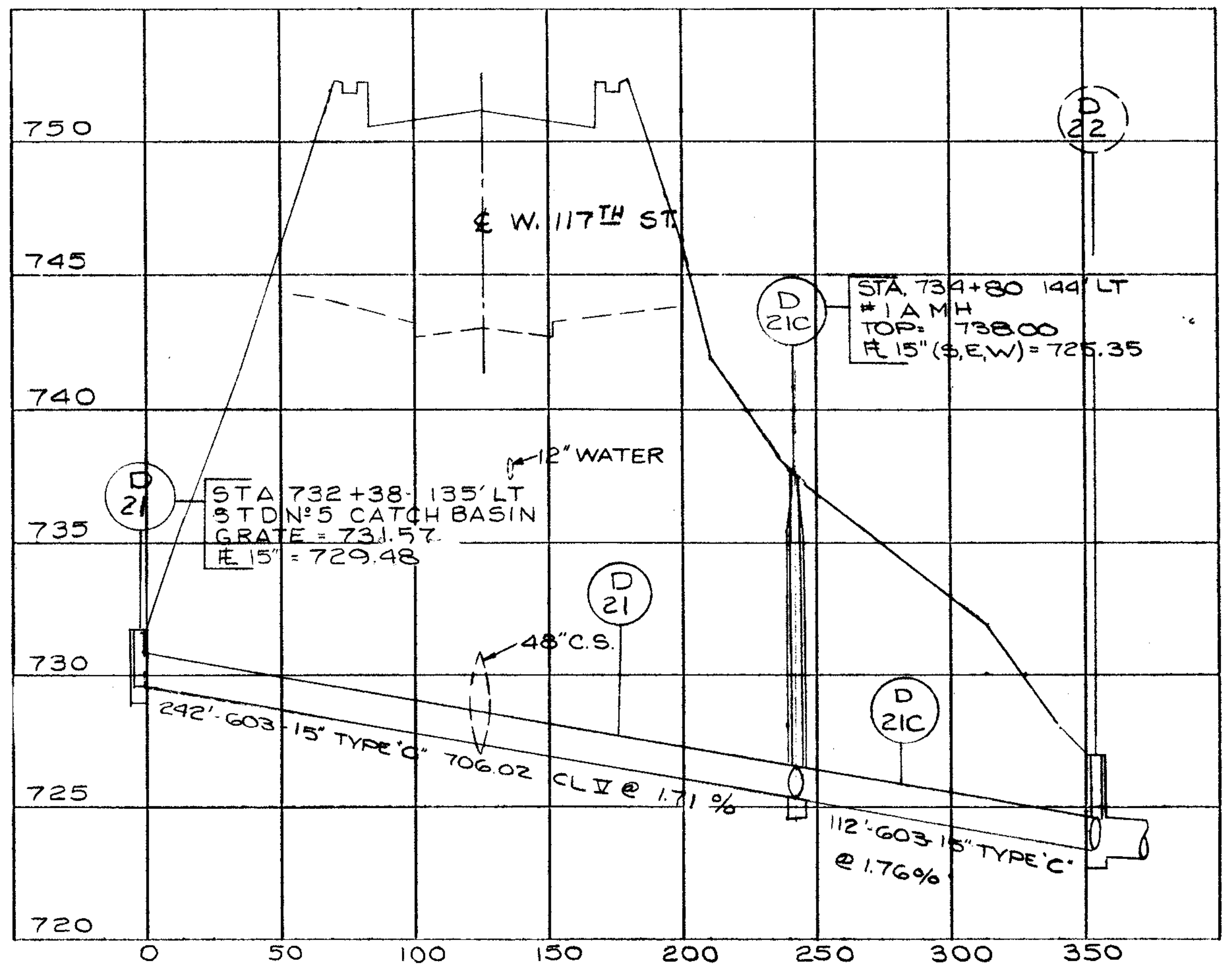
SEWER PROFILES

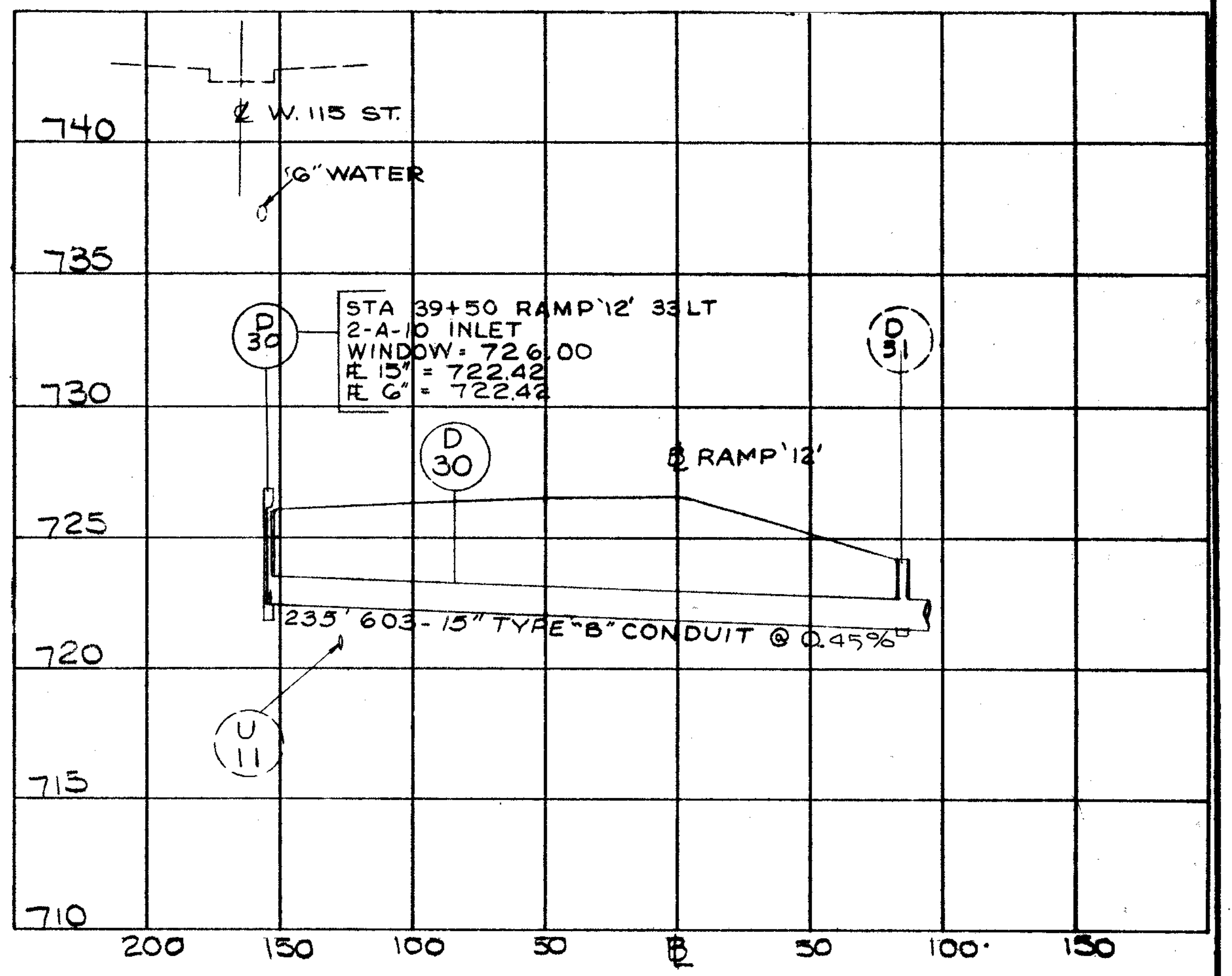
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

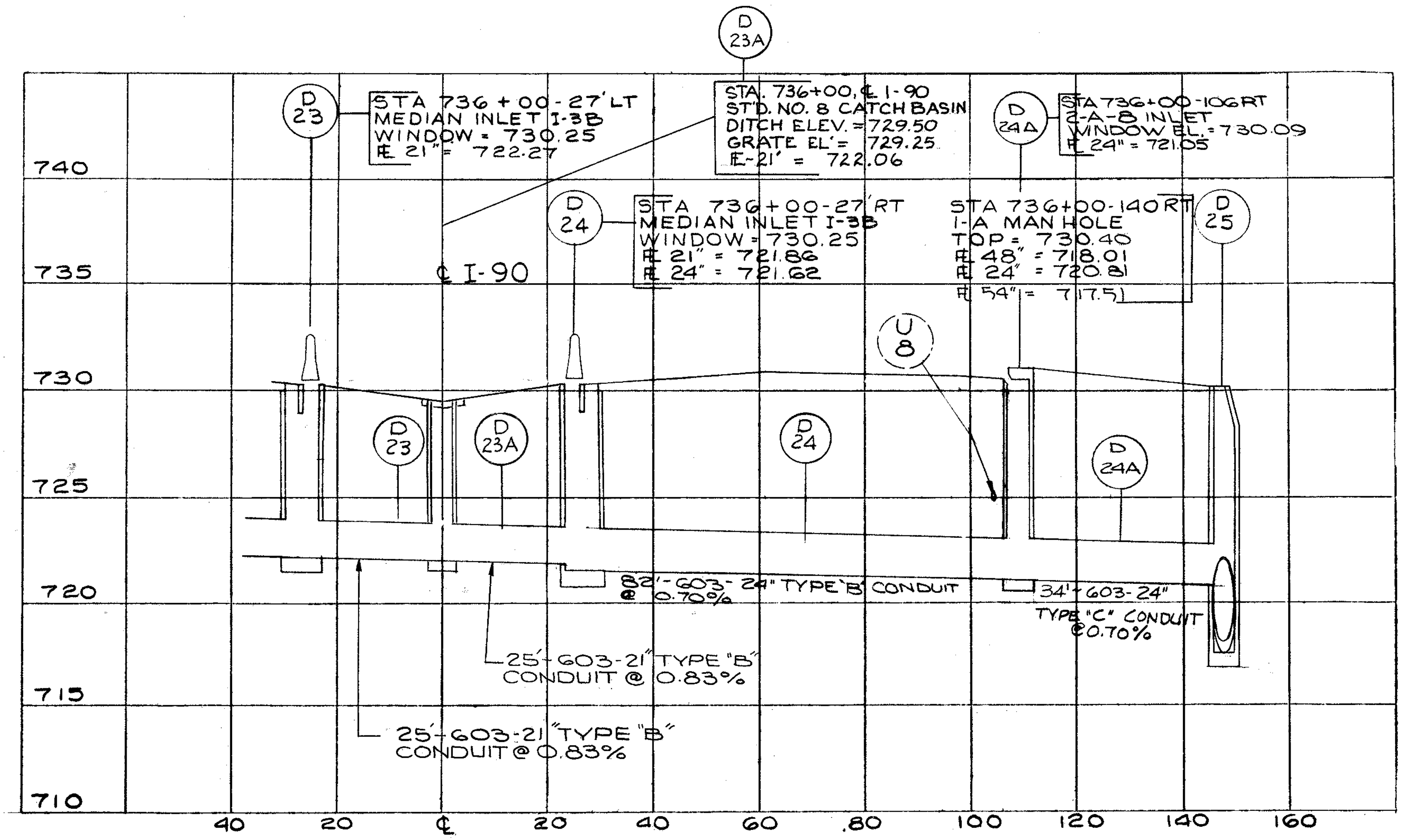
87
713

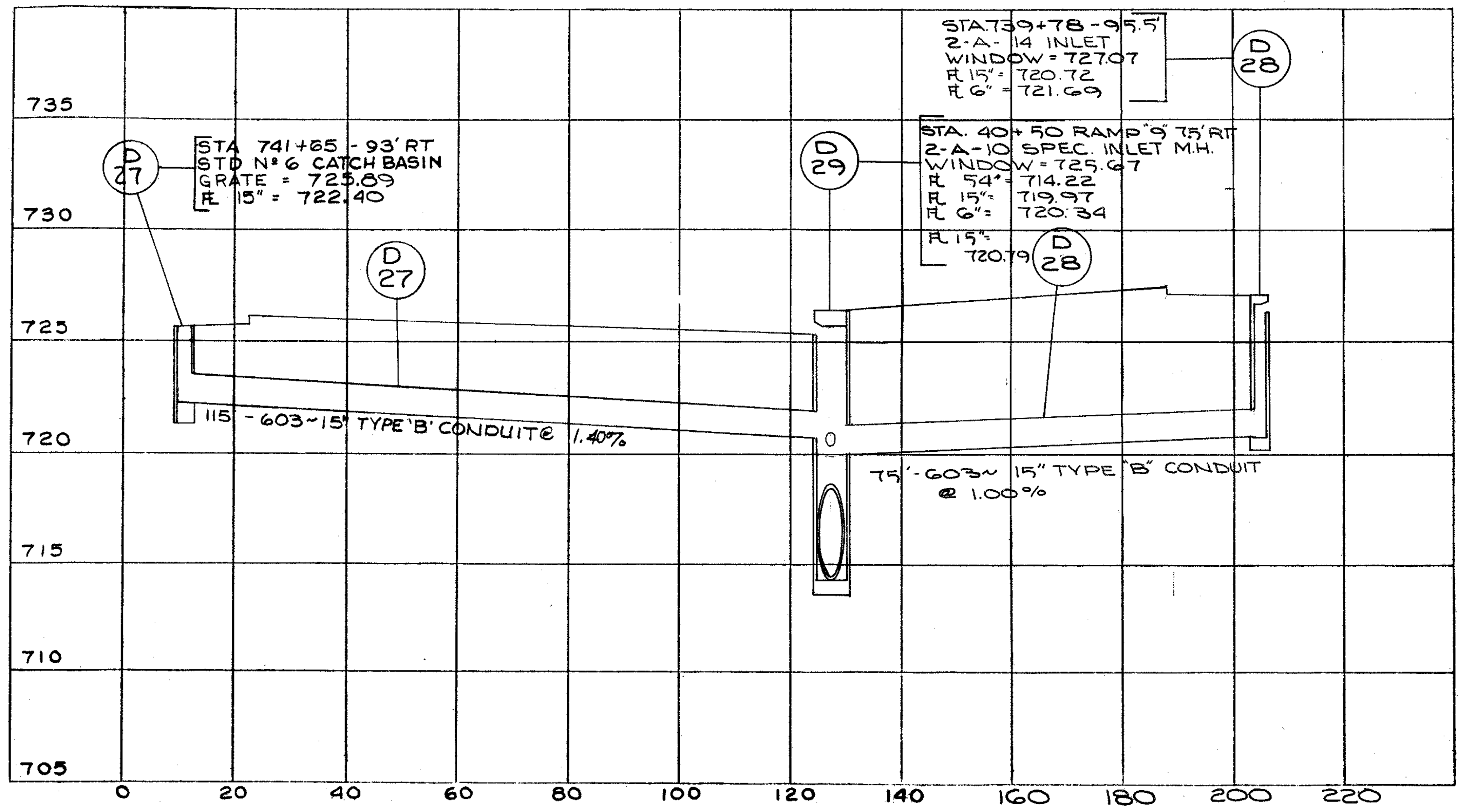
CUYAHOGA COUNTY
CUY - 90 - 10.40







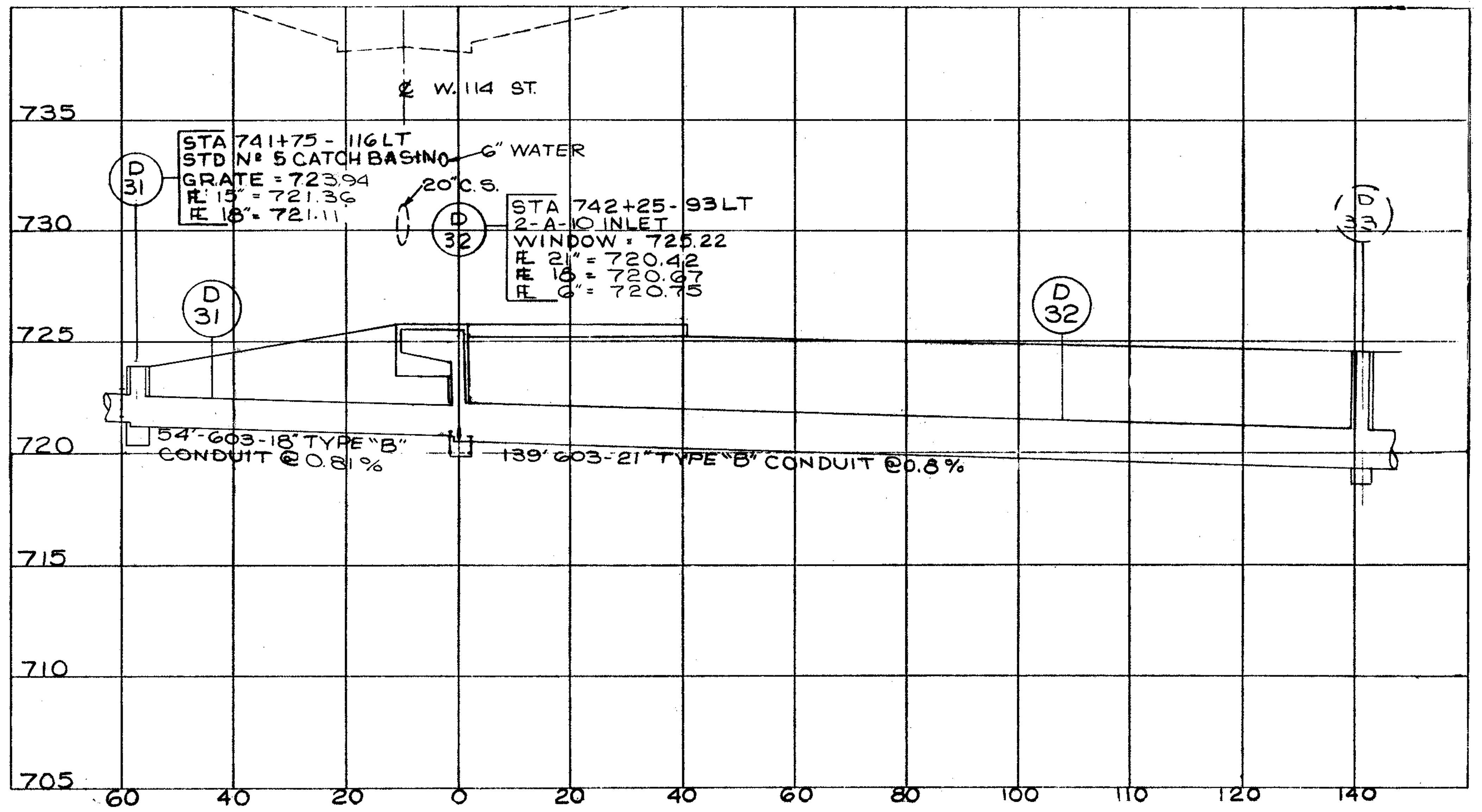


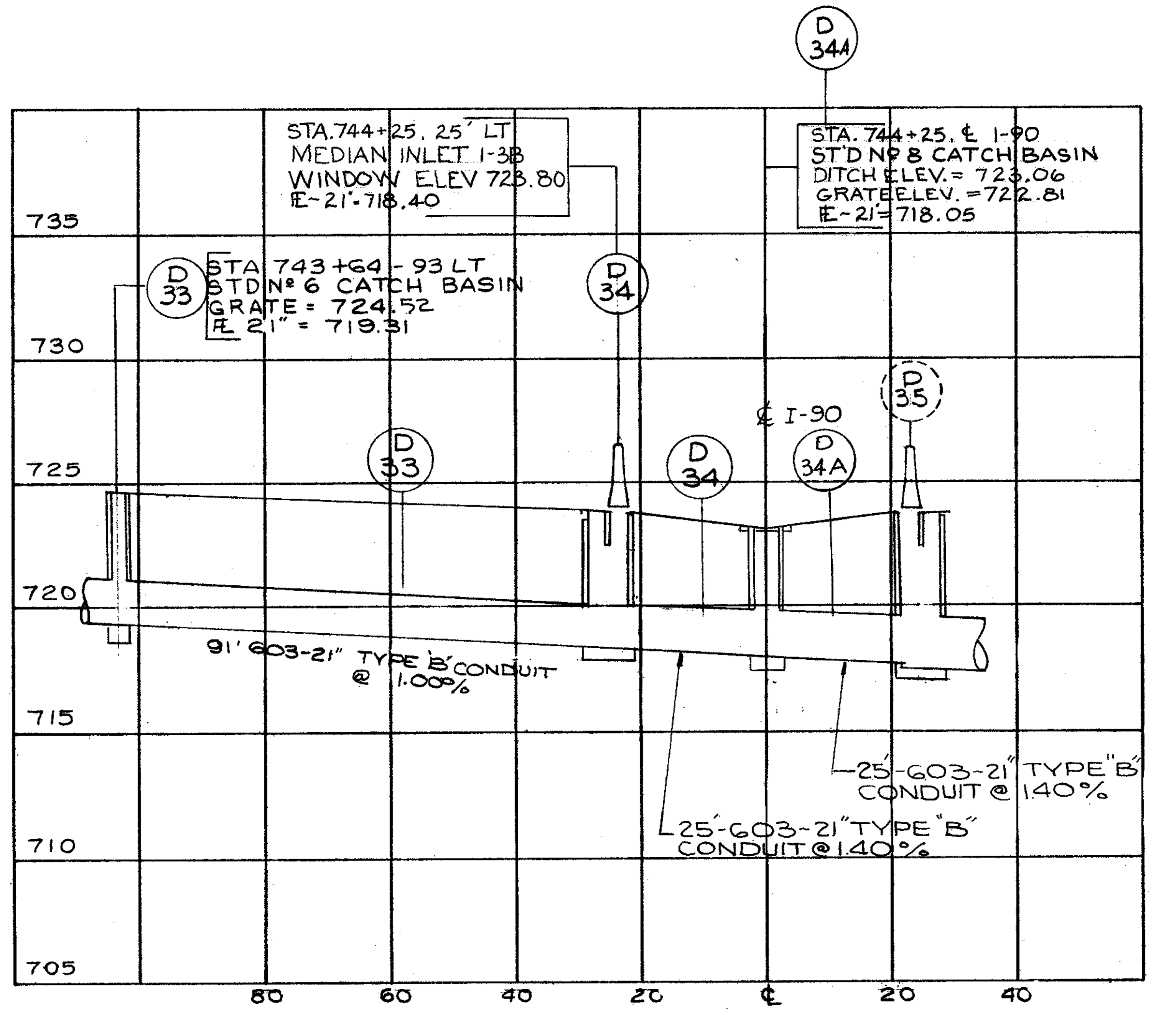


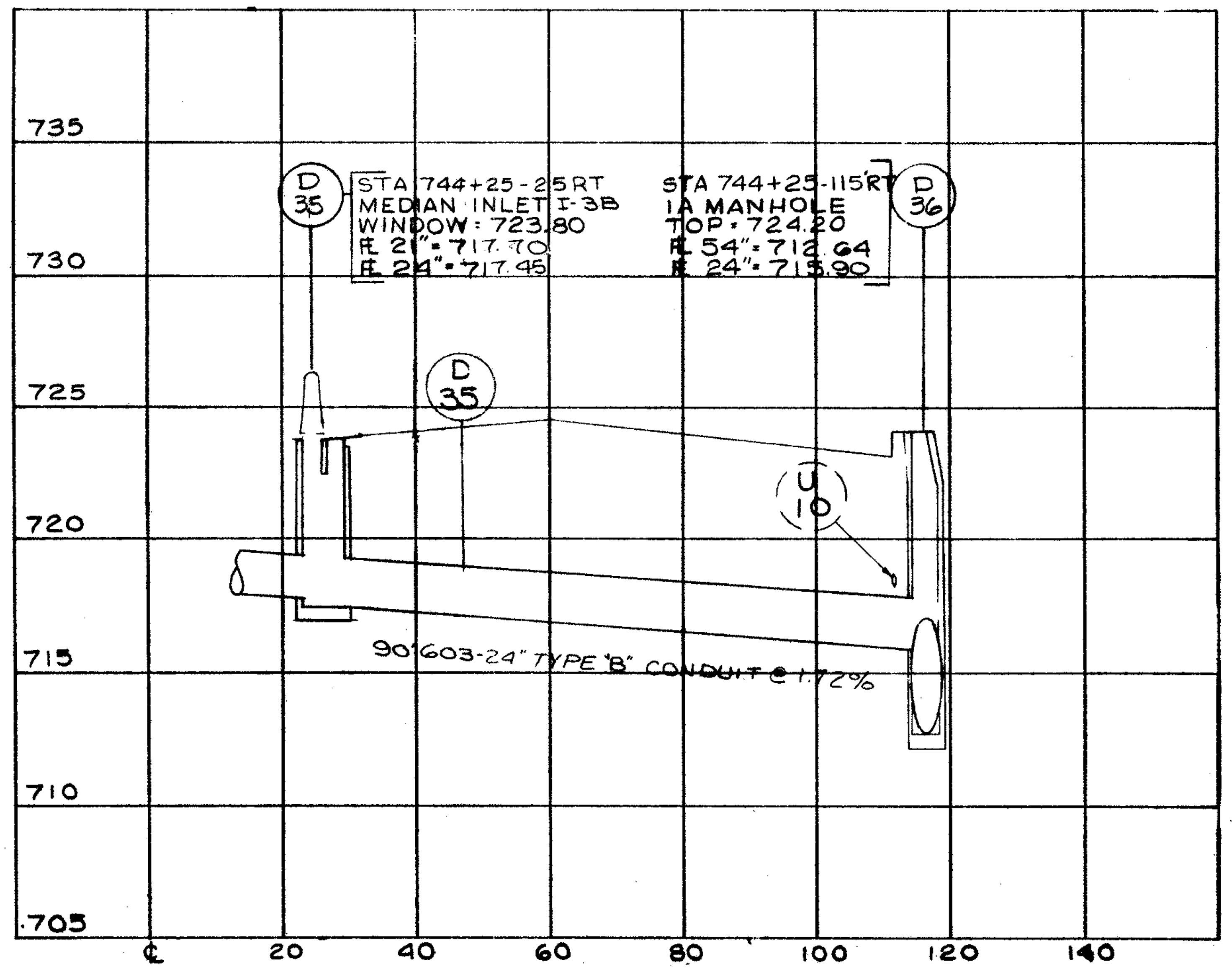
SEWER PROFILES

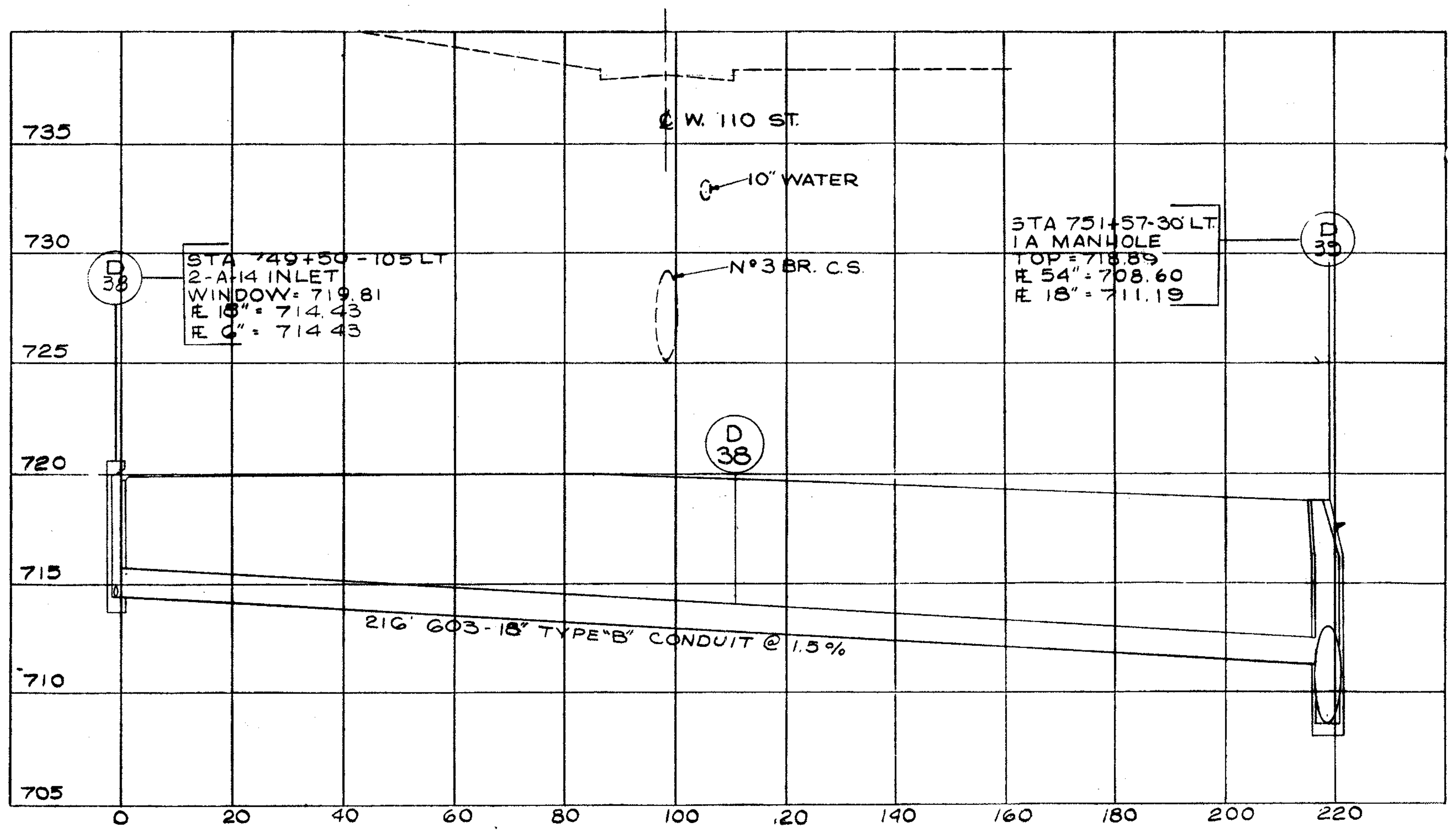
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

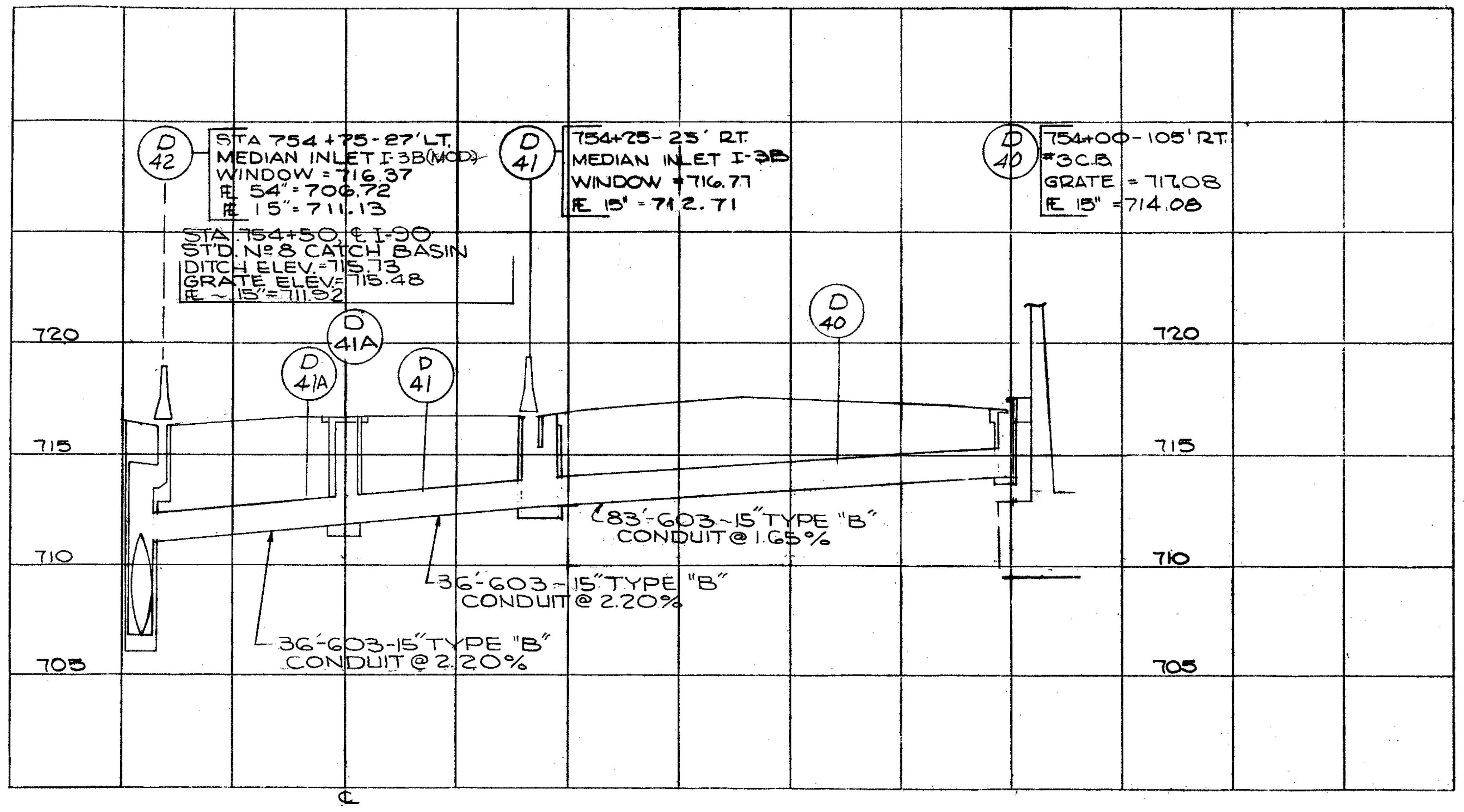
CUYAHOGA COUNTY
CUY - 90 - 10.40







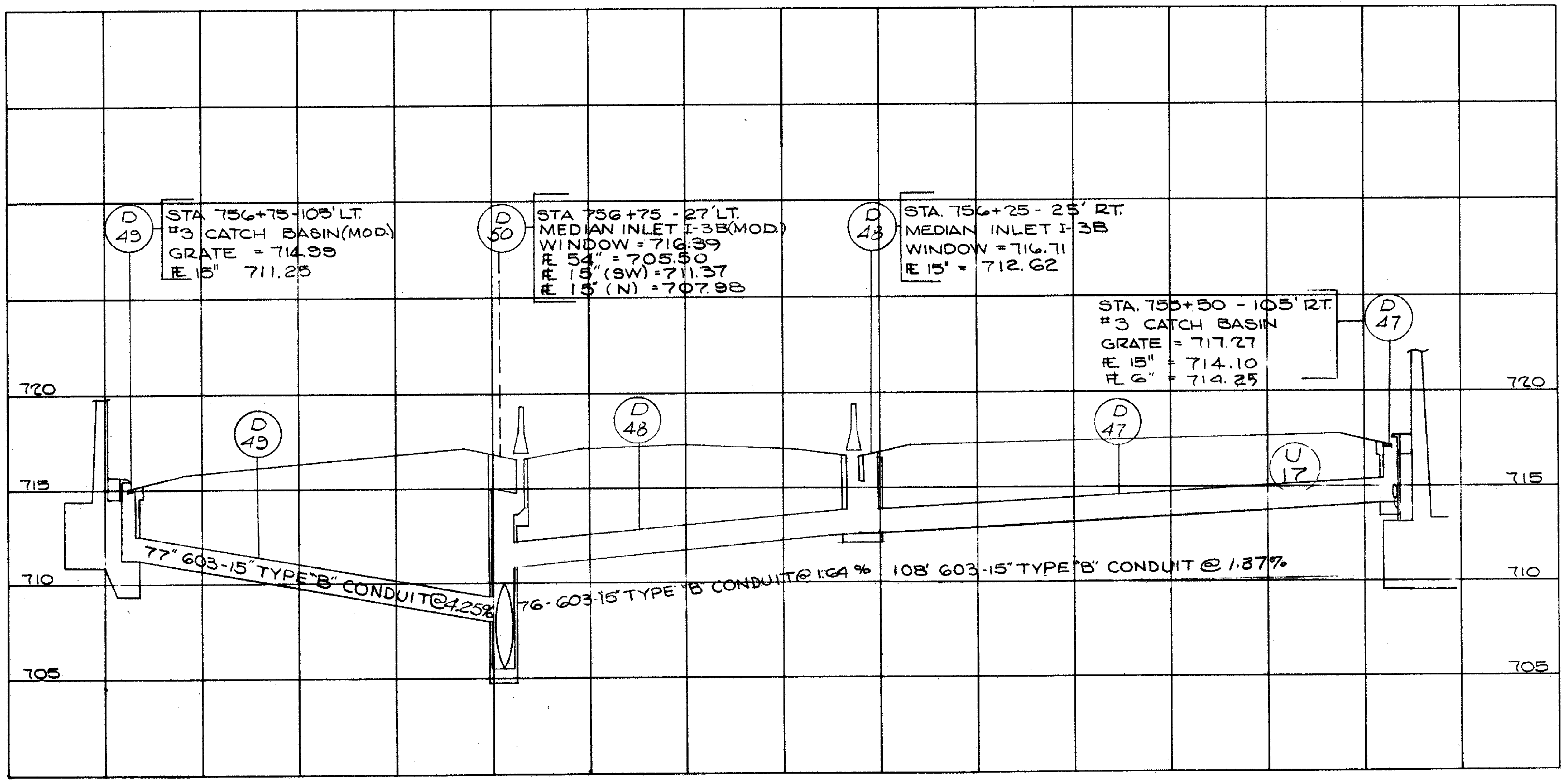


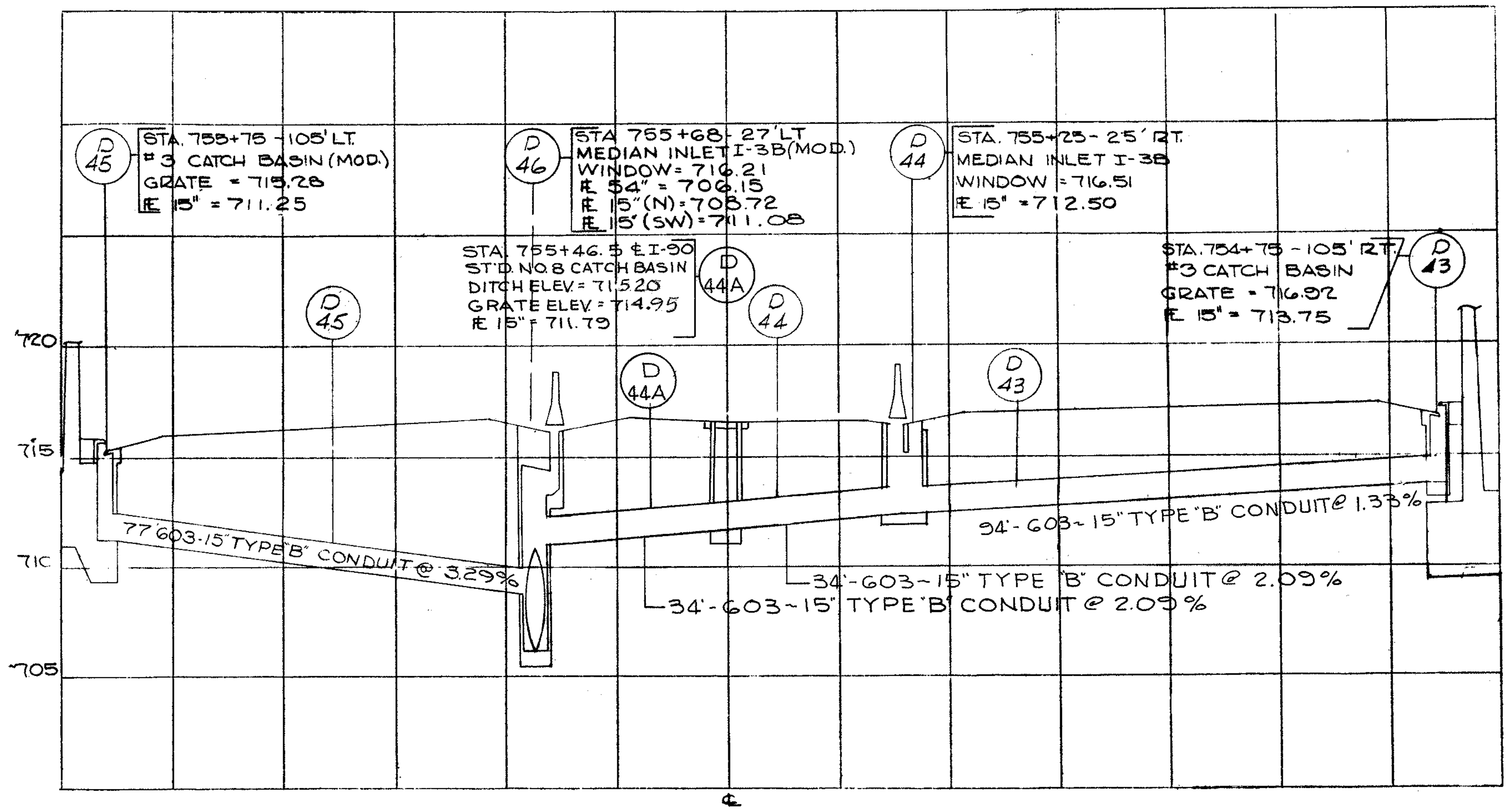


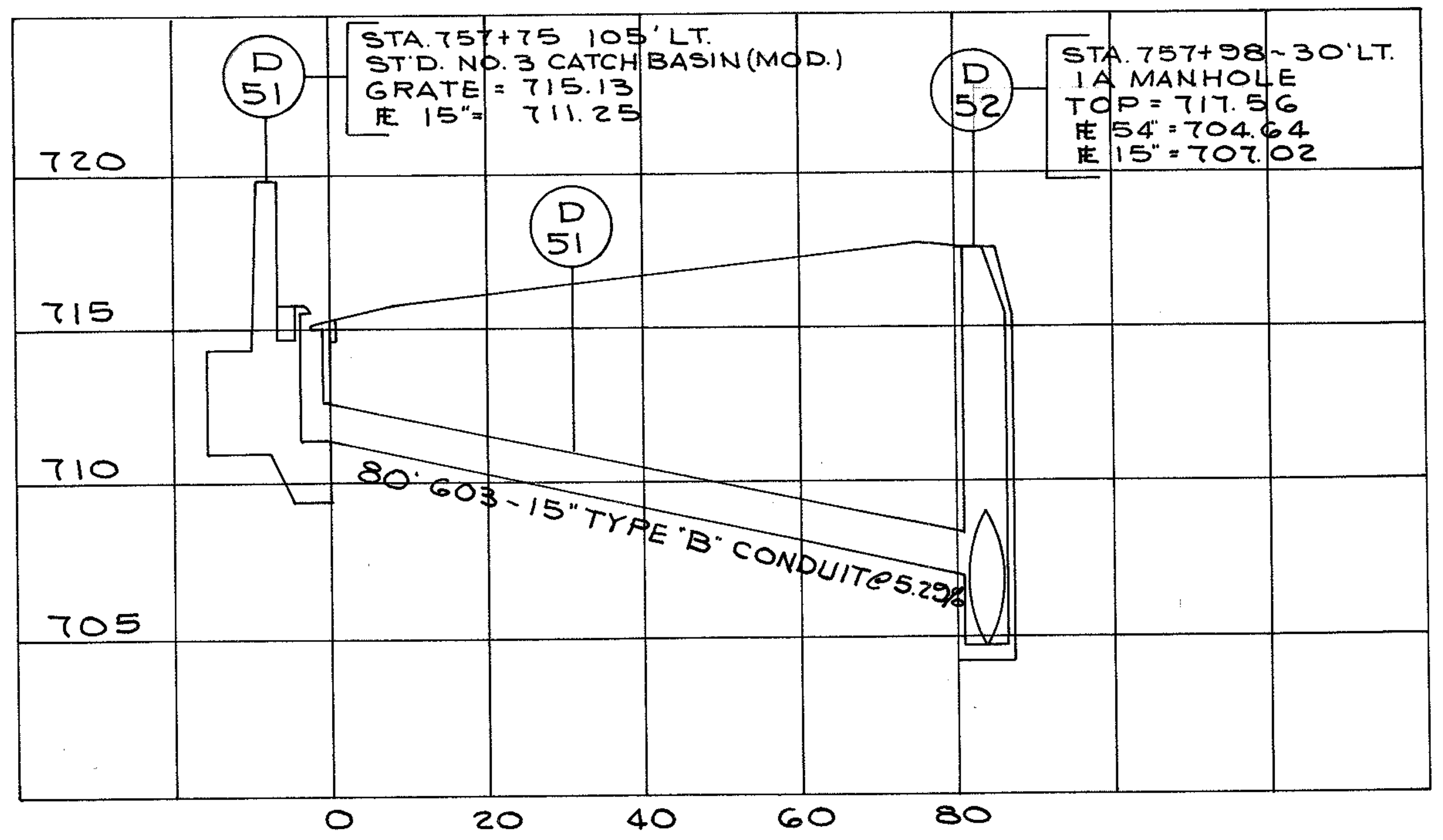
SEWER PROFILES

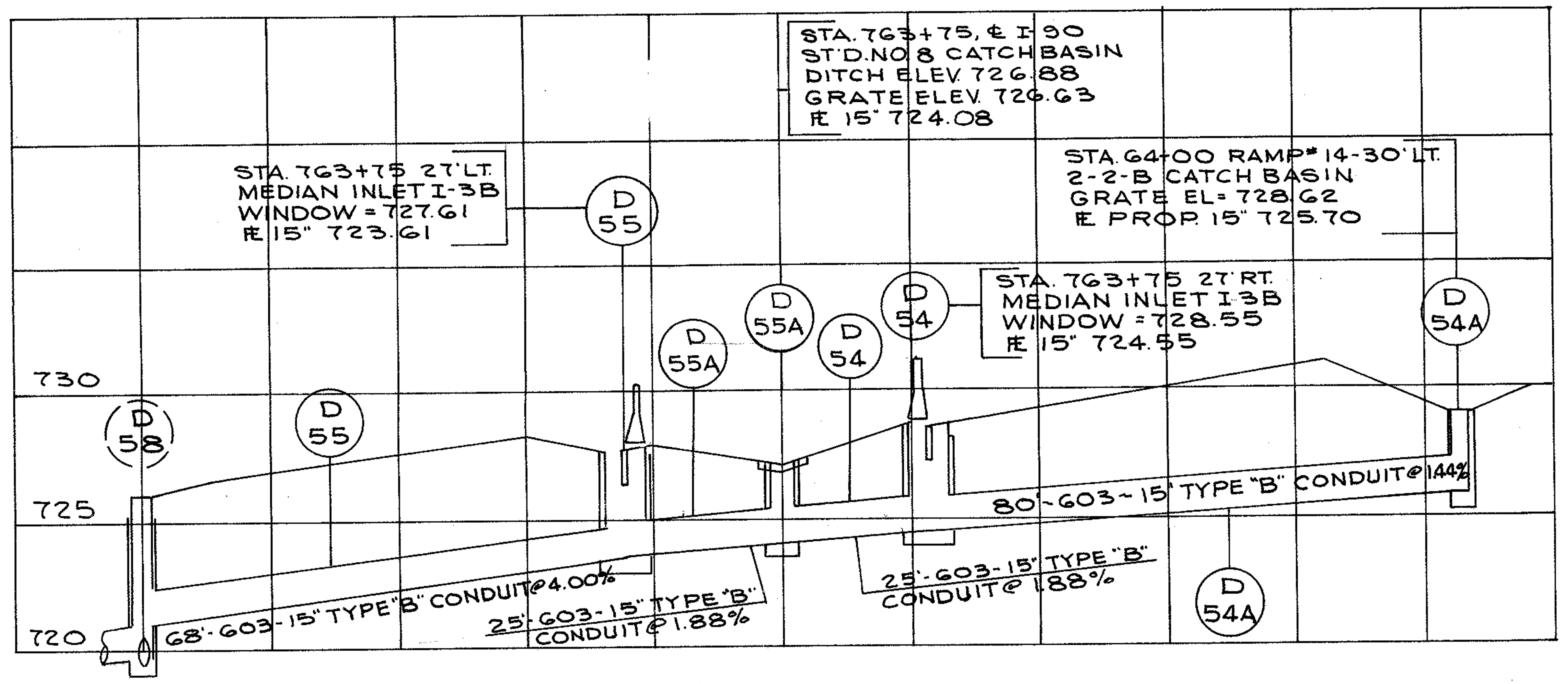
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

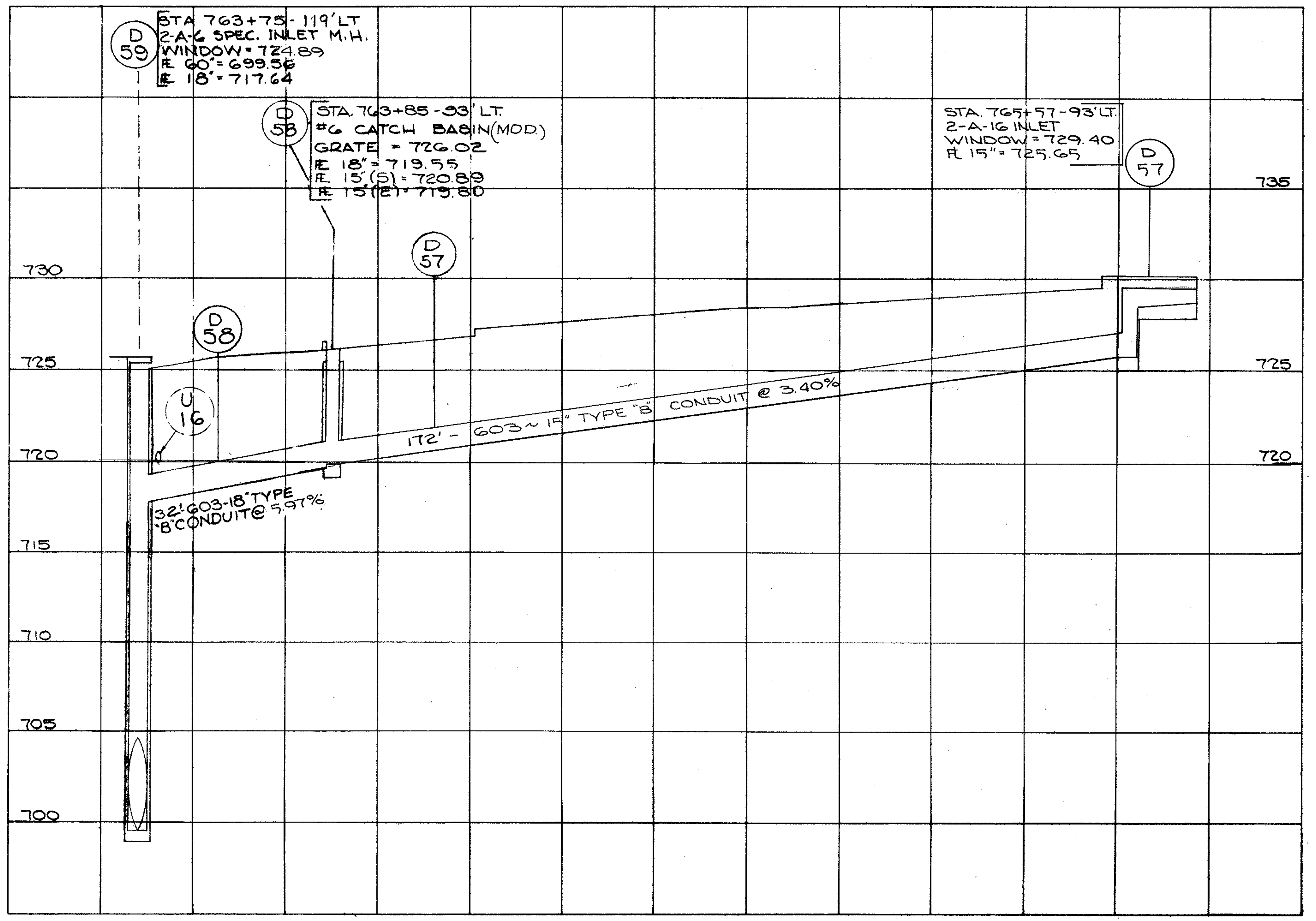
CUYAHOGA COUNTY
CUY-90-10 40









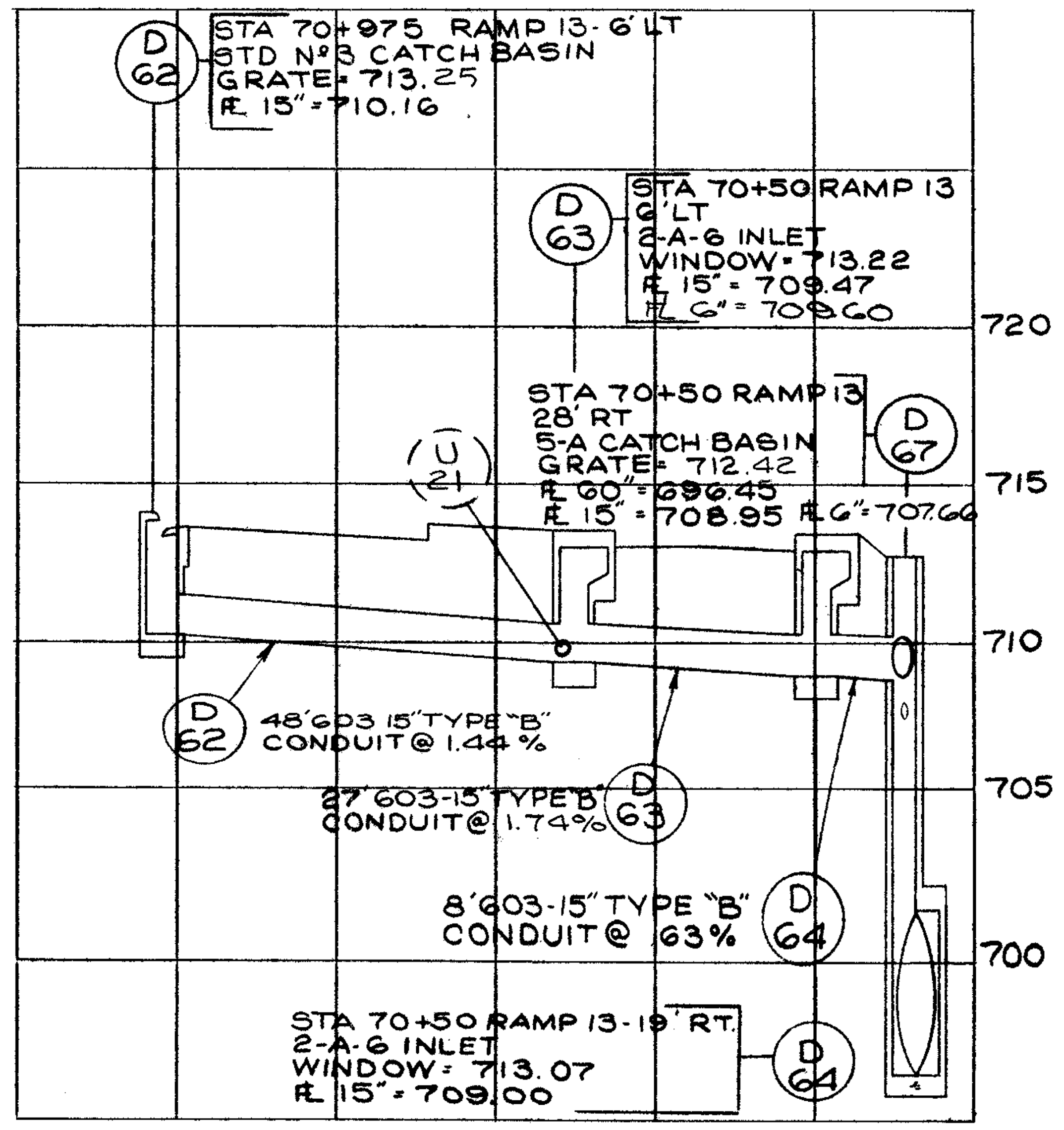


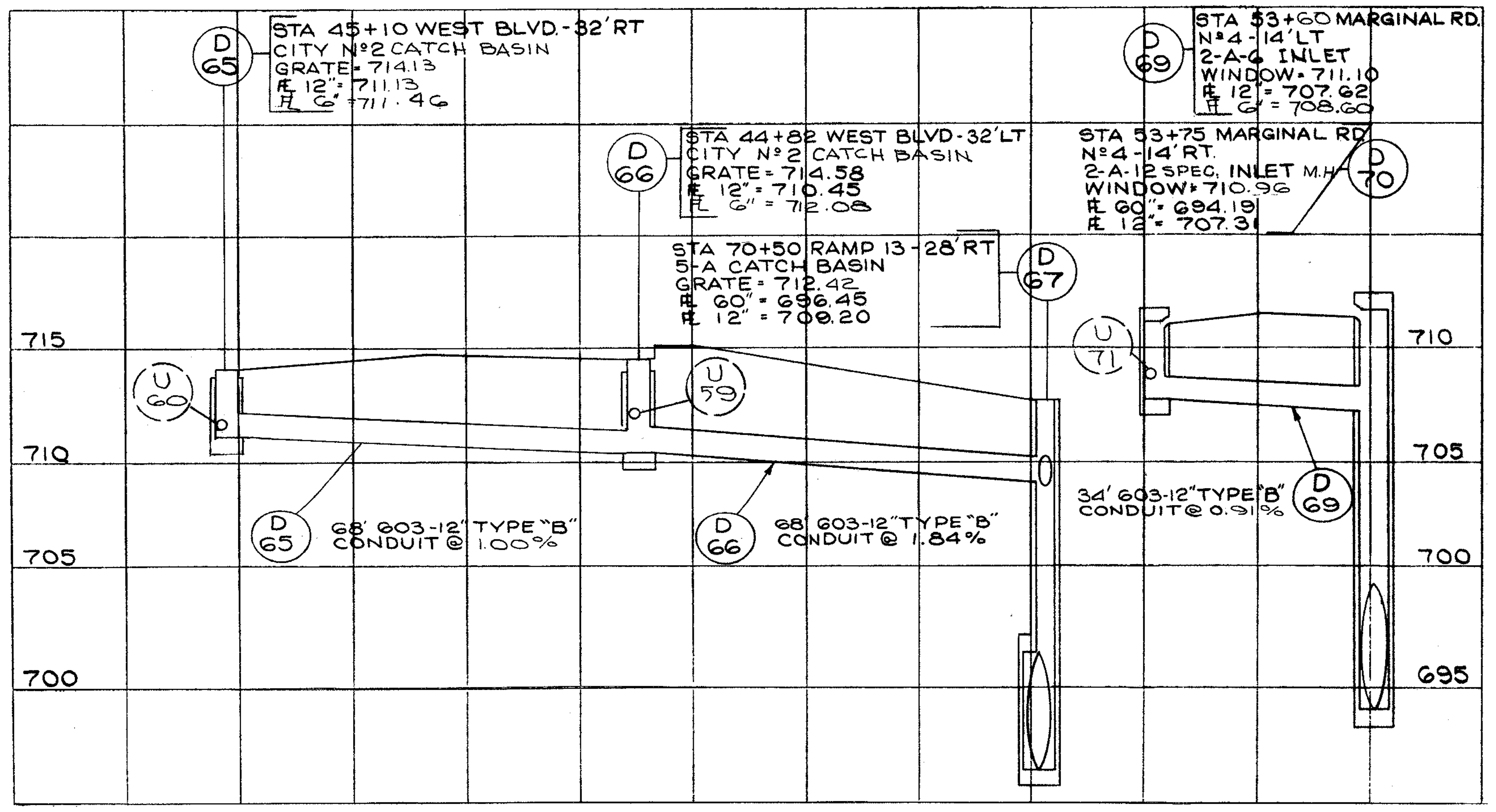
SEWER PROFILES

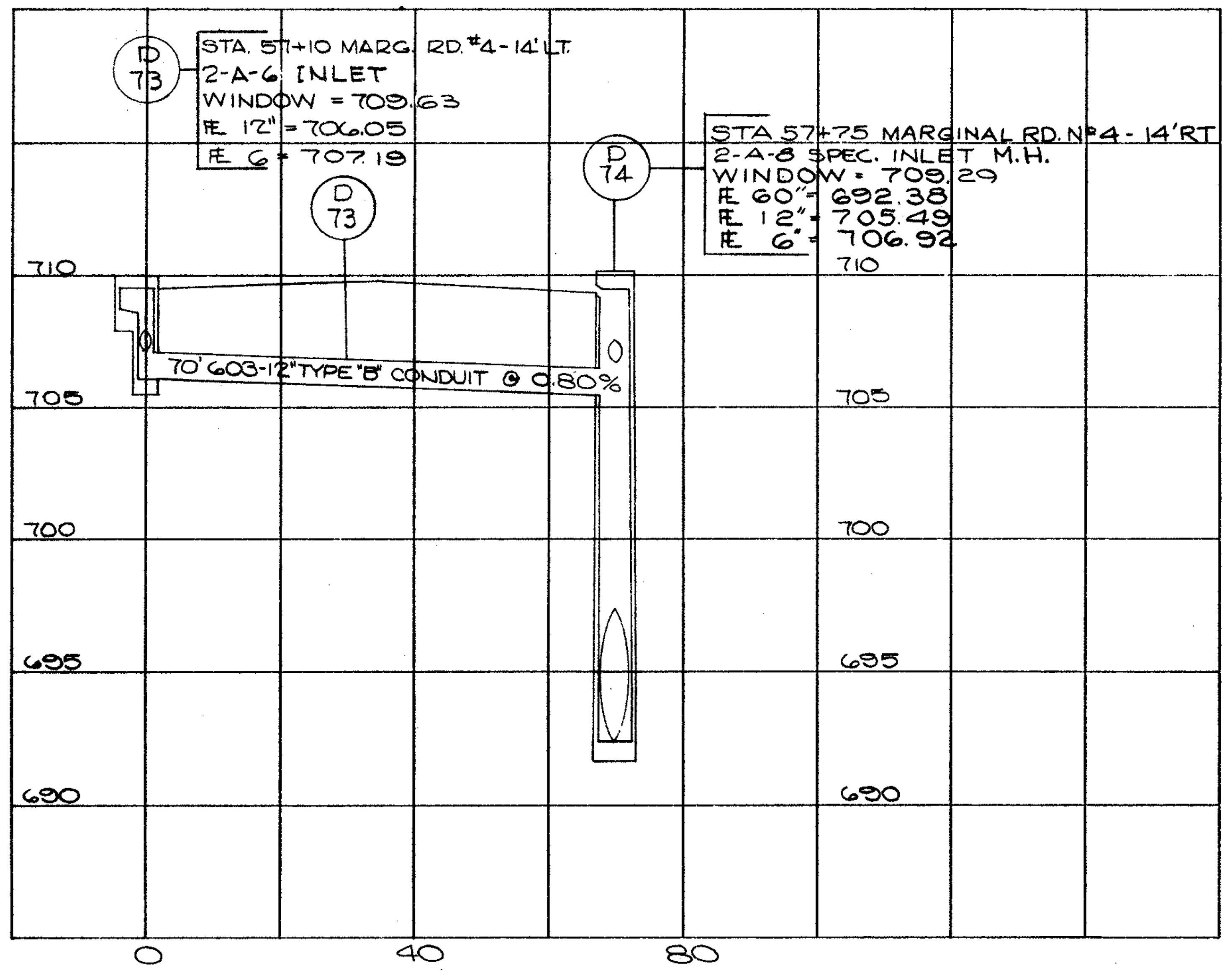
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

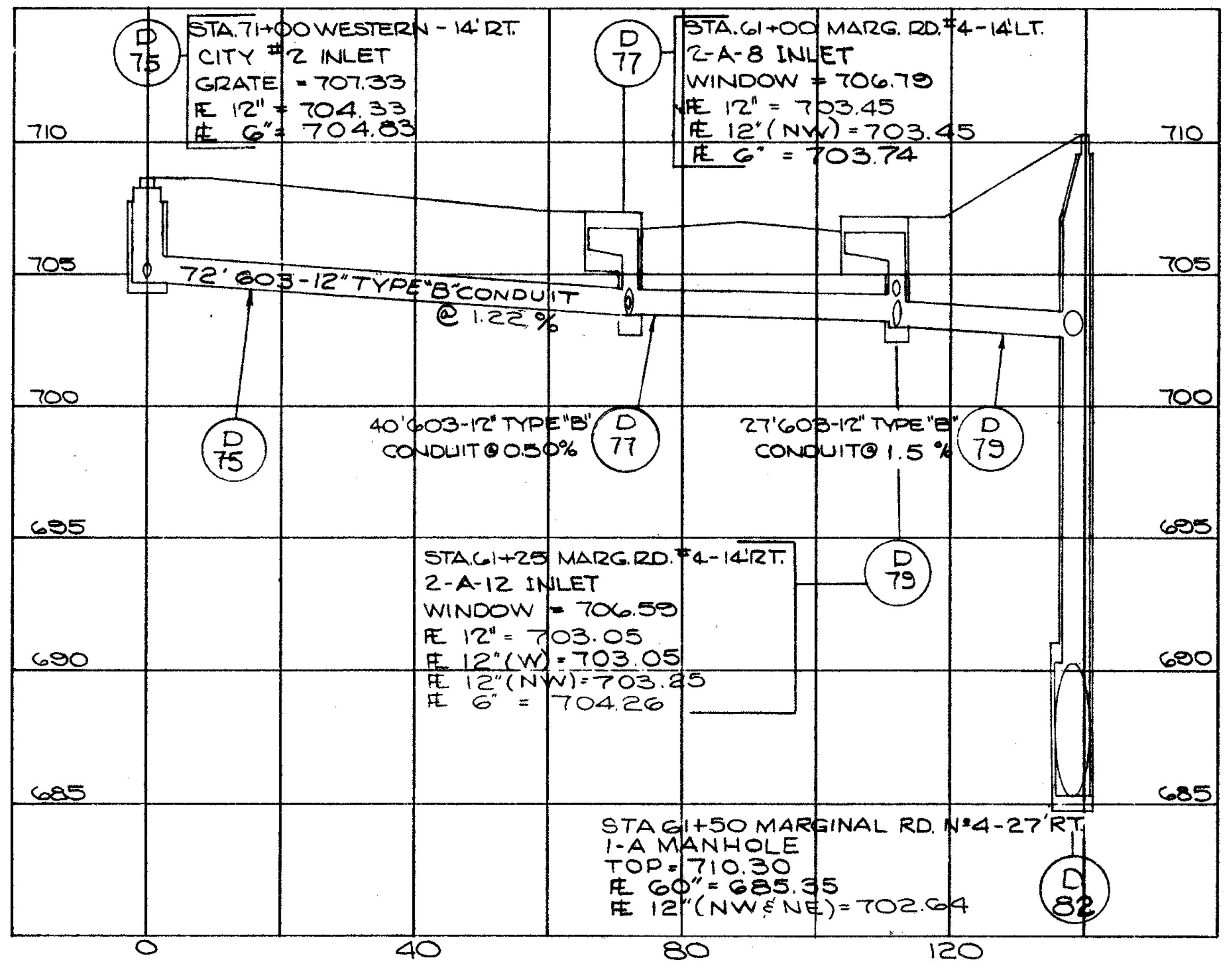
90
713

CUYAHOGA COUNTY
CUY-90-10.40





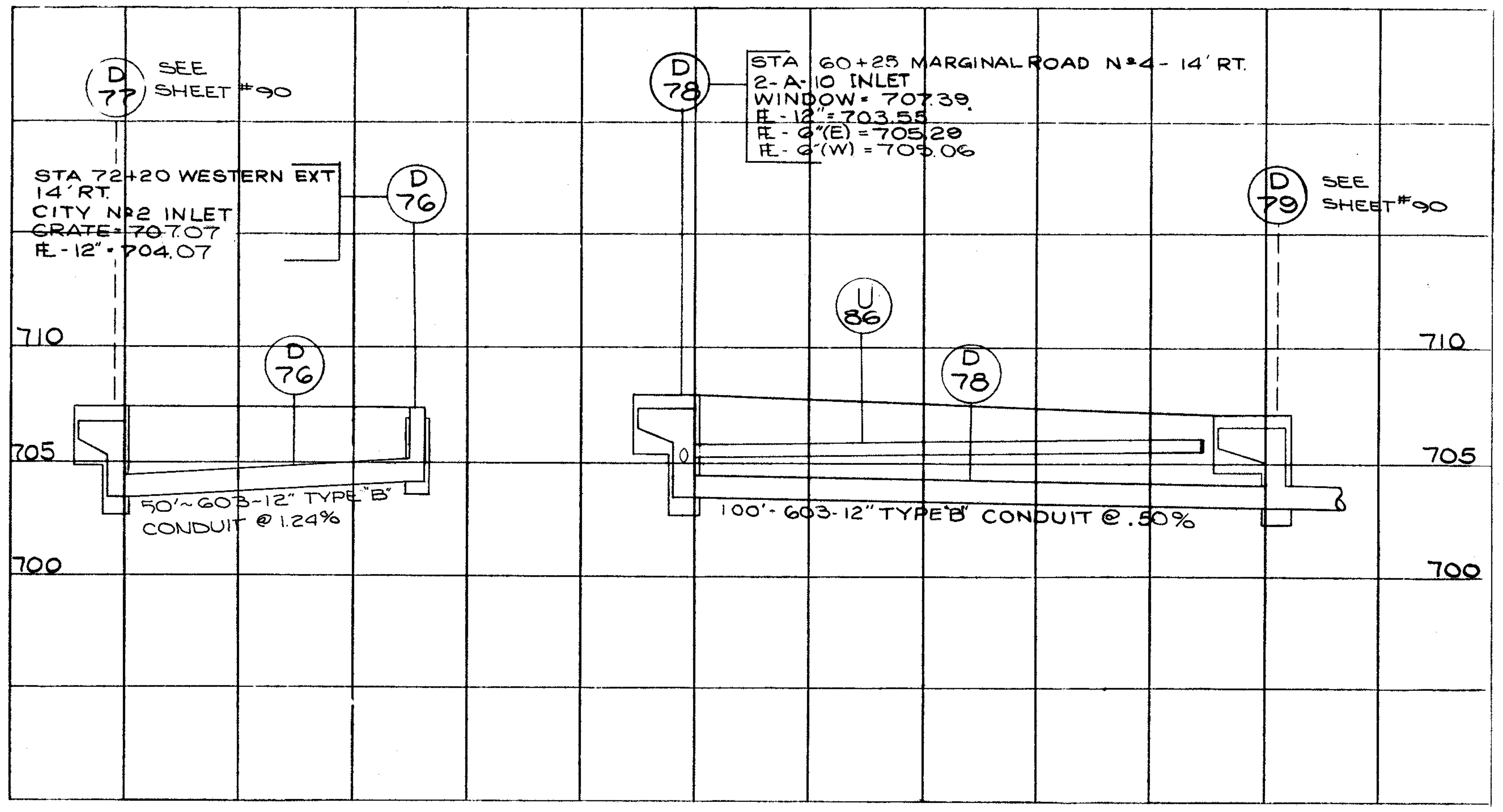


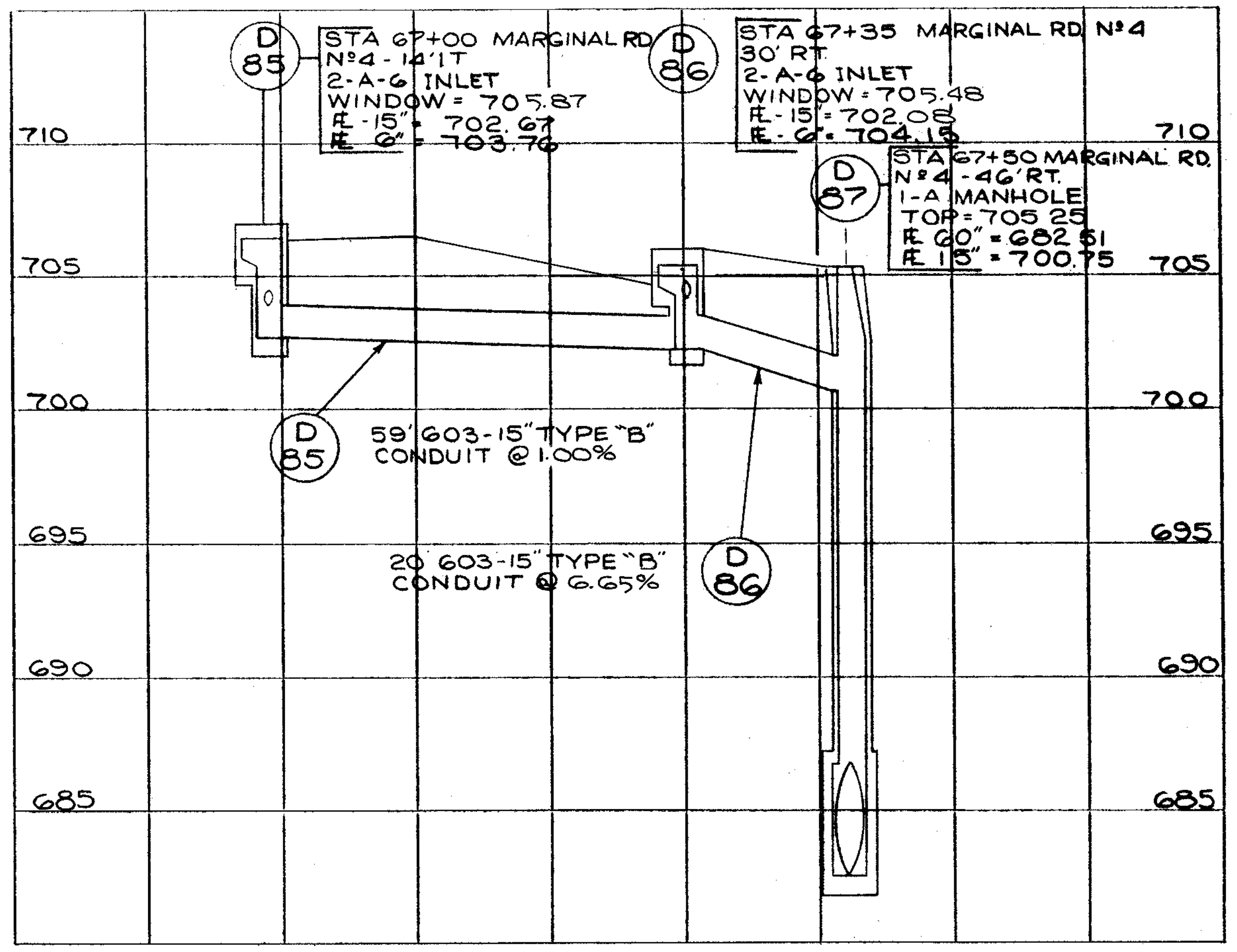


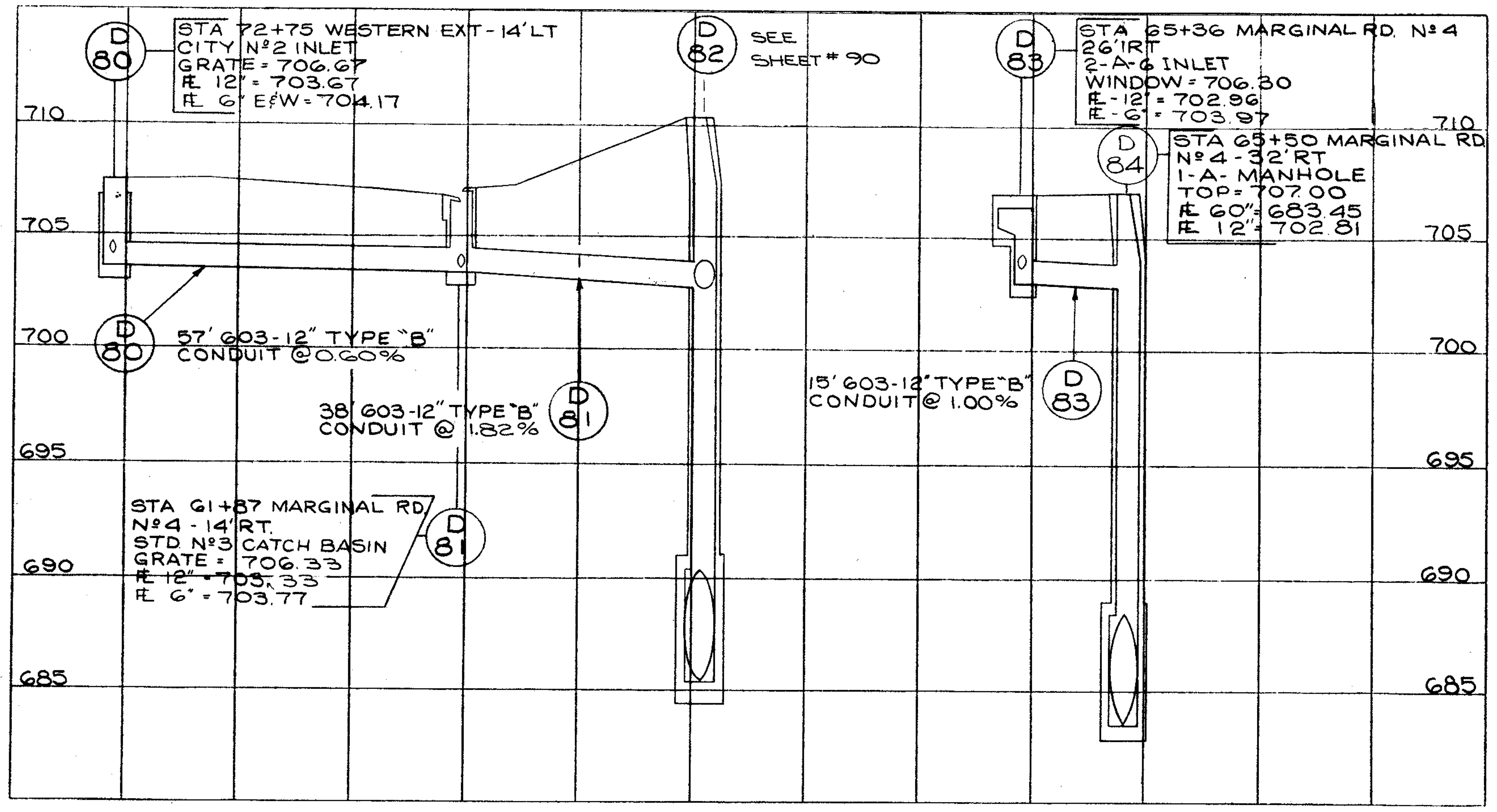
SEWER PROFILES

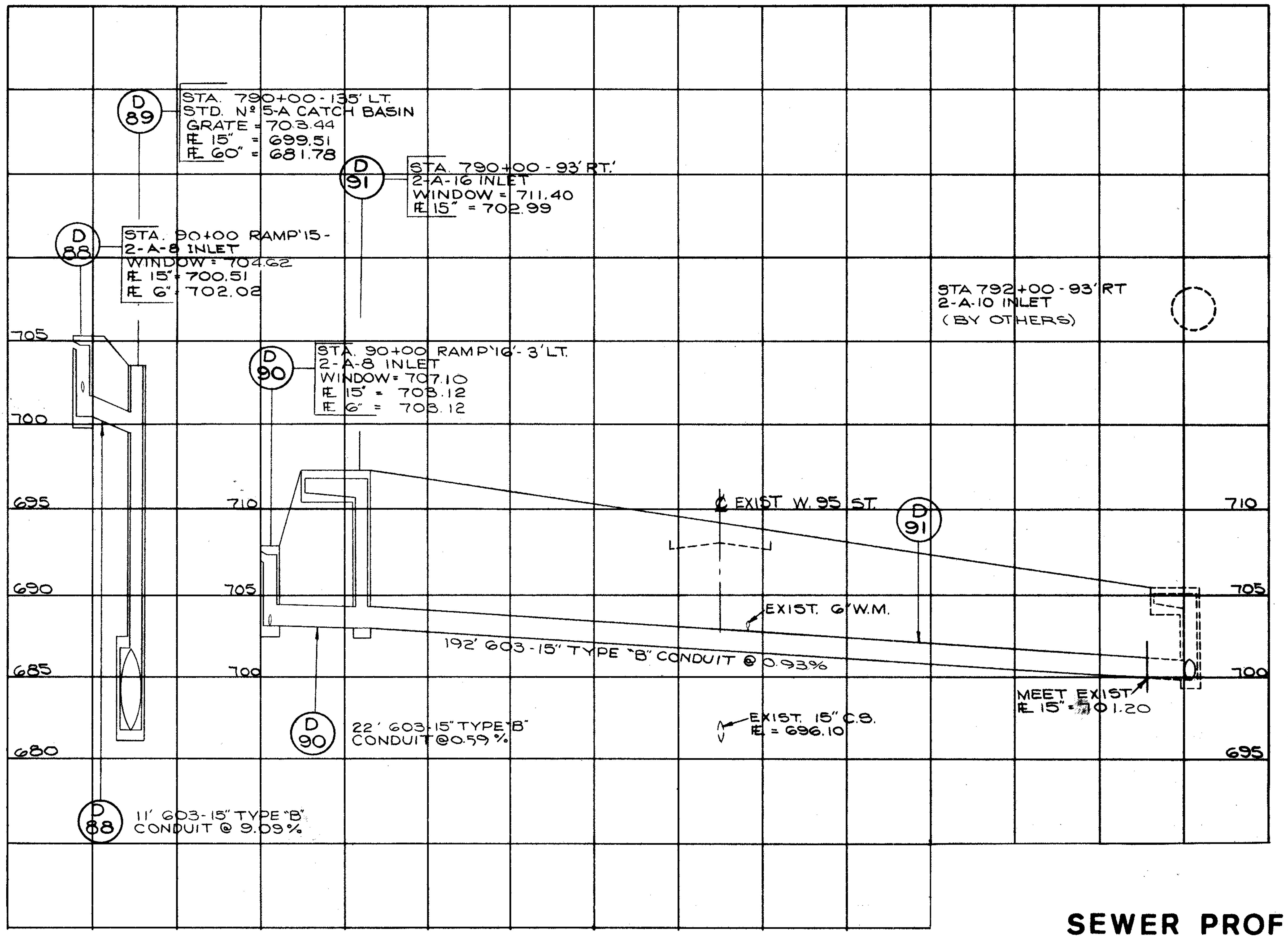
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40







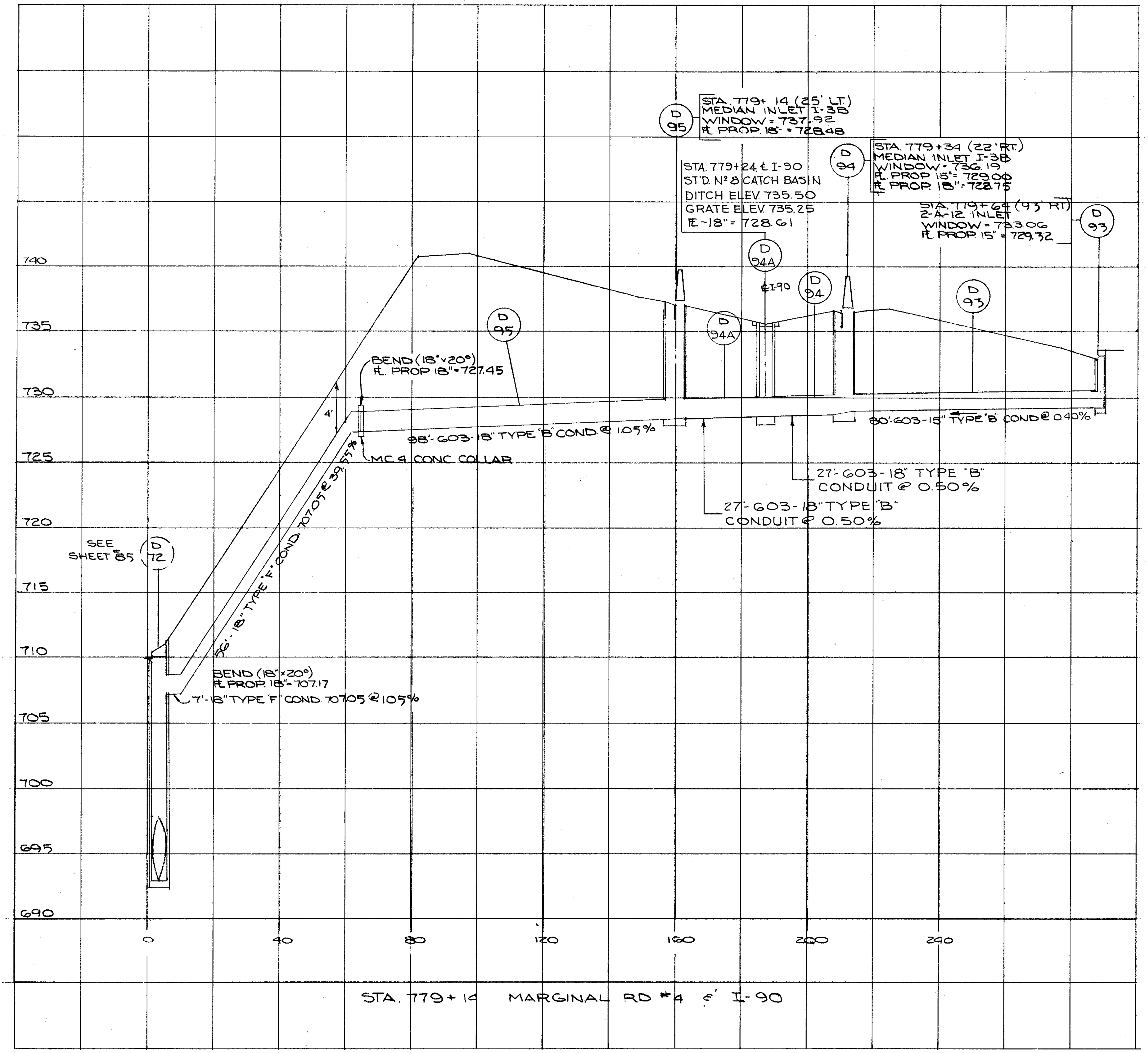


SEWER PROFILES

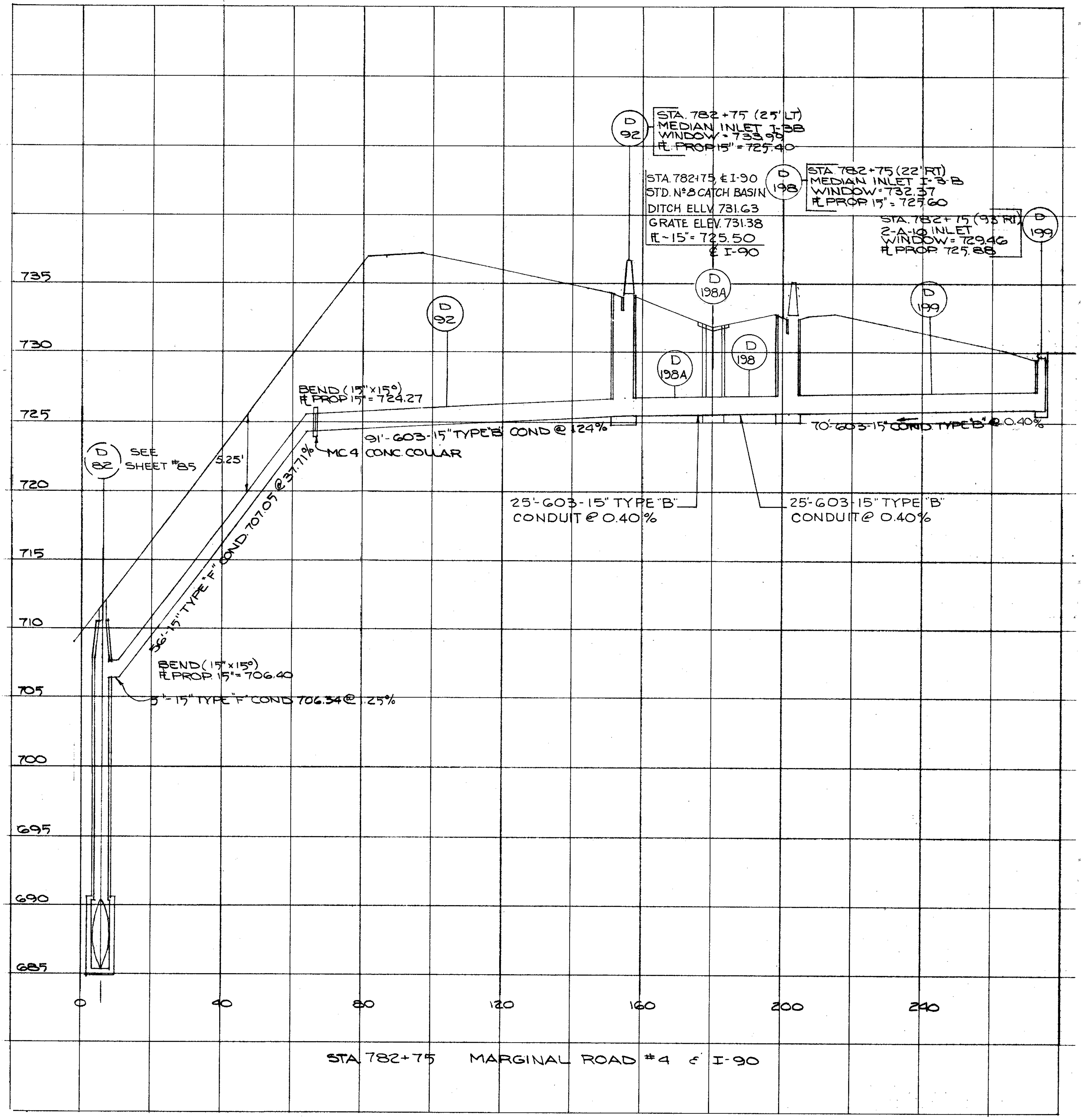
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

92
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



STA. 779+14 MARGINAL RD #4 & I-90

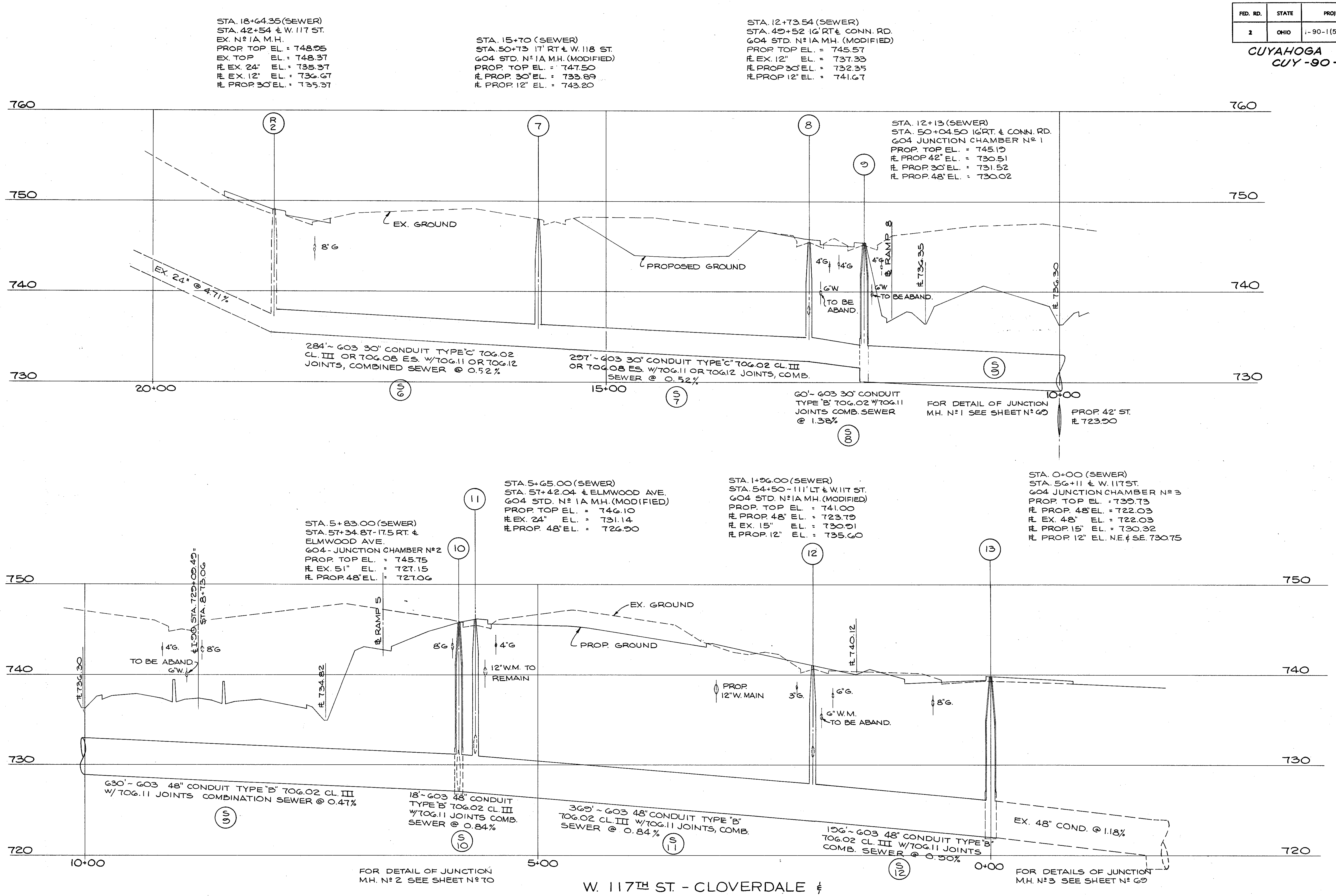


STA. 782+75 MARGINAL ROAD #4 & I-90

SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40



W. 117TH ST. - CLOVERDALE &
ELMWOOD SEWER RELOCATION

SEWER PROFILES

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

94/713

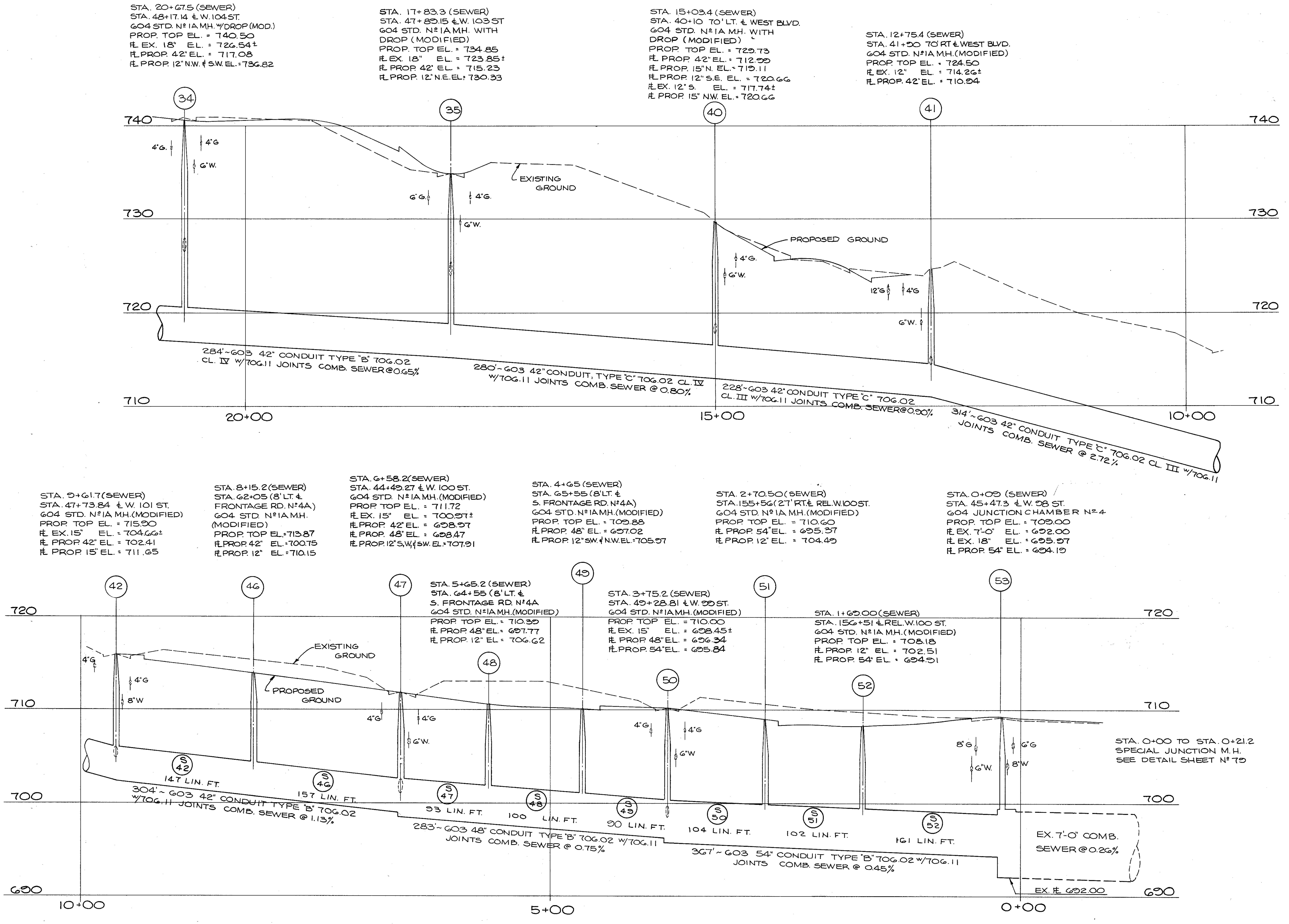
CUYAHOGA COUNTY
CUY-90-10.40

FORM DD A-8

SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

CUYAHOGA COUNTY
CUY-90-10.40

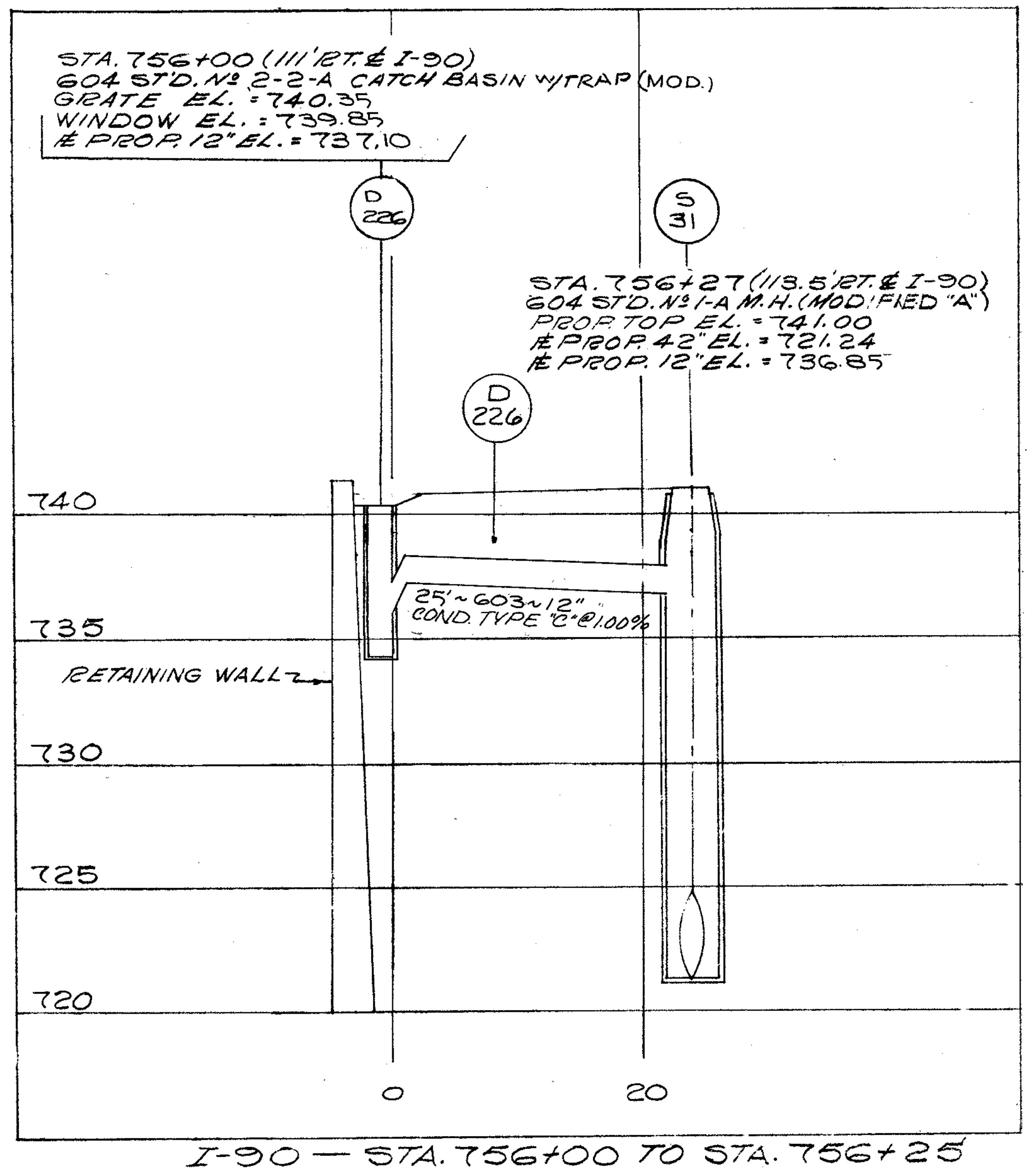


STA. 0+00 TO STA. 0+21.2
SPECIAL JUNCTION M.H.
SEE DETAIL SHEET Nº 75

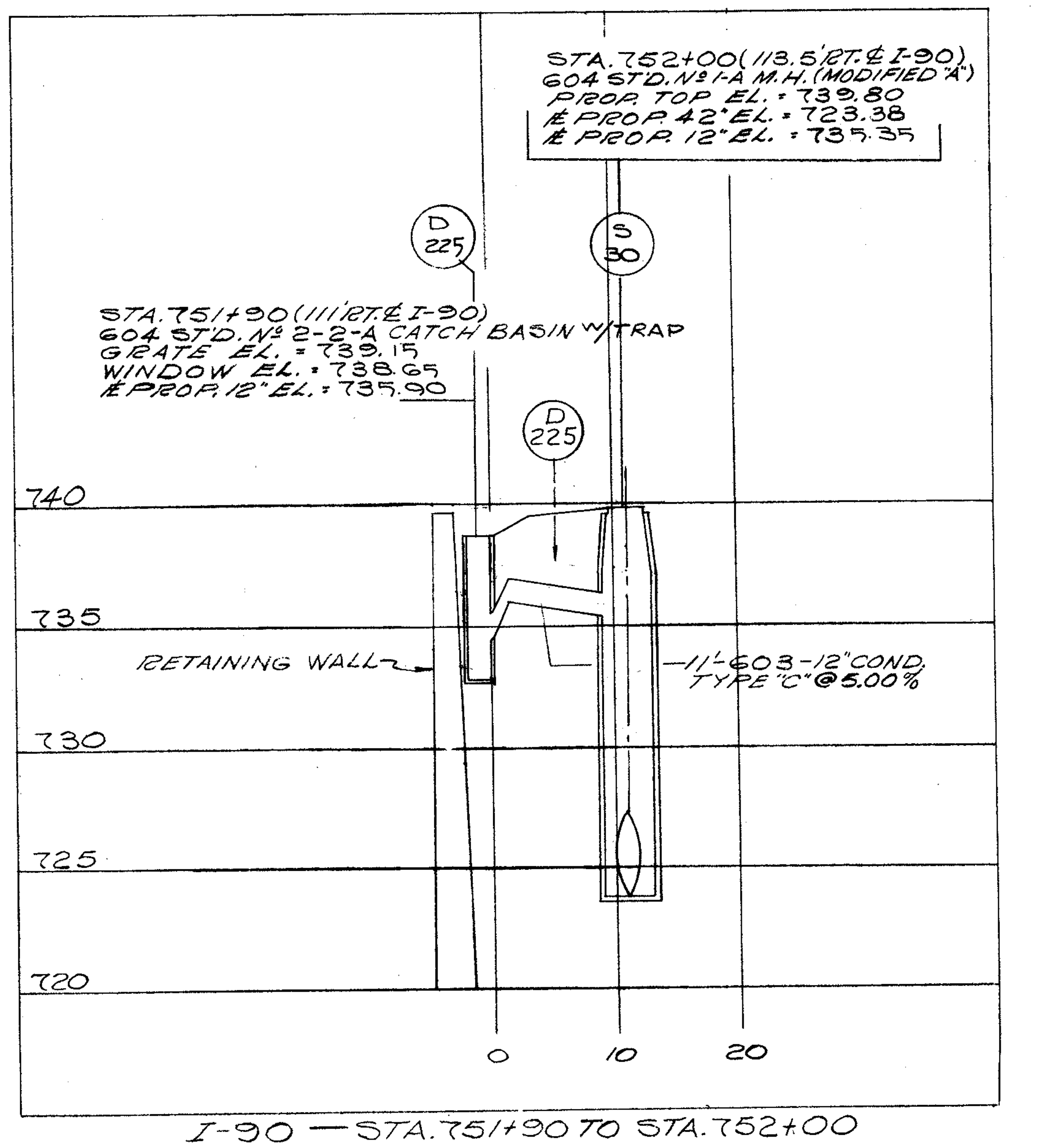
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

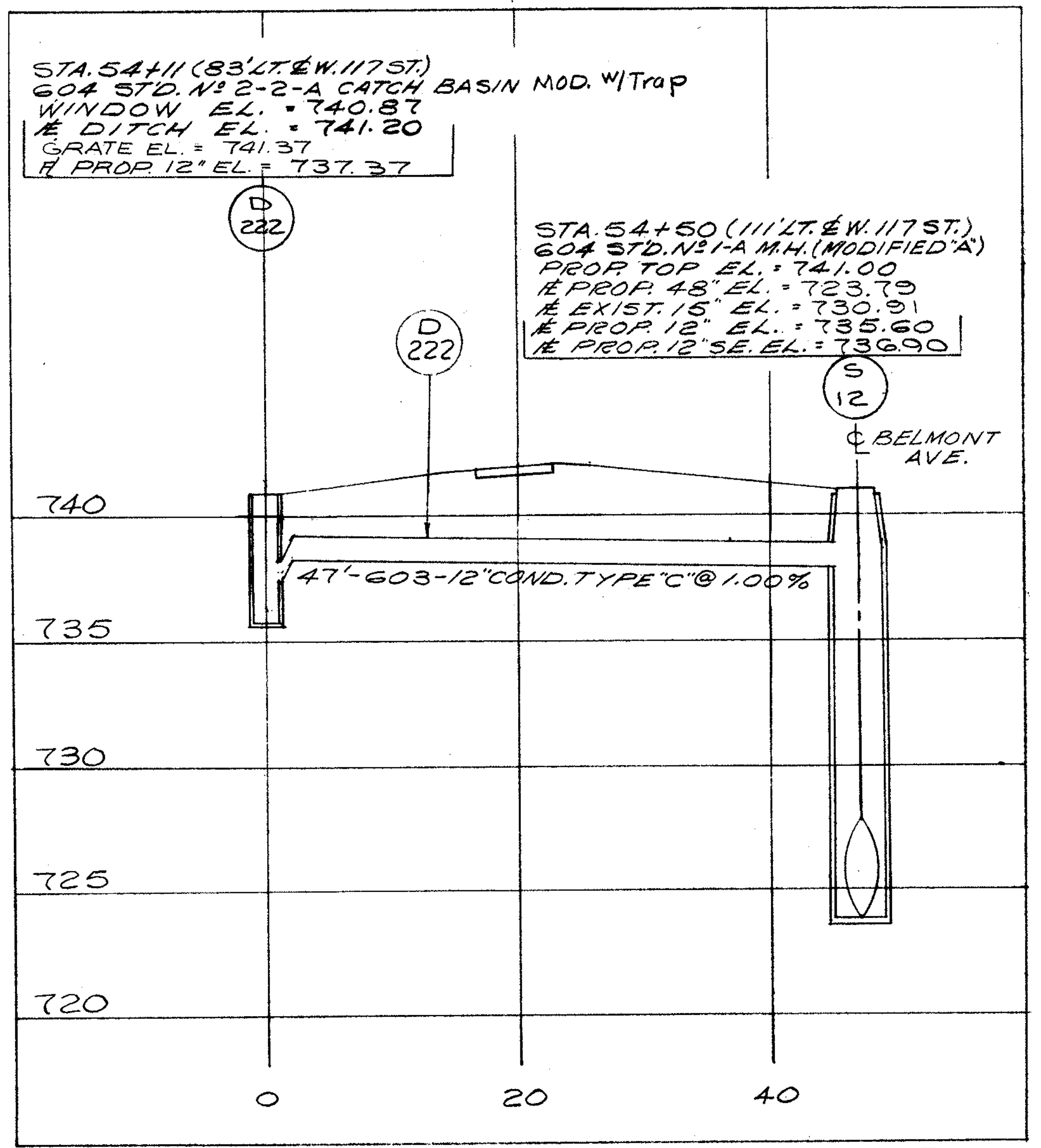
CUYAHOGA COUNTY
CUY - 90 - 10.40



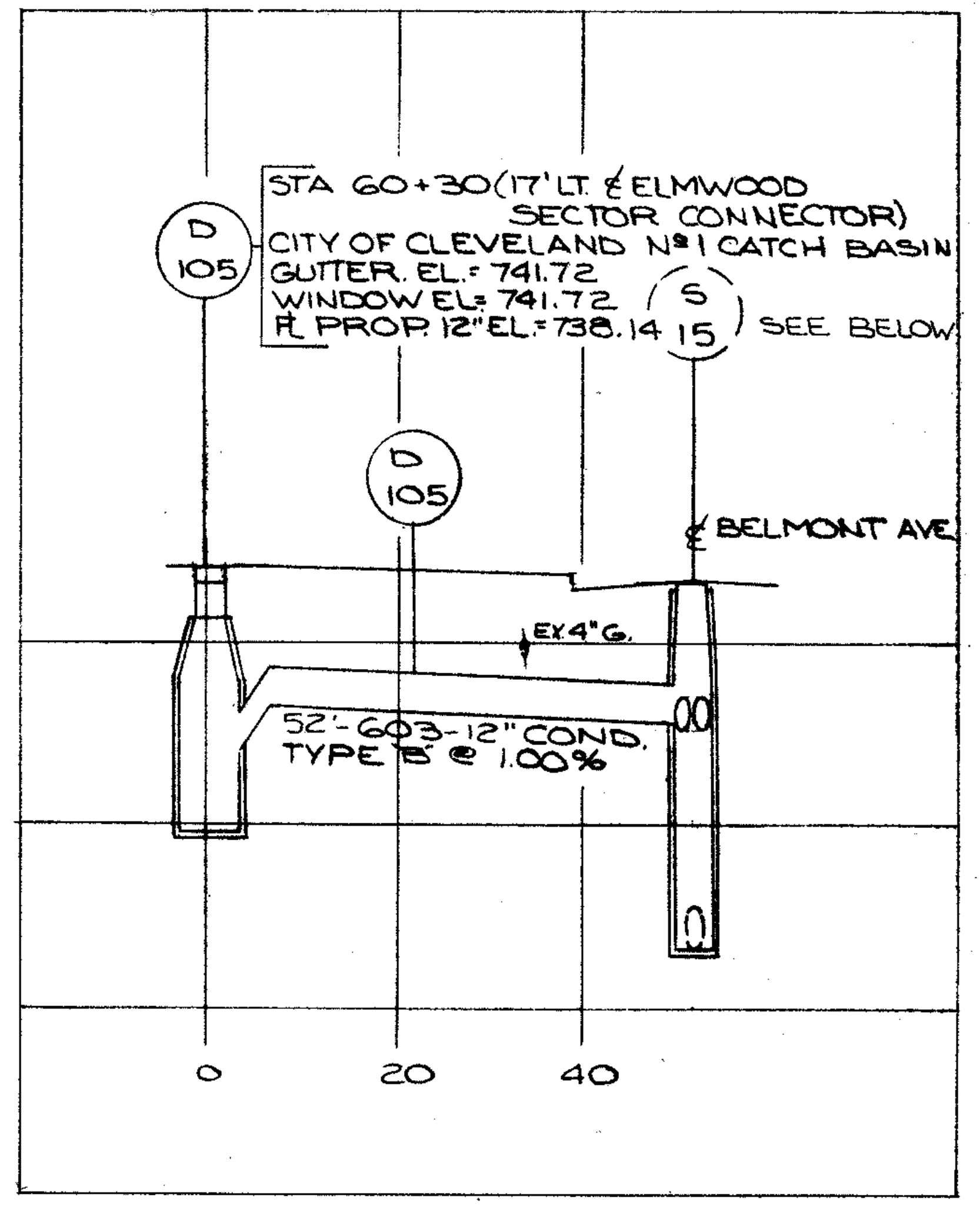
I-90 — STA. 756+00 TO STA. 756+25



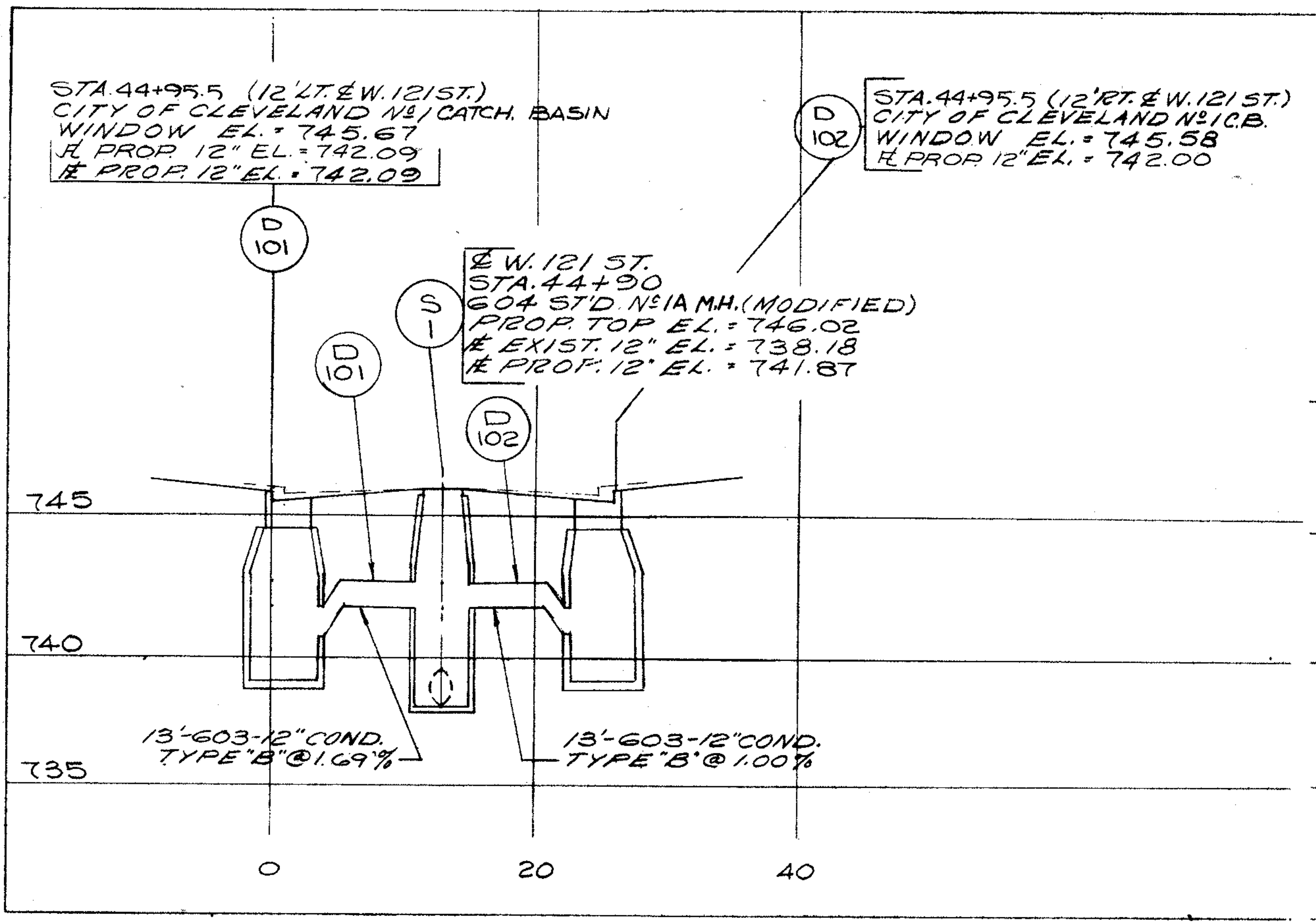
I-90 — STA. 751+90 TO STA. 752+00



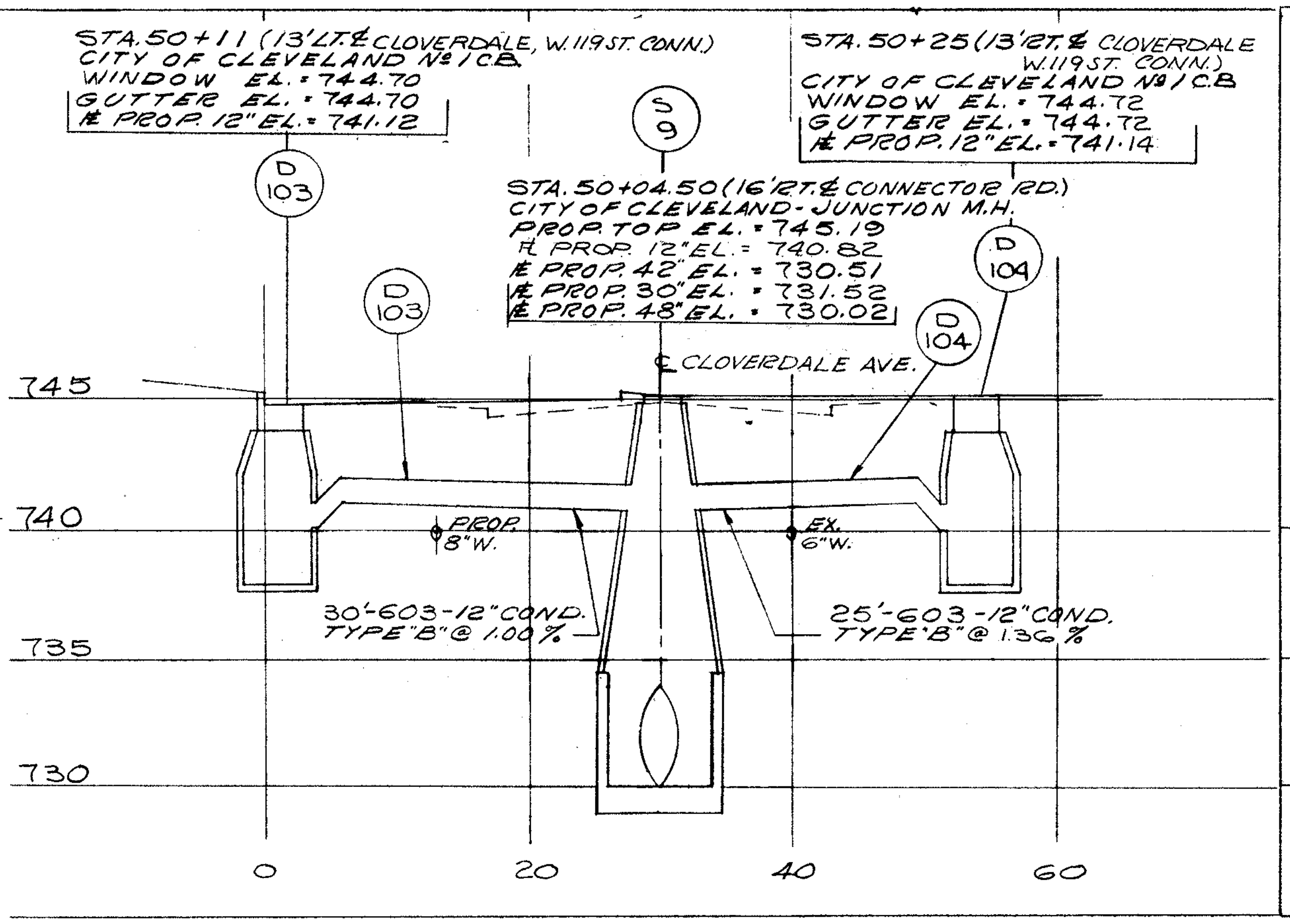
W. 117 TH. ST. — STA. 54+11 TO STA. 54+50



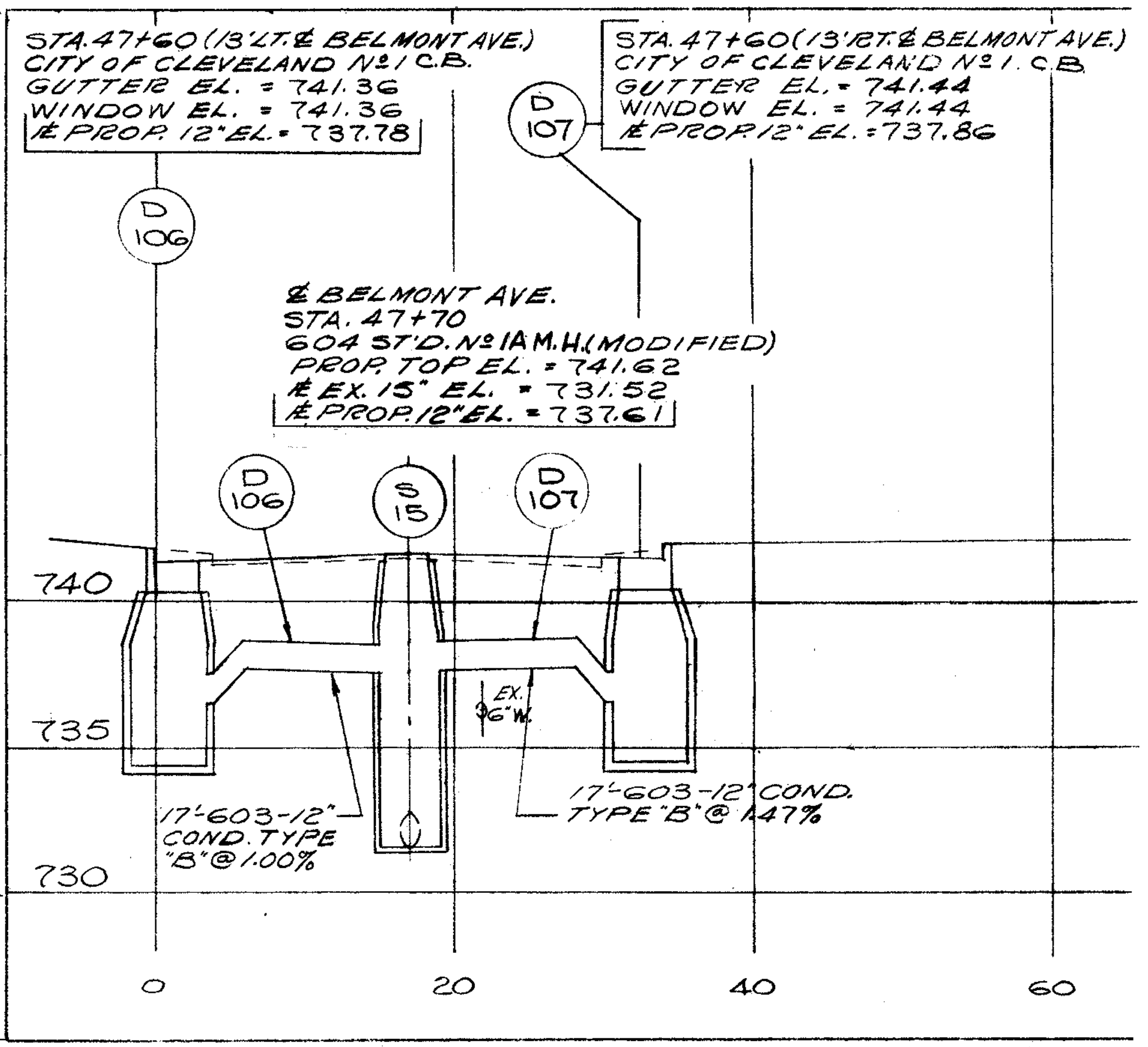
ELMWOOD SECTOR CONNECTOR - STA 60+30



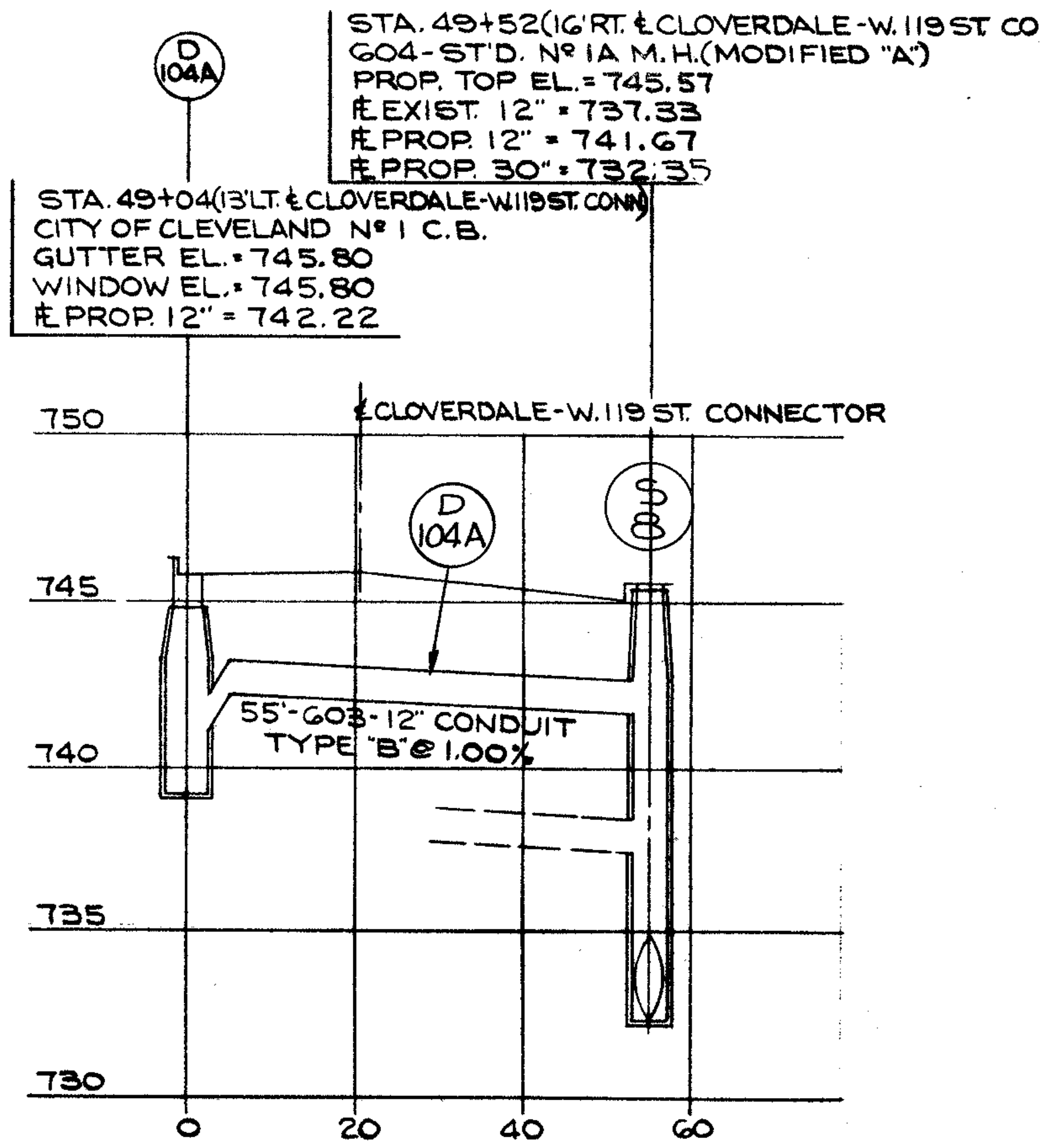
W. 121 ST. ST. - STA. 44+90



CLOVERDALE CONN. - RD. - STA. 50+04.50



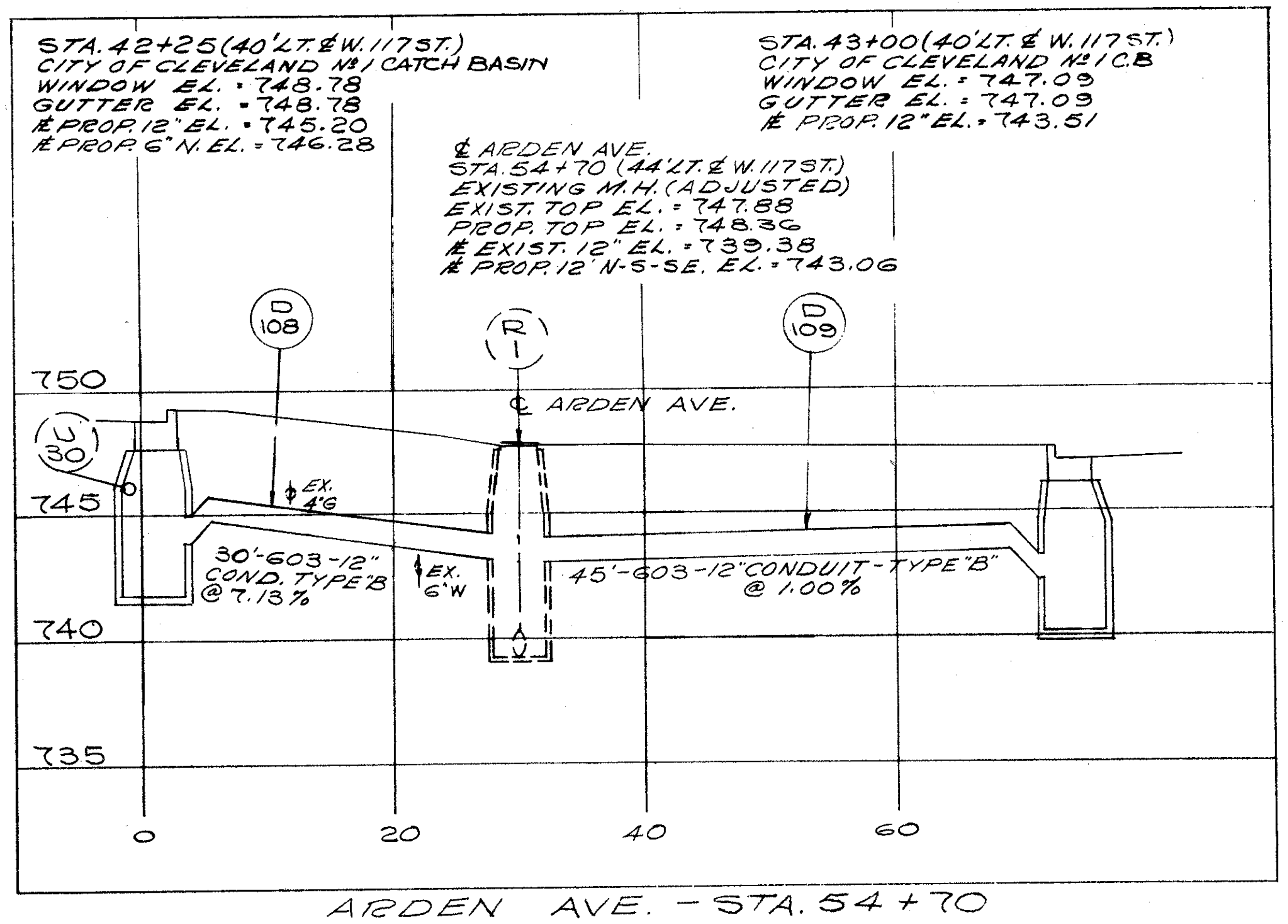
BELMONT AVE. - STA. 47+70



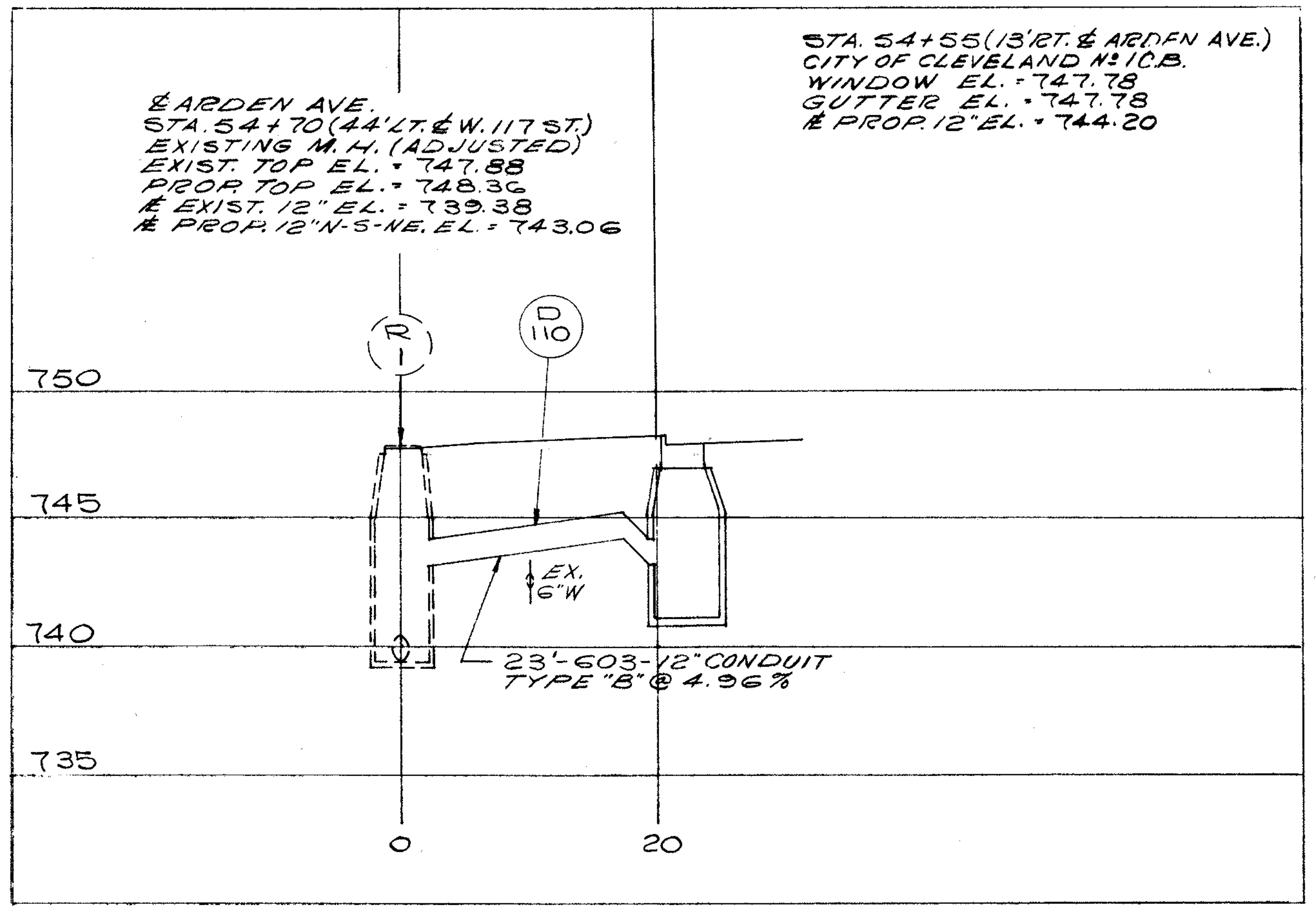
CLOVERDALE - W. 119 ST. CONN.
STA. 49+52

SEWER PROFILES

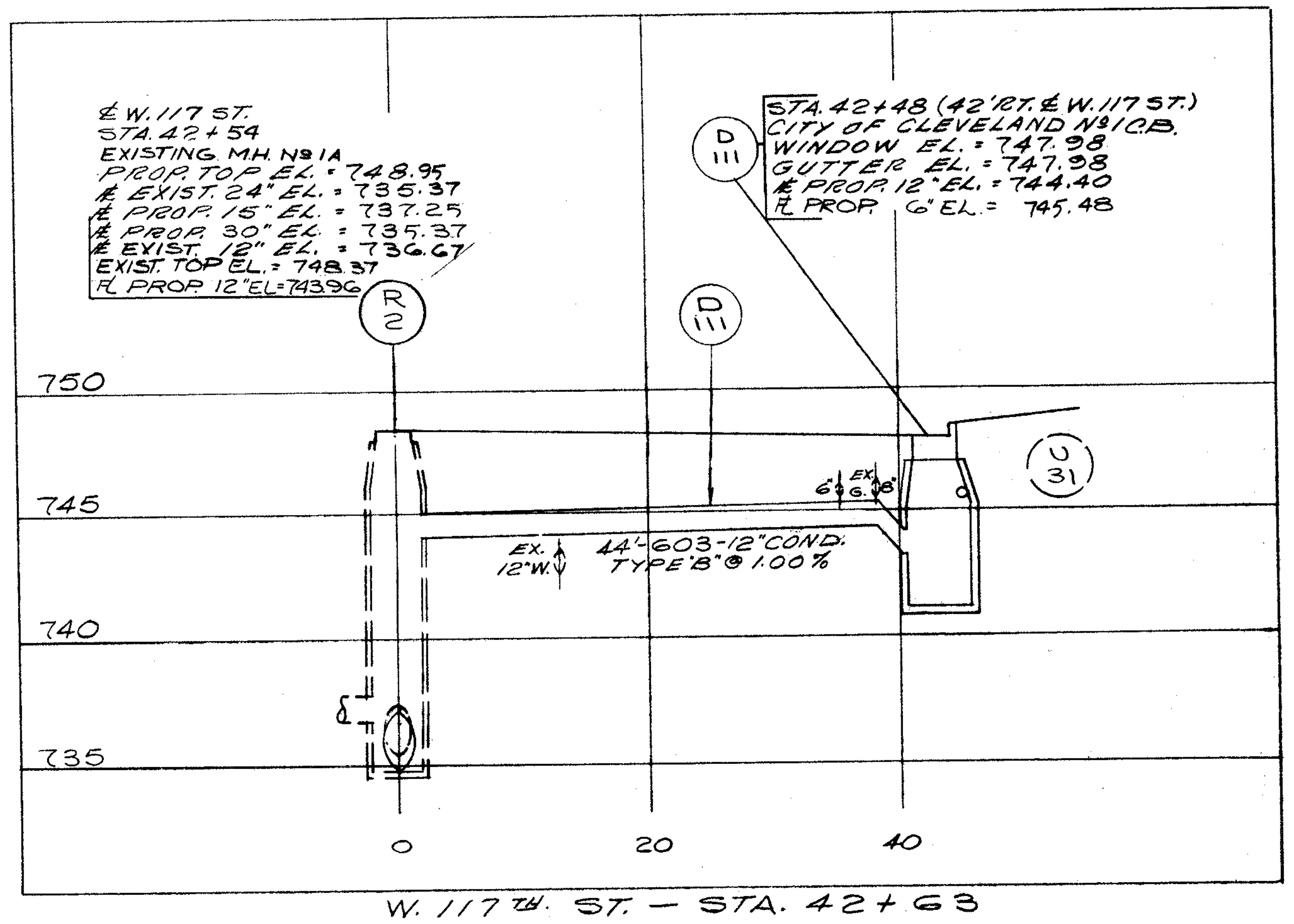
CUYAHOGA COUNTY
CUY-90-10.40



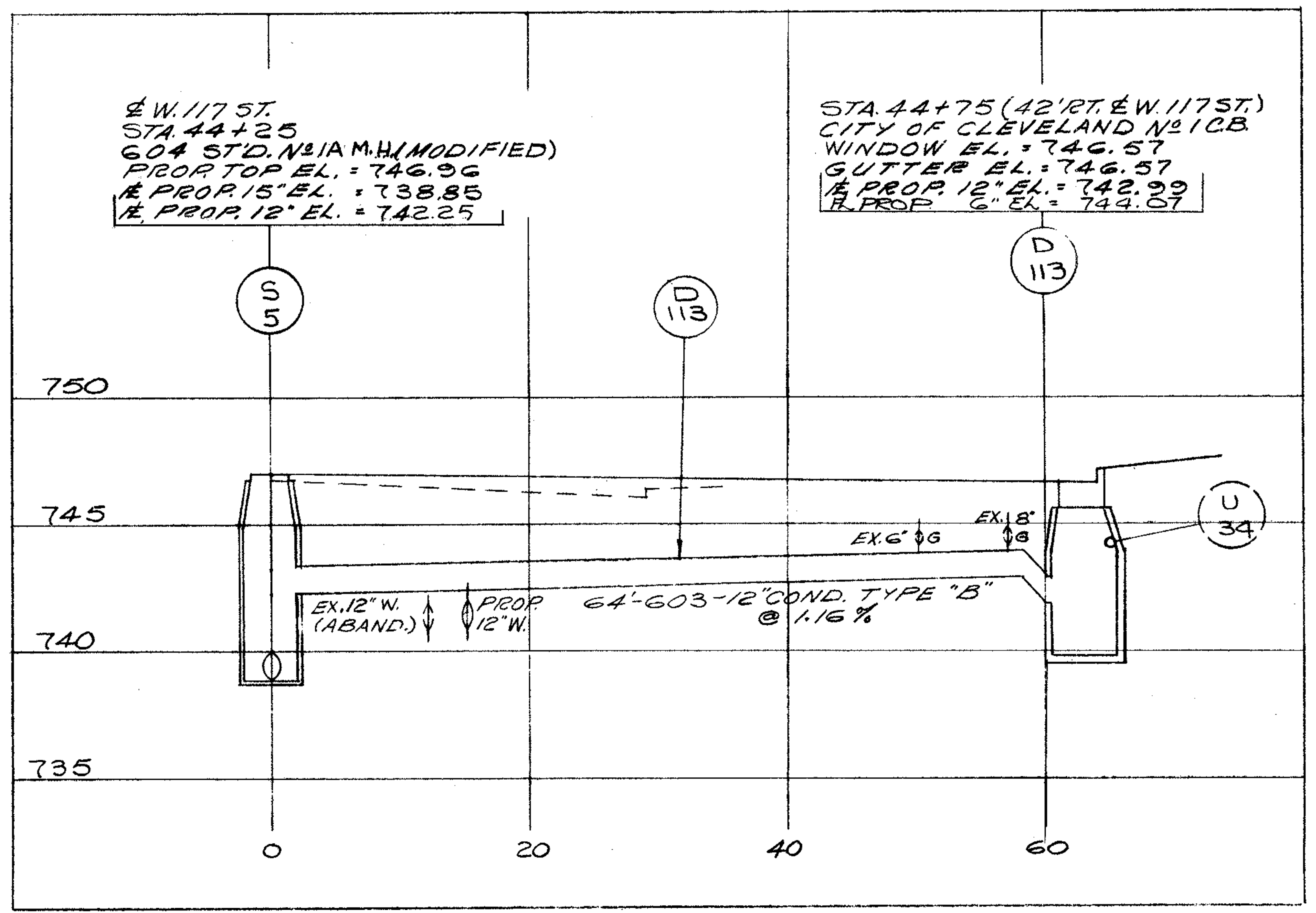
ARDEN AVE. - STA. 54+70



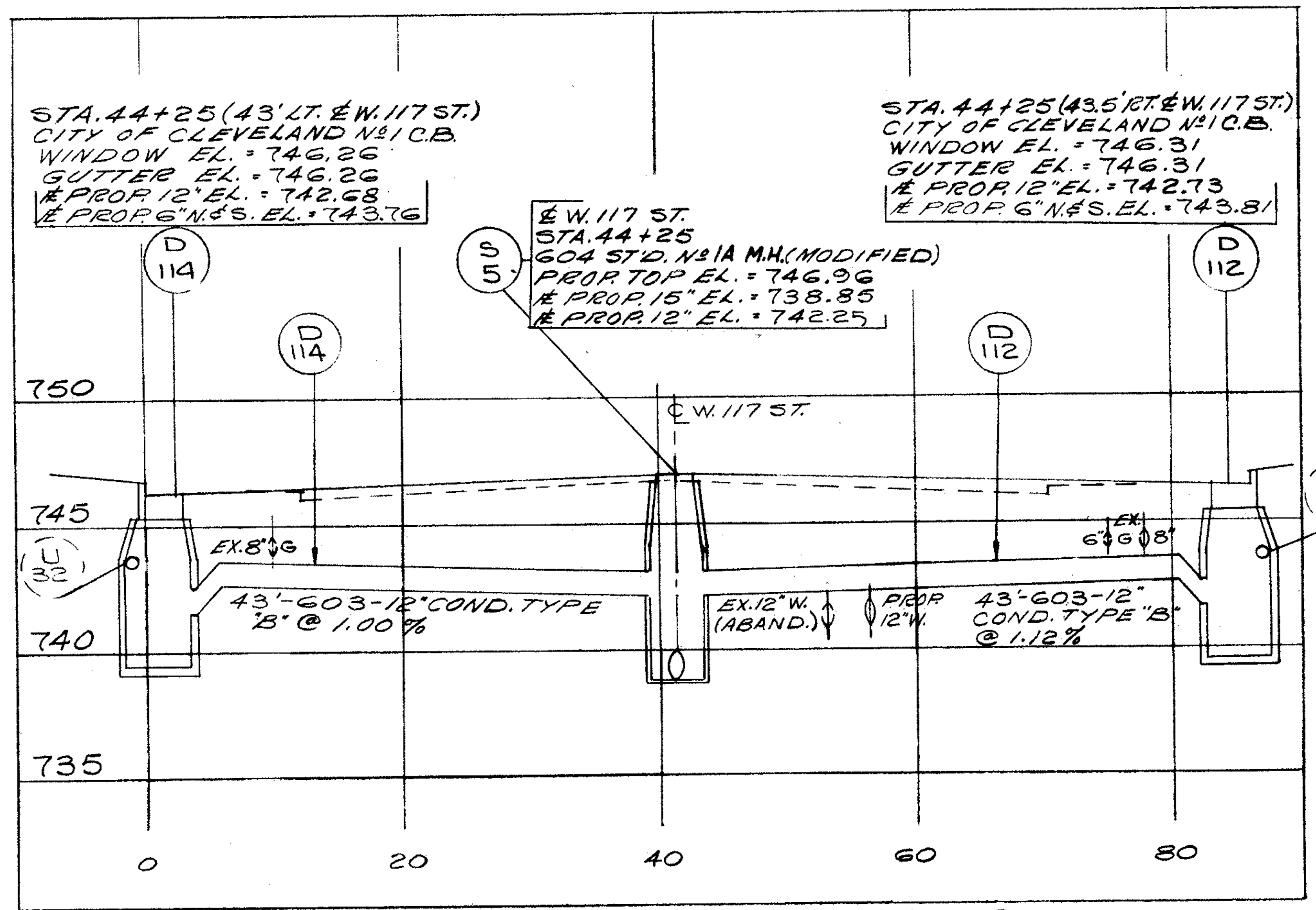
ARDEN AVE. - STA. 54+70



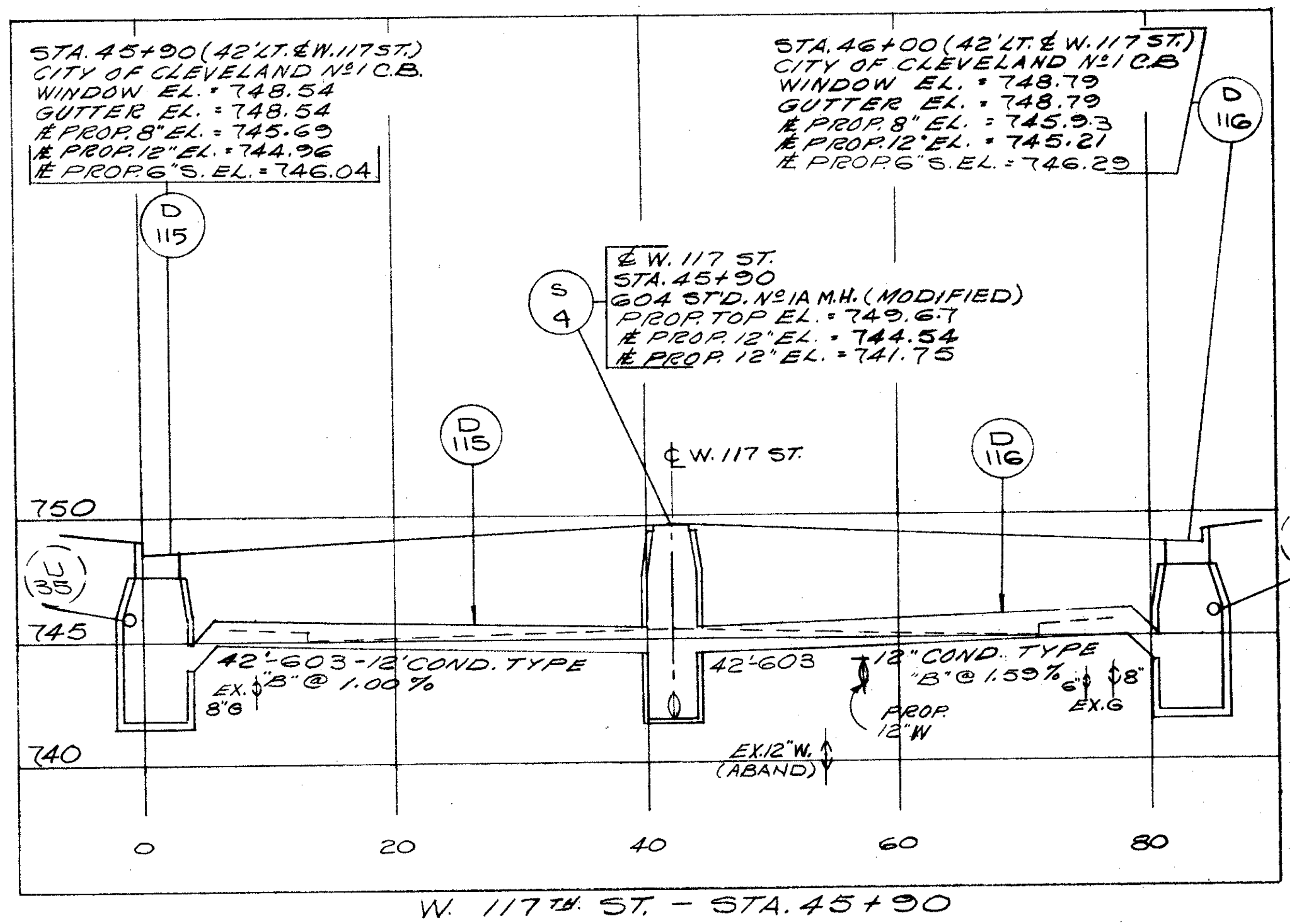
W. 117TH ST. - STA. 42+63



W. 117TH ST. - STA. 44+25



W. 117TH ST. - STA. 44+25

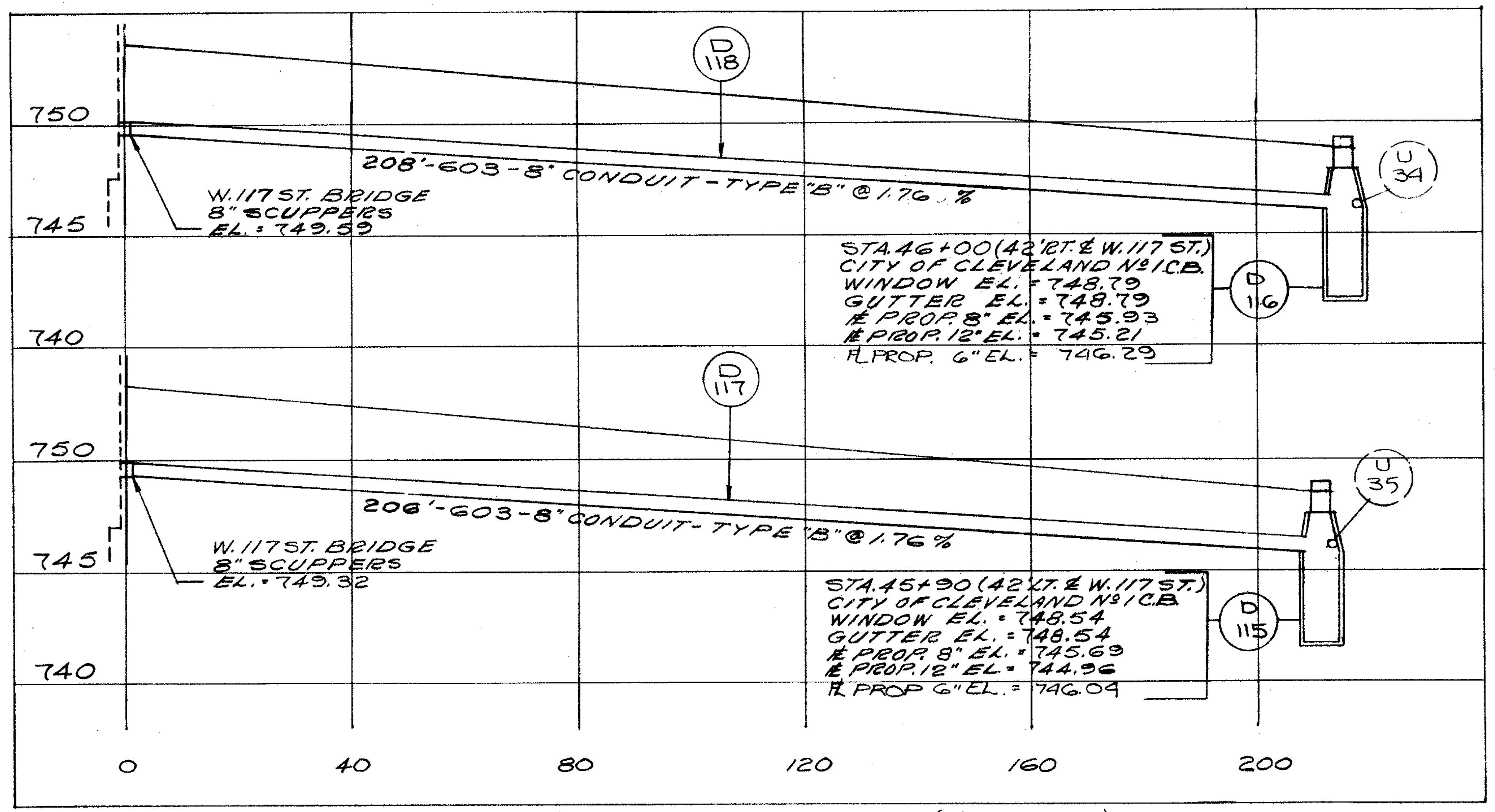


W. 117TH ST. - STA. 45+90

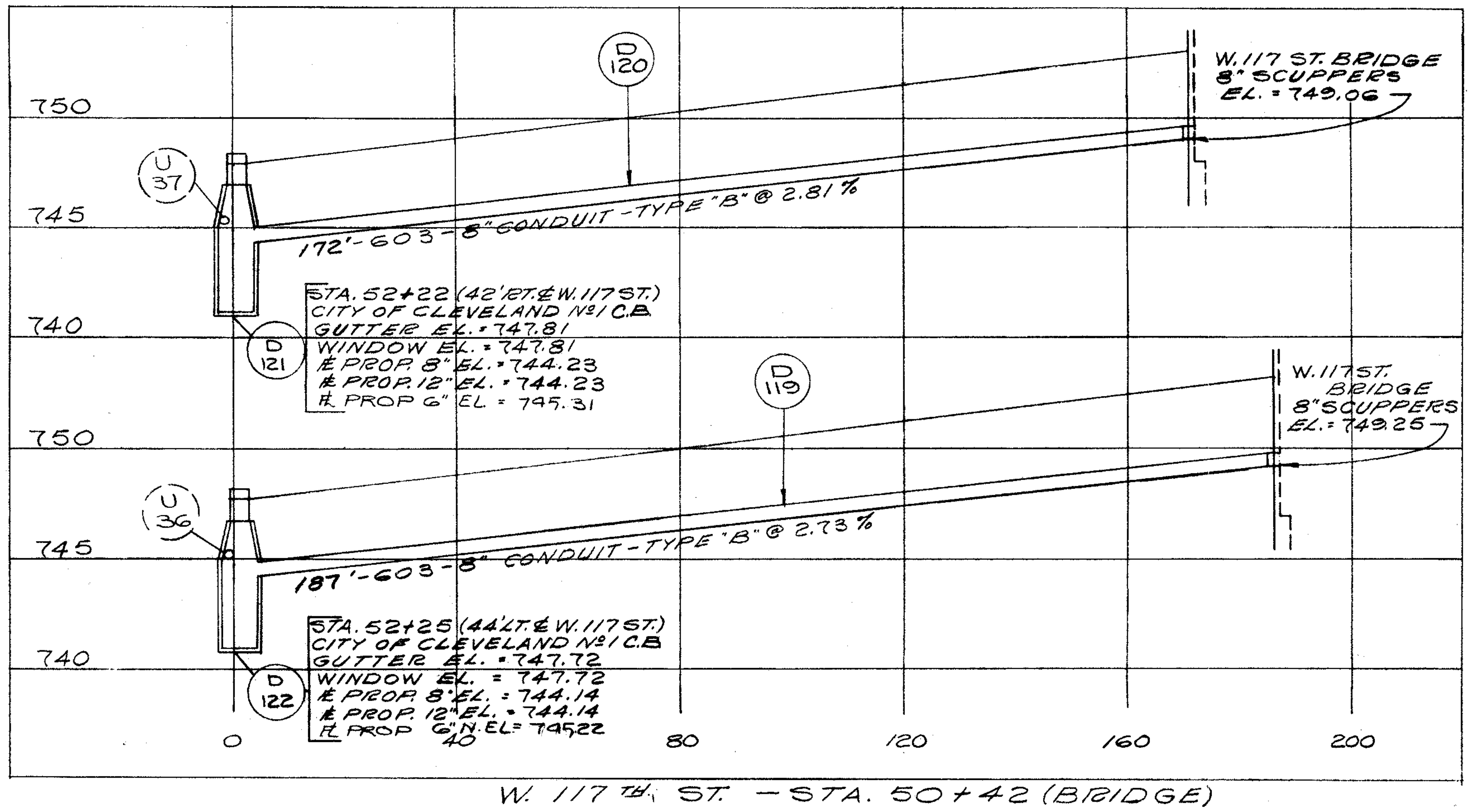
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

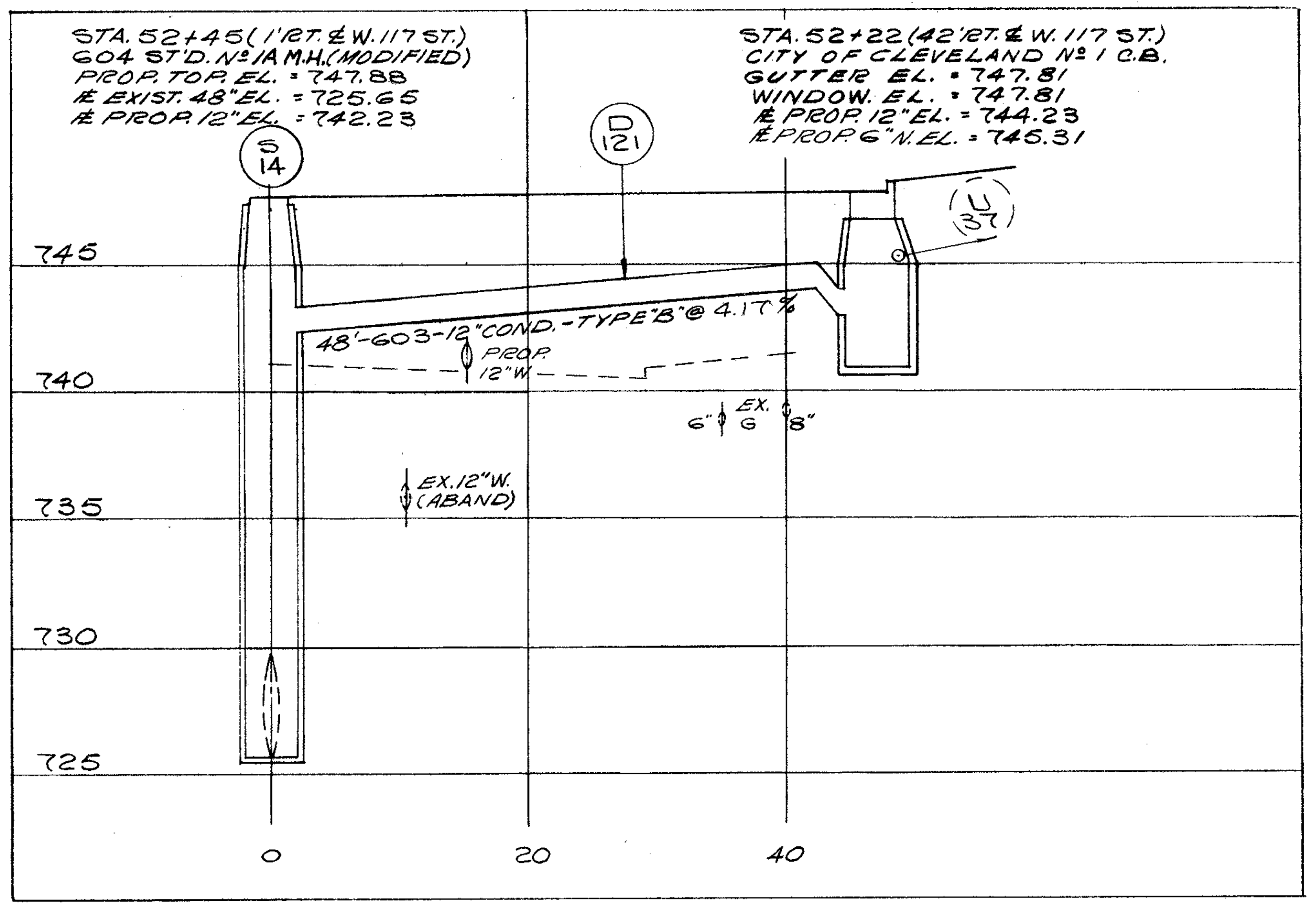
CUYAHOGA COUNTY
CUY - 90 - 10.40



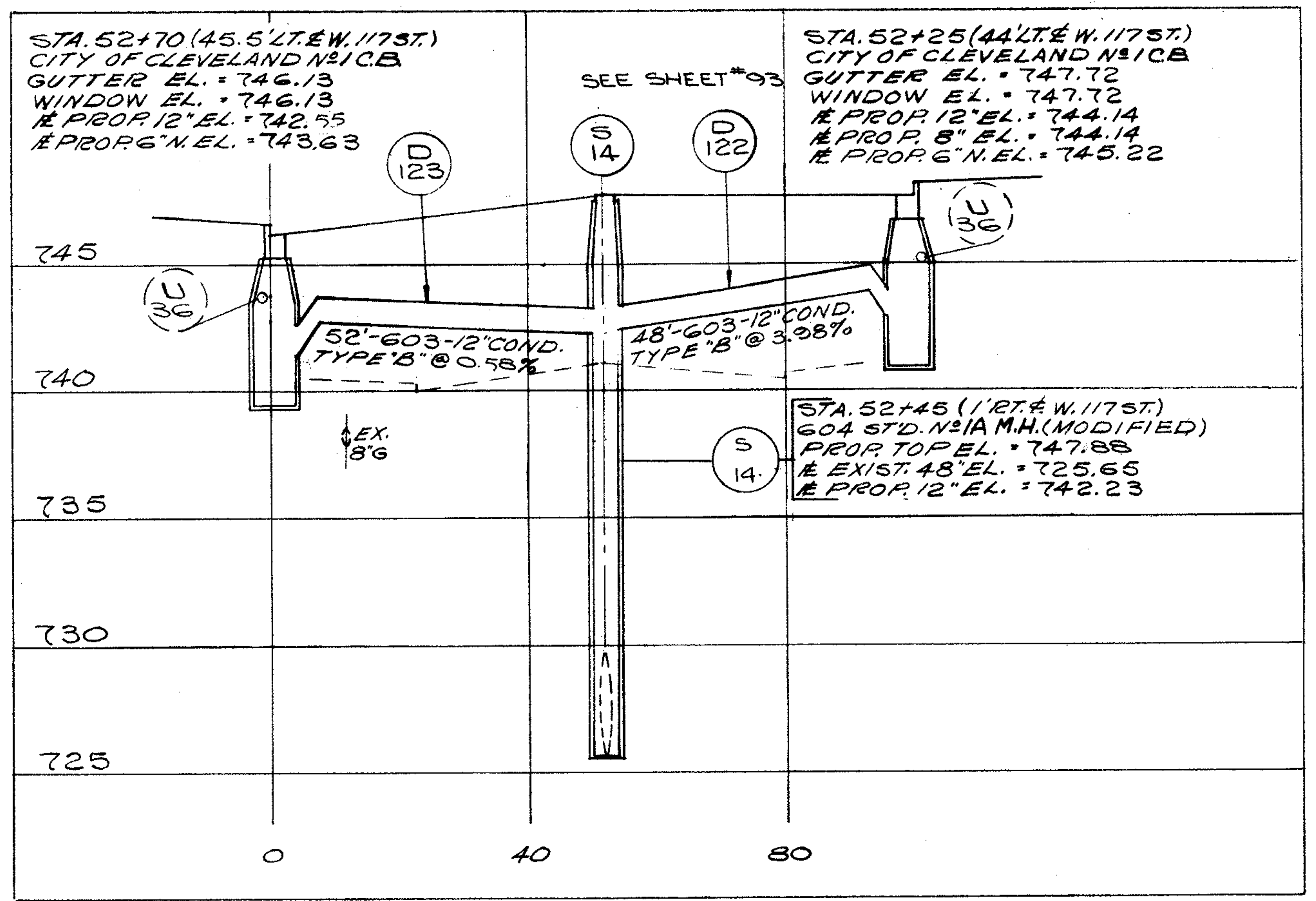
W. 117 TH. ST. – STA. 48+02 (BRIDGE)



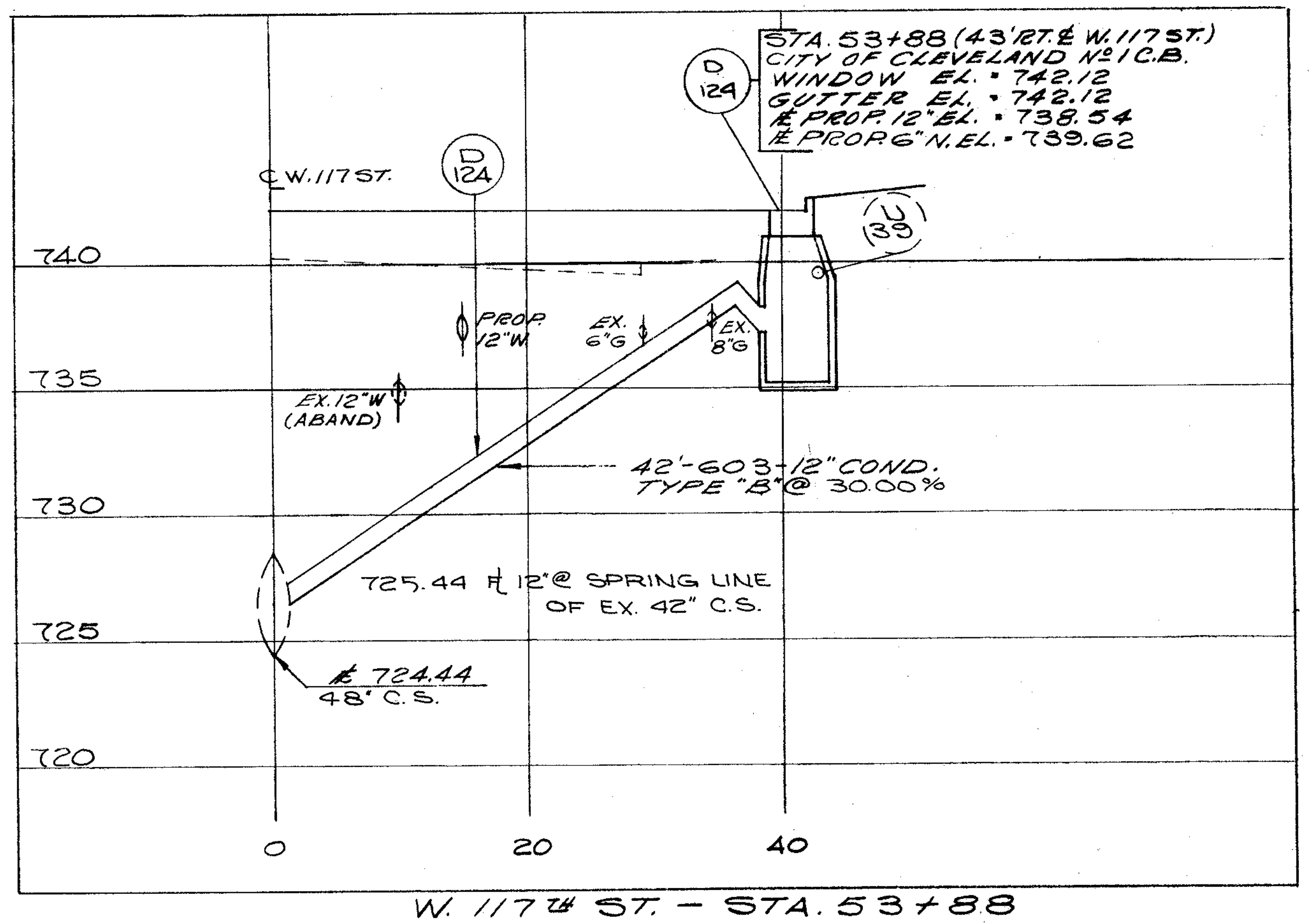
W. 117 TH. ST. – STA. 50+42 (BRIDGE)



W. 117 TH. ST. – STA. 52+45



W. 117 TH ST. – STA. 52+45

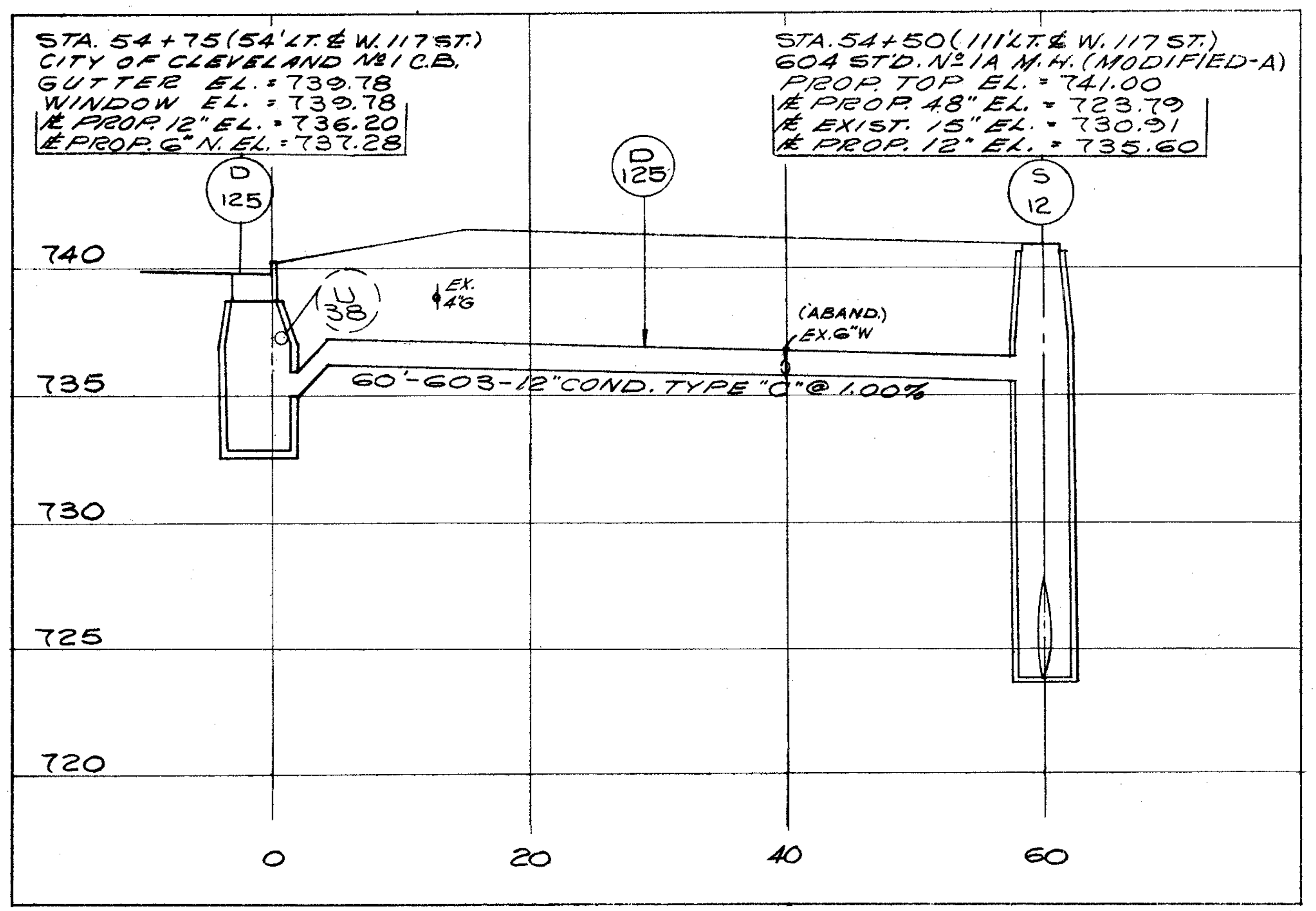


W. 117 TH ST. – STA. 53+88

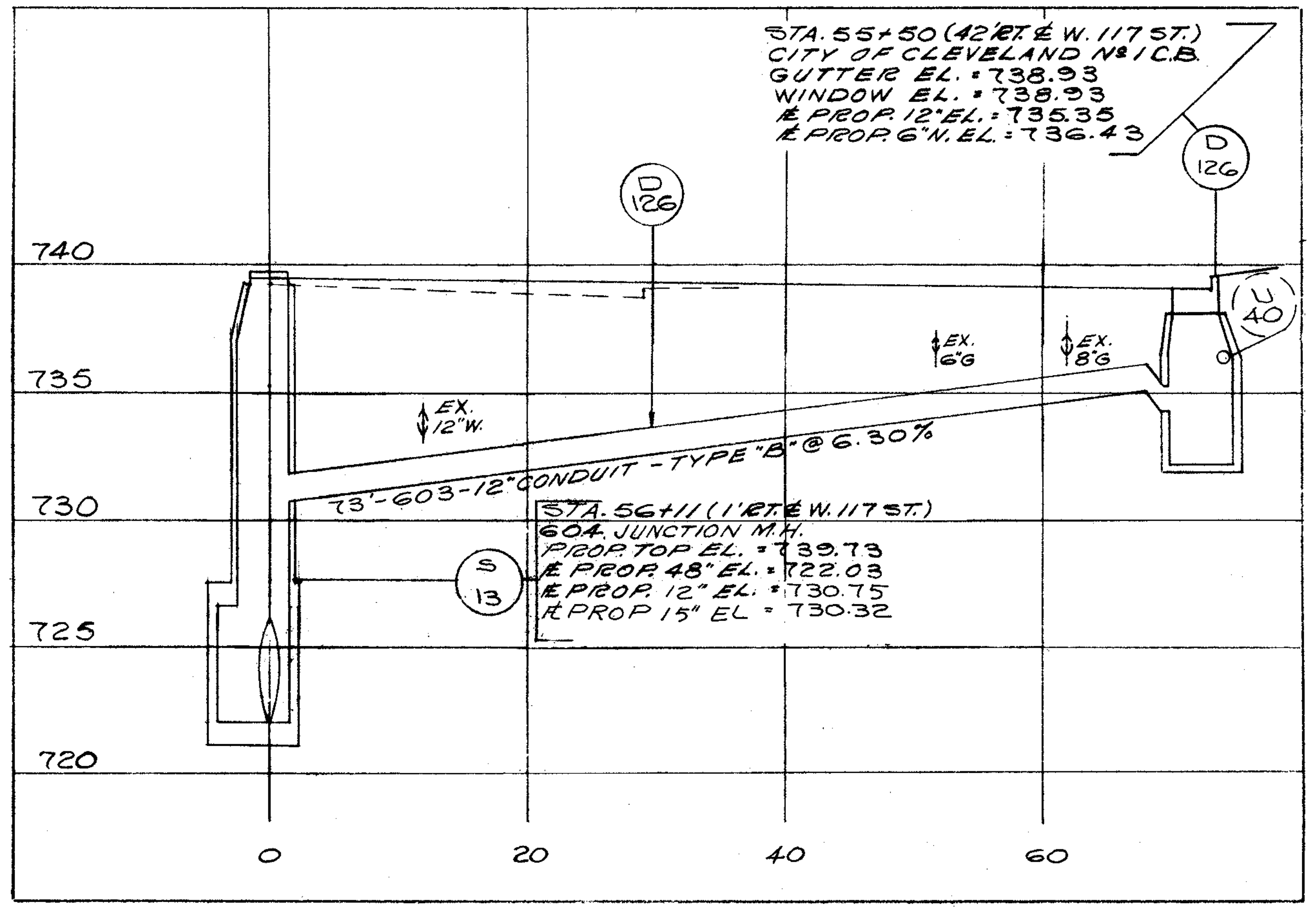
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

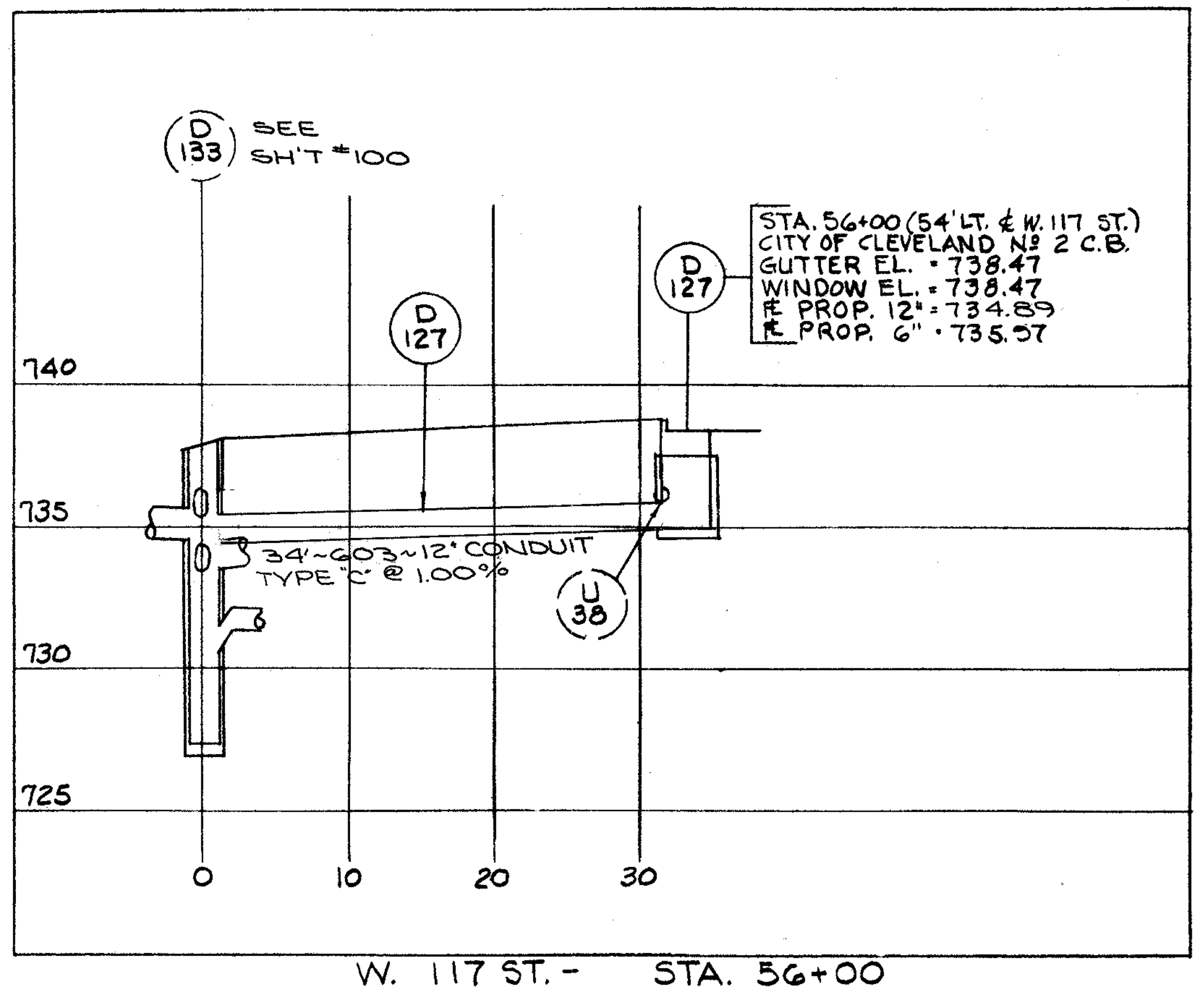
CUYAHOGA COUNTY
CUY - 90 - 10.40



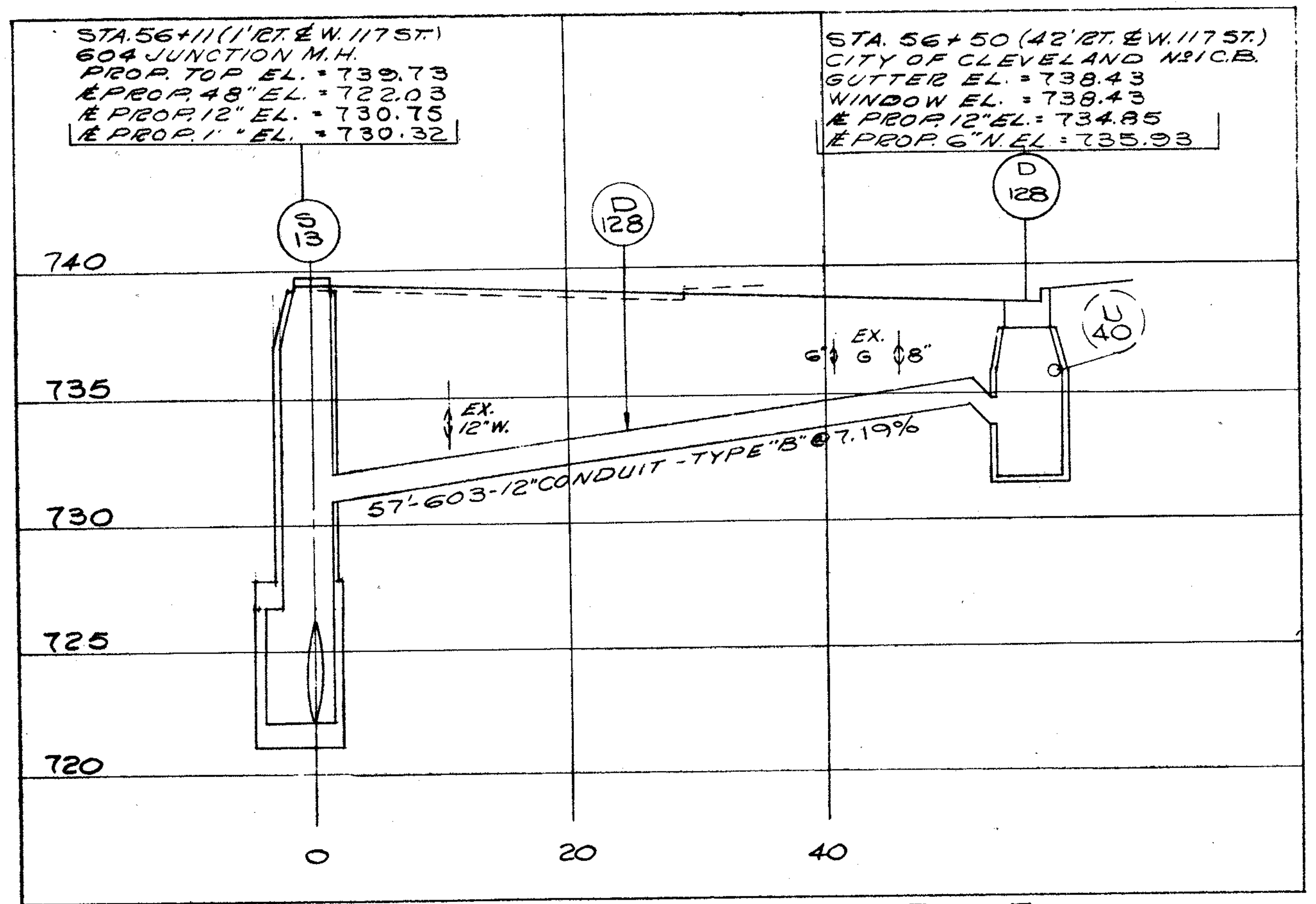
W. 117TH ST. - STA. 54+50



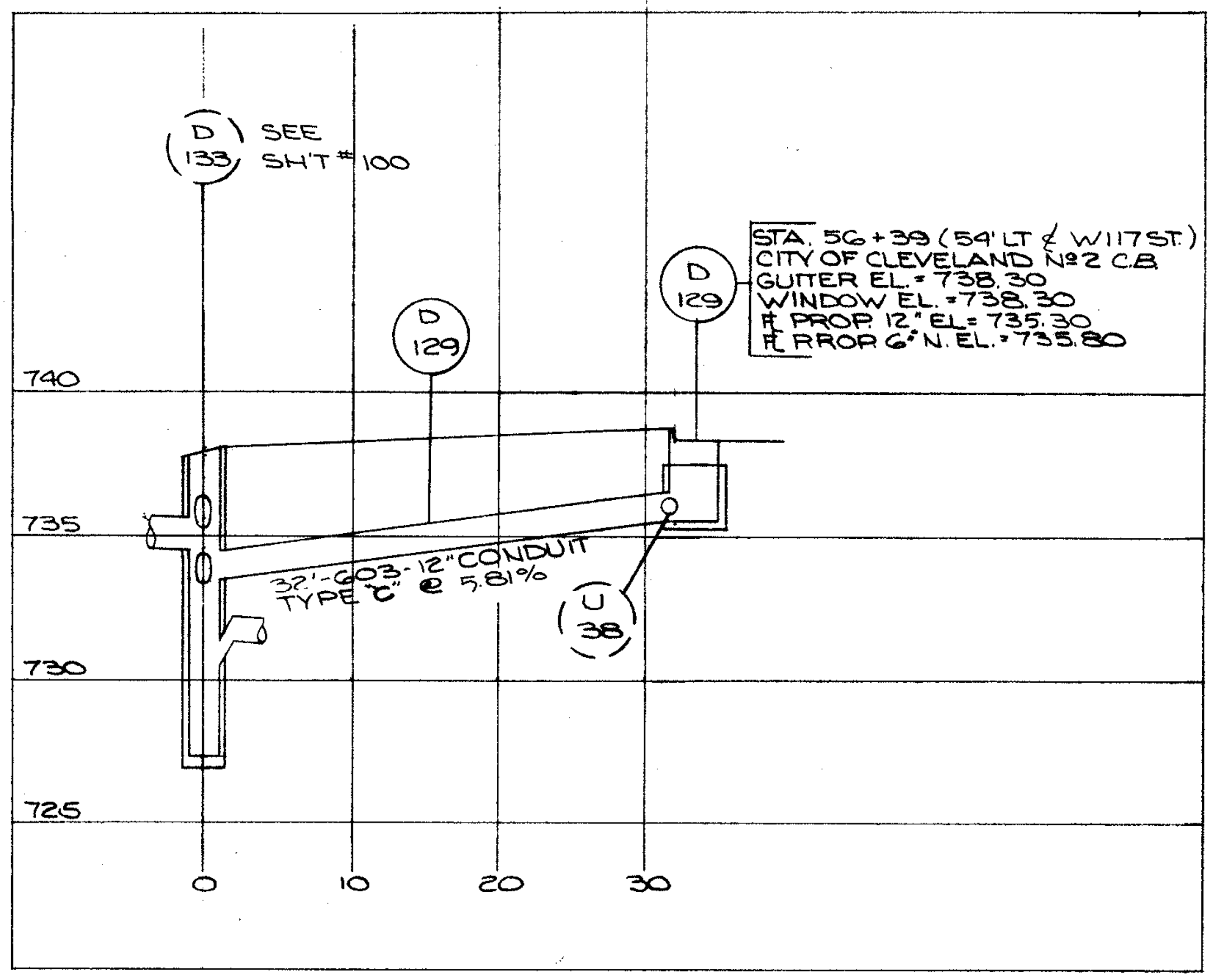
W. 117TH ST. - STA. 55+50



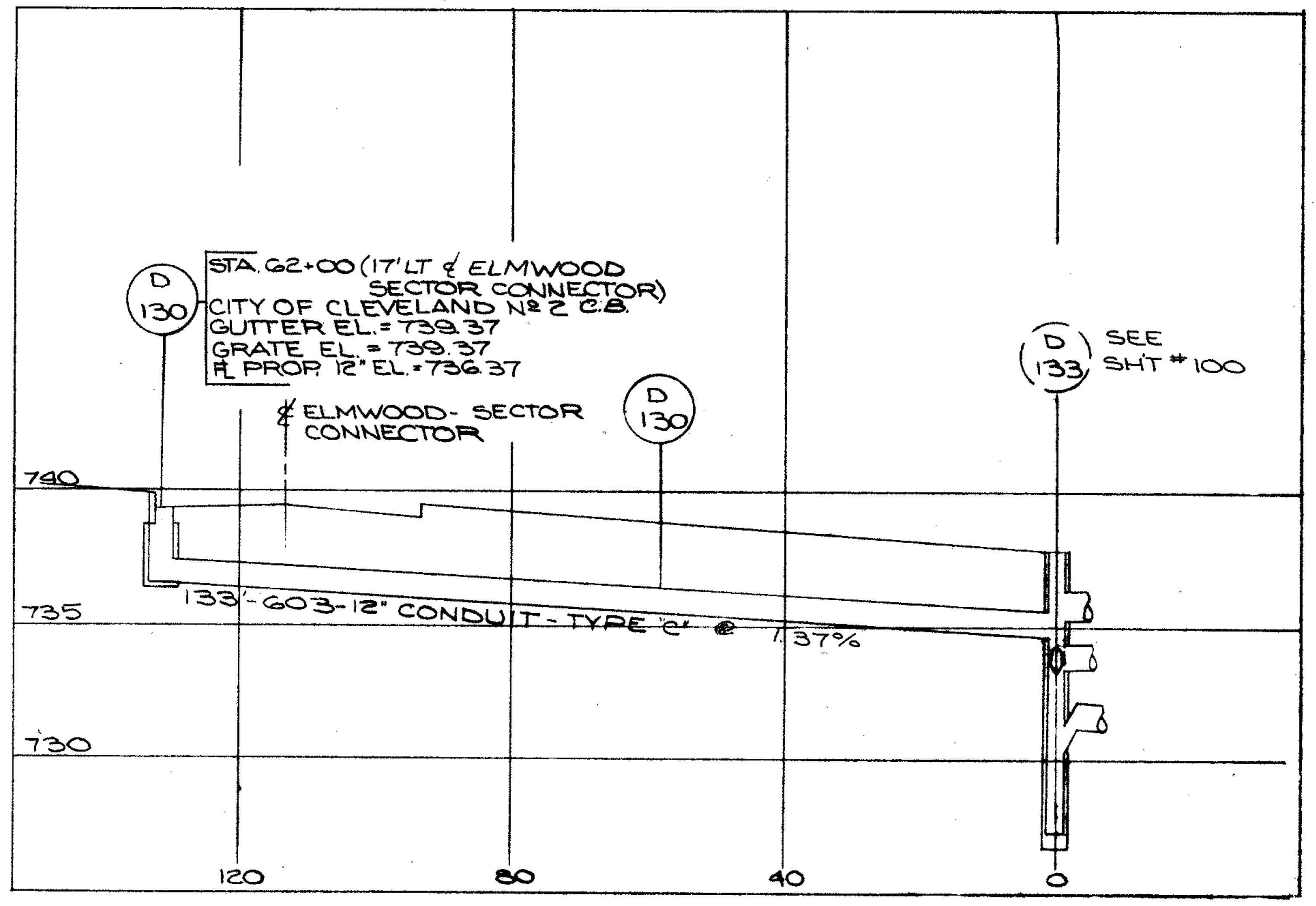
W. 117 ST. - STA. 56+00



W. 117TH ST. - STA. 56+50



W. 117 ST. - STA. 56+39

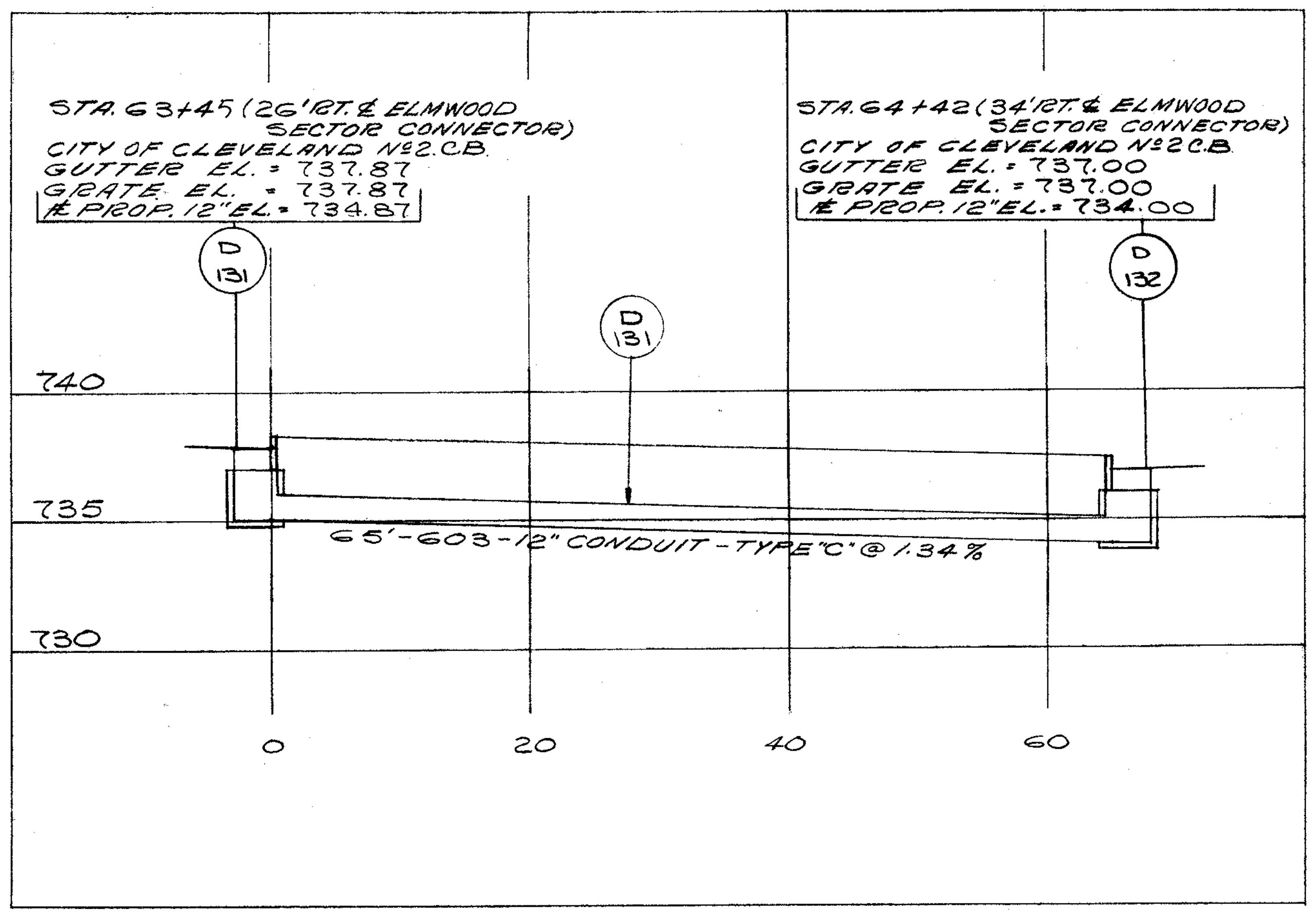


ELMWOOD SECTOR CONNECTOR - STA. 62+00

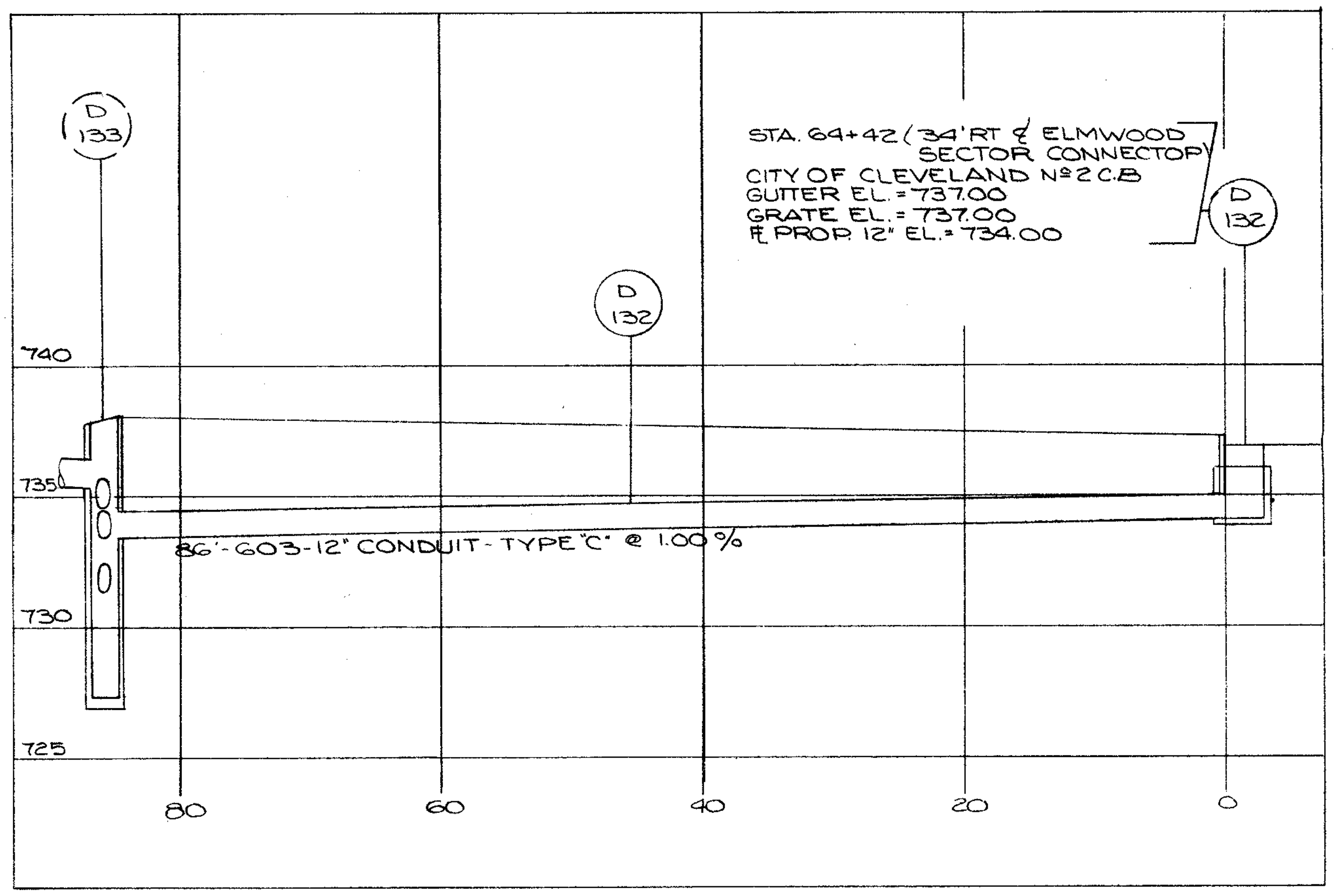
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

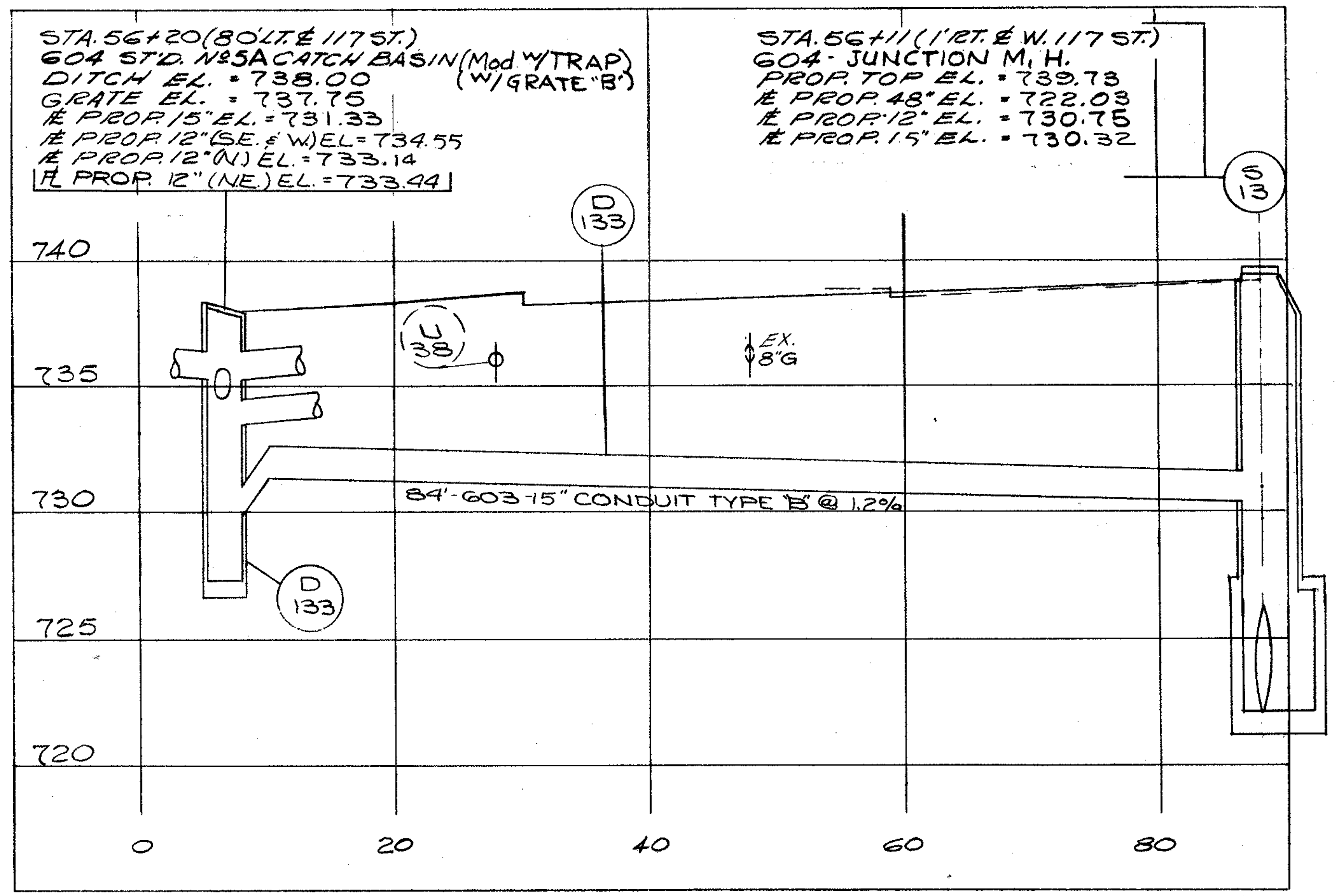
CUYAHOGA COUNTY
CUY - 90 - 10.40



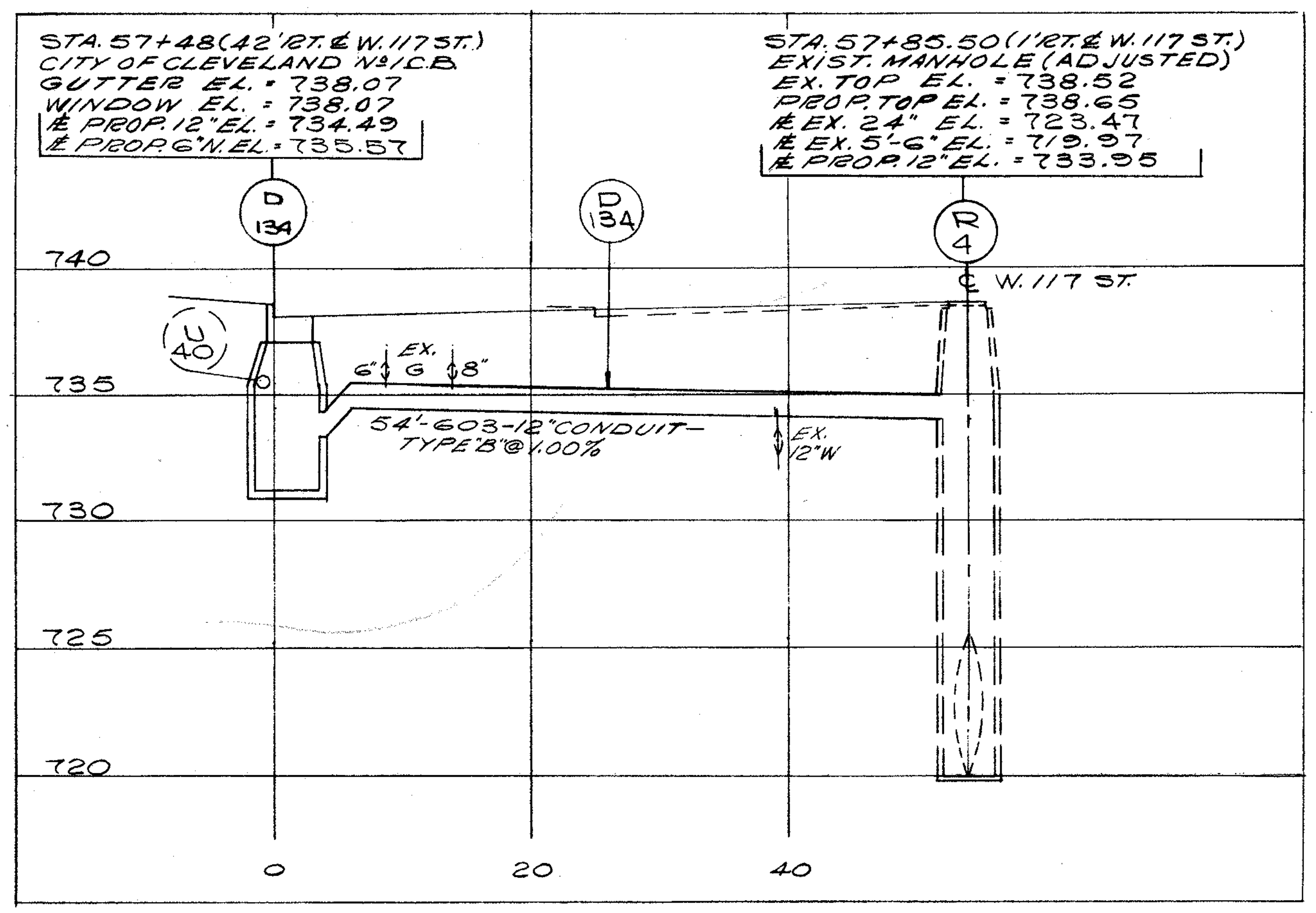
ELMWOOD SECTOR CONNECTOR - STA. 63+47 TO STA. 64+42



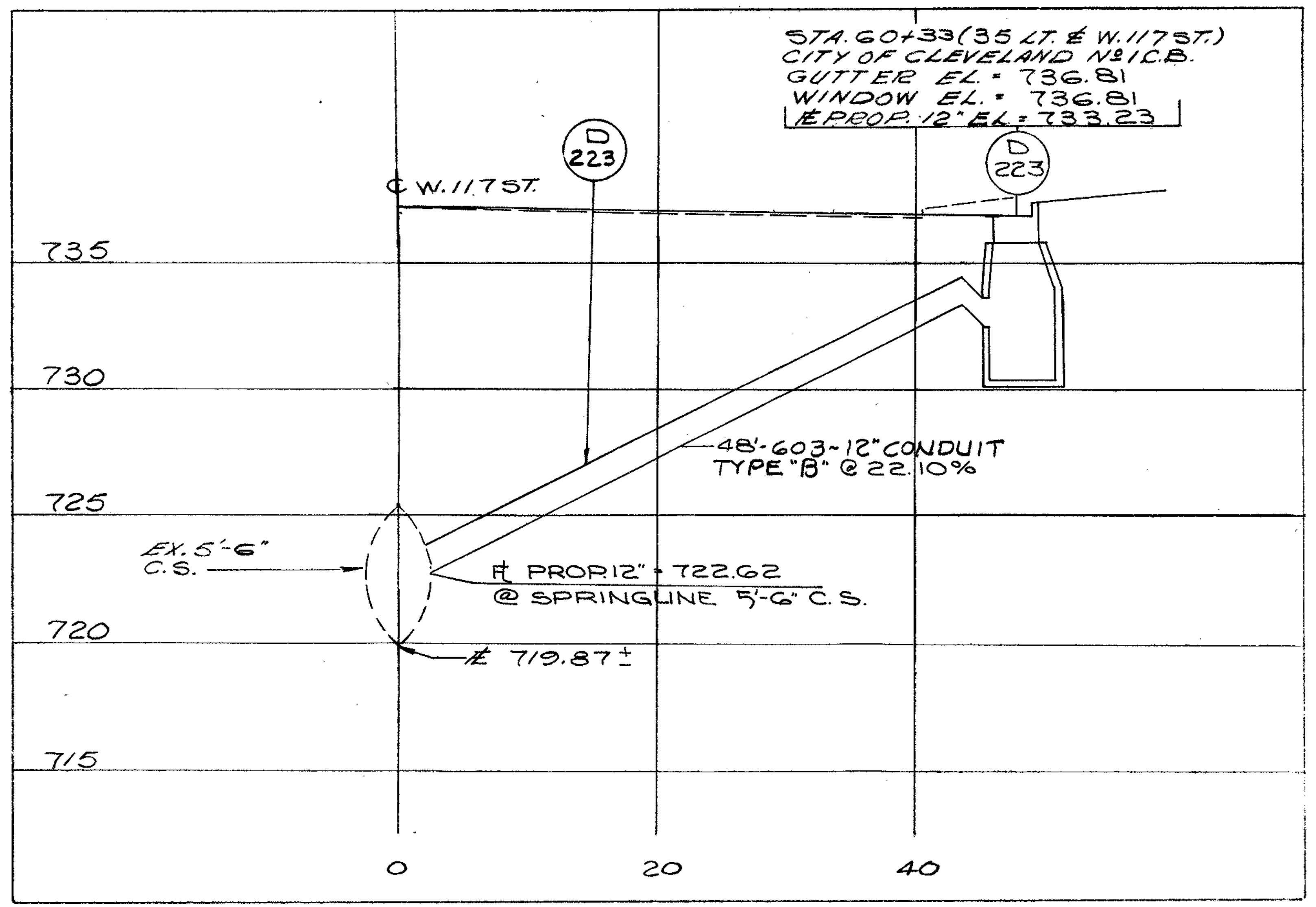
W. 117th ST. - STA 56+42



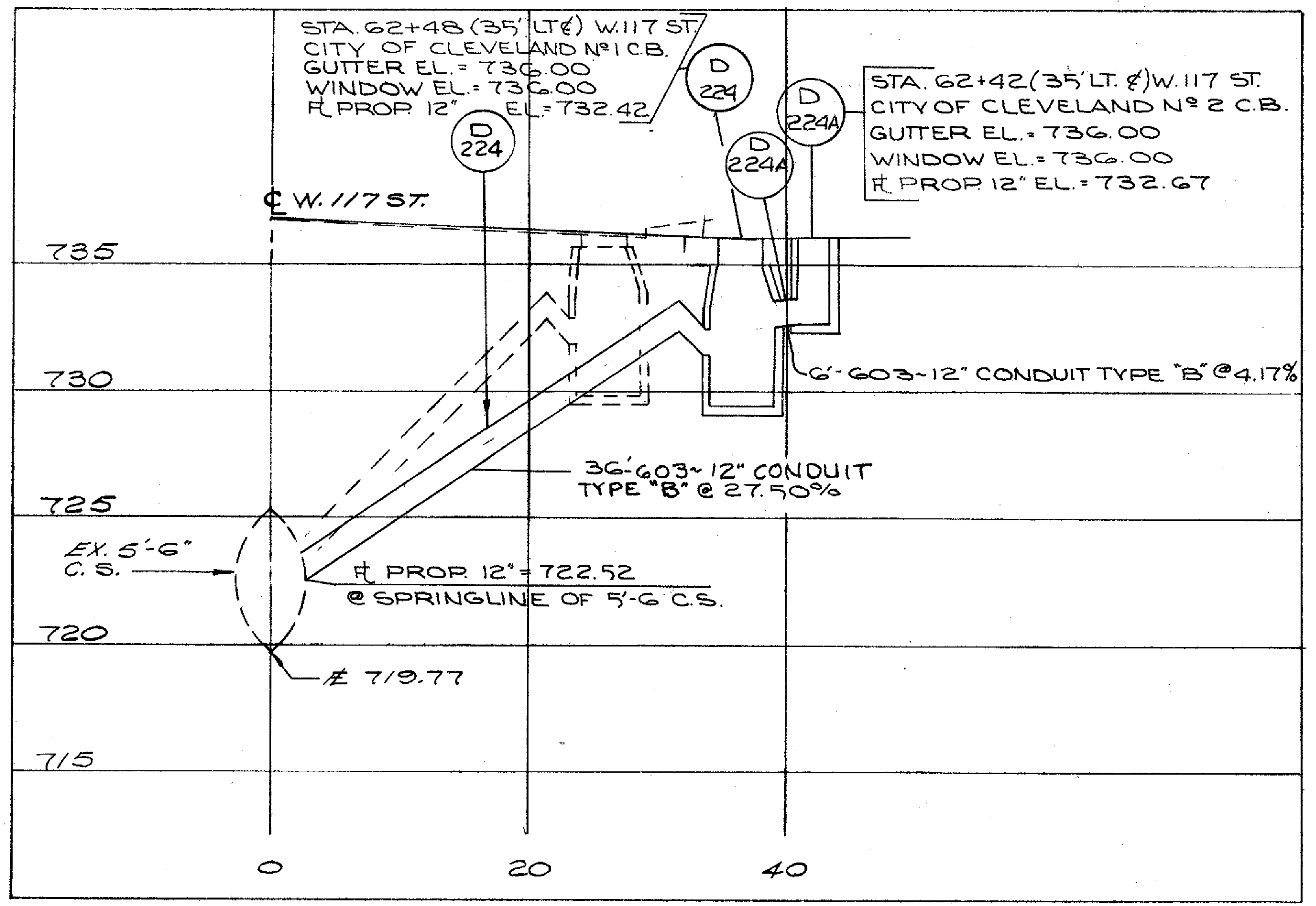
W. 117th ST. - STA. 56+42



W. 117th ST. - STA. 57+85.50



W. 117th ST. - STA. 60+51

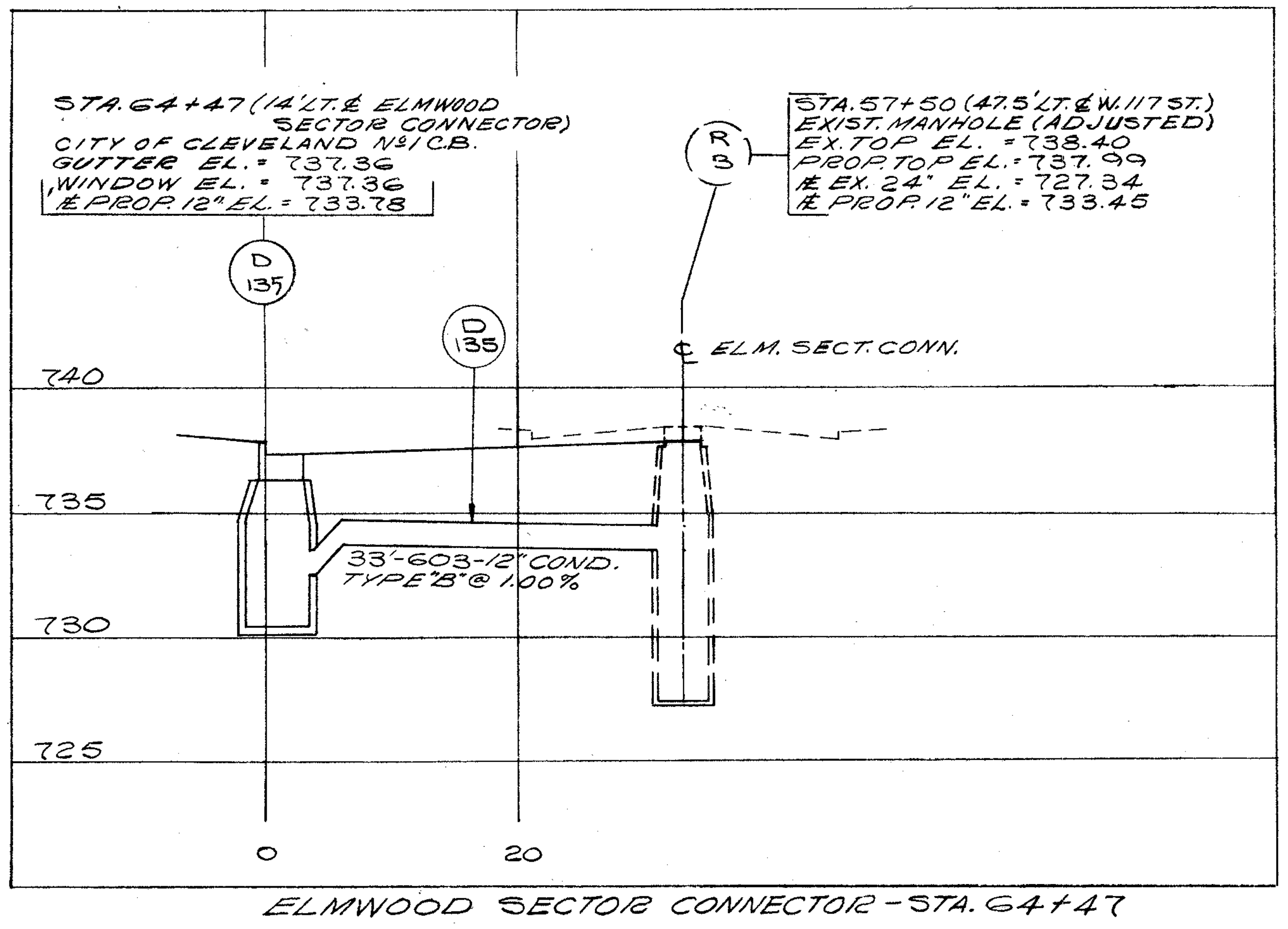


W. 117th ST - STA. 62+31

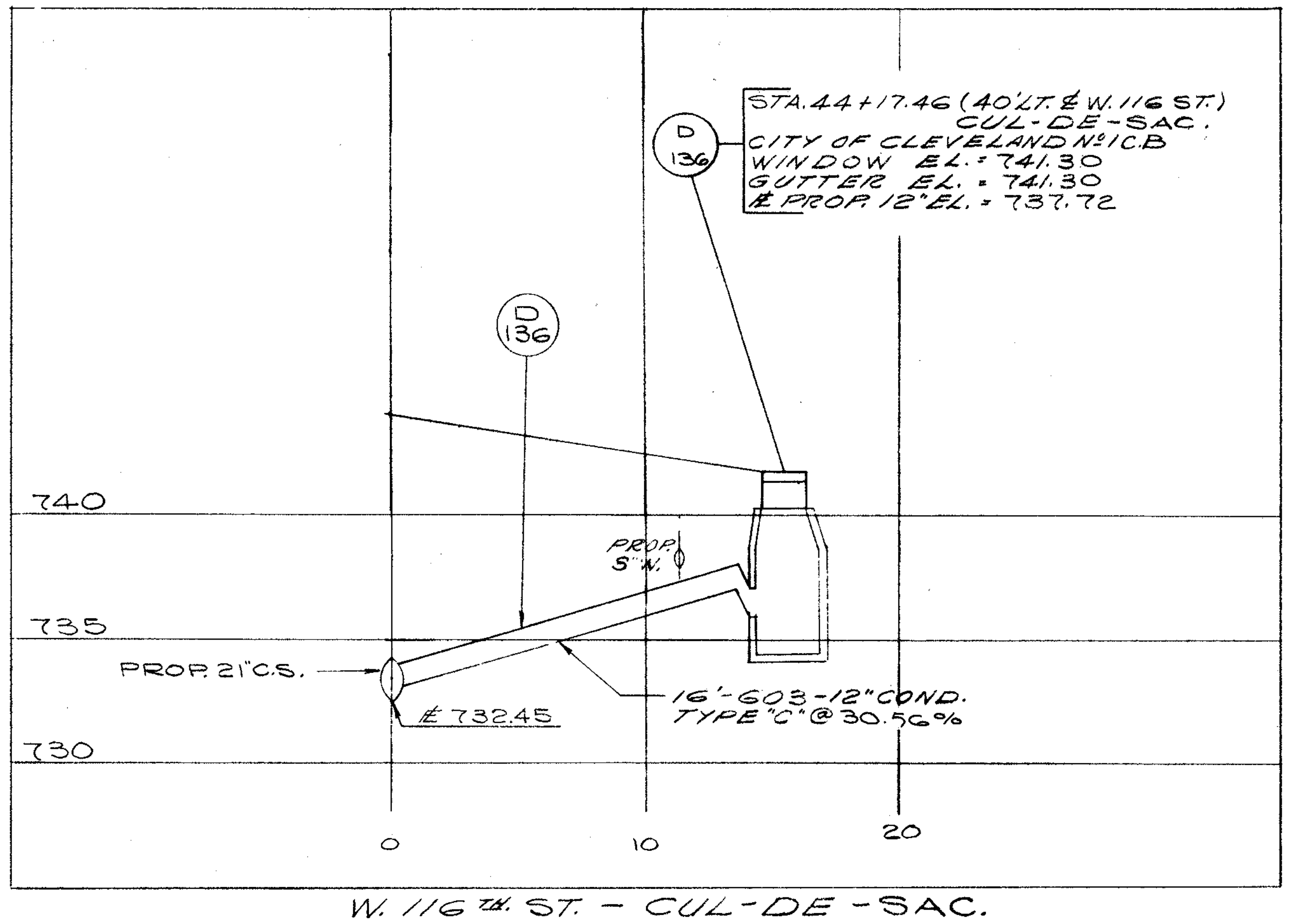
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

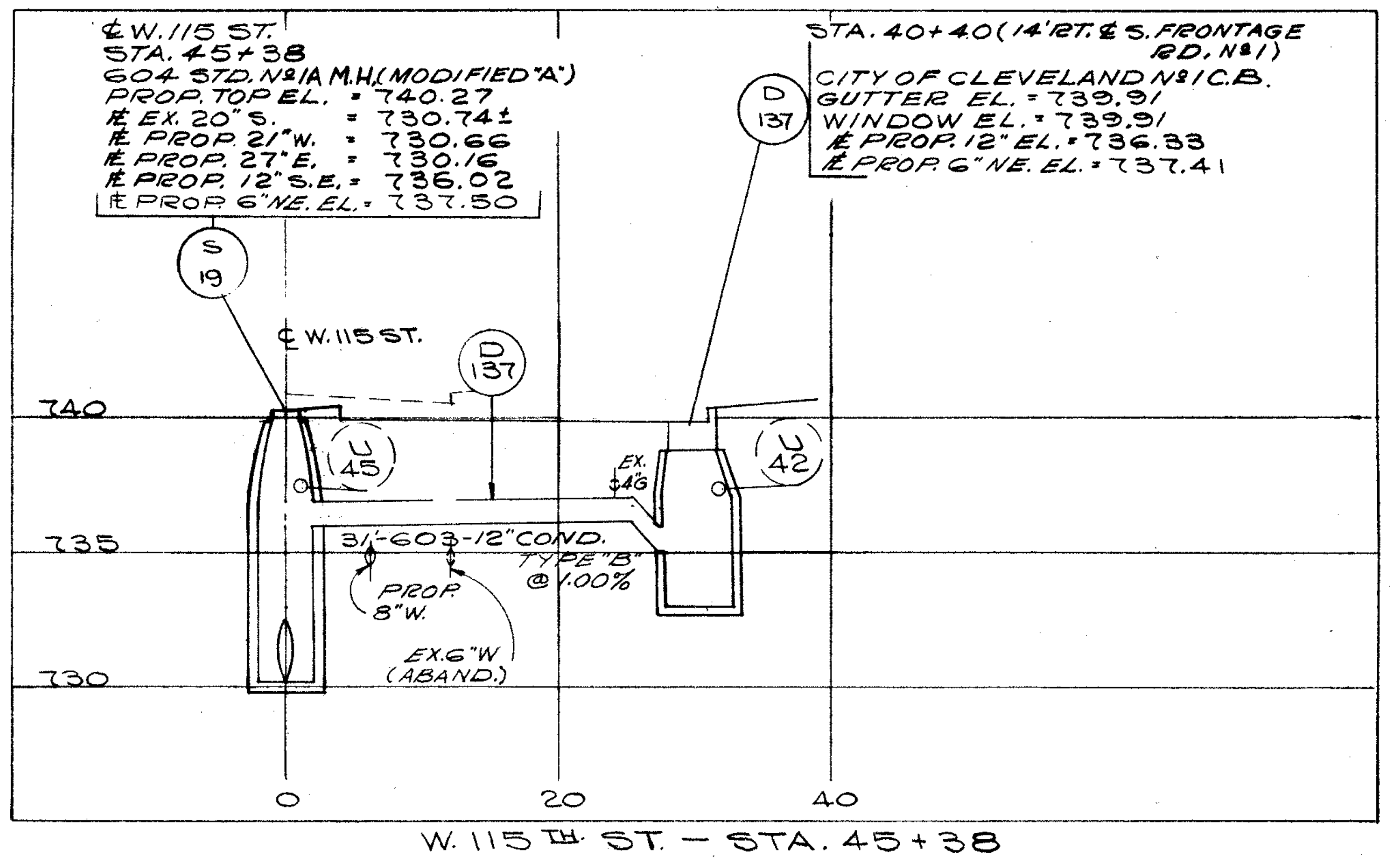
CUYAHOGA COUNTY
CUY-90 10.40



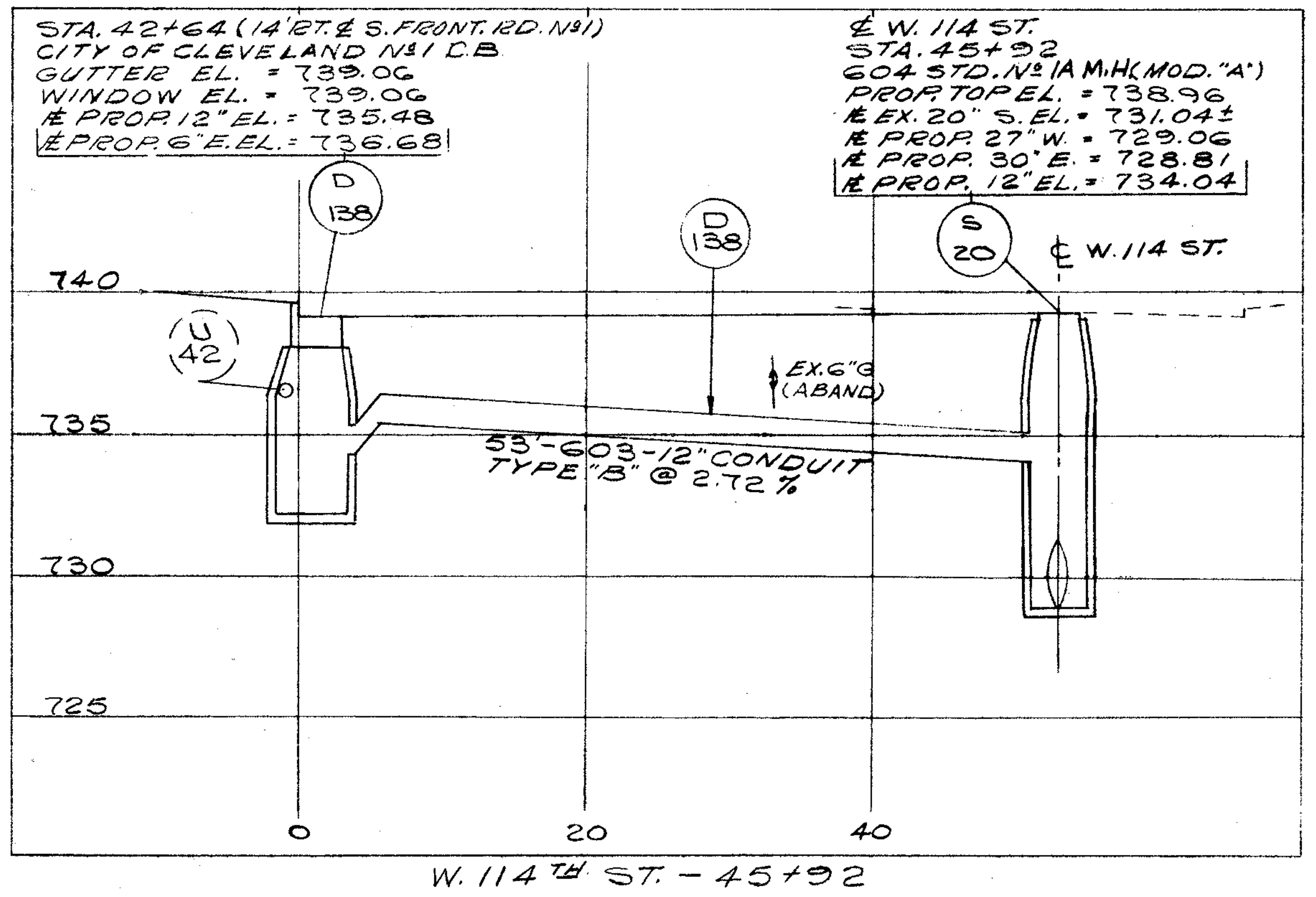
ELMWOOD SECTOR CONNECTOR - STA. 64+47



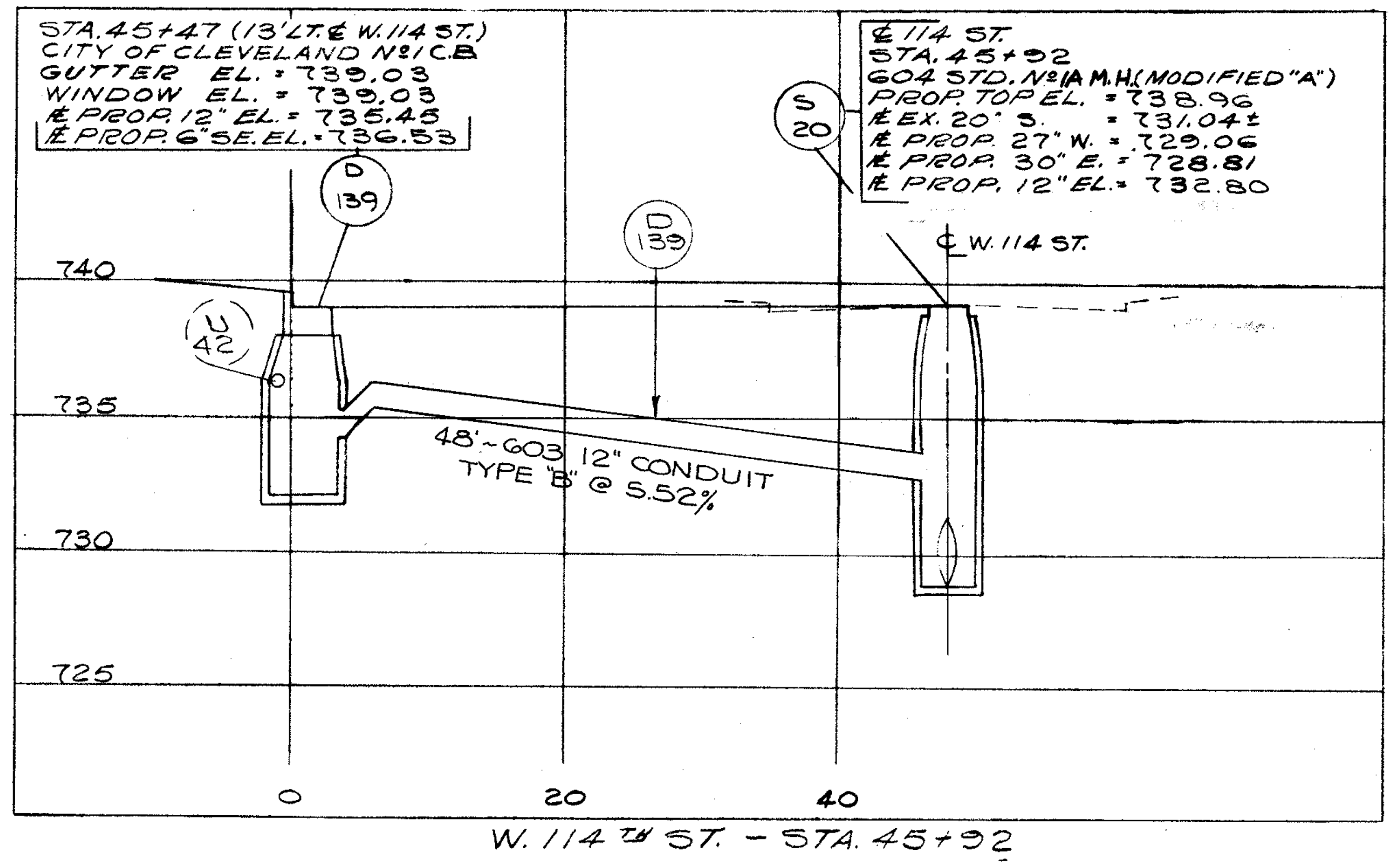
W. 116TH ST. - CUL-DE-SAC.



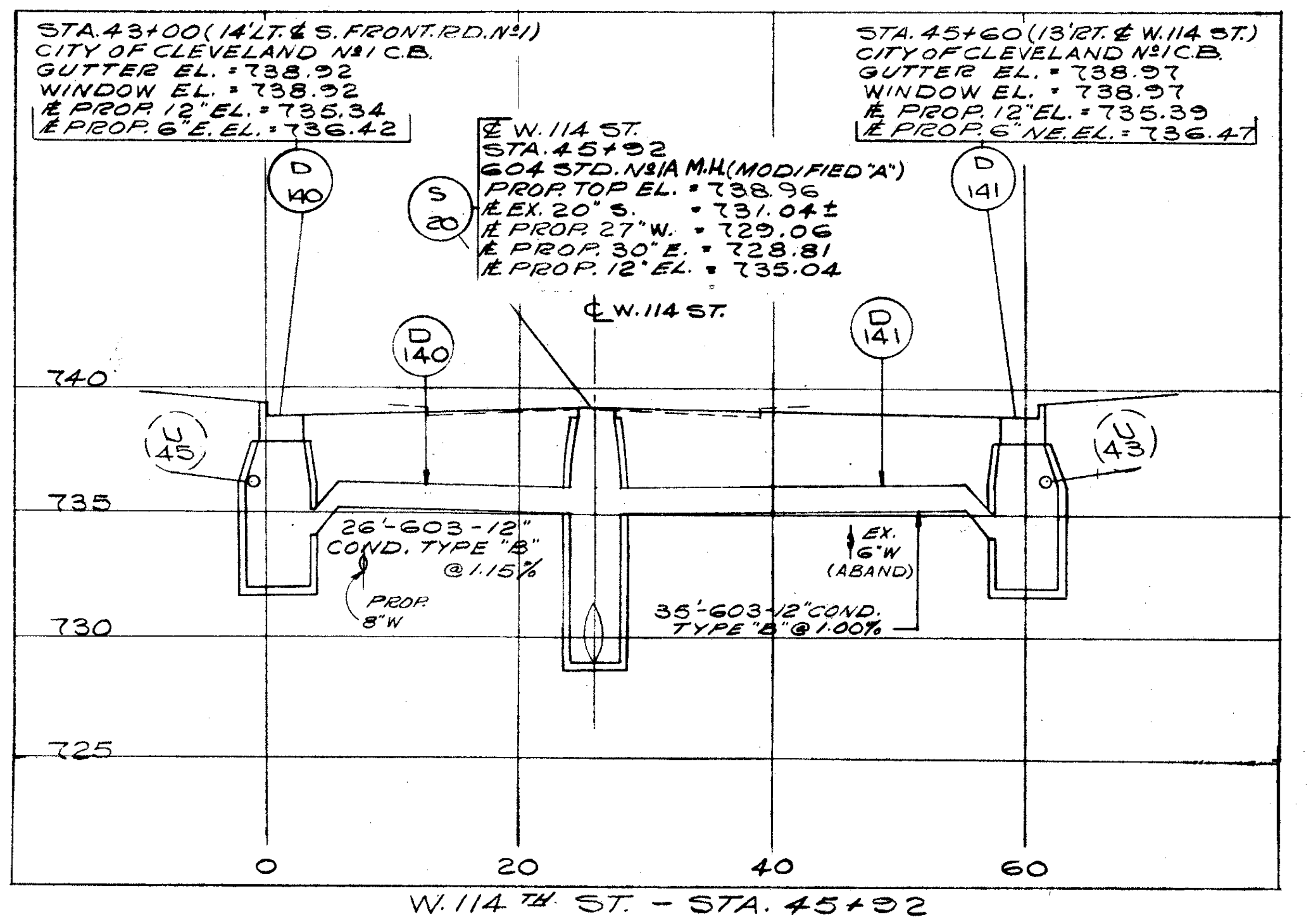
W. 115TH ST. - STA. 45+38



W. 114TH ST. - 45+92



W. 114TH ST. - STA. 45+92

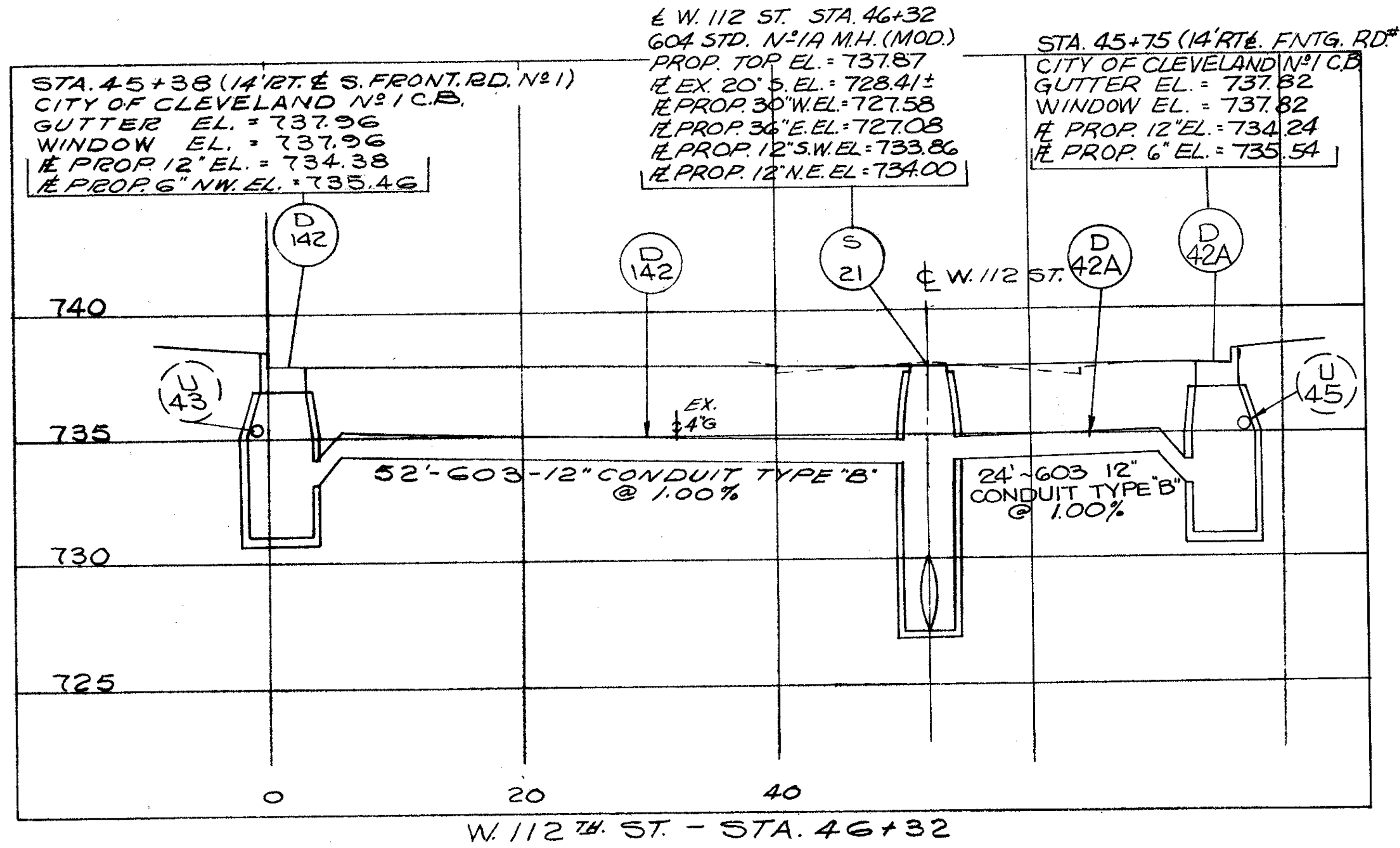


W. 114TH ST. - STA. 45+92

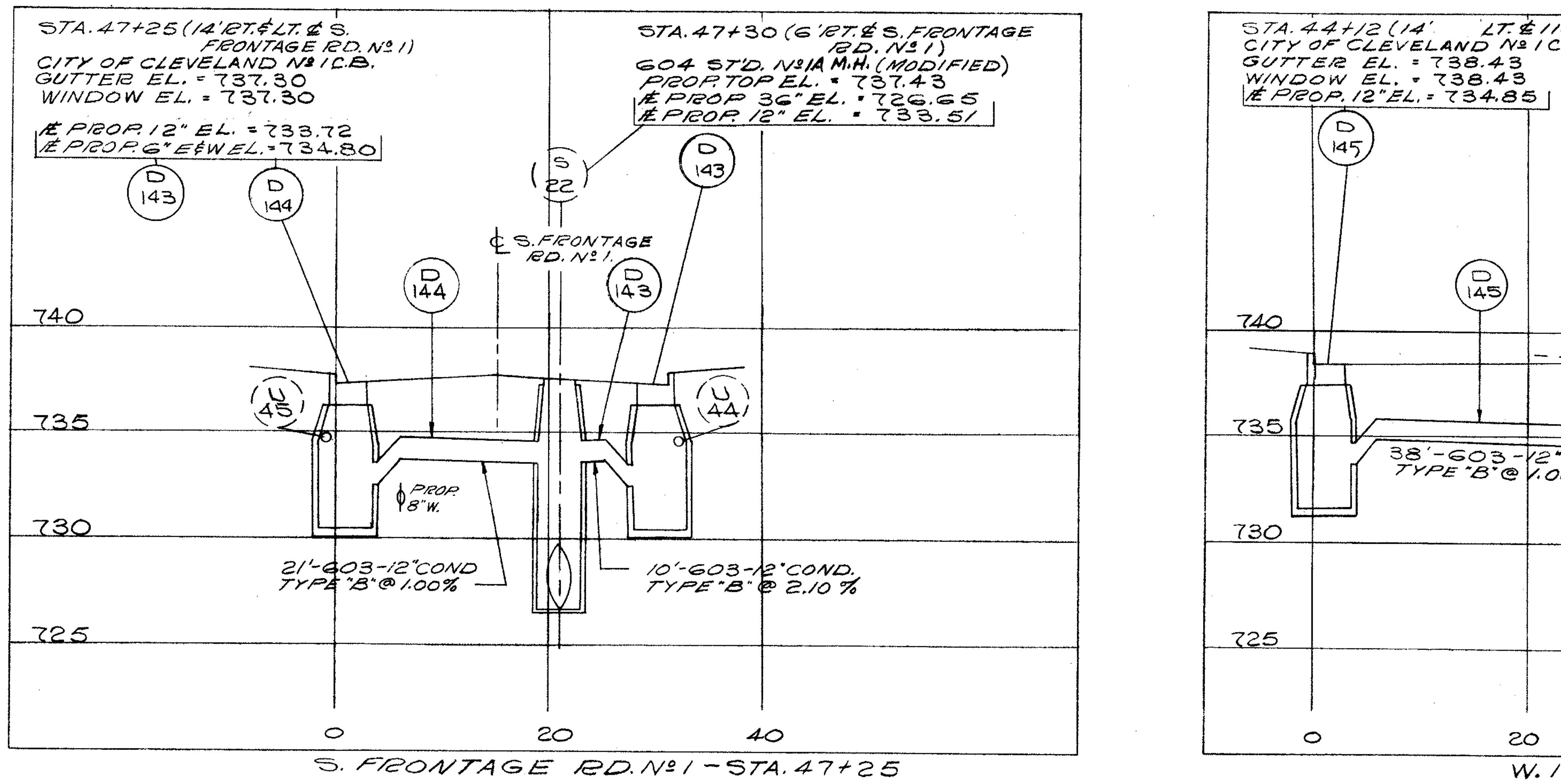
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

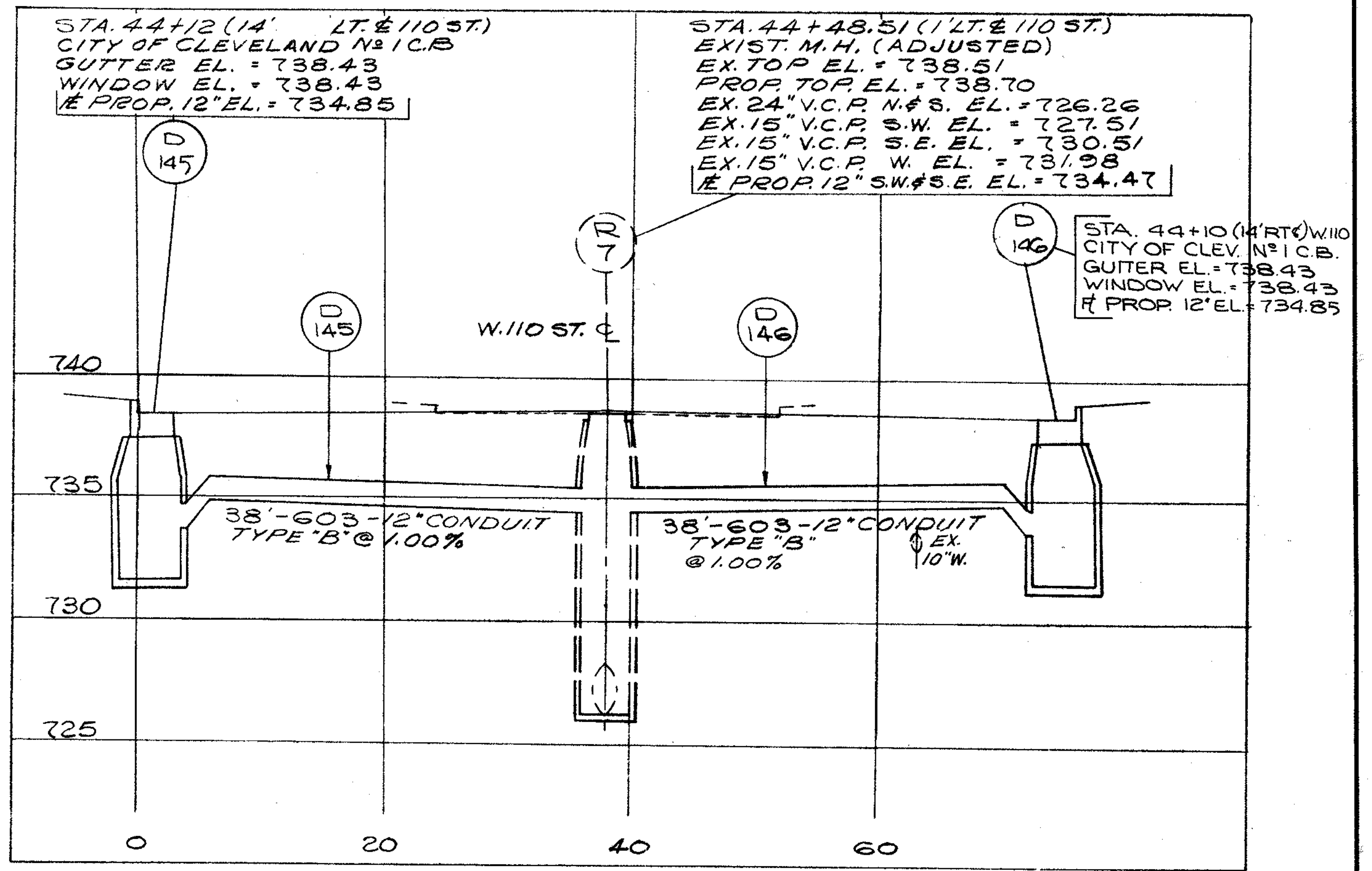
CUYAHOGA COUNTY
CUY - 90 - 10.40



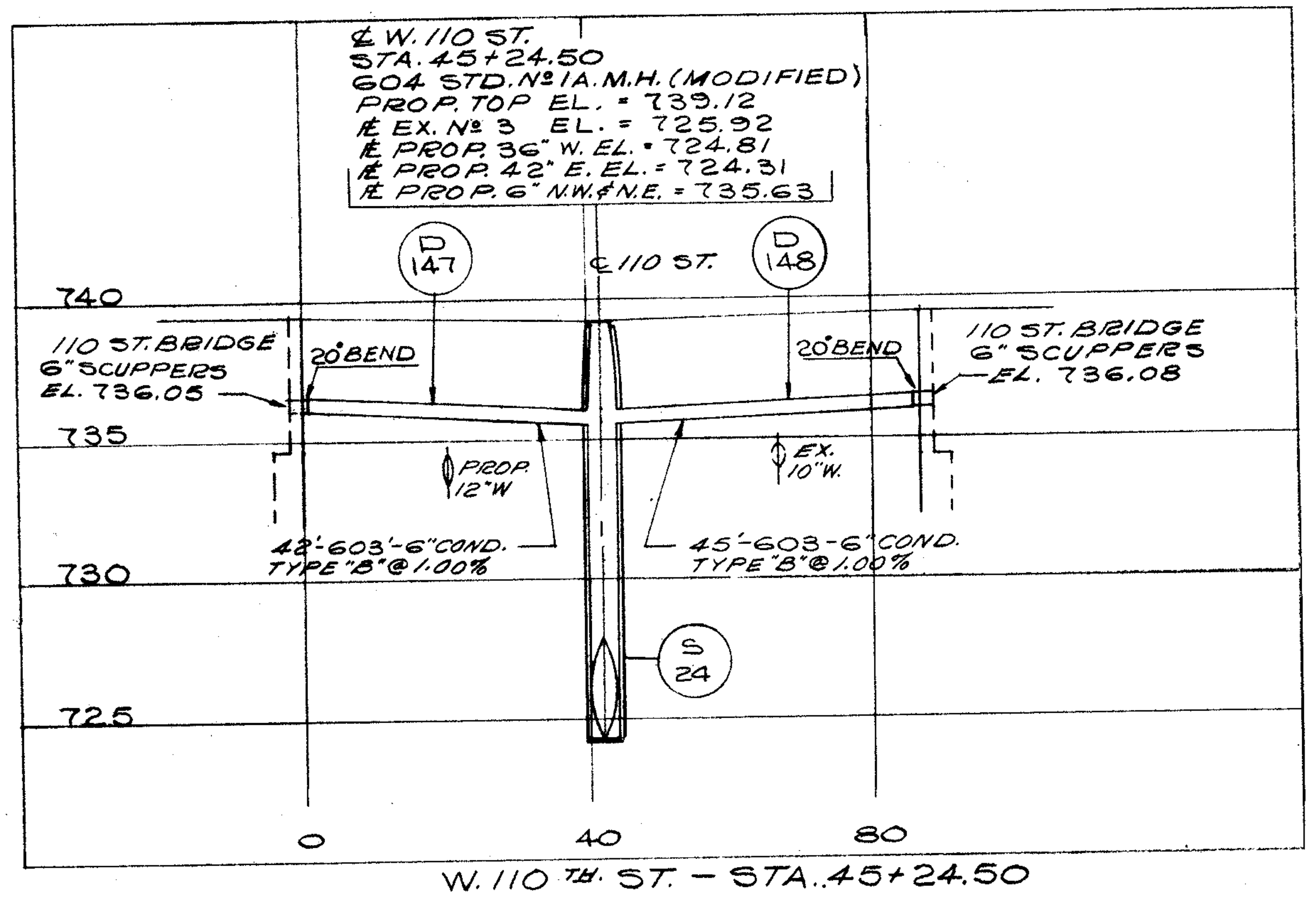
W. 112 TH. ST. - STA. 46+32



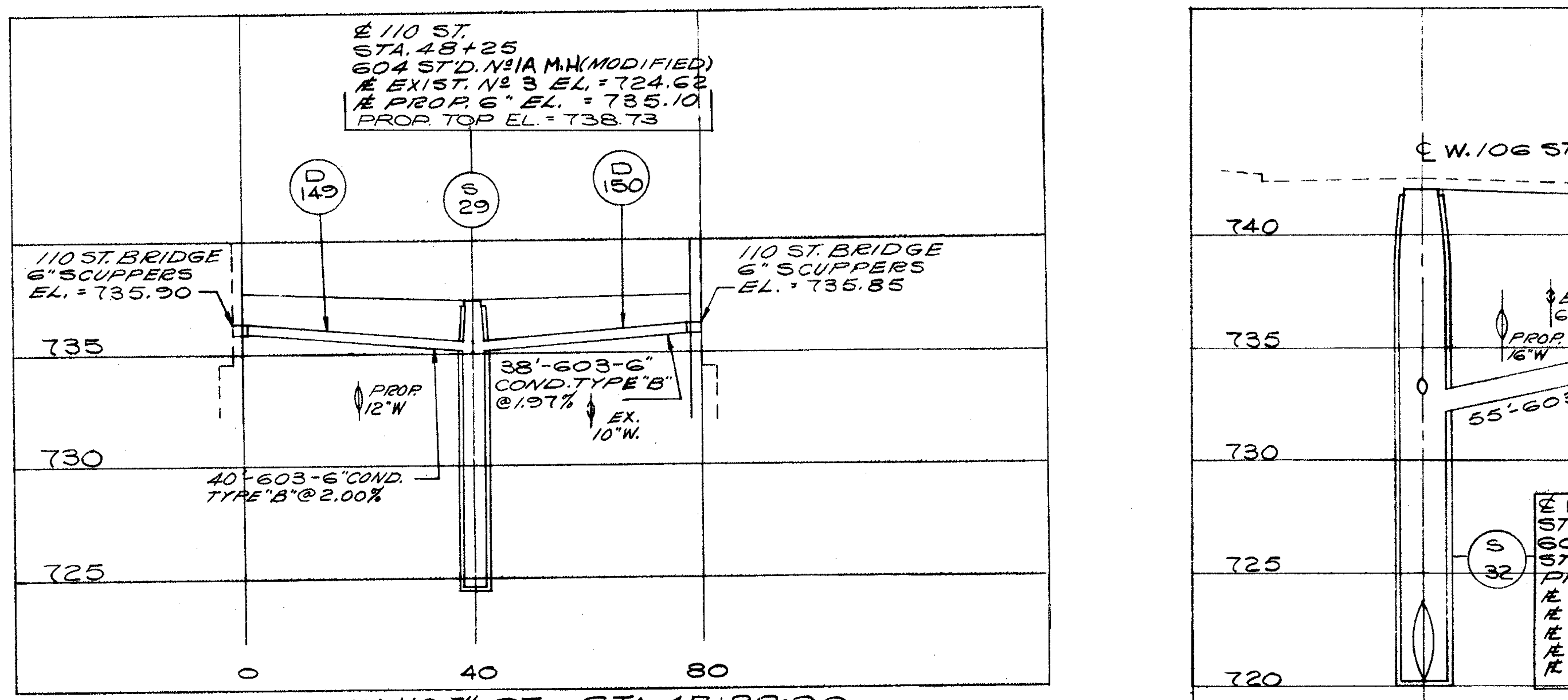
S. FRONTAGE RD. Nº 1 - STA. 47+25



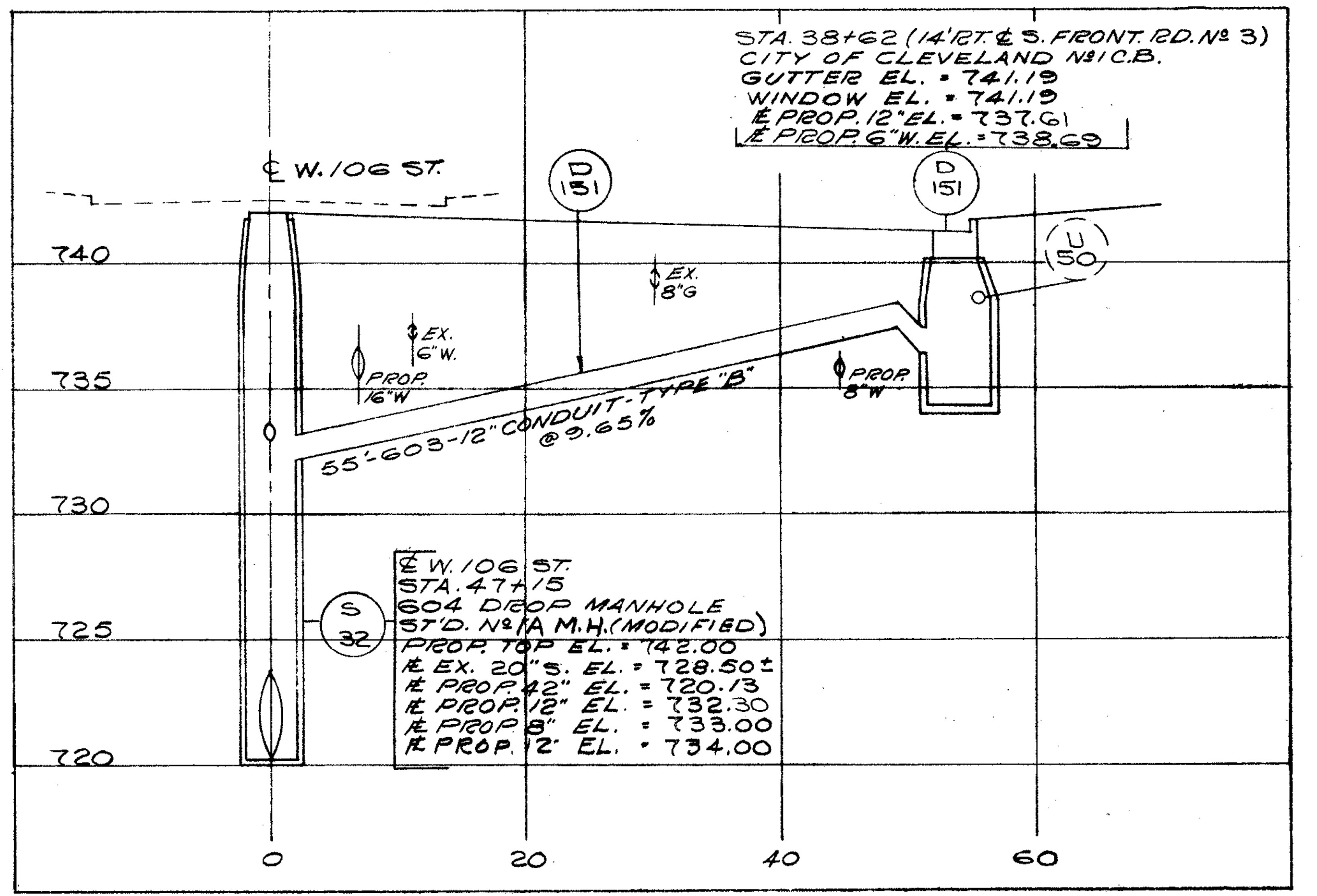
W. 110 TH. ST. - STA. 44+48.51



W. 110 TH. ST. - STA. 45+24.50



W. 110 TH. ST. - STA. 47+88:90



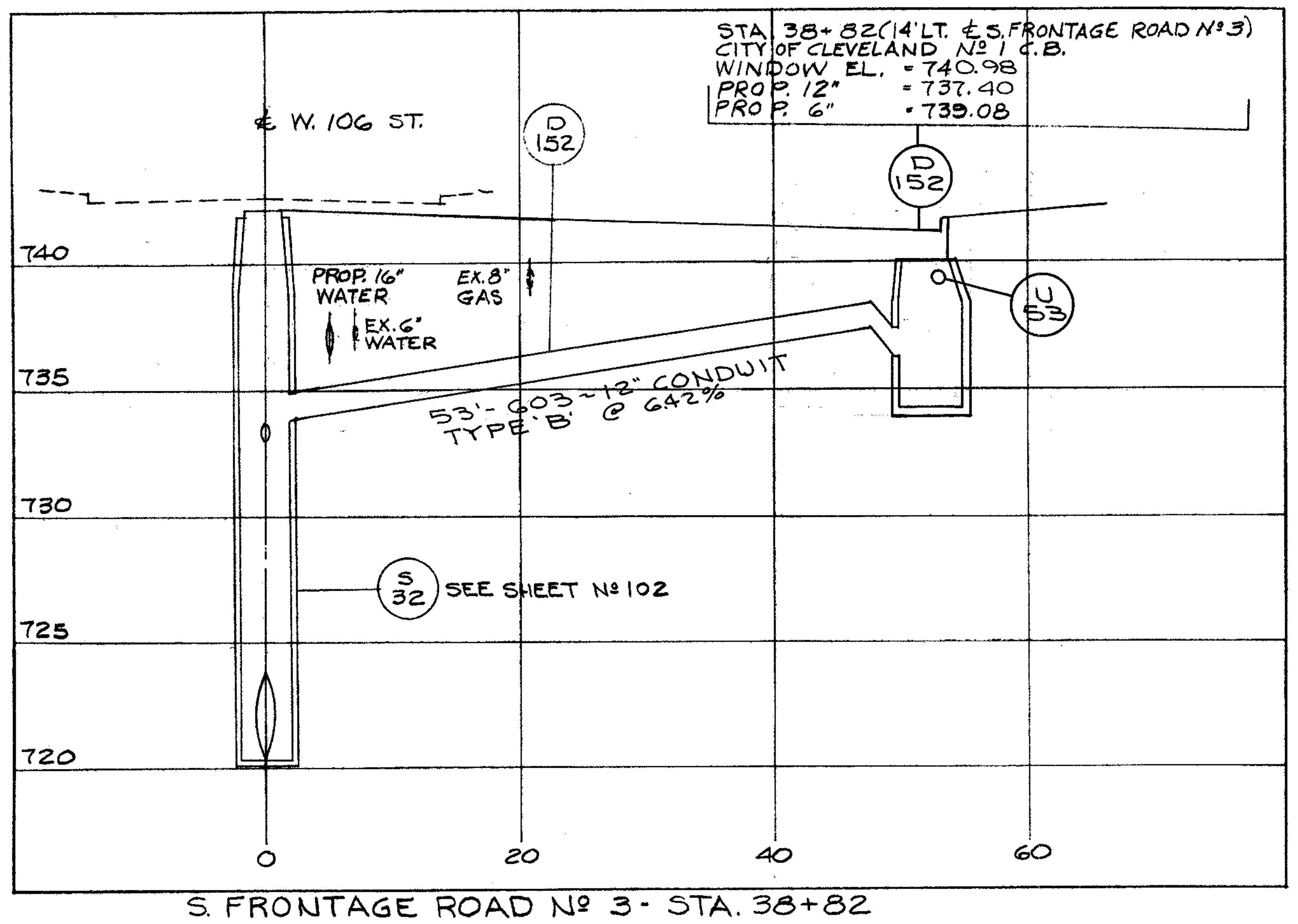
W. 106 TH. ST. - STA. 47+15

SEWER PROFILES

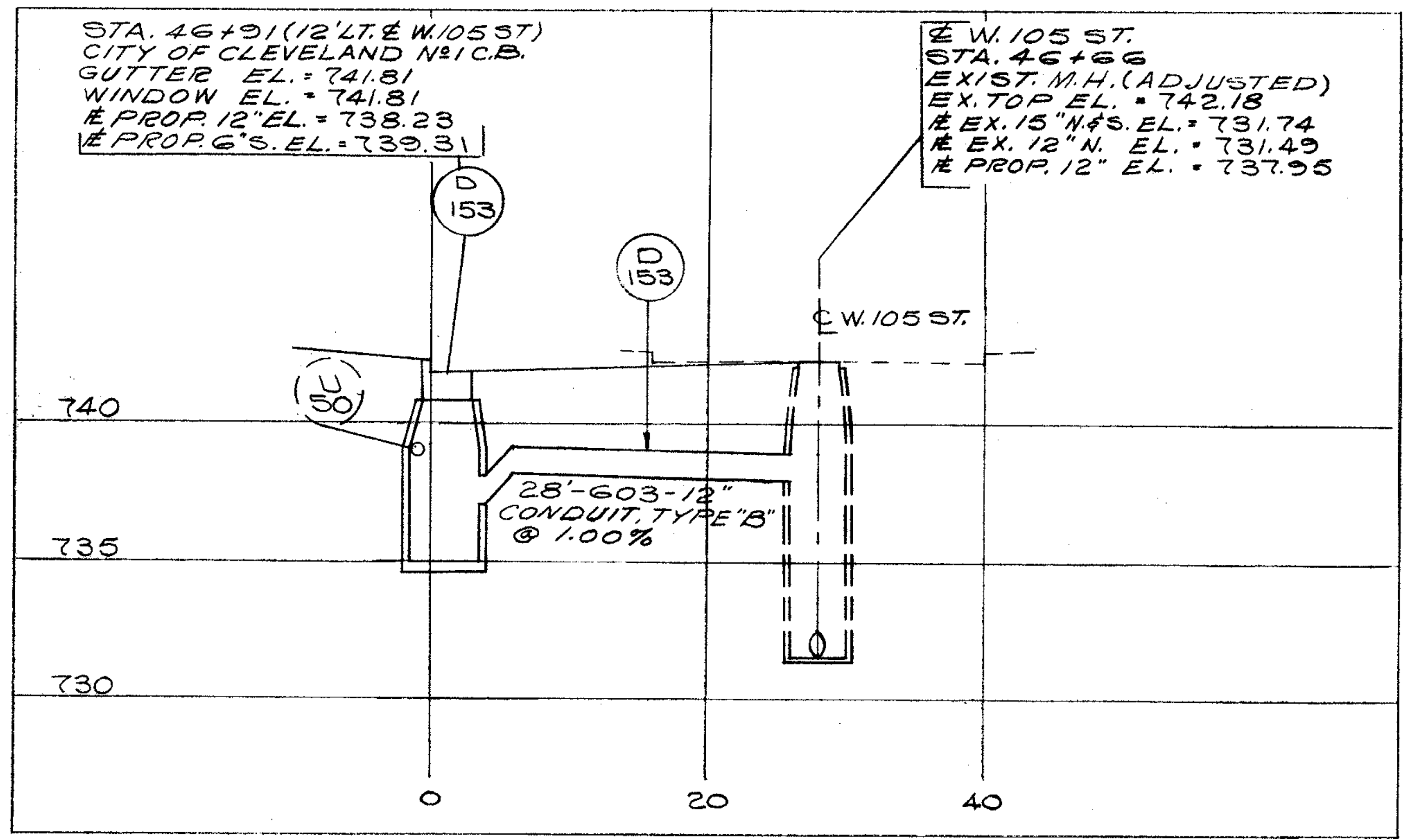
FED. RD.	STATE	PROJECT		
2	OHIO	I-90-I (50) 19		

103
713

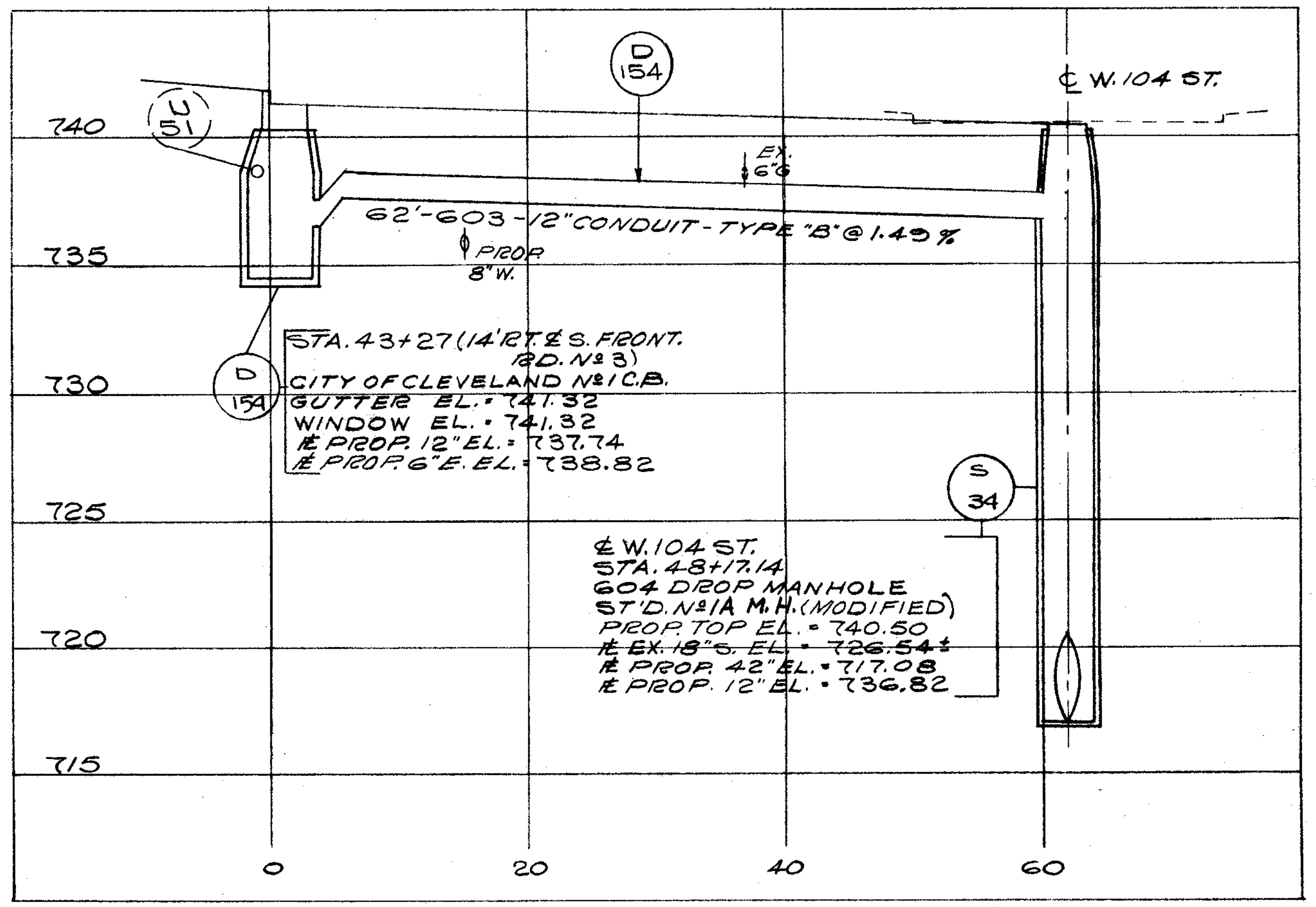
CUYAHOGA COUNTY
CUY - 90 - 10.40



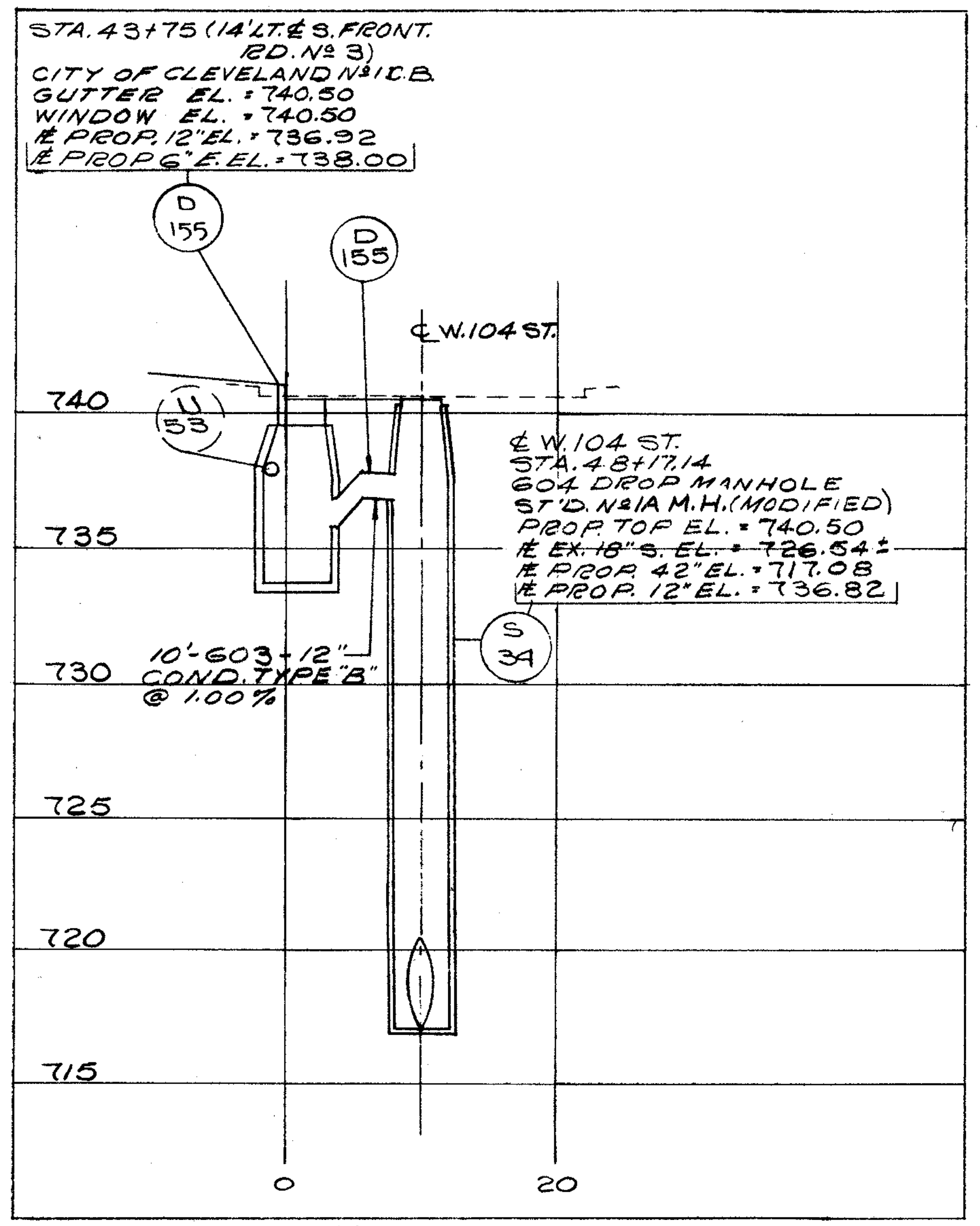
S. FRONTAGE ROAD No 3 - STA. 38+82



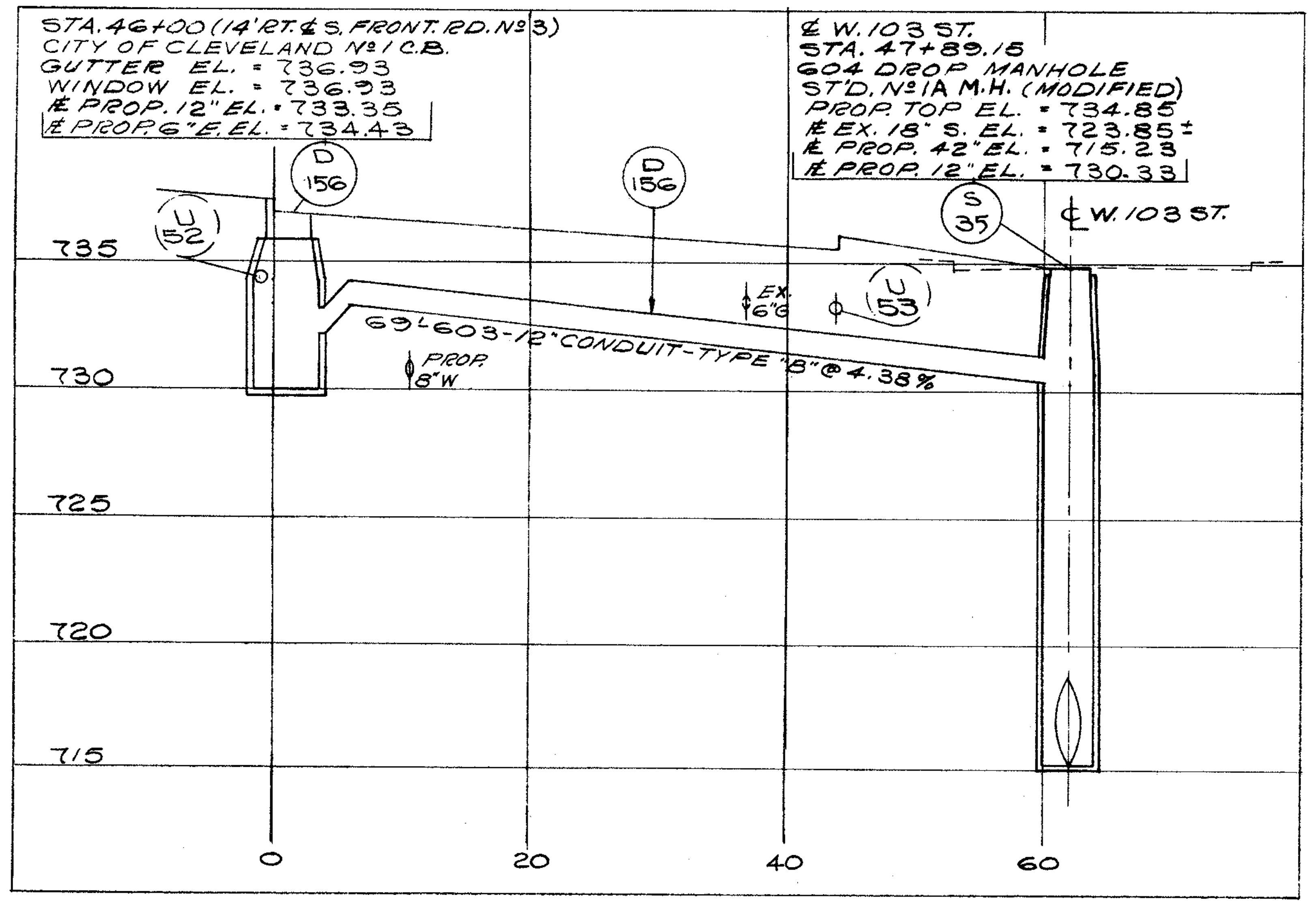
W. 105TH ST. - STA. 46+66



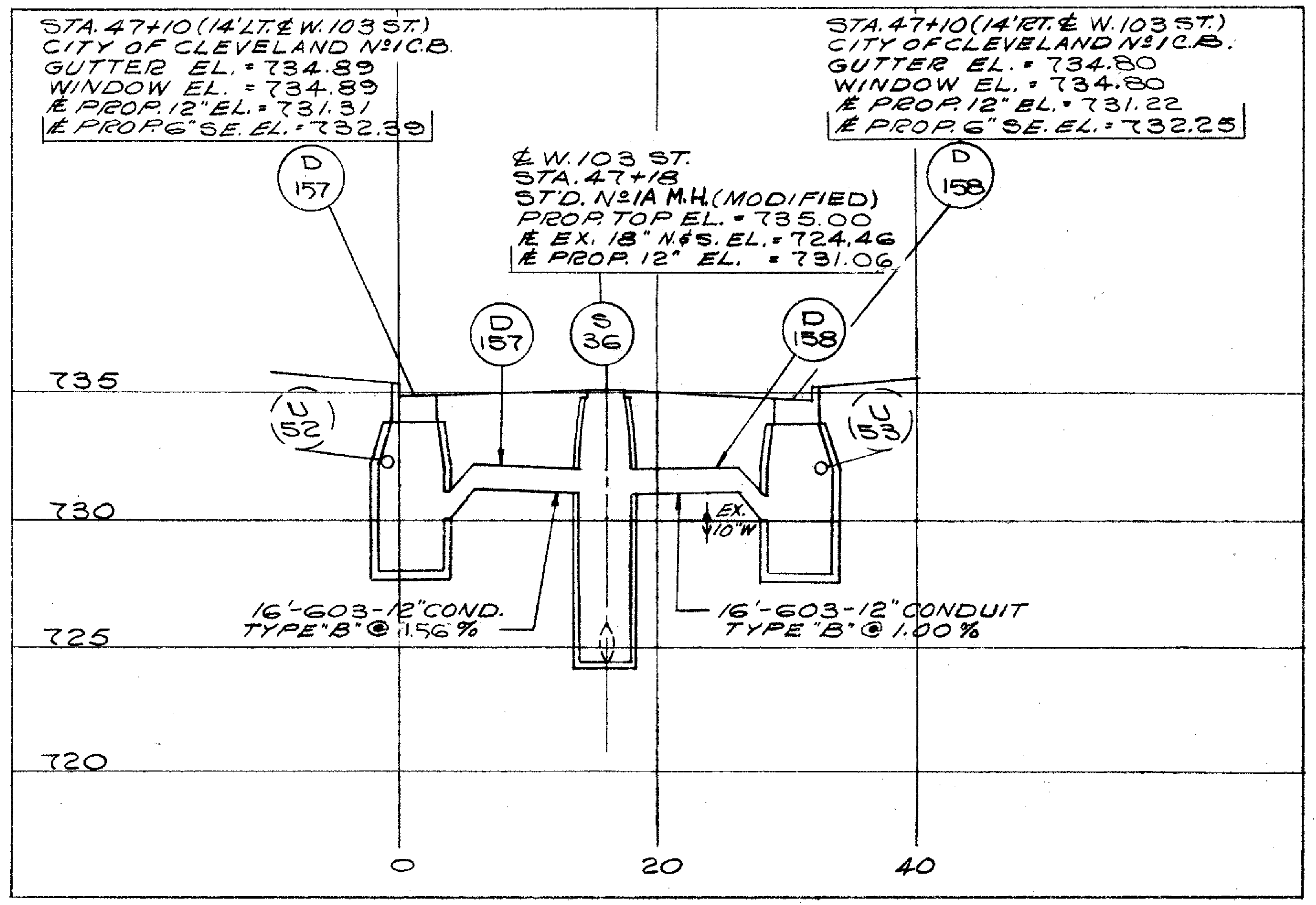
W. 104 ST. - STA. 48+17.14



W. 104TH ST. - STA. 48+17.14



W. 103RD ST. - STA. 47+89.15



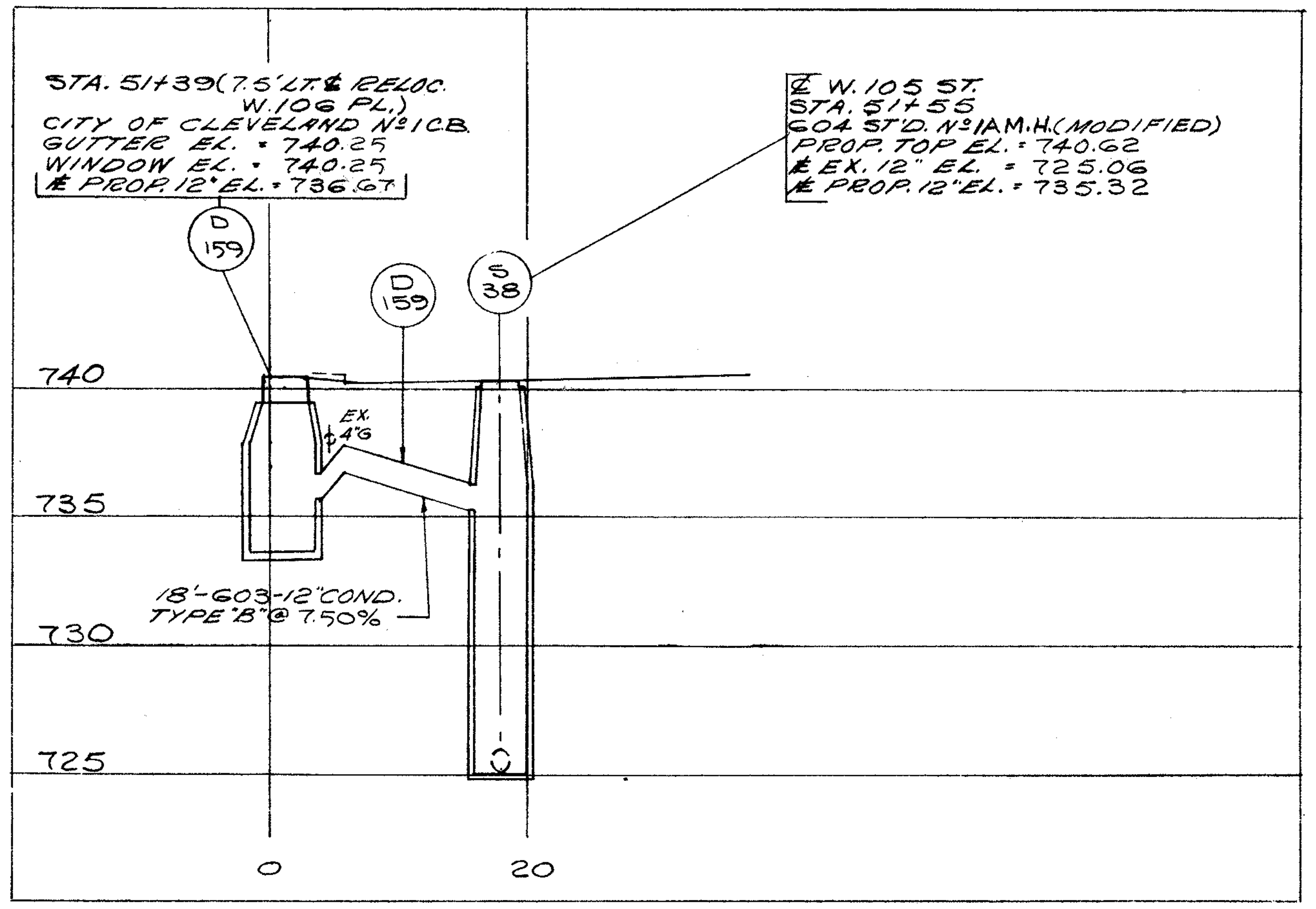
W. 103RD ST. - STA. 47+18

SEWER PROFILES

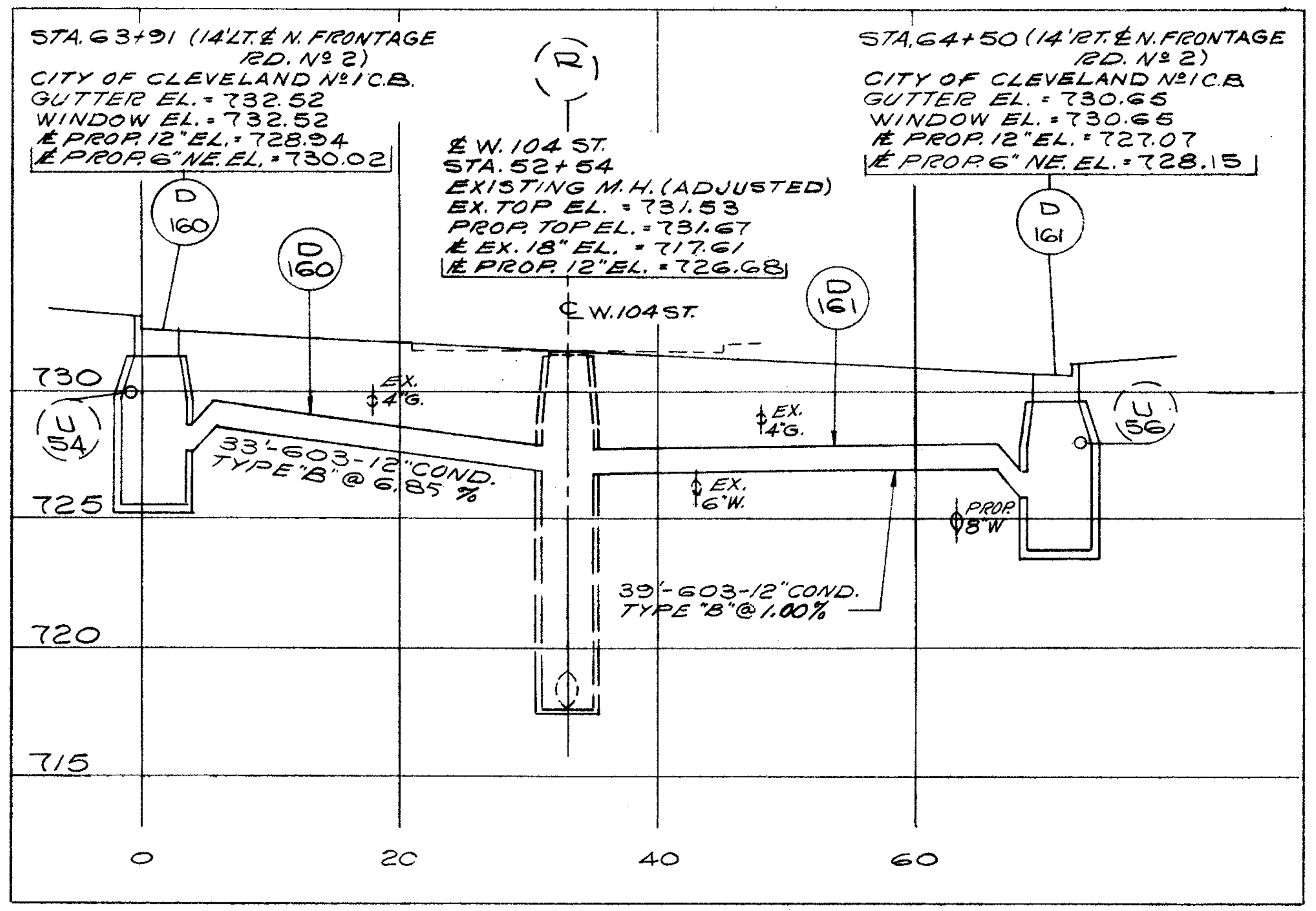
FED. RD.	STATE	PROJECT		
2	OHIO	I-90-1 (50) 19		

104
713

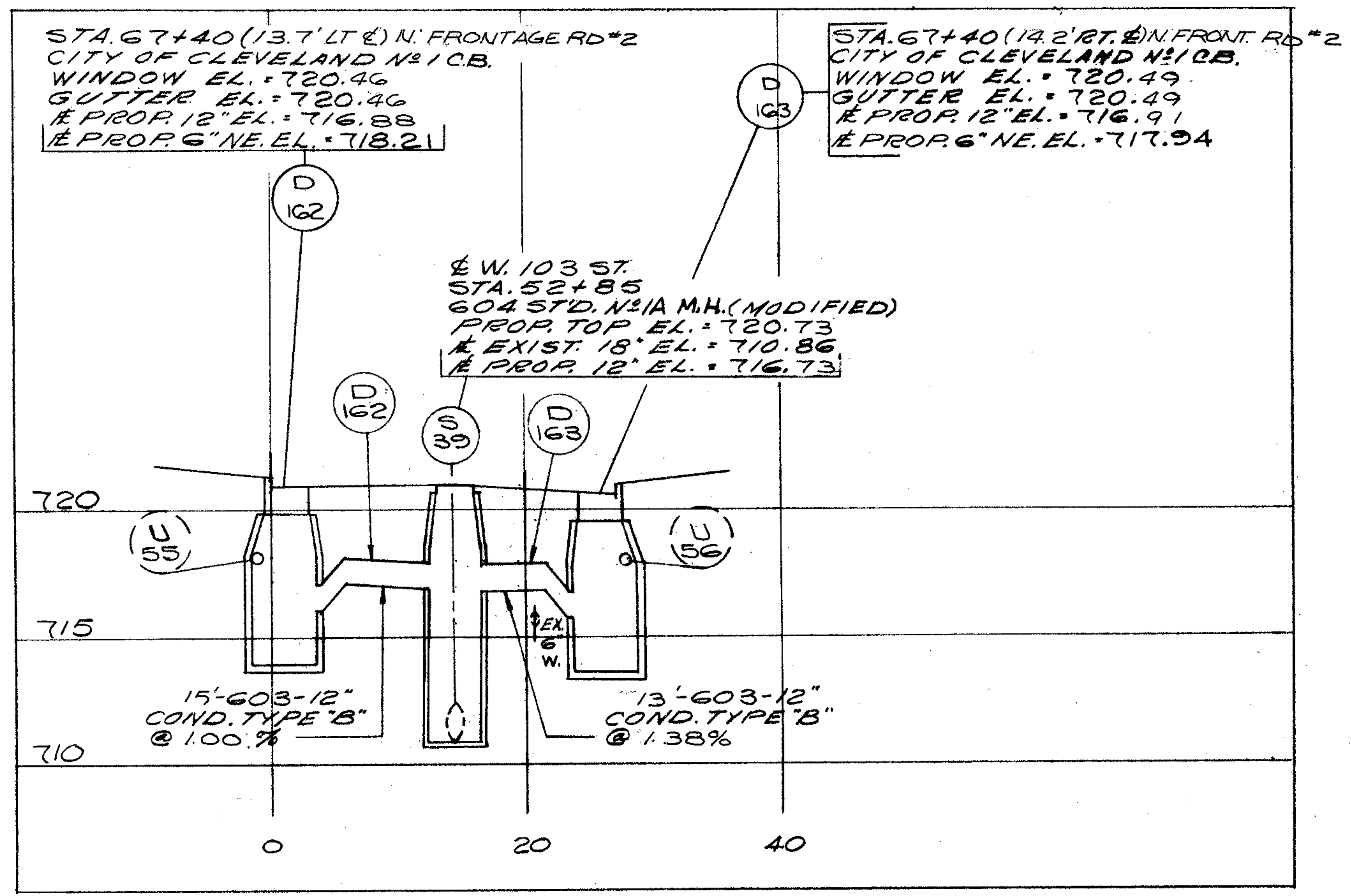
CUYAHOGA COUNTY
CUY - 90 - 10 40



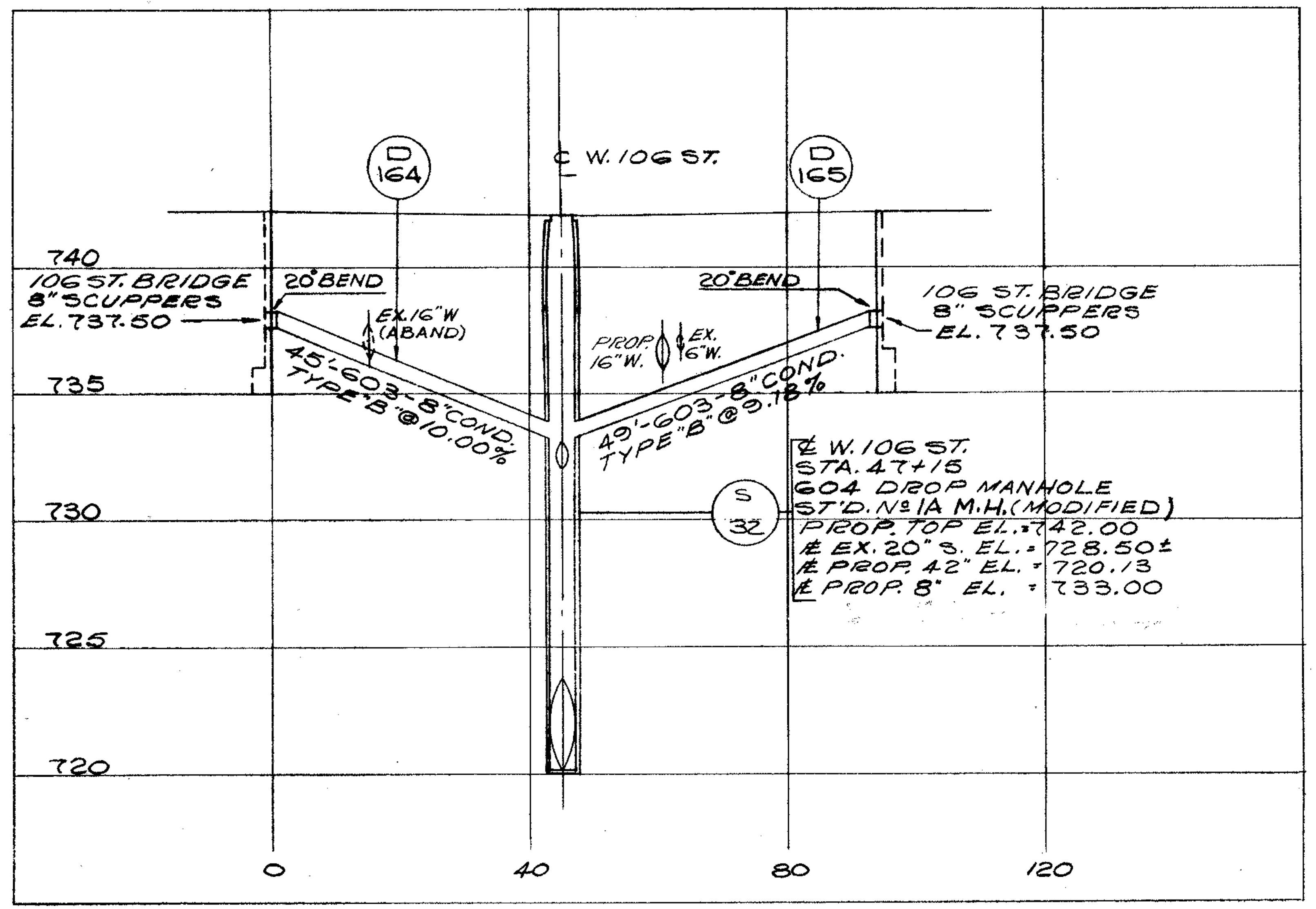
W. 105TH ST. - STA. 51+55



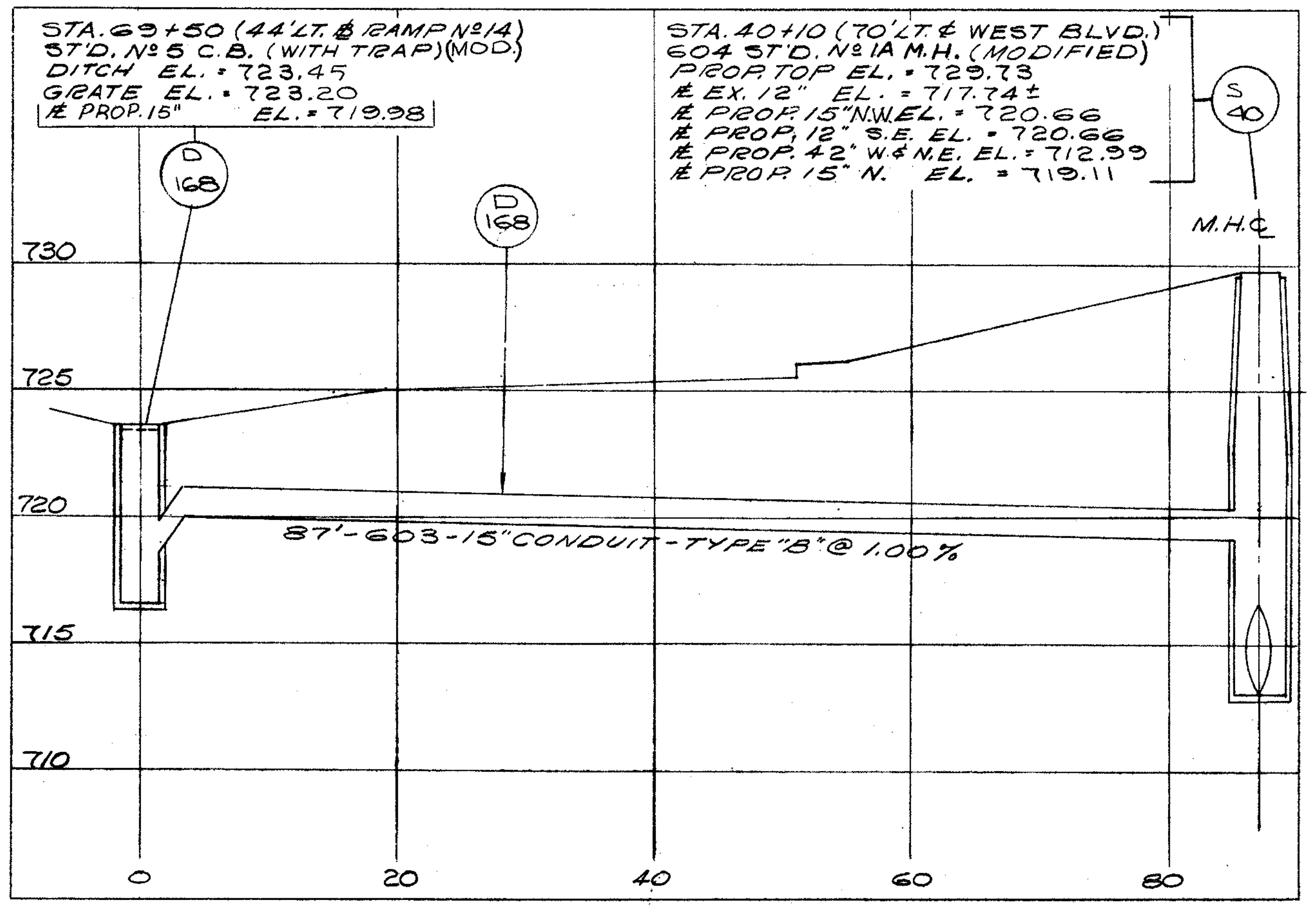
W. 104TH ST. - STA. 52+54



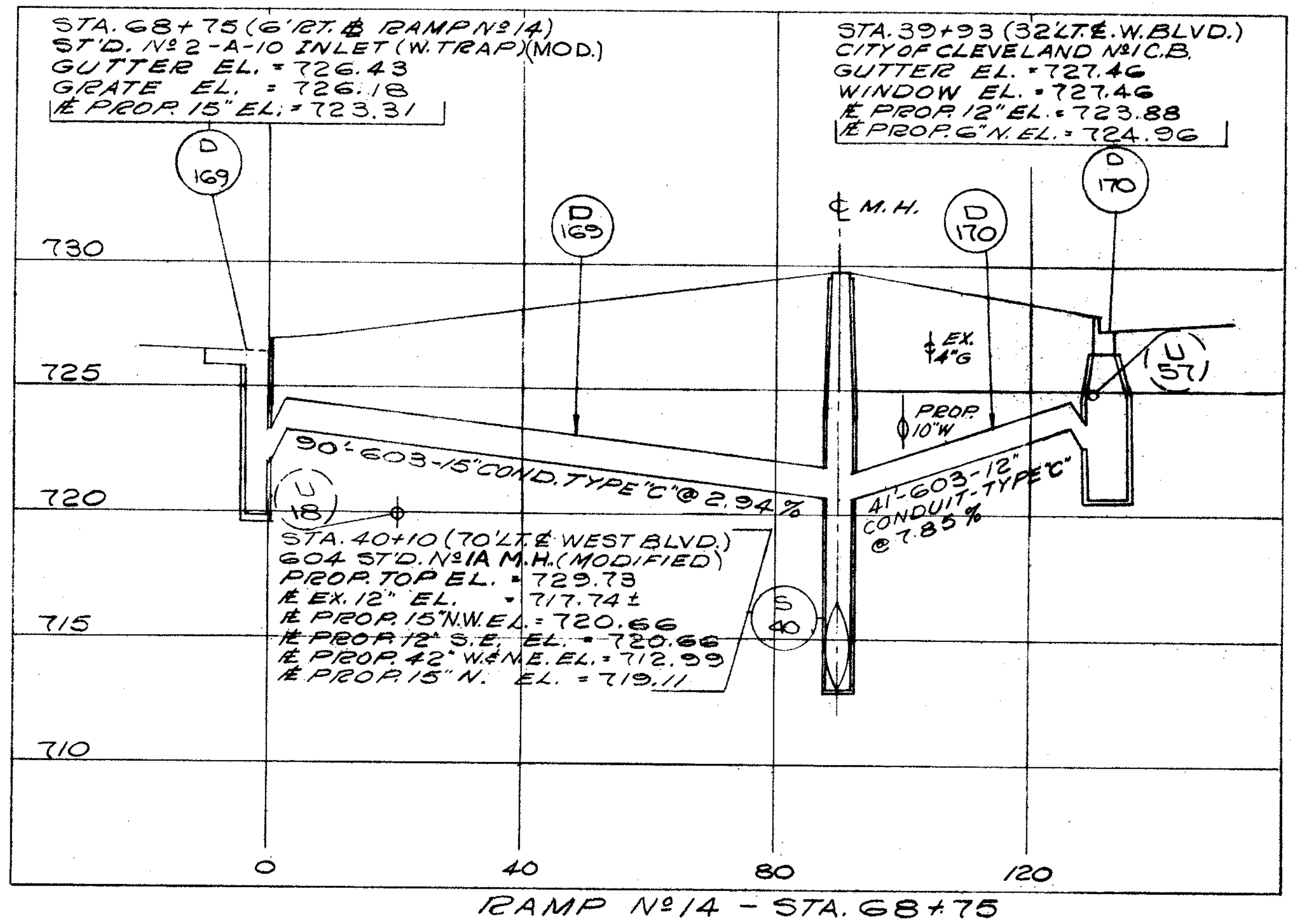
W. 103RD. ST. - STA. 52+85



W. 106TH ST. - STA. 47+15



RAMP Nº 14 - STA. 69+50

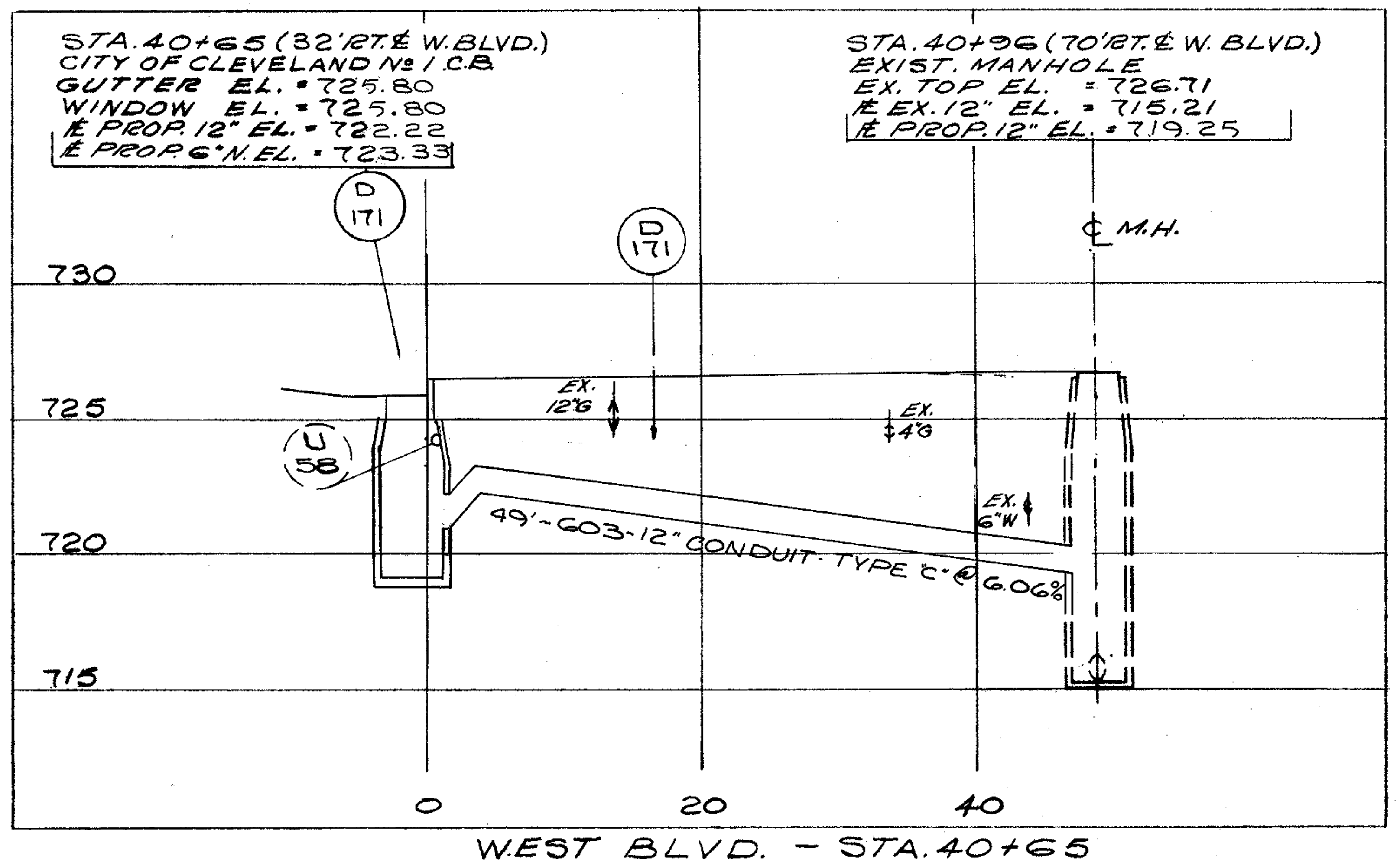


RAMP Nº 14 - STA. 68+75

SEWER PROFILES

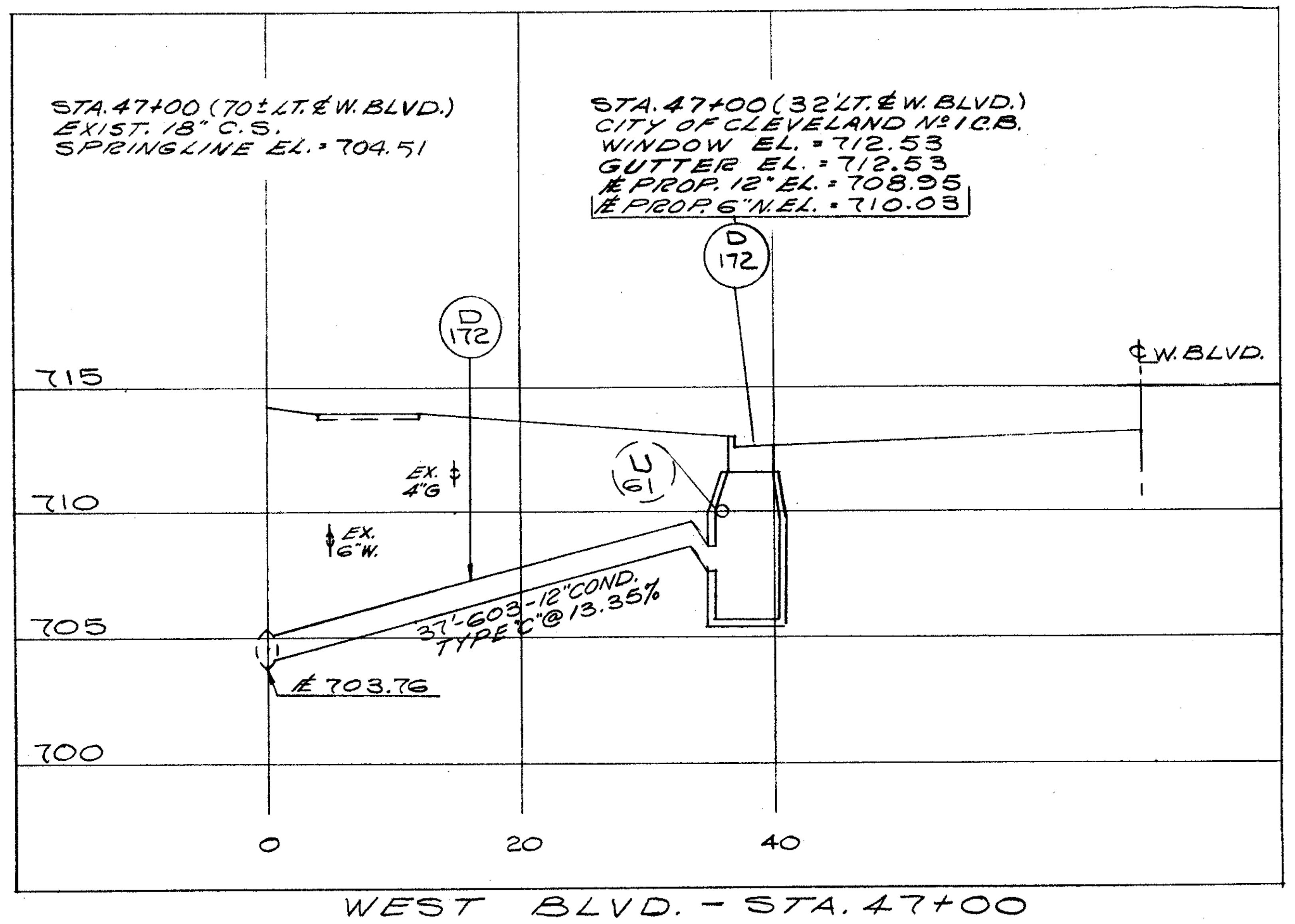
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40


STA. 40+65 (32'RT.℄ W.BLVD.)
CITY OF CLEVELAND Nº 1 C.B.
GUTTER EL. = 725.80
WINDOW EL. = 725.80
Ɇ PROP. 12" EL. = 722.22
Ɇ PROP. 6" N. EL. = 723.33

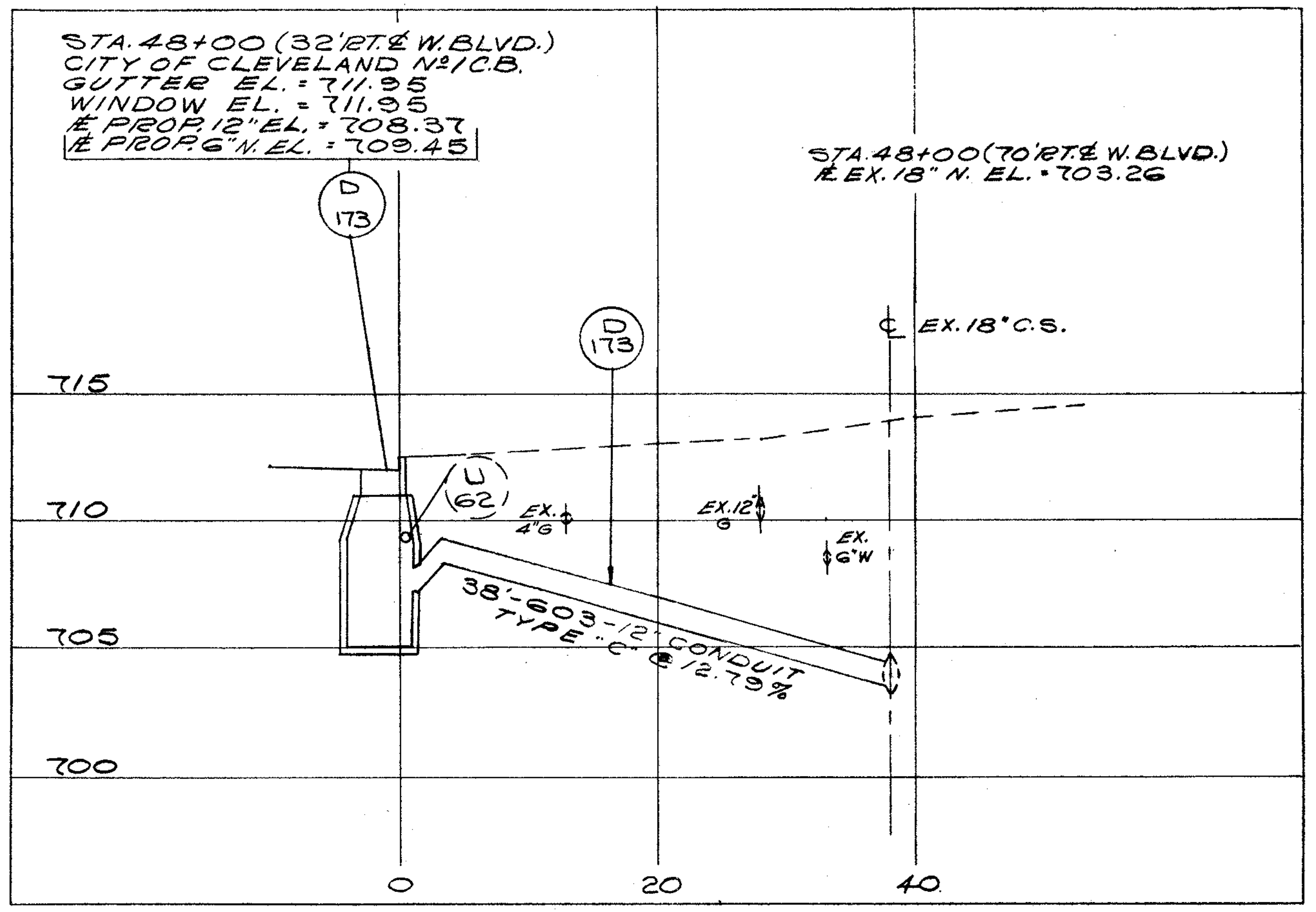
STA. 40+96 (70'RT.℄ W. BLVD.)
EXIST. MANHOLE
EX. TOP EL. = 726.71
Ɇ EX. 12" EL. = 715.21
Ɇ PROP. 12" EL. = 719.25

WEST BLVD. - STA. 40+65


STA. 47+00 (70± LT. ℄ W. BLVD.)
EXIST. 18" C.S.
SPRINGLINE EL. = 704.51

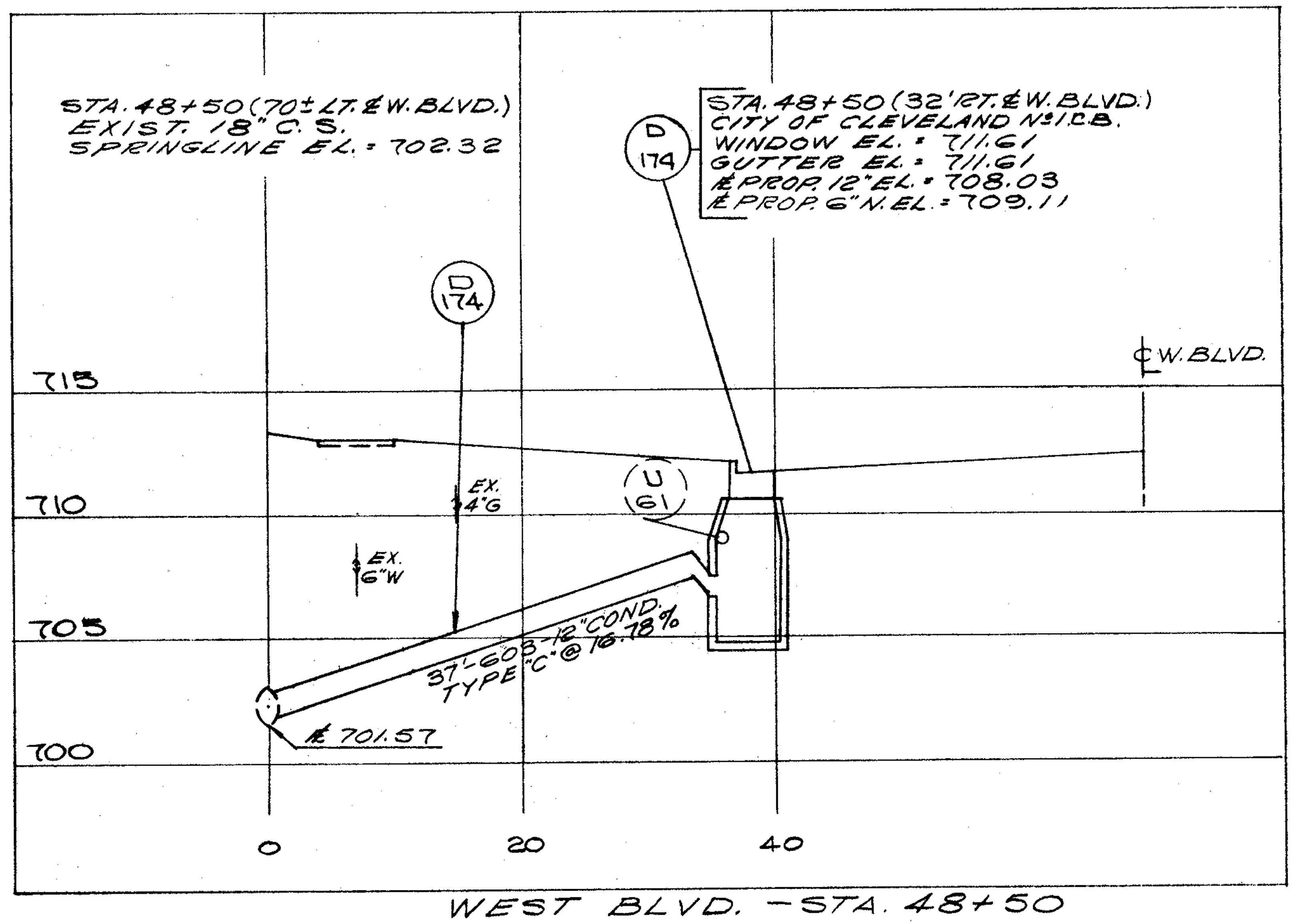
STA. 47+00 (32'LT. ℄ W. BLVD.)
CITY OF CLEVELAND Nº 1 C.B.
WINDOW EL. = 712.53
GUTTER EL. = 712.53
Ɇ PROP. 12" EL. = 708.95
Ɇ PROP. 6" N. EL. = 710.03

WEST BLVD. - STA. 47+00


STA. 48+00 (32'RT.℄ W.BLVD.)
CITY OF CLEVELAND Nº 1 C.B.
GUTTER EL. = 711.95
WINDOW EL. = 711.95
Ɇ PROP. 12" EL. = 708.37
Ɇ PROP. 6" N. EL. = 709.45

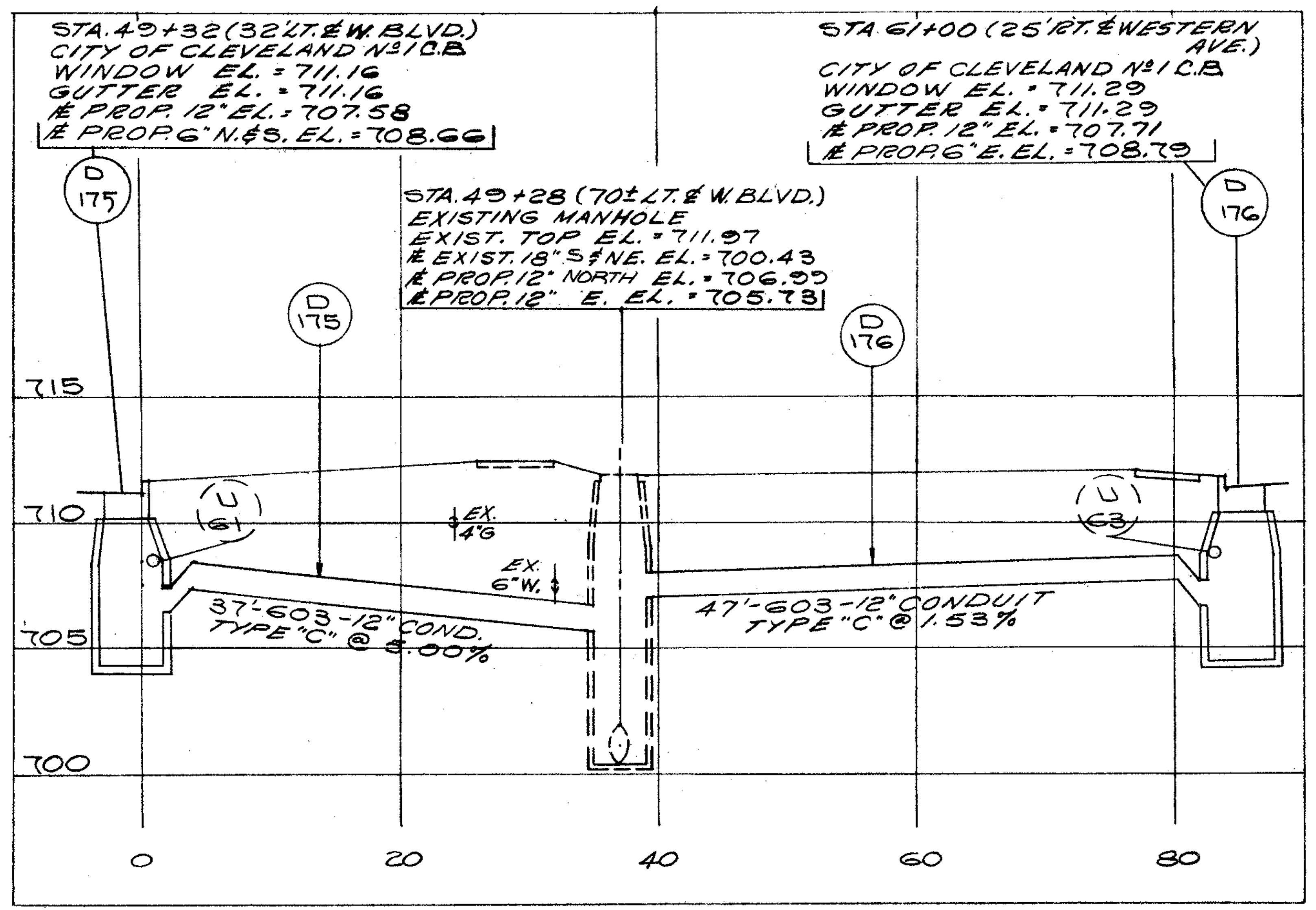
STA. 48+00 (70'RT.℄ W. BLVD.)
Ɇ EX. 18" N. EL. = 703.26

WEST BLVD. - STA. 48+00


STA. 48+50 (70± LT. ℄ W. BLVD.)
EXIST. 18" C.S.
SPRINGLINE EL. = 702.32

STA. 48+50 (32'RT. ℄ W. BLVD.)
CITY OF CLEVELAND Nº 1 C.B.
WINDOW EL. = 711.61
GUTTER EL. = 711.61
Ɇ PROP. 12" EL. = 708.03
Ɇ PROP. 6" N. EL. = 709.11

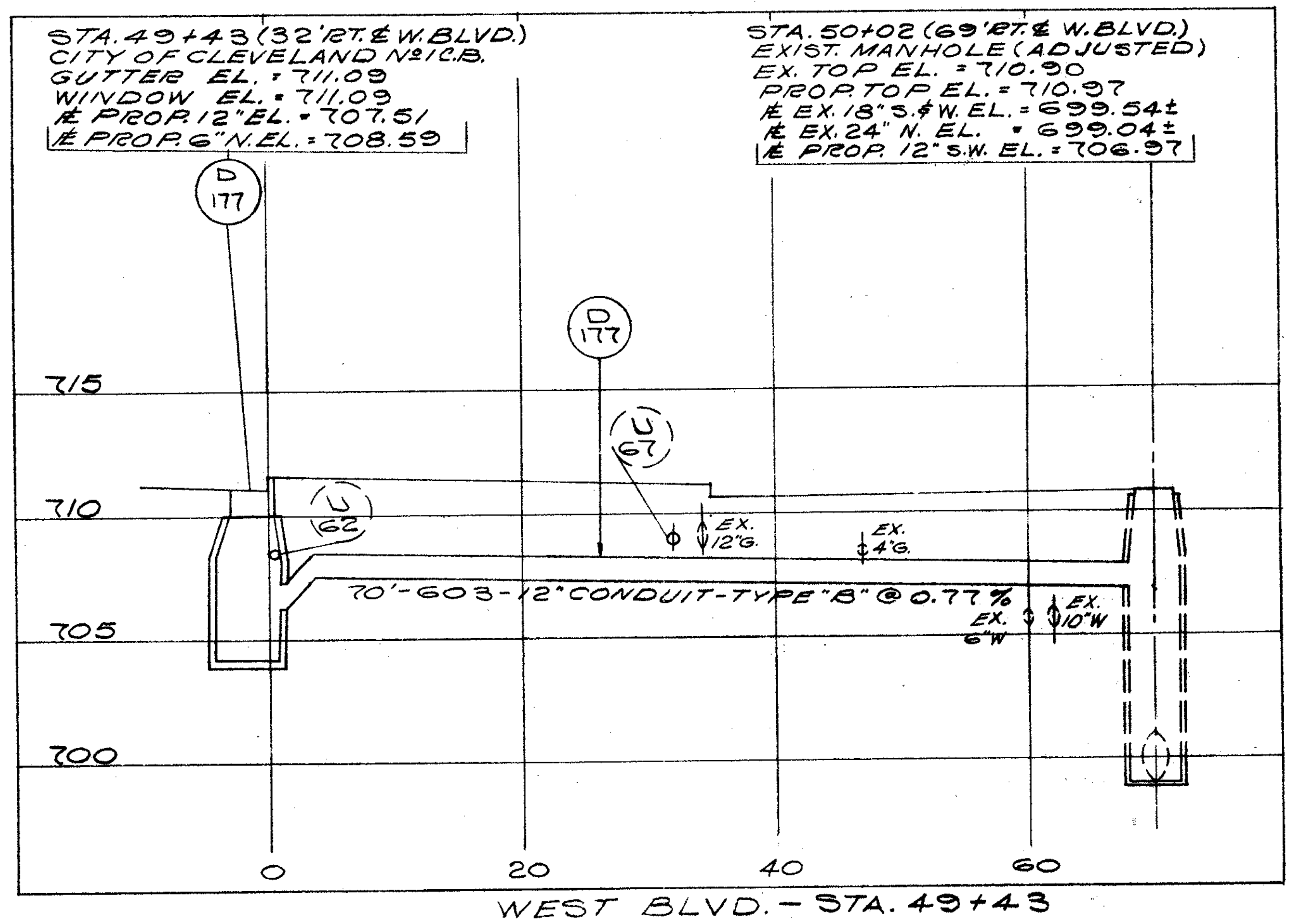
WEST BLVD. - STA. 48+50


STA. 49+32 (32'LT. ℄ W. BLVD.)
CITY OF CLEVELAND Nº 1 C.B.
WINDOW EL. = 711.16
GUTTER EL. = 711.16
Ɇ PROP. 12" EL. = 707.58
Ɇ PROP. 6" N. & S. EL. = 708.66

STA. 61+00 (25'RT. ℄ WESTERN AVE.)
CITY OF CLEVELAND Nº 1 C.B.
WINDOW EL. = 711.29
GUTTER EL. = 711.29
Ɇ PROP. 12" EL. = 707.71
Ɇ PROP. 6" E. EL. = 708.79

STA. 49+28 (70± LT. ℄ W. BLVD.)
EXISTING MANHOLE
EXIST. TOP EL. = 711.97
Ɇ EXIST. 18" S & NE. EL. = 700.43
Ɇ PROP. 12" NORTH EL. = 706.99
Ɇ PROP. 12" E. EL. = 705.73

WEST BLVD. - STA. 49+28


STA. 49+43 (32'RT. ℄ W. BLVD.)
CITY OF CLEVELAND Nº 1 C.B.
GUTTER EL. = 711.09
WINDOW EL. = 711.09
Ɇ PROP. 12" EL. = 707.51
Ɇ PROP. 6" N. EL. = 708.59

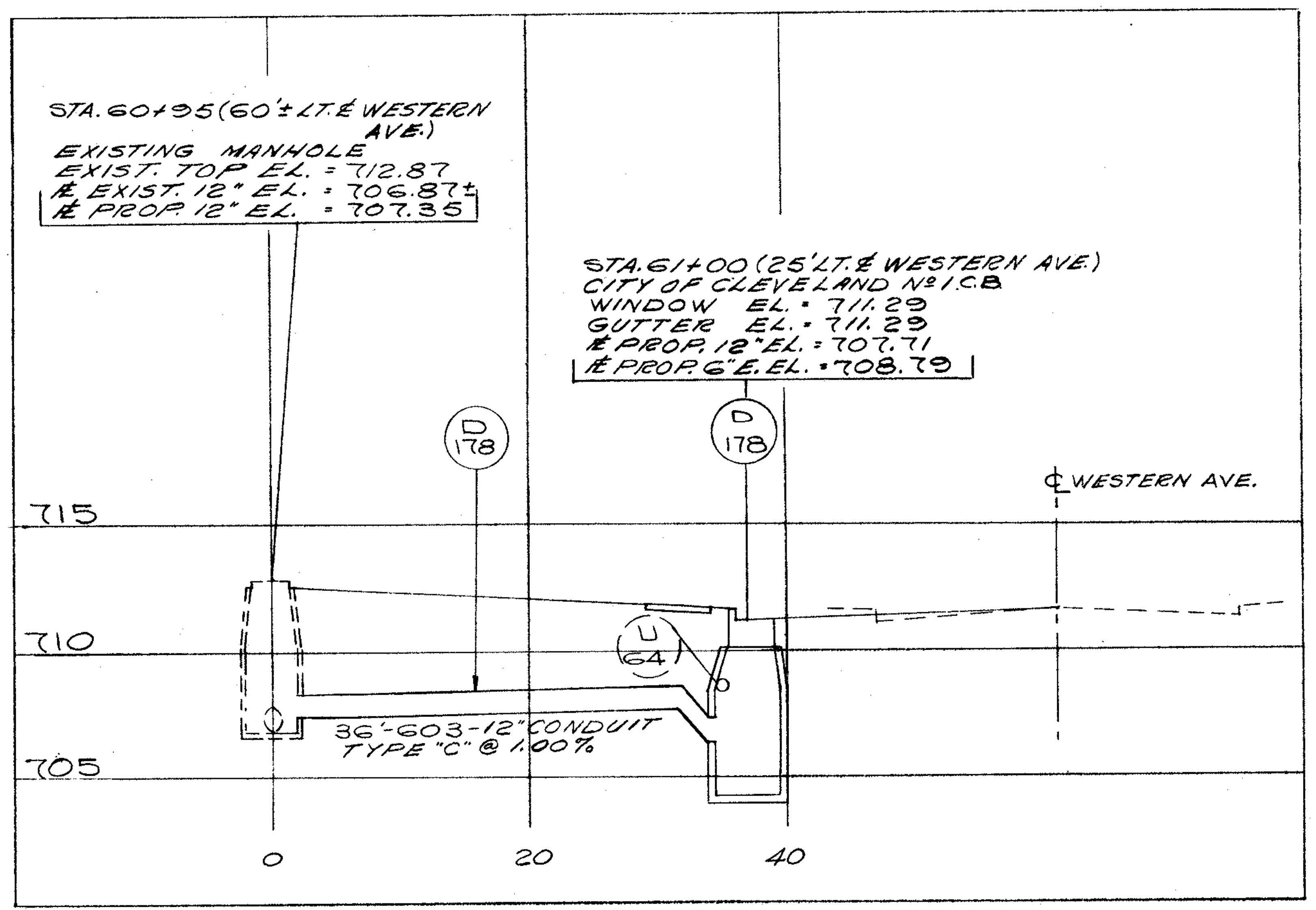
STA. 50+02 (69'RT. ℄ W. BLVD.)
EXIST. MANHOLE (ADJUSTED)
EX. TOP EL. = 710.90
PROP. TOP EL. = 710.97
Ɇ EX. 18" S. & W. EL. = 699.54±
Ɇ EX. 24" N. EL. = 699.04±
Ɇ PROP. 12" S.W. EL. = 706.97

WEST BLVD. - STA. 49+43

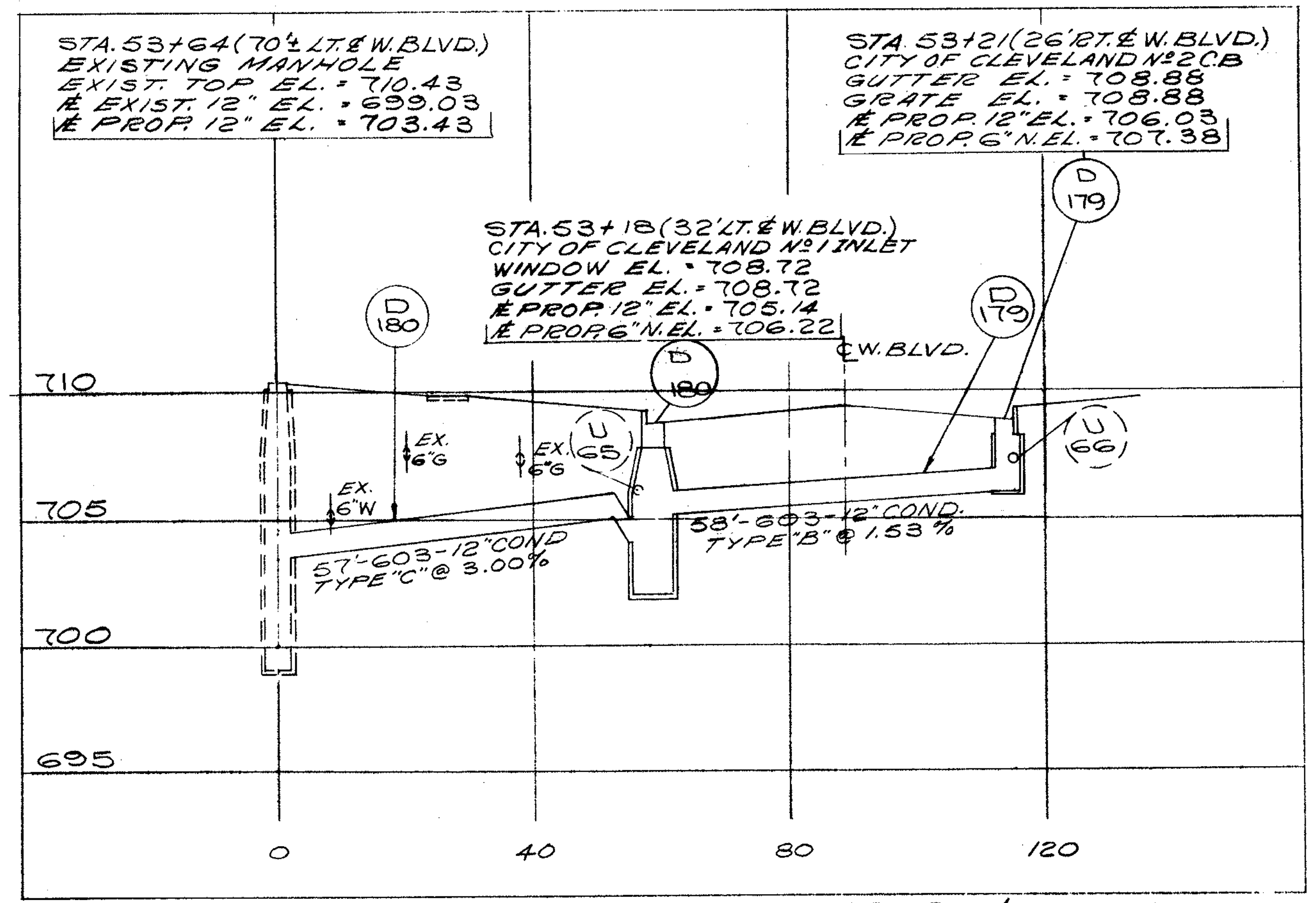
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

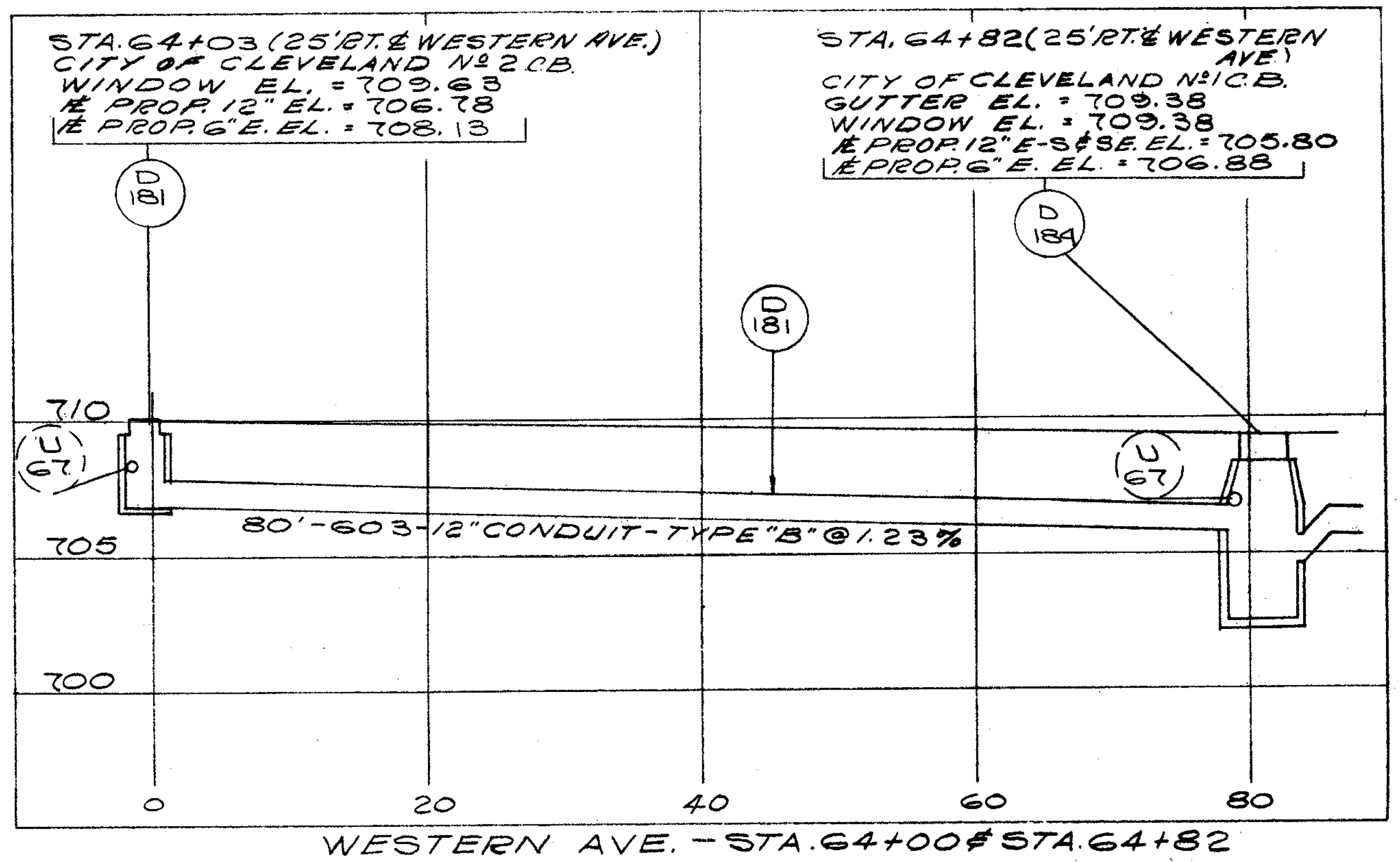
CUYAHOGA COUNTY
CUY - 90 - 10.40



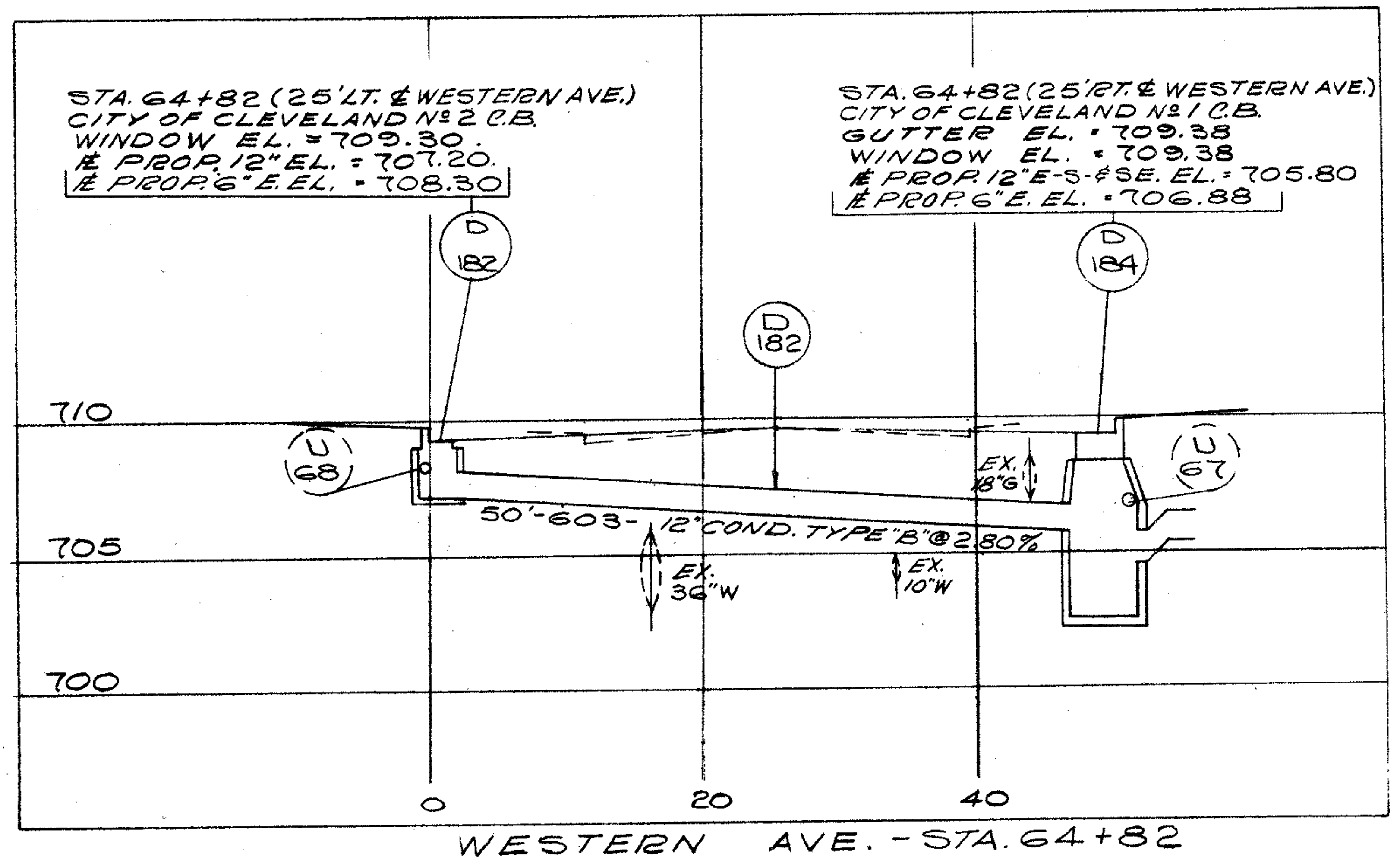
WESTERN AVE. - STA. 61+00



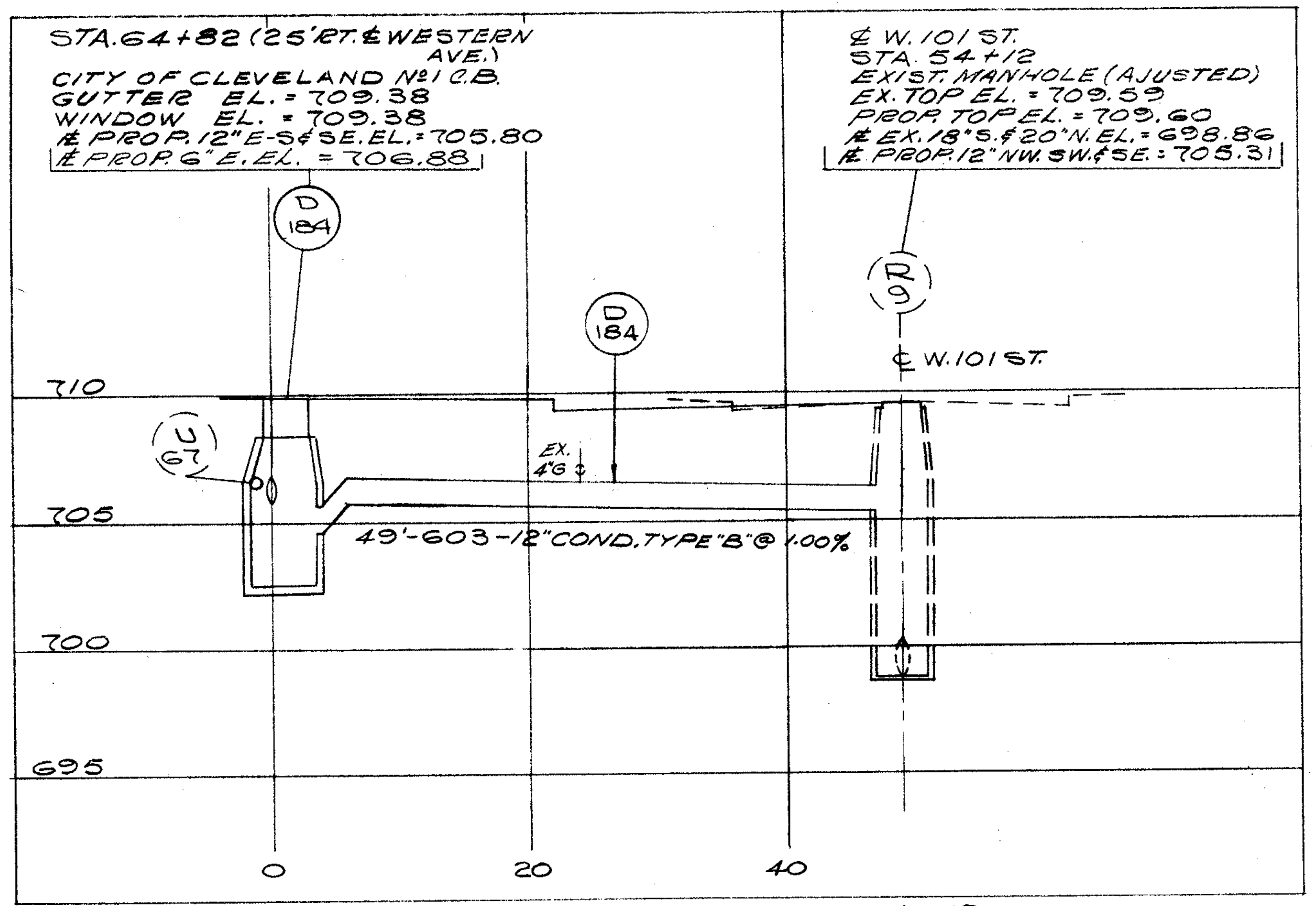
WEST BLVD. - STA. 53+20 & STA. 53+21



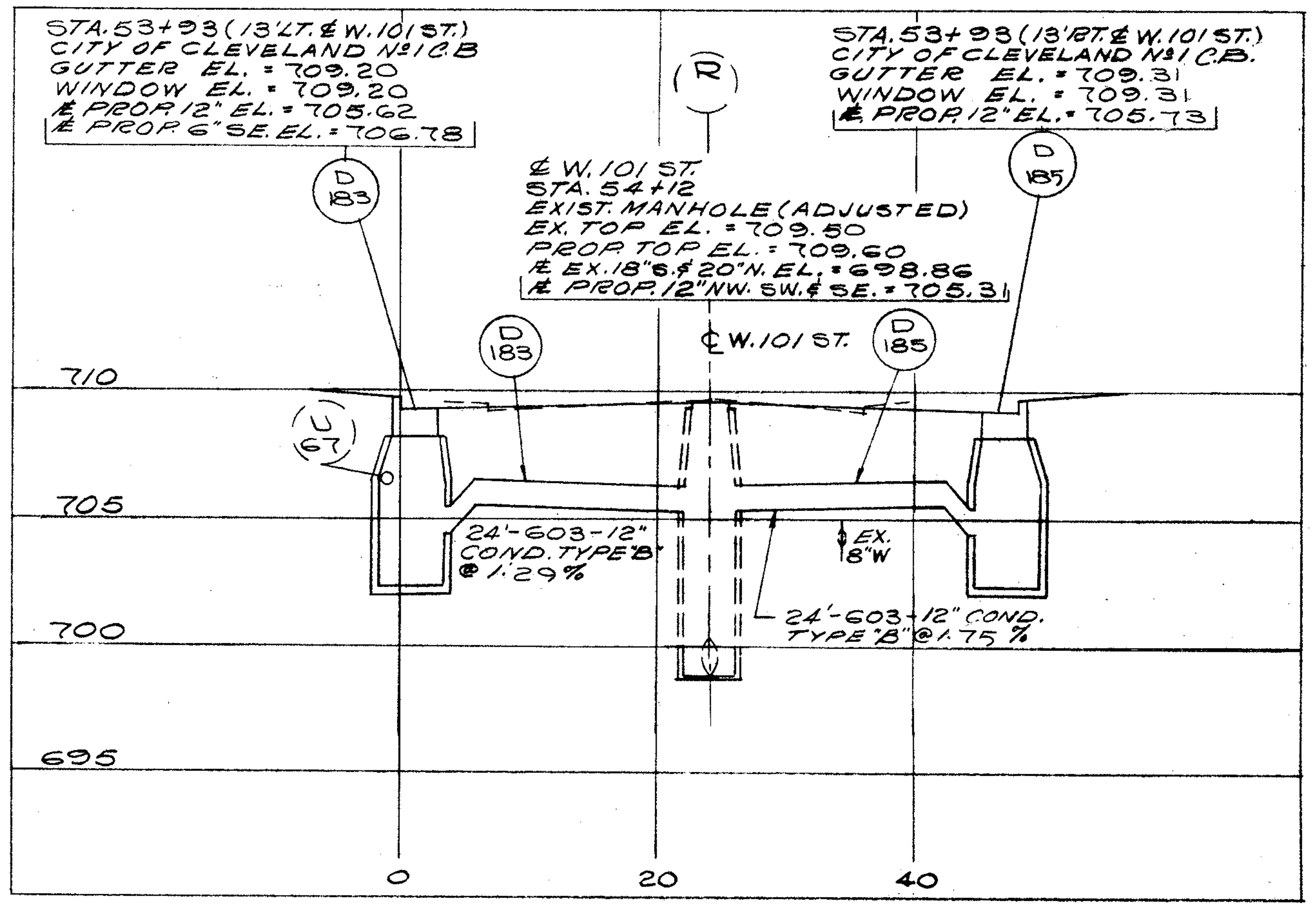
WESTERN AVE. - STA. 64+00 & STA. 64+82



WESTERN AVE. - STA. 64+82



W. 101 ST. ST. - STA. 54+12



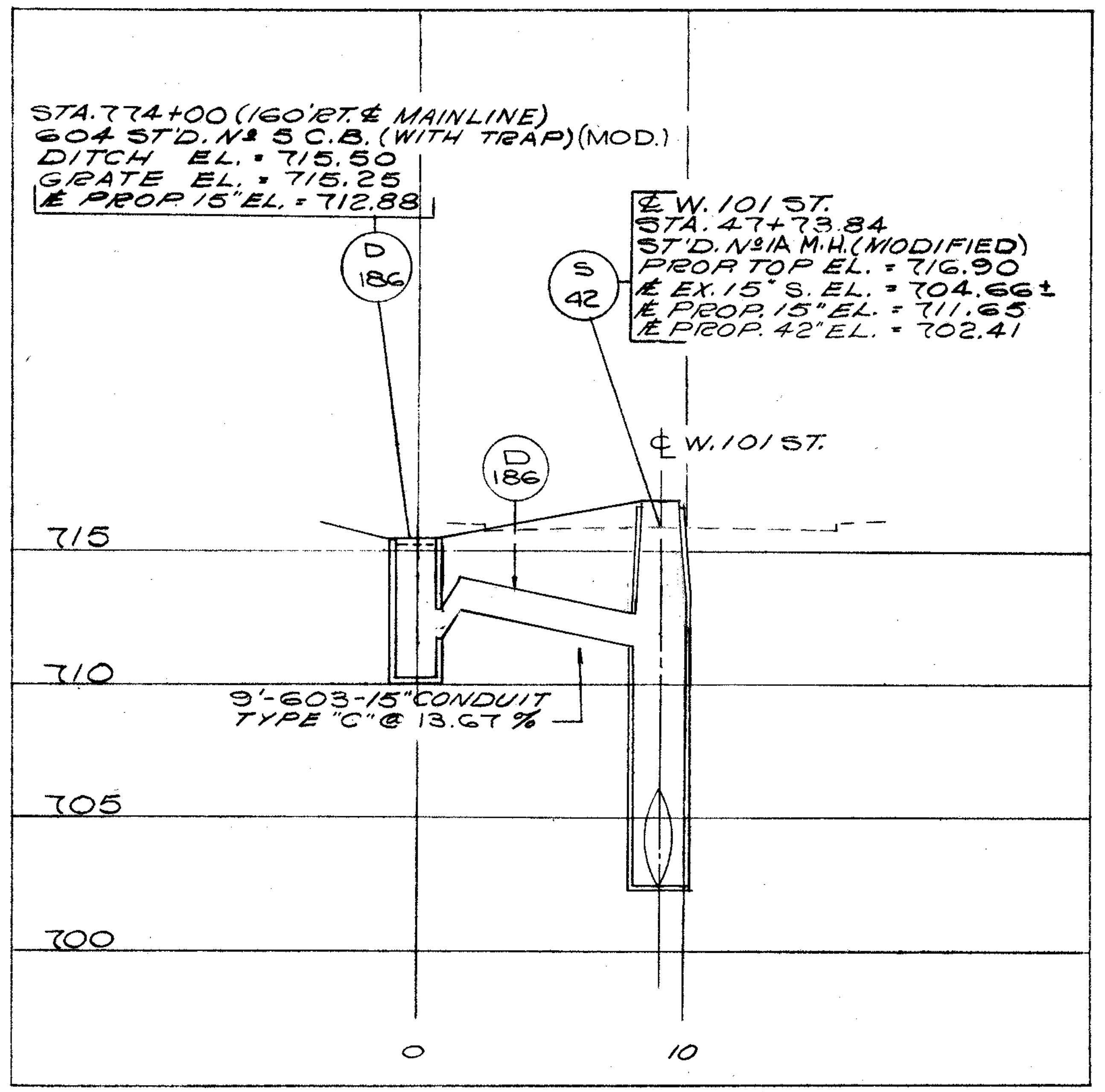
WEST 101 ST. ST. - STA. 54+12

SEWER PROFILES

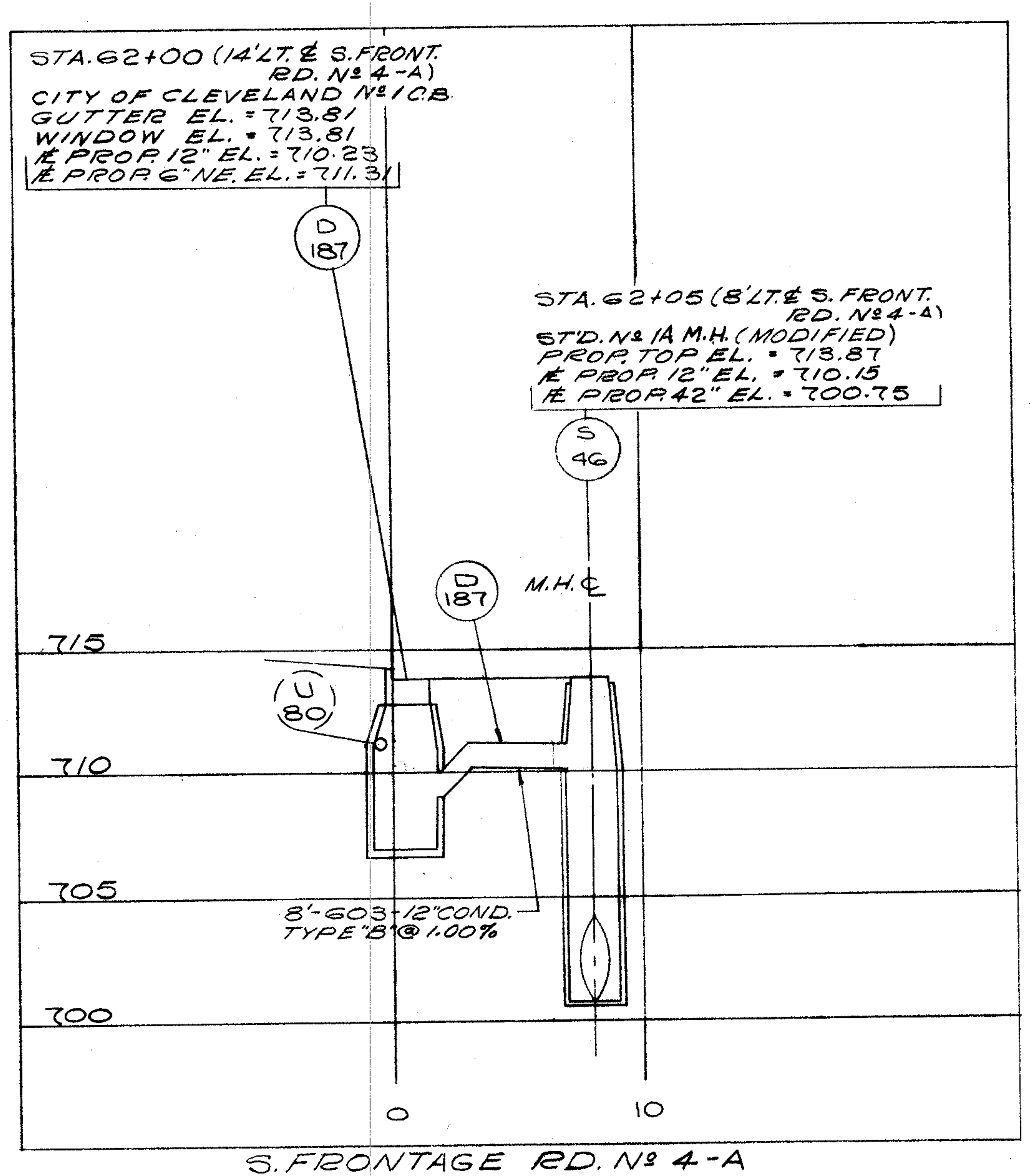
FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50) 19

107
713

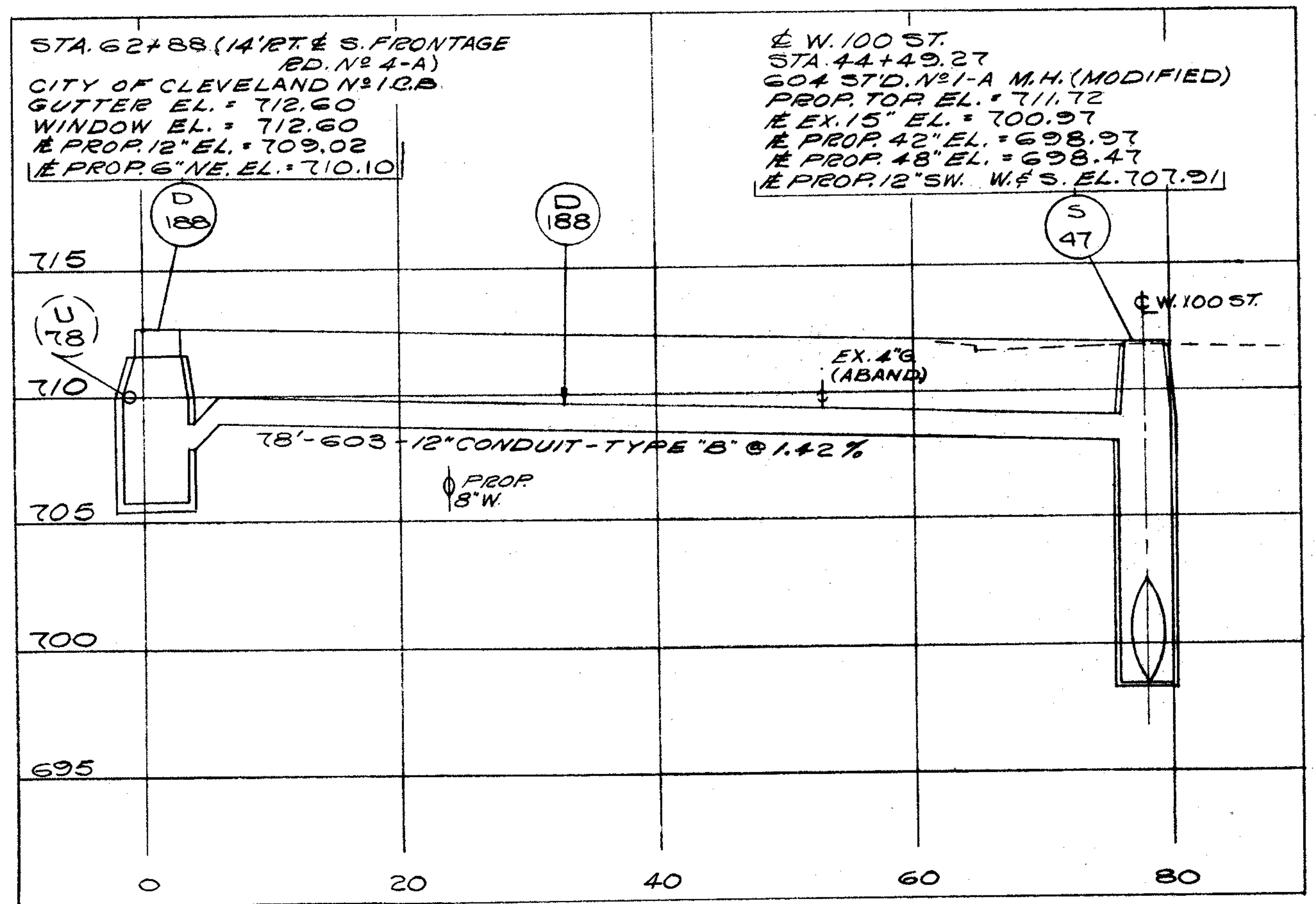
CUYAHOGA COUNTY
CUY - 90 - 10.40



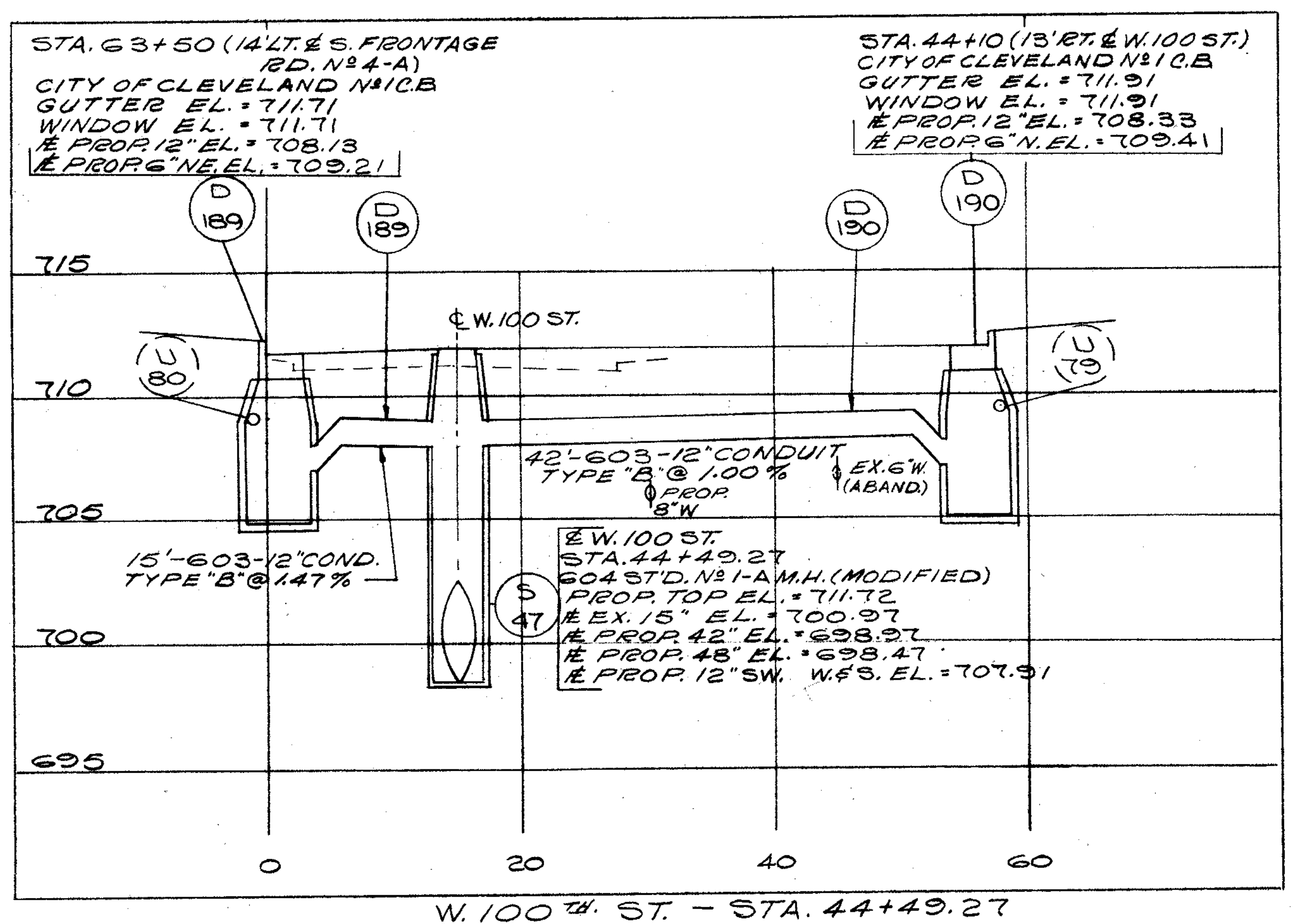
W. 101 ST. ST. – STA. 47+73.84



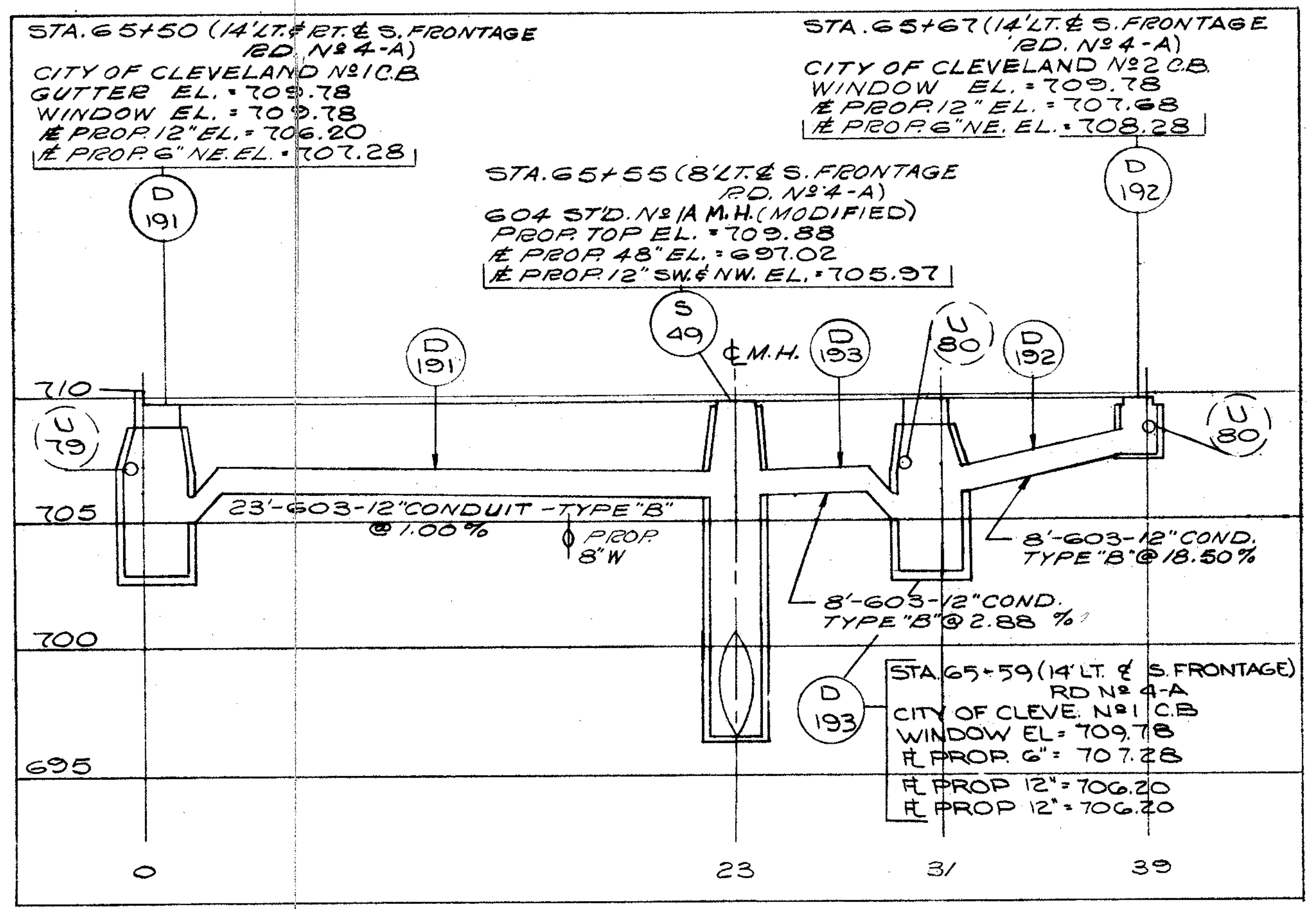
S. FRONTAGE RD. Nº 4-A
STA. 62+05



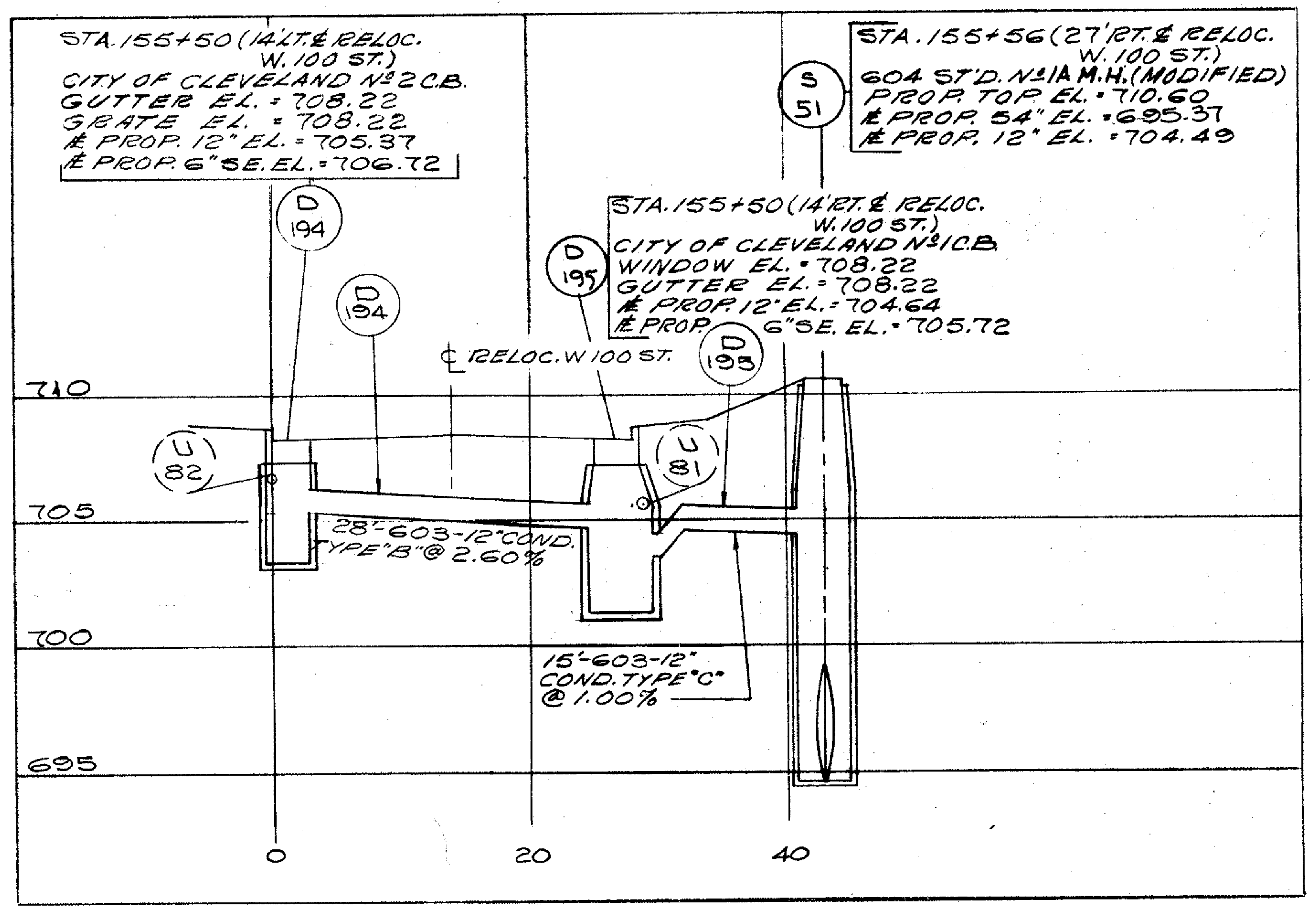
W. 100 TH. ST. - STA. 44+49.27



W. 100 TH. ST. - STA. 44+49.27



S. FRONTAGE RD. Nº 4-A -STA. 65+50

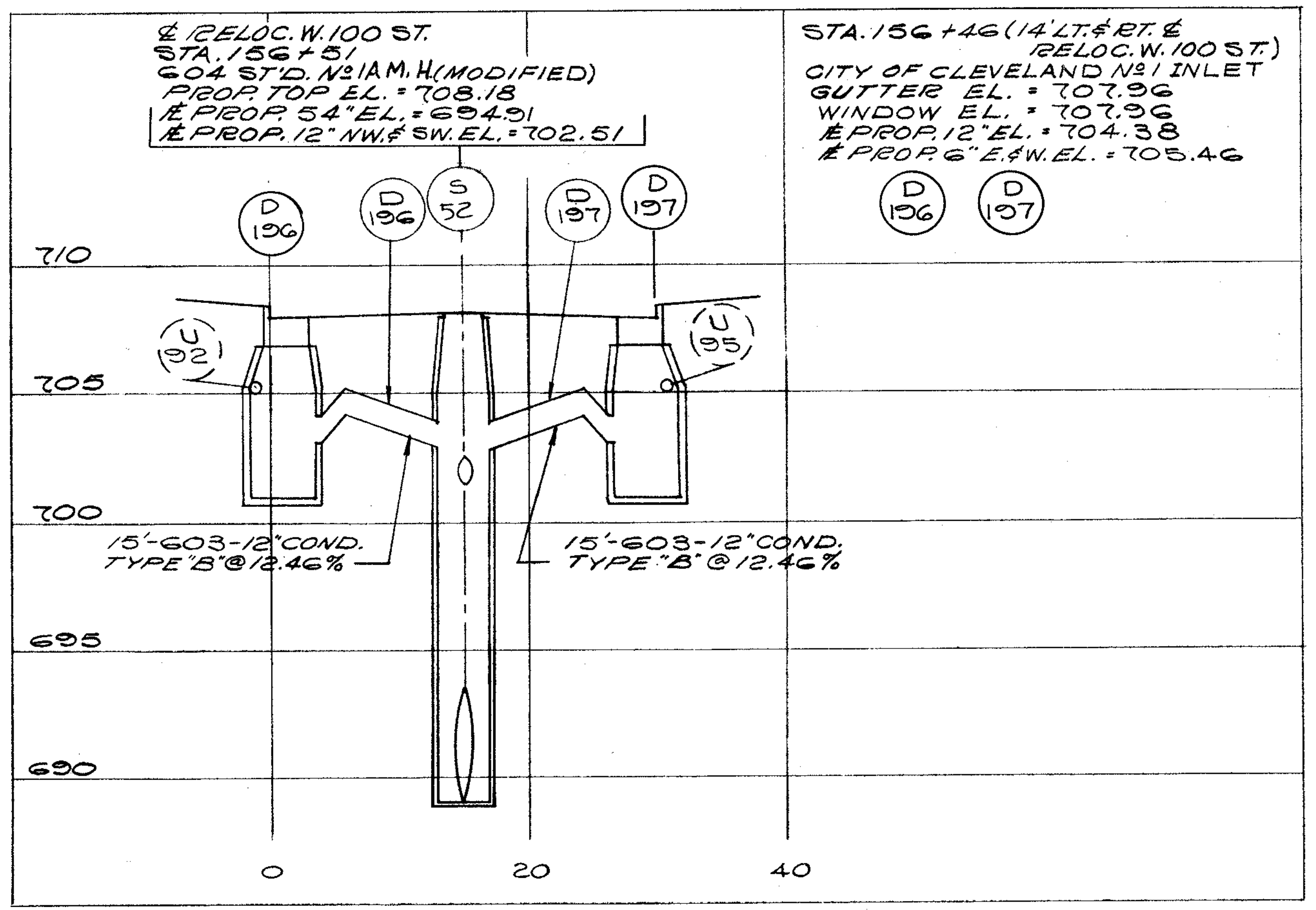


RELOC. W. 100 ST. - STA. 155+50

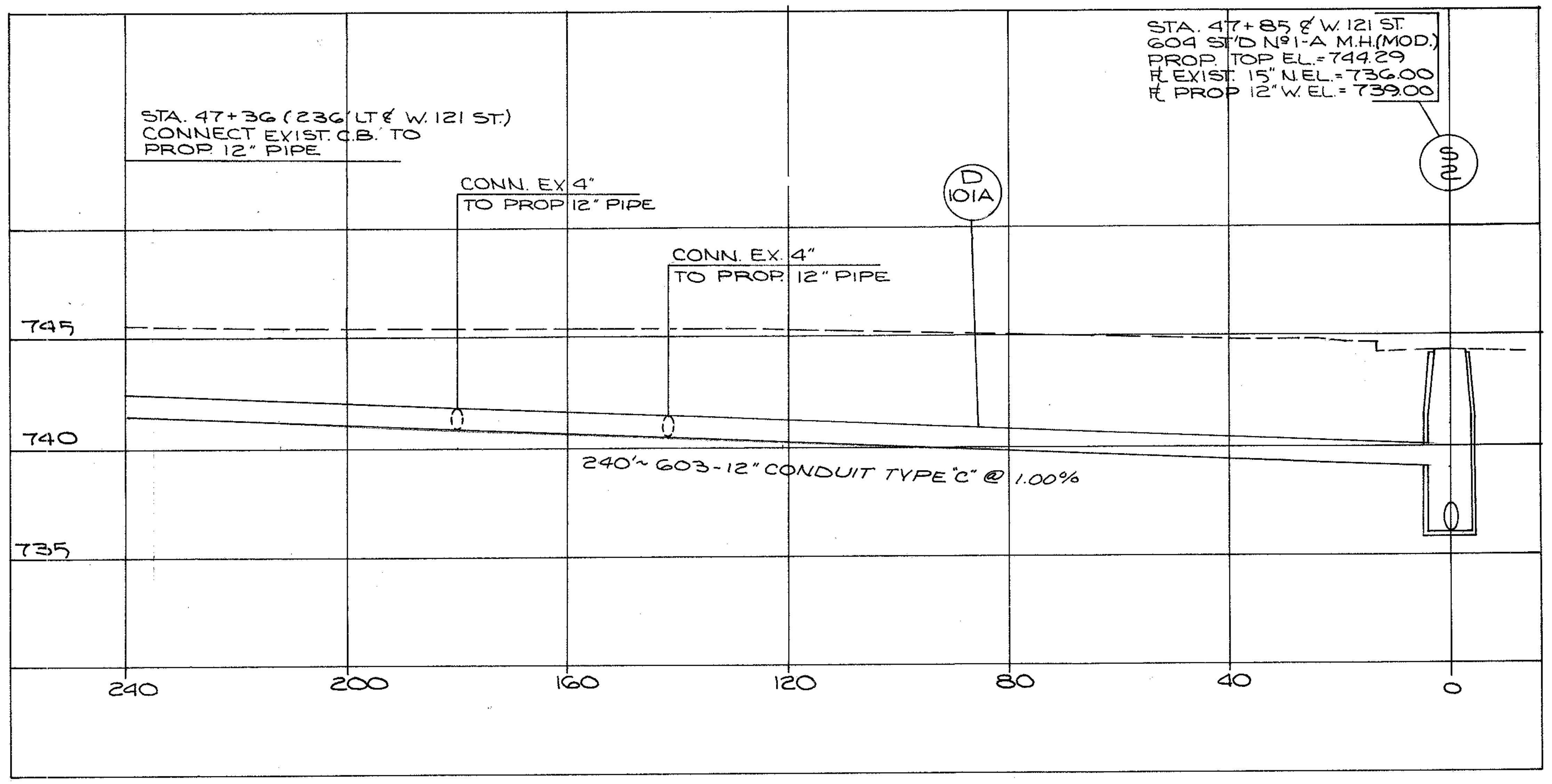
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

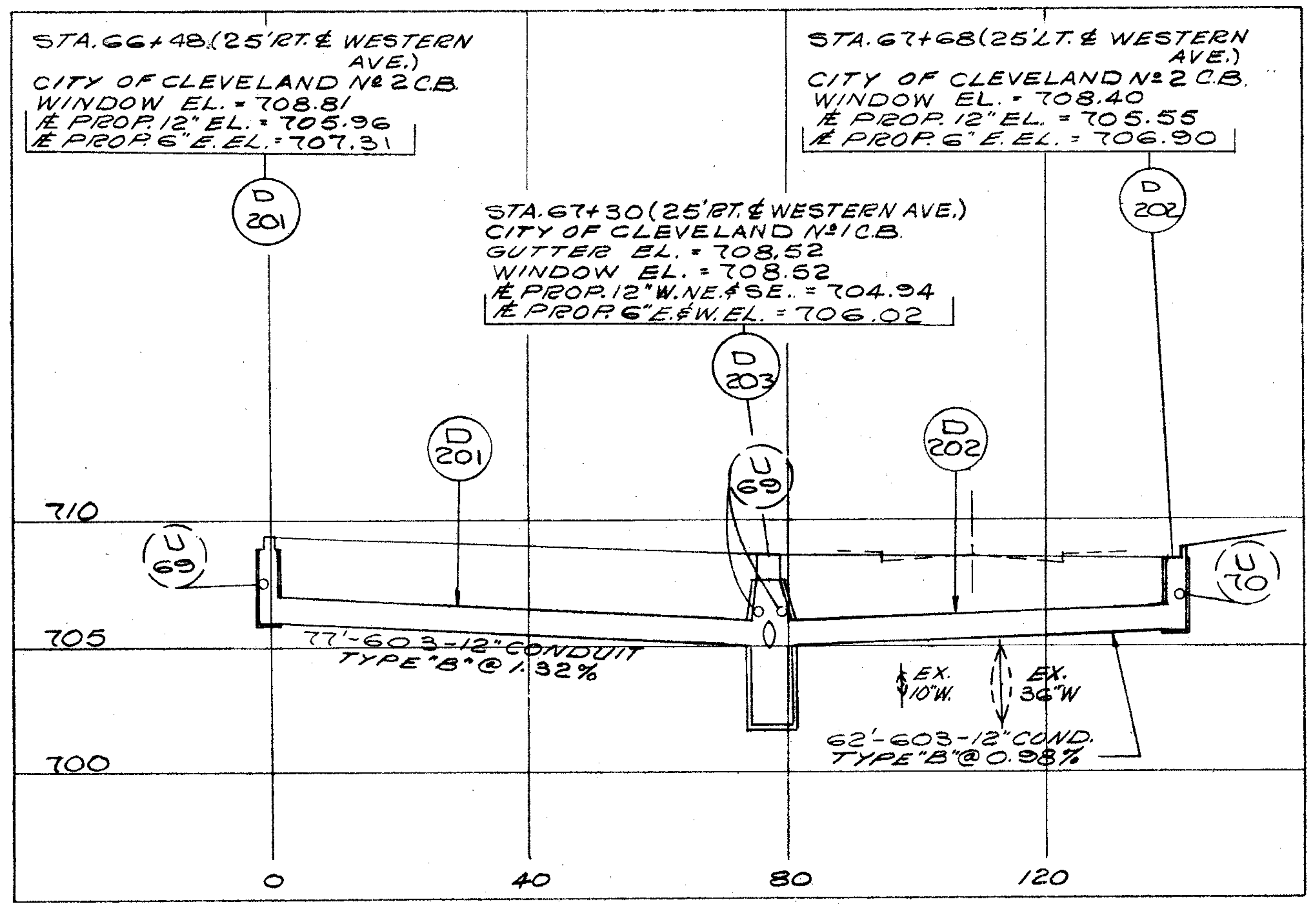
CUYAHOGA COUNTY
CUY - 90 - 10.40



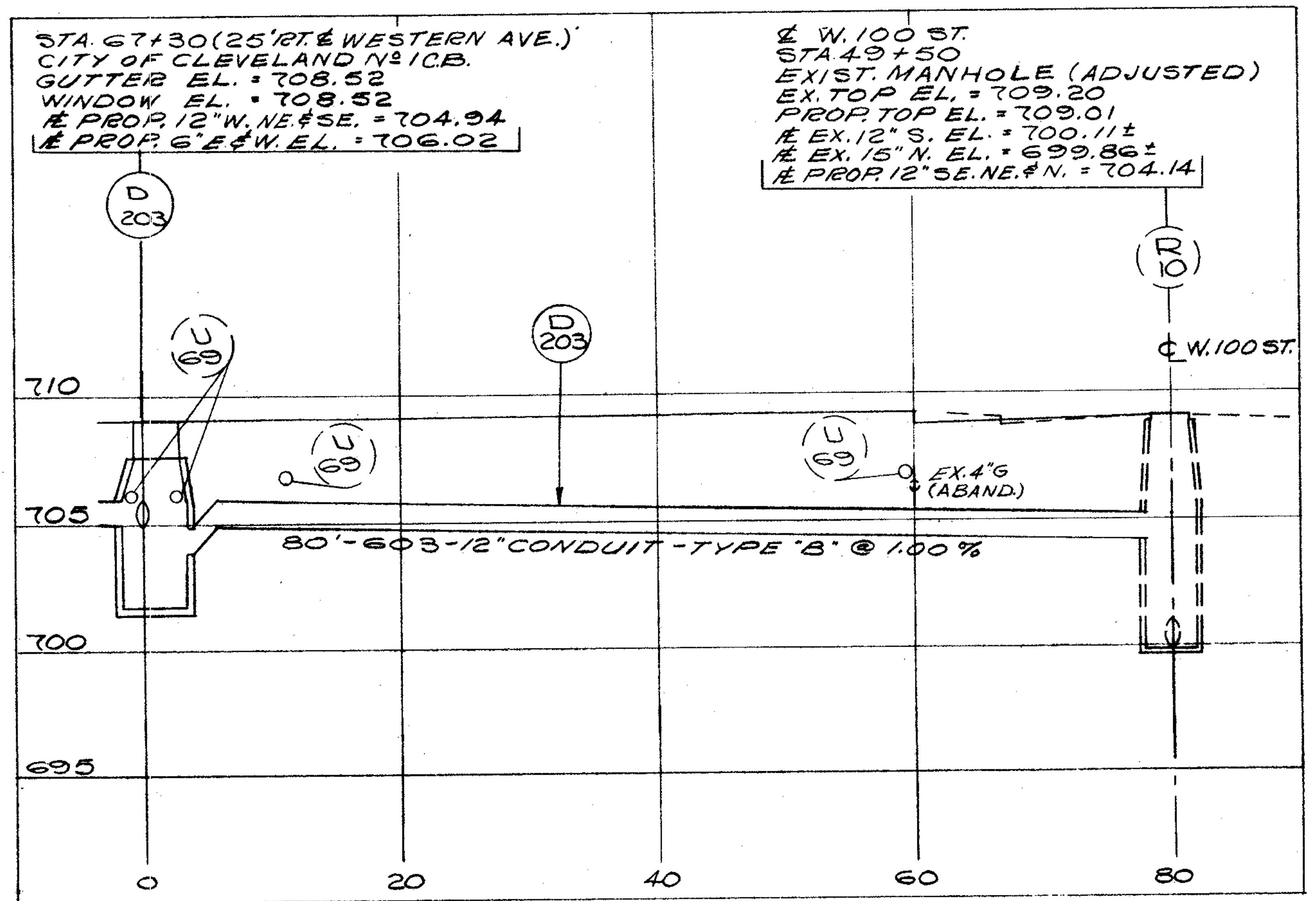
RELOC. W. 100th ST. – STA. 156+51



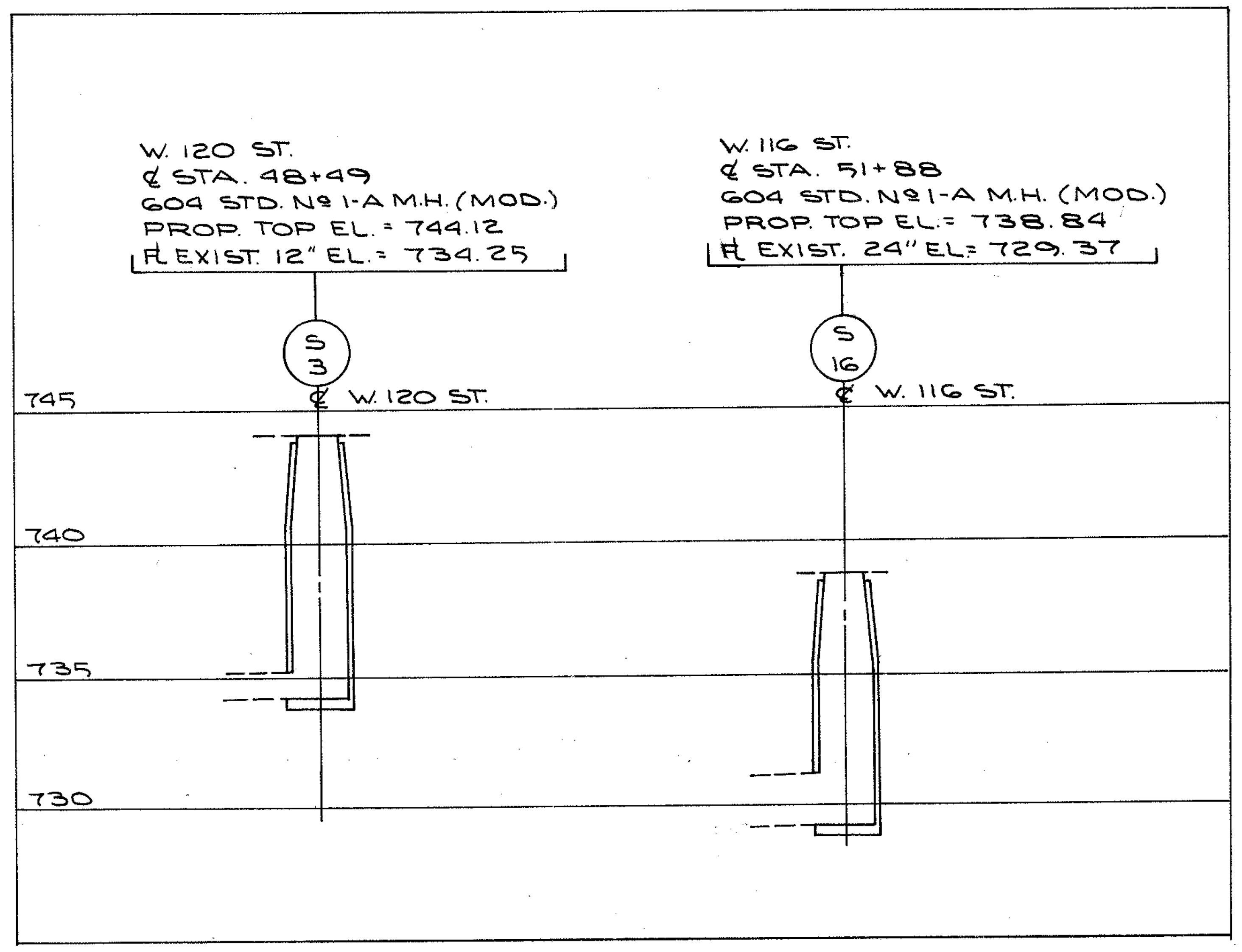
W. 121 ST. – STA. 47+85



WESTERN AVE. – STA. 66+55 TO STA. 67+68



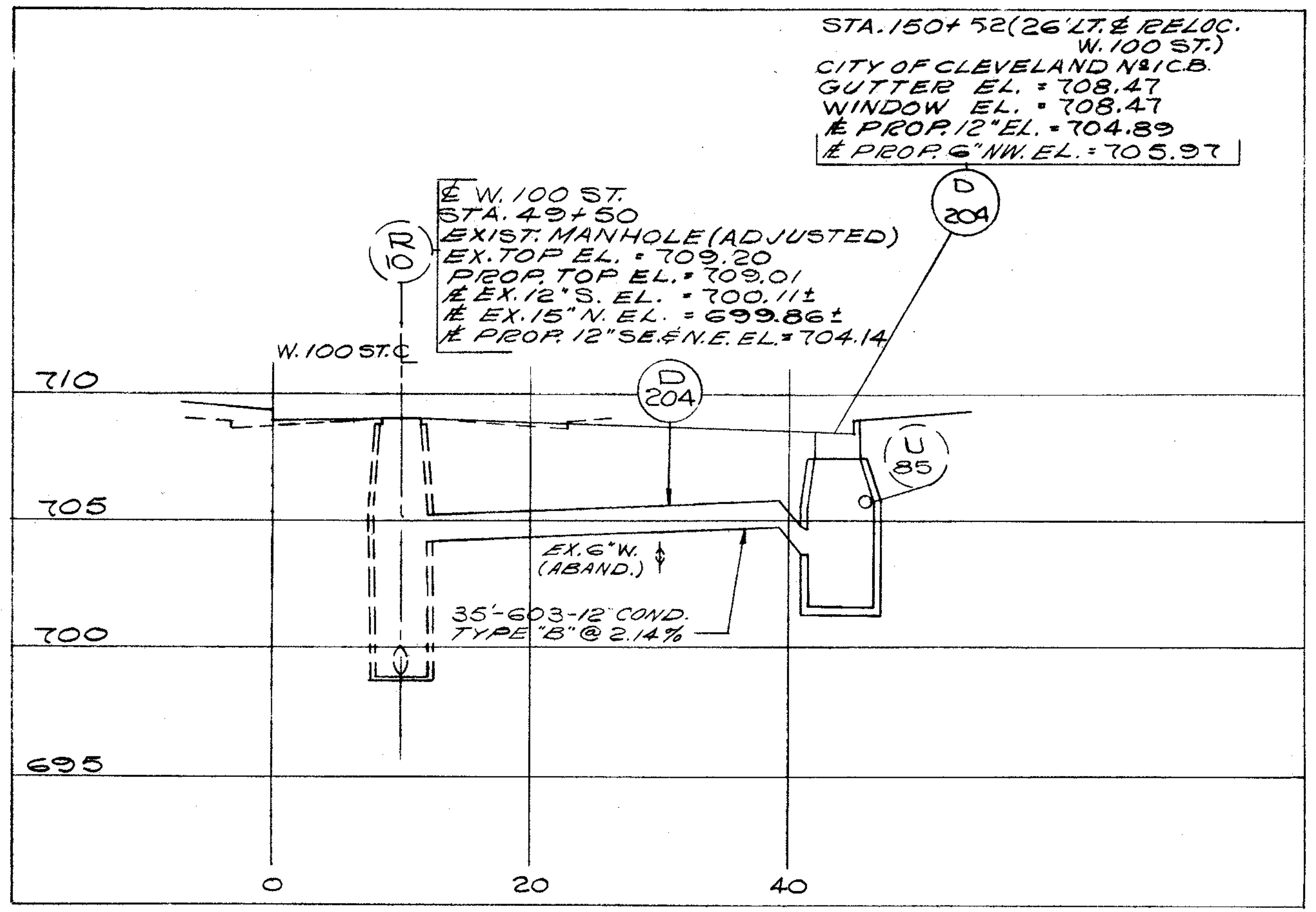
W. 100th ST. – STA. 49+50



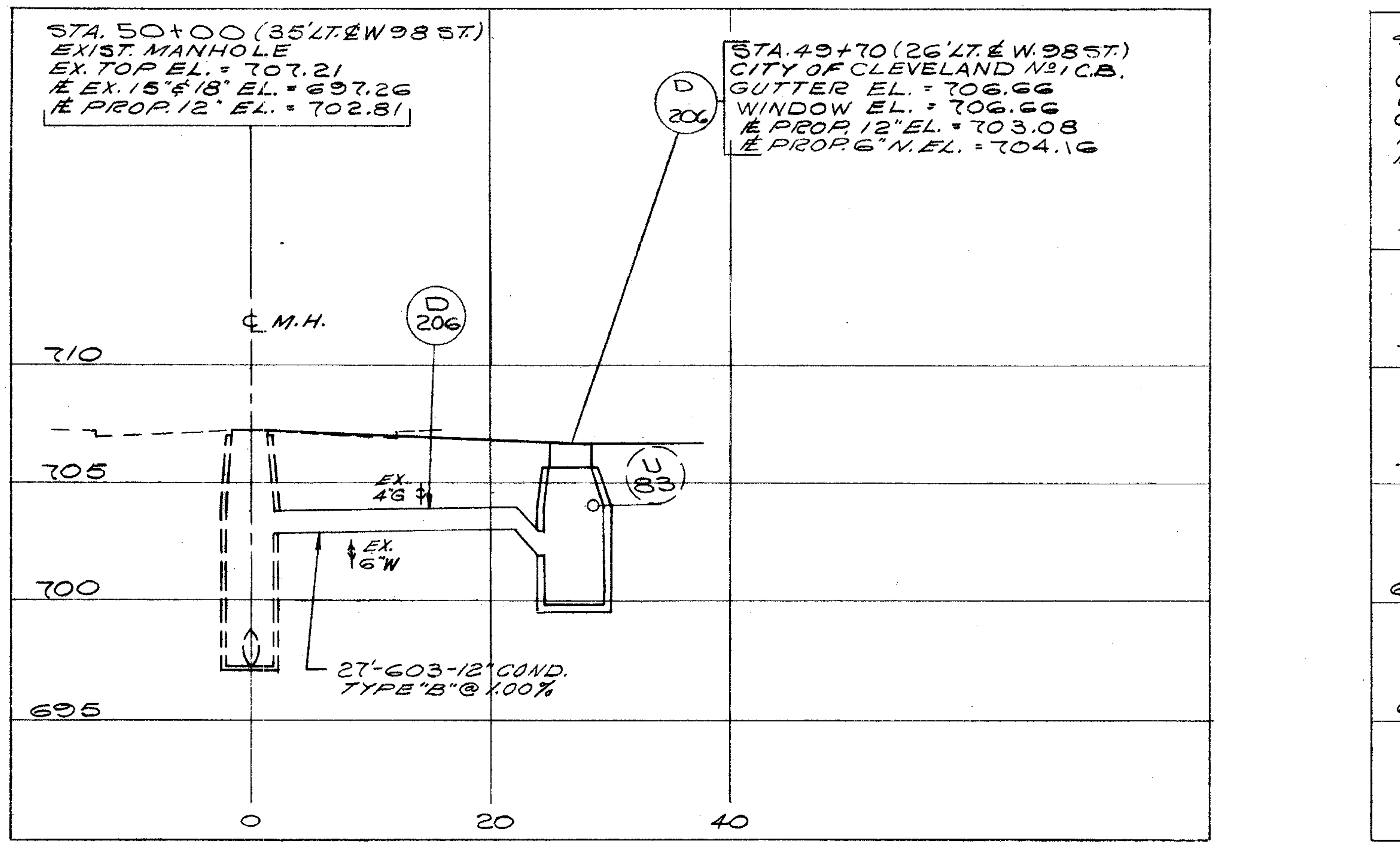
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

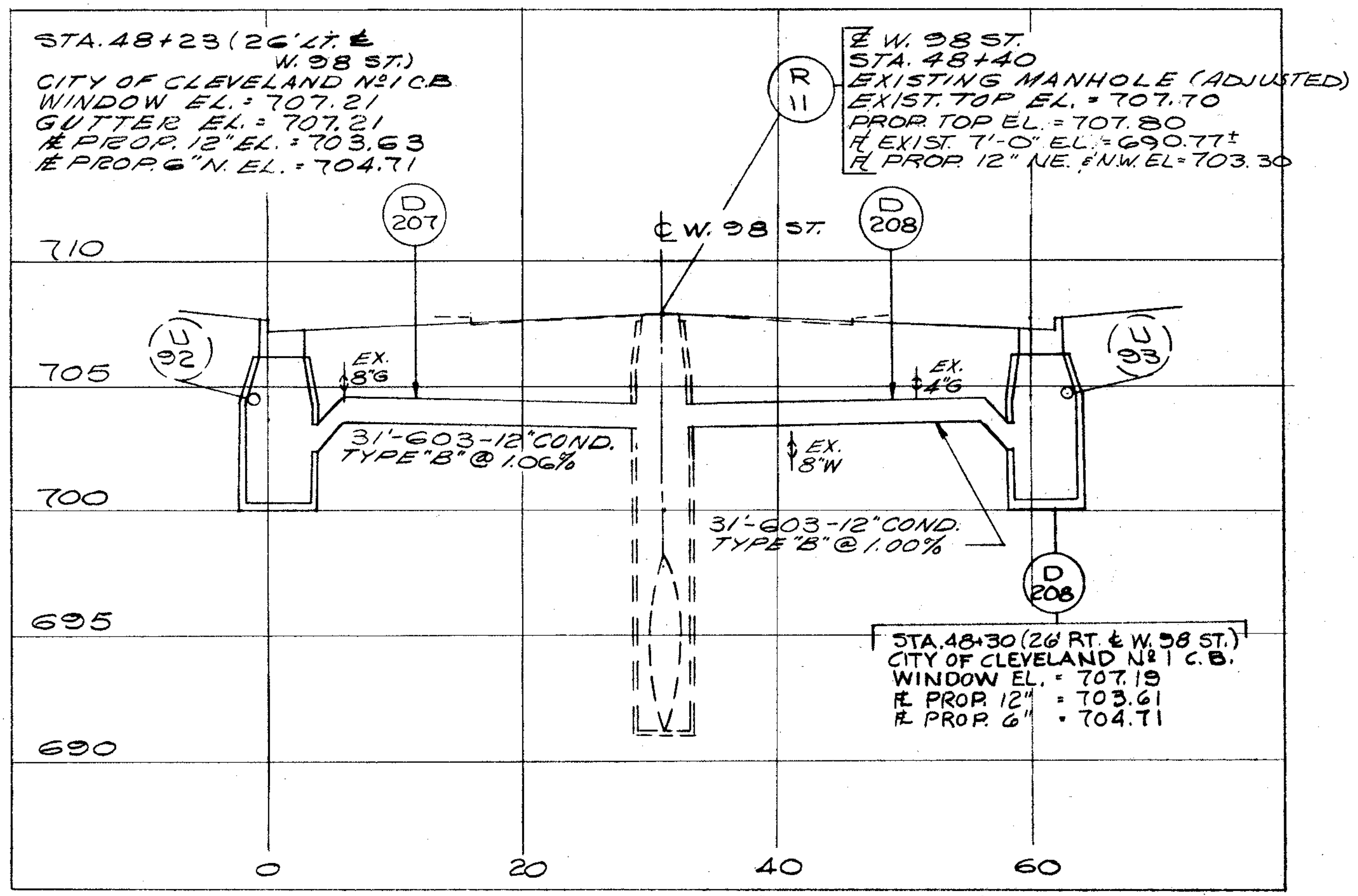
CUYAHOGA COUNTY
CUY - 90 - 10.40



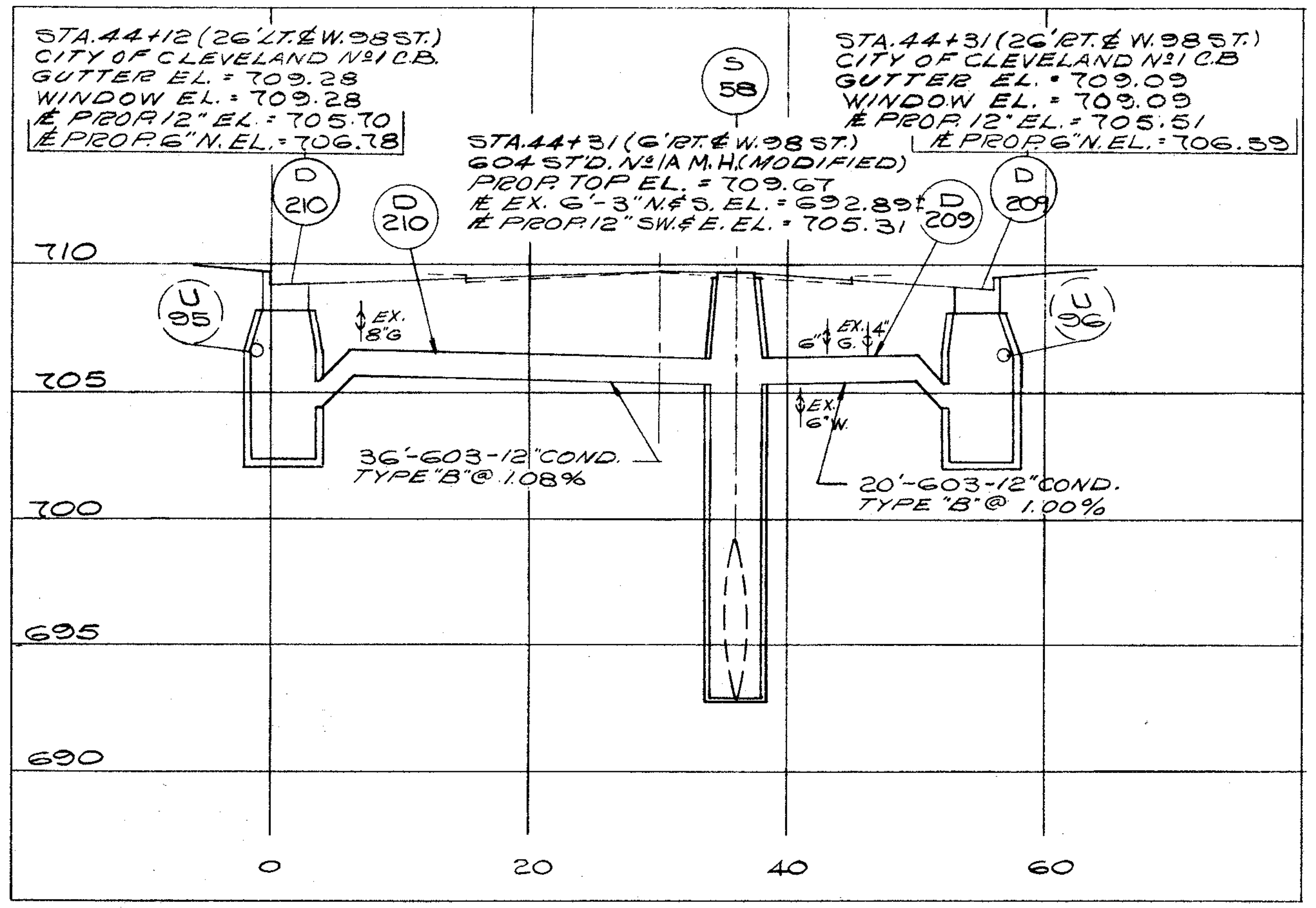
W. 100TH ST. – STA. 49+50



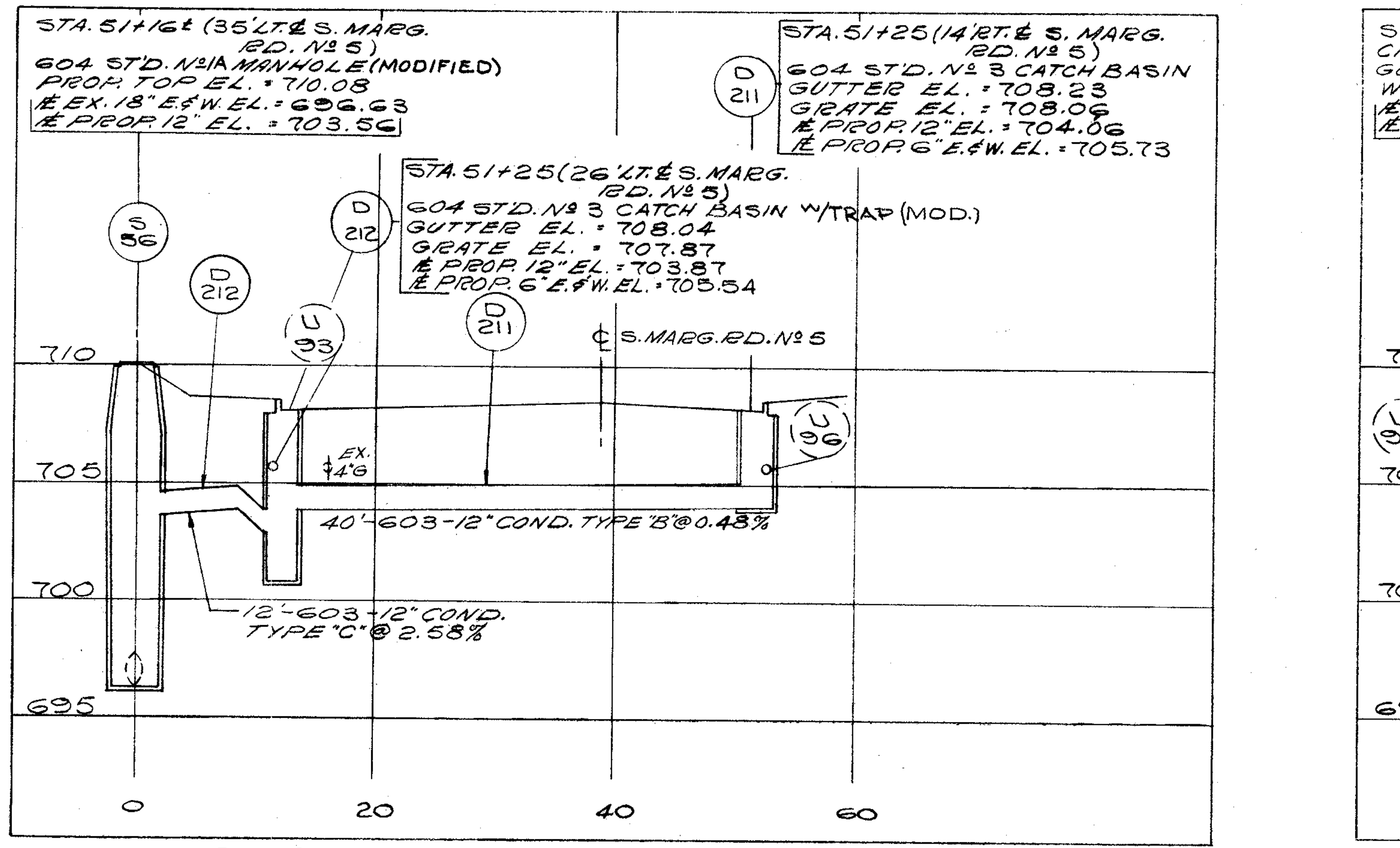
W. 98TH ST. – STA. 49+70



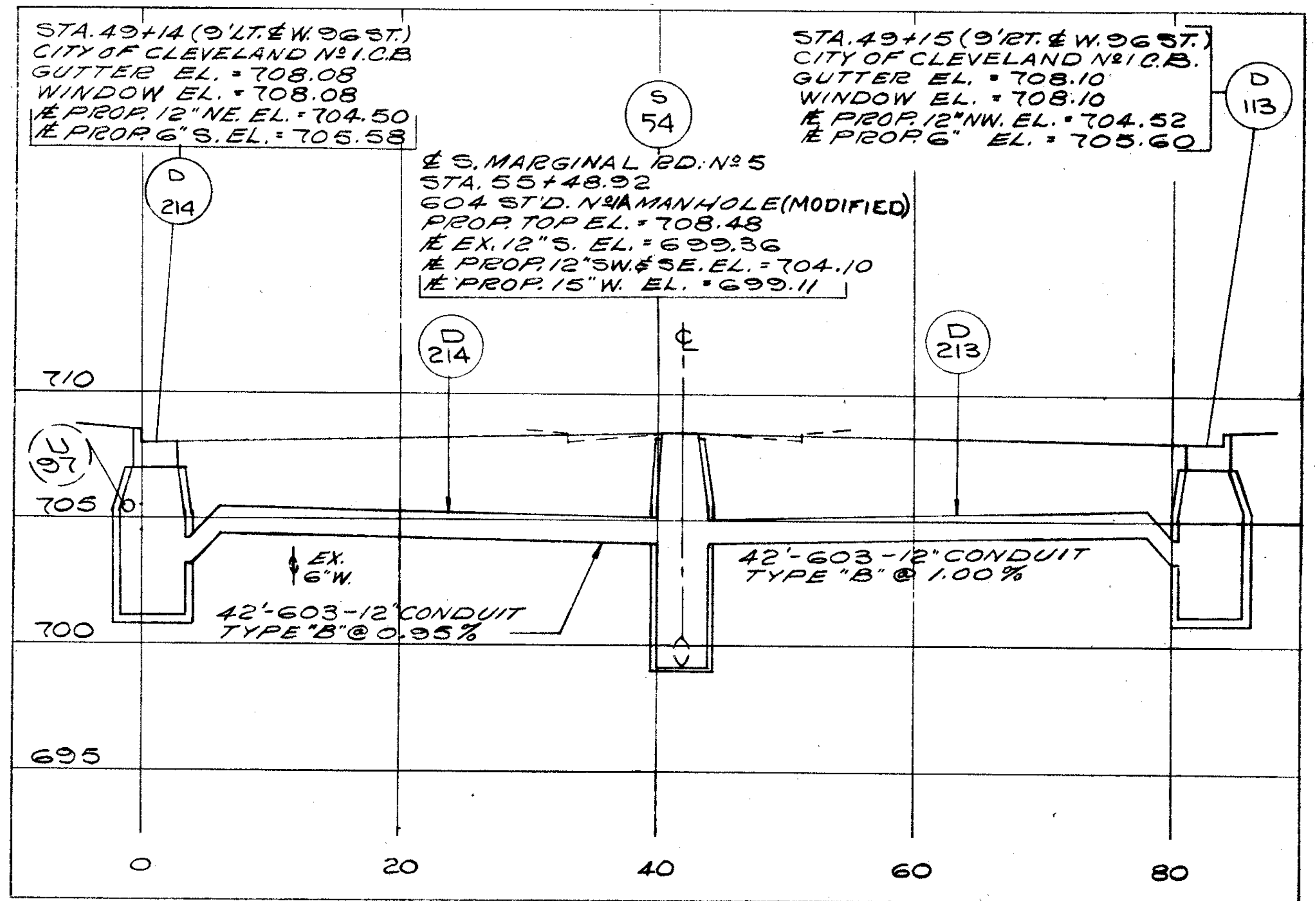
W. 98TH ST. – STA. 48+40



W. 98TH ST. – STA. 44+31



S. MARGINAL RD. Nº 5 – STA. 51+25

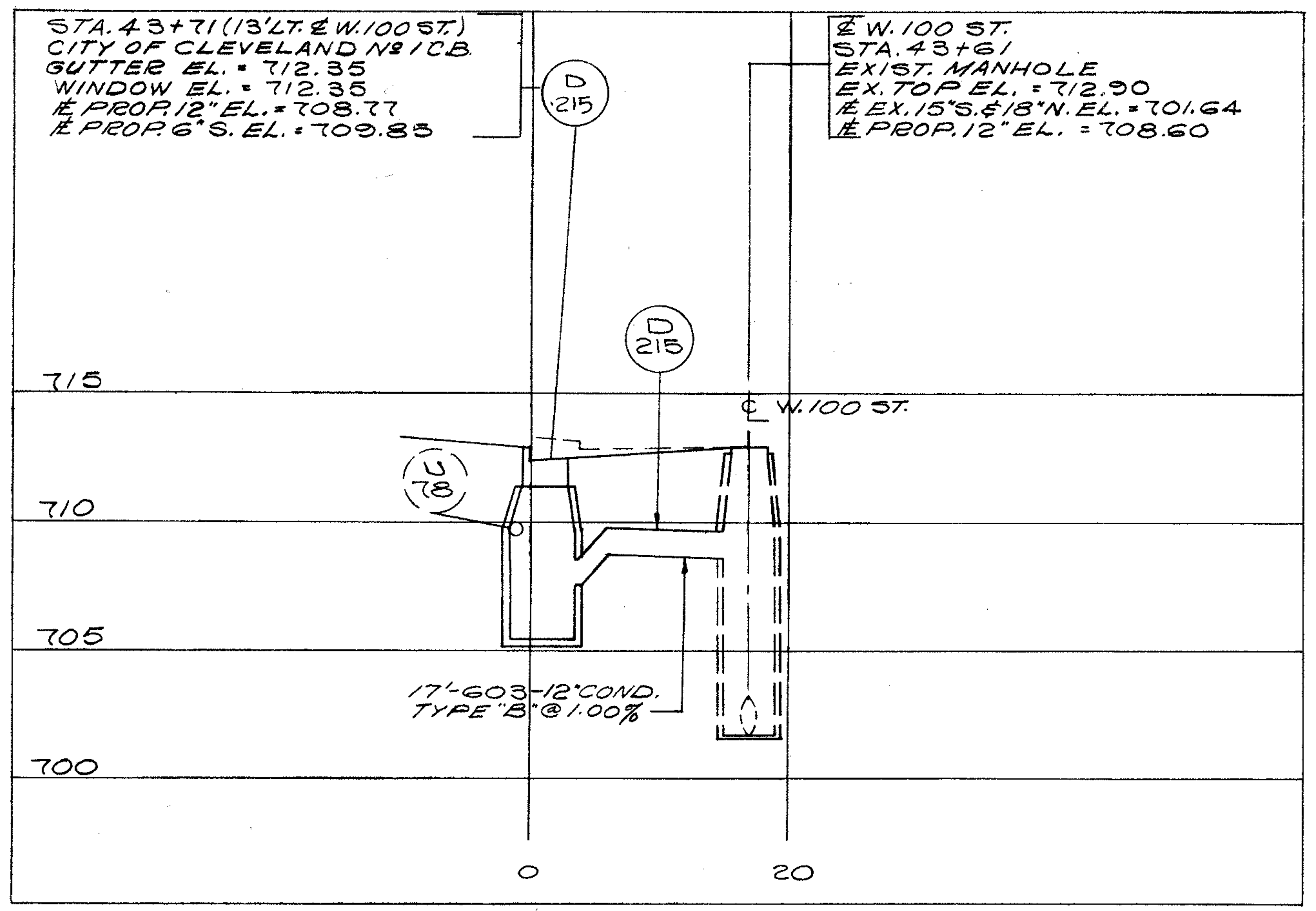


S. MARGINAL RD. Nº 5 – STA. 55+48.92

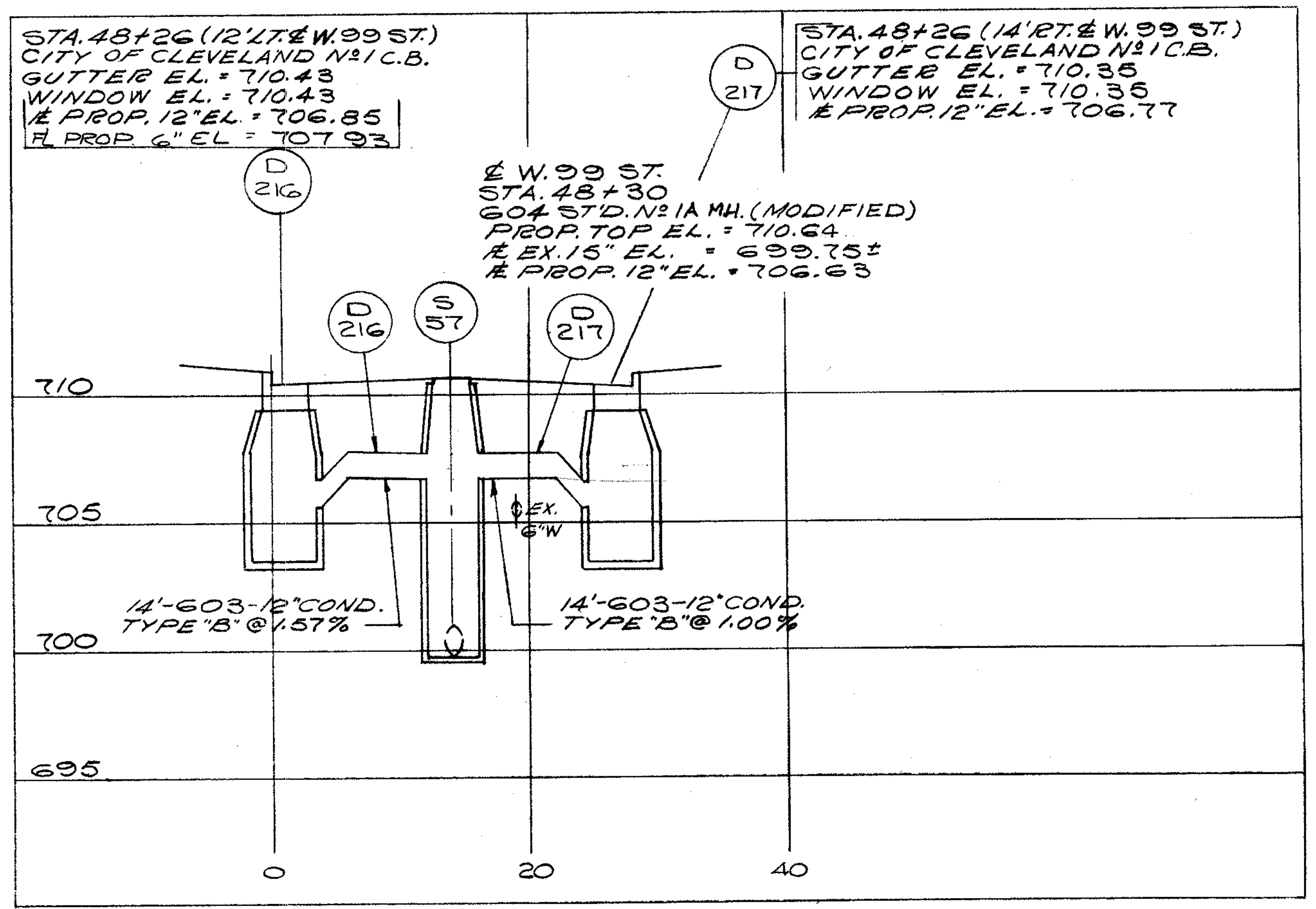
SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

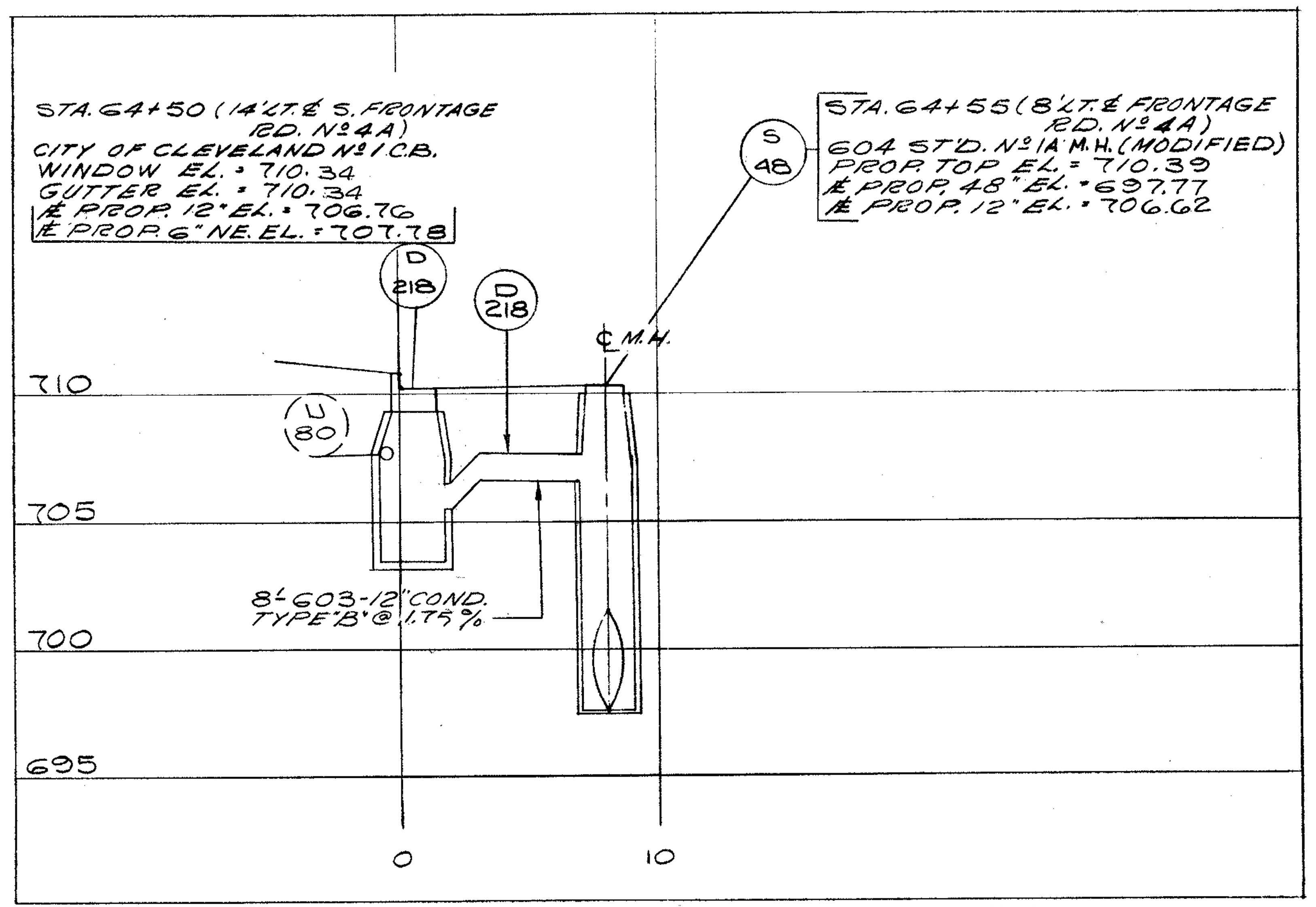
CUYAHOGA COUNTY
CUY - 90 - 10.40



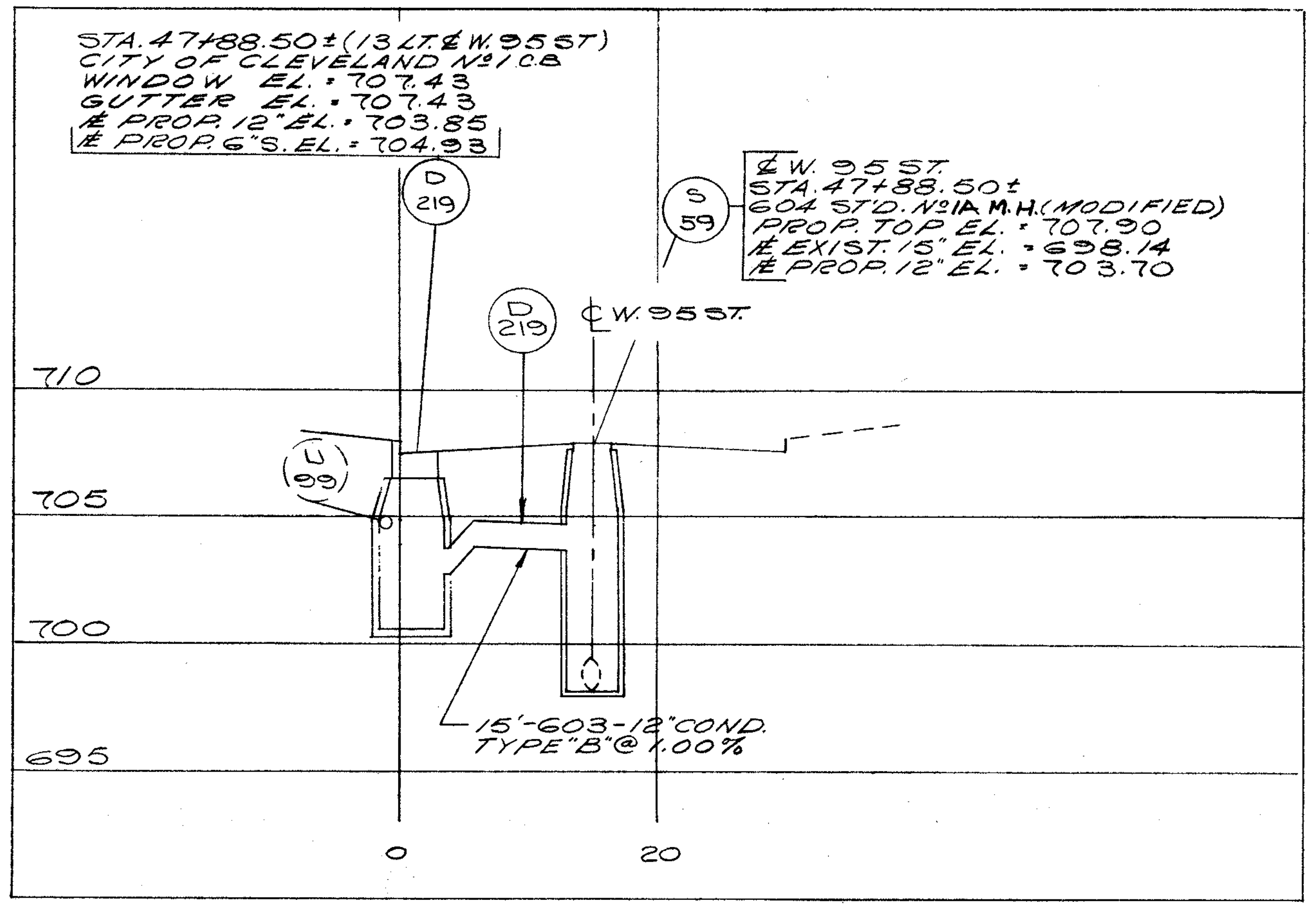
W. 100TH ST. — STA. 43+61



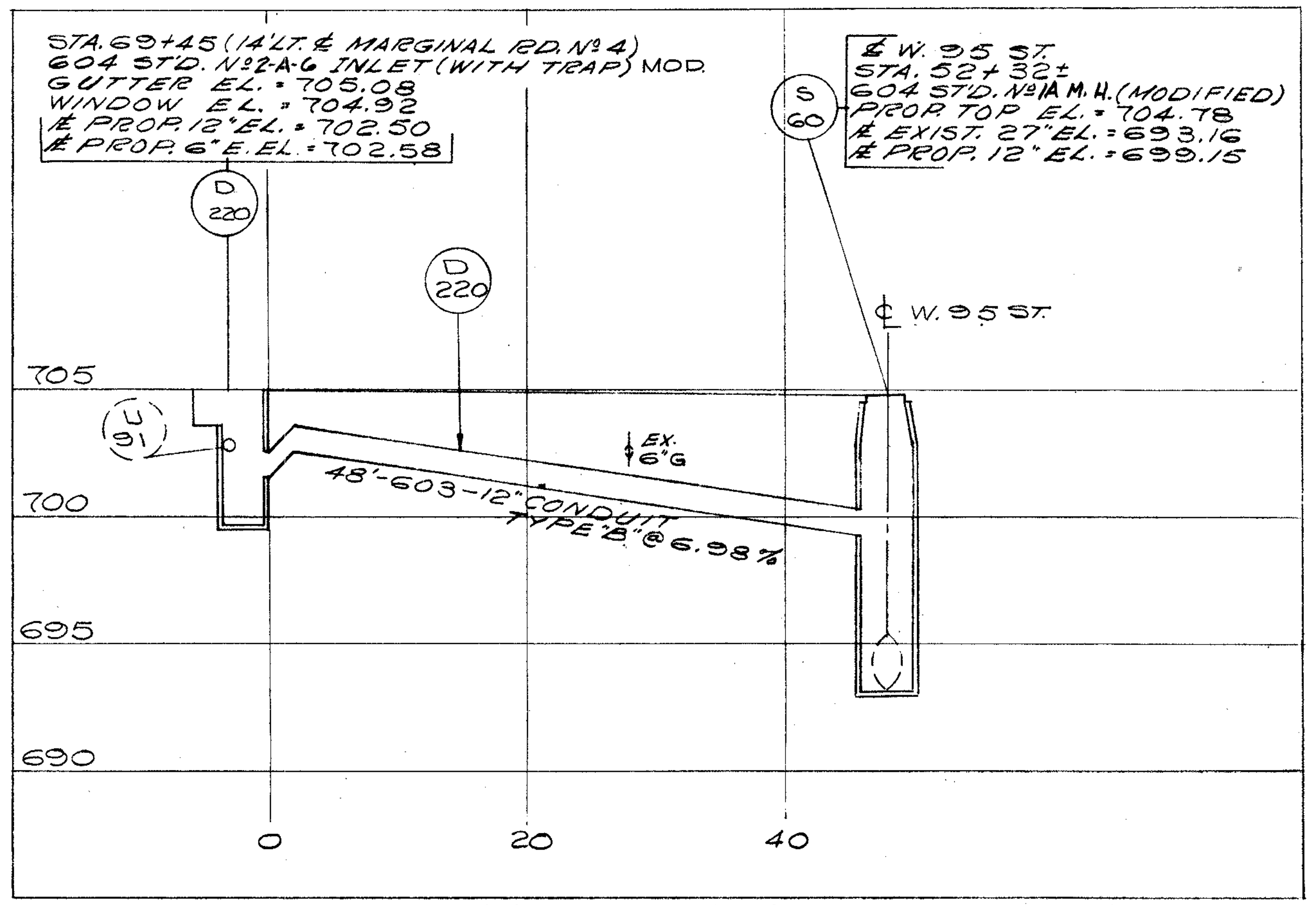
W. 99TH ST. — STA. 48+26



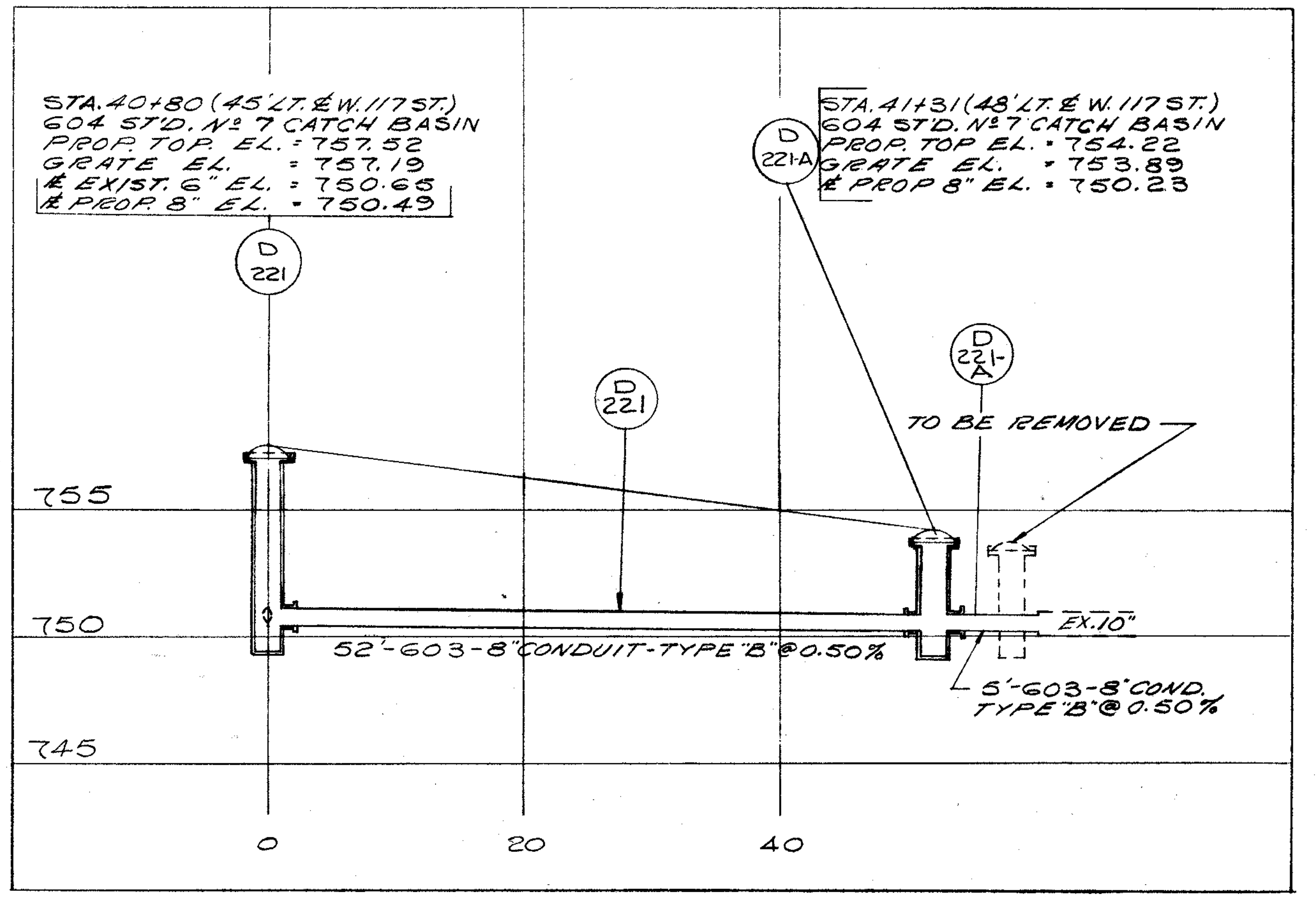
S. FRONTAGE RD. No 4A — STA. 64+50



W. 95TH ST. — STA. 47+88.50±



MARGINAL RD. No 4 — STA. 69+45 TO STA. 69+94.85



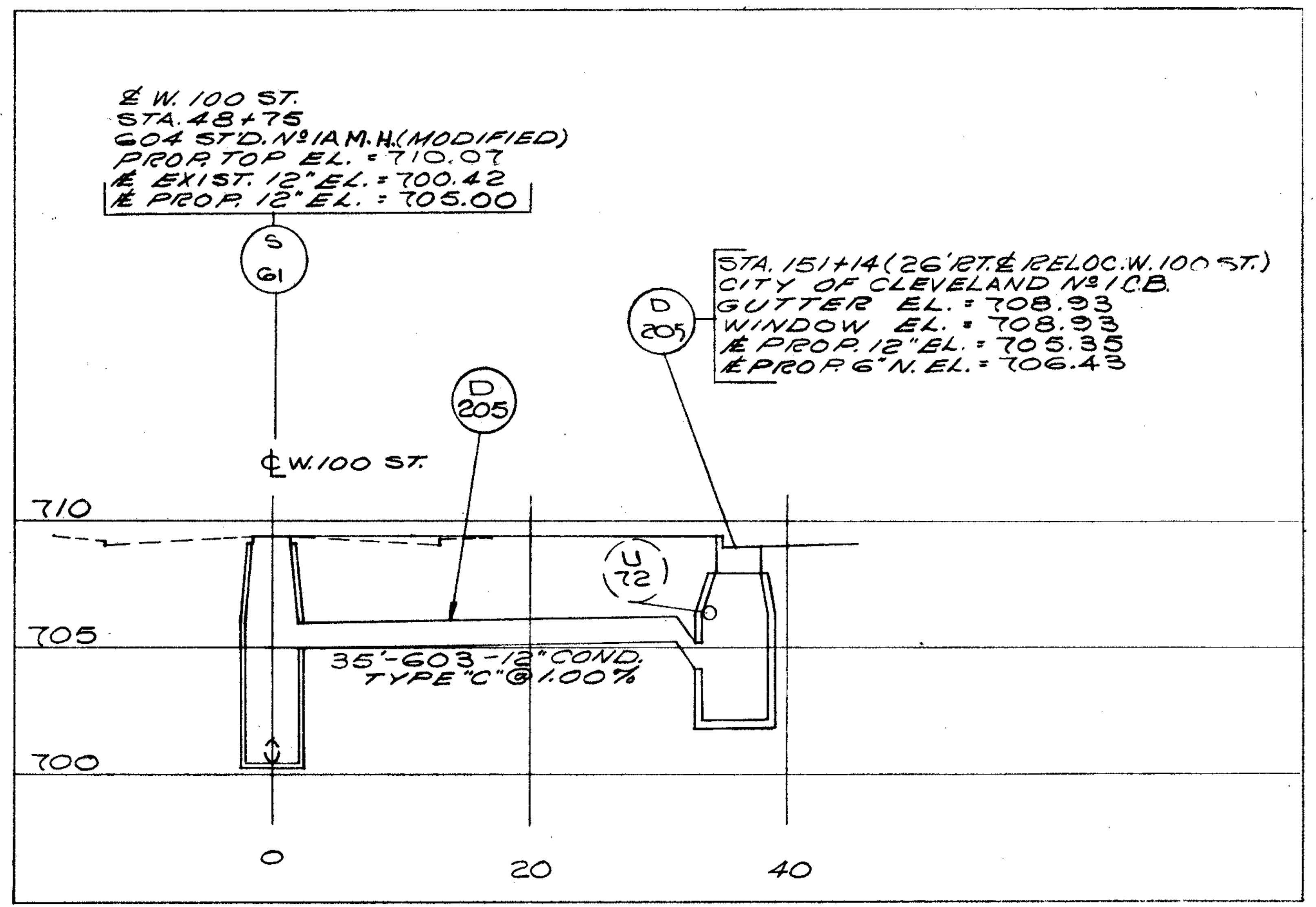
W. 117TH ST. — STA. 40+80 TO STA. 41+31

SEWER PROFILES

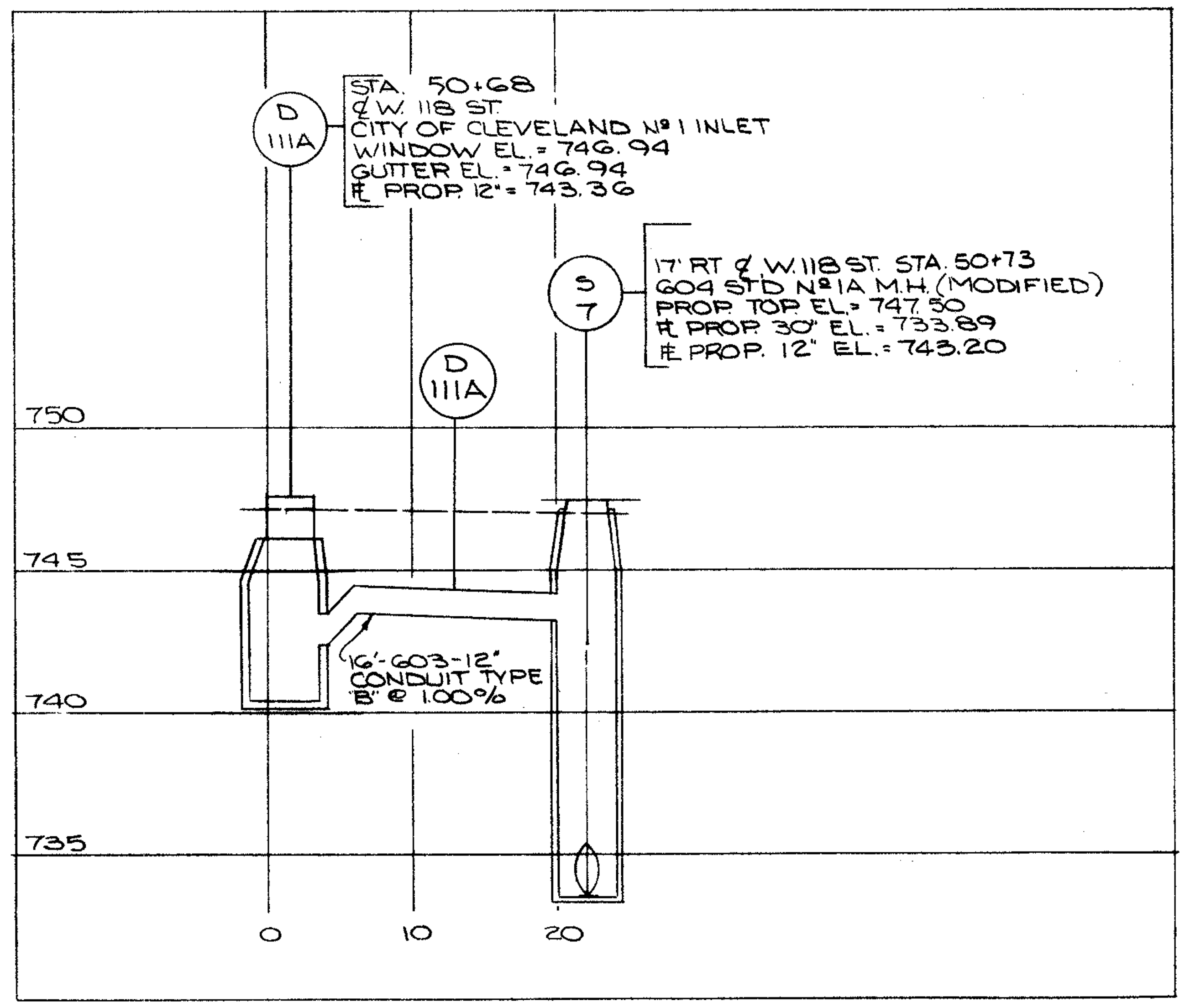
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

111
713

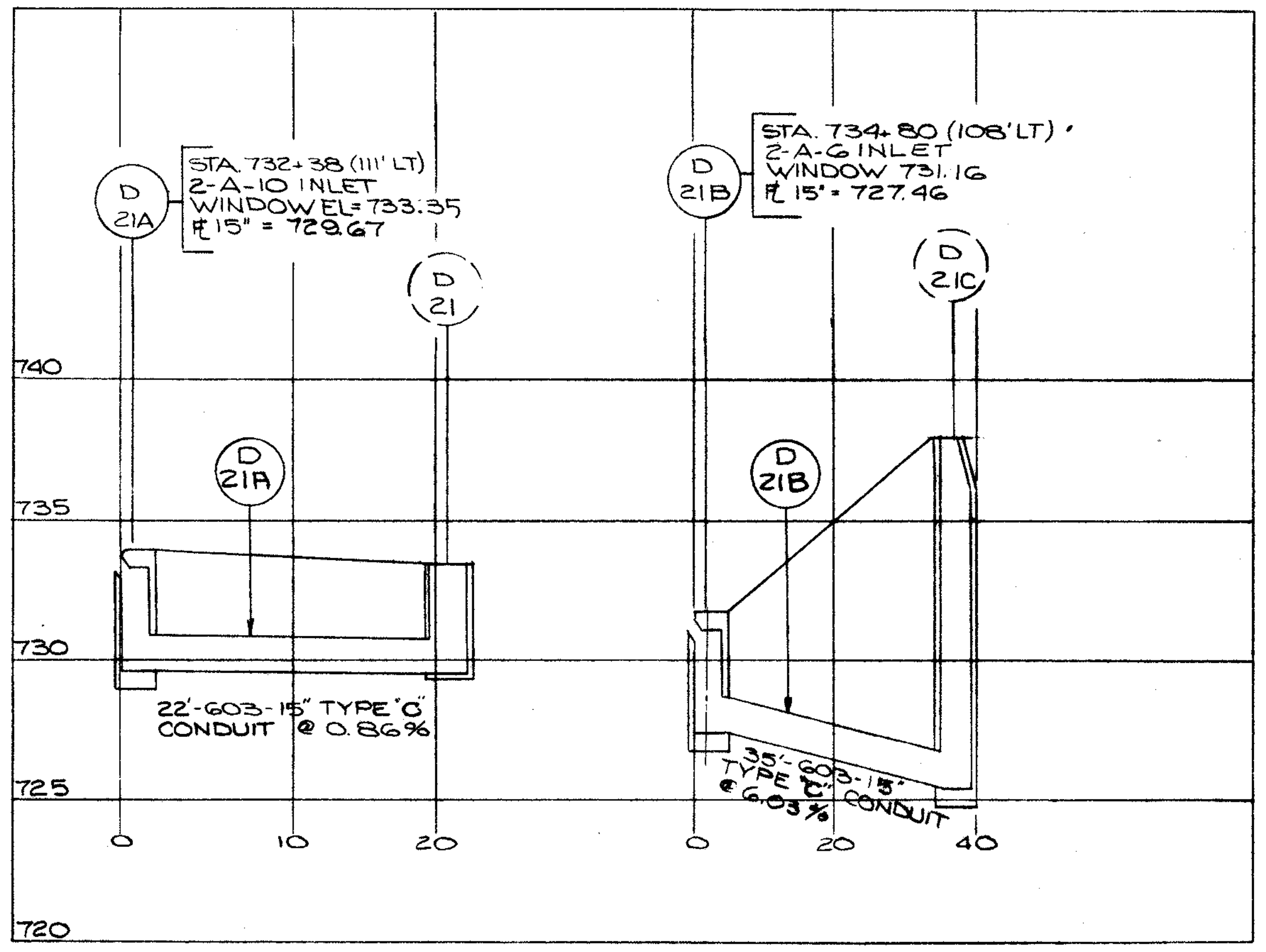
CUYAHOGA COUNTY
CUY - 90 - 10.40



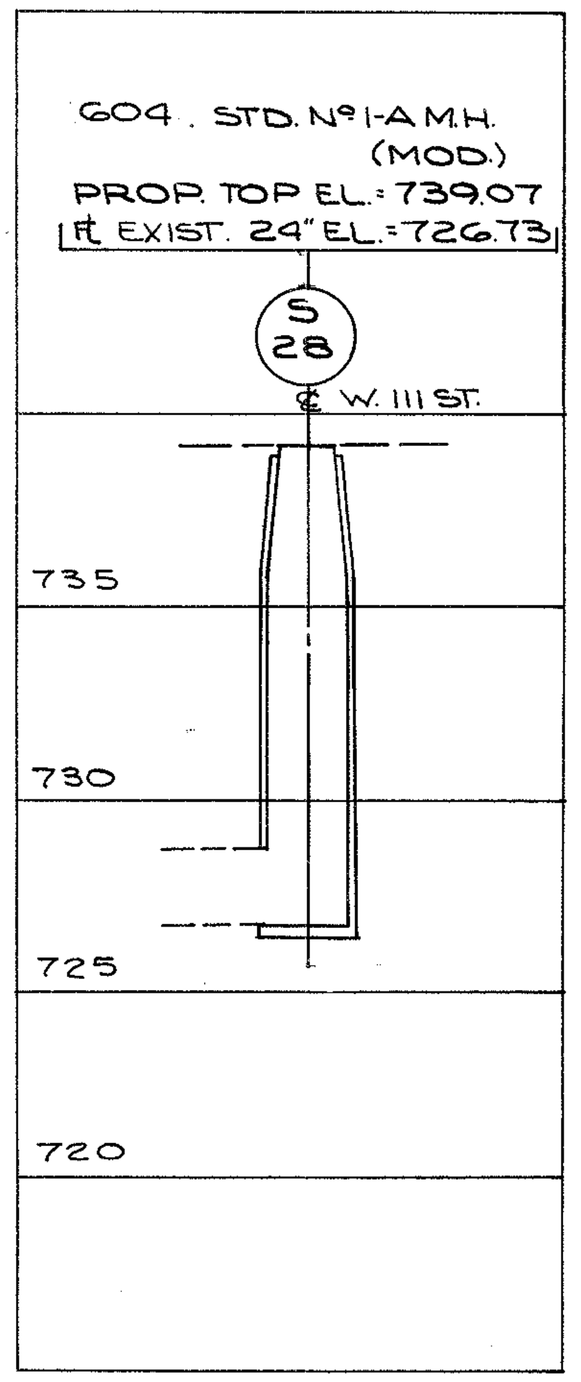
W. 100TH ST. – STA. 48+75



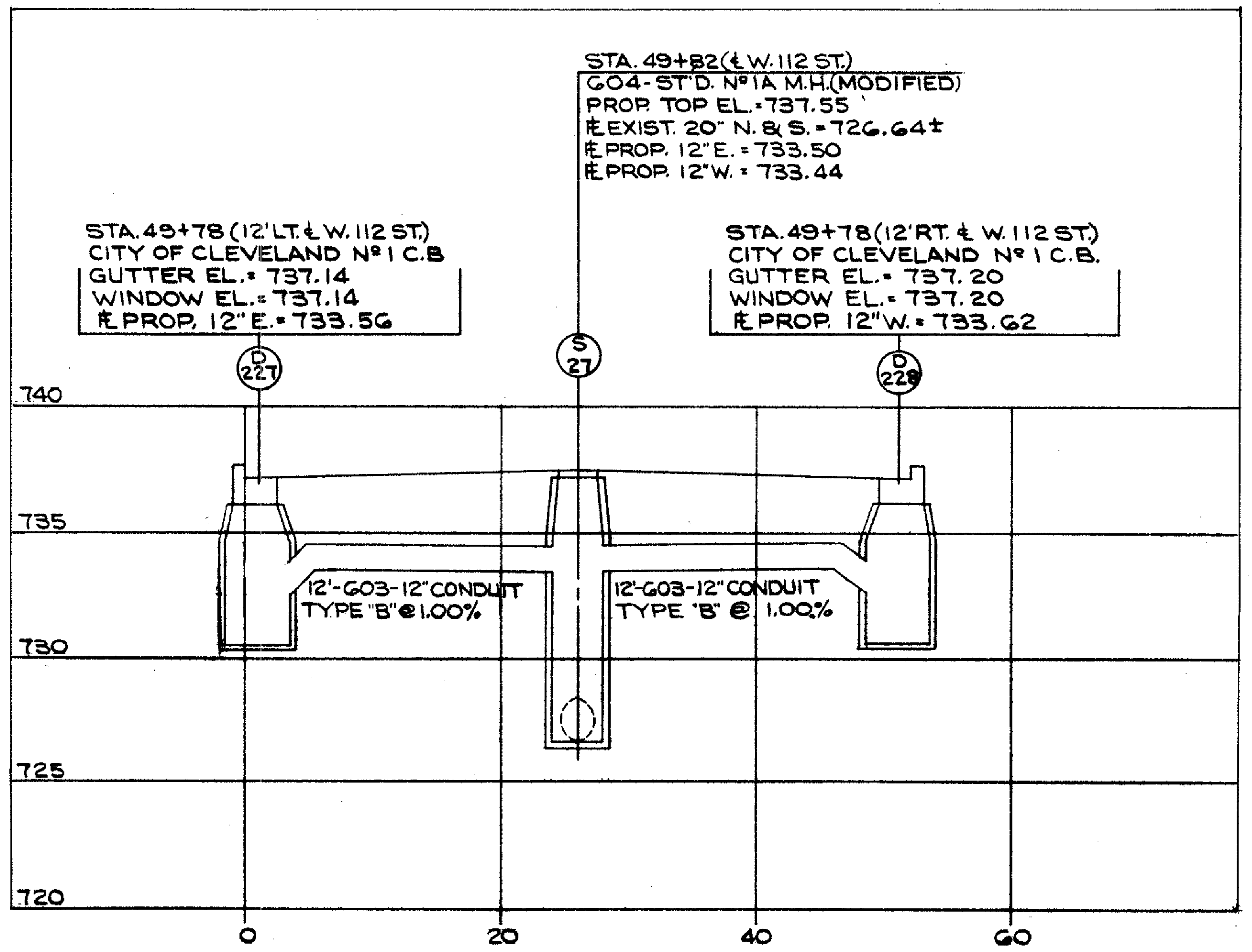
W 118 ST STA. 15+70



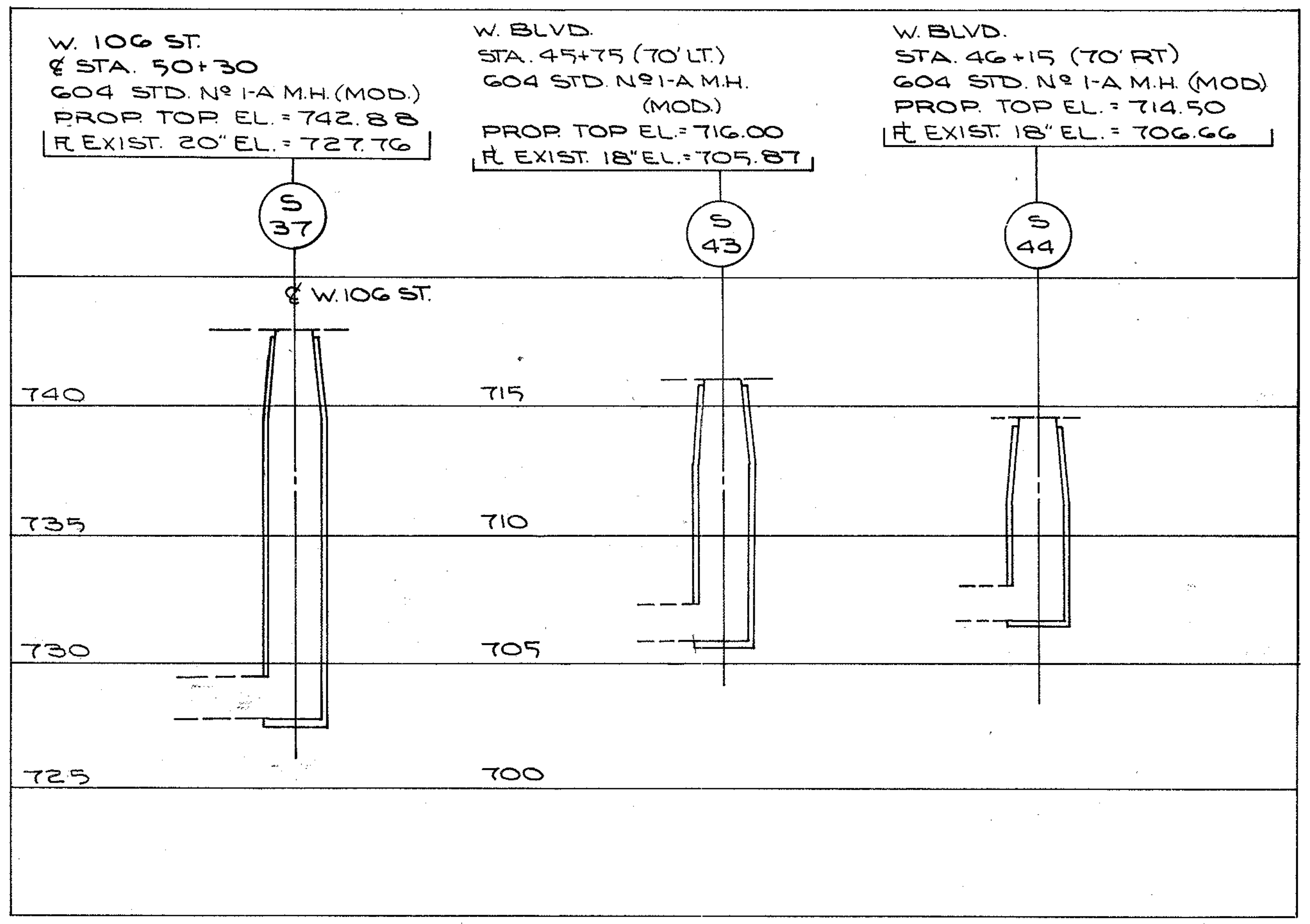
STA. 732+38 - 734+80



℄ W. 111 ST. STA. 50+06

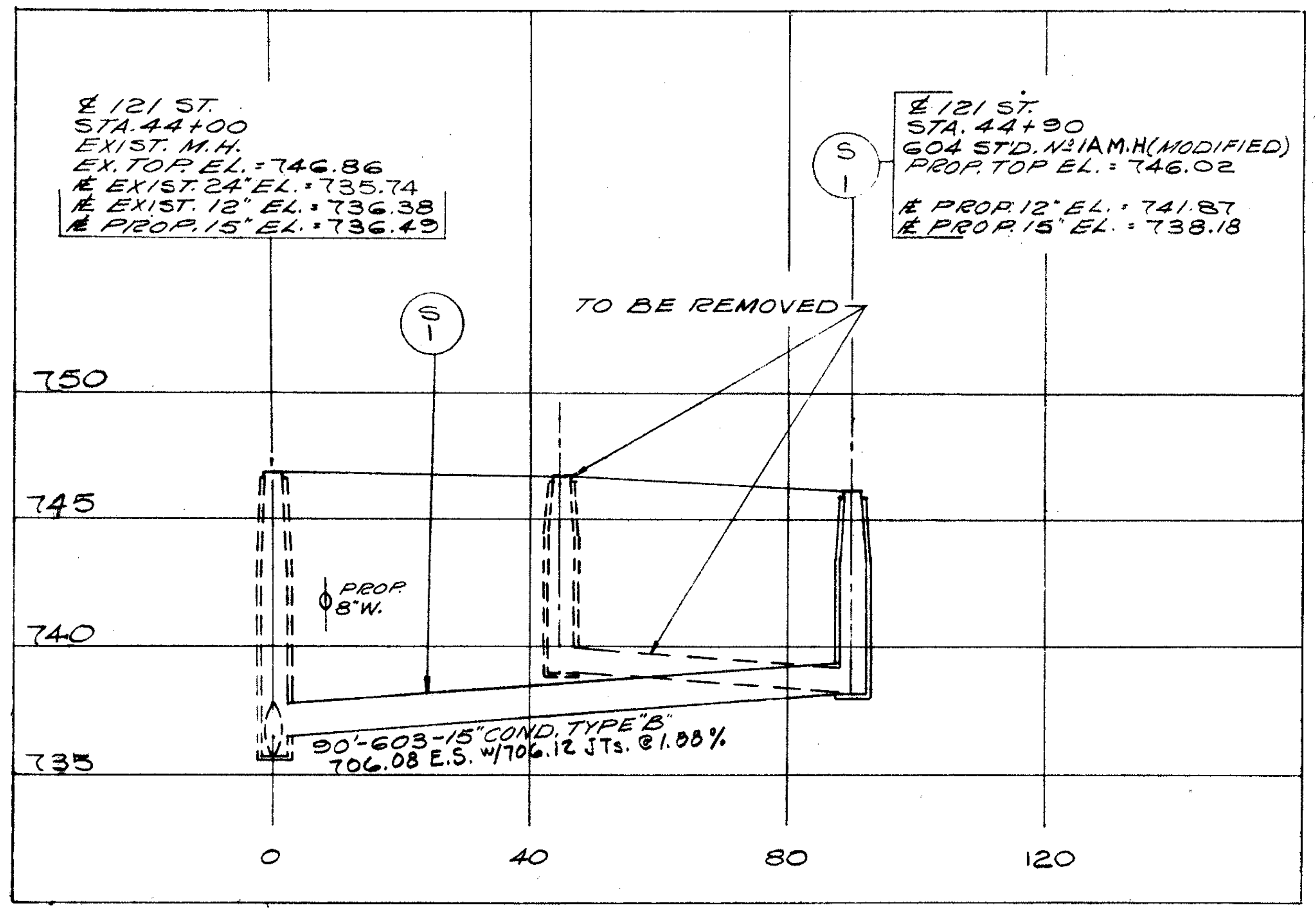


W. 112 ST. ~ STA. 49+82

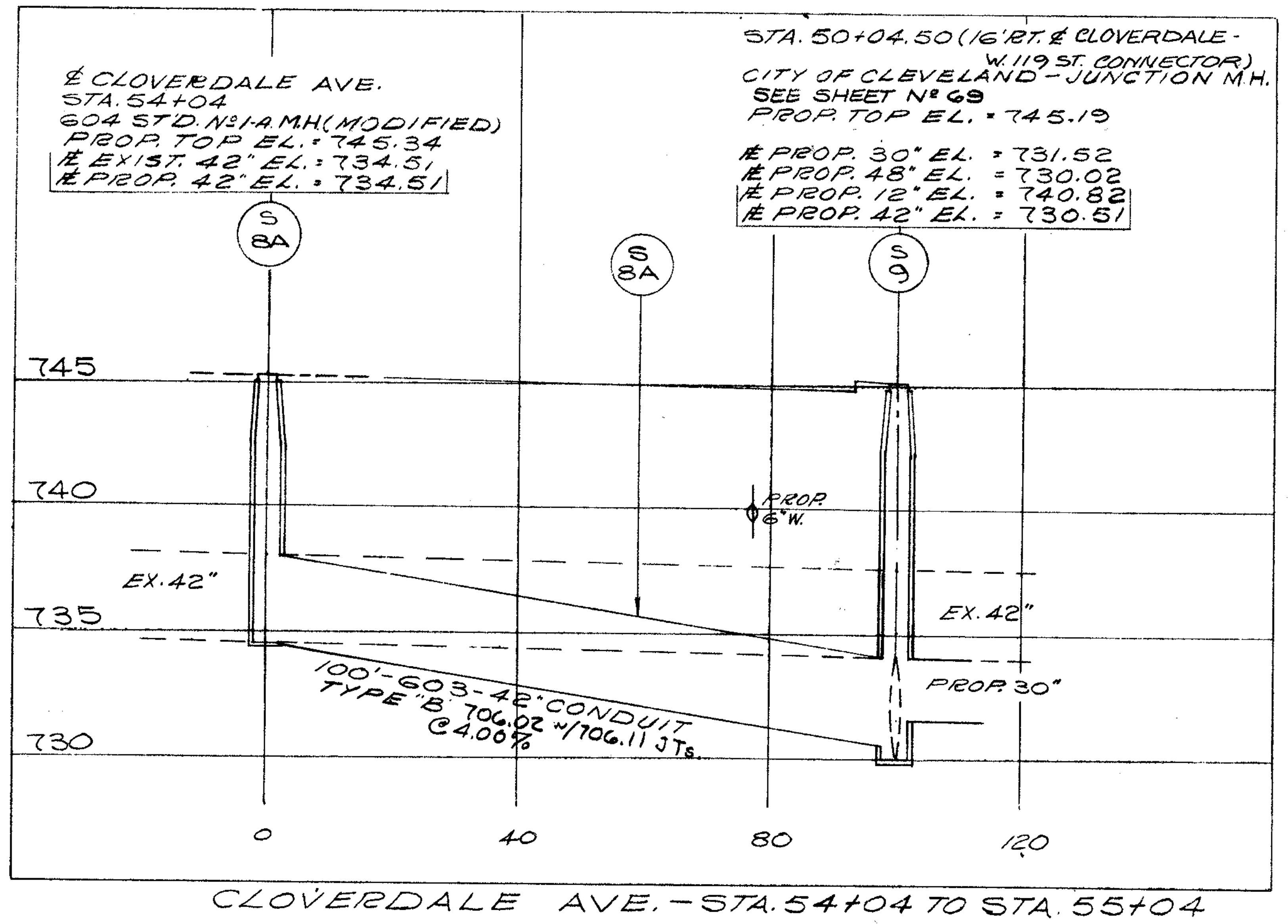


SEWER PROFILES

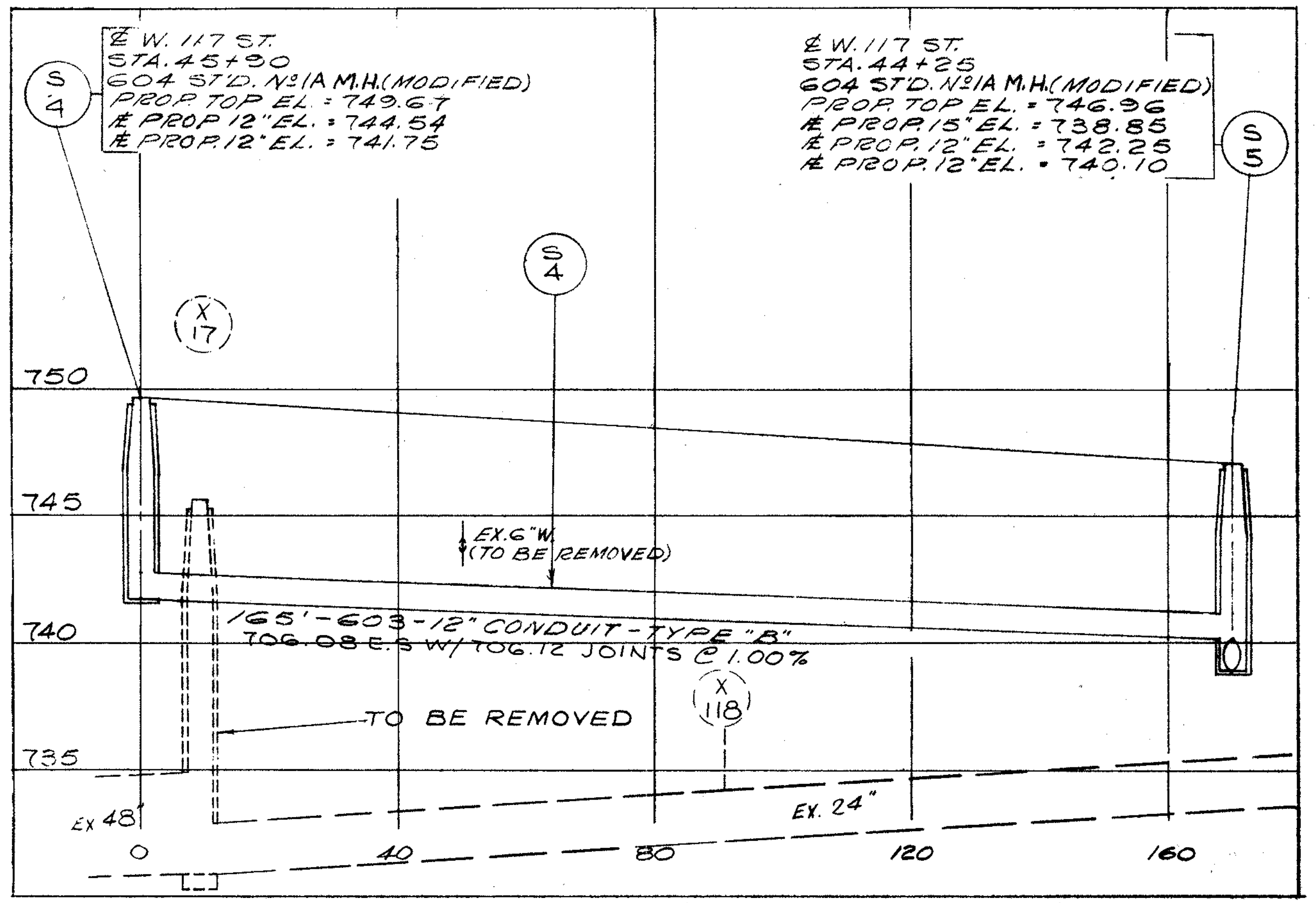
CUYAHOGA COUNTY
CUY - 90 - 10.40



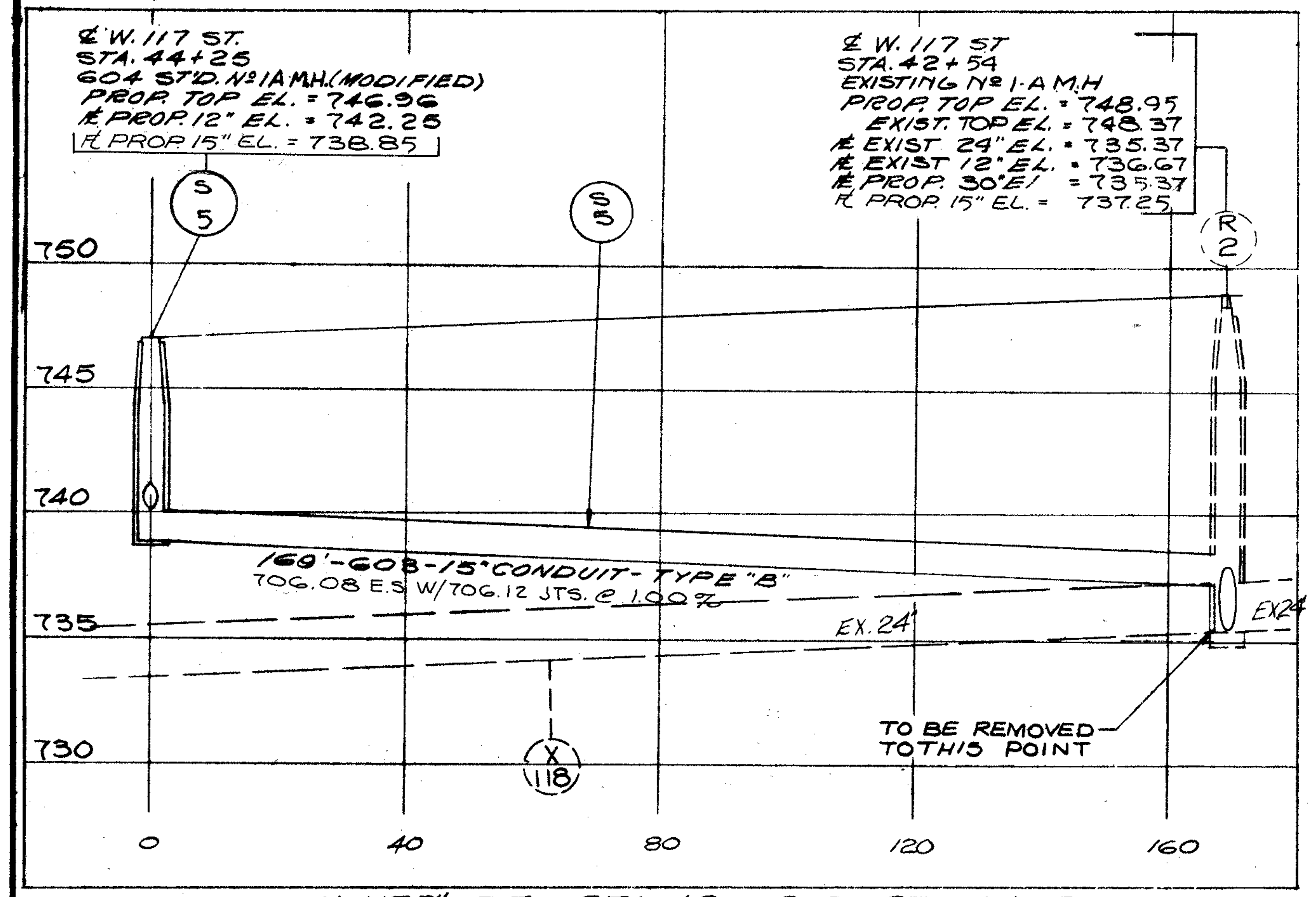
W. 121ST ST. – STA. 44+00 TO STA. 44+90



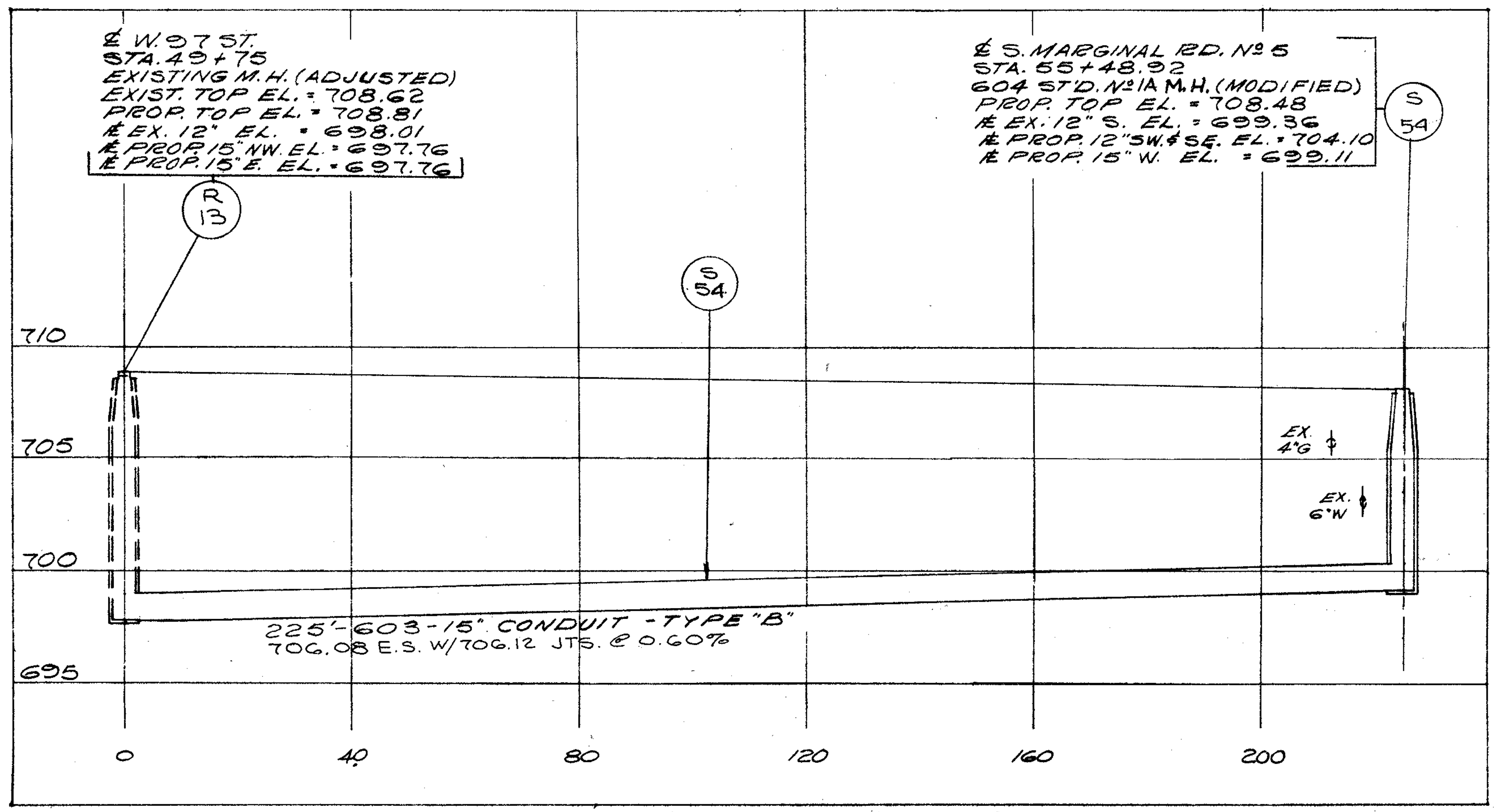
CLOVERDALE AVE. – STA. 54+04 TO STA. 55+04



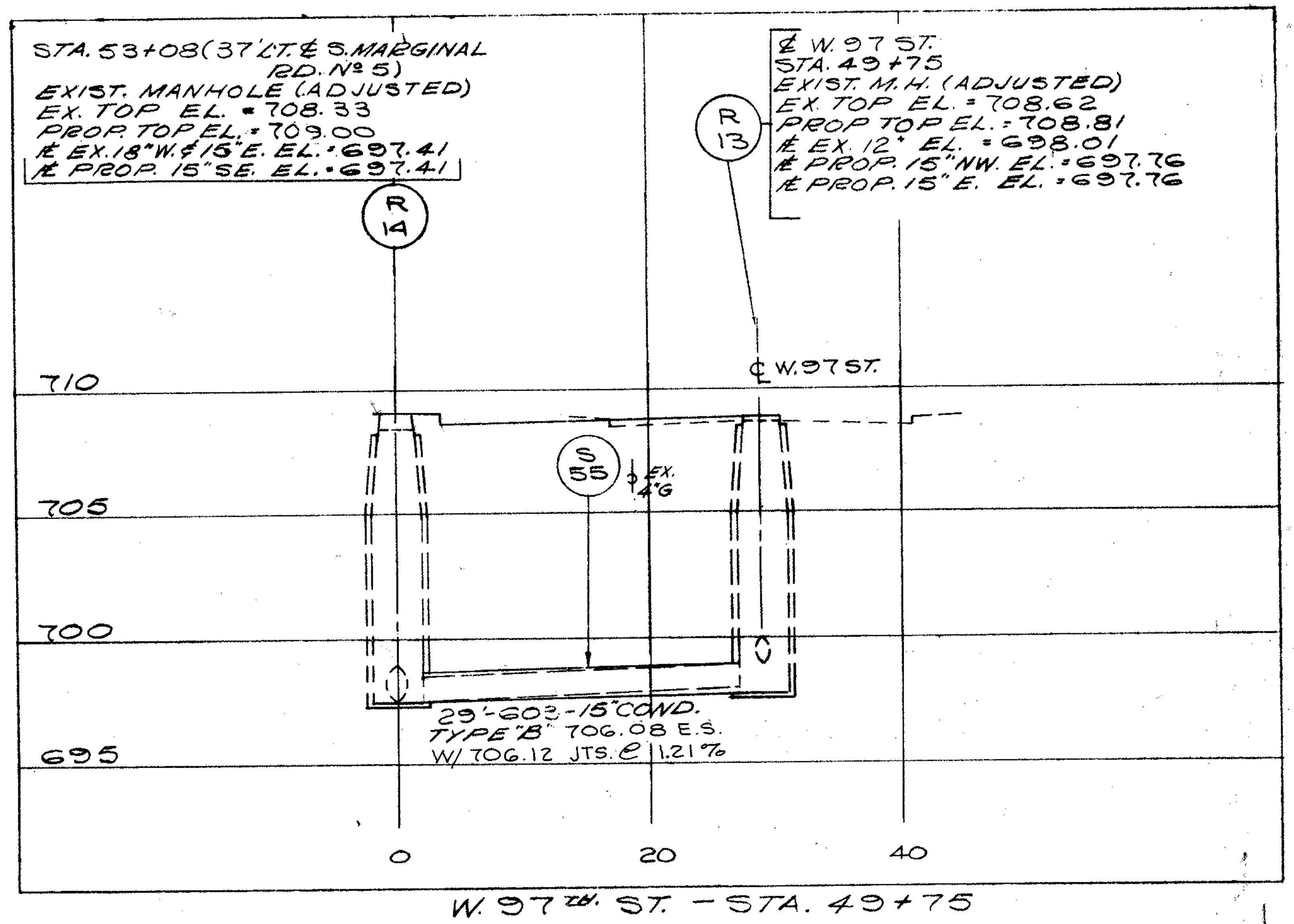
W. 117TH. ST. – STA. 44+25 TO STA. 45+90



W. 117TH. ST. – STA. 42+63 TO STA. 44+25



S. MARGINAL RD. Nº 5 – STA 55+48.92



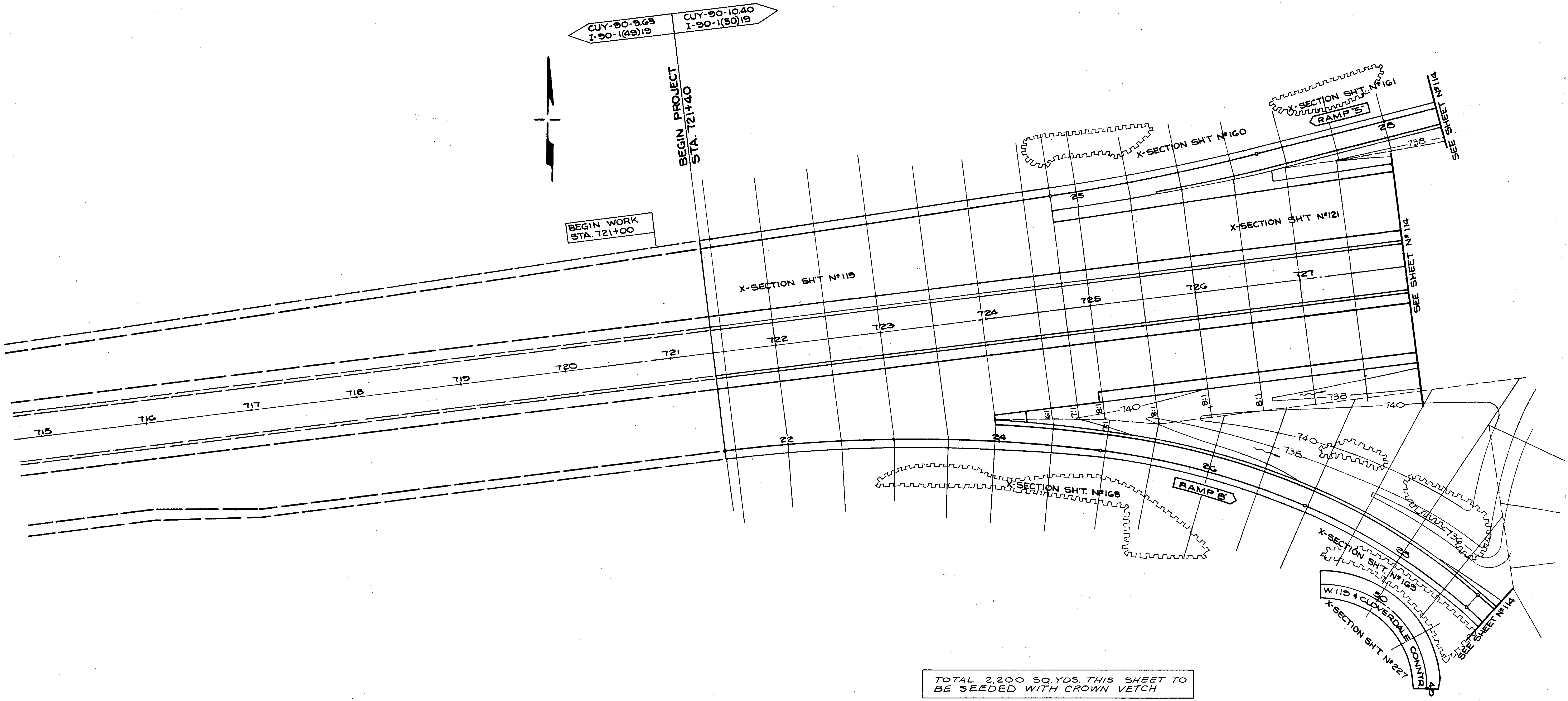
W. 97TH. ST. – STA. 49+75

SEWER PROFILES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

113
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



TOTAL 2,200 SQ. YDS. THIS SHEET TO BE SEEDED WITH CROWN VETCH

INDICATES AREA TO BE SEEDED WITH CROWN VETCH

CROSS SECTION LAYOUT

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

114
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

TOTAL 9,690 SQ. YDS. THIS SHEET TO BE SEEDED WITH CROWN VETCH.

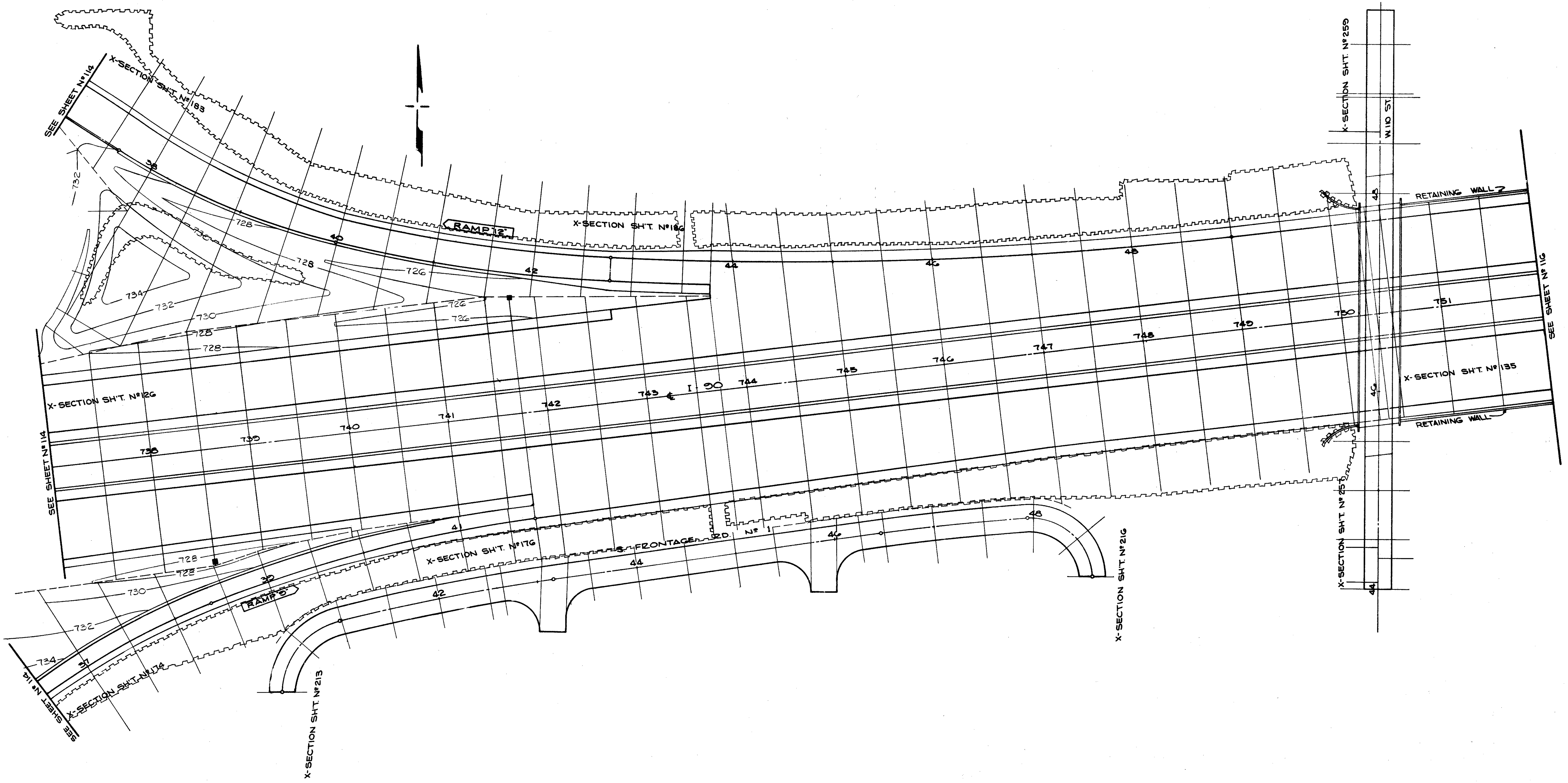
INDICATES AREA TO BE SEEDED WITH CROWN VETCH

CROSS SECTION LAYOUT

FED. RD.	STATE	PROJECT		
2	OHIO	I-90-I(50) 19		

115
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



TOTAL 11,090 SQ. YDS. THIS SHEET TO BE SEEDED WITH CROWN VETCH

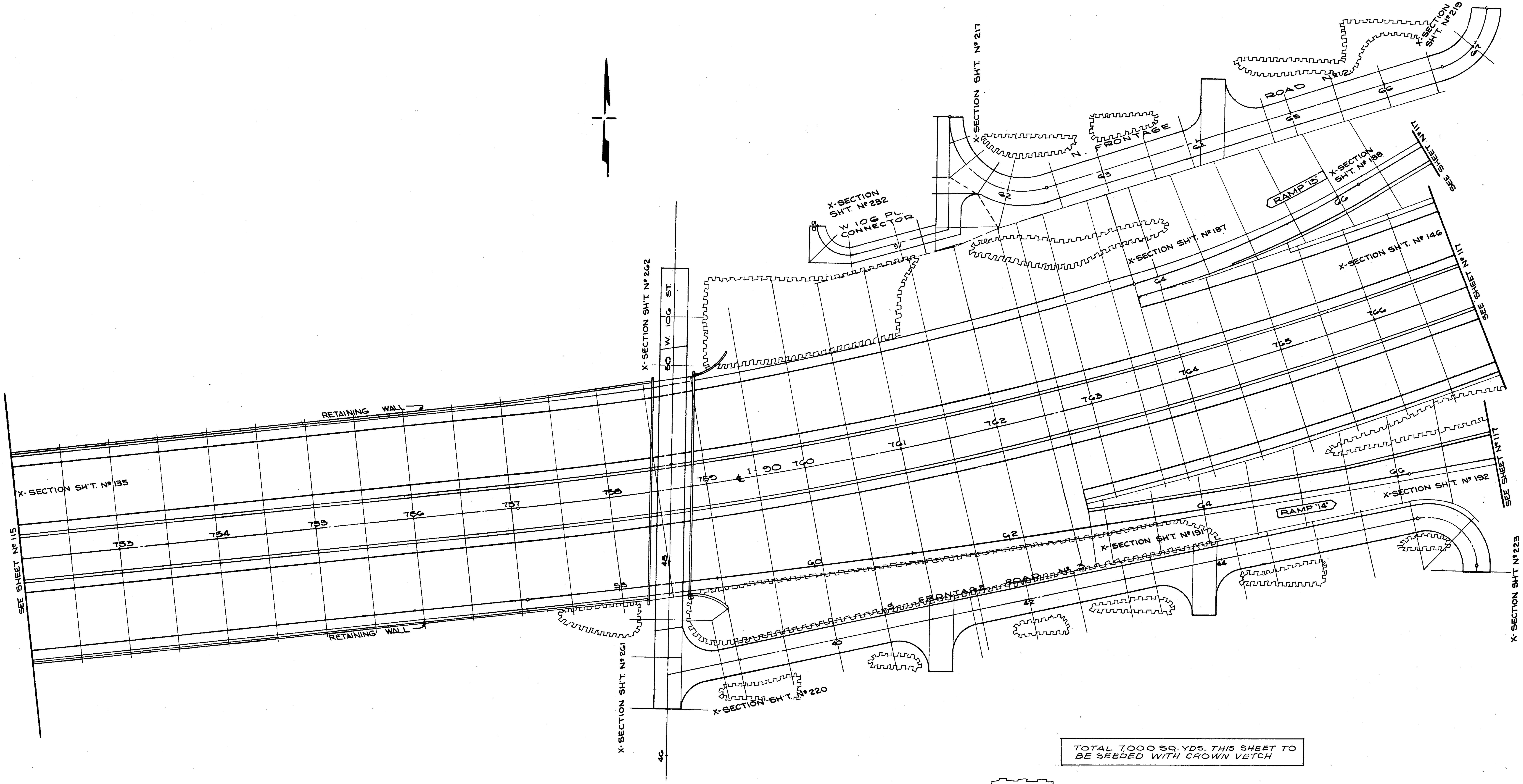
▭ INDICATES AREA TO BE SEEDED WITH CROWN VETCH

CROSS SECTION LAYOUT

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

116
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



TOTAL 7,000 SQ. YDS. THIS SHEET TO BE SEEDED WITH CROWN VETCH

INDICATES AREA TO BE SEEDED WITH CROWN VETCH

CROSS SECTION LAYOUT

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I (50) 19	

117
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

TOTAL 12,320 SQ. YDS. THIS SHEET TO BE SEEDED WITH CROWN VETCH

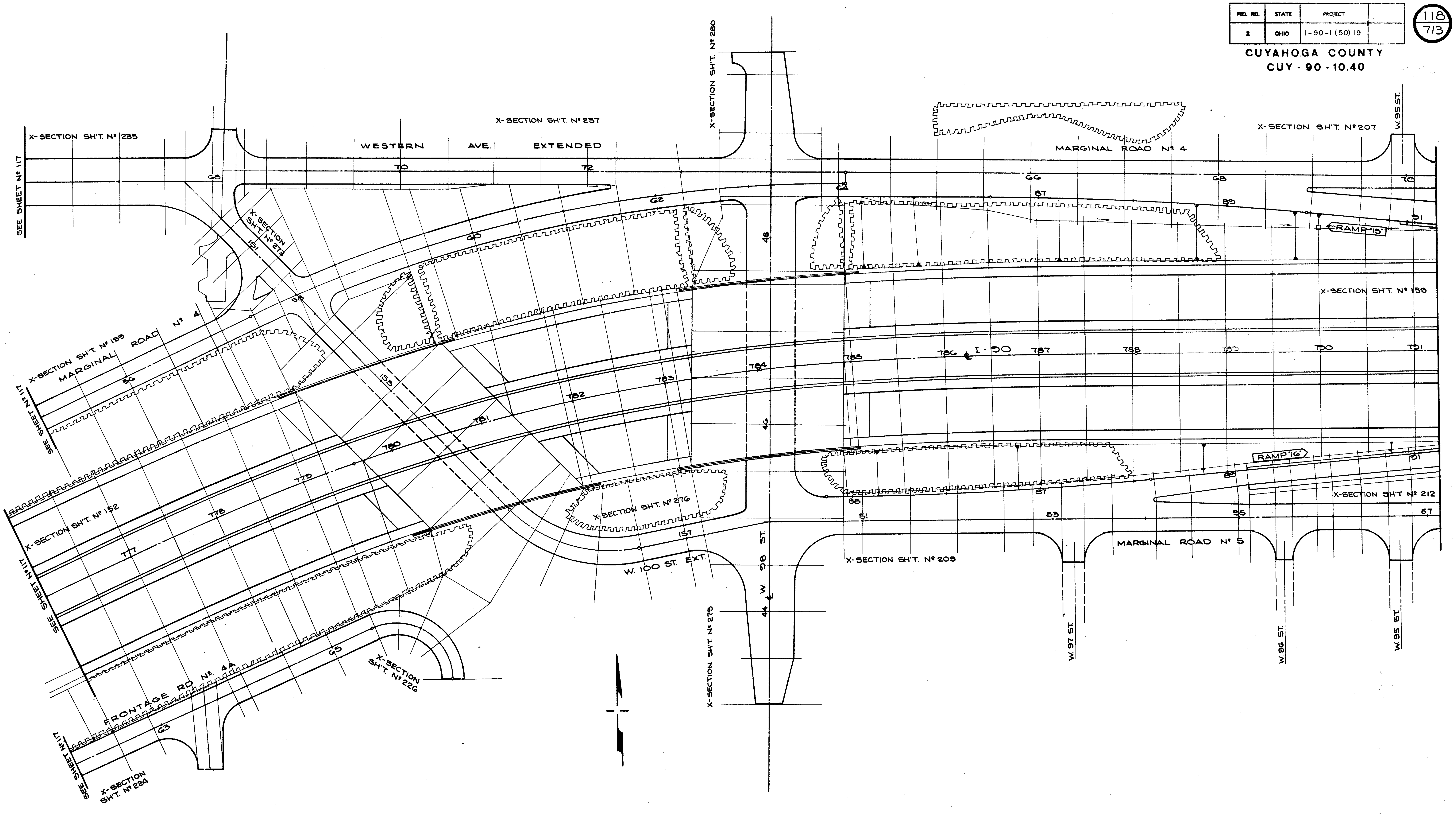
INDICATES AREA TO BE SEEDED WITH CROWN VETCH

CROSS SECTION LAYOUT

FED. RD.	STATE	PROJECT
2	OHIO	I-90-I (50) 19

118
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



TOTAL 14,220 SQ. YDS. THIS SHEET TO BE SEEDED WITH CROWN VETCH

▭ *INDICATES AREA TO BE SEEDED WITH CROWN VETCH*

CROSS SECTION LAYOUT

P-16

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	1-90-1(50)19	119/713

CUY- 90- 10.40

END AREA CUT FILL   CU. YDS CUT FILL

720+00.00 TO 721+00.00

CALCULATED BY C.C.W
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	120 713

CUY-90-10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

721+40.00 TO 723+97.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	121 713

CUY-90-10.40

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
1327	0.		
		2233	0.
1084	0.		
		2094	0.
1177	0.		
		1051	0.
1092	0.		
		0.	0.
1301	0.		
		1182	0.
1251	0.		
		2316	0.

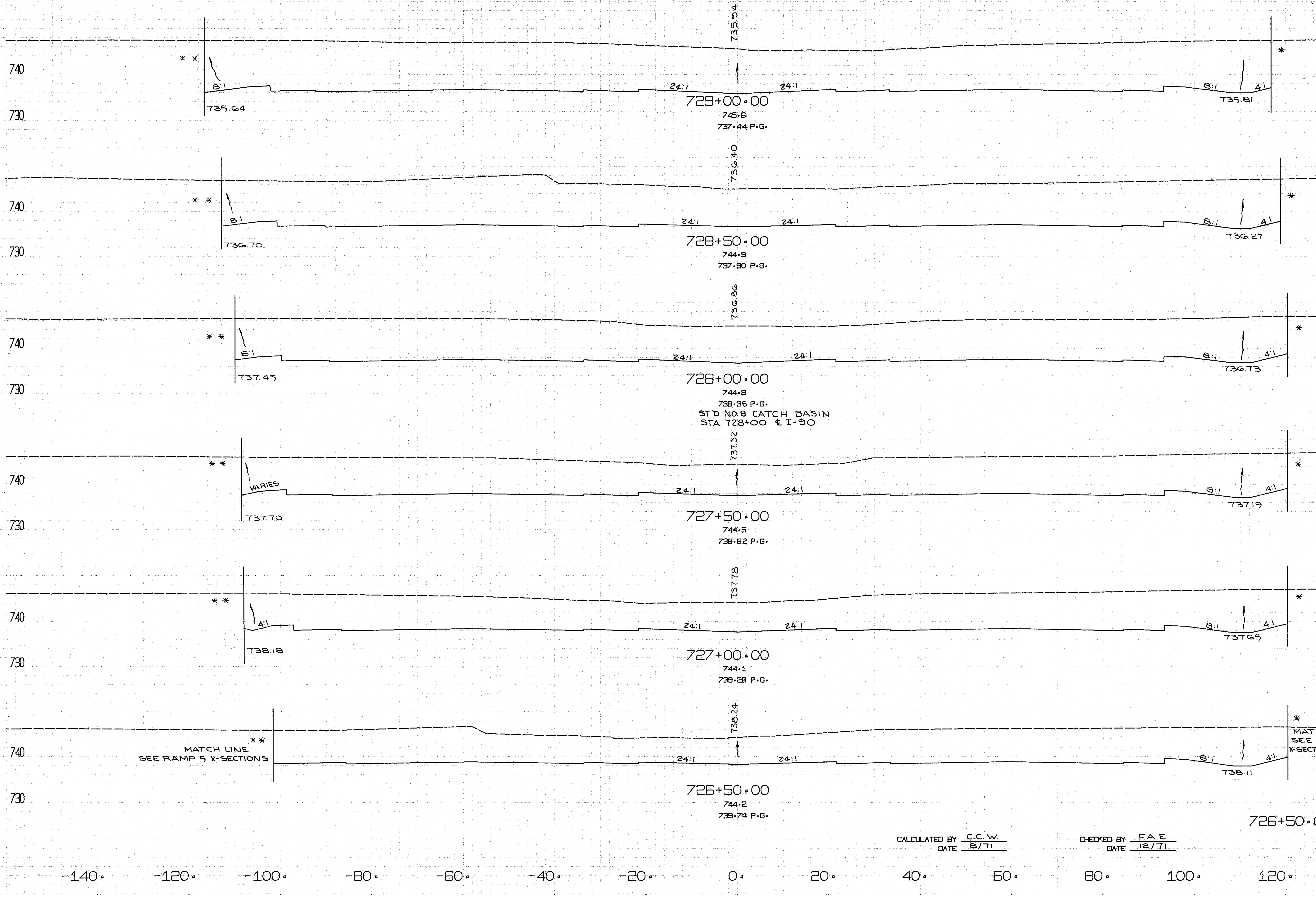
724+50.00 TO 726+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	122 713

CUY-90-10.40



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
2364	0·		
		4209	0·
2182	0·		
		3847	0·
1973	0·		
		3502	0·
1809	0·		
		3243	0·
1693	0·		
		2992	0·
1538	0·		
		2653	0·

726+50·00 TO 729+00·00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	123/713

CUY-90-10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
2596	0.		
		2501	0.
2807	0.		
		5147	0.
2752	0.		
		4986	0.
2633	0.		
		4800	0.
2551	0.		
		4605	0.
2422	0.		
		4431	0.

729+50.00 TO 731+75.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	124/713
2	OHIO	I-90-1(50) 19	

CUY-90-10.40

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50)19	125 713

CUY-90-10.40

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
2953	0.	0.	0.
3284	0.	3975	0.
3221	0.	5689	0.
2923	0.	5140	0.
2629	0.	4882	0.

733+50.00 TO 734+83.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	126 713

CUY-90-10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

735+00.00 TO 736+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	127/713

CUY-90-10.40

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
3452	0.	6277	0.
3328	0.	6017	0.
3170	0.	5640	0.
2922	0.	5093	0.

737+00.00 TO 738+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	128 713

CUY - 90 - 10.40

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
3295	0.	6089	0.
3279	0.	5777	0.
2960	0.	5740	0.
3239	0.	6195	0.

739+00.00 TO 740+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	129/713

CUY - 90 - 10.40

Station	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
742+00.00	3411	0.	3163	0.
741+75.00 AHD.	3422	0.	0.	0.
741+75.00 BK.	2831	0.	2836	0.
741+50.00	3294	0.	6121	0.
741+00.00	3317	0.	6122	0.

741+00.00 TO 742+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	130/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

742+50.00 TO 743+74.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

CUY - 90 - 10.40

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

CUY-90-10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

745+50.00 TO 747+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	133 713

CUY - 90 - 10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

747+50.00 TO 749+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	134 713

CUY - 90 - 10.40

	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
750+35.00	4763	*585.		
			1421	*176.
750+27.00	4830	*605.		
			4950	*446.
750+00.00	5071	*287.		
			9955	*266.
749+50.00	5681	0.		
			10449	0.

749+50.00 TO 750+35.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	135 713

CUY - 90 - 10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

750+50.00 TO 752+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	136/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
6074.	*880.	11067.	*1590.
5878.	*837.	10692.	*1503.
5669.	*786.	10332.	*1420.

752+50.00 TO 753+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	137/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

754+00.00 TO 755+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	138 713

CUY - 90 - 10.40

END AREA CU. YDS.
CUT FILL CUT FILL

755+50.00 TO 756+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

CUY-90-10.40

CENTROID	END AREA		CU. YDS.	
ARC LENGTH	CUT	FILL	CUT	FILL

757+00.00 TO 758+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	140 713

CUY 90 - 10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL

758+50.00 TO 759+00.00

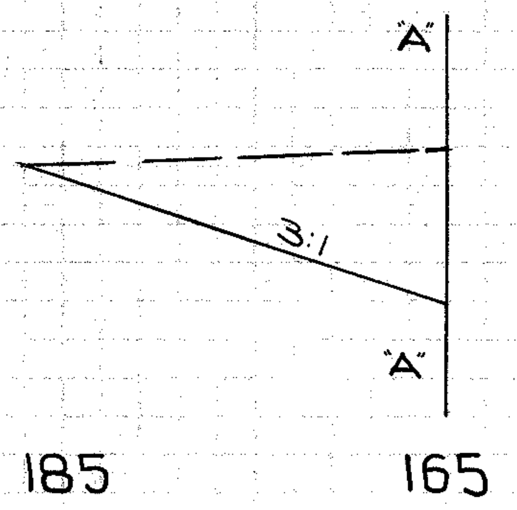
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	141/713

CUY - 90 - 10.40

CENTROID	END AREA		CU. YDS.	
ARC LENGTH	CUT	FILL	CUT	FILL



759+00.0 TO 759+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	142 713

CUY - 90 - 10.40

CENTROID	END AREA		CU. YDS.	
ARC LENGTH	CUT	FILL	CUT	FILL

760+00.00 TO 761+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	143 / 713

CUY - 90 - 10.40

CENTROID	END AREA		CU. YDS.	
ARC LENGTH	CUT	FILL	CUT	FILL

761+50.00 TO 762+69.29

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	144 713

CUY - 90 - 10.40

CENTROID	END AREA		CU.	YDS.
ARC LENGTH	CUT	FILL	CUT	FILL
	4385.	0.		
CUT 24.69'			4116.	0.
	4617.	0.		
CUT 49.43'			8773.	0.
	4967.	0.		
CUT 30.38'			5707.	0.
	5176.	0.		
			0.	0.

762+69.29 TO 763+75.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	145/713
2	OHIO	I-90-1(50)19	

CUY - 90 - 10.40

CENTROID	END AREA		CU. YDS.	
ARC LENGTH	CUT	FILL	CUT	FILL

763+75.00 TO 765+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	146 713

CUY - 90 - 10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL

765+50.00 TO 767+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	147/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

CENTROID	END	AREA	CU.	YDS.
ARC LENGTH	CUT	FILL	CUT	FILL

768+00.00 TO 770+51.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	148/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

END AREA CUT FILL — CU. YDS. CUT FILL

771+47.50 TO 772+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	149 713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

END AREA CU. YDS.
CUT FILL CUT FILL

773+00.00 TO 774+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

CUY - 90 - 10.40

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL

774+50.00 TO 775+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	151 713

CUY - 90 - 10.40

CENTROID	END AREA		CU.	YDS.
ARC LENGTH	CUT	FILL	CUT	FILL

776+00.00 TO 777+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-1(50) 19

152
713

CUY - 90 - 10.40

CENTROID	END AREA		CU. YDS.	
ARC LENGTH	CUT	FILL	CUT	FILL

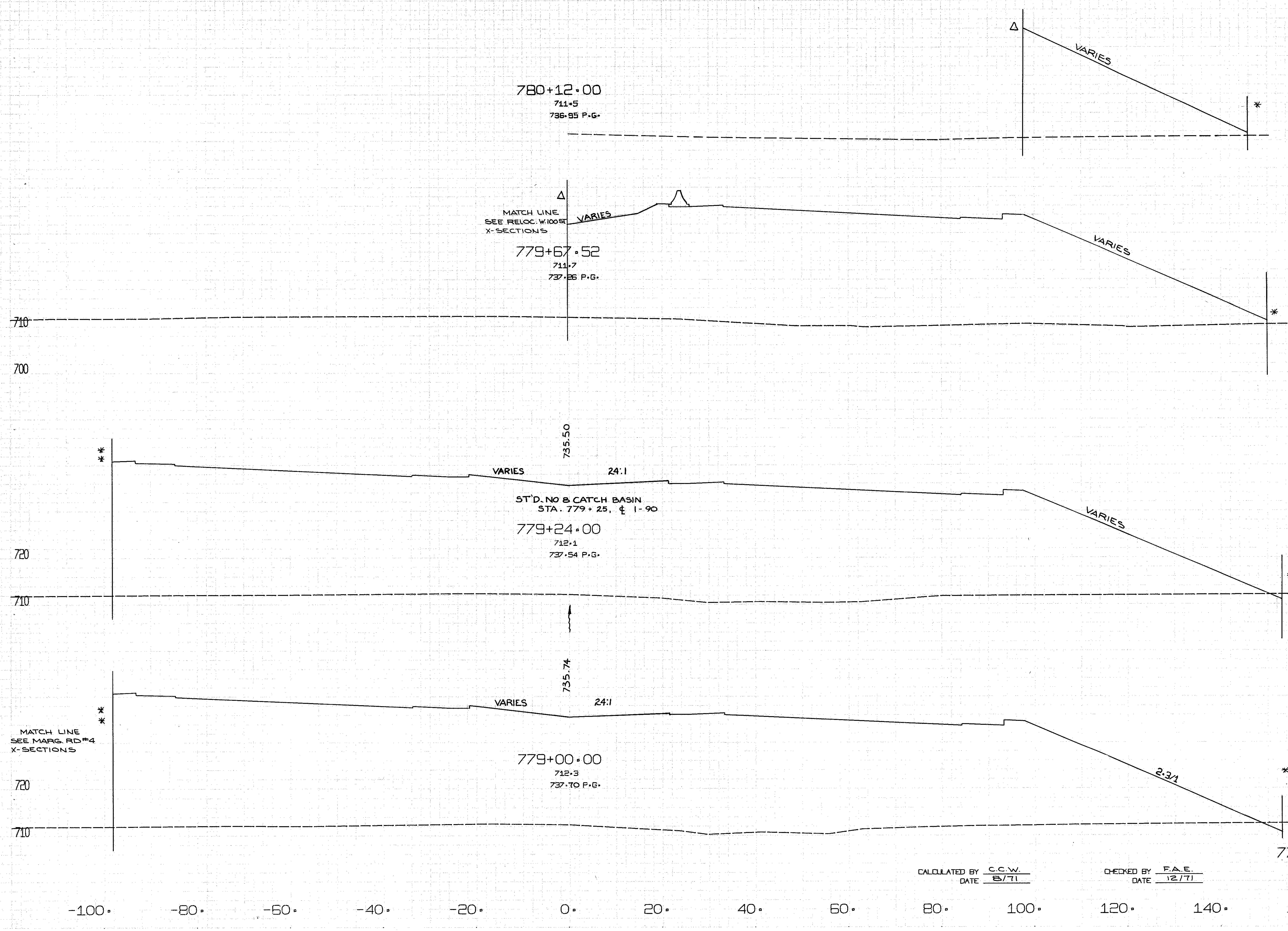
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	153 713
2	OHIO	I-90-1(50)19	

CUY - 90 - 10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
FILL 42.41'	0.	555.	0.	2782
FILL 42.68' CUT 41.78'	0.	2987	1.	6706
FILL 23.92' CUT 22.57'	1.	5498.	2.	4880.
FILL 49.84' CUT 47.01'	4.	5481.	8.	10250.



MATCH LINE
SEE S. FRONT. RD #4A
X-SECTIONS

779+00.00 TO 780+12.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	154/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

CENTROID	END	AREA	CU.	YDS.
ARC LENGTH	CUT	FILL	CUT	FILL

780+83.00 TO 781+91.00

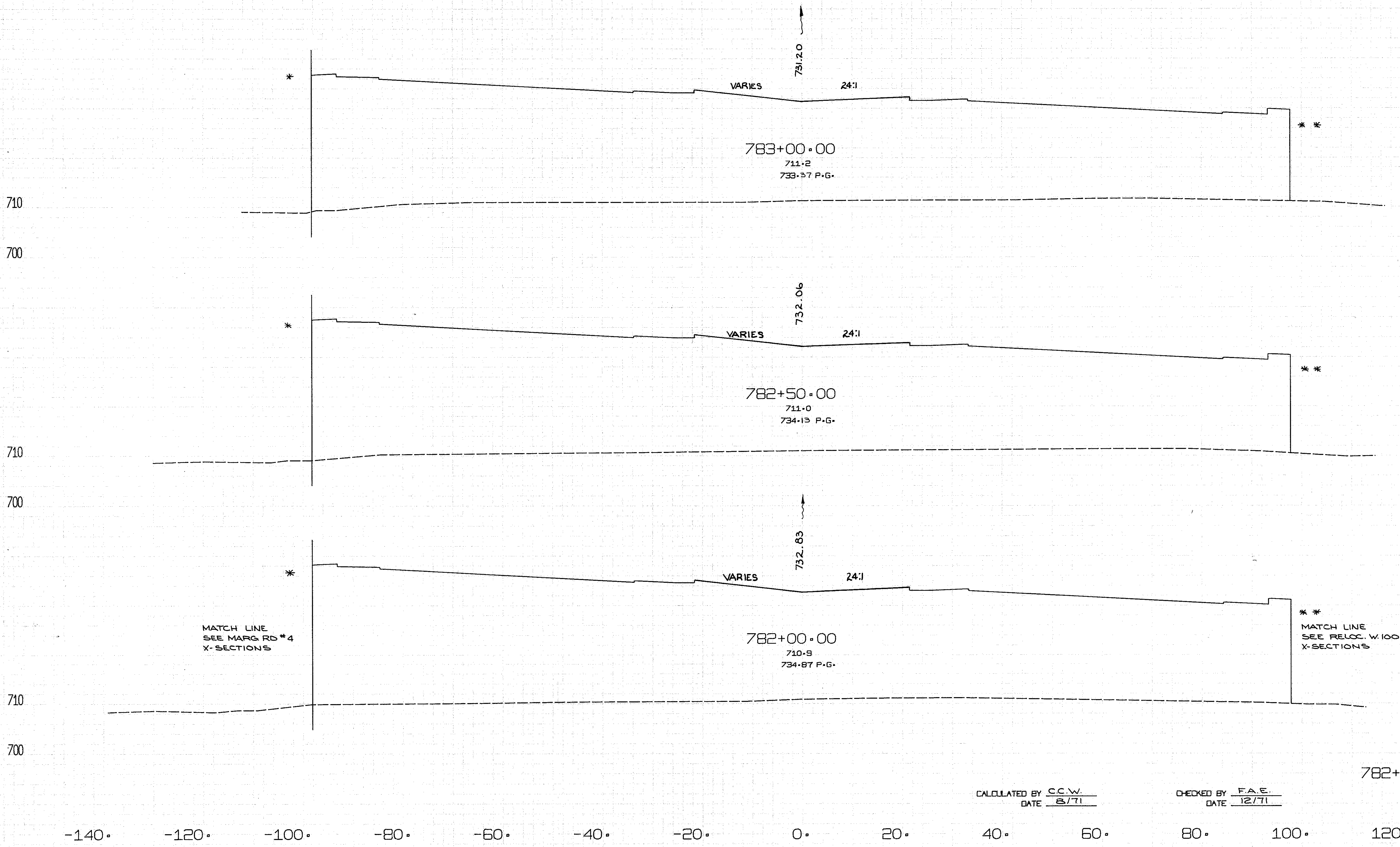
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	155/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

CENTROID END AREA CU. YDS.
ARC LENGTH CUT FILL CUT FILL



0. 4167.

FILL 50.18' 0. 7926.

0. 4363.

FILL 50.16' 0. 8305.

0. 4578.

FILL 9.03. 0. 1531.

782+00.00 TO 783+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	156/713
2	OHIO	I-90-I(50) 19	

CUY - 90 - 10.40

CENTROID	END	AREA	CU.	YDS.
ARC LENGTH	CUT	FILL	CUT	FILL

783+13.00 TO 783+44.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	157 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL

784+86.00 TO 785+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL

786+00.00 TO 787+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-1(50)19

159
713

CUY-90-10.40

STATION	CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
790+00.00		10.	634.		
				19.	1445.
789+50.00		11.	926.		
				11.	2073.
789+00.00		1.	1312.		
				3.	2829.
788+50.00		3.	1743.		
				5.	3601.
788+00.00		3.	2146.		
				5.	4372.

788+00.00 TO 790+00.00

CALCULATED BY C.C.W
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	160 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	0.	0.		
			809.	0.
	873.	0.		
			525.	0.
	767.	0.		
			700.	0.
	388.	0.		
			360.	238.
	1.	257.		
			5.	576.
	4.	365.		
			13.	925.

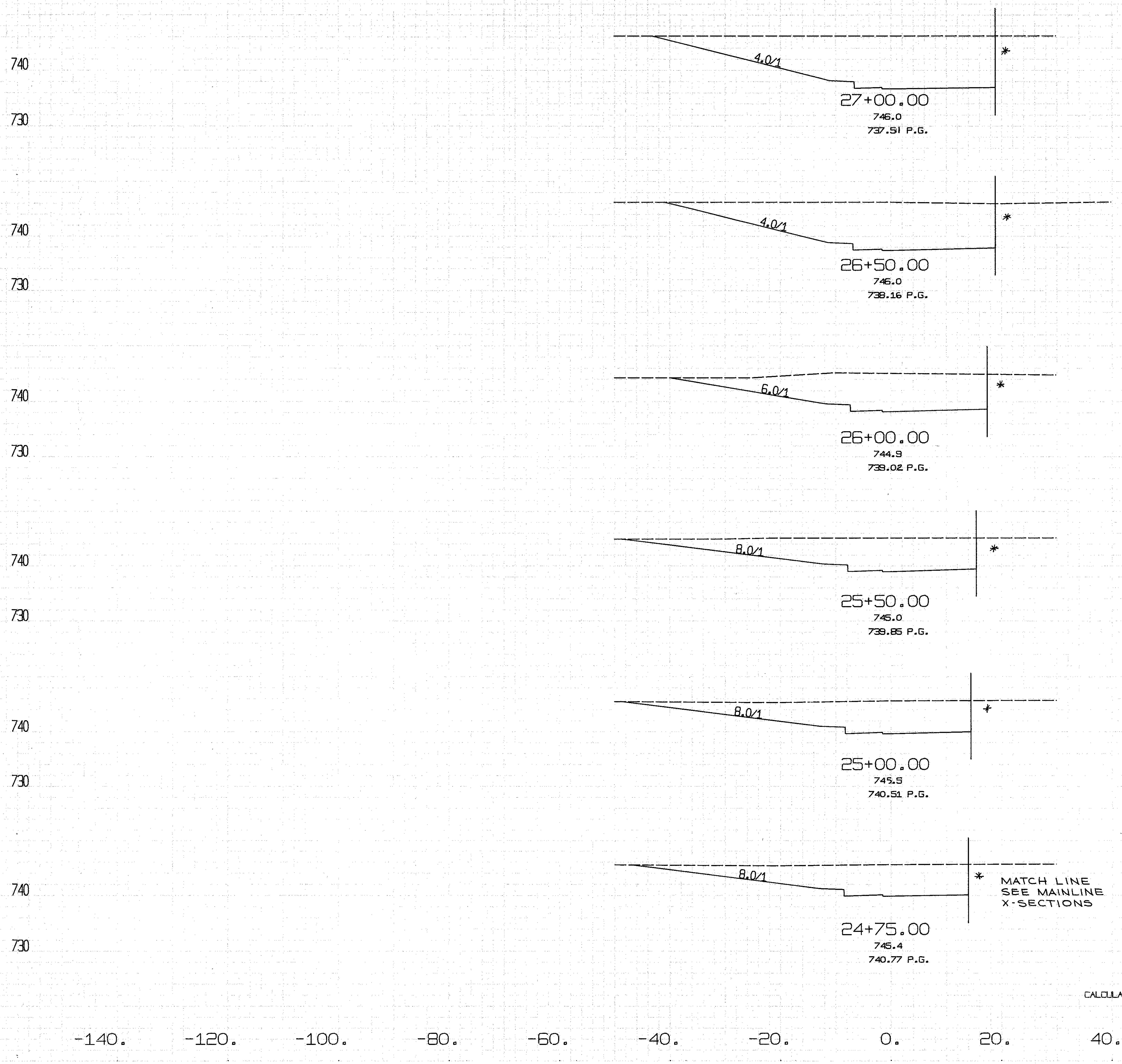
790+50.00 TO 792+50.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	1-90-1(50) 19	161 713

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	405.	0.		
			711.	0.
	363.	0.		
CUT 50.05			579.	0.
	261.	0.		
CUT 50.14			470.	0.
	246.	0.		
CUT 50.19			443.	0.
	231.	0.		
CUT 25.10			206.	0.
	212.	0.		
RAMP 5			0.	0.

24+75.00 TO 27+00.00

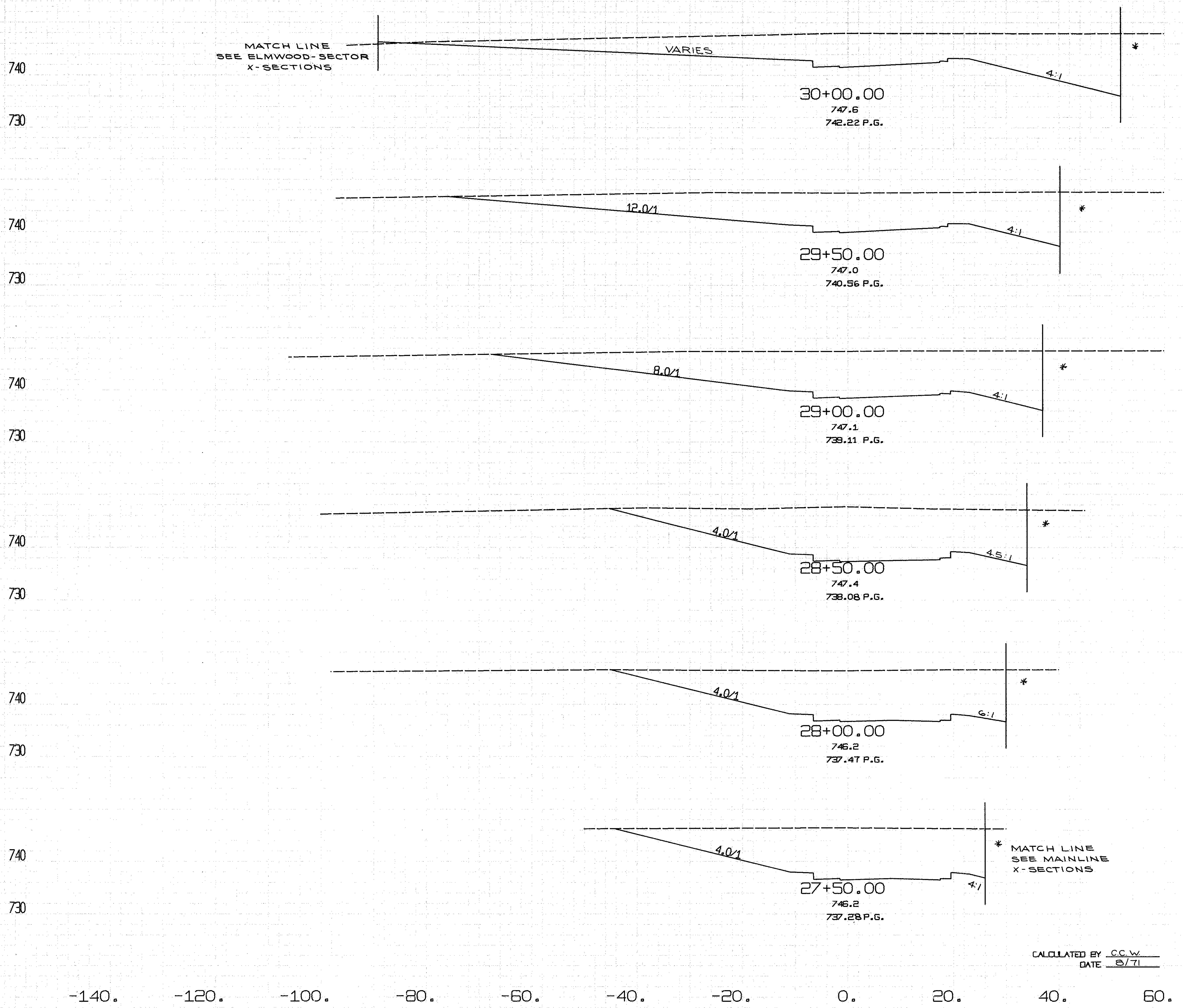
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

(162/713)

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	610.	1.		
CUT 49.85 FILL 52.48			1096.	1.
	577.	0.		
CUT 50.07			1132.	0.
	644.	0.		
CUT 49.96			1128.	0.
	576.	0.		
			1023.	0.
	528.	0.		
			942.	0.
	489.	0.		
			828.	0.

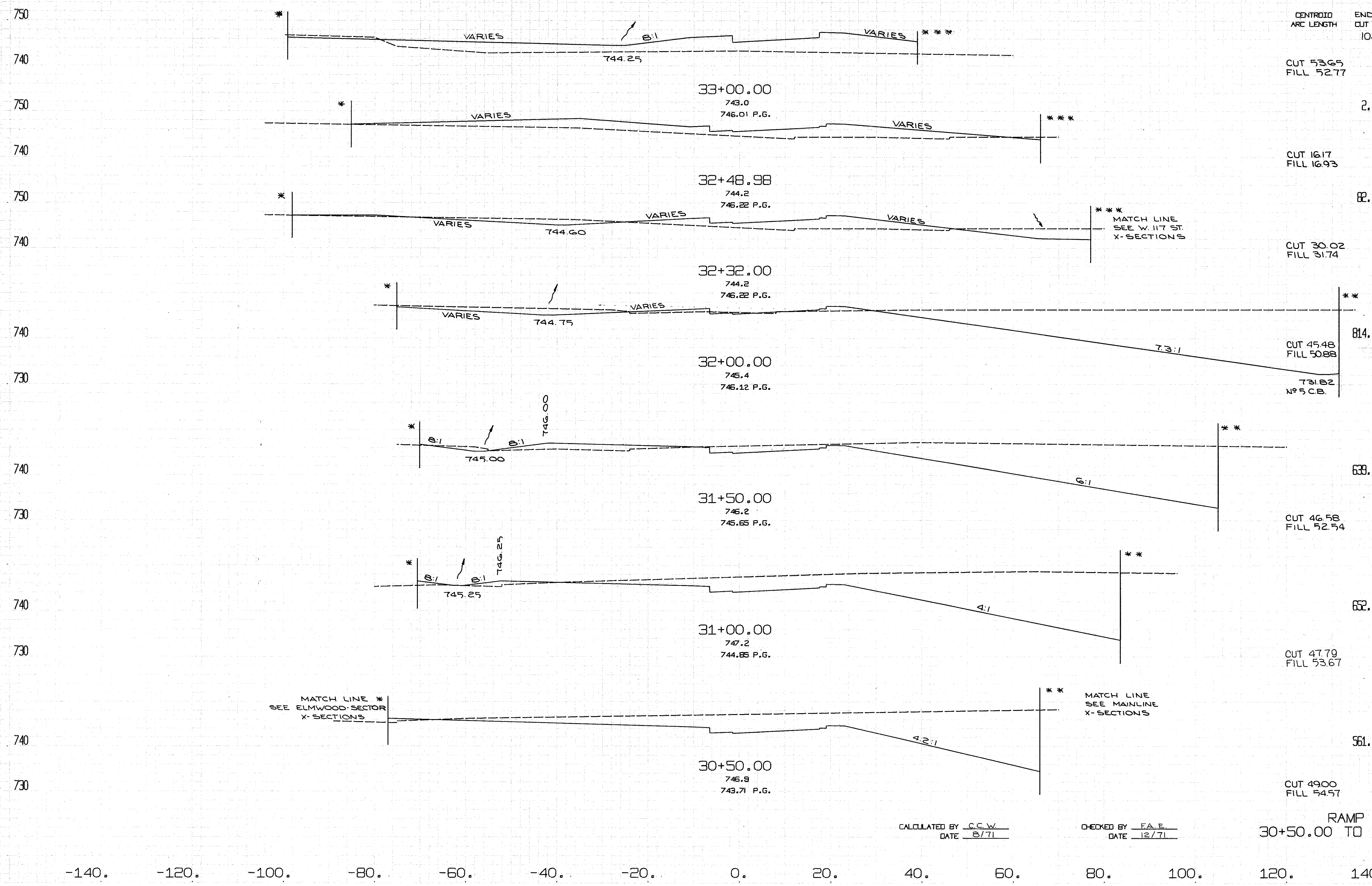
RAMP 5
27+50.00 TO 30+00.00

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	163 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	10.	290.		
CUT 53.65 FILL 52.77			12.	486.
	2.	207.		
CUT 16.17 FILL 16.93			25.	99.
	82.	109.		
CUT 30.02 FILL 31.74			498.	75.
	814.	18.		
CUT 45.48 FILL 50.88			1224.	53.
	639.	38.		
CUT 46.58 FILL 52.54			1114.	51.
	652.	14.		
CUT 47.79 FILL 53.67			1074.	18.
	561.	4.		
CUT 49.00 FILL 54.57			1062.	5.

CALCULATED BY C.C.W.
DATE 8/71

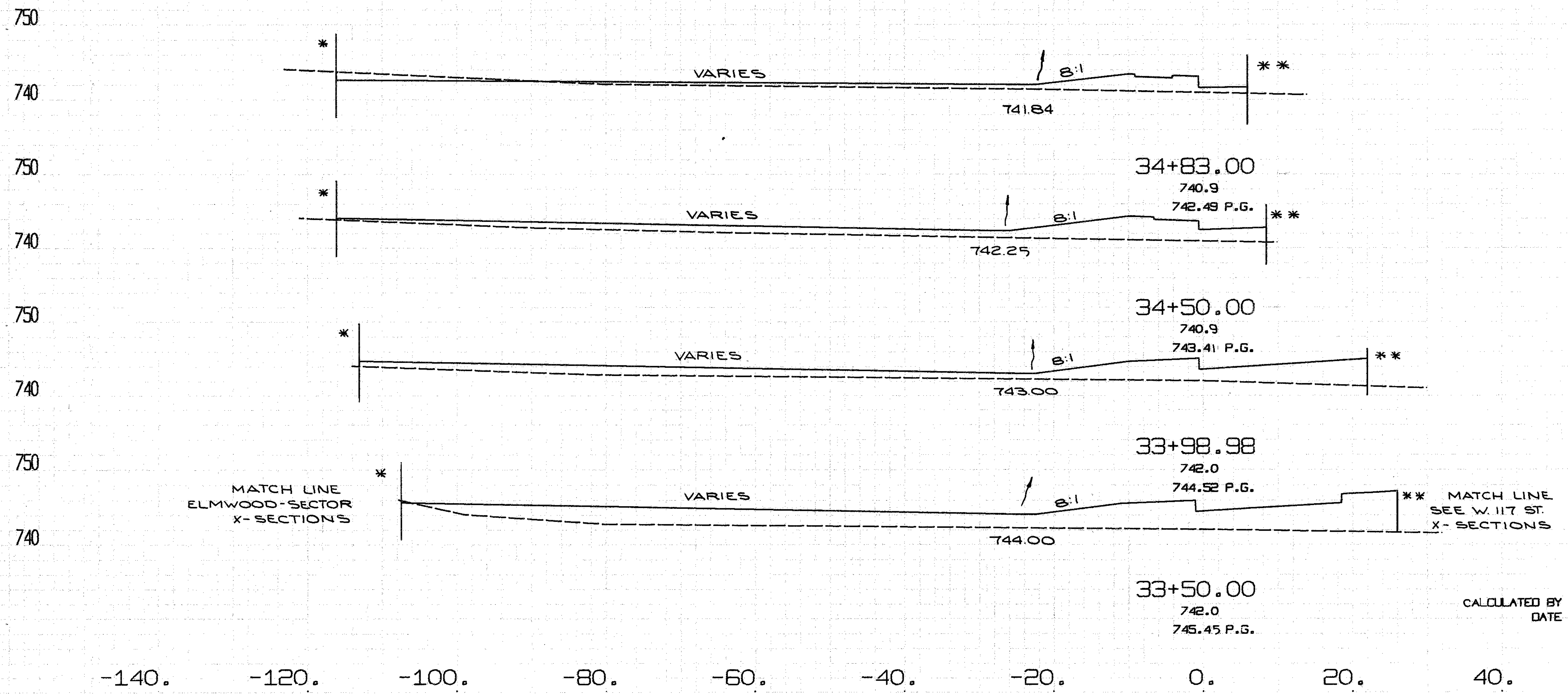
CHECKED BY F.A.E.
DATE 12/71

RAMP 5
30+50.00 TO 33+00.00

FED. RD. DIVISION	STATE	PROJECT	164 7/3
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	16.	67.		
CUT 40.05 FILL 37.00			12.	145.
	0.	145.		
FILL 57.78			0.	361.
	0.	192.		
CUT 59.38 FILL 54.72			0.	522.
	0.	323.		
CUT 69.56 FILL 53.89			13.	612.



40. 60. 80. 100. 120. 140.

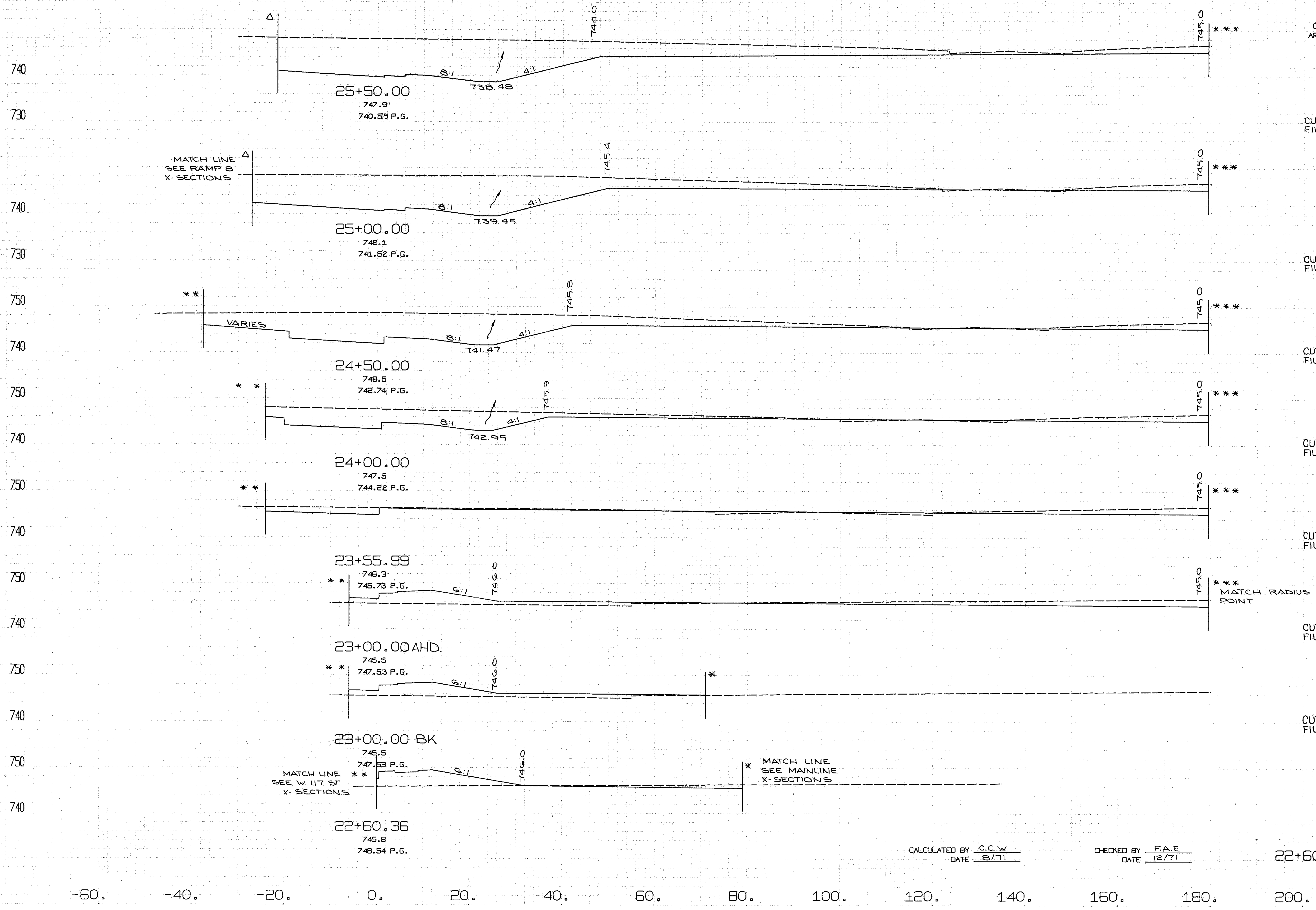
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

RAMP 5
33+50.00 TO 34+83.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	165 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	733.	0.		
CUT 41.25 FILL 31.05			1053.	1.
	645.	2.		
CUT 42.73 FILL 13.13			929.	1.
	529.	3.		
CUT 41.88 FILL 15.90			629.	3.
	282.	7.		
CUT 29.92 FILL 18.35			205.	7.
	89.	14.		
CUT 20.75 FILL 38.38			65.	72.
	81.	88.		
CUT 00.01 FILL 00.01			0.	0.
	0.	88.		
CUT 32.74 FILL 36.14			12.	107.
	20.	72.		
			0.	0.

CALCULATED BY C.C.W.
DATE 8/71

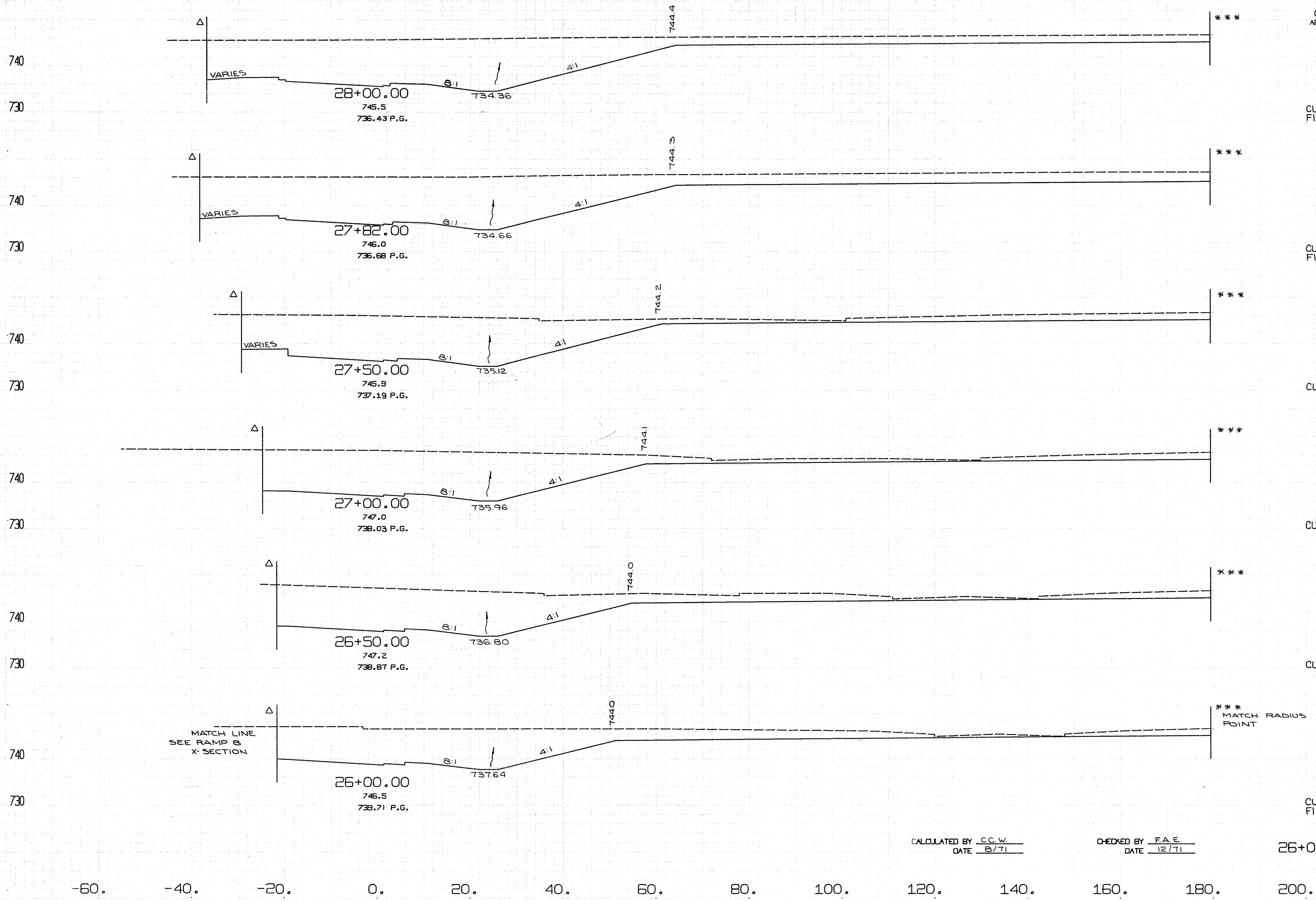
CHECKED BY F.A.E.
DATE 12/71

RAMP 7
22+60.36 TO 25+50.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

166
713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	1029.	0.		
CUT 14.83 FILL 18.00			595.	0.
	1136.	0.		
CUT 26.40 FILL 32.00			957.	0.
	821.	0.		
CUT 42.11			1266.	0.
	802.	0.		
CUT 41.81			1190.	0.
	735.	0.		
CUT 40.79			1077.	0.
	691.	0.		
CUT 40.17 FILL 50.00			1060.	0.

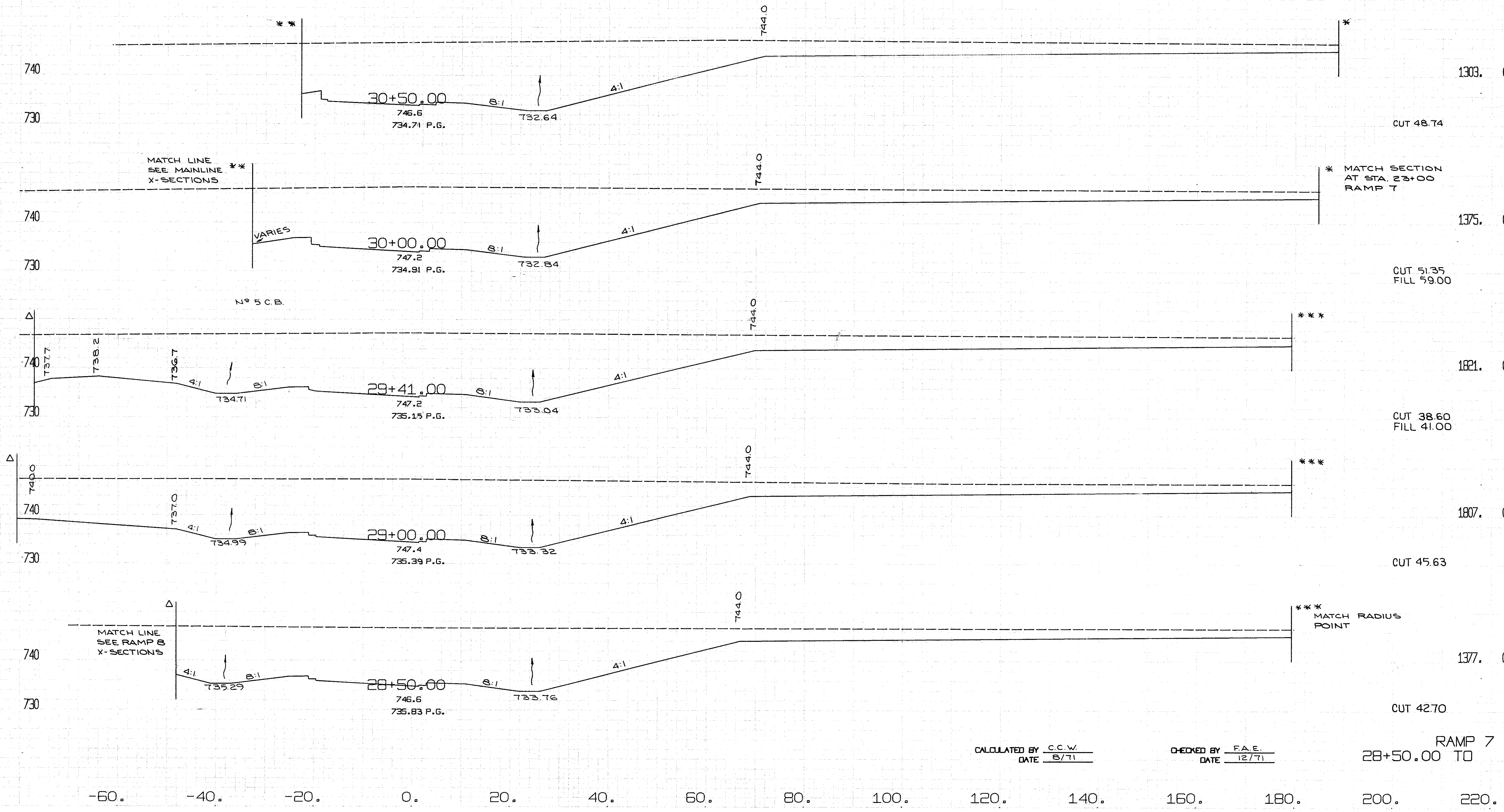
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

RAMP 7
26+00.00 TO 28+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	167 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	1303.	0.		
CUT 48.74			2417.	0.
	1375.	0.		
CUT 51.35 FILL 59.00			3039.	0.
	1821.	0.		
CUT 38.60 FILL 41.00			2593.	0.
	1807.	0.		
CUT 45.63			2691.	0.
	1377.	0.		
CUT 42.70			1903.	0.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

RAMP 7
28+50.00 TO 30+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	168 713

CUY-90-10.40

CENTROID ARC LENGTH   END AREA CUT FILL   CU. YDS. CUT FILL

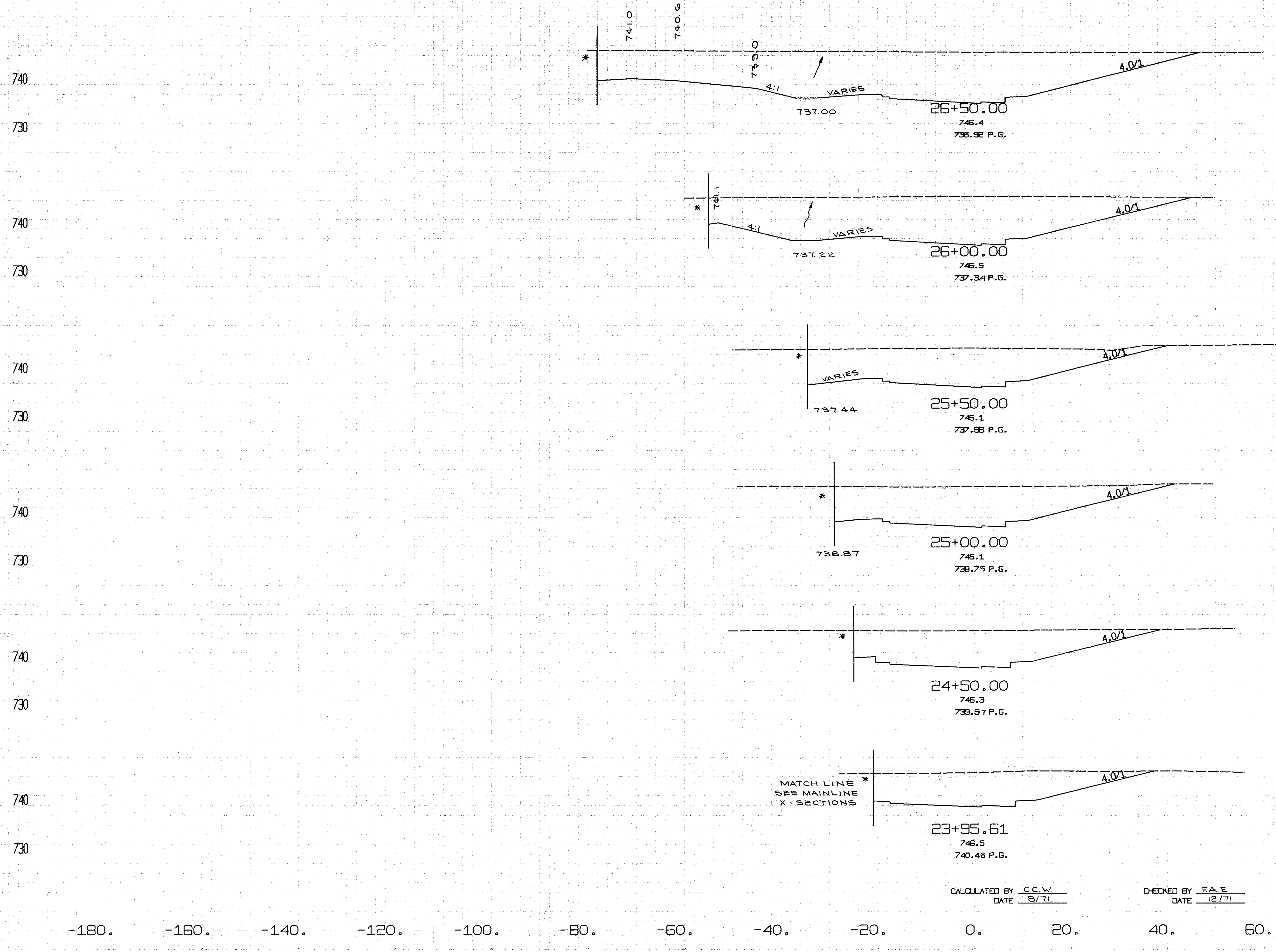
31+00.00 TO 31+74.93
RAMP 7

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	169 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	907.	0.		
CUT 51.07			1537.	0.
	719.	0.		
CUT 50.54			1063.	0.
	417.	0.		
CUT 50.19			768.	0.
	410.	0.		
CUT 50.01			702.	0.
	348.	0.		
CUT 54.33			649.	0.
	297.	0.		
			0.	0.

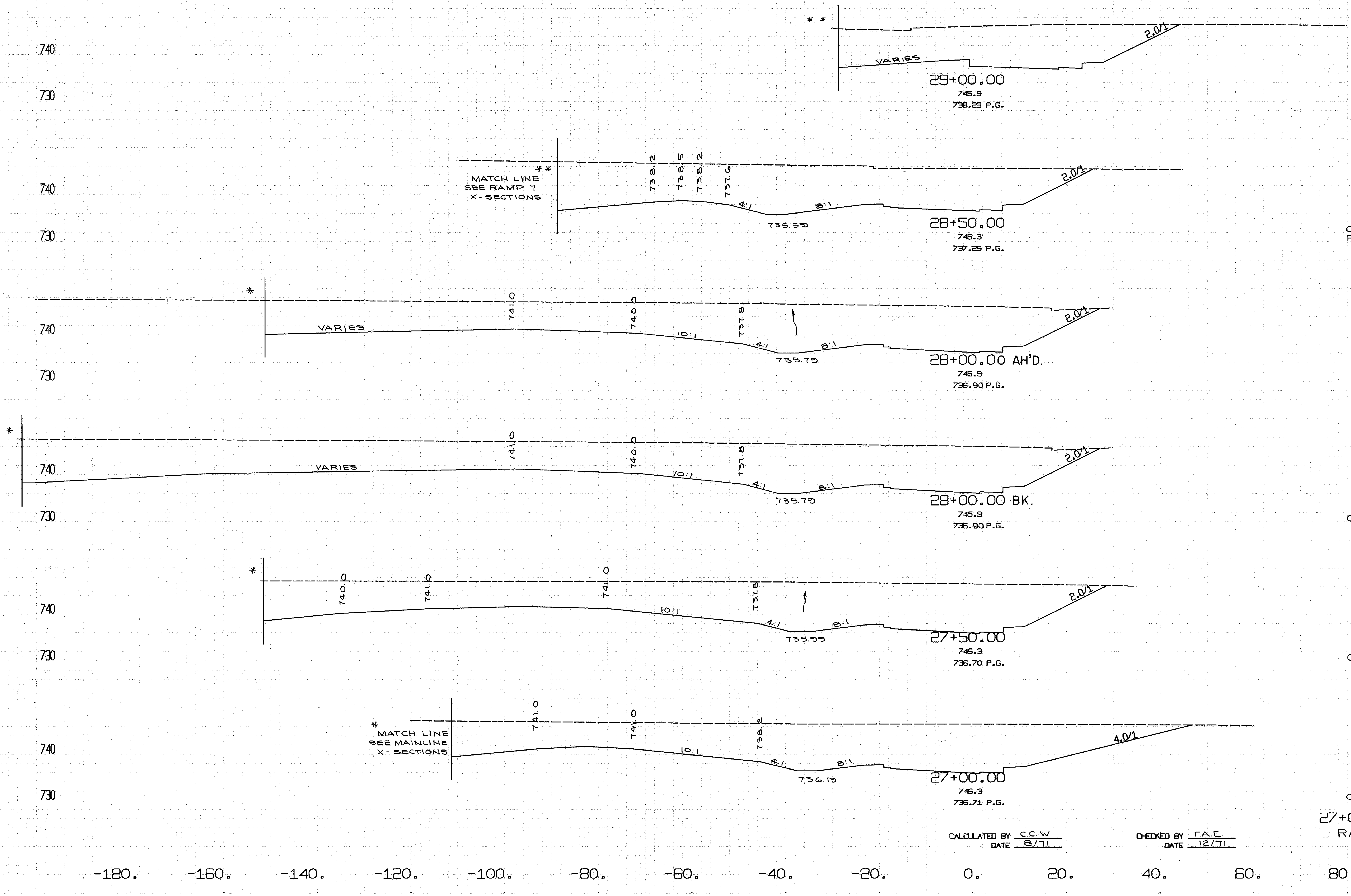
23+95.61 TO 26+50.00
RAMP 8

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-1(50) 19

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	534.	0.		
			1363.	0.
	938.	0.		
CUT 54.14 FILL 49.99			2263.	0.
	1319.	0.		
			0.	0.
	1724.	0.		
CUT 56.31			3211.	0.
	1355.	0.		
CUT 53.97			2488.	0.
	1134.	0.		
CUT 52.33			1977.	0.

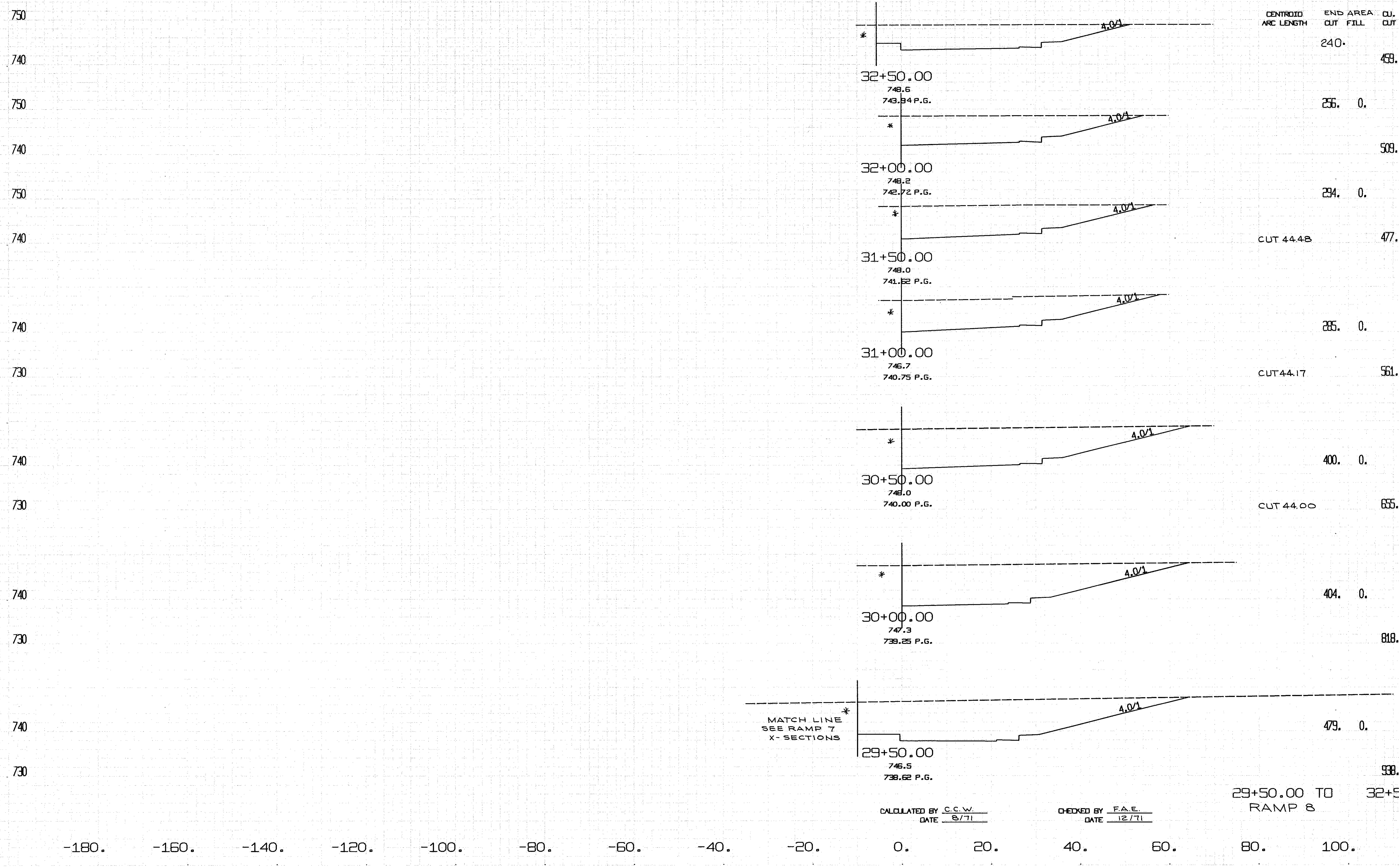
27+00.00 TO 29+00.00
RAMP 8

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	171/713
2	OHIO	I-90-I(50)19	

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. CUT	YDS. FILL
	240.			
			459.	0.
	256.	0.		
			509.	0.
	294.	0.		
CUT 44.48			477.	0.
	285.	0.		
CUT 44.17			561.	0.
	400.	0.		
CUT 44.00			655.	0.
	404.	0.		
			818.	0.
	479.	0.		
			938.	0.

29+50.00 TO 32+50.00
RAMP 8

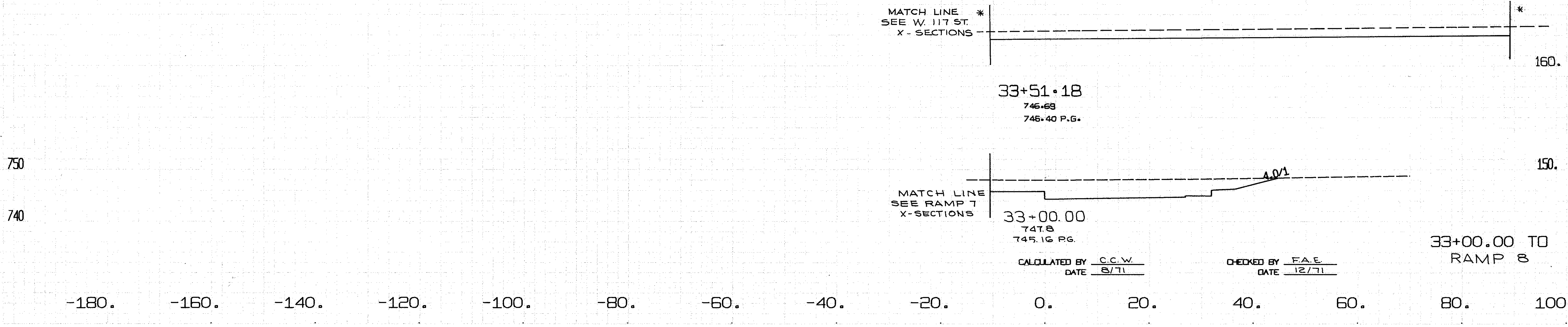
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	172/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

CENTROID ARC LENGTH   END AREA CUT   END AREA FILL   CU. YDS. CUT   CU. YDS. FILL



160. 0.

294. 0.

150. 0.

361. 0.

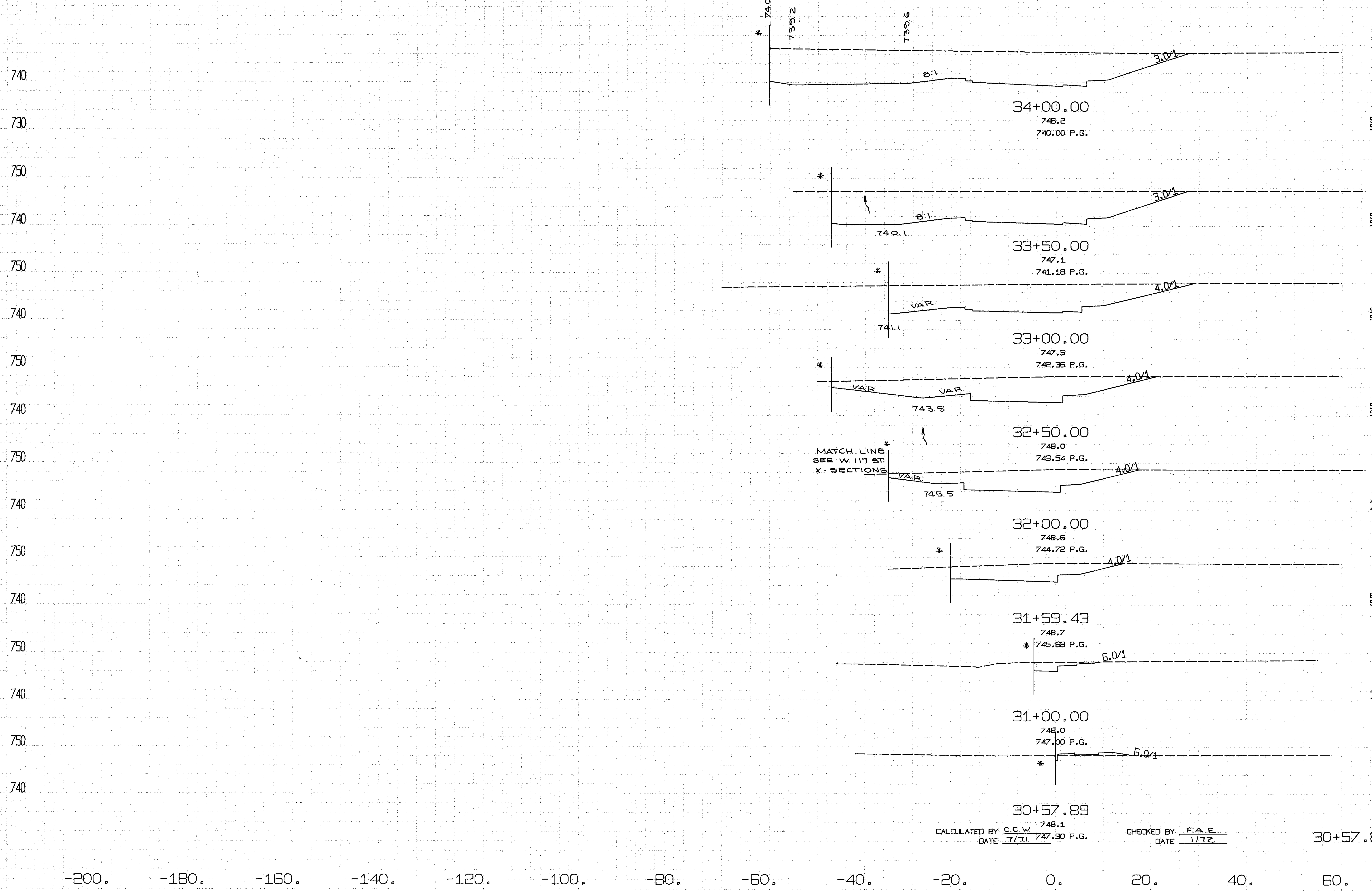
33+00.00 TO 33+51.18
RAMP 8

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	173 713

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	541.	0.		
51.26C 50.00F			916.	0.
	424.	0.		
50.00C 50.00F			664.	0.
	293.	0.		
50.00C 50.00F			483.	0.
	228.	0.		
50.00C 50.00F			352.	0.
	152.	0.		
40.57C 40.57F			186.	0.
	96.	0.		
60.39C 59.43F			123.	0.
	14.	0.		
42.10C 41.22F			12.	5.
	1.	6.		
0.00C 0.00F			0.	0.

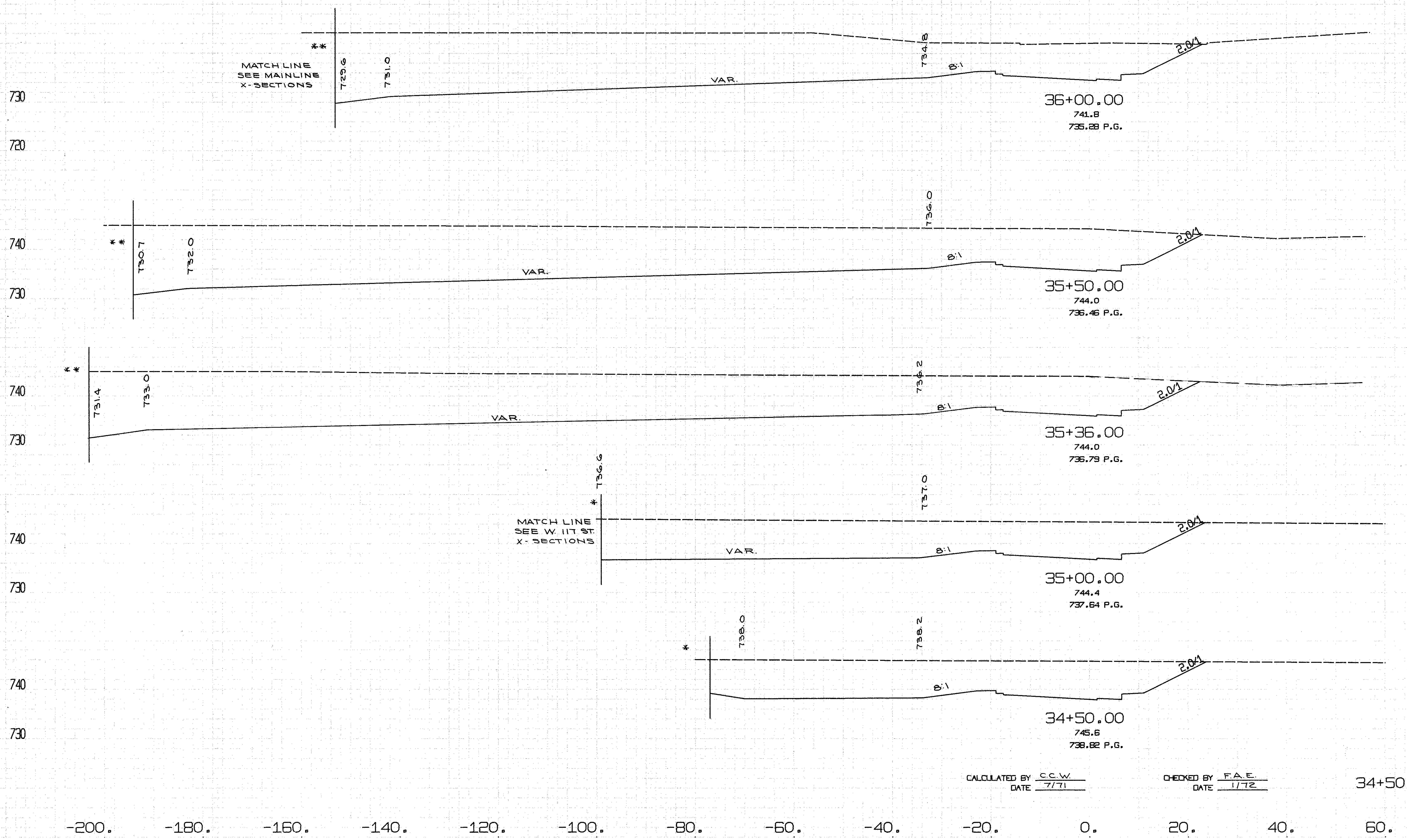
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 9
30+57.89 TO 34+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	174 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	1671.	0.		
56.27C 50.00F			3928.	0.
	2099.	0.		
15.99C 14.00F			1241	0.
	2090.	0.		
39.71C 36.00F			2179.	0.
	873.	0.		
52.58C 50.00F			1521.	0.
	689.	0.		
51.83C 50.00F			1181.	0.

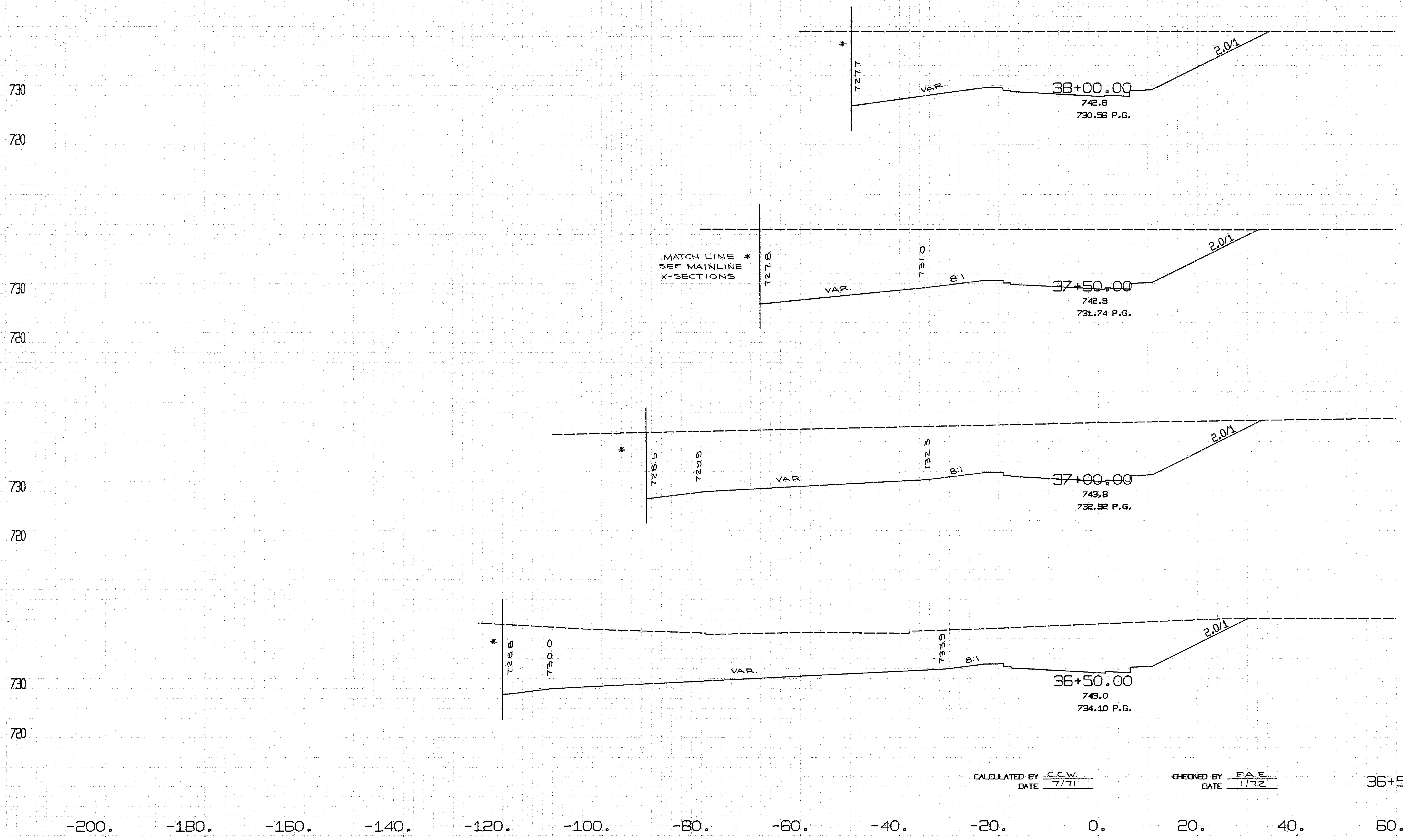
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 9
34+50.00 TO 36+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	175 713

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	919.	0.		
51.36C 50.00F			1905.	0.
	1083.	0.		
52.13C 50.00F			2279.	0.
	1277.	0.		
53.14C 50.00F			2567.	0.
	1331.	0.		
54.68C 50.00F			3040.	0.

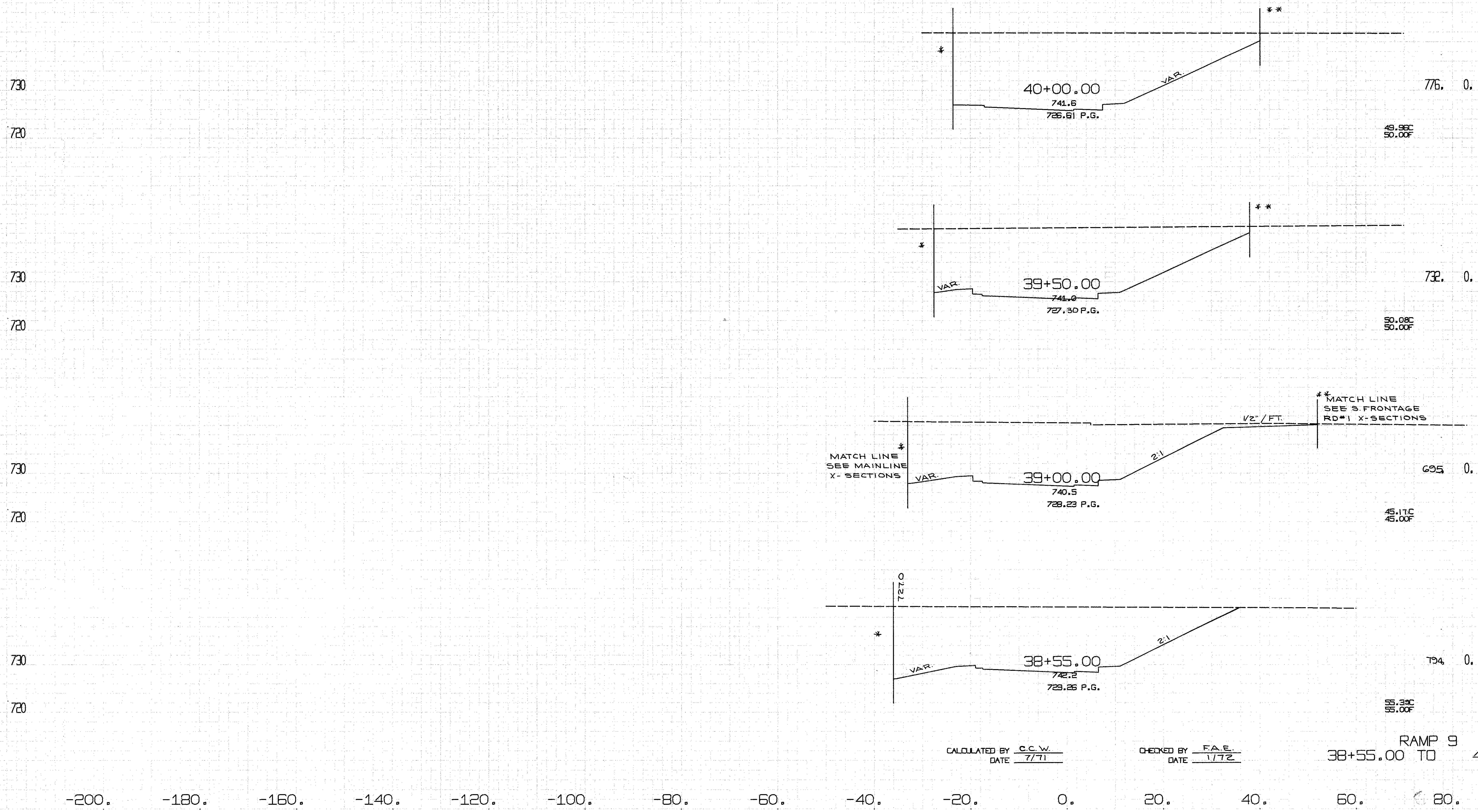
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 9
36+50.00 TO 38+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	176 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	776.	0.		
49.96C 50.00F			1396.	0.
	732.	0.		
50.08C 50.00F			1324.	0.
	695.	0.		
45.17C 45.00F			1246.	0.
	794.	0.		
55.39C 55.00F			1757.	0.

CALCULATED BY C.C.W.
DATE 7/71

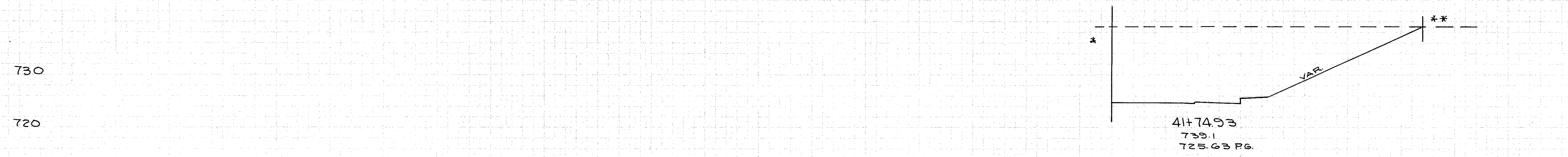
CHECKED BY F.A.E.
DATE 1/72

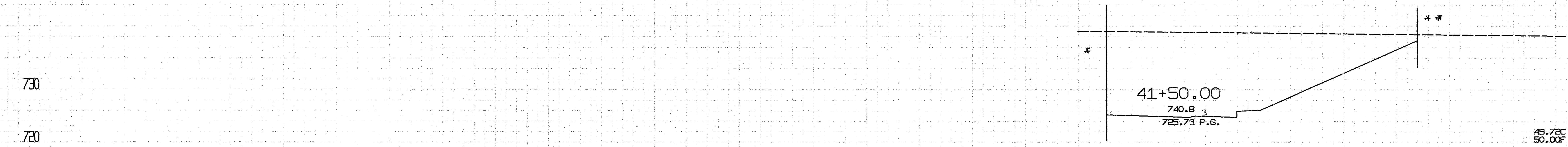
RAMP 9
38+55.00 TO 40+00.00

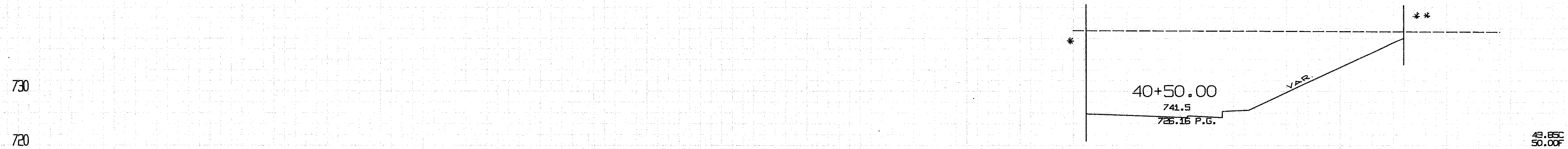
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	177 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	602	O		
24.79C 24.93F			592	O
	688.	0.		
49.72C 50.00F			1310.	0.
	734.	0.		
49.75C 50.00F			1343.	0.
	724.	0.		
49.85C 50.00F			1385.	0.







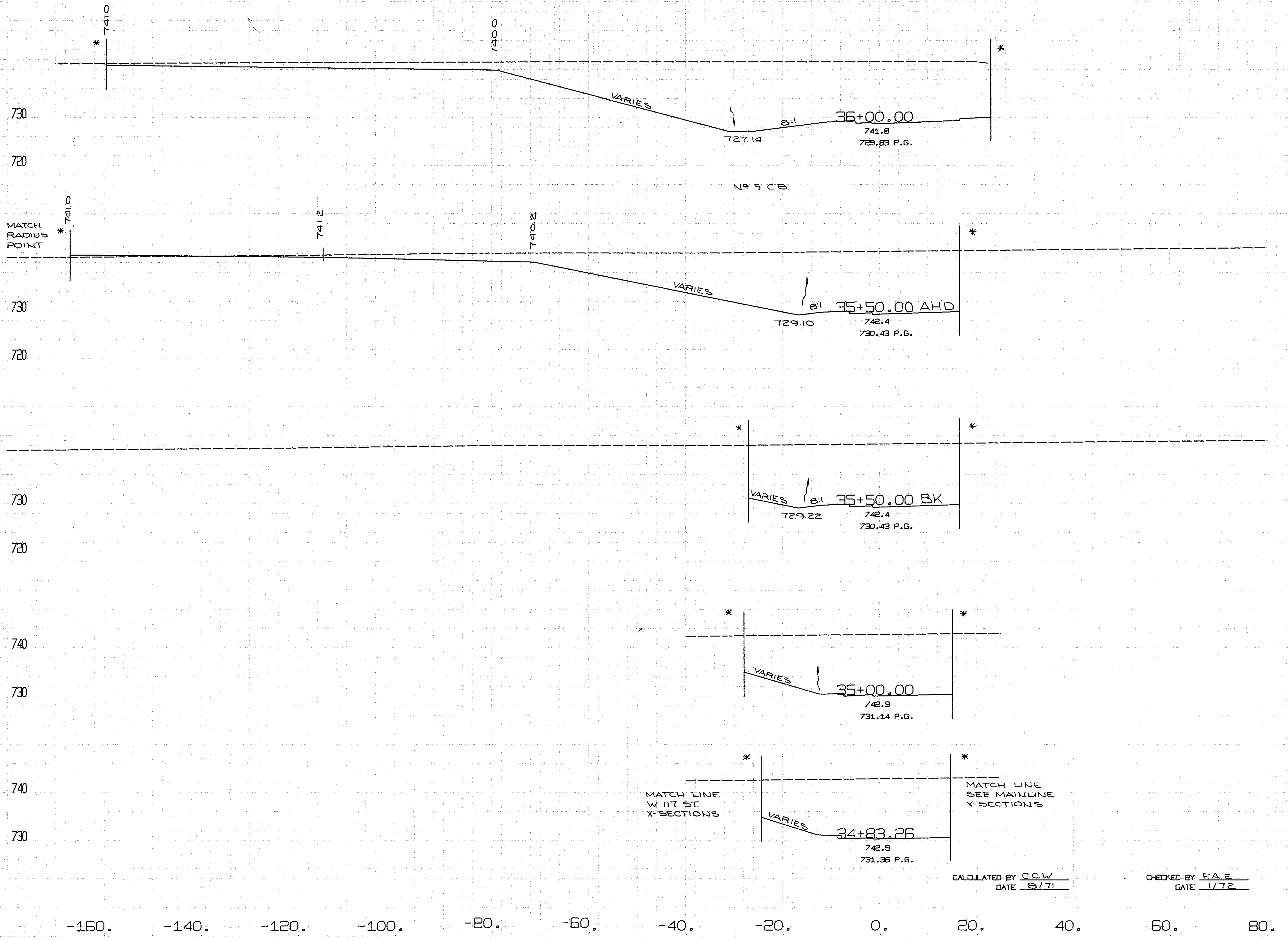
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 9
40+50.00 TO 41+74.93

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	178 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	1180.	0.		
47.47C 42.10F			1818.	5.
	888.	7.		
0.01C 0.01F			0.	0.
	546.	0.		
49.49C 50.00F			957.	0.
	499.	0.		
16.59C 16.74F			292.	0.
	452.	0.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W.
DATE 8/71

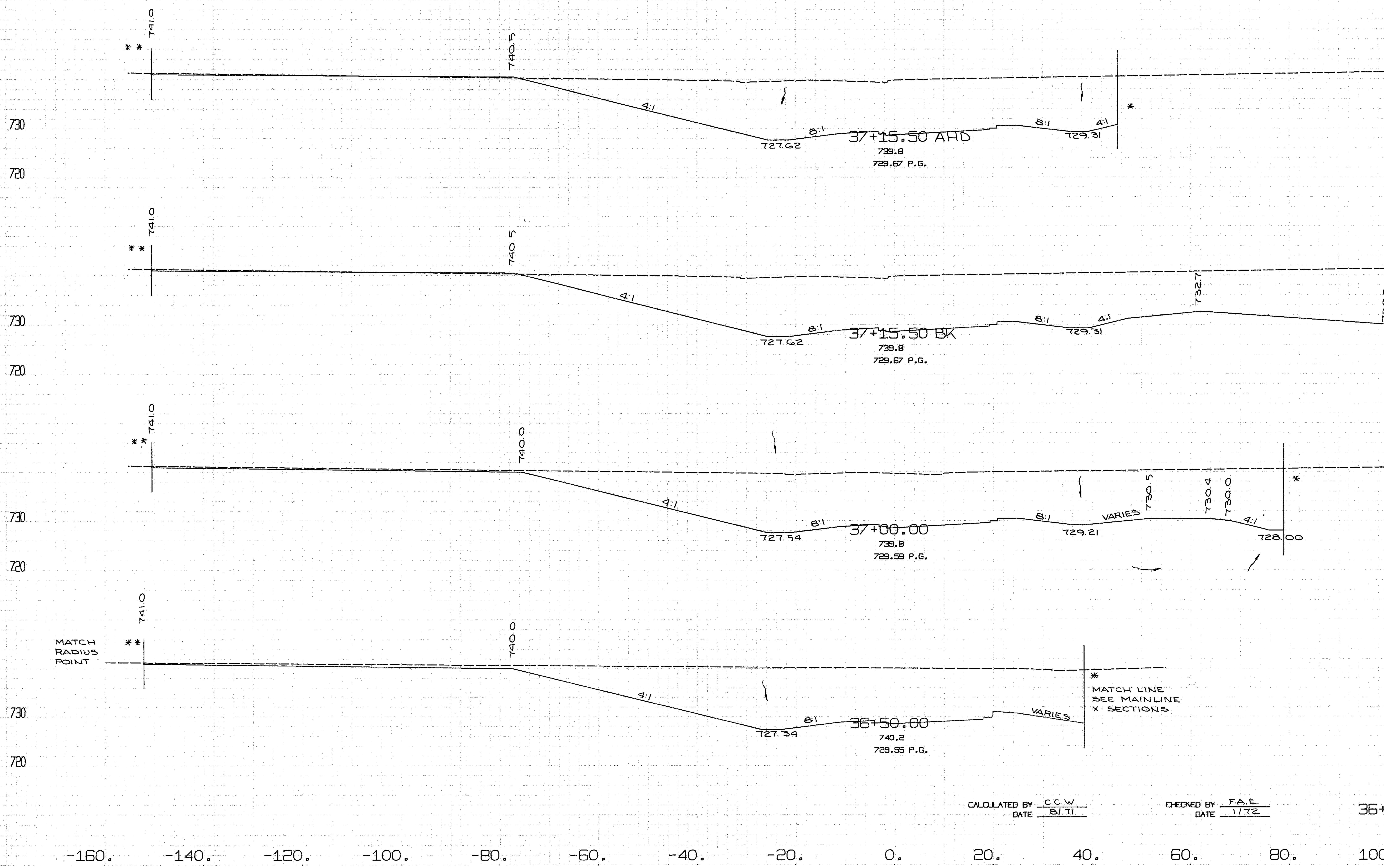
CHECKED BY F.A.E.
DATE 1/72

RAMP 11
34+83.26 TO 36+00.00

FED. RD. DIVISION	STATE	PROJECT	179 / 713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
0.00C 0.00F	1084.	1.	0.	0.
17.18C 11.21F	1689.	1.	1007.	0.
48.92C 50.00F	1476.	0.	2349.	0.
42.94C 50.00F	1117.	0.	1826.	0.



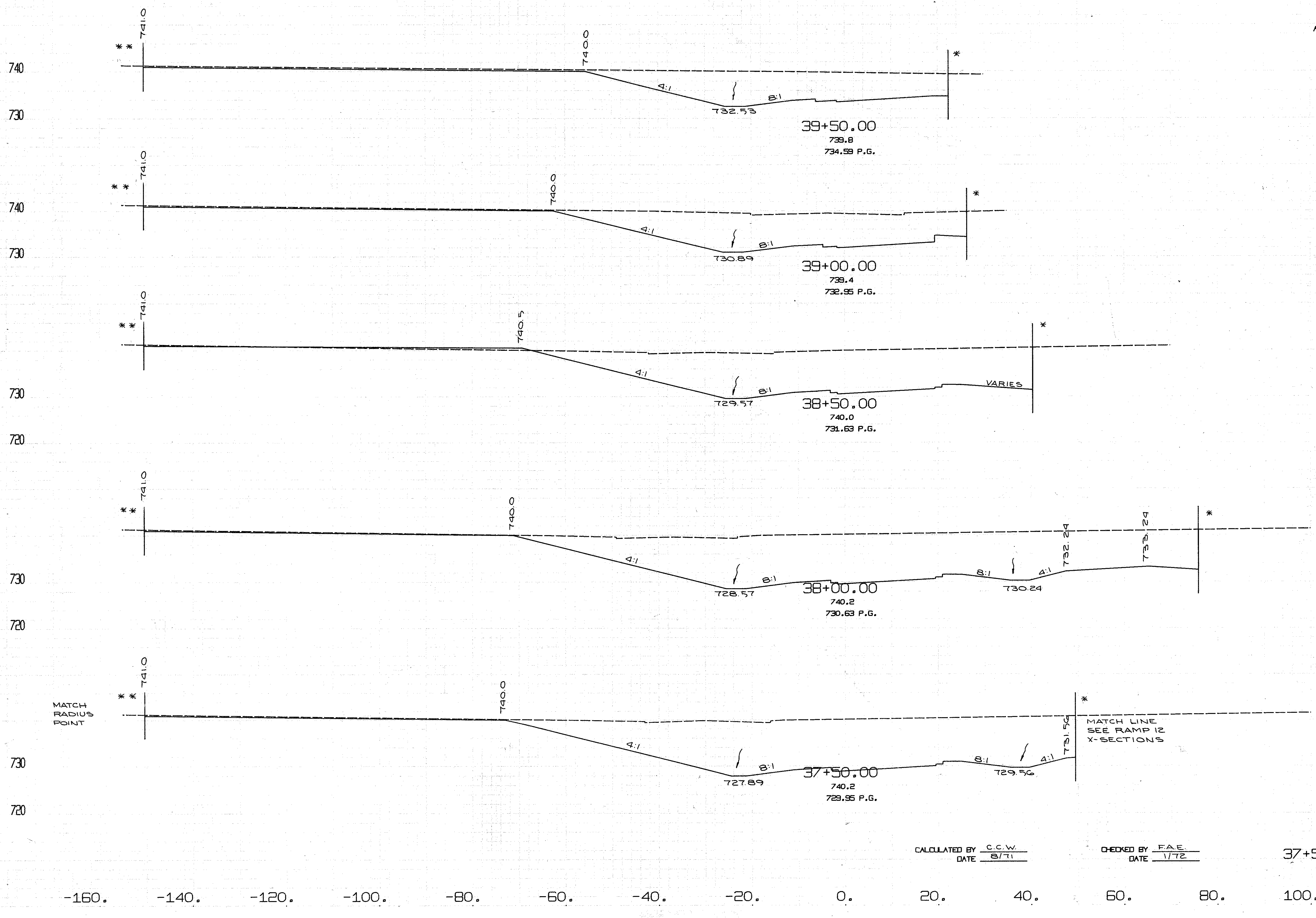
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 11
36+50.00 TO 37+15.50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	180 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	447.	0.		
43.80C 50.00F			817.	0.
	560.	0.		
46.08C 36.12F			1155.	6.
	794.	9.		
50.25C 36.12F			1887.	6.
	1234.	0.		
50.54C 50.00F			2183.	0.
	1098.	0.		
33.24C 24.96F			1343.	0.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

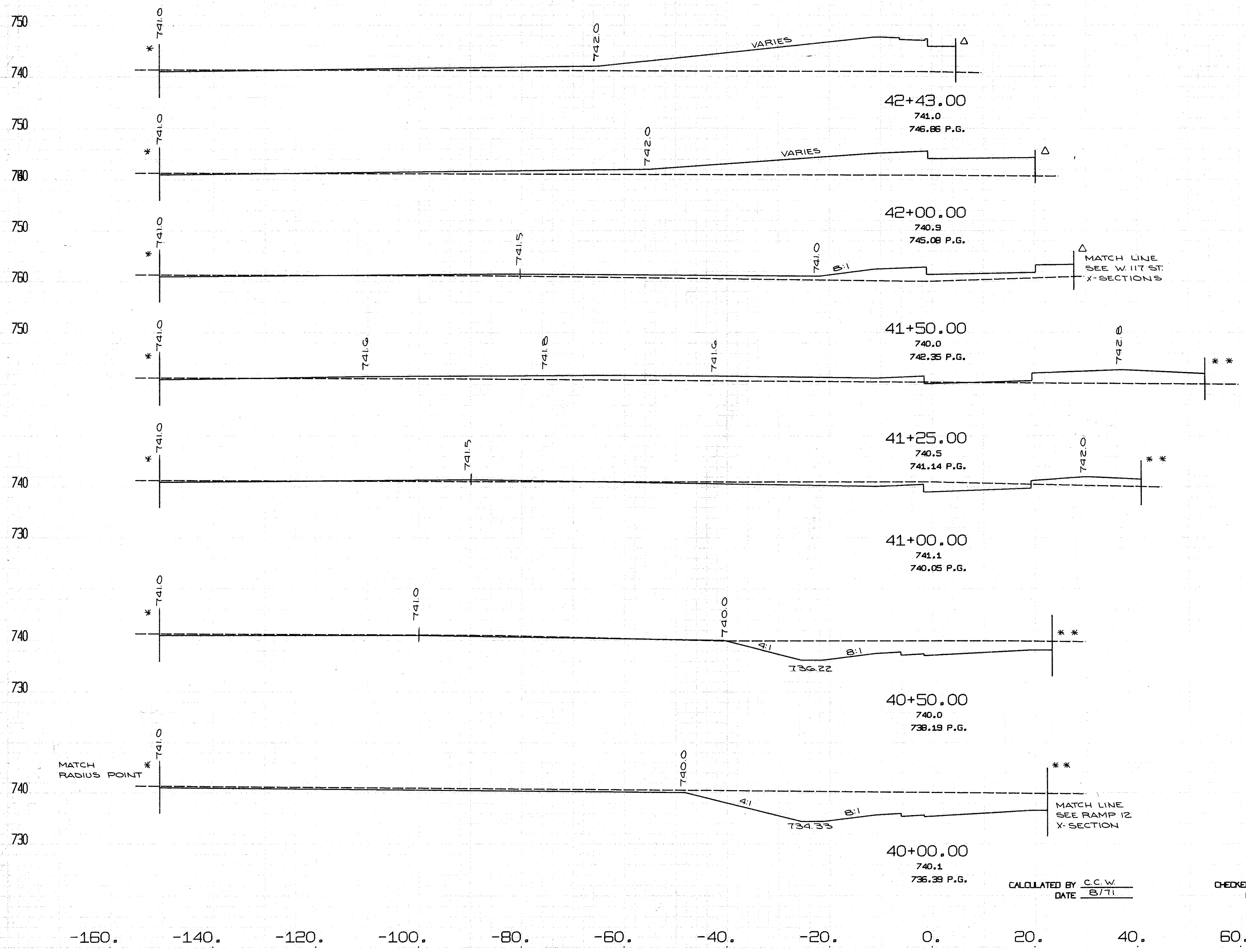
RAMP 11
37+50.00 TO 39+50.00

P16

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50)19	181 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	5.	321.		
2.72C 36.32F			1.	393.
	5.	263.		
3.72C 44.50F			1.	317.
	7.	122.		
6.05C 23.22F			1.	120.
	6.	156.		
15.67C 24.93F			24.	88.
	75.	35.		
42.75C 51.21F			202.	33.
	180.	0.		
42.60C 50.00F			411.	0.
	340.	0.		
42.90C 50.00F			625.	0.



CALCULATED BY C.C.W.
DATE 8/71

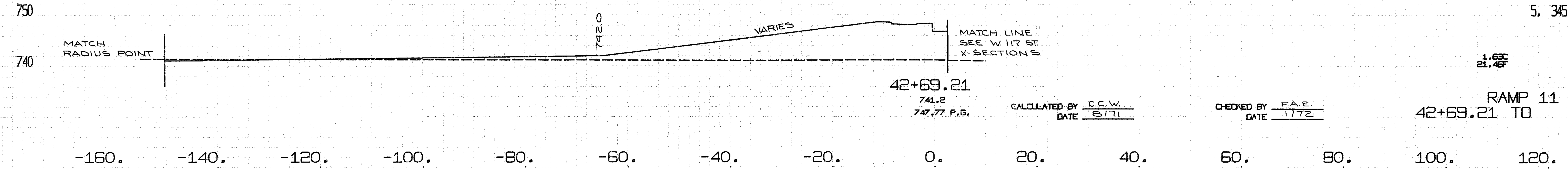
CHECKED BY F.A.E.
DATE 1/72

RAMP 11
40+00.00 TO 42+43.00

FED. RD. DIVISION	STATE	PROJECT	182/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT FILL	CU. CUT	YDS. FILL
	5. 345.		
	1.63C 21.46F	0.	265.



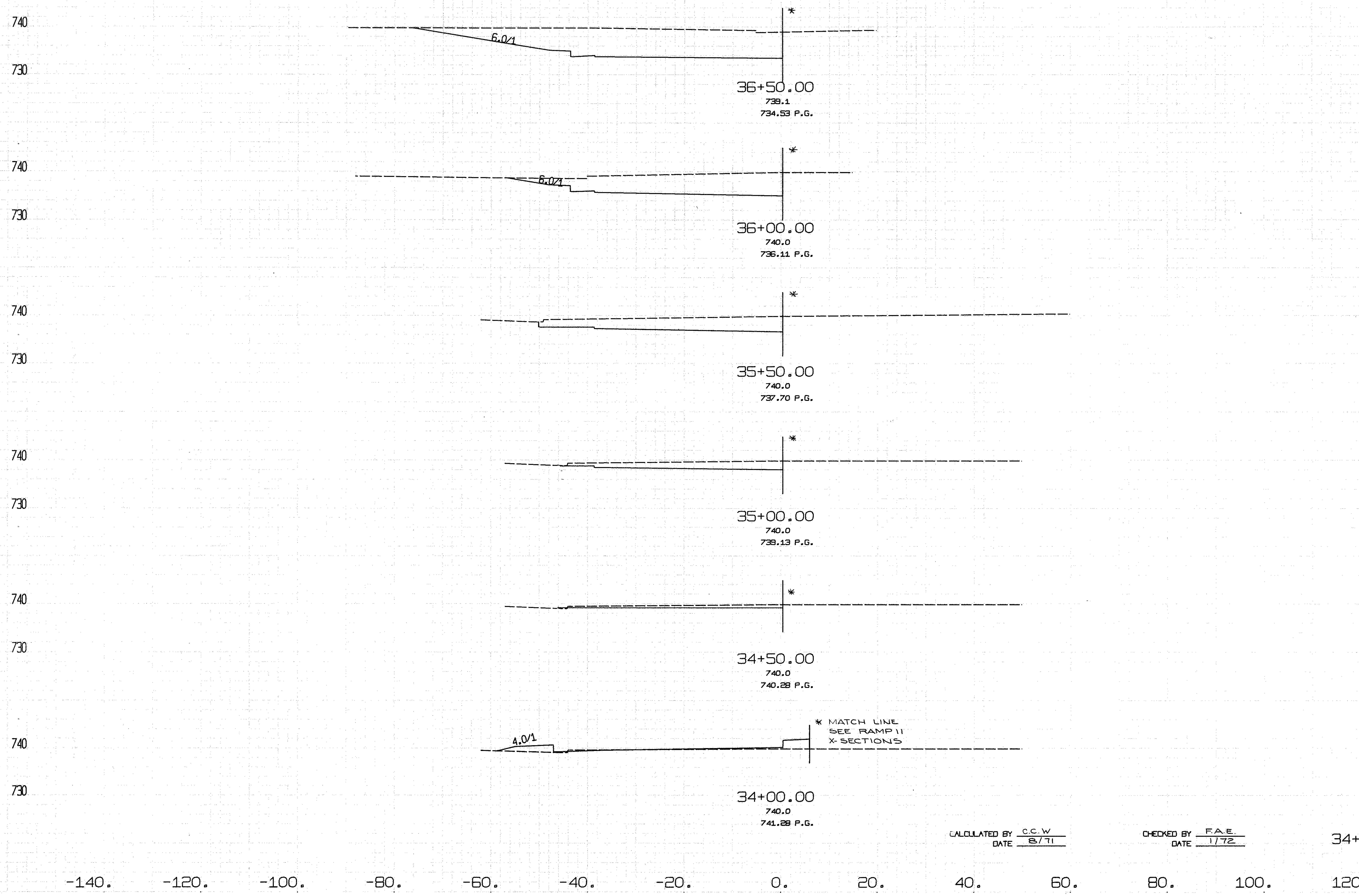
42+69.21
741.2
747.77 P.G.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 11
42+69.21 TO 42+69.21

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	353.	0.		
50.00C 50.00F			501.	0.
	188.	0.		
56.22C 50.00F			324.	0.
	123.	0.		
55.75C 50.00F			188.	0.
	59.	0.		
50.00C 50.00F			76.	0.
	23.	0.		
50.00C 50.00F			23.	25.
	2.	27.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 12
34+00.00 TO 36+50.00

FED. RD. DIVISION	STATE	PROJECT	184/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
0.00C 0.00F	2306.	0.	0.	0.
48.99C 50.00F	1336.	0.	2123.	0.
50.00C 50.00F	1004.	0.	1492.	0.
50.00C 50.00F	607.	0.	890.	0.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 12
37+00.00 TO 38+00.00

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	1602.	0.		
51.13C 50.00F			3162.	0.
	1737.	0.		
58.01C 56.00F			4164.	0.
	2139.	0.		
46.33C 44.00F			3959.	0.
	2475.	0.		
53.02C 50.00F			4694.	0.

CALCULATED BY C.C.W.
DATE 8/71

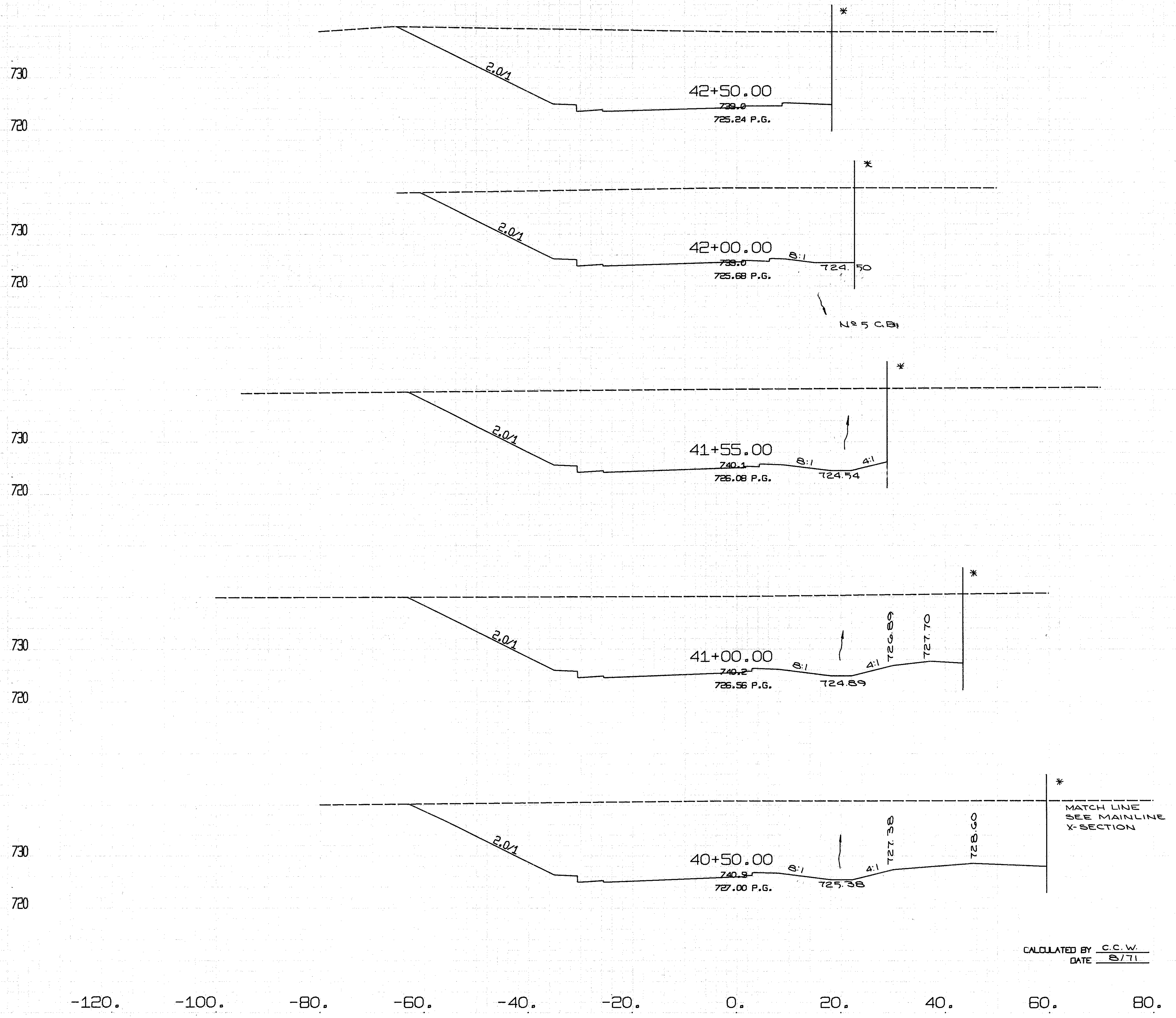
CHECKED BY F.A.E.
DATE 1/72

RAMP 12
38+50.00 TO 40+00.00

FED. RD. DIVISION	STATE	PROJECT	186/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	1019.	0.		
49.49C 50.00F			1847.	0.
	996.	0.		
44.65C 45.00F			1788.	0.
	1167.	0.		
54.74C 55.00F			2546.	0.
	1345.	0.		
50.00C 50.00F			2681.	0.
	1551.	0.		
50.26C 50.00F			2934.	0.



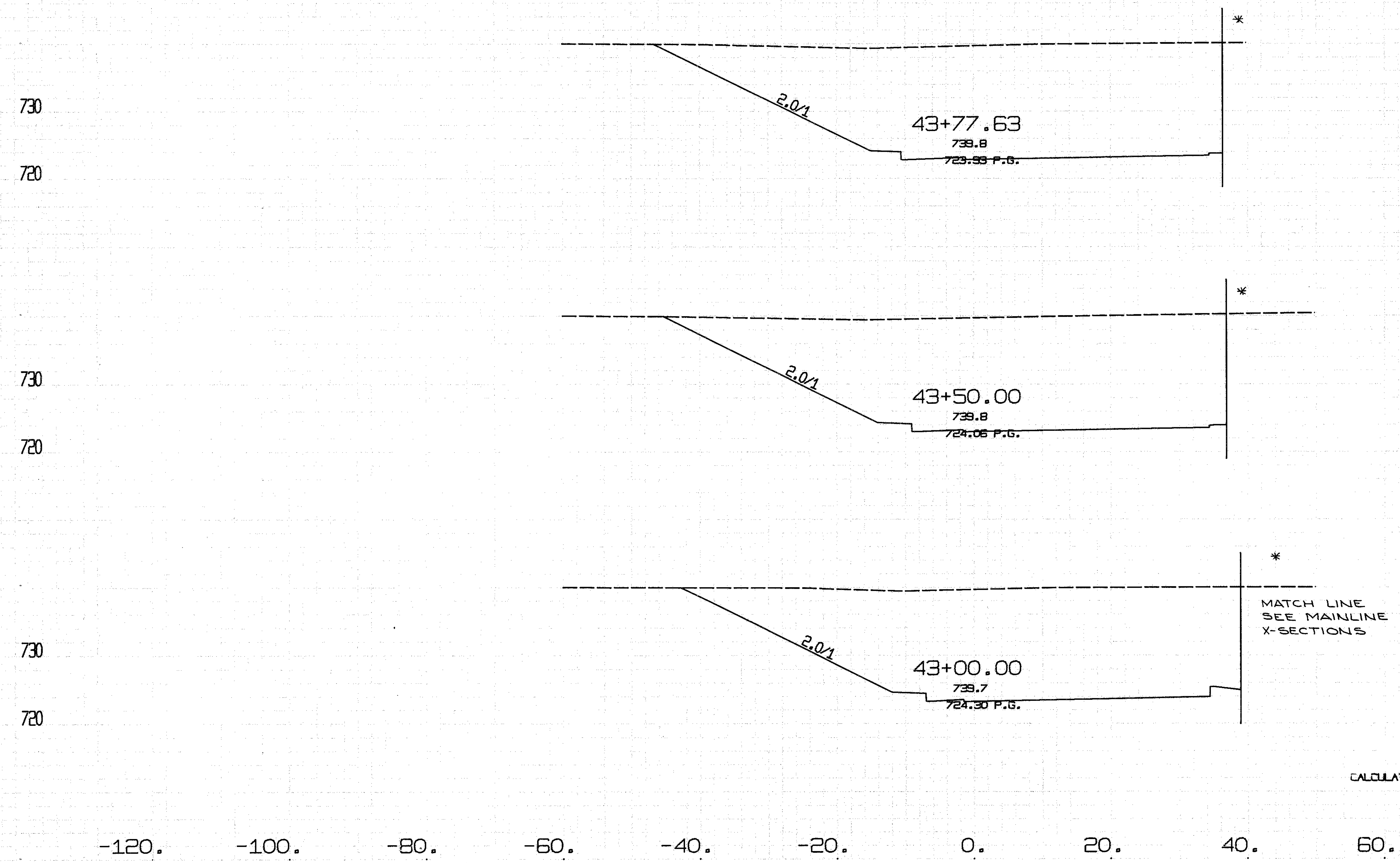
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 12
40+50.00 TO 42+50.00

FED. RD. DIVISION	STATE	PROJECT	187/713
2	OHIO	I-90-I(50)19	

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	1099.	0.		
27.65C 27.63F			1115.	0.
	1079.	0.		
50.06C 50.00F			1976.	0.
	1053.	0.		
49.93C 50.00F			1915.	0.

CALCULATED BY C.C.W.
DATE 8/71

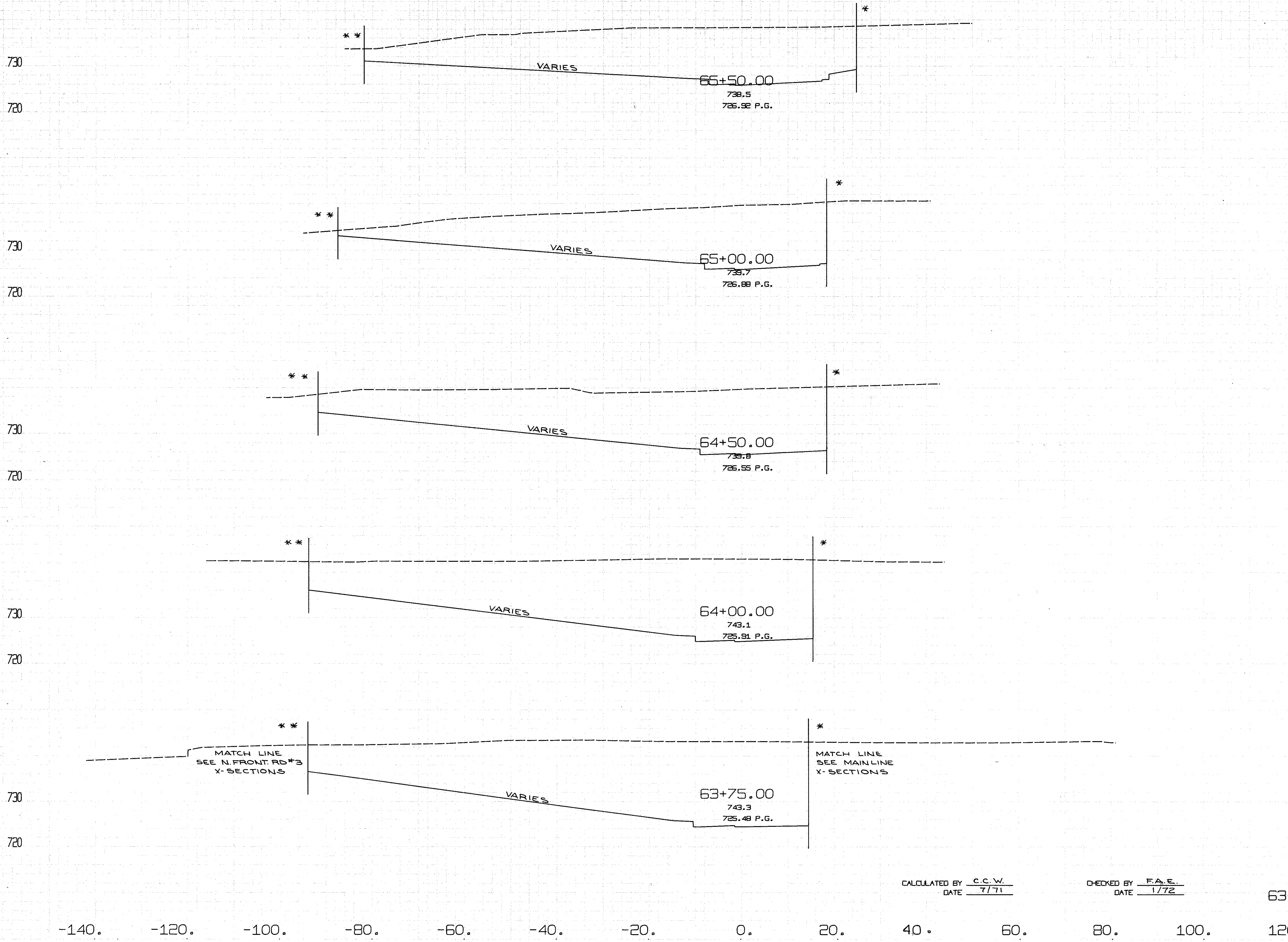
CHECKED BY F.A.E.
DATE 1/72

RAMP 12
43+00.00 TO 43+77.63

60. 80. 100. 120. 140. 160.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50)19	188/713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	956.	0.		
49.03C 50.00F			1710.	0.
	927.	0.		
48.84C 50.00F			1854.	0.
	1123.	0.		
48.62C 50.00F			2307.	0.
	1440.	0.		
24.28C 25.00F			1317.	0.
	1489.	0.		
0.00C 0.00F			0.	0.

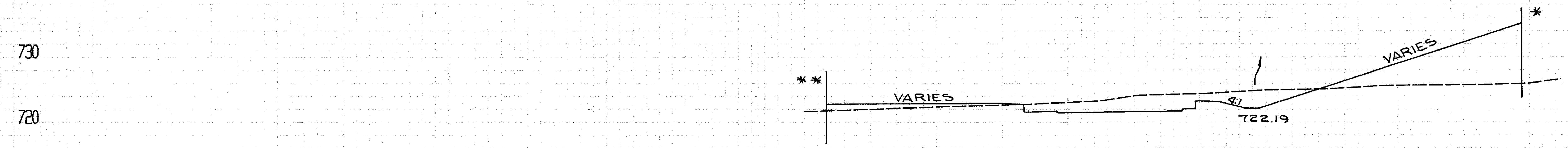
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

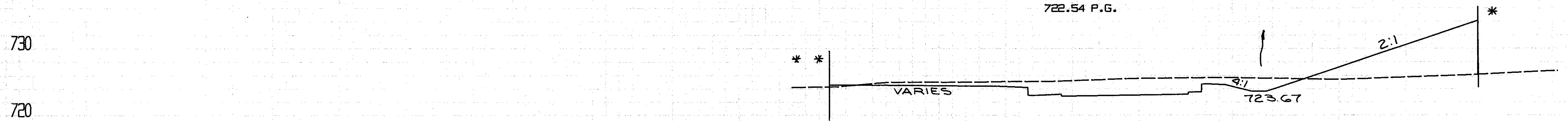
RAMP 13
63+75.00 TO 65+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	189 713

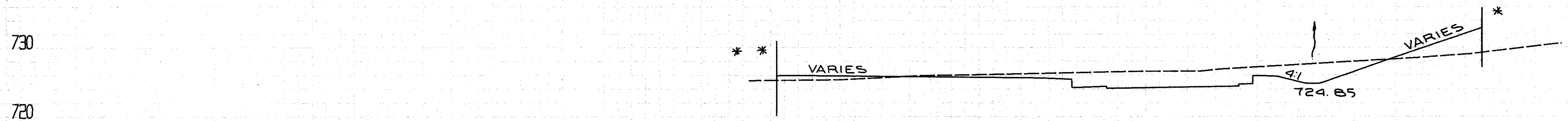
CUY-90-10.40



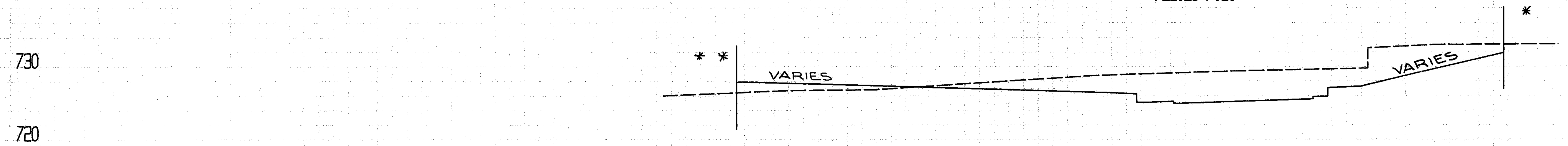
68+00.00
723.1
722.54 P.G.



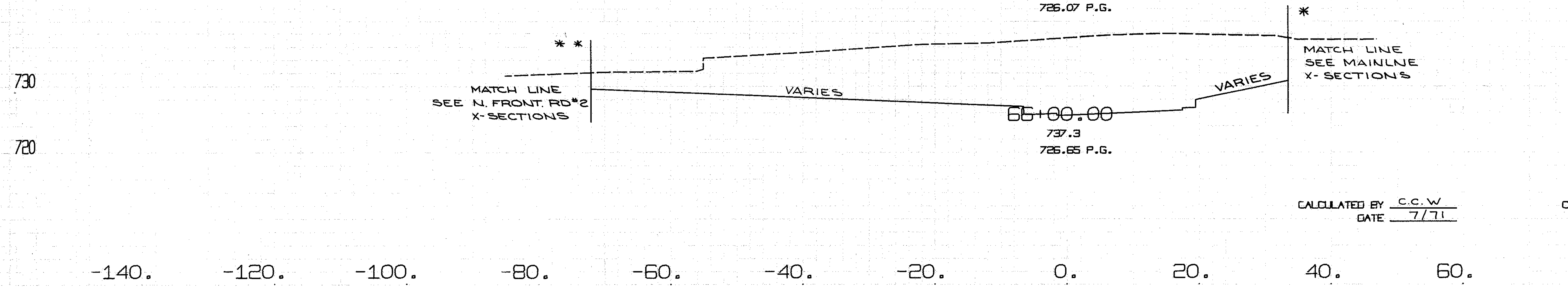
67+50.00
725.3
724.02 P.G.



67+00.00
726.5
725.20 P.G.



66+50.00
729.2
726.07 P.G.



66+00.00
737.3
726.65 P.G.

Station	CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
68+00.00	50.00C 50.00F	80.	158.	161.	247.
67+50.00	50.00C 50.00F	94.	109.	182.	133.
67+00.00	50.00C 50.00F	103.	35.	295.	50.
66+50.00	50.00C 50.00F	216.	19.	984.	18.
66+00.00	49.28C 50.00F	846.	0.	1645.	0.

CALCULATED BY C.C.W
DATE 7/71

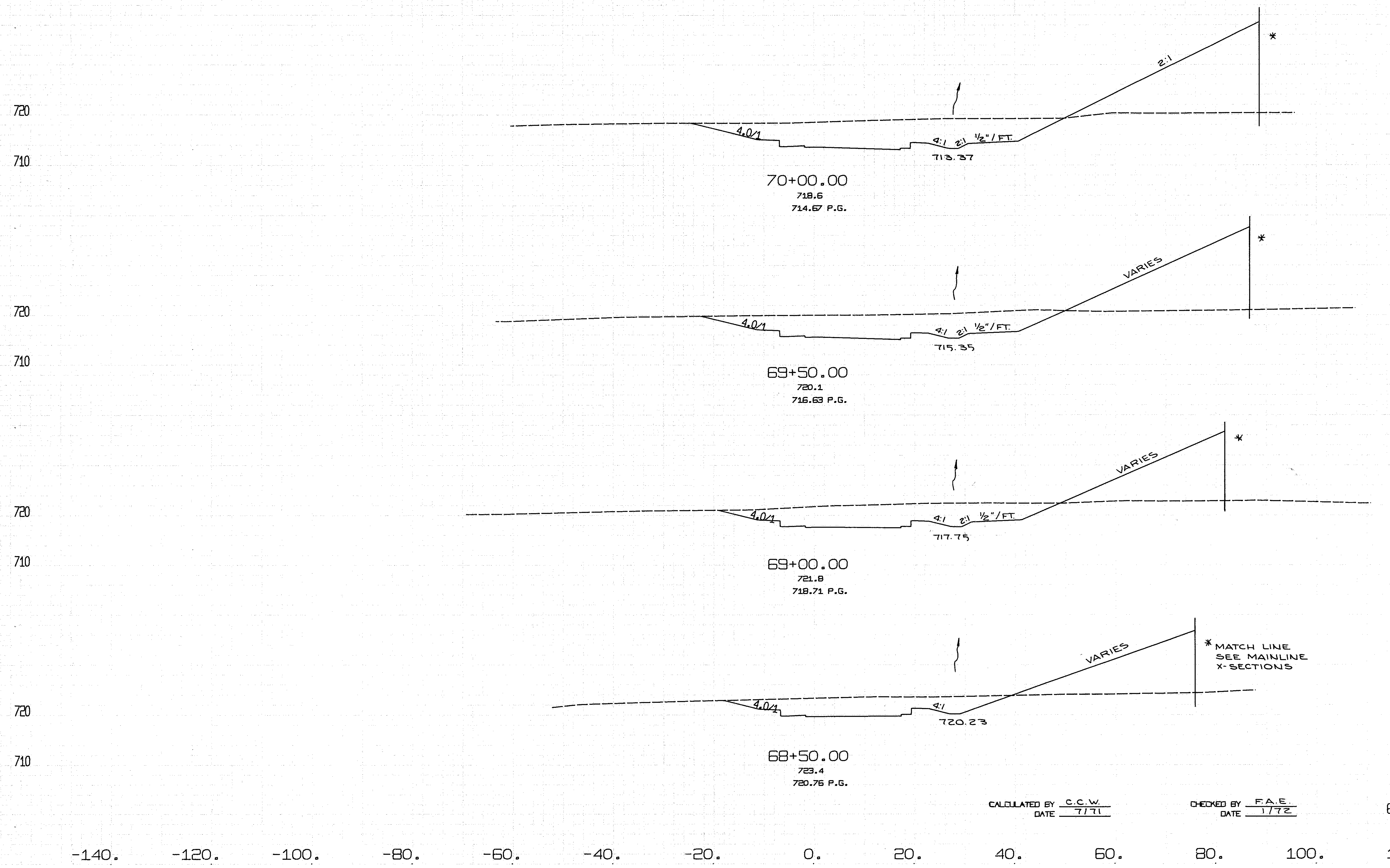
CHECKED BY F.A.E.
DATE 1/72

RAMP 13
66+00.00 TO 68+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	190 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
49.05C 45.38F	302.	341.	515.	546.
49.02C 45.55F	265.	309.	449.	449.
50.00C 50.00F	229.	223.	356.	419.
50.00C 50.00F	155.	229.	217.	358.



CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

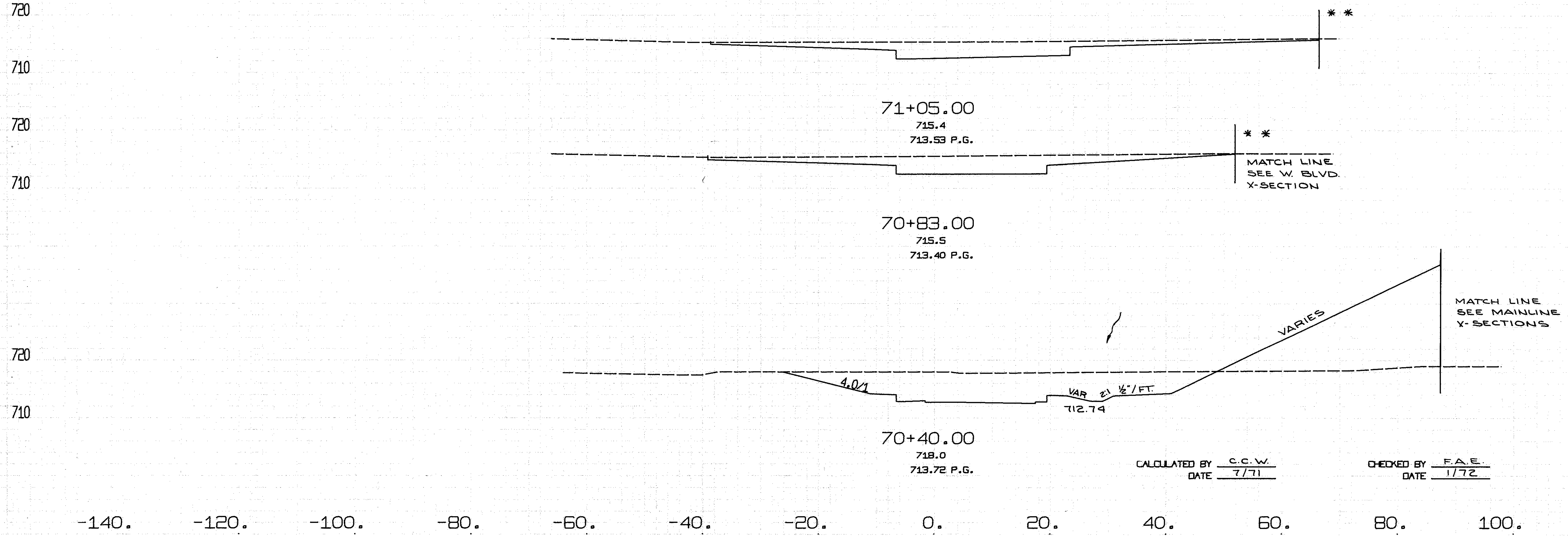
RAMP 13
68+50.00 TO 70+00.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

191
713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	133.	0.		
21.81C 22.00F			111.	0.
	141.	0.		
42.52C 41.04F			338.	271.
	288.	356.		
39.32C 36.31F			429.	468.



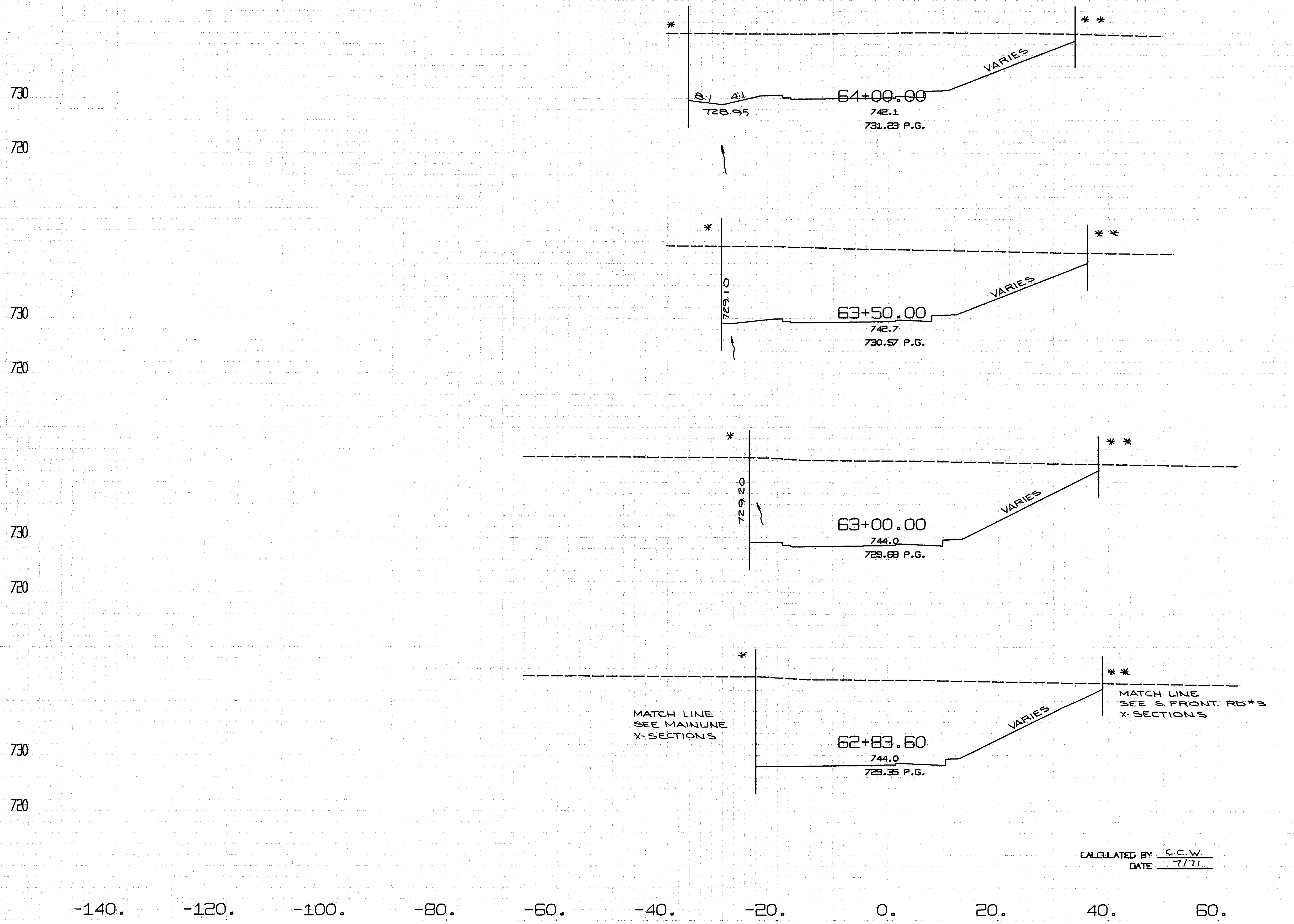
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 13
70+40.00 TO 71+05.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	192/713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	692.	0.		
50.02C 50.00F			1310.	0.
	722.	0.		
50.00C 50.00F			1388.	0.
	777.	0.		
16.40C 16.40F			473.	0.
	780.	0.		
0.00C 0.00F			0.	0.

RAMP 14
62+83.60 TO 64+00.00

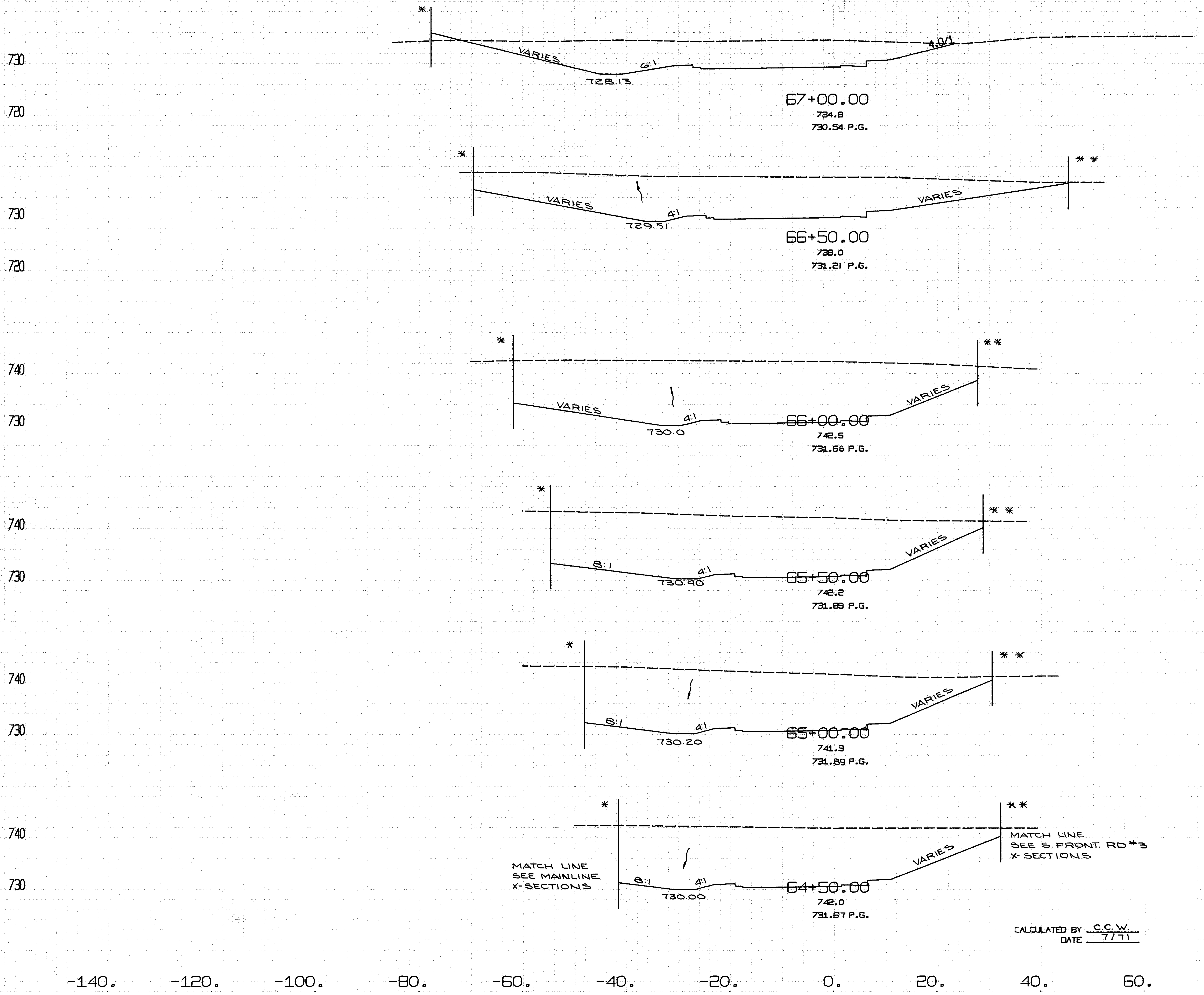
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

193
713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	402.	4.		
50.00C 50.00F			1008.	4.
	687.	0.		
50.00C 50.00F			1501.	0.
	934.	0.		
50.08C 50.00F			1644.	0.
	838.	0.		
50.07C 50.00F			1490.	0.
	769.	0.		
50.05C 50.00F			1386.	0.
	726.	0.		
50.04C 50.00F			1314.	0.

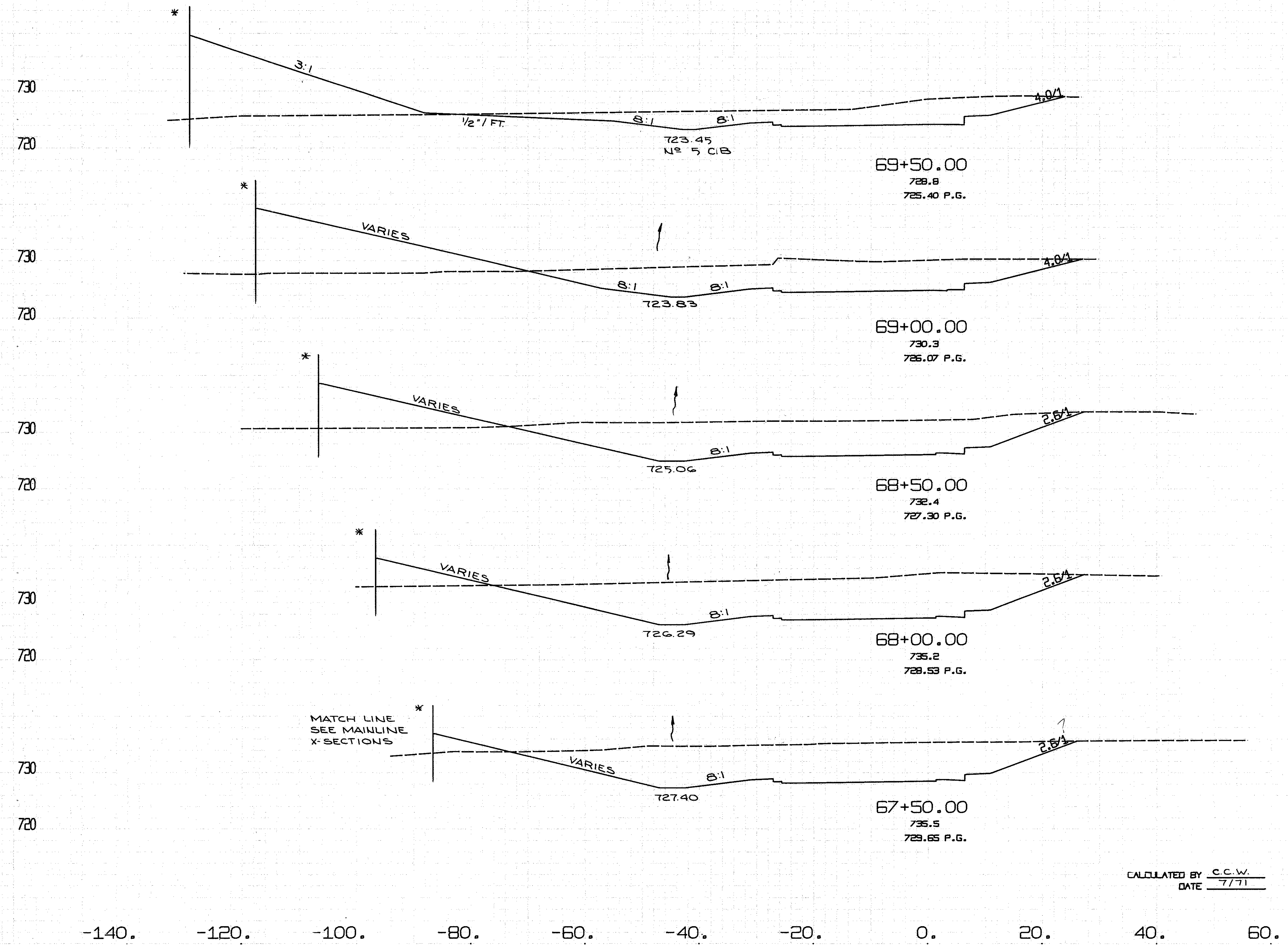
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 14
64+50.00 TO 67+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	194/713

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	242.	299.		
50.00C 50.00F			582.	535.
	387.	278.		
50.00C 50.00F			814.	383.
	492.	136.		
50.00C 50.00F			981.	174.
	568.	52.		
50.00C 50.00F			1010.	69.
	522.	22.		
50.00C 50.00F			856.	24.

CALCULATED BY C.C.W.
DATE 7/71

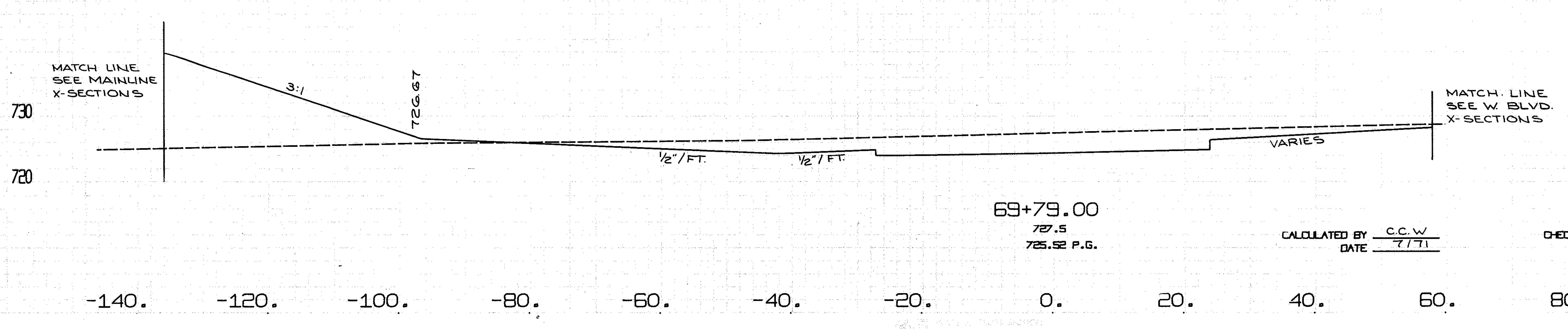
CHECKED BY F.A.E.
DATE 1/72

RAMP 14
67+50.00 TO 69+50.00

FED. RD. DIVISION	STATE	PROJECT	195/713
2	OHIO	I-90-I(50)19	

CUY-90-10.40

CENTROID ARC LENGTH   END AREA CUT   FILL   CU. CUT   YDS. FILL



255. 309.

29.00C
29.00F

267. 327.

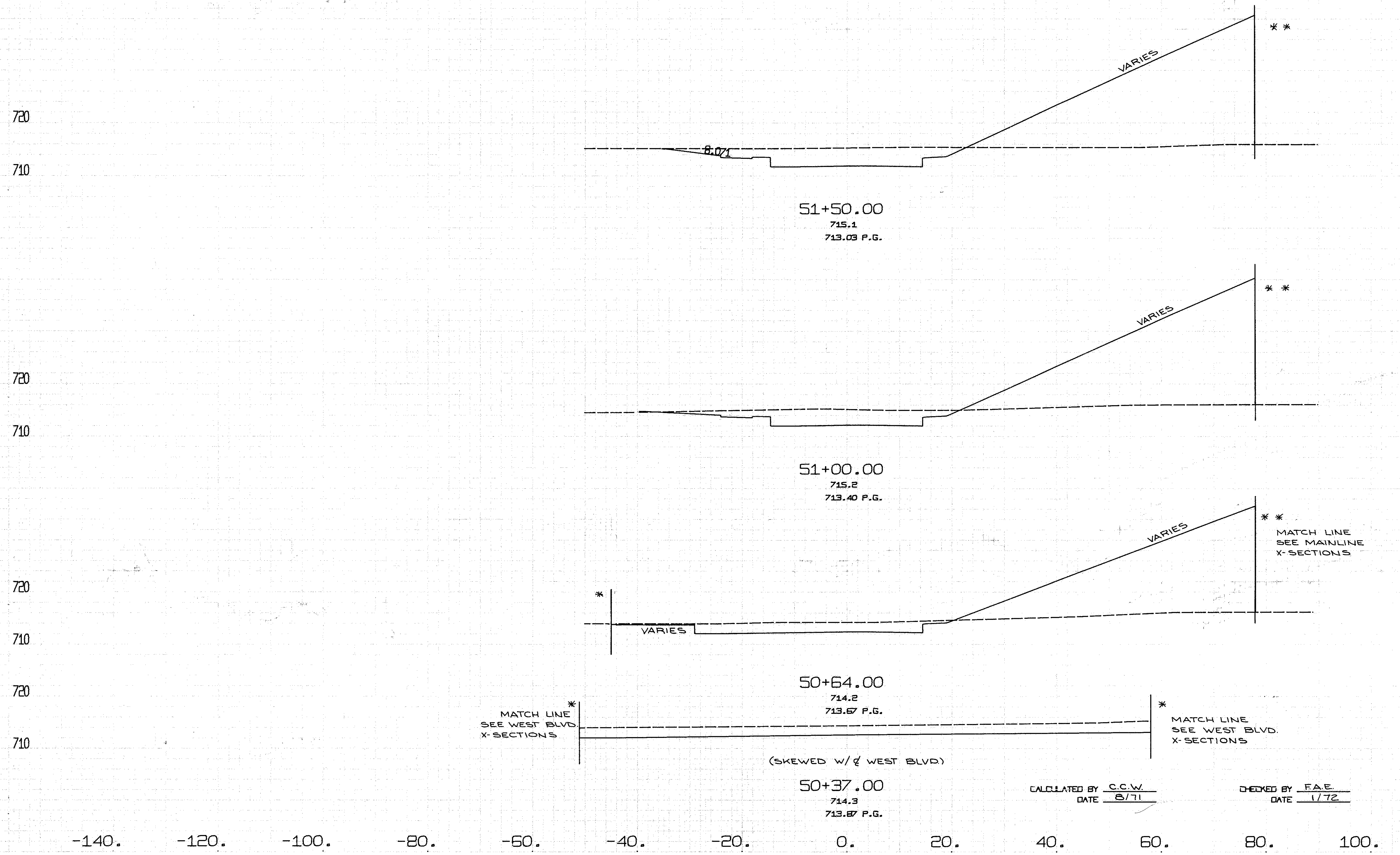
CALCULATED BY C.C.W
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

RAMP 14
69+79.00 TO 69+79.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	196/713

CUY-90-10.40



51+50.00
715.1
713.03 P.G.

51+00.00
715.2
713.40 P.G.

50+64.00
714.2
713.67 P.G.

50+37.00
714.3
713.87 P.G.

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	136.	695.		
50.00C 50.00F			232.	1269.
	115.	676.		
36.00C 36.00F			135.	842.
	88.	587.		
27.00C 27.00F			144.	294.
	200.	0.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W.
DATE 8/71

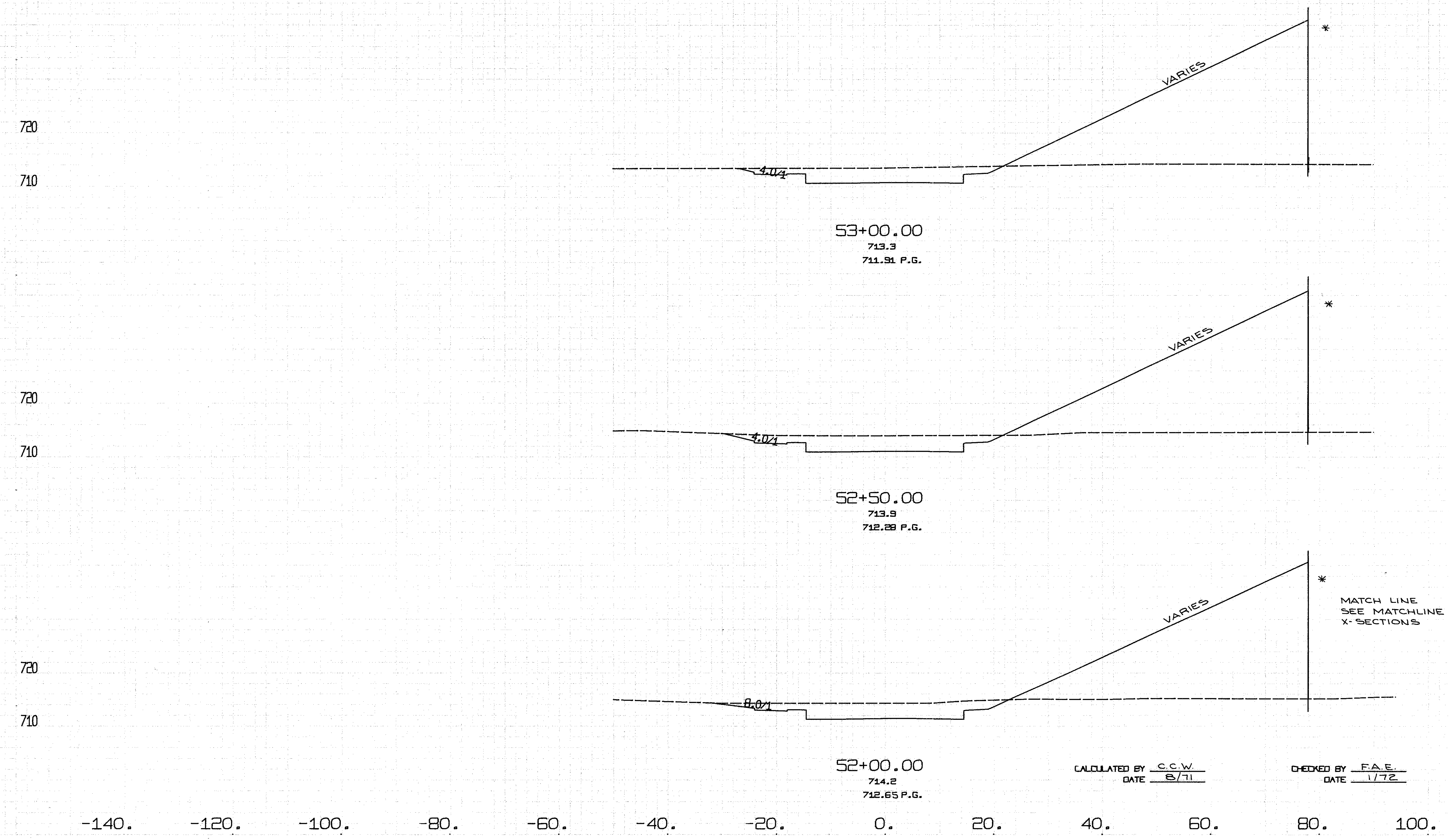
CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
50+37.00 TO 51+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	197 713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	100.	748.		
50.00C 50.00F			197.	1370.
	113.	732.		
50.00C 50.00F			208.	1331.
	112.	705.		
50.00C 50.00F			230.	1296.



CALCULATED BY C.C.W.
DATE 8/71

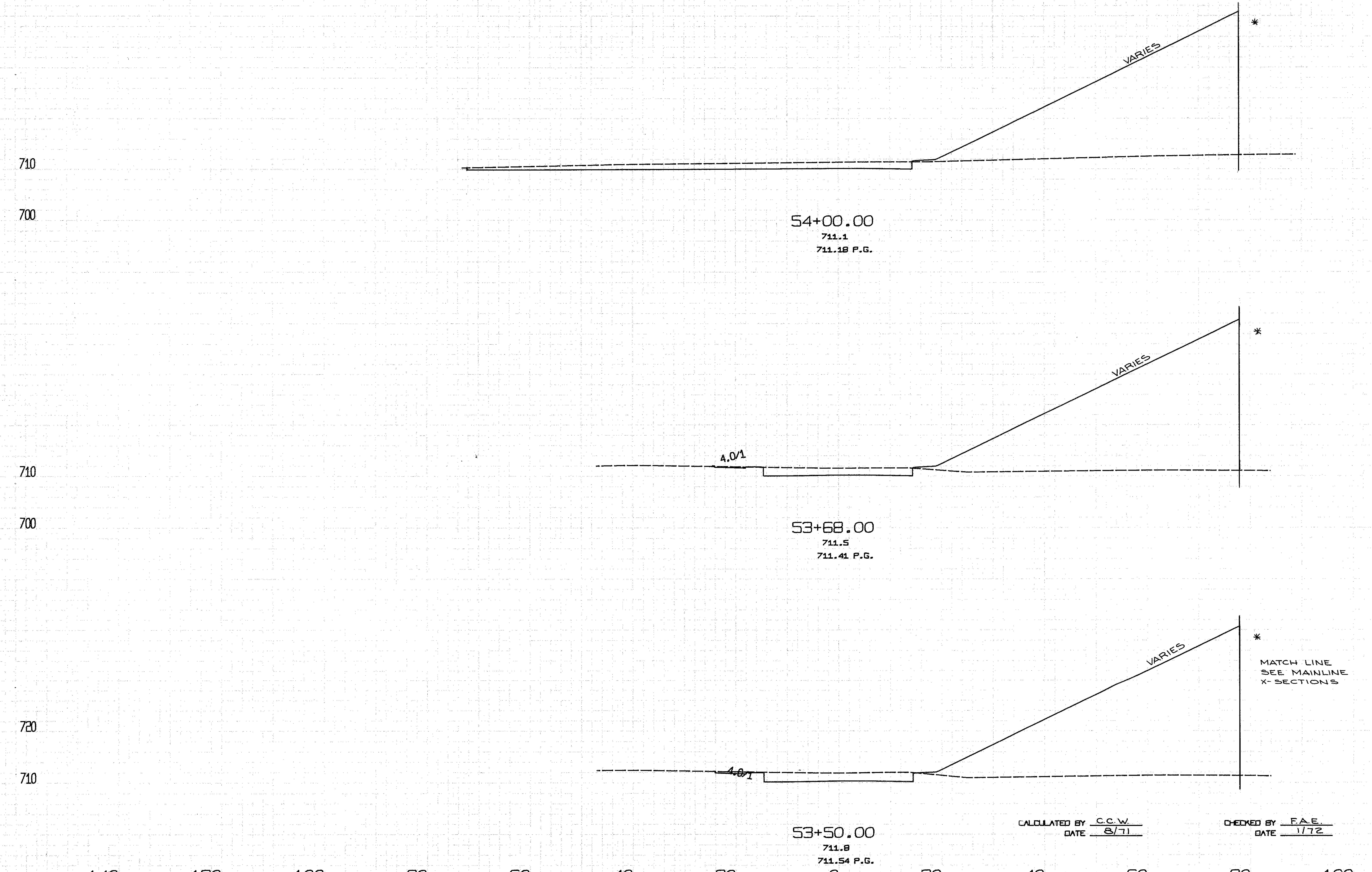
CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
52+00.00 TO 53+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	198 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	86.	841.		
32.00C 32.00F			79.	1036.
	47.	908.		
18.00C 18.00F			34.	602.
	54.	897.		
50.00C 50.00F			143.	1523.



CALCULATED BY C.C.W.
DATE 8/71

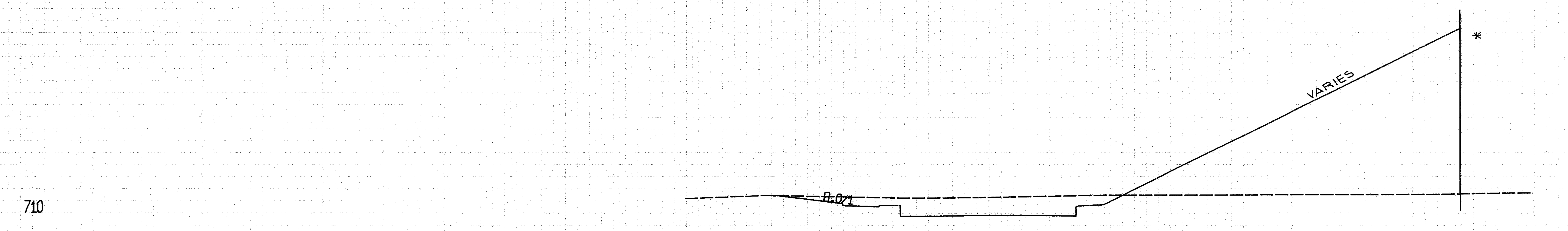
CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
53+50.00 TO 54+00.00

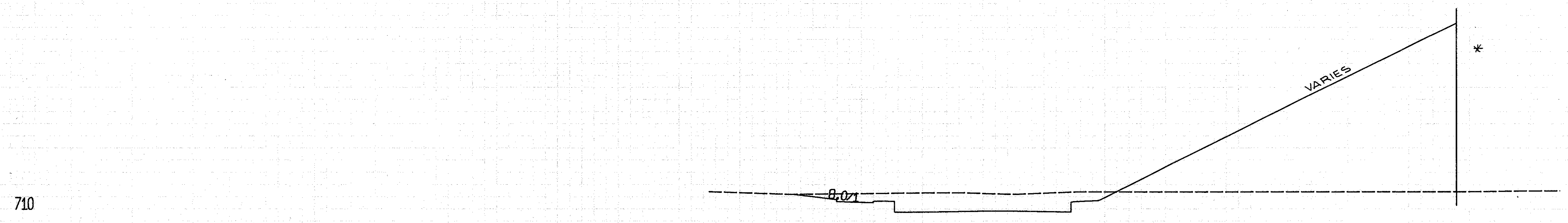
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	199/713

CUY-90-10.40

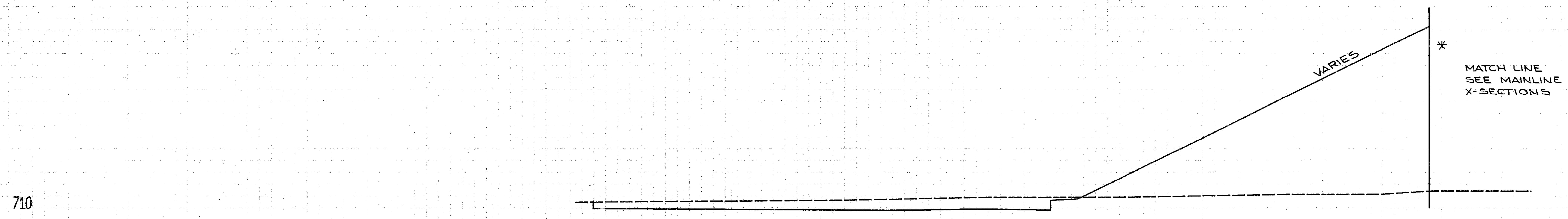
CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	118.	776.		
35.00C 35.00F			150.	1011.
	113.	784.		
40.00C 40.00F			177.	1191.
	126.	824.		
25.00C 25.00F			98.	771.



55+00.00
712.4
710.78 P.G.



54+65.00
712.6
710.92 P.G.



MATCH LINE
SEE MAINLINE
X-SECTIONS

54+25.00
711.7
711.08 P.G.

CALCULATED BY C.C.W.
DATE 8/71

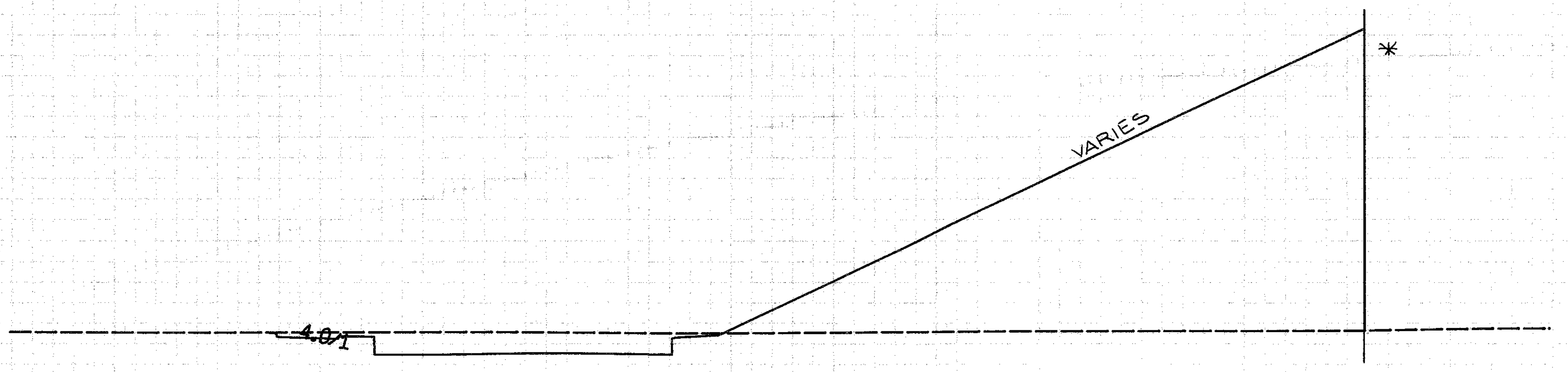
CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
54+25.00 TO 55+00.00

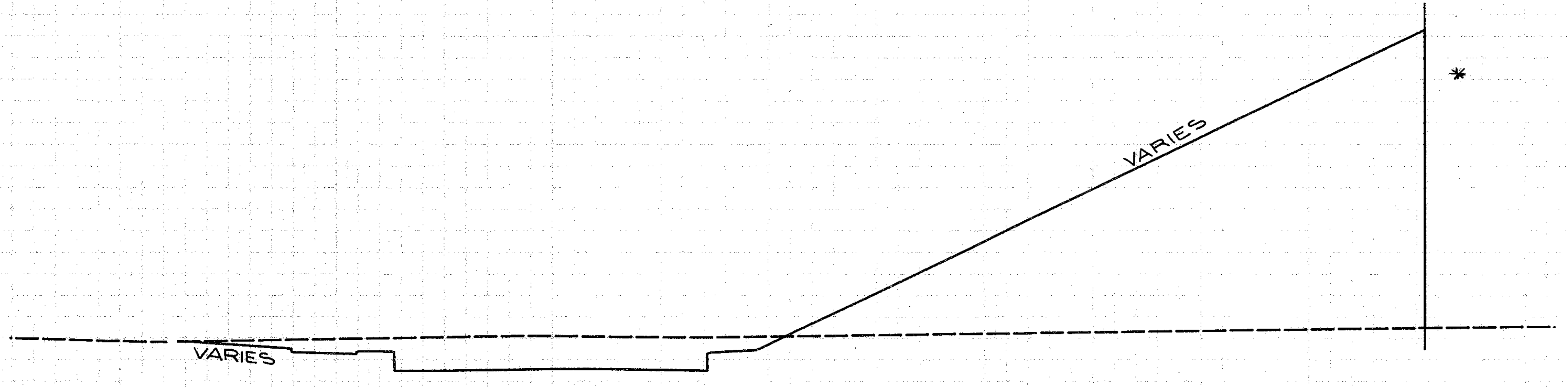
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	200 713

CUY-90-10.40

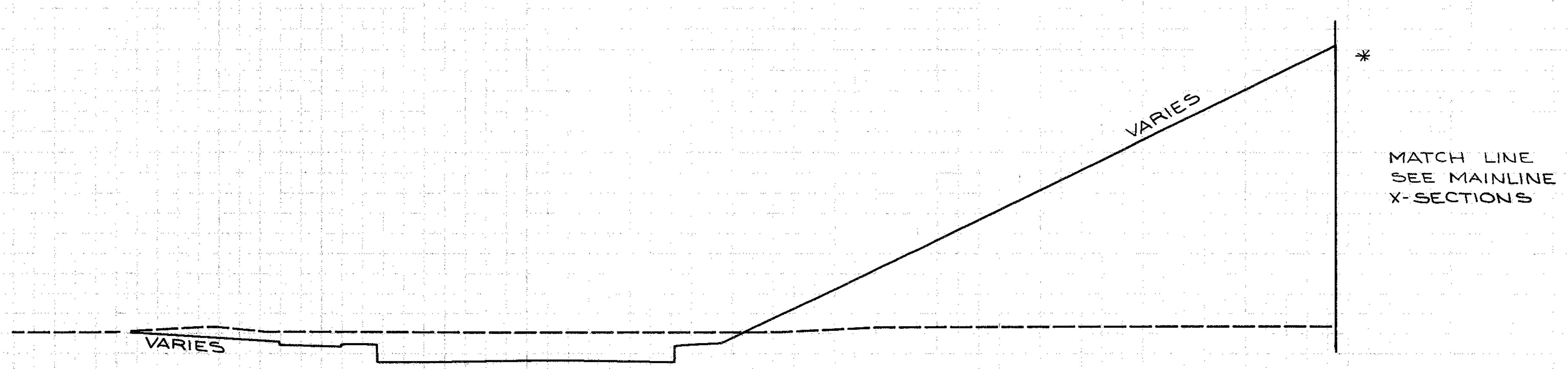
CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	68.	922.		
50.00C 50.00F			167.	1617.
	112.	824.		
50.00C 50.00F			211.	1499.
	116.	795.		
50.00C 50.00F			217.	1455.



56+50.00
711.0
710.18 P.G.



56+00.00
712.2
710.38 P.G.



55+50.00
712.1
710.58 P.G.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

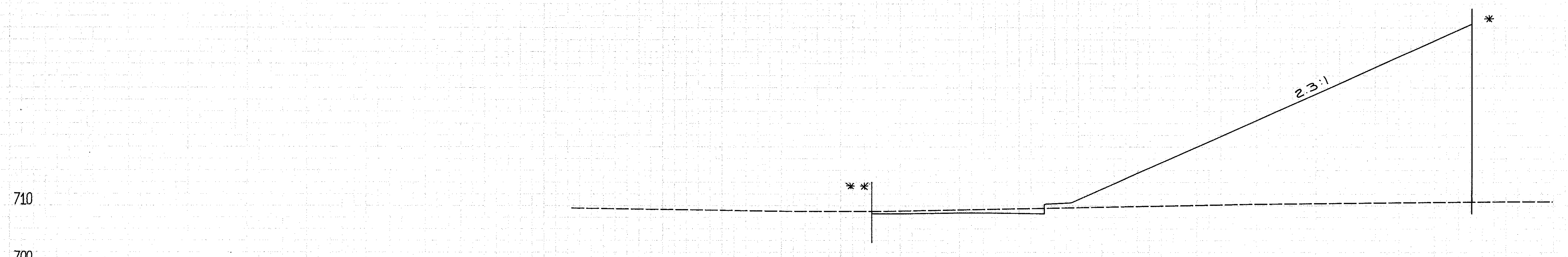
MARGINAL RD. NO. 4
55+50.00 TO 56+50.00

-140. -120. -100. -80. -60. -40. -20. 0. 20. 40. 60. 80. 100. 120. 140.

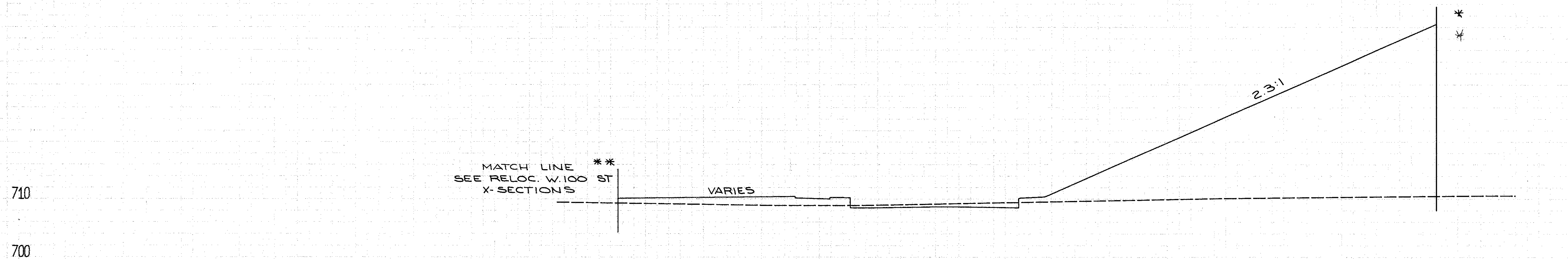
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50)19	201 713

CUY-90-10.40

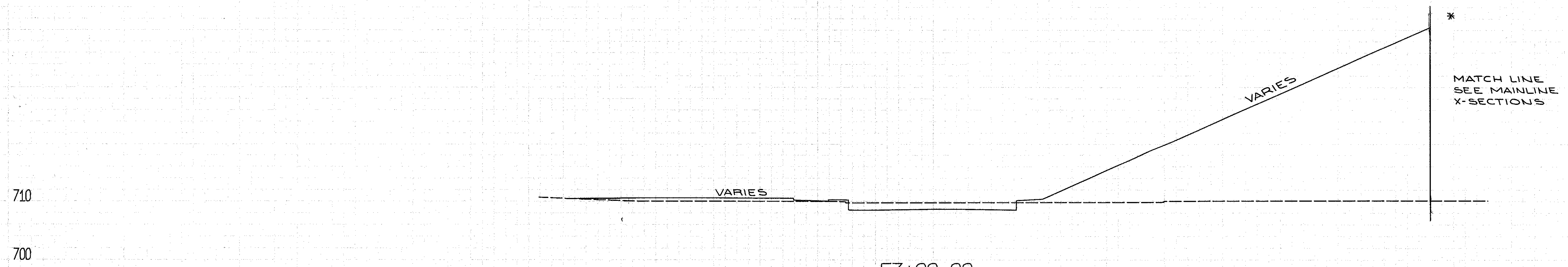
CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
AHD.	16.	1043.		
0.01C 0.01F			0.	0.
BK	16.	1093.		
12.00C 12.00F			11.	477.
	35.	1053.		
50.00C 50.00F			95.	1829.



57+12.00 AHD.
709.1
709.93 P.G.



57+12.00 BK.
709.1
709.93 P.G.



57+00.00
709.8
709.98 P.G.

CALCULATED BY C.C.W.
DATE 8/71

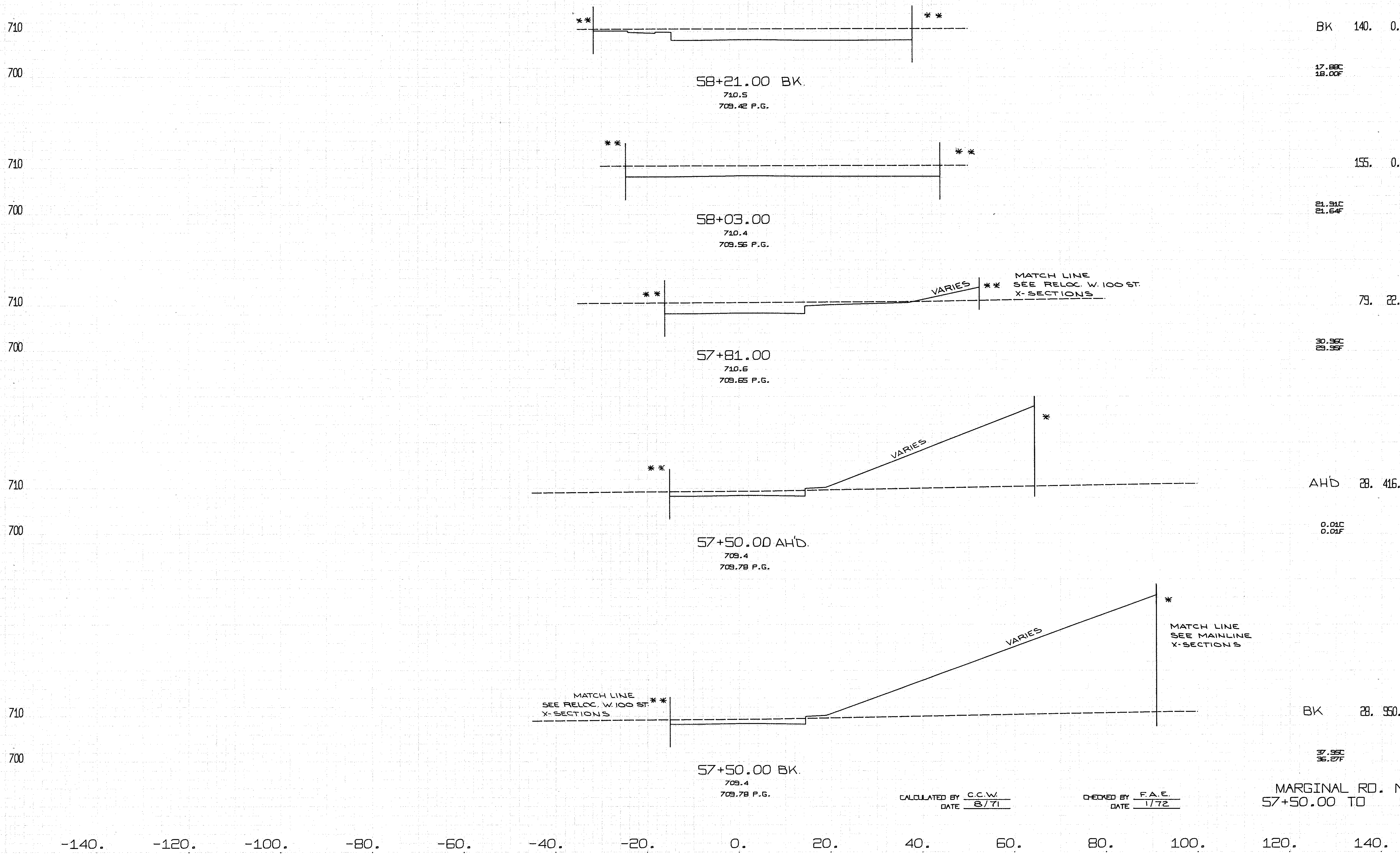
CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
57+00.00 TO 57+12.01

-140. -120. -100. -80. -60. -40. -20. 0. 20. 40. 60. 80. 100. 120. 140.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	202 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
BK	140.	0.		
17.88C 18.00F			98.	0.
	155.	0.		
21.91C 21.64F			95.	9.
	79.	22.		
30.96C 29.95F			61.	243.
AH'D	28.	416.		
0.01C 0.01F			0.	0.
BK	28.	950.		
37.95C 36.27F			31.	1339.

CALCULATED BY C.C.W.
DATE 8/71

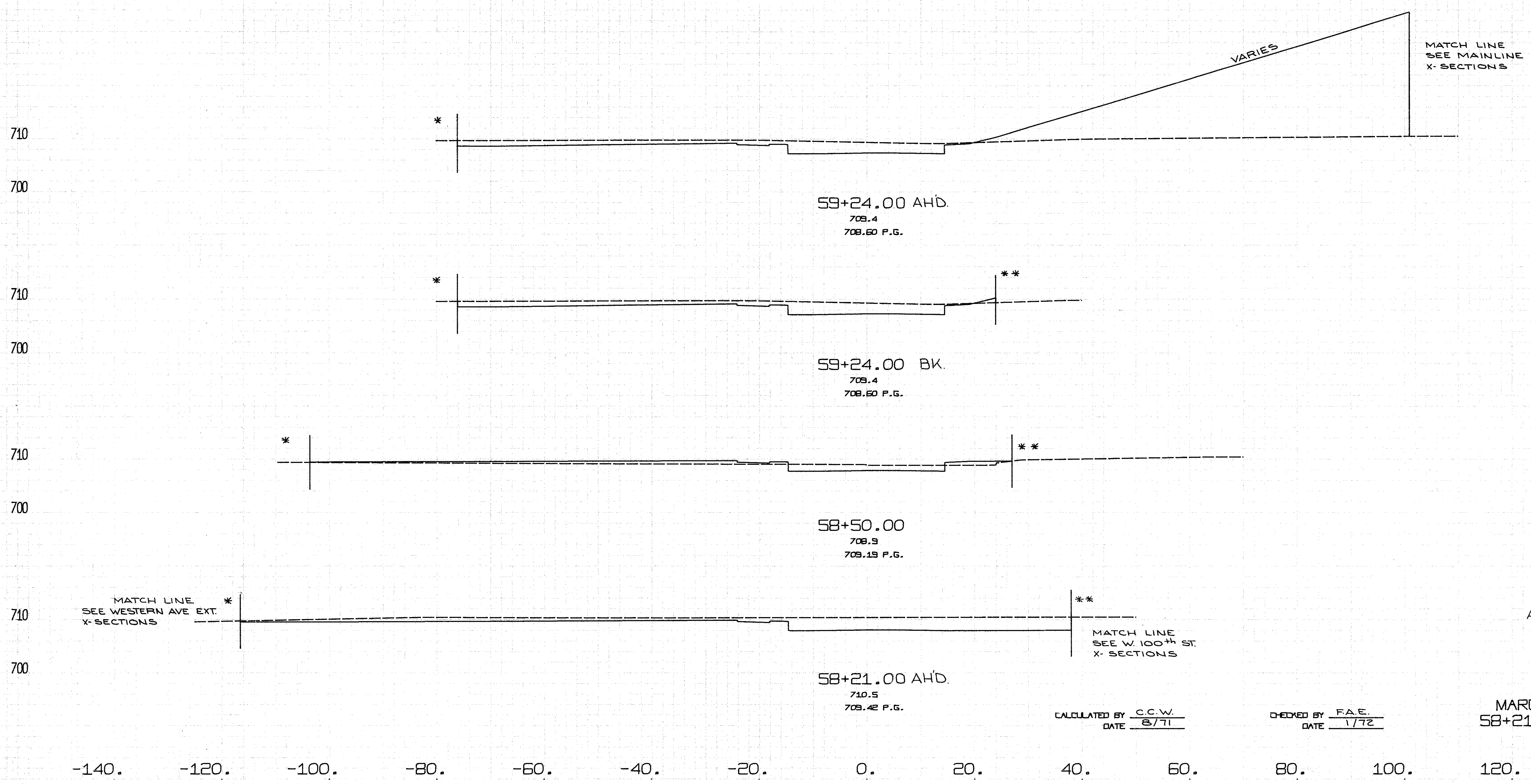
CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
57+50.00 TO 58+21.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	203 713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
AHD.	113.	914.		
0.01C 0.01F			0.	0.
BK	113.	2.		
74.55C 74.40F			203.	59.
	34.	41.		
29.10C 29.37F			117.	22.
AHD.	184.	0.		
0.01C 0.01F			0.	0.

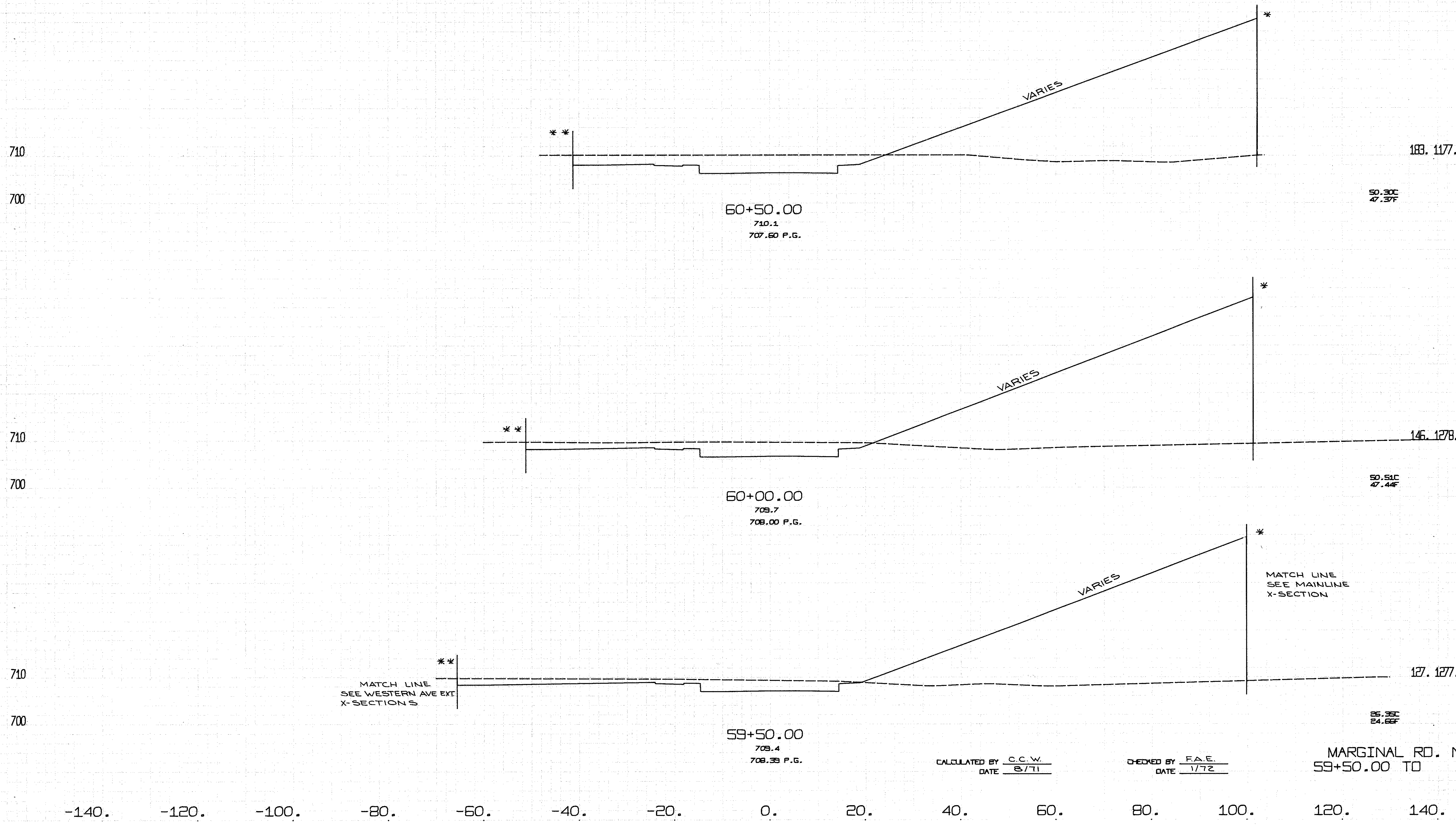


CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
58+21.00 TO 59+24.00

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	183.	1177.		
50.30C 47.37F			306.	2154.
	146.	1278.		
50.51C 47.44F			255.	2245.
	127.	1277.		
25.35C 24.66F			117.	1000.



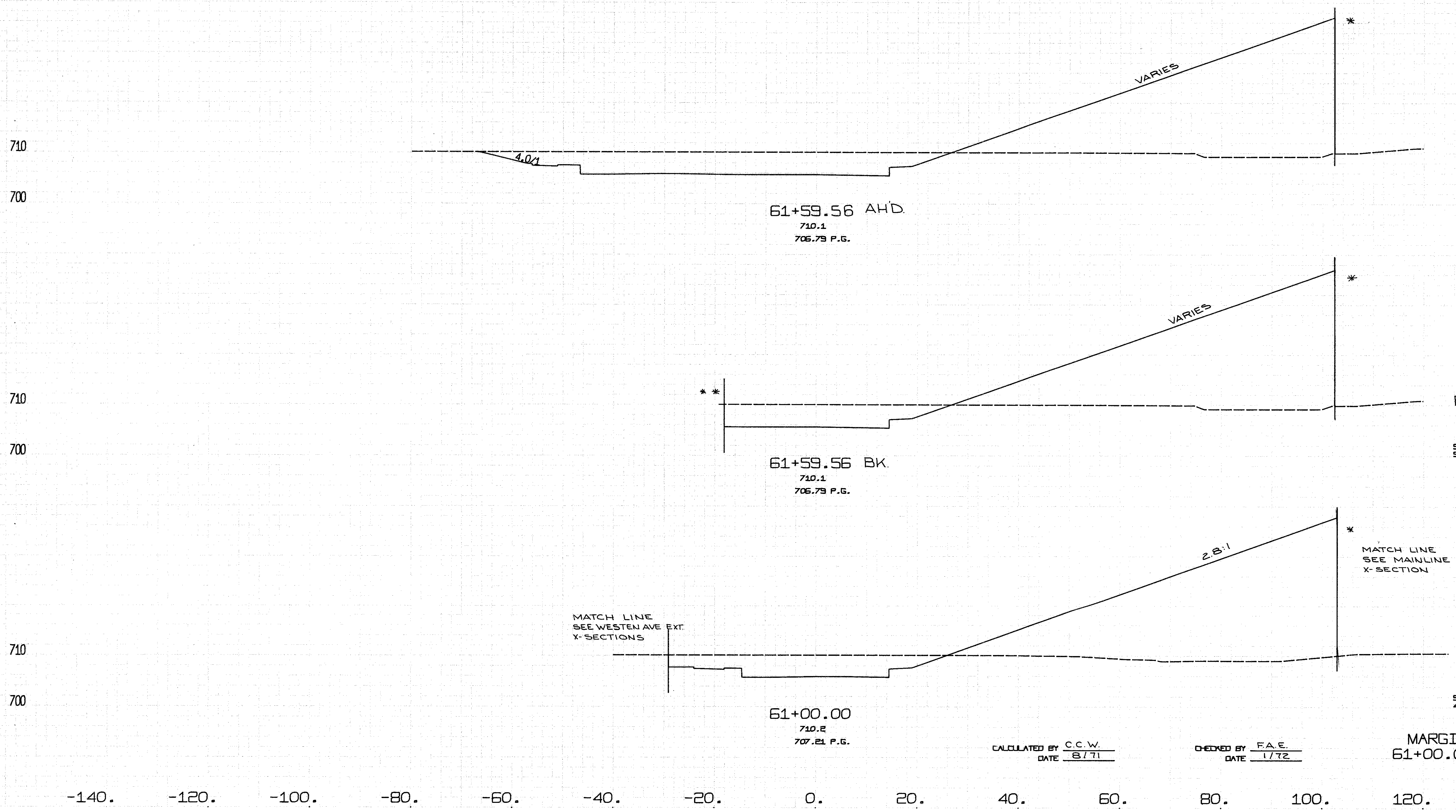
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
59+50.00 TO 60+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	205 713

CUY-90-10.40



	CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
AHD.		339.	1045.		
	0.01C 0.01F			0.	0.
BK		172.	1045.		
	59.59C 56.34F			394.	2254.
		185.	1115.		
	50.15C 47.32F			342.	2008.

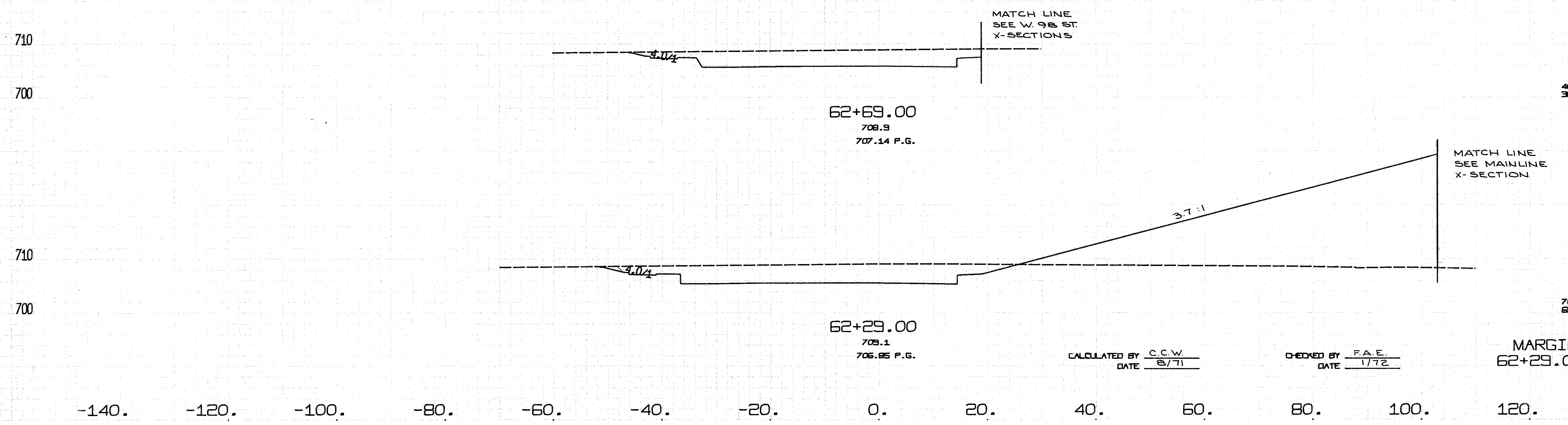
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
61+00.00 TO 61+59.56

FED. RD. DIVISION	STATE	PROJECT	206/713
2	OHIO	I-90-I(50)19	

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	163.	0.		
40.29C 38.92F			276.	586.
	207.	813.		
70.13C 65.68F			709.	2260.

CALCULATED BY C.C.W.
DATE 8/71

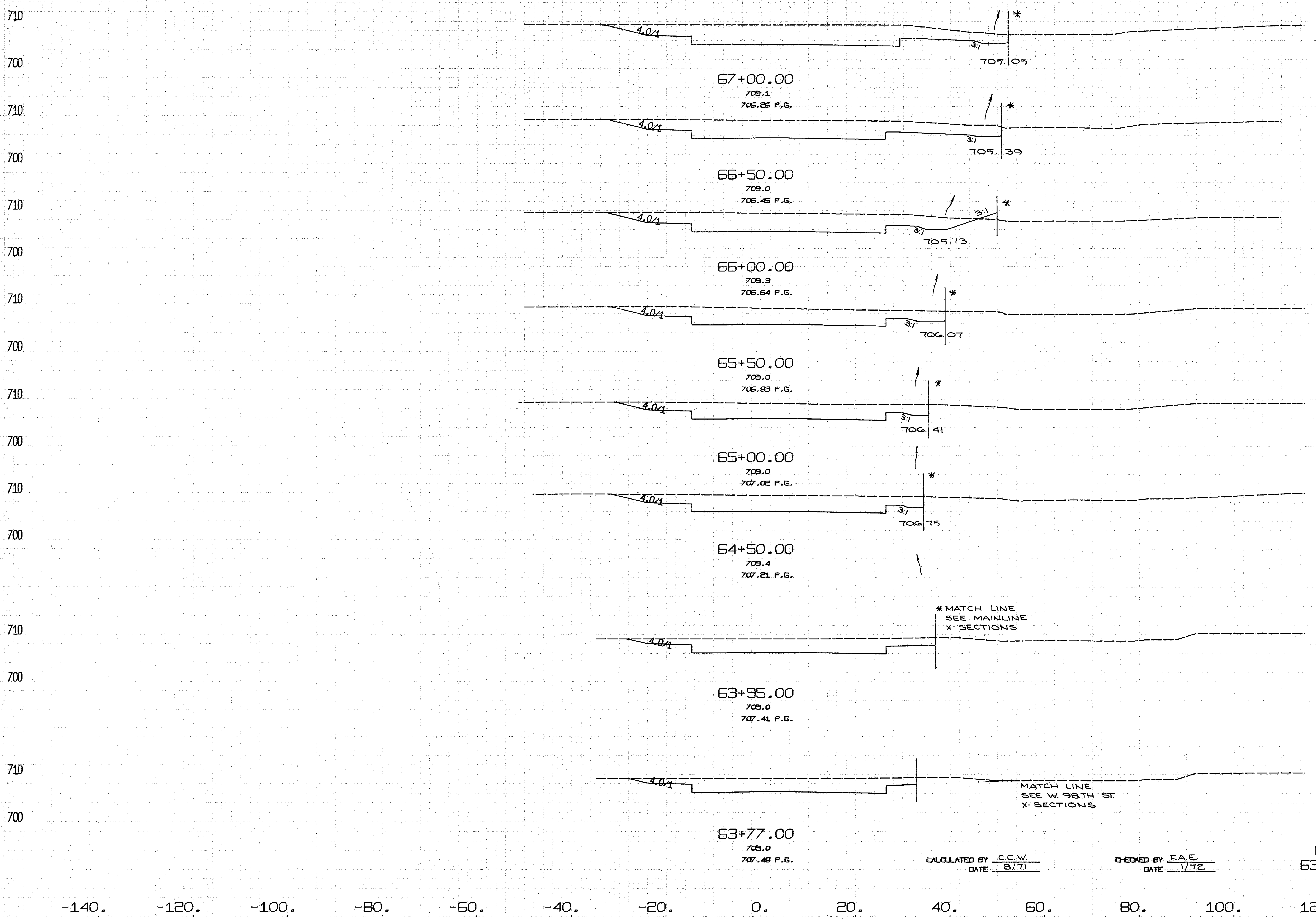
CHECKED BY F.A.E.
DATE 1/72

MARGINAL RD. NO. 4
62+29.00 TO 62+69.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

207
713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
50.00C 50.00F			480.	0.
	246.	0.		
50.00C 50.00F			447.	3.
	237.	3.		
50.00C 50.00F			399.	3.
	194.	0.		
50.00C 50.00F			344.	0.
	178.	0.		
50.00C 50.00F			341.	0.
	190.	0.		
55.00C 55.00F			347.	0.
	151.	0.		
17.90C 17.68F			97	0.
	141	0.		
0.00C 0.00F			0.	0.

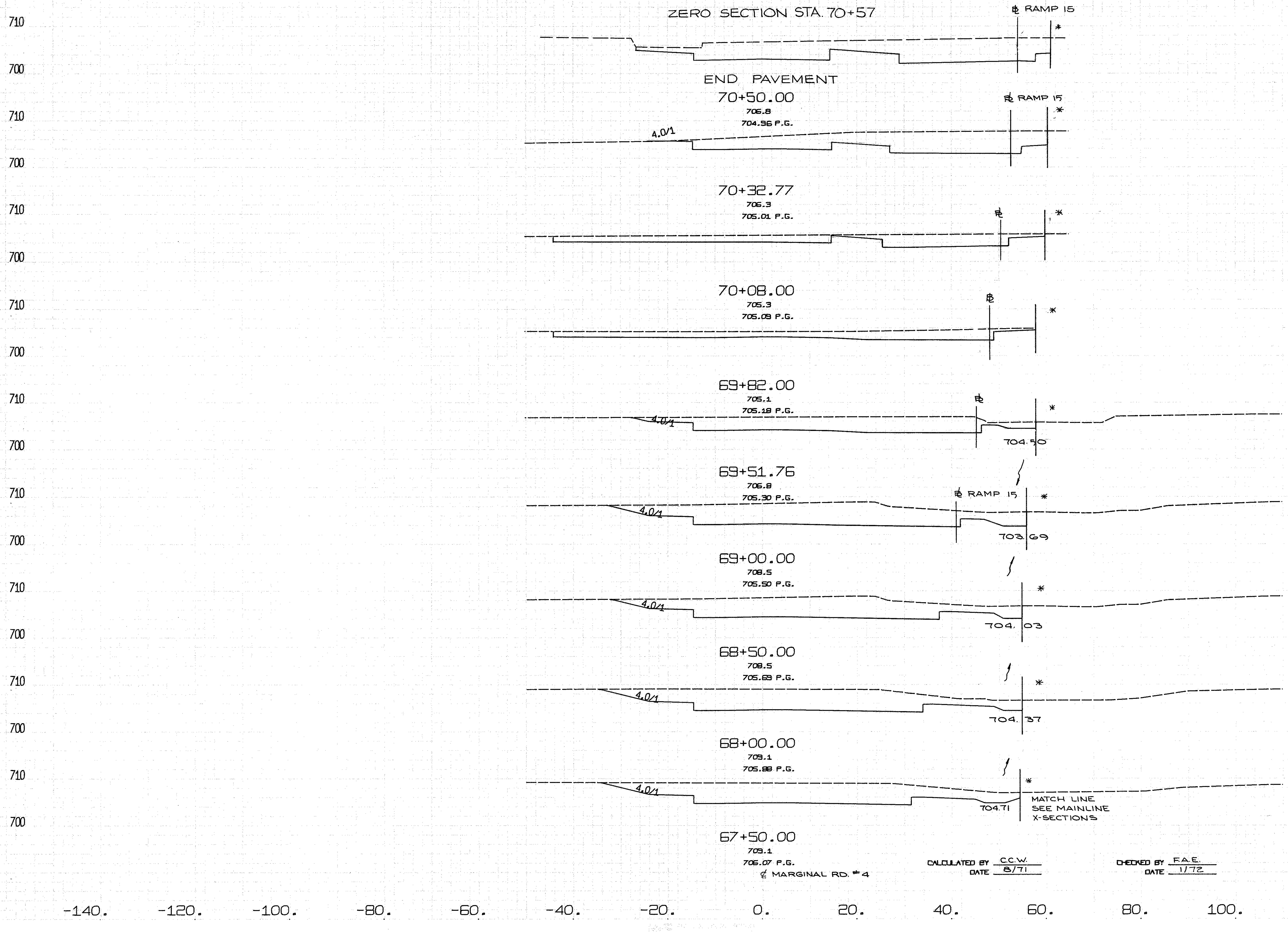
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

RAMP NO. 15 E
MARGINAL RD. NO. 4
63+77.00 TO 67+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	208 713

CUY-90-10.40



CALCULATED BY C.C.W.
DATE 8/71

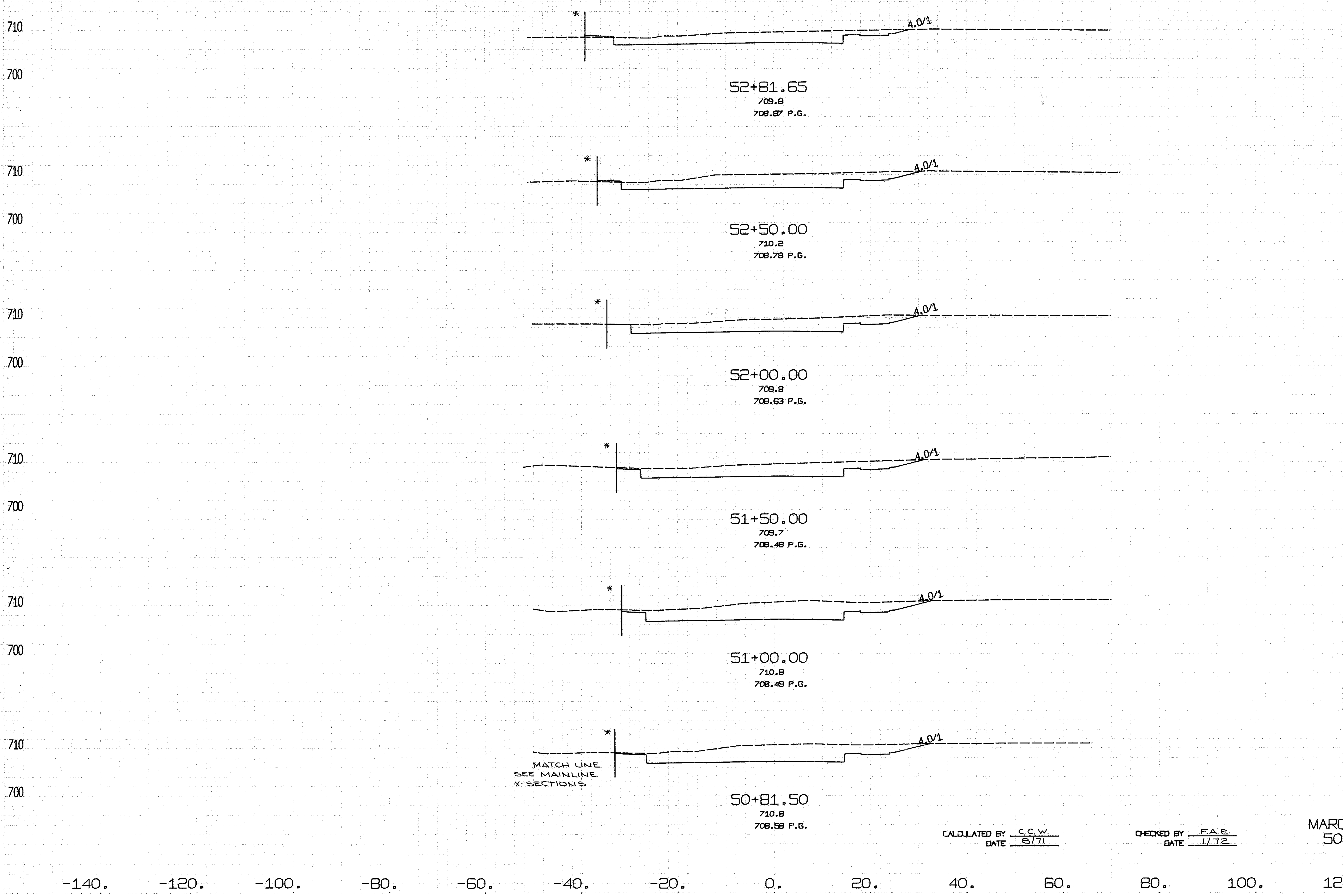
CHECKED BY F.A.E.
DATE 1/72

CENTROID ARC LENGTH	CUT	FILL	CU. CUT	YDS. FILL
			37.	0.
	289.	0.		
17.23C 17.23F			175.	0.
	259.	1.		
24.77C 24.77F			192.	0.
	160	0.		
26.00C 26.00F			147.	0.
	145.	0.		
30.24C 30.24F			200.	0.
	213.	0.		
51.76C 51.76F			500.	0.
	309.	0.		
50.00C 50.00F			544.	0.
	279.	0.		
50.00C 50.00F			534.	0.
	298.	0.		
50.00C 50.00F			546.	0.
	292.	0.		
50.00C 50.00F			522.	0.

RAMP NO. 15
MARGINAL RD. NO. 4
67+50.00 TO 70+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	209 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	107.	1.		
31.65C 31.65F			140.	1.
	131.	1.		
50.00C 50.00F			235.	1.
	123.	0.		
50.00C 50.00F			228.	0.
	123.	0.		
50.00C 50.00F			260.	0.
	158.	0.		
18.50C 18.50F			107.	0.
	155.	0.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W.
DATE 8/71

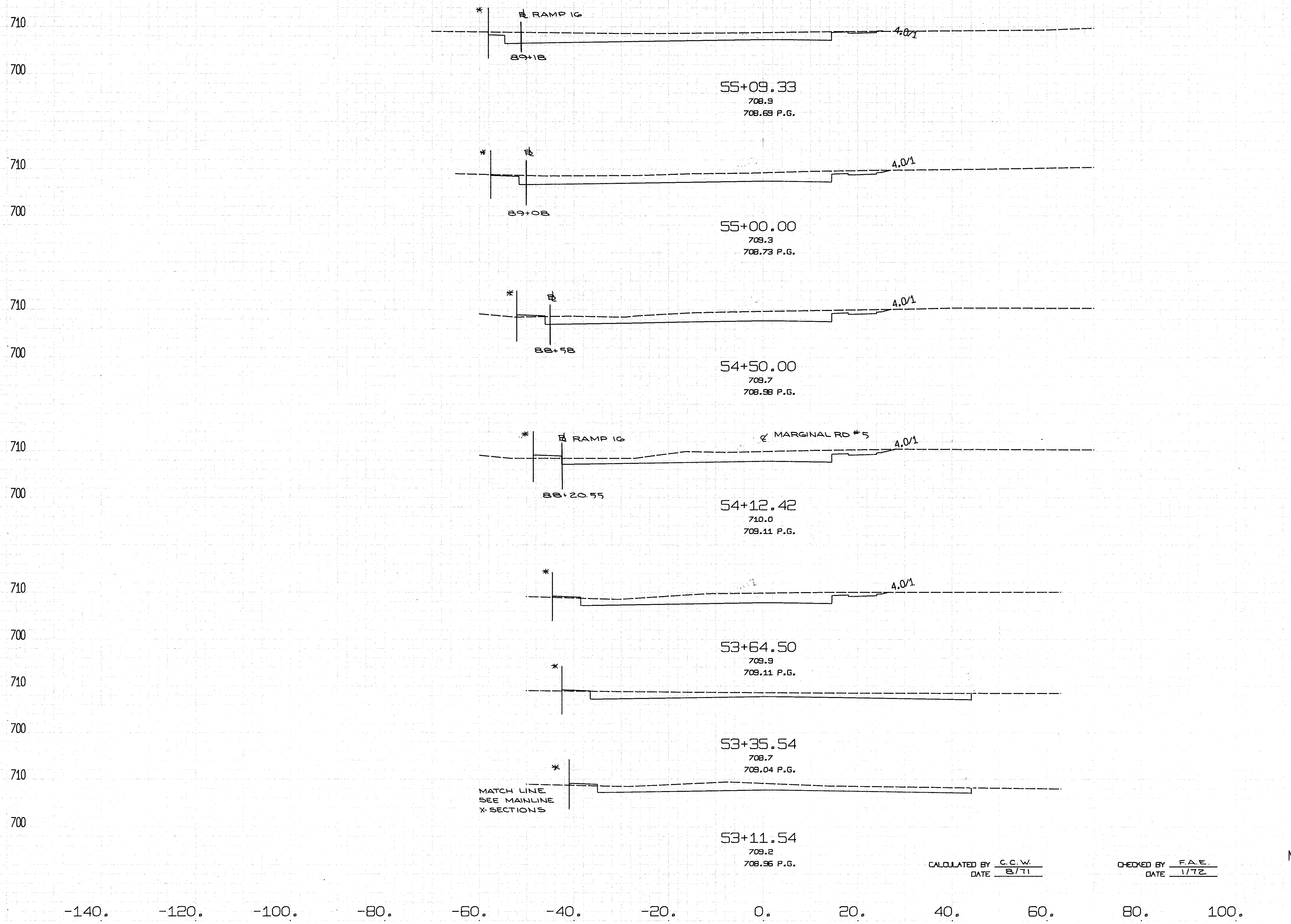
CHECKED BY F.A.E.
DATE 1/72

MARG RD.NO.5 AND RAMP 16
50+81.50 TO 52+81.65

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	128.	0.		
9.33C 9.33F			45.	0.
	131.	0.		
50.00C 50.00F			231.	2.
	118.	2.		
37.58C 37.58F			164.	3.
	118.	3.		
47.92C 47.92F			200.	4.
	108.	1.		
28.96C 28.96F			110.	1.
	98.	1.		
24.00C 24.00F			92.	1.
	108.	2.		
29.89C 29.89F			119.	2.



CALCULATED BY C.C.W.
DATE 8/71

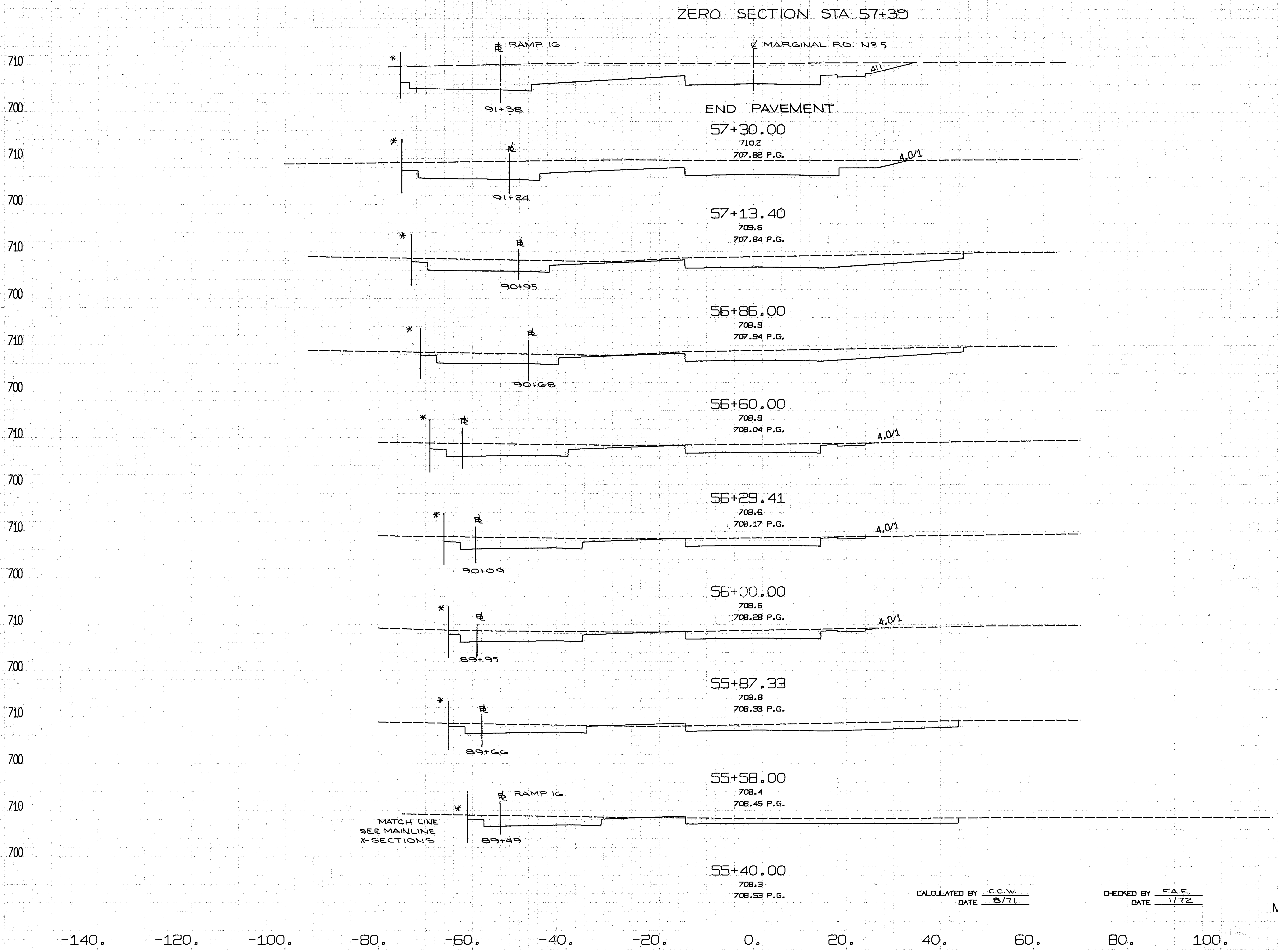
CHECKED BY F.A.E.
DATE 1/72

MARG RD.NO.5 AND RAMP 16
53+11.54 TO 55+09.33

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	211/713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
			71.	0.
	428.	0.		
16.60C 16.60F			223.	0.
	296.	0.		
27.40C 27.40F			253.	0.
	203.	0.		
26.00C 26.00F			187.	0.
	186.	0.		
30.59C 30.59F			186.	0.
	142.	0.		
29.41C 29.41F			145.	0.
	124.	0.		
12.67C 12.67F			58.	0.
	122.	0.		
29.33C 29.33F			139.	4.
	134.	7.		
18.00C 18.00F			86.	3.
	125.	2.		
30.67C 30.67F			144.	1.



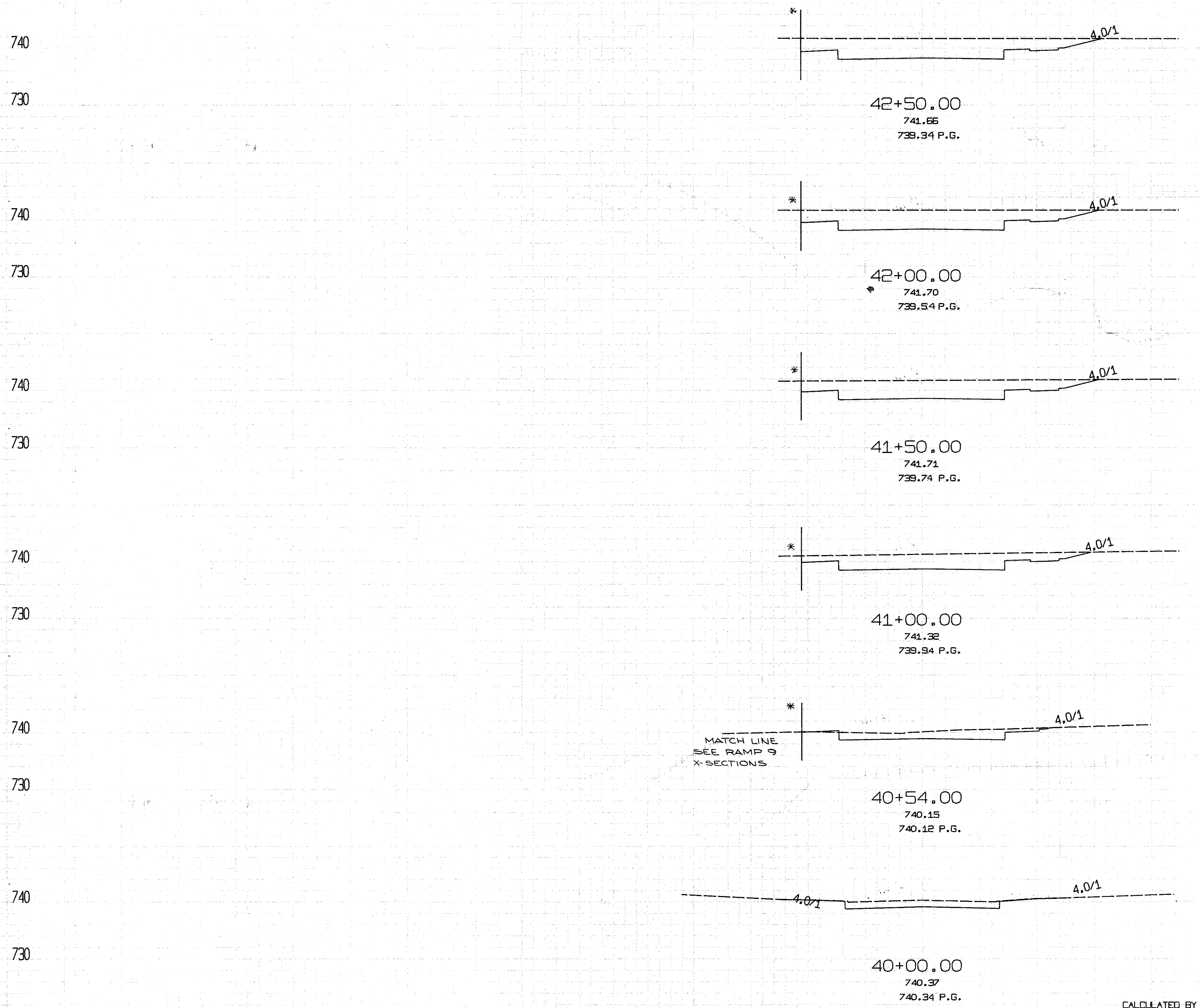
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

MARG RD.NO.5 AND RAMP 16
55+40.00 TO 57+30.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	212 713

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	146.	0.		
49.95C 50.00F			261.	0.
	137.	0.		
49.95C 50.00F			246.	0.
	128.	0.		
49.95C 50.00F			211.	0.
	100.	0.		
45.95C 46.16F			123.	1.
	44.	1.		
53.13C 59.77F			77.	1.
	34.	0.		
0.00C 0.00F			0.	0.

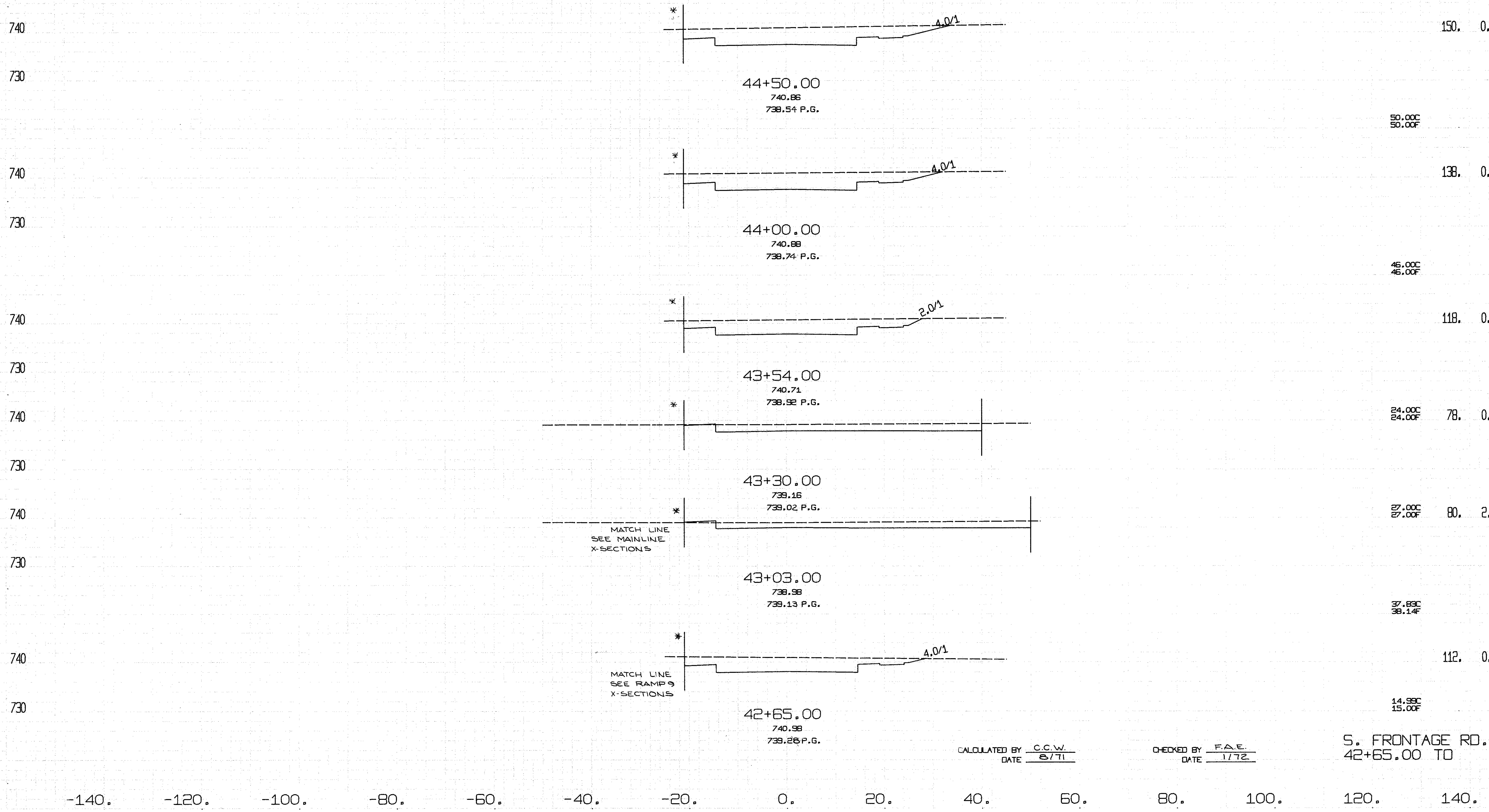
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

S. FRONTAGE RD. NO. 1
40+00.00 TO 42+50.00

FED. RD. DIVISION	STATE	PROJECT	213/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	150.	0.		
50.00C 50.00F			267.	0.
	138.	0.		
46.00C 46.00F			218.	0.
	118.	0.		
24.00C 24.00F	78.	0.	87.	0.
27.00C 27.00F	80.	2.	79.	1.
37.83C 38.14F			134.	1.
	112.	0.		
14.99C 15.00F			72.	0.

CALCULATED BY C.C.W.
DATE 8/71

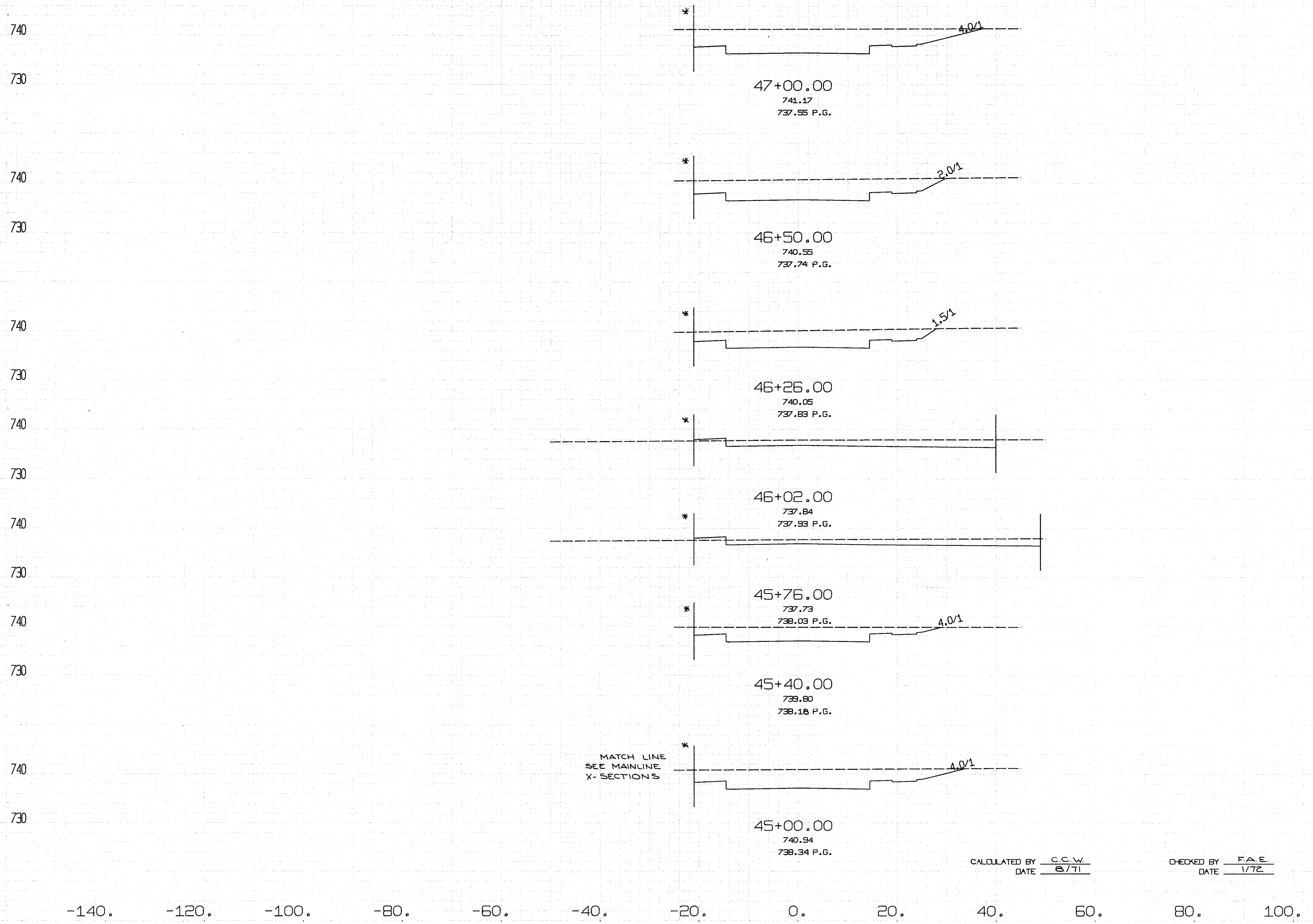
CHECKED BY F.A.E.
DATE 1/72

S. FRONTAGE RD. NO. 1
42+65.00 TO 44+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	214 713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	219.	0.		
49.93C 50.00F			360.	0.
	170.	0.		
23.97C 24.00F			137.	0.
	139.	0.		
24.00C 24.00F			93.	1.
	71.	2.		
26.00C 26.00F			70.	3.
	74.	4.		
36.00C 36.00F			123.	2.
	110.	0.		
40.00C 40.00F			202.	0.
	163.	0.		
50.00C 50.00F			290.	0.



CALCULATED BY C.C.W.
DATE 8/71

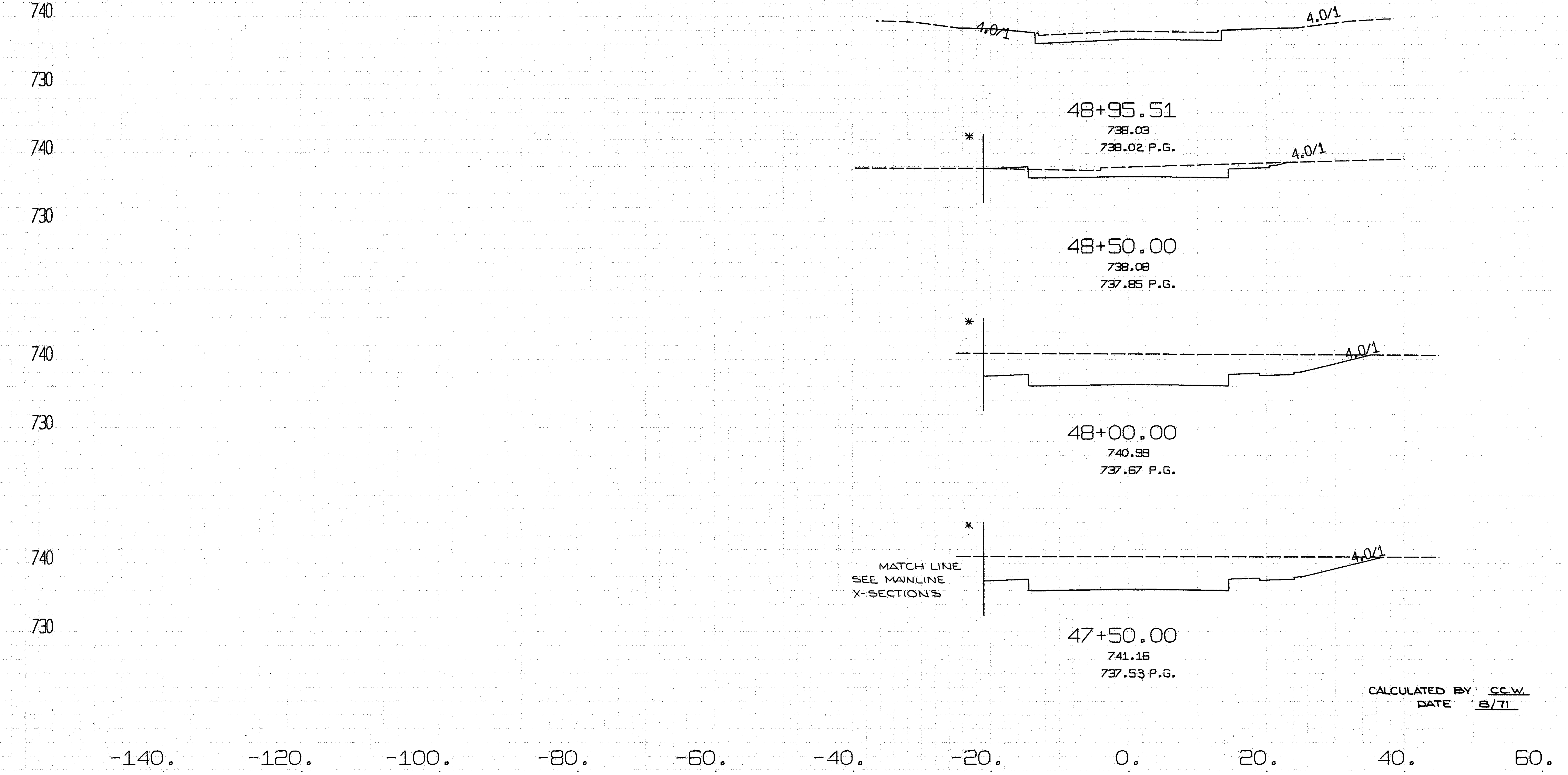
CHECKED BY F.A.E.
DATE 1/72

S. FRONTAGE RD. NO. 1
45+00.00 TO 47+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	215 713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	32.	0.		
44.23C 51.74F			65.	1.
	47.	1.		
47.32C 56.85F			216.	1.
	199.	0.		
47.22C 50.00F			364.	0.
	218.	0.		
49.92C 50.00F			404.	0.



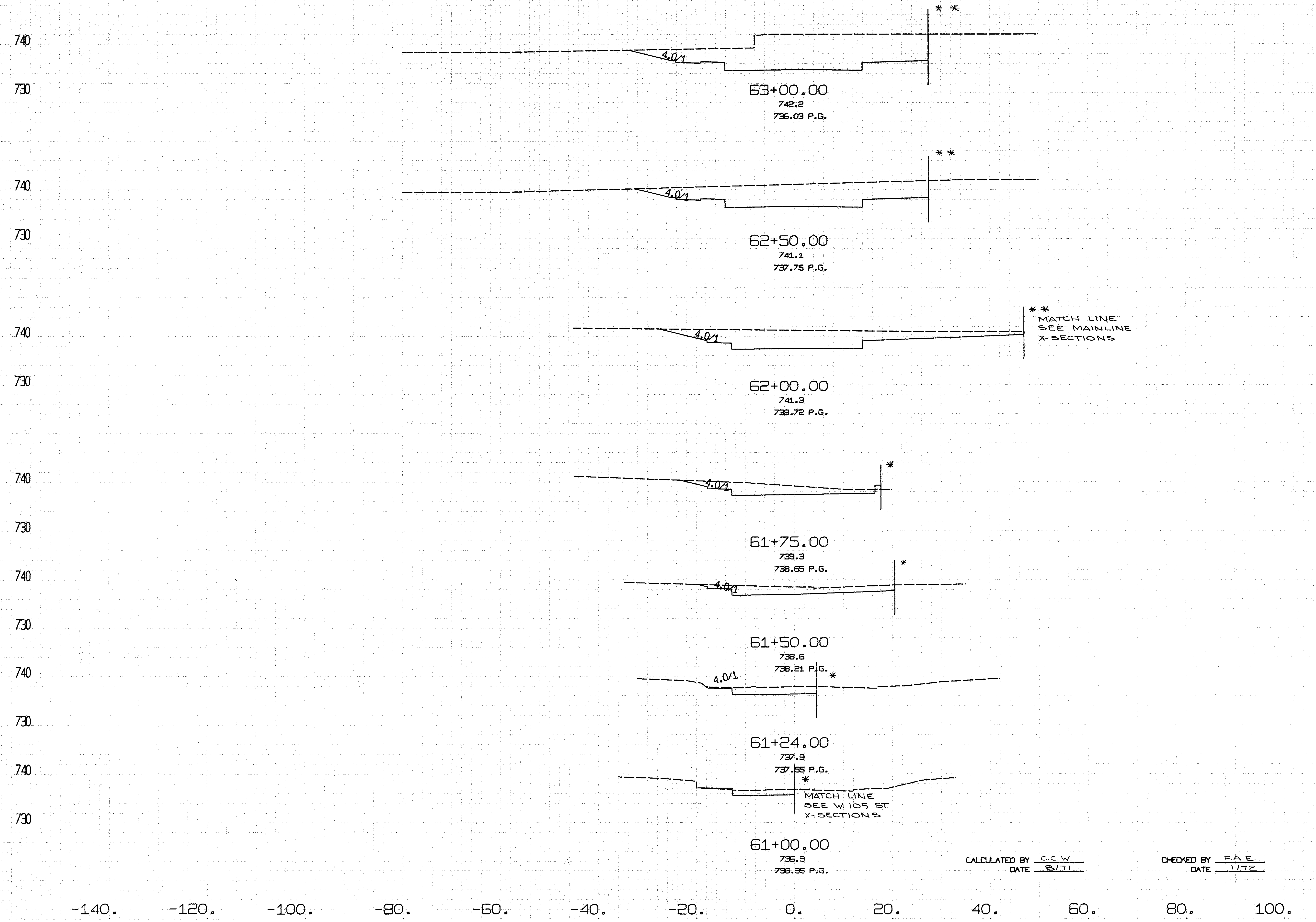
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

S. FRONTAGE RD. NO. 1
47+50.00 TO 48+95.51

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	216 713

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	308.	0.		
50.00C 50.00F			483.	0.
	214.	0.		
50.00C 50.00F			357.	0.
	172.	0.		
25.03C 27.86F			108.	1.
	61.	1.		
24.36C 27.86F			51.	1.
	53.	0.		
25.24C 22.46F			38.	0.
	27.	0.		
22.24C 18.34F			17.	0.
	13.	1.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

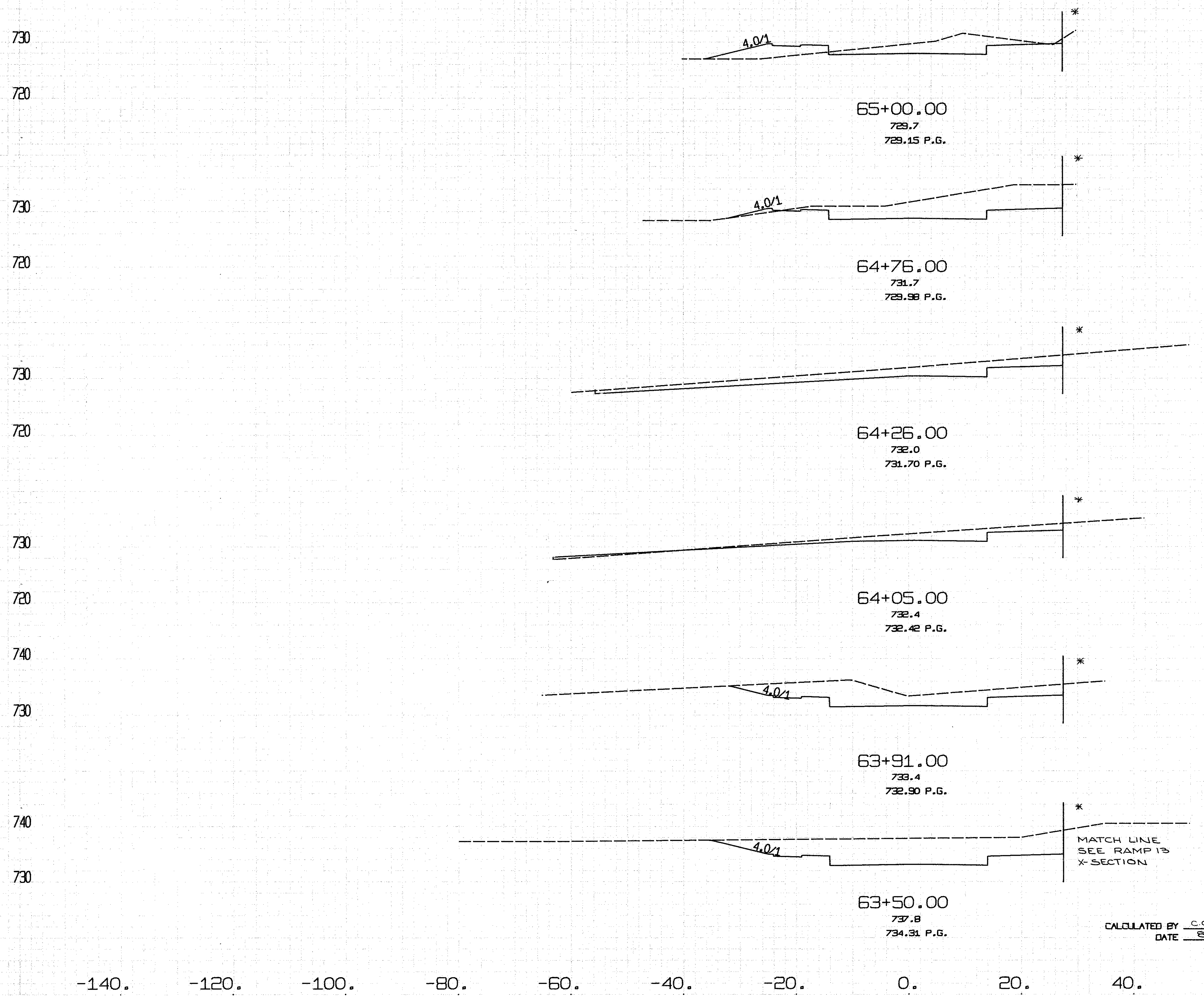
N. FRONTAGE NO. 2
61+00.00 TO 63+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	217 713

CUY-90-10.40

N. FRONTAGE NO. 2
63+50.00 TO 65+00.00

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	65.	35.		
24.00C 24.00F			97.	17.
	152.	4.		
50.00C 50.00F			237.	3.
	104.	0.		
21.00C 21.00F			62.	2.
	55.	6.		
14.00C 14.00F			51.	2.
	141.	0.		
41.00C 41.00F			282.	0.
	230.	0.		
50.00C 50.00F			498.	0.



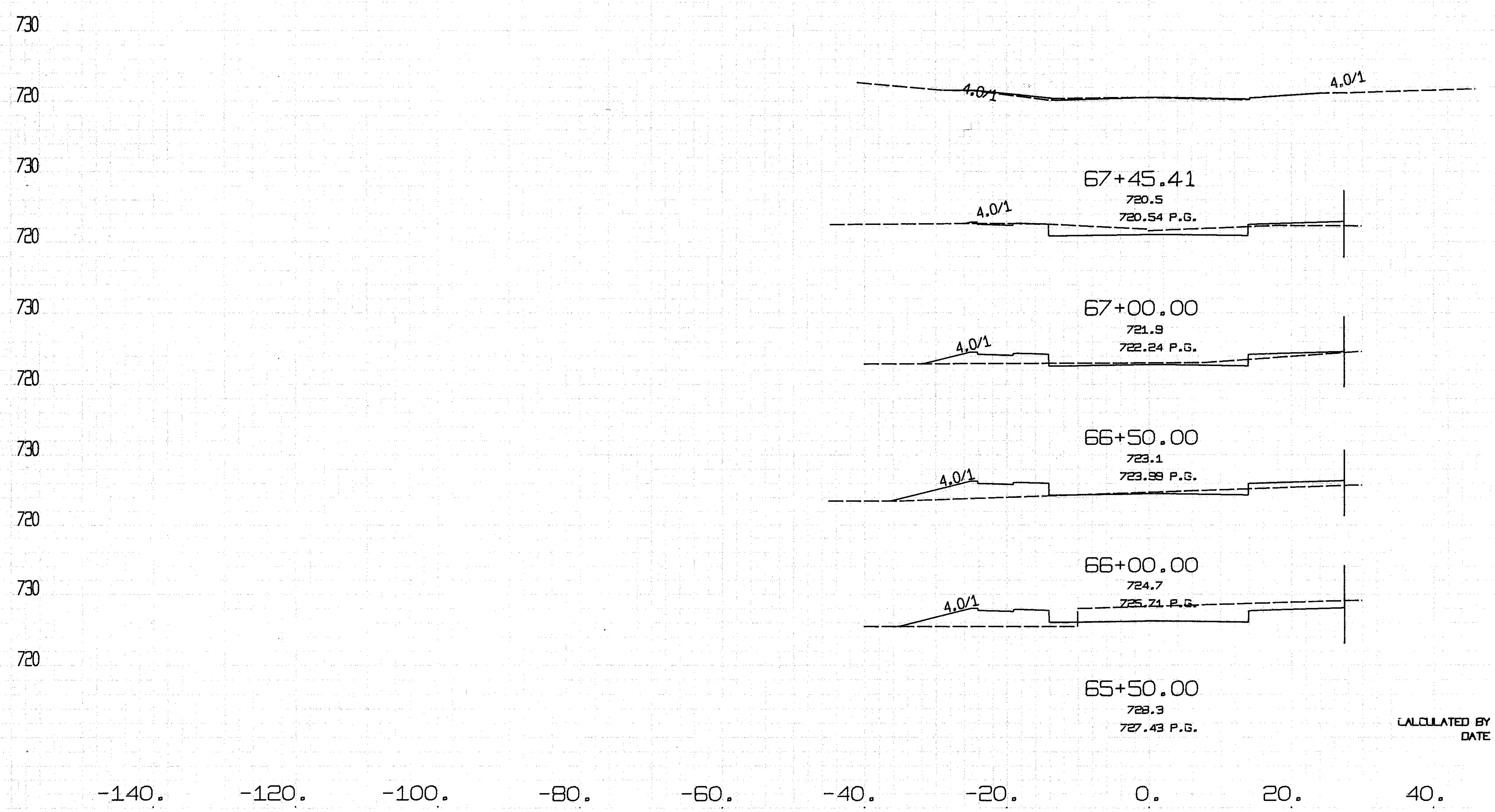
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	218 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	2.	1.		
42.26 C 46.08F			27.	5.
	32.	5.		
49.39C 52.55F			40.	30.
	11.	26.		
50.00C 50.00F			19.	67.
	9.	46.		
50.00C 50.00F			69.	79.
	66.	40.		
50.00C 50.00F			122.	69.



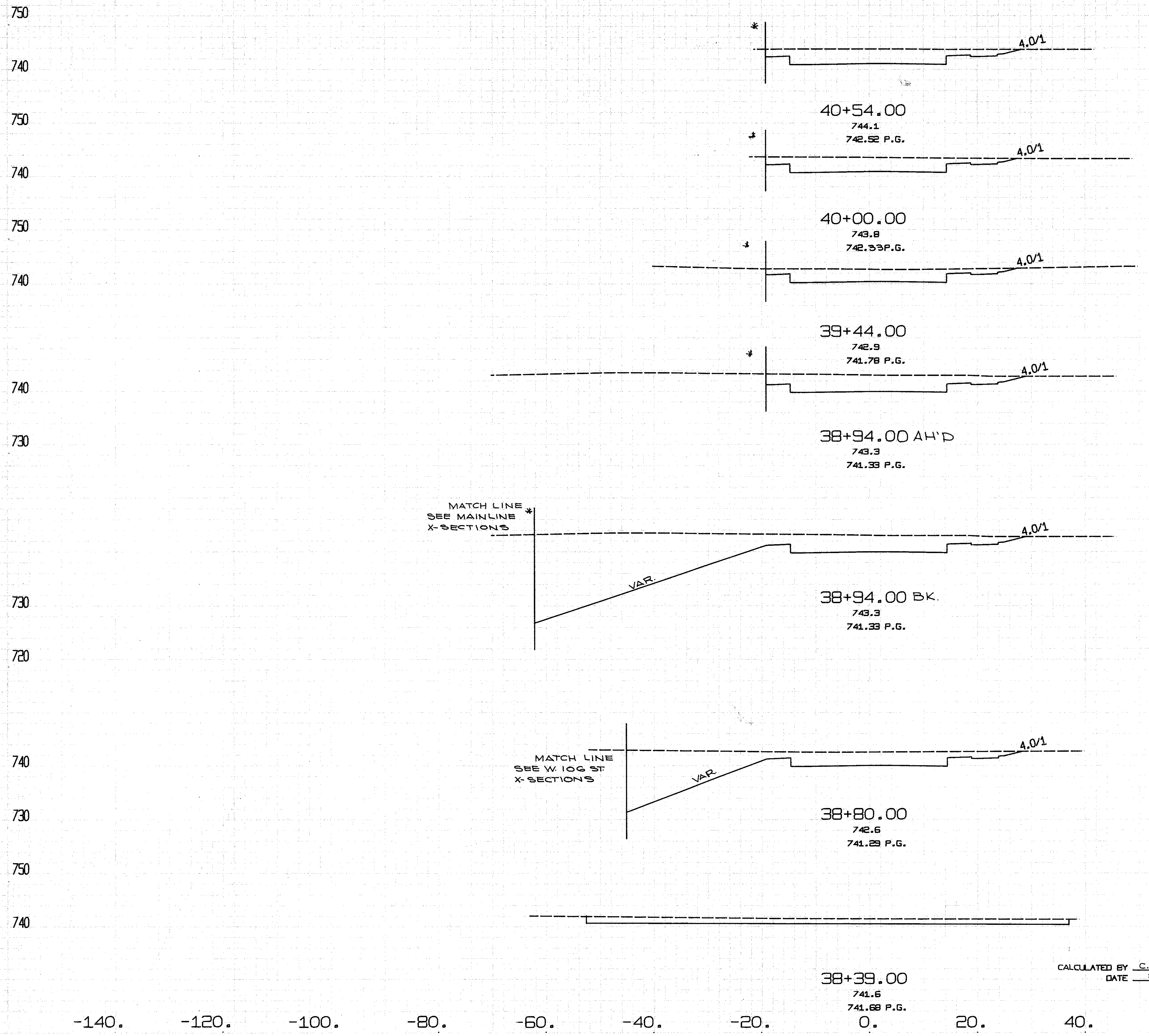
CALCULATED BY C.C.W
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

N. FRONTAGE NO. 2
65+50.00 TO 67+45.41

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

CUY-90-10.40



CENTROID ARC LENGTH	END. CUT	AREA FILL	CU. CUT	YDS. FILL
	109.	0.		
54.00C 54.00F			202.	0.
	99.	0.		
56.00C 56.00F			190.	0.
	84.	0.		
49.99C 49.99F			190.	0.
	121.	0.		
0.01C 0.01F			0.	0.
	524.	0.		
14.00C 14.00F			204.	0.
	264.	0.		
41.00C 41.00F			278.	0.
	102.	0.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W
DATE 8/71

CHECKED BY F. F.
DATE 12/71

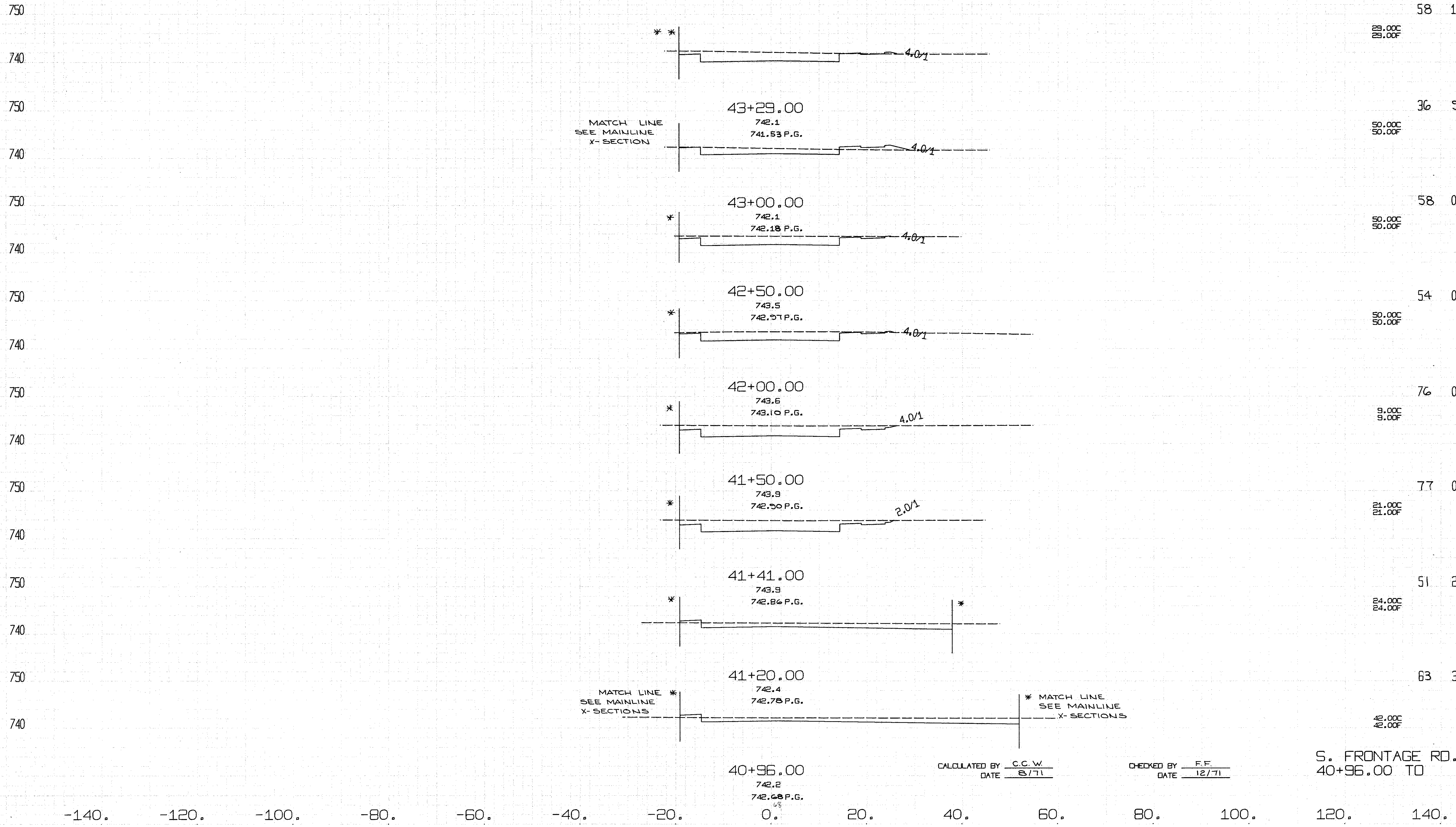
S. FRONTAGE RD NO. 3
38+39.00 TO 40+54.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

220/713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	58	1.		
29.00C 29.00F			50	5.
	36	9		
50.00C 50.00F			87	9
	58	0.		
50.00C 50.00F			103	0.
	54	0.		
50.00C 50.00F			120	0.
	76	0.		
9.00C 9.00F			25	0.
	77	0.		
21.00C 21.00F			50	1.
	51	2.		
24.00C 24.00F			51	2.
	63	3.		
42.00C 42.00F			129	2.



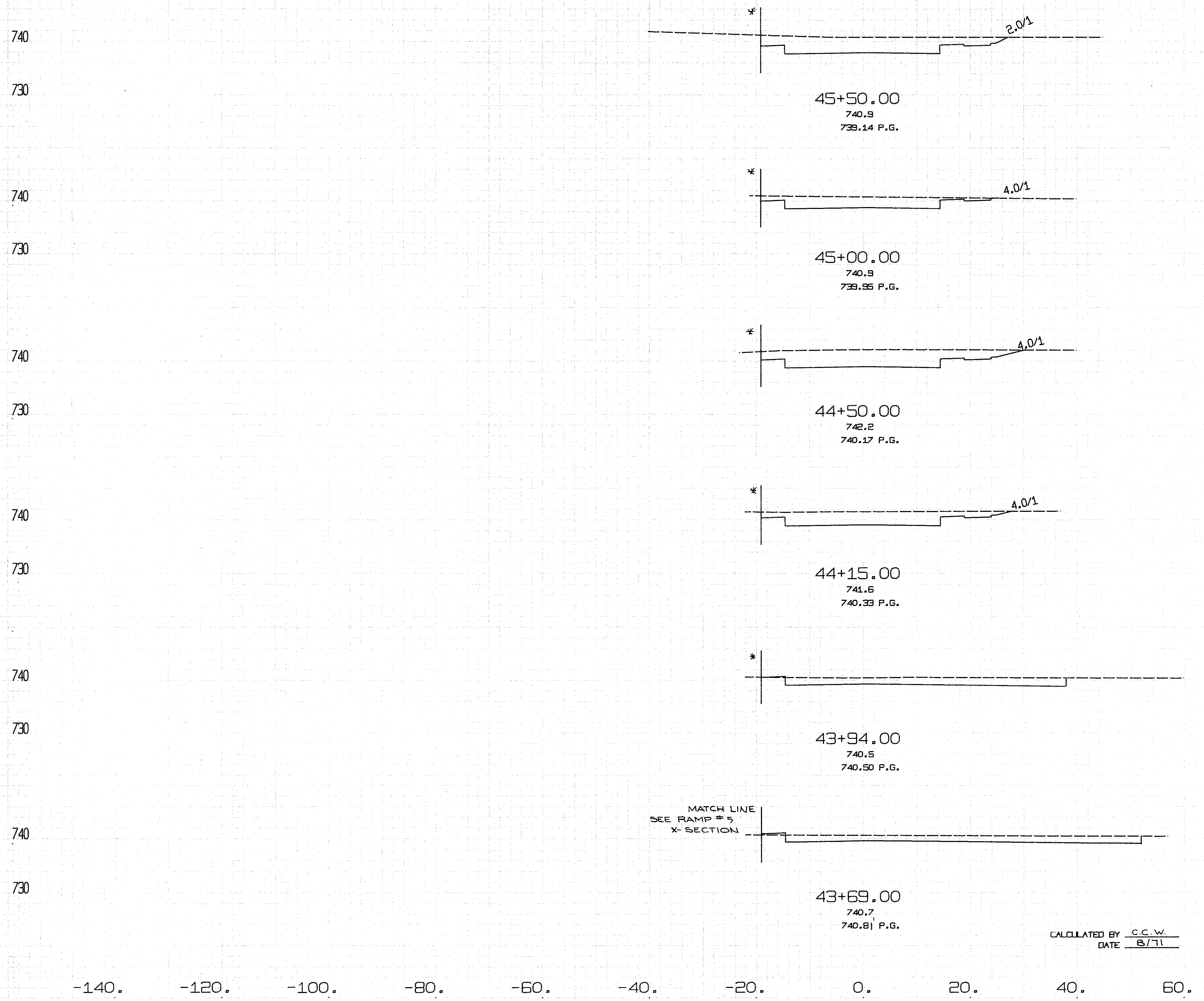
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.F.
DATE 12/71

S. FRONTAGE RD. NO. 3
40+96.00 TO 43+29.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	221 713

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	115.	0.		
50.00C 50.00F			174.	0.
	73.	0.		
50.00C 50.00F			181.	0.
	123.	0.		
35.00C 35.00F			138.	0.
	90.	0.		
21.00C 21.00F			65.	0.
	76.	0.		
25.00C 25.00F			71	1.
	78	1.		
40.00C 40.00F			101.	2.

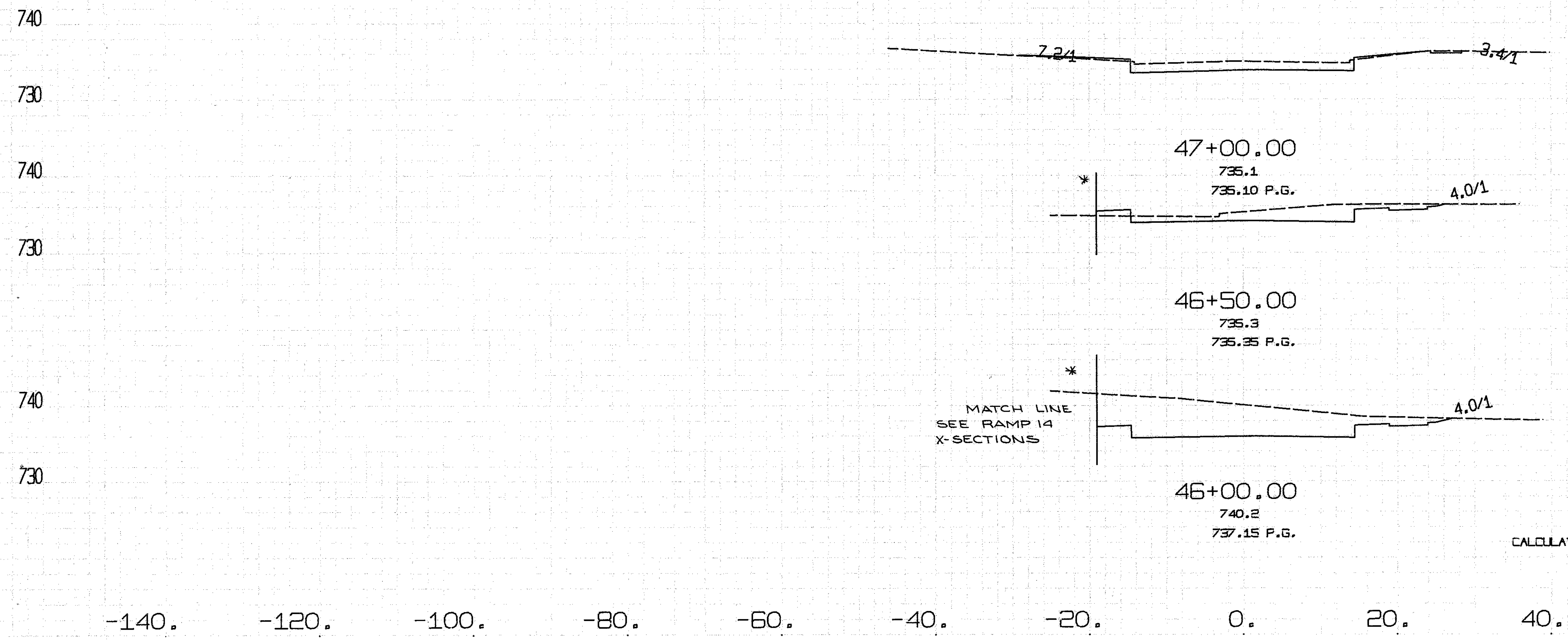
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.F.
DATE 12/71

S. FRONTAGE RD. NO. 3
43+69.00 TO 45+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	222 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	35.	3.		
47.27C 55.48F			70.	6.
	45.	3.		
48.24C 56.40F			180.	3.
	156.	0.		
50.08C 50.00F			251.	0.

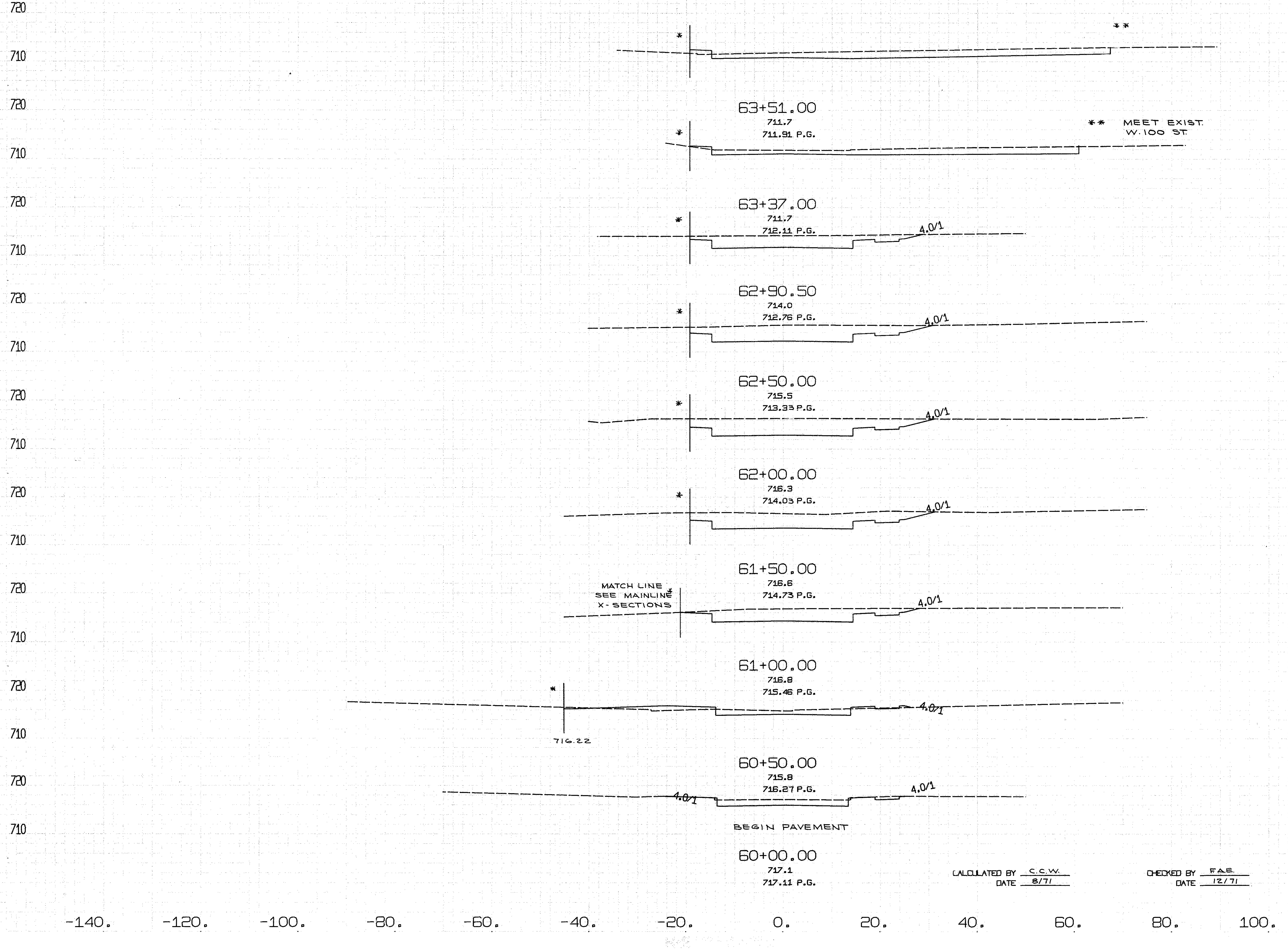
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.F.
DATE 12/71

S. FRONTAGE RD. NO. 3
46+00.00 TO 47+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	223/713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. CUT	YDS. FILL
	107	4		
14.00C 14.00F			51.	1.
	88.	1.		
46.50C 46.50F			156.	1.
	93.	0.		
40.50C 40.50F			165.	0.
	127.	0.		
50.00C 50.00F			243.	0.
	136.	0.		
50.00C 50.00F			243.	0.
	126.	0.		
50.00C 50.00F			199.	0.
	89.	0.		
49.51C 54.05F			111.	16.
	32.	16.		
49.83C 54.05F			63.	16.
	37.	0.		
0.00C 0.00F			0.	0.

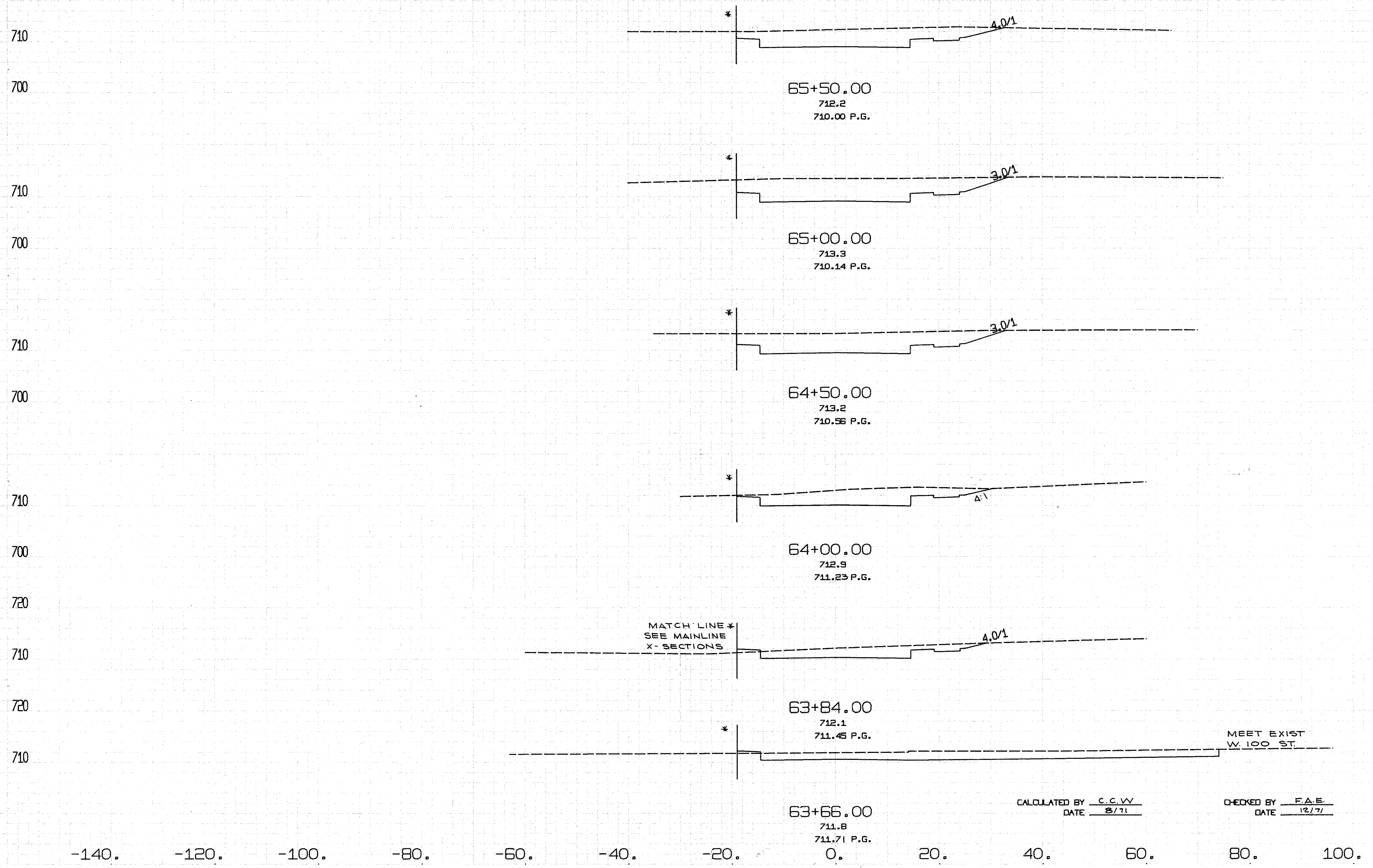
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

S. FRONTAGE RD. NO. 4-A
60+00.00 TO 63+51.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	224 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	139.	0.		
46.32C 50.00F			276.	0.
	183.	0.		
50.00C 50.00F			322.	0.
	165.	0.		
50.00C 50.00F			254.	0.
	109.	0.		
16.00C 16.00F			52.	1.
	68.	2.		
18.00C 18.00F			66.	1.
	130.	2.		
15.00C 15.00F			66.	2.

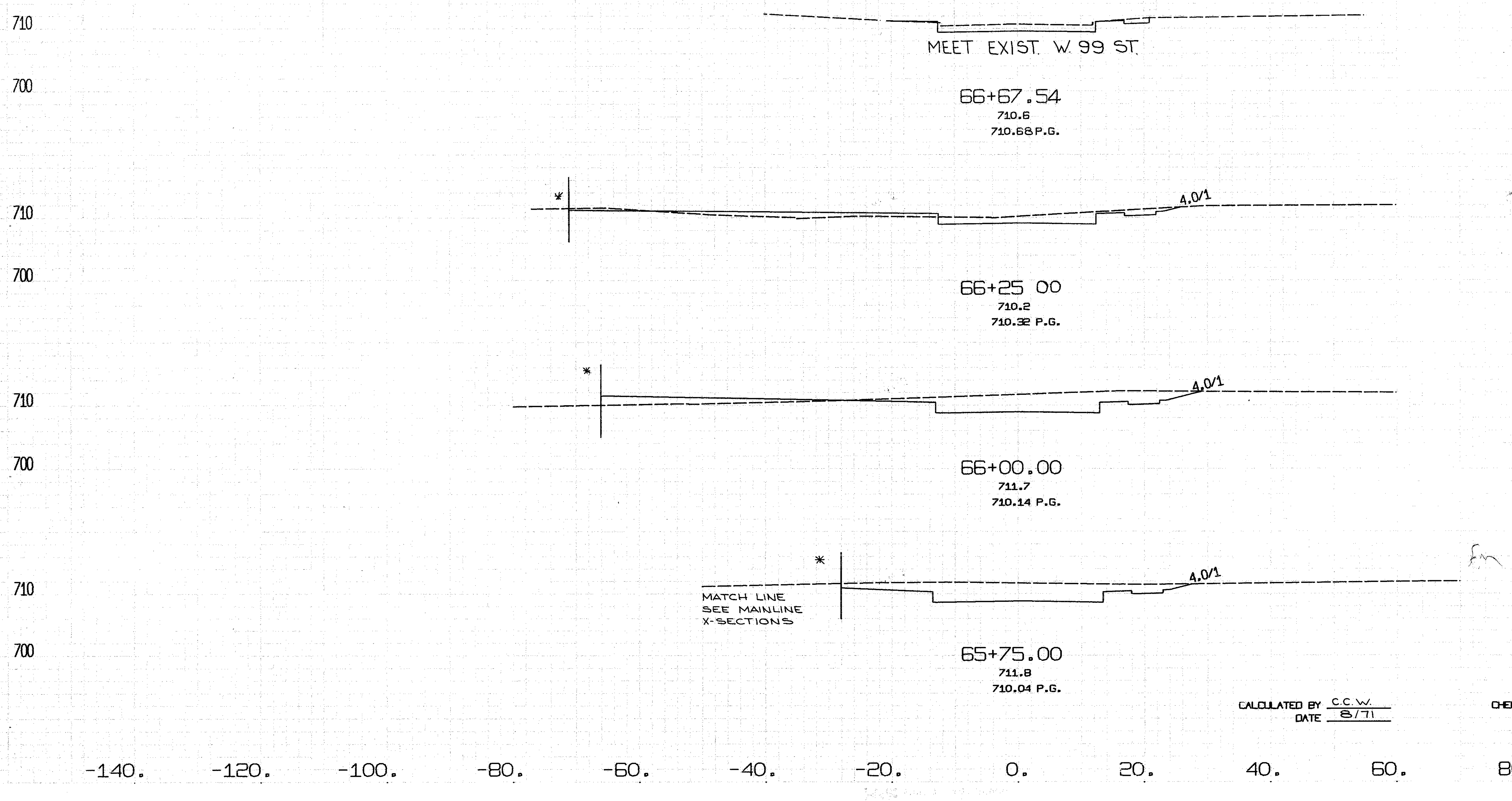
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

S. FRONTAGE RD. NO. 4-A
63+66.00 TO 65+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	225 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	32.	0.		
42.49C 58.98F			60.	25.
	45.	23.		
24.55C 42.95F			68.	41.
	104.	29.		
24.29C 36.02F			98.	19.
	113.	0.		
24.12C 25.00F			112.	0.

CALCULATED BY C.C.W.
DATE 8/71

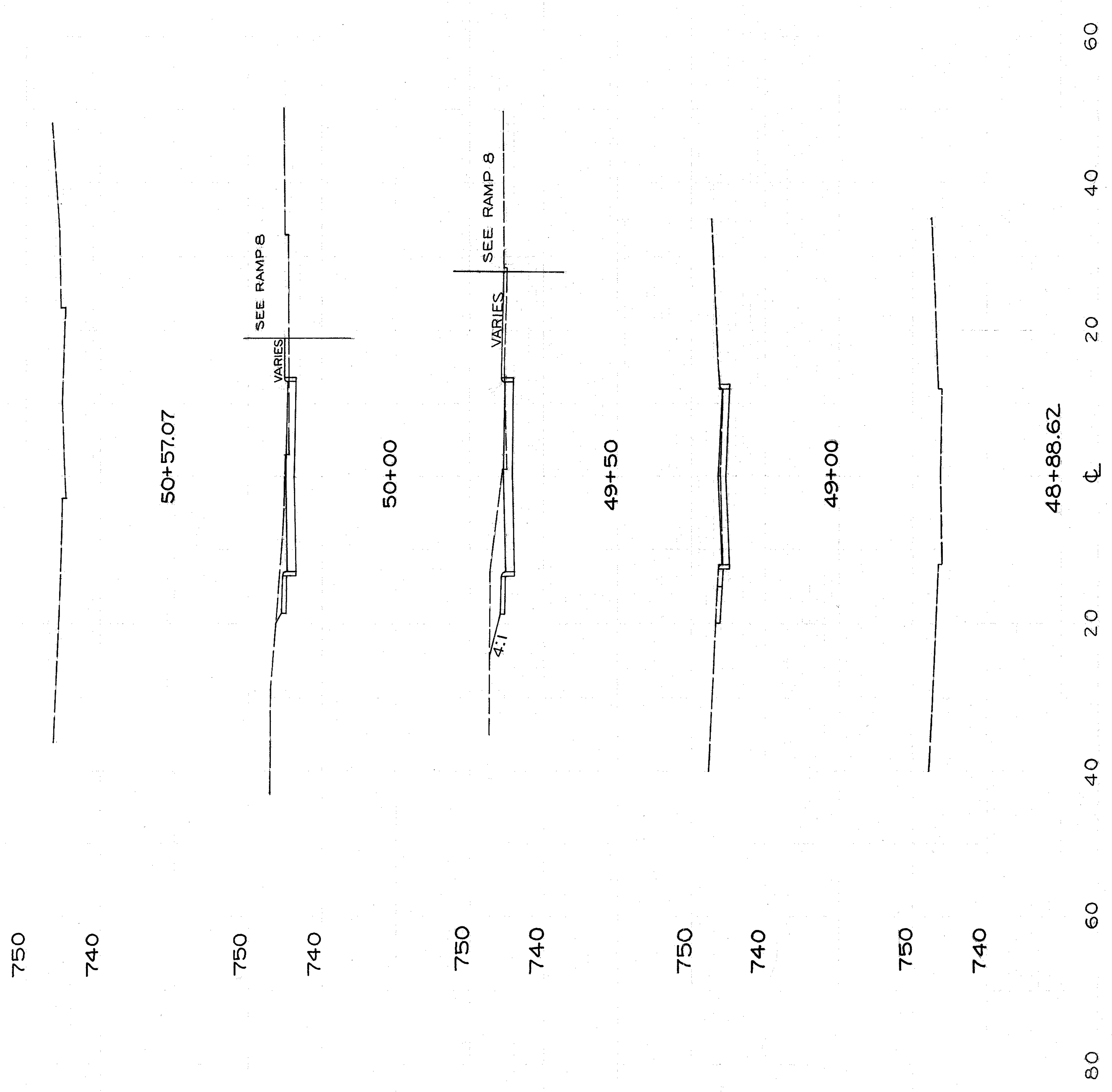
CHECKED BY F.A.E.
DATE 1/72

S. FRONTAGE RD. NO. 4-A
65+75.00 TO 66+67.54

I-90-I(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

Station	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
50+57.07	0	0		
			4	1
50+00	30	3		
			74	8
49+50	50	6		
			72	6
49+00	28	0		
			6	0
48+88.62	0	0		
TOTALS			156	15

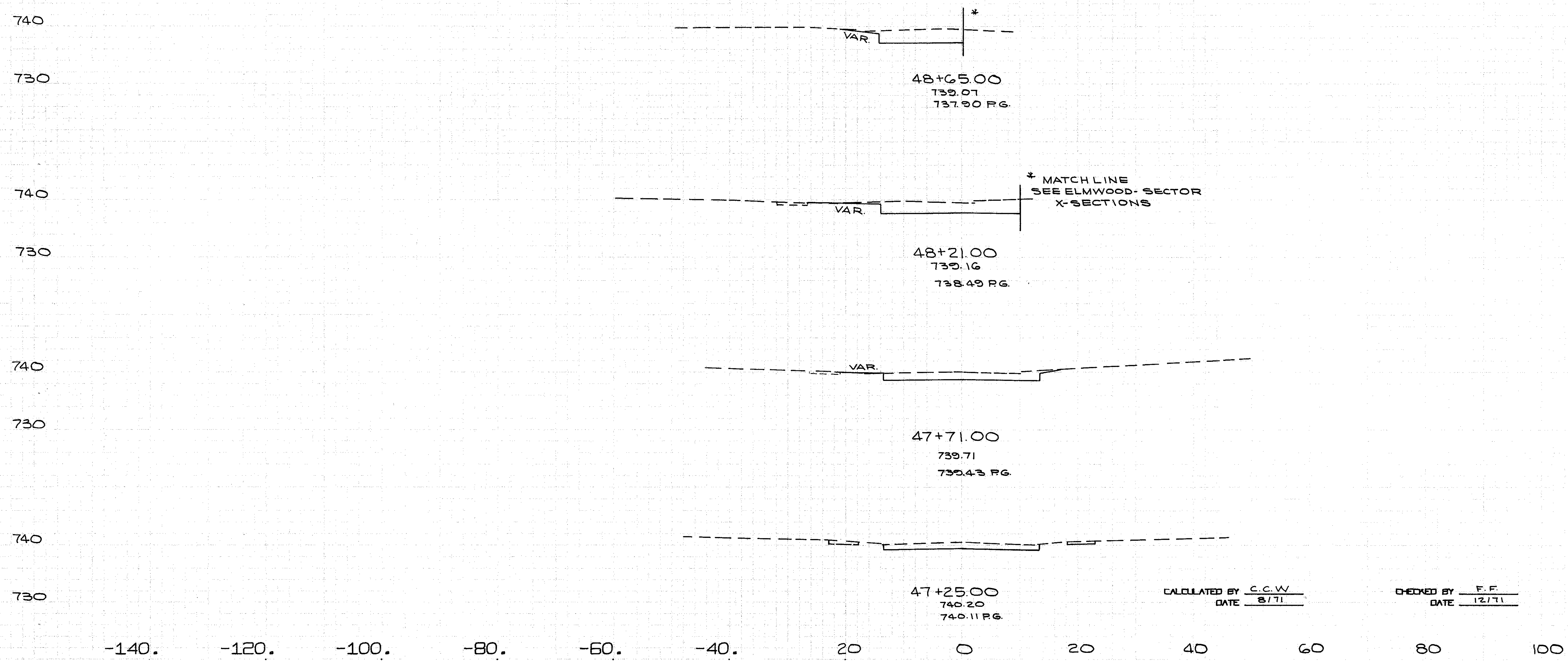


CALCULATED BY C.C.W. DATE 8/71
CHECK BY F.A.E. DATE 12/71

CLOVERDALE ~ 119TH. ST. CONNECTOR
48+88.62 50+57.07

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	227/713

CUY-90-10.40



CALCULATED BY C.C.W
DATE 8/71

CHECKED BY F.F.
DATE 12/71

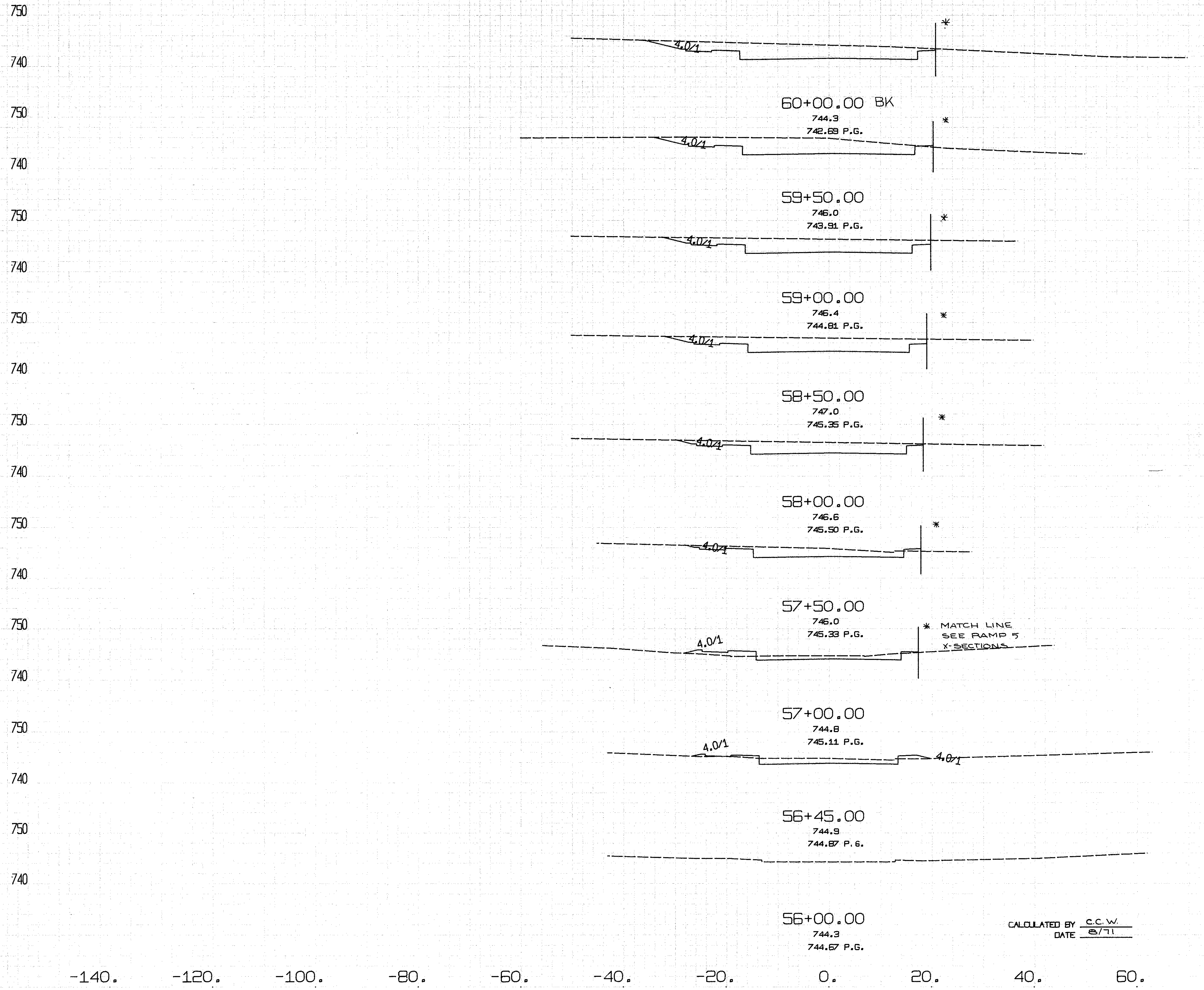
CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	32	0		
CUT 42.03 FILL 40.10			64	1
	50	2		
CUT 50.13 FILL 42.39			81	6
	37	6		
CUT 46.22 FILL 44.57			54	12
	26	8		
		TOTAL	199	19

47+25.00 TO 48+65.00

SECTOR AVE.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	228 713

CUY-90-10.40



CENTROID			CU.	YDS.
ARC LENGTH	CUT	FILL	CUT	FILL
	124.	0.		
48.71C 52.18F			222.	0.
	122.	0.		
48.96C 52.18F			211.	0.
	111.	0.		
49.21C 50.00F			203.	0.
	112.	0.		
49.24C 50.00F			177.	0.
	82.	0.		
49.17C 51.80F			126.	1.
	56.	1.		
49.63C 49.87F			73.	10.
	23.	10.		
55.01C 52.89F			52.	16.
	28.	6.		
45.40C 45.01F			24.	5.
	0.	0.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W.
DATE 8/71

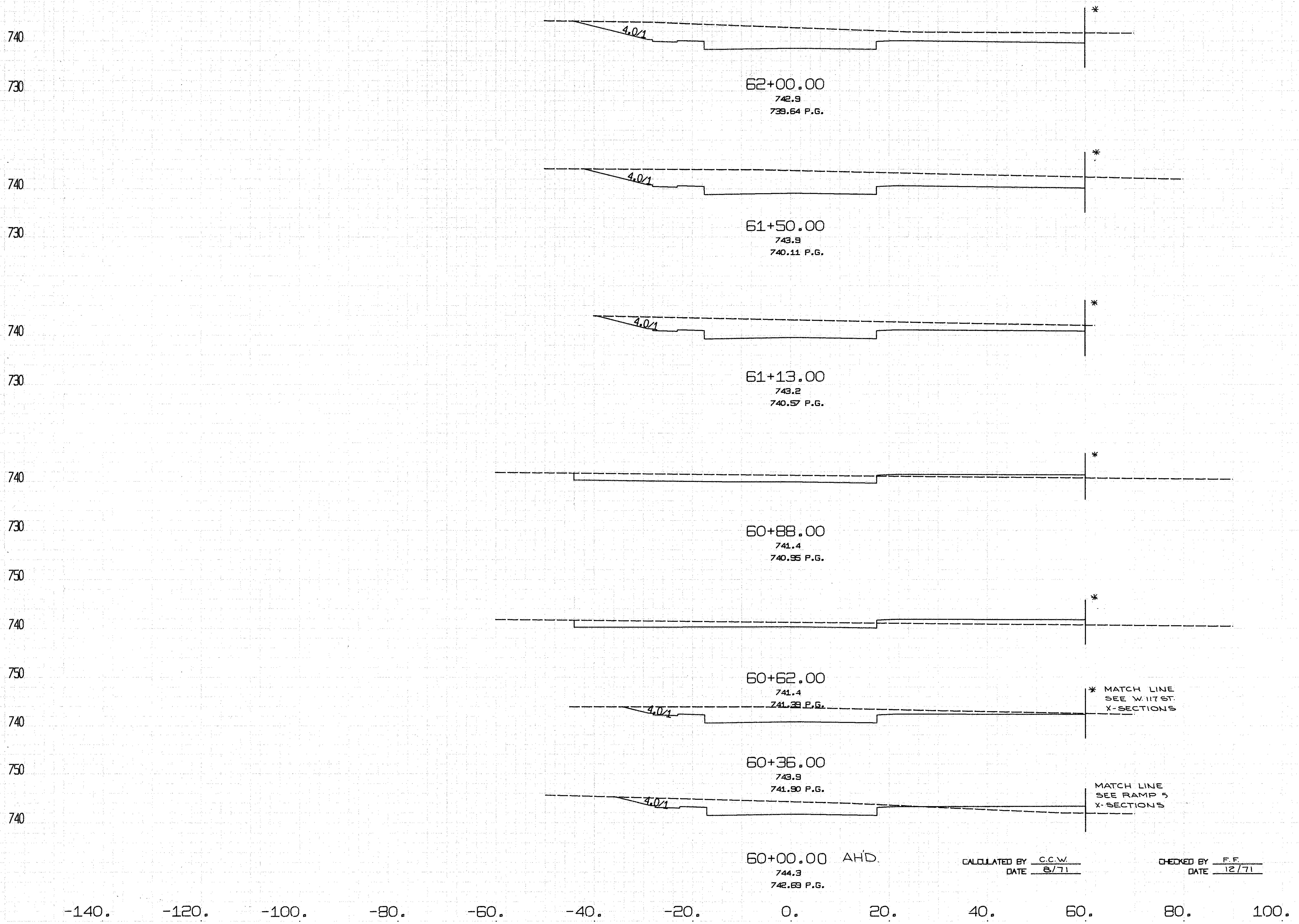
CHECKED BY F.F
DATE 12/71

ELMWOOD SECTOR CONNECTOR
56+00.00 TO 60+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	229/713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	311.	0.		
51.21C 50.00F			618.	0.
	341.	0.		
37.96C 37.00F			408.	0.
	239.	0.		
24.53C 27.26F			151.	9.
	94.	17.		
24.37C 30.61F			76.	30.
	74.	36.		
25.25C 28.27F			109.	19.
	158.	0.		
35.74C 39.85F			188.	18.
	125.	24.		
0.01C 0.01F			0.	0.



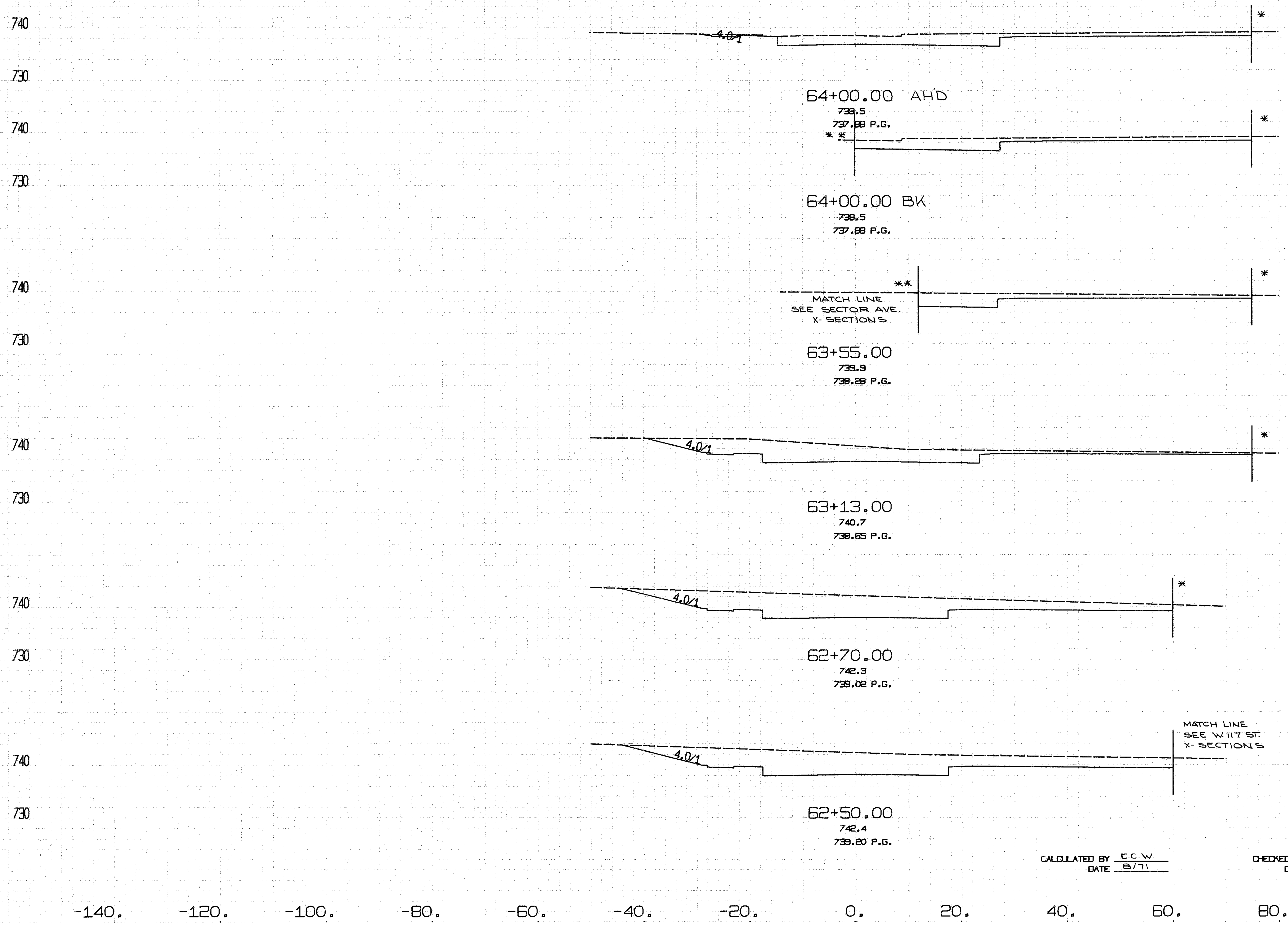
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.F.
DATE 12/71

ELMWOOD SECTOR CONNECTOR
60+00.00 TO 62+00.00

FED. RD. DIVISION	STATE	PROJECT	230/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40



CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
AH'D.	120.	0.		
0.01C 0.01F			0.	0.
BK.	90.	0.		
25.68C 45.00F			81.	0.
	80.	0.		
31.93C 42.00F			168.	0.
	204.	0.		
42.39C 43.00F			394.	0.
	297.	0.		
20.31C 20.00F			227.	0.
	306.	0.		
50.94C 50.00F			582.	0.

ELMWOOD SECTOR CONNECTOR
62+50.00 TO 64+00.00

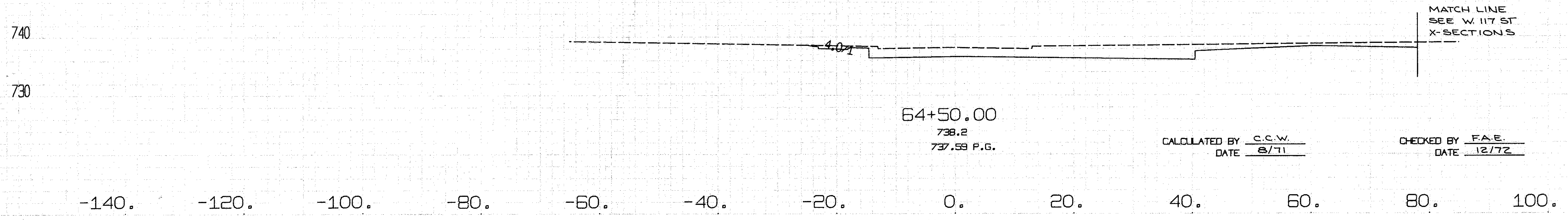
CALCULATED BY E.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 12/71

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
			140.	0.
49.99C 49.99F			240.	0.



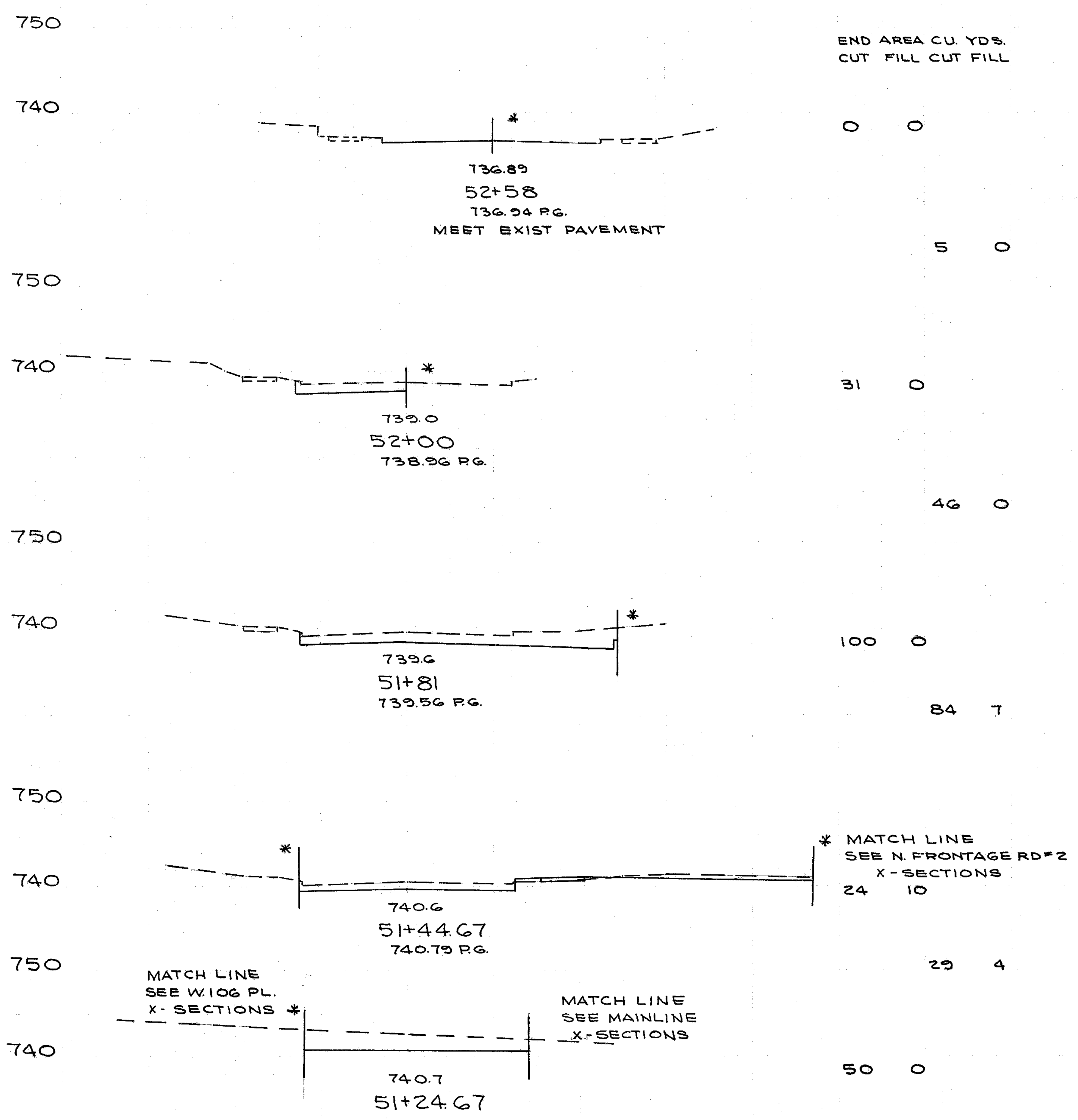
64+50.00
738.2
737.59 P.G.

CALCULATED BY C.C.W.
DATE 8/71

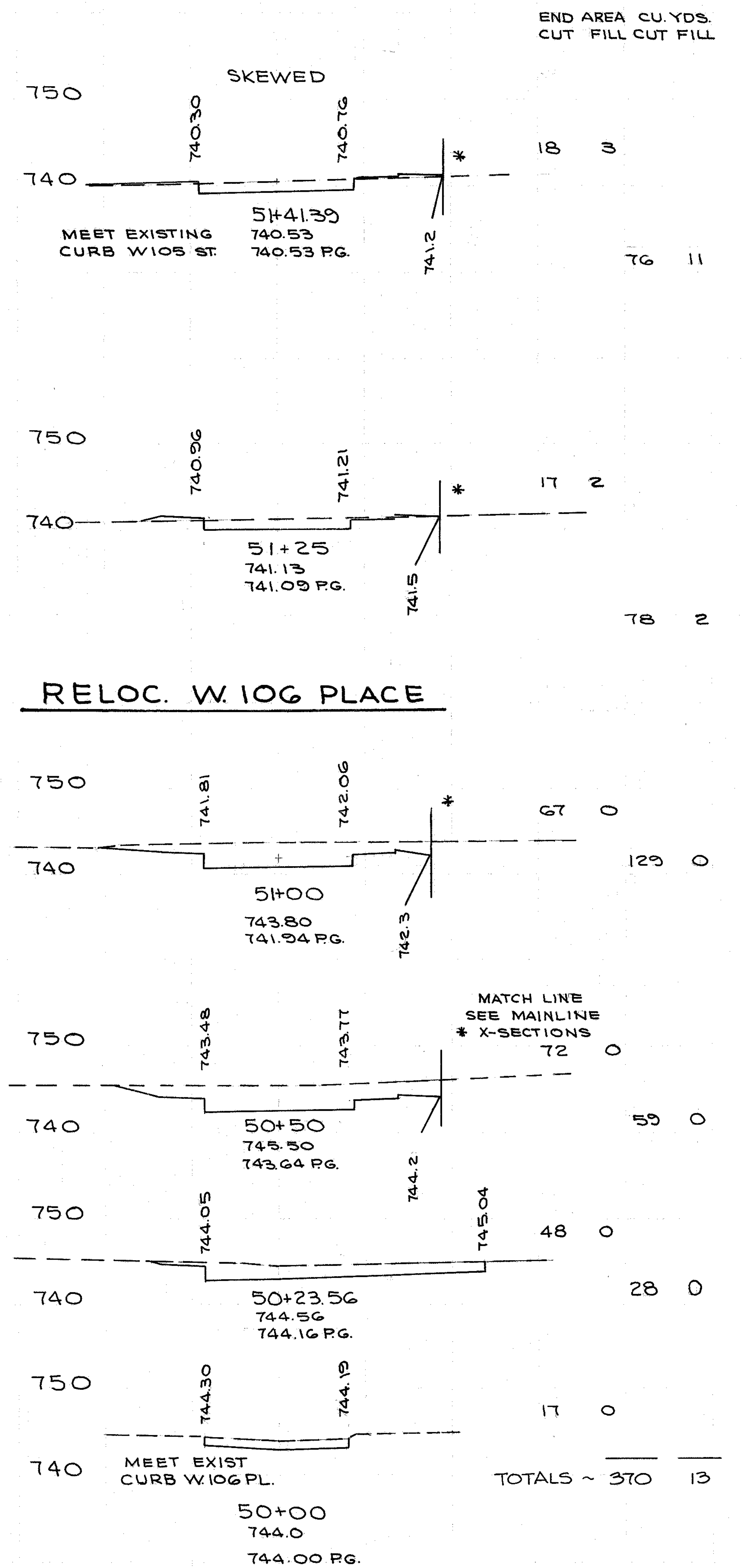
CHECKED BY F.A.E.
DATE 12/72

ELMWOOD SECTOR CONNECTOR
64+50.00 TO 64+50.00

CUYAHOGA COUNTY
CUY-90-10.40

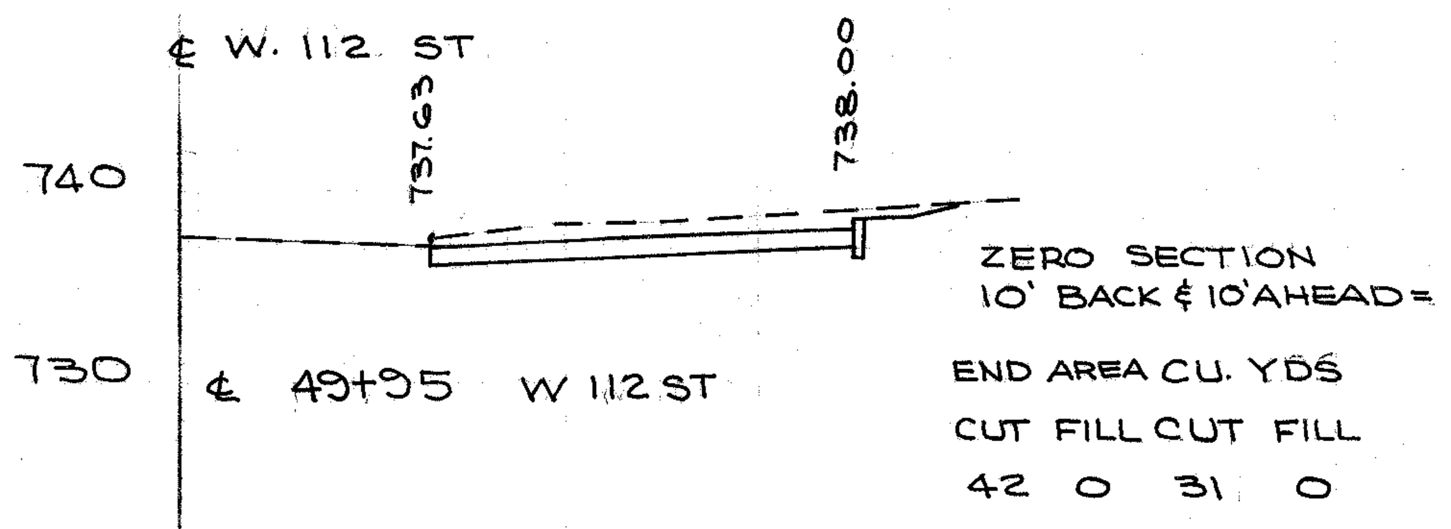


W. 105 ST.
51+24.67 TO 52+58

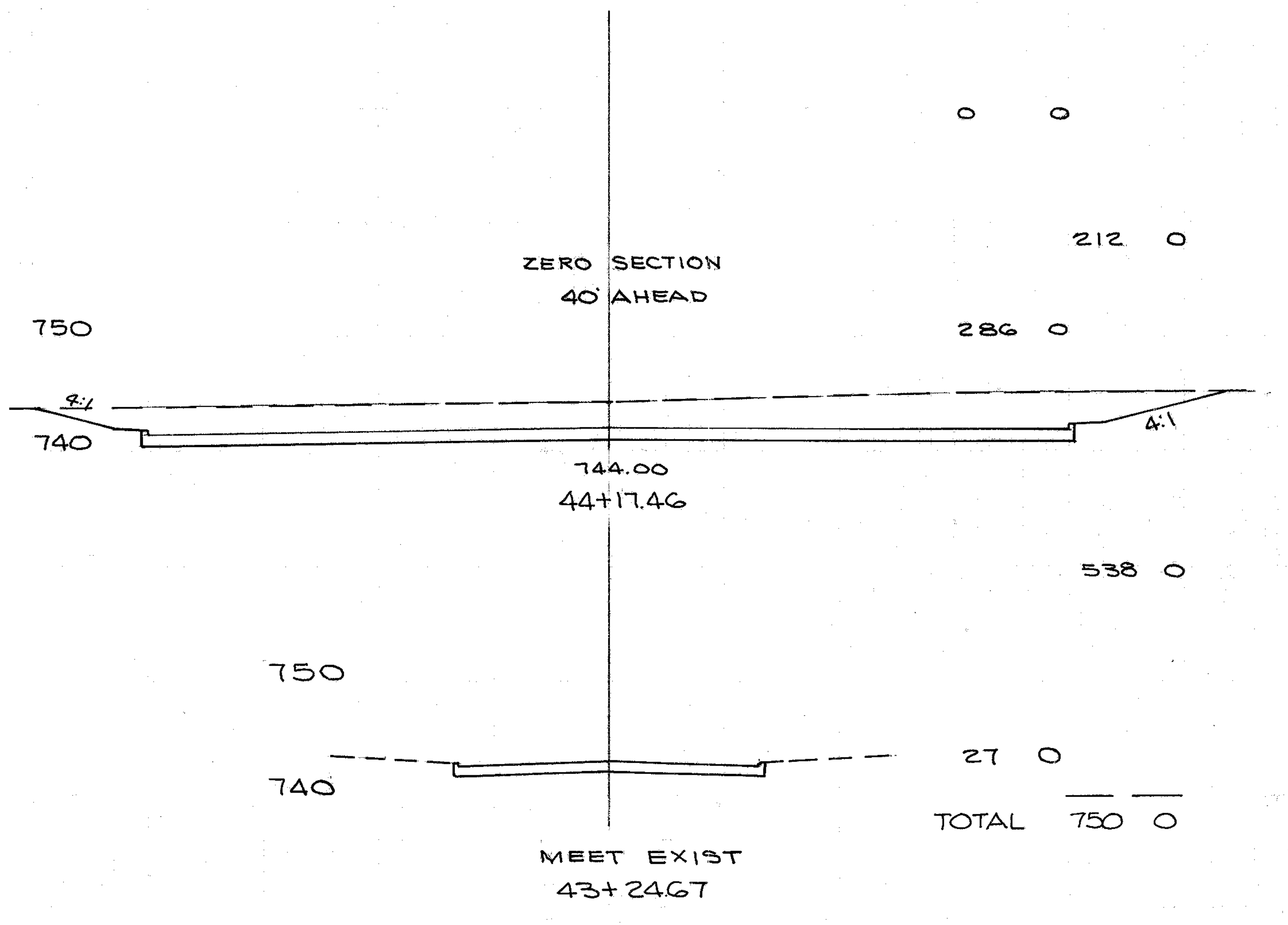


RELOC. W. 106 PLACE

CALCULATED BY C.C.W. DATE 8/71
CHECK BY F.A.E. DATE 12/71



TEE TURNAROUND
W. 112 STREET

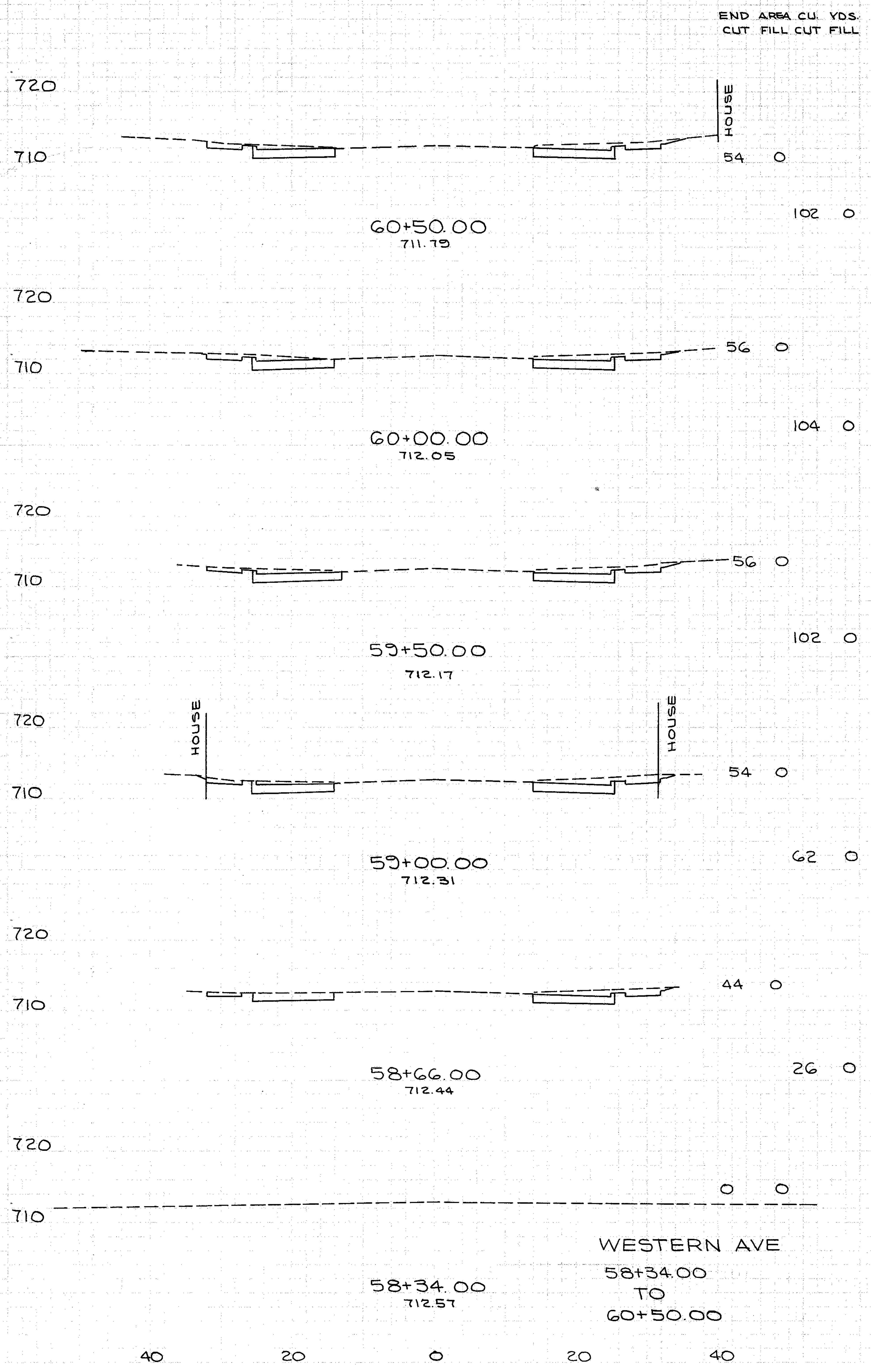


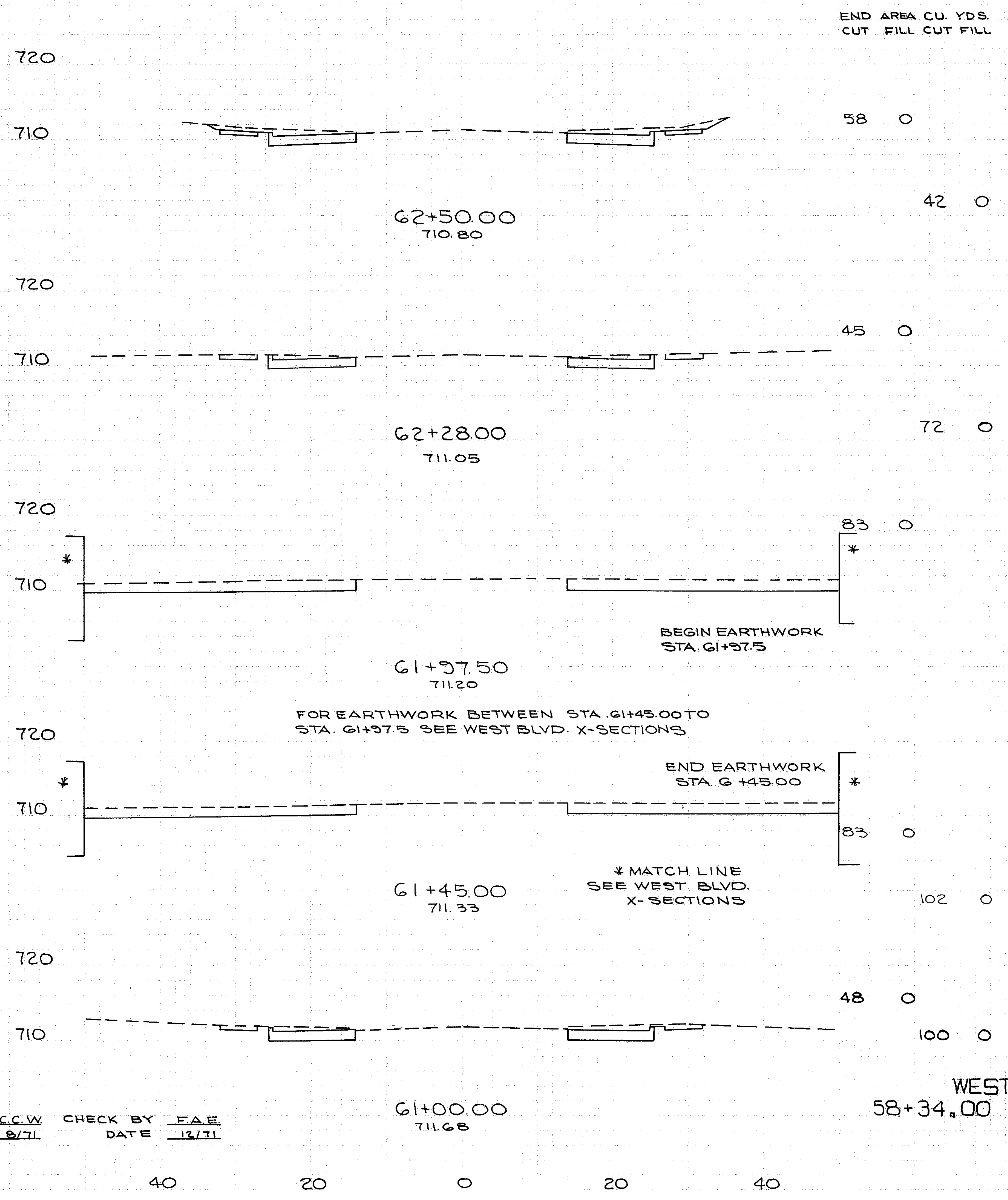
W. 116 ST. CUL-DE-SAC

W. 105 ST.
RELOCATED W106 PL.
W. 116 ST. CUL-DE-SAC
W112 ST. TEE-TURNAROUND

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	233 713

CUY-90-10.40





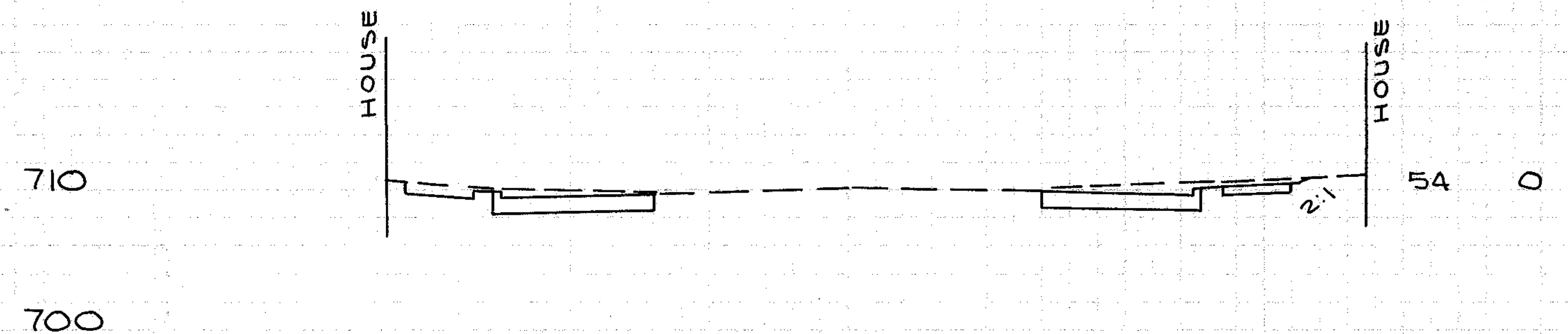
CALCULATED BY C.C.W. CHECK BY F.A.E.
DATE 8/71 DATE 12/71

WESTERN AVE.
58+34.00 TO 62+50.00

FED. RD. DIVISION	STATE	PROJECT	234/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

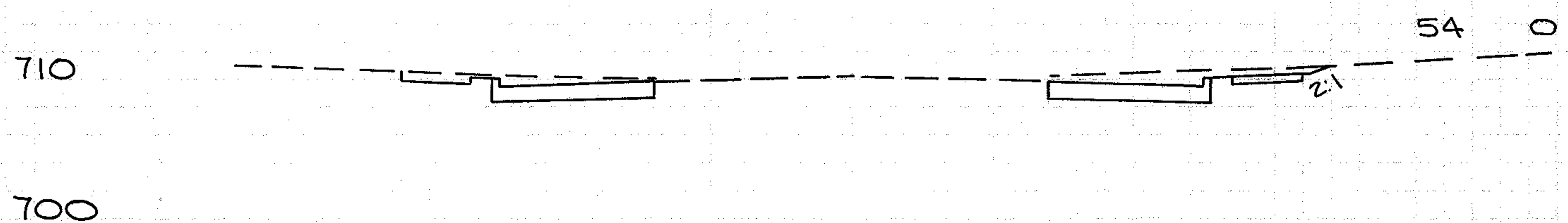
CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	51	0		
			54	0
	49	0		
			79	0
	88	0		
			86	0
	90	0		
			86	0
	56	0		
			65	0



54 0

64+50.00
705.72

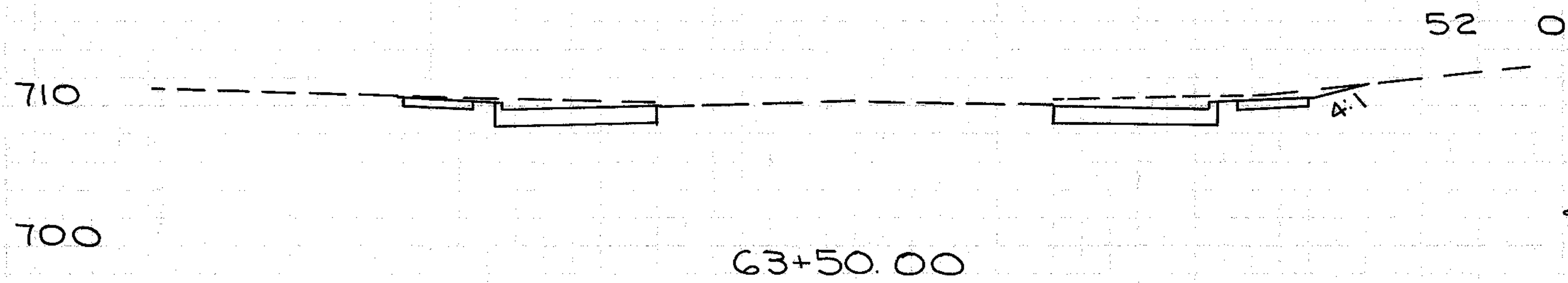
100 0



54 0

64+00.00
709.91

98 0



52 0

63+50.00
710.07

97 0

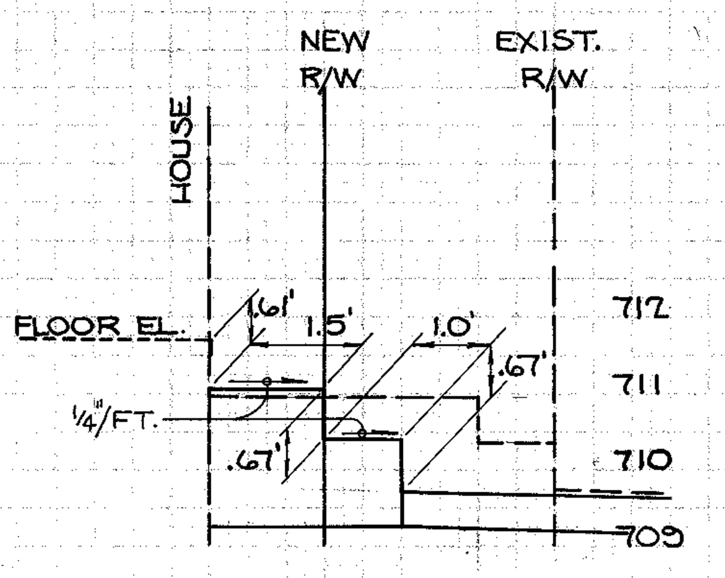
52 0

102 0

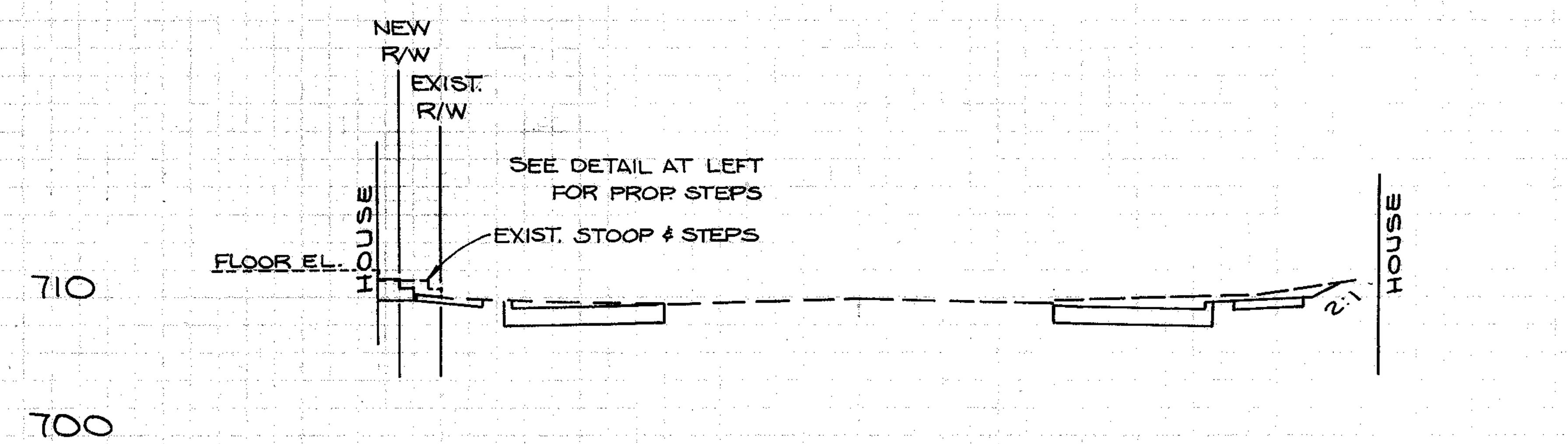
63+00.00
710.40

WESTERN AVE
63+00.00
TO
64+50.00

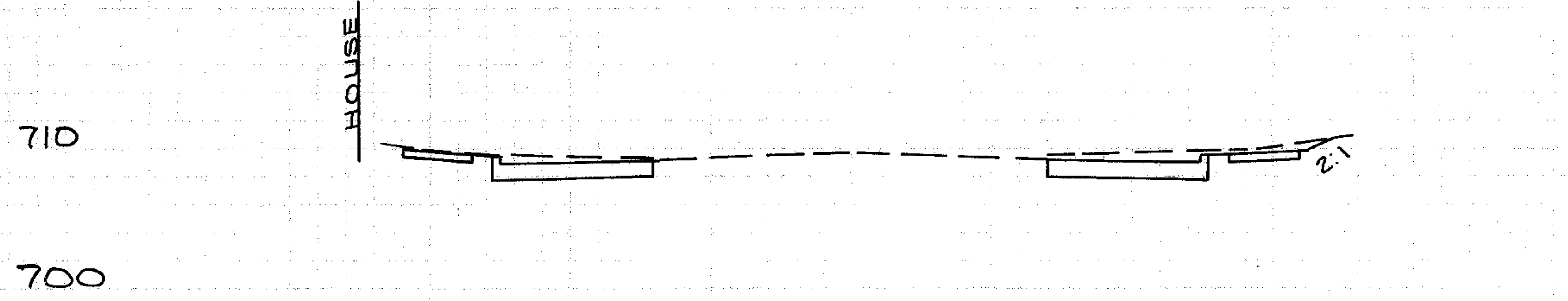
-60. -40. -20. 0. 20.



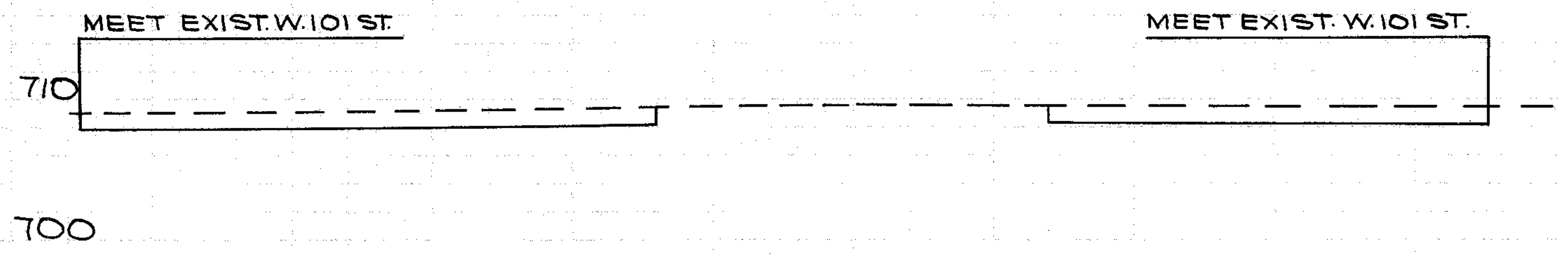
DETAIL OF PROP. 4' STEPS LT. OF STA. 66+00± WESTERN AVE.



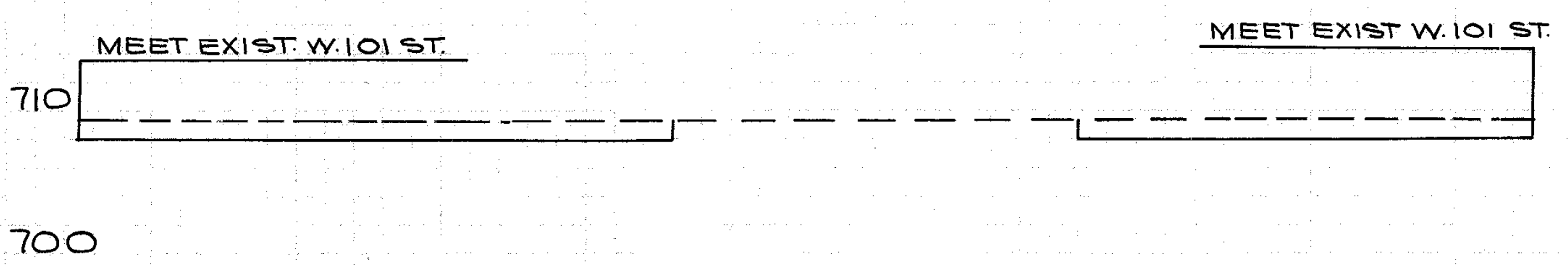
66+00.00
709.27



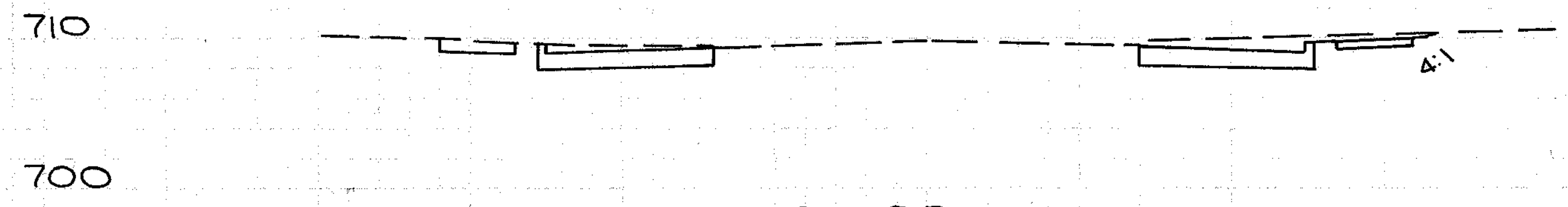
65+71.00
709.27



65+40.00
709.30



65+14.00
709.03



64+82.00
709.54

CALCULATED BY C.C.W. CHECK BY F.A.E.
DATE 8/71 DATE 12/71

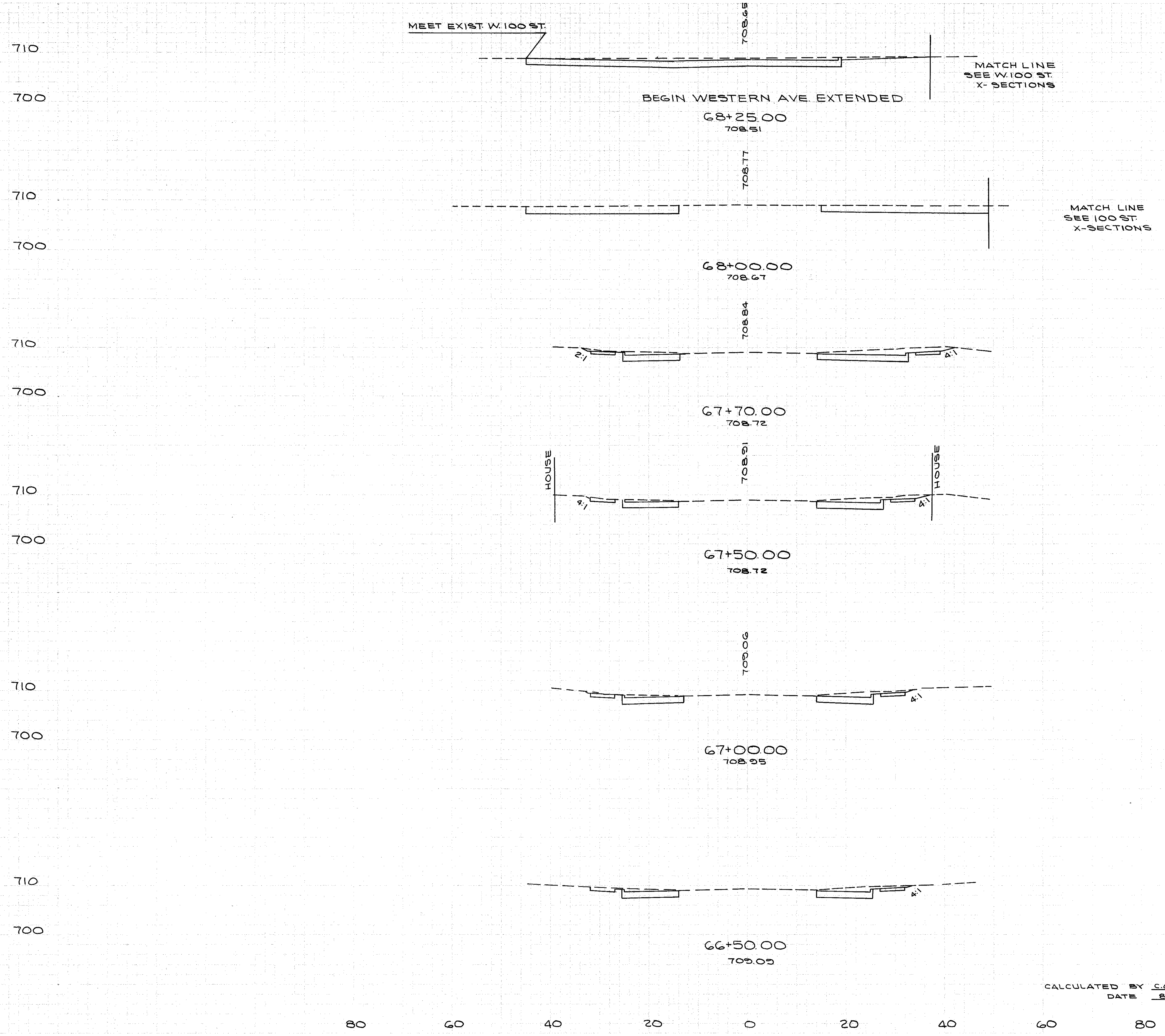
40 20 0 20 40

WESTERN AVE.
63+00.00 TO 66+00.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

235
713

CUY-90-10.40



109 0
91 0
87 0
56 0
86 0
54 0
60 0
108 0
56 0
104 0
56 0
59 0

SHT. N° 233-235 — —
TOTALS ~ 2,031 0

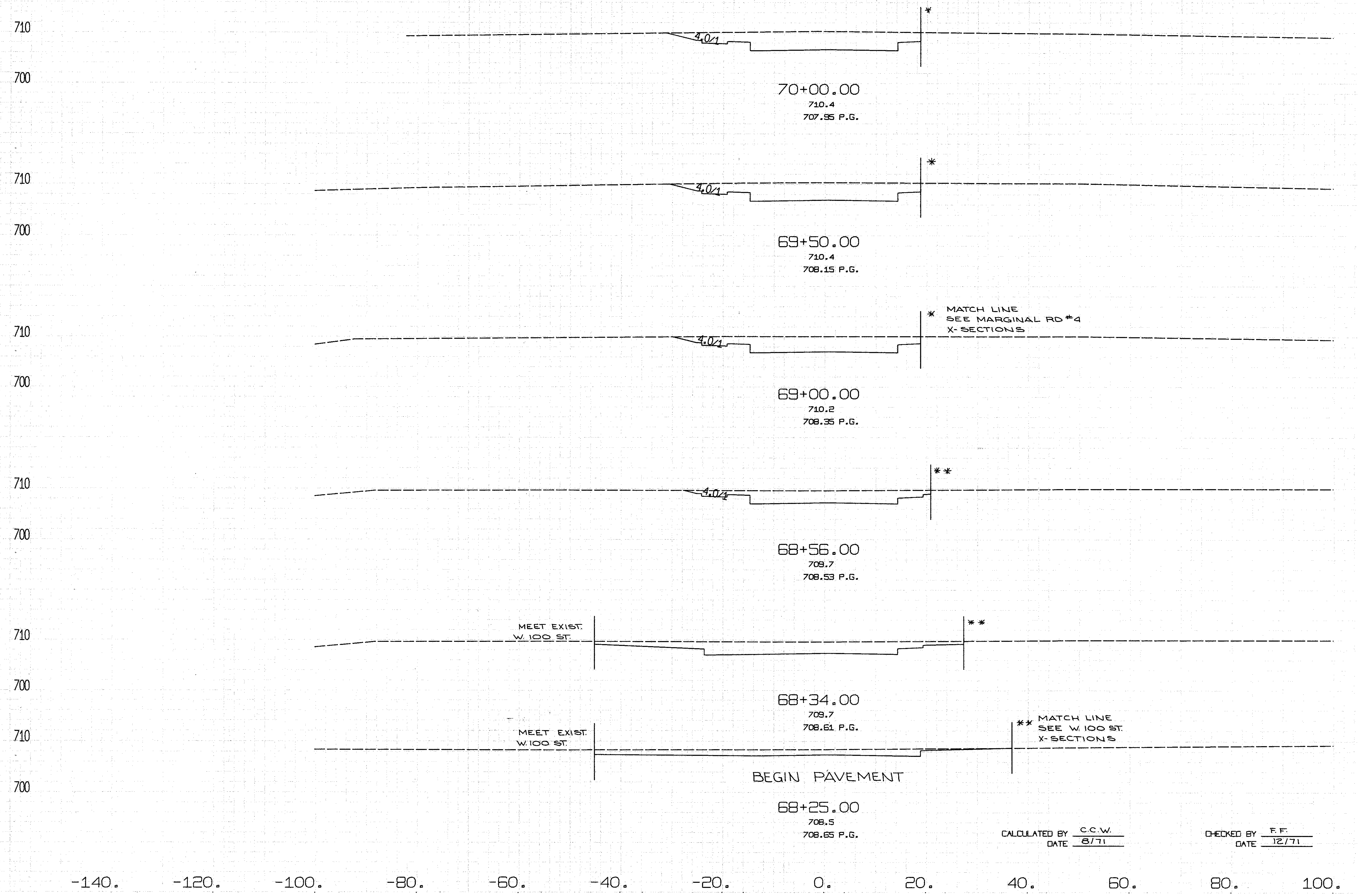
CALCULATED BY C.C.W.
DATE 8/71

CHECK BY F.A.E.
DATE 12/71

WESTERN AVE.
66+50.00 TO 68+25.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	236 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	141.	0.		
50.00C 50.00F			255.	0.
	134.	0.		
50.00C 50.00F			233.	0.
	118.	0.		
44.00C 44.00F			171.	0.
	92.	0.		
22.00C 22.00F			90.	0.
	128.	0.		
9.00C 9.00F			34.	0.
	76.	0.		
0.00C 0.00F			0.	0.

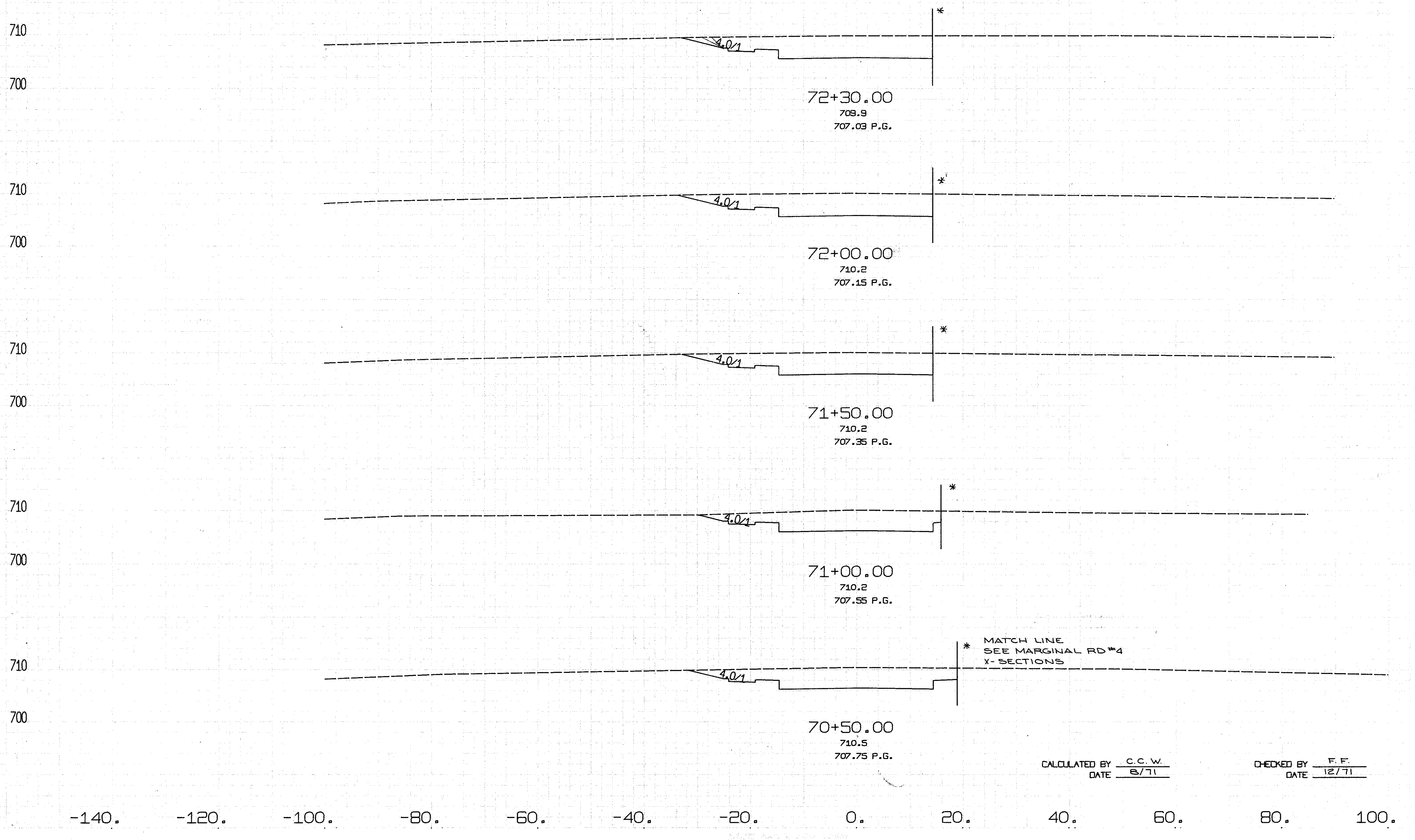
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.F.
DATE 12/71

WESTERN AVE EXTENDED
68+25.00 TO 70+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	237 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	154.	0.		
30.00C 30.00F			176.	0.
	162.	0.		
50.00C 50.00F			291.	0.
	152.	0.		
50.00C 50.00F			267.	0.
	136.	0.		
50.00C 50.00F			269.	0.
	155.	0.		
50.00C 50.00F			274.	0.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.F.
DATE 12/71

WESTERN AVE EXTENDED
70+50.00 TO 72+30.00

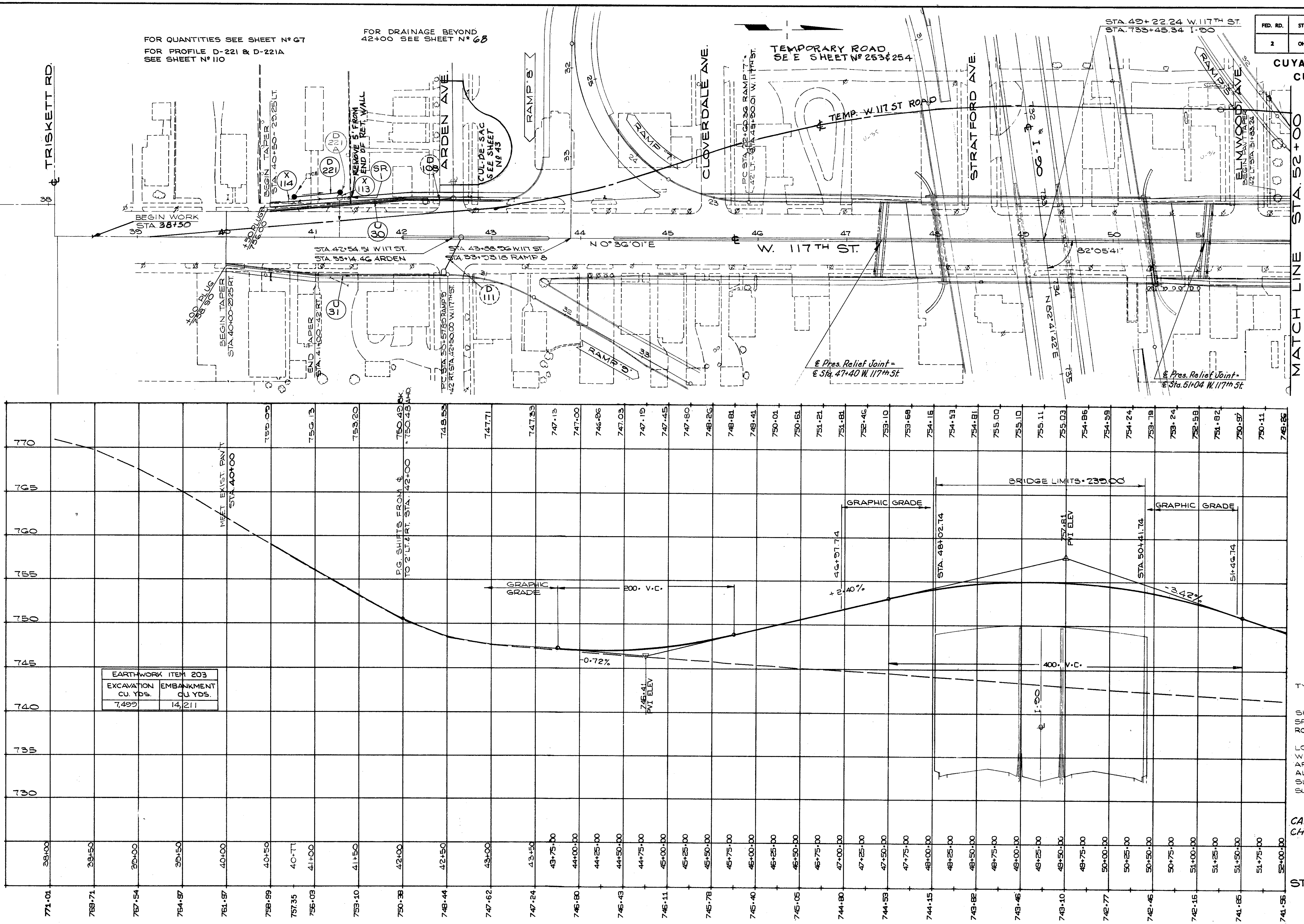
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

238
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

FOR QUANTITIES SEE SHEET Nº 67
FOR PROFILE D-221 & D-221A
SEE SHEET Nº 110

FOR DRAINAGE BEYOND
42+00 SEE SHEET Nº 68



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
7,499	14,211

PRESSURE RELIEF JOINTS

Install Type A pressure relief joints at the locations shown hereon as per Std. Dwg. BP-10. Outlet the required underdrains into U-35 & U-36. For Quantities, See Sht. No. 32

STRUCTURE DATA

Nº CUY-90-10.57

TYPE: CONTINUOUS WELDED STEEL PLATE GIRDERS WITH REINFORCED CONCRETE DECK & SUBSTRUCTURES
SKEW: 7°54'19" R.F.
SPANS: 93'-6", 47'-5½", 93'-6"
ROADWAY: 84' F/F CURBS W/6'-0" SIDEWALKS AND 4' MEDIAN
LOADING: HS 20-44
WEARING SURFACE: 1½" ASPHALT CONC.
APPROACH SLABS: 30' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION: NONE REQUIRED

CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

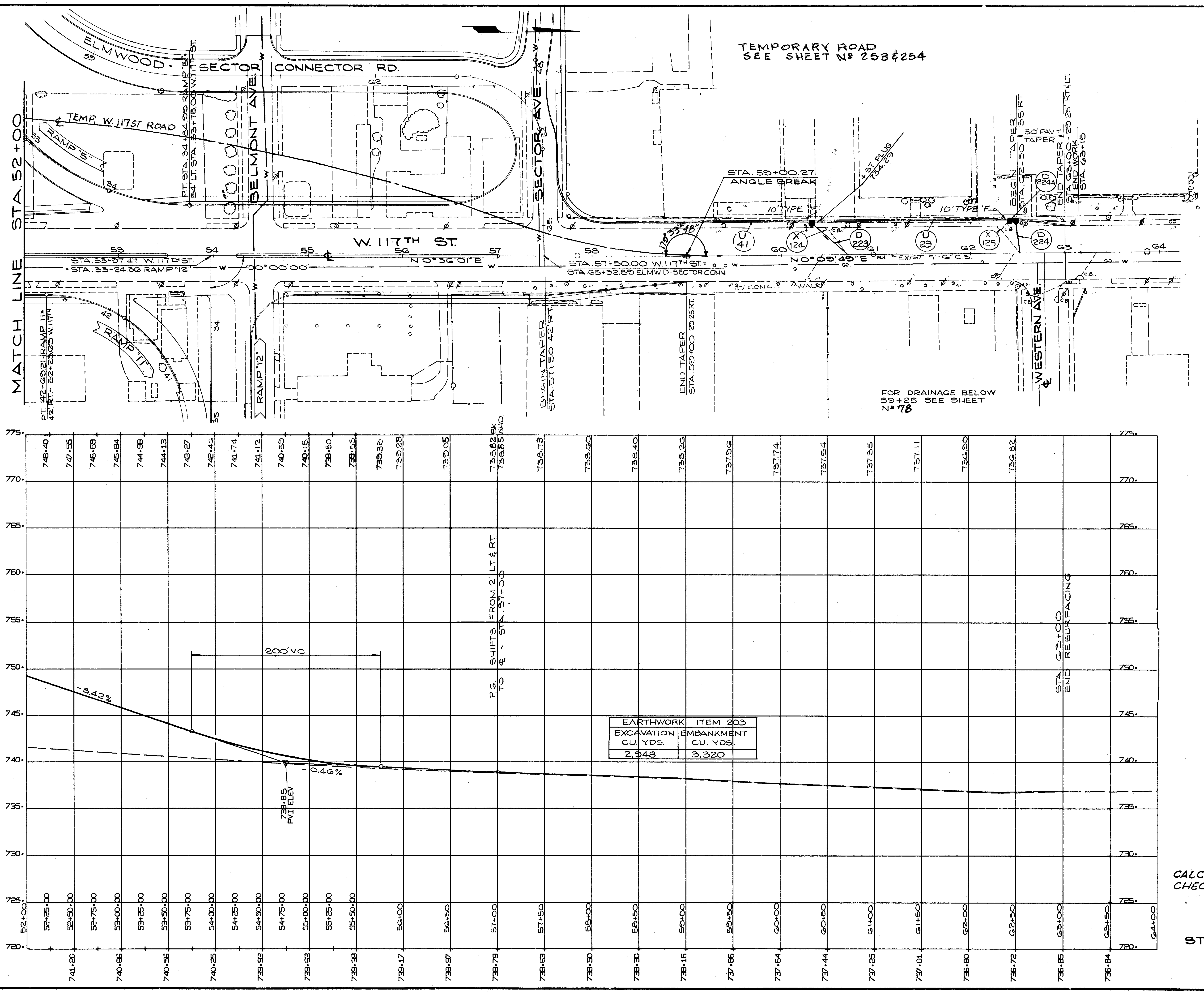
W. 117TH ST.

STA. 37+50 TO STA. 52+00

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

239
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



EARTHWORK	ITEM 203
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,948	3,320

FOR QUANTITIES SEE SHEET Nº 67 & 71

FOR PROFILES D-223 & 224
SEE SHEET Nº 100

CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

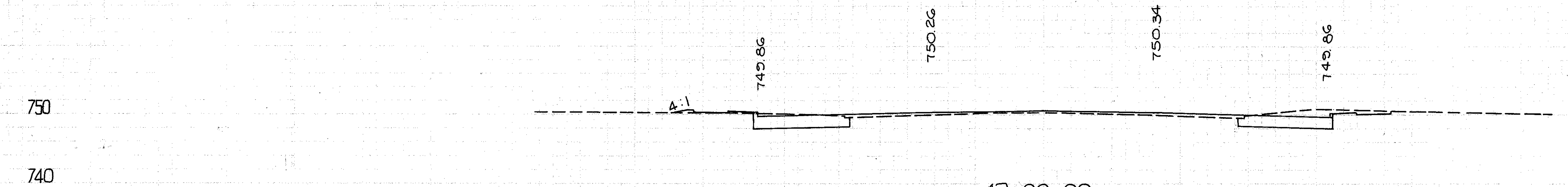
W. 117TH ST.
STA. 52+00 TO STA. 64+00

P17

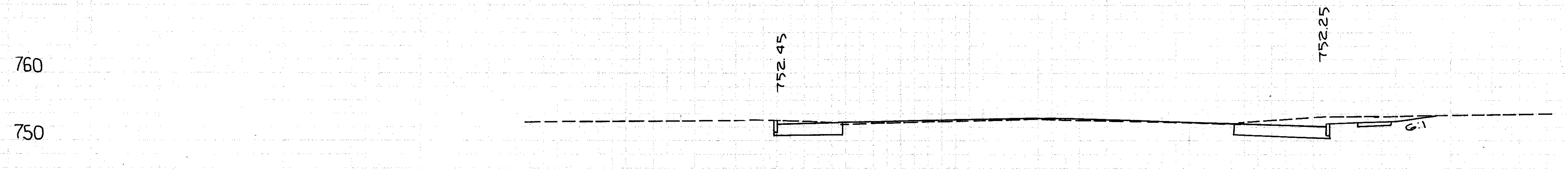
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50)19	240 713

CUY-90-10.40

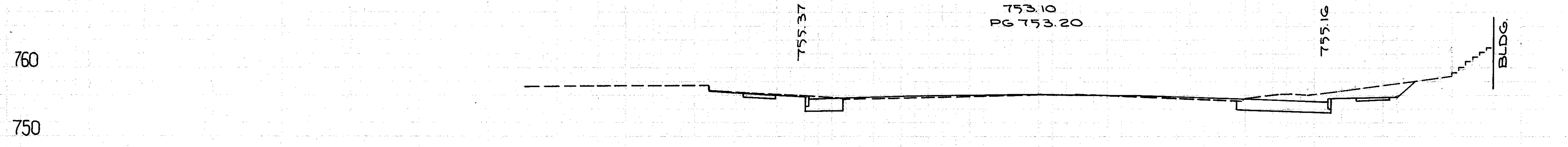
CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	60	2		
			126	2
	76	0		
			145	1
	80	0		
			122	0
	52	0		
			49	0
	1	0		

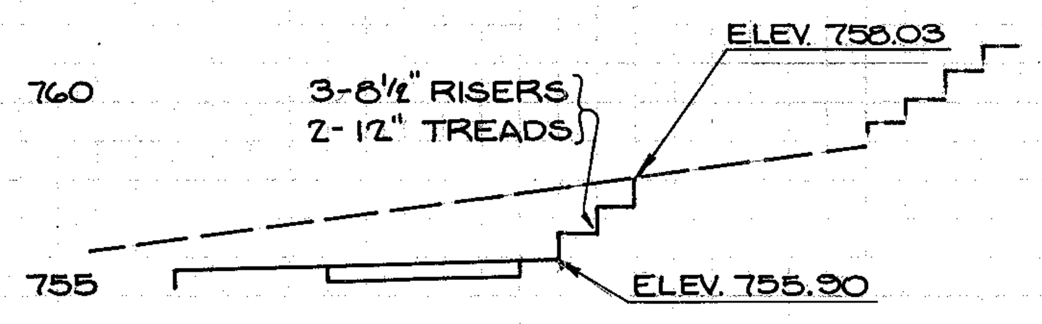


42+00.00
750.4
750.48 P.G.



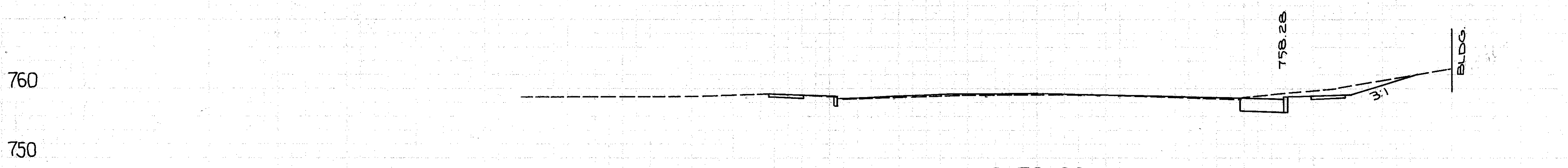
41+50.00
753.10
PG 753.20



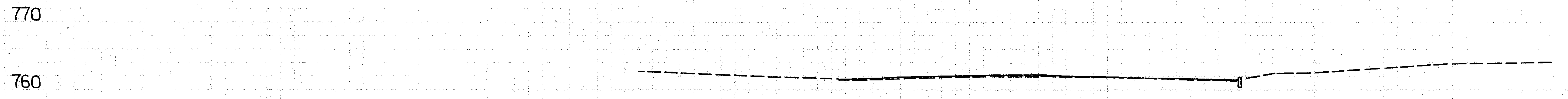


STEP DETAIL
STA. 41+03.5

41+00.00
756.03
PG 756.13



40+50.00
758.98
P.G. 759.09



40+00.00
761.97
MEET EXIST.

CALCULATED BY C.C.W.
DATE 7-71

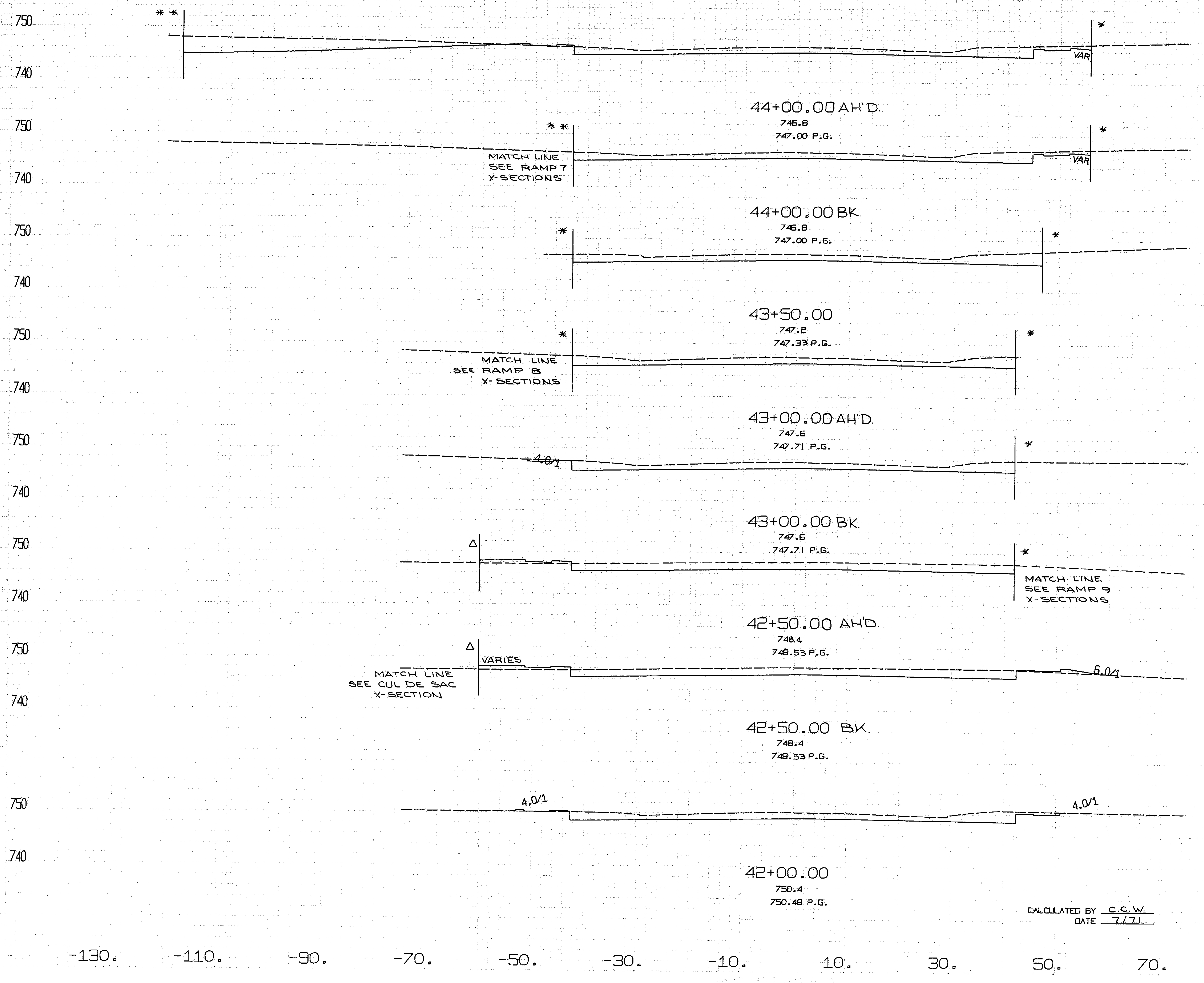
CHECKED BY F.A.E.
DATE 1-72

W. 117 ST.
40+00.00 TO 41+50.00

-150 -130 -110 -90 -70 -50 -30 -10 0 10 30 50 70 90 110 130 150

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	241/713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	215.	1.		
0.01C 0.01F			0.	0.
	105.	0.		
50.00C 50.00F			202.	0.
	113.	0.		
49.99C 49.99F			198.	0.
	101.	0.		
0.01C 0.01F			0.	0.
	103.	0.		
49.99C 49.99F			190.	13.
	102.	14.		
0.01C 0.01F			0.	0.
	103.	21.		
50.00C 50.00F			195.	20.
	108.	1.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

W. 117 ST.
42+00.00 TO 44+00.01

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

242
713

CUY-90-10.40

CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

W. 117 ST.
44+50.00 TO 46+00.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

243
713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL

CALCULATED BY C.C.W.
DATE 7/71

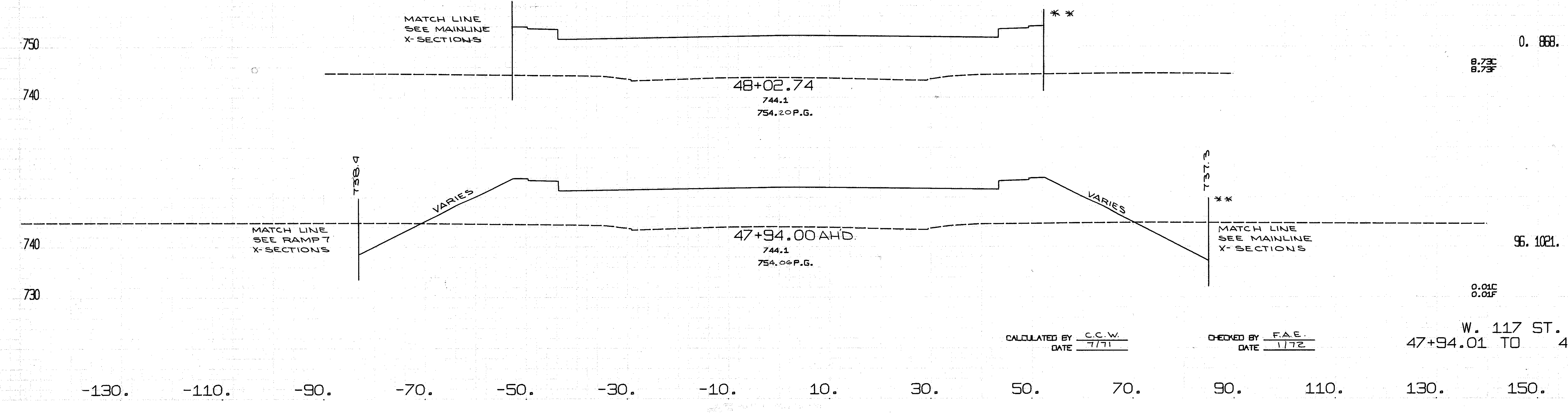
CHECKED BY F.A.E.
DATE 1/72

W. 117 ST.
46+50.00 TO 47+94.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50)19

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	0.	868.		
8.73C 8.73F			16.	305.
	96.	1021.		
0.01C 0.01F			0.	0.



CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

W. 117 ST.
47+94.01 TO 48+02.74

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-I(50) 19

245
713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL

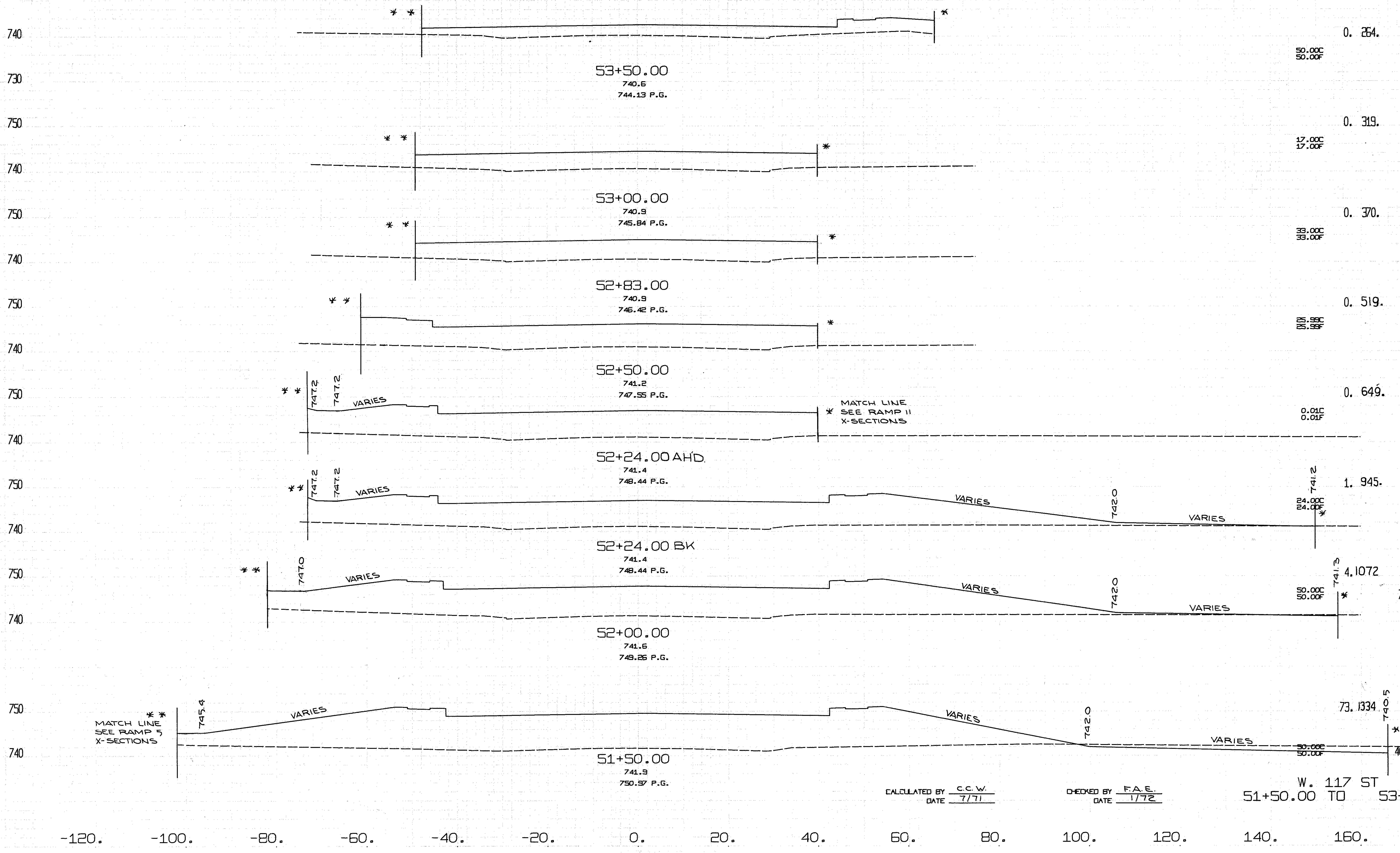
CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

W. 117 ST
50+41.74 TO 51+00.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	246 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	0.	264.		
50.00C 50.00F			0.	540.
	0.	319.		
17.00C 17.00F			0.	217.
	0.	370.		
33.00C 33.00F			0.	543.
	0.	519.		
25.99C 25.99F			0.	562.
	0.	649.		
0.01C 0.01F			0.	0.
	1.	945.		
24.00C 24.00F			2.	896
	4.	1072		
50.00C 50.00F			71.	2228
	73.	1334		
50.00C 50.00F			400.	2537

CALCULATED BY C.C.W.
DATE 7/71

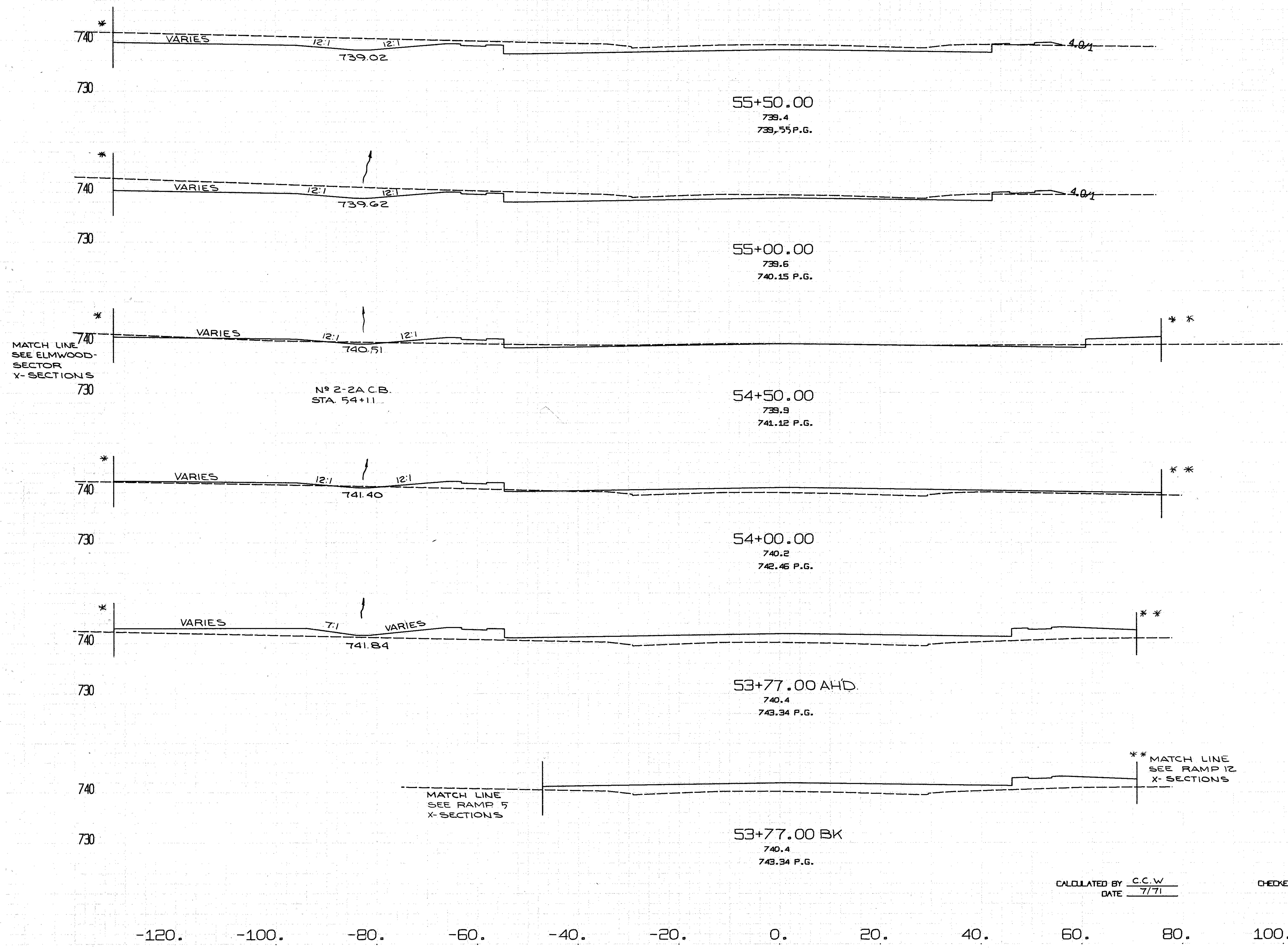
CHECKED BY F.A.E.
DATE 1/72

W. 117 ST
51+50.00 TO 53+50.00

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-90-1(50)19

247
713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	264.	3.		
50.00C 50.00F			460.	8.
	233.	6.		
50.00C 50.00F			253.	43.
	40.	41.		
50.00C 50.00F			42.	141.
	5.	111.		
26.99C 26.99F			2.	154.
	0.	251.		
0.01C 0.01F			0.	0.
	0.	163.		
23.00C 23.00F			0.	213.

CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

W. 117 ST
53+77.00 TO 55+50.00

100. 120. 140. 160.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	248 713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	168.	0.		
			0.	0.
	185.	0.		
40.00C 40.00F			321.	0.
	249.	0.		
32.99C 32.99F			263.	0.
	182.	0.		
0.01C 0.01F			0.	0.
	204.	0.		
35.00C 35.00F			257.	0.
	192.	0.		
42.00C 42.00F			318.	0.
	216.	0.		
50.00C 50.00F			445.	3.

CALCULATED BY C.C.W.
DATE 7/71

CHECKED BY F.A.E.
DATE 1/72

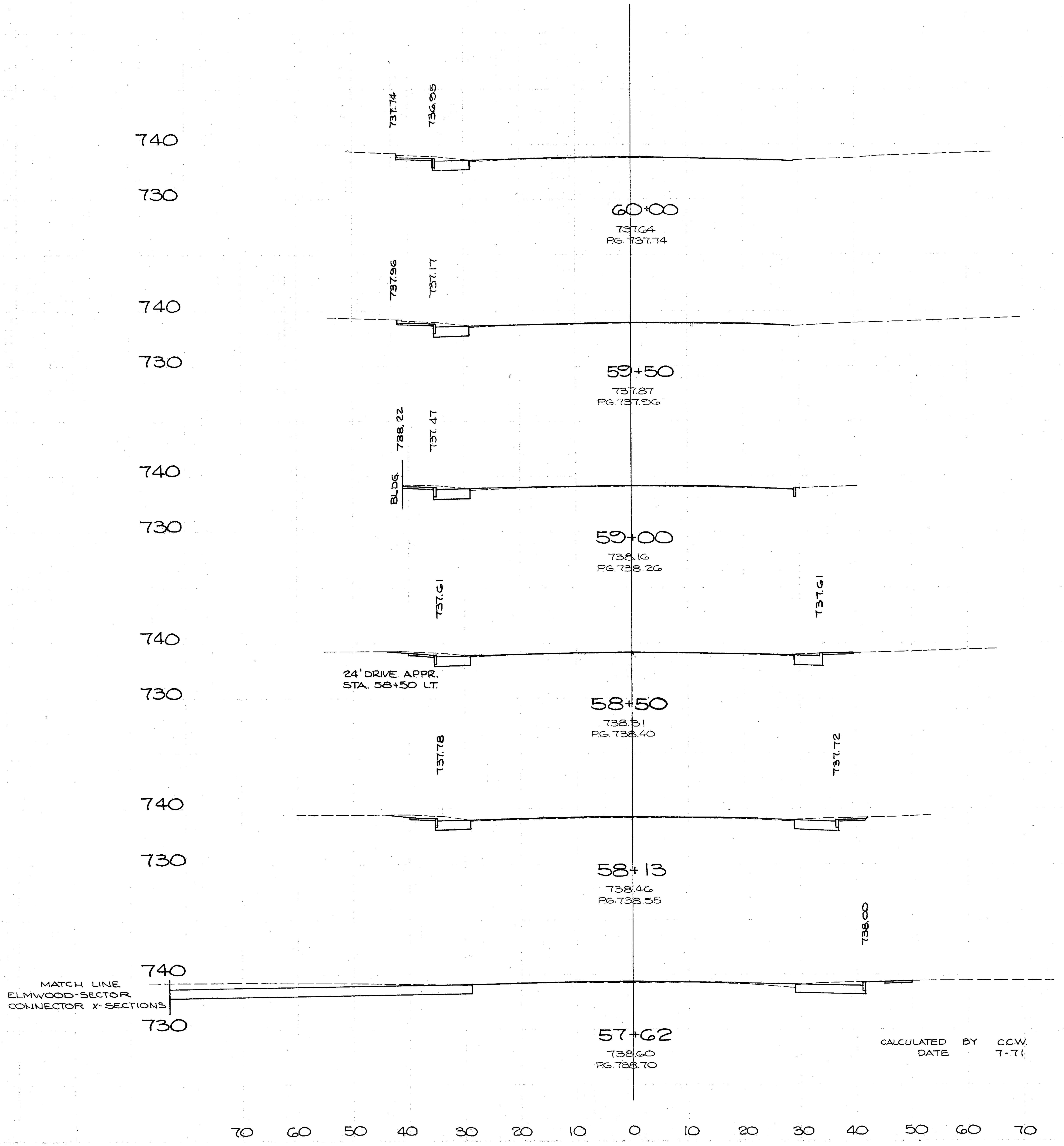
W. 117 ST
56+00.00 TO 57+50.00

245
713

1-90-1(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	20	0		
			36	0
	19	0		
			35	0
	19	0		
			46	0
	30	0		
			47	0
	39	0		
			195	0
	168	0		
			74	0



CALCULATED BY C.C.W.
DATE 7-71

CHECKED BY F.A.E.
DATE 1-72

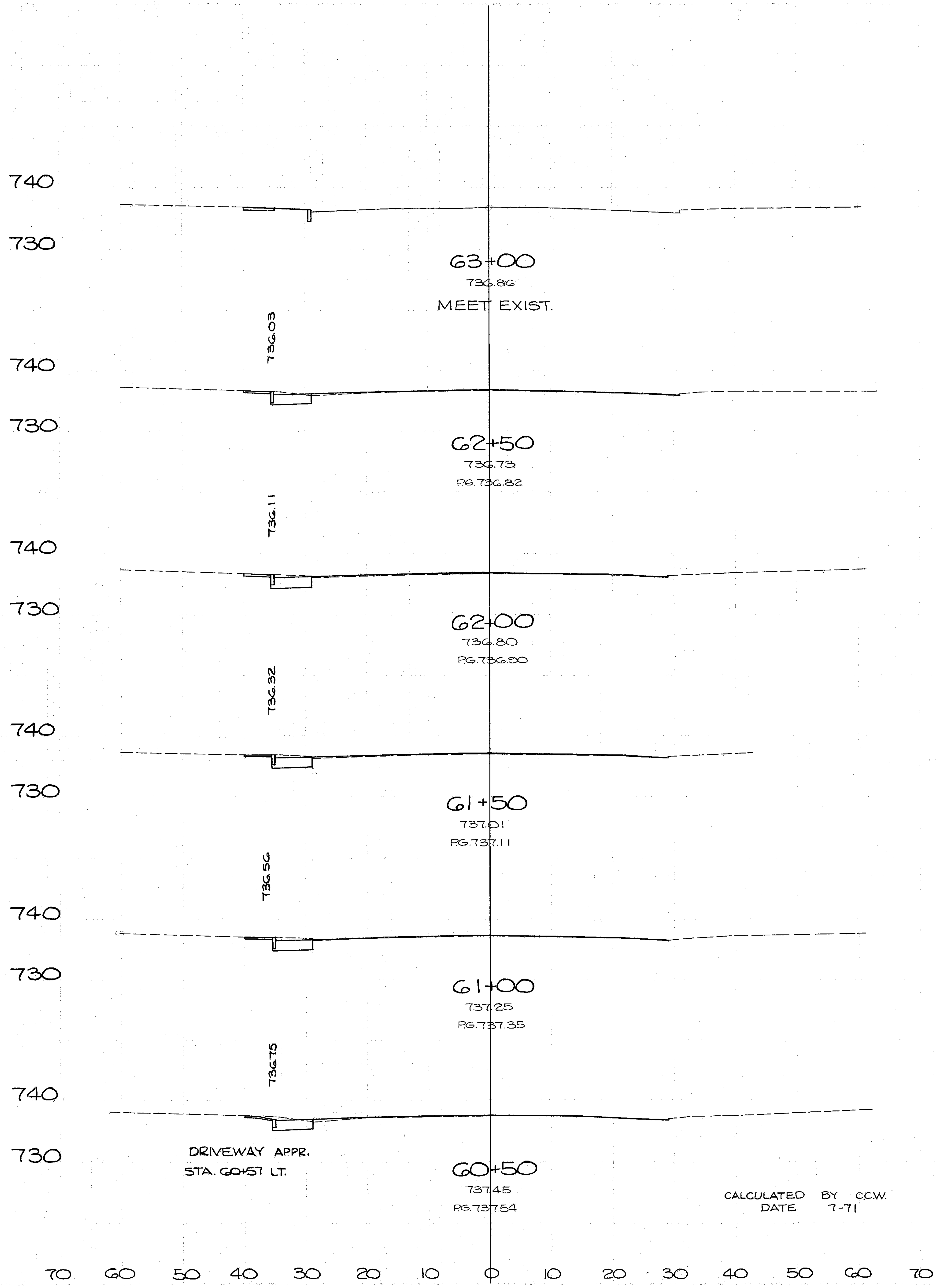
W. 117 ST.

STA. 57+62 TO STA. 60+00

I-90-1(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	4	0		
			18	0
	15	0		
			28	0
	15	0		
			28	0
	15	0		
			28	0
	15	0		
			18	0
	14	0		
			32	0



CALCULATED BY C.C.W.
DATE 7-71

CHECKED BY F.A.E.
DATE 1-72

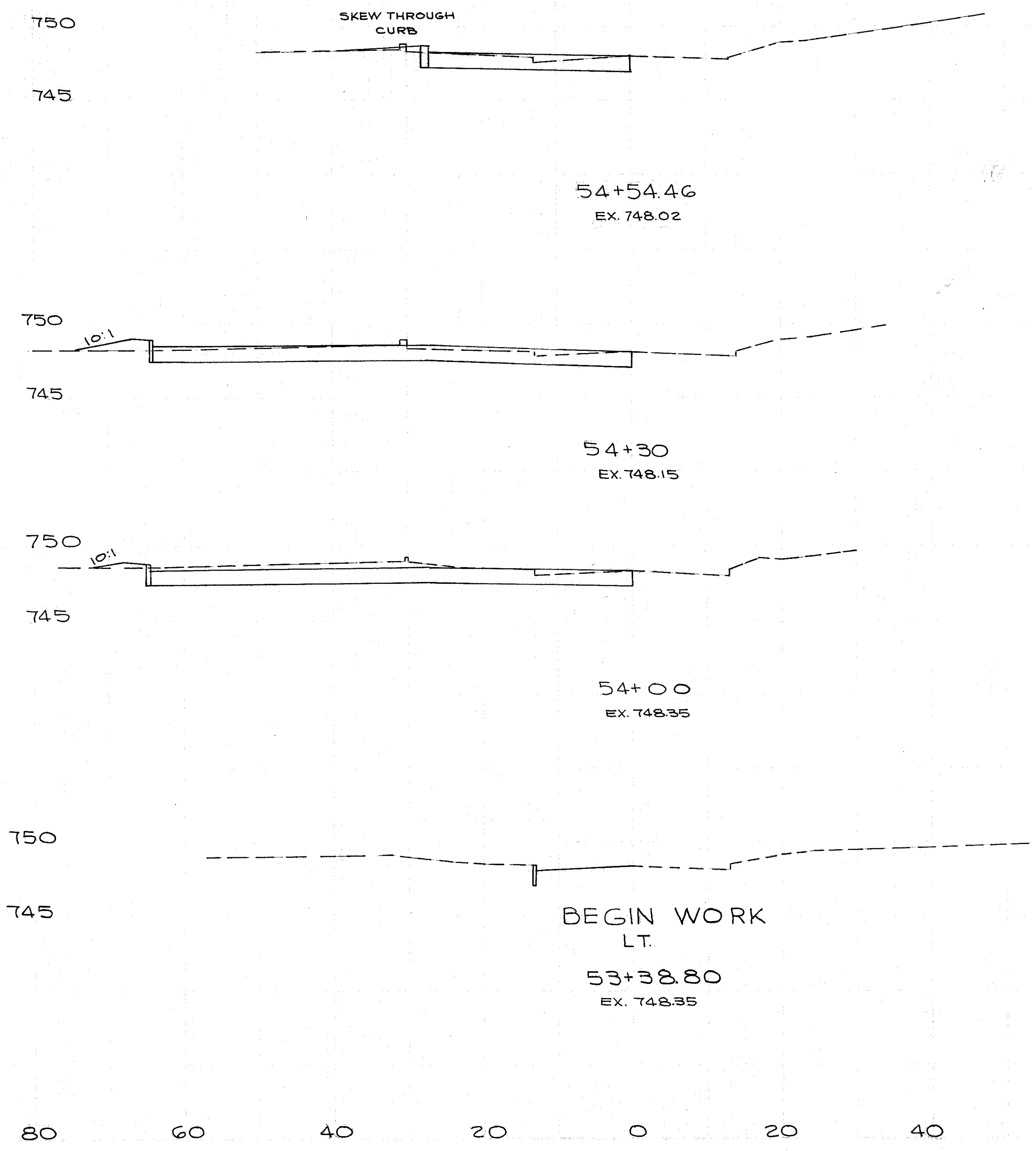
W. 117 ST.

STA. 60+50 TO 63+00

1-90-1(50) 19

251
713

CUYAHOGA COUNTY
CUY-90-10.40



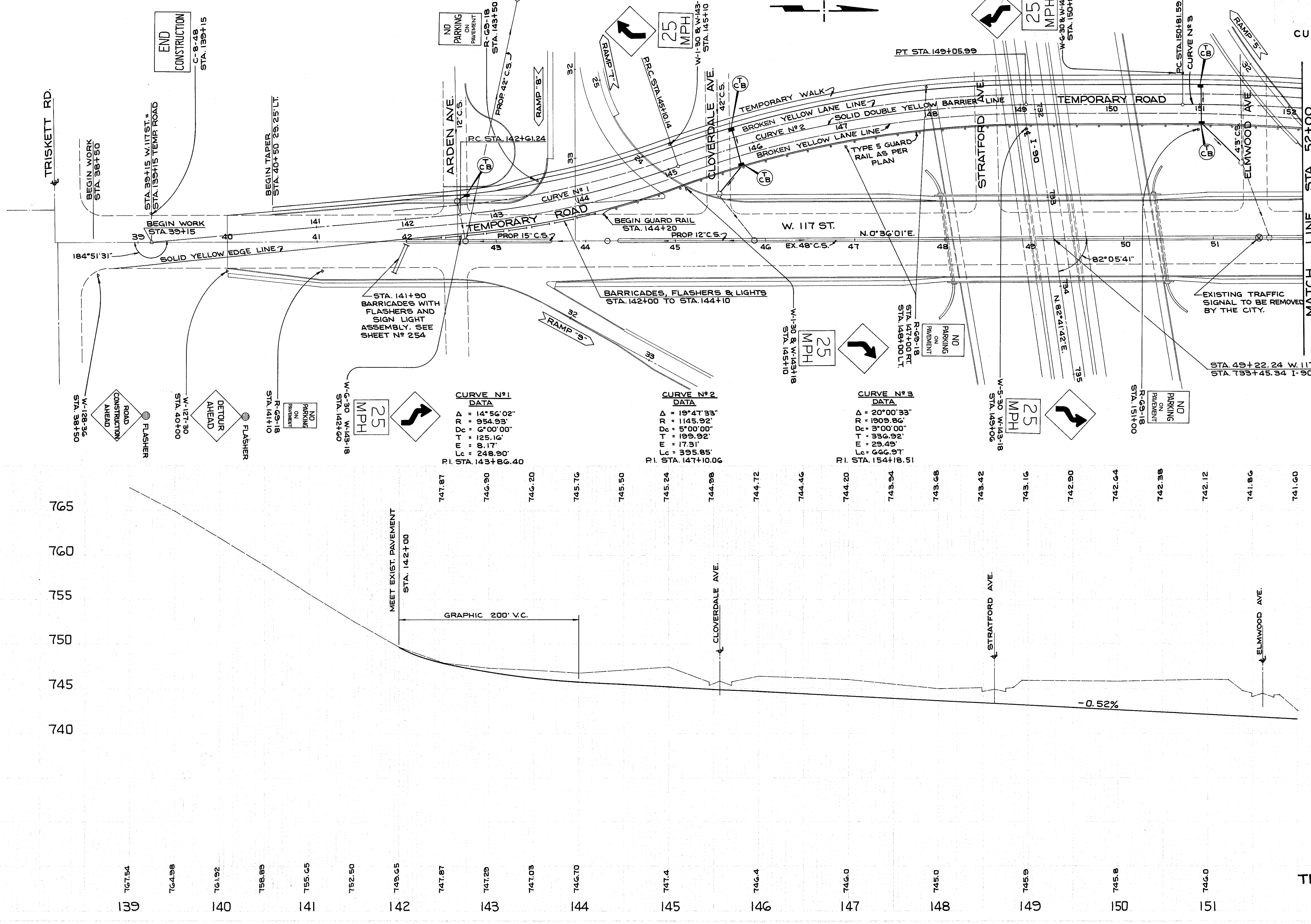
END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
21	2		
		35	3
55	5		
		65	4
70	2		
		81	3
2	0		
TOTAL		185	10

CALCULATED BY W.R.S. DATE 7/71 CHECK BY F.A.E. DATE 1/72

STA. 53+38.80 TO 54+54.46

ARDEN AVE.
CUL-DE-SAC

CUYAHOGA COUNTY
CUY - 90 - 10.40



CURVE Nº 1
DATA
Δ = 14°56'02"
R = 954.93'
Dc = 6°00'00"
T = 125.16'
E = 8.17'
Lc = 248.90'
P.I. STA. 143+86.40

CURVE Nº 2
DATA
Δ = 19°47'33"
R = 1145.92'
Dc = 5°00'00"
T = 199.92'
E = 17.31'
Lc = 395.85'
P.I. STA. 147+10.06

CURVE Nº 3
DATA
Δ = 20°00'33"
R = 1909.86'
Dc = 3°00'00"
T = 336.92'
E = 29.49'
Lc = 666.97'
P.I. STA. 154+18.51

MATCH LINE STA. 52+00

(T CB) = TEMPORARY CATCH BASIN

STANDARD TYPE CB-3 TO BE USED WITH 12" CONDUIT TYPE "B" AS SET FORTH IN ITEMS 603 & 604 OF THE SPECIFICATION. PAYMENT FOR FURNISHING, CONSTRUCTING AND REMOVAL SHALL BE INCLUDED WITH ITEM 615 TEMPORARY ROADS.

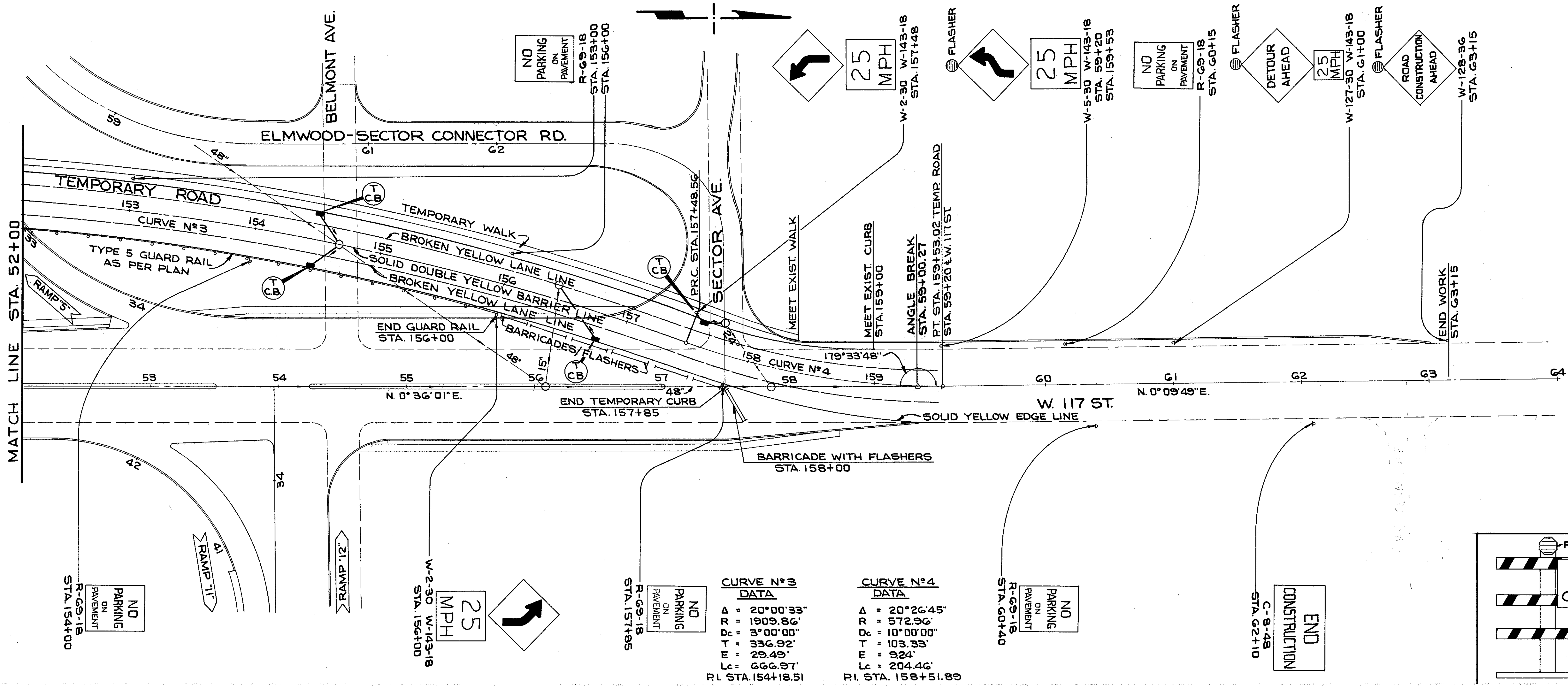
ALL 12" CONDUIT SHALL BE CONSTRUCTED ON 1.00% MINIMUM GRADES. TEMPORARY CONNECTIONS, TO NEW AND EXISTING STRUCTURES WHICH ARE TO REMAIN, SHALL BE REMOVED & THE STRUCTURE WALLS RESTORED WITH REMOVAL OF THE TEMPORARY ROAD.

FOR TEMPORARY LIGHTING SEE SHEETS________. PAYMENT TO BE INCLUDED UNDER ITEM 625 TEMPORARY LIGHTING. LUMP SUM.

TEMPORARY GUARD RAIL DEEP BEAM WITH 12'-6" POST SPACING.

W. 117 ST.
TEMPORARY ROAD

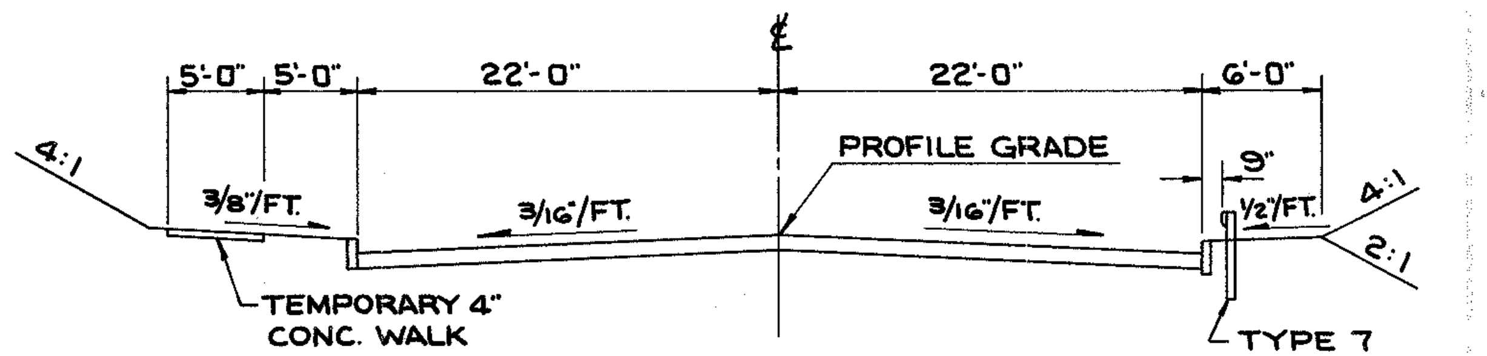
CUYAHOGA COUNTY
CUY - 90 - 10.40



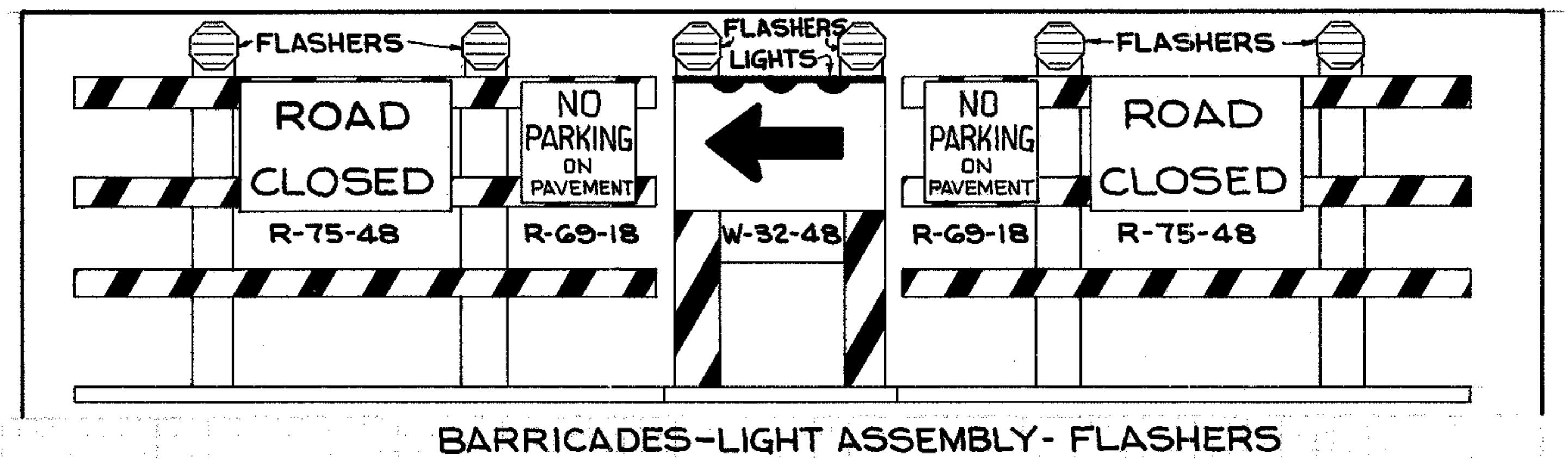
CURVE Nº3 DATA
Δ = 20°00'33"
R = 1909.86'
Dc = 3°00'00"
T = 336.92'
E = 29.49'
Lc = 666.97'
P.I. STA. 154+18.51

CURVE Nº4 DATA
Δ = 20°26'45"
R = 572.96'
Dc = 10°00'00"
T = 103.33'
E = 9.24'
Lc = 204.46'
P.I. STA. 158+51.89

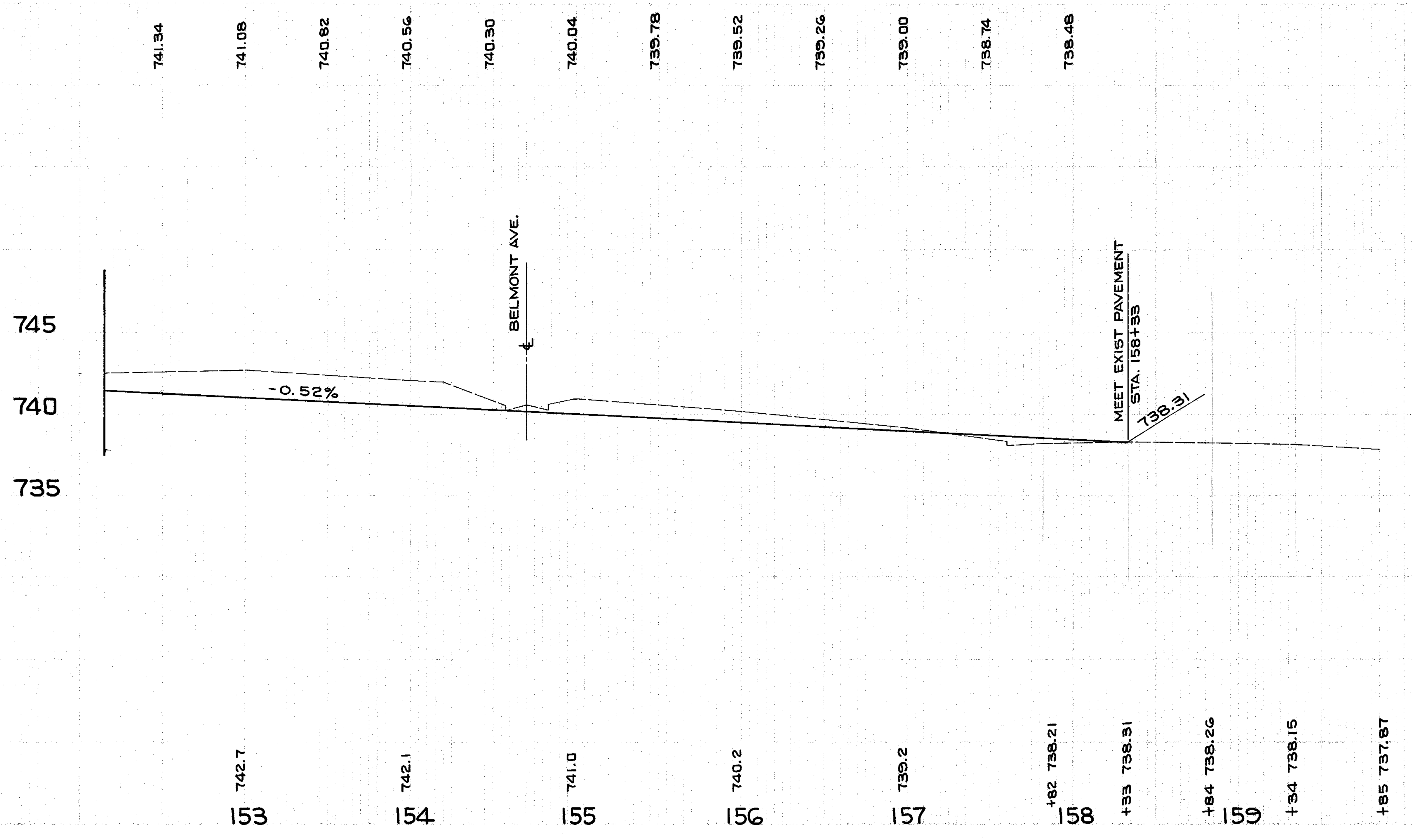
TEMPORARY PAVEMENT
CLASS "A"
7724 S.Y.



TYPICAL SECTION
TEMPORARY ROAD
CLASS "A" PAVEMENT WITH TYPE 2A OR TYPE 6 CURBS



BARRICADES-LIGHT ASSEMBLY- FLASHERS
STA. 141+90
STA. 158+00



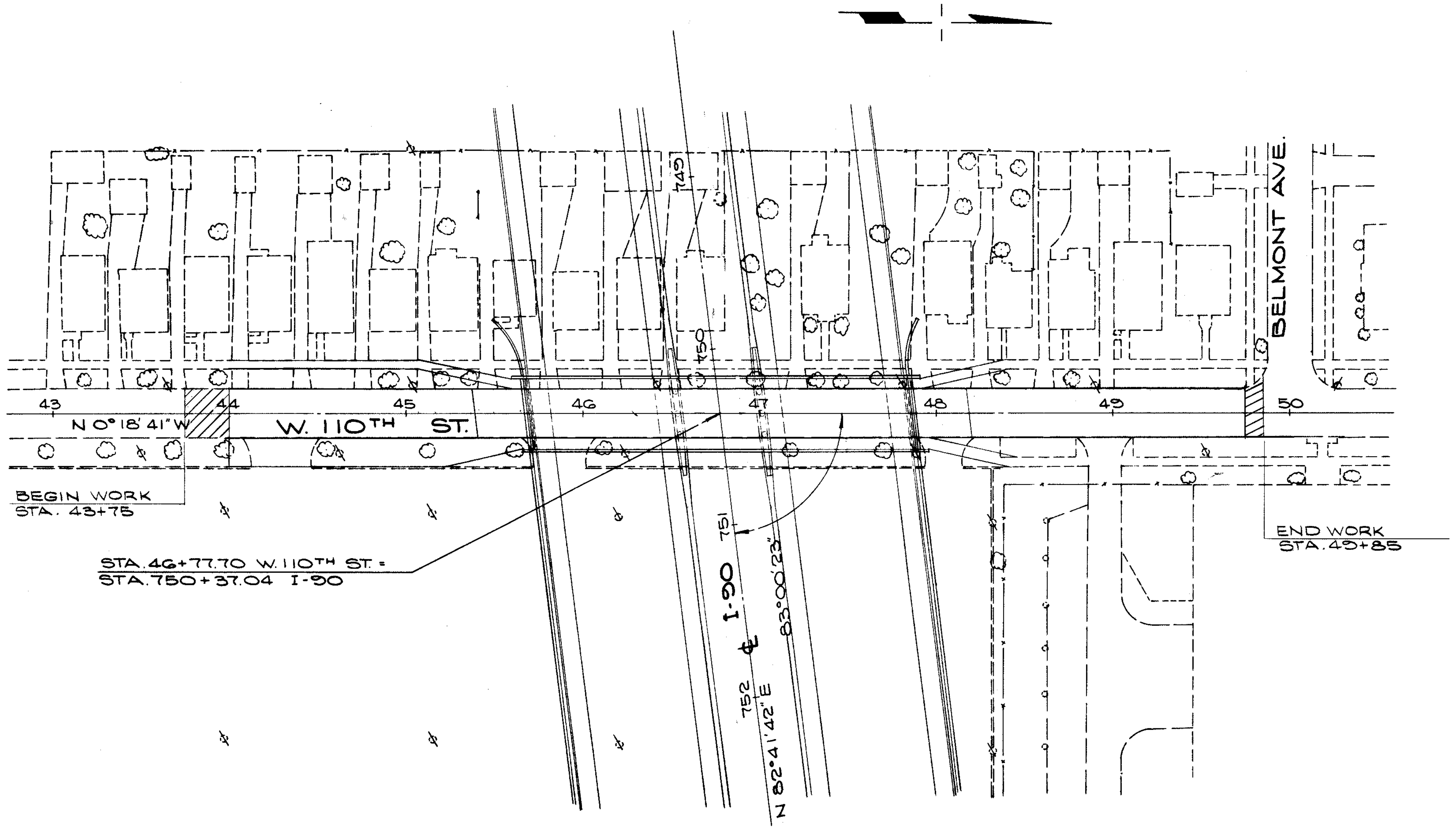
W. 117 ST.
TEMPORARY ROAD

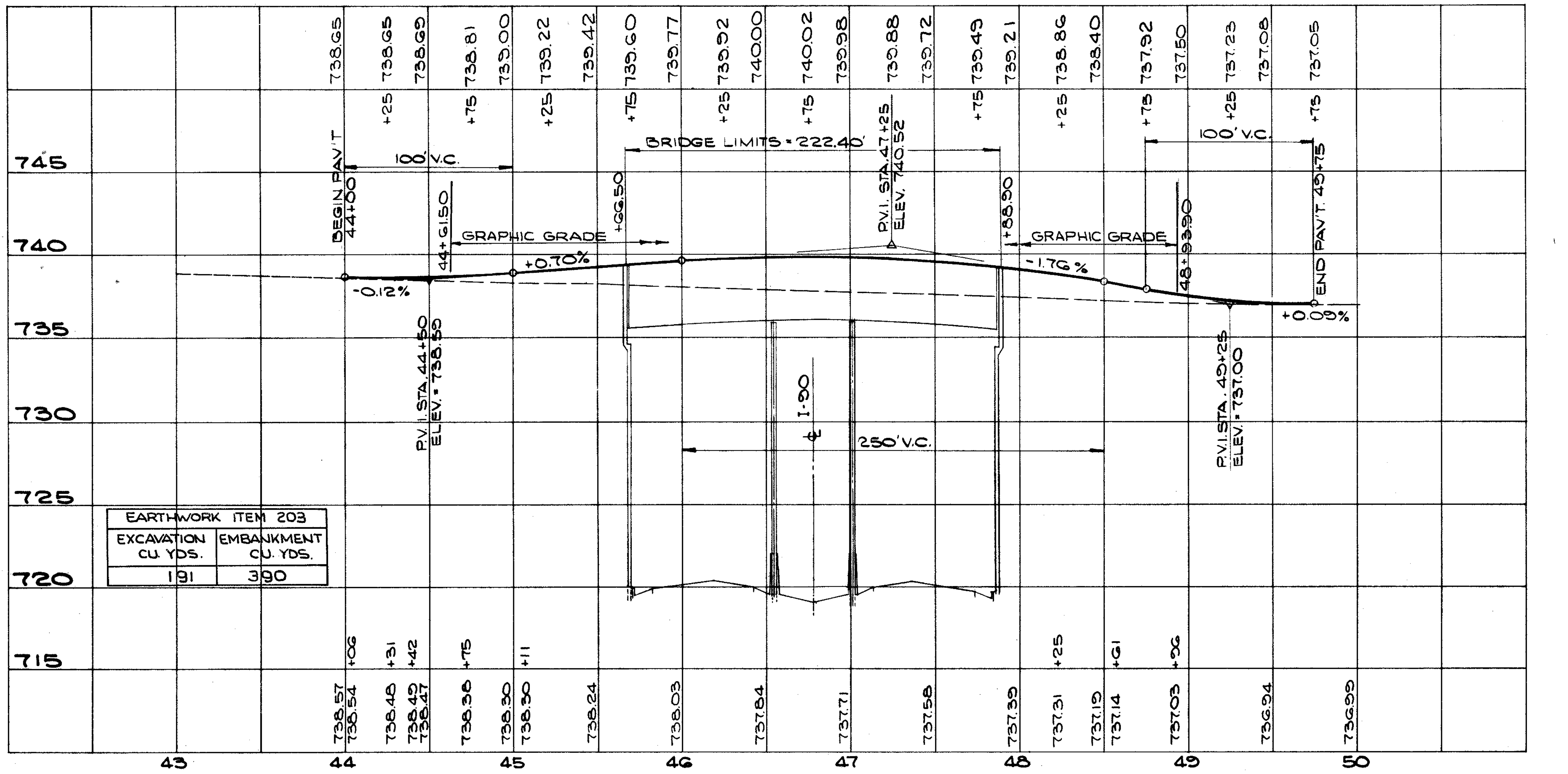
CUYAHOGA COUN
CUY - 90 - 10.40

W. 117 ST. TEMPORARY
ROAD X-SECTIONS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40





EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
191	390

FOR DETAILS, SEE
SHEET Nº ______.

STRUCTURE DATA-CUY-90-1089

TYPE: CONTINUOUS STEEL BEAMS, WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.
SKEW: 6° 59' 37" R.F.
SPANS: 85'-3", 47.36', 85'-3"
ROADWAY: 28'-0" F/F CURBS WITH 6'-0" SIDEWALKS
LOADING: HS 20-44
WEARING SURFACE: 1½" ASPHALT CONCRETE
APPROACH SLABS: 30' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION: NONE REQUIRED

CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

W. 110TH ST.
STA. 43+00 TO STA. 50+50

1-90-1(50) 19

256
713

CUYAHOGA COUNTY
CUY-90-1040

CALCULATED BY WRS DATE 7/71 CHECKED BY FAE. DATE 1/72

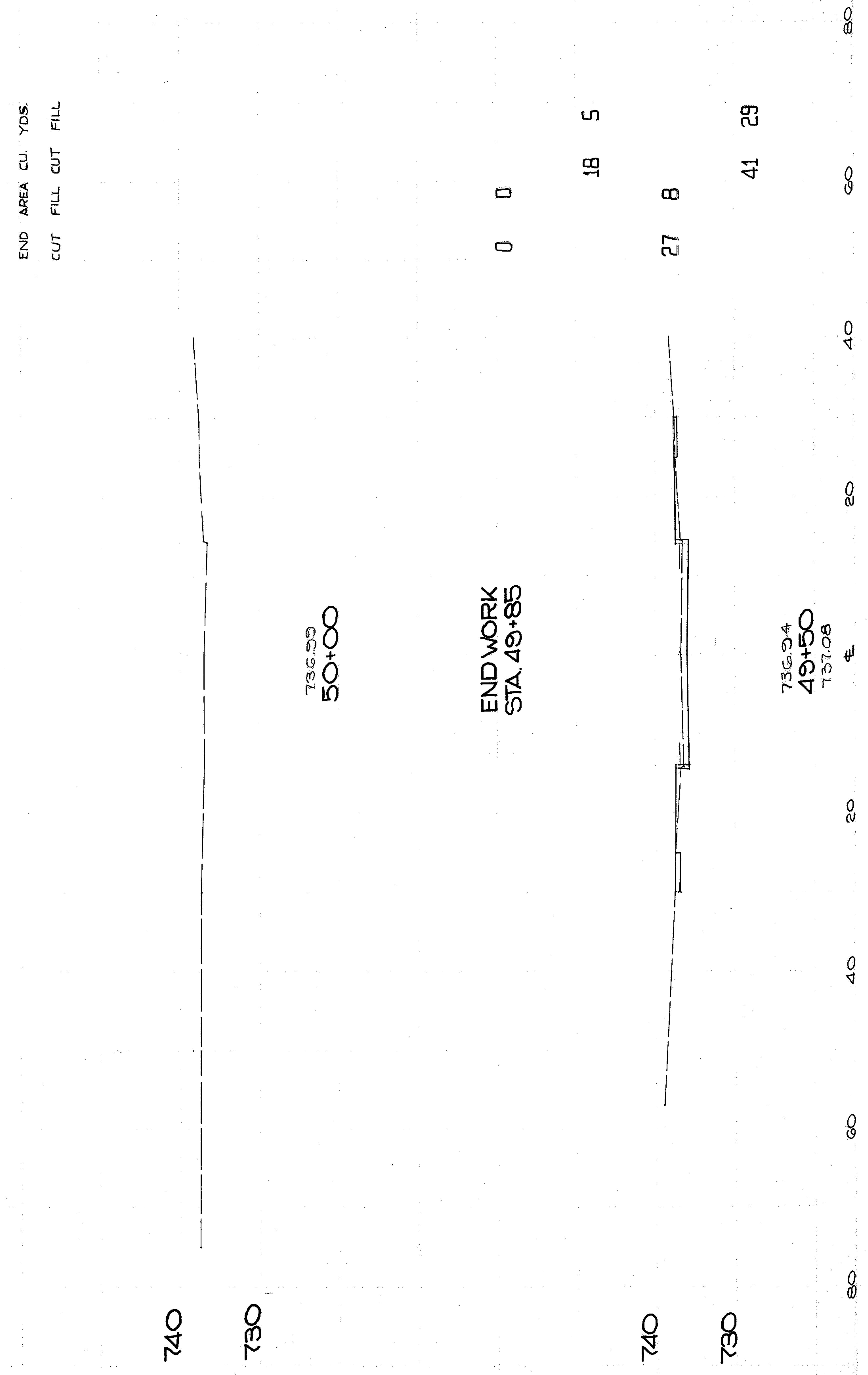
W 110 ST.
STA. 43+50-45+50

CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. DATE 7/71 CHECKED BY F.A.E. DATE 1/72

W 110 ST.
STA. 46+00-49+00

CUYAHOGA COUNTY
CUY-90-10.40



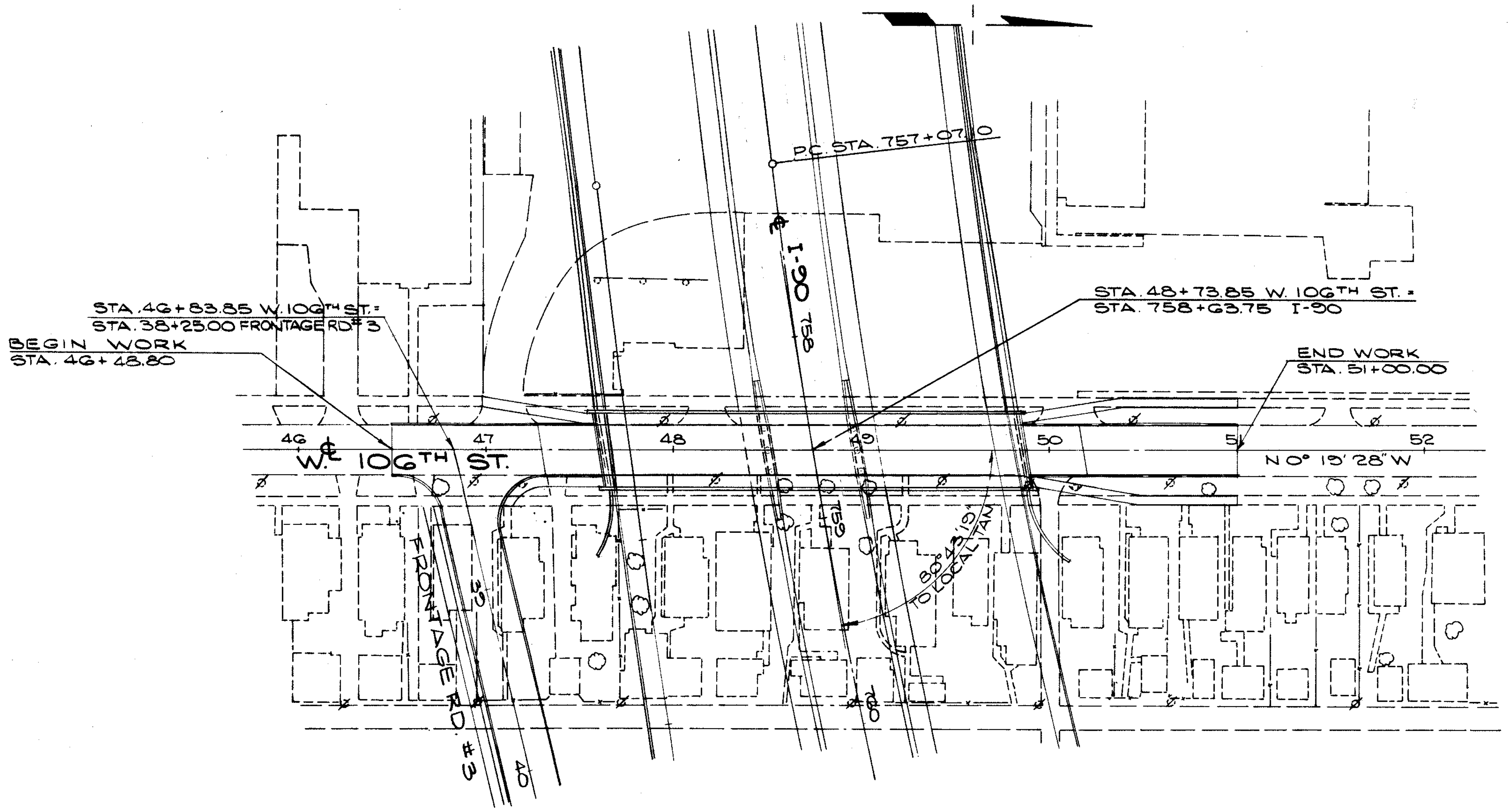
CALCULATED BY W.R.S.
DATE 7/71

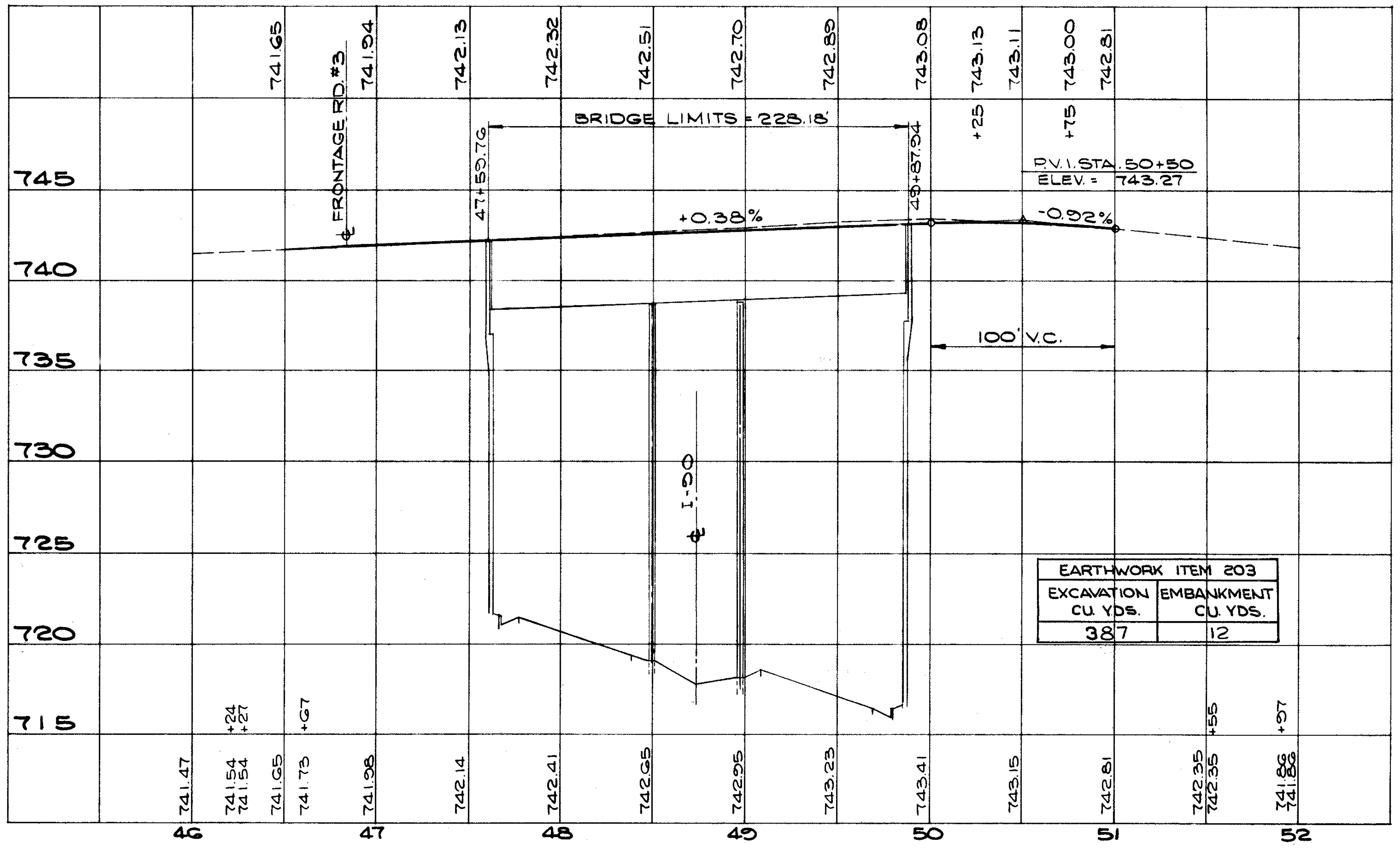
CHECKED BY F.A.E.
DATE 1/72

W 110 ST.
STA. 49+50-50+00

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40





EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
387	12

FOR DETAILS, SEE
SHEET Nº ________.

STRUCTURE DATA-CUY-90-1105

TYPE: CONTINUOUS STEEL WELDED PLATE GIRDERS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.

SKEW: 9° 16' 41" R.F. TO LOC. TAN.
SPANS: 88'-0"; 47'-7½"-88'-0"
ROADWAY: 28'-0" F/F CURBS W/6'-0" SIDEWALKS
LOADING: HS 20-44
WEARING SURFACE: 1½ ASPHALT CONCRETE
APPROACH SLABS: 30' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION: NONE REQUIRED

CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

W. 106TH ST.
STA. 46+00 TO STA. 52+00

I-90-I (50) 19

260
713

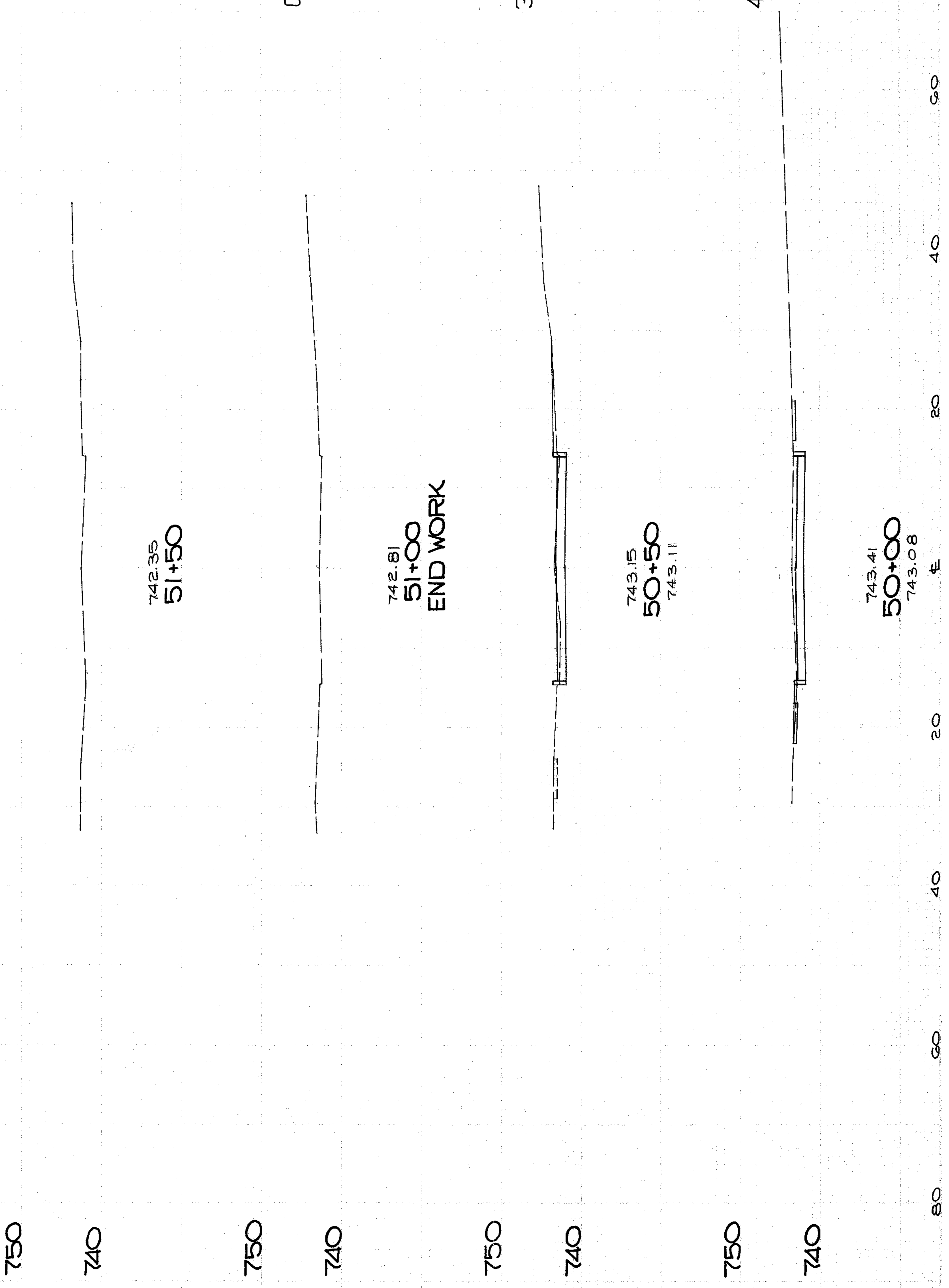
CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. CHECKED BY F.A.E.
DATE 7/71 DATE 1/72

W 106 ST.
STA. 46+00-49+50

CUYAHOGA COUNTY
CUY-90-10.40

	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
50+00	45	0		
			71	3
50+50	31	3		
			29	3
51+00	0	0		



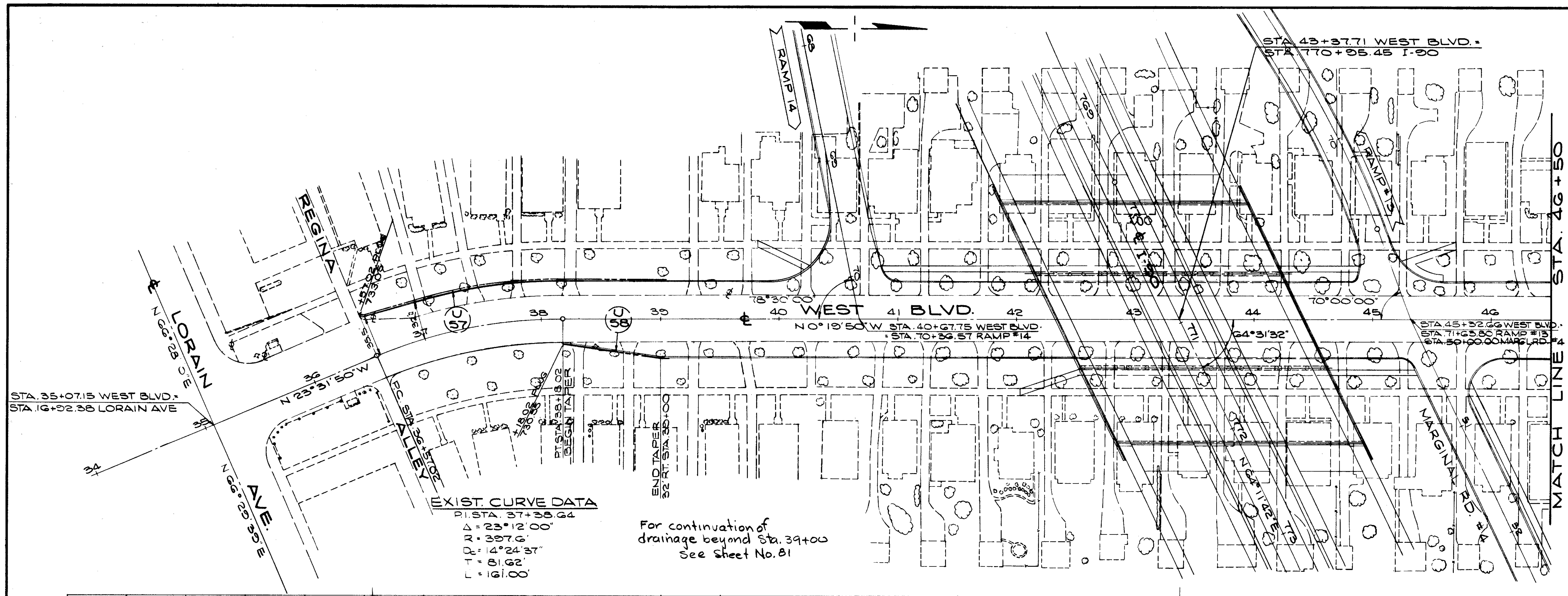
CALCULATED BY W.R.S. DATE 7/71 CHECKED BY F.A.E. DATE 1/72

W 106 ST.
STA. 50+00-51+50

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

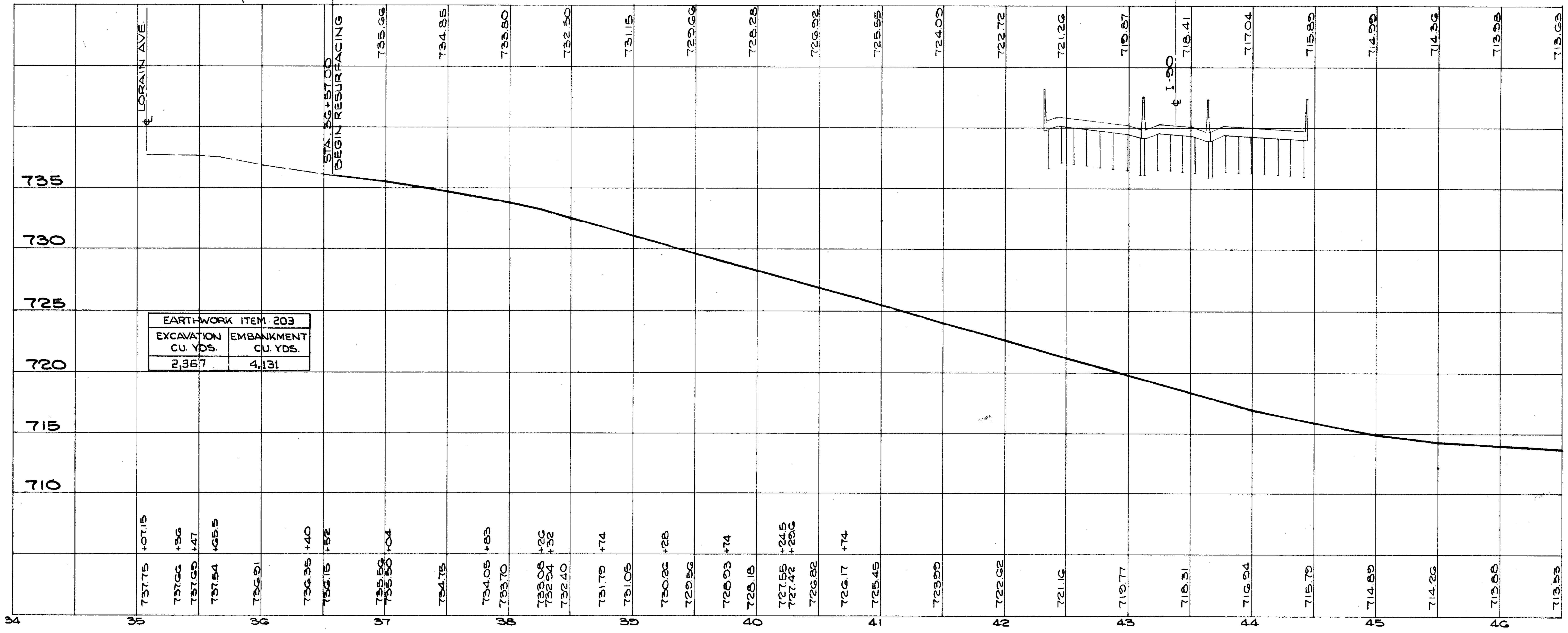
262
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



EXIST. CURVE DATA
P.I. STA. 37+38.64
Δ = 23°12'00"
R = 397.6'
Dc = 14°24'37"
T = 81.62'
L = 161.00'

For continuation of drainage beyond Sta. 39+00 See Sheet No. 81



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,367	4,131

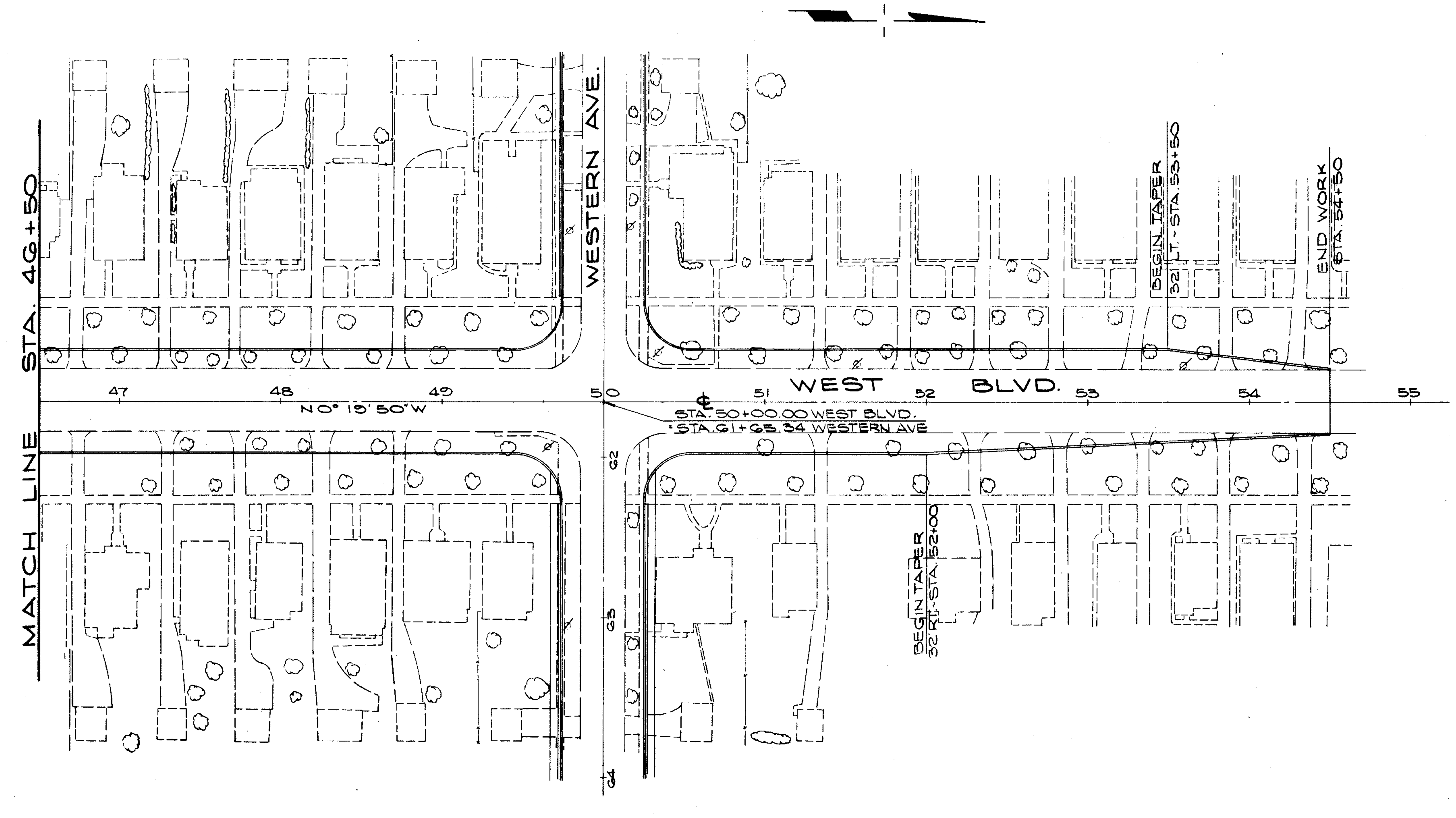
STRUCTURE DATA-CUY-90-1127
TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK & SUBSTRUCTURES
SKEW: 25°28'30" L.F.
SPANS: 44'-6", 87'-6", 53'-0"
ROADWAY: 69'-6" F/F PARAPETS W.B. LANES
70'-9" F/F PARAPETS E.B. LANES
LOADING = HS - 20 - 44 AND INT. ALT. LOADING
WEARING SURFACE: 1½" ASPHALT CONCRETE
APPROACH SLABS: 25' LONG (AS-1-72)
ALIGNMENT: TANGENT
SUPERELEVATION: TRANSITION
SLOPE PROTECTION: CONCRETE SLOPE PAVING

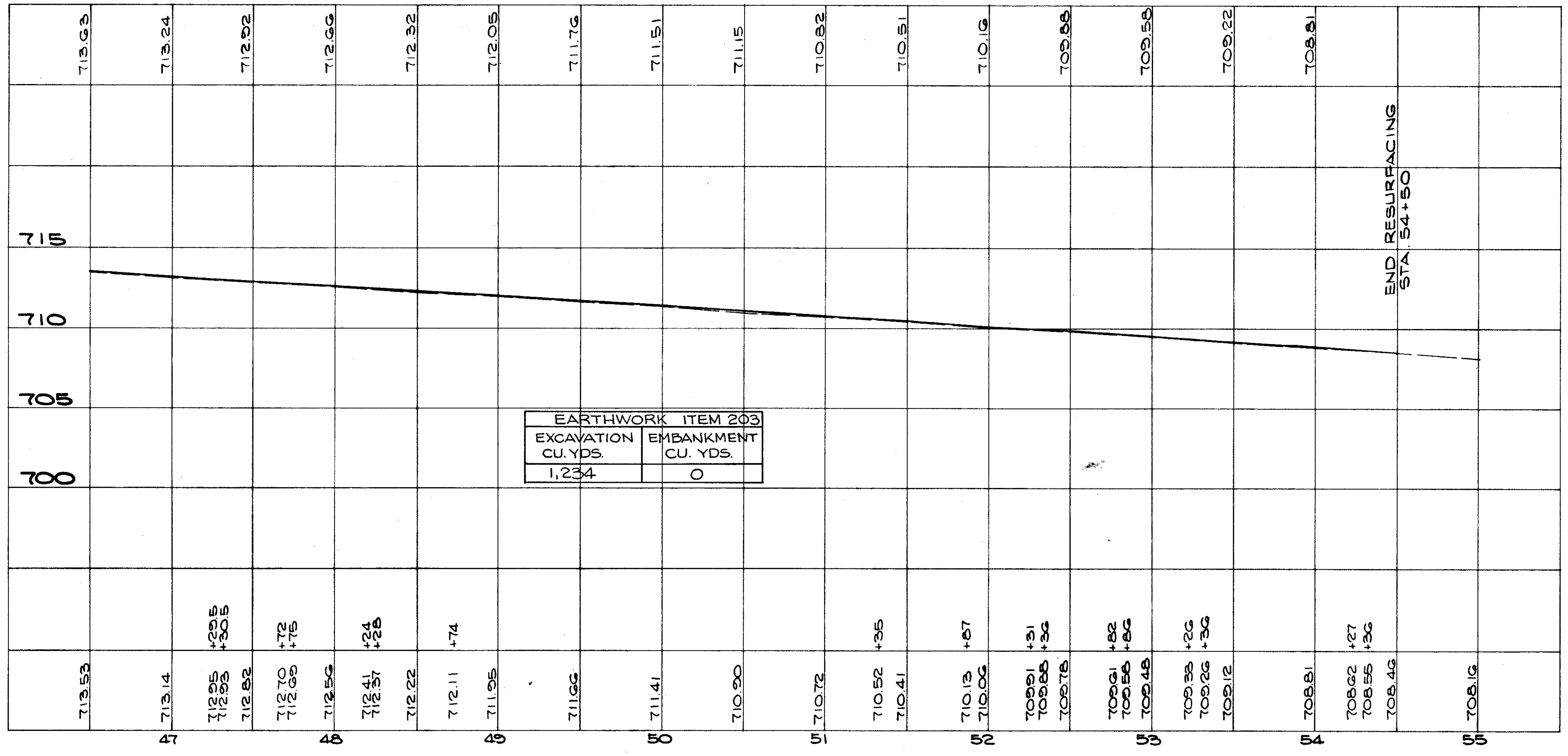
CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

WEST BLVD.
STA. 34+00 TO STA. 46+50

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40





EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
1,234	0

WEST BLVD.
STA. 46+50 TO STA. 55+00

CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. DATE 7/71
CHECKED BY F.A.E. DATE 1/72

WEST BLVD.
STA. 36+52 - 38+74

I-90-I(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. DATE 7/71 CHECKED BY F.A.E. DATE 1/72

WEST BLVD.
STA. 39+00 - 42+50

1-90-1(50) 19

266
713

CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. CHECKED BY F.A.E.
DATE 7/71 DATE 1/72

WEST BLVD.
STA. 43+00-46+75.5

I-90-1(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. CHECKED BY F.A.E.
DATE 7/71 DATE 1/72

WEST BLVD.
STA.47+00-48+74

CUYAHOGA COUNTY
CUY-90-10.40

I-90-I(50) 19

268
713

CALCULATED BY W.R.S. CHECKED BY F.A.E.
DATE 7/71 DATE 1/72

WEST BLVD.
STA. 49+00-52+36

1-90-1(50) 19

269
713

CUYAHOGA COUNTY
CUY-90-10.40

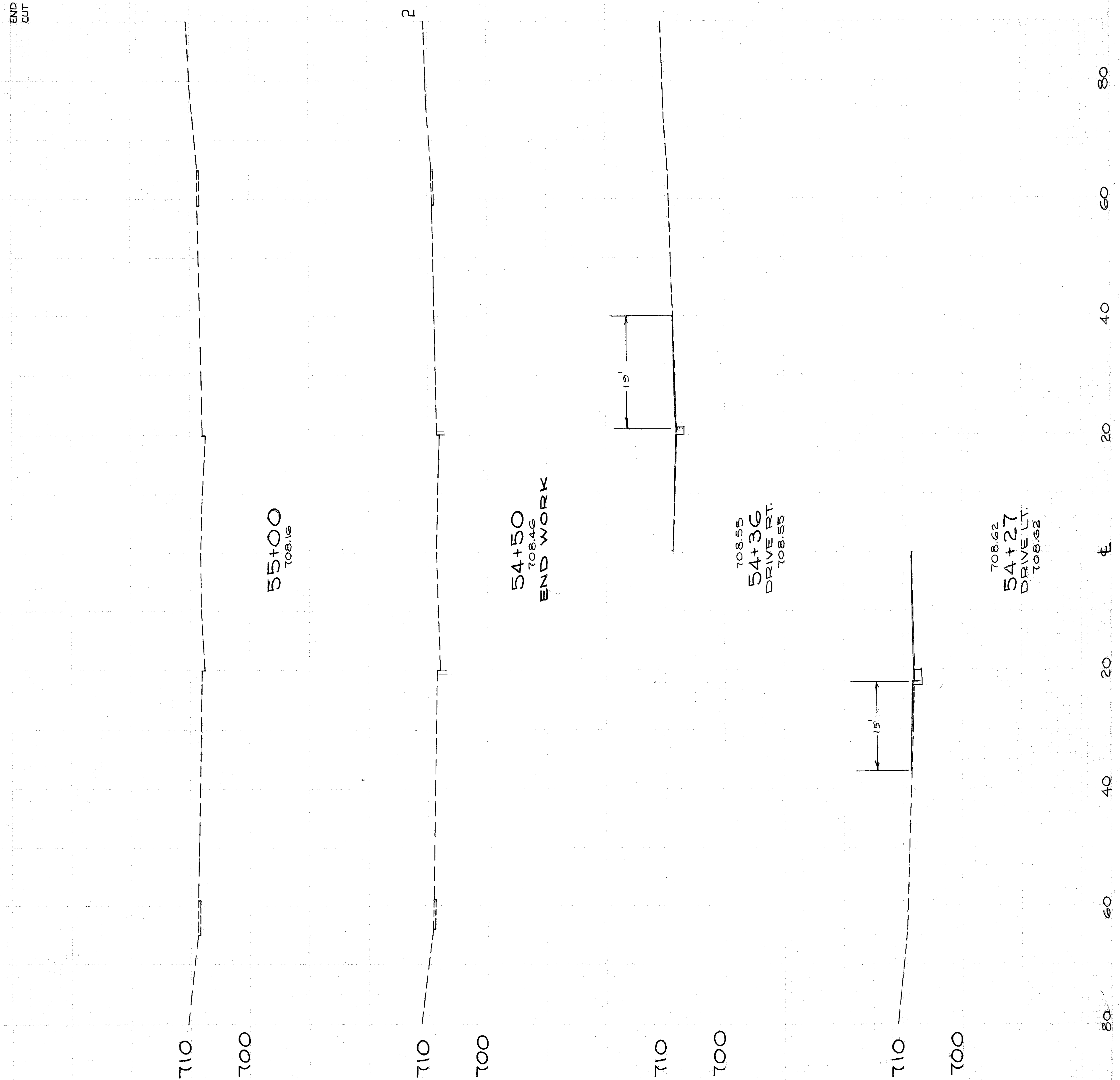
CALCULATED BY W.R.S. CHECKED BY F.A.E.
DATE 7/71 DATE 1/72

WEST BLVD.
STA.52+50-54+00

1-90-1(50) 19

270
713

CUYAHOGA COUNTY
CUY-90-10.40



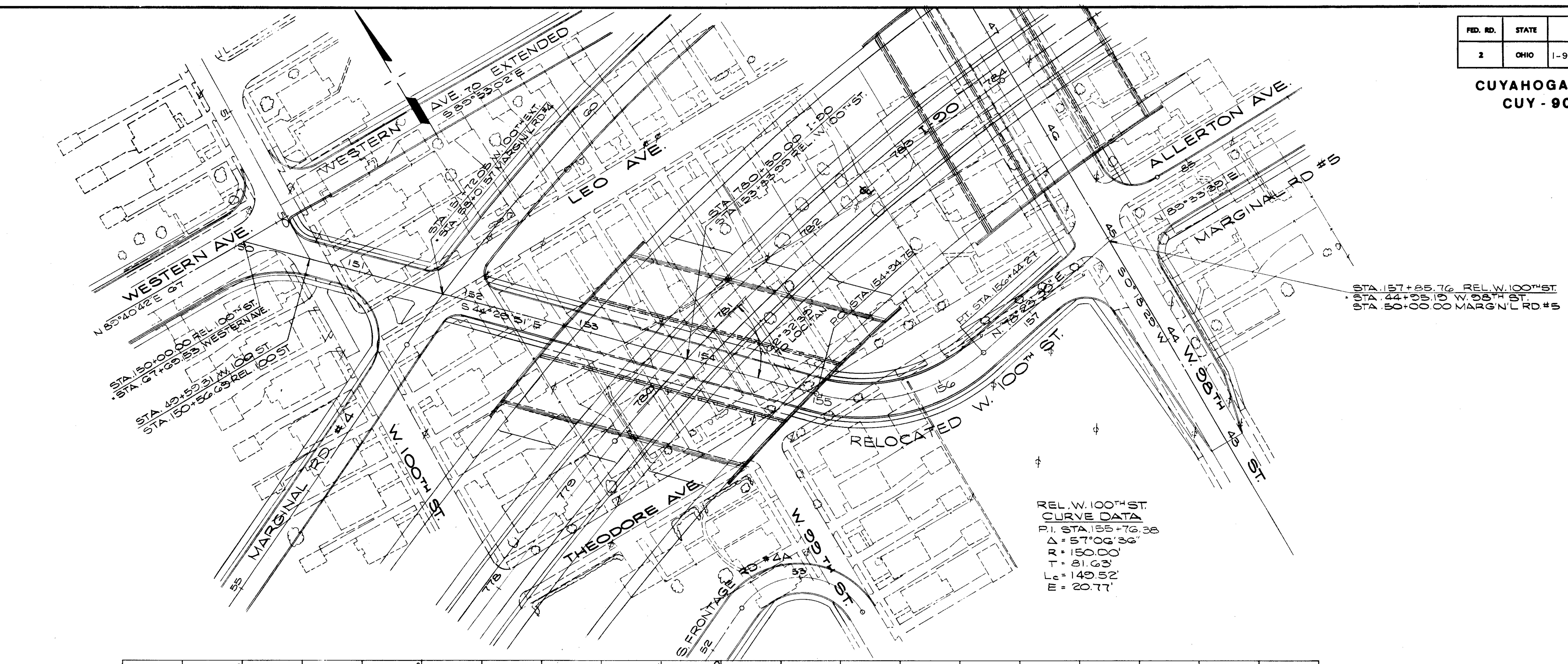
CACULATED BY W.R.S. DATE 8/71 CHECKED BY F.A.E. DATE 12/71

WEST BLVD.
STA.54+27 - 55+00

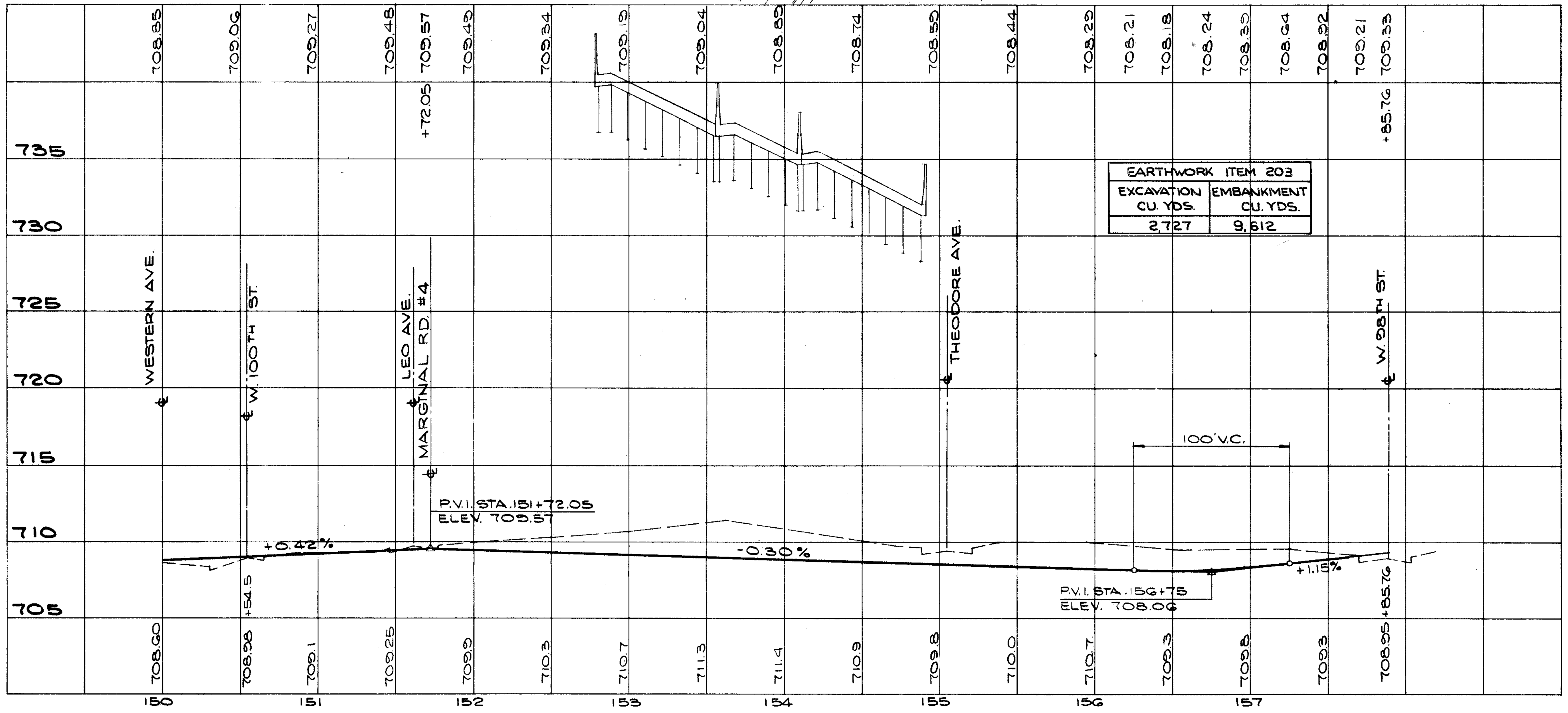
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

271
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



REL.W.100TH ST.
CURVE DATA
P.I. STA.155+76.38
Δ = 57°06'36"
R = 150.00'
T = 81.63'
L_c = 149.52'
E = 20.77'



EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,727	9,612

STRUCTURE DATA-CUY-90-1146

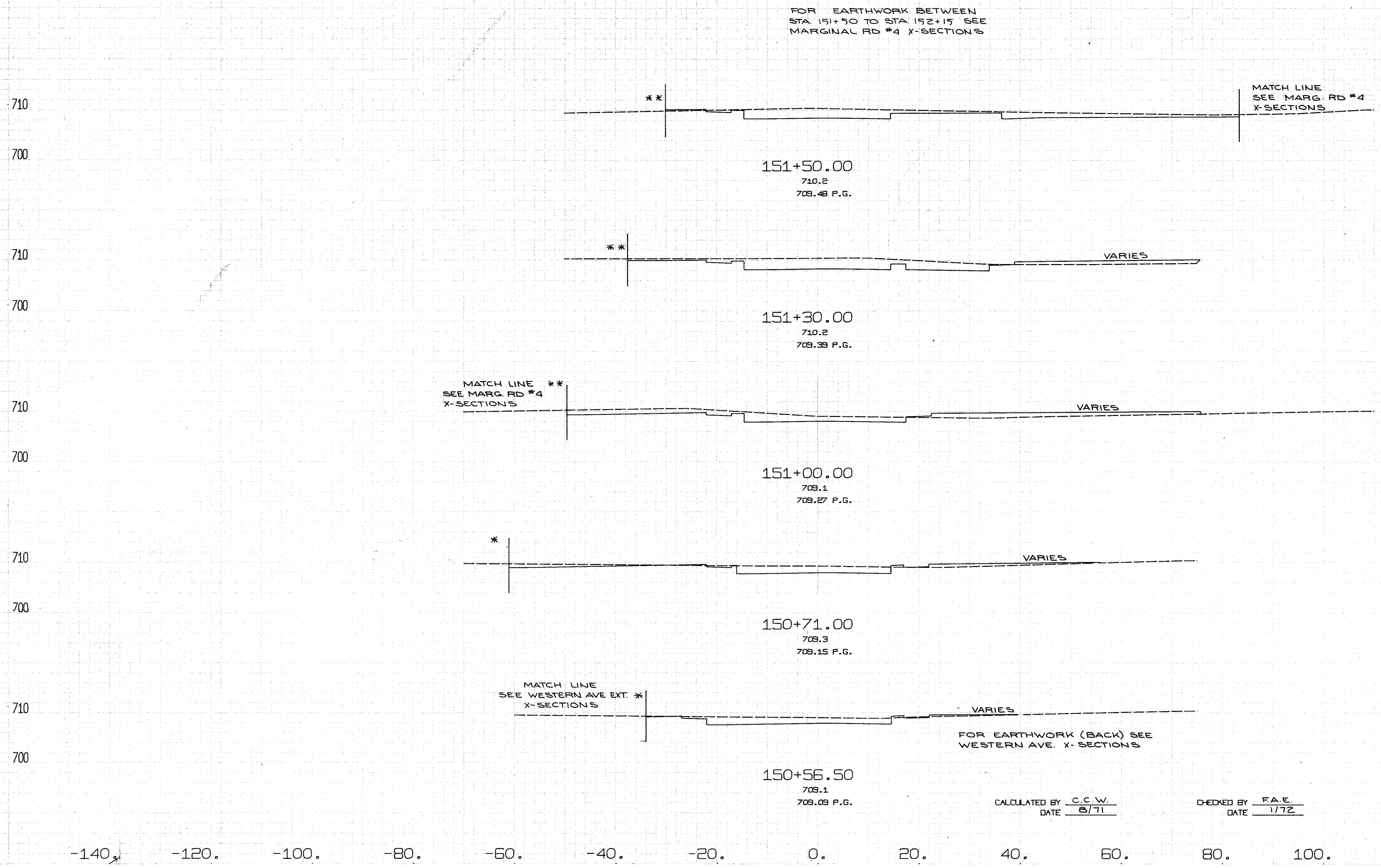
TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK & SUBSTRUCTURES
SKEW: 27° 27' 21" R.F. TO REFERENCE LINE
SPANS: 50'-0", 62'-6", 50'-0" C/C BRGS.
ROADWAY: 70'-9" F/F PARAPETS, W.B. LANES
69'-6" F/F PARAPETS, E.B. LANES
LOADING: HS-20-44 AND INT. ALT. LOADING
WEARING SURFACE: 2½" ASPHALT CONCRETE
APPROACH SLABS: 25' LONG (AS-1-72)
ALIGNMENT: SPIRAL & 3°00'00" CURVE RT.
SUPERELEVATION: TRANSITION
SLOPE PROTECTION: CONCRETE SLOPE PAVING

CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

RELOC. W. 100TH ST.
STA.150+00 TO STA.157+89.07

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	272 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	103.	2.		
20.00C 20.00F			76.	11.
	102.	26.		
30.00C 30.00F			96.	39.
	70.	44.		
29.00C 29.00F			68.	33.
	56.	18.		
14.50C 14.50F			29.	6.
	52.	5.		
0.00C 0.00F			0.	0.

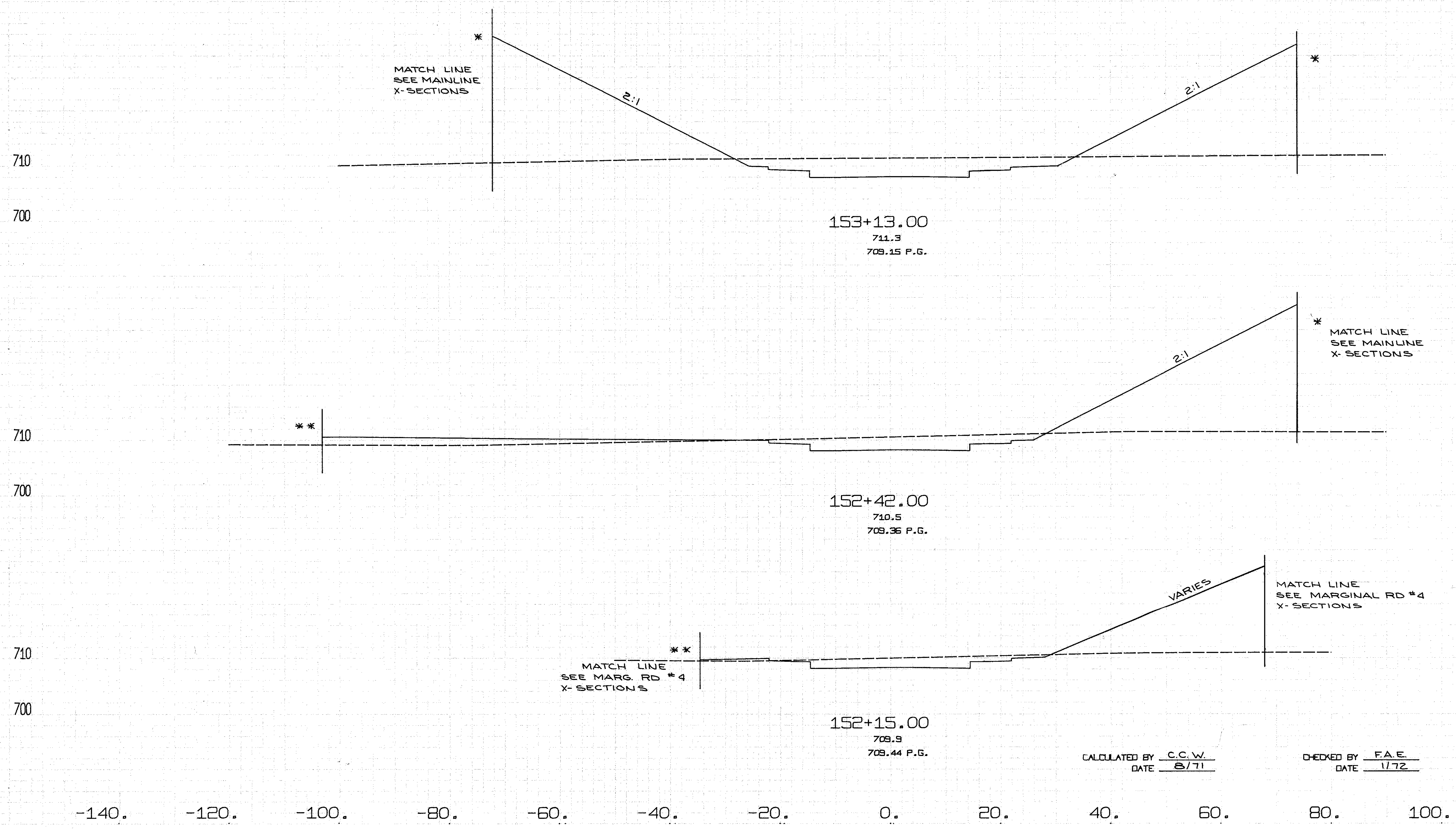
CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

RELOC. W. 100TH. ST.
150+56.50 TO 151+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-1(50)19	273 713

CUY-90-10.40



CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	153.	909.		
71.00C 71.00F			323.	1975.
	92.	593.		
27.00C 27.00F			76.	454.
	61.	315.		
0.00C 0.00F			0.	0.

CALCULATED BY C.C.W.
DATE 8/71

CHECKED BY F.A.E.
DATE 1/72

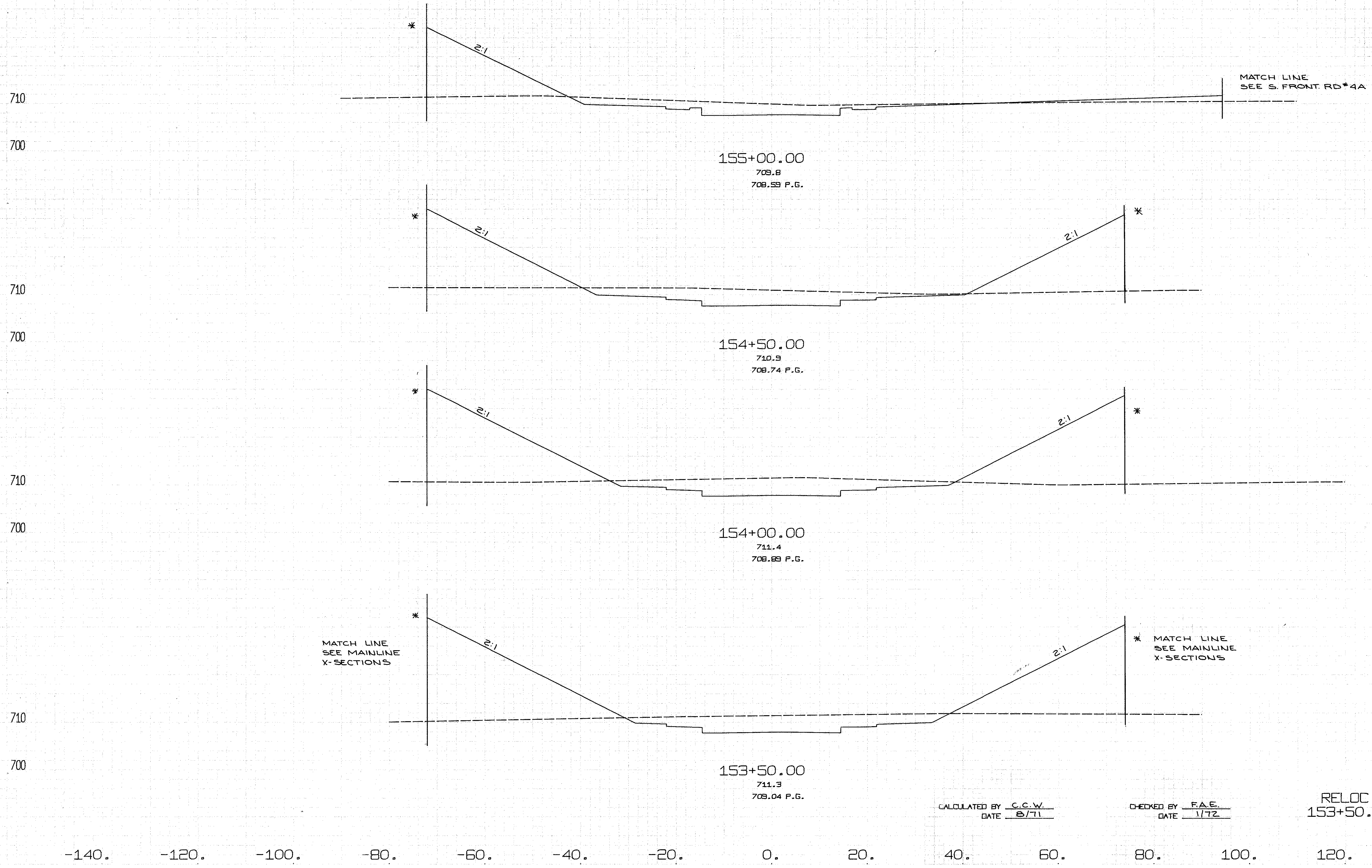
RELOC. W. 100TH. ST.
152+15.00 TO 153+13.00

120. 140.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	274 713

CUY-90-10.40

CENTROID ARC LENGTH	END CUT	AREA FILL	CU. CUT	YDS. FILL
	125.	247.		
47.92C 42.76F			260.	617.
	168.	532.		
50.00C 50.00F			316.	1149.
	174.	709.		
50.00C 50.00F			320.	1392.
	172.	795.		
37.00C 37.00F			222.	1168.



CALCULATED BY C.C.W.
DATE 8/71

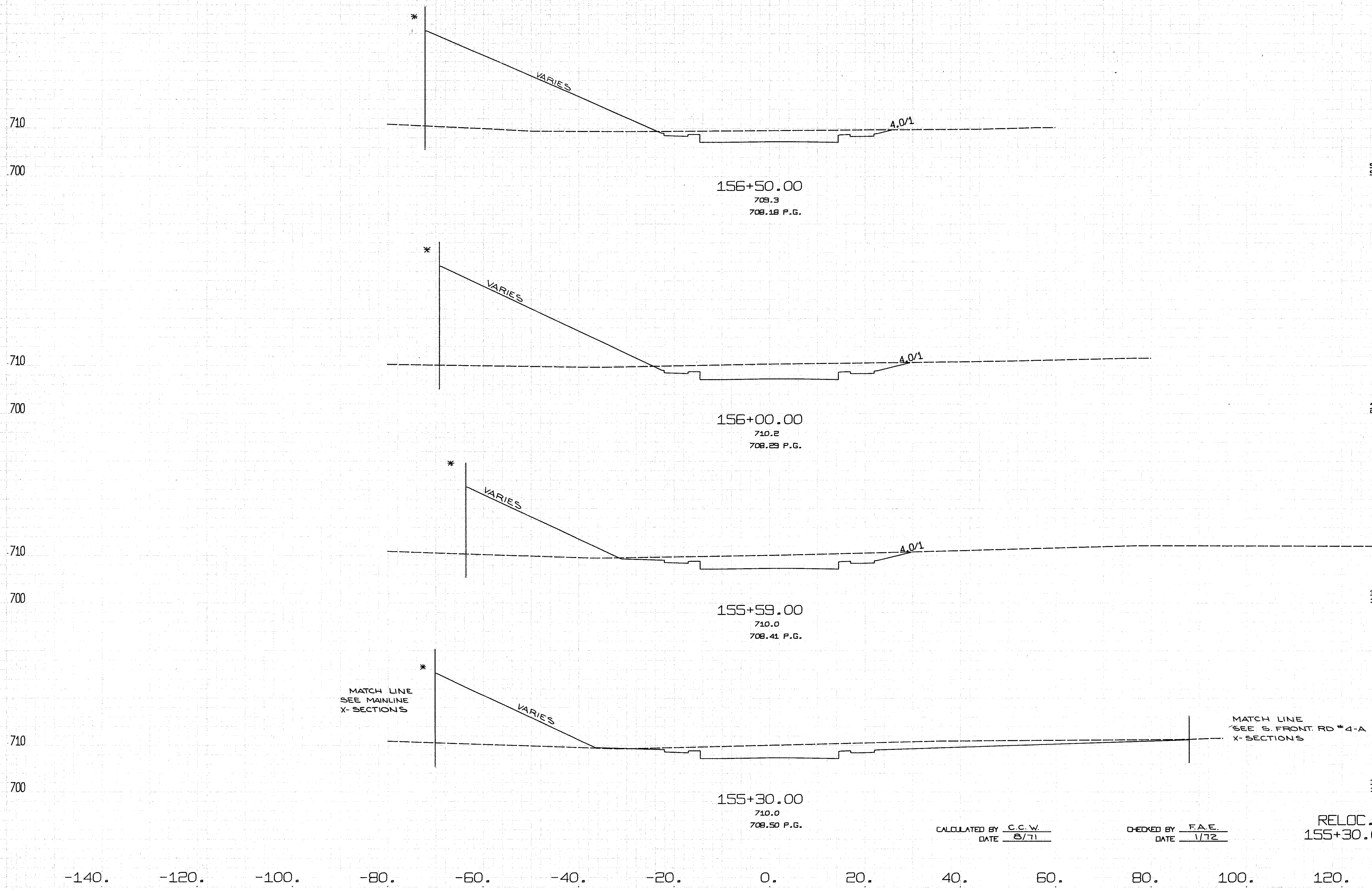
CHECKED BY F.A.E.
DATE 1/72

RELOC. W. 100TH. ST.
153+50.00 TO 155+00.00

FED. RD. DIVISION	STATE	PROJECT	275/713
2	OHIO	I-90-I(50) 19	

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	88.	503.		
50.00C 50.00F			198.	905.
	126.	474.		
41.50C 26.42F			188.	344.
	119.	230.		
30.80C 18.22F			159.	161.
	160.	248.		
30.91C 19.68F			163.	180.



CALCULATED BY C.C.W.
DATE 8/71

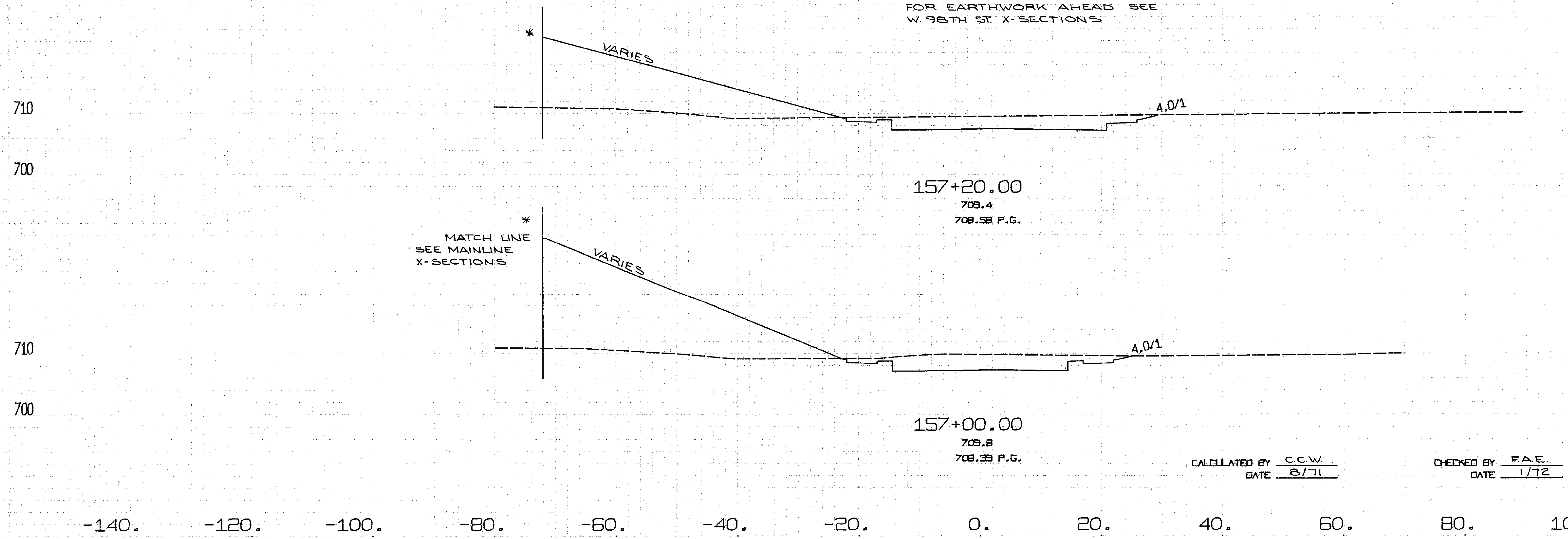
CHECKED BY F.A.E.
DATE 1/72

RELOC. W. 100TH. ST.
155+30.00 TO 156+50.00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	276 713

CUY-90-10.40

CENTROID ARC LENGTH	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	89.	294.		
20.00C 20.00F			67.	281.
	91.	466.		
50.00C 50.00F			166.	897.



CALCULATED BY C.C.W.
DATE 8/71

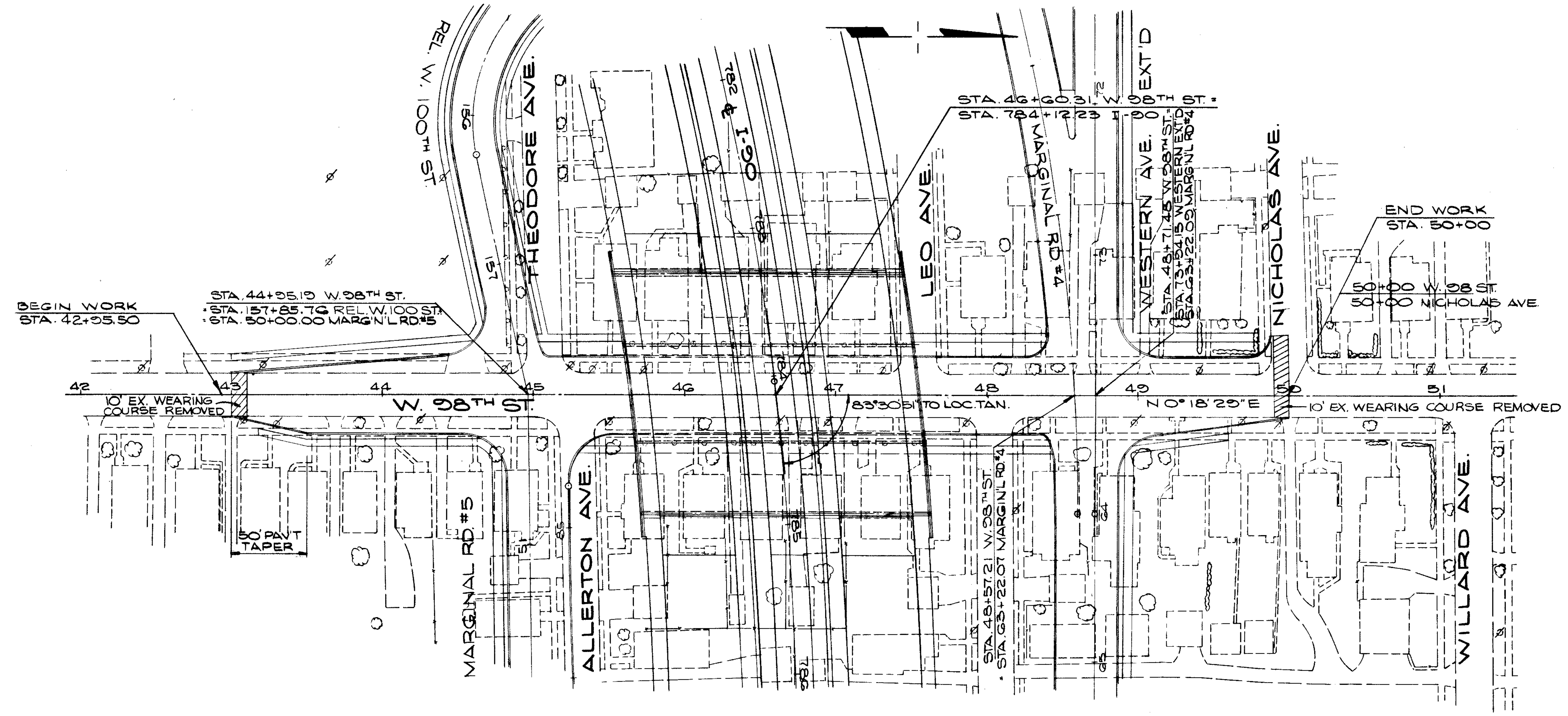
CHECKED BY F.A.E.
DATE 1/72

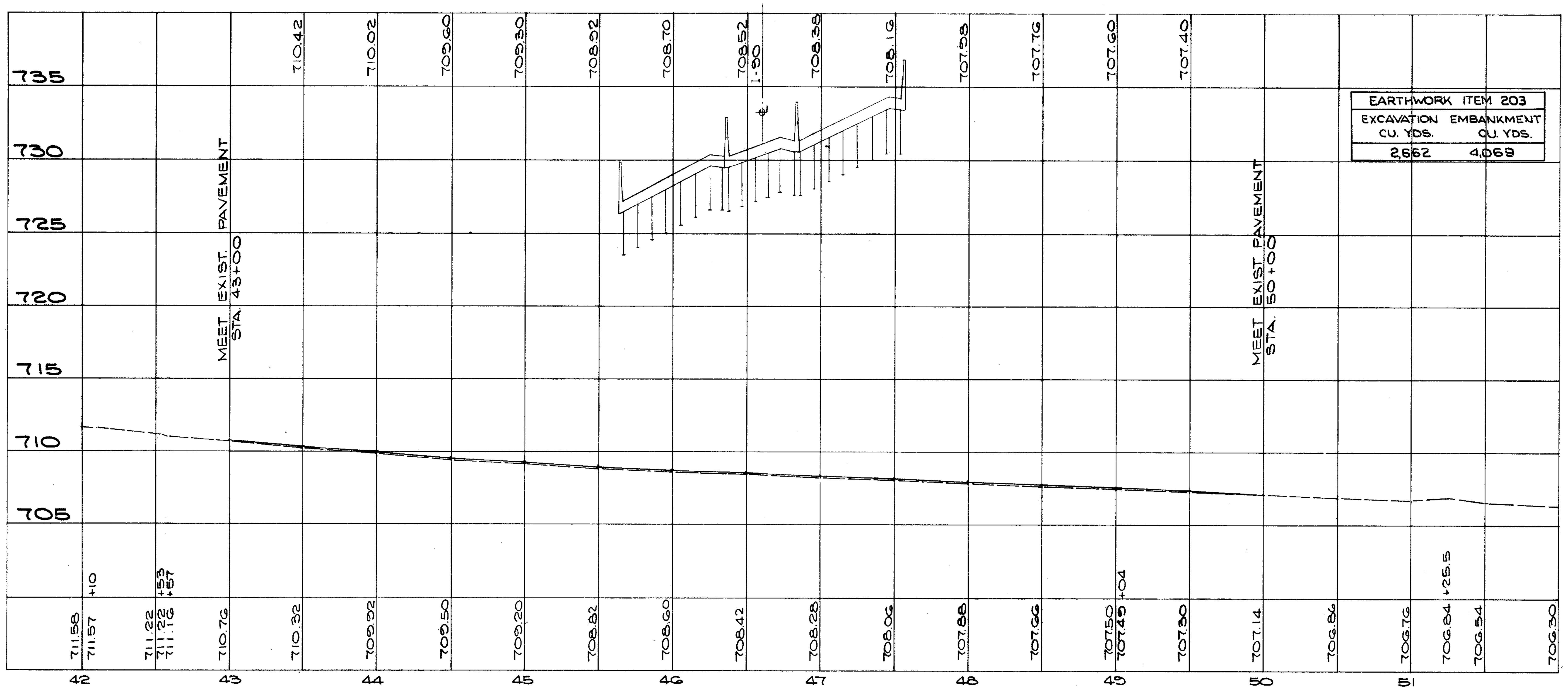
RELOC. W. 100TH. ST.
157+00.00 TO 157+20.00

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

277
713

CUYAHOGA COUNTY
CUY - 90 - 10.40





EARTHWORK ITEM 203	
EXCAVATION CU. YDS.	EMBANKMENT CU. YDS.
2,662	4,069

STRUCTURE DATA-CUY-90-1152
TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK & SUBSTRUCTURES
SKEW: 6° 9' 9" L.F. TO REFERENCE LINE
SPANS: 47'-0", 67'-6", 47'-0" C/C BRGS.
ROADWAY: 70'-9" F/F PARAPETS W.B. LANES
69'-6" F/F PARAPETS E.B. LANES
LOADING: HS-20-44 AND INT. ALT. LOADING
WEARING SURFACE: 1½" ASPHALT CONCRETE
APPROACH SLABS: 25' LONG (AS-1-72)
ALIGNMENT: 3°00'00" CURVE RT.
SUPERELEVATION: TRANSITION
SLOPE PROTECTION: CONCRETE SLOPE PAVING

CALCULATED BY C.C.W. DATE 7-71
CHECKED BY F.A.E. DATE 1-72

W. 98TH ST.
STA. 42+00 TO STA. 51+00

278
713

I-90-1(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. CHECK BY F.A.E.
DATE 8/71 DATE 12/71

W 98 ST.
STA. 42+50-45+50

279
713

1-90-1(50) 19

CUYAHOGA COUNTY
CUY-90-10.40

CALCULATED BY W.R.S. CHECK BY F.A.E.
DATE 8/71 DATE 12/71

W 98 ST.
STA. 45+50 - 50+50

P17

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

280
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

PAVEMENT REMOVAL

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

281
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

PAVEMENT REMOVAL

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

282
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

PAVEMENT REMOVAL

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PAVEMENT REMOVAL

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PAVEMENT REMOVAL

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

285
713

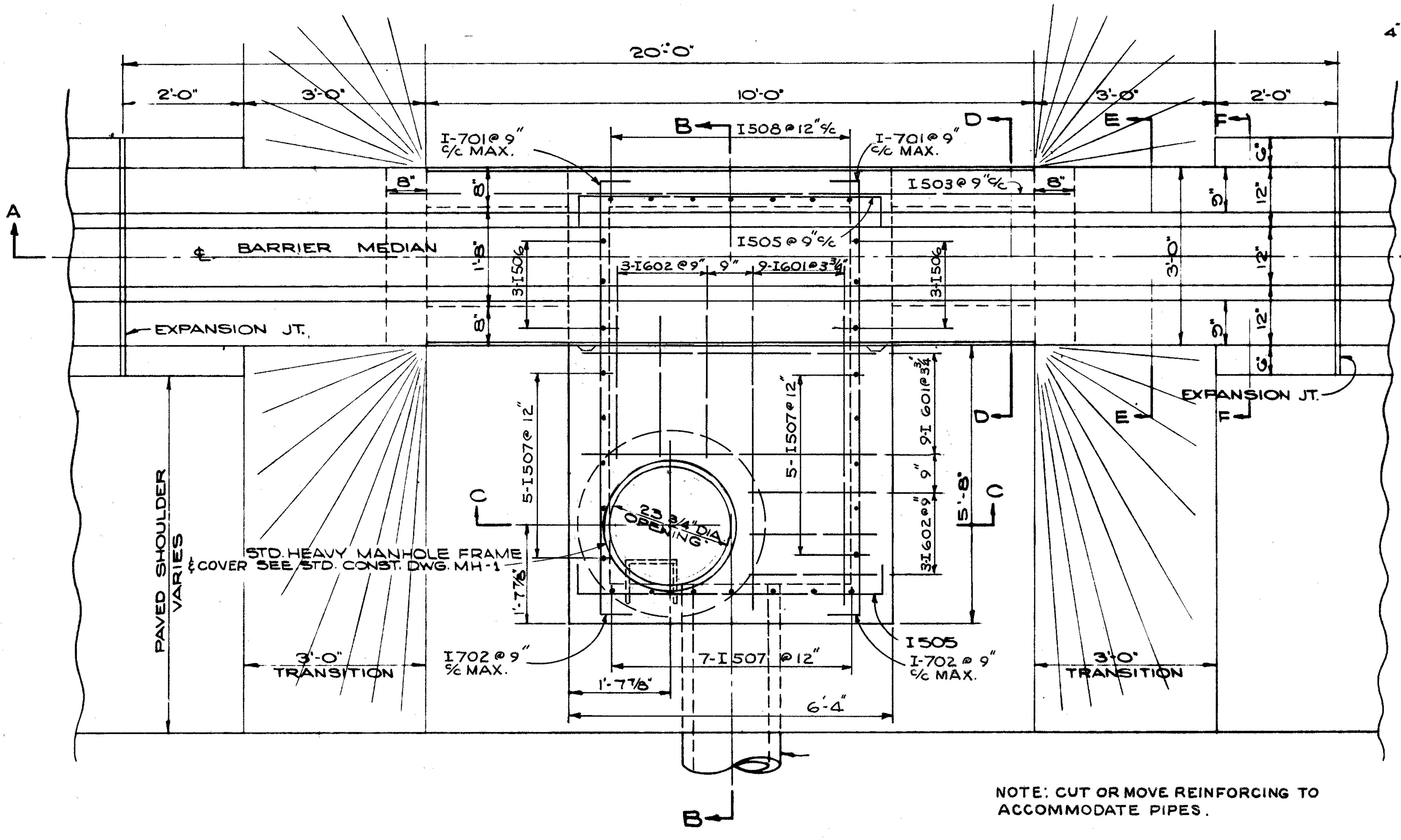
CUYAHOGA COUNTY
CUY-90-10.40

PAVEMENT REMOVAL

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

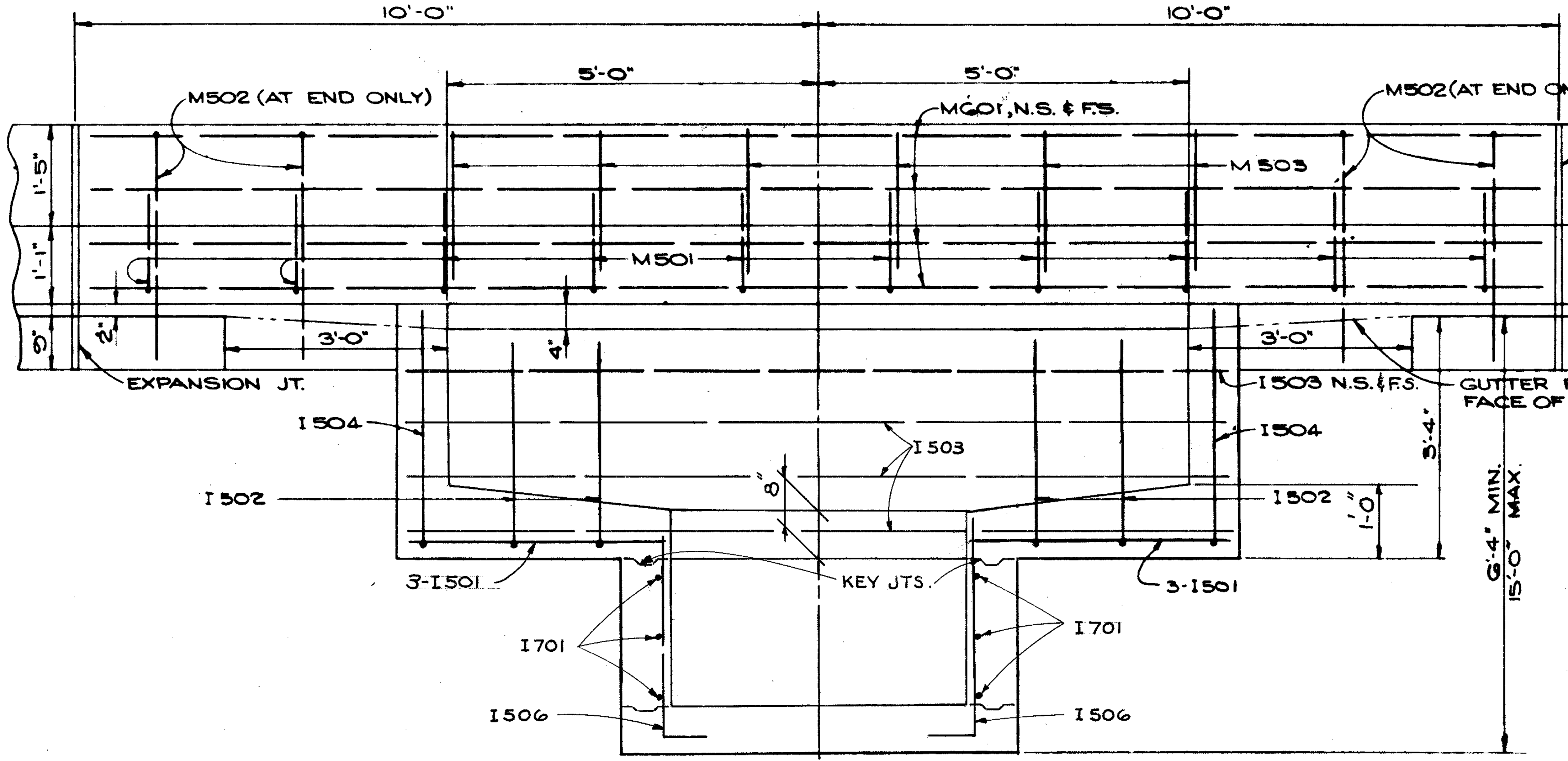
286
713

CUYAHOGA COUNTY
CUY-90-10.40



NOTE: CUT OR MOVE REINFORCING TO ACCOMMODATE PIPES.

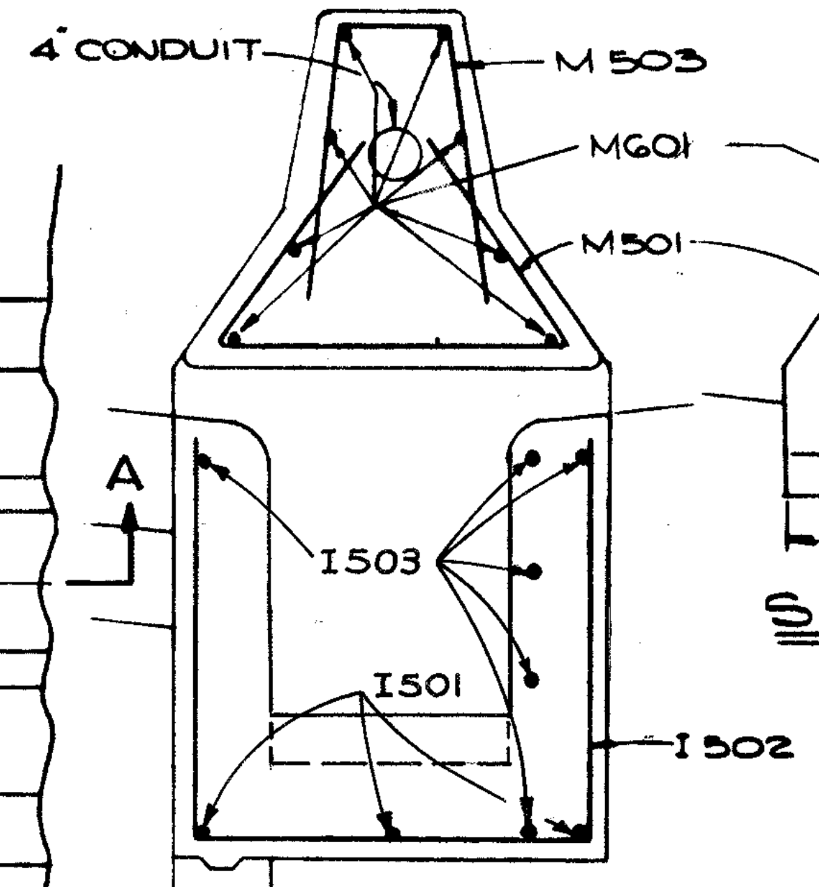
PLAN



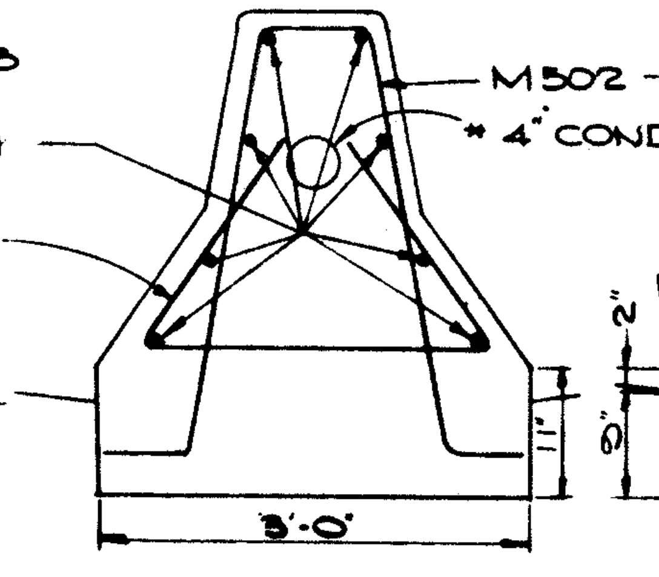
EXPANSION JT.

GUTTER PROFILE @ FACE OF BARRIER

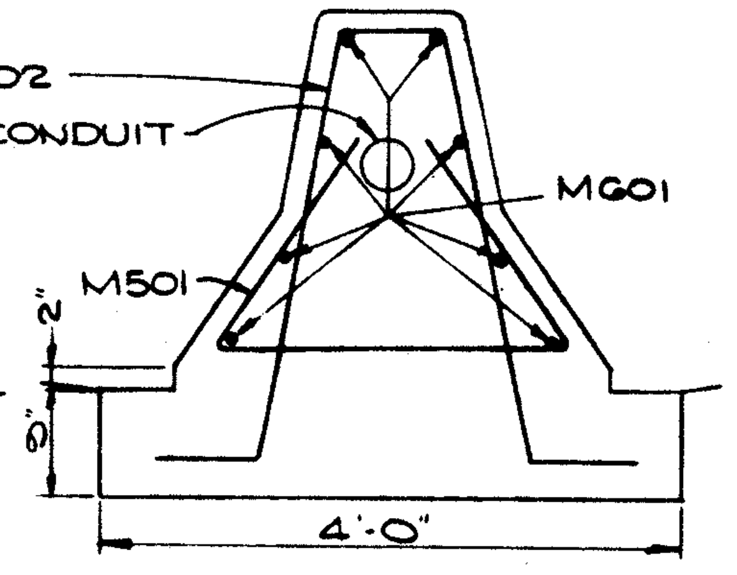
SECTION A-A



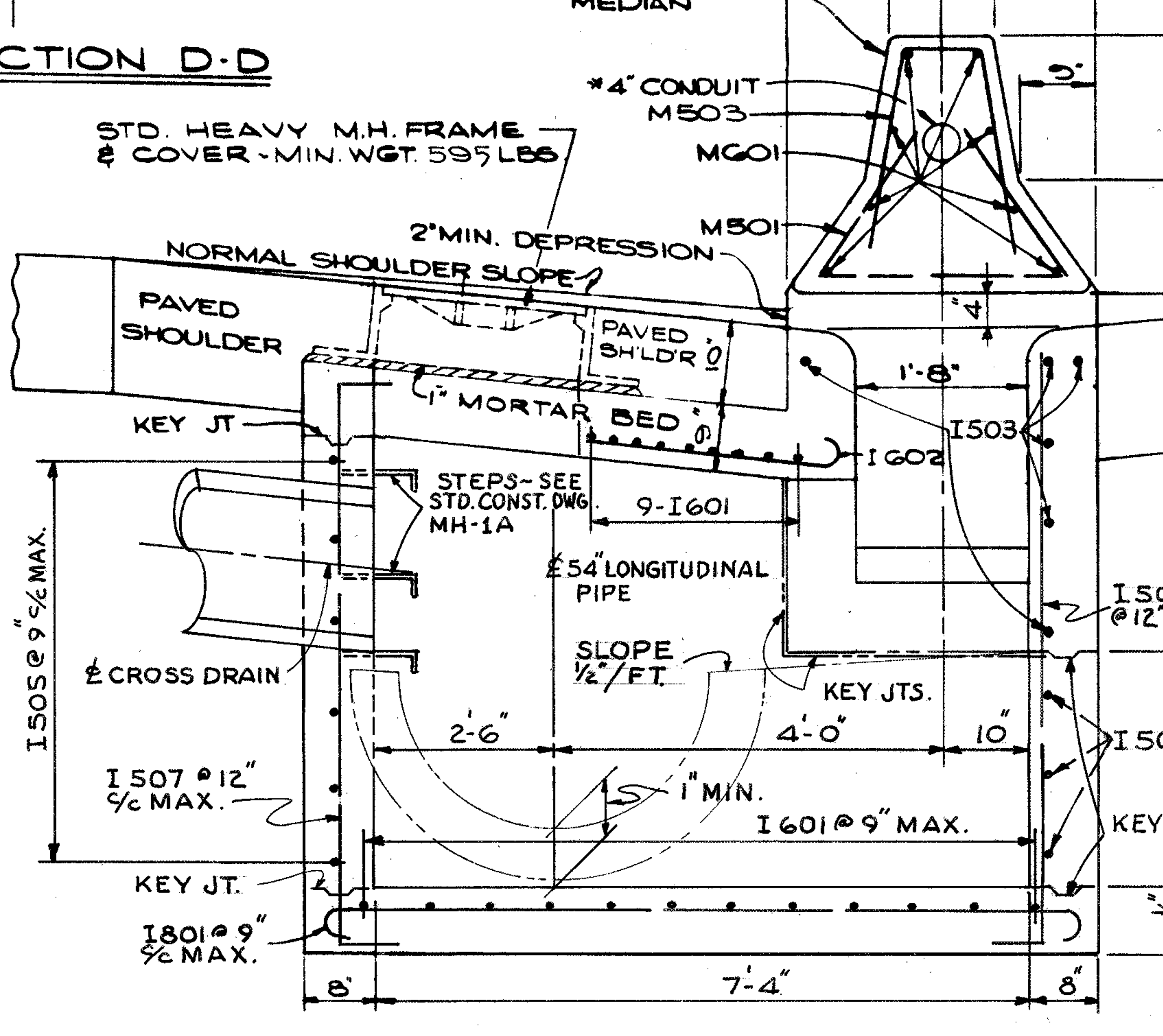
SECTION D-D



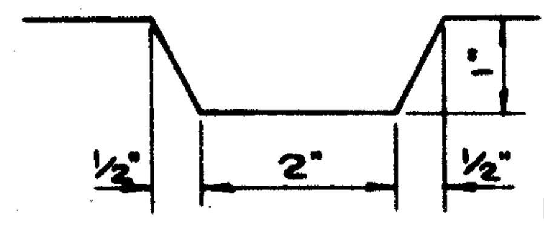
SECTION E-E



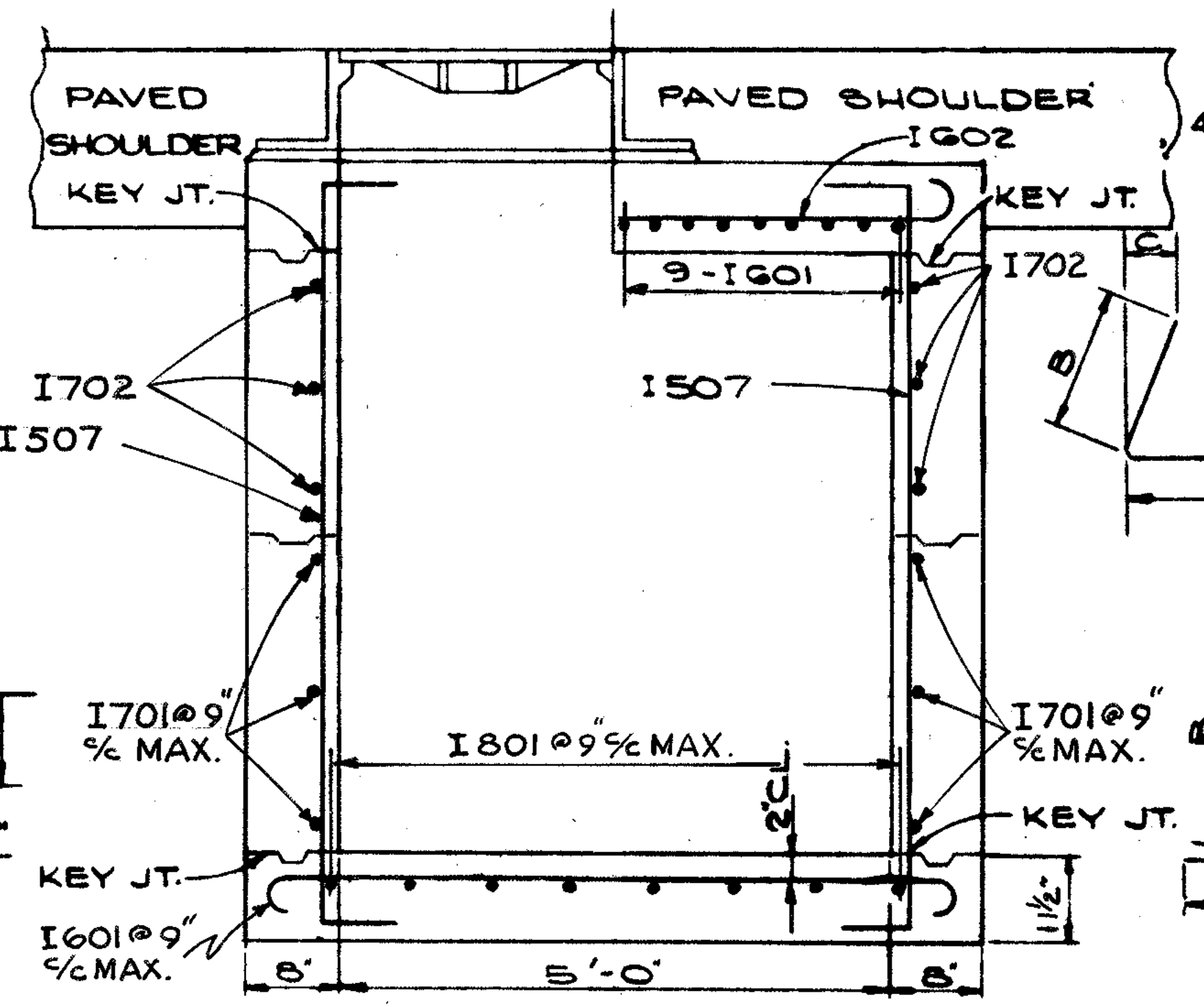
SECTION F-F



SECTION B-B



KEY JOINT



SECTION C-C

THIS MANHOLE IS DESIGNED FOR PIPE 48" TO 54" INCLUSIVE IN DIA. AND A DEPTH OF MANHOLE 6'-4" TO 15'.

REINFORCING STEEL SHALL BE ROUND BARS IN ACCORDANCE WITH STEEL DETAILS SHOWN HEREON AND CONFORMING TO 509 OF THE CONSTRUCTION MATERIALS SPECIFICATIONS. COST OF FURNISHING AND PLACING REINFORCING STEEL SHALL BE INCLUDED IN 604 FOR PAYMENT.

CONCRETE CAST IN PLACE, TO BE CLASS "C".

STEPS SHALL BE PROVIDED WHERE THE DEPTH EXCEEDS 72" AND SHALL MEET THE REQUIREMENTS OF 604. SEE STANDARD CONSTRUCTION DRAWING MH-1A FOR STEP DETAILS.

QUANTITIES FOR 20 LINEAR FEET OF BARRIER MEDIAN SHALL BE INCLUDED IN THE COST OF THE INLET AND ARE DEDUCTED FROM THE ROADWAY QUATITIES ACCORDINGLY.

CHANNEL SECTIONS IN THE MANHOLE SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD CONSTRUCTION DRAWING MH-1 AND CONSTRUCTED OF SPLIT PIPE OR BRICK EXCEPT CURVED SECTIONS WHICH MAY BE BUILT BY FORMING A CHANNEL IN THE CONCRETE.

* 4" LIGHTING CONDUIT TO BE PAID FOR PER LIN. FT. UNDER ITEM 625.

CALCULATED BY J.L.H.

CHECKED BY J.F.P.

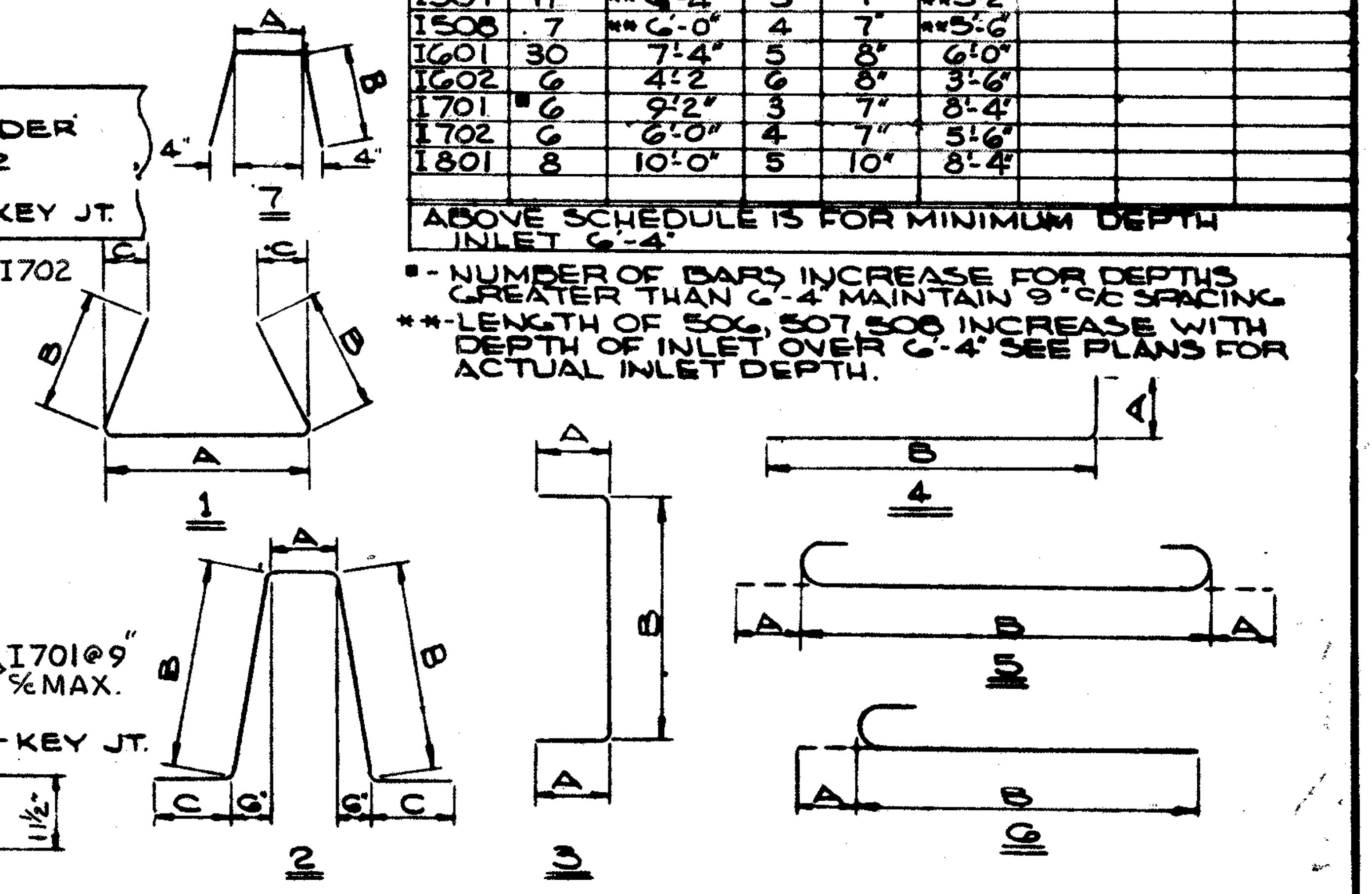
NOTE: THE TABLE OF QUANTITIES, BELOW, IS INCLUDED WITH THIS DWG. FOR ESTIMATING PURPOSES ONLY. THE COST OF FURNISHING AND PLACING ALL CONCRETE, REINFORCING STEEL, CASTING, ETC. SHALL BE INCLUDED IN 604 FOR PAYMENT.

REINFORCING SCHEDULE

MARK	Nº REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCR.	WEIGHT LBS.
M501	10	5'-4"	1	2'-4"	1'-5"	1'-0"		56
M502	4	7'-10"	2	8"	3'-0½"	9"		33
M503	6	4'-6"	7	8"	2'-0"			28
MG01	8	19'-8"	ST.					236
I501	6	2'-10"	ST					
I502	4	8'-4"	3	2'-11"	2'-5"			
I503	6	11'-1"	ST					
I504	2	5'-0"	3	3'-3"	2'-5"			
I505	■9	7'-2"	3	7"	6'-0"			
I506	6	**3'-9"	4	7"	**3'-3"			
I507	17	**6'-4"	3	7"	**5'-2"			
I508	7	**6'-0"	4	7"	**5'-6"			
I601	30	7'-4"	5	8"	6'-0"			
I602	6	4'-2	6	8"	3'-6"			
I701	■6	9'-2"	3	7"	8'-4"			
I702	6	6'-0"	4	7"	5'-6"			
I801	8	10'-0"	5	10"	8'-4"			

ABOVE SCHEDULE IS FOR MINIMUM DEPTH INLET 6'-4"

■ - NUMBER OF BARS INCREASE FOR DEPTHS GREATER THAN 6'-4" MAINTAIN 9" c/c SPACING.
** - LENGTH OF 506, 507, 508 INCREASE WITH DEPTH OF INLET OVER 6'-4" SEE PLANS FOR ACTUAL INLET DEPTH.



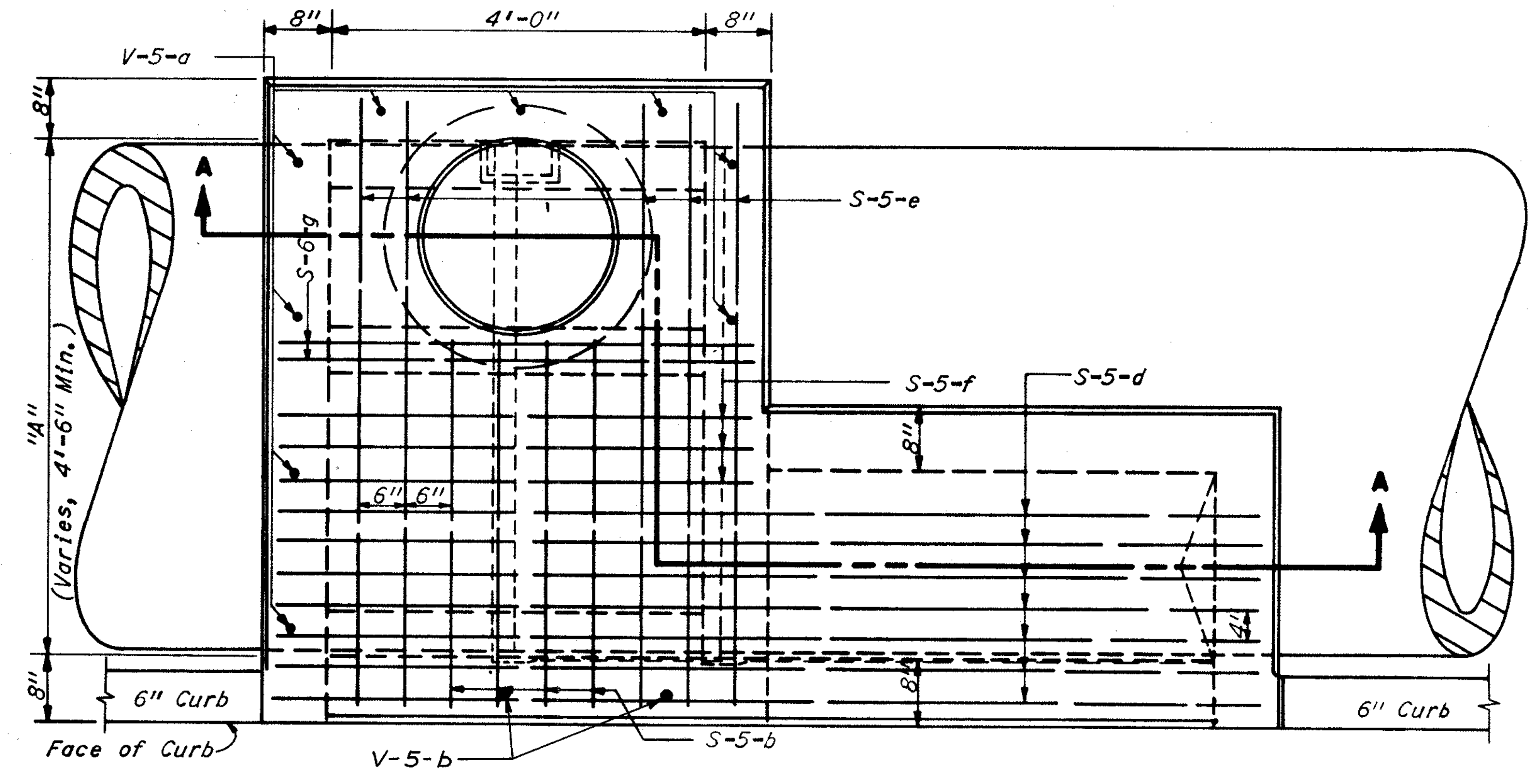
I-3B MEDIAN INLET MODIFIED

DRAINAGE DETAILS

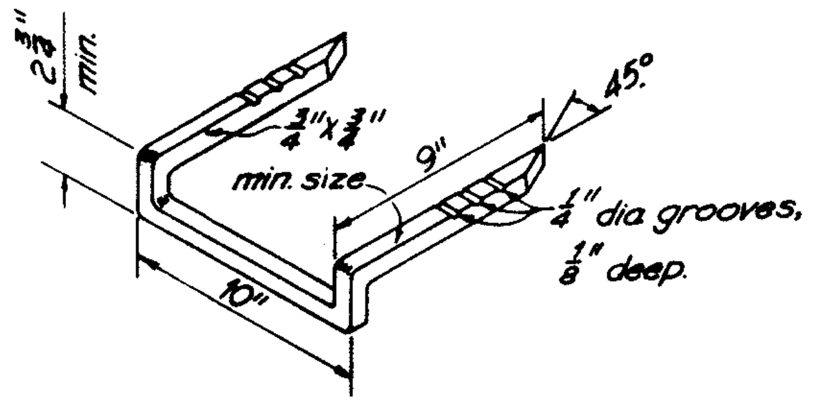
SPECIAL NO 2-A-6 TO 2-A-20
PAVED SHOULDER INLET MANHOLE

FED. RD. DIVISION	STATE		
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY-90-10.40



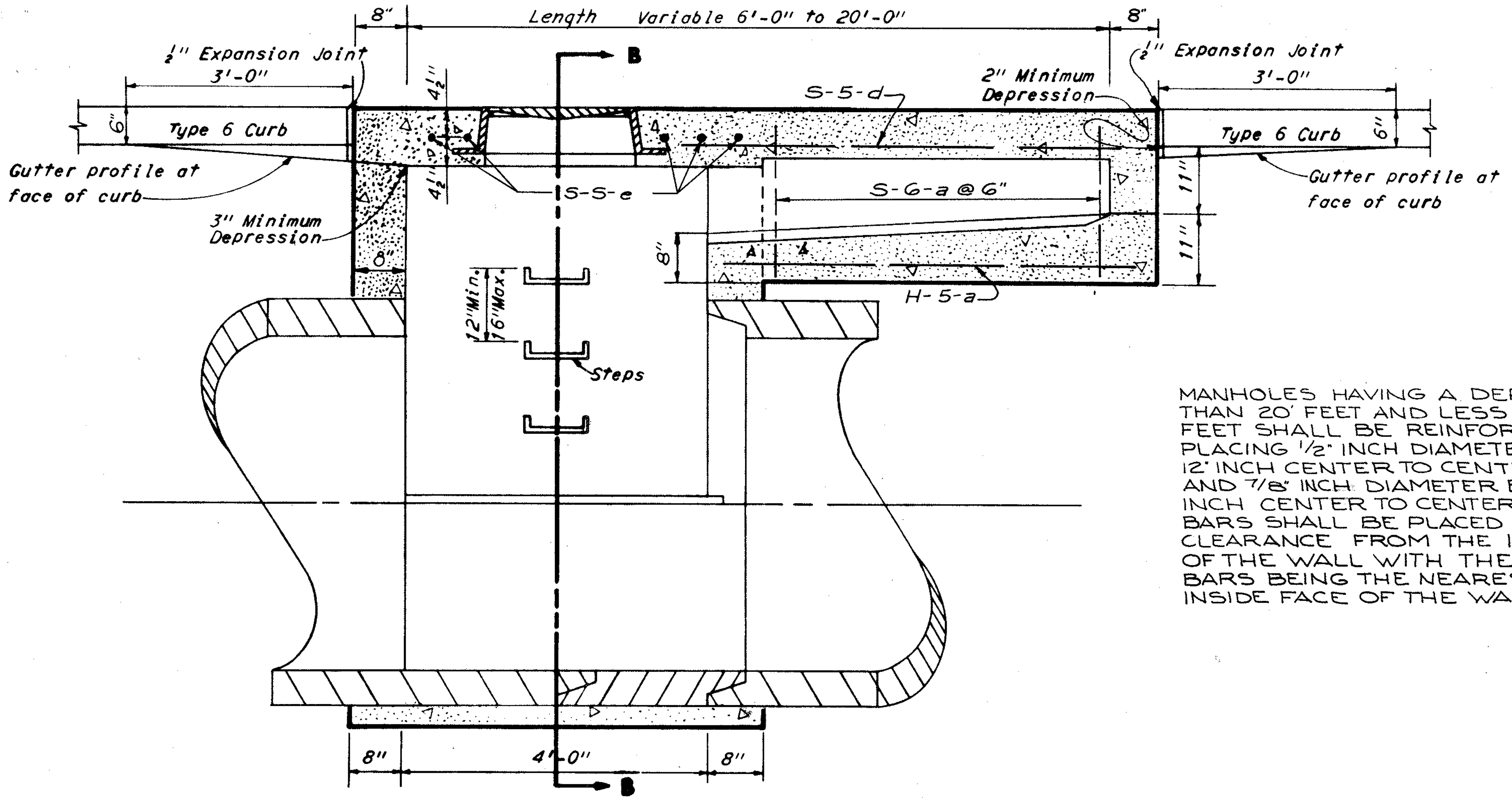
PLAN



STEP DETAIL

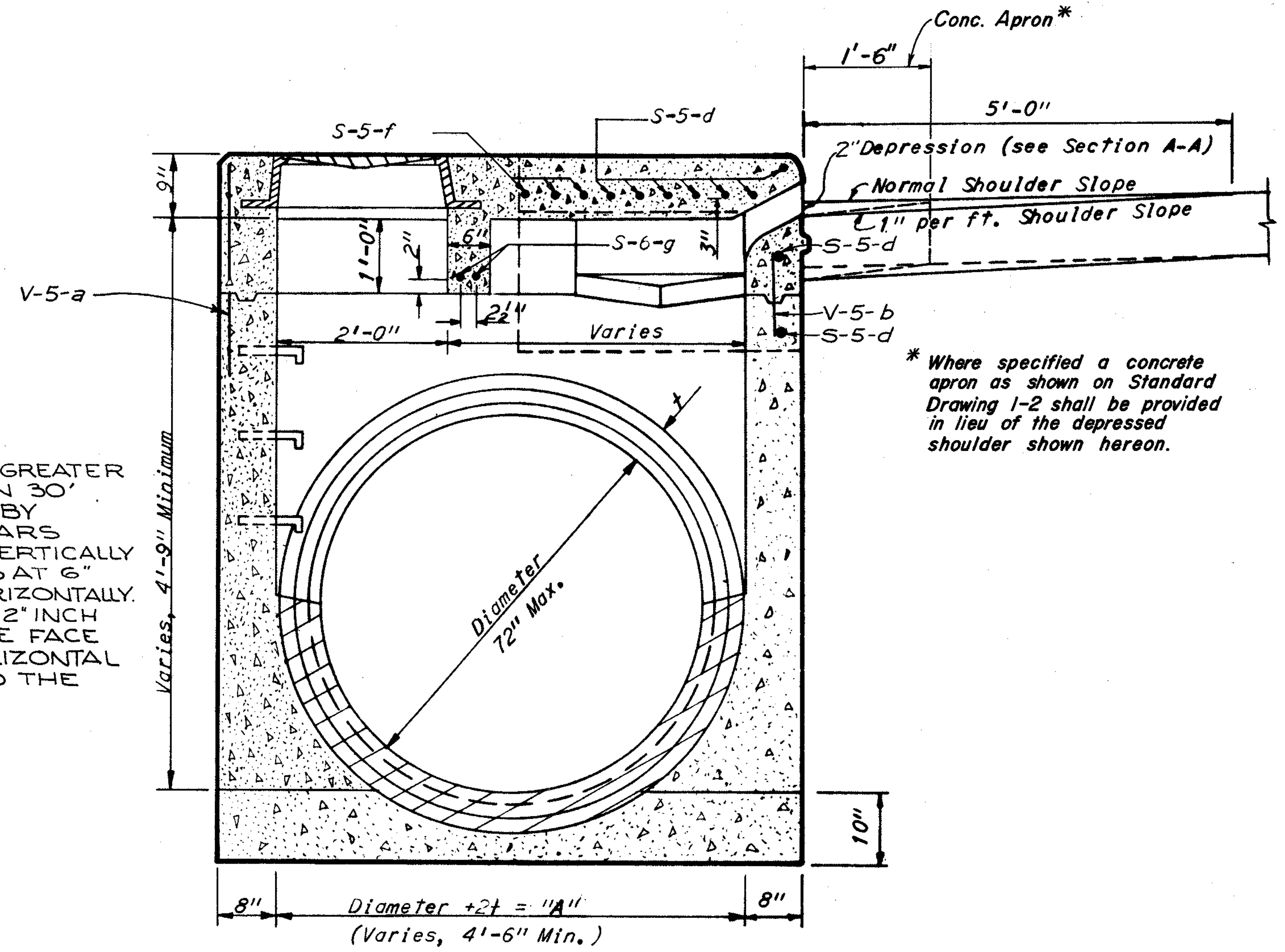
REINFORCING BARS COMMON TO ALL PIPE DIAMETERS	Length	S-6-a		S-5-d		S-5-f		S-6-g		H-5-a		V-5-b	
	Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.
	6	5	8'-10"	9	7'-0"	3	5'-0"	2	5'-0"	4	2'-4"	2	1'-0"
	8	7	8'-10"	9	9'-0"	3	5'-0"	2	5'-0"	4	4'-4"	2	1'-0"
	10	11	8'-10"	9	11'-0"	3	5'-0"	2	5'-0"	4	6'-4"	2	1'-0"
	12	15	8'-10"	9	13'-0"	3	5'-0"	2	5'-0"	4	8'-4"	2	1'-0"
	14	19	8'-10"	9	15'-0"	3	5'-0"	2	5'-0"	4	10'-4"	2	1'-0"
	16	23	8'-10"	9	17'-0"	3	5'-0"	2	5'-0"	4	12'-4"	2	1'-0"
	18	27	8'-10"	9	19'-0"	3	5'-0"	2	5'-0"	4	14'-4"	2	1'-0"
	20	31	8'-10"	9	21'-0"	3	5'-0"	2	5'-0"	4	16'-4"	2	1'-0"

Pipe Diameter	A	S-5-b		S-5-e		V-5-a	
	Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.
Under 48"	4'-6"	4	2'-11"	5	5'-6"	9	2'-6"
48"	4'-10"	4	3'-3"	5	5'-10"	9	2'-6"
54"	5'-5"	4	3'-10"	5	6'-5"	11	2'-6"
60"	6'-0"	4	4'-5"	5	7'-0"	11	2'-6"
66"	6'-7"	4	5'-0"	5	7'-7"	13	2'-6"
72"	7'-2"	4	5'-7"	5	8'-2"	13	2'-6"



SECTION A-A

MANHOLES HAVING A DEPTH GREATER THAN 20' FEET AND LESS THAN 30' FEET SHALL BE REINFORCED BY PLACING 1/2" INCH DIAMETER BARS 12" INCH CENTER TO CENTER VERTICALLY AND 7/8" INCH DIAMETER BARS AT 6" INCH CENTER TO CENTER HORIZONTALLY. BARS SHALL BE PLACED WITH 2" INCH CLEARANCE FROM THE INSIDE FACE OF THE WALL WITH THE HORIZONTAL BARS BEING THE NEAREST TO THE INSIDE FACE OF THE WALL.



* Where specified a concrete apron as shown on Standard Drawing I-2 shall be provided in lieu of the depressed shoulder shown hereon.

SECTION B-B

NOTES

GENERAL -- The design shown hereon shall not be used for inlets having a depth (top of manhole cover to top of floor) greater than 20 feet. If split pipe is used to form the inlet bottom it shall be split concrete pipe only. Otherwise, the inlet bottom shall be formed in Class "C" concrete.

Manholes over 12 feet in depth shall be built of reinforced Class "C" Concrete. Manholes for pipes under 48" in diameter shall be reinforced by placing ½" diameter bars 12" center to center vertically and ½" diameter bars 9" center to center horizontally. Manholes for pipes over 48" in diameter shall be reinforced by placing ½" diameter bars 12" center to center vertically and ⅝" diameter bars at 6" center to center horizontally. Bars shall be placed with a 2" clearance from the inside face of the wall. Payment for furnishing and placing the reinforcing steel shall be included in the price bid for Item 604, Special Paved Shoulder Inlet Manhole.

For Notes and Details not shown see Standard Construction Drawing I-2A.

FRAME AND COVER -- The frame and cover shall be the light frame and cover detailed on Standard Construction Drawing MH-L.

STEPS -- shall meet the requirements of 604.

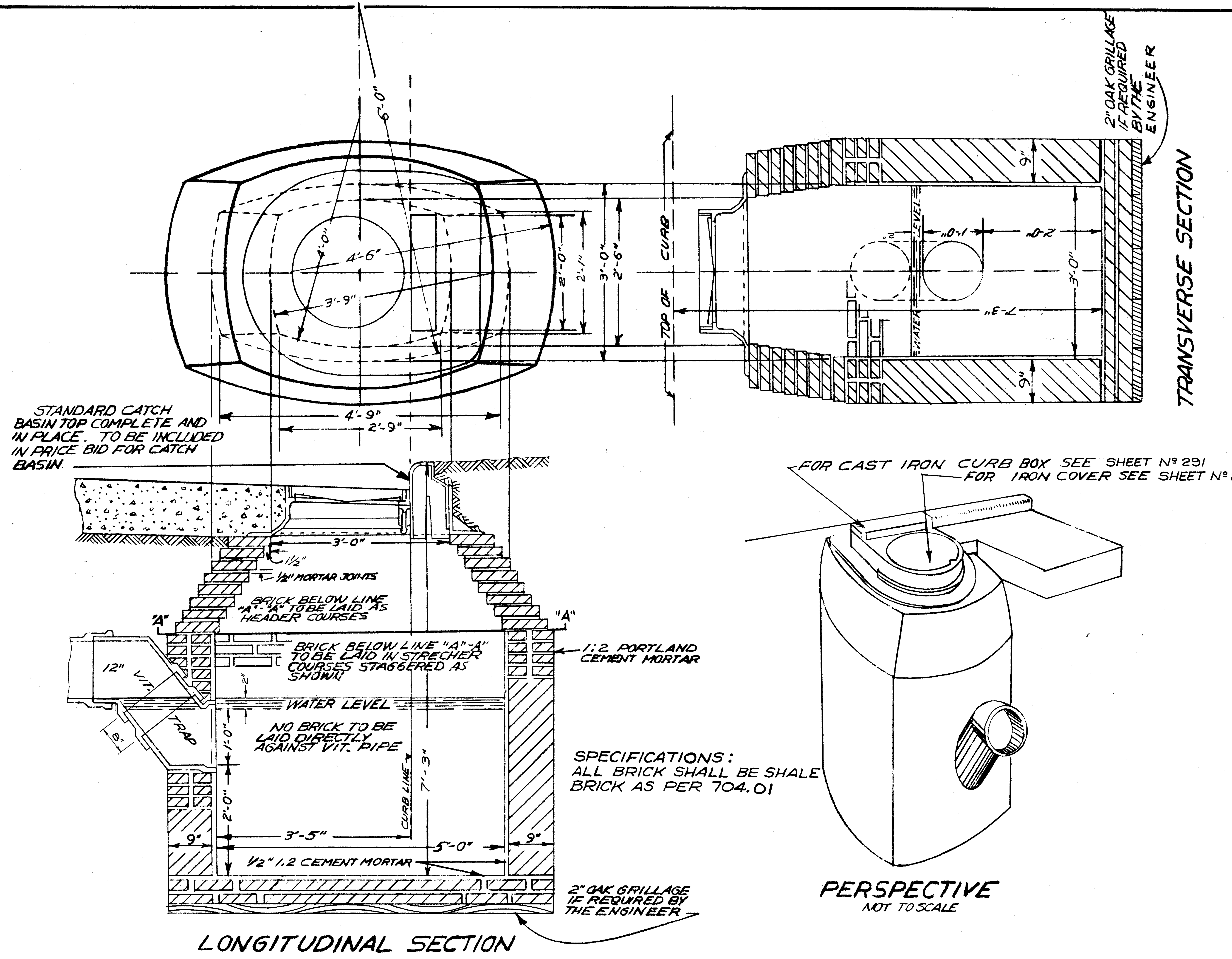
REINFORCING STEEL -- Bars S-6-a and S-6-f shall be ¾" round. All other bars shall be ⅝" round. For location of bars not shown on the drawing, see Standard Construction Drawing I-2A.

DRAINAGE DETAILS

FED. RD. DIVISION	STATE		
2	OHIO	I-90-I(50) 19	

288
713

CUYAHOGA COUNTY
CUY-90-10.40



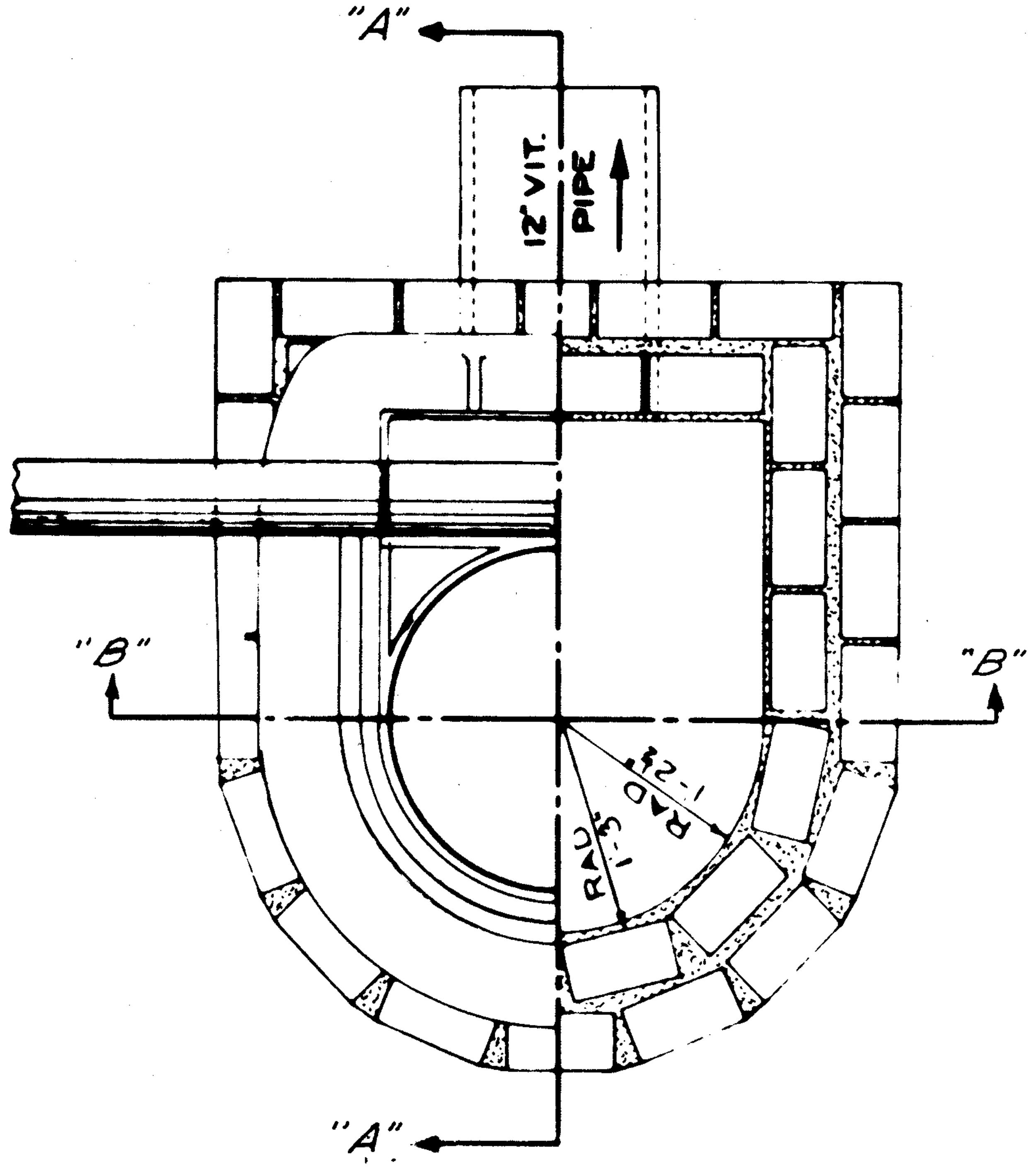
SPECIFICATIONS:
ALL BRICK SHALL BE SHALE BRICK AS PER 704.01

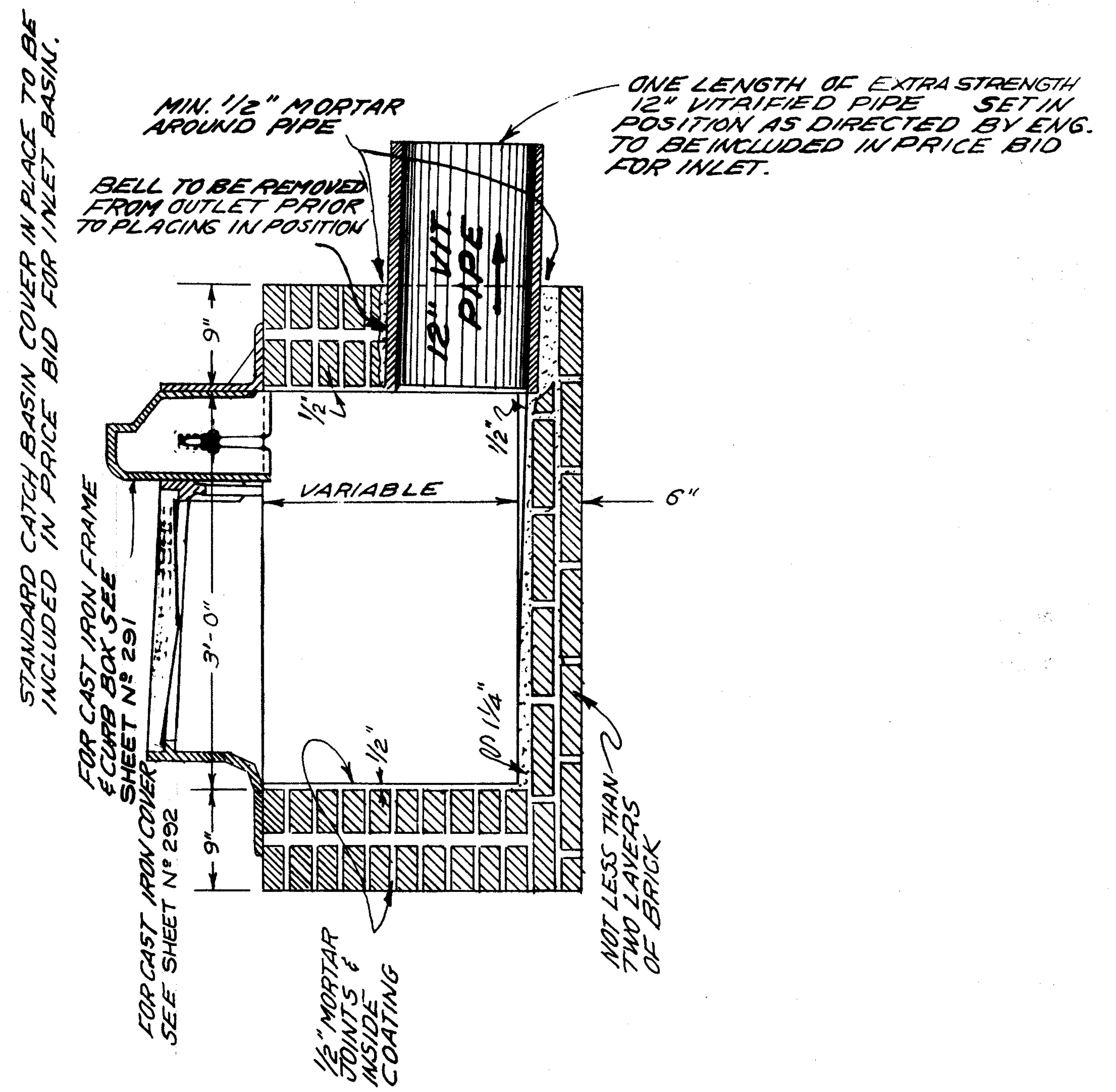
CITY OF CLEVELAND
CATCH BASIN TYPE-1

DRAINAGE DETAILS

FED. RD. DIVISION	STATE		
2	OHIO	1-90-1 (50) 19	

CUYAHOGA COUNTY
CUY-90-10.40





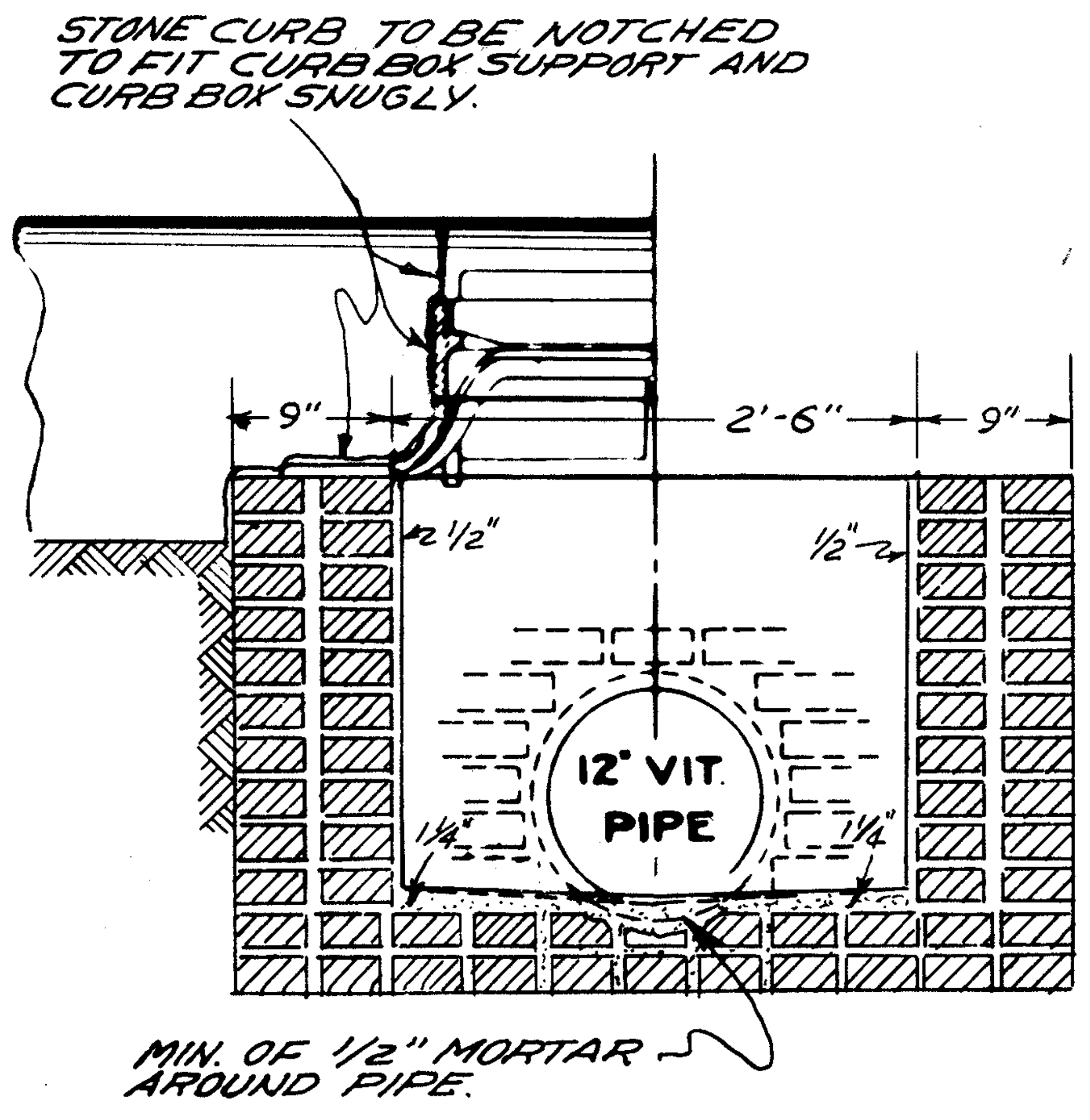
POSITION OF 12" VIT. PIPE TO BE DETERMINED BY THE ENG., AND MUST BE CONNECTED TO CATCH BASIN AND NOT DIRECT TO SEWER.

DEPTH OF BASIN VARIES, AND WILL BE DETERMINED BY THE ENG., BUT SHALL NOT BE LESS THAN 15" AT THE OUTLET OR EXCEED 2'-0".

NO FRENCH DRAIN SHALL BE CONNECTED TO INLET.

ALL BRICK SHALL CONFORM TO SPECIFICATIONS FOR STANDARD CATCH BASIN BRICK, AND SHALL BE LAID STRECHER COURSES.

ALL MORTAR SHALL BE 1:2 PORTLAND CEMENT MORTAR.

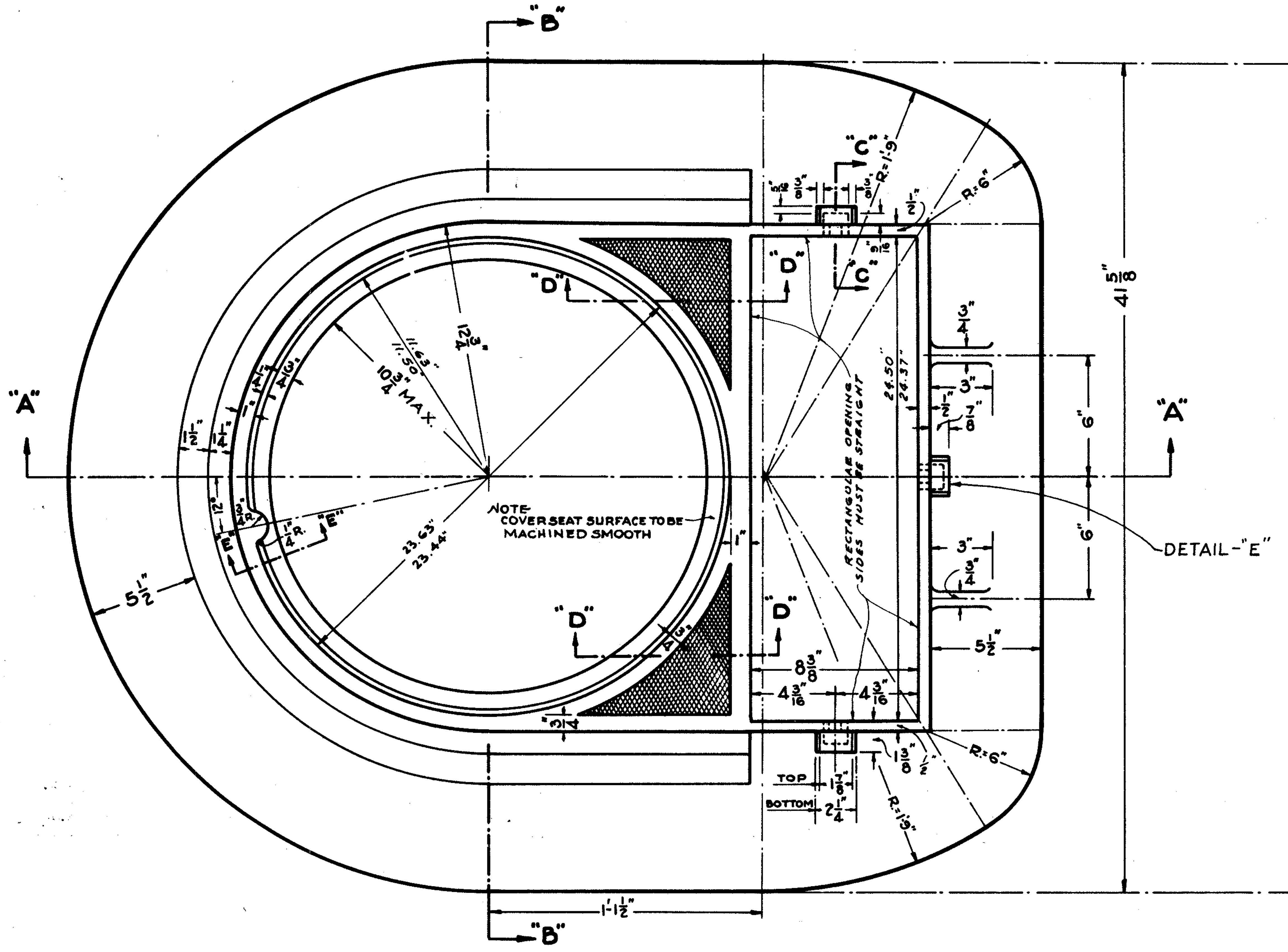


CITY OF CLEVELAND
CATCH BASIN TYPE-2

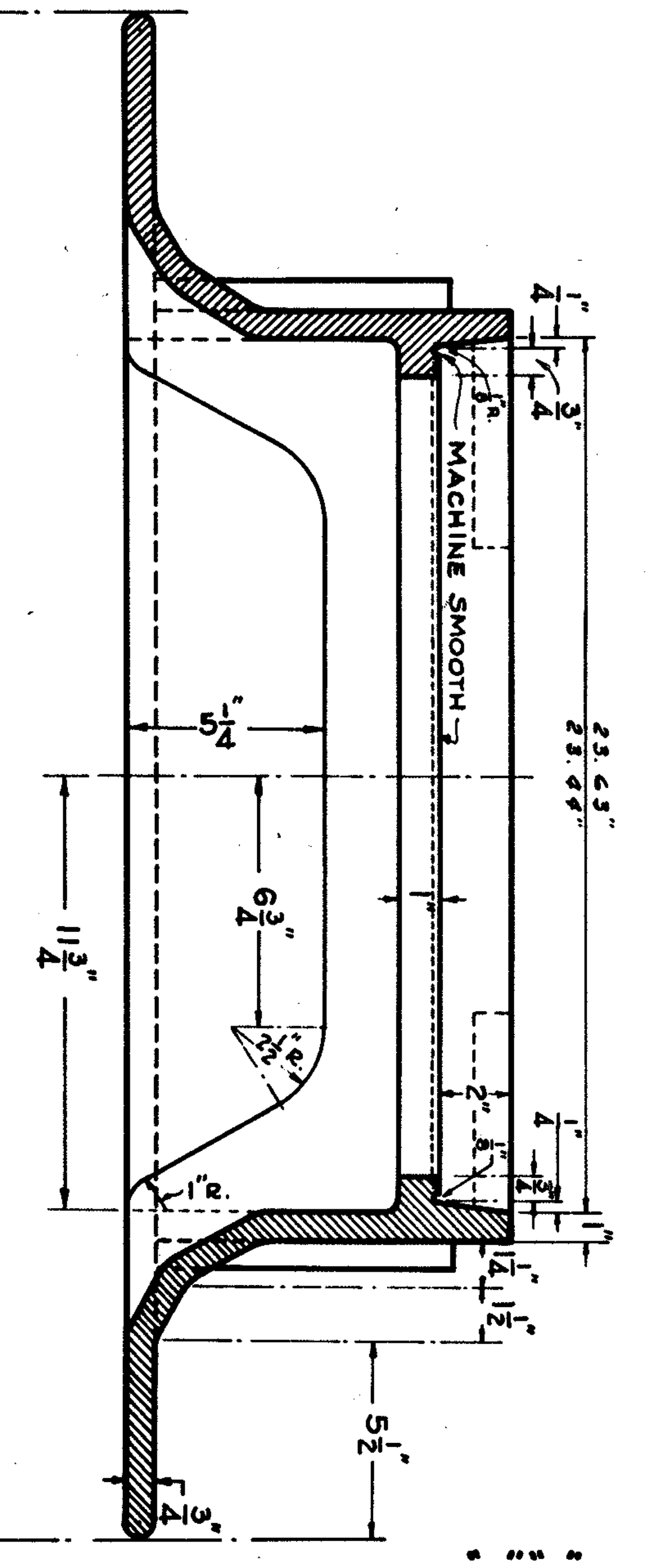
DRAINAGE DETAILS

FED. RD. DIVISION	STATE			
2	OHIO	I-90-1(50) 19		

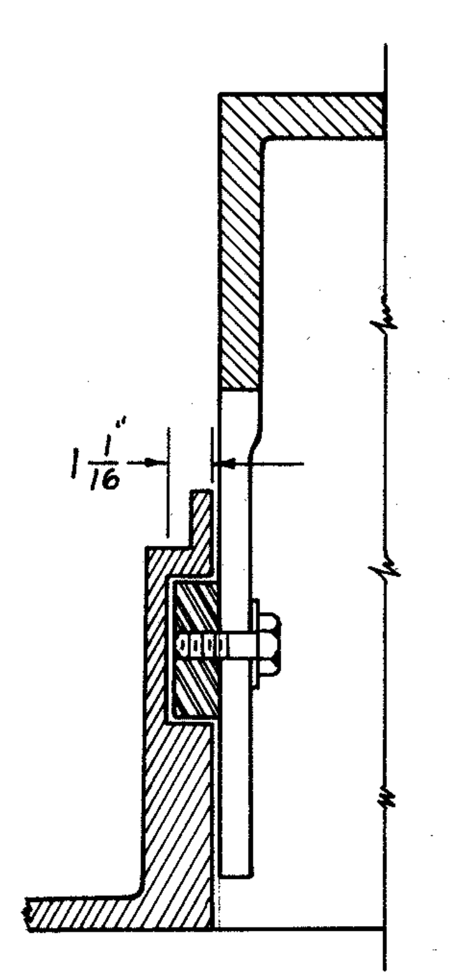
CUYAHOGA COUNTY
CUY-90-10.40



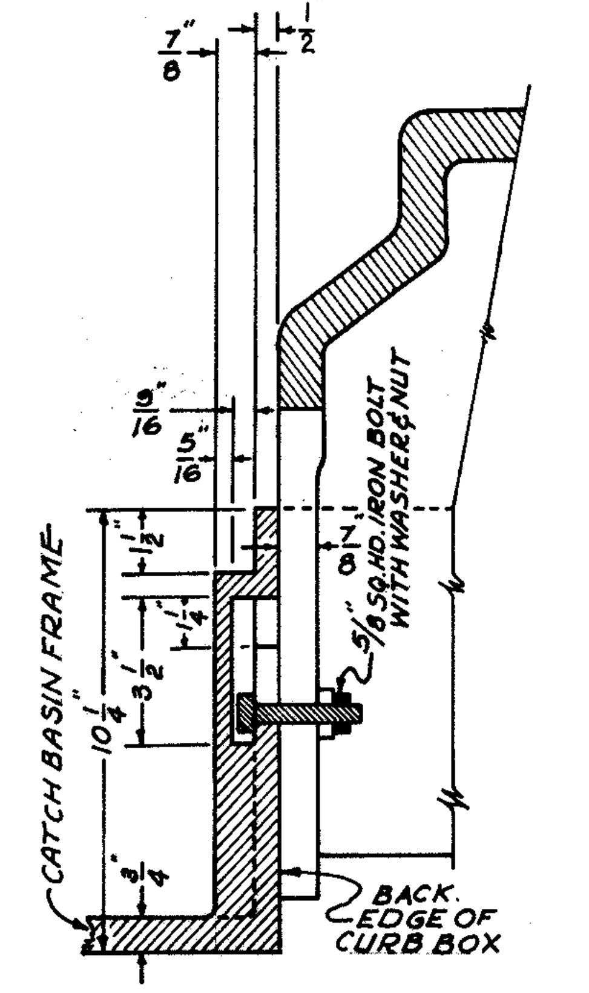
DETAIL PLAN
CATCH BASIN FRAME



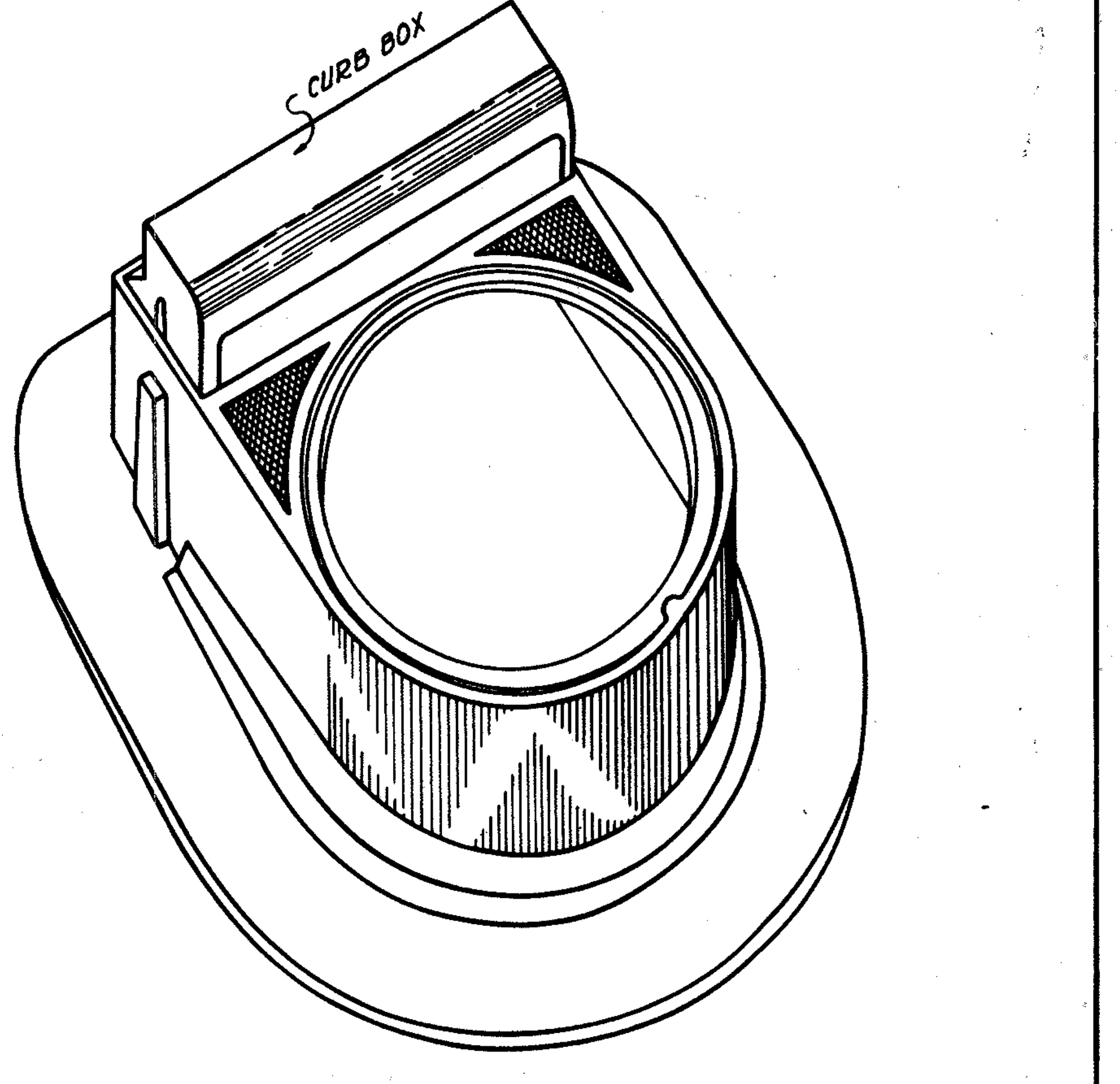
SECTION THRU "B"-"B"



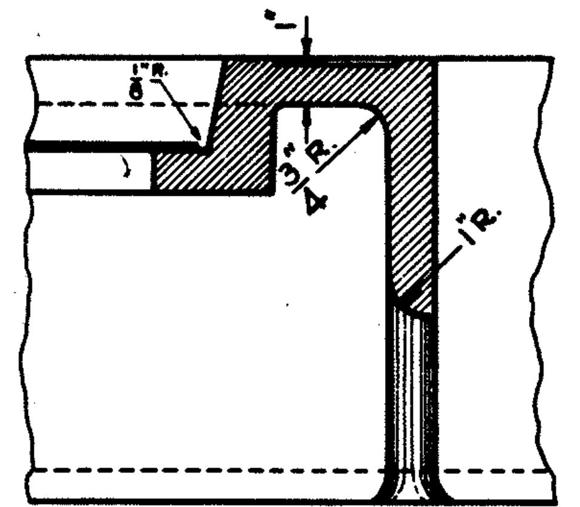
SECTION "C"-"C"
WITH CURB BOX, BOLT & BLOCK IN PLACE



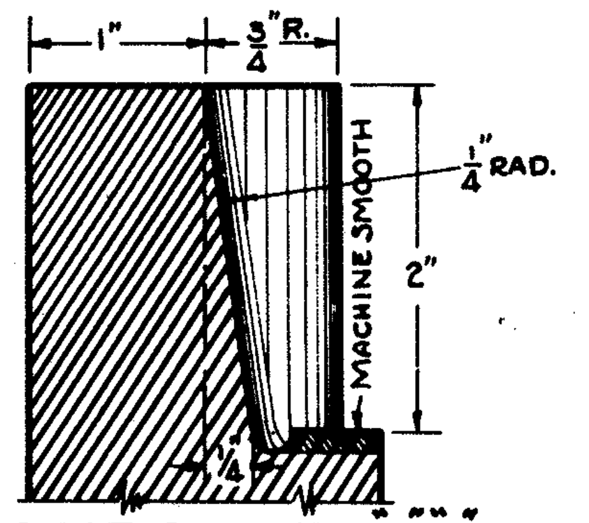
DETAIL-"E"
SHOWING CURB BOX & BOLT IN T-SLOT IN FRAME



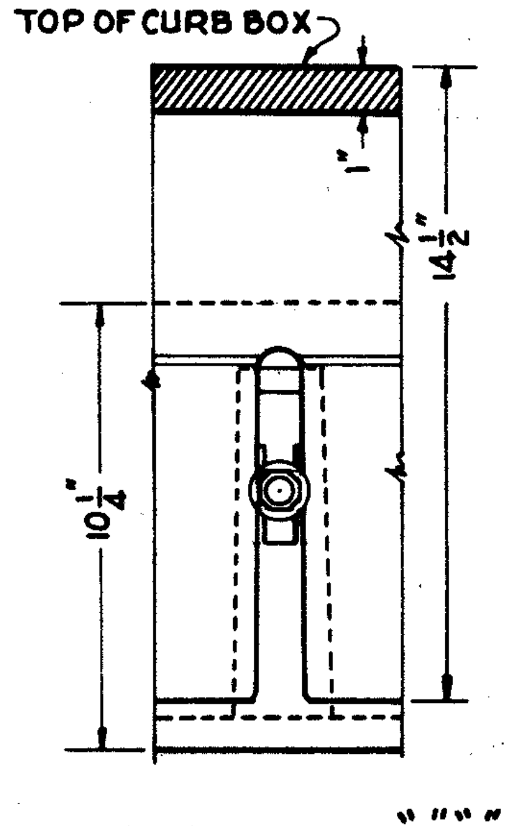
SKETCH OF CATCH BASIN FRAME
SHOWING CURB BOX IN PLACE



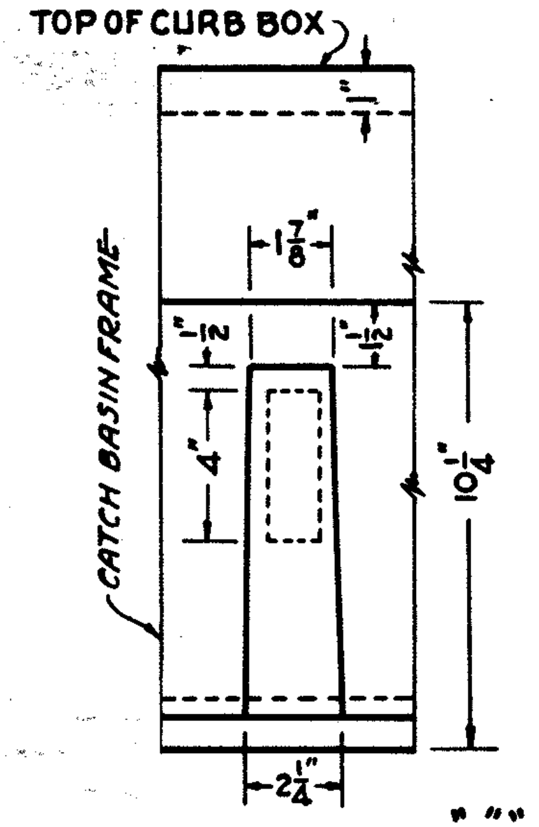
SECTION THRU "D"-"D"



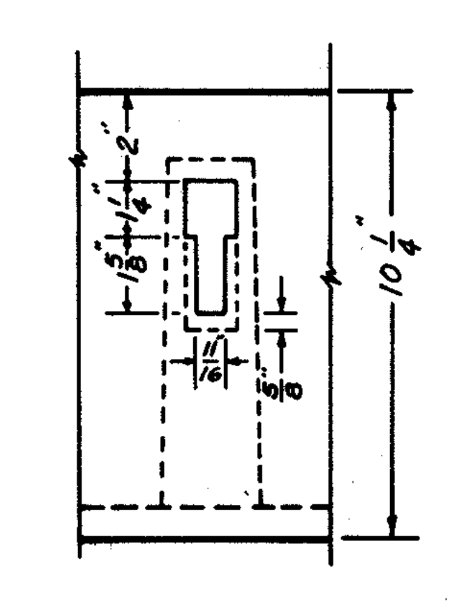
SECTION THRU "E"-"E"



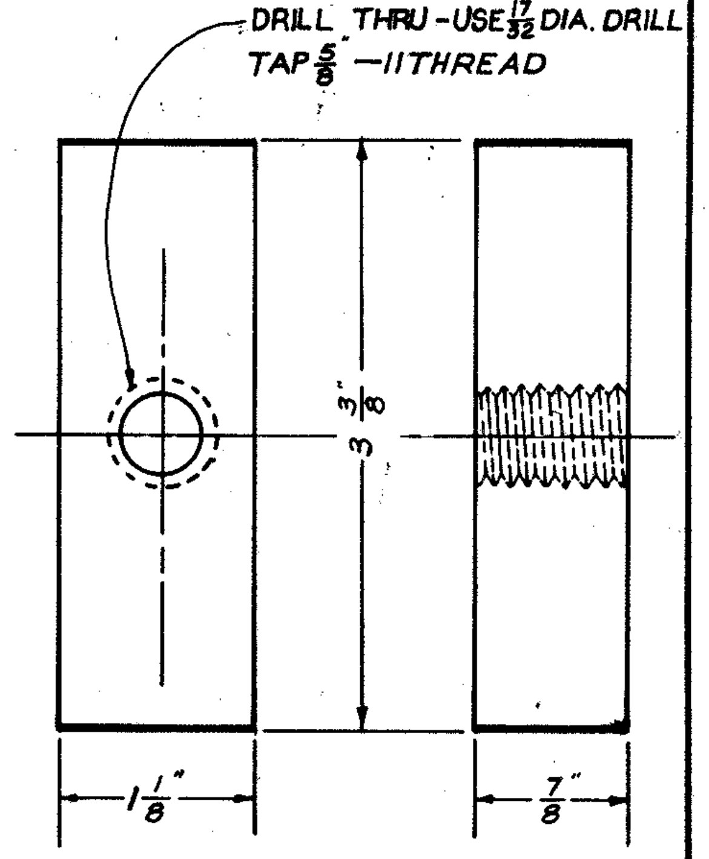
INSIDE VIEW AT "C"-"C"
SHOWING CURB BOX



OUTSIDE VIEW AT "C"-"C"

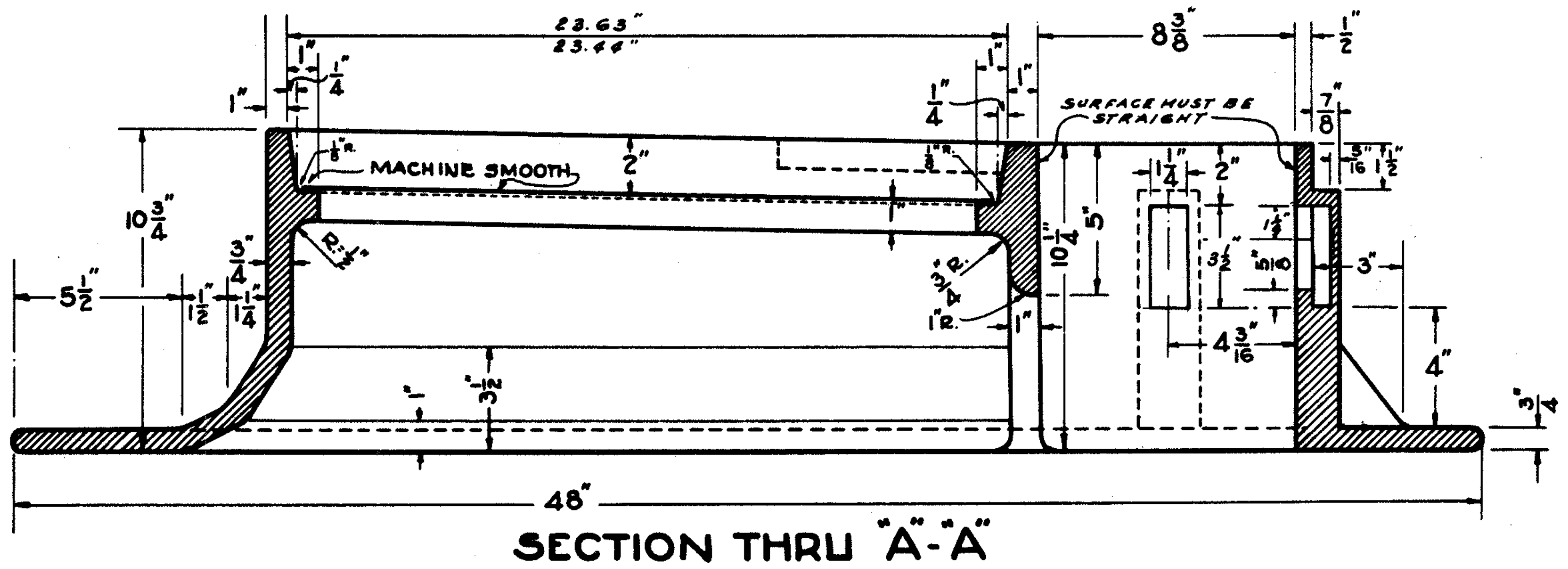


INSIDE VIEW AT DETAIL-"E"
SHOWING T-SLOT

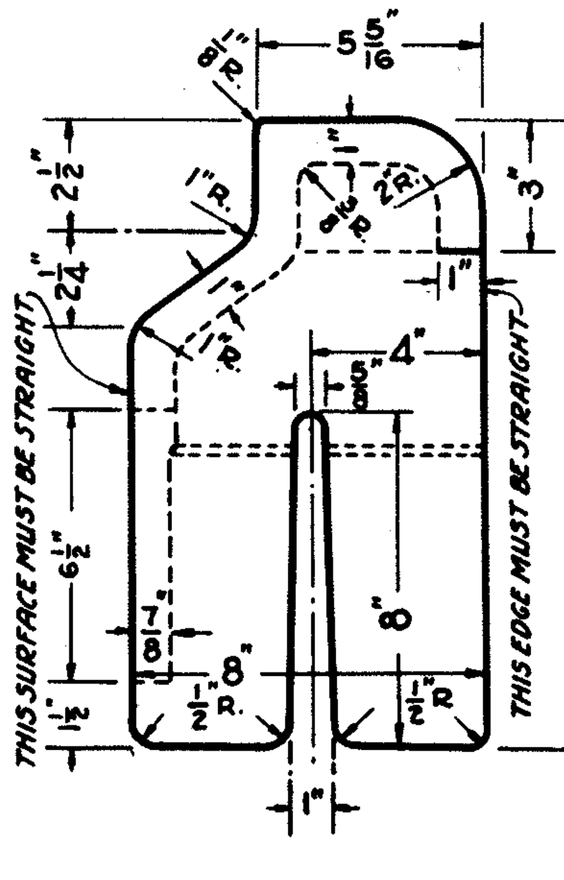


CURB BOX SUPPORT
SCALE - FULL SIZE
MATERIAL - STEEL

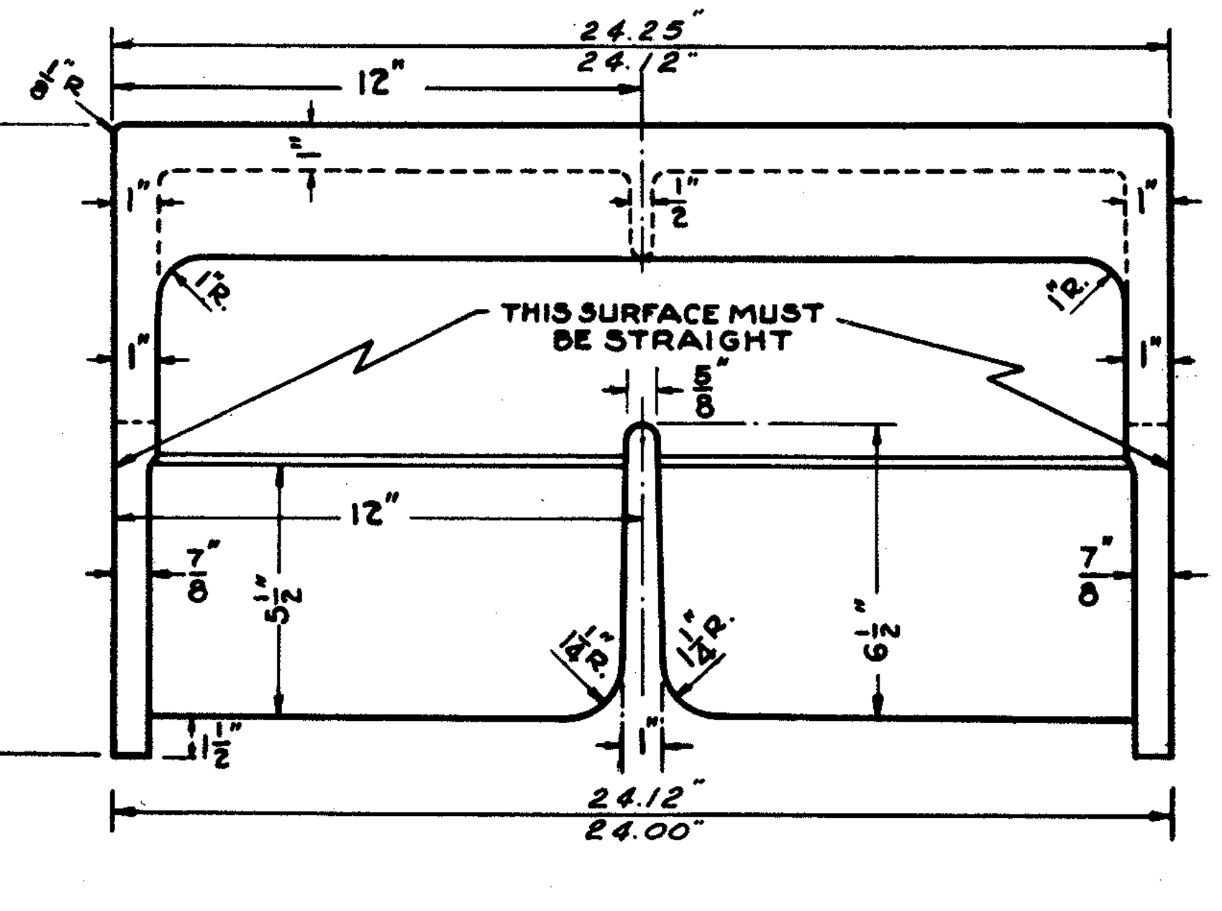
NOTE: MINIMUM WEIGHT - FRAME 445 POUNDS
MINIMUM WEIGHT - CURB BOX 135 POUNDS
MATERIAL SHALL CONFORM TO SEC. 711.12
OF THE STATE OF OHIO CONSTRUCTION
AND MATERIAL SPECIFICATIONS.



SECTION THRU "A"-"A"



END VIEW
CURB BOX



FRONT VIEW OF CURB BOX

CITY OF CLEVELAND
CATCH BASIN FRAME

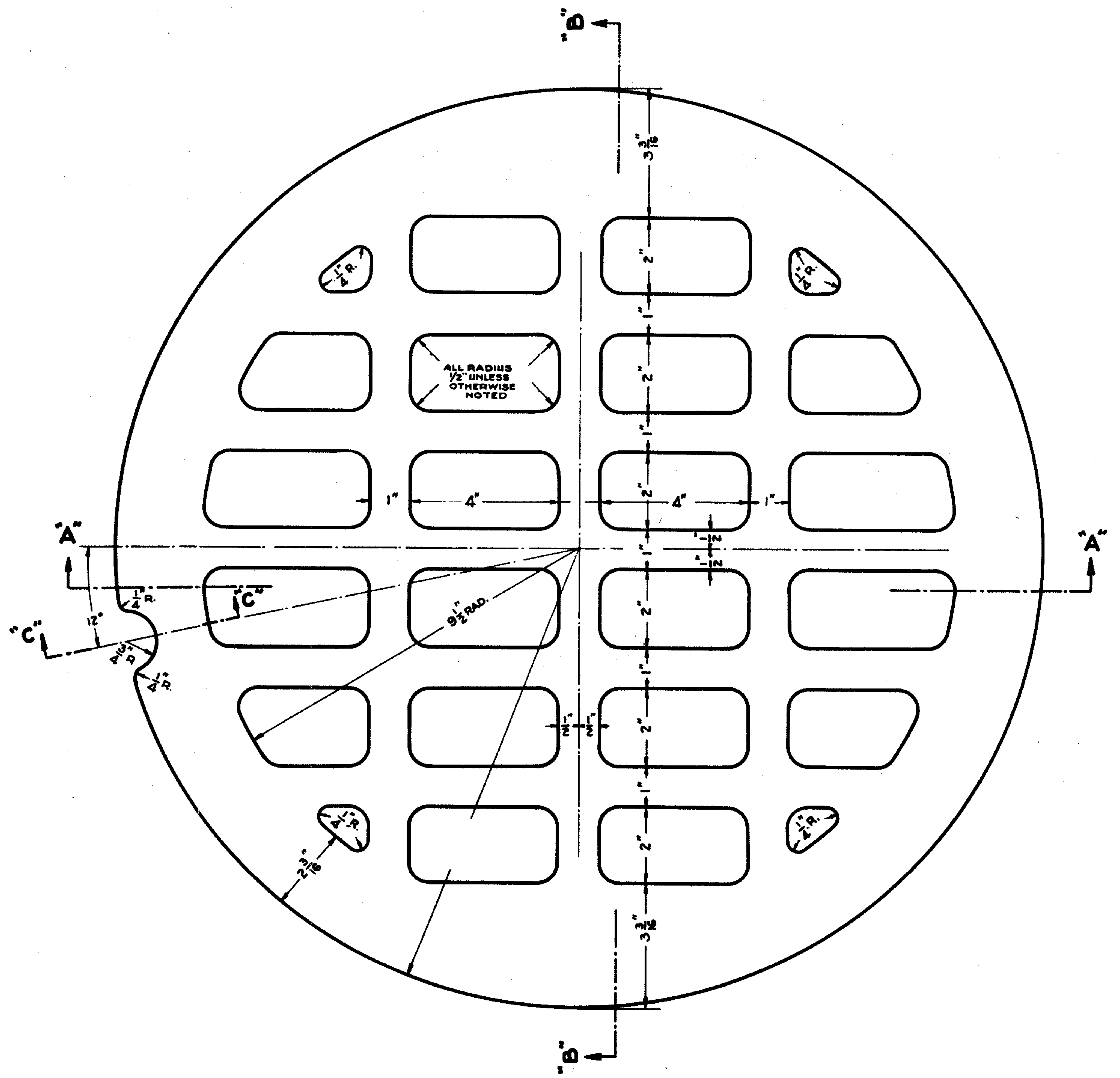
EXCEPT WHERE LIMITS ARE NOTED - A CASTING VARIATION OF 1/8" PER FOOT PERMITTED

DRAINAGE DETAILS

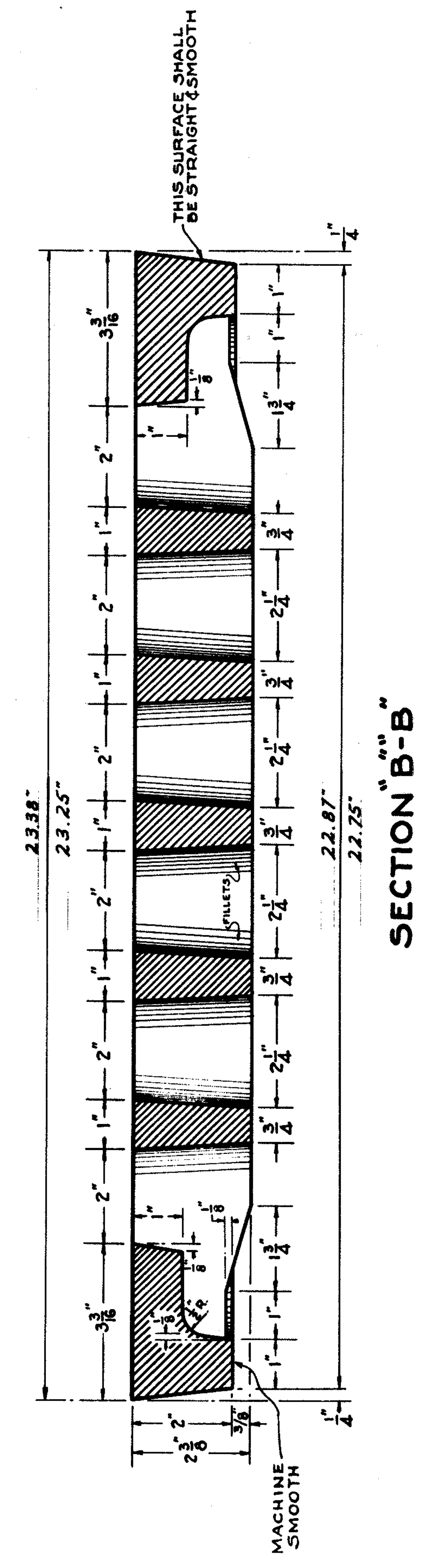
FED. NO.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

291
713

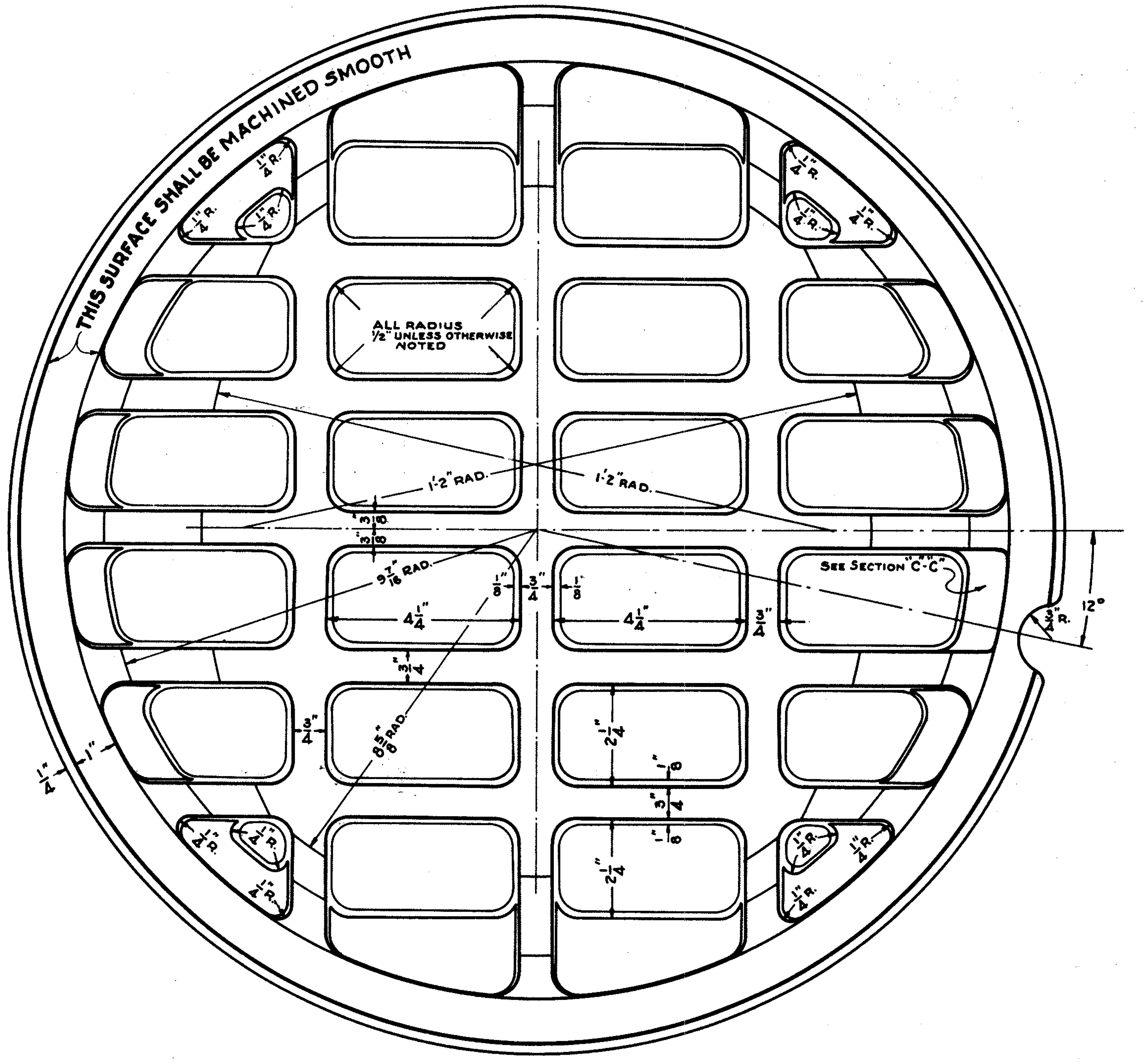
CUYAHOGA COUNTY
CUY-90-10.40



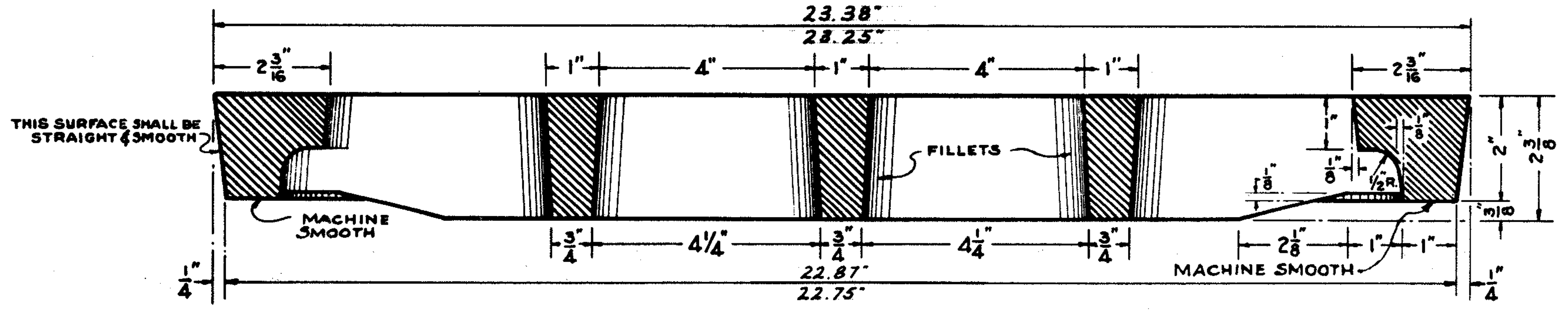
DETAIL PLAN OF TOP



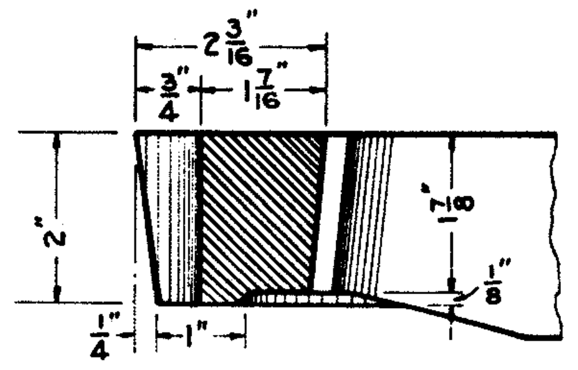
SECTION "B-B"



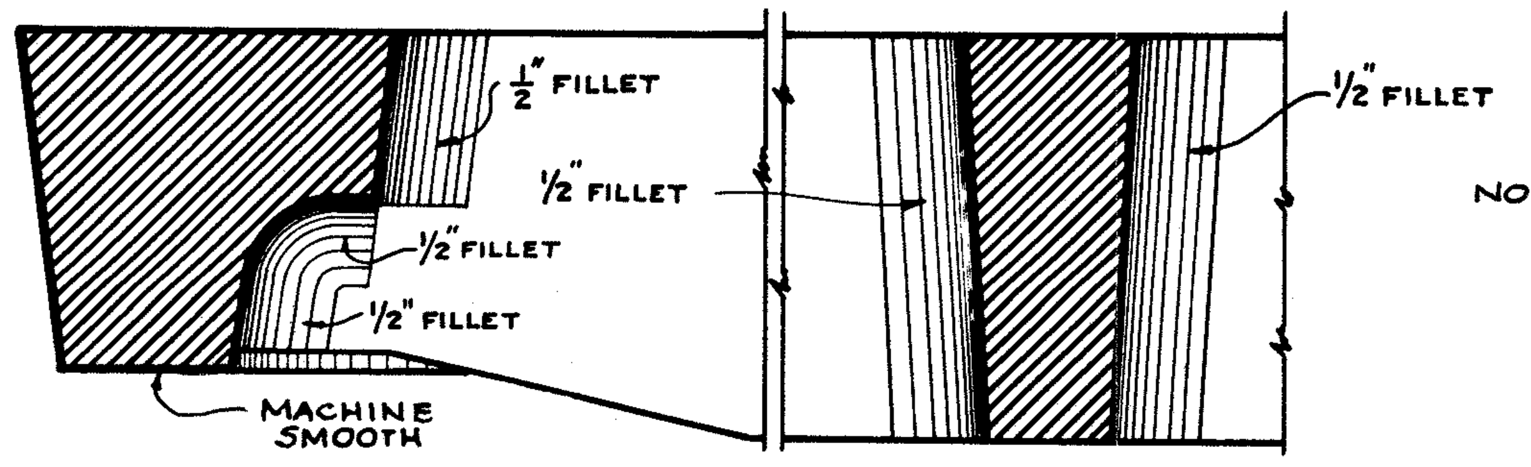
DETAIL PLAN OF BOTTOM



SECTION "A-A"



SECTION "C-C"



SKETCH SHOWING FILLETS

NOTE. ALL FILLETS 1/2" RADIUS UNLESS NOTED

NOTE: MINIMUM WEIGHT 125 POUNDS MATERIAL SHALL CONFORM TO SEC. 711.12 OF THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS.

CITY OF CLEVELAND
CATCH BASIN GRATE

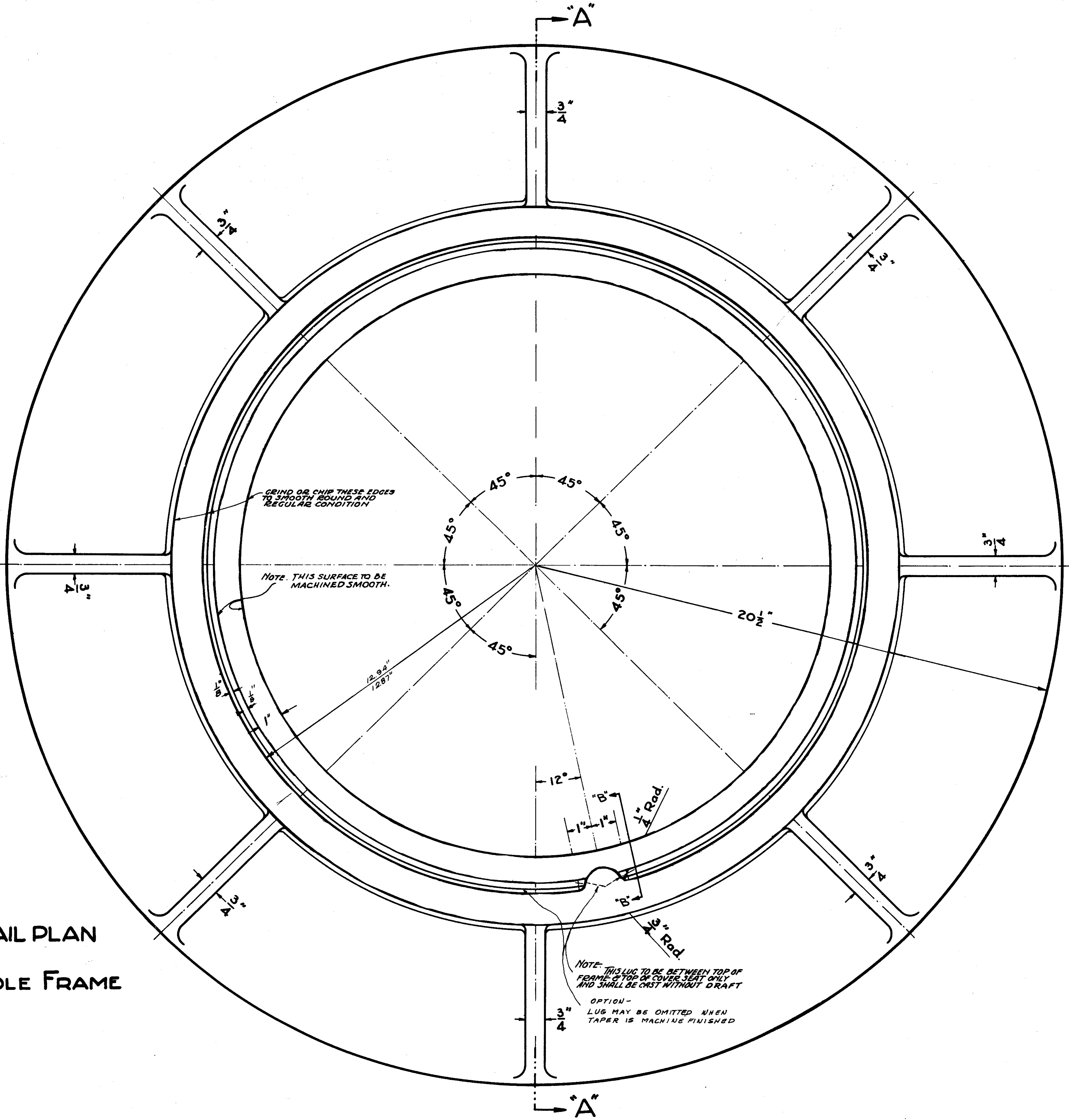
EXCEPT WHERE LIMITS ARE NOTED ~ A CASTING VARIATION OF 1/8" PER FOOT PERMITTED

DRAINAGE DETAILS

FED. NO.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

292
713

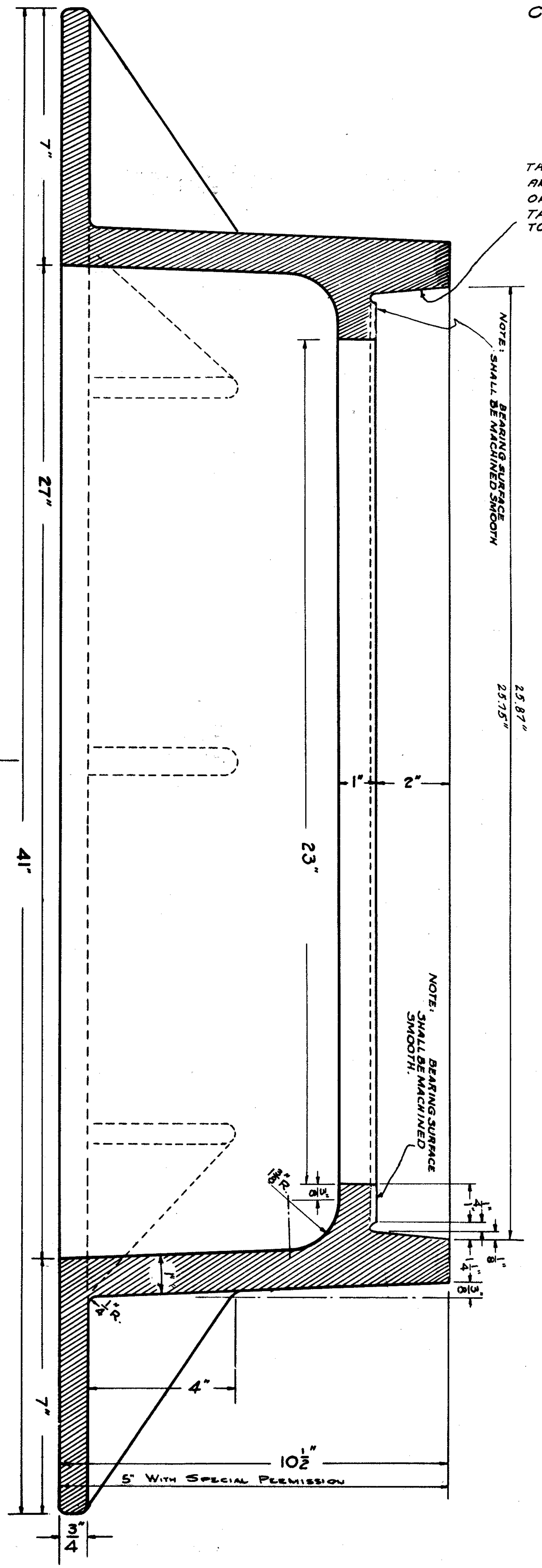
CUYAHOGA COUNTY
CUY-90-10.40



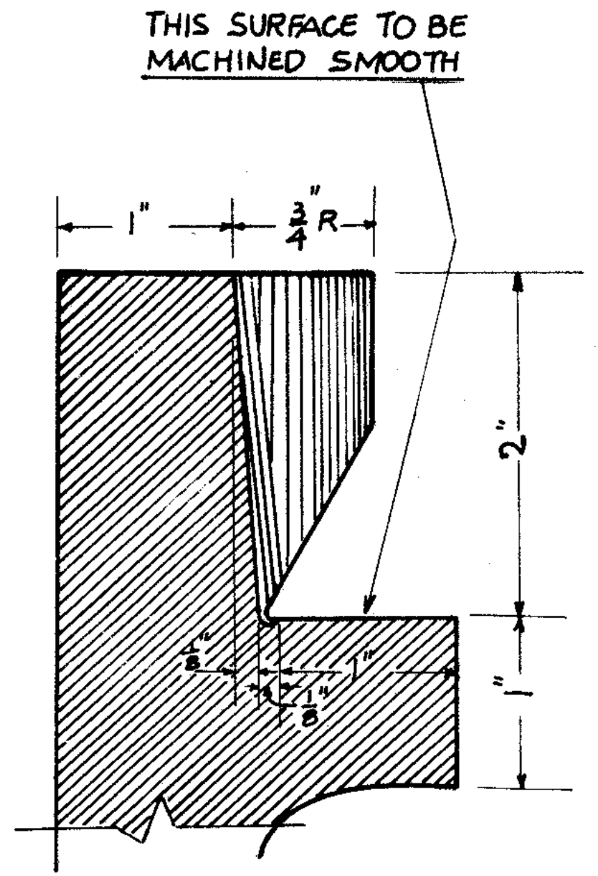
DETAIL PLAN

MANHOLE FRAME

TAPERED SURFACE MUST BE STRAIGHT SMOOTH AND FREE FROM IRREGULARITIES.
OPTION -
TAPER MAY BE MACHINE FINISHED TO OR BELOW MACHINED SEAT.



SECTION THRU "A"-"A"



SECTION "B"-"B"

NOTE: MINIMUM WEIGHT - 400 POUNDS
MATERIALS SHALL CONFORM TO SEC. 711.12 OF THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS.

EXCEPT WHERE LIMITS ARE NOTED - A CASTING VARIATION OF 1/8" PER FOOT PERMITTED.

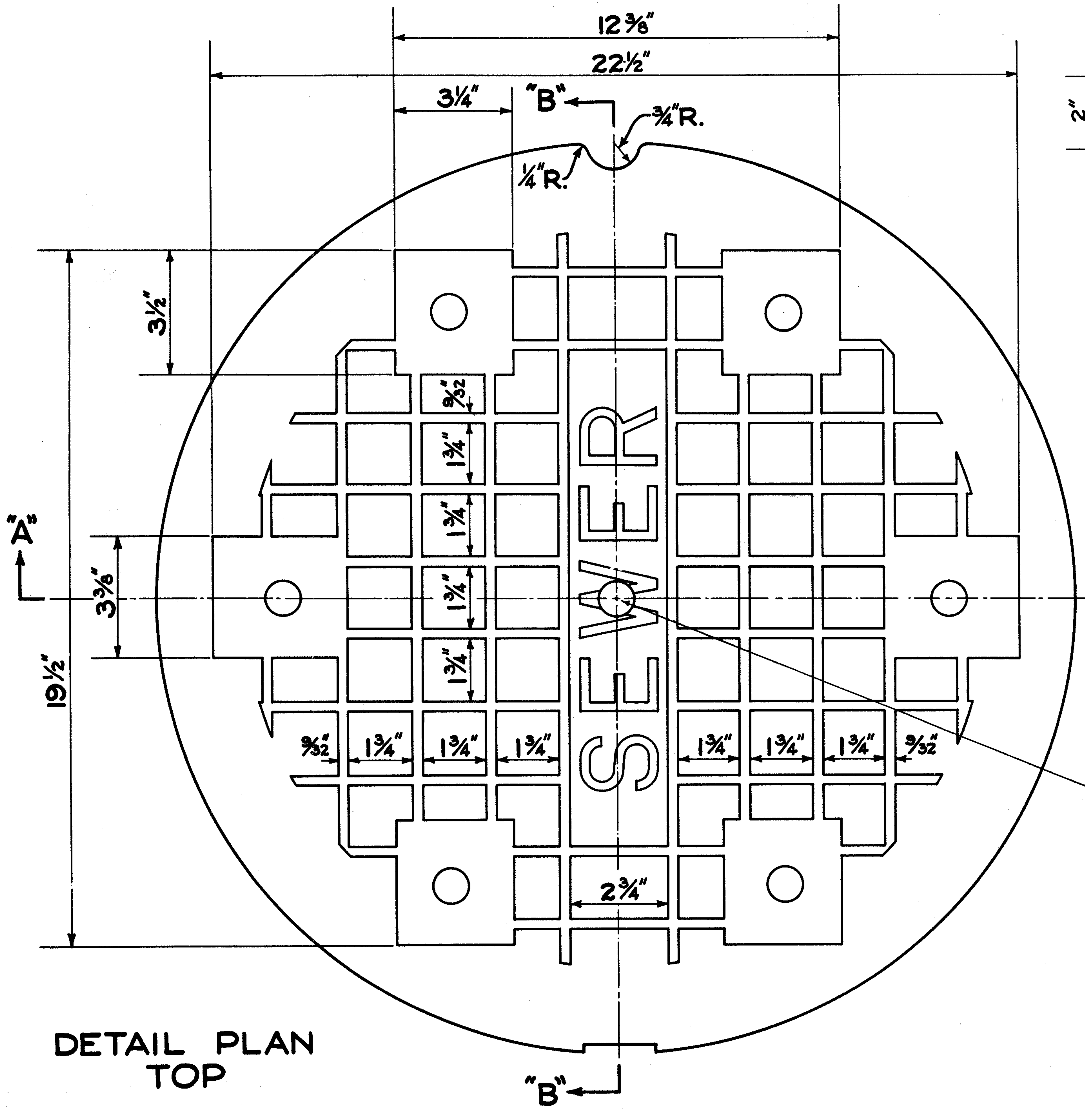
CITY OF CLEVELAND
MANHOLE FRAME

DRAINAGE DETAILS

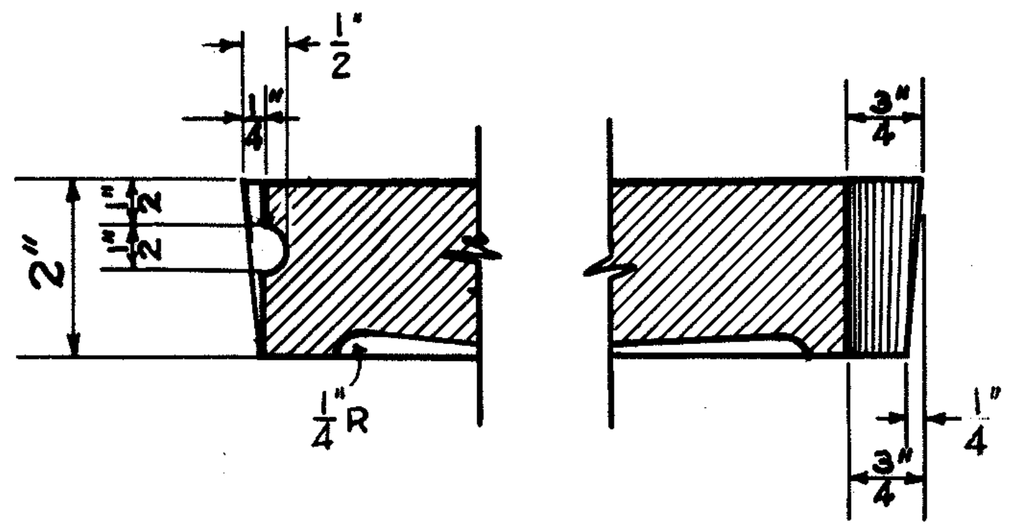
FED. RD. DIVISION	STATE			
2	OHIO	I-90-I(50) 19		

293
713

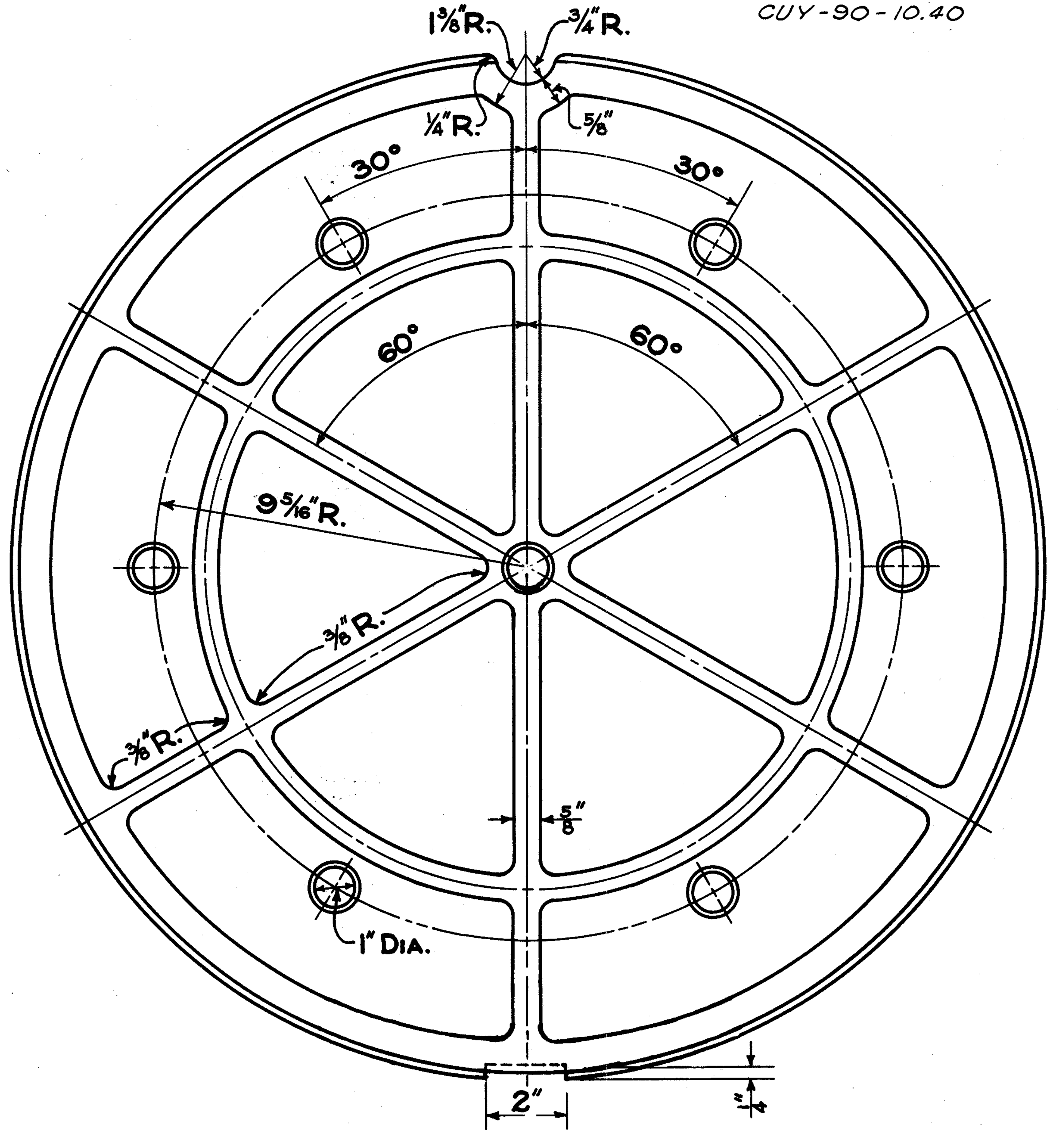
CUYAHOGA COUNTY
CUY-90-10.40



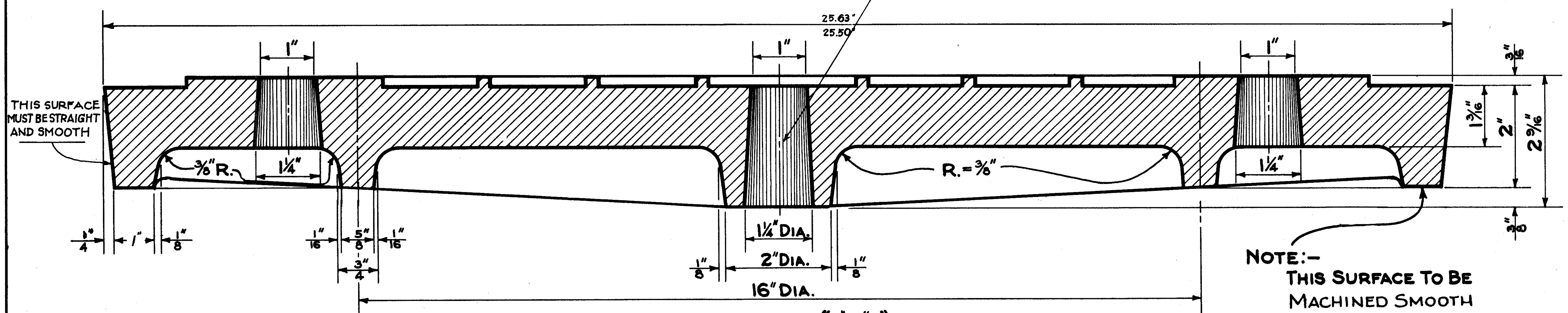
DETAIL PLAN TOP



SECTION "B"-"B"



DETAIL PLAN BOTTOM



SECTION "A"-"A"

NOTE: MINIMUM WEIGHT 195 POUNDS MATERIALS SHALL CONFORM TO SEC. 711.12 OF THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS.

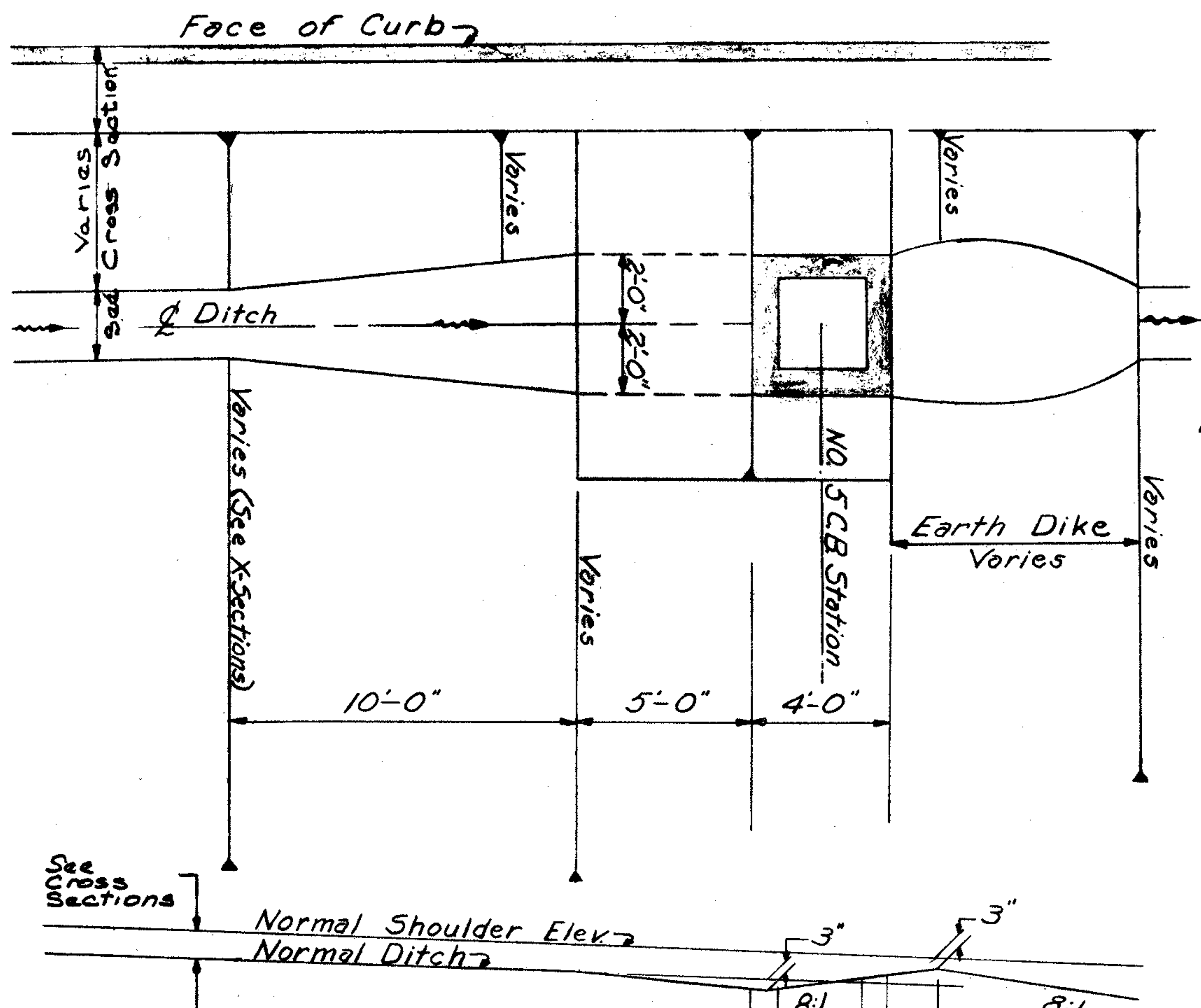
CITY OF CLEVELAND
MANHOLE COVER

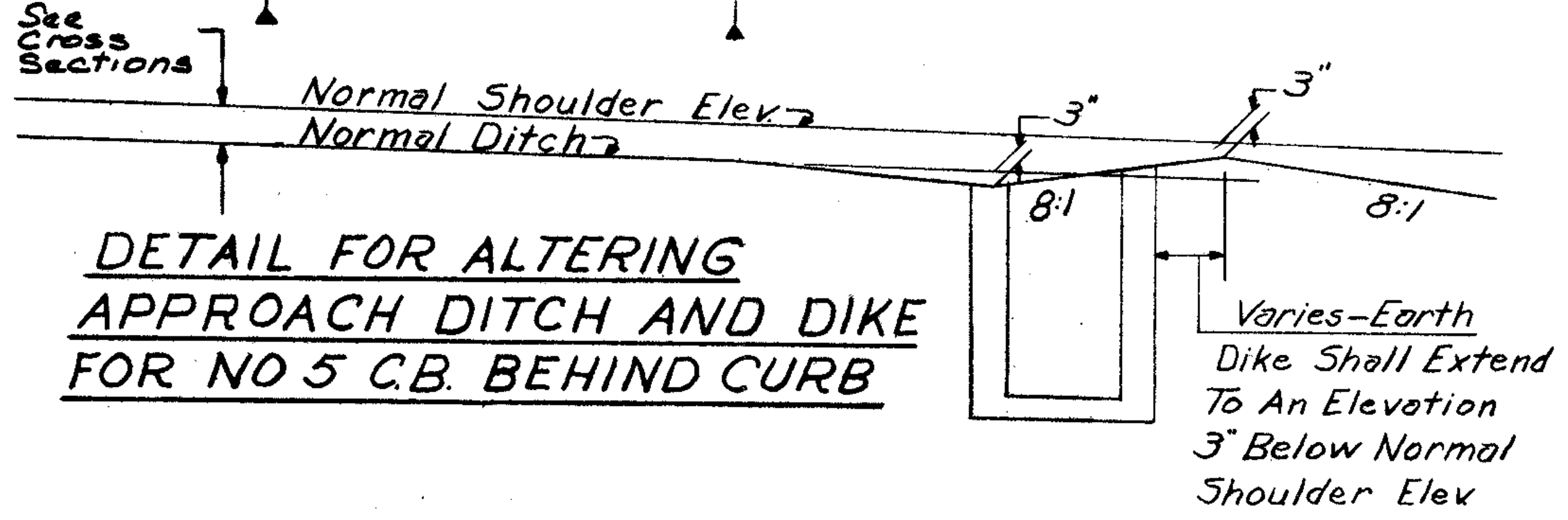
DRAINAGE DETAILS

FED. RD.	STATE	PROJECT
2	OHIO	I-90-I(50) 19

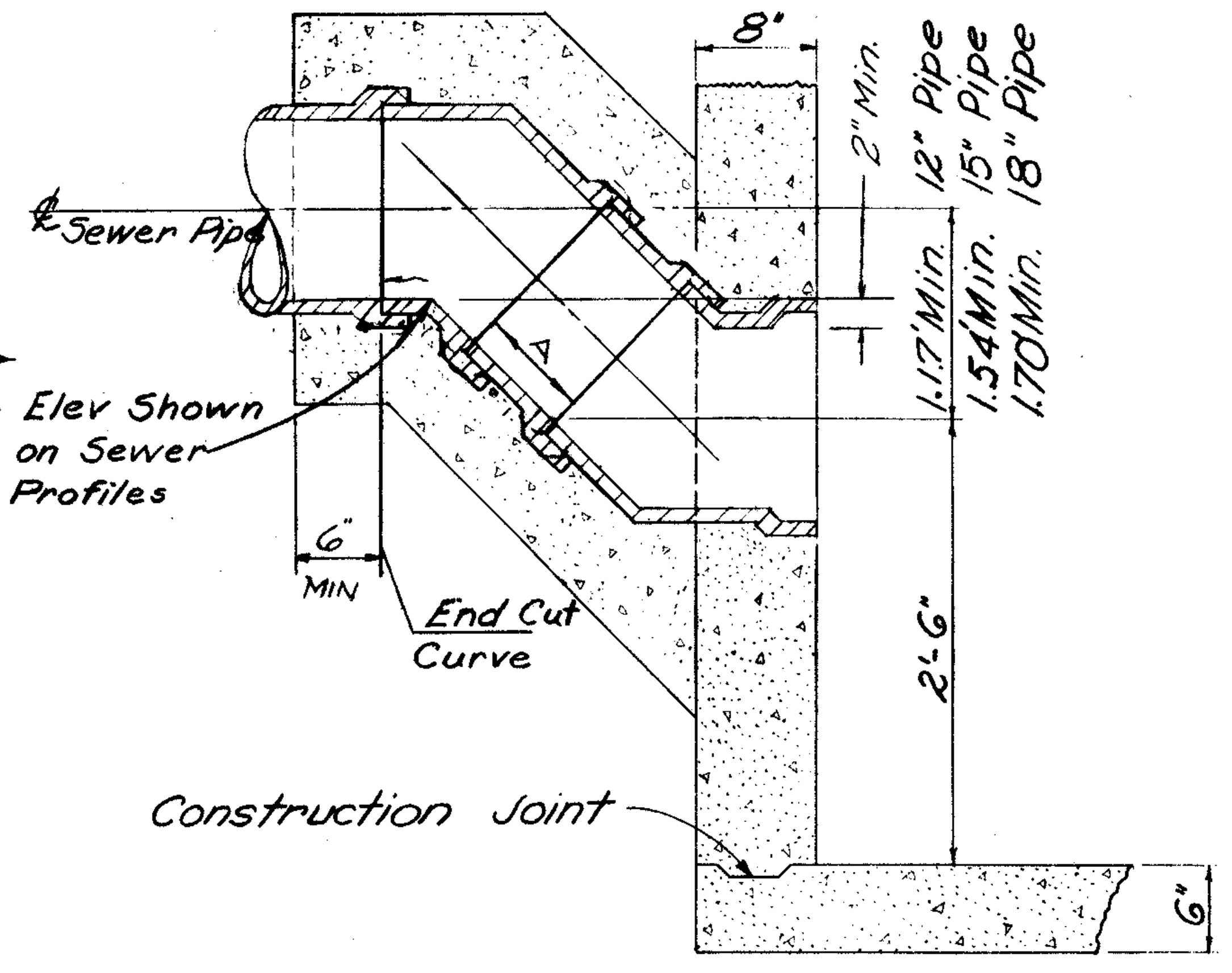
294
713

CUYAHOGA COUNTY
CUY - 90 - 10.40





DETAIL FOR ALTERING APPROACH DITCH AND DIKE FOR NO 5 C.B. BEHIND CURB



CATCH BASIN, INLET OR MANHOLE WITH TRAP

Modified as per Plan

A DIMENSIONS	
12" DIA. PIPE	A = 8"
15" DIA. PIPE	A = 10"
18" DIA. PIPE	A = 11 5/8"

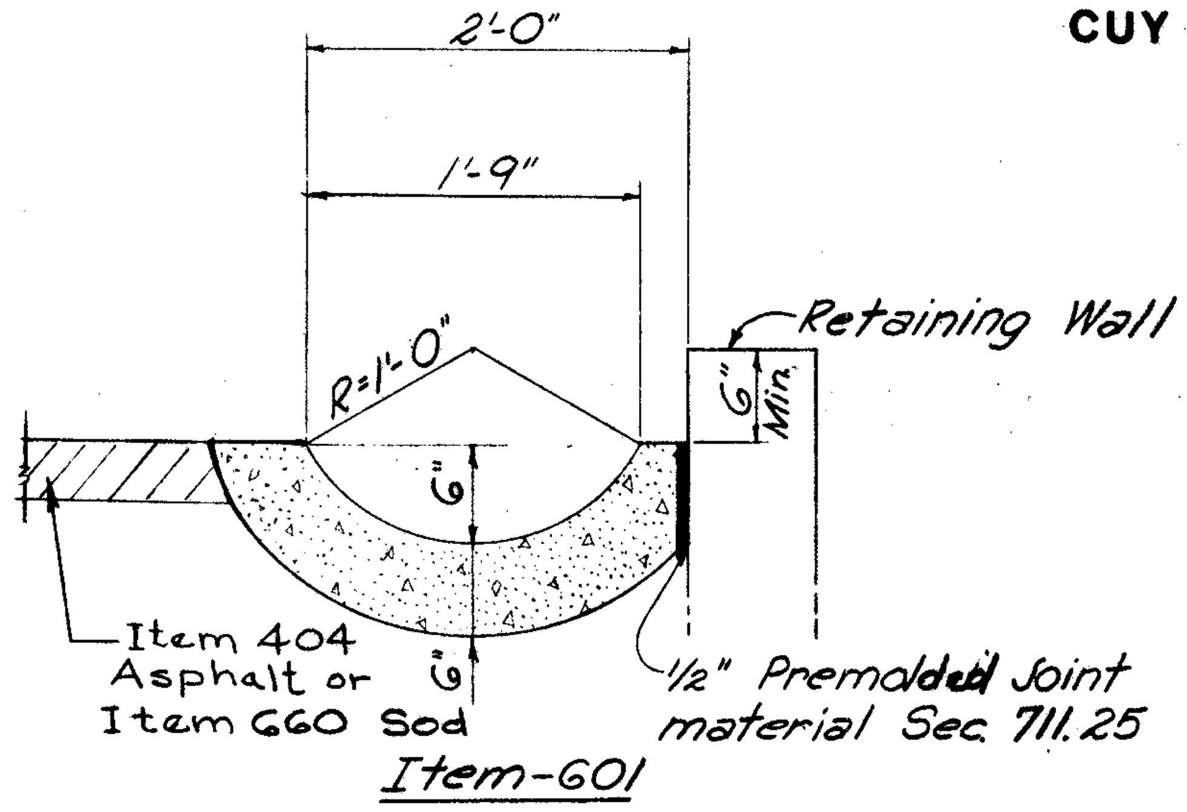
Notes:

The Trap and Sump Details shown on this drawing are applicable to all catch basins or inlets, or manholes noted in these plans as being "modified with Trap." Catch Basin or Inlet Details other than those shown shall conform to the appropriate standard drawing.

The requirements of Item 604 of the construction and material specification shall apply to this work. Traps shall be constructed of two 45° cut curves & a given length of conduit of the same size as the outlet pipe, encased with a minimum of 6" of class "C" concrete.

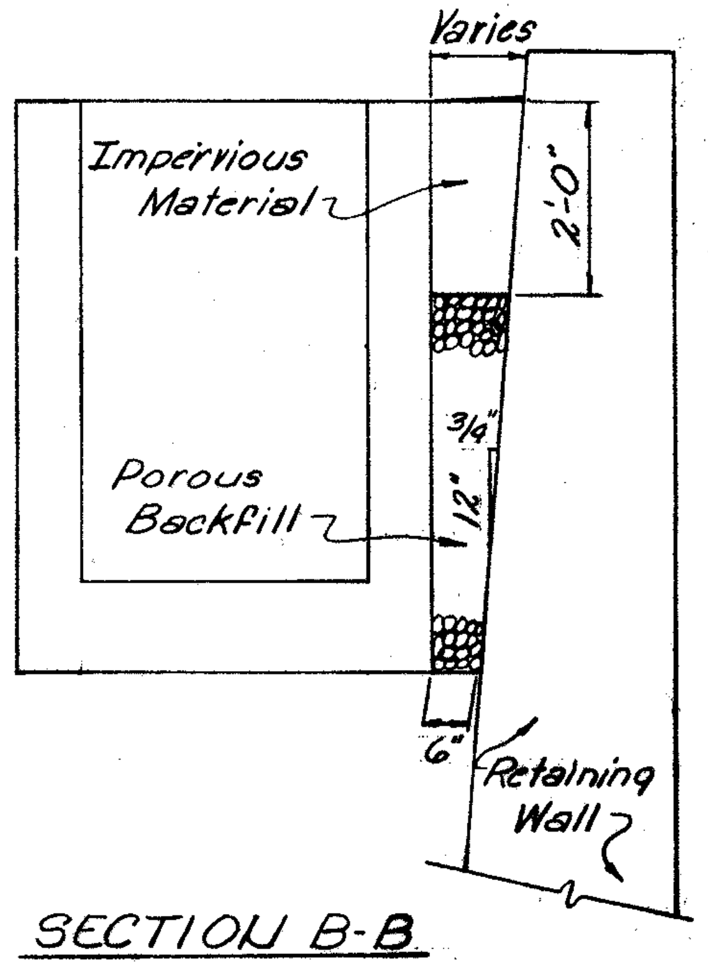
The unit price bid for each Catch Basin or Inlet or Manhole with trap Modified as per plan, shall constitute full compensation for all labor, materials, (except Bends & Branches) tools, equipment and incidentals necessary for the proper completion of the work as herein set forth.

Payment for all Bends & Branches to be included in unit bid price per lineal feet for the pertinet 603 item.

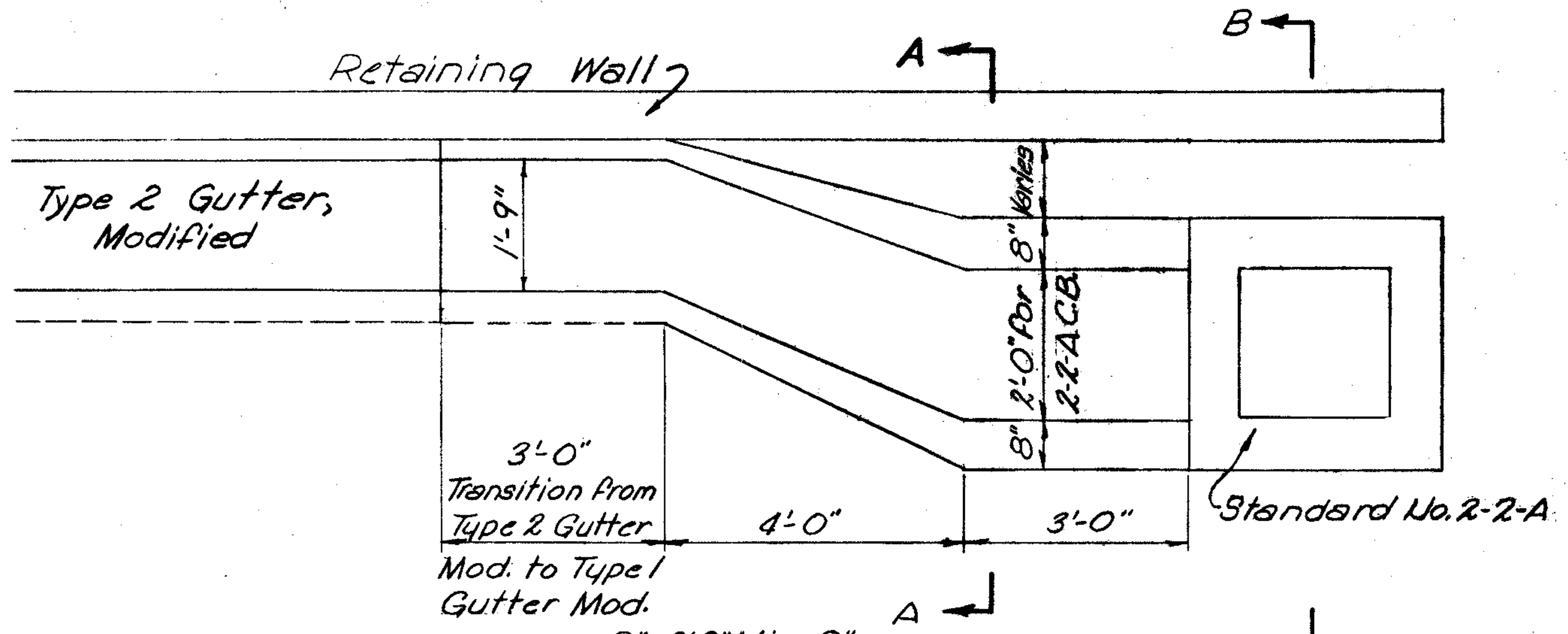


Item-601

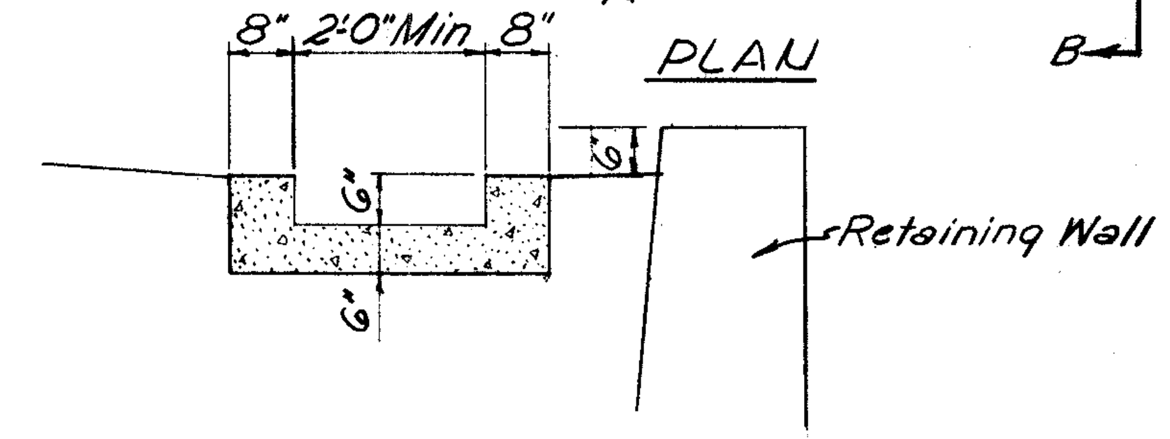
TYPE 2 GUTTER MODIFIED As Per Plan



SECTION B-B



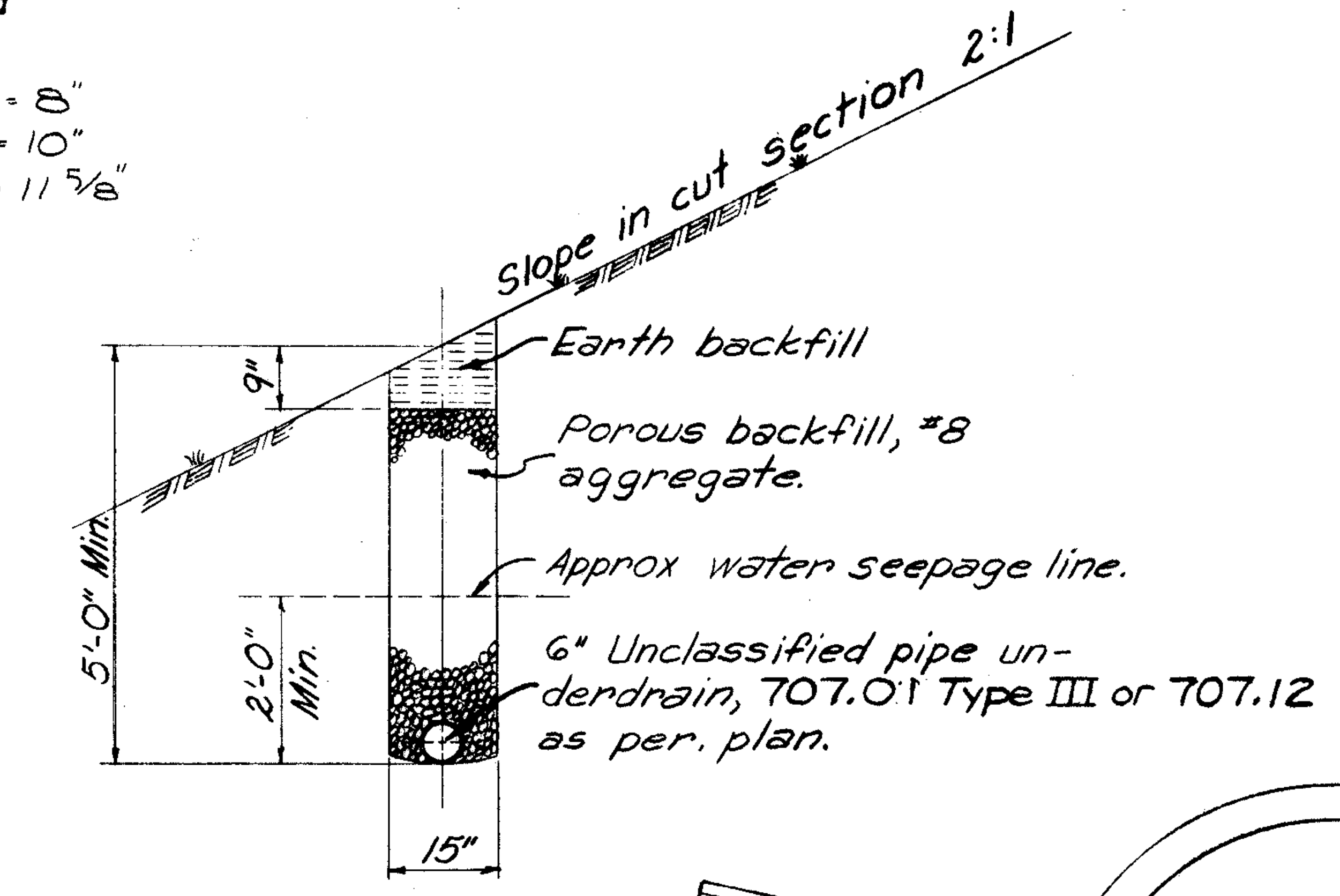
PLAN

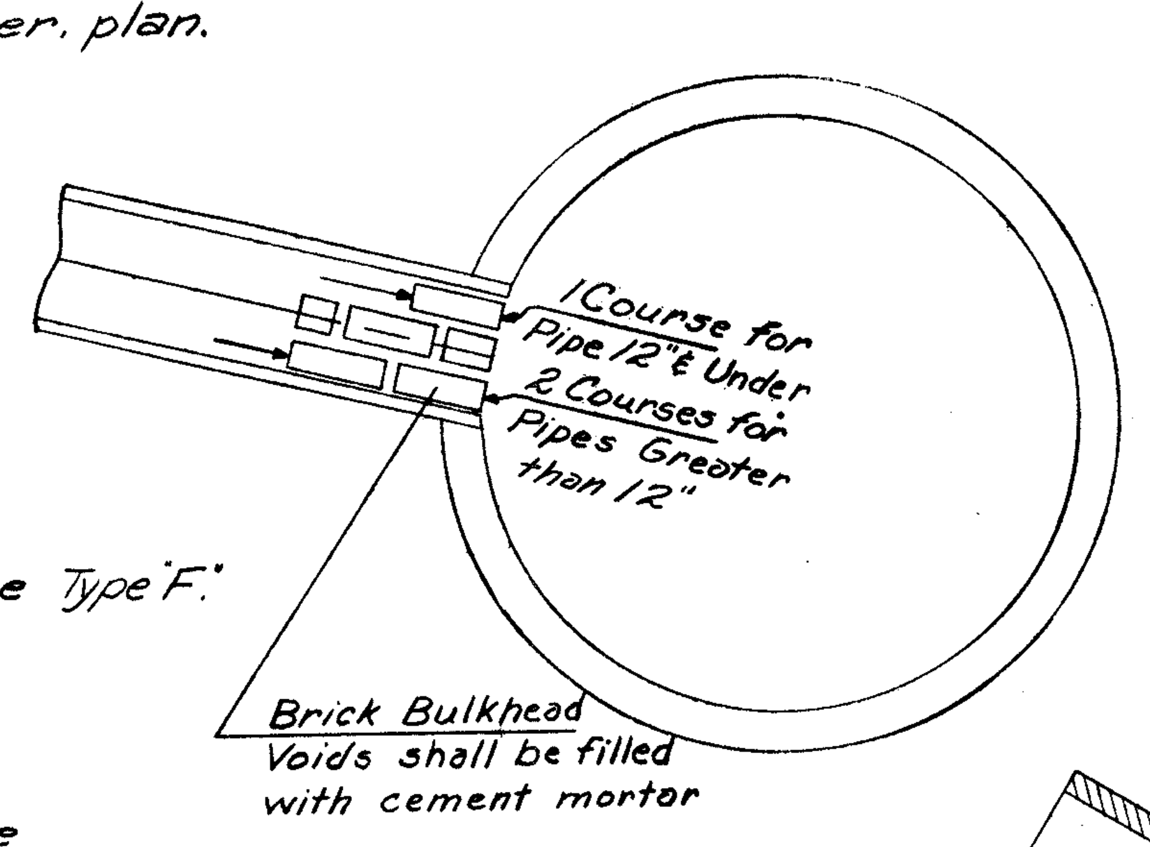


SECTION A-A

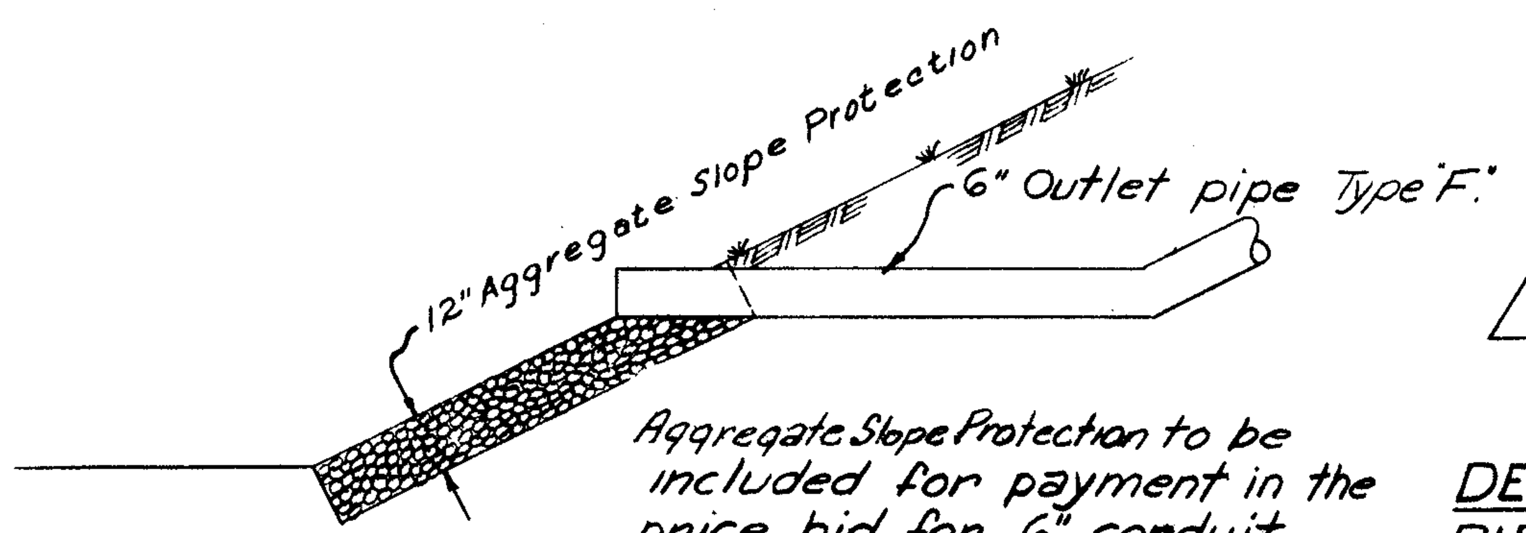
Item 601 type 2 Paved Gutter Modified, As Per Plan

GUTTER TRANSITION

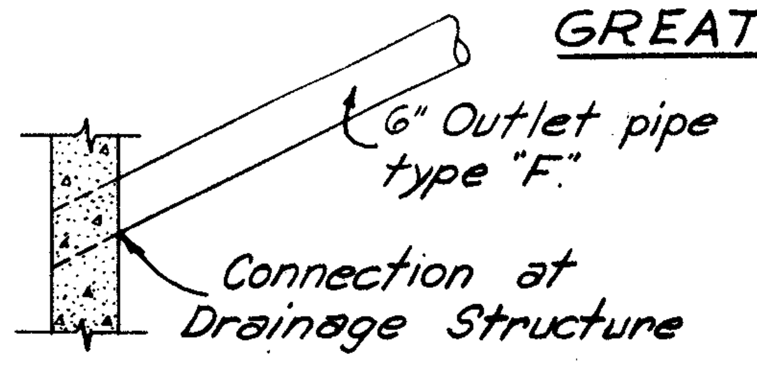




DETAIL FOR BULKHEADING PIPE CONNECTIONS FROM WITHIN PIPES 4'-0" OR GREATER IN DIAMETER



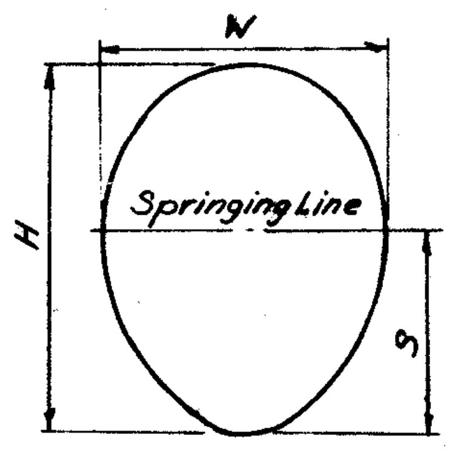
Aggregate Slope Protection to be included for payment in the price bid for 6" conduit, type "F" as per. plan.



DETAIL FOR INTERCEPTOR DRAIN

Note:

Outlet interceptor drains either into ditch drainage structure or onto aggregate slope protection at roadway ditch line. See General Note Sht. # 30

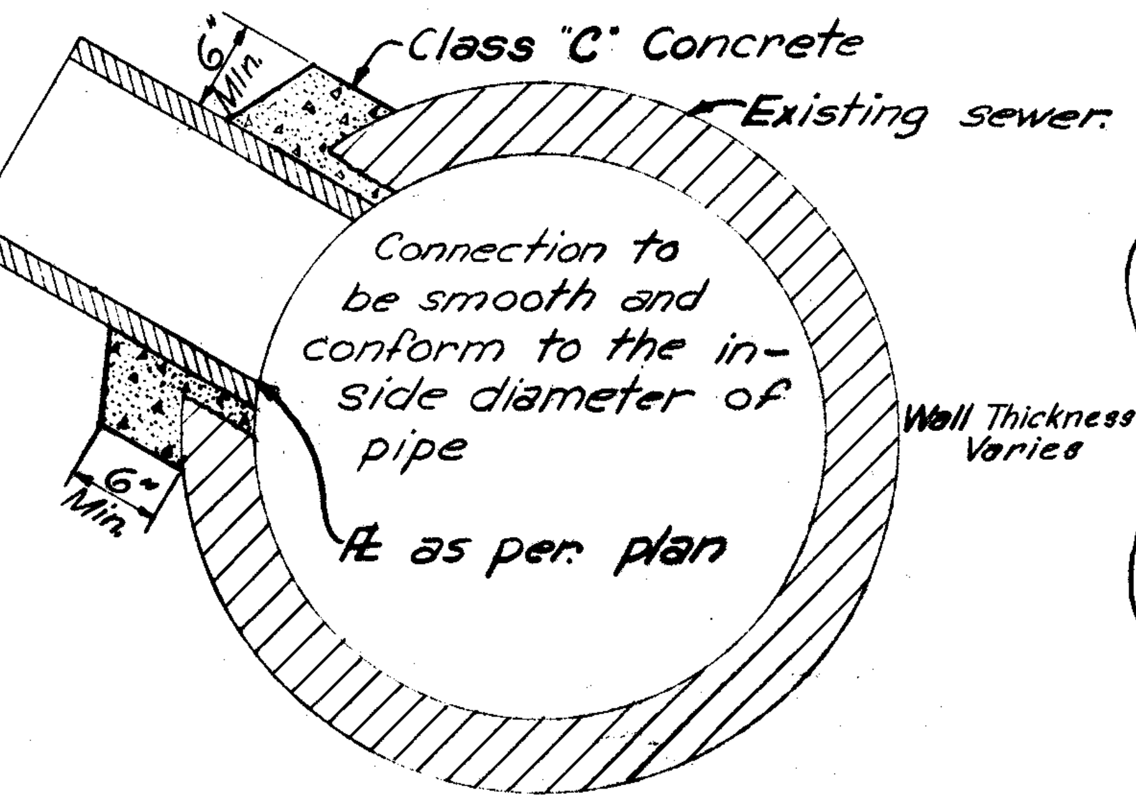


EGG SHAPE SEWERS				
NO.	H FEET	W FEET	S FEET	AREA SQ.FT.
2	2.25	1.94	1.28	3.41
3	2.75	2.23	1.64	4.75
4	3.23	2.54	1.70	6.35
6	4.23	3.34	2.23	10.90
7	4.69	3.70	2.48	13.39
8	5.12	4.04	2.71	16.00
9	5.54	4.37	2.93	18.72

TYPES OF EGG SHAPED SEWERS

"B" - 1 Ring of Brick all around & 1 Ring Extra on Arch
"C" - 2 Rings of Brick all around & 1 Ring Extra on Arch

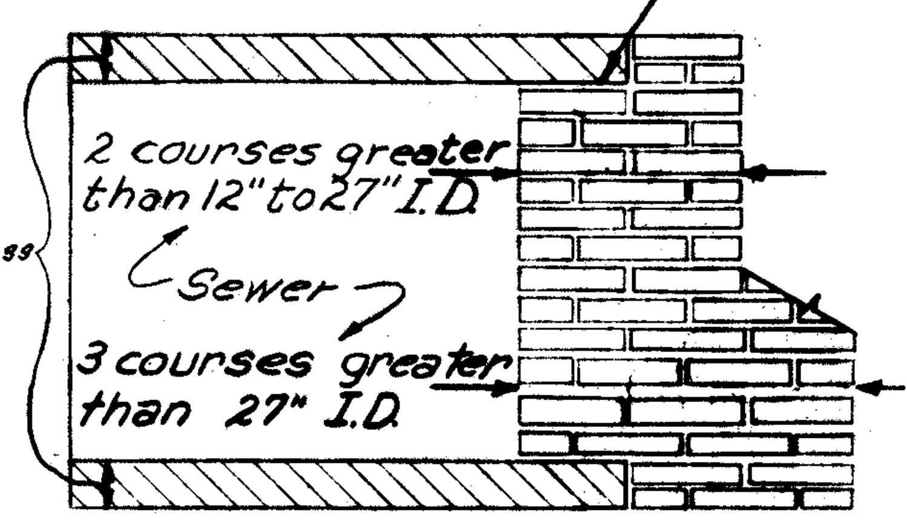
DETAIL EXISTING SEWER SIZES

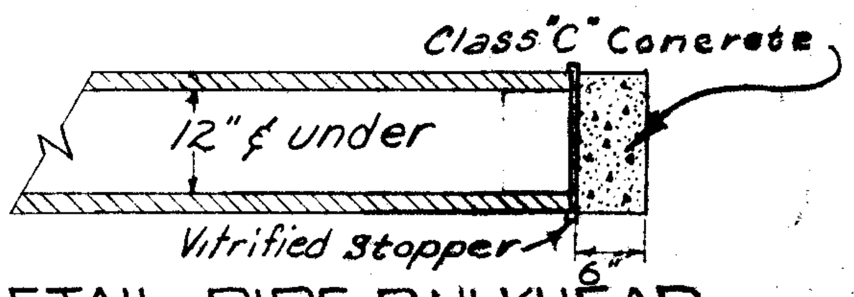


Cost of connection to be included in the unit price bid per lin. ft. of storm sewer.

DETAIL FOR CONNECTIONS TO EXISTING SEWERS

Brick bulkhead-fill all voids in brick with mortar.





DETAIL PIPE BULKHEAD

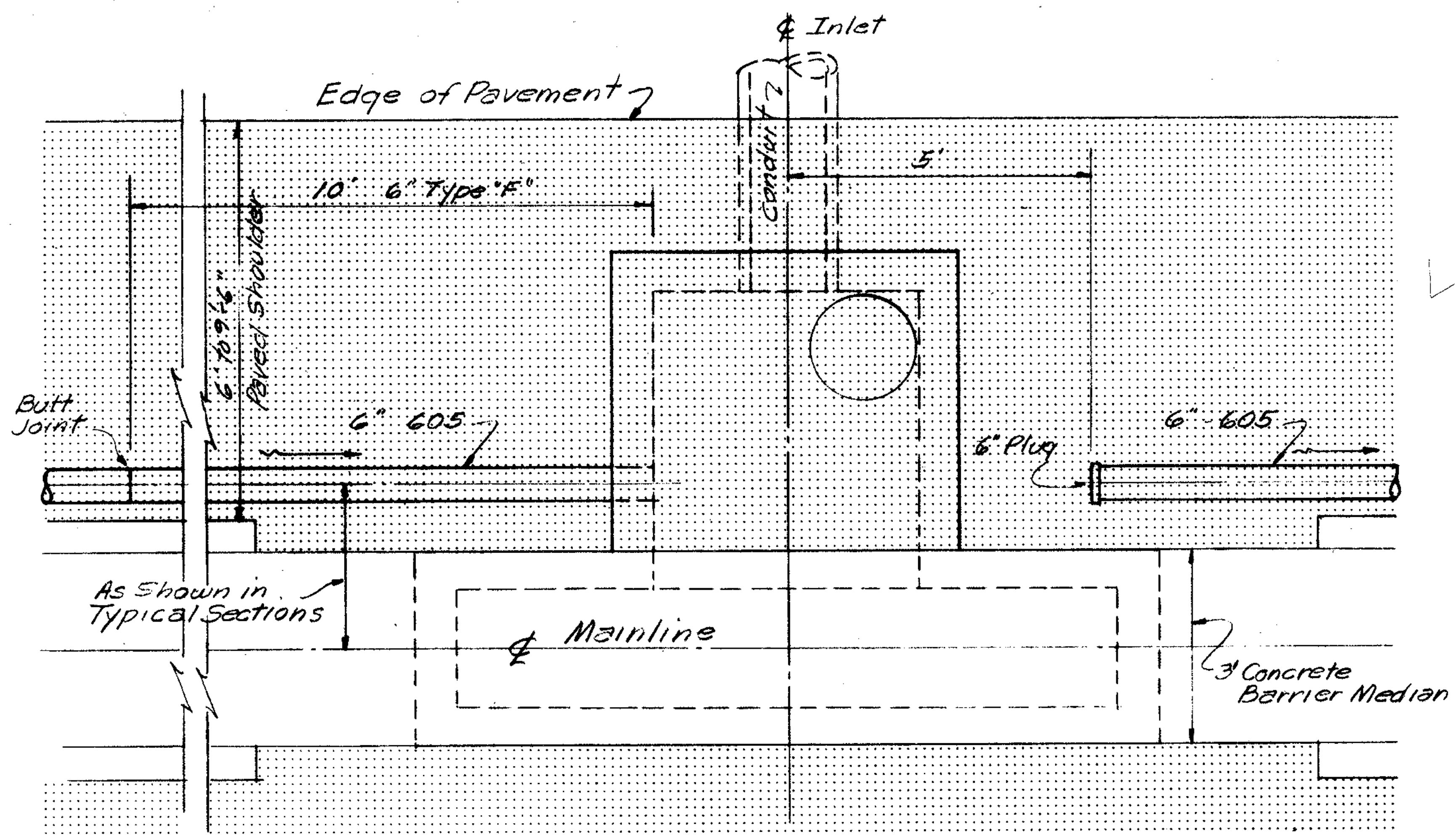
DRAINAGE DETAILS

UNDERDRAIN DETAILS

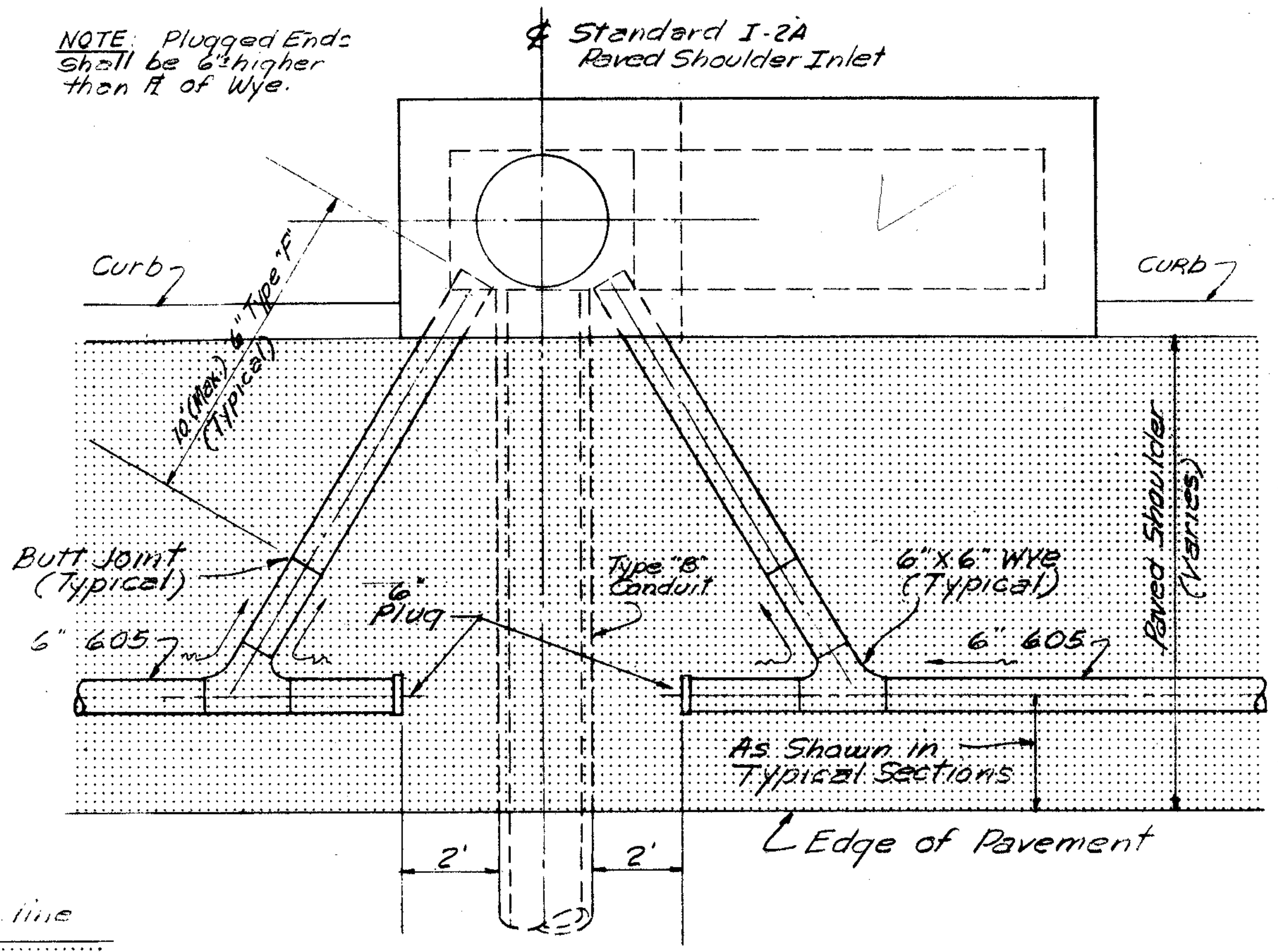
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50) 19	

295
713

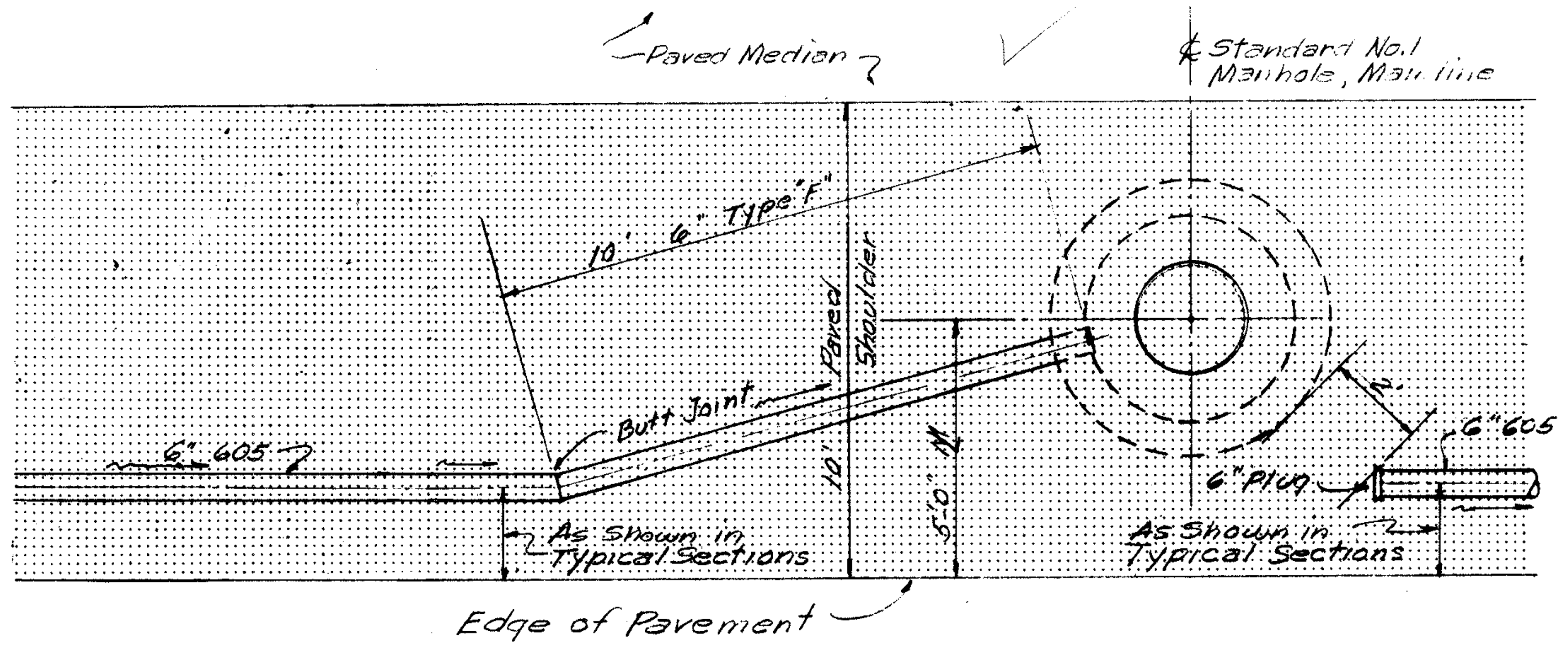
CUYAHOGA COUNTY
CUY - 90 - 10.40



UNDERDRAIN MEDIAN OUTLET



UNDERDRAIN OUTLET
INTO PAVED SHOULDER INLET



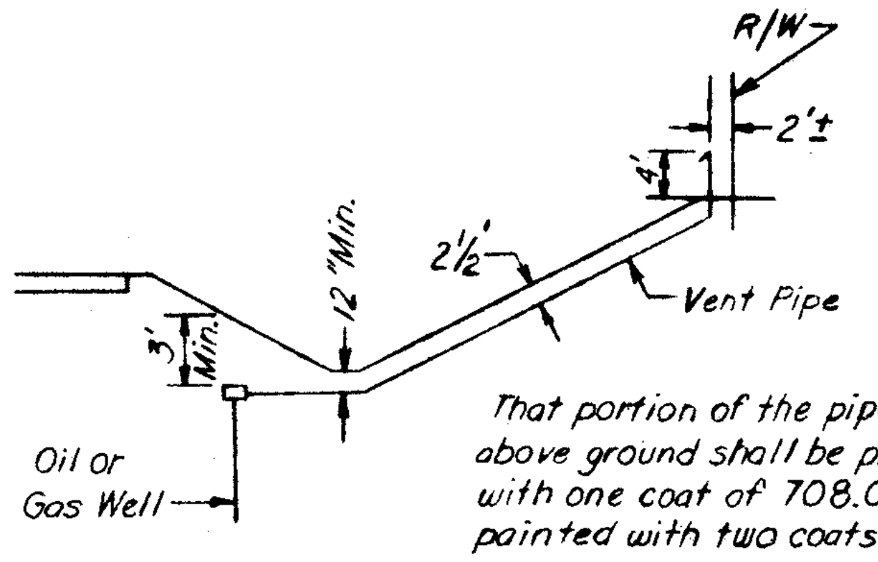
UNDERDRAIN OUTLET INTO STANDARD NO. 1 MANHOLES

DRAINAGE DETAILS

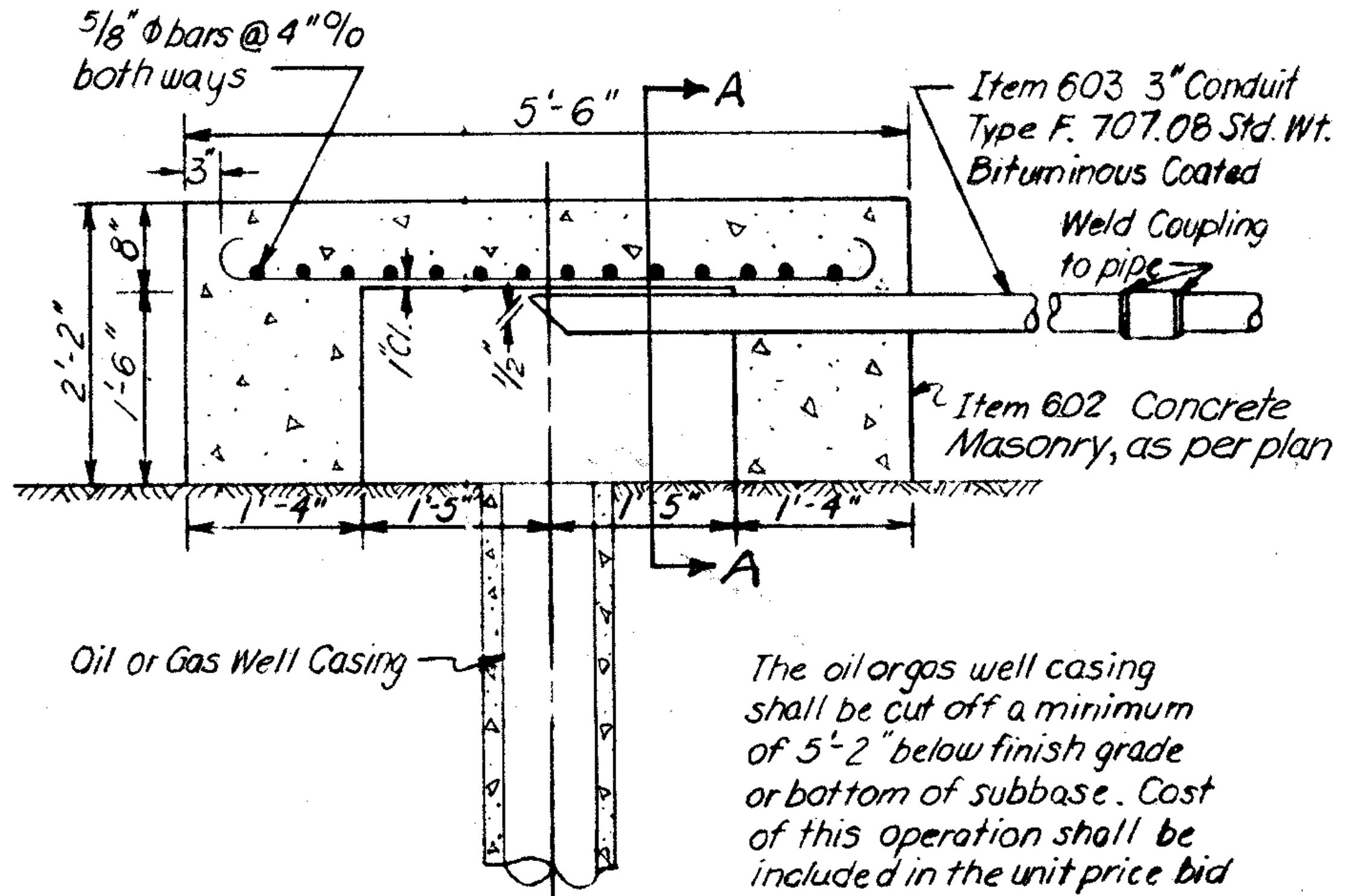
FORM DD A-8

CUYAHOGA COUNTY
CUY - 90 - 10.40

If the vent pipe is adjacent to buildings, the pipe shall extend 14' above the ground line and shall be anchored in a concrete footing 18" in diameter and 36" deep. The pipe shall have a 3/4" hole with a threaded plug 3' above ground line. Concrete shall be paid for as item 602 Concrete Masonry, as per plan.

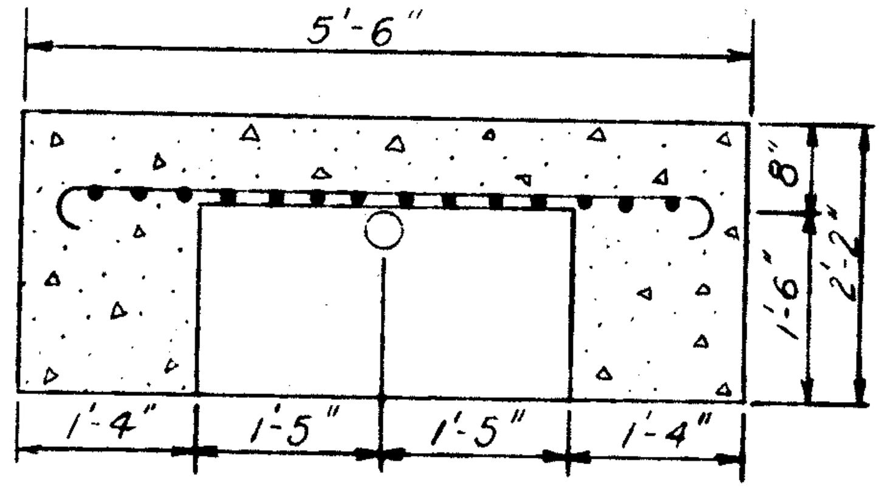


That portion of the pipe above ground shall be primed with one coat of 708.06 and painted with two coats of 708.08 in lieu of the coal tar paint. The pipe opening shall be protected with a wire screen.



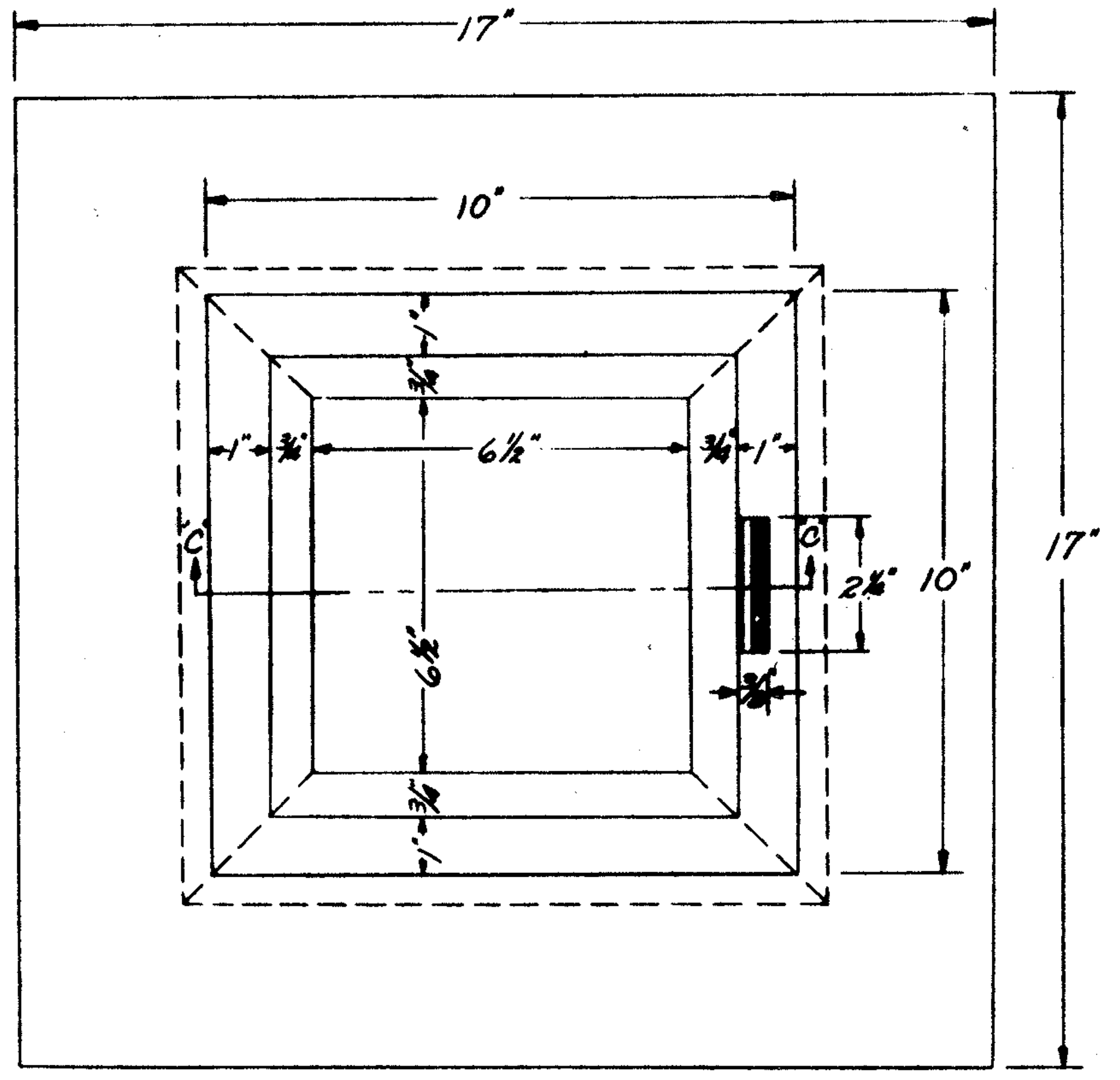
The oil or gas well casing shall be cut off a minimum of 5'-2" below finish grade or bottom of subbase. Cost of this operation shall be included in the unit price bid for item 602 Concrete Masonry as per plan.

This pipe shall be coated with two coats of coal tar pitch paint at 180 sq. ft./gal./coat. Coal tar paint shall be Intertol 66, Kopper Bitumastic 50 or equal.

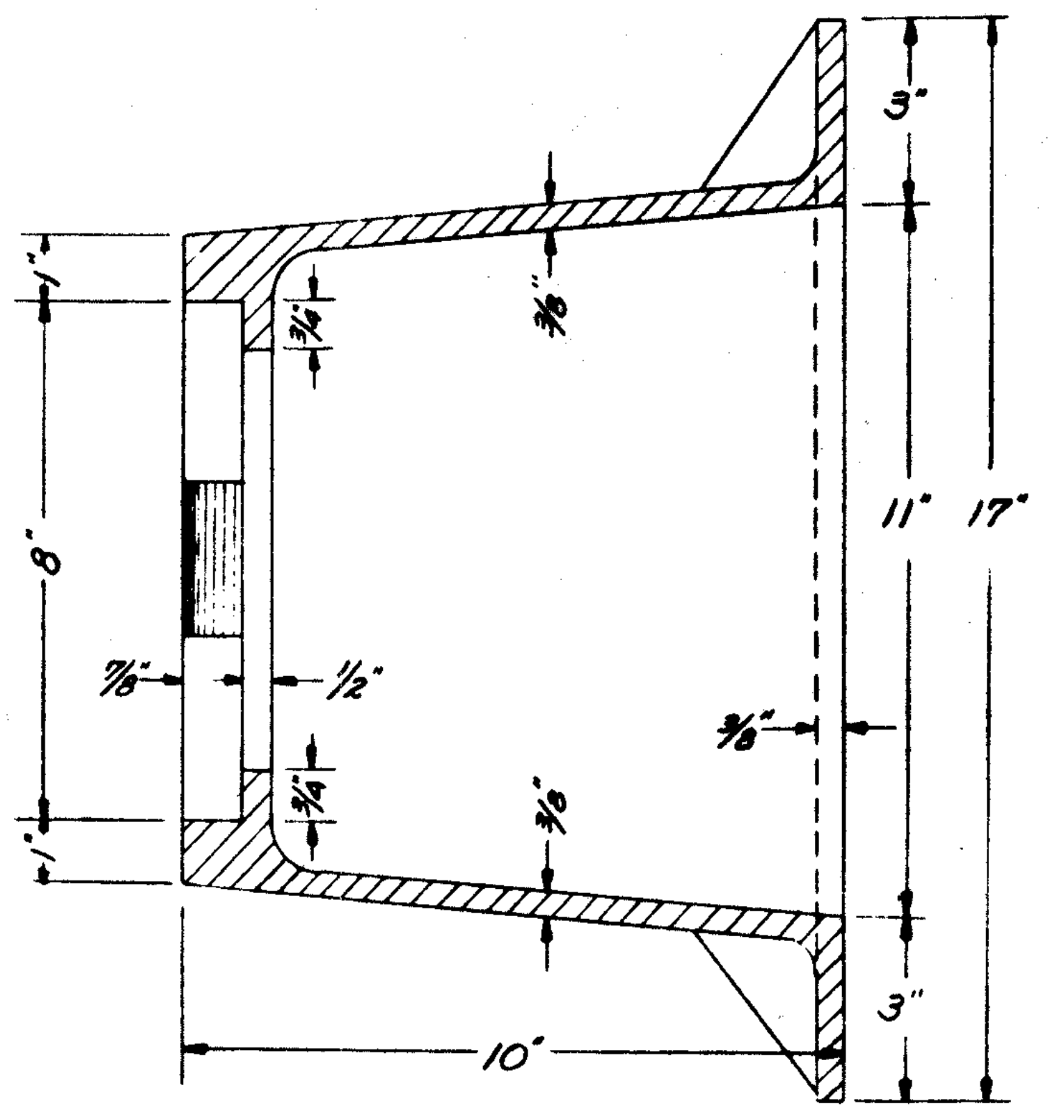


SECTION A - A

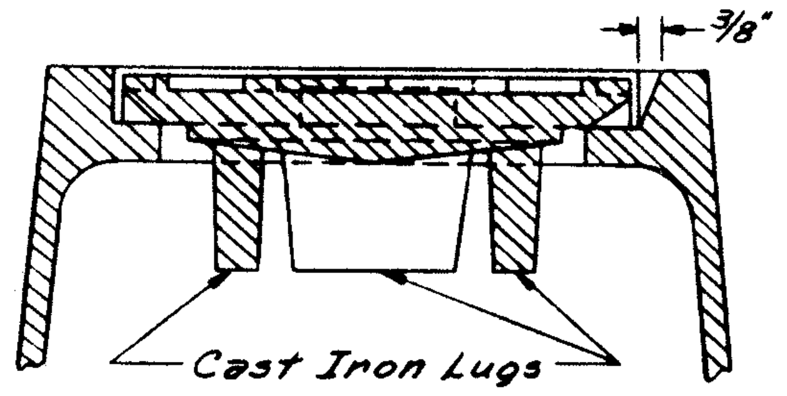
OIL OR GAS WELL VENT DETAIL



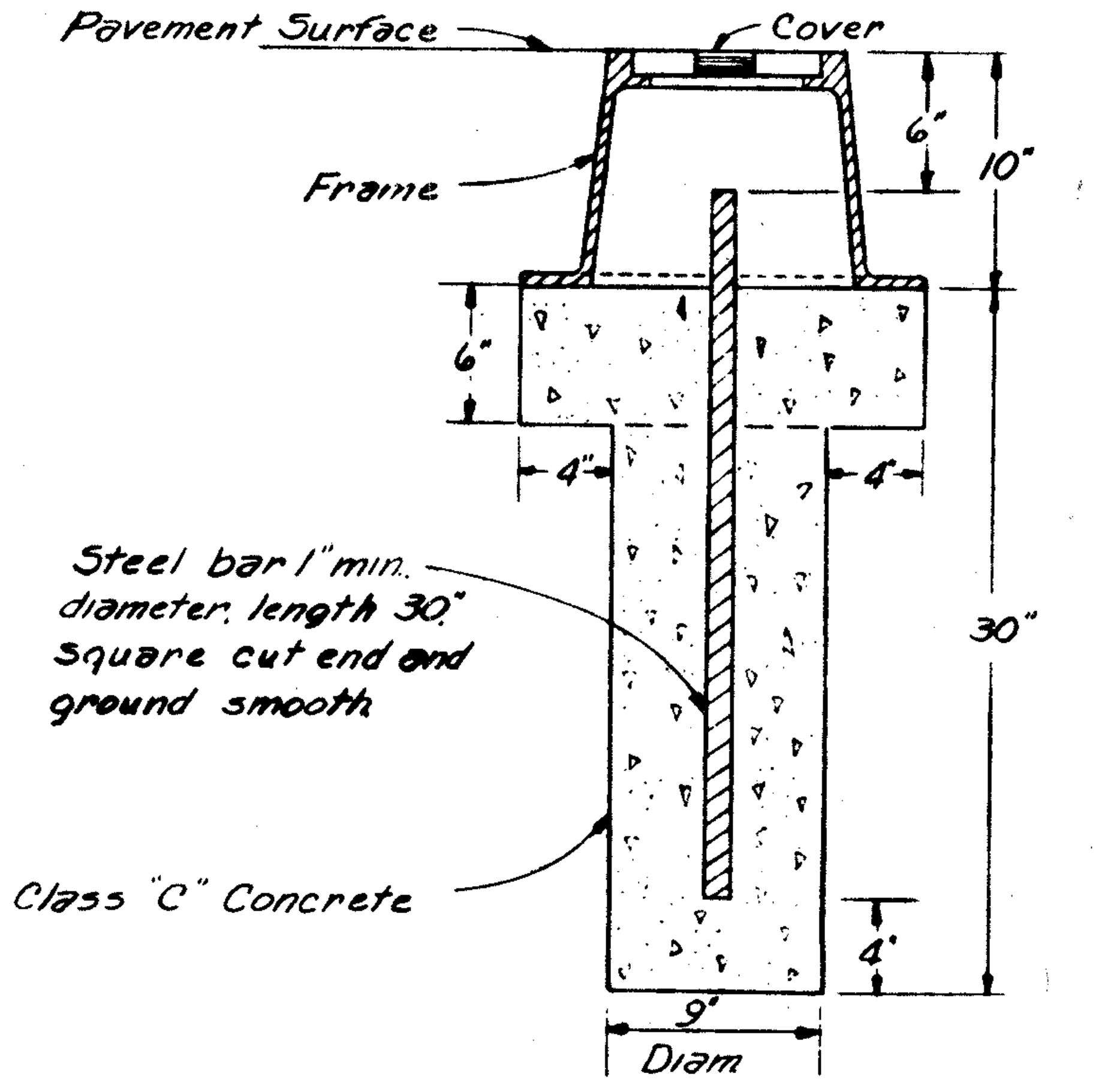
PLAN OF FRAME



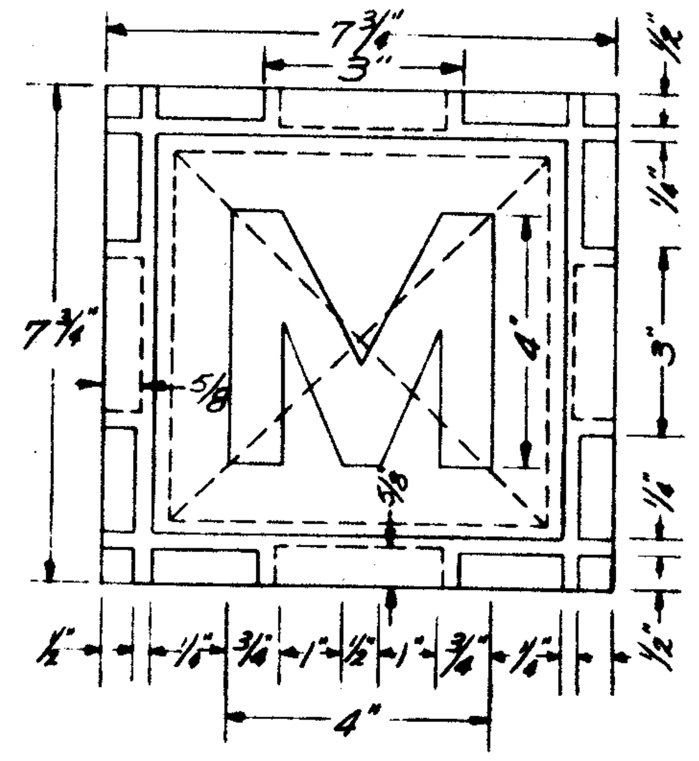
SECTION OF FRAME



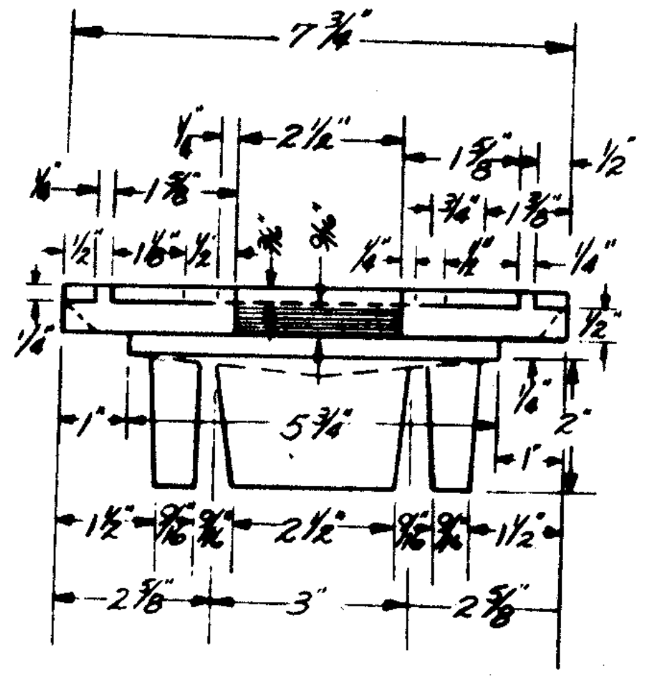
SECTION "C"-"C"
SIDE VIEW OF COVER
LID IN PLACE



MONUMENT ASSEMBLY
Cost of furnishing and placing monument box, steel bar and class "C" concrete included in price bid for 604 Monument Assembly, as per plan.



PLAN OF COVER



SIDE VIEW OF COVER

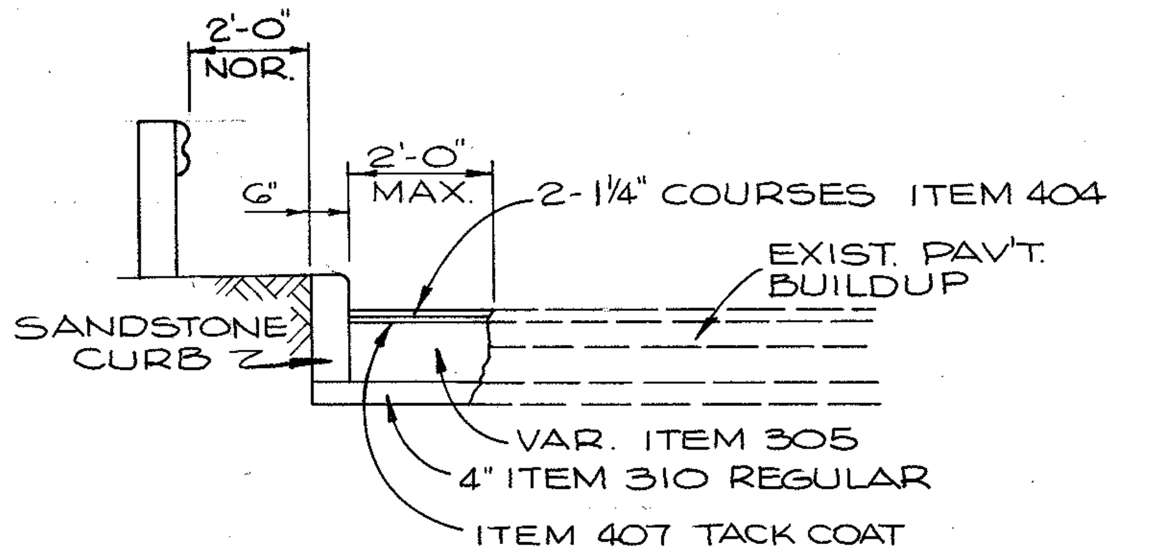
Minimum Weight of Cover - 15 Pounds
Minimum Weight of Frame - 70 Pounds

CITY OF CLEVELAND
MONUMENT ASSEMBLY

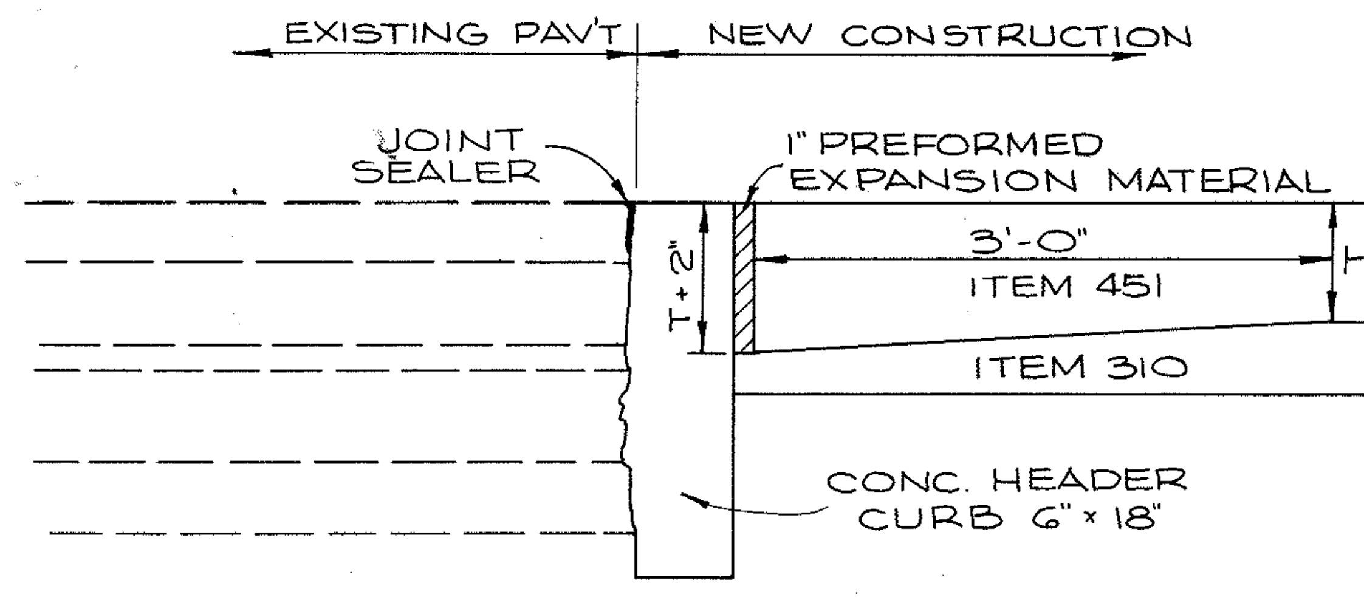
ROADWAY DETAILS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	297 713

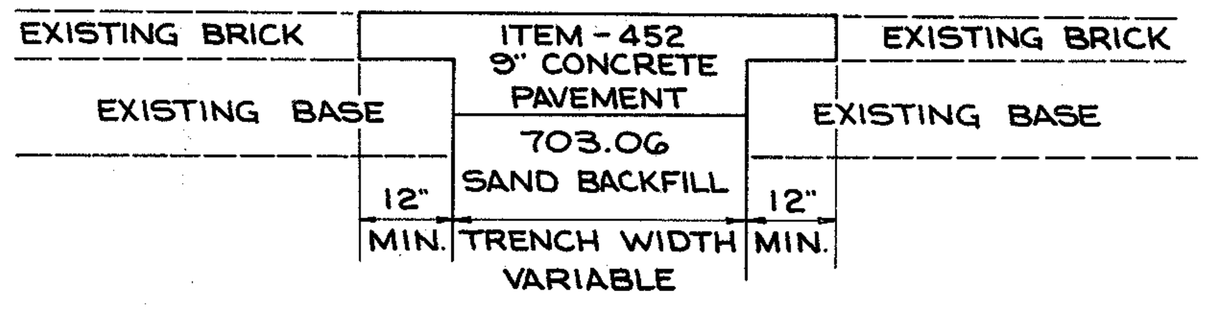
CUYAHOGA COUNTY
CUY-90-10.40



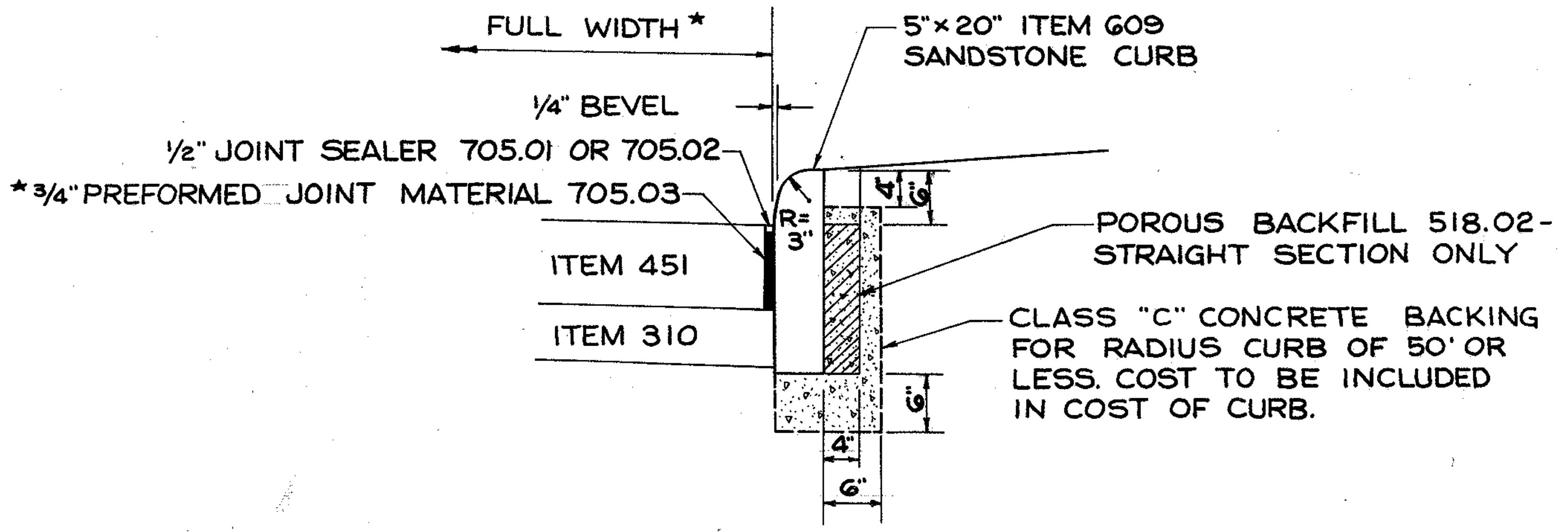
DETAIL OF CURB AT STREET TERMINATION



CONCRETE HEADER CURB DETAIL



TYPICAL SECTION
REPAVING OVER SEWER OR UTILITY TRENCH IN BRICK PAVEMENT.

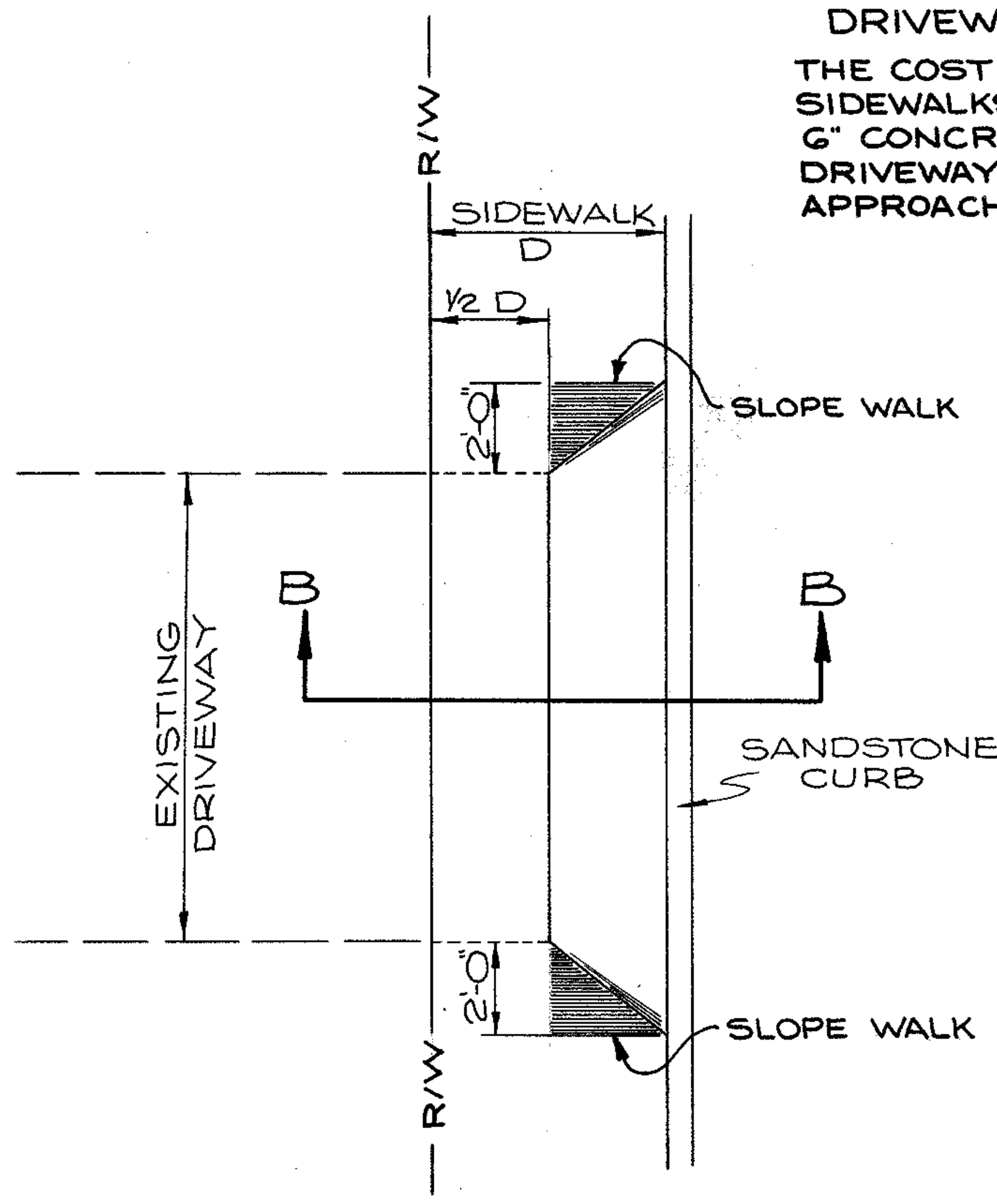


DETAIL OF 609 SANDSTONE CURB

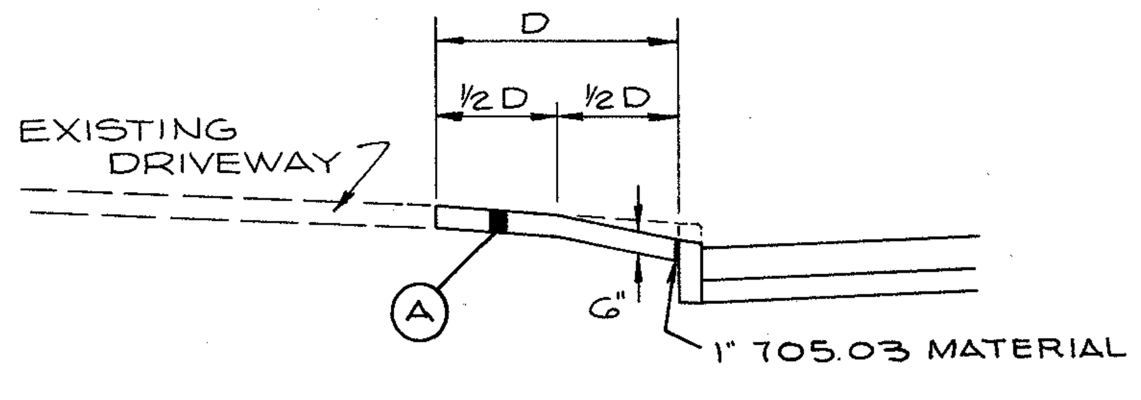
*NOTE: IF THE CURB IS PLACED AFTER THE PAVEMENT, OMIT THE PREFORMED JOINT MATERIAL AND PAVE FULL WIDTH. SEE 609.03(C) FOR JOINT FILLING PROCEDURE.

DRIVEWAYS THROUGH SIDEWALKS

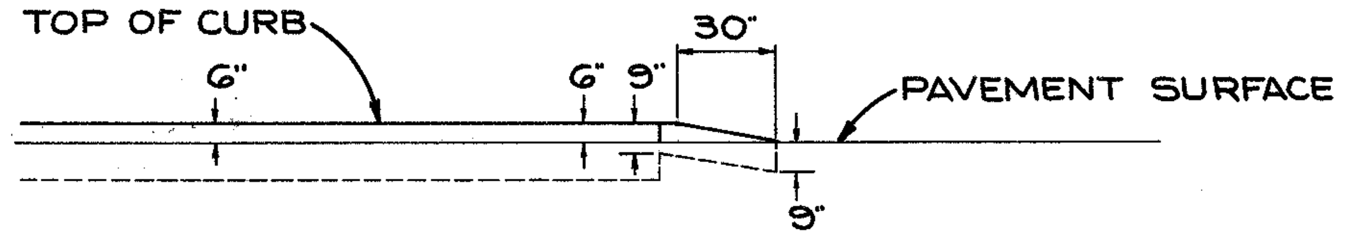
THE COST OF 6" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT IN SIDEWALKS SHALL BE PAID FOR IN THE UNIT BID PRICE FOR ITEM 452 6" CONCRETE PAVEMENT. 6" DEPTH SIDEWALK IS REQUIRED WHERE DRIVEWAYS PASS THROUGH SIDEWALKS AND WHERE DRIVEWAY APPROACHES ARE IN THE SIDEWALKS.



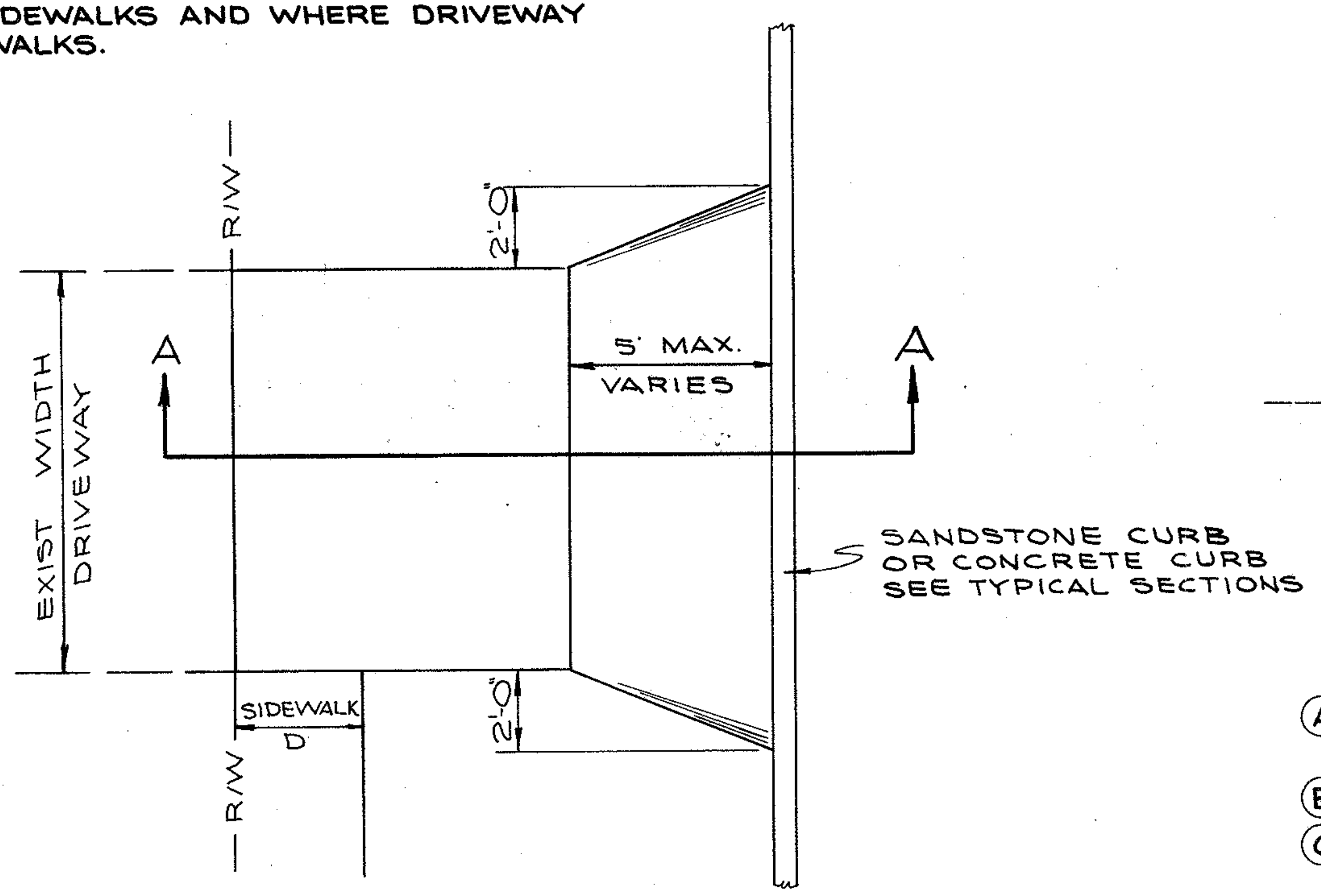
DETAIL OF DRIVEWAY APPROACH IN SIDEWALK



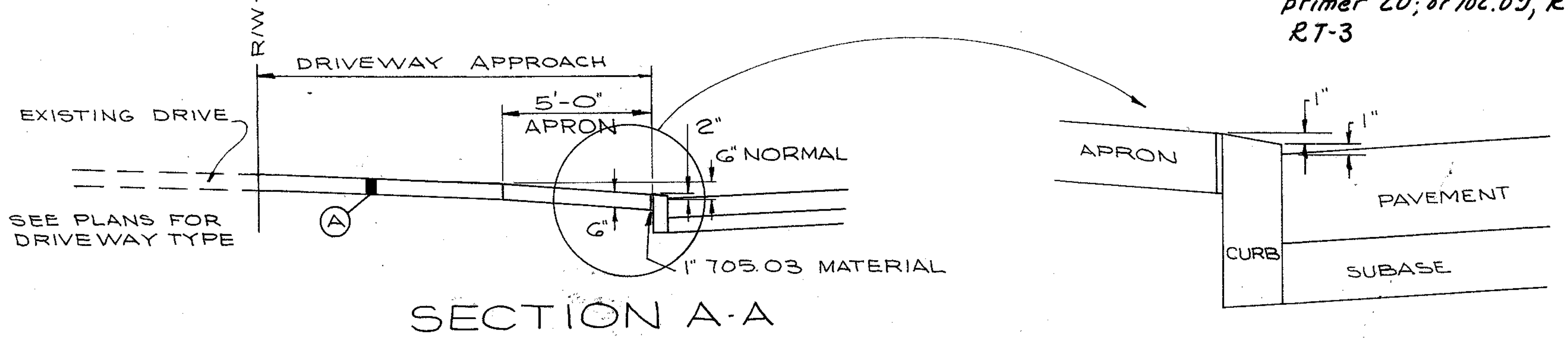
SECTION B-B



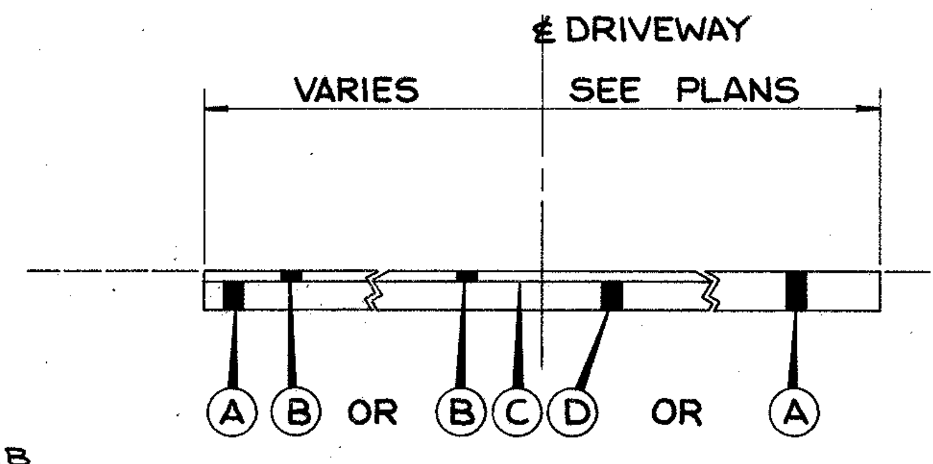
EXIT NOSE PROFILE



DETAIL OF DRIVEWAY APPROACH W/O SIDEWALK



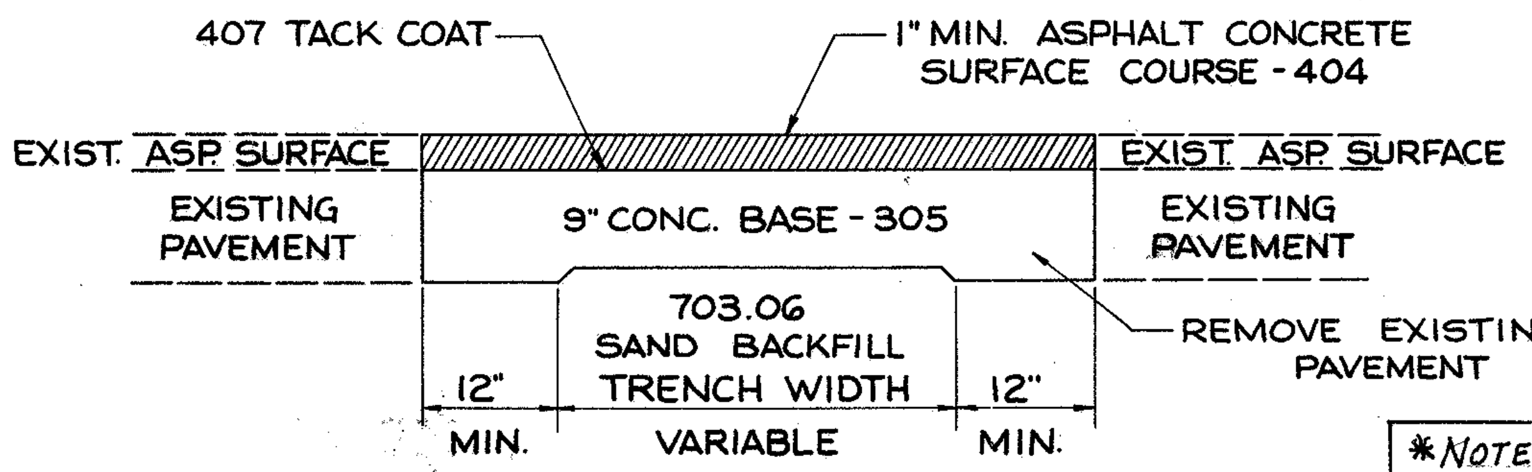
SECTION A-A



DRIVEWAY TYPICAL

Ⓐ	ITEM 452	6" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT
Ⓑ	ITEM 404	2½" ASPHALT CONCRETE AC-20
Ⓒ	ITEM 408	BITUMINOUS PRIME COAT; ★ APPLIED AT 0.40 GAL. PER SQ. YD.
Ⓓ	ITEM 304	AGGREGATE BASE (6" RESIDENTIAL & 8" COMMERCIAL)

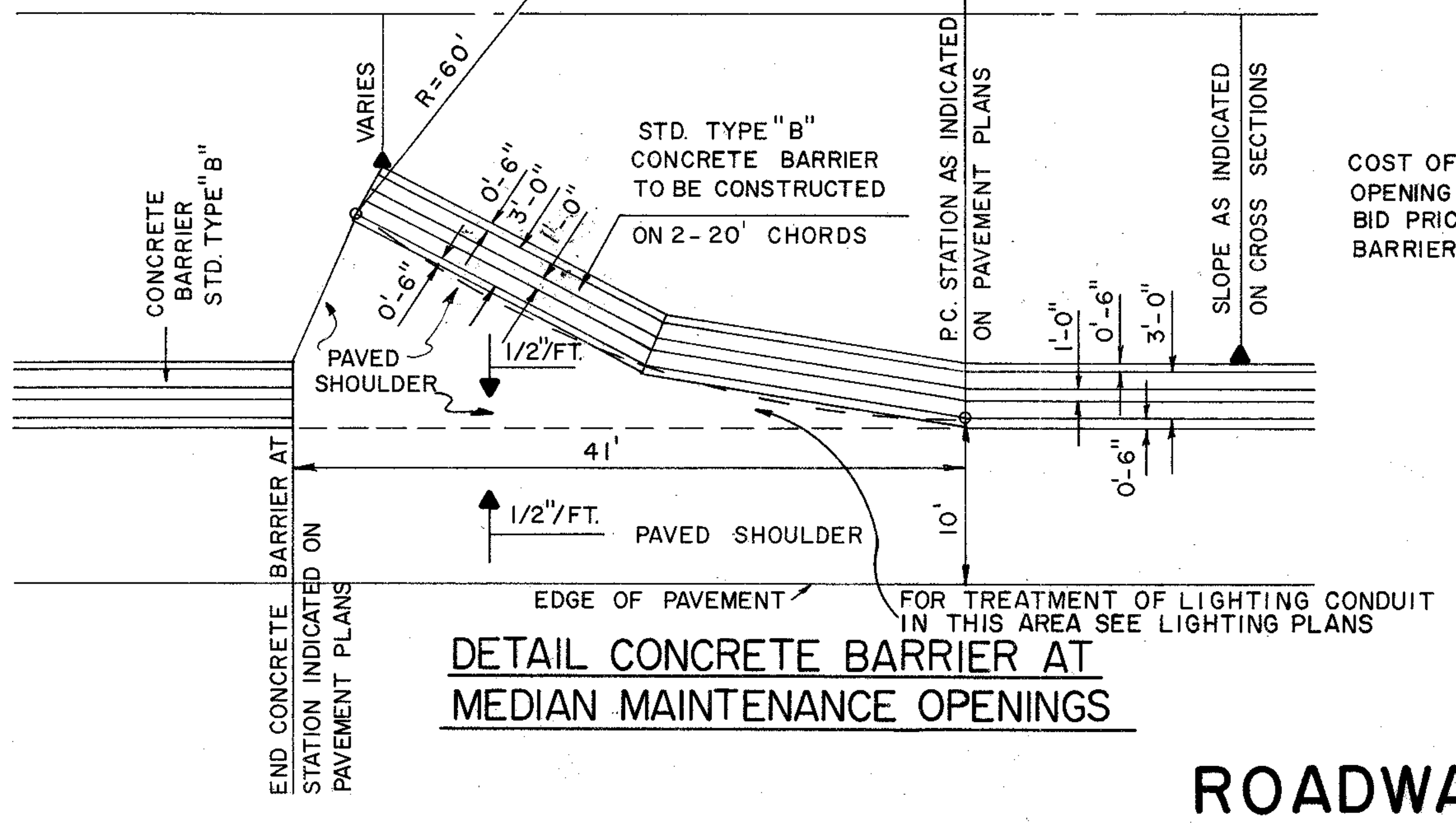
★ 702.02, MC-30 or MC-70; 702.03, primer 20; or 702.09, RT-2 or RT-3



*NOTE:
All Off Street Parking Areas shall consist of 1¼" 404 on 1¼" 402 on 8" 304

TYPICAL SECTION

REPAVING OVER SEWER OR UTILITY TRENCH IN ASPHALT PAVEMENTS*



DETAIL CONCRETE BARRIER AT MEDIAN MAINTENANCE OPENINGS

COST OF CONC. BARRIER MEDIAN MAINTENANCE OPENING SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 622 CONCRETE BARRIER MEDIAN STD. TYPE "B"

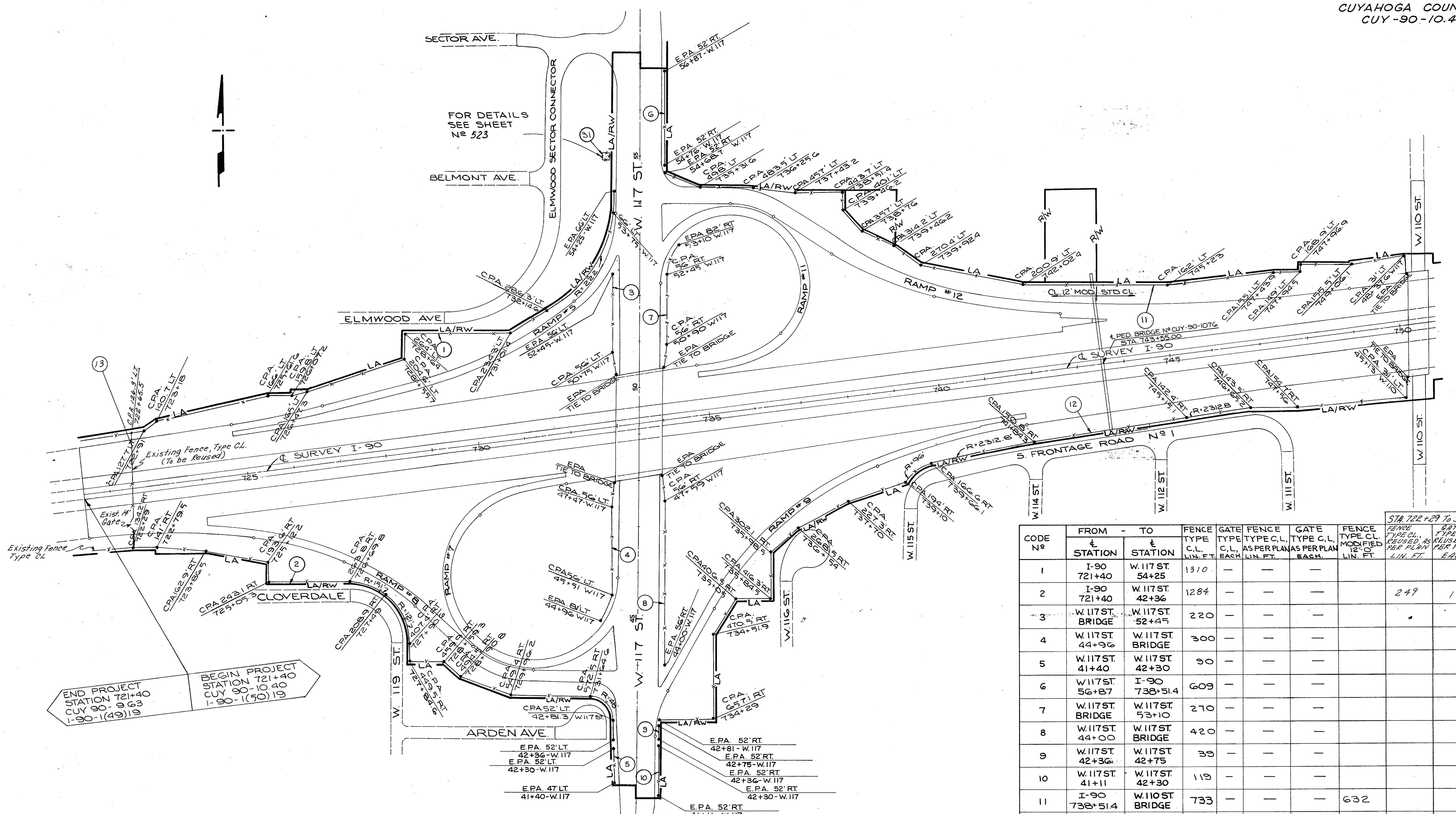
ROADWAY DETAILS

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

299
713

CUYAHOGA COUNTY
CUY-90-10.40



CODE Nº	FROM ℄ STATION	TO ℄ STATION	FENCE TYPE C.L. LIN. FT.	GATE TYPE C.L. EACH	FENCE TYPE C.L. AS PER PLAN LIN. FT.	GATE TYPE C.L. AS PER PLAN EACH.	FENCE TYPE C.L. MODIFIED 12'-0" LIN. FT.	STA. 722+29 To STA. 722+65.5 FENCE TYPE C.L., REUSED, AS PER PLAN LIN. FT.	GATE TYPE C.L., REUSED, AS PER PLAN. EACH	FENCE REMOVED FOR REUSE LIN. FT.	CODE Nº
1	I-90 721+40	W. 117 ST. 54+25	1310	—	—	—					13
2	I-90 721+40	W. 117 ST. 42+36	1284	—	—	—		249	1	263	
3	W. 117 ST. BRIDGE	W. 117 ST. 52+45	220	—	—	—					
4	W. 117 ST. 44+96	W. 117 ST. BRIDGE	300	—	—	—					
5	W. 117 ST. 41+40	W. 117 ST. 42+30	90	—	—	—					
6	W 117 ST. 56+87	I-90 738+51.4	609	—	—	—					
7	W. 117 ST. BRIDGE	W. 117 ST. 53+10	270	—	—	—					
8	W. 117 ST. 44+00	W. 117 ST. BRIDGE	420	—	—	—					
9	W. 117 ST. 42+36	W. 117 ST. 42+75	39	—	—	—					
10	W. 117 ST. 41+11	W. 117 ST. 42+30	119	—	—	—					
11	I-90 738+51.4	W. 110 ST. BRIDGE	733	—	—	—	632				
12	W. 117 ST. 42+81	W. 110 ST. BRIDGE	2048	—	—	—					
31	W. 117 ST. 75' LT. 54+97		—	—	48	1					
SHEET TOTAL			7442	—	48	1	632	249	1	263	
SHEET Nº 300 TOTAL			4525	—	—	—					
SHEET Nº 301 TOTAL			6007	4	96	2					
DEDUCTION FOR FENCE & GATE REUSED			249	1							
GRAND TOTALS			17,725	3	144	3	632	249	1	263	

CALCULATED BY E.H.C. 1-1-72
CHECKED BY N.R.S. 3-1-72

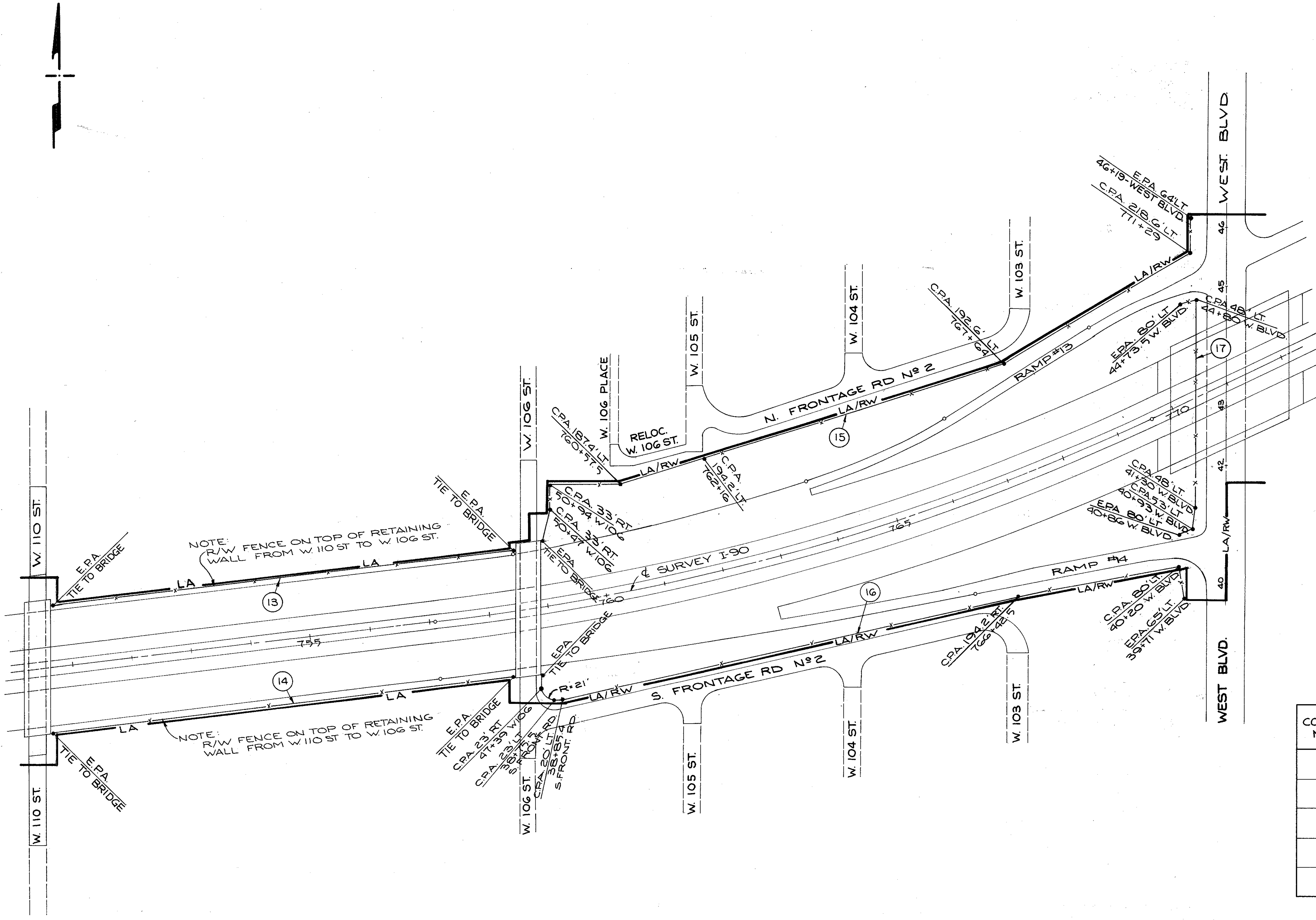
FORM D D A-8

RIGHT-OF-WAY FENCE

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50) 19	

300
713

CUYAHOGA COUNTY
CUY-90-10.40



CODE Nº	FROM - TO		FENCE TYPE CL LIN. FT.	GATE TYPE CL EACH
	℄ STATION	℄ STATION		
13	W. 110 ST. BRIDGE	W. 106 ST. BRIDGE	780	—
14	W. 110ST. BRIDGE	W. 106 ST. BRIDGE	780	—
15	W. 106ST. BRIDGE	WEST BLVD. 46+19	1345	—
16	W. 106ST. BRIDGE	WEST BLVD. 39+71	1180	—
17	WEST BLVD. 40+86	WEST BLVD. 44+73.5	440	—

CALCULATED BY E.H.C. DATE 1-1-72
CHECKED BY N.R.S. DATE 3-1-72

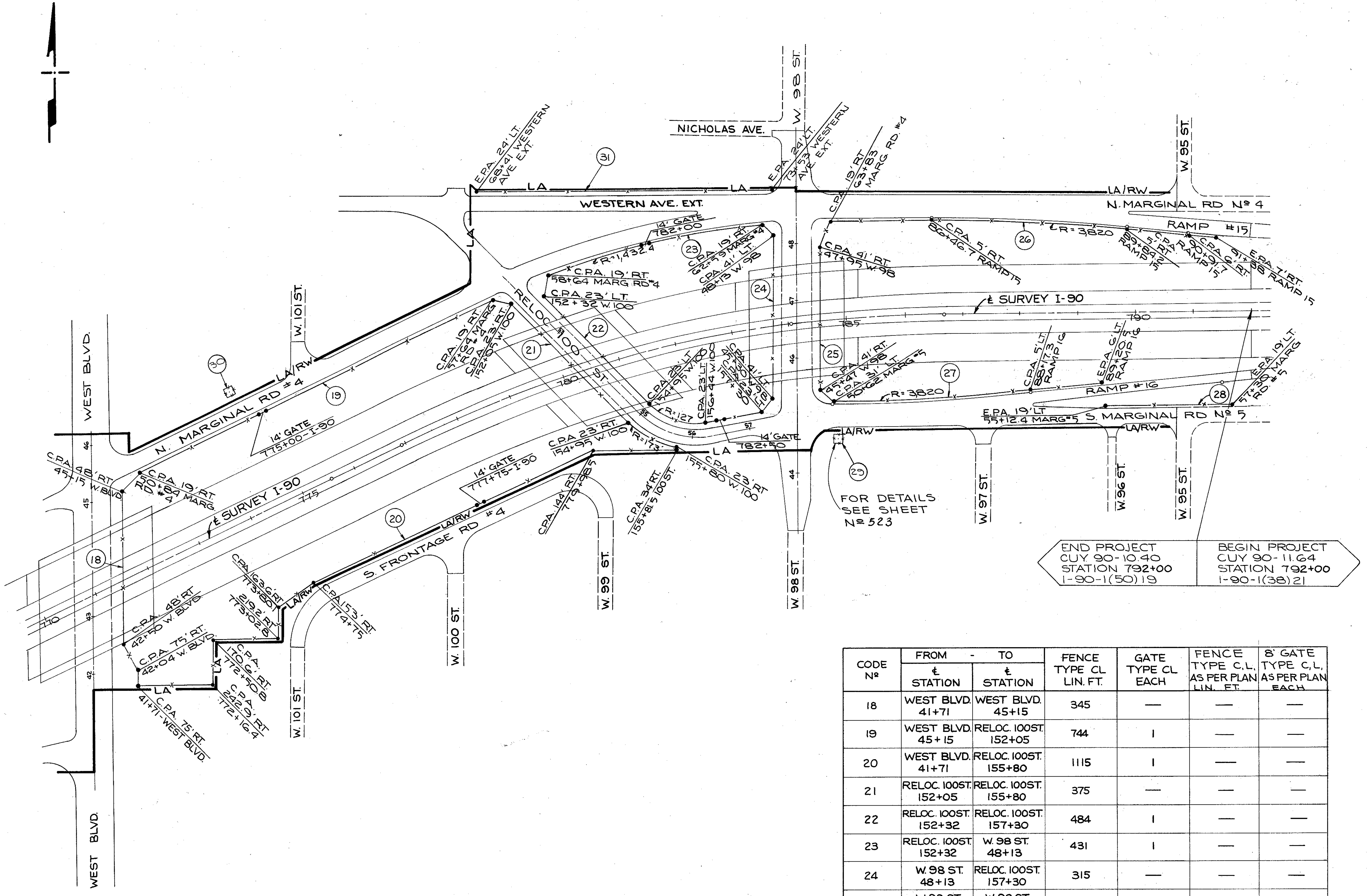
RIGHT-OF-WAY FENCE

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

301
713

CUYAHOGA COUNTY
CUY-90-10.40



CODE Nº	FROM ℄ STATION	TO ℄ STATION	FENCE TYPE CL LIN. FT.	GATE TYPE CL EACH	FENCE TYPE C.L. AS PER PLAN LIN. FT.	8' GATE TYPE C.L. AS PER PLAN EACH
18	WEST BLVD. 41+71	WEST BLVD. 45+15	345	—	—	—
19	WEST BLVD. 45+15	RELOC. 100ST. 152+05	744	1	—	—
20	WEST BLVD. 41+71	RELOC. 100ST. 155+80	1115	1	—	—
21	RELOC. 100ST. 152+05	RELOC. 100ST. 155+80	375	—	—	—
22	RELOC. 100ST. 152+32	RELOC. 100ST. 157+30	484	1	—	—
23	RELOC. 100ST. 152+32	W. 98 ST. 48+13	431	1	—	—
24	W. 98 ST. 48+13	RELOC. 100ST. 157+30	315	—	—	—
25	W. 98 ST. 45+47	W. 98 ST. 47+95	248	—	—	—
26	W. 98 ST. 47+95	RAMP 15 91+38	720	—	—	—
27	W. 98 ST. 45+47	RAMP 16 89+20.5	500	—	—	—
28	MARG #5 55+12.4	MARG #5 57+30	218	—	—	—
29	35' RT. MARG #5 50+70		—	—	48	1
30	37' LT. MARG #4 52+80		—	—	48	1
31	WESTERN EXT. 68+41	WESTERN EXT. 73+53	512	—	—	—

CALCULATED BY E.H.C. DATE 1-1-72
CHECKED BY N.R.S. DATE 3-1-72

RIGHT-OF-WAY FENCE

FORM D D A-8

QUANTITY SUMMARY

WATERWORK

FED.RD.	STATE	PROJECT
2	OHIO	

302
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

1
54

TYPE CODE Y060

SHEET NUMBER

I-90-1(50)19

304			314		316	317	318	319	320	321	322	323	325	327	328	329	330	331	332		334	335	336	337	338	339	340	341	342	344	345	346	347	348	ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION
								28																					13						SPECIAL	41	L.F.	4" WATER MAIN CAST IRON PIPE ANSI CLASS 24 AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
						8		24		8	5	13	33	89		10	22	9			8	10	10			20		27		20	16	25	15	26	SPECIAL	398	L.F.	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25 AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
											300	93	13			522	503	456	289		279		10	284		646	253	310	262	698	487	450	582	488	SPECIAL	6925	L.F.	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
																											7								SPECIAL	7	L.F.	10" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
													815	689								83				28	271	23	307	598					SPECIAL	2814	L.F.	12" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
																							80												SPECIAL	80	L.F.	16" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
										300				61								70													SPECIAL	431	L.F.	12" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 6 WITH BOLTLESS RESTRAINED PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
																							74												SPECIAL	74	L.F.	16" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 6 WITH BOLTLESS RESTRAINED PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.
														241								227													SPECIAL	468	L.F.	12" WATER MAIN GALVANIZED EXTRA STRONG WELDED STEEL PIPE ASTM A-120 (12.75"O.D.x0.50"WALL THICKNESS)INCLUDING FITTINGS, COUPLINGS,SUPPORT ASSEMBLIES, INSULATION, AND APPURTENANCES COMPLETE.
																							235												SPECIAL	235	L.F.	16" WATER MAIN GALVANIZED EXTRA STRONG WELDED STEEL PIPE ASTM A-53, GRADE B, (16.00"O.D.x0.50" WALL THICKNESS)INCLUDING FITTINGS, COUPLINGS, SUPPORT ASSEMBLIES, INSULATION, AND APPURTENANCES COMPLETE.
																									567										SPECIAL	567	LIN.FT.	36" PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS A.W.W.A. C-301-72
																									2										SPECIAL	2	EACH	36" EXTRA CONCRETE PRESSURE PIPE FITTINGS
																									2										SPECIAL	2	EACH	30" VALVE WITH VICTAULIC ENDS, WITH 4" BY PASS GATE VALVE AND NO. 2 VALVE BOX
																									2										SPECIAL	2	EACH	VALVE CHAMBER FOR 30" VALVE
																									4										SPECIAL	4	EACH	ACCESS MANHOLE AND ANCHORAGE TYPE "A"
																									1										SPECIAL	1	EACH	DRAIN VAULT
															1																				SPECIAL	1	EACH	3" METER VAULT
															1																				SPECIAL	1	EACH	2" METER AND 6" FIRE SERVICE VAULT
																						1	1		3										SPECIAL	5	EACH	2" AIR COCK, COMPLETE AND NO. 7 VALVE BOX
																									2										SPECIAL	2	EACH	4" DRAIN, COMPLETE
											1	1	3	3		1	1	1								1									SPECIAL	12	EACH	6" GATE VALVE (HUB) AND NO. 2 VALVE BOX
																						1						2		2	1		2	3	SPECIAL	11	EACH	6" GATE VALVE (HUB) AND NO. 3 VALVE BOX
											2	1				3	4	3	1		1		1	2		6	1	3	1	2	3	3	2	6	SPECIAL	45	EACH	8" GATE VALVE (HUB) AND NO. 3 VALVE BOX
													2	2								2				2	1	2		2					SPECIAL	13	EACH	12" GATE VALVE (HUB) AND NO. 4 VALVE BOX
																							2												SPECIAL	2	EACH	16" GATE VALVE (HUB) AND NO. 4 VALVE BOX
															LUMP								LUMP												SPECIAL	Lump	LUMP	STRUCTURE REMOVED
										2		2	2			1	2	1	1				2	1		2		1		2	1	1		4	SPECIAL	25	EACH	6" CUTTING-IN VALVE, COMPLETE AND NO. 3 VALVE BOX
																														1	1				SPECIAL	2	EACH	8" CUTTING-IN VALVE, COMPLETE AND NO. 3 VALVE BOX
																						1					1		1	2					SPECIAL	5	EACH	10" CUTTING-IN VALVE, COMPLETE AND NO. 4 VALVE BOX
													1	2																					SPECIAL	3	EACH	12" CUTTING-IN VALVE, COMPLETE AND NO. 4 VALVE BOX
																							2												SPECIAL	2	EACH	16" CUTTING-IN VALVE, COMPLETE AND NO. 4 VALVE BOX
										1	1	1	2	2		1	1	1	1		1	1	1	1	2	1	1	1	1	3	1	1	1	2	SPECIAL	29	EACH	FLUSHING CONNECTIONS
						1				/											1		2												SPECIAL	5	EACH	6" X 6" TAPPING SLEEVE AND 6" TAPPING VALVE AND NO. 2 VALVE BOX
																																1	1		SPECIAL	2	EACH	8" X 8" TAPPING SLEEVE AND 8" TAPPING VALVE AND NO. 3 VALVE BOX
																																1			SPECIAL	1	EACH	8" X 6" TAPPING SLEEVE AND 6" TAPPING VALVE AND NO. 3 VALVE BOX
																													1						SPECIAL	1	EACH	10" X 10" TAPPING SLEEVE AND 10" TAPPING VALVE AND NO. 4 VALVE BOX
													1																						SPECIAL	1	EACH	12" X 12" TAPPING SLEEVE AND 12" TAPPING VALVE AND NO. 4 VALVE BOX
								5																					1						SPECIAL	6	EACH	4" FIRE HYDRANT, REMOVED AND RESET
								1					1	3								1													SPECIAL	6	EACH	6" FIRE HYDRANT, REMOVED AND RESET
									2	/											/														SPECIAL	4	EACH	FIRE HYDRANT REMOVED
										/	1	1	2			1	1	1			1		2			1		2		2	1	1	2	3	SPECIAL	23	EACH	FURNISHING AND SETTING 6" FIRE HYDRANT
			1		8	2		2	10																							1	1		SPECIAL	25	EACH	VALVE BOX REMOVED
			6		32	6	15	13	31																										SPECIAL	103	EACH	CURB COCK VALVE BOX REMOVED
					9	4		11	7							1																			SPECIAL	32	EACH	ADJUST VALVE BOX TO GRADE
																			/					/				/		/			/		SPECIAL	5	EACH	6"x6" TAPPING SLEEVE AND 6" TAPPING VALVE AND Nº 3 VALVE BOX
					2	8	4		6																										SPECIAL	20	EACH	ADJUST CURB COCK BOX TO GRADE
									1						1																				604	2	EACH	ADJUST MANHOLE (METER VAULT) TO GRADE
									1																										SPECIAL	1	EACH	ADJUST AIR COCK BOX TO GRADE
																																1	1		SPECIAL	2	EACH	PLUGGING EXISTING 4" WATER MAIN AND BRANCH
			2			2			2				1	2																		3	2		SPECIAL	14	EACH	PLUGGING EXISTING 6" WATER MAIN AND BRANCH
			6		32	6	14	13	31																										SPECIAL	102	EACH	PLUGGING SERVICE CONNECTION 3/4"
							1																												SPECIAL	1	EACH	PLUGGING SERVICE CONNECTION 2"
			1		20		2	4	9																										SPECIAL	36	EACH	SERVICE CONNECTION EXTENDED 3/4"
					1																														SPECIAL	1	EACH	SERVICE CONNECTION EXTENDED 1"
					2																														SPECIAL	2	EACH	SERVICE CONNECTION EXTENDED 2"
										1		1	1											1		1									SPECIAL	5	EACH	RELOCATE, RETAP AND RECONNECT SERVICE CONNECT.,3/4"
																							1												SPECIAL	1	EACH	RELOCATE, RETAP AND RECONNECT SERVICE CONNECT.,2"
4																																			SPECIAL	4	MFB	SHEETING AND BRACING LEFT IN PLACE

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APPROVED JANUARY-4-1974
Raymond Kudukis
DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER, DIVISION OF UTILITIES ENGINEERING

William J. Sweeny
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK SUMMARY OF QUANTITIES & INDEX

DRAWN W.R.S. SCALE
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

303
713

2
54

WATERWORK NOTES

SCOPE OF WORK

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING OF CAST IRON PIPE, CAST IRON CEMENT LINED PIPE, DUCTILE IRON CEMENT LINED PIPE, GALVANIZED EXTRA-STRONG WELDED STEEL PIPE, AND PRESTRESSED CONCRETE CYLINDER PIPE, WITH ALL APPURTENANCES, COMPLETE IN ALL DETAILS, TESTED AND READY FOR OPERATION. THE CONTRACTOR SHALL DO ALL THE WORK AND FURNISH ALL THE LABOR AND MATERIALS NECESSARY FOR THE PROPER AND FINAL COMPLETION OF THIS CONTRACT IN THE MANNER AND UNDER THE CONDITIONS HEREIN SPECIFIED AND PROVIDED, AND IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

DEFINITIONS

WHEREVER IN THESE SPECIFICATIONS OR IN OTHER CONTRACT DOCUMENTS THE FOLLOWING TERMS OR PRONOUNS IN PLACE OF THEM ARE USED, THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE STATE

THE STATE IS THE STATE OF OHIO ACTING THROUGH ITS AUTHORIZED REPRESENTATIVE.

ENGINEER

THE ENGINEER IS DIVISION DEPUTY DIRECTOR OR DIVISION ENGINEER, THE DIVISION CONSTRUCTION ENGINEER OR THE DIVISION MAINTENANCE ENGINEER OR THE PROJECT ENGINEER ASSIGNED TO ADMINISTER THE CONTRACT.

THE CITY

THE CITY IS THE DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND.

STATUS OF CITY INSPECTOR

INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES SHALL BE AUTHORIZED TO INSPECT ALL WORK DONE AND MATERIALS FURNISHED. SUCH INSPECTION MAY EXTEND TO ALL OR ANY PART OF THE WATERWORKS, AND TO THE PREPARATION OR MANUFACTURE OF THE MATERIALS TO BE USED IN THE WATERWORKS. THE CITY INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES SHALL MAKE WORK INSTRUCTIONS THROUGH THE PROJECT ENGINEER.

ACCESS TO WORK AND PLACE OF MANUFACTURE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES, AT LEAST SEVEN (7) DAYS PRIOR TO THE COMMENCEMENT OF THE MANUFACTURE OF ANY MATERIALS, OF THE TIME AND PLACE WHERE THE MANUFACTURE IS TO COMMENCE, IN ORDER THAT A REPRESENTATIVE OF THE ENGINEER AND DIRECTOR MAY BE PRESENT TO INSPECT THE MANUFACTURE. THE CONTRACTOR SHALL PROVIDE, WITHOUT CHARGE OR EXPENSE TO THE STATE AND CITY, ALL NECESSARY ASSISTANCE TO THE ENGINEER AND DIRECTOR WHEN REQUIRED FOR INSPECTION OR VERIFICATION OF WORK DONE.

DIMENSIONS, DETAILED DRAWINGS & ELEVATIONS

(A) - FIGURED DIMENSIONS ON DRAWINGS SHALL TAKE PRECEDENCE OVER MEASUREMENTS BY SCALE, AND DETAILED DRAWINGS ARE TO TAKE PRECEDENCE OVER GENERAL DRAWINGS AND SHALL BE CONSIDERED AS EXPLANATORY OF THEM AND NOT AS INDICATING EXTRA WORK. IF, HOWEVER, ANY OF THE DETAILED DRAWINGS SHOW MORE ELABORATE OR EXPENSIVE WORK THAN IS SPECIFIED AND INDICATED BY THE CONTRACT DRAWINGS, NOTICE THEREOF MUST BE GIVEN TO THE ENGINEER BY THE CONTRACTOR WITHIN TEN (10) DAYS AFTER THE RECEIPT OF SUCH DETAILED DRAWINGS IN ORDER THAT THE DRAWINGS MAY BE AMENDED OR THE ADDITIONAL EXPENSE ON ACCOUNT OF SUCH WORK MAY BE ADJUSTED AND AUTHORIZED. IF THE ENGINEER DOES NOT RECEIVE SUCH NOTICE FROM THE CONTRACTOR WITHIN TEN (10) DAYS AFTER DETAILED DRAWINGS HAVE BEEN RECEIVED BY HIM, IT IS HEREBY AGREED THAT THE CONTRACTOR ACCEPTS THE DRAWINGS AND WILL EXECUTE THEM WITHOUT CLAIM FOR EXTRA COMPENSATION.

FLOODS & FREEZING WEATHER

PROPER FACILITIES SHALL BE PROVIDED FOR PROTECTING THE WORK FROM DAMAGE BY FLOOD, RAIN OR FROST, AND WORK DONE IN FREEZING WEATHER SHALL BE DONE IN SUCH MANNER AS THE ENGINEER MAY APPROVE. VALVES SHALL BE PROTECTED FROM FREEZING UNTIL BACKFILLED IN THE COMPLETED WORK.

ADDITIONAL WORK

(A) - ATTENTION IS CALLED TO THE FACT THAT THE WORK OF THIS CONTRACT INCLUDES CERTAIN PERFORMANCES AS INCIDENTAL TO THE ITEMIZED REQUIREMENTS HEREOF AND, THOUGH NOT EXCLUSIVE, ARE AS FOLLOWS: TO PERFORM ALL EXCAVATION, BACKFILLING, SHEETING, BRACING, TEMPORARY AND FINAL REPAVING AND TO TEST THE INSTALLATION. SAND BACKFILL SHALL BE PLACED UNDER EXISTING AND PROPOSED PAVEMENT AND SIDEWALK. FOR THE PERFORMANCES HEREIN DESCRIBED AND FOR OTHER INCIDENTAL PERFORMANCES OF LIKE NATURE, THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCE, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT.

(B) PRELIMINARY FLUSHING: BEFORE BEING PLACED IN SERVICE ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH HAS BEEN BACKFILLED.

(C) - CHLORINATION: FOLLOWING PRELIMINARY FLUSHING, THE NEWLY LAID WATER PIPE SHALL BE CHLORINATED. THE PROCESS OF CHLORINATING, THE METHOD OF PROCEDURE, THE CHLORINATING AGENT, AND THE RATE OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER. THE CITY WILL FURNISH THE NECESSARY LABOR AND MATERIAL REQUIRED FOR SUCH CHLORINATION AND INSTALL THE NECESSARY TAPS AT THE ENDS OF THE WATER MAIN SECTIONS TO BE CHLORINATED. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR ANY MATERIAL, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER, FOR THE CHLORINATION AND THE SAMPLING OF THE WATER. THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR FOR EXCAVATING AND BACKFILLING WHICH WILL BE REQUIRED FOR THE INSTALLATION OF TAPS FOR INJECTING THE CHLORINE SOLUTION, OPERATING PUMPS AND FLUSHING MAINS.

(D) - FINAL FLUSHING AND TEST: FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE NEWLY LAID PIPE AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER THROUGHOUT ITS LENGTH SHALL, UPON TEST, BOTH CHEMICALLY AND BACTERIOLOGICALLY, BE PROVEN EQUAL TO THE WATER QUALITY SERVED THE PUBLIC FROM THE EXISTING WATER SUPPLY SYSTEM.

(E) - FOR THE PERFORMANCES DESCRIBED IN PARAGRAPHS A,B,C, AND D, THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCES, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF PIPE FURNISHED AND INSTALLED.

MAINTENANCE OF SERVICE AND CONNECTING RELOCATED MAINS

THE CONTRACTOR SHALL FOLLOW STRICTLY THE SEQUENCE OF CONSTRUCTION SHOWN ON THE PLANS. ALL EXISTING FIRE HYDRANT LEADS AND HOUSE SERVICES SHALL BE HAND TUNNELED USING SPECIAL CARE TO AVOID ANY DAMAGE WHICH MIGHT REQUIRE SHUTTING DOWN THE EXISTING MAIN UNTIL THE NEW MAIN IS READY TO BE PLACED IN SERVICE.

WHEN THE NEW MAINS HAVE BEEN TESTED AND CHLORINATED AND ARE READY TO BE CONNECTED TO THE OLD MAIN, THE CONTRACTOR SHALL MAKE SUCH CONNECTIONS AT A TIME DESIGNATED BY THE CITY. PRIOR TO SHUTTING DOWN THE EXISTING MAINS, THE CONTRACTOR SHALL TAKE SUITABLE PRECAUTIONS TO ASSURE A MINIMUM INTERRUPTION TO SERVICE, INCLUDING THE FOLLOWING:

1. PERFORM ALL NECESSARY EXCAVATION, INCLUDING BELL HOLES EXPOSING THE EXISTING MAIN SUFFICIENTLY FOR THE OPERATION OF THE PIPE SAW BY THE CITY.
2. REMOVE THE CAP OR PLUG FROM THE END OF THE NEW MAIN.
3. SWAB THE INSIDE OF ALL PIPES, BENDS AND SLEEVES TO BE USED IN CONNECTION THOROUGHLY WITH A CHLORINE SOLUTION OF AT LEAST 100 P.P.M.
4. MAKE-UP AS MUCH OF THE CONNECTION AS POSSIBLE OUTSIDE THE DITCH TO ELIMINATE THE NEED FOR CAULKING MOST OF THE NECESSARY JOINTS DURING THE SHUTDOWN. BY CAREFUL MEASUREMENT ALL PIPE CUTS CAN BE MADE BY THE CONTRACTOR PRIOR TO SHUTTING DOWN.
5. HAVE SUFFICIENT MANPOWER AND EQUIPMENT ON THE SITE TO PERFORM THE OPERATION IN A MINIMUM OF TIME.

PAINTING

(A) - IT IS THE INTENTION OF THESE SPECIFICATIONS TO PROVIDE THAT ALL METAL WORK SUBJECT TO CORROSION SHALL BE SATISFACTORILY PROTECTED BY A DURABLE COATING OF PAINT OR OTHER APPROVED MATERIAL AND THAT ALL METAL SURFACES NOT BURIED IN EARTH, OR IN CONCRETE, SHALL BE LEFT CLEAN AND WELL PAINTED AT THE COMPLETION OF THE CONTRACT. UNLESS OTHERWISE SPECIFIED, THE PROTECTION SHALL BE AT LEAST THAT GIVEN BY THREE (3) COATS OF APPROVED PAINT. THE FIRST COAT IS TO BE APPLIED AT THE SHOP BEFORE THE METAL HAS RUSTED AND AFTER ALL GREASE, DIRT AND SCALE HAS BEEN REMOVED. BOLTS AND NUTS SHALL NOT BE SHOP COATED, BUT SHALL RECEIVE THREE (3) COATS OF APPROVED PAINT AFTER INSTALLATION.

(B) - ALL METAL WORK WHICH HAS NOT BEEN COATED BEFORE THE ARRIVAL ON THE JOB SHALL BE GIVEN A TEMPORARY PROTECTIVE COATING OF SUCH A NATURE AS TO PERMIT THE READY ADHERENCE OF FUTURE COATINGS. THE TEMPORARY COATING SHALL BE A GOOD GRADE ASPHALTIC PAINT OR OTHER APPROVED MATERIAL. THIS TEMPORARY PROTECTION SHALL APPLY PARTICULARLY TO THE FOLLOWING MATERIAL, AND ELSEWHERE WHEN IN THE OPINION OF THE ENGINEER, SUCH PROTECTION IS NECESSARY.

MANHOLE RINGS AND COVERS
LADDERS AND LADDER RUNGS

DRESSER TYPE COUPLINGS
VICTAULIC TYPE COUPLINGS
VALVE BOXES AND COVERS

(C) - ALL SURFACES OF METAL WHICH WILL BE IN CONTACT AFTER ASSEMBLING SHALL BE PAINTED, AT LEAST ONE COAT, BEFORE ASSEMBLING. THE FINAL COAT OF PAINT ON ALL EXPOSED WORK SHALL BE GIVEN SHORTLY BEFORE THE COMPLETION OF THE CONTRACT.

(D) - WHERE PAINTING CLAUSES APPEAR HEREINAFTER, THEY SHALL TAKE PRECEDENCE OVER THIS SECTION, EXCEPT THAT TEMPORARY PROTECTION HEREIN DESCRIBED MAY BE REQUIRED.

(E) - ALL OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE PARTICULAR ITEM REQUIRING THE PAINTING.

TESTS, INSPECTION AND REPORTS

NOT WITHSTANDING THE REQUIREMENTS OF ANY OTHER PROVISIONS OF THESE SPECIFICATIONS, THE CONTRACTOR SHALL ARRANGE FOR AND PAY ALL COSTS INVOLVED FOR SHOP INSPECTION OF ALL MATERIALS FURNISHED, MANUFACTURE OF ALL PIPE, VALVES, FITTINGS, ETC., FIELD AND SHOP WELDS AND WELDING, AND FURNISH TO THE STATE AND THE CITY COPIES OF ALL SHOP, FABRICATION, MANUFACTURE AND OTHER RELATED INSPECTION REPORTS OF MATERIALS FURNISHED. THIS INSPECTION SHALL BE DONE BY A RECOGNIZED INSPECTION LABORATORY APPROVED BY THE CITY.

IN THE CASE OF ANY ITEM NOT SPECIFICALLY MENTIONED IN THE "WATERWORK NOTES", THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION "CONSTRUCTION AND MATERIAL SPECIFICATIONS - JAN 1, 1975" SHALL GOVERN.

WEIGHTS, MEASURES AND PLANIMETER

(A) - TO AID THE DIRECTOR IN DETERMINING ALL QUANTITIES OF METAL WORK, CAST IRON PIPE WORK AND OTHER MATERIALS TO BE PAID FOR UNDER THE UNIT PRICE ITEMS, THE CONTRACTOR SHALL, WHENEVER SO REQUESTED, PROVIDE SCALES, EQUIPMENT AND ASSISTANCE FOR WEIGHING OR FOR MEASURING ANY OF THE MATERIALS.

(B) - IT IS UNDERSTOOD AND AGREED THAT A "TON" SHALL MEAN THE SHORT TON OF TWO THOUSAND (2,000) POUNDS.

(C) - FOR ESTIMATING QUANTITIES IN WHICH COMPUTATION OF AREAS BY GEOMETRIC METHODS WOULD BE COMPARATIVELY LABORIOUS, IT IS AGREED THAT THE PLANIMETER SHALL BE CONSIDERED AN INSTRUMENT OF PRECISION ADAPTED TO THE MEASUREMENT OF SUCH AREAS.

(D) - WEIGHTS AND MEASURES OF QUANTITY FOR PAYMENT WILL BE THE ACTUAL WEIGHT OR ACTUAL MEASURE, AND NO SPECIAL OR TRADE OR SO-TERMED CUSTOMARY ALLOWANCES WILL BE MADE.

HANDLING PIPE AND ACCESSORIES

(A) - UNLOADING: CAST IRON OR DUCTILE IRON PIPE, FITTINGS, VALVES, HYDRANTS, AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, HAULED TO AND DISTRIBUTED AT THE SITE OF THE PROJECT BY THE CONTRACTOR; THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. IN LOADING AND UNLOADING THEY SHALL BE LIFTED BY HOISTS OR SLID, OR ROLLED ON SKIDWAYS IN SUCH MANNER AS TO AVOID SHOCK. UNDER NO CIRCUMSTANCES SHALL THEY BE DROPPED. PIPE HANDLED ON SKIDWAYS MUST NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ON THE GROUND.

(B) - AT SITE OF WORK: IN DISTRIBUTING THE MATERIAL AT THE SITE OF THE WORK, EACH PIECE SHALL BE UNLOADED OPPOSITE OR NEAR THE PLACE WHERE IT IS TO BE LAID IN THE TRENCH.

(C) - PROTECTION OF PIPE COATING: PIPE SHALL BE HANDLED IN SUCH MANNER THAT A MINIMUM AMOUNT OF DAMAGE TO THE COATING WILL RESULT. ANY CAST IRON OR DUCTILE IRON PIPE OR FITTING, THE COATING OF WHICH HAS BEEN DAMAGED IN SHIPPING OR HANDLING, SHALL HAVE THE DAMAGED PORTION WELL CLEANED AND COVERED WITH AN ASPHALT PAINT, APPROVED BY THE ENGINEER, BEFORE BEING PLACED IN THE WORK. THE CONTRACTOR SHALL THOROUGHLY COAT ALL EXPOSED PARTS OF BOLTS AND NUTS WITH AN APPROVED ASPHALT PAINT AFTER ALL PIPE HAS BEEN LAID AND BEFORE BACKFILLING HAS BEEN PLACED. ALL FIELD COATING SHALL BE FURNISHED BY THE CONTRACTOR.

(D) - PIPE KEPT CLEAN: THE INTERIOR OF THE PIPE, FITTINGS AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.

(E) - FROST PROTECTION: VALVES AND HYDRANTS BEFORE INSTALLATION SHALL BE DRAINED AND STORED IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE BY FREEZING.

CHANGES IN WATER PIPES

(A) - IN SUCH LOCATIONS AS MAY BE INDICATED ON THE CONTRACT DRAWINGS OR AS ORDERED BY THE ENGINEER TO CHANGE THE LOCATION OF HOUSE CONNECTIONS, SUCH CHANGES WILL BE MADE AS WORK TO BE DONE BY THE CITY. THE CONTRACTOR SHALL NOTIFY THE CITY IN AMPLE TIME TO PERMIT THE CITY TO MAKE SUCH CHANGES AND AVOID UNNECESSARY DELAY IN THE COMPLETION OF THE WORK. THE CONTRACTOR SHALL ALSO COOPERATE WITH THE CITY IN MAKING THESE CHANGES AND SHALL DO ALL EXCAVATING, BACKFILLING, SEEDING, SODDING AND REPAVING AS MAY BE REQUIRED. PAYMENT FOR THE WORK PERFORMED BY THE CONTRACTOR WILL BE AT THE UNIT PRICE BID FOR THE APPROPRIATE SERVICE CONNECTIONS. SEE WORK TO BE DONE BY THE CITY.

(B) - WHEREVER IT BECOMES NECESSARY, IN THE OPINION OF THE ENGINEER, TO CHANGE THE LOCATION OR ELEVATION OF WATER MAINS AND HYDRANTS AND WHERE CONNECTIONS ARE TO BE MADE BETWEEN EXISTING DISTRIBUTION MAINS AND WATER MAINS UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING WATER LINE MATERIALS REQUIRED TO MAKE THE CONNECTION, AND SHALL FURNISH AND INSTALL COMPLETE, ALL THE CAST IRON OR DUCTILE IRON PIPE, PRESTRESSED CONCRETE CYLINDER PIPE, FITTINGS AND VALVES TO MAKE THE CONNECTIONS INDICATED, EXCEPT TAPPING SLEEVES AND VALVES WHICH WILL BE INSTALLED BY THE CITY. THE CONTRACTOR SHALL ALSO FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT AND MAKE THE EXCAVATION, BACKFILL AND REPAVING FOR SUCH CONNECTIONS. PAYMENT FOR THIS WILL BE INCLUDED IN PRICE BID UNDER APPROPRIATE ITEM FOR SIZE OF WATER MAIN OR CONNECTION TO BE INSTALLED. ALL PIPES, VALVES AND APPURTENANCES REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR. (SEE WORK TO BE DONE BY THE CITY.)

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
SCALE
CHECKED H.C.S.
DATE
No.

WATERWORK NOTES

WORK TO BE DONE BY THE CITY

(A) - THE CITY WATER DEPARTMENT WILL FURNISH THE PIPING MATERIAL FOR AND MAKE ALL CHANGES REQUIRED, INCLUDING TAPPING; IN THE LOCATION OF EXISTING HOUSE SERVICE CONNECTIONS AND METERS. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR MATERIAL, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER.

(B) - THE CITY WATER DEPARTMENT WILL INSTALL ALL TAPPING SLEEVES AND VALVES, BUT THE CONTRACTOR SHALL SUPPLY THE TAPPING SLEEVES AND VALVES AND LEAD. THE CONTRACTOR SHALL FURNISH ALL AIR COMPRESSORS REQUIRED FOR THE WORK AND DO ALL OTHER WORK NECESSARY FOR THE INSTALLATION. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR THE LABOR AND INSTALLATION COST INCIDENTAL TO THE WORK PERFORMED BY THE CITY OF CLEVELAND DIVISION OF WATER.

(C) - IN LOCATIONS WHERE BRANCH SLEEVES AND VALVES CANNOT BE INSTALLED, THE CONTRACTOR WILL BE REQUIRED TO CUT IN TEES AND SLEEVE-IN THE REMAINDER OF THE CUT SECTION OF THE EXISTING MAIN. TO SPEED UP THIS OPERATION, IT IS CALLED TO THE CONTRACTOR'S ATTENTION THAT THE WATER DEPARTMENT HAS ON HAND AT HARVARD YARDS MOTOR OPERATED PIPE CUTTERS WHICH ARE AVAILABLE FOR CUTTING PIPE BY CITY FORCES AT THE FOLLOWING RATES. THESE PRICES INCLUDE COST OF LABOR, USE OF PIPE CUTTING MACHINE, AND TRUCK. THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, BACKFILLING AND REPAVING AND ALL AIR COMPRESSOR EQUIPMENT SHALL BE FURNISHED BY THE CONTRACTOR.

SIZE OF PIPE	COST PER CUT
6", 8", 12" & 16"	$30.00

EXCAVATION

(A) - THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, ROADWAYS, DRIVEWAYS AND OTHER SIMILAR MATERIALS AND MAKE TO THE LINES AND GRADES GIVEN, ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN, PIPE CONNECTIONS AND APPURTENANT STRUCTURES, INCLUDING TUNNEL AND SHAFT EXCAVATION. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINING, SHEETING AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES OR CONDITIONS FORESEEN OR UNFORESEEN AND ENCOUNTERED IN THE WORK OF THIS CONTRACT.

(B) - TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF REFILL UNDER AND AROUND PIPES, AND SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND BRACING, PUMPING AND DRAINING AS MAY BE NECESSARY.

(C) - THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.

(D) - THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED, BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY AND OF THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEETED TRENCH SHALL BE EIGHTEEN (18) INCHES AND FOR PIPE TEN (10) INCHES OR LARGER, AT LEAST TWELVE (12) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR CONCRETE PIPE AND EIGHTEEN (18) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR CAST IRON AND STEEL PIPE. EXCEPT BY CONSENT OF THE ENGINEER, THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL BE NOT MORE THAN TWO (2) FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.

(E) - THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID. THE PIPE SHALL BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

(F) - ANY PART OF THE TRENCH EXCAVATED BELOW GRADE SHALL BE CORRECTED WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(G) - WHEN THE UNCOVERED TRENCH BOTTOM AT SUBGRADE IS SOFT AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, A FURTHER DEPTH AND/OR WIDTH SHALL BE EXCAVATED AND REFILLED TO PIPE FOUNDATION GRADE AS REQUIRED UNDER (F), OR OTHER APPROVED MEANS SHALL BE ADOPTED TO ASSURE A FIRM FOUNDATION FOR THE PIPE.

(H) - LEDGE ROCK, BOULDERS, LARGE STONES, AND SHALE SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST SIX (6) INCHES BELOW ALL PARTS OF THE PIPE, VALVES, OR FITTINGS, AND TO A CLEAR WIDTH OF SIX (6) INCHES ON EACH SIDE OF ALL CONCRETE PIPE AND NINE (9) INCHES ON EACH SIDE OF ALL CAST IRON AND STEEL PIPE.

(I) - EXCAVATION BELOW SUBGRADE IN ROCK, SHALE OR IN BOULDERS SHALL BE REFILLED TO SUBGRADE WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(J) - BELL HOLES OF AMPLE DIMENSIONS SHALL BE DUG IN EARTH TRENCHES AT EACH JOINT TO PERMIT THE JOINTING TO BE MADE PROPERLY. ADEQUATE CLEARANCE FOR PROPERLY JOINTING PIPE LAID IN ROCK SHALL BE PROVIDED AT BELL HOLES.

(K) - THE USE OF EXCAVATING MACHINERY WILL BE PERMITTED EXCEPT IN PLACES WHERE OPERATION OF SAME WILL CAUSE DAMAGE TO TREES, BUILDINGS, OR EXISTING STRUCTURES ABOVE OR BELOW GROUND; IN WHICH CASE HAND METHODS SHALL BE EMPLOYED.

(L) - TREES, FENCES, POLES AND ALL OTHER PROPERTY SHALL BE PROTECTED UNLESS THEIR REMOVAL IS AUTHORIZED. ANY PROPERTY DAMAGED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.

(M) - HYDRANTS UNDER PRESSURE, VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES, FIRE OR POLICE CALL BOXES, OR OTHER UTILITY CONTROLS SHALL BE LEFT UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIOD.

(N) - THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATIONS IN GOOD ORDER DURING THE CONSTRUCTION, SO AS NOT TO HINDER OR INJURE THE PIPE LAYING, MASONRY OR OTHER WORK, HE SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT MOVEMENT OF THE SIDES OF SUCH EXCAVATION, AND SHALL REMOVE AT HIS OWN EXPENSE ANY MATERIAL SLIDING INTO THE EXCAVATION.

SHEETING AND BRACING

(A) - THE CONTRACTOR SHALL FURNISH AND PUT IN PLACE SUCH SHEETING AND BRACING AS MAY BE REQUIRED TO SUPPORT THE SIDES OF TRENCHES OR OTHER EXCAVATION AND SHALL REMOVE SUCH SHEETINGS AND BRACINGS, AS THE TRENCH OR EXCAVATION IS FILLED UP, UNLESS THE ENGINEER SHALL ORDER IT LEFT IN PLACE, IN WHICH CASE THE CONTRACTOR SHALL CUT THE PLANK OFF AT A HEIGHT AS ORDERED BY THE ENGINEER, OR AS CALLED FOR ON THE CONTRACT DRAWINGS. THAT PORTION OF THE TIMBER ORDERED TO BE LEFT IN PLACE WILL BE PAID FOR AT THE UNIT PRICE BID PER THOUSAND FEET BOARD MEASURE. NO PAYMENT WILL BE MADE FOR WASTED ENDS.

A QUANTITY OF 4 MBF HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR SHEETING AND BRACING LEFT IN PLACE.

(B) - WHENEVER THE EXCAVATIONS FOR THE WORK HEREIN TO BE DONE ARE IMMEDIATELY ADJACENT TO OTHER SUBSURFACE STRUCTURES. THE CONTRACTOR SHALL FURNISH AND PLACE SHEETING AND BRACING WHERE NOTED ON CONTRACT DRAWINGS AND AS MAY BE NECESSARY, SO AS TO REDUCE TO A MINIMUM THE POSSIBILITY OF INJURING OR DAMAGING THE SAME.

(C) - IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT SUFFICIENT OR PROPER SUPPORTS, SHEETING, OR BRACINGS HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS, SHEETING OR BRACING, AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS BY THE CONTRACTOR SHALL NOT RELIEVE OR RELEASE HIM FROM HIS RESPONSIBILITY FOR SUFFICIENCY OF SUCH SUPPORTS.

REMOVAL OF EXCAVATED MATERIAL

THIS ITEM SHALL BE AS SPECIFIED IN SECTION 203.05 OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JAN. 1, 1975.

LAYING PIPE

(A) - PROPER IMPLEMENTS, TOOLS, AND FACILITIES, SATISFACTORY TO THE ENGINEER SHALL BE PROVIDED AND USED BY THE CONTRACTOR FOR THE SAFE AND CONVENIENT PROSECUTION OF THE WORK. ALL PIPE, FITTINGS, AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH PIECE BY PIECE BY MEANS OF DERRICK, PROPER SLINGS, AND OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH MANNER AS TO PREVENT DAMAGE TO PIPE OR COATING. UNDER NO CIRCUMSTANCES SHALL PIPE OR ACCESSORIES BE DROPPED OR DUMPED INTO THE TRENCH. IF ANY DEFECTIVE PIECE BE DISCOVERED WHILE PIPE IS SUSPENDED OR AFTER BEING LAID, A NEW PIECE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT THE SITE OF THE WORK.

(B) - ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH, AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING.

(C) - AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY APPROVED MEANS, AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE. NO PIPE SHALL BE LAID IN WATER, OR WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF THE ENGINEER.

(D) - WHEREVER NECESSARY TO DEFLECT PIPE FROM A STRAIGHT LINE, EITHER IN THE VERTICAL OR HORIZONTAL PLANE TO AVOID OBSTRUCTIONS, TO PLUMB STEMS, OR FOR OTHER REASONS, THE DEGREE OF DEFLECTION SHALL BE APPROVED BY THE ENGINEER.

(E) BEFORE LAYING CAST IRON, DUCTILE IRON OR STEEL PIPE ALL LUMPS, BLISTERS AND EXCESS COAL TAR COATING SHALL BE REMOVED FROM THE BELL AND SPIGOT ENDS OF EACH PIPE, THE PIPE ENDS SHALL THEN BE KEPT CLEAN UNTIL JOINTS ARE MADE.

(F) PREPARATION OF PIPE ENDS FOR STEEL PIPE SHALL BE IN ACCORDANCE WITH THE A.W.W.A. SPECIFICATIONS C 201-66 AND C 202-64 OR LATEST REVISIONS THEREOF, FOR ELECTRIC FUSION WELDED STEEL WATER PIPE.

(G) - BEFORE LAYING CONCRETE PIPE, THE PIPE ENDS SHALL BE MADE SMOOTH WITH EMERY CLOTH, FILE OF OTHER APPROVED MEANS, WIRE BRUSHED AND WIPED UNTIL CLEAN AND DRY. PIPE ENDS SHALL BE KEPT CLEAN UNTIL JOINTS ARE MADE. AFTER CLEANING AND DRYING, ALL CONTACT SURFACES OF THE GASKETS AND STEEL JOINT RINGS SHALL BE COATED WITH AN APPROVED FLAX SOAP BEFORE ENTERING THE SPIGOT AND INTO THE SOCKET. IMMEDIATELY AFTER THE JOINT IS PULLED TOGETHER THE PIPE SHALL BE BLOCKED WITH WOOD BLOCKING. A SURCINGLE SHALL BE INSTALLED AROUND THE JOINT AND PIPE SHALL BE SECURED THERE WITH EARTH OR SAND AS REQUIRED, CAREFULLY TAMPED UNDER AND ON EACH SIDE OF IT UP TO THE SPRING LINE OF PIPE INCLUDING THE BELL HOLES. ALL BLOCKING SHALL BE REMOVED WHEN BACKFILL HAS REACHED THE SPRING LINE OF PIPE.

(H) - (1) - BLOCKING: IF ORDERED BY THE DIRECTOR, PIPES SHALL BE LAID ON WOOD BLOCKING AND HELD IN CORRECT ALIGNMENT BY WOOD WEDGES PLACED TRANSVERSELY TO THE LINE OF PIPE. BLOCKING AND WEDGES SHALL BE CUT FROM SOUND LUMBER.

(2) - DIMENSION SCHEDULE: BLOCKING AND WEDGES SHALL VARY IN SIZE WITH THE PIPE DIAMETER AND THE NATURE OF THE FOUNDATION MATERIAL AND THE SIZES SHALL CONFORM TO THE FOLLOWING SCHEDULE OF DIMENSIONS:

SIZE OF PIPE	BLOCKING	WEDGES
6" AND 8"	2" X 10" X 24"	4" X 4" X 10"
10", 12", AND 16"	2" X 10" X 30"	4" X 4" X 10"
30" AND 36"	3" X 10" X 36"	4" X 4" X 12"

(3) - NUMBER OF BLOCKS: PIPE 12 FEET LONG SHALL BE SUPPORTED ON TWO BLOCKS WITH THE CENTER OF EACH BLOCK PLACED 30 INCHES FROM THE JOINT. PIPE 16 AND/OR 18 FEET LONG SHALL BE SUPPORTED BY THREE BLOCKS AND PIPE 20 FEET LONG BY FOUR BLOCKS, THE BLOCKS IN EACH INSTANCE BEING PLACED 30 INCHES FROM THE JOINT.

FLOATING

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST THE FLOATING OF THE PIPE DUE TO WATER COMING INTO THE TRENCH, OR THROUGH CAVING IN, FLUSHING OR PUDDLING. IN CASE OF SUCH FLOATING THE CONTRACTOR SHALL REPLACE THE PIPE AT HIS OWN EXPENSE, AND MAKE WHOLLY GOOD ANY INJURY OR DAMAGE WHICH MAY HAVE RESULTED.

TESTING MAINS

(A) - ALL PIPES, VALVES, FITTINGS, ETC., SHALL BE LAID IN SUCH A MANNER AS TO LEAVE ALL JOINTS WATERTIGHT. AFTER THE PIPE IS LAID, AND BEFORE BACKFILLING IS PLACED AROUND THE JOINTS. SUCH LENGTHS OF THE WATER MAIN AS THE ENGINEER MAY DETERMINE SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE OF SEVENTY-FIVE (75) POUNDS PER SQUARE INCH ABOVE THE STATIC PRESSURE, BUT NOWHERE LESS THAN 200 POUNDS PER SQUARE INCH.

(B) - THE TEST SHALL BE UNDER THE DIRECTION OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OR HIS DESIGNATE. THE CONTRACTOR MAY OBTAIN WATER FOR TESTING BY OBSERVING THE RULES AND REGULATIONS ENFORCED IN THE MUNICIPALITIES OR TOWNSHIPS IN WHICH THE WORK IS BEING DONE. THE CITY WILL FURNISH A PRESSURE GAGE FOR MEASURING THE PRESSURE ON THE WATER MAIN, BUT THE CONTRACTOR SHALL FURNISH A SUITABLE PUMP, PIPES, TEST HEADS AND ALL APPLIANCES, LABOR, FUEL AND OTHER APPURTENANCES NECESSARY TO MAKE THESE TESTS.

(C) - THE TEST PRESSURE SHALL BE MAINTAINED FOR A SUFFICIENT LENGTH OF TIME TO ALLOW FOR A THOROUGH EXAMINATION OF JOINTS AND ELIMINATION OF LEAKAGE WHERE NECESSARY. THE PIPE LINES SHALL BE MADE ABSOLUTELY TIGHT UNDER THE TEST PRESSURE.

(D) - AFTER A SECTION OF THE WATER MAIN HAS BEEN TESTED, THE CONTRACTOR SHALL DRAIN SAME. IN CASE THE DRAINS ARE CONNECTED TO VALVE OR DRAIN VAULTS, THEN THE CONTRACTOR SHALL, WITHIN A REASONABLE TIME AFTER THE TEST HAS BEEN COMPLETED, PUMP ALL WATER OUT OF THE VAULTS.

(E) - IN COLD WEATHER, IMMEDIATELY AFTER TESTING A SECTION OF THE WATER MAIN, THE CONTRACTOR IS TO OPEN ALL VALVES, AIR COCKS, BYPASSES AND DRAINS AND PROPERLY DRAIN BONNETS OF ALL VALVES IN THE SECTION OF THE WATER MAIN; AND TAKE ALL OTHER PRECAUTIONS NECESSARY TO PREVENT INJURY TO WATER MAIN AND APPURTENANCES DUE TO FREEZING.

(F) - AS AN ALTERNATE FOR TESTING CONCRETE AND STEEL MAINS OTHER THAN BY THE PRECEDING METHOD, THE CONTRACTOR MAY CHOOSE THE FOLLOWING PROCEDURE:

THE WATER MAIN SHALL BE TESTED UNDER THE SAME HYDROSTATIC PRESSURE AS PREVIOUSLY NOTED. THE TEST PRESSURE SHALL BE MAINTAINED FOR A PERIOD OF TWO (2) HOURS BY PUMPING ADDITIONAL WATER INTO THE MAIN, IF NECESSARY. THE QUANTITY OF WATER THUS PUMPED INTO THE MAIN MULTIPLIED BY TWELVE (12) SHALL BE TAKEN AS THE LEAKAGE PER TWENTY-FOUR (24) HOURS.

(G) - THE PERMITTED LEAKAGE SHALL NOT EXCEED A RATE OF SEVENTY-FIVE (75) GALLONS PER TWENTY-FOUR (24) HOURS PER MILE OF PIPE PER INCH OF NOMINAL DIAMETER.

(H) - IN CALCULATING LEAKAGE, THE DIRECTOR WILL MAKE ALLOWANCE FOR ANY LEAKAGE AT THE VALVES, THE REMOVABLE BULKHEADS, ETC.

(I) - IN USING THIS METHOD OF TESTING, THE CONTRACTOR MAY BACKFILL THE PIPE EXCEPT AT LEAD JOINTS, FLANGED JOINTS, VICTAULIC COUPLINGS, AND DRAIN CONNECTIONS IMMEDIATELY FOLLOWING THE LAYING AND BEFORE THE ACTUAL TEST HAS BEEN MADE. IN CASE THE LEAKAGE EXCEEDS THE PERMISSIBLE AMOUNT MENTIONED ABOVE, THE CONTRACTOR SHALL FIND THE LEAK AND MAKE THE JOINTS TIGHT. THE CONTRACTOR SHALL FURNISH SUITABLE MEANS FOR DETERMINING THE QUANTITY OF WATER LOST BY LEAKAGE DURING THE TEST.

(J) - IN ORDER TO BE ABLE TO MAKE PROPER ALLOWANCE FOR LEAKAGE AT VALVES, ETC., PREVIOUSLY NOTED, ONLY SUCH SECTIONS OF WATER MAIN MAY BE SELECTED FOR TEST AS WILL HAVE SUCH VALVES, REMOVABLE BULKHEADS, ETC., ACCESSIBLE.

(K) - THE EVALUATION OF ACTUAL LEAKAGE TO STANDARD PRESSURE (150#) LEAKAGE IS CALCULATED BY THE APPLICATION OF THE RATIO DETERMINED FROM THE SQUARE ROOT OF RESPECTIVE PRESSURES, OTHER FACTORS BEING EQUAL.

(L) - PRESSURE TO BE USED FOR BOTH DESIGN AND TESTING SHALL BE MEASURED FROM ELEVATION 970 FOR RELOCATED 36" WATER MAIN.

CLOSING VALVES

THE CLOSING OF ALL GATE VALVES ON EXISTING MAINS FOR MAKING CONNECTIONS, TESTS, OR FOR ANY OTHER CAUSE SHALL BE DONE BY THE CITY AND SUFFICIENT NOTICE SHALL BE GIVEN TO THE CITY, BY THE CONTRACTOR, SO THAT THE WORK MAY BE DONE WITH A MINIMUM OF INCONVENIENCE TO THE PUBLIC AND DELAY TO THE CONTRACTOR.

APPROVED JANUARY - 4 - 19 74

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
SCALE
CHECKED H.C.S.
DATE
No.

WATERWORK NOTES

EXISTING STRUCTURES REMOVED

THIS WORK SHALL CONSIST OF THE ENTIRE REMOVAL, DISPOSAL AND BACKFILLING OF ALL WATER MANHOLES, DRAIN VAULTS, FIRE VAULTS, METER VAULTS AND STRUCTURES, WHICH ARE NOT PERMITTED TO REMAIN, EXCEPT FOR THESE OBSTRUCTIONS TO BE REMOVED AND DISPOSED OF UNDER OTHER ITEMS IN THE CONTRACT.

CAVITIES LEFT BY STRUCTURE REMOVAL SHALL BE FILLED TO THE LEVEL OF THE SURROUNDING GROUND AND COMPACTED IN ACCORDANCE WITH SECTION 203 OF THE STATE HIGHWAY DEPARTMENT SPECIFICATIONS.

CASTINGS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE PLANS.

THE ACCEPTED QUANTITIES OF STRUCTURES REMOVED AND DISPOSED OF, WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE SHALL BE FULL COMPENSATION FOR REMOVAL, DISPOSAL, EXCAVATION AND BACKFILL INCIDENTAL TO THEIR REMOVAL.

PAYMENT WILL BE MADE AT THE CONTRACT PRICE BID FOR "ITEM SPECIAL - LUMP SUM - STRUCTURES REMOVED".

PLUGGING DEAD ENDS

STANDARD PLUGS WITH CLAMPS SHALL BE INSERTED INTO THE BELLS OF ALL DEAD ENDS OF PIPES, TEES, OR CROSSES AND SPIGOT ENDS CAPPED AND CLAMPED BY THE CONTRACTOR, ON ALL MAINS CONSTRUCTED BY HIM AND ON ALL EXISTING WATER MAINS WHERE INDICATED ON THE CONTRACT DRAWINGS. CONCRETE PIERS SHALL BE PLACED WHEN CALLED FOR ON THE CONTRACT DRAWINGS, OR ORDERED BY THE ENGINEER. THE COST OF FURNISHING THE PLUGS SHALL BE INCLUDED IN THE PER LINEAL FOOT PRICE BID FOR THE VARIOUS SIZES OF NEW WATER MAINS, AND FOR THE SIZE OF PLUG INSTALLED WHERE SHOWN ON EXISTING WATER MAIN.

TEMPORARY PLUGS

WHEN THE CONTRACTOR INSTALLS A WATER MAIN PLUG AND SUBSEQUENTLY REMOVES THE SAME PLUG UNDER PHASE CONSTRUCTION, SAID PLUG SHALL BE CLASSIFIED AS A TEMPORARY PLUG.

TEMPORARY PLUGS WILL NOT BE PAID FOR UNDER A SEPARATE PAY ITEM.

PAYMENT FOR TEMPORARY PLUGS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR LINEAL FEET OF ITEM SPECIAL - WATER MAINS TYPE AND SIZE SPECIFIED ON THE PLANS.

BACKFILLING

(A) THIS WORK INCLUDES ALL BACKFILLING, TOGETHER WITH RAMMING, PUDDLING, AND ROLLING, AS REQUIRED, THE REGRADING OF GROUNDS, THE REPLACING OF SURFACE AND SUB-SURFACE STRUCTURES, THE PLACING AND MAINTAINING OF TEMPORARY SIDEWALKS, AND DRIVEWAYS, THE FURNISHING OF SUITABLE MATERIAL FOR BACKFILL, RESEEDING LAWNS AND REPLACING TREES AND SHRUBBERY DAMAGED BY THE CONTRACTOR, AND ALL APPURTENANT WORK INCIDENTAL THERETO. PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS WITHIN THE LIMITS OF THE WORK SHALL BE TEMPORARILY SURFACED, MAINTAINED AND FINALLY REPLACED OR REPAVED AS SET FORTH UNDER "ROAD SURFACES, SIDEWALKS, DRIVEWAYS AND CURBING" (SEE 2ND COLUMN).

(B) BACKFILL, UNLESS OTHERWISE SPECIFIED, MAY BE MADE WITH MATERIAL EXCAVATED FROM THE TRENCHES, PROVIDING SAME IS SATISFACTORY TO THE ENGINEER. IF, IN THE OPINION OF THE ENGINEER, THE MATERIAL EXCAVATED IS UNSATISFACTORY, THEN THE CONTRACTOR SHALL FURNISH AT HIS OWN EXPENSE OTHER MATERIAL SUITABLE FOR BACKFILL. ALL BACKFILL SHALL BE FREE FROM SLAG, CINDERS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL.

(C) BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE BROUGHT TO THE GRADE OF THE BOTTOM OF THE PIPE EXCEPT AT FIELD JOINTS. WHEREVER THE BOTTOM OF THE TRENCH HAS BEEN EXCAVATED BELOW THE BOTTOM OF THE PIPE, THE CONTRACTOR SHALL PLACE SAND OR OTHER MATERIAL SATISFACTORY TO THE ENGINEER TO BRING THE BOTTOM OF THE TRENCH TO THE GRADE OF THE BOTTOM OF THE PIPE. THIS BED SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS LAID.

(D) UNLESS OTHERWISE SPECIFIED, THE BACKFILL UNDER, AROUND AND TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF ALL PIPE SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER, WHICH MATERIAL SHALL BE FREE FROM STONE AND OTHER OBJECTIONABLE MATERIAL NOTED ABOVE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL, SO AS TO AVOID INJURING, DISTORTING OR MOVING THE PIPE WHEN COMPACTING SAME. ABOVE THIS LEVEL THE BACKFILL SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER. HOWEVER, WHERE SPECIFIED, SAND SHALL BE USED FOR THE ENTIRE PORTION OF THE BACKFILL - SEE PARAGRAPH (H).

(E) BACKFILLING AS NOTED IN PARAGRAPH (D) SHALL BE TAMPED IN THIN LAYERS. SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.

(F) ONLY AFTER THE BACKFILL PREVIOUSLY MENTIONED HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.

(G) BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.

(H) THE ENTIRE BACKFILL SHALL BE MADE WITH COMPACTED SAND WHERE PERMANENT PAVEMENTS, CURBS, DRIVEWAYS, OR SIDEWALKS HAVE BEEN OPENED FOR OR UNDERCUT BY THE EXCAVATION.

(I) ALL SAND TO BE USED FOR BACKFILL SHALL BE A NATURAL BANK SAND, GRADED FROM FINE TO COARSE, NOT LUMPY OR FROZEN, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH, OR OTHER DELETERIOUS OR OBJECTIONABLE MATERIAL. IT SHALL NOT CONTAIN A TOTAL OF MORE THAN 10 PER CENT BY WEIGHT OF LOAM AND CLAY, AND ALL MATERIAL MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. NOT MORE THAN 5 PER CENT SHALL REMAIN ON A NO. 4 SIEVE.

(J) SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER EXCAVATION, EXCEEDING ONE FOOT MEASURED FROM THE TOP SURFACE, IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG BELOW GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER: A FOUR (4) INCH LAYER OF CRUSHED LIME STONE SHALL BE PLACED ON THE ENTIRE WIDTH OF THE BOTTOM OF THE TRENCH, FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF THREE (3) INCHES OF SAND. THE CRUSHED LIME STONE SHALL BE WELL GRADED FROM FINE TO COARSE, AND FREE SROM SLAG, CINDERS, ASHES, RUBBISH OR OTHER OBJECTIONABLE MATERIAL. ALL LIME STONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED STONE, HYDRATED LIME SHALL BE SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THIS BED OF CRUSHED LIME STONE SHALL BE THOROUGHLY TAMPED BEFORE THE 3" LAYER OF SAND IS PLACED. THE BACKFILL AROUND AND TO THE DEPTH OF 3 INCHES ABOVE THE TOP OF THE PIPE SHALL BE MADE WITH SAND. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL SO AS TO AVOID INJURING OR MOVING THE PIPE WHEN COMPACTING SAME. ON TOP OF THE SAND THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIME STONE FIVE (5) INCHES THICK ON THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THE COMPACTED LAYER OF LIME STONE HYDRATED LIME SHALL BE THEN APPLIED IN THE AMOUNT OF 3/4 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH SAND, CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM, PREVIOUSLY DESCRIBED, MAY BE OMITTED WHERE THE CINDER DEPTH, MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2' - 6".

SEEDING AND SODDING

(A) IN PREPARATION FOR SEEDING OR SODDING, THE SURFACES SHALL BE HARROWED TO A DEPTH OF THREE (3) INCHES. ALL GRASS, WEEDS, ROOTS, STICKS, STONES, ETC., ARE TO BE REMOVED AND THE SOIL CAREFULLY BROUGHT TO THE EXACT FINISHED GRADE OR SUBBASE BY RAKING. AN APPLICATION OF NOT LESS THAN ONE POUND PER ONE HUNDRED (100) SQUARE FEET OF A HIGH NITROGEN CONTENT COMMERCIAL FERTILIZER HAVING AN ANALYSIS OF 10:6:4 SHALL THEN BE UNIFORMLY DISTRIBUTED AND CAREFULLY RAKED IN.

(B) IMMEDIATELY AFTER THE PREPARATION AND FERTILIZING OF THE SEED BED, THE PREPARED SURFACE SHALL BE SEEDED WITH NOT LESS THAN THREE HUNDRED (300) POUNDS OF GRASS SEED PER ACRE. THE SEED SHALL BE CAREFULLY AND UNIFORMLY SOWN BY EXPERIENCED AND SKILLED WORKMEN. FOLLOWING THE SEEDING, THE SURFACE SHALL BE LIGHTLY RAKED AND ROLLED WITH A LIGHT ROLLER. THE GRASS SEED TO BE USED SHALL BE APPROVED BY THE DIRECTOR.

(C) IMMEDIATELY AFTER THE PREPARATION OF THE SURFACE FOR SOD, THE FRESHLY CUT SOD SHALL BE CAREFULLY PLACED IN FINAL POSITION, STAKED WITH SUFFICIENT WOODEN STAKES TO PREVENT MOVEMENT, CAREFULLY TAMPED TO FINAL POSITION AND ALL JOINTS CAREFULLY FILLED WITH SCREENED TOPSOIL TO BRING ALL TO A UNIFORM SURFACE.

(D) ALL SEEDED AND SODDED SURFACES SHALL BE CAREFULLY LOOKED AFTER AND TENDED BY THE CONTRACTOR: SHALL BE WATERED AND THE GRASS CUT WHEN NECESSARY. SETTLED AREAS SHALL BE REFILLED, LEVELLED AND TAMPED TO THE PROPER GRADE. ALL SEEDED AND SODDED SURFACES SHALL BE LEFT IN GOOD CONDITION ON THE COMPLETION OF THE WORK.

(E) AS SEEDING AND SODDING CAN ONLY BE SUCCESSFULLY DONE AT CERTAIN SEASONS OF THE YEAR, THE PREPARATION OF THE SOD OR SEED BED, AND THE WORK OF SODDING AND SEEDING, SHALL ONLY BE DONE AT SUCH TIMES AS MAY BE APPROVED BY THE DIRECTOR.

ROAD SURFACES, SIDEWALKS, DRIVEWAYS, AND CURBING

(A) THE CONTRACTOR SHALL REMOVE ALL PAVEMENTS AND ROAD SURFACES WITHIN THE LINES OF EXCAVATION. AFTER THE PIPE HAS BEEN LAID, ALL APPURTENANT WORK CONSTRUCTED AND BACKFILL COMPLETED, HE SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE PAVEMENT OR ROAD SURFACE HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY PAVEMENT IN THE PAVED PORTION OF STREETS, OR A TEMPORARY ROAD SURFACE IN THE UNPAVED PORTION OF STREETS, SO AS TO PROVIDE A SAFE AND PASSABLE ROADWAY UNTIL SUCH TIME AS THE FINAL PAVEMENT OR ROAD SURFACE IS COMPLETED.

(B) ALL FINAL PAVING OF ROAD SURFACES, IF SO NOTED ON CONTRACT DRAWINGS, SHALL BE DONE BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND IN CONFORMITY TO THE APPROPRIATE TYPICAL SECTIONS SHOWN IN THE PLANS. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF THE WORK. THE BASE OF PAVEMENT OF ITEM 305 SHALL BE INSTALLED ON A CAREFULLY PREPARED BED LEVEL WITH THE BOTTOM OF THE ABUTTING BASE OVER DISTRUBED AREAS AND SHALL BE OF THE THICKNESS SPECIFIED, BUT IN NO CASE LESS THAN 7" THICK. WHERE PAVEMENT OR BASE OF PAVEMENT HAS BEEN DAMAGED BY CAVE-IN, OR BY TRENCH CUT LEAVING A PORTION OR PORTIONS OF PAVEMENT 18 INCHES OR LESS IN WIDTH BETWEEN SUCH CUT OR DAMAGE TO CURB OR OTHER SUBSTRUCTURE, THAT REMAINING PORTION OF PAVEMENT SHALL BE REMOVED AND RESTORED MONOLITHIC WITH THE TYPE AND KIND OF PAVEMENT SPECIFIED FOR THE ADJACENT TRENCH AREA. THE WEARING COURSE OVER TRENCH OR OTHER DISTURBED AREAS SHALL BE RESTORED TO MATCH EXISTING PAVEMENT UNLESS OTHERWISE SPECIFIED. ASPHALTIC CONCRETE WEARING COURSE OVER SUCH AREAS SHALL BE NEATLY AND SQUARELY CUT, BEFORE THE INSTALLATION OF A CAREFULLY TOOTHED-IN-TO ADJACENT PAVEMENT, UNLESS OTHERWISE SPECIFIED. EXPANSION JOINTS SHALL BE INSTALLED BETWEEN BRICK WEARING COURSE, IF GROUTED, AND CURB OR OTHER SUBSTRUCTURE, WHERE SUCH RESPORATION IS REQUIRED BY THESE SPECIFICATIONS.

(C) IF ANY SIDEWALKS, DRIVEWAYS OR CURBS, ARE REMOVED OR INJURED BY THE CONTRACTOR IN THE COURSE OF MAKING EXCAVATION OR HANDLING MATERIALS, OR FOR ANY OTHER REASON WHICH MAY BE ATTRIBUTED TO WORK WHICH HAS BEEN DONE BY THE CONTRACTOR, THEN HE SHALL RELAY SAME AFTER ALL WORK, INCLUDING BACKFILLING, HAS BEEN COMPLETED. IF ANY STONE SIDEWALKS, DRIVEWAYS, OR CURBS WHICH HAVE BEEN REMOVED OR INJURED, ARE UNFIT TO BE RELAID, THEN THE CONTRACTOR SHALL FURNISH NEW MATERIAL AND RELAY SAME. ALL CONCRETE OR CEMENT SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH ARE REMOVED OR INJURED BY THE CONTRACTOR SHALL BE BROKEN UP BY HIM AND HE SHALL FURNISH ALL LABOR AND MATERIALS AND CONSTRUCT NEW SIDEWALKS, DRIVEWAYS OR CURBS, TO REPLACE THOSE REMOVED OR INJURED. AT INTERSECTING WALKS, DRIVES, ETC., ADDITIONAL CONCRETE SLABS BEYOND THE EXCAVATION LIMITS SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL, IN ORDER TO AVOID HAVING MORE JOINTS THAN IN THE ORIGINAL WORK. ALL SLABS REPLACED SHALL BE OF FULL WIDTH. THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE SIDEWALK HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY SIDEWALK SO AS TO PROVIDE A SAFE AND PASSABLE SIDEWALK UNTIL SUCH TIME AS THE FINAL SIDEWALK IS COMPLETED.

(D) ALL DAMAGED OR DISPLACED CURB SHALL BE RENEWED OR RESET TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC SERVICE. NO FAULTY CURB OR CURB LESS THAN 30" LONG WILL BE PERMITTED FOR REUSE.

(E) LOCATION OF WORK: EXISTING PAVEMENT AS SHOWN ON CITY RECORDS, AND RESTORATIONS ACCEPTABLE ARE GIVEN ON THE CONTRACT DRAWINGS.

(F) ALL PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH THE CONTRACTOR IS REQUIRED TO REPLACE OR TO HAVE REPLACED, SHALL, AT THE EXPIRATION OF THIS CONTRACT, BE IN AT LEAST AS GOOD CONDITION AS AT THE TIME OF AWARDING THE CONTRACT.

(G) IF PRIOR TO THE EXPIRATION OF THE PERIOD OF MAINTENANCE, ANY OF THE PAVEMENTS OR ROAD SURFACES WITHIN THE LINES OF EXCAVATION OR ADJACENT THERETO, SHALL HAVE BEEN DAMAGED OR INJURED, DUE TO UNDERMINING, OR FOR ANY OTHER CAUSE WHICH MAY BE ATTRIBUTED TO THE WORK WHICH IS BEING DONE BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL REMOVE SUCH DAMAGED OR INJURED PAVEMENTS OR ROAD SURFACES, FOUNDATIONS OF SAME AND ALL LOOSE EARTH. HE SHALL THEN BACKFILL WITH SAND PROPERLY RAMMED AND REPLACE THE FINAL PAVEMENT OR ROAD SURFACE.

(H) TUNNELING WILL NOT BE PERMITTED WITHOUT PERMISSION OF THE ENGINEER. IN BACKFILLING TUNNELS, SAND SHALL BE USED AS FAR AS POSSIBLE, AND THE BALANCE OF BACKFILLING MADE WITH CLASS "C" CONCRETE, RAMMED IN PLACE.

(I) NO SPECIFIC OR SEPARATE PAYMENT WILL BE MADE FOR ALL OF THIS WORK, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT. RESTORATION AS NOTED ABOVE WILL ONLY BE REQUIRED IN AREAS WHERE THE PLANS DO NOT OTHERWISE PROPOSE NEW CONSTRUCTION OF PAYMENT, SIDEWALKS, AND CURBS, EXCEPT THAT TEMPORARY RESTORATION IN SUCH AREAS MAY BE REQUIRED BY THE ENGINEER IN ORDER TO MAINTAIN TRAFFIC OR LOCAL ACCESS. PER 104.04 AND 107.10 OF THE STATE OF OHIO, DEPT. OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS

LIST AND INVOICES

(A) THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH THE LIST IN DUPLICATE OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME.

(B) THE MATERIAL SHALL BE SHIPPED IN SUCH SECTIONS AS THE ENGINEER MAY ORDER.

CAST IRON AND DUCTILE IRON PIPE AND FITTINGS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, BACKFILLING, SAND BACKFILL AND REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(A) ALL PIT CAST PIPE SHALL BE MANUFACTURED IN ALL RESPECTS IN ACCORDANCE WITH, AND SHALL MEET THE REQUIREMENTS OF THE LATEST "STANDARD SPECIFICATIONS FOR CAST IRON PIPE AND SPECIAL FITTINGS" AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION WHICH SPECIFICATIONS EXCEPT AS HEREIN MODIFIED ARE MADE A PART OF THESE SPECIFICATIONS.

(B) ALL PIT CAST PIPE AND FITTINGS, UNLESS OTHERWISE SHOWN IN THE PLANS, SHALL BE DOUBLE STANDARD THICKNESS CEMENT LINED AND OF THE SIZE AND CLASSES NOTED ON THE RESPECTIVE CONTRACT DRAWINGS.

(C) IN LIEU OF PIT CAST PIPE ABOVE, THE CONTRACTOR WILL BE PERMITTED TO FURNISH EITHER CENTRIFUGAL OR HIGH STRENGTH CEMENT LINED PIPE. THE METAL SHALL HAVE A MODULUS OF RUPTURE OF NOT LESS THAN 40,000 PSI AND A TENSILE STRENGTH OF NOT LESS THAN 18,000 PSI AND SHALL BE OF THE CLASS NOTED ON THE CONTRACT DRAWINGS. PIPE MAY BE FURNISHED IN 12, 16, OR 18FOOT LENGTHS. THE CENTRIFUGALLY CAST PIPE SHALL CONFORM TO THE AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATIONS A21 6-1962 AND ALL SUBSEQUENT AMENDMENTS THERETO.

WHEN NOTED ON THE CONTRACT DRAWINGS, DUCTILE IRON PIPE SHALL BE SUPPLIED. ALL DUCTILE IRON PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.A. A21. 51. ALL DUCTILE IRON FITTING SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.A. A21 .10 OR A.W.W.A. C 100-55 DUCTILE IRON SHALL HAVE A MINIMUM OF 60,000 PSI ULTIMATE TENSILE STRENGTH, 40,000 PSI YIELD POINT AND 10% ELONGATION. THE CHEMICAL ANALYSIS SHALL BE AS FOLLOWS: CARBON 3% MINIMUM, PHOSPHORUS .08% MAXIMUM AND SILICON 2.75% MAXIMUM.

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
CHECKED H.C.S.
SCALE
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

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WATERWORK NOTES

CAST IRON AND DUCTILE IRON PIPE AND FITTINGS CONT'D.

(1) THE THICKNESS OF THE CENTRIFUGALLY CAST DUCTILE IRON PIPE AND CAST IRON PIPE SHALL CONFORM TO THE FOLLOWING:

CAST IRON PIPE				DUCTILE IRON PIPE			
SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS	SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS
4"	250	0.44	25	12"	350	0.49	6
6"	250	0.48	25	16"	350	0.52	6
8"	250	0.52	25				
12"	250	0.60	25				

(2) ALL FITTINGS, SUCH AS BENDS, TEES, CROSSES, OFFSETS, HYDRANT BRANCHES, ETC., SHALL HAVE BELL AND BELL, OR BELL AND SPIGOT ENDS WITH CAST LEAD JOINTS. PIPE BETWEEN OFFSETS OR BENDS AND ON HYDRANT BRANCHES SHALL ALSO BE OF BELL AND SPIGOT TYPE WITH LEAD JOINTS.

(D) ALL PIPE SHALL HAVE BELL AND SPIGOT ENDS FOR CAST LEAD JOINTS OR A SLIP ON TYPE JOINT WITH COMPRESSED RUBBER RING INSERTS. ALL PIPE AND FITTINGS, SHALL BE CEMENT LINED.

(E) GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF THE GASKET.

(F) WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY IN SUCH PARTICULARS AS ARE LACKING THEREON, SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CURRENT EDITION OF THE "HANDBOOK OF CAST IRON PIPE" BY THE CAST IRON PIPE RESEARCH ASSOCIATION OR WHICH ARE OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

(G) WHEREVER CHANGES IN LINE AND GRADES OF THE MAIN AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS. THE CONTRACTOR WILL BE PERMITTED TO SUBMIT DETAILS USING COMBINATIONS OF STANDARD FITTINGS AND SMALL DEFLECTIONS (NOT TO EXCEED A MAXIMUM OF ONE HALF (1/2) INCH JOINT OPENING) IN THE ADJOINING LENGTHS OF PIPE.

(H) PLUGS FOR BELL AND SPIGOT PIPE SHALL BE FURNISHED WITH TWO (2) PLUGGED TWO (2") INCH TAPS FOR DRAIN AND AIR COCK CONNECTIONS.

(I) CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID TYPE PATTERN SLEEVES AS SHOWN OR AS REQUIRED.

(J) TESTS, INSPECTION, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED AS SET FORTH ELSEWHERE IN THESE NOTES.

(K) BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL CAST IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS.

CEMENT LINING

ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS, UNLESS OTHERWISE SHOWN IN THE PLANS, SHALL BE GIVEN A DOUBLE STANDARD THICKNESS CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO THE AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATION A21.4 - 1964.

MARKING

ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO DENOTE THE MANUFACTURER, CLASS, DATE, WEIGHT, AND OTHER ELEMENTS OF IDENTIFICATION

FACING AND DRILLING

ALL FLANGES SHALL BE CAST SOLID AND FACED ACCURATELY AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL FLANGES SHALL BE COATED WITH WHITE LEAD IMMEDIATELY AFTER THEY HAVE BEEN FACED AND DRILLED. ALL FLANGED PIPE AND FITTINGS SHALL BE FACED AND DRILLED TO "AMERICAN 1928 STANDARD" DRILLING, 125 POUND TEMPLATE, UNLESS SPECIAL DRILLING IS CALLED FOR. WHERE TAP OR STUD BOLTS ARE REQUIRED, FLANGES SHALL ALSO BE TAPPED.

LAYING

(A) PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPES AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATING FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTINGS SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

(B) IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE LAID, SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE COMPLETED WORK, AND WHEN LAID SHALL CONFORM TO THE LINES AND GRADES GIVEN BY THE PLANS OR ENGINEER. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A BULKHEAD DURING CONSTRUCTION. IN NO EVENT SHALL ANY PORTION OF THE DAMAGED PIPE BY PERMITTED TO REMAIN IN THE LINE. ANY APPROVAL STAMPS FOUND ON THE PIPE SHALL BE REMOVED OR THE PIPE BROKEN UP FOR SCRAP.

(C) PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

(D) IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS, THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST SPECIFICATION C600, "STANDARD FOR INSTALLATION OF CAST IRON WATER MAINS.

CUTTING PIPE

WHENEVER THE PIPES REQUIRE CUTTING TO FIT INTO THE LINES, THE WORK SHALL BE DONE IN A SATISFACTORY MANNER SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. IN NO EVENT SHALL FLAME CUTTING BE USED. WHEN A PIECE OF PIPE IS CUT TO FIT INTO THE LINE, NO PAYMENT WILL BE MADE FOR THE PORTION CUT OFF AND NOT USED IN THE LINE.

JOINTS

(A) LEAD JOINTS: IN JOINTING ALL BELL AND SPIGOT PIPE AND FITTINGS HAVING LEAD JOINTS, THE SPIGOT OF EACH PIPE SHALL BE PROPERLY SEATED IN THE BELL OF THE NEXT ADJACENT PIECE AND ADJUSTED SO AS TO GIVE A UNIFORM ANNULAR SPACE. THE JOINT SHALL BE MADE WITH TWISTED HARD JUTE AND SOFT PIG LEAD. BEFORE PLACING THE JUTE, IT SHALL BE STERILIZED EITHER BY BOILING OR BY DIPPING IN A CONCENTRATED SOLUTION OF "HTH". THE JUTE SHALL BE TWISTED AND THOROUGHLY DRIVEN INTO THE BELL SO THAT THE LEAD, AFTER HAVING BEEN CAULKED, SHALL HAVE THE FOLLOWING DEPTH:

SIZE OF PIPE	DEPTH OF LEAD
4" THRU 20" BOTH INCLUSIVE	2-1/2 INCHES
30" & 36"	3-1/4 "
SLEEVES	SOLID

THE FURNACE AND MELTING POT SHALL BE KEPT NEAR THE JOINT TO BE POURED AND EACH JOINT SHALL BE MADE WITH ONE POURING. DROSS SHALL NOT BE ALLOWED TO ACCUMULATE IN THE MELTING POT. THE JOINTS SHALL BE THOROUGHLY CAULKED BY COMPETENT PIPE JOINERS AND IN SUCH MANNER AS WILL SECURE A TIGHT JOINT WITHOUT OVERSTRAINING THE IRON OF THE BELL.

PAINTING

AFTER ERECTION, ALL EXPOSED OR DAMAGED COATINGS AND ALL BOLTS FOR LUGGED JOINTS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF INERTOL 50 OR BITUMASTIC 50 OR APPROVED EQUAL.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, DUPLICATE PRINTS OF ALL SHOP DRAWINGS FOR PIT CAST IRON PIPE AND FITTINGS AND MISCELLANEOUS DETAILS WHICH ARE NOT STANDARD CONSTRUCTION, AND ARE NOT MENTIONED IN THE REGULAR CATALOGUE OF THE COMPANY FURNISHING THE PIPE. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

(B) THE APPROVAL OF THE DRAWINGS BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

MEASUREMENT

THE NUMBER OF LINEAL FEET OF CAST IRON AND DUCTILE IRON, PIPE MAINS AND CONNECTIONS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAL FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE PIPING INCLUDING FITTINGS AND VALVES CONNECTED UP IN PLACE. FOR CONNECTION BETWEEN NEW AND EXISTING MAINS, MEASUREMENT SHALL BE THE DISTANCE FROM CENTERLINE TO CENTERLINE OF MAINS AND THE ACTUAL LENGTH OF EXISTING MAIN ORDERED TO BE REMOVED TO MAKE THE CONNECTION.

PAYMENT

THE FOOTAGE MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR "ITEM SPECIAL-WATER MAIN" CLASSIFIED AS TO SIZE AND TYPE, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATING AND FOR FURNISHING, HAULING, PLACING, CUTTING INTO AND CONNECTING THE PIPE, PIPE BENDS, C.I. PLUGS AND CLAMPS AT DEAD ENDS, CONCRETE PIERS, SHEETING AND BRACING, SAND BACKFILL, WATER USED FOR COMPACTION, INCIDENTAL CONCRETE, THE REMOVAL OF ALL SURPLUS EXCAVATION AND DISCARDED MATERIAL, REPAVING, AND FOR THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM, EXCEPT FOR THE ITEMS SPECIFICALLY LISTED AS SEPARATE PAY ITEMS.

THE CHLORINATION BY THE CITY OF CLEVELAND, DIVISION OF WATER, OF THE NEWLY LAID WATER MAINS WHICH IS DESCRIBED UNDER"ADDITIONAL WORK, PART C CHLORINATION:" WILL BE AT NO EXPENSE TO THE CONTRACTOR.

2-INCH GALVANIZED BLACK IRON AND BRASS PIPE FOR FLUSHING CONNECTIONS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED, ALL 2-INCH EXTRA STRONG BRASS PIPE AND FITTINGS, AND ALL 2-INCH EXTRA STRONG GALVANIZED BLACK IRON PIPE AND FITTINGS RESPECTIVELY, WHICH ARE NECESSARY FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. SEE "ADDITIONAL WORK" PARAGRAPHS (A) THRU (D) SHEET NO. 303.

BRASS PIPE AND FITTINGS

ALL BRASS PIPE AND FITTINGS SHALL BE EXTRA STRONG 2-INCH PIPE SIZE AND SHALL CONFORM TO A.S.T.M. SPECIFICATIONS B43-42. FITTINGS SHALL BE EXTRA STRONG WEIGHT AND SHALL HAVE SOUND WELL-FITTING THREADS.

GALVANIZED BLACK IRON PIPE & FITTINGS

ALL GALVANIZED BLACK IRON PIPE, NIPPLES AND COUPLINGS SHALL BE EXTRA STRONG BLACK IRON PIPE A.S.T.M. DESIGNATION A120. THE FITTINGS SHALL BE BEADED AND OF EXTRA HEAVY WEIGHT MALLEABLE IRON. ALL PIPE AND FITTINGS SHALL BE HOT DIPPED ZINC COATED INSIDE AND OUTSIDE, AND SHALL HAVE SOUND WELL-FITTING THREADS.

ERECTION

ALL PIPE SHALL BE CAREFULLY PLACED TO THE PROPER LINES AND GRADES, AND SHALL BE CONNECTED UP, UNLESS OTHERWISE SHOWN, WITH SCREW FITTINGS. SCREW JOINTS SHALL BE MADE TIGHT WITH A GRAPHITE PASTE AND SCREWED HOME. A LIBERAL NUMBER OF UNIONS SHALL BE USED TO PERMIT THE READY REMOVAL OF ANY SECTION.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL-FLUSHING CONNECTIONS" WHETHER TEMPORARY OR LEFT IN PLACE, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATING AND FOR FURNISHING, HAULING AND PLACING PLUGS, CLAMPS, VALVES, ROADWAY BOXES, PRESSURE BACKING AND APPURTENANCES, AND FOR THE FURNISHING OF ALL LABOR, EQUIPMENT, TOOLS, MATERIALS REQUIRED TO COMPLETE THIS ITEM OF WORK IN PLACE.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
CHECKED H.C.S.
SCALE
DATE
No.

WATERWORK NOTES

ADJUST FIRE HYDRANT TO GRADE

WORK INCLUDED

THE CONTRACTOR SHALL RAISE THE EXISTING FIRE HYDRANT TO FIT THE NEW GRADE, BY USING APPROPRIATE EXTENSION SECTIONS IF NEEDED. THE ENGINEER SHALL FIRST CONFIRM THE NECESSITY FOR RAISING EACH HYDRANT. ANY HYDRANT CONSIDERED SATISFACTORY AS EXISTING SHALL BE NON-PERFORMED FROM THIS ITEM.

ADJUSTING OF HYDRANTS SHALL COMPLY WITH THE "SETTING" SECTION HEREIN FOR "ITEM SPECIAL FURNISHING AND SETTING 6" FIRE HYDRANTS".

THE CONTRACTOR SHALL PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER ADJUSTMENT OF THE HYDRANT, INCLUDING INSPECTING AND CLEANING.

MEASUREMENT

THE "ADJUST FIRE HYDRANT TO GRADE" TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL -ADJUST HYDRANT TO GRADE" SHALL INCLUDE THE EXCAVATION, BACKFILLING, INSPECTING AND CLEANING, SEEDING AND SODDING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

FIRE HYDRANTS ABANDONED

WHERE FIRE HYDRANTS ARE INDICATED TO BE ABANDONED (NOT FOR REMOVAL), HYDRANTS BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF BY HIM. THE COST OF SUCH REMOVAL AND DISPOSAL SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION.

REMOVING AND RESETTING OF HYDRANT

WORK INCLUDED

THE CONTRACTOR SHALL PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER REMOVAL OF THE HYDRANT AT THE LOCATION SHOWN ON THE PLANS. THE CONTRACTOR SHALL INSPECT, CLEAN AND RESET THE HYDRANT AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS; FURNISHING ALL MATERIAL, LABOR, TOOLS AND EQUIPMENT REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

SETTING

THE HYDRANT SHALL BE RESET AS REQUIRED IN THE SECTION ON "SETTING" UNDER "ITEM FURNISHING AND SETTING 6" FIRE HYDRANT."

PAYMENT

(A) THE UNIT PRICE STIPULATED TO BE PAID FOR EACH "ITEM SPECIAL-FIRE HYDRANT REMOVED AND RESET" WHICH PRICE AND PAYMENT SHALL INCLUDE THE REMOVING, INSPECTION, CLEANING, SETTING, CONNECTING, TESTING, PAINTING, EXCAVATION, SHEETING AND BRACING, BACKFILLING, SEEDING AND SODDING, REPAVING AND THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

(B) THE PIPE WILL BE PAID FOR UNDER "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS."

FURNISHING AND SETTING 6" FIRE HYDRANTS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL HYDRANTS, CAULKING MATERIAL, LABOR, TOOLS AND EQUIPMENT FOR AND SHALL PROPERLY CONNECT AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS 6" FIRE HYDRANTS, COMPLETE, AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

HYDRANTS

THE 6" FIRE HYDRANTS SHALL BE CITY OF CLEVELAND STANDARD AND SHALL CONFORM TO THE CITY SPECIFICATIONS ON FILE AT 1825 LAKESIDE AVENUE, CLEVELAND 14, OHIO AND THE HYDRANT DETAIL SHOWN ON SHEET NO. 354.

SETTING

(A) GENERAL LOCATION: HYDRANT SHALL BE LOCATED IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY AND IN SUCH MANNER THAT THE POSSIBILITY OF DAMAGE FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED. UNLESS OTHERWISE DIRECTED THE SETTING OF ANY FIRE HYDRANT SHALL CONFORM TO THE FOLLOWING:

(B) LOCATION REGARDING CURB LINES: WHEN PLACED BEHIND CURB, THE HYDRANT BARREL SHALL BE SET SO THAT CENTER OF BARREL WILL BE NO LESS THAN 3 FEET FROM THE GUTTER FACE OF THE CURB OR DEVIATE FROM LOCATION INDICATED ON CONTRACT DRAWINGS EXCEPT BY CONSENT OF THE ENGINEER.

(C) LOCATION REGARDING SIDEWALK: WHEN SET IN THE LAWN SPACE BETWEEN THE CURB AND THE SIDEWALK OR BETWEEN THE SIDEWALK AND THE PROPERTY LINE, NO PORTION OF THE HYDRANT OR NOZZLE CAP SHALL BE WITHIN 6 INCHES OF THE SIDEWALK.

(D) POSITION OF NOZZLES: THE HYDRANT SHALL STAND PLUMB WITH NOZZLE POINTING TOWARD CURB AND AT AN ANGLE OF FORTY-FIVE DEGREES THEREFROM. WHERE HYDRANT BRANCH PIPING IS PARALLEL WITH, OR NOT AT RIGHT-ANGLES TO CURB, THE CONTRACTOR SHALL RELEASE SWIVEL HEAD BOLTS AND ADJUST HYDRANT NOZZLES TO FACE CURB AT PROPER ANGLE. HYDRANT WITHOUT SWIVEL HEADS WILL BE ADJUSTED BY THE CITY WHERE NECESSARY TO CORRECT ANGLE ON NOZZLES WITH CURBING. ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH TOPS OF FROST CASING AT LEAST FOUR INCHES ABOVE GRADE.

(E) CONNECTION TO MAIN: THE FIRE HYDRANT SHALL BE CONNECTED TO THE MAIN PIPE WITH A CAST IRON BRANCH CONTROLLED BY THE INDEPENDENT GATE VALVE OF THE SAME SIZE AS FIRE HYDRANT EXCEPT AS OTHERWISE DIRECTED.

F) DRAINAGE AT HYDRANT: DRAINAGE SHALL BE PROVIDED AT BASE OF THE HYDRANT BY FILLING AROUND ELBOW WITH COARSE GRAVEL OR CRUSHED STONE TO AT LEAST SIX - INCHES ABOVE THE WASTE OPENING. WHEREVER HYDRANT IS SET IN ROCK, CLAY OR OTHER IMPERVIOUS SOIL, THE TRENCH SHALL BE WIDENED AND DEEPENED ON EACH SIDE OF HYDRANT BASE. WHICH SPACE SHALL BE FILLED COMPACTLY WITH COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND OF SUFFICIENT QUANTITY TO ABSORB ALL SPECIAL-WATER TO BE DRAINED FROM HYDRANT WHEN VALVE IS CLOSED.

(G) ANCHORAGE FOR HYDRANT: THE HYDRANT SHALL BE SET ON A STONE SLAB OR SIMILAR FOUNDATION AND BASE OF HYDRANT AND HYDRANT TEE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH WITH CONCRETE BACKING OR IT SHALL BE TIED TO THE PIPE WITH SUITABLE RODS OR CLAMPS AS DIRECTED BY THE ENGINEER.

(H) CLEANING: HYDRANT SHALL BE THOROUGHLY CLEANED OF DIRT OR FOREIGN MATTER BEFORE SETTING

PAYMENT

(A) THE UNIT PRICE STIPULATED TO BE PAID FOR EACH "ITEM SPECIAL-FURNISHING AND SETTING 6" FIRE HYDRANT" SHALL INCLUDE FURNISHING THE HYDRANT, IN ACCORDANCE WITH RESPECTIVE SPECIFICATION SET FORTH ELSEWHERE IN THESE NOTES, SETTING, TESTING, PAINTING, THE EXCAVATION, SHEETING AND BRACING, BACKFILLING, AND THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

(B) THE PIPE WILL BE PAID FOR UNDER "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS."

(C) THE VALVES WILL BE PAID FOR UNDER "VALVES."

(D) THE VALVE BOX WILL BE PAID FOR UNDER "VALVES".

VALVES

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY SET IN PLACE AND CONNECT AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL AIR COCKS, DRAIN VALVES, AND GATE VALVES OF THE VARIOUS SIZES AND TYPES SPECIFIED OR ORDERED, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

AIR COCKS

ALL AIR COCKS OR AIR VENT VALVES SHALL BE 2-INCH BRASS ANGLE TYPE GLOBE VALVES. 2-INCH AIR COCKS SHALL BE EQUAL IN ALL RESPECTS TO THE FARNAN "CLEVELAND STANDARD" BRASS AIR VENT VALVE NO. W-4695 AS MANUFACTURED BY THE FARNAN BRASS WORKS.

GATE VALVES

(A) TYPE OF VALVES: THE GATE VALVES SHALL BE MANUFACTURED IN FULL COMPLIANCE WITH THE STANDARD SPECIFICATIONS FOR GATE VALVES FOR ORDINARY WATERWORKS SERVICE OF THE AMERICAN WATERWORKS ASSOCIATION A.W.W.A. C 500-61 OR LATEST REVISION THEREOF AND IN ADDITION SHALL COMPLY WITH THE FOLLOWING SUPPLEMENTARY REQUIREMENTS. ALL GATE VALVES SHALL BE THE NONREVOLVING DOUBLE DISC TYPE. ALL GATE VALVES 16 IN. AND UNDER IN SIZE SHALL BE DOUBLE DISC PARALLEL OR TAPERED SEAT BOTTOM WEDGE OR SIDE WEDGE TYPE. ALL GATE VALVES 20 IN. AND OVER IN SIZE SHALL BE DOUBLE DISC PARALLEL SEAT BOTTOM WEDGE OR SIDE WEDGE TYPE AND SHALL INCLUDE BYPASS VALVES ATTACHED THERETO. IN OPENING OR CLOSING THE VALVE, THE GATES SHALL BE FORCED TO ASCEND OR DESCEND BY REASON OF THE THRUST EXERTED UPON THEM BY THE VALVE STEM NUT: THIS THRUST BEING GENERATED BY THE ROTATION OF THE VALVE STEM. IN CLOSING THE VALVE THE DISCS WHEN OPPOSITE THE PORTS SHALL BE PRESSED FIRMLY AGAINST THE BODY SEATS BY WEDGES OR SOME OTHER DEVICE EQUALLY SUITABLE TO THE ENGINEER.

(B) VALVES WITH STATIONARY STEMS: ALL GATE VALVES, UNLESS OTHERWISE ORDERED, SHALL BE MADE WITH SINGLE, NONRISING STEMS.

(C) OUTSIDE SCREW AND YOKE VALVES: GATE VALVES WITH OUTSIDE SCREW AND YOKES SHALL BE MADE WITH SINGLE RISING STEMS.

(D) WHEELS: ALL OUTSIDE SCREW AND YOKE VALVES SHALL BE EQUIPPED WITH WHEELS FOR OPERATING SAME. WHEELS ARE TO BE OF MALLEABLE IRON. WHEELS SHALL HAVE CAST ON THEM AN ARROW INDICATING THE DIRECTION OF TURNING FOR OPENING THE VALVE.

(E) HUB ENDS: THE DIMENSIONS OF THE BELLS ON VALVES UP TO AND INCLUDING 24 IN. IN DIAMETER SHALL CONFORM TO THOSE FOR CLASS D PRESSURE FITTINGS AS REQUIRED BY AWWA C 100. ON VALVES 30 IN. AND LARGER IN SIZE THE BELL DIMENSIONS SHALL BE FOR THE CLASSES ORDERED.

(F) VICTAULIC ENDS: VICTAULIC ENDS SHALL CONFORM TO THE DIMENSIONS GIVEN ON THE CONTRACT DRAWINGS.

(G) FLANGE ENDS: THE END FLANGES OF FLANGED END GATE VALVES SHALL CONFORM IN DIMENSIONS AND DRILLING TO THE "AMERICAN 125 LB. CAST IRON FLANGES STANDARD", UNLESS OTHERWISE ORDERED.

(H) SCREW ENDS: ALL 2 IN. GATE VALVES AND UNDER SHALL BE MADE WITH SCREW ENDS UNLESS OTHERWISE SPECIFIED. THE 3-INCH AND 4-INCH HAND - WHEEL GATE VALVES SHALL BE FURNISHED WITH SCREW ENDS WHEN REQUIRED BY THE ENGINEER. THREADS TO BE INSIDE STANDARD IRON PIPE THREADS.

(I) SOLDER JOINT ENDS: THE END CONNECTION SOCKETS OF SOLDER-JOINT GATE VALVES SHALL BE MADE TO CLOSE TOLERANCES AND SNUGLY FIT TYPE K AND L COPPER TUBING TO PERMIT MAKING SWEAT JOINTS. DEPTH OF JOINTS ON 1-1/2 - INCH VALVES SHALL BE NOT LESS THAN 1-3/16 INCHES AND ON 2-INCH VALVES NOT LESS THAN 1-3/8 INCHES.

(J) VERTICAL AND HORIZONTAL VALVES: ALL GATE VALVES, 16-INCHES AND UNDER SHALL BE CONSTRUCTED TO, WORK VERTICALLY. VALVES OVER 16-INCH WATERWAY SHALL BE CONSTRUCTED TO WORK HORIZONTALLY.

(K) BY-PASSES: BY-PASSES WITH GATE VALVES SHALL BE PROVIDED ON VALVES 20 INCHES AND LARGER. THE BY-PASSES SHALL BE LOCATED ON OR BELOW THE HORIZONTAL CENTERLINE OF THE VALVES. BY-PASS VALVES SHALL BE OF THE SAME SIZE AS THE BY-PASS AND SHALL CONFORM TO THE REQUIREMENT OF THESE SPECIFICATIONS FOR THE SPECIFIC VALVE USED. THE SIZE REQUIREMENTS OF BY-PASSES SHALL BE AS FOLLOWS:

VALVES 24 IN. TO 30 IN. INCLUSIVE, SHALL BE PROVIDED WITH 4 INCH BY-PASSES.

TAPPING SLEEVE AND TAPPING VALVE WILL CONFORM TO THE REQUIRES OF GATE VALVE SPECIFICATIONS AS MANUFACTURED BY A.P.SMITH, DIVISION OF U.S. CAST IRON PIPE CORPORATION.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
CHECKED H.C.S.
SCALE
DATE
No.

WATERWORK NOTES

VALVES-CON'T

(L) BOSSES: OUTSIDE SCREW AND YOKE GATE VALVES 6-INCHES AND LARGER IN SIZE SHALL BE PROVIDED WITH TWO BOSSES ON ONE SIDE OF BODY, LOCATED ON THE HORIZONTAL CENTERLINE OF GATE VALVES, TO PERMIT THE INSTALLATION OF BY-PASS AROUND THE GATE. BOSSES ARE TO BE LEFT SOLID AND OF AMPLE SIZE TO PERMIT DRILLING AND TAPPING FOR BY-PASSES HAVING DIAMETERS NOT LESS THAN ONE-SIXTH OF THE NOMINAL SIZE OF GATE VALVE.

(M) FLANGES: WHEN FLANGED VALVES ARE REQUIRED THE FLANGES SHALL BE FACED AND DRILLED. BOLT HOLES SHALL BE SPOT FACED ON THE BACK WHEN NECESSARY TO SECURE AN EVEN BEARING. ALL BOLT HOLES SHALL BE OF THE SIZE SHOWN ON THE DRAWINGS TO BE SUBMITTED AND APPROVED, SHALL BE ACCURATELY DRILLED FROM TEMPLATES SPACED EQUAL DISTANCES APART AND SHALL STRADDLE HORIZONTAL AND VERTICAL AXIS, ALL AS SHOWN ON THE DRAWINGS. THE DIMENSIONS AND DRILLING OF ALL END FLANGES SHALL CONFORM TO THE SPACING INDICATED ON THE DRAWINGS WHICH SHALL BE THE AMERICAN 125 LBS, CAST IRON FLANGE STANDARD, FLANGES SHALL BE PLAIN FACE WITH A SMOOTH FINISH.

(N) MARKING: ALL GATE VALVES 3 IN. AND OVER SHALL HAVE THE IDENTITY OF MAKER, SIZE AND THE YEAR WHEN MADE AND ALSO THE LETTERS "C.W.D." CAST UPON ITS BODY OR DOME IN RAISED LETTERS.

(O) STUFFING BOXES: THE STUFFING BOX ON EACH GATE VALVES 3 IN. OR OVER, MUST BE SEPARATE FROM THE DOME AND FASTENED TO IT BY BOLTS. FOR 2 IN. VALVES AND UNDER, THE STUFFING BOXES MAY BE FORMED IN THE DOME OF THE VALVE. WHEN REQUIRED BY THE ENGINEER, VALVES 16 IN. AND SMALLER, SHALL BE FURNISHED WITH "O" RING TYPE SEAL PLATE. THE SEAL PLATE SHALL BE FITTED WITH AT LEAST TWO "O" RINGS, THE LOWER "O" RING SERVING AS THE PRESSURE SEAL AND THE UPPER "O" RING AS A COMBINED DIRT AND MOISTURE SEAL. THE "O" RINGS SHALL BE PRECISION RUBBER CORPORATION QUALITY COMPOUND NO. 122-70, OR APPROVED EQUAL.

(P) SEAT AND GATE RINGS DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS SHALL BE PROPORTIONED TO FIT THE TEST PRESSURE REQUIRED, AND SHALL MEET THE APPROVAL OF THE ENGINEER. THE RINGS SHALL BE FIRMLY SECURED IN PLACE BY AN APPROVED DEVICE WHICH WILL PREVENT THEM FROM WORKING LOOSE, PARTICULARLY WHEN THE VALVE IS LEFT PARTLY OPEN. DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS FOR GATE VALVES SHALL BE NOT LESS THAN THAT SPECIFIED IN THE FOLLOWING TABLES. BODY SEAT RINGS SHALL BE MADE OF GRADE ONE BRONZE. GATE SEAT RINGS SHALL BE MADE OF GRADE FIVE BRONZE.

BODY AND GATE RINGS
BOTTOM WEDGE

	BODY RINGS				GATE RINGS		
VALVE SIZE	FACE	DEPTH	THICKNESS AT BASE OF THREADS	FACE THICKNESS	FACE	FACE THICKNESS	DEPTH
4"	9/16	9/16	3/16	3/16	5/8	5/32	5/16
6"	11/16	9/16	3/16	5/32	11/16	5/32	5/16
8"	3/4	5/8	3/16	7/32	13/16	5/32	5/16
10"	3/4	5/8	3/16	7/32	13/16	5/32	11/32
12"	7/8	5/8	7/32	7/32	1	5/32	11/32
30"	1-1/2	1-1/4	3/8	7/16	1-1/2	7/16	3/4

SIDE WEDGE

4"	7/16	9/16	3/16	3/16	1/2	5/32	21/64
6"	1/2	11/16	9/32	1/4	5/8	5/32	21/64
8"	17/32	11/16	9/32	1/4	11/16	5/32	21/64
10"	5/8	13/16	3/8	5/16	13/16	5/32	21/64
12"	5/8	13/16	3/8	5/16	13/16	5/32	21/64
30"	1-5/16	1-1/2	25/32	1/2	1-7/16	5/16	10/32

DIMENSIONS IN INCHES

(Q) VALVE STEM: ALL GATE VALVES SHALL BE OF THE SINGLE SCREW TYPE. THE STEMS SHALL BE OF GRADE THREE BRONZE. THE THREADS OF STEMS AND STEM NUTS SHALL BE OF ACME, MODIFIED ACME OR ONE-HALF V TYPE. IF REQUESTED, A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS. ALL STEM COLLARS SHALL BE CAST INTEGRAL WITH STEMS. THE DIAMETERS OF STEMS AT THE BASE OF THE THREAD SHALL BE NOT LESS THAN THOSE SHOWN BELOW. THE STEM OPENING AND THRUST-BEARING RECESS SHALL BE GRADE ONE BRONZE BUSHED. THE NUMBER OF THREADS PER INCH SHALL BE AS GIVEN BELOW:

SIZE OF VALVE INCHES	DIAMETER OF STEM AT BASE OF THREAD - INCHES	NO. OF THREADS PER INCH
4	0.859	3
6	1.000	3
8	1.000	3
10	1.125	3
12	1.188	3
30	2.480	2

(R) WRENCH CAPS: THE WRENCH CAPS AND RETAINING NUTS ON HEADS OF VALVE STEMS AND PINION SHAFTS SHALL BE OF GRADE THREE BRONZE. ON VALVES 24-INCHES AND OVER, WRENCH CAPS SHALL BE 2 IN. SQUARE AND 2 IN. DEEP. ON VALVES 4-INCHES TO 20 INCHES INCLUSIVE, THEY SHALL BE 1-3/4 INCHES SQUARE ON TOP, 1-7/8 INCHES SQUARE AT BASE, AND 1-3/4 INCHES DEEP. MACHINED WRENCH CAPS FOR VALVES 3-INCHES TO 48 INCHES INCLUSIVE SHALL BE FITTED TO A MACHINED SQUARE STEM OR PINION SHAFT AND HELD IN PLACE BY A RETAINING NUT. WRENCH CAPS SHALL HAVE A CUT-AWAY SKIRT TO PERMIT EASY ACCESS TO GLAND BOLTS.

(S) VALVES TO OPEN CLOCKWISE, EXCEPT 2-INCHES AND UNDER: ALL GATE VALVES 3-INCHES AND OVER, INCLUDING BY-PASS VALVES, SHALL BE MADE TO OPEN BY TURNING IN A CLOCKWISE DIRECTION. VALVES 2-INCHES AND UNDER SHALL BE MADE TO OPEN BY TURNING IN A COUNTER-CLOCKWISE DIRECTION. ALL VALVES TO BE SO MADE THAT THEY CAN BE EASILY OPERATED.

(T) FACING OF GATES: ALL DISCS OR GATES AND THREADS FOR SEAT RINGS IN THE BODY SHALL BE MACHINED TRUE AND A GROOVE OR GROOVES SHALL BE MACHINED IN EACH DISC OR GATE FOR THE RECEPTION OF THE FACE RING. THE DISC AND SEAT RINGS SHALL BE SECURELY AND RIGIDLY ATTACHED TO THE DISCS OR BODY SEATS IN A MANNER APPROVED BY THE ENGINEER, AND THE RINGS ARE TO BE FINISHED TO A TRUE SURFACE.

(U) ROLLERS AND SCRAPERS: IN ALL VALVES 20-INCHES IN DIAMETER AND LARGER DESIGNED TO LIE HORIZONTALLY, EACH GATE OR DISC SHALL BE PROVIDED WITH TWO BRONZE ROLLERS TRAVELING ON BRONZE-FACED TRACKS AND PROVIDED WITH SUITABLE BRONZE SCRAPERS OR TWO STAINLESS STEEL ROLLERS TRAVELING ON STAINLESS STEEL-FACED TRACKS AND PROVIDED WITH SUITABLE STAINLESS STEEL SCRAPERS. THE THICKNESS OF THE FACING OF THE TRACKS SHALL BE NOT LESS THAN 1/4-INCH. THE BRONZE SHALL BE CLASS I AND THE STAINLESS STEEL SHALL BE A.S.T.M. A276-55, TYPE 302.

(V) VALVE GUIDES: ALL VALVES 20-INCHES IN DIAMETER AND LARGER SHALL BE PROVIDED WITH GUIDES OR TRACKS WHICH SHALL BE MADE STRAIGHT AND TRUE AND ALL IRREGULARITIES MUST BE MACHINED OFF. THE GUIDES OR TRACKS OF HORIZONTAL VALVES SHALL BE SUBSTANTIALLY FACED WITH A MINIMUM OR 1/4 IN. OF GRADE ONE BRONZE, OR STAINLESS STEEL ASTM A 276-55, TYPE 302, SATISFACTORY TO THE ENGINEER, SECURELY FASTENED AND PLANED OFF SMOOTH AND TRUE.

(W) GEARING: ALL VALVES 20-INCHES IN DIAMETER AND LARGER SHALL BE EQUIPPED WITH ENCLOSED CUT TOOTH STEEL GEARS. GEARS, SHAFTS AND BEARINGS, SHALL BE SUCH AS TO PRODUCE EASY OPERATION WITHOUT BENDING OR TWISTING.

(X) DOWEL PINS: ALL GEAR VALVES SHALL HAVE TWO DOWEL PINS SET IN THE FLANGES CONNECTING THE DOME AND BODY. SIZE OF THE PINS TO BE SHOWN IN PLANS.

(Y) INDICATORS: ALL VALVES 20-INCHES IN DIAMETER AND OVER, SHALL BE EQUIPPED WITH INDICATORS DENOTING THE POSITIONS OF THE GATE. THE MOVING PART AND BEARINGS TO BE OF BRONZE OR BRONZE-LINED.

(Z) GREASE CASES: ALL VALVES 20-INCHES IN DIAMETER AND LARGER, SHALL HAVE WATER TIGHT GREASE CASES INSTALLED. THE GREASE CASES SHALL BE OF THE EXTENDED TYPE AND SHALL BE MADE OF CAST IRON CONFORMING TO ASTM SPECIFICATIONS SERIAL DESIGNATION A 126, CLASS B OR ANY SUBSEQUENT AMENDMENT THERETO. BEARING SURFACES FOR VALVE STEM AND PINION SHAFT SHALL BE BRONZE BUSHED WITH GRADE ONE BRONZE. THE GREASE CASES SHALL BE SECURELY BOLTED TO THE VALVE BONNET THROUGH A HEAVY CAST IRON YOKE. THE YOKE SHALL BE OF SUFFICIENT LENGTH TO PROVIDE SPACE FOR REPACKING VALVE AND GREASE CASE STUFFING BOXES. ALL GREASE CASES SHALL BE PROVIDED WITH A REMOVABLE COVER SECURELY BOLTED IN PLACE TO ALLOW EASY ACCESS TO THE GEARS. THERE SHALL ALSO BE PROVIDED CONVENIENT FILLING AND DRAINING PLUGS AND SUFFICIENT OIL TO FULLY SUBMERGE THE PINION GEAR. THE VALVES SHALL BE DELIVERED WITH THE GREASE CASES FILLED WITH THE PROPER OIL AS RECOMMENDED BY THE MANUFACTURER.

(AA) BRONZE PARTS: THE STEMS, STEM NUTS, OPERATING NUTS, RETAINING NUTS, DISC AND SEAT RINGS, SHALL BE OF SOLID BRONZE. OTHER PARTS SUCH AS WEDGES, GLANDS, THRUST BEARINGS, GEAR SPINDLES, ROLLERS, SCRAPERS AND TRACKS, AND ALL OTHER PARTS COMING TOGETHER IN OPERATION, SHALL BE OF BRONZE, OR SUBSTANTIALLY LINED WITH BRONZE OR STAINLESS STEEL OF A THICKNESS NOT LESS THAN 1/4 OF AN INCH AND AS SHOWN ON DRAWINGS SUBMITTED AND APPROVED. ALL 2" VALVES AND UNDER SHALL BE MADE ENTIRELY OF BRONZE, EXCEPT HAND-WHEELS WHICH SHALL BE OF MALLEABLE IRON.

(BB) CAST IRON PARTS: THE BODIES, COVERS, DISCS, FRAMES, ETC., OF ALL GATE VALVES 3" AND OVER, SHALL BE OF CAST IRON.

(CC) WATERWAY OPENING: WITH THE VALVE OPEN, AN UNOBSTRUCTED WATERWAY SHALL BE AFFORDED. THE DIAMETER OF WHICH IS NOT TO BE LESS THAN THE FULL NOMINAL DIAMETER OF THE VALVE.

MATERIAL SPECIFICATIONS

(A) STRENGTH OF VALVES: THE GATE VALVES SHALL BE DESIGNED FOR 150 LB. WORKING PRESSURE AND SHALL WITHSTAND AN INTERNALLY APPLIED HYDROSTATIC PRESSURE AT ALL POINTS OF AT LEAST 300 LBS. PER SQUARE INCH. A FACTOR OF SAFETY OF NOT LESS THAN 10 SHALL BE USED ON THE DESIGN. SHOULD TESTS DEVELOP ANY WEAKNESS, THE VALVES FROM THAT DESIGN SHALL BE REJECTED AND A NEW DESIGN MADE.

(B) REINFORCEMENT AT FLANGES: ALL VALVE FLANGES SHALL BE REINFORCED BY FILLETS IN ACCORDANCE WITH THE MANUFACTURER'S PRACTICE PROVEN SATISFACTORY IN ACTUAL SERVICE.

(C) JOINTS: ALL JOINTS OF THE VALVES SHALL BE FACED TRUE IN A LATHE OR PLANER AND PUT TOGETHER WITH A GASKET OF SOME MATERIAL ACCEPTABLE TO THE ENGINEER.

D) BOLT HOLES: ALL BOLT HOLES SHALL BE ACCURATELY DRILLED FROM TEMPLATES AND SPACED EQUAL DISTANCES APART.

(E) BOLTS AND NUTS: ALL BOLTS AND NUTS SHALL BE MADE OF SILICON BRONZE (ASTM B 98-69, ALLOY A) OR STAINLESS STEEL (ASTM A 276-72, TYPE 302)

(F) PARTS TO BE INTERCHANGEABLE: ALL PARTS OF VALVES OF THE SAME SIZE AND MAKE MUST BE PERFECTLY INTERCHANGEABLE AND ALL WORK DONE IN A THOROUGH AND WORKMANLIKE MANNER.

(G) CASTINGS: ALL CASTINGS, WHETHER OF BRONZE, IRON OR STEEL, SHALL BE SOUND AND SMOOTH WITHOUT COLD SHUTS, SWELLS, LUMPS, SCABS, BLISTERS, SAND HOLES OR OTHER IMPERFECTIONS, AND SHALL BE MADE IN ACCORDANCE WITH THE BEST MODERN FOUNDRY PRACTICE TO OBTAIN CASTINGS OF THE BEST QUALITY AND OF UNIFORM THICKNESS. NO WELDING, PLUGGING OR FILLING OF HOLES OR OTHER DEFECTS WILL BE PERMITTED. FOR PARTS WHOSE THICKNESS IS LESS THAN ONE (1") - INCH , CASTING BEING THINNER THAN THE SPECIFIED THICKNESS BY .06 INCH OR MORE SHALL BE REJECTED, AND FOR PARTS WHOSE THICKNESS IS ONE (1") INCH OR MORE, CASTINGS BEING THINNER THAN SPECIFIED BY .08 INCH OR MORE SHALL BE REJECTED.

(H) BRONZE PARTS: (1) BRONZE FOR PARTS, OTHER THAN THOSE LISTED BELOW, SHALL BE GRADE ONE. (2)-VALVE STEMS, PINION SHAFTS, STEM NUTS, WRENCH CAPS AND RETAINING NUTS SHALL BE MADE OF GRADE THREE BRONZE. (3) DISC RINGS SHALL BE MADE OF GRADE FIVE BRONZE.

(I) TESTS OF BRONZE: (1) IF DEMANDED, A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS. (2) ALL STEMS OF 16-INCH GATE VALVES AND OVER, SHALL HAVE A PROLONGATION ON ONE END OF EACH STEM, OF THE SAME DIMENSIONS AND CROSS SECTIONS AS THE STEM AND OF SUFFICIENT LENGTH TO ENABLE THE CUTTING OF SPECIMENS PARALLEL WITH THE LONGITUDINAL AXIS OF THE STEM. SPECIMENS SHALL BE CUT FROM PROLONGATIONS ONE-HALF WAY BETWEEN SURFACE AND CENTRAL AXIS. OTHER METHODS OF TEST WILL BE CONSIDERED BY THE ENGINEER, BUT MUST BE SUBMITTED IN DETAIL WITH THE BID. (3) FOR ALL STEMS OF GATE VALVES SMALLER THAN 16-INCHES. NOT LESS THAN TWO TEST PIECES SHALL BE CAST FROM THE MOLTEN METAL OF EACH HEAT, FROM WHICH VALVE STEMS ARE BEING MADE. (4) ALL STEMS MADE FROM BRONZE SHOWING LESS STRENGTH, ELONGATION AND/OR DUCTILITY THAN ABOVE REQUIRED SHALL BE REJECTED. (5) TESTS OF VALVE STEMS, OR THE VARIOUS PARTS OF ANY VALVE MAY BE MADE AT ANY TIME BEFORE OR AFTER DELIVERY, AND IF FOUND TO BE DEFICIENT IN STRENGTH OR UNSATISFACTORY TO THE ENGINEER, THE WHOLE LOT OR SHIPMENT MAY BE REJECTED.

(J) - CAST IRON:

(1) - QUALITY: CAST IRON SHALL CONFORM TO ASTM SPECIFICATIONS A126. CLASS B, OR LATEST REVISION THEREOF ALL IRON CASTINGS SHALL BE TOUGH AND WITHOUT BRITTLENESS, SUCH AS MAY BE CUT, DRILLED AND CHIPPED BY HAND WITH DUE EASE. A BLOW FROM A HAMMER SHALL PRODUCE AN INDENTATION ON THE EDGE OF THE CASTING WITHOUT FLAKING THE METAL.

(2) - TESTS: BARS FROM THE MOLTEN METAL FROM WHICH THE VALVES ARE BEING MADE SHALL BE TESTED AT SUCH TIME AND IN SUCH MANNER, AS THE ENGINEER MAY REQUIRE. THE REQUIREMENTS OF ASTM SPECIFICATIONS A 126 SHALL GOVERN TESTING PROCEDURES TO DETERMINE THE PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE IRON CASTINGS. SHOULD THE RESULT OBTAINED FROM THE BAR TESTED FAIL TO SHOW THAT THE CAST IRON MEETS THE REQUIREMENTS HEREIN SPECIFIED, THE ENTIRE MELT WILL BE REJECTED. TEST BARS, HOWEVER, WHOSE FAILURE IS DUE TO INHERENT DEFECTS SHALL NOT BE CONSIDERED. ALL VALVES MADE FROM IRON SHOWING LESS STRENGTH THAN CALLED FOR IN THE ASTM SPECIFICATIONS SHALL BE REJECTED.

(K) QUALITY OF MATERIALS:

GRADE ONE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 62.

GRADE TWO CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM b 132 ALLOY NO. 864

GRADE THREE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132 ALLOY NO. 867

GRADE FOUR ROLLED BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 21, ALLOY NO.464 (ONE-HALF HARD)

GRADE FIVE BRONZE SHALL BE SUFFICIENTLY MALLEABLE TO CONFORM TO DOVETAILED GROOVES WHEN PEENED OR ROLLED: AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH WITHOUT DEFORMATION OF 4000 PSI, AND SHALL HAVE THE FOLLOWING CHEMICAL COMPOSITION:

COPPER, PERCENT	91.0
TIN, PERCENT	0.0
ZINC, PERCENT	5.0
LEAD, PERCENT	4.0

SILICON BRONZE

THIS BRONZE SHALL CONFORM TO A.S.T.M. SPECIFICATION B-98, ALLOY A

STAINLESS STEEL

THE STAINLESS STEEL SHALL CONFORM TO A.S.T.M. SPECIFICATIONS A-276 TYPE 302.

CAST IRON

THE CAST IRON SHALL CONFORM TO A.S.T.M. SPECIFICATION A 126 CLASS B

(L) - OTHER MATERIALS: ALL OTHER MATERIALS USED IN THE MANUFACTURE OF THESE VALVES AND NOT SPECIFIED IN THE SPECIFICATIONS SHALL BE OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS, AND SUBJECT TO INSPECTION, TESTS, AND APPROVAL BY THE ENGINEER.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
SCALE
CHECKED H.C.S.
DATE
No.

WATERWORK NOTES

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

309/713

8/54

VALVES CONT'D

(M) - CHEMICAL ANALYSIS: CHEMICAL ANALYSIS OF THE MATERIAL USED SHALL BE FURNISHED BY THE CONTRACTOR WHENEVER REQUIRED BY THE ENGINEER.

(N) - CLEANING OF CASTINGS: ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED ON THE OUTSIDE AND INSIDE SURFACES AND PROTECTED FROM RAIN OR MOISTURE UNTIL THEY ARE PAINTED.

(O) - HYDROSTATIC TESTS AT SHOP: ALL GATE VALVES SHALL BE TESTED IN THE SHOP BY HYDROSTATIC PRESSURE, BY CLOSING THE VALVE AND APPLYING THE REQUIRED TEST PRESSURE IN THE BODY AND DOME OF THE VALVE AS SPECIFIED BELOW.

4" THROUGH 12"	400 PSI - NO TIME REQUIREMENT
24" THROUGH 48"	300 PSI FOR 1/2 HOUR, DROP PRESSURE TO 150 PSI, THEN ELEVATE AGAIN TO 300 PSI FOR 30 MINS. - A TOTAL OF 1 HOUR.

THIS IS A MODIFICATION OF SECTION 29 OF THE "STANDARD SPECIFICATIONS A.W.W.A. DESIGNATION C-500-61". ALL LEAKS, FLAWS OR OTHER DEFECTS DEVELOPED IN MAKING THESE TESTS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER OR THE ENTIRE PIECE SHALL BE REJECTED. AFTER TESTING, ALL VALVES SHALL BE THOROUGHLY DRAINED. ALL EQUIPMENT FOR TESTING AND ALL TESTS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

(P) - PERFORMANCE TESTS: EACH VALVE SHALL BE OPERATED IN THE POSITION THAT IT WILL ASSUME IN SERVICE AND FOR THE FULL LENGTH OF GATE TRAVEL IN BOTH DIRECTIONS, TO DEMONSTRATE THE FREE AND PERFECT FUNCTIONING OF ALL PARTS IN THE INTENDED MANNER. ANY DEFECTS OF WORKMANSHIP SHALL BE CORRECTED AND THE TEST REPEATED UNTIL SATISFACTORY PERFORMANCE IS DEMONSTRATED.

PLACING AND TESTING

(A) - ALL VALVES SHALL BE SET ACCURATELY AND CAREFULLY TO THE LINES AND GRADES GIVEN. ALL CONNECTIONS TO PIPE SHALL HAVE THE NECESSARY FLANGE, LEAD, SCREWED, VICTAULIC OR SOLDERED ENDS AS REQUIRED UNDER THE FOLLOWING ITEMS: CAST IRON AND DUCTILE IRON PIPE AND FITTINGS, PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS, FURNISHING AND SETTING 6" (SIX INCH) HYDRANT, 4" DRAIN, COMPLETE, AND AS SHOWN ON THE VALVE SCHEDULE.

(B) - AFTER THE VALVES ARE SET IN PLACE AND READY TO OPERATE, THE CONTRACTOR SHALL TEST THEM UNDER WORKING PRESSURE AND CONDITIONS HEREIN SPECIFIED UNDER THE SPECIFICATION "TESTING MAINS" AND ANY VALVE FOUND TO LEAK SHALL BE MADE WATER-TIGHT AND IF FOUND TO BE OF FAULTY DESIGN, SHALL BE SATISFACTORILY REPAIRED OR REPLACED BY THE CONTRACTOR.

PAINTING

(A) - IRON BODY VALVES SHALL EITHER BE DIPPED IN ASPHALT PAINT AND ALL BRONZE PARTS CLEANED, OR ALL IRON CASTINGS SHALL BE PAINTED INSIDE BEFORE ASSEMBLING WITH TWO (2) COATS OF AN APPROVED PAINT, AND, AFTER PASSING THE HYDRAULIC TEST SHALL BE GIVEN AT LEAST TWO (2) COATS OF APPROVED PAINT OUTSIDE.

(B) - AFTER ERECTION, ALL EXPOSED METAL SURFACES OF VALVES EXCEPT BRASS OR BRONZE SHALL BE PAINTED WITH TWO (2) FIELD COATS OF COAL TAR PITCH PAINT INERTOL 66 OR KOPPERS BITUMASTIC 50, OR APPROVED EQUAL.

INSPECTION

THE ENGINEER, OR HIS AUTHORIZED DESIGNATE WILL INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE RESPECTIVE CITIES OR STATE MAY REQUIRE. SUCH OFFICE SHALL HAVE UNRESTRICTED ACCESS TO THE CONTRACTOR'S PLANT AND TO ALL PARTS OF THE WORK AND OTHER PLACES AT WHICH THE PREPARATION OF THE MATERIAL AND THE CONSTRUCTION OF THE DIFFERENT PARTS OF THE WORK TO BE DONE UNDER THESE SPECIFICATIONS ARE CARRED ON, AND HE SHALL RECEIVE ALL FACILITIES AND ASSISTANCE TO CARRY OUT HIS WORK OF INSPECTION AND TESTING, IN A MANNER SATISFACTORY TO THE ENGINEER. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATIONS THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR, AT HIS OWN EXPENSE.

DRAWINGS

(A) - PRIOR TO THE MANUFACTURE OF ANY VALVES, THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND COMPLETE WORKING, DETAIL, AND DIMENSION DRAWINGS SHOWING THICKNESSES AND KINDS OF MATERIAL AND SIMILAR INFORMATION.

(B) - ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL, DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED. AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER THREE PRINTS OF EACH DRAWING: REPRODUCIBLE ON CLOTH OR .003 THICKNESS MYLAR SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND, ONE TO OHIO DEPARTMENT OF TRANSPORTATION AND ONE RETURNED TO THE CONTRACTOR.

AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL AGAIN FURNISH TO THE ENGINEER FOURTEEN (14) ADDITIONAL PRINTS OF EACH DRAWING: TWELVE (12) ON PAPER AND TWO (2) ON CLOTH, SIX (6) AND TWO(2), RESPECTIVELY, SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL-VALVES" CLASSIFIED AS TO SIZE AND TYPE SHALL INCLUDE THE FURNISHING, PLACING, TESTING AND PAINTING OF THE AIR COCKS, DRAIN VALVES, GATE VALVES, INCLUDING BY-PASS VALVES OPERATING NUTS AND OTHER ACCESSORIES AND APPURTENANCES AND THE FURNISHING OF ALL LABOR, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

AIR COCK IS INCLUDED FOR PAYMENT IN "ITEM SPECIAL - 2" AIR COCK COMPLETE".

VALVE IS INCLUDED FOR PAYMENT IN "ITEM SPECIAL - 4" DRAIN COMPLETE".

VALVE BOXES SHALL BE INCLUDED FOR PAYMENT IN "ITEM SPECIAL-VALVES".

GALVANIZED WELDED STEEL PIPE ON BRIDGE STRUCTURES

(12.75" O.D. X 0.50" EXTRA STRONG WELDED STEEL PIPE A.S.T.M. A-120)
(16.00" O.D. X 0.50" WELDED STEEL PIPE A.S.T.M. A-53 GRADE B)

WORK INCLUDED

THE WORK SHALL CONSIST OF THE FURNISHING AND INSTALLING STEEL PIPE OF THE SIZES INDICATED INCLUDING STEEL PIPE FLANGES, COUPLINGS, EXPANSION JOINT ASSEMBLIES, STEEL PIPE SUPPORT ASSEMBLIES, FASTENINGS, APPURTENANCES, PIPING INSULATION AND APPURTENANCES, AND SLEEVE PACKING THRU ABUTMENT WALLS.

JOINTS

(A) - FLANGED JOINTS:

(1) - FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS, FLANGES SHALL BE EITHER CAST STEEL, FORGED OR ROLLED STEEL, OR PROPERLY WELDED AND MACHINED FABRICATED STEEL PLATES, WELDED TO PIPE WITH TWO COINTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO "AMERICAN 1928 STANDARD" DRILLING 125 POUND TEMPLATE. EACH BLIND FLANGE SHALL BE CAST IRON AND HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR TWO-(2) INCH STANDARD PIPE AND FURNISHED WITH PLUGS. ALL BOLTS FOR FLANGES AND OTHER TYPES OF BOLTING SHALL CONFORM TO THE "TENTATIVE SPECIFICATIONS FOR STEEL MACHINE BOLTS AND NUTS AND TAP BOLTS. A.S.T.M. DESIGNATION A 307-63T" GRADE-A, EXCEPT WHERE ONE OR BOTH FLANGES ARE CAST IRON, IN WHICH CASE BOLTS SHALL BE GRADE-B.

(2) - ALL BOLTS USED IN THE FINISHED WORK FOR FLANGES SHALL BE OF MEDIUM OPEN HEARTH STEEL. THE ENDS OF ALL BOLTS MUST BE FINISHED TO STANDARD RADIUS IN ACCEPTABLE MANNER. ALL SCREW THREADS SHALL BE AMERICAN STANDARD COARSE THREAD (N.C.). STUD BOLTS DOUBLE END (ROD) SHALL BE USED TO MAKE THE FLANGED JOINTS ON PIPE. ALL NUTS SHALL BE HEXAGONAL COLD PRESSED SEMI-FINISHED AND MADE OF MEDIUM OPEN HEARTH STEEL. ALL DIMENSIONS TO BE ACCORDING TO AMERICAN STANDARD HEAVY. BOLTS AND NUTS SHALL BE GALVANIZED BEFORE SHIPMENT AND NOT PRIMED. GASKETS FOR FLANGED PIPE SHALL BE FULL FACED RUBBER ONE-SIXTEENTH (1/16) INCH THICK 5X MANILA ROPE PATTERN OR OTHER APPROVED TYPE.

(B) - VICTAULIC PIPE COUPLINGS:

(1) - WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED, THE CONTRACTOR SHALL FURNISH AND INSTALL VICTAULIC PIPE COUPLINGS FOR CONNECTION OF IRON, CONCRETE, OR STEEL PIPE AND FITTINGS. STEEL PIPE ENDS SHALL BE FABRICATED AND GROOVED AS INDICATED ON THE DRAWINGS. THE COUPLINGS SHALL BE ADAPTED FOR INSTALLATION ON SHOULDERED END CAST IRON SPACERS, REDUCERS AND FITTINGS AND DESIGNED FOR NOT LESS THAN THE WORKING PRESSURE NOTED ON THE CONTRACT DRAWINGS. COUPLINGS SHALL BE COMPOSED OF MALLEABLE IRON HOUSINGS HELD TOGETHER WITH STEEL BOLTS HEAT TREATED AND WITH A CONTINUOUS HOLLOW MOLDED RUBBER SEALING RING, OF SUCH TYPE THAT THE SEAL BECOMES TIGHT AS THE PRESSURE WITHIN THE PIPE INCREASES. THE JOINTS SHALL BE CONSTRUCTED AND INSTALLED AND BE EQUAL IN ALL RESPECTS TO THOSE MANUFACTURED BY THE VICTAULIC COMPANY OF AMERICA. MALLEABLE HOUSINGS SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR MALLEABLE IRON CASTINGS, A.S.T.M. DESIGNATION A 47-61. BOLTS SHALL BE MANUFACTURED BY THE COUPLING MANUFACTURER AND SHALL BE HEAT TREATED CADMIUM PLATED STEEL BOLTS HAVING 100,000 PSI. TENSILE STRENGTH.

(2) - ALL METAL PARTS OF THE COUPLINGS SHALL BE COATED AT THE SHOP WITH ONE COAT OF BITUMINOUS PRIMER FURNISHED BY THE SAME MANUFACTURER WHO FURNISHES THE COATINGS AS SPECIFIED UNDER "PAINTING."

(3) - ALL BOLTS AND NUTS SHALL BE OF THE SAME QUALITY AS PROVIDED FOR FLANGED JOINTS.

(C) - EXPANSION JOINT ASSEMBLY

(1) - THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO THE DIRECTOR OF PUBLIC UTILITIES FOR APPROVAL OF THE EXPANSION JOINT ASSEMBLY.

2) - THE JOINT ASSEMBLY SHALL BE "PRESSER STYLE 63 TYPE 1" OR "ADSCO MODEL NO. S-151-1S SLIP TYPE WITH AN 8" TRAVERSE, OR EQUAL. THE JOINT ASSEMBLY SHALL INCLUDE ALL MATERIALS, CADMIUM PLATED BOLTS, NUTS AND WASHERS; WELDED NECK FLANGES A.S.A. 150# AND GASKETS. NO FIELD WELDING OF GALVANIZED STEEL PIPE WILL BE PERMITTED.

PIPE SUPPORT ASSEMBLIES

(1) - THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO THE DIRECTOR OF PUBLIC UTILITIES FOR APPROVAL OF THE PIPE SUPPORT ASSEMBLIES. THEY SHALL BE FABRICATED AS DETAILED IN THE WATER WORK DETAILS ON SHEET 349 .

(2) - PIPE SUPPORT ASSEMBLIES SHALL BE COMPLETE INCLUDING ALL MATERIALS, CADMIUM PLATED SHOULDER AND CLAMP BOLTS, WASHERS AND NUTS. THE SUPPORT ASSEMBLY CLAMP, SEAT PLATE AND SHIMS SHALL ALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER A.S.T.M. A-123 LATEST REVISION. NO FIELD WELDING OF GALVANIZED STEEL PIPE WILL BE PERMITTED.

INSULATION, APPURTENANCES AND FASTENINGS

THE CONTRACTOR SHALL FURNISH AND INSTALL INSULATION, SLEEVE PACKING, APPURTENANCES AND FASTENINGS AS CALLED FOR ON THE WATERWORK DETAIL PLANS.

THE STEEL PIPE THROUGH BRIDGE LIMITS SHALL BE INSULATED WITH THREE (3") INCHES OF HEAVY DENSITY FIBER GLASS (JOHNS-MANVILLE; GUSTIN-BACON; OWENS-CORNING; OR APPROVED EQUAL) PREFORMED PIPE INSULATION, A.S.T.M. C-547-67, OR LATEST REVISION, WITH APPROVED FACTORY APPLIED REINFORCED FIRE RESISTANT PROTECTIVE VAPOR BARRIER JACKET OF LAMINATED KRAFT AND CORROSION RESISTANT METALLIC FOIL AND 0.010" MINIMUM STAINLESS STEEL WEATHER-PROOF JACKET. STAINLESS STEEL STRAPS ONE-HALF (1/2") INCH MINIMUM WIDTH WITH STAINLESS STEEL CLAMPS SHALL BE PLACED A MINIMUM OF TWO (2) PER SECTION OF PREFORMED INSULATION.

THE VOID BETWEEN THE PIPE SLEEVE AND THE WATERMAIN THROUGH THE BRIDGE ABUTMENTS SHALL BE FILLED WITH JUTE PACKING AND SEALED AT BOTH ENDS WITH THREE (3") INCHES OF HOT POURED LEAD.

PAINTING

AFTER ERECTION, ALL EXPOSED OR DAMAGED COATINGS AND ALL BOLTS FOR FLANGES AND VICTAULIC COUPLINGS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF INERTOL 50 OR BITUMASTIC 50 OR APPROVED EQUAL.

PAYMENT

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER LINEAR FEET OF "ITEM SPECIAL-12.75" O.D. X 0.50" WALL THICKNESS GALVANIZED STEEL PIPE (A.S.T.M. A-120 EXTRA STRONG OR 16.00 " O.D. X 0.50" WALL THICKNESS A.S.T.M. A-53 GRADE B SCHEDULE 40), FITTINGS, COUPLINGS, ASSEMBLIES, INSULATION PACKING AND APPURTENANCES COMPLETE" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THIS WORK IN PLACE.

CUT-IN VALVES

WORK INCLUDED

HUB VALVES WILL BE CUT IN BY THE CONTRACTOR.

THE TIME OF INSTALLATION WILL BE SET BY THE DIVISION OF WATER.

THE CONTRACTOR WILL DO ALL PIPE CUTTING AND REMOVAL OF SECTION OF PIPE CUT AND INSTALLATION OF THE VALVE. THE CONTRACTOR SHALL FURNISH THE HUB VALVE, VALVE BOX COMPLETE, COUPLINGS, CAST IRON PIPE, LEAD AND INCIDENTALS FOR THE INSTALLATION, SEE DETAIL ON SHEET 352. THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, SHEETING AND BRACING, SAND BACKFILLING, BACKFILLING AND REPAVING REQUIRED FOR THIS ITEM.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE UNIT PRICE BID FOR EACH "CUT-IN VALVE, COMPLETE" AND CLASSIFIED AS TO SIZE. THE PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL EXCAVATION, SHEETING, BRACING, SAND BACKFILLING, BACKFILLING AND REPAVING AS NECESSARY AND THE FURNISHING OF ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER, WILL BE AT NO EXPENSE TO THE CONTRACTOR.

4" DRAIN, COMPLETE

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH AND INSTALL THE 4" PIPE, VALVE AND VALVE BOX AS SHOWN IN THE WATERWORK DETAILS.

MEASUREMENT

THE 4" DRAIN, COMPLETE" TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY COMPLETE AND ACCEPTED.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL -"4" DRAIN, COMPLETE" SHALL CONSTITUTE FULL PAYMENT FOR PERFORMING THE EXCAVATION AND BACKFILLING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. PAYMENT FOR DRAIN VAULTS AND 36" PIPE WITH 4" TANGENT OUTLET SHALL BE INCLUDED UNDER THIS ITEM SPECIAL.

2" AIR COCK, COMPLETE

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH PIPE WITH A 2" AIR COCK CONNECTION AND FURNISH AND INSTALL THE "2" AIR COCK, COMPLETE" AS SHOWN IN THE "WATERWORK DETAILS" AT THE LOCATIONS SHOWN IN THE PLANS.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL-2" AIR COCK, COMPLETE" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL PAYMENT FOR FURNISHING AND INSTALLING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THIS ITEM. THE VALVE BOX SHALL BE INCLUDED IN THE PAYMENT BID FOR THE ITEM "2" AIR COCK COMPLETE".

APPROVED JANUARY-4- 1974

William J Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
SCALE
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

WATERWORK NOTES

PLUGGING DEAD ENDS

STANDARD PLUGS WITH CLAMPS SHALL BE INSERTED INTO THE BELLS OF ALL DEAD ENDS OF PIPES, TEES, OR CROSSES, AND SPIGOT ENDS CAPPED AND CLAMPED BY THE CONTRACTORS, ON ALL MAINS CONSTRUCTED BY HIM AND ON EXISTING WATER MAINS WHERE INDICATED IN THE CONTRACT DRAWING. CONCRETE PIERS SHALL BE PLACED WHEN CALLED FOR ON THE CONTRACT DRAWINGS, OR ORDERED BY THE ENGINEER. THE COST OF FURNISHING THE PLUGS SHALL BE INCLUDED IN THE PER LINEAR FOOT PRICE BID FOR THE VARIOUS SIZES OF NEW WATER MAINS AND FOR SIZE PLUG INSTALLED WHERE SHOWN ON EXISTING WATER MAIN. (SEE PAY ITEM BELOW)

ITEM SPECIAL - PLUGGING EXISTING WATER MAINS AND BRANCHES AND PLUGGING SERVICE CONNECTIONS

WORK INCLUDED:

THE WORK INCLUDED UNDER THESE ITEMS SHALL CONSIST OF THE PLUGGING OF EXISTING WATER MAINS AND BRANCHES, AND THE PLUGGING OF SERVICE CONNECTIONS AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED, INCLUDING CAST IRON PLUGS OR CAPS WITH CLAMPS AND CONCRETE PIERS, ALL EXCAVATION, SHEETING AND BRACING, CONCRETE, SAND BACKFILL, BACKFILL, TEMPORARY REPAVING AND PERMANENT REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(A) PLUGGING MAINS AND BRANCHES:
WHEN INDICATED ON THE PLANS OR AS ORDERED , THE CONTRACTOR SHALL MAKE FIPE CUTS, REMOVE FITTINGS AND SHALL PLUG OR CAP MAINS, TEES OR CROSSES, PLUG CONNECTIONS AT MAIN OR BRANCHES, SHALL DO ALL THE EXCAVATION, BACKFILLING AND REPAVING, ALL AS REQUIRED.

(B) PLUGGING SERVICE CONNECTION:
THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, SHEETING AND BRACING, SAND BACKFILLING, BACKFILLING AND REPAVING REQUIRED FOR THIS ITEM, BUT THE CLEVELAND WATER DEPARTMENT WILL FURNISH THE PLUG AND PLUG THE SERVICE CONNECTION. THE CONTRACTOR SHALL ARRANGE WITH THE CLEVELAND WATER DEPARTMENT FOR THE NECESARY WORK UNDER THIS ITEM.

MEASUREMENT

THE EXISTING WATER MAINS AND BRANCHES PLUGGED OR SERVICE CONNECTIONS PLUGGED TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

BASIS OF PAYMENT:

THE UNIT PRICE STIPULATED FOR (A) "ITEM SPECIAL - PLUGGING EXISTING WATER MAINS AND BRANCHES" CLASSIFIED AS TO SIZE SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK. THE ITEM SHALL BE PAID FOR ON PER "EACH" BASIS.

THE UNIT PRICE STIPULATED FOR (B) "ITEM SPECIAL - PLUGGING SERVICE CONNECTIONS" SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK. THE ITEM SHALL BE PAID FOR ON PER "EACH" BASIS.

THE MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER, WILL BE AT NO EXPENSE TO THE CONTRACTOR. THE WORK PERFORMED BY THE CITY OF CLEVELAND APPLIES TO (B) PLUGGING SERVICE CONNECTIONS.

SERVICE CONNECTIONS EXTENDED

THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION, BACKFILLING, SEEDING, SODDING, AND REPAVING REQUIRED IN MAKING THESE SERVICE CONNECTIONS AND ALTERATIONS AND COSTS THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "SERVICE CONNECTIONS EXTENDED". THE CURB BOXES SHALL BE RELOCATED BY THE CITY AND SET TO FINAL GRADE BY THE CONTRACTOR.

MEASUREMENT

THE SERVICE CONNECTIONS EXTENDED" TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY COMPLETED AND ACCEPTED.

WORK INCLUDED

THE CITY OF CLEVELAND, DIVISION OF WATER, WILL RELOCATE CURB BOXES, RESET METERS AND EXTEND CONNECTIONS AT NO COST TO THE CONTRACTOR, BUT ONLY TO THE POINT OF CURB COCK OR METER VAULT, ALL ADDITIONAL EXTENSION WORK SHALL BE DONE BY THE CONTRACTOR

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL-SERVICE CONNECTIONS EXTENDED" SHALL INCLUDE THE EXCAVATION, BACKFILLING, SEEDING AND SODDING AND REPAVING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

RETAP AND RECONNECT EXISTING SERVICE CONNECTION

WORK INCLUDED

THE CONTRACTOR SHALL REMOVE THE EXISTING SERVICE CONNECTION FROM THE EXISTING WATER MAIN WHICH IS TO BE ABANDONED. A TAP IS TO BE MADE ON THE NEW WATER MAIN AND THE EXISTING SERVICE CONNECTION SHALL BE RECONNECTED TO THE NEW WATER MAIN.

THE CITY OF CLEVELAND, DIVISION OF WATER, WILL FURNISH THE CORPORATION COCKS AND PIPING MATERIAL FOR AND MAKE ALL CHANGES REQUIRED IN THE LOCATION OF EXISTING CONNECTION AT THE NEW WATER MAINS AS SHOWN ON THE PLANS AT NO COST TO THE CONTRACTOR.

THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION, BACKFILLING, SEEDING AND SODDING, AND REPAVING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR SHOWN.

MEASUREMENT

THE "RETAP AND RECONNECT EXISTING SERVICE CONNECTION" TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY COMPLETED AND ACCEPTED.

TEMPORARY SERVICE CONNECTION

TO BE TREATED SAME AS AND INCLUDED IN UNIT PRICE BID FOR RETAP, AND RECONNECT EXISTING SERVICE CONNECTION.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL-RETAP AND RECONNECT SERVICE CONNECTION" SHALL INCLUDE THE EXCAVATION, BACKFILLING, SEEDING AND SODDING, AND REPAVING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

MISCELLANEOUS METAL WORK

WORK INCLUDED

(A) THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MISCELLANEOUS METAL WORK WHICH IS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT AND IS NOT SPECIFICALLY INCLUDED UNDER THE OTHER ITEMS OF THESE SPECIFICATIONS.

(B) IN GENERAL, THE WORK SHALL INCLUDE THE FURNISHING AND INSTALLING OF MANHOLE FRAMES AND COVERS, MANHOLE STEPS, VALVE BOXES, EXTENSION STEMS AND BRACE, STRUCTURAL MEMBERS, BRONZE BOLTS, AND OTHER SIMILAR ITEMS REQUIRED FOR THE PROPER COMPLETION OF THE WORK.

MATERIALS

ALL CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 604 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, JANUARY 1, 1973, EXCEPT THAT THE CAST IRON (FOR MANHOLE FRAMES AND COVERS) SHALL BE CLASS NO. 30. DUCTILE IRON SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATION A 536. ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATIONS A 7-46. ALL BRONZE BOLTS AND NUTS SHALL CONFORM TO U.S. STANDARD SIZES, AND SHALL BE CLEAN CUT AND HAVE WELL FITTED THREADS. ALL BRONZE BOLTS AND NUTS SHALL BE OF TOBIN OR MANGANESE BRONZE, OR OF SIMILAR APPROVED MATERIALS.

CLEANING AND TESTING

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMER TEST. NO CASTINGS SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

COATING

EACH CASTING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUT WITH ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE MADE TO COMPLY WITH FEDERAL SPECIFICATION 77-V-51a OR JOINT ARMY-NAVY SPECIFICATION JAN.-P-450.

OTHER METHODS OF COATING AND TYPES OF COATING MATERIALS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. IN ADDITION TO THE SHOP COAT THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED ASSISTANT, SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATION THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR, AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

STEPS AND LADDERS

DUCTILE IRON STEPS AND LADDERS OF THE SIZE AND SHAPE SHOWN ON THE CONTRACT DRAWINGS, SHALL BE BUILT INTO THE BRICK AND CONCRETE MASONRY OF THE MANHOLES AS INDICATED ON THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS.

RIMS AND COVERS

(A) ALL CAST IRON MANHOLE RIMS AND COVERS OF THE FORMS, DIMENSIONS AND DETAILS SHOWN ON THE CONTRACT DRAWINGS, SHALL BE FURNISHED AND INSTALLED AS DIRECTED.

(B) THE RIMS SHALL BE PROPERLY SET IN PLACE IN A FULL BED OF MORTAR OR PURED MONOLITHIC IN THE MASONRY, AT SUCH ELEVATION AS TO MAKE THE TOP OF THE RIM CONFORM TO THE FINISHED SURFACES OF THE STRUCTURES OR THE FINISHED GRADE AS ESTABLISHED BY THE ENGINEER.

VALVE BOXES AND COVERS

THE CONTRACTOR SHALL FURNISH AND INSTALL, OVER EACH VERTICALLY SET VALVE AT THE LOCATIONS SHOWN ON THE DRAWINGS, OR AS REQUIRED, VALVE BOXES AND COVERS OF THE TYPES AND SIZES INDICATED ON THE CONTRACT PLANS. THESE SHALL BE CAREFULLY LOCATED OVER THE VALVE NUTS, AND SHALL BE SET PLUMB AND TRUE TO ELEVATION AS REQUIRED.

DETAILED DRAWINGS

COMPLETE DETAILED DRAWINGS OF MISCELLANEOUS METAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, PRIOR TO THE MANUFACTURE OF ANY WORK TO BE FURNISHED UNDER THIS ITEM, IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAINTING

ALL MISCELLANEOUS METAL WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAL TAR PITCH, INERTOL 50, BITUMASTIC 50, OR APPROVED EQUAL.

PAYMENT

THE FABRICATING, FURNISHING, ERECTING, MACHINING, FITTING, ADJUSTING, BOLTING, CLEANING AND PAINTING OF MISCELLANEOUS METAL WORK, INCLUDING THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT "ITEM SPECIAL" IN WHICH IT IS A PART. NO SEPARATE PAYMENT WILL BE MADE FOR MISCELLANEOUS WORK.

3" METER VAULT, 2" METER AND 6" FIRE SERVICE VAULT

WORK INCLUDED

THE CONTRACTOR SHALL DO ALL EXCAVATION NECESSARY FOR THE CONSTRUCTION OF THE NEW VAULT AND THE REMOVAL OF THE EXISTING VAULT. AFTER COMPLETION OF THIS WORK THE CONTRACTOR SHALL DO ALL BACKFILLING, SEEDING, SODDING AND REPAVING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPURTENANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR SHOWN.

PAYMENT

THE UNIT PRICE STIPULATED FOR ITEM SPECIAL "3" METER VAULT" OR "2" METER AND 6" FIRE SERVICE VAULT" SHALL INCLUDE EXCAVATION NECESSARY FOR CONSTRUCTION OF VAULT, VAULT CONSTRUCTION AND SHALL INCLUDE ALL MATERIAL INSIDE VAULT AS DETAILED ON CONSTRUCTION PLAN SHEET 328

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
CHECKED H.C.S.
SCALE
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

WATERWORK NOTES

ADJUST EXISTING VALVE BOX TO GRADE
ADJUST EXISTING SERVICE BOX TO GRADE
ADJUST AIR COCK BOX TO GRADE

WORK INCLUDED

THE CONTRACTOR SHALL RAISE OR LOWER THE EXISTING VALVE BOX AND EXISTING SERVICE BOX TO FIT THE NEW GRADE BY USING APPROPRIATE EXTENSION SECTIONS (IF NEEDED), OR BY EXCAVATING UNDER AND LOWERING BOX. BACKFILL SHALL BE TAMPED UNDER THE VALVE BOX TO INSURE THE BOX HAS A FIRM FOOTING.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH,"ITEM SPECIAL- ADJUST VALVE BOX TO GRADE", "ADJUST SERVICE BOX TO GRADE", "ADJUST AIR COCK BOX TO GRADE" WHICH PRICE AND PAYMENT SHALL CONSITUTE FULL COMPENSATION FOR ADJUSTING THE VALVE BOX, SERVICE BOX, EXCAVATION, TAMPING EARTH UNDER VALVE BOX, BACKFILLING, AND FOR THE FURNISHING OF ALL LABOR, EQUIPMENT, TOOLS, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

BRICK AND PLAIN CONCRETE MASONRY

(A) - UNDER THESE ITEMS THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT FOR THE CONSTRUCTION, COMPLETE, OF ALL MISCELLANEOUS MASONRY STRUCTURES, AND INCLUDING ALL WATER MANHOLES AND PIERS, AND OTHER APPURTENANT WORK, TOGETHER WITH THE HAULING, MIXING, PLACING, FORMS, SCAFFOLDING, SHEETING AND BRACING, GROUTING, PLASTERING, CURING, ETC., ALL AS SPECIFIED, REQUIRED, OR SHOWN ON THE CONTRACT DRAWINGS.

(B) - THE MATERIAL FURNISHED BY THE CONTRACTOR FOR THE VARIOUS KINDS OF MASONRY CONSTRUCTION SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

(1) - PORTLAND CEMENT - STATE OF OHIO SPEC. SECTION 701.04.
(2) - AGGREGATE FOR PORTLAND CEMENT CONCRETE - STATE OF OHIO SPEC. SECTION 703.02.
(3) - FINE AGGREGATE FOR MORTAR OR GROUT - STATE SPEC. SECTION 703.03.
(4) - BRICK - STATE OF OHIO SPEC. SECTION 704.01, SHALE BRICK, GRADE MS.

(C) - ALL BRICK MANHOLE ADJUSTMENTS SHALL BE BUILT IN ACCORDANCE WITH THE CONTRACT DRAWINGS. THE WALLS OF MANHOLES ADJUSTED OR RECONSTRUCTED SHALL BE BUILT OF BRICK LAID IN 1:3 PORTLAND CEMENT MORTAR, WITH BRICK ARRANGED RADIALLY AS HEADERS, FORMING A WALL AT LEAST NINE INCHES THICK. ALL OF THE BRICK COMPOSING SAID MANHOLE ADJUSTMENTS SHALL BE LAID IN FULL MORTAR BEDS AND JOINTS, WITH NO MORTAR JOINTS APPEARING ON THE INNER SURFACE OF THE MANHOLE EXCEEDING THREE-EIGHTS INCH (3/8") THICK.

(D) - THE TOP OF THE WALLS OF MANHOLES ADJUSTED OR RECONSTRUCTED TO GRADE SHALL BE PROPERLY LEVELED OFF WITH MORTAR SO AS TO FORM A FLAT SURFACE UPON WHICH THE CASTING OR SLAB IS TO REST.

(E) - THE ENTIRE OUTER SURFACE OF ALL ADJUSTED OR RECONSTRUCTED MANHOLES SHALL BE PLASTERED WITH A SMOOTH COATING OF 1:3 PORTLAND CEMENT MORTAR AT LEAST ONE-HALF INCH (1/2") THICK.

PAYMENT

NO SEPARATE PAYMENT WILL BE MADE FOR BRICK OR PLAIN CONCRETE MASONRY. PAYMENT WILL BE INCLUDED IN THE PRICE BID FOR THE ITEM IN WHICH IT IS USED. PAYMENT FOR CONCRETE PIERS IS TO BE INCLUDED IN THE PRICE BID FOR RESPECTIVE PIPE ITEM.

MANHOLE CONSTRUCTION

ALL BRICK MANHOLES, BRICK NECKS AND EXTENSIONS SHALL BE BUILT IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

THE WALLS OF MANHOLES SHALL BE BUILT OF NO. 2 SHALE BRICK LAID IN 1:3 PORTLAND CEMENT MORTAR, WITH BRICK ARRANGED RADIALLY AS HEADERS, FORMING A WALL NINE INCHES THICK. IN DEEP MANHOLES THE WALL SHALL BE 13" THICK BELOW A POINT 12' FROM THE SURFACE. ALL OF THE BRICK COMPOSING SAID MANHOLES SHALL BE LAID IN FULL MORTAR BEDS AND JOINTS, WITH NO MORTAR JOINTS APPEARING ON THE INNER SURFACE OF THE MANHOLE EXCEEDING THREE-EIGHTHS INCH (3/8") THICK.

THE TOP OF THE WALLS OF MANHOLES SHALL BE PROPERLY LEVELED OFF WITH MORTAR SO AS TO FORM A FLAT SURFACE UPON WHICH THE CAST IRON MANHOLE RING IS TO REST, AND SAID MANHOLE SHALL BE CARRIED TO PROPER HEIGHT AS INDICATED BY THE CONTRACT DRAWINGS.

THE ENTIRE OUTER SURFACE OF ALL BRICK MANHOLES SHALL BE PLASTERED WITH A SMOOTH COATING OF 1:3 PORTLAND CEMENT MORTAR, AT LEAST ONE-HALF (1/2") INCH THICK.

THE BASE SHALL BE PORTLAND CEMENT CONCRETE, CAST INTO PLACE AGAINST FIRM SOIL FOR ANCHOR BEARING.

PAYMENT

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH "ITEM SPECIAL-DRAIN VAULT, ACCESS AND ANCHORAGE MANHOLE TYPE B, AND VALVE CHAMBER," COMPLETE AND ACCEPTED IN PLACE.

NO SEPARATE PAYMENT WILL BE MADE FOR BRICK OR PLAIN CONCRETE MASONRY. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM IN WHICH IT IS USED. PAYMENT FOR CONCRETE PIERS AND ANCHORS IS TO BE INCLUDED IN THE PRICE BID FOR "ITEM SPECIAL - WATERMAINS".

REMOVAL ITEMS

ALL MATERIALS CONSISTING OF PIPE, FIRE HYDRANTS, VALVES, VALVE BOXES, CURB COCK VALVE BOXES, MANHOLES, AND ALL APPURTENANCES WHICH ARE INDICATED FOR REMOVAL BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED AND DISPOSED OF BY HIM.

CAVITIES LEFT BY STRUCTURE REMOVAL SHALL BE FILLED TO THE LEVEL OF THE SURROUNDING GROUND, AND COMPACTED IN ACCORDANCE WITH STATE OF OHIO SPECIFICATION SECTION 203.

THE UNIT PRICE STIPULATED FOR ITEM 202-"REMOVED" (CLASSIFIED AS TO TYPE) SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING EXCAVATION, REMOVING AND DISPOSING OF THE "ITEM", BACKFILLING, SEEDING AND SODDING, REPAVING AND FOR THE FURNISHING OF ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK.

IN LIEU OF COMPLETE REMOVAL OF VALVE AND CURB COCK VALVE BOXES THE CONTRACTOR MAY BREAK OFF THE TOP OF THE BOXES TO A LEVEL AT LEAST TWO (2) FEET BELOW THE FINISHED GRADE IN PAVEMENT AREAS AND AT LEAST ONE (1) FOOT BELOW THE FINISHED GRADE IN EARTH AREAS, AND THE VOID SPACE WITHIN THE REMAINING BOX SHALL BE COMPLETELY FILLED WITH CONCRETE OR COMPACTED DRY SAND.

ADJUST MANHOLE (METER OR VALVE VAULT) TO GRADE

WORK INCLUDED

EXISTING WATER MANHOLE TO BE ADJUSTED TO GRADE SHALL INCLUDE EXCAVATION NECESSARY FOR CAREFUL REMOVAL OF CASTINGS, CLEANING CASTINGS TO THE APPROVAL OF THE ENGINEER, RECOATING WITH TWO (2) COATS OF APPROVED PAINT (SEE "MISCELLANEOUS METAL WORK"). TEMPORARY STORAGE, REMOVAL OF NECESSARY AND LOOSE BRICK AND MORTAR FOR THE CASTING SEATING, FURNISHING AND PLACING OF REQUIRED BRICK AND MORTAR FOR LEVELING TO GRADE, REMOVING OR ADDING MANHOLE STEPS IF NECESSARY, AS DETERMINED BY THE ENGINEER, REPLACEMENT OF CASTING IF NECESSARY, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE BASE OF THE CASTING FRAME SHALL BE SET ONTO A FULL BED OF PORTLAND CEMENT MORTAR, AND SO ADJUSTED TO CONFORM TO THE FINISHED GRADE.

MANHOLE FRAMES AND COVERS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED WITH STANDARD CITY DIVISION OF WATER FRAMES AND COVERS AT THE CONTRACTORS EXPENSE.

WHEN DAMAGED OR UNSATISFACTORY WATER MANHOLE FRAMES AND COVERS, AS DETERMINED BY THE ENGINEER, ARE ENCOUNTERED, REPLACEMENT CASTINGS WILL BE PROVIDED FOR THE CONTRACTOR BY THE CITY AT A CITY STORAGE YARD.

EXISTING WATERWORK WITHIN THE MANHOLE SHALL BE COMPLETELY PROTECTED DURING THE DURATION OF THIS WORK.

PAYMENT

THE UNIT PRICE STIPULATED FOR ITEM 604 - "ADJUSTED MANHOLE (METER VAULT) TO GRADE" AND FOR ITEM 604- "ADJUST MANHOLE (VALVE VAULT) TO GRADE" SHALL INCLUDE THE EXCAVATION PROTECTION OF WATERWORK, SAND BACKFILLING, BACKFILLING, CLEANING AND RECOATING OF CASTING, TEMPORARY STORAGE, EXISTING MASONRY REMOVAL, MASONRY TO GRADE, AND PLACEMENT OF CASTINGS, AND THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT, AND TOOLS NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

WORK TO BE DONE PRIOR TO CONSTRUCTION OF THE RELOCATED 36" WATER MAIN IN WEST 105th STREET

1. THE NEW 36" RELOCATION IS TO BE PLACED UNDER I-90 AND SHOULD BE COMPLETED AND IN SERVICE BEFORE BEGINNING OTHER PROPOSED WATER MAIN RELOCATIONS IN THIS AREA.

2. THIS WORK SHOULD INCLUDE EXTENDING THE PROPOSED 8" CONNECTOR FROM W. 105TH STREET WATER MAIN TO WEST 106TH STREET, NORTH OF I-90, WITHOUT CUTTING THE EXISTING 16" MAIN AT THIS TIME.

3. THE EXISTING 6" WATER MAIN IN WEST 105TH STREET SHALL STAY IN SERVICE UNTIL THE INSTALLATION OF THE NEW 8" RELOCATIONS, NORTH AND SOUTH OF I-90 FROM WEST 106TH STREET TO WEST BOULEVARD HAVE BEEN COMPLETED.

CONSTRUCTION PROCEDURE - RELOCATED 36" WATER MAIN (1ST HIGH SERVICE) IN WEST 105TH STREET

REFER TO:

A. SEQUENCE OF CONSTRUCTION PROVISIONS OF MAINTENANCE OF TRAFFIC SECTION OF GENERAL NOTES.

B. THE "WORK TO BE DONE PRIOR TO CONSTRUCTION OF THE RELOCATED 36" WATER MAIN IN WEST 105TH STREET NOTE, ON THIS SHEET.

C. THE "GENERAL NOTES - 36" RELOCATED WATER MAINS, "ON THIS SHEET.

1. THE 36" RELOCATED WATER MAIN SHALL BE CONSTRUCTED TO THE GREATEST LENGTH POSSIBLE BETWEEN THE LOCATIONS OF ITS PENDING CONNECTIONS TO THE EXISTING 36" WATER MAIN, WITHOUT INTERFERING WITH THE SERVICE OF THE EXISTING 36" WATER MAIN. TEMPORARY PLUGS SHALL BE INSTALLED AT THE TERMINALS FOR TESTING. APPROXIMATE TESTING LIMITS ARE SHOWN ON PLAN SHEET NO. 338.

2. THE EXISTING 36" WATER MAIN SHALL BE LOCATED. THE CONTRACTOR SHALL FURNISH MEASUREMENTS TO THE CITY OF CLEVELAND WATER DEPARTMENT AND THE FABRICATOR, AND SUBMIT SHOP DRAWINGS FOR APPROVAL OF THE CLOSURE PIECES REQUIRED FOR CONNECTIONS.

3. THE 36" RELOCATED WATER MAIN PLACED DURING PROCEDURE STEP 1 SHALL BE TESTED AND CHLORINATED IMMEDIATELY PRIOR TO PROCEDURE STEP 4 BELOW.

SPECIAL NOTE: THE CITY OF CLEVELAND WATER DEPARTMENT WILL DESIGNATE WHEN THE CONNECTIONS TO THE EXISTING 36" WATER MAIN WILL BE MADE BETWEEN OCTOBER 15 AND APRIL 15.

4. ONCE THE WATER IS SHUT OFF, THE CONTRACTOR SHALL EXPEDITE THE INSTALLATION OF THE CONNECTIONS UNTIL SUCH TIME THE WATER SERVICE CAN BE RESUMED. IT IS THE INTENT THAT THE CONNECTIONS BE INSTALLED TO MINIMIZE THE LENGTH OF TIME THAT WATER SERVICE IS DISRUPTED. THEREFORE, THE CONTRACTOR MUST HAVE SUFFICIENT LABOR, EQUIPMENT, AND SUPPLIES TO INSTALL THESE CONNECTIONS SIMULTANEOUSLY.

AFTER INSTALLATION, SERVICE SHALL BE RESTORED IN THE RELOCATED WATER MAIN.

ANY VARIATION IN THIS CONSTRUCTION PROCEDURE MUST FIRST BE APPROVED IN WRITING BY THE DIRECTOR OF PUBLIC UTILITIES.

5. ANY VARIATION IN THIS CONSTRUCTION PROCEDURE MUST FIRST BE APPROVED IN WRITING BY THE DIRECTOR OF PUBLIC UTILITIES.

GENERAL NOTES - 36" RELOCATED WATER MAINS

1. THE CONTRACTOR SHALL NOTIFY THE CITY OF CLEVELAND UTILITIES ENGINEERING OFFICE AT LEAST THREE (3) DAYS PRIOR TO STARTING WATERWORK FOR THE RELOCATED MAINS.

2. FOR GENERAL NOTE ON RELOCATED WATER MAINS, SEE SHEET NO. 312 & 313

3. THE LOCATION AND ELEVATION OF THE EXISTING 36" WATER MAINS SHOWN ON THE PLANS WERE DETERMINED FROM RECORDS, AND FIELD MEASUREMENTS OF EXISTING MANHOLES, VALVE STEMS, AND AIR COCKS. THEREFORE, THIS INFORMATION MUST BE USED AT THE CONTRACTOR'S OWN RISK. THE EXACT LOCATIONS AND ELEVATIONS OF THE EXISTING WATER MAINS AT THE PROPOSED CONNECTIONS MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR, AS SPECIFIED IN STEP 2 OF THE CONSTRUCTION PROCEDURE ON THIS SHEET.

4. THE TRENCH FOR THE RELOCATED WATER MAIN SHALL BE DEWATERED, IF NECESSARY, TO ENABLE DRY WORKING CONDITIONS AND INSTALLATION.

5. THE PIPE STATIONING IS ALONG HORIZONTAL CENTERLINE OF PIPE, AND ALONG TANGENTS TO P.I. AT HORIZONTAL BENDS.

6. ELEVATIONS ARE BASED ON SEA LEVEL DATUM.

7. THE PIPE FABRICATOR SHALL FOLLOW AS CLOSELY AS POSSIBLE THE POINTS OF CHANGE OF GRADE AS GIVEN ON THESE CONTRACT DRAWINGS.

8. TAPS FOR CHLORINATION ARE TO BE PROVIDED IN THE RELOCATED WATER MAIN. THE CITY OF CLEVELAND WATER DEPARTMENT WILL DETERMINE THE LOCATION OF THE NECESSARY TAPS.

9. THE STATIC HEAD TO BE USED FOR BOTH DESIGN AND TESTING SHALL BE MEASURED FROM ELEVATION 970.0 FOR THE 36" WATER MAIN.

THE FIELD TESTING HEAD FOR THE 36" WATER MAIN SHALL BE MINIMUM OF 200 P.S.I.

THE OTHER PROVISIONS OF "TESTING MAINS", ON SHEET NO. 304 WILL APPLY.

10. THE PRESTRESSED CONCRETE CYLINDER PIPE SHALL BE DESIGNED TO RESIST ALL THRUSTS. THE CYLINDER STEEL SHALL BE DESIGNED FOR A MAXIMUM OPERATING STRESS OF 12,500 P.S.I., AND A MAXIMUM TEST STREE OF 16,000 P.S.I.

THE CYLINDER STEEL FOR THE 36" WATER MAIN SHALL BE A MINIMUM OF 10 GAUGE.

SEE NOTE (Q) ON SHEET NO. 312 FOR MINIMUM CYLINDER STEEL THICKNESS FOR BENDS, ETC.

11. AT LEAST THREE (3) FEET OF APPROPRIATE COMPACTED BACKFILL SHALL BE PLACED OVER THE RELOCATED WATER MAINS BEFORE TESTING.

12. ALL JOINTS NOT HAVING VICTAULIC OR STEEL FLANGE CONNECTORS BE TIED WITH A PRICE BROTHERS COMPANY CLAMP TYPE HARNESSED JOINT, OR APPROVED EQUAL WITHIN TIED DISTANCES. SEE DETAIL ON SHEET NO. 352.

SHOP JOINTS MAY BE TIES BY WELDING, AS SHOWN IN DETAIL "Y" ON SHEET NO. 350.

13. A PIPE MANUFACTURER FIELD REPRESENTATIVE SHALL SUPERVISE ALL CLAMP TYPE HARNESSED JOINT INSTALLATIONS, AND THE SUBSEQUENT GROUTING OF THE JOINTS.

14. HIGH EARLY CEMENT, OR AN APPROVED FAST SETTING CEMENT SUBSTITUTE, SHALL BE USED FOR THE GROUTING OF THE JOINTS COMPRISING THE CONNECTIONS TO THE EXISTING WATER MAINS.

APPROVED JANUARY- 4-19 74

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
SCALE
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

WATERWORK NOTES

PRESTRESSED CONCRETE CYLINDER PIPE

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS, LABOR, TOOLS AND EQUIPMENT FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE THE WATER MAIN AT LOCATIONS SHOWN ON THE DRAWINGS, OR AS DIRECTED, USING PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS AND INCLUDING ALL EXCAVATION WORK, BACKFILLING, SAND BACKFILL, RE-PAVING, CONCRETE CYLINDER FITTINGS CAST IRON PIPE AND FITTINGS, VICTAULIC AND DRESSER COUPLINGS, ETC., ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

DEFINITIONS

WHENEVER THE WORDS "CONCRETE PIPE" OR "PRESTRESSED CONCRETE CYLINDER PIPE" ARE USED, THEY SHALL REFER TO AND MEAN "PRESTRESSED STEEL CYLINDER REINFORCED CONCRETE PRESSURE PIPE".

PRESTRESSED CONCRETE CYLINDER PIPE - 200 P.S.I. DESIGN PRESSURE

72✓

(A) ALL PRESTRESSED CONCRETE PIPE TO BE FURNISHED SHALL CONFORM TO THESE SPECIFICIATIONS AND SHALL CONFORM TO THE LATEST A.W.W.A. C 301-64 "STANDARD SPECIFICATIONS FOR REINFORCED CONCRETE WATER PIPE-STEEL CYLINDER TYPE, PRESTRESSED".

(B) THE PRESTRESSED CONCRETE CYLINDER PIPE SHALL BE IN GENERAL FURNISHED IN UNIFORM LENGTH OF SIXTEEN FEET OR TWENTY FEET FOR THE PIPE EXCEPT THAT SHORTER LENGTHS MAY BE USED TO MEET SPECIAL CONDITIONS. THE NOMINAL THICKNESS OF THE CORE AND THE NOMINAL THICKNESS OF THE MORTAR COATING SHALL NOT BE LESS THAN THAT GIVEN IN THE FOLLOWING TABLE:

NOMINAL INSIDE DIAMETER	CORE THICKNESS	MINIMUM MORTAR COATING
36"	2-1/4"	5/8"

THE INTERIOR DIAMETER OF THE PIPE SHALL NOT BE LESS THAN THE NOMINAL DIAMETER BY MORE THAN ONE PER CENT (1%). THE THICKNESS OF THE WALL OF THE PIPE SHALL NOT BE LESS THAN THE NOMINAL THICKNESS BY MORE THAN EIGHT PER CENT (8%). THE ENDS OF PIPE SHALL BE AT RIGHT ANGLES TO THE PIPE AXIS. PIPES MAY BE BEVELED TO FORM CURVES. THE CONCRETE USED TO LINE THE STEEL CYLINDERS SHALL BE MADE FROM SUITABLE AGGREGATES COMPOSED OF HARD, DURABLE PARTICLES, CLEAN AND FREE FROM LOAM OR ORGANIC MATERIAL. CEMENT SHALL FULFILL THE REQUIREMENTS OF A.S.T.M. DESIGNATION: C 150-69, "STANDARD SPECIFICATIONS FOR PORTLAND CEMENT". IT IS THE INTENT OF THIS SPECIFICATION TO PRODUCE A CONCRETE HAVING A 28-DAY STRENGTH OF 4500 OR A 7-DAY STRENGTH OF 3000 POUNDS PER SQUARE INCH FOR STANDARD 6" X 12" TEST CYLINDERS WHICH SHALL BE CURED IN THE SAME MANNER AS THE PIPE. CONCRETE FOR WHICH 28-DAY STRENGTH TESTS SHALL SHOW STRENGTHS OF LESS THAN 4500 POUNDS PER SQUARE INCH MAY BE USED PROVIDING THAT THE MAXIMUM DESIGN COMPRESSIVE STRESSES IN THE CONCRETE SHALL NOT EXCEED FORTY (40) PER CENT OF THE STRENGTH OF THE CONCRETE OF THE TIME OF WRAPPING.

(C) THE CONCRETE LINING OF THE STEEL CYLINDER MAY BE PLACED VERTICALLY BY THE USE OF INTERIOR FORMS OR MAY BE PLACED BY THE CENTRIFUGAL PROCESS. WHEN THE CENTRIFUGAL PROCESS IS USED, THE CYLINDER SHALL BE HELD SECURELY IN SPINNING FRAMES AND THE FRAMES PLACED HORIZONTALLY IN A MACHINE WHICH WILL CAUSE THEM TO ROTATE RAPIDLY ABOUT THEIR LONGITUDINAL AXIS AT A RIM SPEED SUFFICIENT TO INSURE GOOD COMPACTION OF THE CONCRETE. THE CONCRETE SHALL BE PLACED IN THE STEEL CYLINDERS WHILE THEY ARE REVOLVING IN SUCH MANNER THAT THE ROTATION SHALL EVENLY DISTRIBUTE THE CONCRETE ALONG THE ENTIRE LENGTH OF THE PIPE. AFTER THE CONCRETE HAS BEEN DEPOSITED, THE FRAMES SHALL CONTINUE TO REVOLVE UNTIL THE EXCESS WATER HAS COME TO THE SURFACE AND THE CONCRETE HAS BECOME THOROUGHLY COMPACTED. THE INTERIOR SURFACE OF THE PIPE MAY BE FINISHED EITHER WHILE IT IS STILL IN THE CENTRIFUGAL MACHINE OR BY MEANS OF A HONING OPERATION AFTER THE CONCRETE HAS SET. WHEN THE SPINNING OF THE CONCRETE IS COMPLETED, THE LINED CYLINDERS SHALL BE REMOVED FROM THE MACHINE AND PLACED IN A VERTICAL POSITION FOR CURING. AFTER THE CONCRETE HAS TAKEN ITS FINAL SET, THE PIPES SHALL BE KEPT IN A WARM ATMOSPHERE FOR CURING.

(D) WHEN THE CONCRETE LINING IS PLACED BY A VERTICAL CASTING, THE STEEL CYLINDER SHALL BE PLACED VERTICALLY ABOUT AN INTERIOR MOLD AND THE MOLD AND CYLINDER SHALL BE HELD IN CIRCULAR AND CONCENTRIC POSITION BY TOP AND BOTTOM RINGS OF STEEL OR CAST IRON. WHILE THE CONCRETE IS BEING PLACED, VIBRATIONS SHALL BE EMPLOYED SO AS TO PRODUCE A CONCRETE OF MAXIMUM DENSITY. AFTER COMPLETION OF THE POURING OPERATION AND WHEN CONCRETE HAS TAKEN ITS FINAL SET, THE LINED CYLINDERS SHALL BE KEPT IN A WARM ATMOSPHERE UNTIL THE FOLLOWING DAY, WHEN THE MOLDS MAY BE REMOVED.

(E) AFTER THE INTERIOR MOLDS HAVE BEEN REMOVED, OR IN THE CASE OF CENTRIFUGAL CASTING, AFTER THE CONCRETE HAS HARDENED SUFFICIENTLY, THE CONCRETE LINING SHALL BE KEPT MOIST BY WATER OR STEAM UNTIL AT LEAST 36 HOURS AFTER THE PLACING OF THE CONCRETE. THE TEMPERATURE OF THE ATMOSPHERE TO WHICH THE NEW CONCRETE IS EXPOSED DURING THIS CURING PERIOD SHALL BE MAINTAINED ABOVE 50° F. BUT NOT EXCEEDING 150° F. ON THE SECOND DAY AFTER PLACING THE CONCRETE, THE PIPE MAY BE TIPPED INTO HORIZONTAL POSITION AND PLACED IN STORAGE. WHERE STEAM HAS NOT BEEN USED DURING THIS INITIAL CURING PERIOD, THE CONCRETE SHALL BE KEPT MOIST FOR A FURTHER PERIOD OF 5 DAYS BY INTERMITTENT SPRINKLING.

(F) IN LIEU OF THE MOIST CURING METHOD PREVIOUSLY DESCRIBED, THE MANUFACTURER MAY USE CURING COMPOUNDS OF THE EMULSIFIED ASPHALT OR SYNTHETIC RESIN TYPE, BUT SUCH COMPOUNDS MUST BE APPLIED TO THE CONCRETE AT SUCH TIME AS TO ASSURE THE RETENTION OF ADEQUATE MOSITURE FOR THE PROPER HYDRATION OF THE CEMENT.

(G) WHATEVER METHOD IS USED, HOWEVER, THE CURING SHALL PROCEED IN SUCH MANNER AND FOR SUCH A PERIOD AS TO ASSURE THE CONCRETE LINING ATTAINING THE REQUIRED STRENGTH.

(H) THE CEMENT MORTAR COATING SHALL BE APPLIED TO THE CORES AFTER THEY HAVE BEEN WRAPPED UNDER TENSION WITH HIGH TENSIL WIRE. THE MORTAR USED FOR THIS COATING SHALL CONSIST OF ONE PART OF CEMENT TO NOT MORE THAN THREE PARTS OF FINE AGGREGATE, MEASURED BY VOLUME. THE MORTAR SHALL BE PLACED ON THE PIPE BY A MACHINE IN WHICH THE MORTAR, PREVIOUSLY MIXED, IS DRIVEN AGAINST THE EXTERIOR SURFACE OF THE CORE SO AS TO PRODUCE A DENSE COATING AROUND THE PIPE AND COVERING THE STEEL REINFORCING. UPON COMPLETION OF THE COATING OPERATION, THE PIPES SHALL BE PLACED WHERE THEY ARE PROTECTED FROM SUN, WIND AND RAIN AND AFTER THE MORTAR HAS HARDENED SUFFICIENTLY, IT SHALL BE KEPT MOIST WITH WATER OR STEAM UNTIL THE FOLLOWING DAY OR FOR A PERIOD OF NOT LESS THAN TWELVE HOURS, AT WHICH TIME THE PIPES MAY BE PLACED IN THE STORAGE YARD. IF WATER IS USED FOR CURING, THE PIPES SHALL BE KEPT MOIST BY PERIODIC SPRINKLING FOR AN ADDITIONAL 3 DAYS AFTER BEING PLACED IN STORAGE. IN LIEU OF THE MOIST CURING METHOD, THE MANUFACTURER MAY USE CONCRETE CURING COMPOUNDS OF THE EMULSIFIED ASPHALT OR SYNTHETIC RESIN TYPE, PROVIDED THAT SUCH COMPOUNDS MUST BE APPLIED TO THE MORTAR AT SUCH TIME AS TO ASSURE THE RETENTION OF ADEQUATE MOISTURE FOR THE PROPER HYDRATION OF THE CEMENT.

(I) THE PIPE SHALL BE REINFORCED WITH A CONTINUOUS WELDED STEEL CYLINDER OF HOT ROLLED STEEL SHEETS NOT LIGHTER THAN 16 U.S. GAGE AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A 254-52T, GRADE B, SPECIFICATIONS FOR "HEAVY GAGE STRUCTURAL QUALITY FLAT HOT ROLLED CARBON STEEL OPEN HEARTH" OR ANY SUBSEQUENT AMENDMENTS THERETO, AND ASTM DESIGNATION: A242-52T, SPECIFICATIONS FOR "LOW-ALLOY STRUCTURAL STEEL" OR ANY SUBSEQUENT AMENDMENTS THERETO, EITHER OPEN HEARTH OR BESSEMER SHEETS HAVING PHYSICAL AND CHEMICAL QUALITIES EQUIVALENT TO THOSE MENTIONED MAY BE USED. WHERE THE PIPES ARE DESIGNED FOR SPECIAL CONDITIONS OR FOR HIGH OPERATING PRESSURES, THE CYLINDERS MAY BE MADE FROM HOT-ROLLED SHEETS OF SPECIAL ALLOY STEEL HAVING HIGHER ELASTIC LIMIT AND ULTIMATE STRENGTH THEN THOSE SPECIFIED. IN SUCH CASE THE SHEETS SHALL BE OF GOOD WELDING QUALITY AND SHALL CONFORM TO THE STEEL MANUFACTURER'S PUBLISHED SPECIFICATIONS FOR THE SPECIAL GRADE OF STEEL BEING SUPPLIED. EACH COMPLETED CYLINDER WITH JOINT RINGS WELDED TO IT SHALL BE SUBJECTED TO A HYDROSTATIC TEST BY CLOSING THE ENDS AT THE JOINT RINGS, FILLING WITH WATER IN CONTACT AT ALL POINTS WITH WELDS, AND RAISING THE WATER PRESSURE TO STRESS THE CYLINDER TO A FIBER STRESS OF 25,000 POUNDS PER SQUARE INCH. WHILE UNDER PRESSURE TEST, ALL WELDS SHALL BE THOROUGHLY INSPECTED. IF ANY LEAKS ARE FOUND, THEY SHALL BE REPAIRED AND THE CYLINDER SHALL BE RETESTED. THE FINISHED CYLINDER WITH JOINT RINGS ATTACHED SHALL BE WATER TIGHT UNDER THE REQUIRED TEST PRESSURE. ARC WELDING SHALL BE AN APPROVED PROCESS AND TEST WELDS SHALL BE FURNISHED FROM THE WORK AS REQUIRED.

(J) THE HIGH TENSIL WIRE USED FOR CIRCUMFERENTIAL REINFORCEMENT SHALL BE OF HIGH TENSILE PROPERTIES EITHER COLD DRAWN OF HIGH CARBON MB BASIC, UNTEMPERED ACCORDING TO THE DIAMETER OF THE PIPE AND THE PRESSURE FOR WHICH IT IS DESIGNED. THE TYPE OF WIRE TO BE USED SHALL BE DETERMINED BY THE MANUFACTURER AND SHALL CONFORM TO THE APPROPRIATE A.S.T.M. SPECIFICATIONS AS FOLLOWS:

ASTM DESIGNATION	A 82-34	A 227-47
TITLE	COLD-DRAWN STEEL WIRE FOR CONCRETE REINFORCEMENT	HARD-DRAWN STEEL SPRING WIRE
MIN. ULT. STR. NO. 6 GA. U. S. S.	80,000 P.S.I.	192,000 P.S.I.
MIN. ELASTIC LIMIT NO. 6 GA. U. S. S.	64,000 P.S.I.	100,000 P.S.I.

THE CIRCUMFERENTIAL REINFORCEMENT PROPERTIES MAY BE INCREASED BY THE MANUFACTURER UPON APPROVAL BY THE ENGINEER. TEST REPORTS WILL BE REQUIRED BEFORE APPROVAL. THE AVERAGE GROSS WRAPPING STRESS OF THE HIGH TENSILE WIRE SHALL NOT EXCEED SEVENTY-FIVE (75) PERCENT OF THE MINIMUM ULTIMATE TENSILE STRENGTH OF THE WIRE, AND CENTERLINE SPACING OF THE WIRE SHALL NOT EXCEED 1 1/2 INCHES FOR LINED CYLINDER PIPE WITH WIRE OF NO. 6 GAUGE U. S. S.; THE MAXIMUM CENTERLINE SPACING OF WIRE LARGER THAN NO. 6 GAUGE SHALL BE 1 INCH. NO CIRCUMFERENTIAL WIRE SHALL BE LESS THAN NO. 6 GAUGE. THE WIRE SHALL BE PLACED DIRECTLY AGAINST THE STEEL CYLINDER OF THE CORE AND SHALL BE WRAPPED SPIRALLY, EVENLY AND UNDER CONSTANT TENSION. THE WIRE SHALL BE ANCHORED AT THE ENDS OF THE PIPE BY MECHANICAL DIVICES OF SUFFICIENT STRENGTH TO MAINTAIN THE STRESS IN THE WIRE. THE THICKNESS OF THE STEEL CYLINDERS AND DIAMETER OF WIRE USED AS WELL AS THE CENTERLINE SPACING AT WHICH THE CIRCUMFERENTIAL WIRE IS PLACED AND THE TENSION UNDER WHICH THE WIRE IS WOUND AROUND THE LINED CYLINDER SHALL BE SUCH THAT THE ZERO COMPRESSION PRESSURE BE AT LEAST 50 POUNDS PLUS 1 1/4 TIMES THE STATIC PRESSURE. WHERE THE COVER OVER THE PIPE EXCEEDS EIGHT (8) FEET, THE DESIGN SHALL BE MODIFIED TO WITHSTAND THE ADDITIONAL EXTERNAL LOADING.

(L) STEEL OF FLAT SECTION FOR BELL RINGS SHALL CONFORM TO ASTM DESIGNATION: A 245-44T, GRADE B, SPECIFICATION FOR "LIGHT GAGE STRUCTURAL QUALITY FLAT HOT-ROLLED CARBON STEEL" OR A 283-58, GRADE C, SPECIFICATION FOR "STRUCTURAL QUALITY LOW AND INTERMEDIATE TENSILE STRENGTH CARBON STEEL PLATES", OR ANY SUBSEQUENT AMENDMENTS THERETO.

(M) STEEL OF SPECIAL SECTION OF SPIGOT JOINT RINGS SHALL CONFORM TO A.S.T.M. DESIGNATION: A 31-52T, GRADE A, SPECIFICATIONS FOR "BOILER RIVET STEEL AND RIVETS".

(N) FITTINGS OR SPECIALS SHALL BE FURNISHED AND INSTALLED AS SHOWN ON THE DRAWINGS FOR CONCRETE CYLINDER PIPE OR AS REQUIRED AND ALL INCLUDE SPECIALS WITH BELL END, SPIGOT END, FLANGED END, AND VICTAULIC END OUTLETS, WITH ACCESS MANHOLES, AIR COCKS, PITOMETER, AND DRAIN CONNECTIONS, ANCHOR RINGS, BENDS, TEST HEADS, CLOSURE PIECES, BEVEL AND PIPE, JOINT HARNESS, ETC. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER DETAILED DESIGNS AND SHALL RECEIVE HIS APPROVAL BEFORE THE CONSTRUCTION OF ANY SUCH SPECIALS. THE ZINC COATED JOINT RINGS SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING A.S.T.M. SPECIFICATIONS: 3/16 BELL RINGS A 303-52T, GRADE A: 1/4" AND 5/16" BELL RINGS LESS THAN 6" IN WIDTH: A 31-52T, GRADE A: ALL SPIGOT RINGS A 31-52T, GRADE A.

(O) SPECIAL PIECES, SUCH AS TEE, WYES, OR BRANCH OPENINGS, SHALL ALSO BE OF CYLINDER CONSTRUCTION. IN ALL CASES, THE REINFORCEMENT SHALL ADEQUATELY COMPENSATE FOR THE OPENINGS IN THE PIPE WELL. IF THE SPECIAL PIECE IS PRESTRESSED, THEN THE AREA OF THE STEEL IN THE CYLINDER AND GAGE, IN ADDITION TO THE COMPENSATING REINFORCEMENT PREVIOUSLY MENTIONED, SHALL BE NOT LESS THAN THAT FOR THE ADJOINING PRESTRESSED STRAIGHT PIPE. IF THE SPECIAL PIECE IS NOT PRESTRESSED, THEN THE ADDITIONAL AREA OF THE STEEL IN SUCH CYLINDER AND GAGE SHALL BE NOT LESS THAN THAT FOR THE ADJOINING STRAIGHT PIPE IF SUCH STRAIGHT PIPE WERE DESIGNED AS CONCRETE CYLINDER PIPE.

(P) THE OPENINGS IN THE SPECIAL MAY BE FORMED BY STEEL RINGS OR CASTINGS OF SUITABLE DESIGN SECURELY WELDED TO THE CYLINDER AND REINFORCING GAGE. ALL BENDS AND SPEICAL PEICES SHALL BE PROVIDED WITH JOINT RINGS CORRESPONDING TO THOSE IN THE STRAIGHT PIPE.

(Q) ALL BENDS, FLANGED PIPE, AND REDUCERS SHALL BE CONSTRUCTED WITH STEEL CYLINDERS HAVING 3/8" MINIMUM PLATE THICKNESS FOR 36" WATER MAIN. THEY SHALL HAVE THE SAME LONGITUDINAL AND CIRCUMFERENTIAL STEEL IN THE GAGE AS THE ADJOINING STRAIGHT PIPE WOULD HAVE, IF SUCH STRAIGHT PIPE WERE DESIGNED AS CONCRETE CYLINDER PIPE.

(R) CAST STEEL SADDLES AND FORGINGS OR THE EQUIVALENT IN FABRICATED STEEL PLATES SHALL BE WELDED TO THE STEEL CYLINDER FOR MANHOLE AND PIPE CONNECTIONS AND FOR DRAIN, AND AIR COCK CONNECTIONS, AND SHALL BE DRILLED AND TAPPED AND PROVIDED WITH TWO-2" DIAM. MALLEABLE IRON PLUGS.

(S) UNLESS OTHERWISE SHOWN OR REQUIRED, THE ENDS OF EACH PIPE FOR TYPICAL FIELD JOINTS SHALL BE FORMED BY ZINC COATED STEEL JOINT RINGS SECURELY WELDED TO THE STEEL CYLINDERS, WITH THE RING FORMING THE BELL AND COVERED ON THE EXTERIOR SURFACE WITH REINFORCED CONCRETE AND THE RING FORMING THE SPIGOT END LINED ON ITS INNER SURFACE WITH CONCRETE. THE SPIGOT RING SHALL HAVE A SUBSTANTIAL GROOVE ON ITS OUTER SURFACE FOR THE PURPOSE OF RECEIVING, HOLDING AND PROTECTING THE GASKET. THE JOINTS SHALL BE SELF-CENTERING AND THE RINGS FORMING THE JOINTS SHALL BE OF SUCH SHAPE AND DIMENSIONS THAT THE PIPE SHALL CENTER THEMSELVES WITHOUT THE AID OF THE RUBBER GASKET. THE WELDING OF THE JOINT RINGS TO THE CYLINDER PIPE SHALL CONSIST OF AT LEAST ONE FULL CONTINUOUS WELD FOR PIPE SECTIONS THAT ARE PROPERLY TESTED HYDRAULICALLY FOR STRENGTH AND WATER TIGHTNESS. FOR PIPE SECTIONS THAT HAVE TO BE CUT TO BE FITTED UP TO MAKE BENDS, SUCH CONSTRUCTION SHALL HAVE DOUBLE CONTINUOUS WELDS. LIKEWISE, ANY SPECIAL CONSTRUCTION, SUCH AS FOR OUTLETS OR FOR PIPES HAVING SPECIAL ENDS, SHALL HAVE DOUBLE CONTINUOUS WELDS.

(T) THE GASKET SEALING THE JOINT SHALL BE OF SPECIAL COMPOSITION RUBBER HAVING A TEXTURE TO SECURE A PERMANENTLY WATERTIGHT SEAL. THE TYPE OF GASKET SHALL HAVE BEEN IN SATISFACTORY USE IN COMPARABLE INSTALLATIONS FOR NOT LESS THAN FIVE (5) YEARS.

(U) ACCESS CONSTRUCTION MANHOLES IN ADDITION TO THOSE SHOWN ON THE DRAWINGS SHALL BE LOCATED AS REQUIRED TO PROVIDE EASY ACCESS FOR FIELD WELDING AND PLACING OF MORTAR AS REQUIRED FOR FIELD JOINTS.

(V) TESTING BULKHEADS SHALL BE FURNISHED AND INSTALLED FOR TESTING ANY COMPLETE SECTIONS OF THE PRESTRESSED CONCRETE CYLINDER PIPE MAINS AS MAY BE REQUIRED.

(W) ALL STEEL FOR CASTINGS SHALL CONFORM TO THE SPECIFICATIONS FOR GRADE 70-36 STEEL CASTINGS, AS GIVEN IN THE "STANDARD SPECIFICATIONS FOR MILD-TO-MEDIUM STRENGTH CARBON-STEEL CASTINGS FOR GENERAL INDUSTRIAL USE, A.S.T.M. DESIGNATION: A 27-62T".

(X) ALL STEEL FORGINGS SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR CARBON-STEEL FORGINGS, A.S.T.M. DESIGNATION: A 235-62T, CLASS C"..

(Y) ALL FORGED OR ROLLED STEEL PIPE FLANGES SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR FORGED OR ROLLED STEEL PIPE FLANGES FOR GENERAL SERVICE, A.S.T.M. DESIGNATION: A 181-61T, GRADE 1".

(Z) ALL STRUCTURAL STEEL INCLUDING ANGLES FOR ANCHOR RINGS SHALL CONFORM TO "TENTATIVE SPECIFICATIONS FOR STEEL FOR BRIDGES AND BUILDINGS, A.S.T.M. DESIGNATION: A 7-61T", OR TO "SPECIFICATIONS FOR LOW AND INTERMEDIATE TENSILE STRENGTH CARBON STEEL PLATES OF STRUCTURAL QUALITY", A.S.T.M. DESIGNATION A 283-62, GRADE C.

APPROVED JANUARY- 4-1974

William J Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
SCALE
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

313
713

12
54

WATERWORK NOTES

PRESTRESSED CONCRETE CYLINDER PIPE - 2000 P.S.I. DESIGN PRESSURE CONT'D

(AA) ALL CAST IRON PIPE AND FITTINGS SHALL CONFORM TO "CAST IRON PIPE AND FITTINGS SPECIFICATIONS," SHEET NO. 4 .

(BB) IRON CASTINGS MUST BE SMOOTH AND FREE FROM BLOWHOLES AND OTHER DEFECTS AND THE MATERIAL SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS, A.S.T.M. DESIGNATION: A 48-62, CLASS NO. 30B", AND ALL SUBSEQUENT AMENDMENTS THERETO.

(CC) CLOSURE COUPLINGS WITH DRESSER COUPLING JOINTS WITH STOPS REMOVED, SHALL BE PROVIDED AS ARE NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAINS. MEASUREMENTS FOR LENGTH OF CLOSURE PIECES WILL BE MADE IN THE FIELD BY THE CONTRACTOR AFTER ADJACENT PIPE SECTIONS ARE IN PLACE IN THE TRENCH.

(DD) TESTS, INSPECTIONS, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED IN ACCORDANCE WITH PREVIOUS INSTRUCTIONS IN THESE NOTES.

MARKING

EACH PIPE AND SPECIAL SHALL HAVE CONSPICUOUSLY PAINTED IN BLACK ON THE INSIDE, A SERIAL NUMBER FOR THE PURPOSE OF IDENTIFICATION. SERIAL NUMBERS SHALL AGREE WITH LISTS TO BE FURNISHED TO THE ENGINEER. THE TOP CENTER LINE OF ALL SPECIAL FITTINGS AND EACH PIPE THAT HAS A BEVELED END SHALL HAVE A WHITE RING PAINTED IN THE SHOP AROUND THE MARK BOTH ON THE INSIDE AND OUTSIDE OF THE PIPE.

TYPICAL FIELD JOINTS FOR CONCRETE PIPE

THE CONTRACTOR SHALL MAKE ALL TYPICAL FIELD JOINTS, CLAMP TYPE HARNESSED JOINTS AND SHOP WELDED TIED JOINTS (SEE GENERAL NOTE NO. 12, SHEET NO. 10 MARKED "Y", AS SHOWN ON SHEET NO. 42 OR AS REQUIRED AND AS SPECIFIED IN THE SECTION OF THESE NOTES TITLED "LAYING PIPE" AND SHALL PROPERLY MAKE ALL FIELD CONNECTIONS FOR THE ABOVE HARNESSED JOINTS. THE ANNULAR RECESSES AT THE JOINT, BOTH INSIDE AND OUTSIDE OF THE PIPE, SHALL BE FILLED WITH CEMENT MORTAR MIXED IN A PROPORTION OF NOT LESS THAN ONE PART OF CEMENT AND TWO PARTS OF SAND.

FLANGED JOINTS

(A) FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. FLANGES SHALL BE EITHER CAST STEEL, FORGED OR ROLLED STEEL, OR PROPERLY WELDED AND MACHINE FABRICATED STEEL PLATES, WELDED TO PIPE WITH TWO CONTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO "AMERICAN 1928 STANDARD, DRILLING, 125 POUND TEMPLATE". EACH BLIND FLANGE SHALL BE CAST IRON AND SHALL HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR TWO - 2 INCH STANDARD PIPE AND FURNISHED WITH PLUGS. ALL BOLTS FOR FLANGES AND FOR OTHER TYPES OF BOLTING SHALL CONFORM TO THE "TENTATIVE SPECIFICATIONS FOR LOW CARBON STEEL EXTERNALLY AND INTERNALLY THREADED FASTENERS ASTM A 307-63T, GRADE A, EXCEPT WHEN ONE OR BOTH FLANGES ARE CAST IRON, IN WHICH CASE BOLTS SHALL BE GRADE B.

(B) ALL BOLTS USED IN THE FINISHED WORK FOR FLANGES AND TIED JOINTS FOR CONCRETE PIPE SHALL BE OF MEDIUM OPEN HEARTH STEEL. THE ENDS OF ALL BOLTS MUST BE FINISHED TO STANDARD RADIUS IN ACCEPTABLE MANNER. ALL SCREW THREADS SHALL BE AMERICAN STANDARD COURSE THREAD (N.C.). STUD BOLTS DOUBLE END (ROD) SHALL BE USED TO MAKE THE FLANGED JOINTS ON PIPE. ALL NUTS SHALL BE HEXAGONAL, COLD PRESSED SEMI-FINISHED AND MADE OF MEDIUM OPEN HEARTH ELECTRIC FURNACE OR BESSEMER PROCESS STEEL. ALL DIMENSIONS TO BE ACCORDING TO AMERICAN STANDARD HEAVEY. BOLTS AND NUTS SHALL BE GALVANIZED BEFORE SHIPMENT AND NOT PRIMED. GASKETS FOR FLANGED PIPE SHALL BE FULL FACED RUBBER ONE-SIXTEENTH (1/16) INCH THICK 5X MANILA ROPE PATTERN OR OTHER APPROVED TYPE.

(C) IN PLACE OF FLANGED JOINTS, ON CONCRETE PIPE BETWEEN VERTICAL BENDS ON TIED DISTANCES, AND ELSEWHERE AS SHOWN ON THE DRAWINGS, THE USE OF BUTT WELDED JOINTS WILL BE PERMITTED, UNLESS SPECIFICALLY PROHIBITED ON THE DRAWINGS. THE STEEL CYLINDER SHALL BE REINFORCED HAVING A THICKNESS OF NOT LESS THAN THAT CALLED FOR IN DETAIL "2" FOR THE CONCRETE PIPE. THE ENDS OF THE STEEL CYLINDERS SHALL BE BEVELED. THE WELD MATERIAL AND THE WELDING PROCEDURE SHALL CONFORM TO THE AWWA C-206-62 "STANDARD SPECIFICATIONS FOR FIELD WELDING OF STEEL WATER PIPE JOINTS" AND ANY SUBSEQUENT AMENDMENTS THERETO. THE ANNULAR RECESSES AT THE JOINT, BOTH INSIDE AND OUTSIDE OF THE PIPE SHALL BE PROTECTED AGAINST CORROSION BY AN APPROVED METHOD. ALL EXPOSED STEEL SURFACES, BOTH INSIDE AND OUTSIDE OF THE PIPE, SHALL BE COATED IN ACCORDANCE WITH THE COATING REQUIREMENTS OF THESE SPECIFICATIONS.

LEAD JOINTS

(A) LEAD JOINTS: IN JOINTING ALL BELL AND SPIGOT PIPE AND FITTINGS HAVING LEAD JOINTS, THE SPIGOT OF EACH PIPE SHALL BE PROPERLY SEATED IN THE BELL OF THE NEXT ADJACENT PIECE AND ADJUSTED SO AS TO GIVE A UNIFORM ANNULAR SPACE. THE JOINT SHALL BE MADE WITH TWISTED HARD JUTE AND SOFT PIG LEAD. BEFORE PLACING THE JUTE, IT SHALL BE STERILIZED EITHER BY BOILING OR BY DIPPING IN A CONCENTRATED SOLUTION OF CALCIUM HYPOCHLORITE. THE JUTE SHALL BE TWISTED AND THOROUGHLY DRIVEN INTO THE BELL, SO THAT THE LEAD, AFTER HAVING BEEN CAULKED, SHALL HAVE A DEPTH OF 2 1/2 INCHES.

THE FURNACE AND MELTING POT SHALL BE KEPT NEAR THE JOINT TO BE POURED AND EACH JOINT SHALL BE MADE WITH ONE POURING. DROSS SHALL NOT BE ALLOWED TO ACCUMULATE IN THE MELTING POT. THE JOINTS SHALL BE THOROUGHLY CAULKED BY COMPETENT PIPE JOINERS AND IN SUCH MANNER AS WILL SECURE A TIGHT JOINT WITHOUT OVERSTRAINING THE IRON OF THE BELL.

SHOP COATING AND PAINTING

(A) THE EXPOSED SURFACE OF THE STEEL ENDS OF SPIGOT, BELL, VICTAULIC OR FLANGED STEEL OUTLET CONNECTIONS AND THE FLANGED ENDS OF CONCRETE PIPE, ETC., SHALL BE CLEANED, PRIMED AND ENAMELED INSIDE AND OUTSIDE IN ACCORDANCE WITH THE A.W.W.A. SPECIFICATIONS C203-62. THE COAL TAR PRIMER SHALL BE TYPE A. THE COATING MAY BE APPLIED BY BRUSH OR SPRAY. ALL COATINGS SHALL BE APPLIED IN THE SHOP BEFORE SHIPMENT. THE OUTSIDE COATING SHALL STOP AGAINST THE FLANGES AT ENDS OF PIPE SECTIONS.

(B) GALVANIZED PIPE ENDS FOR RUBBER GASKET JOINTS ARE NOT TO BE COATED.

(C) THE GROOVED STEEL BANDS AT THE ENDS OF THE PRESTRESSED CONCRETE CYLINDER PIPE TO RECIEVE VICTAULIC TYPE COUPLINGS SHALL BE COATED WITH WHITE LEAD AND TALLOW, THE COATING MUST BE REMOVED JUST PRIOR TO INSTALLATION OF THE COUPLING.

(D) ALL FINISHED SURFACES SHALL BE COATED WITH WHITE LEAD AND TALLOW AND NOT PRIMED.

(E) AFTER ERECTION, ALL EXPOSED OR DAMAGED COATINGS ON SURFACES BURIED UNDER GROUND AND ALL BOLTS ON FLANGES AND VICTUALIC COUPLINGS SHALL BE CLEANED AND PAINTED WITH THREE FIELD COATS OF COAL TAR PITCH PAINT EQUAL TO INERTOL 50 OR KOPPERS BITUMASTIC 50 OR APPROVED EQUAL.

TRANSPORTATION AND DELIVERY

(A) THE CONTRACTOR SHALL TRANSPORT, DELIVER AND DISTRIBUTE ALONG THE LINE OF THE WORK, THE PIPE, SPECIALS AND APPURTENANCES.

(B) PIPE SHALL BE LOADED FOR SHIPMENT UPON SUITABLE CARS OR TRUCKS WHICH SHALL BE PROVIDED WITH WOODEN SKIDS. IN LOADING AND UNLOADING THE PIPE, MORE THAN ORDINARY CARE MUST BE TAKEN TO PREVENT ANY INJURY TO THE CONCRETE CYLINDER PIPE, STEEL AND PIPE ENDS AND PROTUBERANT STEEL CONNECTIONS. SUCH WORK MUST BE DONE SLOWLY WITH THE PIPE AT ALL TIMES UNDER PERFECT CONTROL, AND UNDER NO CONDITION SHALL THE PIPE BE DROPPED.

(C) IN DISTRIBUTING THE PIPE IN THE FIELD, EACH PIPE MUST BE PLACED AS NEARLY AS POSSIBLE TO THE POINT WHERE IT IS TO BE LAID, AND FACING IN THE PROPER DIRECTION. SUITABLE SKIDS OR BLOCKS MUST ALSO BE LEFT UNDER EACH PIPE, AND THE PIPE SECURELY WEDGED IN PLACE TO PREVENT ITS BEING MOVED UNTIL REQUIRED. A STEEL CABLE SLING SHALL BE USED FOR ROLLING OF LIFTING PIPE. NO IRON CHAINS SHALL BE USED. PIPE WHICH HAS BEEN IMPROPERLY DISTRIBUTED AND WHICH MUST BE MOVED LONGITUDINALLY ALONG THE TRENCH SHALL BE RELOADED ON A WAGON, OR LIFTED AND SWUNG BY A DERRICK OR MOVED BY SUCH MEANS AS MAY BE SATISFACTORY TO THE ENGINEER.

(D) IF, IN THE PROCESS OF MANUFACTURE, TRANSPORTATION, OR HANDLING, ANY CONCRETE PIPE OR SPECIAL RECEIVES ANY INDENTATION OR DEFORMATION TO THE CONCRETE, STEEL ENDS OR CONNECTIONS, THE REMOVAL OF WHICH WILL IN ANY DEGREE INJURE IT, SUCH PIPE OR SPECIAL SHALL BE REJECTED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

(E) PIPE WHICH IS PLACED IN STORAGE, STREETS OR DRIVES MUST BE SO ARRANGED AS NOT TO CAUSE UNDUE INCONVENIENCE TO TRAFFIC AND MUST BE PROTECTED SUFFICIENTLY TO PREVENT INJURY TO THE CONCRETE CYLINDER PIPE, AND THE COATING OF THE STEEL ENDS AND CONNECTIONS.

MATERIALS DATA WITH PROPOSAL

EACH BIDDER SHALL SUBMIT WITH HIS PROPOSAL, AND IN THE FORM PROVIDED, THE INFORMATION CALLED FOR BELOW:

1. NAME OF PIPE MANUFACTURER AND LOCATION OF PLANT.
2. NAME OF COUPLING MANUFACTURER AND LOCATION OF PLANT.
3. PIPE COATING AND LINING DATA.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL, DUPLICATE PRINTS OF ALL SHOP DRAWINGS FOR CONCRETE PIPE, FITTINGS, AND SPECIALS, AND MISCELLANEOUS DETAILS, SUCH AS AIR COCK AND DRAIN FORGINGS, CASTINGS, ETC.

(B) THE CONTRACTOR SHALL ALSO FURNISH AN ASSEMBLY PLAN FOR THE ENTIRE LENGTH OF THE PIPE LINE FOR WHICH CONCRETE PIPE IS FURNISHED UNDER THE APPROPRIATE ITEMS. THIS ASSEMBLY PLAN SHALL ALSO SHOW THE CORRECT LOCATION OF ALL FITTINGS FURNISHED.

C) ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE DIRECTOR. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED, AND AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL AGAIN FURNISH TO THE DIRECTOR FIFTEEN ADDITIONAL PRINTS, SIX (6) ON PAPER AND ONE (1) MYLAR OR REPRODUCIBLE CLOTH TRACING OF EACH DRAWING. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

(D) THE APPROVAL OF THE DRAWINGS BY THE DIRECTOR SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

EXPERIENCE QUALIFICATIONS

ALL BIDDERS WILL BE REQUIRED TO SHOW TO THE SATISFACTION OF THE DIRECTOR THAT THE TYPE AND SIZE OF PIPE AND FITTINGS BE PROPOSES TO FURNISH, WILL BE MADE BY A MANUFACTURER WHOSE PIPE HAS BEEN SUCCESSFULLY USED FOR LIKE WORK OUTSIDE OF THE BUILDER'S WORKS FOR A PERIOD OF NOT LESS THAN FIVE (5) YEARS.

MEASUREMENT

THE NUMBER OF LINEAR FEET OF WATER MAIN TO BE PAID FOR UNDER PRESTRESSED CONCRETE CYLINDER PIPE SHALL BE THE ACTUAL NUMBER OF LINEAR FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE MAIN, INCLUDING FITTINGS AND VALVES CONNECTED UP IN PLACE.

PAYMENT

(A) THE UNIT PRICE STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF ITEM SPECIAL-WATER MAIN CLASSIFIED AS TO SIZE, SHALL INCLUDE THE FURNISHING, LAYING, PAINTING AND INSPECTION AND TESTING OF PRESTRESSED CONCRETE PIPE, CONCRETE CYLINDER FITTINGS, CONCRETE PIERS AND ANCHORS, CAST IRON PIPE AND FITTINGS, VICTAULIC AND DRESSER COUPLINGS, TIED JOINTS DETAIL "Y", HARNESSED JOINTS, THE EXCAVATION, SHEETING AND SHORING, BACKFILLING, SAND BACKFILLING, SEEDING AND SODDING, SIDEWALK REPLACEMENT, AND THE TEMPORARY AND PERMANENT REPAVING FOR THE ABOVE MAIN AND FOR SERVICE CONNECTION CHANGES BY THE CITY WATER DEPARTMENT, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, APPLIANCES, AND EQUIPMENT TO COMPLETE THE WORK AS SPECIFIED OR SHOWN.

EXTRA CONCRETE PRESSURE PIPE FITTINGS

WORK INCLUDED

(A) THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY INSTALL ALL THE CONCRETE PRESSURE PIPE FITTINGS OF THE VARIOUS SIZES SPECIFIED WHICH ARE NOT SHOWN ON THE CONTRACT DRAWINGS OR ON APPROVED SHOP DRAWINGS AND WHICH ARE ORDERED INSTALLED BY THE DIRECTOR IN ORDER TO CHANGE LINE OR GRADE TO AVOID OBSTACLES PREVIOUSLY UNKNOWN, OR TO MEET OTHER FIELD CONDITIONS, AND ANY OUTLET CONNECTIONS FOR DRAINS, AIR COCKS OR OTHER USE WHICH MAY BE REQUIRED DUE TO FIELD CONDITIONS, AND INCLUDING ALL EXTRA EXCAVATION, SHEETING, SHORING, BACKFILLING, SAND BACKFILL, SEEDING, SODDING AND TEMPORARY AND PERMANENT REPAVING REQUIRED THEREFOR FOR THE PROPER COMPLETION OF THE WORK UNDER THIS CONTRACT.

(B) IN GENERAL, THE WORK OF THIS ITEM SHALL INCLUDE BEVELS, HALF BEVELS, ADAPTERS, ELBOWS, TANGENTIAL OUTLET PIECES, AND PIPES WITH SMALL OUTLETS (WITH OR WITHOUT TIED JOINTS) WHICH WERE NOT SHOWN ON APPROVED SHOP DRAWINGS AND WHICH ARE ORDERED INSTALLED BY THE DIRECTOR.

(C) THE PROVISIONS OF THIS ITEM SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO INVESTIGATE EXISTING FACILITIES AS INDICATED UNDER NOTES AND SPECIFICATIONS, NOR TO USE LESS THAN NORMAL DILIGENCE IN EXCAVATING OR LAYING PIPE TO ANTICIPATE POSSIBLE DIFFICULTIES.

CONCRETE PRESSURE PIPE FITTINGS

ALL FITTINGS TO BE FURNISHED AND INSTALLED UNDER THIS ITEM SHALL BE MANUFACTURED AND INSTALLED IN FULL CONFORMANCE WITH THE REQUIREMENTS OF ITEM "PRESTRESSED CONCRETE CYLINDER PIPE" OF THESE SPECIFICATIONS. JOINTS, MARKING, SHOP COATING, PAINTING, TESTING AND CHLORINATING SHALL CONFORM TO THE REQUIREMENTS OF ITEM "PRESTRESSED CONCRETE CYLINDER PIPE", AND DRAWINGS SHALL BE SUBMITTED AND APPROVED AS REQUIRED THEREIN.

PAYMENT

(A) THE UNIT PRICE STIPULATED PER EACH "ITEM SPECIAL-EXTRA CONCRETE PRESSURE PIPE FITTINGS" CLASSIFIED AS TO SIZE AND TYPE SHALL BE IN FULL COMPENSATION FOR THE FURNISHING AND INSTALLING OF SUCH EXTRA FITTINGS AS ARE ORDERED BY THE ENGINEER AND WHICH ARE NOT SHOWN ON THE CONTRACT DRAWINGS OR APPROVED SHOP DRAWINGS, AND SHALL INCLUDE ANY EXTRA EXCAVATION, SHEETING, SHORING, BACKFILLING, SAND BACKFILL, SEEDING, SODDING, AND TEMPORARY AND PERMANENT REPAVING REQUIRED THEREFOR, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

B) NO DEDUCTION WILL BE MADE IN THE LENGTHS OF PIPE AND FITTINGS TO BE PAID FOR UNDER ITEM "PRESTRESSED CONCRETE CYLINDER PIPE", WHERE EXTRA FITTINGS ARE ORDERED TO BE INSTALLED AND, LIKEWISE, NO PAYMENT WILL BE MADE FOR EXTRA FITTINGS WHICH ARE INSTALLED FOR THE CONVENIENCE OF THE CONTRACTOR WITHOUT SPECIFIC ORDERS FROM THE ENGINEER.

(C) AN ESTIMATED QUANTITY OF 2 EACH HAS BEEN INCLUDED IN THE WATERWORK SUMMARY FOR 36" EXTRA CONCRETE PRESSURE PIPE FITTINGS.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN W.R.S.
CHECKED H.C.S.
SCALE
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

314/713

13/54

CUYAHOGA COUNTY
CUY - 90 - 10.40

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	PLUGGING EXISTING 6" WATER MAIN AND BRANCH	2	EACH
SPECIAL	CURB COCK VALVE BOX REMOVED	6	EACH
SPECIAL	SERVICE CONNECTION EXTENDED (3/4")	1	EACH
SPECIAL	PLUGGING SERVICE CONNECTION (3/4")	6	EACH
SPECIAL	VALVE BOX REMOVED	1	EACH

LEGEND

- —W— — EXIST. WATER MAIN
- ——— NEW WATER MAIN
- ++++++++ EXIST. W.M. TO BE ABANDONED
- HYDRANT & VALVES (EXIST.)
- HYDRANT & VALVES (NEW)
- SERVICE CONNECTIONS TO BE PLUGGED
- EXIST. W.MAIN TO BE PLUGGED

NOTE:
THE LOCATION OF ALL WATER SERVICE CONNECTIONS ARE OBTAINED FROM CLEVELAND WATER DEPARTMENT RECORD MAPS Nº 1301, 1303, 1307, 1310, 1313 & 1404.

⊛ DENOTES WATER SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK VALVE BOXES.

FOR LEGEND SEE THIS SHEET.

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1"= 50'

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK PLAN
Sta. 721+40 ~ 728+00

DRAWN WRS
SCALE
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

315/713

14/54

CUYAHOGA COUNTY
CUY - 90 - 10.40

NOTE
THE LOCATION OF ALL WATER SERVICE CONNECTIONS ARE OBTAINED FROM CLEVELAND WATER DEPARTMENT MAPS Nº 434, 463-A, 1238, 1300 1301, 1313, 1403 & 1404.
⊕ DENOTES WATER SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK BOXES.

FOR LEGEND SEE SHEET Nº 314.

APPROVED JANUARY-4-1974

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73
SCALE: 1" = 50'

William J Sweeney
DESIGN REVIEW ENGINEER

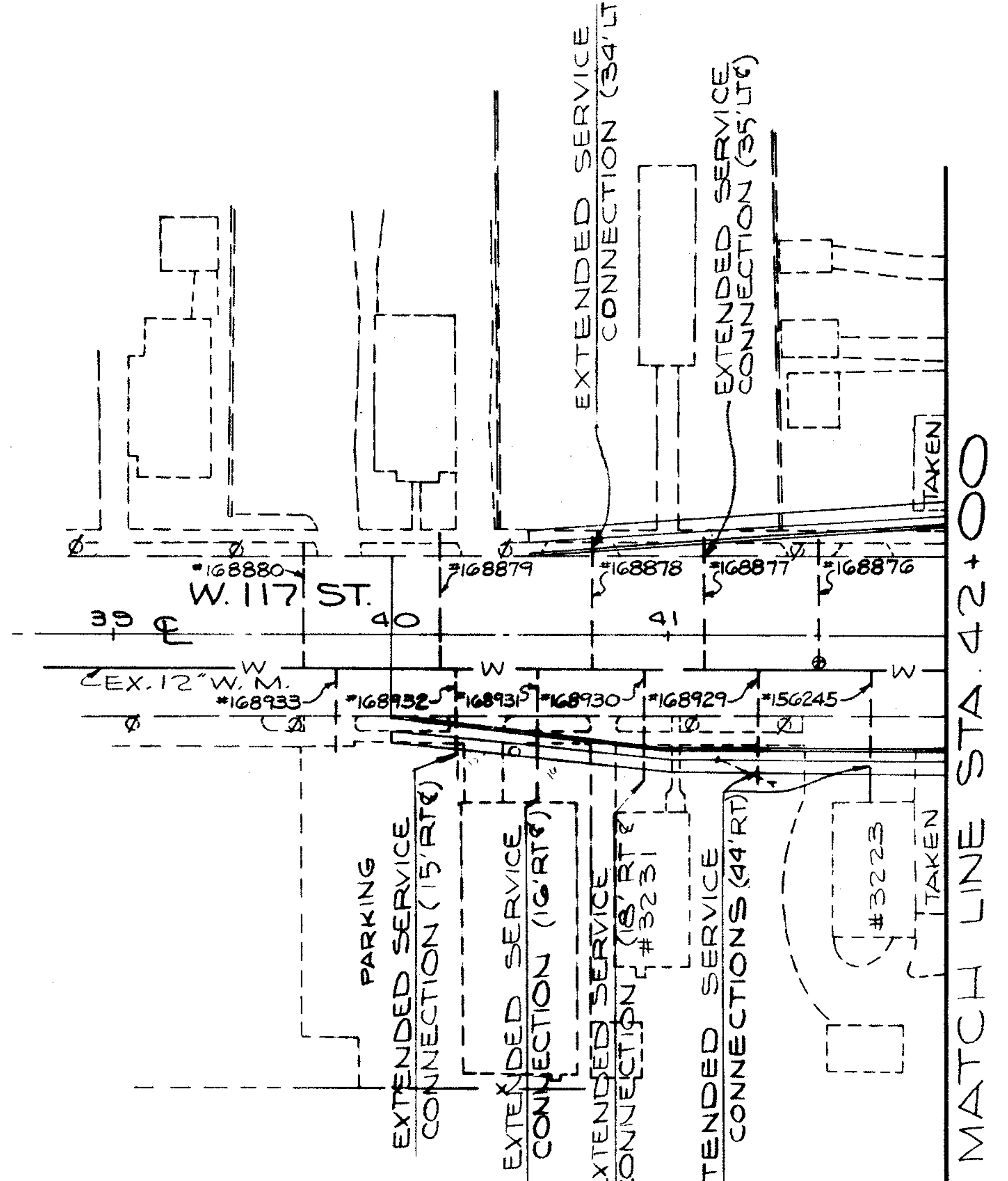
REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK PLAN
Sta. 728+00 737+00

DRAWN W.R.S. SCALE
CHECKED H.C.S. DATE
No.



FOR CONTINUATION OF W. 117 STREET BETWEEN STA. 42+00 TO STA. 58+25 SEE SHEET Nº 315.

NOTE:
THE LOCATION OF ALL WATER SERVICE CONNECTIONS ARE OBTAINED FROM CLEVELAND WATER DEPARTMENT MAPS Nº 469A

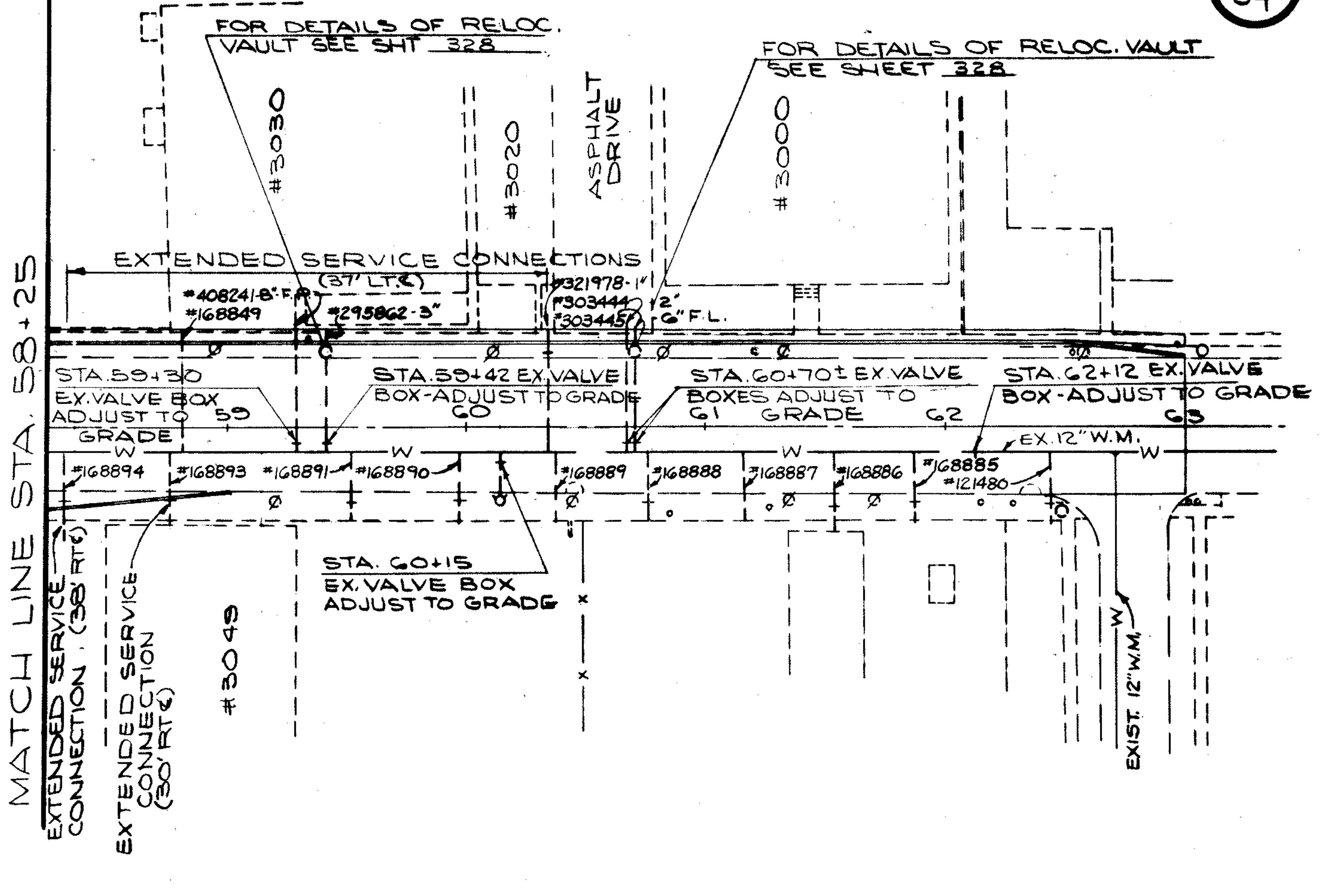
● DENOTES WATER SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK BOXES.

FOR LEGEND SEE SHEET Nº 314.

* QUANTITIES FROM SHEET 315 & 316

*ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	CURB COCK VALVE BOX REMOVED	32	EACH
SPECIAL	PLUGGING SERVICE CONNECTION (3/4")	32	EACH
SPECIAL	VALVE BOX REMOVED	8	EACH
SPECIAL	SERVICE CONNECTION EXTENDED (3/4")	20	EACH
SPECIAL	SERVICE CONNECTION EXTENDED (1")	1	EACH
SPECIAL	SERVICE CONNECTION EXTENDED (2")	2	EACH
SPECIAL	ADJUST CURB COCK BOX TO GRADE	2	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE	9	EACH



APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1" = 50'

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK PLAN W. 117 St.

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

317/713

16/54

CUYAHOGA COUNTY

CUY - 90 - 10.40

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25 AND FITTINGS CLASS D, ALL CEMENT LINED WITH JOINTS.	8	LIN. FT.
SPECIAL	6"×6" TAPPING SLEEVE AND 6" TAPPING VALVE AND No 2 VALVE BOX	1	EACH
SPECIAL	CURB COCK VALVE BOX REMOVED	6	EACH
SPECIAL	PLUGGING SERVICE CONNECTION (3/4")	6	EACH
SPECIAL	VALVE BOX REMOVED	2	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE	4	EACH
SPECIAL	ADJUST CURB COCK BOX TO GRADE	8	EACH
SPECIAL	PLUGGING EXISTING 6" WATERMAIN AND BRANCH	2	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH

⊗ DENOTES WATER SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK BOXES

FOR LEGEND SEE SHEET No 314

NOTE: THE LOCATIONS OF ALL WATER SERVICE CONNECTIONS ARE OBTAINED FROM CLEVELAND WATER DEPARTMENT MAPS No 29, 97, 388, 421, 434, 461, & 1300

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1"=50'

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **WATER WORK PLAN**
Sta. 737+00 ~ 752+00

DRAWN W.R.S. SCALE
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

318
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

17
54

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	CURB COCK VALVE BOX REMOVED	15	EACH
SPECIAL	PLUGGING SERVICE CONNECTION (3/4")	14	EACH
SPECIAL	SERVICE CONNECTION EXTENDED (3/4")	2	EACH
SPECIAL	ADJUST CURB COCK BOX TO GRADE	4	EACH
SPECIAL	PLUGGING SERVICE CONNECTION (2")	1	EACH

NOTE:
THE 16" W.M. ON W. 106TH ST. IS IST. HIGH SERVICE.
THE 36" W.M. ON W. 105TH ST. IS IST. HIGH SERVICE.

NOTE:
THE LOCATIONS OF ALL WATER SERVICE CONNECTIONS ARE OBTAINED FROM CLEVELAND WATER DEPARTMENT MAPS Nº 466, 2267, 3408, & 3409.

● DENOTES WATER SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVED ABANDONED CURB COCK BOXES.

FOR LEGEND SEE SHEET Nº 314

SCALE: 1"=50'

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

APPROVED JANUARY - 4 - 1974

William J Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK PLAN
Sta. 752+00 ~ 767+00

DRAWN W.R.S. SCALE
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

319/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

18/54

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	4" WATER MAIN CAST IRON PIPE ANSI		
	CLASS 24 WITH FITTINGS CLASS D WITH		
	LEAD JOINTS, ALL CEMENT LINED	28	LIN.FT.
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI		
	CLASS 25, WITH FITTINGS CLASS "D" WITH		
	LEAD JOINTS, ALL CEMENT LINED	24	LIN FT.
SPECIAL	ADJUST VALVE BOX TO GRADE	11	EACH
SPECIAL	PLUGGING SERVICE CONNECTION (3/4")	13	EACH
SPECIAL	CURB COCK VALVE BOX REMOVED	13	EACH
SPECIAL	VALVE BOX REMOVED	2	EACH
SPECIAL	SERVICE CONNECTION EXTENDED (3/4")	4	EACH
SPECIAL	REMOVE AND RESET EXISTING 4" HYDRANT	5	EACH
SPECIAL	REMOVE AND RESET EXISTING 6" HYDRANT	1	EACH

NOTE:
THE LOCATIONS OF ALL WATER SERVICE CONNECTIONS ARE OBTAINED FROM CLEVELAND WATER DEPARTMENT MAPS Nº 217, 3406 & 3409

● DENOTES WATER SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK BOXES.

FOR LEGEND SEE SHEET Nº 314

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1" = 50'

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK PLAN
Sta. 767+00 ~ 776+00

DRAWN W.R.S. SCALE
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

320
713

19
54

NOTE:
THE LOCATION OF ALL WATER SERVICE CONNECTIONS ARE OBTAINED FROM CLEVELAND WATER DEPARTMENT MAPS Nº

● DENOTES WATER SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK BOXES

FOR LEGEND SEE SHEET Nº 314

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	CURB COCK VALVE BOX REMOVED	31	EACH
SPECIAL	PLUGGING SERVICE CONNECTION (3/4")	31	EACH
SPECIAL	SERVICE CONNECTION EXTENDED (3/4")	9	EACH
SPECIAL	ADJUST CURB COCK BOX TO GRADE	6	EACH
SPECIAL	PLUGGING EXIST. WATER MAIN AND BRANCH (6")	2	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE	7	EACH
SPECIAL	EXISTING 4" HYDRANT REMOVED AND DISPOSED OF	2	EACH
SPECIAL	ADJUST AIR COCK BOX TO GRADE	1	EACH
SPECIAL	ADJUST WATER MANHOLE TO GRADE	1	EACH
SPECIAL	VALVE BOX REMOVED	10	EACH

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1"= 50'

APPROVED JANUARY- 4- 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO
SUBJECT WATER WORK PLAN
Sta. 776+00 ~ 791+40
DRAWN WRS SCALE 1"=50'
CHECKED DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

321/713

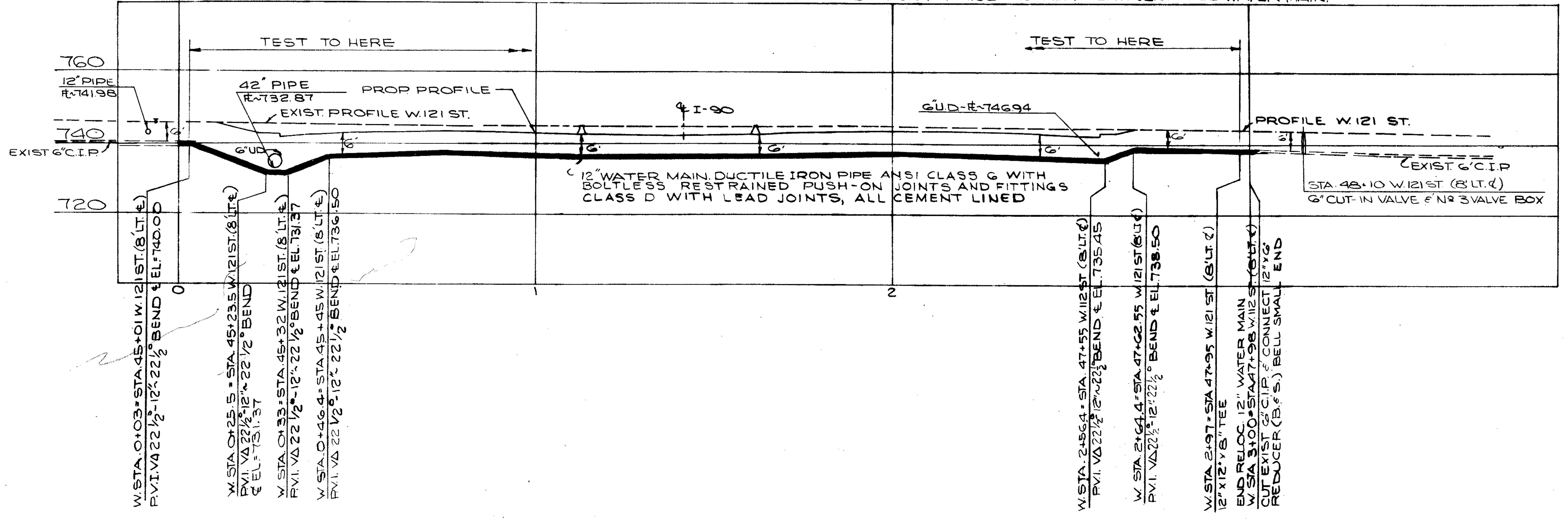
20/54

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 304 THRU 314.

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET Nº 315.

INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.



ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	12" WATER MAIN, DUCTILE IRON PIPE ANSI CLASS 6		
	WITH BOLTLESS RESTRAINED PUSH-ON JOINTS AND		
	FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	300	LIN. FT.
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	AND FITTING CLASS D WITH LEAD JOINTS,	8	LIN. FT.
	ALL CEMENT LINED.		
SPECIAL	RELOCATE, RETAP AND RECONNECT SERVICE CONNECTION (158627)	1	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	2	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	6"x6' TAPPING SLEEVE AND 6' TAPPING VALVE AND Nº 2		
	VALVE BOX	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH
SPECIAL	*Existing 4" Hydrant Removed & Disposed of*	*1*	*Each*

APPROVED JANUARY - 4 - 1974

William J Sweeney
DESIGN REVIEW ENGINEER

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN
W. 121 ST.

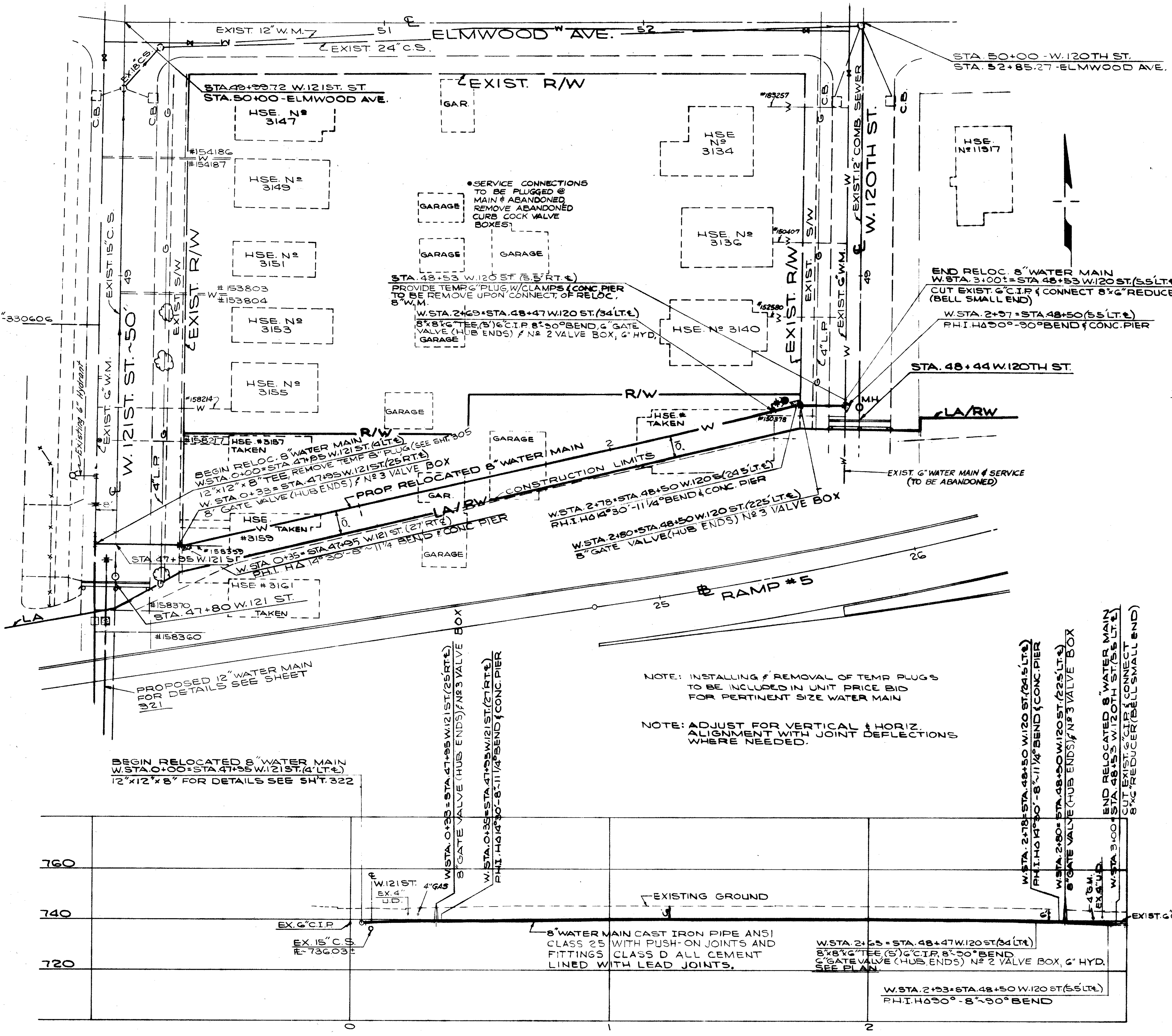
DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

322
713

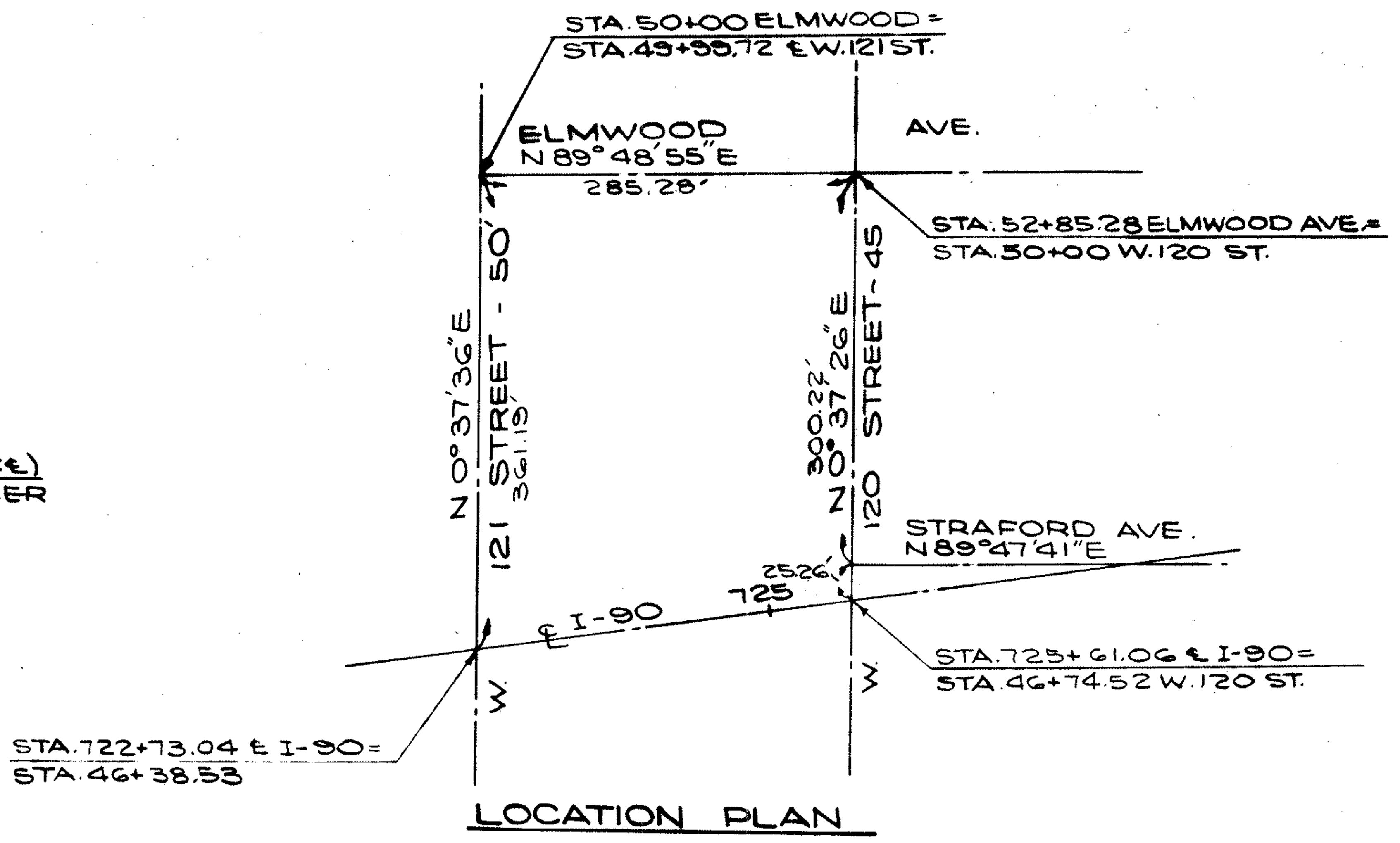
CUYAHOGA COUNTY
CUY - 90 - 10.40

21
54



NOTE: INSTALLING & REMOVAL OF TEMP. PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.



LOCATION PLAN

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET Nº 314

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	AND FITTINGS CLASS D ALL		
	CEMENT LINED WITH LEAD JOINTS.	5	LIN. FT.
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	WITH PUSH-ON JOINTS AND FITTINGS CLASS		
	D ALL CEMENT LINED WITH LEAD JOINTS.	300	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	2	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
W. 121 ST TO W. 120 ST.

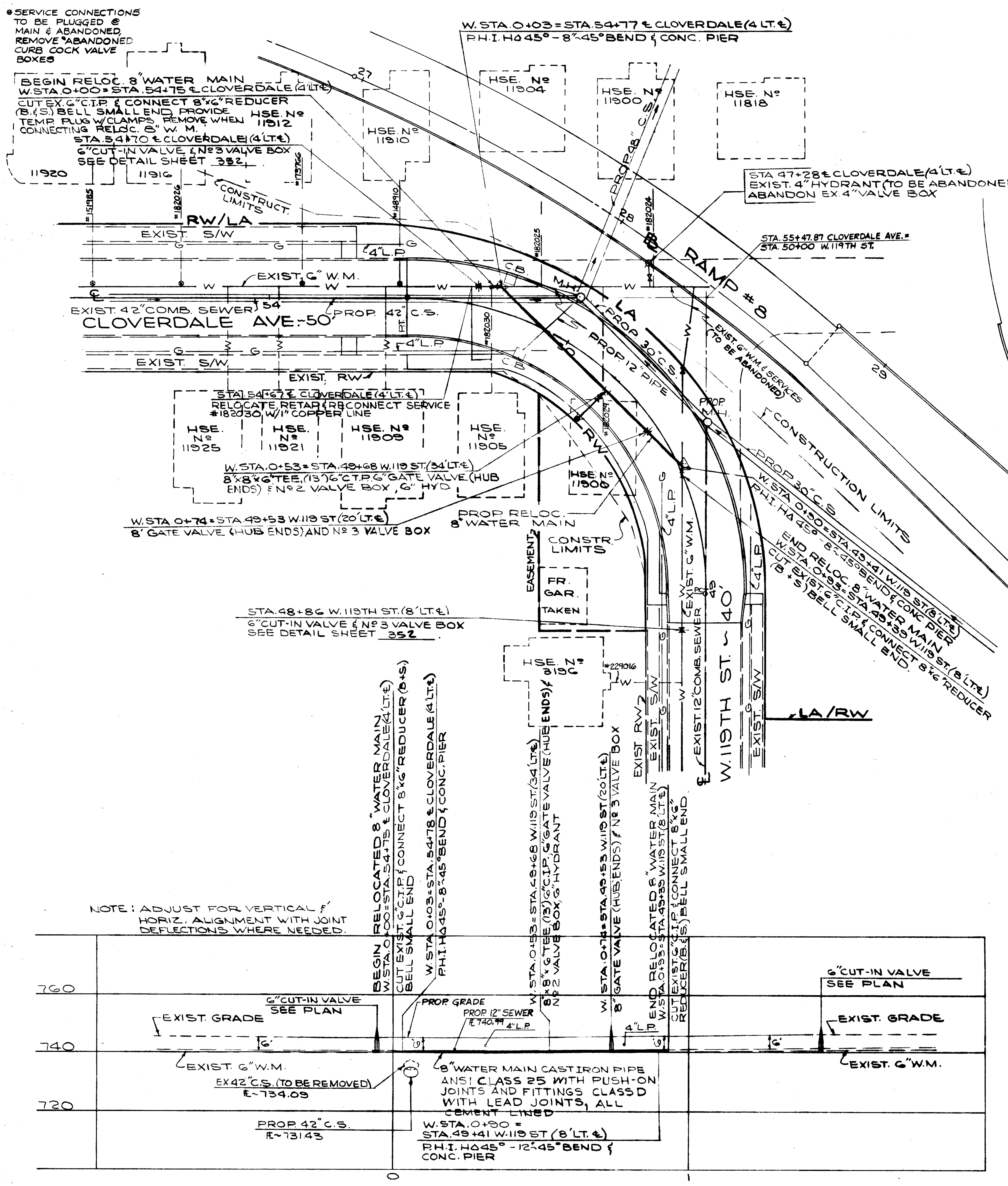
DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE
No.

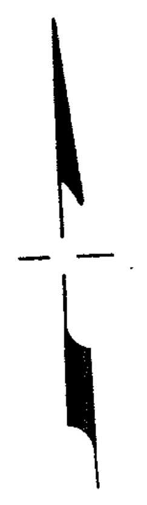
FED. RD.	STATE	PROJECT	
2	OHIO		

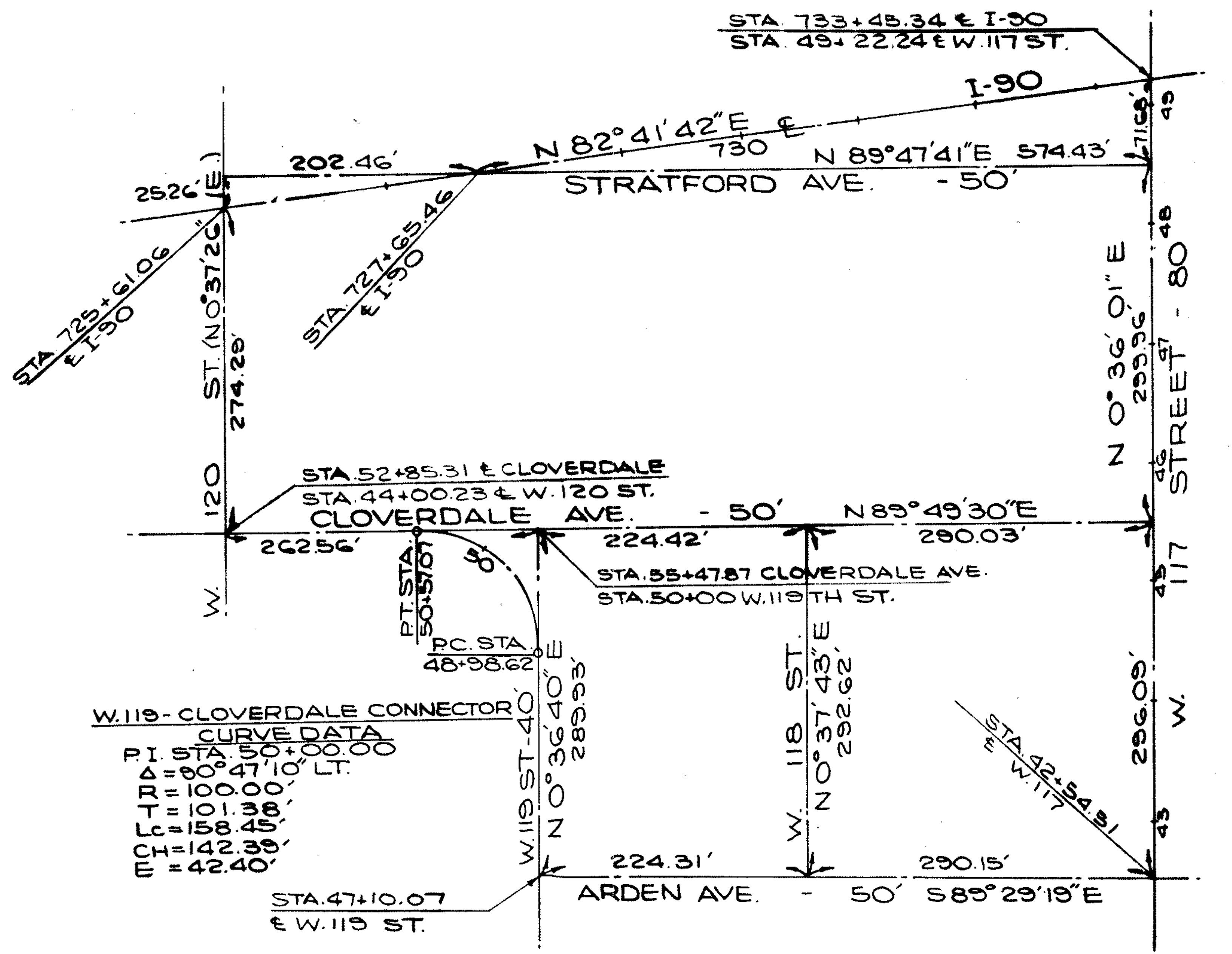
323/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

22/54







LOCATION PLAN

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS № 303 THRU 313

FOR DISPOSITION OF WATER SERVICE CONNECTION, SEE SHEET № 314.

INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25 AND		
	FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	13	LIN. FT.
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON		
	JOINTS & FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	93	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND № 2 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND № 3 VALVE BOX	1	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE, AND № 3 VALVE BOX	2	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	RELOCATE, RETAP AND RECONNECT SERVICE CONN. (#182029)		
	(3/4")	1	EACH
SPECIAL	FLUSHING CONNECTION	1	EACH

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1"=20' HORIZ.
1"=20' VERT.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
CLOVERDALE CONNECTOR

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

NOTE: INSTALLING AND REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

FOR PROFILE OF PROPOSED RELOC. 12" WATER MAIN SEE SHEET Nº 325.

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET Nº 315

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

FOR WATERWORK ESTIMATED QUANTITIES SEE SHEET Nº 325

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS 303 THRU 313

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/21/73

APPROVED JANUARY-4-1974

SCALE: 1"=20' HORIZ.
1"=20' VERT.

William J. Sweeney
DESIGN REVIEW ENGINEER

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10 40

324/713

23/54

REVISIONS

1st HIGH SERVICE DISTRICT

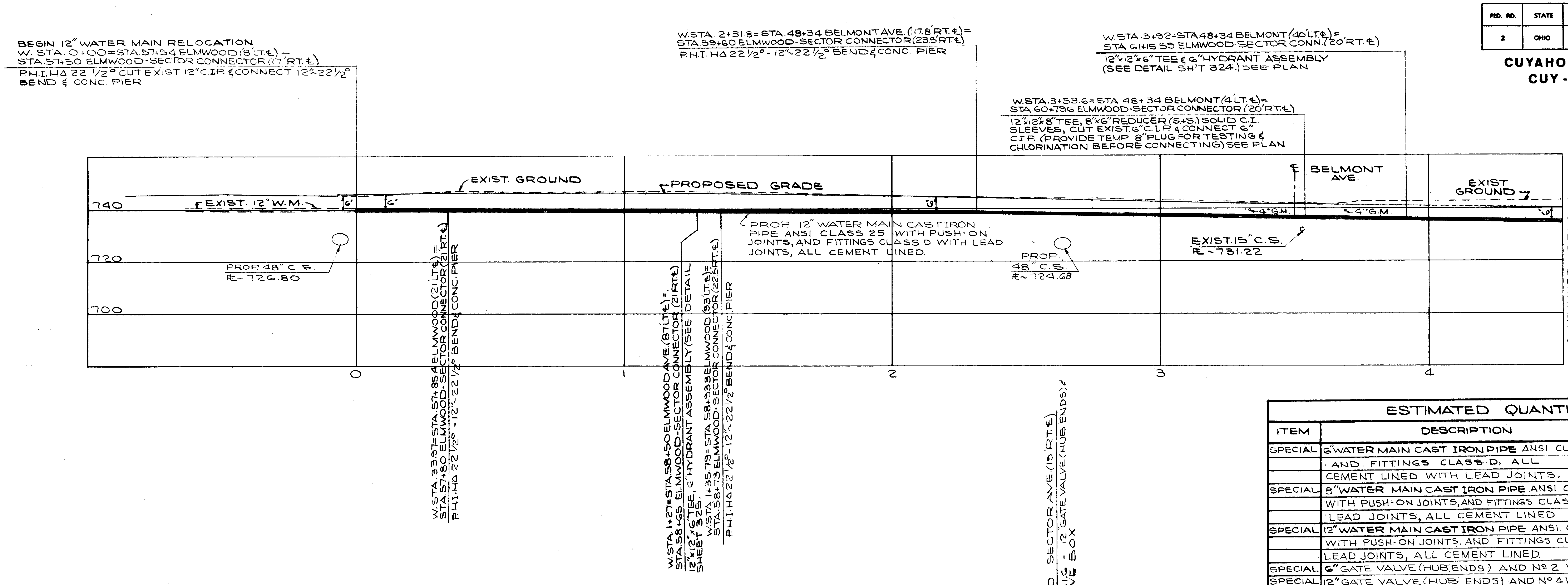
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN
ELMWOOD - SECTOR CONNECTOR

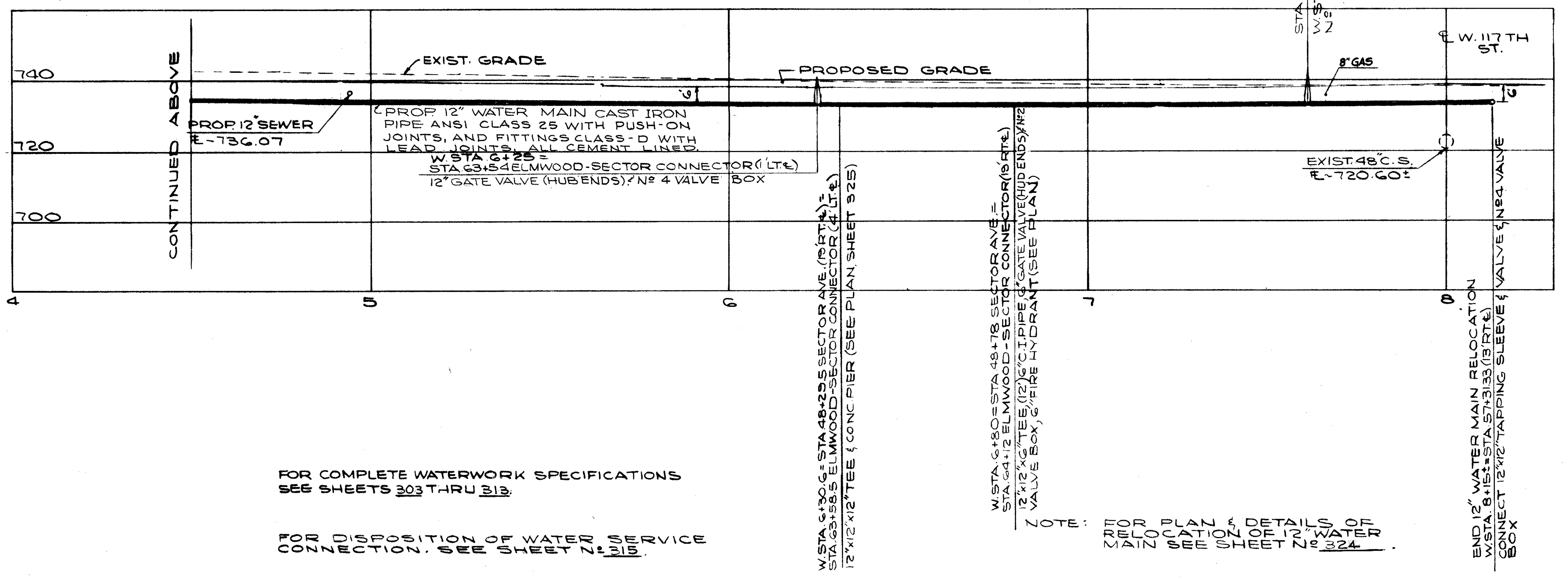
DRAWN W.R.S. SCALE 1"=20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.



NOTE: FOR PLAN & DETAILS OF RELOCATION OF 12" WATER MAIN SEE SHEET Nº 324.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS 303 THRU 313.

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET Nº 315.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	AND FITTINGS CLASS D, ALL		
	CEMENT LINED WITH LEAD JOINTS.	33	LIN. FT.
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	WITH PUSH-ON JOINTS, AND FITTINGS CLASS D, WITH		
	LEAD JOINTS, ALL CEMENT LINED	13	LIN. FT.
SPECIAL	12" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	WITH PUSH-ON JOINTS AND FITTINGS CLASS D WITH		
	LEAD JOINTS, ALL CEMENT LINED.	815	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	3	EACH
SPECIAL	12" GATE VALVE (HUB ENDS) AND Nº 4 VALVE BOX	2	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	2	EACH
SPECIAL	12" CUT-IN VALVE, COMPLETE AND Nº 4 VALVE BOX	1	EACH
SPECIAL	12"x12" TAPPING SLEEVE AND 12" TAPPING VALVE		
	AND Nº 4 VALVE BOX	1	EACH
SPECIAL	PLUGGING EXISTING WATER MAIN AND BRANCHES (6")	1	EACH
SPECIAL	TEMPORARY SERVICE CONNECTION (154119) 3/4"	1	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	2	EACH
SPECIAL	6" FIRE HYDRANT REMOVED AND RESET	1	EACH
SPECIAL	FLUSHING CONNECTIONS	2	EACH

NOTE: TEMPORARY SERVICE CONNECTION TO BE INCLUDED IN UNIT PRICE BID FOR "ITEM SPECIAL - RETAP & RECONNECT SERVICE CONNECTION."

SCALE: 1"=20' HORIZ.
1"=20' VERT.

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/21/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN
ELMWOOD - SECTOR CONNECTOR

DRAWN W.R.S.
SCALE 1"=20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

326
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

25
54

FOR LOCATION PLAN SEE SHEET 327

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET Nº 315

FOR WATERWORK ESTIMATED QUANTITIES SEE SHEET Nº 327.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313

NOTE: ADJUST FOR VERTICAL & HORIZ ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

W.STA. 0+05 = STA. 44+63 W. 117 ST (12' RT.℄)
P.H.I. Δ 22 1/2° - 12" 22 1/2° BEND & CONC. PIER

15'

REMOVE EXIST. 12" WATER MAIN TO PROVIDE CONSTRUCTION CLEARANCE.

FOR LOCATION & DETAILS OF 12" WATER MAIN ON BRIDGE, SEE STRUCTURE DRAWING 419 & 420

FOR DETAILS OF 12" D.I. PIPE & 12" STEEL PIPE CONNECTIONS AND SUPPORTS SEE DETAIL SHEET 349

NOTE: EMBANKMENT PLACED ALONG THE ALIGNMENT OF THE PROP WATER MAIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE METHODS OUTLINED IN 203.07 TO 203.12 INCLUDE CROSS-HATCHED AREAS UNDER PIPE.

APPROVED JANUARY - 4 - 19 74

* 12" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 6 WITH BOLTLESS RESTRAINED PUSH-ON JOINTS AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN
W. 117 ST.

DRAWN W. R. S.
SCALE 1" = 20'
CHECKED H. C. S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

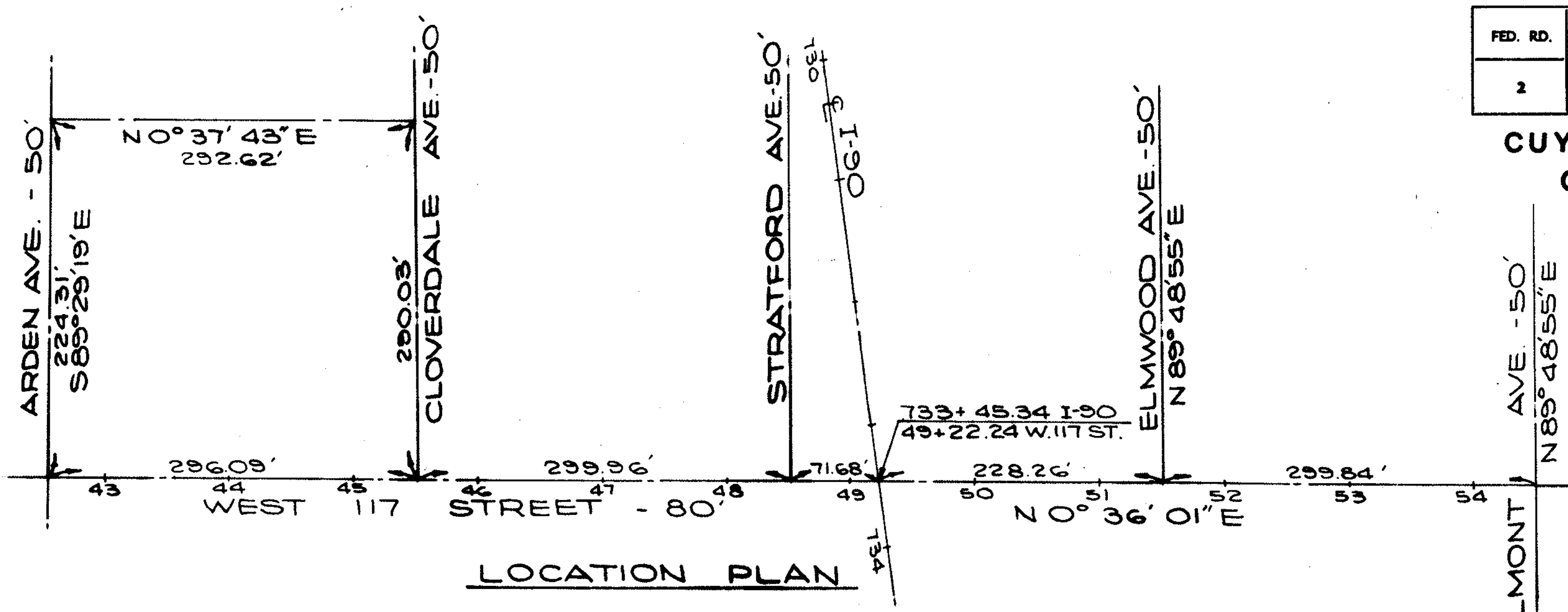
CUYAHOGA COUNTY
CUY - 90 - 10.40

327/713

26/54

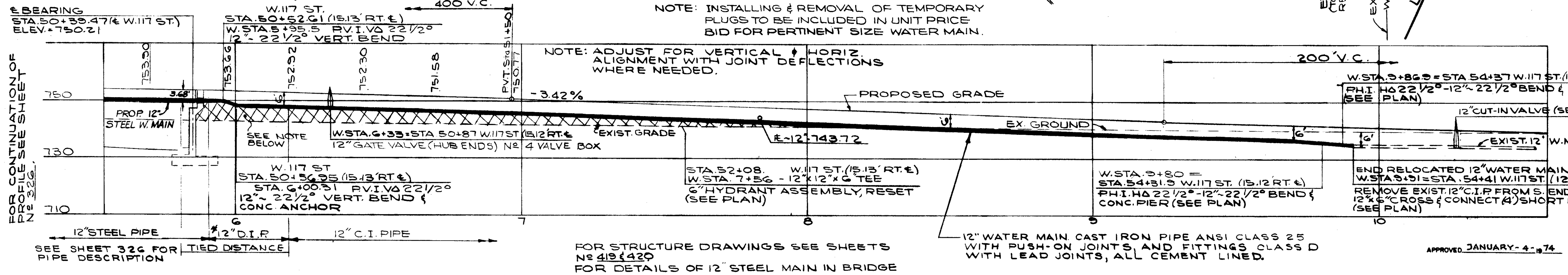
ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	AND FITTINGS CLASS D WITH LEAD JONTS, ALL CEMENT LINED	89	LIN. FT.
SPECIAL	12" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH		
	ON JOINTS, AND FITTINGS CLASS D WITH LEAD		
	JOINTS, ALL CEMENT LINED.	689	LIN. FT
SPECIAL	12" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 6		
	WITH BOLTLESS RESTRAINED PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS,		
	ALL CEMENT LINED.	61	LIN. FT.
SPECIAL	12" CUT IN VALVE, COMPLETE, AND № 4 VALVE BOX	2	EACH
SPECIAL	6" GATE VALVE (HUB ENDS) AND № 2 VALVE BOX	3	EACH
SPECIAL	12" GATE VALVE (HUB ENDS) AND № 4 VALVE BOX.	2	EACH
SPECIAL	6" FIRE HYDRANT, REMOVE AND RESET	3	EACH
SPECIAL	PLUGGING EXISTING WATER MAIN AND BRANCH (6")	2	EACH
SPECIAL	12" WATER MAIN GALVANIZED EXTRA STRONG		
	WELDED STEEL PIPE ASTM A-120 (12.75" O.D.		
	X 0.50" WALL THICKNESS), INCLUDING FITTINGS		
	COUPLINGS, SUPPORT ASSEMBLIES, INSULATION,		
	AND APPURTENANCES COMPLETE.	241	LIN. FT.
SPECIAL	FLUSHING CONNECTION	2	EACH



LOCATION PLAN

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.



SEE SHEET 326 FOR PIPE DESCRIPTION

NOTE:
EMBANKMENT PLACED ALONG THE ALIGNMENT OF THE PROP. WATER MAIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE METHODS OUTLINED IN 203.07 TO 203.12 INCLUDE CROSS-HATCHED AREAS UNDER PIPE.

FOR STRUCTURE DRAWINGS SEE SHEETS № 419 & 420
FOR DETAILS OF 12" STEEL MAIN IN BRIDGE SEE SHEET 349

FOR DETAILS OF CONNECTING 12" D.I. PIPE TO STEEL PIPE, SEE SHEET 349.

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN
W. 117 ST.

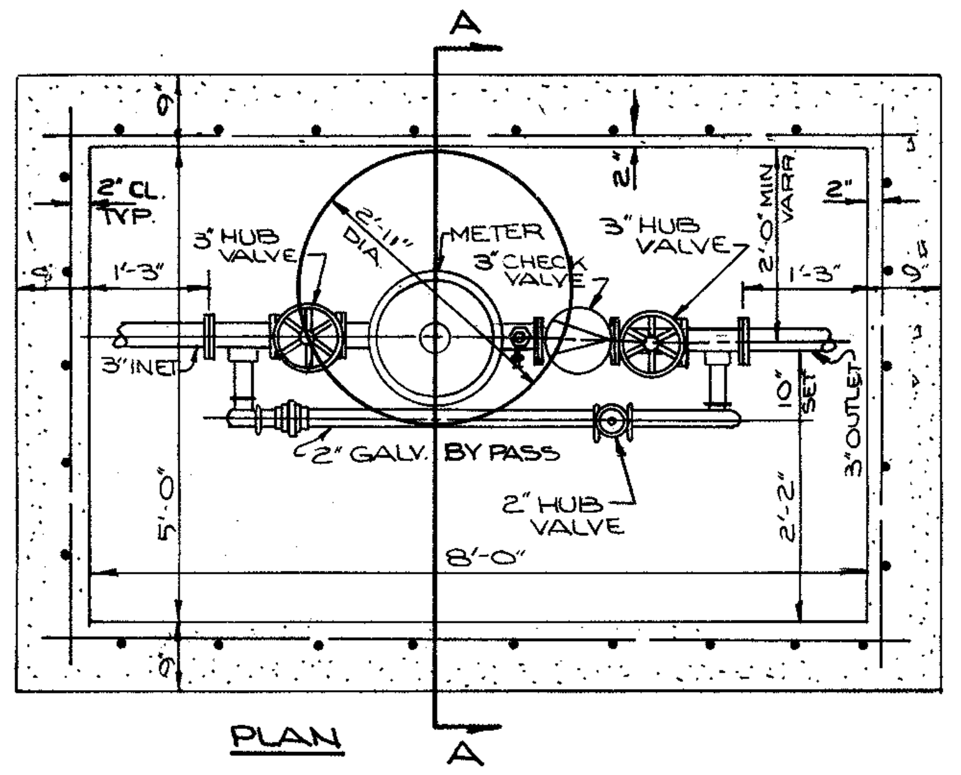
DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

328
713

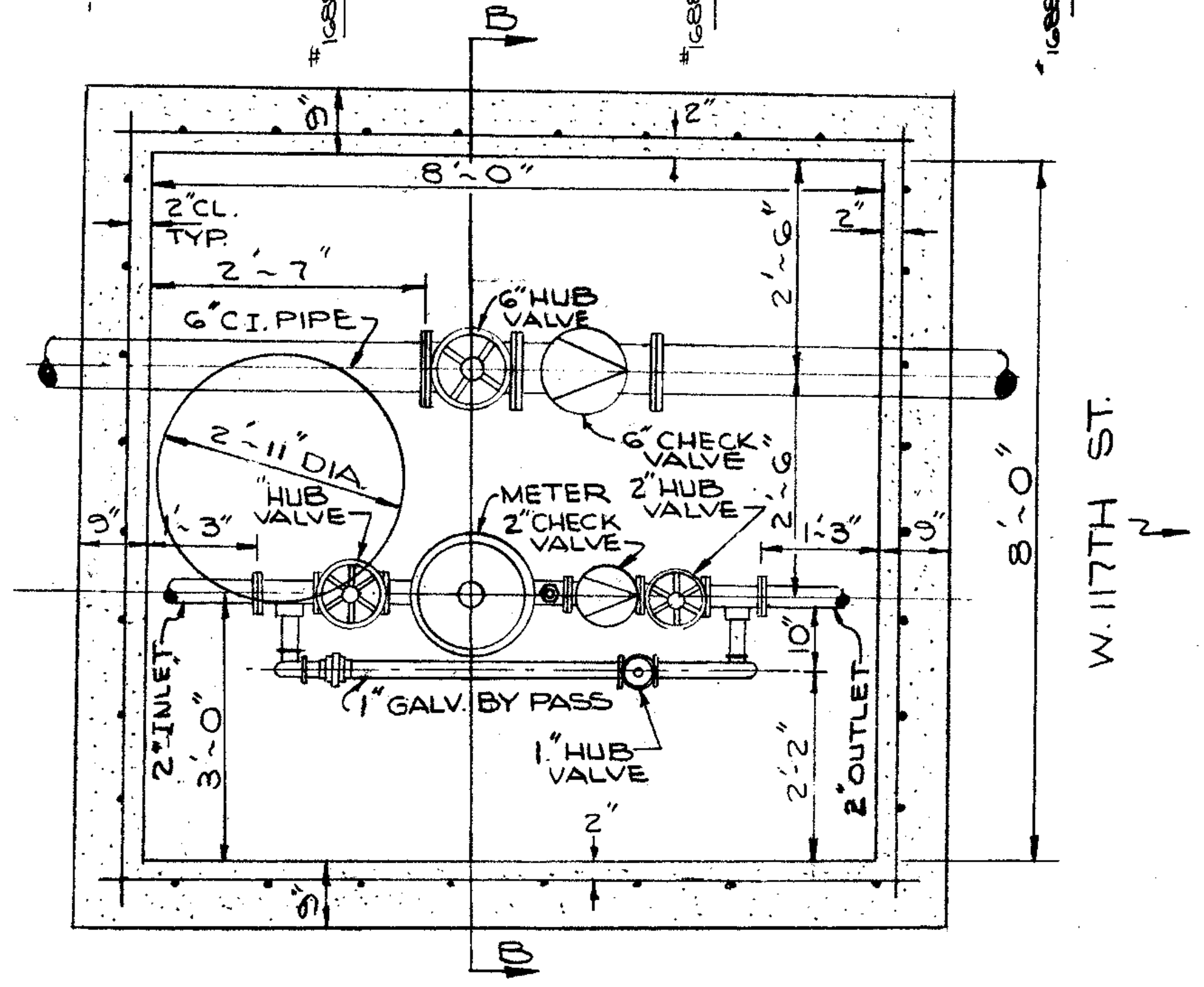
CUYAHOGA COUNTY
CUY - 90 - 10 40

27
54



PLAN

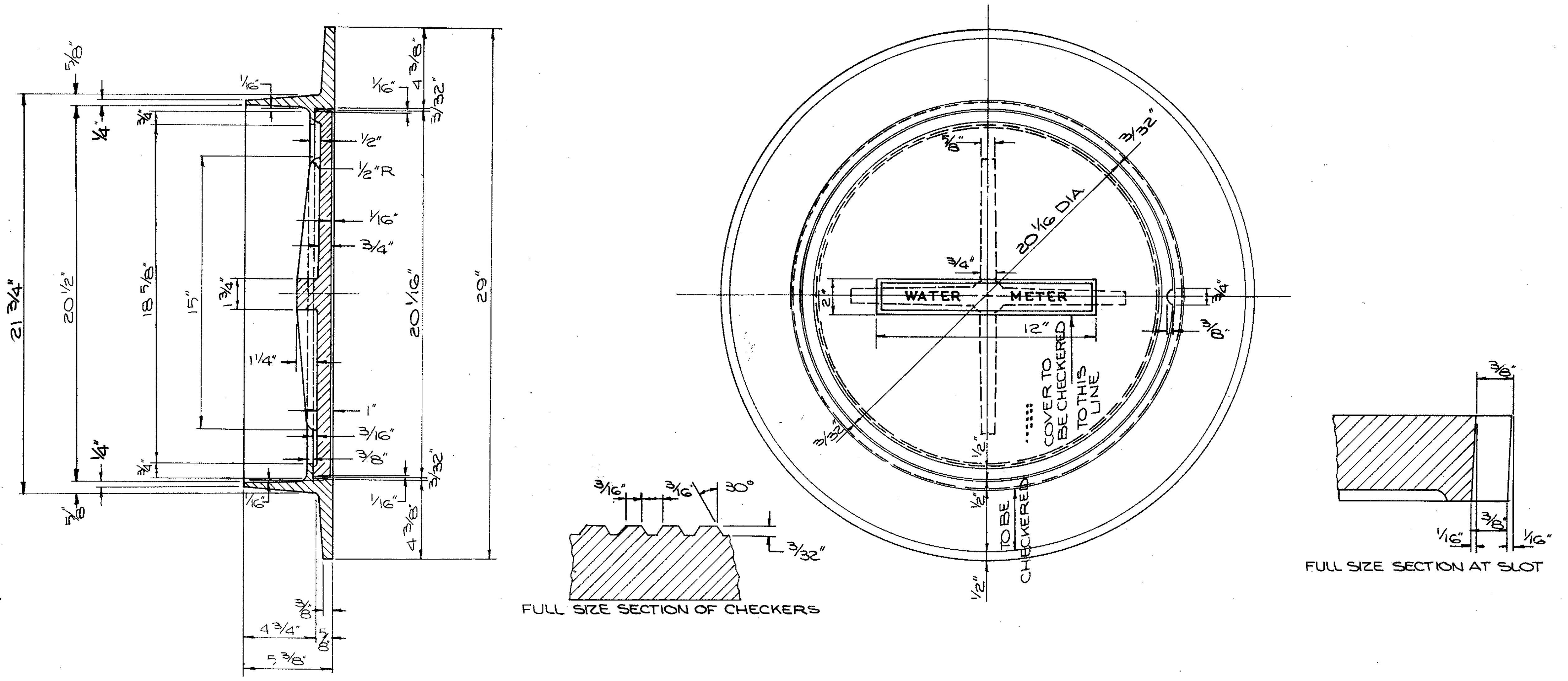
TYPICAL 3" METER VAULT



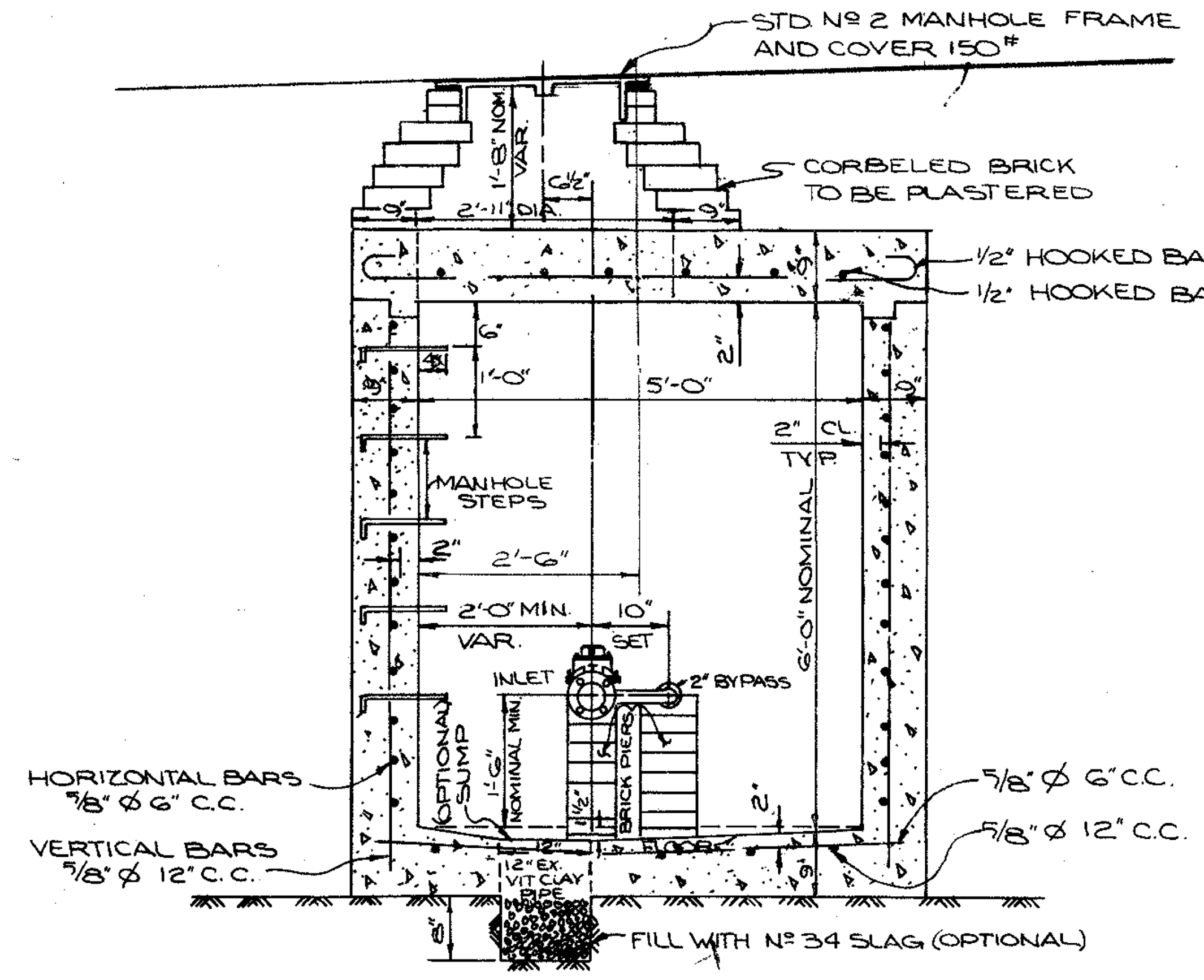
PLAN

2" METER & 6" FIRE SERVICE VAULT

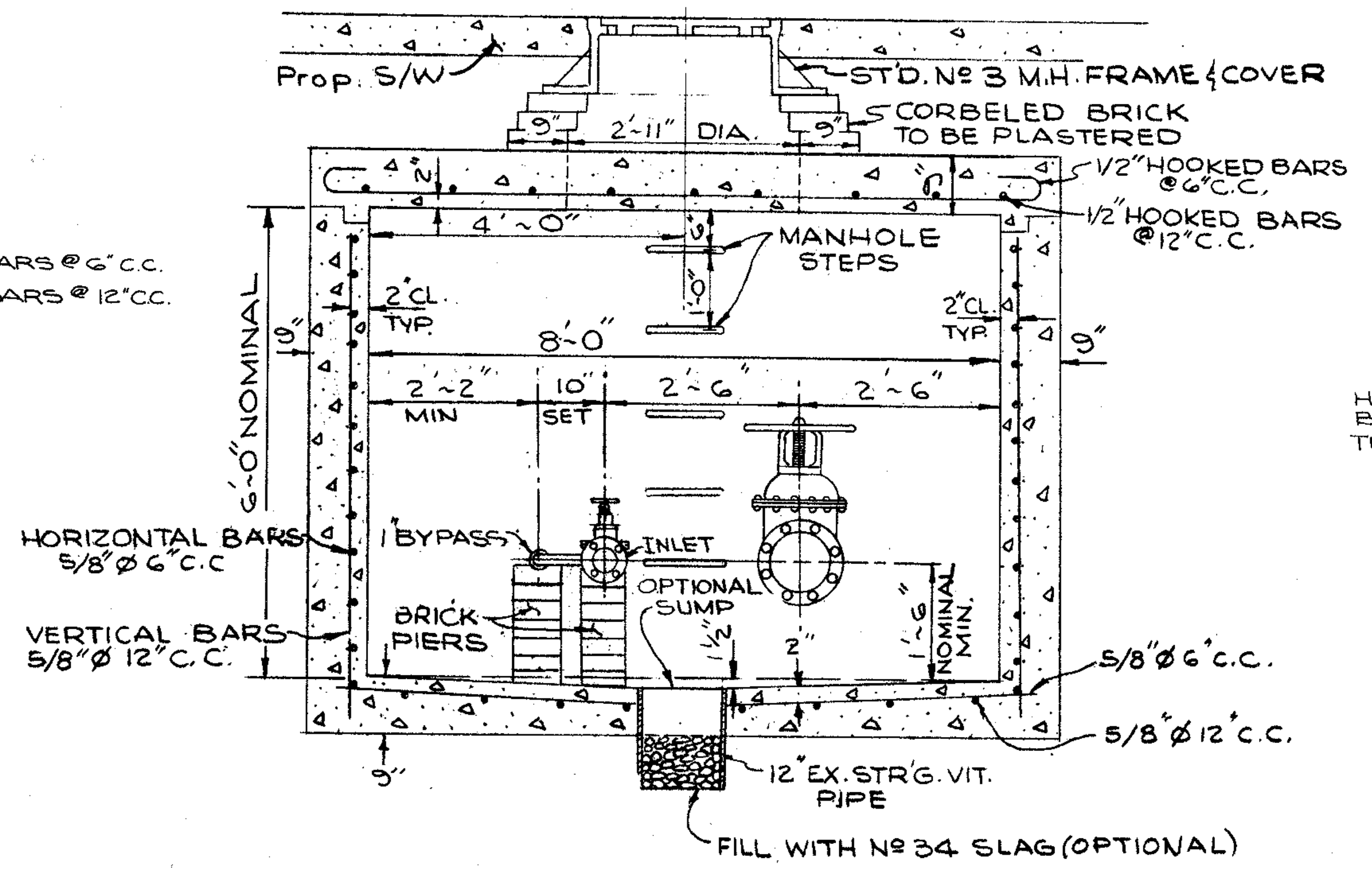
NOTE
CUT OR REMOVE REINFORCING IN ROOF SLAB TO ACCOMMODATE MANHOLE OPENING
REINFORCING SHALL MEET THE LATEST AMERICAN CONCRETE INSTITUTE STANDARDS.
FOR STANDARD MANHOLE FRAME AND COVER Nº 2 SEE SHEET
FOR STANDARD MANHOLE FRAME AND COVER Nº 3 SEE SHEET



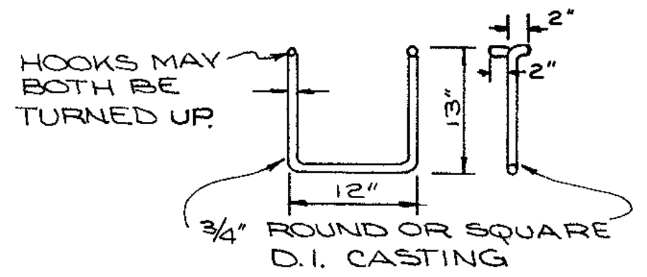
WATER METER FRAME AND COVER Nº 2



VERTICAL SECTION OF 3" METER VAULT
SECTION A - A



SECTION B - B
VERTICAL SECTION OF 2" METER & 6" FIRE SERVICE VAULT



STEP DETAIL

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	3" METER VAULT	1	EACH
SPECIAL	2" METER AND 6" FIRE SERVICE VAULT	1	EACH
SPECIAL	STRUCTURES, REMOVED	LUMP	LUMP
SPECIAL	ADJUST MANHOLE TO GRADE	1	EACH

PAYMENT
THE UNIT PRICE STIPULATED FOR ITEM SPECIAL "3" METER VAULT or 2" METER AND 6" FIRE SERVICE VAULT" SHALL INCLUDE EXCAVATION NECESSARY FOR CONSTRUCTION OF VAULT, VAULT CONSTRUCTION AND SHALL INCLUDE ALL MATERIAL INSIDE VAULT AS DETAILED ON THIS SHEET.

CALCULATED BY W.R.S. DATE 10/1/73
CHECKED BY H.C.S. DATE 10/15/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT METER VAULT & 6" FIRE VAULT
W. 117 ST.

DRAWN W.R.S. SCALE 1"=20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

329/713

28/54

FOR DISPOSITION OF WATER SERVICE CONNECTION, SEE SHEET Nº 317

CURVE DATA
S. FRONTAGE ROAD Nº 1
Δ = 76°09'26"
Dc = 76°23'40"
R = 75.00'
T = 58.76'
Lc = 99.69'
E = 20.28'
P.I. STA. 40+58.76
P.C. STA. 40+00 = 44+84.85 W. 115 ST.
P.T. STA. 40+99.69

CURVE DATA
CUL-DE-SAC W. 116 ST.
Δ = 73°13'35"
Dc = 79°01'22"
R = 72.51'
T = 53.57'
Lc = 92.79'
E = 17.88
P.I. STA. 43+18.64
P.C.C. STA. 43+94.13 (31.20' RT. ℄ W. 116 ST.)

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313.

FOR GEOMETRIC'S & LOCATION SEE SHEET 330.

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS & FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	522	LIN. FT.
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25 AND FITTINGS CLASS D, WITH LEAD JOINTS, ALL CEMENT LINED	10	LIN. FT.
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	3	EACH
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE	1	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	FLUSHING CONNECTION	1	EACH

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

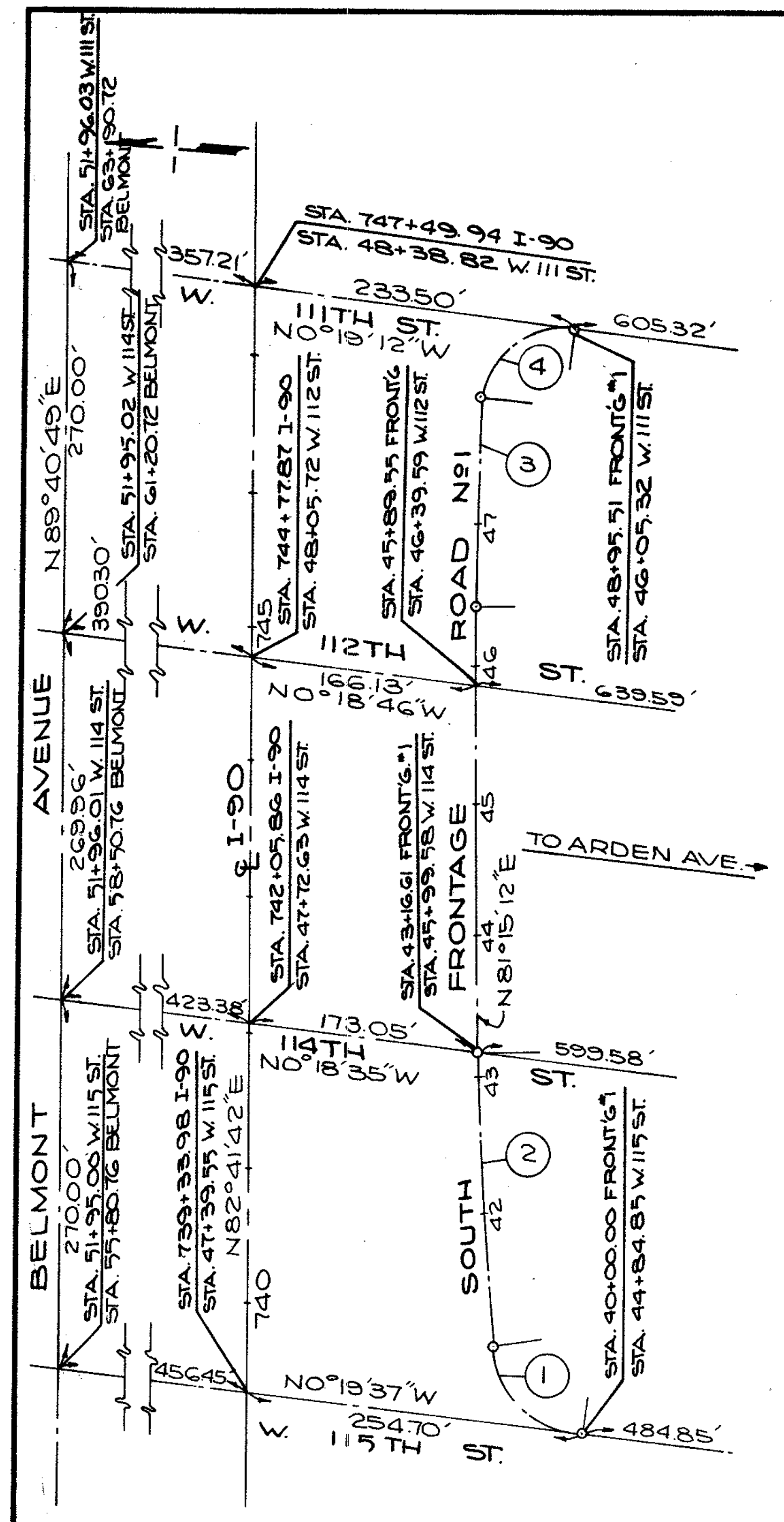
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **8" WATER MAIN**
S. FRONTAGE ROAD Nº 1

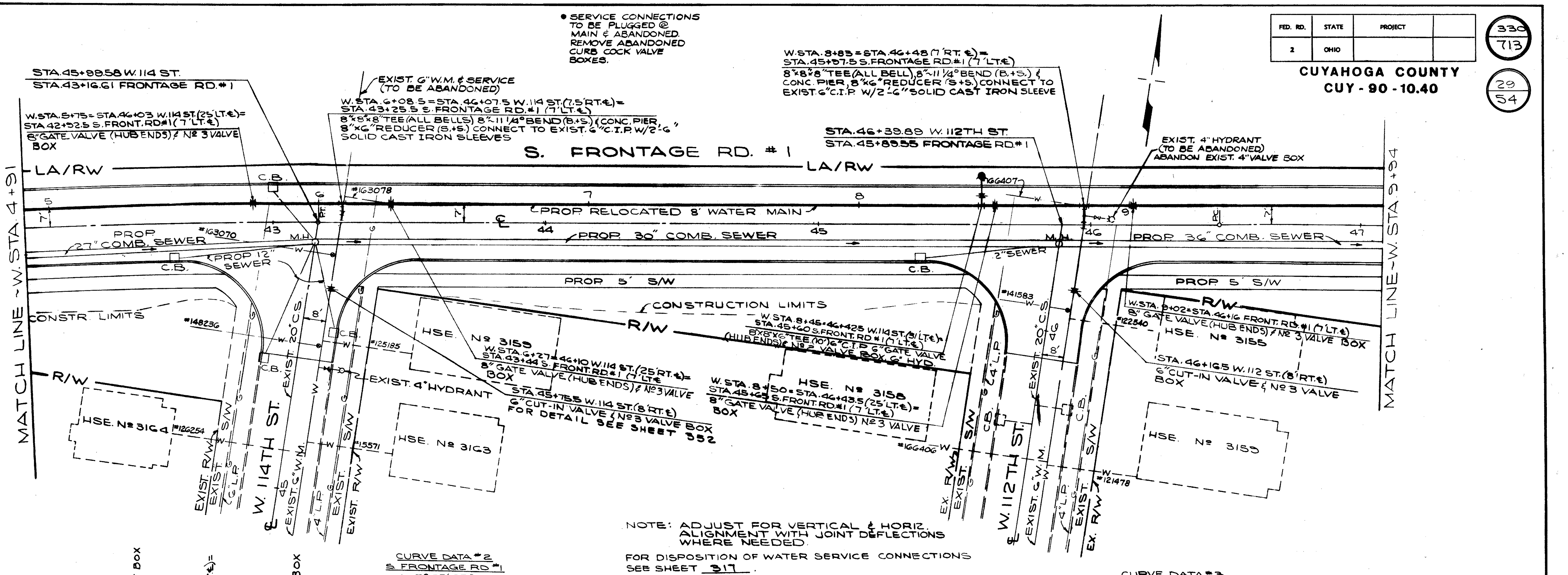
DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY - 90 - 10.40



LOCATION PLAN



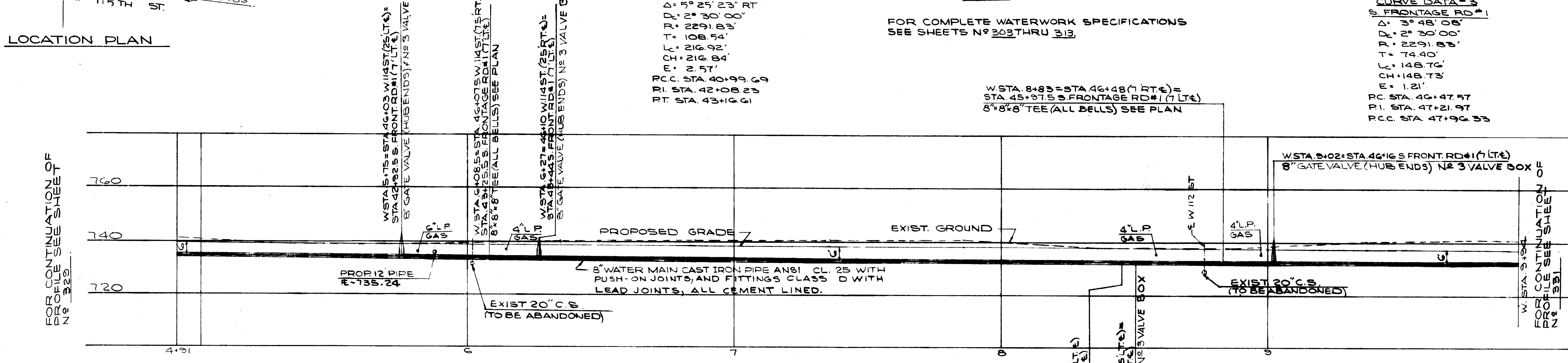
NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET 317.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313.

CURVE DATA #2
S. FRONTAGE RD #1
Δ = 5° 25' 23" RT
D_c = 2° 30' 00"
R = 2291.83'
T = 108.54'
L_c = 216.92'
CH = 216.84'
E = 2.57'
P.C.C. STA. 40+99.69
P.I. STA. 42+08.23
P.T. STA. 43+16.61

CURVE DATA #3
S. FRONTAGE RD #1
Δ = 3° 48' 08"
D_c = 2° 30' 00"
R = 2291.83'
T = 74.40'
L_c = 148.76'
CH = 148.73'
E = 1.21'
P.C. STA. 46+47.57
P.I. STA. 47+21.97
P.C.C. STA. 47+96.33



ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	AND FITTINGS CLASS D, ALL CEMENT LINED WITH LEAD JOINTS	22	LIN. FT.
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON		
	JOINTS & FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	503	LIN. FT.
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	2	EACH
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	4	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	FLUSHING CONNECTION	1	EACH

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
SOUTH FRONTAGE ROAD Nº 1

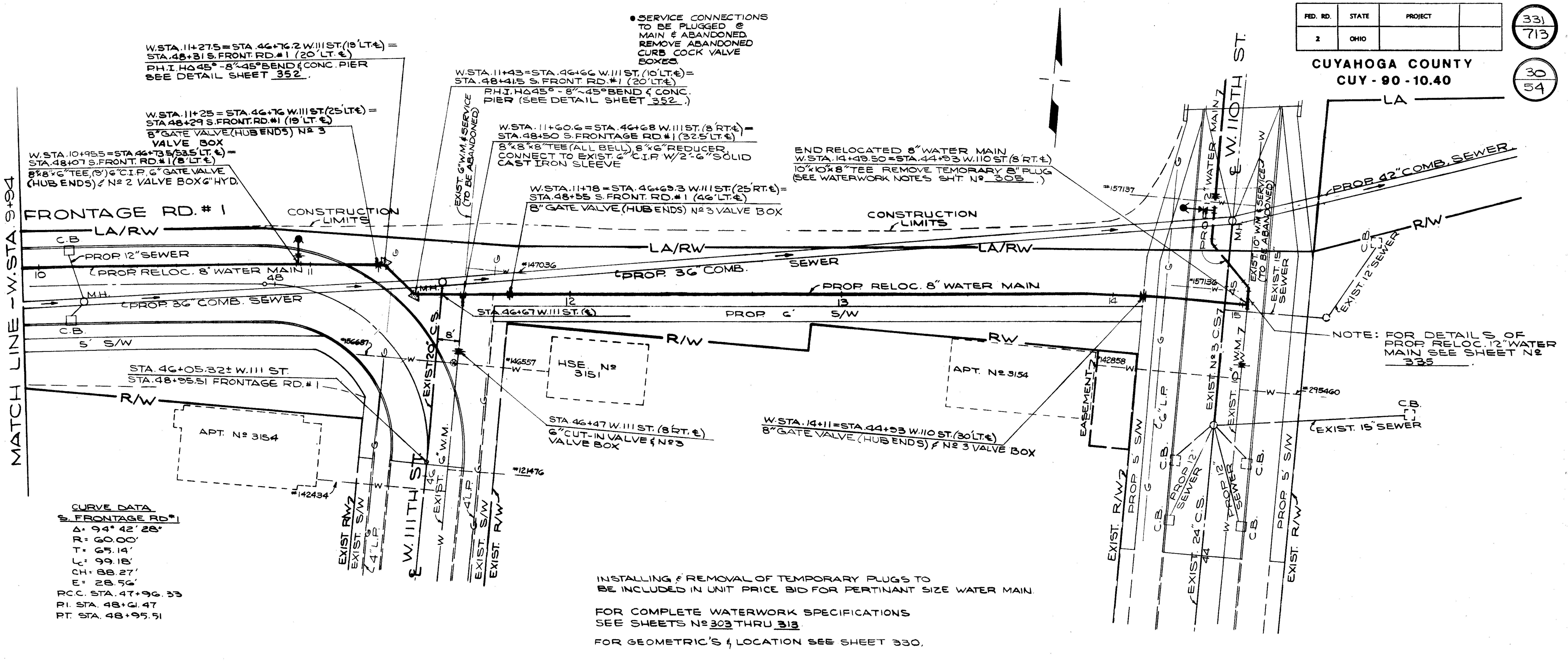
DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

331/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

30/54



CURVE DATA
S. FRONTAGE RD.#1
Δ = 94° 42' 28"
R = 60.00'
T = 65.14'
L = 99.18'
CH = 88.27'
E = 28.56'
P.C.C. STA. 47+96.33
P.I. STA. 48+61.47
P.T. STA. 48+95.51

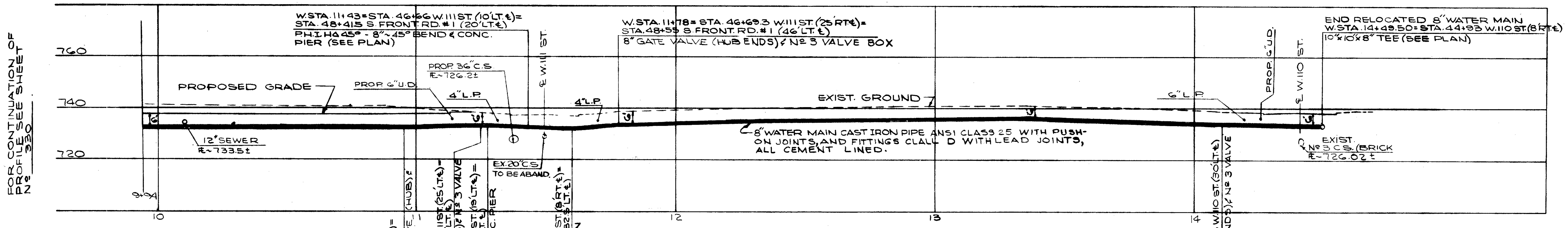
INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINANT SIZE WATER MAIN.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS N° 303 THRU 313.

FOR GEOMETRIC'S & LOCATION SEE SHEET 330.

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET N° 317

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.



ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25 AND FITTINGS CLASS D, ALL CEMENT LINED WITH LEAD JOINTS.	9	LIN. FT.
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS & FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	456	LIN. FT.
SPECIAL	6" CUT-IN VALVE, COMPLETE AND N° 3 VALVE BOX	1	EACH
SPECIAL	6" GATE VALVE (HUB ENDS) & N° 2 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) & N° 3 VALVE BOX	3	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	FLUSHING CONNECTION	1	EACH

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
SOUTH FRONTAGE ROAD N° 1

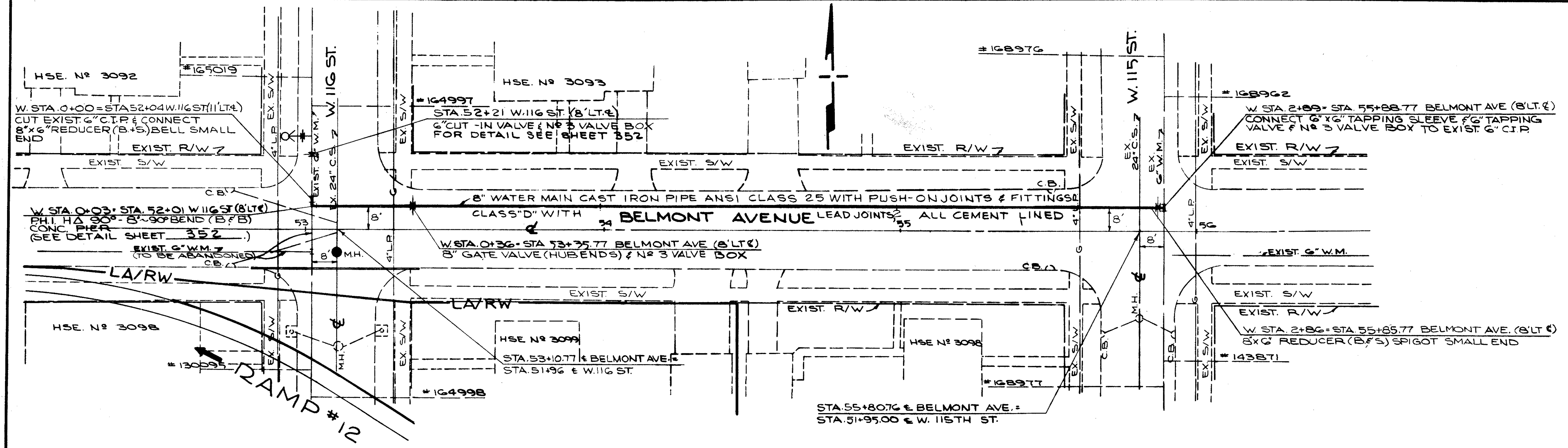
DRAWN W.R.S. SCALE 1"=20'
CHECKED H.C.S. DATE
No.

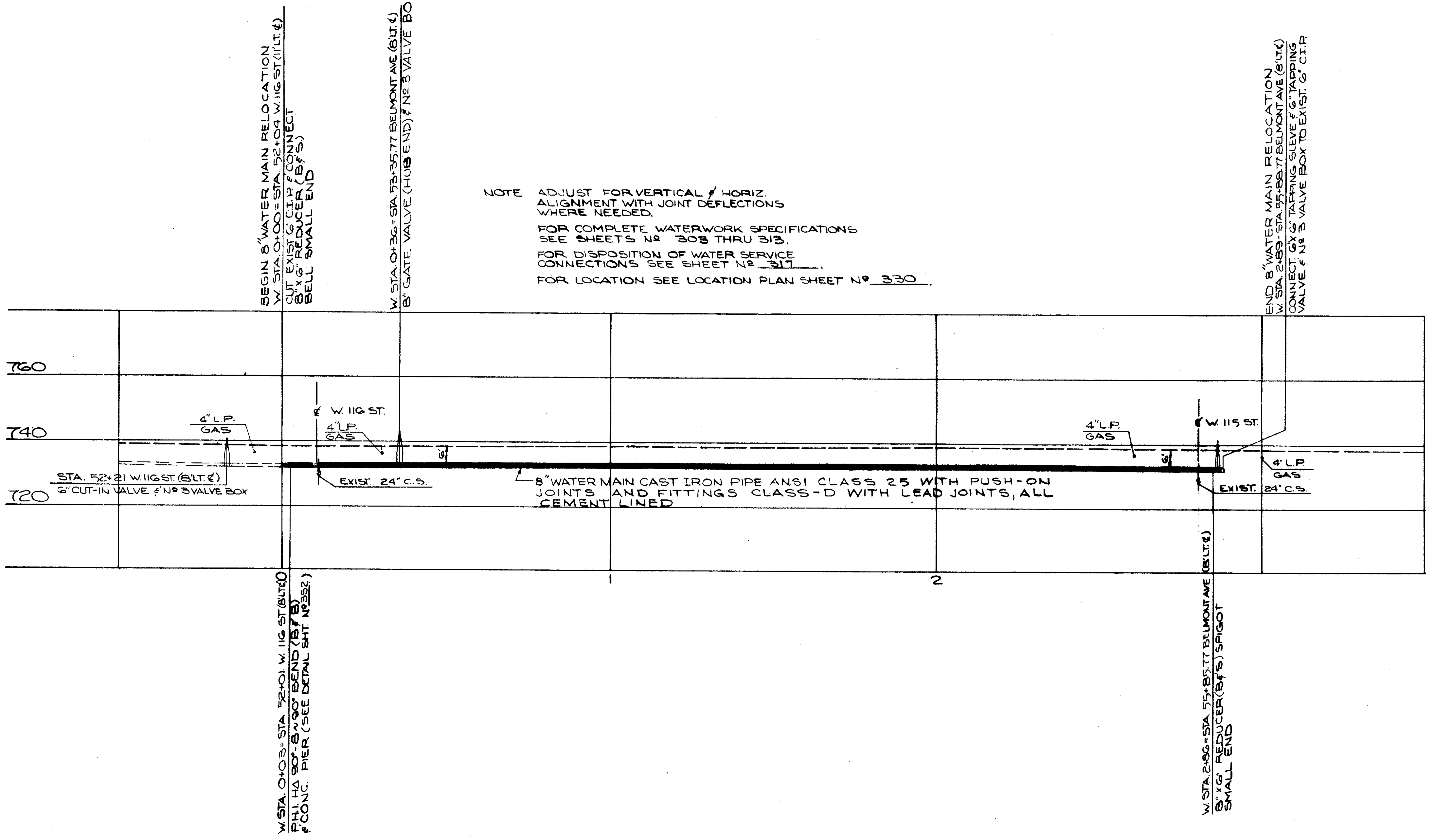
FED. RD.	STATE	PROJECT	
2	OHIO		

332
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

31
54





NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313.

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET Nº 317.

FOR LOCATION SEE LOCATION PLAN SHEET Nº 330.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	WITH PUSH-ON JOINTS & FITTINGS CLASS "D"		
	WITH LEAD JOINTS, ALL CEMENT LINED	289	LIN. FT.
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	1	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	6"x6" TAPPING SLEEVE AND 6" TAPPING VALVE AND		
	Nº 3 VALVE BOX	1	EACH
SPECIAL	FLUSHING CONNECTION	1	EACH

CALCULATED BY W.R.S. DATE 10/19/73
CHECKED BY H.C.S. DATE 11/22/73

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
BELMONT AVENUE

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

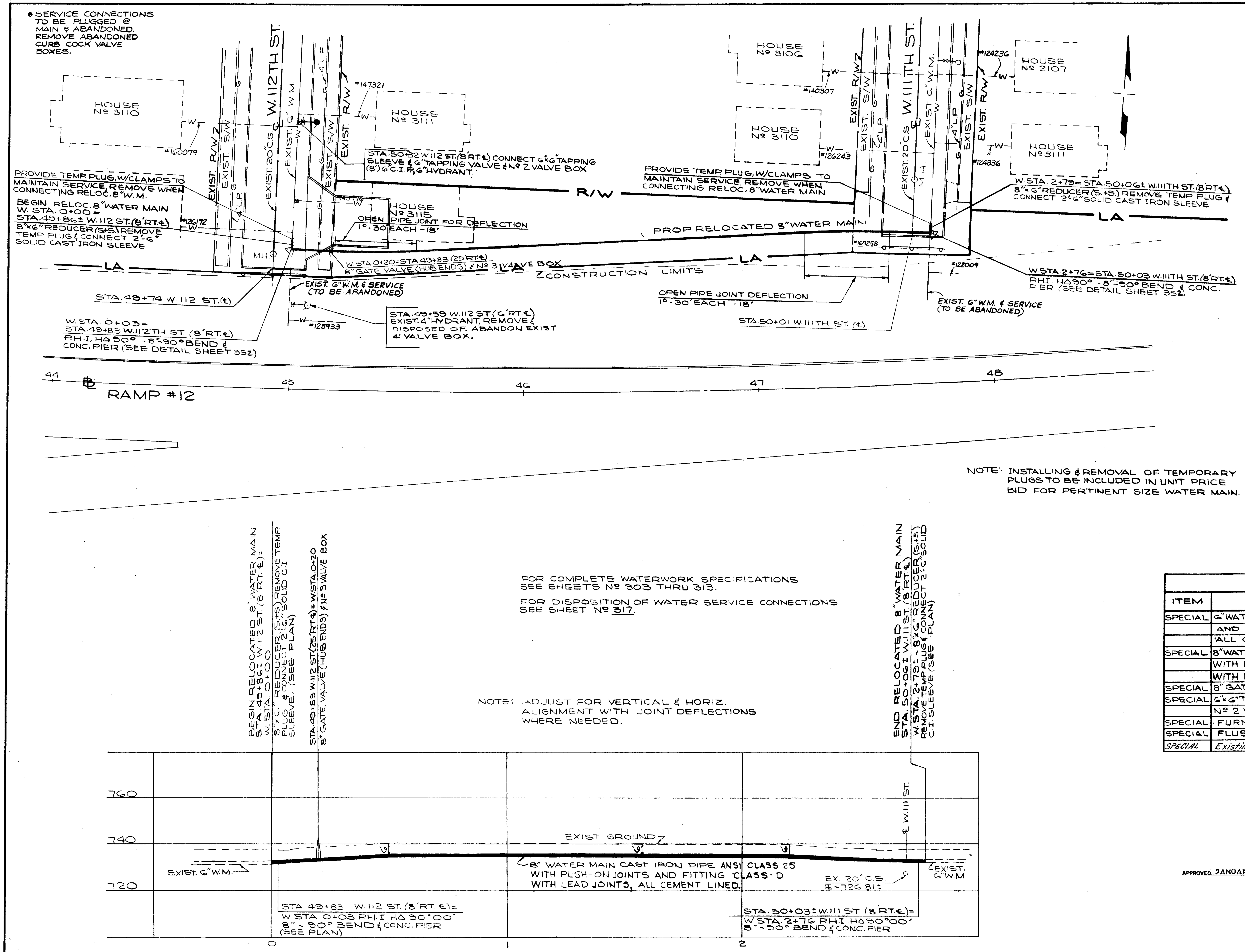
FED. RD.	STATE	PROJECT	
2	OHIO		

334
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

33
54

● SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED. REMOVE ABANDONED CURB COCK VALVE BOXES.



NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313.

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET Nº 317.

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	AND FITTINGS CLASS-D WITH LEAD JOINTS,		
	ALL CEMENT LINED.	8	LIN. FT.
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25		
	WITH PUSH-ON JOINTS AND FITTINGS CLASS-D		
	WITH LEAD JOINTS, ALL CEMENT LINED.	279	LIN. FT.
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	1	EACH
SPECIAL	6"x6" TAPPING SLEEVE AND 6" TAPPING VALVE AND		
	Nº 2 VALVE BOX	1	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH
SPECIAL	*Existing 4" Hydrant Removed & Disposed of*	1	*Each*

APPROVED JANUARY - 4 - 1974

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/15/73

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **8" WATER MAIN**
W. 112 ST. ~ W. 111 ST.

DRAWN W.R.S. SCALE 1"=20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

335/713

34/54

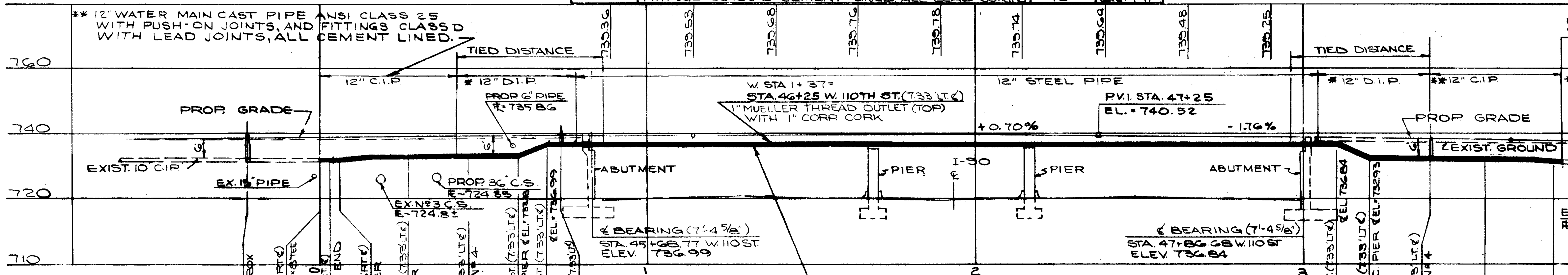
CUYAHOGA COUNTY
CUY - 90 - 10.40

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	12" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	83	LIN. FT.
SPECIAL	12" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 6 WITH BOLTLESS RESTRAINED PUSH-ON JOINTS AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	70	LIN. FT.
SPECIAL	12" WATER MAIN GALVANIZED EXTRA STRONG WELDED STEEL PIPE ASTM A-120 (12.75" O.D. X 0.50" WALL THICKNESS) INCLUDING FITTINGS, COUPLINGS SUPPORT ASSEMBLIES, INSULATION, AND APPURTENANCES COMPLETE.	227	LIN. FT.
SPECIAL	10" CUT IN VALVE, COMPLETE AND Nº 4 VALVE BOX	1	EACH
SPECIAL	12" GATE VALVE (HUB ENDS) AND Nº 4 VALVE BOX	2	EACH
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	6" FIRE HYDRANT, REMOVED AND RESET	1	EACH
SPECIAL	2" AIR COCK COMPLETE AND Nº 7 VALVE BOX	1	EACH
SPECIAL	6" WATER MAIN CAST IRON PIPE A.S.A. CLASS 25, WITH FITTINGS CLASS "D" CEMENT LINED, ALL LEAD JOINTS	10	LIN. FT.

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	FLUSHING CONNECTION	1	EACH

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.



12" WATER MAIN GALVANIZED EXTRA STRONG WELDED STEEL PIPE ASTM A-120 (12.75" O.D. X 0.50" WALL THICKNESS) INCLUDING FITTINGS, COUPLINGS, SUPPORT ASSEMBLIES, INSULATION, AND APPURTENANCES COMPLETE.

FOR DETAILS OF CONNECTING 12" D.I. PIPE TO 12" STEEL PIPE, SEE SHEET 349.

FOR STRUCTURE DRAWINGS SEE SHEETS Nº 437 & 438

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313.

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET Nº 317.

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/15/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN
RELOC. IN W. 110 ST.

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

FOR STRUCTURE DRAWINGS SEE SHEETS Nº 445 & 446.

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET 318.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313.

* 16" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 6 WITH BOLTLESS RESTRAINED PUSH-ON JOINTS AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.

** 16" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITIES	UNIT	ITEM	DESCRIPTION	QUANTITIES	UNIT
SPECIAL	16" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-ON			SPECIAL	16" GATE VALVE (HUB ENDS) AND Nº 4 VALVE BOX	2	EACH
	JOINTS & FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	80	LIN. FT.	SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	2	EACH
SPECIAL	16" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 6 WITH			SPECIAL	6"x6" TAPPING SLEEVE AND 6" TAPPING VALVE AND		
	BOLTLESS RESTRAINED PUSH-ON JOINTS AND FITTINGS				Nº 2 VALVE BOX	2	EACH
	CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	74	LIN. FT.	SPECIAL	2" AIR COCK BOX COMPLETE AND Nº 7 VALVE BOX	1	EACH
SPECIAL Δ	16" WATER MAIN GALVANIZED EXTRA STRONG WELDED			SPECIAL	RELOCATE, RETAP AND RECONNECT SERVICE	1	EACH
	STEEL PIPE (ASTM A-53 GRADE B) 16.0" O.D. x 0.5" WALL THICKNESS)	235	LIN FT		CONNECTION # 11662 (2")	1	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE, AND Nº 3 VALVE BOX	2	EACH	SPECIAL	EXISTING STRUCTURE REMOVED	LUMP	LUMP
SPECIAL	16" CUT-IN VALVE, COMPLETE, AND Nº 4 VALVE BOX	2	EACH	SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH		
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	1	EACH		PUSH-ON JOINTS & FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	10	LIN. FT.
SPECIAL	FLUSHING CONNECTIONS	1	EACH	SPECIAL	6" WATER MAIN CAST IRON PIPE ANSI CLASS 25 AND FITTINGS		
					CLASS D, WITH LEAD JOINTS.	10	LIN. FT.

CALCULATED BY W.R.S. DATE 10-17-73
CHECKED BY H.C.S. DATE 11-15-73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

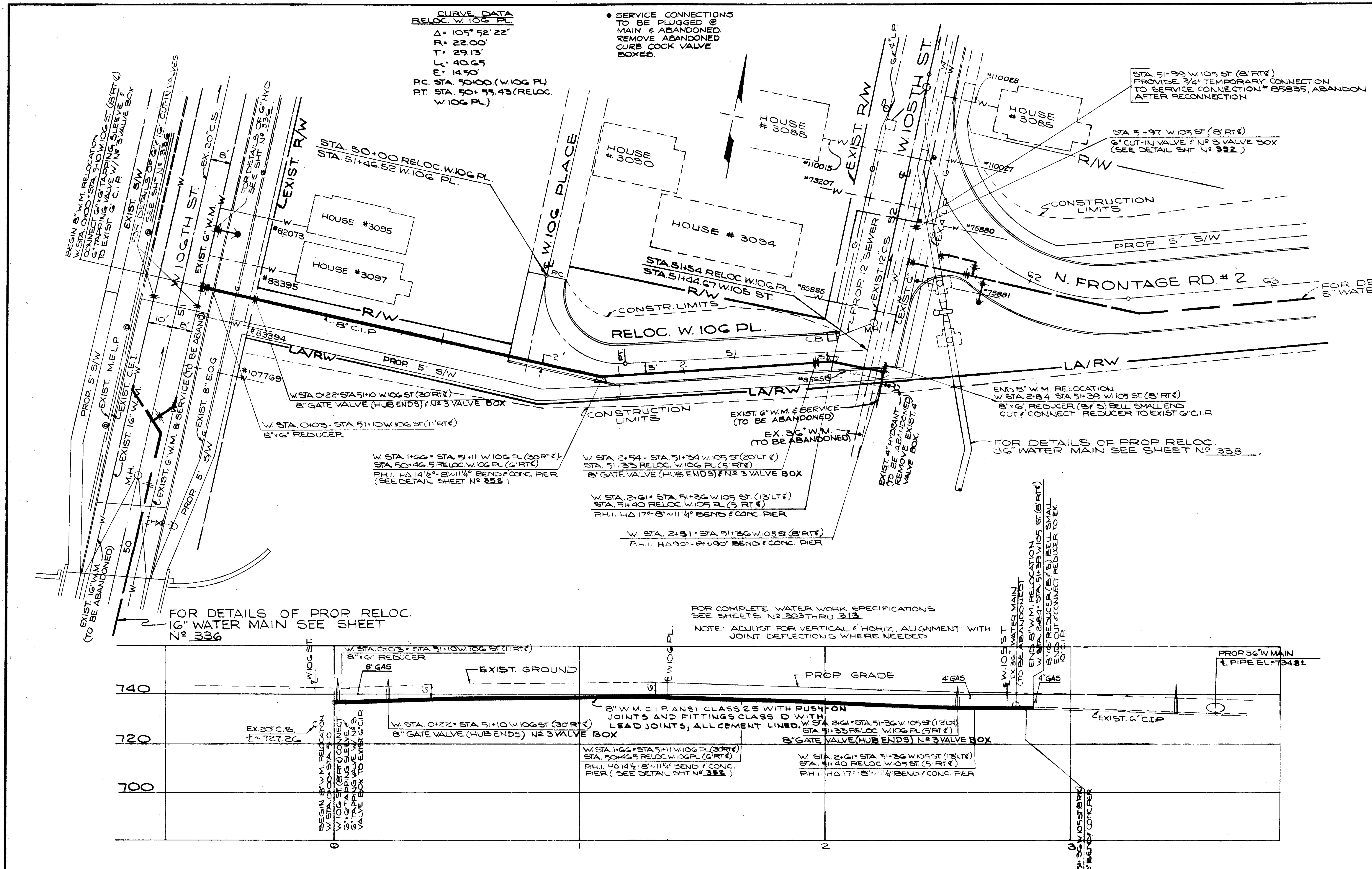
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 16" WATER MAIN
W. 106 ST.

DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	& FITTINGS CLASS-D WITH LEAD JOINTS, ALL CEMENT LINED	284	LIN. FT.
SPECIAL	6" × 6" TAPPING SLEEVE AND 6" TAPPING VALVE WITH		
	Nº 3 VALVE BOX	1	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) Nº 3 VALVE BOX	2	EACH
SPECIAL	TEMPORARY SERVICE TO Nº 85835 (3/4")	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

NOTE: TEMPORARY SERVICE CONNECTION TO BE INCLUDED IN UNIT PRICE BID FOR ITEM "SPECIAL RETAP AND RECONNECT SERVICE CONNECTION.

APPROVED JANUARY - 4 - 1974

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/15/73

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
W. 106 ST. TO W. 105 ST.

DRAWN W. R. S. SCALE 1" = 20'
CHECKED H. C. S. DATE
No.

• SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK VALVE BOXES.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

338/713

37/54

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	FLUSHING CONNECTIONS	2	EACH
SPECIAL	36" PRESTRESSED CONCRETE CYLINDER PIPE AND		
	FITTINGS A.W.W.A.C-301-64	567	LIN. FT.
SPECIAL	4" DRAIN, COMPLETE	2	EACH
SPECIAL	30" VALVE WITH VICTAULIC ENDS, WITH 4" BY PASS GATE		
	VALVE AND № 2 VALVE BOX	2	EACH
SPECIAL	2" AIR COCK, COMPLETE, AND № 7 VALVE BOX	3	EACH
SPECIAL	VALVE CHAMBER FOR 30" VALVE	2	EACH
SPECIAL	ACCESS M.H. & ANCHORAGE TYPE "A"	4	EACH
SPECIAL	36" EXTRA CONCRETE PRESSURE PIPE FITTINGS	2	EACH
SPECIAL	DRAIN VAULT	1	EACH

NOTE: ADJUST VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS № 303 THRU 313.

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET № 318.

INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

SCALE: 1" = 20' HORIZ
1" = 20' VERT

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/15/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 36" WATER MAIN
W. 105 ST.

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

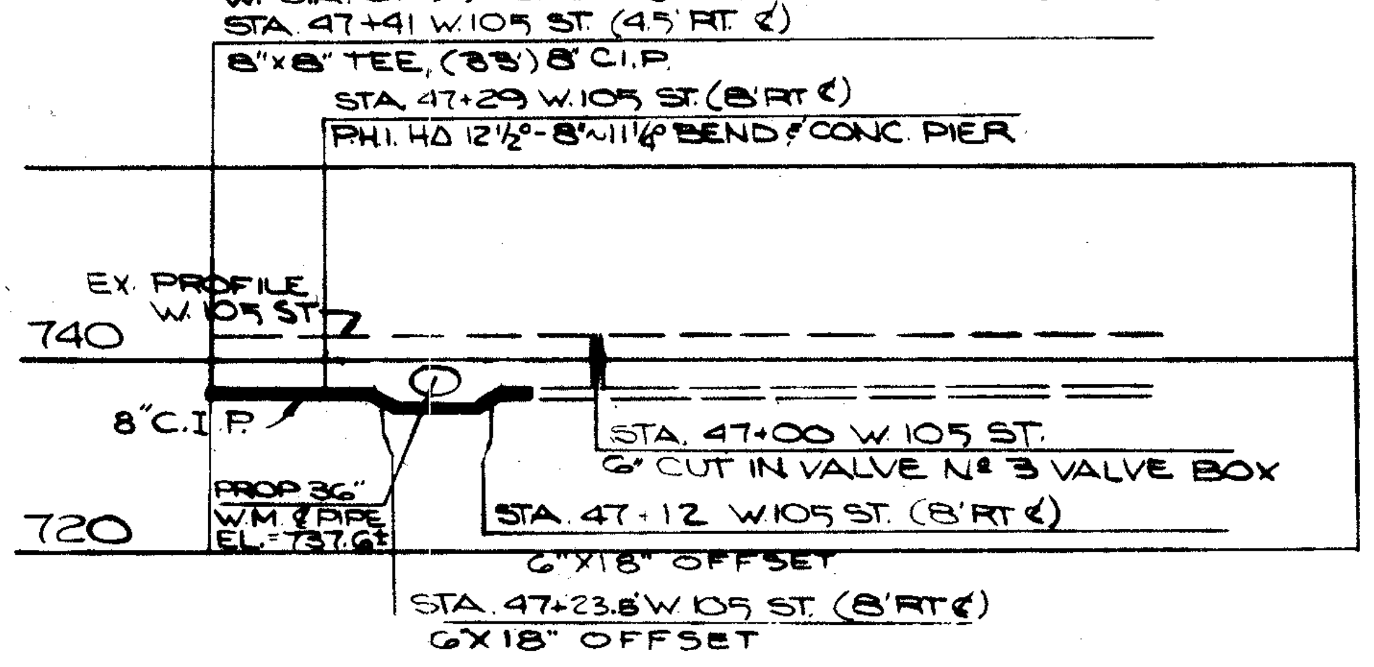
FED. RD.	STATE	PROJECT	
2	OHIO		

339/713

38/54

CUYAHOGA COUNTY

CUY - 90 - 10.40



⊗ SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED. REMOVE ABANDONED CURB COCK VALVE BOXES

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET Nº 318

NOTE: INSTALLING & REMOVAL OF TEMP. PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATERMAIN

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	20	LIN. FT.
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	646	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	6	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	2	EACH
SPECIAL	FURNISHING AND SETTING, 6" FIRE HYDRANT	1	EACH
SPECIAL	12" GATE VALVE (HUB ENDS) AND Nº 4 VALVE BOX	2	EACH

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	12" WATER MAIN C.I.P. ANSI CLASS 25		
	WITH PUSH-ON JOINTS AND FITTINGS CLASS		
	D WITH LEAD JOINTS, ALL CEMENT LINED	28	LIN FT
SPECIAL	TEMPORARY SERVICE CONNECTION # 77826 3/4"	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

NOTE: TEMPORARY SERVICE CONNECTION TO BE INCLUDED IN UNIT PRICE BID FOR "ITEM SPECIAL - RETAP, & RECONNECT SERVICE CONNECTION".

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/15/73

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN / REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
SOUTH FRONTAGE ROAD Nº 3

DRAWN W.R.S. SCALE 1" - 20'
CHECKED H.C.S. DATE ____ No. ____

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET Nº 318 & 319

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313

INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAINS

ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	253	LIN. FT.
SPECIAL	10" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS,		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	7	LIN. FT.
SPECIAL	12" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	271	LIN. FT.
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	1	EACH
SPECIAL	12" GATE VALVE (HUB ENDS) AND Nº 4 VALVE BOX	1	EACH
SPECIAL	10" CUT-IN VALVE, COMPLETE AND Nº 4 VALVE BOX	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/15/73

William J. Sweeney
DESIGN REVIEW ENGINEER

APPROVED JANUARY - 4 - 1974

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **8" & 12" WATER MAIN**
SOUTH FRONTAGE ROAD Nº 3

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

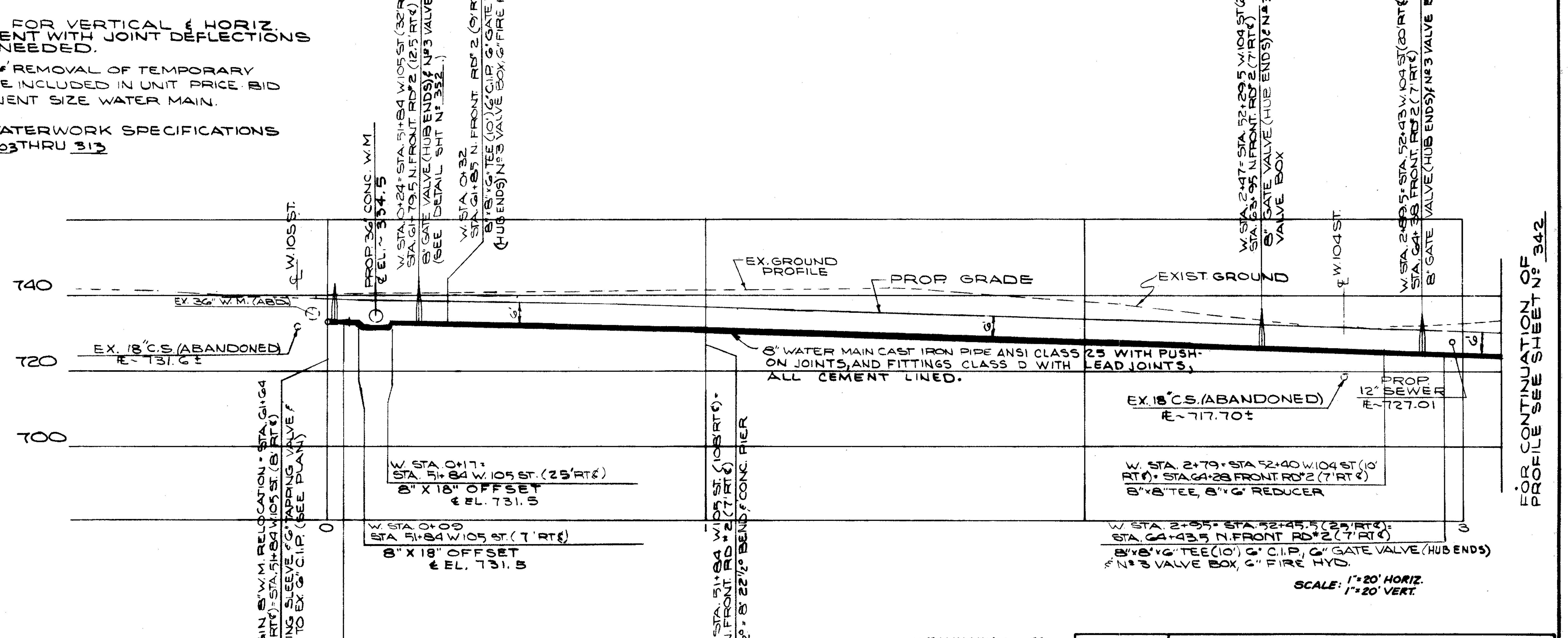
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS № 303 THRU 313



SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN C.I.P. ANSI CLASS 25 AND FITTINGS		
	CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	27	LIN. FT.
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	310	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND № 3 VALVE BOX	2	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND № 3 VALVE BOX	3	EACH
SPECIAL	12" GATE VALVE (HUB ENDS) AND № 4 VALVE BOX	2	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE AND № 3 VALVE BOX	1	EACH
SPECIAL	6" × 6" TAPPING SLEEVE AND 6" TAPPING VALVE AND № 3		
	VALVE BOX	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	2	EACH
SPECIAL	12" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	23	LIN. FT.

APPROVED JANUARY-4-1974

CALCULATED BY W.R.S DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
NORTH FRONTAGE ROAD № 2

DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

342/713

41/54

CURVE DATA
N. FRONTAGE ROAD Nº 2
Δ= 71°42'32"
R= 65.00'
T= 46.97'
L_c= 81.35'
CH= 76.14
E= 15.20
P.C. STA. 66+64.06
P.I. STA. 67+11.03
P.T. STA. 67+45.41

● SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK VALVE BOXES.

FOR DETAILS OF RELOC. 12" WATER MAIN SEE SHEET Nº 343

FOR DISPOSITION OF WATER SERVICE CONNECTION SEE SHEET Nº 318 & 319.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	FLUSHING CONNECTIONS	1	EACH

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	262	LIN. FT.
SPECIAL	12" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS	307	
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.		LIN. FT.
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	1	EACH
SPECIAL	10" CUTTING-IN VALVE, COMPLETE AND Nº 4 VALVE BOX	1	EACH
SPECIAL	10"x10" TAPPING SLEEVE & 10" TAPPING VALVE & Nº 4 VALVE BOX	1	
SPECIAL	4" FIRE HYDRANT, REMOVED AND RESET	1	EACH
SPECIAL	4" WATER MAIN C.I.P. ANSI CLASS 24 CEMENT LINED AND		
	FITTINGS CLASS-D ALL CEMENT LINED WITH LEAD JOINTS.	13	LIN. FT.

SCALE: 1"=20' HORIZ.
1"=20' VERT.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

CALCULATED BY W.R.S. DATE 10/12/73
CHECKED BY H.C.S. DATE 10/17/73

REVISIONS

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" & 12" WATER MAINS
NORTH FRONTAGE ROAD Nº 2

DRAWN W.R.S. SCALE 1"=20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

343
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

42
54

PROFILE RELOC. 12" WATER MAIN

END 12" W. MAIN RELOCATION
W. STA. 5+98.14 = STA. 45+31 W. BLVD (65' LT℄)
12"x10" REDUCER (B&S) BELL SMALL END CUT & CONNECT TO EXIST. C.I.P.

BEGIN 8" W. MAIN RELOCATION
W. STA. 0+00 = STA. 42+02 W. BLVD (65' RT℄)
8"x6" REDUCER (B&S) BELL SMALL END CUT & CONNECT REDUCER TO EX. 6" C.I.P.

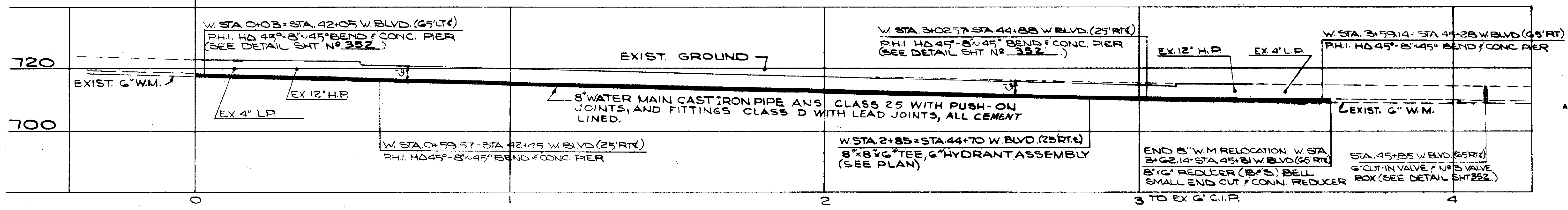
NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

FOR ESTIMATED QUANTITIES OF 8" & 12" WATER MAIN SEE SHEET 344

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEET 303 THRU 313

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.



PROFILE RELOC. 8" WATER MAIN

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/21/73

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" & 12" WATER MAINS
WEST BOULEVARD

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

344 / 713

43 / 54

⊕ SERVICE CONNECTIONS TO BE PLUGGED @ MAIN & ABANDONED, REMOVE ABANDONED CURB COCK VALVE BOXES

* QUANTITIES OF 12" WATER MAIN ~ WEST BLVD.

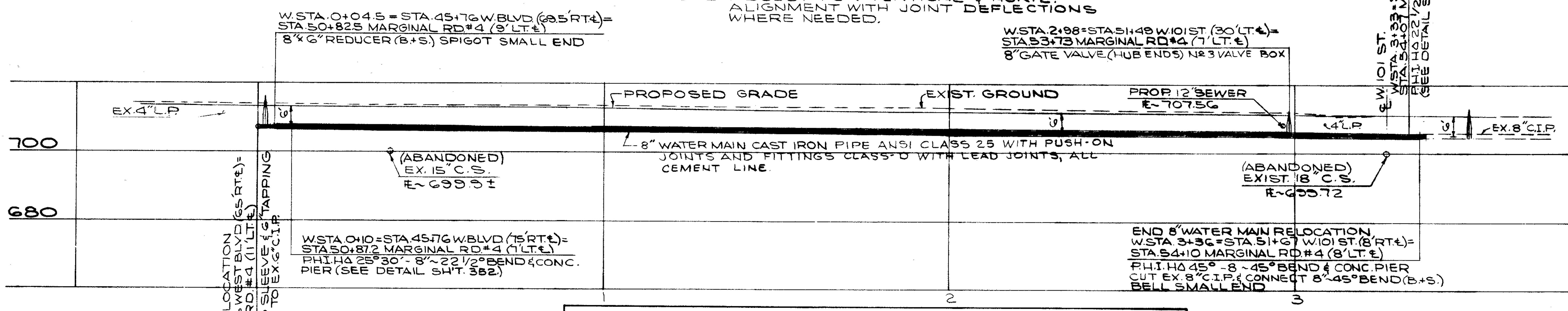
** QUANTITIES OF 8" WATER MAIN ~ WEST BLVD.

FOR PLAN & PROFILE OF 8" & 12" WATER MAIN RELOC. ~ WEST BLVD. SEE SHEET 342.

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET Nº 310.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEET 303 THRU 313.

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.



ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	8" WATER MAIN CAST IRON PIPE ANSI CLASS 25 WITH PUSH-	—	—
—	ON JOINTS, & FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	336	LIN. FT.
SPECIAL	8" CUT-IN VALVE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	1	EACH
SPECIAL	6"×6" TAPPING SLEEVE AND 6" TAPPING VALVE AND	—	—
—	Nº 3 VALVE BOX	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

* ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN C.I.P. ANSI CLASS 25 AND FITTINGS		
	CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	10	LIN. FT.
SPECIAL	12" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	598	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	10" CUT-IN VALVE, COMPLETE AND Nº 4 VALVE BOX	2	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	12" GATE VALVE (HUB ENDS) AND Nº 4 VALVE BOX	2	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

** ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN C.I.P. ANSI CLASS 25 AND FITTINGS		
	CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	10	LIN. FT.
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON		
	JOINTS, AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	362	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	2	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/21/73

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
NORTH MARGINAL ROAD Nº 4

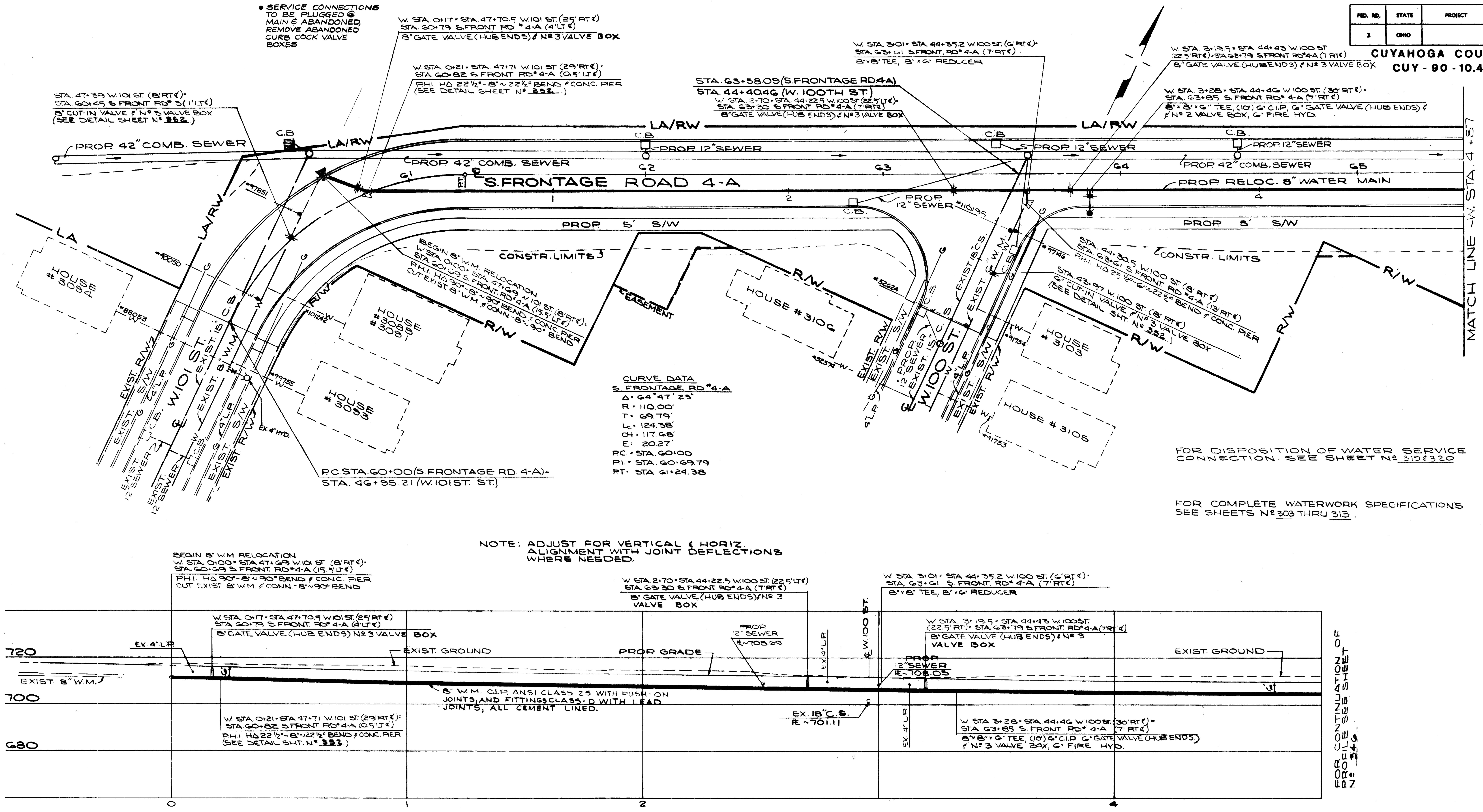
DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

345
713

44
54



SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN C.I.P. CLASS 25 AND FITTINGS CLASS		
	D WITH LEAD JOINTS, ALL CEMENT LINED.	16	LIN. FT.
SPECIAL	8" WATER MAIN C.I.P. CLASS 25 WITH PUSH-ON JOINTS,		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED	487	LIN. FT.
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	8" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	3	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

APPROVED JANUARY - 4 - 1974

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/ /73

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

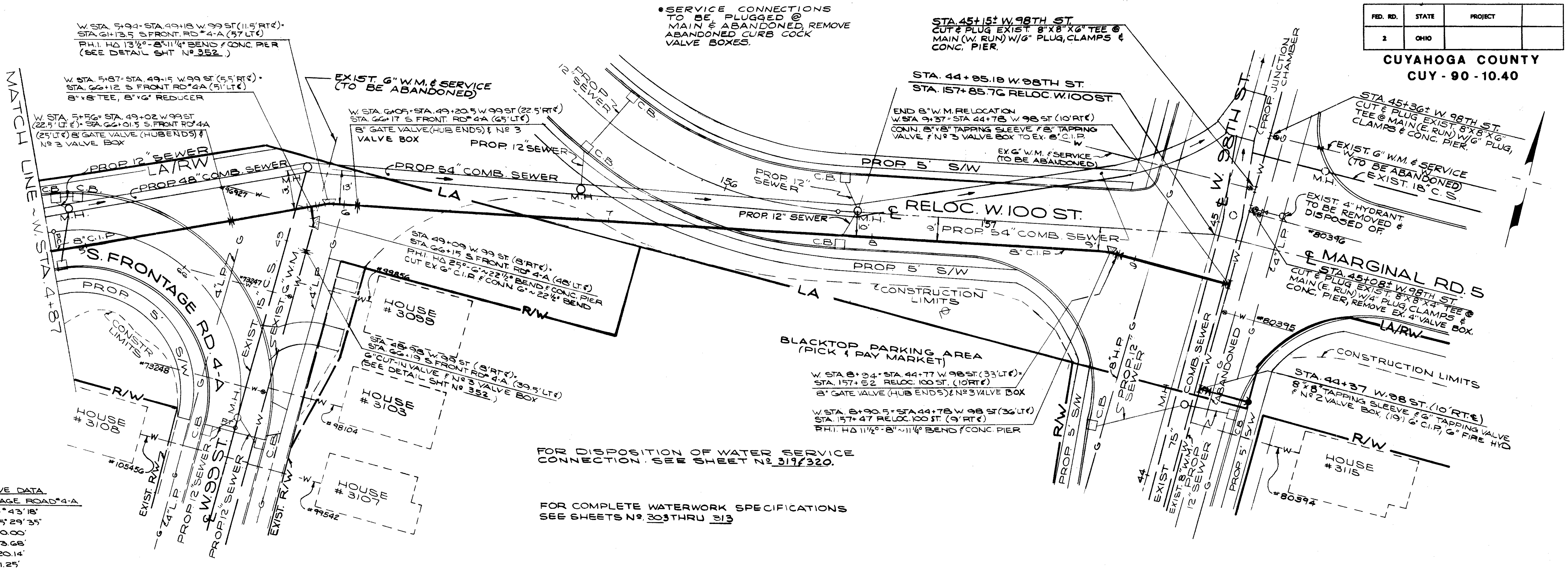
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **8" WATER MAIN**
SOUTH FRONTAGE ROAD Nº 4-A

DRAWN W.R.S.
SCALE 1" = 20'
CHECKED H.C.S.
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

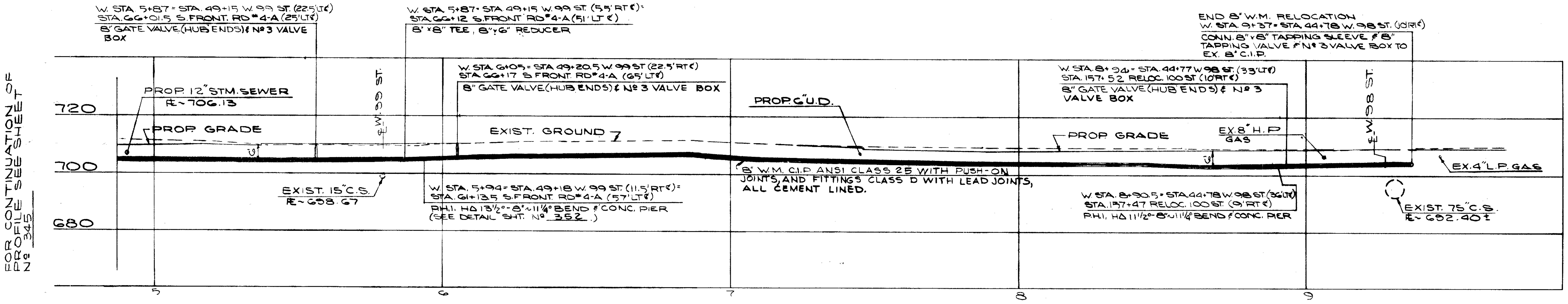


CURVE DATA
S. FRONTAGE ROAD #4-A
Δ = 114° 43' 18"
D = 95° 29' 35"
R = 60.00'
T = 93.68'
Lc = 120.14'
E = 51.25'
P.C. STA. 65+47.41
P.I. STA. 66+41.09
P.T. STA. 66+67.55

FOR DISPOSITION OF WATER SERVICE CONNECTION. SEE SHEET Nº 319 & 320.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEETS Nº 303 THRU 313

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.



ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	PLUGGING EXISTING WATER MAIN AND BRANCH (4")	1	EACH
SPECIAL	PLUGGING EXISTING WATER MAIN AND BRANCH (6")	3	EACH
SPECIAL	VALVE BOX REMOVED	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN C.I.P. ANSI CLASS 25 AND FITTINGS		
	CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	25	LIN. FT.
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	450	LIN. FT.
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) & Nº 3 VALVE BOX	3	EACH
SPECIAL	8"×8" TAPPING SLEEVE AND 8" TAPPING VALVE & Nº 3 VALVE BOX	1	EACH
SPECIAL	8"×6" TAPPING SLEEVE AND 6" TAPPING VALVE AND Nº 2 VALVE BOX	1	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	1	EACH

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

APPROVED JANUARY - 4 - 1974

CALCULATED BY W.R.S. DATE 10/17/73
CHECKED BY H.C.S. DATE 11/21/73

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **8" WATER MAIN**
SOUTH FRONTAGE ROAD 4-A

DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

347/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

46/54

FOR DISPOSITION OF WATER SERVICE CONNECTIONS SEE SHEET Nº 320.

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEET Nº 303 THRU 313

NOTE: ADJUST FOR VERTICAL & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	PLUGGING EXISTING WATER MAIN AND BRANCH (4")	1	EACH
SPECIAL	PLUGGING EXISTING WATER MAIN AND BRANCH (6")	2	EACH
SPECIAL	VALVE BOX REMOVED	1	EACH
SPECIAL	FLUSHING CONNECTIONS	1	EACH

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN C.I.P. ANSI CLASS 25 AND FITTINGS		
	CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	15	LIN. FT.
SPECIAL	8" WATER MAIN C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS,		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINE.	582	LIN. FT.
SPECIAL	6" GATE VALVE (HUB ENDS) AND Nº 2 VALVE BOX	2	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) AND Nº 3 VALVE BOX	2	EACH
SPECIAL	6"×6" TAPPING SLEEVE AND 6" TAPPING VALVE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	8"×8" TAPPING SLEEVE AND 8" TAPPING VALVE AND Nº 3 VALVE BOX	1	EACH
SPECIAL	FURNISHING AND SETTING 6" FIRE HYDRANT	2	EACH

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

APPROVED JANUARY - 4 - 1974

CALCULATED BY W.R.S. DATE 10/18/73
CHECKED BY H.C.S. DATE 11/21/73

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH" SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **8" WATER MAIN**
WESTERN AVENUE EXTENDED

DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE 10-30-73 No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

348/713

47/54

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	6" WATER MAIN, C.I.P. ANSI CLASS 25 AND FITTINGS		
	CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	26	LIN. FT.
SPECIAL	FLUSHING CONNECTIONS	2	EACH
SPECIAL	8" WATER MAIN, C.I.P. ANSI CLASS 25 WITH PUSH-ON JOINTS,		
	AND FITTINGS CLASS D WITH LEAD JOINTS, ALL CEMENT LINED.	488	LIN FT.
SPECIAL	6" CUT-IN VALVE, COMPLETE AND Nº 2 VALVE BOX	4	EACH
SPECIAL	6" GATE VALVE (HUB ENDS) & Nº 2 VALVE BOX	3	EACH
SPECIAL	8" GATE VALVE (HUB ENDS) & Nº 3 VALVE BOX	6	EACH
SPECIAL	FURNISHING AND SETTING SETTING 6" FIRE HYDRANT	3	EACH

FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEET 303 THRU 313.

FOR DISPOSITION OF WATER SERVICE CONNECTION SEE SH'T. 320.

NOTE: ADJUST FOR VERT. & HORIZ. ALIGNMENT WITH JOINT DEFLECTIONS WHERE NEEDED.

NOTE: INSTALLING & REMOVAL OF TEMPORARY PLUGS TO BE INCLUDED IN UNIT PRICE BID FOR PERTINENT SIZE WATER MAIN.

SCALE: 1" = 20' HORIZ.
1" = 20' VERT.

CALCULATED BY W.R.S. DATE 10/19/73
CHECKED BY H.C.S. DATE 11/22/73

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN
W. 97 ST. TO END OF PROJECT

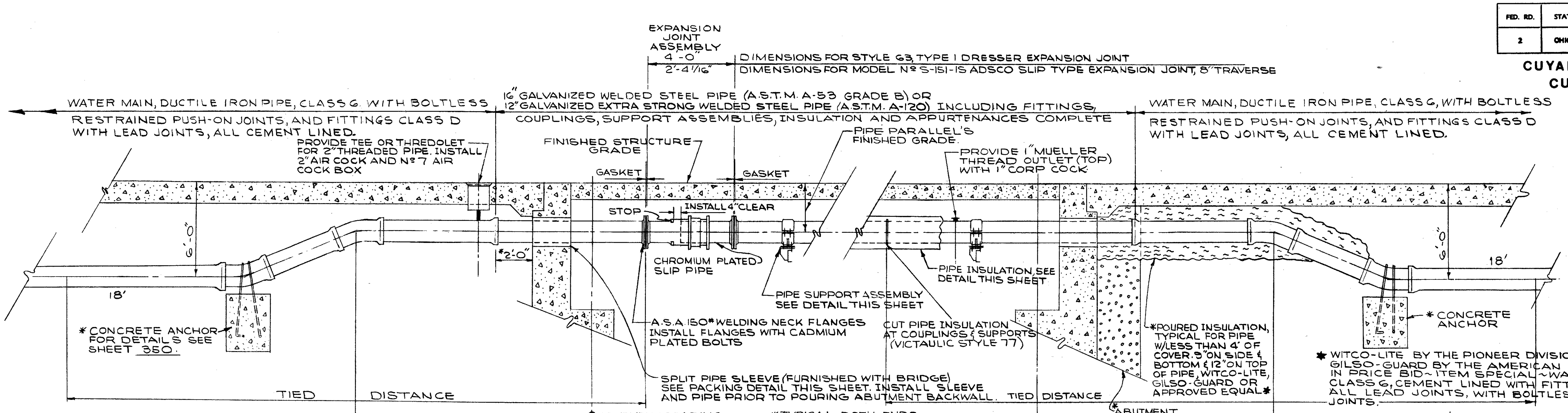
DRAWN W.R.S. SCALE 1" = 20'
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

349/713

CUYAHOGA COUNTY
CUY - 90 - 10 40

48/54



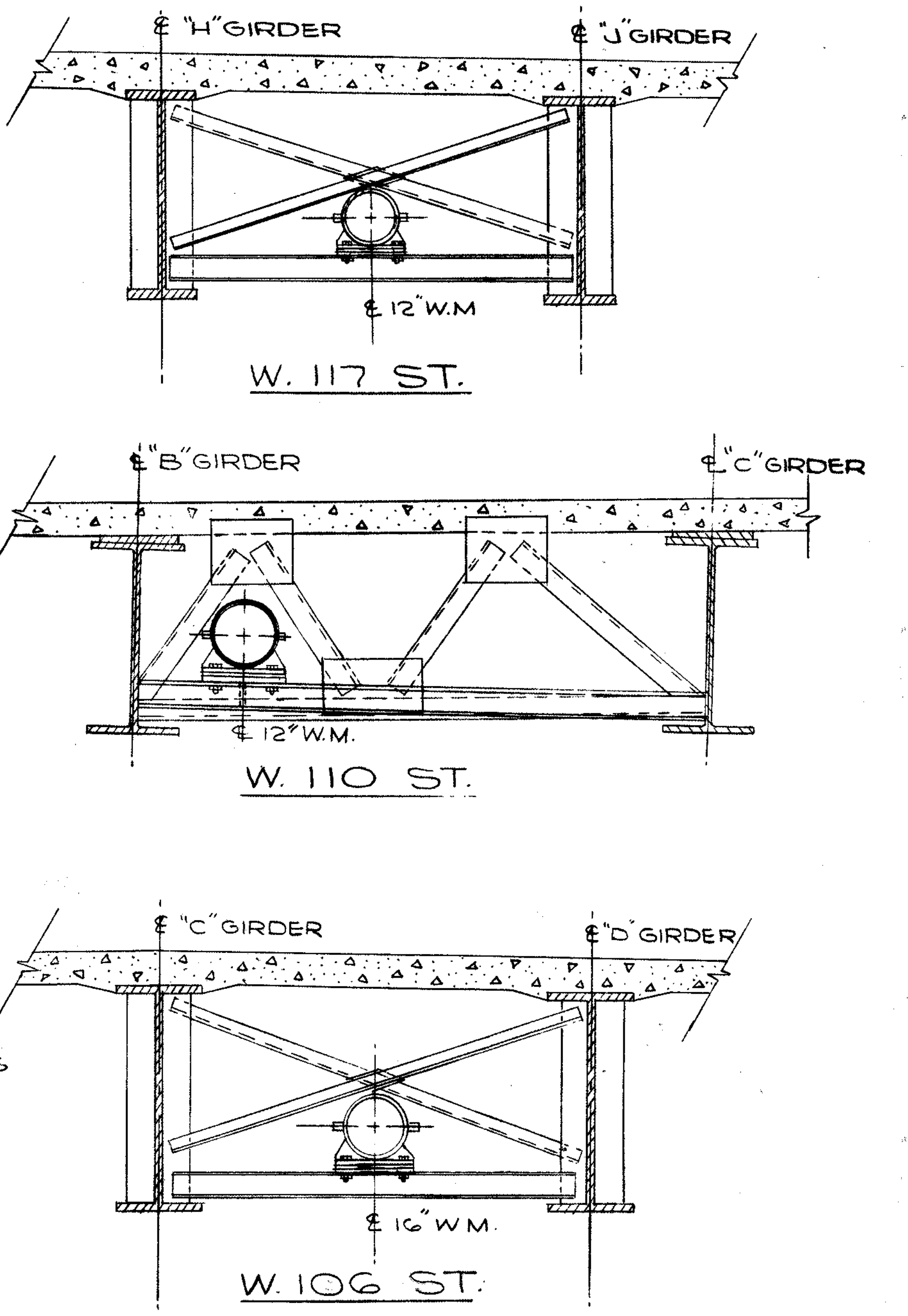
* WITCO-LITE BY THE PIONEER DIVISION OF WITCO CHEMICAL, GILSO-GUARD BY THE AMERICAN GILSONITE COMPANY. INCLUDE IN PRICE BID~ITEM SPECIAL~WATER MAIN DUCTILE IRON PIPE CLASS 6, CEMENT LINED WITH FITTINGS CLASS 6, CEMENT LINED, ALL LEAD JOINTS, WITH BOLTLESS RESTRANED PUSH-ON JOINTS.

PROFILE AT ENDS OF STRUCTURES

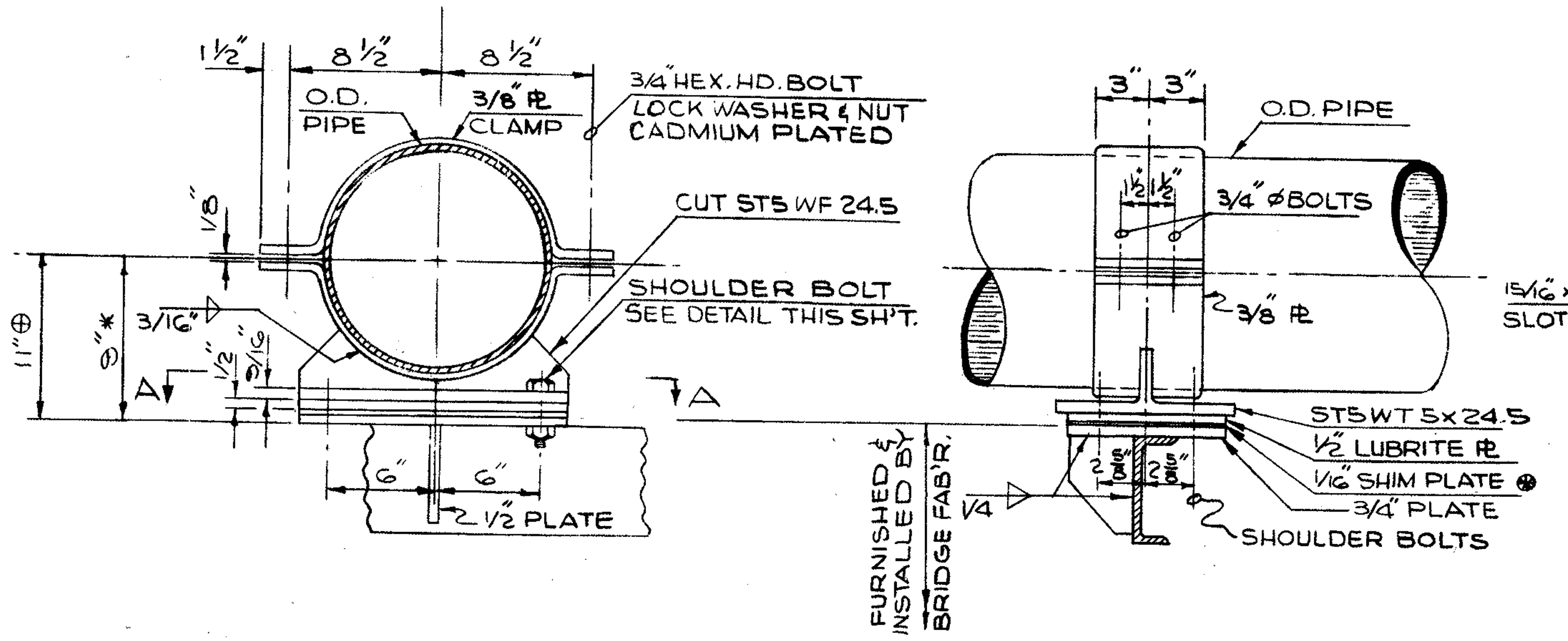
FOR PLAN & PROFILE OF WATER MAIN SEE:

12" – SHEET Nº 326 & 327 FOR W.117 ST. SEE STRUCTURE DRAWING 419, 420.
12" – SHEET Nº 335 FOR W.110 ST. SEE STRUCTURE DRAWING 437, 438
16" – SHEET Nº 336 FOR W.106 ST. SEE STRUCTURE DRAWING 445, 446

12" STEEL PIPE (12.75" O.D. x 0.50" WALL THICKNESS)
16" STEEL PIPE (16.00" O.D. x 0.50" WALL THICKNESS)

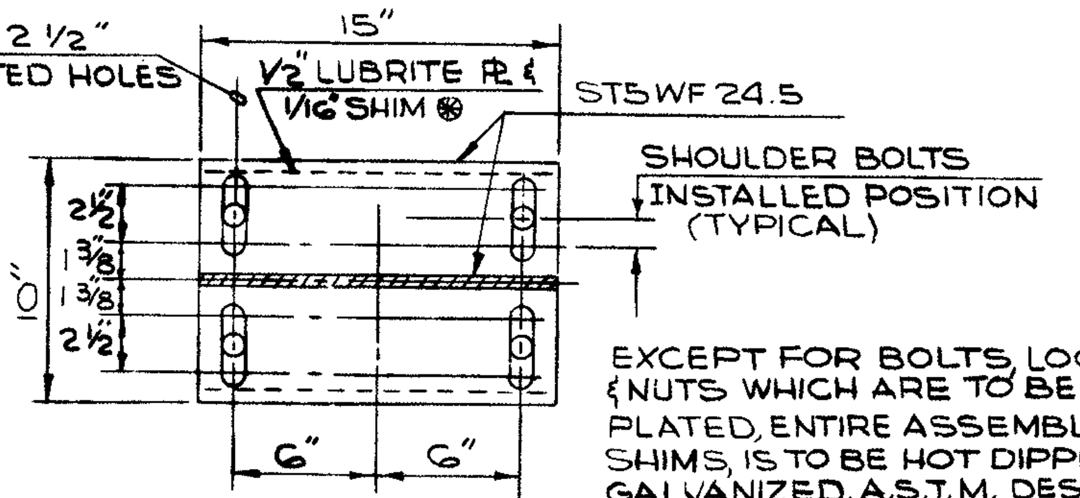


TYPICAL CROSS SECTION THRU BRIDGE



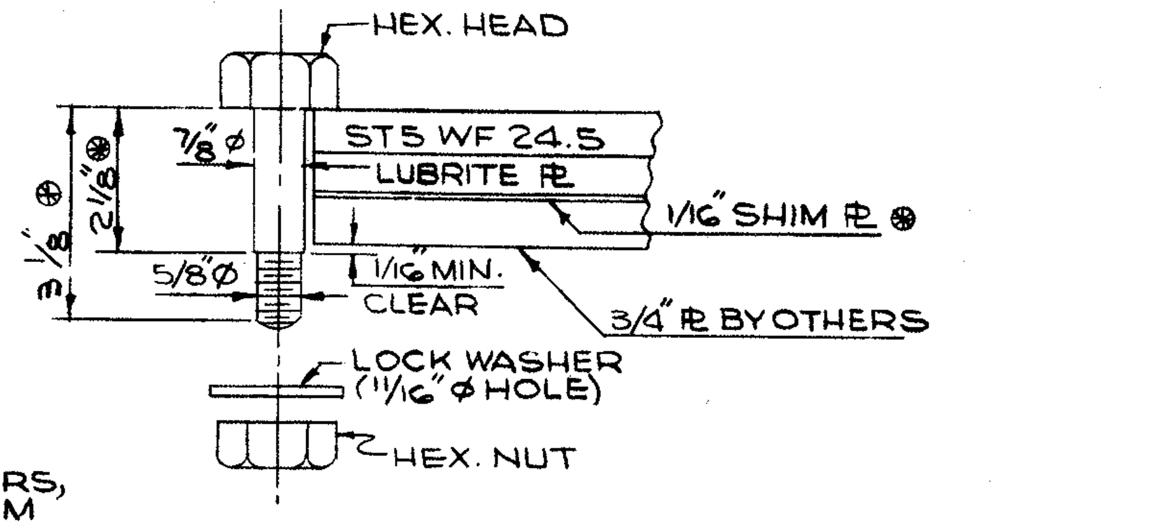
DETAIL OF WATER SUPPORT ASSEMBLY

⊛ MINIMUM DIMENSION
* 12" WATER MAIN
⊕ 16" WATER MAIN

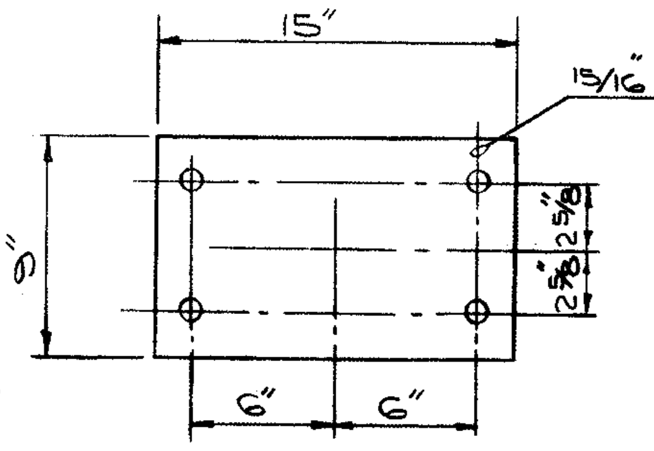


SECTION A-A

EXCEPT FOR BOLTS, LOCKWASHERS, & NUTS WHICH ARE TO BE CADMIUM PLATED, ENTIRE ASSEMBLY, INCLUDING SHIMS, IS TO BE HOT DIPPED GALVANIZED, A.S.T.M. DESIGNATION A-123, LATEST REVISION.



CADMIUM PLATED SHOULDER BOLT DETAIL

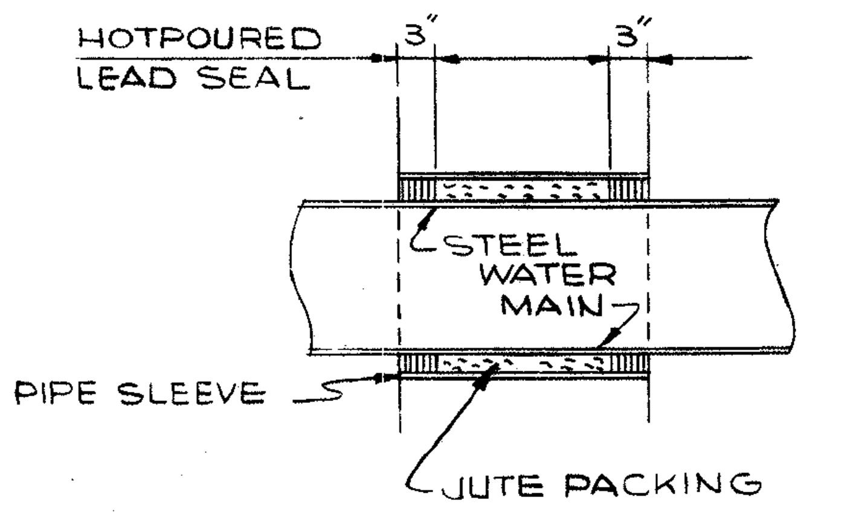


1/2" LUBRITE PLATE & 1/16" SHIM PLATE (STEEL)

NOTE:
SHIMS ARE TO BE INSTALLED (OR DELETED) IN FIELD WHERE REQUIRED TO ASSURE ACCURATE ALIGNMENT OF PIPE AT EXPANSION JOINT.

NOTES: THE CONTRACTOR SHALL FURNISH ALL SHOP DRAWINGS, INSTALLATION DRAWINGS AND INSTALLATION SCHEDULE TO THE DIRECTOR OF PUBLIC UTILITIES, CITY OF CLEVELAND, AND THE ENGINEER FOR APPROVAL.

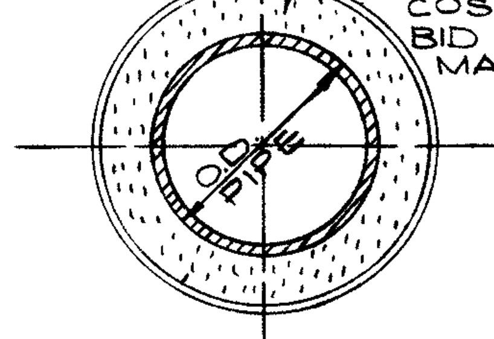
FOR COMPLETE WATERWORK SPECIFICATIONS SEE SHEET 303 THRU 313.



SLEEVE PACKING DETAIL

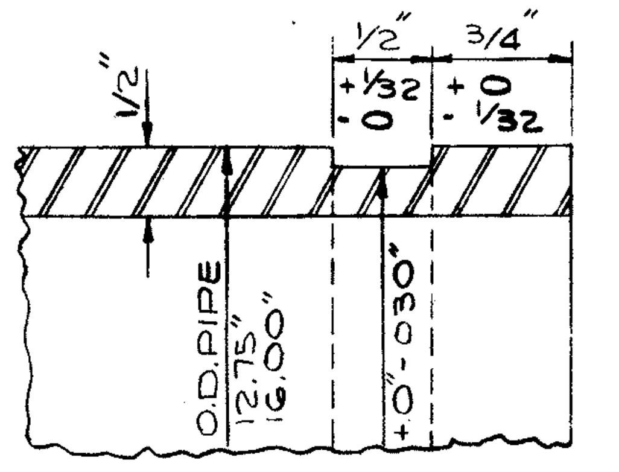
MIN. OF TWO (2) STAINLESS STEEL STRAPS PER SECTION OF PERFORMED INSULATION. STRAPS TO BE 1/2" MIN. WIDTH, WITH STAINLESS STEEL CLAMPS. COST TO BE INCLUDED IN PRICE BID FOR RELOCATED WATER MAIN PIPE.

3" HEAVY DENSITY FIBER GLASS ▣ PREFORMED PIPE INSULATION, A.S.T.M. C-547-67, OR LATEST REVISION, WITH APPROVED FACTORY APPLIED REINFORCED FIRE RESISTANT PROTECTIVE VAPOR BARRIER JACKET OF LAMINATED KRAFT AND CORROSION RESISTANT METALIC FOIL, AND 0.010" MIN. STAINLESS STEEL WEATHER~PROOFING JACKET COST TO BE INCLUDED IN PRICE BID FOR RELOCATED WATER MAIN PIPE.



▣ JOHNS-MANVILLE, GUSTIN-BACON, OWENS-CORNING, OR APPROVED EQUAL.

PIPE INSULATION THRU BRIDGE BETWEEN ABUTMENT WALLS



DETAIL AT END OF STEEL PIPE FOR VICTAULIC COUPLINGS STYLE Nº 77

NOTE:
1035 STEEL H.T. CADMIUM PLATED BOLTS (100,000 P.S.I.) TO BE FURNISHED WITH VICTAULIC COUPLINGS.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER MAIN CONNECTION & SUPPORT DETAILS

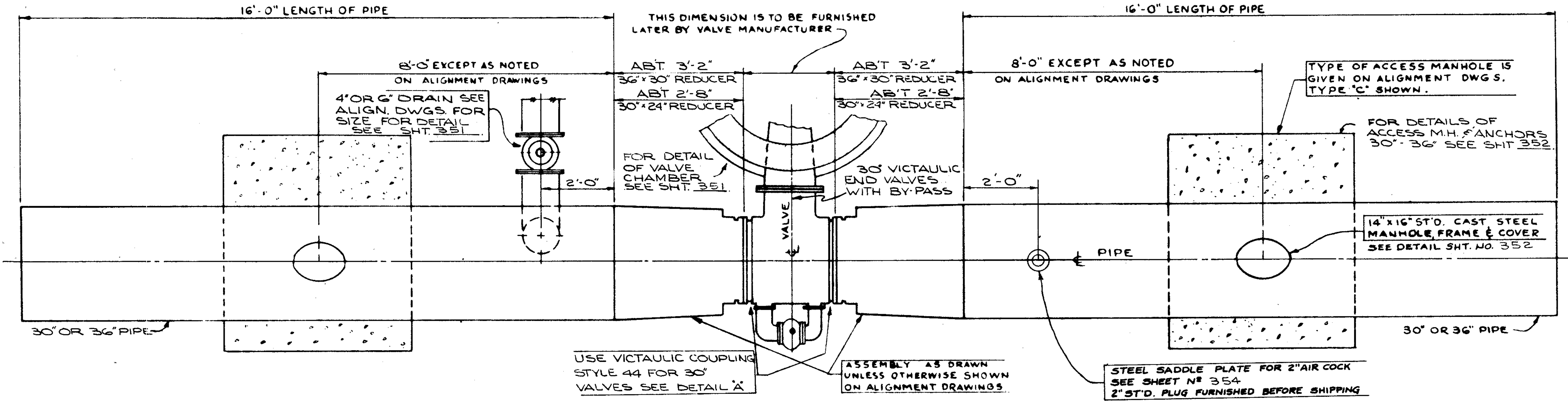
DRAWN W.R.S. SCALE
CHECKED H.C.S. DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

350
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

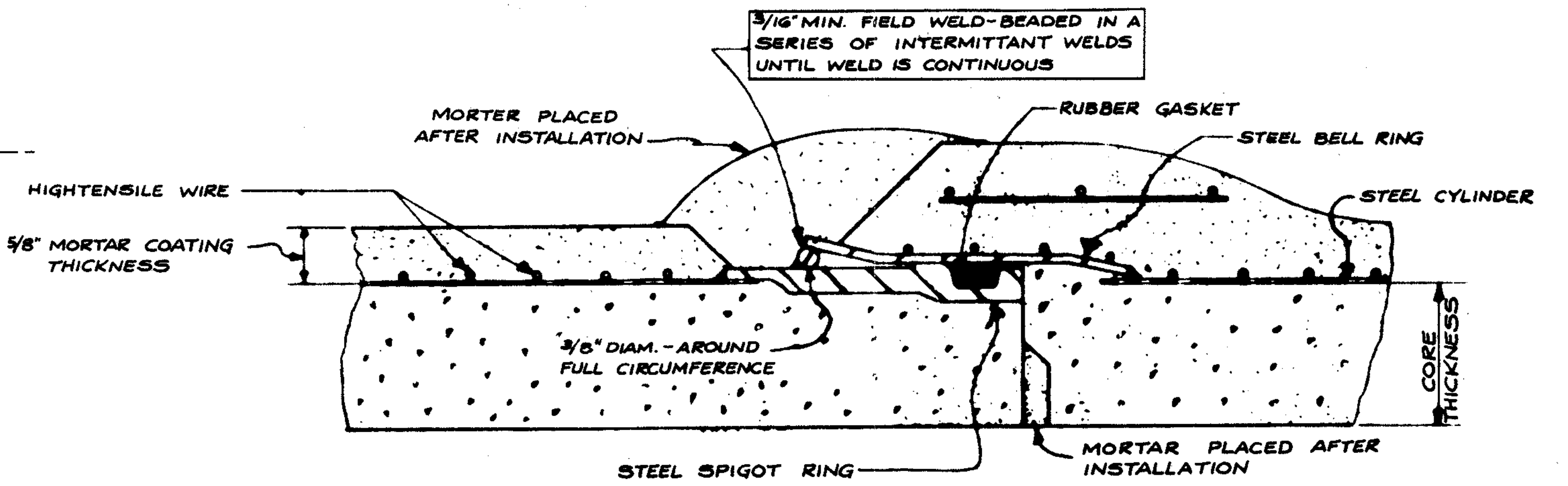
49
54



TYPICAL VALVE ASSEMBLIES FOR 30" AND 36" CONCRETE PIPE

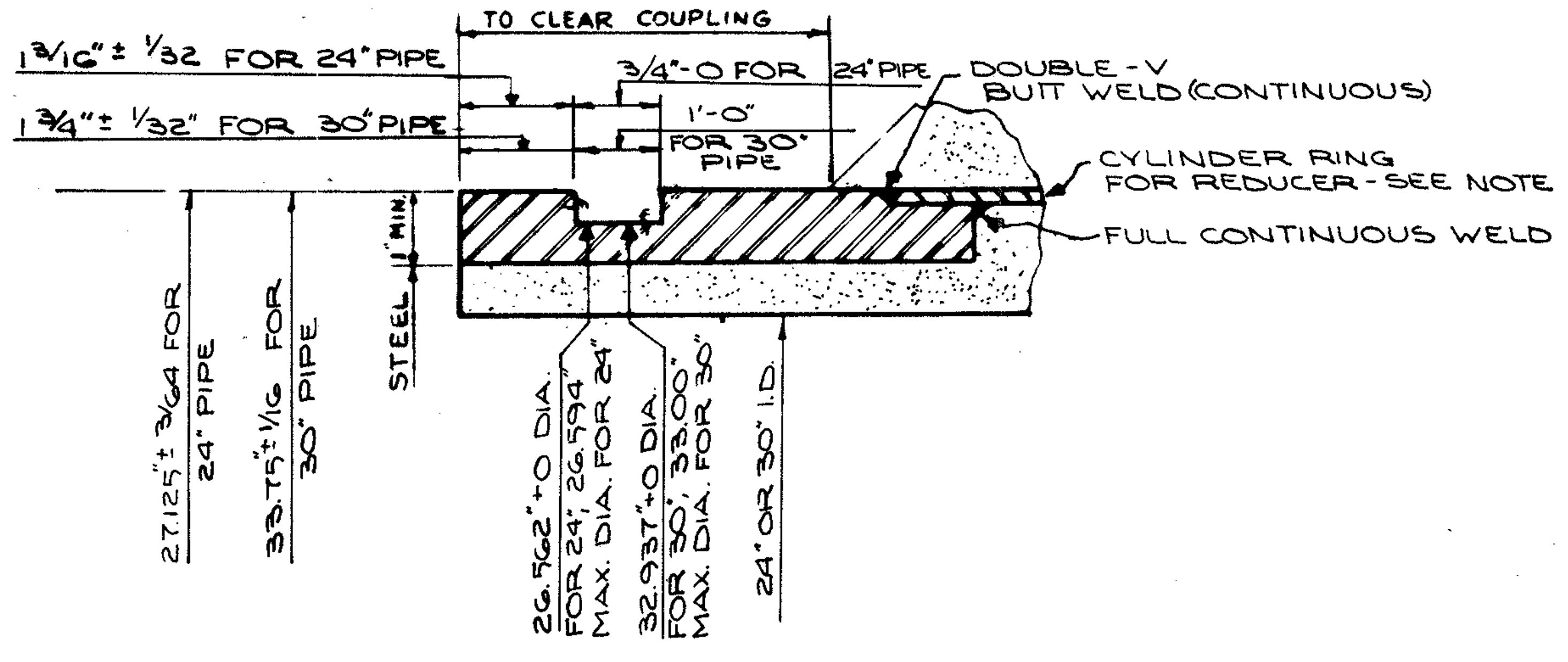
FOR COMPLETE WATERWORK NOTES ON THE STEEL CYLINDER REINFORCING THICKNESS OF CONCRETE PIPE SEE SHT 312 . NOTE (J)

The Detail below may be used for Shop-Welded Joints only · See WaterWork Notes, Sheet 312 .

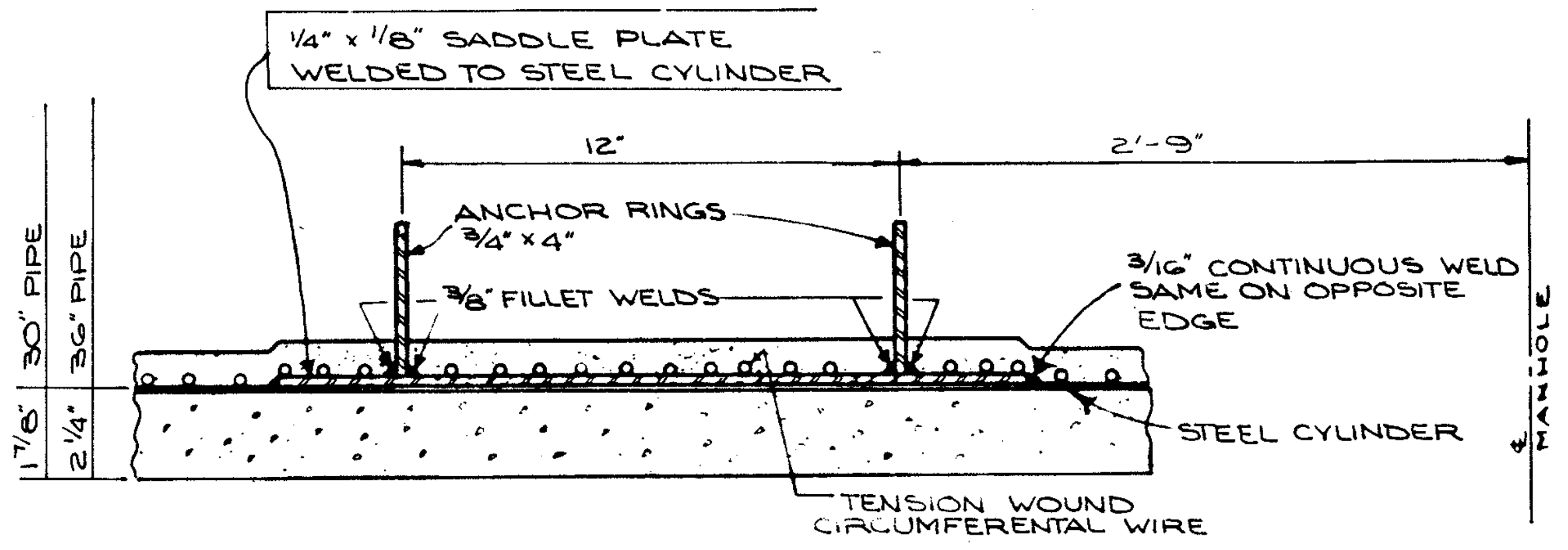


DETAIL "Y"

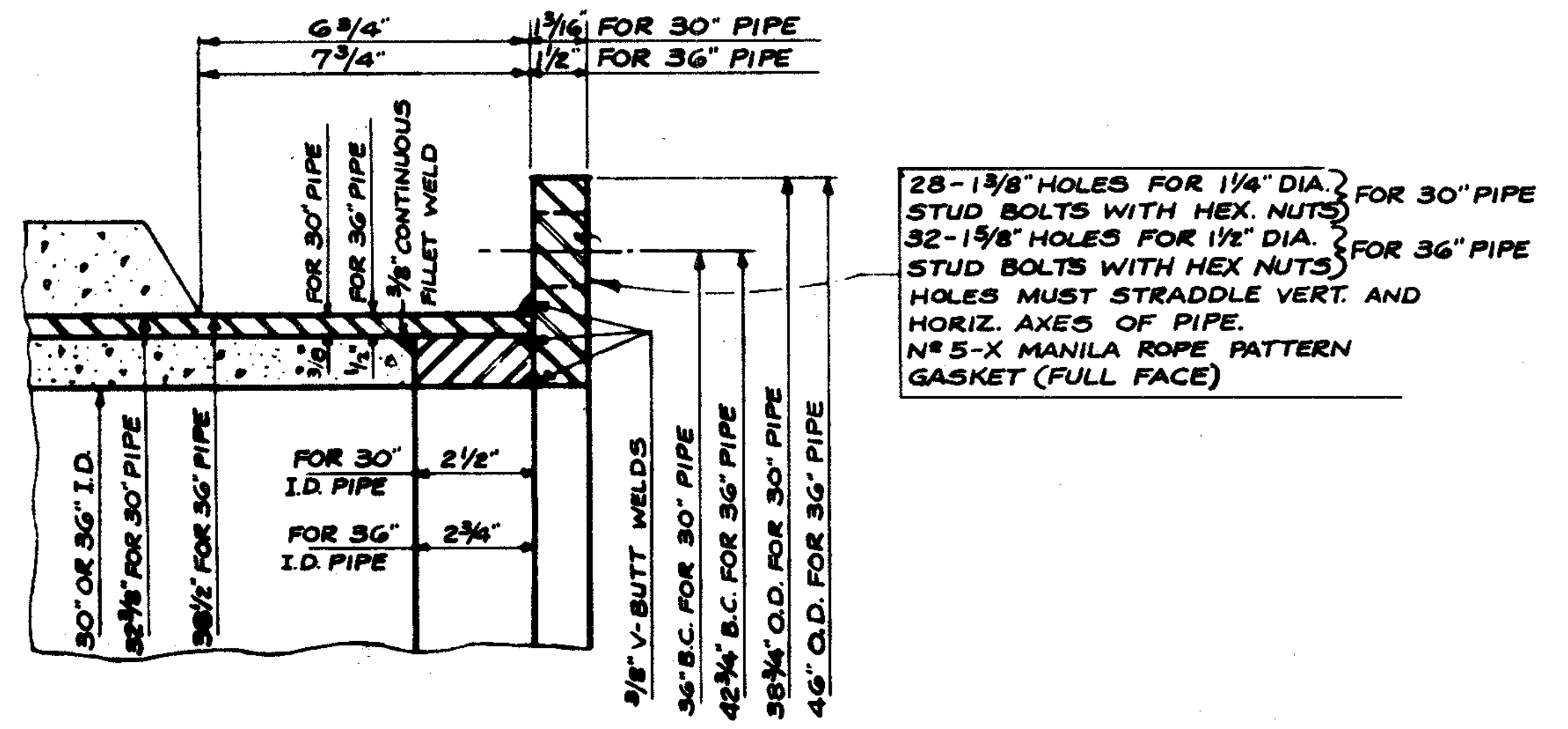
PRESTRESSED CONCRETE CYLINDER PIPE WITH RUBBER AND STEEL JOINT
SHOWING WELDED TYPE TIED JOINT
(SAME TYPE OF WELD FOR REINFORCED CONCRETE CYLINDER PIPE)



DETAIL "A"

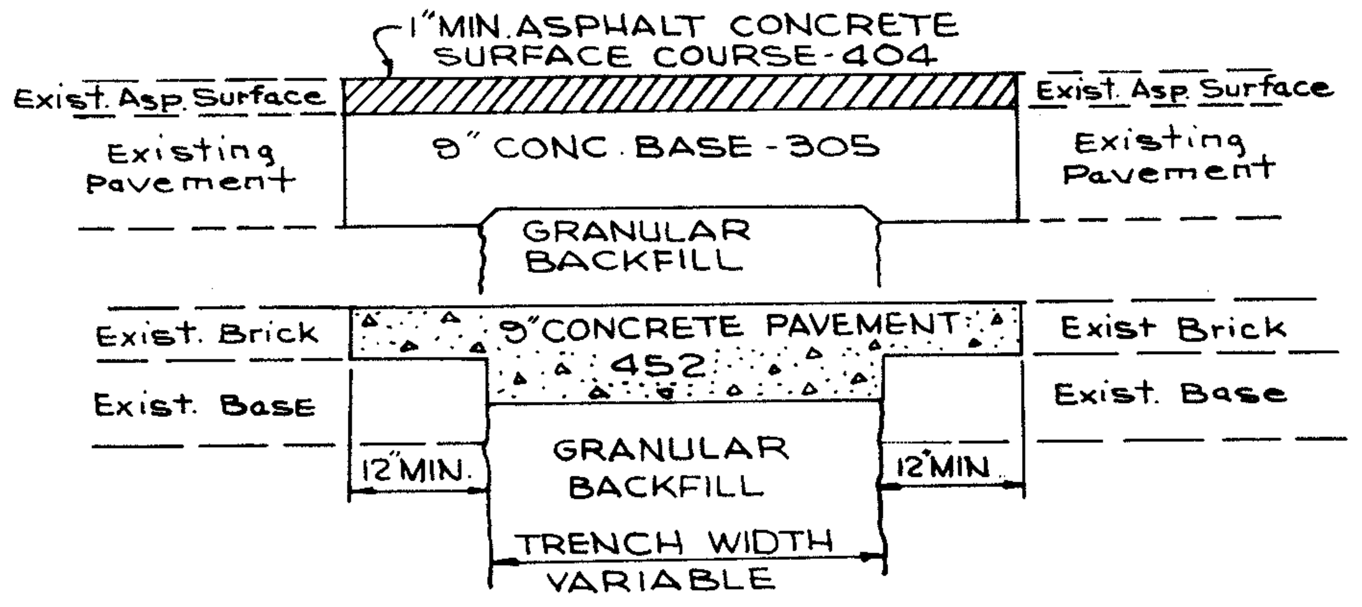


ANCHORAGE DETAILS FOR 36" PRESTRESSED CONC. CYLINDER PIPE FOR MANHOLE TYPE "A"

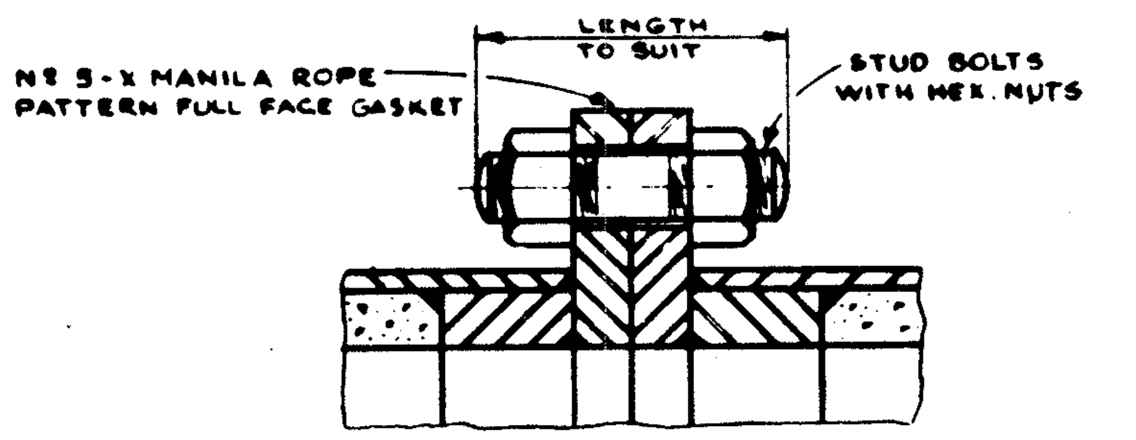


NOTE: CAST, FORGED OR ROLLED STEEL FLANGES MAY BE USED INSTEAD OF FABRICATED STEEL.

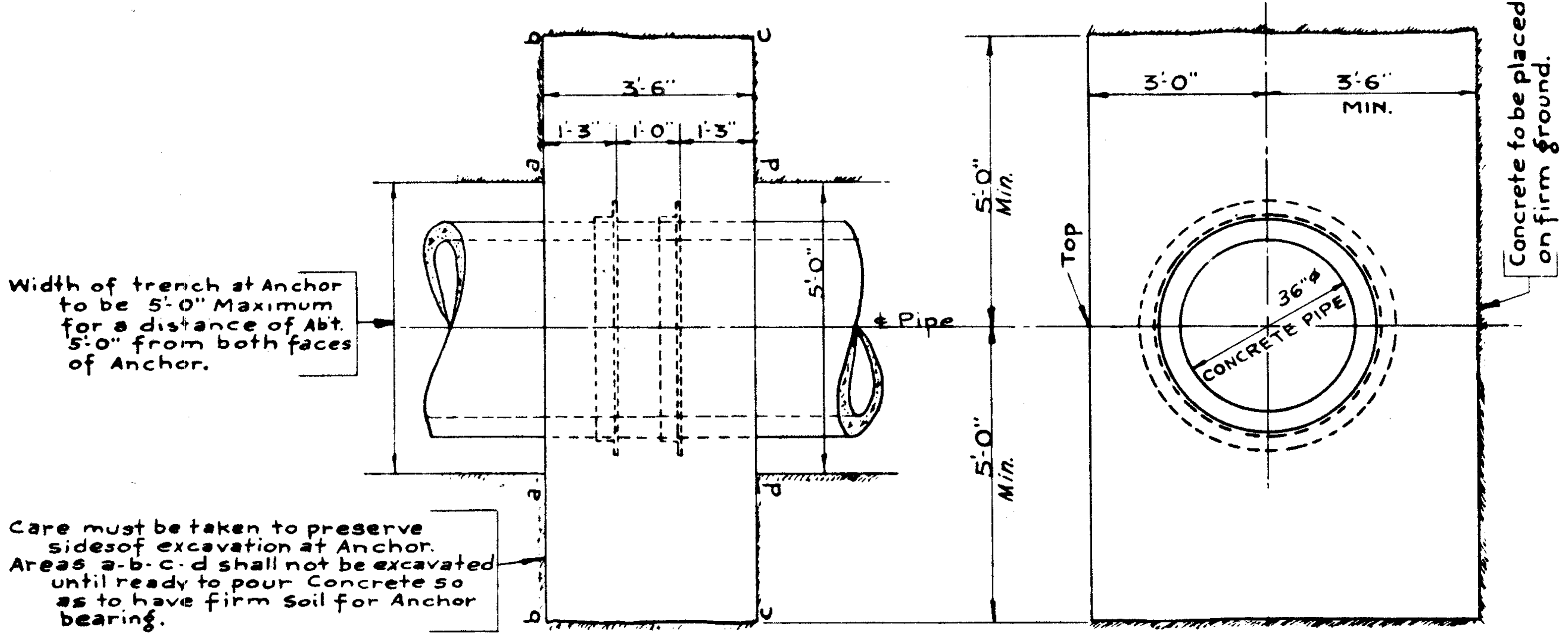
DETAIL OF 36" FABRICATED STEEL FLANGES



TYPICAL SECTIONS
REPAVING OVER WATER MAIN TRENCH



SECTION THROUGH ℄ SHOWING TYPICAL DETAIL OF FLANGE CONNECTIONS



PLAIN CONCRETE ANCHOR

SCALE: 1/2" = 1'-0"

NOTES

NO SPECIFIC OR SEPARATE PAYMENT WILL BE MADE FOR PAVEMENT REPLACEMENT, BUT THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS OF WATERWORK TO BE DONE UNDER THIS CONTRACT.

PAVEMENT REPLACEMENT AS STATED ABOVE WILL ONLY BE REQUIRED IN AREAS WHERE THE PLANS DO NOT OTHERWISE PROPOSE NEW CONSTRUCTION OF PAVEMENT.

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT **WATERWORK DETAILS**

DRAWN ____ SCALE ____
CHECKED ____ DATE ____
No. ____

FED. RD.	STATE	PROJECT	
3	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

351/713

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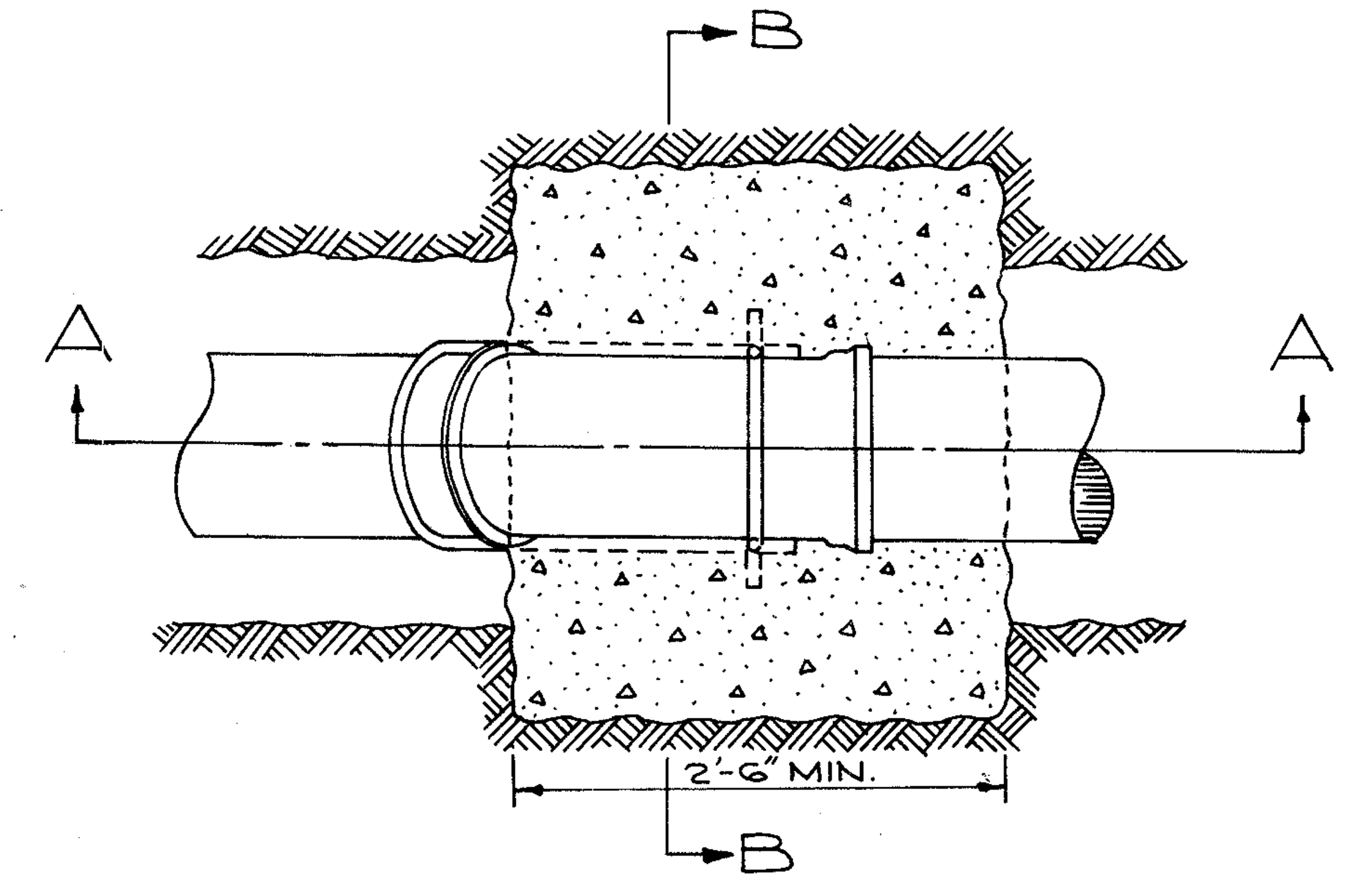
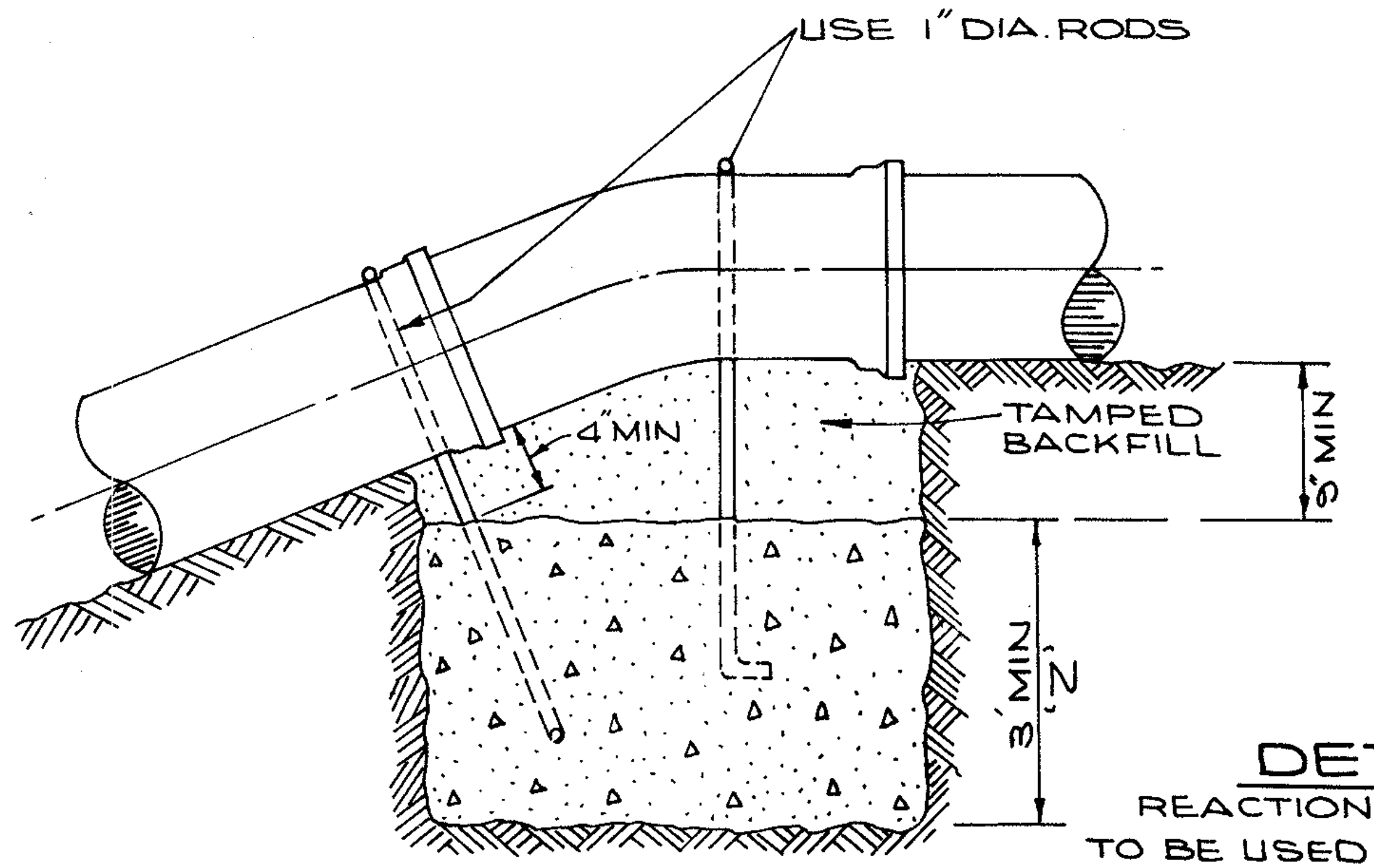
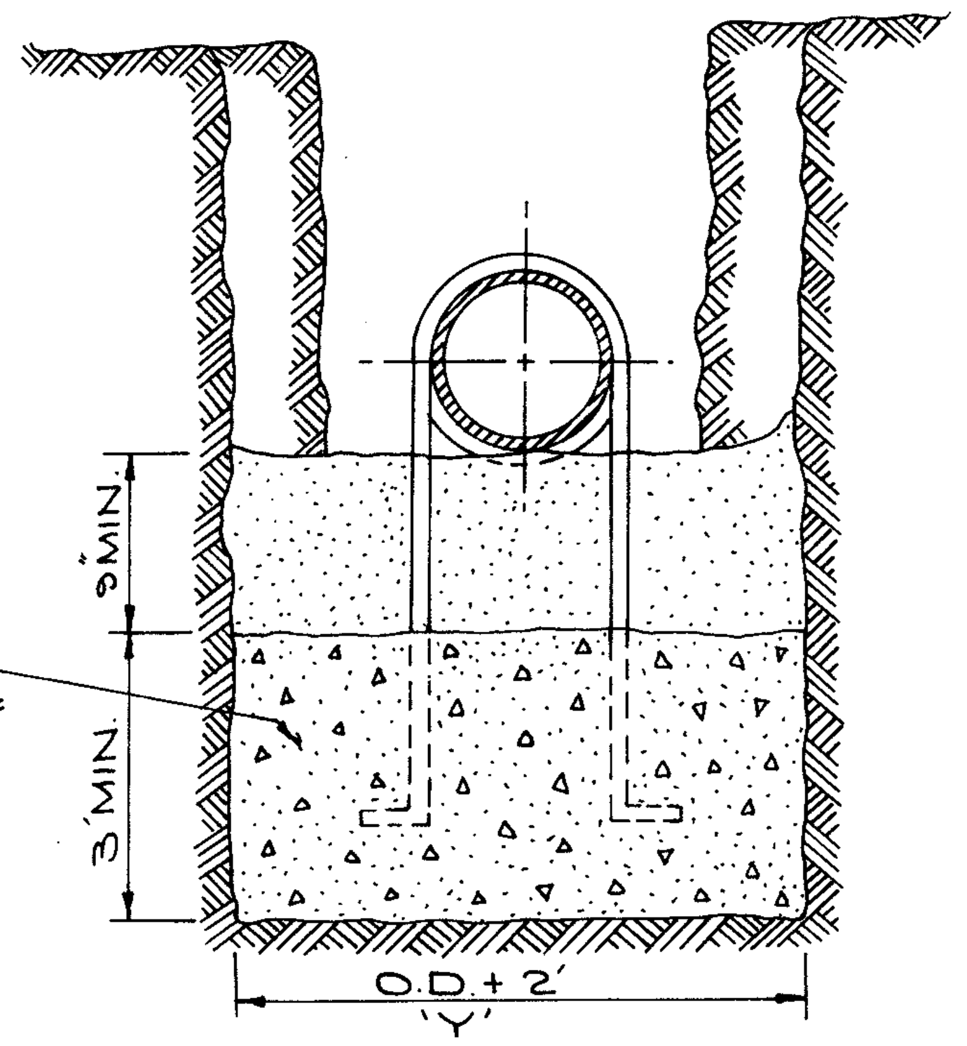
ANCHORAGE BLOCK				
PIPE SIZE	BEND ANGLE	DIMENSIONS		
		'X'	'Y'	'Z'
12"	22 1/2°	2'-6"	3'-0"	3'-0"
16"	11 1/4°	2'-6"	3'-5"	3'-0"



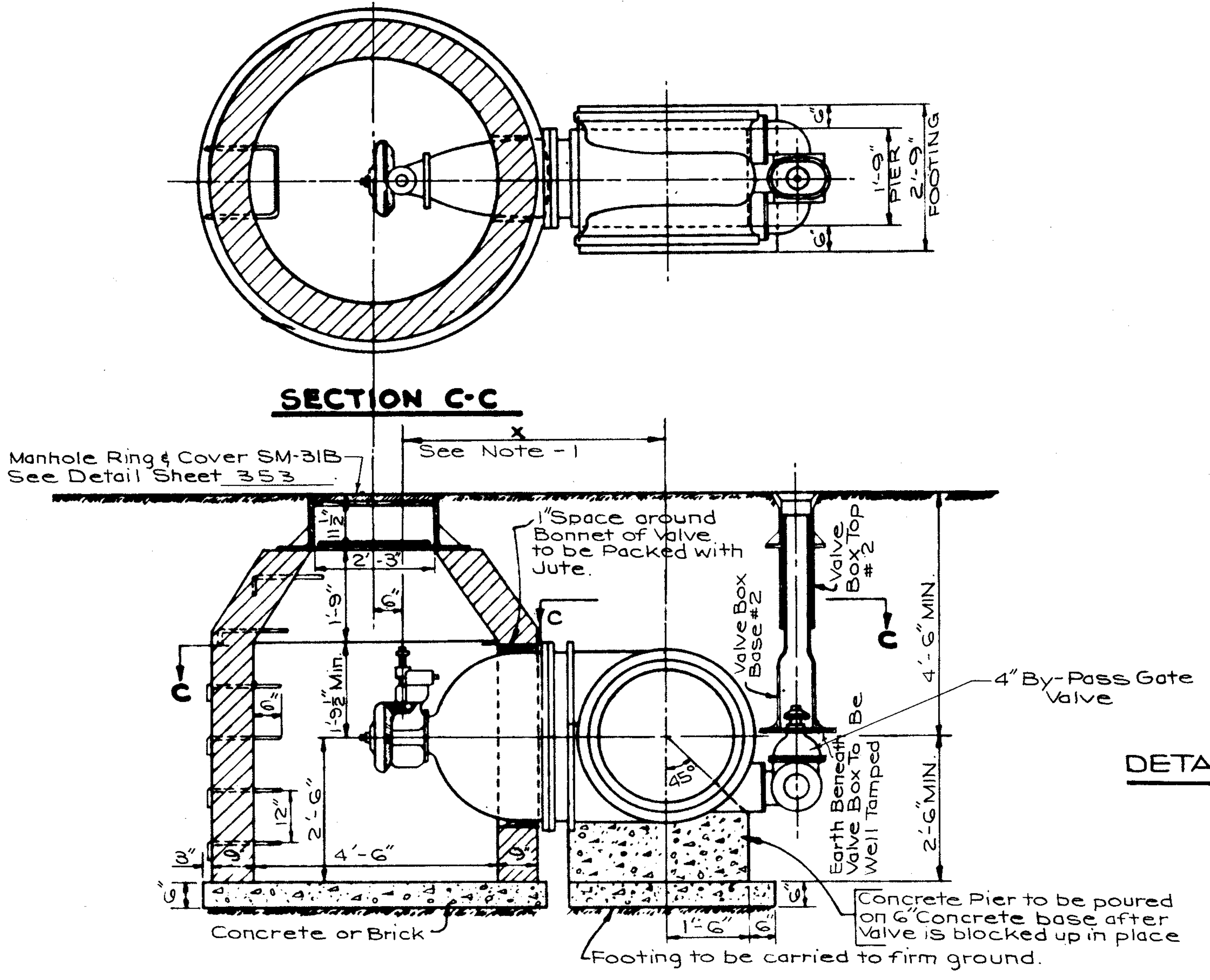


SECTION A-A



SECTION B - B

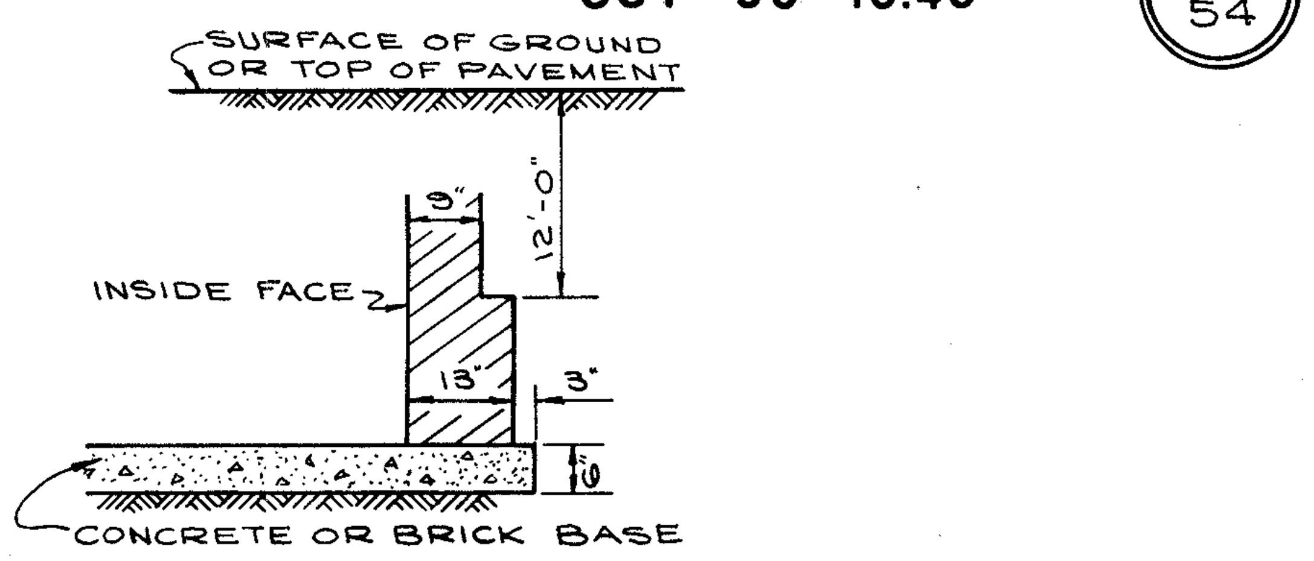
DETAIL
REACTION ANCHORAGE
TO BE USED WHERE REACTION BACKING IS REQUIRED FOR VERTICAL BENDS.
(Nº SCALE)



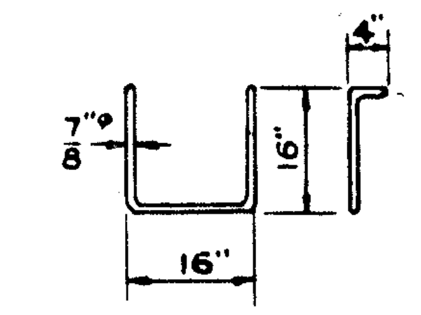
SECTION C-C

CHAMBER FOR 30" VALVE

PAYMENT SHALL INCLUDE M.H. FRAME & COVER & ALL INCIDENTALS TO COMPLETE THIS ITEM.



TYPICAL SECTION OF CHAMBER WALL WHEN DEPTH EXCEEDS 12'-0"

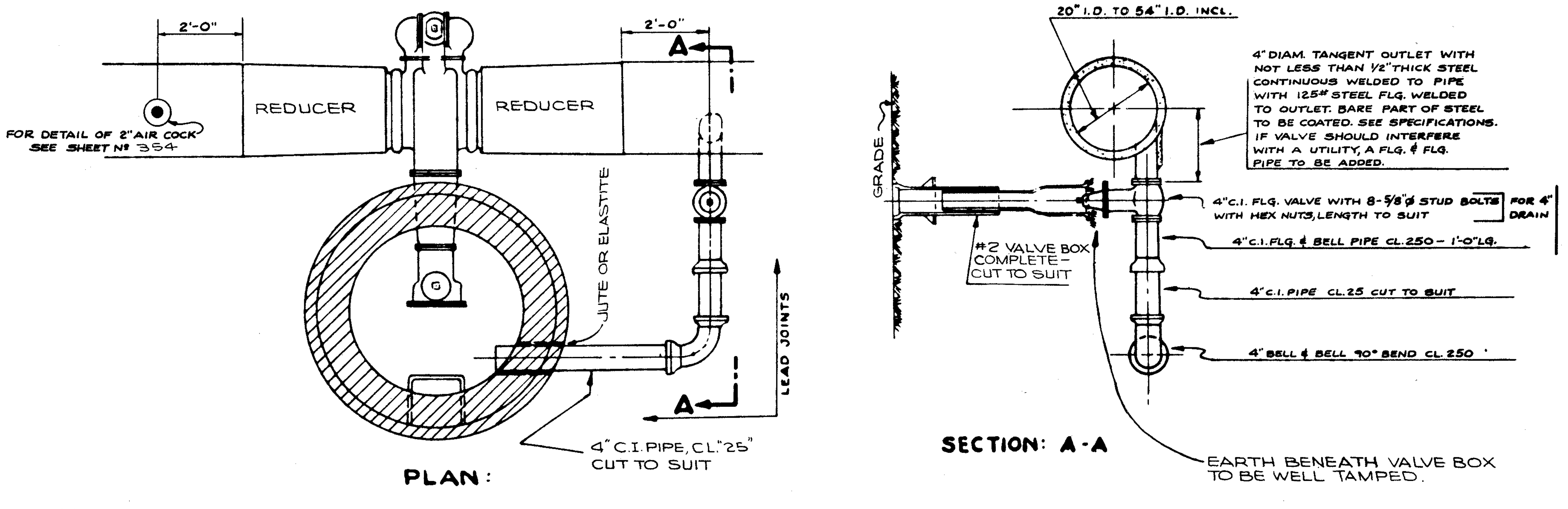


DETAIL OF LADDER RUNG-DUCTILE IRON

Nº Req'd. Depends on depth of Chamber

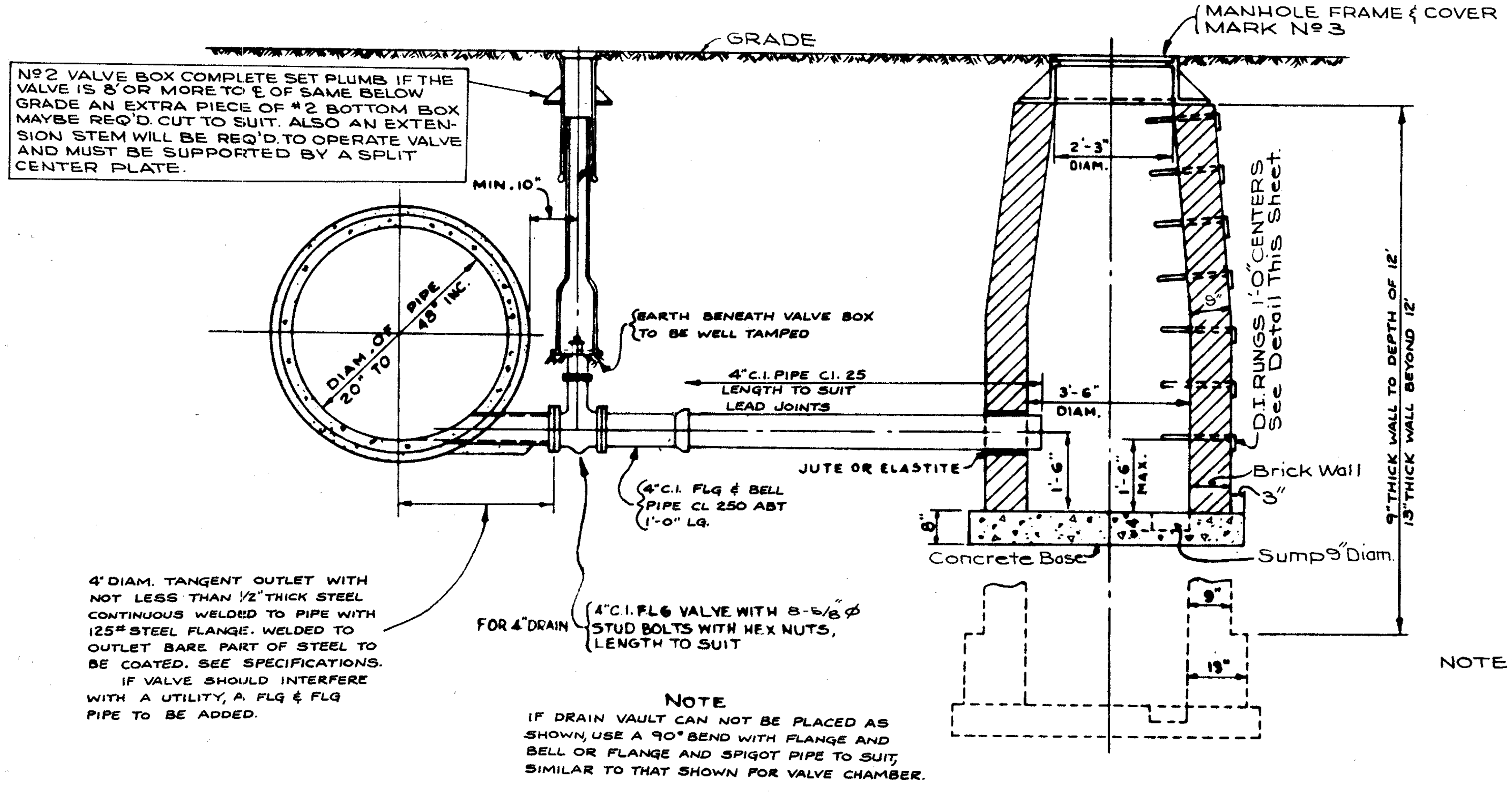
NOTE - 1.

FOR VALVES EQUIPPED WITH EXTENDED GREASE CASES, DIMENSION "X" WILL INCREASE. THE LOCATION OF VALVE STEM TO CENTER OF CHAMBER WILL REMAIN THE SAME AS SHOWN.



TYPICAL DETAIL SHOWING 4" DRAIN FROM WATER MAIN TO VALVE CHAMBER

SCALE: 1/2" = 1'-0"



NOTE
IF DRAIN VAULT CAN NOT BE PLACED AS SHOWN, USE A 90° BEND WITH FLANGE AND BELL OR FLANGE AND SPIGOT PIPE TO SUIT, SIMILAR TO THAT SHOWN FOR VALVE CHAMBER.

TYPICAL DETAIL OF 4" DRAIN AND VAULT

SCALE: 1/2" = 1 FT.

-NOTE-

FOR LOCATION OF 2" AIR COCKS AND 4" DRAINS SEE ALIGNMENT DRAWINGS

NOTE: PLASTER OUTSIDE OF BRICK MASONRY WITH NO LESS THAN 1/2" CEMENT MORTAR FOR WATER PROOF.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

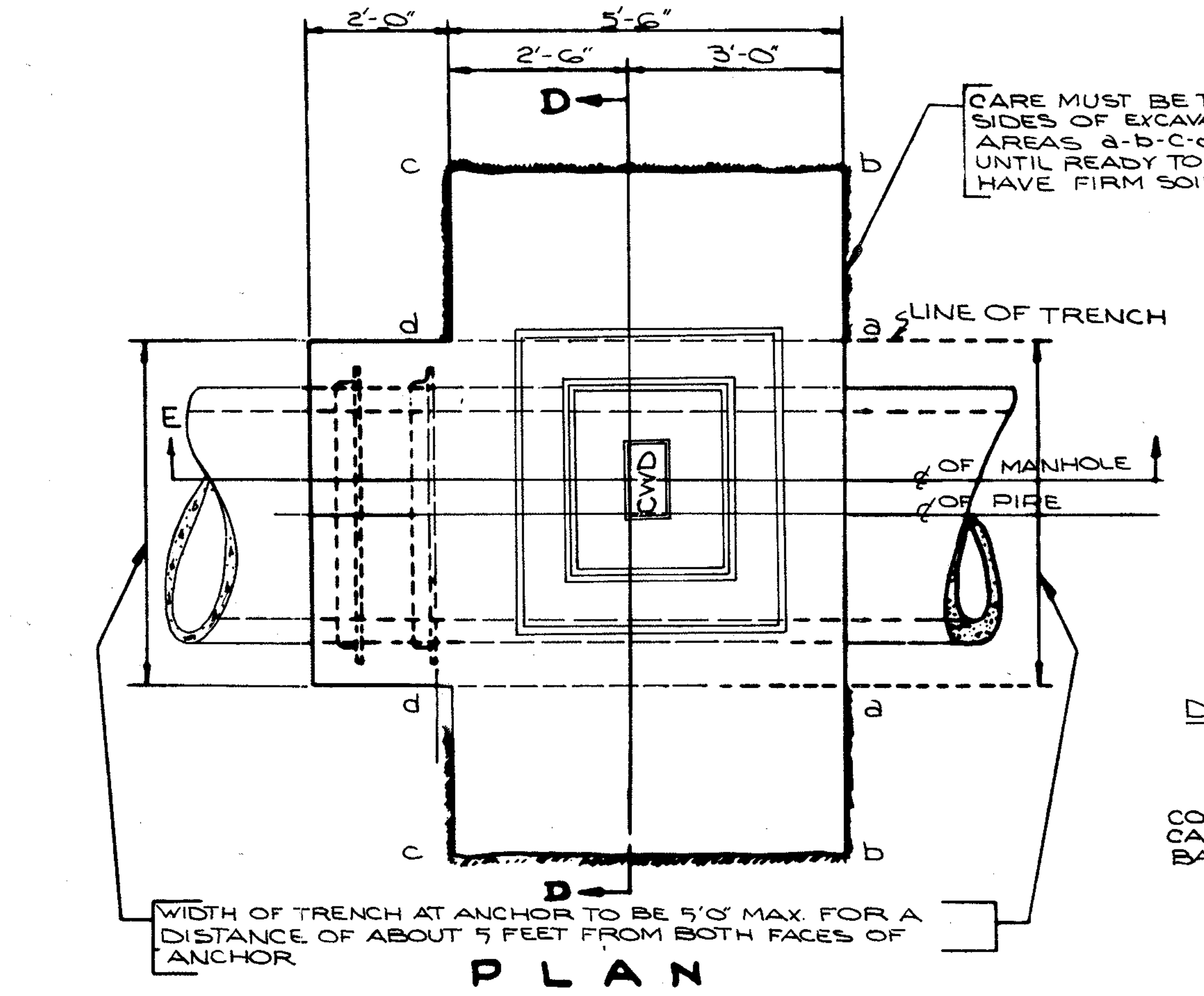
DRAWN______ SCALE______
CHECKED______ DATE______ No.______

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

352/713

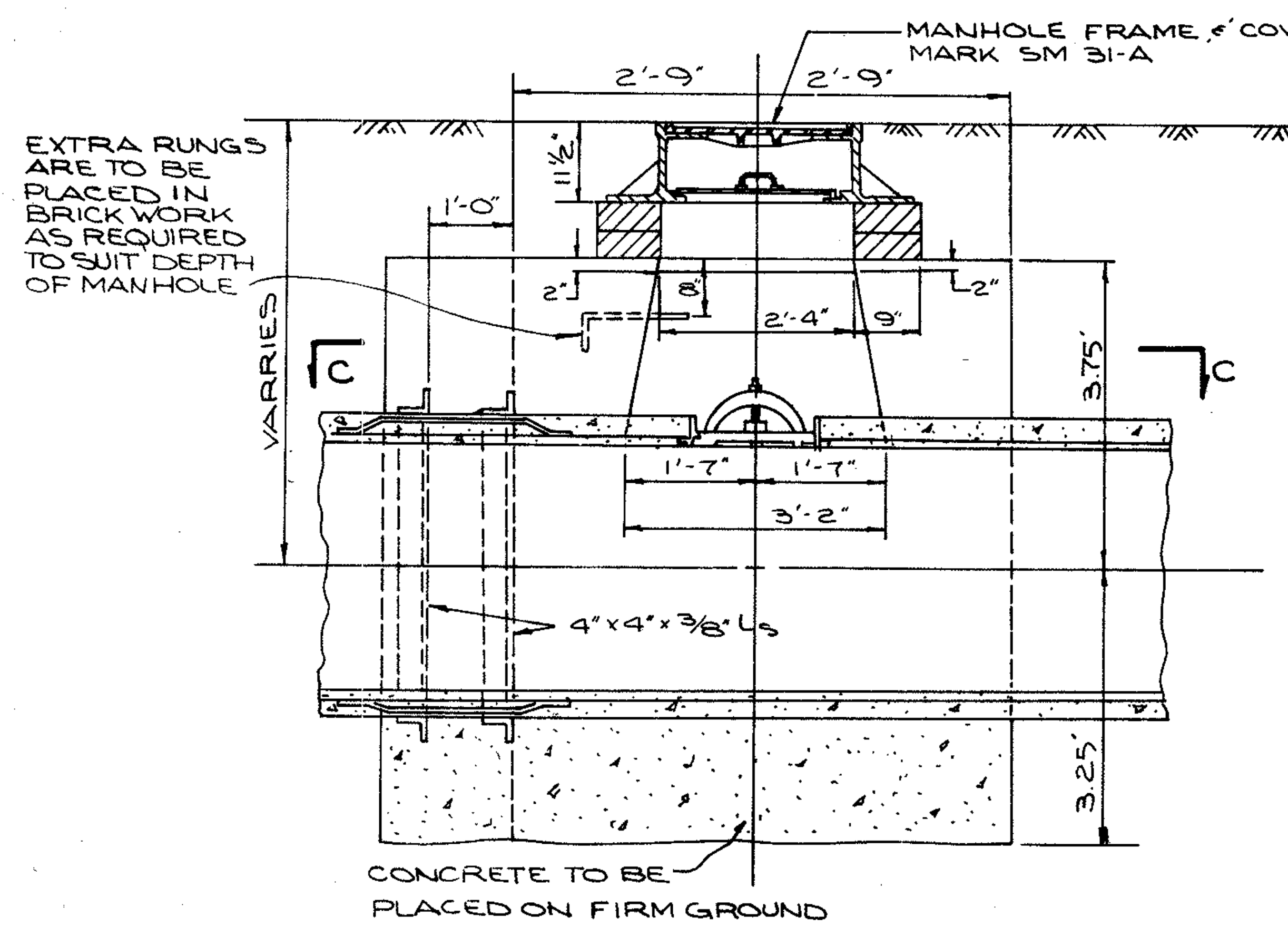
51/54



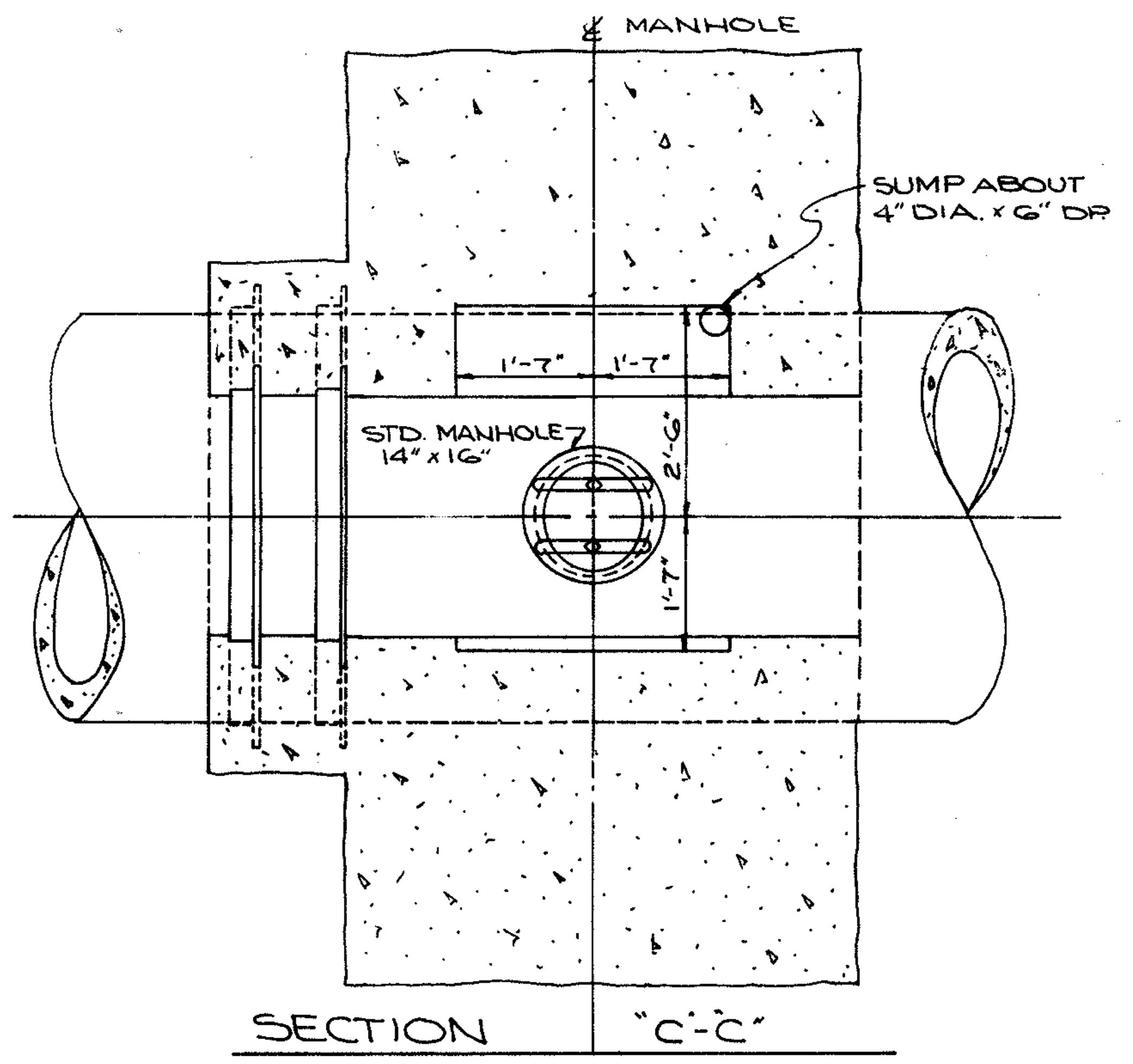
CARE MUST BE TAKEN TO PRESERVE SIDES OF EXCAVATION AT ANCHOR AREAS a-b-c-d SHALL NOT BE EXCAVATED UNTIL READY TO POUR CONCRETE SO AS TO HAVE FIRM SOIL FOR ANCHOR BEARING.

WIDTH OF TRENCH AT ANCHOR TO BE 5'0" MAX. FOR A DISTANCE OF ABOUT 5 FEET FROM BOTH FACES OF ANCHOR

P L A N

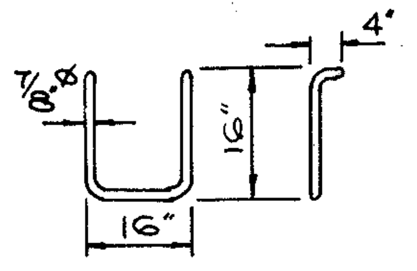


SECTION "E-E"

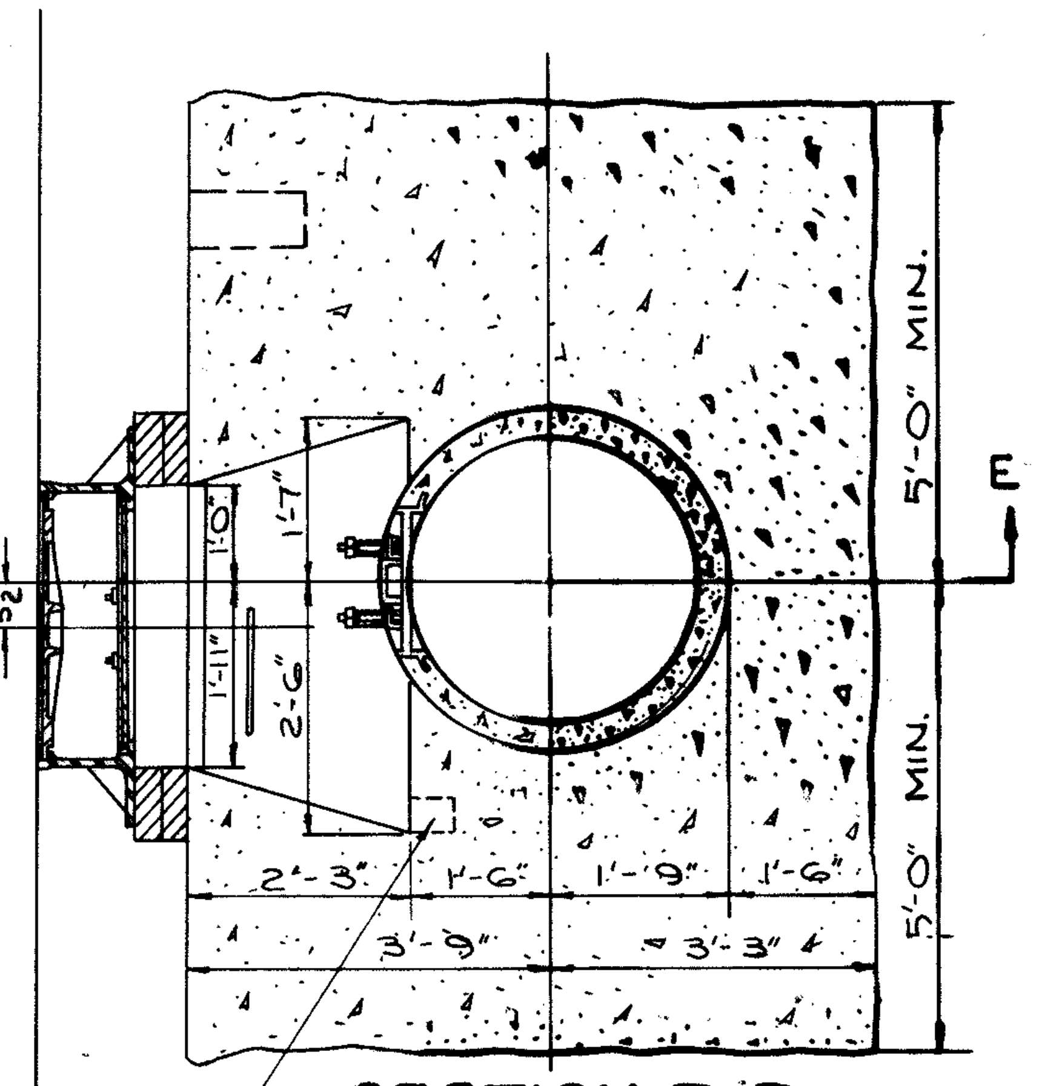


SECTION "C-C"

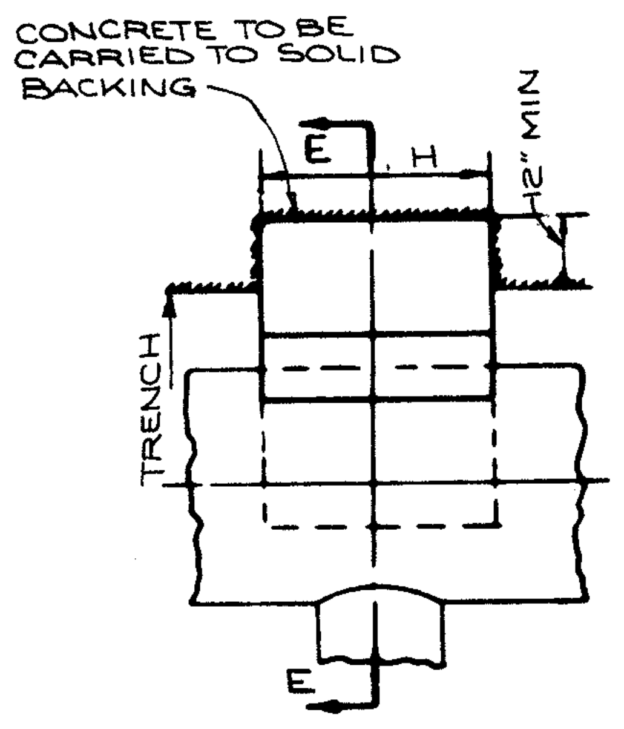
ACCESS MANHOLE & ANCHORAGE TYPE A



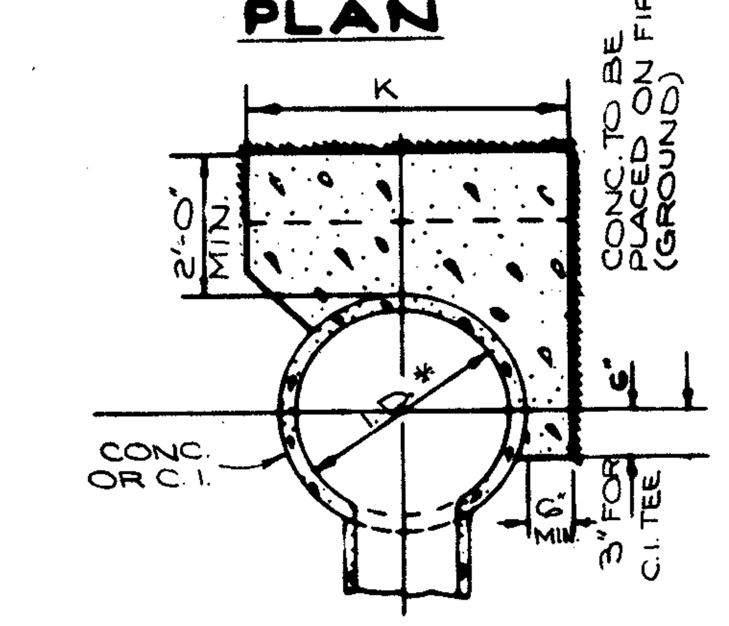
DUCTILE IRON LADDER RUNGS



SECTION D-D



PLAN



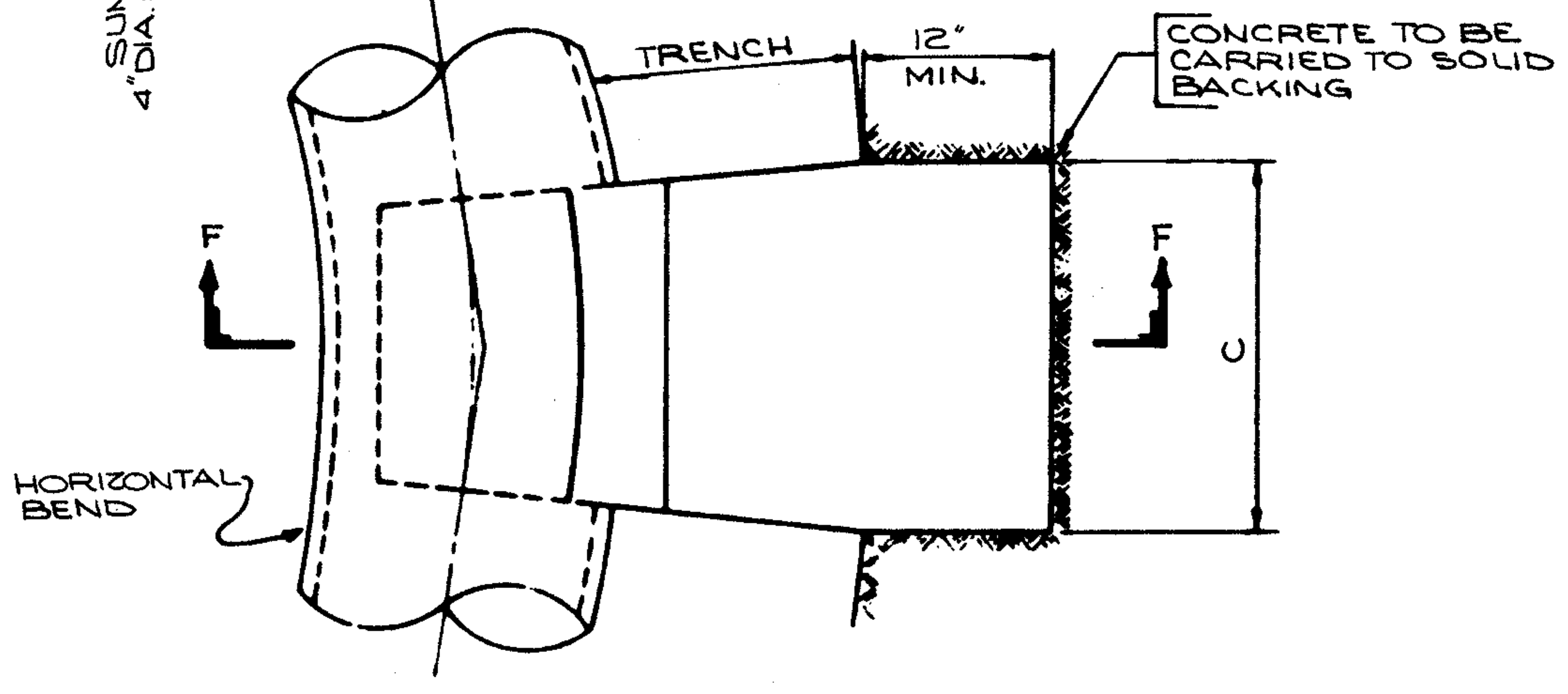
SECTION E-E

CONCRETE PIERS FOR TEES

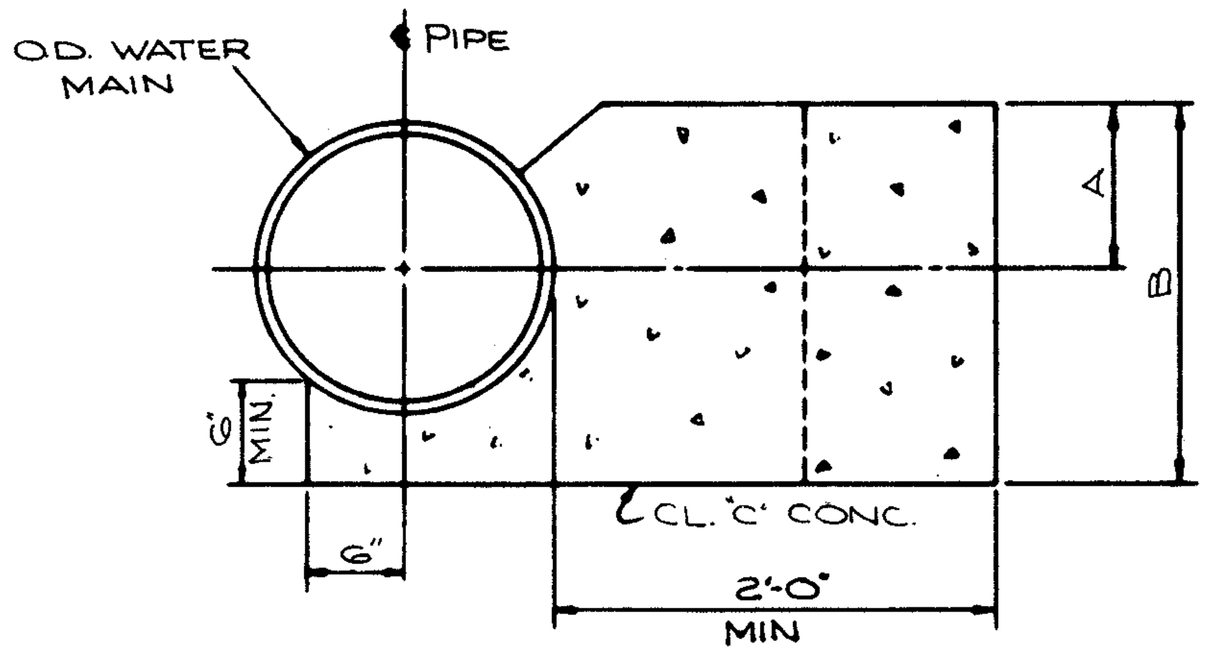
DIMENSIONS OF PIERS FOR TEES		
SIZE OF MAIN*	H	K
6"	2'-0"	2'-0"
8"	2'-6"	2'-6"

NOTE: FOR CONCRETE PIER ITEM PLUG EXIST. TEE, CROSS, OR BEND, WITH CLAMPS & CONC. PIER, USE DIMENSIONS SHOWN ABOVE FOR 8" MAIN

NOTE: MANHOLE FRAME & COVER, STEPS & INCIDENTALS SHALL BE INCLUDED IN UNIT BID PRICE FOR ITEM SPECIAL, ACCESS M.H., COMPLETE



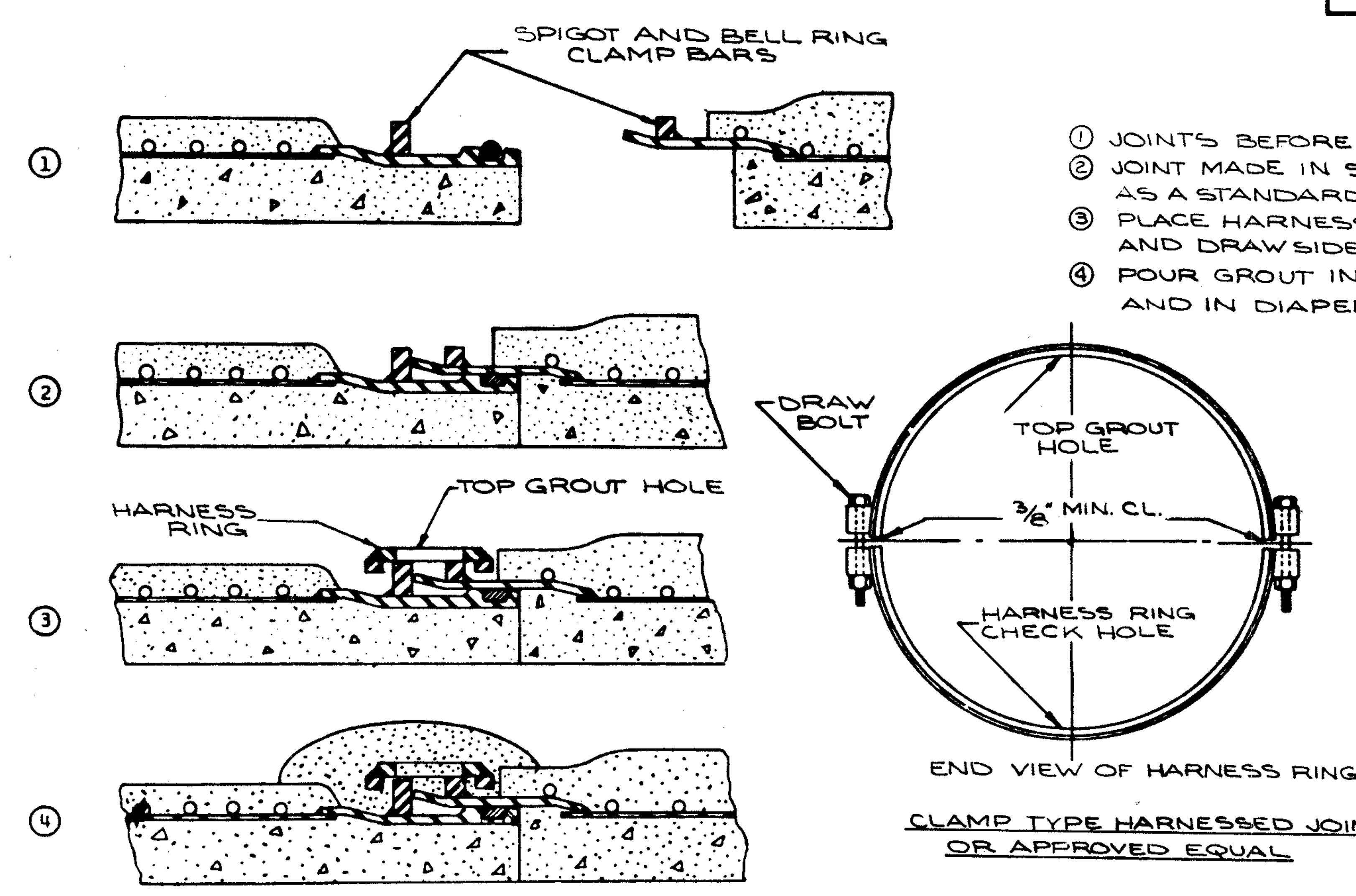
PLAN



SECTION F-F

CONCRETE PIER FOR BENDS

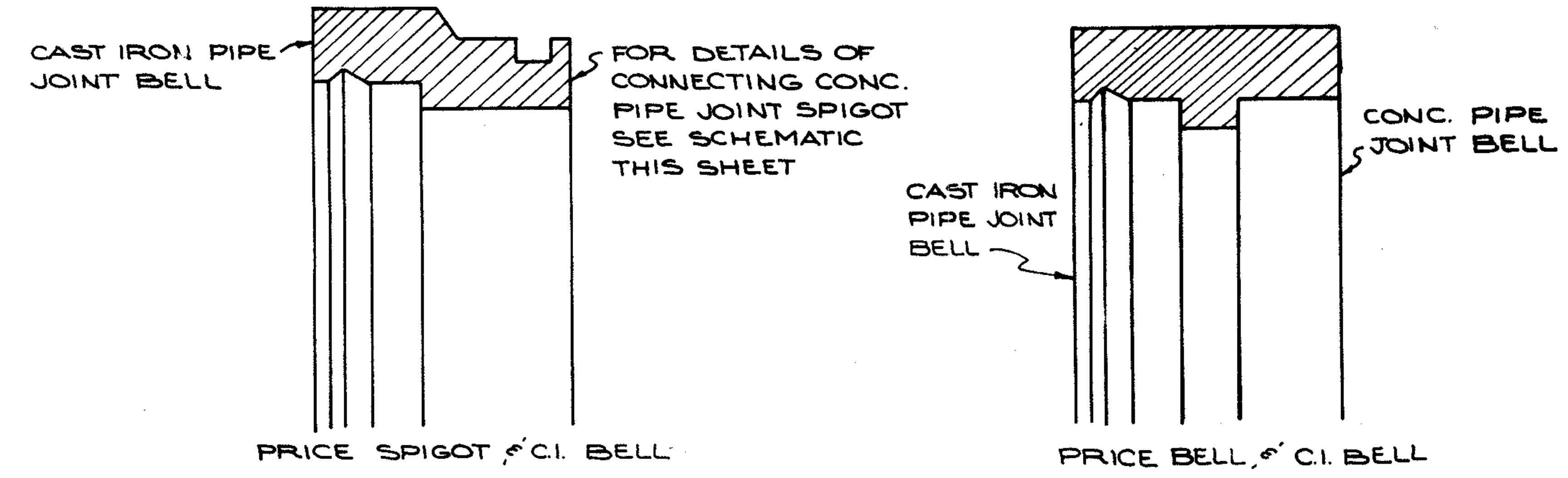
DIMENSIONS OF PIERS, FOR BENDS			
SIZE	A	B	C
6" & 8"	0'-4"	1'-2"	2'-0"
12"	1'-0"	2'-0"	2'-0"
30"	2'-0"	4'-0"	4'-0"
36"	2'-6"	5'-0"	4'-0"



① JOINTS BEFORE LAYING
② JOINT MADE IN SAME MANNER AS A STANDARD JOINT.
③ PLACE HARNESS RING AROUND JOINT AND DRAW SIDE BOLTS TIGHT
④ POUR GROUT IN TOP GROUT HOLE AND IN DIAPER TO FINISH JOINT.

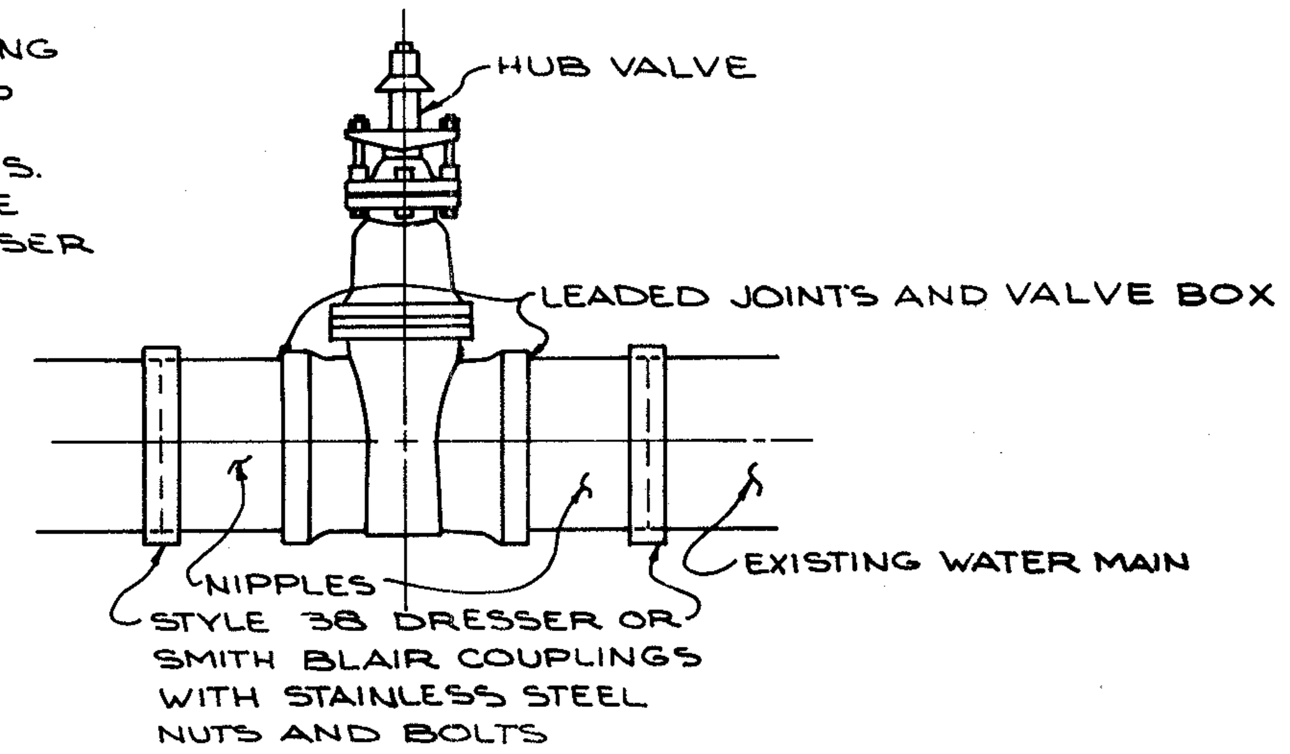
CLAMP TYPE HARNESSED JOINT OR APPROVED EQUAL

HARNESSED RING CLAMPED TYPE TIED JOINT



DETAIL OF ADAPTER FROM PRESTRESSED CONCRETE CYLINDER PIPE TO EXISTING CAST IRON PIPE

NOTE: BEFORE CUTTING EXISTING WATER MAIN THE TWO NIPPLES SHALL BE CONNECTED TO THE HUB VALVE USING LEAD JOINTS. FINAL CONNECTION SHALL BE MADE WITH STYLE 38 DRESSER OR SMITH BLAIR COUPLINGS.



DETAIL OF CUTTING IN VALVE

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

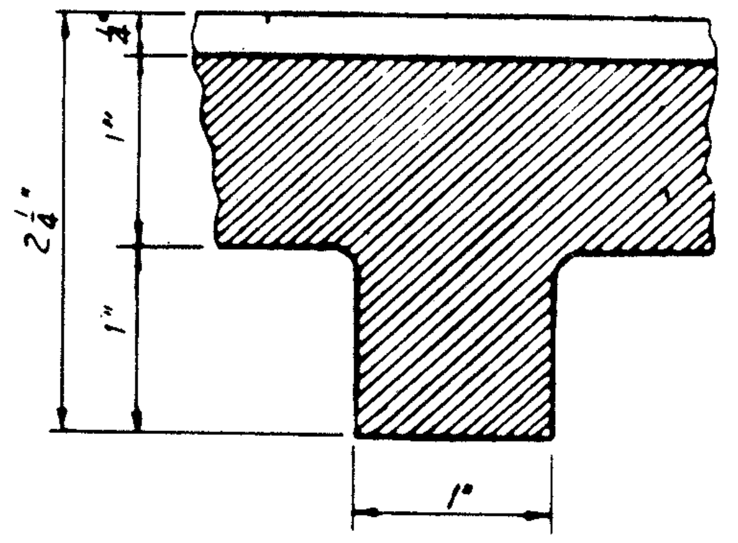
REVISIONS	1st HIGH SERVICE DISTRICT			
	DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND HEAT CLEVELAND, OHIO			
	SUBJECT WATERWORK DETAILS			
	DRAWN	SCALE		
	CHECKED	DATE		No.

FED. RD.	STATE	PROJECT	
2	OHIO		

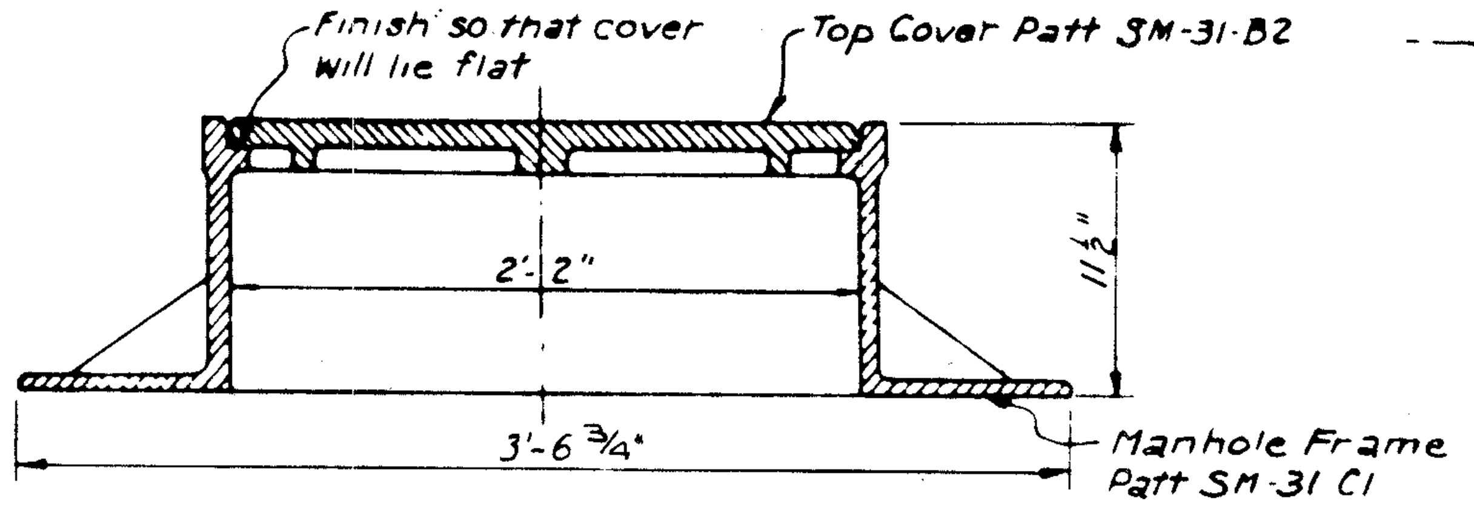
CUYAHOGA COUNTY
CUY - 90 - 10.40

353/713

52/54



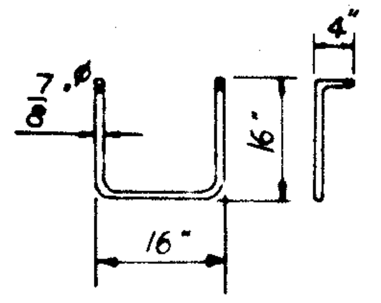
FULL SIZE SECTION B-B



MANHOLE FRAME AND COVER MARK NO. 3

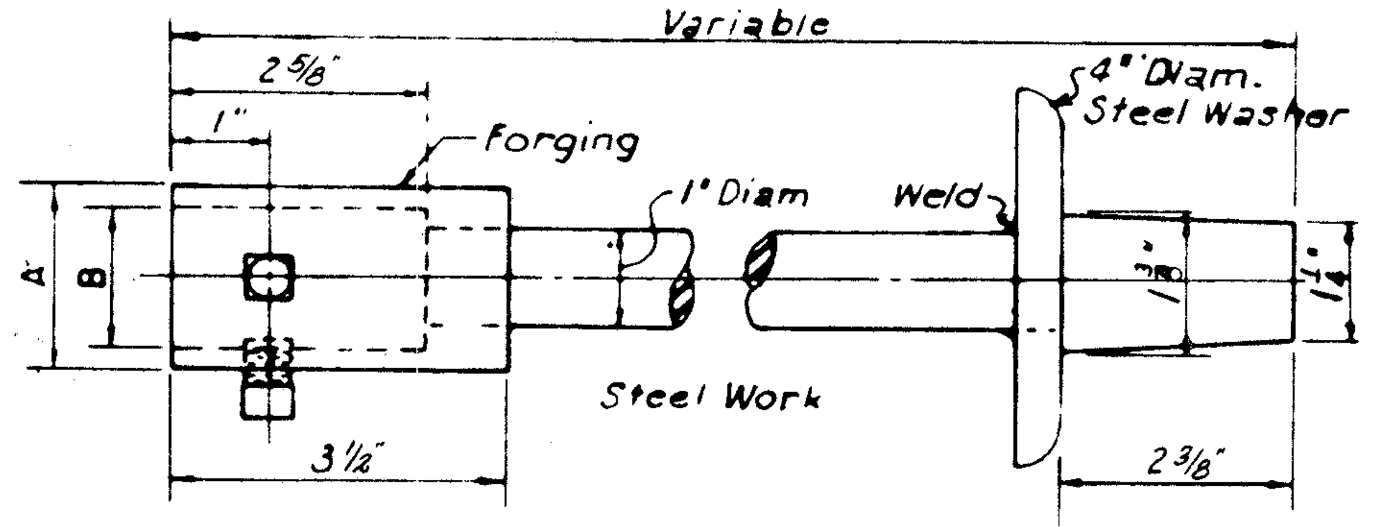
Consisting of {C.I. Manhole Frame Patt SM-31-C1
C.I. Top Cover Patt SM-31-B2
(Dimensions not given are the same as those shown for Manhole Frame Patt Mark SM-31-B1)
Approximate Weight = 602#

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

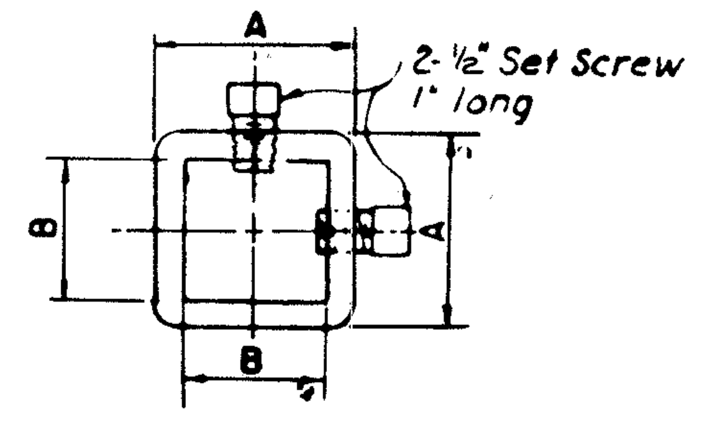


DETAIL OF MANHOLE STEP (D.I.)

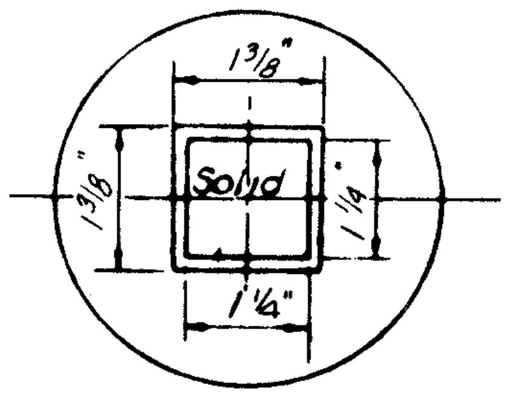
Number required depends on the depth of vault



DETAIL OF VALVE EXTENSION STEM



BOTTOM

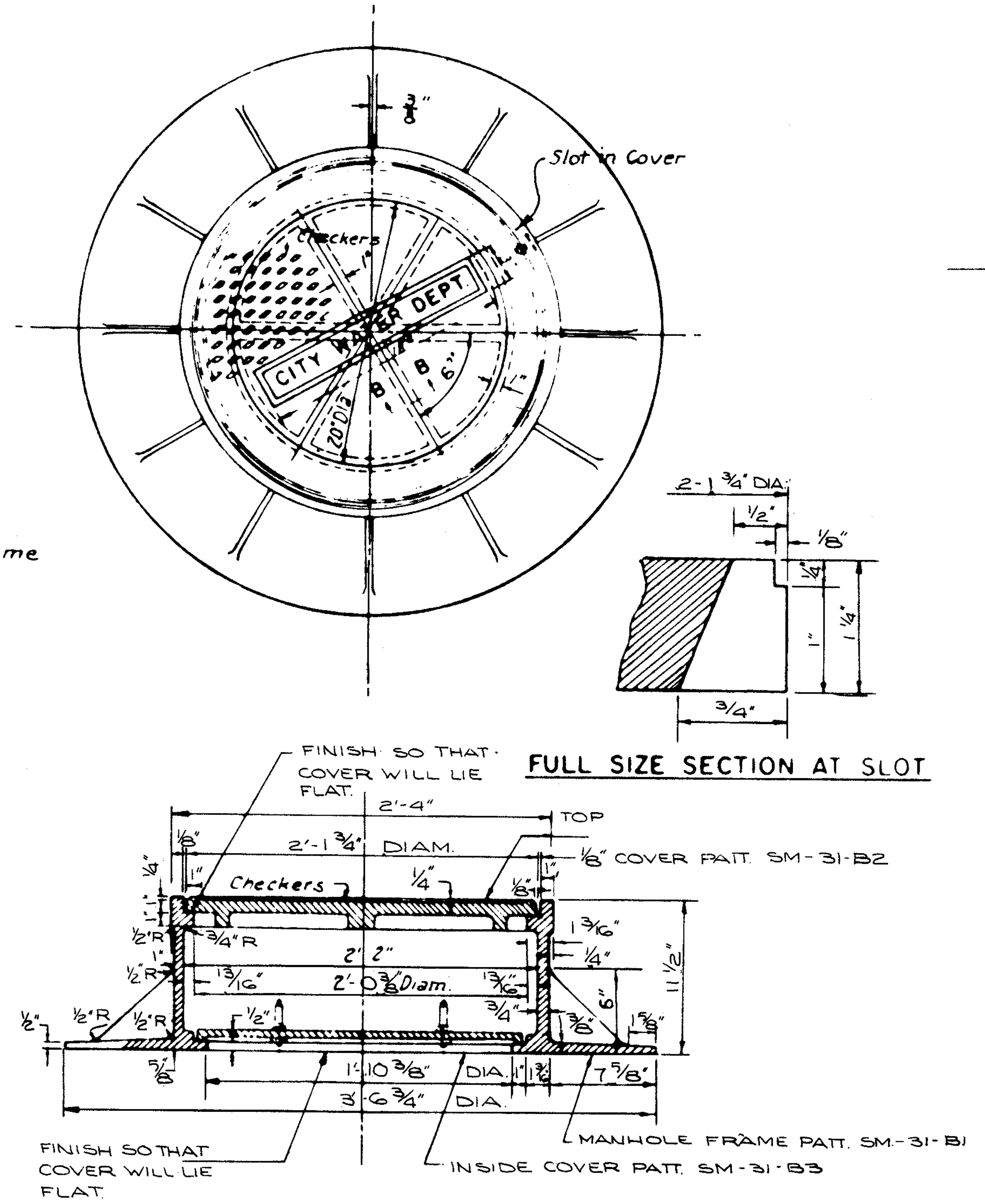


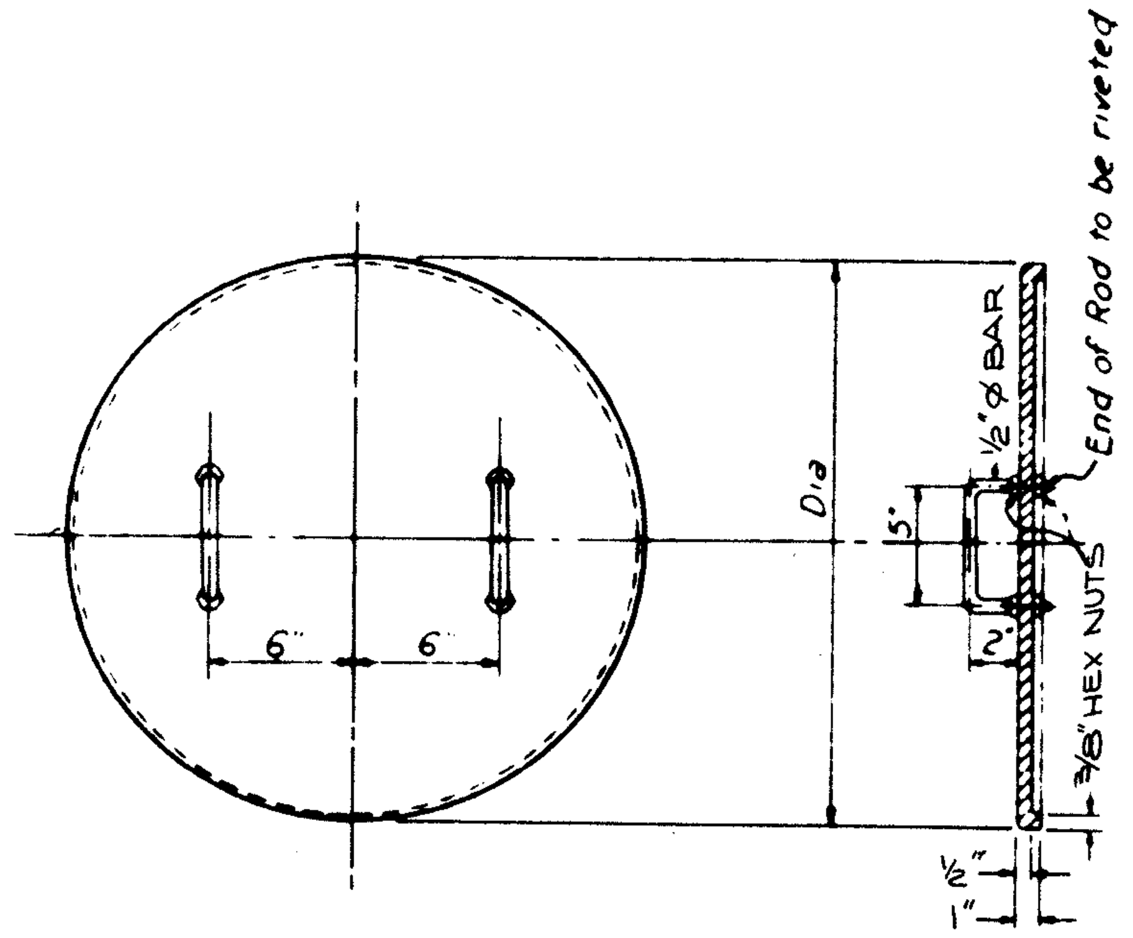
TOP

Note: Valve Nuts to be Countersunk 1/8" to receive Set Screws.

Scale. 6" = 1'-0"

VALVE SIZE	A	B
2" and smaller	2"	1 1/2"
4" to 20"	2 1/2"	2"



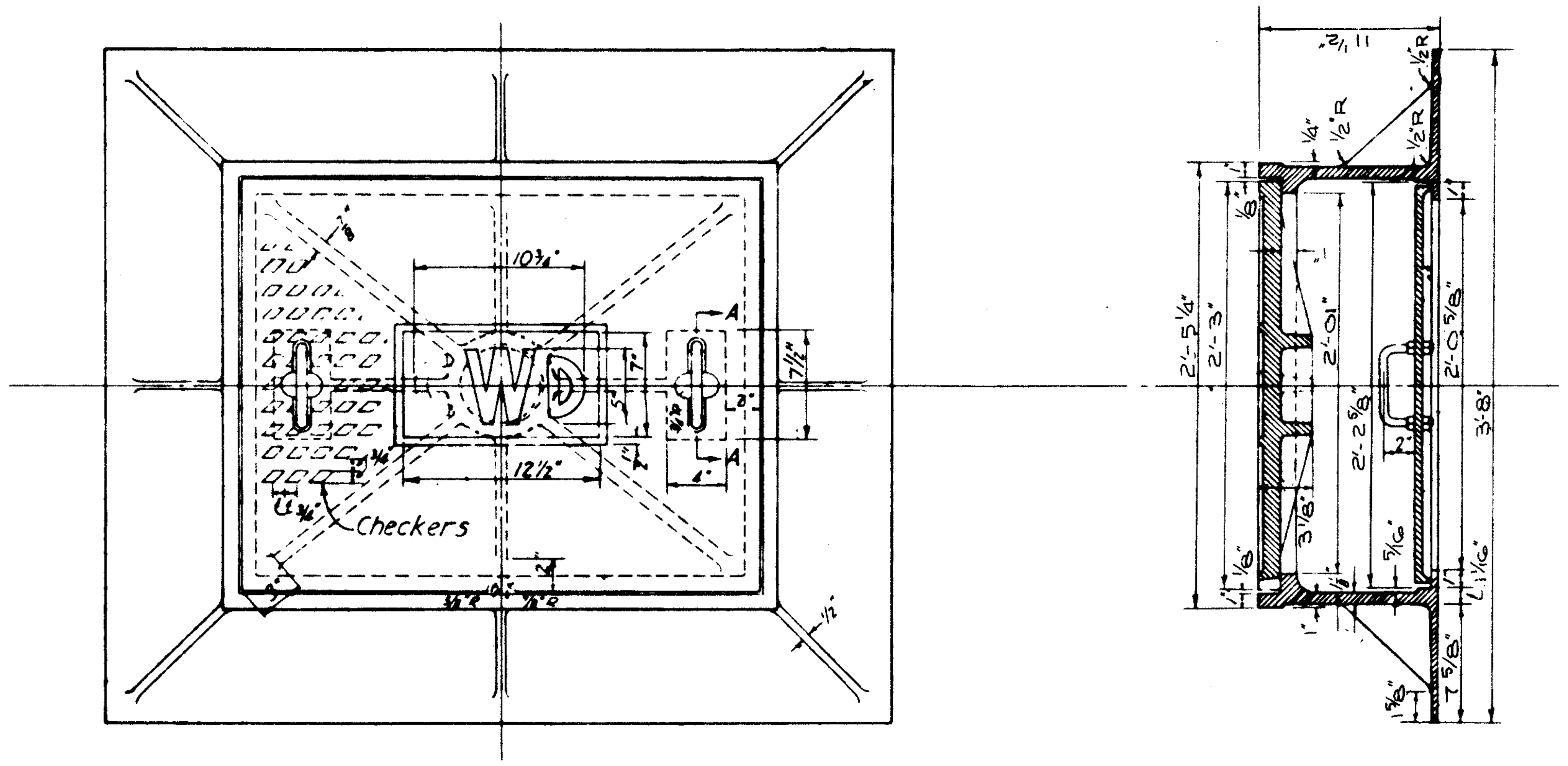


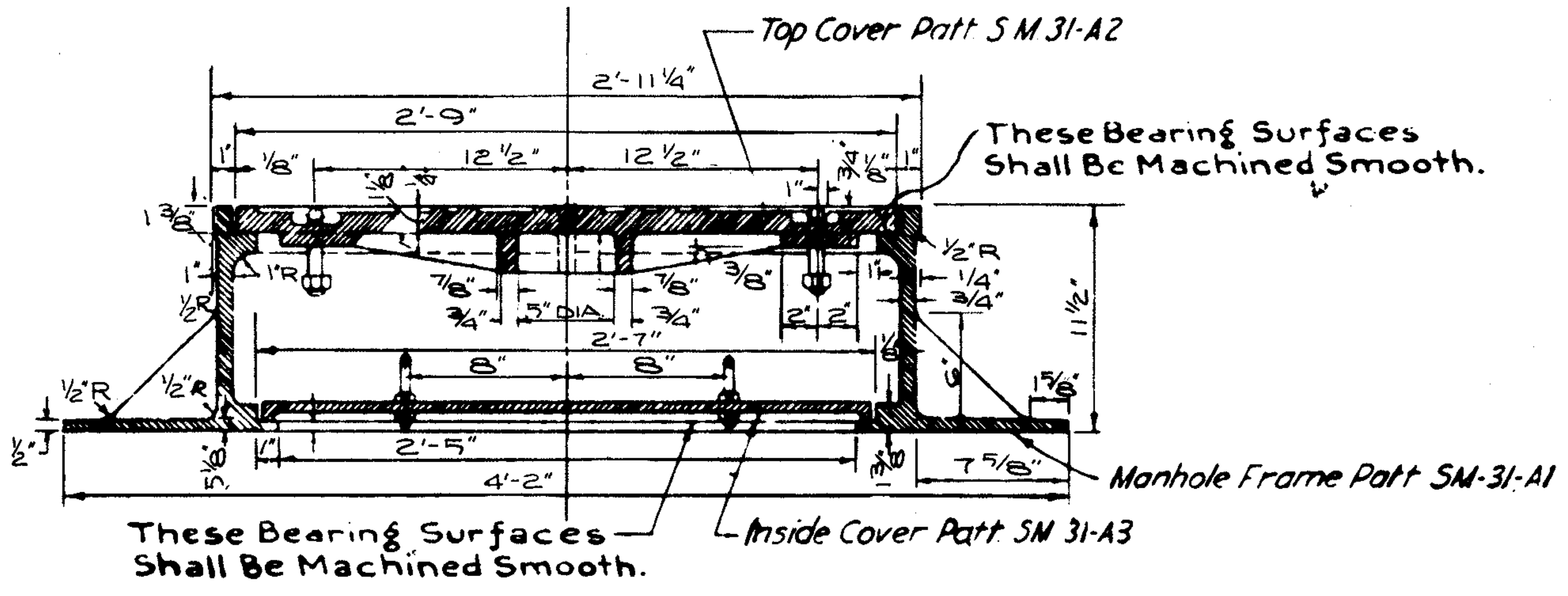
INSIDE COVER (C.I.) PATT. SM-31-B3

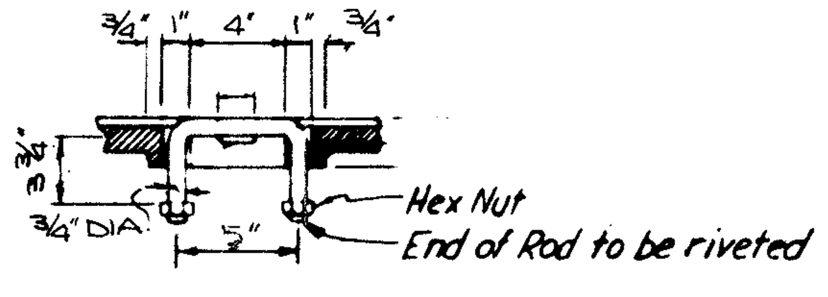
MANHOLE FRAME AND COVERS MARK SM-31B

Consisting of {CI Manhole Frame Patt SM-31-B1
CI Top Cover Patt SM-31-B2
CI Inside Cover Patt SM-1-B3
Approximate Weight = 766#

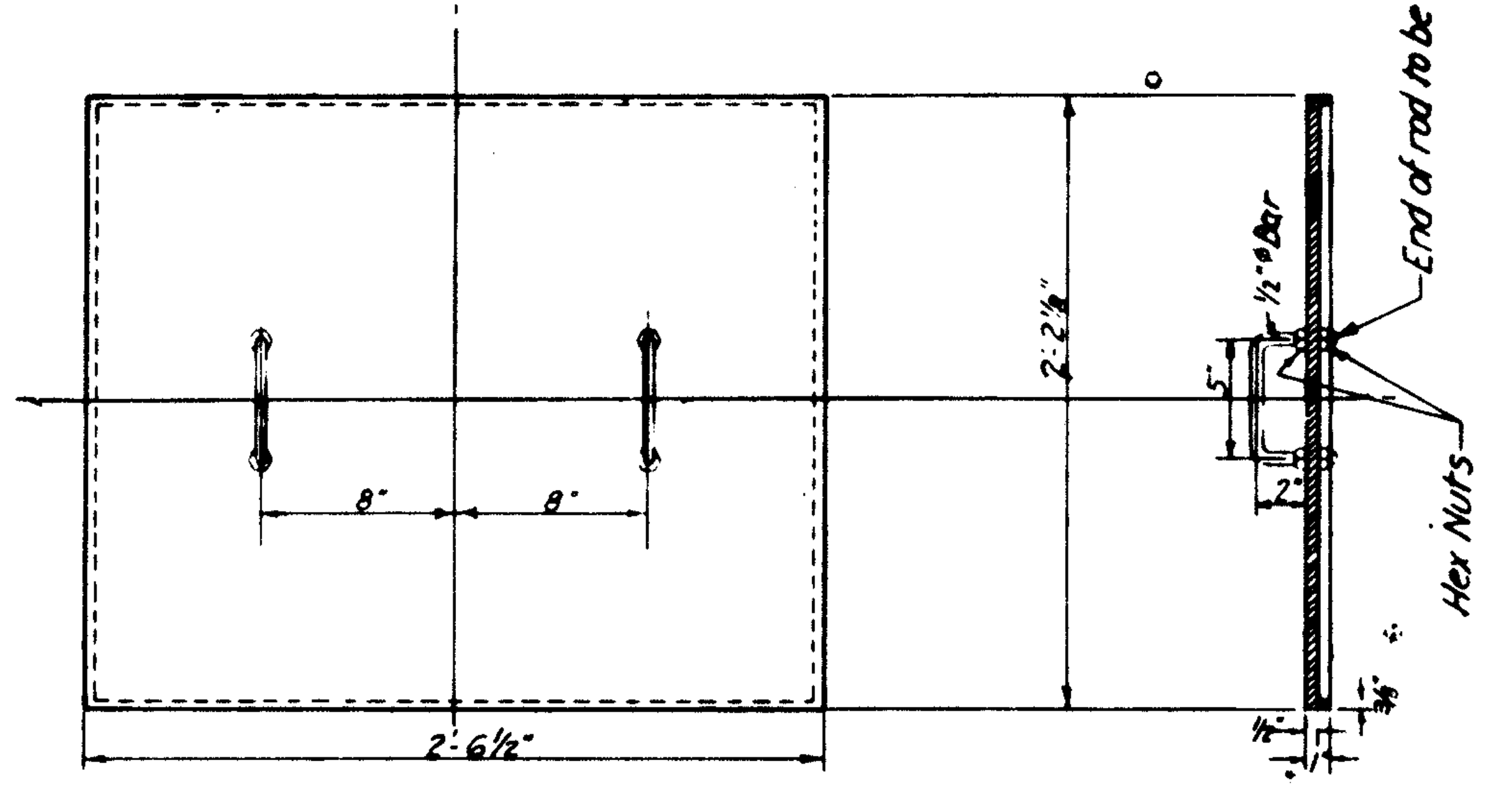
Scale : 1 1/2" = 1'-0"







SECTION A-A



INSIDE COVER (C.I.) PATT. SM-31-A3

MANHOLE FRAME AND COVERS MARK SM-31A

Consisting of {C.I. Manhole Frame Patt. SM-31-A1
C.I. Top Cover Patt. SM-31-A2
C.I. Inside Cover Patt. SM-31-A3

NOTE. MANHOLE FRAME & COVER, STEPS & INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM SPECIAL, IN WHICH IT IS A PART.

APPROVED JANUARY-4-1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

DRAWN
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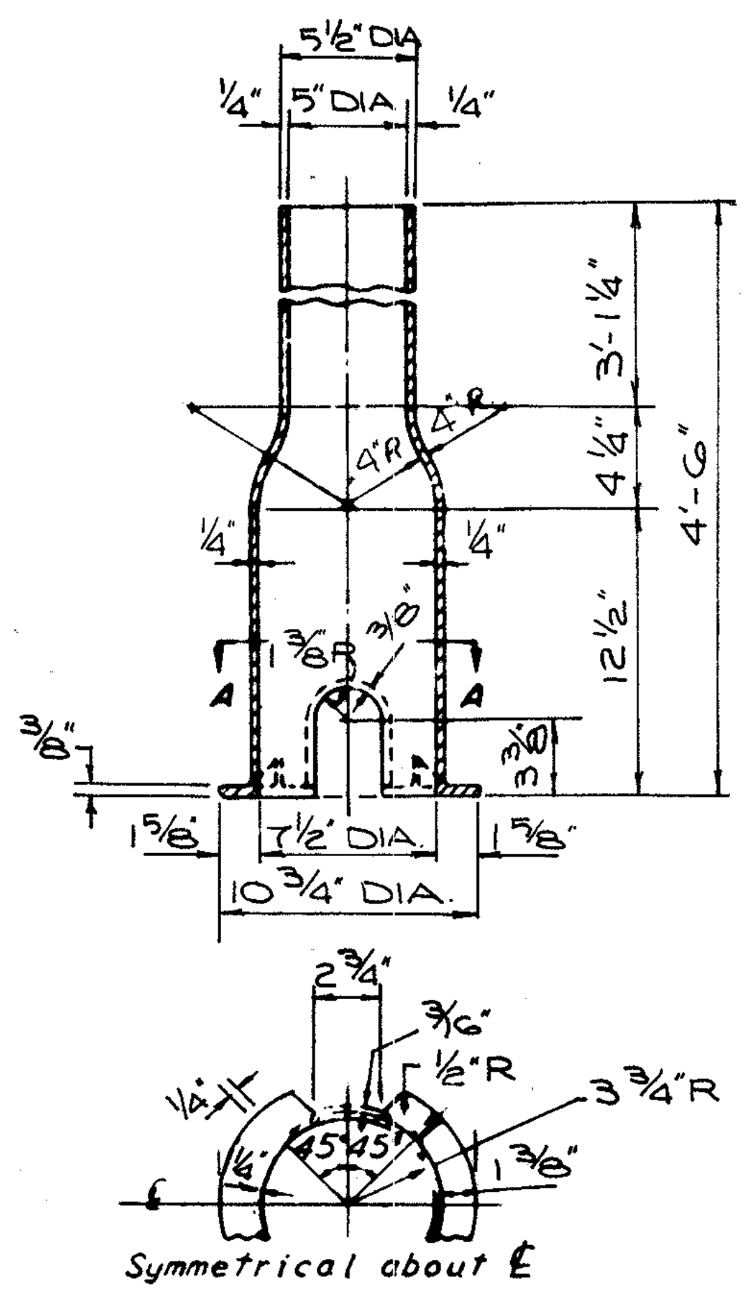
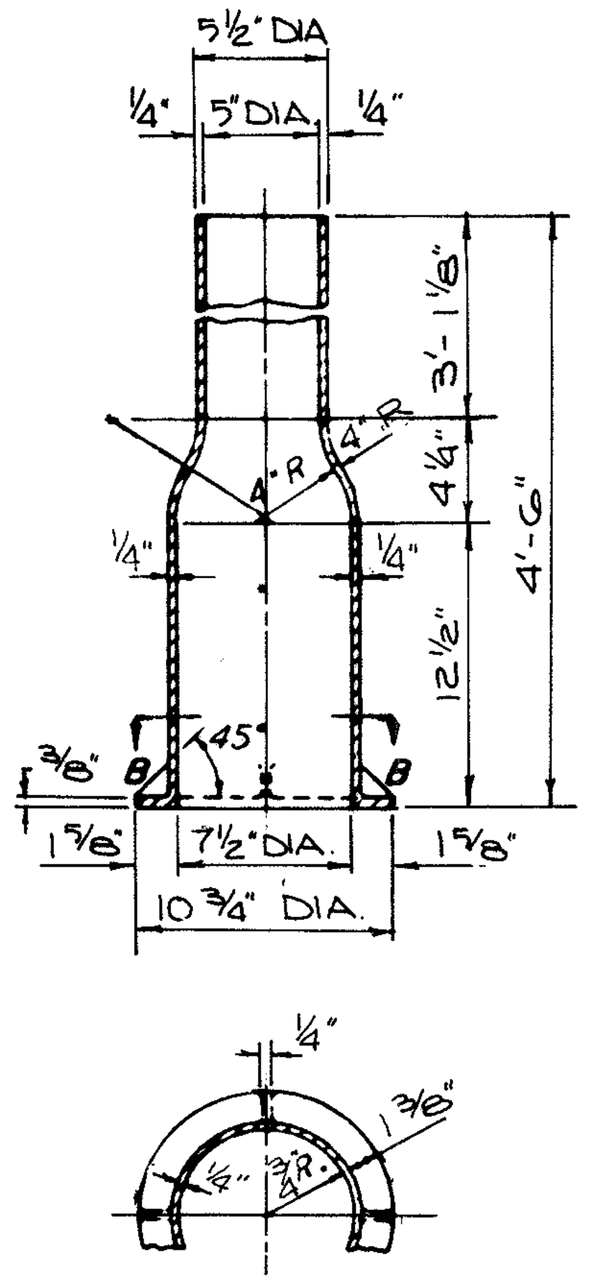
CHECKED
DATE
No.

FED. RD.	STATE	PROJECT	
7	OHIO		

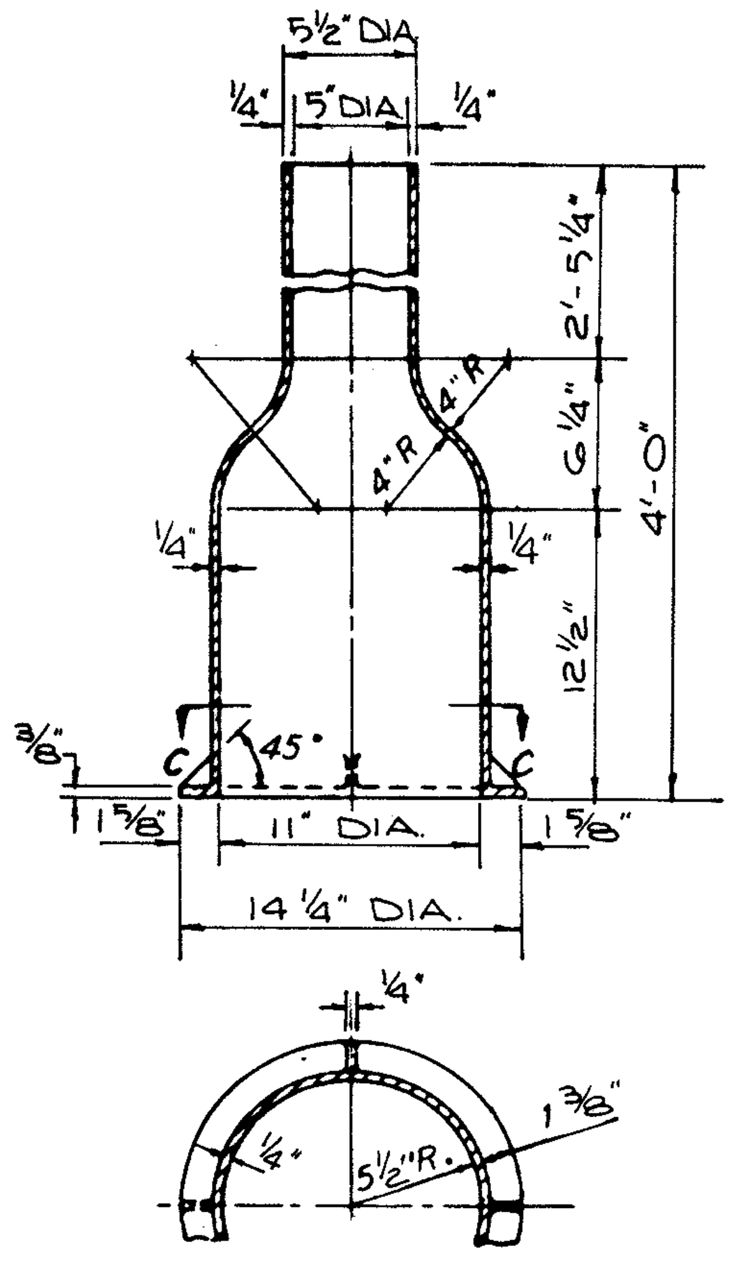
CUYAHOGA COUNTY
CUY - 90 - 10.40



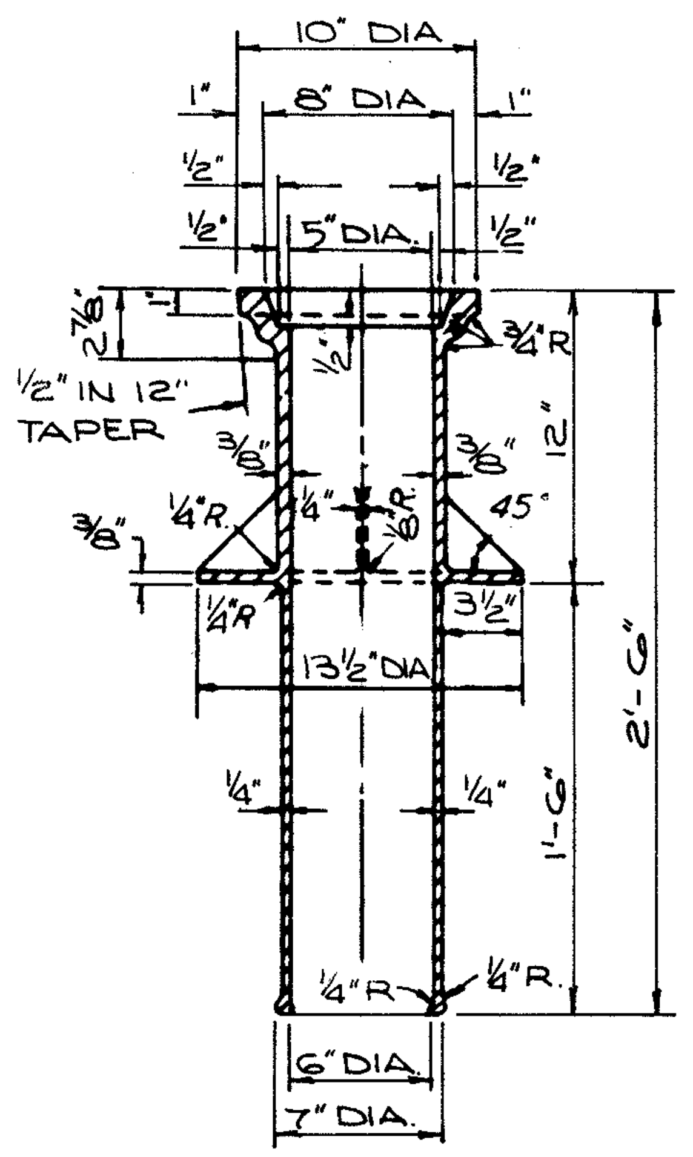
SECTION A-A
Base No. 1 for 1½" and 2" Valves
Est. Wt. 69#



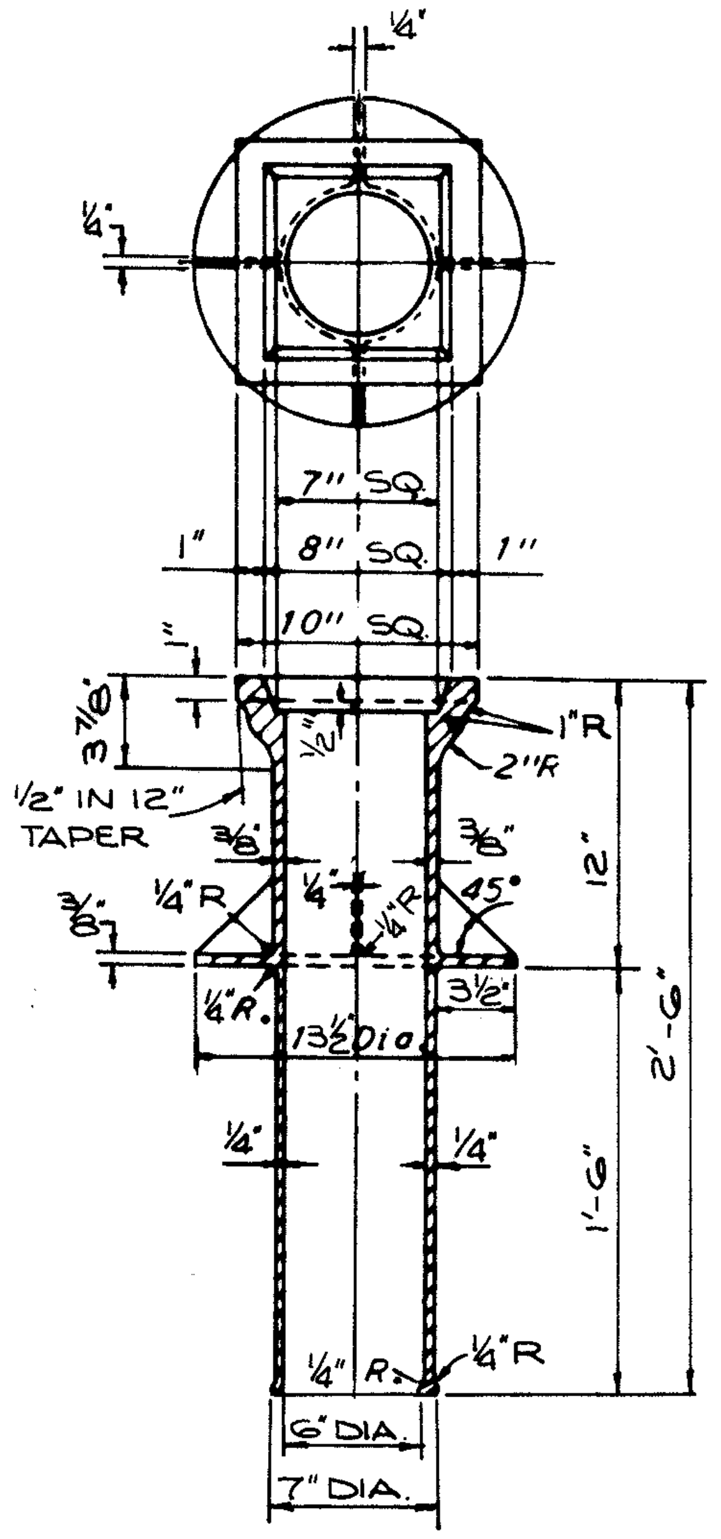
SECTION B-B
Base No. 2 and 3 for 3", 4", 6" and 8" Valves
Est. Wt. 71#



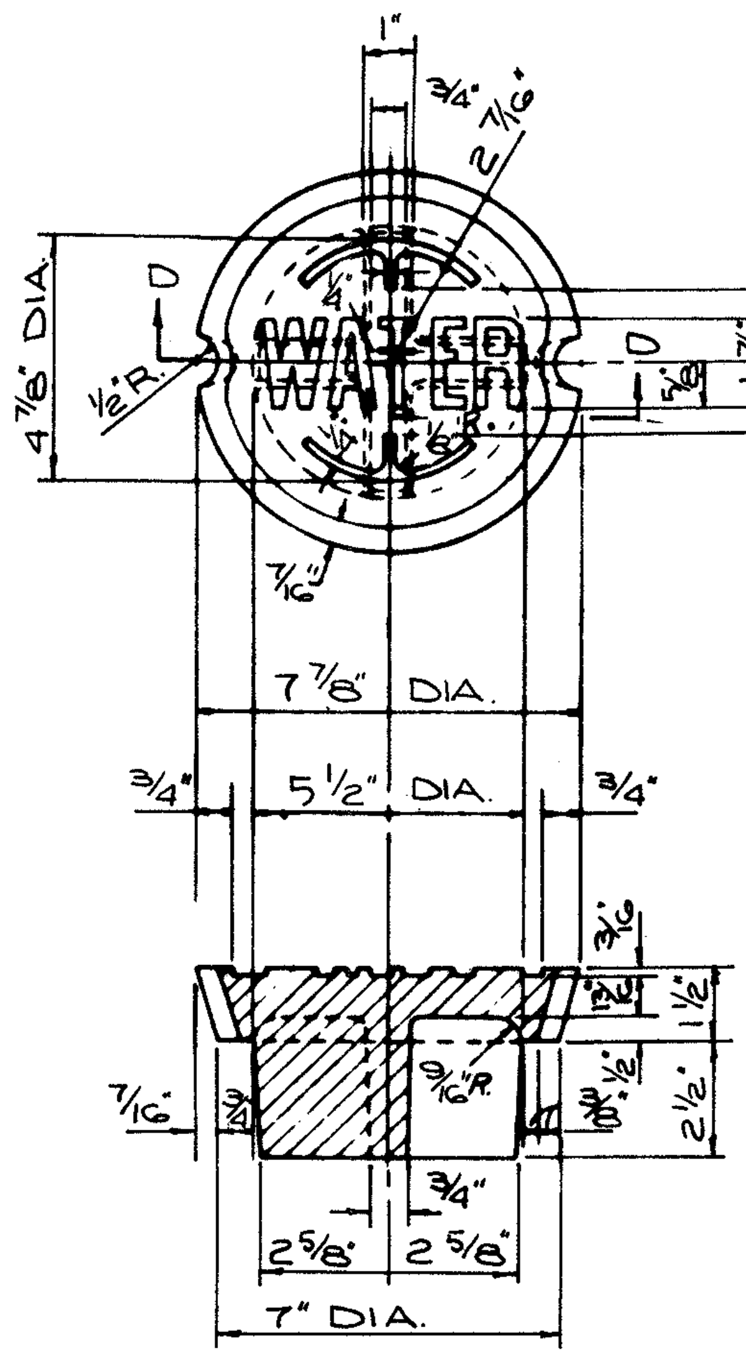
SECTION C-C
Base No. 4 for 10", 12" and 16" Valves
Est. Wt. 79#



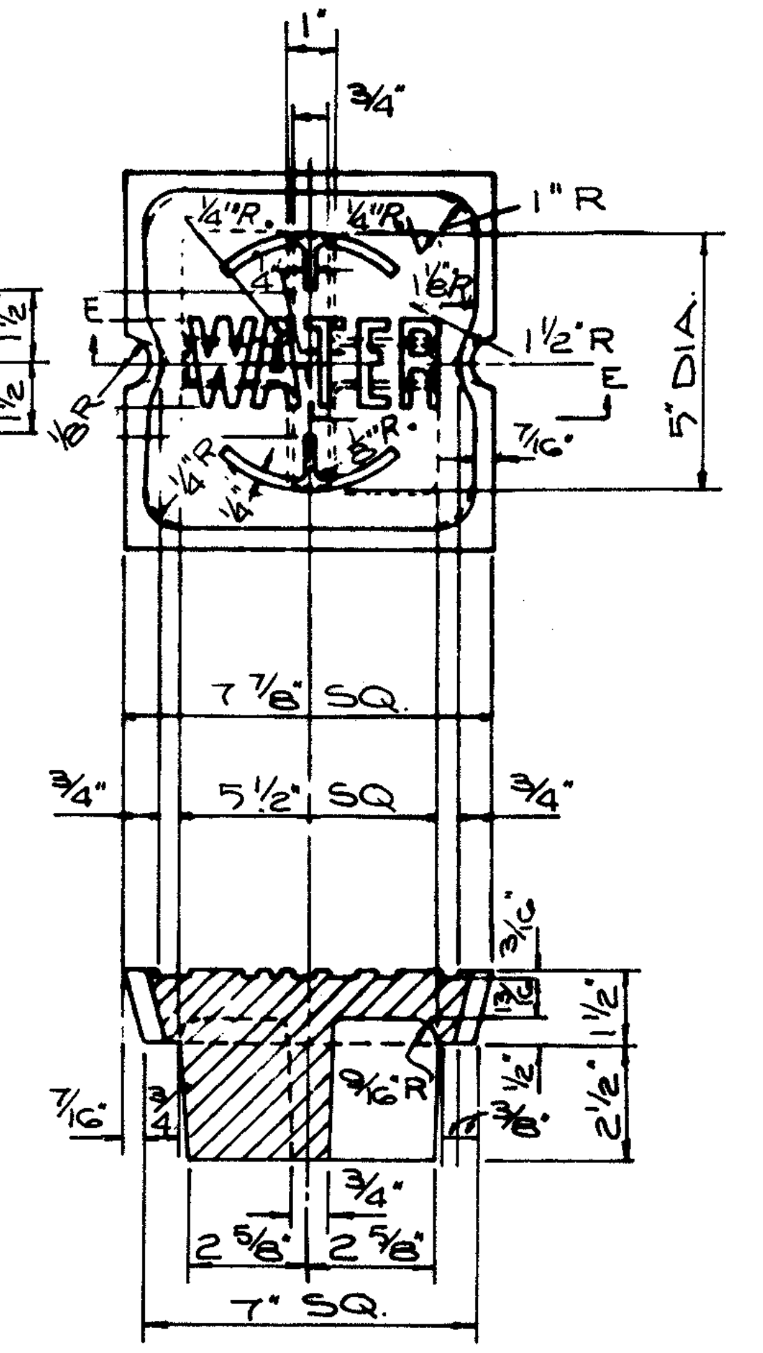
SECTION OF TOP WITH ROUND HEAD NO. 1 AND 2
Est. Wt. 73#



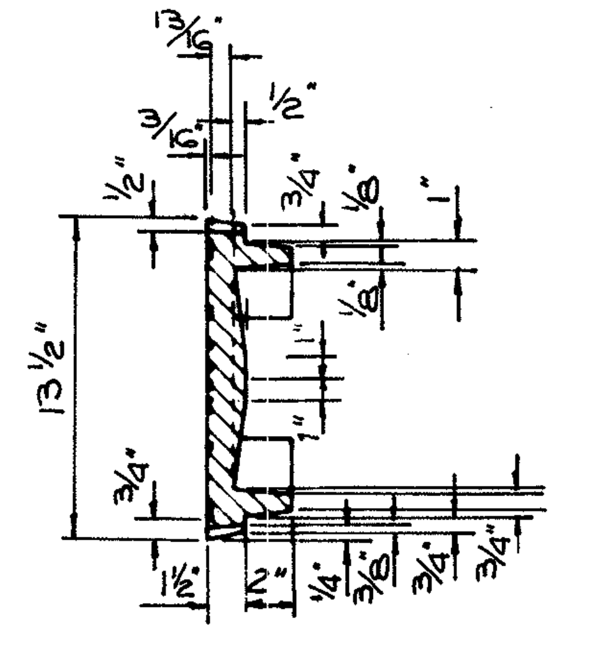
SECTION OF TOP WITH SQUARE HEAD NO. 3 AND 4
Est. Wt. 85#



SECTION D-D
Detail of round cover for No. 1 and 2 top
Est. Wt. 20#

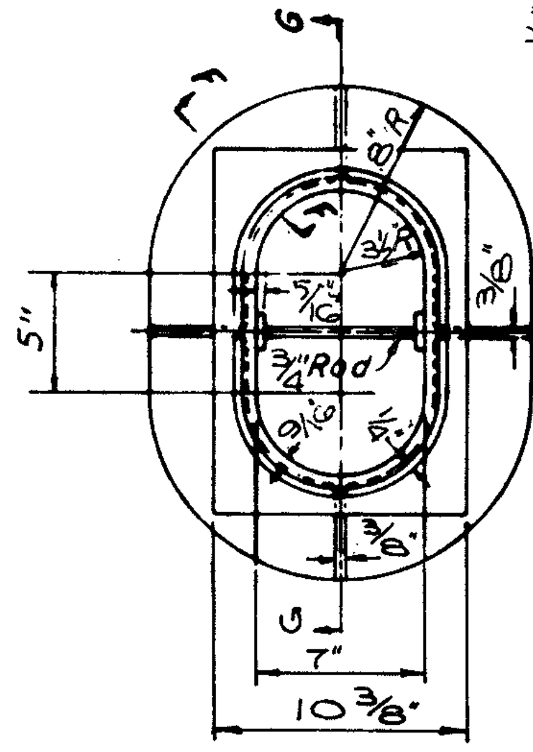


SECTION E-E
Detail of square cover for No. 3 and 4 top
Est. Wt. 23#

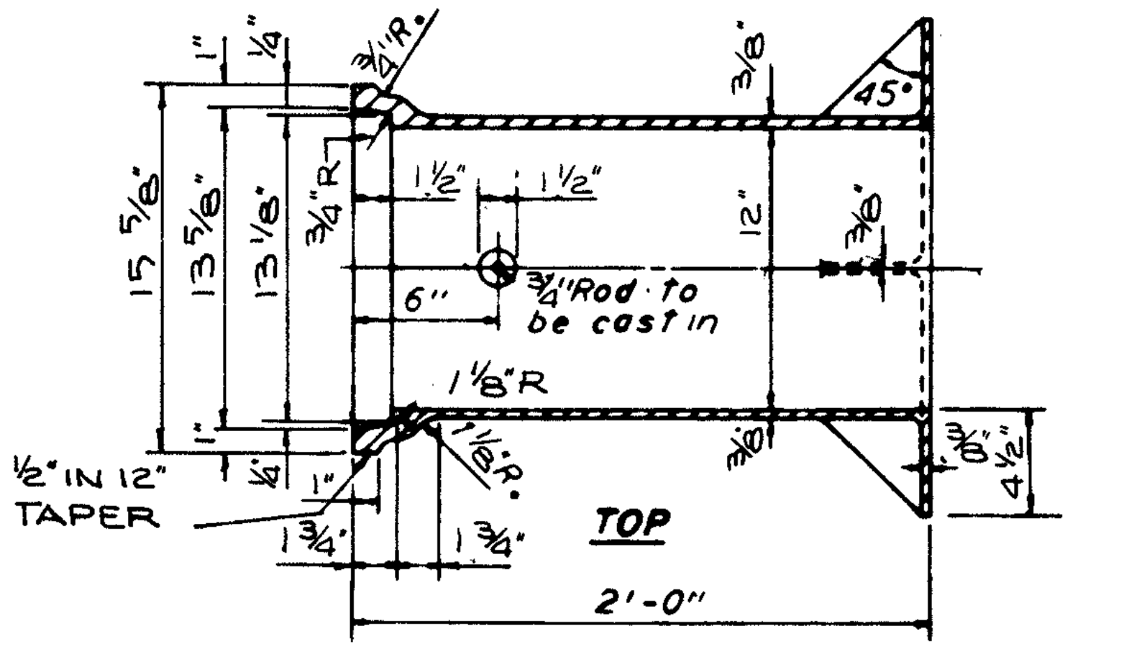


SECTION K-K
Est. Wt. 37#

SECTION F-F

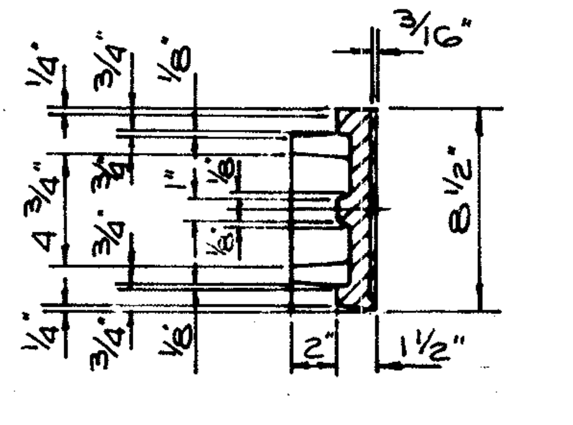


PLAN

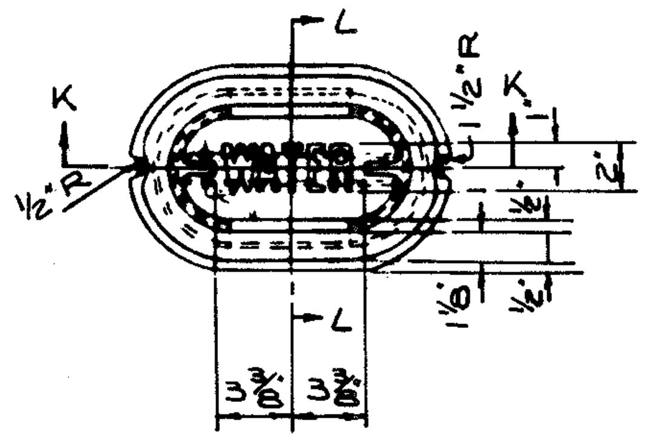


TOP

SECTION G-G
Air Cock Box No. 5 is Top and Cover
Air Cock Box No. 6 is Top, Base 2'-6" Long and Cover
Flushing Box No. 7 is Top, Base 5'-0" Long and Cover
Est. Wt. 128#

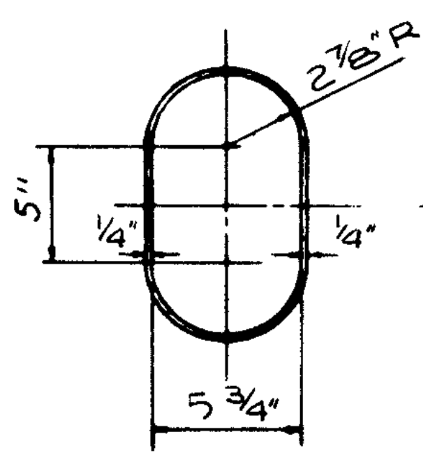


SECTION L-L

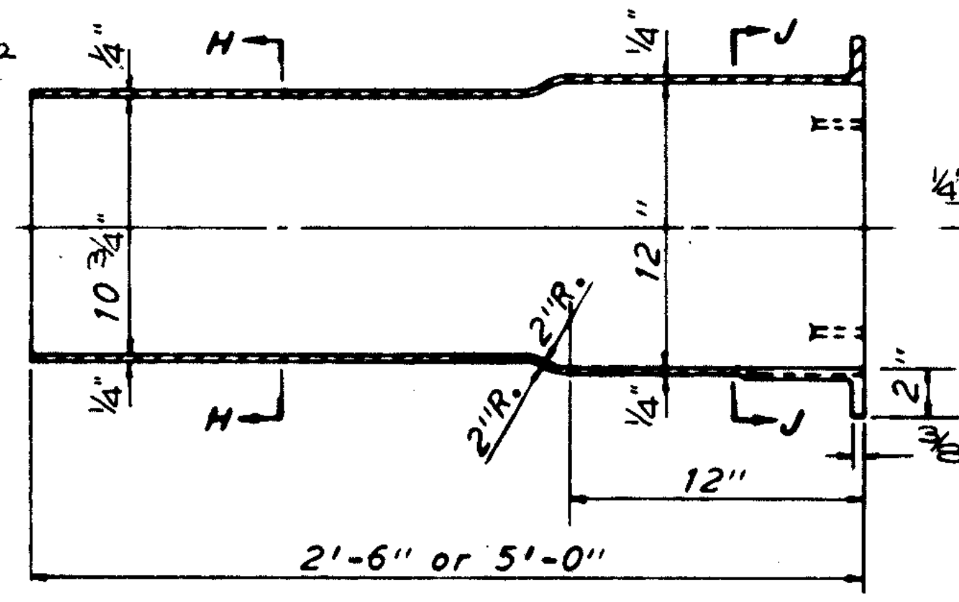


COVER

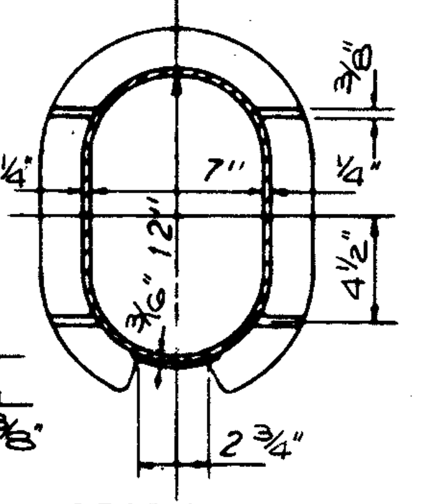
STANDARD DETAILS - VALVE AND AIR COCK BOXES



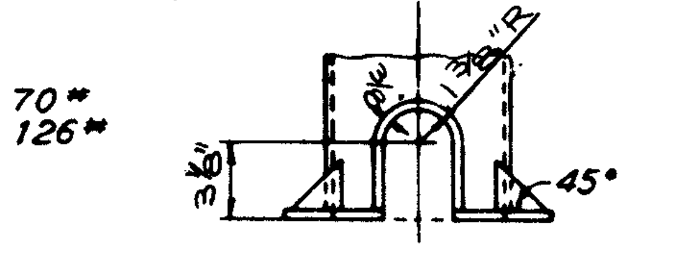
SECTION H-H



BASE
Est. Weight 2'-6" Long= 70#
Est. Weight 5'-0" Long= 126#

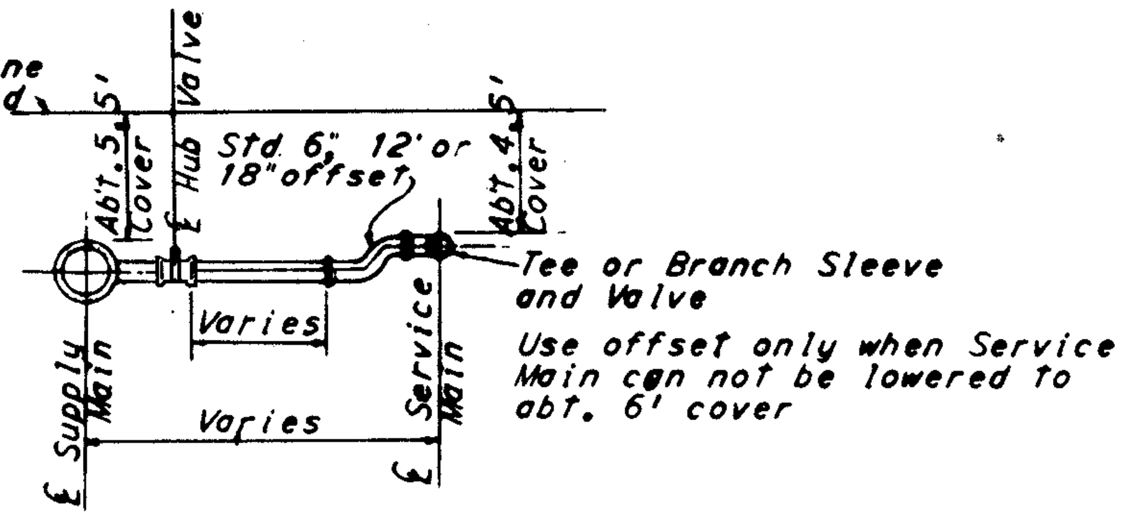


SECTION J-J



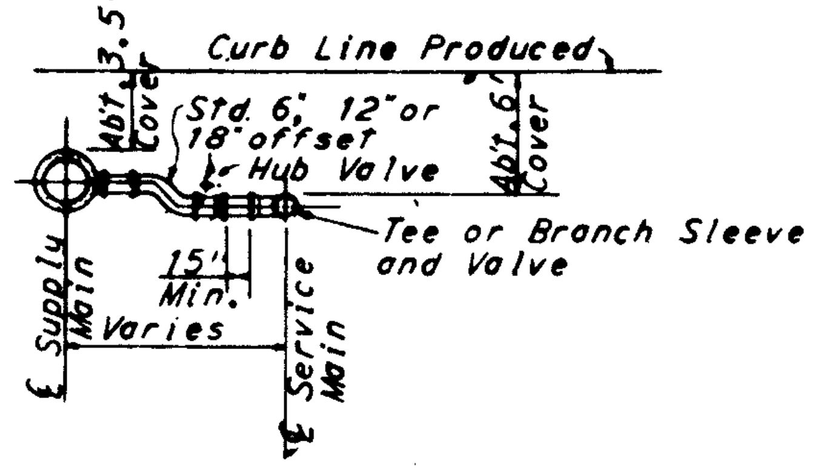
This opening to be in 5'-0" base only.

NOTE: AIR COCK BOXES, VALVE BOXES & INCIDENTALS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM SPECIAL IN WHICH IT IS A PART.



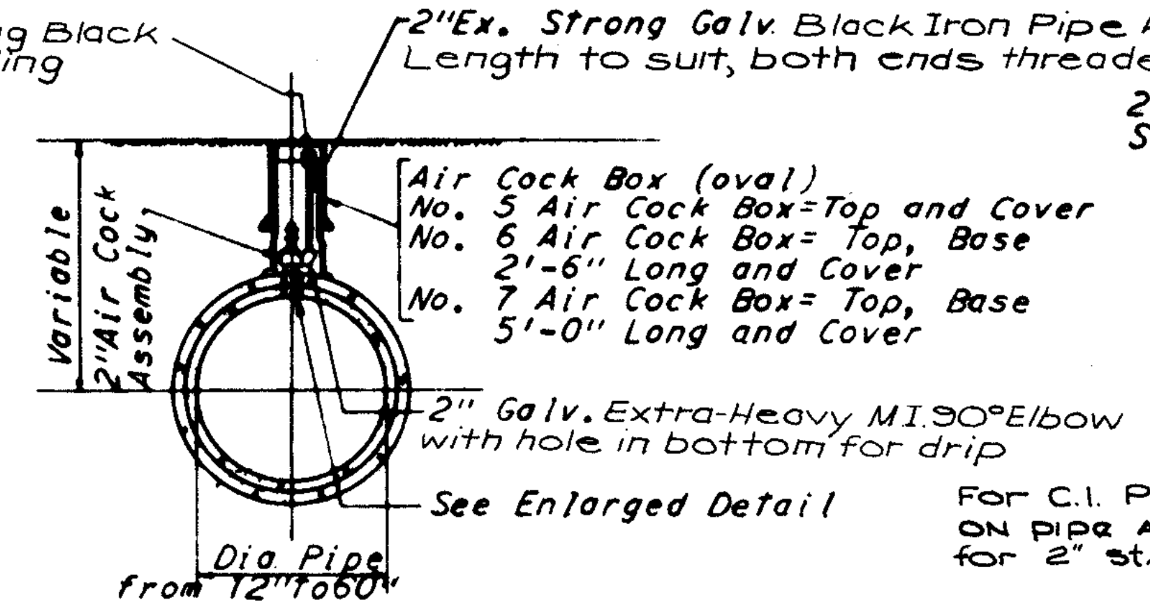
Use offset only when Service Main can not be lowered to abt. 6' cover

Typical Offset Connection Where Supply Main Is Lower Than Service Main



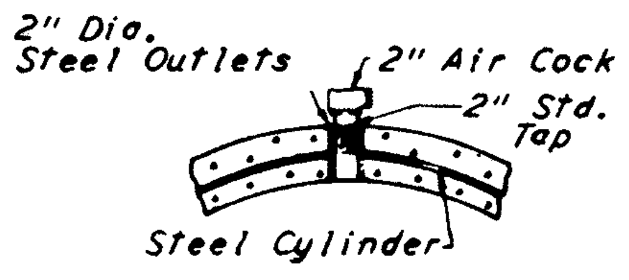
Typical Offset Connection Where Supply Main Is Higher Than Service Main

TYPICAL OFFSET CONNECTIONS



Air Cock Box (oval)
No. 5 Air Cock Box=Top and Cover
No. 6 Air Cock Box= Top, Base 2'-6" Long and Cover
No. 7 Air Cock Box= Top, Base 5'-0" Long and Cover

DETAIL OF 2" AIRCOCK INSTALLATION FOR CONCRETE MAINS



ENLARGED DETAIL SHOWING CONNECTION FOR AIRCOCK

For C.I. Pipe, boss will be cast on pipe and tapped at foundry for 2" standard pipe

For Steel pipe, Steel forgings shall be welded to pipe and tapped for 2" Standard Pipe.

STANDARD DETAILS - AIR COCK AND CONNECTIONS FOR VARIOUS PIPE

ROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO
SUBJECT WATERWORK DETAILS
DRAWN
CHECKED
SCALE
DATE
No.

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

APPROVED JANUARY - 4 - 1974

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS
FIRE HYDRANT

DRAWN
SCALE
CHECKED
DATE
No.

P-20

GENERAL NOTES

SCOPE

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND CONSTRUCTION DRAWINGS, AND SHALL BE SUBJECT TO THE ACCEPTANCE OF THE PROJECT ENGINEER.

DEVIATIONS FROM THE PLANS, SPECIFICATIONS, AND CONSTRUCTION DRAWINGS SHALL NOT BE PERMITTED EXCEPT UPON THE WRITTEN PERMISSION OF THE PROJECT ENGINEER GIVEN WITH THE APPROVAL OF THE STATE. THE WORK UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, AND SHALL CONSIST OF THE FOLLOWING:

A) OVERHEAD POLE LINE CONSTRUCTION
B) UNDERGROUND DUCTLINES AND MANHOLES
C) TEMPORARY FEEDERS
D) REMOVAL

UTILITIES

AT LEAST TWO (2) WEEKS BEFORE BREAKING GROUND THE CONTRACTOR SHALL NOTIFY ALL PUBLIC OR PRIVATE UTILITIES HAVING WIRE POLES, PIPES, CONDUITS, MANHOLES OR OTHER STRUCTURES WHICH MAY BE AFFECTED BY HIS OPERATIONS, INCLUDING ANY SERVICES OR STRUCTURES WHICH ARE AFFECTED BUT NOT SHOWN ON THESE PLANS. HE SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO AVOID DAMAGES TO ANY AND ALL UTILITIES.

FOLLOWING IS A LIST OF THE UTILITIES WITHIN THE LIMITS OF CONSTRUCTION:

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER & HEAT
1201 LAKESIDE AVENUE
CLEVELAND, OHIO 44114

CLEVELAND ELECTRIC ILLUMINATING CO.
55 PUBLIC SQUARE
CLEVELAND, OHIO 44113

OHIO BELL TELEPHONE COMPANY
100 ERIEVIEW PLAZA
CLEVELAND, OHIO 44114

EAST OHIO GAS COMPANY
EAST 55TH STREET
CLEVELAND, OHIO 44114

DEPARTMENT OF PUBLIC SAFETY
POLICE & FIRE COMMUNICATION SYSTEM
310 CARNEGIE AVENUE
CLEVELAND, OHIO 44115

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF LIGHT AND POWER
1201 LAKESIDE AVENUE
CLEVELAND, OHIO 44114

DEPARTMENT OF PUBLIC SERVICE
ROOM 227 CITY HALL
601 LAKESIDE AVENUE
CLEVELAND, OHIO 44114

DEPARTMENT OF PUBLIC SAFETY
DIVISION OF TRAFFIC ENGINEERING & PARKING
4160 SOUTH MARGINAL ROAD
CLEVELAND, OHIO 44114

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO MAKES NO GUARANTEE AS TO THEIR ACCURACY OR COMPLETENESS.

FEEDER SHUTDOWN

(A) A FEEDER SHUTDOWN SCHEDULE WITH DATES AND APPROXIMATE SHUTDOWN TIMES IS TO BE SUBMITTED TO THE CITY OF CLEVELAND, DIV. OF LIGHT AND POWER, FOR APPROVAL 2 WEEKS BEFORE A FEEDER SHUTDOWN IS REQUIRED. DUE TO THE NATURE OF THE LOADING OF THE 2.3KV & 11 KV FEEDERS AND THE SEASON OF THE YEAR; IT WILL BE NECESSARY TO HAVE SOME OF THE FEEDER SHUTDOWNS ON OFF PEAK DAYS, OR OFF HOURS. THIS DETERMINATION WILL BE MADE BY SESLER N. TITUS SYSTEM OPERATING ENGINEER OF THE DIVISION OF LIGHT & POWER.

(B) ALL FEEDER SHUTDOWNS SHALL BE CONFIRMED BY THE CONTRACTOR ONE DAY IN ADVANCE OF ALL SCHEDULED JOBS WITH THE SYSTEM OPERATING ENGINEER. ALL SWITCHING WILL BE DONE BY THE CITY OF CLEVELAND DIVISION OF LIGHT & POWER.

TIE INTO EXISTING MANHOLES

WHEN A NEW DUCTBANK IS CONNECTED INTO AN EXISTING MANHOLE, PART OF THE WALL SHALL BE CAREFULLY BROKEN TO RECEIVE NEW DUCTBANK. AFTER NEW DUCTBANK HAS BEEN INSTALLED, EXISTING MANHOLE SHALL BE REPAIRED, PATCHED AND SEALED. CABLES SHALL BE PROTECTED DURING THIS WORK WITH EXTREME CARE. ANY DAMAGE TO EXISTING CABLES SHALL BE REPAIRED. THIS WORK SHALL BE DONE UNDER DIVISION OF LIGHT AND POWER SUPERVISION.

TIE INTO EXISTING DUCTBANKS

WHERE NEW MANHOLES ARE BUILT TO INTERCEPT EXISTING DUCTBANK, THE EXCAVATION OR OTHER WORK SHALL UNDER NO CIRCUMSTANCES DAMAGE EXISTING INSTALLATIONS. PROVIDE ADEQUATE SUPPORTS FOR DUCTBANK DURING CONSTRUCTION UNTIL NEW MANHOLE IS COMPLETED; THEN, REMOVE CONCRETE AND DUCTS. PROVIDE ADEQUATE SUPPORTS FOR ALL CABLES AND NEW SPLICES IN MANHOLE. THIS WORK SHALL BE DONE UNDER DIVISION OF LIGHT AND POWER SUPERVISION.

STREET LIGHTING

ON PERMANENT NEW ROADWAYS OPENED TO TRAFFIC, PERMANENT NEW LTG. SHALL BE INSTALLED BEFORE OPENING.

CABLE MARKING

EACH CABLE UPON ENTERING AND LEAVING MANHOLES SHALL BE MARKED WITH METAL TAGS, INDICATING THE FEEDER NUMBER AND CABLE SIZE. THE LETTERS SHALL BE 1/4" HIGH.

TRANSFORMERS

ALL TRANSFORMERS BEING REMOVED SHALL HAVE THE NAMEPLATE DATA RECORDED, THIS INFORMATION SHALL BE FORWARDED TO THE CITY OF CLEVELAND, DIVISION OF LIGHT AND POWER.

STANDARD DRAWINGS

ALL CONSTRUCTION WORK SHALL BE IN AGREEMENT WITH MELP STANDARDS & AS ENCLOSED IN "APPENDIX" SECTION OF SPECIFICATIONS.

POLES

POLE LENGTHS AS SHOWN ON THE DRAWINGS, ARE FOR STANDARD LENGTH POLES. EXACT LINE HEIGHT IS TO BE DETERMINED IN THE FIELD, TO MATCH THE EXISTING LINES AND PROVIDE A UNIFORM APPEARANCE.

DESCRIPTION OF WORK:

THE CONTRACTOR SHALL SCHEDULE HIS WORK WITH OTHER TRADES AND COORDINATE AS INSTRUCTED BY PROJECT ENGINEER FOR LEAST INTERFERENCE WITH TRAFFIC, HIGHWAY CONSTRUCTION AND OTHER UTILITIES. CONNECT SECONDARY SERVICE AS REQUIRED TO INDIVIDUAL CUSTOMER WITH MINIMUM SERVICE INTERRUPTIONS. PAYMENT SHALL BE ABSORBED IN OTHER RESPECTIVE PAY ITEMS.

WEST 95TH STREET

A. SET NEW POLE AND STREET LIGHT BETWEEN EXISTING POLES NO. 27510 AND 27511 AS INDICATED.

B. INSTALL FEEDER #752-R ON WILLARD.

C. ADD 3rd WIRE TO FEEDER #651-E FROM 98TH STREET TO POLE #274-24.

D. INSTALL N.O. CUTOUTS BETWEEN FEEDERS #752-R AND 651-E ON WILLARD ON POLE #274-24.

E. MAKE NECESSARY ALTERATIONS AND REMOVALS IN PATH OF I-90 AS INDICATED ON DRAWINGS.

WEST 98TH STREET

A. INSTALL UNDERGROUND DUCT WORK FOR FEEDERS 651-E AND 752-R WITH MANHOLES AS INDICATED.

B. INSTALL NEW POLES SOUTH OF I-90 AS INDICATED ON DRAWINGS.

C. ENERGIZE NEW UNDERGROUND SECTION FOR FEEDER 651-E AND 752-R.

D. MAKE OTHER REMOVALS AND ALTERATIONS AS INDICATED ON DRAWINGS IN PATH OF I-90 BETWEEN WEST 96TH AND 98TH STREETS, INCLUSIVE.

WEST 100TH STREET

THIS SECTION CAN BE WORKED ONLY AFTER DUCTWORK HAS BEEN COMPLETED ON WEST 98TH STREET.

A. INSTALL POLE LINE FOR 651-E FEEDER SOUTH OF I-90 AS INDICATED. CONNECT TO LATERAL POLE ON 98TH STREET. CONTINUE THIS FEEDER UNDERGROUND TO LATERAL POLE AT NICHOLAS AVENUE. CONTINUE OVERHEAD ON NICHOLAS WEST OVER TO WEST 100TH STREET. TIE HERE TO EXISTING FEEDER.

B. MAKE NECESSARY DEAD ENDS. ENERGIZE THIS NEW FEEDER SECTION AND DEENERGIZE FEEDER IN PATH OF I-90.

C. REMOVE EXISTING INSTALLATION IN PATH OF I-90 AS INDICATED ON DRAWINGS.

WEST 101ST STREET

THIS SECTION CAN BE WORKED ONLY AFTER DUCTWORK HAS BEEN COMPLETED ON WEST 98TH STREET.

A. INSTALL NEW FEEDER LINES 651-E BETWEEN WEST 100 AND WEST 101ST STREETS NORTH AND SOUTH OF I-90 AS INDICATED ON DRAWINGS. CONNECT "BACKYARD FEEDER" WEST OF 101ST STREET.

B. SET NEW POLES AS INDICATED ON DRAWINGS.

C. ENERGIZE NEW FEEDER SECTION.

D. REMOVE LINES AND POLES IN PATH OF I-90 AS INDICATED ON DRAWINGS.

WEST 103RD, WEST 104TH AND WEST 105TH STREETS

A. INSTALL POLE LINE FOR 654-E FEEDER SOUTH OF I-90 AS INDICATED ON DRAWINGS. CONNECT THIS FEEDER TO EXISTING FEEDERS 654-E ON WEST 103RD, WEST 104TH AND WEST 105TH STREETS.

B. ENERGIZE THIS NEW FEEDER SECTION.

C. DISCONNECT AND REMOVE EXISTING INSTALLATIONS ON WEST 103RD, WEST 104TH AND WEST 105TH STREETS IN PATH OF I-90 AS INDICATED ON DRAWINGS.

WEST 106TH STREET

A. INSTALL TEMPORARY OVERHEAD FEEDERS AS SHOWN ON SHEET. #49

B. RECONNECT EXISTING FEEDERS FROM BOTH OVERHEAD AND UNDERGROUND TO TEMPORARY. DEENERGIZE SECTIONS TO BE REMOVED.

C. REMOVE OVERHEAD FEEDERS IN PATH OF I-90 AS INDICATED.

D. REMOVE CABLES FROM DUCTS.

E. DURING INSTALLATION OF BRIDGE, THE NEW DUCTLINE, MANHOLES AND FEEDERS ARE TO BE ADDED PER DRAWINGS. CERTAIN WORK MAY BE DONE CONCURRENTLY DURING BRIDGE CONSTRUCTION.

F. AFTER NEW DUCTLINE (INCLUDING MANHOLES AND FEEDERS) IS COMPLETED, RECONNECT SERVICE TO UNDERGROUND CABLES. MAKE SPLICES IN MANHOLES AS INDICATED ON DRAWINGS.

G. REMOVE TEMPORARY LINE.

WEST 110TH, WEST 111TH AND WEST 112TH STREETS

A. CONNECT FEEDER #654-E NORTH TO SAME FEEDER ON WESTERN AVENUE.

B. INSTALL NEW POLE LINE ON BELMONT AVENUE. CONNECT FEEDER #654-E TO BOTH 110TH AND 111th STREET.

C. DISCONNECT #654-E FEEDER SECTION IN PATH OF I-90 PER DRAWINGS. INSTALL NECESSARY DEAD ENDS.

D. REMOVE POLE LINE AND CABLES IN PATH OF I-90 AS INDICATED ON DRAWINGS.

WEST 114TH STREET

A. INSTALL FEEDER #654-E BETWEEN POLES #20451 AND 20538, INCLUSIVE.

B. INSTALL 2 #6 FEEDERS #657-E FROM POLE 20540 TO POLE 20451. RECONNECT TRANSFORMER ON POLE 20451 FROM FEEDER #652-E TO 657-E.

C. REMOVE FEEDER LINE 652-E FROM PATH OF I-90 AS INDICATED ON DRAWINGS.

WEST 115TH STREET

A. EXTEND SECONDARY SERVICE BETWEEN POLES 20439 AND 20440.

B. INSTALL AND CONNECT TRANSFORMER ON POLE #20448 AND DEAD END EXISTING PRIMARY FEEDER #657-E ON SAME POLE.

C. REMOVE POLE LINE NORTH OF POLE #20446 IN PATH OF I-90 AS INDICATED ON DRAWINGS.

WEST 116TH STREET

A. REMOVE POLE LINE BETWEEN POLE #204-29 AND 204-36 IN PATH OF I-90 AND MAKE NECESSARY RECONNECTION AS INDICATED ON DRAWINGS.

WEST 117TH STREET

A. INSTALL TEMPORARY POLE LINE ON EAST SIDE OF TEMPORARY ROAD AS INDICATED ON DRAWINGS. RECONNECT FEEDERS TO MAINTAIN SERVICE ON BOTH WEST 117TH STREET AND ELMWOOD. INSTALLATION SHALL AGREE WITH O.D.H. SPECIFICATIONS.

B. REMOVE EXISTING POLE LINE IN PATH OF I-90 RAMPS ON WEST 117TH STREET AS INDICATED ON DRAWINGS.

C. INSTALL DUCTWORK ON WEST 117TH STREET WHILE COORDINATING WITH GRADING WORK.

D. INSTALL NEW CABLES IN NEW DUCTWORK.

E. INSTALL POLE LINE ALONG "ELMWOOD-SECTOR CONNECTOR" AS INDICATED ON DRAWINGS.

F. MAKE FINAL UNDERGROUND CONNECTIONS FOR WEST 117TH STREET AND ELMWOOD.

G. REMOVE TEMPORARY POLE LINE.

WEST 120TH STREET

A. INSTALL 3RD WIRE #653-E ON TRISKETT ROAD BETWEEN WEST 117TH AND WEST 121ST STREETS AS PER DIAGRAM AND CONNECT TO EXISTING FEEDERS.

B. MAKE NECESSARY DEAD ENDS AND REMOVE FEEDER #653-E FROM PATH OF I-90 AS INDICATED ON DRAWINGS.

DRAWING REFERENCES

GENERAL	
NOTES & LEGENDS	-- SHEET #1
SUMMARY	-- SHEET #2
ONE LINE DIAGRAMS	-- SHEETS #3 THRU #9
UNDERGROUND	
MEASUREMENT	-- SHEET #10
PLAN DRAWINGS	-- SHEETS #11 THRU #21
BRIDGE DETAILS	-- SHEET #22
MANHOLE DETAILS	-- SHEETS #23 AND #24
BRIDGE SUPPORT DETAILS	-- SHEETS #25 AND #26
CONCRETE DUCT DETAILS	-- SHEET #27
OVERHEAD	
MODIFIED POLE SCHEDULE OF CHANGES	-- SHEETS #28 AND #29
PLAN DRAWINGS	-- SHEETS #30 THRU #35
MODIFIED POLE LIST & MATERIAL TABULATION	-- SHEET #36
NEW POLE LIST & MATERIAL TABULATION	-- SHEET #37
SUMMARY OF POLE REMOVAL & INSTALLATION	-- SHEET #38
TYPICAL POLES & CROSS-ARMS, B/M	-- SHEET #39
POLE ASSEMBLY	-- SHEET #40 THRU #44
DETAILS	-- SHEETS #45 THRU #48
TEMPORARY RUNAROUND	
PLAN DRAWINGS	-- SHEETS #49 AND #50
DETAILS	-- SHEETS #51 AND #52
FEEDERS	
FEEDER LAYOUT	-- SHEETS #53 AND #54

FED. RD.	STATE	PROJECT	
2	OHIO		

356/713

CUYAHOGA COUNTY
CUY-90-10.40

1/54

NOTES.

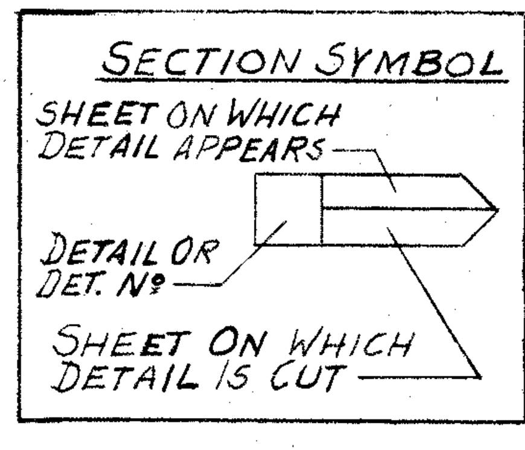
A) SEQUENCE OF WORK NOTES ARE TO BE USED AS A GUIDE, FINAL DETAILS AND SEQUENCES ARE TO BE WORKED OUT WITH ALL OTHER TRADES IN THE FIELD AND APPROVED BY THE PROJECT ENGINEER.

B) SOME WORK MAY BE DONE AT THE SAME TIME, BUT UNDER NO CIRCUMSTANCES SHALL POWER BE INTERRUPTED WITHOUT THE APPROVAL OF THE CITY OF CLEVELAND, DIVISION OF LIGHT AND POWER.

C.) AREA OF TEMPORARY POLE LINE TO BE KEPT UNGRADED BY GENERAL CONTRACTOR TILL ALL FINAL UNDERGROUND CABLES ARE IN SERVICE ACROSS NEW 106th STREET BRIDGE.

LEGEND

——	OVERHEAD WIRING - NEW
—E—	OVERHEAD WIRING - EXISTING TO REMAIN
—R—	OVERHEAD WIRING - EXISTING TO BE REMOVED
▬ ▬ ▬	DUCTLINE - NEW
▬ ▬E▬ ▬	DUCTLINE - EXISTING TO REMAIN
▬ ▬R▬ ▬	DUCTLINE - EXISTING TO BE ABANDONED OR REMOVED
▬ ▬ ▬○	DUCTLINE OR UNDERGROUND LIGHTING CABLE STUB-UP
■■■	2-2" DUCTLINE FOR TRAFFIC CONTROLLER
●	MELP POLE - NEW
○	MELP POLE - EXISTING TO REMAIN
⊗	MELP POLE - EXISTING TO BE REMOVED
◑	MELP POLE - EXISTING TO BE MODIFIED
⊕	FOREIGN POLE
▬	MANHOLE - NEW
▭	MANHOLE - EXISTING TO REMAIN
⊠	MANHOLE - EXISTING TO BE ABANDONED OR REMOVED
165-A	TYPICAL MELP 11 KV FEEDER NUMBER
651-E	TYPICAL MELP 2.4 KV FEEDER NUMBER
SEC	SECONDARY OVERHEAD WIRING
N-1	TYPICAL NEW POLE NUMBER
225-30	TYPICAL MELP POLE NUMBER
MH #6-33	TYPICAL MELP MANHOLE NUMBER
OBT	INDICATES OHIO BELL TELEPHONE WIRING
	SYMBOLS FOR PLAN DWG-S
¤	POLE MOUNTED LIGHT FIXTURE - NEW
¤E	POLE MOUNTED LIGHT FIXTURE - EXISTING
⊠15	NEW POLE MOUNTED TRANSFORMER (NUMBER INDICATES KVA)
⊠15	EXISTING POLE MOUNTED TRANSFORMER TO REMAIN (NUMBER INDICATES KVA)
■15	EXISTING POLE MOUNTED TRANSFORMER TO BE REMOVED (NUMBER INDICATES KVA)
——)	NEW ANCHOR GUY
▨	HIGHWAY LTG. CONTROL CTR.
⊘	TRAFFIC LIGHT CONTROL CTR.
	SYMBOLS FOR ONE LINE DIAGRAM
N	POLE MOUNTED OIL SWITCH (E=EXISTING TO REMAIN, N=NEW)
E	POLE MOUNTED LOAD BREAK DISCONNECT. (E=EXISTING TO REMAIN, N=NEW)
E	POLE MOUNTED FUSED CUTOUT W/E.E.I.-NEMA TYPE "K" FUSES (E=EXIST., N=NEW)
⏚	GROUND
N	POLE MOUNTED TRANSFORMER (E=EXISTING TO REMAIN, N=NEW)
▽ N	POTHEAD (E=EXISTING TO REMAIN, N=NEW)
E	LIGHTNING ARRESTER (E=EXISTING TO REMAIN, N=NEW)
Ⓐ	NEW POLE MOUNTED LIGHT FIXTURE
Ⓔ	EXISTING POLE MOUNTED LIGHT FIXTURE



APPROVED BY
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF LIGHT & POWER
R. A. [illegible]
COMMISSIONER OF UTILITIES ENGINEERING
Harold H. Ackermann
CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

GENERAL NOTES & LEGENDS

DRAWN BY E.F.
CH'K'D BY J.M.
SCALE NONE
DATE
DRAWING NUMBER 6587-1A

GENERAL SUMMARY

(M.E.L.P.)

▲ 62.7%-FED., STATE & CITY
37.3% - 100% CITY

TYPE CODE Y060 I-90-1(50)19

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

2/54

ITEM	M.E.L.P. Spec. No.	SHEET NUMBER 10	36	37	51	QUANTITY TOTAL	Unit	Description	TOTAL FEDERAL STATE & CITY	TOTAL ▲
Spec.	UC-14	200				200	LIN.FT.	NON-ENCASED BRIDGE SUPPORT 16-4", ASBESTOS CEMENT DUCT BANK	200	
Spec.	UC-14	240				240	LIN.FT.	NON-ENCASED BRIDGE SUPPORT 6-4", ASBESTOS CEMENT DUCT BANK		240
Spec.	UC-15	345				345	LIN.FT.	REINFORCED CONCRETE ENCASED 4-4", ASBESTOS CEMENT DUCT BANK	345	
Spec.	UC-15	184				184	LIN.FT.	REINFORCED CONCRETE ENCASED 16-4", ASBESTOS CEMENT DUCT BANK	184	
Spec.	UC-15	100				100	LIN.FT.	REINFORCED CONCRETE ENCASED 6-4", ASBESTOS CEMENT DUCT BANK		100
Spec.	UC-15	152				152	LIN.FT.	REINFORCED CONCRETE ENCASED 3-4", ASBESTOS CEMENT DUCT BANK	152	
Spec.	UC-13	545				545	LIN. FT.	NON-REINFORCED CONCRETE ENCASED 2-2" DUCT BANK	545	
Spec.	UC-13	2296				2296	LIN.FT.	NON-REINFORCED CONCRETE ENCASED 6-4" DUCT BANK	172	2124
Spec.	UC-13	60			40	100	LIN.FT.	NON-REINFORCED CONCRETE ENCASED 4-4" DUCT BANK	100	
Spec.	UC-13	822				822	LIN.FT.	NON-REINFORCED CONCRETE ENCASED 3-4" DUCT BANK	607	215
Spec.	UC-13	300				300	LIN.FT.	NON-REINFORCED CONCRETE ENCASED 2-4" DUCT BANK	300	
Spec.	UC-12	11				11	EA.	REINFORCED CONCRETE MANHOLES (FOR NEW DUCTS.)		
Spec.	UC-12	2				2	EA	REINFORCED CONCRETE MANHOLES (FOR INTERCEPTING EXISTING DUCTS.)		
Spec.	UC-19	1				1	EA	SUBMERSIBLE TRANSFORMER.-SEE NOTE ON DWG.: IJ		
Spec.	UC-20	2				2	EA	SUBMERSIBLE CUTOUT.-SEE NOTE ON DWG.: IJ		
Spec.	UC-18	165				165	LIN.FT	3/C. 5KV. #1/0 CABLE-LEAD		
Spec.	UC-18	12,785			7400	20,185	LIN.FT	3/C. 5KV. #4/0 CABLE-LEAD		
Spec.	UC-18	1,350			3000	4350	LIN.FT.	3/C. 15KV. #4/0 CABLE-LEAD		
Spec.	UC-18	580				580	LIN.FT.	1/C 600V #2/0-C.P CABLE		
Spec.	UC-17	2				2	EA.	MANHOLE (ABANDONED OR REMOVED)		
Spec.	UC-12	1				1	EA.	MANHOLE (ALTERED)		
Spec.	OC-11			4		4	EA.	POLE 35'-0" LENGTH, CLASS 1		
Spec.	OC-11			22		22	EA.	POLE 35'-0" LENGTH, CLASS 3		
Spec.	OC-11			11		11	EA.	POLE 35'-0" LENGTH, CLASS 4		
Spec.	OC-11			9	43	52	EA.	POLE 40'-0" LENGTH, CLASS 1		
Spec.	OC-11			6		6	EA.	POLE 45'-0" LENGTH, CLASS 1		
Spec.	OC-11			17		17	EA.	POLE 45'-0" LENGTH, CLASS 3		
Spec.	OC-11			19		19	EA.	POLE 50'-0" LENGTH, CLASS 1		
Spec.	OC-11			14		14	EA.	POLE 50'-0" LENGTH, CLASS 3		
Spec.	OC-12		5	10	10	25	EA.	HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS		
Spec.	OC-12-13		1	4		5	EA.	HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 3 DEAD END. CLEVIS		
Spec.	OC-12-13		3	3	6	12	EA.	HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 6 DEAD END CLEVIS		
Spec.	OC-12		1	18		19	EA.	HEAVY DUTY 6 PIN CROSSARM W/3 PIN INSULATORS		
Spec.	OC-12-13		1	14		15	EA.	HEAVY DUTY 6 PIN CROSSARM W/3 PIN INSULATORS & 3 DEAD END CLEVIS		
Spec.	OC-22				2	2	EA.	FASTENERS OF 3/4" RODS & 2 SQ WASHERS @ EVERY 5'-0" ALONG POLE (6 SET FOR EACH)		
Spec.	OC.12		10	16	6	32	EA.	STANDARD 8 PIN CROSSARM		
Spec.	OC.12		4	7	10	21	EA.	STANDARD 6 PIN CROSSARM		
Spec.	OC.12		23	41		64	EA.	STANDARD 6 PIN CROSSARM W/3 PIN INSULATORS		
Spec.	OC.12		10	23		33	EA.	STANDARD 6 PIN CROSSARM W/3 PIN INSULATORS & 3 DEAD ENDS 2.3KV		
Spec.	OC.12		20	8		28	EA.	STANDARD 6 PIN CROSSARM W/2 PIN INSULATORS		
Spec.	OC.12		12	11		23	EA.	STANDARD 6 PIN CROSSARM W/2 PIN INSULATORS & 2 DEAD ENDS CLEVIS		
Spec.	OC.12		1	13		14	EA.	STANDARD 4 PIN CROSSARM		
Spec.	OC.21		91	171	22	284	EA.	CROSSARM BRACE ANGLE IRON		
Spec.	OC.23		6	12		18	EA.	LATERAL POLE WOOD BRACING		
Spec.	OC.10		25	15		40	EA.	STANDARD ANCHOR GUY		
Spec.	OC.10		3	15	8	26	EA.	HEAVY DUTY ANCHOR GUY		
Spec.	OC.10		2	22	6	30	EA.	DOUBLE HEAVY DUTY ANCHOR GUY		
Spec.	OC.10		5	14	9	28	EA.	HEAD GUY OR ARM GUY W/INSULATORS		
Spec.	UC.18		4	18		22	EA.	CABLE GUARD FOR P.I.L. RISER CABLE-8FT. LENGTHS		

ITEM	M.E.L.P. Spec. No.	SHEET NUMBER 10	36	37	51	QUANTITY TOTAL	Unit	Description
Spec.	OC-14				12	12	EA.	90° POTHEAD
Spec.	OC-14		4	21		25	EA.	POTHEAD
Spec.	OC-15		43	81	36	160	EA.	3 KV. LIGHTNING ARRESTER
Spec.	OC-18		7	10		17	EA.	TRANSFORMER (OVERHEAD)
Spec.	OC-19		6	16		22	EA.	OIL SWITCH W/HANGERS & WOOD BRACING
Spec.	OC-20		17	39		56	EA	DEAD BLADE ENCLOSED DISCONNECT SWITCHES (THROTTLE CUTOUTS)
Spec.	OC-08		11	23	8	42	EA.	GROUNDING
Spec.	OC-16		13	82	16	111	EA.	1 PT. SECONDARY RACK
Spec.	OC-16		5	28		33	EA.	3 PT. SECONDARY RACK
Spec.	OC-18		17	28		45	EA.	PRIMARY WIRE HOLDER
Spec.	OC-18		14	30		44	EA	FUSED CUTOUTS
Spec.	OC-17			10		10	EA.	MERCURY LUMINAIRE W/BRACKET ARM 6 FEET LONG - 175 W
Spec.	OC-17		6	26		32	EA.	MERCURY LUMINAIRE W/BRACKET ARM 8 FEET LONG - 175 W
Spec.	OC-17			24		24	EA.	MERCURY LUMINAIRE W/BRACKET ARM 12 FEET LONG - 175 W
Spec.	TC-05				16	16	EA.	MERCURY LUMINAIRE W/BRACKET ARM 12 FEET LONG - 400 W
Spec.	OC-09			12,050		12,050	LIN. FT.	№. 6 WIRE COPPER - WEATHERPROOF
Spec.	OC-09			8,010		8,010	LIN. FT.	№. 4/0 WIRE COPPER - WEATHERPROOF
Spec.	OC-09			5,450		5,450	LIN. FT.	№ 4 WIRE - TRIPLEX
Spec.	OC-09				2,500	2,500	LIN. FT.	№ 2 WIRE - TRIPLEX
Spec.	OC-09			300		300	LIN. FT.	№ 2 WIRE - QUADRUPLEX
Spec.	OC-02			5		5	EA.	BLOCK POLE
Spec.	UC-18	3		6		9	EA	LUGS TO CONNECT #1/0 & #4/0 CABLE
Spec.	UC-18	390		24		414	LIN.FT	1/C 5KV #1/0 CABLE-XLP
Spec.	TC-09				10,500	10,500	LIN FT.	MESSENGER WIRE 12.5M
Spec.	OC-22				46	46	EA.	CABLE SUPPORT HARDWARE FOR STRAIGHT RUN POLE
Spec.	OC-22				50	50	EA.	CABLE SUPPORT HARDWARE FOR CURVED RUN POLE
Spec.	UC-21			LUMP		LUMP	LUMP	CONNECT SERVICES TO BEARINGS INCORPORATE ON WEST 117 STREET
Spec.	UC-21		60	210		270	LIN. FT	2" RIGID ALUMINUM CONDUIT
Spec.	UC-21			9	64	73	LIN. FT.	4" RIGID ALUMINUM CONDUIT
Spec.	UC-21	1				1	EA	4" WEATHERHEAD FOR 3-#2/0 CABLE
Spec.	UC-21		2	7		9	EA	2" WEATHERHEAD WITH COVER AS REQUIRED
Spec.	UC-18	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	TESTING OF CABLES
Spec.	UC-18	460	-	-	-	460	LIN.FT	FIREPROOFING OF CABLES
Spec.	UC-18	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	MARKING CABLE IN MANHOLES
Spec.	OC-18		LUMP	LUMP		LUMP	LUMP	TRANSFORMER DATA RECORDING
Spec.	GS.10	LUMP	LUMP	LUMP		LUMP	LUMP	REMOVAL

CALCULATED BY E.F. DATE 7-70
CHECKED BY R.W.Z. DATE 9-72

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COMMISSIONER OF LIGHT & POWER
COMMISSIONER OF UTILITIES ENGINEERING
CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

GENERAL SUMMARY

DRAWN BY E.F.
CHK'D BY
SCALE NONE
DATE

6587-1B

GENERAL SUMMARY

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

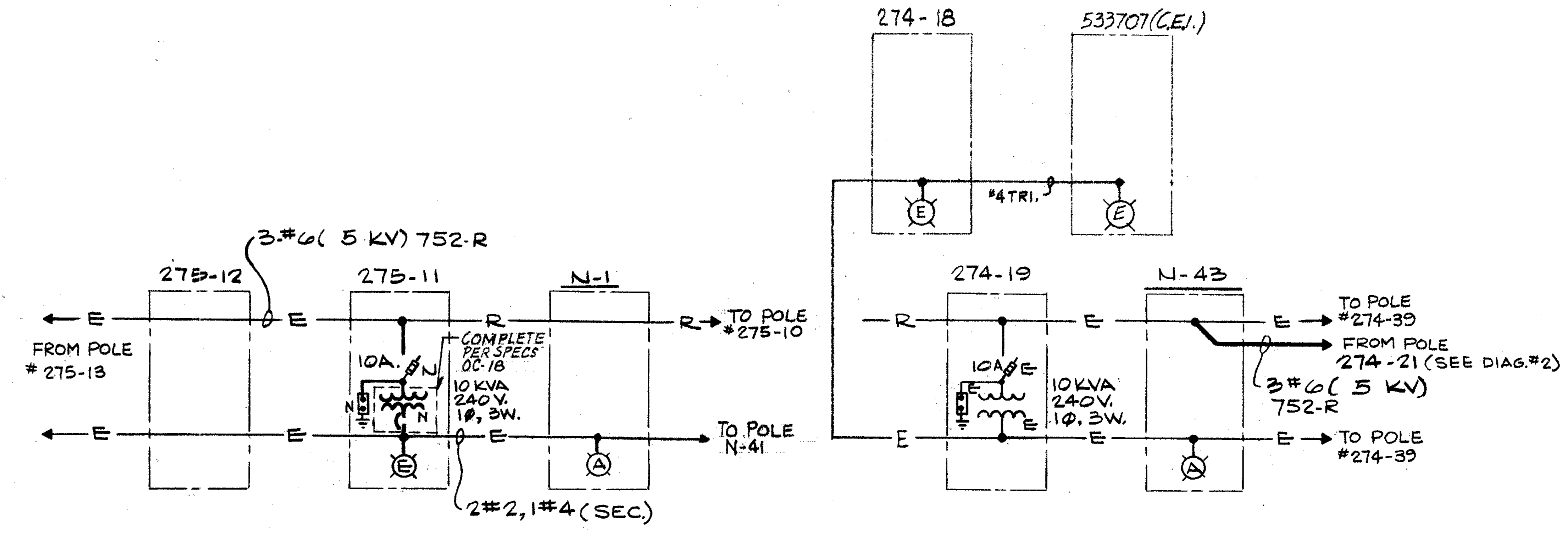

DIAGRAM No. 1 (FOR PLAN SEE SHT.#30)
W. 95th ST.

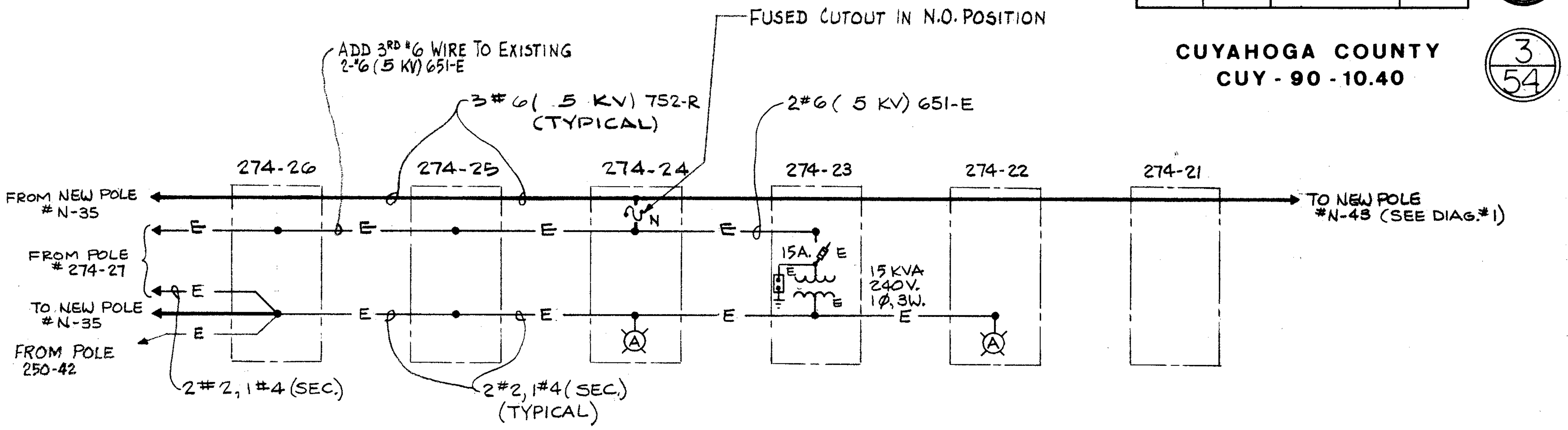

DIAGRAM No. 2 (FOR PLAN SEE SHT.#30)
WILLARD ST.

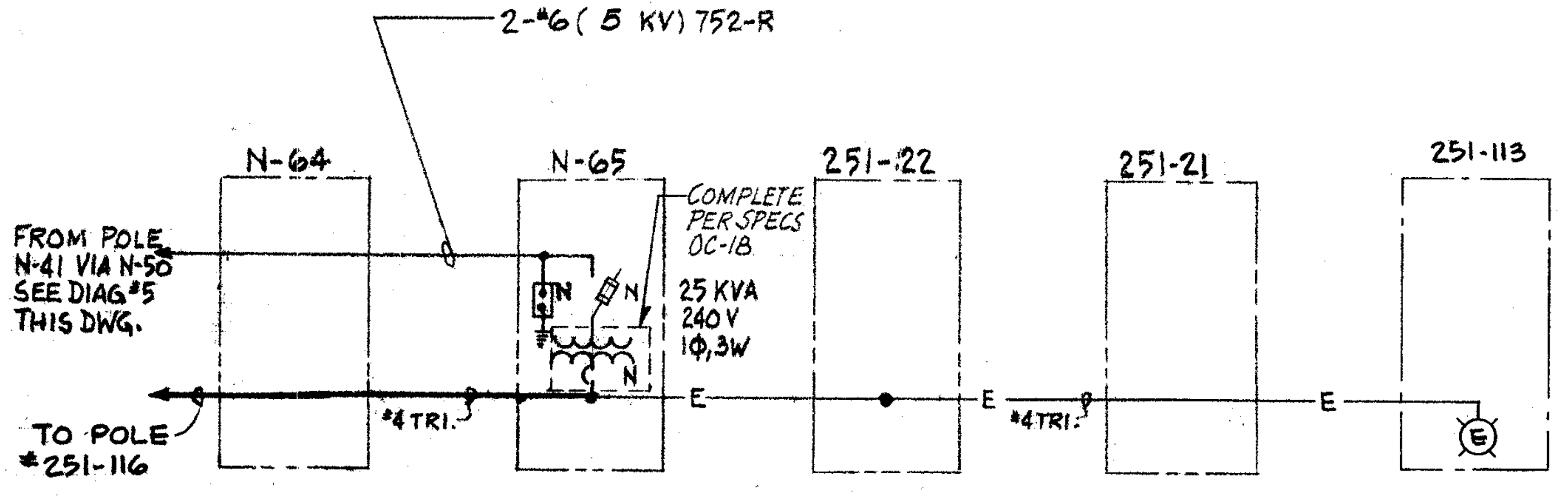

DIAGRAM No. 3 (FOR PLAN SEE SHT.#30)
SOUTH OF MARGINAL RD. W-96th ST. TO W-98th ST

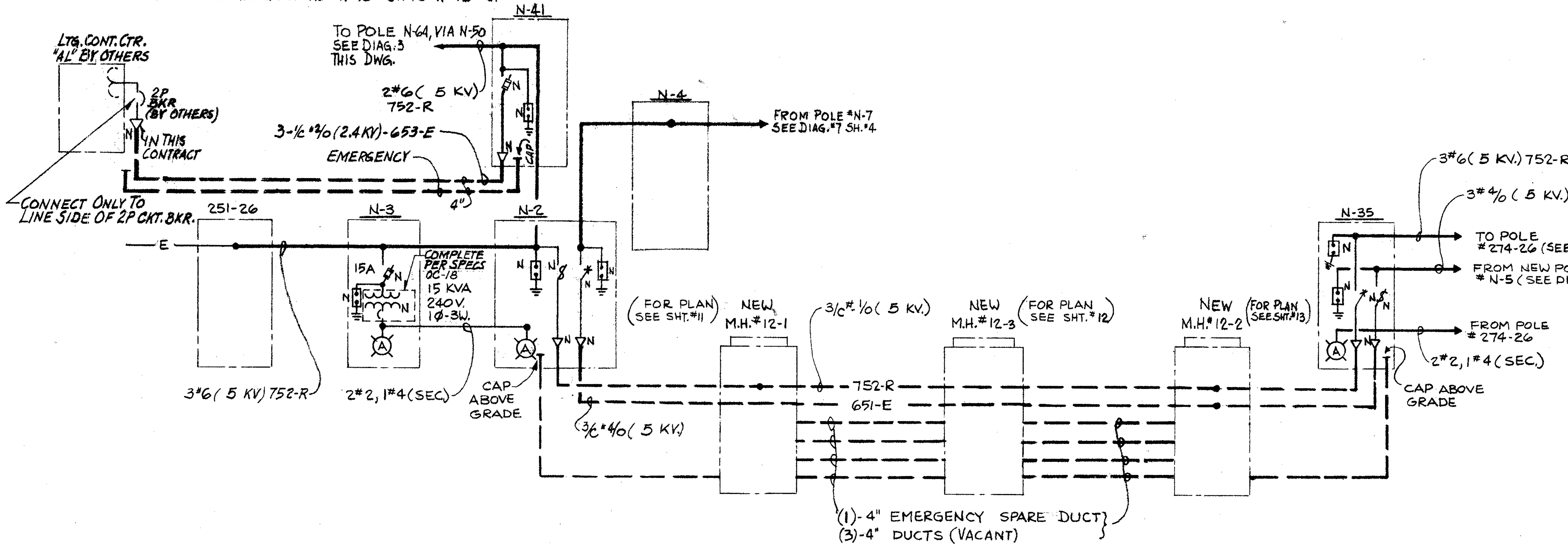

DIAGRAM No. 5 (FOR PLAN SEE SHT.#30, 11, 12 & 13)
W. 98th ST.

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ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

GENERAL
ONE LINE DIAGRAMS

DRAWN BY RWZ	SCALE NO SCALE	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-1C

FED. RD.	STATE	PROJECT	
2	OHIO		

359
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

4
54

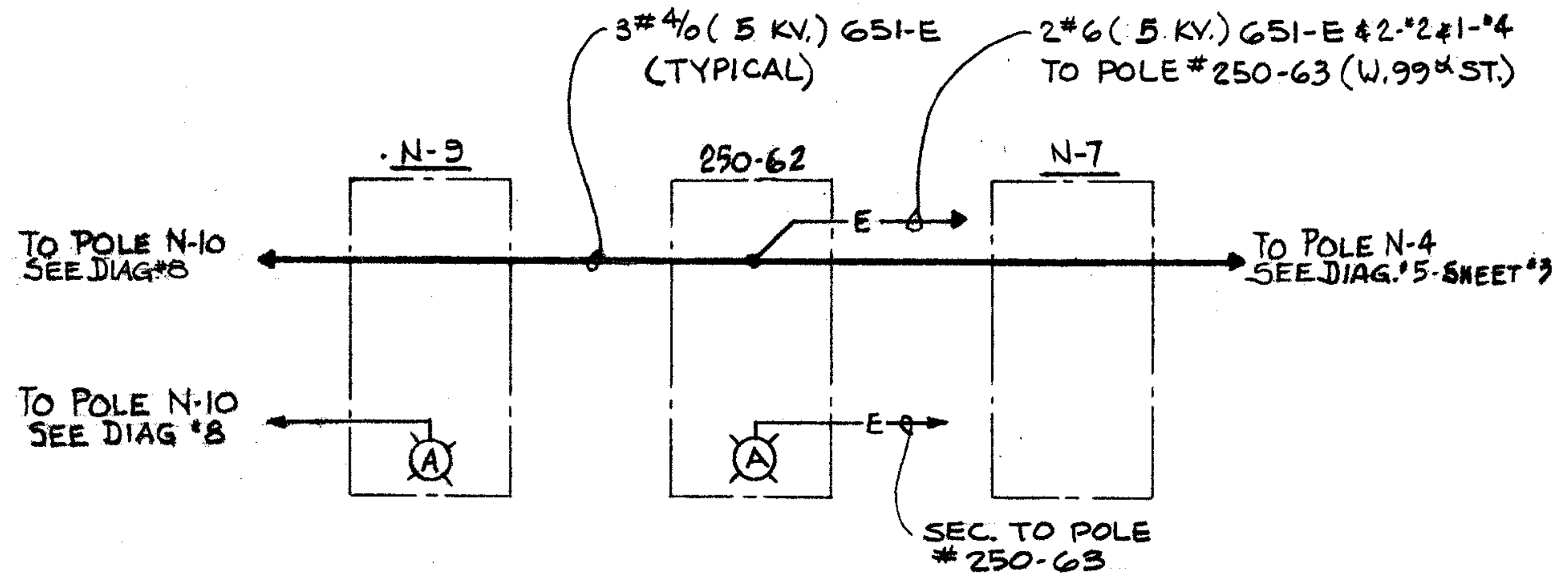


DIAGRAM No.7 (FOR PLAN SEE SHT. #30)
BETWEEN W.98th & W.100th ST.
SOUTH OF THEODORE AVE.

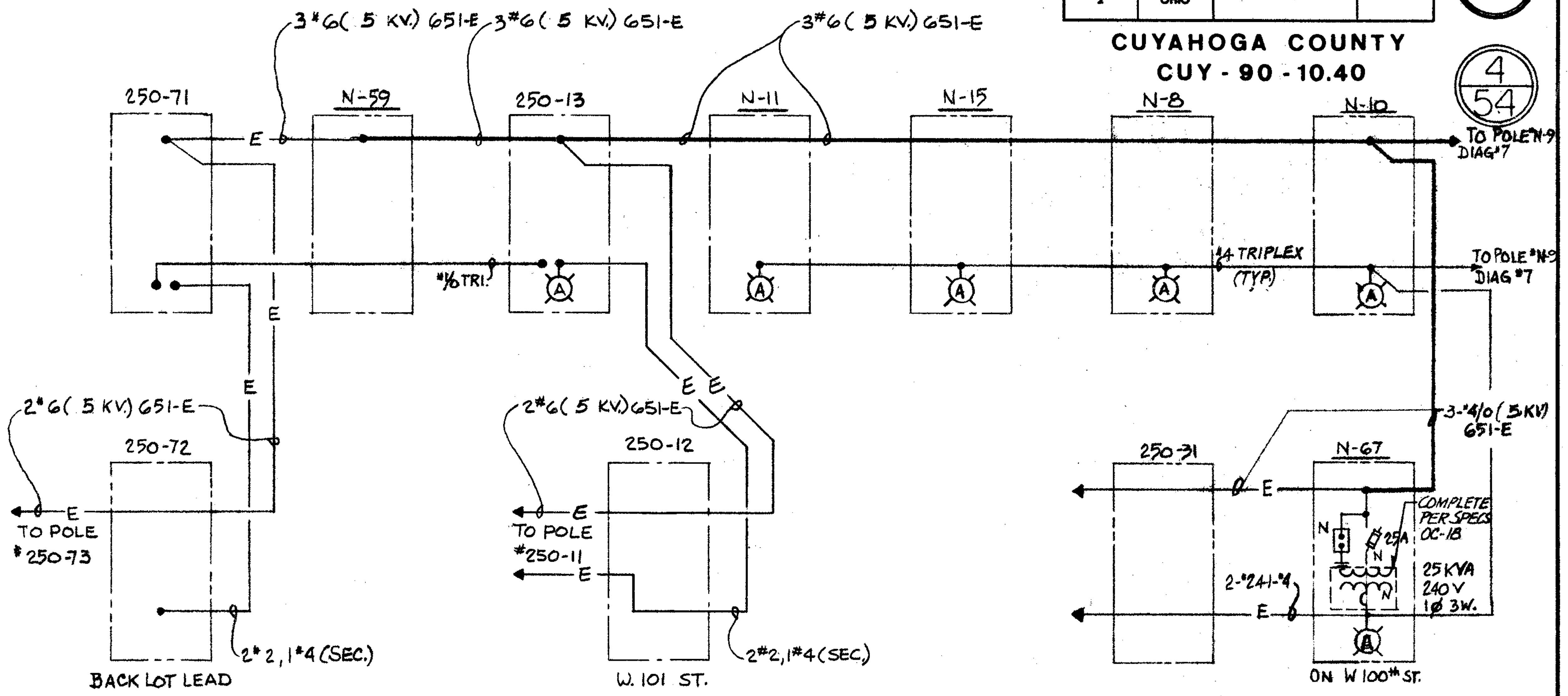
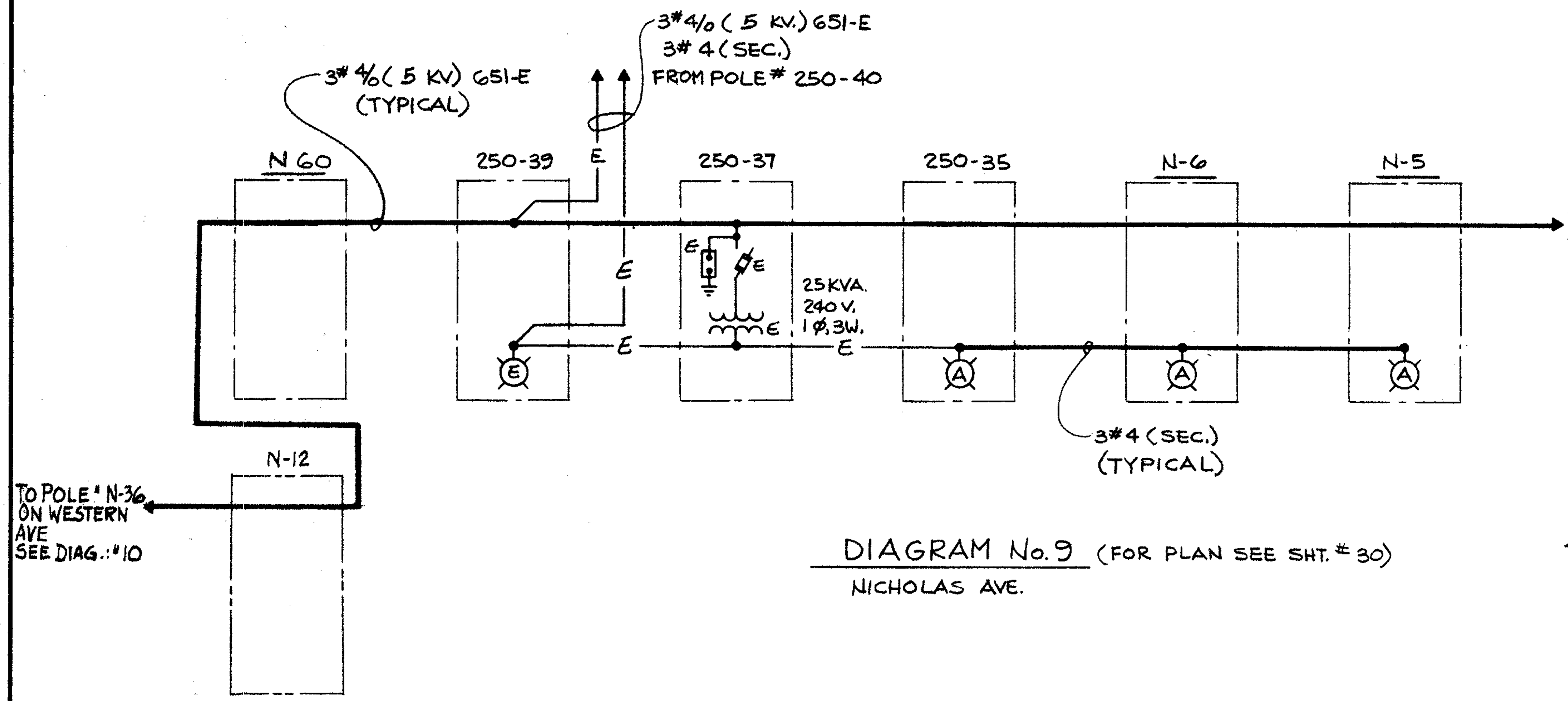


DIAGRAM No. 8 (FOR PLAN SEE SHT.'S # 30 & 31)
W.100th ST. TO W.101st ST. & BACK LOT LEAD
SOUTH OF FRONTAGE RD. No.4A



TO NEW POLE #N-35 (W.98th ST.) (SEE DIAG. #5)

DIAGRAM No. 9 (FOR PLAN SEE SHT. # 30)
NICHOLAS AVE.

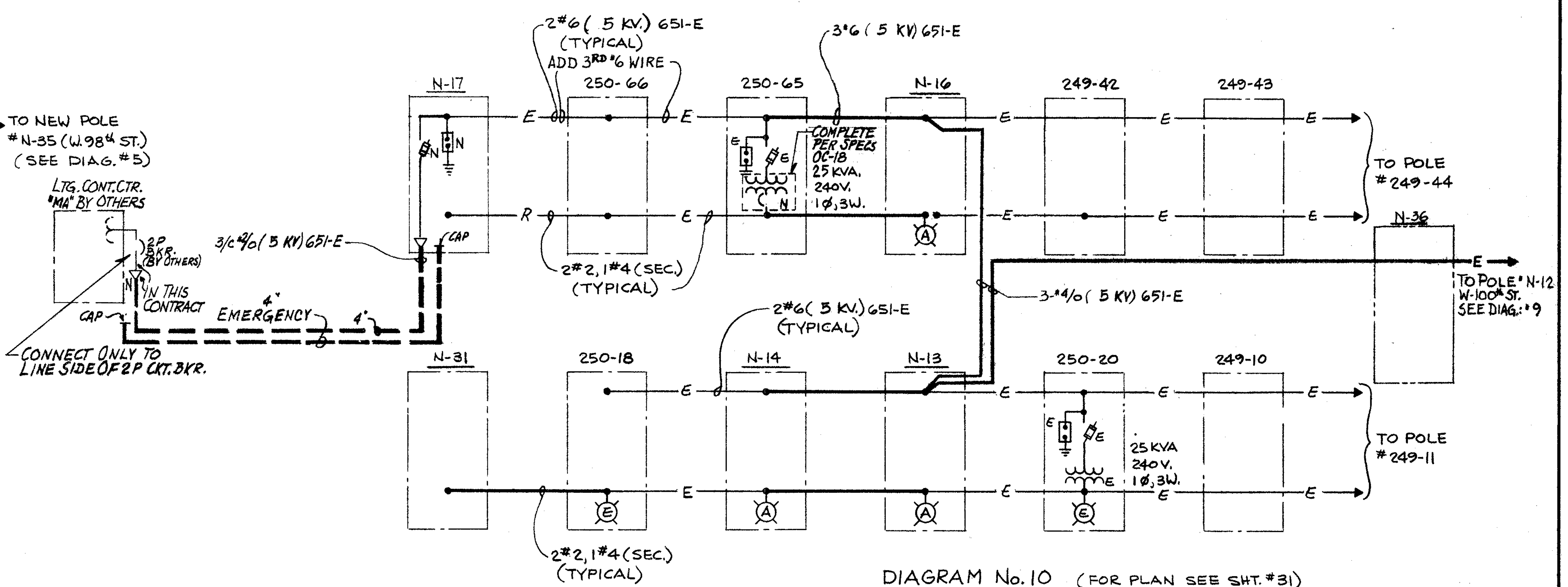


DIAGRAM No. 10 (FOR PLAN SEE SHT. #31)
W.101 ST. & BACK LOT LEAD

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CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

GENERAL
ONE LINE DIAGRAMS

DRAWN BY RWZ
CH'K'D BY J.M.
SCALE NO SCALE
DATE
DRAWING NUMBER **6587-1D**

FED. RD.	STATE	PROJECT	
2	OHIO		

360/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

5/54

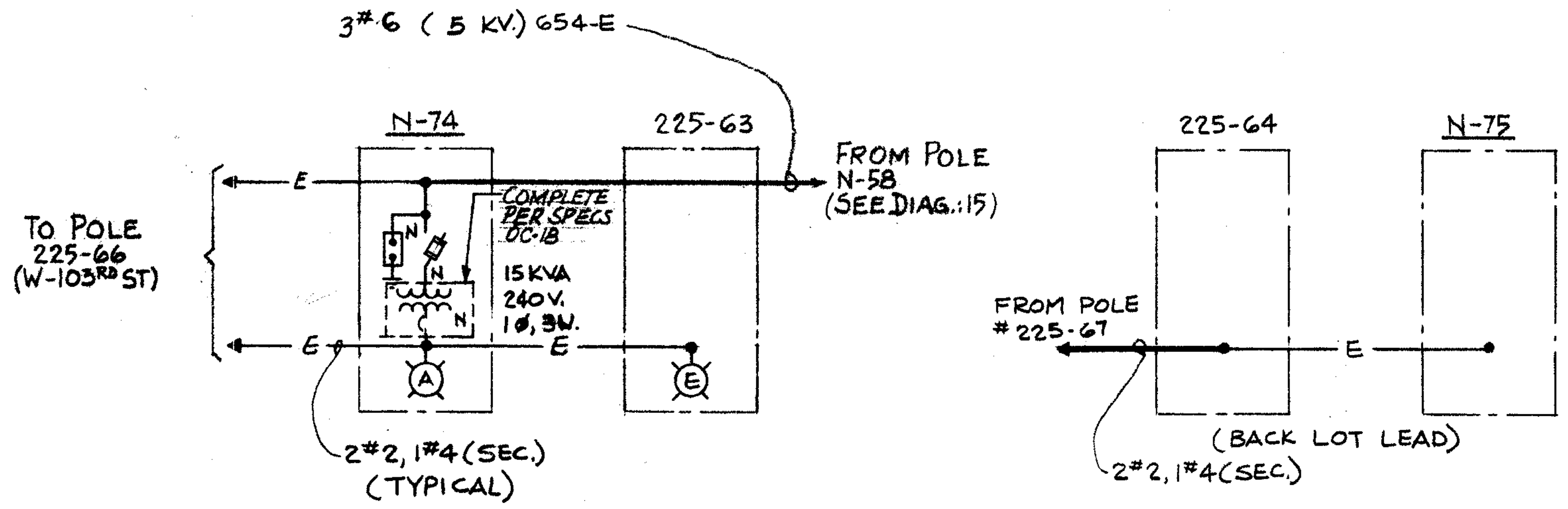

DIAGRAM No. 11 (FOR PLAN SEE SHT.# 31)
W. 103 ST.
SOUTH OF CAMERON ST.

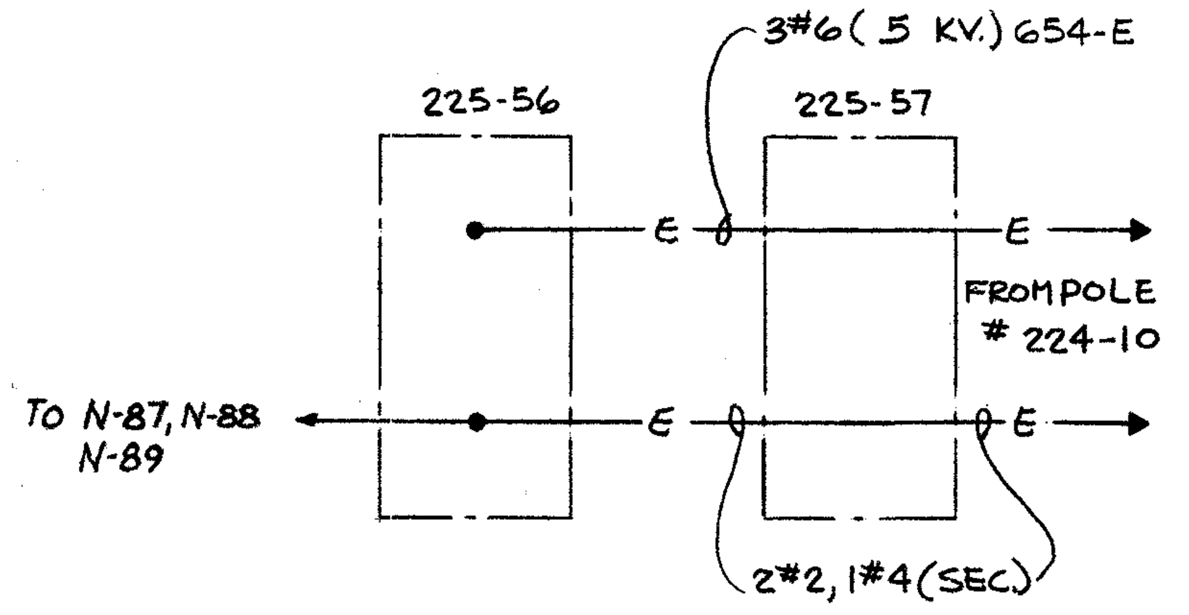

DIAGRAM No. 13 (FOR PLAN SEE SHT.# 32)
W. 104th ST. NORTH OF
NORTH FRONTAGE RD. # 2

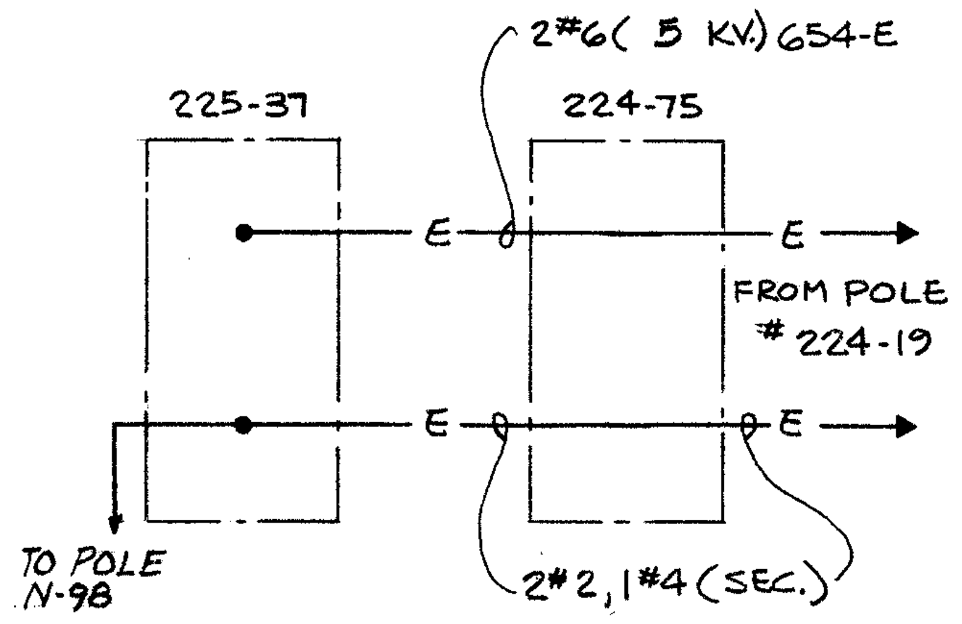

DIAGRAM No. 14 (FOR PLAN SEE SHT.# 32)
W. 105th ST. NORTH OF
NORTH FRONTAGE RD. #2

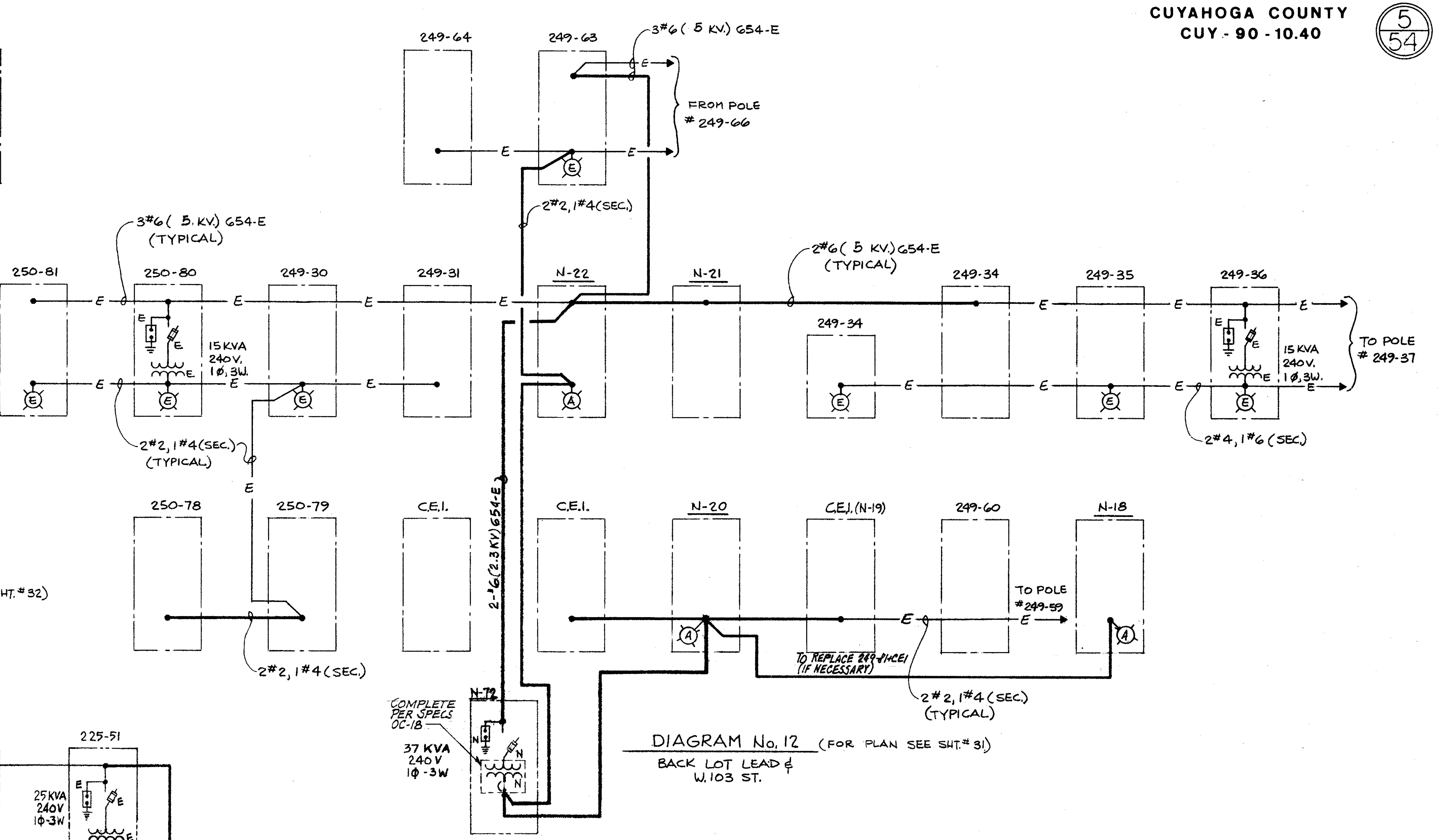

DIAGRAM No. 12 (FOR PLAN SEE SHT.# 31)
BACK LOT LEAD & W. 103 ST.

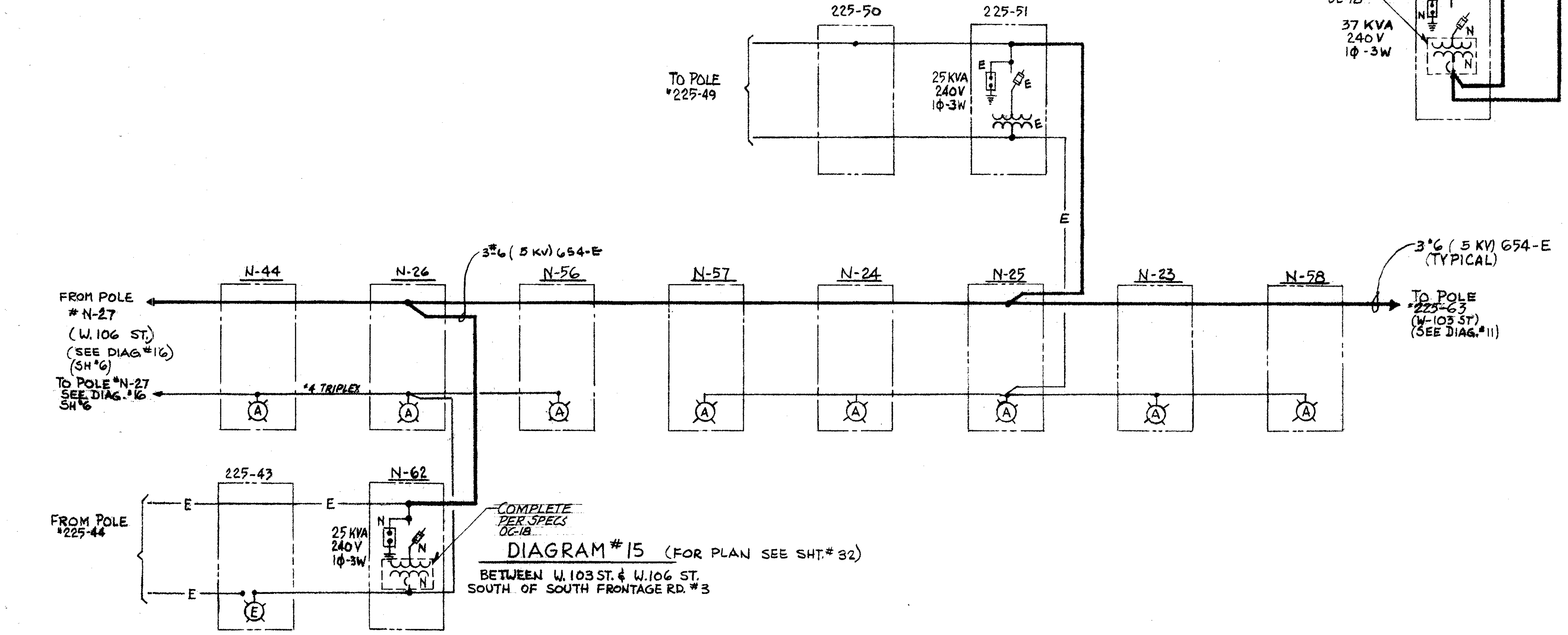

DIAGRAM # 15 (FOR PLAN SEE SHT.# 32)
BETWEEN W. 103 ST. & W. 106 ST.
SOUTH OF SOUTH FRONTAGE RD. # 3

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COMMISSIONER OF UTILITIES ENGINEERING

Robert J. Albach
CHIEF ELECTRICAL ENGINEER
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

GENERAL
ONE LINE DIAGRAMS

DRAWN BY RWZ	SCALE NO SCALE	DRAWING NUMBER 6587-1E
CH'K'D BY J.M.	DATE	

FED. RD.	STATE	PROJECT	
2	OHIO		

361
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

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54

DIAGRAM #16 (FOR PLAN SEE SHT. #32, 14 & 15)
W. 106TH ST.

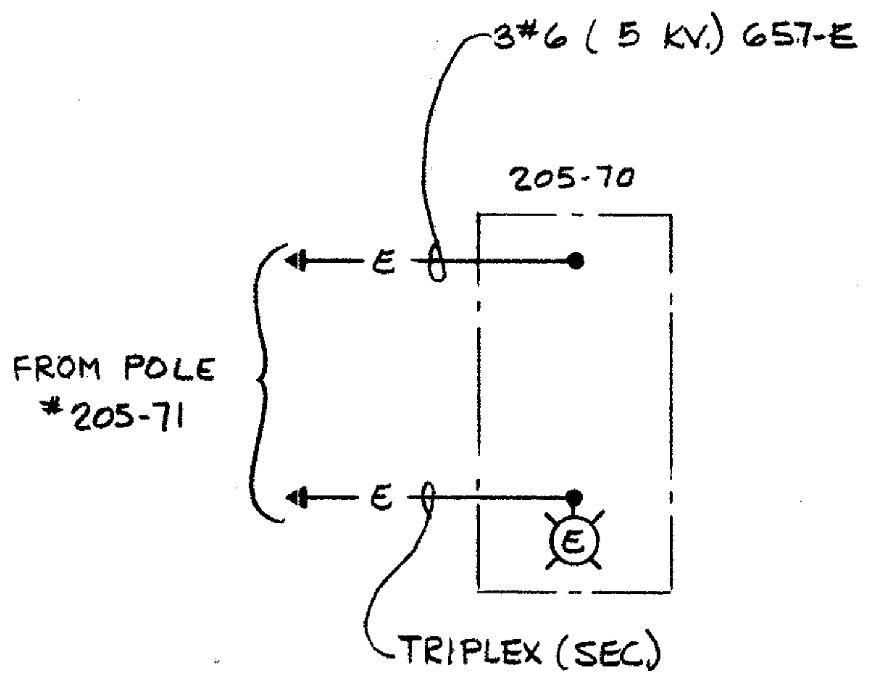

DIAGRAM #17 (FOR PLAN SEE SHT. #33)
W. 110TH ST.
SOUTH OF SOUTH FRONTAGE RD. #1

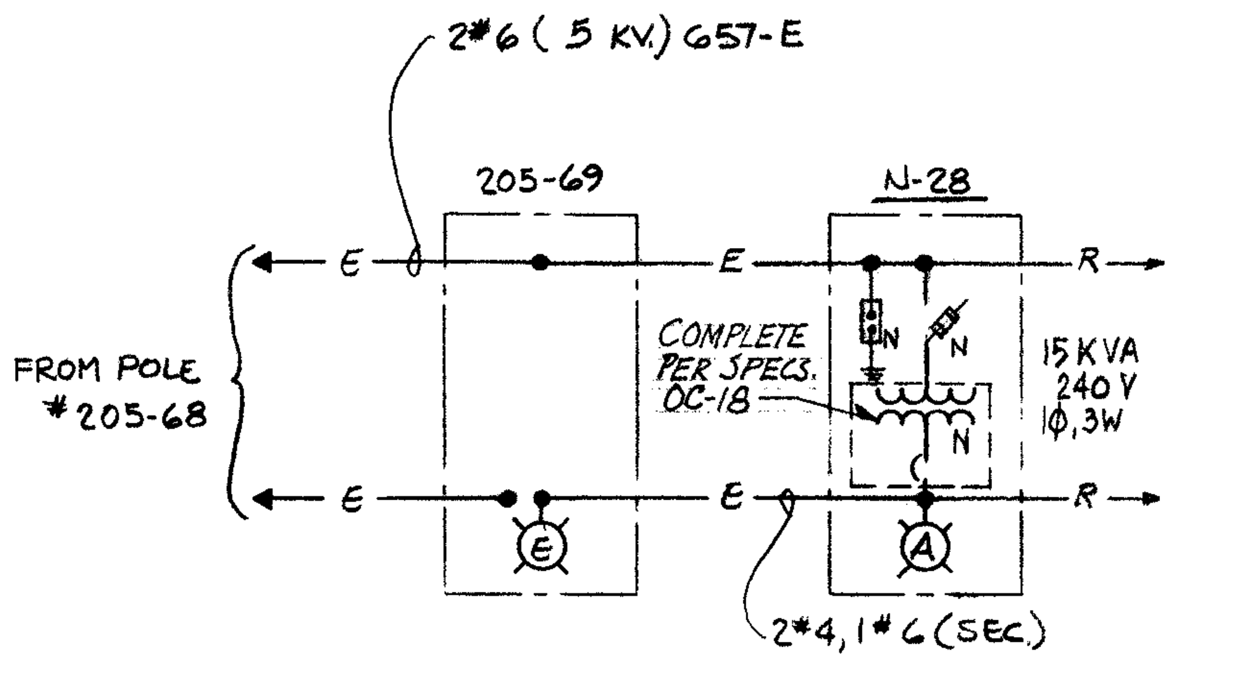

DIAGRAM #18 (FOR PLAN SEE SHT. #33)
W. 111TH ST.
SOUTH OF SOUTH FRONTAGE RD. #1

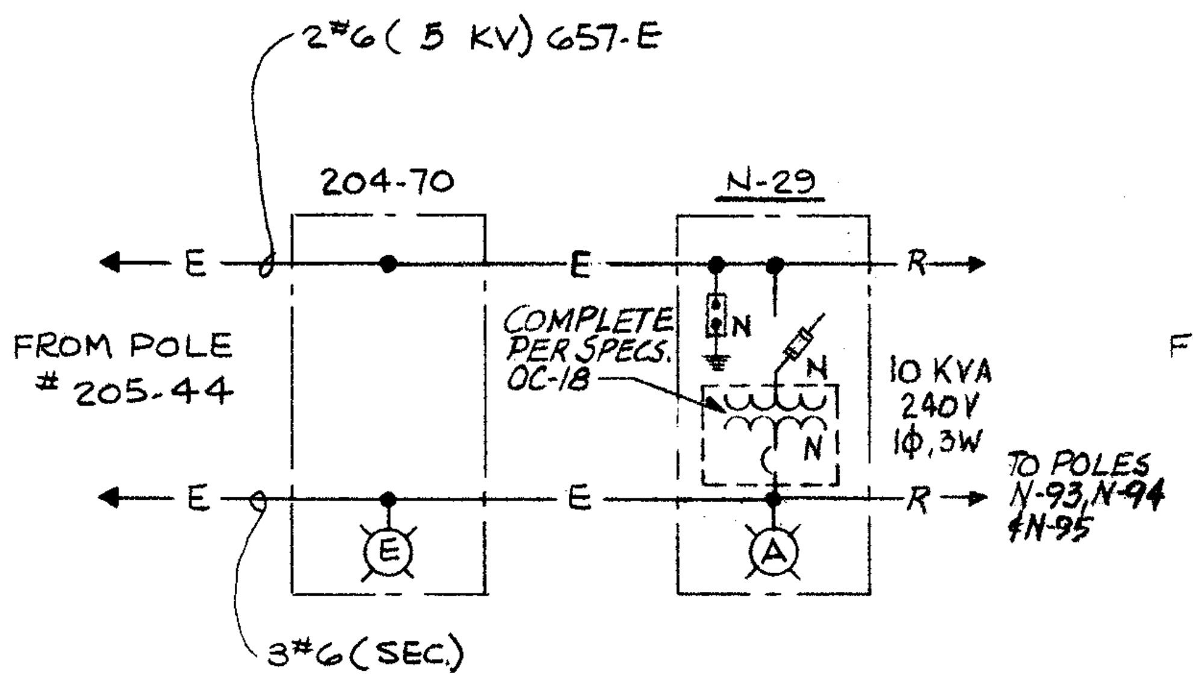

DIAGRAM #19 (FOR PLAN SEE SHT. #33)
W. 112TH ST.
SOUTH OF SOUTH FRONTAGE RD. #1

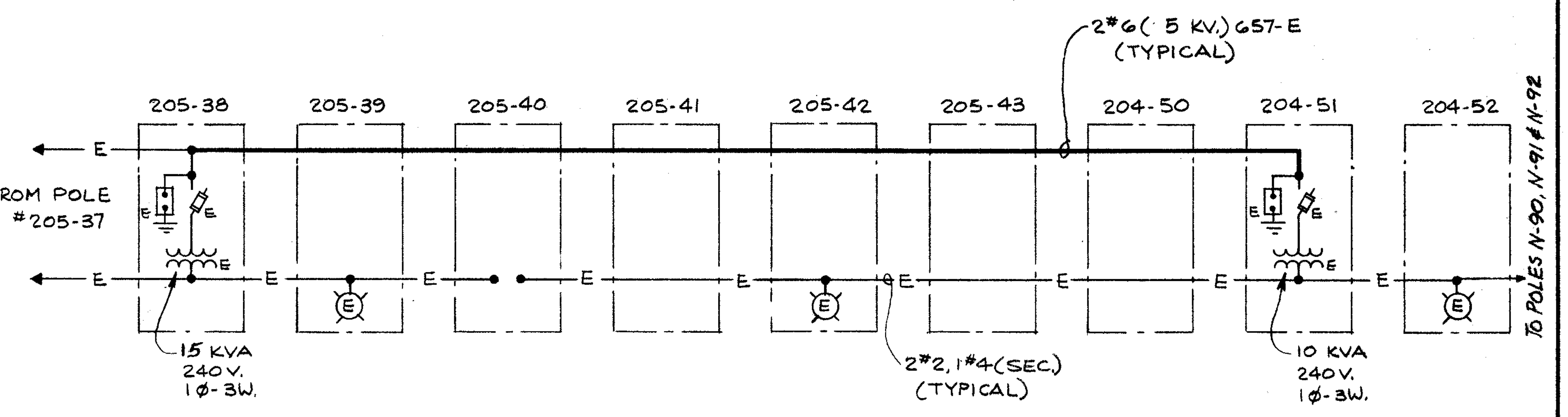

DIAGRAM #20 (FOR PLAN SEE SHT. #33)
W. 114TH ST.
SOUTH OF SOUTH FRONTAGE RD. #1

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Robert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

GENERAL
ONE LINE DIAGRAMS

DRAWN BY RWZ
CH'K'D BY J.M.
SCALE NO SCALE
DATE
DRAWING NUMBER 6587-1F

FED. RD.	STATE	PROJECT	
2	OHIO		

362
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

7
54

DIAGRAM #21 (FOR PLAN SEE SHT.#33)
W. 115TH ST.
SOUTH OF SOUTH FRONTAGE RD.#1

DIAGRAM #23 (FOR PLAN SEE SHT.#33)
W.114TH ST.
AT BELMONT AVE.

DIAGRAM #22 (FOR PLAN SEE SHT.#33)
W. 110TH ST. THRU W. 112TH ST.
BETWEEN BELMONT AVE. & WESTERN AVE.

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CHIEF ELECTRICAL ENGINEER
Robert J. Albach
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CITY OF CLEVELAND

GENERAL
ONE LINE DIAGRAMS

DRAWN BY RWZ	SCALE NO SCALE	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587 - 1G

FED. RD.	STATE	PROJECT	
2	OHIO		

363/713

8/54

CUYAHOGA COUNTY
CUY - 90 - 10.40

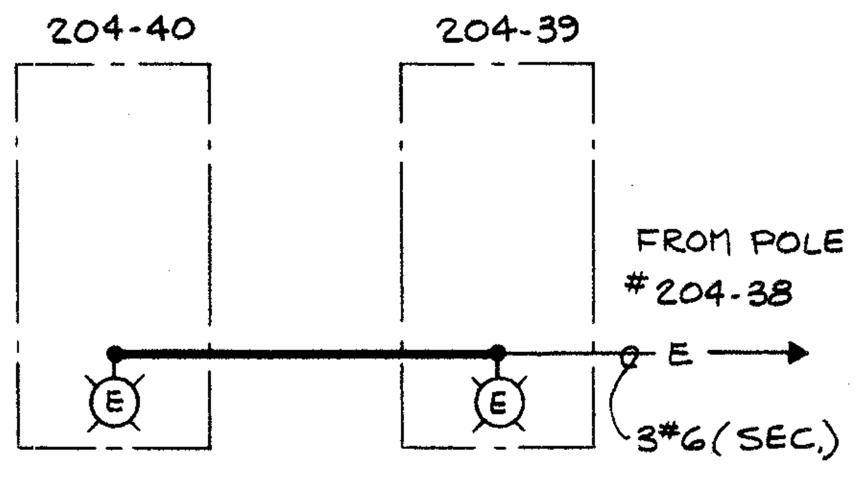

DIAGRAM #24 (FOR PLAN SEE SHT. #33)
W. 115TH ST.
AT BELMONT AVE.

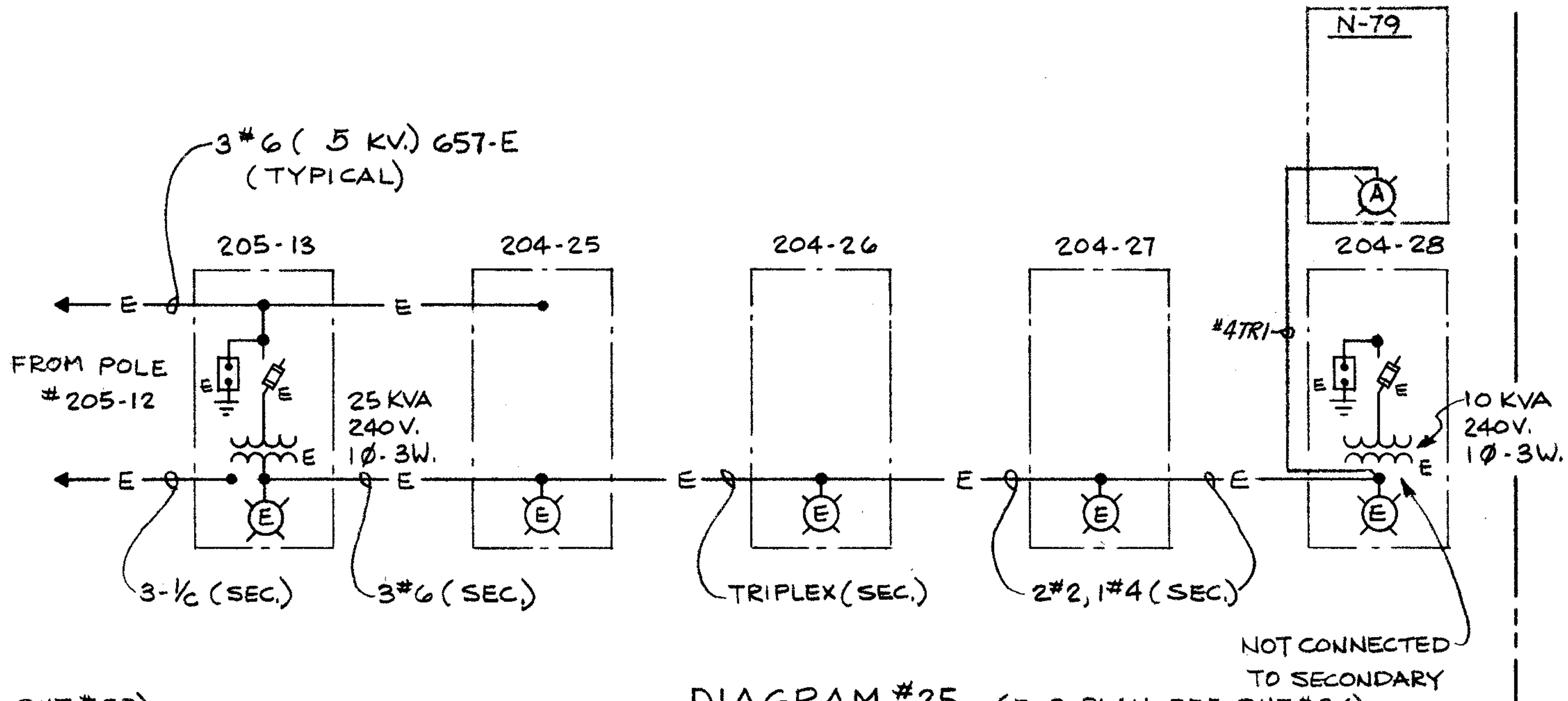

DIAGRAM #25 (FOR PLAN SEE SHT #34)
W. 116TH ST.
SOUTH OF RAMP #5

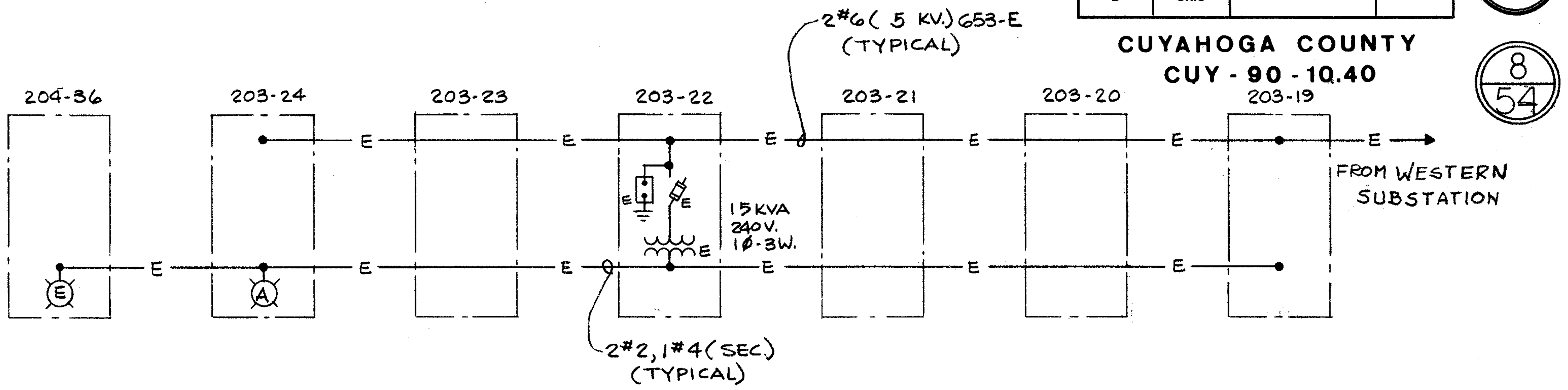

DIAGRAM #26 (FOR PLAN SEE SHT. #34)
W. 116TH ST.
NORTH OF BELMONT AVE.

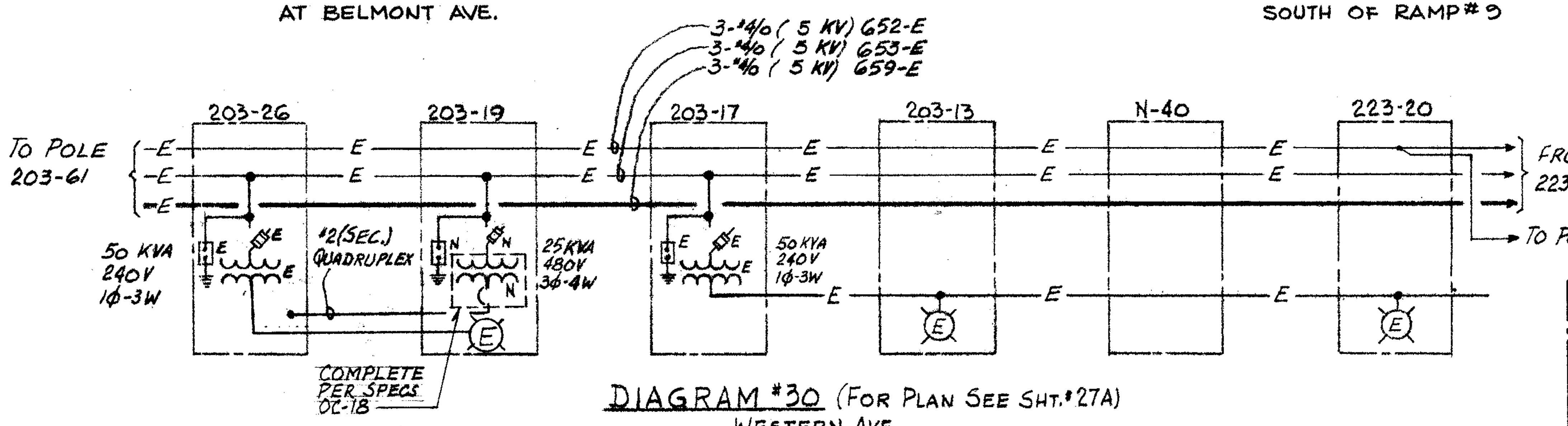

DIAGRAM #30 (FOR PLAN SEE SHT. #27A)
WESTERN AVE
@ 117TH ST.

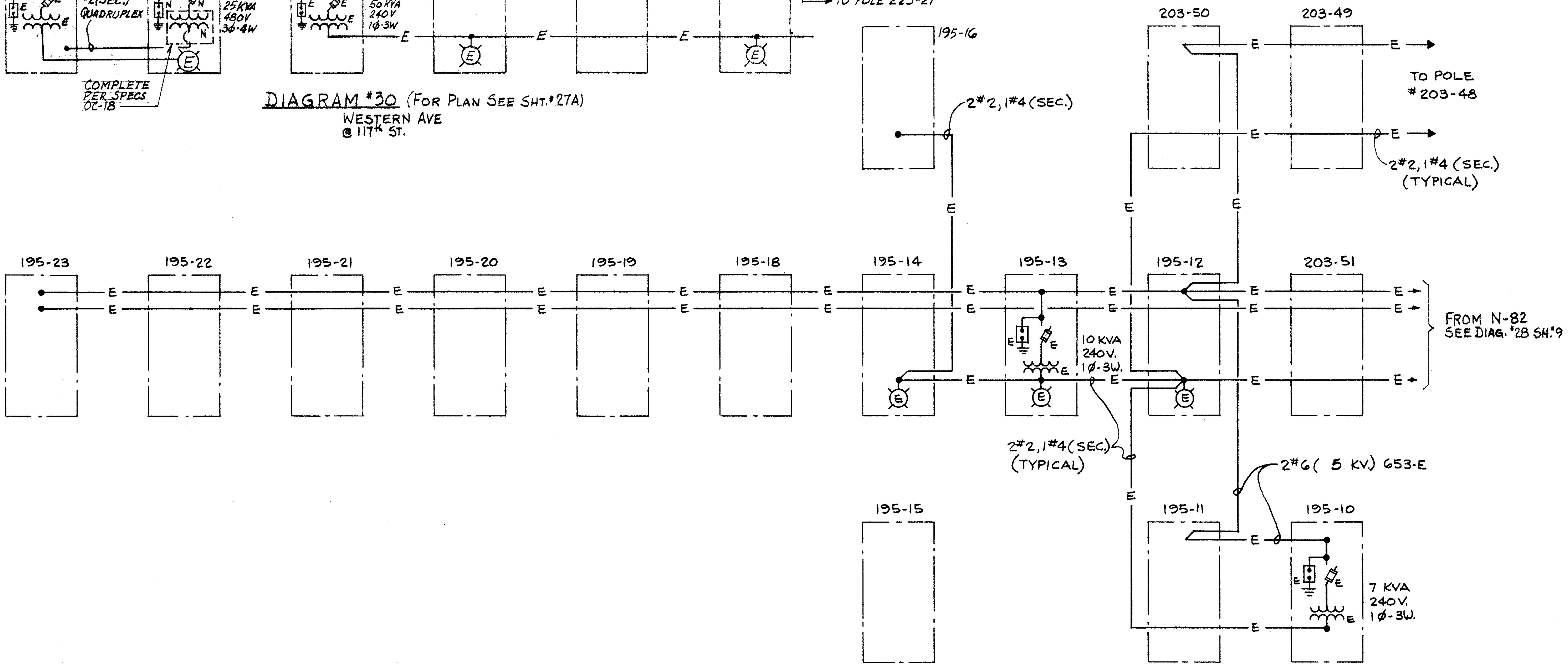

DIAGRAM #27 (FOR PLAN SEE SHT. #35)
ELMWOOD AVE. FROM
W. 119TH ST. TO W. 121ST ST.

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CITY OF CLEVELAND

GENERAL
ONE LINE DIAGRAMS

DRAWN BY RWZ	SCALE NO SCALE	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-1H

FED. RD.	STATE	PROJECT	
2	OHIO		

364
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

9
54

DIAGRAM #28 (FOR PLAN SEE SHT. #34, 16, 17, 18, 19 & 20)
W. 117TH ST

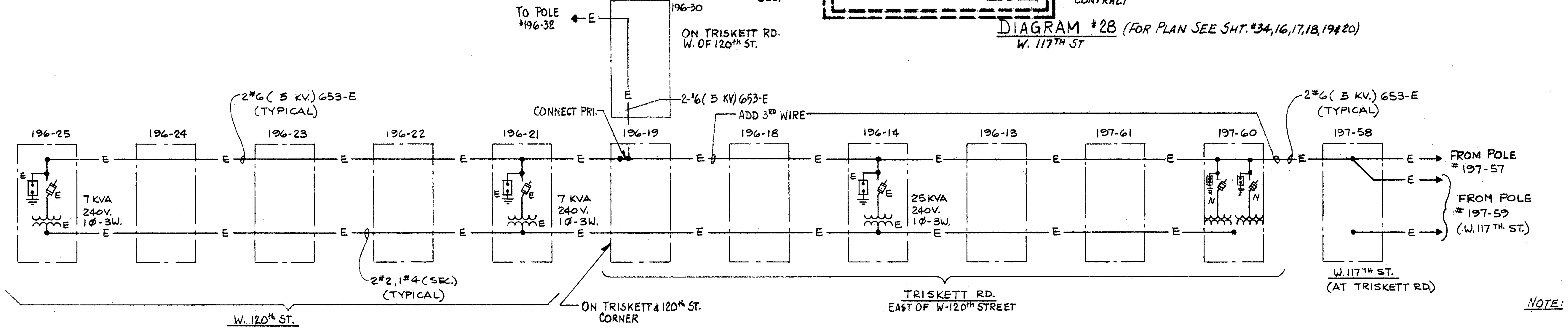

DIAGRAM #29 (FOR PLAN SEE SHT. #35)
W. 120TH ST.
SOUTH OF CLOVERDALE AVE.

NOTE: MANHOLE #5-20 SHALL CONTAIN FULLY SUBMERSIBLE INSTALLATION FOR EQUIPMENT MOUNTING, CONNECTION, SLEEVES, SPLICES & CABLES.

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CITY OF CLEVELAND

GENERAL
ONE LINE DIAGRAMS

DRAWN BY RWZ
CH'K'D BY J.M.
SCALE NO SCALE
DATE
DRAWING NUMBER 6587 - 1J

FED. RD.	STATE	PROJECT	
2	OHIO		

365/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

10/54

SYMBOL LEGEND

- ■ MELP MANHOLE - NEW
- ☐ MELP MANHOLE - EXISTING
- ☒ MELP MANHOLE - ABANDON OR REMOVE

UNDERGROUND MEASUREMENT

	SHEET NUMBER																
ITEM	30	31	34	11	12	13	14	15	16	17	18	19	20	21	GRAND TOTAL	UNIT	DESCRIPTION
UC-14	—	—	—	—	—	—	100	100	—	—	—	—	—	—	200	FT.	NON-ENCASED, BRIDGE SUPPORT 16-4" ASBESTOS CEMENT DUCT BANK
UC-14	—	—	—	—	—	—	—	—	—	—	▲ 240	—	—	—	240	FT.	NON-ENCASED, BRIDGE SUPPORT 6-4" ASBESTOS CEMENT DUCT BANK
UC-15	—	—	—	—	—	—	102	82	—	—	—	—	—	—	184	FT.	REINFORCED, CONCRETE ENCASED 16-4" ASBESTOS CEMENT DUCT BANK
UC-15	—	—	—	—	—	—	—	—	—	—	▲ 100	—	—	—	100	FT.	REINFORCED, CONCRETE ENCASED 6-4" ASBESTOS CEMENT DUCT BANK
UC-15	—	—	—	—	—	—	—	—	—	—	—	—	—	345	345	FT.	REINFORCED, CONCRETE ENCASED 4-4" ASBESTOS CEMENT DUCT BANK
UC-15	—	—	—	—	—	—	—	—	—	—	—	—	—	152	152	FT	REINFORCED, CONCRETE ENCASED 3-4" ASBESTOS CEMENT DUCT BANK
UC-13	250	105	190	—	—	—	—	—	—	—	—	—	—	—	545	FT.	NON-REINFORCED CONCRETE ENCASED 2-2" DUCT BANK
UC-13	—	—	—	▲182	▲290	▲170	20	—	152	▲390	▲50	▲390	▲652	—	2296	FT.	NON-REINFORCED CONCRETE ENCASED 6-4" DUCT BANK
UC-13	—	—	—	—	—	—	—	—	—	—	60	—	—	—	60	FT.	NON-REINFORCED CONCRETE ENCASED 4-4" DUCT BANK
UC-13	—	—	—	30	—	20	▲100	▲115	313	—	—	—	244	—	822	FT.	NON-REINFORCED CONCRETE ENCASED 3-4" DUCT BANK
UC-13	20	30	—	—	—	—	—	—	—	—	—	40	210	—	300	FT.	NON-REINFORCED CONCRETE ENCASED 2-4" DUCT BANK
UC-12	—	—	—	1	1	1	—	—	1	1	1	1	3	1	11	EA.	REINFORCED CONCRETE MANHOLES (FOR NEW DUCTS)
UC-12	—	—	—	—	—	—	1	1	—	—	—	—	—	—	2	EA.	REINFORCED CONCRETE MANHOLES (FOR INTERCEPTING EXISTING DUCTS)
UC-19	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	EA.	SUBMERSIBLE TRANSFORMER
UC-20	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	EA.	SUBMERSIBLE CUTOUT
UC-18	45	60	—	—	—	—	—	—	—	—	—	60	—	—	165	FT.	3/C - 5 KV #1/0 CABLE-LEAD
UC-18	—	—	—	500	600	640	1325	1300	880	1200	1370	1200	2670	1100	12,785	FT.	3/C 5KV #4/0 CABLE - LEAD
UC-18	—	—	—	—	—	—	675	675	—	—	—	—	—	—	1,350	FT.	3/C 15KV #4/0 CABLE LEAD
UC-18	—	—	—	—	—	—	—	—	—	—	—	—	580	—	580	FT.	1/C 600V #2/0 - CABLE - CP
UC-18	—	15	—	15	—	—	—	—	—	—	—	15	—	—	45	FT.	1/C 5KV #1/0 - CABLE - XLP
UC-18	—	3	—	3	—	—	—	—	—	—	—	3	—	—	9	EA	LUGS TO CONNECT #1/0 & #4/0 CABLE
UC-21	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	EA	4" WEATHERHEAD FOR 3-#2/0 CABLE
UC-17	—	—	—	—	—	—	1	1	—	—	—	—	—	—	2	EA.	MANHOLE (ABANDONED OR REMOVED)
UC-12	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	EA	MANHOLE (ALTERED)
GS-10	—	—	—	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	REMOVAL
UC-18	—	—	—	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	TESTING OF CABLES
UC-18	—	—	—	24	24	24	72	54	36	36	54	42	132	—	498	FT	FIREPROOFING CABLE
UC-18	—	—	—	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	MARKING CABLES IN MANHOLES

▲ 62.7% - FEDERAL, STATE & CITY
37.3% - 100% CITY

CALCULATED BY R.P DATE 7-70
CHECKED BY J.M. DATE 9-72

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COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

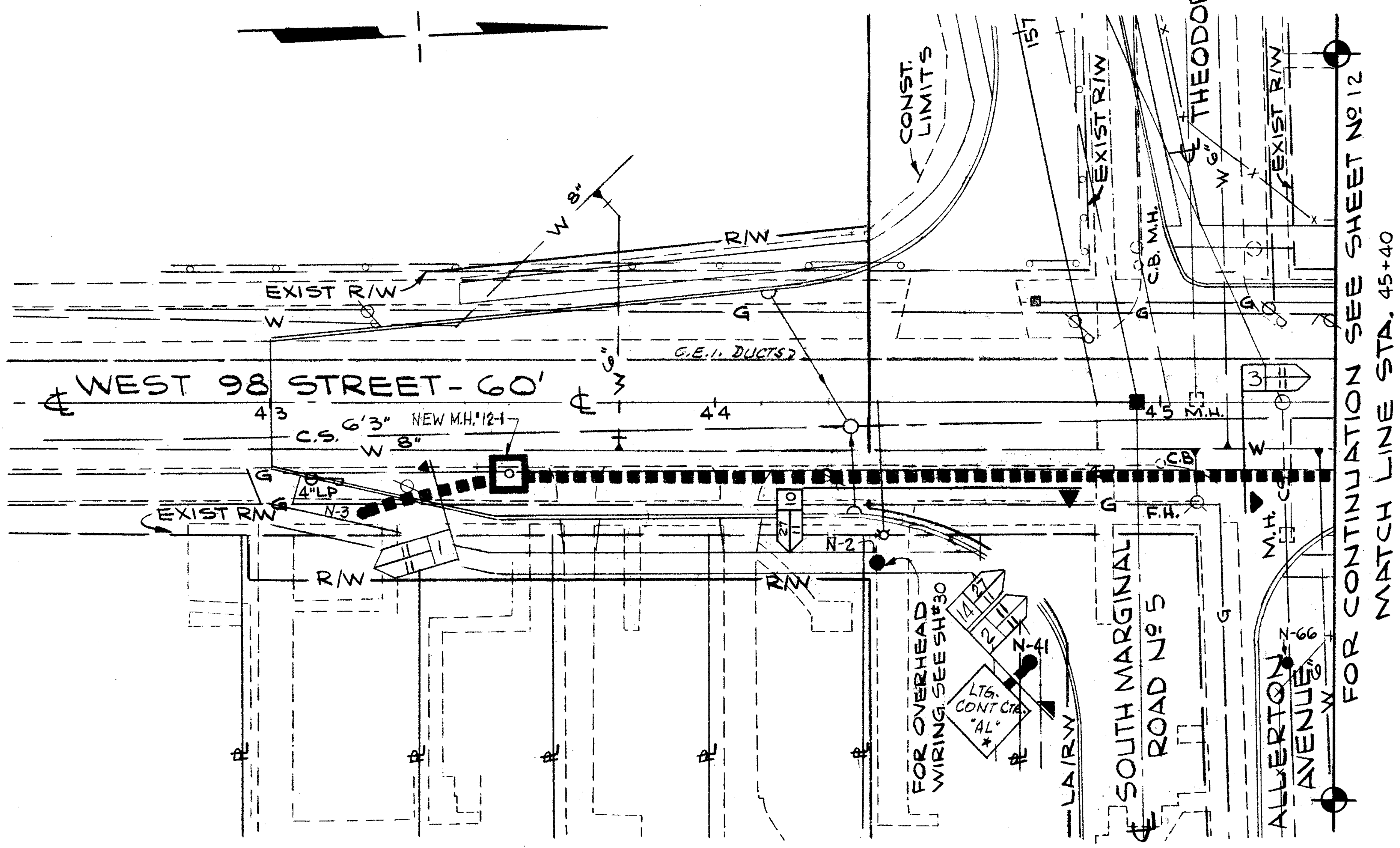
DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND
MEASUREMENT

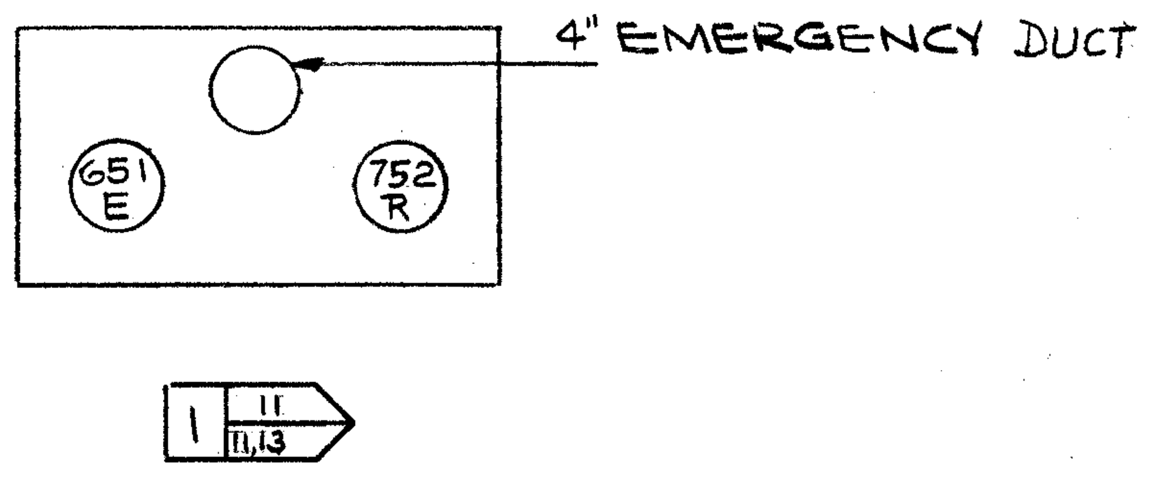
DRAWN BY R.POTOCNIK
CH'K'D BY J.M.
SCALE NONE
DATE
DRAWING NUMBER **6587-2A**

FED. RD.	STATE	PROJECT	
2	OHIO		

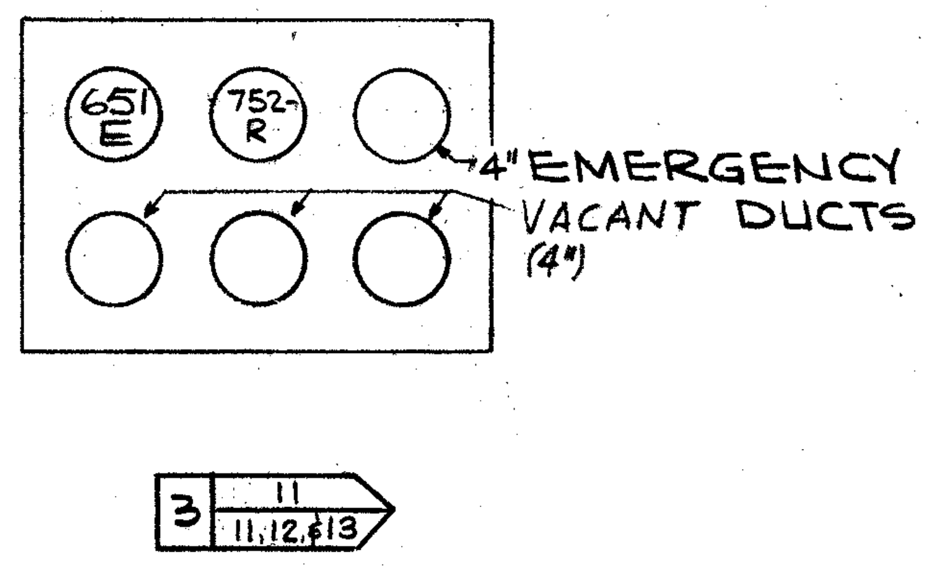
CUYAHOGA COUNTY
CUY - 90 - 10.40



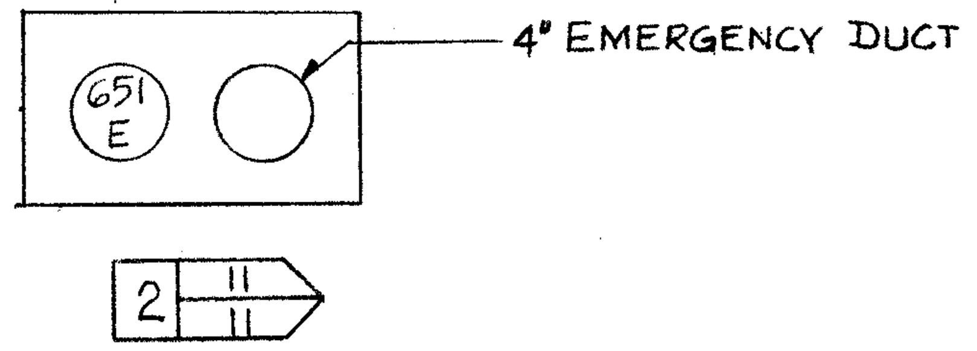
PLAN- UNDERGROUND WIRING
SCALE 1"= 20'-0"



FEEDER CABLE LOCATION
(N.T.S.)

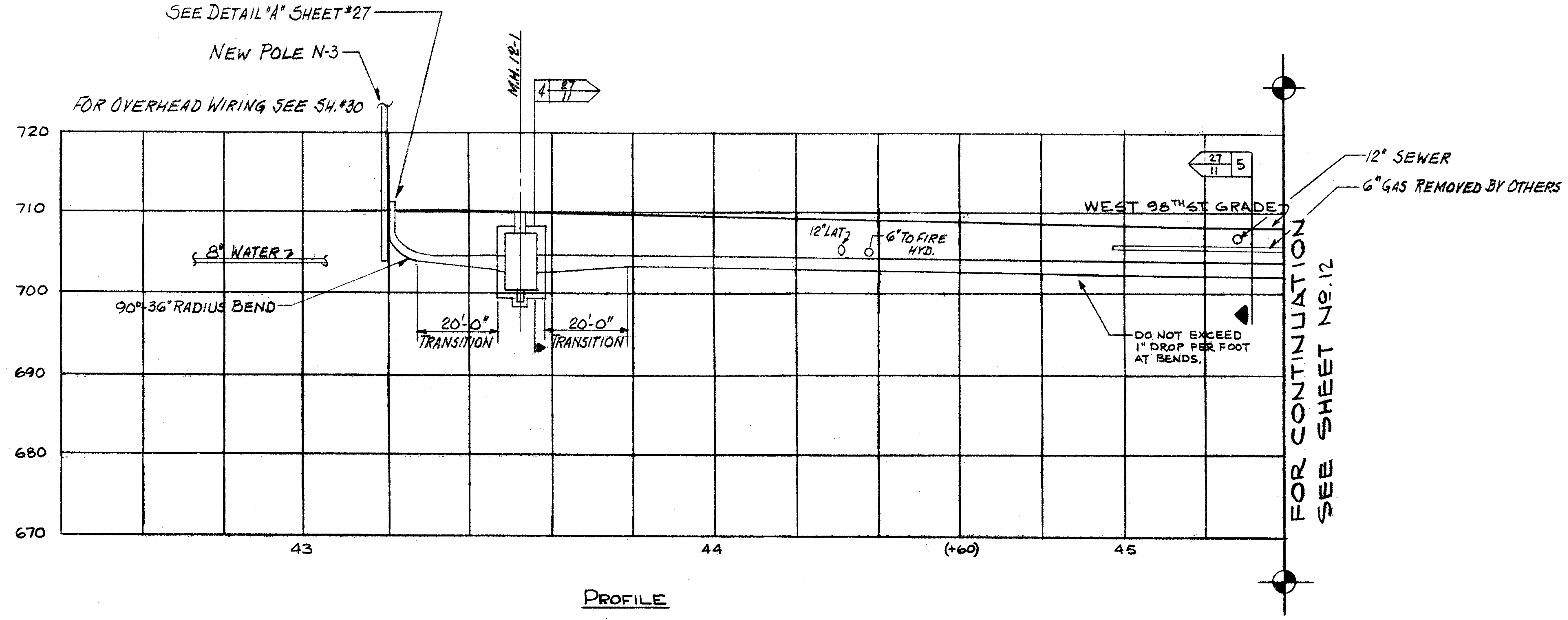


FEEDER CABLE LOCATION
(N.T.S.)



FEEDER CABLE LOCATION
(N.T.S.)

* FOR CONNECTION OF LIGHTING CONTROL CENTER SEE ONE LINE DIAGRAM



PROFILE
HORZ: 1" = 20'-0"
VERT: 1" = 10'-0"

ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

MANHOLE #12-1 LOCATION: WEST 98TH ST.
STA. 43+54, 16 RT.
FOR M.H. SIZE SEE SH. #23

NOTE
SEE ONE LINE DIAGRAM #5, SHEET NO. 3

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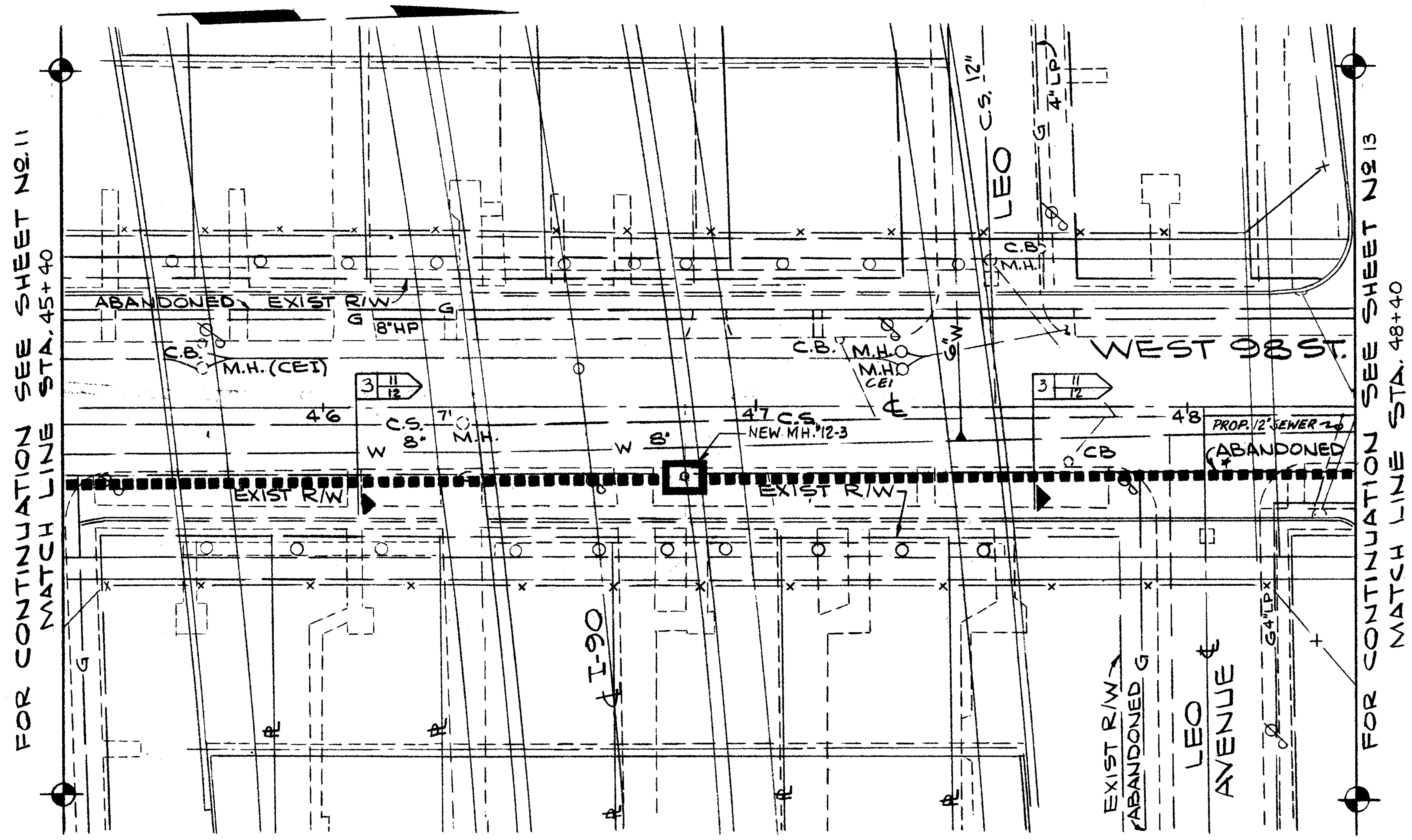
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER CITY OF CLEVELAND		
UNDERGROUND PLAN - W. 98th ST.		
DRAWN BY RJP/SLV	SCALE AS NOTED	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-2B

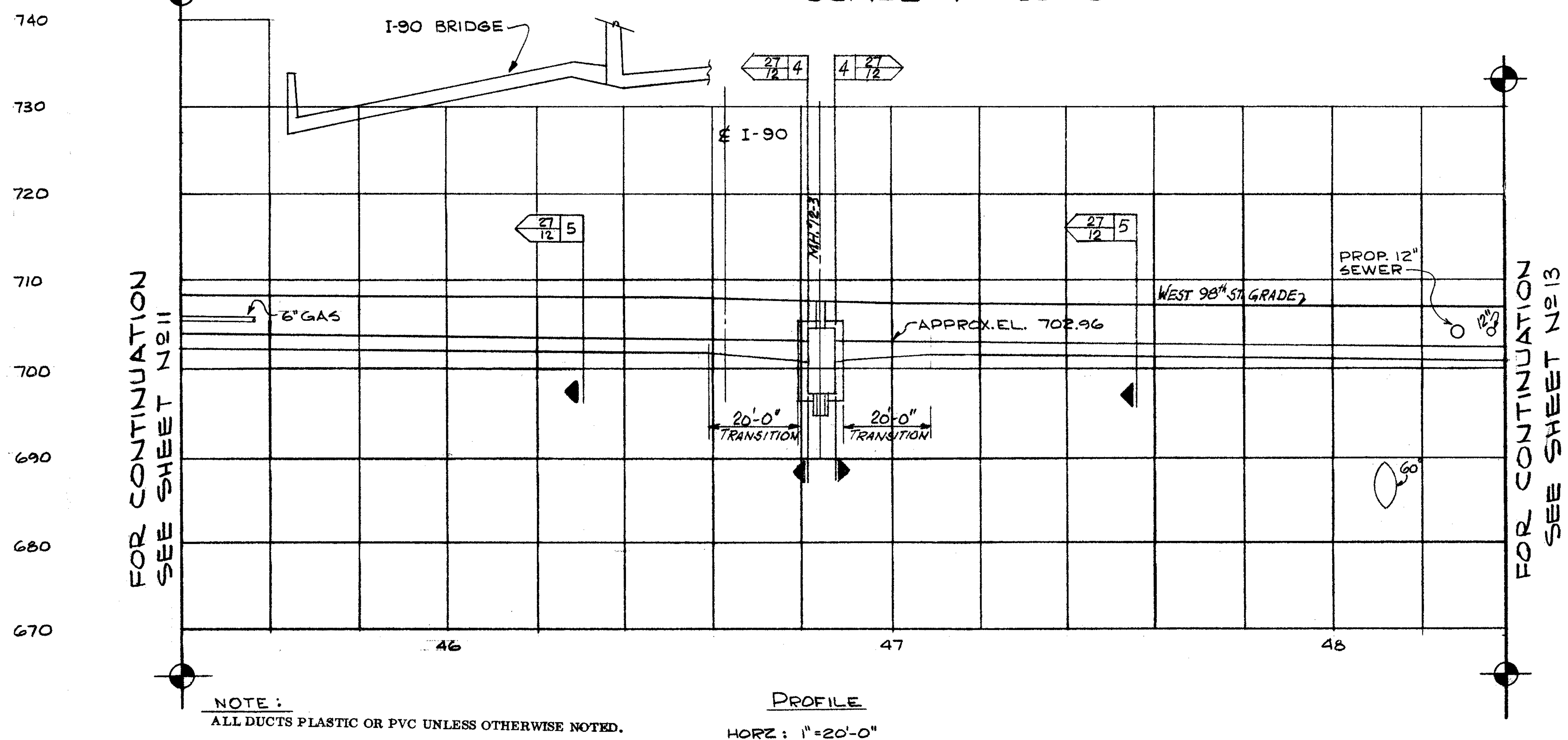
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



PLAN – UNDERGROUND WIRING

SCALE 1" = 20'-0"



NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

PROFILE

HORZ: 1" = 20'-0"
VERT: 1" = 10'-0"

* ABANDONED GAS LINE MAY BE REMOVED IF INTERFERENCE EXISTS.

NOTE

SEE ONE LINE DIAGRAM #5, SHEET No. 3

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CITY OF CLEVELAND

UNDERGROUND PLAN - W. 98th ST.

DRAWN BY RJP/SLV	SCALE AS NOTED	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-2C

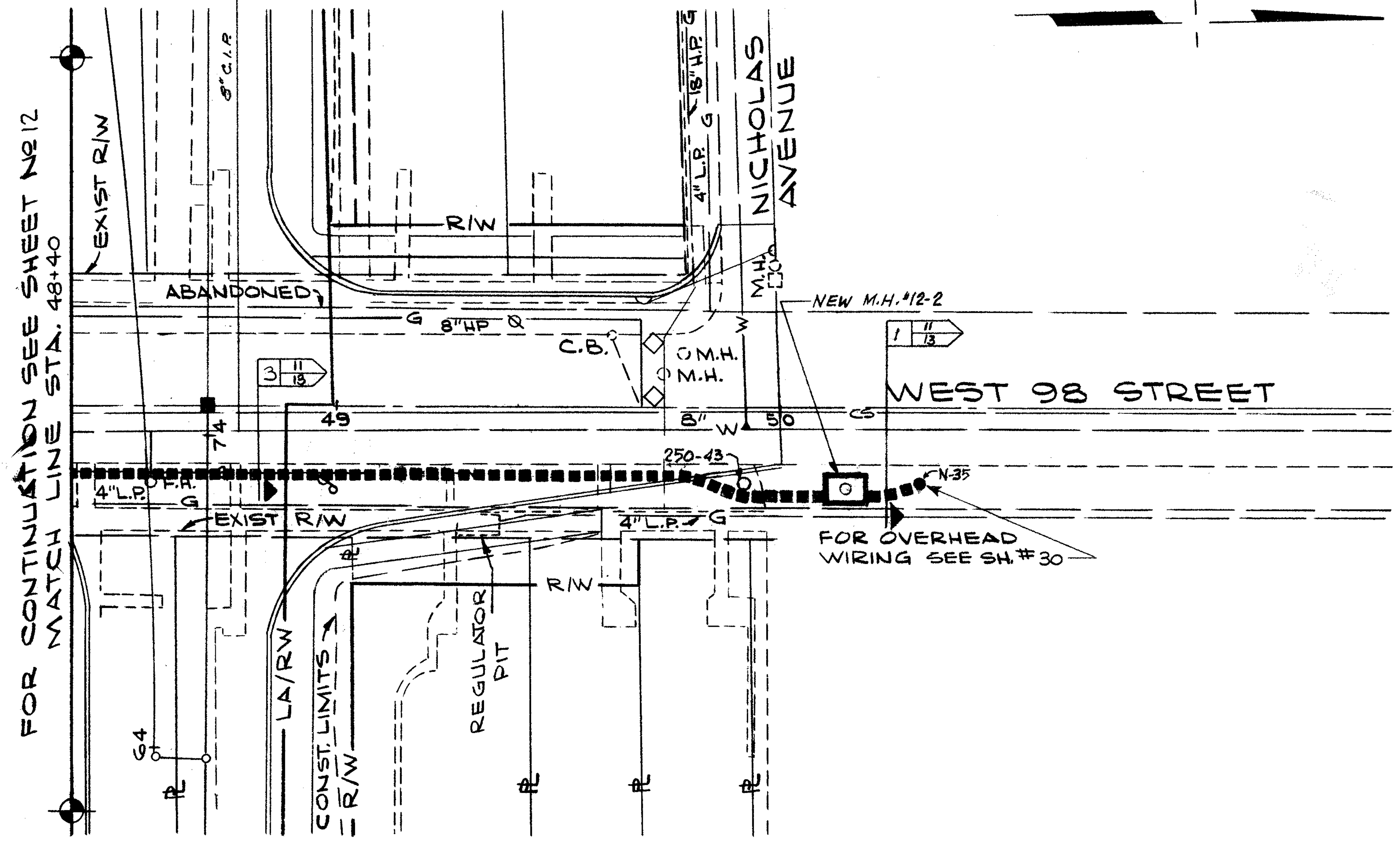
FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO		

368
713

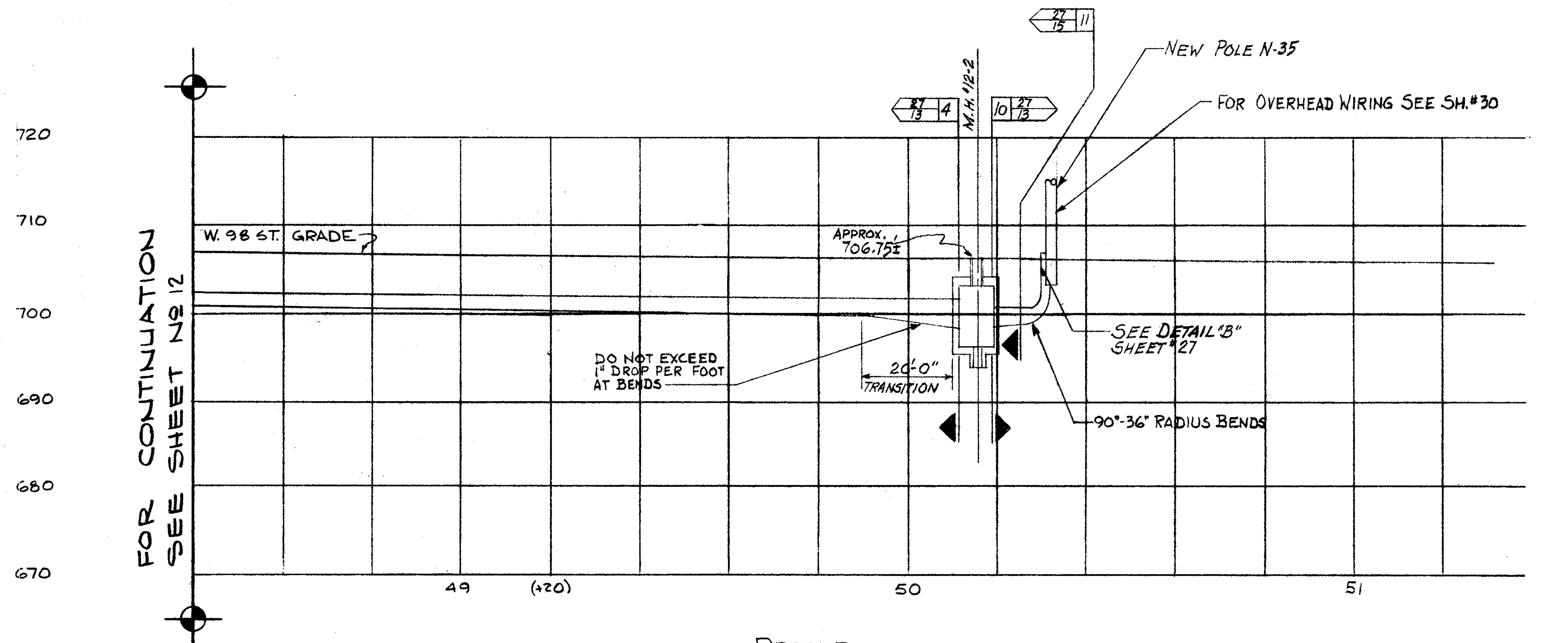
CUYAHOGA COUNTY
CUY - 90 - 10.40

13
54



PLAN- UNDERGROUND WIRING

SCALE 1" = 20'-0"



PROFILE

HOR'Z: 1" = 20'-0"
VERT: 1" = 10'-0"

NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

MANHOLE #12-2 LOCATION: WEST 98TH ST.
STA. 50 + 14, 19'-0" RT.
FOR M.H. SIZE SEE SH. #23

NOTE
SEE ONE LINE DIAGRAM #5, SHEET No. 3

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ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND PLAN - W. 98th ST.

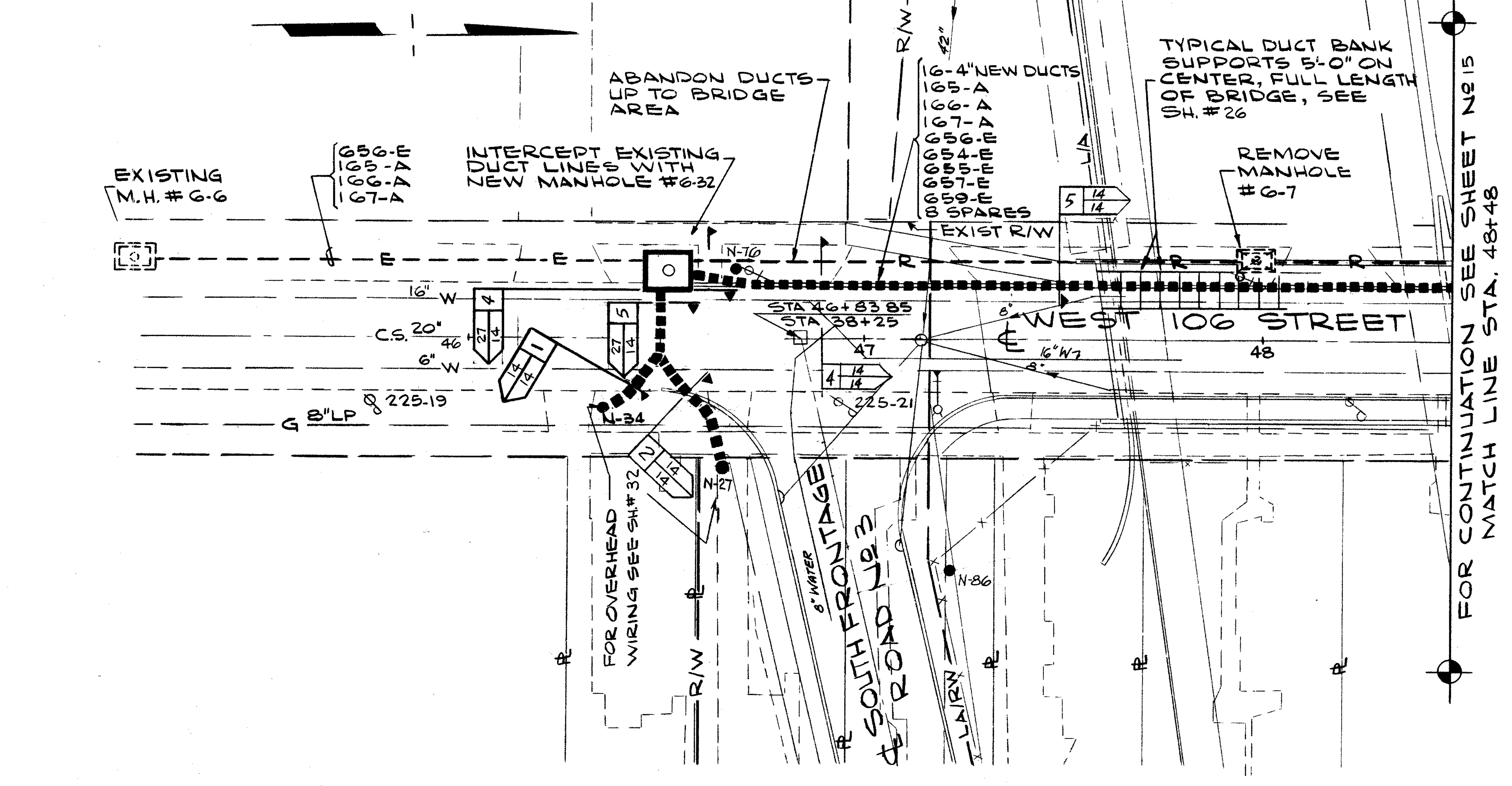
DRAWN BY RJP/SLV	SCALE AS NOTED	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-2D

FED. RD.	STATE	PROJECT	
2	OHIO		

369/713

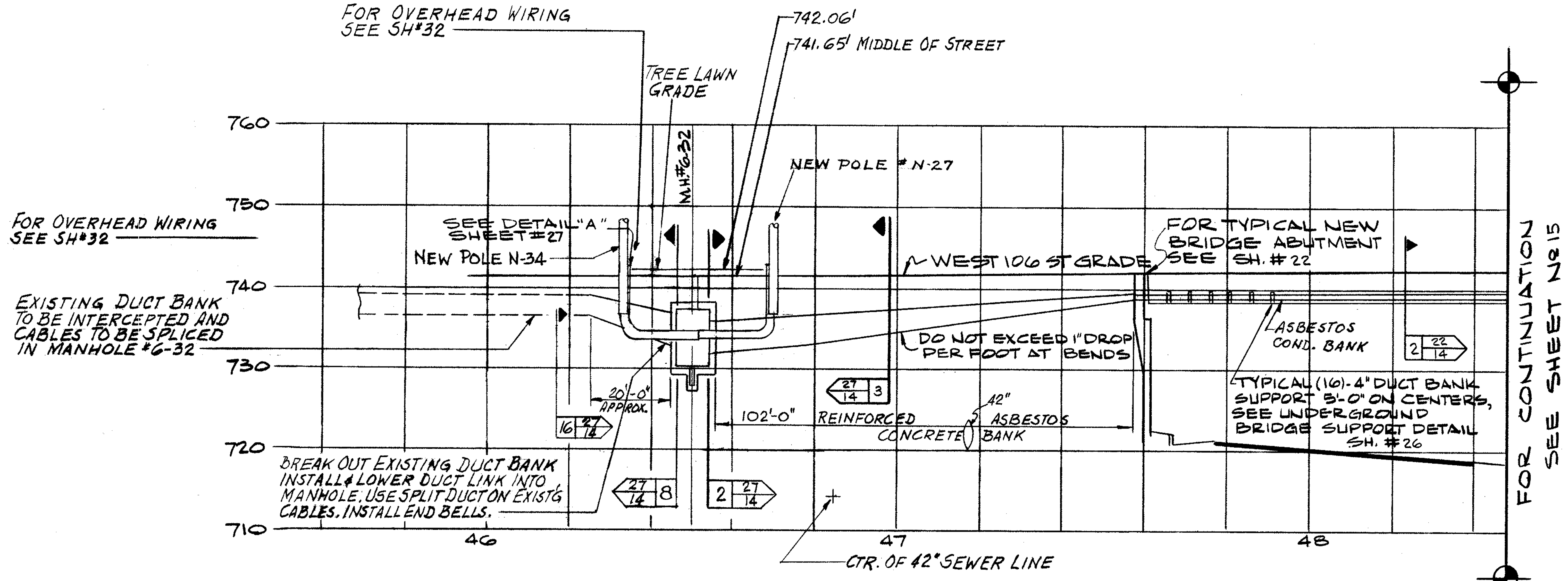
14/54

CUYAHOGA COUNTY
CUY - 90 - 10.40



PLAN-UNDERGROUND WIRING

SCALE 1"= 20'- 0"

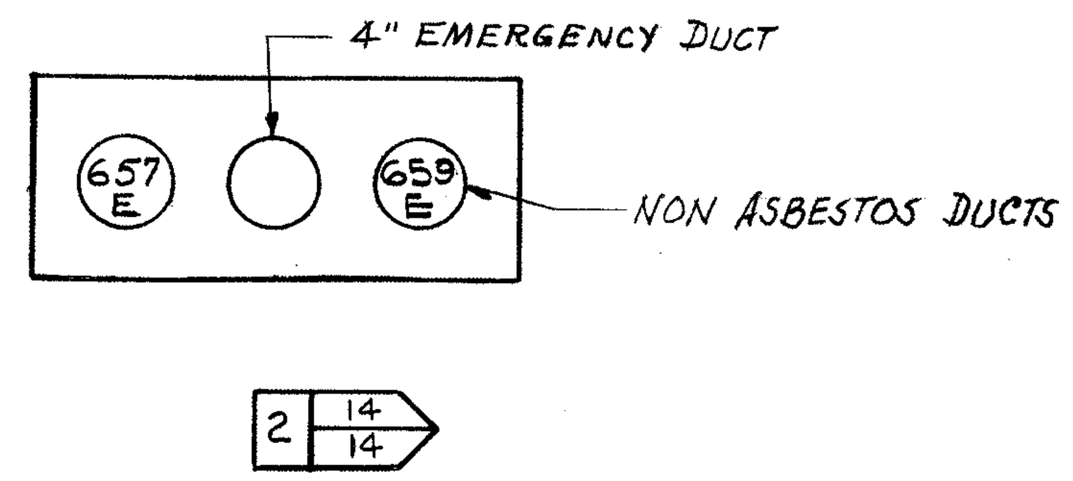


PROFILE

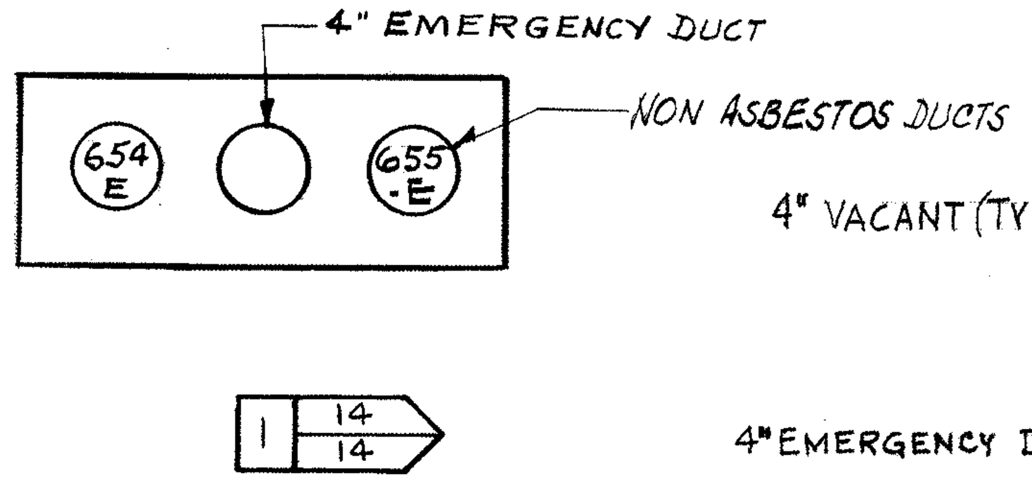
HORZ. 1"= 20'-0"
VERT. 1"= 10'-0"

MANHOLE #6-32 LOCATION: W. 106TH ST.
STA. 46+51 17.71 LT.
FOR M.H. SIZE SEE SH.#23

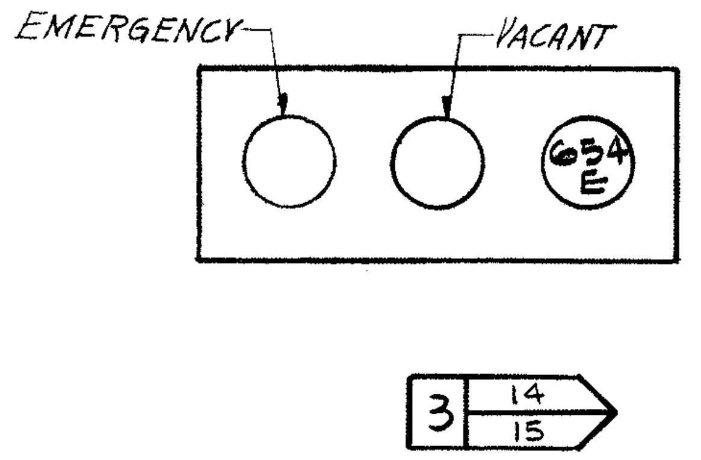
NOTE:
~~ALL~~ DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.



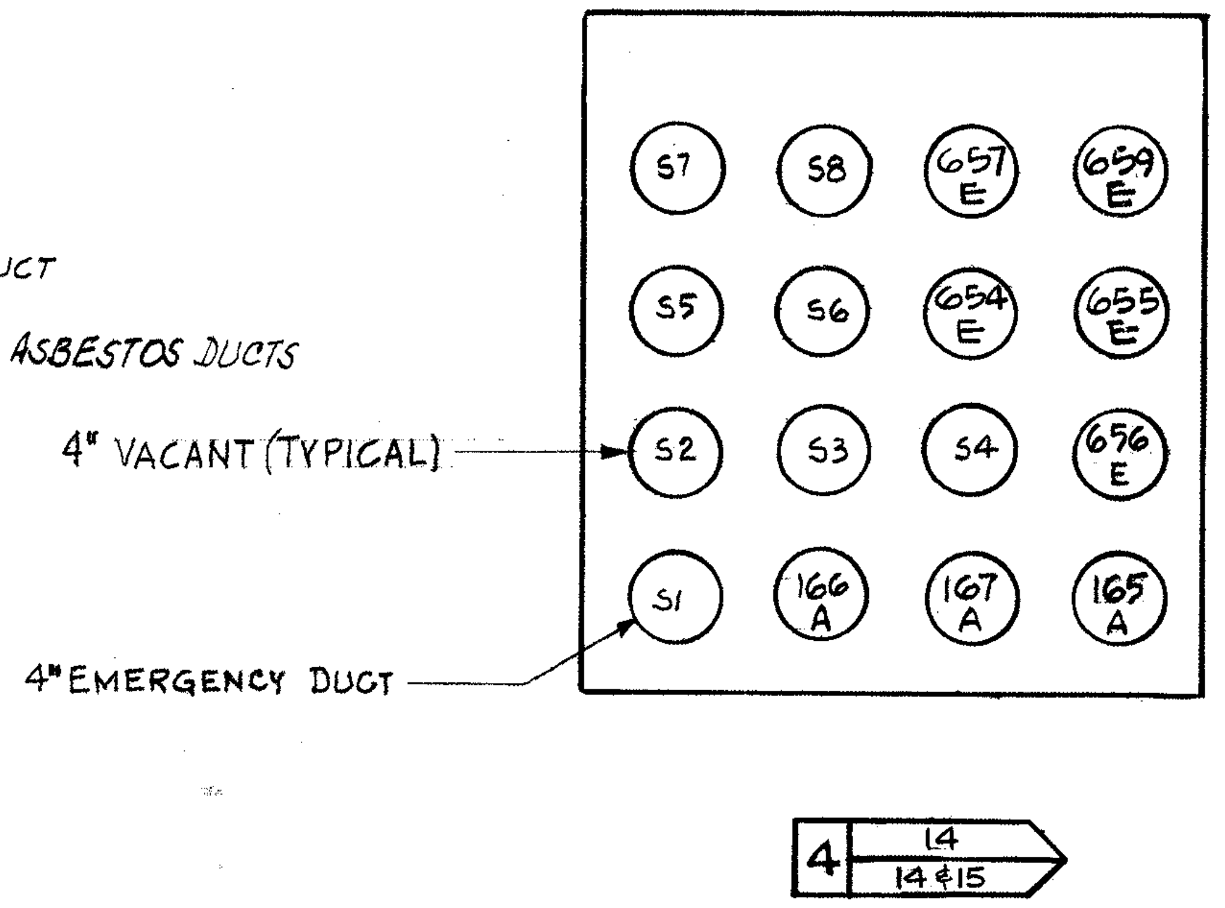
FEEDER CABLE LOCATION
(N.T.S.)



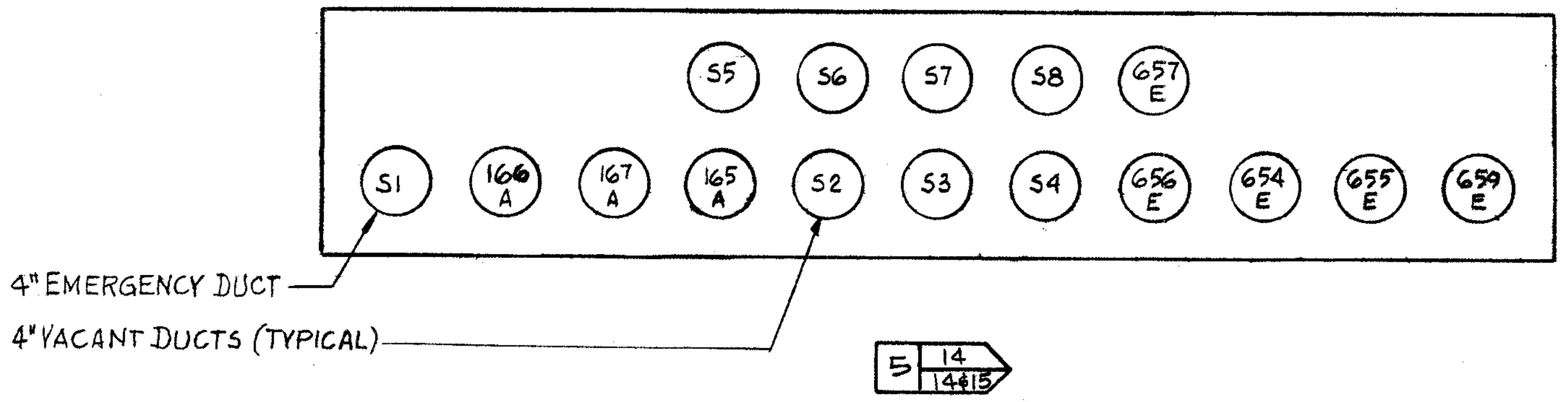
FEEDER CABLE LOCATION
(N.T.S.)



FEEDER CABLE LOCATION
(N.T.S.)



FEEDER CABLE LOCATION
(N.T.S.)



FEEDER CABLE LOCATION
(N.T.S.)

NOTE
SEE ONE LINE DIAGRAM #16, SHEET NO. 6

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CHIEF ELECTRICAL ENGINEER Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND PLAN - W. 106th ST

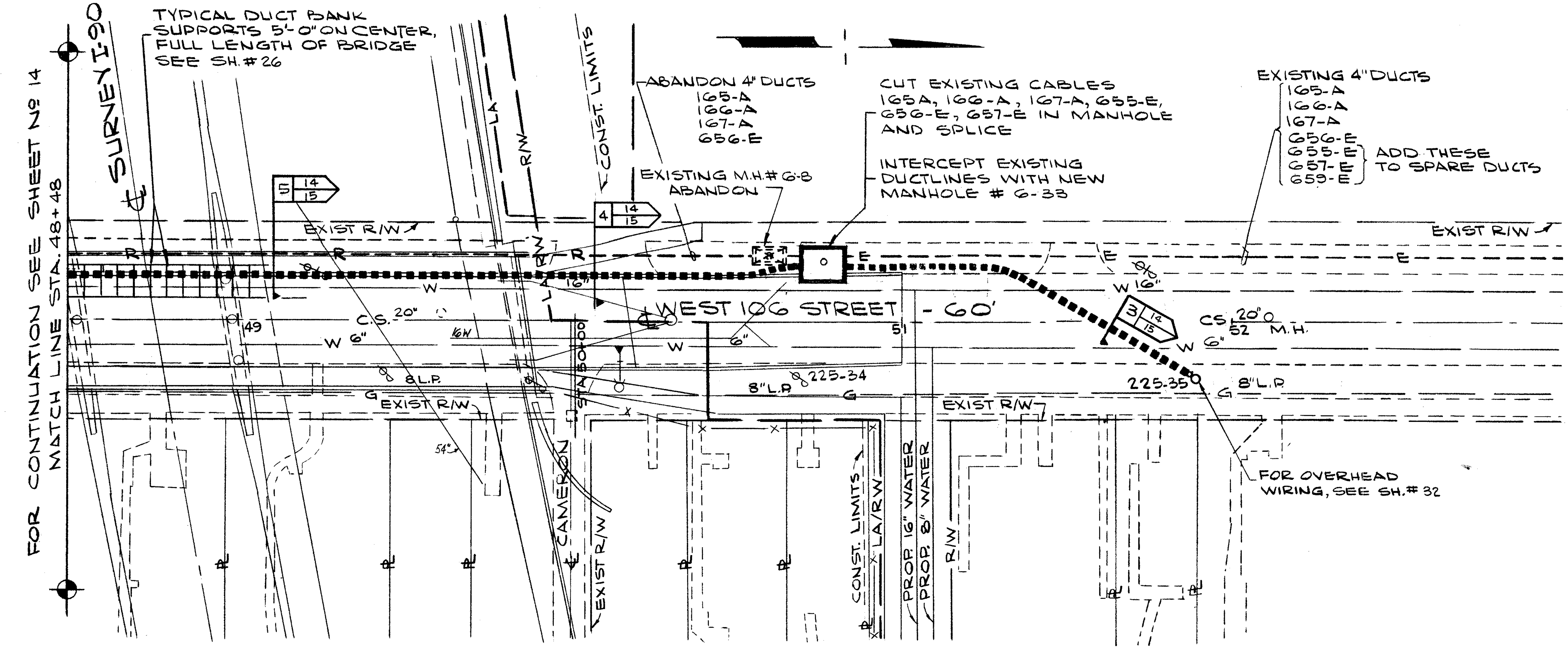
DRAWN BY R. POTOCNIK
CH'K'D BY J.M.
SCALE AS NOTED
DATE
DRAWING NUMBER **6587-2E**

FED. RD.	STATE	PROJECT	
2	OHIO		

370/713

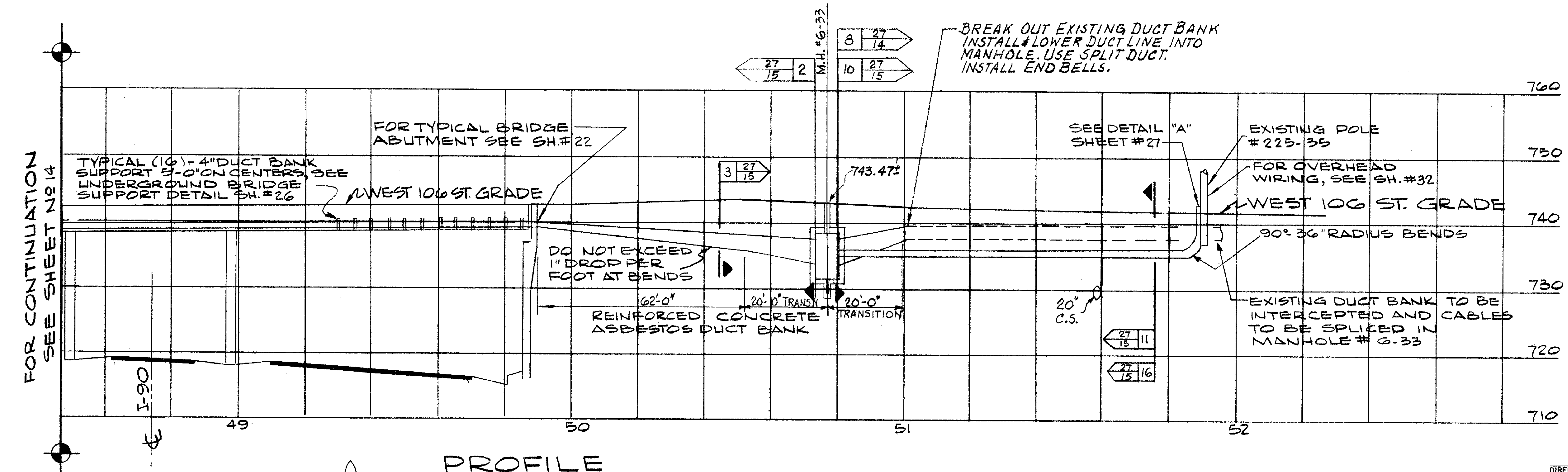
CUYAHOGA COUNTY
CUY - 90 - 10.40

15/54



PLAN- UNDERGROUND WIRING

SCALE: 1" = 20'-0"



NOTE
SEE ONE LINE DIAGRAM # 16, SHEET NO. 6

PROFILE

HORZ: 1" = 20'-0"
VERT: 1" = 10'-0"

MANHOLE # 6-33 LOCATION: W-106 ST.
STA 50+76, 18.71 LT.
FOR M.H. SIZE SEE SH. # 23

NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

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CHIEF ELECTRICAL ENGINEER

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ENGINEER OF DESIGN

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CITY OF CLEVELAND

UNDERGROUND PLAN W. 106th ST.

DRAWN BY RJP	SCALE AS NOTED	DRAWING NUMBER
CH'K'D BY J.M.	DATE	**6587-2F**

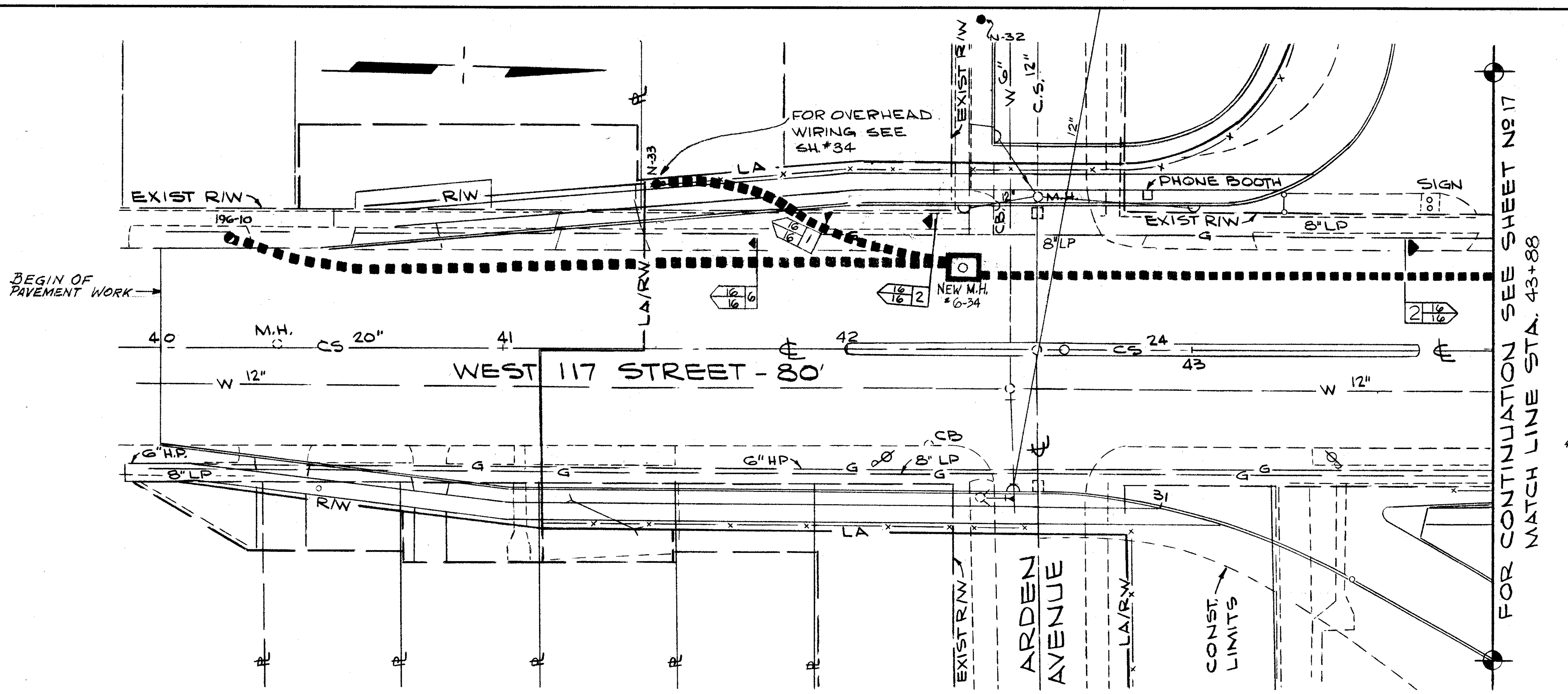
FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO		

371/713

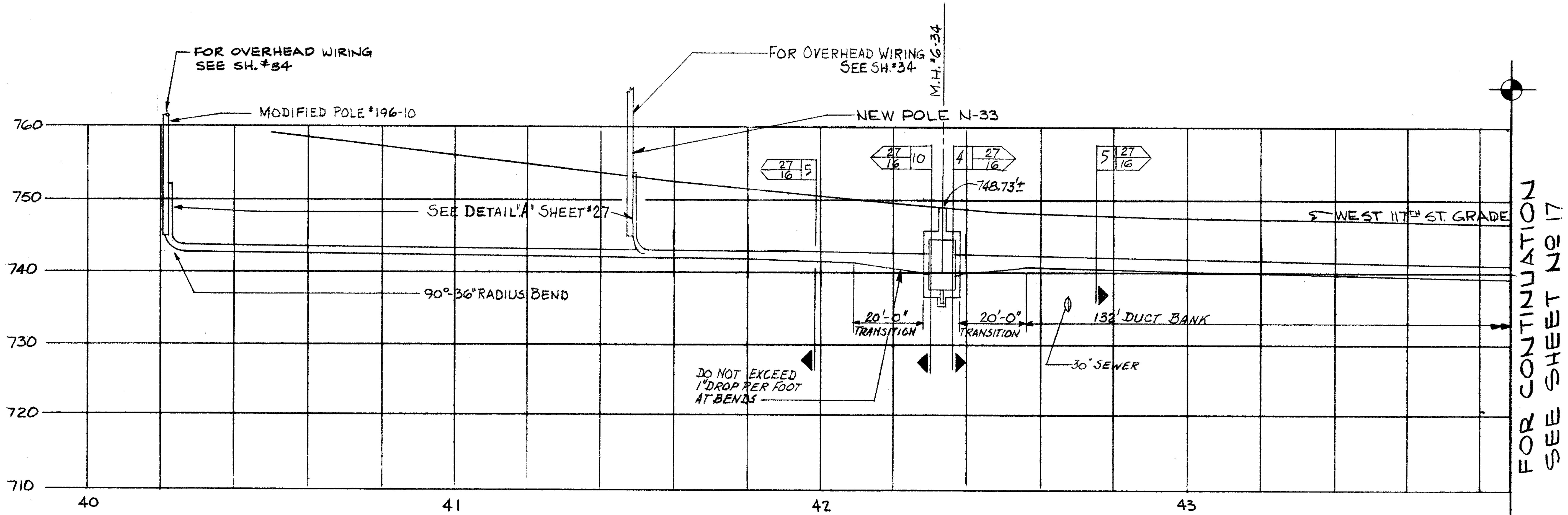
CUYAHOGA COUNTY
CUY - 90 - 10.40

16/54



PLAN - UNDERGROUND WIRING

SCALE 1" = 20'-0"

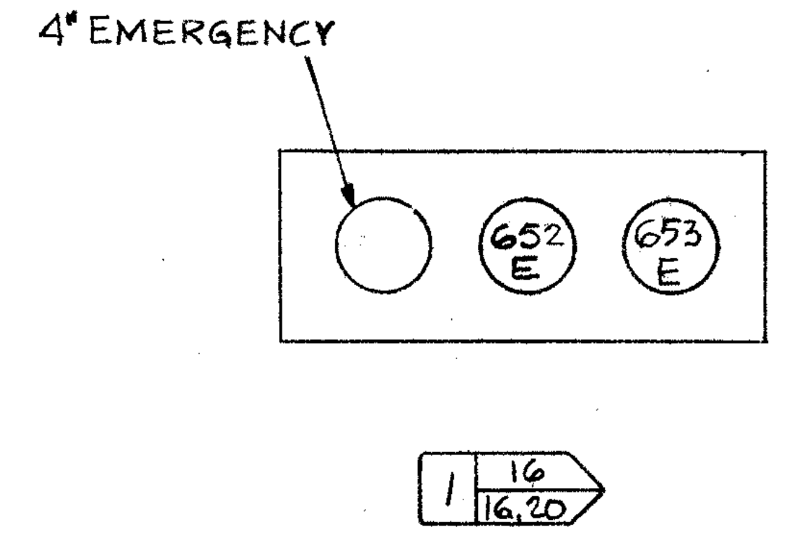


NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

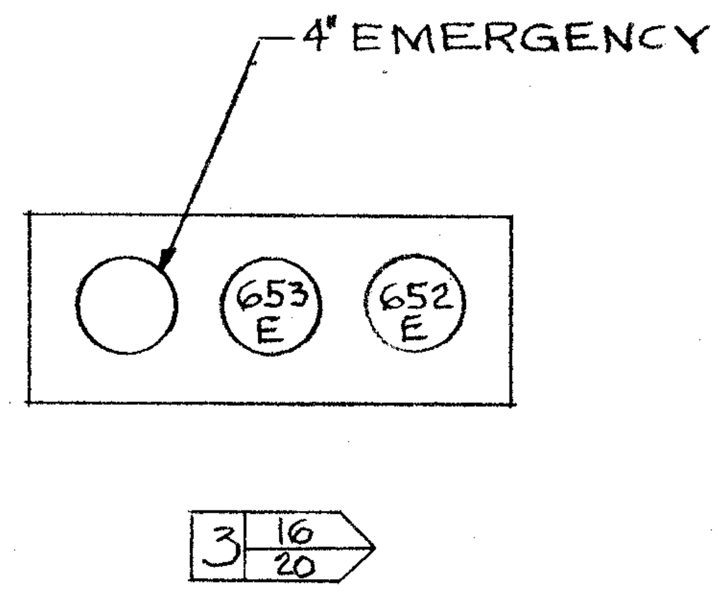
PROFILE

HORZ.: 1" = 20'-0"
VERT.: 1" = 10'-0"

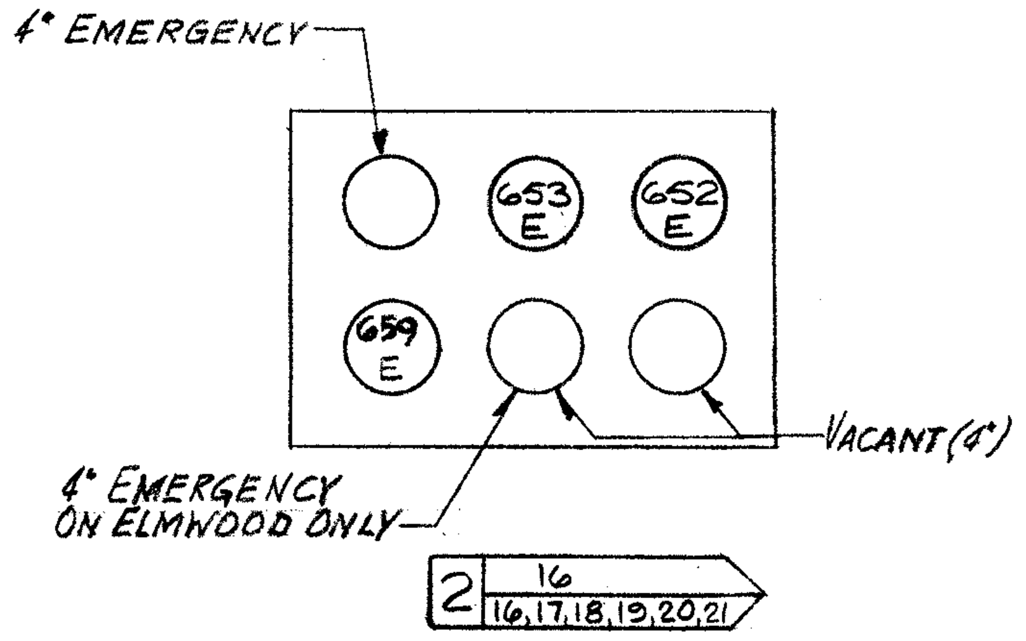
MANHOLE #6-34 LOCATION:
WEST 117TH STREET
STA. 42+34, 24'-0" LT
FOR M.H. SIZE SEE SHEET #23



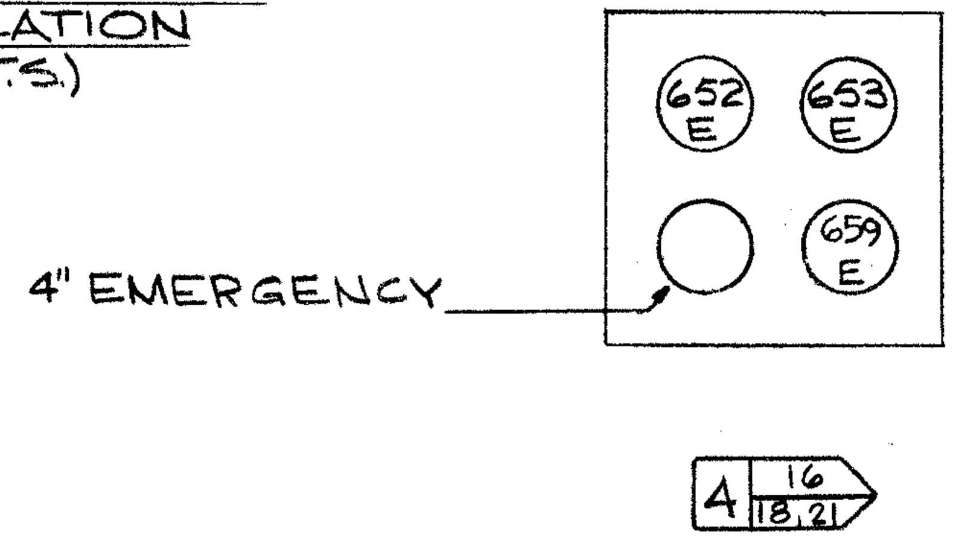
FEEDER CABLE LOCATION
(N.T.S.)



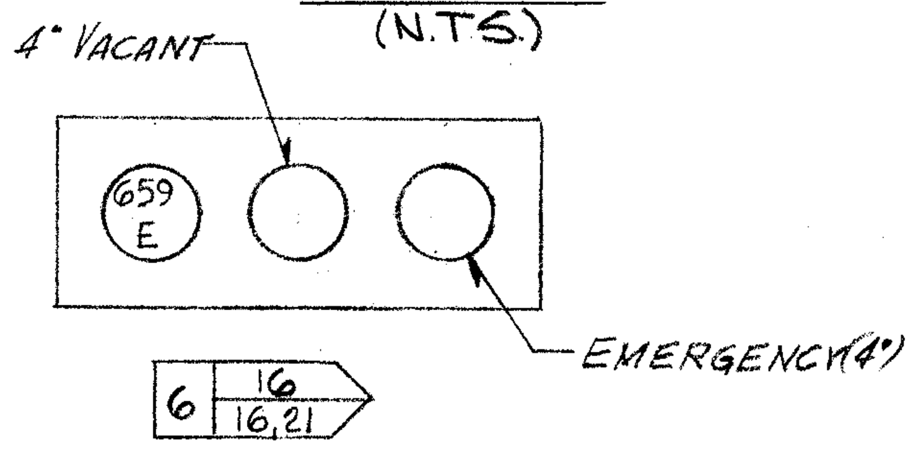
FEEDER CABLE LOCATION
(N.T.S.)



FEEDER CABLE LOCATION
(N.T.S.)



FEEDER CABLE LOCATION
(N.T.S.)



FEEDER CABLE LOCATION
NTS

NOTE
SEE ONE LINE DIAGRAM #28, SHEET No. 9

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COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER
Robert J. [illegible]
ENGINEER OF DESIGN

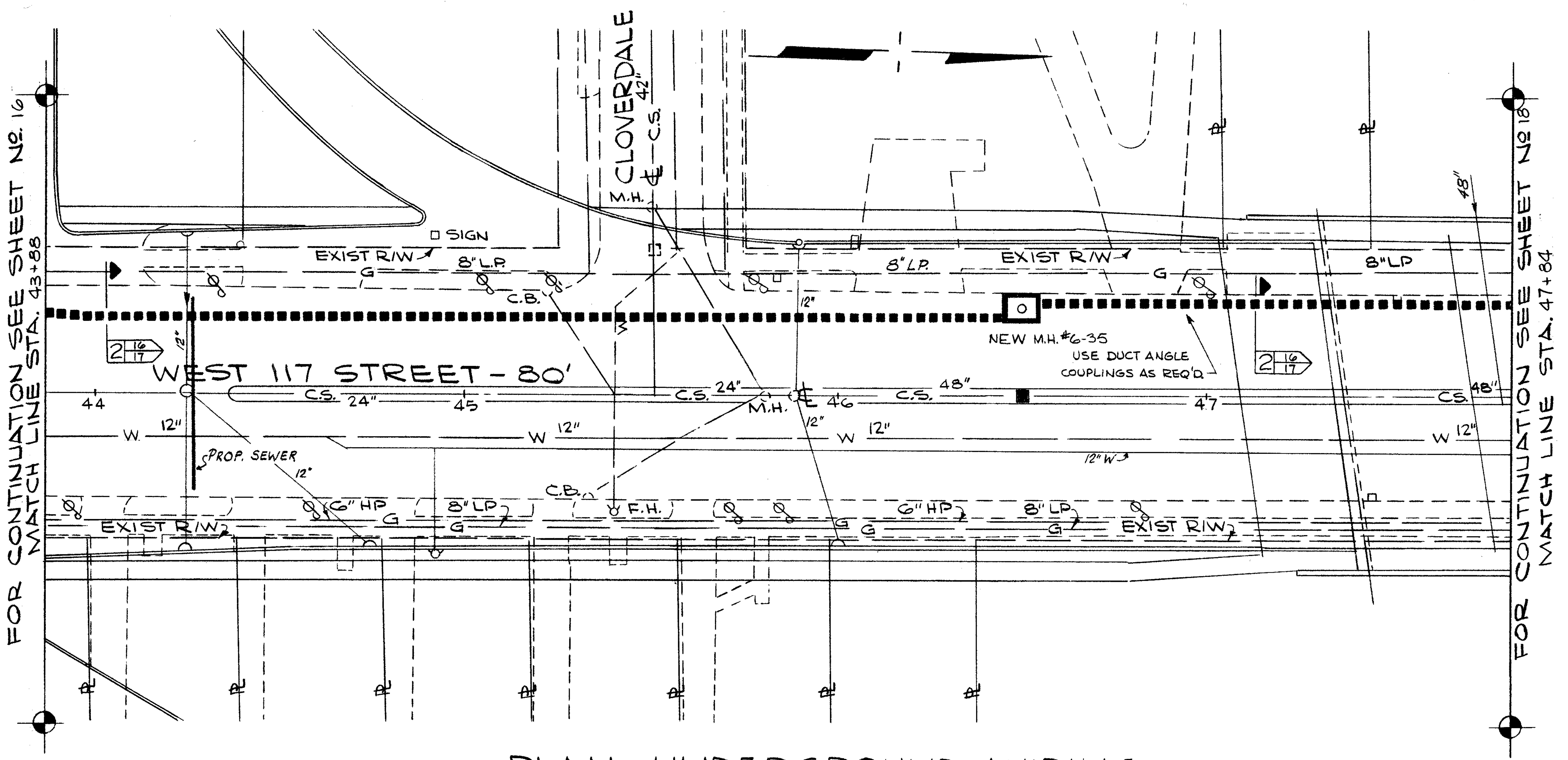
DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND PLAN W. 117th ST.

DRAWN BY SLV
CH'K'D BY J.M.
SCALE AS NOTED
DATE
DRAWING NUMBER **6587-2G**

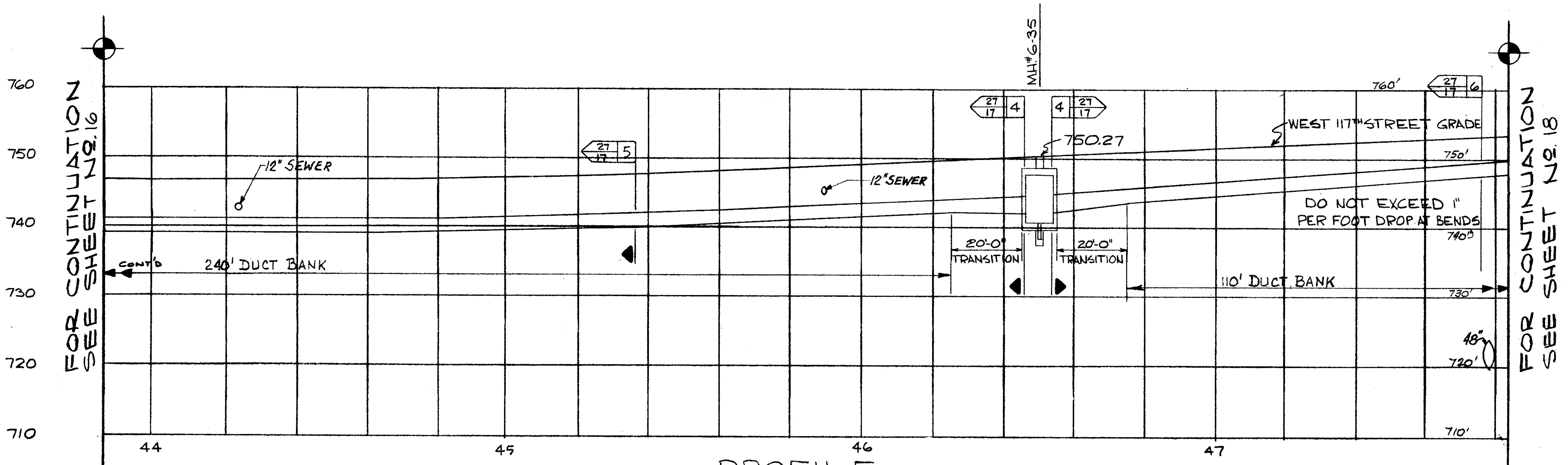
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



PLAN- UNDERGROUND WIRING

SCALE 1" = 20'- 0"



PROFILE

HORZ: 1" = 20'-0"
VERT: 1" = 10'-0"

NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

MANHOLE #6-35 LOCATION:
WEST 117TH STREET
STA 46+50, 24'-0" LT
FOR M.H. SIZE SEE SH. #23

NOTE
SEE ONE LINE DIAGRAM #28, SHEET No. 9

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CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

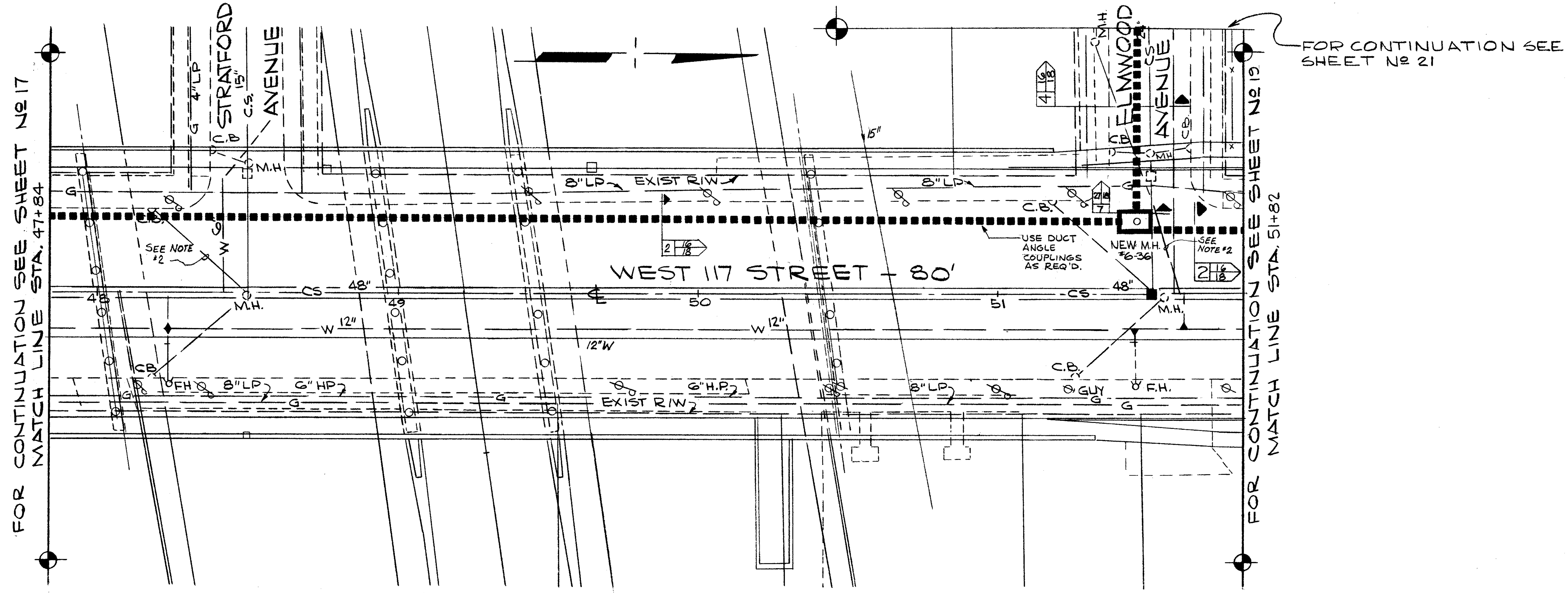
DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND PLAN - W. 117th ST.

DRAWN BY SLV
CH'K'D BY J.M.
SCALE AS NOTED
DATE
DRAWING NUMBER 6587-2H

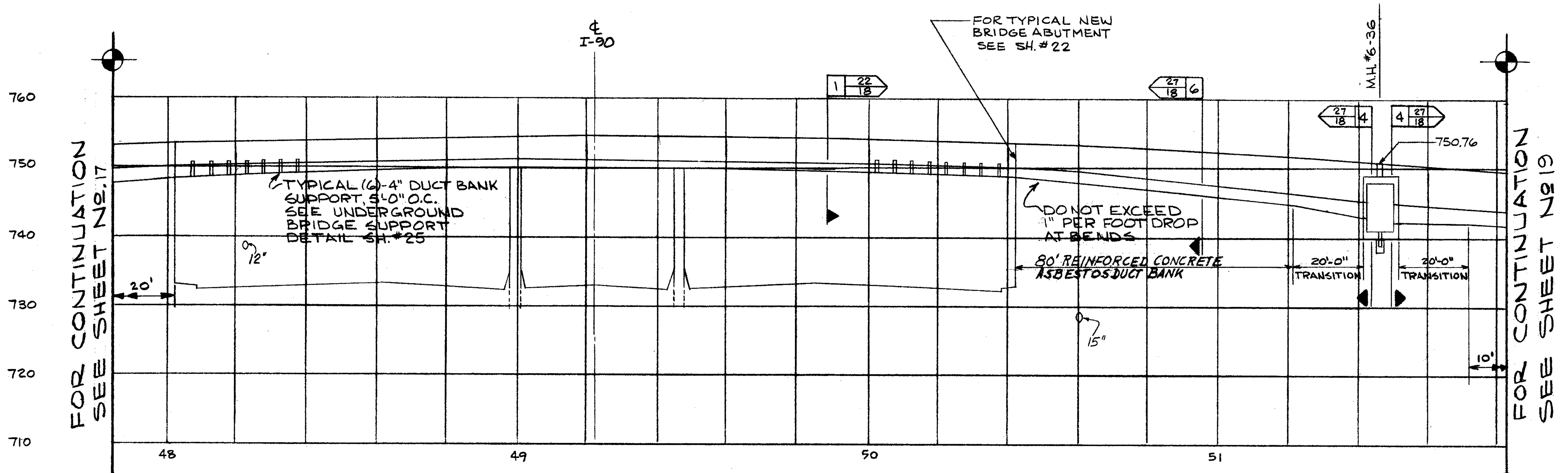
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



PLAN – UNDERGROUND WIRING

SCALE 1" = 20'-0"



PROFILE

HORZ: 1" = 20'-0"
VERT: 1" = 10'-0"

NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

MANHOLE #6-36 LOCATION:
WEST 117TH STREET
STA. 51+44, 24'-0" LT.
FOR M.H. SIZE SEE SH. #23

NOTE
1) SEE ONE LINE DIAGRAM #28, SHEET No. 9
2) THIS LINE SHALL BE REMOVED BY OTHERS AFTER PROPER SEQUENCING.

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CITY OF CLEVELAND

UNDERGROUND PLAN W. 117th ST.

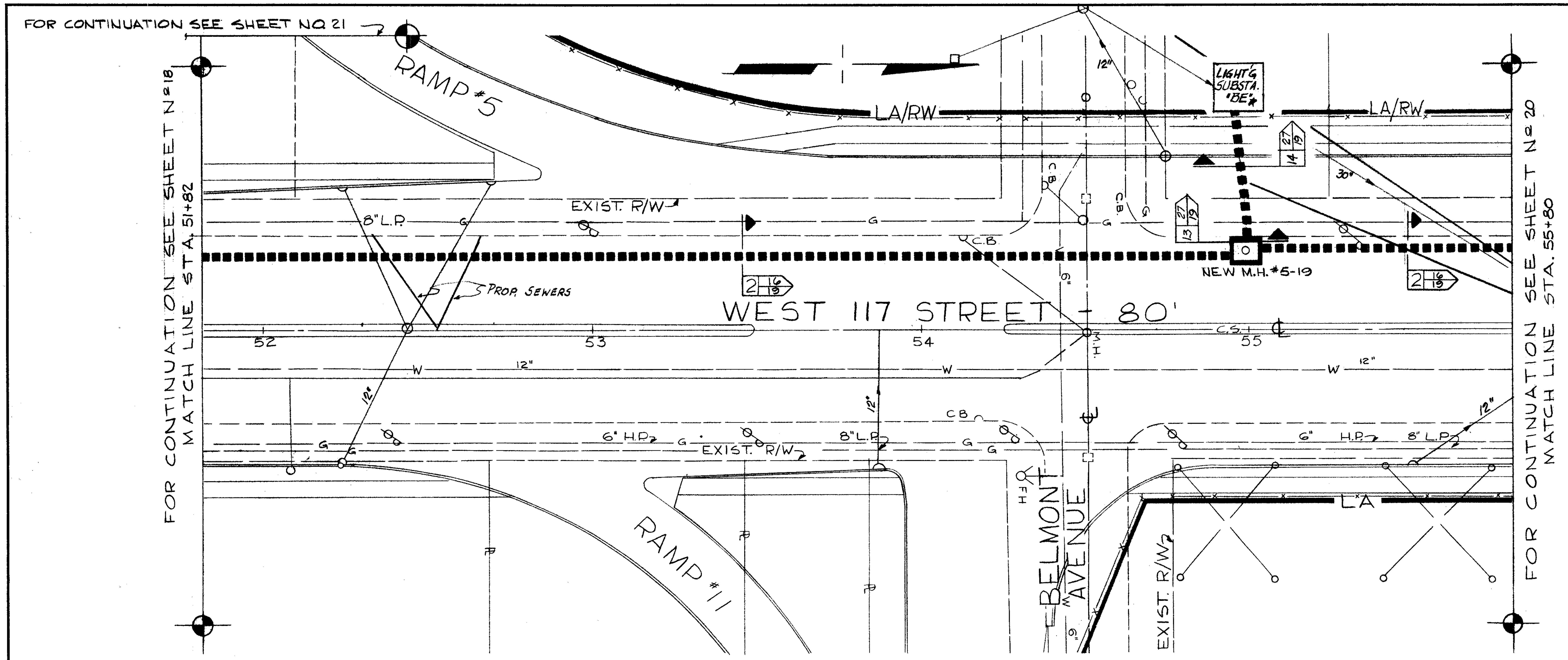
DRAWN BY SLV	SCALE AS NOTED	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-2J

FED. RD.	STATE	PROJECT	
2	OHIO		

374/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

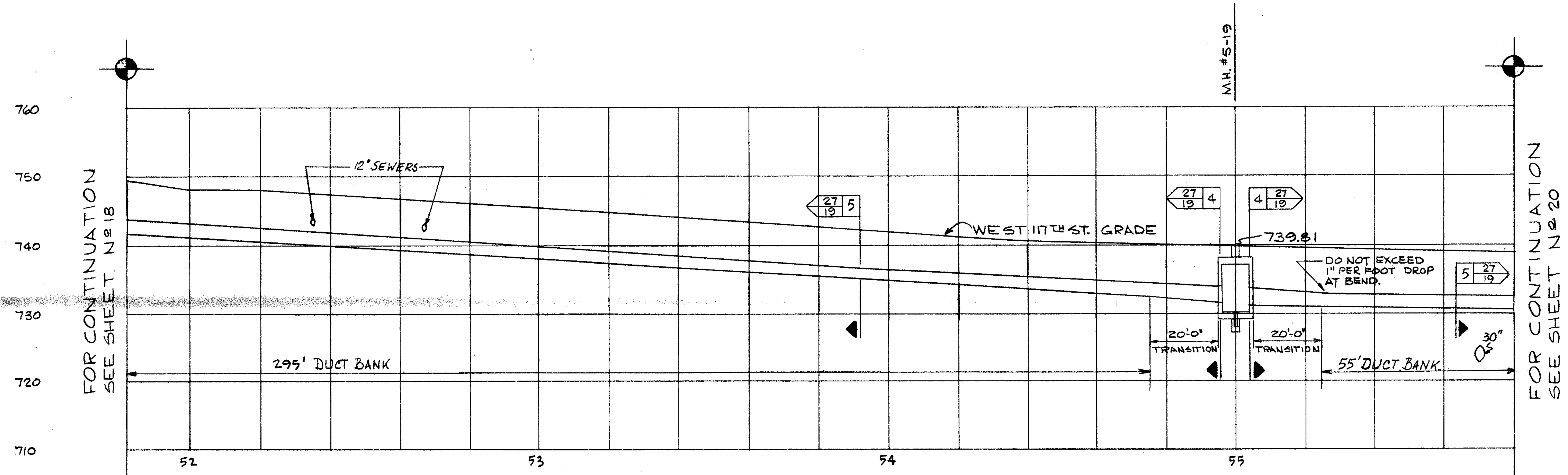
19/54



PLAN- UNDERGROUND WIRING

SCALE 1" = 20'-0"

★ FOR CONNECTION OF LIGHTING CONTROL CENTER SEE ONE LINE DIAGRAM



NOTE
SEE ONE LINE DIAGRAM #28, SHEET No. 9

PROFILE

HORZ: 1" = 20'-0"
VERT: 1" = 10'-0"

NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

MANHOLE #5-19 LOCATION:
WEST 117TH STREET
STA. 55+00, 24.0' LT.
FOR M.H. SIZE SEE SH. #23

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CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND PLAN - W. 117th ST

DRAWN BY SLV	SCALE AS NOTED	DRAWING NUMBER
CH'K'D BY J.M.	DATE	**6587-2K**

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO		

375/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

20/54

PLAN - UNDERGROUND WIRING
SCALE 1" = 20'-0"

FOR CONTINUATION SEE SHEET № 19
MATCH LINE STA. 55+80

PROFILE
HORZ: 1" = 20'-0"
VERT: 1" = 10'-0"

NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

FOR MANHOLE LOCATION & DATA SEE SH. #23

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CHIEF ELECTRICAL ENGINEER Albert J. Ollinski

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND PLAN - W. 117th ST.

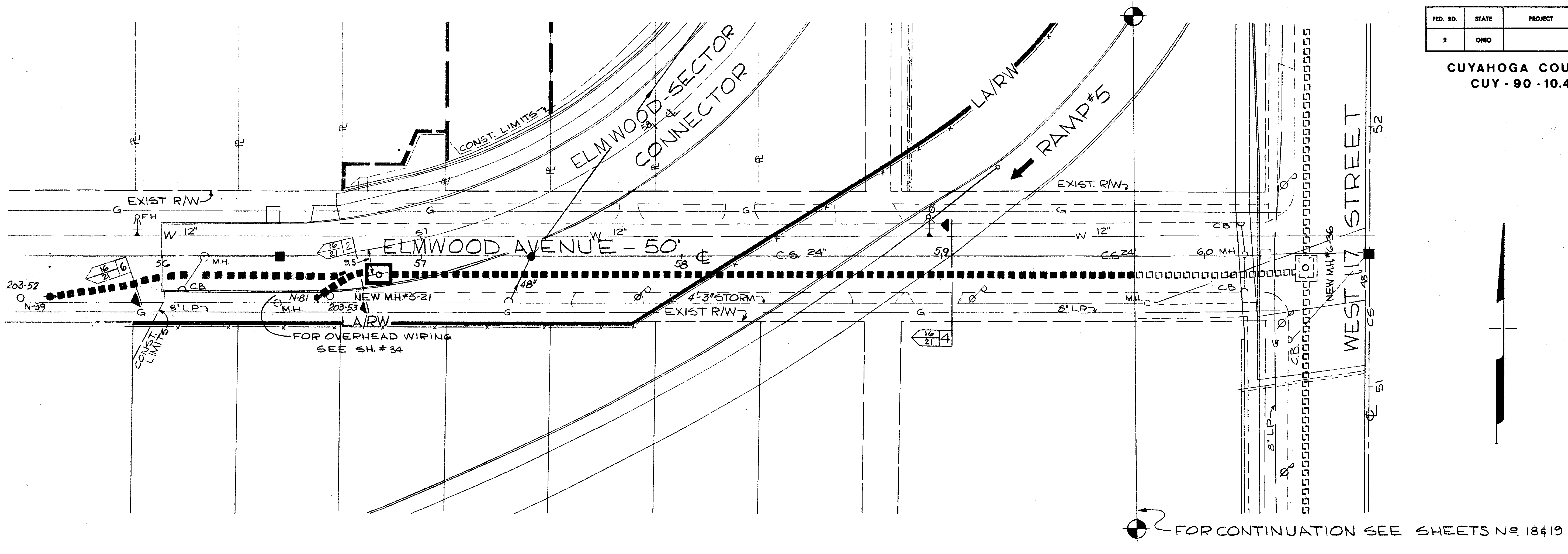
DRAWN BY SLV	SCALE AS NOTED	DRAWING NUMBER	6587-2L
CH'K'D BY J.M.	DATE		

FED. RD.	STATE	PROJECT	
2	OHIO		

376/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

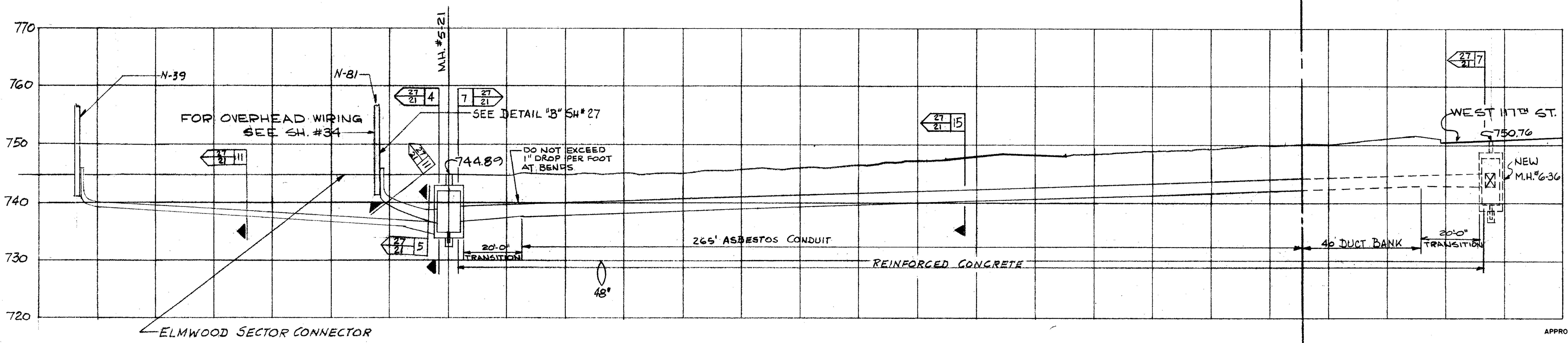
21/54



FOR CONTINUATION SEE SHEETS No 18 & 19

PLAN - UNDERGROUND WIRING

SCALE 1" = 20'-0"



NOTE
SEE ONE LINE DIAGRAM #28, SHEET No. 9

PROFILE

HORZ.: 1" = 20'-0"
VERT.: 1" = 10'-0"

NOTE:
ALL DUCTS PLASTIC OR PVC UNLESS OTHERWISE NOTED.

MANHOLE #5-21 LOCATION:
ELMWOOD-SECTOR CONNECTOR
STA. 56+83, 9.5' RT. ℄ OF CURVE
FOR MH. SIZE SEE SHEET #23

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CHIEF ELECTRICAL ENGINEER

Robert J. Albach
ENGINEER OF DESIGN

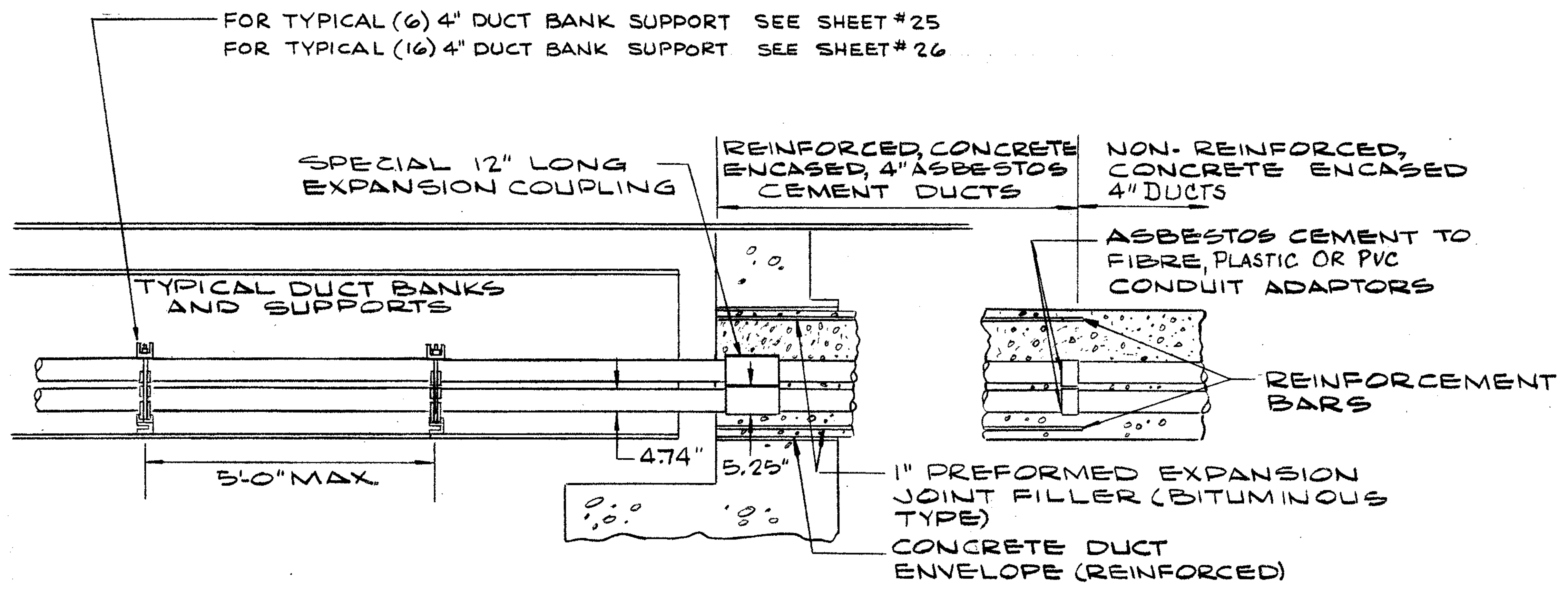
DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND PLAN-ELMWOOD AV.

DRAWN BY SLV
CH'K'D BY J.M.
SCALE AS NOTED
DATE
DRAWING NUMBER 6587-2M

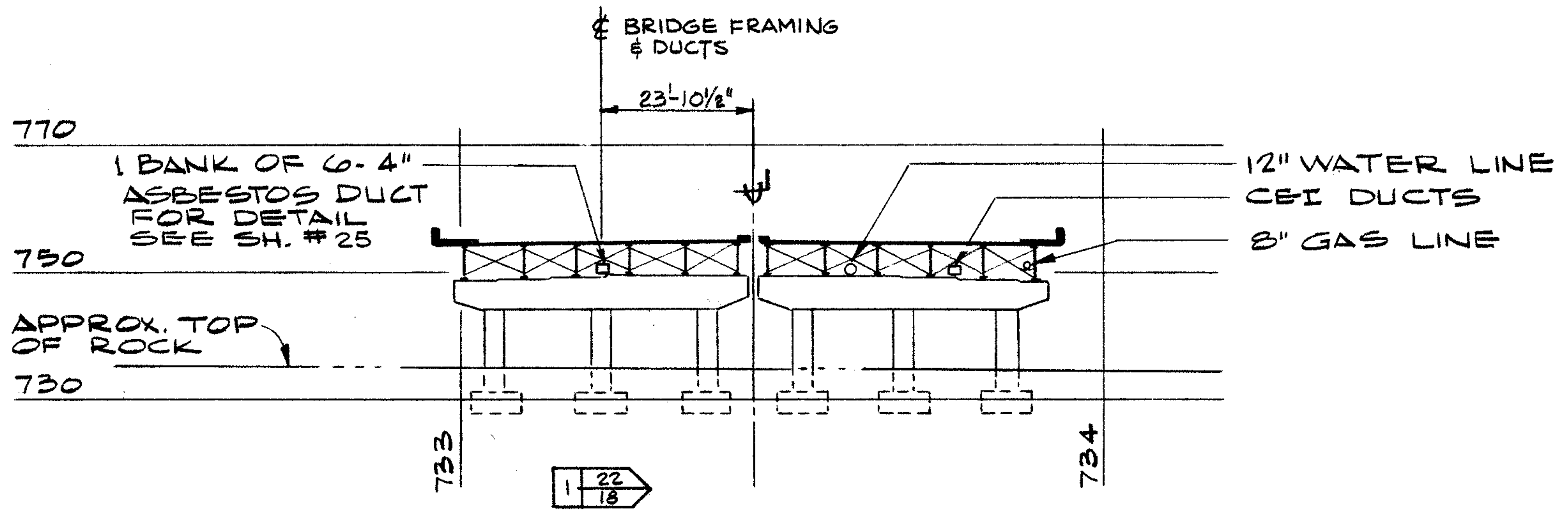
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



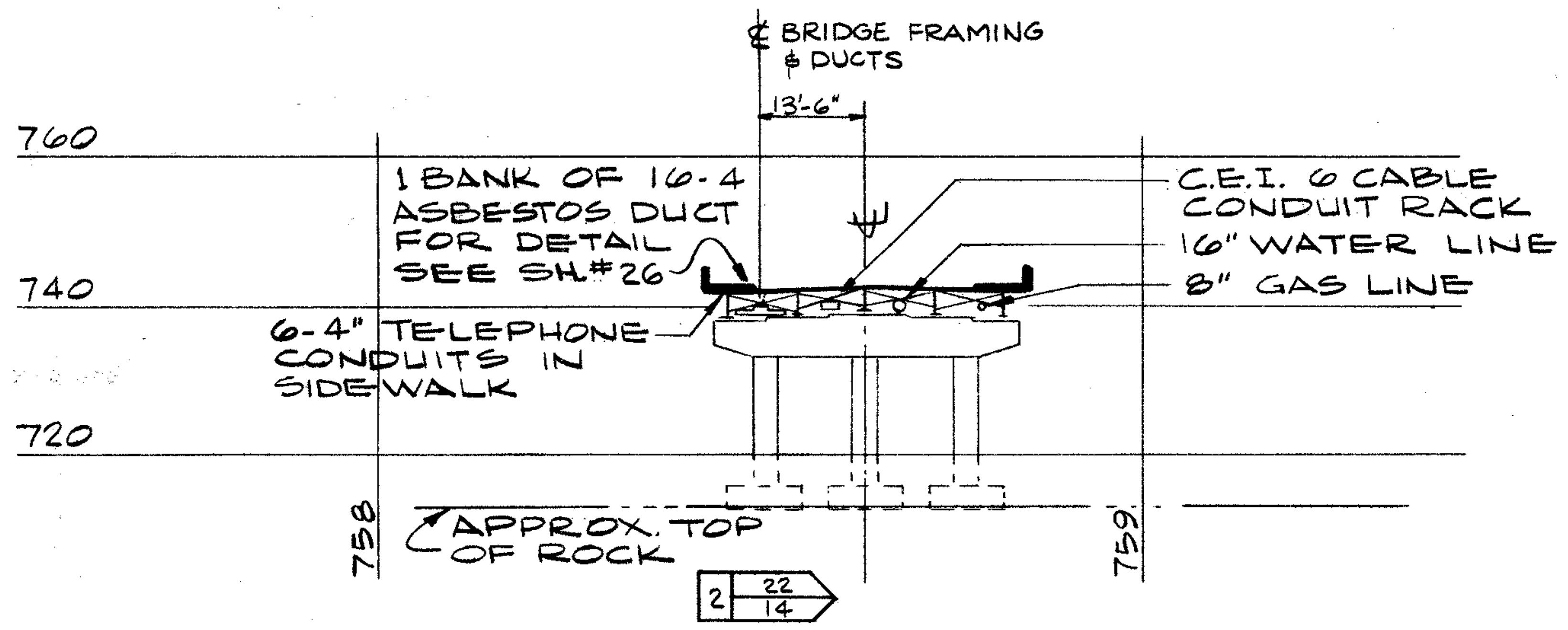
TYPICAL NEW BRIDGE ABUTMENT DUCT BANK DETAIL

(NOT TO SCALE)
FOR ACTUAL DIMENSIONS REFER TO
INDIVIDUAL PROFILES & BRIDGE PLANS



W-117 ST. BRIDGE SECTION

VIEW LOOKING NORTH
SCALE 1" = 20'-0"



W-106 ST. BRIDGE SECTION

VIEW LOOKING NORTH
SCALE 1" = 20'-0"

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CHIEF ELECTRICAL ENGINEER

Robert J.
~~ENGINEER OF DESIGN~~

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

BRIDGE DETAILS

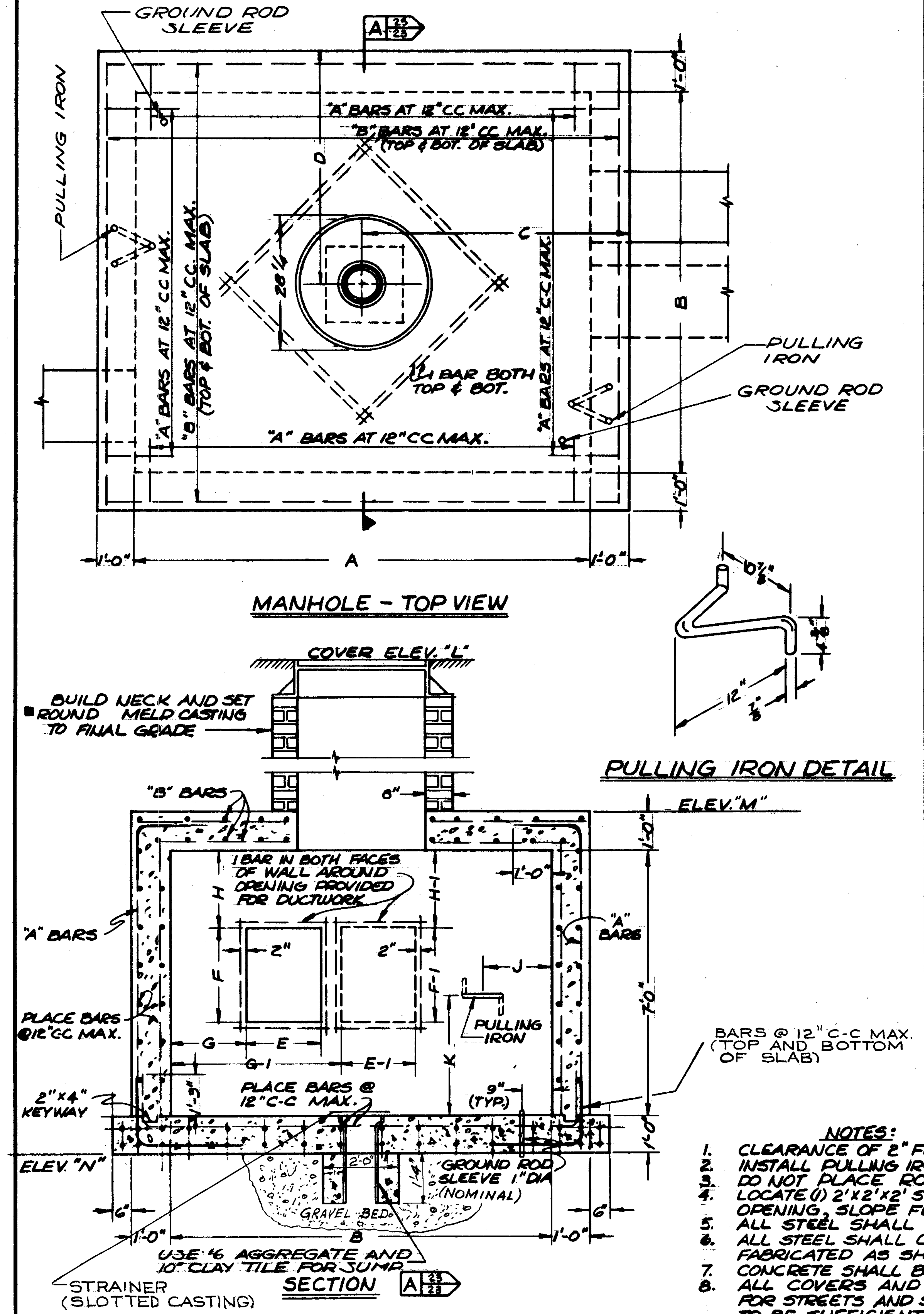
DRAWN BY RJP	SCALE AS NOTED	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-2N

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

378/713

23/54



MANHOLE - TOP VIEW

PULLING IRON DETAIL

SECTION

MELP ELECTRICAL MANHOLE

NOTE:

OTHER WALLS SIMILAR AS VIEWED FROM CENTER OF MANHOLE. FOR DETAILS OF DUCT OPENINGS AND LOCATIONS AND LOCATION OF PULLING IRONS, SEE TABLE ON THIS SHEET.

MANHOLE DETAILS

MANHOLE NO. AND LOCATION	STRUCTURE DIMENSIONS								DUCT OPENING DIMENSIONS								PULL IRON	
	A	B	C	D	L	M	N	WALL	E	F	G	H	E-1	F-1	G-1	H-1	J	K
12-1 W. 98TH ST. STA.43+54,16.0'RT.	8'-0"	6'-0" ✱✱	5'0"	4'-0"	709.70	705.70	696.70	NORTH	23"	30"	24"	24"	—	—	—	—	52"	18"
								SOUTH	23"	18"	43"	24"	—	—	—	—	36"	18"
								EAST	—	—	—	—	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	—	—
12-2 W.98TH ST. STA.50+14 ,19.0'RT.	8'-0"	6'-0" ✱✱	5'0"	4'-0"	707.75	703.75	694.75	NORTH	23"	18"	36"	24"	—	—	—	—	36"	18"
								SOUTH	23"	30"	25"	24"	—	—	—	—	48"	18"
								EAST	—	—	—	—	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	—	—
6-32 W. 106TH ST. STA.46+50,18.71' LT.	12'-0"	10'-0" ✱✱	7'-0"	6'-0"	742.06	738.06	729.06	NORTH	32"	54"	76"	18"	—	—	—	—	60"	18"
								SOUTH	✱	✱	✱	✱	—	—	—	—	92"	18"
								EAST	23"	30"	108"	24"	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	120"	18"
6-33 W.106TH ST. STA.50+76 ,18.71'LT.	12'-0"	10'-0" ✱✱	7'-0"	6'-0"	743.04	739.04	730.04	NORTH	✱	✱	✱	✱	18½"	12"	84"	24"	28"	18"
								SOUTH	32"	54"	12"	18"	—	—	—	—	30" 72"	18" 18"
								EAST	—	—	—	—	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	—	—
6-34 W. 117TH ST. STA.42+34, 24.0'LT.	8'-0"	6'-0" ✱✱	5'-0"	4'-0"	747.37	745.37	736.37	NORTH	23"	30"	37"	33"	—	—	—	—	48"	18"
								SOUTH	23"	18"	37"	24"	—	—	—	—	48"	18"
								EAST	—	—	—	—	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	—	—
6-35 W. 117TH ST. STA.46+50,24.0'LT.	8'-0"	6'-0" ✱✱	5'-0"	4'-0"	750.27	748.27	739.27	NORTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								SOUTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								EAST	—	—	—	—	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	—	—
6-36 W.117TH ST. STA. 51+46,24.0' LT.	8'-0"	6'-0" ✱✱	5'-0"	4'-0"	750.76	748.76	739.76	NORTH	23"	30"	37"	24"	—	—	—	—	48"	18"
								SOUTH	23"	30"	37"	24"	—	—	—	—	48"	18"
								EAST	—	—	—	—	—	—	—	—	52"	18"
								WEST	16"	30"	44"	42"	—	—	—	—	—	—
5-19 W. 117TH ST. STA.55+00, 24.0'LT.	8'-0"	6'-0" ✱✱	5'-0"	4'-0"	739.81	737.81	728.81	NORTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								SOUTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								EAST	—	—	—	—	—	—	—	—	23"	48"
								WEST	12"	18½"	12"	24"	—	—	—	—	—	—
5-20 ■ W.117TH ST. STA.58+00,24.0'LT.	13'-0"	10'-0" ✱✱	5'-0"	4'-0"	738.26	736.26	727.26	NORTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								SOUTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								EAST	18.5"	12"	12"	54"	—	—	—	—	92"	12"
								WEST	18.5"	12"	12"	54"	—	—	—	—	92"	12"
5-21 ELMWOOD-SECTOR CONNECTOR STA.56+83, 9.5' RT. ℄ OF CURVE	6'-0"	8'-0" ✱✱	4'-0"	5'-0"	744.89	742.89	733.89	NORTH	—	—	—	—	—	—	—	—	—	—
								SOUTH	—	—	—	—	—	—	—	—	—	—
								EAST	16"	30"	28"	36"	—	—	—	—	23"	18"
								WEST	23"	30"	12"	42"	—	—	—	—	48"	18"
5-22 W. 117th ST. STA. 60+10, 24.0'LT.	8'-0"	6'-0" ✱✱	5'-0"	4'-0"	737.36	735.36	726.36	NORTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								SOUTH	23"	30"	12"	24"	—	—	—	—	23"	18"
								EAST	—	—	—	—	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	—	—
5-23 W. 117th ST. STA.62+37, 24.0'LT.	8'-0"	6'-0" ✱✱	5'-0"	4'-0"	736.50	734.50	725.50	NORTH	—	—	—	—	—	—	—	—	40"	18"
								SOUTH	23"	30"	37	33"	—	—	—	—		
								EAST	23"	24"	12"	12"	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	24	60"
12-3 W-98th ST. STA. 46+84, 16' LT	8'-0"	6'-0" ✱✱	5'-0"	4'-0"	708.00	706.00	697.00	NORTH	23"	30"	24"	24"	—	—	—	—	30"	18"
								SOUTH	23"	30"	24"	24"	—	—	—	—	48"	18"
								EAST	—	—	—	—	—	—	—	—	—	—
								WEST	—	—	—	—	—	—	—	—	—	—

NOTES:

1. CLEARANCE OF 2" FROM REBAR TO FACE OF WALL, INSIDE AND OUTSIDE.
2. INSTALL PULLING IRONS OPPOSITE DUCTS ENTERING MANHOLE.
3. DO NOT PLACE RODS BETWEEN DUCTS.
4. LOCATE (1) 2'×2'×2' SLAG SUMP (10" SEWER TILE) UNDER MANHOLE ROOF OPENING, SLOPE FLOOR TOWARDS SUMP.
5. ALL STEEL SHALL BE #6 REINFORCING BARS.
6. ALL STEEL SHALL CONFORM TO A.S.T.M. SPECS. AND SHALL BE FABRICATED AS SHOWN; F_s = 20,000 PSI.
7. CONCRETE SHALL BE CLASS "C". (4000 PSI)
8. ALL COVERS AND FRAMES MUST BE INTERCHANGEABLE. COVERS FOR STREETS AND SIDEWALKS ARE IDENTICAL. THE RIBS OF COVERS ARE TO BE SUFFICIENTLY STRONG TO PREVENT BREAKAGE.
9. FOR MANHOLE COVERS SEE SHEET #24 & 27A

✱ —DIMENSIONS AS REQUIRED TO FIT EXISTING DUCT

✱ ✱ —INDICATES DIMENSION OF NORTH WALL

■ WITH SUBMERSIVE 25KV 1Φ 3W. TRANSFORMER & CUTOUTS FROM 653-E & 652-E. MOUNT ON EAST WALL OF MANHOLE. FOR COVER SEE DWG.: 27A

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CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND
MANHOLE DETAILS

DRAWN BY
CH'K'D BY J.M.

SCALE
NO SCALE
DATE

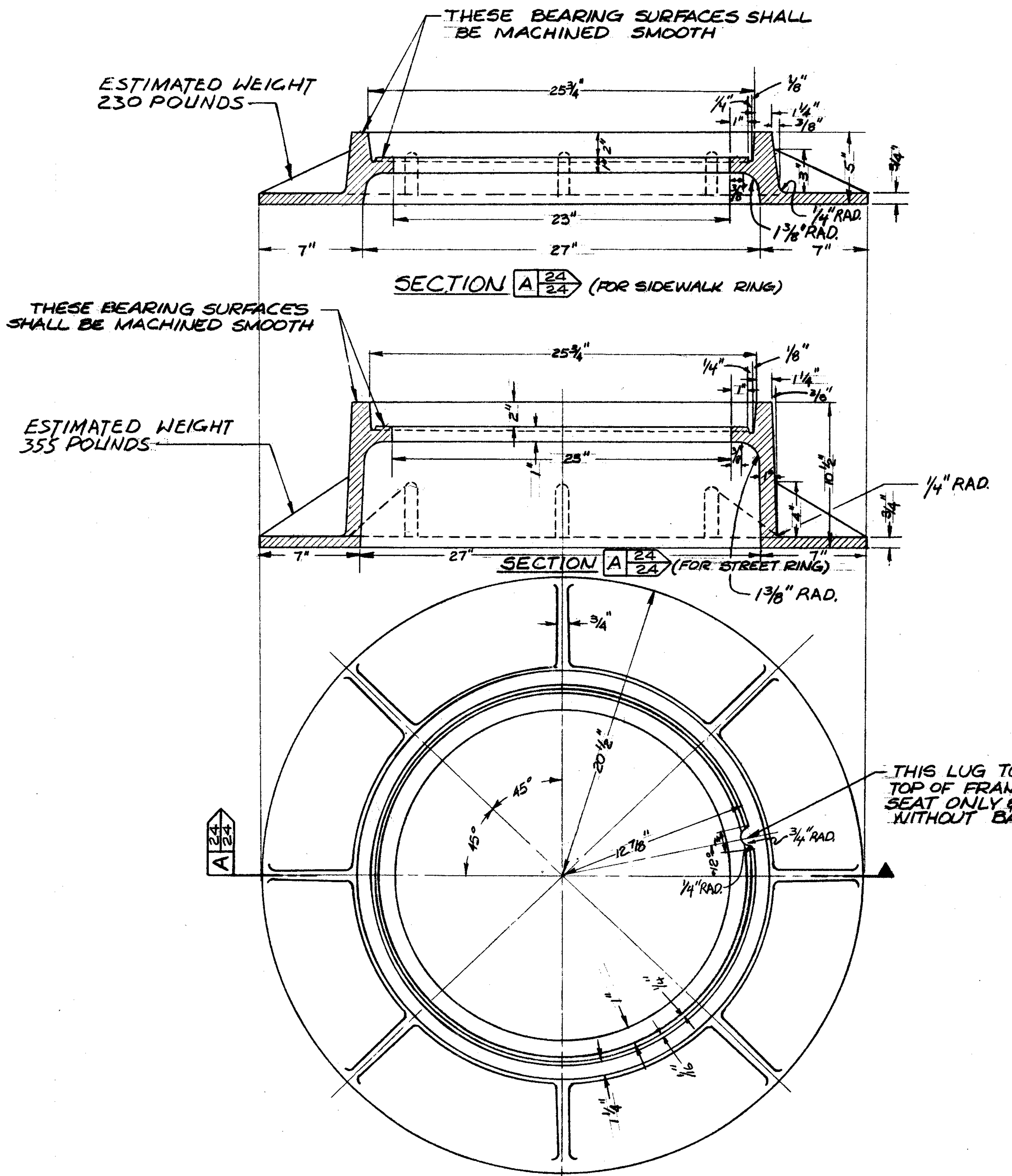
DRAWING NUMBER
6587-2P

FED. RD.	STATE	PROJECT	
2	OHIO		

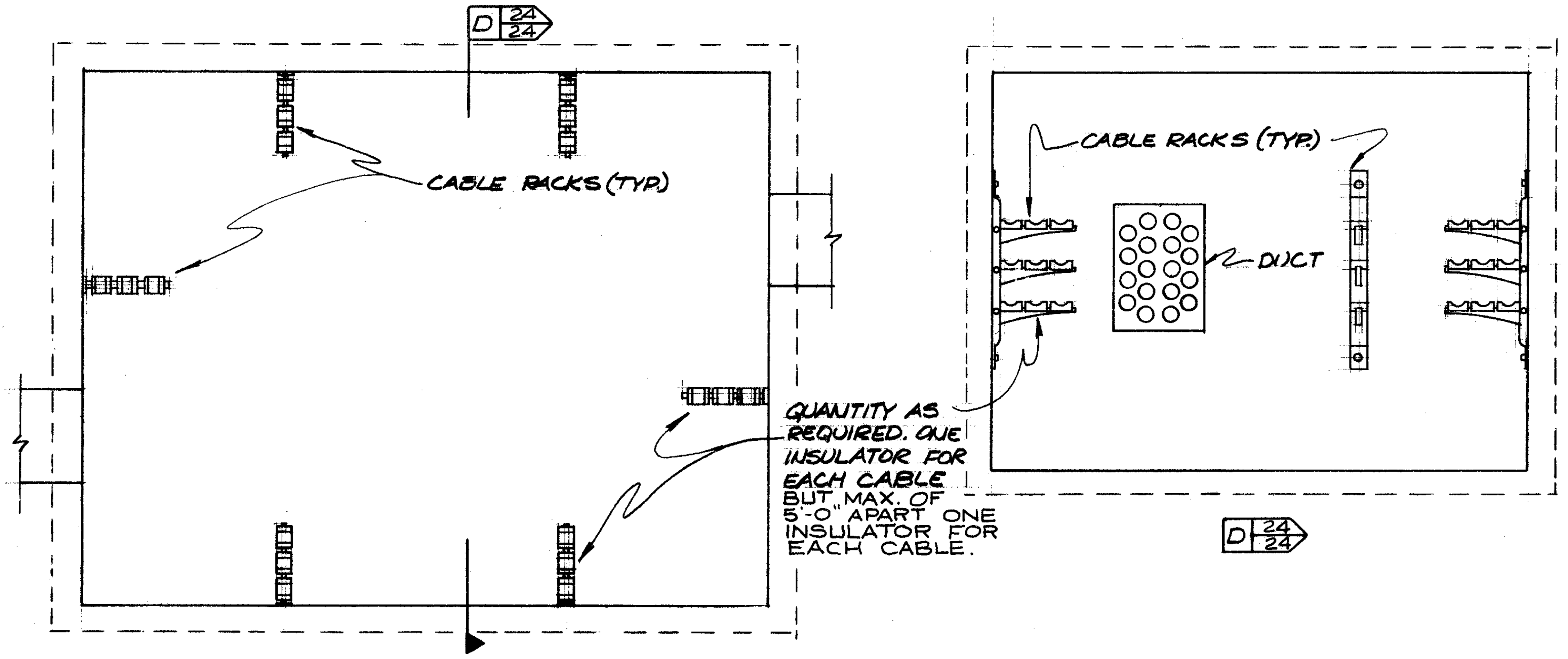
379/713

24/54

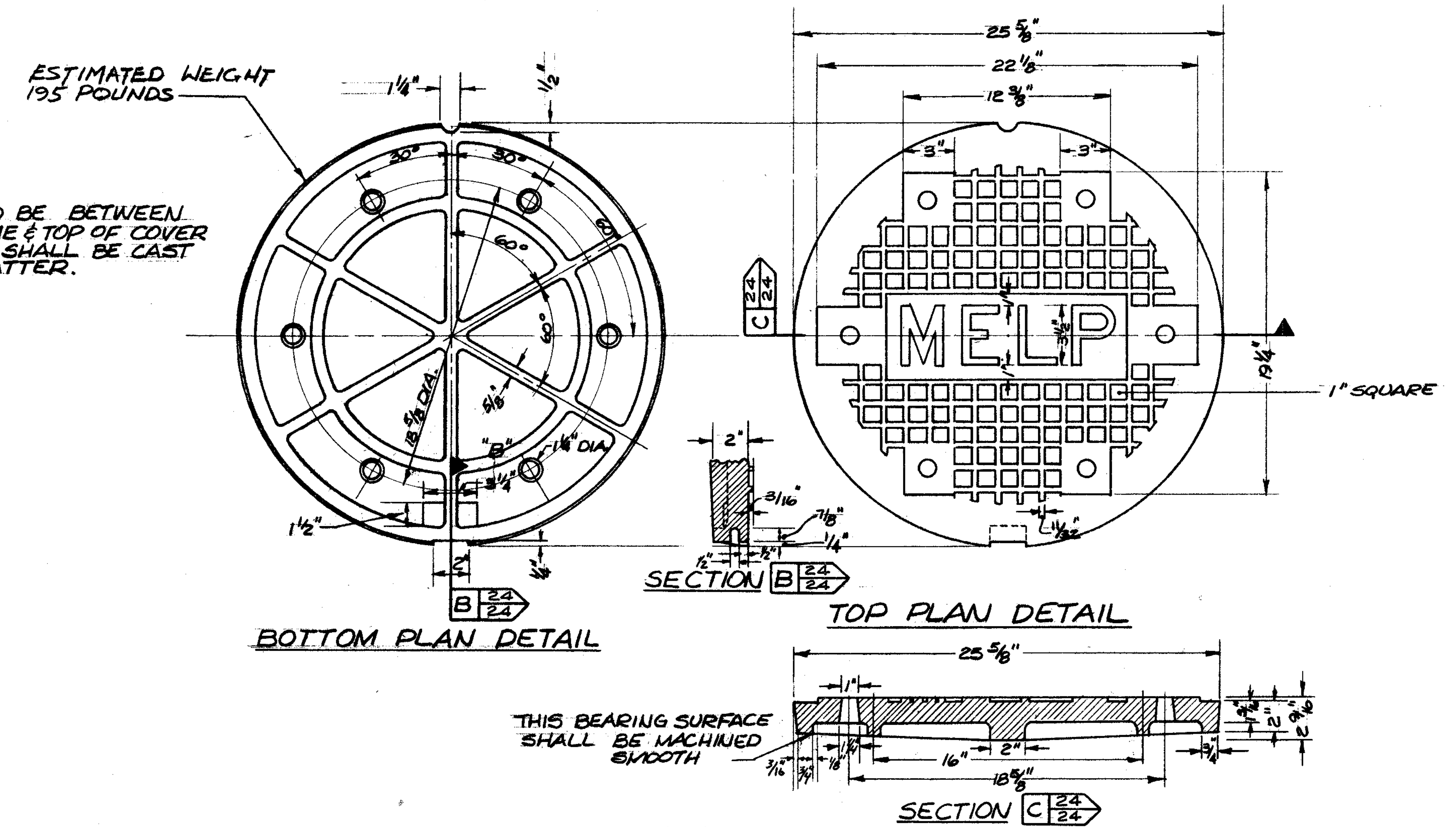
CUYAHOGA COUNTY
CUY - 90 - 10.40



DETAIL OF
STANDARD C.I. MANHOLE RING
(SPECS.: UC-12)



MANHOLE CABLE SUPPORT DETAILS
(SPECS.: UC-12)



DETAIL OF
STANDARD C.I. MANHOLE COVER
(SPECS.: UC-12)

NOTE:
ALL COVERS AND FRAMES MUST BE INTERCHANGEABLE. COVERS FOR STREET AND SIDEWALK FRAMES ARE IDENTICAL.

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Robert J. Altmeck

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND
MANHOLE COVER
DETAILS

DRAWN BY
CHK'D BY J.M.
SCALE No Scale
DATE
DRAWING NUMBER 6587-2Q

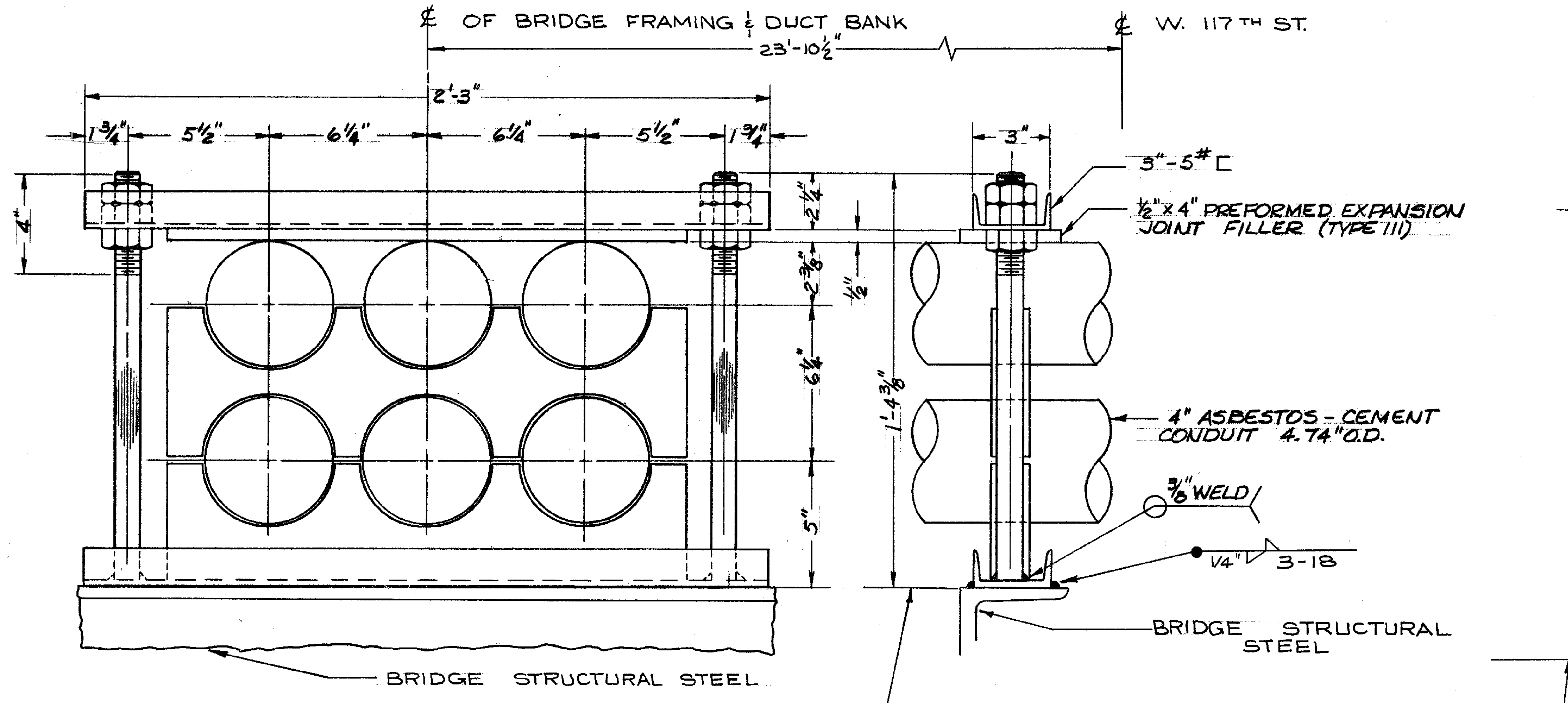
FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-90-10.40

380/713

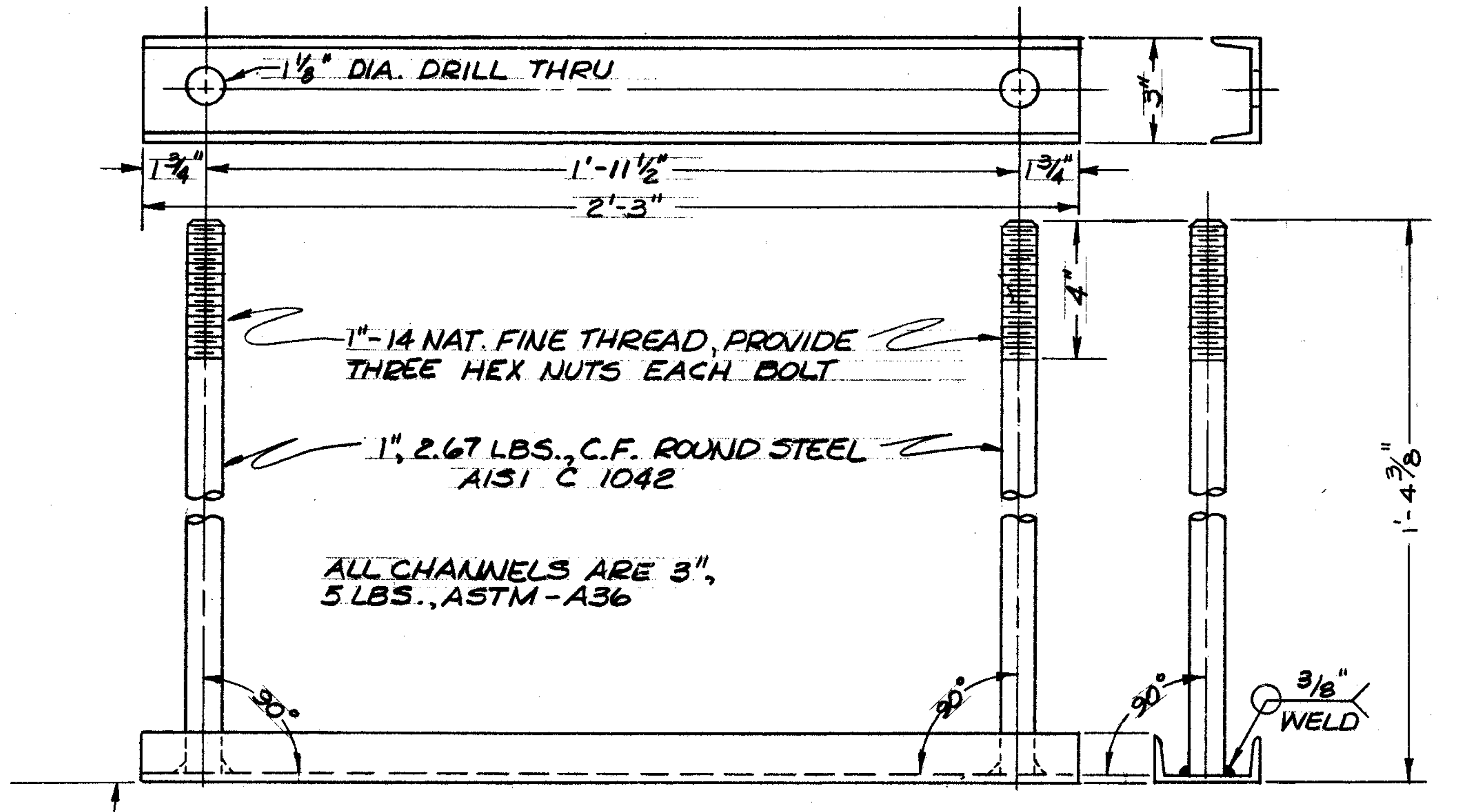
25/54



ALL M.E.L.P. WORK ABOVE THIS LINE INCLUDING SUPPORT BRACKETS SHALL BE PAID FOR AT THE CONTRACT PRICE BID PER LINEAR FOOT FOR "ITEM SPECIAL, NON ENCASED, BRIDGE SUPPORTED, 6'-4" ASBESTOS-CEMENT CONDUIT BANK" FOR WORK INCLUDED IN THIS ITEM REFER TO M.E.L.P. SPECIFICATIONS, PAGES 18-6,7, & 8

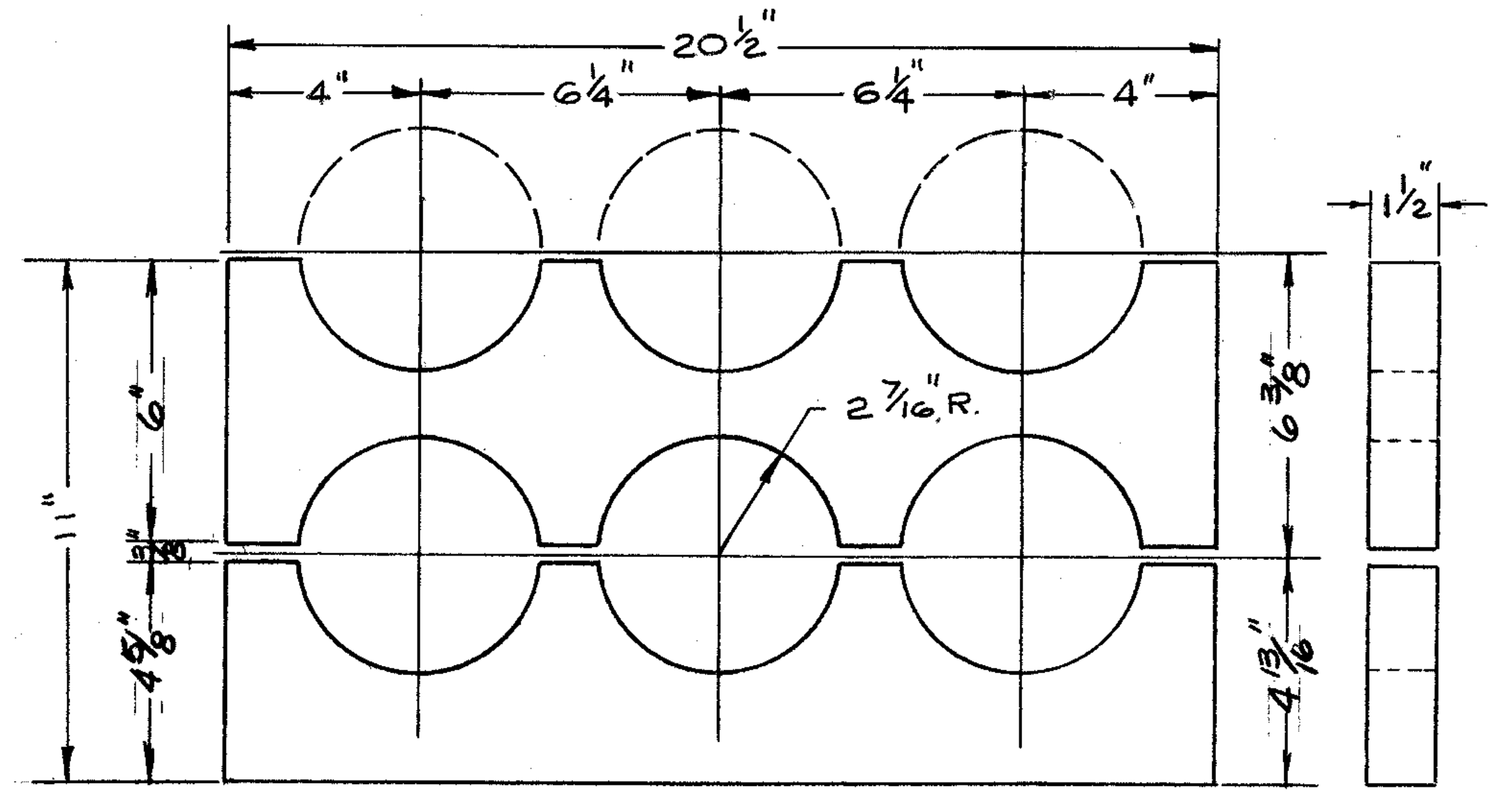
W-117TH ST. 6 DUCT ASBESTOS CEMENT CONDUIT SUPPORT-ASSEMBLED VIEW

SCALE 3"=1'-0"



W-117TH STREET
ASBESTOS CEMENT 6 DUCT SUPPORT~STEEL DETAIL

PAINT AS PER SPECIFICATIONS
(N.T.S.)



ASBESTOS CEMENT 6 DUCT SUPPORT DRILLING DETAIL

ONE SET REQUIRED AS SHOWN FOR EACH SUPPORT. DRILL OR BORE ONLY FOR SQUARE SMOOTH DUCT SADDLE

SCALE 3"=1'-0"

NOTE:
SEE TYPICAL BRIDGE ABUTMENT DETAILS, SHEET # 414
SEE TYPICAL FRAMING PLAN, SHEET # 419

APPROVED BY

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COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER

Robert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND
BRIDGE SUPPORT W 117TH ST.
DETAILS

DRAWN BY SLV
CH'K'D BY J. M.
SCALE AS NOTED
DATE
DRAWING NUMBER 6587-2R

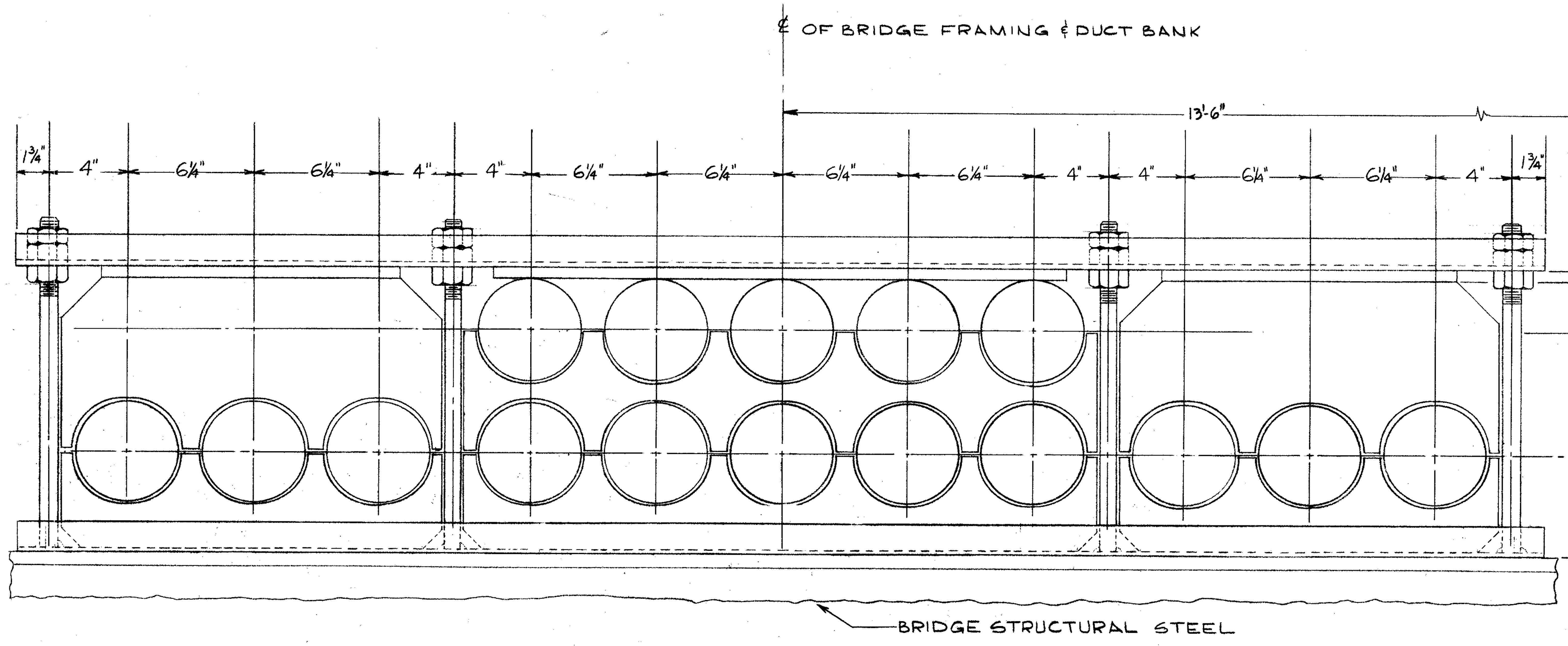
FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO		

381
713

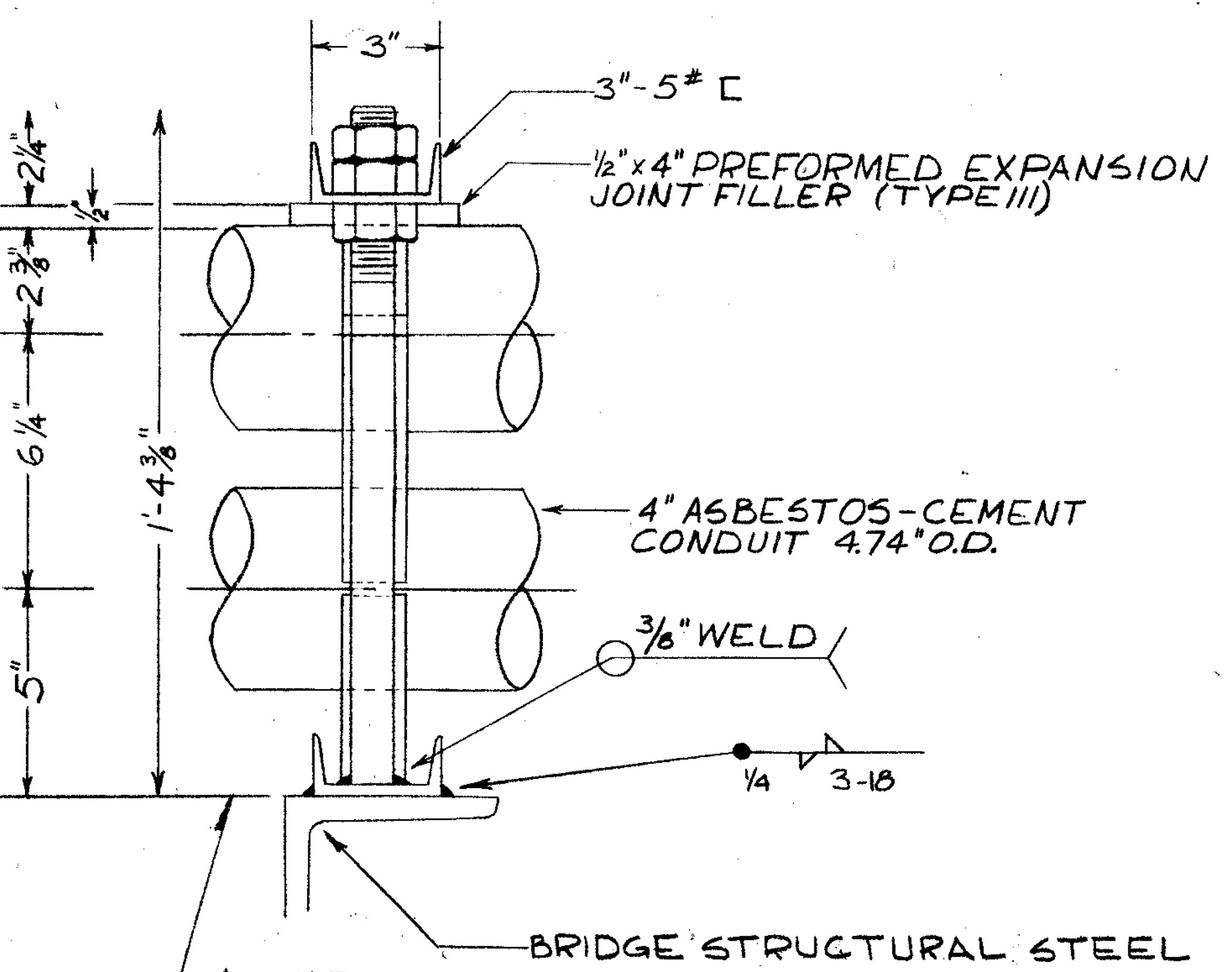
CUYAHOGA COUNTY
CUY - 90 - 10.40

26
54

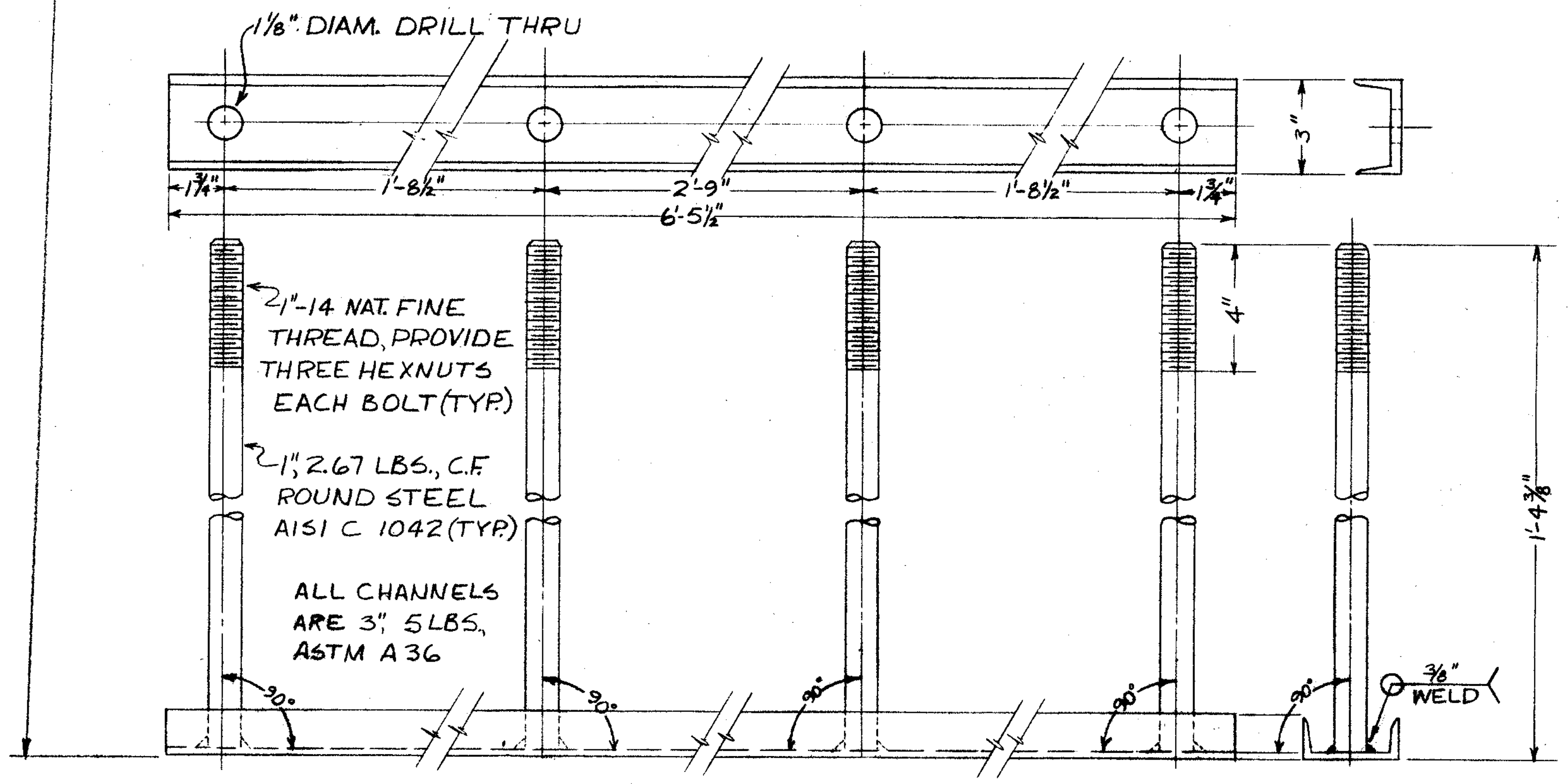


16 DUCT ASBESTOS CEMENT CONDUIT SUPPORT FOR W.106TH ST. BRIDGE—ASSEMBLED VIEW

SCALE 3"=1'-0"



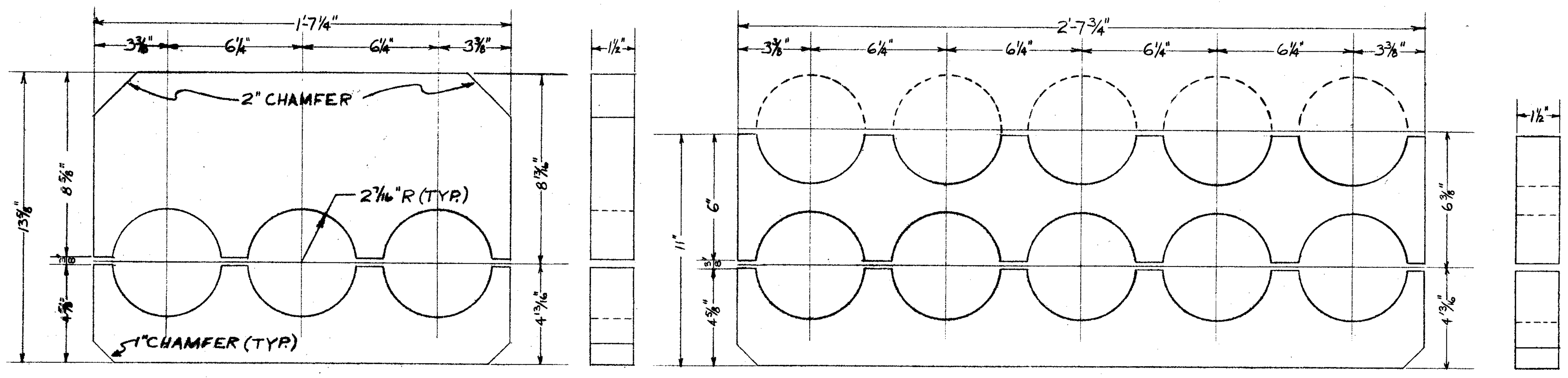
ALL M.E.L.P. WORK ABOVE THIS LINE INCLUDING SUPPORT BRACKETS SHALL BE PAID FOR AT THE CONTRACT PRICE BID PER LINEAR FOOT FOR "ITEM SPECIAL, NON ENCASED, BRIDGE SUPPORTED, 16-4" ASBESTOS-CEMENT CONDUIT BANK". FOR WORK INCLUDED IN THIS ITEM REFER TO MELP SPECIFICATIONS PAGES IS-6, 7 & 8.



16 DUCT ASBESTOS CEMENT SUPPORT—STEEL DETAIL

NOT TO SCALE

PAINT AS PER SPECIFICATIONS



2 SETS REQ'D FOR EACH SUPPORT

1 SET REQ'D FOR EACH SUPPORT

16 DUCT ASBESTOS CEMENT SUPPORT-DRILLING DETAIL

SCALE 3"=1'-0"

DRILL OR BORE ONLY FOR SQUARE SMOOTH DUCT SADDLE

NOTE—
SEE TYPICAL BRIDGE ABUTMENT DETAILS SHEET #
SEE TYPICAL BRIDGE FRAMING PLAN SHEET #

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COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER

Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND BRIDGE SUPPORT
DETAILS - W-106TH ST.

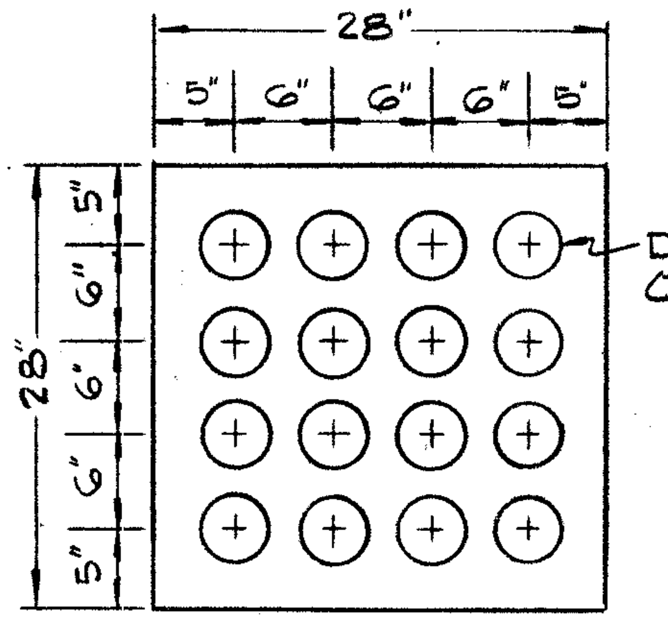
DRAWN BY SLV
CH'K'D BY J.M.
SCALE AS NOTED
DATE
DRAWING NUMBER
6587-2S

FED. RD.	STATE	PROJECT	
2	OHIO		

382/713

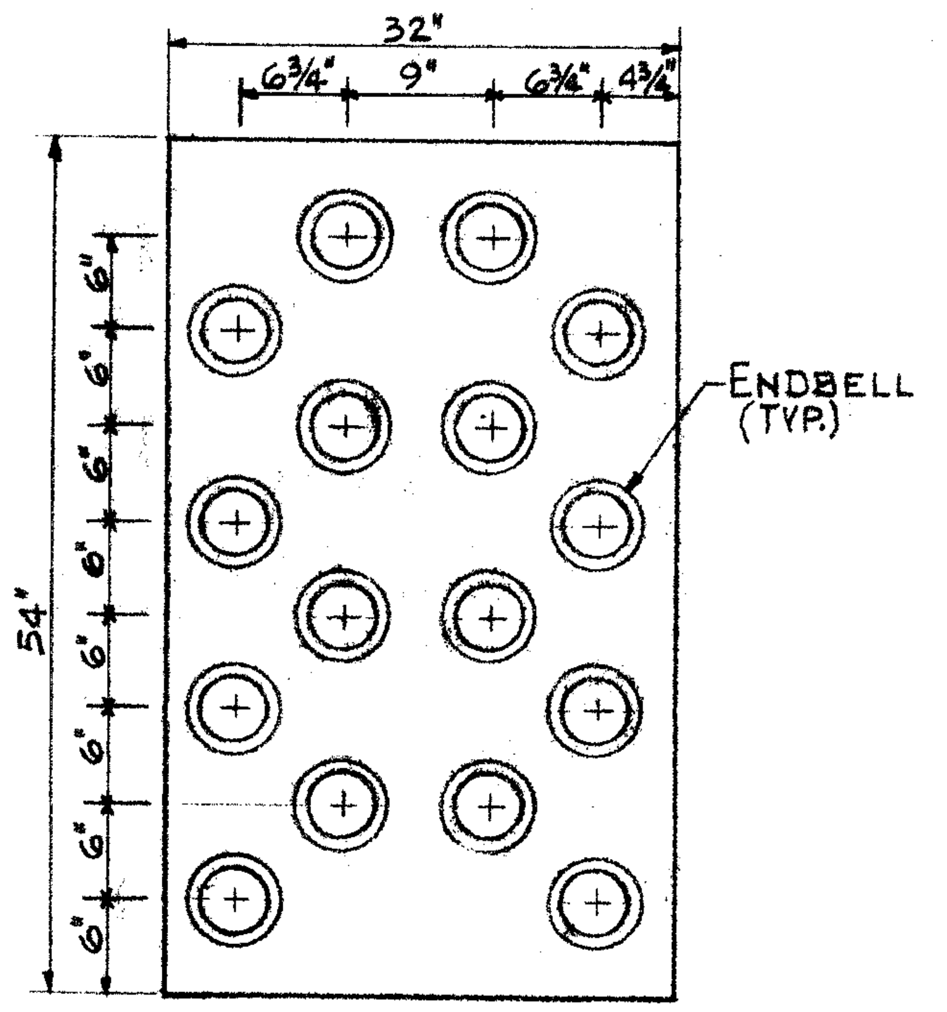
CUYAHOGA COUNTY
CUY - 90 - 10.40

27/54



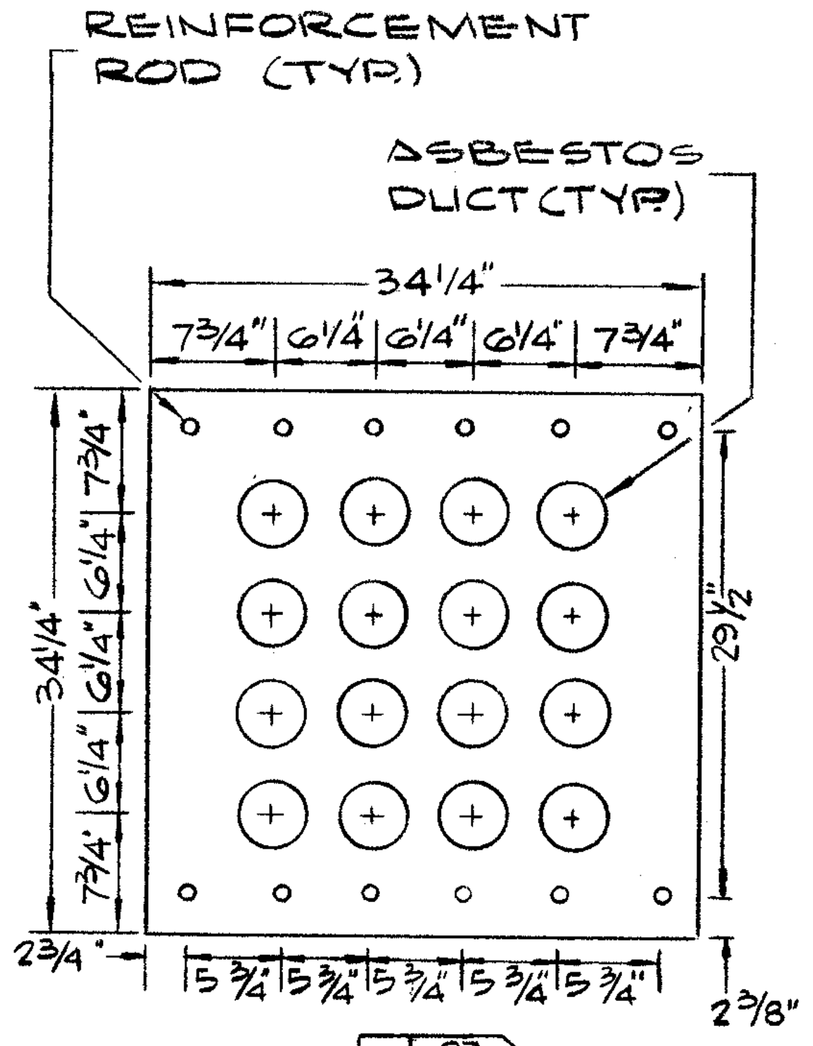
1 27/14,15

16-DUCT



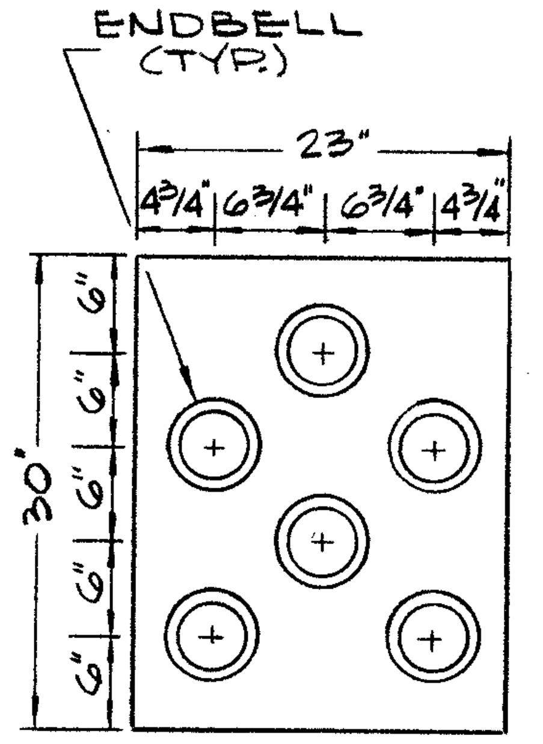
2 27/14,15

16-DUCT



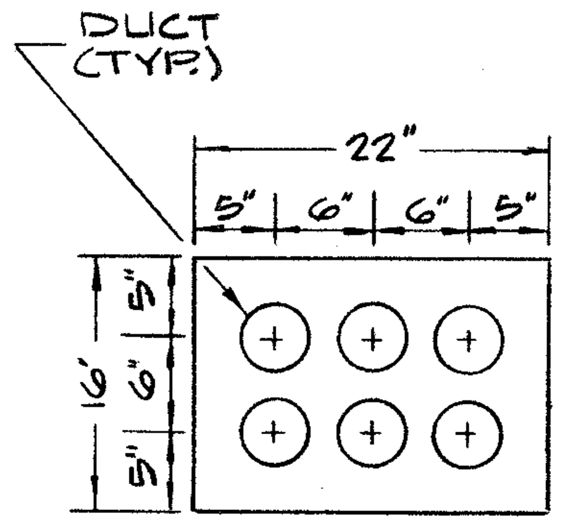
3 27/14,15

16-DUCT



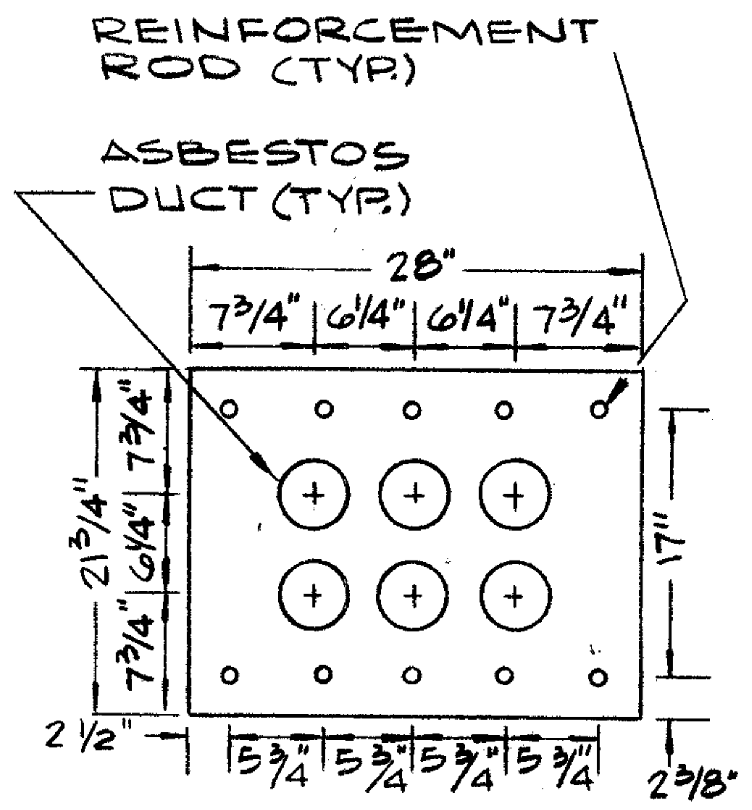
4 27/11,13,14,16,17,18,19,20

6-DUCT



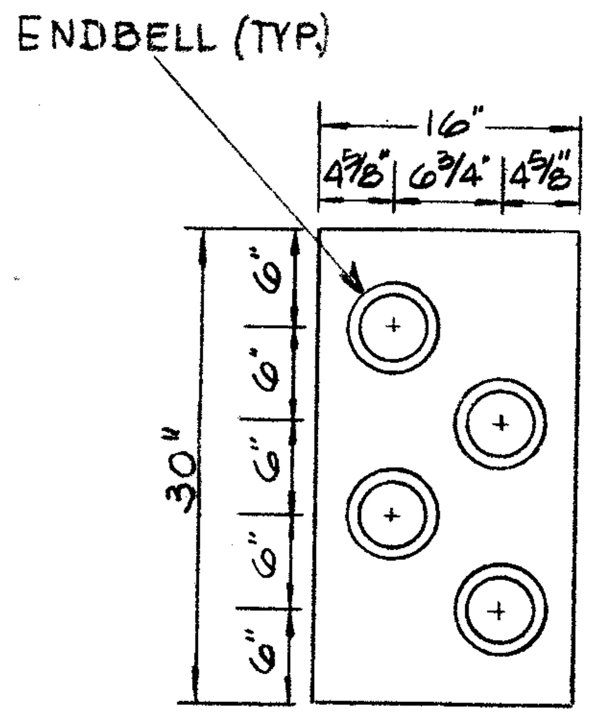
5 27/11,12,13,16,17,19,20,21

6-DUCT



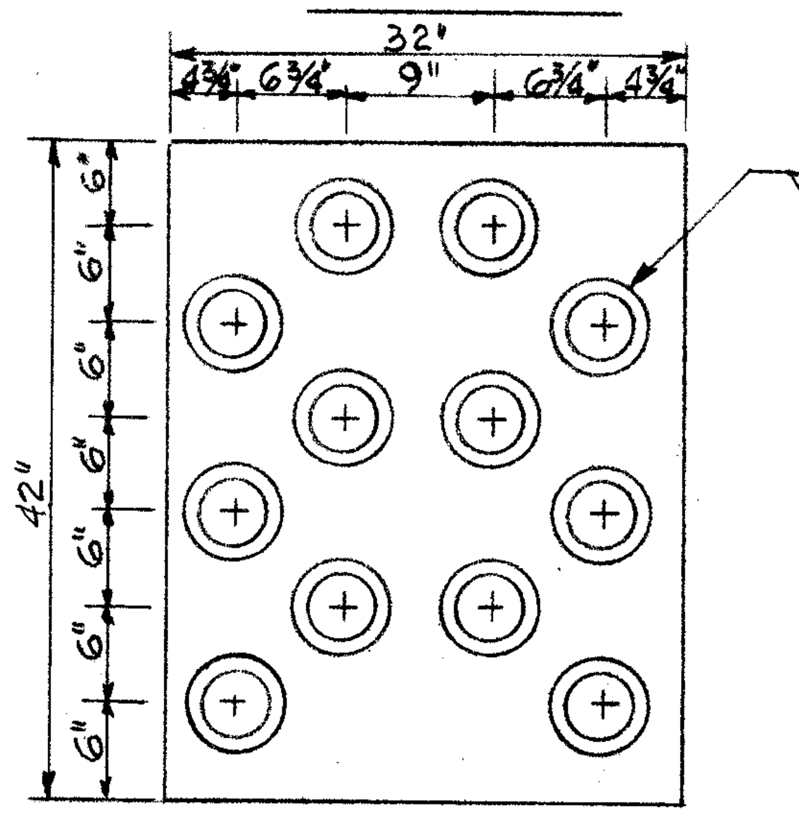
6 27/16,17,18

6-DUCT



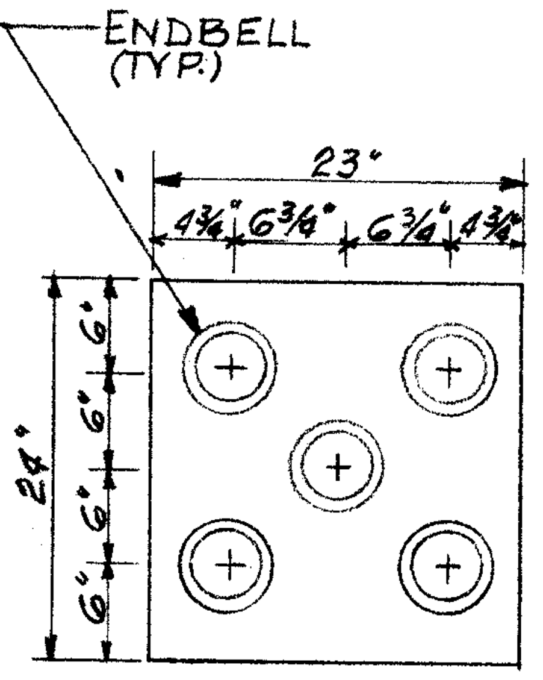
7 27/18,21

4- DUCT



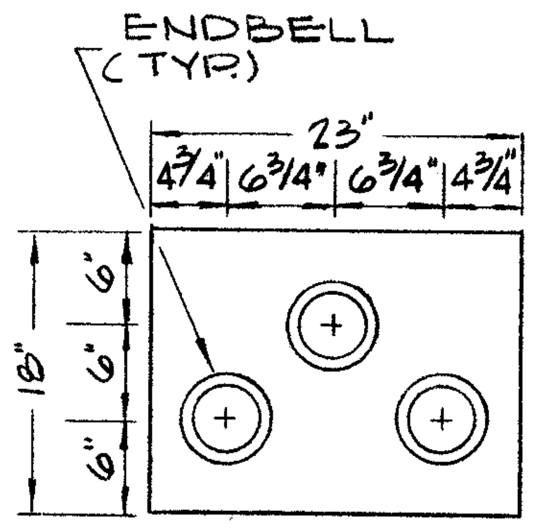
8 27/14,15

12-DUCT



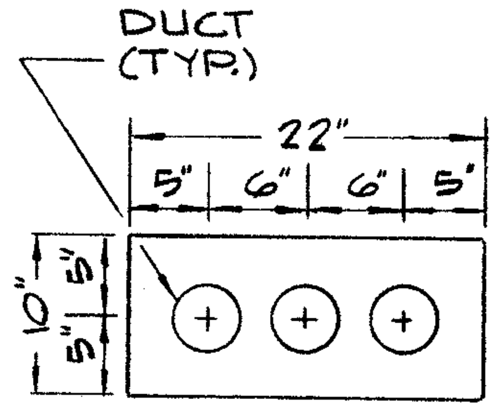
9 27/20

5 DUCT



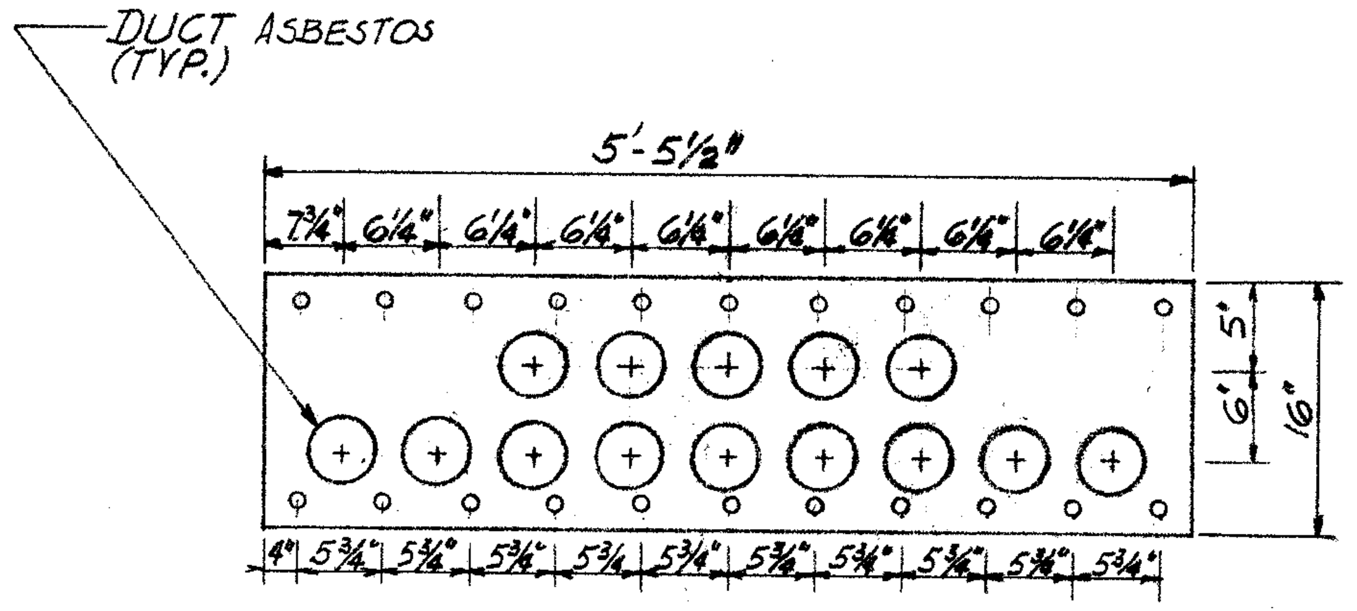
10 27/11,15,16,20,21

3-DUCT



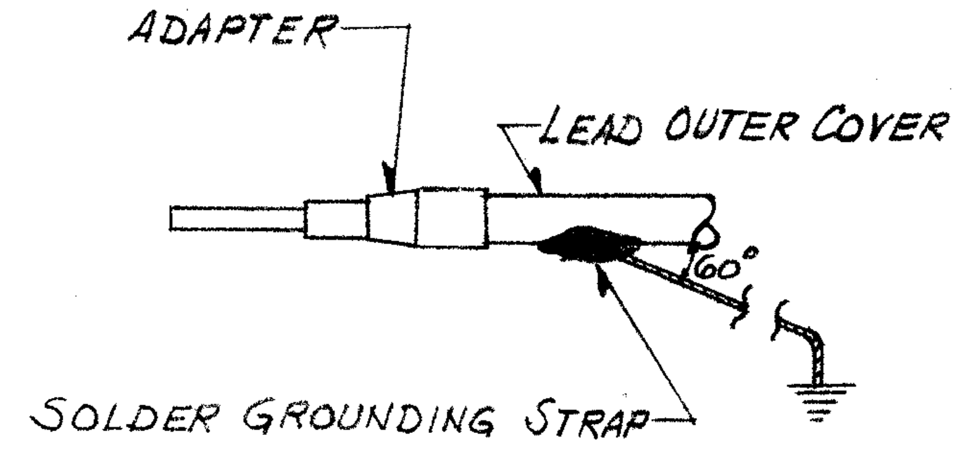
11 27/11,13,15,16,20,21

3-DUCT

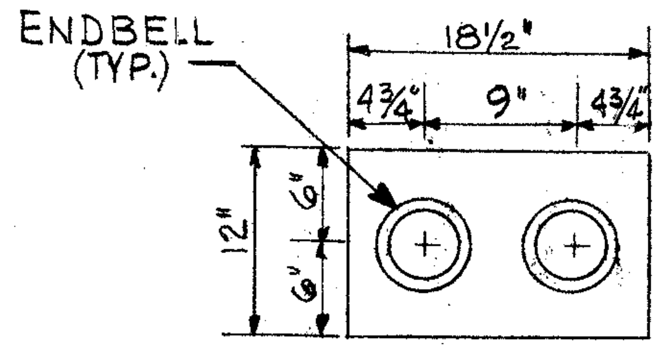


12 27/14,15

16 DUCT

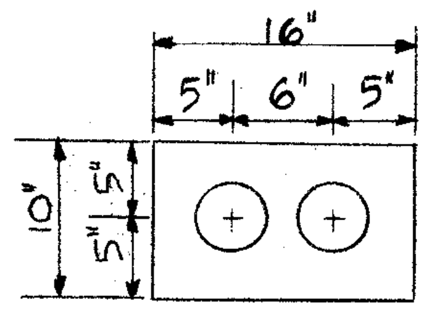


TYPICAL BONDING OF LEAD CABLE
SPECS.: UC.18



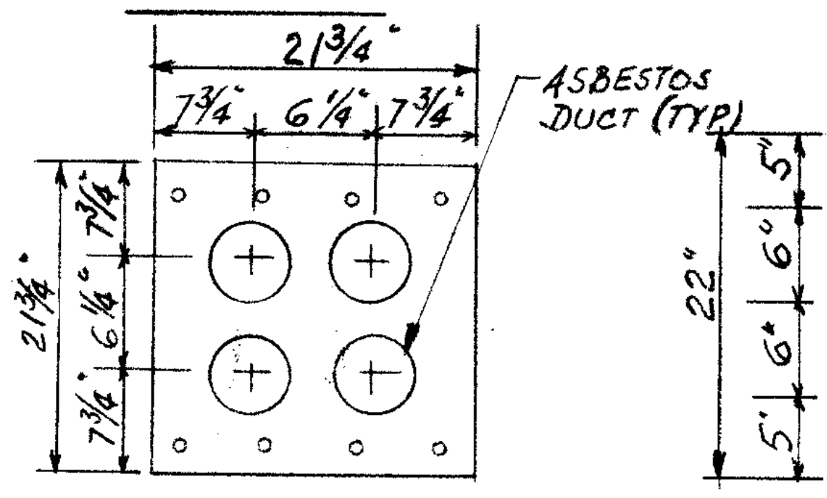
13 27/19,20

2-DUCT



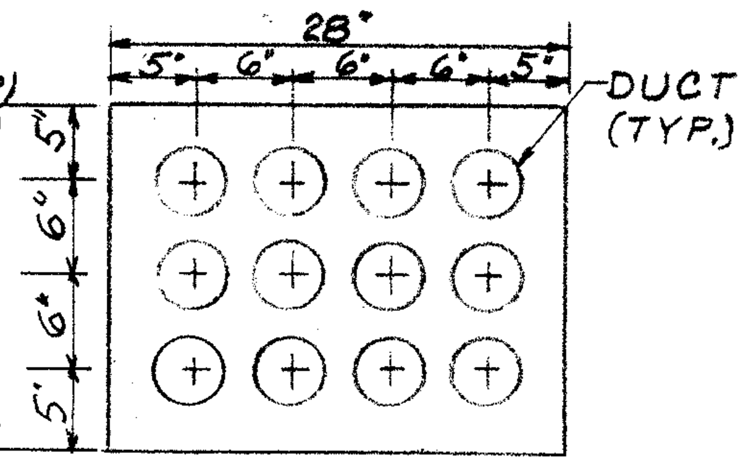
14 27/19,20,&34

2-DUCT



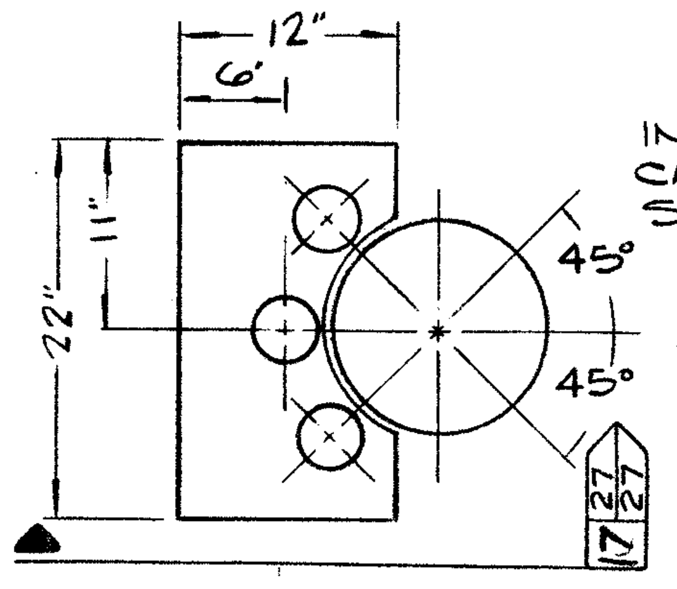
15 27/21

4 DUCT

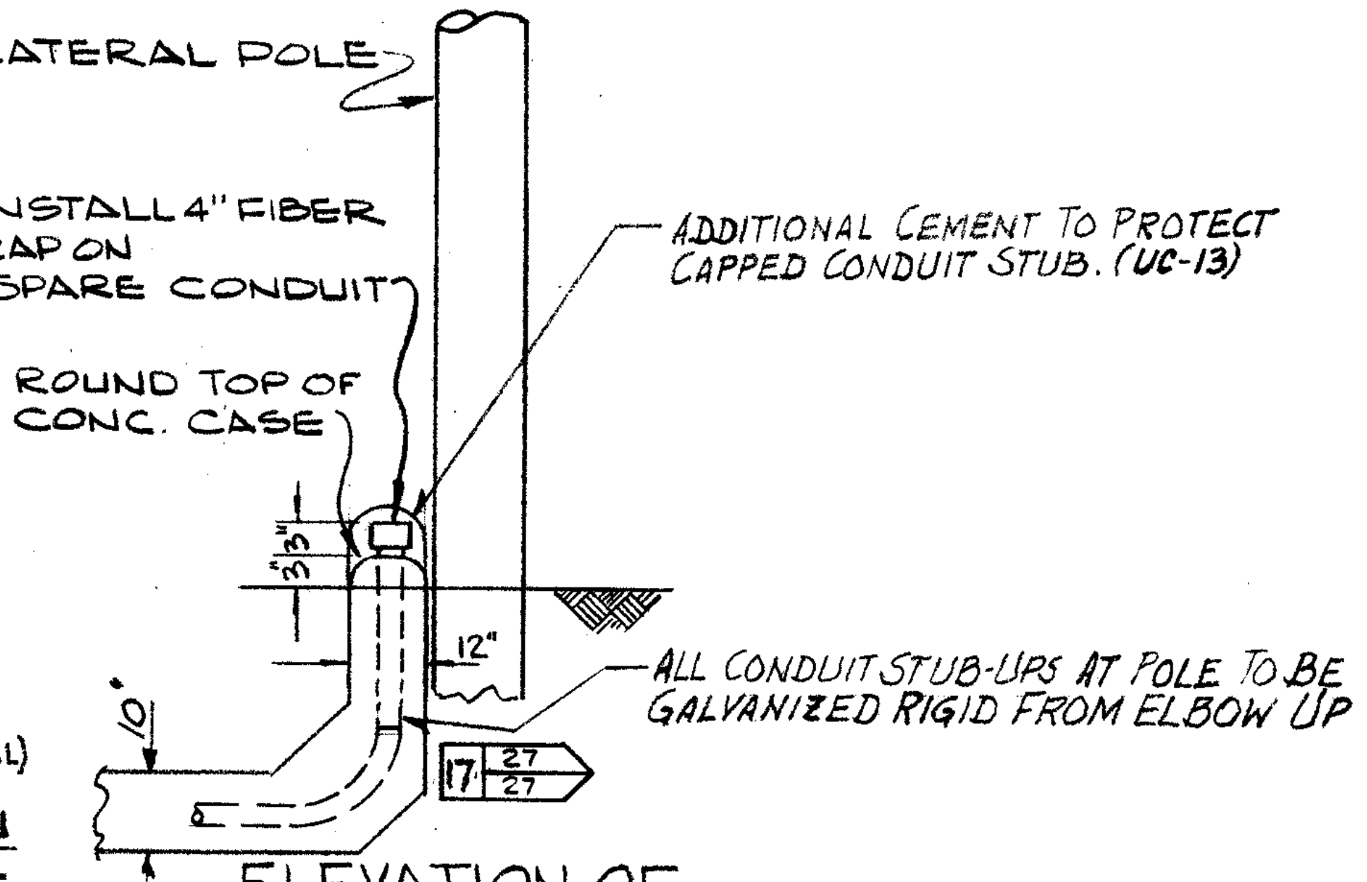


16 27/14,15

12- DUCT



DETAIL "A" (TYPICAL)
3-DUCT FORMATION AT LATERAL POLE



ELEVATION OF DETAIL "A"

NOTES:

1.) USE No. 6 REINFORCEMENT BARS FOR ALL DUCT REINFORCEMENT. SEE INDIVIDUAL DETAILS FOR NUMBER REQ'D.

2.) ALL DUCTS AND ASBESTOS DUCTS 4" I.D. UNLESS OTHERWISE NOTED.

APPROVED BY

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COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER

Robert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

UNDERGROUND CONCRETE DUCT DETAILS

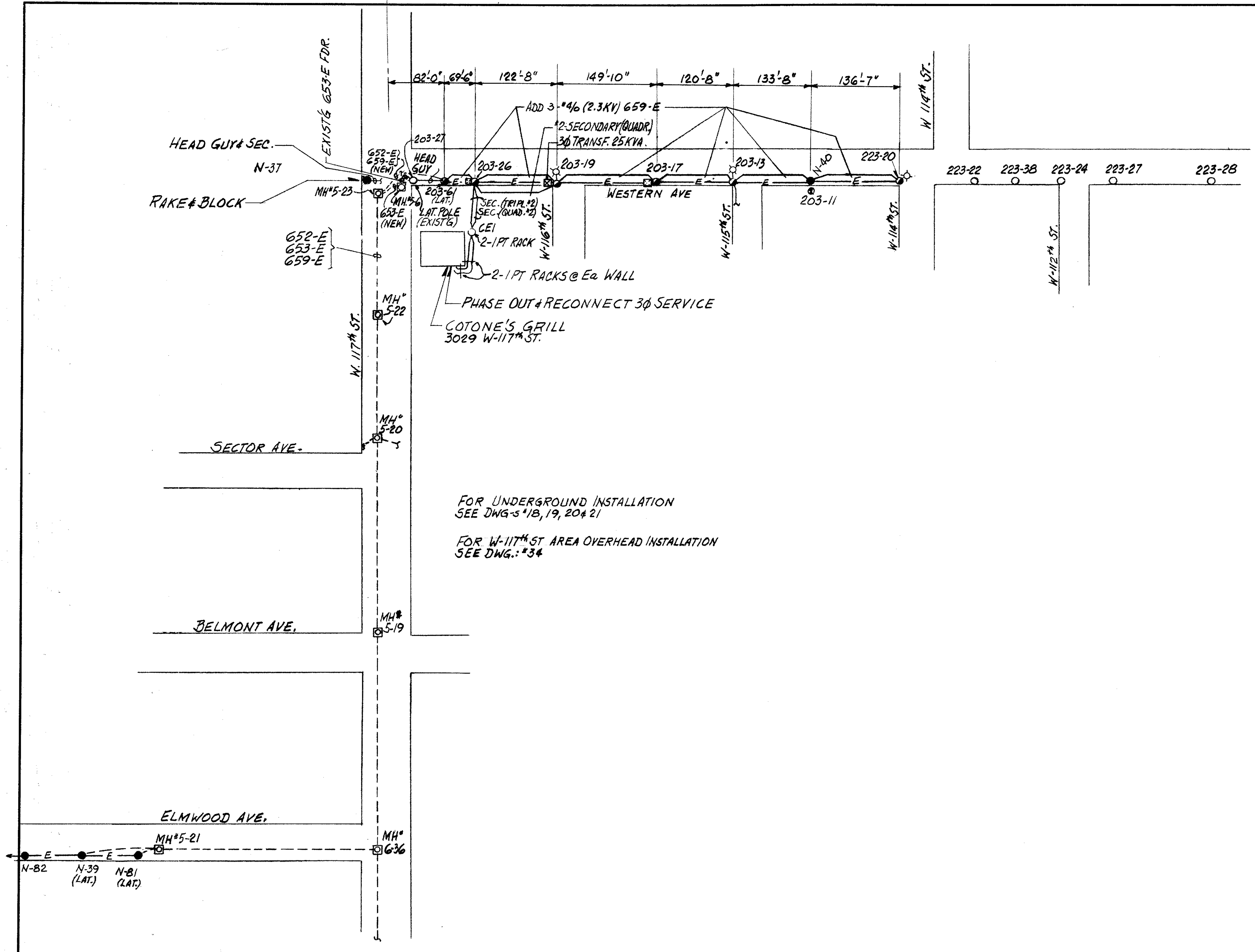
DRAWN BY RJP	SCALE NONE	DRAWING NUMBER
CH'K'D BY J.M.	DATE	6587-2T

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-90-10.40

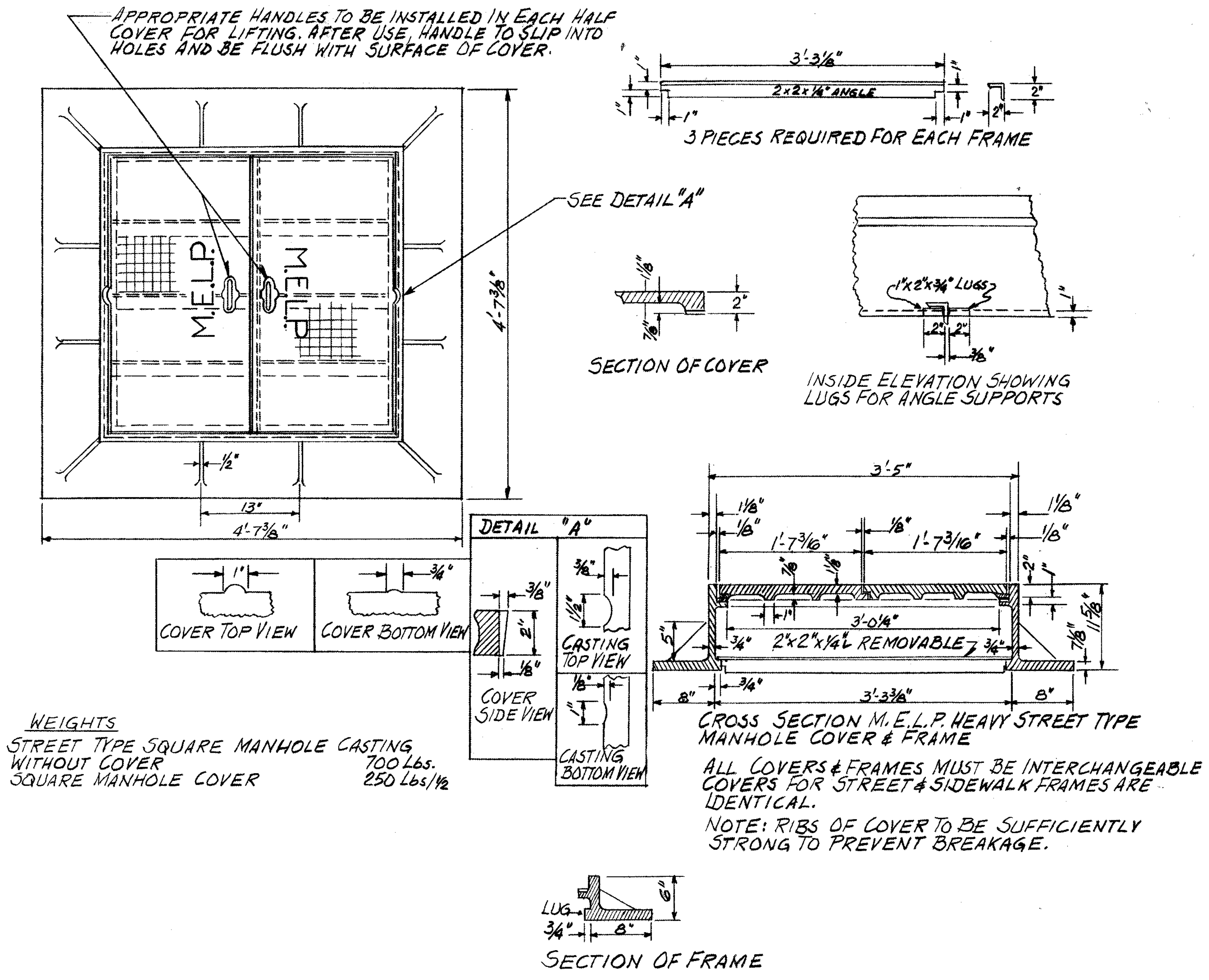
383/713

27A/54



FOR UNDERGROUND INSTALLATION
SEE DWG-S #18, 19, 20 & 21

FOR W-117th ST AREA OVERHEAD INSTALLATION
SEE DWG.: #34



WEIGHTS

STREET TYPE SQUARE MANHOLE CASTING WITHOUT COVER	700 Lbs.
SQUARE MANHOLE COVER	250 Lbs/1/2

TYPICAL SQUARE MANHOLE COVER.
FOR M.H. #5-20 (SPECS.: UC-12)
NO SCALE

APPROVED BY

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CHIEF ELECTRICAL ENGINEER

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

INSTALLATION OF SWITCHING FEEDER 659-E AT ELMWOOD STREET

DRAWN BY E.F.	SCALE NONE	DRAWING NUMBER
CH'K'D BY J.M.	DATE 6-30-71	6587-2V

FORM DD A-9

POLE NO.	DESCRIPTION
195-10	A) REMOVE 2 # 6 WIRE COPPER WEATHERPROOF B) REMOVE STANDARD 6 PIN CROSSARM C) INSTALL DBL. STANDARD 6 PIN CROSSARM & D.E. 2 #6 WIRE COPPER-W.P. D) ADD DBL. HEAVY DUTY ANCHOR ~~GUY~~ SOUTH
196-10	A) REMOVE EX. 2 W. STREET LIGHT CKT. N. B) REMOVE STANDARD 6 PIN CROSSARM, INSTALL DOUBLE HEAVY DUTY 8 PIN CROSSARM WITH 6 PIN INSULATORS. INSTALL 6-#4/0 WIRE COPPER C) INSTALL TRIPLEX SEC. N. TO POLE N-33. D) INSTALL HEAVY DUTY DOUBLE ANCHOR - GUY N. E) INSTALL 2 OIL SW-S, 2 SETS OF LTG. ARRESTERS, POTHEAD FOR 659-E LATERAL ARRANGEMENT. F) INSTALL MERCURY LUMINAIRE & 8FT BRACKET
196-13	ADD 1 - # 6 PRIMARY EAST AND WEST.
196-14	ADD 1 - # 6 PRIMARY EAST AND WEST.
196-18	ADD 1 # 6 PRIM. E AND W.
196-19	ADD 1 # 6 PRIME E AND CONNECT 2 # 6 PRIM. OF EXISTING PRIMARIES N. TO NEW # 6 PRIM. EAST AND WEST.
196-25	A) REMOVE 2 # 6 PRIM. N. B) REMOVE SINGLE X-ARM, INSTALL DOUBLE X-ARM AND DEAD-END 2 # 6 PRIM. S. C) INSTALL ANCHOR GUY N.
197-58	ADD 1 # 6 PRIM. EAST.
197-59	INSTALL 4 STD. X-ARMS, 50 KVA TRANSFORMER, LA, DISCONNECTS AND CONNECT TO PRIMARY AND SECONDARY, INSTALL OIL SW.
197-60	INSTALL 2 STD. X-ARMS, 25 KVA & 10 KVA TRANSFORMERS, LA, DISCONNECTS & ADD 1 # 6 PRIM. EAST AND WEST.
197-61	INSTALL SINGLE X-ARM AND 3 # 6 PRIM. E AND W., ADD 1 - # 6 PRIMARY WIRE.
203-13	ADD NEW 8 PIN HD. DOUBLE CROSSARM FOR FDR 659-E AND INSTALL 3 - # 4/0 W.P. CABLES.
203-17 & 203-19	ADD NEW 8 PIN H.D. DOUBLE CROSSARM FOR FDR 659-E AND INSTALL 3 - #4/0 W.P. CABLES. INSTALL 3ϕ TRANSF & QUAD. SECONDARY ADD 1PT SEC RACK.
203-24	INSTALL STREET LIGHT LUMINAIRE WITH 6FT BRACKET & CONNECT
203-26	ADD NEW 8 PIN H.D. DOUBLE CROSSARM FOR FDR 659-E AND INSTALL 3 - #4/0 W.P. CABLES. ADD 1PT SEC. RACK & QUAD. SECONDARY CABLES TO COTONE'S GRILL.
203-41	A) REMOVE SINGLE X-ARM. B) INSTALL DOUBLE X-ARM WITH STRAIN - INSULATORS AND 3 # 6 PRIM. N.E.
203-61	A) REMOVE EXISTING CROSSARM ON TOP. B) DEAD END BOTH 652-E & 653-E ON NEW 8 PT. DOUBLE H.D. CROSSARM ON TOP OF POLE. C) LOWER SECONDARIES. D) DEAD END 659-E ON NEW 6 PT. CROSSARM BELOW D.E. #652-E & 653-E. E) CHANGE THIS POLE FOR LATERAL POLE BY ADDING 2 SETS OF RISER CABLES, POTHEADS, OIL SW'S, LIGHTNING ARRESTERS & NECESSARY SUPPORTS FOR CKT'S 652-E & 659-E. F) INSTALL H.D. GUYING. G) MAKE SLACK SPAN CONNECTION FOR 653-E FROM THIS POLE & WEST TO POLE #203-27. USE 3 W.P. #4/0.

POLE NO.	DESCRIPTION
204-28	A) REMOVE SINGLE X-ARM, 2 # 6 PRIM, 2 # 4 - 1 # 6 SEC, 2W STR. LIGHT CKT. N. B) INSTALL ANCHOR GUY N.
204-36	A) REMOVE 2 # 2, 1 # 4 SEC. S. B) INSTALL ANCHOR - GUY S.
204-39	A) INSTALL 3 # 6 SEC. N. B) DEAD-END EX. 2W STREET LIGHT CKT. C) INSTALL ANCHOR - GUY S.
204-47	A) REMOVE 2 # 6 PRIM. AND X-ARM N AND S. B) INSTALL ANCHOR - GUY N.
204-48	A) INSTALL STD. DOUBLE 6 PIN X-ARMS, 15 KVA TRANSFORMER, LA, DISCONNECTS, D.E. PRIM. & CONNECT SEC. B) INSTALL ANCHOR GUY N.
204-50	A) INSTALL SINGLE 6-PIN X-ARM AND 2 # 6 PRIM. N & S.
204-51	A) REMOVE SGLE. X-ARM AND PRIM. N. B) INSTALL DBLE. X-ARM AND DEAD-END NEW 2 # 6 PRIM. S. C) INSTALL HEAD GUY N.
204-52	A) REMOVE SINGLE X-ARM. B) INSTALL ANCHOR GUY N.
204-58	A) REMOVE EXISTING X-ARM. B) INSTALL DBLE. X-ARM. C) DEAD-END EXISTING 2 # 6 PRIM., 2W STREET LIGHT CKT. N. & SEC. D) INSTALL ANCHOR - GUY S.
204-65	A) REMOVE SGLE X-ARM. B) INSTALL DBL. 6 PIN X-ARM. C) DEAD-END 2 # 6 PRIM. AND 2W STREET LIGHT CKT. N. D) INSTALL ANCHOR GUY S.
204-66	A) REMOVE SINGLE X-ARM B) INSTALL #4 TRIPLEX SECONDARIES TO N-99
205-38	INSTALL 2 #6 PRIM. N. CONNECT TO 657-E
205-39	INSTALL SGLE X ARM AND 2-#6 PRIM N. & S.

POLE NO.	DESCRIPTION
205-40	INSTALL SGLE X-ARM AND 2 # 6 PRIM N. & S.
205-41	INSTALL SGLE X-ARM AND 2 # 6 PRIM N. & S.
205-42	INSTALL SGLE X-ARM AND 2 # 6 PRIM N. & S.
205-43	INSTALL SGLE X-ARM AND 2 # 6 PRIM N. & S.
205-70	A) REMOVE SGLE X-ARM AND 3 # 6 PRIM & 2W STREET LIGHT CKT. N. B) INSTALL DBL X-ARM. C) DEAD-END 3 # 6 PRIM AND 2W STREET LIGHT CKT. D) INSTALL ANCHOR GUY N.
223-20	INSTALL 3 WIRE # 4/0 W.P. D.E. ON EXISTING CROSSARM FOR FDR 659-E AND CONTINUE WEST.
224-26	A) REMOVE 3 # 4/0 PRIM S OF 655-E TOP GAIN W-SIDE & D.E. N.
224-27	A) REMOVE 3 # 4/0 PRIM N. & S. OF 655-E TOP GAIN E-SIDE. B) INSTALL 2 # 2, 1 # 4 SEC. S., REMOVE 7 KVA TRANSFORMER. C) INSTALL 15 KVA TRANSFORMER.
224-28	A) REMOVE 3 # 4/0 PRIM S. OF 657-E, 2ND GAIN E-SIDE & D.E. N.
224-29	A) REMOVE 3 # 4/0 PRIM N. & S. OF 655-E (TOP GAIN E-SIDE) AND 657-E (2ND GAIN E-SIDE). B) INSTALL 2 # 2, 1 # 4 SEC. N. & S.
224-50	A) DEAD-END TRIPLEX SECONDARIES WITH ANCHOR S. B) REMOVE OLD STREET LIGHT CKT. N. & S. AND 3 # 6 SEC. S.
224-53	A) DEAD END 3-#6 PRIMARIES. INSTALL & D.E 2W SECONDARIES.
224-58	A) INSTALL 3 # 6 PRIM. N. AND 3RD PRIM. S. B) REMOVE 2W STREET LIGHT CKT.
224-59	A) REMOVE 2W STREET LIGHT CKT. N. AND S. INSTALL 3RD PRIM. N. AND S.
224-60	A) REMOVE 2W STREET LIGHT CKT. N. AND S. B) INSTALL 3RD PRIM. S.
224-62	A) REMOVE SINGLE CROSSARM, 2W STREET LIGHT CKT., 2 # 6 PRIMARIES AND 2 # 4, 1 # 6 SEC. SOUTH. B) INSTALL DBL X-ARM. C) DEAD-END EXISTING 2 # 6 PRIM. N. D) INSTALL ANCHOR - GUY S.
225-19	A) INSTALL OIL TIE SW & L.A.'S BETWEEN 654-E AND 659-E.
251-26	A) INSTALL 15 KVA TRANSFORMER
25065	INSTALL 25 KVA TRANSFORMER

APPROVED BY

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF LIGHT & POWER

COMMISSIONER OF UTILITIES ENGINEERING

~~CHIEF~~ ELECTRICAL ENGINEER
Robert
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD MODIFIED POLE SCHEDULE OF CHANGES

DRAWN BY E.F.	SCALE NONE	DRAWING NUMBER **6587-3A**
CH'K'D BY J.M.	DATE 6-30-71	

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-90-10.40

POLE NO.	DESCRIPTION
195-10	A) REMOVE 2 - #6 WIRE COPPER WEATHERPROOF. B) REMOVE STANDARD 6 PIN CROSSARM. C) INSTALL DOUBLE STANDARD 6 PIN CROSSARM & D.E., 2 - #6 WIRE COPPER WEATHERPROOF. D) ADD DOUBLE HEAVY DUTY ANCHOR GUY SOUTH.
196-10	A) REMOVE 2 - #6 WIRE STREET LIGHTING CIRCUIT B) REMOVE 6 PIN CROSSARM, INSTALL DOUBLE HEAVY DUTY 8 PIN CROSSARM WITH 6 PIN INSULATORS. INSTALL 3 - #4/0 WIRE COPPER WEATHERPROOF FOR 652-E (EAST SIDE), 3 - #4/0 WIRE COPPER WEATHERPROOF FOR 653-E (WEST SIDE). C) INSTALL 1 PT. SECONDARY RACK & #4 WIRE TRIPLEX TO POLE N-33. D) INSTALL DOUBLE HEAVY DUTY ANCHOR GUY. E) INSTALL 2 OIL SWITCHES WITH HANGERS & WOOD BRACING, 2 SETS OF 3 KV LIGHTNING ARRESTERS, POTHEAD FOR FDR. #659-E, GROUNDING, PRIMARY WIRE HOLDER, 1/C 5 KV #4/0 XLP CABLE. CABLE GUARD FOR P.I.L. RISER CABLE - 8 FT. LENGTH. F) INSTALL MERCURY LUMINAIRE W/BRACKET ARM 8 FT. LONG - 175 W.
196-13	ADD 1 - #6 WIRE COPPER - WEATHERPROOF.
196-14	ADD 1 - #6 WIRE COPPER - WEATHERPROOF.
196-18	ADD 1 - #6 WIRE COPPER - WEATHERPROOF.
196-19	ADD 1 - #6 WIRE COPPER - WEATHERPROOF, CONNECT CIRCUIT TO 2 - #6 EXISTING PRIMARIES TO NORTH AND 2 - #6 EXISTING PRIMARIES TO WEST.
196-25	A) REMOVE 2 - #6 PRIMARIES, NORTH. B) REMOVE SINGLE CROSSARM & INSTALL DOUBLE STANDARD 6 PIN CROSSARM W/3 PIN INSULATORS & 3 DEAD ENDS. 5 KV TO SOUTH. C) INSTALL STANDARD ANCHOR GUY TO NORTH.
197-58	ADD 1 - #6 WIRE COPPER - WEATHERPROOF, EAST.
197-59	INSTALL 4 STANDARD 6 PIN CROSSARMS, 50 KVA TRANSFORMER (OVERHEAD), 3 KV LIGHTNING ARRESTERS, FUSED CUTOUTS AND CONNECT PRIMARY AND SECONDARY, INSTALL OIL SWITCH WITH HANGERS AND WOOD BRACING.
197-60	INSTALL 2 STANDARD 6 PIN CROSSARMS, 25 & 10 KVA TRANSFORMERS (OVERHEAD), 3 KV LIGHTNING ARRESTERS, FUSED CUTOUTS & ADD 1 - #6 WIRE COPPER - WEATHERPROOF.
197-61	INSTALL STANDARD 6 PIN CROSSARM & 3 - #6 WIRE COPPER - WEATHERPROOF IN EAST & WEST DIRECTION, ADD 1 - #6 WIRE COPPER - WEATHERPROOF.
203-13	ADD TWO HEAVY DUTY 8 PIN CROSSARM FOR 659-E AND INSTALL 3 - #4/0 WIRE COPPER - WEATHERPROOF.
203-17 & 203-19	ADD TWO HEAVY DUTY 8 PIN CROSSARM FOR 659-E AND INSTALL 3 - #4/0 WIRE COPPER - WEATHERPROOF. INSTALL 3 PHASE TRANSFORMER, INSTALL FUSED CUTOUTS, OVERHEAD & INSTALL #2 WIRE - QUADRUPLEX SECONDARY, ADD 1 PT. SECONDARY RACK.
203-24	INSTALL MERCURY LUMINAIRE W/BRACKET ARM 6 FT. LONG - 175W.
203-26	ADD NEW HEAVY DUTY 8 PIN CROSSARM FOR 659-E AND INSTALL 3 - #4/0 WIRE COPPER - WEATHERPROOF. ADD 1 PT. SECONDARY RACK & #2 WIRE - QUADRUPLEX SECONDARY CABLES TO "COTONE'S GRILL".
203-41	A) REMOVE SINGLE CROSSARM. B) INSTALL TWO STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS (2.3KV). C) INSTALL 3 - #6 WIRE COPPER - WEATHERPROOF.
203-61	A) REMOVE EXISTING CROSSARMS ON TOP. B) INSTALL TWO HEAVY DUTY 8 PIN CROSSARMS WITH 6 PIN INSULATORS & 6 DEAD ENDS ON TOP OF POLE. C) DEAD END FEEDERS 652-E & 653-E ON THIS CROSSARM. D) LOWER SECONDARIES. E) INSTALL TWO HEAVY DUTY 6 PIN CROSSARMS WITH 3 PIN INSULATORS & 3 DEAD ENDS BELOW D.E. OF 652 & 653-E. F) DEAD END 659-E ON 6 PIN CROSSARM. G) MAKE THIS POLE A DOUBLE LATERAL POLE FOR 652-E & 659-E BY INSTALLATING 2 OIL SWITCHES WITH HANGERS & WOOD BRACING, 2 SETS OF 3KV LIGHTNING ARRESTERS, 2 POTHEADS, GROUNDING, PRIMARY WIRE HOLDERS, 1/C 5 KV #4/0 XLP CABLE, CABLE GUARDS FOR P.I.L. RISER CABLE - 8 FT. LENGTH. H) INSTALL DOUBLE HEAVY DUTY ANCHOR GUY. I) MAKE SLACK SPAN CONNECTION FOR 653-E FROM THIS POLE & WEST TO POLE #203-27. USE 3 - #4/0 WIRE COPPER-WEATHERPROOF.
204-28	A) REMOVE SINGLE CROSSARM, 2 - #6 PRIMARIES, 2 - #4 & 1 - #6 SECONDARIES & 2 WIRE STREET LTG. B) INSTALL STANDARD ANCHOR GUY NORTH.
204-36	A) REMOVE 2 - #2, 1 - #4 SECONDARY SOUTH. B) INSTALL STANDARD ANCHOR GUY SOUTH. C) INSTALL 2" RIGID ALUMINUM CONDUIT WITH 2" WEATHERHEAD
204-39	A) INSTALL 3 - #6 WIRE COPPER - WEATHERPROOF. B) REMOVE EXISTING 2 WIRE STREET LIGHTING CBT. C) INSTALL STANDARD ANCHOR GUY SOUTH.
204-47	A) REMOVE 2 - #6 PRIMARY AND CROSSARM NORTH & SOUTH. B) INSTALL STANDARD ANCHOR GUY NORTH.
204-48	A) INSTALL DOUBLE STANDARD 6 PIN CROSSARM, 15 KVA TRANSFORMER (OVERHEAD), LIGHTNING ARRESTER, FUSED CUTOUTS, DEAD END PRIMARY AND CONNECT SECONDARY. B) INSTALL STANDARD ANCHOR GUY NORTH.
204-50	A) INSTALL STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS. B) INSTALL 2 - #6 WIRE COPPER - WEATHERPROOF NORTH & SOUTH.
204-51	A) REMOVE SINGLE CROSSARM AND PRIMARY NORTH. B) INSTALL STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS & 2 DEAD ENDS FOR #6 WIRE COPPER - WEATHERPROOF SOUTH. C) INSTALL HEAD GUY WITH INSULATORS NORTH.
204-52	A) REMOVE SINGLE CROSSARM. B) INSTALL STANDARD ANCHOR GUY NORTH.
204-53	A) REMOVE EXISTING CROSSARM. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS & 2 DEAD ENDS. C) DEAD END EXISTING 2 - #6 WIRE COPPER - WEATHERPROOF. D) DEAD END SECONDARY. E) REMOVE STREET LIGHTING CIRCUIT. F) INSTALL STANDARD ANCHOR GUY.
204-65	A) REMOVE SINGLE CROSSARM. B) INSTALL DOUBLE STANDARD PIN CROSSARM WITH 2 PIN INSULATORS & 2 DEAD ENDS. C) DEAD END 2 - #6 WIRE COPPER WEATHERPROOF. D) REMOVE LIGHTING CIRCUIT. E) INSTALL STANDARD ANCHOR GUY - SOUTH.
204-66	A) REMOVE SINGLE CROSSARM. B) INSTALL #4 WIRE - TRIPLEX FOR SECONDARIES TO POLE NO. N-99.
205-38	INSTALL 2 - #6 WIRE COPPER - WEATHERPROOF NORTH AND CONNECT TO 657-E.
205-39	INSTALL STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS AND 2 - #6 WIRE COPPER - WEATHERPROOF NORTH & SOUTH AND CONNECT TO 657-E.
205-40	INSTALL STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS AND 2 - #6 WIRE COPPER - WEATHERPROOF NORTH AND SOUTH.
205-41	INSTALL STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS AND 2 - #6 WIRE COPPER - WEATHERPROOF NORTH AND SOUTH.
205-42	INSTALL STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS AND 2 - #6 WIRE COPPER - WEATHERPROOF NORTH AND SOUTH.
205-43	INSTALL STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS AND 2 - #6 WIRE COPPER - WEATHERPROOF NORTH AND SOUTH.
205-70	A) REMOVE SINGLE CROSSARM AND 3 - #6 WIRE. B) REMOVE STREET LIGHTING WIRES. C) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS. D) INSTALL STANDARD ANCHOR GUY NORTH.
223-20	A) INSTALL 3 WIRE #4/0 WIRE COPPER - WEATHERPROOF. B) DEAD END ON EXISTING CROSSARM BY DEAD END CLEOISCS FOR 659-E AND CONTINUE FEEDER TO WEST.
224-26	A) REMOVE 3 - #4/0 WIRES SOUTH OF 655-E (TOP GAIN WEST SIDE). B) INSTALL DOUBLE HEAVY DUTY 6 PIN CROSSARM WITH 3 PIN INSULATORS AND 3 DEAD ENDS NORTH.
224-27	A) REMOVE 3 - #4/0 NORTH & SOUTH (655-E). TOP GAIN EAST SIDE. B) INSTALL #2 WIRE TRIPLEX SECONDARY SOUTH. C) REMOVE 7 KVA TRANSFORMER. D) INSTALL 15 KVA TRANSFORMER.
224-28	A) REMOVE 3 - #4/0 WIRES (657-E) SOUTH. 2ND GAIN EAST SIDE. B) INSTALL DEAD END CLEOISCS ON 2ND GAIN EAST SIDE NORTH FOR SAME FEEDER.
224-29	A) REMOVE 3 - #4/0 WIRE NORTH AND SOUTH OF 655-E (TOP GAIN EAST SIDE) AND 657-E (SECOND GAIN EAST SIDE). B) INSTALL #2 WIRE - TRIPLEX FOR SECONDARY NORTH AND SOUTH.
224-50	A) DEAD END TRIPLEX SECONDARIES WITH ANCHOR TO SOUTH. B) REMOVE OLD STREET LIGHTING CIRCUIT NORTH & SOUTH. C) REMOVE SECONDARIES SOUTH.
224-53	A) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS FOR 3 - #6 WIRE COPPER - WEATHERPROOF. B) INSTALL #2 WIRE TRIPLEX SECONDARY. C) INSTALL SECONDARY DEAD END ANCHOR.
224-58	A) INSTALL 3 - #6 WIRE COPPER WEATHERPROOF NORTH. B) ADD 1 - #6 WIRE COPPER WEATHERPROOF SOUTH. C) REMOVE STREET LIGHTING CIRCUIT.
224-59	A) ADD 1 - #6 WIRE COPPER WEATHERPROOF NORTH & SOUTH. B) REMOVE STREET LIGHTING CIRCUIT NORTH & SOUTH.
224-60	A) ADD 1 - #6 WIRE COPPER WEATHERPROOF SOUTH. B) REMOVE STREET LIGHTING CIRCUIT NORTH & SOUTH.
224-62	A) REMOVE SINGLE CROSSARM. B) REMOVE STREET LIGHTING CIRCUIT. C) REMOVE ALL PRIMARIES AND SECONDARIES TO SOUTH. D) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS & 2 DEAD ENDS NORTH FOR EXISTING FEEDER. E) INSTALL STANDARD ANCHOR GUY SOUTH.
225-19	INSTALL OIL SWITCH WITH HANGERS & WOOD BRACING BTWN. 654-E & 659-E.
225-35	A) REMOVE ALL CKTS. SOUTH. B) INSTALL DOUBLE HEAVY DUTY ANCHOR GUY SOUTH. C) INSTALL OIL SWITCH WITH HANGERS AND WOOD BRACING. INSTALL POTHEAD, LIGHTNING ARRESTERS. D) INSTALL HEAVY DUTY 8 PIN CROSSARM WITH 6 PIN INSULATORS & 6 DEAD ENDS. DEAD END FEEDERS #654-E & #659-E. E. INSTALL MERCURY LUMINAIRE WITH BRACKET ARM 8 FT. LONG 175W.
225-37	A) REMOVE SINGLE CROSSARM WITH 2 - #6 PRIMARY AND 2 - #4 & 1 - #6 SECONDARY SOUTH. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS & 2 DEAD ENDS. DEAD AND EXISTING PRIMARY. C) INSTALL STANDARD ANCHOR GUY SOUTH. D) INSTALL 1 PT. SECONDARY EACH & DEAD END EXISTING SECONDARY NORTH.
225-51	A) REMOVE 2 W STREET LIGHTING CIRCUIT NORTH AND SOUTH WITH TRIPLEX SECONDARY & 3 - #6 PRIMARY TO NORTH. B) INSTALL STANDARD ANCHOR GUY NORTH.
225-56	A) REMOVE SINGLE CROSSARM - 3 - #6 PRIMARY AND 2 - #2 & 1 - #4 SECONDARY SOUTH. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS NORTH. C) INSTALL STANDARD ANCHOR GUY SOUTH. D) INSTALL 3 FT. SECONDARY RACK & DEAD END EXISTING PRIMARIES & SECONDARIES NORTH.
225-63	A) INSTALL STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS. B) INSTALL STANDARD ANCHOR GUY NORTHEAST. C) INSTALL 3 - #6 WIRE COPPER - WEATHERPROOF.
249-34	A) INSTALL STANDARD ANCHOR GUY NORTHWEST. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS & 2 DEAD ENDS. C) ADD 2 - #6 WIRE COPPER - WEATHERPROOF.
249-63	A) REMOVE SINGLE CROSSARM. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 6 DEAD ENDS. C) ADD 3 - #6 WIRE COPPER - WEATHERPROOF EAST.
250-13	A) REMOVE SINGLE CROSSARM. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS & 2 DEAD ENDS. C) LOWER & DEAD END 2 - #6 WIRE PRIMARIES AND SECONDARIES SOUTH. D) INSTALL STANDARD ANCHOR GUY NORTH. E) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS WEST AND SAME WITH 2 DEAD ENDS EAST. F) INSTALL ARM GUY WITH INSULATORS EAST. G) INSTALL DEAD END FOR SECONDARY WEST.
250-18	A) REMOVE SINGLE CROSSARM WITH PRIMARIES. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS AND 2 DEAD ENDS NORTH. C) INSTALL STANDARD ANCHOR GUY SOUTH. D) DEAD END EXISTING 2 - #6 PRIMARY NORTH.
250-20	A) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 2 PIN INSULATORS AND 2 DEAD ENDS SOUTH TO N-77. B) INSTALL SECONDARIES TO SOUTH. C) INSTALL DEAD ENDS TO NORTH FOR EXISTING FEEDER.
250-35	A) REMOVE 2 - #6 PRIMARY WEST AND SINGLE CROSSARM. B) INSTALL DOUBLE HEAVY DUTY 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS. C) INSTALL #4/0 WIRE COPPER - WEATHERPROOF EAST AND WEST. D) INSTALL MERCURY LUMINAIRE WITH BRACKET ARM 6 FT. E) INSTALL HEAVY DUTY ANCHOR GUY.
250-37	A) REMOVE 2 - #6 PRIMARIES & CROSSARM. B) INSTALL DOUBLE HEAVY DUTY 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS. C) ADD 3 - #4/0 WIRE COPPER - WEATHERPROOF. D) RECONNECT 25 KVA TRANSFORMER.
250-39	A) REMOVE 2 - #6 PRIMARIES & CROSSARM. B) INSTALL DOUBLE HEAVY DUTY 6 PIN CROSSARM WITH 3 PIN INSULATORS. C) ADD 3 - #4/0 WIRE COPPER WEATHERPROOF EAST & WEST. D) ADD HEAVY DUTY ANCHOR GUY TO SOUTH.
250-42	A) INSTALL 1 POINT SECONDARY RACK. B) INSTALL 2" RIGID STANDARD ALUMINUM CONDUIT WITH 2" WEATHERHEAD.
250-62	A) REMOVE EXISTING CROSSARM. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS. C) LOWER AND DEAD END EXISTING 2 - #6 PRIMARIES AND SECONDARIES SOUTH. D) REMOVE 2 - #6 PRIMARIES AND SECONDARIES NORTH. E) INSTALL DOUBLE HEAVY DUTY 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS.
250-62	F) ADD 3 - #4/0 WIRE COPPER - WEATHERPROOF EAST & WEST G) INSTALL STANDARD ANCHOR GUY NORTH.
250-65	INSTALL 15 KVA TRANSFORMER.
250-65	A) REMOVE 2 - #6 PRIMARIES SOUTH. B) REMOVE 15 KVA TRANSFORMER. C) INSTALL 25 KVA TRANSFORMER WITH FUSED CUTOUTS.
250-66	INSTALL 3 PT. SECONDARY RACK & DEAD END SECONDARIES.
250-71	INSTALL 1 PT. SECONDARY RACK.
250-78	A) REMOVE 2 - #2, 1 - #4 SECONDARIES SOUTH. B) INSTALL 3 PT. SECONDARY RACK. C) DEAD END SECONDARIES. D) INSTALL STANDARD ANCHOR GUY SOUTH. E) INSTALL #2 WIRE-TRIPLEX
250-79	A) INSTALL TWO 3 PT. SECONDARY RACKS AND SECONDARIES. B) INSTALL STANDARD ANCHOR GUY NORTH
250-81	A) REMOVE SINGLE CROSSARM, PRIMARIES AND SECONDARIES SOUTH. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS. C) DEAD END EXISTING 3 - #6 WIRES NORTH. D) INSTALL STANDARD ANCHOR GUY SOUTH.
251-21	INSTALL 1 PT. SECONDARY RACK FOR #4 WIRE TRIPLEX.
251-22	RECONNECT SECONDARY FEED FROM N-65.
251-26	INSTALL 15 KVA TRANSFORMER.
251-113	A) REMOVE TWISTED SECONDARIES NORTH. B) INSTALL ONE 3 POINT SECONDARY RACK AND SECONDARIES.
274-18	A) REMOVE SERVICES. B) ADD #4 WIRE - TRIPLEX. C) INSTALL STANDARD ANCHOR GUY. D) INSTALL MERCURY LUMINAIRE WITH BRACKET ARM 8 FT. LG.
274-19	A) REMOVE CROSSARM AND 3 - #6 PRIMARIES. B) INSTALL DOUBLE STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS & 3 DEAD ENDS. C) DEAD END EXISTING 3 - #6 PRIMARIES NORTH. D) INSTALL HEAD GUYS WITH INSULATORS.
274-21	A) INSTALL STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS. B) ADD 3 - #6 WIRE, COPPER - WEATHERPROOF.
274-22	A) INSTALL STANDARD 6 PIN CROSSARM WITH 3 PIN INSULATORS. B) ADD 3 - #6 WIRE, COPPER - WEATHERPROOF. C) INSTALL MERCURY LUMINAIRE WITH BRACKET ARM 6 FT. LONG.
274-23	A) INSTALL STANDARD 8 PIN CROSSARM WITH 6 PIN INSULATORS & 3 DEAD ENDS FOR FEEDER 752-R EAST & WEST. B) ADD 3RD PRIMARY FOR 651-E GOING WEST. C) INSTALL DEAD ENDS FOR 651-E.
274-24	A) INSTALL STANDARD 8 PIN CROSSARM WITH 6 PIN INSULATORS. B) ADD 3 - #6 WIRE, COPPER - WEATHERPROOF FOR 752-R EAST & WEST. C) ADD 3RD #6 WIRE, COPPER - WEATHERPROOF FOR 651-E GOING EAST AND WEST. D) INSTALL LOAD BREAK DISCONNECT AND LIGHTNING ARRESTERS. E) INSTALL MERCURY LUMINAIRES WITH BRACKET ARM 6 FT. LONG.
274-25	A) INSTALL STANDARD 8 PIN CROSSARM WITH 6 PIN INSULATORS. B) ADD 3 - #6 WIRE, COPPER - WEATHERPROOF FOR 752-R EAST AND WEST. C) ADD 3RD #6 WIRE, COPPER - WEATHERPROOF FOR 651-E GOING EAST AND WEST.
274-26	A) REPLACE SINGLE CROSSARM FOR 651-E EAST. B) INSTALL DOUBLE HEAVY DUTY 8 PT. CROSSARM WITH 6 PIN INSULATORS AND 6 DEAD ENDS FOR BOTH 651-E & 752-R. C) INSTALL HEAVY DUTY ANCHOR GUY WEST.
274-27	INSTALL 3RD #6 WIRE, COPPER - WEATHERPROOF FOR FEEDER #752-R SOUTH.
274-75	A) INSTALL 1 PT. SECONDARY RACK. B) DEAD END SECONDARY FROM 274-73.
275-11	A) REMOVE 3 - #6 PRIMARIES OF 752-R NORTH. B) INSTALL 10 KVA TRANSFORMER WITH FUSED CUTOUTS.

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COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER

Robert J. Albach

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD MODIFIED POLE SCHEDULE OF CHANGES

DRAWN BY E. F.	SCALE NONE	DRAWING NUMBER
CH'K'D BY J. M.	DATE 6-30-71	**6587-3B**

FED. RD.	STATE	PROJECT	
2	OHIO		

30/54

386/713

CUYAHOGA COUNTY
CUY-90-10.40

NOTE: 1.) INSTALL #4 TRIPLEX SECONDARY B'T'W'N POLES 27473 & 27475 ON W-93RD ST. & DEAD END. CONNECT TO EXIST'G LTG. CKT. IF INSTRUCTED. SEE SKETCH ON SH. #29

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CHIEF ELECTRICAL ENGINEER

Robert J. Athiachi

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD PLAN
W. 95 ST. TO W. 100 ST.

DRAWN BY D.B.B.
CHECKED BY J.M.
SCALE 1" = 50'-0"
DATE 7-21-70
DRAWING NUMBER
6587-3C

FED. RD.	STATE	PROJECT	
2	OHIO		

387/713

CUYAHOGA COUNTY
CUY-90-10.40

31/54

NOTE:
1) REMOVE 10 STREET LIGHTING POSTS ON WEST BLVD IN PATH OF RESURFACED AREA. CONNECT WIRES FOR LOOP END @ POST № 37, NORTH OF WESTERN AVE. INSTALL 1 MERCURY FIXTURE TO REPLACE LTG. POLE #47 @ LORAIN & WEST BLVD. CORNER.
2) DUCT BANK PER SECTION 14/27 TOP OF CONCRETE 2'6" BELOW GRADE (MIN.)

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CHIEF ELECTRICAL ENGINEER

Robert J. Albrecht

ENGINEER OF DESIGN

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CITY OF CLEVELAND

OVERHEAD PLAN
W. 101 ST. TO W. 103 ST.

DRAWN BY E.W.R
CH'K'D BY J.M.
SCALE 1" = 50'-0"
DATE 7-14-70
DRAWING NUMBER 6587-3D

FED. RD.	STATE	PROJECT	
2	OHIO		

388
713

CUYAHOGA COUNTY
CUY-90-10.40

32
54

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Robert J. Allbach
ENGINEER OF DESIGN

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CITY OF CLEVELAND

OVEPHEAD PLAN
W.104 ST. TO W.106 ST.

DRAWN BY R. POTOCNIK
CH'K'D BY J.M.
SCALE 1" = 50'-0"
DATE
DRAWING NUMBER 6587-3E

FED. RD.	STATE	PROJECT	
2	OHIO		

389/713

CUYAHOGA COUNTY
CUY-90-10.40

33/54

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ENGINEER OF DESIGN

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CITY OF CLEVELAND

OVERHEAD PLAN
W. 110 ST. TO W. 115 ST.

DRAWN BY R. POTOCNIK
CH'K'D BY J.M.
SCALE 1" = 30'-0"
DATE
DRAWING NUMBER 6587-3F

FED. RD.	STATE	PROJECT	
2	OHIO		

390/713

34/54

CUYAHOGA COUNTY
CUY-90-10.40

★ THIS OVERHEAD SECTION SHALL BE REMOVED ONLY AFTER UNDERGROUND WORK COMPLETED & ENERGIZED

NOTE:
DUCT BANK PER SECTION 14/27/34
TOP OF CONCRETE 3'-6" BELOW GRADE (MIN.)

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ENGINEER OF DESIGN

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CITY OF CLEVELAND

OVERHEAD PLAN
W. 116th ST. TO W 118th ST.

DRAWN BY R. PUDDOCK
SCALE 1" = 50'-0"
CH'K'D BY J.M.
DATE
6587-3G

FED. RD.	STATE	PROJECT	
2	OHIO		

391
713

CUYAHOGA COUNTY
CUY-90-10.40

35
54

CONTINUE TO EXISTING POLES ALONG W. 120TH ST.; AT TRISKETT RD. & W. 119TH ST. (POLE #19614) ADD NEW OVERHEAD POLE LINE FEEDER 2-#6(5 KV) 653-E FROM THIS POLE TO POLE #19758 AT TRISKETT RD. & W. 117TH ST.; ALSO SEE ONE LINE DIAGRAM #29 SH. #9

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CHIEF ELECTRICAL ENGINEER
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DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD PLAN
W. 119th ST. TO W. 121st ST.

DRAWN BY R. POBOCNIK
CH'K'D BY J.M.
SCALE 1" = 50'-0"
DATE

6587-3H

FED. RD.	STATE	PROJECT	
2	OHIO		

392/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

36/54

MODIFIED POLE SCHEDULE

POLE NO.	ITEM	LOCATION SHEET NUMBER	TOTAL	UNIT	WORK DESCR. SHEET NO.	REMARKS
195-10	SPECIAL	35	1	LUMP	28&29	
196-10		34	1			
196-13		34	1			
196-14		34	1			
196-18		34	1			
196-19		34	1			
196-25		35	1			
197-58		34	1			
197-59		34	1			
197-60		34	1			
197-61		34	1			
203-13		27A	1			
203-17		27A	1			
203-19		27A	1			
203-24		34	1			
203-26		27A	1			
203-41		34	1			
203 61		27A	1			
204-28		34	1			
204-36		34	1			
204-39		33	1			
250-71		31	1			
204-47		33	1			
204-48		33	1			
204-50		33	1			
204-51		33	1			
204-52		33	1			
204-58		33	1			
204-65		33	1			
204-66		33	1			
205-38		33	1			
205-39		33	1			
205-40		33	1			
205-41		33	1			
205-42		33	1			
205-43		33	1			
205-70		33	1			
205-20		27A	1			
223-26		32	1			
224-27		32	1			
224-28		32	1			
224-29		32	1			
224-50		33	1			
224-53		33	1			
224-58		—	1			
224-59		—	1			
224-60		—	1			
224-62		—	1			
225-19		32	1			
225-35		32	1			
225-37		32	1			
225-51		32	1			
225-56		32	1			
225-63		31	1			
249-34		31	1			
249-63		31	1			
250-13		31				
250-18		31	1			
250-20		31	1			
250-22		30	1			
250-35		30	1			
250-37		30	1			
250-39		30	1			
250-62		30	1			
250-65		31	1			
250-66		31	1			
250-78		31	1			
250-79		31	1			
250-81		31	1			
251-21		30	1			
251-113		30	1			
250-42		30	1			
274-18		30	1			
274-19		30	1			
251-22		30	1			
274-21		30	1			
274-22		30	1			
274-23		30	1			
274-24		30	1			

ITEM	SHEET NUMBER 27A	30	31	32	33	34	35	GRAND TOTAL	UNIT	DESCRIPTION
OC-12	5	–	–	–	–	–	–	5	EA.	HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS
OC-12&13	1	–	–	–	–	–	–	1	EA.	HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 3 DEAD END CLEVIS
OC-12&13	–	–	–	1	–	2	–	3	EA.	HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 6 DEAD END CLEVIS
OC-12	–	1	–	–	–	–	–	1	EA.	HEAVY DUTY 6 PIN CROSSARM W/3 PIN INSULATORS
OC-12&13	–	1	–	–	–	–	–	1	EA.	HEAVY DUTY 6 PIN CROSSARM W/3 PIN INSULATORS & 3 DEAD END CLEVIS
OC-12	4	–	–	–	–	6	–	10	EA.	STANDARD 8 PIN CROSSARM
OC-12	–	–	–	2	–	2	–	4	EA.	STANDARD 6 PIN CROSSARM
OC-12	–	13	3	4	2	1	–	23	EA.	STANDARD 6 PIN CROSSARM W/3 PIN INSULATORS
OC-12	–	2	2	3	11	–	2	20	EA.	STANDARD 6 PIN CROSSARM W/2 PIN INSULATORS
OC-12&13	–	2	3	1	2	2	–	10	EA.	STANDARD 6 PIN CROSSARM W/3 PIN INSULATORS & 3 DEAD END CLEVIS
OC-12&13	–	1	3	1	5	–	2	12	EA.	STANDARD 6 PIN CROSSARM W/2 PIN INSULATORS & 2 DEAD END CLEVIS
OC-12	–	–	–	–	1	–	–	1	EA.	STANDARD 4 PIN CROSSARM
OC-21	10	20	11	12	21	13	4	91	EA.	CROSSARM BRACE ANGLE IRON
OC-18	–	2	2	2	2	6	–	14	EA	FUSED CUTOUTS
OC-10	–	1	6	4	9	2	3	25	EA.	STANDARD ANCHOR GUY
OC-10	–	2	1	–	–	–	–	3	EA.	HEAVY DUTY ANCHOR GUY
OC-10	–	–	–	1	–	1	–	2	EA.	DOUBLE HEAVY DUTY ANCHOR GUY
OC-10	–	2	–	2	1	–	–	5	EA.	HEAD GUY OR ARM GUY W/ INSULATORS
OC-14	1	–	–	1	–	2	–	4	EA.	POTHEAD
OC-15	3	8	2	14	2	14	–	43	EA.	3 KV LIGHTNING ARRESTER
OC-17	–	5	–	–	–	1	–	6	EA.	MERCURY LUMINAIRE W/BRACKET ARM 8FT LG.-175W
OC-18	–	1	1	1	1	3	–	7	EA.	TRANSFORMER (OVERHEAD)
OC-19	1	–	–	2	–	3	–	6	EA.	OIL SWITCH W/HANGERS & WOOD BRACING
OC-20	–	4	–	3	–	2	–	10	EA.	DEAD BLADE ENCLOSED DISCONNECT SWITCHES. (THROTTLE CUTOUTS)
OC-08	1	2	1	3	1	3	–	11	EA.	GROUNDING
OC-16	5	4	5	–	2	2	–	13	EA.	1 PT. SECONDARY RACK
OC-16	–	–	4	–	–	1	–	5	EA.	3 PT. SECONDARY RACK
OC-18	1	3	1	5	1	6	–	17	EA.	PRIMARY WIRE HOLDER
UC-18	–	–	–	1	–	3	–	4	EA.	CABLE GUARD FOR P.I.L. RISER CABLE - 8 FT. LENGTHS
OC-23	1	–	–	1	1	3	–	6	EA.	LATERAL POLE WOOD BRACING
OC-24	–	30	–	–	–	30	–	60	FT.	2" ALUMINUM CONDUIT
OC-24	–	1	–	–	–	1	–	2	EA.	2" WEATHERHEAD WITH COVER AS REQUIRED
GS-10								LUMP	LUMP	REMOVAL

MODIFIED POLE SCHEDULE

POLE NO.	ITEM	LOCATION SHEET NUMBER	TOTAL	UNIT	WORK DESCR. SHEET NO.	REMARKS
274-25	SPECIAL	30	1	LUMP	28&29	
274-26		30	1			
274-27		30	1			
274-75		29	1			
275-11		30	1			

CALCULATED BY E.F. DATE 7-70
CHECKED BY RWZ DATE 9-72

APPROVED BY
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF LIGHT & POWER
COMMISSIONER OF UTILITIES ENGINEERING
CHIEF ELECTRICAL ENGINEER
Robert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD
MODIFIED POLE LIST
& MATERIAL TABULATION

DRAWN BY E.F.
CH'K'D BY RWZ
SCALE NONE
DATE
DRAWING NUMBER **6587-3J**

FED. RD.	STATE	PROJECT
2	OHIO	

393/713

CUYAHOGA COUNTY
CUY-90-10.40

37/54

DESCRIPTION	ITEM	UNIT	TOTAL
POLE 35'-0" LENGTH - CLASS 1 - SETTING 6'-0	OC-11	EA	4
POLE 35'-0" LENGTH - CLASS 3 - SETTING 6'-0"	OC-11	EA	22
POLE 35'-0" LENGTH - CLASS 4 - SETTING 6'-0"	OC-11	EA	11
POLE 40'-0" LENGTH - CLASS 1 - SETTING 6'-0"	OC-11	EA	9
POLE 45'-0" LENGTH - CLASS 1 - SETTING 6'-6"	OC-11	EA	6
POLE 45'-0" LENGTH - CLASS 3 - SETTING 6'-6"	OC-11	EA	17
POLE 50'-0" LENGTH - CLASS 1 - SETTING 7'-0"	OC-11	EA	19
POLE 50'-0" LENGTH - CLASS 3 - SETTING 7'-0"	OC-11	EA	14
HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS	OC-12	EA	10
HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 3 DEAD END CLEVIS	OC-12&13	EA	4
HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 6 DEAD ENDS CLEVIS	OC-12&13	EA	3
2" RIGID ALUMINUM CONDUIT	UC-21	FT	210
4" RIGID ALUMINUM CONDUIT	UC-21	FT	9
HEAVY DUTY 6 PIN CROSSARM W/3 PIN INSULATORS	OC-12	EA	18
HEAVY DUTY 6 PIN CROSSARM W/3 PIN INSULATORS & 3 DEAD END CLEVIS	OC-12&13	EA	14
2" WEATHERHEAD WITH COVER AS REQUIRED	UC-21	EA	7
STANDARD 8 PIN CROSSARM	OC-12	EA	16
STANDARD 6 PIN CROSSARM	OC-12	EA	7
STANDARD 6 PIN CROSSARM W/2 PIN INSULATORS	OC-12	EA	8
STANDARD 6 PIN CROSSARM W/3 PIN INSULATORS	OC-12	EA	41
STANDARD 6 PIN CROSSARM W/3 PIN INSULATORS & 3 DEAD END CLEVIS	OC-12&13	EA	23
STANDARD 6 PIN CROSSARM W/2 PIN INSULATORS & 2 DEAD END CLEVISES	OC-12&13	EA	11
STANDARD 4 PIN CROSSARM	OC-12	EA	13
CROSSARM BRACE - ANGLE IRON	OC-21	EA.	171
TRANSFORMER DATA RECORDING			
STANDARD ANCHOR GUY	OC-10	EA	15
HEAVY DUTY ANCHOR GUY	OC-10	EA	15
DOUBLE HEAVY DUTY ANCHOR GUY	OC-10	EA	22
HEAD GUY OR ARM GUY W/INSULATORS	OC-10	EA	14
LUGS TO CONNECT #1/0 & #4/0 CABLE	UC-18	EA	6
CABLE GUARD FOR P.I.L. RISER CABLES - 8'-0" LENGTH	UC-18	EA.	18
LATERAL POLE WOOD BRACING	OC-23	EA	12
POTHEAD	OC-14	EA	21
PRIMARY WIRE HOLDER	OC-18	EA	28
3 KV LIGHTNING ARRESTER	OC-15	EA	81
OIL SWITCH W/HANGERS & WOOD BRACING	OC-19	EA	6
GROUNDING	OC-08	EA	23
DEAD BLADE ENCLOSED DISC. SWITCHES (THROTTLE CUTOUTS)	OC-20	EA	39
LUMINAIRE - 175W - W/BRACKET ARM 6 FT. LG.	OC-17	EA	10
LUMINAIRE - 175W - W/BRACKET ARM 8 FT. LG.	OC-17	EA	26
LUMINAIRE - 175W - W/BRACKET ARM 12 FT. LG.	OC-17	EA.	24
FUSED CUTOUTS	OC-18	EA	30
TRANSFORMER (OVERHEAD)	OC-18	EA.	10
1 PT. SECONDARY RACK	OC-16	EA.	82
3 PT. SECONDARY RACK	OC-16	EA.	28
BLOCK POLE	OC-02	EA.	5
1/C 5KV #1/0 CABLE XLP	UC-18	FT	24
POLE LOCATION SHEET NO.	-	—	—
POLE GAINING DETAIL NO. ON SHEET # 45	-	—	—
ASSEMBLY DETAIL NO.	-	—	—
ASSEMBLY SHEET NO.	-	—	—
POLE TYPE - SEE LEGEND BELOW	-	—	—

POLE NO.

POLE LEGEND

- ① LINE POLE
- ② LATERAL POLE
- ③ TRANSFORMER POLE
- ④ GUY POLE
- ⑤ SECONDARY POLE
- ⑥ LIGHTING POLE
- ⑦ OIL SWITCH POLE
- ⑧ C.E.I. PRIMARY - M.E.L.P. SECONDARY

NOTE:
REMOVAL TO BE LUMP SUM.

CALCULATED BY E.F. DATE 7-70
CHECKED BY RWZ. DATE 5-72

DESCRIPTION	UNIT	TOTAL	SHEET NO. 27A	30	31	32	33	34	35
NO. 4/0 COPPER WIRE - WEATHERPROOF	LIN. FT.	8,010	1200	5000	660	250	—	900	—
NO. 6 COPPER WIRE - WEATHERPROOF	LIN. FT.	12,050	—	4400	2400	2400	1800	1050	—
NO. 4 WIRE - TRIPLEX	LIN. FT.	5,450	—	1300	1700	1250	1000	400	100
No. 2 WIRE - QUADRUPLEX	LIN. FT.	300	300						

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CHIEF ELECTRICAL ENGINEER

Robert J. Albachs

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD
NEW POLE LIST &
MATERIAL TABULATION

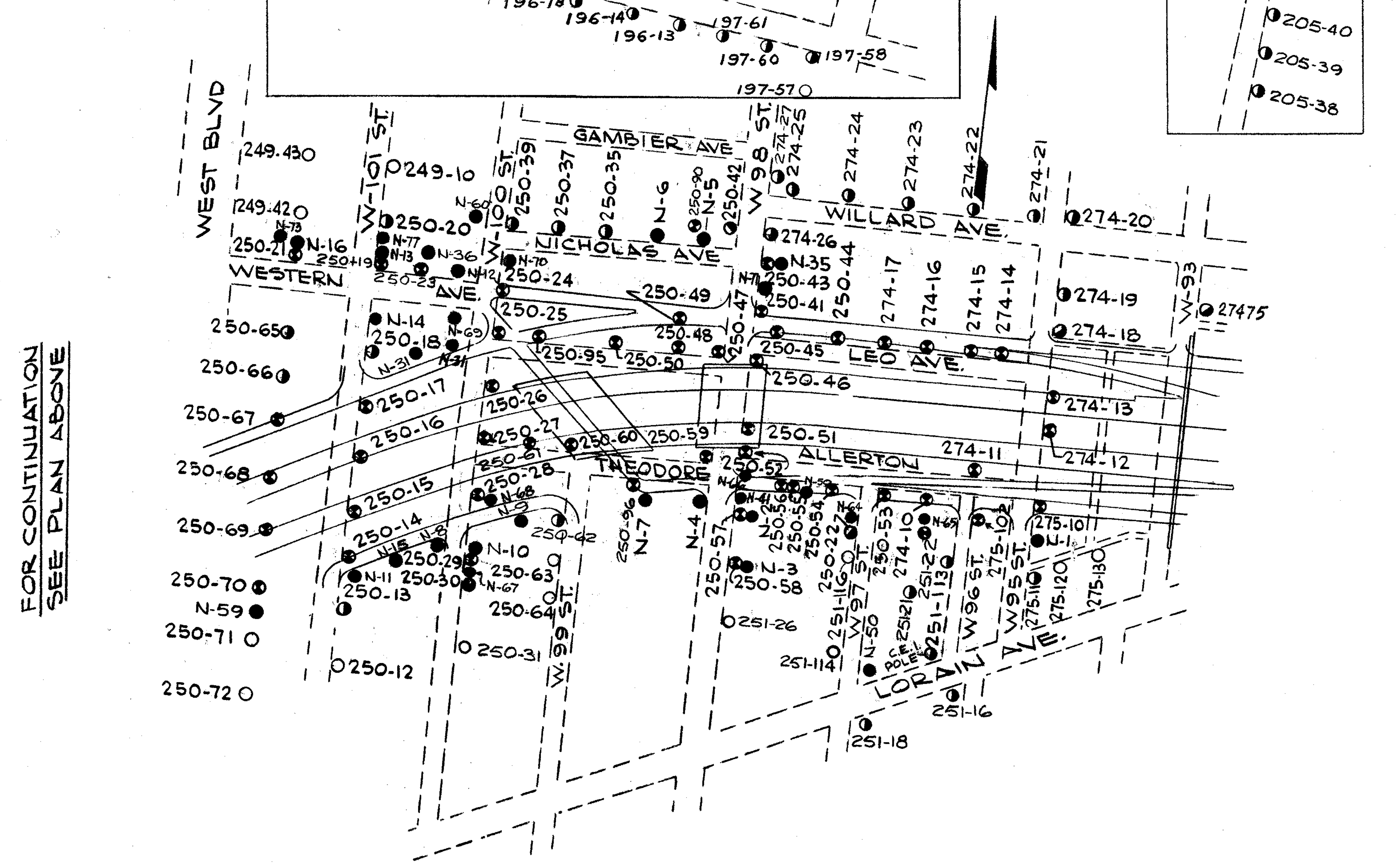
DRAWN BY E.F.
CH'K'D BY RWZ
SCALE NONE
DATE
DRAWING NUMBER 6587-3K

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

394/713

38/54



⊗ REMOVAL (OVERALL)
REMOVE 159 WOODPOLES

● INSTALLATION (OVERALL)
INSTALL 103 WOODPOLES

◑ MODIFICATION (OVERALL)
MODIFY 84 WOODPOLES

SYMBOL LEGEND

- ○ M.E.L.P. POLE - EXISTING TO REMAIN
- ◑ M.E.L.P. POLE - EXISTING TO BE MODIFIED
- ⊗ M.E.L.P. POLE - EXISTING TO BE REMOVED
- ● M.E.L.P. POLE - NEW

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CHIEF ELECTRICAL ENGINEER Robert J. Albrecht

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD POLE REMOVAL & INSTALLATION

DRAWN BY R. POTOCNIK
CH'K'D BY J.M.

SCALE 1" - 200'

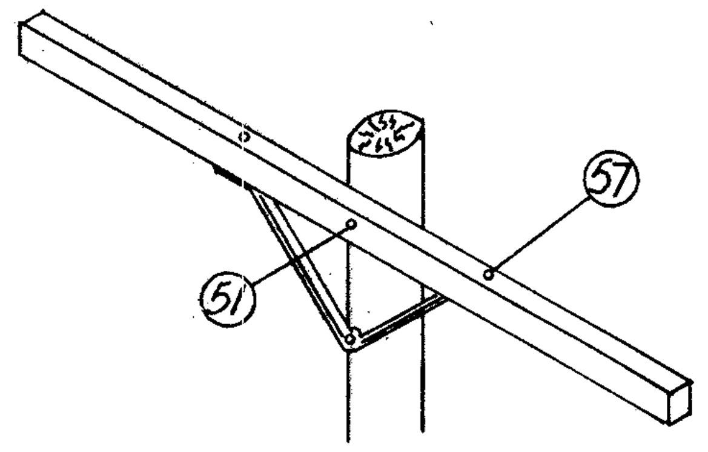
DATE

DRAWING NUMBER 6587-3L

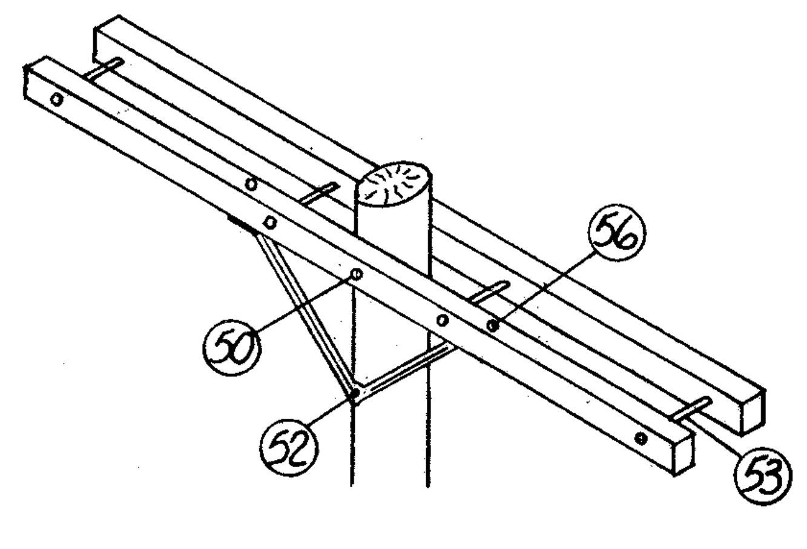
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

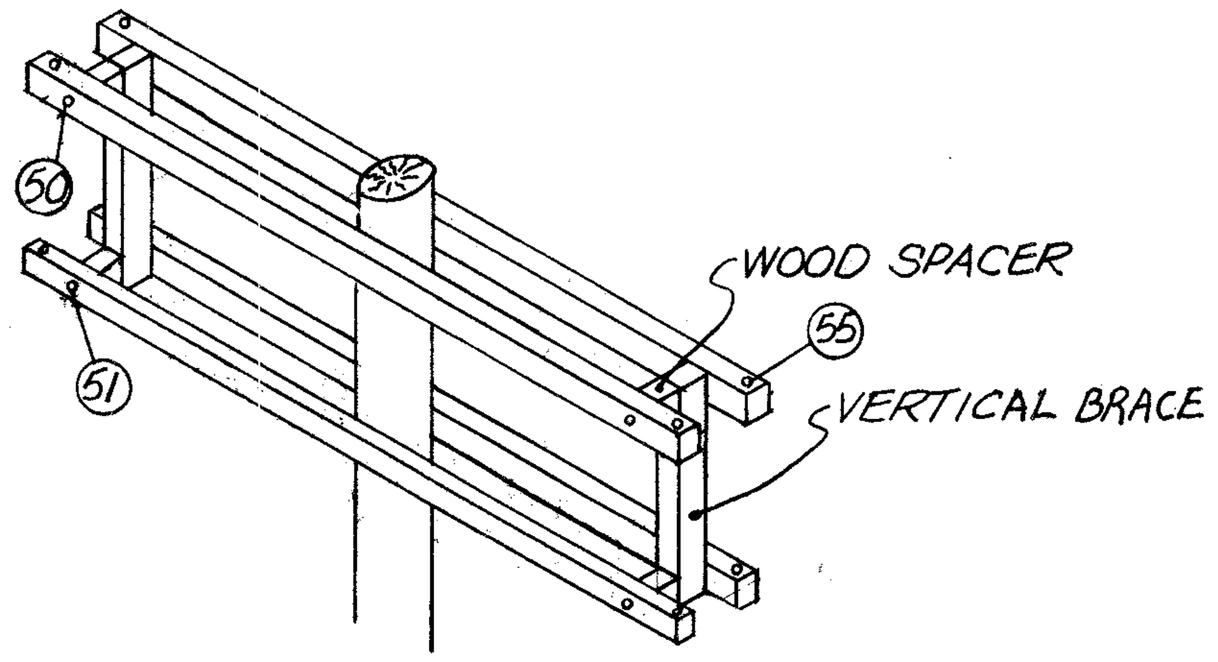
ITEM	DESCRIPTION
50	5/8"X18" MACHINE BOLT W/ 2¼" SQ WASHER & NUT
51	5/8"X16" MACHINE BOLT W/2¼" SQ. WASHER & NUT
52	5/8"X12" MACHINE BOLT W/2¼" SQ WASHER & NUT
53	5/8"X18" DOUBLE ARM BOLT W/2¼" SQ. WASH. & NUT
54	5/8"X16" DOUBLE ARM BOLT W/2¼" SQ. WASH. & NUT
55	5/8"X10" MACHINE BOLT W/2¼" SQ. WASHER & NUT
56	1/2"X6" MACHINE BOLT W/1⅜" RD. WASHER & NUT
57	1/2"X5" MACHINE BOLT W/ 1⅜" RD. WASHER & NUT
58	5/8"×18" DOUBLE ARM BOLT W/2¼" SQ. WASH & NUT



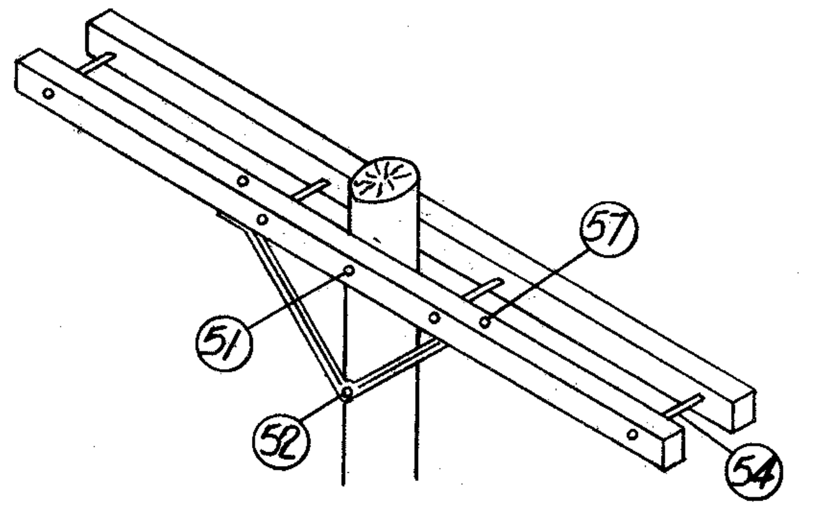
STANDARD CROSSARM



HEAVY DUTY CROSSARMS



LATERAL POLE CROSSARMS AND WOOD BRACING

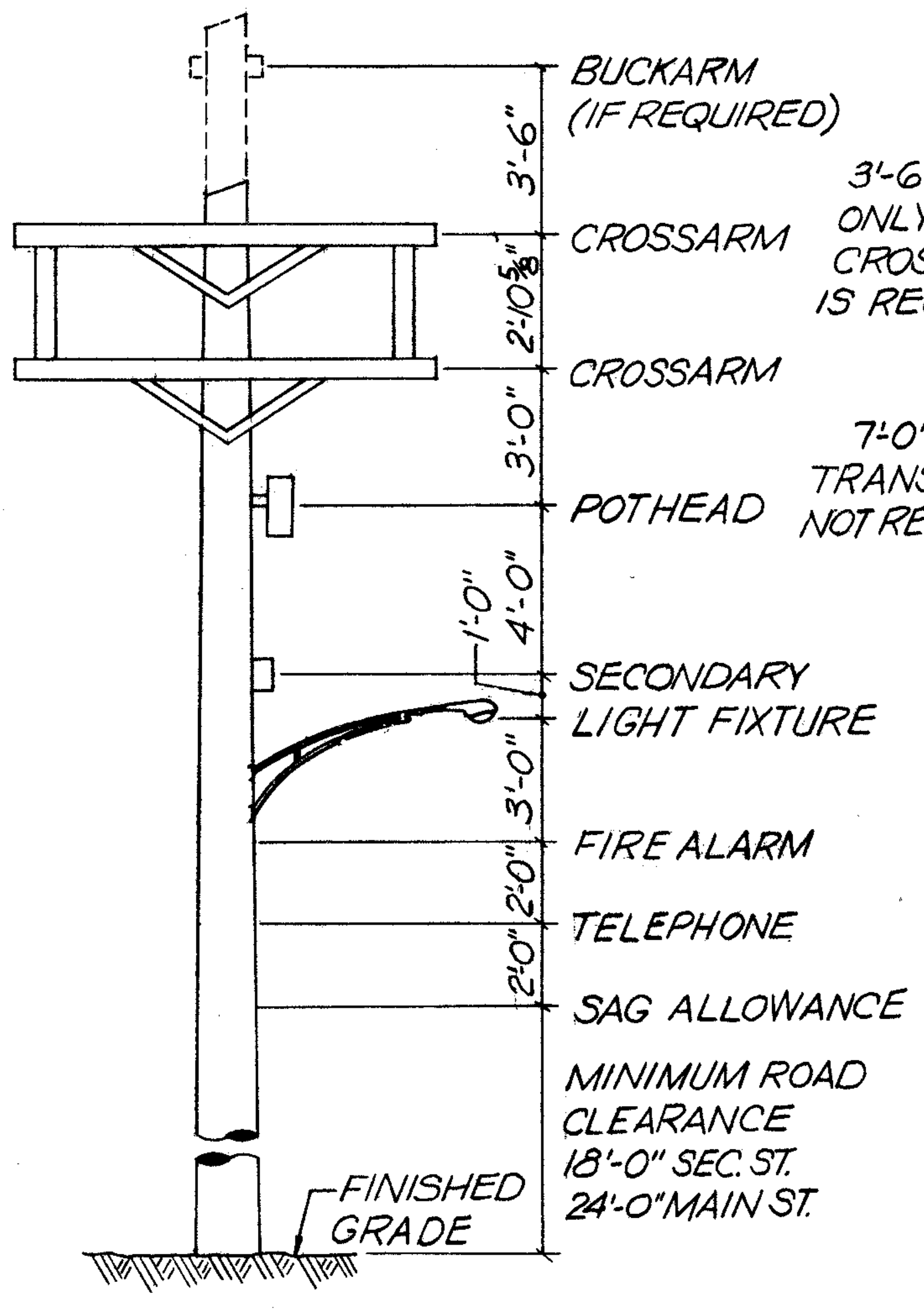


STANDARD CROSSARMS

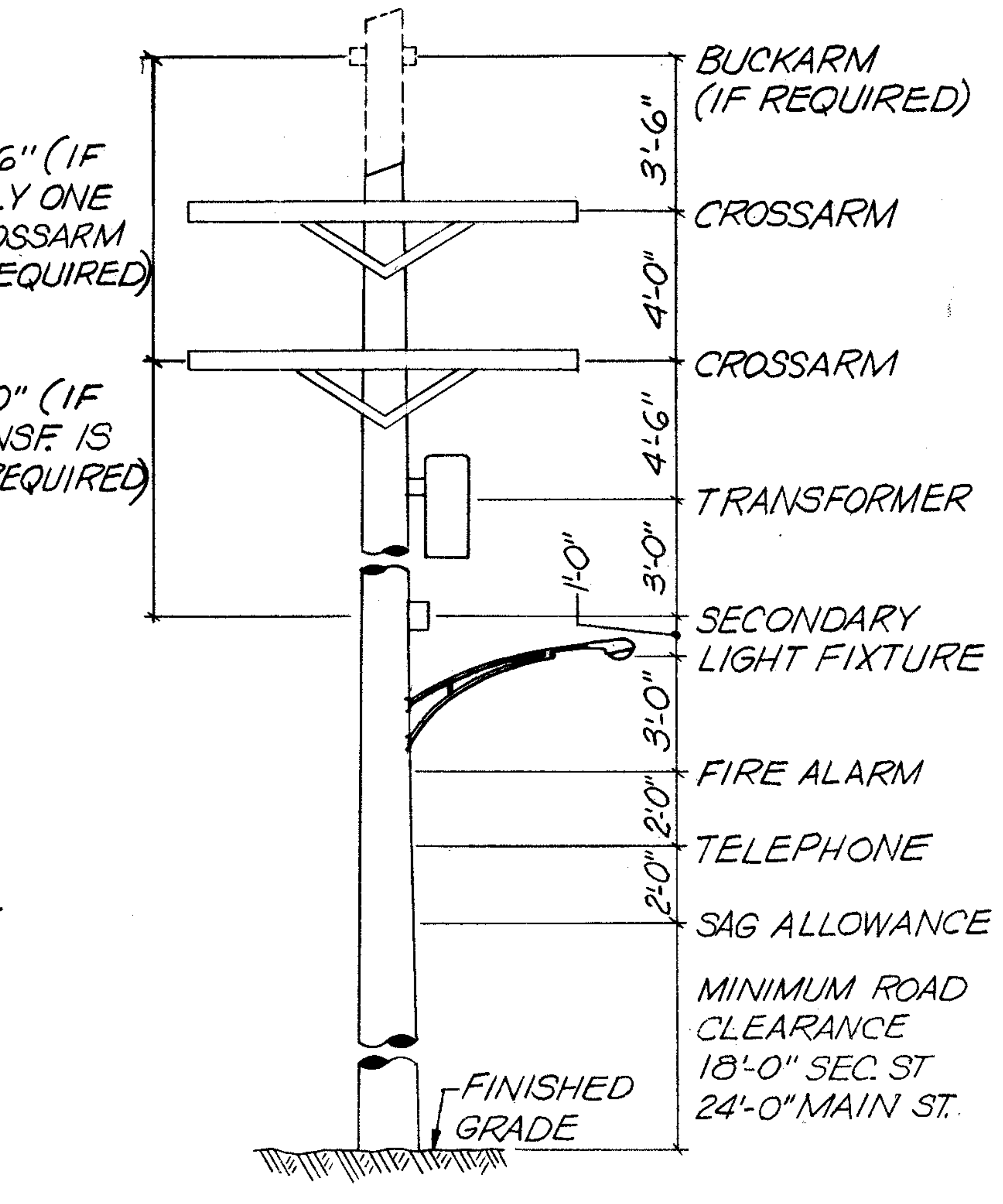
TYPICAL HARDWARE FOR CROSSARM MOUNTING

BILL OF MATERIAL FOR POLES

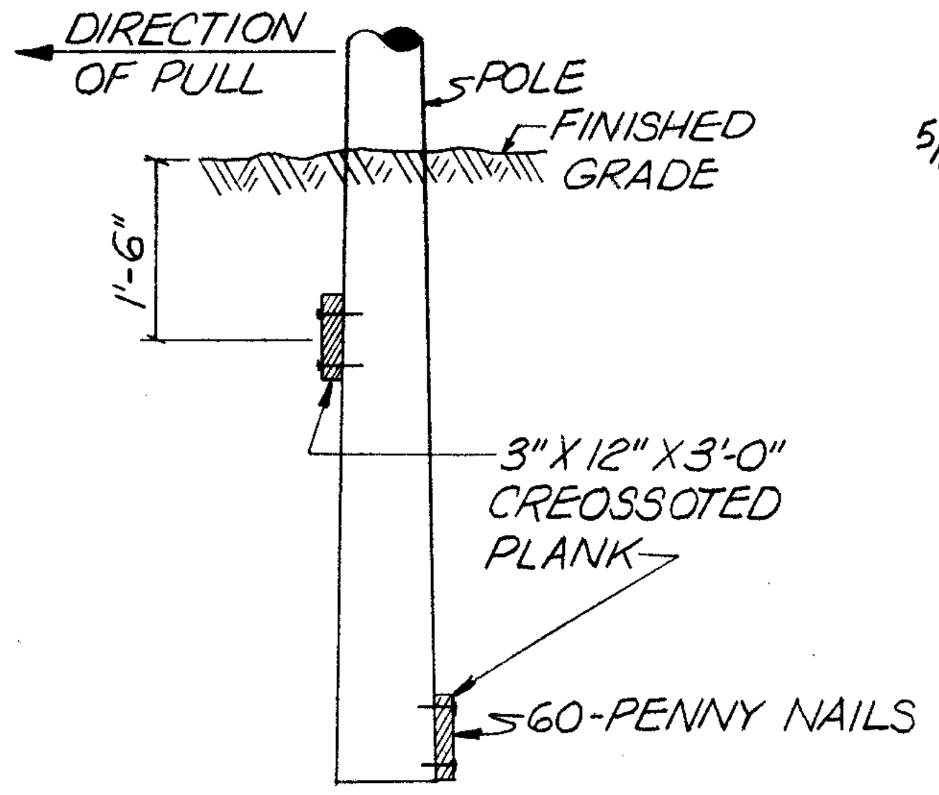
ITEM Nº	DESCRIPTION	LOCATION
1	POLE (SEE POLE SCHEDULE)	FOR DETAILS SEE SHEET Nº. : 40, 41, 42, 43 & 44
2	HEAVY DUTY 8 PIN CROSSARM	
3	HEAVY DUTY 6 PIN CROSSARM	
4	STANDARD 8 PIN CROSSARM	
5	STANDARD 6 PIN CROSSARM	
6	STANDARD 4 PIN CROSSARM	
7	LATERAL POLE WOOD BRACING	
8	CROSSARM BRACE, ANGLE IRON	
9	DEAD END INSULATOR	
10	LOCUST PIN	
11	PIN TYPE INSULATOR	
12	1 PT SECONDARY RACK	
13	3 PT SECONDARY RACK	
14	P.I.L. CABLE	
15	PRIMARY WIRE HOLDER	
16	OIL SWITCH WITH HANGERS	
17	TRANSFORMER WITH MOUNTING HARDWARE	
18	DEAD BLADE ENCLOSED DISCONNECT SWITCH	
19	1/c 5KV #1/0 CABLE - XLP	
20	3 KV LIGHTNING ARRESTER	
21	POTHEAD WITH MOUNTING BRACKET	
22	CABLE GUARD FOR P.I.L. CABLE	
23	SERIES TRANSFORMER FOR LIGHT	
24	Nº. 6 WIRE COPPER WEATHER PROOF	
25	WOOD MOULDING	
26	1/2" X 8'-0" GROUND ROD	
27	STANDARD ANCHOR GUY	
28	HEAVY DUTY ANCHOR GUY	
29	DOUBLE ANCHOR GUY	
30	HEAD GUY OR ARM GUY WITH INSULATOR	
31	MACHINE BOLT W/WASHER	
32	DOUBLE ARM BOLT W/WASHER	
33	MERCURY LUMINAIRE W/BRACKET ARM	
34	TINNED COPPER GROUND STRAP	
35	LIGHTING CABLE	
36	CABLE GUARD FOR LIGHTING CABLE	
37	DEAD BLADE ENCLOSED DISCONNECT SWITCHES	
38		
39	STANDARD 8-PIN CROSSARM BRACE	



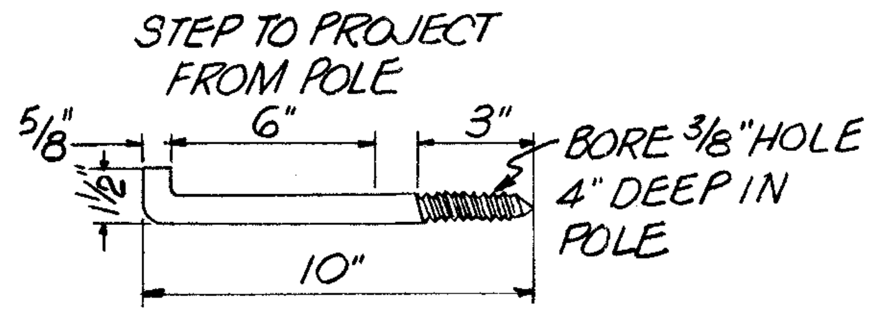
TYPICAL POLE SPACE ASSIGNMENT FOR LATERAL POLE



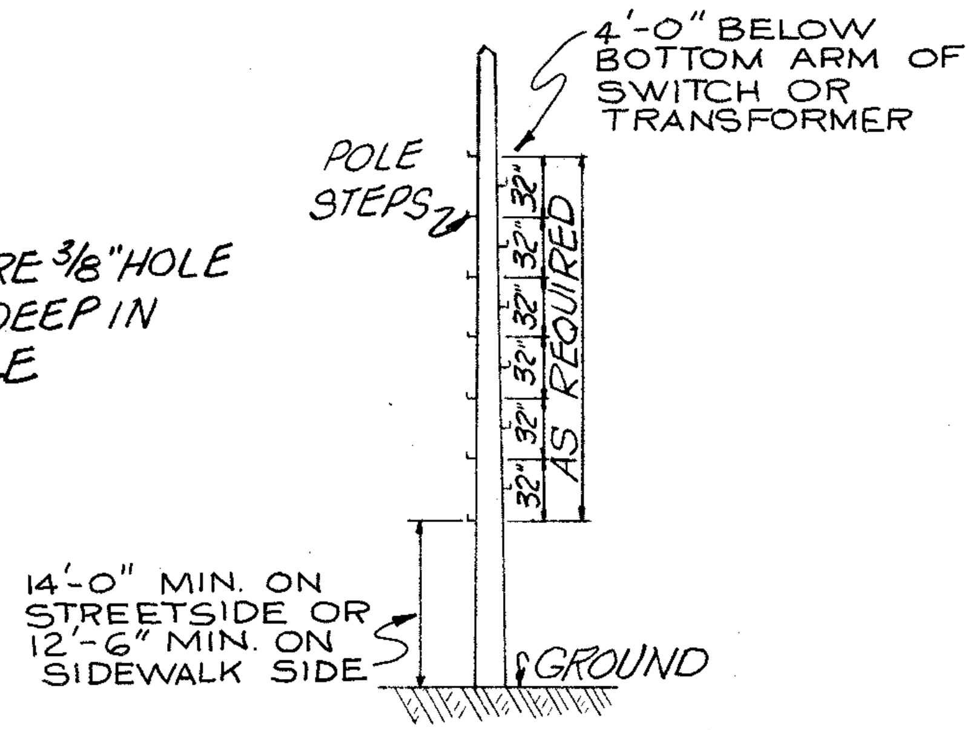
TYPICAL POLE SPACE ASSIGNMENT FOR LINE POLE



TYPICAL POLE BLOCKING
(SPECS. : OC-2)



IRON POLE STEP



LOCATION OF POLE STEPS

ON LATERAL & TRANSFORMER POLES ONLY

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CHIEF ELECTRICAL ENGINEER

Robert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

TYPICAL POLE
AND CROSSARMS
BILL OF MATERIAL

DRAWN BY	SCALE NO SCALE	DRAWING NUMBER
CH'K'D BY J. M.	DATE	6587-3M

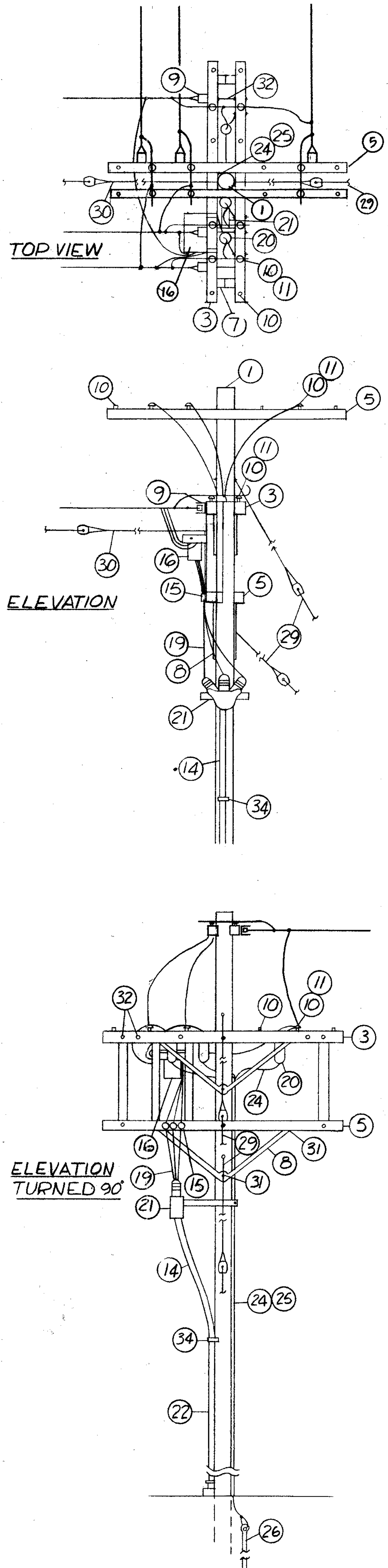
FORM D D A-5

FED. RD.	STATE	PROJECT	
2	OHIO		

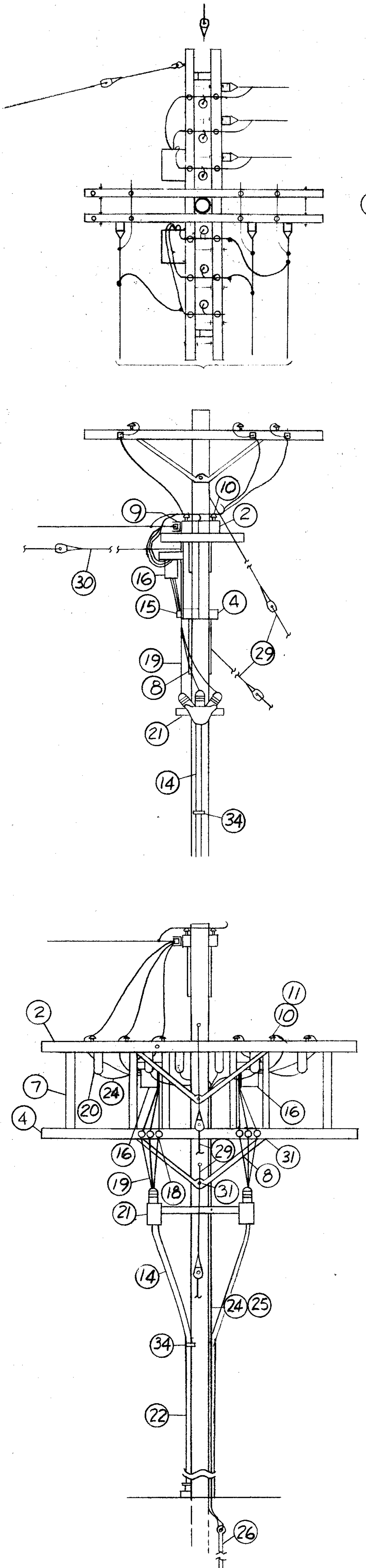
396
713

40
54

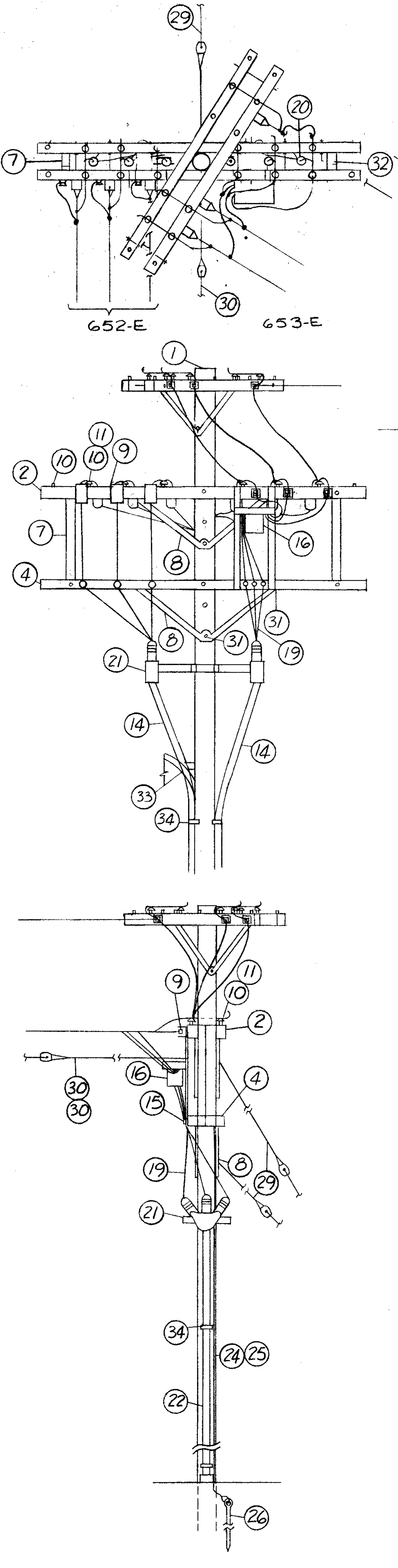
CUYAHOGA COUNTY
CUY - 90 - 10.40



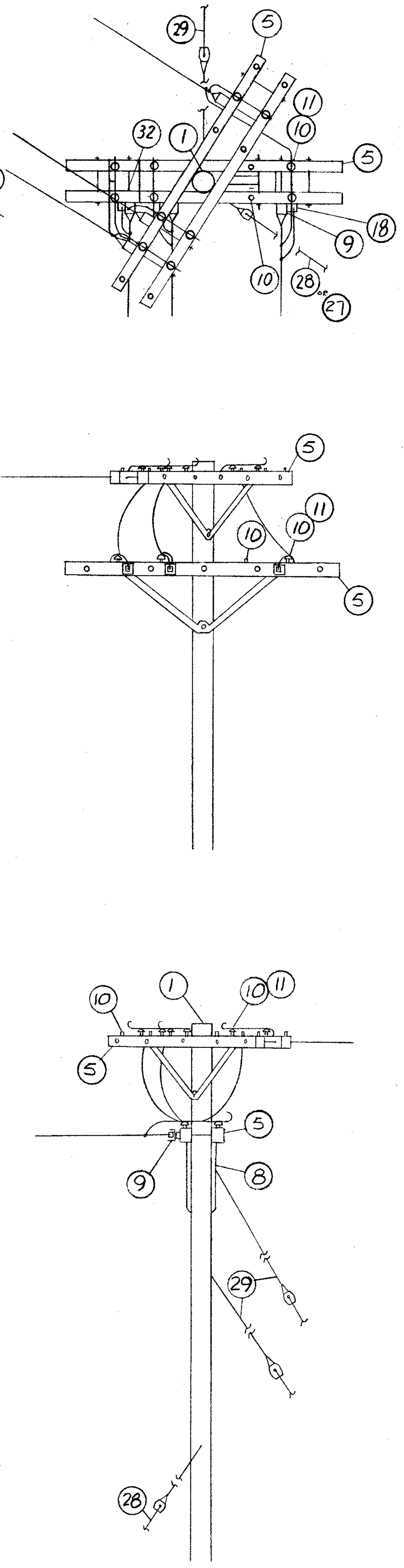
POLE DETAIL #1



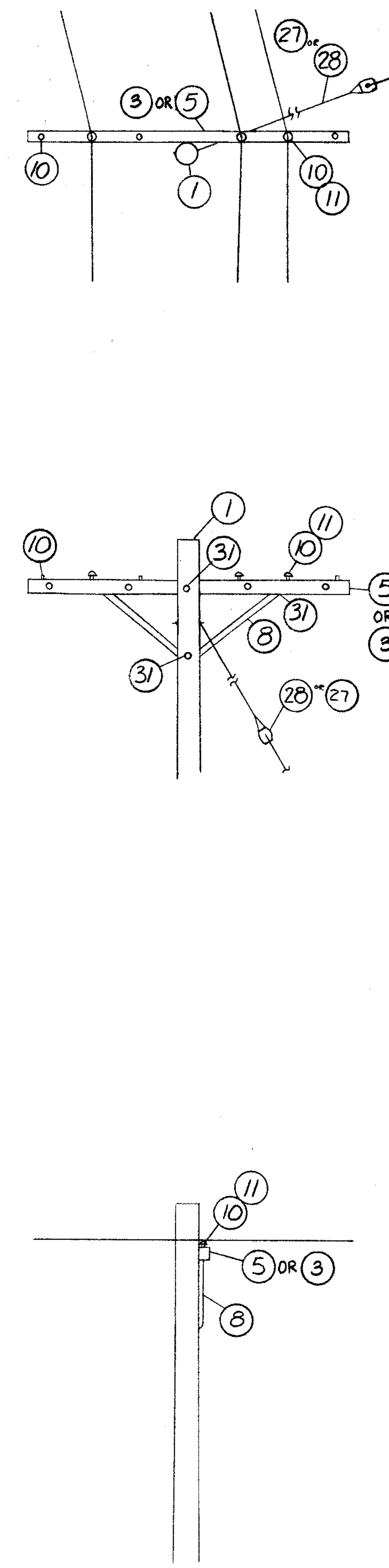
POLE DETAIL #2



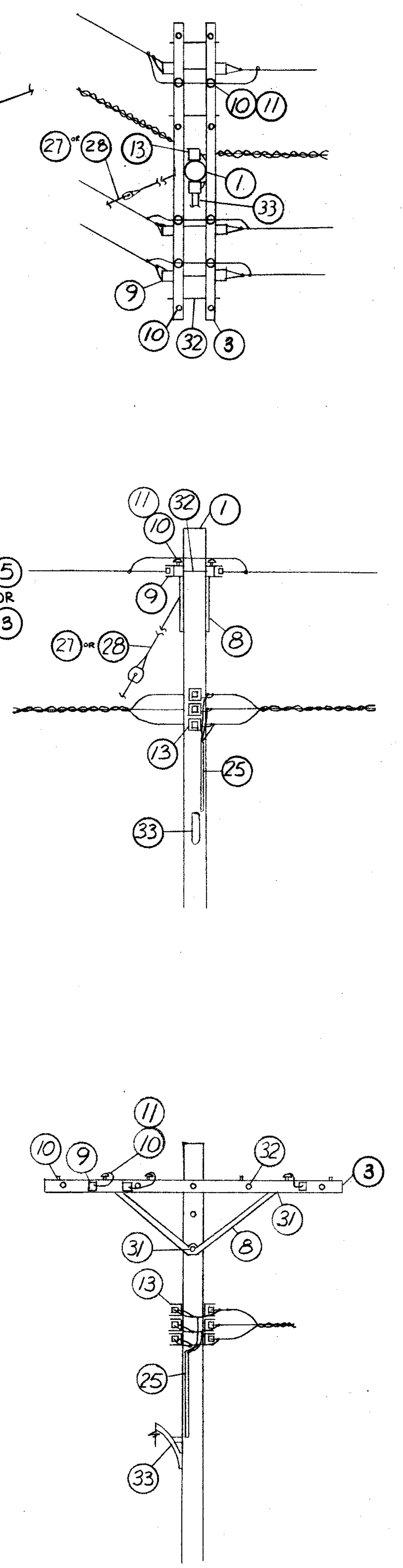
POLE DETAIL #3



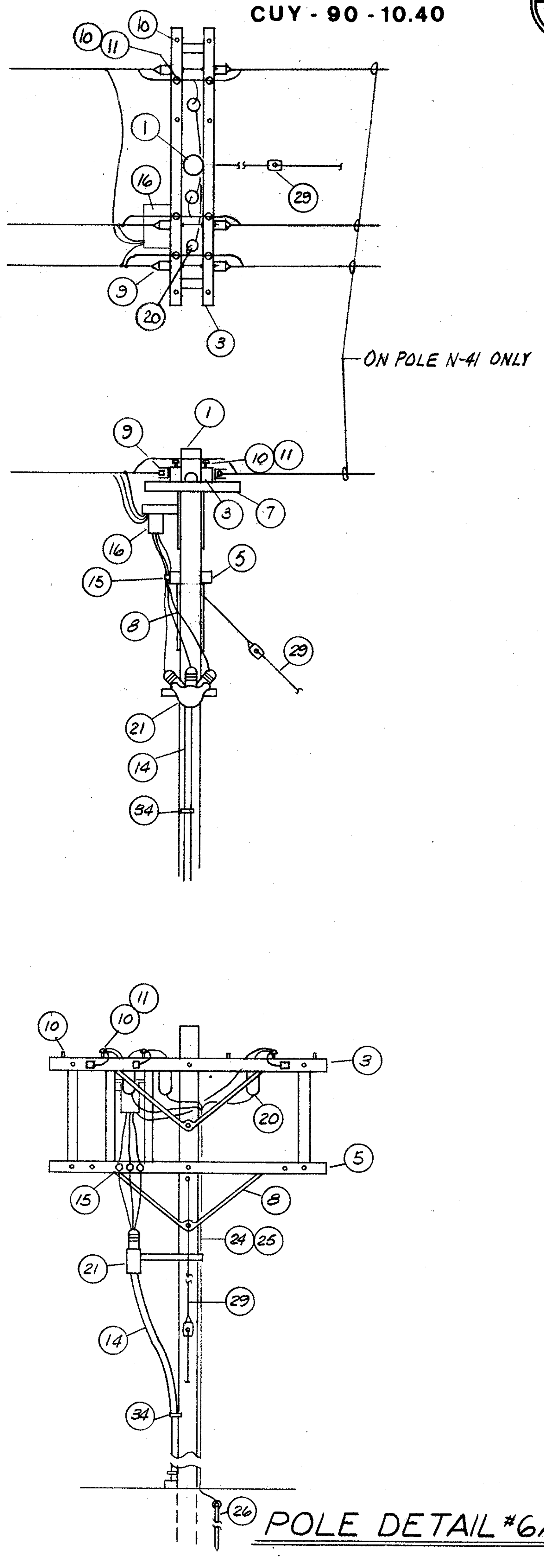
POLE DETAIL #4



POLE DETAIL #5



POLE DETAIL #6



POLE DETAIL #6A

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ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD
POLE ASSEMBLY

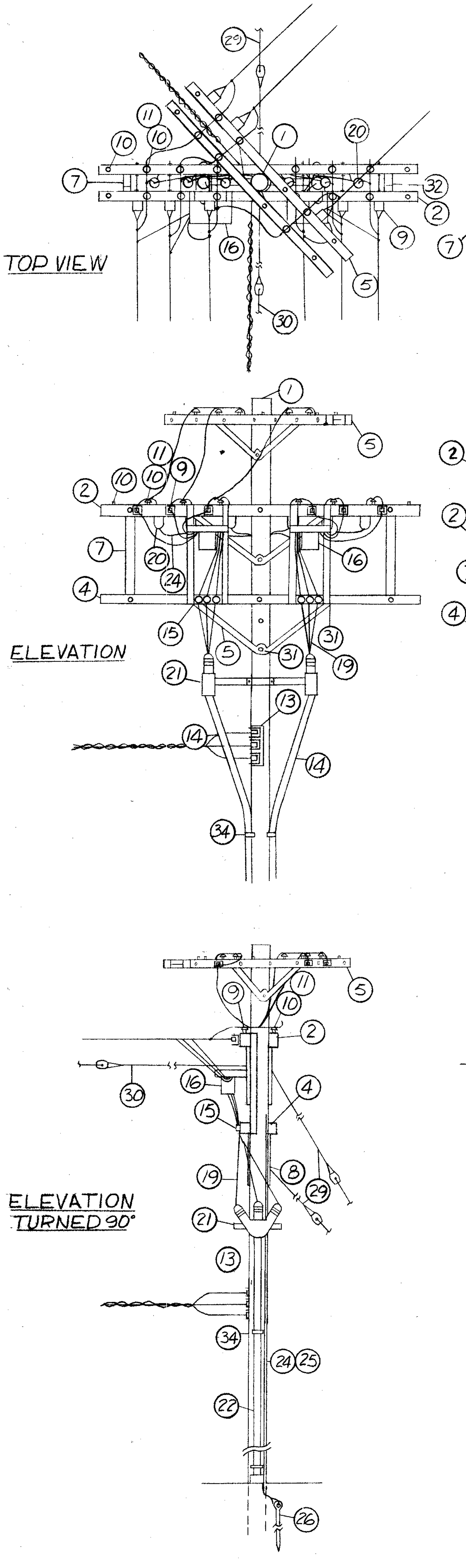
DRAWN BY
CH'K'D BY J.M.
SCALE
DATE
DRAWING NUMBER
6587-3N

FED. RD.	STATE	PROJECT	
2	OHIO		

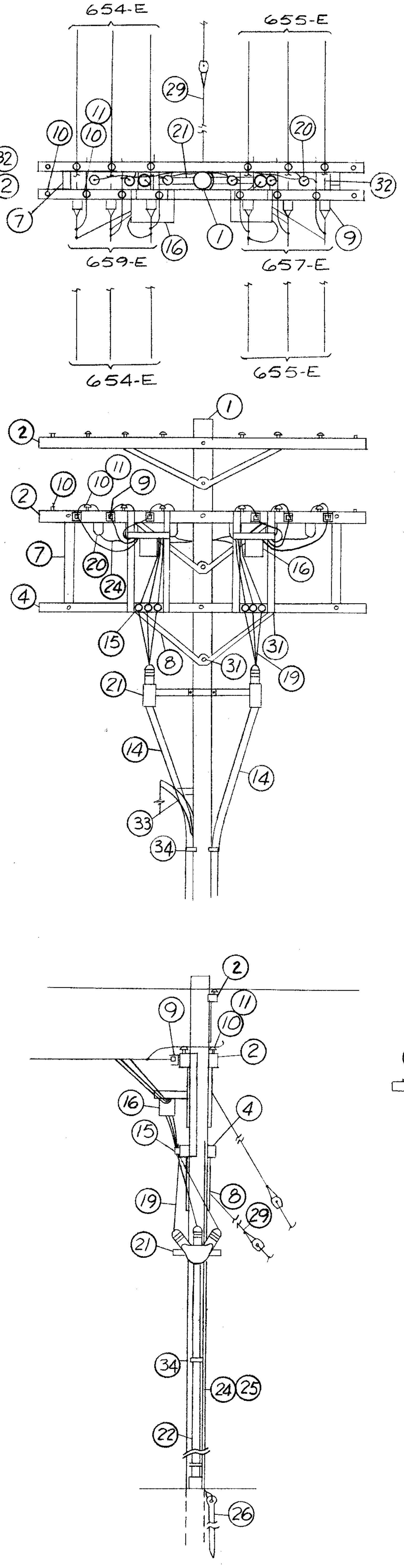
397/713

41/54

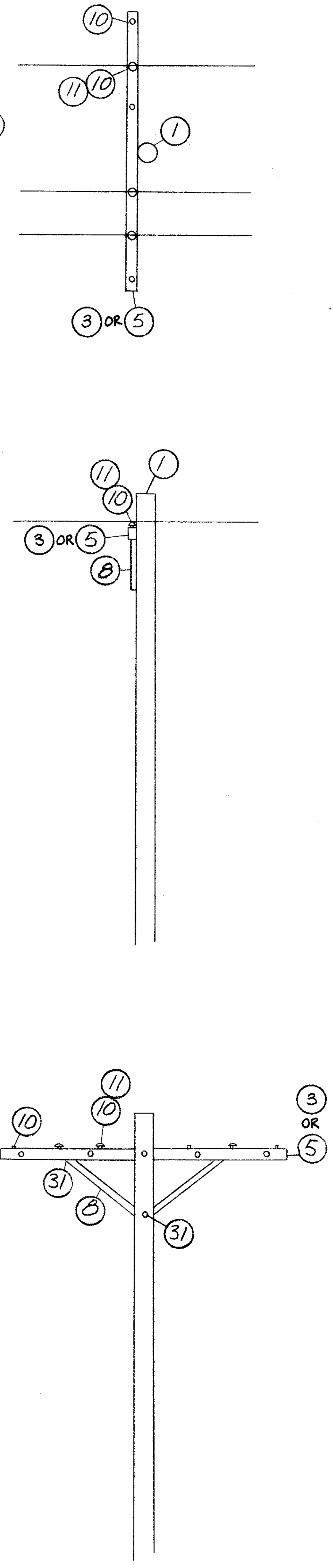
CUYAHOGA COUNTY
CUY - 90 - 10.40



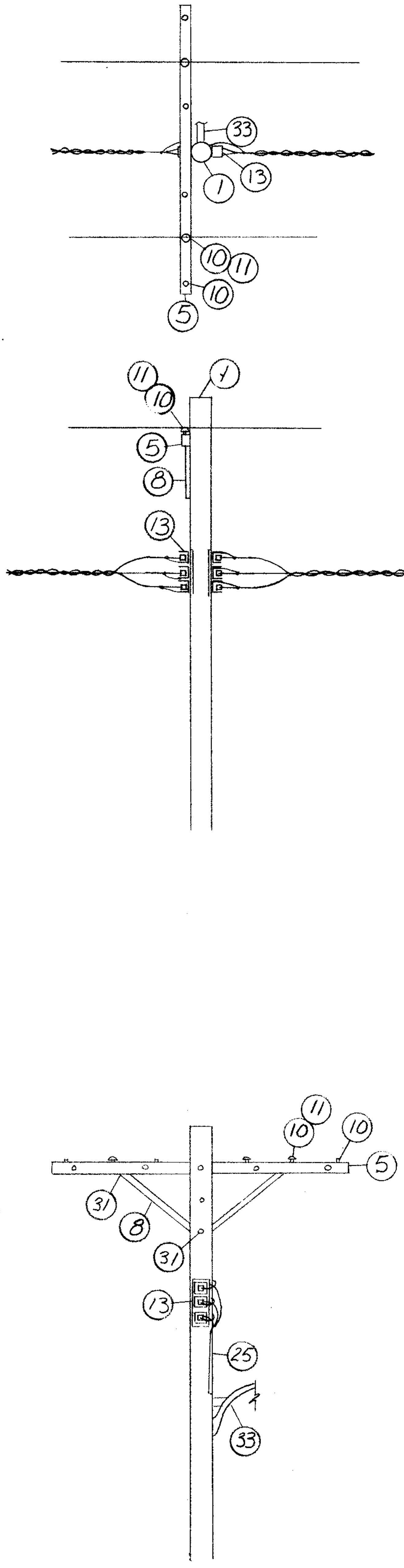
POLE DETAIL #7



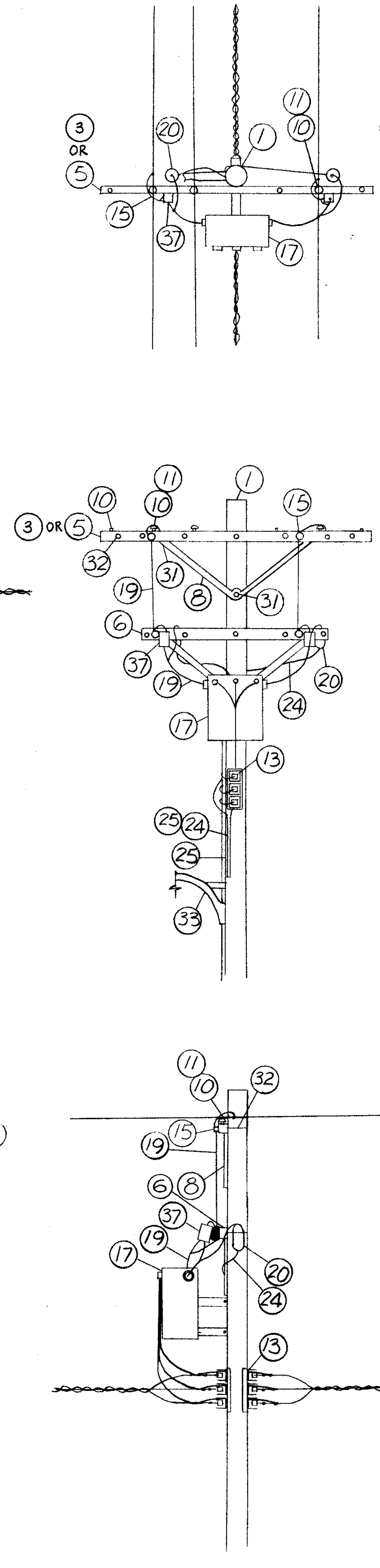
POLE DETAIL #8



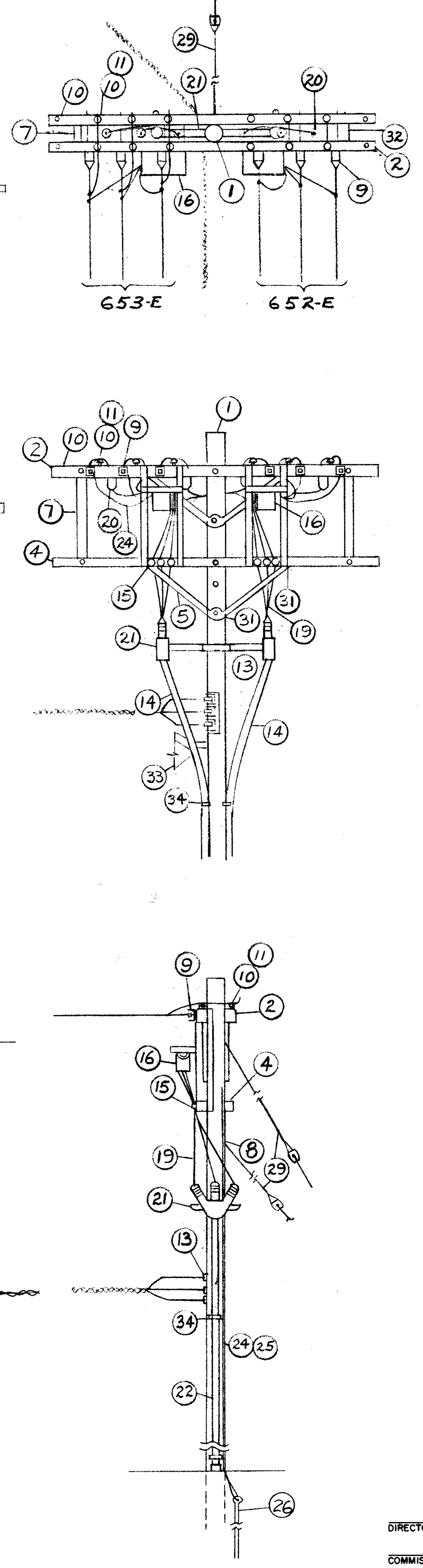
POLE DETAIL #9



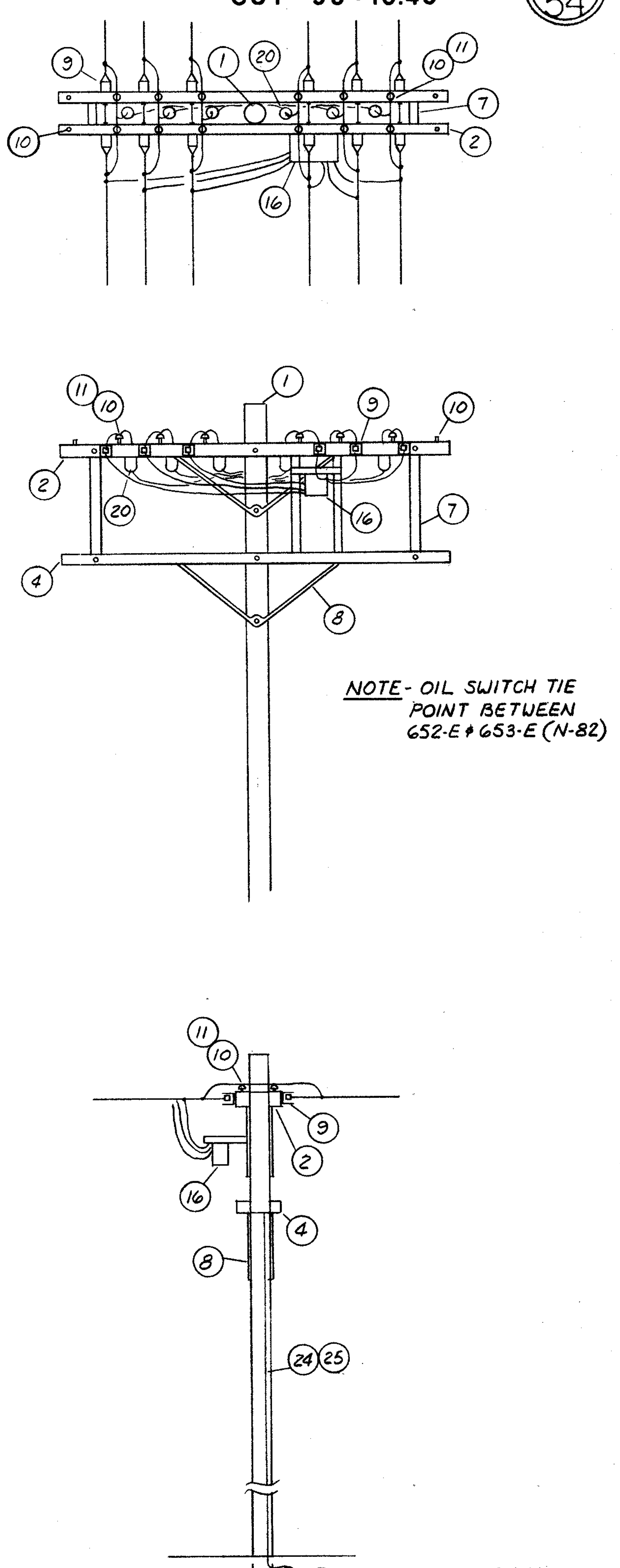
POLE DETAIL #10



POLE DETAIL #11



POLE DETAIL #12



POLE DETAIL #12A

APPROVED BY

DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF LIGHT & POWER
COMMISSIONER OF UTILITIES ENGINEERING
CHIEF ELECTRICAL ENGINEER
Robert J. Albacha
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD
POLE ASSEMBLY

DRAWN BY
CH'K'D BY J.M.
SCALE
DATE
DRAWING NUMBER 6587-3P

FED. RD.	STATE	PROJECT	
2	OHIO		

398
713

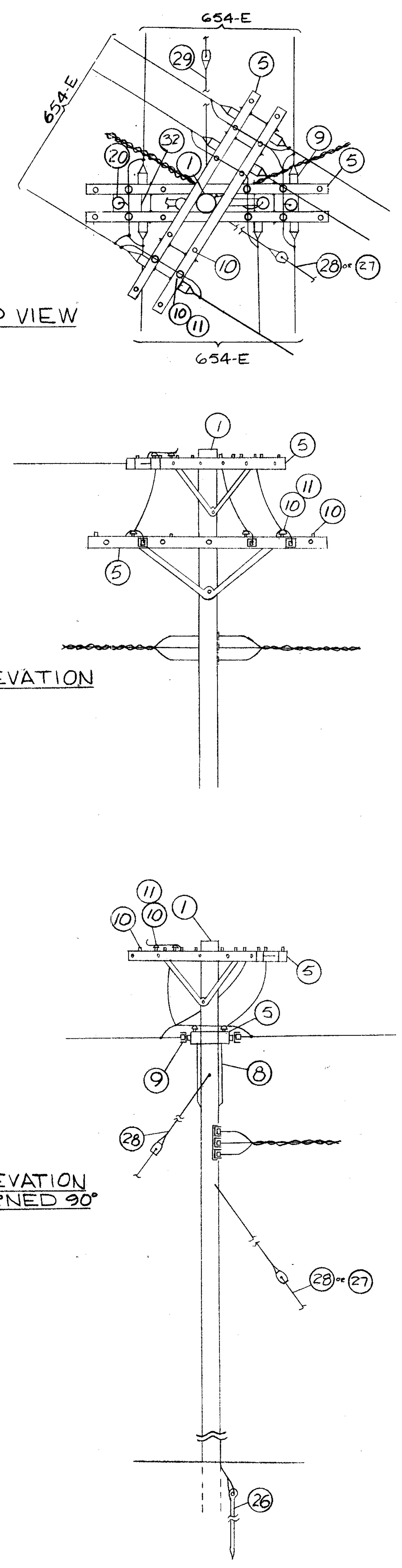
CUYAHOGA COUNTY
CUY - 90 - 10.40

42
54

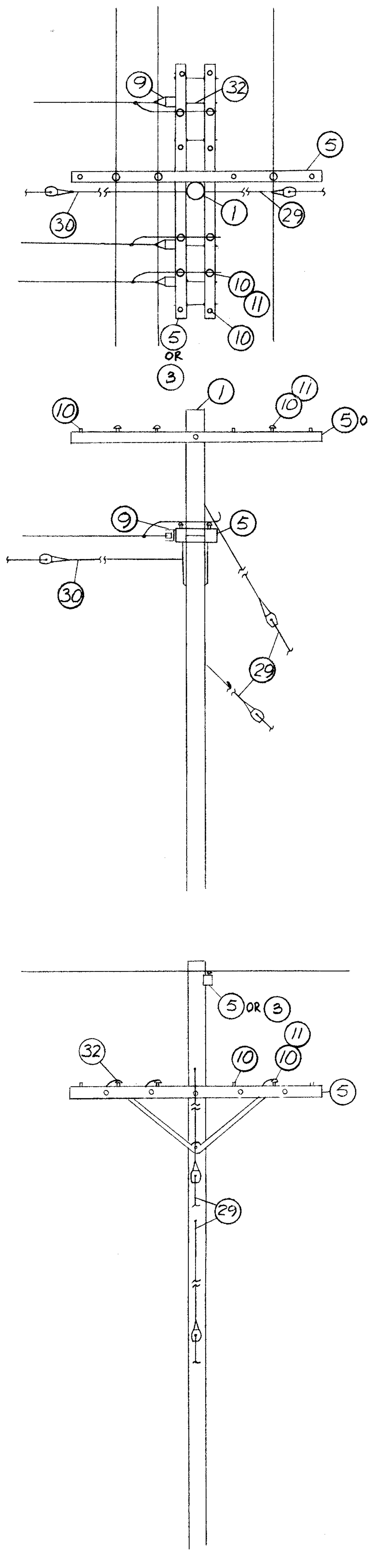
TOP VIEW

ELEVATION

ELEVATION TURNED 90°



POLE DETAIL #13



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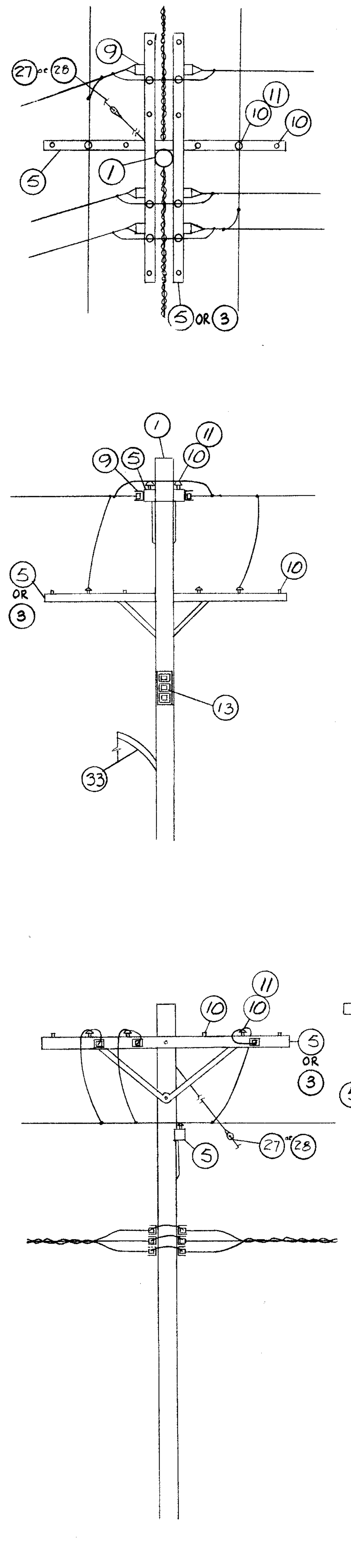

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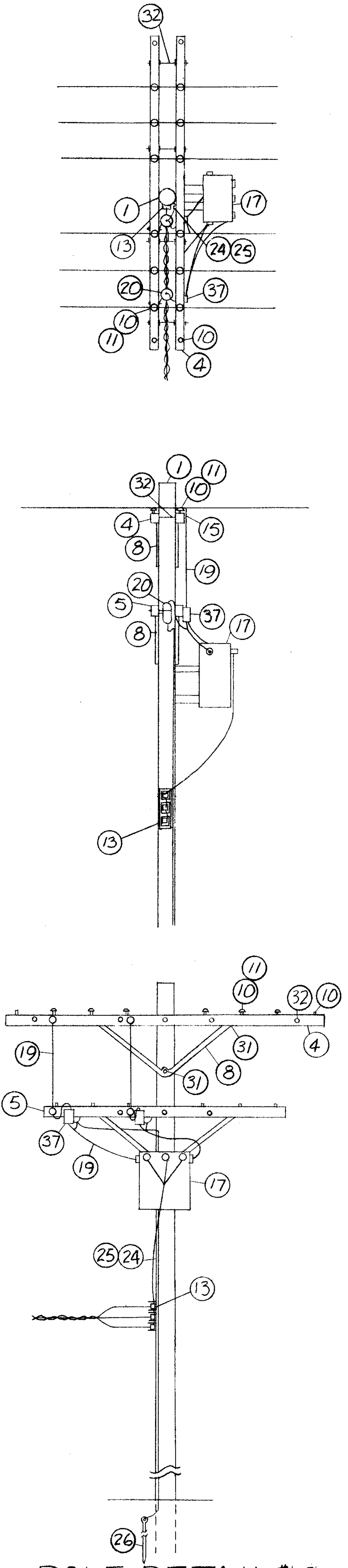

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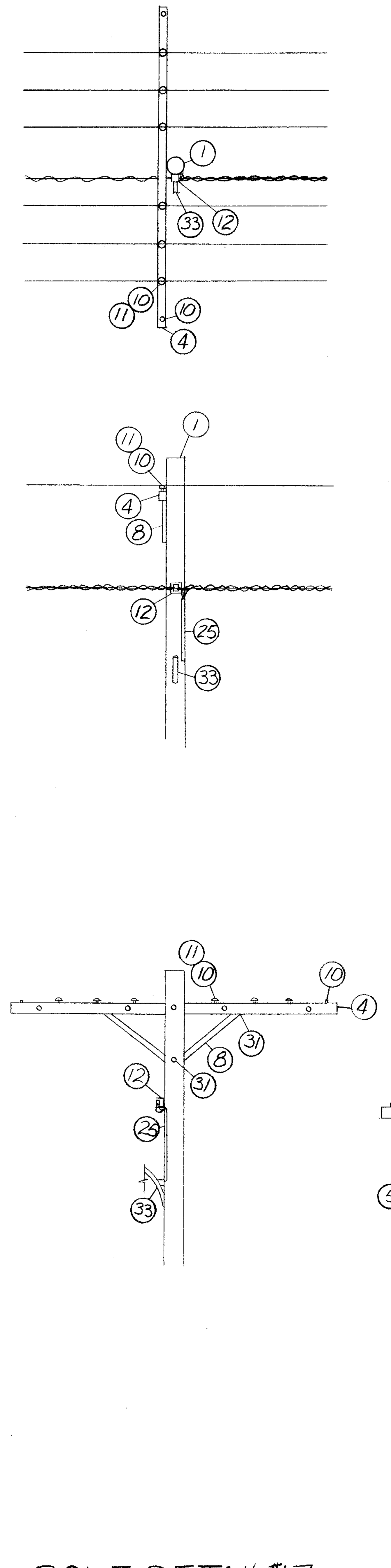

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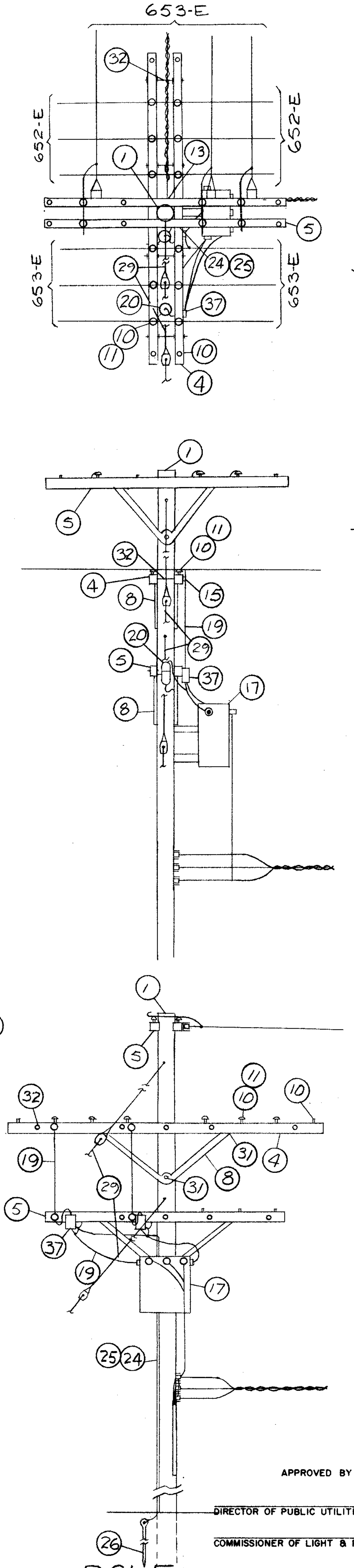

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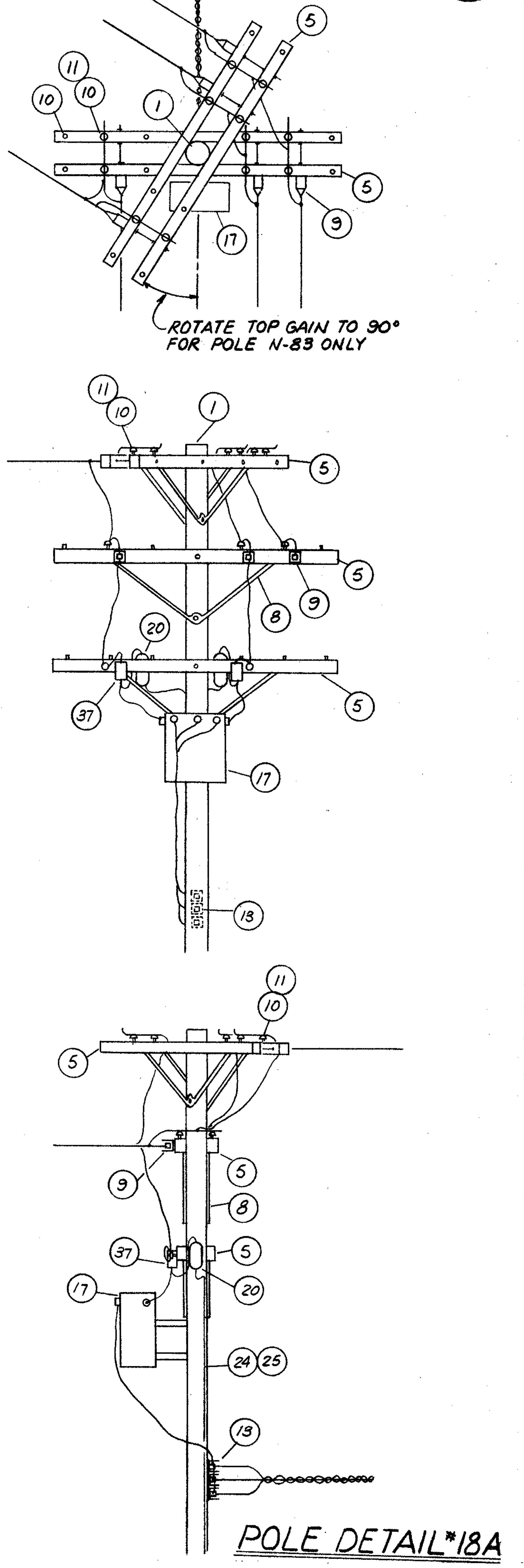

POLE DETAIL #18A

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DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD
POLE ASSEMBLY

DRAWN BY

CH'K'D BY J.M.

SCALE

DATE

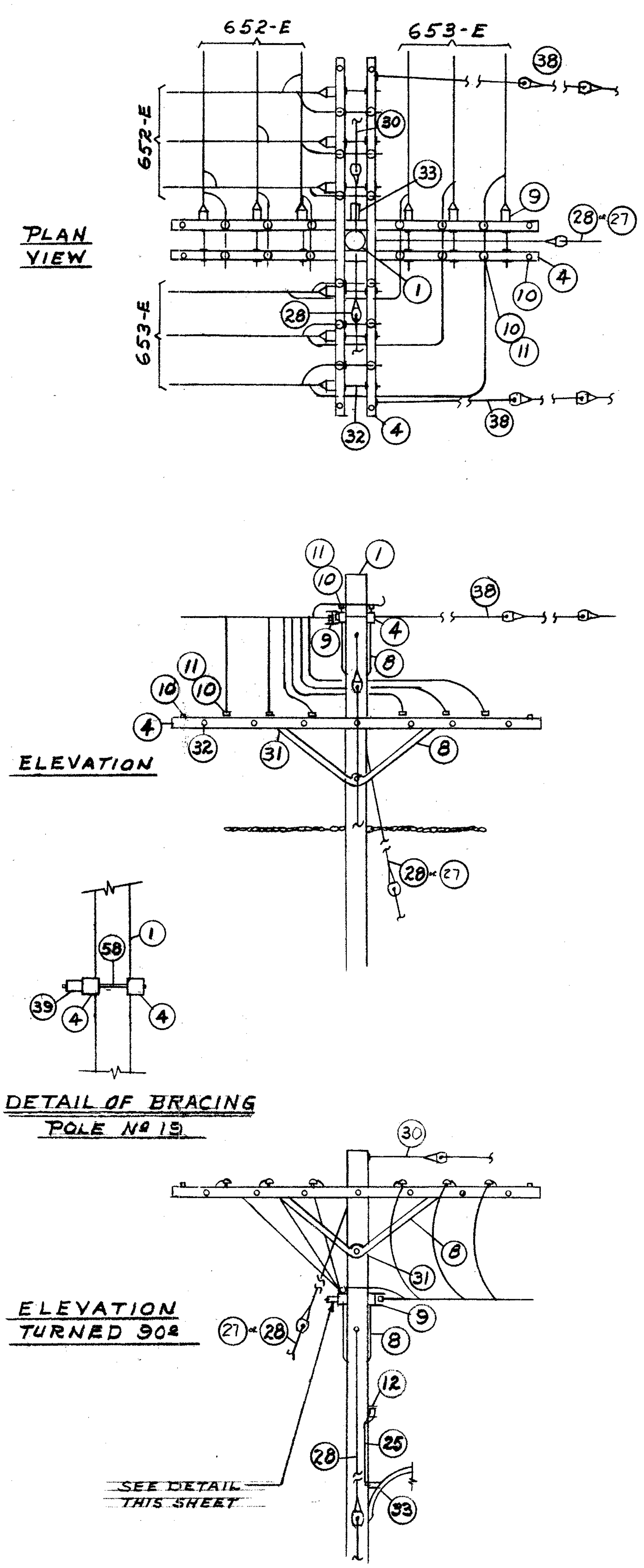
DRAWING NUMBER
6587-30

FED. RD.	STATE	PROJECT	
2	OHIO		

399
713

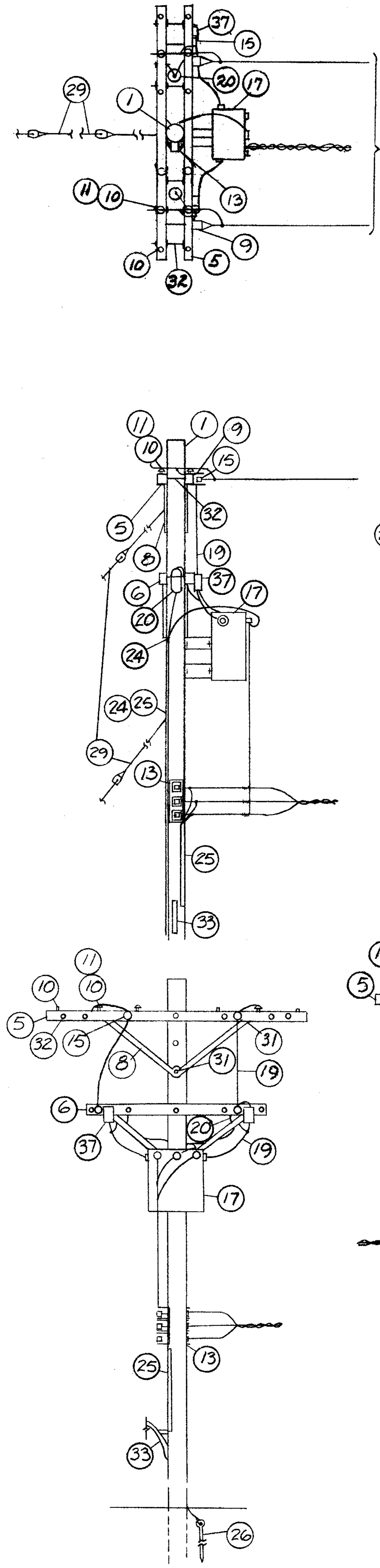
CUYAHOGA COUNTY
CUY - 90 - 10.40

43
54



DETAIL OF BRACING
POLE No 19

POLE DETAIL #19



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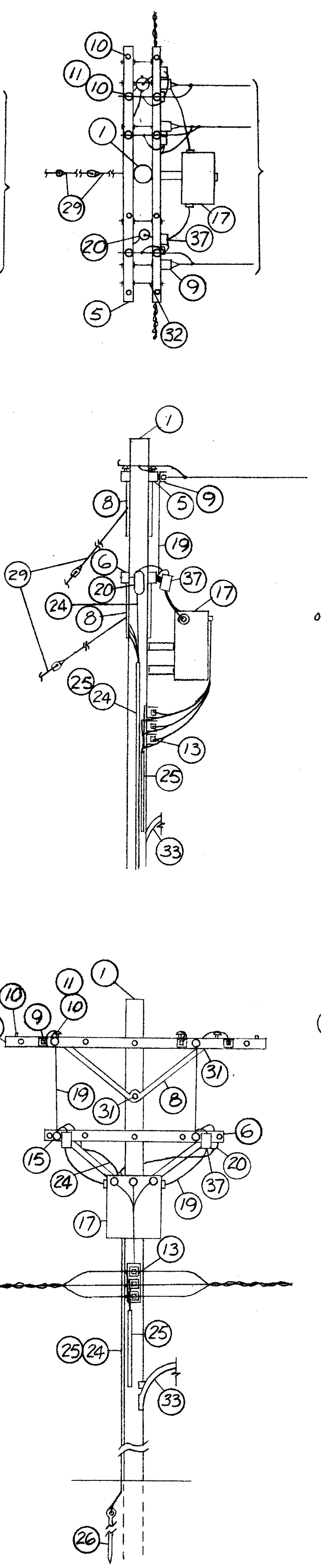

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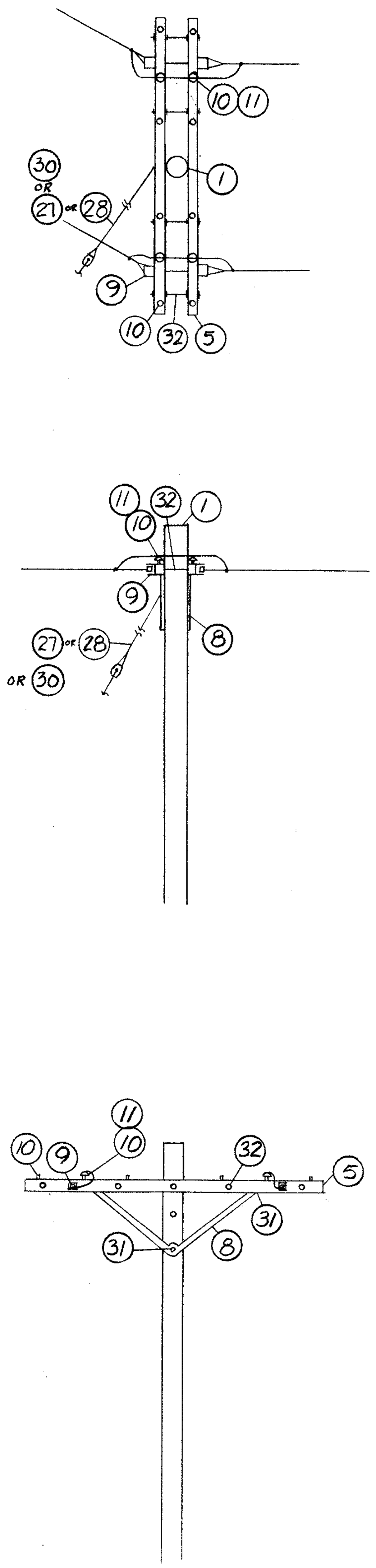

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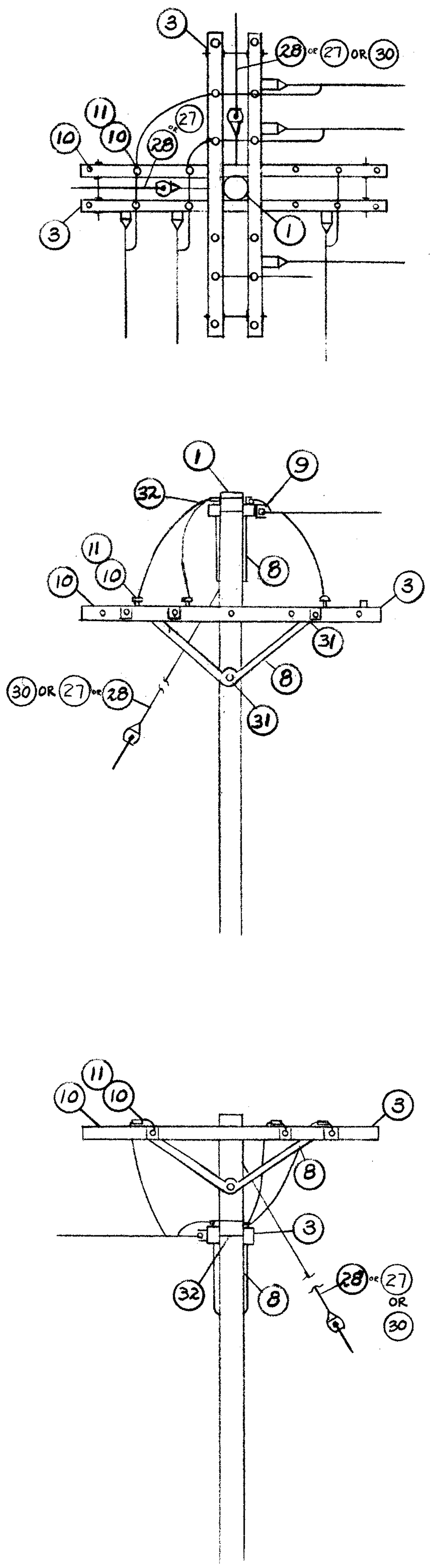

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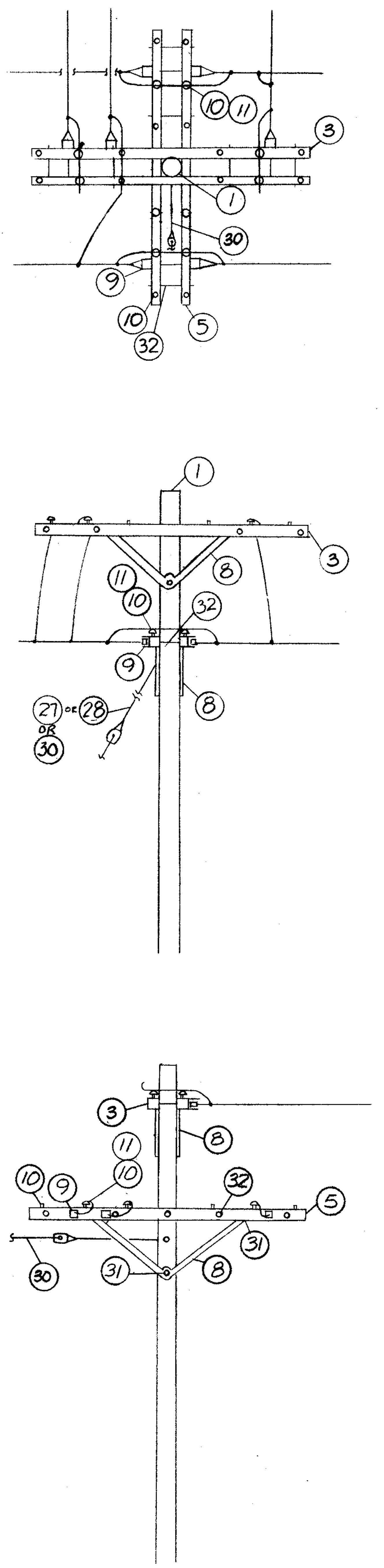
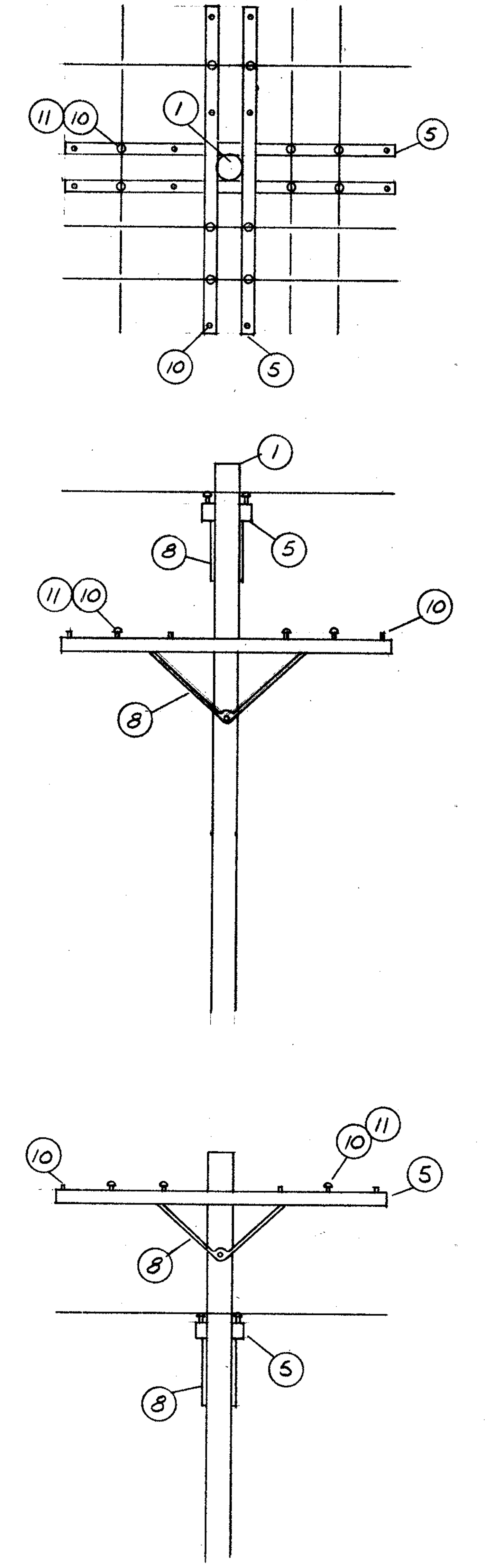


POLE
DETAIL #24



POLE DETAIL #24A

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ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD
POLE ASSEMBLY

DRAWN BY J.M.
CH'K'D BY
SCALE
DATE
DRAWING NUMBER
6587-3R

FED. RD.	STATE	PROJECT	
2	OHIO		

400/713

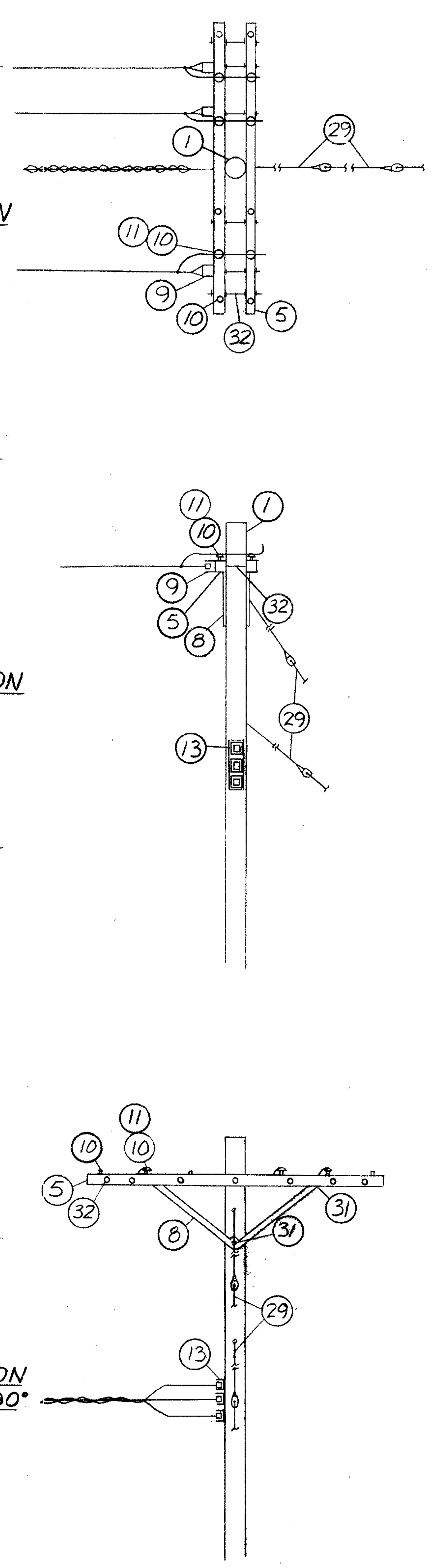
CUYAHOGA COUNTY
CUY - 90 - 10.40

44/54

TOP VIEW

ELEVATION

ELEVATION TURNED 90°



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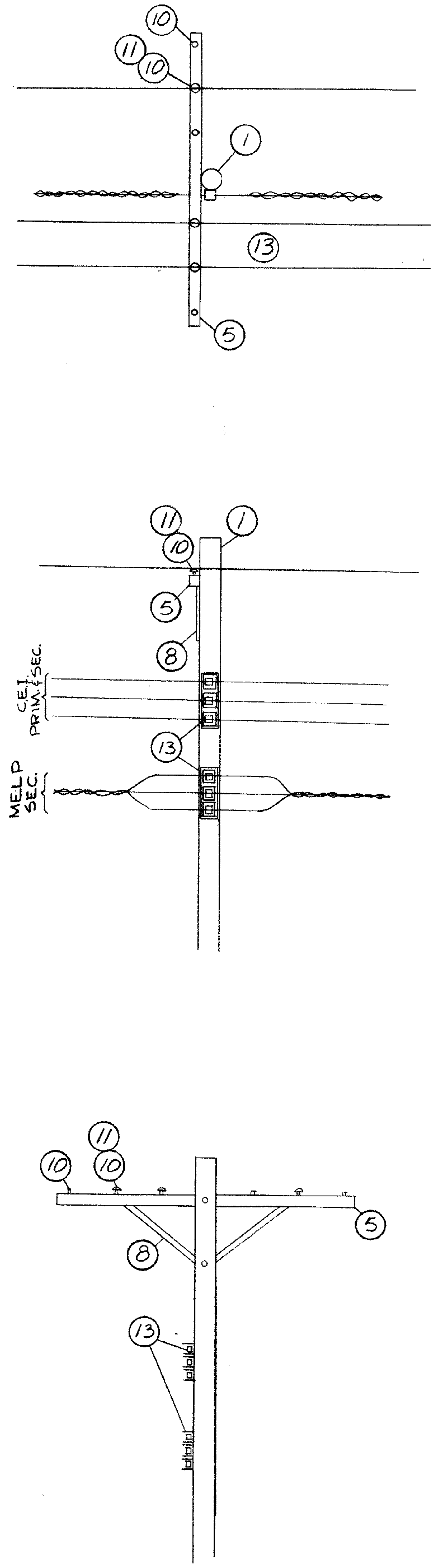

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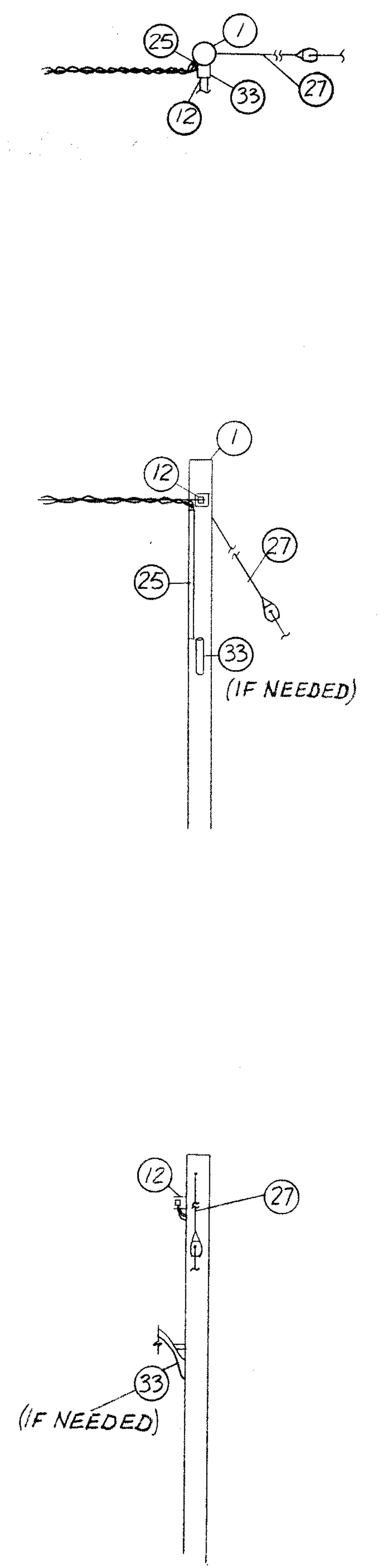

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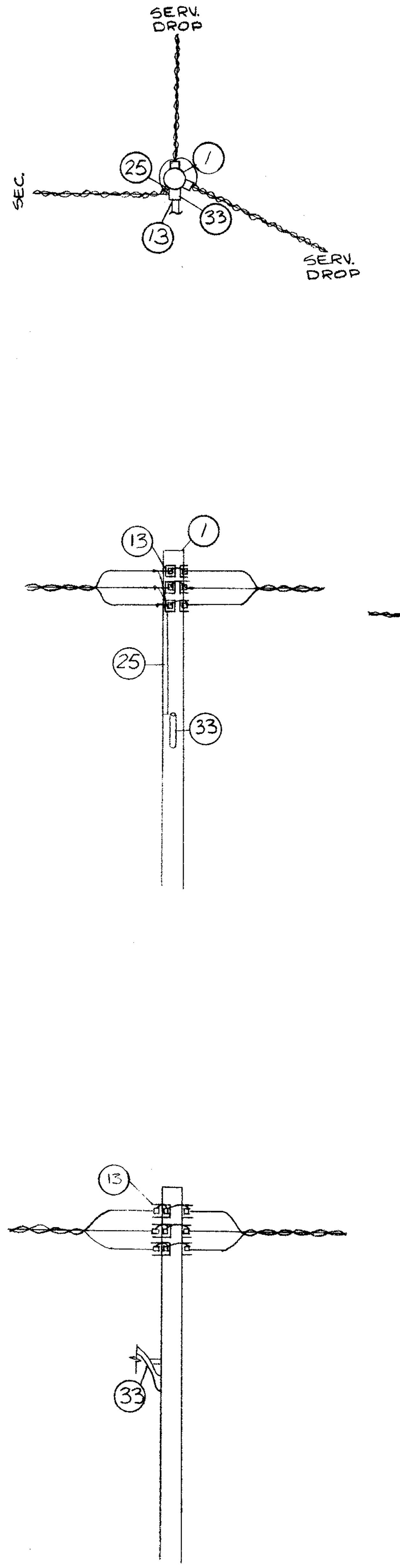
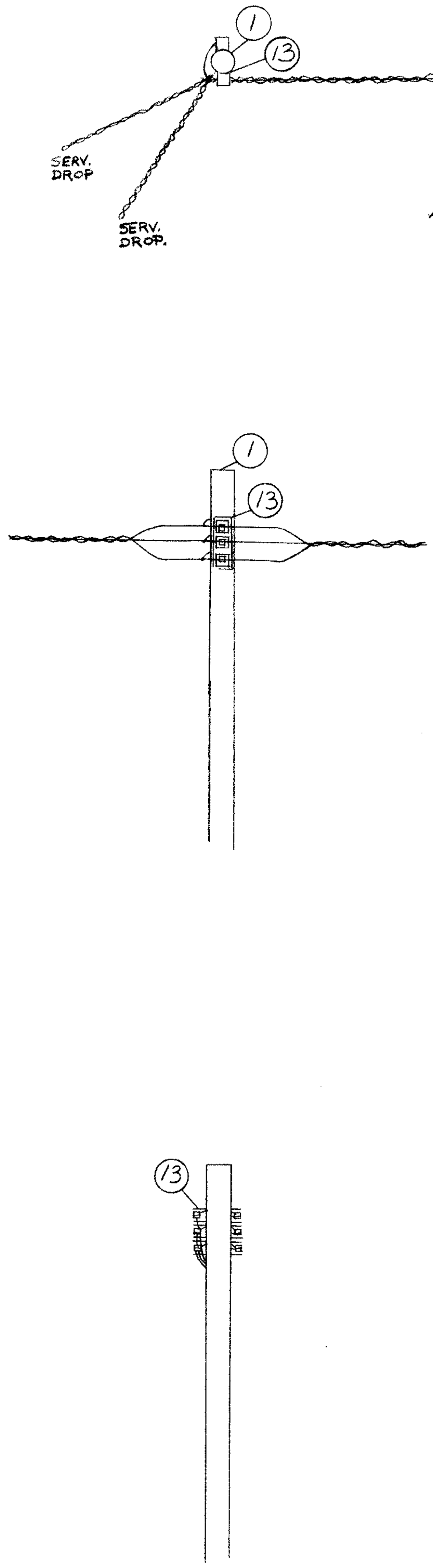


POLE DETAIL #28



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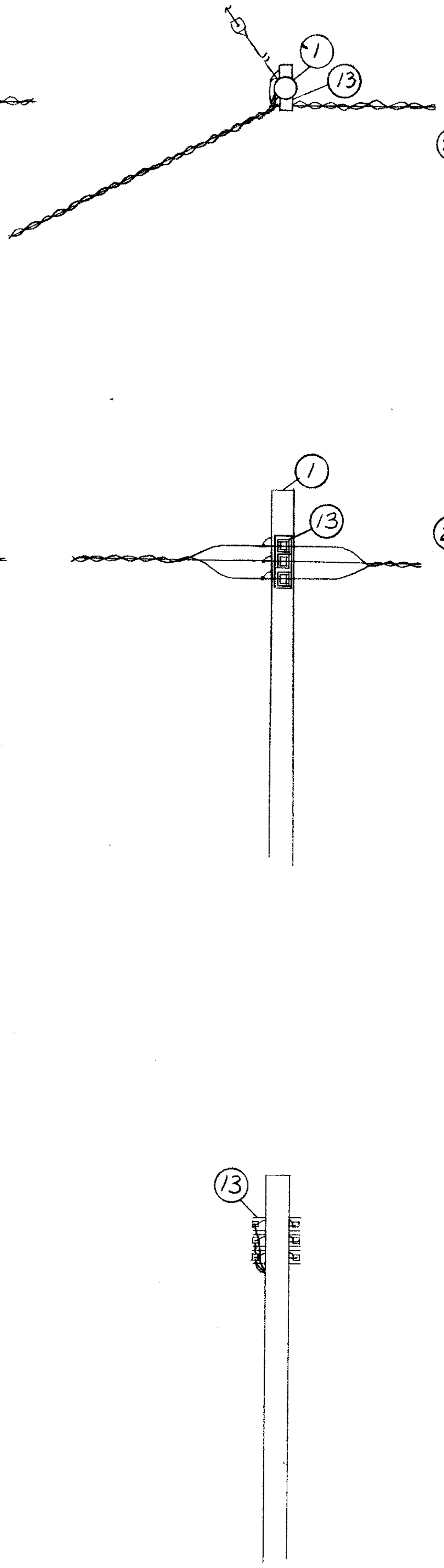

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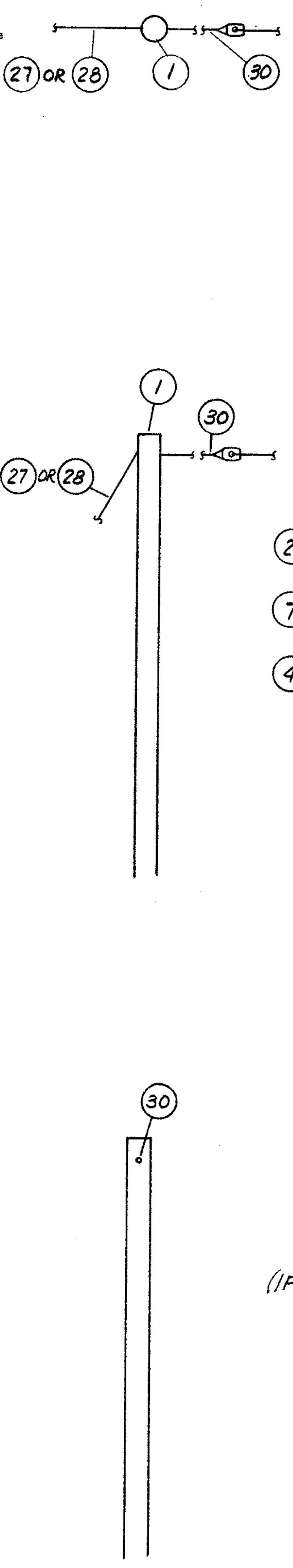

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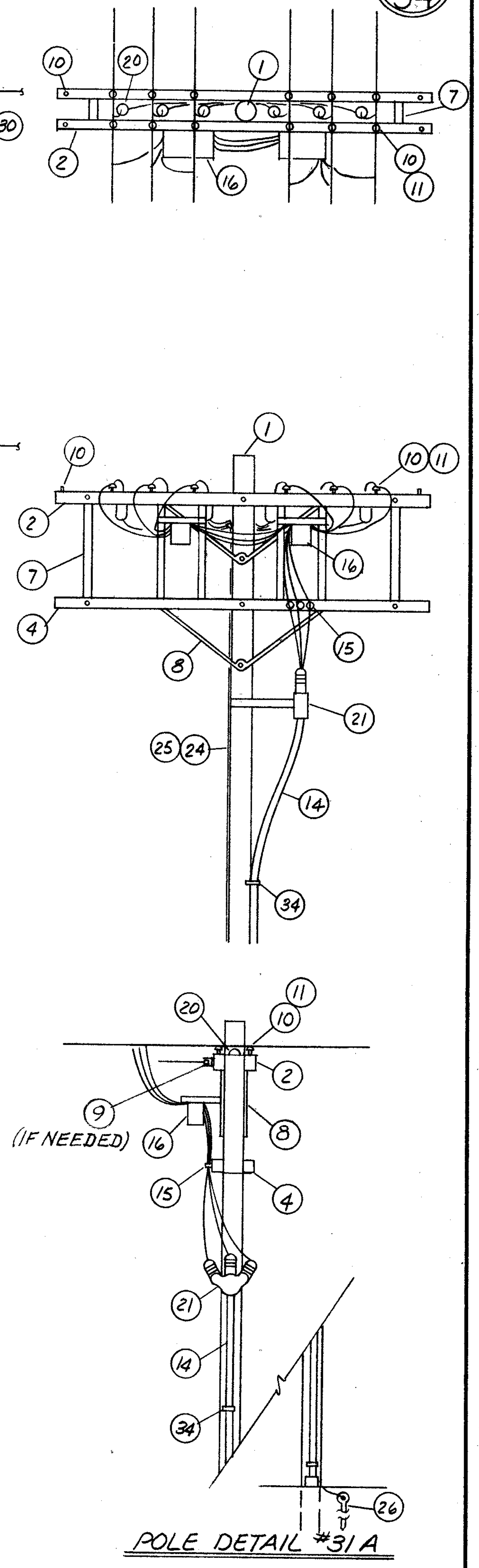

POLE DETAIL #31 A

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CITY OF CLEVELAND

OVERHEAD
POLE ASSEMBLY

DRAWN BY
CH'K'D BY J.M.

SCALE

DATE

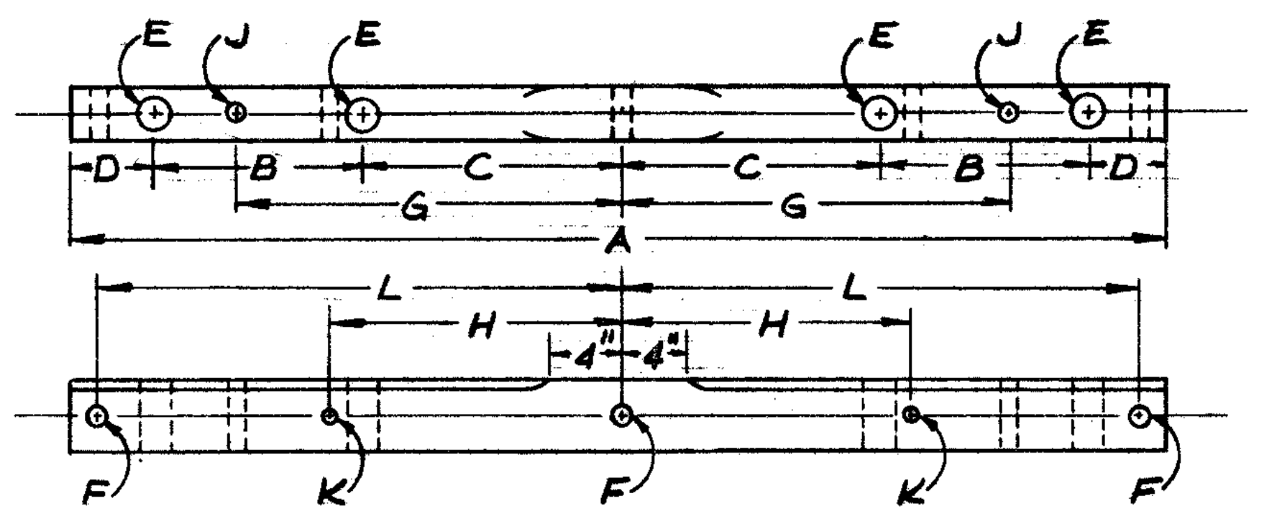
DRAWING NUMBER
6587-3S

FED. RD.	STATE	PROJECT	
2	OHIO		

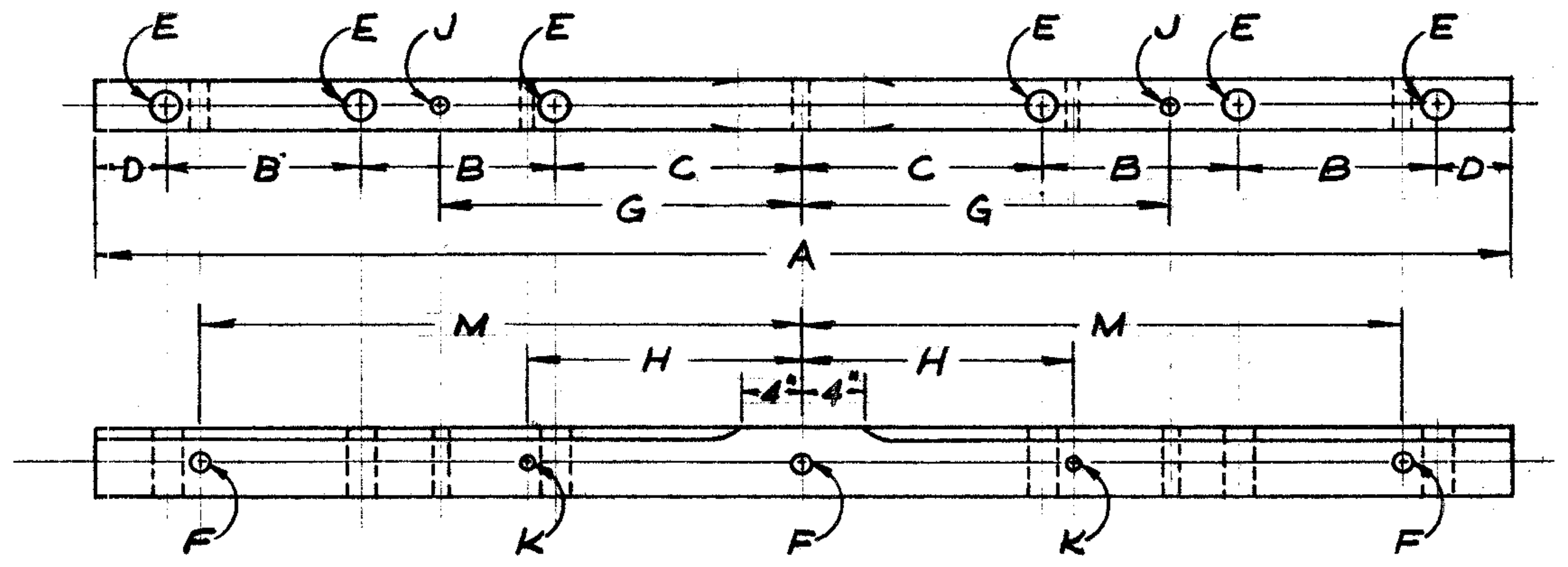
CUYAHOGA COUNTY
CUY - 90 - 10.40

401/713

45/54

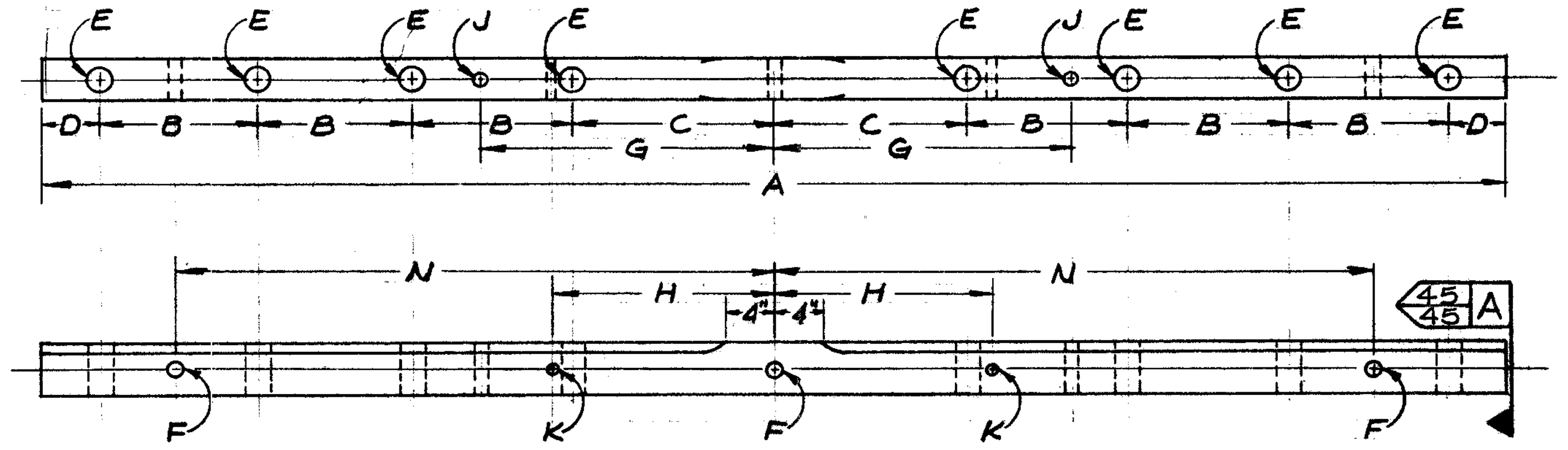


4 PIN CROSSARM



6 PIN CROSSARM

(SPECS. : OC-12)



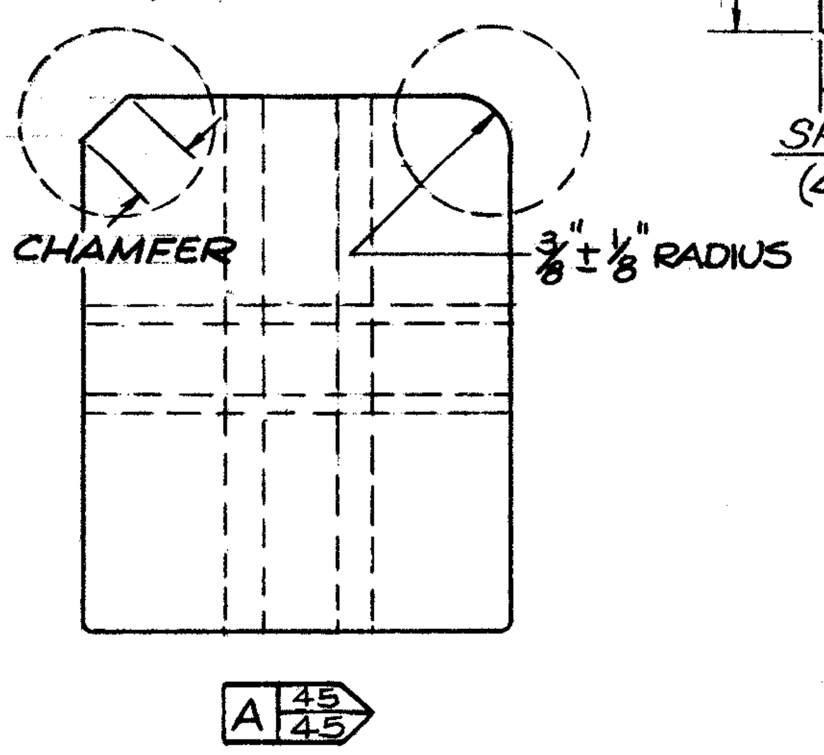
8 PIN CROSSARM

(SPECS. : OC-12)

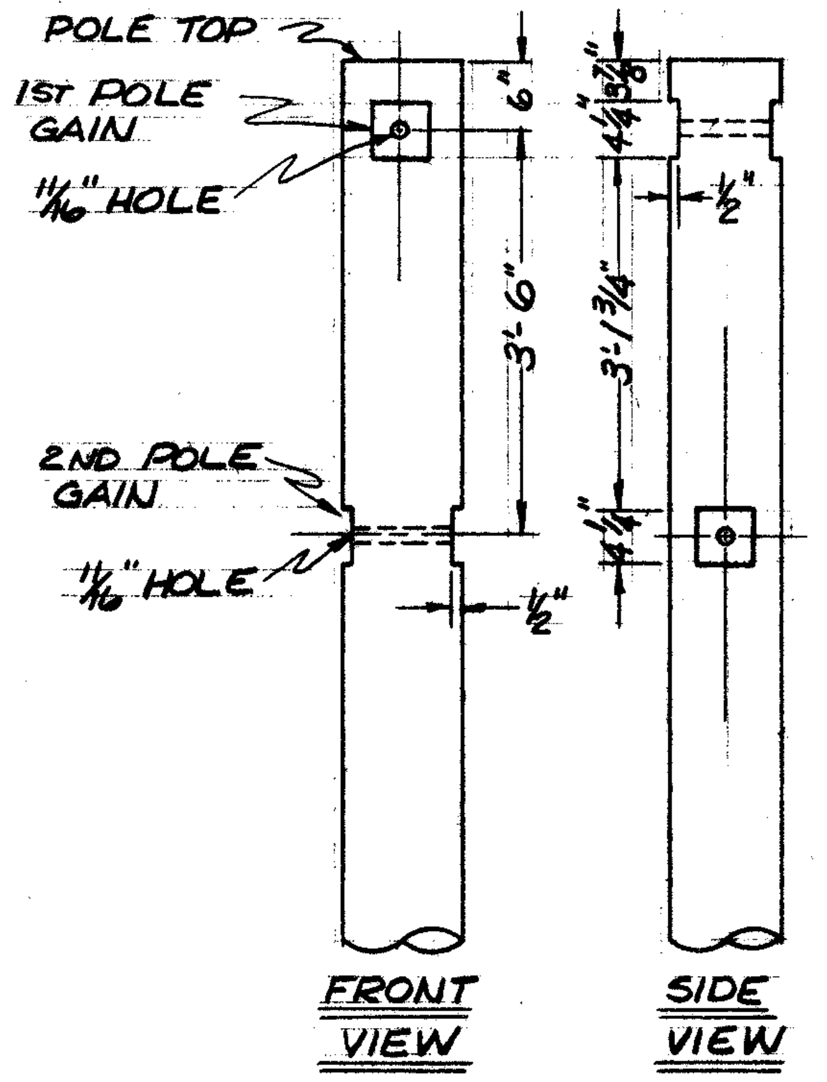
TYPE	NO. PINS	LENGTH ARM	PIN HOLES				CENTER AND END HOLE INCHES	BOLT BRACE HOLES				END BOLT HOLE FOR SPACING BLOCK		
			SPACING INCHES			SIZE INCHES		SPACING INCHES		SIZE INCHES				
			SIDES	CENTER	ENDS			ANGLE IRON	FLAT IRON					
		A	B	C	D	E	F	G	H	J	K	L	M	N
3¼"x4¼"	4	5'-7"± ¼"	14½"± ⅛	15"± ⅛"	4"± ⅛"	1 17/32"	11/16"	24"± ⅛"	18± ⅛"	9/16"	7/16"	31⅛"± ⅛"		
	6	8'-0"± ¼"	"	"	"	"	"	"	"	"	"		41"± ⅛"	
STANDARD	8	10'-5"± ¼"	"	"	"	"	"	"	"	"	"			51½"± ⅛"
4"x5" HEAVY	6	8'-0"± ¼"	"	"	"	"	"	"	OMIT	"	OMIT		41"± ⅛"	
DUTY	8	10'-5"± ¼"	"	"	"	"	"	"	OMIT	"	OMIT			51½"± ⅛"

CROSSARM DETAILS

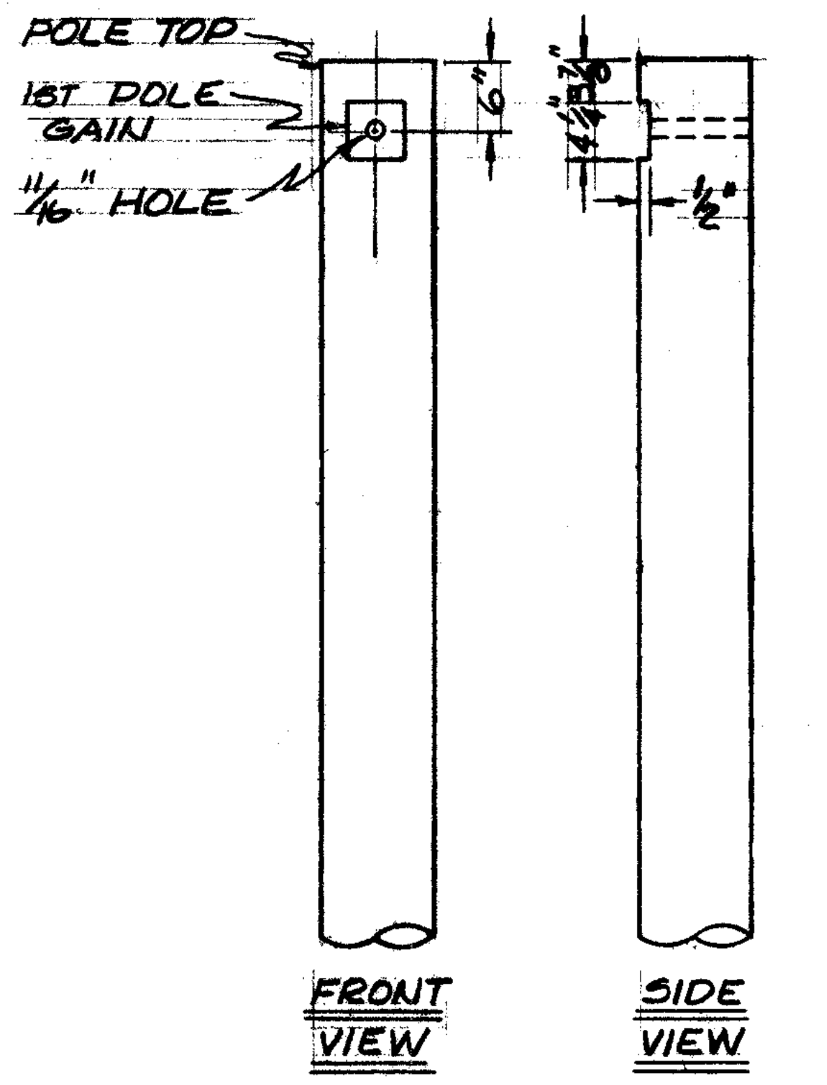
NOTES:
THE TWO TOP EDGES (ONLY) SHALL BE EITHER CHAMFERED OR ROUNDED. (THE MANUFACTURER MAY CHOOSE THE SHAPE HE PREFERS.)
THE TWO BOTTOM EDGES SHALL BE SLIGHTLY EASED FOR ENTIRE LENGTH ⅛"± 1/16" RADIUS.



TYPICAL FOR ALL CROSSARMS



DETAIL "A"



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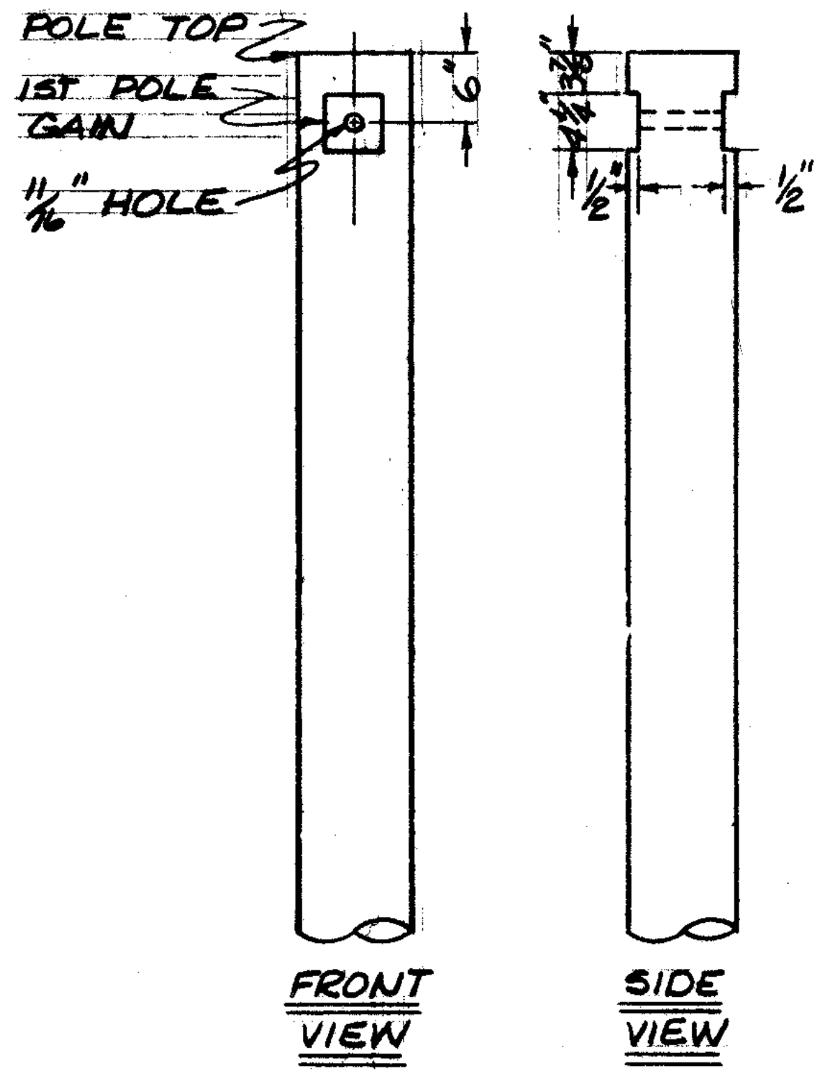

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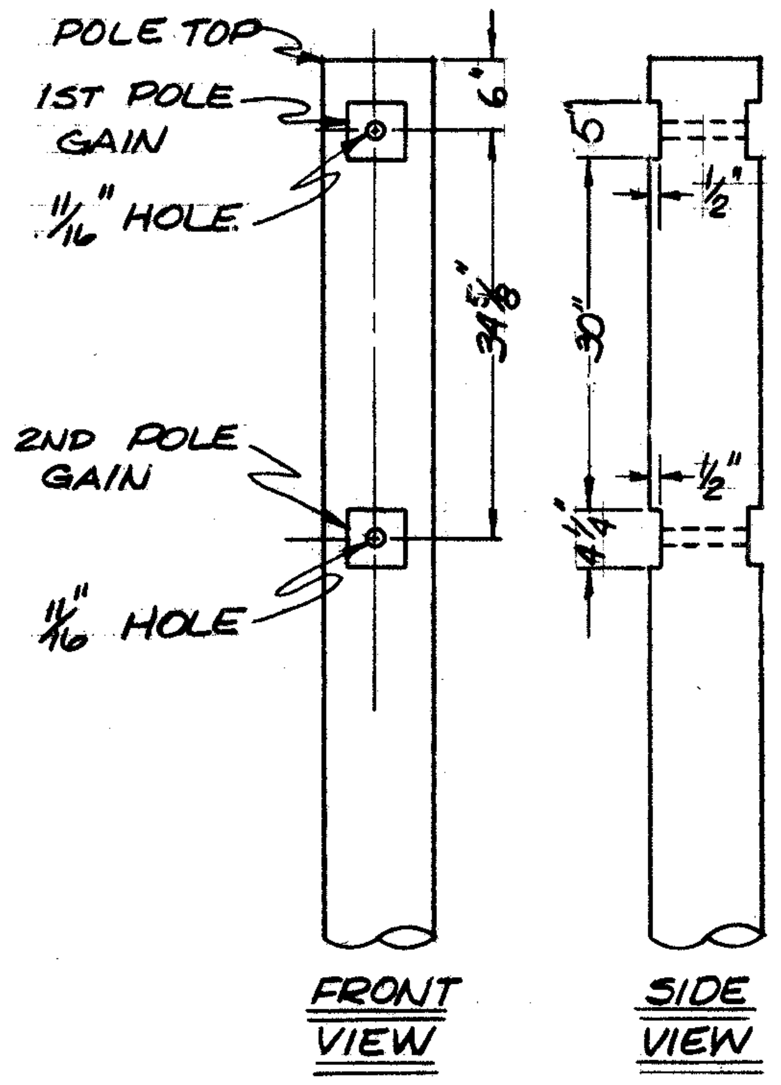

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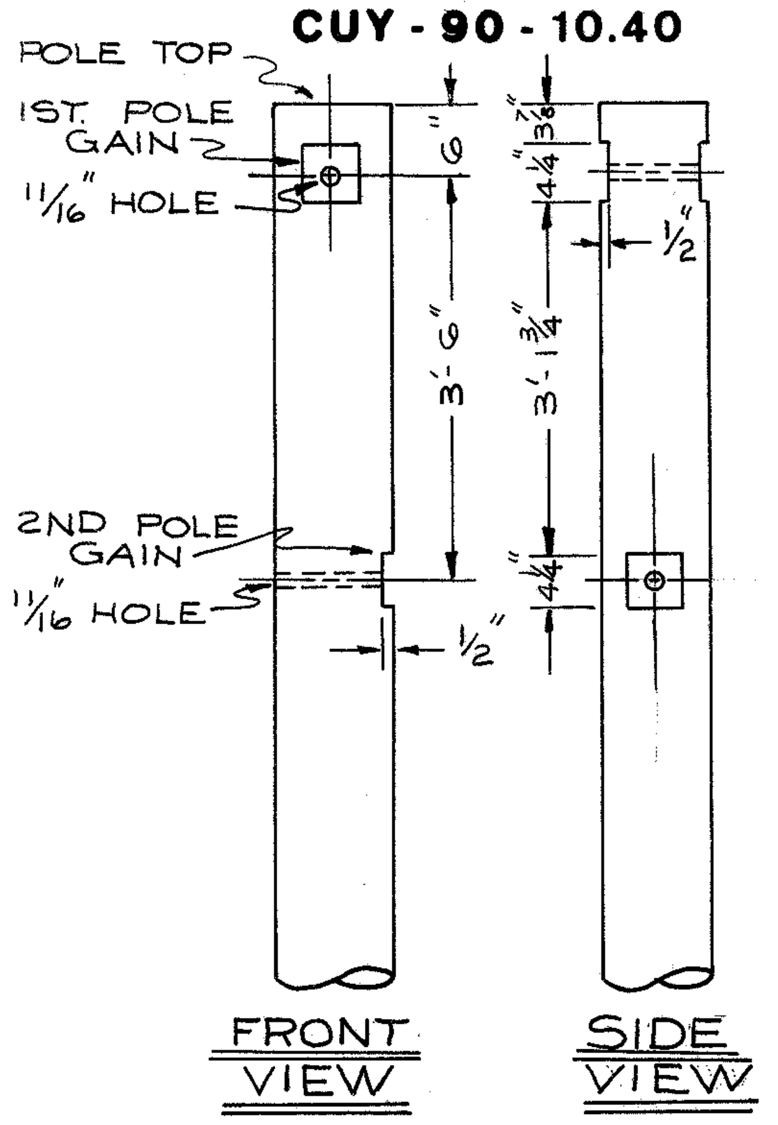

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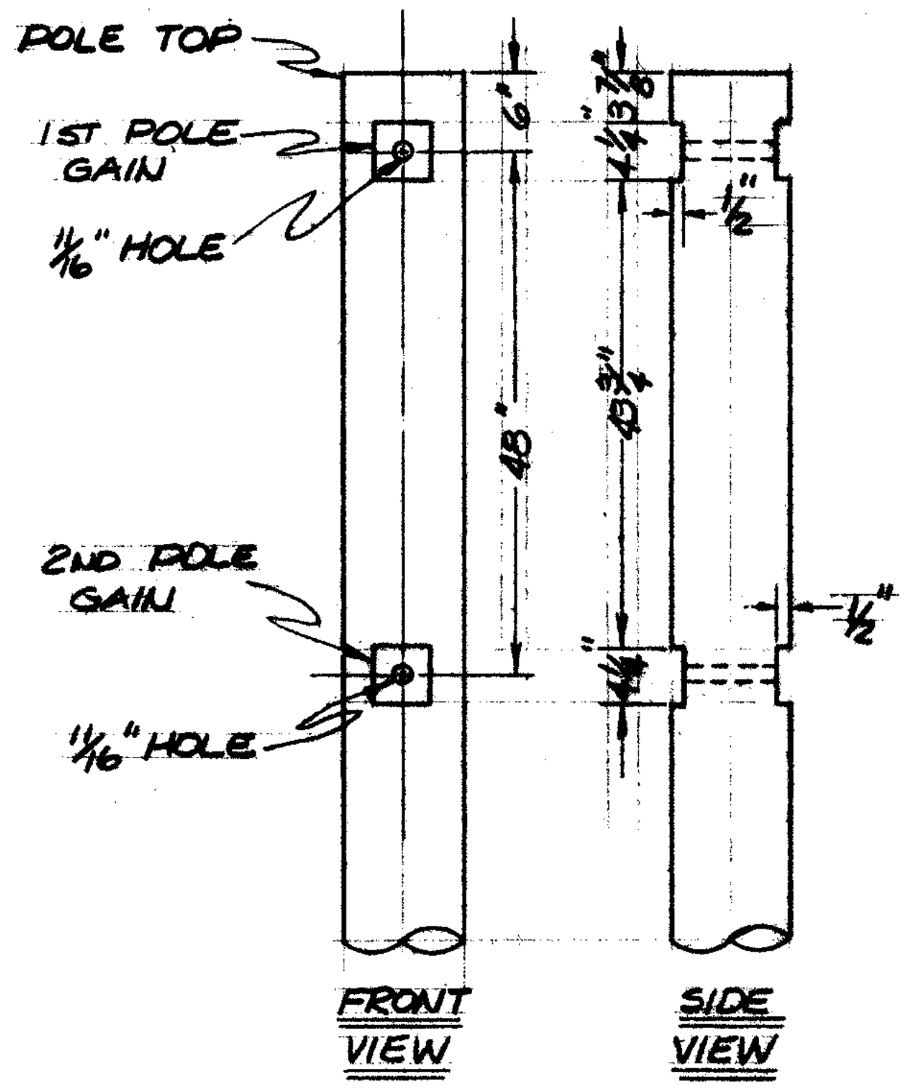

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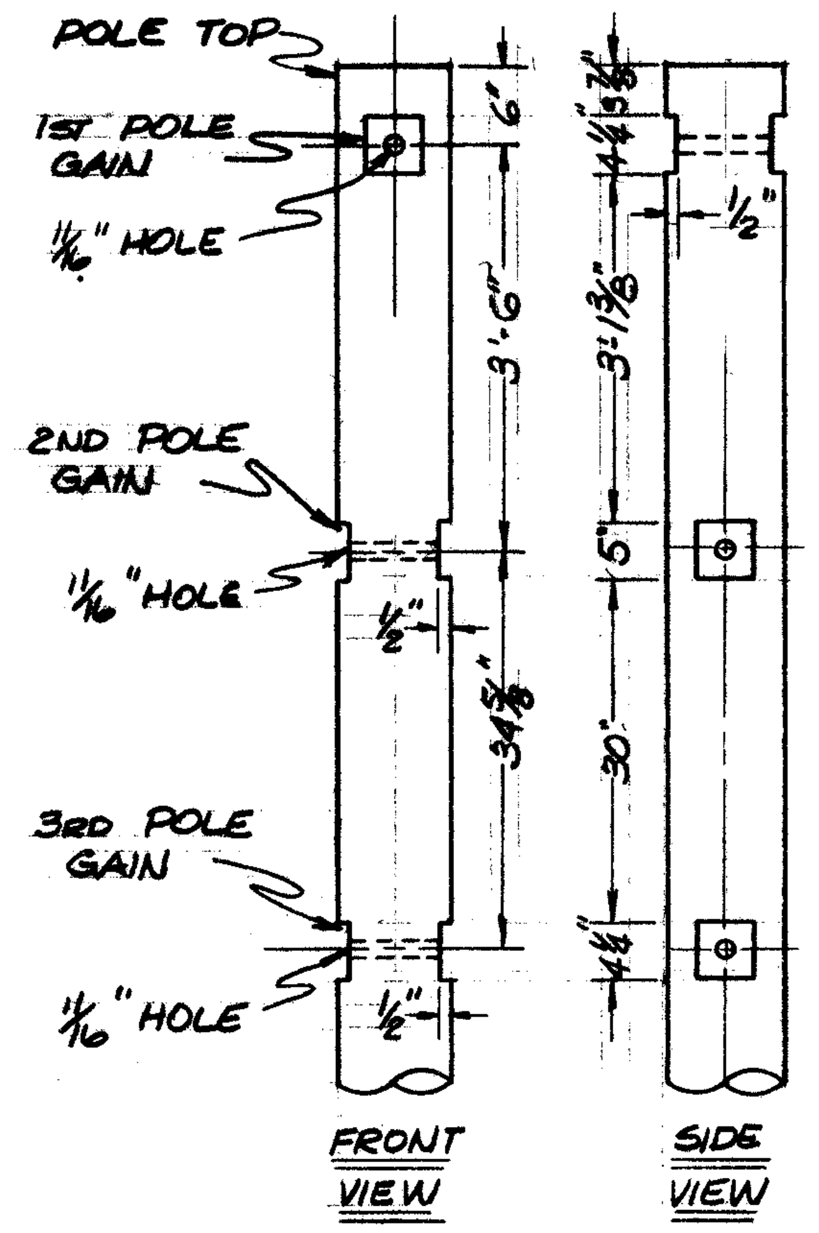
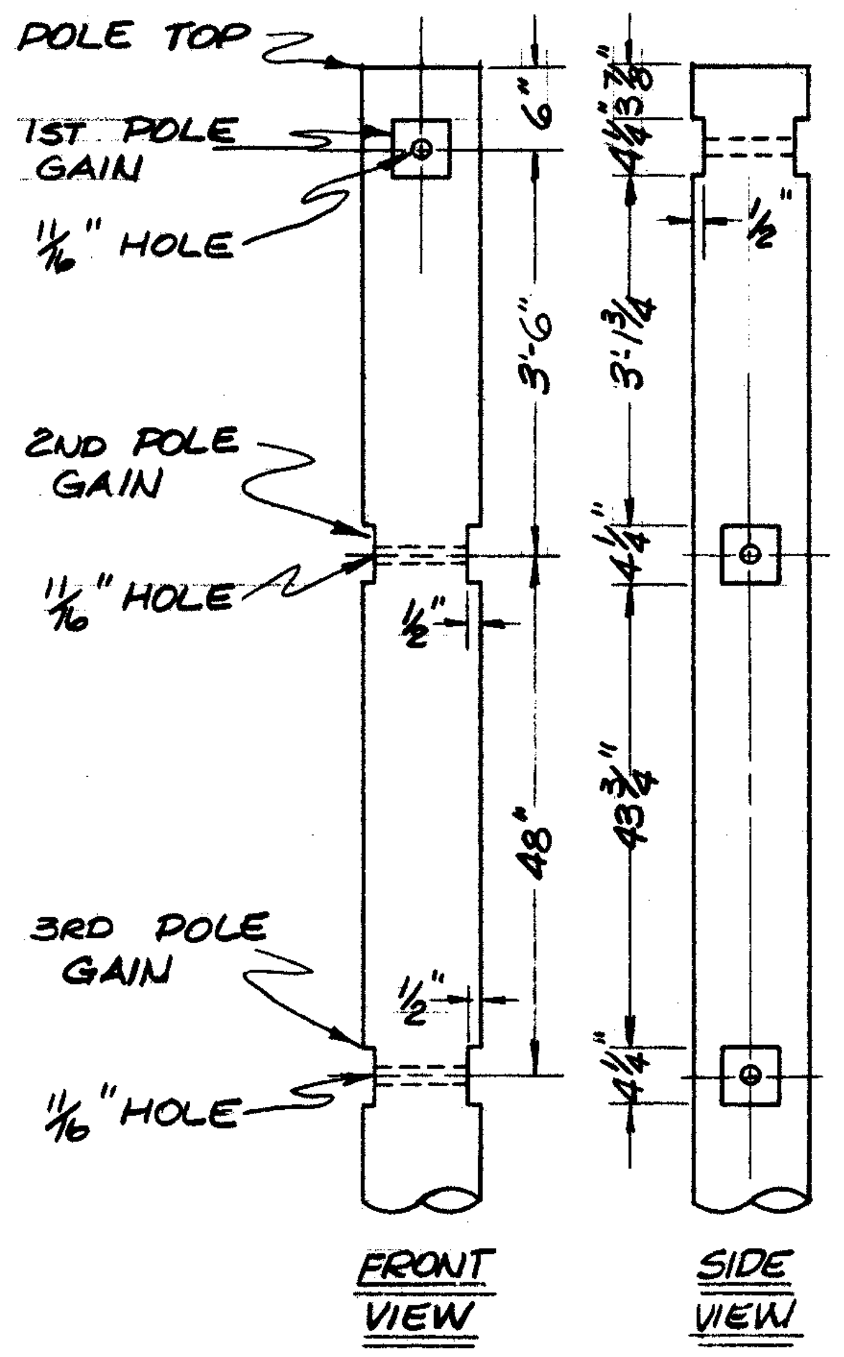


DETAIL "F"

POLE GAINING DETAILS



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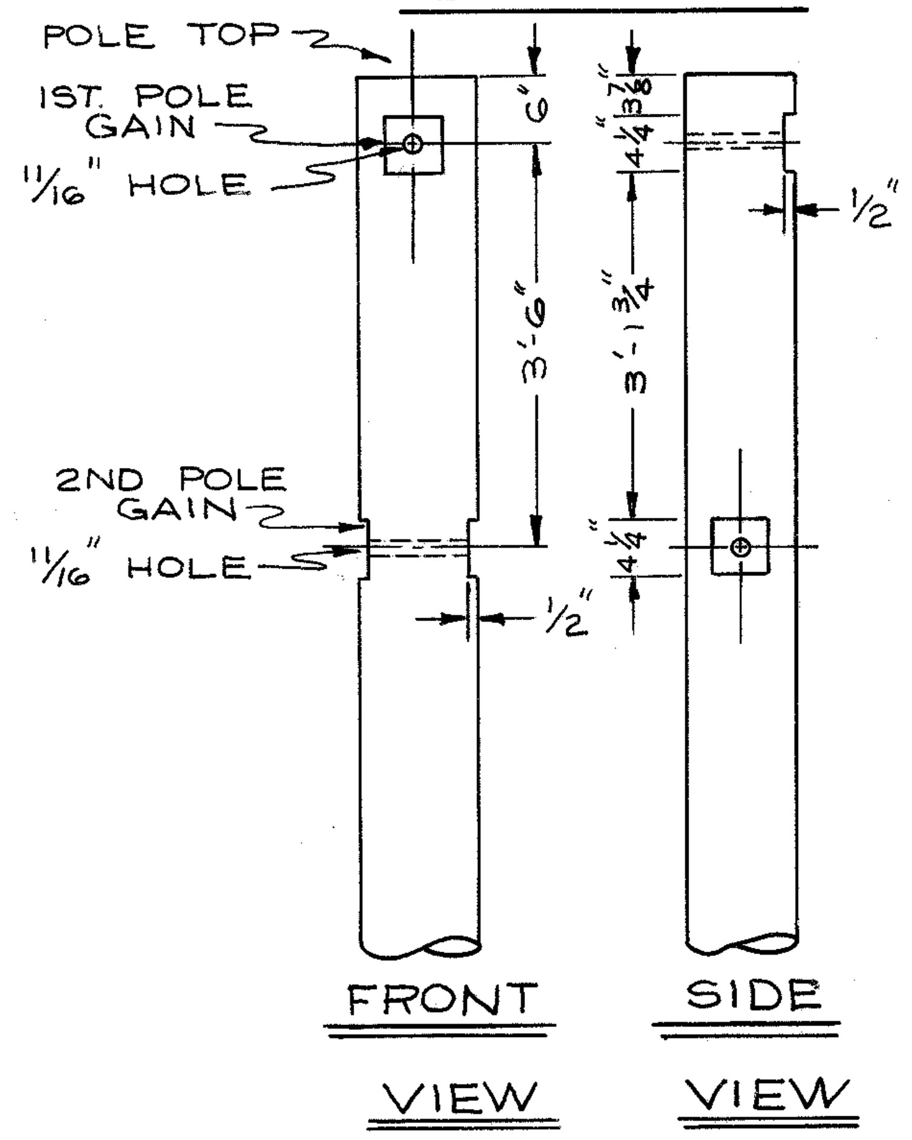

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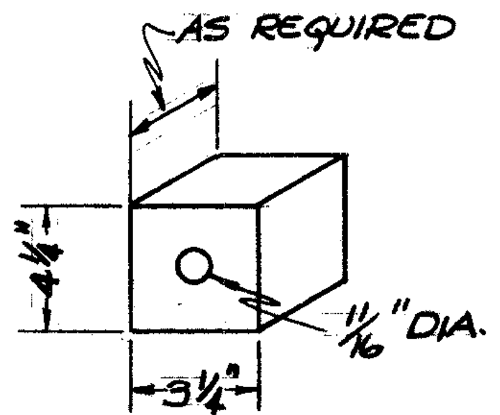
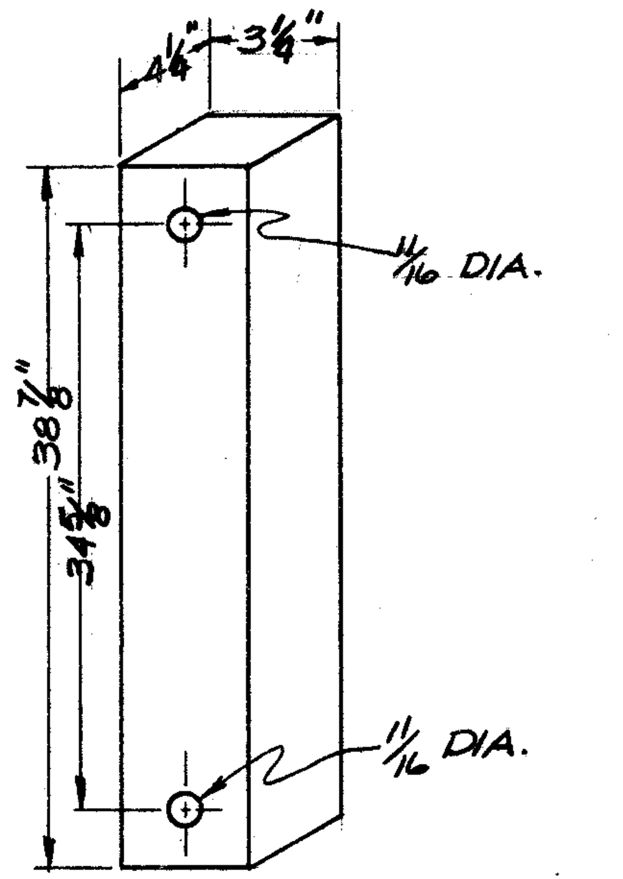


SPACER
(4 REQ.)



VERTICAL BRACE
(2 REQ.)

NOTE:
MAY BE CUT FROM STANDARD CROSSARMS

LATERAL POLE WOOD BRACING DETAILS

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CITY OF CLEVELAND

OVERHEAD
DETAILS

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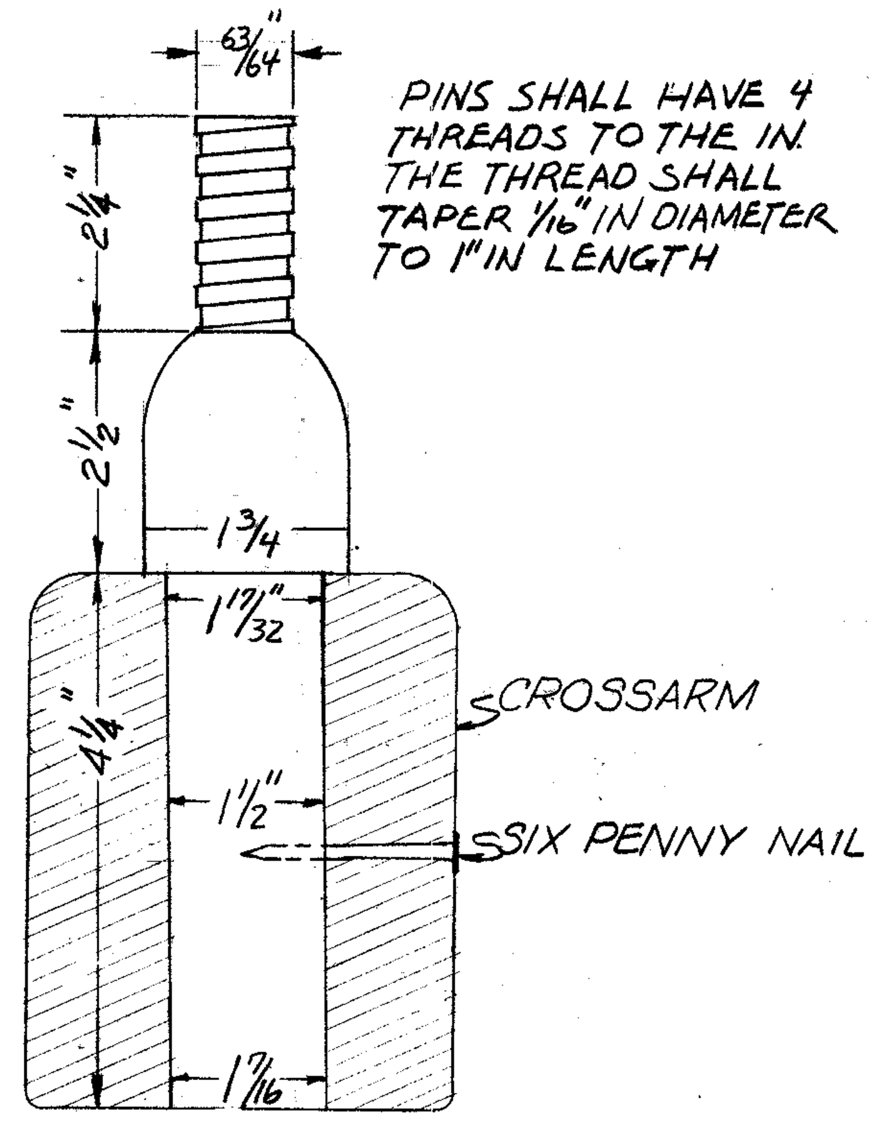
CH'K'D BY J.M.

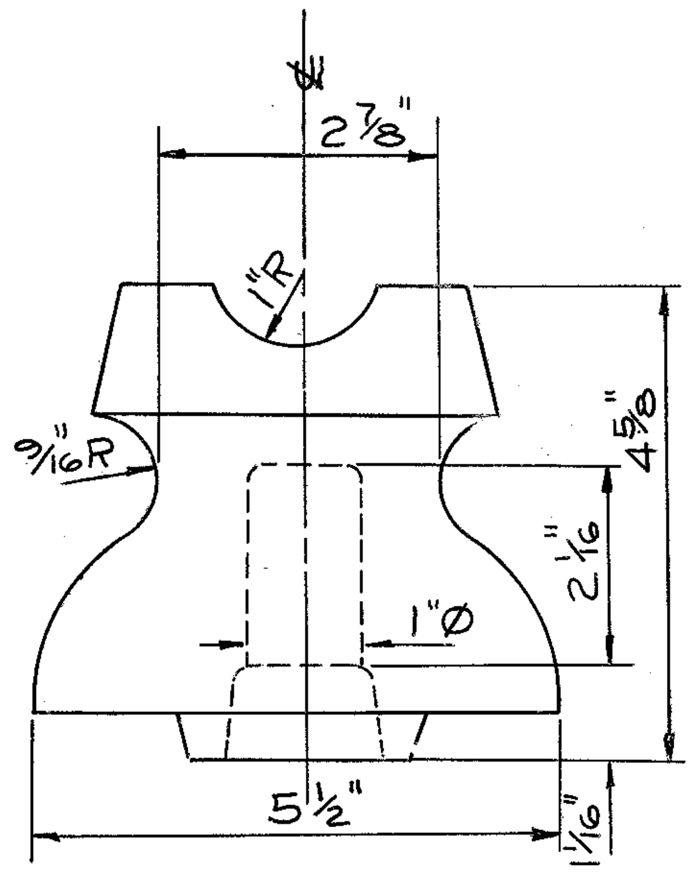
SCALE No SCALE
DATE

DRAWING NUMBER
6587-3T

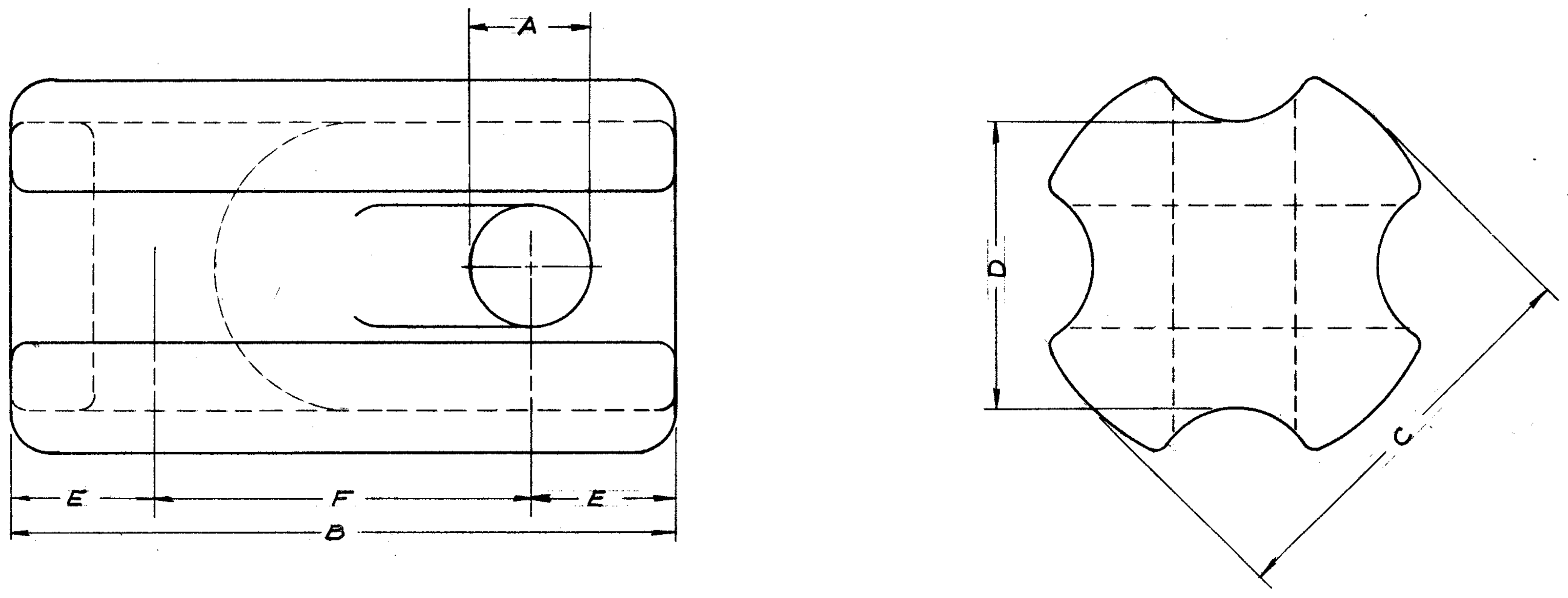
FORM D D A-8



WOOD LOCUST PIN DETAIL
(SPECS.: OC-12)

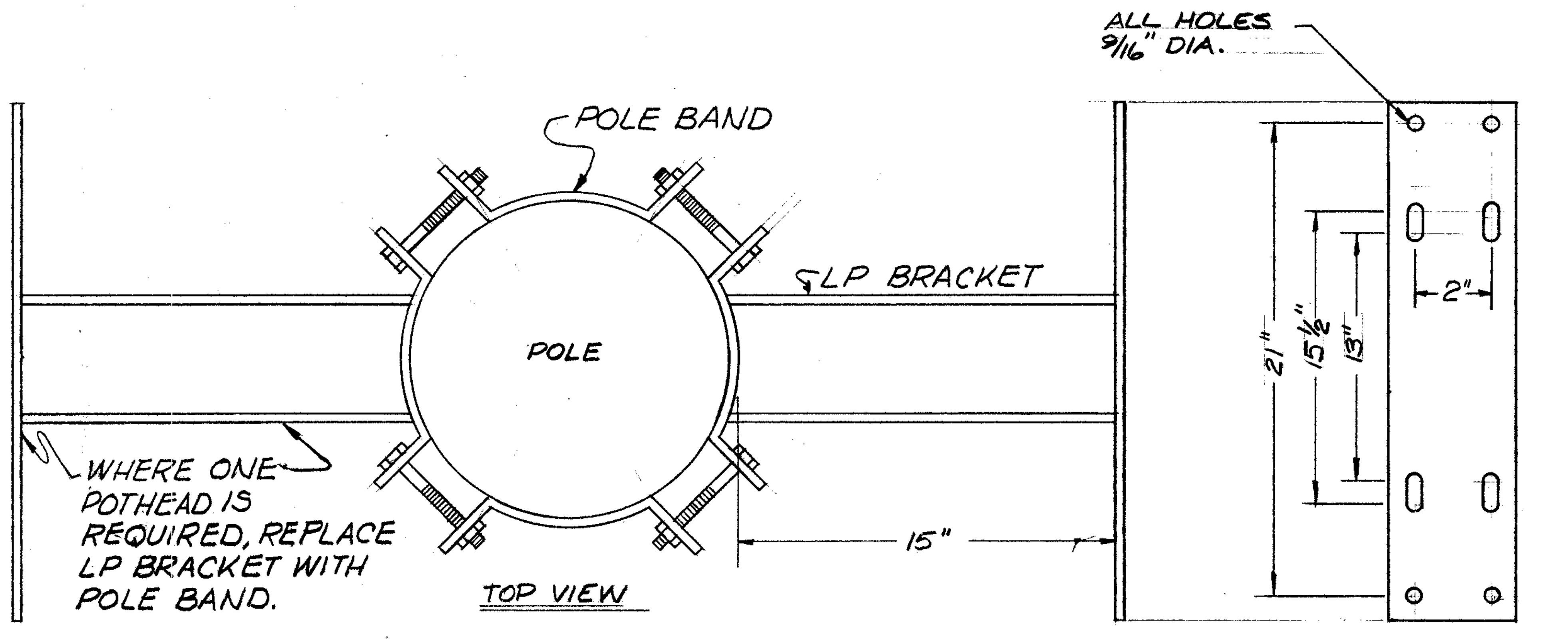


PIN TYPE INSULATOR
(SPECS.: OC-12)



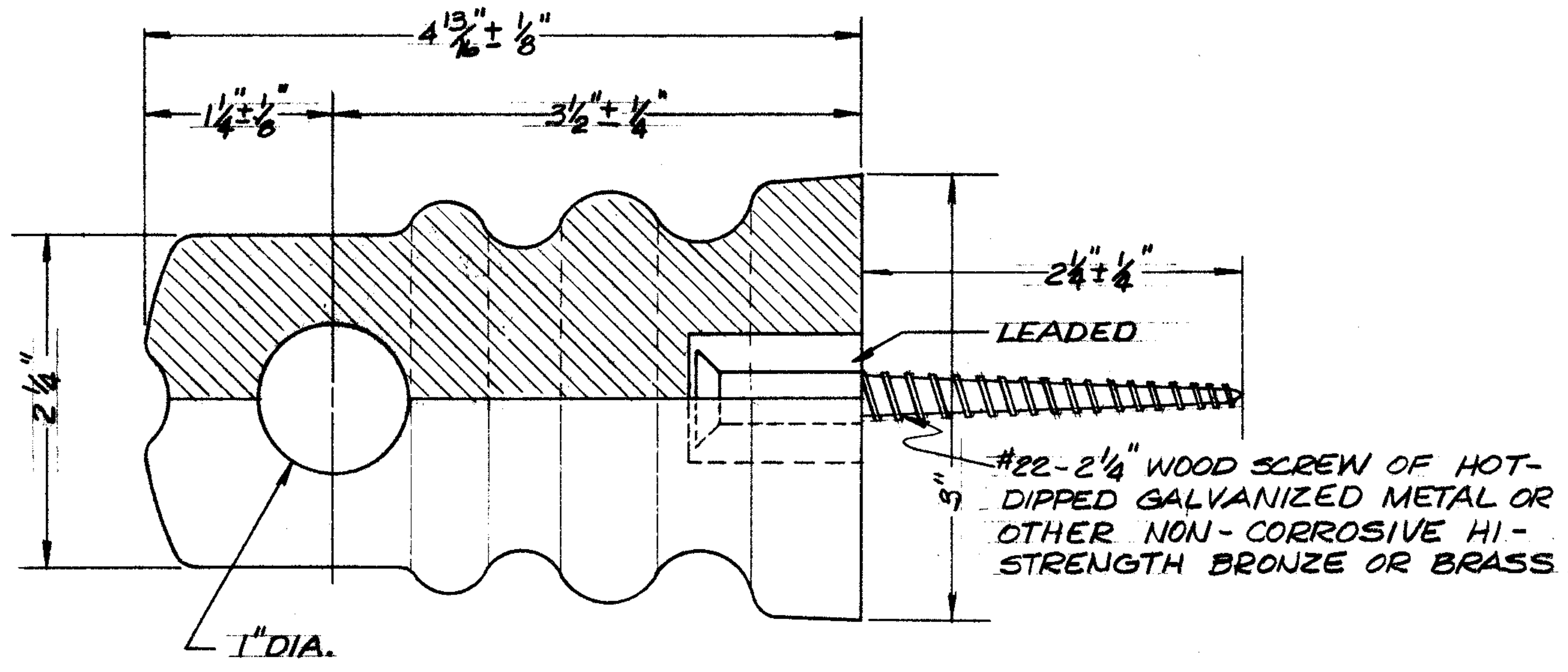
ASA CLASS	DIMENSIONS IN INCHES A	B	C	D	E	F	MECH. STRENGTH	APPROX. WT. EACH LBS.	FLASHOVER-KV DRY	WET	LEAKAGE DISTANCE	MAX. CABLE DIA.
54-1	5/8 ± 1/16	3 1/2	2 1/2	1 3/4 ± 1/16	7/8 ± 1/16	1 3/4 ± 1/8	10,000 LBS	7/8	25	12	1 5/8"	3/8"
54-2	7/8 ± 1/16	4 1/8	2 7/8	2 1/8 ± 1/16	15/16 ± 1/16	2 1/4 ± 1/8	12,000 LBS	1 3/8	30	15	1 7/8"	1/2"

STRAIN TYPE INSULATOR
(SPECS.: OC-10)

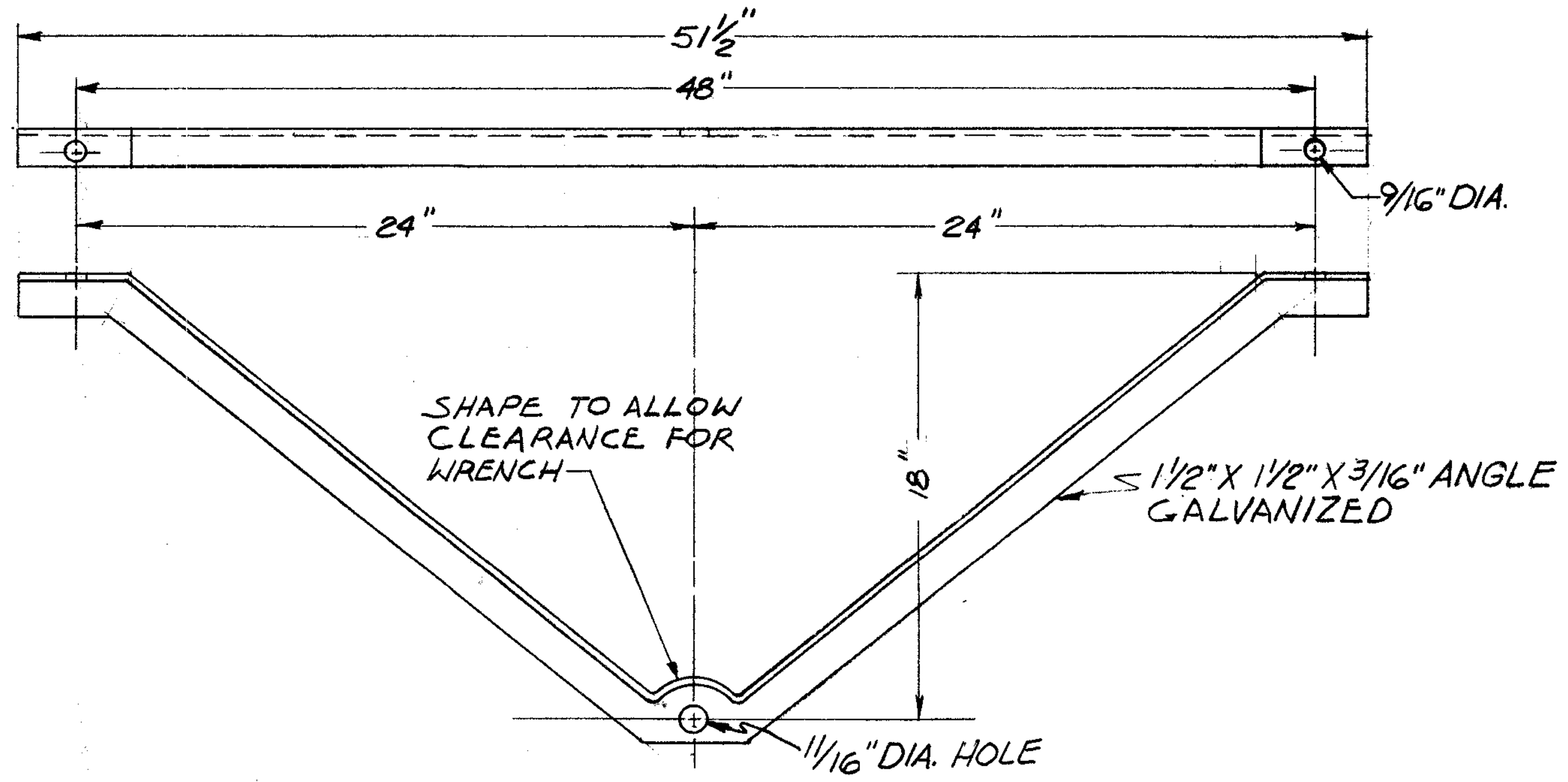


MTG. PLATE END VIEW

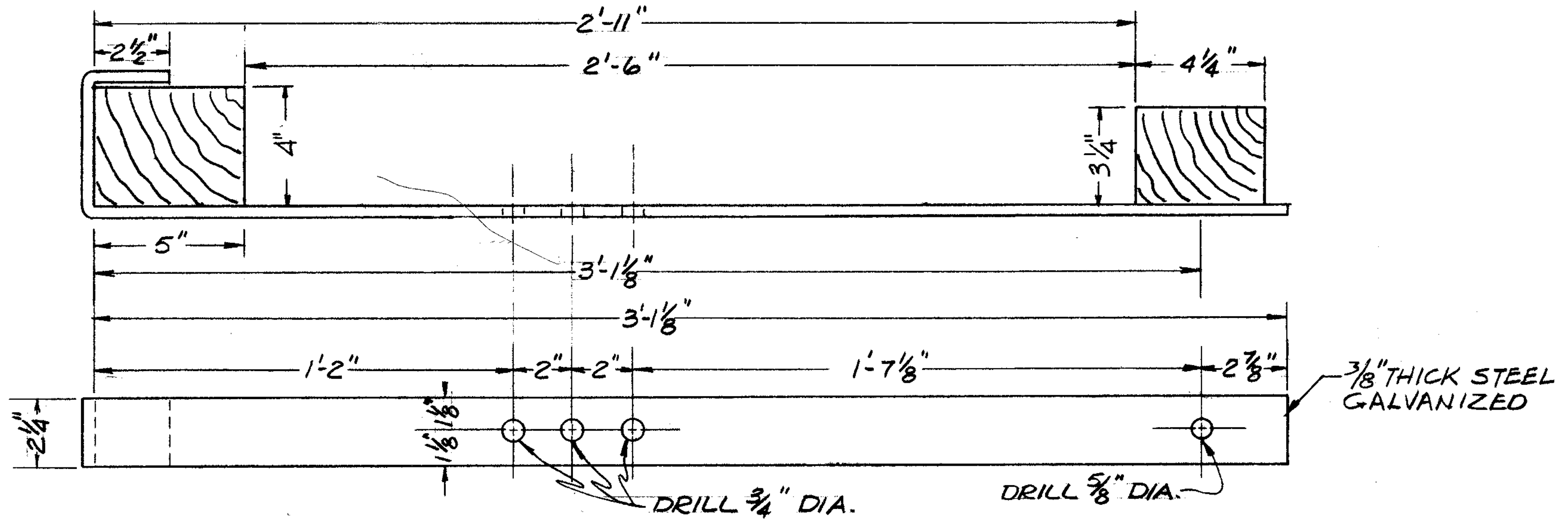
POTHEAD POLE BRACKET
(SPECS.: OC-14)



PRIMARY WIRE HOLDER
(SPECS.: OC-18)



CROSSARM BRACE
(SPECS.: OC-21)



OIL SWITCH MOUNTING HANGER
(SPECS : OC-19)

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CITY OF CLEVELAND

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DETAILS

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CH'K'D BY J. M.
SCALE No SCALE
DATE
DRAWING NUMBER **6587-3U**

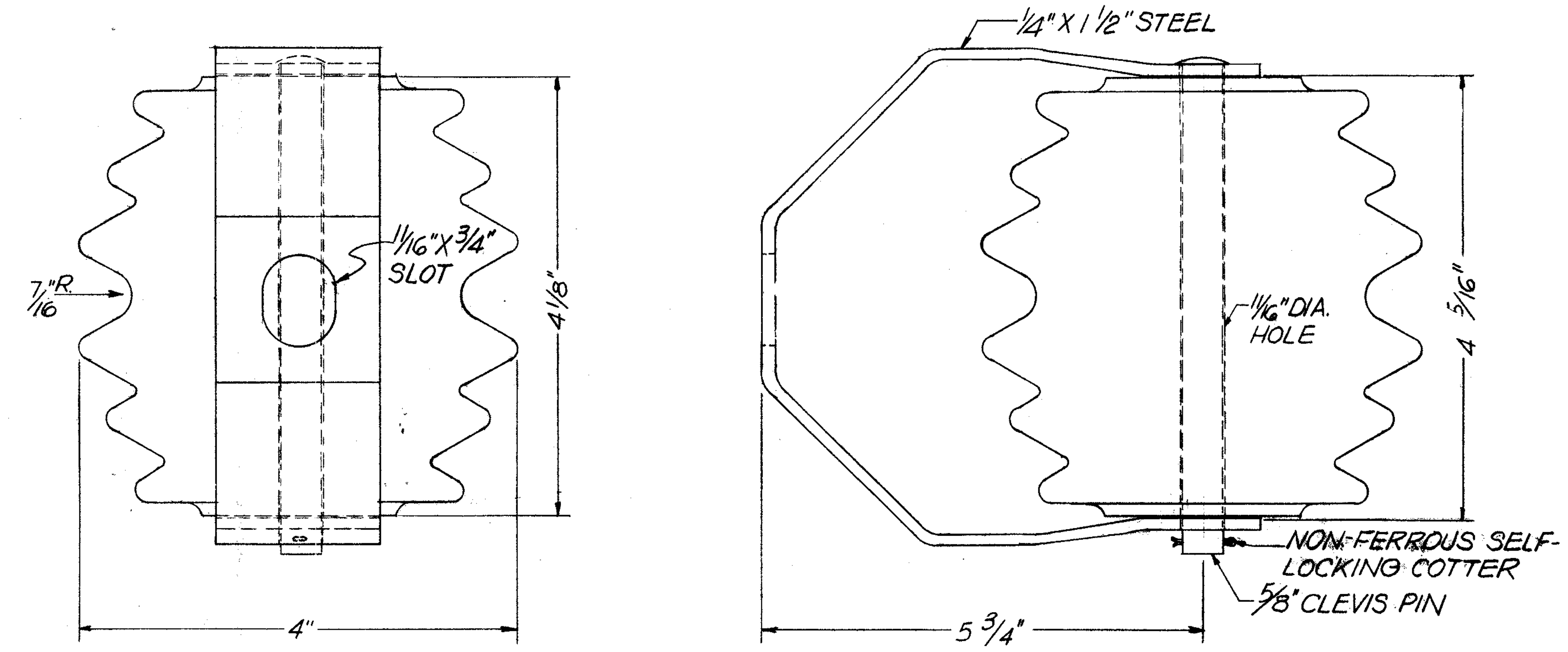
FORM D D A-5

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

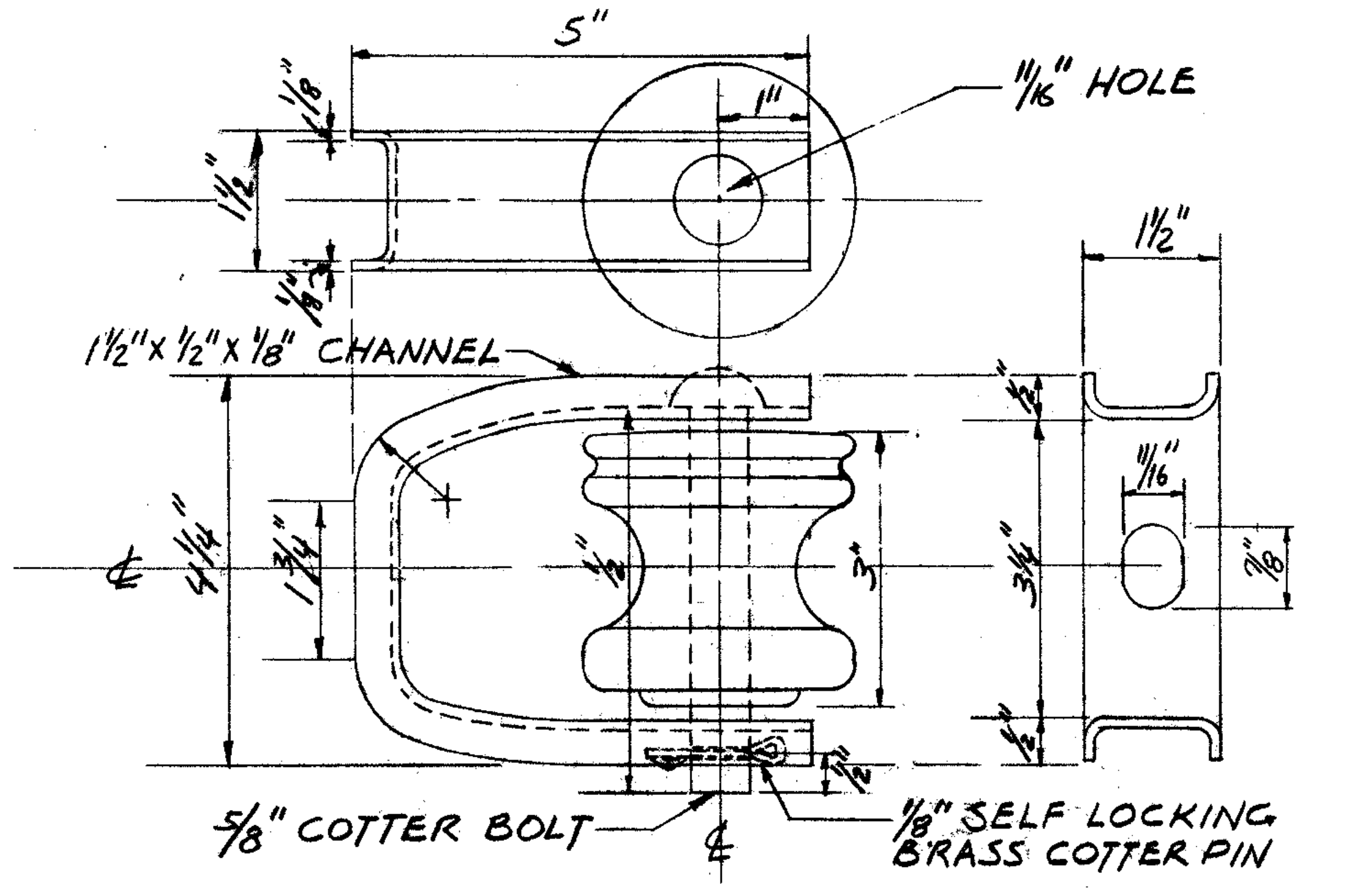
403
713

47
54



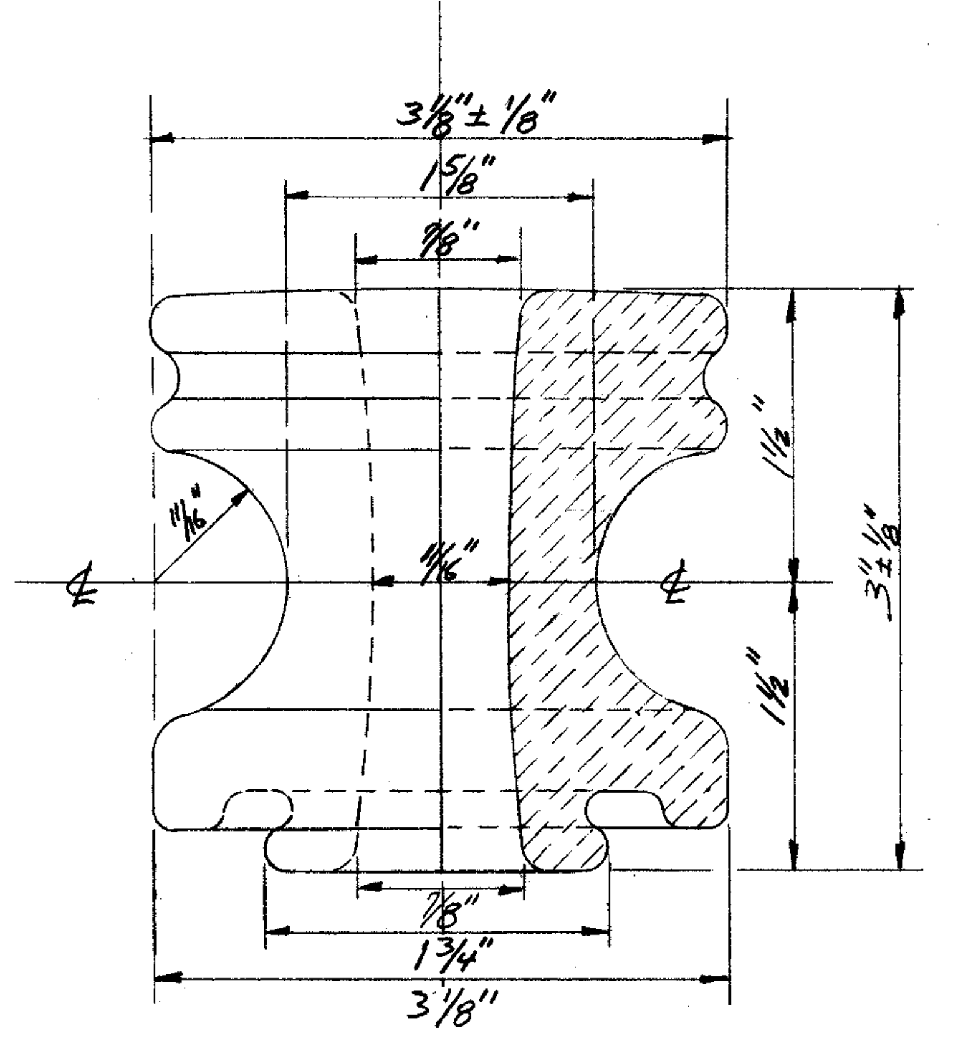
DEAD END CLEVIS

(SPECS.: OC-13)

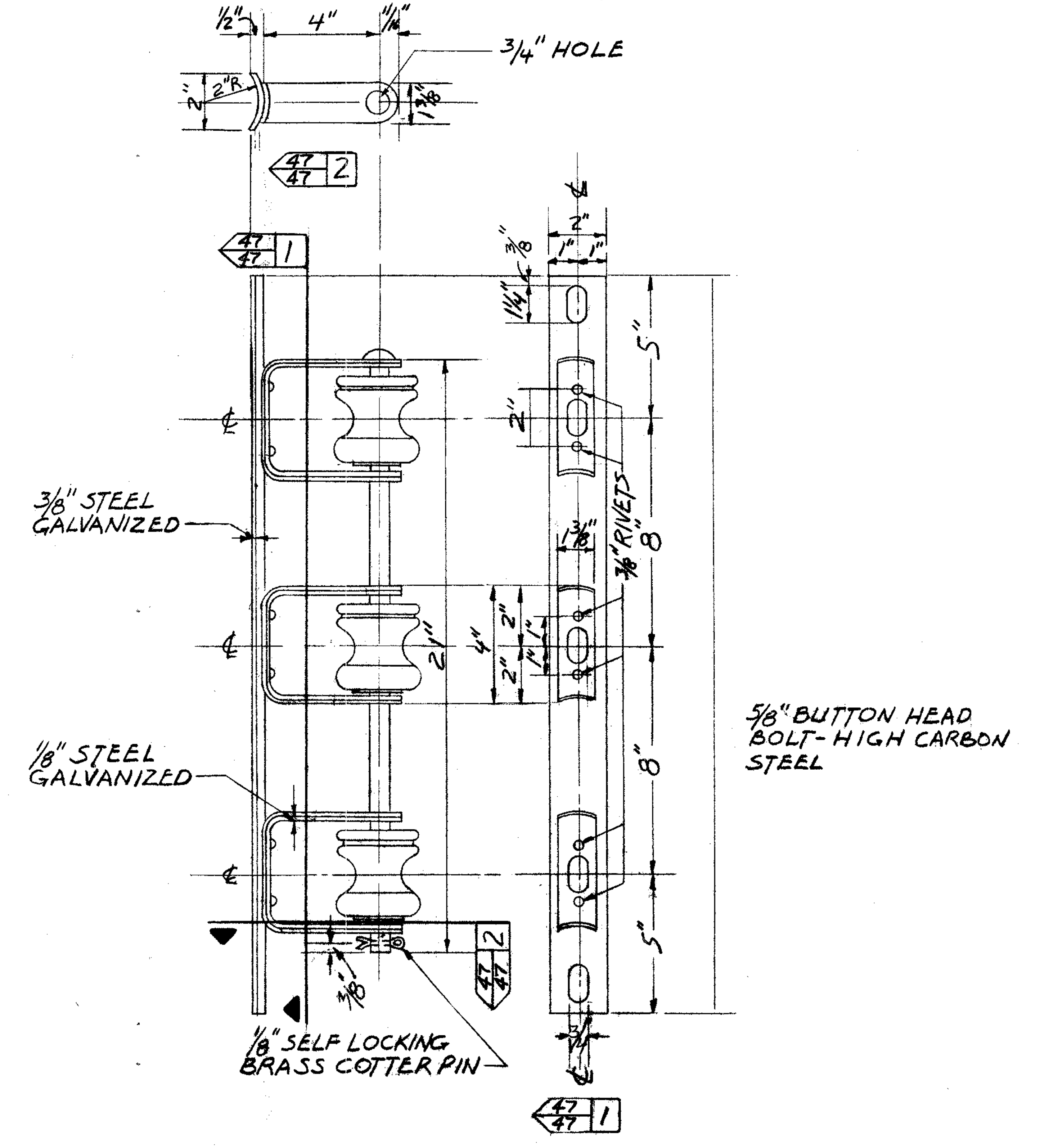


1 PT SECONDARY PORCELAIN RACK

(SPECS.: OC-16)

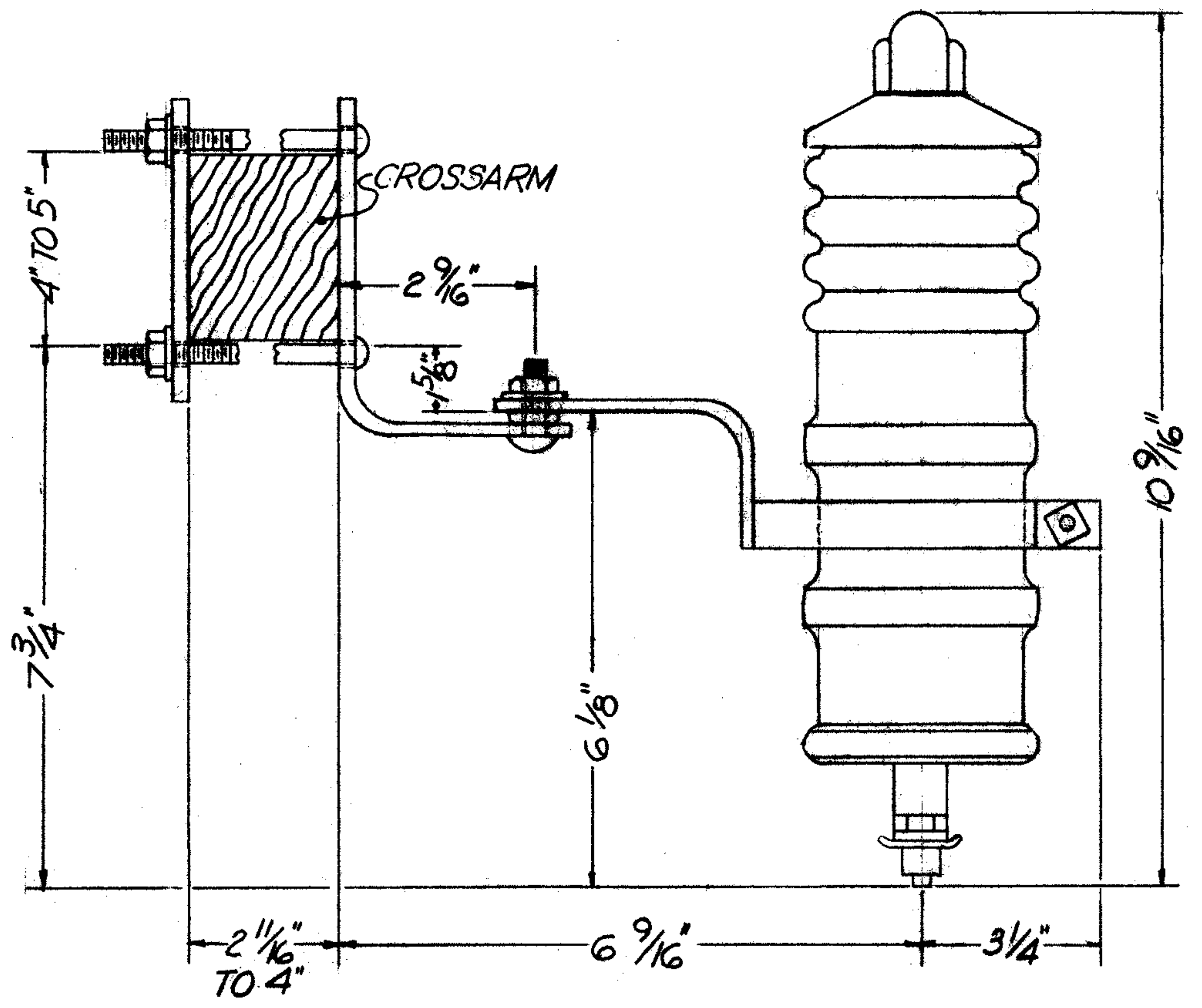


DETAIL - WET PROCESS PORCELAIN SPOOL



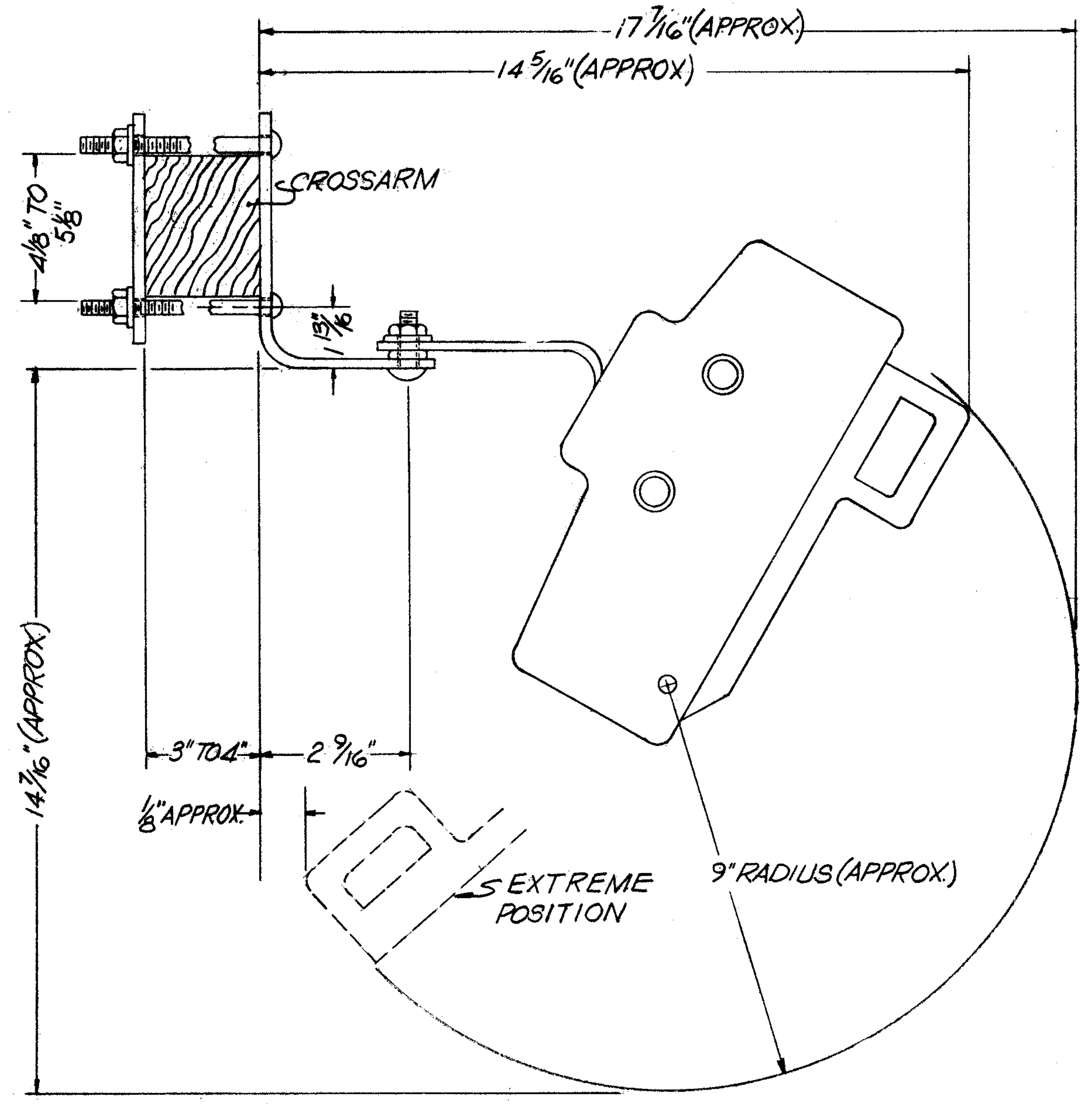
THREE POINT SECONDARY RACK

(SPECS.: OC-16)



LIGHTNING ARRESTER

(SPECS.: OC-15)



FUSED CUTOUTS

(SPECS.: OC-18)

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CITY OF CLEVELAND

OVERHEAD DETAILS

DRAWN BY D.M.Z.
CH'K'D BY J.M.
SCALE No Scale
DATE
DRAWING NUMBER 6587-3V

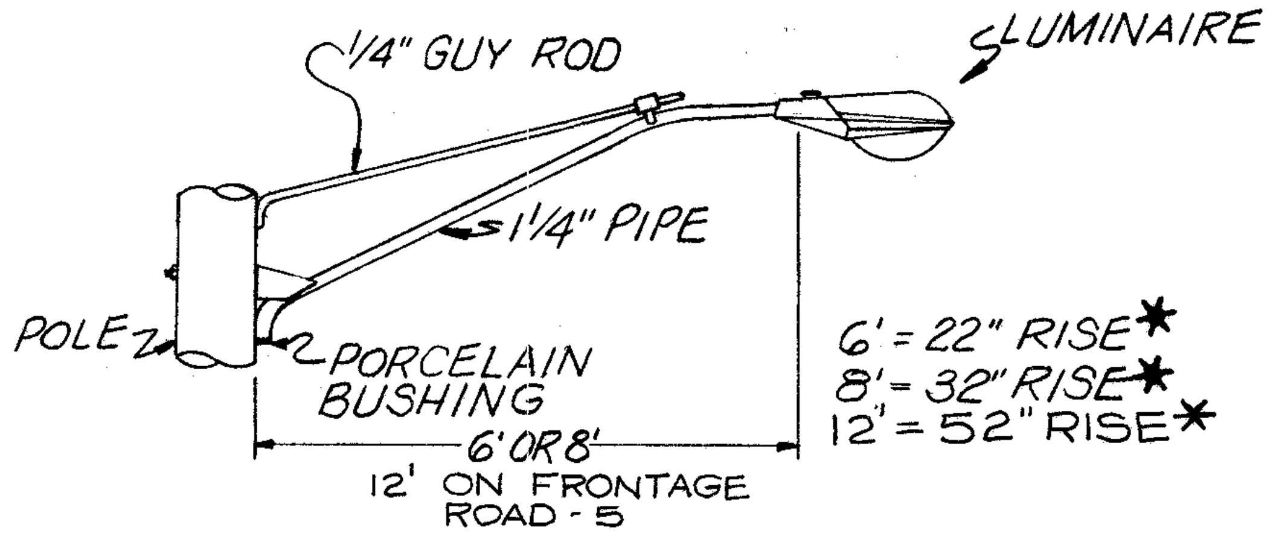
FORM D D A-6

FED. RD.	STATE	PROJECT	
2	OHIO		

404/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

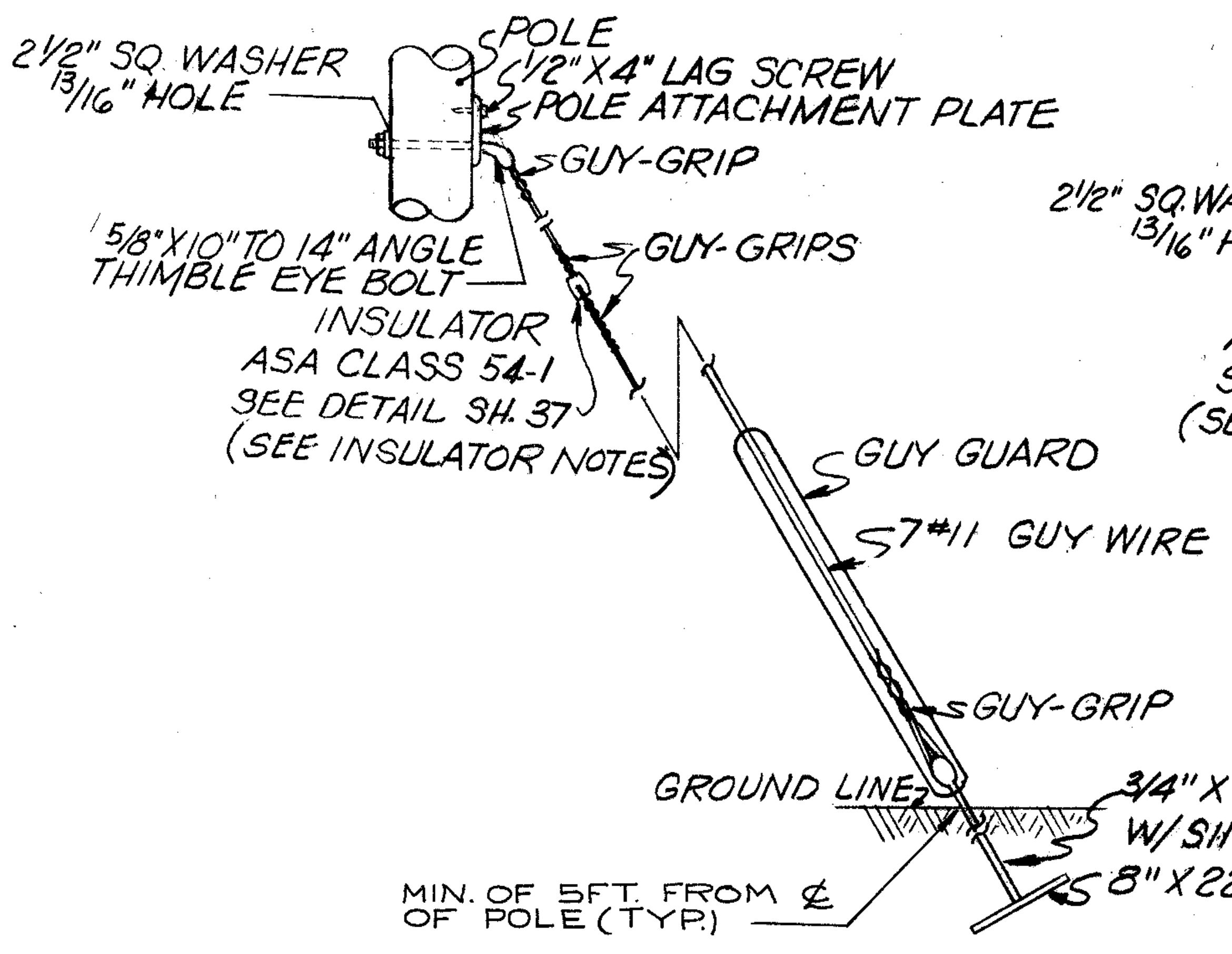
48/54



*RISE DIMENSION IS FROM TOP OF POLE PLATE TO CENTERLINE OF BRACKET.

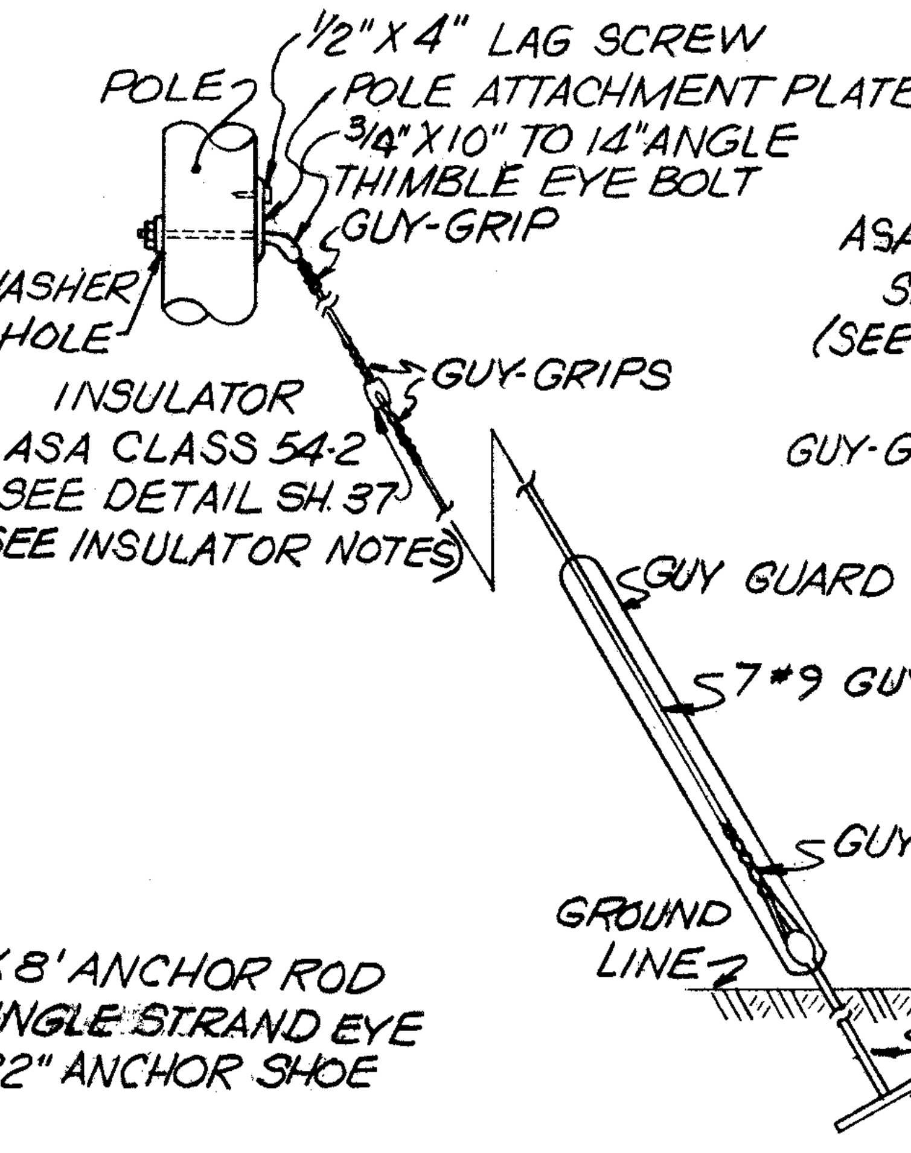
MERCURY LUMINAIRE

(SPECS.:OC-17)



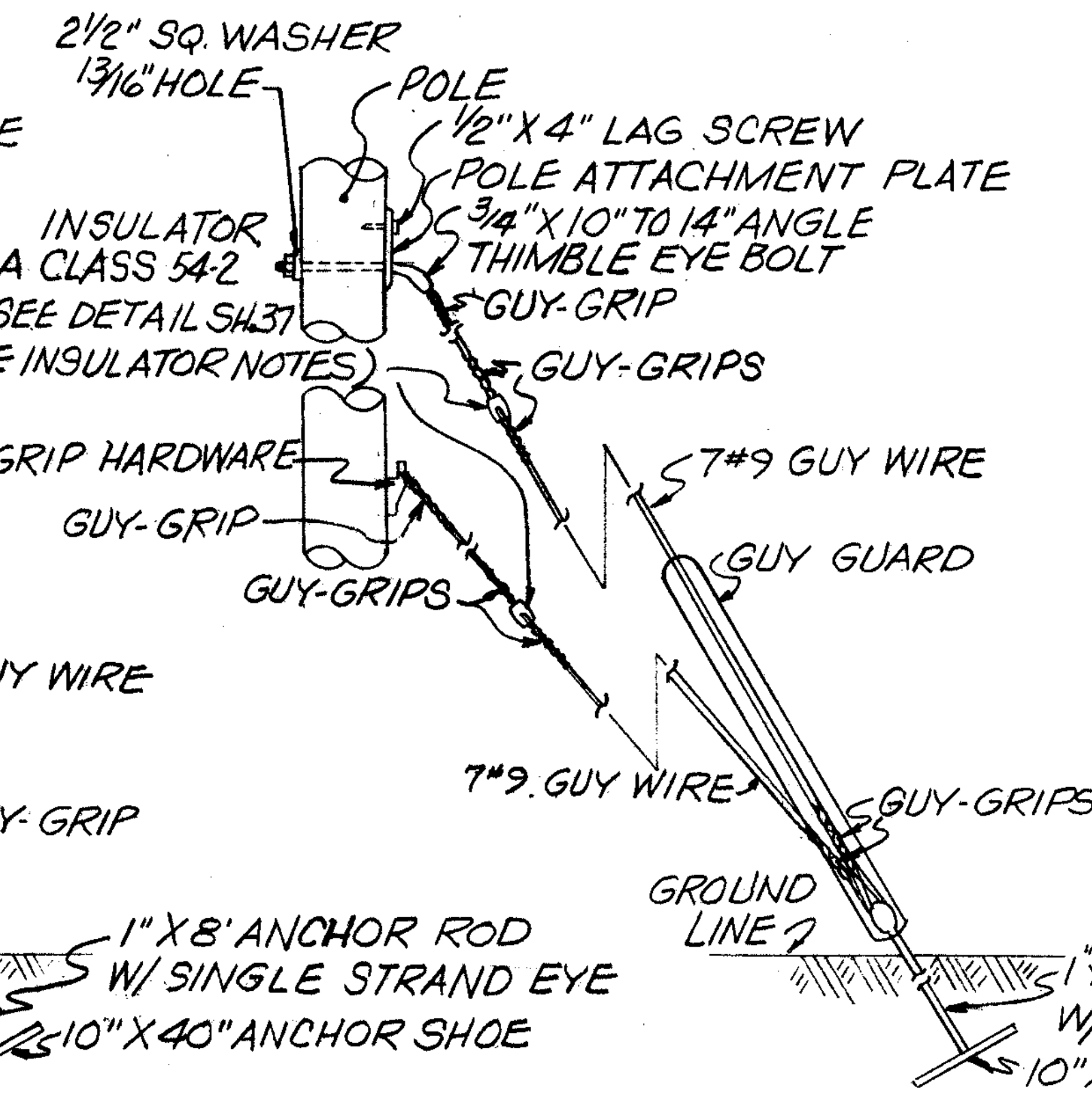
STANDARD ANCHOR GUY W/INSULATOR

(SPECS.: OC-10)



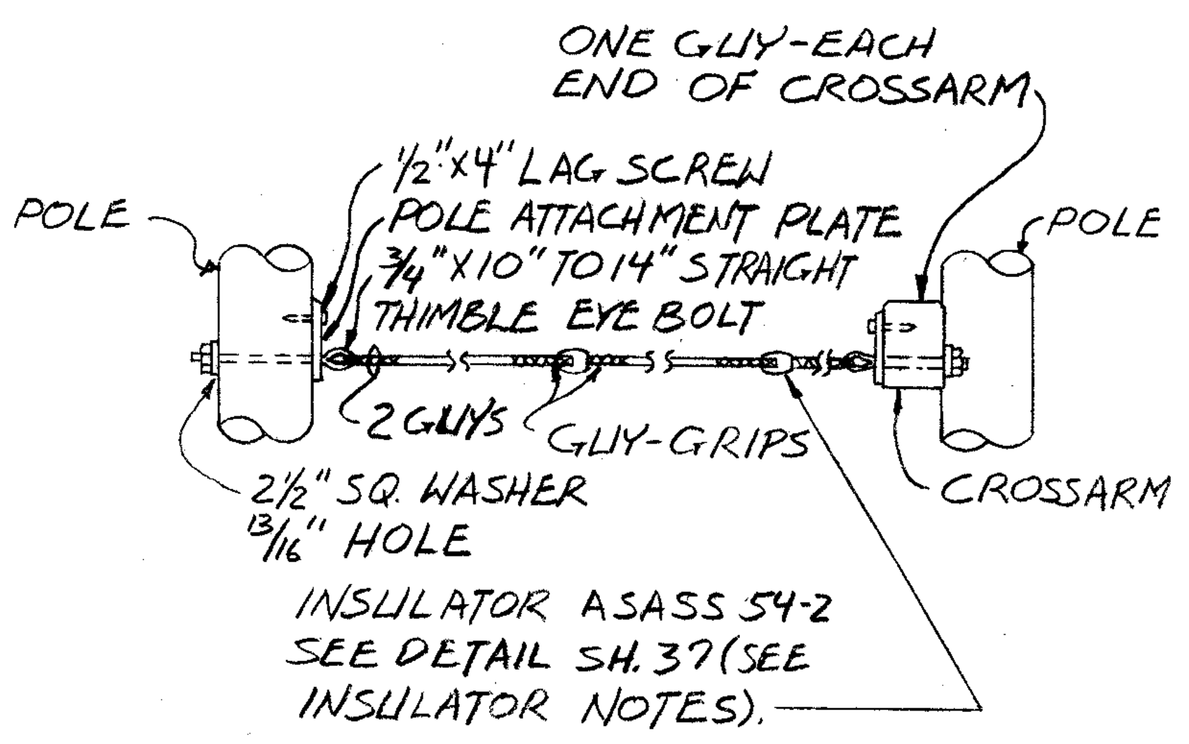
HEAVY DUTY ANCHOR GUY W/INSULATOR

(SPECS.: OC-10)



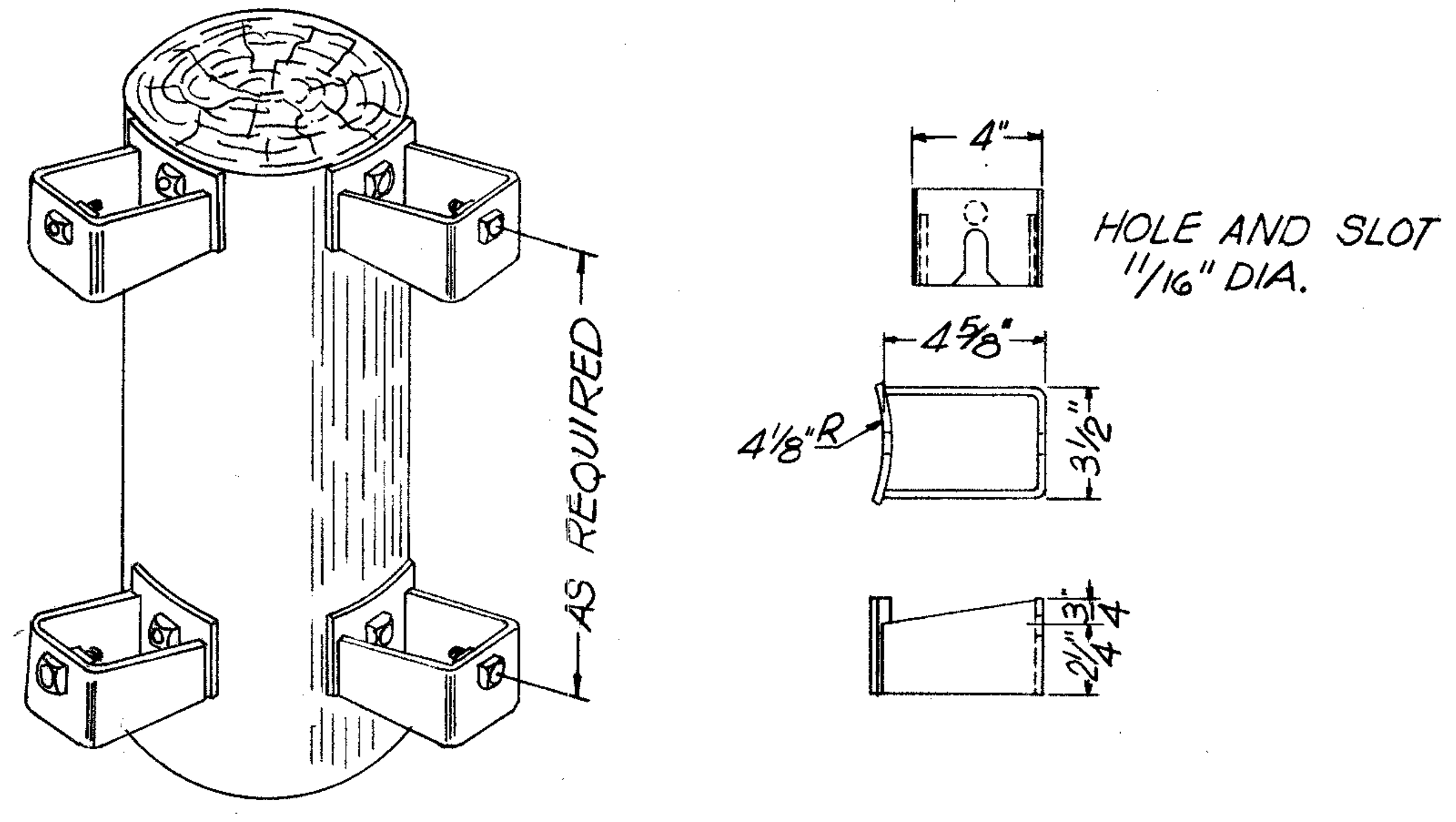
DOUBLE ANCHOR GUY W/INSULATOR

(SPECS.: OC-10)



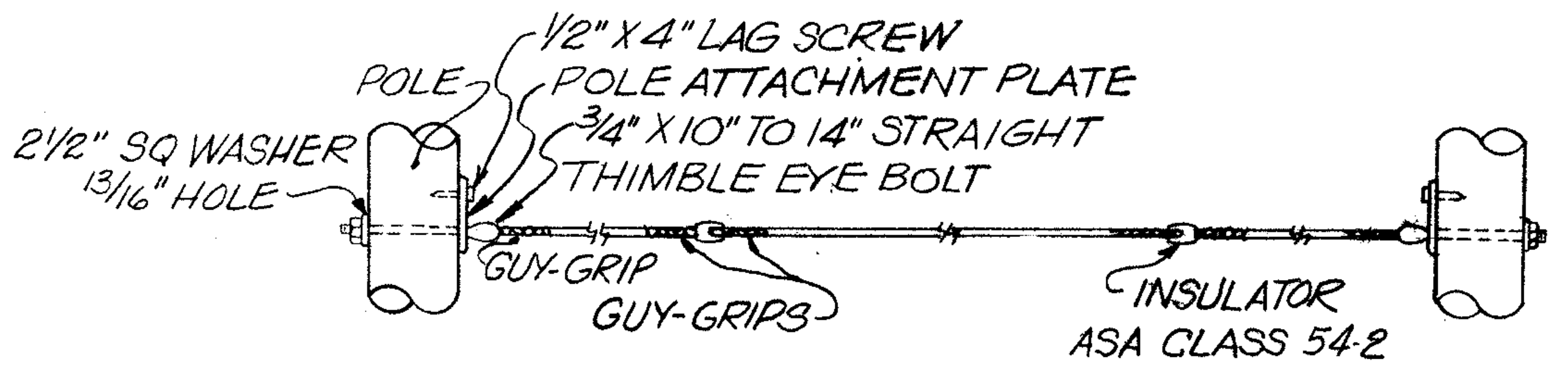
ARM GUY W/INSULATORS

(SPECS.: OC-10)



TRANSFORMER MOUNTING BRACKET

TO BE USED FOR 2 OR 3-1Ø TRANSFORMER BANKS ONLY



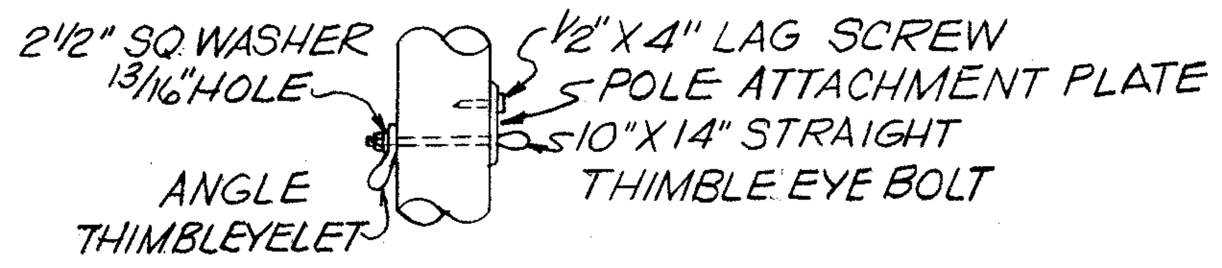
HEAD-GUY W/INSULATORS

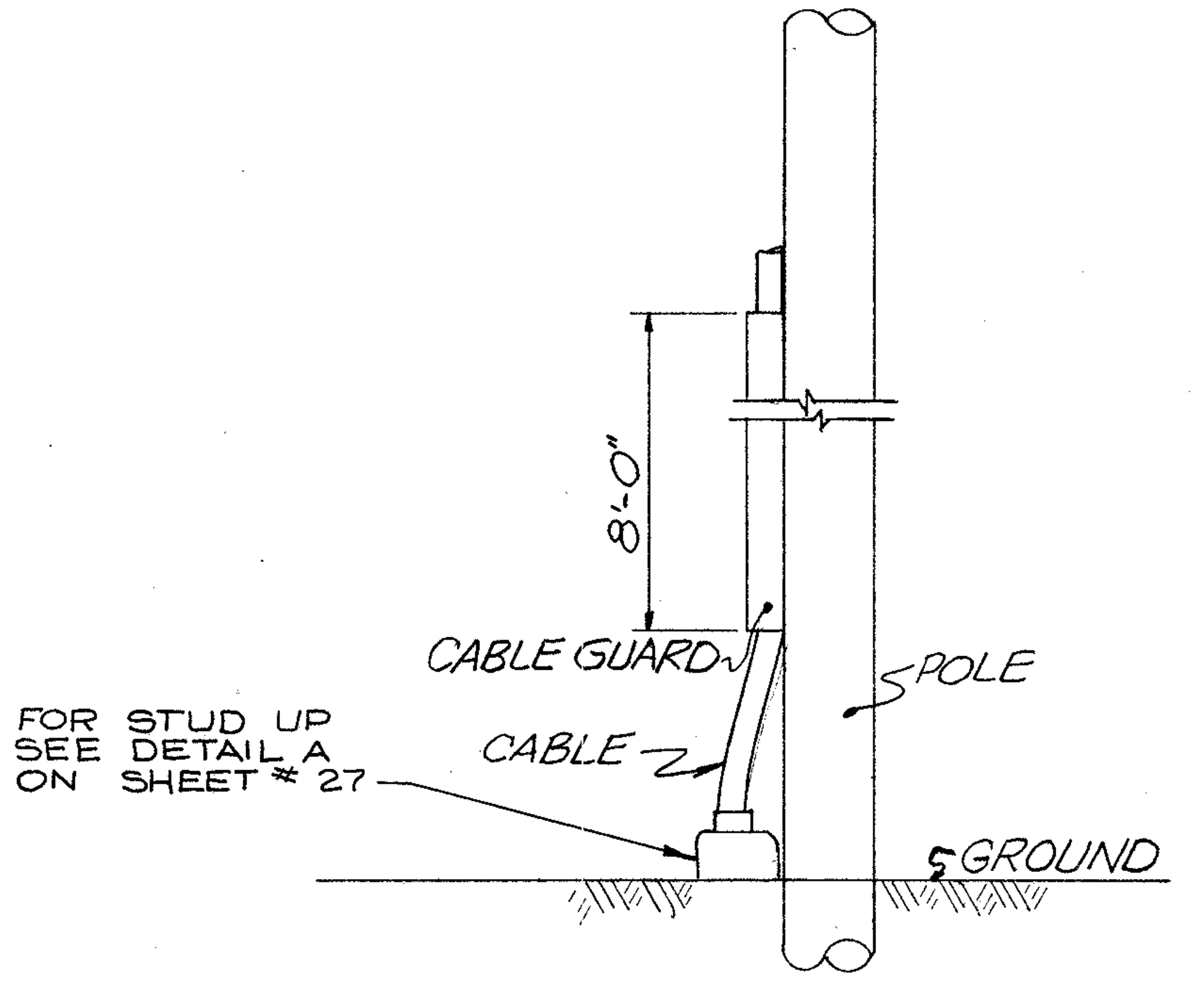
(SPECS.: OC-20)

NOTE

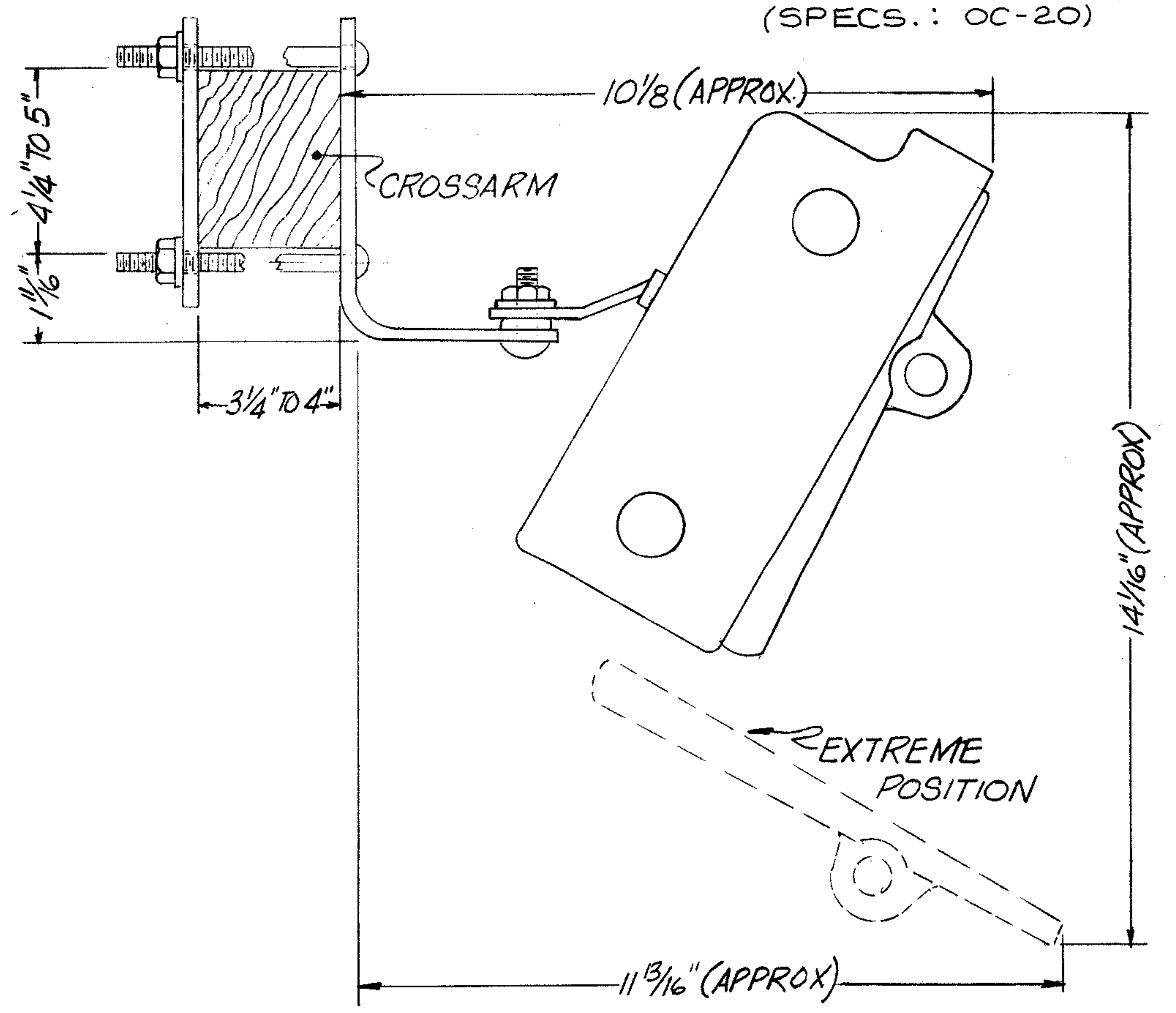
USE ANGLE OR STRAIGHT THIMBLEYELETS IN CONJUNCTION WITH ANGLE OR STRAIGHT THIMBLE EYE BOLT WHEN A SECOND GUY IS USED IN THE OPPOSITE DIRECTION.

EXAMPLE:





CABLE AND CABLE GUARD



DEAD BLADE ENCLOSED DISCONNECT SWITCH

(SPECS.: OC-20)

INSULATOR NOTES

(AS PER NATIONAL ELECT. SAFETY CODE)

1) INSULATORS ARE NOT REQUIRED IN GUYS UNDER THE FOLLOWING CONDITIONS:
   - A) WHERE THE GUY IS ELECTRICALLY CONNECTED TO GROUNDED STEEL STRUCTURES OR TO A GROUND CONNECTION ON WOOD POLES.
   - B) WHERE THE GUYS ARE UNIFORMLY GROUNDED THOUGHOUT ANY SYSTEM OF OVERHEAD LINES.
   - C) WHERE A GUY IS ATTACHED TO A POLE ON PRIVATE RIGHT OF WAY CARRYING NO SUPPLY CIRCUITS WHERE VOLTAGE EXCEEDS 550V OR WHOSE TRANSMITTED POWER EXCEEDS 3200 WATTS.

2.) AN INSULATOR SHALL BE LOCATED IN EACH GUY WHICH IS ATTACHED TO A POLE OR A STRUCTURE CARRYING ANY SUPPLY CONDUCTORS OF MORE THAN 300V TO GROUND AND NOT MORE THAN 15,000V BETWEEN CONDUCTORS, OR IN ANY GUY EXPOSED TO SUCH VOLTAGES. THIS GUY INSULATOR SHALL BE LOCATED AT LEAST 8'-0" ABOVE GROUND.

3) WHERE A GUY ATTACHED TO ANY POLE CARRYING COMMUNICATION OR SUPPLY CONDUCTORS OR BOTH, IS CARRIED OVER OR UNDER ANY OVERHEAD SUPPLY CONDUCTORS OF MORE THAN 300V TO GROUND AND WHERE HAZARD OTHERWISE WOULD EXIST, TWO OR MORE GUY INSULATORS SHALL BE PLACED SO AS TO INCLUDE THE EXPOSED SECTION OF THE GUY BETWEEN THEM AS FAR AS POSSIBLE. NEITHER INSULATOR SHALL BE WITHIN 8'-0" OF THE GROUND.

APPROVED BY

DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF LIGHT & POWER
COMMISSIONER OF UTILITIES ENGINEERING
CHIEF ELECTRICAL ENGINEER
Albert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

OVERHEAD
DETAILS

DRAWN BY
CH'K'D BY J.M.
SCALE: No Scale
DATE
DRAWING NUMBER: 6587-3W

FORM D D A-5

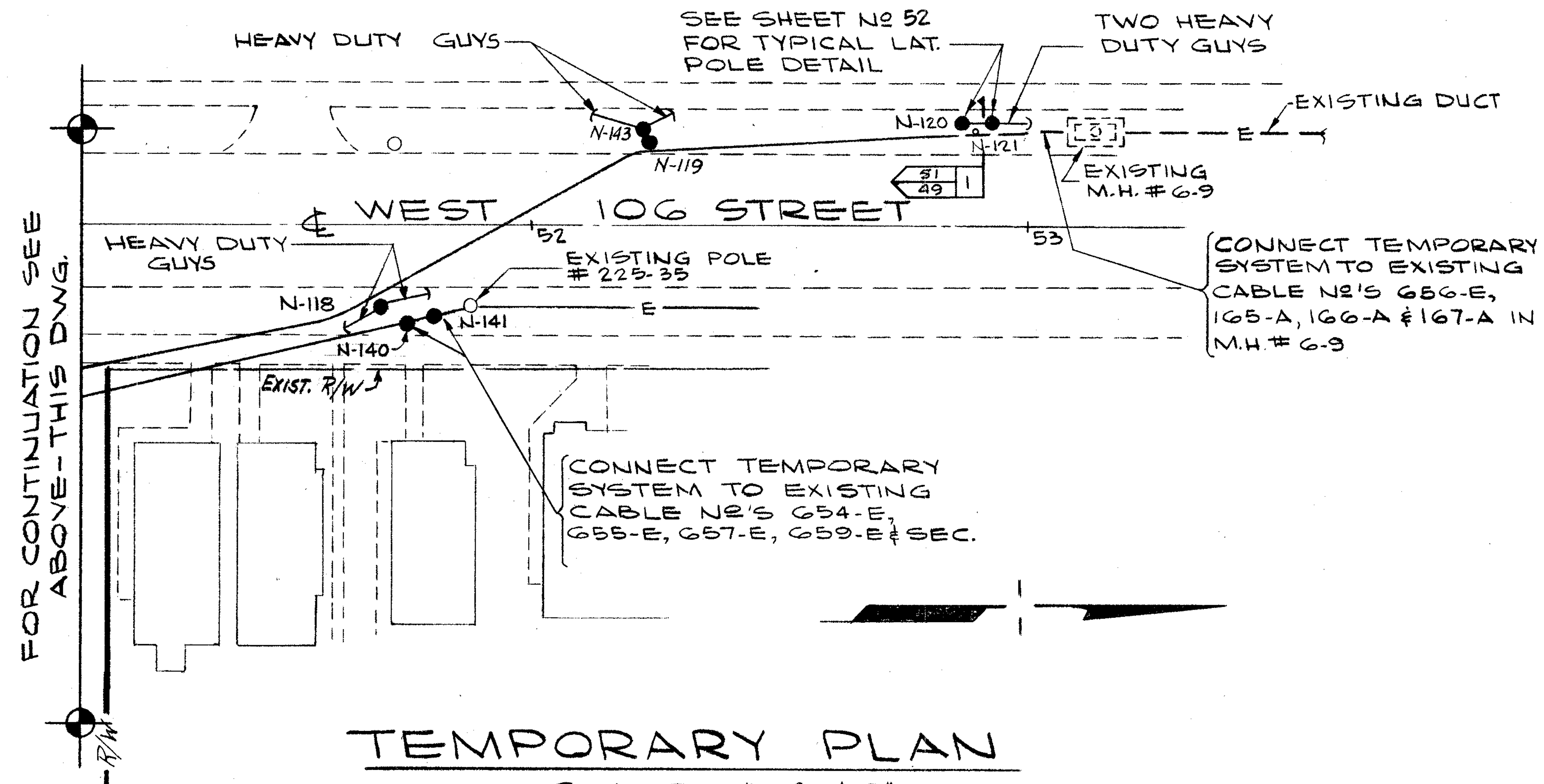
FED. RD.	STATE	PROJECT	
2	OHIO		

405
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

49
54

TEMPORARY PLAN
SCALE 1" = 20'-0"



TEMPORARY PLAN
SCALE 1" = 20'-0"

TEMPORARY POLE LOCATIONS ALONG WEST 106th STREET

POLE Nº	STATION	OFFSET
101	45+32	21.0'LT.
102	45+37	21.0'LT.
103	46+00	16.5'LT.
104	46+59	29.0'RT.
105	46+61.5	26.0'RT.
106	47+24.5	64.0'RT.
107	47+22	67.0'RT.
108	47+83.5	100.0'RT.
109	47+83.5	103.5'RT.
110	48+88	100.0'RT.
111	48+88	103.5'RT.
112	49+88	100.0'RT.
113	49+88	103.5'RT.
114	50+47	76.5'RT.
115	50+49.5	79.0'RT.
116	50+90	33.5'RT.
117	50+90	30.0'RT.
118	51+69.5	16.5'RT.
119	52+23.5	17.5'LT.
120	52+87.5	21.0'LT.
121	52+92.5	21.0'LT.
138	45+86	20.0'RT.
139	45+91	21.0'RT.
140	51+75	20.0'RT.
141	51+80	19.0'RT.
142	46+00	16.5 LT.
143	52+23.5	17.5'LT.

NOTES

1. GUY ASSEMBLIES SEE SHEET Nº. 48
2. FOR POLE SCHEDULE AND MEASUREMENTS SEE SHEET Nº 51 & 37
3. NO STRAIN INSULATORS ARE REQUIRED FOR GUYS.

APPROVED BY

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF LIGHT & POWER

COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER

ENGINEER OF DESIGN

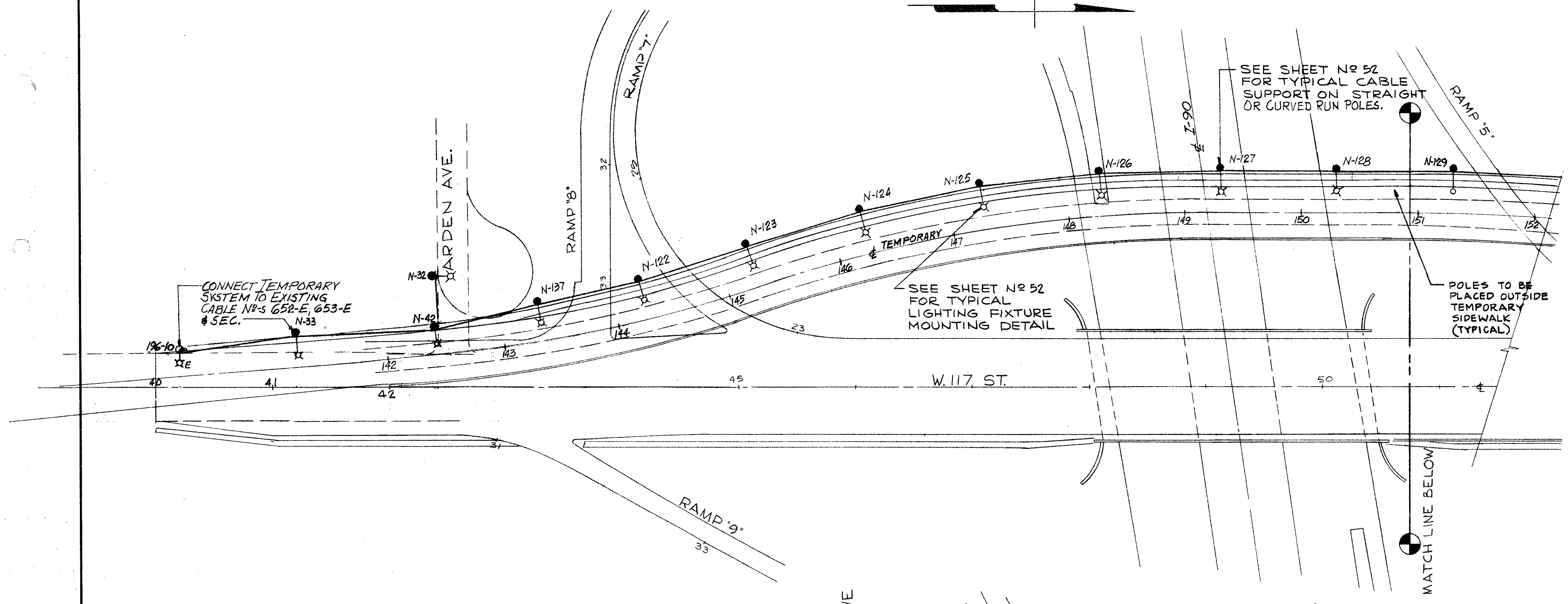
DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

TEMPORARY PLAN - W. 106th ST.

DRAWN BY R. POTOZNIK
CH'K'D BY J.M.
SCALE AS NOTED
DATE
DRAWING NUMBER 6587-4A

FED. RD.	STATE	PROJECT	
2	OHIO		

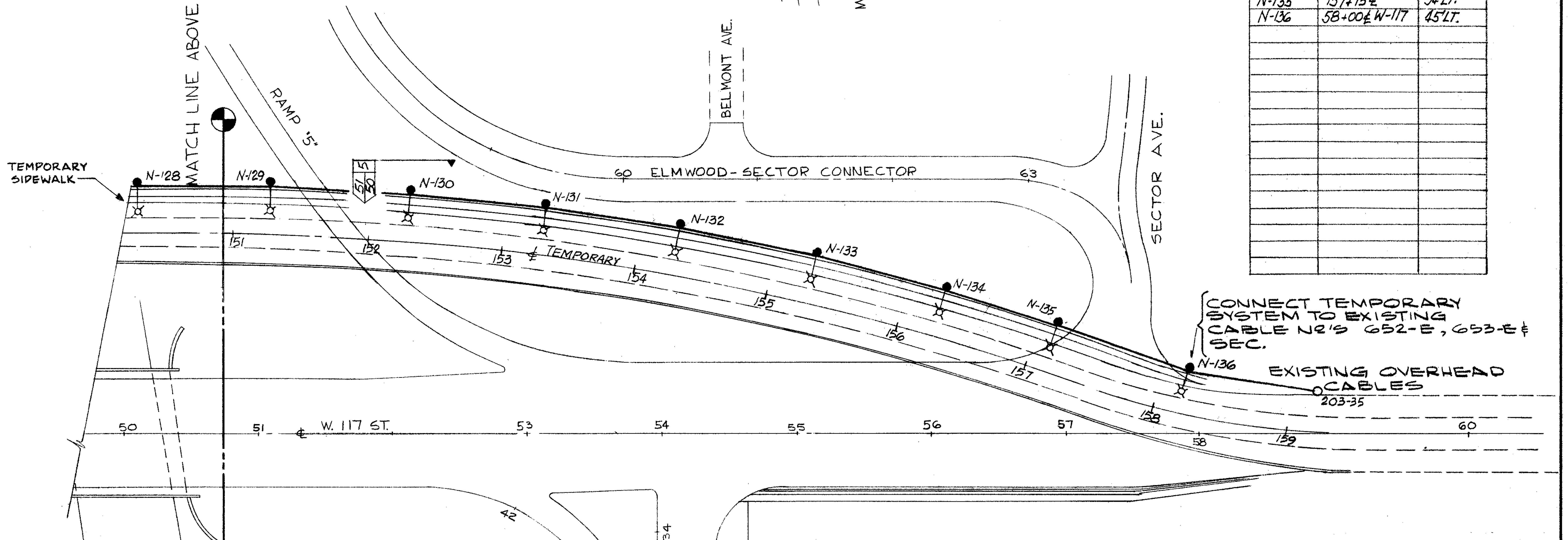
CUYAHOGA COUNTY
CUY - 90 - 10.40



NOTES:

1. GUY ASSEMBLIES SEE SHEET Nº 48
2. FOR POLE SCHEDULE AND MEASUREMENTS SEE SHEET Nº 51
3. NO STRAIN INSULATORS ARE REQUIRED FOR GUYS

TEMPORARY POLE LOCATIONS ALONG WEST 117th STREET		
POLE Nº	STATION	OFFSET
N-33	41+20 ℄ W-117	45' LT.
N-42	42+42 ℄ W-117	53' LT.
N-32	42+38 ℄ W-117	97' LT.
N-137	143+35 ℄ TEMPORARY	34' LT.
N-122	144+25 ℄	34' LT.
N-123	145+25 ℄	34' LT.
N-124	146+25 ℄	34' LT.
N-125	147+30 ℄	34' LT.
N-126	148+30 ℄	34' LT.
N-127	149+30 ℄	34' LT.
N-128	150+30 ℄	34' LT.
N-129	151+30 ℄	34' LT.
N-130	152+30 ℄	34' LT.
N-131	153+30 ℄	34' LT.
N-132	154+30 ℄	34' LT.
N-133	155+30 ℄	34' LT.
N-134	156+30 ℄	34' LT.
N-135	157+15 ℄	34' LT.
N-136	58+00 ℄ W-117	45' LT.



APPROVED BY

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF LIGHT & POWER

COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER

Robert J. Alvord

ENGINEER OF DESIGN

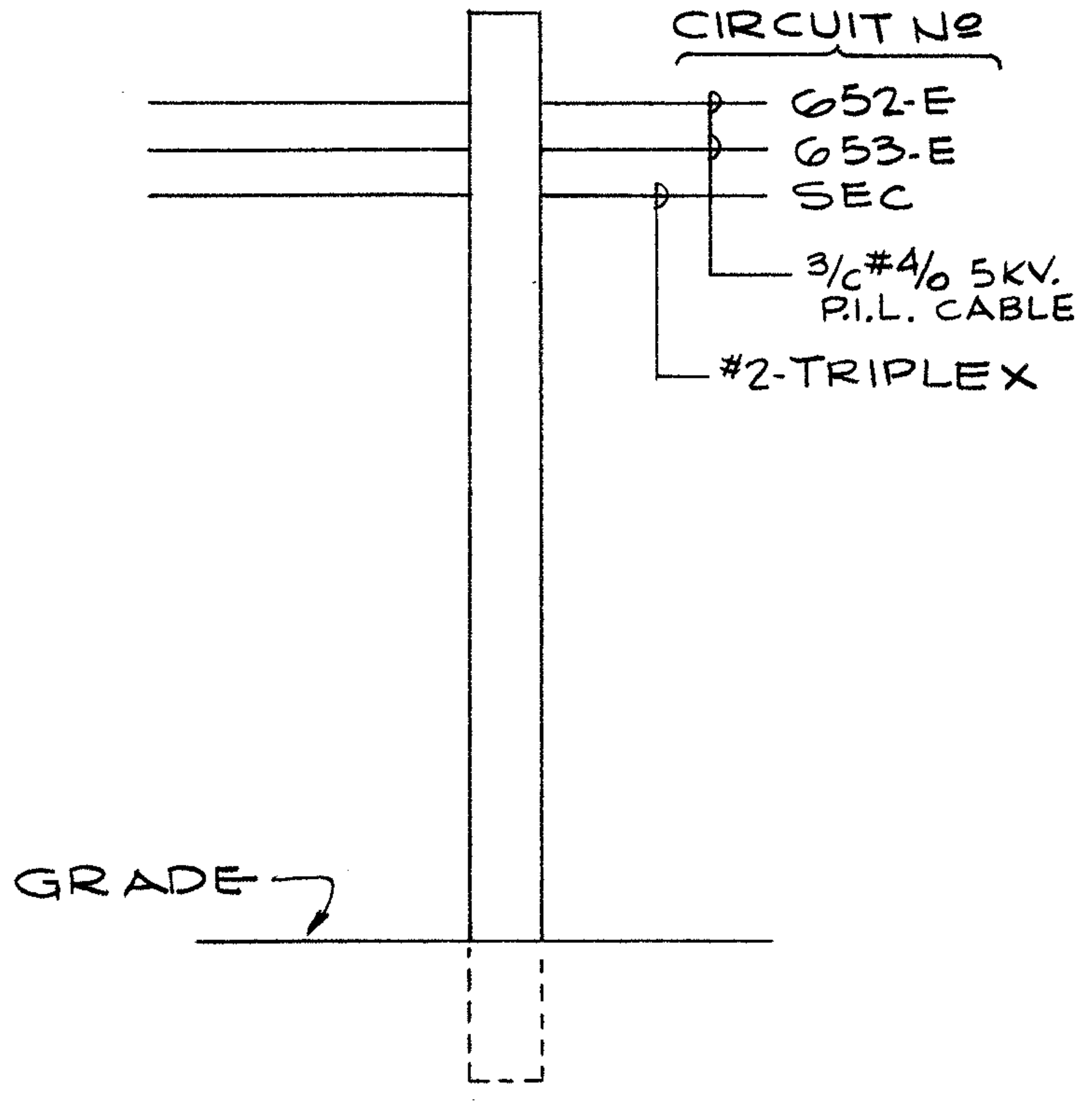
DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

TEMPORARY PLAN - W. 117th ST.
(RUN-AROUND)

DRAWN BY SLV/RJP
CH'K'D BY J.M.
SCALE 1" = 50'-0"
DATE
DRAWING NUMBER **6587-4B**

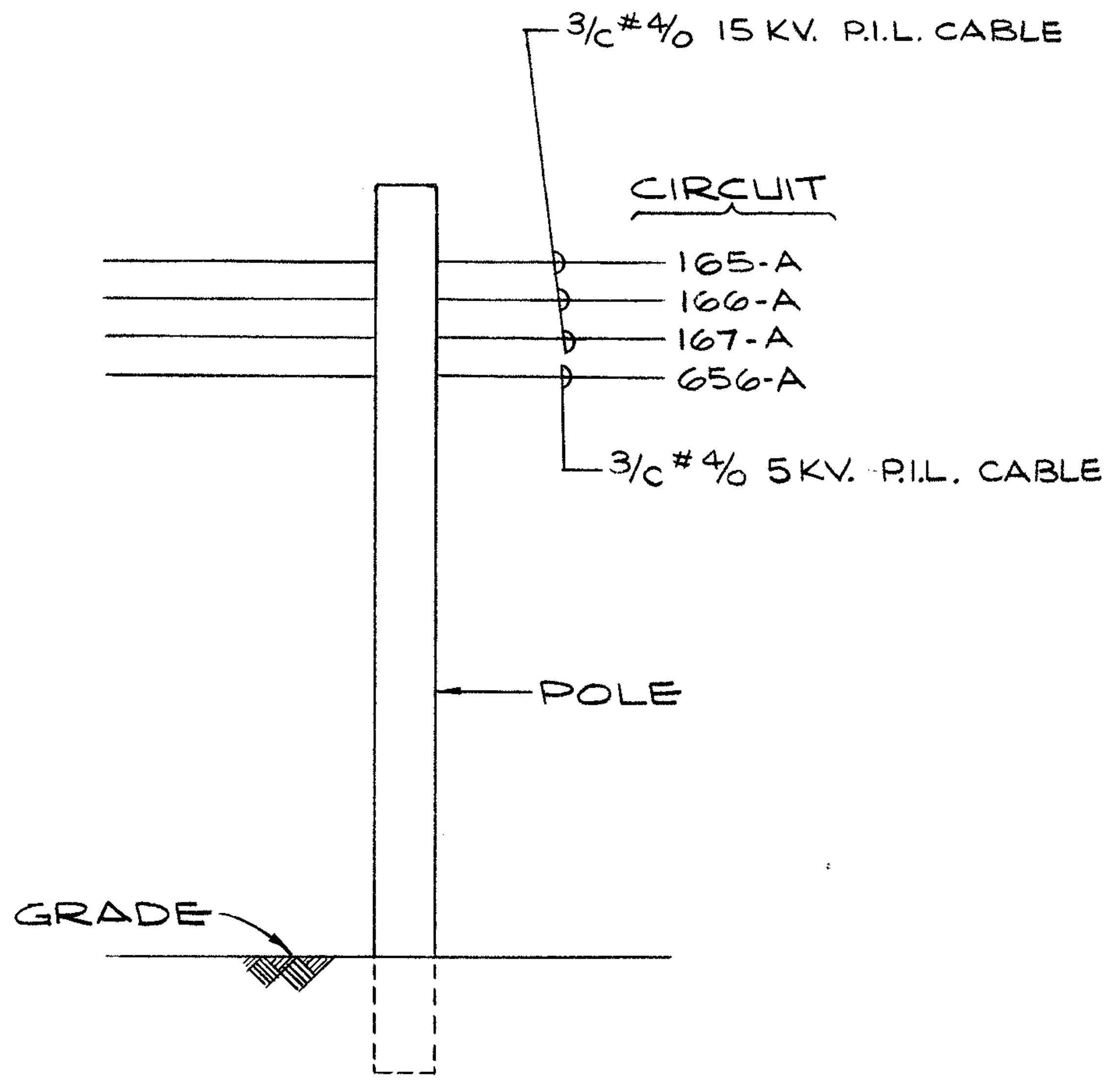
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 10.40



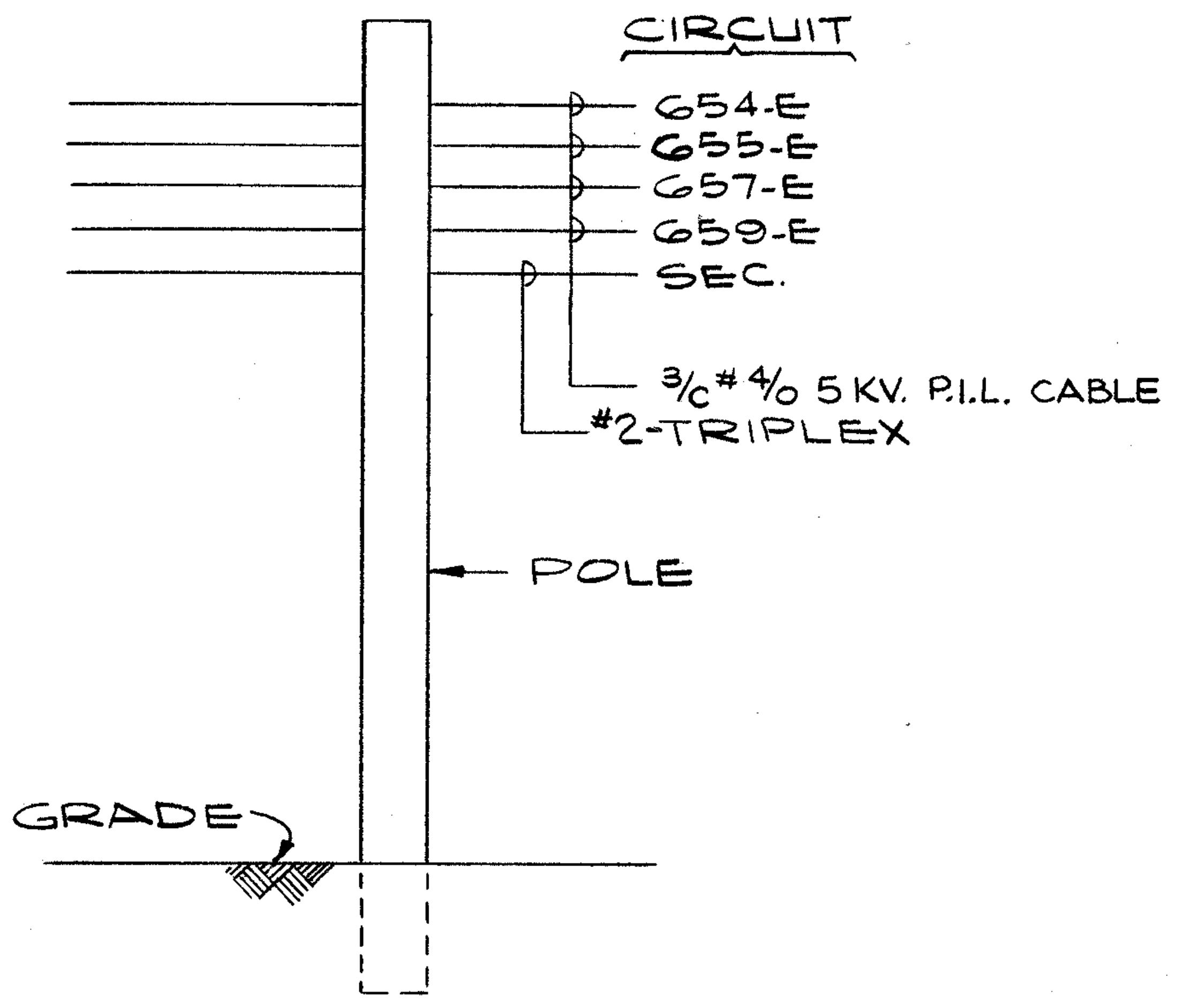
5 51/50

FEEDER CABLE LOCATIONS
(N.T.S.)



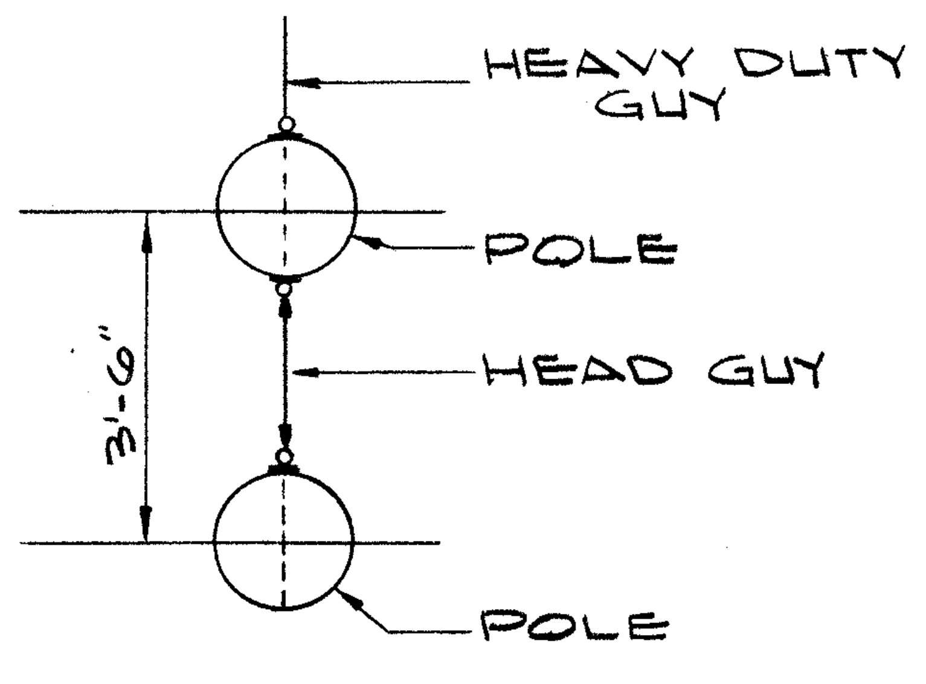
3 51/49

FEEDER CABLE LOCATIONS
(N.T.S.)

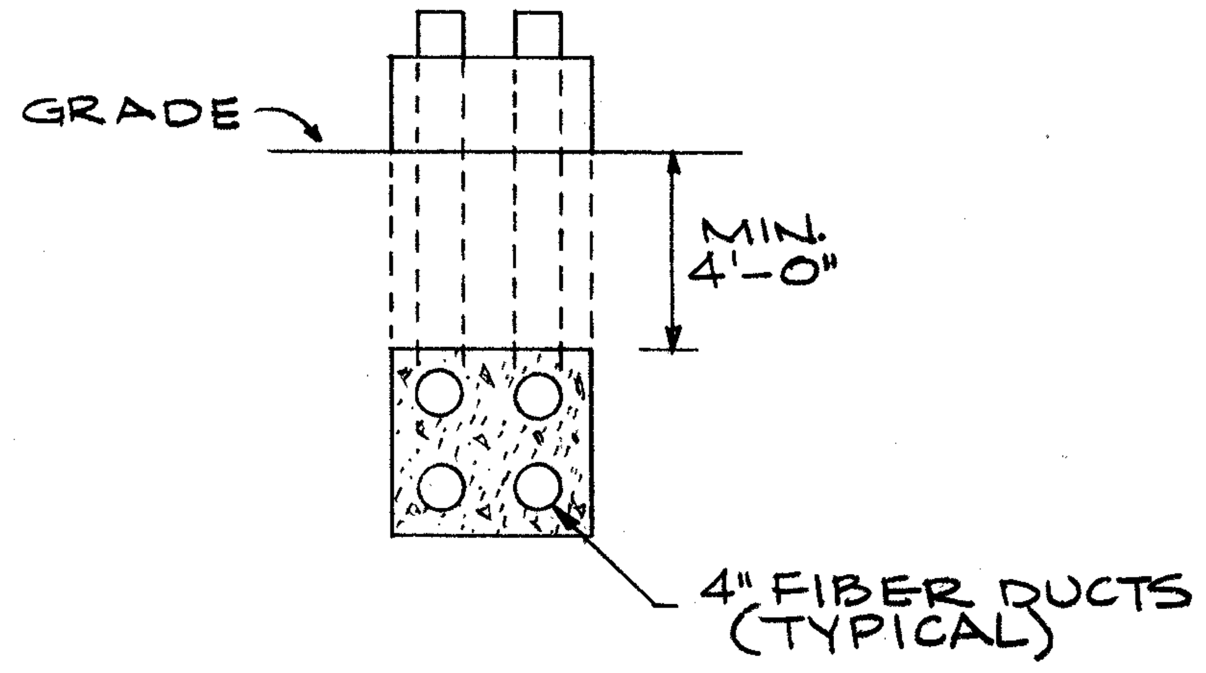


4 51/49

FEEDER CABLE LOCATIONS
(N.T.S.)



DETAIL "A"
(N.T.S.)
SEE SHEET No 49



1 51/49

CONCRETE ENCASED DUCT
(N.T.S.)

DESCRIPTION	UNIT	TOTAL	N-101& N-102	N-103	N-104	N-105	N-106	N-107	N-108	N-109	N-110	N-111	N-112	N-113	N-114	N-115	N-116	N-117	N-118	N-119	N-120& N-121
POLE 40'-0" LENGTH - CLASS I	EA	43	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
STANDARD 6 PIN CROSSARM	EA	10	5																		5
STANDARD 8 PIN CROSSARM	EA	6																			
HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS	EA	10																			
HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 6 DEAD ENDS	EA	6																			
FASTENING OF 3/4" RODS & 2 SQ. WASHERS @ EVERY 5'-0" ALONG POLE (6 SET FOR Ea	SET	2																			
HEAD GUY	EA	9	1		1		1		1		1		1		1		1				1
HEAVY DUTY ANCHOR GUY	EA	8		2						1				1	1	1	1	1			
DOUBLE HEAVY DUTY ANCHOR GUY	EA	6	1			2													1	1	1
1 PT. SECONDARY BRACKET	EA	16																			
MERCURY LUMINAIRE WITH BRACKET ARM 12 FT LONG - 175W	EA	16																			
CROSSARM BRACE - ANGLE IRON	EA	22																			
CABLE SUPPORT HARDWARE FOR STRAIGHT RUN POLE	EA	46					4	4	4	4	4	4	4	4							
CABLE SUPPORT HARDWARE FOR CURVED RUN POLE	EA	50		4	4	4									4	4	4	4	4	4	
3 KV LIGHTNING ARRESTER	EA.	36																			
90° POTHEAD	EA	12																			
GROUNDING	EA	8	1																		1
4" RIGID ALUMINUM CONDUIT WITH BUSHINGS, COUPLINGS & STRAPS	FT	64	32																		32

DESCRIPTION	N-122	N-123	N-124	N-125	N-126	N-127	N-128	N-129	N-130	N-131	N-132	N-133	N-134	N-135	N-136	N-137	N-138	N-139	N-140	N-141	N-142	N-143
POLE 40'-0" LENGTH - CLASS I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
STANDARD 6 PIN CROSSARM																						
STANDARD 8 PIN CROSSARM															1	1	1	1	1	1		
HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS															1	1	3	1	1	3		
HEAVY DUTY 8 PIN CROSSARM W/6 PIN INSULATORS & 6 DEAD ENDS															1	1	1	1	1	1		
FASTENING OF 3/4" RODS & 2 SQ. WASHERS @ EVERY 5'-0" ALONG POLE (6 SET FOR Ea																					1	1
HEAD GUY																						
HEAVY DUTY ANCHOR GUY																						
DOUBLE HEAVY DUTY ANCHOR GUY																						
1 PT. SECONDARY BRACKET	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
MERCURY LUMINAIRE WITH BRACKET ARM 12 FT LONG - 175W	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
CROSSARM BRACE - ANGLE IRON															3	3	5	3	3	5		
CABLE SUPPORT HARDWARE FOR STRAIGHT RUN POLE						2	2	2	2	2	2	2										
CABLE SUPPORT HARDWARE FOR CURVED RUN POLE	2	2	2	2	2								2	2								
3 KV LIGHTNING ARRESTER															6	6	6	6	6	6		
90° POTHEAD															2	2	2	2	2	2		
GROUNDING															1	1	1	1	1	1		
4" RIGID ALUMINUM CONDUIT WITH BUSHINGS, COUPLINGS & STRAPS																						

POLE No.

DESCRIPTION	UNIT	TOTAL	SHEET NO.	
			49	50
3/C #4/0 P.I.L. CABLE (5KV)	LIN. FT.	7400	4100	3300
3/C #4/0 P.I.L. CABLE (15KV)	LIN. FT.	3000	3000	—
NO. 2 WIRE TRIPLEX	LIN. FT.	2500	800	1700
12.5 M MESSENGER WIRE	LIN. FT.	10,500	7000	3500
NON-REINFORCED, CONCRETE ENCASED, 4-4" FIBRE DUCTS	LIN. FT.	40	40	—

CALCULATED BY R.P. DATE 7-70
CHECKED BY RWZ DATE 5-72

APPROVED BY

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF LIGHT & POWER

COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER
Robert J. Albach
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

TEMPORARY DETAILS

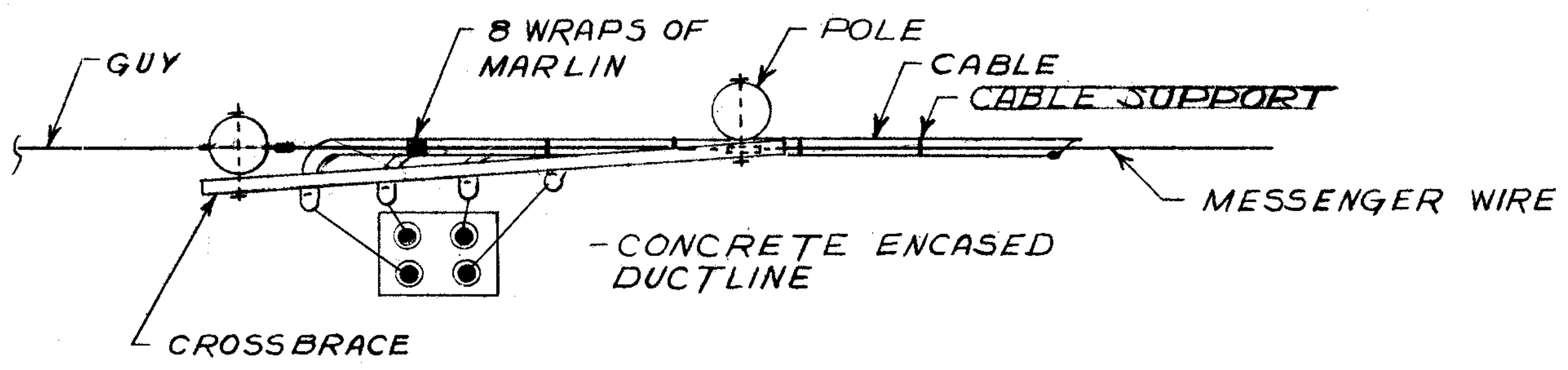
DRAWN BY R. POTOCNIK
CH'K'D BY RWZ
SCALE AS NOTED
DATE
DRAWING NUMBER **6587-4C**

FED. RD.	STATE	PROJECT	
2	OHIO		

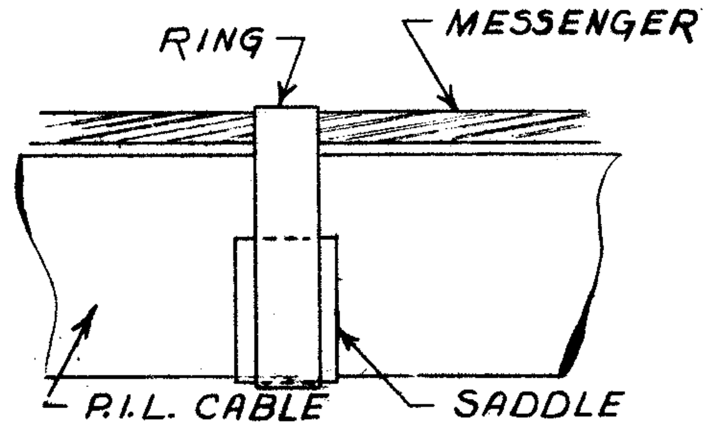
408
713

52
54

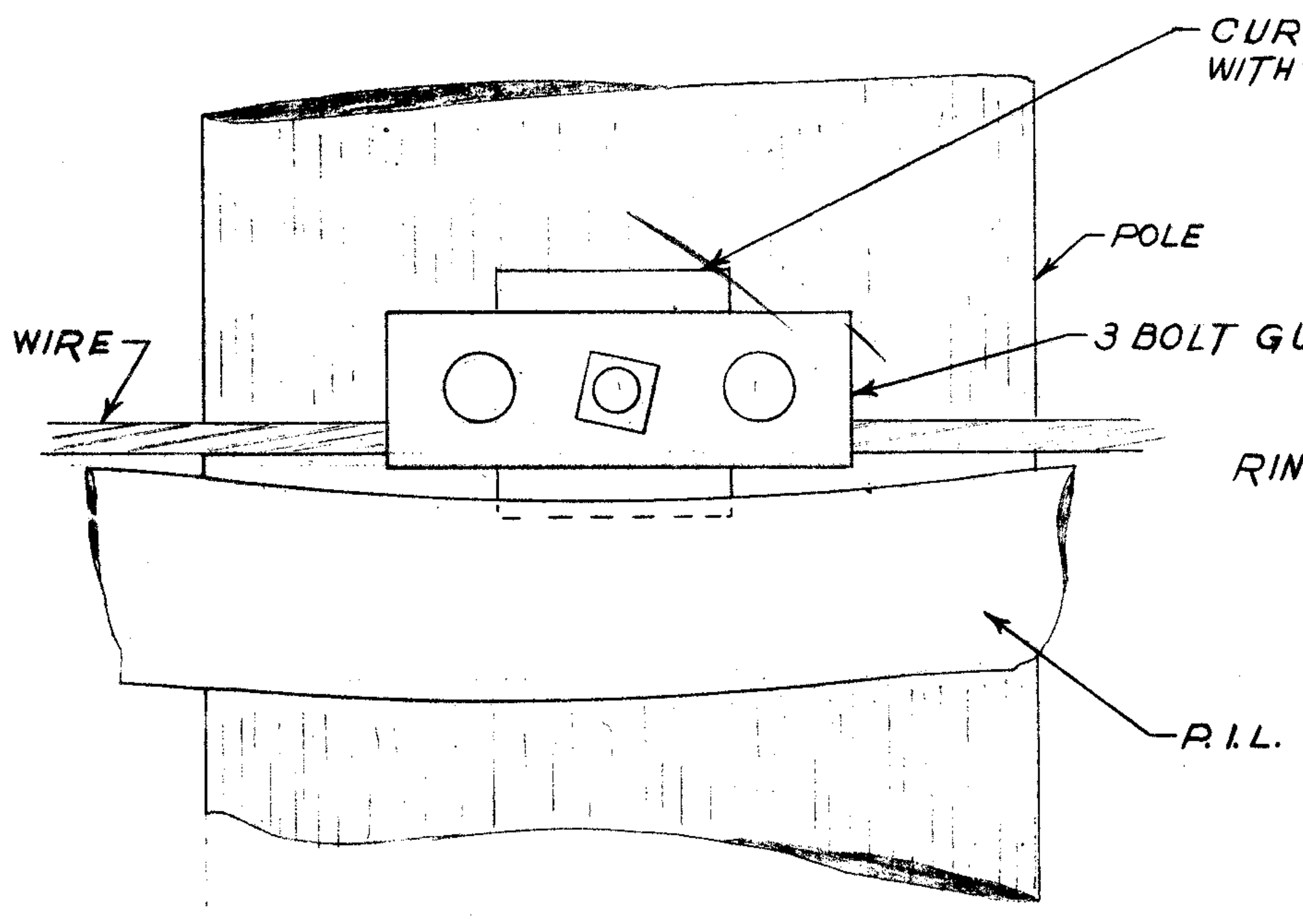
CUYAHOGA COUNTY
CUY - 90 - 10.40



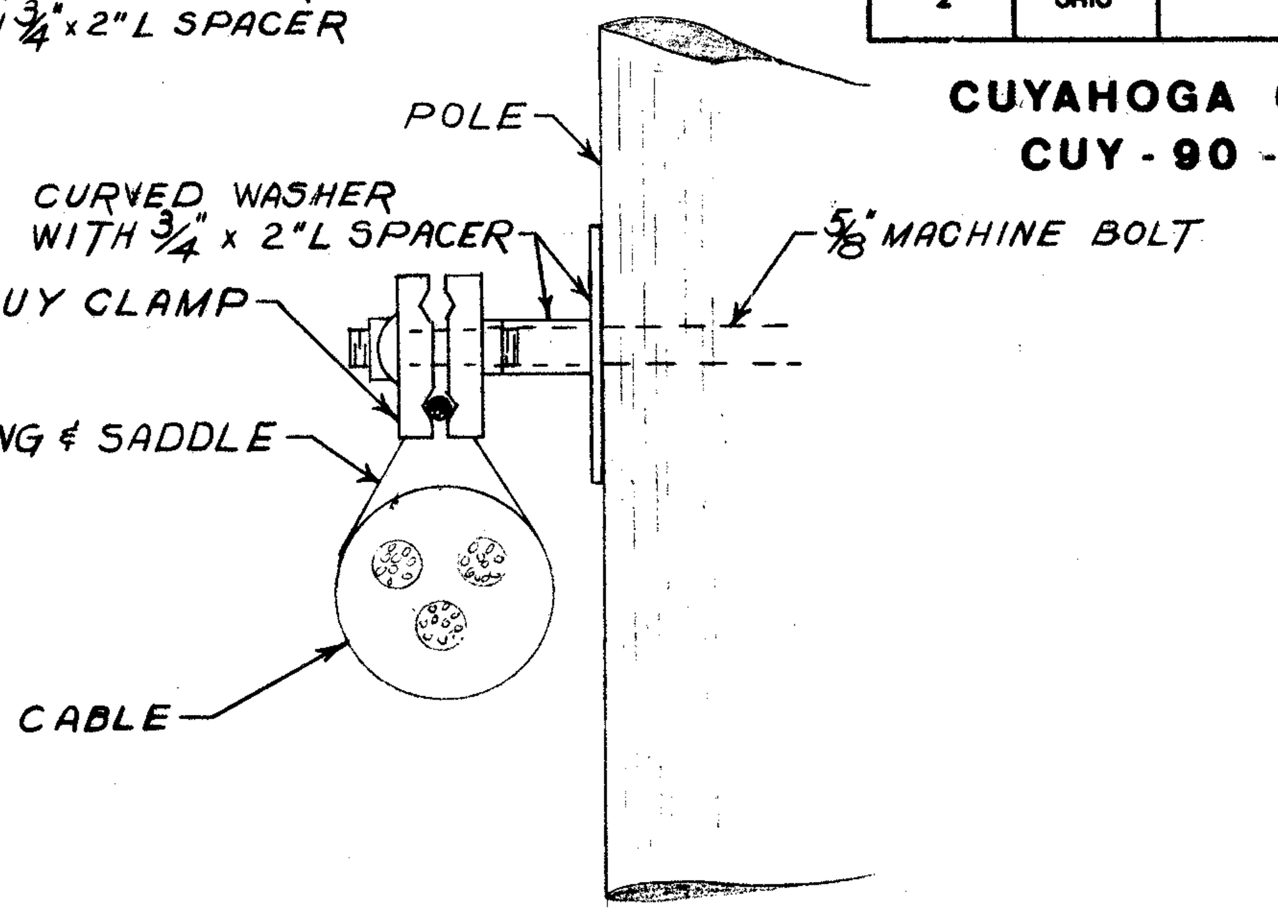
TYPICAL LAT. POLE DETAIL
TOP VIEW
N.T.S.



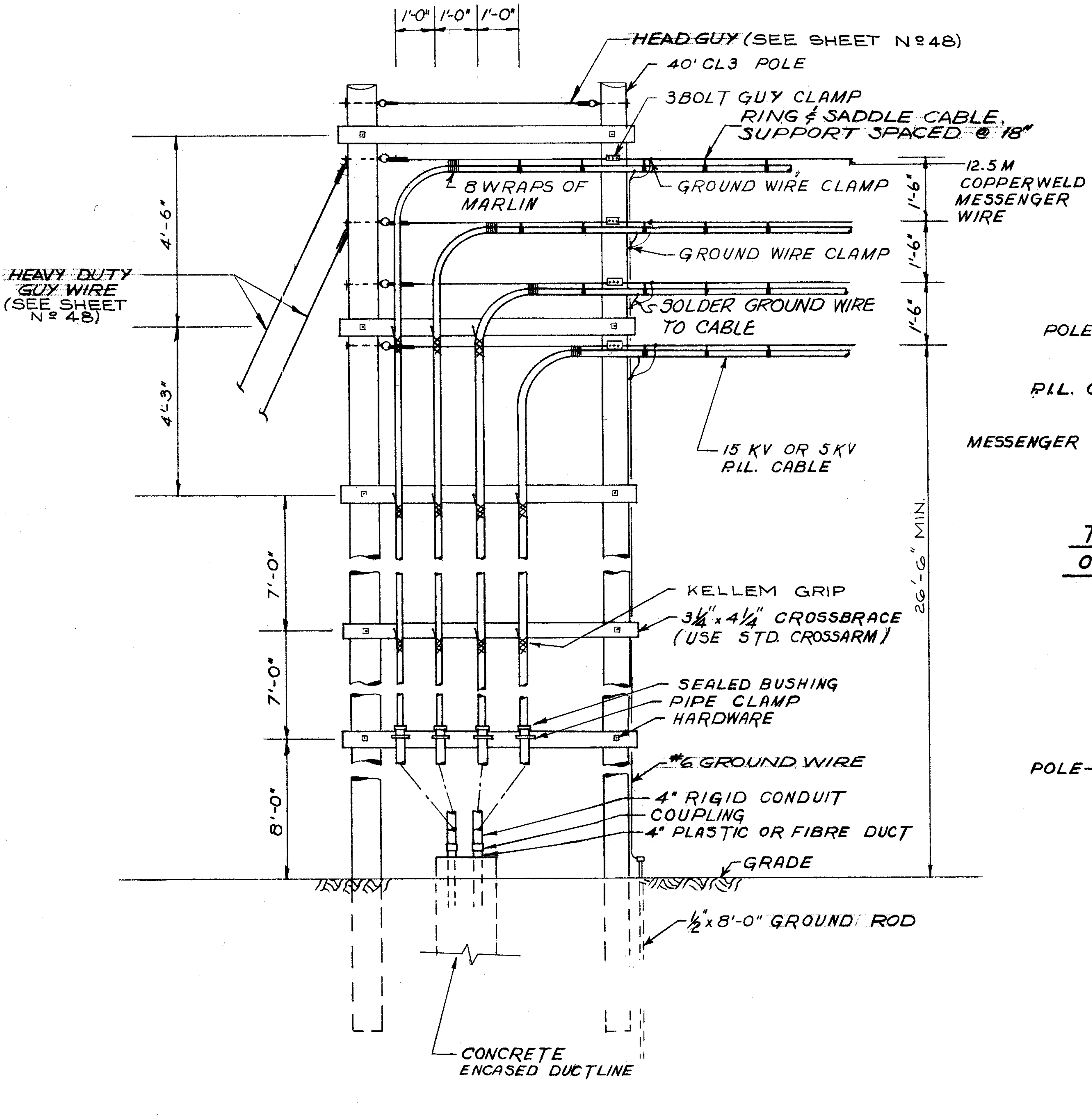
TYPICAL CABLE SUPPORT DETAIL
SIDE ELEVATION
N.T.S.



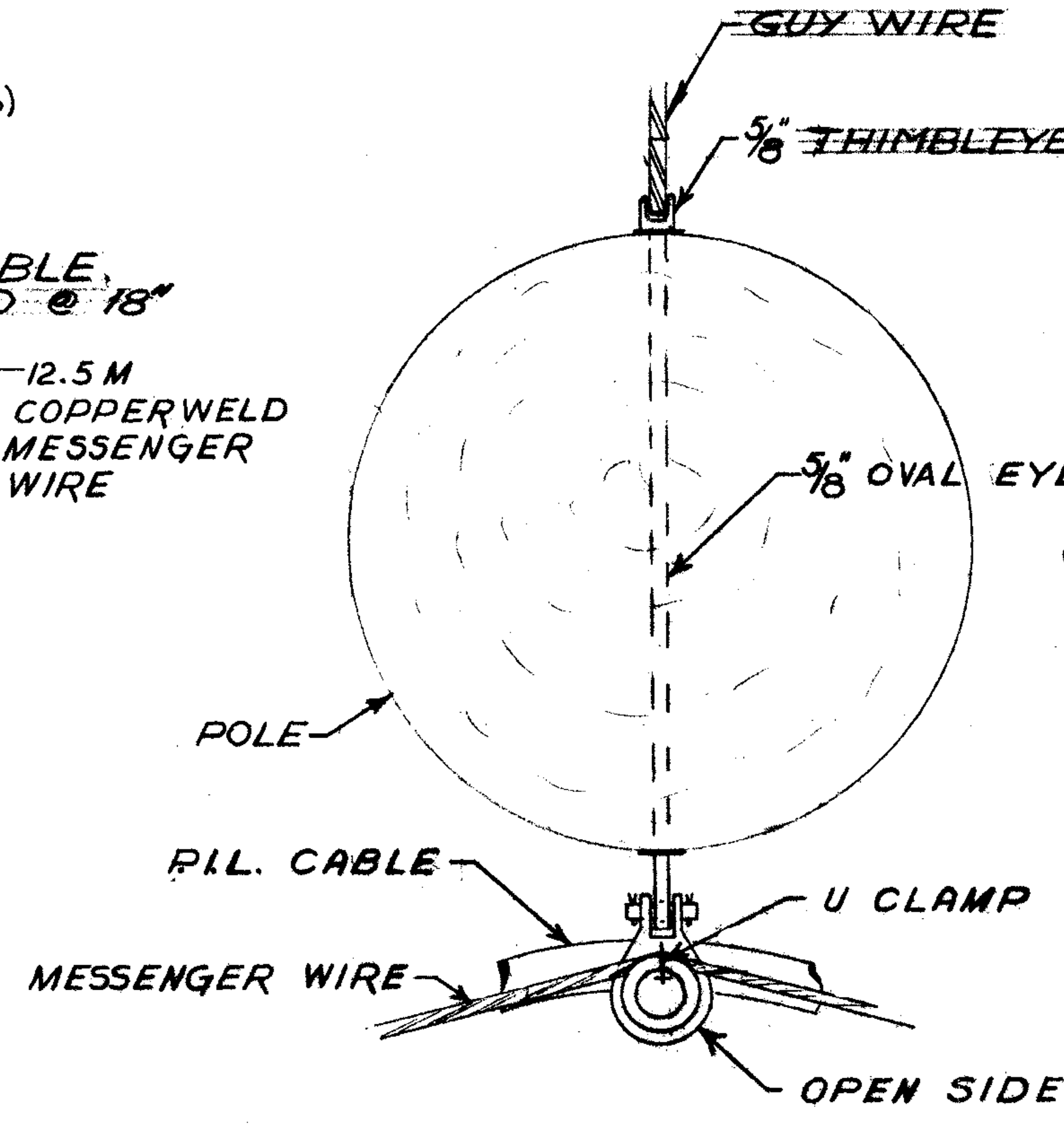
TYPICAL CABLE SUPPORT
ON STRAIGHT RUN POLE
FRONT ELEVATION
N.T.S.



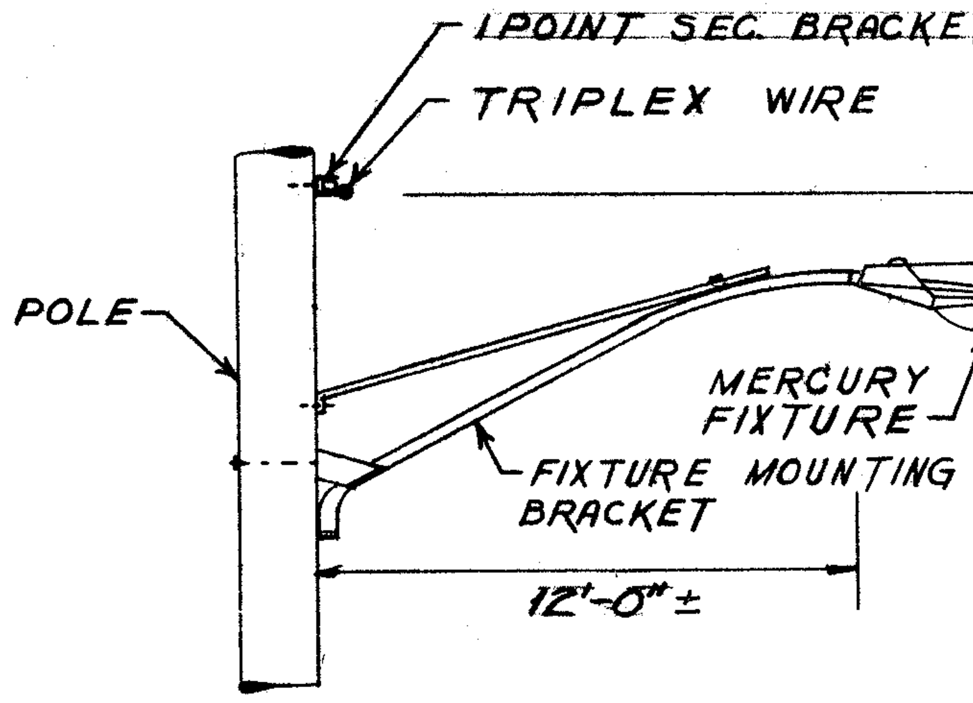
TYPICAL CABLE SUPPORT
ON STRAIGHT RUN POLE
SIDE ELEVATION
N.T.S.



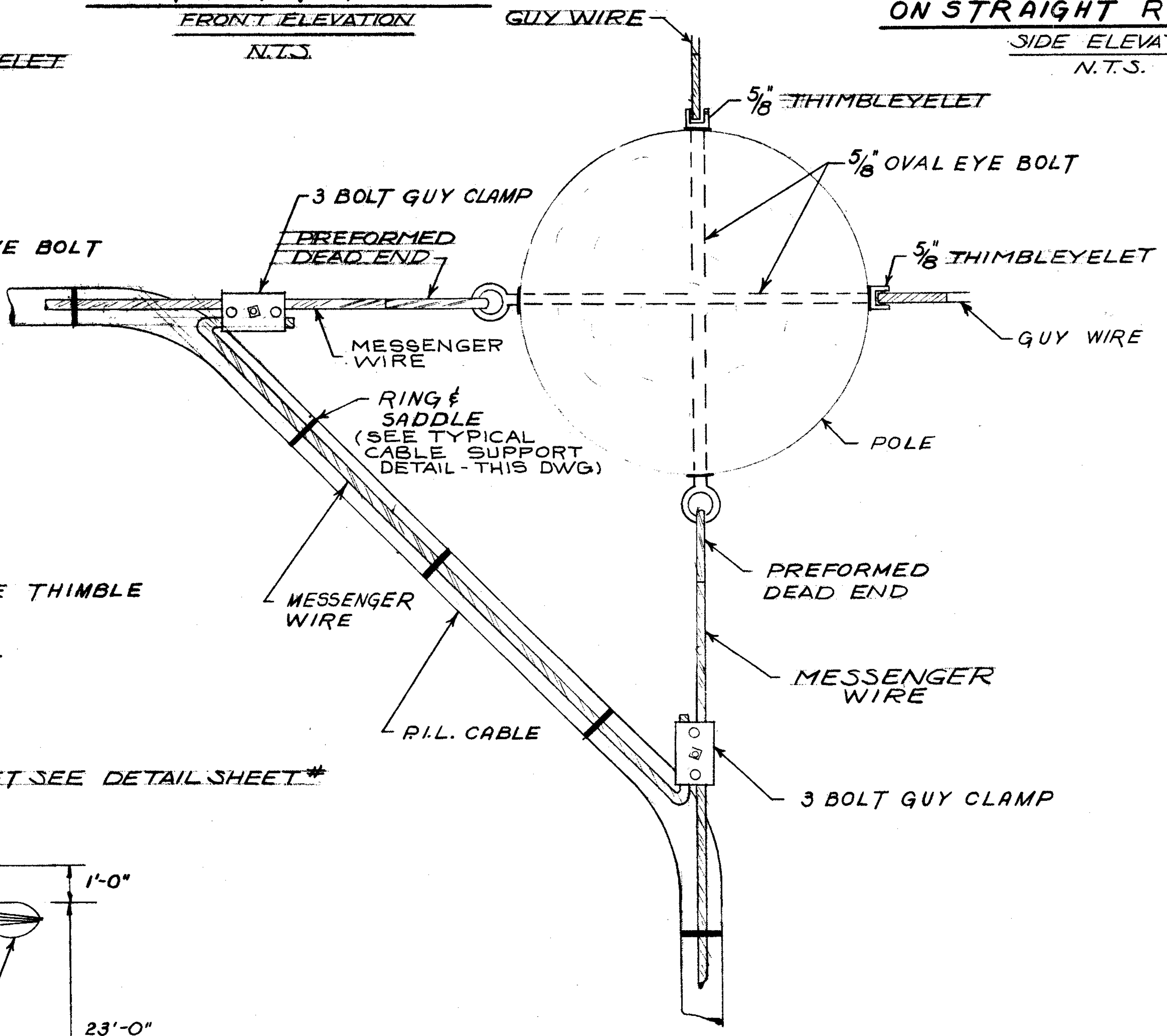
TYPICAL LAT. POLE DETAIL
FRONT ELEVATION
N.T.S.



TYPICAL CABLE SUPPORT
ON CURVED RUN POLE
TOP VIEW
N.T.S.



TYPICAL LIGHTING FIXTURE
MOUNTING DETAIL
N.T.S.
(SPECS.: TC-05)



TYPICAL CABLE SUPPORT
ON CORNER POLE
TOP VIEW
N.T.S.

MESSENGER STRESS TABLE

TEMP.	SAG INCH.	TENSION LBS
0°F	3/4	2760
30°F	3/4	2430
60°F	1	2100
90°F	1	1770
120°F	1 1/4	1470

NOTE:
1.) NO STRAIN INSULATORS ARE REQUIRED FOR GUY WIRES ON TEMPORARY RUN-AROUNDS
2.) GUY ASSEMBLIES SEE SHEET # 48
3.) GROUND ALL CABLES, MESSENGER WIRES, ANCHOR GUYS TO GROUND WIRE ON LATERAL POLE.

APPROVED

DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF LIGHT & POWER
COMMISSIONER OF UTILITIES ENGINEERING
CHIEF ELECTRICAL ENGINEER
Robert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

TEMPORARY DETAILS

DRAWN BY	SCALE	DRAWING NUMBER
	AS NOTED	6587-4D
CHK'D BY J.M.	DATE	

FORM D D A-9

FED. RD.	STATE	PROJECT	
2	OHIO		

409/713

53/54

CUYAHOGA COUNTY
CUY 90-10.40

APPROVED BY

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF LIGHT & POWER

COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER

ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

FEEDER PLAN (NEW)
IN PATH OF INTERSTATE-90

DRAWN BY E.F.
CH'K'D BY J.M.

SCALE NONE
DATE 1-20-72

DRAWING NUMBER
6587-5A

FED. RD.	STATE	PROJECT	
2	OHIO		

410/713

CUYAHOGA COUNTY
CUY 90-10.40

54/54

APPROVED BY

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF LIGHT & POWER

COMMISSIONER OF UTILITIES ENGINEERING

CHIEF ELECTRICAL ENGINEER
Robert J. Albrecht
ENGINEER OF DESIGN

DIVISION OF LIGHT & POWER
CITY OF CLEVELAND

FEEDER PLAN (EXISTING)
IN PATH OF INTERSTATE-90

DRAWN BY E.F.
CH'K'D BY J.M.

SCALE NONE
DATE 1-24-72

DRAWING NUMBER **6587-5B**

81-d

FED. RD.	STATE	PROJECT	
2	OHIO		

411
713

CUYAHOGA COUNTY
CUY-90-10.40

REFERENCE

REFERENCE SHALL BE MADE TO THE FOLLOWING:		BRIDGE NUMBERS						
		1057	1076	1089	1105	1127	1146	1152
STANDARD DRAWING BR-1-67, SHEET 1	REVISED 10-15-71					*	*	*
STANDARD DRAWING RB-1-55	REVISED 2-2-59	*	*	*	*			
STANDARD DRAWINGS SD-1-69, SHEETS 1 THRU 4	DATED 6-12-69	*	*	*	*	*	*	*
STANDARD DRAWING AS-1-72, SHEETS 1 AND 2	DATED 6-30-72	*		*	*	*	*	*
SUPPLEMENTAL SPECIFICATION 808	DATED 1-1-71	*	*	*	*	*	*	*
SUPPLEMENTAL SPECIFICATION 836	DATED 3-12-75	*	*	*	*	*	*	*

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1969, INCLUDING THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA

DESIGN LOADING -	SEE SITE PLANS.
CONCRETE CLASS C -	UNIT STRESS 1200 P.S.I. FOR SUPERSTRUCTURE UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE
STRUCTURAL STEEL -	ASTM A-36 - UNIT STRESS 20,000 P.S.I.
REINFORCING STEEL -	ASTM A615, A616, OR A617 - UNIT STRESS 20,000 P.S.I. SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82, OR A615.

UTILITY LINES

ALL EXPENSE INVOLVED IN RELOCATING THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNERS. THE CONTRACTOR AND OWNERS ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER BE HELD TO A MINIMUM.

FOOTING REINFORCING

MINIMUM COVERING FOR ALL REINFORCING BARS IN FOOTING IS 3".

STRIATED CONCRETE

THE DESIRED TYPE OF CONCRETE FINISH MAY BE OBTAINED BY USING "WELDWOOD FORMTEX B" CONCRETE FORM PANELS AS MANUFACTURED BY THE U.S. PLYWOOD CORPORATION OR AN APPROVED EQUAL.

RAILING (CONCRETE PARAPET WITH CHAIN LINK FENCE)

1/4" PREFORMED EXPANSION JOINT FILLER FOR PARAPETS SHALL BE INCLUDED FOR PAYMENT WITH RAILING (CONCRETE PARAPET WITH CHAIN LINK FENCE). THE FILLER SHALL CONSIST OF GRAY SPONGE OR GRAY CELLULAR POLYVINYL CHLORIDE SPONGE. FURTHER, THE FILLER SHALL CONFORM TO AASHO M-153, TYPE 1, EXCEPT DENSITY OF PVC SPONGE SHALL BE NOT LESS THAN 20 LB. PER CU. FT.

CONCRETE PARAPETS SHALL BE PLACED IN ALTERNATE SECTIONS BY THE USE OF BULKHEADS. CLOSING SECTIONS SHALL BE PLACED AFTER REMOVAL OF BULKHEADS AND AFTER PLACEMENT OF SPONGE FILLER. FILLER SHALL BE FLUSH WITH SURFACE OF CONCRETE AND EXPOSED EDGES SHALL BE FREE OF MORTAR.

FENCE SHALL BE TYPE "CL" ALUMINUM-COATED STEEL CHAIN LINK FENCE, SECTION 710.03 OF THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS, MODIFIED FOR HEIGHT AND ANCHOR ASSEMBLY AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 607, EXCEPT AS SHOWN ON BRIDGE PLANS.

ALL POSTS SHALL BE LEADED INTO SLEEVES. ALL PIPE SLEEVES SHALL BE ALLOY STEEL 707.11 OR GALVANIZED STEEL.

GALVANIZED PIPE AND FITTINGS SHALL CONFORM TO SECTION 711.02 OF THE STATE OF OHIO CONSTRUCTION AND MATERIALS SPECIFICATIONS.

THE COST OF FURNISHING AND INSTALLING ALL FENCE MATERIALS INCLUDING OUTSIDE POSTS WITH ANCHORS AND BANDS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 517, RAILING (CONCRETE PARAPET WITH CHAIN LINK FENCE).

THIS ITEM SHALL APPLY TO BRIDGE NUMBERS 1057, 1089, 1105

INTERMEDIATE STIFFENERS

INTERMEDIATE STIFFENERS SHALL CONFORM TO SECTION 513.08 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS EXCEPT THAT THESE STIFFENERS SHALL HAVE A TIGHT FIT AT BOTH THE COMPRESSION AND TENSION FLANGES. A TIGHT FIT IS DEFINED AS ONE IN WHICH THE STIFFENER AND FLANGE PLATE ARE IN PHYSICAL CONTACT OVER SOME PORTION OF THE END OF THE STIFFENER AND HAVING NO GAP IN EXCESS OF 1/16 INCH.

CHARPY TEST

DESIGNATED STRUCTURAL STEEL SHAPES AND PLATES SHALL HAVE A MINIMUM LONGITUDINAL CHARPY V-NOTCH ENERGY ABSORPTION VALUE (CVN) OF 15 FT. LB. AT 40°F. SAMPLING AND TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH ASTM A673. THE (H) FREQUENCY OF HEAT TESTING SHALL BE USED, AND THE TEST DATA SHALL BE RECORDED ON THE TEST REPORTS REQUIRED BY 501.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

WHERE "(CVN)" FOLLOWS A SHAPE OR PLATE SIZE DESIGNATION, THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS. THE FABRICATOR SHALL SUBMIT TO THE DIRECTOR A PROCEDURE DESIGNED FOR POSITIVE IDENTIFICATION OF MATERIAL THROUGH ALL PHASES OF FABRICATION. NO MATERIAL SHALL BE FABRICATED UNTIL THE DIRECTOR HAS APPROVED THE PROCEDURE.

ALL SPLICE PLATES FOR THE STANDARD SPLICES SHOWN ON SD-1-69, SHEET 4, SHALL BE SUBJECT TO THE CHARPY V-NOTCH TEST.

SUBDRAINAGE FOR WEARING SURFACE COURSE

SUBDRAINAGE FOR WEARING SURFACE COURSE SHALL BE PROVIDED AS SHOWN ON SHEET 411-A.

BRIDGE SEAT REINFORCING:

REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETT OF BEARING ANCHORS.

BACKWALL CONCRETE: IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE BACKWALL HAS BEEN PLACED.

BEARING ANCHORS: AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.

REINFORCING BAR LAPPED SPLICES

ALL SPLICES SHALL BE LAPPED 30 BAR DIAMETERS EXCEPT THAT BARS NEAR THE TOP OF PIER CAPS SHALL BE LAPPED 35 DIAMETERS.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1/1

DALTON • DALTON ASSOCIATES

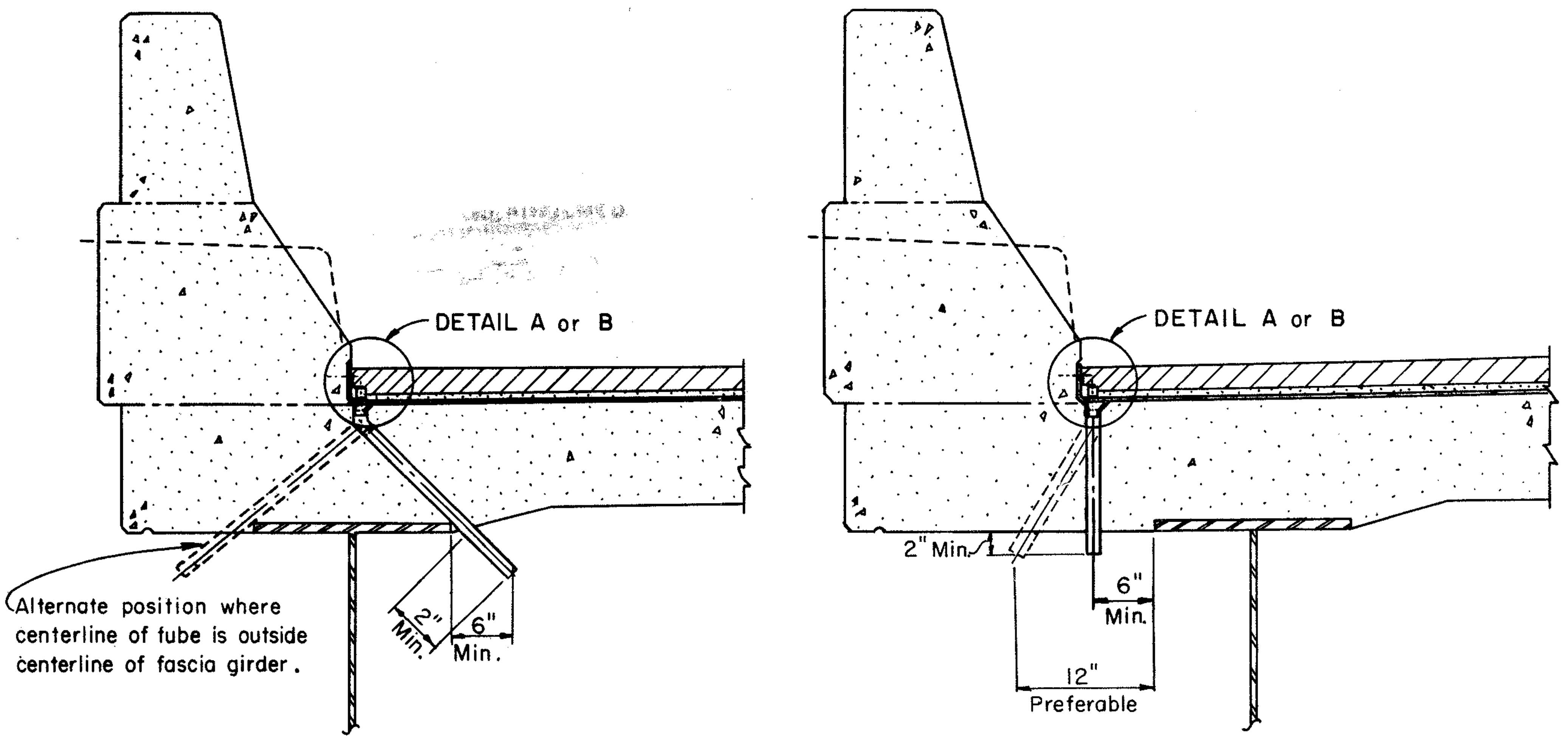
STRUCTURAL
GENERAL NOTES
CUYAHOGA COUNTY
CUY - 90 - 10.40

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	MAM		ALH	RDH	12-23-74	

FHWA REGION	STATE	PROJECT	
5	OHIO		

411-A
713

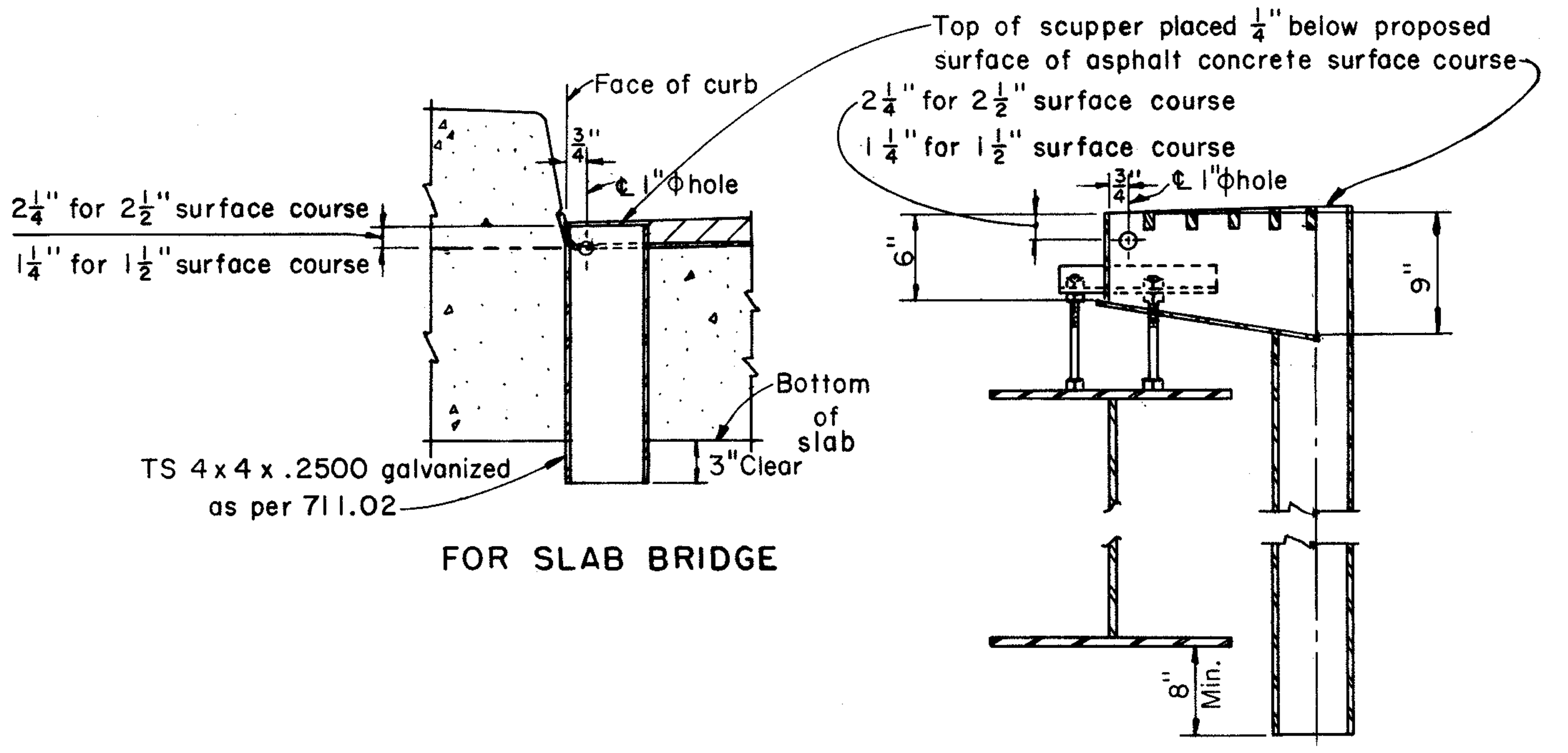
CUYAHOGA COUNTY
CUY-90-10.40



STRUCTURAL STEEL BELOW CURB LINE

NO STRUCTURAL STEEL BELOW CURB LINE

DRAINAGE TUBE ARRANGEMENT

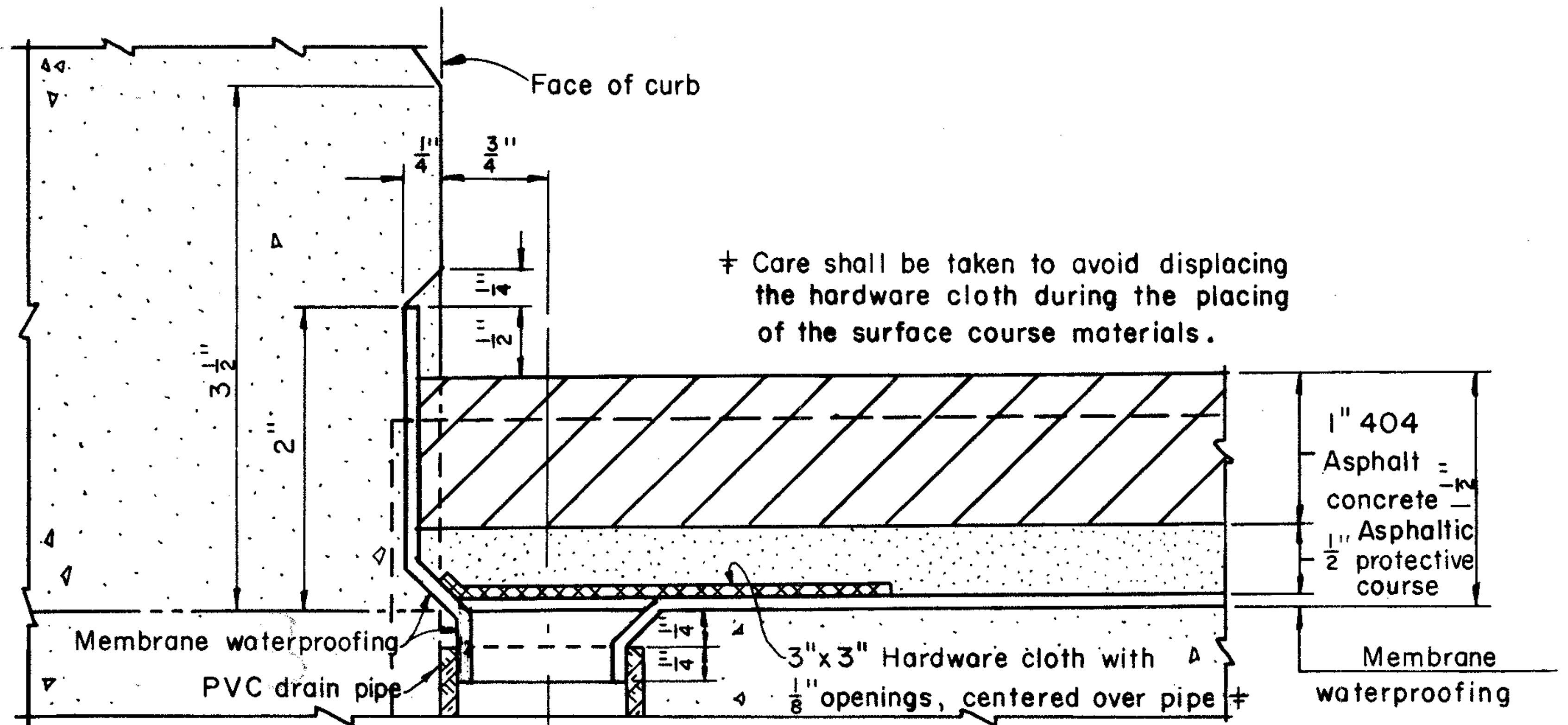


FOR SLAB BRIDGE

FOR GIRDER OR BEAM BRIDGE

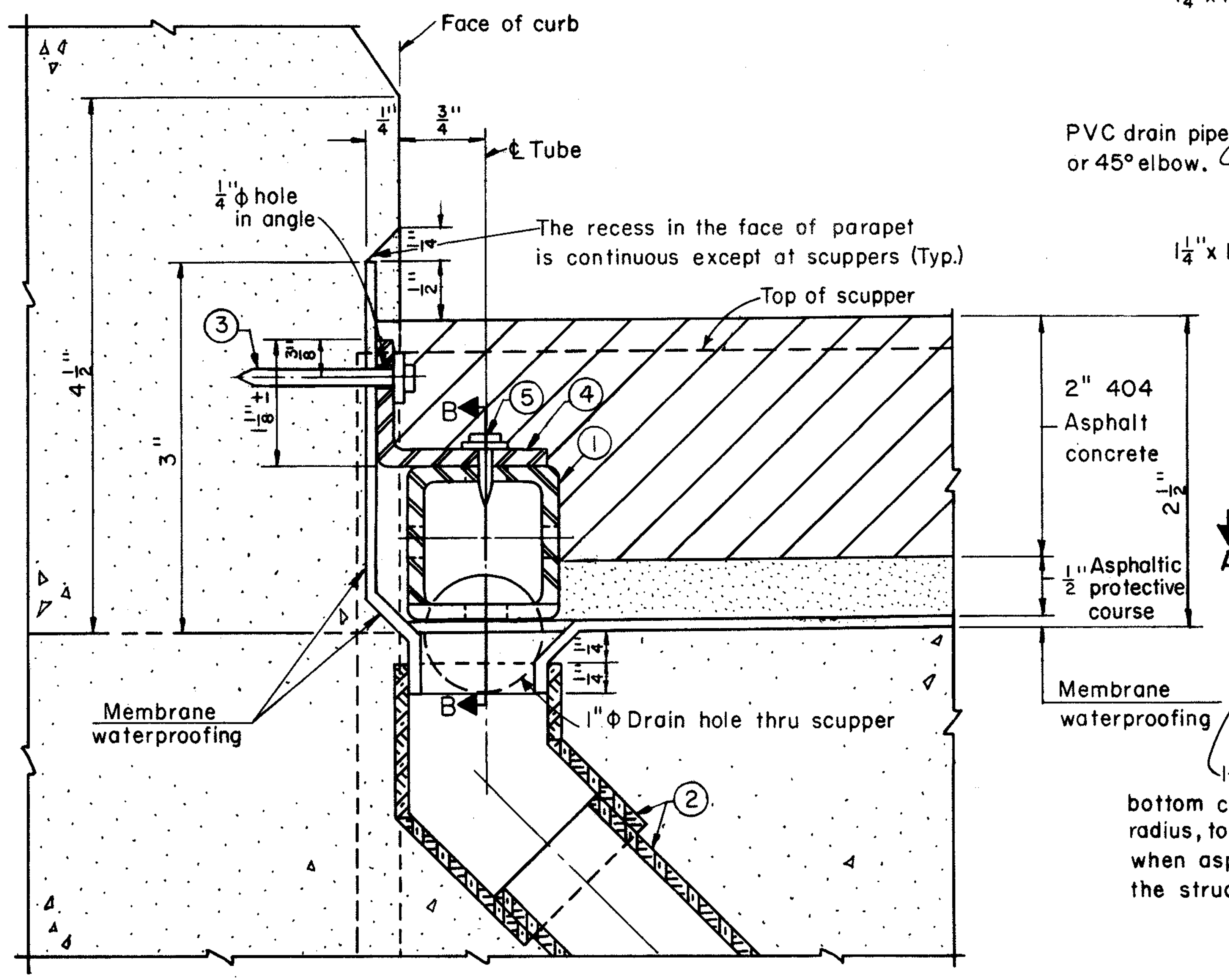
SCUPPER DETAILS

(Scupper details conform to SD-1-69 except as noted)



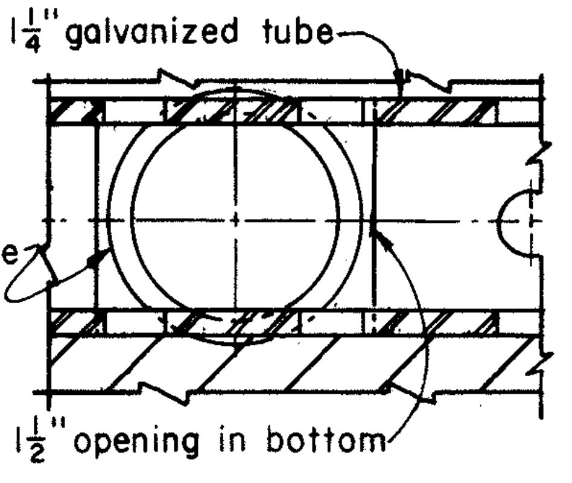
DETAIL B

SUBDRAINAGE FOR $1\frac{1}{2}$" SURFACE COURSE

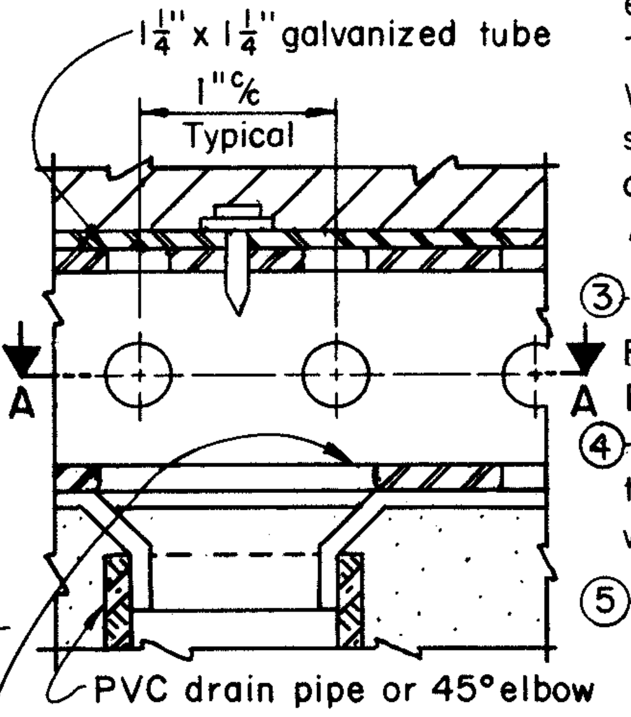


DETAIL A

SUBDRAINAGE FOR $2\frac{1}{2}$" SURFACE COURSE

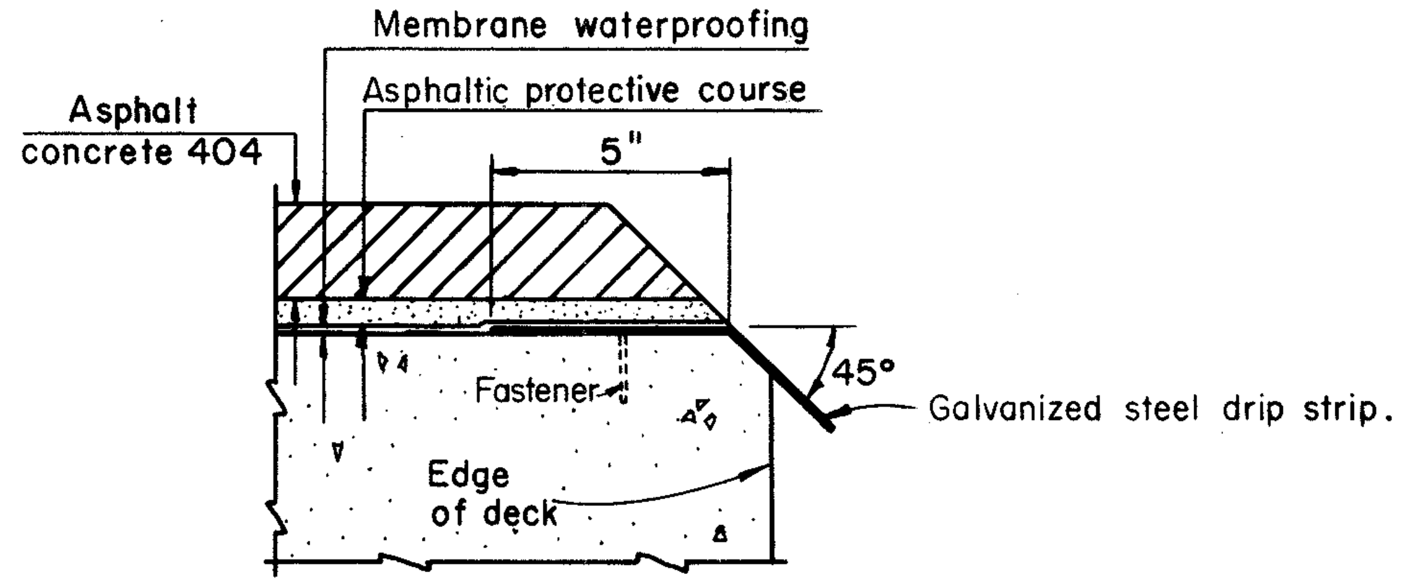


SECTION A-A



$1\frac{1}{2}$"x $1\frac{1}{4}$" opening in bottom. Grind bottom corner of transverse cuts to smooth radius, to prevent cutting of membrane when asphalt concrete is compacted over the structural tube.

SECTION B-B



DRIP STRIP
BRIDGES WITHOUT CURBS

Galvanized Steel Drip Strip: Prior to applying deck membrane waterproofing a bent galvanized steel drip strip, 8"x 0.105" shall be installed along the edges of the deck as shown. The strips shall be fastened at 3'-0" ℄ maximum with power driven pins or # 10 galvanized expansion screws, subject to the approval of the Engineer. The strips shall be placed the full length of the deck. Where splices are required a 3"(min.) lap shall be used, with a fastener through the lap. Steel shall meet the requirements of ASTM A568 and galvanizing shall be in accordance with 711.02. Payment shall be at the contract price bid for Item Special, Sq. Ft., Galvanized steel drip strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.

SUBDRAINAGE FOR ASPHALT CONCRETE SURFACE COURSE

The subdrainage system shall consist of PVC pipes and fittings and structural tubes as specified on this sheet. The pipes shall be spaced at approximately six foot intervals with a pipe placed within one foot of each expansion joint, except that they shall be relocated or extended as necessary for any discharge to clear bridge seats, structural members such as beams, diaphragms and crossbracing by at least six (6) inches. Pipes shall not be placed over or within four (4) feet of a pavement or sidewalk, within ten (10) feet of the centerline of a railroad track or along curb lines where the deck configuration does not permit water to accumulate.

Where the plans specify a two and one half ($2\frac{1}{2}$) inch surface course, the subdrainage shall be as shown on Detail A. The structural tube may be placed in any convenient lengths using butt joints. The price bid per linear foot for this drainage system shall include all PVC pipe and fittings, structural tubes, and all labor necessary to complete the item. The quantity will be the actual length of structural tube required. Payment will be made at the contract price for: Item 518, Lin. Ft., Subdrainage for wearing course, as per plan.

Where the plans specify a one and one half ($1\frac{1}{2}$) inch surface course, the subdrainage shall be as shown in Detail B. The price bid for each drain shall include the PVC pipe and fitting, the hardware cloth and all necessary labor to complete the item. Payment will be made at the contract price for: Item 518, Ea., Subdrainage for wearing course, as per plan.

If no asphaltic protective course is specified, the 404 shall be either $2\frac{1}{2}$" placed in two $1\frac{1}{4}$" courses or $1\frac{1}{2}$" placed in one course.

①- $1\frac{1}{4}$"x $1\frac{1}{4}$" galvanized, perforated, structural tube with $\frac{11}{32}$"± ϕ holes 1" on centers on all four sides as shown. Cut $1\frac{1}{2}$"± x $1\frac{1}{4}$" opening in bottom, centered over each PVC drain pipe. The steel for the structural tube shall conform to the following:
PREGALVANIZED, ASTM A446, Grade A Steel, Galvanizing as per ASTM A525.
POSTGALVANIZED, ASTM A569 or A366, Galvanizing as per 711.02.

The minimum steel thickness shall be 0.105".
Any damaged galvanizing shall be repaired as per AASHO M36.

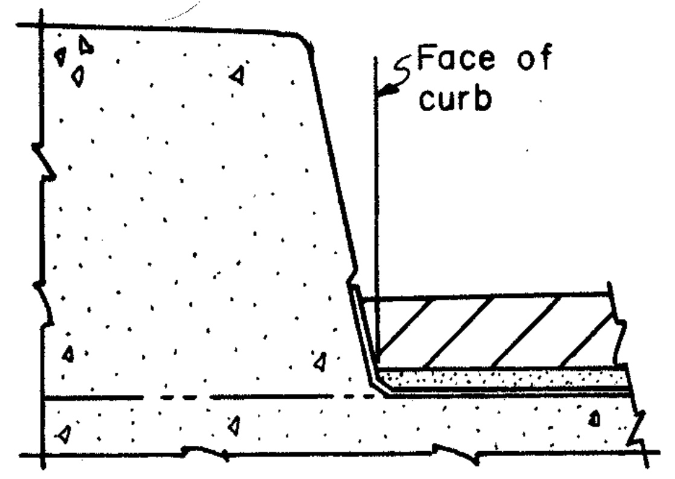
②- $1\frac{1}{4}$" PVC DRAIN PIPE AND 45° ELBOW. Position accurately to match $1\frac{1}{2}$"x $1\frac{1}{4}$" openings in perforated tube. Place membrane to lap into the pipe, and seal the hole around the lip of the pipe. (This operation is important to the servicability of the membrane.) The drain pipe and elbow shall comply with ASTM ~~D2661 or~~ ASTM 2665.
The elbow shall be used only where structural steel is below the curb line.
Where the elbow is not adequate to provide clearance between the PVC pipe and the structural steel, the elbow shall be canted as required and cut on a line $\frac{1}{4}$" below and parallel with the deck surface. The solvent cement for the pipe and fittings shall conform to ASTM D2235 or ASTM D2564.

③ $1\frac{1}{4}$"x $\frac{5}{32}$"x $\frac{1}{4}$" flat head drive pin and washer.
Fastening of the structural tube by methods other than shown shall be subject to approval by the Engineer. (Driving pins into the bridge deck is prohibited.)

④- L $1\frac{1}{2}$"x $1\frac{1}{2}$"x $\frac{1}{8}$", 3" long, clipped and galvanized, or bent galvanized steel plate $2\frac{1}{2}$"x 3"x 0.105" thick. Attach to curb at approximately 10'-0" ℄ except near joints, where the angle shall be placed within 6" of the end of each tube section.

⑤- $\frac{1}{2}$"x $\frac{1}{8}$"x $\frac{1}{4}$" flat head drive pin and washer driven thru angle and tube.

Note: Wherever "PVC" appears it shall be considered to read "PVC or ABS".



SHAPE OF SIDEWALK CURB

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BUREAU OF BRIDGES

1/1

DECK DRAINAGE DETAILS
FOR BRIDGES WITH ASPHALT CONCRETE
SURFACE COURSE

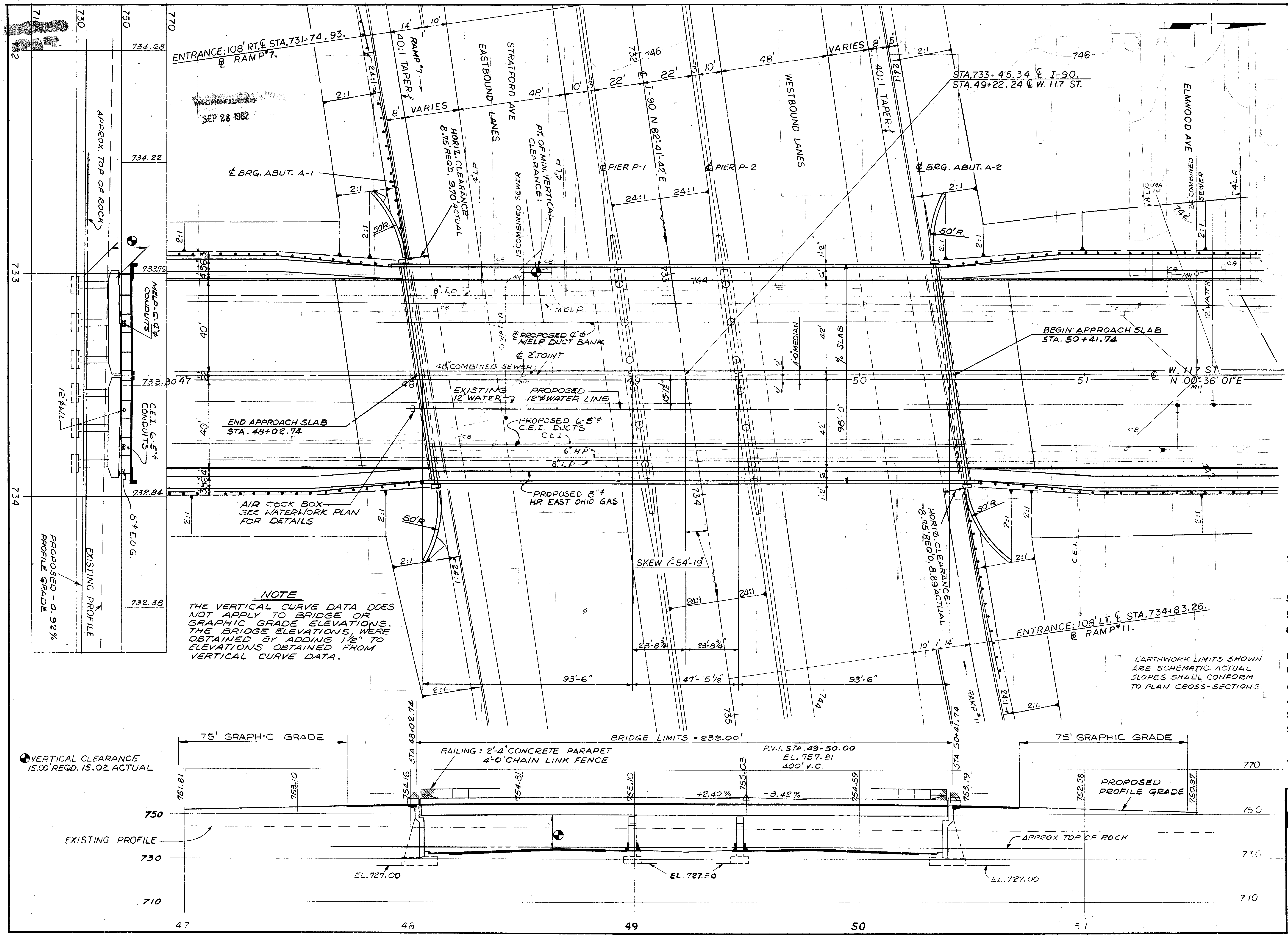
CUYAHOGA COUNTY
CUY-90-10.40

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DLM	GFJ	——	CPD	WJJ	1-2-75	

FED. RD.	STATE	PROJECT	
2	OHIO		

412
713

CUYAHOGA COUNTY
CUY-90-10.40



NOTE

THE VERTICAL CURVE DATA DOES NOT APPLY TO BRIDGE OR GRAPHIC GRADE ELEVATIONS. THE BRIDGE ELEVATIONS WERE OBTAINED BY ADDING 1½" TO ELEVATIONS OBTAINED FROM VERTICAL CURVE DATA.

EARTHWORK LIMITS SHOWN ARE SCHEMATIC. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

PROPOSED STRUCTURE

TYPE: CONTINUOUS WELDED STEEL PLATE GIRDERS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.

SKEW: 7°-54'-19" RF.

SPANS: 93'-6", 47'-5½", 93'-6"

ROADWAY: 84' F/F CURBS WITH 6' SIDEWA... 4' MEDIAN.

LOADING: HS 20-44

WEARING SURFACE: 1½ ASPHALT CONCRETE

APPROACH SLABS: 30' LONG (AS-1-72) SHT. 11/11

ALIGNMENT: TANGENT.

SUPERELEVATION: NONE.

SLOPE PROTECTION: NONE REQUIRED.

TRAFFIC: I-90 109.184 A.D.T. 1975.
W. 117 32,250 A.D.T. 1975.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1/11

DALTON · DALTON ASSOCIATES

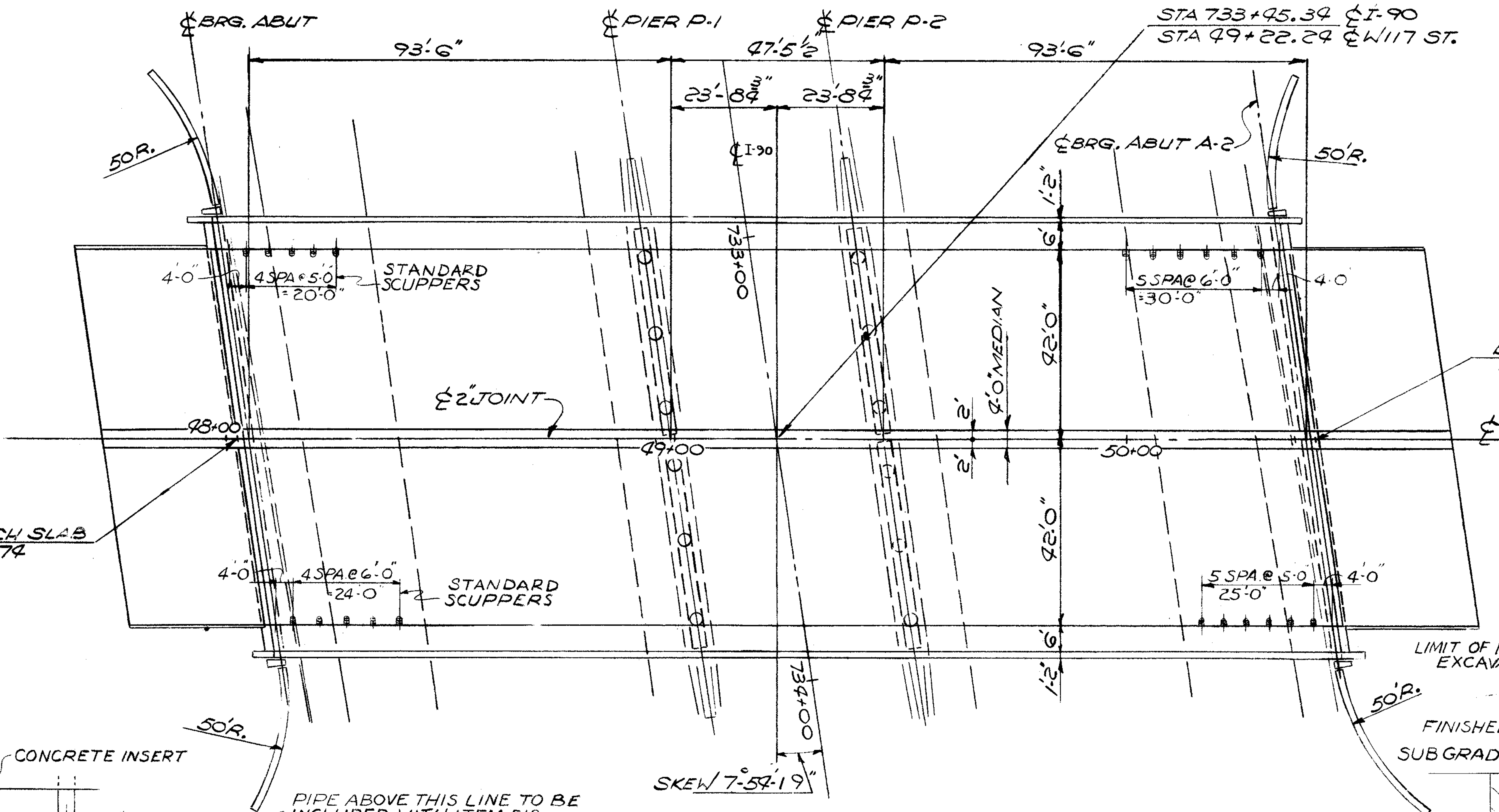
SITE PLAN

BRIDGE NO. CUY-90-1057.
UNDER WEST 117th ST.
I-90 CUYAHOGA COUNTY
STA. 733+45.34

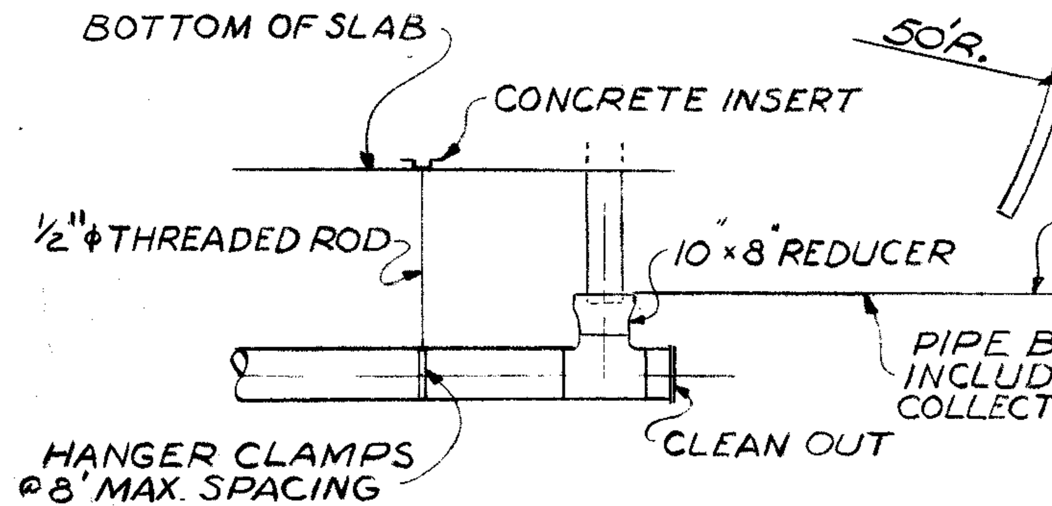
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	J.K.		JFP	RDH	2-12-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

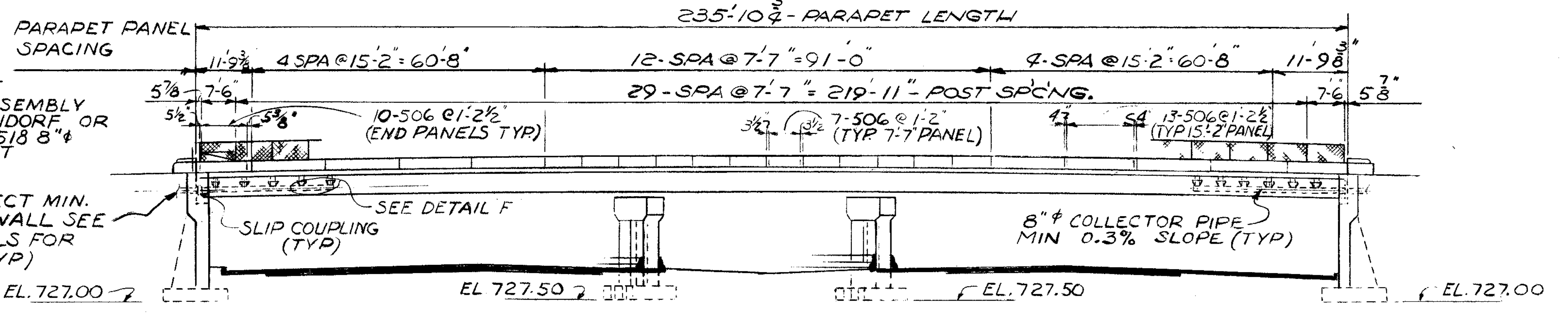


GENERAL PLAN



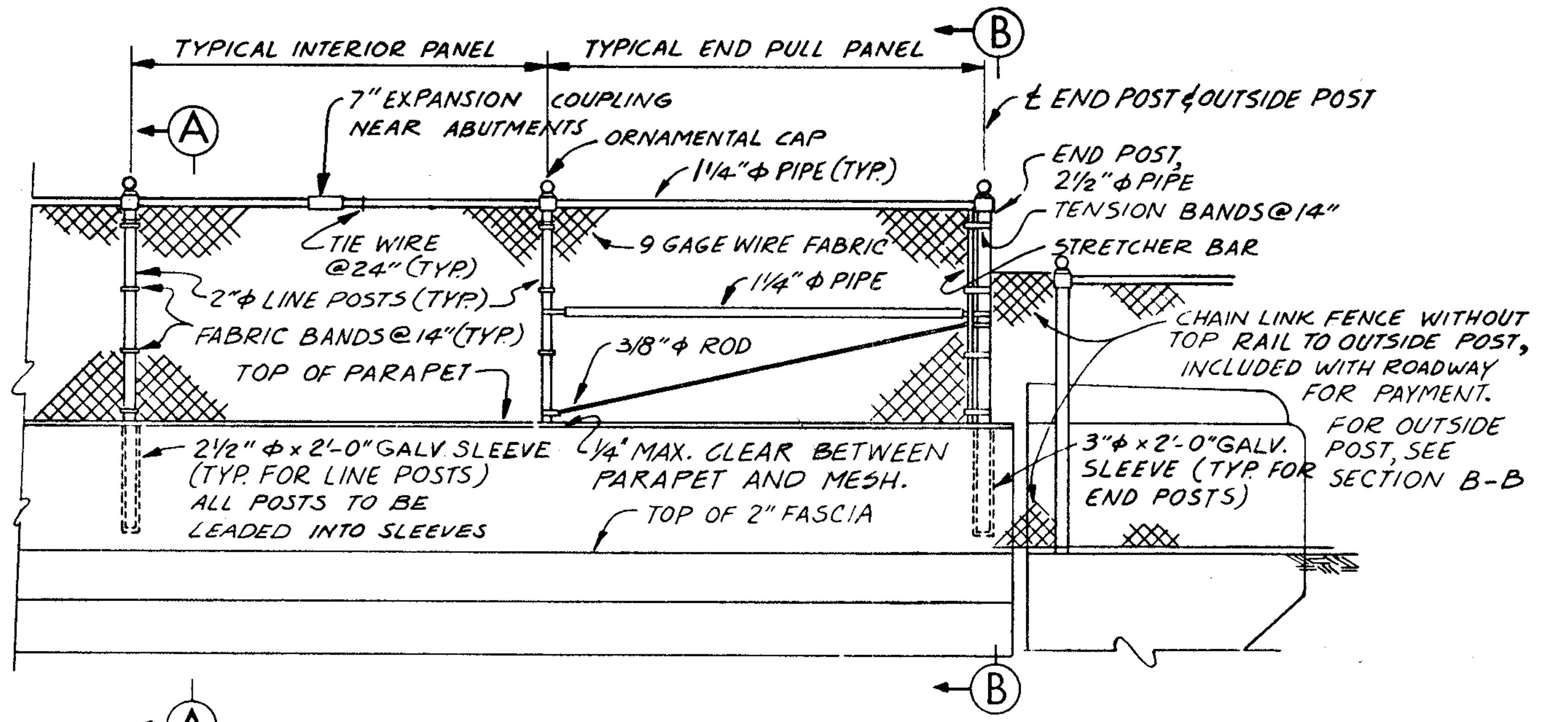
DETAIL F

COLLECTOR PIPE HANGER ASSEMBLY TO BE UNISTRUT, ALSTRUT, KINDORF, OR EQUAL, INCLUDED WITH ITEM 518 8"ϕ COLLECTOR PIPE FOR PAYMENT



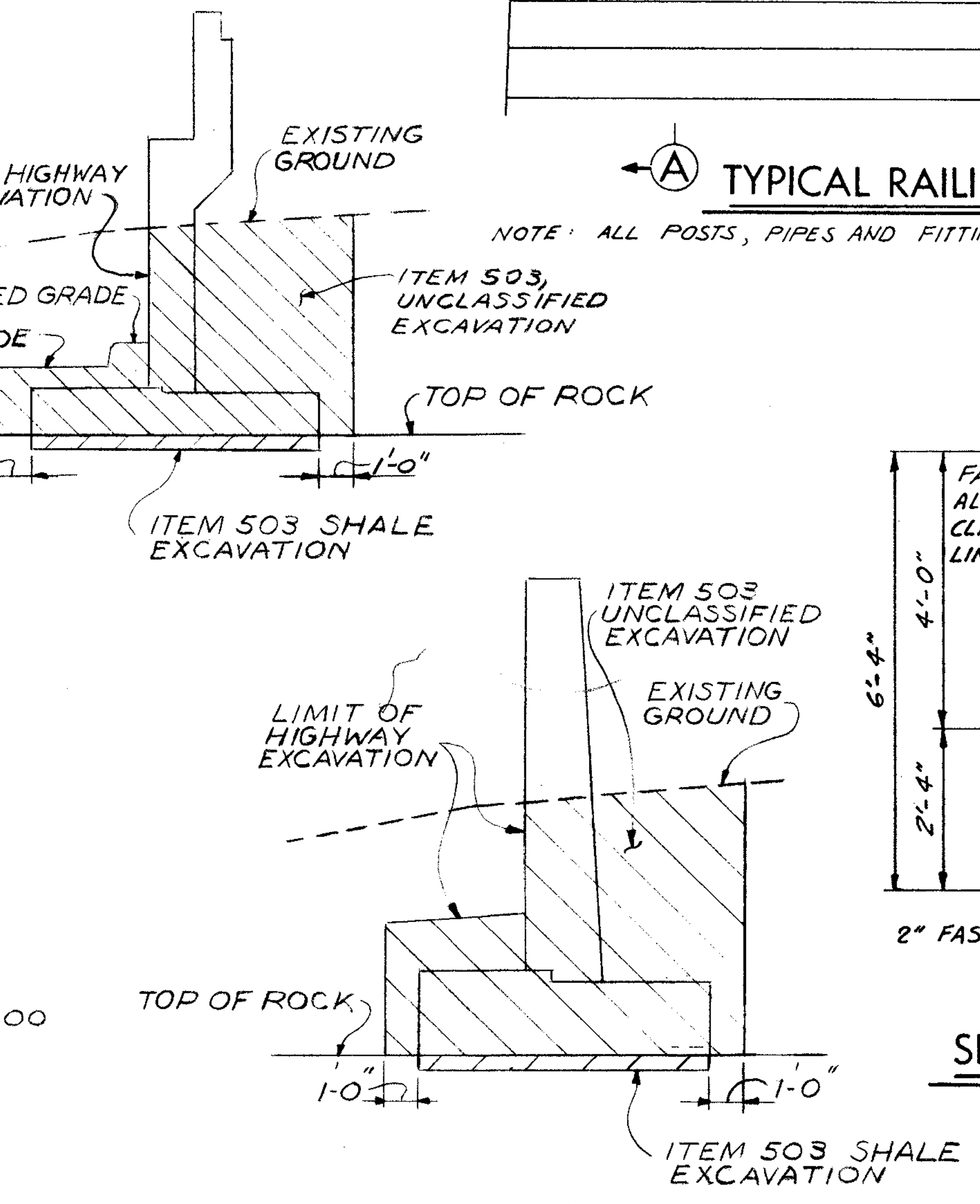
8"ϕ COLLECTOR PIPE TO PROJECT MIN. 2' BEYOND ABUTMENT BACKWALL SEE ROADWAY DRAINAGE DETAILS FOR CONTINUATION OF PIPE. (TYP)

ELEVATION



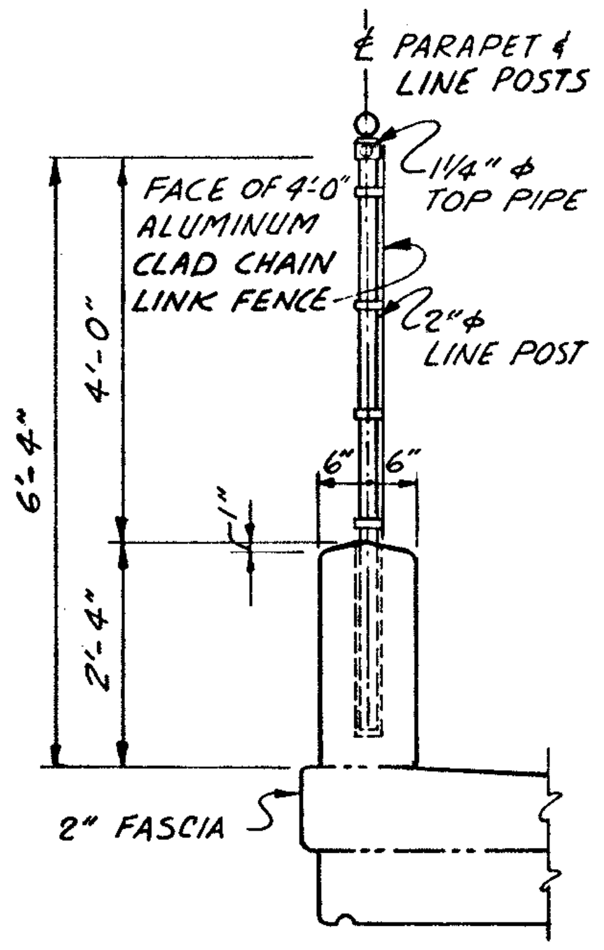
Ⓐ TYPICAL RAILING ELEVATION

NOTE: ALL POSTS, PIPES AND FITTINGS TO BE GALVANIZED STEEL EXCEPT AS OTHERWISE SHOWN.

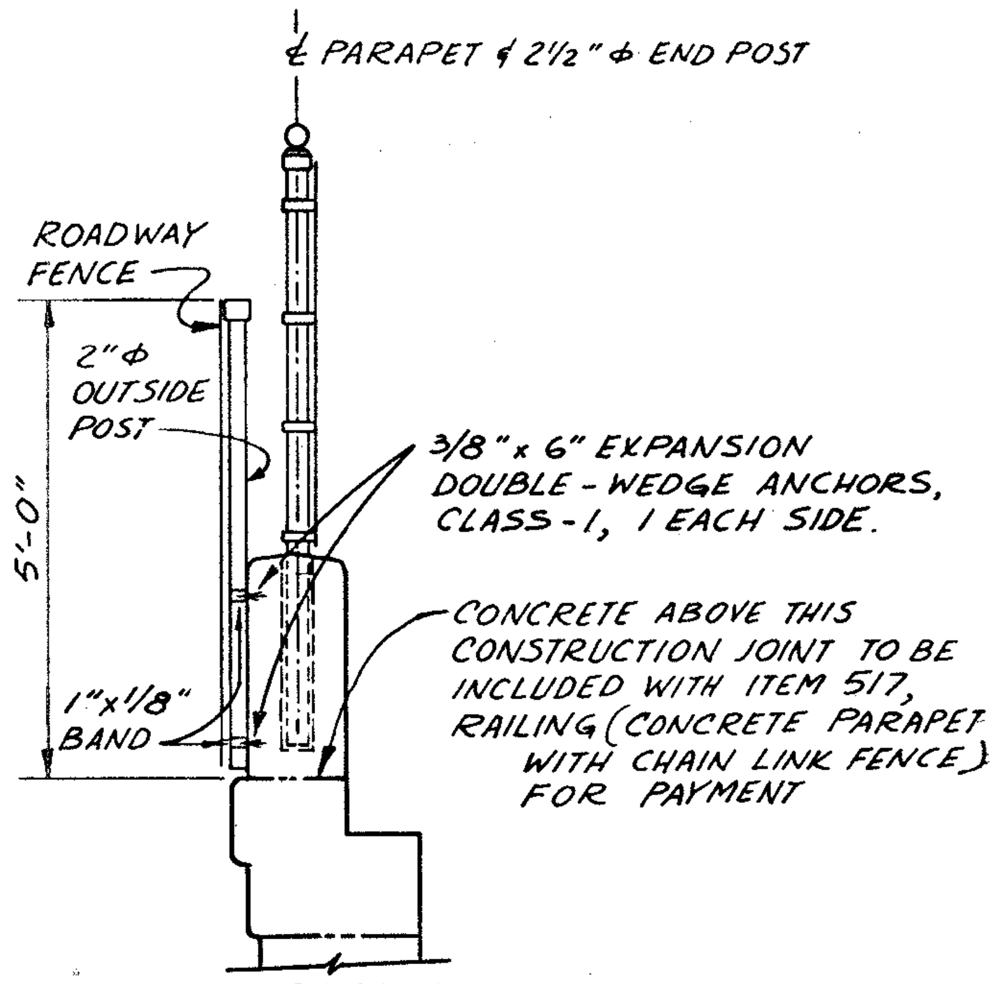


LIMITS OF EXCAVATION

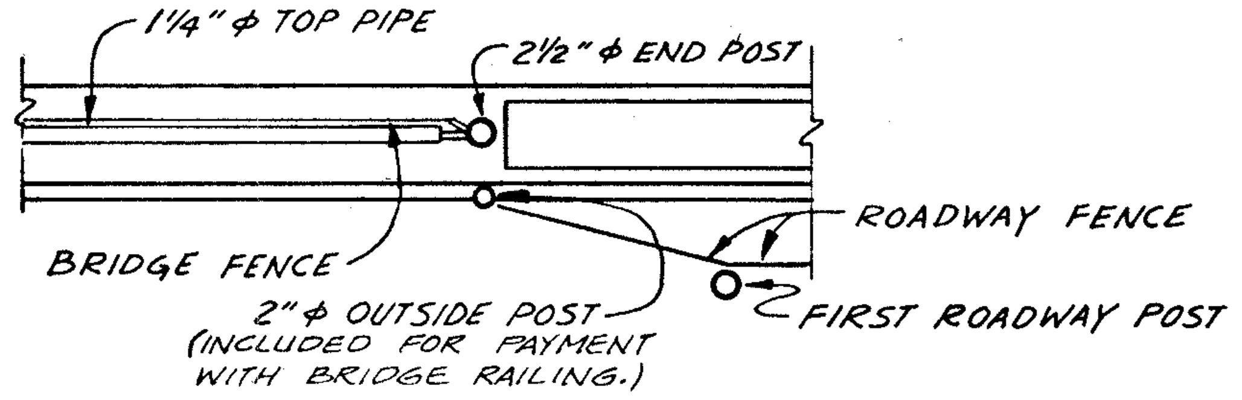
FOR ABUTMENTS & WING WALLS



SECTION A-A



SECTION B-B



TYPICAL RAILING PLAN

* INCLUDES 910 LBS FOR BRACKETS, FILLS AND SLEEVES TO BE PAID FOR BY EAST OHIO GAS COMPANY
*INCLUDES 2900 LBS TO BE PAID FOR BY CLEVELAND ELECTRIC ILLUMINATING COMPANY

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
404	87	CY	ASPHALT CONCRETE AC-20	87					
SPEC	2105	SY	MEMBRANE WATERPROOFING, HOT APPLIED LIQUID (SEE PROPOSAL NOTE)	2105					
503	1855	CY	UNCLASSIFIED EXCAVATION		1344	511			
503	1395	CY	SHALE EXCAVATION		1125	270			
503	LUMP	LSUM	COFFERDAMS, CRIBS AND SHEETING						
509	390103	LB	REINFORCING STEEL	221733	119773	48597			
511	756	CY	CLASS C CONCRETE, SUPERSTRUCTURE	756					
511	140	CY	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			140			
511	648	CY	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS		648				
511	559	CY	CLASS C CONCRETE, FOOTINGS		451	108			
512	33	SY	TYPE B WATERPROOFING		33				
512	46	LF	PREMOLDED SEALING STRIP		46				
513	954,100	LB	STRUCTURAL STEEL *	954,100					
514	954,100	LB	FIELD PAINTING OF STRUCTURAL STEEL *	954,100					
516	320	SF	1 IN. PREFORMED EXPANSION JOINT FILLER		320				

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
517	491.79	LF	RAILING (CONCRETE PARAPET WITH CHAIN LINK FENCE)	471.79	20.00				
518	22	EACH	SCUPPERS INCLUDING SUPPORTS	22					
518	367	CY	POROUS BACKFILL		367				
518	120	LF	8 IN. PERFORATED CMP INCLUDING SPECIALS, 707.01		120				
518	140	LF	8 IN. COLLECTOR PIPE INCLUDING SPECIALS	140					
518	30	EACH	SUBDRAINAGE FOR WEARING COURSE, AS PER PLAN	30					
625			SEE SHEET 496 FOR LIGHTING SUMMARY						
625			SEE SHEET 549 FOR TRAFFIC CONTROL SUMMARY						
808	756	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	756					

QUANTITIES CHECKED
CWW DATE 10/17/69
RGS 6/19/73

FOR STRUCTURAL GENERAL NOTES SEE SHEET 411

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

2 / 11

DALTON • DALTON ASSOCIATES

GENERAL PLAN & ELEVATION

BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I - 90 CUYAHOGA COUNTY
STA. 733 + 45.34

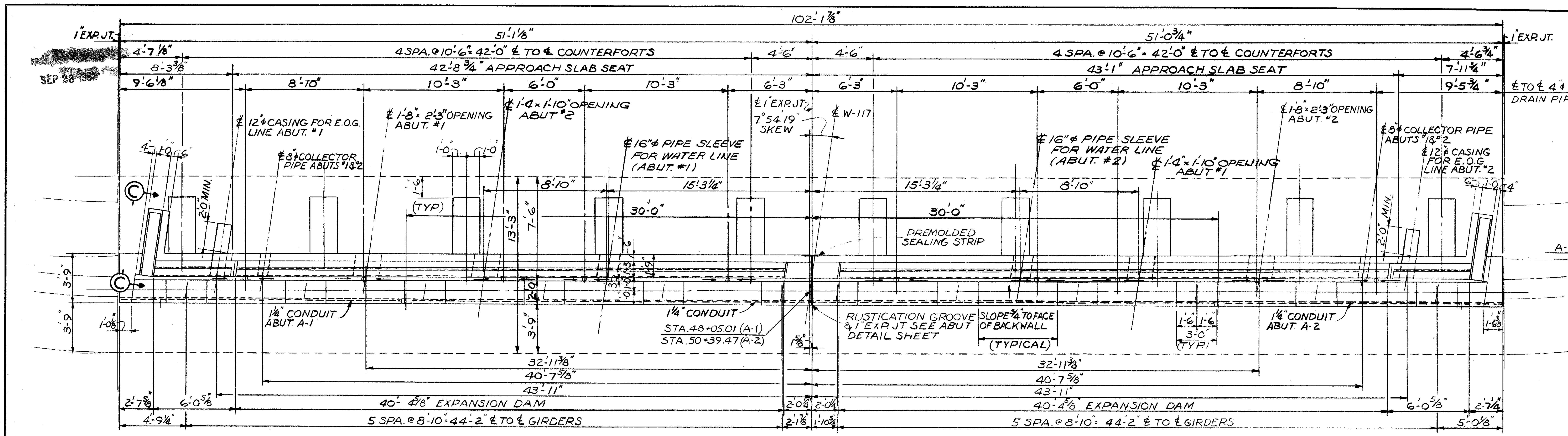
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		ALH	RDH	2-12-70	8-15-75

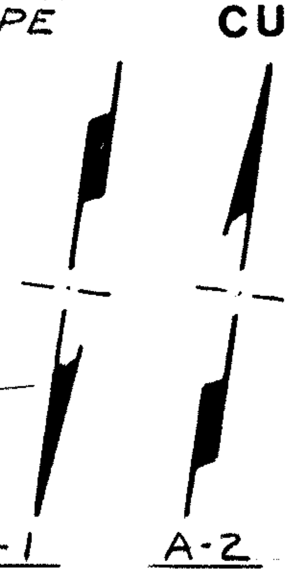
FED. RD.	STATE	PROJECT	
2	OHIO		

414
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

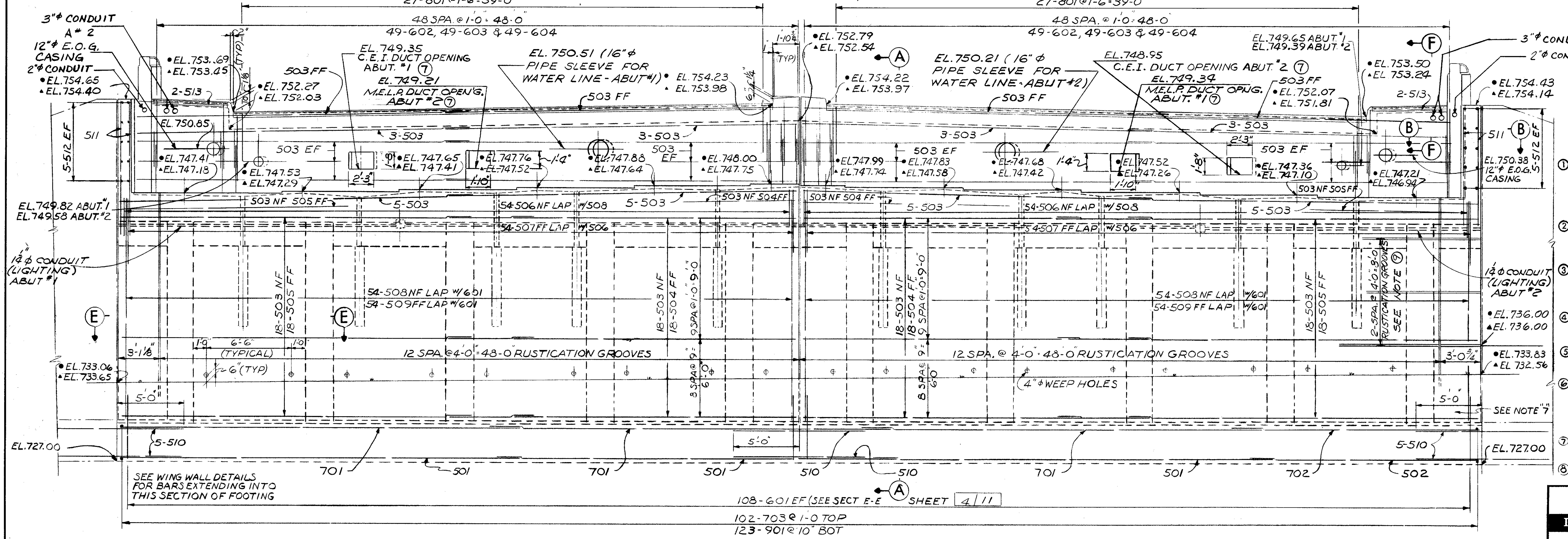
SEP 28 1982





PLAN

ABUTMENT No 1 SHOWN & NOTED
ABUTMENT No 2 SHOWN & NOTED



NOTES

① ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

② BACKWALL ELEVATIONS ARE GIVEN AS FINAL PAVEMENT ELEVATIONS AT FRONT FACE OF BACKWALL.
SEE SECTION D-D SHEET 8/11

③ THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENT A-1 OR A-2 RESPECTIVELY.

④ FOOTINGS SHALL EXTEND A MINIMUM OF 3" INTO UNDISTURBED ROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER

⑤ FOR ADDITIONAL NOTES, SEE SHEET 4/11

⑥ FOR ALL SECTIONS, SEE SHEET 4/11

16" SLEEVE FOR WATER LINE TO BE INCLUDED WITH ITEM 511, ABUTMENT CONCRETE FOR PAYMENT

⑦ CUT OR MOVE REINFORCING IN BACKWALL TO ACCOMODATE UTILITIES OPENING

⑧ ABUTMENT FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 4.5 TONS/SQ. FT.

ELEVATION

⑨ USE ALTERNATE HORIZONTAL AND VERTICAL STRIATED CONCRETE BETWEEN RUSTICATION GROOVES ON THE FACE OF THE ABUTMENTS AND WINGWALLS. COORDINATE ALL RUSTICATION GROOVES AND STRIATED PANELS BETWEEN ADJACENT ABUTMENTS AND WINGWALLS.

HORIZONTAL AND VERTICAL RUSTICATION GROOVES MAY BE TERMINATED 12" BELOW FINISHED GROUND ELEVATION.

FOR THE INSTALLATION OF THE SLEEVES THROUGH THE ABUTMENT WALLS:

12 3/4" O.D., 0.375 WALL, 49.56 POUNDS PER FOOT STEEL PIPE SLEEVES TO BE FURNISHED AND INSTALLED BY THE BRIDGE CONTRACTOR TO BE PAID FOR BY THE EAST OHIO GAS COMPANY TO THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS.

● - *INDICATES ELEVATIONS FOR ABUT. #1*
▲ - *INDICATES ELEVATIONS FOR ABUT. #2*
SEE LIGHTING PLANS FOR LIGHTING DETAILS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3/11

DALTON · DALTON ASSOCIATES

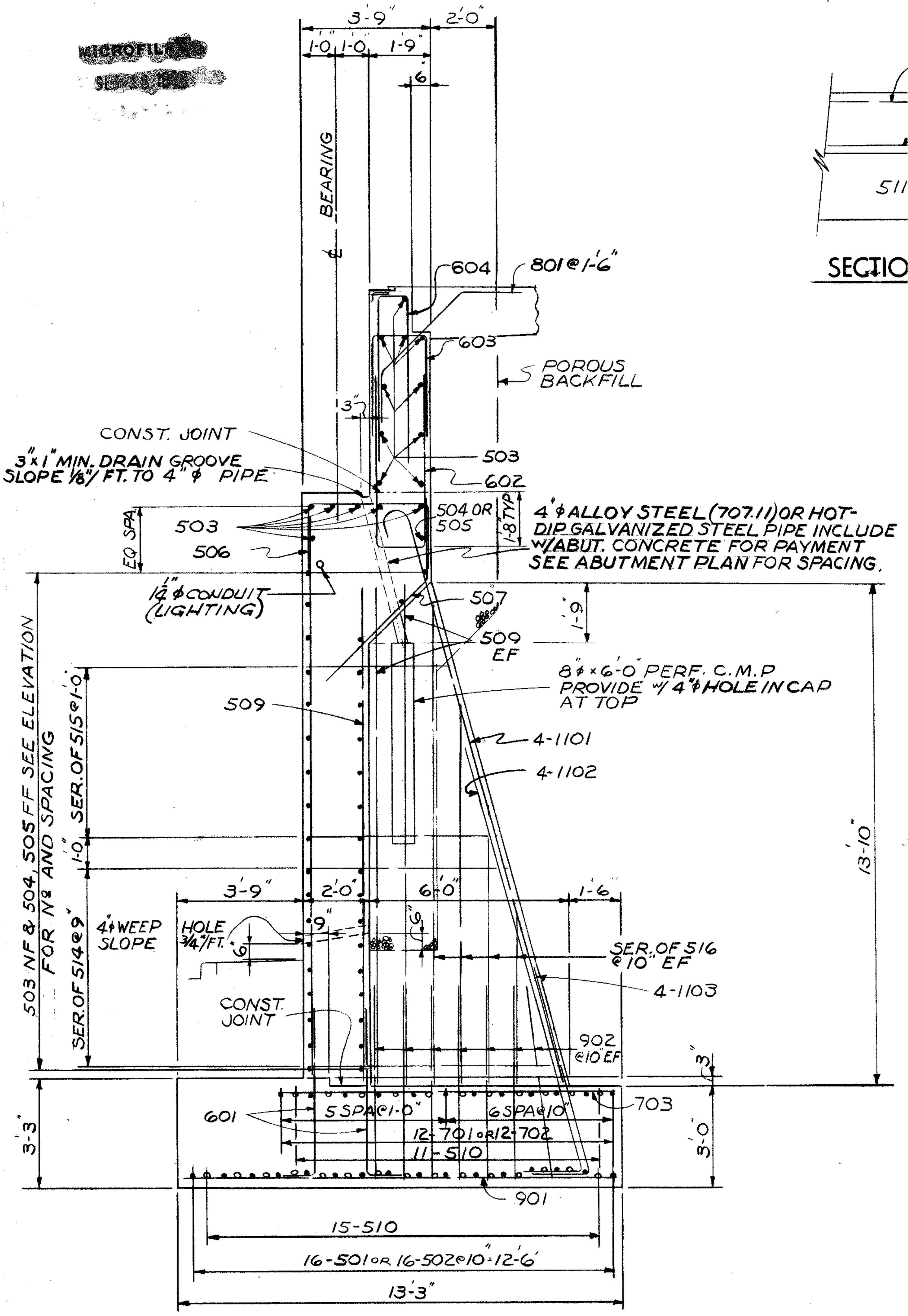
ABUTMENTS

BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

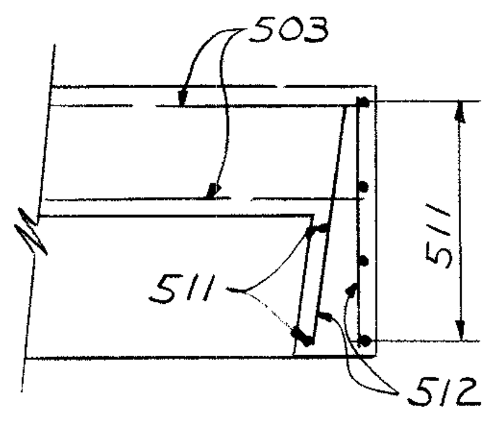
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JLH		cw 10/13/69	RDH	2-12-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

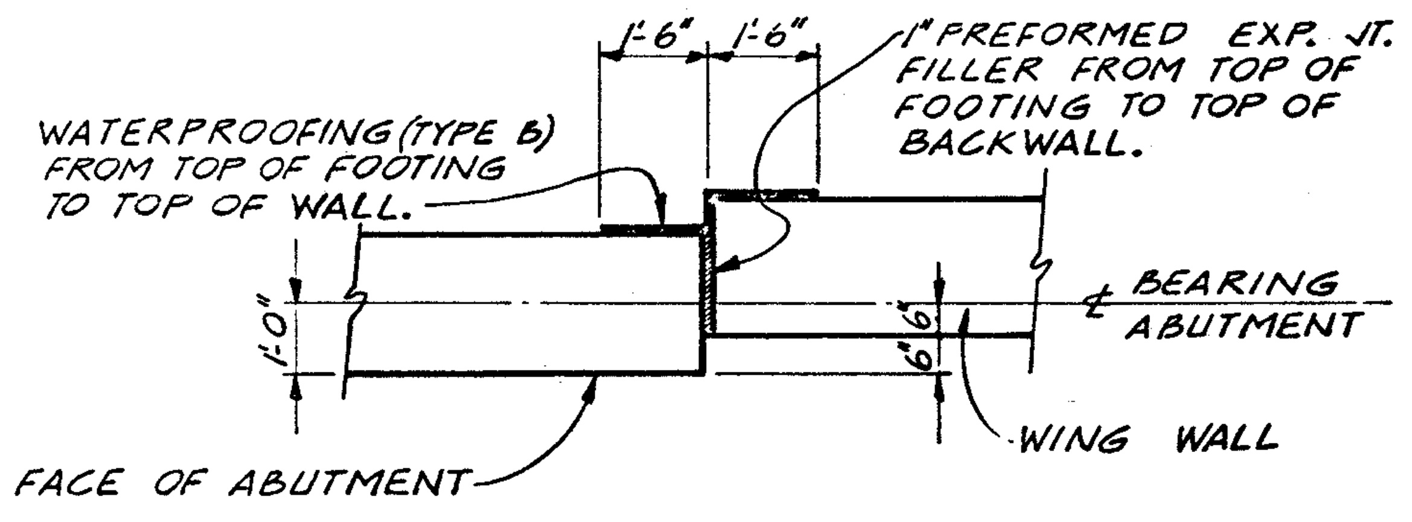
CUYAHOGA COUNTY
CUY - 90 - 10.40



SECTION A-A



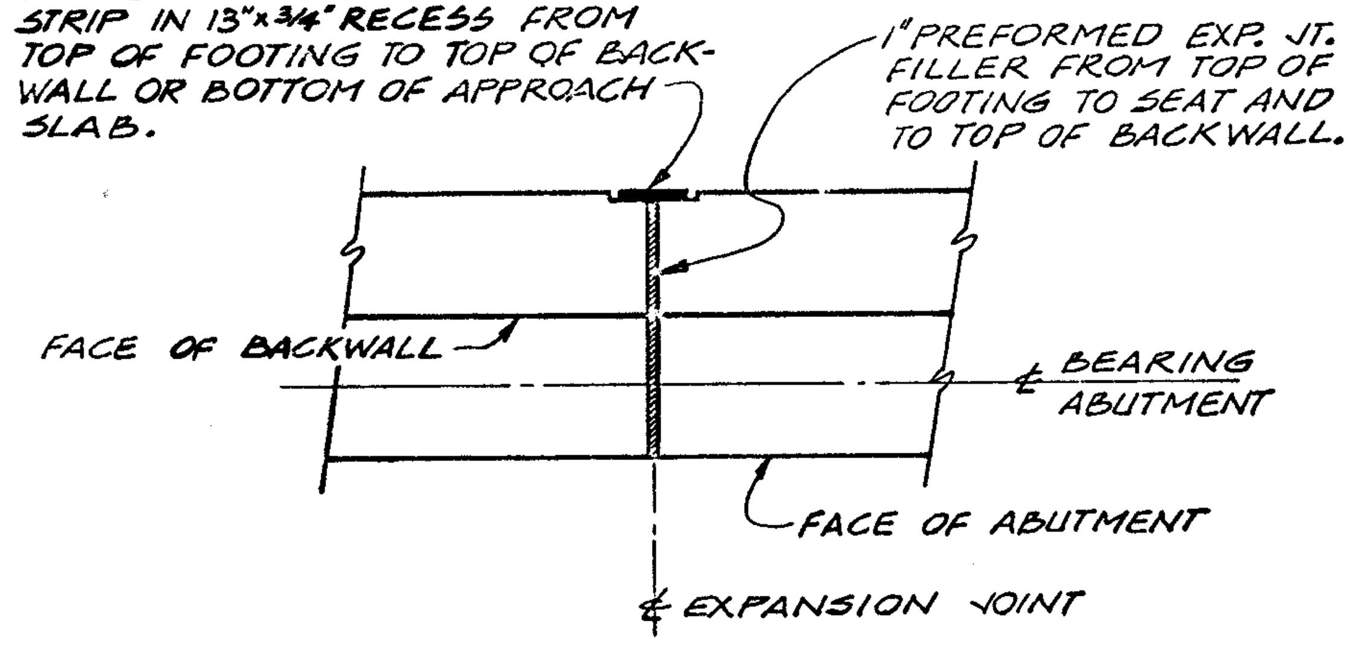
SECTION B-B



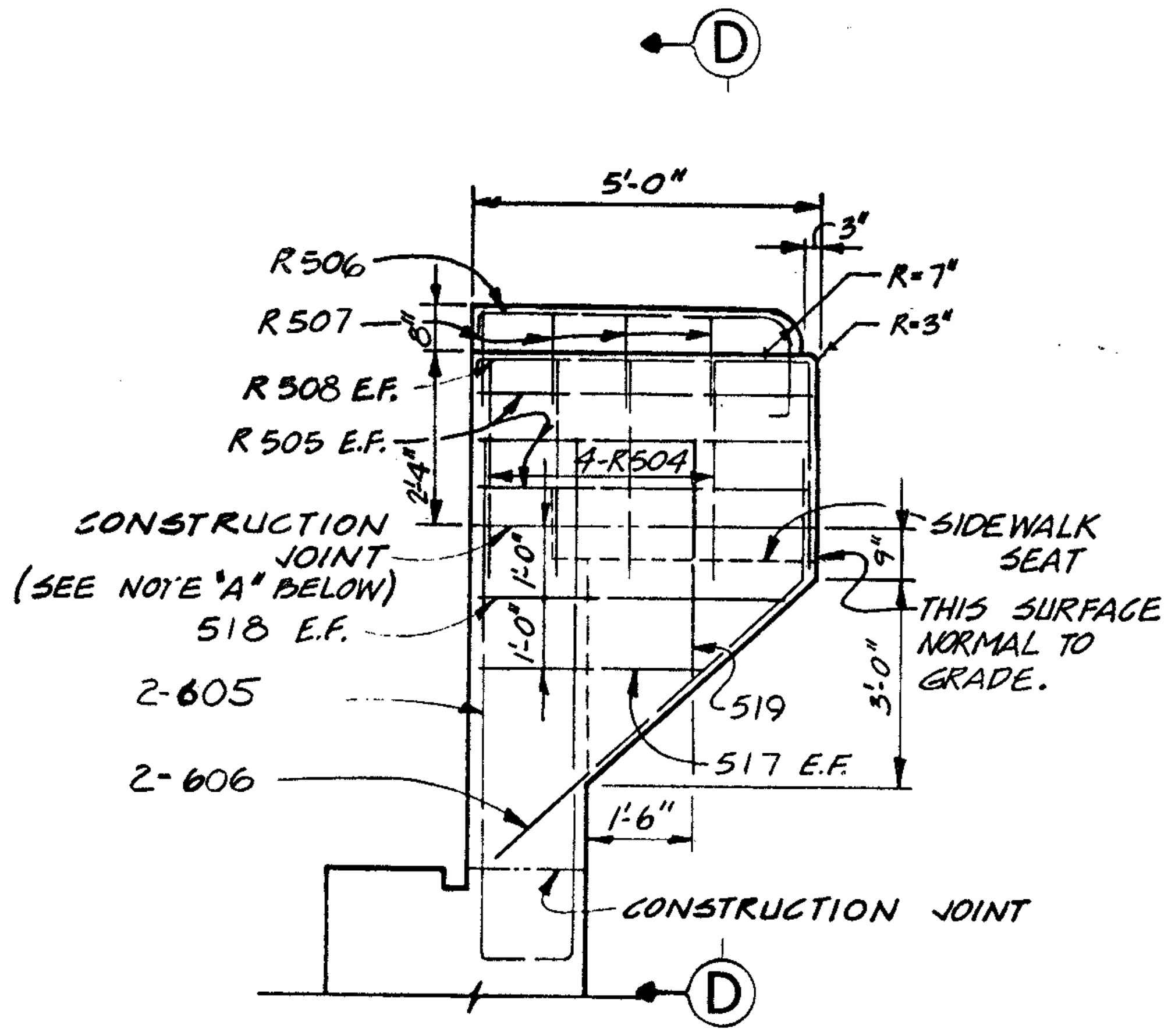
ABUTMENT - WING WALL JOINT DETAIL

SECTION BELOW ABUTMENT SEAT

NOTE:
12"x 1/2" PREMOLDED SEALING STRIP IN 13"x 3/4" RECESS FROM TOP OF FOOTING TO TOP OF BACKWALL OR BOTTOM OF APPROACH SLAB.



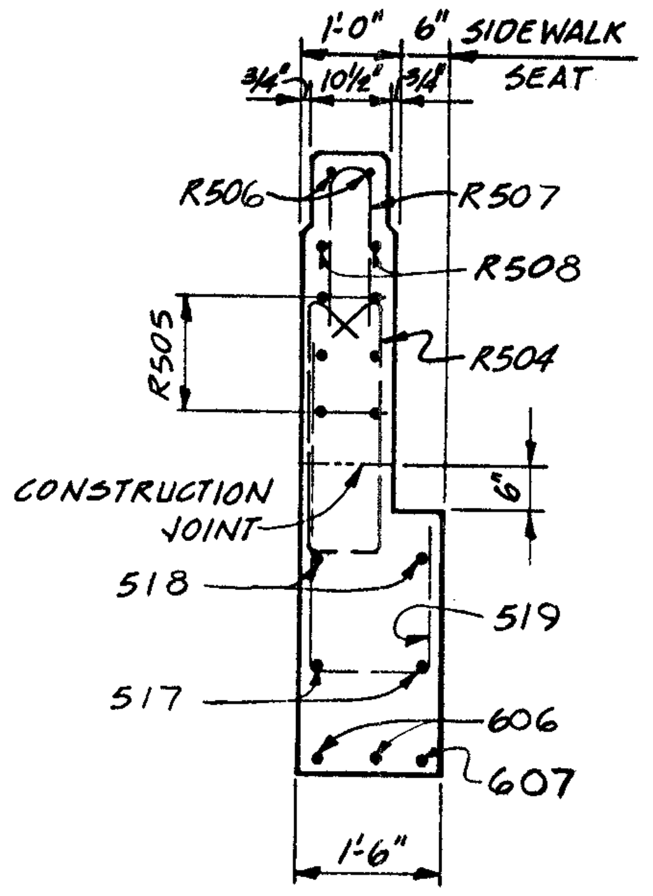
ABUTMENT EXPANSION JOINT DETAIL



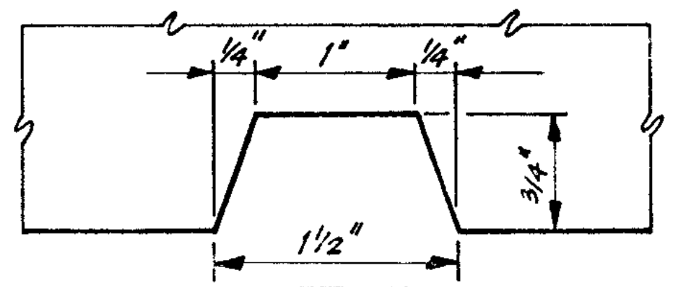
SECTION C-C

FOR DETAILS NOT SHOWN SEE SECTION A-A.

NOTE A: CONCRETE ABOVE THIS JOINT IS INCLUDED WITH RAILING FOR PAYMENT.

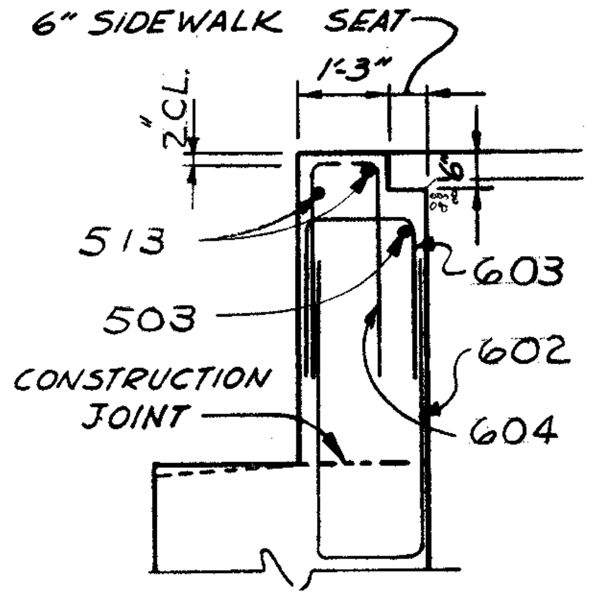


SECTION D-D



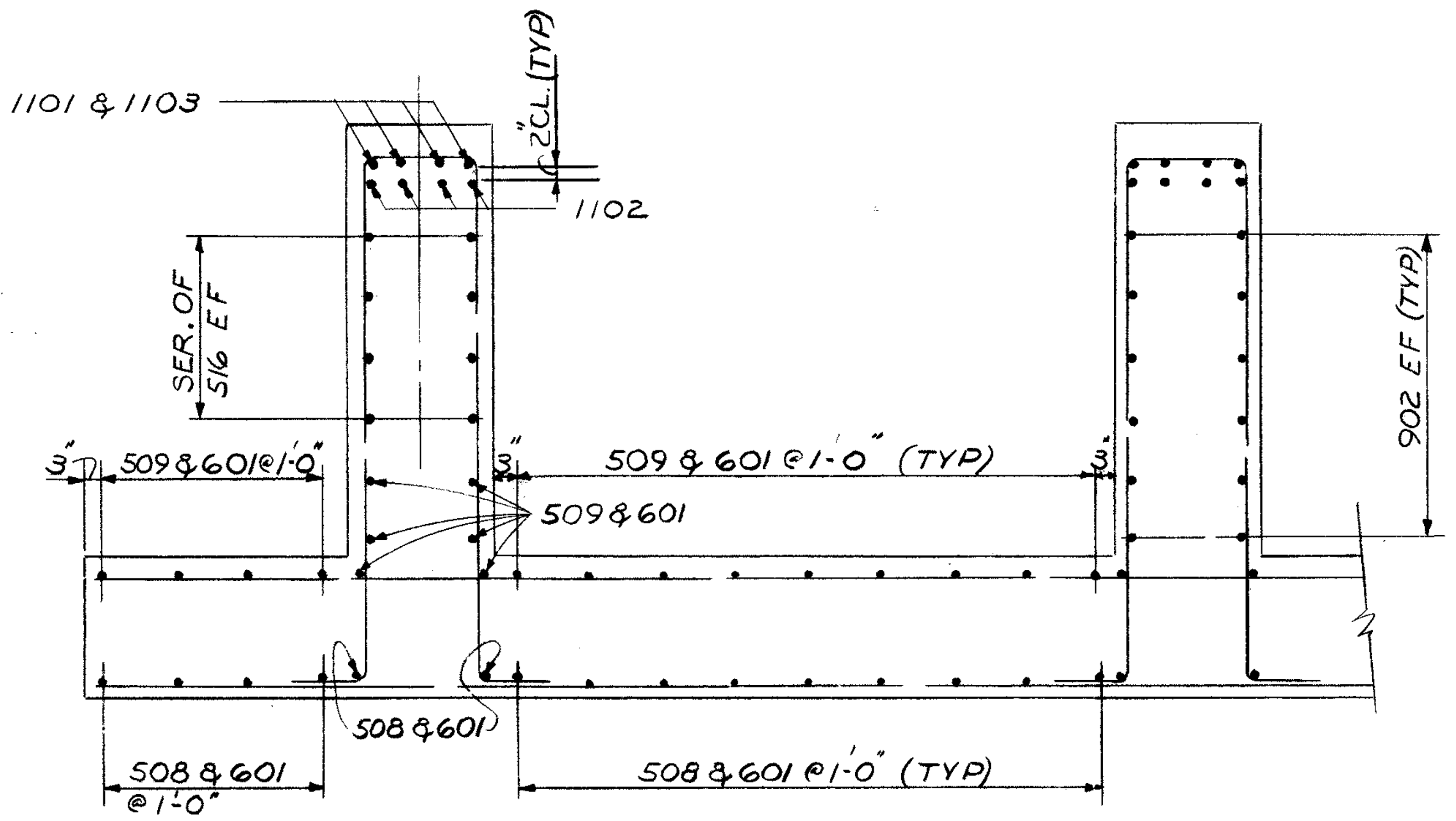
DETAIL

HORIZ. & VERTICAL RUSTICATION GROOVE SPACED 4'-0" O.C.



SECTION F-F

FOR DETAILS NOT SHOWN SEE SECTION A-A



SECTION E E

NOTES

① ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

② THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENT A-1 OR A-2 RESPECTIVELY.

③ POROUS BACKFILL, 2 FT. THICK, FULL LENGTH OF ABUTMENT AND WINGS, SHALL EXTEND UP TO THE SUBGRADE OR TO THE LIMITS SHOWN

④ PROCEDURE: BEFORE THE BACKWALL IS CONSTRUCTED THE EMBANKMENT SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE WITH A 1:1 SLOPE FROM THE BRIDGE SEAT TO THE SUBGRADE, FOR A MINIMUM DISTANCE OF 200 FEET BACK OF ABUTMENT.

⑤ FOR ADDITIONAL NOTES, SEE SHEET 3/11

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

4/11

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ABUTMENT DETAILS

BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

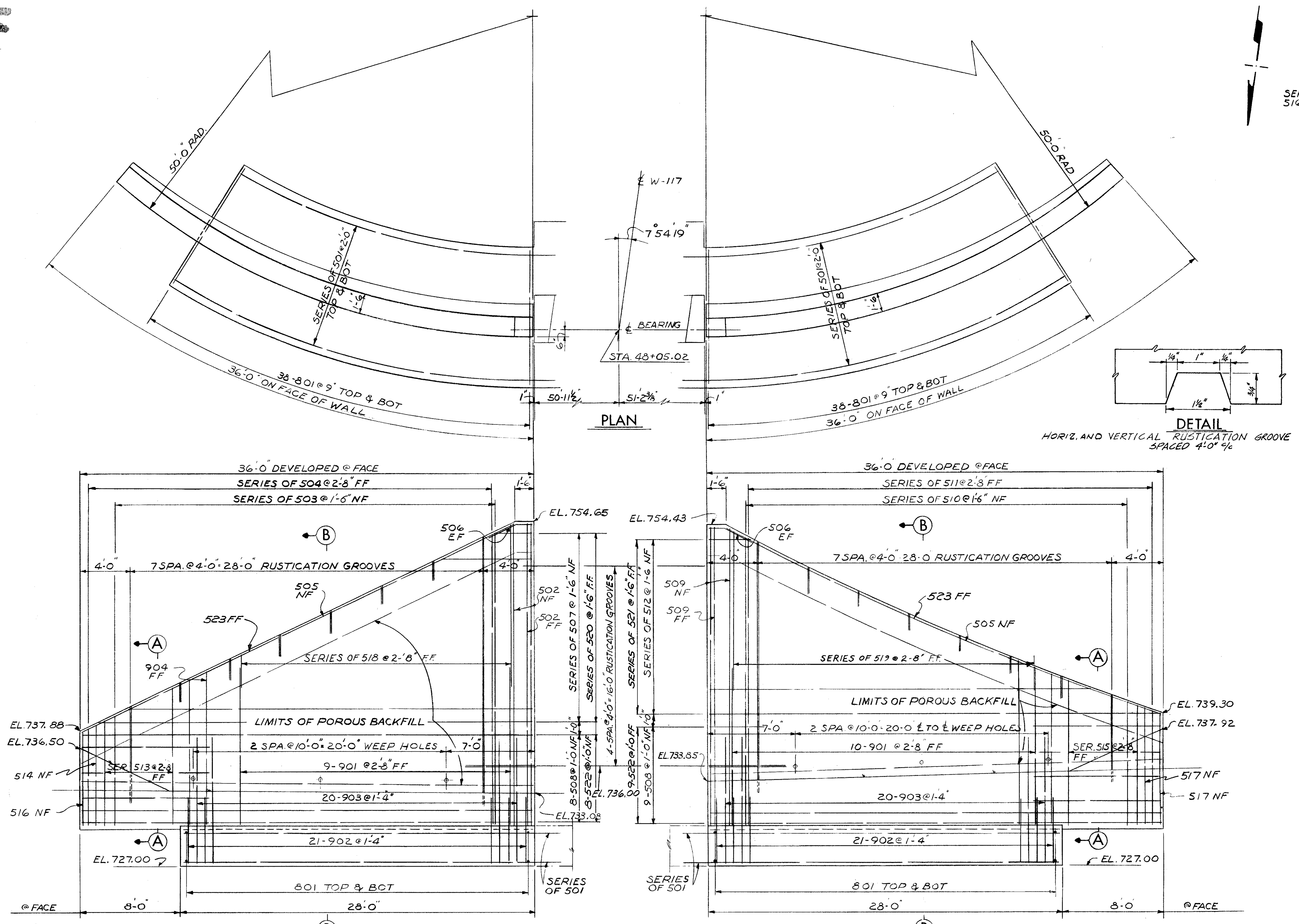
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JLH		CW 11/13/69	RBW	2-12-70	

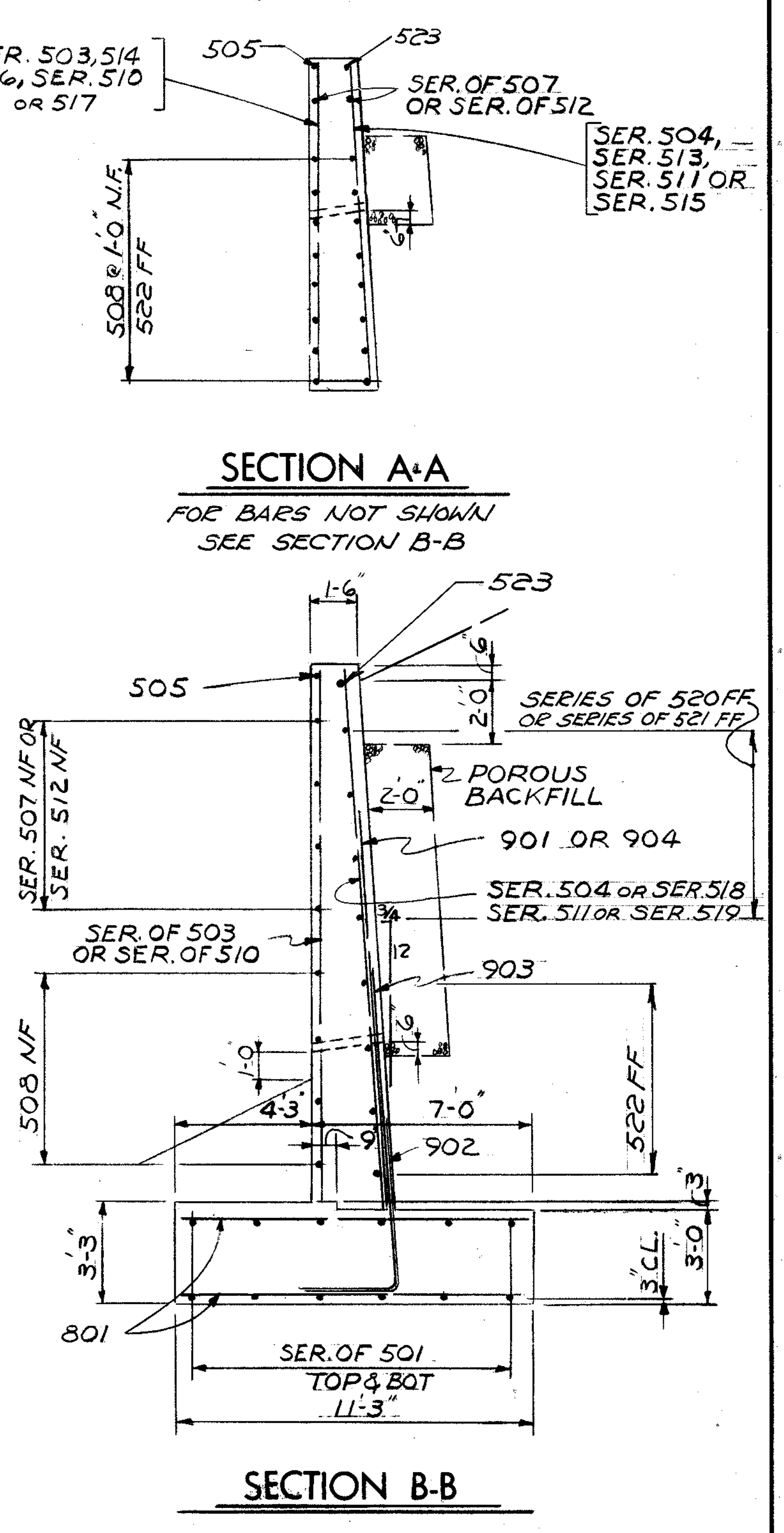
[redacted]

FED. RD.	STATE	PROJECT	
2	OHIO		

416
713

CUYAHOGA COUNTY
CUY - 90 - 10.40





ELEVATION

SECTION A-A

FOR BARS NOT SHOWN SEE SECTION B-B

SECTION B-B

NOTES

① ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

② THE PREFIX "1W" AND "2W" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN WING WALLS FOR ABUTMENTS A-1 AND A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

③ ALL HORIZONTAL DIMENSIONS ARE GIVEN TO FRONT FACE OF WALL UNLESS NOTED.

④ WING WALL FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 3.5 TONS PER SQ. FT.

⑤ FOOTINGS SHALL EXTEND A MINIMUM OF 12" INTO UNDISTURBED ROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

5/11

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ABUTMENT A-1 WING WALLS

BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

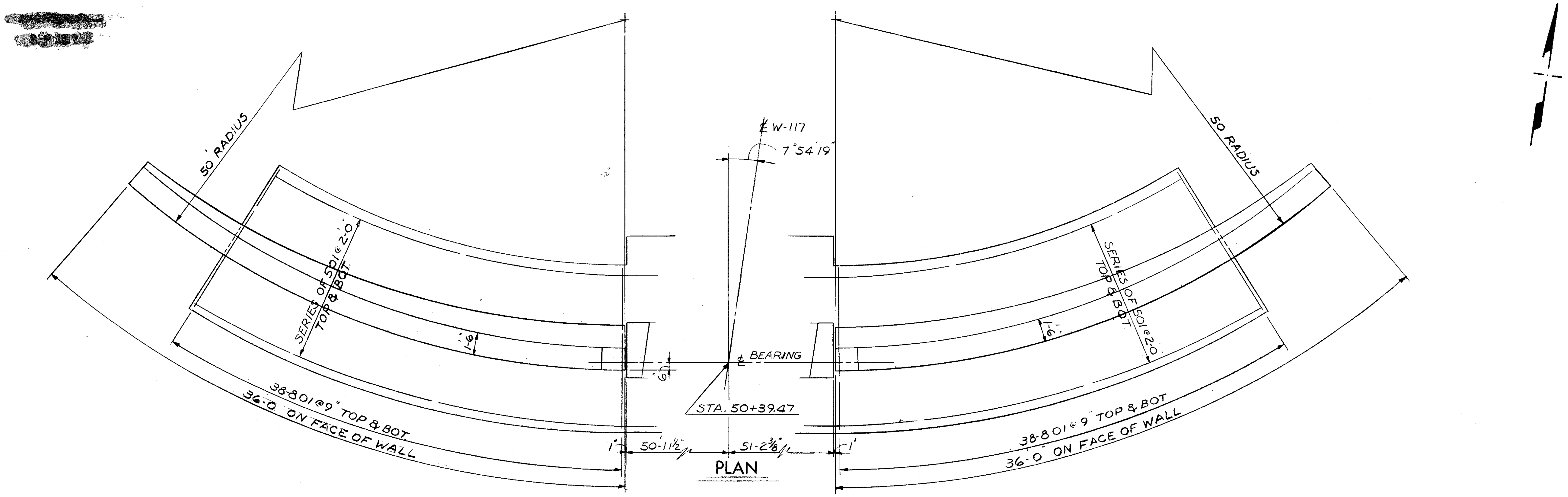
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JLH		HGH	RBH	2-12-70	

[redacted]

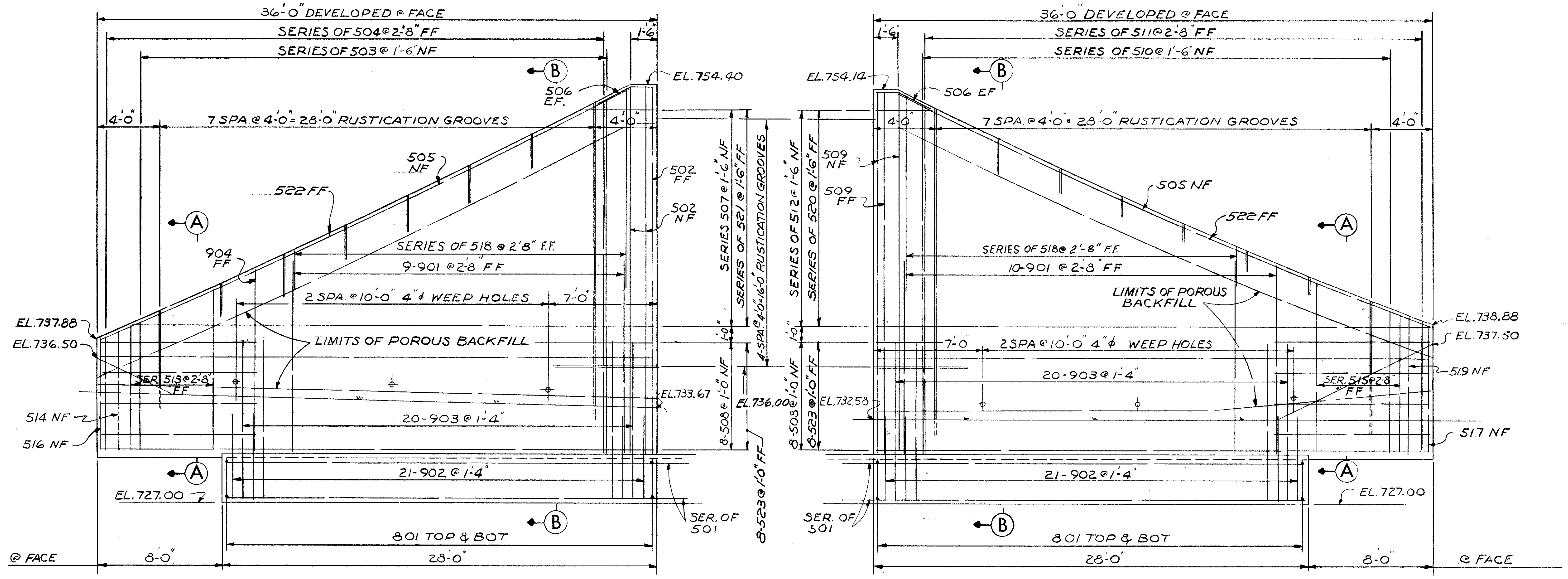
FED. RD.	STATE	PROJECT	
2	OHIO		

417
713

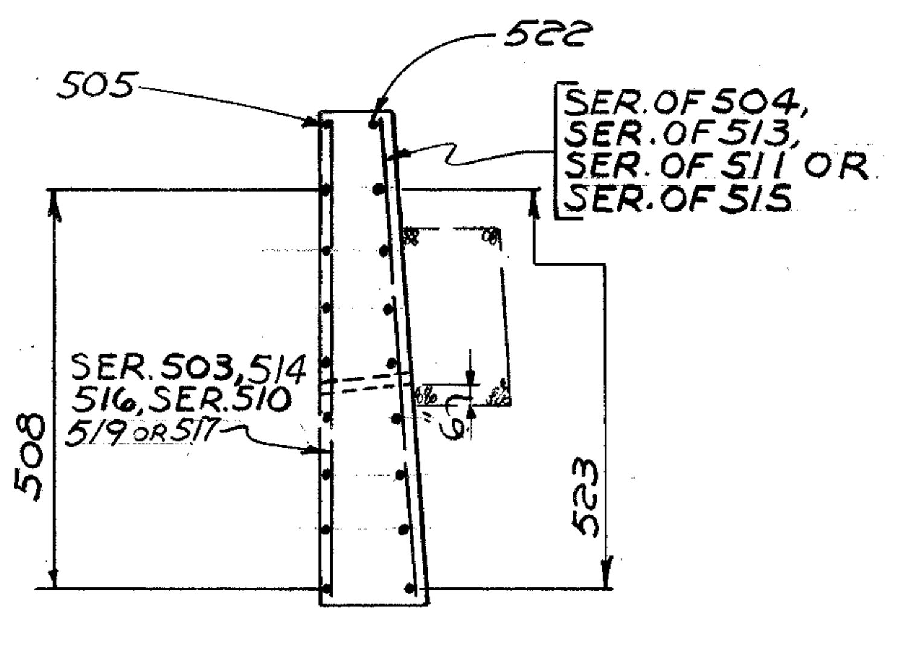
CUYAHOGA COUNTY
CUY - 90 - 10.40



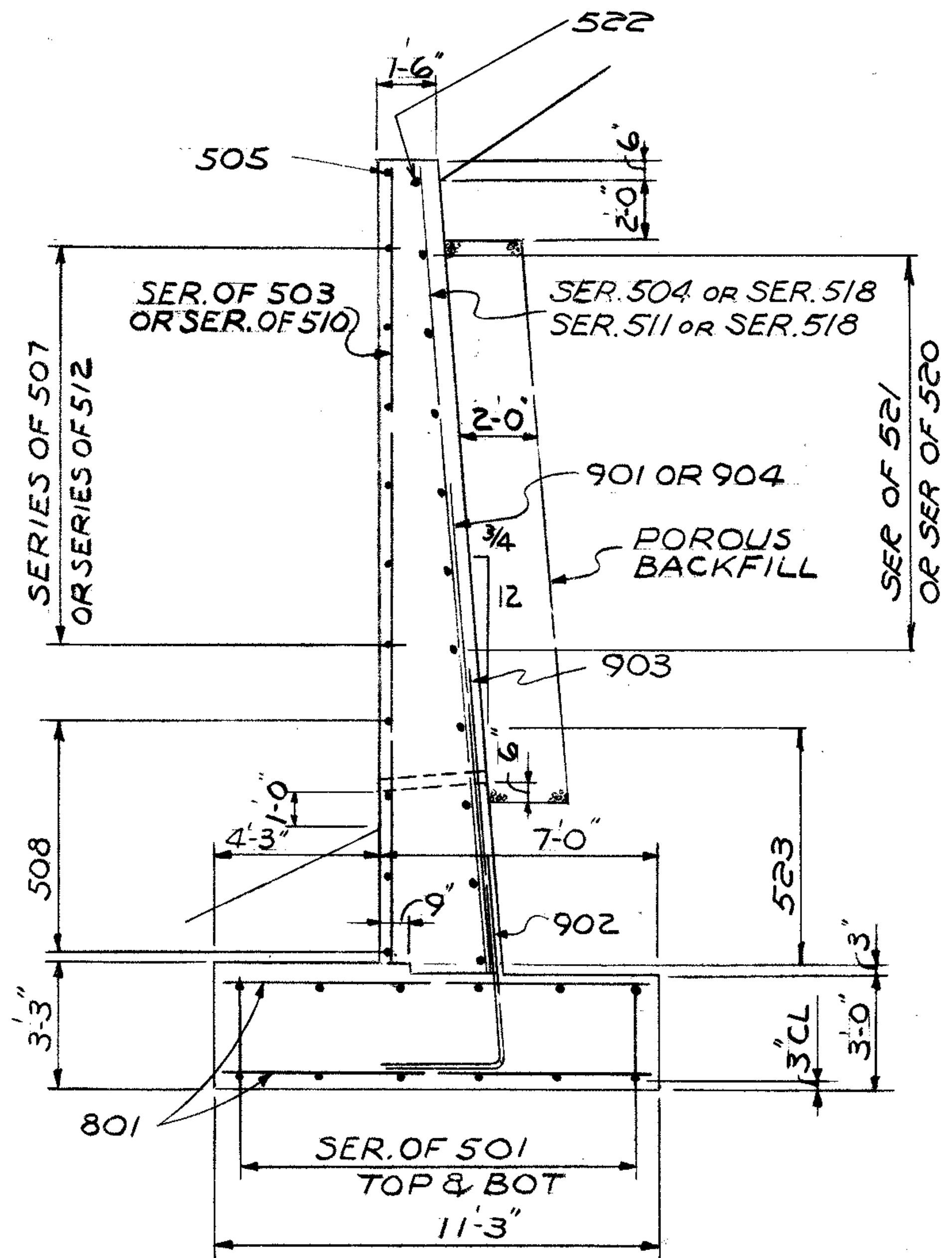
PLAN



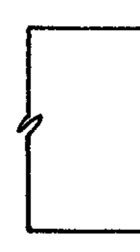
ELEVATION



SECTION A-A



SECTION B-B



DETAIL

HORIZ. & VERTICAL RUSTICATION GROOVE SPACED 4'-0" c/c

FOR ADDITIONAL NOTES, SEE SHEET 5/11

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

6 / 11

DALTON · DALTON ASSOCIATES

ABUTMENT A-2 WING WALLS

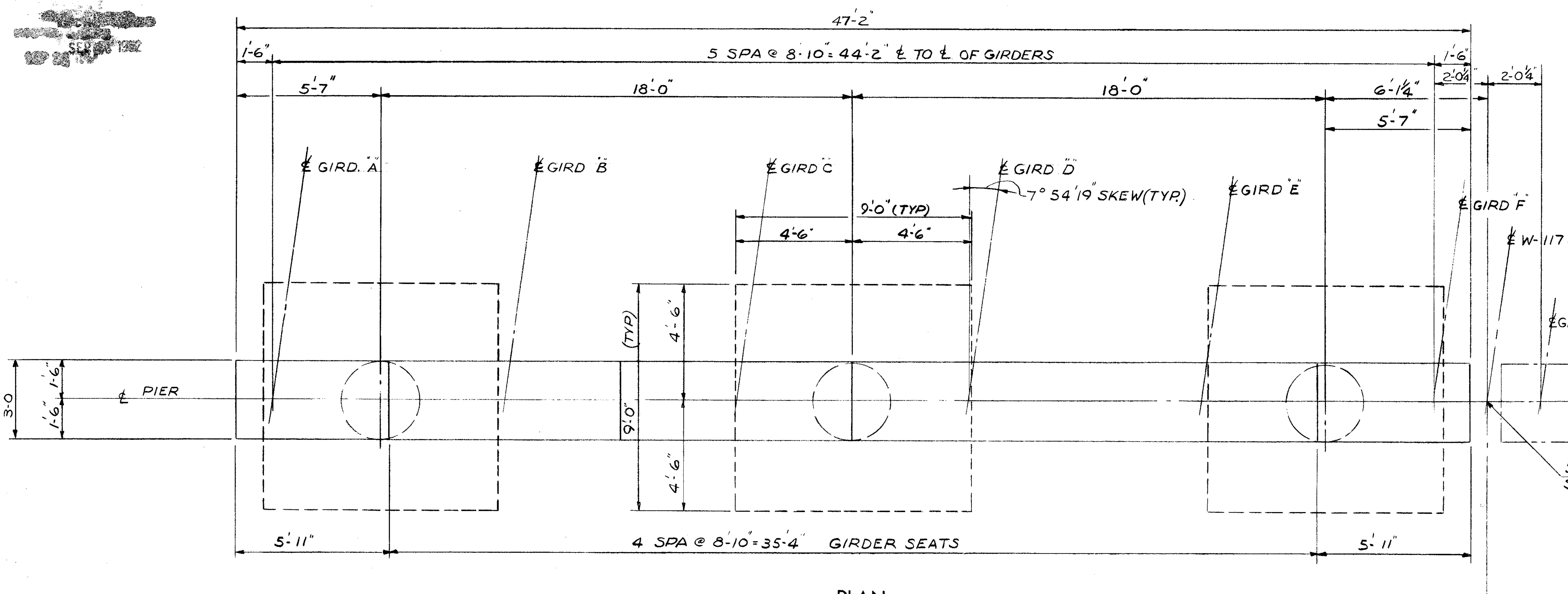
BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JLH		HGH	RDH	2-12-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

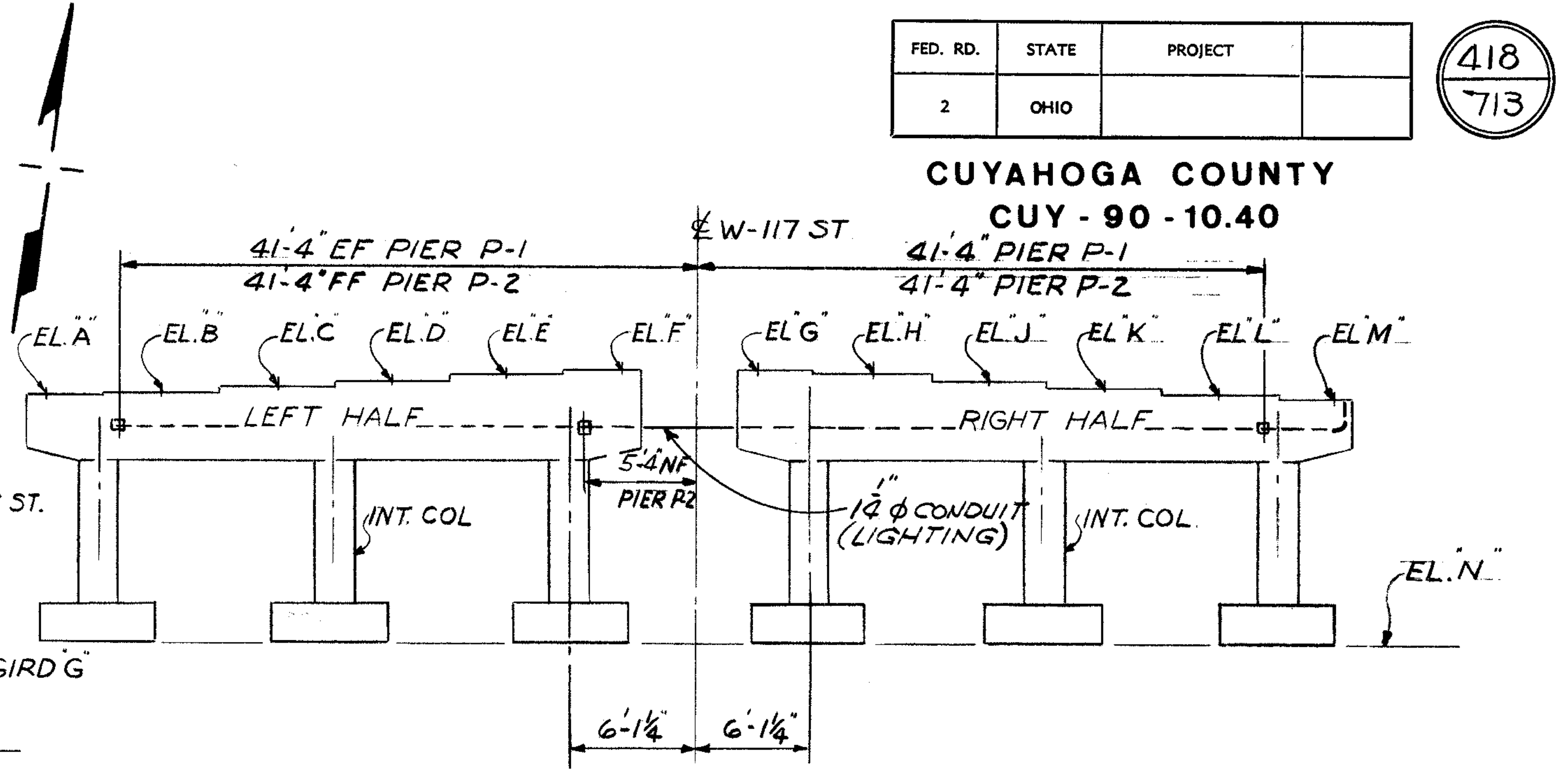
418
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

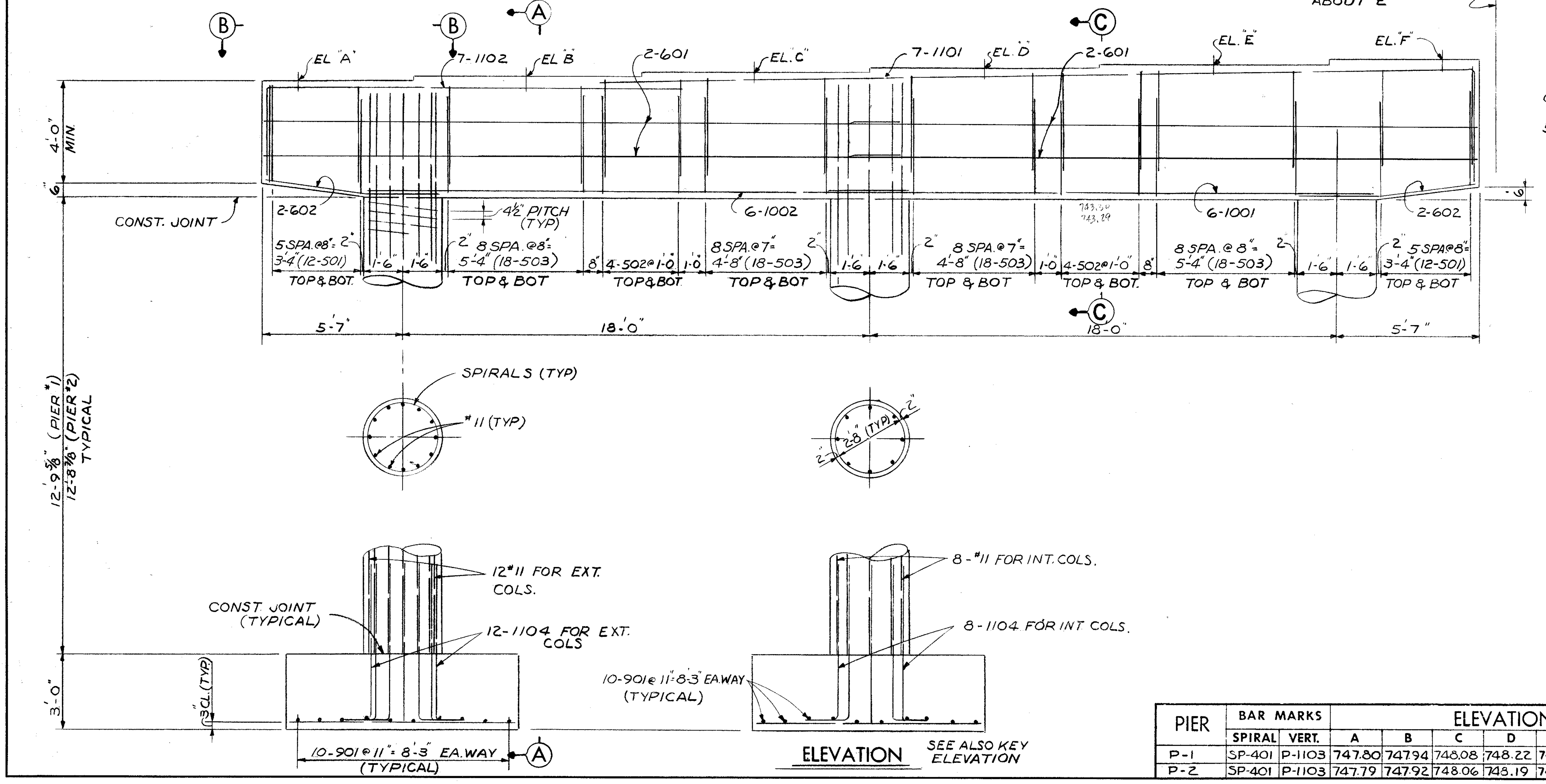


PLAN

SHOWING LEFT HALF PIER
RIGHT HALF PIER SIMILAR

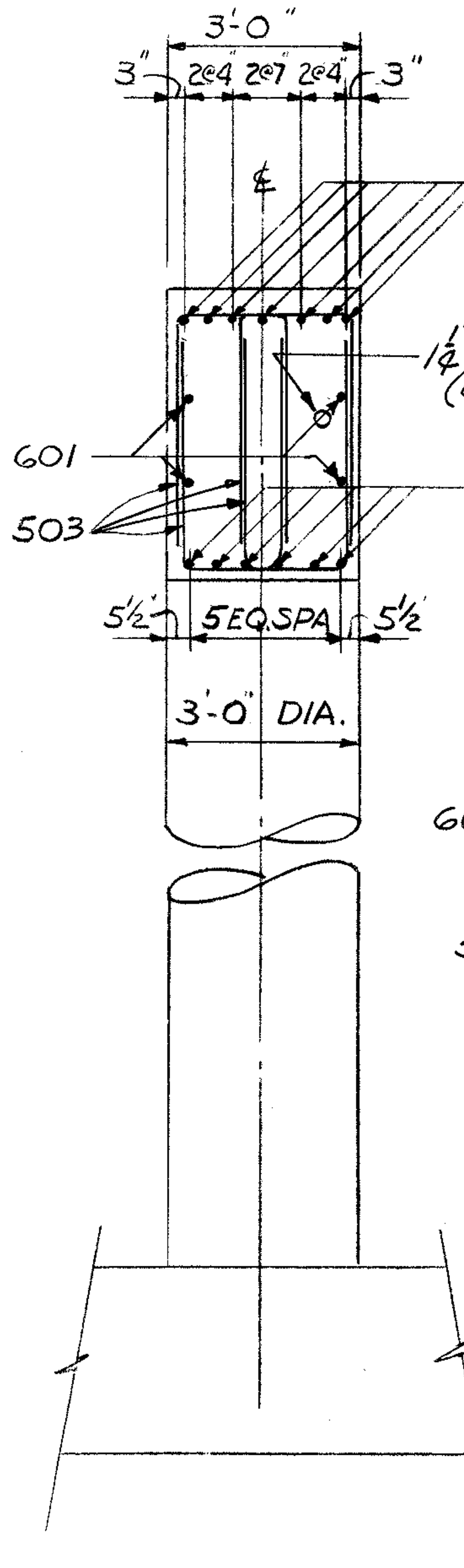


KEY ELEVATION

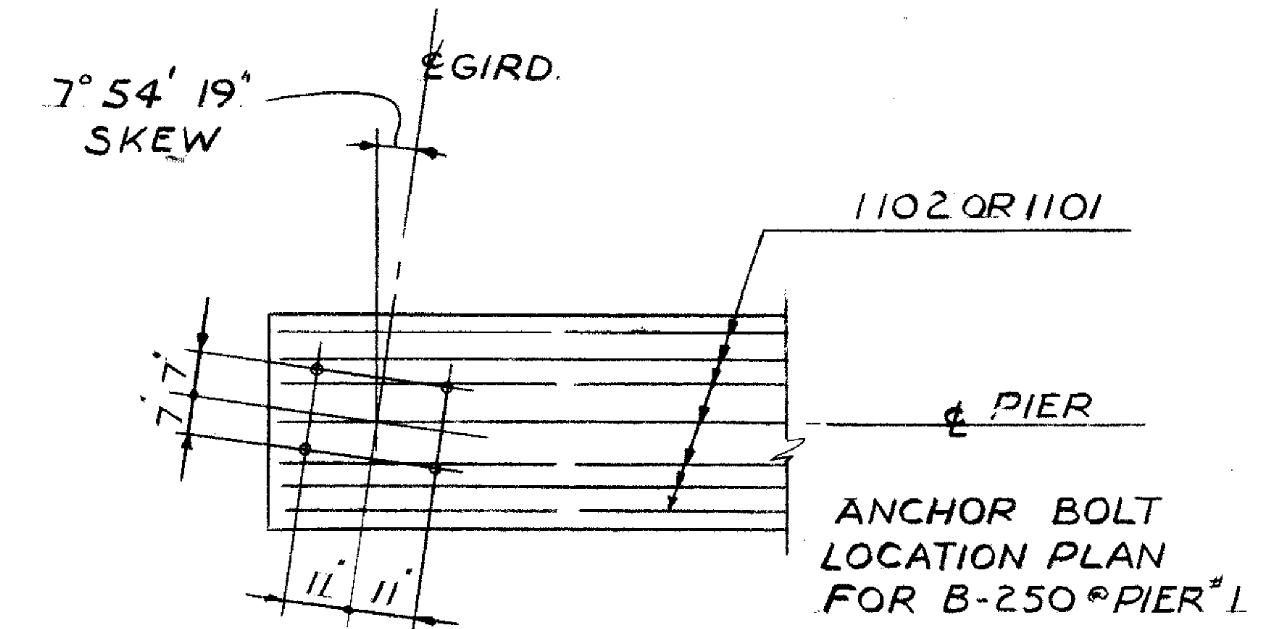


ELEVATION

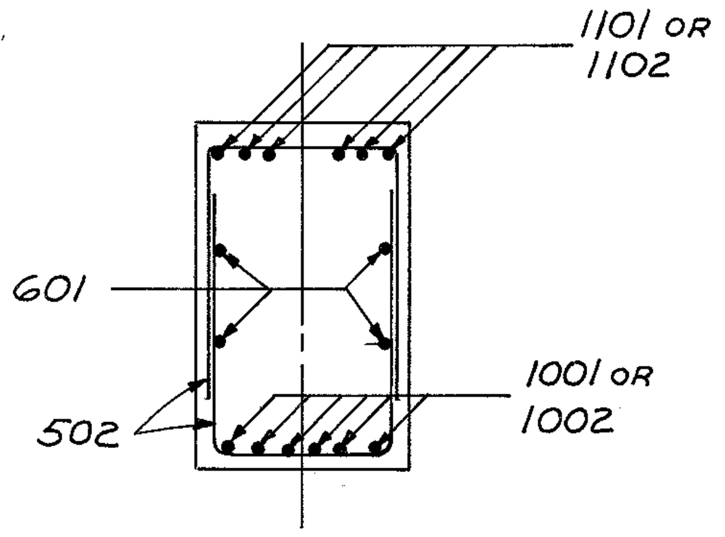
SEE ALSO KEY ELEVATION



SECTION A-A



SECTION B-B



SECTION C-C

NOTES

① BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BOLT HOLES. (PIER P-1 ONLY)

② THE PREFIX "1P" OR "2P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER P-1 OR P-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

③ FOOTINGS SHALL EXTEND A MINIMUM OF 3" INTO UNDISTURBED ROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

④ PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 5 TONS PER SQ. FT.

SEE LIGHTING PLANS FOR LIGHTING DETAILS

PIER	BAR MARKS		ELEVATIONS												
	SPIRAL	VERT.	A	B	C	D	E	F	G	H	J	K	L	M	N
P-1	SP-401	P-1103	747.80	747.94	748.08	748.22	748.36	748.50	748.50	748.37	748.23	748.10	747.96	747.83	727.50
P-2	SP-401	P-1103	747.79	747.92	748.06	748.19	748.32	748.45	748.45	748.31	748.16	748.02	747.88	747.74	727.50

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

7/11

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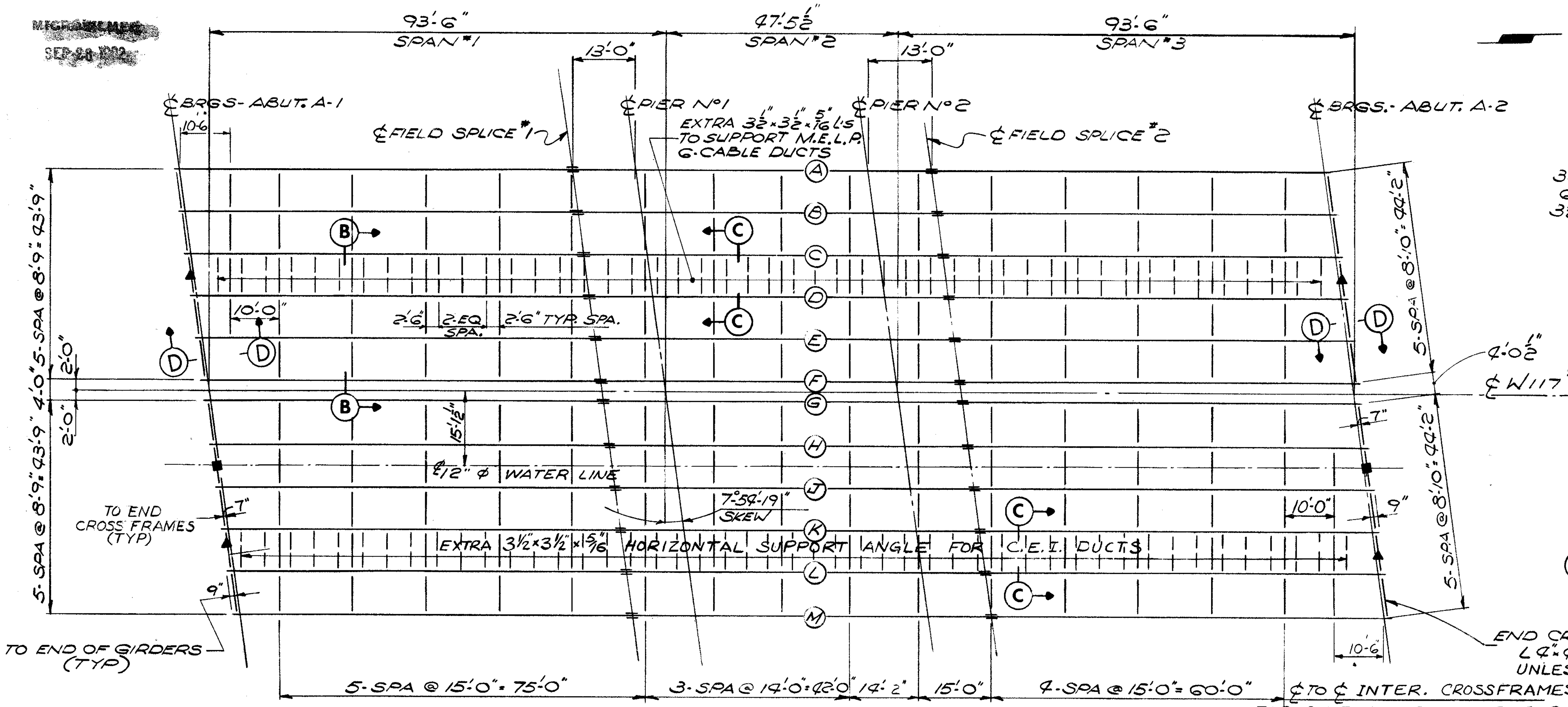
PIER DETAILS

BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JCH		HGH	RDH	2-12-70	

CUYAHOGA COUNTY
CUY - 90 - 10.40

FED. RD.	STATE	PROJECT	
2	OHIO		



℄ W117TH ST.

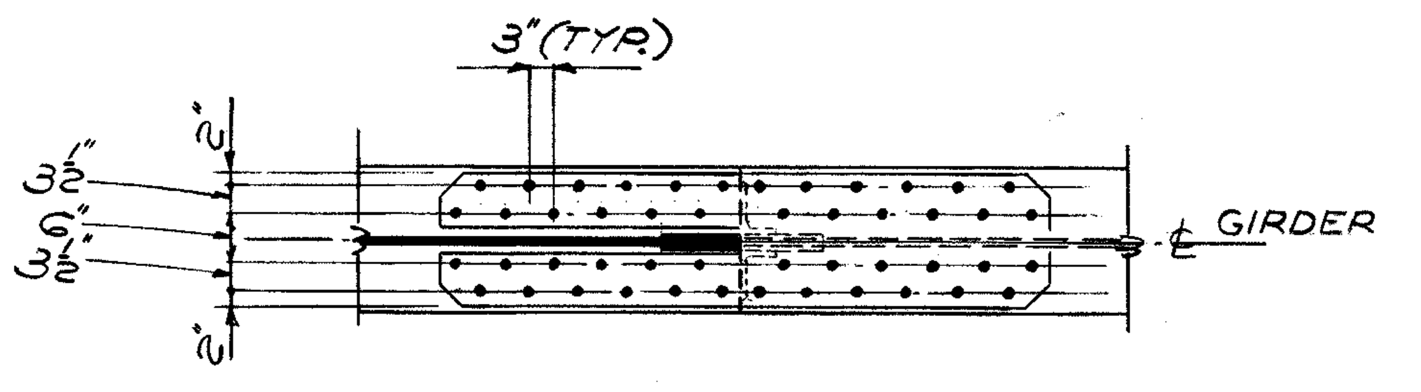
END CROSSFRAMES L 4" × 4" × 5/16" (TYP. UNLESS NOTED)

FOR SIZE AND PLACEMENT SEE TRANSVERSE SECTION SHEET 9/11

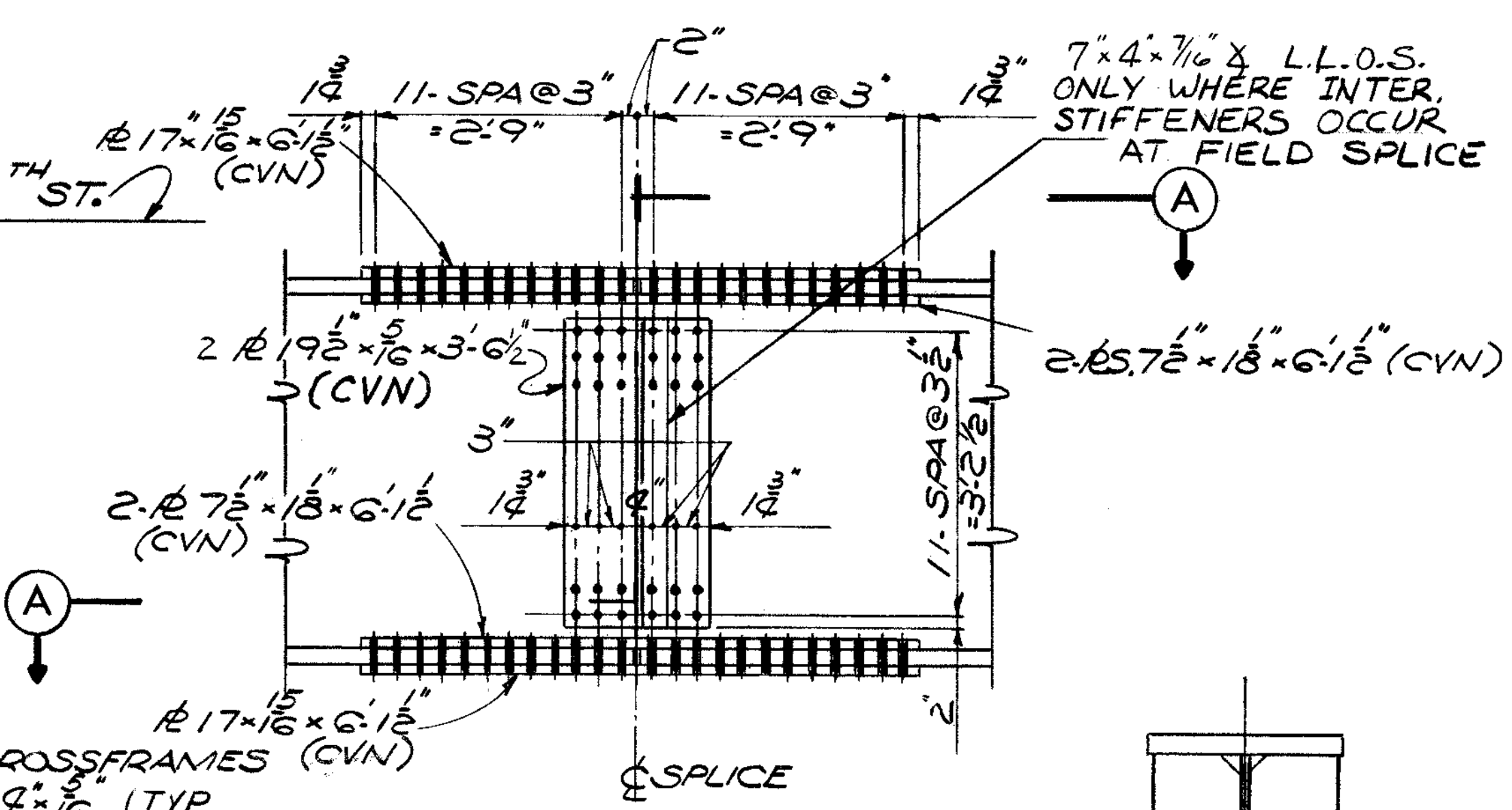
FOR SECTION "B-B" SEE SHT. 9/11

NOTE: EXTRA SUPPORT ANGLES FOR THE C.E.I. AND M.E.L.P. DUCTS SHALL BE ATTACHED TO THE INTERMEDIATE STIFFENERS, THEREFORE STIFFENER SPACING FOR GIRDERS C, D, K & L WILL BE DIFFERENT THAN FOR THE REMAINING GIRDERS.

FRAMING PLAN



SECTION A-A

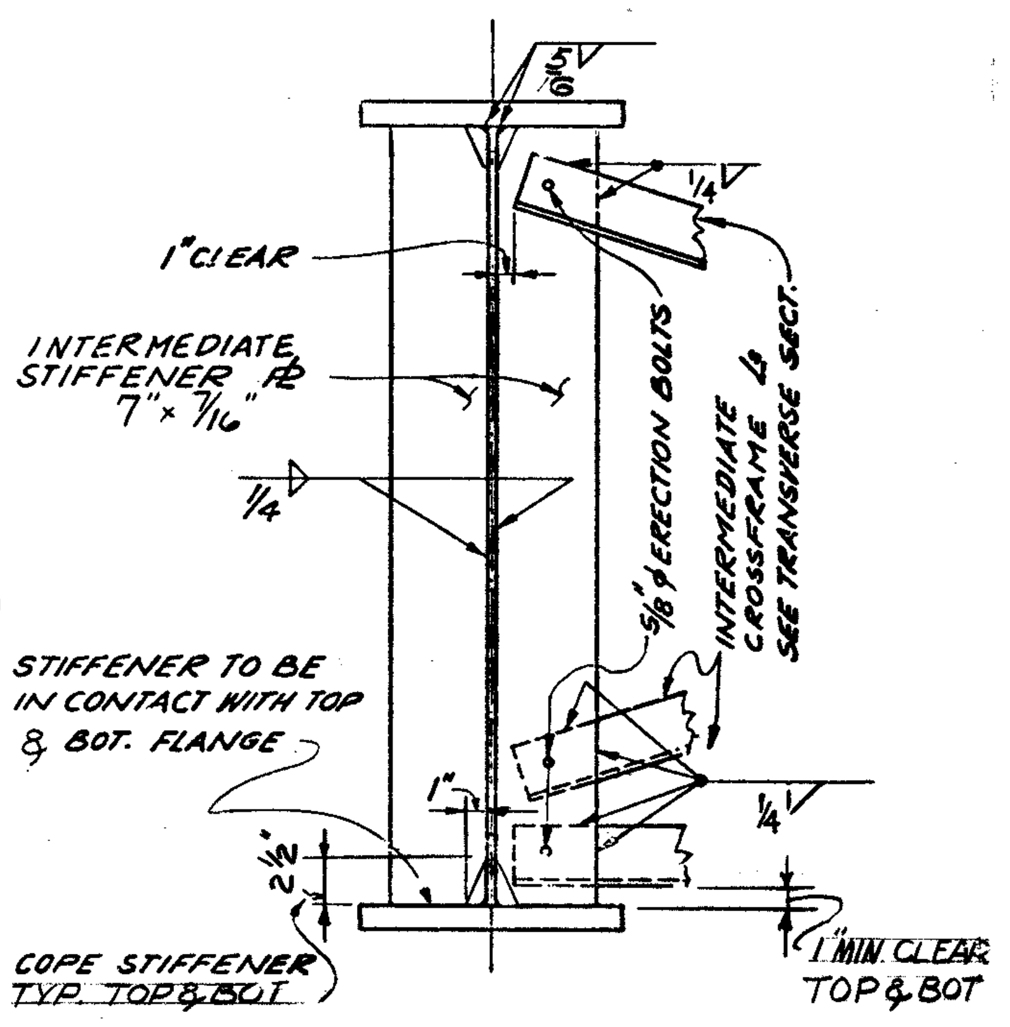


ELEVATION

SPLICE DETAILS

FOR NOTES AND DETAILS NOT SHOWN SEE STD. DWG. SD-1-69, SHT. 4

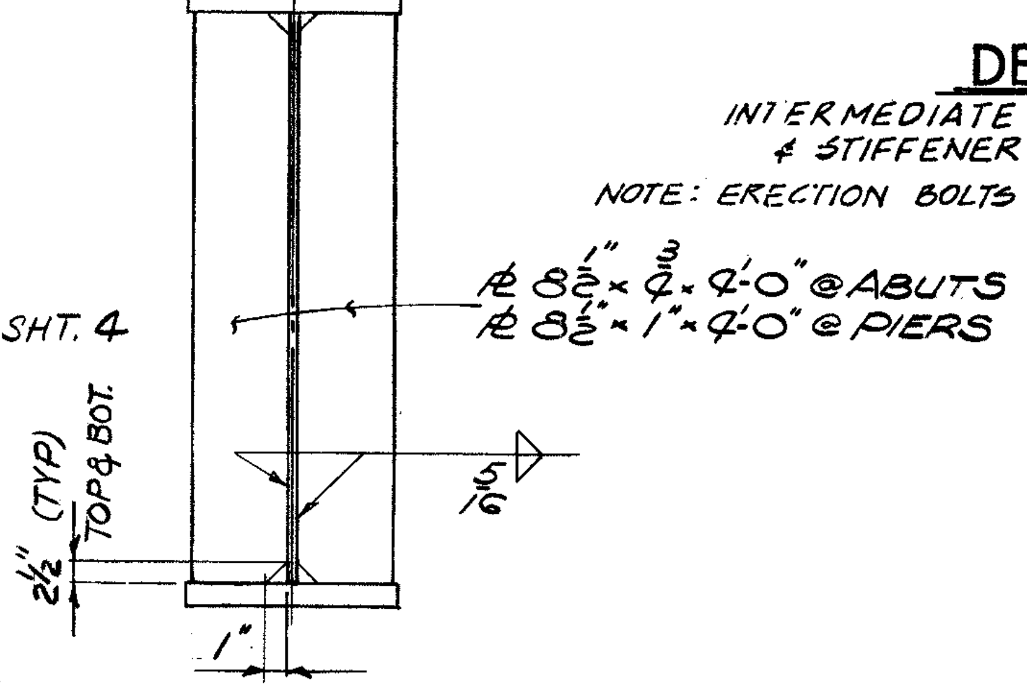
NOTE: TACK WELD NUTS TO ERECTION BOLTS IF LEFT IN PLACE.



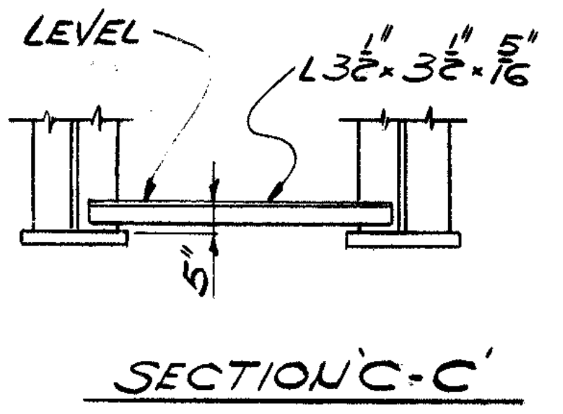
DETAIL "B"

INTERMEDIATE CROSSFRAME L's & STIFFENER PLs.

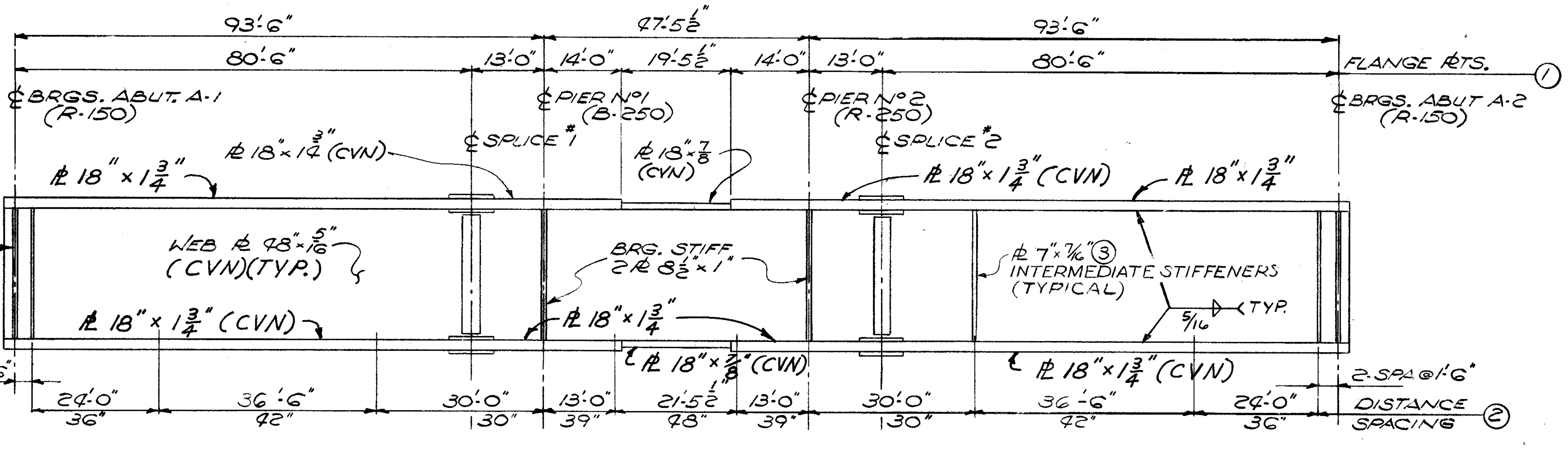
NOTE: ERECTION BOLTS ARE OPTIONAL.



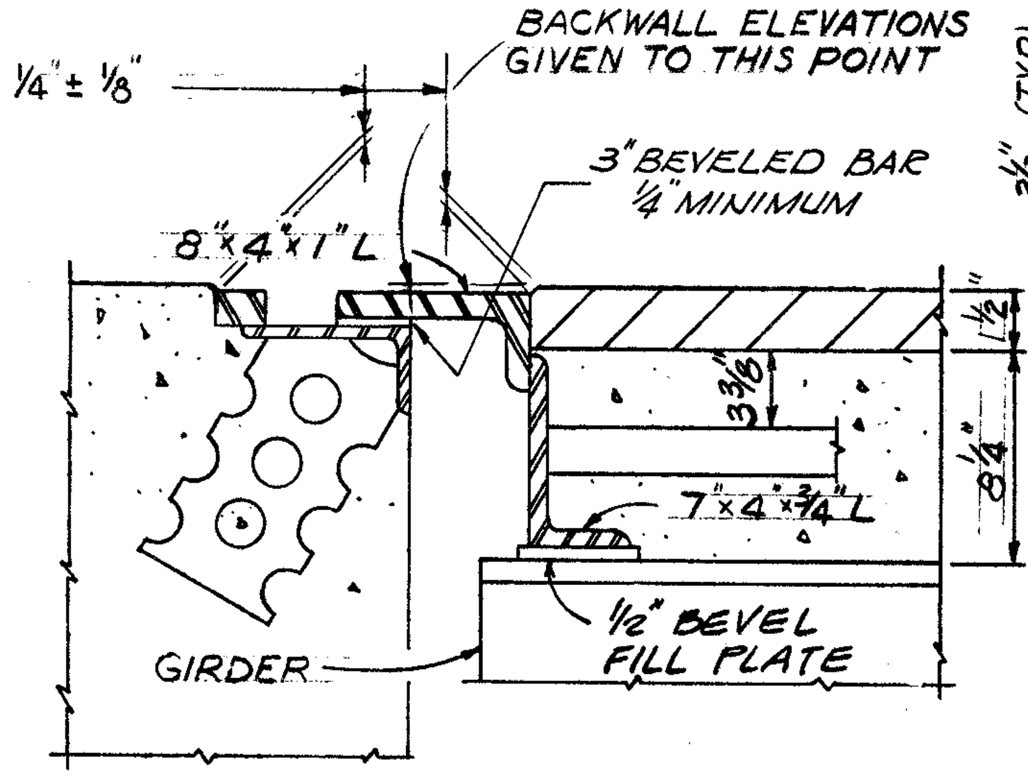
BEARING STIFFENER DETAIL



SECTION "C-C"



GIRDER ELEVATION (TYPICAL)



SECTION D-D

ROADWAY END DAM FOR ADDITIONAL DETAILS, SEE STD. DWG. SD-1-69, SHEET 1 OF 4.

NOTES

① TOP AND BOTTOM FLANGE PLATES ARE TO BE THE SAME SIZE AND SHALL BE SPLICED AT POINTS SHOWN ON THE GIRDER ELEVATION.

② INTERMEDIATE STIFFENERS SHALL BE PLACED IN PAIRS EQUALLY SPACED BETWEEN FIELD SPLICE ANGLES AND/OR CROSSFRAME STIFFENERS AND/OR BEARING STIFFENERS IN ACCORDANCE WITH MAXIMUM STIFFENER SPACING SHOWN ON THE GIRDER ELEVATION.

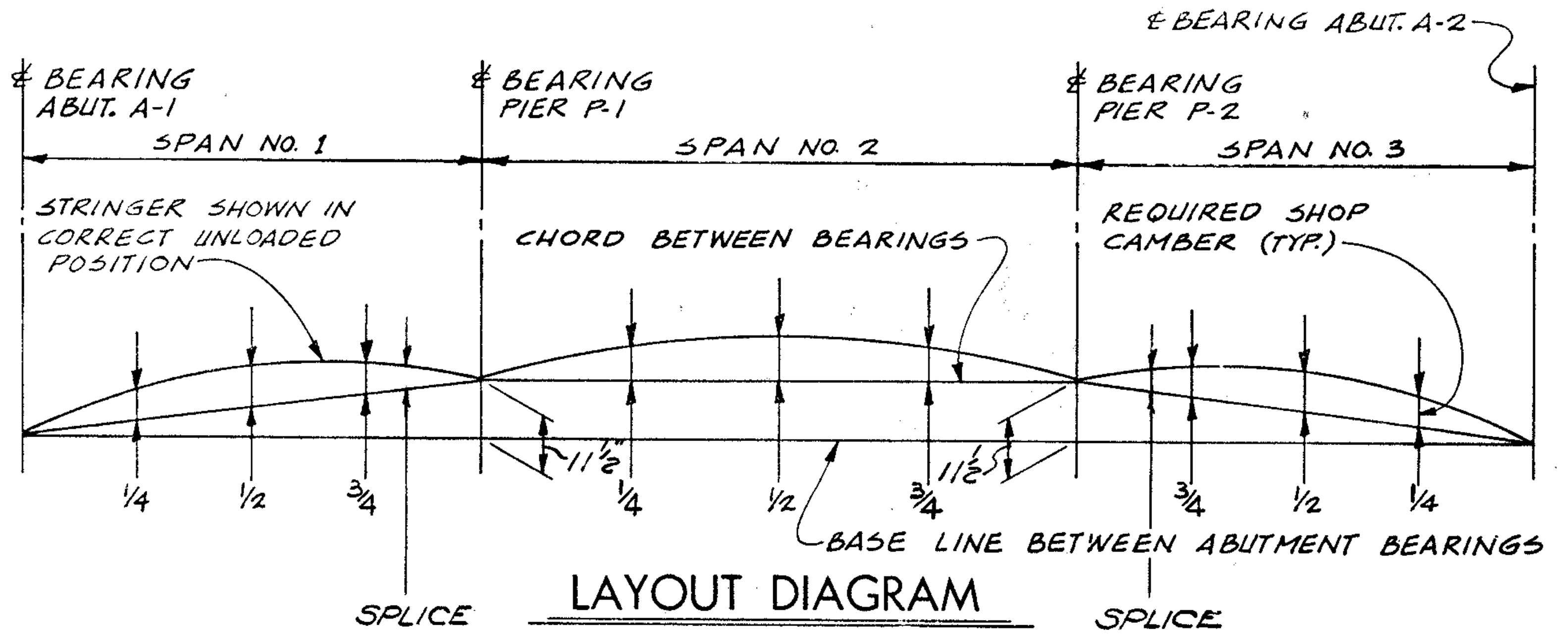
③ INTERMEDIATE STIFFENERS SHALL HAVE CONTACT BEARING WITH THE TOP & BOTTOM FLANGE OF THE GIRDER.

④ ALL GIRDER FIELD SPLICES SHALL BE MADE WITH 1" ϕ HIGH STRENGTH STEEL BOLTS. THE BOLTS SHALL BE PLACED WITH THEIR HEADS ON THE OUTSIDE FACE OF EXTERIOR GIRDERS AND ON THE BOTTOM OF ALL FLANGE PLATES.

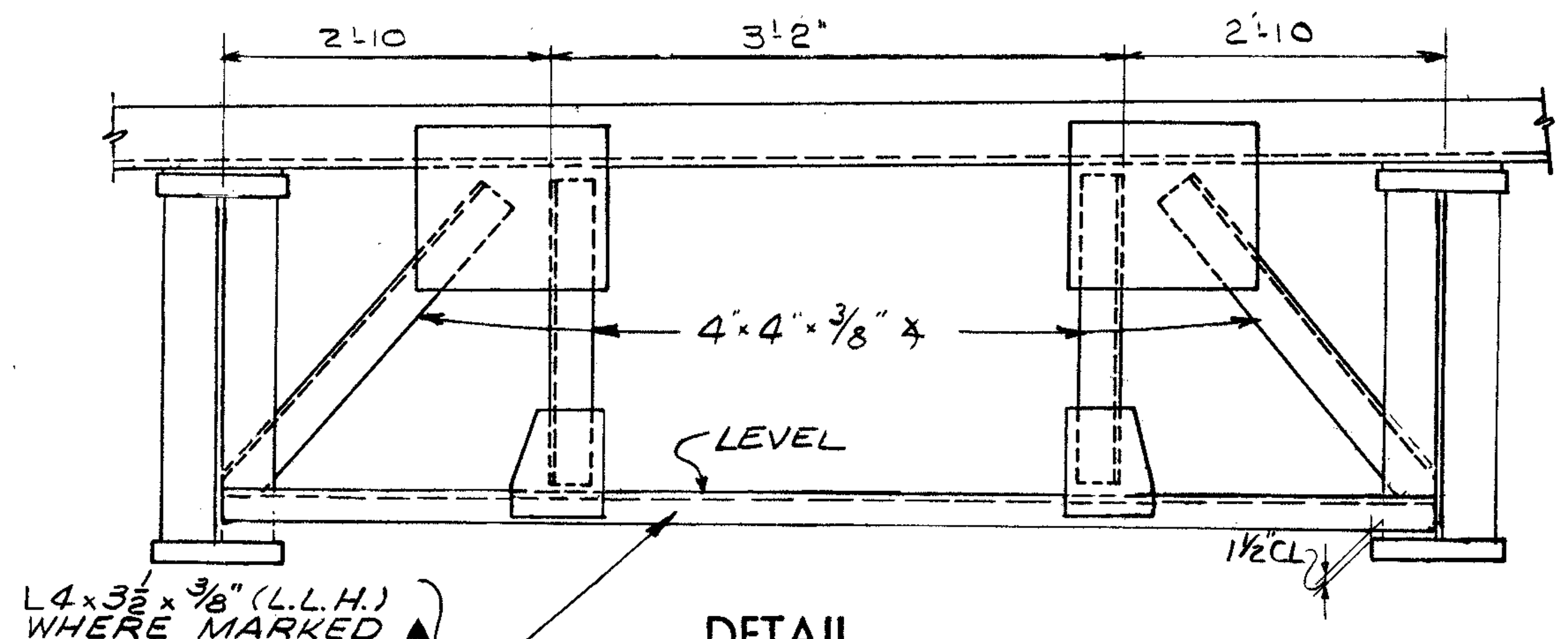
⑤ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 9/11

DEFLECTION & CAMBER

SPANS	SPANS 1 & 3				SPAN #2		
POINTS	1/4	1/2	3/4	SPLICE	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	1/4"	3/8"	1/4	1/8	-1/16"	-1/8"	-1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	13/16"	1 1/16"	11/16"	7/16"	-1/4"	-5/16"	-1/4"
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	1 7/16"	1 15/16"	1 7/16"	15/16"	3/8"	1/2"	3/8"
REQUIRED SHOP CAMBER	2 1/2"	3 3/8"	2 3/8"	1 1/2"	1/16"	1/16"	1/16"



LAYOUT DIAGRAM



L 4 × 3 1/2 × 3/8" (L.L.H.) WHERE MARKED ▲
6 C 10.5 WHERE MARKED ■

DETAIL

SPECIAL END CROSSFRAME MARKED THUS ▲ OR THUS ■ FOR DETAILS NOT SHOWN SEE STANDARD DRAWING SD-1-69, SHEET NO. 1

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

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FRAMING PLAN

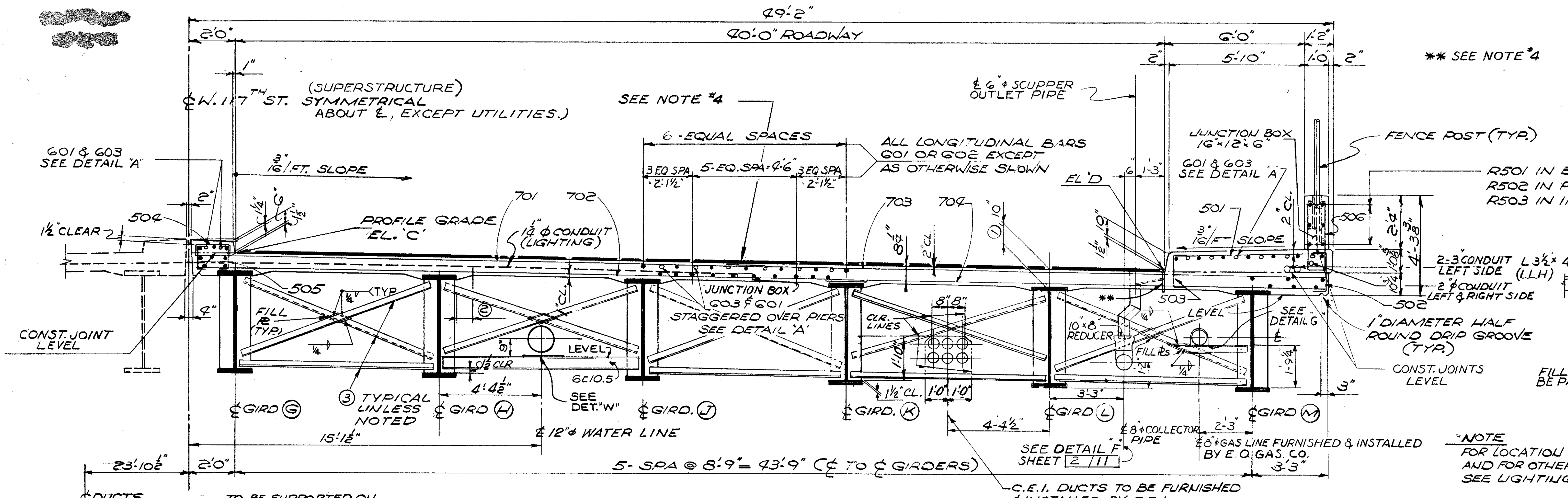
BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		ALH	RDH	2-12-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

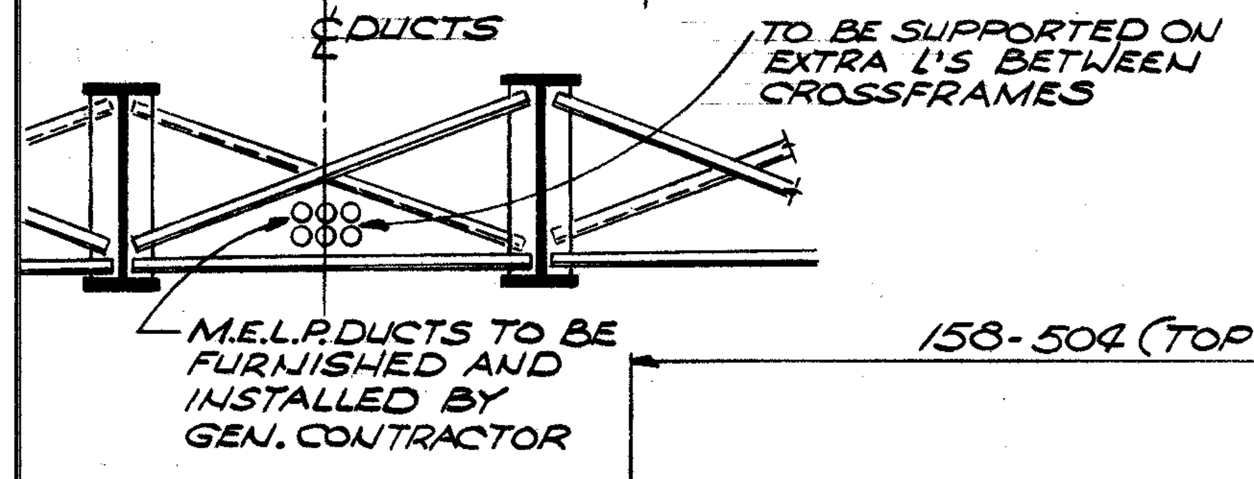
420
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

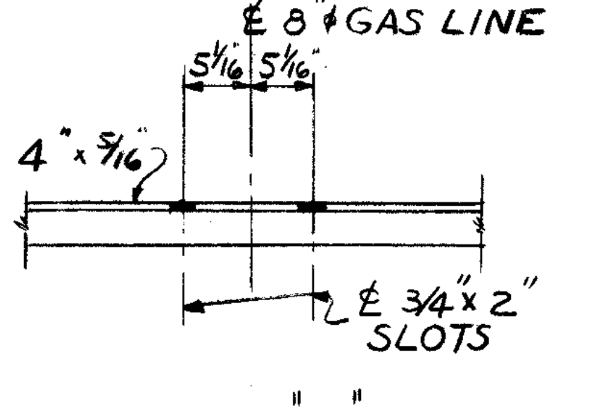


*NOTE
FOR LOCATION OF LUMINAIRES AND FOR OTHER LIGHTING DETAILS SEE LIGHTING PLANS.

HALF TRANSVERSE SECTION

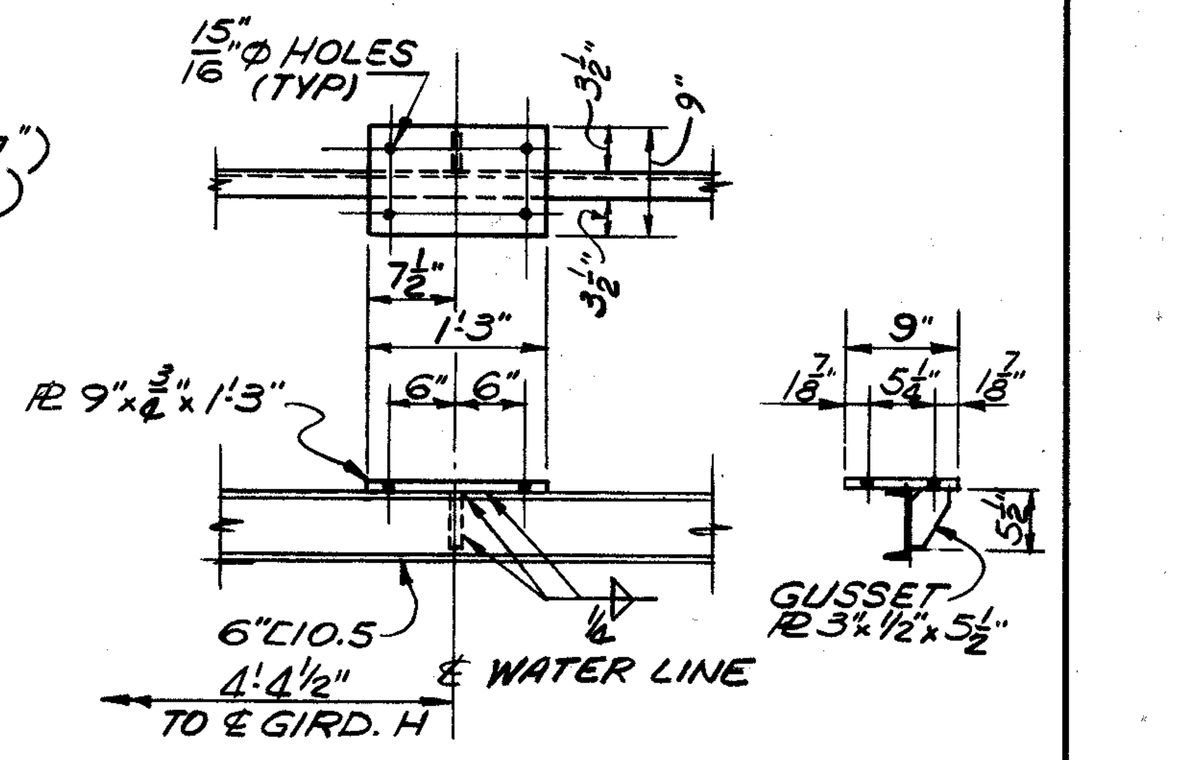


SECTION "B-B"

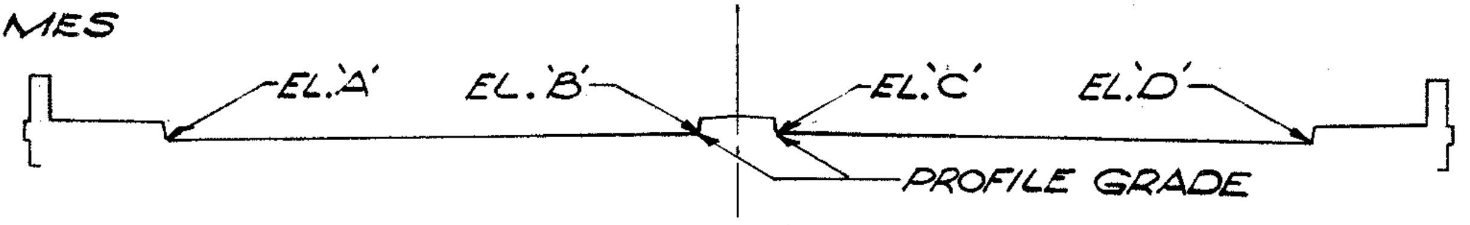


DETAIL "G"

FILL PLATES AND L 3½" × 4" × 5/16" TO BE PAID FOR BY EAST OHIO GAS CO.



DETAIL W



LEFT RIGHT

TABLE OF ELEVATIONS ⑤					
ELEVATION		EL. "A"	EL. "B"	EL. "C"	EL. "D"
℄ BRG (A-1)		753.39	754.11	754.11	753.58
¼ PT		753.81	754.51	754.51	753.96
½ PT		754.11	754.79	754.79	754.22
¾ PT		754.27	754.93	754.93	754.34
℄ BRG (P-1)		754.33	754.97	754.97	754.36
¼ PT		754.34	754.97	754.97	754.35
½ PT		754.34	754.96	754.96	754.33
¾ PT		754.33	754.94	754.94	754.30
℄ BRG (P-2)		754.32	754.92	754.92	754.27
¼ PT		754.25	754.83	754.83	754.16
½ PT		754.08	754.64	754.64	753.95
¾ PT		753.77	754.32	754.31	753.60
℄ BRG (A-2)		753.34	753.87	753.86	753.13

NOTES

① THIS IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

② A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

③ INTERMEDIATE CROSS FRAME ANGLES 3½×3½×5/16..U N SEE DETAIL "B" SHEET 8/11

④ SEE SHEET 411-A FOR SUBDRAINAGE AND ASPHALT CONCRETE WEARING SURFACE DETAILS.

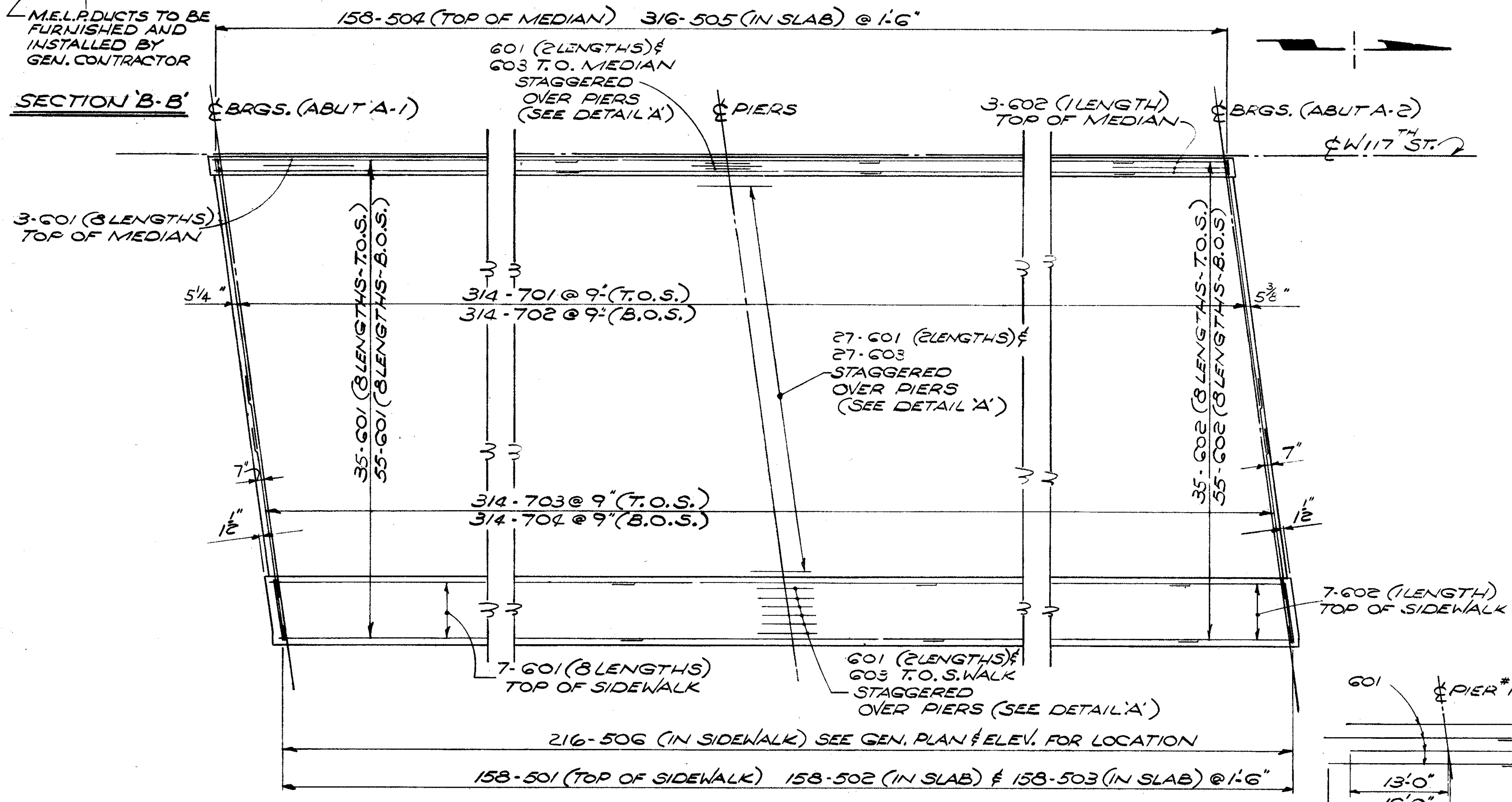
⑤ ELEVATIONS SHOWN ARE ON TOP OF THE CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE AND ASPHALT WEARING SURFACE.

⑥ TRANSVERSE REINFORCEMENT SHALL BE FIELD BENT AS REQUIRED AND PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL.

⑦ THE PREFIX "S" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE UNLESS SHOWN OTHERWISE.

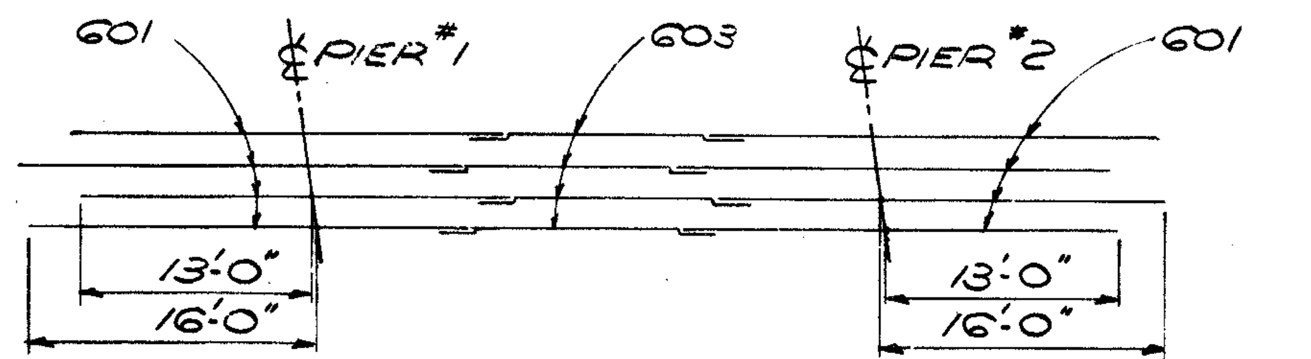
⑧ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 8/11

⑨ FOR PARAPET & FENCE POST SPACING SEE GENERAL PLAN AND ELEVATION SHEET 2/11



HALF SLAB PLAN

RIGHT HALF SHOWN
LEFT HALF SIMILAR



DETAIL A

ABBREVIATIONS
T.O.S. - TOP OF SLAB
B.O.S. - BOTTOM OF SLAB
U.N. - UNLESS NOTED

DETAIL B

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

9/11

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SLAB PLAN & SECTION

BRIDGE NO. CUY-90-1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		ALH	RDH	2-12-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

421
713

SEP 28 1992

CUYAHOGA COUNTY
CUY - 90 - 10.40

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
ABUTMENT A-1									
1A 501	48	30- 0	ST						1502
1A 502	16	17- 0	ST						284
1A 503	136	26- 2	ST						3712
1A 504	38	21- 0	ST						832
1A 505	38	31- 6	ST						1248
1A 506	108	8- 6	2	2- 8	3- 5				957
1A 507	108	6-11	12	2-10	4- 2	2-11			779
1A 508	108	16- 6	ST						1859
1A 509	148	13-10	ST						2135
1A 510	41	10- 0	ST						428
1A 511	12	9- 0	ST						113
1A 512	20	3- 5	ST						71
1A 513	4	8- 0	ST						33
SERIES	10-SETS	18- 2		7- 6				1	
OF	OF 9=	TO	4	TO	1- 8	1- 0		0- 5--	1533
1A 514	90 BARS	14- 6		5- 8				2	
SERIES	10-SETS	13-10		5- 4				11	
OF	OF 7=	TO	4	TO	1- 8	1- 0		0- 8--	852
1A 515	70 BARS	9- 6		3- 2				16	
SERIES	20-SETS	12- 6							
OF	OF 4=	TO	ST					2- 9	699
1A 516	80 BARS	4- 3							
1A 517	4	3- 0	ST						13
1A 518	4	4- 0	ST						17
1A 519	2	6- 2	3	3- 6	1- 2	1- 9			13
1A 601	216	5-11	1	1- 0	5- 0				1920
1A 602	98	13- 6	2	6- 2	1- 5				1987
1A 603	98	8-10	2	3-10	1- 5				1300
1A 604	98	7- 2	2	3- 3	0-11				1055
1A 605	4	10- 7	2	1- 5	8- 0				64
1A 606	4	8- 1	12	2- 0	6- 2	5- 8			49
1A 607	2	6- 2	ST						19
1A 701	36	30- 0	ST						2208
1A 702	12	19- 0	ST						466
1A 703	102	10- 6	ST						2189
1A 801	54	6- 5	19	1- 7	3- 0	3- 0	0- 9		925
1A 901	123	12- 9	ST						5332
1A 902	140	6- 7	1	1- 0	5- 9				3134
1A1101	40	18-10	6	17- 3					4002
1A1102	40	15-11	13	3- 6	12- 2	3- 9			3383
1A1103	40	9- 9	13	3- 6	6- 3	1-11			2072
						TOTAL ABUTMENT		A-1 =	47185
ABUTMENT A-2									
2A 501	48	30- 0	ST						1502
2A 502	16	17- 0	ST						284
2A 503	136	26- 2	ST						3712
2A 504	38	21- 0	ST						832
2A 505	38	31- 6	ST						1248
2A 506	108	8- 6	2	2- 8	3- 5				957
2A 507	108	6-11	12	2-10	4- 2	2-11			779
2A 508	108	16- 6	ST						1859
2A 509	148	13-10	ST						2135
2A 510	41	10- 0	ST						428
2A 511	12	9- 0	ST						113
2A 512	20	3- 5	ST						71
2A 513	4	8- 0	ST						33
SERIES	10-SETS	18- 2		7- 6				1	
OF	OF 9=	TO	4	TO	1- 8	1- 0		0- 5--	1533
2A 514	90 BARS	14- 6		5- 8				2	
SERIES	10-SETS	13-10		5- 4				11	
OF	OF 7=	TO	4	TO	1- 8	1- 0		0- 8--	852
2A 515	70 BARS	9- 6		3- 2				16	
SERIES	20-SETS	12- 6							
OF	OF 4=	TO	ST					2- 9	699
2A 516	80 BARS	4- 3							
2A 517	4	3- 0	ST						13
2A 518	4	4- 0	ST						17
2A 519	2	6- 2	3	3- 6	1- 2	1- 9			13
2A 601	216	5-11	1	1- 0	5- 0				1920
2A 602	98	13- 6	2	6- 2	1- 5				1987
2A 603	98	8-10	2	3-10	1- 5				1300
2A 604	98	7- 2	2	3- 3	0-11				1055
2A 605	4	10- 7	2	1- 5	8- 0				64
2A 606	4	8- 1	12	2- 0	6- 2	5- 8			49
2A 607	2	6- 2	ST						19
2A 701	36	30- 0	ST						2208
2A 702	12	19- 0	ST						466
2A 703	102	10- 6	ST						2189
2A 801	54	6- 5	19	1- 7	3- 0	3- 0	0- 9		925
2A 901	123	12- 9	ST						5332
2A 902	140	6- 7	1	1- 0	5- 9				3134
2A1101	40	18-10	6	17- 3					4002
2A1102	40	15-11	13	3- 6	12- 2	3- 9			3383
2A1103	40	9- 9	13	3- 6	6- 3	1-11			2072
						TOTAL ABUTMENT		A-2 =	47185

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
ABUTMENT A-1 WING WALL									
SERIES	4-SETS	32- 0							
OF	OF 6=	TO	ST					1- 1	733
1W 501	24 BARS	26- 7							
1W 502	3	24- 0	ST						75
SERIES	1-SET	23- 3							
OF	OF 21=	TO	ST					0- 9	345
1W 503	21 BARS	8- 3							
SERIES	1-SET	23- 3							
OF	OF 13=	TO	ST					1- 4	207
1W 504	13 BARS	7- 3							
1W 505	2	38- 0	ST						79
1W 506	4	3-10	12	1- 4	2- 6	1- 3			16
SERIES	1-SET	34- 5							
OF	OF 11=	TO	ST					3- 1	218
1W 507	11 BARS	3- 7							
1W 508	17	35- 8	ST						632
1W 509	3	23- 9	ST						74
SERIES	1-SET	23- 0							
OF	OF 21=	TO	ST					0- 8	358
1W 510	21 BARS	9- 8							
SERIES	1-SET	23- 0							
OF	OF 13=	TO	ST					1- 2	217
1W 511	13 BARS	9- 0							
SERIES	1-SET	35- 0						11	
OF	OF 10=	TO	ST					3- 6--	198
1W 512	10 BARS	3- 0						16	
SERIES	1-SET	10- 8							
OF	OF 3=	TO	ST					1- 4	29
1W 513	3 BARS	8- 0							
1W 514	1	8- 0	ST						8
SERIES	1-SET	11- 4							
OF	OF 3=	TO	ST					1- 2	32
1W 515	3 BARS	9- 0							
1W 516	1	7- 2	ST						7
1W 517	2	8- 7	ST						18
SERIES	1-SET	13- 7						7	
OF	OF 9=	TO	ST					1- 3--	78
1W 518	9 BARS	3- 0						8	
SERIES	1-SET	13- 1						1	
OF	OF 10=	TO	ST					1- 2--	81
1W 519	10 BARS	2- 6						8	
SERIES	1-SET	33- 0						5	
OF	OF 11=	TO	ST					2-11--	208
1W 520	11 BARS	3- 4						8	
SERIES	1-SET	34- 4						5	
OF	OF 10=	TO	ST					3- 3--	204
1W 521	10 BARS	4-10						16	
1W 522	17	34- 0	ST						603
1W 523	2	36- 1	ST						75
1W 801	152	10-11	ST						4430
1W 901	19	12- 7	ST						813
1W 902	42	8- 5	13	3- 0	5- 7	0- 4			1202
1W 903	40	13- 2	13	3- 0	10- 4	0- 8			1791
1W 904	1	12- 0	ST						41
				TOTAL ABUTMENT		A-1 WING		WALL =	12772
ABUTMENT A-2 WING WALL									
SERIES	4-SETS	32- 0							
OF	OF 6=	TO	ST					1- 1	733
2W 501	24 BARS	26- 7							
2W 502	3	23-11	ST						75
SERIES	1-SET	22- 7						1	
OF	OF 21=	TO	ST					0- 8--	339
2W 503	21 BARS	8- 5						2	
SERIES	1-SET	22- 7						1	
OF	OF 13=	TO	ST					1- 3--	201
2W 504	13 BARS	7- 1						2	
2W 505	2	37- 5	ST						78
2W 506	4	3-10	12	1- 4	2- 6	1- 3			16
SERIES	1-SET	32- 0						9	
OF	OF 10=	TO	ST					3- 0--	191
2W 507	10 BARS	4- 7						16	
2W 508	16	35- 8	ST						595
2W 509	3	23- 8	ST						74
SERIES	1-SET	22- 9							
OF	OF 21=	TO	ST					0- 8	352
2W 510	21 BARS	9- 5							
SERIES	1-SET	22- 9						1	
OF	OF 13=	TO	ST					1- 2--	212
2W 511	13 BARS	8- 6						4	
SERIES	1-SET	35- 0						11	
OF	OF 10=	TO	ST					3- 5--	202
2W 512	10 BARS	3- 9						16	
SERIES	1-SET	10- 6						1	
OF	OF 3=	TO	ST					1- 1--	29
2W 513	3 BARS	8- 3						2	
2W 514	1	8- 0	ST						8
SERIES	1-SET	11- 4							
OF	OF 3=	TO	ST					1- 2	32
2W 515	3 BARS	9- 0							
2W 516	1	7- 4	ST						8
2W 517	1	8- 4	ST						9
SERIES	2-SETS	13- 0						1	
OF	OF 9=	TO	ST					1- 2--	156
2W 518	18 BARS	3- 7						8	
2W 519	1	9- 0	ST						9
SERIES	1-SET	34- 2						1	
OF	OF 10=	TO	ST					3- 3--	203
2W 520	10 BARS	4-10						8	
SERIES	1-SET	31- 8						1	
OF	OF 10=	TO	ST					3- 0--	189
2W 521	10 BARS	4- 7						8	
2W 522	2	36- 1	ST						75
2W 523	16	34- 0	ST						567
2W 801	152	10-11	ST						4430
2W 901	19	12- 7	ST						813
2W 902	42	8- 5	13	3- 0	5- 7	0- 4			1202
2W 903	40	13- 2	13	3- 0	10- 4	0- 8			1791
2W 904	1	12- 3	ST						42
				TOTAL	ABUTMENT	A-2 WING		WALL =	12631

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
PIER P-1									
1P 501	96	8-10	2	3- 8	1- 9				884
1P 502	32	10- 5	2	4- 0	2- 8				348
1P 503	288	9- 6	2	4- 0	1- 9				2854
1P 601	16	24- 5	ST						587
1P 602	8	6-10	12	3- 0	3-10	0- 6			82
1P 901	120	8- 6	ST						3468
1P1001	24	21- 2	ST						2186
1P1101	14	38- 3	1	4- 0	34- 6				2845
1P1102	14	19-11	1	3- 8	16- 6				1481
1P1103	64	16-10	ST						5724
1P1104	64	7- 0	1	1- 0	6- 3				2380
						TOTAL	PIER	P-1 =	22839
PIER P-2									
2P 501	96	8-10	2	3- 8	1- 9				884
2P 502	32	10- 5	2	4- 0	2- 8				348
2P 503	288	9- 6	2	4- 0	1- 9				2854
2P 601	16	24- 5	ST						587
2P 602	8	6-10	12	3- 0	3-10	0- 6			82
2P 901	120	8- 6	ST						3468
2P1001	24	21- 2	ST						2186
2P1101	14	38- 3	1	4- 0	34- 6				2845
2P1102	14	19-11	1	3- 8	16- 6				1481
2P1103	64	16- 9	ST						5696
2P1104	64	7- 0	1	1- 0	6- 3				2380
						TOTAL	PIER	P-2 =	22811
SUPERSTRUCTURE									
S 501	316	6- 8	ST						2197
S 502	316	2- 4	2	0- 6	1- 7				769
S 503	316	2- 1	2	0- 6	1- 4				687
S 504	316	1- 6	ST						494
S 505	632	1-10	2	0- 6	1- 1				1208
S 506	432	7- 7	5	0- 8	3- 2				3417
S 601	1740	30- 0	ST						78404
S 602	200	11- 4	ST						3405
S 603	70	20- 5	ST						2147
S 701	628	24- 9	ST						31770
S 702	628	29- 1	ST						37332
S 703	628	25- 0	ST						32091
S 704	628	21- 8	ST						27812
				TOTAL	SUPERSTRUCTURE			=	221733
RAILING*									
R 501	24	11- 5	ST						
R 502	144	7- 3	ST						
R 503	96	14-10	ST						
R 504	16	7- 7	5	0- 8	3- 2				
R 505	24	4- 8	ST						
R 506	8	6- 7	27	1- 0					
R 507	16	3- 3	9	1- 6	0- 6				
R 508	8	7- 8	3	2- 9	4- 8	0- 6			

*RAILING REINFORCEMENT BARS WILL BE INCLUDED AS PART OF ITEM 517 FOR PAYMENT.

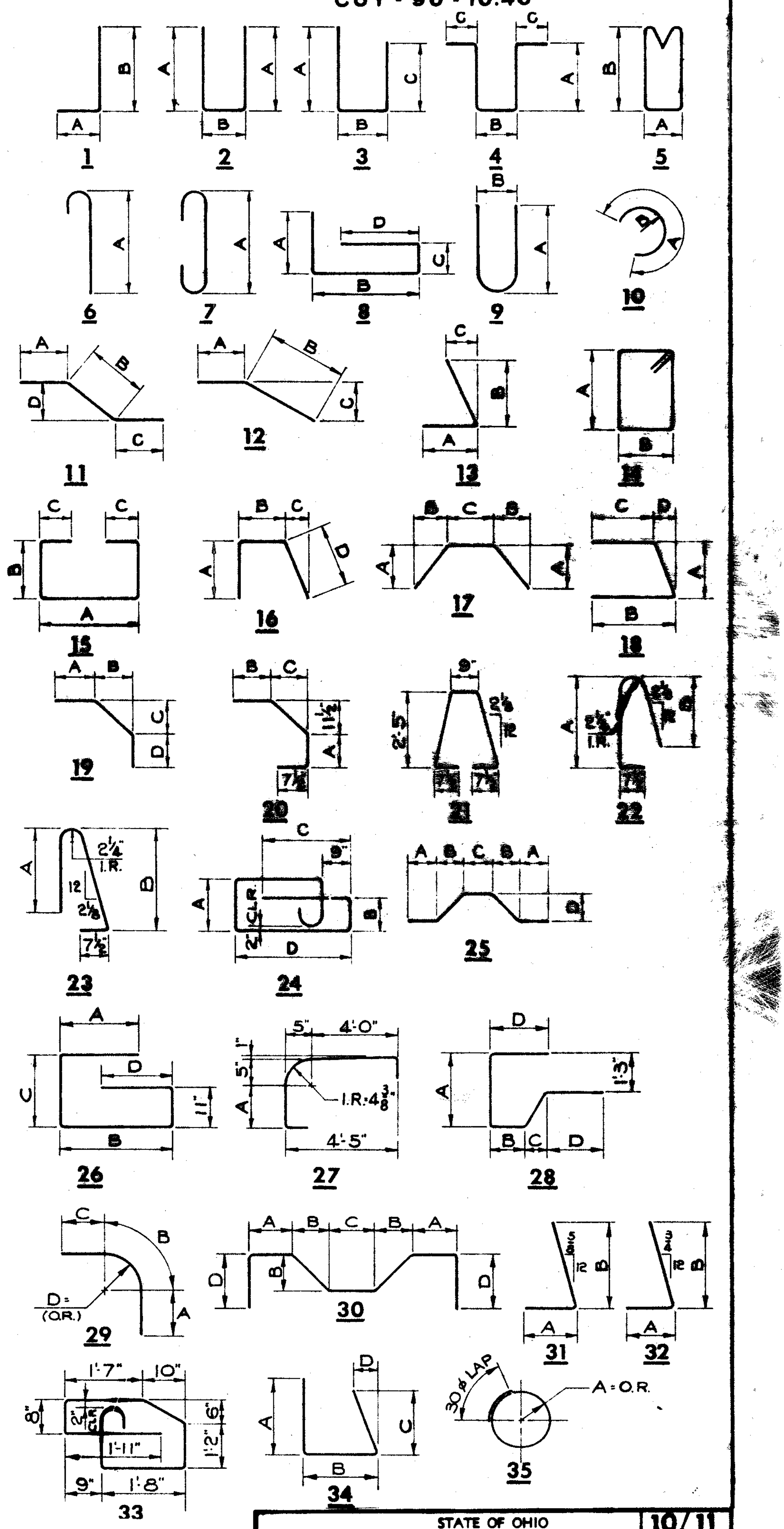
ABUTMENT TOTAL =	119,773
PIER TOTAL =	48,597
SUPERSTRUCTURE TOTAL =	221,733
GRAND TOTAL =	390,103

SPIRAL REINFORCING SCHEDULE

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
SPIRALS-PIER P-1					
1P-SP401	6	2- 8	12-10	4,50	1478
		TOTAL	SPIRALS-PIER	P-1 =	1478
SPIRALS-PIER P-2					
2P-SP401	6	2- 8	12- 9	4,50	1469
		TOTAL	SPIRALS-PIER	P-2 =	1469

FOUR ANGLE SPACERS WEIGHING APPROX. 0.80 LBS. PER LINEAL FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT LISTED ABOVE. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED SPIRAL WEIGHT.

THE LENGTH SHOWN IN THE STEEL SCHEDULE FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE TOP OF THE COLUMN INCLUDING THREE (3) CLOSED COILS (ONE AND ONE HALF CLOSED COILS AT THE ENDS OF EACH SPIRAL UNIT).



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

10/11

DALTON · DALTON ASSOCIATES

REINFORCING SCHEDULE

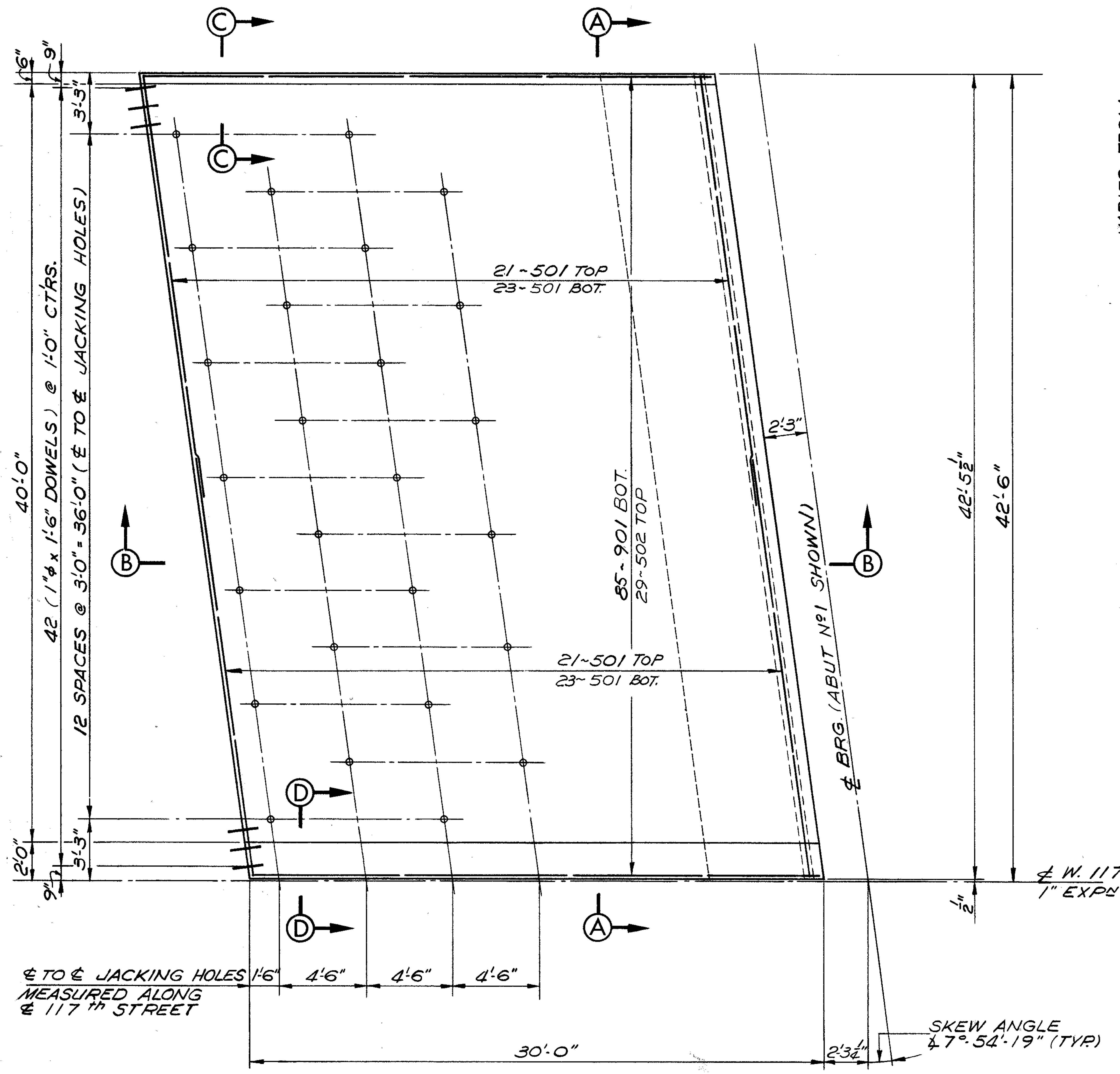
BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ JFP	JWW		JFP	RDH	2-12-70	

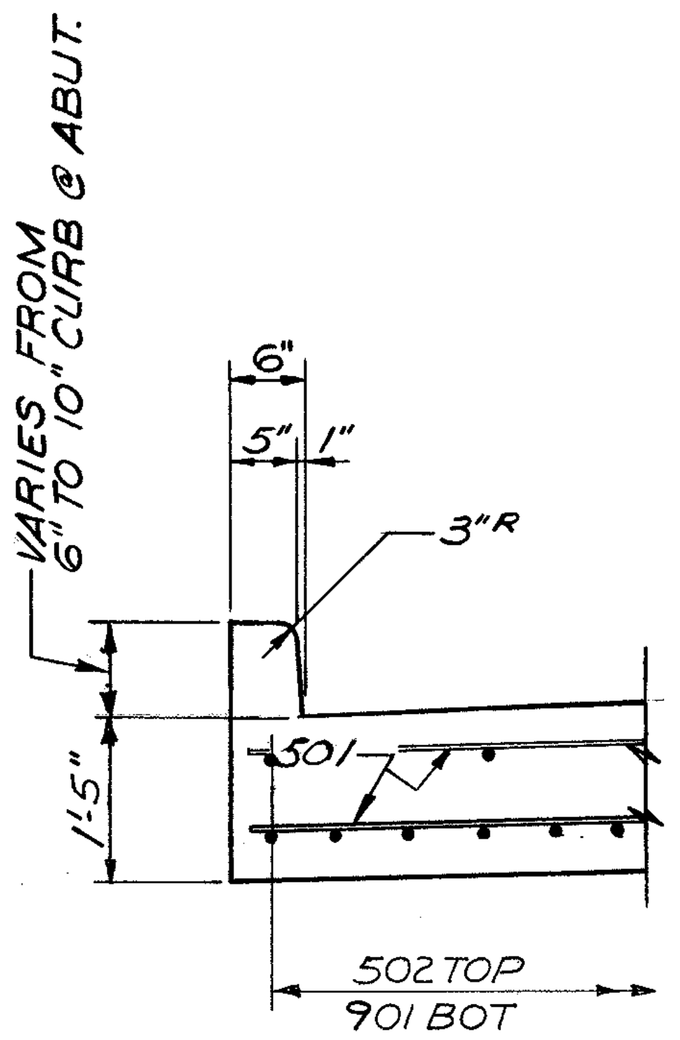
FED. RD.	STATE	PROJECT	
2	OHIO		

422
713

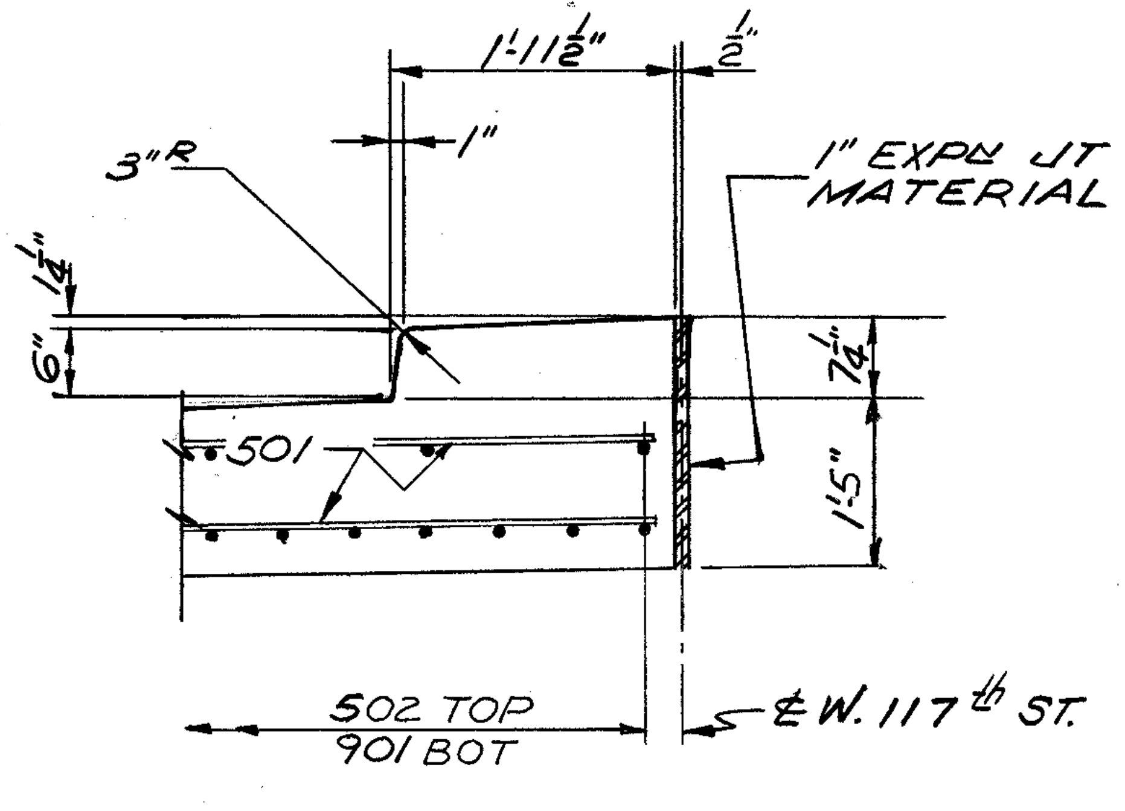
CUYAHOGA COUNTY
CUY - 90 - 10.40



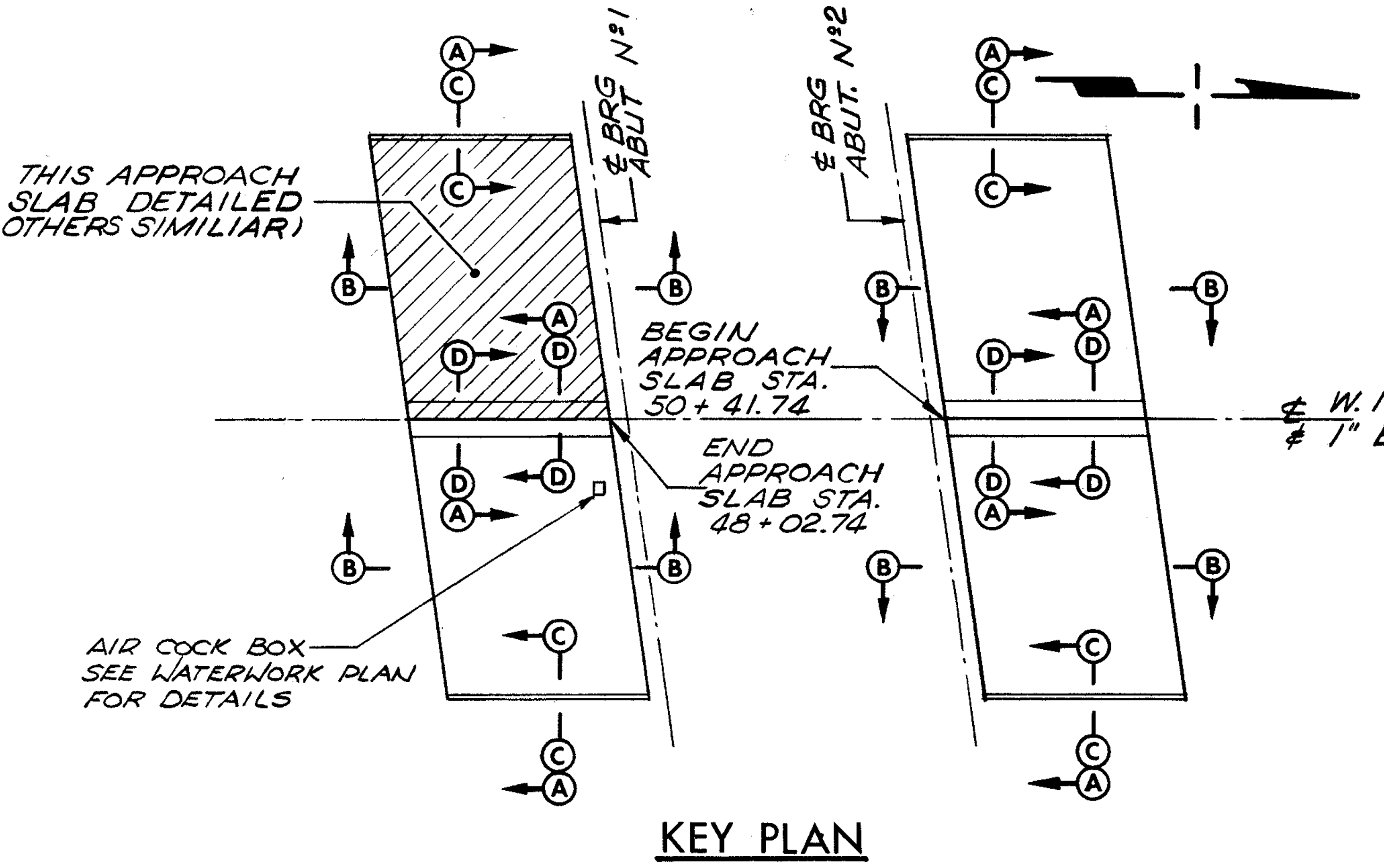
PARTIAL PLAN
(SEE KEY PLAN)



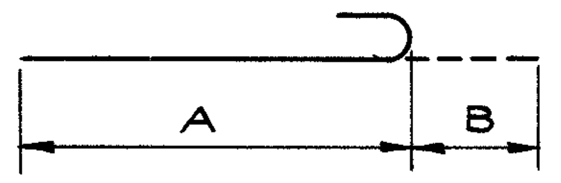
SECTION C-C



SECTION D-D



KEY PLAN



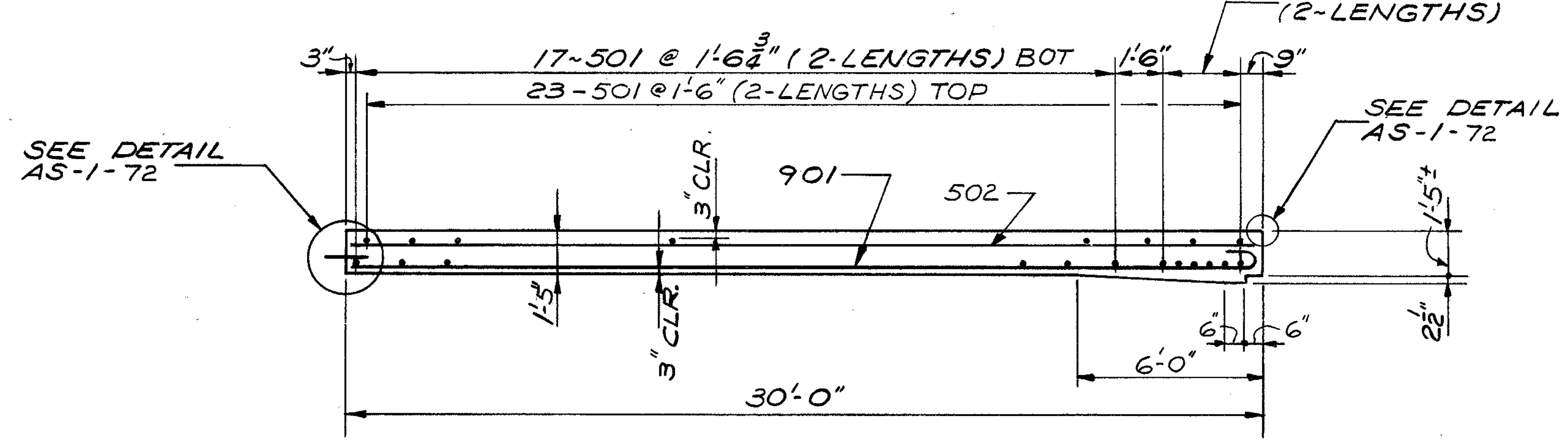
TYPE 1

REINFORCING SCHEDULE						
MARK	Nº	LENGTH	TYPE	DIMENSIONS		WEIGHT
				A	B	
501	352	22'-1"	ST.			8096
502	116	29'-6"	ST.			3573
901	340	30'-7"	1	29'-6"	1'-1"	35360
	168	1"⌀ x 1'-6" DOWELS				673
				TOTAL LBS		47,702

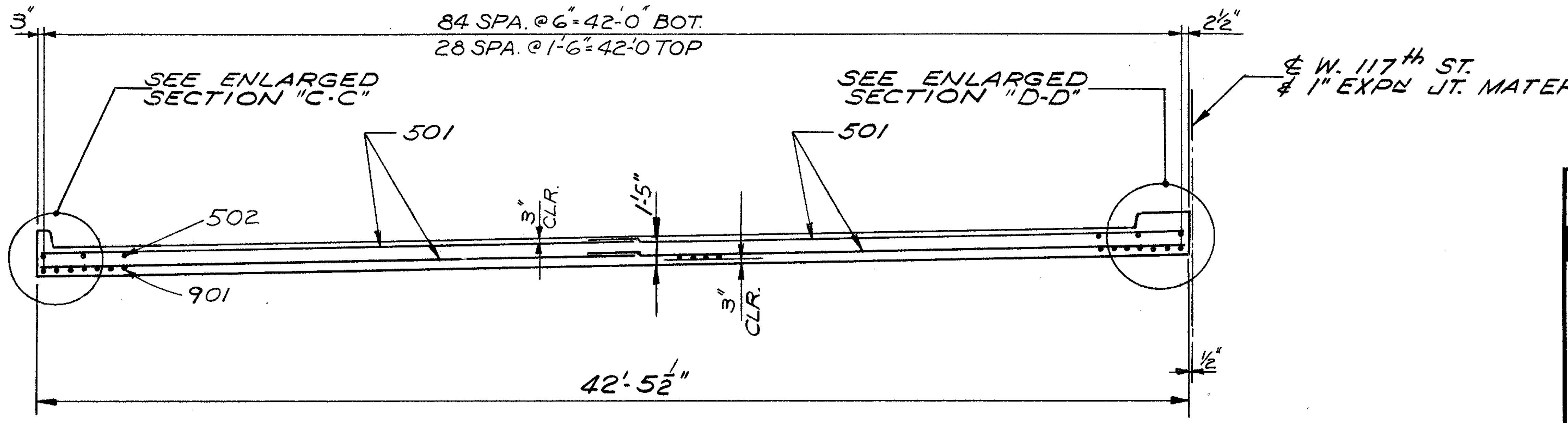
567 SQ. YDS. CLASS "C" CONCRETE

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT INDICATES THE BAR SIZE. EXAMPLE: 801 IS A Nº 8 SIZE BAR.

FOR DETAILS & NOTES NOT SHOWN HERE SEE STATE OF OHIO STANDARD DRAWING AS-1-72



SECTION B-B



SECTION A-A

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

11 / 11

DALTON • DALTON ASSOCIATES

APPROACH SLAB DETAILS

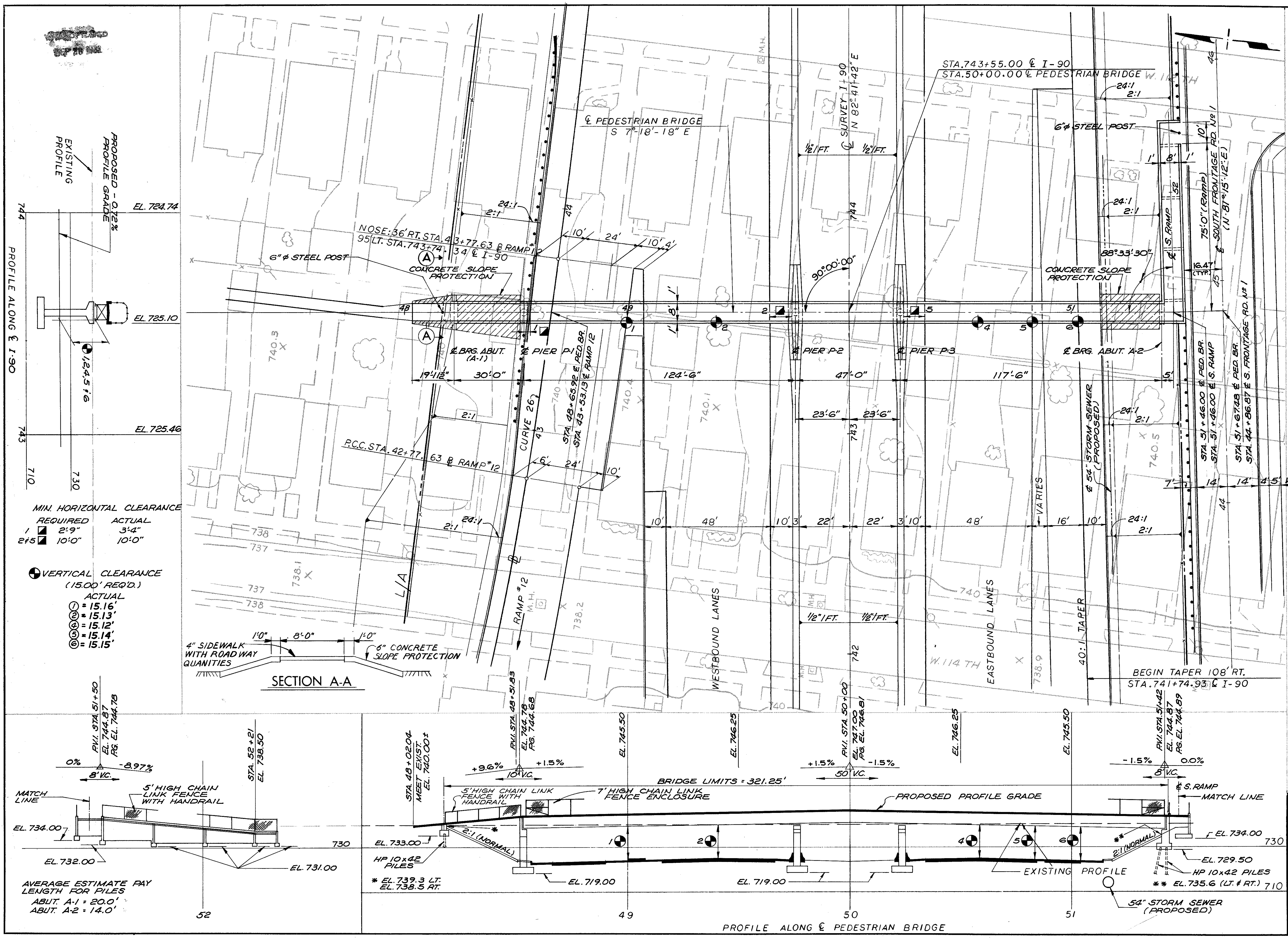
BRIDGE NO. CUY - 90 - 1057
UNDER WEST 117st ST.
I-90 CUYAHOGA COUNTY
STA. 733 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
STD	ALH		H.G.H.	RDH	2-12-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

423
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



CURVE DATA

℞ RAMP #12, CURVE 26

P.I. STA. 45+89.51
Δ = 9°-20'-08"
D_c = 1°-30'-00"
R = 3819.72'
L_c = 622.37'
T = 311.88'

PROPOSED STRUCTURE

TYPE: CONTINUOUS WELDED STEEL PLATE GIRDER WITH REINFORCED CONCRETE SLAB AND SUBSTRUCTURES, REINFORCED CONCRETE RAMPS.
SKEW: 00°00'00"
SPANS: 30'-0", 124'-6", 47'-0", 117'-6" ℄ BRG'S.
WALKWAY: 8'-0" F/F. 1'-0" CURBS
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
LOADING: 85 P.S.F. LIVE LOAD
WEARING SURFACE: 1" MONOLITHIC
SLOPE PROTECTION: CONCRETE

EARTHWORK LIMITS SHOWN ARE SCHEMATIC. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1 / 9

DALTON · DALTON ASSOCIATES

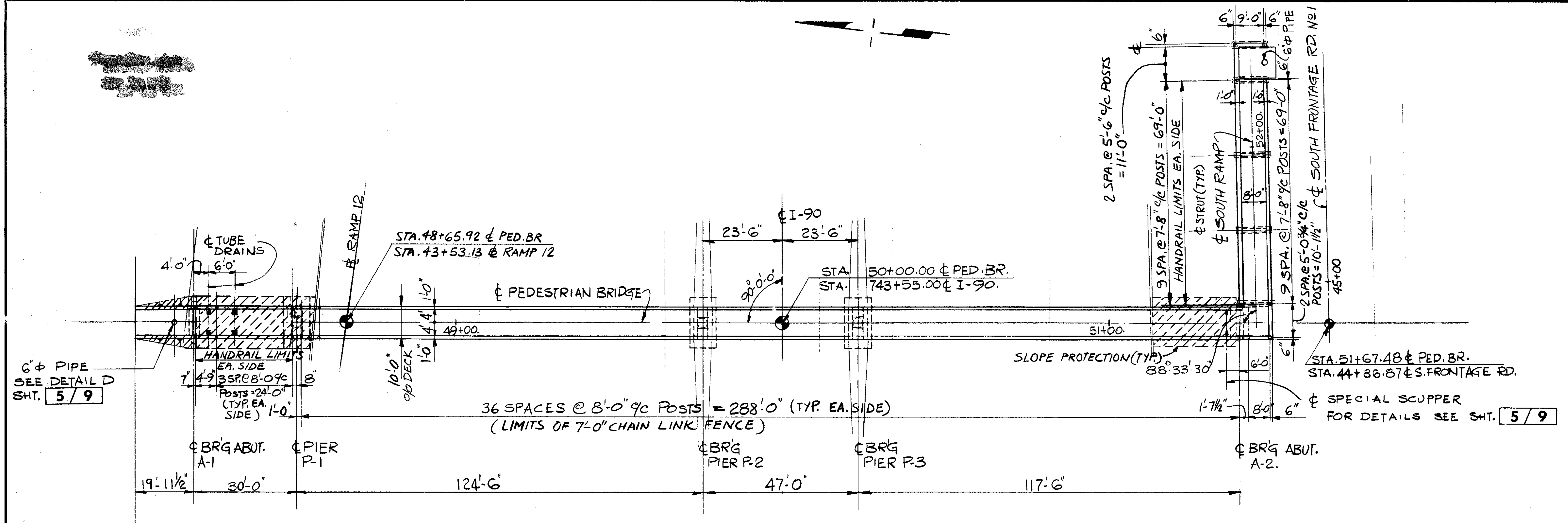
SITE PLAN

BRIDGE NO CUY - 90 - 1076
UNDER WEST 114 th ST. PEDESTRIAN BRIDGE
I-90 CUYAHOGA COUNTY
STA. 743 + 55.00

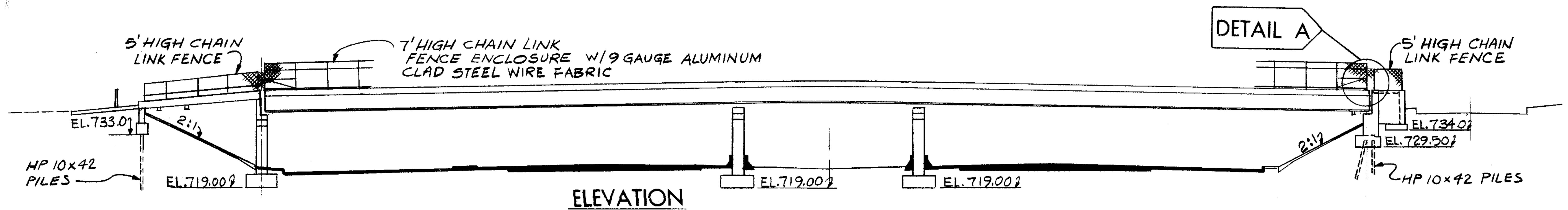
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.S.D.	J.K. J.W.W.	A.L.H.	R.J.P.	RDH	8-23-73	

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



GENERAL PLAN



ELEVATION

NOTES

① FOR STRUCTURAL GENERAL NOTES, SEE SHEET 4-11

② FOR DETAIL A, SEE SHEET 5/9

③ ALL FENCE POSTS WITH WELDED CONNECTIONS FOR HORIZONTAL PIPE, HANDRAIL, ANCHOR PLATES AND ANCHOR BRACKETS SHALL BE HOT-DIP GALVANIZED AFTER WELDING IN ACCORDANCE WITH ITEM 711

④ ALUMINUM HANDRAIL IS INCLUDED FOR PAYMENT WITH CHAIN LINK FENCE

⑤ FOR SCUPPER DETAILS, SEE SHEET 5/9

⑥ FOR FENCE DETAILS, SEE SHEET 5/9

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
503	LUMP	LSUM	COFFERDAMS, CRIBS AND SHEETING				LUMP		
503	270	CY	UNCLASSIFIED EXCAVATION		36	102	132		
505	LUMP	LSUM	TEST PILE						
507	96	LF	STEEL PILES, HP10X42		96				
509	46055	LB	REINFORCING STEEL	11064	1826	14789	18376		
511	94	CY	CLASS C CONCRETE, SUPERSTRUCTURE	94					
511	22	CY	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			22			
511	15	CY	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS		15				
511	71	CY	CLASS C CONCRETE, RETAINING WALLS ABOVE FOOTINGS				71		
511	47	CY	CLASS C CONCRETE, FOOTINGS		10	29	8		
512	6	SY	TYPE B WATERPROOFING		6				
512	15	LF	PREMOLDED SEALING STRIP				15		
513	101 900	LB	STRUCTURAL STEEL	101900					
514	101900	LB	FIELD PAINTING OF STRUCTURAL STEEL	101900					
516	19	SF	1 IN. PREFORMED EXPANSION JOINT FILLER		19				
518	2	EACH	SCUPPERS INCLUDING SUPPORTS	2					
518	48	CY	POROUS BACKFILL		7		41		
518	125	LF	6 IN. PERFORATED, HELICAL CMP 707.01		9		116		
518	74	LF	6 IN. NON-PERFORATED, HELICAL CMP INCL. SPECIALS, 707.01		35		39		
518	4	EACH	8 IN X 6 IN DRAINS (STL TUBE)	4					
601	129	SY	CONCRETE SLOPE PROTECTION		129				
606	2	EACH	6 INCH DIAMETER PIPE GUARD POSTS				2		
607	576	LF	7 FOOT FENCE ENCLOSED TYPE CL	576					
607	206	LF	5 FOOT FENCE TYPE CL	48			158		
808	94	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	94					
816			SEE SHEET 550 FOR SIGN SUPPORT SUMMARY						

QUANTITIES CHECKED BY RJP 11-12-73

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

2/9

DALTON • DALTON ASSOCIATES

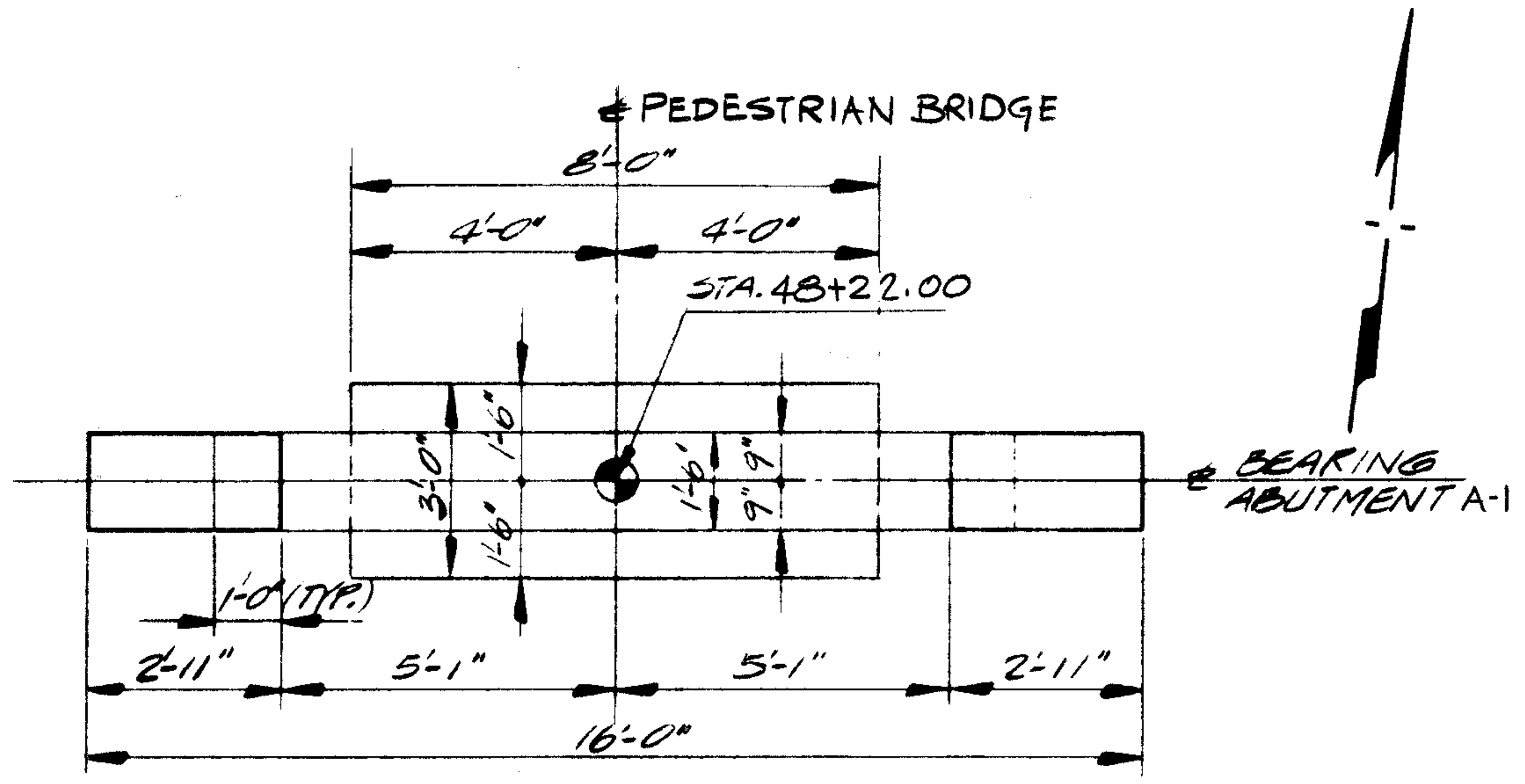
GENERAL PLAN & ELEVATION

BRIDGE NO CUY - 90 - 1076
UNDER WEST 114th ST PEDESTRIAN BRIDGE
I-90 CUYAHOGA COUNTY
STA.743 + 55.00

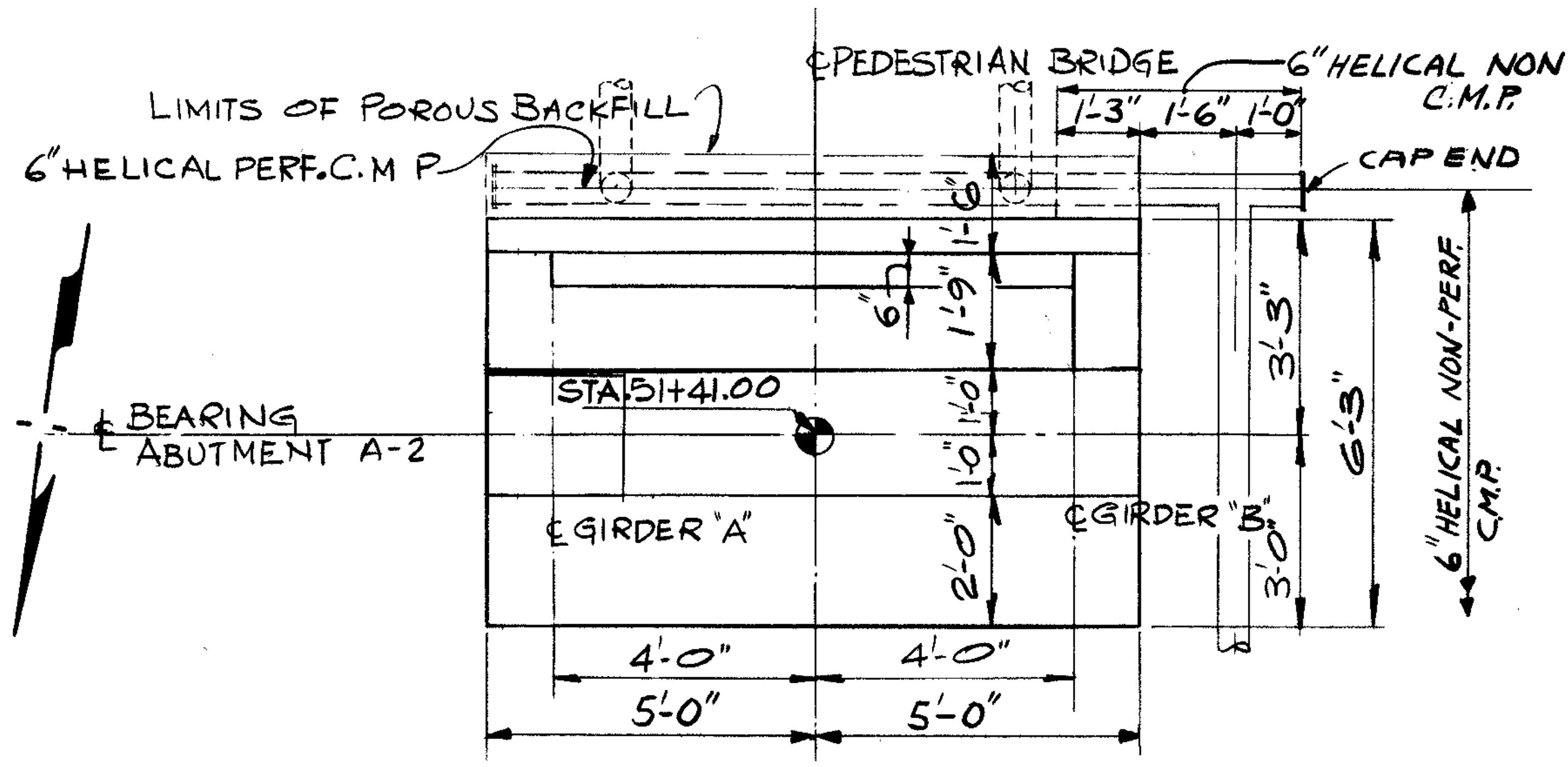
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BSD	BSD		R.J.P.	RBH	8-23-73	

FED. RD.	STATE	PROJECT
2	OHIO	

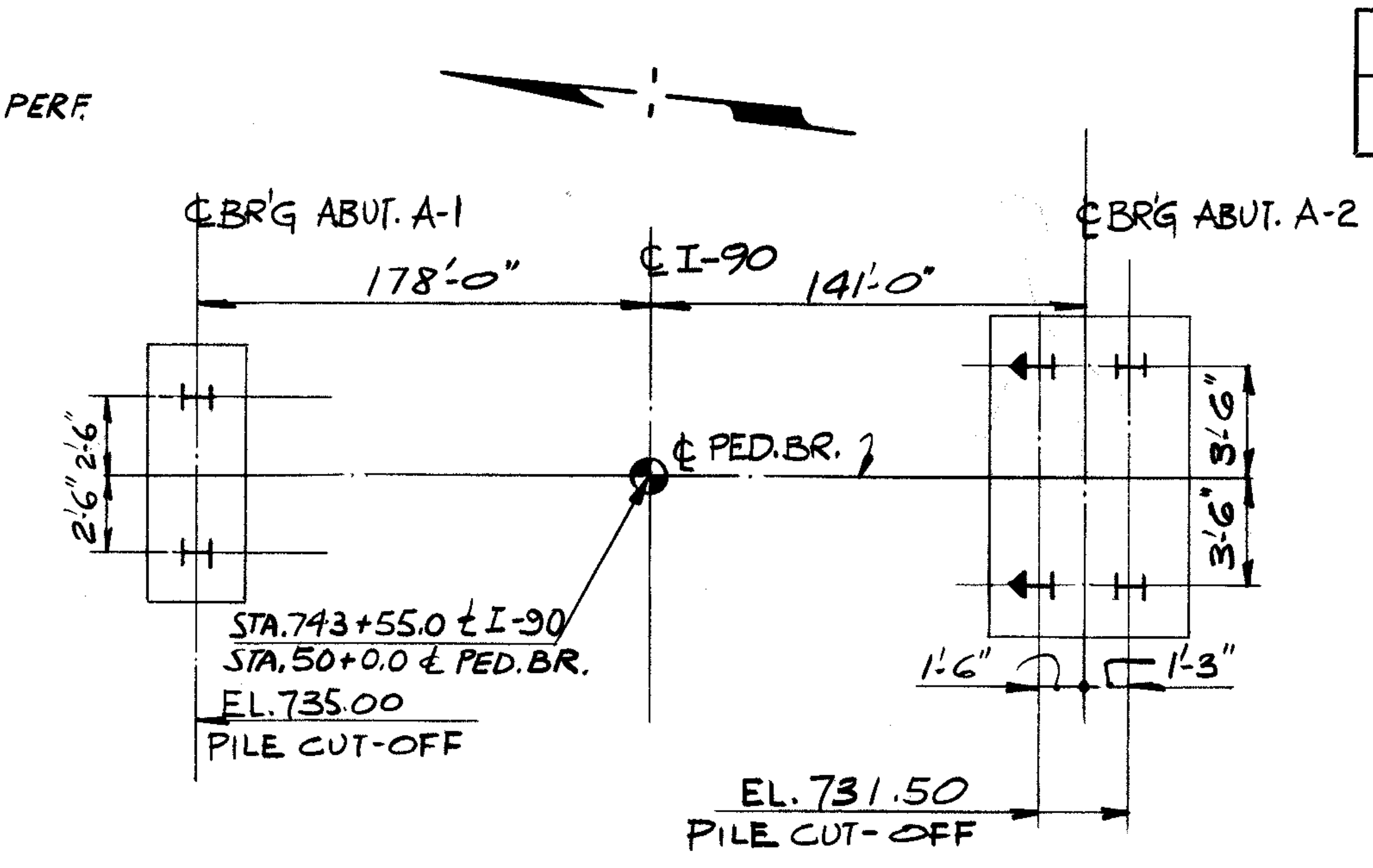
CUYAHOGA COUNTY
CUY - 90 - 10.40



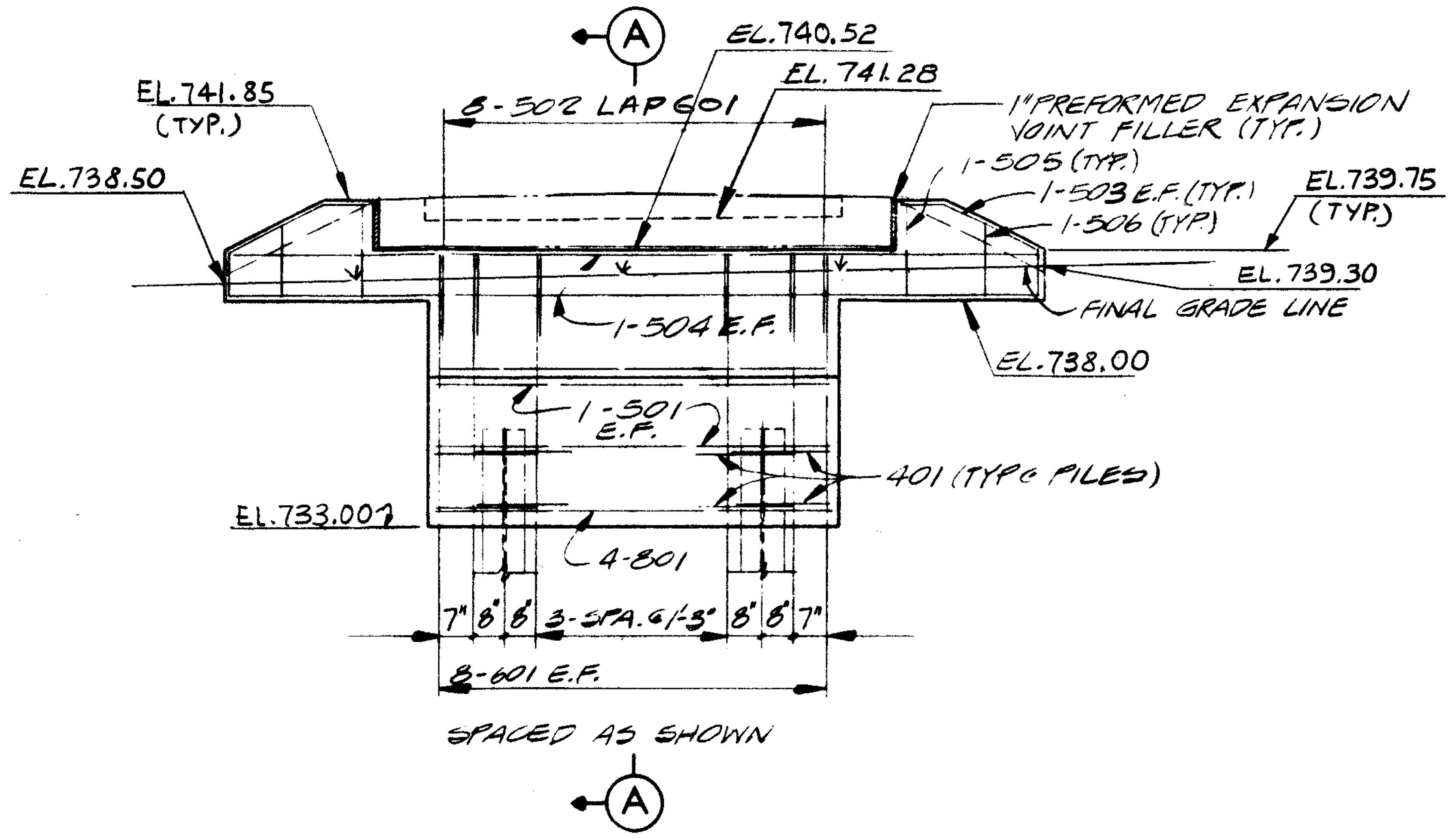
PLAN
(ABUTMENT A-1)



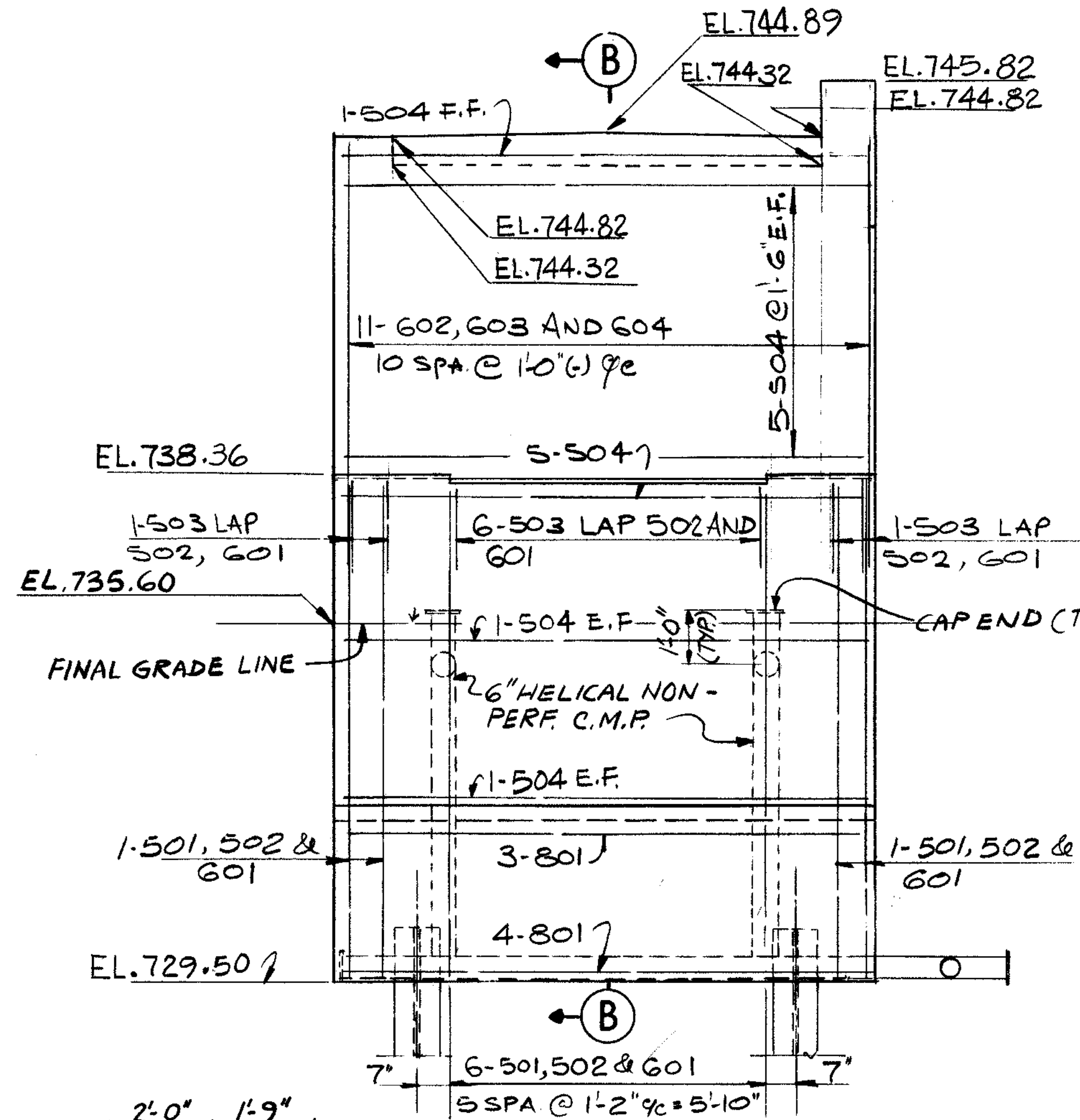
PLAN
(ABUTMENT A-2)



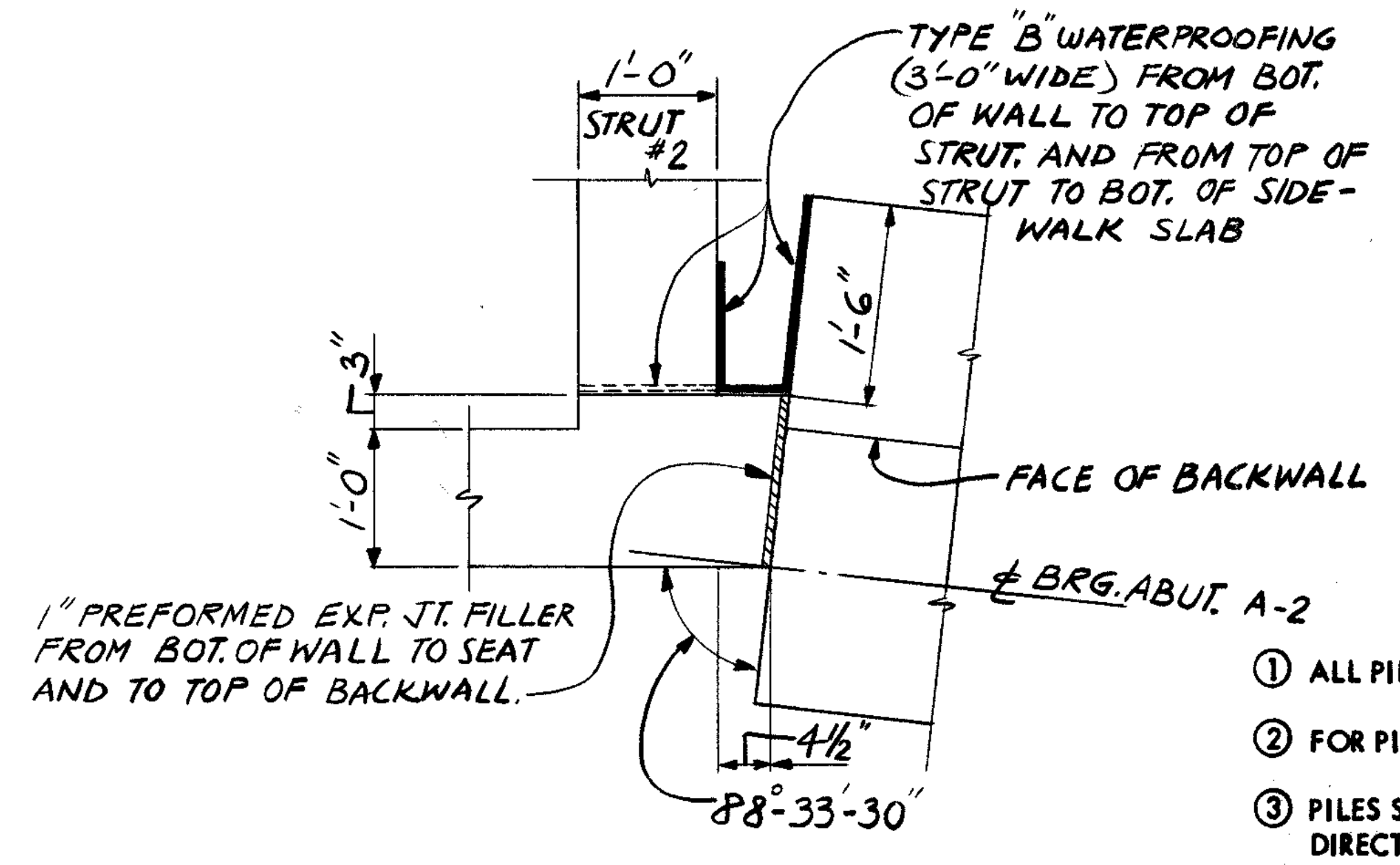
PILING PLAN



ELEVATION
(ABUT. A-1)



ELEVATION
(ABUT. A-2)



SECTION D-D
SEE SHEET 8/9

NOTES

① ALL PILES SHALL BE HP10 X 42 STEEL PILES.

② FOR PILE CUT-OFF ELEVATIONS, SEE PILING PLAN.

③ PILES SHOWN THUS ⤓ SHALL BE BATTERED 1:4 IN THE DIRECTION INDICATED.

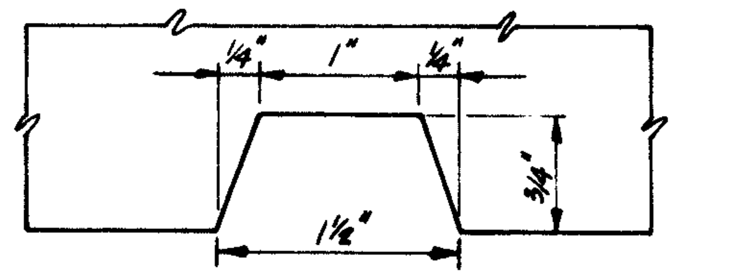
④ PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 30 TONS PER PILE FOR THE ABUTMENTS.

⑤ ABBREVIATIONS USED ARE:

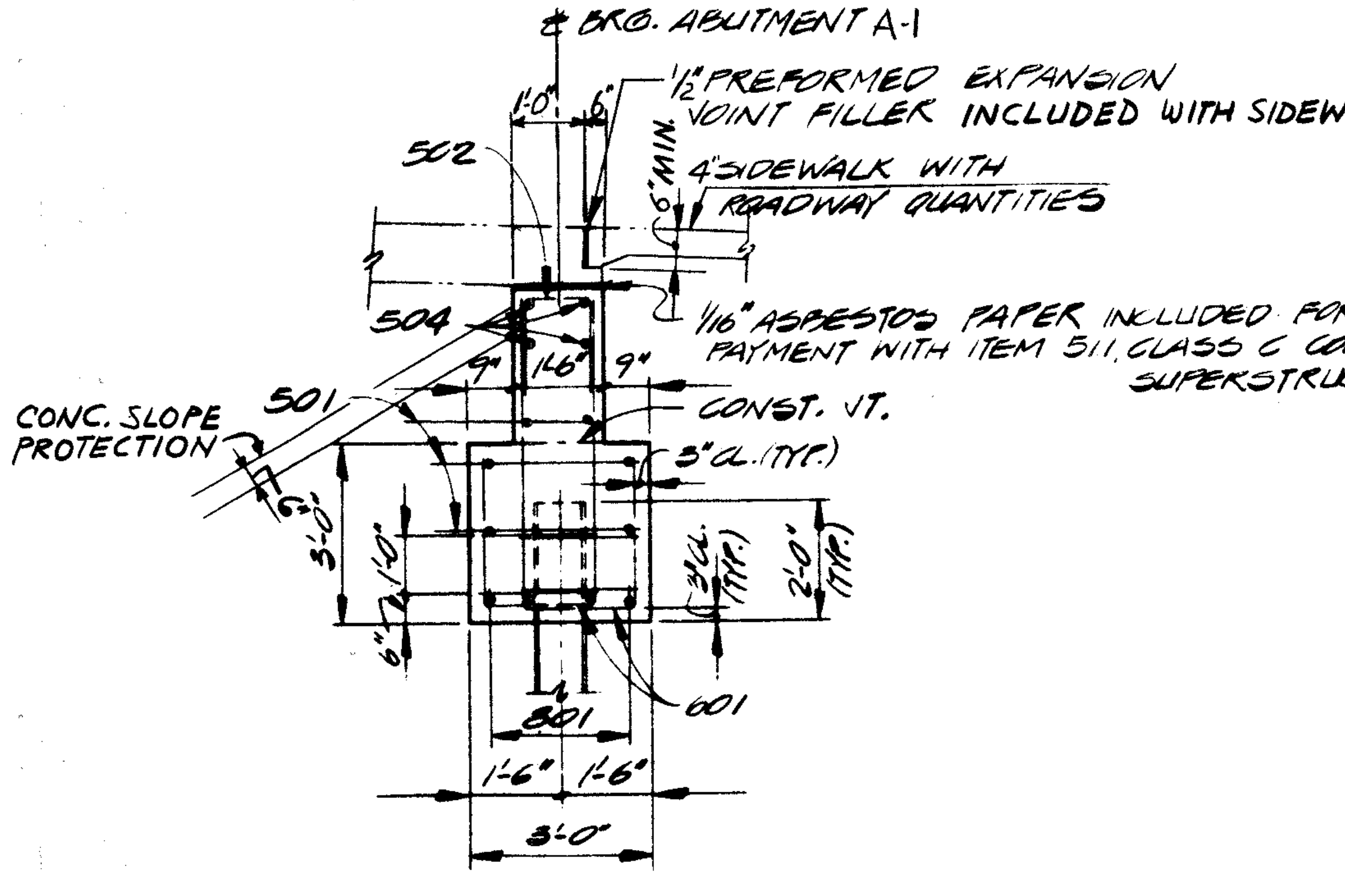
NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

⑥ THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENT A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

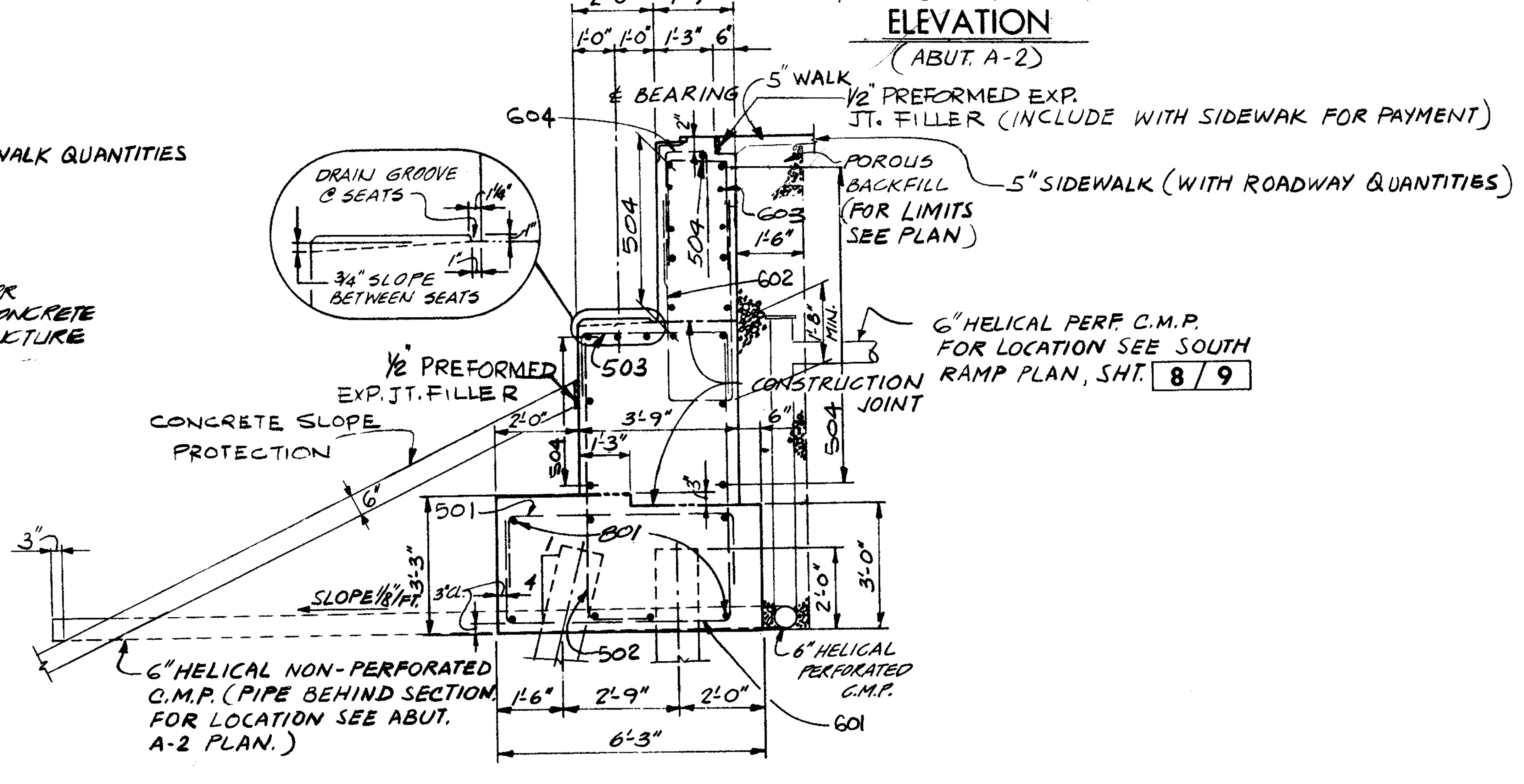
⑦ BACKWALL ELEVATIONS ARE GIVEN AS FINAL PAVEMENT ELEVATION AT FRONT FACE OF BACKWALL.



DETAIL
TYPICAL RUSTICATION GROOVE SPACED 4'-0" c/c



SECTION A-A



SECTION B-B

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3 / 9

DALTON • DALTON ASSOCIATES

PILING PLAN & ABUTMENTS

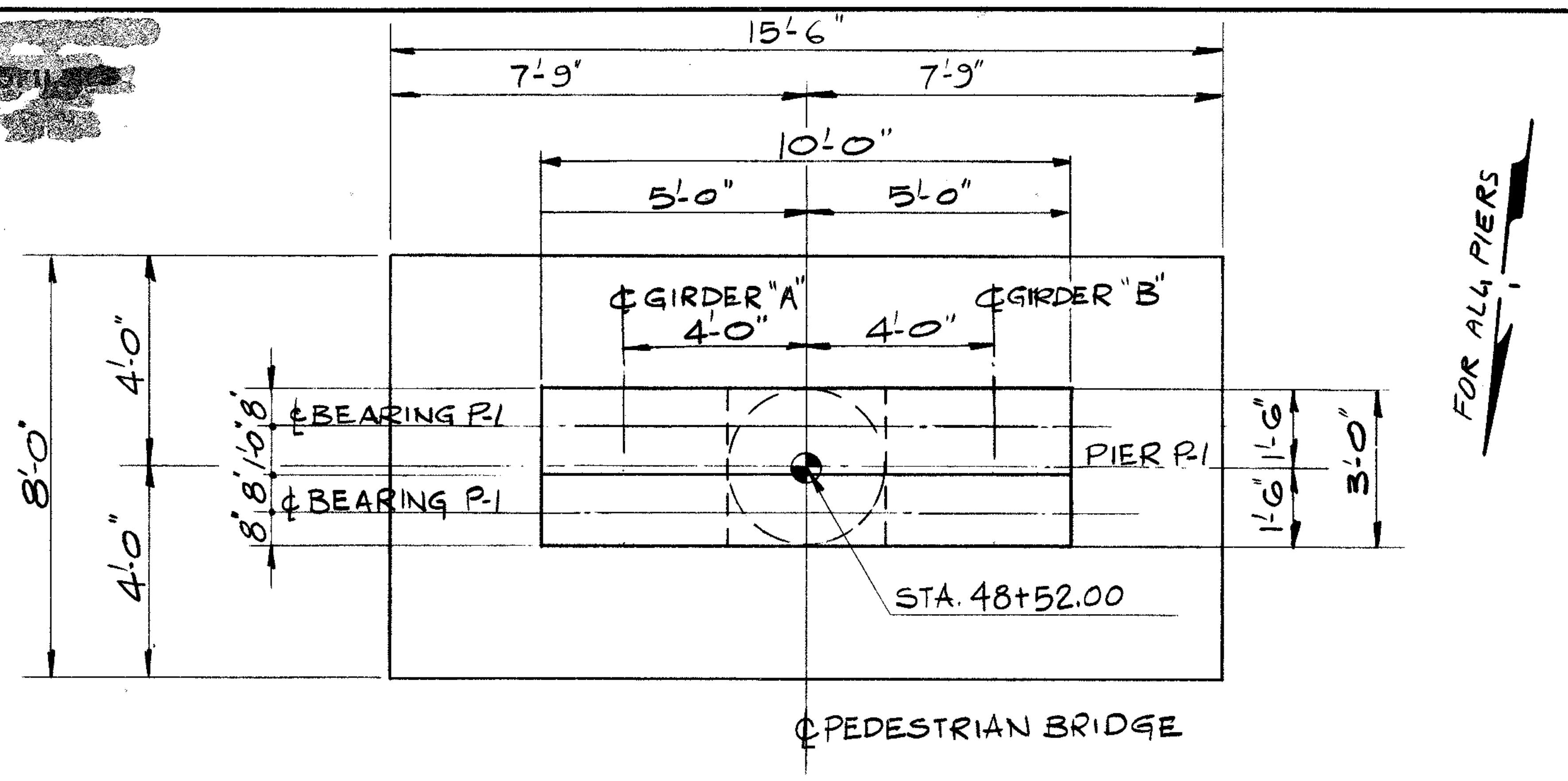
BRIDGE NO. CUY - 90 - 1076
UNDER WEST 114th ST. PEDESTRIAN BRIDGE
I - 90 CUYAHOGA COUNTY
STA. 743 + 55.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BSD	BSD		R.J.P.	RDW	8-23-73	

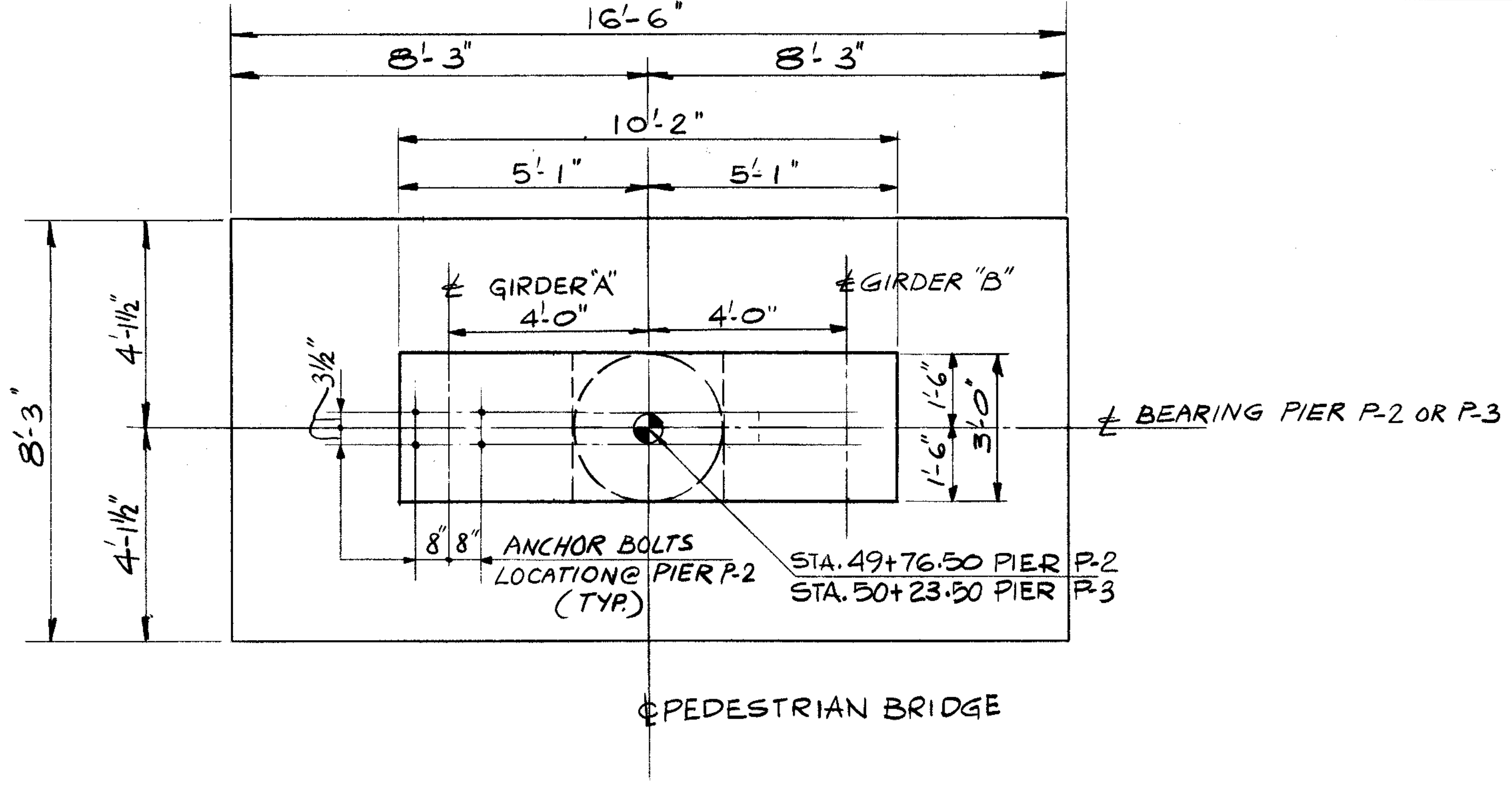
FED. RD.	STATE	PROJECT	
2	OHIO		

426
713

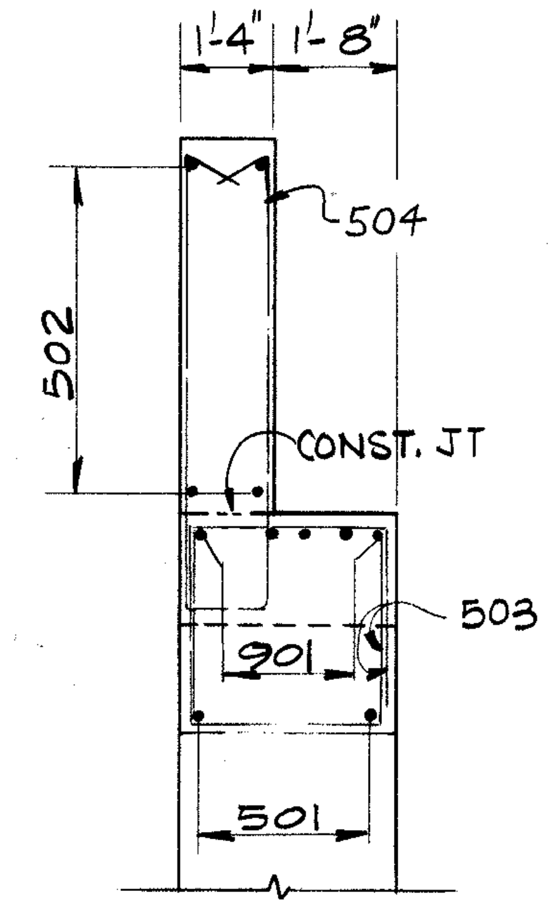
CUYAHOGA COUNTY
CUY - 90 - 10.40



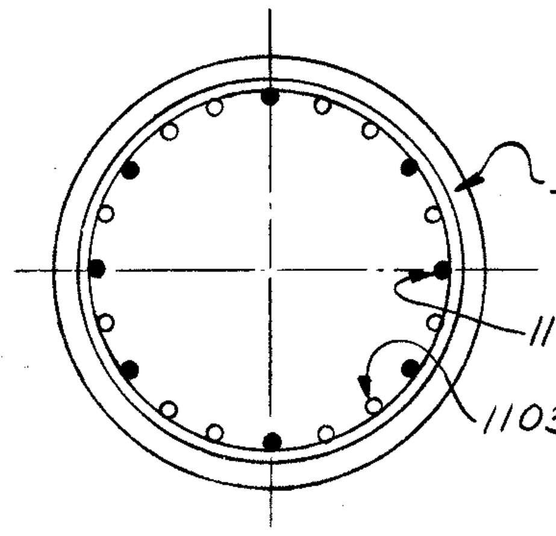
PLAN
(PIER P-1)



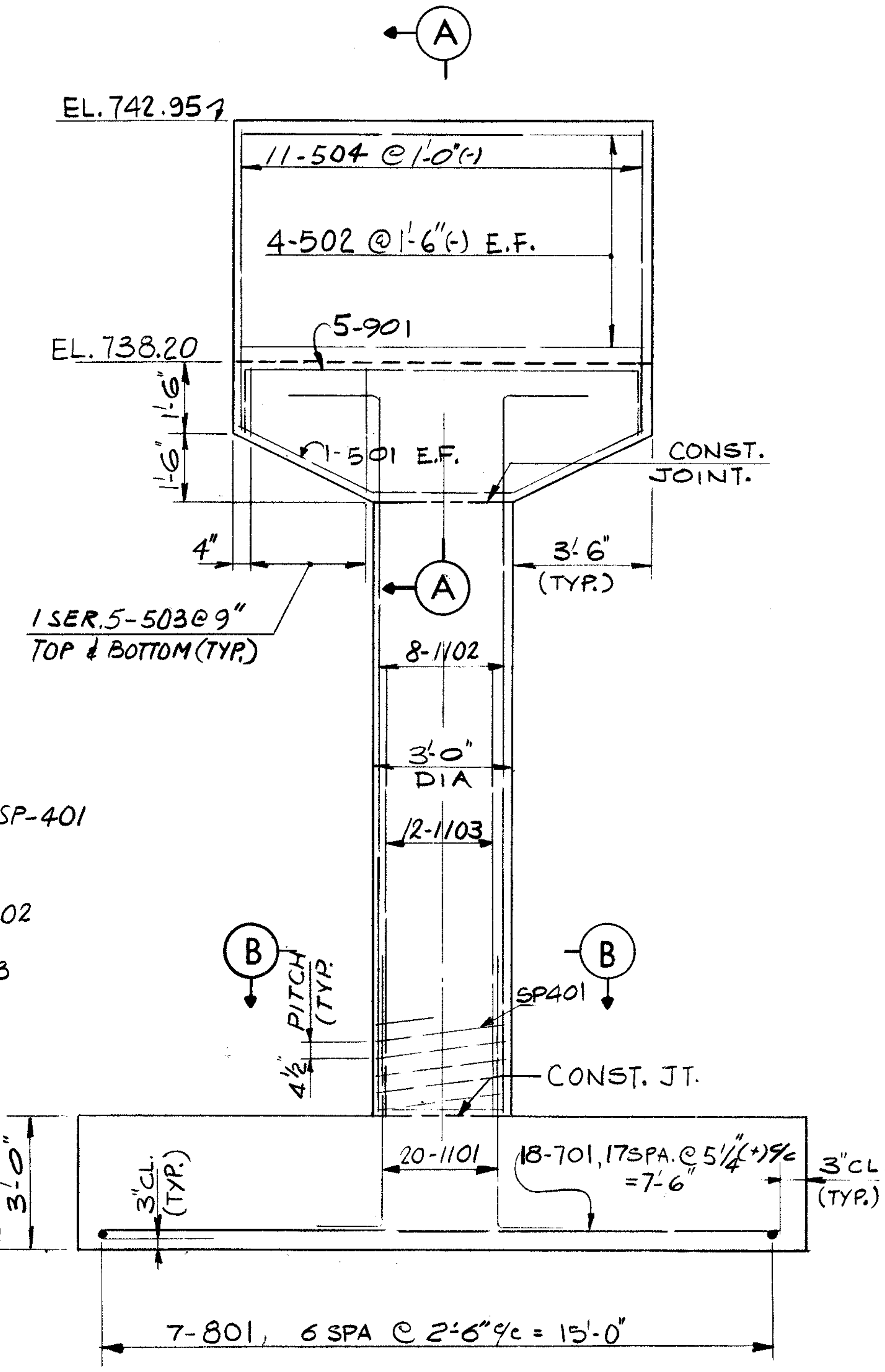
PLAN
(PIER P-2 & P-3)



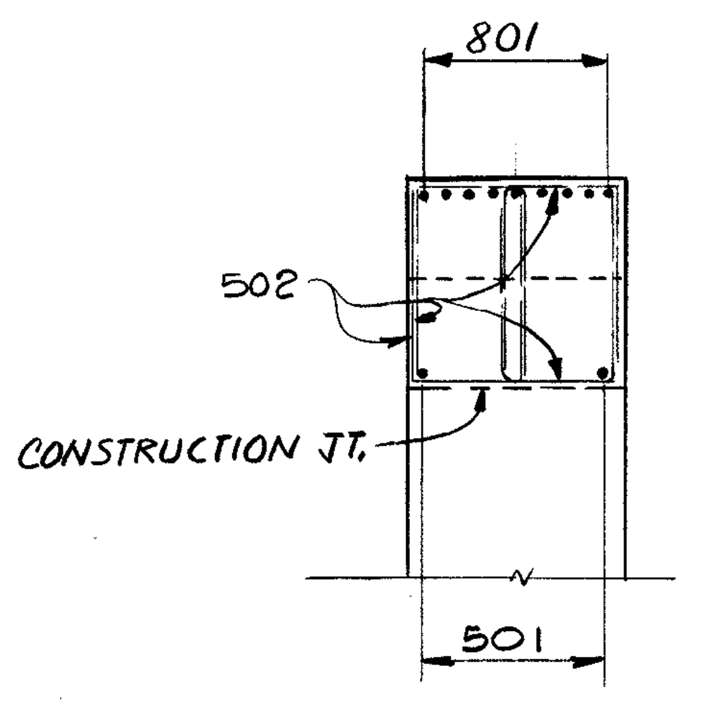
SECTION A-A



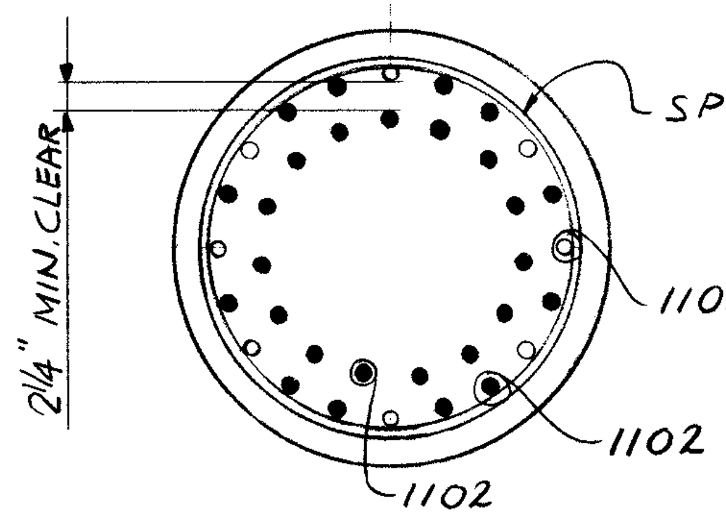
SECTION B-B



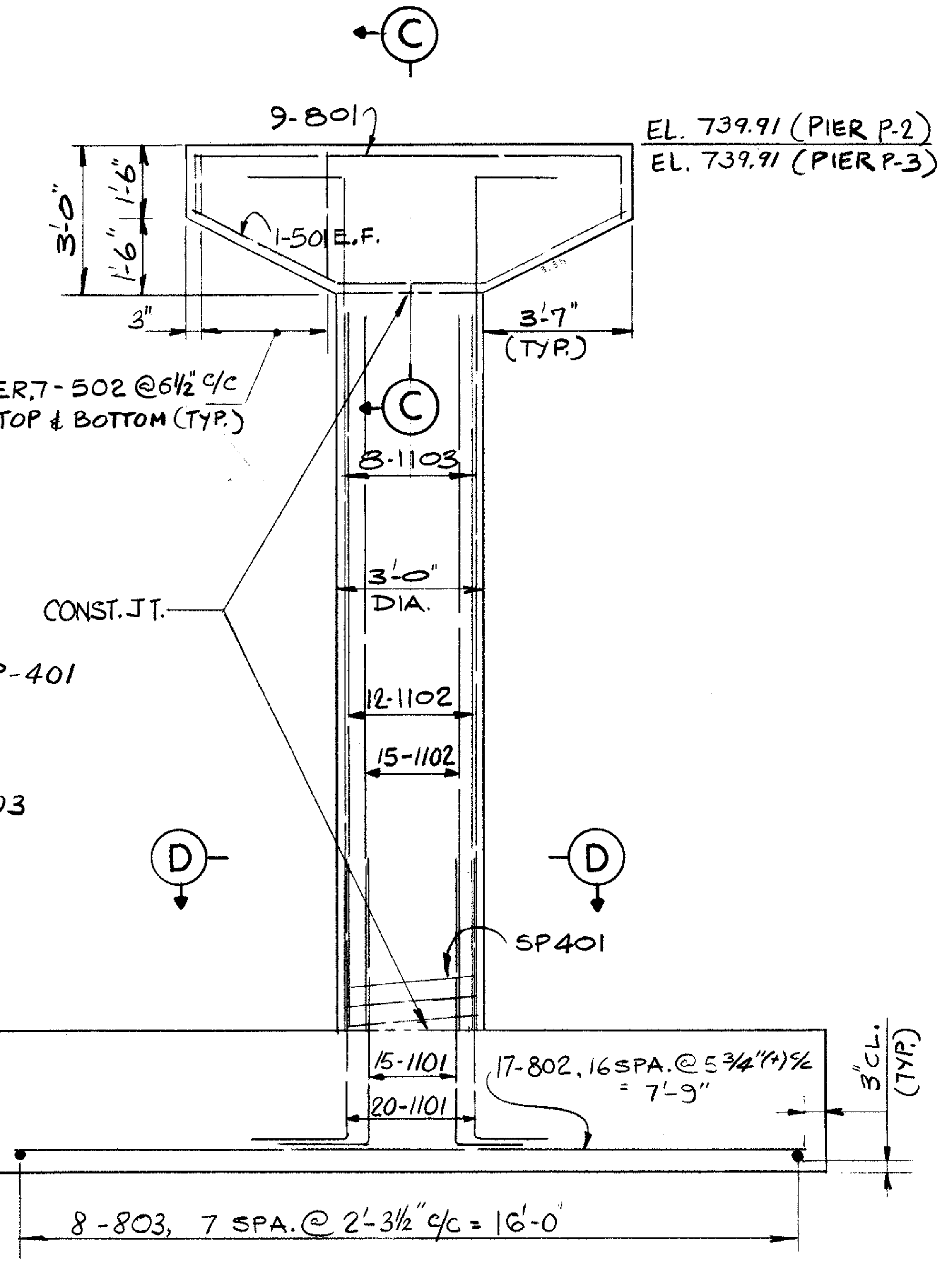
ELEVATION



SECTION C-C



SECTION D-D



ELEVATION

NOTES

① BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES. THIS ONLY APPLIES TO PIER P-2.

② THE PREFIX "1P", "2P", ETC., SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIERS P-1, P-2, ETC. RESPECTIVELY, UNLESS SHOWN OTHERWISE.

③ FOUNDATION BEARING PRESSURE: PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 2.47 TONS PER SQ. FT.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

4 / 9

DALTON · DALTON ASSOCIATES

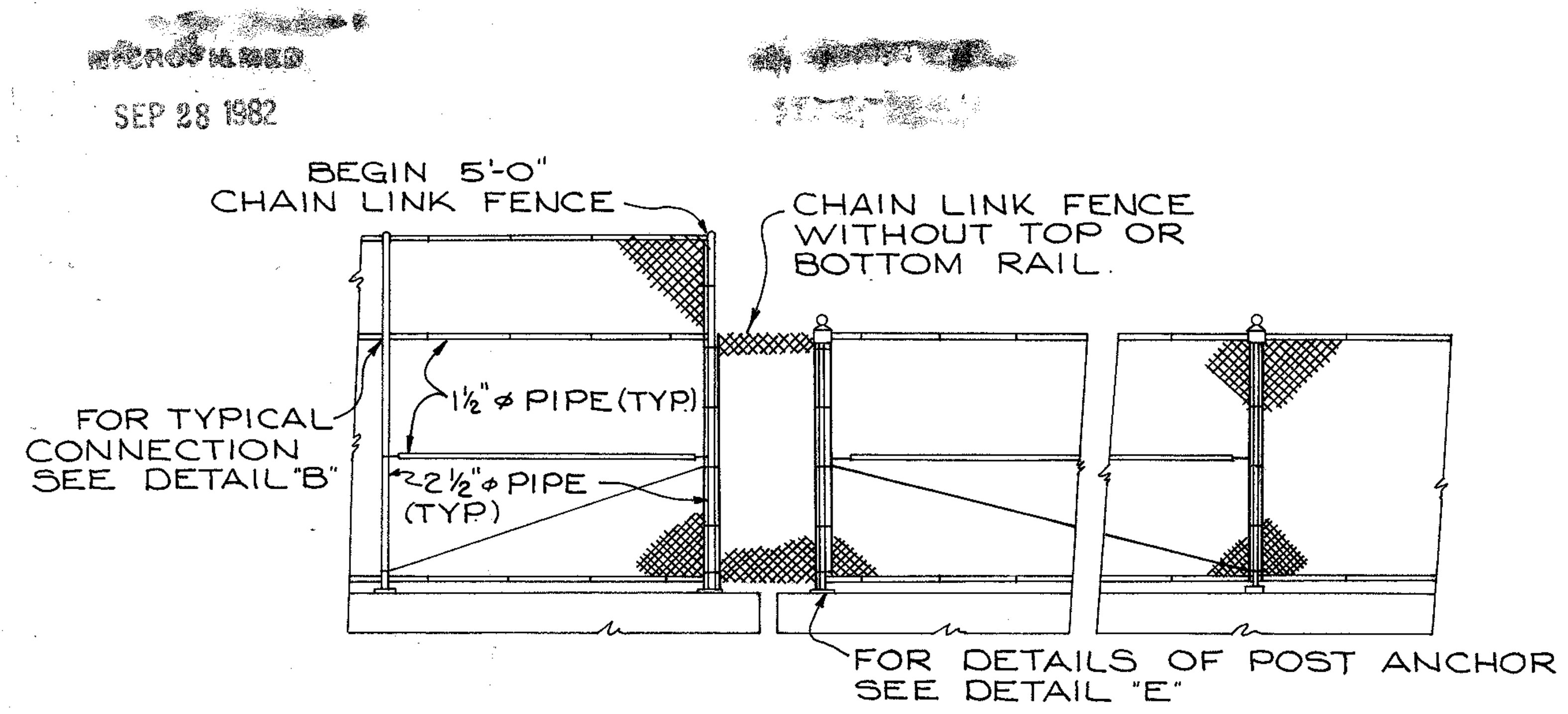
PIERS
BRIDGE NO. CUY-90-1076
UNDER WEST 114th ST. PEDESTRIAN BRIDGE
I-90 CUYAHOGA COUNTY
STA. 743+55.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BSD	BSD		R.J.P.	RBH	8-23-73	

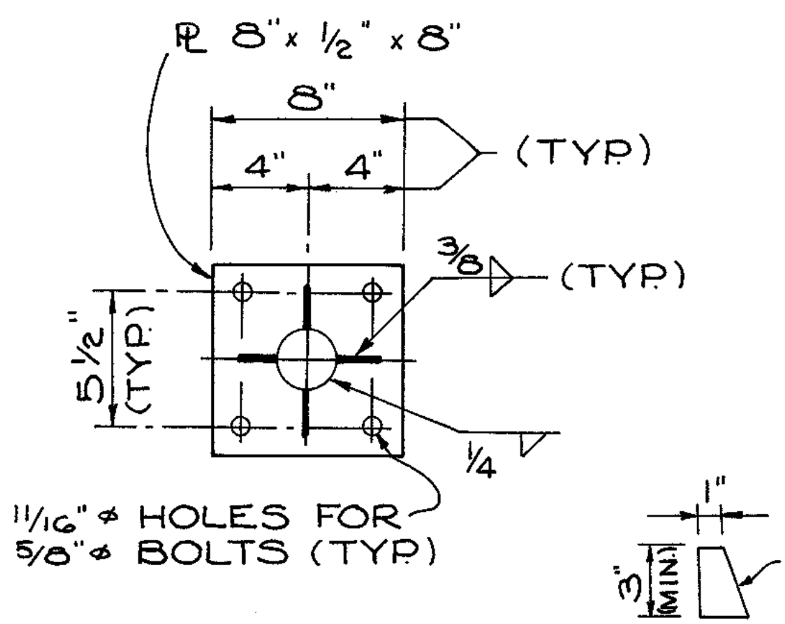
FED. RD.	STATE	PROJECT	
2	OHIO		

427
713

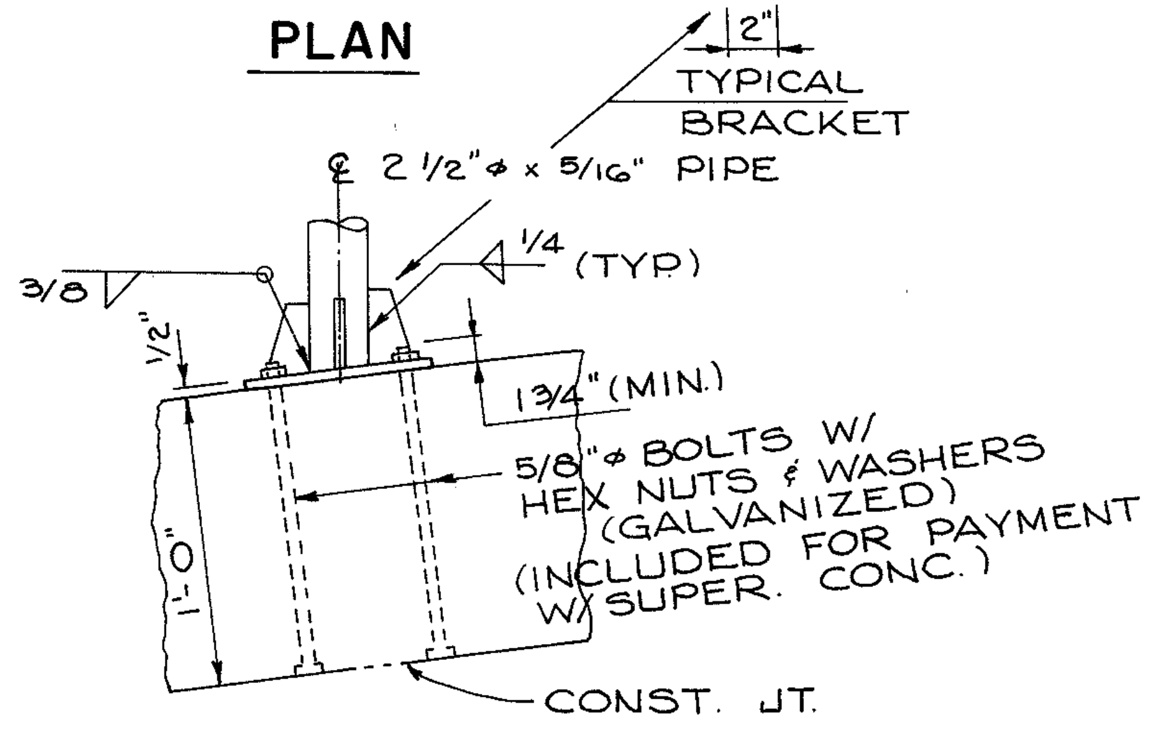
CUYAHOGA COUNTY
CUY - 90 - 10.40



DETAIL A
FOR REMAINDER OF CALL-OUTS SEE ELEV BELOW.

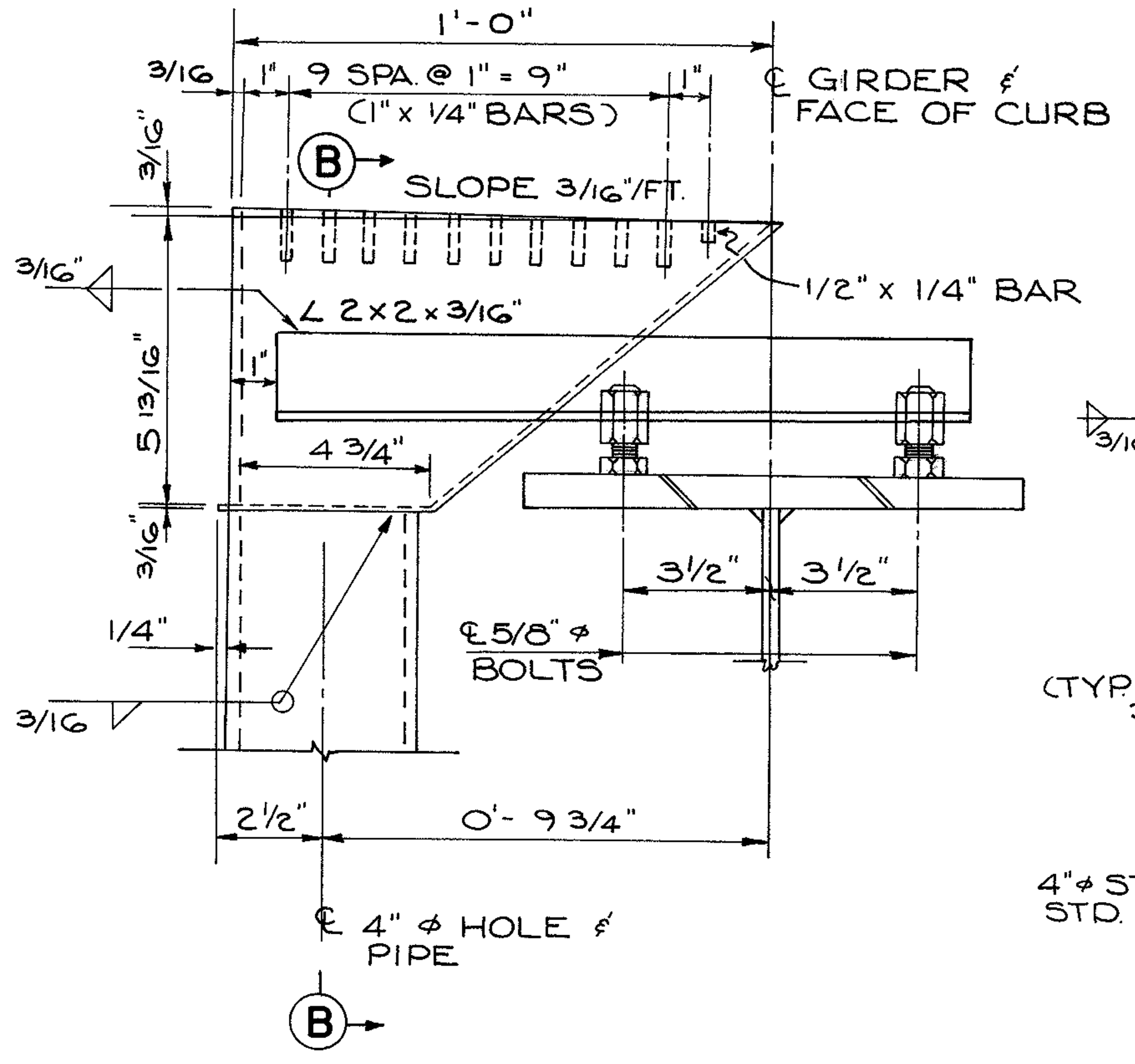


PLAN



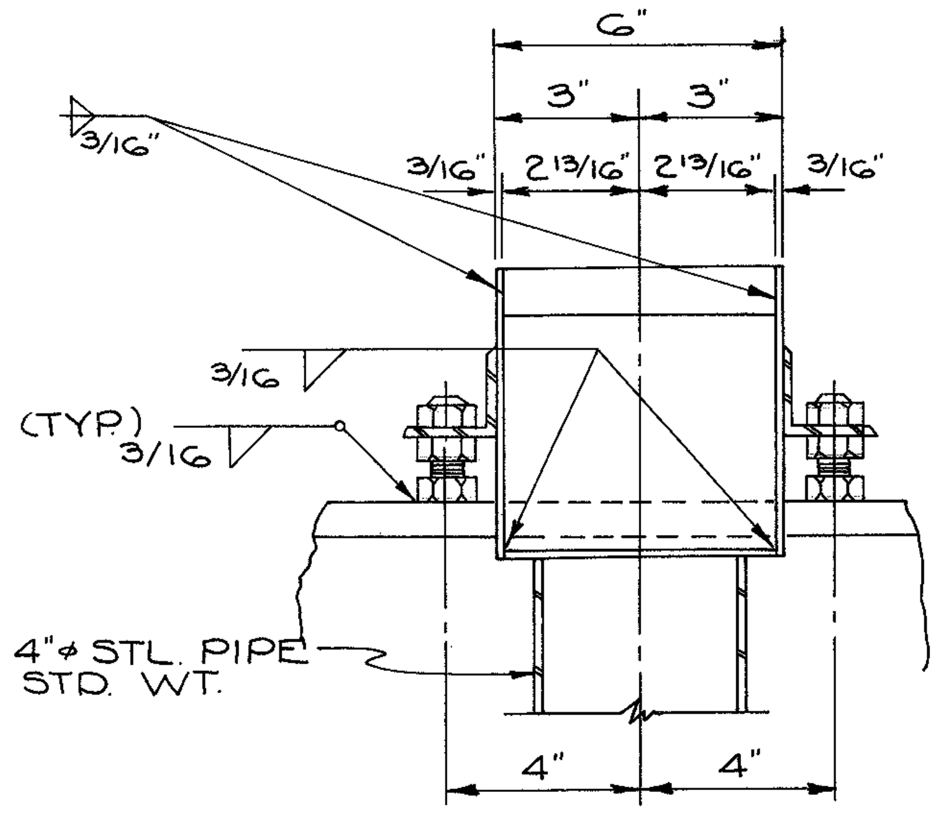
ELEVATION

DETAIL E (POST ANCHOR)



DETAIL
SPL. SCUPPER

SCUPPER NOTE:
FABRICATE FROM 3/16" THK. STEEL PLATE UNLESS OTHERWISE NOTED. (ALL WELDED CONSTRUCTION)
FOR DETAILS NOT SHOWN SEE STANDARD DRAWING SD-1-69 SHT. NO. 3



SECTION B-B

NOTES

① THIS IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

② A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

③ INTERMEDIATE CROSS FRAME ANGLES 3"x3"x 5/16".

④ CLEARANCE = 2", WHICH INCLUDES 1" FOR MONOLITHIC WEARING SURFACE.

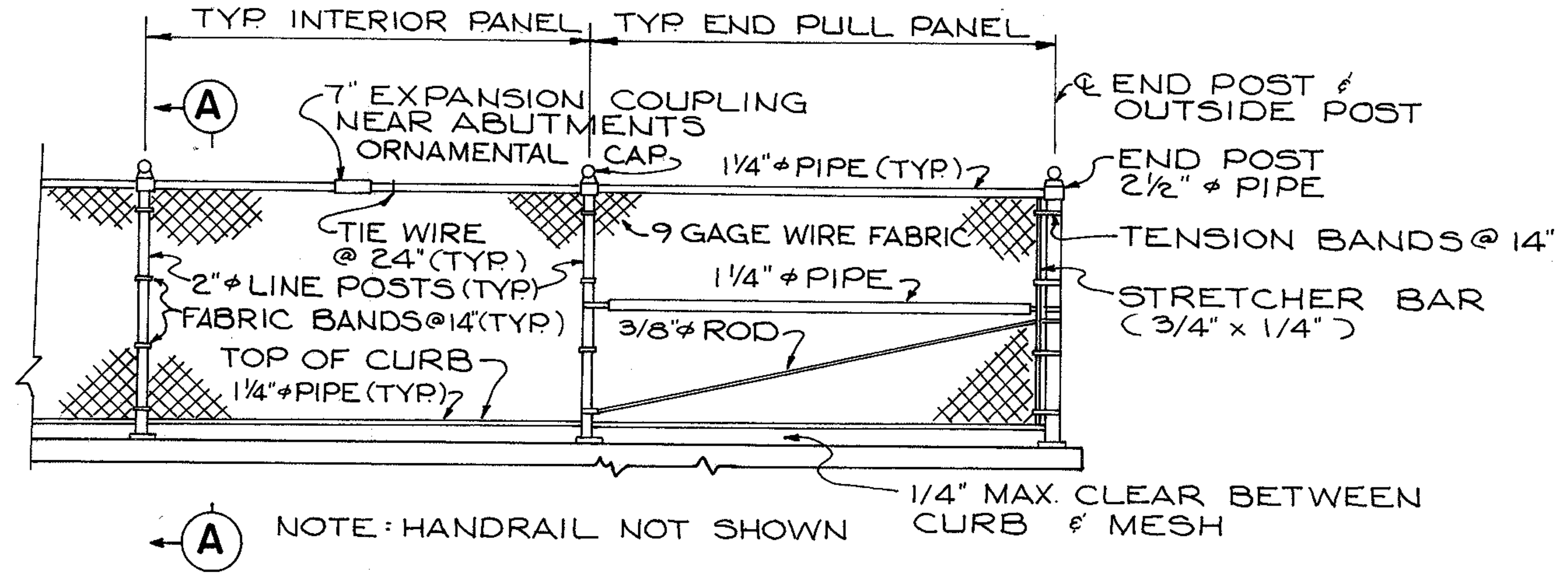
⑤ THESE ELEVATIONS ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE.

FOR PAVEMENT ELEVATION TABLE, SEE SHEET 6/9

⑥ TRANSVERSE REINFORCEMENT SHALL BE FIELD BENT AS REQUIRED; PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL.

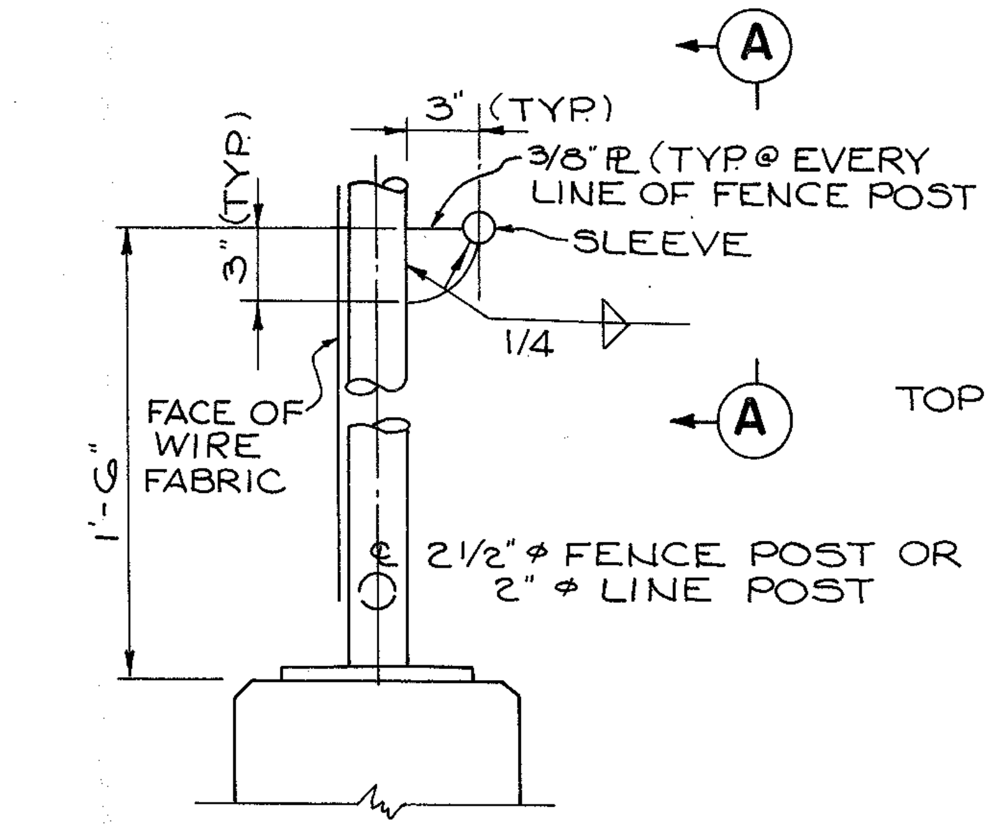
⑦ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 6/9

⑧ FOR LOCATION OF VIEW D-D, SEE SHEET 6/9

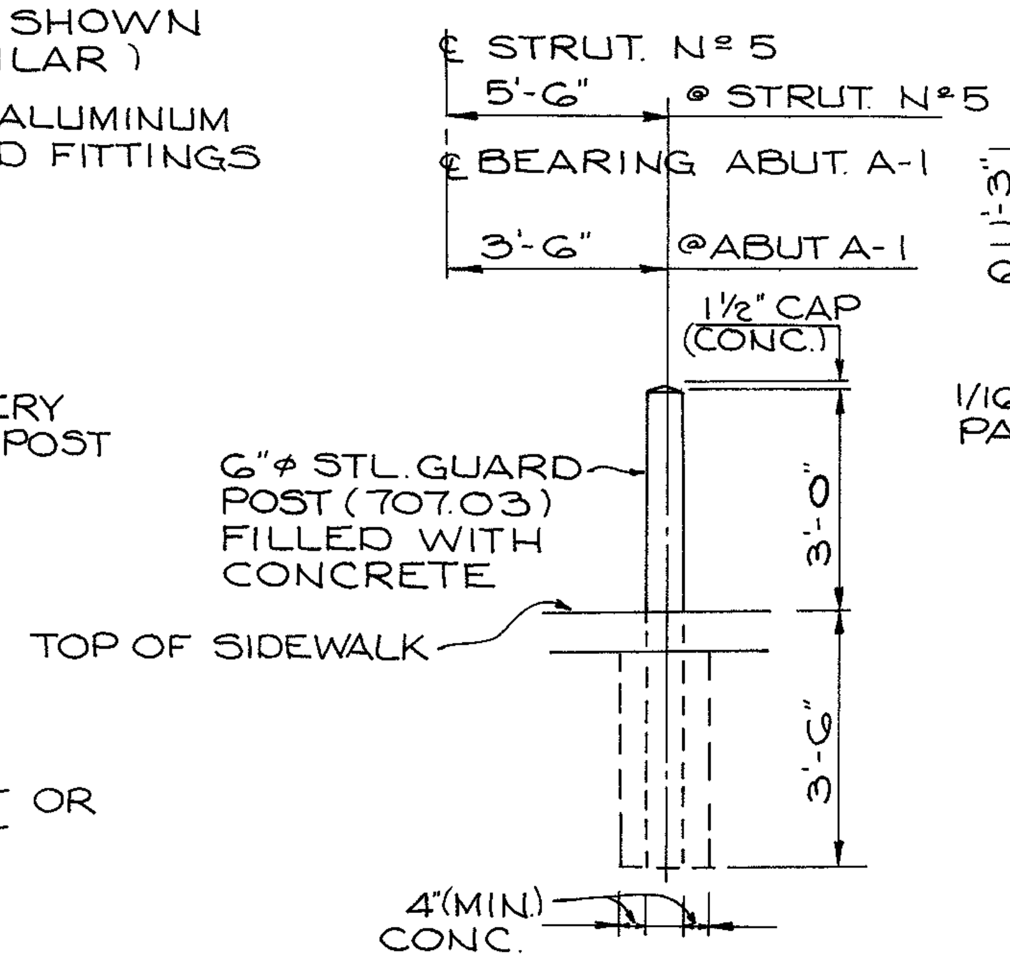


ELEVATION (5'-0" FENCE AS SHOWN 7'-0" FENCE SIMILAR)

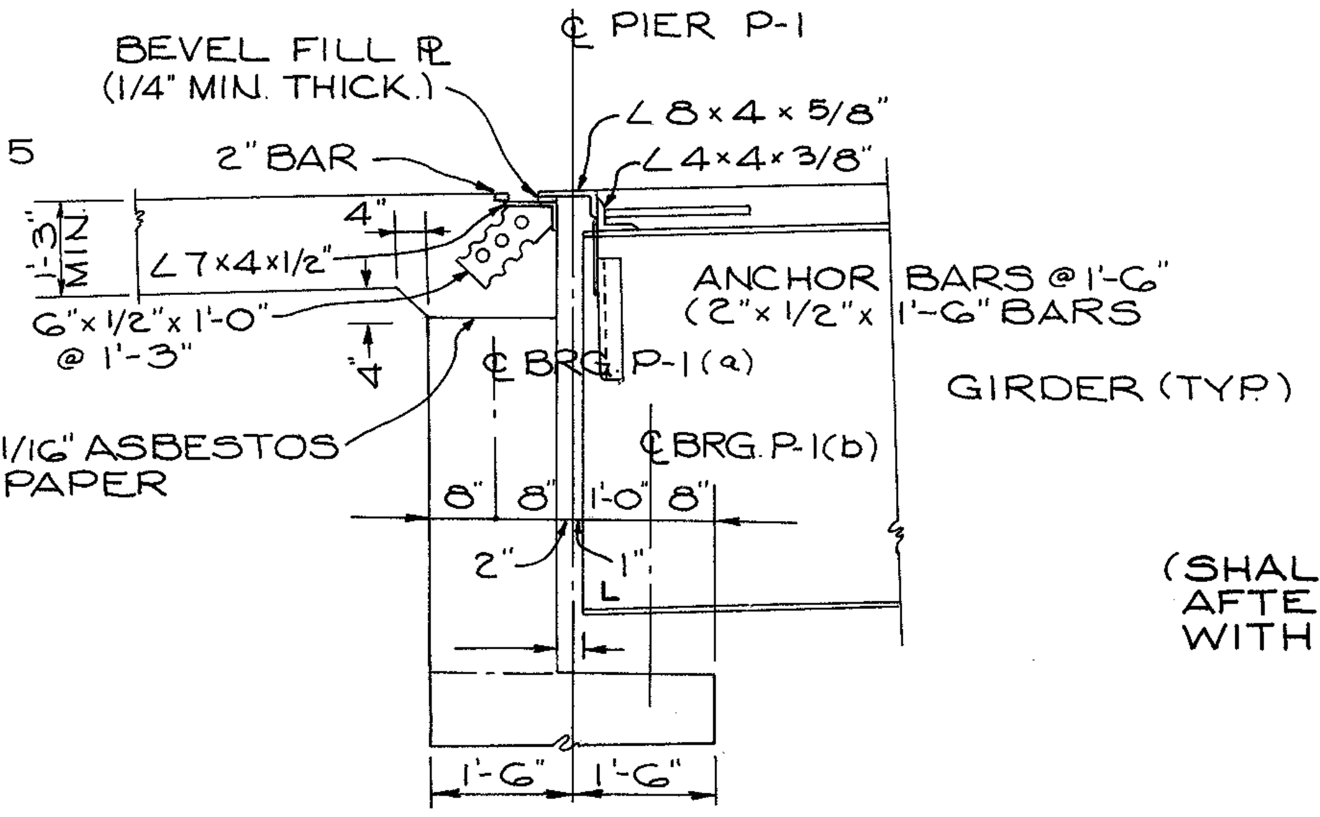
NOTE: ALL WIRE FABRIC TO BE 9-GAUGE ALUMINUM CLAD STEEL. ALL POSTS PIPES AND FITTINGS TO BE GALV. STEEL.



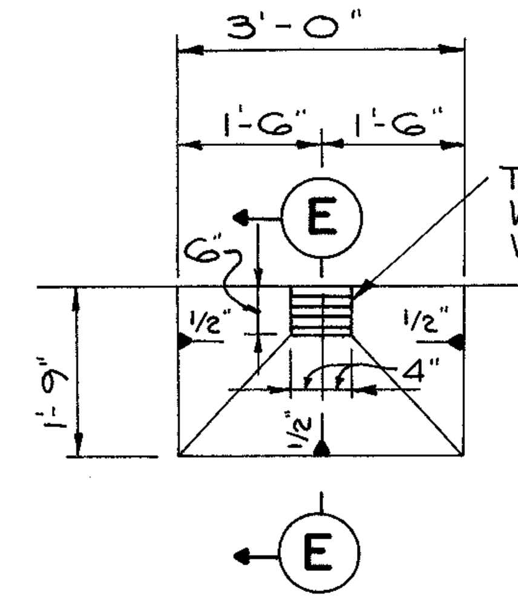
SECTION A-A
(TYP) HANDRAIL
FOR LOCATION SEE GENERAL PLAN



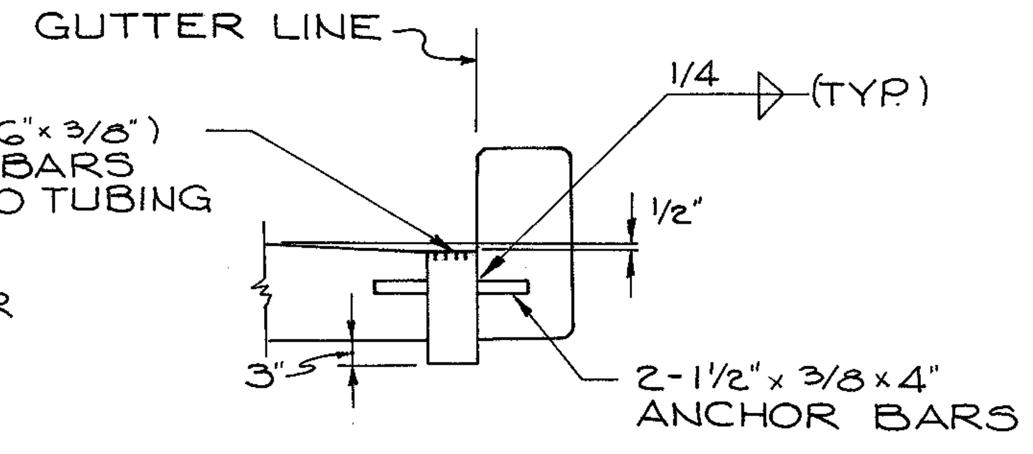
DETAIL D



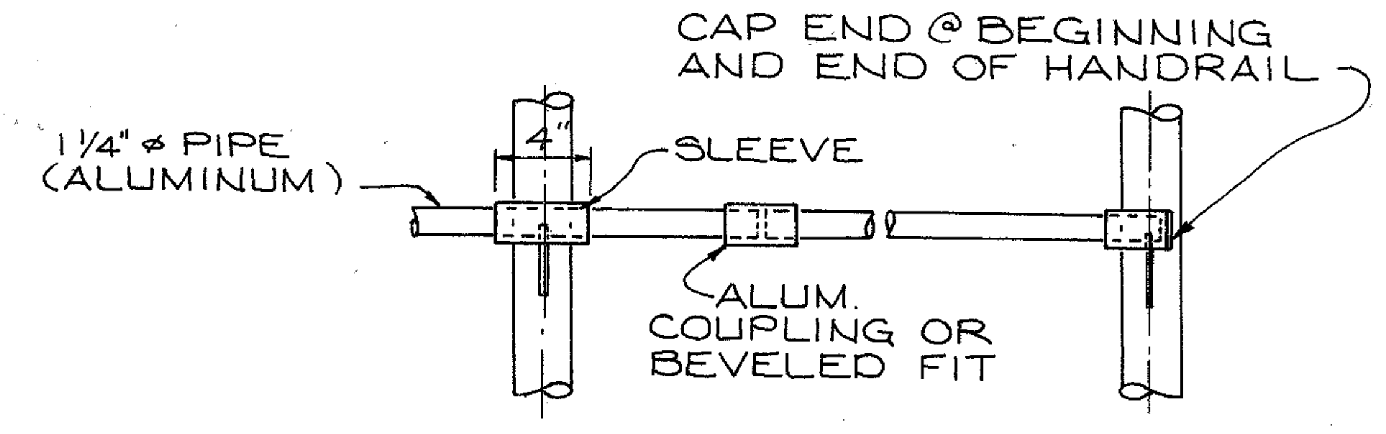
SECTION C-C (AS SHOWN AT PIER P-1 ABUTMENT A-2 SIMILAR)
SEE STANDARD DRAWING SD-1-69 SHT. Nº 1 & 2



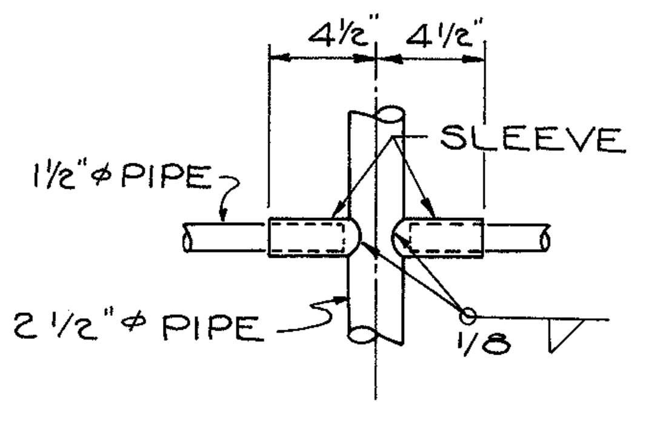
DETAIL
TUBE DRAIN
(SHALL BE HOT-DIP GALVANIZED AFTER WELDING IN ACCORDANCE WITH ITEM 711.)



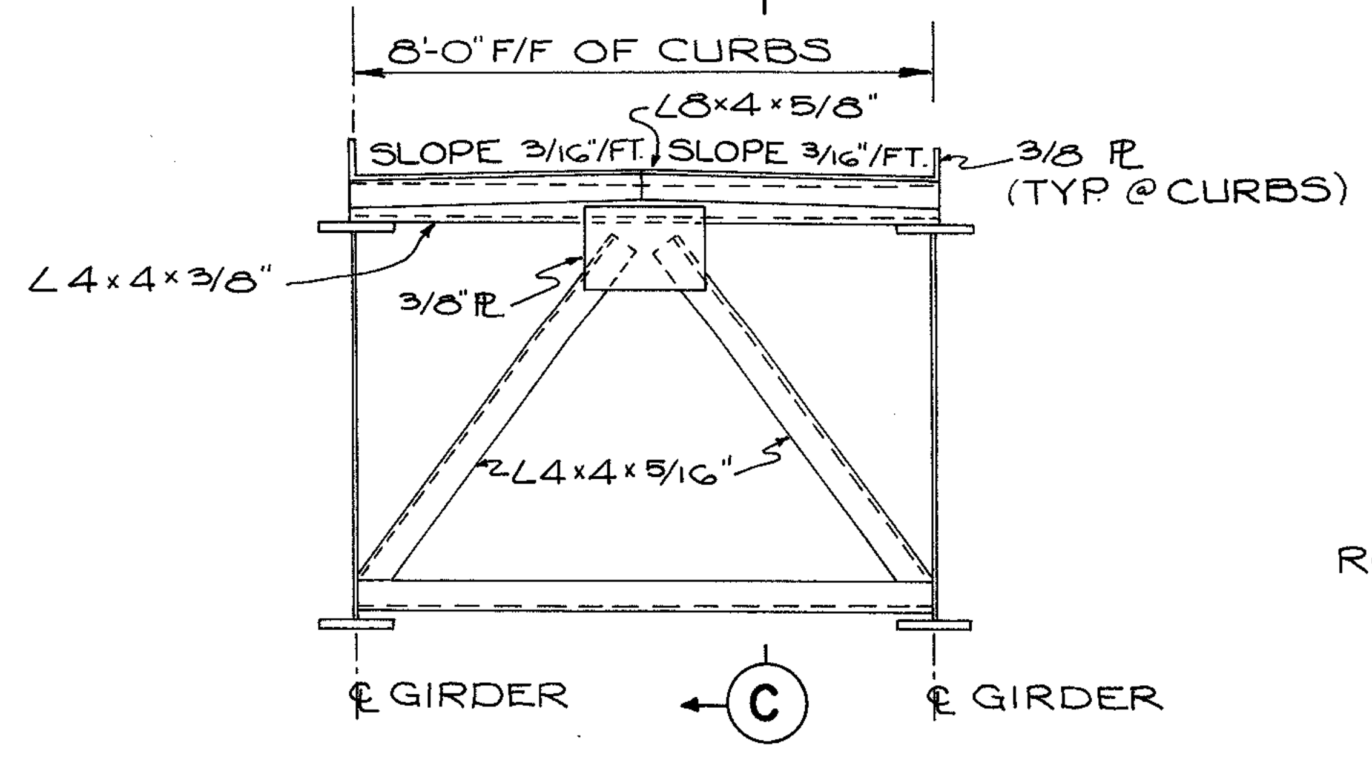
SECTION E-E



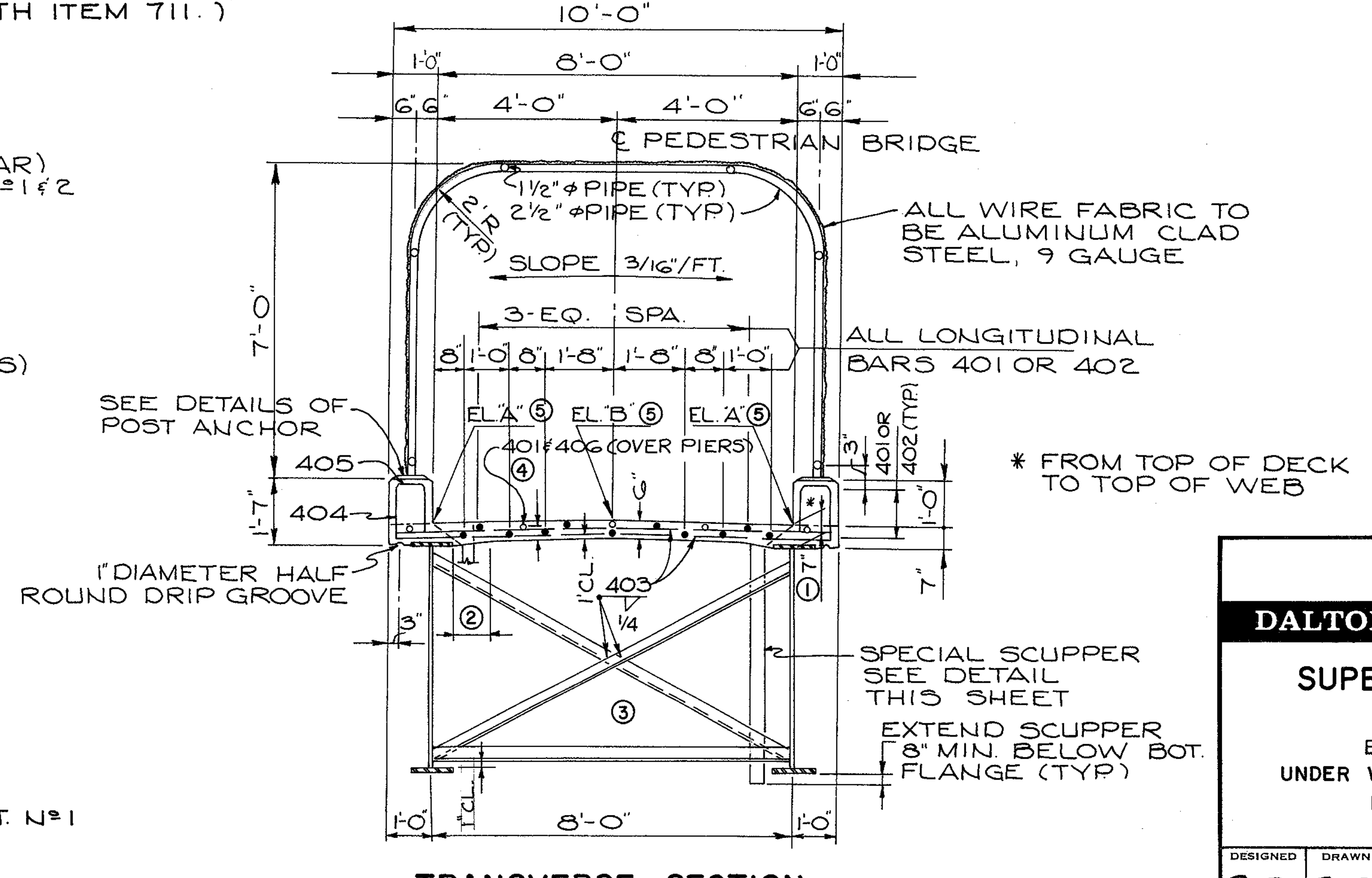
VIEW A-A



DETAIL B



VIEW D-D
SPECIAL END-CROSSFRAME
SEE STANDARD DRAWING SD-1-69 SHT. Nº 1



TRANSVERSE SECTION (SPAN Nº 2 THRU Nº 4)

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

5/9

DALTON · DALTON ASSOCIATES

SUPERSTRUCTURE DETAILS

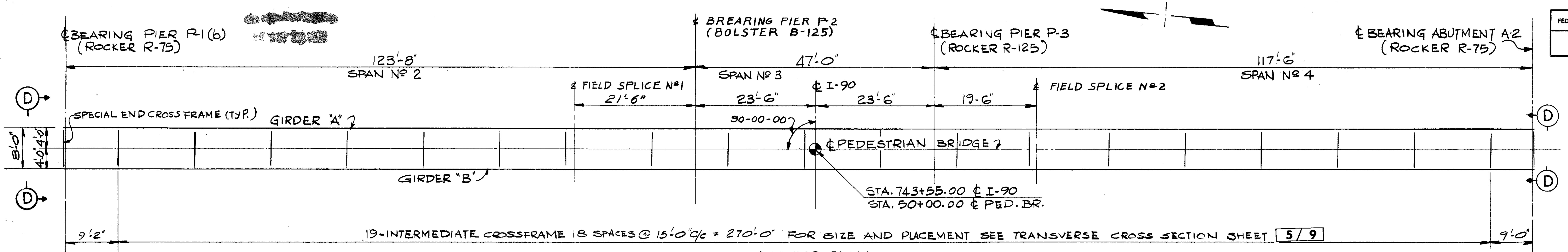
BRIDGE NO. CUY-90-1076
UNDER WEST 114 ST. PEDESTRIAN BRIDGE
I-90 CUYAHOGA COUNTY
STA. 743 + 55.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BSD	BSD	Hochevar	R.J.P. HSL	R.D.H.	8-23-73	

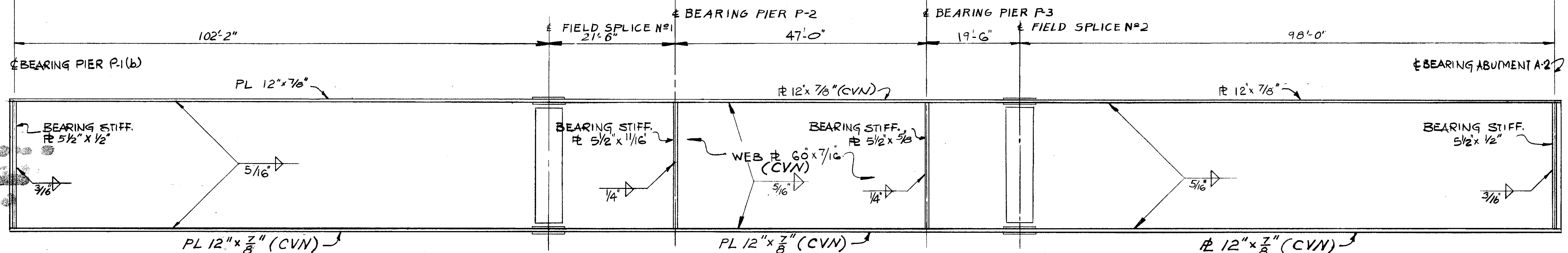
FED. RD.	STATE	PROJECT	
2	OHIO		

428
713

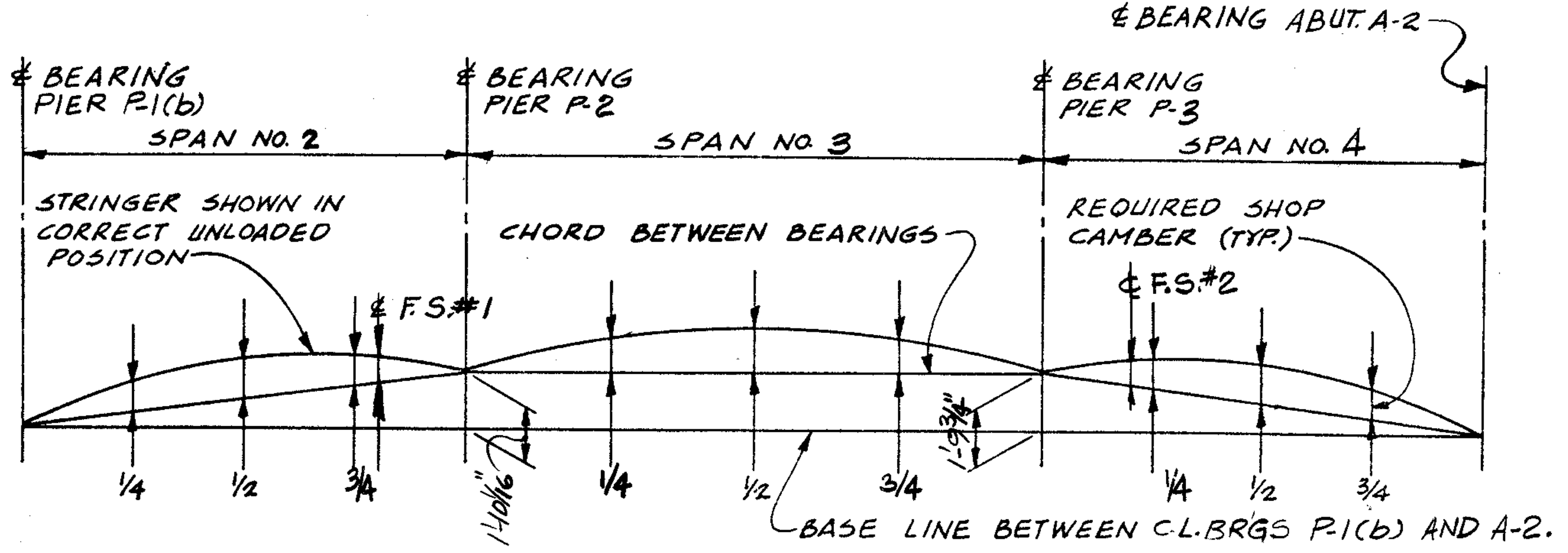
CUYAHOGA COUNTY
CUY - 90 - 10.40



FRAMING PLAN



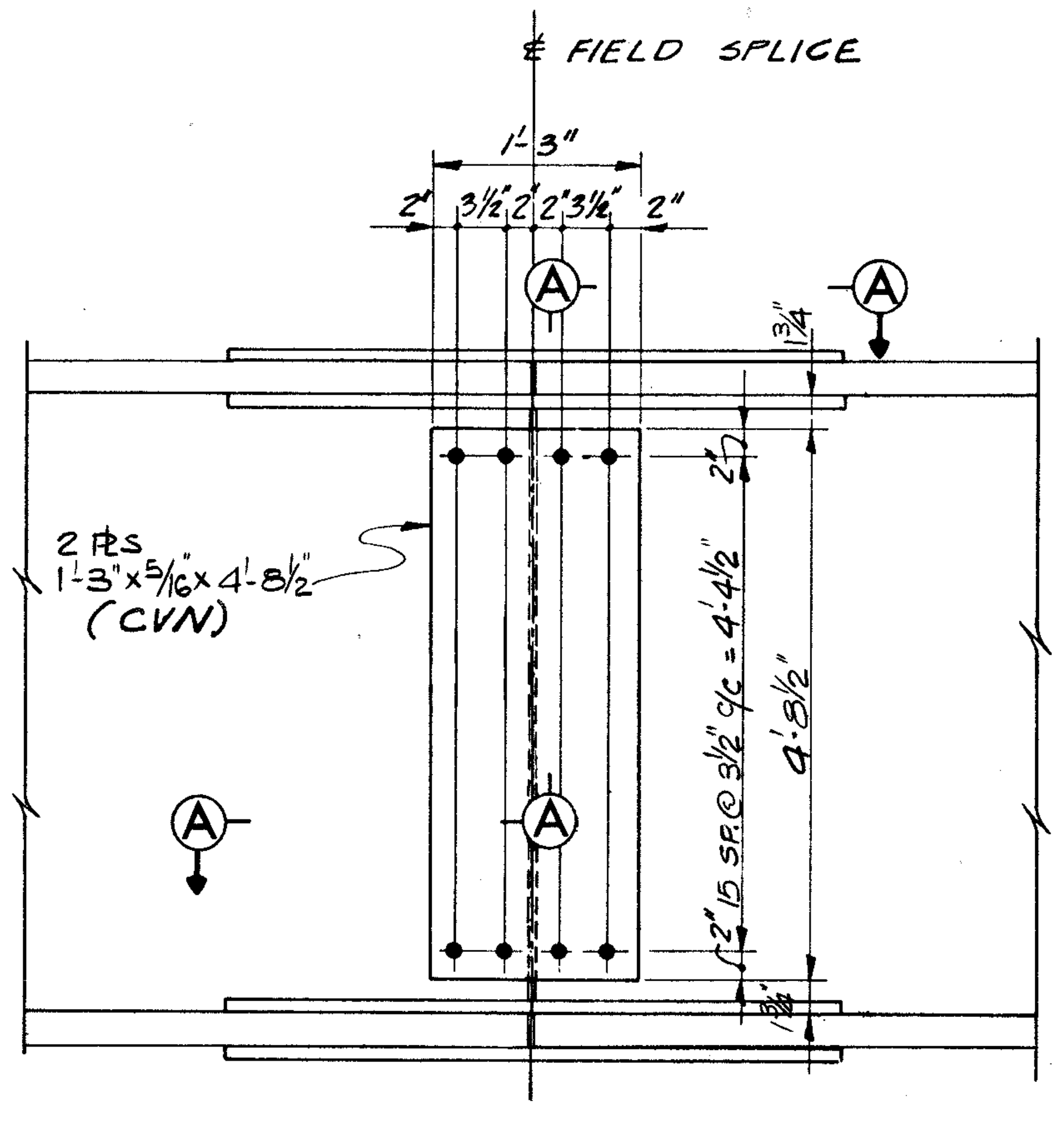
GIRDER ELEVATION



LAYOUT DIAGRAM

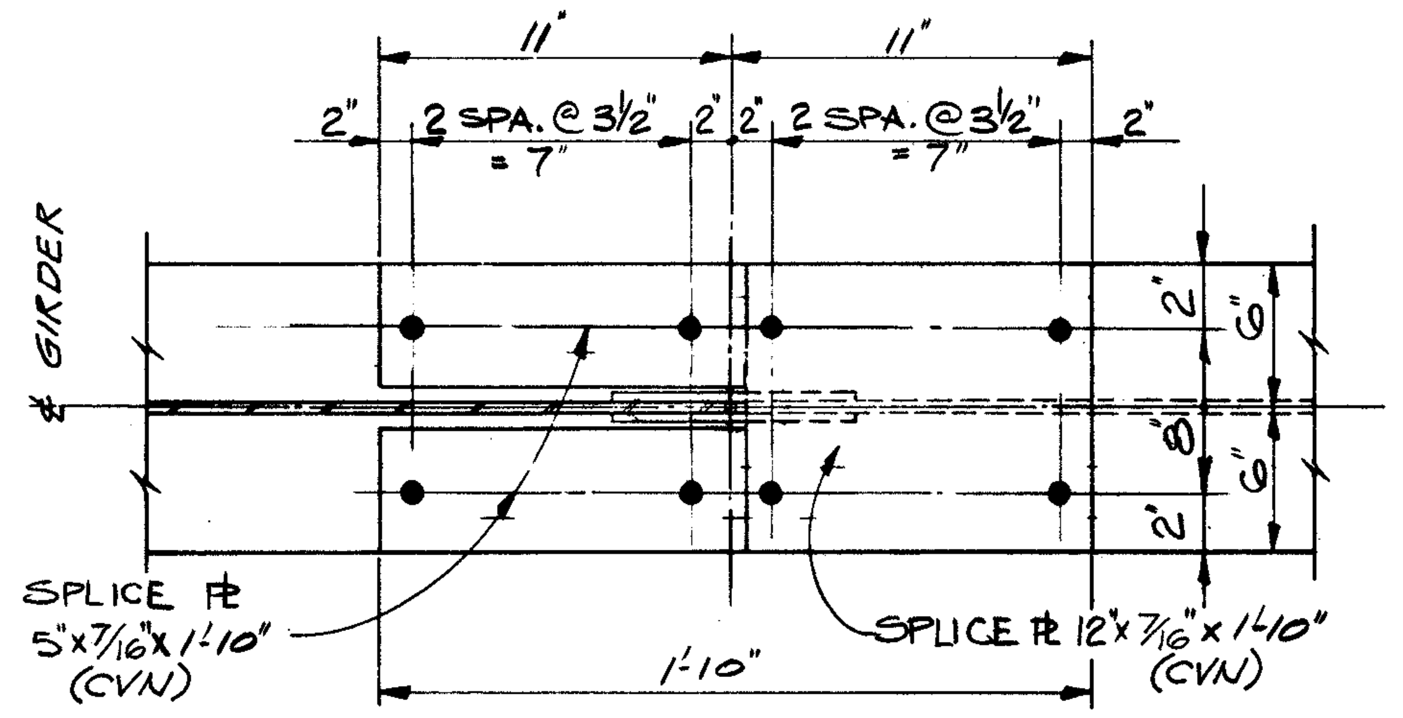
DEFLECTION AND CAMBER											
SPANS	Nº 2				Nº 3			Nº 4			
POINTS	1/4	1/2	3/4	F.S #1	1/4	1/2	3/4	F.S #2	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	1/2"	11/16"	7/16"	1/4"	-1/16"	-1/8"	-1/16"	1/4"	3/8"	9/16"	7/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	1 7/16"	1 13/16"	1 1/8"	3/4"	-3/16"	-1/4"	-3/16"	5/8"	15/16"	1 9/16"	1 3/16"
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	9/16"	3/8"	3/16"	1/8"	1 1/2"	2"	1 1/2"	0"	0"	-1/16"	-1/16"
REQUIRED SHOP CAMBER	2 1/2"	2 7/8"	1 3/4"	1 1/8"	1 1/4"	1 5/8"	1 1/4"	7/8"	1 5/16"	2 1/16"	1 9/16"

NOTE: MINUS VALUES INDICATE DIMENSIONS BELOW CHORD BETWEEN BEARINGS FOR REQUIRED SHOP CAMBER.



SPLICE DETAIL

TYPICAL F.S Nº1 & Nº2.



SECTION A-A

TYPICAL F.S. Nº1 & Nº2.

PAVEMENT ELEVATIONS SEE TRANSVERSE SECTION AND NOTE ⑤ SHEET 5 / 9			
LOCATION	A	B	
¢ BRG. P-1(b)	744.67	744.73	
1/8	745.03	745.09	
1/4	745.31	745.37	
3/8	745.57	745.64	
1/2	745.81	745.87	
5/8	746.02	746.08	
3/4	746.21	746.28	
7/8	746.40	746.46	
¢ BRG. P-2	746.58	746.65	
1/4	746.69	746.75	
1/2	746.73	746.79	
3/4	746.69	746.75	
¢ BRG. P-3	746.58	746.65	
1/8	746.40	746.46	
1/4	746.22	746.29	
3/8	746.04	746.10	
1/2	745.83	745.90	
5/8	745.61	745.67	
3/4	745.36	745.42	
7/8	745.10	745.16	
¢ BRG. A-2	744.83	744.89	

NOTES

① TOP AND BOTTOM FLANGE PLATES ARE TO BE THE SAME *SIZE* AND SHALL BE SPLICED AT POINTS SHOWN ON THE GIRDER ELEVATION.

② ALL GIRDER FIELD SPLICES SHALL BE MADE WITH 1" Ø HIGH STRENGTH STEEL BOLTS. THE BOLTS SHALL BE PLACED WITH THEIR HEADS ON THE OUTSIDE FACE OF EXTERIOR GIRDERS AND ON THE BOTTOM OF ALL FLANGE PLATES.

③ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 5 / 9

④ FOR VIEW D-D, SEE SHEET 2 / 9

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

6 / 9

DALTON • DALTON ASSOCIATES

FRAMING PLAN

BRIDGE NO. CUY - 90 - 1076
UNDER WEST 114thST PEDESTRIAN BRIDGE
I-90 CUYAHOGA COUNTY
STA. 743 + 55.00

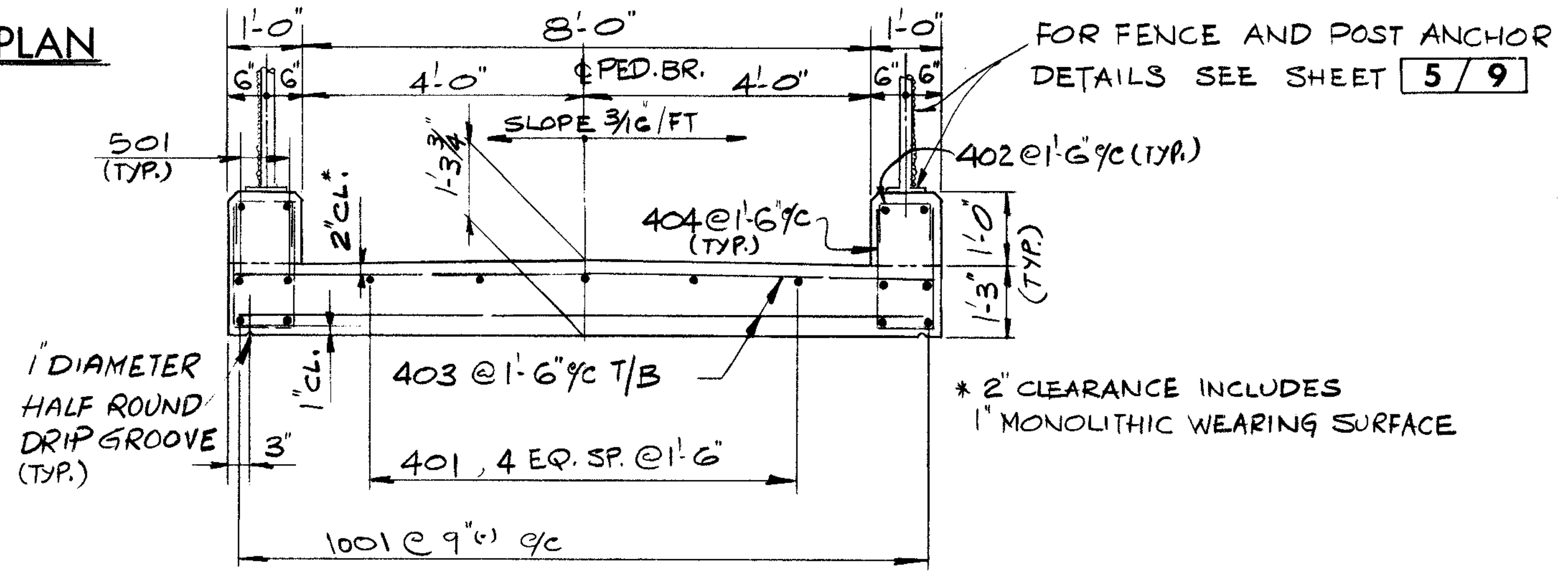
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BSD	BSD		R.J.P.	2DW	8-23-73	

FED. RD.	STATE	PROJECT	
2	OHIO		

429
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

SLAB PLAN



FOR FENCE AND POST ANCHOR DETAILS SEE SHEET 5/9

* 2" CLEARANCE INCLUDES 1" MONOLITHIC WEARING SURFACE

SECTION A-A

NOTES

① FOR TRANSVERSE SECTION (SPAN NO. 2 THRU NO. 4) SEE SHEET 5/9

② FOR ADDITIONAL NOTES, SEE SHEET 5/9

③ CAMBER OF 1/800 OF THE SPAN SHALL BE PROVIDED IN SPAN NUMBER 1 (IN ADDITION TO THAT REQUIRED FOR CONFORMANCE WITH THE PROFILE GRADE) TO ALLOW FOR DEAD LOAD DEFLECTION. THIS IS THE AMOUNT OF CAMBER REQUIRED BEFORE FALSEWORK IS RELEASED. TO OBTAIN THIS, PROPER ALLOWANCE SHALL BE MADE FOR THE DEFLECTION OF FALSEWORK MEMBERS.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

7/9

DALTON • DALTON ASSOCIATES

SLAB PLAN
BRIDGE NO. CUY - 90 - 1076
UNDER WEST 114th ST. PEDESTRIAN BRIDGE
I-90 CUYAHOGA COUNTY
STA. 743 + 55.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BSD	BSD		R.J.P. HSL	RBH	8-23-73	

FED. RD.	STATE	PROJECT	
2	OHIO		

430
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

NOTES "A"

① ABBREVIATIONS USED ARE:

NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE

② THE PREFIX "RW" SHALL BE ADDED TO ALL RETAINING WALL REINFORCING BAR MARKS UNLESS SHOWN OTHERWISE.

③ USE ALTERNATE HORIZONTAL AND VERTICAL STRIATED CONCRETE FINISH BETWEEN RUSTICATION GROOVES.

④ FOR STRUCTURAL GENERAL NOTES, SEE SHEET

⑤ ALL REINFORCING IN FOOTINGS SHALL HAVE 3 INCHES MINIMUM CLEAR COVER.

⑥ *FOR SECTION D-D AND RUSTICATION GROOVE DETAIL SEE SHEET* 3/9

NOTE "B" ALL BACKFILL & EMBANKMENT WITHIN SOUTH RAMP LIMITS SHALL BE INCLUDED WITH THE COST OF ITEM 503 "UNCLASSIFIED EXCAVATION"

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

8 / 9

DALTON · DALTON ASSOCIATES

SOUTH RAMP DETAIL

BRIDGE NO CUY - 90 - 1076
UNDER WEST 114th ST. PEDESTRIAN BRIDGE
I - 90 CUYAHOGA COUNTY
STA. 743 + 55.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BSD	BSD		R.J.P. HSL	RDN	8-23-73	

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
ABUTMENT A-1									
1A 501	6	7- 6	ST						47
1A 502	8	4- 1	2	1- 7	1- 2				34
1A 503	4	4- 9	19	0-10	1- 9	1-10	1- 6		20
1A 504	4	15- 8	ST						65
1A 505	2	7-11	2	3- 6	1- 2				17
1A 506	2	4- 5	2	1- 9	1- 2				9
1A 601	16	11- 2	3	7- 1	1-10	2- 6			268
1A 801	4	7- 6	ST						80
						TOTAL ABUTMENT		A-1 =	540
ABUTMENT A-2									
2A 501	10	8- 3	2	1- 7	5- 4				86
2A 502	10	8-11	1	0- 8	8- 4				93
2A 503	10	6- 6	2	1- 8	3- 5				68
2A 504	20	9- 8	ST						202
2A 601	10	16- 0	3	8- 4	5- 4	2- 7			240
2A 602	11	15-10	2	7- 4	1- 5				262
2A 603	11	4- 6	2	1- 8	1- 5				74
2A 604	11	5- 0	2	2- 2	0-11				83
2A 801	7	9- 6	ST						178
						TOTAL ABUTMENT		A-2 =	1286

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
PIER P-1									
1P 501	2	10- 3	17	1- 6	3- 4	3- 0			21
1P 502	8	9- 8	ST						81
SERIES	4-SETS	4-11		1- 3	2- 8				
OF	OF 5=	TO	2	TO	TO			0- 8	130
1P 503	20 BARS	7- 7		2- 7	2- 8				
1P 504	11	13- 3	5	1- 0	5-10				152
1P 701	18	15- 0	ST						552
1P 801	7	7- 6	ST						140
1P 901	5	11- 7	2	1- 2	9- 8				197
1P1101	20	7- 6	1	1- 6	6- 3				797
1P1102	8	17- 0	1	1- 6	15- 9				723
1P1103	12	10- 8	ST						680
						TOTAL PIER		P-1 =	3473
PIER P-2									
2P 501	2	10- 5	17	1- 6	3- 5	3- 0			22
SERIES	8-SETS	3-11		1- 3	1- 8			5	
OF	OF 7=	TO	2	TO	TO			0- 5--	307
2P 502	56 BARS	6- 7		2- 7	1- 8			16	
2P 801	9	11-10	2	1- 2	9-10				284
2P 802	17	16- 0	ST						726
2P 803	8	7- 9	ST						166
2P1101	35	7- 6	1	1- 6	6- 3				1395
2P1102	27	14- 2	ST						2032
2P1103	8	18- 8	1	1- 6	17- 5				793
						TOTAL PIER		P-2 =	5725
PIER P-3									
3P 501	2	10- 5	17	1- 6	3- 5	3- 0			22
SERIES	8-SETS	3-11		1- 3	1- 8			5	
OF	OF 7=	TO	2	TO	TO			0- 5--	307
3P 502	56 BARS	6- 7		2- 7	1- 8			16	
3P 801	9	11-10	2	1- 2	9-10				284
3P 802	17	16- 0	ST						726
3P 803	8	7- 9	ST						166
3P1101	35	7- 6	1	1- 6	6- 3				1395
3P1102	27	7- 6	ST						1076
3P1103	8	18- 8	1	1- 6	17- 5				793
						TOTAL PIER		P-3 =	4769

SPIRAL REINFORCING SCHEDULE

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
SPIRALS-PIER P-1					
1P-SP401	1	0-32	13- 3	4.50	254
		TOTAL	SPIRALS-PIER	P-1 =	254
SPIRALS-PIER P-2					
2P-SP401	1	0-32	14-11	4.50	284
		TOTAL	SPIRALS-PIER	P-2 =	284
SPIRALS-PIER P-3					
3P-SP401	1	0-32	14-11	4.50	284
		TOTAL	SPIRALS-PIER	P-3 =	284

FOUR ANGLE SPACERS WEIGHING APPROX. 0.80 LBS. PER LINEAL FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT LISTED ABOVE. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED SPIRAL WEIGHT.

THE LENGTH SHOWN IN THE STEEL SCHEDULE FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE TOP OF THE COLUMN INCLUDING THREE (3) CLOSED COILS (ONE AND ONE HALF CLOSED COILS AT THE ENDS OF EACH SPIRAL UNIT).

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
SUPERSTRUCTURE S-1									
1S 401	5	29- 9	ST						99
1S 402	46	1- 8	2	0- 7	0- 8				51
1S 403	46	9- 8	ST						297
1S 404	46	4- 6	2	2- 0	0- 8				138
1S 501	8	30- 3	ST						252
1S1001	14	30- 3	ST						1822
					TOTAL	SUPERSTRUCTURE		S-1 =	2659
SUPERSTRUCTURE S-2									
2S 401	181	30- 0	ST						3627
2S 402	19	30- 6	ST						387
2S 403	483	9- 8	ST						3119
2S 404	388	3- 0	2	1- 3	0- 8				778
2S 405	388	1- 8	2	0- 7	0- 8				432
2S 406	10	9- 3	ST						62
					TOTAL	SUPERSTRUCTURE		S-2 =	8405

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
RETAINING WALL									
RW 501	8	24-11	ST						208
RW 502	2	26- 5	12	1- 7	24-10	2- 3			55
RW 503	2	10- 9	ST						22
RW 504	2	22- 7	12	1- 7	21- 0	1-11			47
RW 505	2	10-10	ST						23
RW 506	2	9- 8	ST						20
RW 507	14	8- 6	1	1- 7	7- 0				124
RW 508	34	9- 8	ST						343
SERIES	2-SETS	6- 5						1	
OF	OF 42 =	TO	ST					0- 1--	734
RW 509	84 BARS	10- 4						8	
SERIES	2-SETS	9-10						1	
OF	OF 24 =	TO	ST					0- 1--	546
RW 510	48 BARS	12- 0						8	
RW 511	24	9- 9	ST						244
RW 512	14	7- 0	ST						102
RW 513	10	12- 4	1	1- 1	11- 4				129
RW 514	18	8-10	1	1- 1	7-10				166
RW 515	22	9- 0	1	1- 1	8- 0				207
RW 516	10	5- 1	1	2- 7	2- 7				53
RW 517	14	8- 0	ST						117
RW 518	22	8- 9	24	1- 2	0- 5	2- 3	2- 4		201
RW 519	7	10- 0	ST						73
SERIES	2-SETS	8-7						1	
OF	OF 22 =	TO	ST					0- 1--	440
RW 520	44 BARS	10- 7						8	
SERIES	2-SETS	9- 9						1	
OF	OF 23 =	TO	ST					0- 1--	516
RW 521	46 BARS	11- 9						8	
RW 522	24	6- 5	ST						161
SERIES	2-SETS	6- 6						1	
OF	OF 18 =	TO	ST					0- 1--	274
RW 523	36 BARS	8-1						8	
RW 524	42	12- 7	2	1- 7	9- 8				551
RW 525	18	10- 9	1	1- 1	9- 9				202
RW 526	18	7- 0	1	1- 1	6- 0				131
RW 527	18	12- 0	1	1- 1	11- 0				225
RW 528	10	9- 8	ST						101
RW 529	10	10- 6	ST						110
RW 530	2	5- 3	ST						11
RW 531	7	6- 1	ST						44
RW 801	48	30- 0	ST						3845
RW 802	11	16-11	ST						497
RW 803	11	7- 7	ST						223
RW 804	16	24-11	ST						1064
RW 805	2	25- 0	ST						134
RW 806	2	17- 0	ST						91
RW 807	2	22- 0	ST						117
RW 808	10	31-10	ST						850
RW 809	10	32- 7	ST						870
RW 810	11	16- 2	ST						475
RW 811	46	25- 8	ST						3152
RW 812	11	8- 4	ST						245
SERIES	4-SETS	6- 6							
OF	OF 3=	TO	ST					7- 9	457
RW 813	12 BARS	22- 0							
SERIES	2-SETS	4- 0							
OF	OF 3=	TO	ST					7- 0	176
RW 814	6 BARS	18- 0							
					TOTAL	RETAINING	WALL	=	18,376

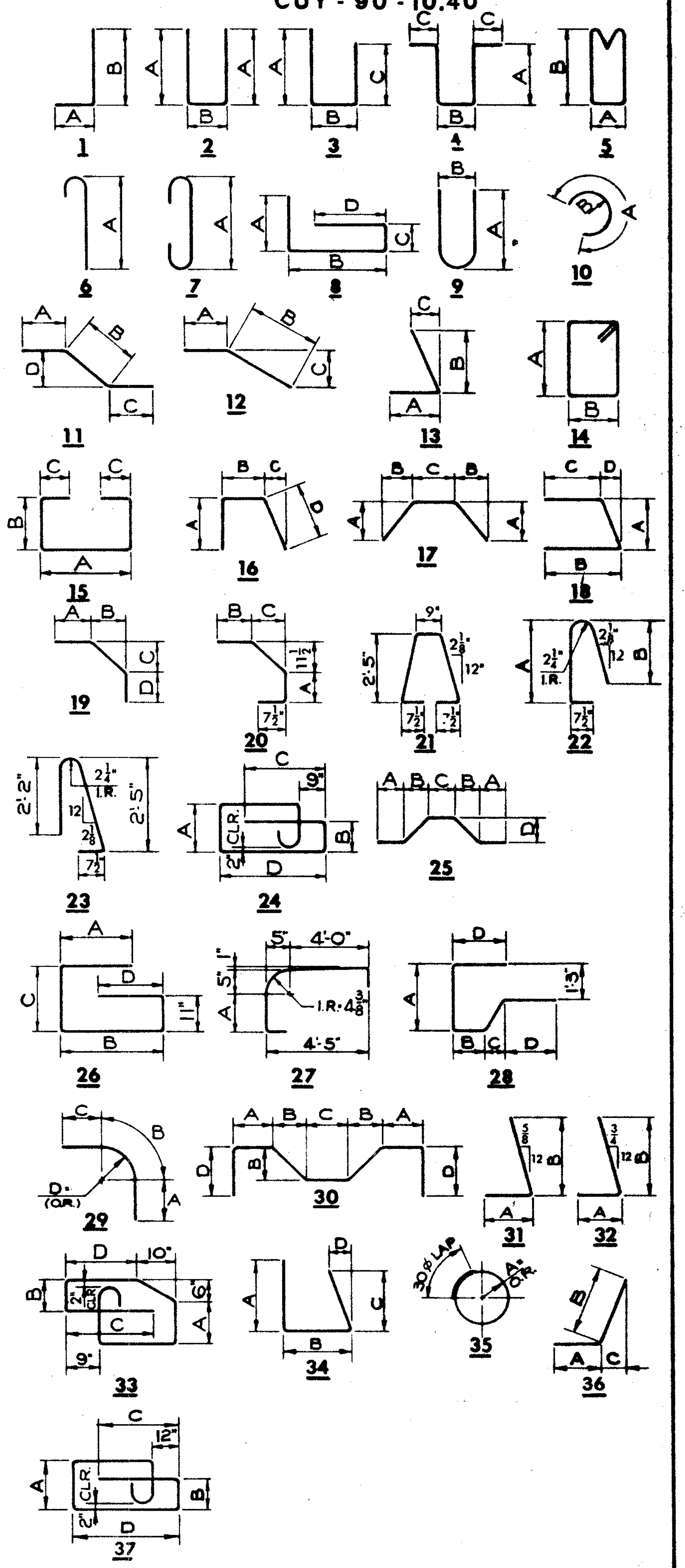
MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
						ABUTMENT	TOTAL	=	1,826
						PIER	TOTAL	=	14,789
					SUPER	STRUCTURE	TOTAL	=	11,064
						GENERAL (WALL)			18,376
						GRAND	TOTAL	=	46,055

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, 1A 701 IS A NO.7 SIZE BAR AND 1A1014 IS A NO.10 SIZE BAR.

FED. RD.	STATE	PROJECT	
2	OHIO		

431
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

9/9

DALTON • DALTON ASSOCIATES

REINFORCING SCHEDULE

BRIDGE NO CUY - 90 - 1076
UNDER WEST 114 th ST. PEDESTRIAN BRIDGE
I - 90 CUYAHOGA COUNTY
STA. 743 + 55.00

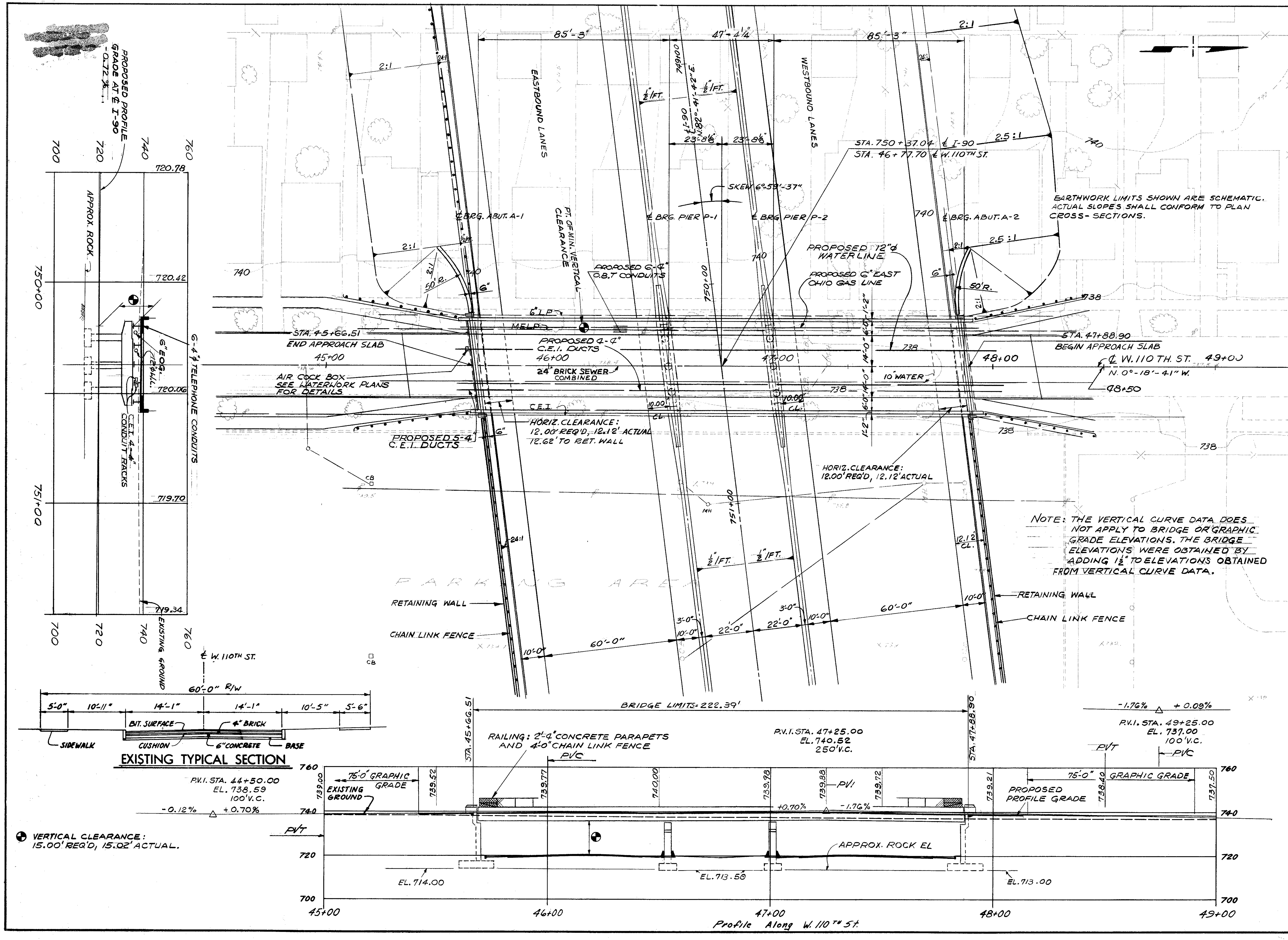
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
TMJ	TMJ		R.J.P.	R.D.H 8-23-73	

FED. RD.	STATE	PROJECT	
2	OHIO		

432
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

[redacted]



EXISTING TYPICAL SECTION

Profile Along W. 110TH St.

● VERTICAL CLEARANCE: 15.00' REQ'D, 15.02' ACTUAL.

NOTE: THE VERTICAL CURVE DATA DOES NOT APPLY TO BRIDGE OR GRAPHIC GRADE ELEVATIONS. THE BRIDGE ELEVATIONS WERE OBTAINED BY ADDING 1½" TO ELEVATIONS OBTAINED FROM VERTICAL CURVE DATA.

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS, WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.

SKEW: 6°-59'-37" R.F.

SPANS: 85'-3", 47'-4¼", 85'-3"

ROADWAY: 28'-0" F/F CURBS WITH 6'-0" SIDEWALKS.

LOADING: HS 20-44.

WEARING SURFACE: 1½" ASPHALT CONCRETE

APPROACH SLABS: 30' LONG (AS-1-72)

ALIGNMENT: TANGENT.

SUPERELEVATION: NONE.

SLOPE PROTECTION: NONE REQUIRED.

TRAFFIC: I-90 122,974 A.D.T. 1975
W. 110 ST. 9,800 A.D.T. 1975.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1 / 8

DALTON • DALTON ASSOCIATES

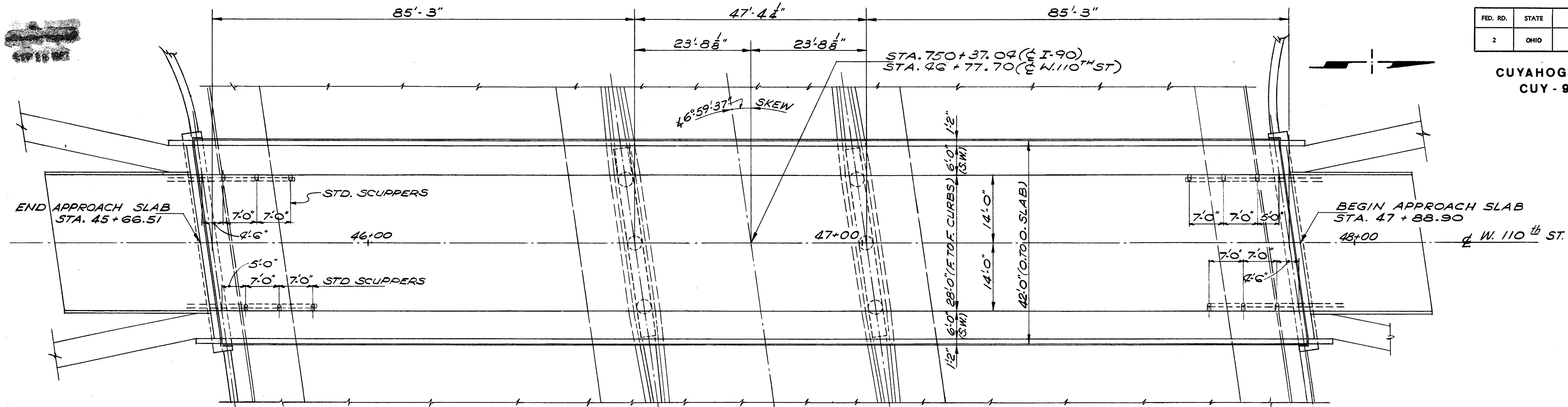
SITE PLAN

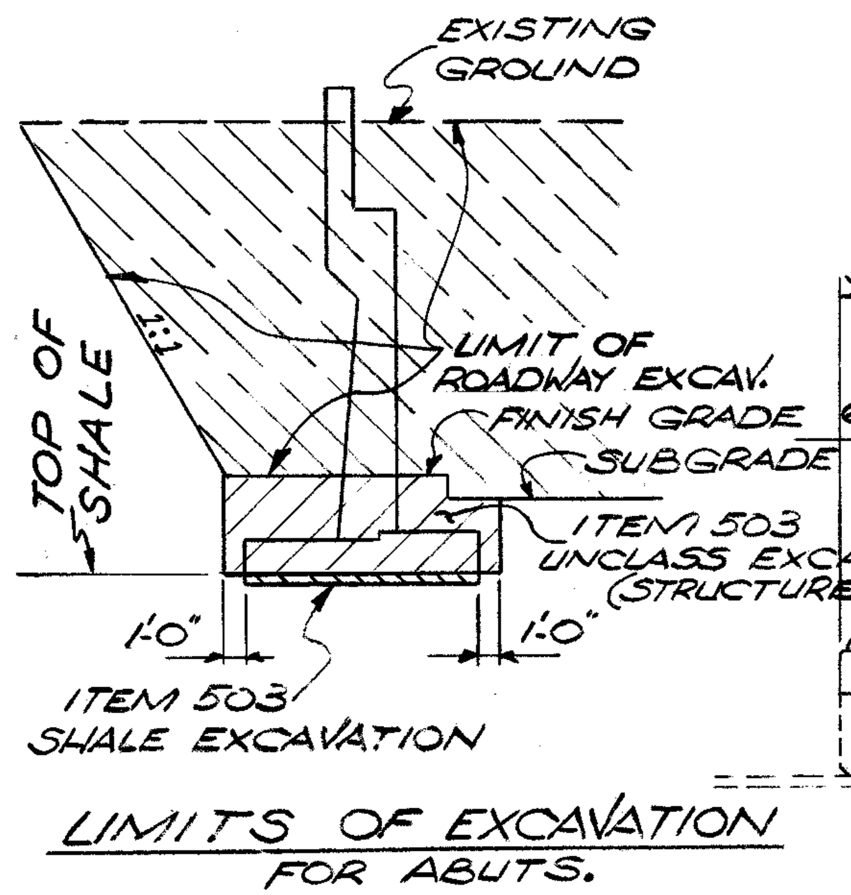
BRIDGE NO. CUY - 90 - 1089.
UNDER WEST 110th ST.
I-90 CUYAHOGA COUNTY
STA. 750 + 37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ JFP	J.K.		JWW	RDH	2-23-70	

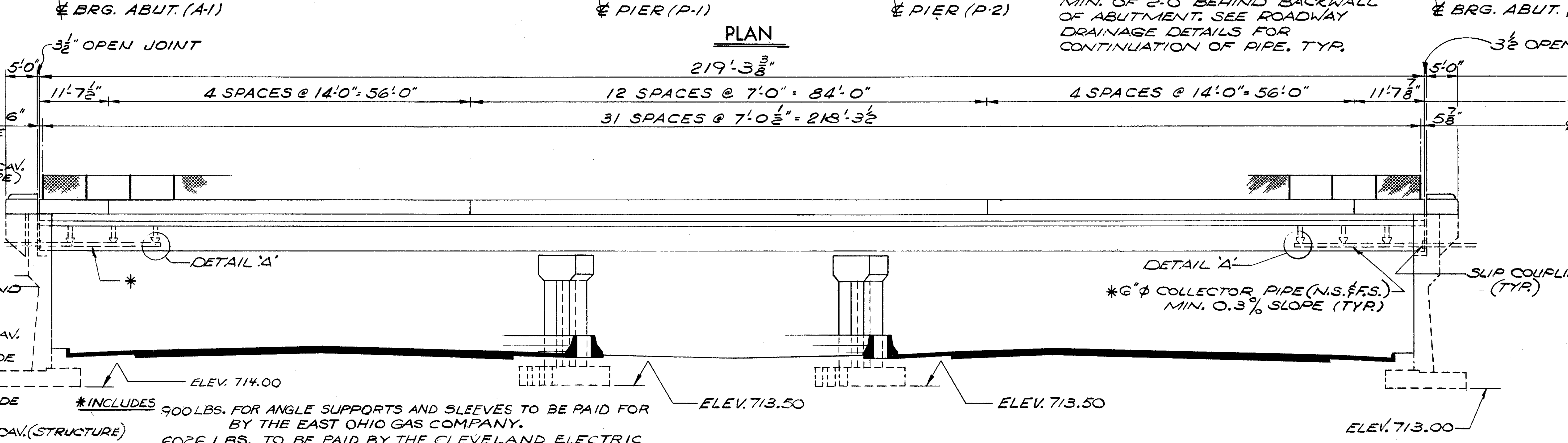
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



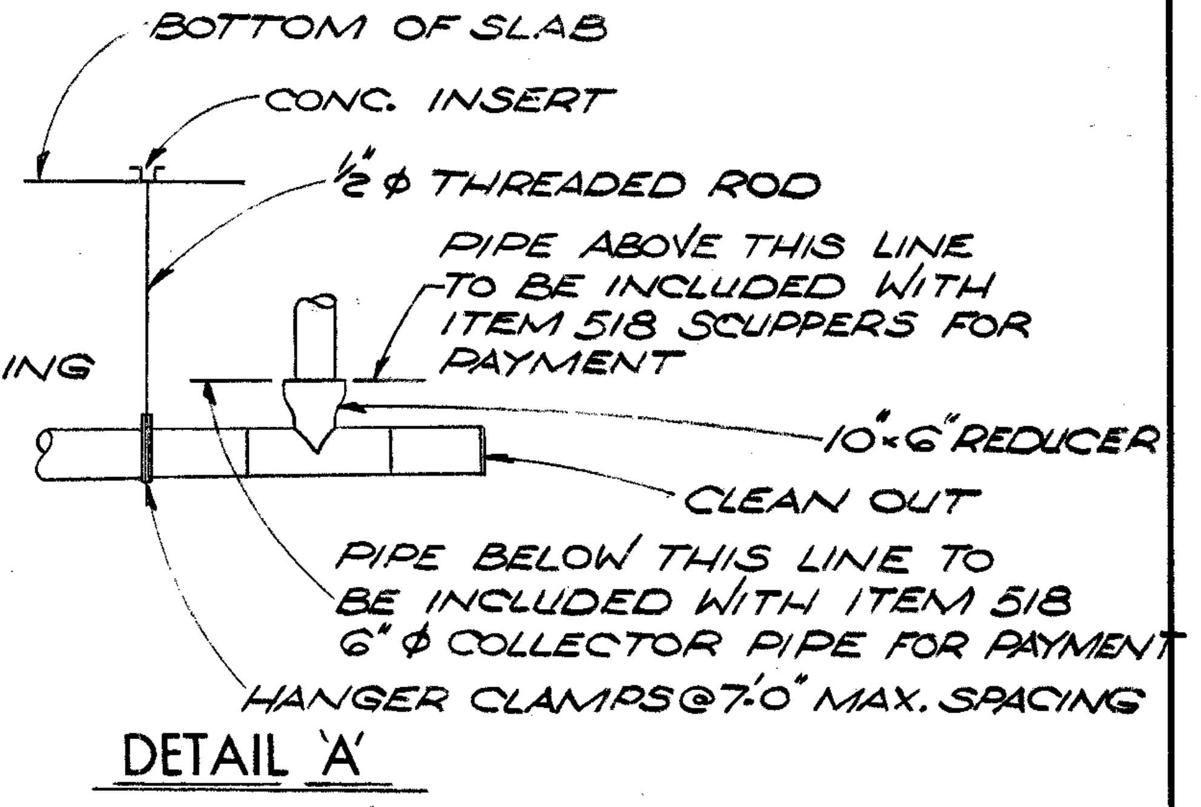


LIMITS OF EXCAVATION
FOR ABUTS.



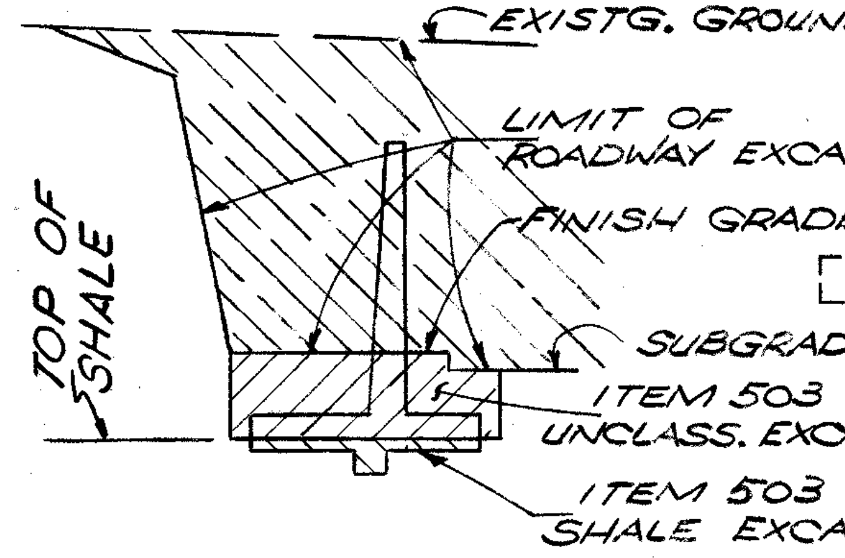
COLLECTOR PIPE TO PROJECT A MIN. OF 2'-0" BEHIND BACKWALL OF ABUTMENT. SEE ROADWAY DRAINAGE DETAILS FOR CONTINUATION OF PIPE. TYP.

PLAN



DETAIL 'A'

COLLECTOR PIPE HANGER ASSEMBLY TO BE UNISTRUT, ALSTRUT, KINDORF OR EQUAL, INCLUDE WITH ITEM 518 COLLECTOR PIPE FOR PAYMENT.



LIMITS OF EXCAVATION
FOR WINGWALLS

*INCLUDES 900 LBS. FOR ANGLE SUPPORTS AND SLEEVES TO BE PAID FOR BY THE EAST OHIO GAS COMPANY.
6026 LBS. TO BE PAID BY THE CLEVELAND ELECTRIC ILLUMINATING CO.

ELEVATION

NOTE: FOR FENCE SECTIONS AND DETAILS SEE SHT. 7/8

FOR STRUCTURAL GENERAL NOTES, SEE SHEET 411

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
404	29	CY	ASPHALT CONCRETE AC-20	29					
SPEC	686	SY	MEMBRANE WATERPROOFING, HOT APPLIED LIQUID (SEE PROPOSAL NOTE)	686					
503	645	CY	UNCLASSIFIED EXCAVATION		487	158			
503	46	CY	SHALE EXCAVATION		38	8			
503	LUMP	L SUM	COFFERDAMS CRIBS AND SHEETING						
509	160881	LB	REINFORCING STEEL	94177	46760	19944			
511	363	CY	CLASS C CONCRETE, SUPERSTRUCTURE	363					
511	61	CY	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			61			
511	300	CY	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS		300				
511	274	CY	CLASS C CONCRETE, FOOTINGS		224	50			
512	16	SY	TYPE B WATERPROOFING		16				
513	434700	LB	STRUCTURAL STEEL *	434700					
514	434700	LB	FIELD PAINTING OF STRUCTURAL STEEL *	434700					
516	105	SF	1 IN. PREFORMED EXPANSION JOINT FILLER		105				

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
517	458.56	LF	RAILING (CONCRETE PARAPET WITH CHAIN LINK FENCE)	438.56	20.00				
518	48	LF	8 IN. PERFORATED CMP INCLUDING SPECIALS, 707.01		48				
518	156	CY	POROUS BACKFILL		156				
518	98	LF	6 IN. COLLECTOR PIPE INCLUDING SPECIALS	98					
518	12	EACH	SCUPPERS INCLUDING SUPPORTS	12					
518	30	EACH	SUBDRAINAGE FOR WEARING COURSE AS PER PLAN	30					
625			SEE LIGHTING PLANS FOR SUMMARY SHEET 496						
808	363	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	363					

QUANTITIES CHECKED
JWW DATE 10/20/69
RGS 6/18/73

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

2/8

DALTON • DALTON ASSOCIATES

GENERAL PLAN & ELEVATION

BRIDGE NO. CUY - 90 - 1089
UNDER WEST 110th ST.
I-90 CUYAHOGA COUNTY
STA. 750 + 37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	ALH		JWW	RBH	2-23-70	8-15-75

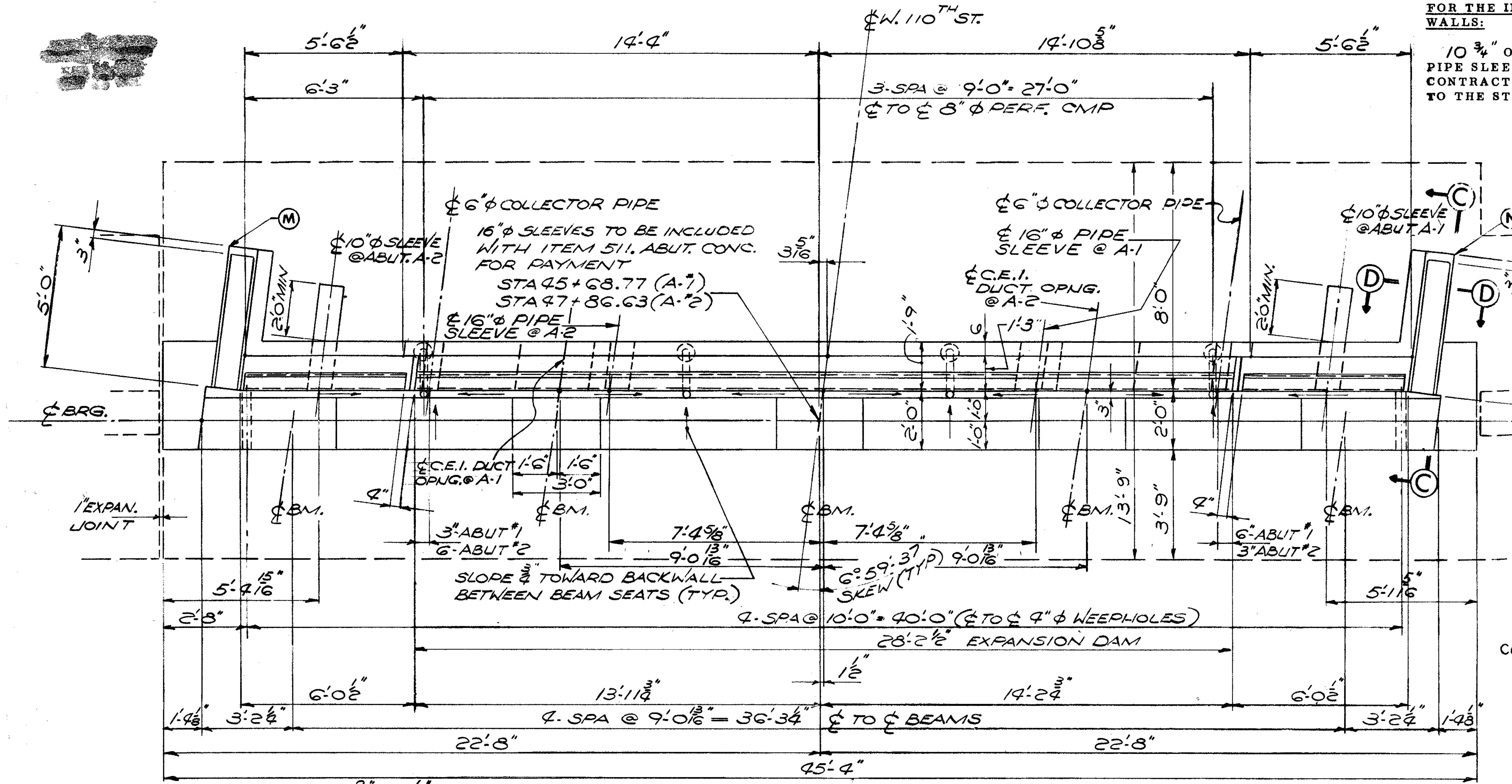
<u>FOR THE INSTALLATION OF THE SLEEVES THROUGH THE ABUTMENT WALLS:</u>

10 ¾" O.D., 0.279 WALL, 31.20 POUNDS PER FOOT STEEL PIPE SLEEVES TO BE FURNISHED AND INSTALLED BY THE BRIDGE CONTRACTOR TO BE PAID FOR BY THE EAST OHIO GAS COMPANY TO THE STATE OF OHIO. DEPARTMENT OF HIGHWAYS.

CUYAHOGA COUNTY
CUY - 90 - 10.40

FED. RD.	STATE	PROJECT	
2	OHIO		

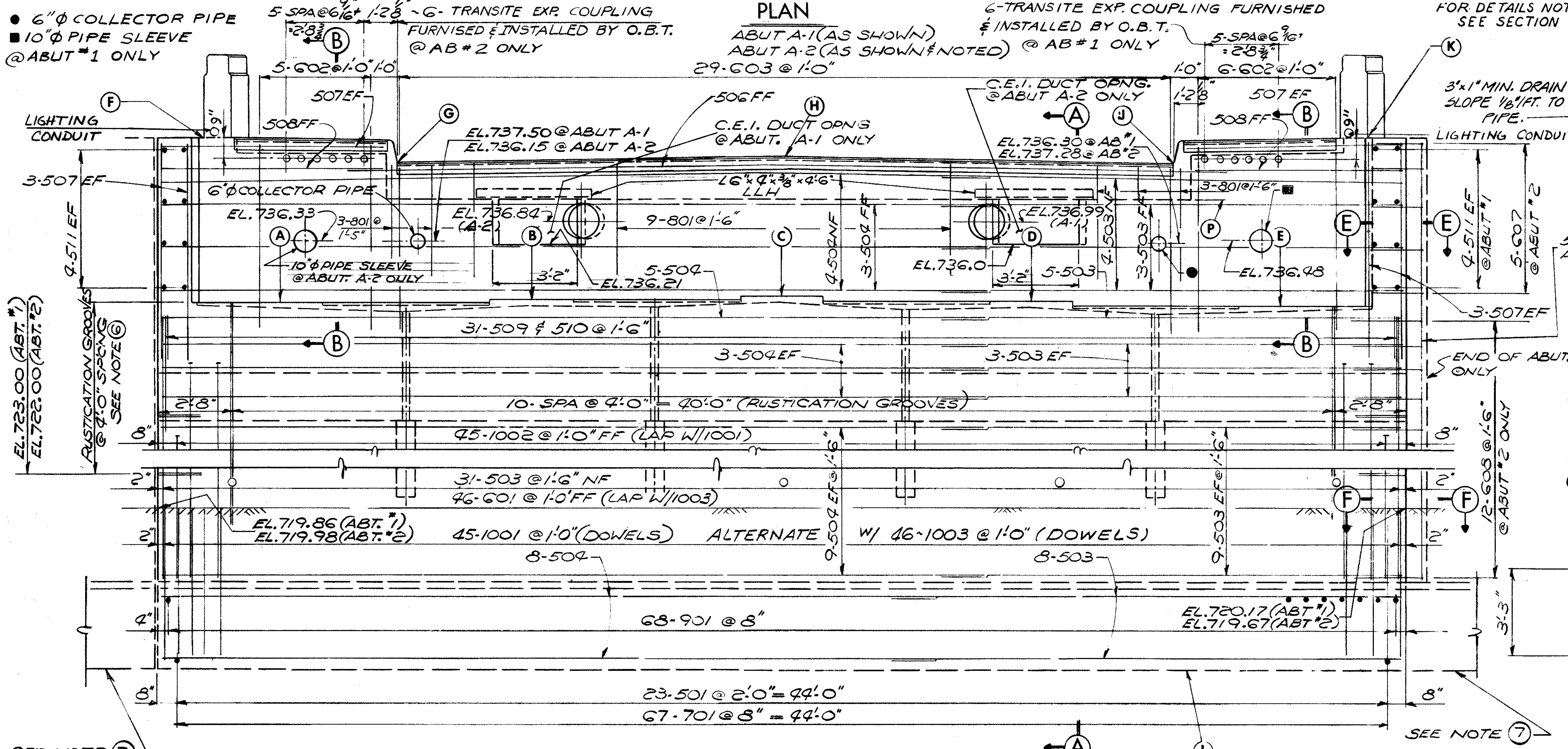
434
713



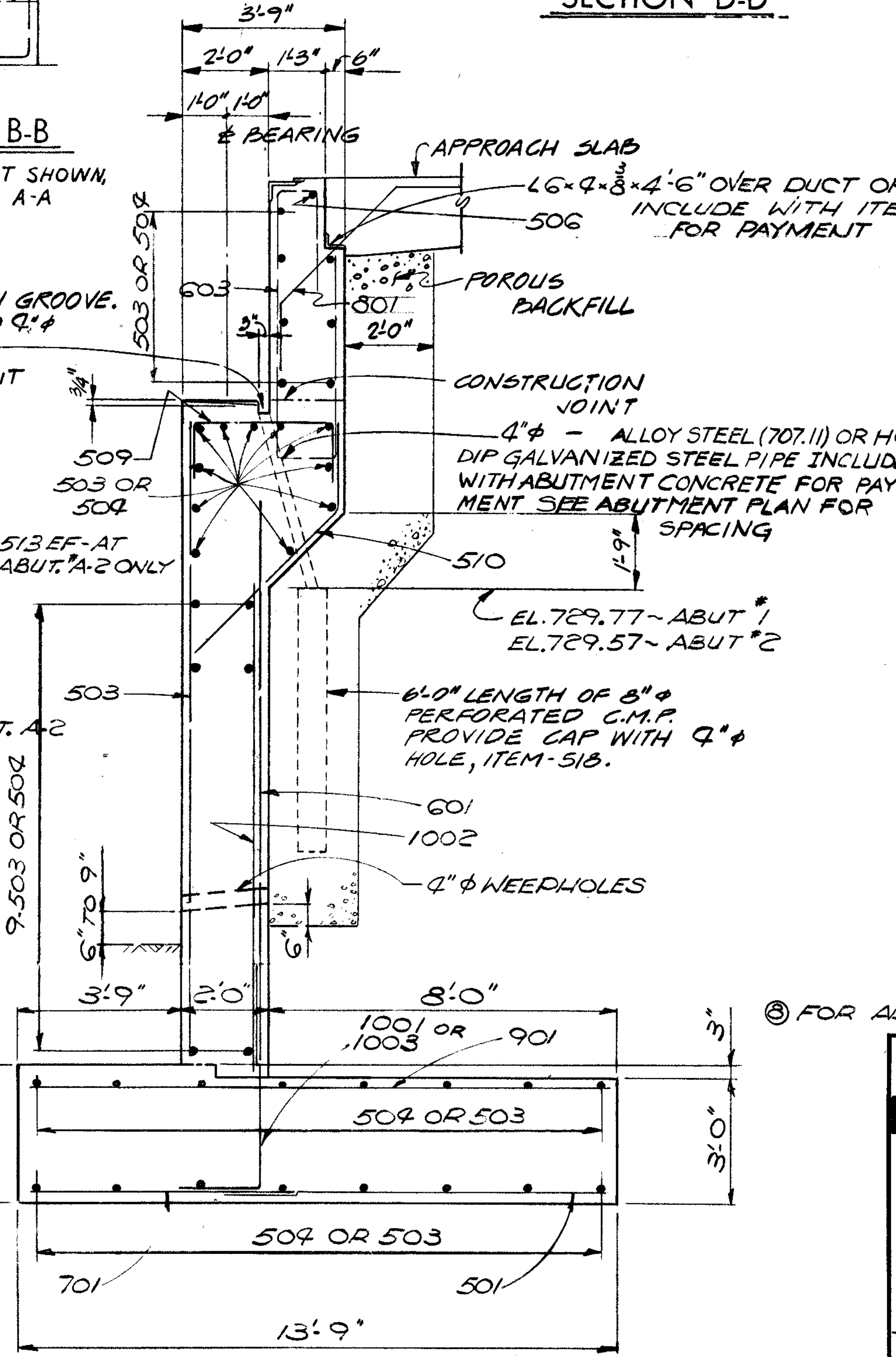
PLAN

ABUT. A-1 (AS SHOWN)
ABUT. A-2 (AS SHOWN & NOTED)

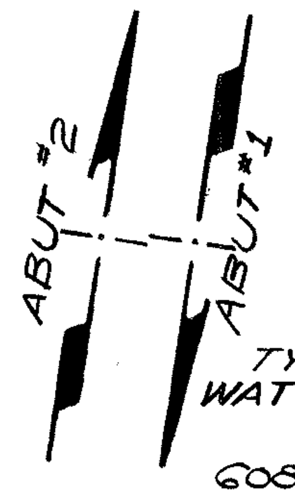
- ● 6" ϕ COLLECTOR PIPE
- ■ 10" ϕ PIPE SLEEVE @ ABUT #1 ONLY

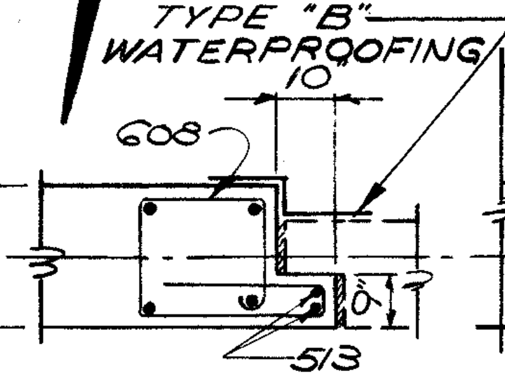


ELEVATION



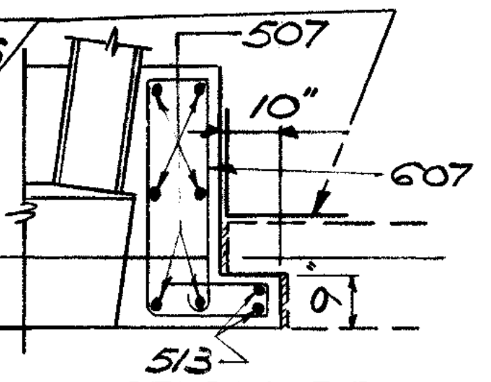
SECTION A-A





SECTION F-F

@ ABUT A-2 ONLY

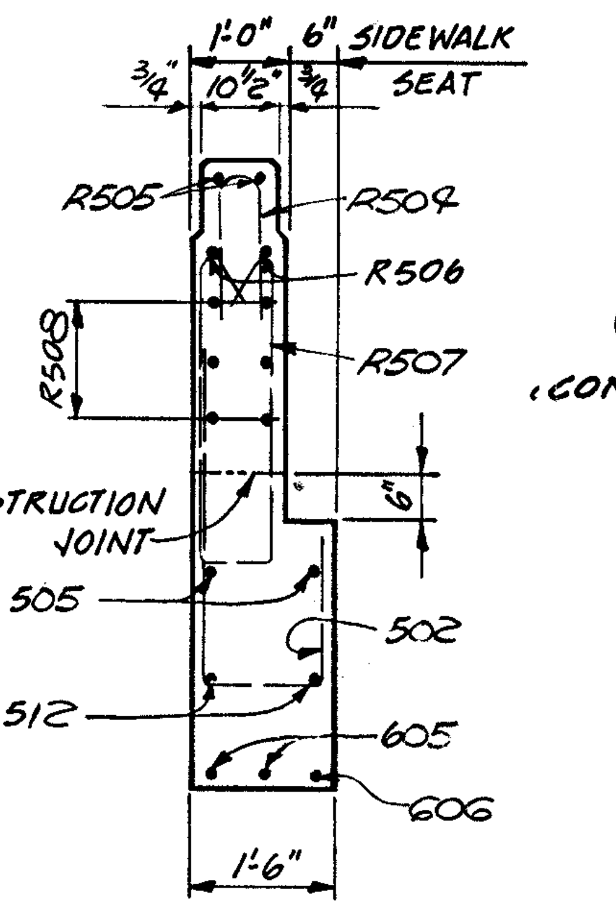


SECTION E-E

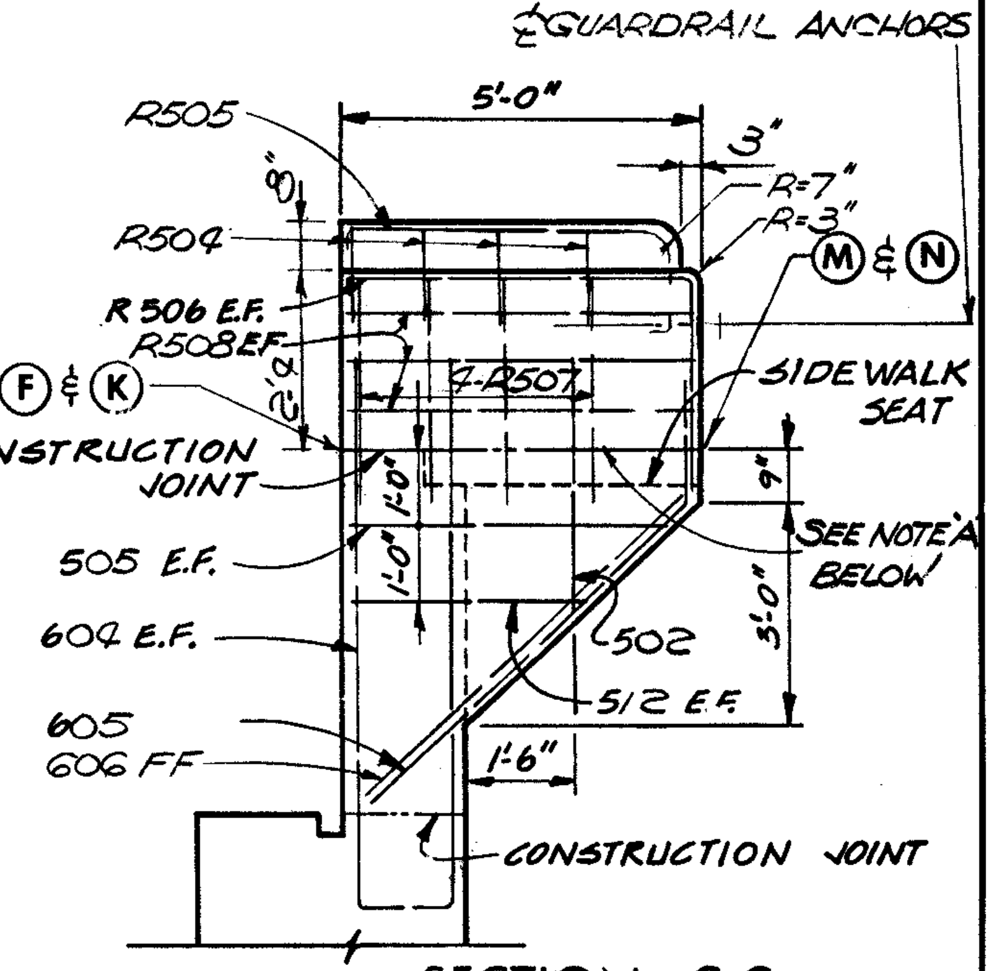
@ ABUT A-2 ONLY

ELEVATIONS													
LOCATION	A	B	C	D	E	F	G	H	J	K	L	M	N	P

LOCATION	A	B	C	D	E	F	G	H	J	K	L	M	N	P
ABUT. A-1	734.06	734.19	734.32	734.17	734.03	740.27	739.34	739.55	739.32	740.24	714.00	740.24	740.20	737.90
ABUT. A-2	733.88	734.00	734.13	733.98	733.83	740.09	739.16	739.36	739.12	740.04	713.00	740.04	739.98	737.70



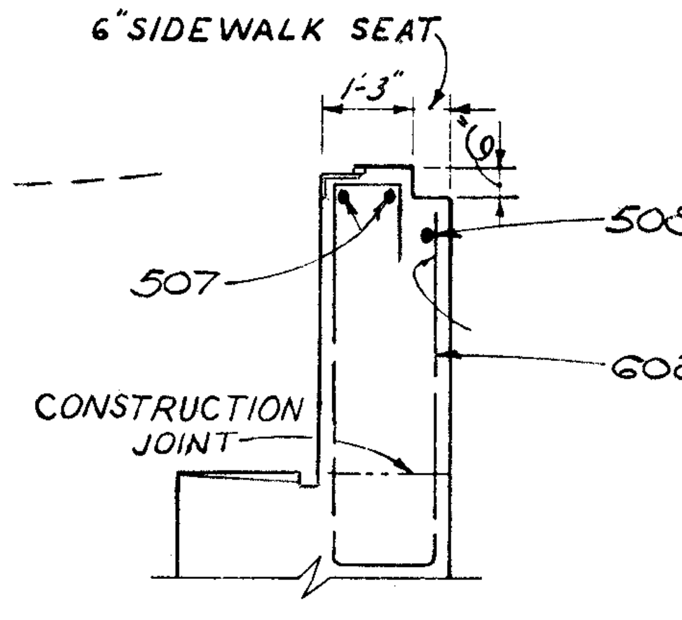
SECTION D-D



SECTION C-C

FOR DETAILS NOT SHOWN SEE SECTION A-A.

NOTE A: CONCRETE ABOVE THIS JOINT IS INCLUDED WITH RAILING FOR PAYMENT.



SECTION B-B

FOR DETAILS NOT SHOWN, SEE SECTION A-A

NOTES

① ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

② BACKWALL ELEVATIONS ARE GIVEN AS FINAL PAVEMENT ELEVATIONS AT FRONT FACE OF BACKWALL. SEE SECTION H-H SHEET 6/8

③ POROUS BACKFILL, 2 FT. THICK, FULL LENGTH OF ABUTMENT AND WINGS, SHALL EXTEND UP TO THE SUBGRADE OR TO THE LIMITS SHOWN

④ PROCEDURE: BEFORE THE BACKWALL IS CONSTRUCTED THE EMBANKMENT SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE WITH A 1:1 SLOPE FROM THE BRIDGE SEAT TO THE SUBGRADE, FOR A MINIMUM DISTANCE OF 200 FEET BACK OF ABUTMENT.

⑤ THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENTS A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

⑥ ALTERNATELY STRIATED WALL PANELS MUST BE COORDINATED WITH PANELS OF THE ADJACENT RETAINING WALL AND CURVED WING WALLS

⑦ FOOTINGS ARE CONTINUOUS WITH CURVED WINGWALLS ONLY. FOR REINFORCING BARS THAT EXTEND INTO ABUTMENT FOOTINGS SEE WINGWALL DETAILS SHT. 4/8

⑧ FOR ADDITIONAL NOTES SEE SHT 4/8

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3/8

DALTON • DALTON ASSOCIATES

ABUTMENT A-1 & A-2

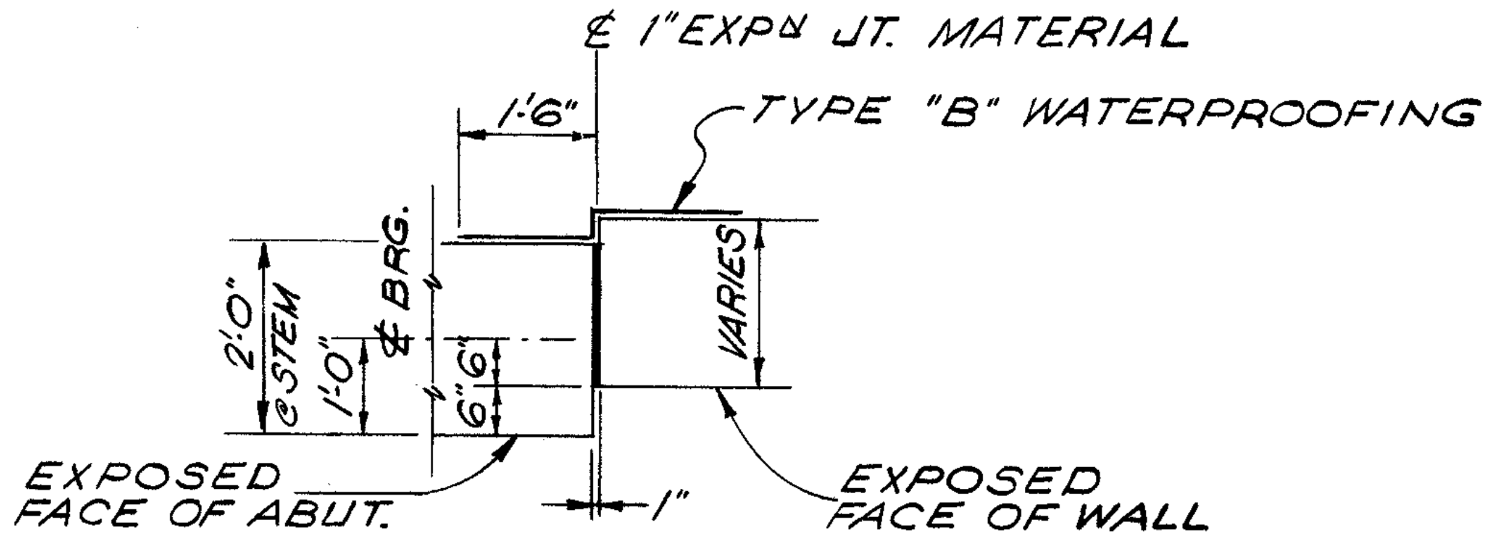
BRIDGE NO. CUY - 90 - 1089
UNDER WEST 110th ST.
I-90 CUYAHOGA COUNTY
STA. 750 +37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		HGH	RBH	2-23-70	

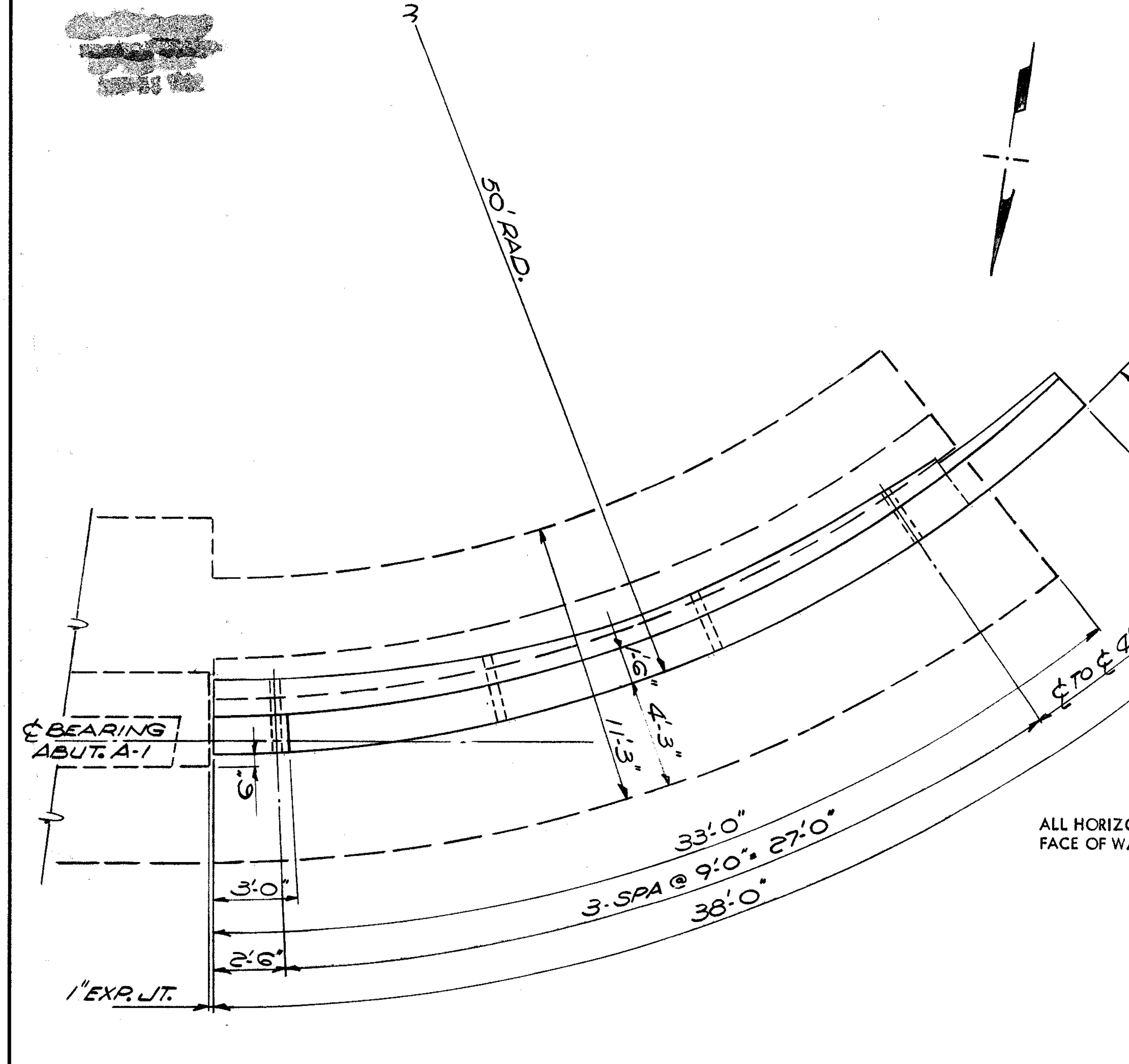
FED. RD.	STATE	PROJECT	
2	OHIO		

435
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

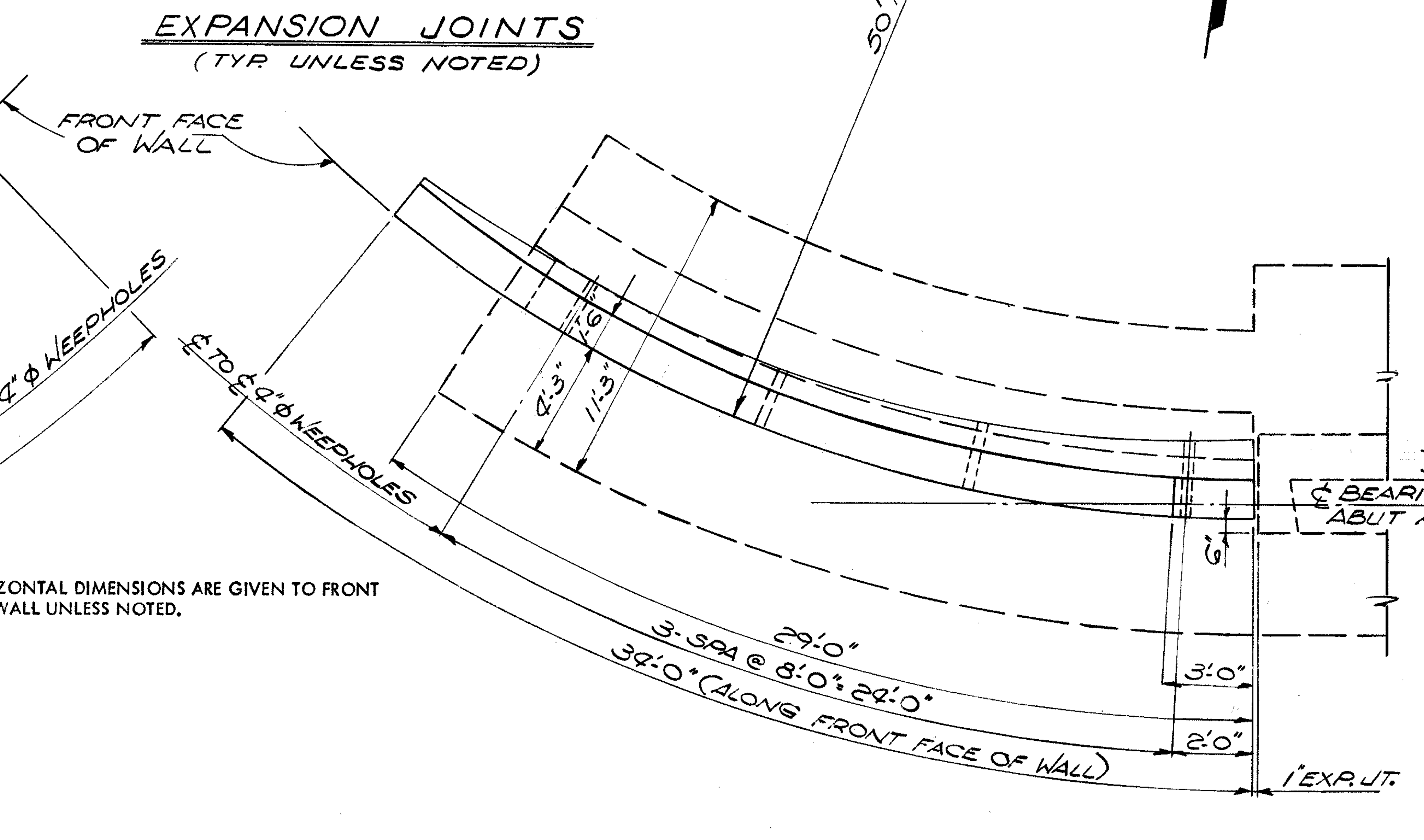


EXPANSION JOINTS
(TYP. UNLESS NOTED)

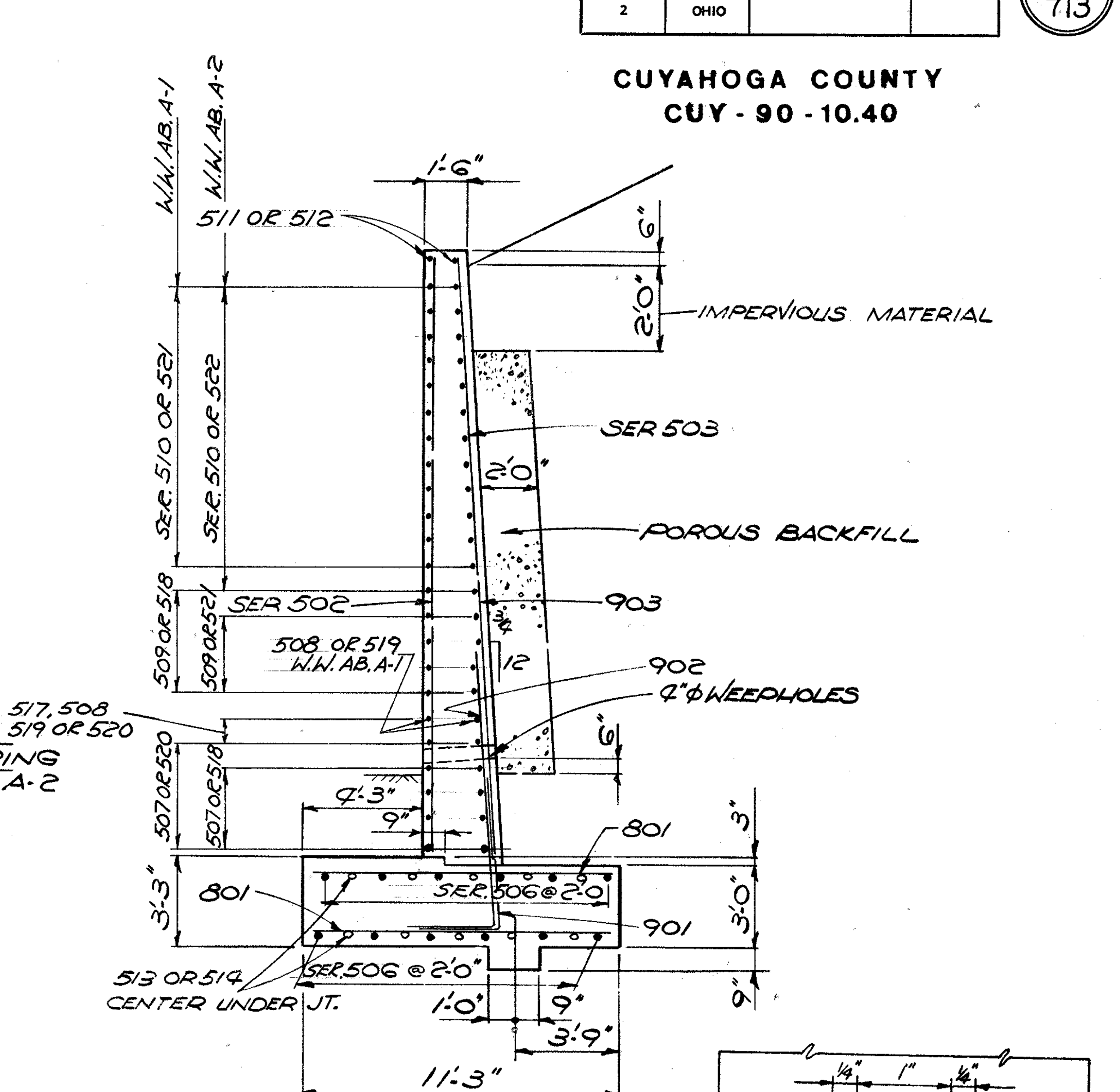


ALL HORIZONTAL DIMENSIONS ARE GIVEN TO FRONT FACE OF WALL UNLESS NOTED.

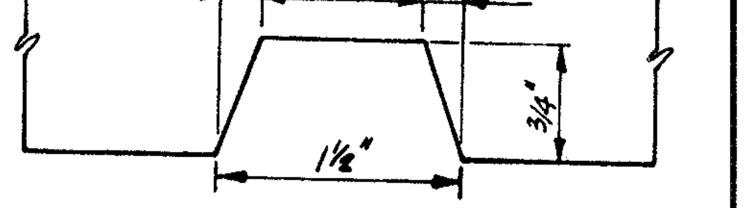
PLAN - WEST WINGWALL - ABUTMENT A-1



PLAN - WEST WINGWALL - ABUTMENT A-2



SECTION A-A



DETAIL
VERTICAL RUSTICATION GROOVE SPACED 4'-0" o/c

FOUNDATION BEARING PRESSURE

ABUTMENT FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 4 TONS PER SQ. FT.

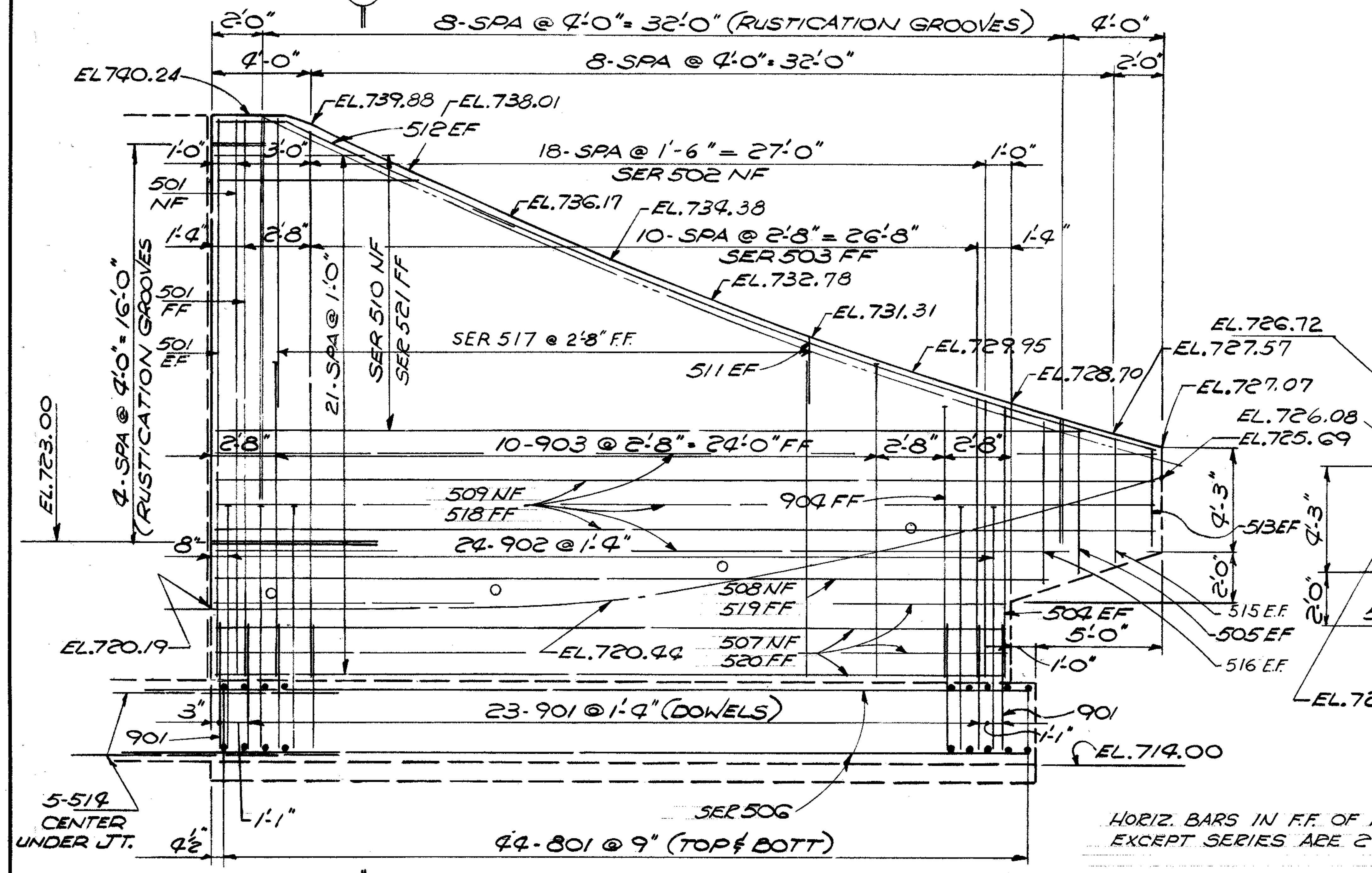
WING WALL FOOTINGS ARE DESIGNED FOR A MAXIMUM PRESSURE OF 3.5 TONS PER SQ. FT.

FOOTINGS

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

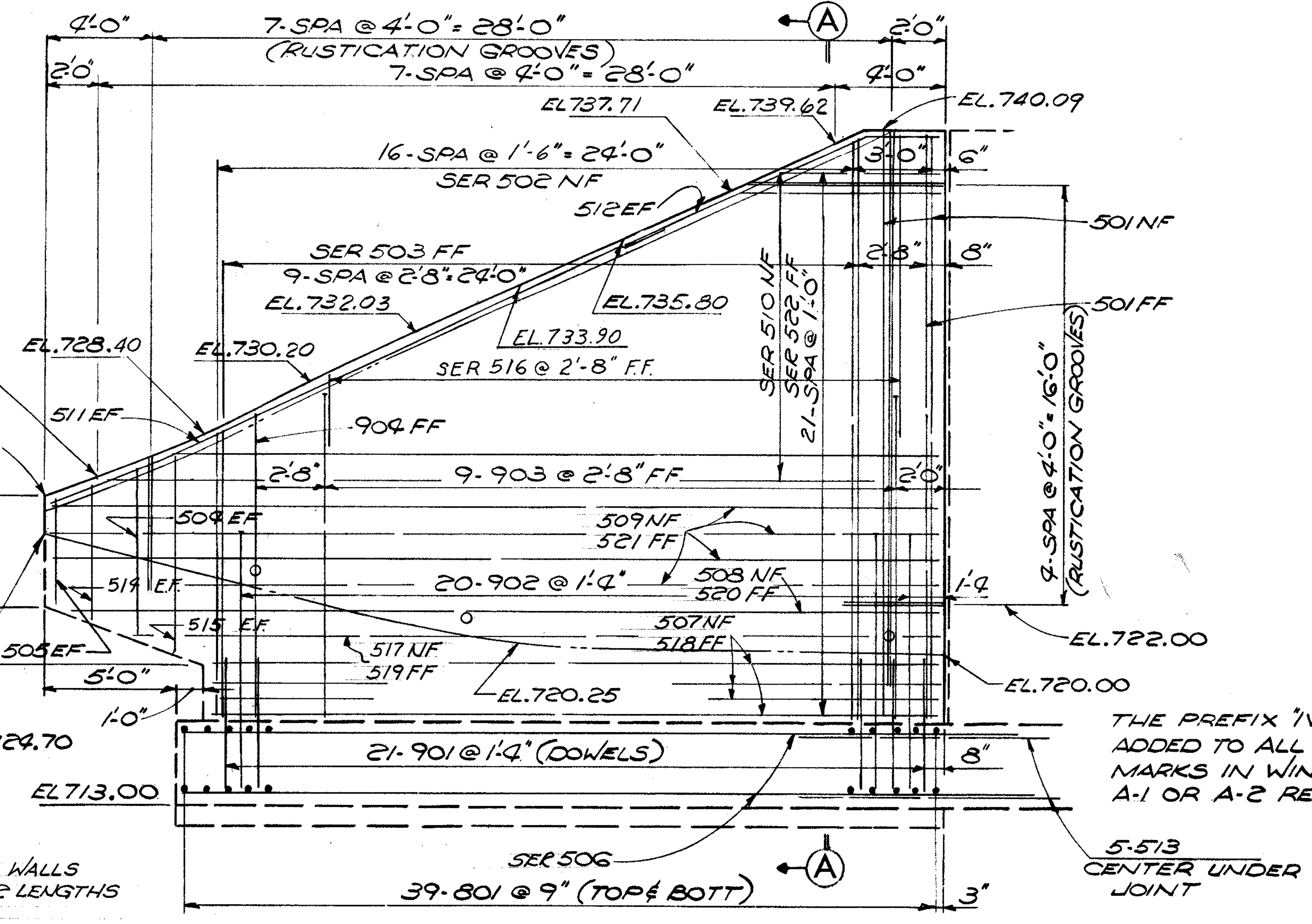
FOR ADDITIONAL NOTES SEE SHEET 3/8

USE ALTERNATE VERTICAL AND HORIZONTAL STRIATED CONCRETE FINISH BETWEEN RUSTICATION GROOVES, MUST BE COORDINATED WITH ADJACENT ABUTMENT.



HORIZ. BARS IN F.F. OF WALLS EXCEPT SERIES ARE 2 LENGTHS

ELEVATION (DEVELOPED VIEW)



ELEVATION (DEVELOPED VIEW)

THE PREFIX "1W" OR "2W" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN WING WALLS AT ABUTMENT A-1 OR A-2 RESPECTIVELY.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

4 / 8

DALTON · DALTON ASSOCIATES

WING WALLS

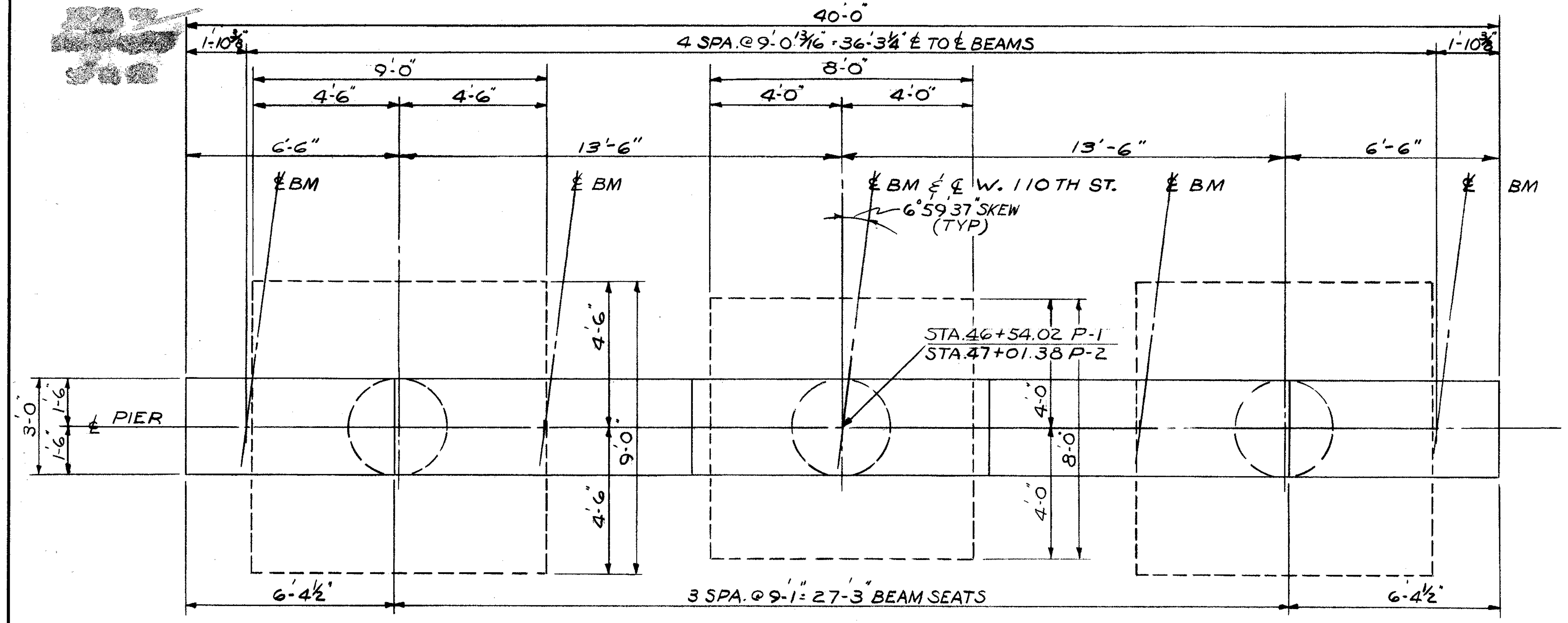
BRIDGE NO. CUY - 90 - 1089
UNDER WEST 110th ST.
I-90 CUYAHOGA COUNTY
STA. 750 +37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JWW		HGH	RAW	2-23-70	

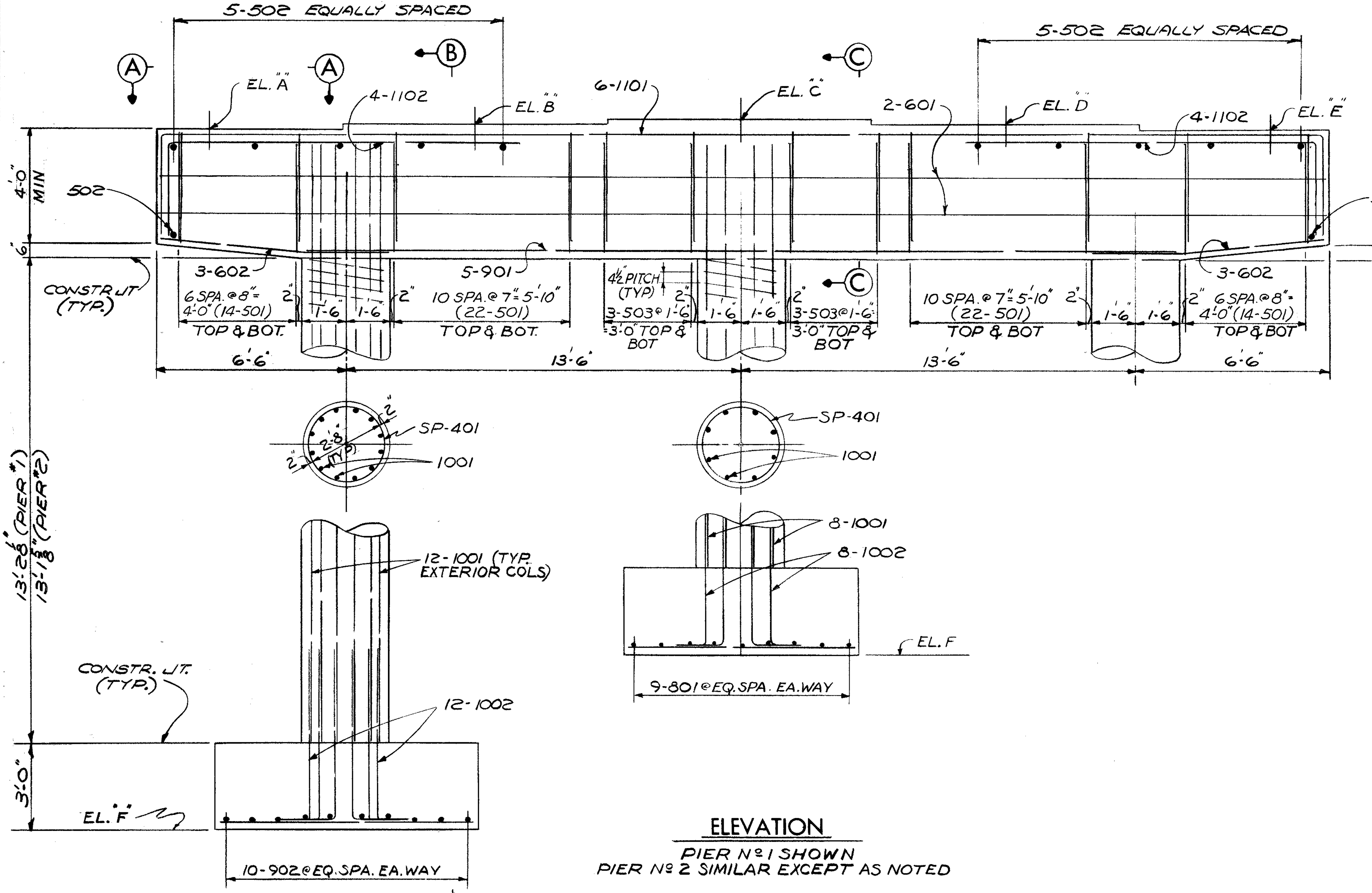
FED. RD.	STATE	PROJECT	
2	OHIO		

436/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

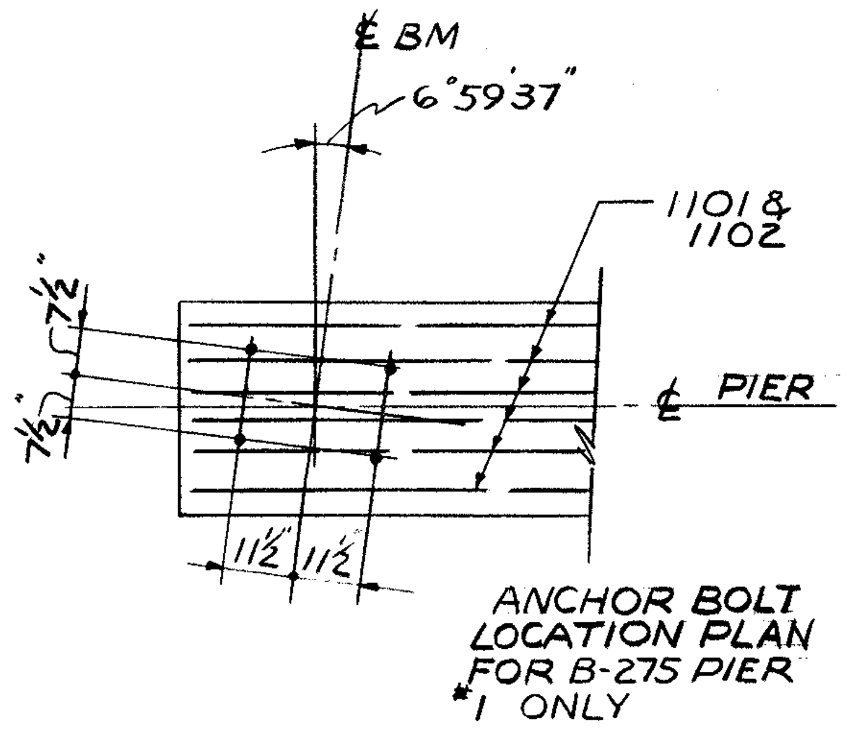


PLAN

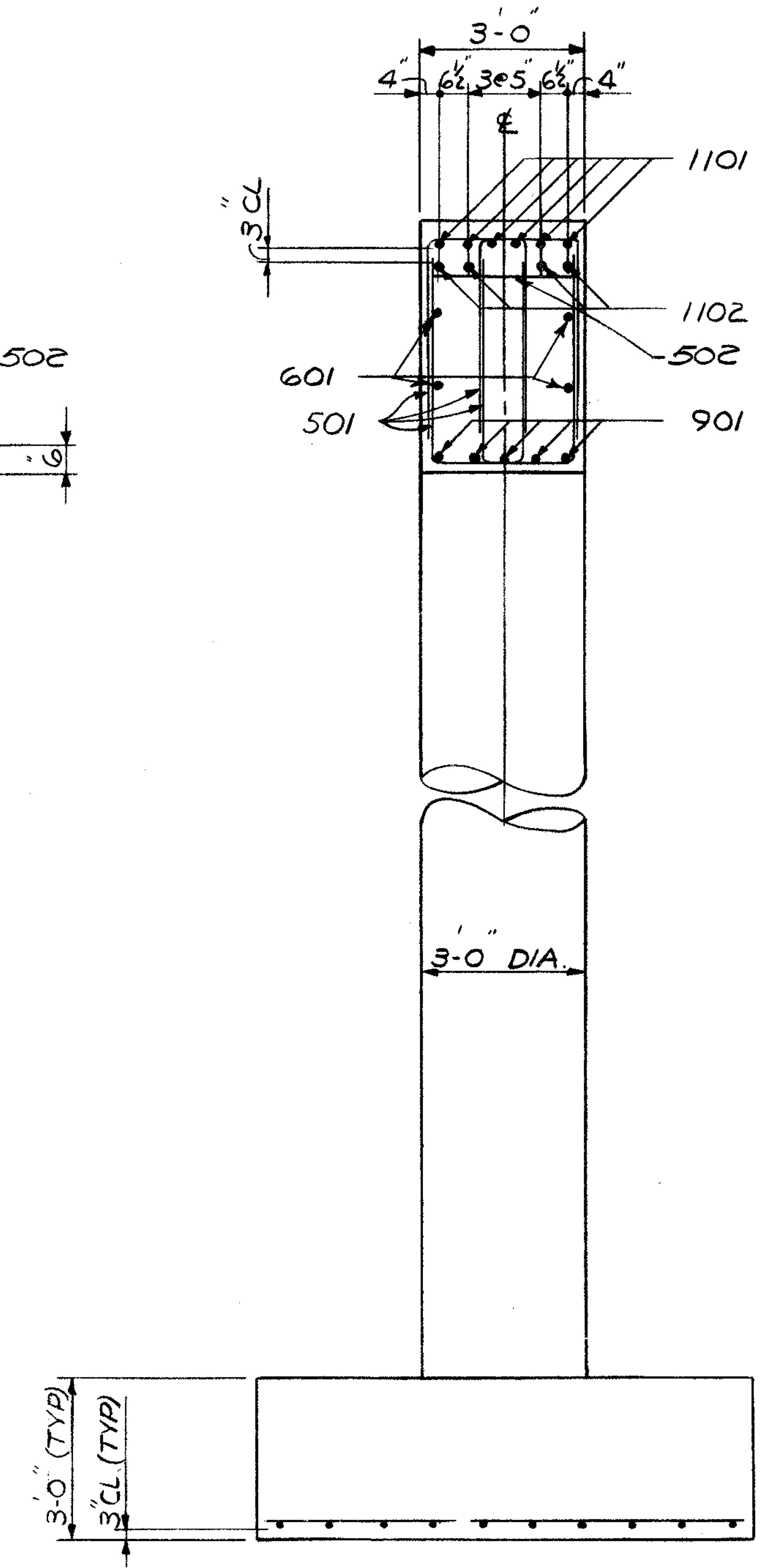


ELEVATION

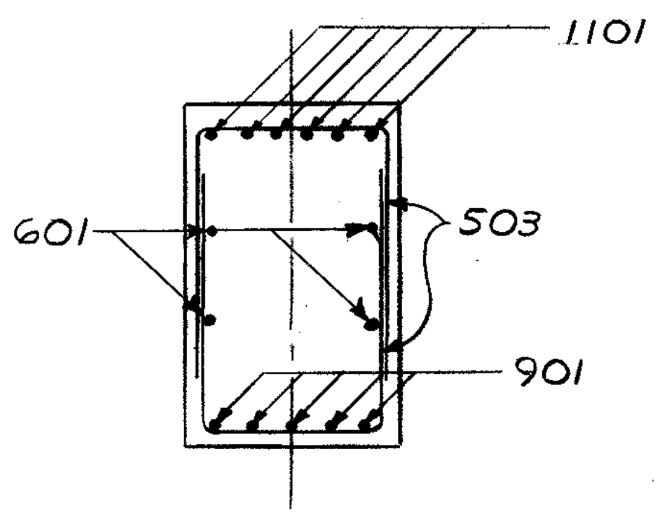
PIER No 1 SHOWN
PIER No 2 SIMILAR EXCEPT AS NOTED



SECTION A-A



SECTION B-B



SECTION C-C

FOUNDATION BEARING PRESSURE

PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 5 TONS PER SQ. FT.

FOOTINGS INTO ROCK

PIER FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

NOTES

① BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BOLT HOLES. (PIER P-1 ONLY)

② THE PREFIX "1P" OR "2P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER P-1 OR P-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

PIER	BAR MARKS		ELEVATIONS					
	SPIRAL	VERT.	A	B	C	D	E	F
P-1	SP-401	1001	734.17	734.31	734.45	734.31	734.17	713.50
P-2	SP-401	1001	734.15	734.28	734.42	734.28	734.13	713.50

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

5/8

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PIER DETAILS

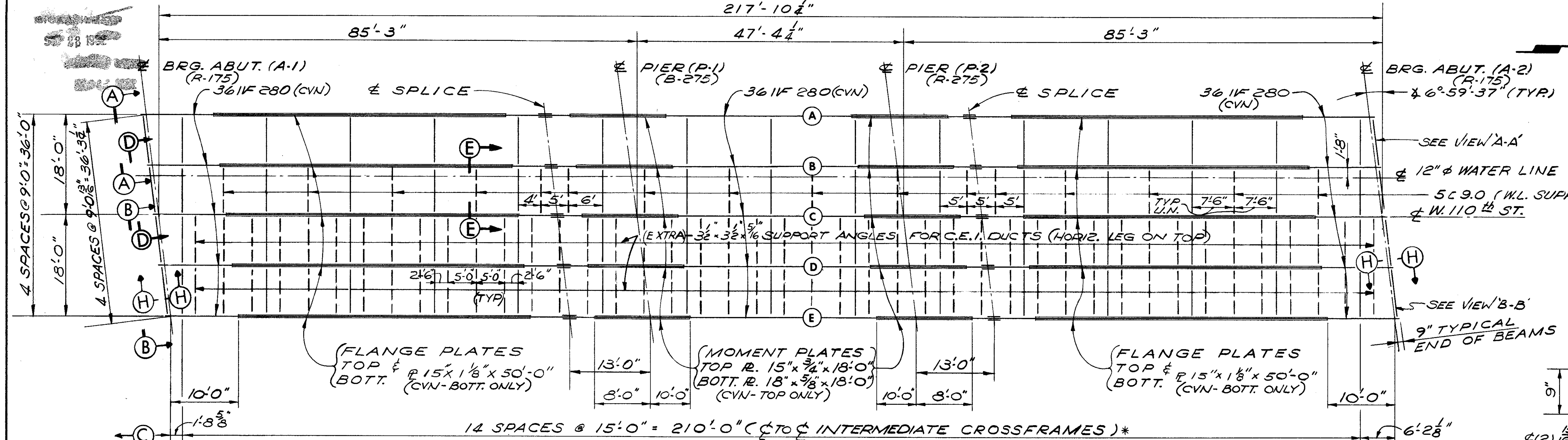
BRIDGE NO. CUY - 90 - 1089
UNDER WEST 110th ST.
I-90 CUYAHOGA COUNTY
STA 750 + 37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JLH		HGH	RDH	2-23-70	

FED. RD.	STATE	PROJECT
2	OHIO	

437/713

CUYAHOGA COUNTY
CUY - 90 - 10.40

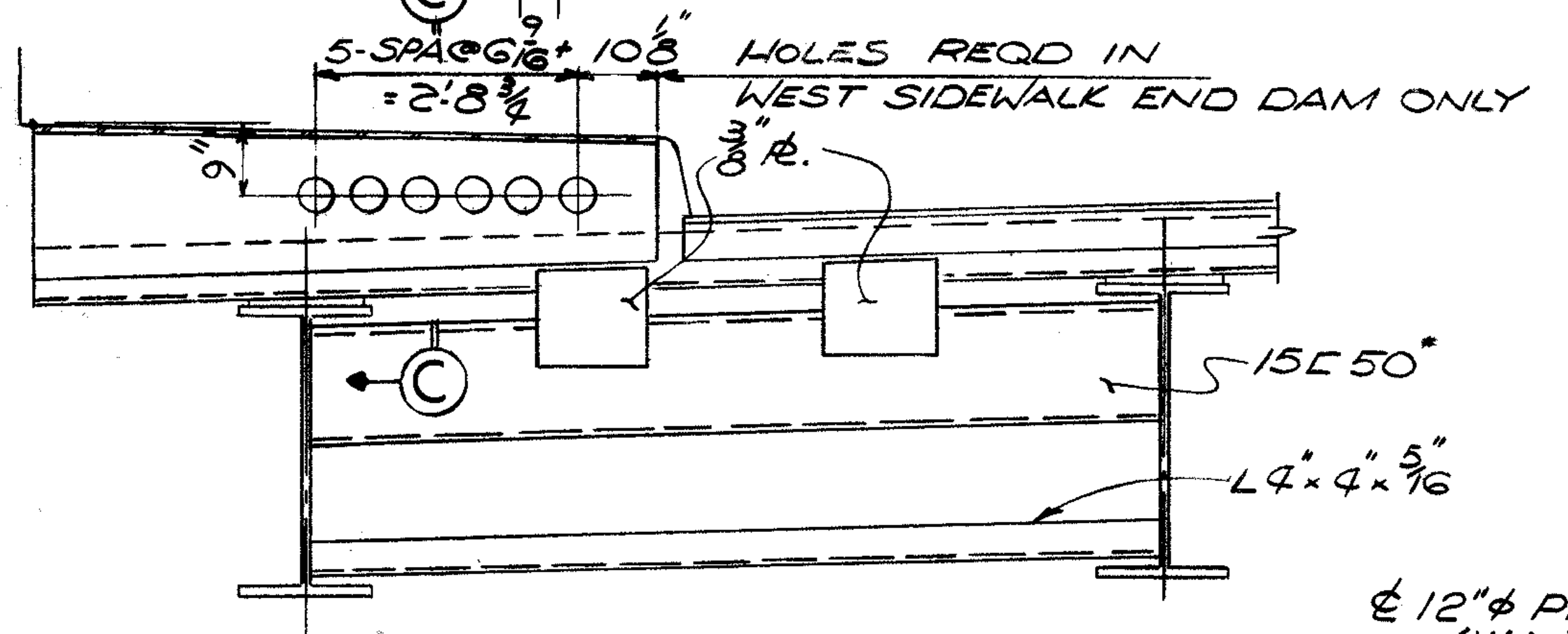


FRAMING PLAN

* FOR SIZE & PLACEMENT OF ANGLES SEE TRANSVERSE SECTION SHEET 7/8

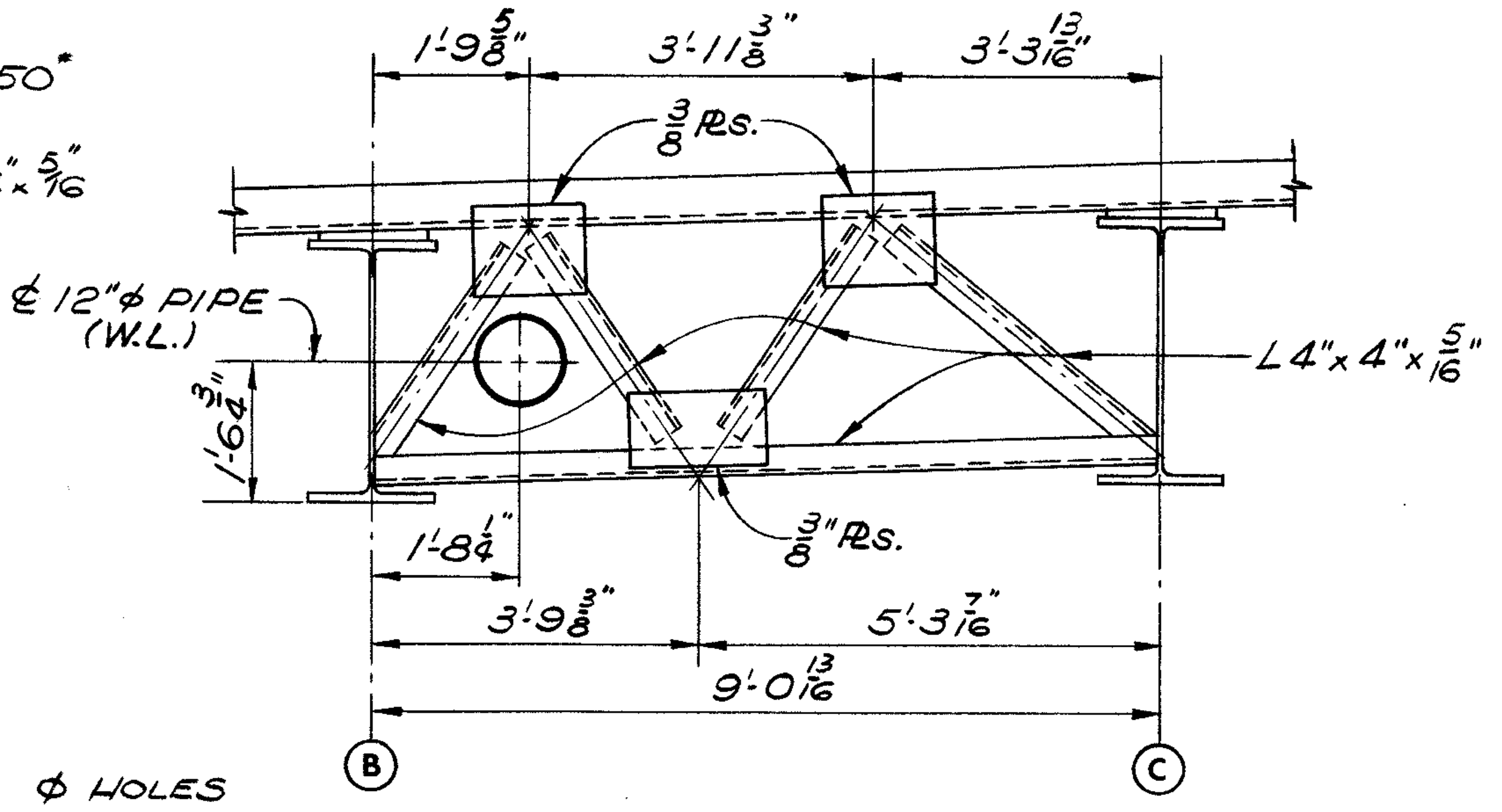
FOR FLANGE PLATE WELD DETAIL SEE STD. DWG. SD-1-69 SHT. No 3

SUPPORT ANGLES FOR C.E.I. DUCTS TO BE LEVEL



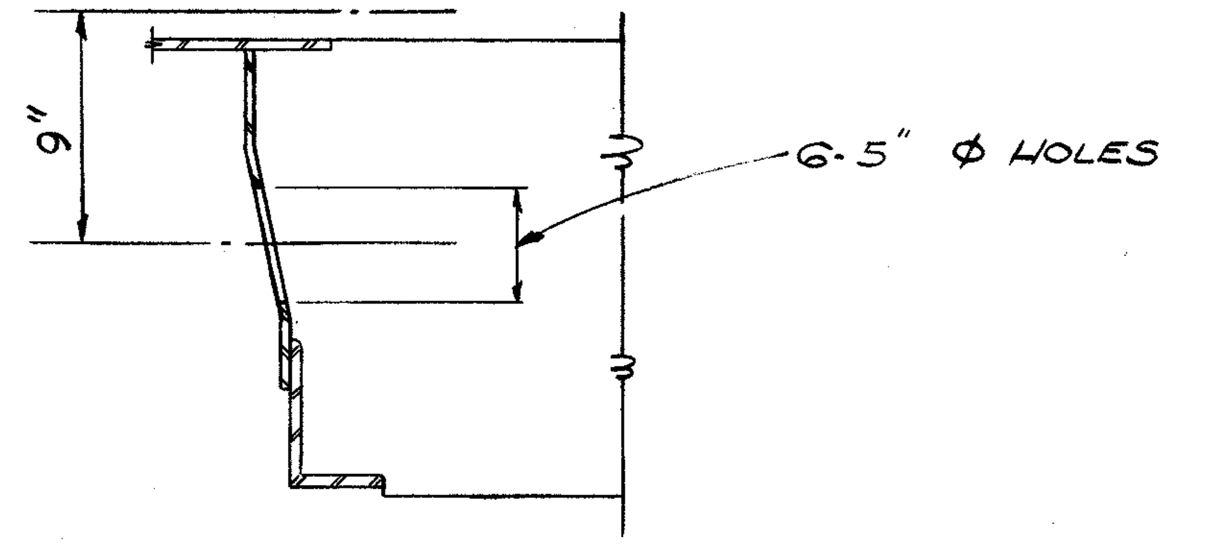
VIEW A-A

SPECIAL END CROSSFRAME
FOR DETAILS NOT SHOWN SEE
STD. DRAWING SD-1-69 SHT No 1



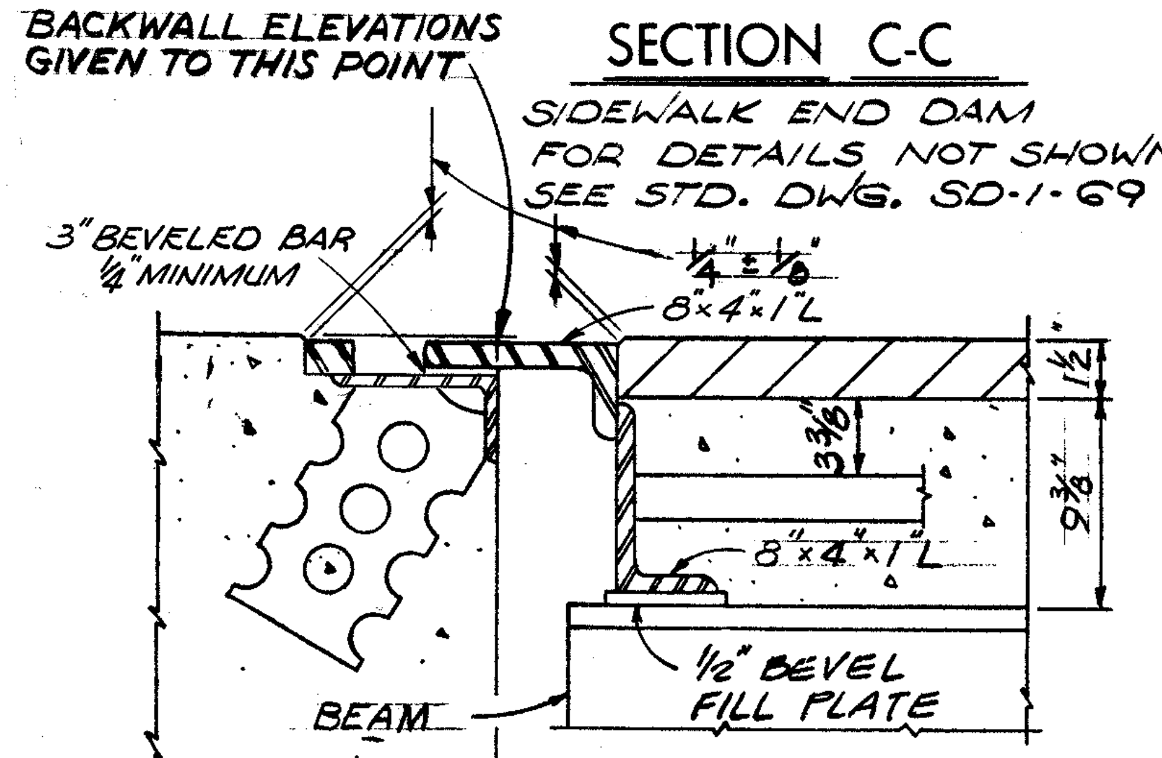
SECTION D-D

SPECIAL END CROSSFRAME
FOR DETAILS NOT SHOWN SEE
STD. DRAWING SD-1-69 SHT. No 1



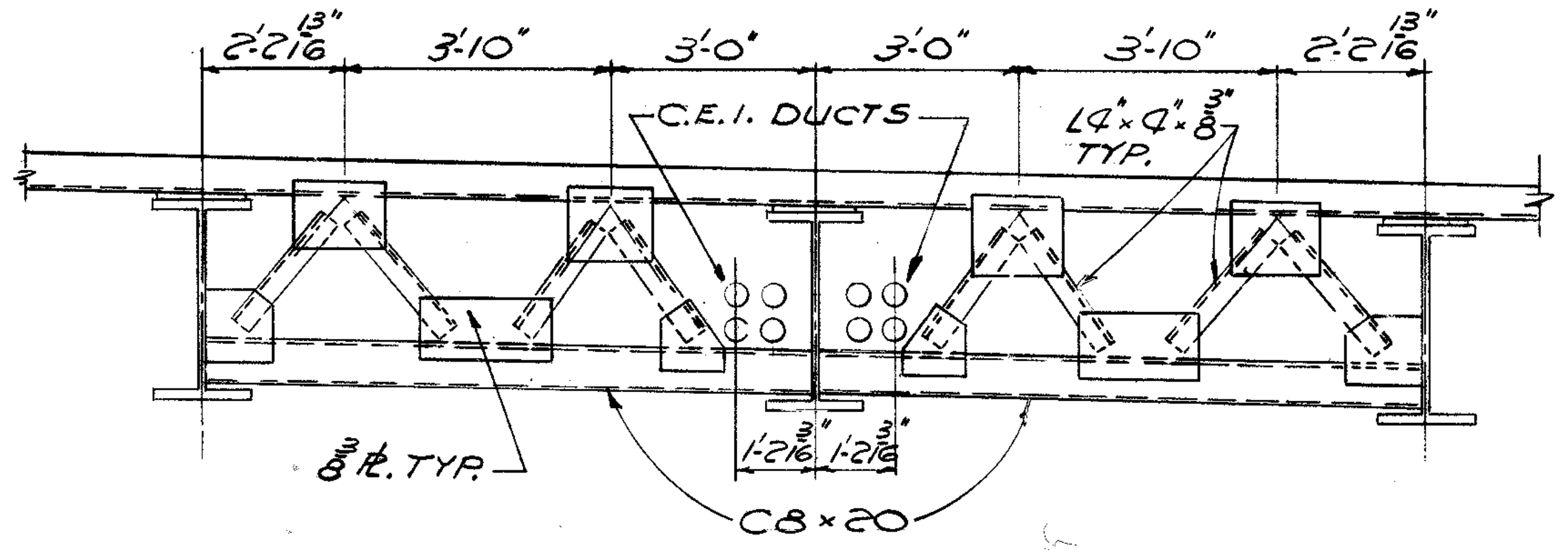
SECTION C-C

SIDEWALK END DAM
FOR DETAILS NOT SHOWN
SEE STD. DWG. SD-1-69 SHT. 2



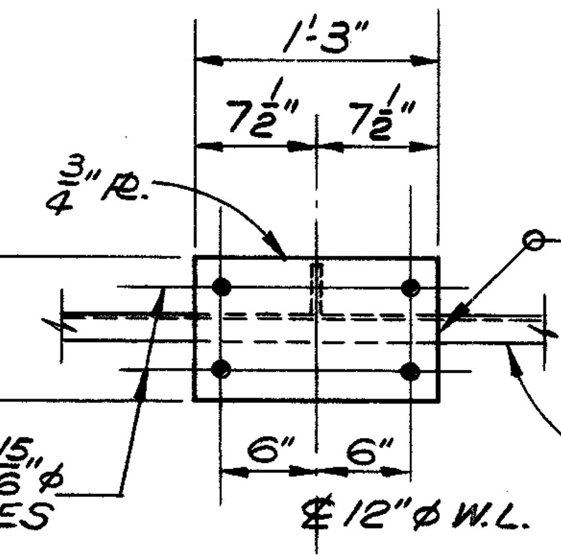
SECTION H-H

ROADWAY END DAM
FOR ADDITIONAL DETAILS,
SEE STD. DWG. SD-1-69, SHEET 1 OF 4.

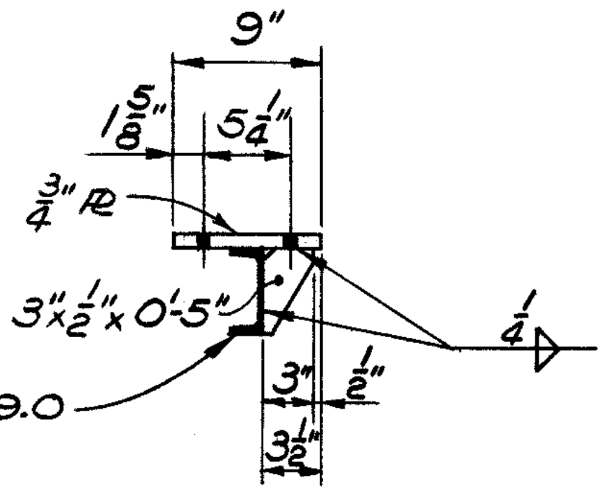


VIEW B-B

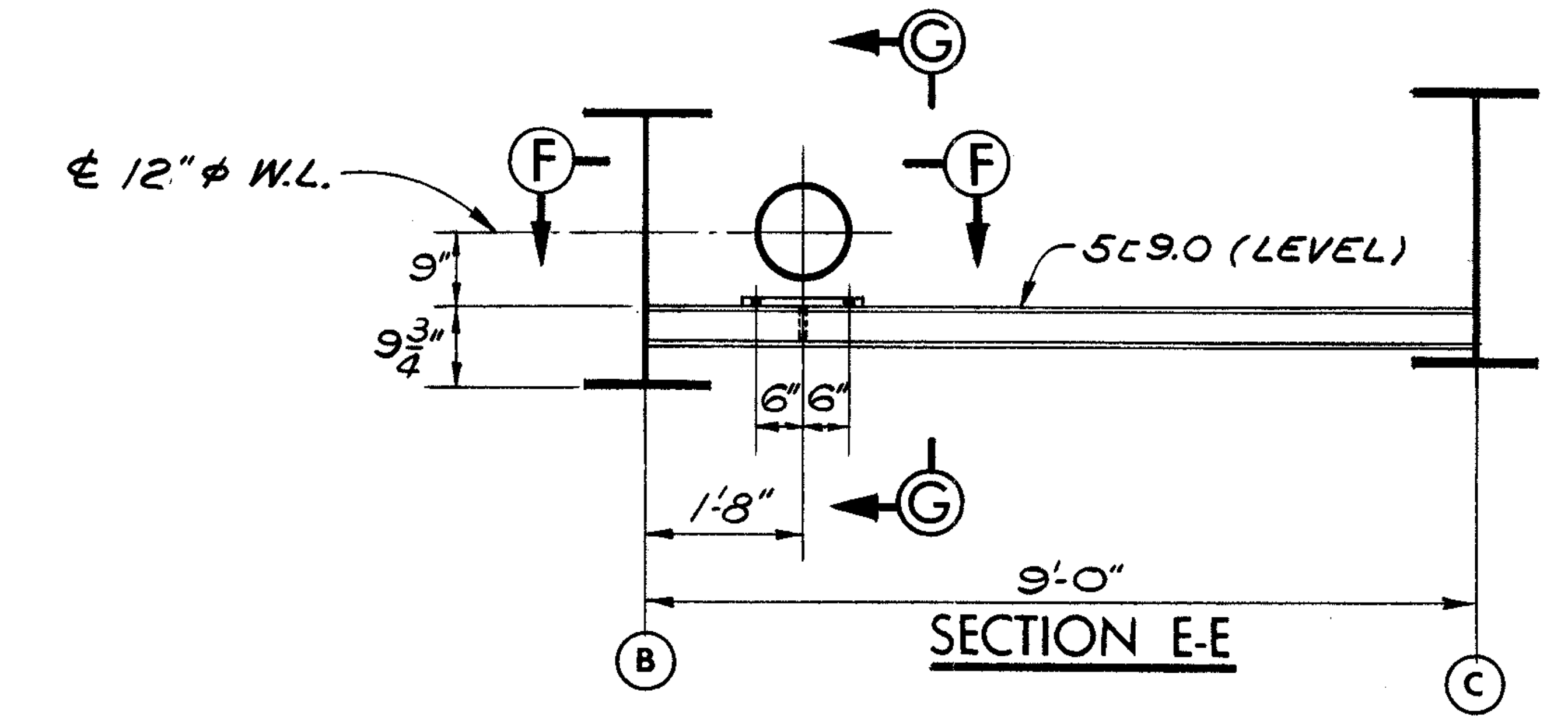
SPECIAL END CROSSFRAME
FOR DETAILS NOT SHOWN SEE
STD. DRAWING SD-1-69 SHT. No 1



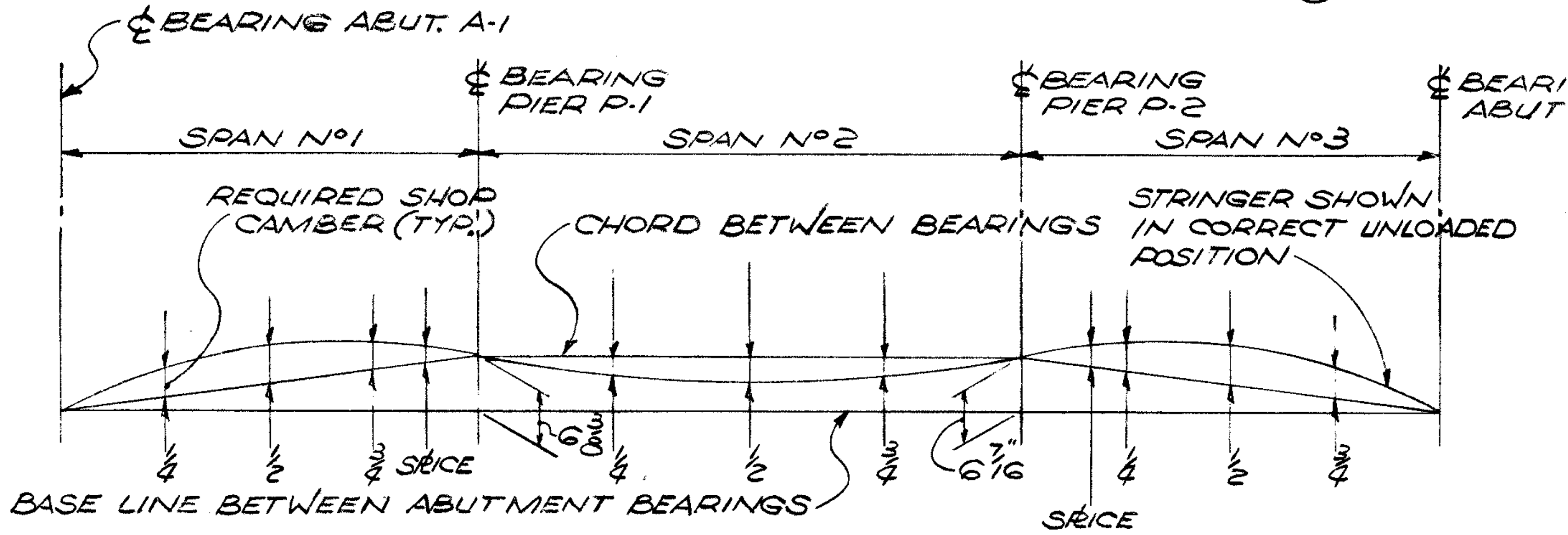
SECTION F F



SECTION G-G



SECTION E-E



LAYOUT DIAGRAM

DEFLECTION AND CAMBER											
SPANS	①				②			③			
POINTS	1/4	1/2	3/4	SPLICE	1/4	1/2	3/4	SPLICE	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	5/16"	7/16"	1/4"	3/16"	-1/16"	-1/8"	-1/16"	3/16"	1/4	7/16"	5/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	15/16"	1 3/16"	3/4"	1/2"	-1/4"	-3/8"	-1/4"	1/2"	3/4	1 3/16	15/16"
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	7/16"	13/16"	11/16"	7/16"	1/4"	5/16"	1/4"	5/8"	13/16	1 1/16	13/16"
REQUIRED SHOP CAMBER	1 11/16"	2 7/16"	1 11/16"	1 1/8"	-1/16"	-3/16"	-1/16"	1 5/16"	1 13/16"	2 11/16"	2 1/16"

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

6 / 8

DALTON • DALTON ASSOCIATES

FRAMING PLAN

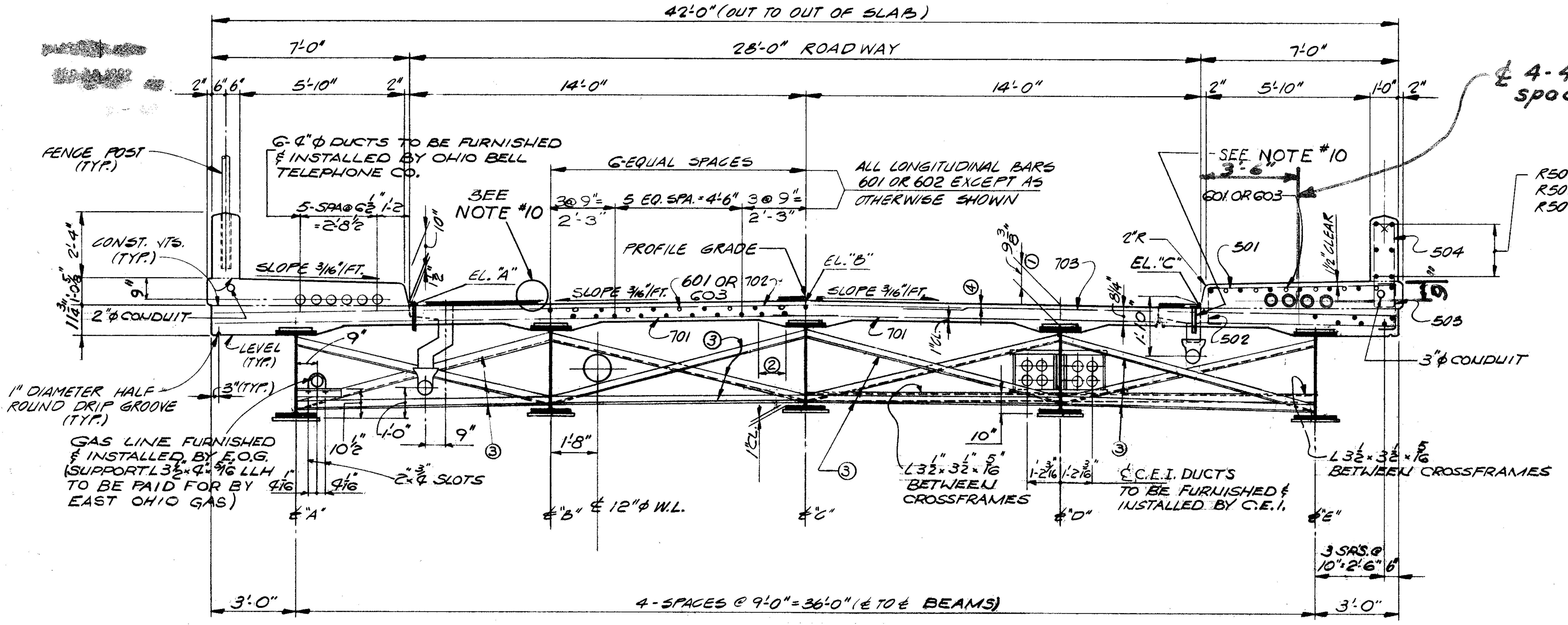
BRIDGE NO. CUY - 90 - 1089
UNDER WEST 110th ST.
I-90 CUYAHOGA COUNTY
STA. 750 + 37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	ALH		JWW	RDH	2-23-70	

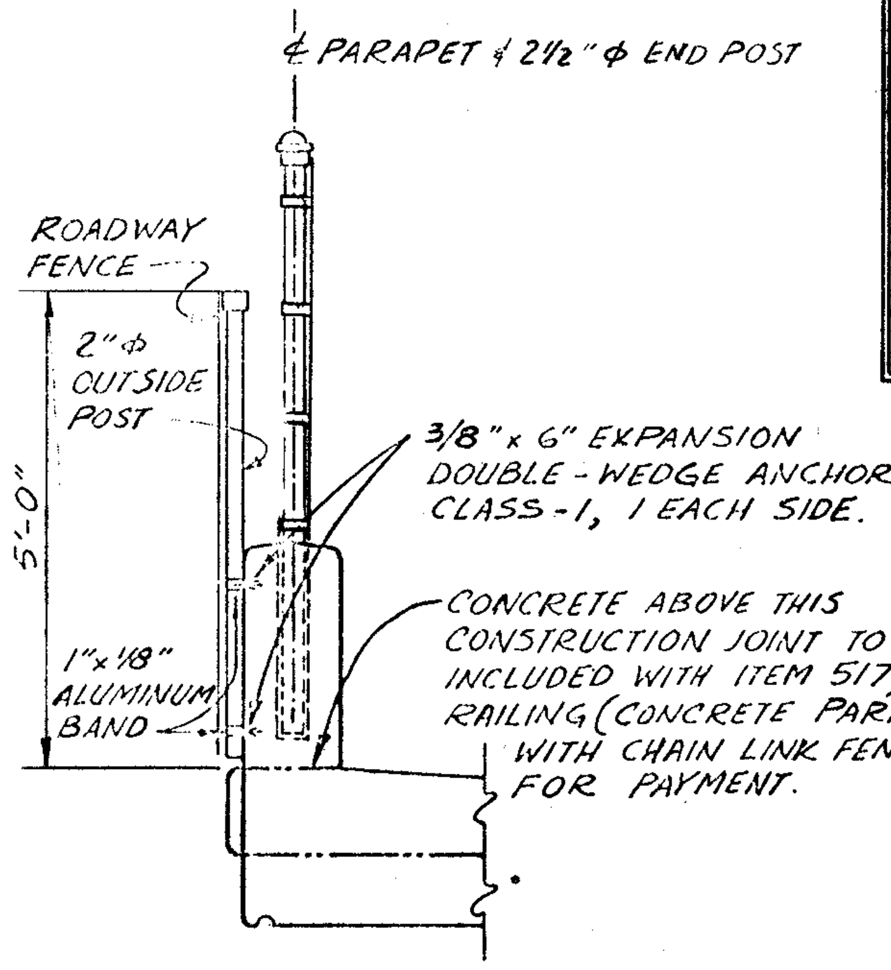
FED. RD.	STATE	PROJECT
2	OHIO	

438
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



TRANSVERSE SECTION

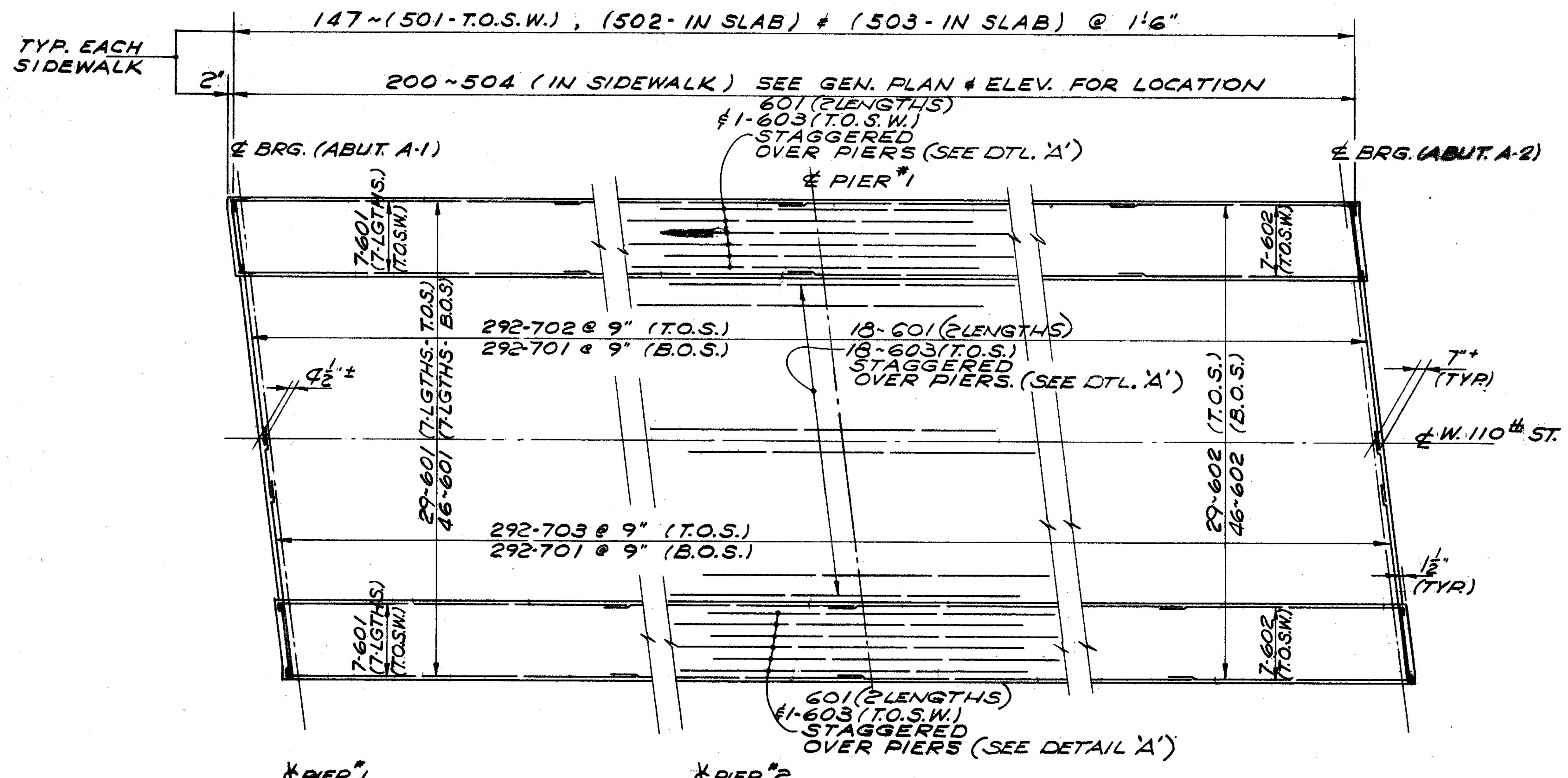


SECTION B-B

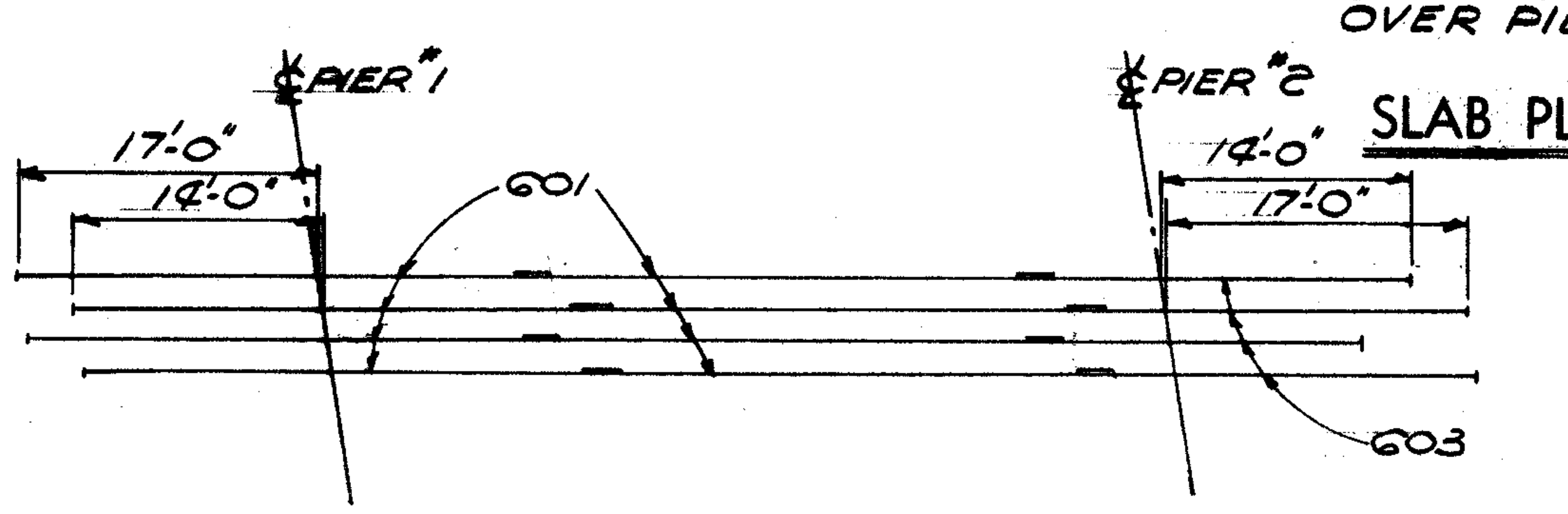
TABLE OF ELEVATIONS

ELEVATION	PROFILE GRADE ⊛	"A" ⑤	"B" ⑤	"C" ⑤
@ ¢ BRG. (A-1)	739.55	739.19	739.42	739.22
1/4 PT.	739.70	739.41	739.64	739.44
1/2 PT.	739.85	739.58	739.81	739.60
3/4 PT.	739.95	739.65	739.88	739.67
@ ¢ BRG (P-1)	740.01	739.66	739.88	739.66
1/4 PT.	740.02	739.65	739.87	739.65
1/2 PT.	740.02	739.64	739.87	739.64
3/4 PT.	740.01	739.64	739.85	739.63
@ ¢ BRG. (P-2)	739.98	739.63	739.85	739.62
1/4 PT.	739.89	739.61	739.82	739.59
1/2 PT.	739.76	739.52	739.73	739.50
3/4 PT.	739.59	739.32	739.53	739.29
@ ¢ BRG. (A-2)	739.37	739.04	739.24	739.00

⊛ SEE NOTE ON SITE PLAN.

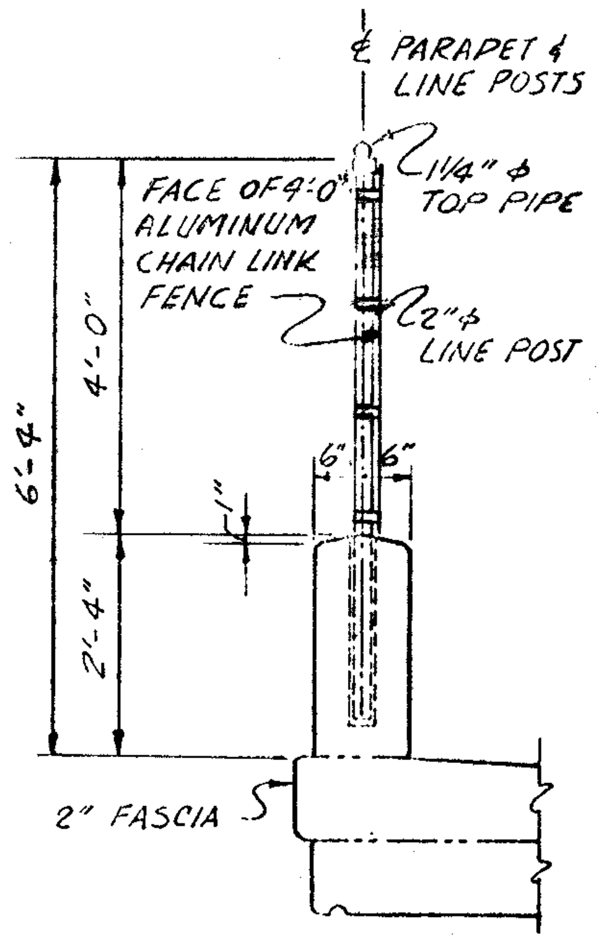


SLAB PLAN

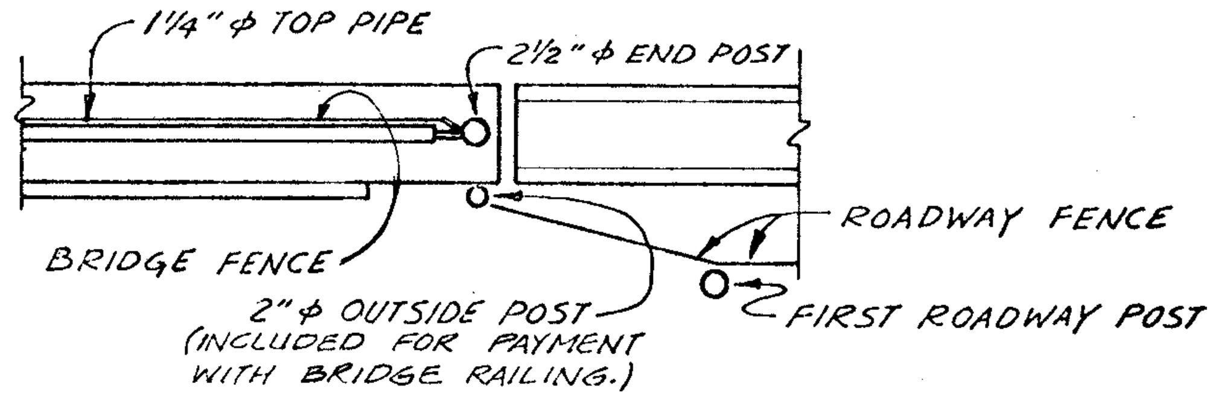


DETAIL A

ABBREVIATIONS USED ARE:
T.O.S. - TOP OF SLAB
B.O.S. - BOT OF SLAB
T.O.S.W. - TOP OF SIDE WALK

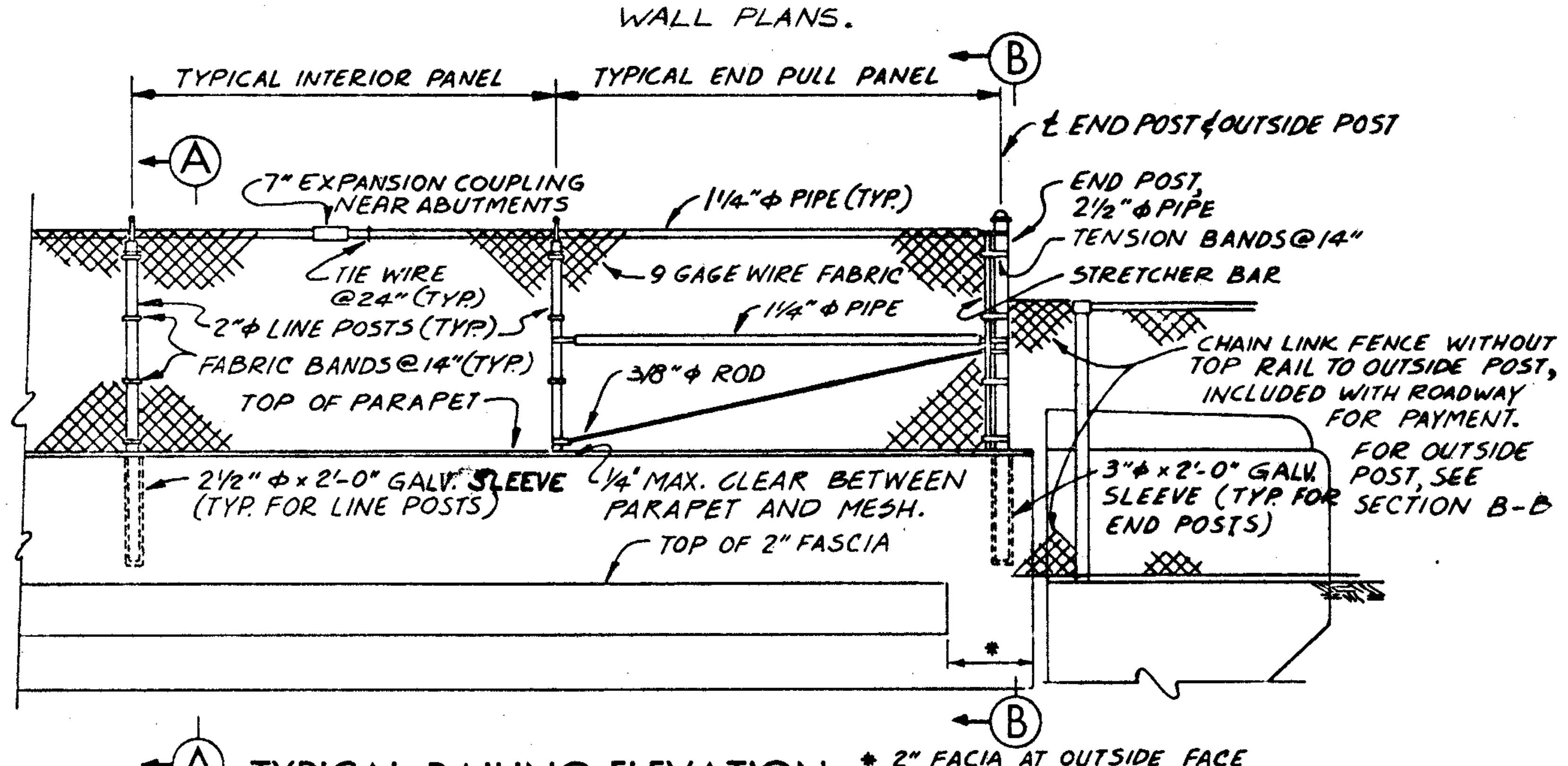


SECTION A-A



TYPICAL RAILING PLAN

SEE VIEW 'B-B' FOR FENCE DETAILS AT RETAINING WALLS ON RETAINING WALL PLANS.



Ⓐ TYPICAL RAILING ELEVATION

* 2" FACIA AT OUTSIDE FACE STOPPED TO CLEAR FACE OF ABUT BY 3½"

NOTES

① DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO TOP OF STEEL BEAM 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 OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

② A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

③ INTERMEDIATE CROSSFRAME ANGLES 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.

④ CLEARANCE = 2"

⑤ ELEVATIONS SHOWN ARE ON TOP OF THE CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE AND ASPHALT WEARING SURFACE.

⑥ TRANSVERSE REINFORCEMENT SHALL BE FIELD BENT AS REQUIRED AND PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL.

⑦ THE PREFIX "S" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE UNLESS SHOWN OTHERWISE.

⑧ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 6 / 8

⑨ FOR PARAPET & FENCE POST SPACING SEE GENERAL PLAN AND ELEVATION SHEET 2 / 8

⑩ SEE SHEET 411-A FOR SUBDRAINAGE AND ASPHALT CONCRETE WEARING SURFACE DETAILS.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES
7 / 8

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SUPERSTRUCTURE DETAILS

BRIDGE NO. CUY - 90 - 1089
UNDER WEST 110th ST.
I-90 CUYAHOGA COUNTY
STA. 750 + 37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	A.L.H.		dww	RDH	2-23-70	12-15-75

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
ABUTMENT A-1									
1A 501	23	8-10	ST						212
1A 502	2	6- 6	3	3-11	1- 2	1- 8			14
1A 503	83	16- 7	ST						1436
1A 504	52	30- 0	ST						1627
1A 505	4	4- 3	ST						18
1A 506	1	32- 6	ST						34
1A 507	16	8- 4	ST						139
1A 508	2	8- 0	ST						17
1A 509	31	7- 2	2	2- 0	3- 5				232
1A 510	31	6- 6	12	2- 4	4- 3	3- 0			210
1A 511	16	3- 5	ST						57
1A 512	4	3- 2	ST						13
1A 601	46	14- 9	ST						1019
1A 602	11	19- 5	26	7- 7	8- 0	1- 5	2- 0		321
1A 603	29	16- 9	26	5- 9	7- 2	1- 5	2- 0		730
1A 604	4	19- 8	2	9- 3	1- 5				118
1A 605	4	8- 3	12	6- 0	2- 4	1- 8			50
1A 606	2	6- 0	ST						18
1A 701	67	6- 0	ST						822
1A 801	15	6- 2	19	1- 7	3- 0	3- 0	0- 6		247
1A 901	68	13- 3	ST						3063
1A1001	45	8- 2	1	1- 8	6- 9				1581
1A1002	45	12- 0	ST						2324
1A1003	46	10- 2	1	1- 8	8- 9				2012
						TOTAL ABUTMENT		A-1 =	16314
ABUTMENT A-2									
2A 501	23	8-10	ST						212
2A 502	2	6- 6	3	3-11	1- 2	1- 8			14
2A 503	83	16- 7	ST						1436
2A 504	52	30- 0	ST						1627
2A 505	4	4- 3	ST						18
2A 506	1	32- 6	ST						34
2A 507	16	8- 4	ST						139
2A 508	2	8- 0	ST						17
2A 509	31	7- 2	2	2- 0	3- 5				232
2A 510	31	6- 6	12	2- 4	4- 3	3- 0			210
2A 511	8	3- 5	ST						29
2A 512	4	3- 2	ST						13
2A 513	2	22- 6	ST						47
2A 601	46	14- 9	ST						1019
2A 602	11	19- 5	26	7- 7	8- 0	1- 5	2- 0		321
2A 603	29	16- 9	26	5- 9	7- 2	1- 5	2- 0		730
2A 604	4	19- 8	2	9- 3	1- 5				118
2A 605	4	8- 3	12	6- 0	2- 4	1- 8			50
2A 606	2	6- 0	ST						18
2A 607	5	11- 4	24	3- 5	0- 5	1- 5	1- 9		85
2A 608	12	8-11	24	1- 8	0- 5	1- 6	2- 3		161
2A 701	67	6- 0	ST						822
2A 801	15	6- 2	19	1- 7	3- 0	3- 0	0- 6		247
2A 901	68	13- 3	ST						3063
2A1001	45	8- 2	1	1- 8	6- 9				1581
2A1002	45	12- 0	ST						2324
2A1003	46	10- 2	1	1- 8	8- 9				2012
						TOTAL ABUTMENT		A-2 =	16579

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
ABUTMENT A-1 WING WALL									
1W 501	4	22- 6	ST						94
SERIES	1-SET	11- 2						1	
OF	OF 19=	TO	ST					0- 7--	329
1W 502	19 BARS	22- 0						4	
SERIES	1-SET	11- 6						1	
OF	OF 11=	TO	ST					1- 0--	192
1W 503	11 BARS	21-11						2	
1W 504	2	11- 0	ST						23
1W 505	2	5- 9	ST						12
SERIES	2-SETS	30- 5							
OF	OF 6=	TO	ST					1- 5	425
1W 506	12 BARS	37- 6							
1W 507	4	31- 8	ST						132
1W 508	1	33- 8	ST						35
1W 509	5	37- 8	ST						196
SERIES	1-SET	5- 9						7	
OF	OF 12=	TO	ST					2- 7--	252
1W 510	12 BARS	34- 7						16	
1W 511	2	29- 0	ST						60
1W 512	2	12-10	12	10- 0	2-10	1- 3			27
1W 513	2	4- 0	ST						8
1W 514	10	10- 0	ST						104
1W 515	2	4-10	ST						10
1W 516	2	6-10	ST						14
SERIES	1-SET	12- 9						1	
OF	OF 9=	TO	ST					1- 2--	75
1W 517	9 BARS	3- 3						4	
1W 518	10	19- 3	ST						201
1W 519	2	17- 5	ST						36
1W 520	8	16- 5	ST						137
SERIES	1-SET	5- 4						7	
OF	OF 12=	TO	ST					2- 6--	241
1W 521	12 BARS	33- 3						16	
1W 801	88	10- 9	ST						2526
1W 901	25	8- 3	13	2-10	5- 7	0- 4			701
1W 902	24	13- 0	13	2-10	10- 4	0- 8			1061
1W 903	10	12- 7	ST						428
1W 904	1	11- 6	ST						39
				TOTAL ABUTMENT A-1 WING WALL =					7358
ABUTMENT A-2 WING WALL									
2W 501	3	22- 6	ST						70
SERIES	1-SET	11- 2						1	
OF	OF 17=	TO	ST					0- 8--	296
2W 502	17 BARS	22- 2						4	
SERIES	1-SET	11- 3						9	
OF	OF 10=	TO	ST					1- 2--	174
2W 503	10 BARS	22- 2						16	
2W 504	2	6- 6	ST						14
2W 505	2	4- 0	ST						8
SERIES	2-SETS	26- 2							
OF	OF 6=	TO	ST					1- 3	367
2W 506	12 BARS	32- 5							
2W 507	4	27- 8	ST						115
2W 508	1	32-10	ST						34
2W 509	4	33- 8	ST						140
SERIES	1-SET	6- 0						7	
OF	OF 13=	TO	ST					2- 1--	254
2W 510	13 BARS	31- 5						16	
2W 511	2	25- 8	ST						54
2W 512	2	12-10	12	10- 0	2-10	1- 2			27
2W 513	10	10- 0	ST						104
2W 514	2	5- 3	ST						11
2W 515	2	7- 7	ST						16
SERIES	1-SET	3- 6						3	
OF	OF 9=	TO	ST					1- 3--	81
2W 516	9 BARS	13- 9						8	
2W 517	1	30- 3	ST						32
2W 518	8	14- 3	ST						119
2W 519	2	15- 9	ST						33
2W 520	2	17- 0	ST						35
2W 521	8	17- 5	ST						145
SERIES	1-SET	30- 0							
OF	OF 13=	TO	ST					2- 0	244
2W 522	13 BARS	6- 0							
2W 801	78	10- 9	ST						2239
2W 901	21	8- 3	13	2-10	5- 7	0- 4			589
2W 902	20	13- 0	13	2-10	10- 4	0- 8			884
2W 903	9	12- 7	ST						385
2W 904	1	11- 6	ST						39
				TOTAL ABUTMENT A-2 WING WALL =					6509

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
PIER P-1									
1P 501	144	8-10	2	3- 8	1- 9				1327
1P 502	12	2- 9	ST						34
1P 503	12	10- 5	2	4- 0	2- 8				130
1P 601	4	39- 8	ST						238
1P 602	6	7-10	12	3- 0	4-10	0- 6			71
1P 801	18	7- 8	ST						368
1P 901	5	30- 0	ST						510
1P 902	40	8- 8	ST						1179
1P1001	32	17- 2	ST						2364
1P1002	32	6- 5	1	1- 0	5- 8				884
1P1101	6	46- 2	2	3- 6	39- 8				1472
1P1102	8	15- 0	1	3- 3	12- 0				638
						TOTAL PIER		P-1 =	9215
PIER P-2									
2P 501	144	8-10	2	3- 8	1- 9				1327
2P 502	12	2- 9	ST						34
2P 503	12	10- 5	2	4- 0	2- 8				130
2P 601	4	39- 8	ST						238
2P 602	6	7-10	12	3- 0	4-10	0- 6			71
2P 801	18	7- 8	ST						368
2P 901	5	30- 0	ST						510
2P 902	40	8- 8	ST						1179
2P1001	32	17- 2	ST						2364
2P1002	32	6- 5	1	1- 0	5- 8				884
2P1101	6	46- 2	2	3- 6	39- 8				1472
2P1102	8	15- 0	1	3- 3	12- 0				638
						TOTAL PIER		P-2 =	9215
SUPERSTRUCTURE									
S 501	294	7- 6	2	0- 6	6- 9				2300
S 502	294	2- 2	2	0- 6	1- 5				664
S 503	294	2- 4	2	0- 6	1- 7				715
S 504	400	7- 7	5	0- 8	3- 2				3164
S 601	683	30- 0	ST						30776
S 602	89	22- 8	ST						3030
S 603	30	22- 4	ST						1006
S 701	584	22- 0	ST						26261
S 702	292	26- 6	ST						15816
S 703	292	17- 6	ST						10445
					TOTAL SUPERSTRUCTURE			=	94177
RAILING*									
R 501	24	11- 3	ST						
R 502	144	6- 8	ST						
R 503	96	13- 8	ST						
R 504	16	3- 3	9	1- 6	0- 6				
R 505	8	6- 7	27	1- 0					
R 506	8	7- 8	3	2- 9	4- 8	0- 6			
R 507	16	7- 7	5	0- 8	3- 2				
R 508	24	4- 8	ST						

*RAILING REINFORCEMENT BARS WILL BE INCLUDED AS PART OF ITEM 517 FOR PAYMENT.

ABUTMENT TOTAL =	46,760
PIER TOTAL =	19,944
SUPERSTRUCTURE TOTAL =	94,177
GRAND TOTAL =	160,881

SPIRAL REINFORCING SCHEDULE

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
SPIRALS-PIER P-1					
1P-SP401	3	2- 8	13- 2	4.50	757
		TOTAL SPIRALS-PIER		P-1 =	757
SPIRALS-PIER P-2					
2P-SP401	3	2- 8	13- 2	4.50	757
		TOTAL SPIRALS-PIER		P-2 =	757

FOUR ANGLE SPACERS WEIGHING APPROX. 0.80 LBS. PER LINEAL FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT LISTED ABOVE. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED SPIRAL WEIGHT.

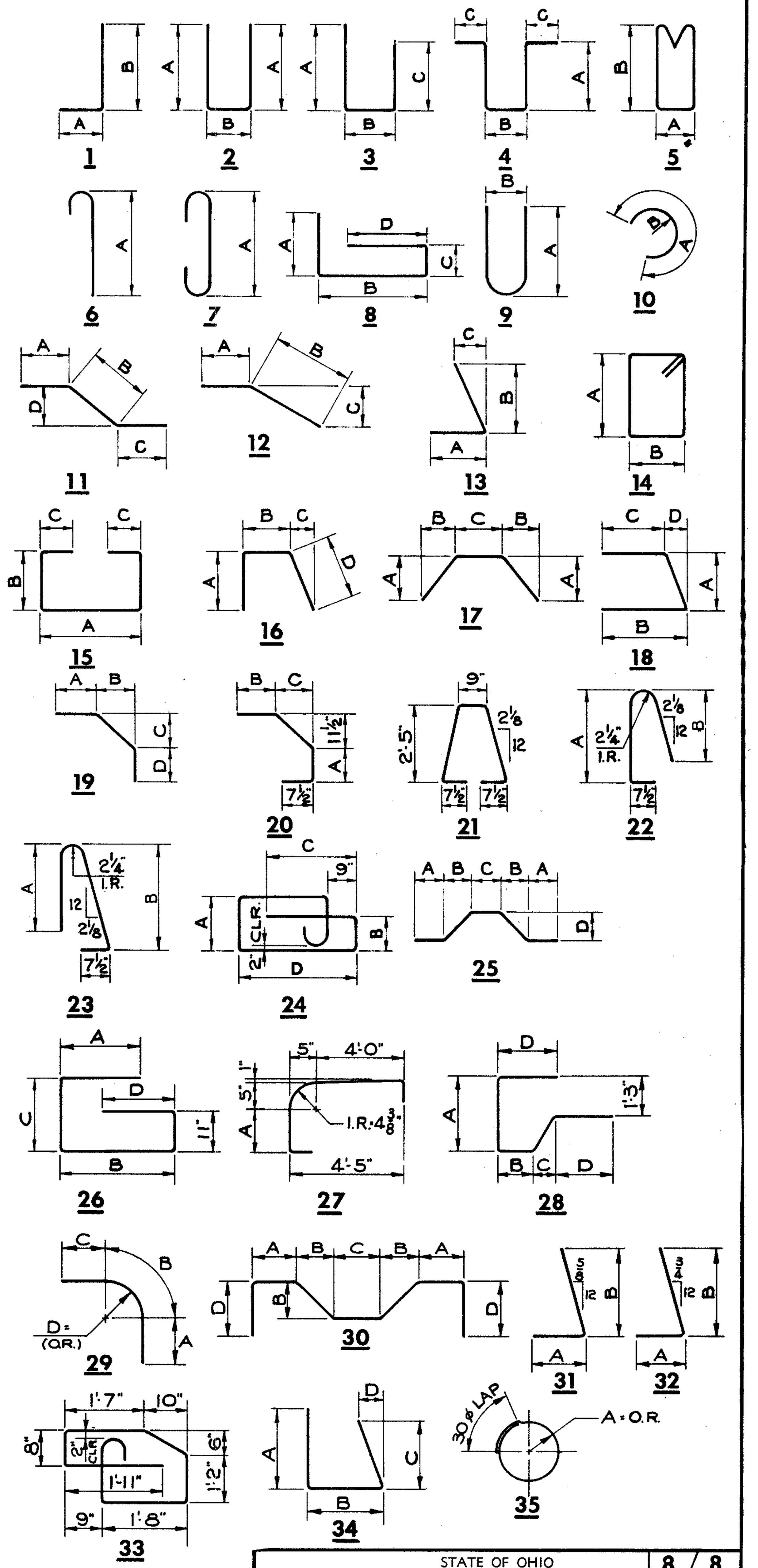
THE LENGTH SHOWN IN THE STEEL SCHEDULE FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE TOP OF THE COLUMN INCLUDING THREE (3) CLOSED COILS (ONE AND ONE HALF CLOSED COILS AT THE ENDS OF EACH SPIRAL UNIT).

SEP 23 1982

FED. RD.	STATE	PROJECT	
2	OHIO		

439
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

8 / 8

DALTON • DALTON ASSOCIATES

REINFORCING SCHEDULE

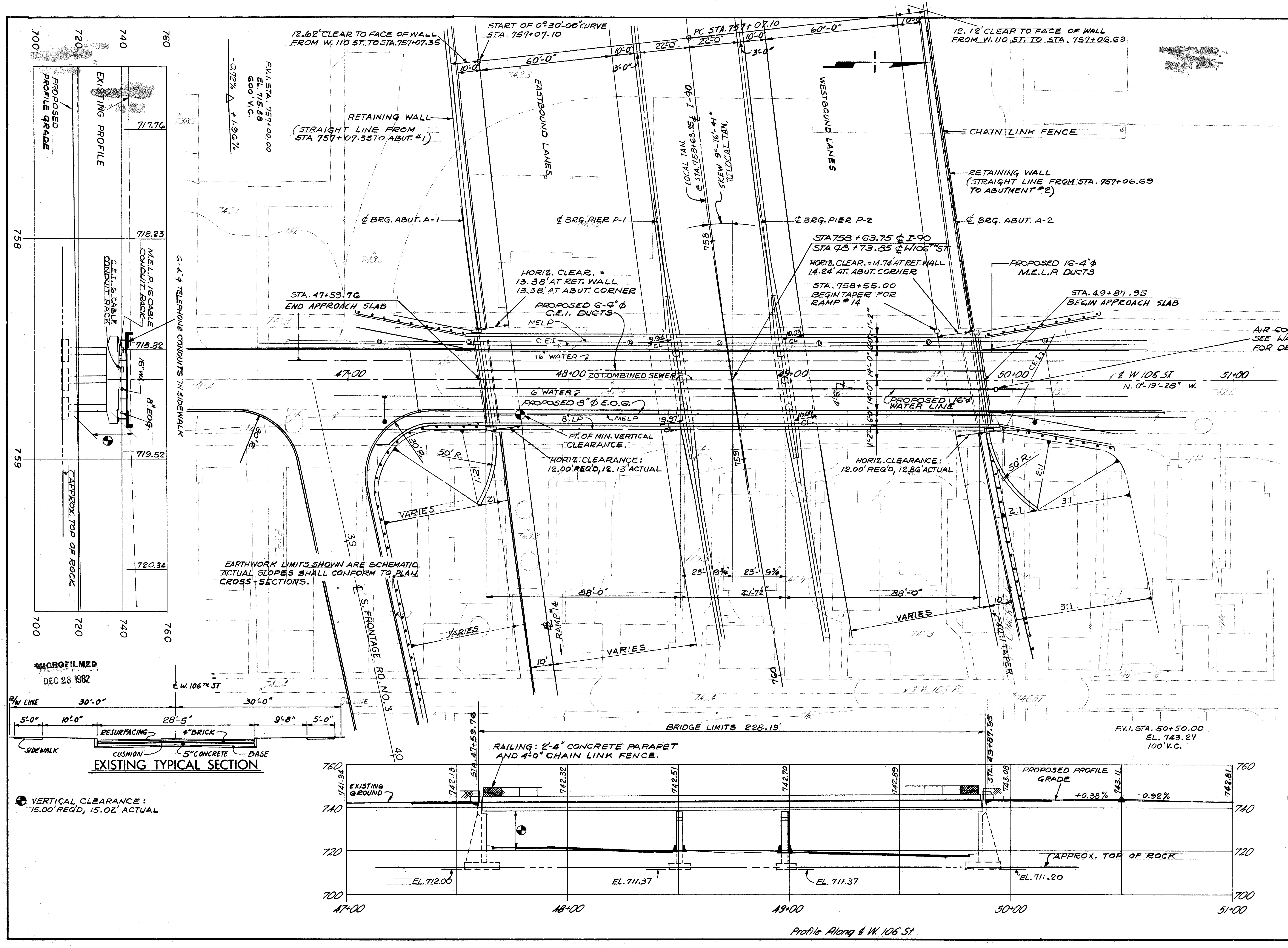
BRIDGE NO. CUY-90-1089
UNDER WEST 110th. ST.
I-90 CUYAHOGA COUNTY
STA. 750+37.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP AJ	JWW		JFP	RDH	2-23-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

440
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



MICROFILMED
DEC 28 1982

● VERTICAL CLEARANCE: 15.00' REQ'D, 15.02' ACTUAL

CURVE DATA

I-90 PI. 763+43.32
Δ = 18°-30'-00" LT.
Dc = 1°-28'-00"
R = 3906.53
T = 636.22
Lc = 1261.36
E = 51.47

℄ RAMP # 14

Δ = 4°-31'-32" LT.
Dc = 0°-30'-00"
R = 11459.16'
T = 452.79'
Lc = 905.11'

PROPOSED STRUCTURE

TYPE: CONTINUOUS WELDED STEEL PLATE GIRDERS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.

SKEW: 9°-16'-41" RF. TO LOC. TAN.

SPANS: 88'-0", 47'-7½", 88'-0"

ROADWAY: 28' F/F CURBS WITH 6'-0" SIDEWALKS.

LOADING: HS 20-44.

WEARING SURFACE: ½" ASPHALT CONCRETE

APPROACH SLABS: 30' LONG (AS-1-72)

ALIGNMENT: TANGENT.

SUPERELEVATION: NONE.

SLOPE PROTECTION: NONE REQUIRED.

TRAFFIC: I-90 122,974 A.D.T. 1975.
W. 106 ST. 4,190 A.D.T. 1975.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1 / 8

DALTON · DALTON ASSOCIATES

SITE PLAN

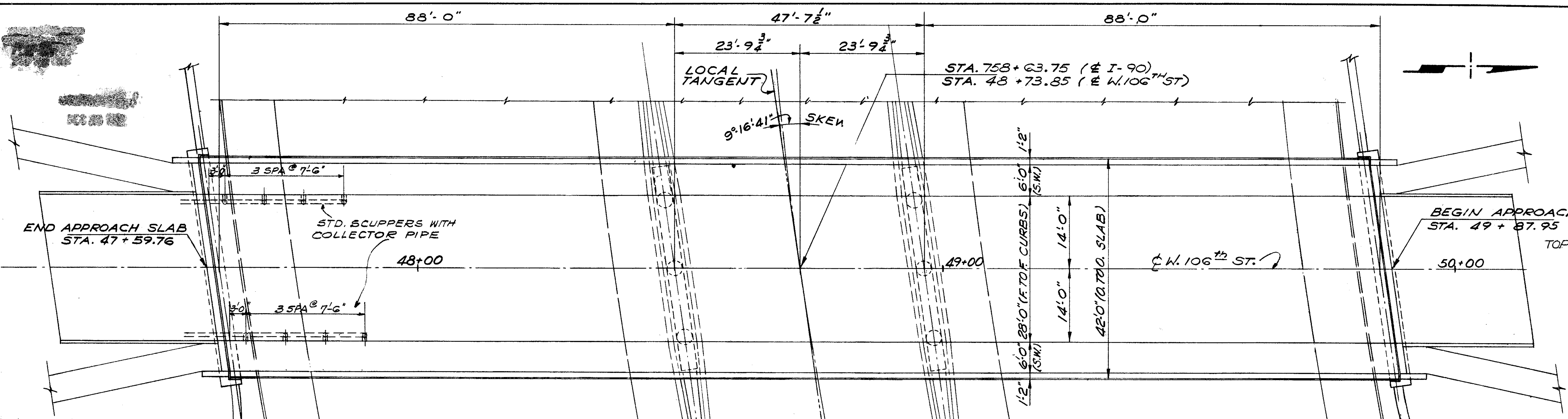
BRIDGE NO. CUY - 90 - 1105
UNDER WEST 106th ST.
I-90 CUYAHOGA COUNTY
STA. 758 + 63.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	J.K.		HGH	RDH	2-25-70	

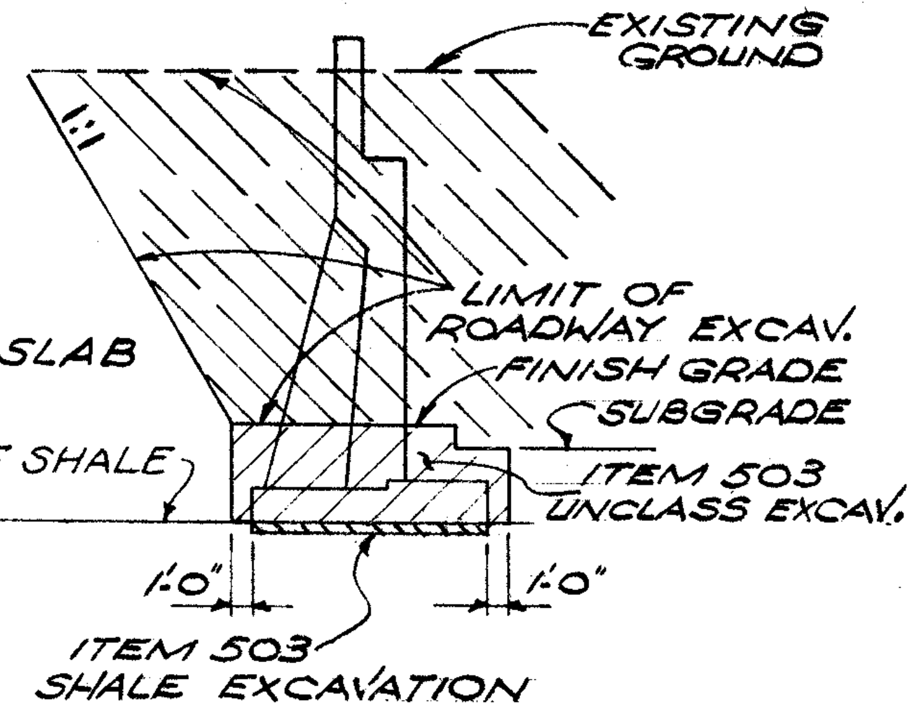
FED. RD.	STATE	PROJECT	
2	OHIO		

441
713

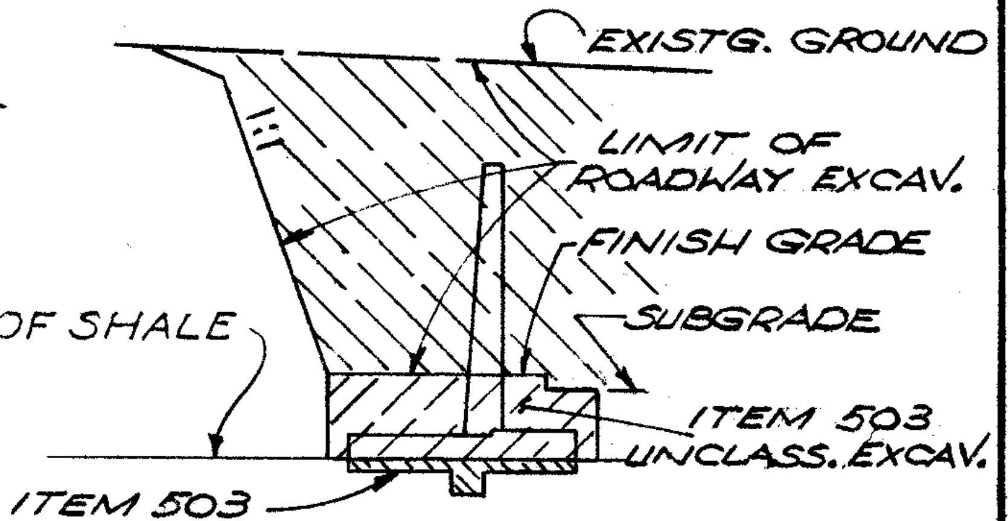
CUYAHOGA COUNTY
CUY - 90 - 10.40



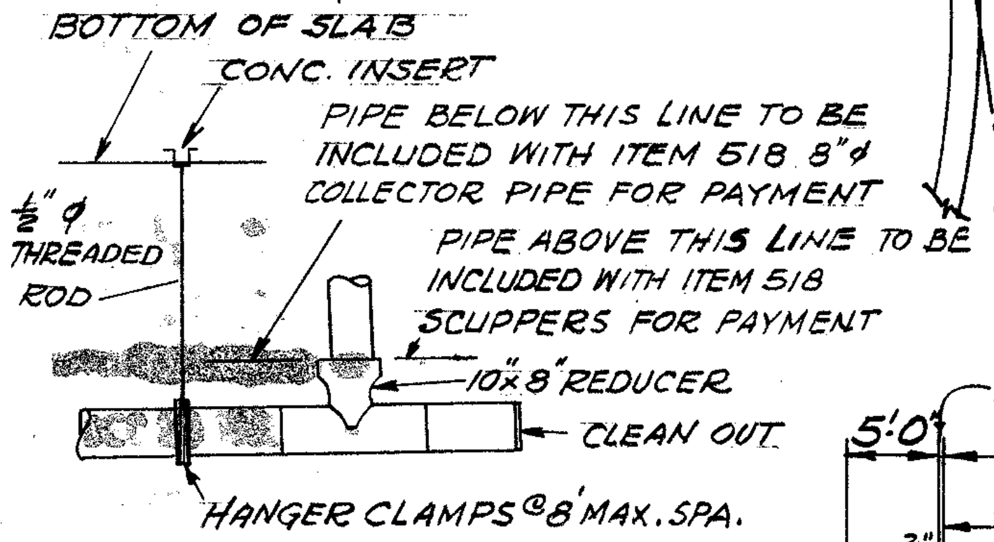
PLAN



LIMITS OF EXCAVATION FOR ABUTS.

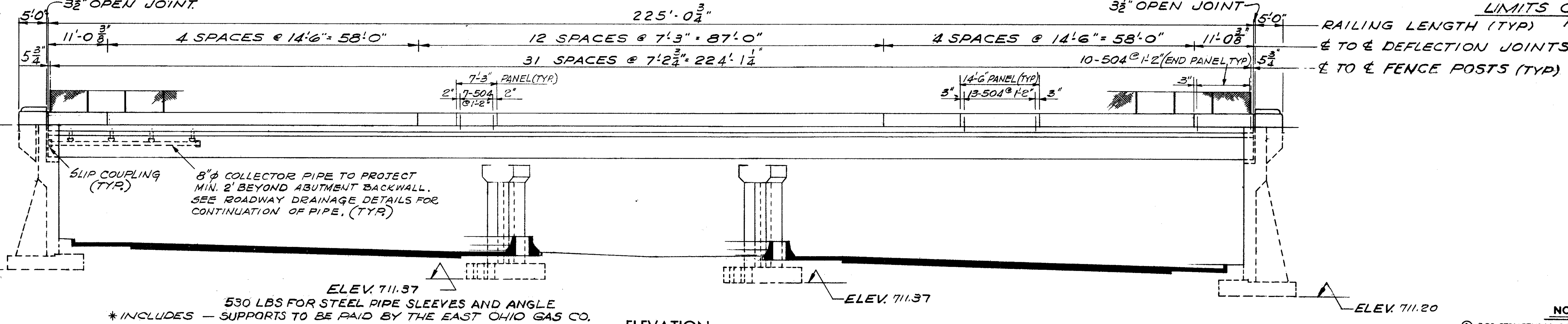


LIMITS OF EXCAVATION FOR WINGWALLS



DETAIL B

COLLECTOR PIPE HANGER ASSEMBLY TO BE, UNISTRUT, ALSTRUT, WINDORF OR EQUAL, INCLUDE WITH ITEM 518 COLLECTOR PIPE FOR PAYMENT.



* INCLUDES — 530 LBS FOR STEEL PIPE SLEEVES AND ANGLE SUPPORTS TO BE PAID BY THE EAST OHIO GAS CO.
2900 LBS TO BE PAID BY THE CLEVELAND ELECTRIC ILLUMINATING CO.

ELEVATION

NOTES

① FOR STRUCTURAL GENERAL NOTES, SEE SHEET 411

NOTE: FOR FENCE SECTIONS AND DETAILS SEE SHT. 7/8

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
404	30	CY	ASPHALT CONCRETE AC-20	30					
SPEC	703	SY	MEMBRANE WATERPROOFING, HOT APPLIED LIQUID (SEE PROPOSAL NOTE)	703					
503	948	CY	UNCLASSIFIED EXCAVATION		760	188			
503	55	CY	SHALE EXCAVATION		44	11			
503	LUMP	L SUM	COFFERDAMS CRIBS AND SHEETING						
509	203766	LB	REINFORCING STEEL	96437	86456	20873			
511	369	CY	CLASS C CONCRETE, SUPERSTRUCTURE	369					
511	67	CY	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			67			
511	416	CY	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS		416				
511	342	CY	CLASS C CONCRETE, FOOTINGS		288	54			
512	19	SY	TYPE B WATERPROOFING		19				
512	22	LF	PREMOLDED SEALING STRIP		22				
513	375800	LB	STRUCTURAL STEEL *	375800					
514	375800	LB	FIELD PAINTING OF STRUCTURAL STEEL *	375800					
516	135	SF	1 IN. PREFORMED EXPANSION JOINT FILLER		135				
517	470.13	LF	RAILING (CONCRETE PARAPET WITH CHAIN LINK FENCE)	450.13	20.00				

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
518	189	CY	POROUS BACKFILL		189				
518	8	EACH	SCUPPERS INCLUDING SUPPORTS	8					
518	36	LF	8 IN. PERFORATED CMP INCLUDING SPECIALS, 707.01		36				
518	62	LF	8 IN. COLLECTOR PIPE INCLUDING SPECIALS	62					
518	30	EACH	SUBDRAINAGE FOR WEARING COURSE AS PER PLAN	30					
625			SEE SHEET 496 FOR LIGHTING SUMMARY						
808	369	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	369					

QUANTITIES CHKD.
Hager 10/21/69
CUW 10/1/73

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

2 / 8

DALTON · DALTON ASSOCIATES

GENERAL PLAN & ELEVATION

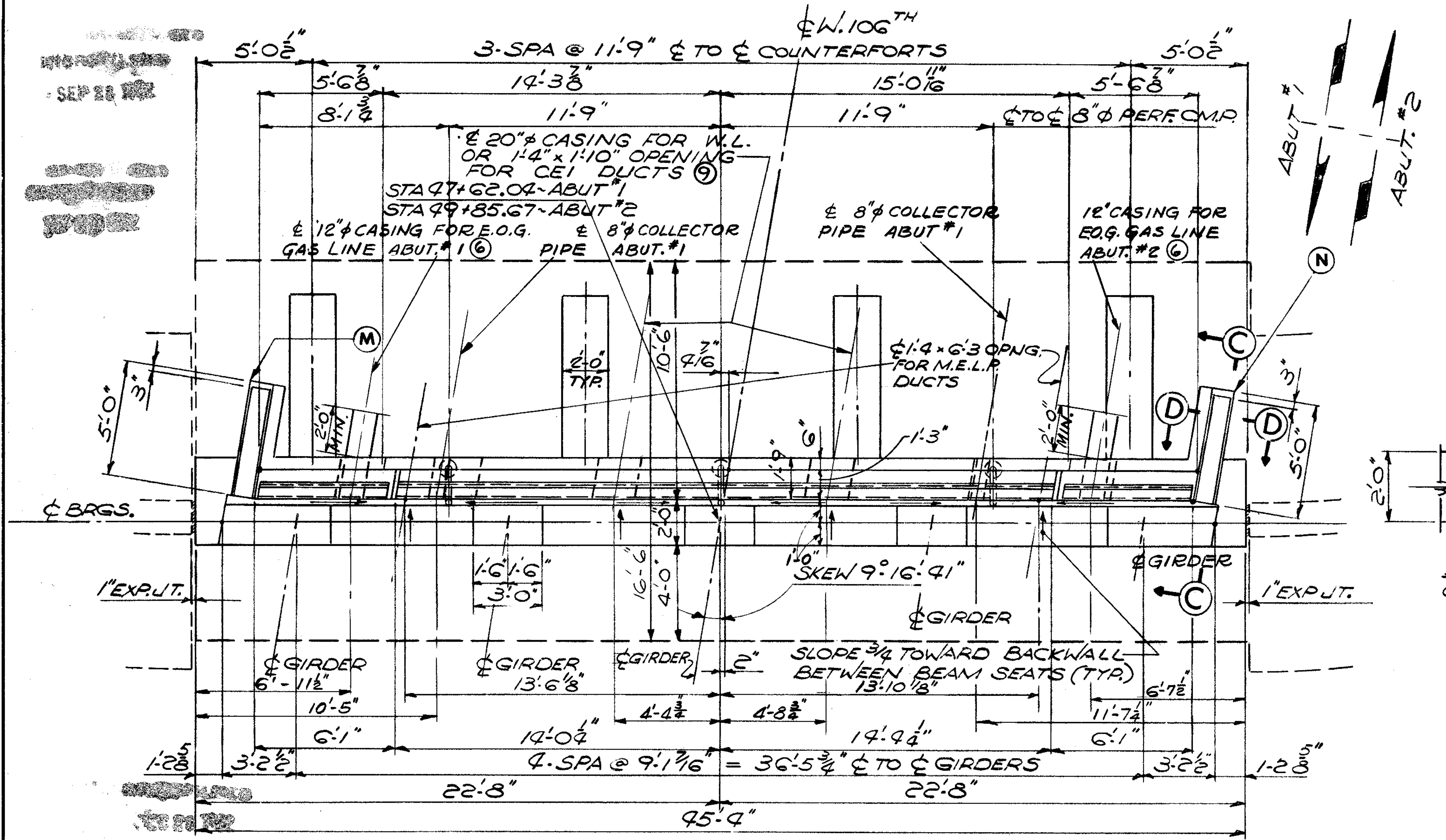
BRIDGE NO. CUY - 90 - 1105
UNDER W. 106th ST.
I - 90 CUYAHOGA COUNTY
STA. 758 + 63.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	ALH		HGH	RDN	2-25-70	8-15-75

FED. RD.	STATE	PROJECT	
2	OHIO		

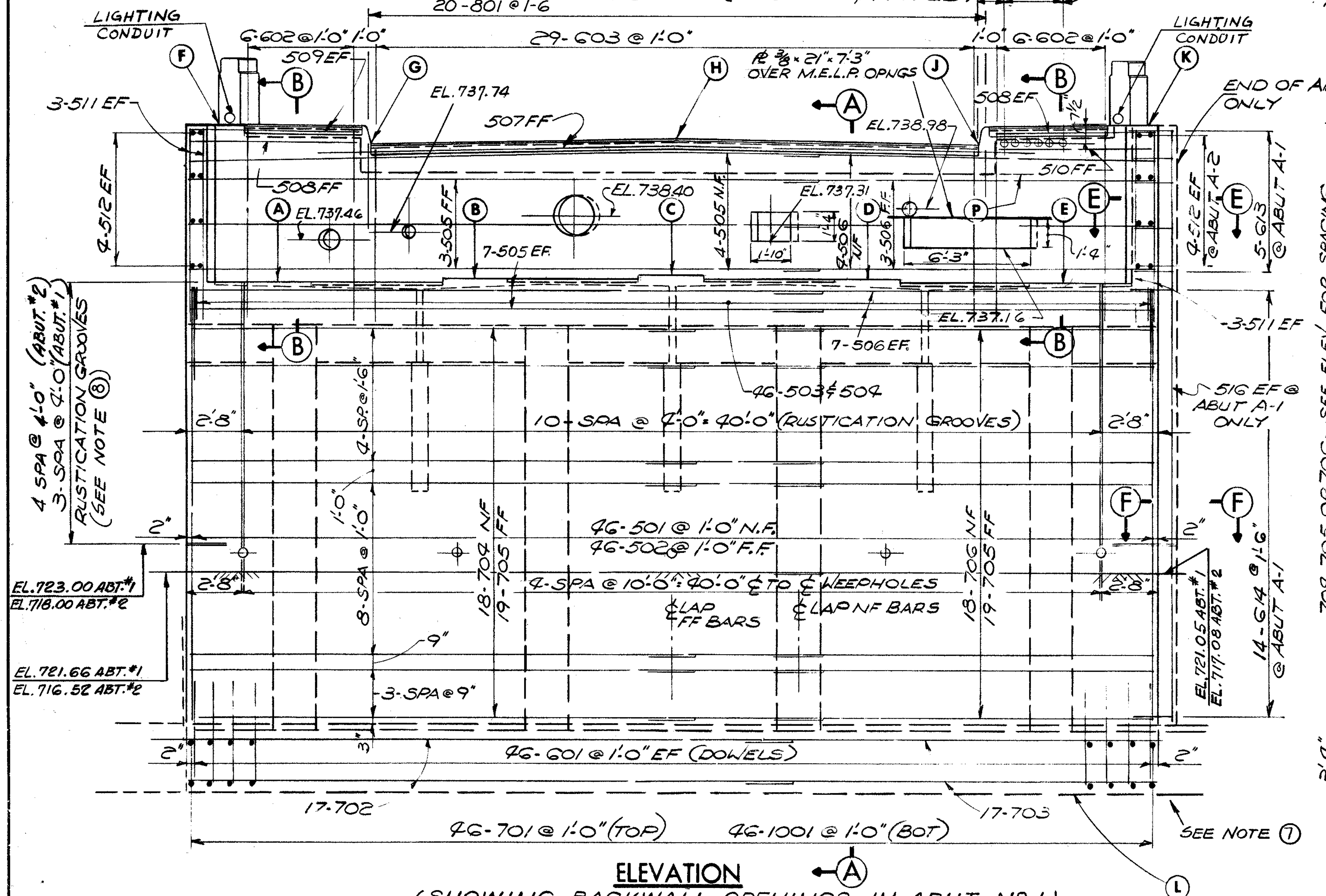
442
713

CUYAHOGA COUNTY
CUY - 90 - 10 40



PLAN

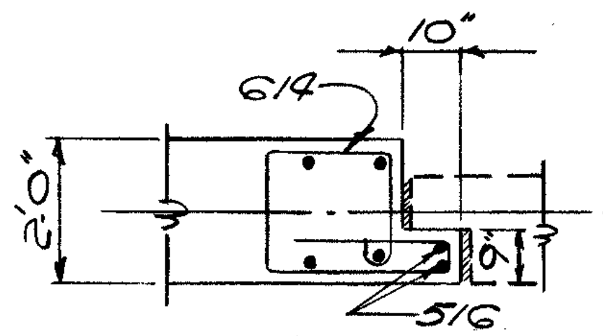
ABUT A-1 (AS SHOWN & NOTED)
ABUT. A-2 (AS SHOWN & NOTED)



ELEVATION

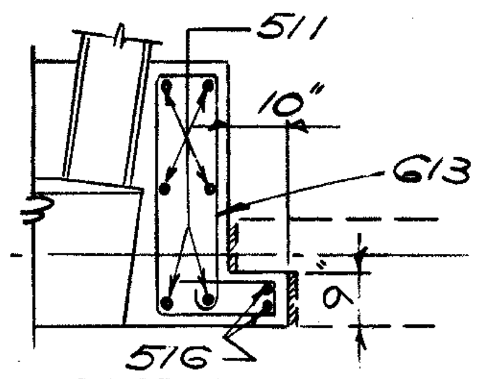
(SHOWING BACKWALL OPENINGS IN ABUT. Nº 1)
(FOR ABUT. Nº 2 SEE KEY ELEVATION)

ELEVATIONS														
LOCATION	A	B	C	D	E	F	G	H	J	K	L	M	N	P
ABUT #1	735.35	735.48	735.62	735.47	735.33	742.90	741.96	742.17	741.94	742.87	712.00	742.87	742.85	740.52
ABUT #2	736.18	736.32	736.47	736.33	736.20	743.72	742.80	743.03	742.82	743.75	711.20	743.74	743.77	741.38



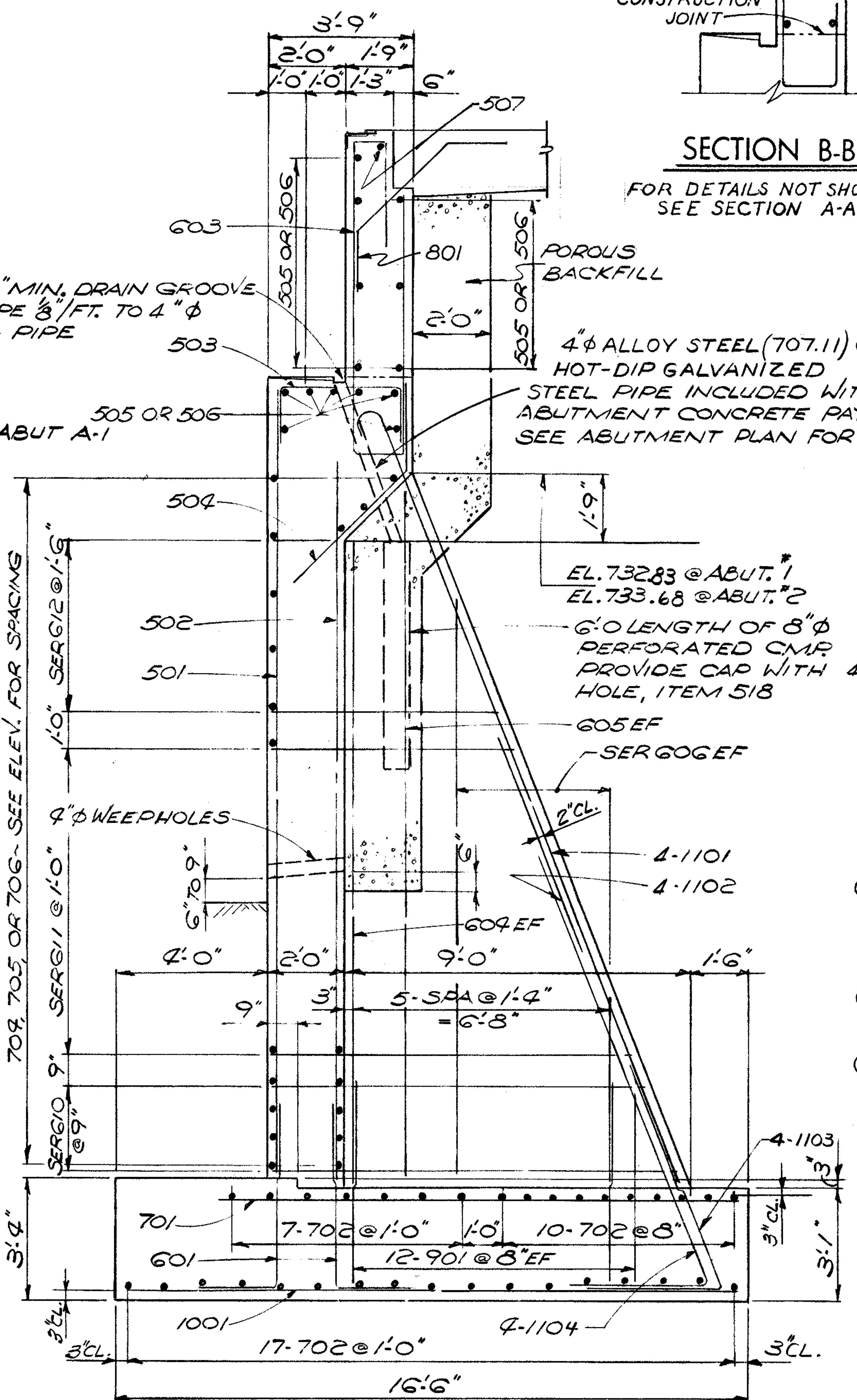
SECTION F-F

@ABUT A-1 ONLY

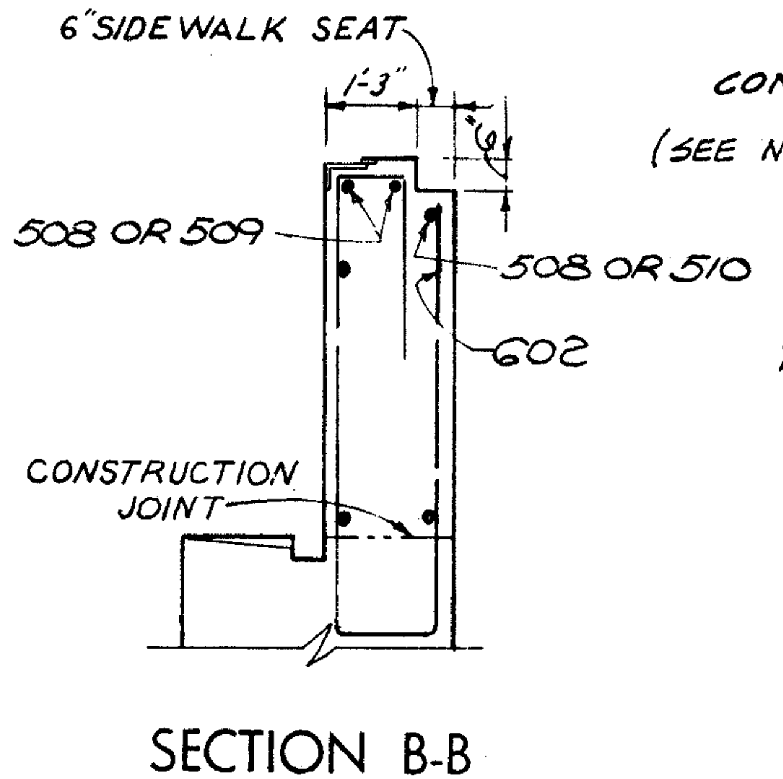


SECTION E-E

@ABUT A-1 ONLY

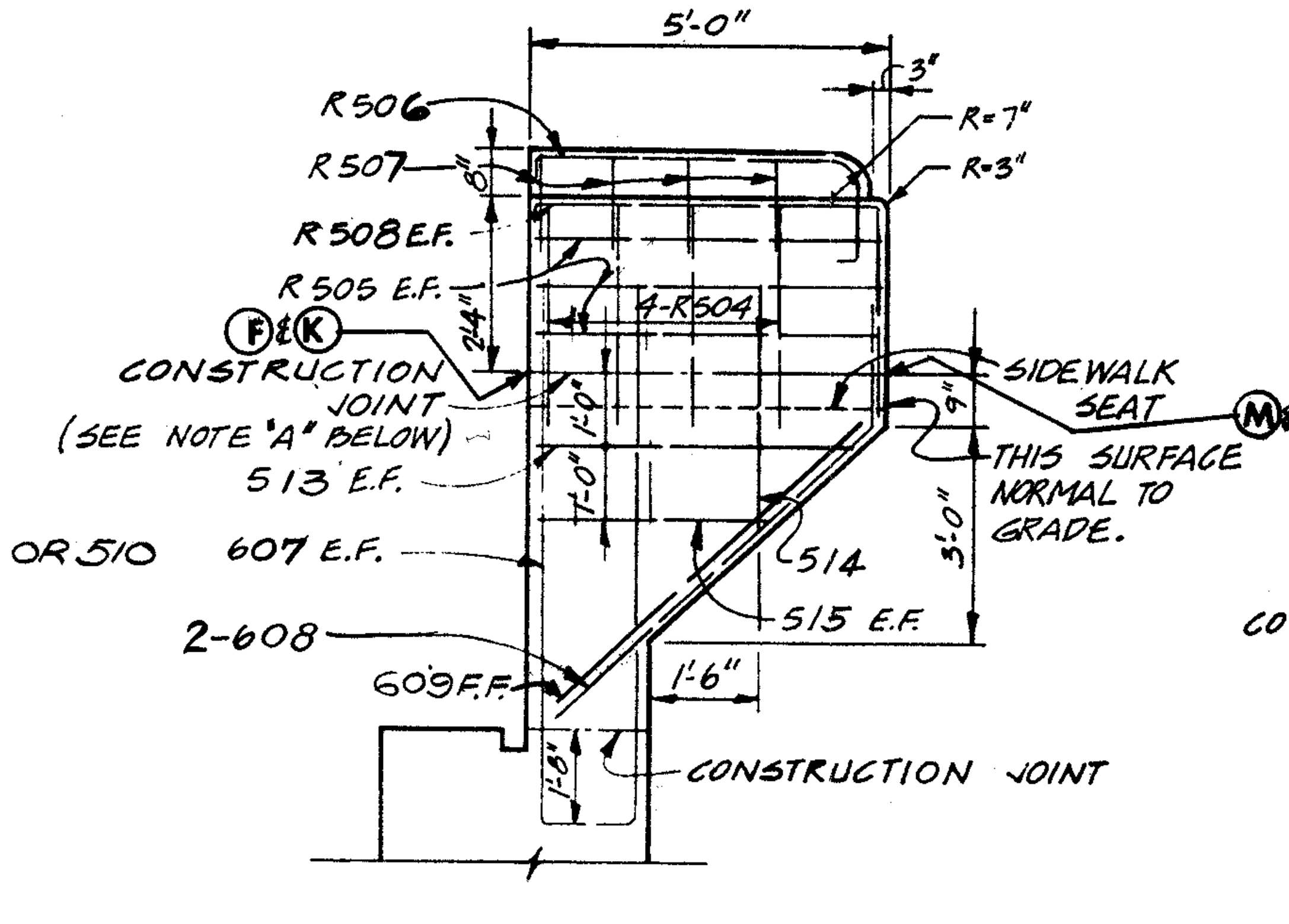


SECTION A-A



SECTION B-B

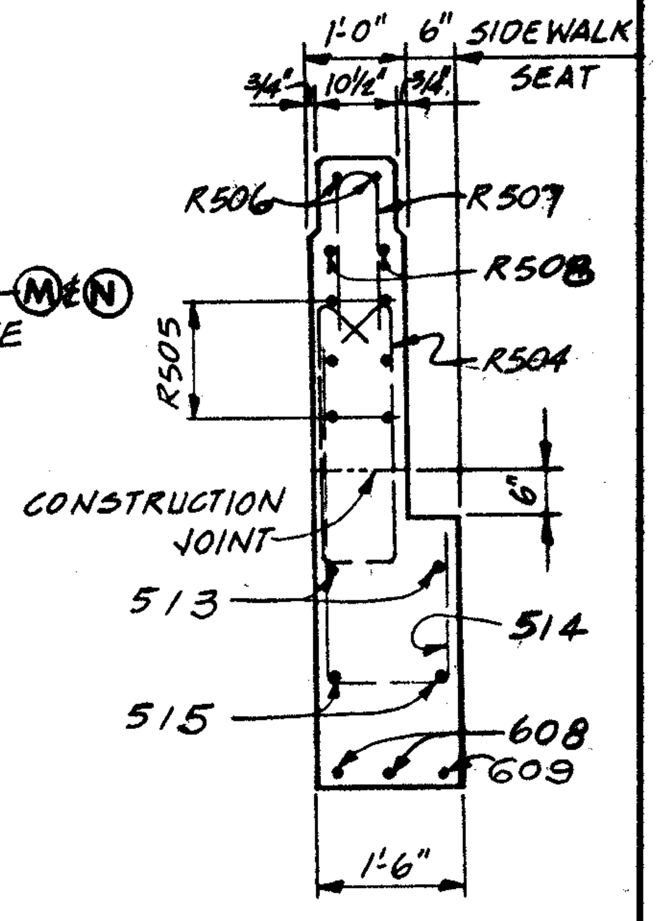
FOR DETAILS NOT SHOWN, SEE SECTION A-A



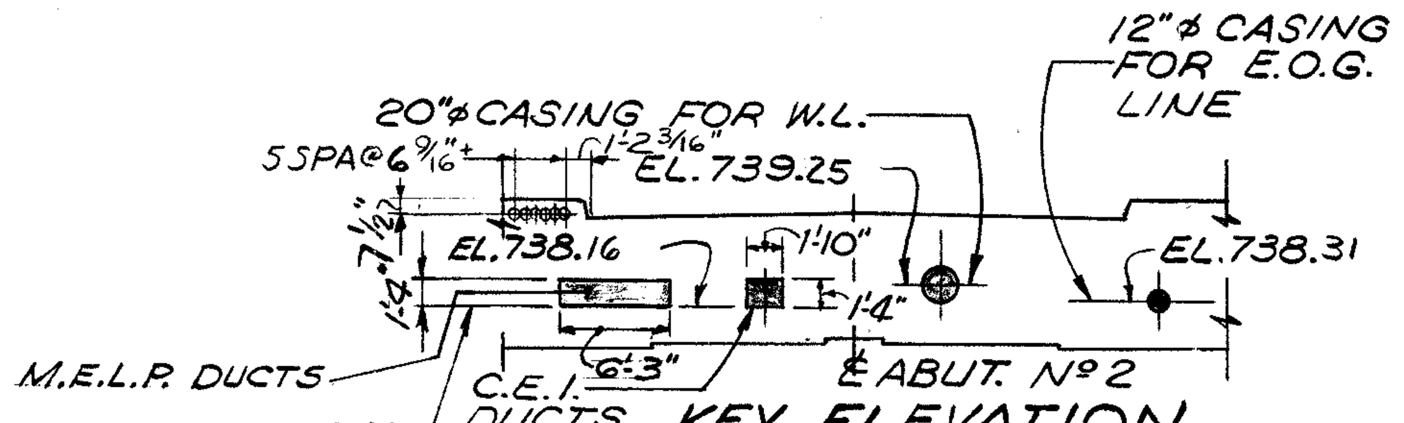
SECTION C-C

FOR DETAILS NOT SHOWN SEE SECTION A-A.

NOTE A: CONCRETE ABOVE THIS JOINT IS INCLUDED WITH RAILING FOR PAYMENT.



SECTION D-D



KEY ELEVATION

(WORK WITH PLAN VIEW)

NOTES

① ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

② BACKWALL ELEVATIONS ARE GIVEN AS FINAL PAVEMENT ELEVATIONS AT FRONT FACE OF BACKWALL. SEE SECTION C-C SHEET 6 / 8

③ POROUS BACKFILL, 2 FT. THICK, FULL LENGTH OF ABUTMENT AND WINGS, SHALL EXTEND UP TO THE SUBGRADE OR TO THE LIMITS SHOWN.

④ PROCEDURE: BEFORE THE BACKWALL IS CONSTRUCTED THE EMBANKMENT SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE WITH A 1:1 SLOPE FROM THE BRIDGE SEAT TO THE SUBGRADE, FOR A MINIMUM DISTANCE OF 200 FEET BACK OF ABUTMENT.

⑤ THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENTS A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

⑥ *SLEEVES THROUGH THE ABUTMENT WALLS* 12¾" O.D., 0.375 WALL, 49.56 POUNDS PER FOOT, STEEL PIPE SLEEVES TO BE FURNISHED AND INSTALLED BY THE BRIDGE CONTRACTOR TO BE PAID FOR BY THE EAST OHIO GAS CO. TO THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS

⑦ FOOTINGS ARE CONTINUOUS WITH CURVED WINGWALLS ONLY. FOR REINFORCING BARS THAT EXTEND INTO ABUTMENT FOOTINGS SEE WINGWALL DETAILS SHEET 4 | 8

⑧ STRIATED WALL PANELS MUST BE COORDINATED WITH PANELS OF THE ADJACENT RETAINING WALLS AND CURVED WINGWALLS.

⑨ 20" SLEEVES FOR WATER LINE & ⅜" ℞. FOR M.E.L.P DUCTS TO BE INCLUDED WITH ITEM 511 ABUTMENT CONCRETE FOR PAYMENT

FOUNDATION BEARING PRESSURE

ABUTMENT FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 4.5 TONS PER SQ. FT.

FOOTINGS

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER

CUT OR MOVE REINFORCING IN BACKWALL TO ACCOMODATE UTILITY OPENINGS.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3 / 8

DALTON • DALTON ASSOCIATES

ABUTMENT DETAILS

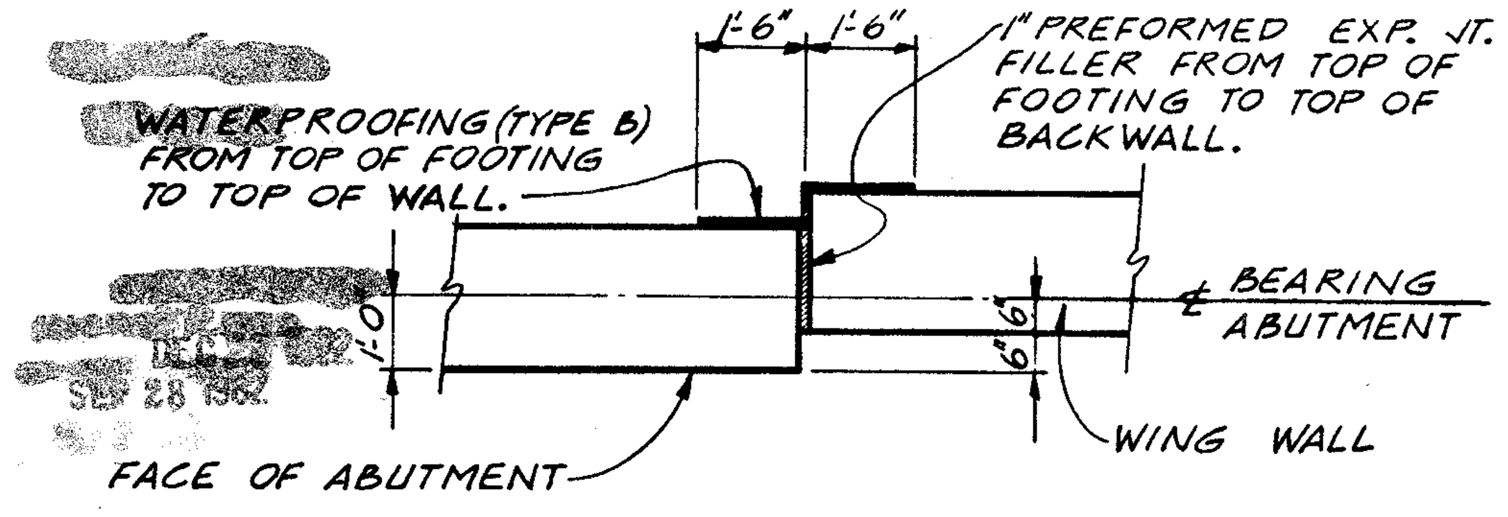
BRIDGE NO. CUY - 90 - 1105
UNDER W. 106th ST.
I-90 CUYAHOGA COUNTY
STA. 758 + 63.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		HGH	RBH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

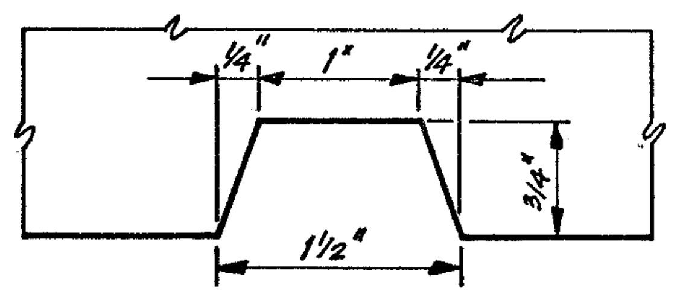
443
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



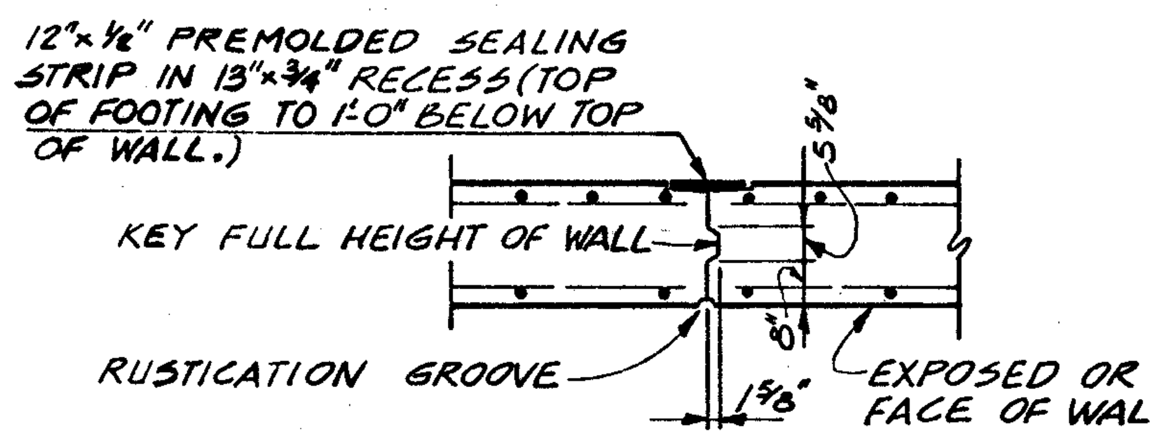
ABUTMENT - WING WALL JOINT DETAIL

SECTION BELOW ABUTMENT SEAT

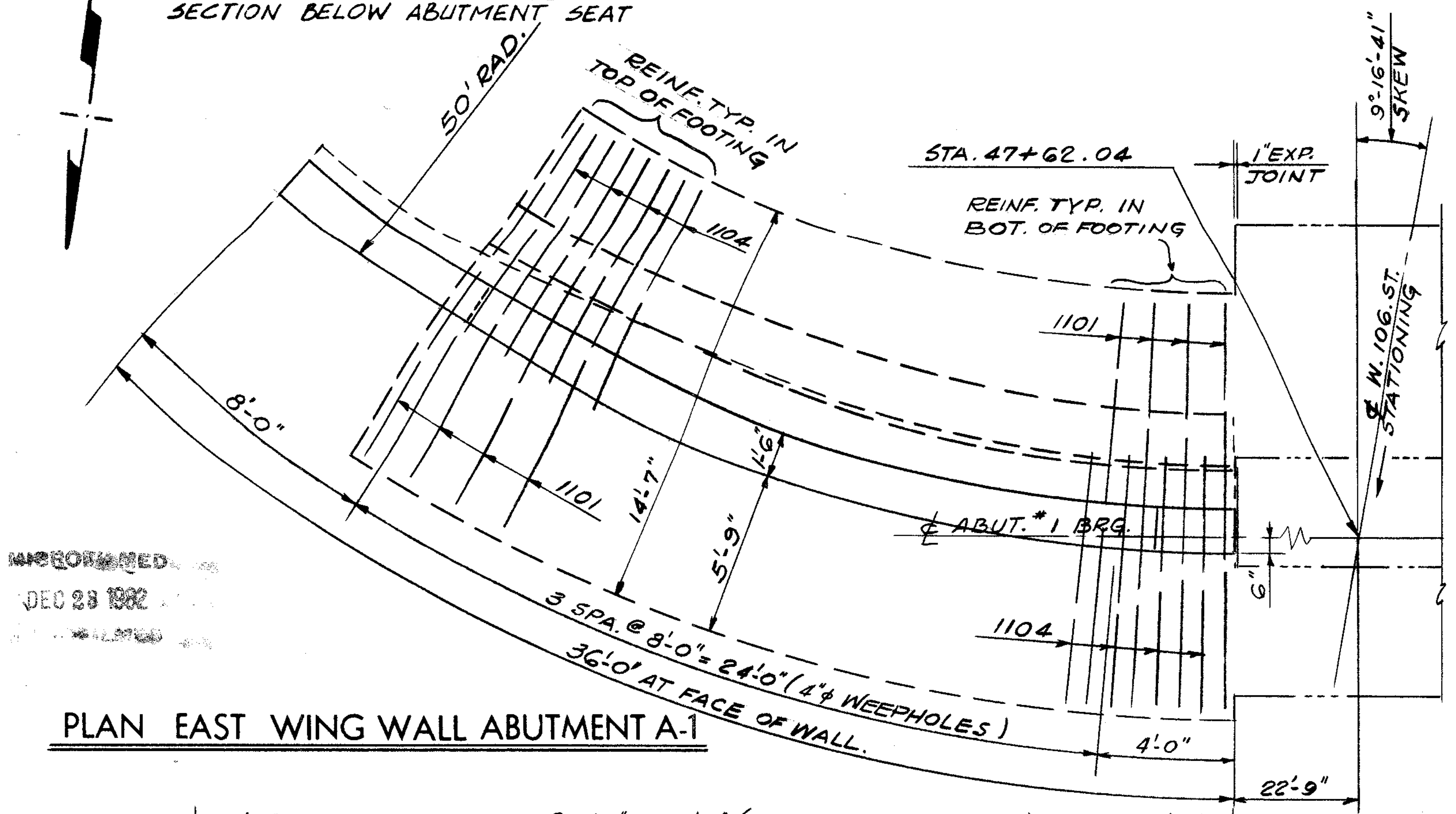


DETAIL

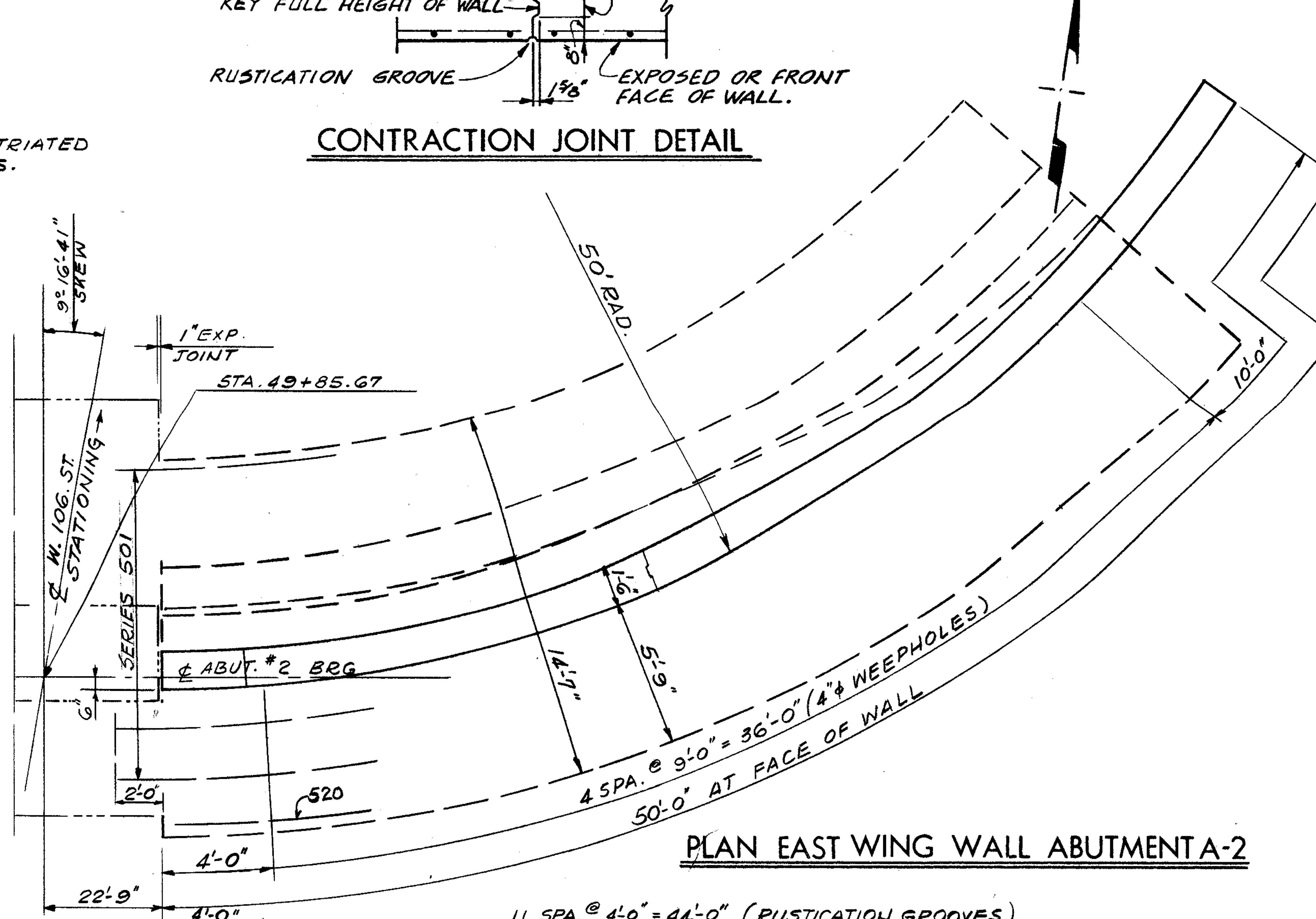
RUSTICATION GROOVE SPA. 4'-0" c/c
USE ALTERNATE VERTICAL AND HORIZONTAL STRIATED CONCRETE FINISH BETWEEN RUSTICATION GROOVES.



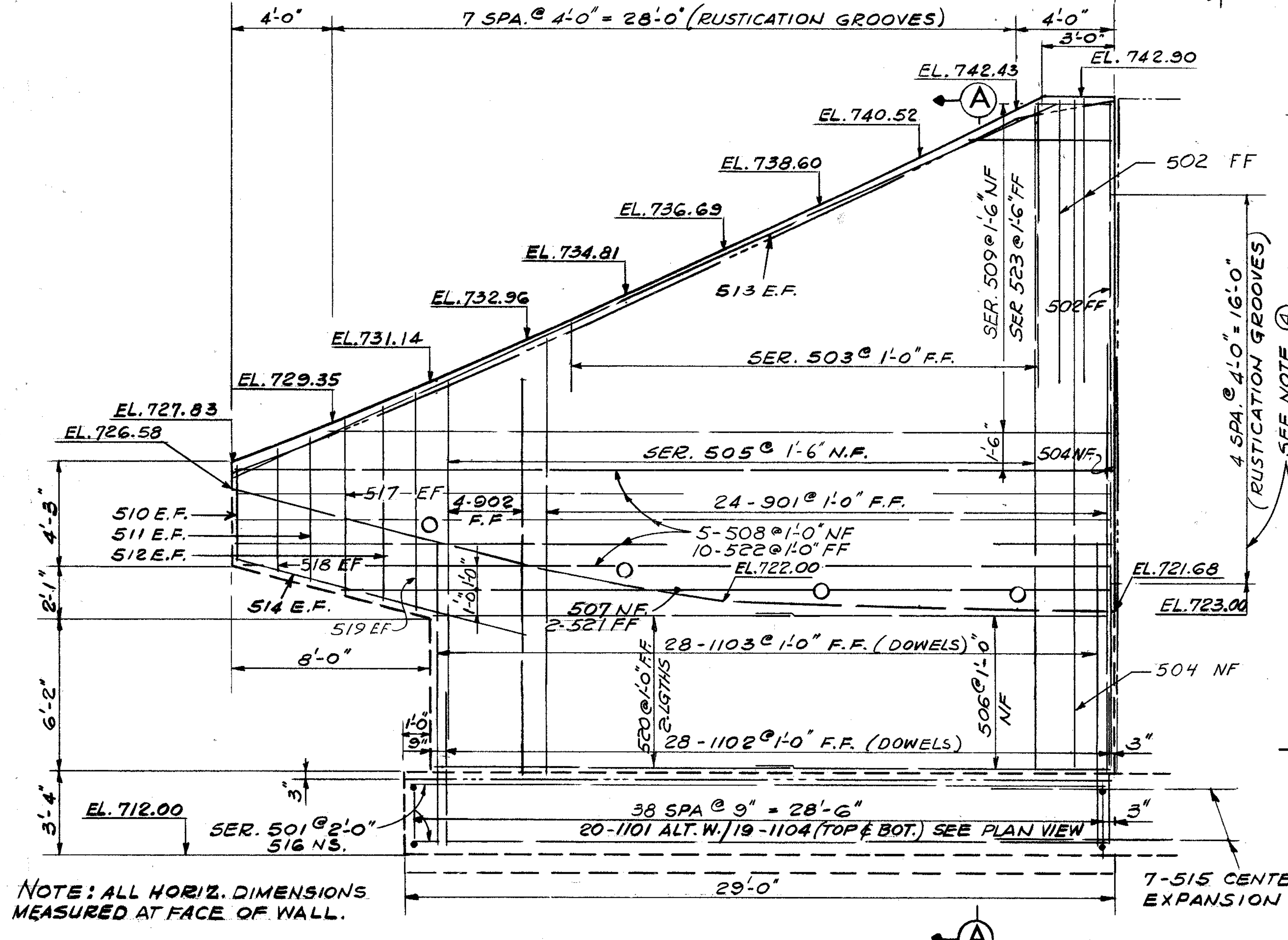
CONTRACTION JOINT DETAIL



PLAN EAST WING WALL ABUTMENT A-1

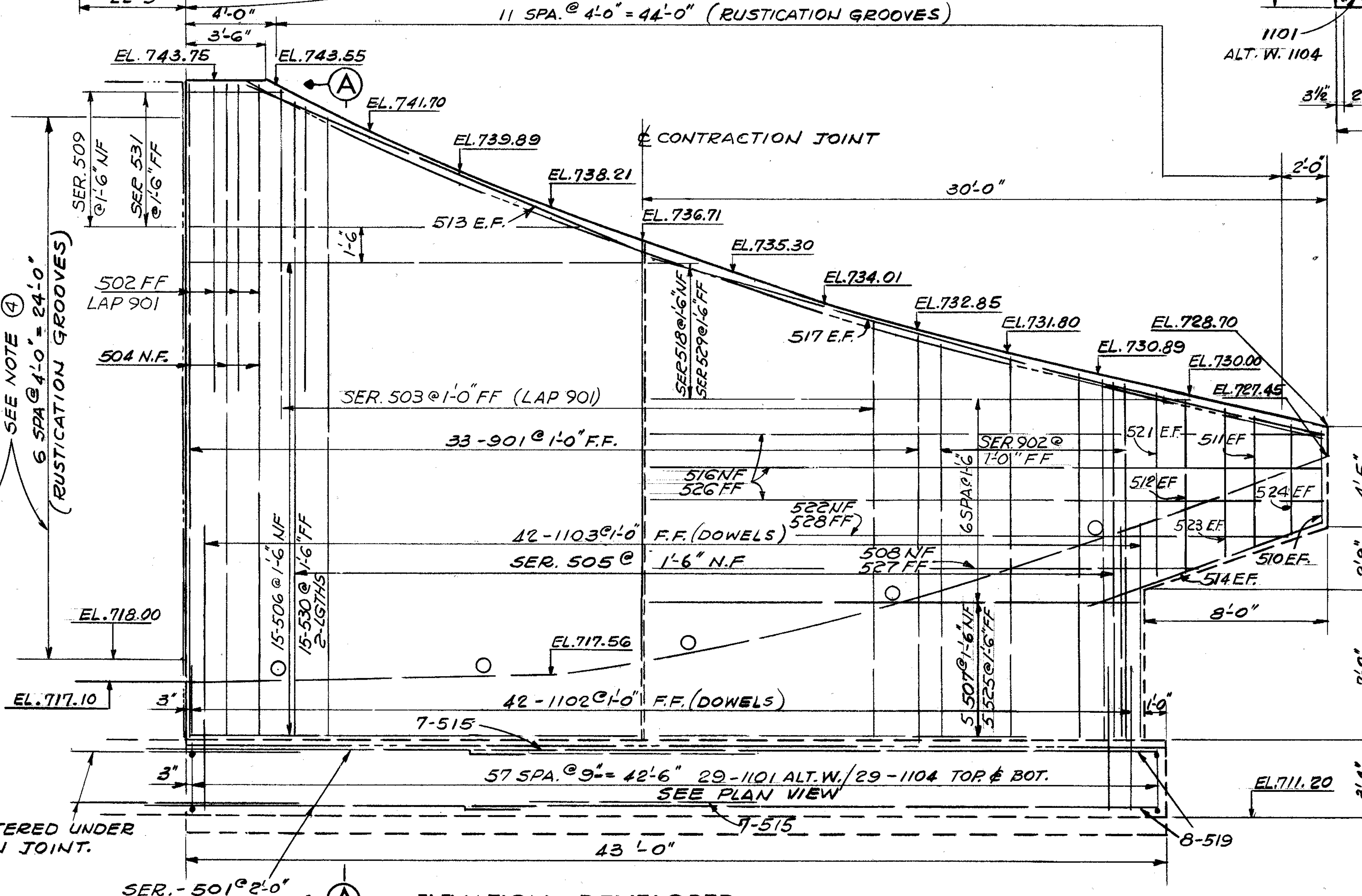


PLAN EAST WING WALL ABUTMENT A-2

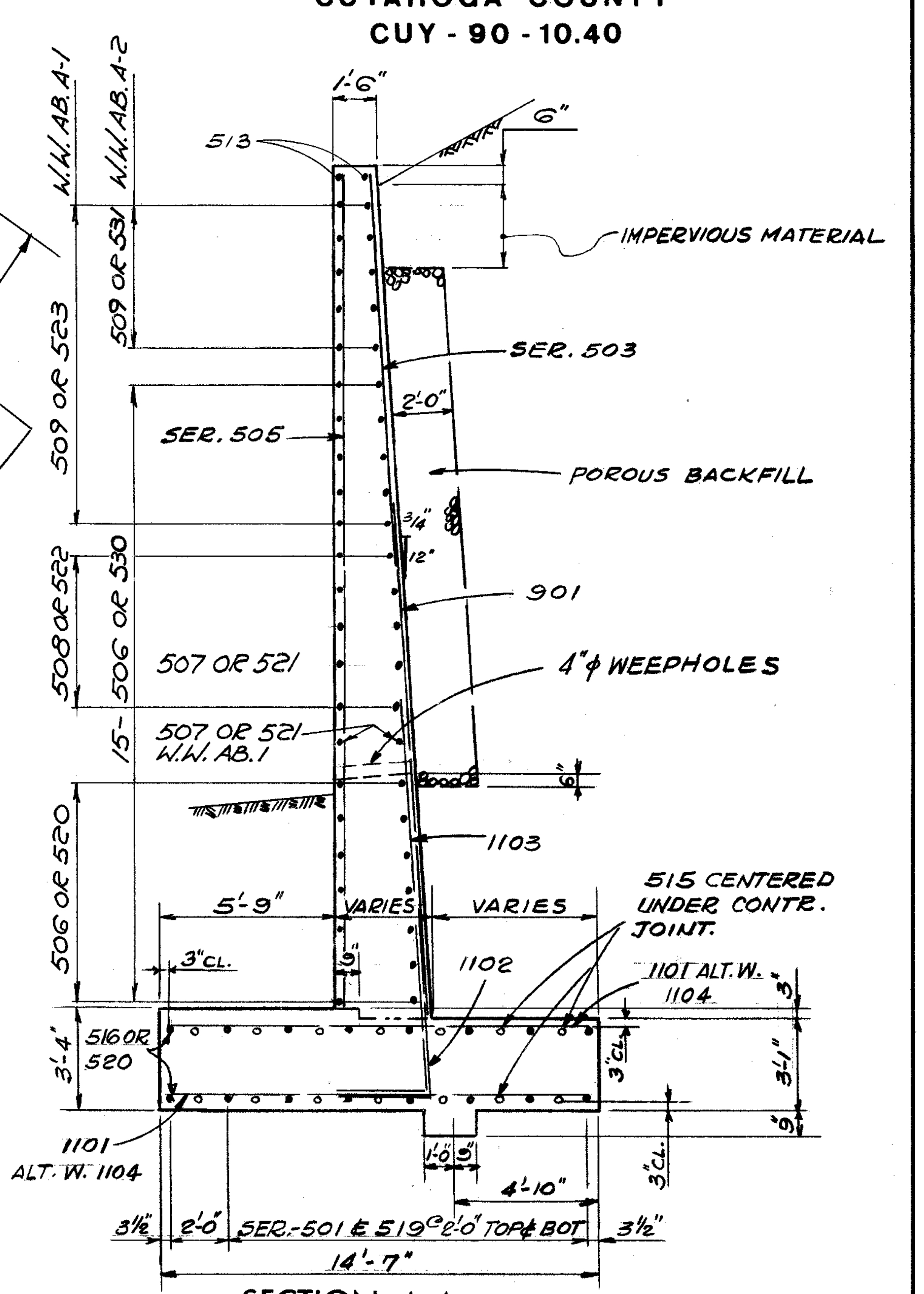


NOTE: ALL HORIZ. DIMENSIONS MEASURED AT FACE OF WALL.

ELEVATION - DEVELOPED



ELEVATION - DEVELOPED



SECTION A-A

① THE PREFIX "1W" AND "2W" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN WING WALLS FOR ABUTMENTS A-1 AND A-2 RESPECTIVELY.

② FOOTING OF WINGWALLS TO BE CONTINUOUS WITH ABUT. FOOTING.

③ FOR ADDITIONAL NOTES, SEE SHEET 3/8

④ STRIATED WALL PANELS MUST BE COORDINATED WITH PANELS OF THE ADJACENT ABUTMENT.

FOUNDATION BEARING PRESSURE
WINGWALL FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 4 TONS PER SQ. FT.

FOOTINGS
FOOTINGS SHALL EXTEND A MINIMUM OF 3" INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

4/8

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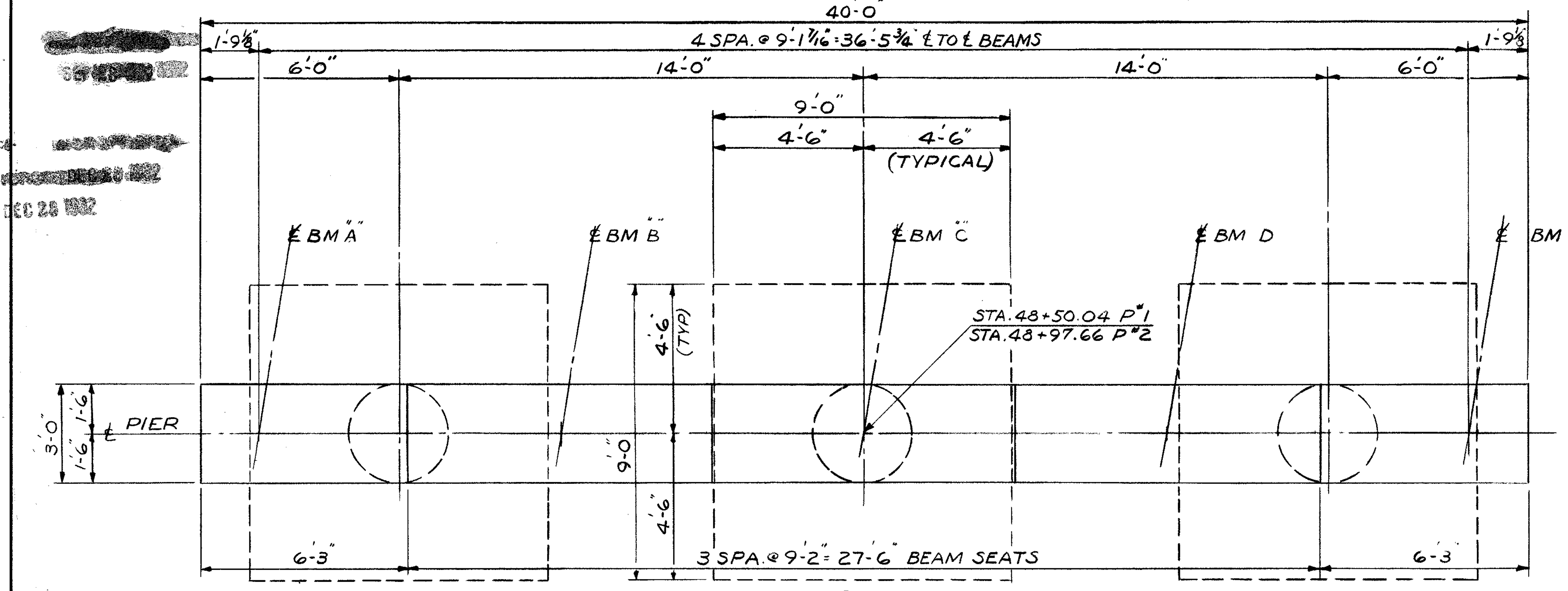
ABUTMENT WING WALLS

BRIDGE NO. CUY - 90 - 1105
UNDER W. 106th ST.
I-90 CUYAHOGA COUNTY
STA. 758 + 63.75

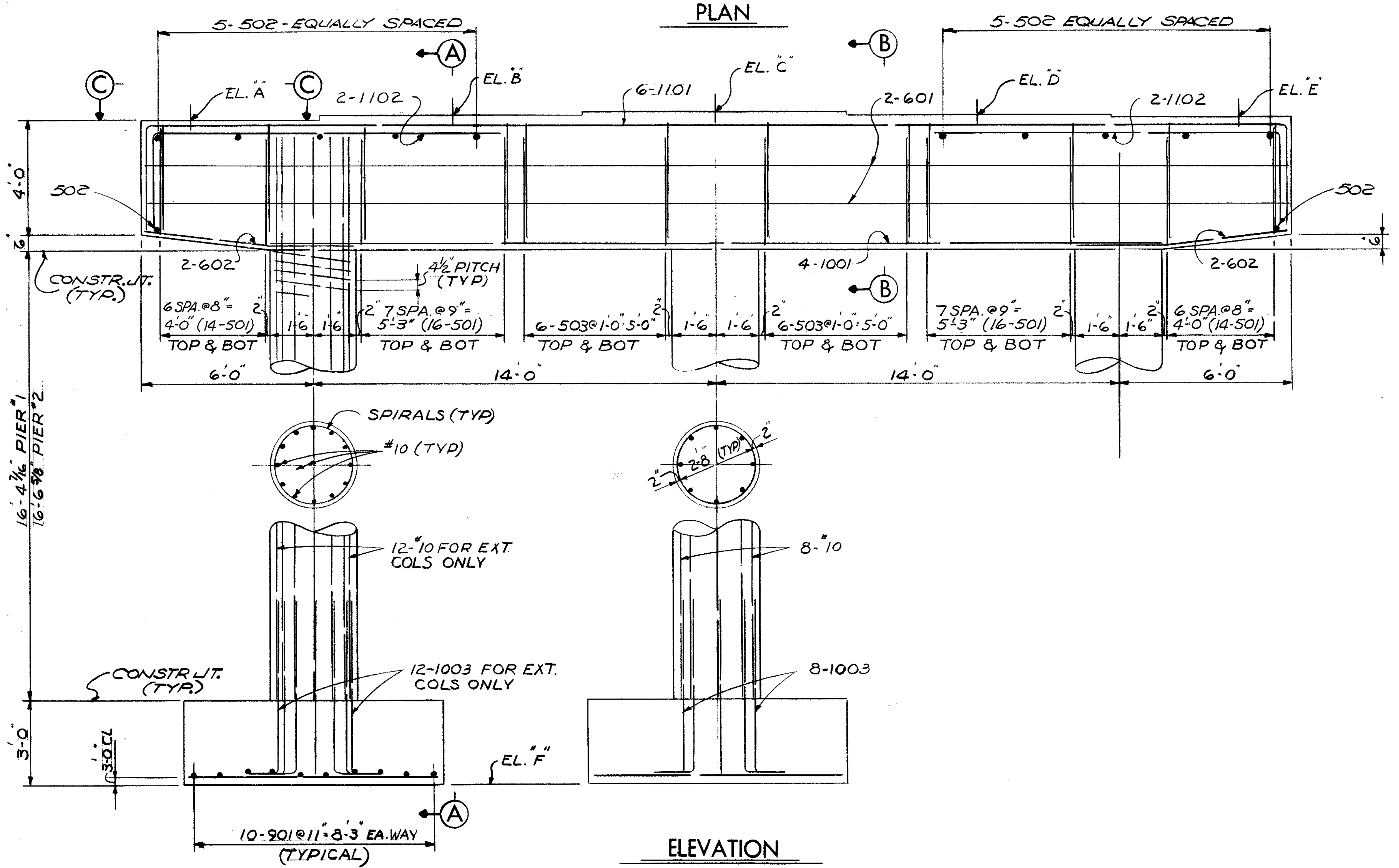
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JSK		HGH	RAW	2-25-80	

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

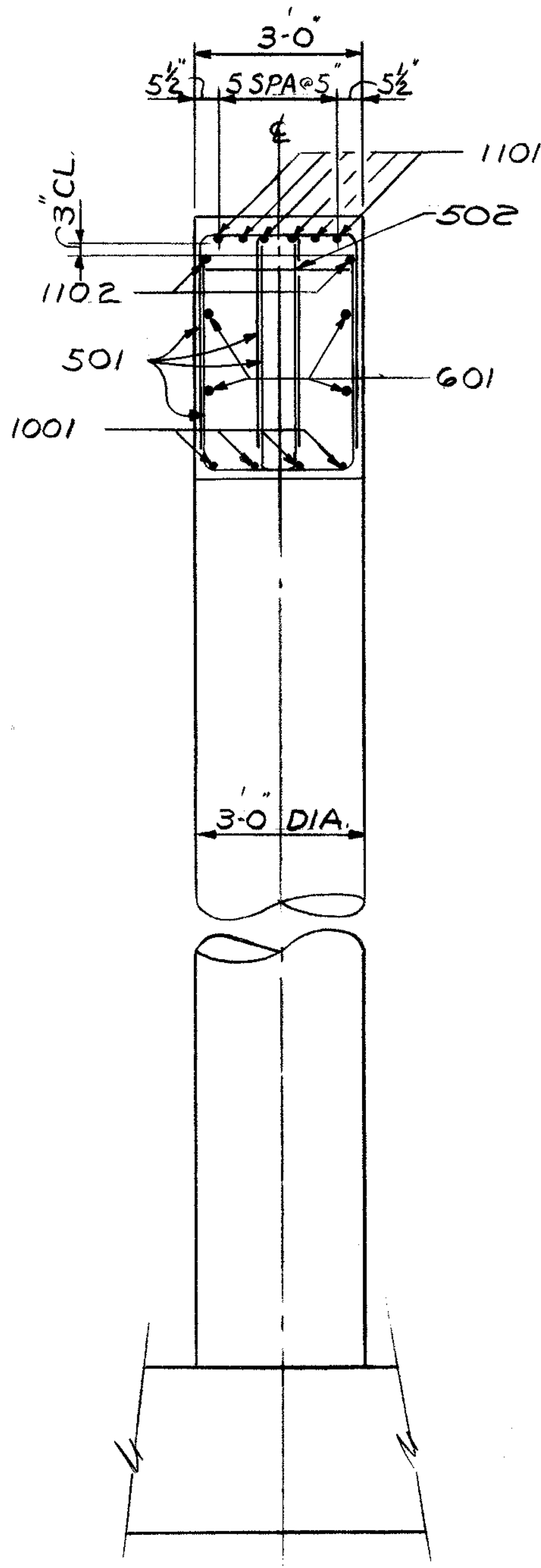


PLAN

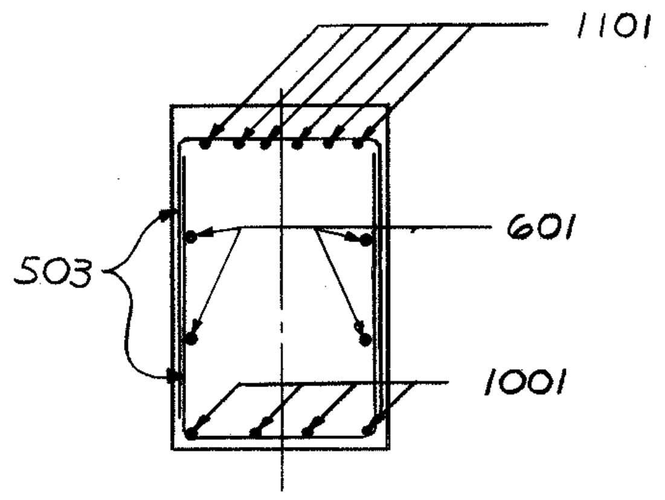


ELEVATION

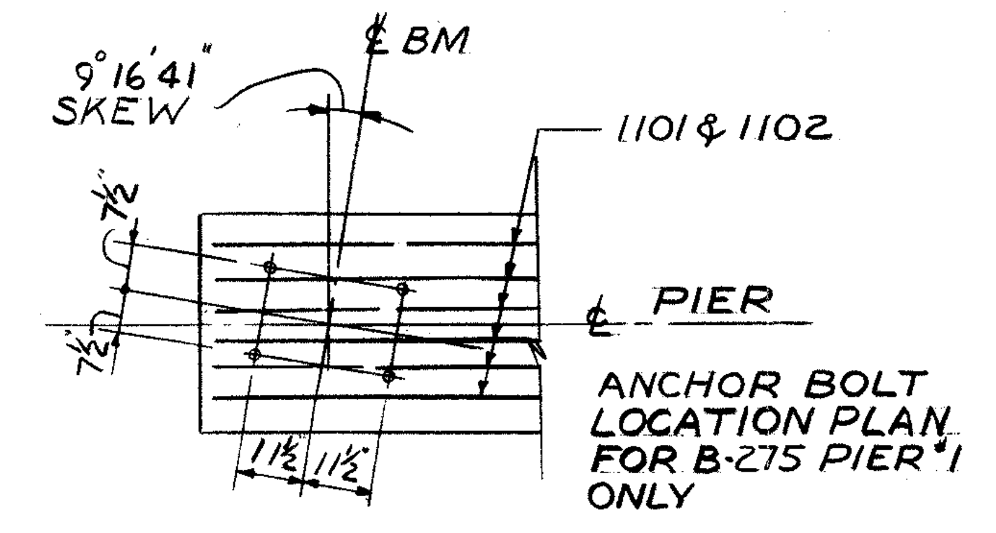
PIER Nº 1 SHOWN
PIER Nº 2 SIMILAR EXCEPT AS NOTED



SECTION A-A



SECTION B-B



SECTION C-C

FOUNDATION BEARING PRESSURE

PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 5 TONS PER SQ. FT.

FOOTINGS

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

NOTES

① BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BOLT HOLES. (PIER P-1 ONLY)

② THE PREFIX "1P" OR "2P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER P-1 OR P-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

PIER	BAR MARKS		ELEVATIONS					
	SPIRAL	VERT.	A	B	C	D	E	F
P-1	SP-401	P-1002	735.24	735.39	735.54	735.40	735.27	711.37
P-2	SP-401	P-1002	735.42	735.57	735.72	735.58	735.45	711.37

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

DALTON • DALTON ASSOCIATES

PIERS

BRIDGE NO. CUY - 90 - 1105
UNDER W. 106th ST.
I-90 CUYAHOGA COUNTY
STA. 758 + 63.75

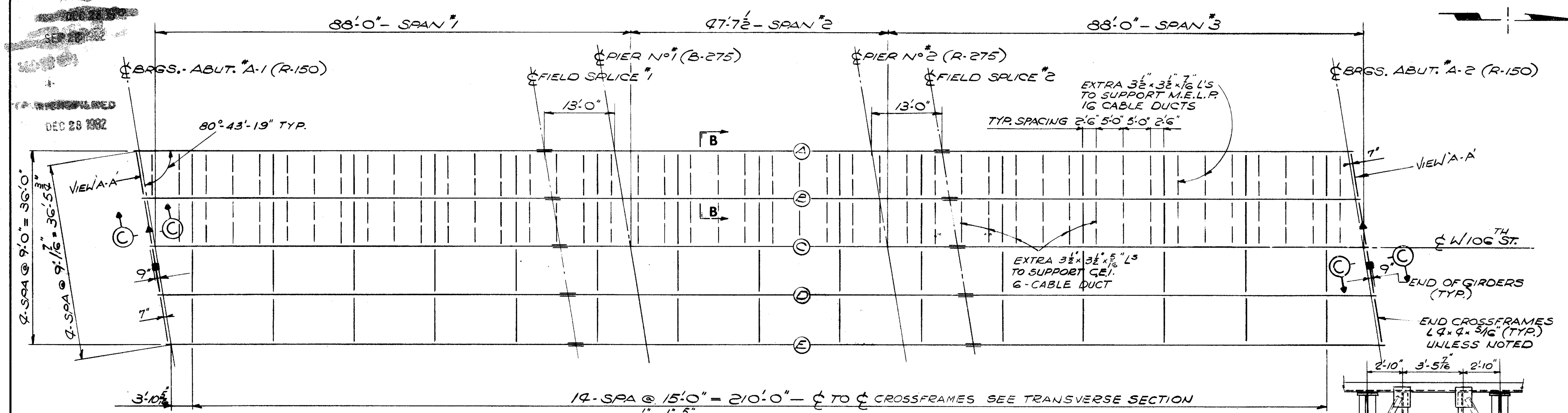
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JLH		HGH	RDH	2-25-70	

DEC 28 1982

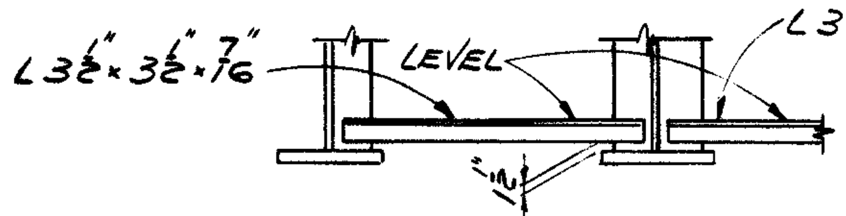
FED. RD.	STATE	PROJECT
2	OHIO	

445
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

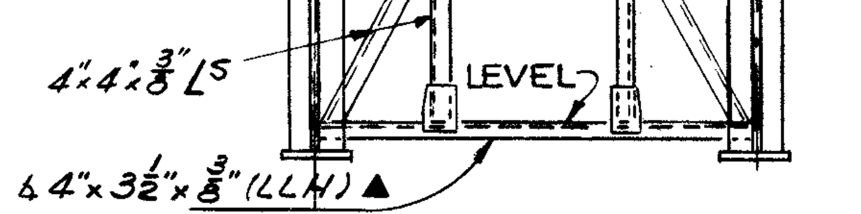


FRAMING PLAN



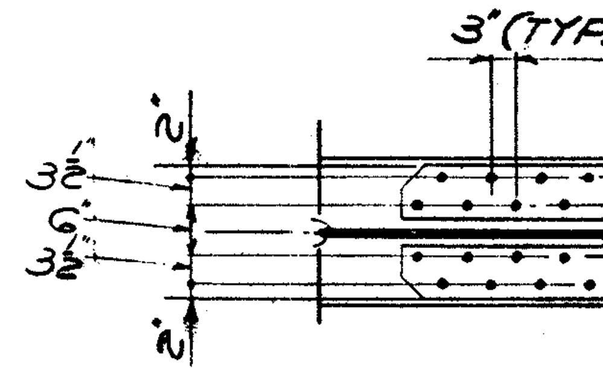
SECTION B-B

NOTE: TACK WELD NUTS TO ERECTION BOLTS IF LEFT IN PLACE.

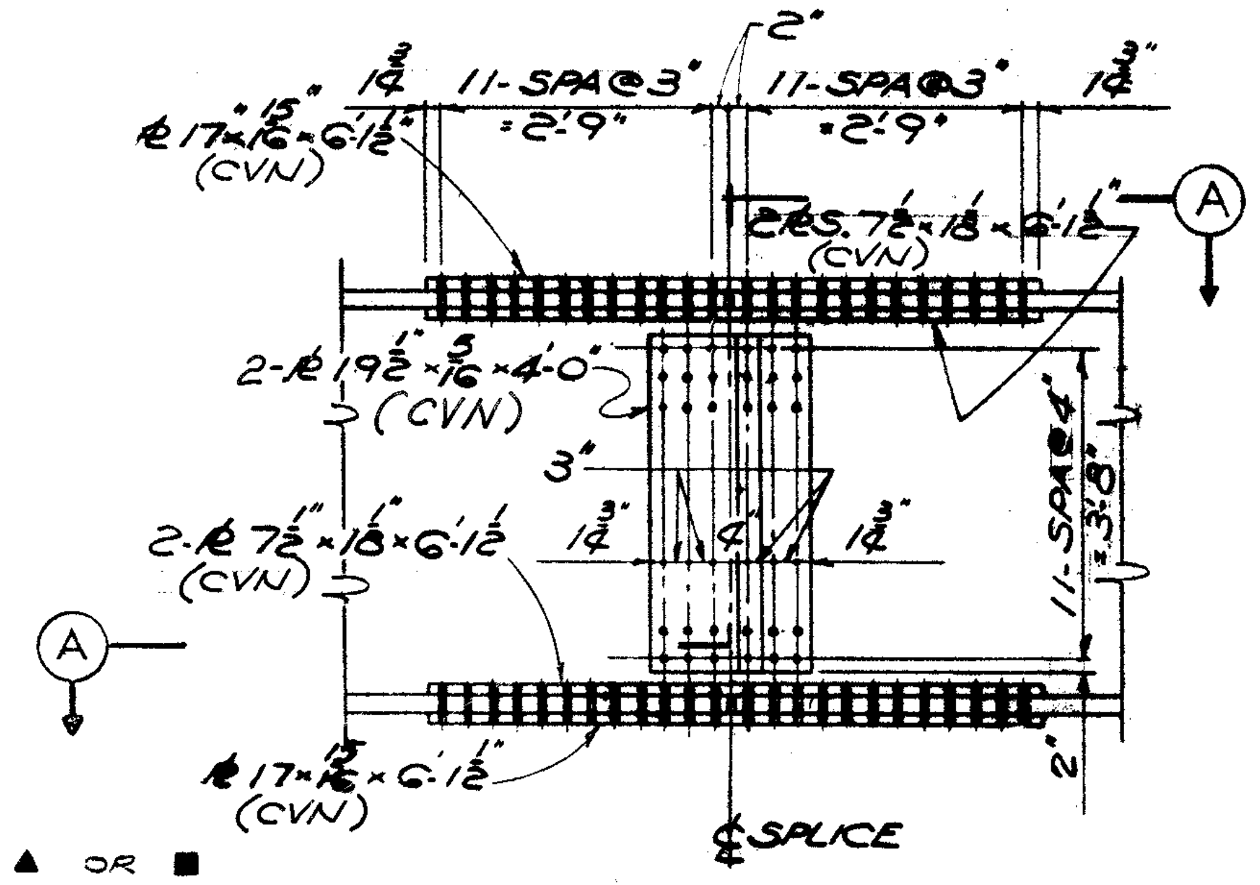


DETAIL

SPECIAL END CROSSFRAME MARKED THUS ▲ OR ■ FOR DETAILS NOT SHOWN SEE STANDARD DRAWING SD-1-69 SHEET NO. 1

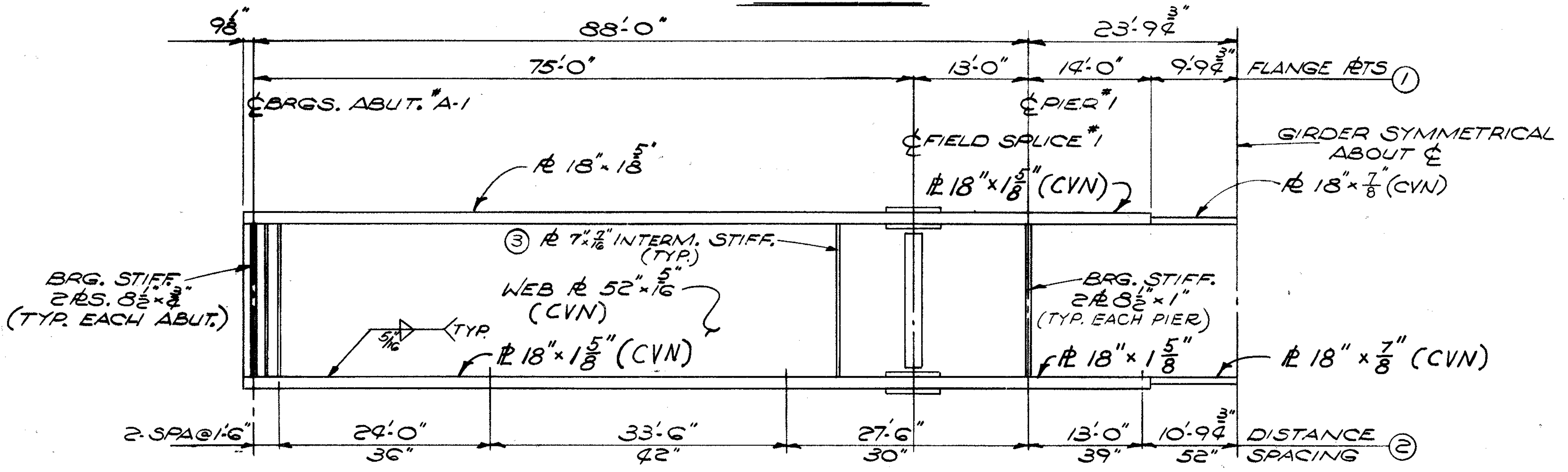


SECTION A-A



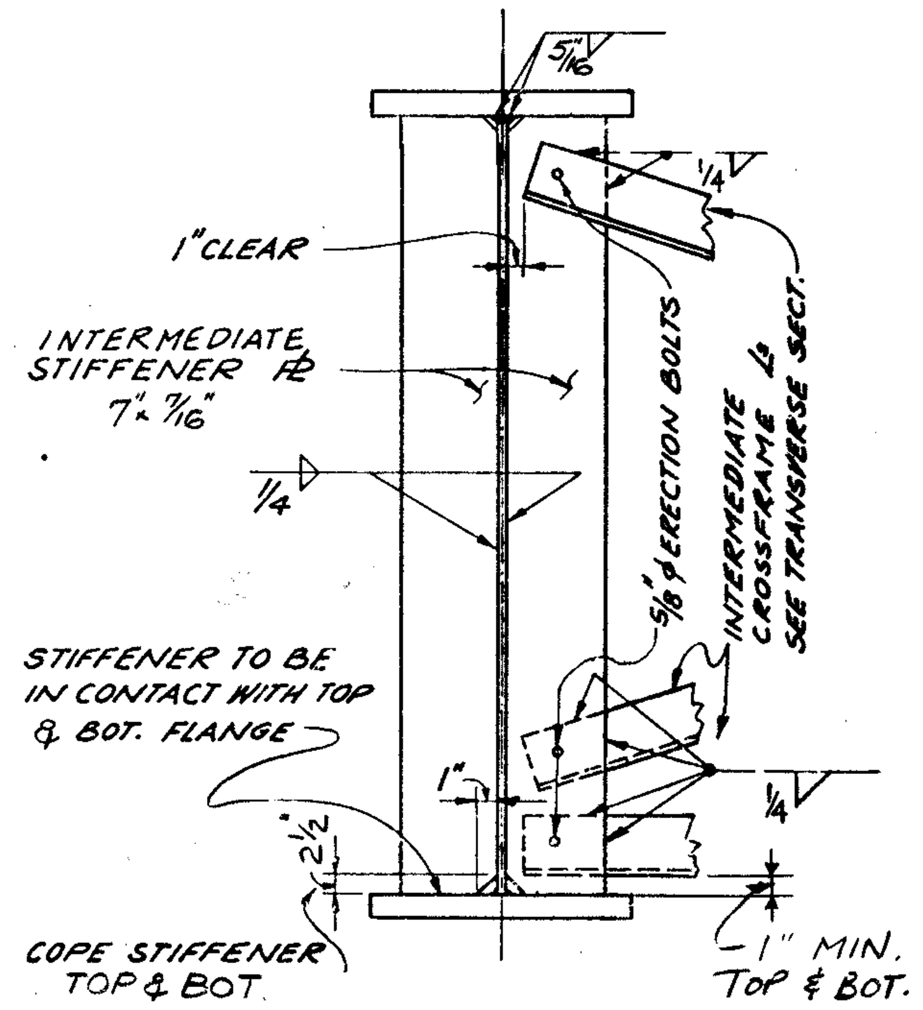
ELEVATION

SPLICE DETAILS



PARTIAL GIRDER ELEVATION

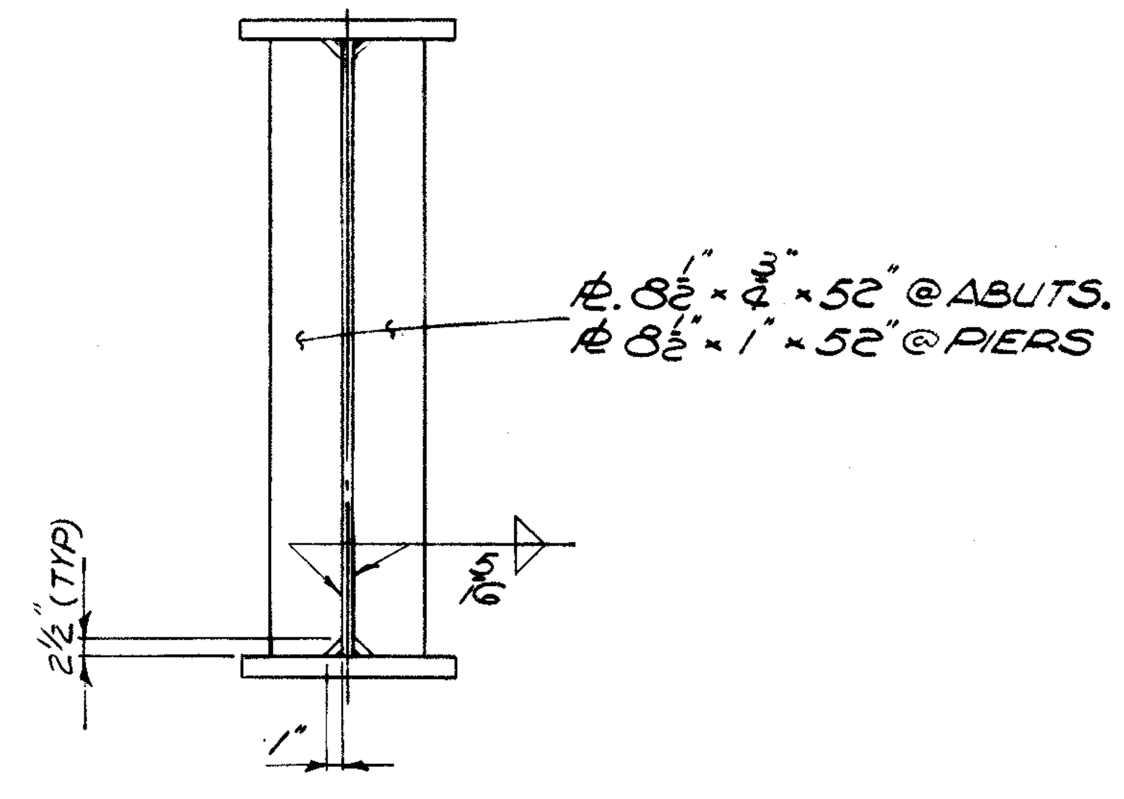
INTERM. STIFF. SPACED @ 30" FOR GIRDERS Ⓐ Ⓑ & Ⓒ



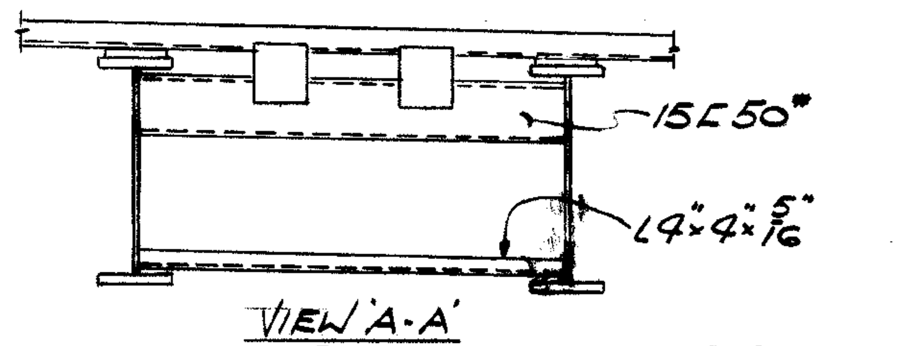
DETAIL A

INTERMEDIATE CROSSFRAME & STIFFENER ℞s.

NOTE: ERECTION BOLTS ARE OPTIONAL.



BEARING STIFFENER DETAIL



VIEW 'A-A'

SPECIAL END CROSSFRAME - FOR DETAILS NOT SHOWN SEE STD. DWG. SD-1-69 SHT. N°1

NOTES

① TOP AND BOTTOM FLANGE PLATES ARE TO BE THE SAME SIZE AND SHALL BE SPLICED AT POINTS SHOWN ON THE GIRDER ELEVATION.

② INTERMEDIATE STIFFENERS SHALL BE PLACED IN PAIRS EQUALLY SPACED BETWEEN FIELD SPLICE ANGLES AND/OR CROSSFRAME STIFFENERS AND/OR BEARING STIFFENERS IN ACCORDANCE WITH MAXIMUM STIFFENER SPACING SHOWN ON THE GIRDER ELEVATION.

③ INTERMEDIATE STIFFENERS SHALL HAVE CONTACT BEARING WITH THE TOP & BOTTOM FLANGE OF THE GIRDER.

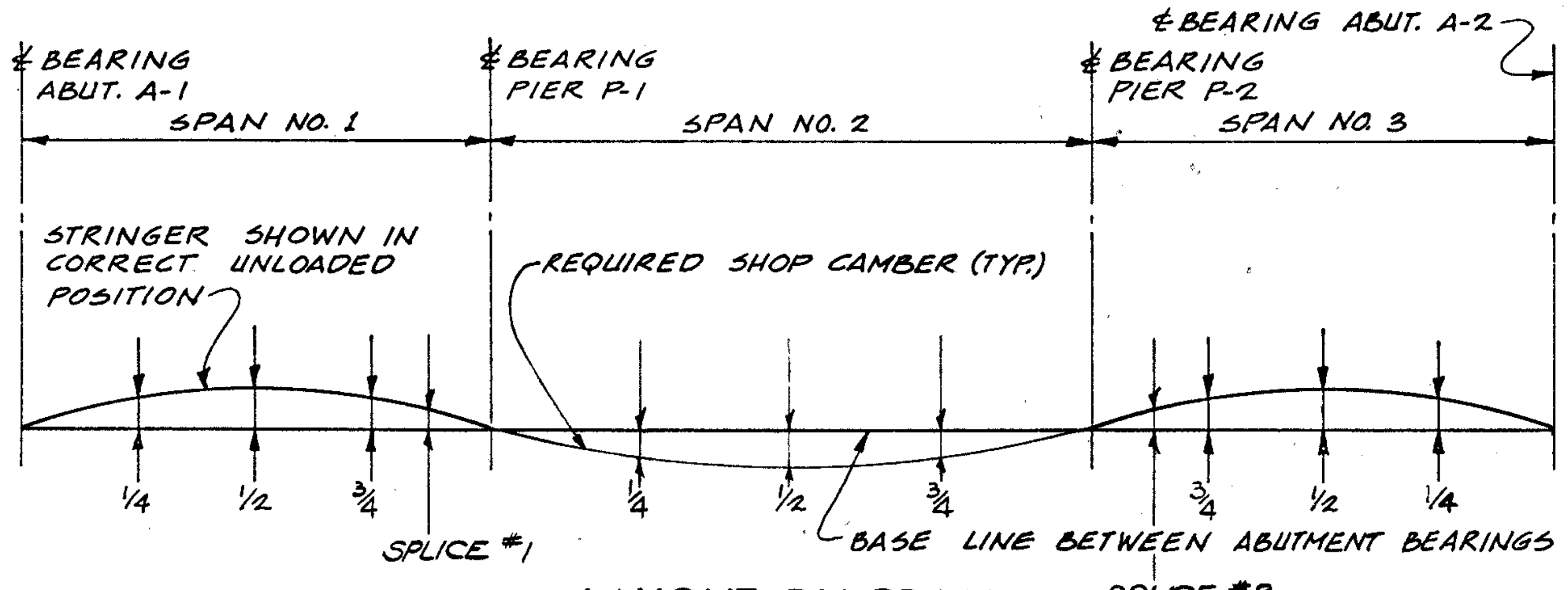
④ ALL GIRDER FIELD SPLICES SHALL BE MADE WITH 1" ⌀ HIGH STRENGTH STEEL BOLTS. THE BOLTS SHALL BE PLACED WITH THEIR HEADS ON THE OUTSIDE FACE OF EXTERIOR GIRDERS AND ON THE BOTTOM OF ALL FLANGE PLATES.

⑤ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 7 / 8

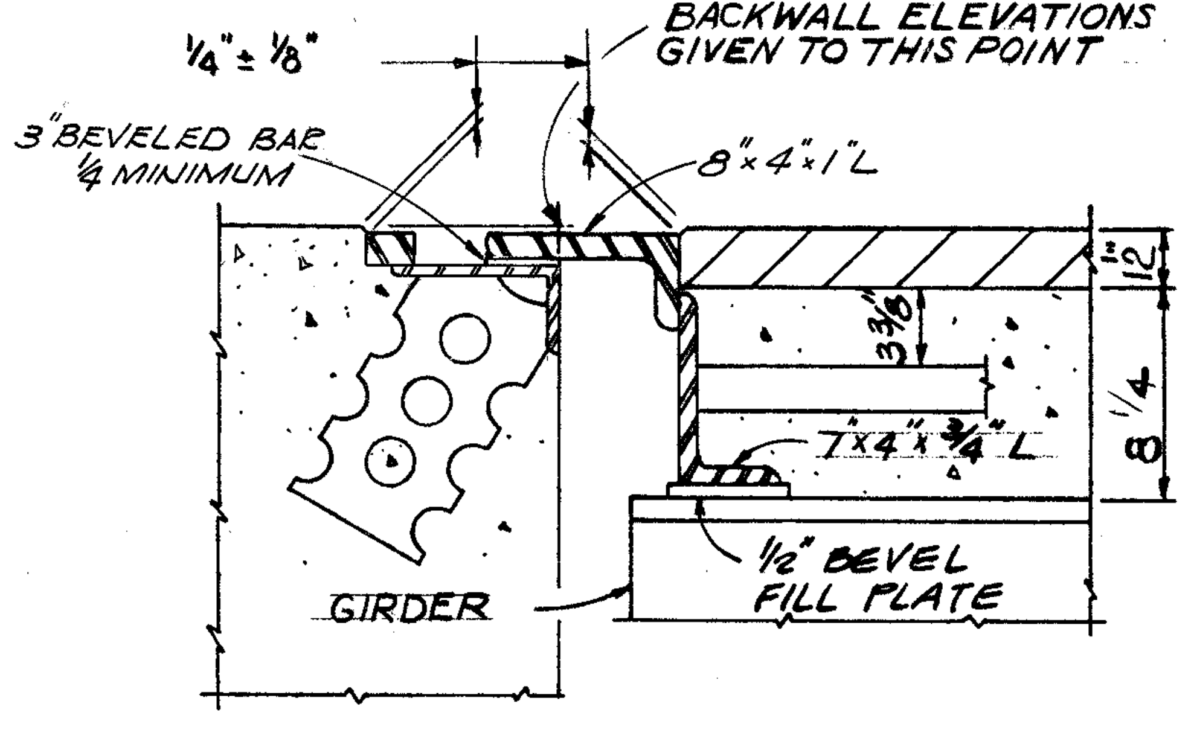
EXTRA SUPPORT ANGLES FOR THE C.E.I. AND M.E.L.P. DUCTS SHALL BE ATTACHED TO THE INTERMEDIATE STIFFENERS, THEREFORE, STIFFENER SPACING FOR GIRDERS A, B & C WILL BE DIFFERENT THAN FOR GIRDERS D & E.

DEFLECTION & CAMBER

SPANS	#1 & #3				#2		
POINTS	¼	½	¾	SPLICE	¼	½	¾
DEFLECTION DUE TO WEIGHT OF STEEL	3/16"	¼"	⅛"	1/16"	-1/16"	-1/16"	-1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	11/16"	⅞"	9/16"	5/16"	-3/16"	-¼"	-3/16"
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	–	–	–	–	–	–	–
REQUIRED SHOP CAMBER	⅞"	1⅛"	11/16"	⅜"	-¼"	-5/16"	-¼"



LAYOUT DIAGRAM



SECTION C-C

ROADWAY END DAM FOR ADDITIONAL DETAILS, SEE STD. DWG. SD-1-69, SHEET 1 OF 4.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

6 / 8

DALTON · DALTON ASSOCIATES

FRAMING PLAN

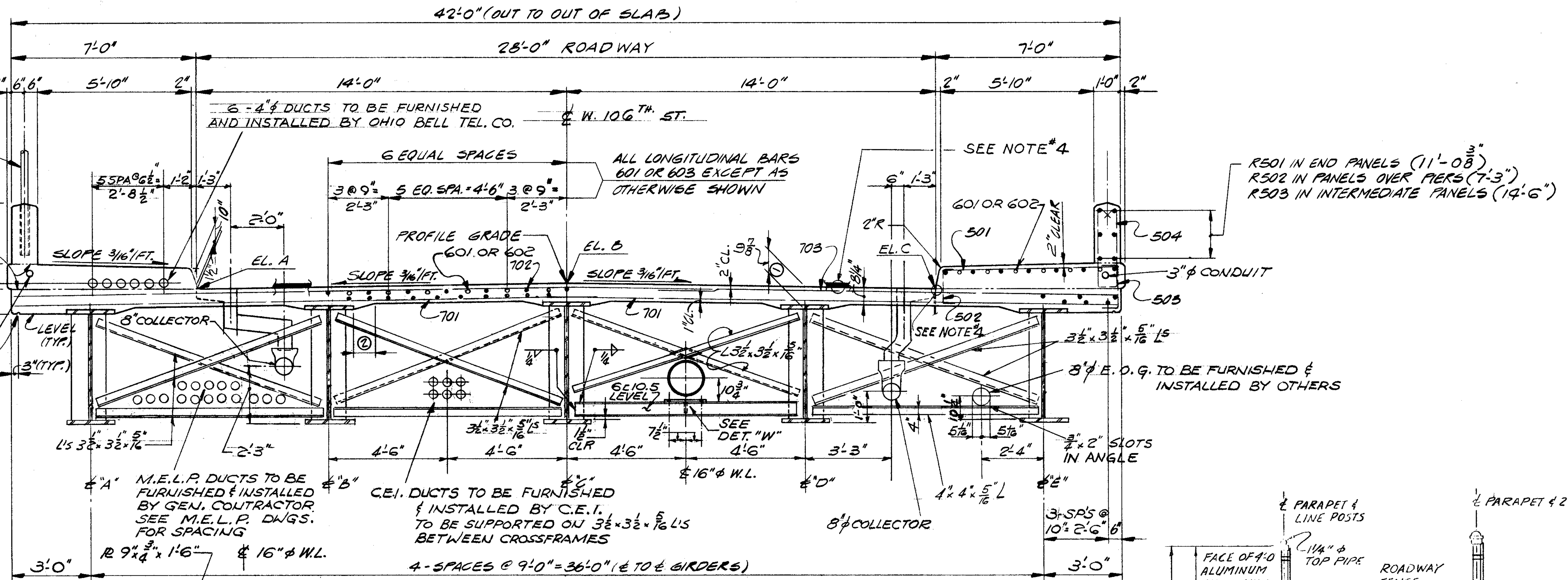
BRIDGE NO. CUY - 90 - 1105
UNDER W. 106th ST.
I-90 CUYAHOGA COUNTY
STA. 758 + 63.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		HGH	RDH	2-25-70	

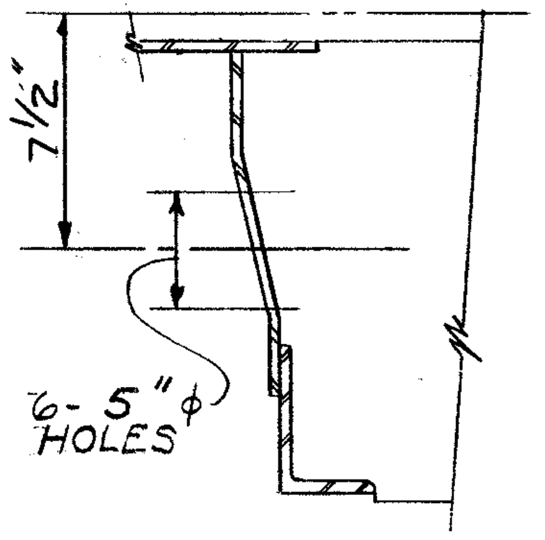
FED. RD.	STATE	PROJECT
2	OHIO	

446
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

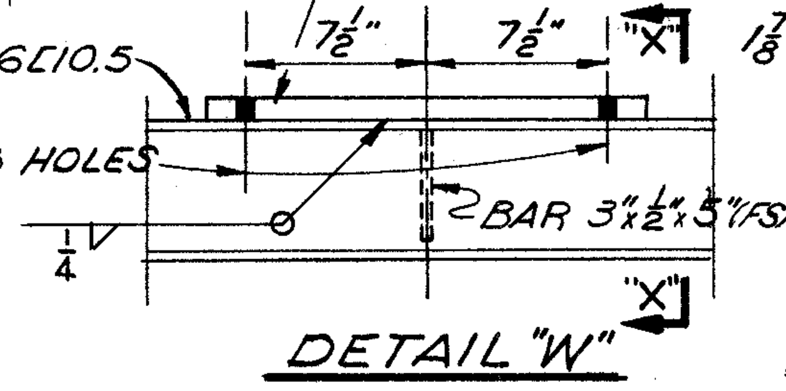


TRANSVERSE SECTION

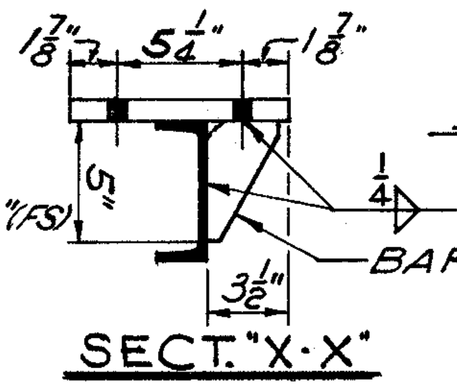


SECTION C-C

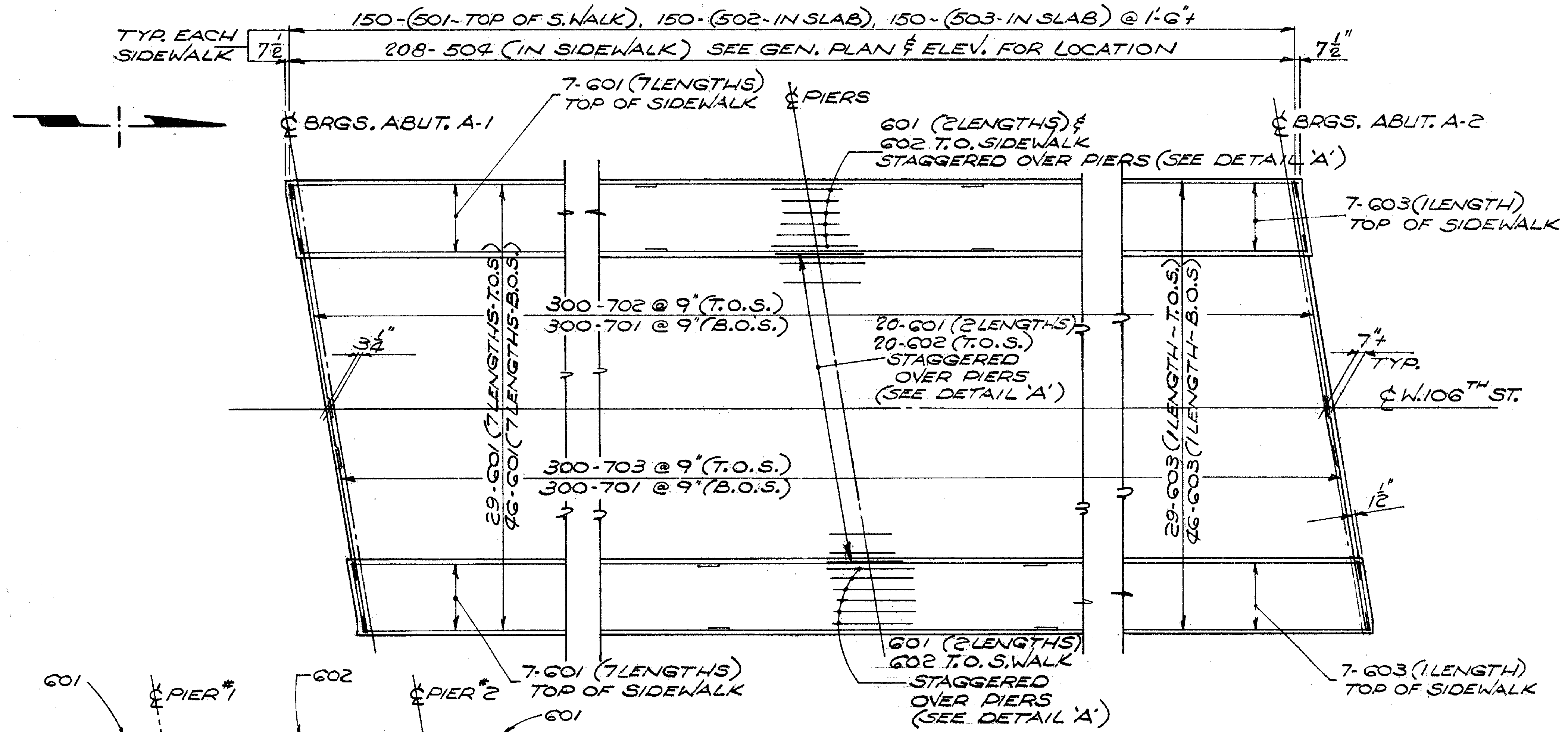
SIDEWALK END DAM FOR DETAILS NOT SHOWN SEE STD. DWG. SD-1-69 SHT NO1



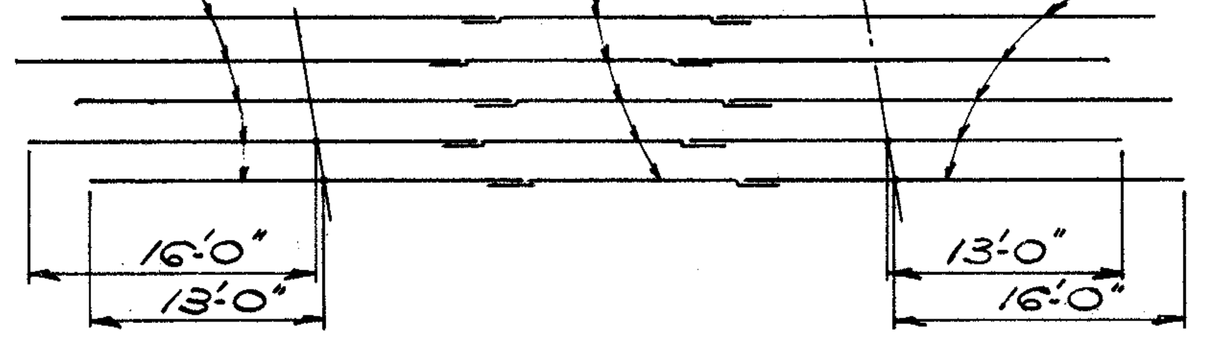
DETAIL "W"



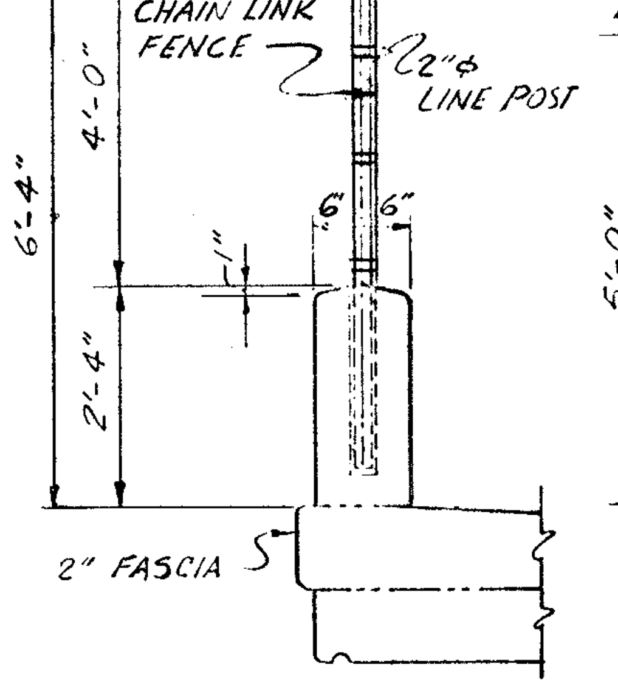
SECT. "X-X"



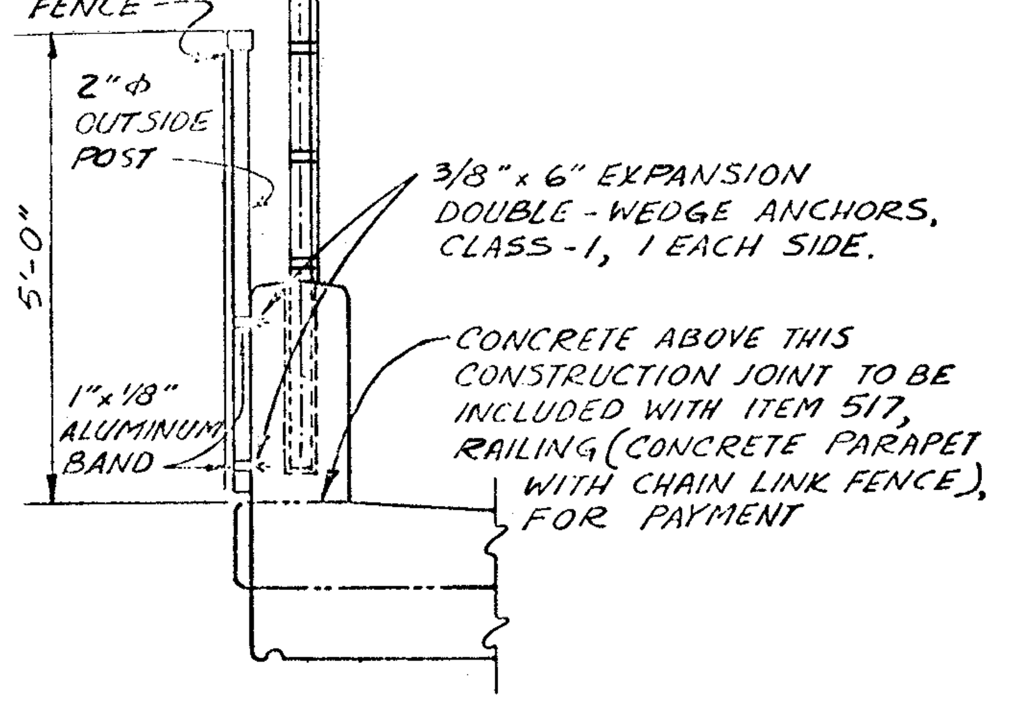
SLAB PLAN



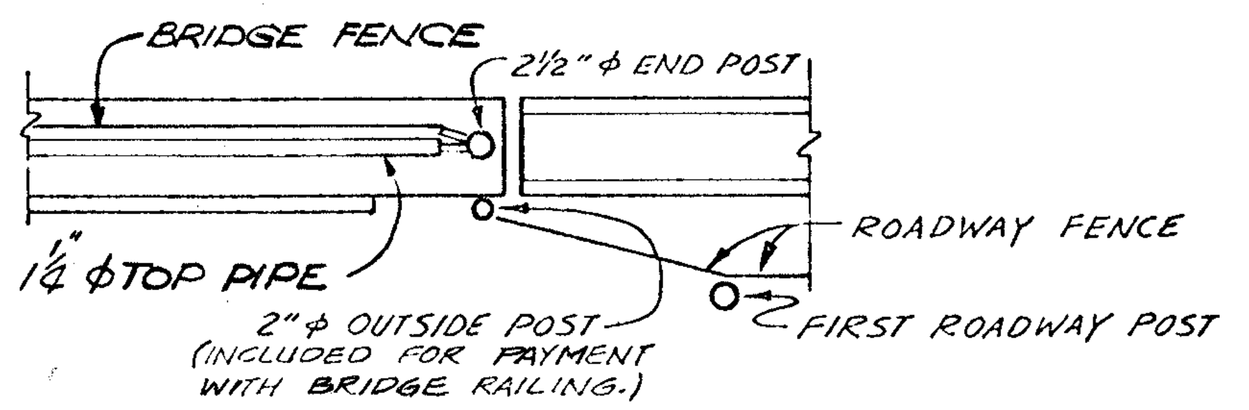
DETAIL A



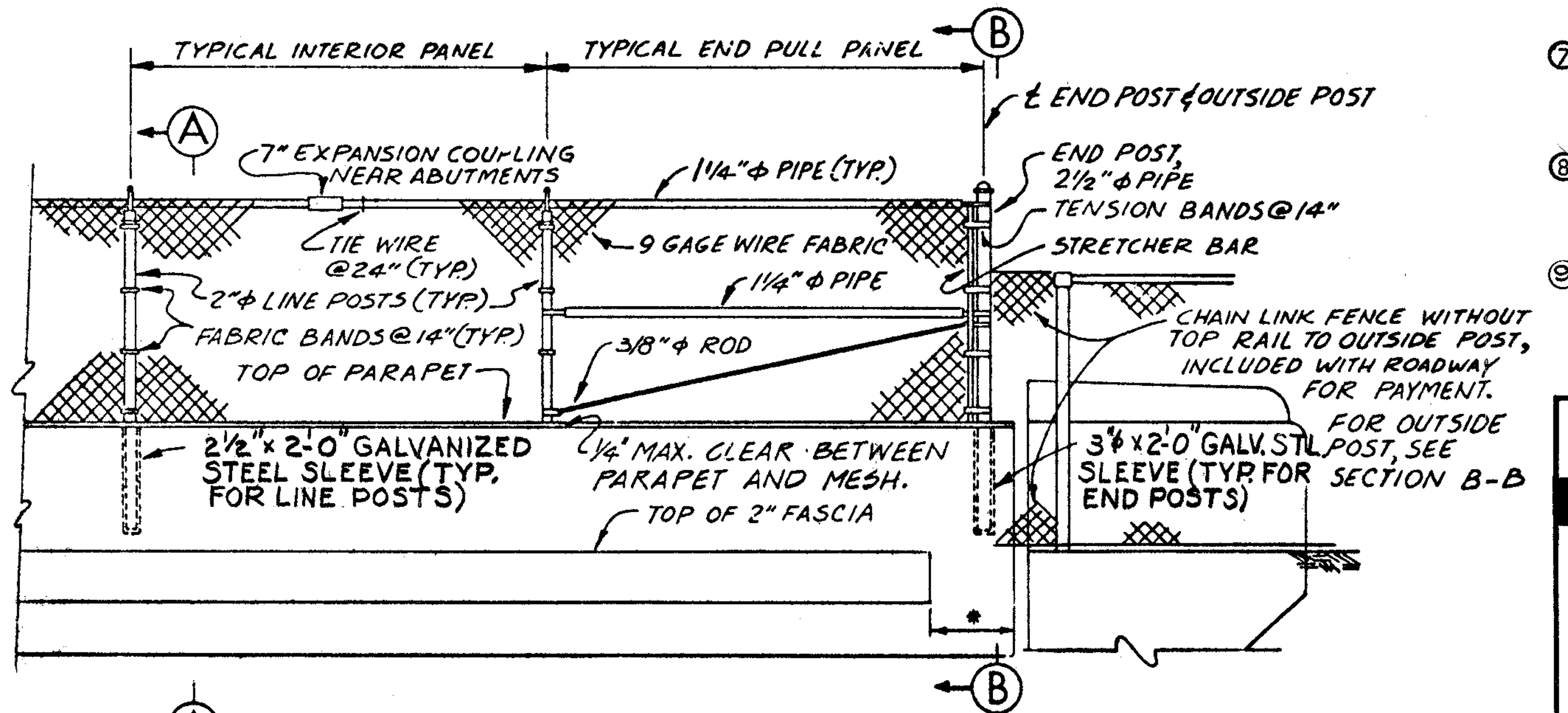
SECTION A-A



SECTION B-B



TYPICAL RAILING PLAN



Ⓐ **TYPICAL RAILING ELEVATION**

* 2" FACIA AT OUTSIDE FACE STOPPED TO CLEAR FACE OF ABUTMENT BY 5½"

TABLE OF ELEVATIONS				
ELEVATION		EL. A ⑤	EL B ⑤	EL. C ⑤
@ ℄ BRG. (A-1)		741.82	742.05	741.84
¼ PT.		741.96	742.19	741.98
½ PT.		742.06	742.28	742.07
¾ PT.		742.12	742.35	742.14
@ ℄ BRG (P-1)		742.15	742.38	742.17
¼ PT.		742.18	742.41	742.20
½ PT.		742.22	742.45	742.24
¾ PT.		742.27	742.50	742.29
@ ℄ BRG. (P-2)		742.33	742.56	742.35
¼ PT.		742.47	742.69	742.49
½ PT.		742.57	742.80	742.59
¾ PT.		742.64	742.87	742.66
@ ℄ BRG. (A-2)		742.67	742.90	742.69

NOTES

① THIS IS THE NOMINAL DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF STEEL PLATES AS PER 511.18.

② A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

③ INTERMEDIATE CROSSFRAME ANGLES PER TRANSVERSE SECTION ON THIS SHEET.

④ SEE SHEET 411-A FOR SUBDRAINAGE AND ASPHALT CONCRETE WEARING SURFACE DETAILS.

⑤ **ELEVATIONS SHOWN ARE ON TOP OF THE CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE AND ASPHALT WEARING SURFACE.**

⑥ TRANSVERSE REINFORCEMENT SHALL BE FIELD BENT AS REQUIRED AND PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL.

⑦ THE PREFIX "S" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE UNLESS SHOWN OTHERWISE.

⑧ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 6/8

⑨ FOR PARAPET & FENCE POST SPACING SEE GENERAL PLAN AND ELEVATION SHEET 2/8

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

7/8

DALTON · DALTON ASSOCIATES

SLAB PLAN & SECTION

BRIDGE NO. CUY - 90 - 1105
UNDER W. 106th ST.
I-90 CUYAHOGA COUNTY
STA. 758 + 63.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	J.W.W.		HGH.	RDH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

ABUTMENT A-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
1A 501	46	19- 9	ST						948
1A 502	46	19- 0	ST						912
1A 503	46	7- 2	2	2- 0	3- 5				344
1A 504	46	6- 6	12	2- 4	4- 3	3- 0			312
1A 505	14	30- 0	ST						438
1A 506	14	16- 8	ST						243
1A 507	1	32- 8	ST						34
1A 508	3	7-10	ST						25
1A 509	2	8- 3	ST						17
1A 510	1	7- 4	ST						8
1A 511	12	9- 6	ST						119
1A 512	8	3- 5	ST						29
1A 513	4	4- 4	ST						18
1A 514	2	6- 6	3	3-11	1- 2	1- 8			14
1A 515	4	3- 4	ST						14
1A 516	2	27- 4	ST						57
1A 601	92	5-11	1	1- 0	5- 0				818
1A 602	12	22- 4	26	9- 0	9- 6	1- 5	2- 0		403
1A 603	29	19- 4	26	7- 0	8- 6	1- 5	2- 0		842
1A 604	8	16- 0	ST						192
1A 605	8	17- 4	ST						208
SERIES	8-SETS	14- 3							
OF	OF 4=	TO	ST					3- 3	451
1A 606	32 BARS	4- 6							
1A 607	4	22- 8	2	10- 9	1- 5				136
1A 608	4	8- 3	12	6- 0	2- 4	1- 7			50
1A 609	2	6- 0	ST						18
SERIES	4-SETS	23-10		9- 5				5	
OF	OF 4=	TO	4	TO	1- 8	1-11		0- 7--	595
1A 610	16 BARS	25- 8		10- 4				16	
SERIES	4-SETS	16- 6		5- 9					
OF	OF 9=	TO	4	TO	1- 8	1-11		0-10	1072
1A 611	36 BARS	23- 2		9- 1					
SERIES	4-SETS	15-10		5- 5					
OF	OF 3=	TO	4	TO	1- 8	1-11		1- 3	263
1A 612	12 BARS	13- 4		4- 2					
1A 613	5	10-10	24	3- 5	0- 5	1- 3	1- 7		81
1A 614	14	8-11	24	1- 8	0- 5	1- 6	2- 3		187
1A 701	46	13- 6	ST						1269
1A 702	34	30- 0	ST						2085
1A 703	34	17- 2	ST						1193
1A 704	18	29- 5	ST						1082
1A 705	38	23- 7	ST						1832
1A 706	18	17- 8	ST						650
1A 801	20	6- 2	19	1- 7	3- 0	3- 0	0- 6		329
1A 901	96	7- 1	1	1- 6	5- 9				2312
1A1001	46	16- 0	ST						3167
1A1101	16	22- 7	6	21- 0					1920
1A1102	16	9- 9	ST						829
1A1103	16	8- 2	13	1-10	6- 3	2- 4			694
1A1104	16	13- 8	13	1-10	11- 6	3-10			1162
					TOTAL ABUTMENT			A-1 =	27372

ABUTMENT A-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
2A 501	46	21- 5	ST						1028
2A 502	46	20- 8	ST						992
2A 503	46	7- 2	2	2- 0	3- 5				344
2A 504	46	6- 6	12	2- 4	4- 3	3- 0			312
2A 505	7	30- 0	ST						219
2A 506	7	16- 8	ST						122
2A 507	1	32- 8	ST						34
2A 508	3	7-10	ST						25
2A 509	2	8- 3	ST						17
2A 510	1	7- 4	ST						8
2A 511	12	9- 6	ST						119
2A 512	16	3- 5	ST						57
2A 513	4	4- 4	ST						18
2A 514	2	6- 6	3	3-11	1- 2	1- 8			14
2A 515	4	3- 4	ST						14
2A 601	92	5-11	1	1- 0	5- 0				818
2A 602	12	22- 4	26	9- 0	9- 6	1- 5	2- 0		403
2A 603	29	19- 4	26	7- 0	8- 6	1- 5	2- 0		842
2A 604	8	18- 0	ST						216
2A 605	8	19- 4	ST						232
SERIES	8-SETS	16- 6							
OF	OF 4=	TO	ST					3- 8	529
2A 606	32 BARS	5- 6							
2A 607	4	22- 8	2	10- 9	1- 5				136
2A 608	4	8- 3	12	6- 0	2- 4	1- 7			50
2A 609	2	6- 0	ST						18
SERIES	4-SETS	24- 0		9- 6				11	
OF	OF 4=	TO	4	TO	1- 8	1-11		0- 6--	597
2A 610	16 BARS	25- 8		10- 4				16	
SERIES	4-SETS	17- 6		6- 3					
OF	OF 9=	TO	4	TO	1- 8	1-11		0- 9	1108
2A 611	36 BARS	23- 6		9- 3					
SERIES	4-SETS	16- 8		5-10				1	
OF	OF 5=	TO	4	TO	1- 8	1-11		1- 1--	433
2A 612	20 BARS	12- 2		3- 7				2	
2A 701	46	13- 6	ST						1269
2A 702	34	30- 0	ST						2085
2A 703	34	17- 2	ST						1193
2A 704	18	29- 5	ST						1082
2A 705	38	23- 7	ST						1832
2A 706	18	17- 8	ST						650
2A 801	20	6- 2	19	1- 7	3- 0	3- 0	0- 6		329
2A 901	96	7- 1	1	1- 6	5- 9				2312
2A1001	46	16- 0	ST						3167
2A1101	16	24- 5	6	22-10					2076
2A1102	16	9- 9	ST						829
2A1103	16	8- 2	13	1-10	6- 3	2- 2			694
2A1104	16	13- 8	13	1-10	11- 6	3-10			1162
					TOTAL ABUTMENT			A-2 =	27385

ABUTMENT A-1 WING WALL

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
SERIES	2-SETS	32- 9							
OF	OF 7=	TO	ST					1- 2	427
1W 501	14 BARS	25- 9							
1W 502	3	11- 6	ST						36
SERIES	1-SET	11- 6							
OF	OF 20=	TO	ST					0- 6	141
1W 503	20 BARS	2- 0							
1W 504	2	27- 4	ST						57
SERIES	1-SET	27- 0							
OF	OF 9=	TO	ST					1- 6	197
1W 505	9 BARS	15- 0							
1W 506	7	27- 8	ST						202
1W 507	1	31- 4	ST						33
1W 508	5	35- 8	ST						186
SERIES	1-SET	32- 6						1	
OF	OF 10=	TO	ST					3- 3--	186
1W 509	10 BARS	3- 2						8	
1W 510	2	4- 0	ST						8
1W 511	2	6- 0	ST						13
1W 512	2	8- 0	ST						17
1W 513	2	37- 0	ST						77
1W 514	5	12- 6	ST						65
1W 515	14	10- 0	ST						146
1W 516	2	31- 8	ST						66
1W 517	2	7- 0	ST						15
1W 518	2	5- 0	ST						10
1W 519	2	8- 9	ST						18
1W 520	7	14- 5	ST						105
1W 521	2	16-10	ST						35
1W 522	10	18- 5	ST						192
SERIES	1-SET	2- 6						1	
OF	OF 10=	TO	ST					3- 2--	176
1W 523	10 BARS	31- 2						4	
1W 901	24	18- 2	ST						1482
1W 902	4	15- 8	ST						213
1W1101	40	14- 1	ST						2993
1W1102	28	9- 8	13	3- 6	6- 5	0- 5			1438
1W1103	28	16- 0	13	3- 6	12- 9	0-10			2380
1W1104	38	9- 0	ST						1817
				TOTAL	ABUTMENT	A-1 WING	WALL =		12731

ABUTMENT A-2 WING WALL

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
SERIES	2-SETS	19- 6							
OF	OF 7=	TO	ST					1- 9	208
2W 501	14 BARS	9- 0							
2W 502	4	13- 6	ST						56
SERIES	1-SET	13- 1						1	
OF	OF 27=	TO	ST					0- 4--	231
2W 503	27 BARS	3- 4						2	
2W 504	3	29- 0	ST						91
SERIES	1-SET	28- 5						9	
OF	OF 25=	TO	ST					0- 6--	569
2W 505	25 BARS	15- 3						16	
2W 506	15	19- 4	ST						302
2W 507	5	21- 4	ST						111
2W 508	1	22- 9	ST						24
SERIES	1-SET	16- 3						1	
OF	OF 5=	TO	ST					3- 4--	50
2W 509	5 BARS	2- 9						2	
2W 510	2	4- 1	ST						9
2W 511	2	6- 0	ST						13
2W 512	2	7- 6	ST						16
2W 513	2	18- 0	ST						38
2W 514	5	12- 6	ST						65
2W 515	28	10- 0	ST						292
2W 516	3	29- 0	ST						91
2W 517	2	30- 6	ST						64
SERIES	1-SET	23- 0							
OF	OF 5=	TO	ST					5- 3	65
2W 518	5 BARS	2- 0							
2W 519	16	30- 0	ST						501
2W 520	2	18- 9	ST						39
2W 521	2	8- 3	ST						17
2W 522	1	27- 1	ST						28
2W 523	2	6- 9	ST						14
2W 524	2	5- 0	ST						10
2W 525	5	20- 6	ST						107
2W 526	3	28- 7	ST						89
2W 527	1	21- 9	ST						23
2W 528	1	26- 0	ST						27
SERIES	1-SET	2- 0						1	
OF	OF 5=	TO	ST					5- 0--	63
2W 529	5 BARS	22- 1						4	
2W 530	30	10- 3	ST						321
SERIES	1-SET	4- 0						1	
OF	OF 5=	TO	ST					2-11--	52
2W 531	5 BARS	15-10						2	
2W 901	33	18- 2	ST						2038
SERIES	1-SET	17- 9						7	
OF	OF 9=	TO	ST					0- 3--	504
2W 902	9 BARS	15- 2						8	
2W1101	58	14- 1	ST						4340
2W1102	42	9- 8	13	3- 6	6- 5	0- 5			2157
2W1103	42	16- 0	13	3- 6	12- 9	0-10			3570
2W1104	58	9- 0	ST						2773
				TOTAL	ABUTMENT	A-2 WING	WALL =		18968

PIER P-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
1P 501	120	8-10	2	3- 8	1- 9				1106
1P 502	12	2- 9	ST						34
1P 503	24	10- 5	2	4- 0	2- 8				261
1P 601	4	39- 8	ST						238
1P 602	4	7- 4	12	3- 0	4- 4	0- 6			44
1P 901	60	8- 8	ST						1768
1P1001	4	31- 0	ST						534
1P1002	32	20- 4	ST						2800
1P1003	32	6- 9	1	1- 0	6- 0				929
1P1101	6	46- 2	2	3- 6	39- 8				1472
1P1102	4	15- 0	1	3- 3	12- 0				319
						TOTAL	PIER	P-1 =	9505

PIER P-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
2P 501	120	8-10	2	3- 8	1- 9				1106
2P 502	12	2- 9	ST						34
2P 503	24	10- 5	2	4- 0	2- 8				261
2P 601	4	39- 8	ST						238
2P 602	4	7- 4	12	3- 0	4- 4	0- 6			44
2P 901	60	8- 8	ST						1768
2P1001	4	31- 0	ST						534
2P1002	32	20- 4	ST						2800
2P1003	32	6- 9	1	1- 0	6- 0				929
2P1101	6	46- 2	2	3- 6	39- 8				1472
2P1102	4	15- 0	1	3- 3	12- 0				319
						TOTAL	PIER	P-2 =	9505

SUPERSTRUCTURE

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
S 501	300	6- 8	ST						2086
S 502	300	2- 1	2	0- 6	1- 4				652
S 503	300	2- 4	2	0- 6	1- 7				730
S 504	416	7- 7	5	0- 8	3- 2				3290
S 601	687	30- 0	ST						30956
S 602	32	20- 6	ST						985
S 603	89	28- 3	ST						3776
S 701	600	22- 0	ST						26981
S 702	300	26- 6	ST						16250
S 703	300	17- 6	ST						10731
				TOTAL	SUPERSTRUCTURE			=	96437

RAILING*

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
R 501	24	10- 6	ST						
R 502	144	6-11	ST						
R 503	96	14- 2	ST						
R 504	16	7- 7	5	0- 8	3- 2				
R 505	24	4- 8	ST						
R 506	8	6- 7	27	1- 0					
R 507	16	3- 3	9	1- 6	0- 6				
R 508	8	7- 8	3	2- 9	4- 8	0- 6			

*RAILING REINFORCEMENT BARS WILL BE INCLUDED AS PART OF ITEM 517 FOR PAYMENT.

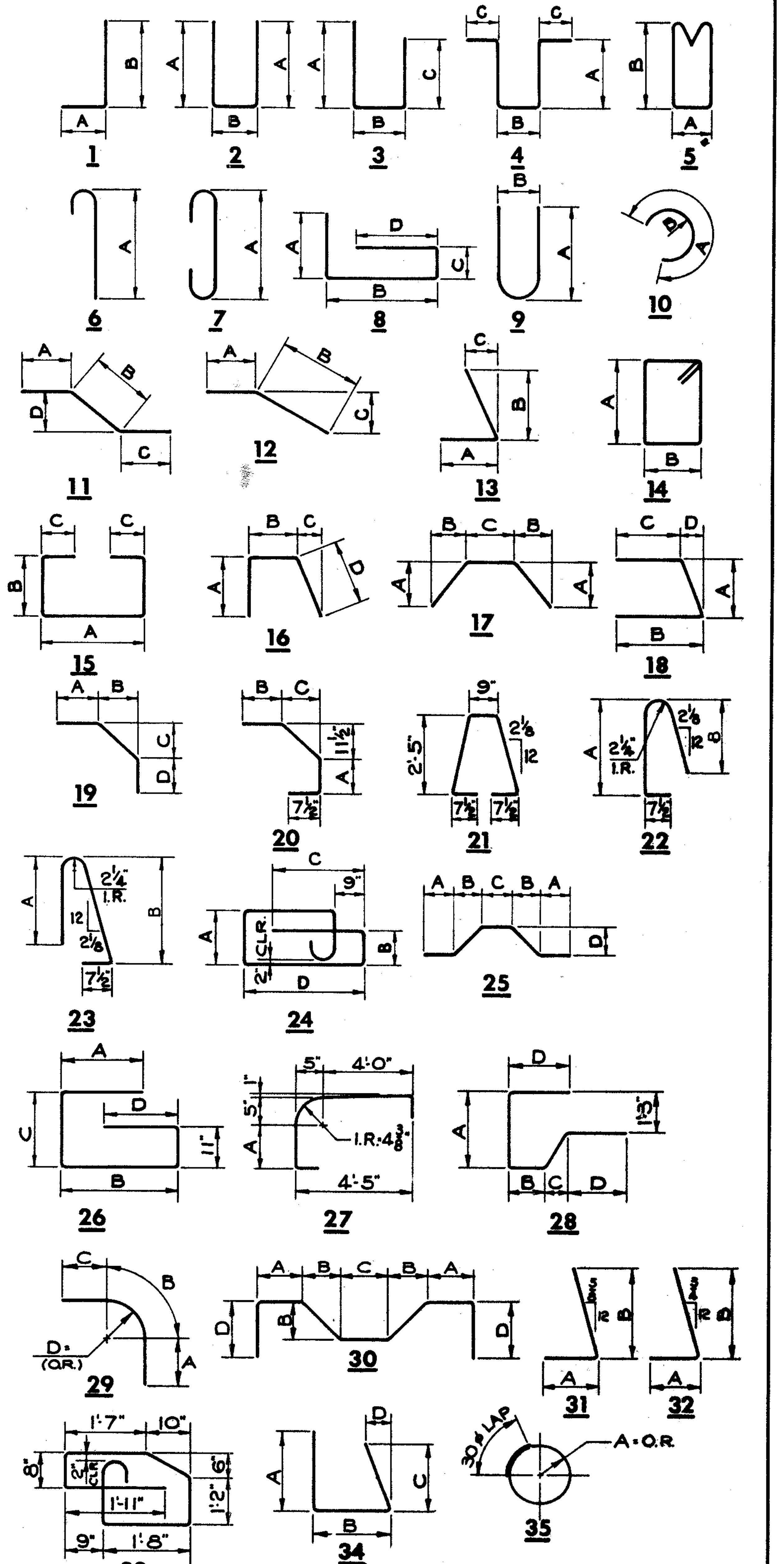
ABUTMENT TOTAL =	86,456
PIER TOTAL =	20,873
SUPERSTRUCTURE TOTAL =	96,437
GRAND TOTAL =	203,766

SPIRAL REINFORCING SCHEDULE

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
SPIRALS-PIER P-1					
1P-SP401	3	2- 8	16- 4	4.50	927
		TOTAL	SPIRALS-PIER	P-1 =	927
SPIRALS-PIER P-2					
2P-SP401	3	2- 8	16- 6	4.50	936
		TOTAL	SPIRALS-PIER	P-2 =	936

FOUR ANGLE SPACERS WEIGHING APPROX. 0.80 LBS. PER LINEAL FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT LISTED ABOVE. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED SPIRAL WEIGHT.

THE LENGTH SHOWN IN THE STEEL SCHEDULE FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE TOP OF THE COLUMN INCLUDING THREE (3) CLOSED COILS (ONE AND ONE HALF CLOSED COILS AT THE ENDS OF EACH SPIRAL UNIT).



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

8 / 8

DALTON · DALTON ASSOCIATES

REINFORCING SCHEDULE

BRIDGE NO. CUY-90-1105
UNDER W. 106 th. ST.
I-90 CUYAHOGA COUNTY
STA. 758 +63.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ JFP	JWW		JFP	RDH	2-25-70	

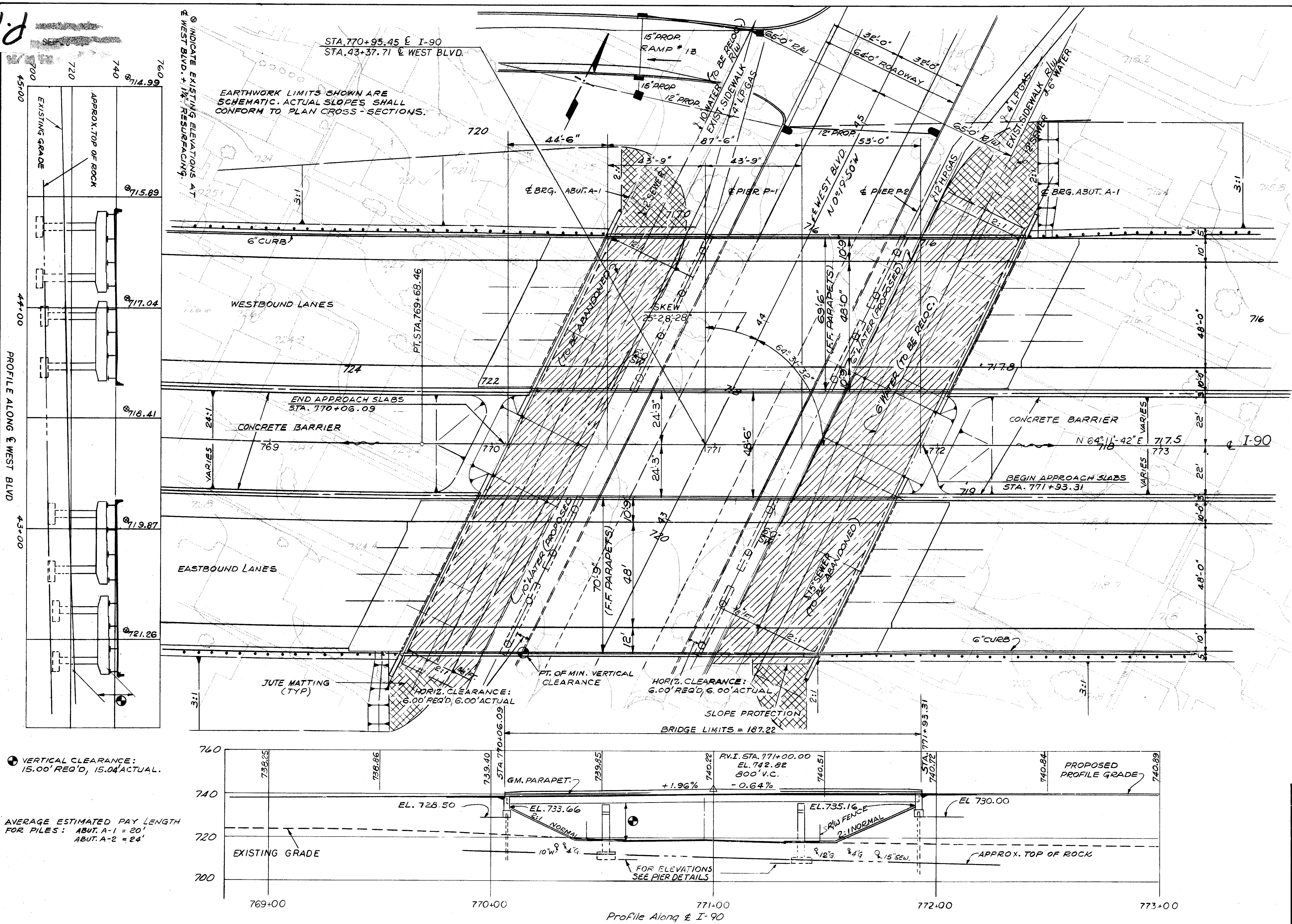
P.18

[redacted]

FED. RD.	STATE	PROJECT	
2	OHIO		

448
713

CUYAHOGA COUNTY
CUY - 90-10.40



● VERTICAL CLEARANCE: 15.00' REQ'D, 15.04' ACTUAL.

AVERAGE ESTIMATED PAY LENGTH FOR PILES:
ABUT. A-1 = 20'
ABUT. A-2 = 24'

CURVE DATA

℄ I-90

P.I. STA. 763+43.32
Δ = 18°-30'-00"
D_C = 1°-28'-00"
R = 3906.53'
T = 636.22'
L_C = 1261.36'

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES. INTEGRAL ABUT.'S.
SKEW: 25°-28'-28" L.F.
SPANS: 44'-6", 87'-6", 53'-0"
ROADWAY: 69'-6" F.F. PARAPETS W.B. LANES
70'-9" F.F. PARAPETS E.B. LANES
LOADING: HS 20-44 AND INT. ALT. LOADING.
WEARING SURFACE: 1½" ASPHALT CONCRETE.
APPROACH SLABS: 25' LONG (AS-1-72)
ALIGNMENT: TANGENT.
SUPERELEVATION: TRANSITION.
SLOPE PROTECTION: CONCRETE SLOPE PAVING.

TRAFFIC: I-90 133,356 A.D.T. 1975.
WEST BLVD. 19,200 A.D.T. 1975.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1 / 14

DALTON · DALTON ASSOCIATES

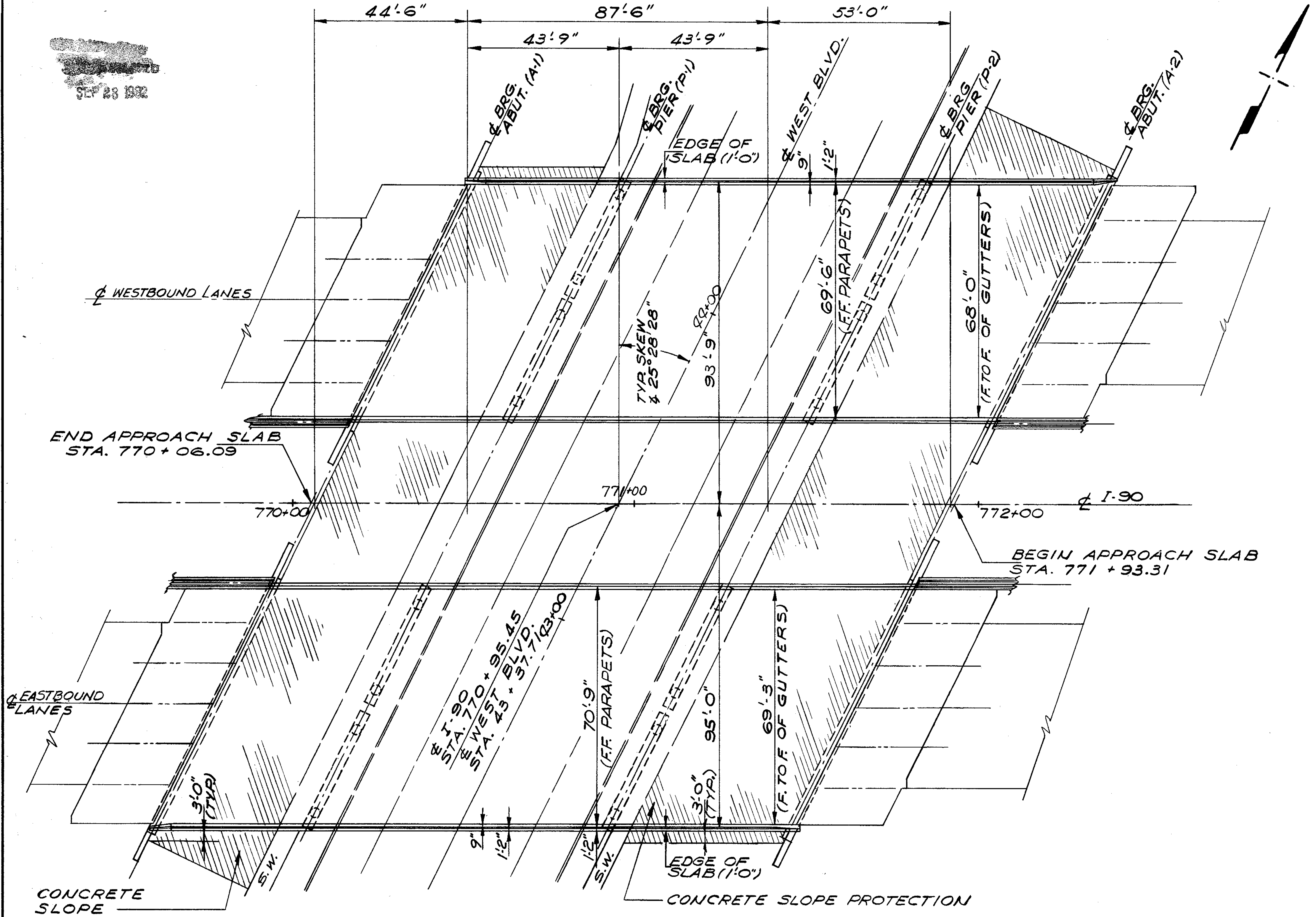
SITE PLAN

BRIDGE NO. CUY-90-1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 **TO STA.** 771+93.31

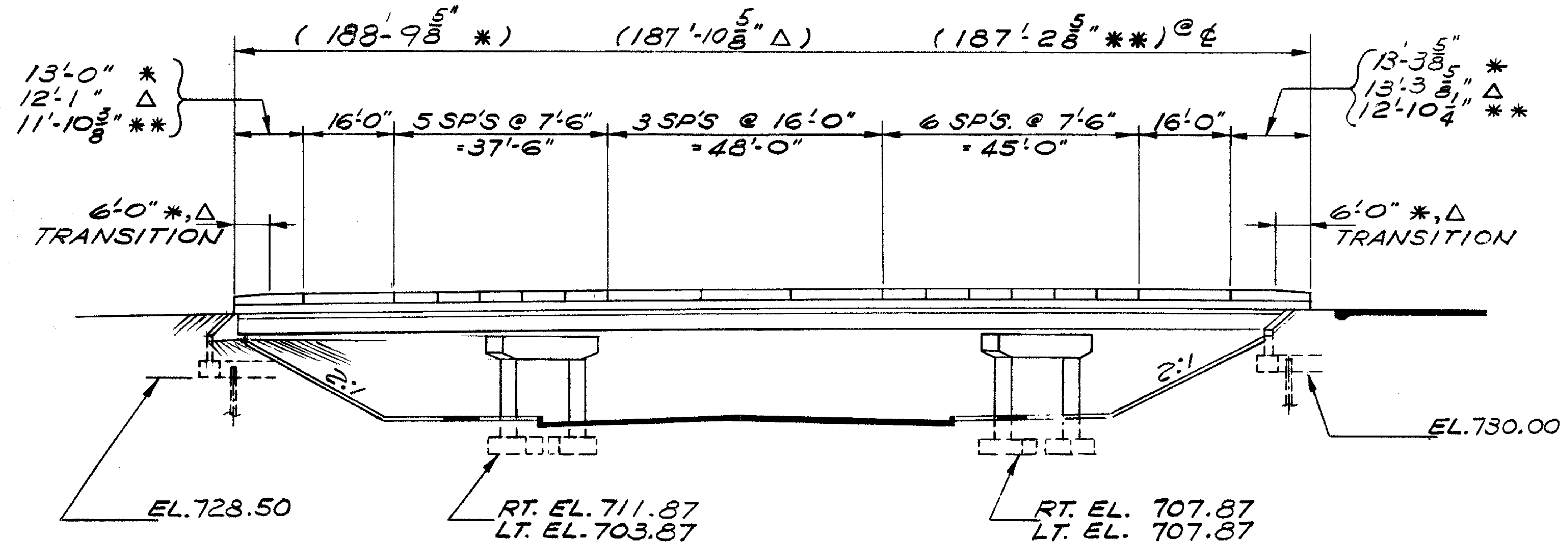
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	J.K.		JWW	RDH	3-2-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

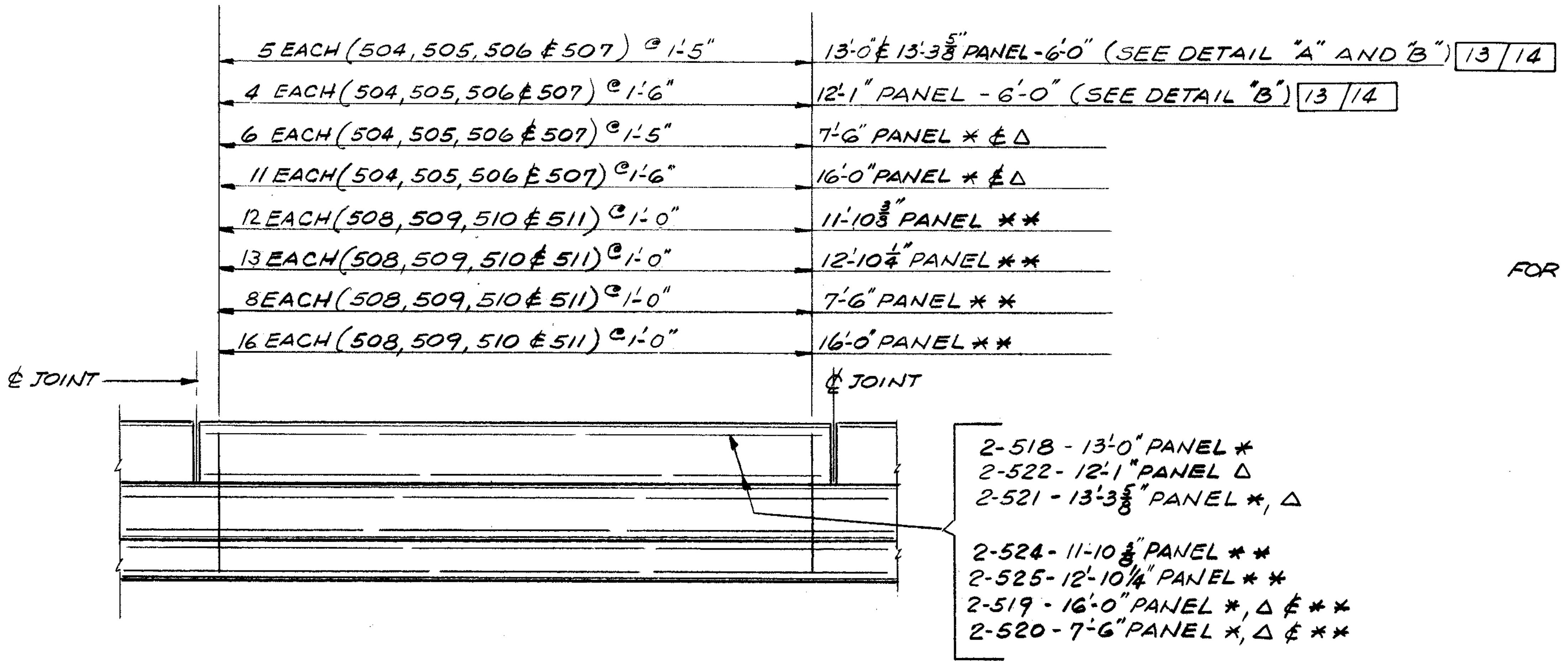
CUYAHOGA COUNTY
CUY - 90 - 10.40



PLAN



ELEVATION



ELEVATION

FOR STRUCTURAL GENERAL NOTES SEE SHT. 411

* DENOTES CONCRETE BARRIER CURB (NORTH RAIL - W.B. LANES)
△ DENOTES CONCRETE BARRIER CURB (SOUTH RAIL - E.B. LANES)
** DENOTES CONCRETE BARRIER CURB (SOUTH RAIL W.B. LANES AND NORTH RAIL E.B. LANES)

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
404	114	CY	ASPHALT CONCRETE AC-20	114					
				38					
SPEC	2860	SY	MEMBRANE WATERPROOFING, HOT APPLIED LIQUID (SEE PROPOSAL NOTE)	2860					
503	LUMP	LSUM	COFFERDAMS, CRIBS AND SHEETING						
503	448	CY	UNCLASSIFIED EXCAVATION		448				
503	534	CY	UNCLASSIFIED EXCAVATION INCLUDING SHALE			534			
505	LUMP	LSUM	TEST PILE						
507	1936	LF	STEEL PILES, HP10X42		1936				
509	413,900	LB	REINFORCING STEEL	289,520	28775	95605			
511	894	CY	CLASS C CONCRETE, SUPERSTRUCTURE	894					
511	234	CY	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			234			
511	151	CY	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS		151				
511	283	CY	CLASS C CONCRETE, FOOTINGS		139	144			
512	380	LF	PREMOLDED SEALING STRIP		380				
513	830300	LB	STRUCTURAL STEEL	830300					
514	830300	LB	FIELD PAINTING OF STRUCTURAL STEEL	830300					
516	293	SF	1/4 IN. PREFORMED EXPANSION JOINT FILLER		293				
516	273	SF	1 IN. PREFORMED EXPANSION JOINT FILLER		273				
516	72	SF	1 1/8 IN. THICK ELASTOMERIC BEARING PADS			72			
518	156	CY	POROUS BACKFILL		156				
518	417	LF	6 IN. PERFORATED, HELICAL CMP 707.01		417				
518	220	LF	6 IN. NON-PERFORATED, HELICAL CMP INCL. SPECIALS, 707.01		220				
518	48	EACH	SUBDRAINAGE FOR WEARING COURSE AS PER PLAN	48					
601	1963	SY	CONCRETE SLOPE PROTECTION		1963				
625			SEE SHEET 496 FOR LIGHTING SUMMARY						
808	894	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	894					

QUANTITIES CHECKED BY CW 7-31-73

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

2/14

DALTON · DALTON ASSOCIATES

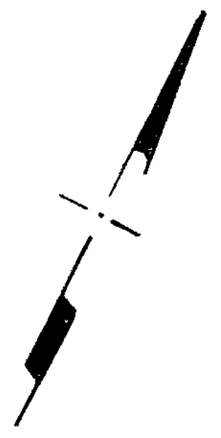
GENERAL PLAN & ELEVATION

BRIDGE NO. CUY - 90 - 1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770 + 06.09 TO STA. 771 + 93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	ALH		JWW	RDH	3-2-70	8-15-76

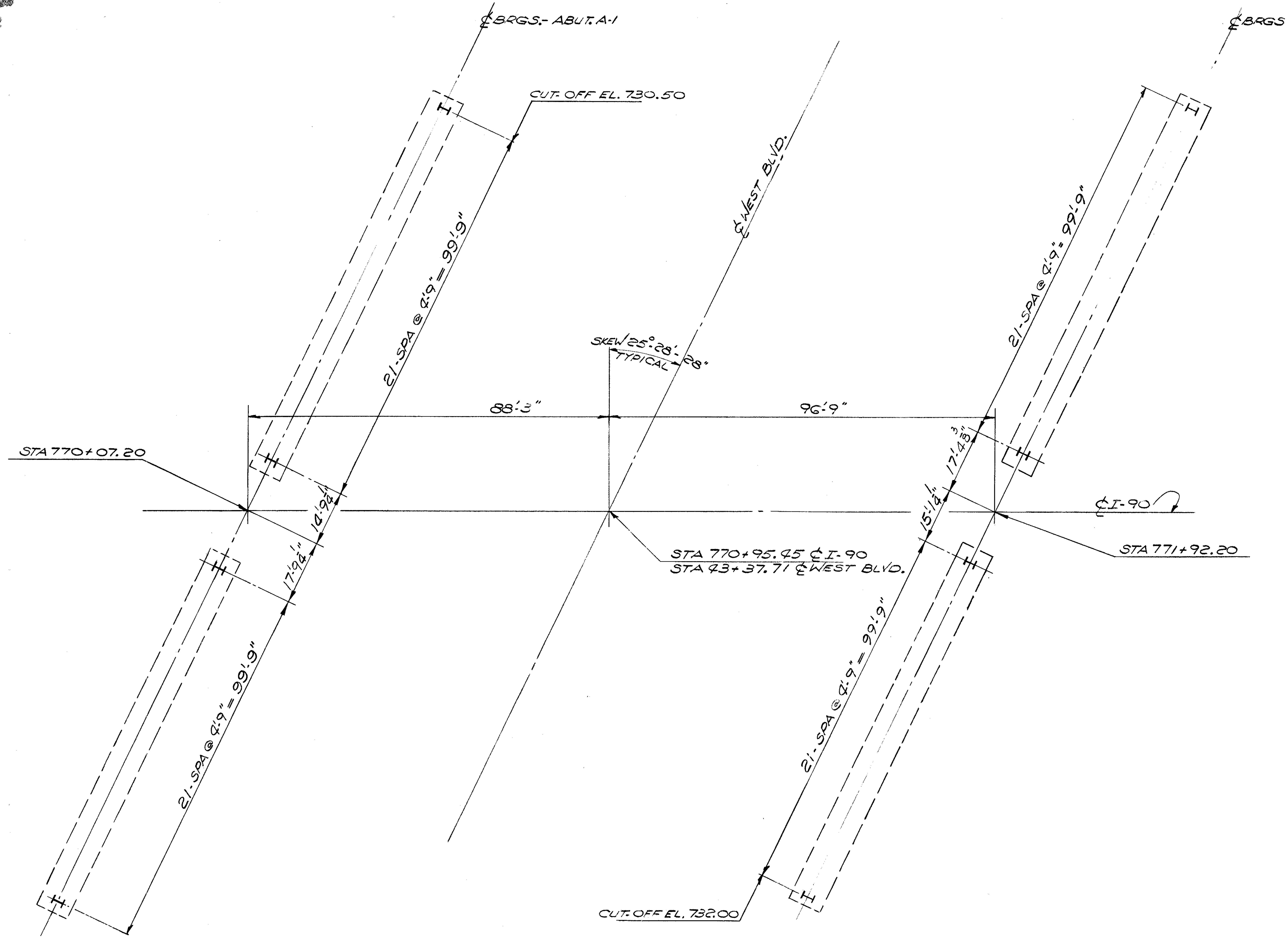
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY 90 - 10.40



PILES shall be driven to refusal on bedrock or to 20 blows per inch for the last few inches of penetration.

The design load is 35 tons per pile for the abutment piles.



PILING PLAN

NOTES

① ALL PILES SHALL BE 10BP42 STEEL PILES.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3 / 14

DALTON • DALTON ASSOCIATES

PILING PLAN

BRIDGE NO. CUY - 90 - 1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		JLH	RDH	3-2-70	

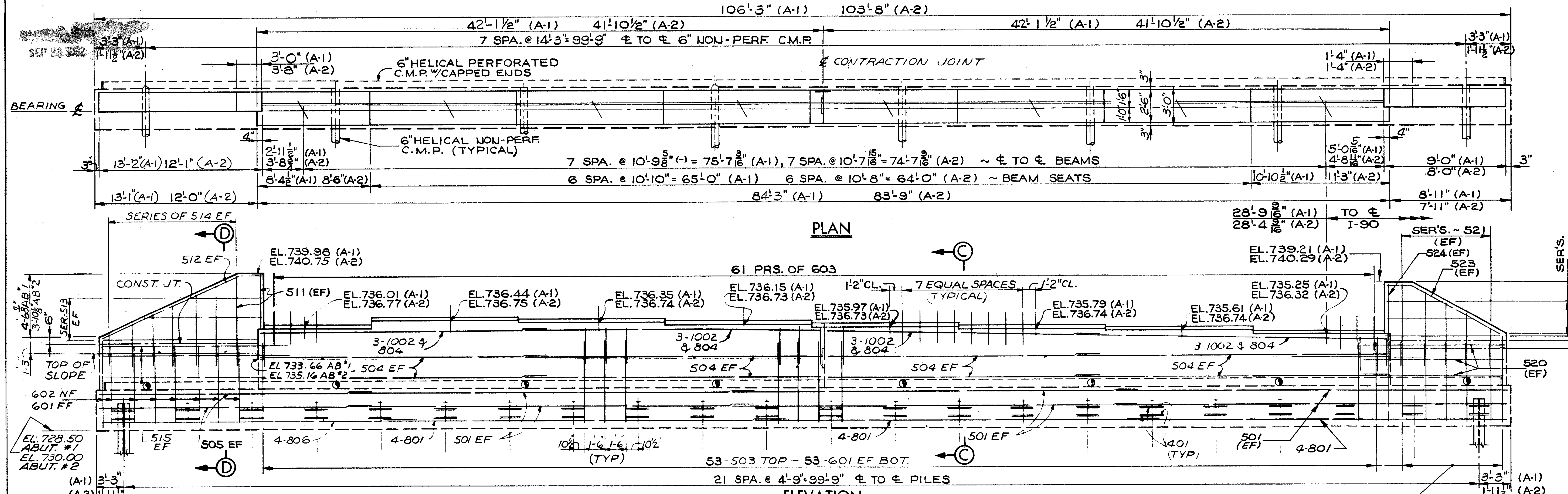
FED. RD.	STATE	PROJECT	
2	OHIO		

451
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

N
ABUTMENT A-2
ABUTMENT A-1
N

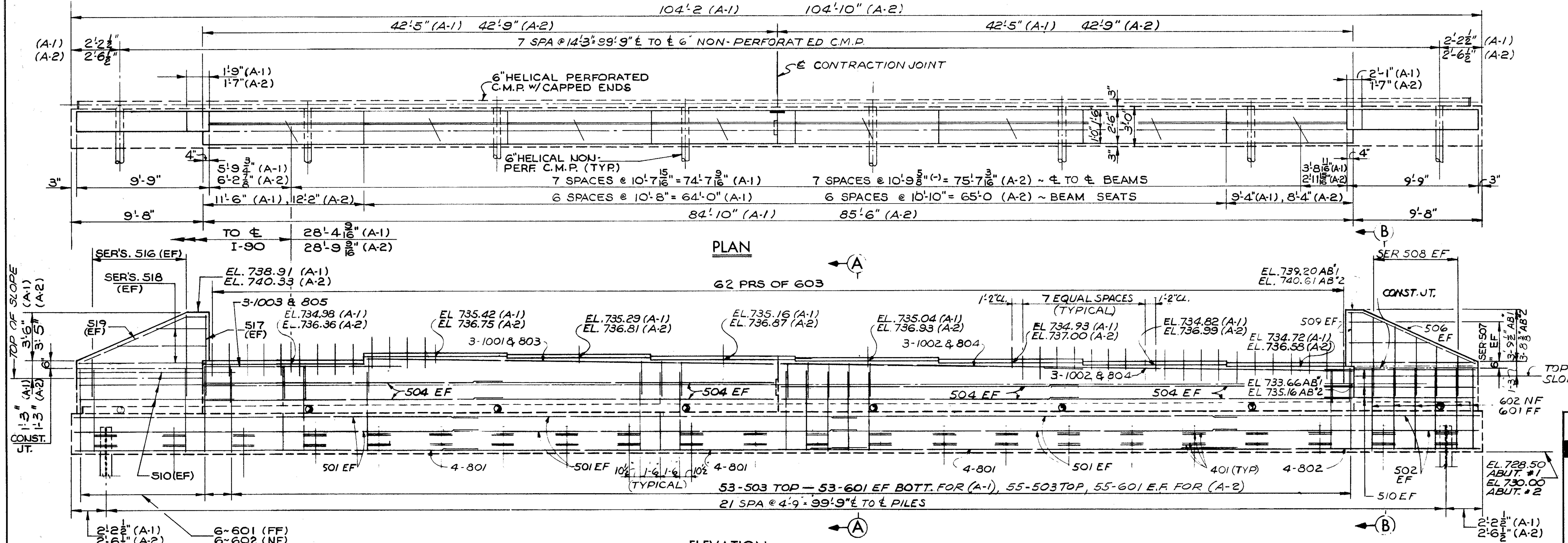
SEP 28 1972



PLAN

ELEVATION

ABUTMENT No 1 EASTBOUND LANES
ABUTMENT No 2 WESTBOUND LANES } AS NOTED



PLAN

ELEVATION

ABUTMENT No 1 WEST BOUND LANES
ABUTMENT No 2 EAST BOUND LANES } AS NOTED

NOTE
SEE SHEET 5/14 FOR SECTIONS, DETAILS AND NOTES NOT SHOWN HERE

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES
4/14

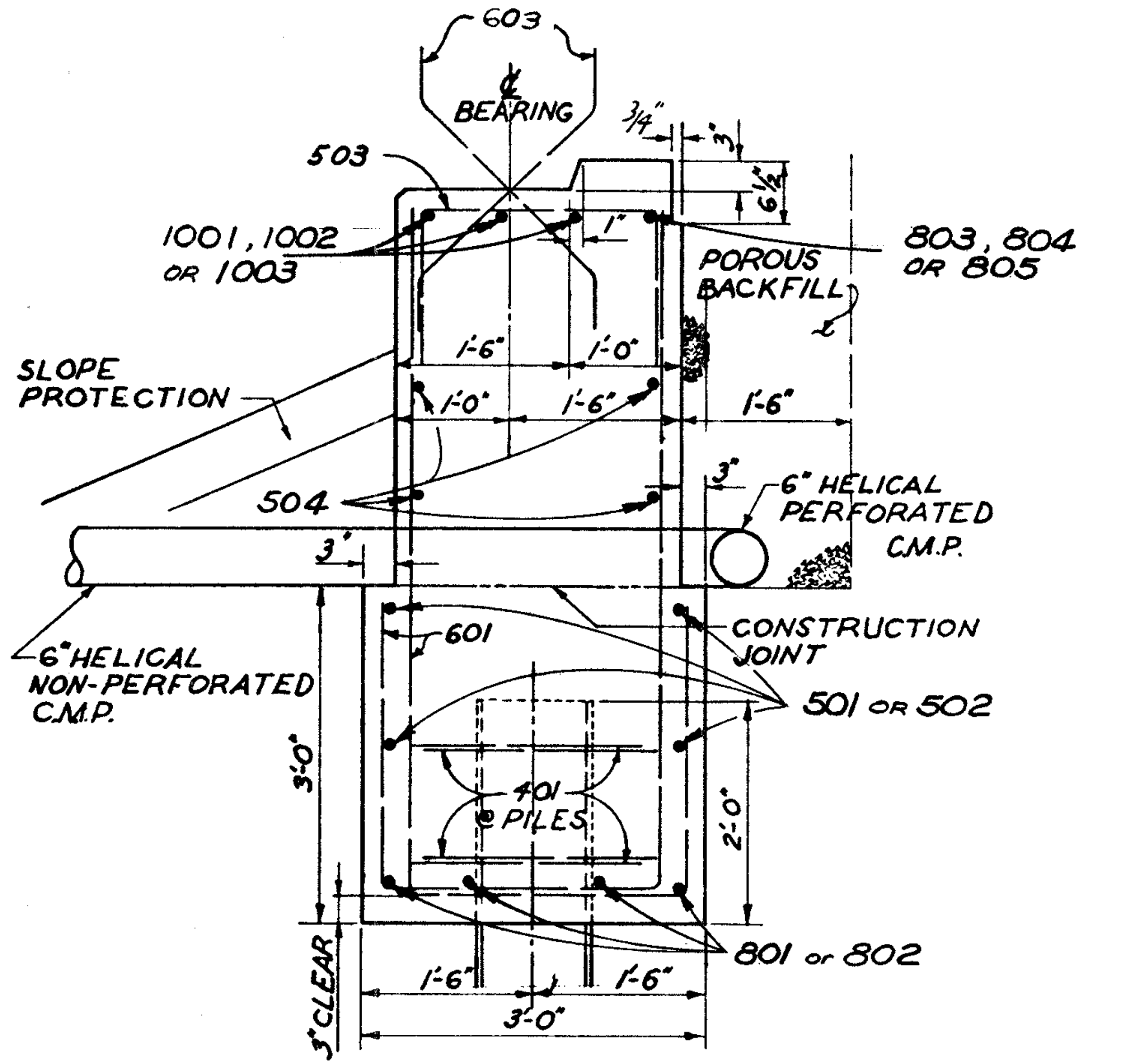
DALTON · DALTON ASSOCIATES

ABUTMENT DETAILS

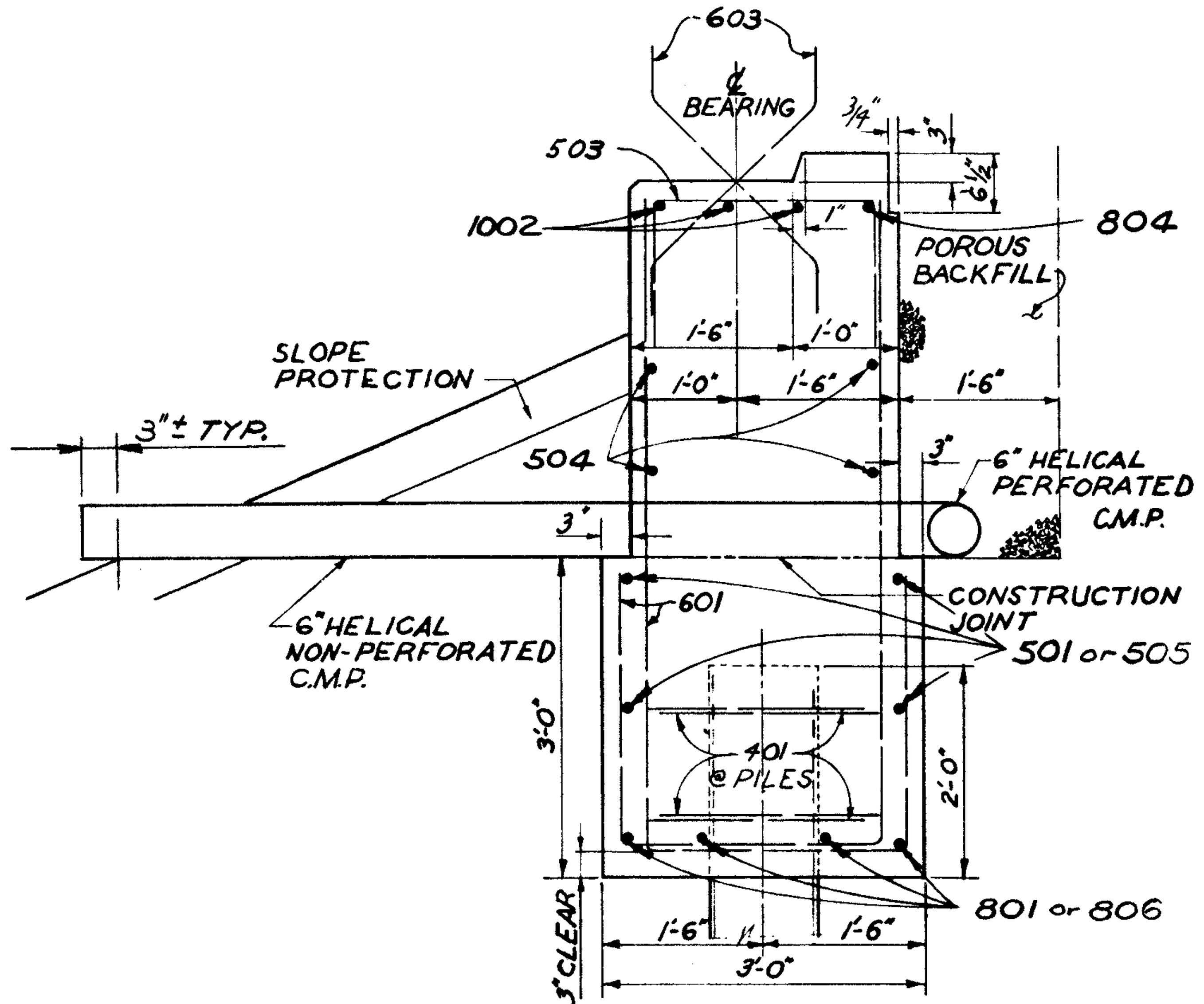
BRIDGE NO. CUY-90-1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JLH		JJW	RDN	3-2-70	

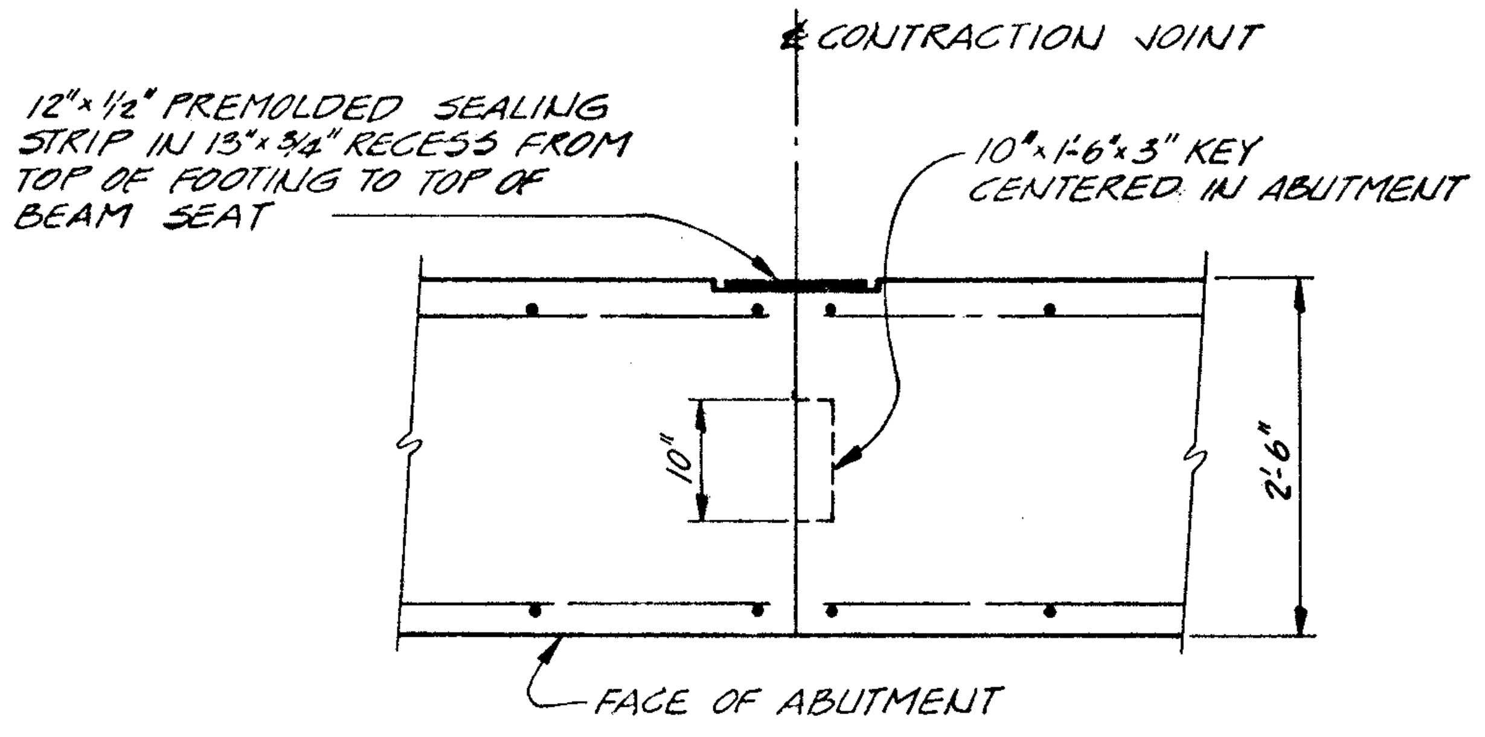
CUYAHOGA COUNTY
CUY - 90 - 10.40



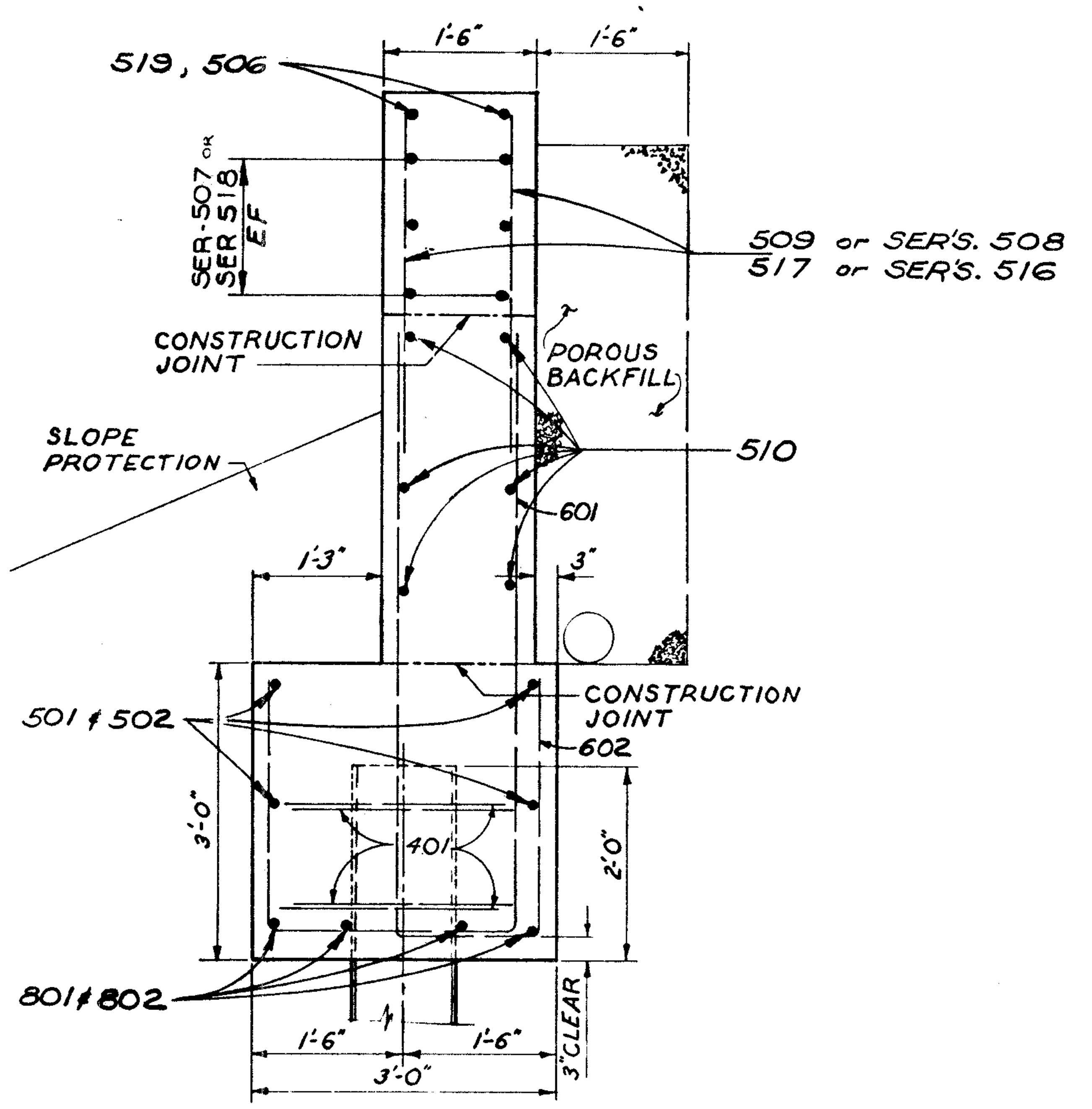
SECTION A-A



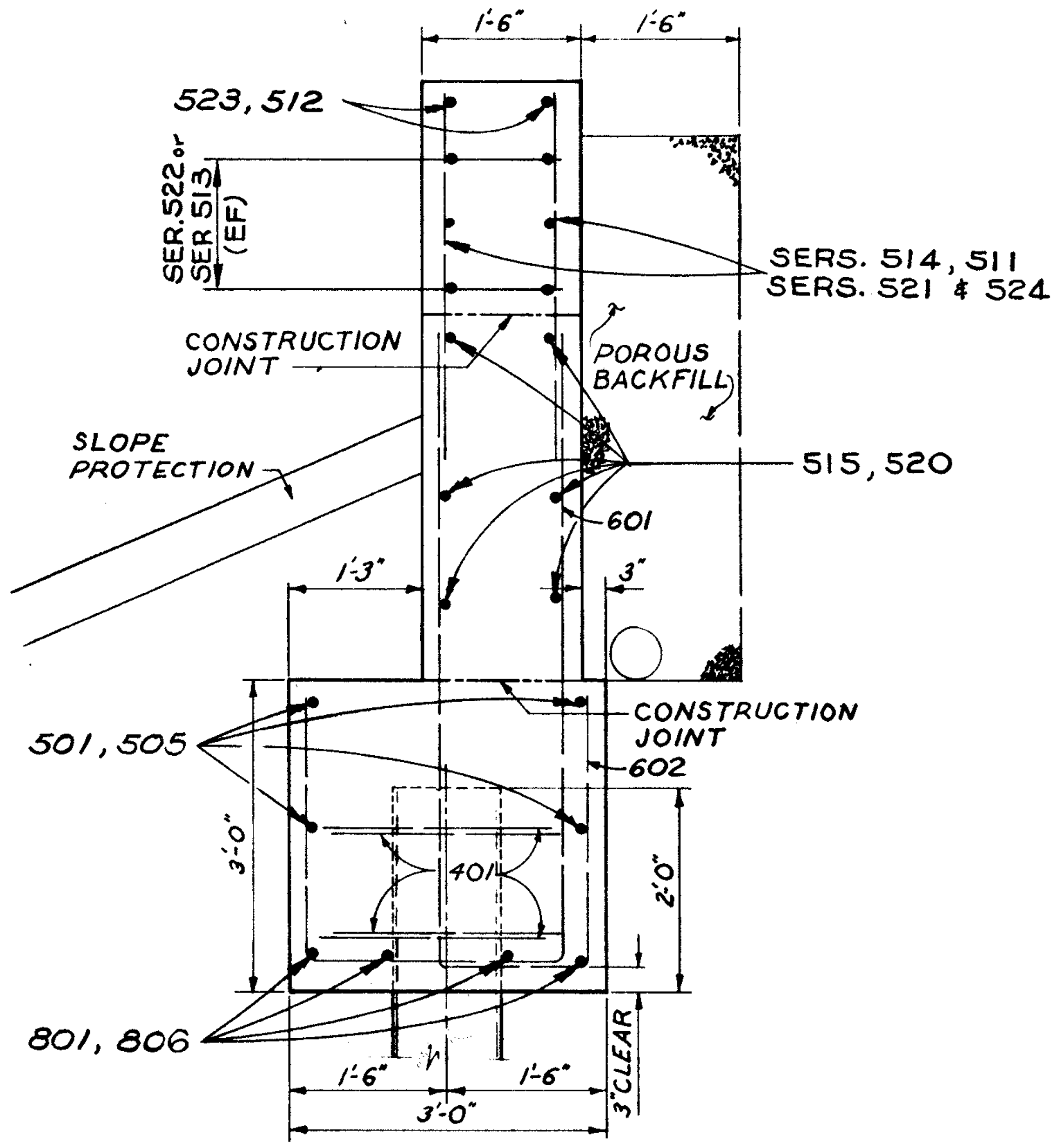
SECTION C-C



ABUTMENT CONTRACTION JOINT DETAIL



SECTION B-B



SECTION D-D

NOTES

①ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

②POROUS BACKFILL SHALL EXTEND UPWARD TO THE SUBGRADE AND OUTWARD TO THE SURFACE OF THE EMBANKMENT SLOPES.

③THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENTS A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

④EMBANKMENT PROCEDURE: THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENTS.

⑤FOR PILING PLAN, SEE SHEET 3 /14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

5 / 14

DALTON · DALTON ASSOCIATES

ABUTMENT DETAILS

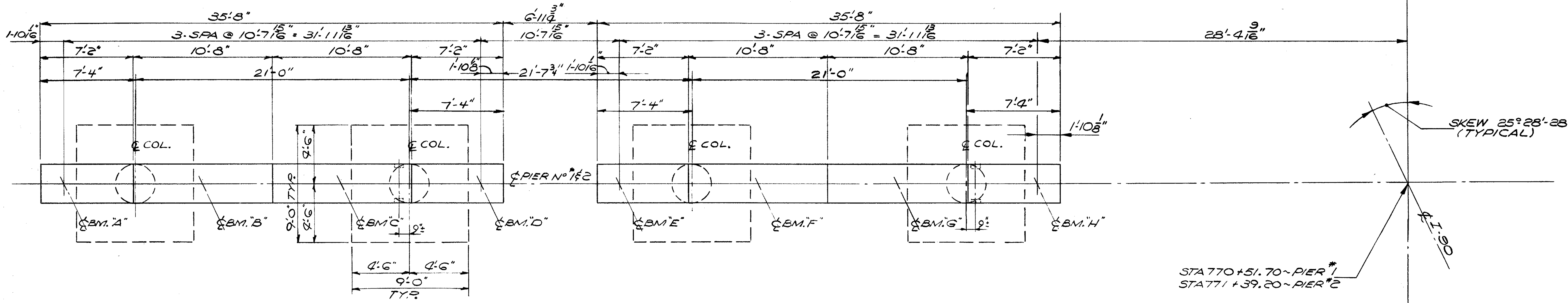
BRIDGE NO. CUY - 90 - 1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770 + 06.09 TO STA. 771 + 93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JLH		UNN	RDH	3-2-70	

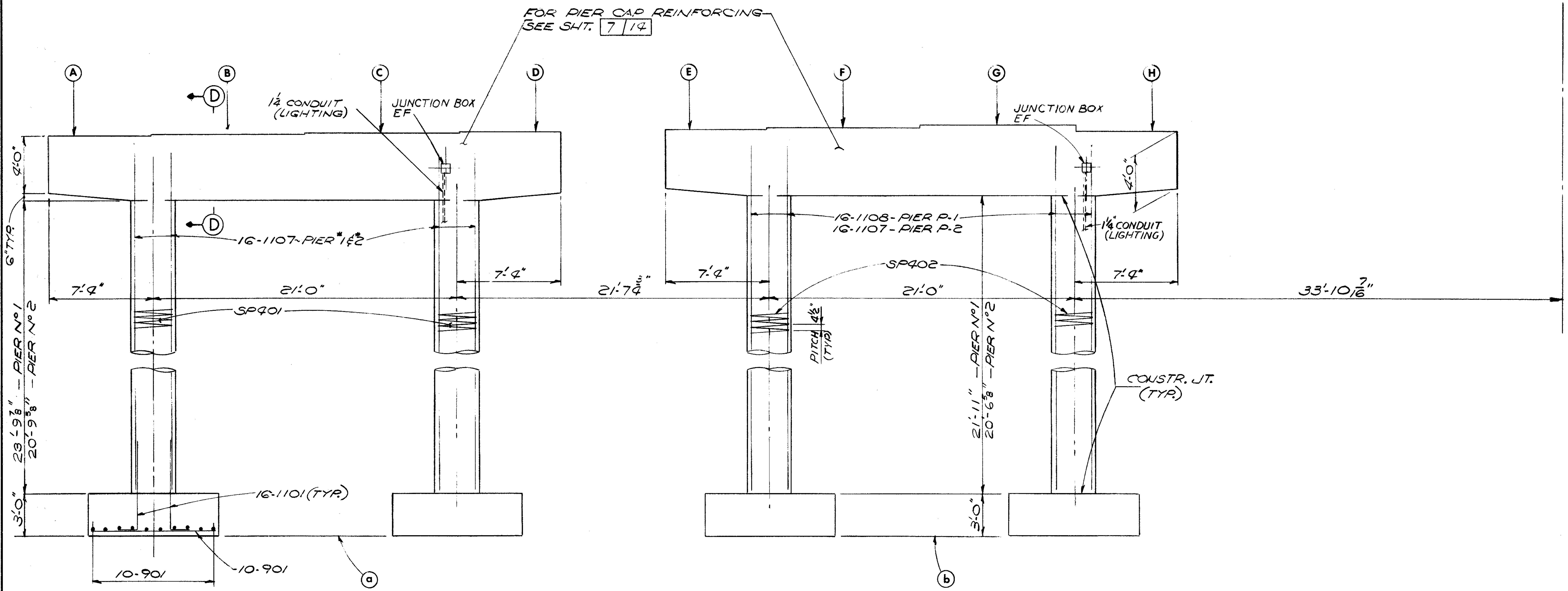
CUYAHOGA COUNTY
CUY - 90 - 10.40

FED. RD.	STATE	PROJECT	
2	OHIO		

453
713



PARTIAL PLAN PIER P-1 & PIER P-2



ELEVATION

FOR SECTION "D-D" AND FOR TABLE OF ELEVATIONS SEE SHT. 7/14

FOR ADDITIONAL NOTES, SEE SHEET 7/14

NOTE:
SEE LIGHTING PLANS FOR LIGHTING DETAILS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

6/14

DALTON • DALTON ASSOCIATES

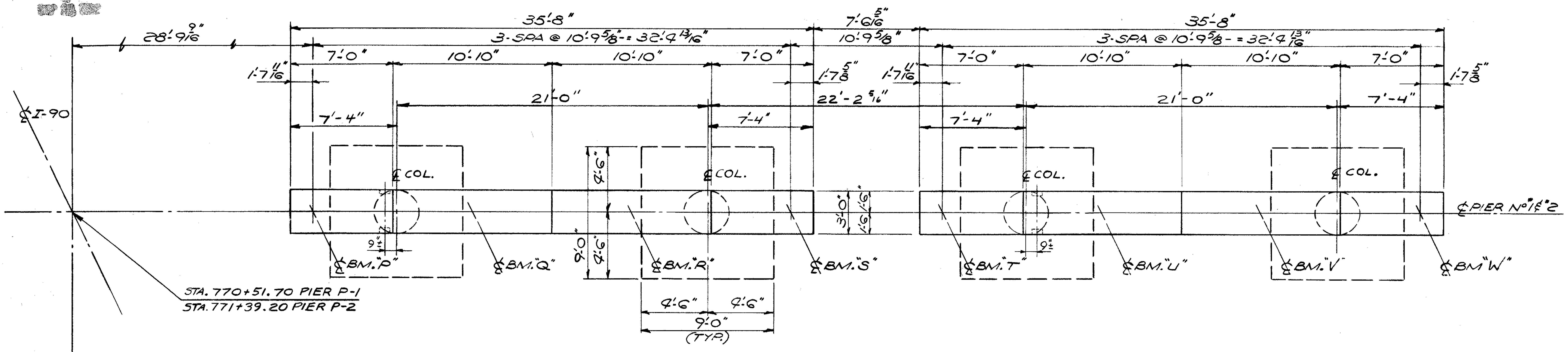
PIER DETAILS

BRIDGE NO. CUY - 90 - 1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ.	JWW		RGS	RDH	3-2-70	

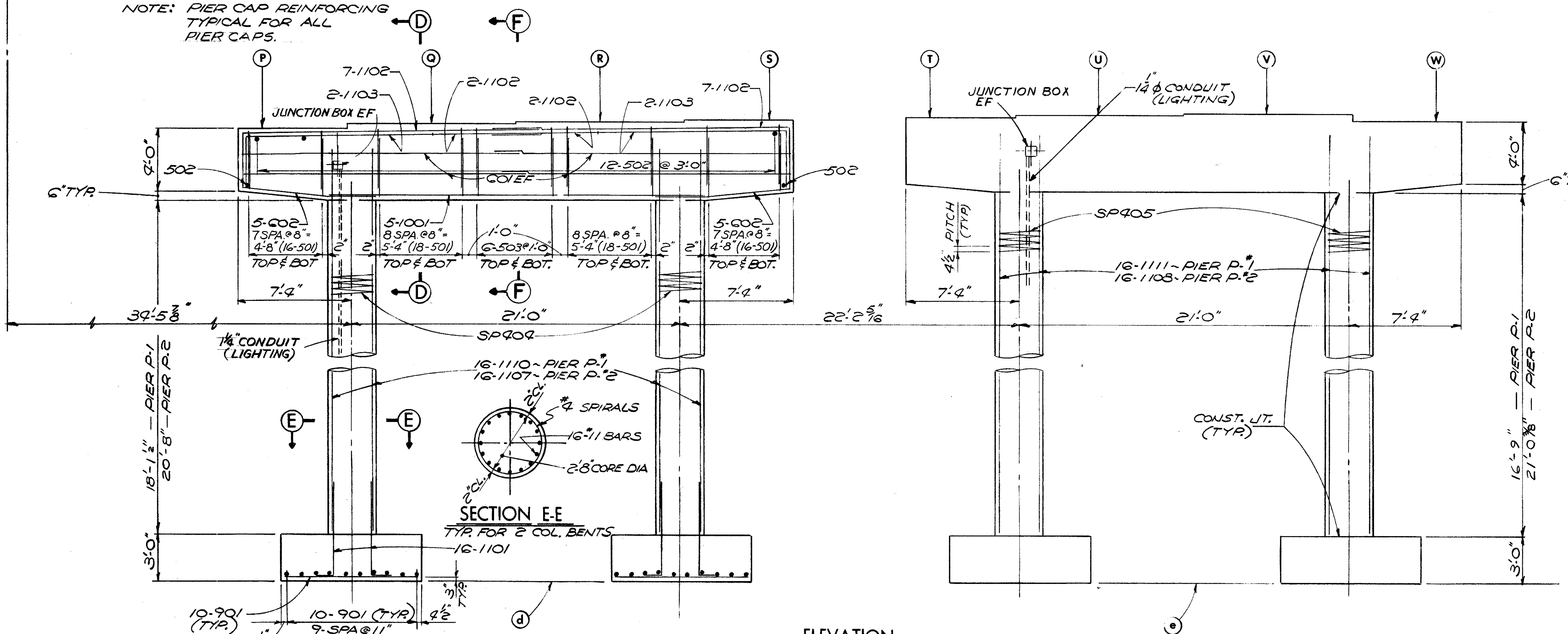
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



PARTIAL PLAN PIER P-1 & PIER P-2

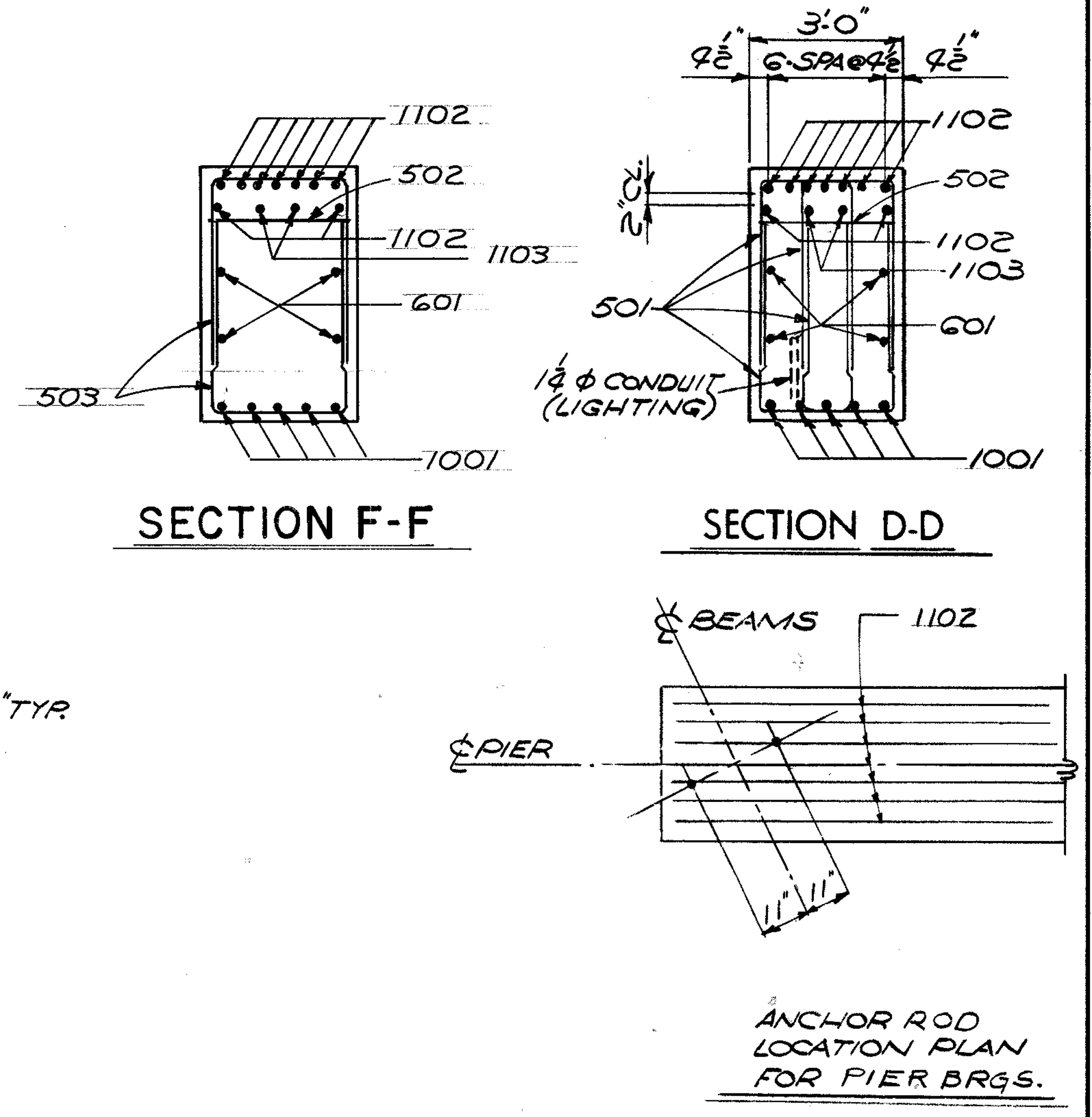
NOTE: PIER CAP REINFORCING TYPICAL FOR ALL PIER CAPS.



SECTION E-E

TYP. FOR 2 COL. BENTS

ELEVATION



SECTION F-F

SECTION D-D

ANCHOR ROD LOCATION PLAN FOR PIER BRGS.

FOUNDATION BEARING PRESSURE

PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 5 TONS PER SQ. FT.

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

SEE LIGHTING PLANS FOR LIGHTING DETAILS

NOTES

① BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR ROD HOLES.

② ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

③ THE PREFIX "1P" OR "2P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER P-1 OR P-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

ELEVATIONS

LOCATION	A	B	C	D	E	F	G	H	a	b	P	Q	R	S	T	U	V	W	d	e
PIER P-1	735.19	735.26	735.34	735.43	735.52	735.62	735.72	735.28	703.87	705.87	735.49	735.86	736.01	736.16	736.32	736.48	736.55	736.12	709.87	711.87
PIER P-2	736.17	736.19	736.21	736.23	736.27	736.31	736.34	735.92	707.87	707.87	736.03	736.41	736.50	736.59	736.69	736.80	736.81	736.40	707.87	707.87

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

7/14

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PIER DETAILS

BRIDGE NO. CUY - 90 - 1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AJ	JWW		RGS	RDH	3-2-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

455
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

FRAMING PLAN

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

8/14

DALTON · DALTON ASSOCIATES

FRAMING PLAN

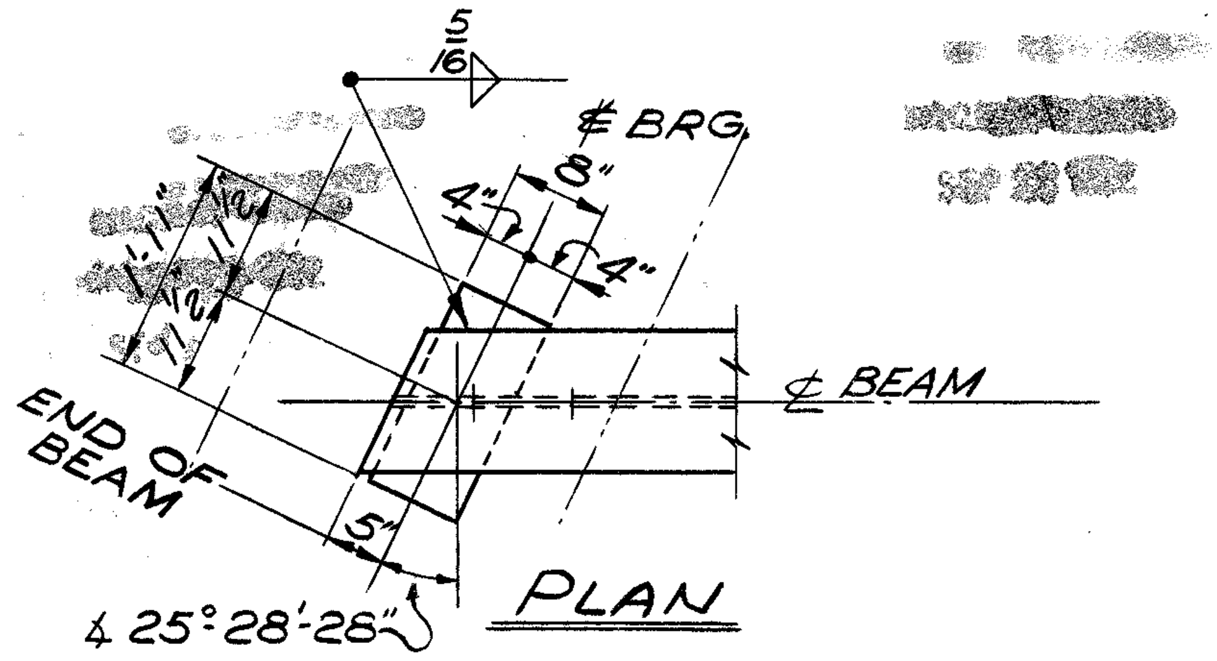
BRIDGE NO. CUY - 90 - 1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP AJ	ALH		JWW	RDH	3-2-70	

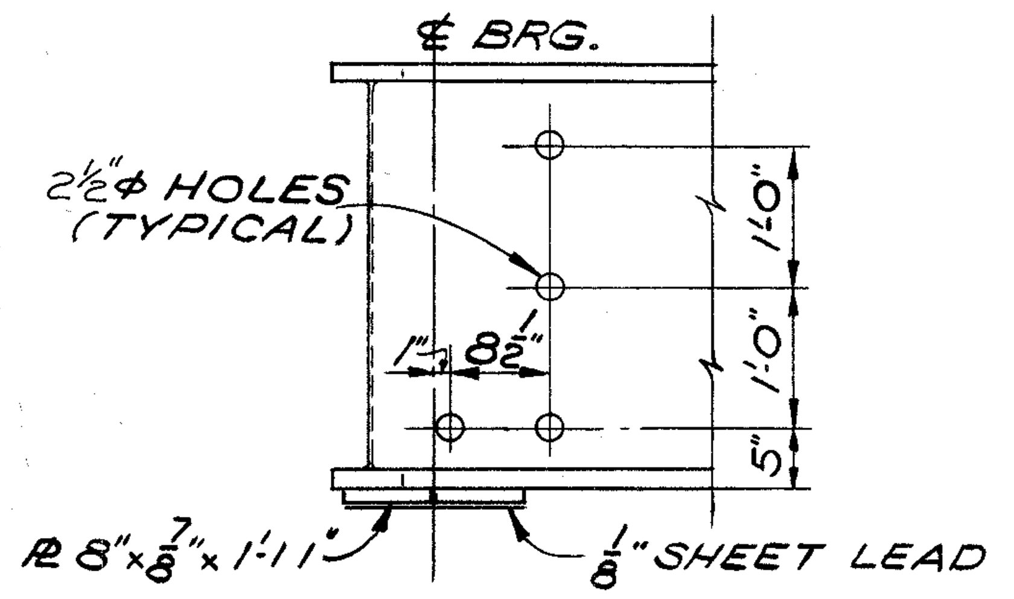
FED. RD.	STATE	PROJECT		
2	OHIO			

456
713

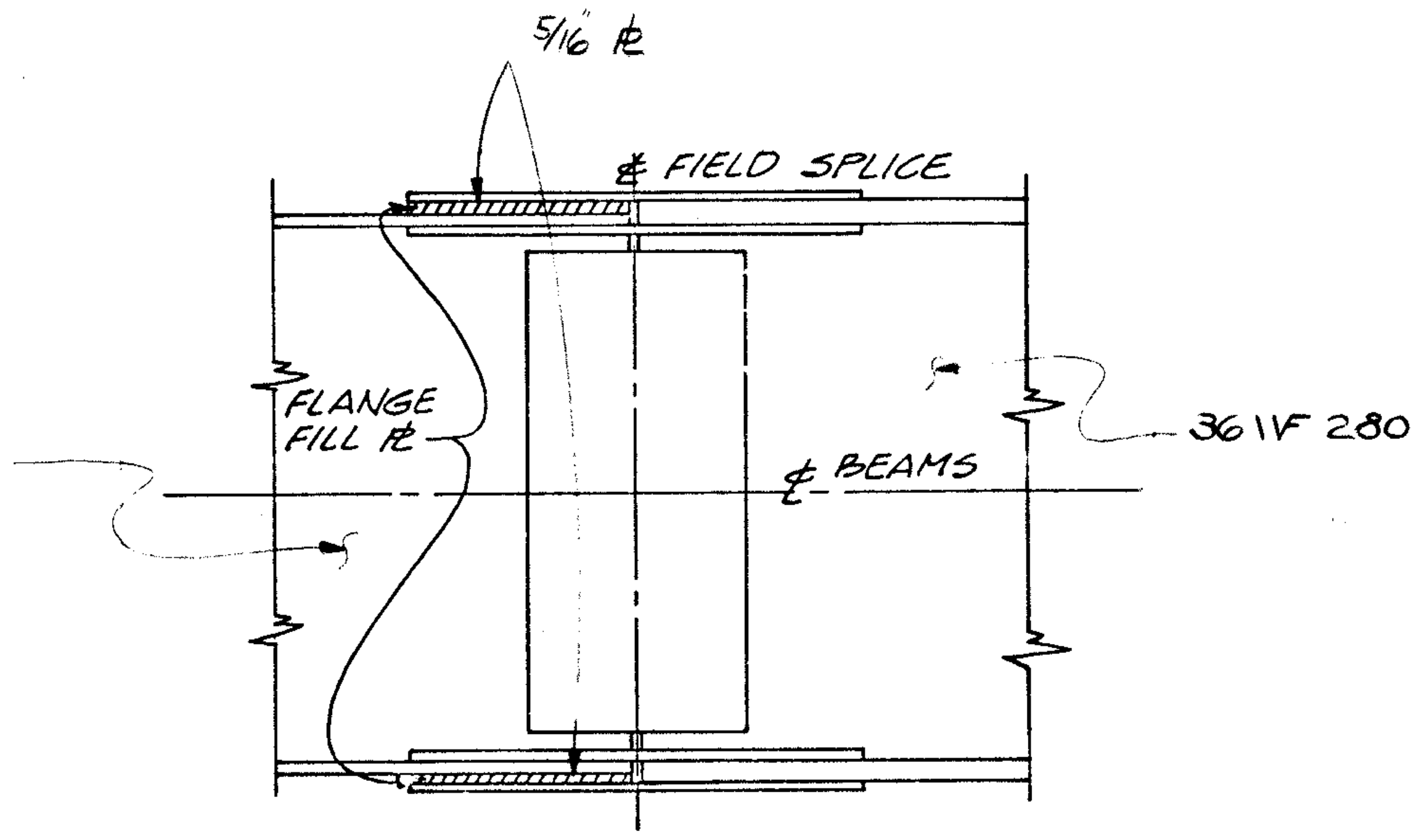
CUYAHOGA COUNTY
CUY - 90 - 10.40



PLAN

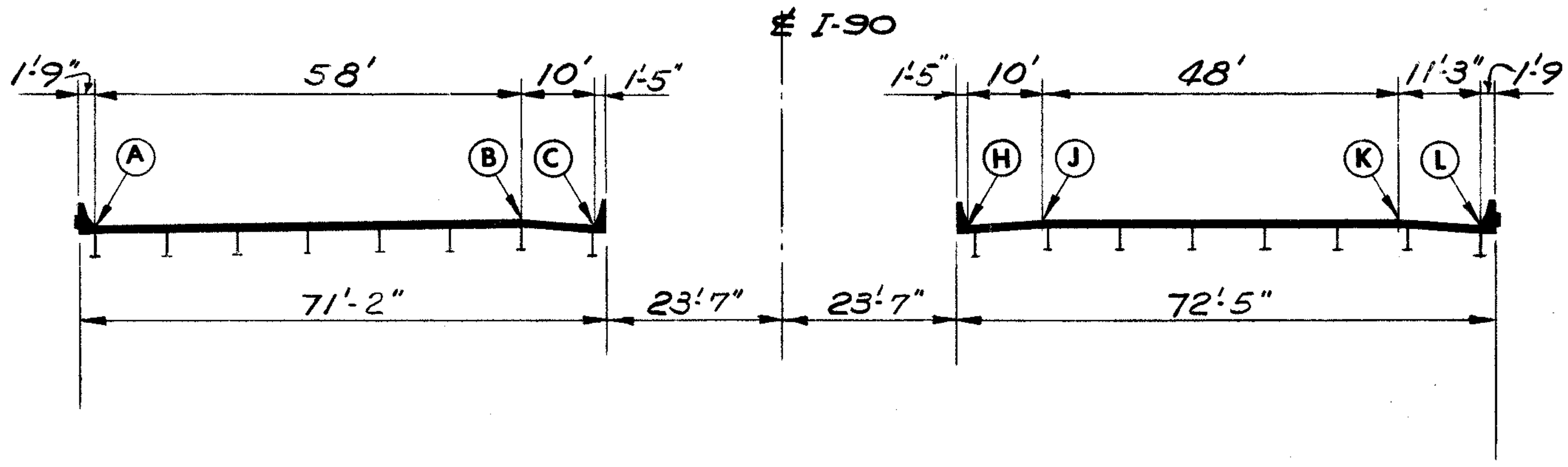


DETAIL "A"
SHEET 8/14
TYPICAL FOR ALL BEAMS



SPLICE FILL PLATE DETAIL

(FOR NOTES & DETAILS NOT SHOWN SEE SD-1-69)

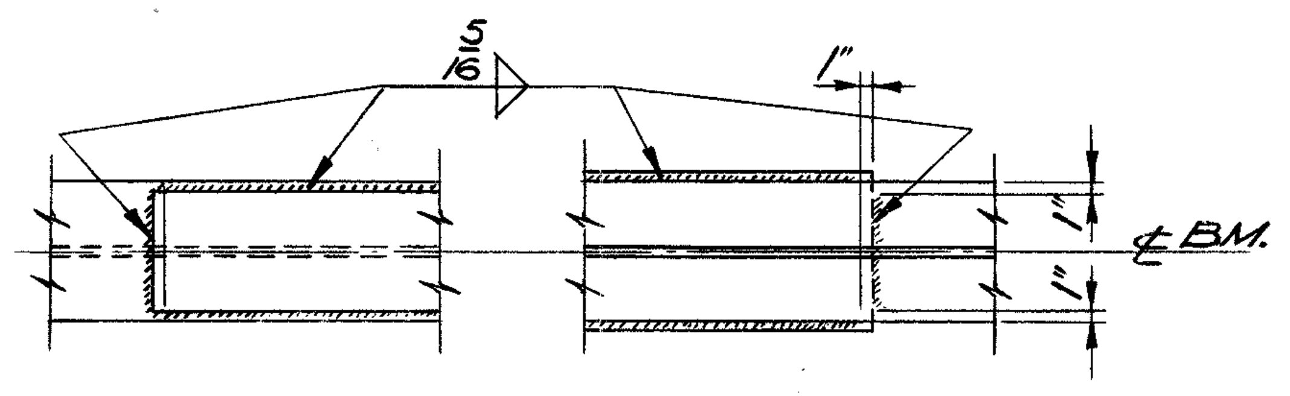


ELEVATION / LOCATION		Ⓐ	Ⓑ	Ⓒ	Ⓗ	Ⓙ	Ⓚ	Ⓛ
SPAN 1	℄ BRG (A-1)	738.56	739.26	738.82	739.08	739.43	740.36	739.86
	¼ PT.	738.71	739.37	738.93	739.18	739.53	740.42	739.92
	½ PT.	738.85	739.48	739.04	739.27	739.63	740.48	739.98
	¾ PT.	739.00	739.58	739.14	739.36	739.72	740.53	740.03
	℄ BRG (P-1)	739.15	739.68	739.24	739.46	739.81	740.59	740.09
SPAN 2	¼ PT	739.46	739.91	739.47	739.65	740.02	740.72	740.23
	½ PT	739.74	740.10	739.67	739.82	740.19	740.82	740.34
	¾ PT.	739.95	740.22	739.79	739.92	740.29	740.85	740.37
	℄ BRG (P-2)	740.12	740.31	739.89	739.99	740.36	740.85	740.37
SPAN 3	¼ PT.	740.24	740.38	739.96	740.04	740.42	740.87	740.39
	½ PT.	740.37	740.46	740.04	740.10	740.48	740.89	740.41
	¾ PT.	740.49	740.52	740.10	740.15	740.53	740.90	740.43
	℄ BRG (A-2)	740.59	740.57	740.16	740.19	740.57	740.89	740.42

SLAB ELEVATION TABLE ①

NOTE:

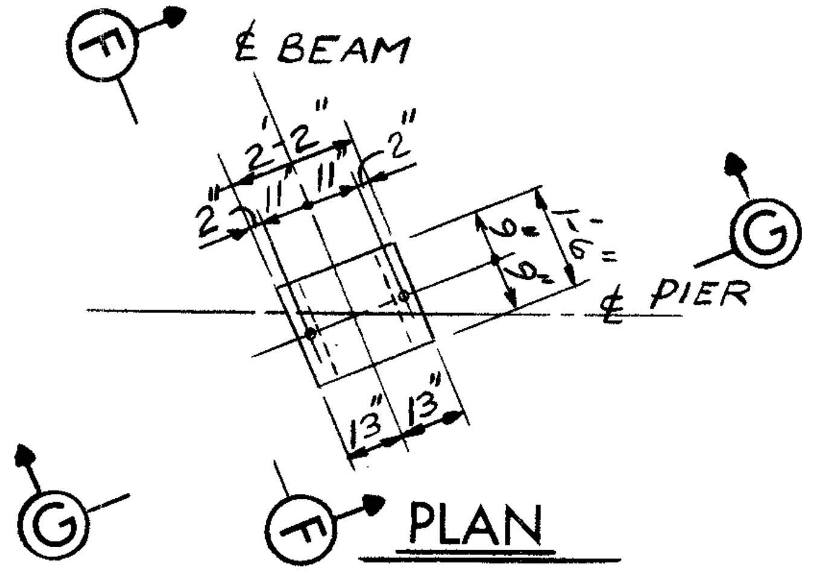
① ELEVATIONS SHOWN ARE ON TOP OF THE CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE AND ASPHALT WEARING SURFACE.



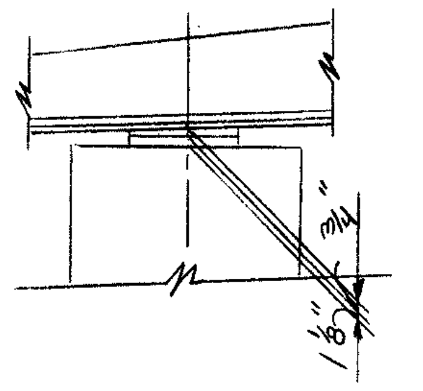
TOP FLG. BOTTOM FLG.
MOMENT PLATES

NOTE: The elastomeric bearing shall be molded from two 50 durometer elastomeric pads with one internal plate and be vulcanized bonded to the upper steel load plate during the molding process.

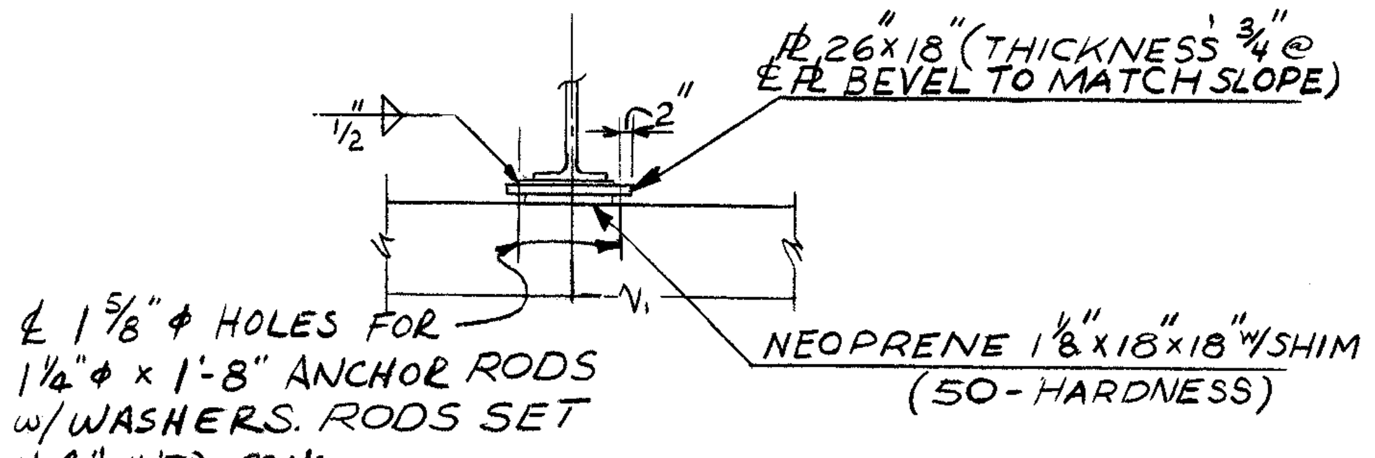
WELDING shall be controlled so that the plate temperature at the elastomer bonded surface does not exceed 300° F as determined by use of pyrometric sticks or other temperature monitoring devices.



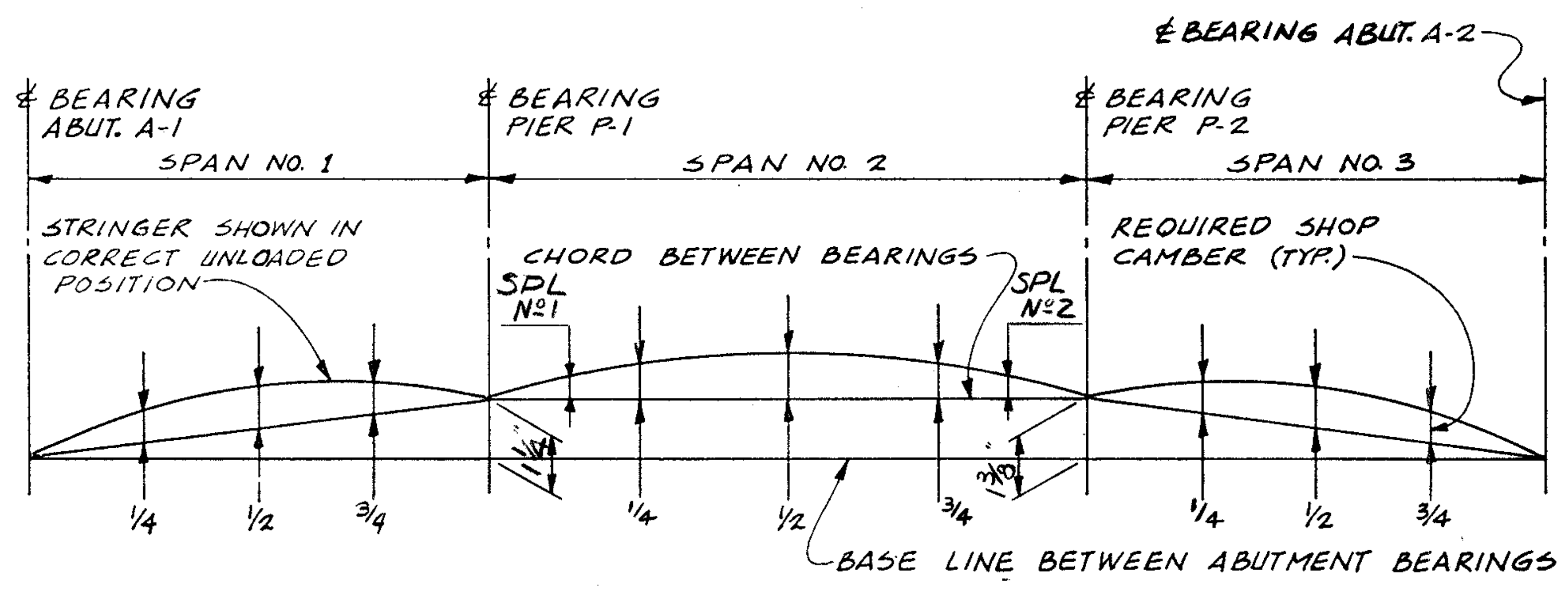
PLAN



SECTION F-F



SECTION G-G



LAYOUT DIAGRAM

DEFLECTION AND CAMBER

SPANS	SPAN I			SPAN II					SPAN III		
POINTS	¼	½	¾	SPL Nº1	¼	½	¾	SPL Nº2	¼	½	¾
DEFLECTION DUE TO WEIGHT OF STEEL	–	–	–	⅛	3/16	¼	⅛	⅛	–	–	–
DEFLECTION DUE TO REMAINING DEAD LOAD	–	-1/16	-⅛	⅜	9/16	⅞	9/16	⅜	-1/16	1/16	⅛
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	1/16	⅛	1/16	¼	5/16	⅜	5/16	¼	⅛	3/16	⅛
REQUIRED SHOP CAMBER	1/16	1/16	-1/16	¾	1 1/16	1½	1	¾	1/16	¼	¼

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

9/14

DALTON • DALTON ASSOCIATES

SUPERSTRUCTURE DETAILS

BRIDGE NO. CUY-90-1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
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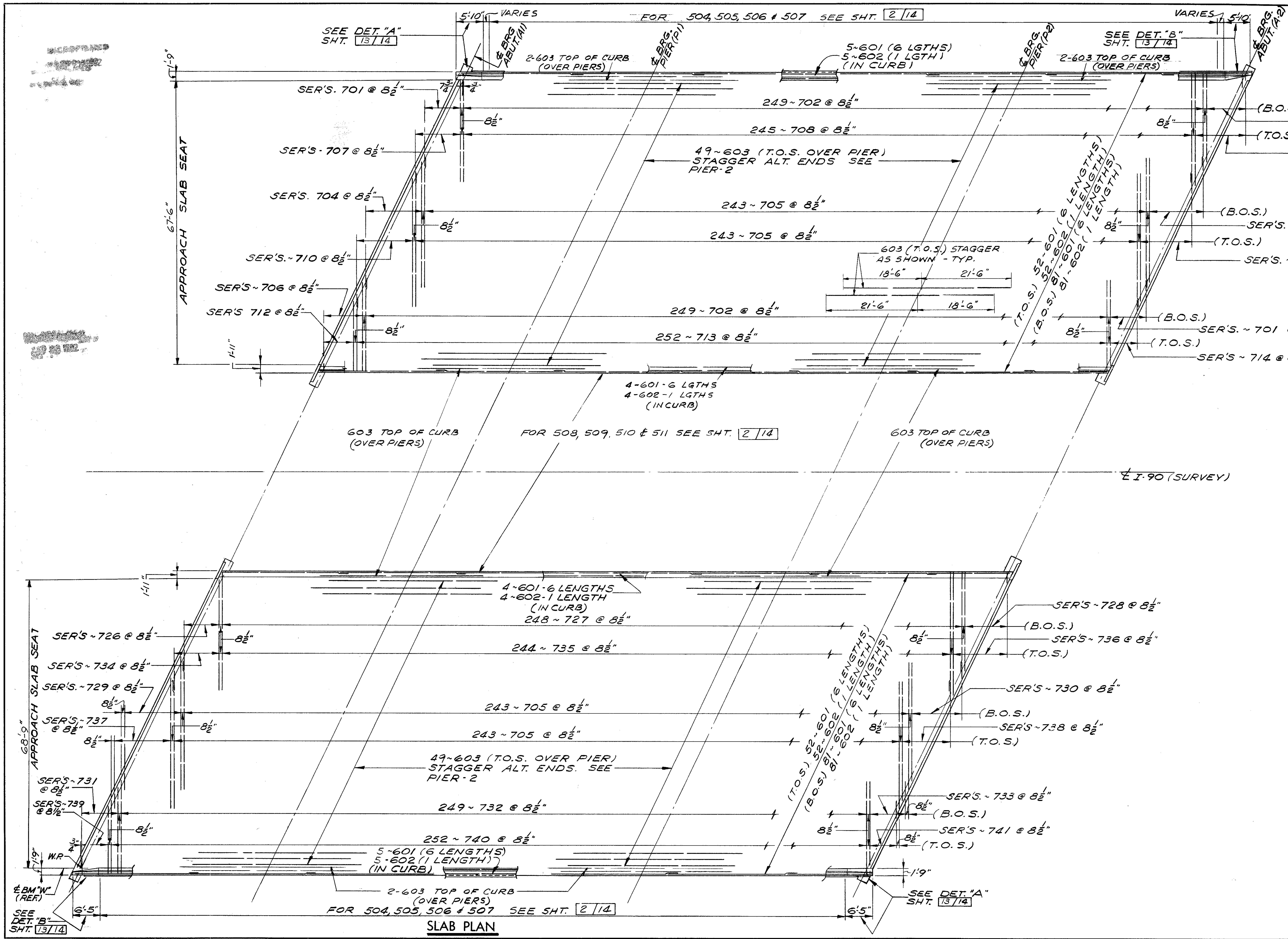
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP AJ	ALH		JWW	RDH	3-2-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

457
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



SLAB PLAN

ABBREVIATIONS
T.O.S. = TOP OF SLAB
B.O.S. = BOTTOM OF SLAB

FOR ADDITIONAL DETAILS SEE SHTS 11/14 12/14 13/14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

10/14

DALTON • DALTON ASSOCIATES

SLAB PLAN

BRIDGE NO. CUY - 90 - 1127 L/R
OVER WEST BLVD.
I - 90 CUYAHOGA COUNTY
STA. 770 + 06.09 TO STA. 771 + 93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
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FED. RD.	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY - 90 - 10.40

TRANSVERSE SECTION (WESTBOUND LANES)

NOTES

① DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO TOP OF STEEL BEAM 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 OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.

② A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

③ INTERMEDIATE CROSSFRAME ANGLES 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.

④ CLEARANCE = 2"

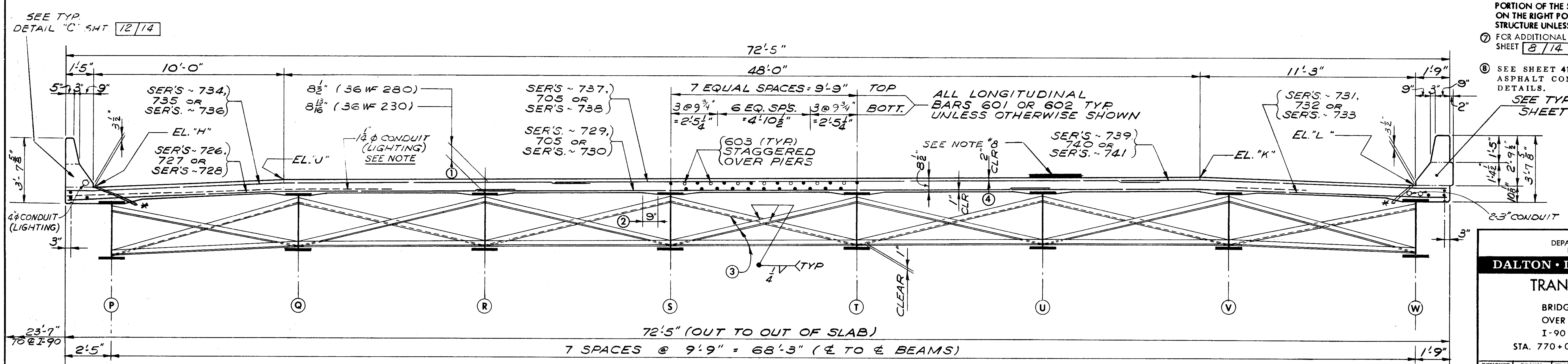
⑤ TRANSVERSE REINFORCEMENT SHALL BE FIELD BENT AS REQUIRED AND PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL.

⑥ THE PREFIX "1S" SHALL BE ADDED TO ALL REINFORCING BAR MARKS ON THE LEFT PORTION OF THE SUPERSTRUCTURE AND "2S" ON THE RIGHT PORTION OF THE SUPERSTRUCTURE UNLESS SHOWN OTHERWISE.

⑦ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 8/14 9/14 10/14 12&13/14

⑧ SEE SHEET 411-A FOR SUBDRAINAGE AND ASPHALT CONCRETE WEARING SURFACE DETAILS.

NOTE:
FOR LOCATION OF LUMINAIRES AND FOR OTHER LIGHTING DETAILS SEE LIGHTING PLANS



TRANSVERSE SECTION (EASTBOUND LANES)

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

11/14

DALTON · DALTON ASSOCIATES

TRANSVERSE SECTION

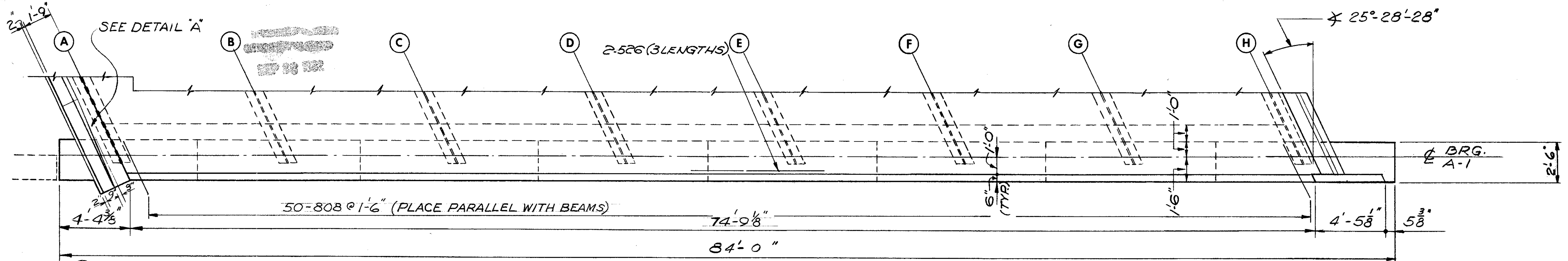
BRIDGE NO. CUY-90-1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.L.H.	Hodovan		JWW	RDH	3-2-70	

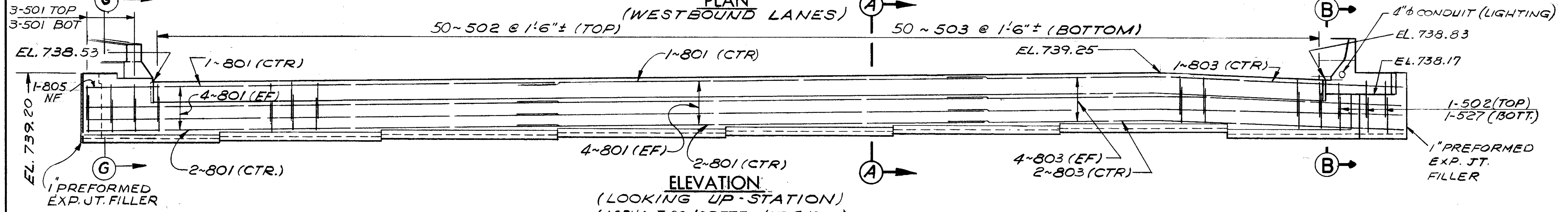
FED. RD.	STATE	PROJECT	
2	OHIO		

459
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

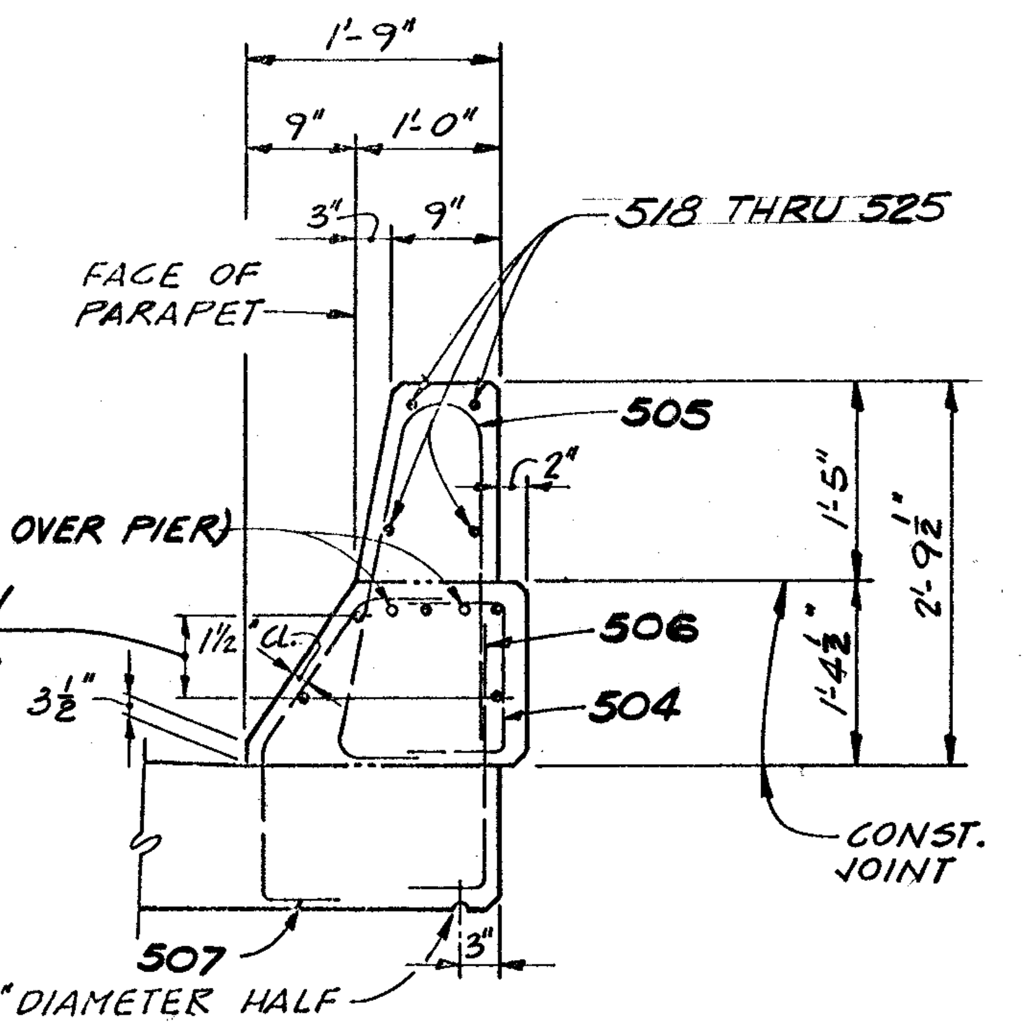


PLAN
(WESTBOUND LANES)



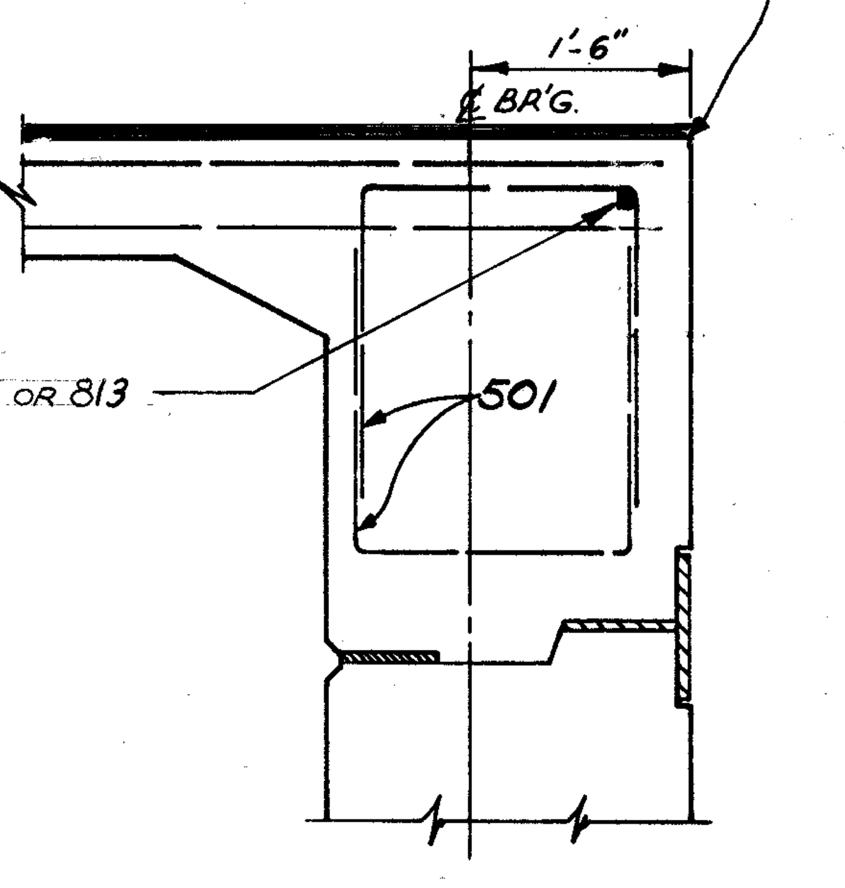
ELEVATION
(LOOKING UP-STATION)
(ASPHALT CONCRETE NOT SHOWN)

SEP 28 1982

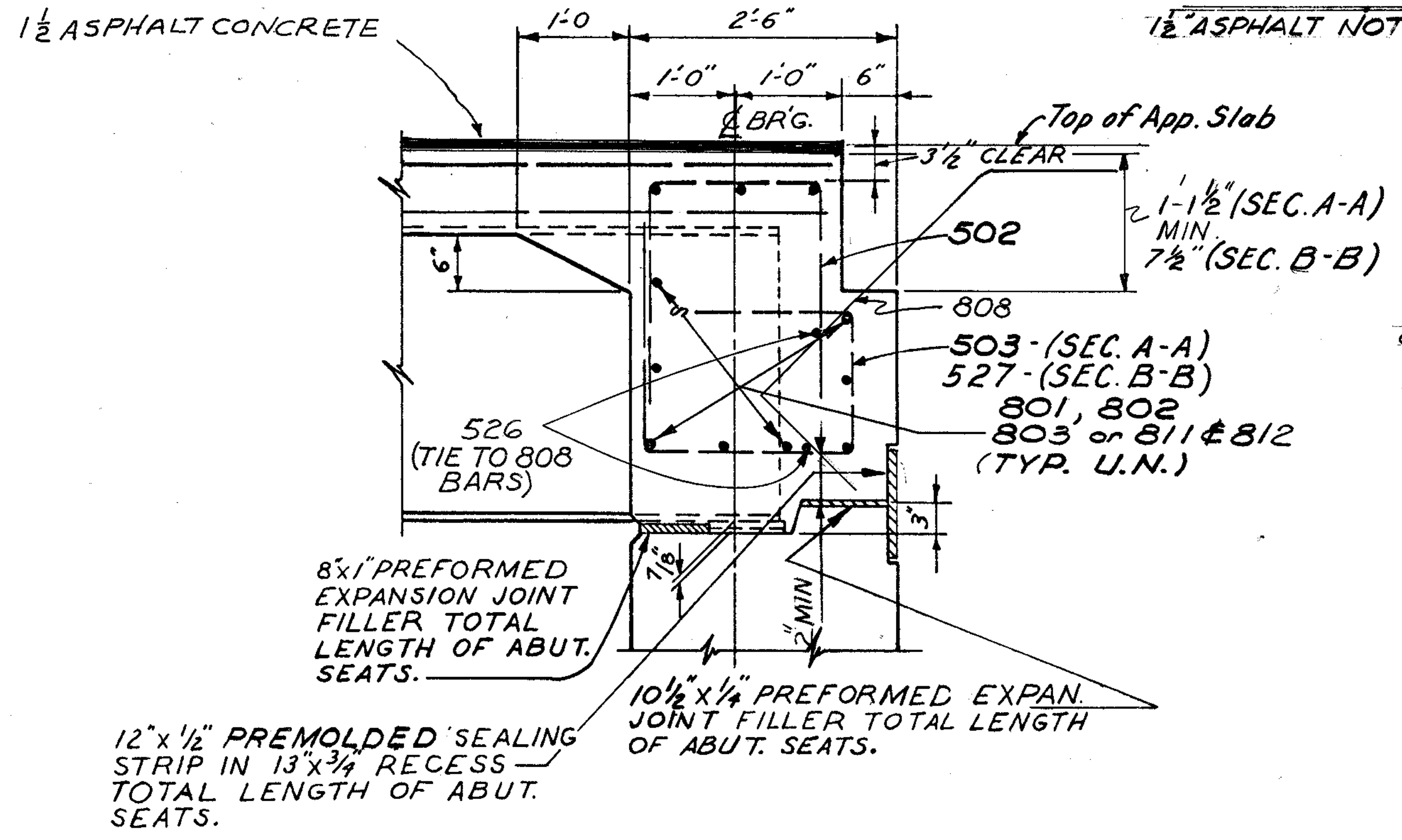


RAILING DETAIL "D"
1 1/2" ASPHALT NOT SHOWN

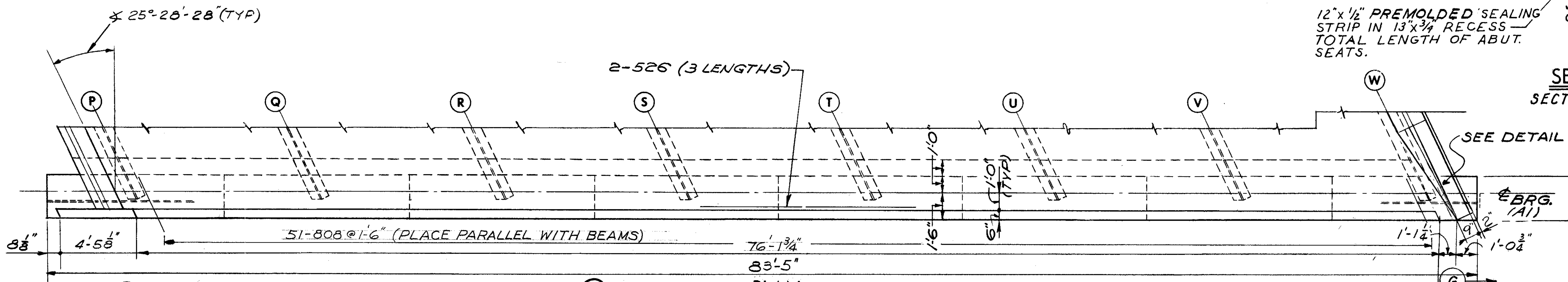
NOTE:
PAVEMENT ELEVATIONS GIVEN AT THIS POINT



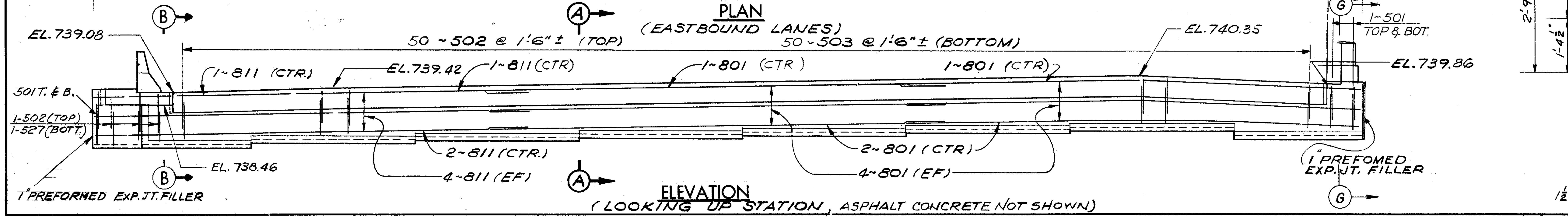
SECTION "G-G"
FOR DETAILS NOT SHOWN SEE SECTION A-A



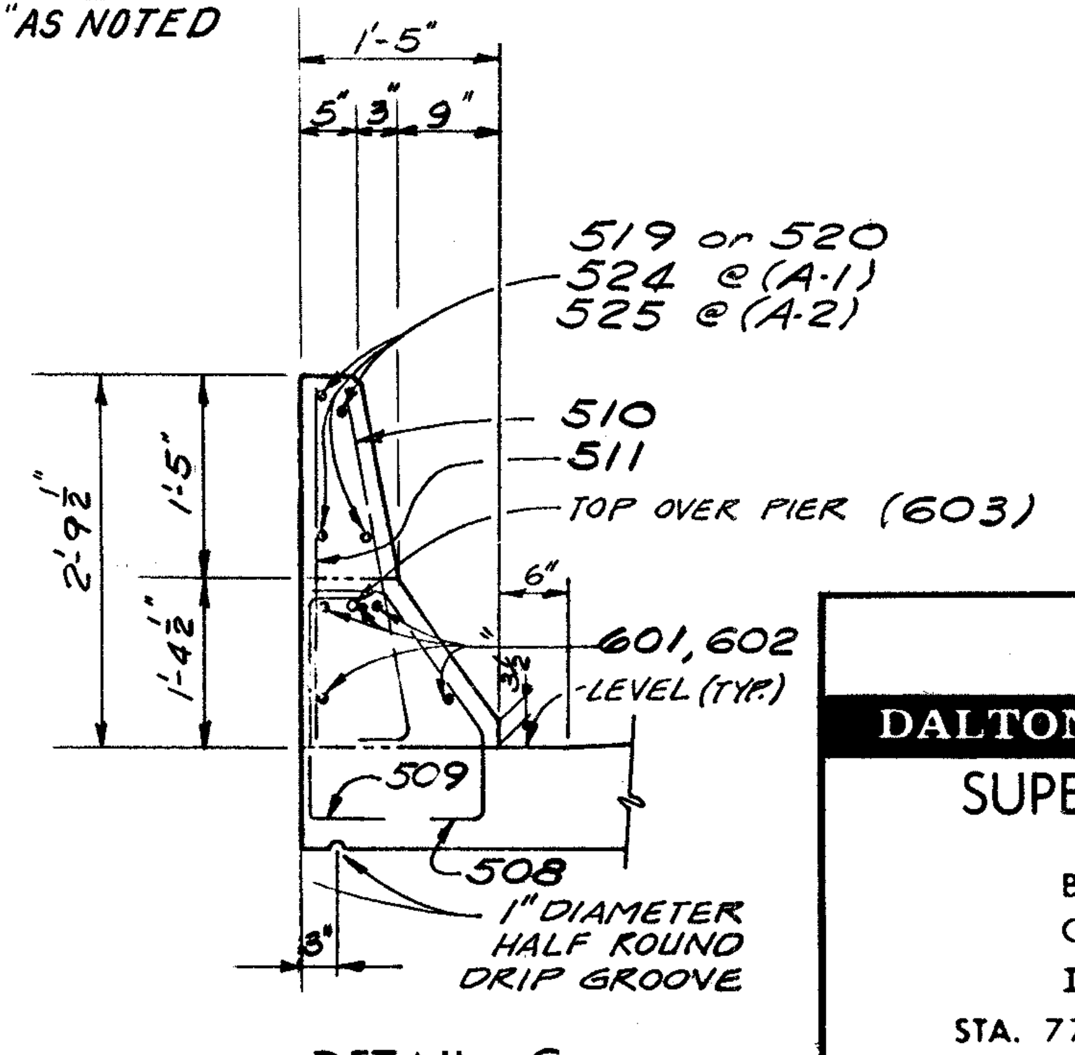
SECTION "A-A"
SECTION "B-B" AS NOTED



PLAN
(EASTBOUND LANES)



ELEVATION
(LOOKING UP STATION, ASPHALT CONCRETE NOT SHOWN)



DETAIL C
1 1/2" ASPHALT NOT SHOWN

FOR DETAILS "A" & "B" SEE SHEET 13/14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

12/14

DALTON • DALTON ASSOCIATES

SUPERSTRUCTURE DETAILS

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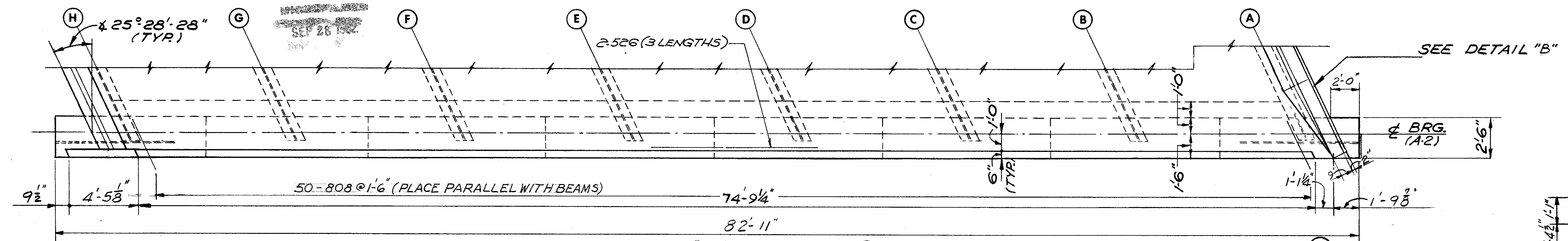
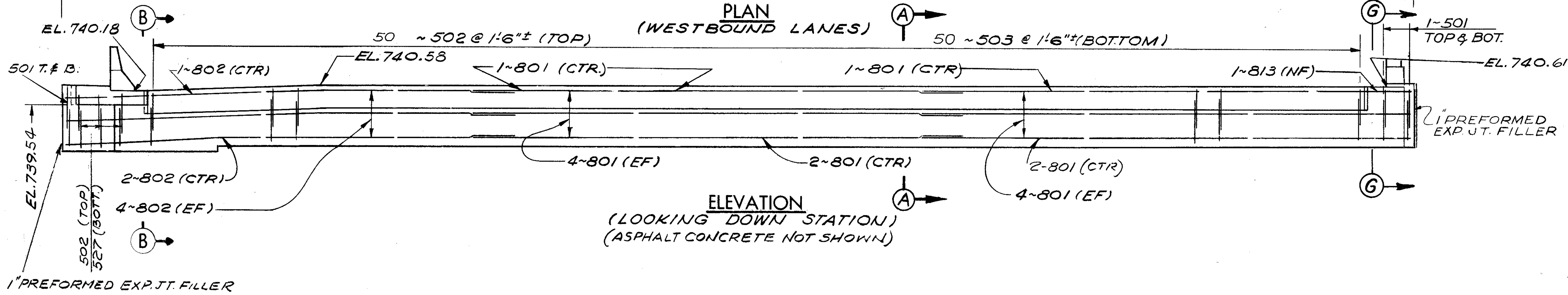
FED. RD.	STATE	PROJECT	
2	OHIO		

460 / 713

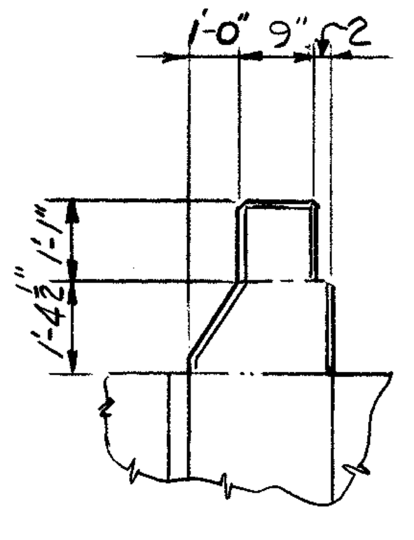
CUYAHOGA COUNTY
CUY - 90 - 10.40



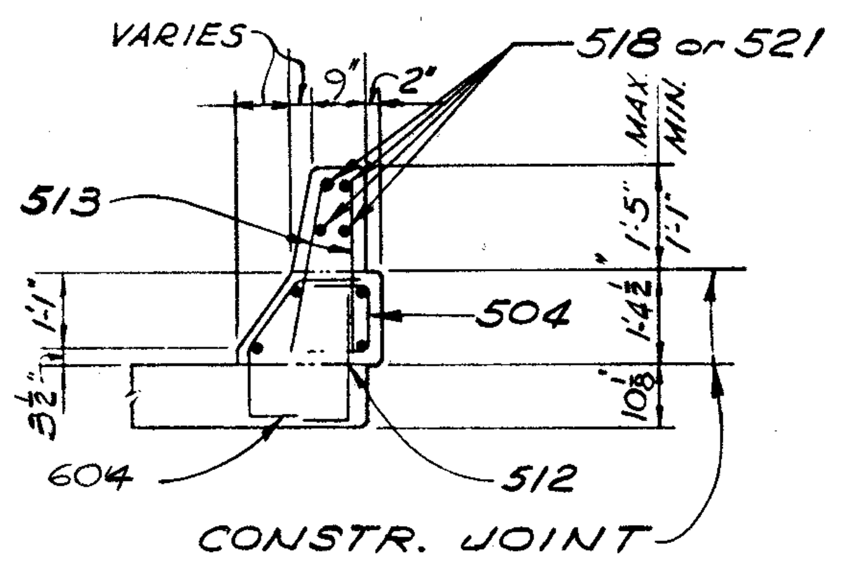
PLAN
(WESTBOUND LANES)



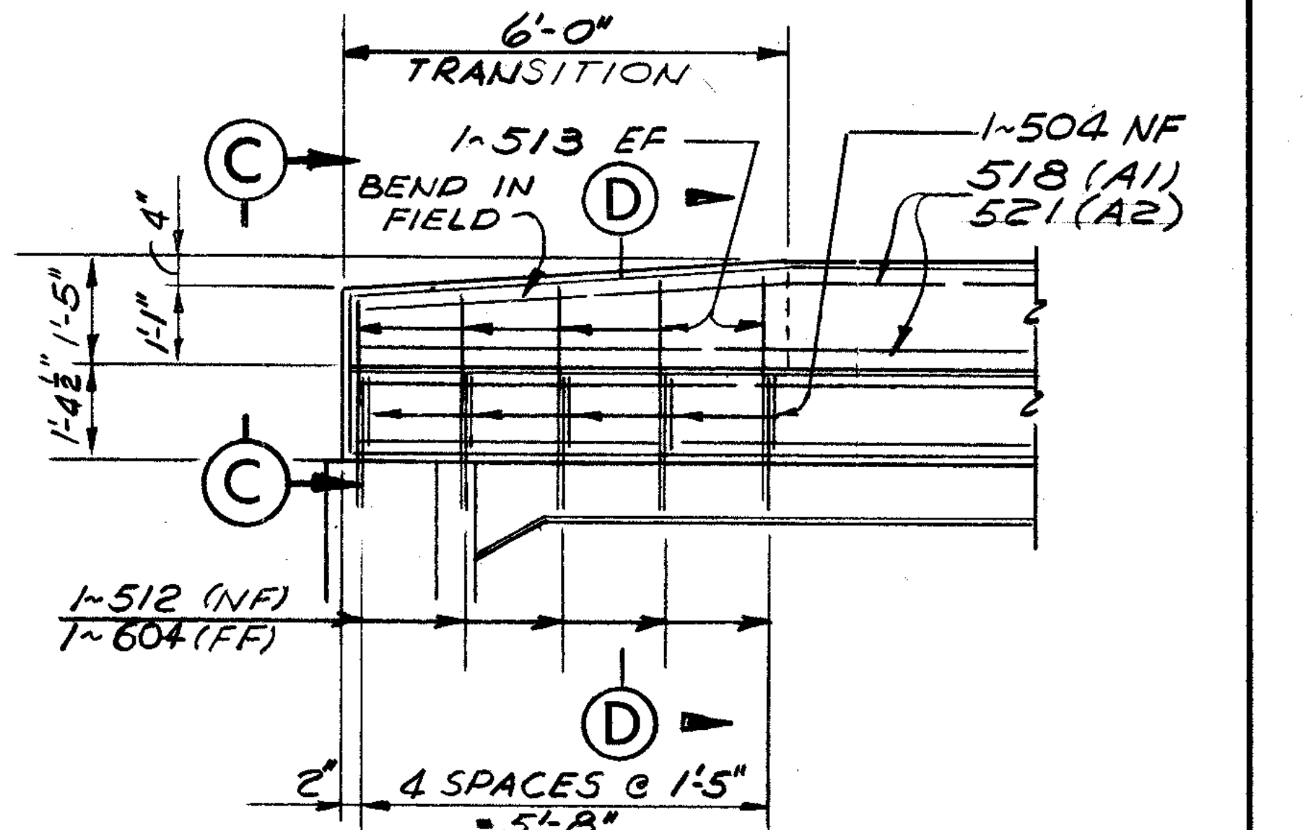
ELEVATION
(LOOKING DOWN STATION)
(ASPHALT CONCRETE NOT SHOWN)



VIEW "C-C"

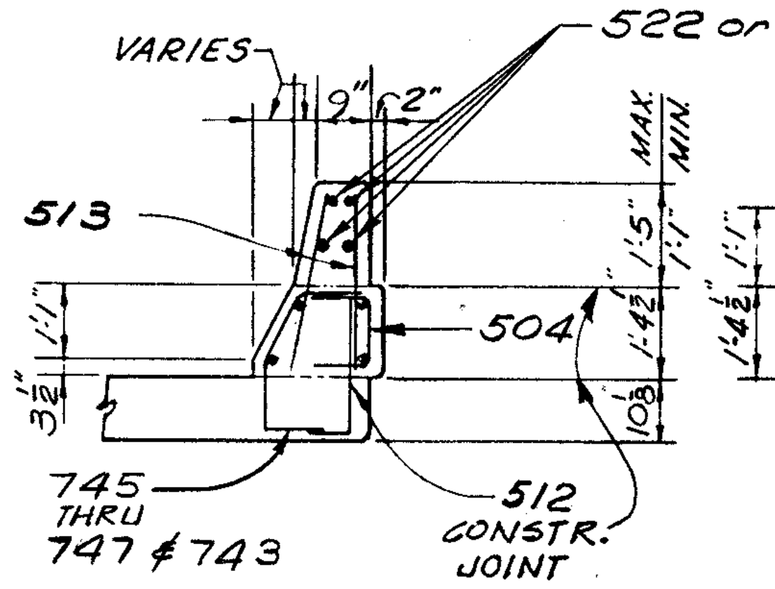


SECTION "D-D"

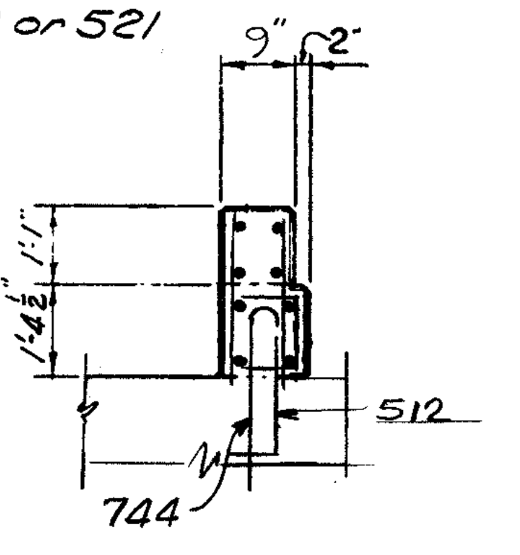


ELEVATION
DETAIL A

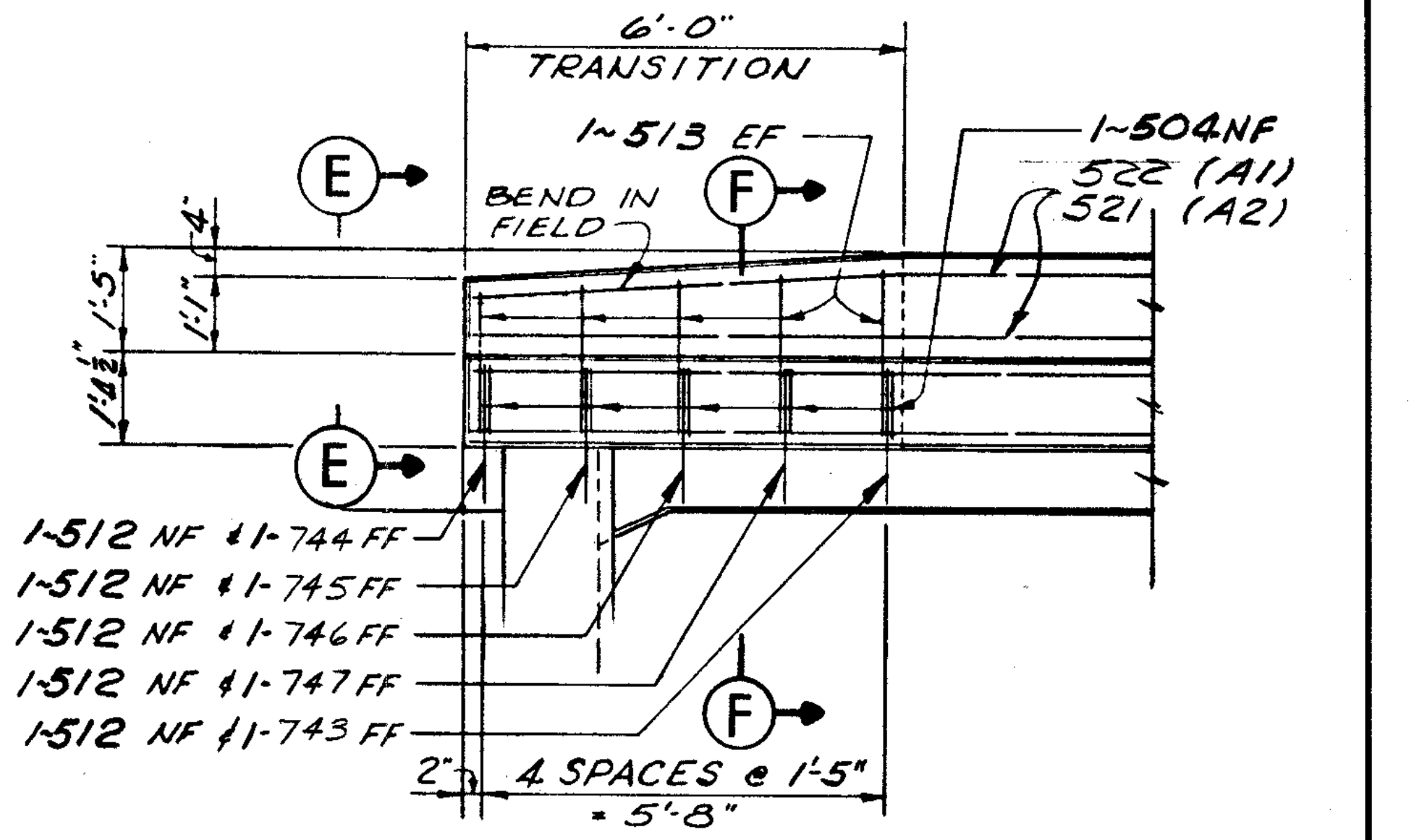
NOTE:
FOR DETAILS & NOTES NOT SHOWN
SEE STATE OF OHIO STANDARD
DRAWINGS BR-1-67 SHEET 1



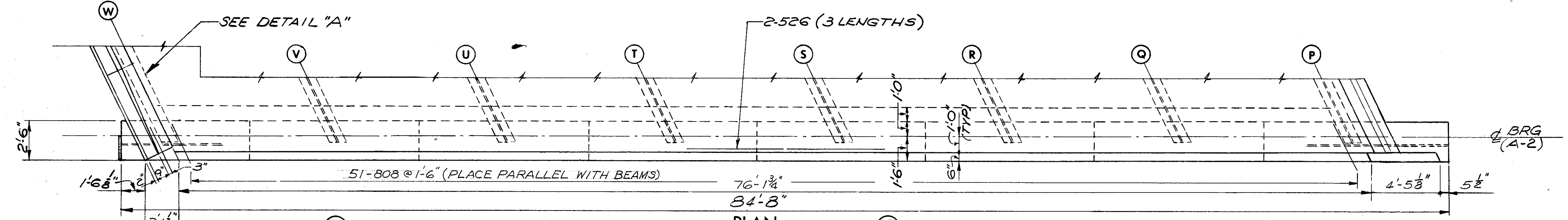
SECTION "F-F"



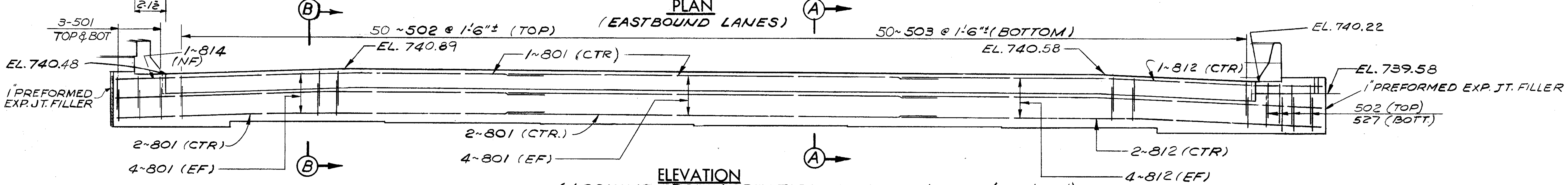
VIEW "E-E"



ELEVATION
DETAIL B



PLAN
(EASTBOUND LANES)



ELEVATION
(LOOKING DOWN STATION, ASPHALT CONCRETE NOT SHOWN)

FOR NOTES SEE SHEET 11/14

FOR SECTIONS "A-A", "B-B"
SEE SHEET 12/14 & "G-G"

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

13 / 14

DALTON · DALTON ASSOCIATES

SUPERSTRUCTURE DETAILS

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DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Hodovan	ALH		JWW	RDH	3-2-70	

MICROFILMED
SEP 28 1982

FED. RD.	STATE	PROJECT	
2	OHIO		

461/713

CUYAHOGA COUNTY
CUY-90-10.40

ABUTMENT A-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
1A 401	176	5- 5	2	1-11	1- 9				637
1A 501	24	30- 0	ST						751
1A 502	4	18- 5	ST						77
1A 503	106	7-11	2	3- 0	2- 2				875
1A 504	32	21-10	ST						729
1A 505	4	20- 6	ST						86
1A 506	2	10- 2	12	8- 4	1-10	0-11			21
SERIES	2-SETS	3- 9							
OF	OF 3=	TO	ST					2-10	41
1A 507	6 BARS	9- 5							
SERIES	2-SETS	2-10							
OF	OF 5=	TO	ST					0-10	47
1A 508	10 BARS	6- 2							
1A 509	2	6- 3	ST						13
1A 510	12	11- 3	ST						141
1A 511	4	6-11	ST						29
1A 512	2	13- 9	12	11- 0	2- 9	1- 2			29
SERIES	2-SETS	6- 4							
OF	OF 3=	TO	ST					3- 3	60
1A 513	6 BARS	12-10							
SERIES	2-SETS	2- 7						13	
OF	OF 7=	TO	ST					0- 8--	70
1A 514	14 BARS	7- 0						16	
1A 515	6	14- 9	ST						92
SERIES	2-SETS	2- 9						3	
OF	OF 5=	TO	ST					0- 8--	44
1A 516	10 BARS	5- 8						4	
1A 517	2	3-10	ST						8
SERIES	2-SETS	3- 3							
OF	OF 3=	TO	ST					3- 1	40
1A 518	6 BARS	9- 5							
1A 519	2	10- 1	12	8- 7	1- 6	0- 8			21
1A 520	6	10- 8	ST						67
SERIES	2-SETS	2- 8						1	
OF	OF 5=	TO	ST					0- 9--	44
1A 521	10 BARS	5- 9						4	
SERIES	2-SETS	3- 9						1	
OF	OF 3=	TO	ST					2- 5--	39
1A 522	6 BARS	8- 8						2	
1A 523	2	9- 4	12	8- 3	1- 1	0- 6			19
1A 524	2	6- 2	ST						13
1A 601	238	10- 5	3	5- 9	2- 4	2- 7			3724
1A 602	26	9- 5	3	5- 9	1- 4	2- 7			368
1A 603	246	3- 1	11	0- 6	2- 2	0- 6	1- 6		1139
1A 801	24	30- 0	ST						1922
1A 802	4	21- 2	ST						226
1A 803	1	30- 7	ST						82
1A 804	6	22- 4	ST						358
1A 805	1	14- 2	ST						38
1A 806	4	23- 3	ST						248
1A1001	3	30- 7	ST						395
1A1002	18	22- 8	ST						1756
1A1003	3	14- 8	ST						189
					TOTAL ABUTMENT			A-1 =	14438

ABUTMENT A-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
2A 401	176	5- 5	2	1-11	1- 9				637
2A 501	24	30- 0	ST						751
2A 502	4	19- 1	ST						80
2A 503	108	6- 7	2	2- 4	2- 2				742
2A 504	32	22- 0	ST						734
2A 505	4	17-11	ST						75
2A 506	2	10- 2	12	8-10	1- 4	0- 7			21
SERIES	2-SETS	2-10						1	
OF	OF 3=	TO	ST					3- 3--	38
2A 507	6 BARS	9- 5						2	
SERIES	2-SETS	3- 0						1	
OF	OF 5=	TO	ST					0- 8--	46
2A 508	10 BARS	5-10						2	
2A 509	2	6- 0	ST						13
2A 510	12	11- 3	ST						141
2A 511	4	6- 1	ST						25
2A 512	2	12- 6	12	9- 1	3- 5	1- 5			26
SERIES	2-SETS	5-11							
OF	OF 3=	TO	ST					2-11	55
2A 513	6 BARS	11- 9							
SERIES	2-SETS	2- 8						5	
OF	OF 6=	TO	ST					0- 8--	56
2A 514	12 BARS	6- 3						8	
2A 515	6	13- 8	ST						86
SERIES	2-SETS	2-10							
OF	OF 5=	TO	ST					0- 8	43
2A 516	10 BARS	5- 6							
2A 517	2	5- 8	ST						12
SERIES	2-SETS	3- 0						1	
OF	OF 3=	TO	ST					3- 2--	39
2A 518	6 BARS	9- 5						2	
2A 519	2	10- 0	12	8- 8	1- 4	0- 6			21
2A 520	6	9- 8	ST						60
SERIES	2-SETS	2- 8						5	
OF	OF 4=	TO	ST					0- 9--	32
2A 521	8 BARS	5- 0						16	
SERIES	2-SETS	3- 3						1	
OF	OF 3=	TO	ST					2- 2--	34
2A 522	6 BARS	7- 8						2	
2A 523	2	8- 4	12	7- 3	1- 1	0- 6			17
2A 524	2	5- 8	ST						12
2A 601	242	10- 6	3	5-10	2- 4	2- 7			3817
2A 602	26	9- 6	3	5-10	1- 4	2- 7			371
2A 603	246	3- 1	11	0- 6	2- 2	0- 6	1- 6		1139
2A 801	24	30- 0	ST						1922
2A 802	4	21-10	ST						233
2A 803	1	30- 3	ST						81
2A 804	6	22- 6	ST						360
2A 805	1	14-10	ST						40
2A 806	4	20- 8	ST						221
2A1001	3	30- 3	ST						390
2A1002	18	22-10	ST						1769
2A1003	3	15- 4	ST						198
					TOTAL ABUTMENT			A-2 =	14337

PIER P-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
1P 501	544	8-10	2	3- 8	1- 9				5012
1P 502	56	2- 9	ST						161
1P 503	48	10- 5	2	4- 0	2- 8				522
1P 601	32	18- 7	ST						893
1P 602	40	7- 6	12	2- 0	5- 6	0- 6			451
1P 901	160	8- 6	ST						4624
1P1001	20	24- 0	ST						2065
1P1101	128	7- 0	1	1- 0	6- 3				4760
1P1102	72	22- 3	1	3- 0	19- 6				8511
1P1103	16	14- 9	1	3- 0	12- 0				1254
1P1107	32	27- 8	ST						4704
1P1108	32	25- 8	ST						4364
1P1110	32	22- 1	ST						3755
1P1111	32	20- 8	ST						3514
						TOTAL PIER		P-1 =	44590

PIER P-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
2P 501	544	8-10	2	3- 8	1- 9				5012
2P 502	56	2- 9	ST						161
2P 503	48	10- 5	2	4- 0	2- 8				522
2P 601	32	18- 7	ST						893
2P 602	40	7- 6	12	2- 0	5- 6	0- 6			451
2P 901	160	8- 6	ST						4624
2P1001	20	24- 0	ST						2065
2P1101	128	7- 0	1	1- 0	6- 3				4760
2P1102	72	22- 3	1	3- 0	19- 6				8511
2P1103	16	14- 9	1	3- 0	12- 0				1254
2P1107	96	24- 4	ST						12411
2P1108	32	24-10	ST						4222
						TOTAL PIER		P-2 =	44886

SPIRAL REINFORCING SCHEDULE

SPIRALS-PIER P-1

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
1P-SP401	2	2- 8	23-10	4.50	887
1P-SP402	2	2- 8	21-11	4.50	818
1P-SP404	2	2- 8	18- 2	4.50	684
1P-SP405	2	2- 8	16- 9	4.50	633
		TOTAL	SPIRALS-PIER	P-1 =	3022

SPIRALS-PIER P-2

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
2P-SP401	2	2- 8	20-10	4.50	779
2P-SP402	2	2- 8	20- 7	4.50	770
2P-SP404	2	2- 8	20- 8	4.50	773
2P-SP405	2	2- 8	21- 0	4.50	785
		TOTAL	SPIRALS-PIER	P-2 =	3107

FOUR ANGLE SPACERS WEIGHING APPROX. 0.80 LBS. PER LINEAL FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT LISTED ABOVE. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED SPIRAL WEIGHT.

THE LENGTH SHOWN IN THE STEEL SCHEDULE FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE TOP OF THE COLUMN INCLUDING THREE (3) CLOSED COILS (ONE AND ONE HALF CLOSED COILS AT THE ENDS OF EACH SPIRAL UNIT).

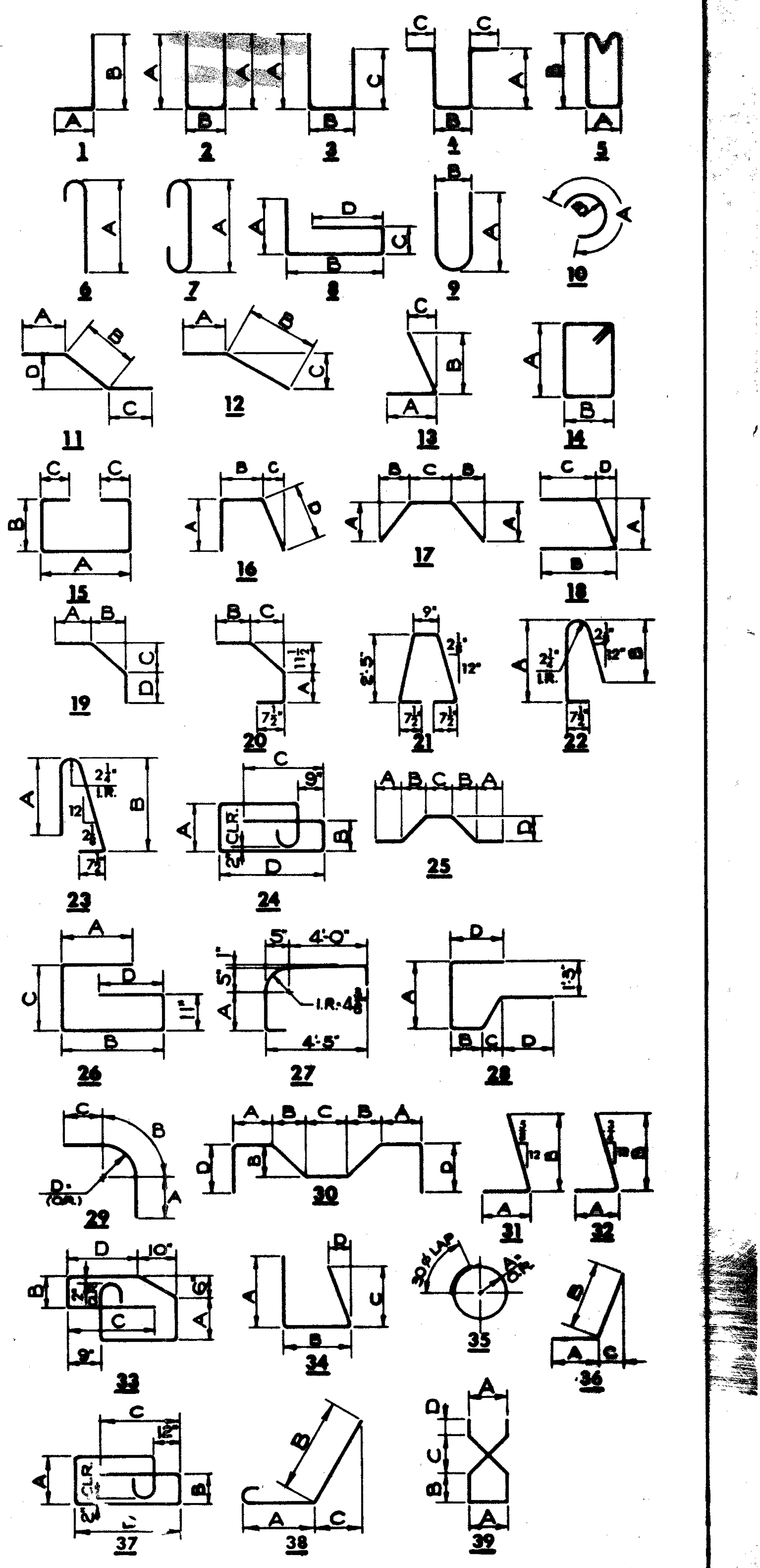
SUPERSTRUCTURE S-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
1S 501	12	6- 7	2	2- 4	2- 2				82
1S 502	106	6- 1	2	2- 4	1- 8				673
1S 503	100	7- 4	8	1- 7	2- 2	2- 0	1-11		765
1S 504	141	2- 2	2	0- 8	1- 1				319
1S 505	131	5- 6	23	2- 3	2- 6				751
1S 506	131	2- 5	1	0- 8	1-10				330
1S 507	131	3- 3	20	0-11	0- 9	0- 8			444
1S 508	193	2-11	20	0-11	0- 5	0- 8			587
1S 509	193	2- 9	3	0- 9	1-10	0- 5			554
1S 510	193	3- 1	13	0- 8	2- 6	0- 5			621
1S 511	193	2- 6	ST						503
1S 512	10	2- 5	1	0- 8	1-10				25
1S 513	20	2- 2	ST						45
1S 518	4	12- 8	ST						53
1S 519	40	15- 8	ST						654
1S 520	88	7- 2	ST						658
1S 521	4	12-11	ST						54
1S 524	4	11- 6	ST						48
1S 525	4	12- 6	ST						52
1S 526	12	26- 6	ST						332
1S 527	6	7-10	8	1- 7	2- 2	2- 6	1-11		49
1S 601	852	30- 0	ST						38391
1S 602	142	19- 6	ST						4159
1S 603	104	40- 0	ST						6248
1S 604	5	3- 2	20	0-11	0- 8	0- 9			24
SERIES	2-SETS	3- 5						13	
OF	OF 13=	TO	ST					1- 5--	655
1S 701	26 BARS	21- 3						16	
1S 702	498	22- 7	ST						22988
SERIES	1-SET	2- 5						7	
OF	OF 14=	TO	ST					1- 5--	346
1S 703	14 BARS	21- 9						8	
SERIES	2-SETS	3- 1						13	
OF	OF 19=	TO	ST					1- 5--	1278
1S 704	38 BARS	29-10						16	
1S 705	486	30- 0	ST						29802
SERIES	1-SET	2-10						7	
OF	OF 14=	TO	ST					1- 5--	358
1S 706	14 BARS	22- 2						8	
SERIES	1-SET	3- 9						7	
OF	OF 16=	TO	ST					1- 5--	488
1S 707	16 BARS	26- 1						8	
1S 708	245	27- 4	ST						13688
SERIES	1-SET	2- 5						7	
OF	OF 18=	TO	ST					1- 5--	555
1S 709	18 BARS	27- 9						8	
SERIES	1-SET	3- 7						13	
OF	OF 19=	TO	ST					1- 5--	659
1S 710	19 BARS	30- 4						16	
SERIES	1-SET	4- 1						7	
OF	OF 18=	TO	ST					1- 5--	616
1S 711	18 BARS	29- 5						8	
SERIES	1-SET	2-10						7	
OF	OF 11=	TO	ST					1- 5--	231
1S 712	11 BARS	17- 9						8	
1S 713	252	17-10	ST						9186
SERIES	1-SET	2-11						7	
OF	OF 10=	TO	ST					1- 5--	197
1S 714	10 BARS	16- 4						8	
1S 743	1	3- 2	20	0-11	0- 8	0- 9			6
1S 744	1	4- 4	6	3- 6					9
1S 745	1	2-11	20	0-11	0- 8	0- 2			6
1S 746	1	3- 0	20	0-11	0- 8	0- 4			6
1S 747	1	3- 0	20	0-11	0- 8	0- 6			6
1S 801	44	30- 0	ST						3524
1S 802	11	27- 7	ST						810
1S 803	11	28- 8	ST						842
1S 805	1	4- 0	ST						11
1S 808	100	5- 4	16	1- 1	3- 0	1- 1	1- 6		1424
1S 813	1	2- 7	ST						7
					TOTAL	SUPERSTRUCTURE		S-1 =	144119

SUPERSTRUCTURE S-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
2S 501	12	6- 7	2	2- 4	2- 2				82
2S 502	107	6- 1	2	2- 4	1- 8				679
2S 503	100	7- 4	8	1- 7	2- 2	2- 0	1-11		765
2S 504	139	2- 2	2	0- 8	1- 1				314
2S 505	129	5- 6	23	2- 3	2- 6				740
2S 506	129	1- 8	1	0- 8	1- 1				224
2S 507	129	3- 3	20	0-11	0- 9	0- 8			437
2S 508	193	2-11	20	0-11	0- 5	0- 8			587
2S 509	193	2- 9	3	0- 9	1-10	0- 5			554
2S 510	193	3- 1	13	0- 8	2- 6	0- 5			621
2S 511	193	2- 6	ST						503
2S 512	10	2- 5	1	0- 8	1-10				25
2S 513	20	2- 2	ST						45
2S 519	40	15- 8	ST						654
2S 520	88	7- 2	ST						658
2S 521	4	12-11	ST						54
2S 522	4	11- 9	ST						49
2S 524	4	11- 6	ST						48
2S 525	4	12- 6	ST						52
2S 526	12	26- 6	ST						332
2S 527	7	7-10	8	1- 7	2- 2	2- 6	1-11		57
2S 601	852	30- 0	ST						38391
2S 602	142	19- 6	ST						4159
2S 603	104	40- 0	ST						6248
2S 604	5	3- 2	20	0-11	0- 8	0- 9			24
2S 705	486	30- 0	ST						29802
SERIES	1-SET	4- 4						15	
OF	OF 13=	TO	ST					1- 5--	353
2S 726	13 BARS	22- 3						16	
2S 727	248	23- 9	ST						12039
SERIES	1-SET	2- 7						5	
OF	OF 15=	TO	ST					1- 6--	406
2S 728	15 BARS	23-11						16	
SERIES	1-SET	3- 9						7	
OF	OF 19=	TO	ST					1- 5--	667
2S 729	19 BARS	30- 7						8	
SERIES	1-SET	3- 5						7	
OF	OF 18=	TO	ST					1- 5--	592
2S 730	18 BARS	28- 9						8	
SERIES	1-SET	3- 3						15	
OF	OF 13=	TO	ST					1- 5--	324
2S 731	13 BARS	21- 2						16	
2S 732	249	22- 9	ST						11579
SERIES	1-SET	4- 0						15	
OF	OF 13=	TO	ST					1- 5--	344
2S 733	13 BARS	21-11						16	
SERIES	1-SET	4- 8						7	
OF	OF 16=	TO	ST					1- 5--	518
2S 734	16 BARS	27- 0						8	
2S 735	244	28- 6	ST						14214
SERIES	1-SET	2- 7						7	
OF	OF 19=	TO	ST					1- 5--	621
2S 736	19 BARS	29- 5						8	
SERIES	1-SET	3-11						7	
OF	OF 19=	TO	ST					1- 5--	673
2S 737	19 BARS	30- 9						8	
SERIES	1-SET	4- 7						7	
OF	OF 17=	TO	ST					1- 5--	573
2S 738	17 BARS	28- 5						8	
SERIES	1-SET	3- 3						3	
OF	OF 10=	TO	ST					1- 5--	203
2S 739	10 BARS	16- 7						4	
2S 740	252	18- 0	ST						9272
SERIES	1-SET	3- 9						7	
OF	OF 10=	TO	ST					1- 5--	214
2S 741	10 BARS	17- 2						8	
2S 743	1	3- 2	20	0-11	0- 8	0- 9			6
2S 744	1	4- 4	6	3- 6					9
2S 745	1	2-11	20	0-11	0- 8	0- 2			6
2S 746	1	3- 0	20	0-11	0- 8	0- 4			6
2S 747	1	3- 0	20	0-11	0- 8	0- 6			6
2S 801	44	30- 0	ST						3524
2S 808	102	5- 4	16	1- 1	3- 0	1- 1	1- 6		1452
2S 811	11	28- 1	ST						825
2S 812	11	29- 4	ST						862
2S 814	1	3- 3	ST						9
					TOTAL	SUPERSTRUCTURE		S-2 =	145,401

ABUTMENT TOTAL =	28,775
PIER TOTAL =	95,605
SUPERSTRUCTURE TOTAL =	289,520
GRAND TOTAL =	413,900



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

14/14

DALTON • DALTON ASSOCIATES

REINFORCING SCHEDULE

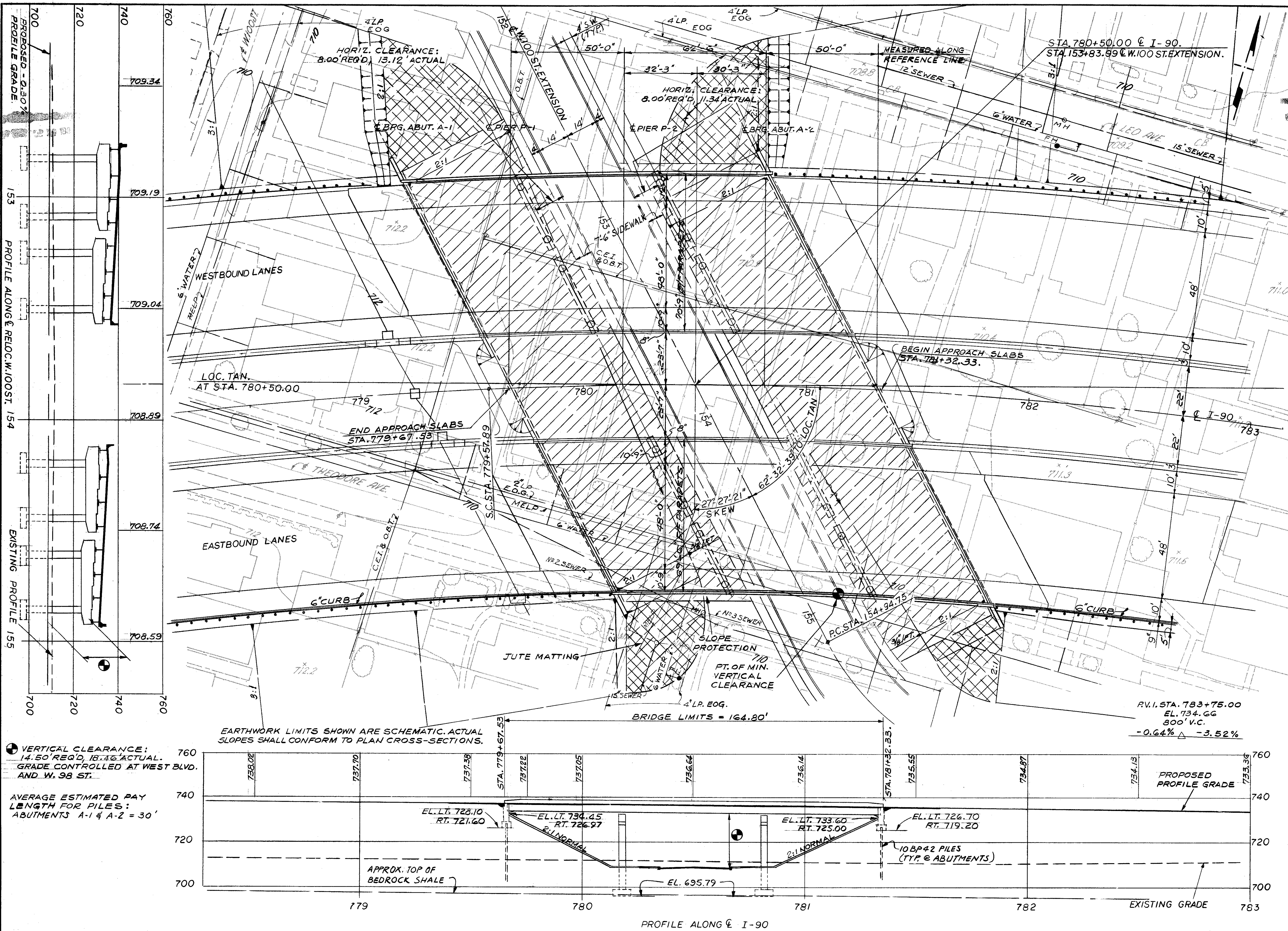
BRIDGE NO. CUY-90-1127 L/R
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP AJ	RL		JFP	RDH	3-2-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

462
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



● VERTICAL CLEARANCE:
14.50' REQ'D, 18.46' ACTUAL.
GRADE CONTROLLED AT WEST BLVD. AND W. 98 ST.

AVERAGE ESTIMATED PAY LENGTH FOR PILES:
ABUTMENTS A-1 & A-2 = 30'

CURVE DATA

℄ I-90

P.I. STA. 781+88.41

$\Delta = 25°-21'-57''$ RT.	$\Delta = 13°-21'-57''$ RT.
$T_s = 630.52'$	$D_c = 3°-00'-00''$
$Q_s = 6°-00'-00''$	$R = 1909.86'$
$L_s = 400.00'$	$T = 223.78'$
$LT = 266.82'$	$L_c = 445.53'$
$ST = 133.47'$	

℄ RELOCATED W. 100 ST.

P.I. STA. 155+76.38
$\Delta = 57°-06'-39''$
$R = 150.00'$
$T = 81.63'$
$L_c = 149.52'$

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.

SKEW: 27°-27'-21" RF. TO REFERENCE LINE

SPANS: 50'-0", 62'-6", 50'-0" C/C BRG ALONG REFERENCE LINE

ROADWAY: 70'-9" F/F PARAPETS W.B. LANES
69'-6" F/F PARAPETS E.B. LANES

LOADING: HS 20-44 AND INT. ALT. LOADING.

WEARING SURFACE: 2½" ASPHALT CONCRETE

APPROACH SLABS: 25' LONG (AS-1-72)

ALIGNMENT: SPIRAL AND 3°00'-00" CURVE RT.

SUPERELEVATION: TRANSITION.

SLOPE PROTECTION: CONCRETE

TRAFFIC: I-90 138,356 A.D.T. 1975.
RELOC. W. 100 ST. 5,060 A.D.T. 1975.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1 / 14

DALTON · DALTON ASSOCIATES

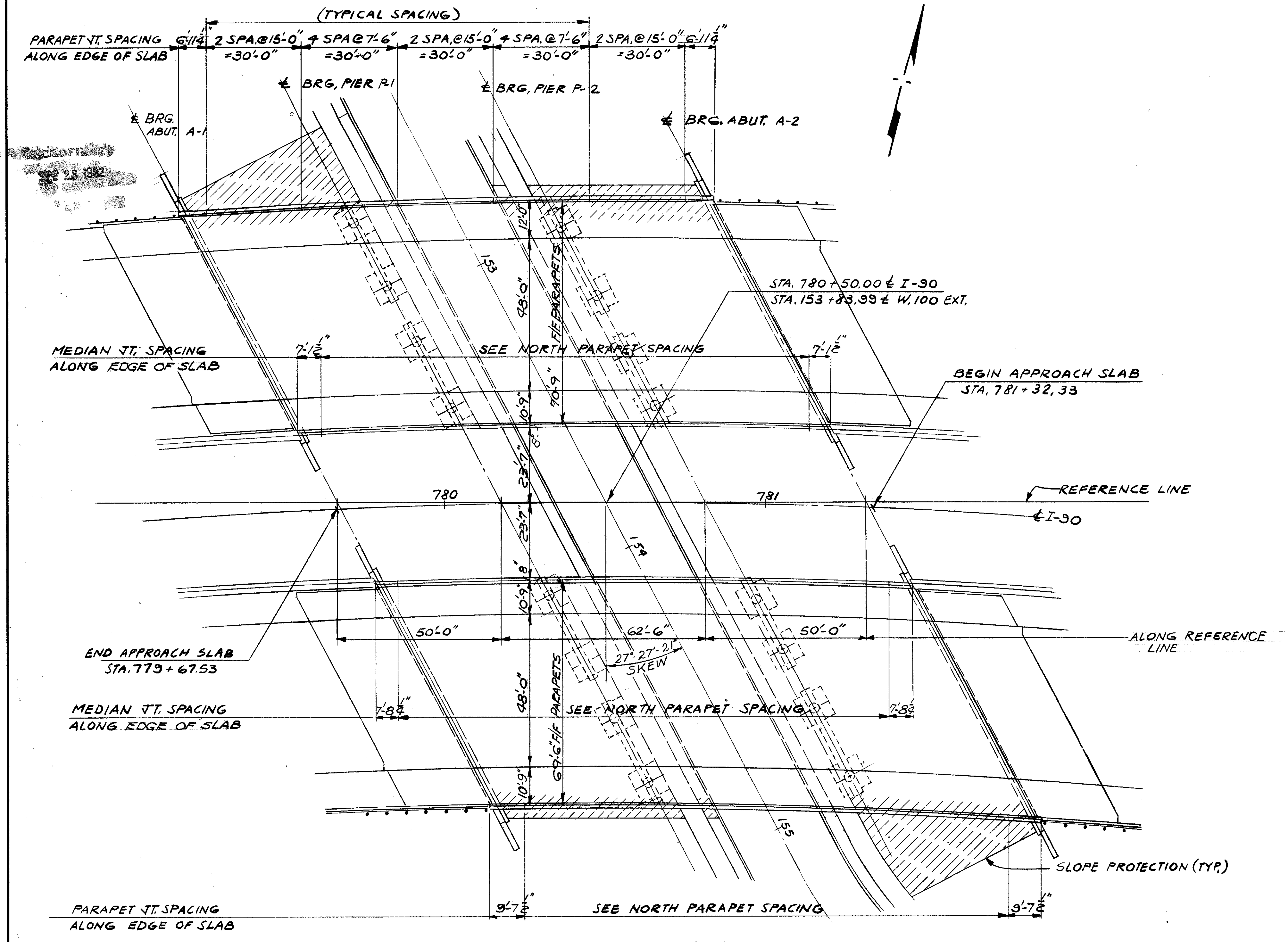
SITE PLAN

BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

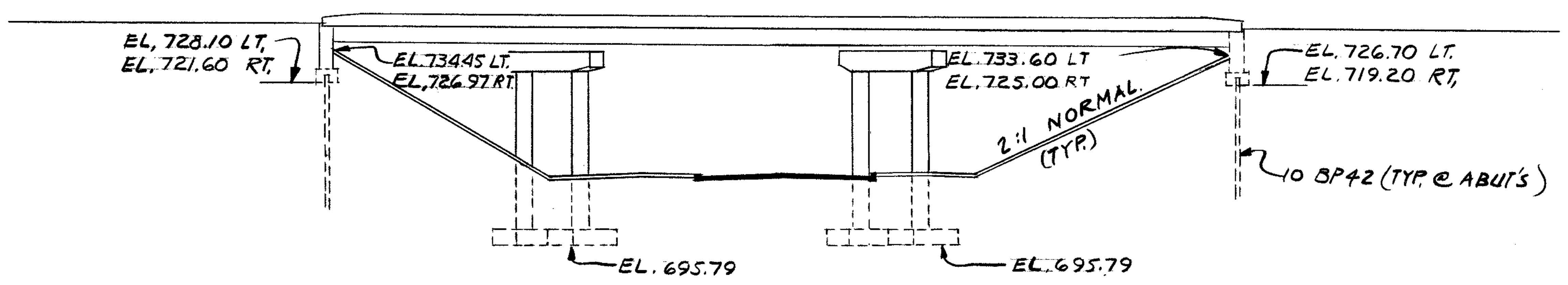
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L. B.	J.K.		D.H.S.	RDH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



GENERAL PLAN



ELEVATION

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
404	175	CY	ASPHALT CONCRETE AC-20	175					
SPEC	2520	SY	MEMBRANE WATERPROOFING, HOT APPLIED LIQUID (SEE PROPOSAL NOTE)	2520					
503	LUMP	LSUM	COFFERDAMS, CRIBS AND SHEETING			LUMP			
503	1786	CY	UNCLASSIFIED EXCAVATION		553	1233			
503	30	CY	SHALE EXCAVATION			30			
505	LUMP	LSUM	TEST PILE		LUMP				
507	2610	LF	STEEL PILES, HP10X42		2610				
509	426948	LB	REINFORCING STEEL	248969	34731	143248			
511	801	CY	CLASS C CONCRETE, SUPERSTRUCTURE	801					
511	270	CY	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			270			
511	213	CY	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS		213				
511	324	CY	CLASS C CONCRETE, FOOTINGS		147	177			
512	402	LF	PREMOLDED SEALING STRIP		402				
513	487800	LB	STRUCTURAL STEEL	487800					
514	487800	LB	FIELD PAINTING OF STRUCTURAL STEEL	487800					
516	301	SF	1/4 IN. PREFORMED EXPANSION JOINT FILLER		301				
516	280	SF	1 IN. PREFORMED EXPANSION JOINT FILLER		280				
516	96	SF	3/4 IN. THICK ELASTOMERIC BEARING PADS	96					
518	249	CY	POROUS BACKFILL		249				
518	438	LF	6 IN. PERFORATED, HELICAL CMP 707.01		438				
518	53	LF	6 IN. NON-PERFORATED, HELICAL CMP INCL. SPECIALS, 707.01		53				
518	663	LF	SUBDRAINAGE FOR WEARING COURSE AS PER PLAN	663					
601	2904	SY	CONCRETE SLOPE PROTECTION		2904				
625			SEE SHEET 496 FOR LIGHTING SUMMARY						
808	801	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	801					
			QUANTITIES CHECKED BY CVW 10/10/73						

NOTES

① FOR STRUCTURAL GENERAL NOTES, SEE SHEET 411

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

2 / 14

DALTON • DALTON ASSOCIATES

GENERAL PLAN & ELEVATION

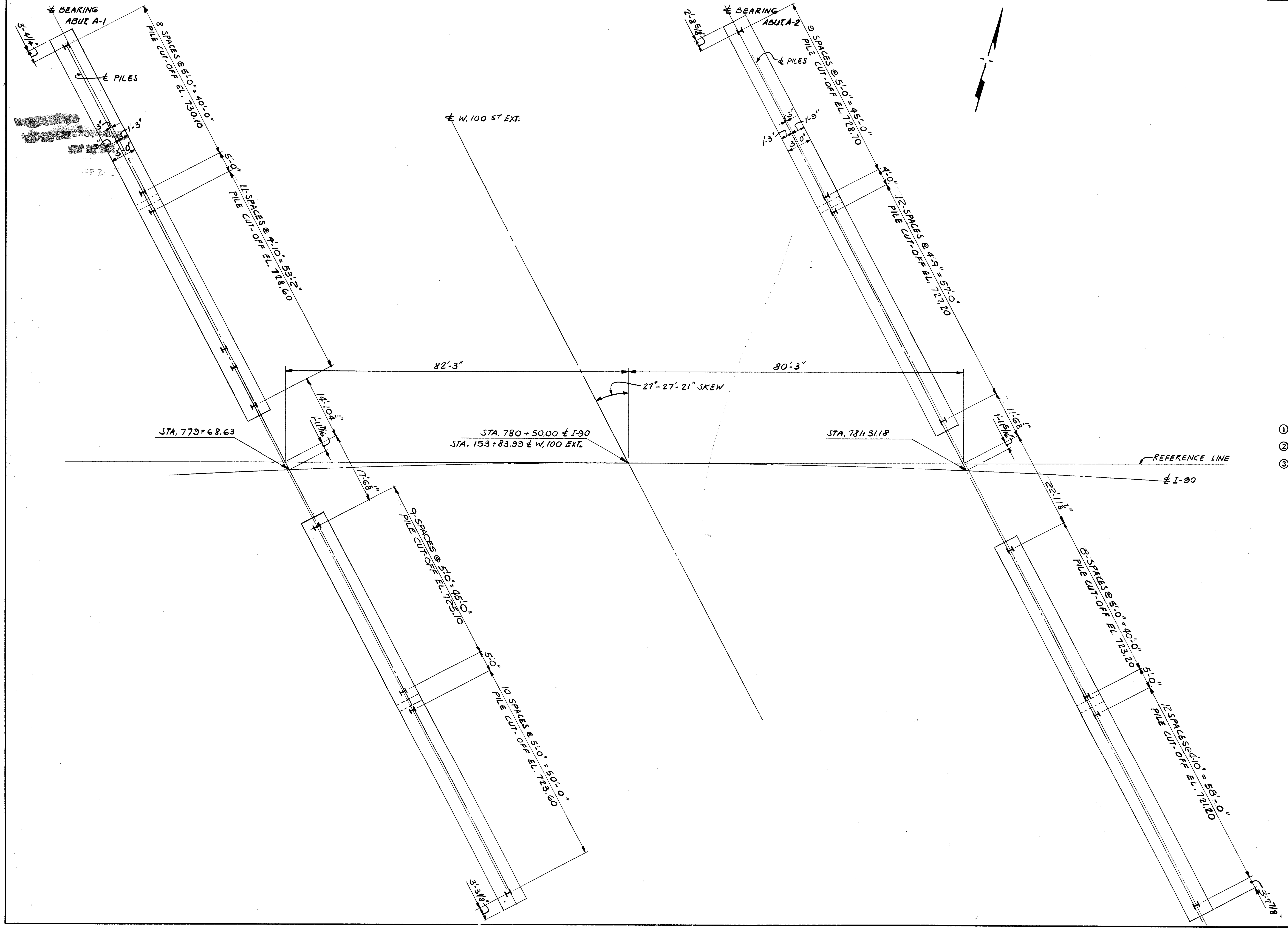
BRIDGE NO. CUY-90-1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779+67.53 TO STA. 781+32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L. B.	E.A.B.		D.T.S.		2-25-70	8-15-75

FED. RD.	STATE	PROJECT		
2	OHIO			

464
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



NOTES

① ALL PILES SHALL BE 10BP42 STEEL PILES.

② FOR PILE CUT-OFF ELEVATIONS, SEE PILING PLAN.

③ PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK OR TO 20 BLOWS PER INCH FOR THE LAST FEW INCHES OF PENETRATION. THE DESIGN LOAD IS 35 TONS PER PILE.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3/14

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PILING PLAN

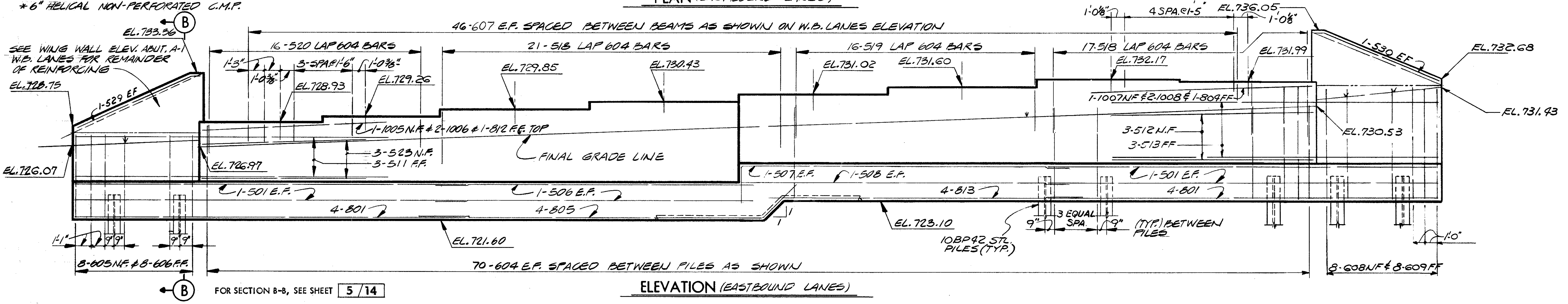
BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D. J.F.P.	HSL		L.B.	RBH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

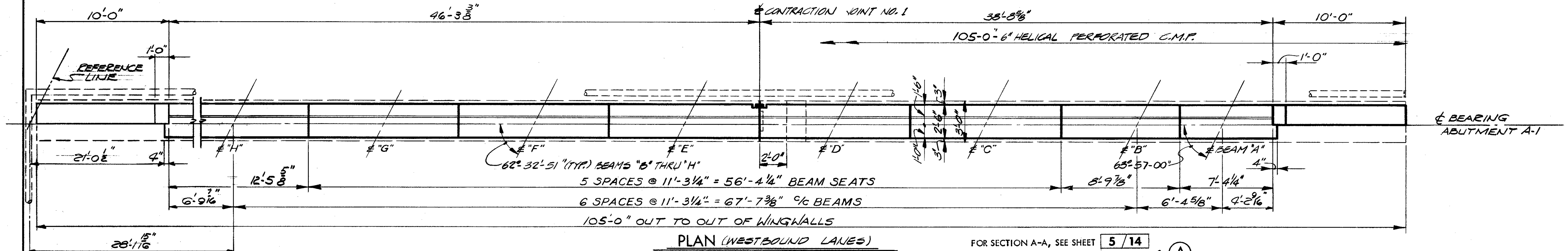
CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN (EASTBOUND LANES)



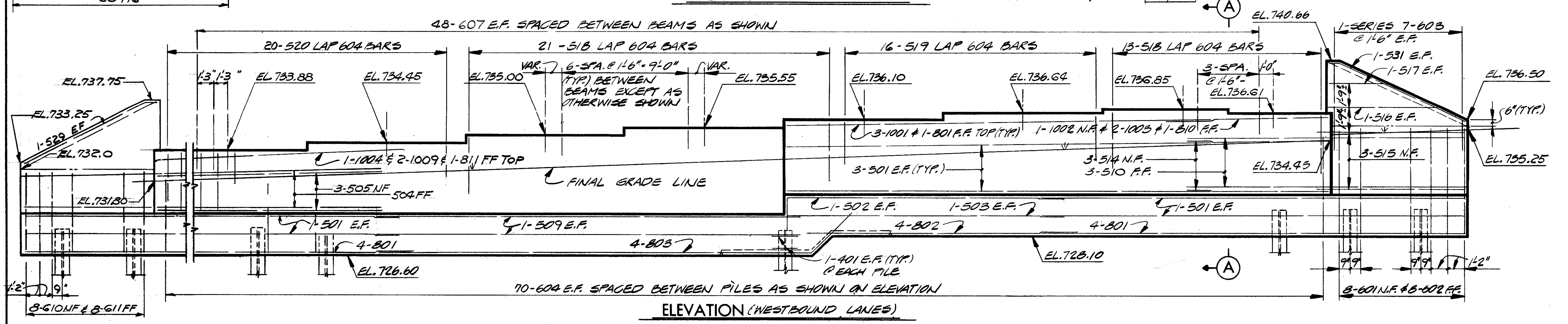
ELEVATION (EASTBOUND LANES)

FOR SECTION B-B, SEE SHEET 5/14



PLAN (WESTBOUND LANES)

FOR SECTION A-A, SEE SHEET 5/14



ELEVATION (WESTBOUND LANES)

FOR TERMINATION OF C.M.P., SEE SHEET 5/14

FOR NOTES, SEE SHEET 5/14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

4/14

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ABUTMENT A-1

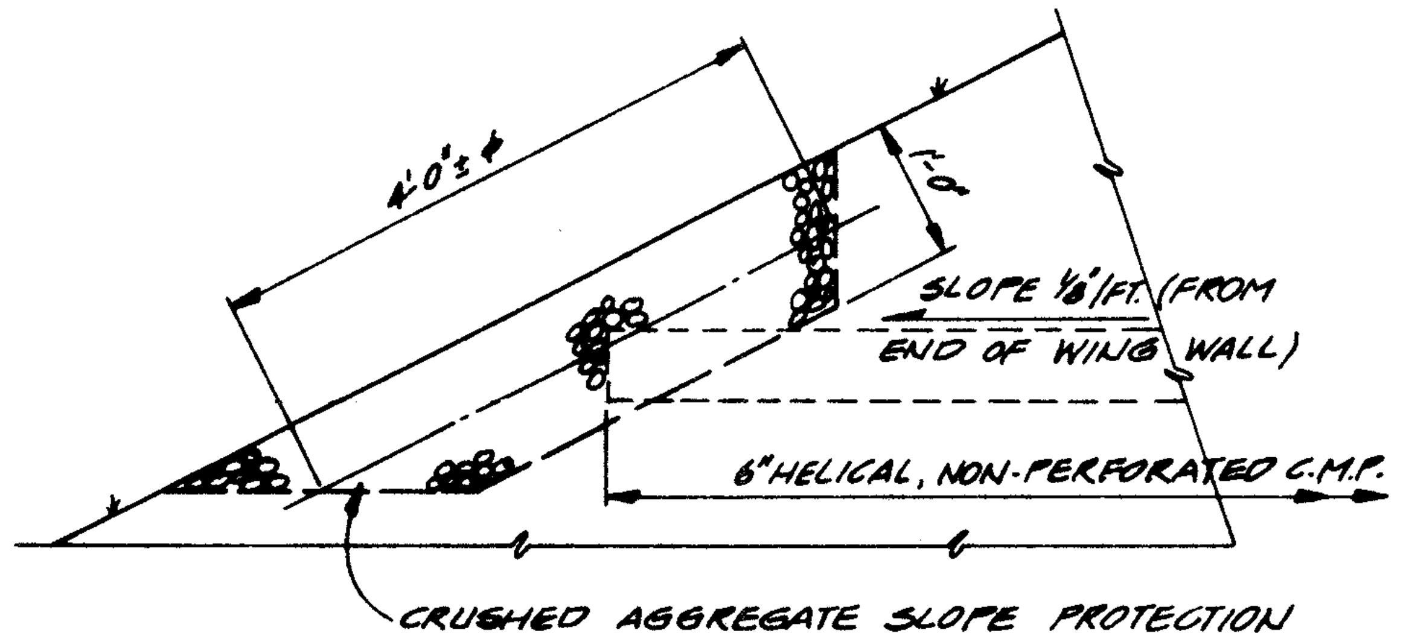
BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B.	RDH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

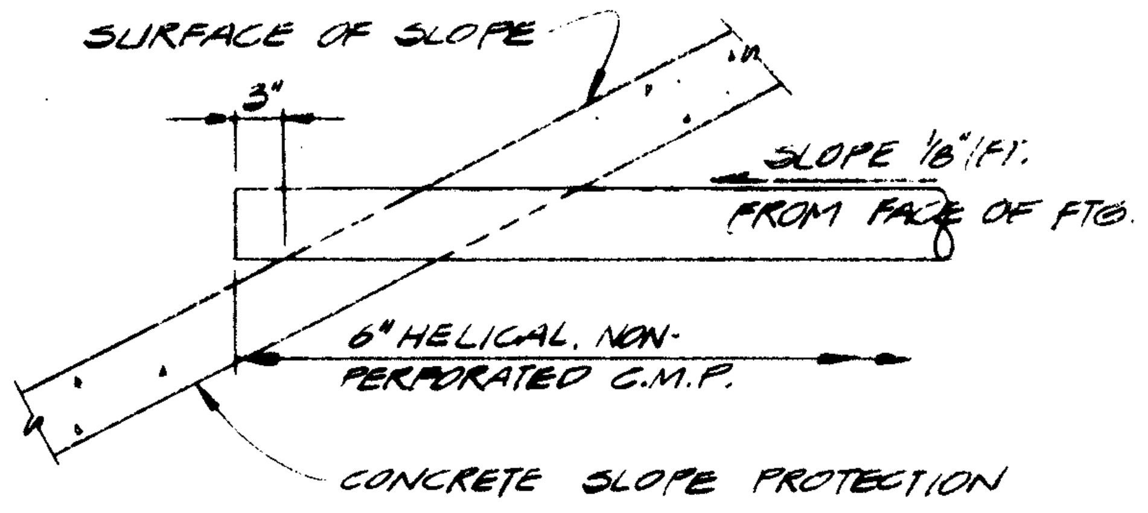
466
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



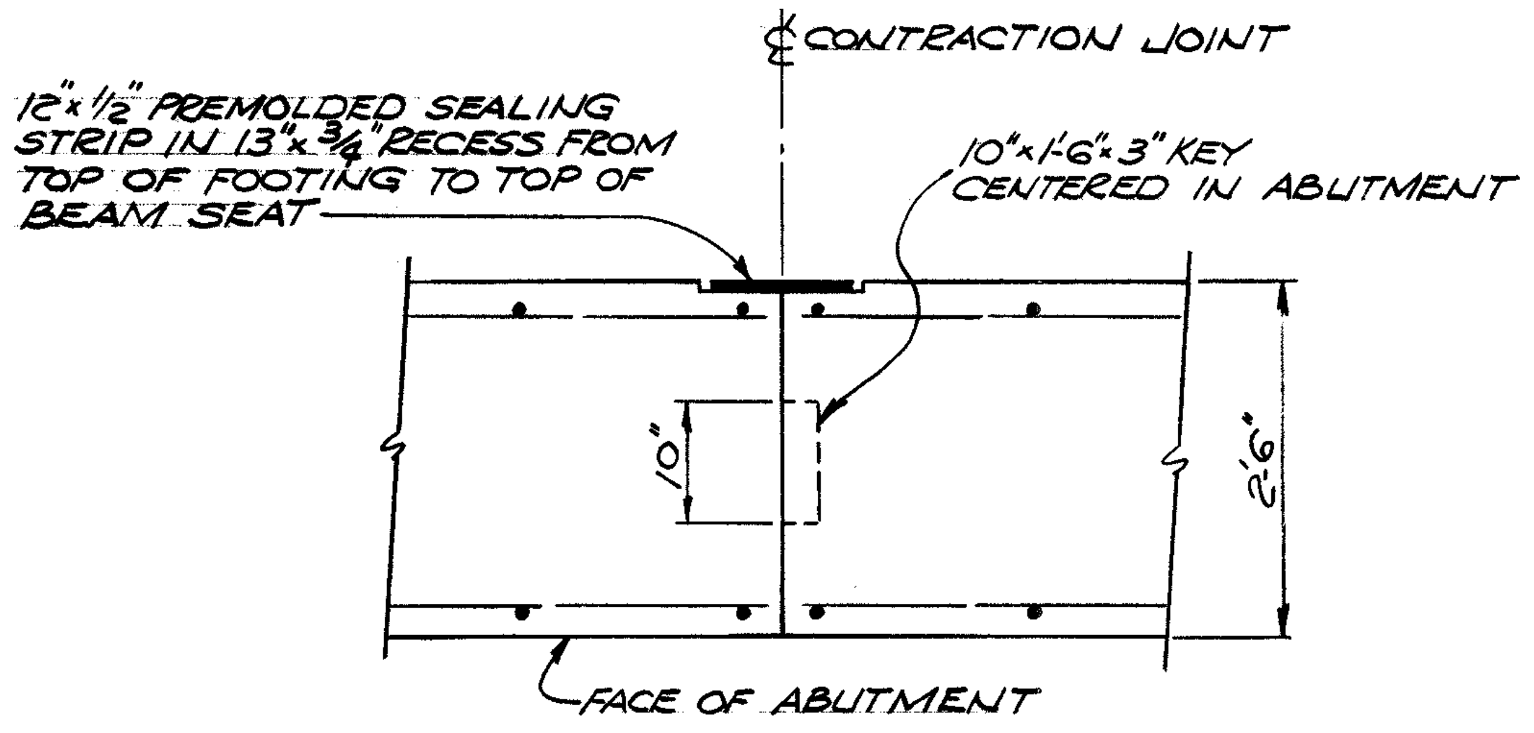
DETAIL

TERMINATION OF 6" HELICAL, NON-PERFORATED C.M.P AT SLOPE

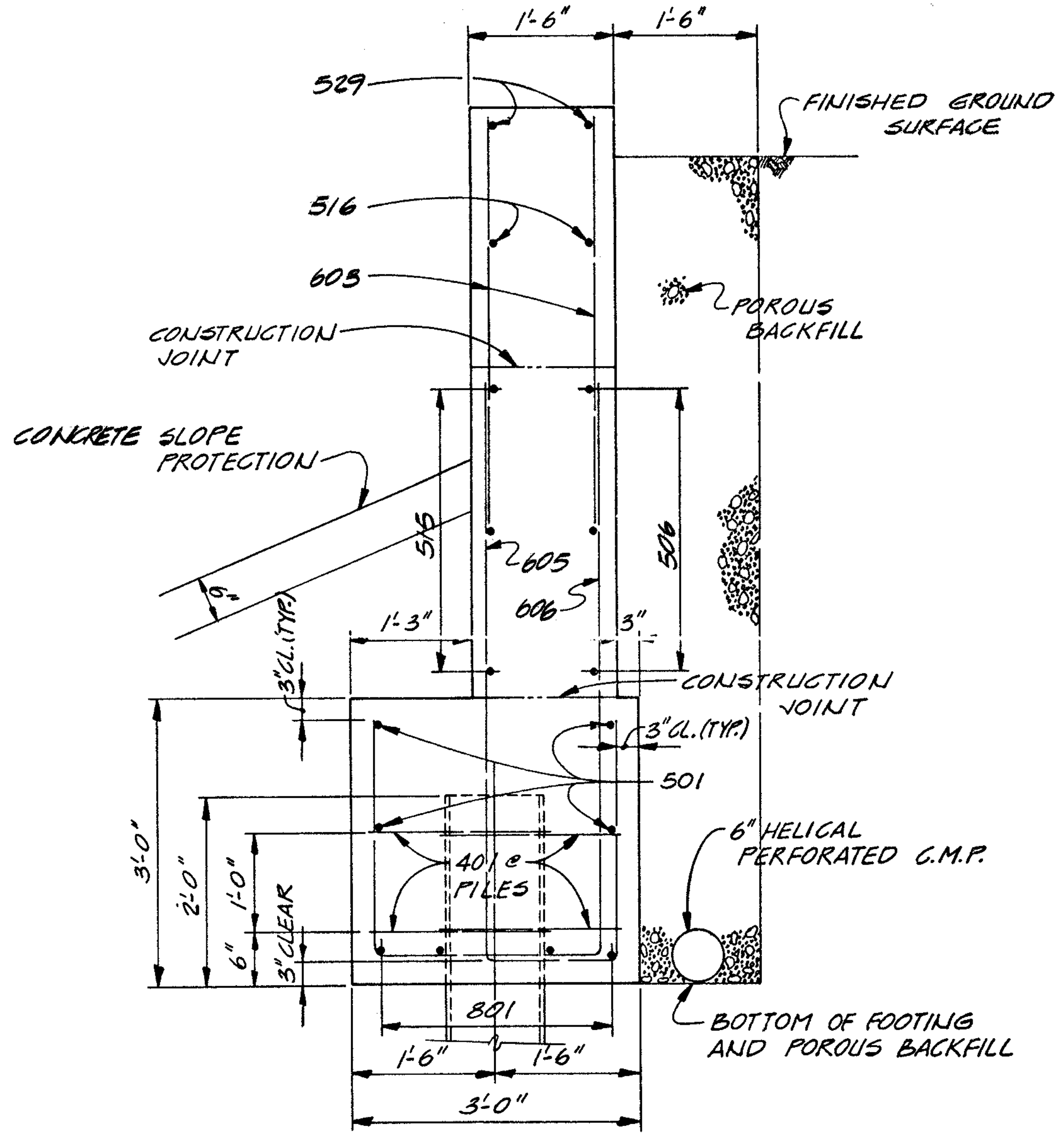


DETAIL

TERMINATION OF 6" HELICAL, NON-PERFORATED C.M.P. AT SLOPE

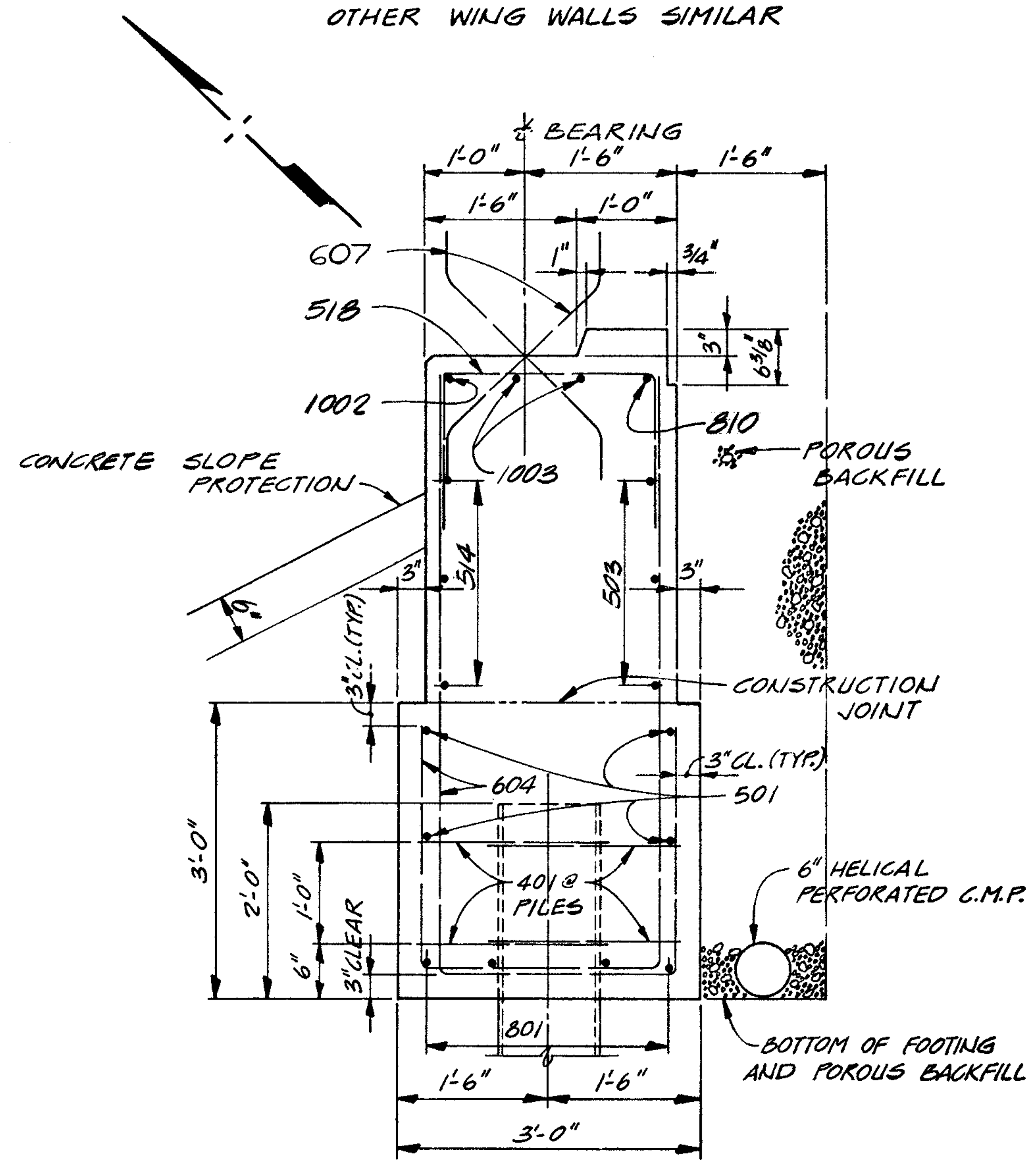


ABUTMENT CONTRACTION JOINT DETAIL



SECTION B-B

OTHER WING WALLS SIMILAR



SECTION A-A

OTHER ABUTMENT SIMILAR

NOTES

①ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

②POROUS BACKFILL SHALL EXTEND UPWARD TO THE SUBGRADE AND OUTWARD TO THE SURFACE OF THE EMBANKMENT SLOPES.

③THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENTS A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

④EMBANKMENT PROCEDURE: THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENTS.

⑤FOR PILING PLAN, SEE SHEET 3 /14

⑥FOR ADDITIONAL DETAILS, SEE SLAB PLAN AND SECTION, SHEET 11 /14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

5 /14

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ABUTMENTS

BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I - 90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

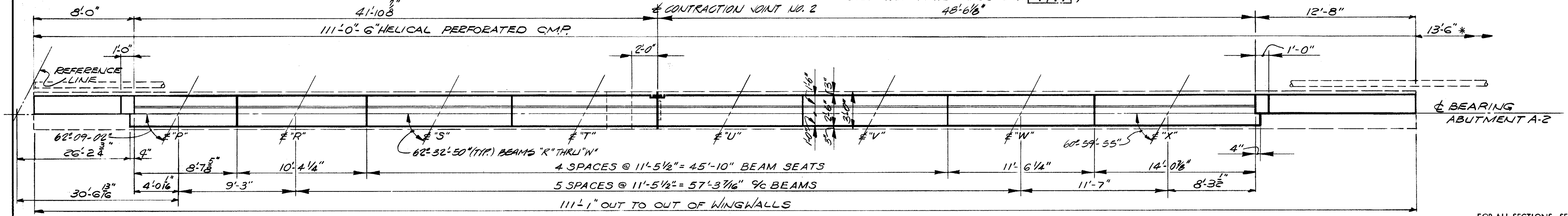
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B.	RAH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

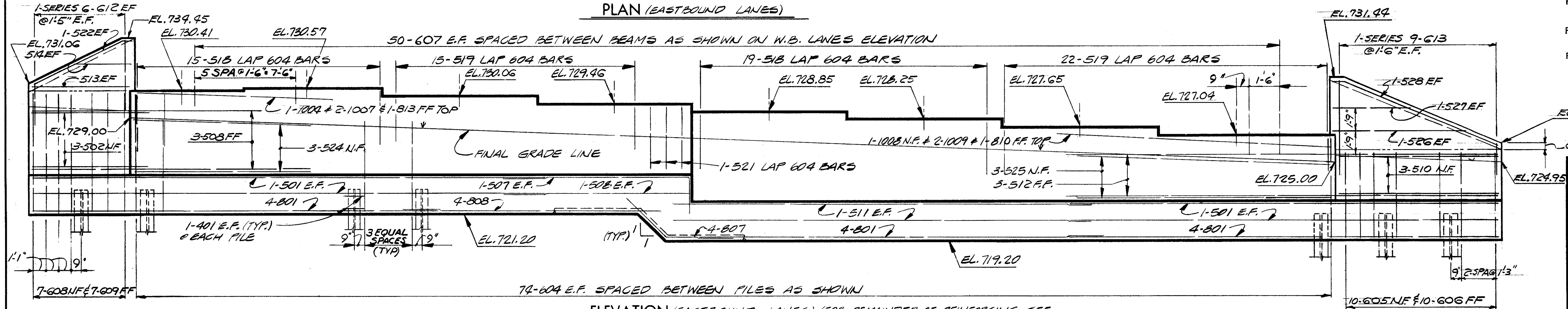
PLAN (WESTBOUND LANES)

* 6" HELICAL NON-PERFORATED C.M.P.

ELEVATION (WESTBOUND LANES) (FOR REMAINDER OF REINFORCING SEE ELEV. ABUT. A-1 W.B. LANES SHT. 4 / 14)



PLAN (EASTBOUND LANES)



ELEVATION (EASTBOUND LANES) (FOR REMAINDER OF REINFORCING SEE ELEV. ABUT. A-1 W.B. LANES SHT. 4 / 14)

FOR ALL SECTIONS, SEE SHEET 5 / 14

FOR NOTES, SEE SHEET 5 / 14

FOR JOINT DETAILS, SEE SHEET 5 / 14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

6 / 14

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ABUTMENT A-2

BRIDGE NO. CUY-90-1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
O.F.D.	O.F.D.		L. B.	RDH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

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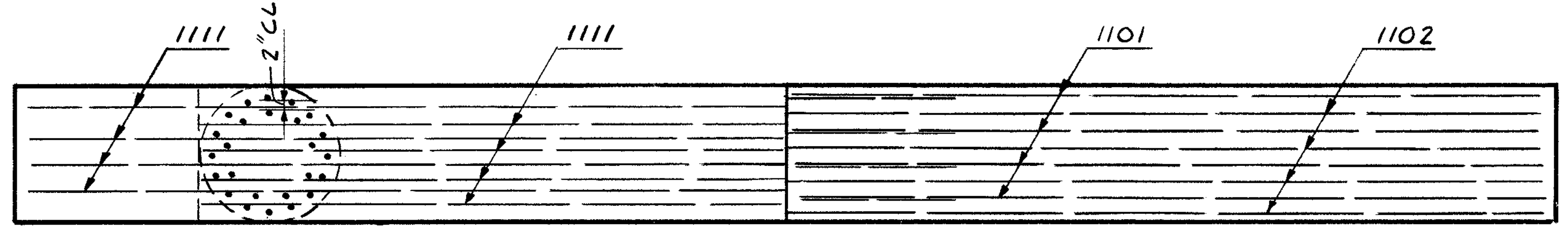
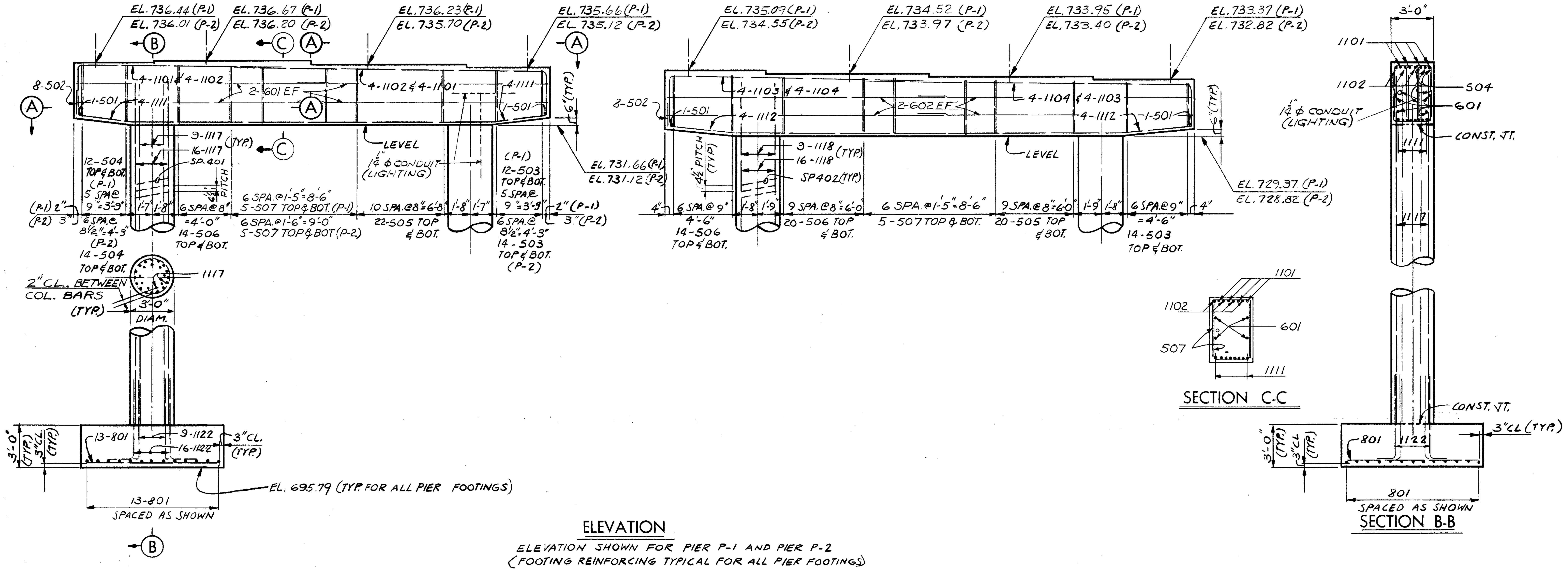
CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN
(BEAMS "A" THRU "H")



SECTION A-A



SECTION C-C

SECTION B-B

ELEVATION
ELEVATION SHOWN FOR PIER P-1 AND PIER P-2
(FOOTING REINFORCING TYPICAL FOR ALL PIER FOOTINGS)

NOTES

① BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BOLT HOLES.

② ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

③ THE PREFIX "1P" OR "2P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER P-1 OR P-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

④ FOUNDATION BEARING PRESSURE: PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 5 TONS PER SQ. FT.

⑤ FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER. THE OPEN EXCAVATION SHALL BE INSPECTED IN THE FIELD IN ORDER TO INSURE THAT THE EXCAVATIONS HAVE BEEN EXTENDED TO A MINIMUM OF 3 INCHES INTO BEDROCK THROUGHOUT THE ENTIRE FOUNDING AREA.

⑥ THE AREA OF ALL THE FOOTING CONTACTS SHALL NOT BE SUBJECTED TO PROLONGED ATMOSPHERIC EXPOSURE. FURTHER, THE EXCAVATIONS SHALL BE WELL DRAINED AT ALL TIMES.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES
7/14

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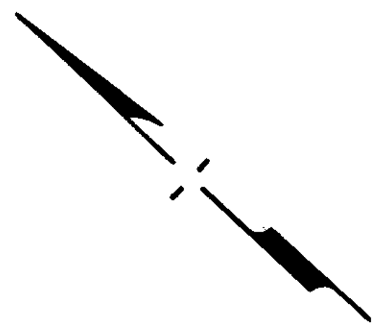
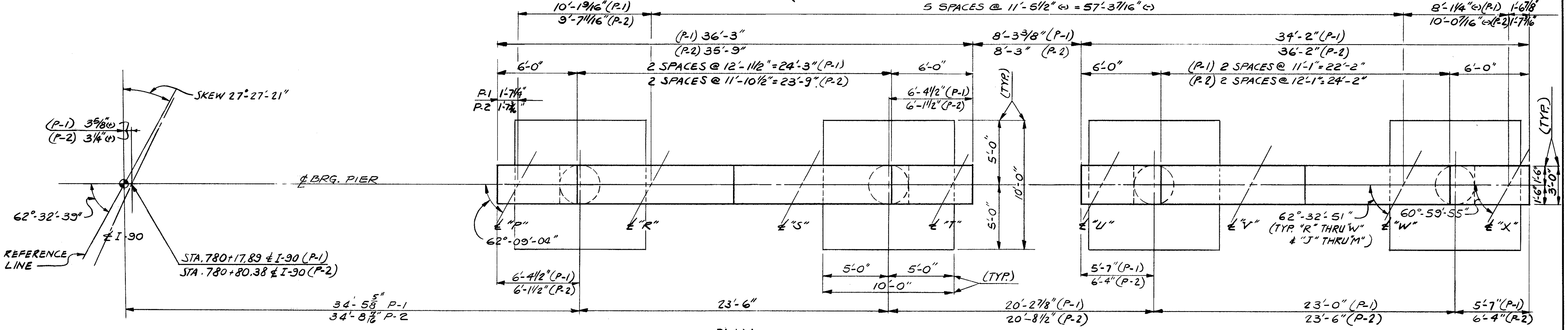
PIER LEFT

BRIDGE NO CUY-90-1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HSL	HSL		L.B.	RDH	2-25-70	

CUYAHOGA COUNTY
CUY - 90 - 10.40

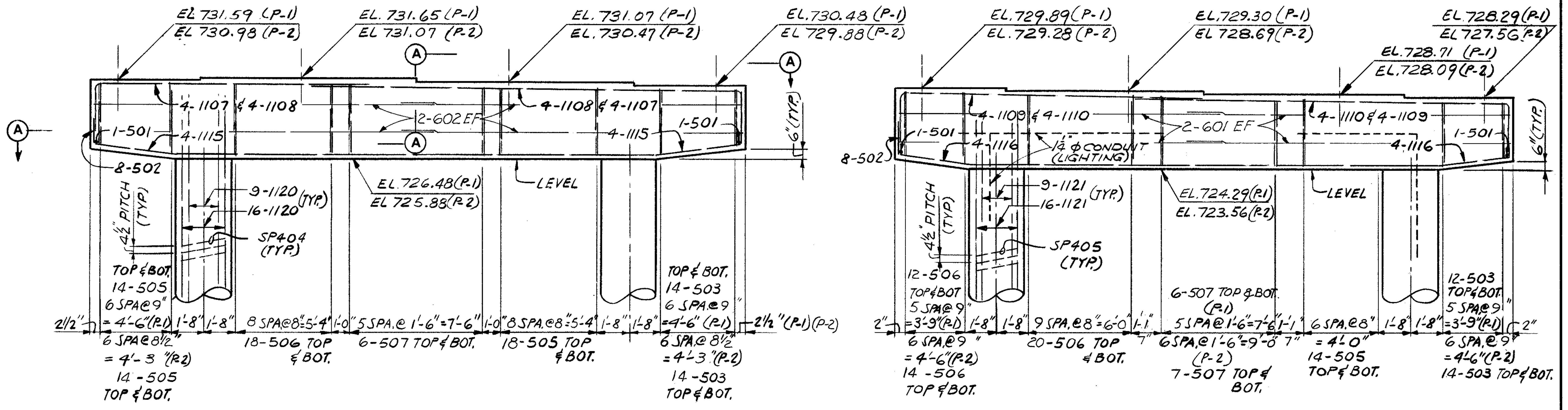




PLAN

(BEAMS " "THRU "X")

NOTE:
FOR BRG. DETAILS @ PIERS
SEE SHEET 12/14



FOR NOTES, SEE SHEET 7/14

ELEVATION

ELEVATION SHOWN FOR PIER P-1 AND PIER P-2
FOR SECTIONS NOT SHOWN, SEE SECTION A-A AND
SECTION B-B SHEET 7/14
FOR FOOTING REINFORCING, SEE BENT FOR
BEAMS "A" THRU "D" FOOTING, SHEET 7/14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

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PIERS RIGHT

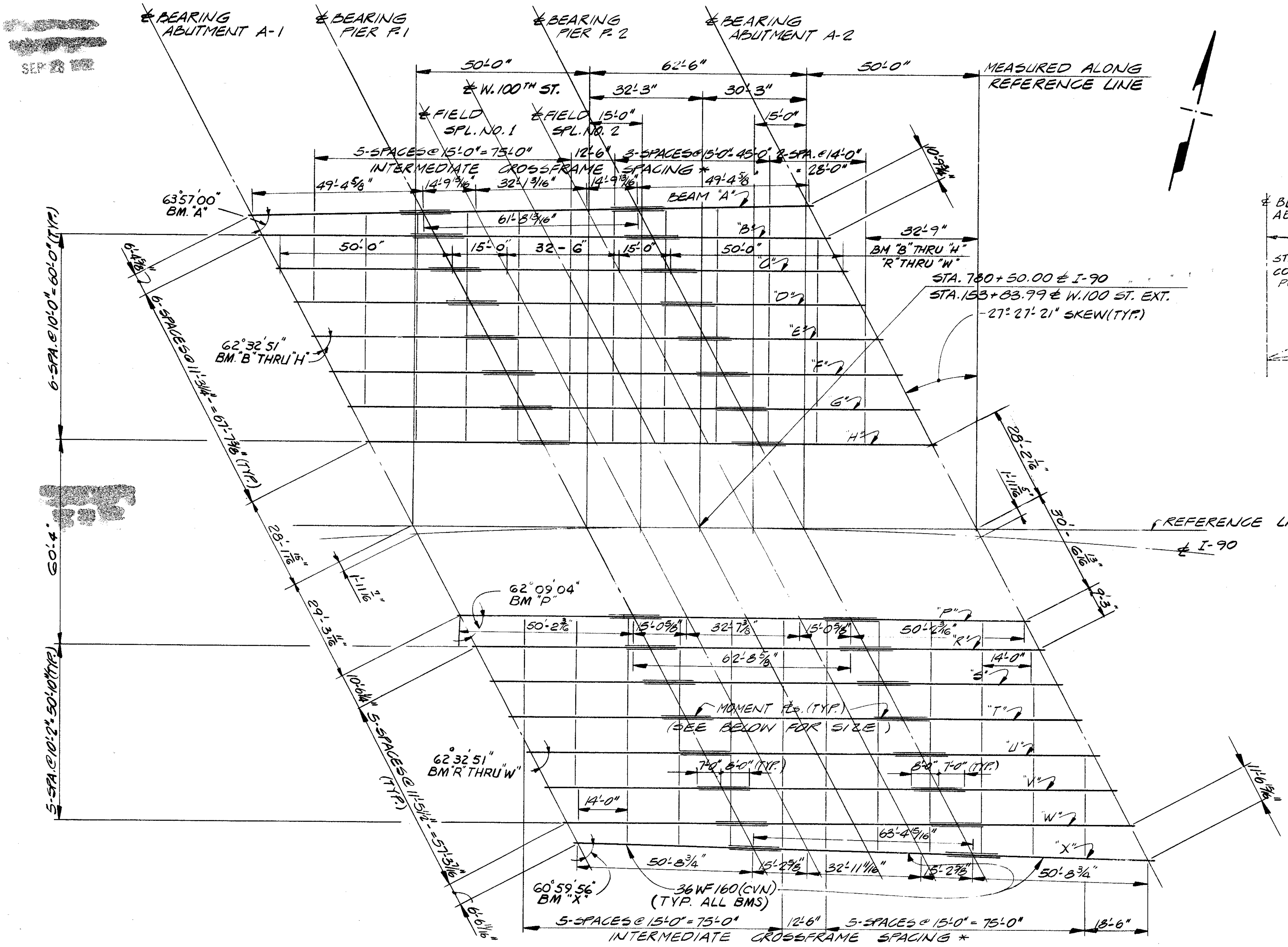
BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I - 90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HSL	HSL		L.B.	RDH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

470
713

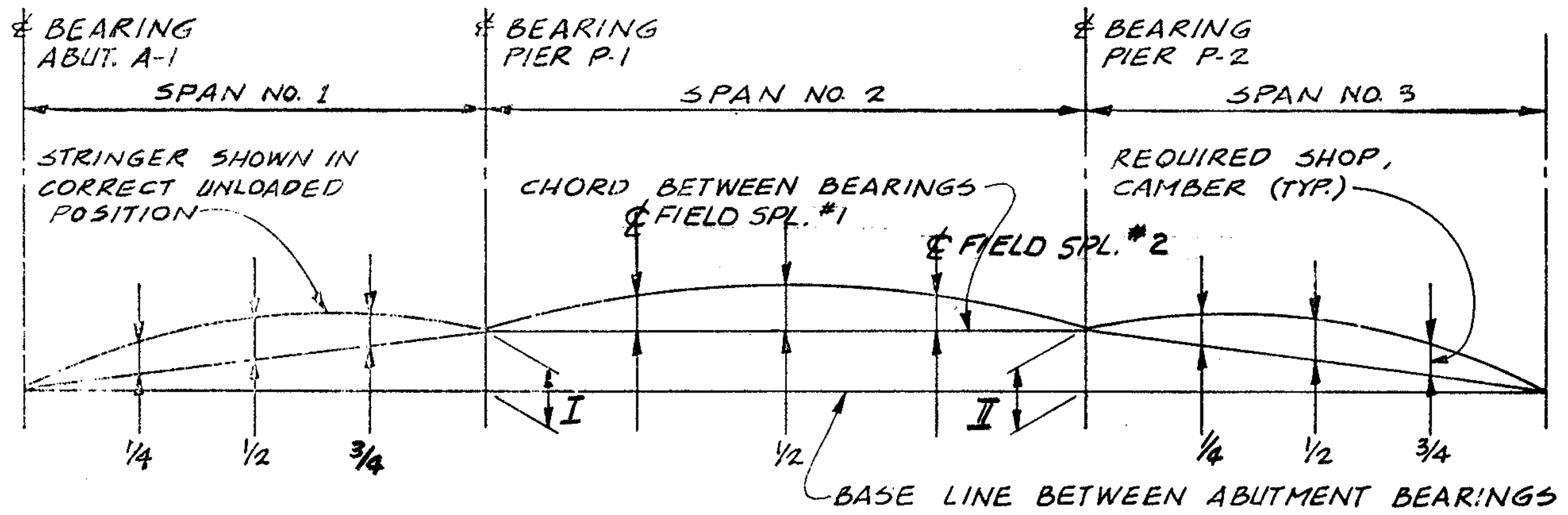
CUYAHOGA COUNTY
CUY - 90 - 10.40



FRAMING PLAN

* ALL INTERMEDIATE CROSSFRAMES PERPENDICULAR TO REFERENCE LINE

TOP MOMENT PL = 10 1/2" x 5/8" (CVN)
BOT. MOMENT PL = 13 1/2" x 1/2"
} E.B. & W.B. LANES BEAMS



LAYOUT DIAGRAM

LAYOUT DIAGRAM OFFSETS

STRINGER	I	II	
A	2 3/4"	2 3/16"	
B	2 1/2"	1 11/16"	
C	15/16"	9/16"	
D	11/16"	7/16"	
E	1/2"	3/8"	
F	3/8"	5/16"	
G, H	1/4"	1/4"	
R	11/16"	1 1/16"	
S, T, U, V, W	5/16"	5/16"	
P	2"	2"	
X	3/8"	3/8"	

DEFLECTION AND CAMBER-RIGHT STRUCTURE.

	BEAM P THRU X		P		R THRU W		X	
LOCATION	DEFLECTION DUE TO WT. OF STEEL	DEFLECTION DUE TO REMAINING DL	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER
CL BRG A-1								
1/4 PT.	----	3/16''	1/16''	1/4 ''	----	3/16''	1/16''	1/4 ''
1/2 PT.	1/16''	3/16''	1/16''	5/16''	1/16''	5/16''	1/16''	5/16''
3/4 PT.	----	1/16''	----	1/16''	----	1/16''	1/16''	1/8 ''
CL PIER NO-1								
CL SPLICE NO-1	----	1/8 ''	1/4 ''	3/8 ''	1/16''	3/16''	1/16''	3/16''
1/4 PT.	----	1/8 ''	1/4 ''	3/8 ''	1/16''	3/16''	1/16''	3/16''
1/2 PT.	1/16''	1/4 ''	3/8 ''	11/16''	1/16''	3/8 ''	1/16''	3/8 ''
3/4 PT.	----	1/8 ''	1/4 ''	3/8 ''	1/16''	3/16''	1/16''	3/16''
CL SPLICE NO-2	----	1/8 ''	1/4 ''	3/8 ''	1/16''	3/16''	1/16''	3/16''
CL PIER NO-2								
1/4 PT.	----	1/16''	----	1/16''	----	1/16''	----	1/16''
1/2 PT.	1/16''	3/16''	1/16''	5/16''	1/16''	5/16''	1/16''	5/16''
3/4 PT.	----	3/16''	1/16''	1/4 ''	----	3/16''	----	3/16''
CL BRG ABT A-2								

FOR ADDITIONAL DETAILS, SEE SHEET 12 / 14

DEFLECTION AND CAMBER-LEFT STRUCTURE.

	BEAM A THRU H		A		B		C		D		E		F		G		H	
LOCATION	DEFLECTION DUE TO WT. OF STEEL	DEFLECTION DUE TO REMAINING DL	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER	ADJ. REQ'D. FOR VERTICAL & HORZ. CURVE	REQUIRED SHOP CAMBER
CL BRG A-1																		
1/4 PT.	1/16''	3/16''	5/16''	9/16''	1/2 ''	3/4 ''	1/4 ''	1/2 ''	1/4 ''	1/2 ''	1/4 ''	1/2 ''	3/16''	7/16''	1/16''	5/16''	----	1/4 ''
1/2 PT.	1/16''	3/16''	9/16''	13/16''	15/16''	1 3/16''	9/16''	13/16''	3/8 ''	5/8 ''	1/4 ''	1/2 ''	1/8 ''	3/8 ''	1/16''	5/16''	----	1/4 ''
3/4 PT.	----	1/16''	9/16''	5/8 ''	5/8 ''	11/16''	1/4 ''	5/16''	3/16''	1/4 ''	1/8 ''	3/16''	1/16''	1/8 ''	----	1/16''	----	1/16''
CL PIER NO-1																		
CL SPLICE NO-1	----	1/8 ''	1/4 ''	3/8 ''	1/8 ''	1/4 ''	----	1/8 ''	----	1/8 ''	----	1/8 ''	1/16''	3/16''	1/16''	3/16''	1/16''	3/16''
1/4 PT.	----	1/8 ''	1/4 ''	3/8 ''	1/8 ''	1/4 ''	----	1/8 ''	----	1/8 ''	1/16''	3/16''	1/16''	3/16''	1/16''	3/16''	1/16''	3/16''
1/2 PT.	1/16''	1/4 ''	5/16''	5/8 ''	3/16''	1/2 ''	1/16''	3/8 ''	1/16''	3/8 ''	1/16''	3/8 ''	1/16''	3/8 ''	1/16''	3/8 ''	1/16''	3/8 ''
3/4 PT.	----	1/8 ''	1/4 ''	3/8 ''	1/8 ''	1/4 ''	----	1/8 ''	----	1/8 ''	1/16''	3/16''	1/16''	3/16''	1/16''	3/16''	1/16''	3/16''
CL SPLICE NO-2	----	1/8 ''	1/4 ''	3/8 ''	1/8 ''	1/4 ''	----	1/8 ''	----	1/8 ''	----	1/8 ''	1/16''	3/16''	1/16''	3/16''	1/16''	3/16''
CL PIER NO-2																		
1/4 PT.	----	1/16''	1/8 ''	3/16''	1/16''	1/8 ''	----	1/16''	----	1/16''	----	1/16''	----	1/16''	----	1/16''	----	1/16''
1/2 PT.	1/16''	3/16''	3/16''	7/16''	1/8 ''	3/8 ''	----	1/4 ''	----	1/4 ''	----	1/4 ''	----	1/4 ''	----	1/4 ''	----	1/4 ''
3/4 PT.	----	3/16''	1/8 ''	5/16''	1/16''	1/4 ''	----	3/16''	----	3/16''	----	3/16''	----	3/16''	----	3/16''	----	3/16''
CL BRG ABT A-2																		

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

9 / 14

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FRAMING PLAN

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OVER WEST 100th ST. EXTENSION
I - 90 CUYAHOGA COUNTY
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A. J. C. W.	O.F.D.		L.B.	RDH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

471
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

TRANSVERSE SECTION
WESTBOUND LANES

① DECK SLAB DEPTH: **THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO TOP OF STEEL BEAM 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 OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.**

② A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

③ INTERMEDIATE CROSSFRAME ANGLES 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.

④ CLEARANCE = 2"

⑤ **ELEVATIONS SHOWN ARE ON TOP OF THE CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE AND ASPHALT WEARING SURFACE.**
FOR PAVEMENT ELEVATION TABLE, SEE SHEET 12/14

⑥ TRANSVERSE REINFORCEMENT SHALL BE FIELD BENT AS REQUIRED AND PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL.

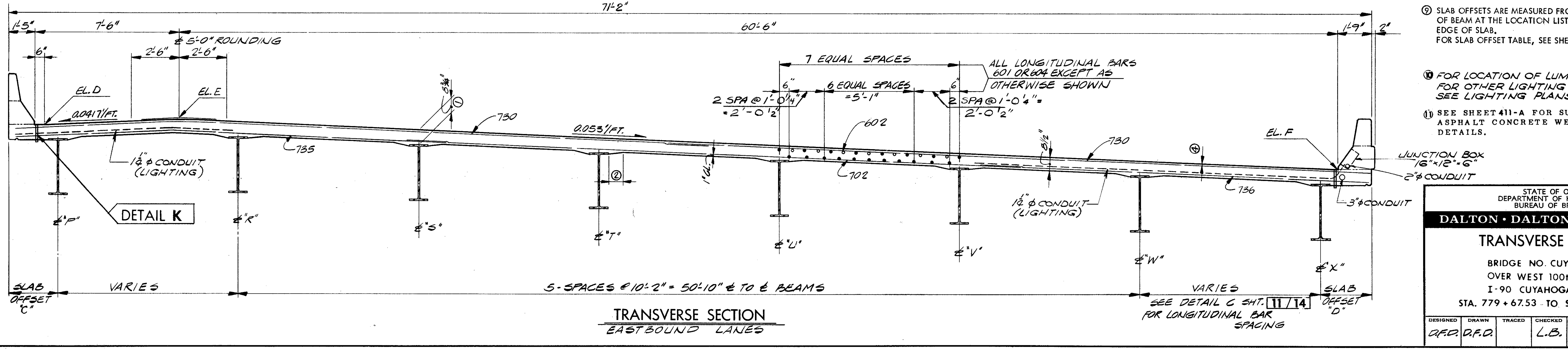
⑦ **THE PREFIX "1S" SHALL BE ADDED TO ALL REINFORCING BAR MARKS ON THE LEFT PORTION OF THE SUPERSTRUCTURE AND "2S" ON THE RIGHT PORTION OF THE SUPERSTRUCTURE UNLESS SHOWN OTHERWISE.**

⑧ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 12/14

⑨ SLAB OFFSETS ARE MEASURED FROM THE CENTERLINE OF BEAM AT THE LOCATION LISTED RADIALLY TO THE EDGE OF SLAB.
FOR SLAB OFFSET TABLE, SEE SHEET 12/14

⑩ *FOR LOCATION OF LUMINAIRES AND FOR OTHER LIGHTING DETAILS SEE LIGHTING PLANS.*

⑪ SEE SHEET 411-A FOR SUBDRAINAGE AND ASPHALT CONCRETE WEARING SURFACE DETAILS.



TRANSVERSE SECTION
EASTBOUND LANES

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

10/14

DALTON · DALTON ASSOCIATES

TRANSVERSE SECTION

BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B.	RDH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

472
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

DETAIL C
FOR TAPERED BEAMS "A" & "B" AND "W" & "X"
SEE SHEET 10/14

SECTION B-B
FOR DETAILS NOT SHOWN SEE SECTION A-A

SECTION A-A

SLAB PLAN

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

11/14

DALTON • DALTON ASSOCIATES

SLAB PLAN

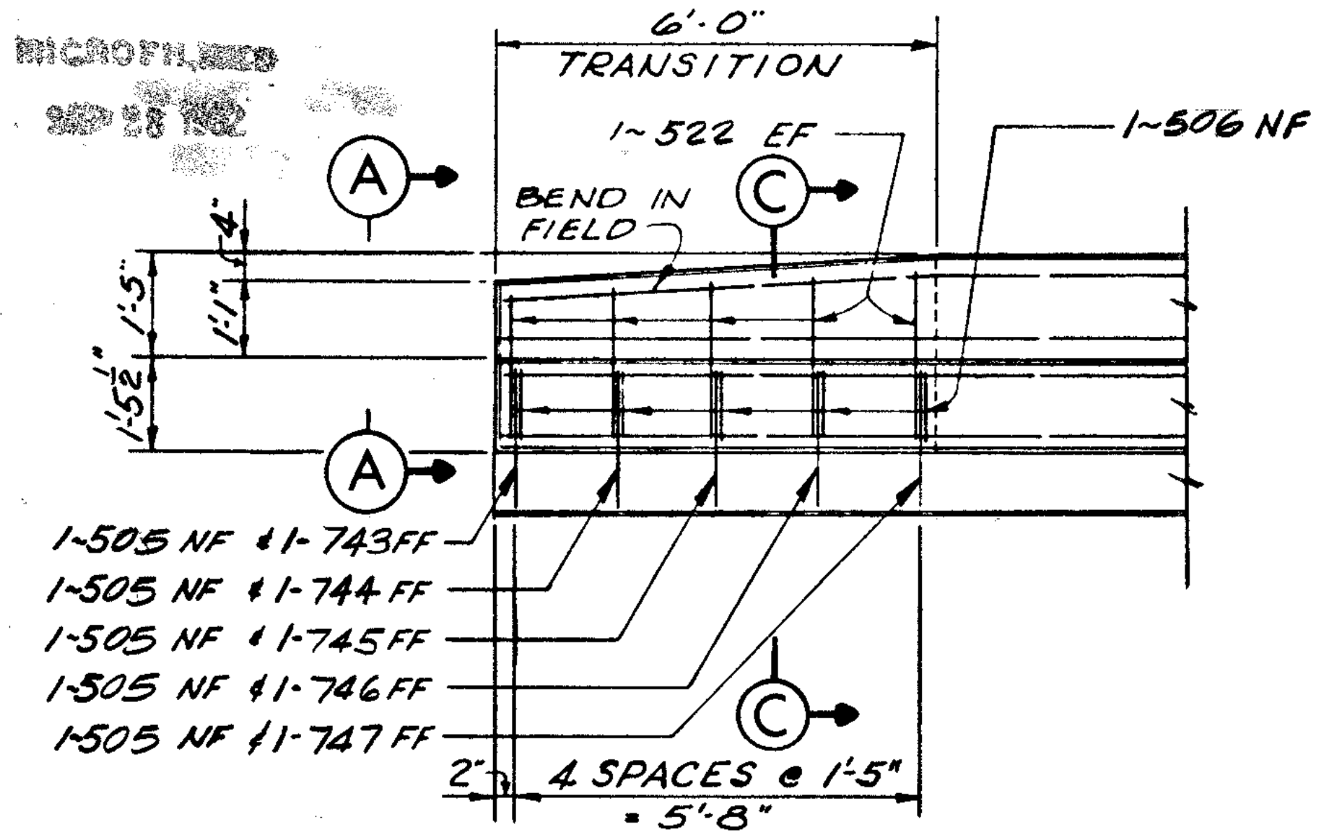
BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B.	RBH	2-25-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

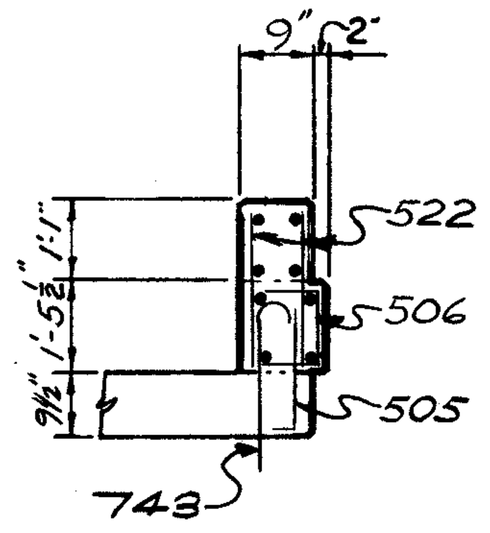
473
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

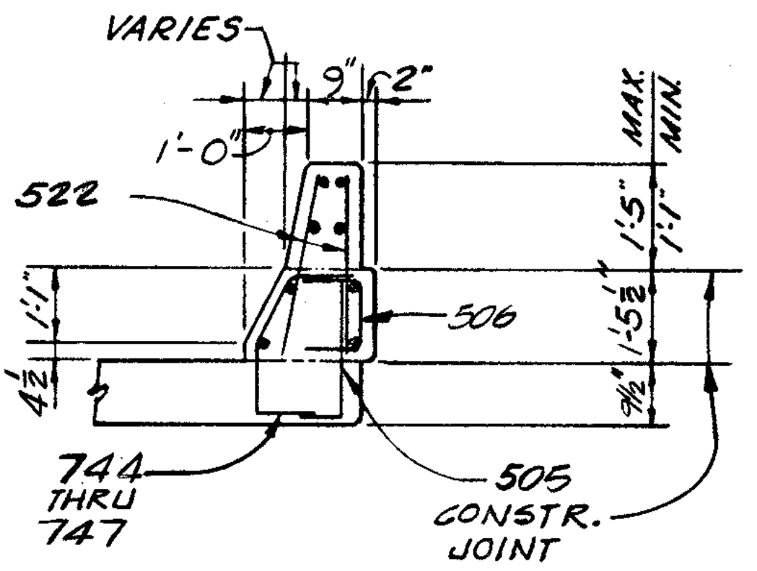


ELEVATION

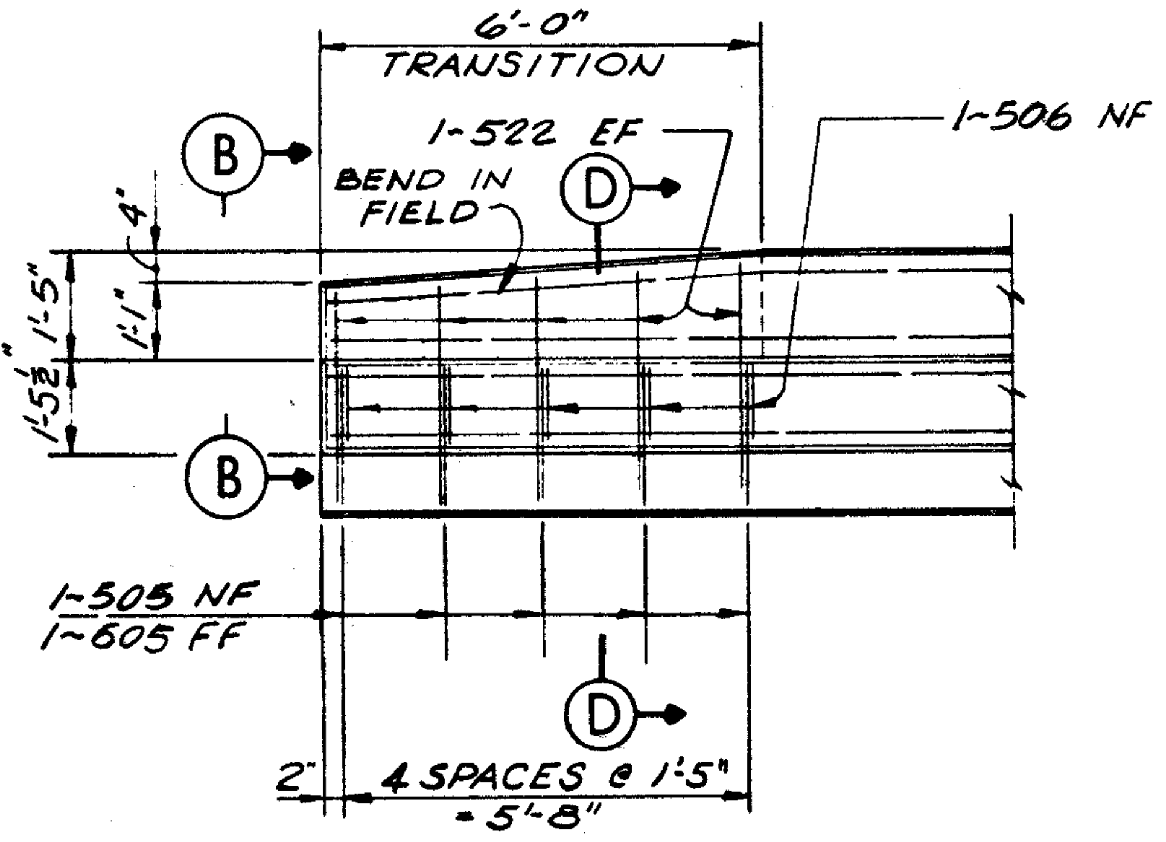
6'-0" TRANSITION WITH NO CURB ON APPROACHES



VIEW A-A

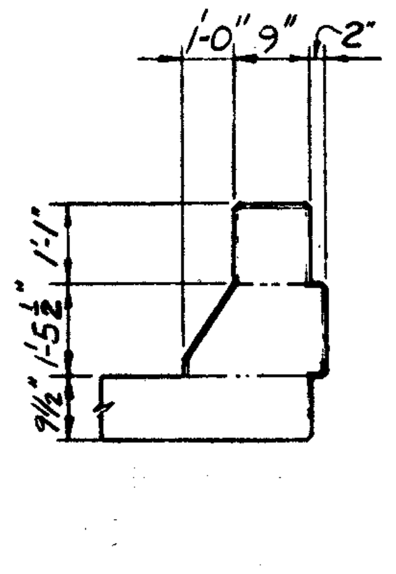


SECTION C-C

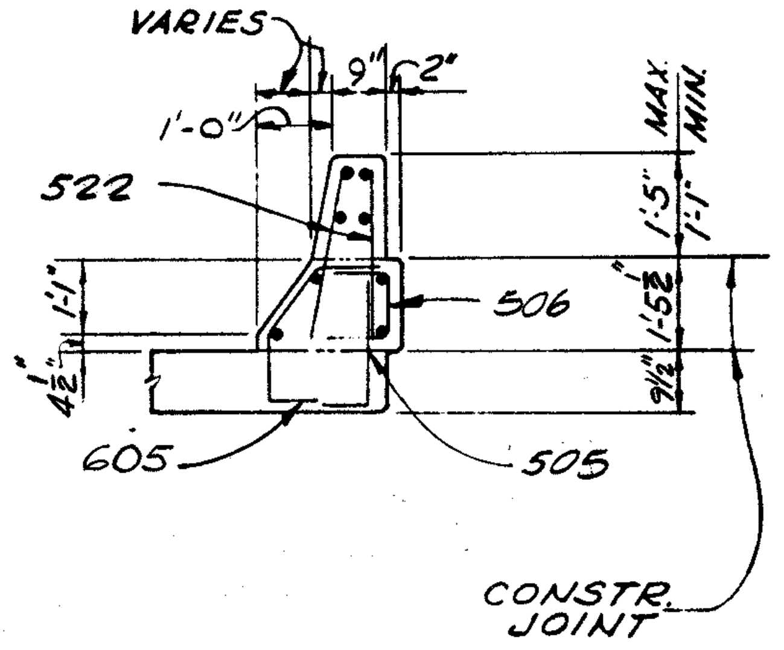


ELEVATION

6'-0" TRANSITION WITH CURBS ON APPROACHES



VIEW B-B



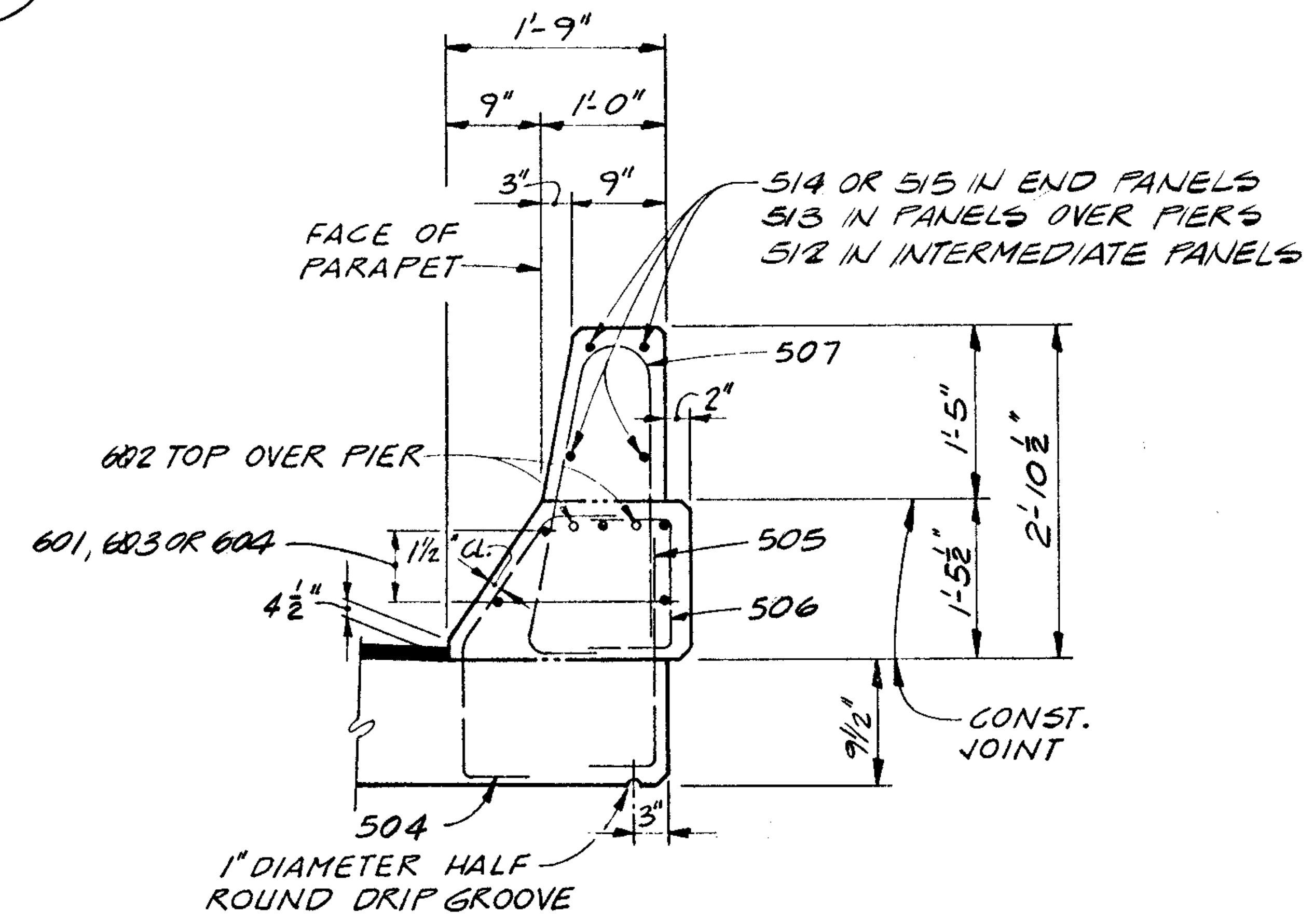
SECTION D-D

FOR DETAILS & NOTES NOT SHOWN HERE SEE STATE OF OHIO STD. DWG. BR-1-67, SHEET 1

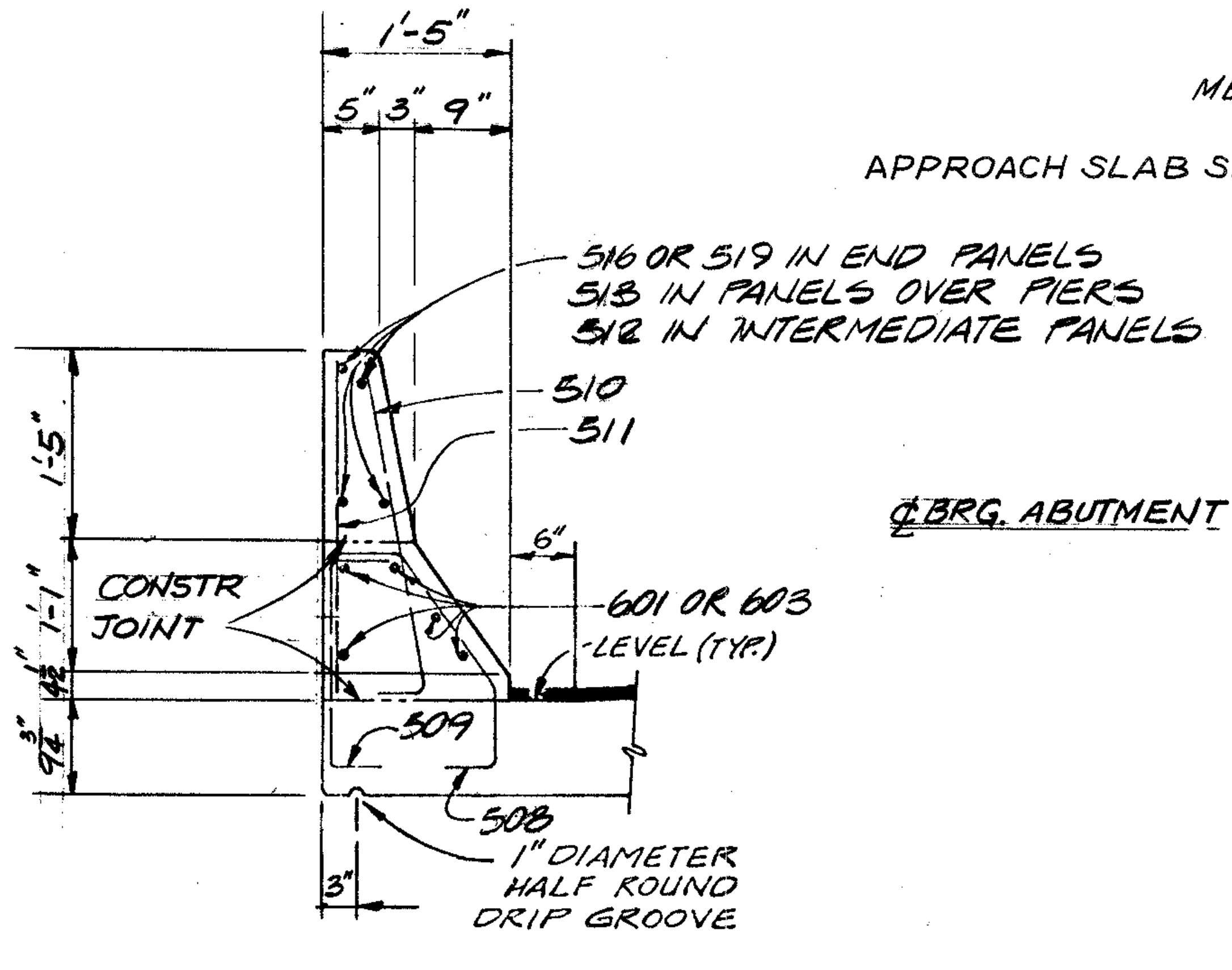
PAVEMENT ELEVATIONS

SEE TRANSVERSE SECTION AND NOTE ⑤ SHEET 10/14

LOCATION	A	B	C	D	E	F
℄ BRG. A-1	740.45	740.70	737.60	735.84	736.10	732.68
1/4	740.45	740.70	737.54	735.76	736.03	732.59
1/2	740.44	740.68	737.47	735.68	735.94	732.48
3/4	740.40	740.62	737.37	735.57	735.83	732.35
℄ BRG. P-1	740.31	740.54	737.28	735.46	735.72	732.22
1/4	740.23	740.45	737.17	735.33	735.59	732.06
1/2	740.13	740.35	737.05	735.19	735.45	731.89
3/4	740.01	740.22	736.90	735.03	735.28	731.70
℄ BRG. P-2	739.88	740.09	736.75	734.85	735.10	731.49
1/4	739.78	739.99	736.63	734.72	734.97	731.33
1/2	739.68	739.89	736.51	734.53	734.83	731.17
3/4	739.57	739.77	736.37	734.43	734.67	730.98
℄ BRG. A-2	739.43	739.63	736.22	734.25	734.49	730.78



RAILING DETAIL A

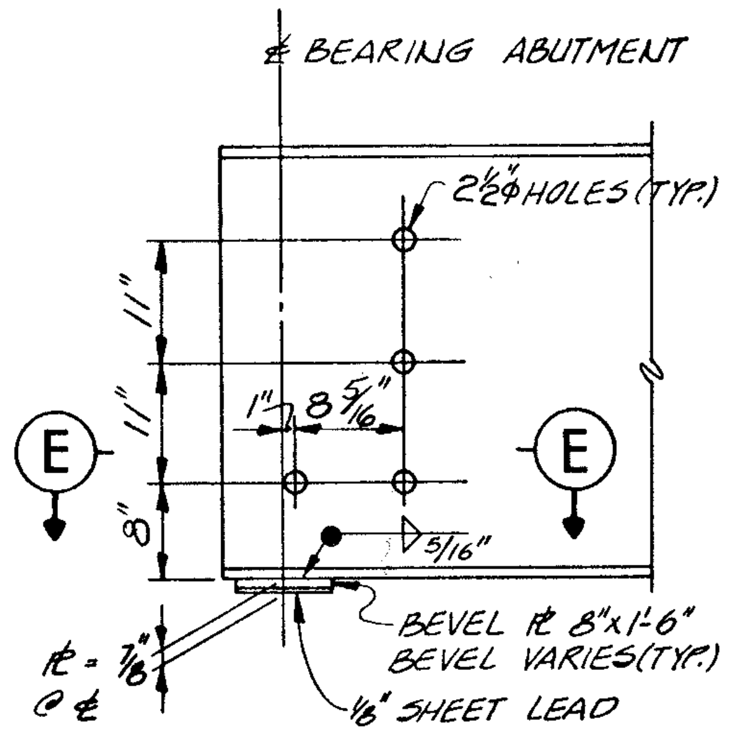


DETAIL B

SLAB OFFSETS

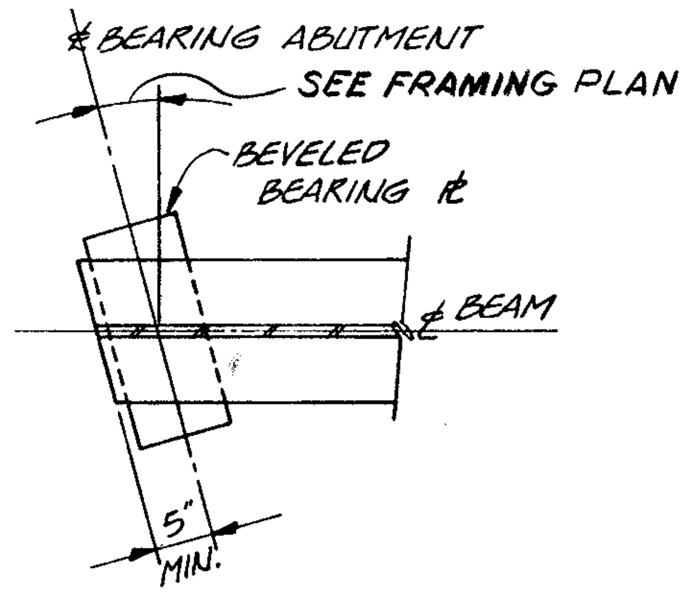
SEE TRANSVERSE SECTION AND NOTE ⑨ SHEET 10/14

LOCATION	A	B	C	D
℄ BRG. A-1	1'-2"	3'-9"	1'-2"	3'-1"
1/2	2'-0"	2'-8¼"	2'-1"	2'-1⅛"
℄ BRG. P-1	2'-6⅜"	1'-11¼"	2'-8⅛"	1'-5½"
1/2	2'-9¼"	1'-5½"	2'-11¼"	1'-2"
℄ BRG. P-2	2'-6½"	1'-5⅞"	2'-8⅛"	1'-5⅛"
1/2	2'-0"	1'-10½"	2'-1⅛"	2'-0⅜"
℄ BRG. A-2	1'-2"	2'-7"	2'-2⅛"	2'-11⅞"

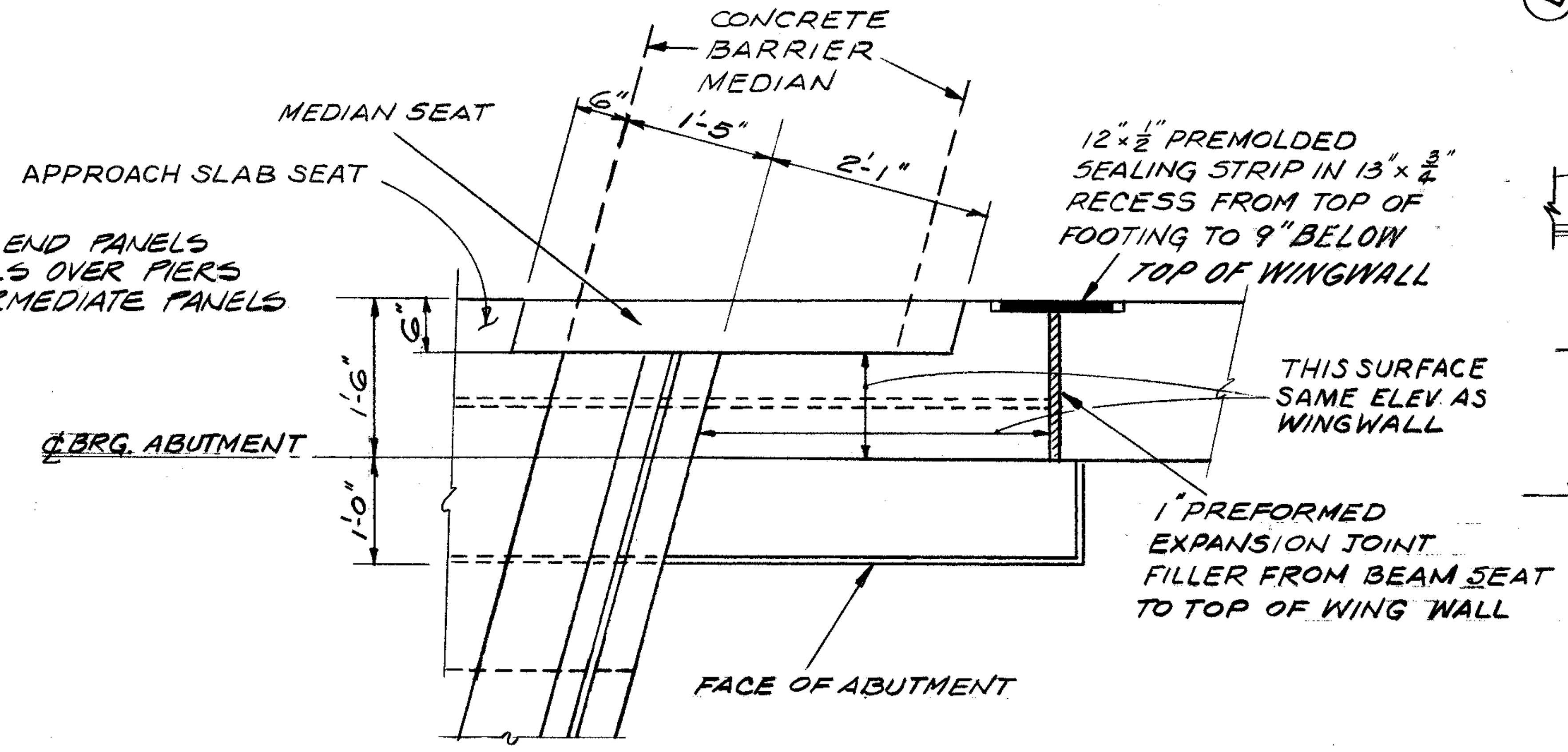


ELEVATION

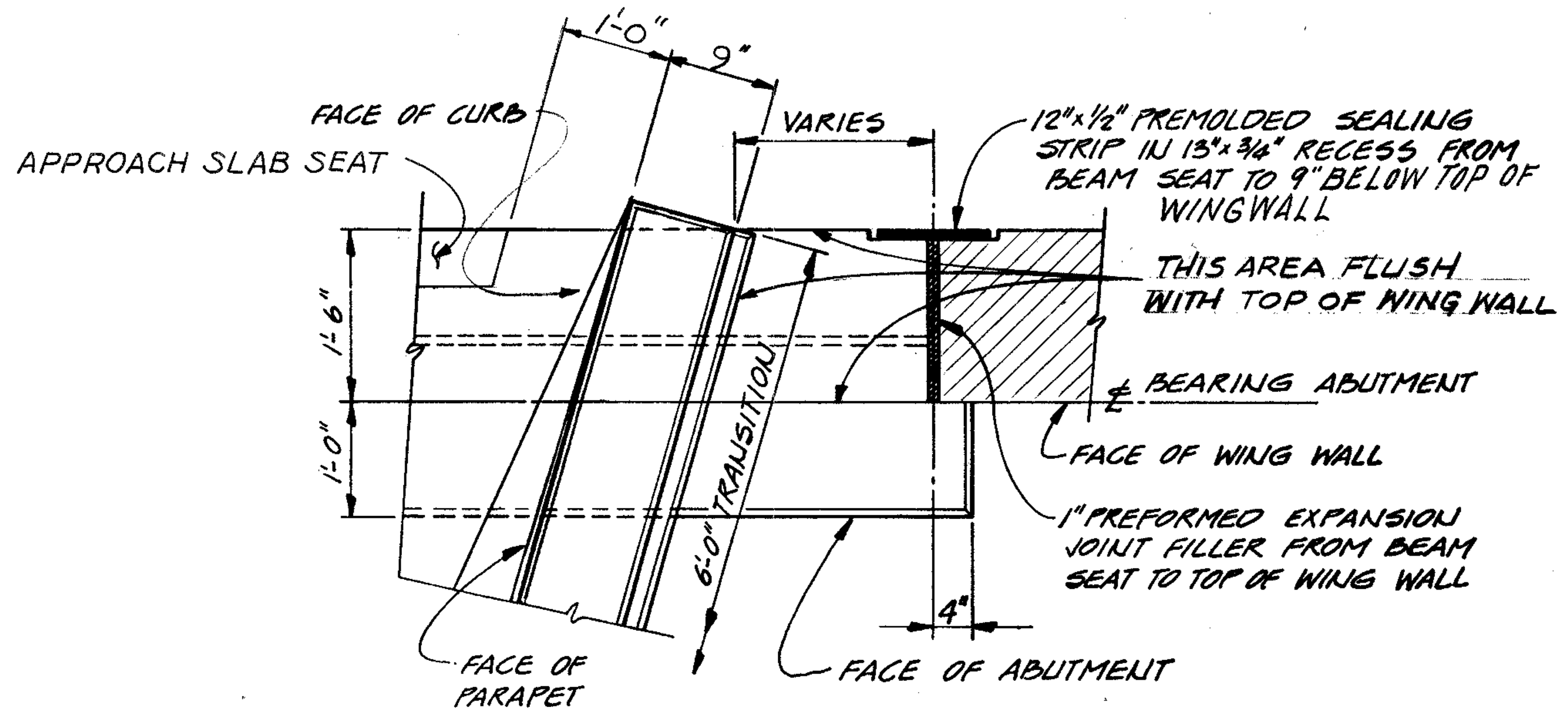
BEAM BEARING DETAIL



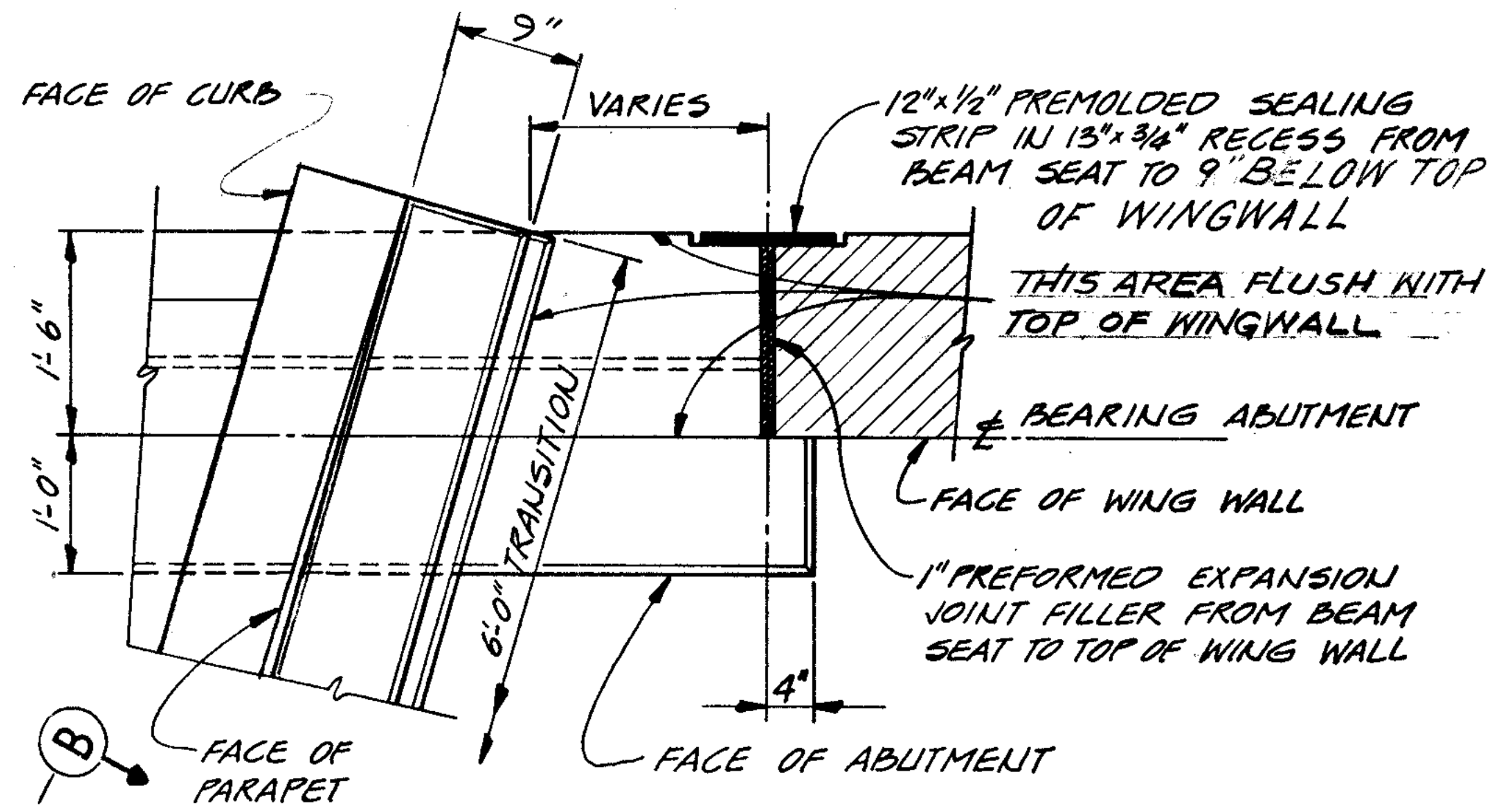
SECTION E-E



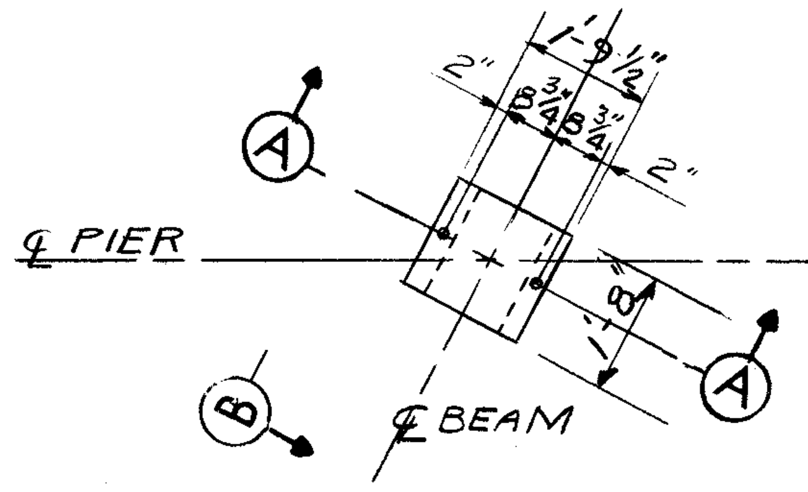
DETAIL E



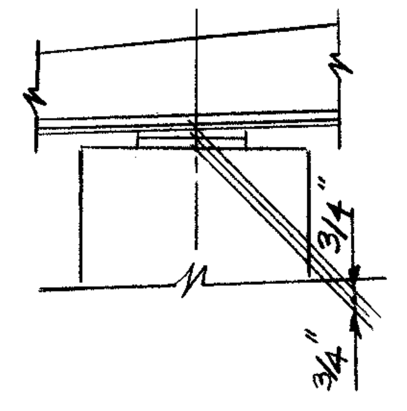
DETAIL D



DETAIL F



PLAN



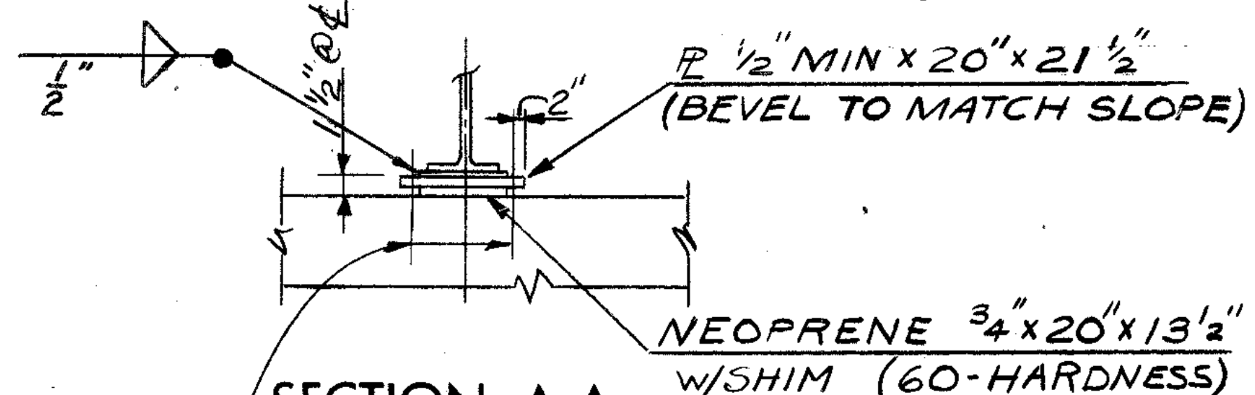
SECTION B-B

℄ 1⅝"⌀ HOLES FOR 1¼"⌀ × 1'-8" ANCHOR BOLTS W/ WASHERS. BOLTS SET 1'-4" INTO CONCRETE.

Note:

The Elastomeric Bearing shall be molded from two 60 Durometer Elastomeric Pads with one internal plate and be vulcanized bonded to the upper steel load plate during the molding process.

WELDING shall be controlled so that the plate temperature at the elastomer bonded surface does not exceed 300°F as determined by use of pyrometric sticks or other temperature monitoring devices.



SECTION A-A

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

12/14

DALTON • DALTON ASSOCIATES

SUPERSTRUCTURE DETAILS

BRIDGE NO. CUY - 90 - 1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.	D.F.D.		L.B.	RDH	2-25-70	

ABUTMENT A-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
1A 401	168	5- 5	2	1-11	1- 9				608
1A 501	40	30- 0	ST						1252
1A 502	2	22- 2	1	2- 5	19-10				46
1A 503	2	19-10	ST						41
1A 504	3	27- 7	ST						86
1A 505	3	20- 0	1	2- 2	17-11				63
1A 506	4	25- 4	ST						106
1A 507	2	28- 1	1	3- 0	25- 2				59
1A 508	2	25- 2	ST						52
1A 509	4	28-10	ST						120
1A 510	3	20- 0	ST						63
1A 511	3	23- 7	ST						74
1A 512	3	17- 8	1	2- 2	15- 7				55
1A 513	3	25- 7	ST						80
1A 514	3	12- 4	1	2- 2	10- 3				39
1A 515	12	11- 1	ST						139
1A 516	8	8- 0	ST						67
1A 517	8	4- 6	ST						38
1A 518	72	9- 7	2	3-10	2- 2				720
1A 519	32	8- 5	2	3- 3	2- 2				281
1A 520	36	6- 5	2	2- 3	2- 2				241
1A 523	3	16- 3	1	2- 2	14- 2				51
1A 529	4	10- 8	12	0- 9	9-11	4- 4			45
1A 530	2	10- 2	12	0- 9	9- 5	3- 1			21
1A 531	2	10- 6	12	0- 9	9- 9	3-11			22
1A 601	8	11- 0	3	7- 5	1- 4	2- 6			132
1A 602	8	12- 0	3	7- 5	2- 4	2- 6			144
SERIES	8-SETS	2- 8						3	
OF	OF 7=	TO	ST					0- 9--	417
1A 603	56 BARS	7- 3						16	
1A 604	280	11- 5	3	6-10	2- 4	2- 6			4801
1A 605	8	9- 9	3	6- 2	1- 4	2- 6			117
1A 606	8	10- 9	3	6- 2	2- 4	2- 6			129
1A 607	188	3- 1	11	0- 6	2- 2	0- 6	1- 6		871
1A 608	8	12- 3	3	8- 8	1- 4	2- 6			147
1A 609	8	13- 3	3	8- 8	2- 4	2- 6			159
1A 610	8	9- 3	3	5- 8	1- 4	2- 6			111
1A 611	8	10- 3	3	5- 8	2- 4	2- 6			123
1A 801	20	30- 0	ST						1602
1A 802	4	19- 2	ST						205
1A 803	4	34- 8	12	30- 9	4- 0	3- 0			370
1A 804	1	16- 6	ST						44
1A 805	4	30- 5	12	26- 6	4- 0	3- 0			325
1A 810	1	11- 2	ST						30
1A 811	1	18- 9	ST						50
1A 812	1	15- 1	ST						40
1A 813	4	25- 0	ST						267
1A1001	12	30- 0	ST						1549
1A1002	1	13- 9	1	2- 2	11-10				59
1A1003	2	11-10	ST						102
1A1004	1	21- 5	1	2- 2	19- 6				92
1A1005	1	17- 5	1	2- 2	15- 6				75
1A1006	2	15- 6	ST						133
1A1007	1	19- 1	1	2- 2	17- 2				82
1A1008	2	17- 2	ST						148
1A1009	2	19- 6	ST						168
					TOTAL	ABUTMENT		A-1 =	16861

ABUTMENT A-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
2A 401	180	5- 5	2	1-11	1- 9				651
2A 501	40	30- 0	ST						1252
2A 502	3	8- 8	ST						27
2A 503	3	30- 2	ST						94
2A 504	4	31-10	ST						133
2A 505	3	20- 0	1	2- 2	17-11				63
2A 506	5	23-10	ST						124
2A 507	2	24- 9	1	3- 0	21-10				52
2A 508	5	21-10	ST						114
2A 509	2	26- 5	1	2- 8	23-10				55
2A 510	6	13- 4	ST						83
2A 511	4	34- 1	ST						142
2A 512	3	32- 6	ST						102
2A 513	2	6- 2	ST						13
2A 514	2	3- 5	ST						7
2A 515	3	10- 7	ST						33
2A 516	2	7- 8	ST						16
2A 517	2	4- 3	ST						9
2A 518	72	10- 1	2	4- 1	2- 2				757
2A 519	52	8- 7	2	3- 4	2- 2				466
2A 520	20	6- 5	2	2- 3	2- 2				134
2A 521	3	11- 3	2	4- 8	2- 2				35
2A 522	2	8- 4	12	0- 9	7- 7	3- 1			17
2A 523	3	16- 4	1	2- 2	14- 3				51
2A 524	3	15- 7	1	2- 2	13- 6				49
2A 525	3	22- 6	1	2- 2	20- 5				78
2A 526	4	9- 7	ST						48
2A 527	4	5- 2	ST						22
2A 528	2	13- 4	12	0- 9	12- 7	5- 0			28
2A 529	2	10- 5	12	0- 9	9- 8	3-10			22
2A 530	2	13- 1	12	0- 9	12- 4	4- 2			27
2A 601	8	11- 6	3	7-11	1- 4	2- 6			138
2A 602	8	12- 6	3	7-11	2- 4	2- 6			150
SERIES	2-SETS	2- 8						5	
OF	OF 7=	TO	ST					0- 8--	100
2A 603	14 BARS	6-10						16	
2A 604	294	11- 4	3	6- 9	2- 4	2- 6			5005
2A 605	10	9- 8	3	6- 1	1- 4	2- 6			145
2A 606	10	10- 8	3	6- 1	2- 4	2- 6			160
2A 607	202	3- 1	11	0- 6	2- 2	0- 6	1- 6		935
2A 608	7	12- 6	3	8-11	1- 4	2- 6			131
2A 609	7	13- 6	3	8-11	2- 4	2- 6			142
2A 610	10	9- 4	3	5- 9	1- 4	2- 6			140
2A 611	10	10- 4	3	5- 9	2- 4	2- 6			155
SERIES	2-SETS	2- 8						3	
OF	OF 6=	TO	ST					0- 8--	80
2A 612	12 BARS	6- 2						8	
SERIES	4-SETS	2- 7							
OF	OF 9=	TO	ST					0- 8	284
2A 613	36 BARS	7-11							
2A 801	28	30- 0	ST						2243
2A 803	4	9- 9	12	5-10	4- 0	3- 0			104
2A 804	1	19- 2	ST						51
2A 807	4	12- 1	12	8- 2	4- 0	3- 0			129
2A 808	4	20- 8	ST						221
2A 809	3	24- 0	ST						192
2A 810	1	21- 6	ST						57
2A 812	1	15- 7	ST						42
2A 813	1	14-10	ST						40
2A1001	12	30- 0	ST						1549
2A1002	1	21-10	1	2- 2	19-11				94
2A1003	2	19-11	ST						171
2A1004	1	17- 6	1	2- 2	15- 7				75
2A1005	1	18- 3	1	2- 2	16- 4				79
2A1006	2	16- 4	ST						141
2A1007	2	15- 7	ST						134
2A1008	1	24- 1	1	2- 2	22- 2				104
2A1009	2	22- 2	ST						191
						TOTAL	ABUTMENT	A-2 =	17870

PIER P-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
1P 501	8	2- 8	ST						22
1P 502	32	3- 5	ST						114
1P 503	104	7-10	2	3- 2	1- 9				850
1P 504	24	9- 4	2	3-11	1- 9				234
1P 505	176	9- 8	2	4- 1	1- 9				1774
1P 506	196	10- 8	2	4- 7	1- 9				2181
1P 507	44	10-11	2	4- 3	2- 8				501
1P 601	16	18- 0	ST						433
1P 602	16	19- 5	ST						467
1P 801	208	9- 6	ST						5276
1P1101	8	19- 5	1	3- 2	16- 6				825
1P1102	8	23- 7	1	3- 2	20- 8				1002
1P1103	8	21- 1	1	3- 2	18- 2				896
1P1104	8	25- 6	1	3- 2	22- 7				1084
1P1107	8	20- 9	1	3- 2	17-10				882
1P1108	8	25- 1	1	3- 2	22- 2				1066
1P1109	8	19- 8	1	3- 2	16- 9				836
1P1110	8	24- 1	1	3- 2	21- 2				1024
1P1111	8	29- 4	12	25- 6	3-10	0- 6			1247
1P1112	8	31-10	12	27- 0	4-10	0- 6			1353
1P1115	8	31- 2	12	26- 6	4- 8	0- 6			1325
1P1116	8	29-11	12	26- 0	3-11	0- 6			1272
1P1117	50	36- 5	ST						9674
1P1118	50	34- 2	ST						9076
1P1120	50	31- 3	ST						8302
1P1121	50	29- 0	ST						7704
1P1122	200	7- 7	1	1- 7	6- 3				8058
						TOTAL	PIER	P-1 =	67478

PIER P-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
2P 501	8	2- 8	ST						22
2P 502	32	3- 5	ST						114
2P 503	112	7-10	2	3- 2	1- 9				915
2P 504	28	9- 4	2	3-11	1- 9				273
2P 505	176	9- 8	2	4- 1	1- 9				1774
2P 506	200	10- 8	2	4- 7	1- 9				2225
2P 507	46	10-11	2	4- 3	2- 8				524
2P 601	16	18- 0	ST						433
2P 602	16	19- 5	ST						467
2P 801	208	9- 6	ST						5276
2P1101	8	20- 2	1	3- 2	17- 3				857
2P1102	8	24- 7	1	3- 2	21- 8				1045
2P1103	8	21- 1	1	3- 2	18- 2				896
2P1104	8	25- 6	1	3- 2	22- 7				1084
2P1107	8	20- 6	1	3- 2	17- 7				871
2P1108	8	24-10	1	3- 2	21-11				1056
2P1109	8	20- 8	1	3- 2	17- 9				878
2P1110	8	25- 1	1	3- 2	22- 2				1066
2P1111	8	30- 5	12	26- 0	4- 5	0- 6			1293
2P1112	8	31-10	12	27- 0	4-10	0- 6			1353
2P1115	8	30-11	12	26- 6	4- 5	0- 6			1314
2P1116	8	31- 2	12	26- 6	4- 8	0- 6			1325
2P1117	50	35-10	ST						9519
2P1118	50	33- 8	ST						8944
2P1120	50	30- 8	ST						8147
2P1121	50	28- 3	ST						7505
2P1122	200	7- 7	1	1- 7	6- 3				8058
						TOTAL	PIER	P-2 =	67234

SUPERSTRUCTURE S-1

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
1S 501	112	5-11	2	2- 3	1- 8				691
1S 502	109	7- 7	8	2- 3	2- 2	1-11	1- 7		862
1S 503	6	6- 5	2	2- 3	2- 2				40
1S 504	101	3- 4	20	1- 0	0- 9	0- 8			351
1S 505	111	2- 6	1	0- 8	1-11				289
1S 506	111	2- 3	2	0- 8	1- 2				260
1S 507	101	5- 8	23	2- 4	2- 7				597
1S 508	168	2-11	20	1- 0	0- 4	0- 8			511
1S 509	168	2- 8	3	0- 8	1-11	0- 4			467
1S 510	168	3- 2	13	0- 8	2- 7	0- 5			555
1S 511	168	2- 7	ST						453
1S 512	48	14- 8	ST						734
1S 513	64	7- 2	ST						478
1S 514	8	6- 7	ST						55
1S 516	8	6- 9	ST						56
1S 517	3	8- 1	8	2- 3	2- 2	2- 5	1- 7		25
1S 518	12	5- 5	2	2- 3	1- 2				68
1S 522	20	2-10	ST						59
1S 523	3	4-11	2	2- 3	0- 8				15
1S 524	3	6- 6	8	2- 3	1- 2	2- 5	1- 0		20
1S 525	12	28- 0	ST						350
1S 601	701	30- 0	ST						31587
1S 602	102	25- 0	ST						3830
1S 603	143	24- 7	ST						5280
1S 702	198	32- 0	ST						12951
1S 703	206	21- 4	ST						8983
1S 704	207	23- 4	ST						9873
1S 705	20	5- 0	ST						204
SERIES	1-SET	5- 8						5	
OF	OF 13=	TO	ST					1- 4--	368
1S 706	13 BARS	22- 0						16	
SERIES	1-SET	6- 1						7	
OF	OF 21=	TO	ST					1- 4--	864
1S 707	21 BARS	34- 2						8	
SERIES	1-SET	6- 4						11	
OF	OF 13=	TO	ST					1- 4--	390
1S 708	13 BARS	23- 0						16	
SERIES	1-SET	6- 4						11	
OF	OF 15=	TO	ST					1- 3--	475
1S 709	15 BARS	24- 8						16	
SERIES	1-SET	3- 4						3	
OF	OF 22=	TO	ST					1- 4--	794
1S 710	22 BARS	32- 0						8	
SERIES	1-SET	3- 8						5	
OF	OF 13=	TO	ST					1- 4--	314
1S 711	13 BARS	20- 0						16	
1S 712	195	37- 0	ST						14747
1S 713	195	38- 0	ST						15146
SERIES	1-SET	6- 0						3	
OF	OF 27=	TO	ST					1- 3--	1251
1S 714	27 BARS	39- 4						8	
SERIES	1-SET	4- 8						3	
OF	OF 24=	TO	ST					1- 4--	989
1S 715	24 BARS	35- 8						16	
SERIES	1-SET	7- 0						3	
OF	OF 24=	TO	ST					1- 4--	1112
1S 716	24 BARS	38- 4						8	
SERIES	1-SET	5- 4						3	
OF	OF 24=	TO	ST					1- 4--	1030
1S 717	24 BARS	36- 8						8	
1S 743	2	4- 4	6	3- 6					18
1S 744	2	2-11	20	1- 0	0- 7	0- 2			12
1S 745	2	3- 0	20	1- 0	0- 7	0- 4			12
1S 746	2	3- 0	20	1- 0	0- 7	0- 6			12
1S 747	2	3- 2	20	1- 0	0- 7	0- 8			13
1S 801	44	30- 0	ST						3524
1S 802	6	30- 4	ST						486
1S 803	5	24-11	ST						333
1S 804	6	34- 2	ST						547
1S 809	2	3- 9	ST						20
1S 810	2	4- 7	ST						24
1S 814	5	28- 3	ST						377
1S 815	102	5- 6	16	1- 1	3- 2	1- 1	1- 6		1498
					TOTAL	SUPERSTRUCTURE		S-1 =	124000

SUPERSTRUCTURE S-2

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
2S 501	109	5-11	2	2- 3	1- 8				673
2S 502	107	7- 7	8	2- 3	2- 2	1-11	1- 7		846
2S 503	4	6- 5	2	2- 3	2- 2				27
2S 504	104	3- 4	20	1- 0	0- 9	0- 8			362
2S 505	114	2- 6	1	0- 8	1-11				297
2S 506	114	2- 3	2	0- 8	1- 2				268
2S 507	104	5- 8	23	2- 4	2- 7				615
2S 508	170	2-11	20	1- 0	0- 4	0- 8			517
2S 509	170	2- 8	3	0- 8	1-11	0- 4			473
2S 510	170	3- 2	13	0- 8	2- 7	0- 5			561
2S 511	170	2- 7	ST						458
2S 512	48	14- 8	ST						734
2S 513	64	7- 2	ST						478
2S 515	8	9- 3	ST						77
2S 517	2	8- 1	8	2- 3	2- 2	2- 5	1- 7		17
2S 518	18	5- 5	2	2- 3	1- 2				102
2S 519	8	7- 4	ST						61
2S 522	20	2-10	ST						59
2S 523	3	4-11	2	2- 3	0- 8				15
2S 524	3	6- 6	8	2- 3	1- 2	2- 5	1- 0		20
2S 525	12	28- 0	ST						350
2S 601	705	30- 0	ST						31767
2S 602	102	25- 0	ST						3830
2S 603	5	24- 7	ST						185
2S 604	140	27- 7	ST						5800
2S 605	10	3- 3	20	1- 0	0- 8	0- 8			49
2S 702	201	32- 0	ST						13147
2S 728	14	8- 0	ST						229
2S 729	8	4- 0	ST						65
2S 730	401	36- 6	ST						29917
SERIES	1-SET	6- 4						7	
OF	OF 24=	TO	ST					1- 4--	1083
2S 731	24 BARS	37-10						16	
SERIES	1-SET	4- 8						15	
OF	OF 24=	TO	ST					1- 3--	977
2S 732	24 BARS	35- 2						16	
SERIES	1-SET	4- 8						5	
OF	OF 23=	TO	ST					1- 4--	936
2S 733	23 BARS	35- 2						8	
SERIES	1-SET	9- 4						1	
OF	OF 24=	TO	ST					1- 3--	1165
2S 734	24 BARS	38- 2						16	
2S 735	211	22- 7	ST						9740
2S 736	213	20- 7	ST						8961
SERIES	1-SET	4- 8						15	
OF	OF 12=	TO	ST					1- 3--	293
2S 737	12 BARS	19- 3						16	
SERIES	1-SET	4- 8						3	
OF	OF 22=	TO	ST					1- 4--	854
2S 738	22 BARS	33- 4						8	
SERIES	1-SET	6- 4						5	
OF	OF 14=	TO	ST					1- 4--	434
2S 739	14 BARS	24- 0						16	
SERIES	1-SET	9- 4						3	
OF	OF 11=	TO	ST					1- 3--	352
2S 740	11 BARS	22- 0						16	
SERIES	1-SET	4- 8						5	
OF	OF 24=	TO	ST					1- 3--	965
2S 741	24 BARS	34- 8						8	
SERIES	1-SET	6- 4						1	
OF	OF 12=	TO	ST					1- 4--	338
2S 742	12 BARS	21- 3						4	
2S 801	44	30- 0	ST						3524
2S 805	6	31- 8	ST						507
2S 806	6	35- 9	ST						573
2S 807	5	24- 7	ST						328
2S 808	5	28- 6	ST						380
2S 812	2	6- 0	ST						32
2S 813	2	5- 7	ST						30
2S 815	102	5- 6	16	1- 1	3- 2	1- 1	1- 6		1498
					TOTAL	SUPERSTRUCTURE		S-2 =	124969

SPIRAL REINFORCING SCHEDULE

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
		SPIRALS-PIER P-1			
1P-SP401	2	2- 8	32-11	4.50	1212
1P-SP402	2	2- 8	30- 8	4.50	1131
1P-SP404	2	2- 8	27- 8	4.50	1024
1P-SP405	2	2- 8	25- 6	4.50	946
		TOTAL SPIRALS-PIER		P-1 =	4313
		SPIRALS-PIER P-2			
2P-SP401	2	2- 8	32- 4	4.50	1191
2P-SP402	2	2- 8	30- 1	4.50	1110
2P-SP404	2	2- 8	27- 1	4.50	1003
2P-SP405	2	2- 8	24- 9	4.50	919

FOUR ANGLE SPACERS WEIGHING APPROX. 0.80 LBS. PER LINEAL FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT LISTED ABOVE. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED SPIRAL WEIGHT.

TOTAL SPIRALS-PIER P-2 = 4223

THE LENGTH SHOWN IN THE STEEL SCHEDULE FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE TOP OF THE COLUMN INCLUDING THREE (3) CLOSED COILS (ONE AND ONE HALF CLOSED COILS AT THE ENDS OF EACH SPIRAL UNIT).

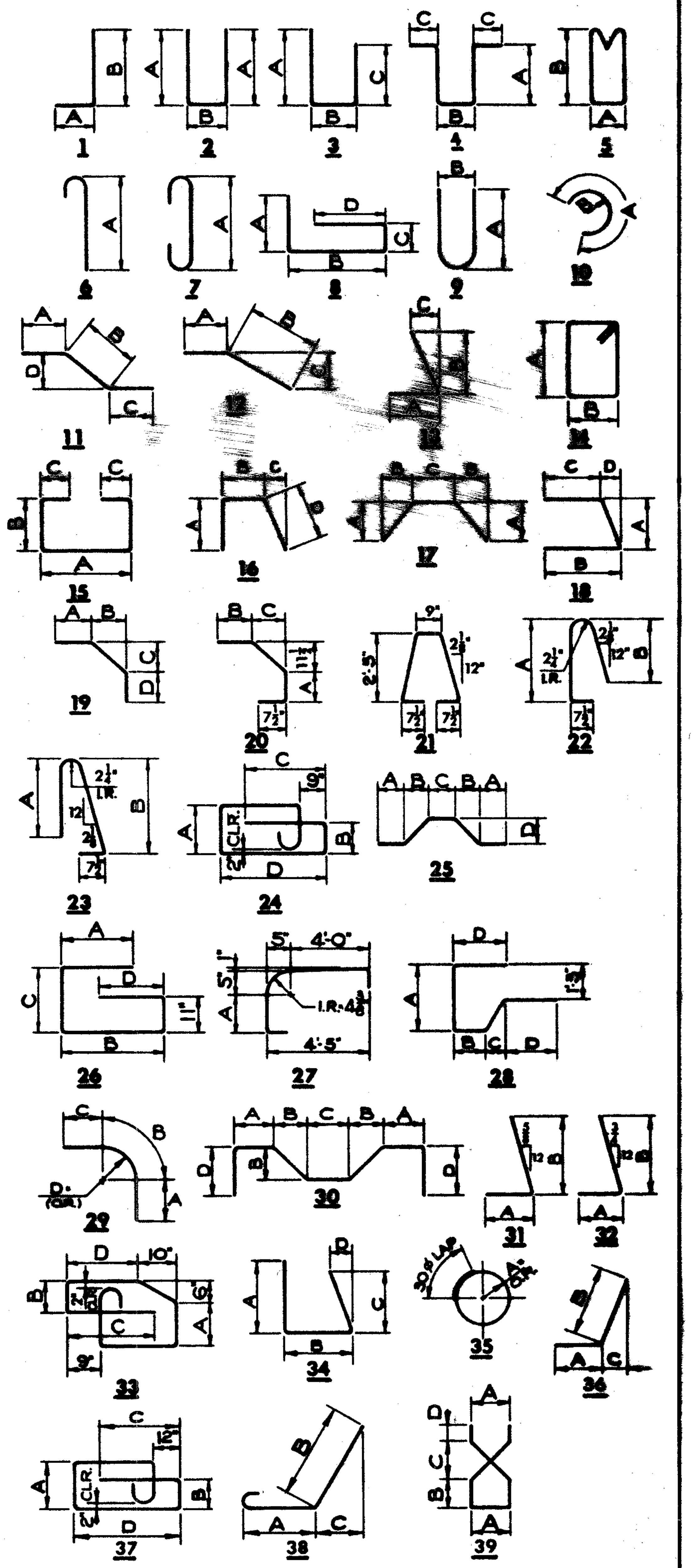
MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
					ABUTMENT	TOTAL	=		34,731
						PIER	TOTAL =		143,248
				SUPER	STRUCTURE	TOTAL =			248,969
						GRAND	TOTAL =		426,948

MICROFILMED
SEP 28 1982

FED. RD.	STATE	PROJECT	
2	OHIO		

474
713

CUYAHOGA COUNTY
CUY-90-10.40



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

13 / 14

DALTON • DALTON ASSOCIATES

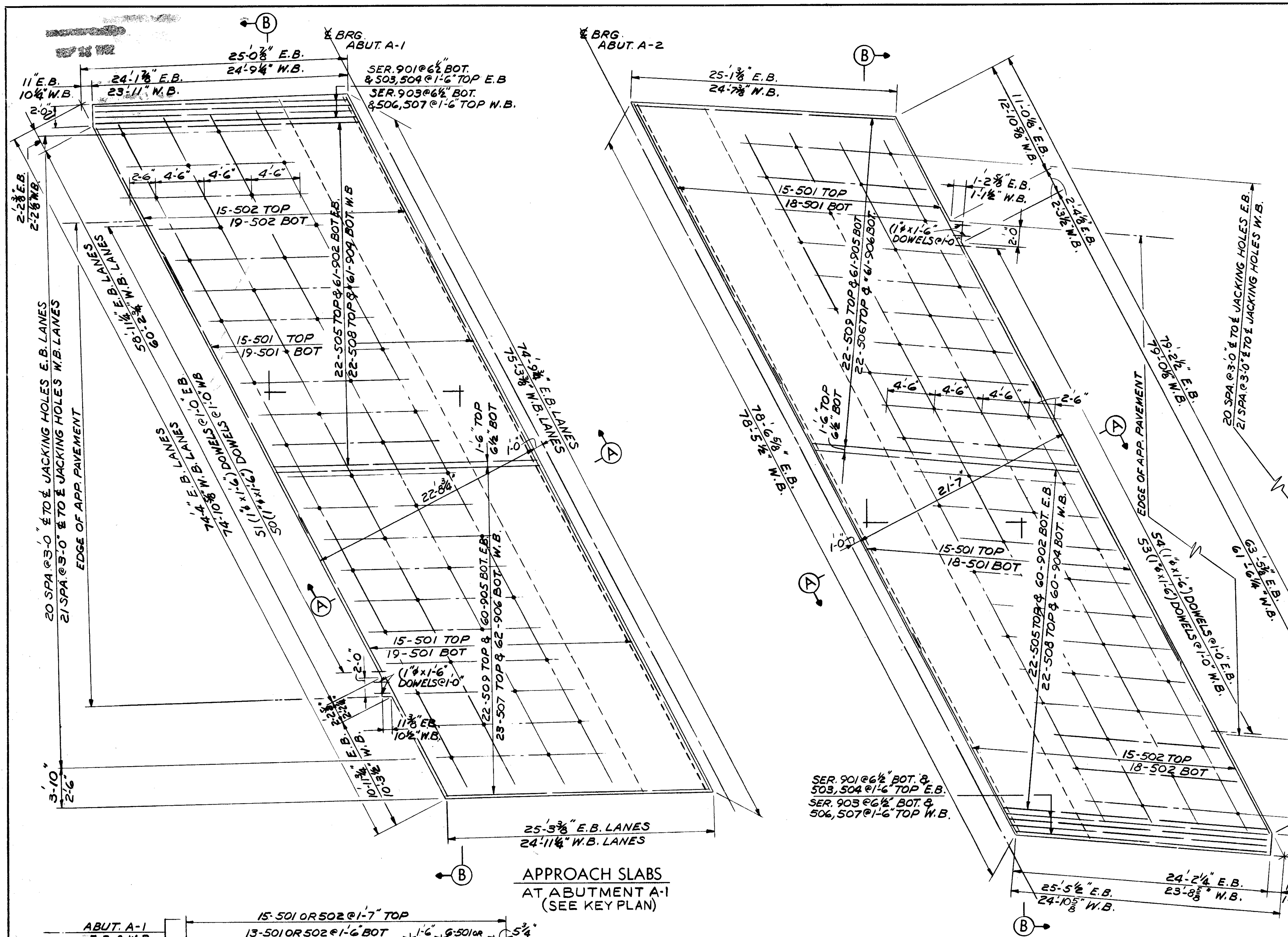
REINFORCING SCHEDULE

BRIDGE Nº CUY 90 1146 L/R
OVER WEST 100th ST EXTENSION
I-90 CUYAHOGA COUNTY
STA 779+67.53 TO STA 781+32.33

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
[illegible] D.F.D.	JWW		JFR	RDH	2-25-70	

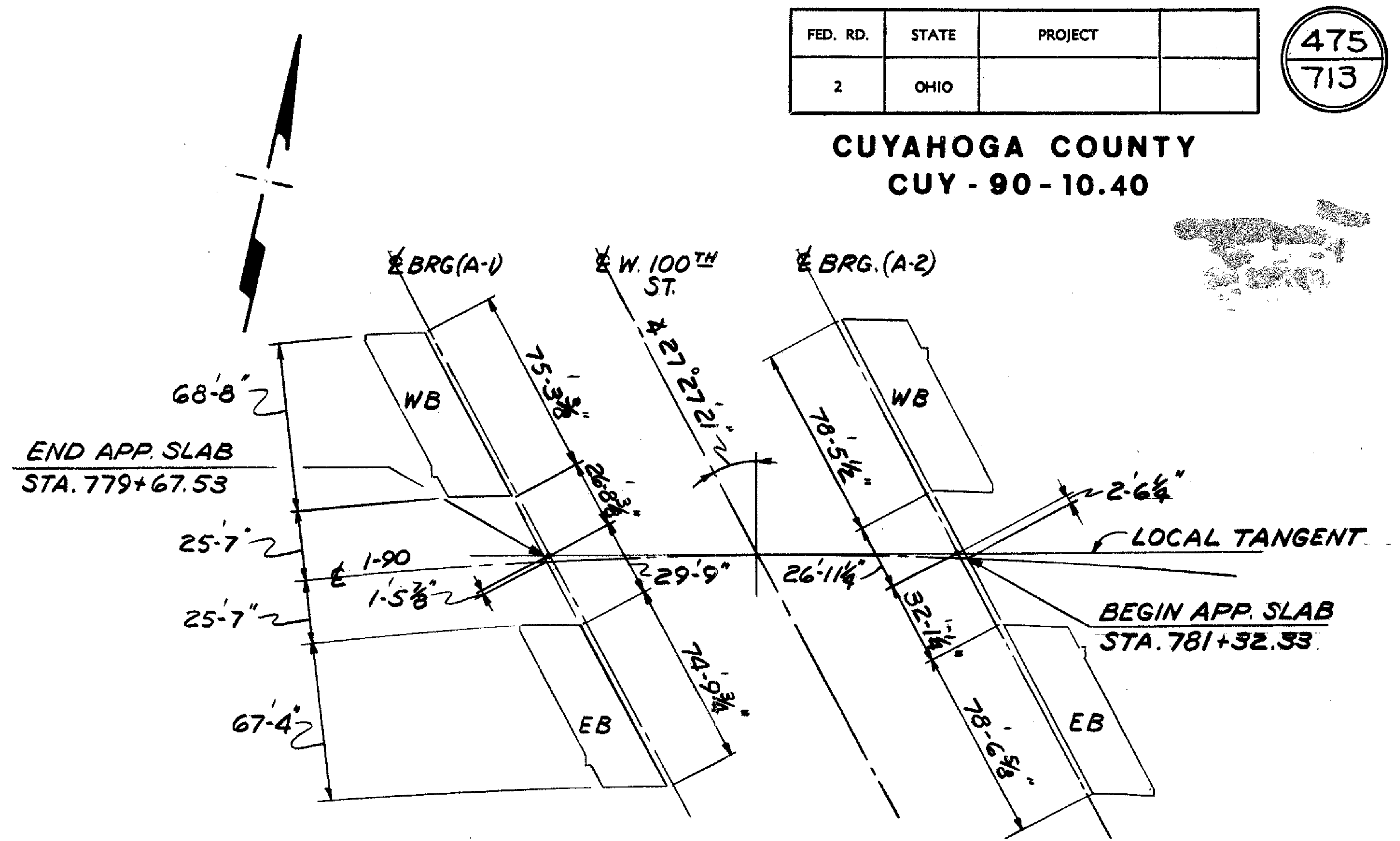
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

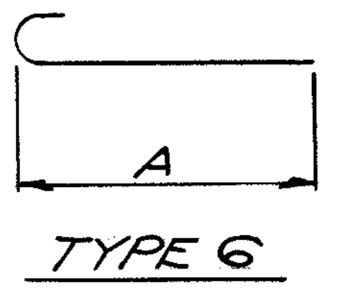


APPROACH SLABS
AT ABUTMENT A-1
(SEE KEY PLAN)

APPROACH SLABS
AT ABUTMENT A-2
(SEE KEY PLAN)



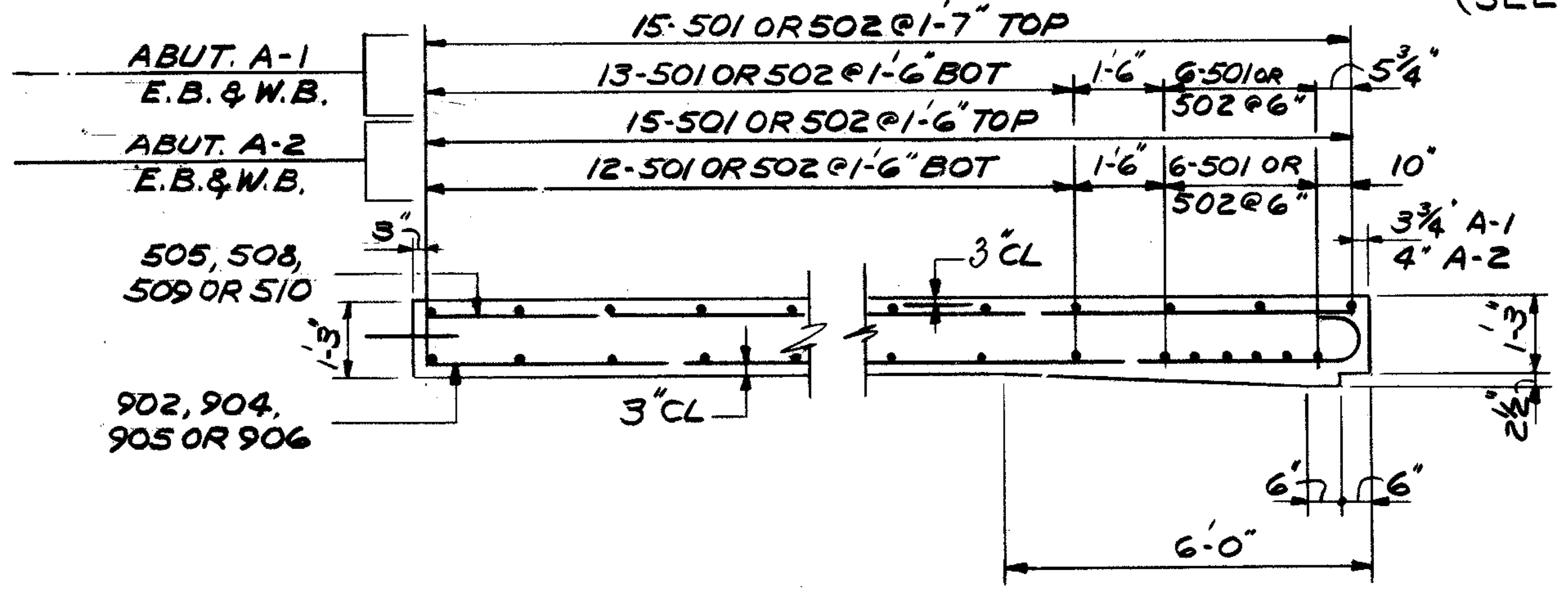
KEY PLAN



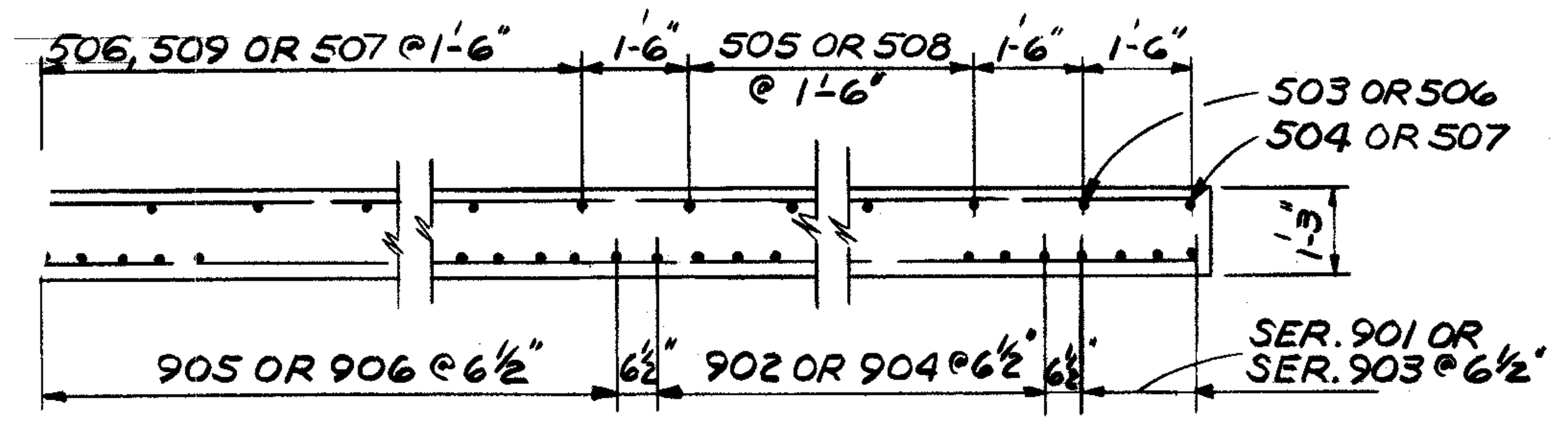
TYPE 6

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	INCRM.	WEIGHT LBS.
				APPROACH SLAB* AS-1					
1AS 501	136	30- 0	ST						4255
1AS 502	68	18- 1	ST						1283
1AS 503	1	23- 7	ST						25
1AS 504	1	24- 2	ST						25
1AS 505	22	24- 4	ST						558
1AS 506	1	23- 5	ST						24
1AS 507	24	24- 1	ST						603
1AS 508	22	24- 3	ST						554
1AS 509	22	24- 5	ST						560
SERIES	1-SET	24- 9		23- 6					
OF	OF 4=	TO	6	TO				0- 3	342
1AS 901	4 BARS	25- 6		24- 3					
1AS 902	61	25- 6	6	24- 3					5289
SERIES	1-SET	24- 8		23- 5					
OF	OF 4=	TO	6	TO				0- 3	341
1AS 903	4 BARS	25- 5		24- 2					
1AS 904	61	25- 6	6	24- 3					5289
1AS 905	60	25- 7	6	24- 4					5219
1AS 906	62	25- 4	6	24- 1					5340
1AS	105	1- 6	ST	1 IN. DIA. DOWELS					421
				TOTAL APPROACH SLAB AS-1 =					30130
				APPROACH SLAB* AS-2					
2AS 501	132	30- 0	ST						4130
2AS 502	66	22- 4	ST						1537
2AS 503	1	23- 8	ST						25
2AS 504	1	24- 8	ST						26
2AS 505	22	24-10	ST						570
2AS 506	23	24- 1	ST						578
2AS 507	1	23- 5	ST						24
2AS 508	22	24- 3	ST						556
2AS 509	22	24- 4	ST						558
SERIES	1-SET	25-11		24- 8					
OF	OF 4=	TO	6	TO				0- 4	346
2AS 901	4 BARS	24-11		23- 8					
2AS 902	60	26- 1	6	24-10					5321
SERIES	1-SET	25- 4		24- 1				5	
OF	OF 4=	TO	6	TO				0- 3--	339
2AS 903	4 BARS	24- 6		23- 3				16	
2AS 904	60	25- 6	6	24- 3					5202
2AS 905	61	25- 7	6	24- 4					5306
2AS 906	61	25- 4	6	24- 1					5254
2AS	111	1- 6	ST	1 IN. DIA. DOWELS					445
				TOTAL APPROACH SLAB AS-2 =					30217

*APPROACH SLAB REINFORCEMENT BARS WILL BE INCLUDED AS PART OF ITEM 611 FOR PAYMENT.



SECTION A-A



SECTION B-B

NOTES:
FOR DETAILS AND NOTES NOT SHOWN HERE SEE STATE OF OHIO STD. DWG. AS-1-72

E.B. DENOTES EAST BOUND LANES
W.B. DENOTES WEST BOUND LANES

THE PREFIX 1-AS OR 2-AS SHALL BE ADDED TO ALL REINFORCING BAR MARKS USED IN THE APPROACH SLABS AT ABUTMENTS A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

756 SQ. YDS OF CLASS 'C' CONCRETE (TOTAL FOR FOUR APPROACH SLABS)

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

DALTON · DALTON ASSOCIATES

APPROACH SLAB DETAILS

BRIDGE NO. CUY-90-1146 L/R
OVER WEST 100th ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

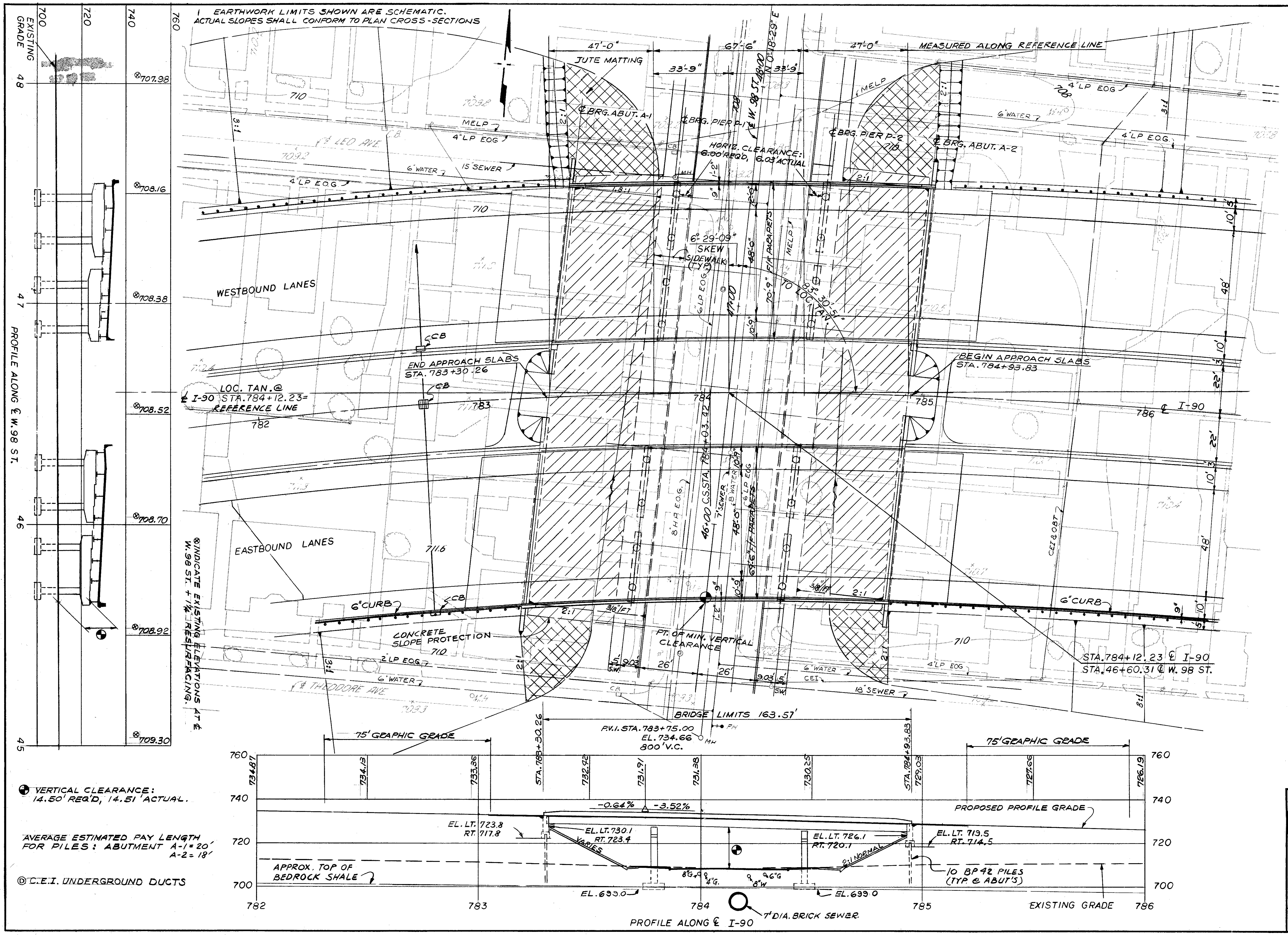
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
STD.	JLH		cow	RAH	12-23-74	

FED. RD.	STATE	PROJECT	
2	OHIO		

476
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

MICROFILMED
SEP 29 1982



1 EARTHWORK LIMITS SHOWN ARE SCHEMATIC. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS

● VERTICAL CLEARANCE: 14.50' REQ'D, 14.51' ACTUAL.

AVERAGE ESTIMATED PAY LENGTH FOR PILES: ABUTMENT A-1 = 20'
A-2 = 18'

Ⓓ C.E.I. UNDERGROUND DUCTS

CURVE DATA

℄ I-90

P.I. STA. 781+88.41

Δ = 25°-21'-57" RT.	Δ = 13°-21'-57" RT.
T_S = 630.52'	D_C = 3°-00'-00"
Q_S = 6°-00'-00"	R = 1909.86'
L_S = 400.00'	T = 223.78'
L.T. = 266.82'	L_C = 445.53'
S.T. = 133.47'	

NOTE
THE VERTICAL CURVE DATA DOES NOT APPLY TO BRIDGE OR GRAPHIC GRADE ELEVATIONS. THE BRIDGE ELEVATIONS WERE OBTAINED BY ADDING 1½" TO ELEVATIONS OBTAINED FROM VERTICAL CURVE DATA.

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SKEW: 6°-29'-09" LF. TO REFERENCE LINE

SPANS: 47'-0", 67'-6", 47'-0" C/L BRG. ALONG REFERENCE LINE

ROADWAY: 70'-9" F/F PARAPETS W.B. LANES
69'-6" F/F PARAPETS E.B. LANES

LOADING: HS 20-44. AND INT ALT. LOADING.

WEARING SURFACE: 1½" ASPHALT CONCRETE

APPROACH SLABS: 25' LONG (AS-1-72)

ALIGNMENT: 3°-00'-00" CURVE RIGHT

SUPERELEVATION: TRANSITION.

SLOPE PROTECTION: CONCRETE

TRAFFIC: I-90 133,356 A.D.T. 1975.
W. 98 ST. 6,410 A.D.T. 1975.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

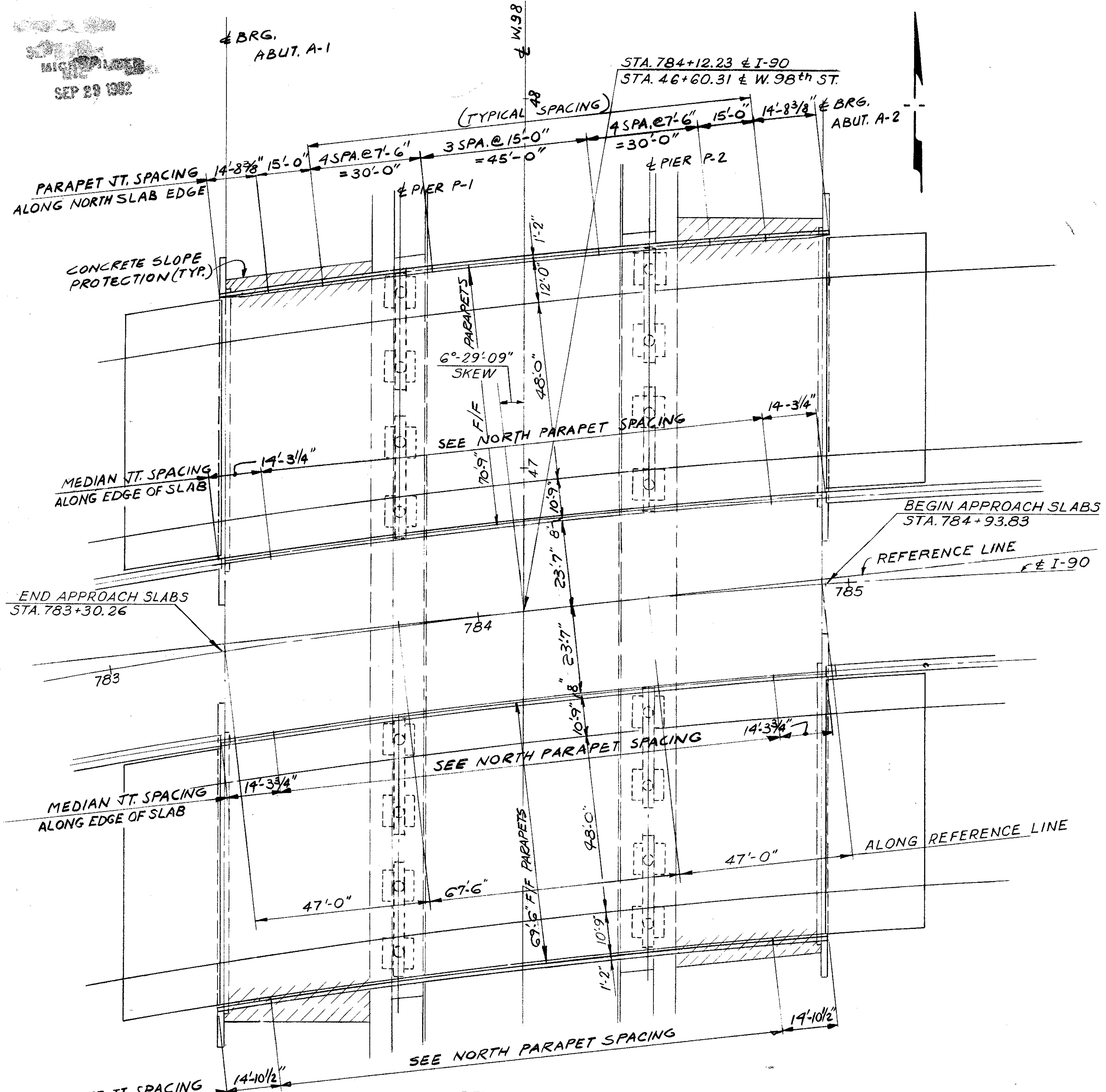
1 / 14

DALTON · DALTON ASSOCIATES

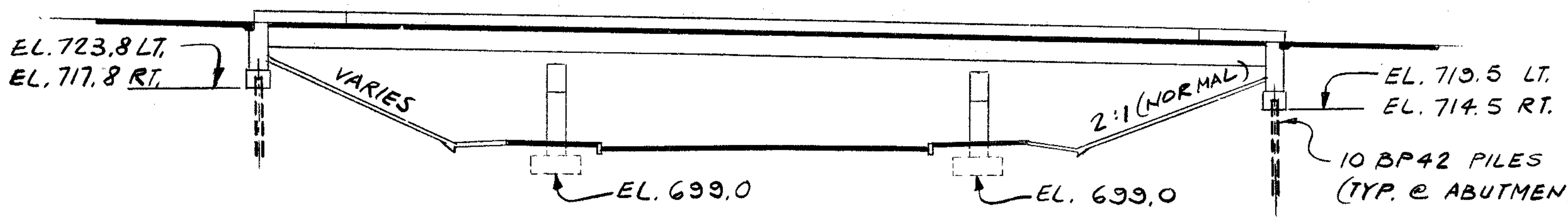
SITE PLAN

BRIDGE NO. CUY-90-1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B.	J.K.		D.H.S.	RDH	2-25-70	



GENERAL PLAN



ELEVATION

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L.		
404	100	CY	ASPHALT CONCRETE AC-20	100					
				33					
SPEC	2502	SY	MEMBRANE WATERPROOFING, HOT APPLIED LIQUID (SEE PROPOSAL NOTE)	2502					
503	LUMP	LSUM	COFFERDAMS, CRIBS AND SHEETING			LUMP			
503	1194	CY	UNCLASSIFIED EXCAVATION		477	717			
503	41	CY	SHALE EXCAVATION		-	41			
505	LUMP	LSUM	TEST PILE		LUMP				
507	1502	LF	STEEL PILES, HP10X42		1502				
509	338,606	LB	REINFORCING STEEL	252,203	28938	57465			
511	785	CY	CLASS C CONCRETE, SUPERSTRUCTURE	785					
511	215	CY	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			215			
511	180	CY	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS		180				
511	275	CY	CLASS C CONCRETE, FOOTINGS		131	144			
512	313	LF	PREMOLDED SEALING STRIP		313				
513	479,000	LB	STRUCTURAL STEEL	479,000					
514	479,000	LB	FIELD PAINTING OF STRUCTURAL STEEL	479,000					
516	274	SF	1/4 IN. PREFORMED EXPANSION JOINT FILLER		274				
516	7660	SF	1 IN. PREFORMED EXPANSION JOINT FILLER		7660				
516	62	SF	1 IN. THICK ELASTOMERIC BEARING PADS	62					
518	221	CY	POROUS BACKFILL		221				
518	389	LF	6 IN. PERFORATED, HELICAL CMP INCLUDING 707.01		389				
518	52	LF	6 IN. NON-PERFORATED, HELICAL CMP INCL. SPECIALS, 707.01		52				
518	64	EACH	SUBDRAINAGE FOR WEARING COURSE (AS PER PLAN)	64					
601	1944	SY	CONCRETE SLOPE PROTECTION		1944				
808	785	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	785					

QUANTITIES CHECKED BY ALH 09-27-73

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

NOTES

① FOR STRUCTURAL GENERAL NOTES, SEE SHEET 4//

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

DALTON • DALTON ASSOCIATES

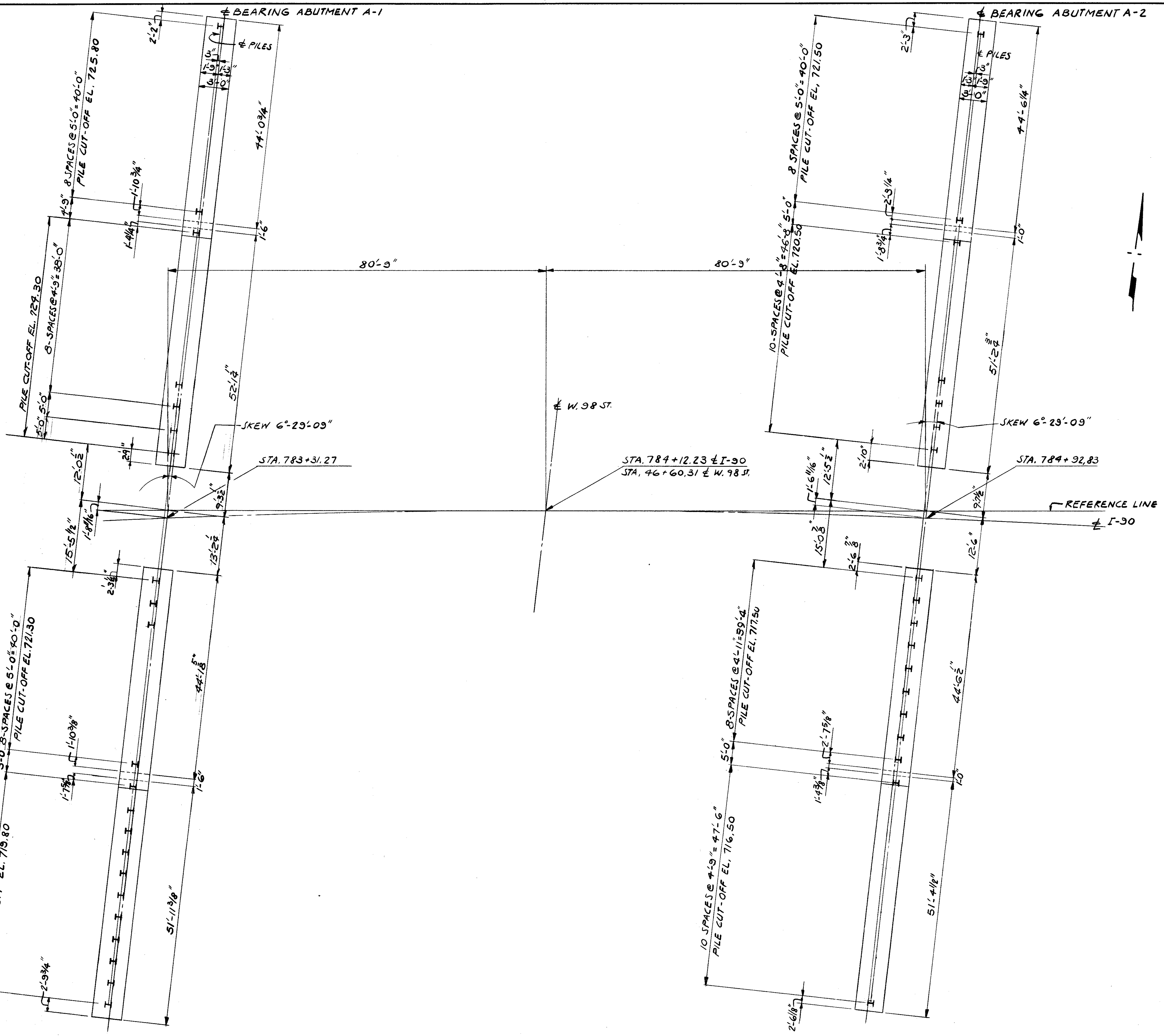
GENERAL PLAN & ELEVATION

BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L. B.	E.A.B.		D.H.S. 11-18-69	RDN	2-26-70	8-15-75

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



NOTES

① ALL PILES SHALL BE 10BP42 STEEL PILES.

③ PILES shall be driven to refusal on bedrock or to 20 blows per inch for the last few inches of penetration. The design load is 35 tons per pile.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3 / 14

DALTON • DALTON ASSOCIATES

PILING PLAN

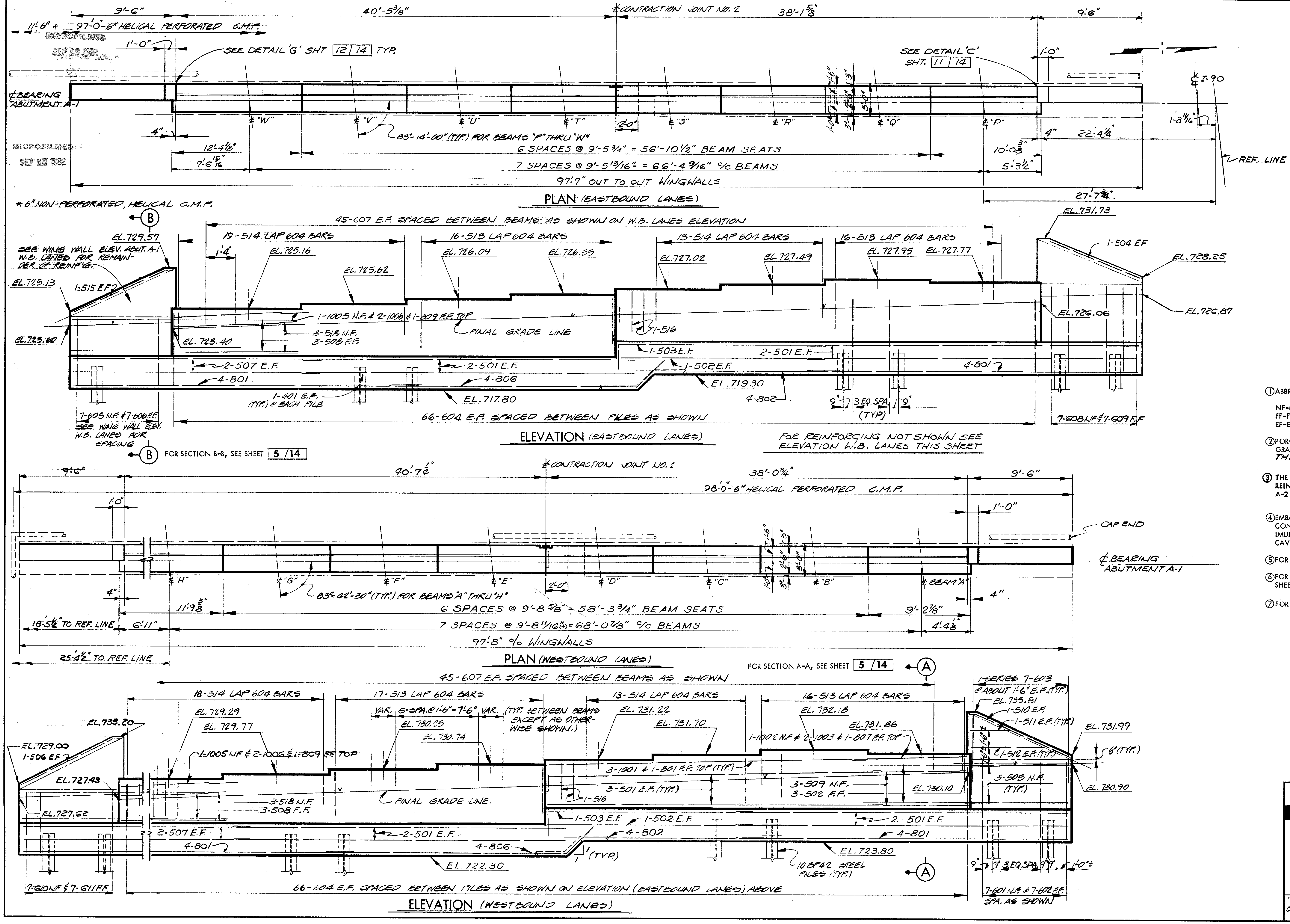
BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D. J.F.P.	HSL		L. B.	RDH	2-26-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

479
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



NOTES

① ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

② POROUS BACKFILL SHALL EXTEND UPWARD TO THE SUBGRADE AND OUTWARD TO THE SURFACE OF THE EMBANKMENT SLOPES.

③ THE PREFIX "1A" OR "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENTS A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

④ EMBANKMENT PROCEDURE: THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENTS.

⑤ FOR PILING PLAN, SEE SHEET 3/14

⑥ FOR ADDITIONAL DETAILS, SEE SLAB PLAN SHEET 11/14

⑦ FOR JOINT DETAILS, SEE SHEET 5/14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

4/14

DALTON • DALTON ASSOCIATES

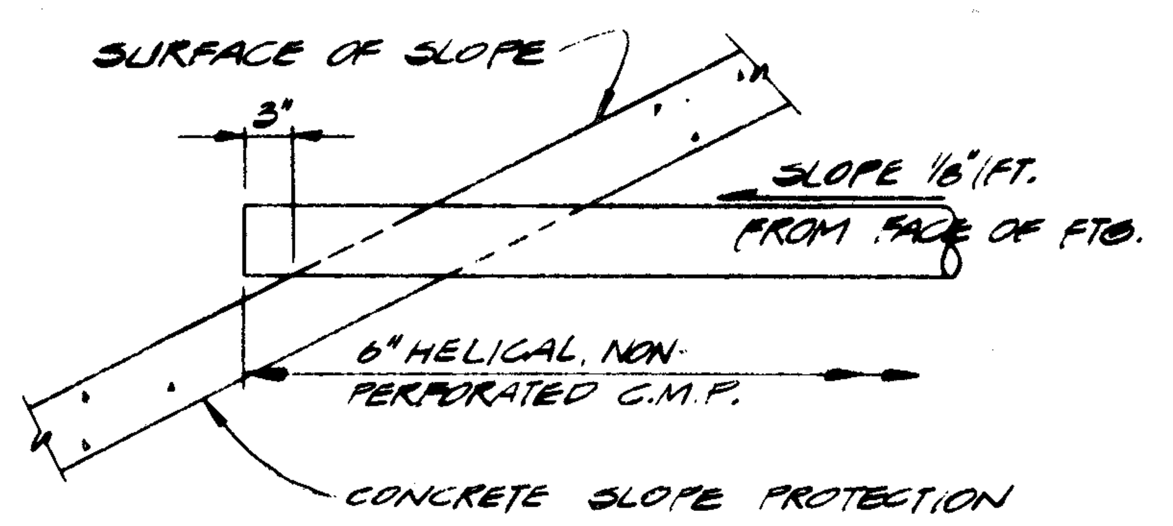
ABUTMENT A-1

BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B.	R.D.H.	2-26-70	

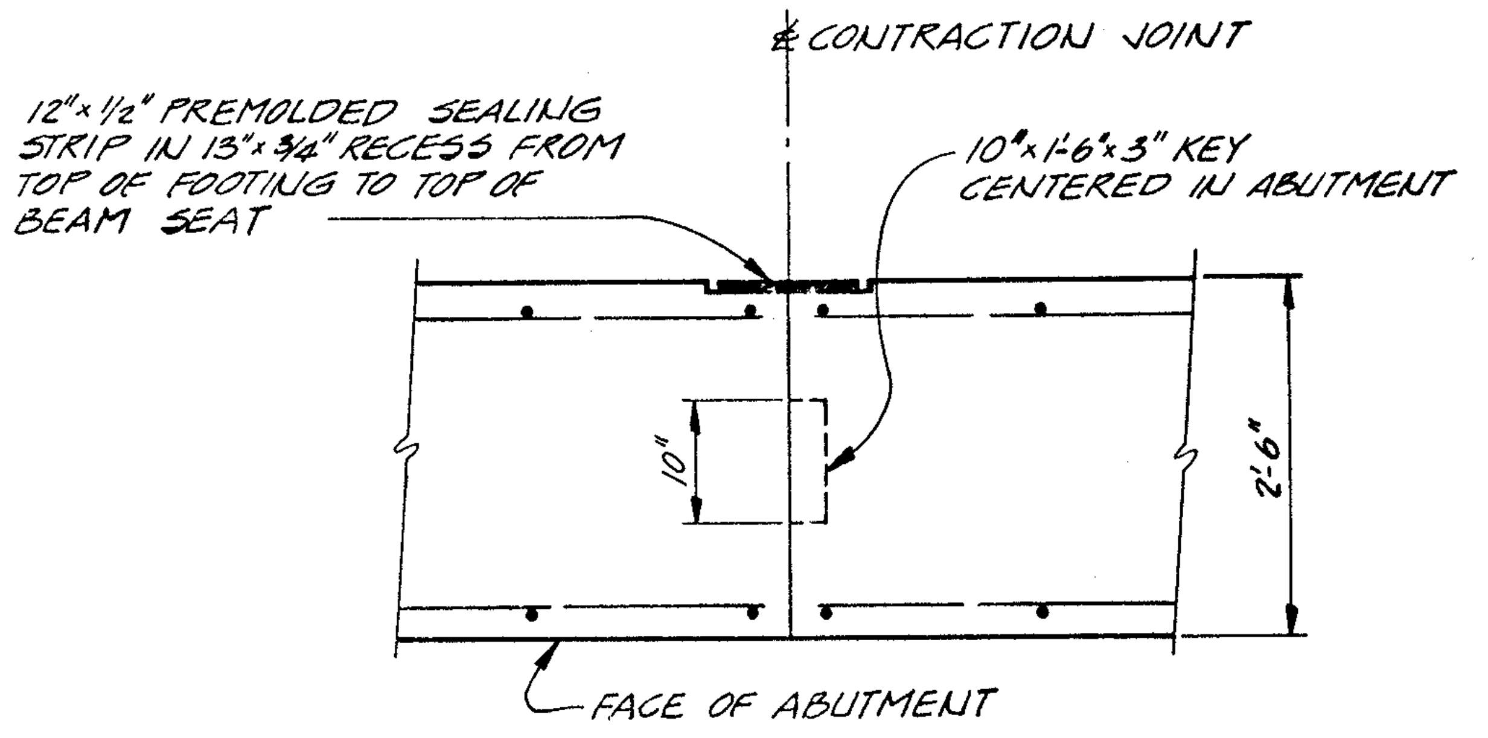
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

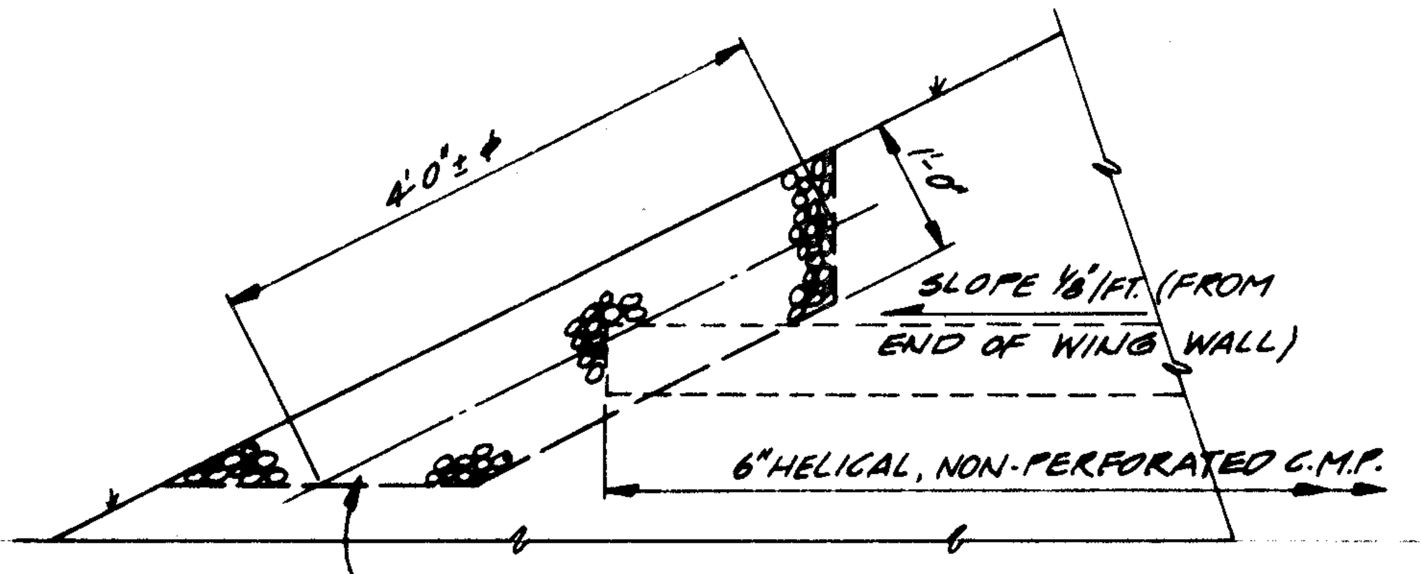


DETAIL

TERMINATION OF 6" HELICAL, NON-PERFORATED C.M.P. AT SLOPE



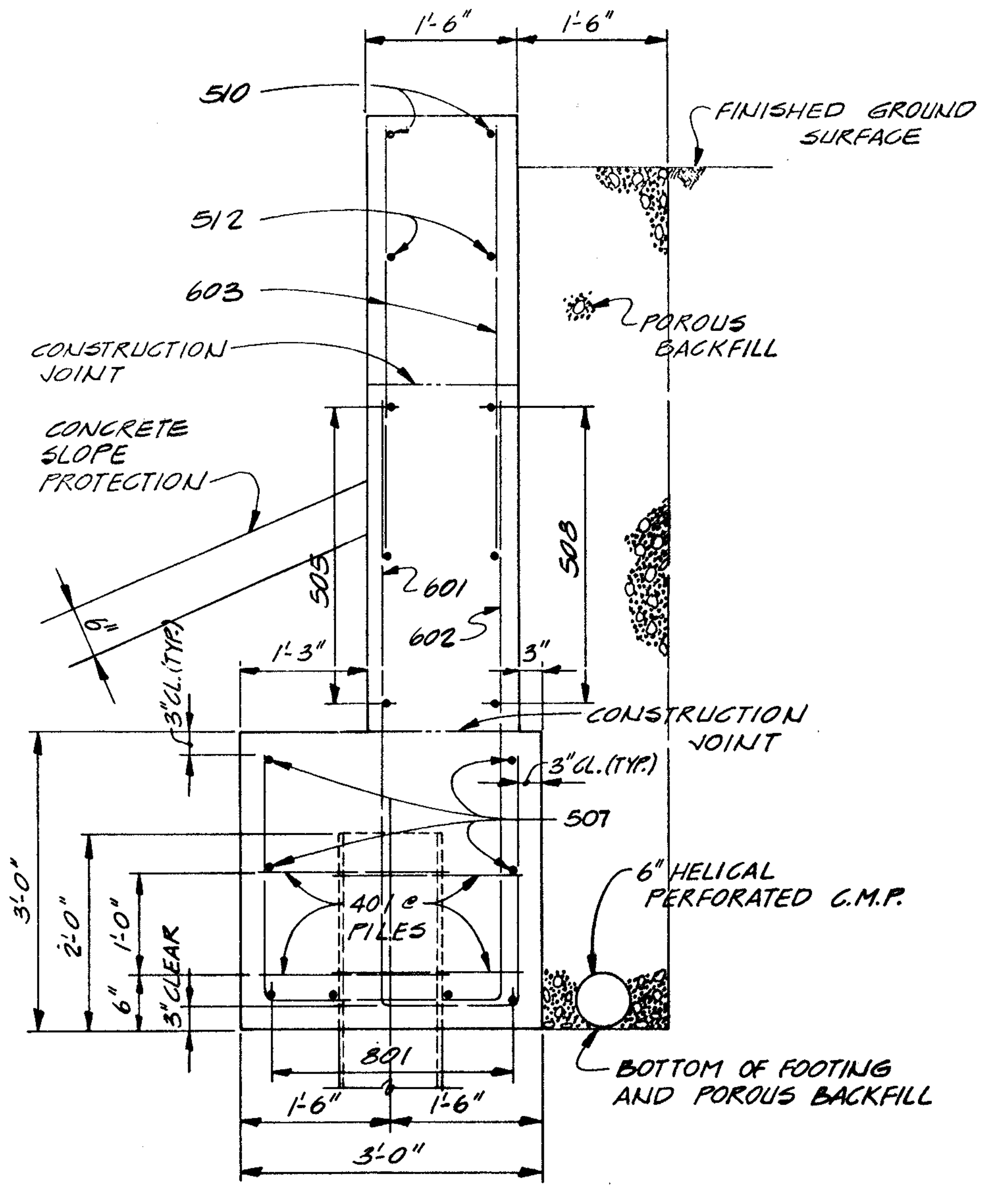
ABUTMENT CONTRACTION JOINT DETAIL



CRUSHED AGGREGATE SLOPE PROTECTION MATERIAL AT END OF PIPE. INCLUDE WITH CONCRETE SLOPE PROTECTION FOR PAYMENT.

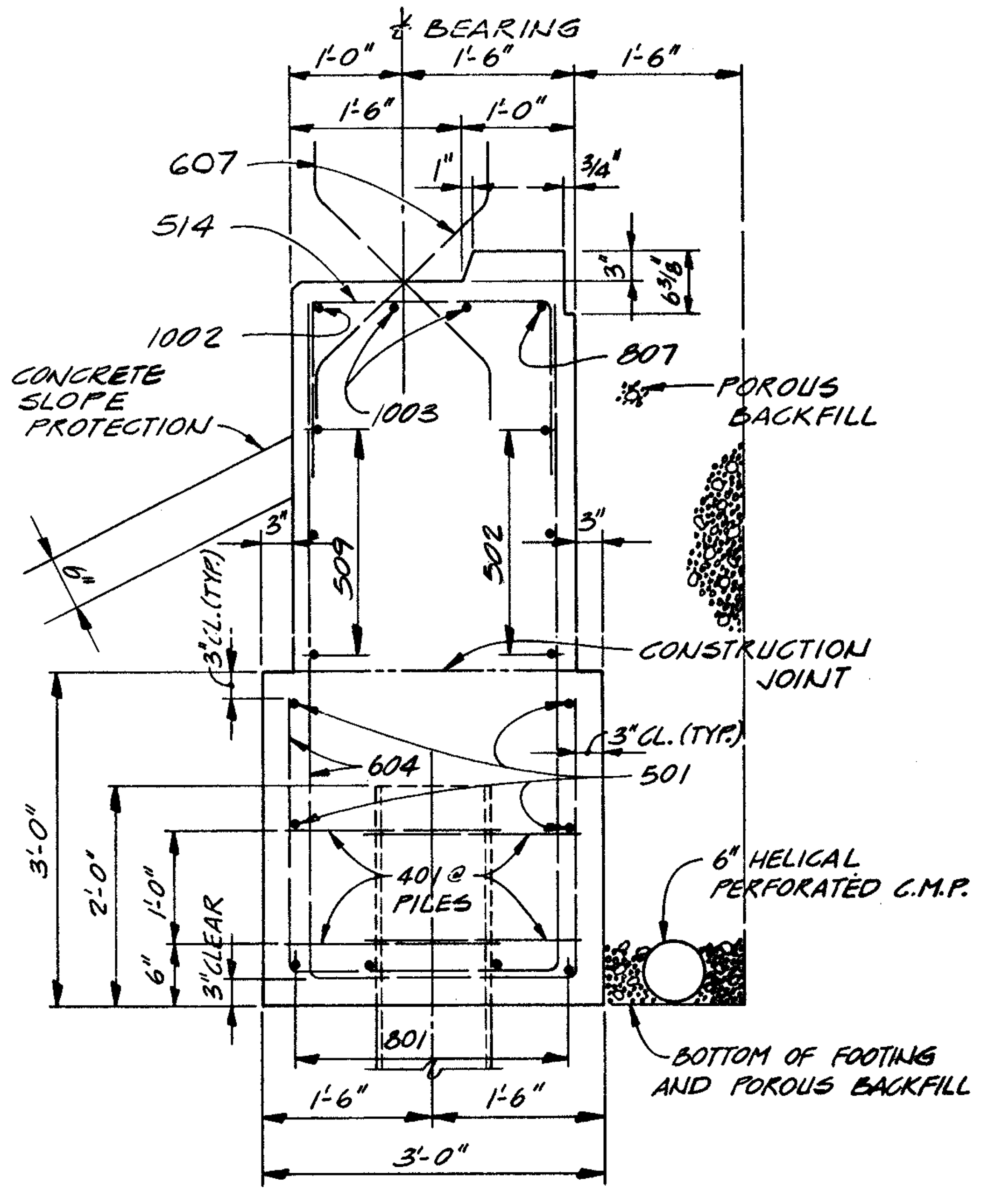
DETAIL

TERMINATION OF 6" HELICAL, NON-PERFORATED C.M.P AT SLOPE



SECTION B-B

OTHER WING WALLS SIMILAR



SECTION A-A

OTHER ABUTMENT SIMILAR

FOR NOTES, SEE SHEET 4 / 14

FOR LOCATION OF SECTIONS, SEE SHEET 4 / 14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES
5 / 14

DALTON · DALTON ASSOCIATES

ABUTMENTS

BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

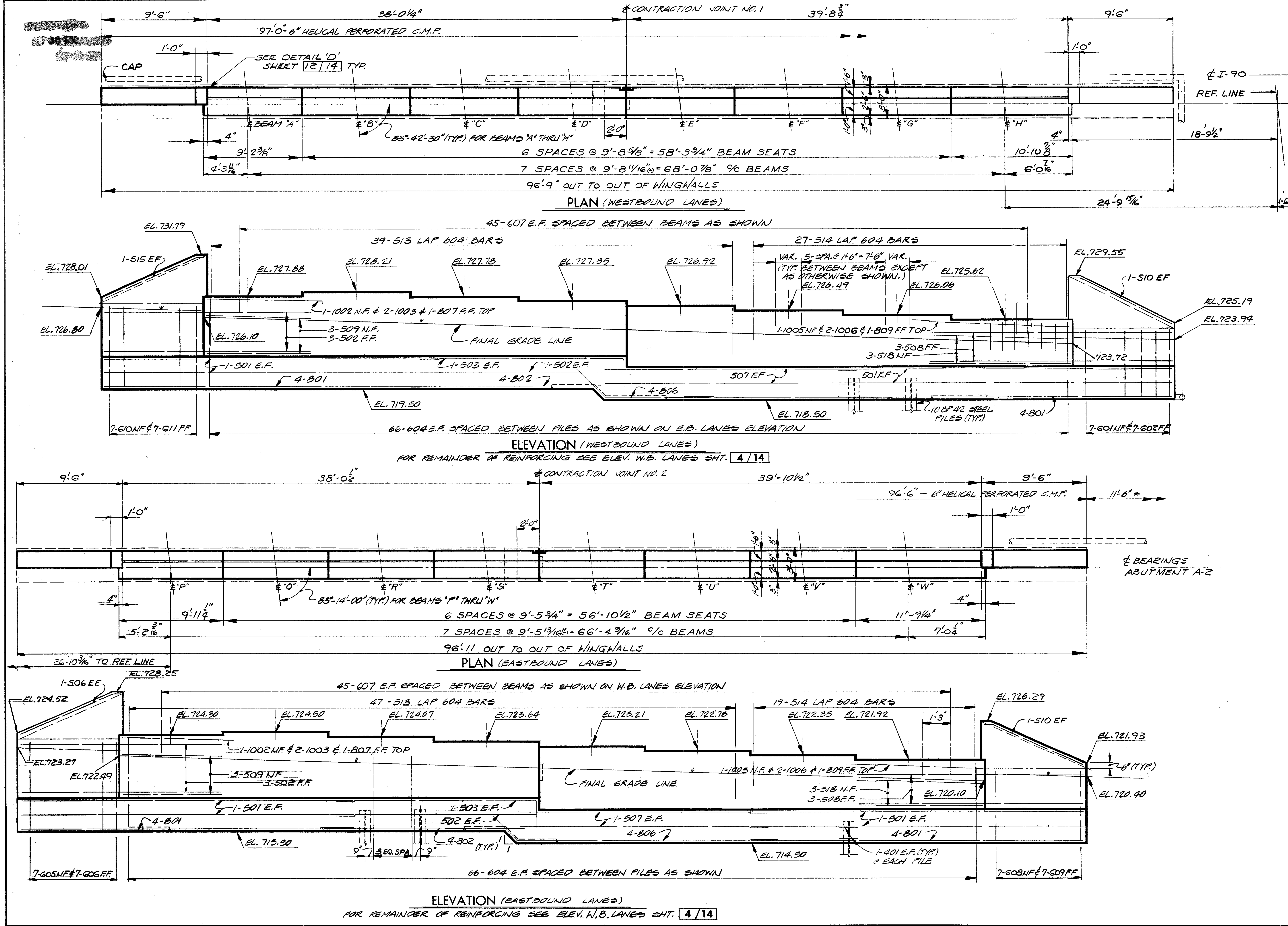
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B.	RDH	2-26-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

481
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

[redacted]



FOR NOTES, SEE SHEET 4/14

FOR ALL SECTIONS, SEE SHEET 5/14

FOR TERMINATION OF C.M.P., SEE SHEET 5/14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

6/14

DALTON • DALTON ASSOCIATES

ABUTMENT A-2

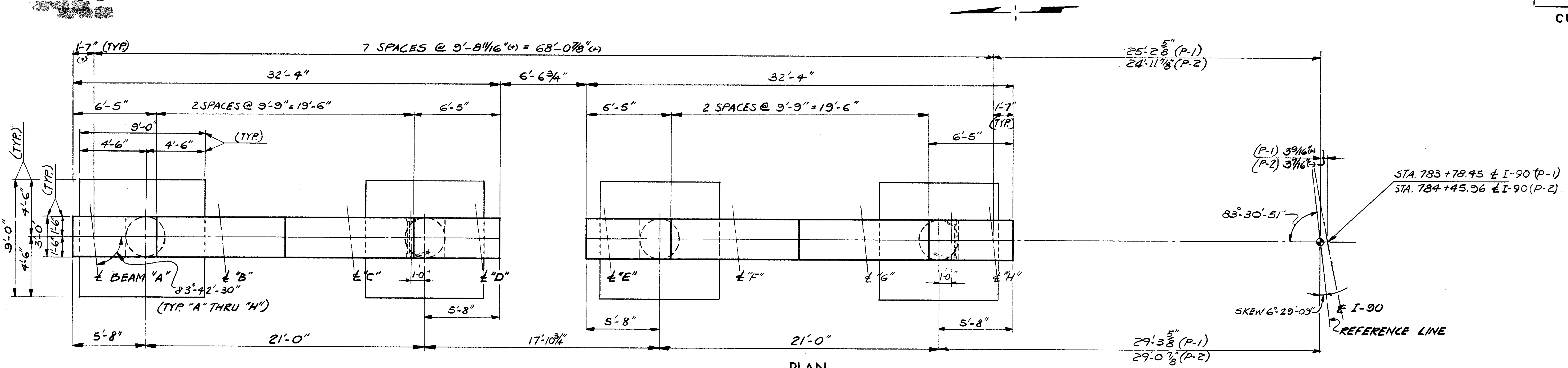
BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B.	RDH	2-26-70	

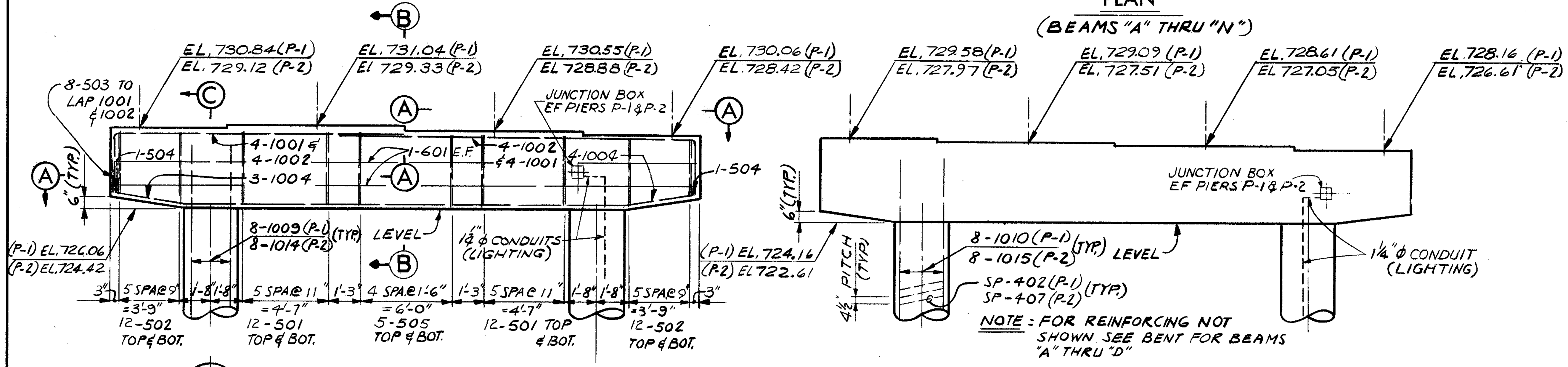
FED. RD.	STATE	PROJECT	
2	OHIO		

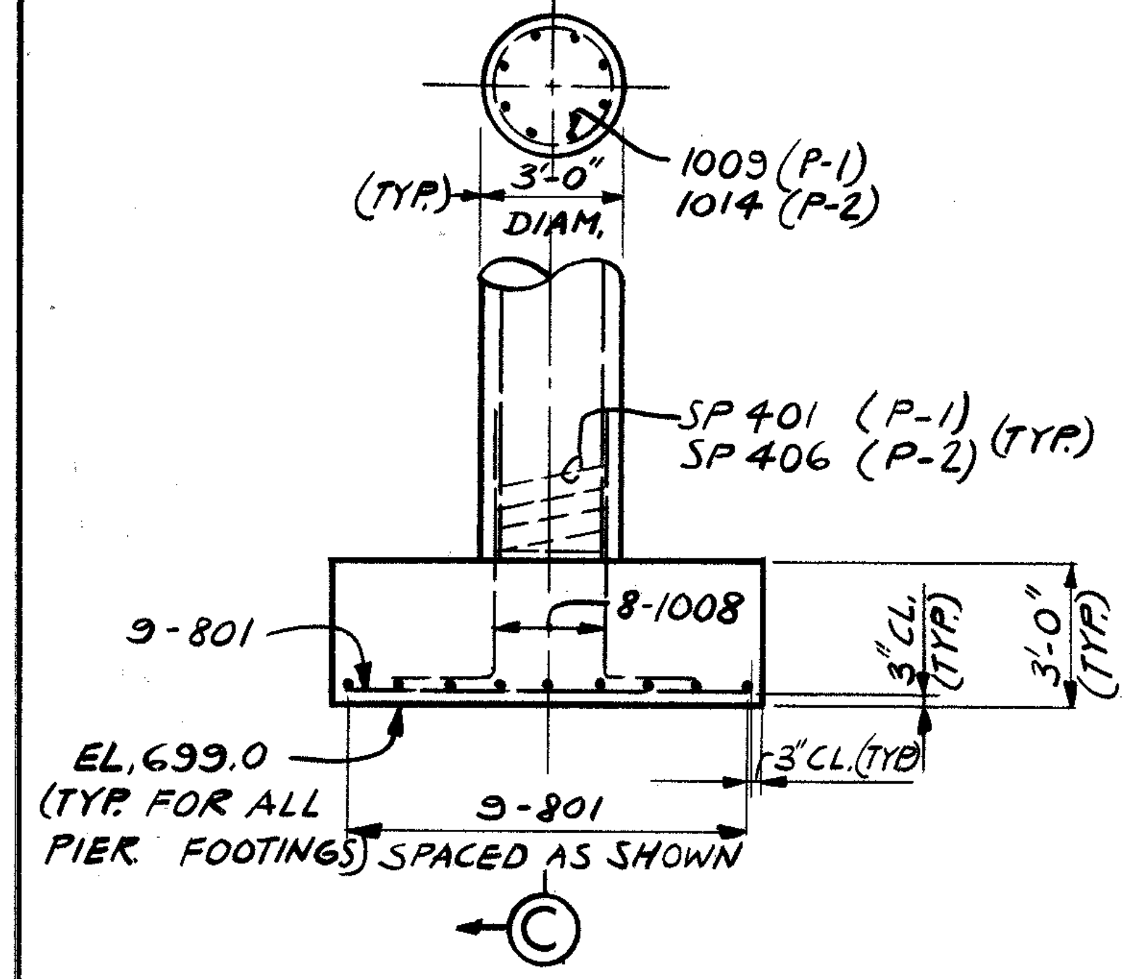
482
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



PLAN
(BEAMS "A" THRU "N")

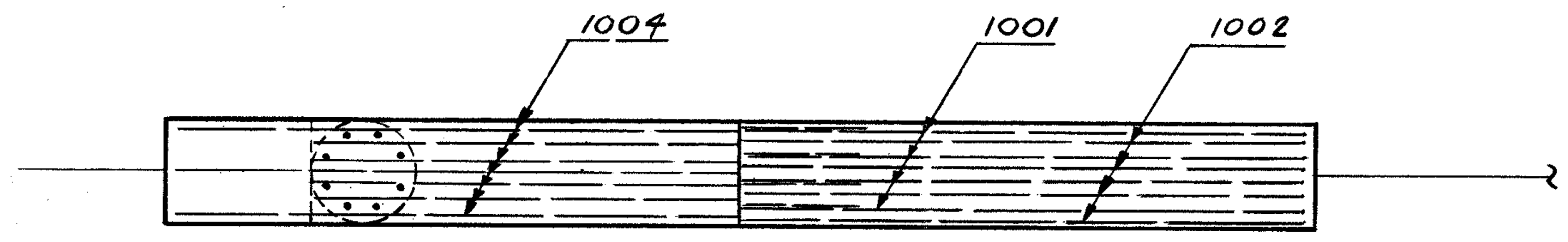




FOR SECTIONS B-B & C-C SEE SHEET 8 / 14

ELEVATION

ELEVATION SHOWN FOR PIER P-1 AND PIER P-2.
FOOTING REINFORCING SHOWN, TYPICAL FOR ALL PIER FOOTINGS.



SECTION A-A

NOTE:
FOR BEARING DETAILS SEE SHEET 12/14

FOR NOTES, SEE SHEET 8 / 14

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

7 / 14

DALTON • DALTON ASSOCIATES

PIERS LEFT

BRIDGE NO. CUY-90-1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

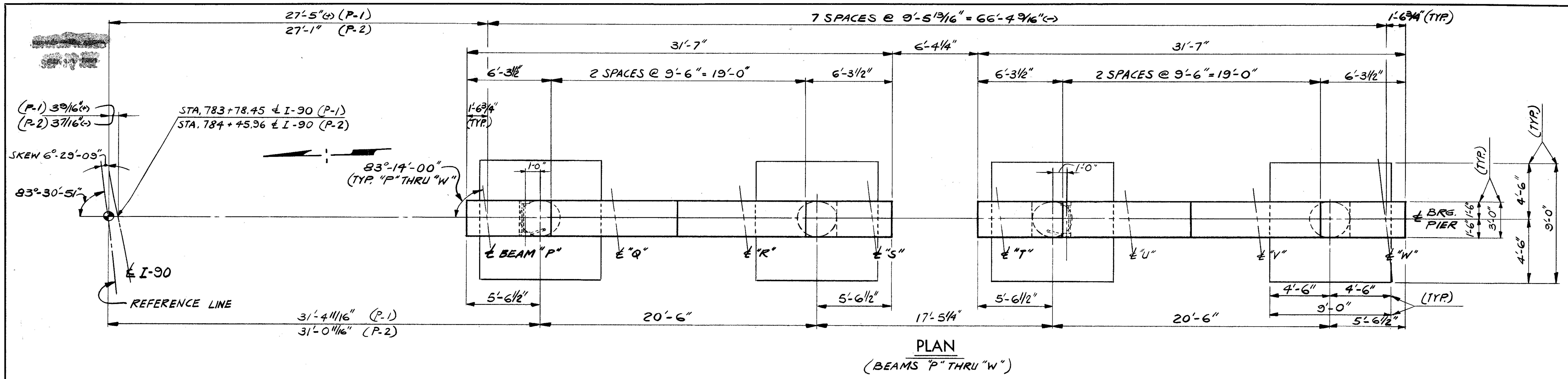
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HSL	HSL		L.B.	RDH	2-26-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

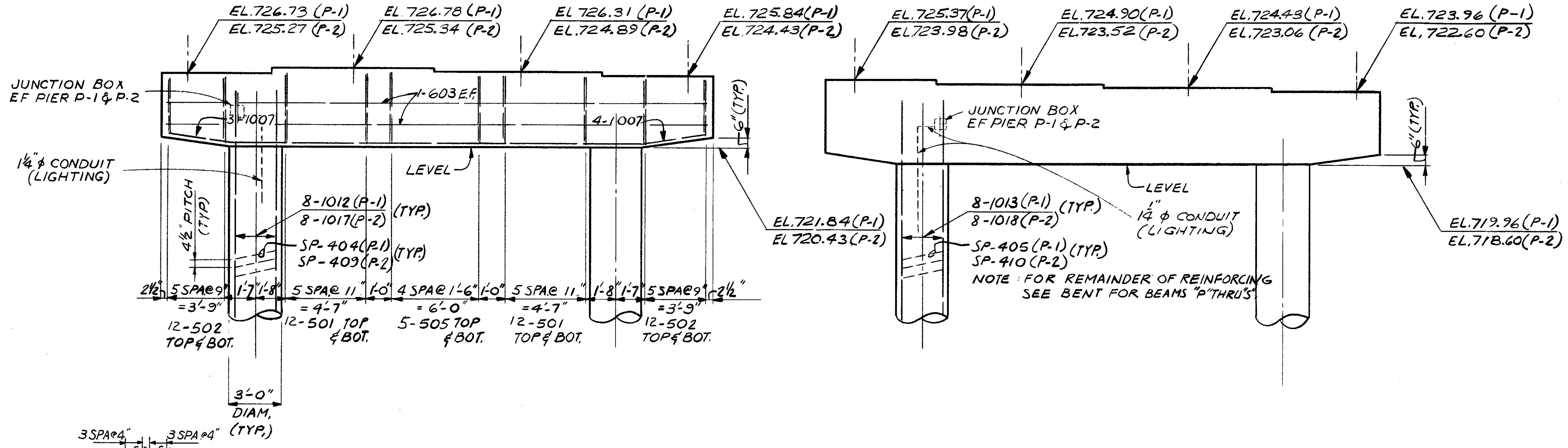
483
713

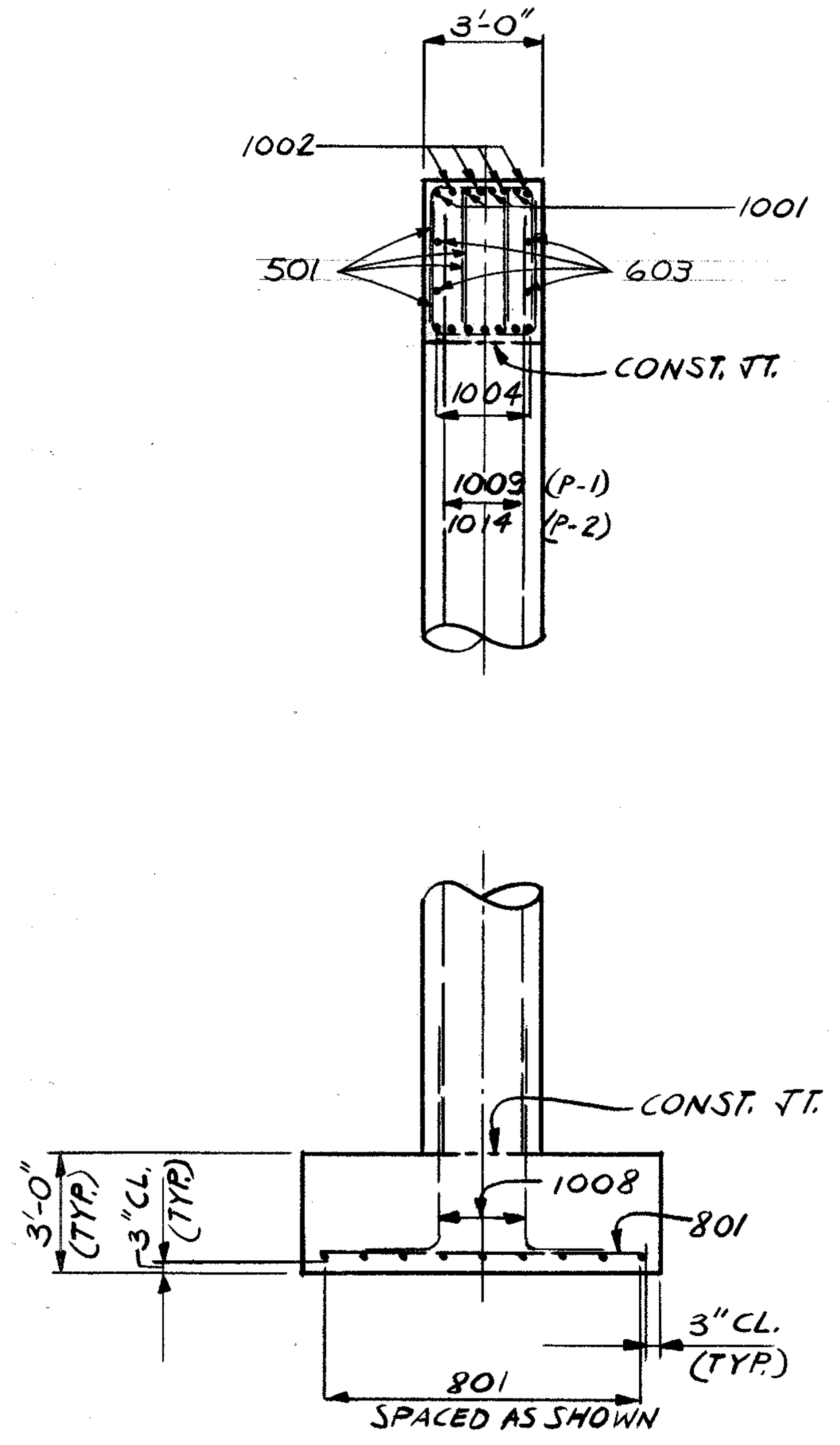
CUYAHOGA COUNTY
CUY - 90 - 10.40

[redacted]



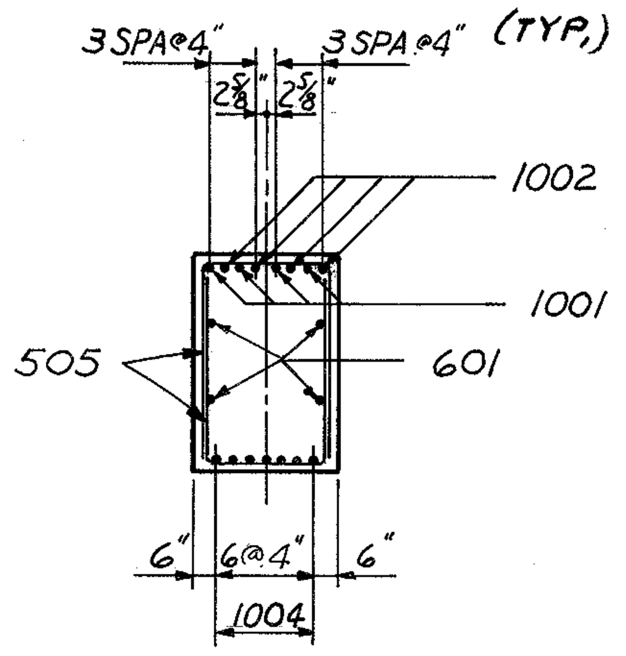
PLAN
(BEAMS "P" THRU "W")





SECTION C-C

FOR LOCATION OF SECTION, SEE SHEET 7/14



SECTION B-B

ELEVATION

ELEVATION SHOWN, FOR PIERS P-1 & P-2.
FOR REINFORCING NOT SHOWN SEE
BENT FOR BEAMS "A" THRU "D" SH'T 7/14
FOR SECTIONS NOT SHOWN SEE SECTIONS ON SH'T 7/14

NOTES

① BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BOLT HOLES.

② ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

③ THE PREFIX "1P" OR "2P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER P-1 OR P-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

④ FOUNDATION BEARING PRESSURE: PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 5 TONS PER SQ. FT.

⑤ FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER. THE OPEN EXCAVATION SHALL BE INSPECTED IN THE FIELD IN ORDER TO INSURE THAT THE EXCAVATIONS HAVE BEEN EXTENDED TO A MINIMUM OF 3 INCHES INTO BEDROCK THROUGHOUT THE ENTIRE FOUNDING AREA.

⑥ THE AREA OF ALL THE FOOTING CONTACTS SHALL NOT BE SUBJECTED TO PROLONGED ATMOSPHERIC EXPOSURE. FURTHER, THE EXCAVATIONS SHALL BE WELL DRAINED AT ALL TIMES.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

8/14

DALTON • DALTON ASSOCIATES

PIERS RIGHT

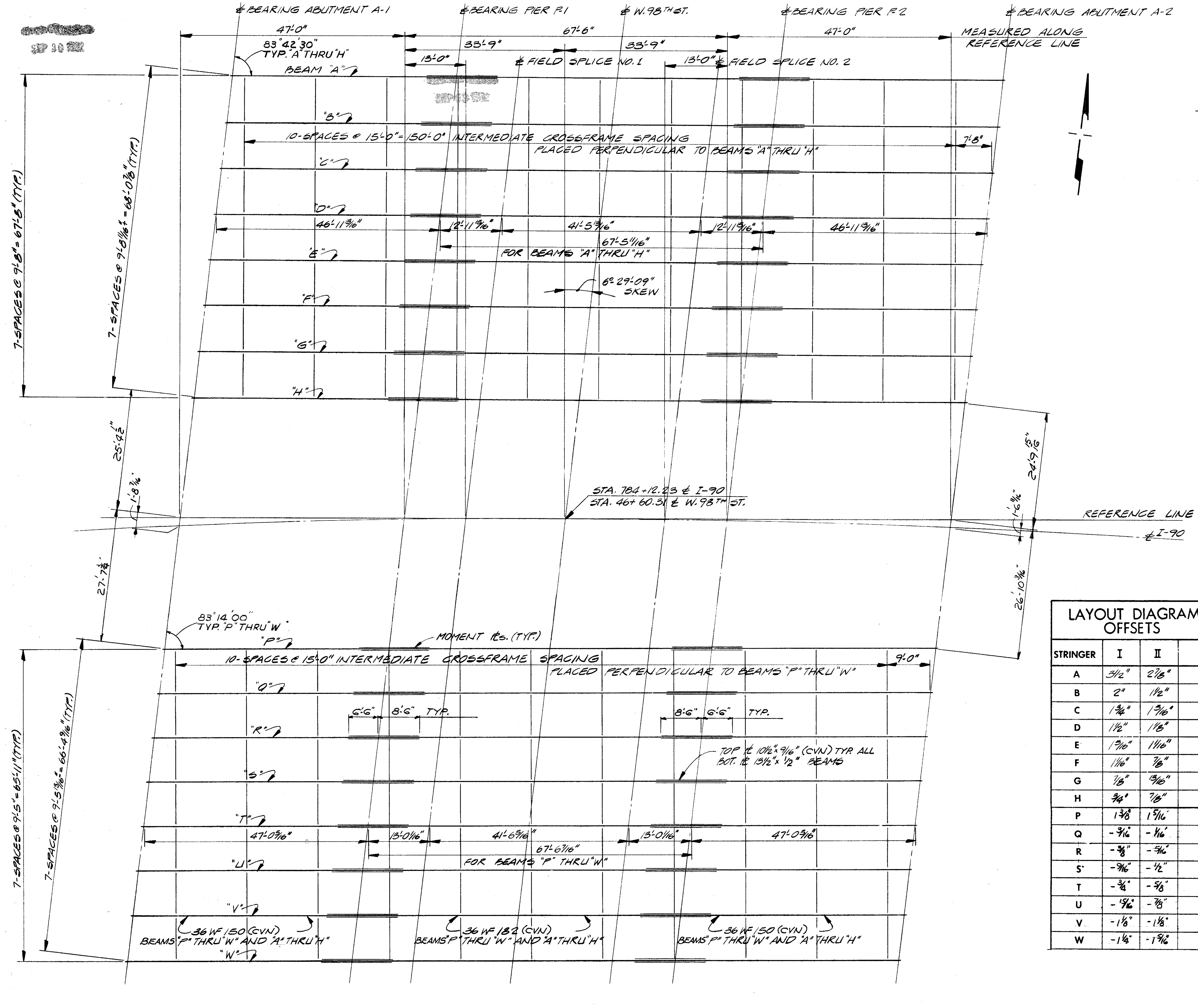
BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HSL	HSL		L.B.	RBH	2-26-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

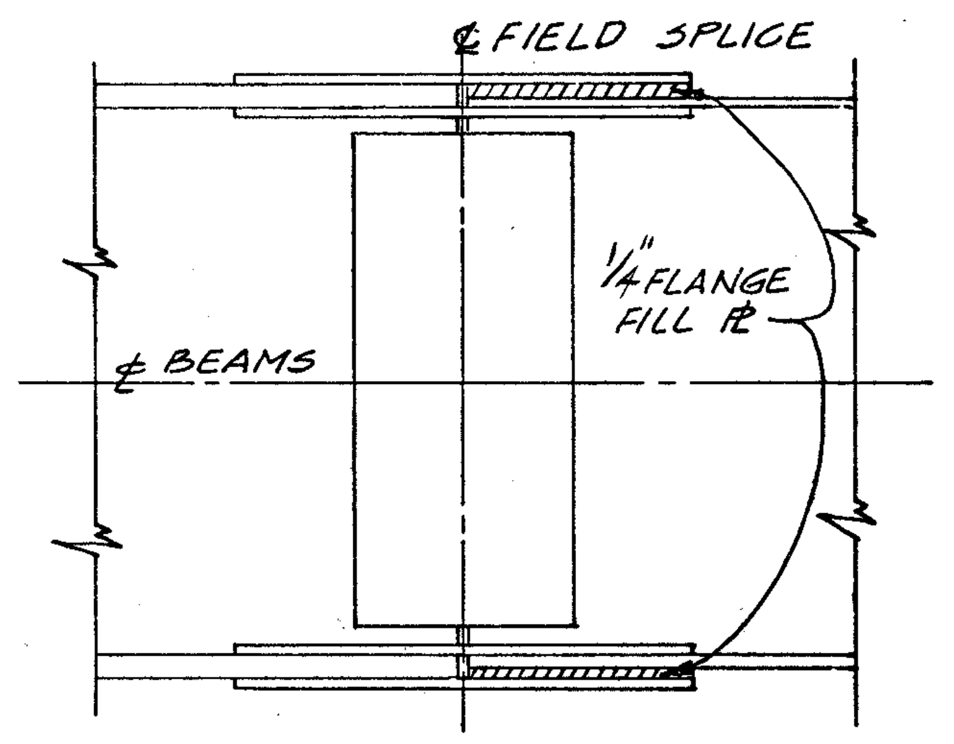
484/713

CUYAHOGA COUNTY
CUY - 90 - 10.40



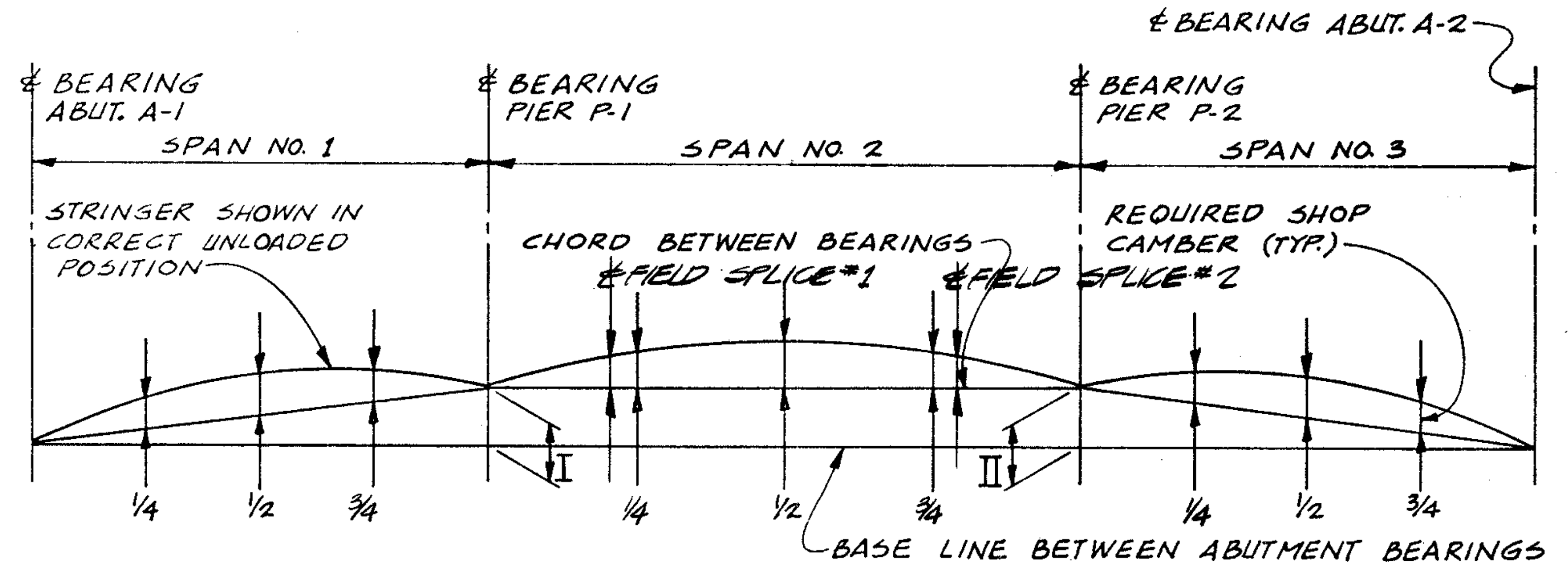
FRAMING PLAN

FOR ADDITIONAL DETAILS, SEE SHEET 12/14



SPLICE FILL PLATE DETAIL

FOR BEAMS "A" THRU "H" AND "P" THRU "W"



LAYOUT DIAGRAM

ALL DIMENSIONS ARE ALONG ℄ BEAM

DEFLECTION AND CAMBER

BEAMS	A, P										
SPANS	1			2					3		
POINTS	1/4	1/2	3/4	FIELD SPLICE NO. 1	1/4	1/2	3/4	FIELD SPLICE NO. 2	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	0	1/16"	1/16"	1/16"	0	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1/8"	1/8'	0	3/16"	1/4"	3/8"	1/4"	3/16"	0	1/8"	1/8"
ADJUSTMENT REQUIRED FOR VERT. & HOR. CURVE	1/8"	3/16"	1/8"	1/4"	5/16"	7/16"	5/16"	1/4"	1/8"	3/16"	1/8"
REQUIRED SHOP CAMBER	1/4"	5/16"	1/8"	7/16"	5/8"	7/8"	5/8"	7/16"	1/8"	5/16"	1/4"

DEFLECTION AND CAMBER

BEAMS	B-H & Q-W										
SPANS	1			2					3		
POINTS	1/4	1/2	3/4	FIELD SPLICE NO. 1	1/4	1/2	3/4	FIELD SPLICE NO. 2	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	0	1/16"	1/16"	1/16"	0	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1/8"	1/8"	0	3/16"	1/4"	3/8"	1/4"	3/16"	0	1/8"	1/8"
ADJUSTMENT REQUIRED FOR VERT. & HOR. CURVE	0	0	0	1/16"	1/16"	1/16"	1/16"	1/16"	0	0	0
REQUIRED SHOP CAMBER	1/8"	1/8"	0	1/4"	3/8"	1/2"	3/8"	1/4"	0	1/8"	1/8"

LAYOUT DIAGRAM OFFSETS

STRINGER	I	II	
A	3 1/2"	2 7/8"	
B	2"	1 1/2"	
C	1 3/4"	1 5/16"	
D	1 1/2"	1 1/8"	
E	1 5/16"	1 1/16"	
F	1 1/16"	7/8"	
G	7/8"	13/16"	
H	3/4"	7/8"	
P	1 3/8"	1 5/16"	
Q	- 3/16"	- 1/16"	
R	- 3/8"	- 5/16"	
S	- 9/16"	- 1/2"	
T	- 3/4"	- 5/8"	
U	- 15/16"	- 7/8"	
V	- 1 1/8"	- 1 1/8"	
W	- 1 1/4"	- 1 5/16"	

NOTE:
NEGATIVE VALUES AT LEFT ARE BELOW BASELINE BETWEEN ABUTMENT BEARINGS.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

9/14

DALTON • DALTON ASSOCIATES

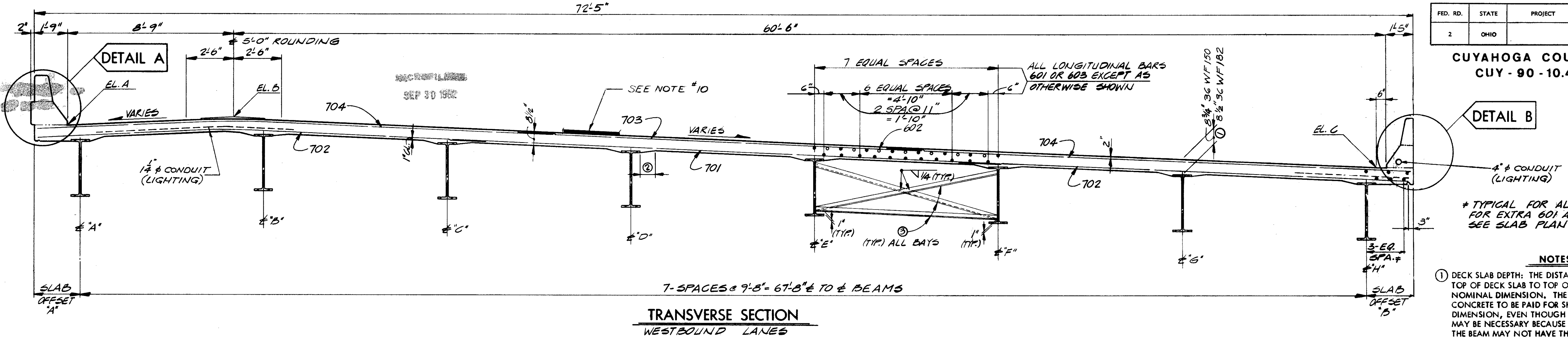
FRAMING PLAN

BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
H.G.H. A.J.	E.A.B. D.F.D.		L.B.	RDH	2-26-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40



TRANSVERSE SECTION
WESTBOUND LANES

\# TYPICAL FOR ALL OFFSETS.
FOR EXTRA 601 AND 603 BARS
SEE SLAB PLAN SHT. NO. 11/14

NOTES

① DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO TOP OF STEEL BEAM 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 OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.

② A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

③ INTERMEDIATE CROSSFRAME ANGLES 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.

④ TRANSVERSE REINFORCEMENT SHALL BE FIELD BENT AS REQUIRED; PAYMENT SHALL BE INCLUDED WITH ITEM 509, REINFORCING STEEL.

⑤ ELEVATIONS SHOWN ARE ON TOP OF THE CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF CONCRETE AND ASPHALT WEARING SURFACE.

FOR PAVEMENT ELEVATION TABLE, SEE SHEET 12/14

⑥ THE PREFIX "1S" SHALL BE ADDED TO ALL REINFORCING BAR MARKS ON THE LEFT PORTION OF THE SUPERSTRUCTURE AND "2S" ON THE RIGHT PORTION OF THE SUPERSTRUCTURE UNLESS SHOWN OTHERWISE.

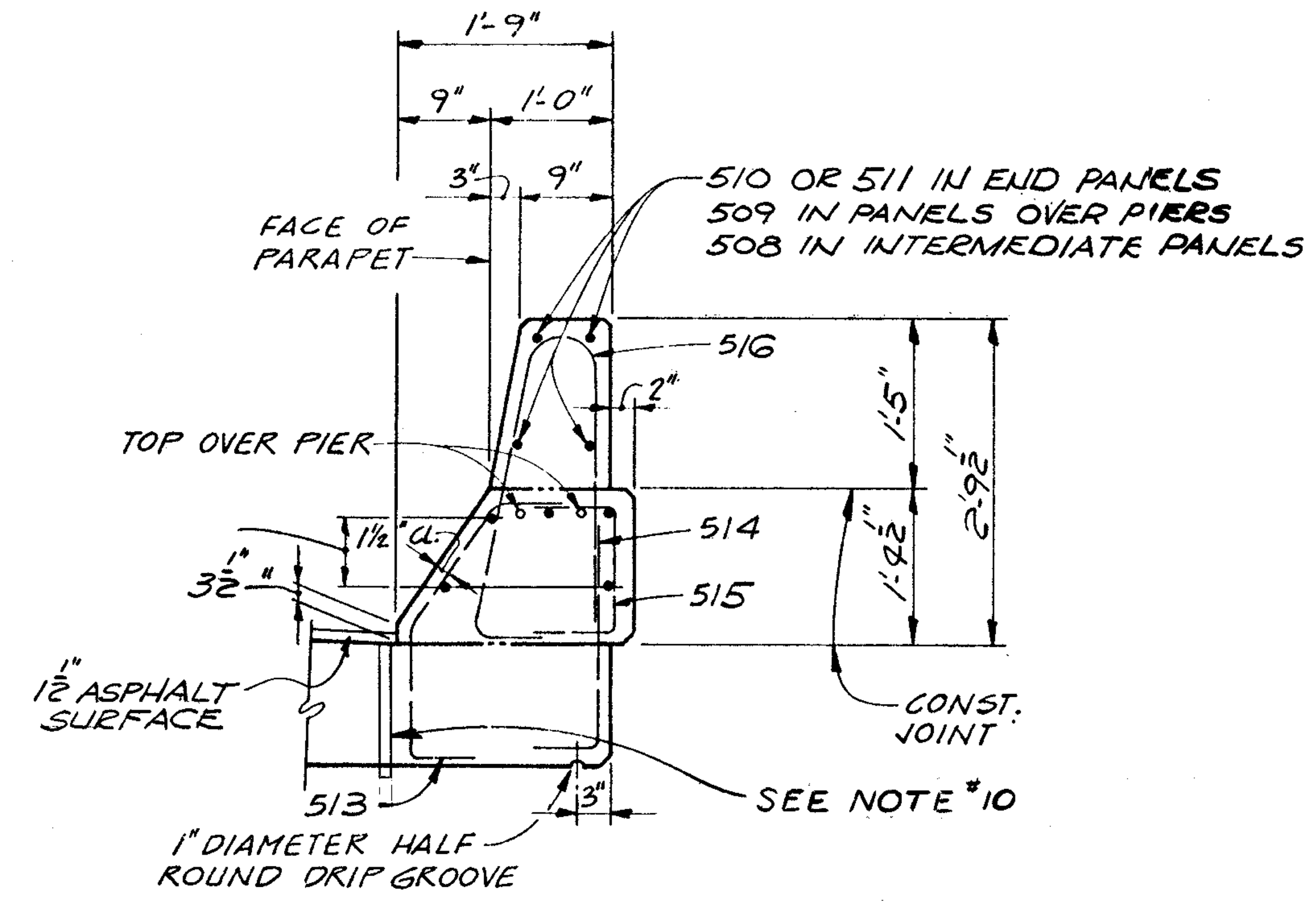
⑦ FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 12/14

⑧ SLAB OFFSETS ARE MEASURED FROM THE CENTERLINE OF BEAM AT THE LOCATION LISTED RADIALLY TO THE EDGE OF SLAB FOR SLAB OFFSET TABLE. THE 1/4 POINT, 1/2 POINT, ETC., ARE DIVISIONS ALONG THE CENTERLINE OF BEAM BETWEEN CENTERLINES OF BEARING.

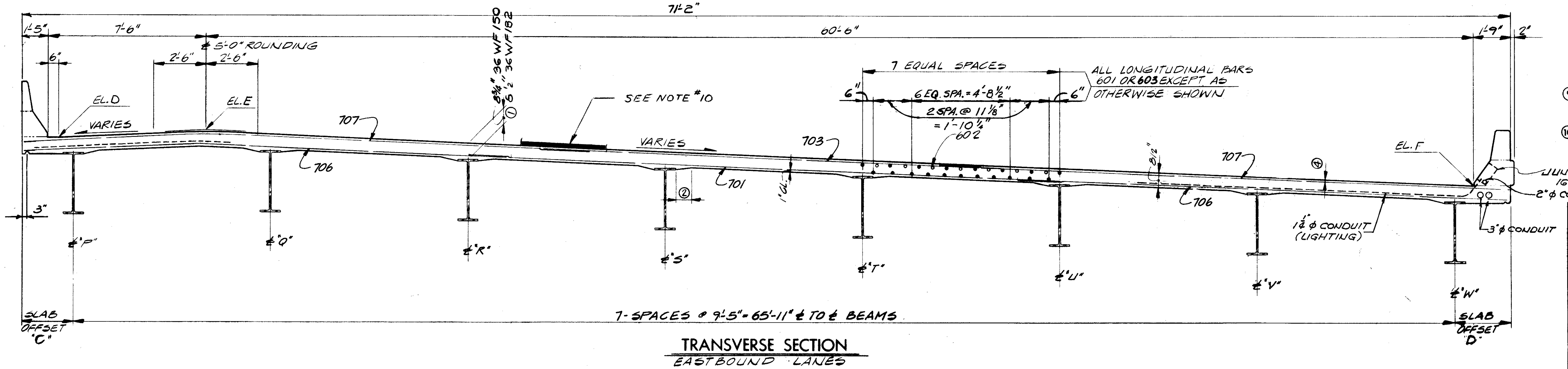
FOR SLAB OFFSET TABLE, SEE SHEET 12/14

⑨ FOR LOCATION OF LUMINAIRES AND FOR OTHER LIGHTING DETAILS SEE LIGHTING PLANS.

⑩ SEE SHEET 411-A FOR SUBDRAINAGE AND ASPHALT CONCRETE WEARING SURFACE DETAILS.



RAILING DETAIL A



TRANSVERSE SECTION
EASTBOUND LANES

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

DALTON • DALTON ASSOCIATES

TRANSVERSE SECTION

BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		L.B. J.R.	RDH	2-26-70	

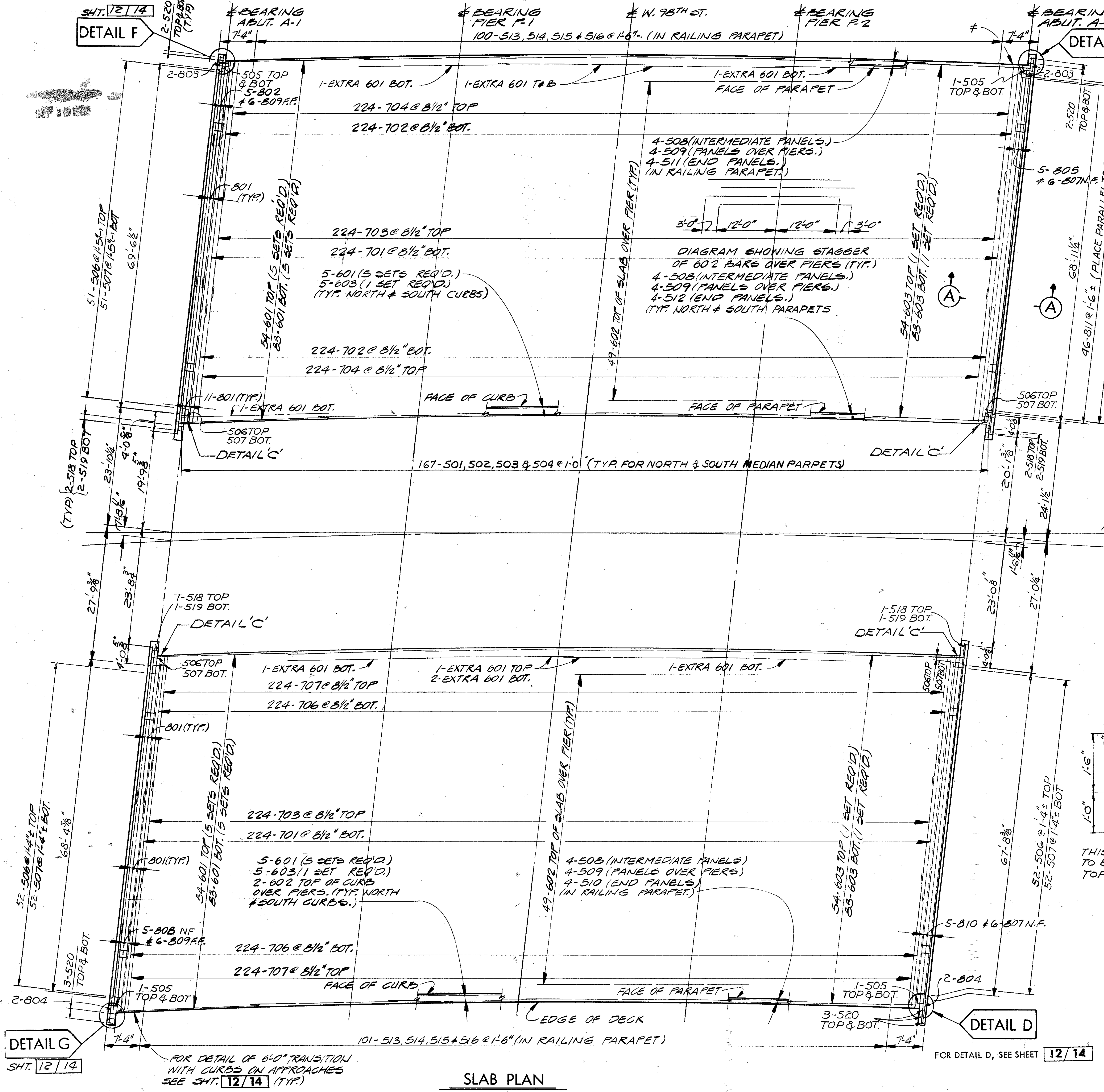
FED. RD.	STATE	PROJECT	
2	OHIO		

486
713

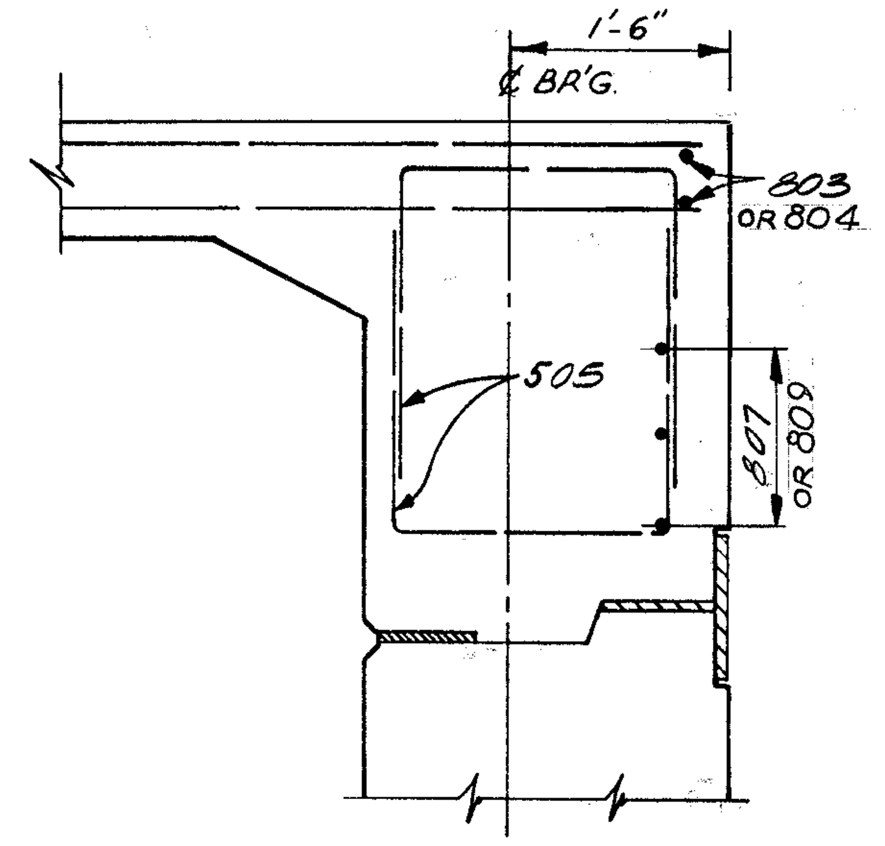
CUYAHOGA COUNTY
CUY - 90 - 10.40

FOR DETAIL E,
SEE SHEET 12/14

FOR DETAIL OF 6'-0" TRANSITION WITH NO CURB ON APPROACHES SEE SHT. 12/14 (TYP.)



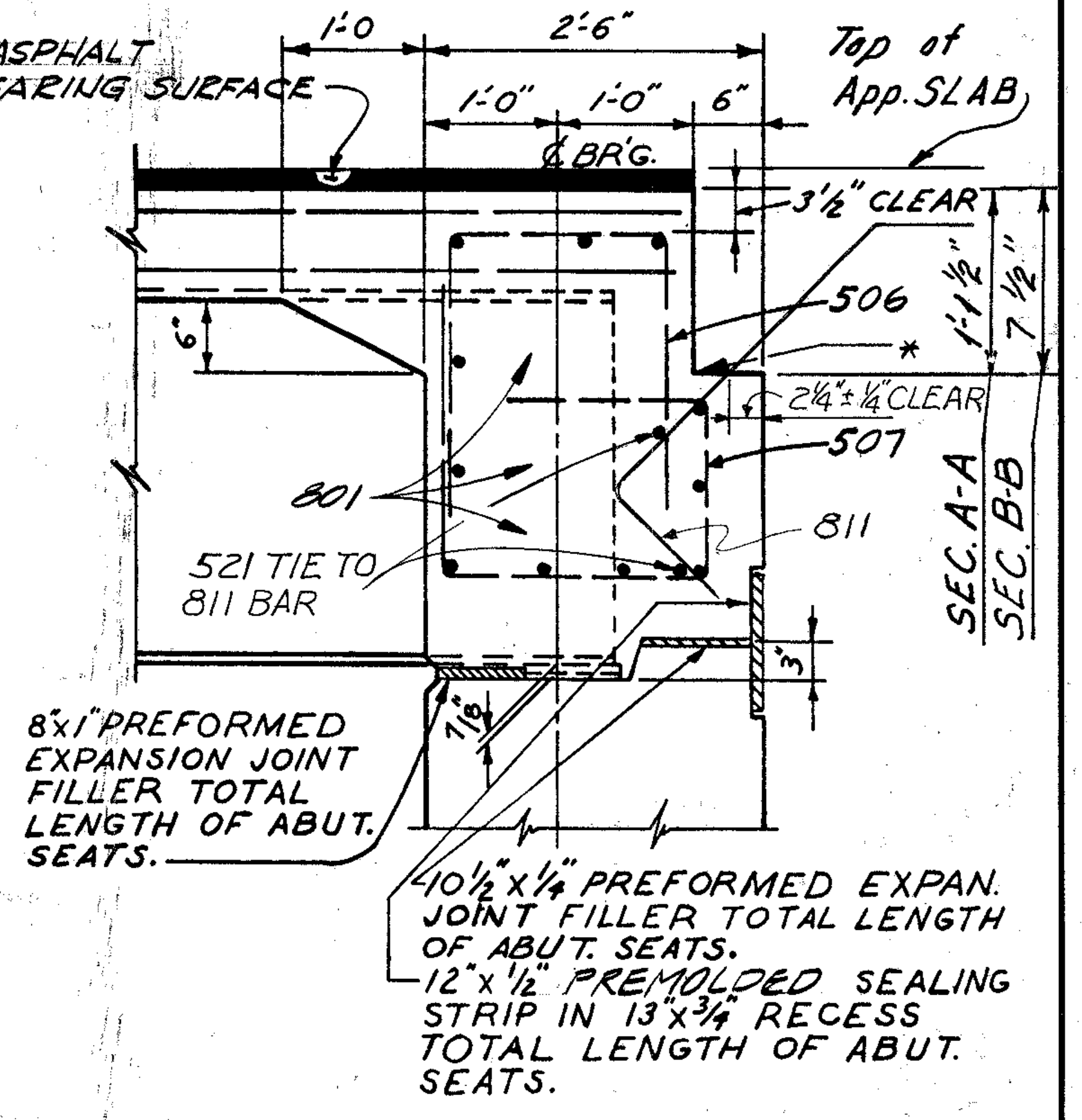
SLAB PLAN



SECTION B-B

FOR DETAILS NOT SHOWN SEE SECTION A-A

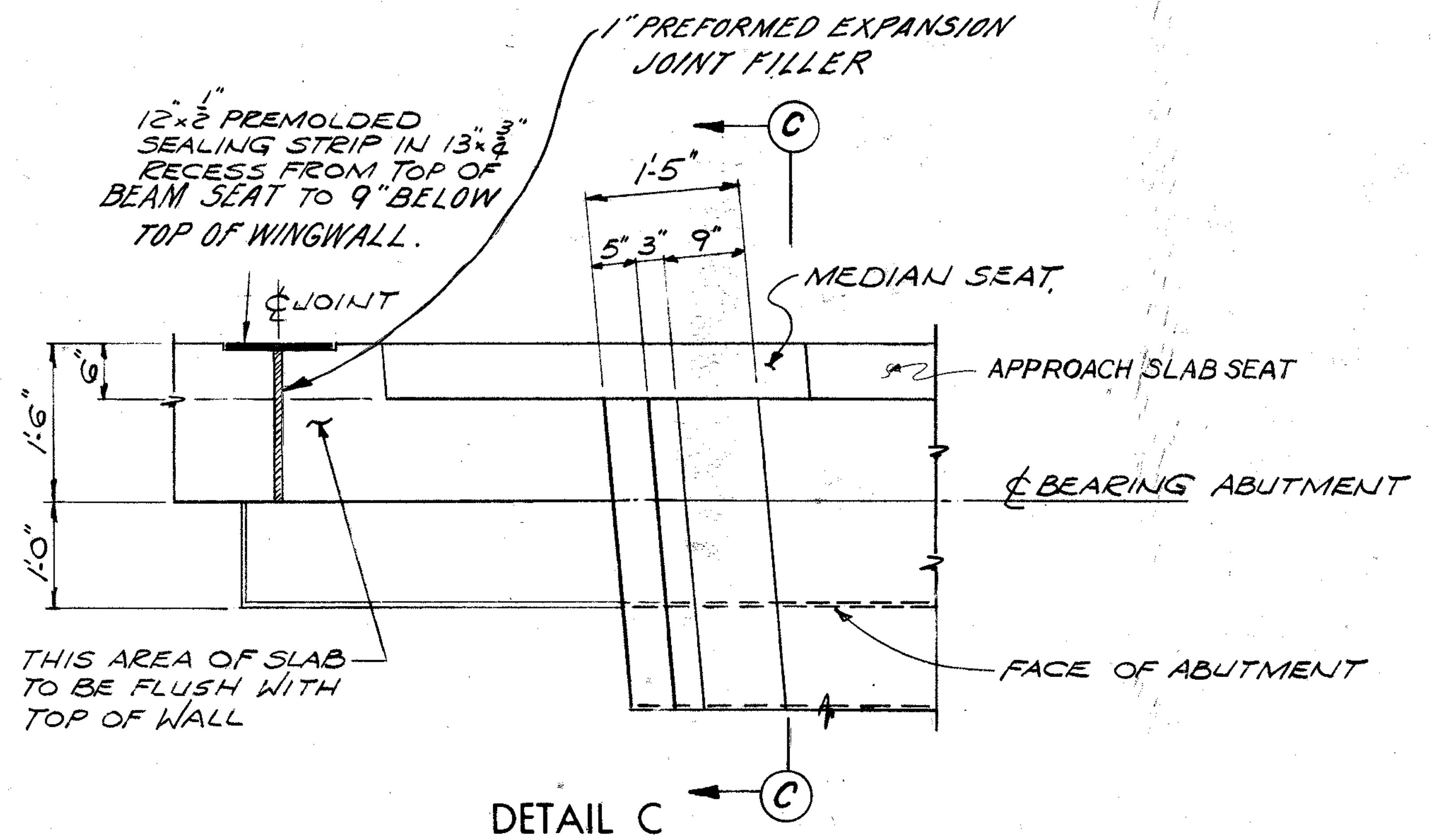
SEE SHEET 12/14



SECTION A-A

*SEE SLAB PLAN FOR APPROACH SLAB SEAT ELEVATIONS

SECTION - "C-C" SIMILAR EXCEPT AS NOTED



DETAIL C

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

11/14

DALTON • DALTON ASSOCIATES

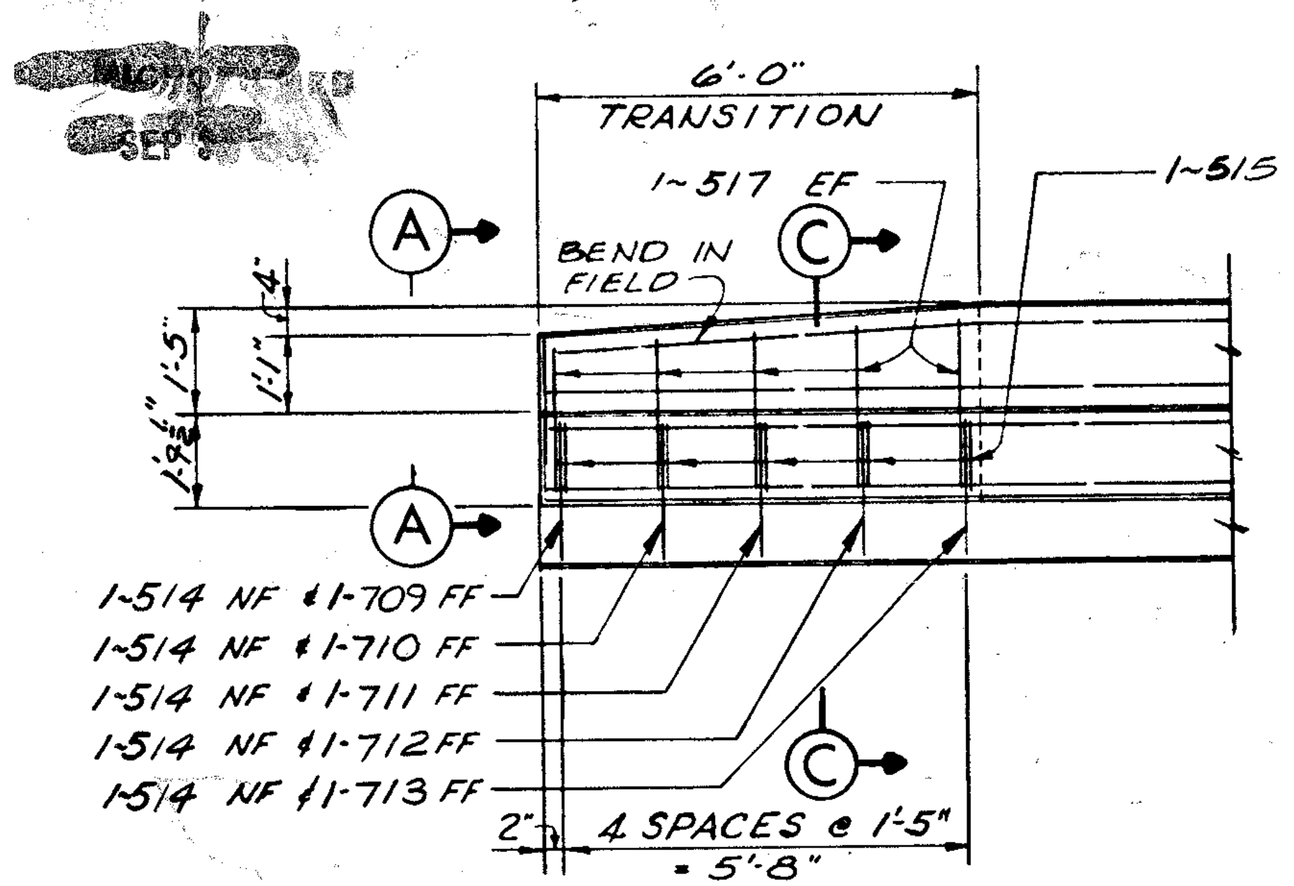
SLAB PLAN

BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.D.	D.F.D.		J.K.	RDH	2-26-70	

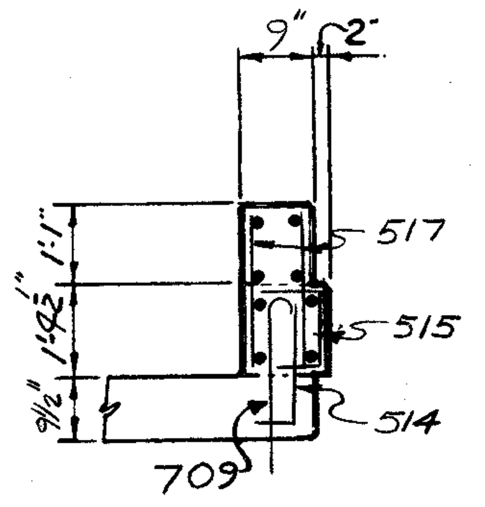
FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

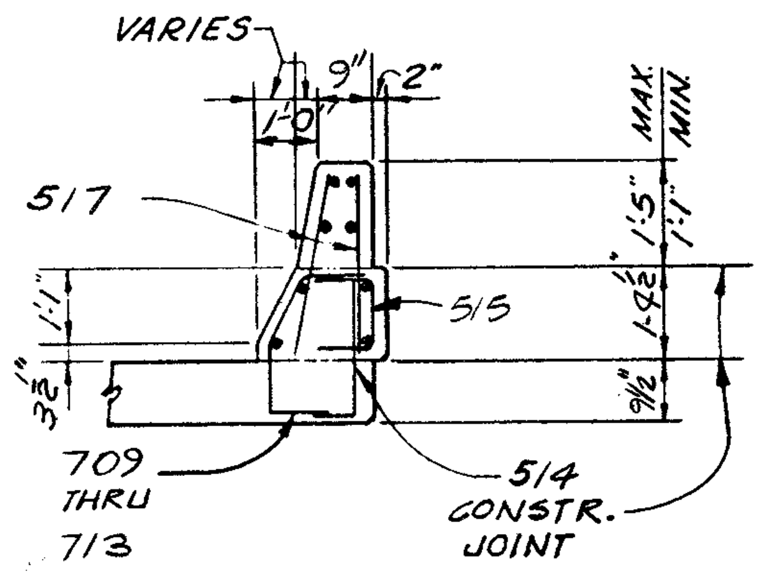


ELEVATION

6'-0" TRANSITION WITH NO CURB ON APPROACHES



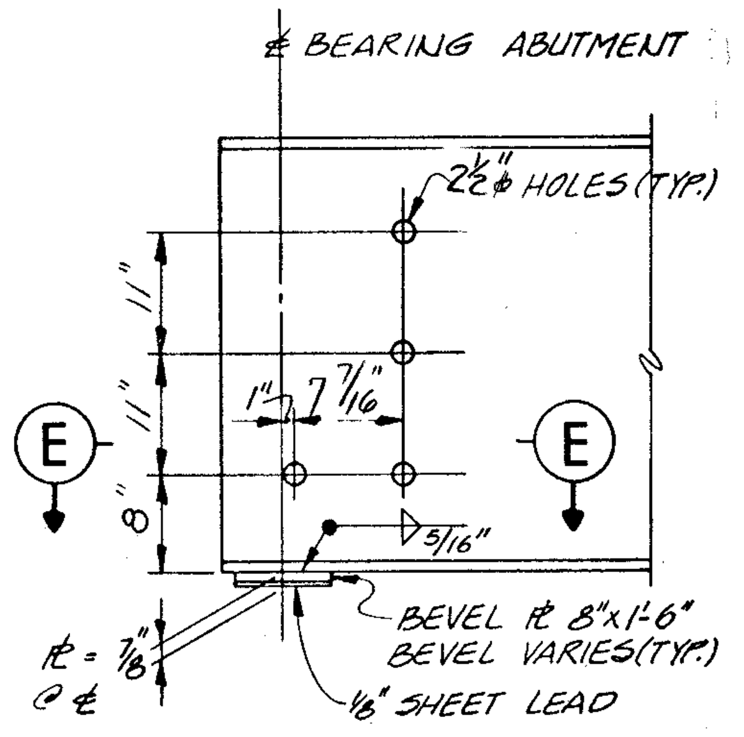
VIEW A-A



SECTION C-C

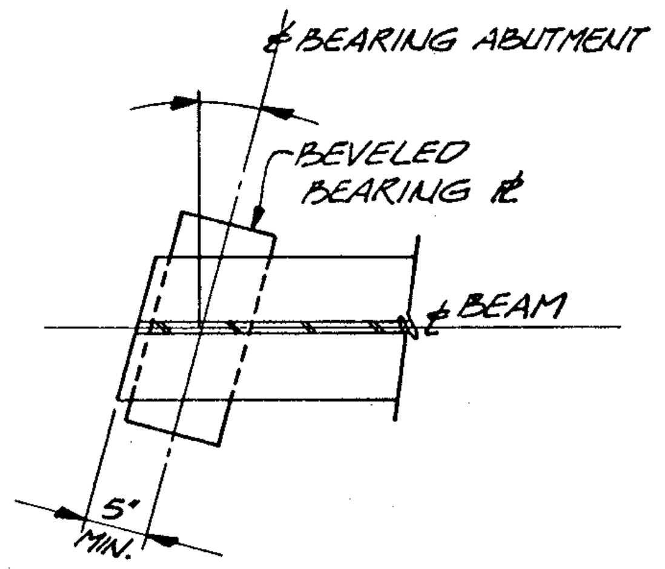
PAVEMENT ELEVATIONS SEE TRANSVERSE SECTION AND NOTE ⑤ SHEET 10/14						
LOCATION	A	B	C	D	E	F
℄ BRG. A-1	735.67	736.06	733.06	731.59	741.91	728.89
1/4	735.46	735.85	732.84	731.37	731.68	728.67
1/2	735.23	735.62	732.60	731.14	731.45	728.43
3/4	734.99	735.38	732.36	730.89	731.20	728.17
℄ BRG. P-1	734.75	735.14	732.12	730.64	730.95	727.92
1/4	734.41	734.80	731.78	730.30	730.61	727.57
1/2	733.98	734.37	731.41	729.94	730.25	727.20
3/4	733.51	733.90	731.01	729.58	729.89	726.89
℄ BRG. P-2	733.03	733.42	730.59	729.19	729.50	726.57
1/4	732.71	733.09	730.30	728.93	729.94	726.35
1/2	732.39	732.77	730.02	728.68	728.98	726.14
3/4	732.05	732.43	729.73	728.40	728.71	725.92
℄ BRG. A-2	731.70	732.08	729.42	728.12	728.42	725.68

SLAB OFFSETS SEE TRANSVERSE SECTION AND NOTE ⑨ SHEET 10/14				
LOCATION	A	B	C	D
℄ BRG. A-1	1'-11"	3'-2⅜"	2'-0¼"	3'-7⅜"
1/2	2'-8¼"	2'-3¾"	2'-9¾"	2'-8⅜"
℄ BRG. P-1	3'-2⅛"	1'-8⅝"	3'-3⅝"	1'-1⅛"
1/2	3'-4¾"	1'-4¼"	3'-5⅞"	1'-9"
℄ BRG. P-2	3'-0⅞"	1'-6⅞"	3'-1⅛"	2'-0⅜"
1/2	2'-6⅝"	2'-0⅞"	2'-5⅞"	2'-6¾"
℄ BRG. A-2	1'-9⅞"	2'-8¾"	1'-7⅝"	3'-4¼"

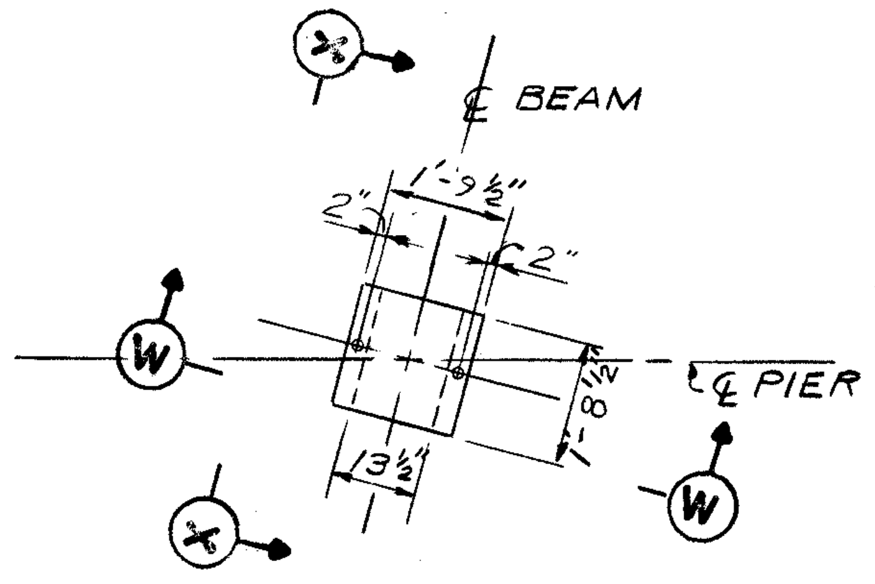


ELEVATION

BEAM BEARING DETAIL



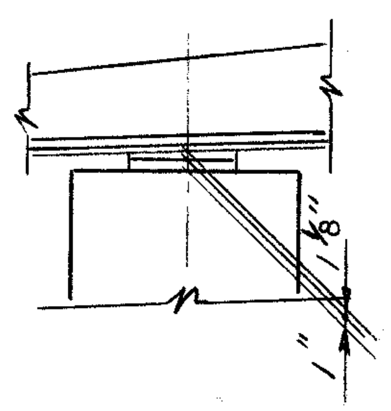
SECTION E-E



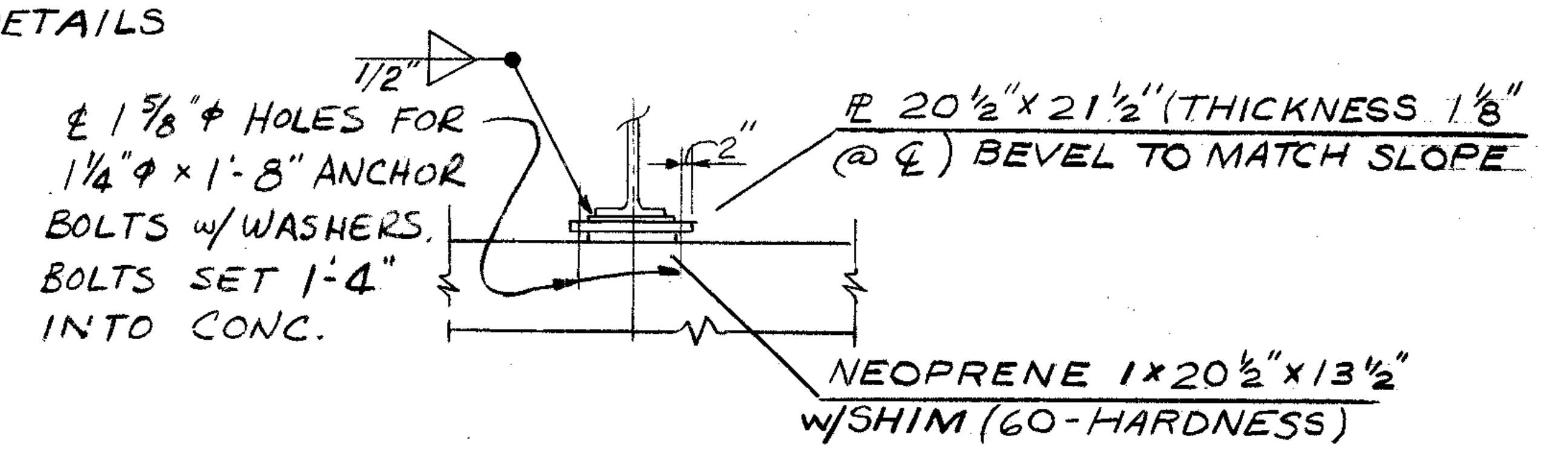
Note: See sheet 473 for Bearing note and Welding note.

PLAN

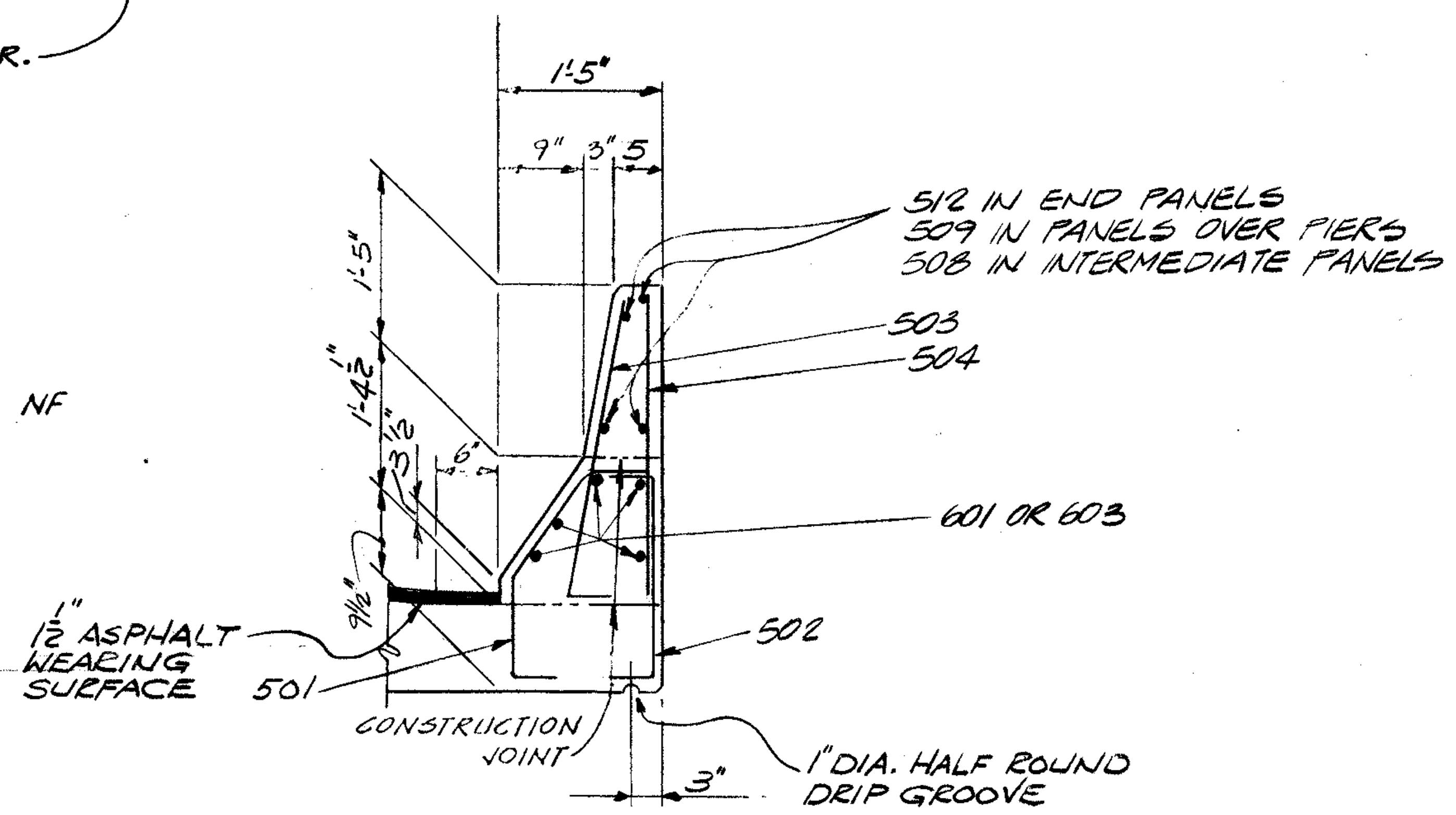
PIER BEARING DETAILS



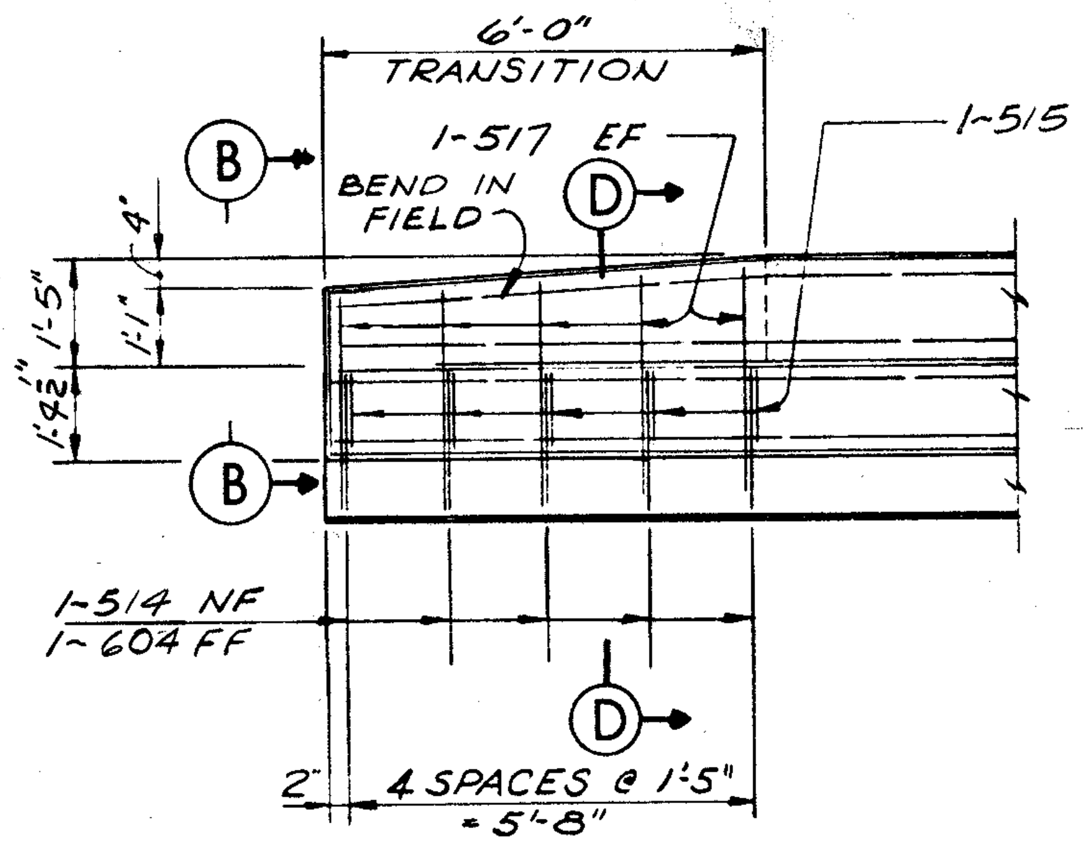
SECTION X X



SECTION W W

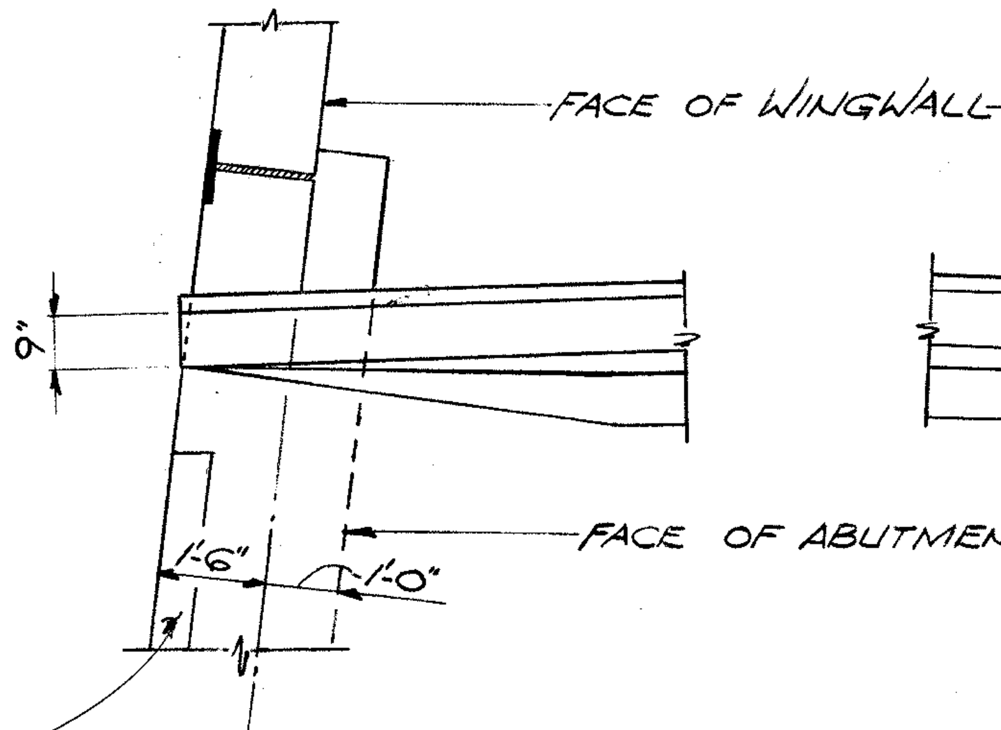


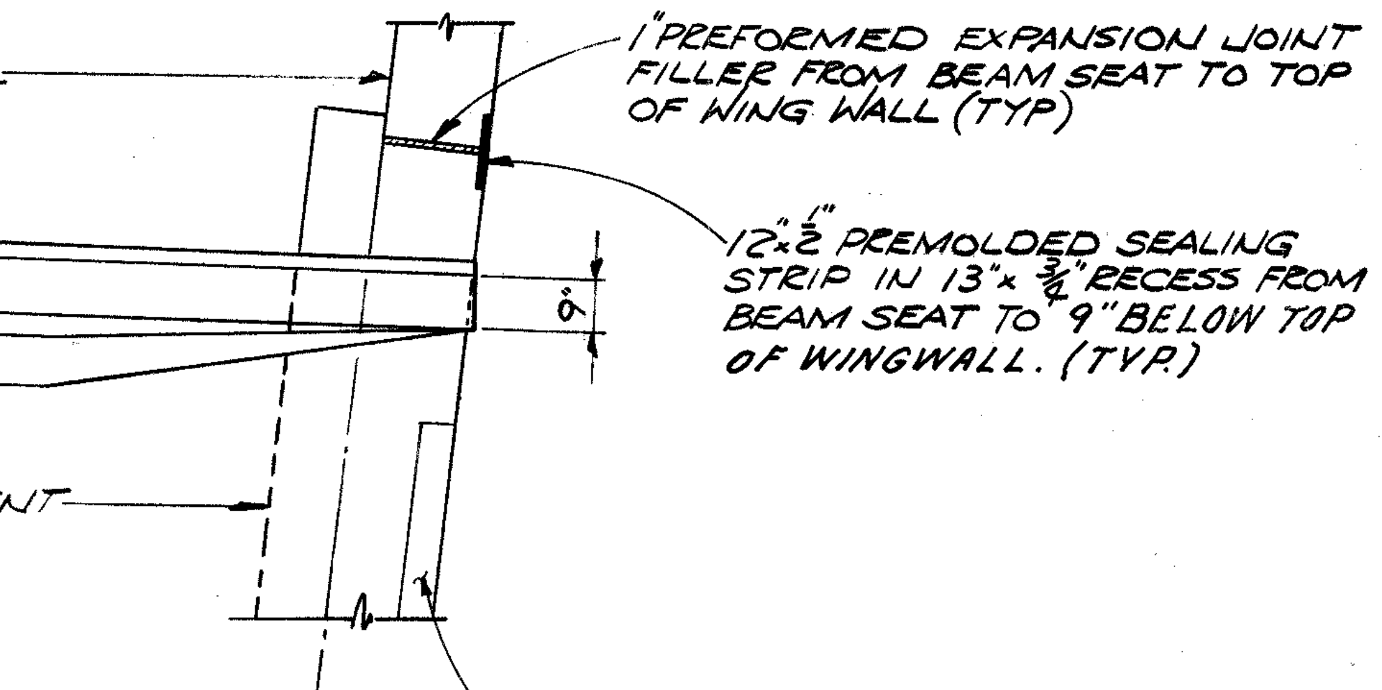
DETAIL B



ELEVATION

6'-0" TRANSITION WITH CURBS ON APPROACHES



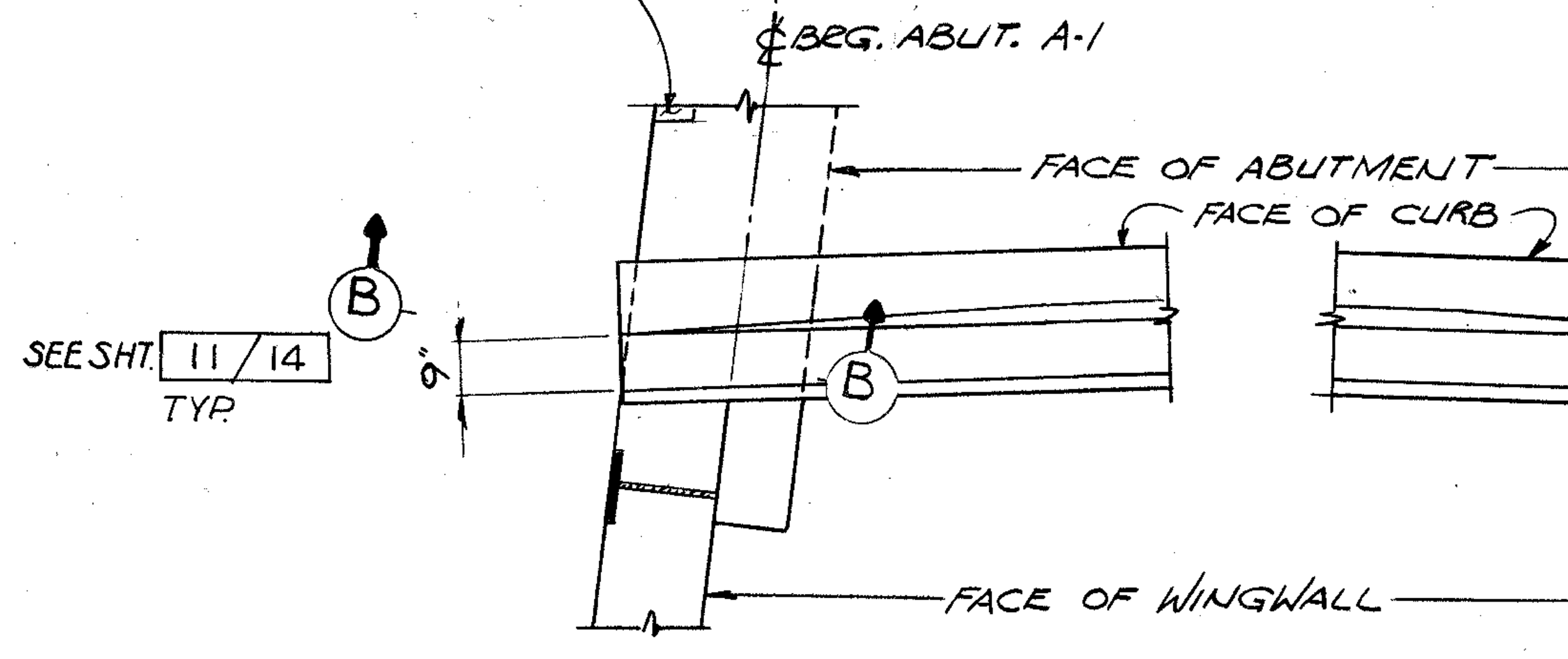


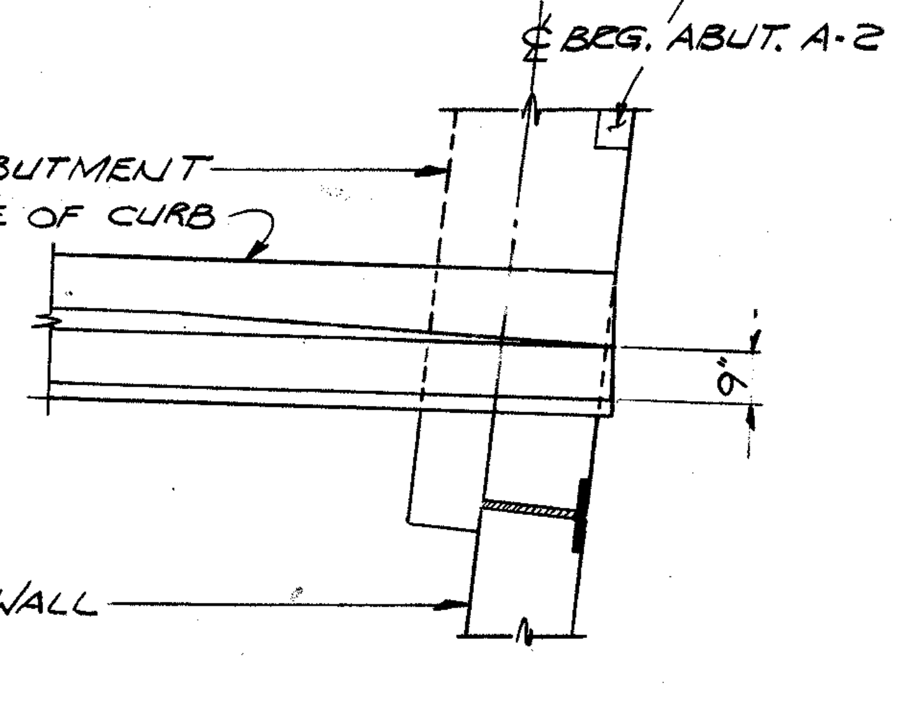
APPROACH SLAB SEATS

DETAIL F

DETAIL E

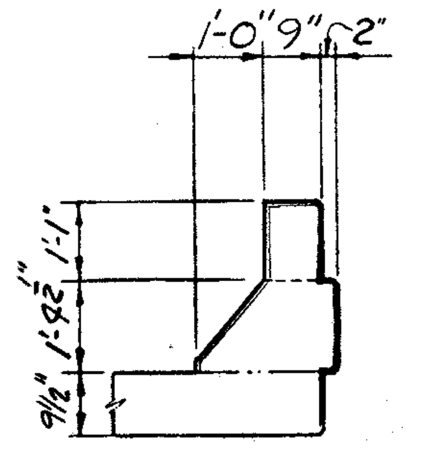
APPROACH SLAB SEATS



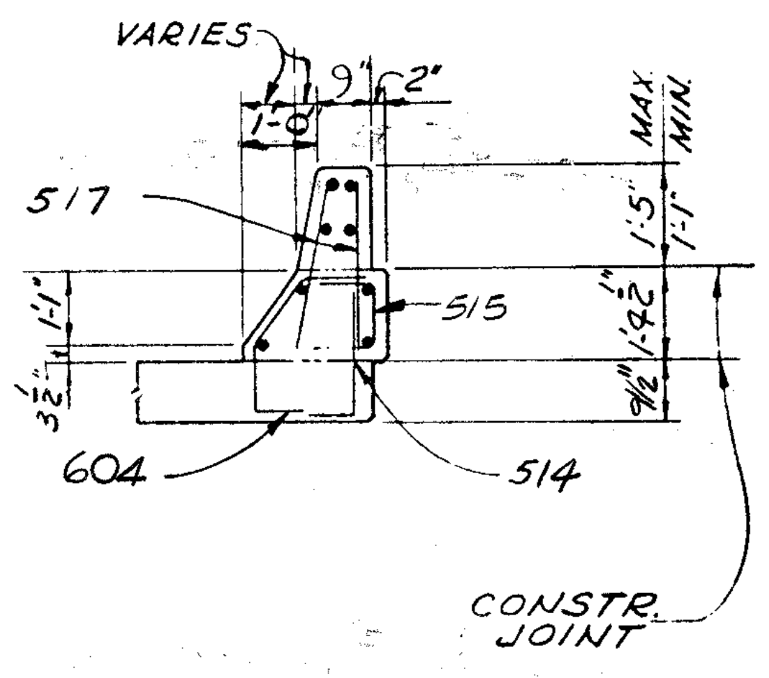


DETAIL G

DETAIL D



VIEW B-B



SECTION D-D

FOR DETAILS & NOTES NOT SHOWN HERE SEE STATE OF OHIO STD. DWG. BR-1-67, SHEET 1

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

12/14

DALTON · DALTON ASSOCIATES

SUPERSTRUCTURE DETAILS

BRIDGE NO. CUY - 90 - 1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
L.B. D.F.D.	D.F.D.		L.B. J.K.	RDM	2-26-70	

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	INCRM.	WEIGHT LBS.
					ABUTMENT A-1				
1A 401	160	5- 5	2	1-11	1- 9				579
1A 501	40	30- 0	ST						1252
1A 502	10	18- 9	ST						196
1A 503	4	21- 0	1	2- 4	18- 9				88
1A 504	2	9- 9	12	0- 9	9- 0	3- 3			20
1A 505	12	10- 6	ST						131
1A 506	2	10- 1	12	0- 9	9- 4	3-11			21
1A 507	8	23- 3	ST						194
1A 508	6	21- 5	ST						134
1A 509	6	11-10	1	2- 2	9- 9				74
1A 510	2	9-11	12	0- 9	9- 2	3- 7			21
1A 511	8	4- 4	ST						36
1A 512	8	7- 8	ST						64
1A 513	65	8- 7	2	3- 4	2- 2				582
1A 514	63	7- 7	2	2-10	2- 2				498
1A 515	2	10- 2	12	0- 9	9- 5	4- 2			21
1A 516	4	9- 7	2	3-10	2- 2				40
1A 518	6	14- 4	1	2- 2	12- 3				90
1A 601	7	10-10	3	7- 3	1- 4	2- 6			114
1A 602	7	11-10	3	7- 3	2- 4	2- 6			124
SERIES	8-SETS	2- 7						13	
OF	OF 7=	TO	ST					0- 8--	403
1A 603	56 BARS	7- 0						16	
1A 604	132	11- 2	3	6- 7	2- 4	2- 6			2214
1A 605	7	10- 0	3	6- 5	1- 4	2- 6			105
1A 606	7	11- 0	3	6- 5	2- 4	2- 6			116
1A 607	180	3- 1	11	0- 6	2- 2	0- 6	1- 6		834
1A 608	7	11- 7	3	8- 0	1- 4	2- 6			122
1A 609	7	12- 7	3	8- 0	2- 4	2- 6			132
1A 610	7	9- 4	3	5- 9	1- 4	2- 6			98
1A 611	7	10- 4	3	5- 9	2- 4	2- 6			109
1A 801	20	30- 0	ST						1602
1A 802	8	18- 4	ST						392
1A 806	8	27- 8	12	24- 3	3- 6	2- 6			591
1A 807	2	10- 8	ST						57
1A 809	2	13- 2	ST						70
1A1001	12	30- 0	ST						1549
1A1002	2	13- 3	1	2- 2	11- 4				114
1A1003	4	11- 4	ST						195
1A1005	2	15- 8	1	2- 2	13- 9				135
1A1006	4	13- 9	ST						237
						TOTAL ABUTMENT		A-1 =	13354
					ABUTMENT A-2				
2A 401	160	5- 5	2	1-11	1- 9				579
2A 501	40	30- 0	ST						1252
2A 502	10	18-10	ST						196
2A 503	4	21- 0	1	2- 4	18- 9				88
2A 505	12	10- 6	ST						131
2A 506	2	9- 9	12	0- 9	9- 0	3- 6			20
2A 507	8	22-10	ST						191
2A 508	6	20- 8	ST						129
2A 509	6	11- 8	1	2- 2	9- 7				73
2A 510	4	10- 2	12	0- 9	9- 5	4- 1			42
2A 511	8	4- 4	ST						36
2A 512	8	7- 8	ST						64
2A 513	86	9- 1	2	3- 7	2- 2				815
2A 514	46	7- 5	2	2- 9	2- 2				356
2A 515	2	9-11	12	0- 9	9- 2	3- 6			21
2A 518	6	13- 7	1	2- 2	11- 6				85
2A 601	7	9- 4	3	5- 9	1- 4	2- 6			98
2A 602	7	10- 4	3	5- 9	2- 4	2- 6			109
SERIES	8-SETS	2- 7							
OF	OF 7=	TO	ST					0- 9	407
2A 603	56 BARS	7- 1							
2A 604	264	11- 2	3	6- 7	2- 4	2- 6			4428
2A 605	7	11- 7	3	8- 0	1- 4	2- 6			122
2A 606	7	12- 7	3	8- 0	2- 4	2- 6			132
2A 607	180	3- 1	11	0- 6	2- 2	0- 6	1- 6		834
2A 608	7	10- 1	3	6- 6	1- 4	2- 6			106
2A 609	7	11- 1	3	6- 6	2- 4	2- 6			117
2A 610	7	11- 2	3	7- 7	1- 4	2- 6			117
2A 611	7	12- 2	3	7- 7	2- 4	2- 6			128
2A 801	20	30- 0	ST						1602
2A 802	8	18- 4	ST						392
2A 806	8	27- 4	12	23-11	3- 6	2- 6			584
2A 807	2	10- 6	ST						56
2A 809	2	12- 5	ST						66
2A1001	12	30- 0	ST						1549
2A1002	2	13- 1	1	2- 2	11- 2				113
2A1003	4	11- 2	ST						192
2A1005	2	15- 0	1	2- 2	13- 1				129
2A1006	4	13- 1	ST						225
						TOTAL ABUTMENT		A-2 =	15584

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	INCRM.	WEIGHT LBS.
					PIER P-1				
1P 501	192	9- 8	2	4- 1	1- 9				1936
1P 502	192	8- 2	2	3- 4	1- 9				1635
1P 503	32	2- 6	ST						83
1P 504	8	2- 8	ST						22
1P 505	40	10- 7	2	4- 1	2- 8				442
1P 601	8	32- 0	ST						385
1P 603	8	31- 3	ST						376
1P 801	144	8- 6	ST						3268
1P1001	32	18- 9	1	3- 2	15-10				2582
1P1002	32	22-10	1	3- 2	19-11				3144
1P1004	14	28- 0	12	24- 0	4- 0	0- 6			1687
1P1007	14	27- 4	12	23- 6	3-10	0- 6			1647
1P1008	64	7- 1	1	1- 5	5-11				1951
1P1009	16	27- 7	ST						1899
1P1010	16	25- 8	ST						1767
1P1012	16	23- 4	ST						1606
1P1013	16	21- 5	ST						1474
						TOTAL	PIER	P-1 =	25904

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	INCRM.	WEIGHT LBS.
					PIER P-2				
2P 501	192	9- 8	2	4- 1	1- 9				1936
2P 502	192	8- 2	2	3- 4	1- 9				1635
2P 503	32	2- 6	ST						83
2P 504	8	2- 8	ST						22
2P 505	40	10- 7	2	4- 1	2- 8				442
2P 601	8	32- 0	ST						385
2P 603	8	31- 3	ST						376
2P 801	144	8- 6	ST						3268
2P1001	32	18- 9	1	3- 2	15-10				2582
2P1002	32	22-10	1	3- 2	19-11				3144
2P1004	14	28- 0	12	24- 0	4- 0	0- 6			1687
2P1007	14	27- 4	12	23- 6	3-10	0- 6			1647
2P1008	64	7- 1	1	1- 5	5-11				1951
2P1014	16	25-11	ST						1784
2P1015	16	24- 1	ST						1658
2P1017	16	21-11	ST						1509
2P1018	16	20- 1	ST						1383
						TOTAL	PIER	P-2 =	25492

SPIRAL REINFORCING SCHEDULE

MARK	NO. REQ'D.	CORE DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH INS.	WEIGHT LBS.
		SPIRALS-PIER P-1			
1P-SP401	2	2- 8	24- 1	4,50	895
1P-SP402	2	2- 8	22- 2	4,50	827
1P-SP404	2	2- 8	19-10	4,50	743
1P-SP405	2	2- 8	18- 0	4,50	678
		TOTAL	SPIRALS-PIER	P-1 =	3143
		SPIRALS-PIER P-2			
2P-SP406	2	2- 8	22- 5	4,50	836
2P-SP407	2	2- 8	20- 7	4,50	770
2P-SP409	2	2- 8	18- 5	4,50	693
2P-SP410	2	2- 8	16- 7	4,50	627

FOUR ANGLE SPACERS WEIGHING APPROX. 0.80 LBS. PER LINEAL FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT LISTED ABOVE. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED SPIRAL WEIGHT.

TOTAL SPIRALS-PIER P-2 = 2926

THE LENGTH SHOWN IN THE STEEL SCHEDULE FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE TOP OF THE COLUMN INCLUDING THREE (3) CLOSED COILS (ONE AND ONE HALF CLOSED COILS AT THE ENDS OF EACH SPIRAL UNIT).

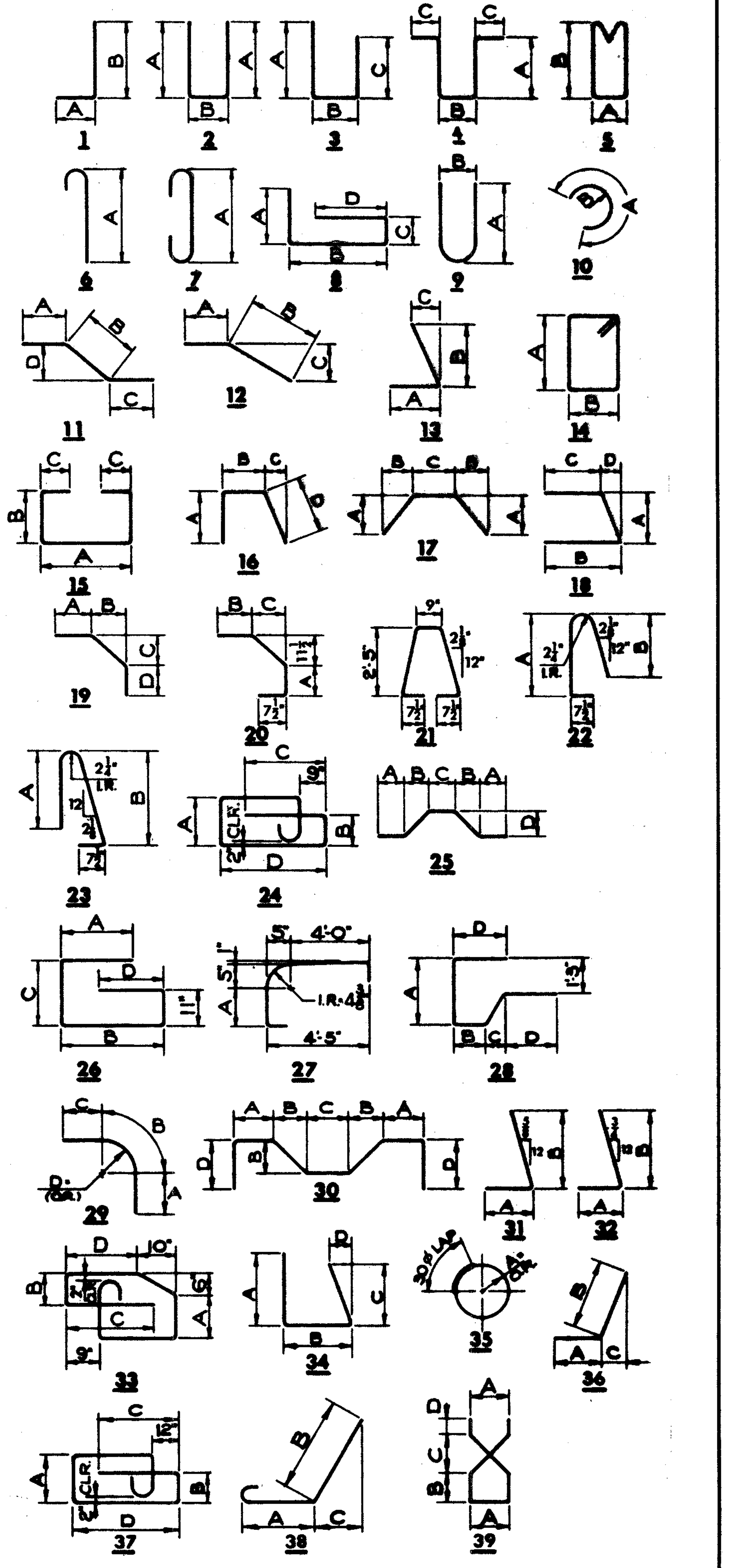
MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	INCRM.	WEIGHT LBS.
					SUPERSTRUCTURE S-1				
1S 501	167	2- 9	20	0- 9	0- 5	0- 9			479
1S 502	167	2- 6	3	0- 8	1- 8	0- 5			435
1S 503	167	3- 1	13	0- 8	2- 6	0- 5			537
1S 504	167	2- 6	ST						435
1S 505	4	6- 5	2	2- 3	2- 2				27
1S 506	103	5-11	2	2- 3	1- 8				636
1S 507	103	7-10	8	2- 3	2- 2	1-10	1-11		842
1S 508	40	14- 8	ST						612
1S 509	64	7- 2	ST						478
1S 511	8	14- 4	ST						120
1S 512	8	13-11	ST						116
1S 513	100	3- 1	20	0- 9	0- 9	0- 9			322
1S 514	110	2- 2	1	0- 8	1- 7				249
1S 515	110	2- 2	2	0- 8	1- 1				249
1S 516	100	5- 5	23	2- 2	2- 6				565
1S 517	20	2- 3	ST						47
1S 518	4	4-11	2	2- 3	0- 8				21
1S 519	4	6- 2	8	2- 3	1- 2	2- 1	1- 0		26
1S 520	8	5- 5	2	2- 3	1- 2				45
1S 521	12	25- 0	ST						313
1S 601	742	30- 0	ST						33435
1S 602	102	27- 0	ST						4137
1S 603	147	24- 7	ST						5428
1S 701	224	30- 0	ST						13736
1S 702	448	23- 8	ST						21672
1S 703	224	22- 0	ST						10073
1S 704	448	27- 9	ST						25411
1S 709	2	4- 4	6	3- 6					18
1S 710	2	2- 9	20	0- 9	0- 8	0- 2			11
1S 711	2	2-10	20	0- 9	0- 8	0- 4			12
1S 712	2	2-10	20	0- 9	0- 8	0- 6			12
1S 713	2	3- 0	20	0- 9	0- 8	0- 9			12
1S 801	44	30- 0	ST						3524
1S 802	5	17-11	ST						239
1S 803	4	3- 5	ST						36
1S 805	5	19- 2	ST						256
1S 807	6	22- 3	ST						356
1S 809	6	23- 2	ST						371
1S 811	92	5- 5	16	1- 1	3- 1	1- 1	1- 6		1331
					TOTAL SUPERSTRUCTURE			S-1 =	126624
					SUPERSTRUCTURE S-2				
2S 501	167	2- 9	20	0- 9	0- 5	0- 9			479
2S 502	167	2- 6	3	0- 8	1- 8	0- 5			435
2S 503	167	3- 1	13	0- 8	2- 6	0- 5			537
2S 504	167	2- 6	ST						435
2S 505	4	6- 5	2	2- 3	2- 2				27
2S 506	108	5-11	2	2- 3	1- 8				666
2S 507	108	7-10	8	2- 3	2- 2	1-10	1-11		882
2S 508	40	14- 8	ST						612
2S 509	64	7- 2	ST						478
2S 510	8	14- 6	ST						121
2S 512	8	13-11	ST						116
2S 513	101	3- 1	20	0- 9	0- 9	0- 9			325
2S 514	111	2- 2	1	0- 8	1- 7				251
2S 515	111	2- 2	2	0- 8	1- 1				251
2S 516	101	5- 5	23	2- 2	2- 6				571
2S 517	20	2- 3	ST						47
2S 518	6	4-11	2	2- 3	0- 8				31
2S 519	6	6- 2	8	2- 3	1- 2	2- 1	1- 0		39
2S 520	12	5- 5	2	2- 3	1- 2				68
2S 521	12	25- 0	ST						313
2S 601	743	30- 0	ST						33480
2S 602	102	27- 0	ST						4137
2S 603	147	24- 7	ST						5428
2S 604	10	3- 0	20	0- 9	0- 8	0- 9			45
2S 701	224	30- 0	ST						13736
2S 703	224	22- 0	ST						10073
2S 706	448	23- 1	ST						21138
2S 707	448	27- 1	ST						24801
2S 801	44	30- 0	ST						3524
2S 804	4	4- 9	ST						51
2S 807	6	16- 1	ST						258
2S 808	5	16- 9	ST						224
2S 809	6	23- 1	ST						370
2S 810	5	22- 5	ST						299
2S 811	92	5- 5	16	1- 1	3- 1	1- 1	1- 6		1331
					TOTAL SUPERSTRUCTURE			S-2 =	125579

ABUTMENT TOTAL =	28,938
PIER TOTAL =	57,465
SUPERSTRUCTURE TOTAL =	252,203
GRAND TOTAL =	338,606

FED. RD.	STATE	PROJECT	
2	OHIO		

488/713

CUYAHOGA COUNTY
CUY - 90 - 10.40



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

13/ 14

DALTON · DALTON ASSOCIATES

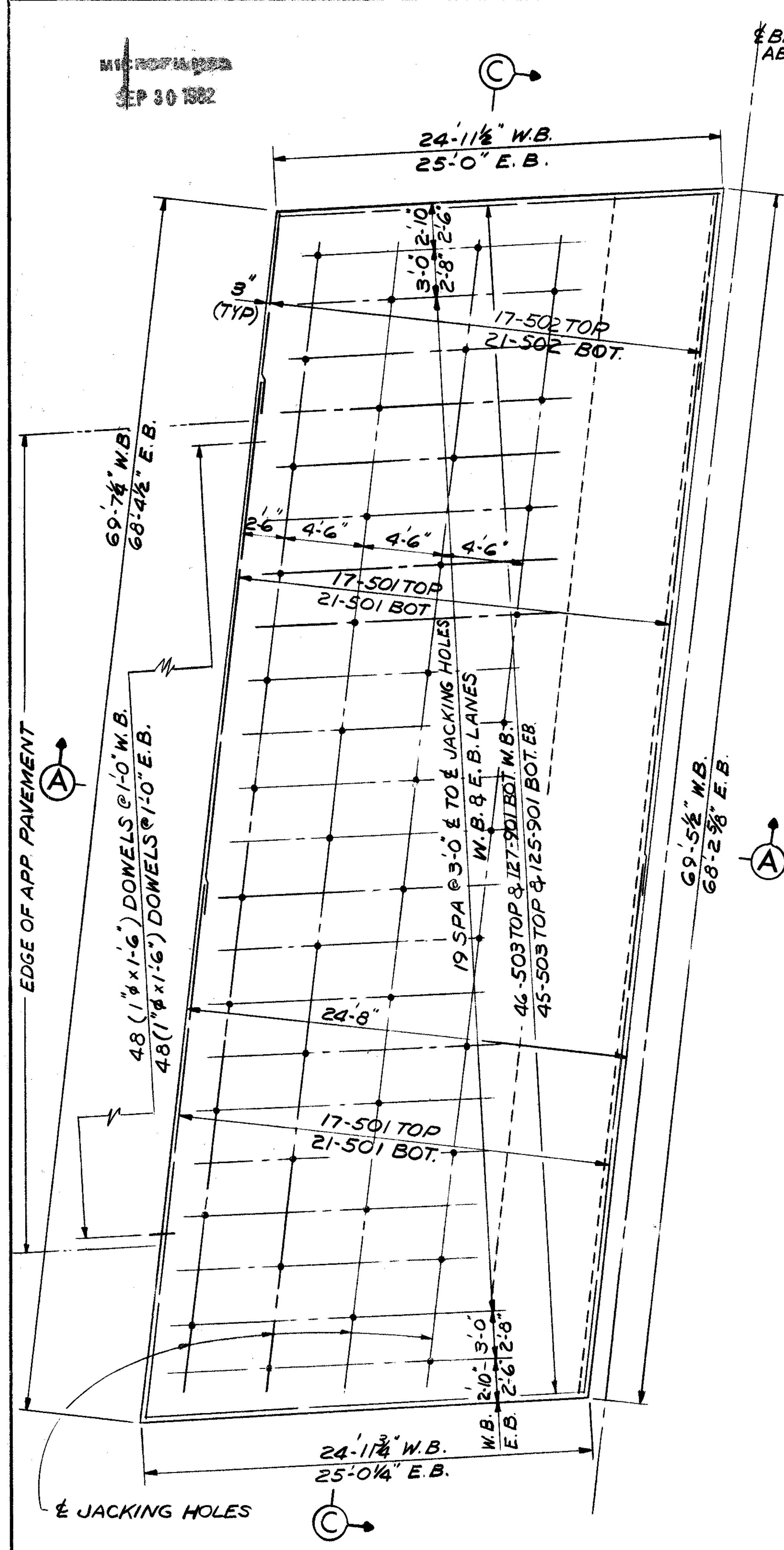
REINFORCING SCHEDULE

BRIDGE NO. CUY—90-1152 L/R
OVER WEST 98th ST.
I-90 CUYAHOGA COUNTY
STA 783 + 30.26 TO STA 784 + 93.83

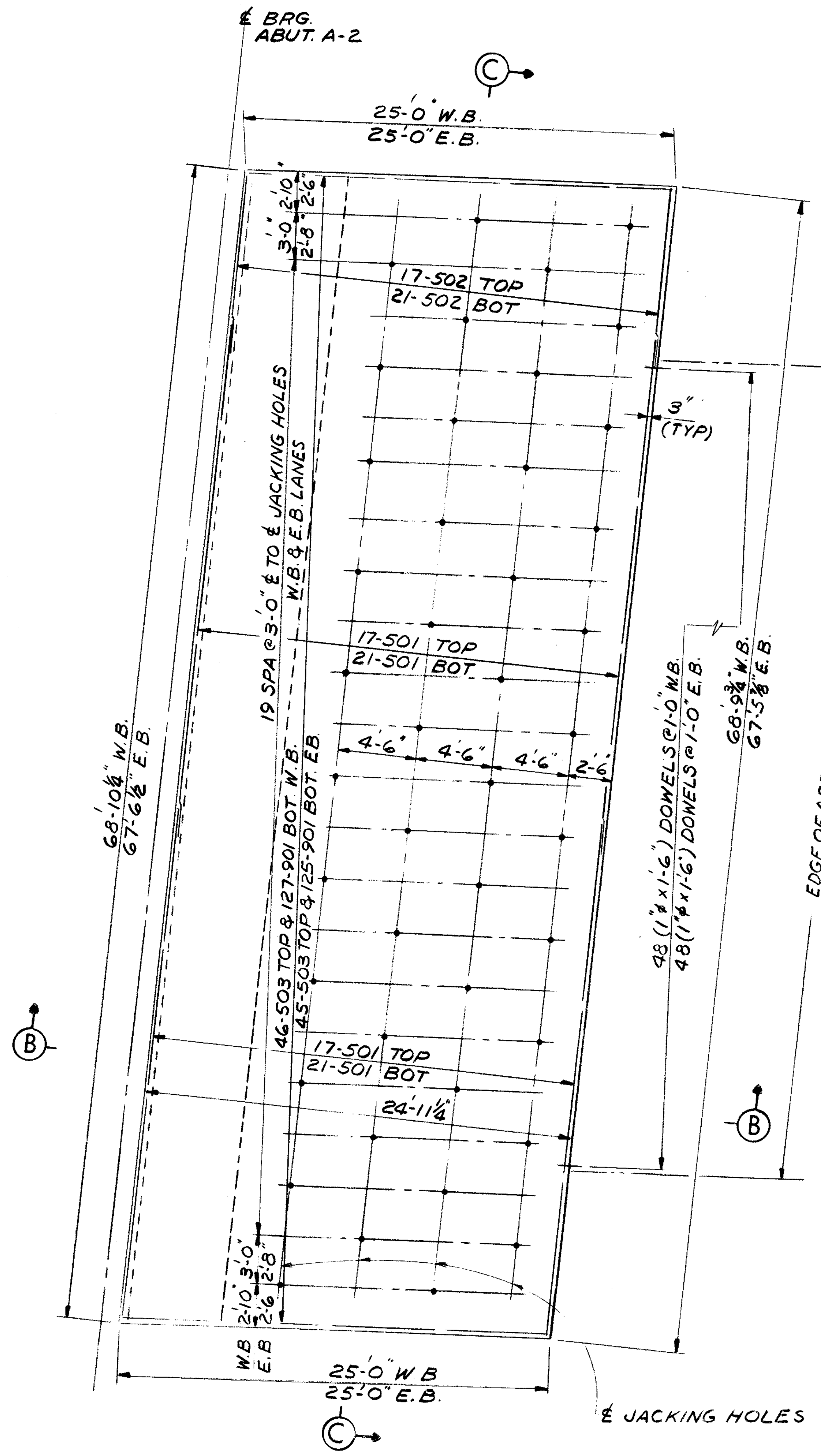
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LB D.F.D.	JWW		JFP	RDH	2-26-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

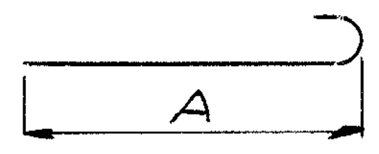
CUYAHOGA COUNTY
CUY - 90 -10.40



APPROACH SLABS @ ABUTMENT A-1



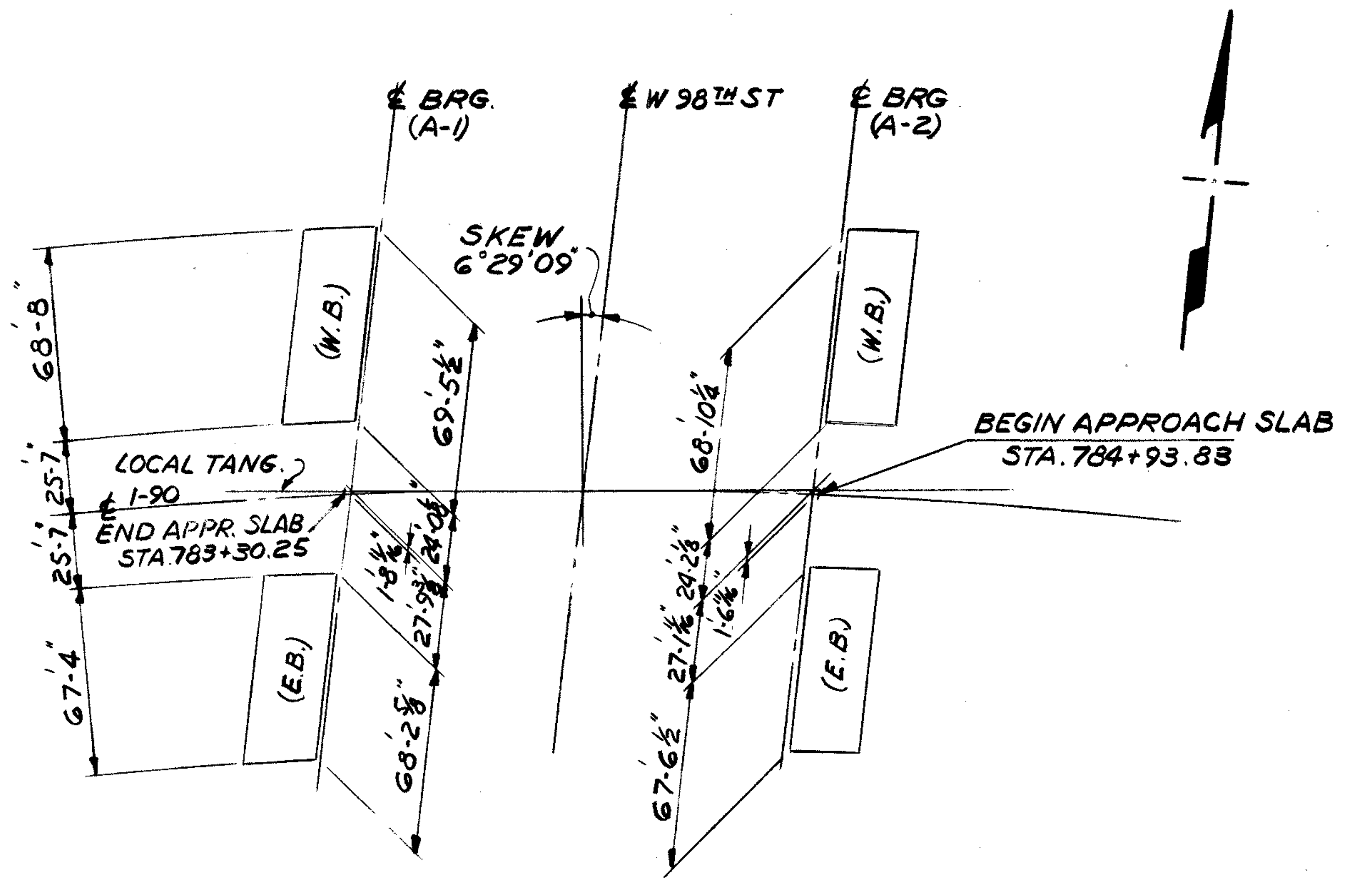
APPROACH SLABS ABUTMENT A-2



TYPE 6

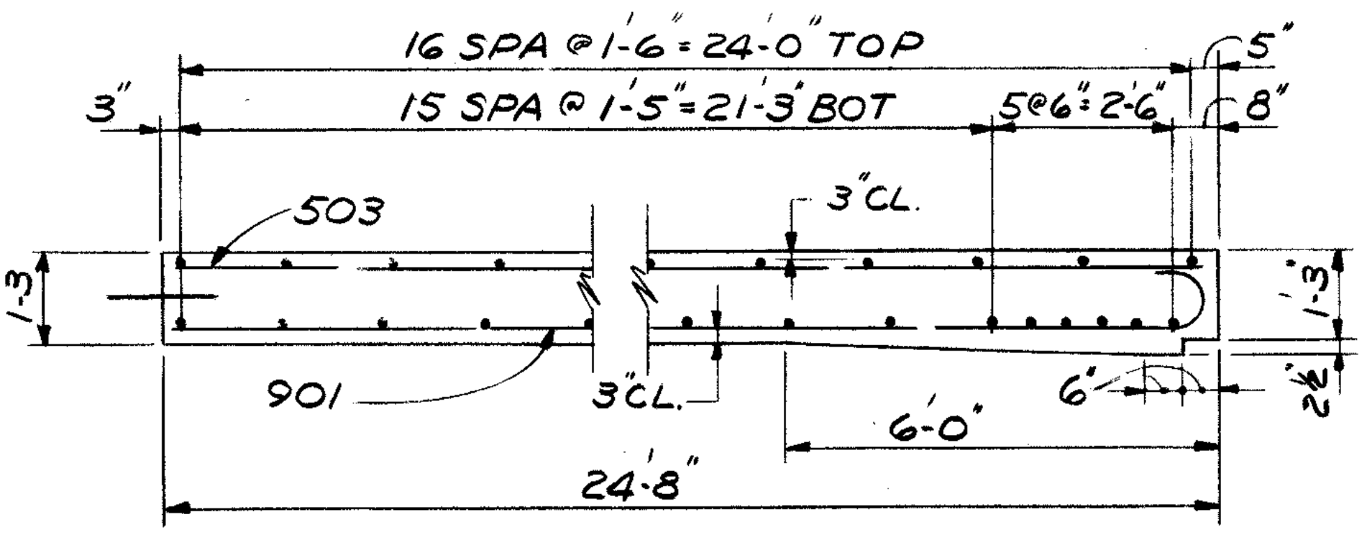
MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
				A	B	C	D		
				APPROACH SLAB* AS-1					
1AS 501	152	30- 0	ST						4756
1AS 502	76	12- 7	ST						997
1AS 503	91	24- 7	ST						2333
1AS 901	252	25-10	6	24- 7					22134
1AS	96	1- 6	ST	1 IN. DIA. DOWELS					384
				TOTAL APPROACH SLAB AS-1 =					30604
*APPROACH SLAB REINFORCEMENT BARS WILL BE INCLUDED AS PART OF ITEM 611 FOR PAYMENT.									
				APPROACH SLAB* AS-2					
2AS 501	152	30- 0	ST						4756
2AS 502	76	11- 9	ST						931
2AS 503	91	24- 8	ST						2341
2AS 901	252	25-11	6	24- 8					22205
2AS	96	1- 6	ST	1 IN. DIA. DOWELS					384
				TOTAL APPROACH SLAB AS-2 =					30617
*APPROACH SLAB REINFORCEMENT BARS WILL BE INCLUDED AS PART OF ITEM 611 FOR PAYMENT.									
							GRAND TOTAL =		30,617
BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, 1AS 701 IS A NO.7 SIZE BAR AND 1AS1014 IS A NO.10 SIZE BAR.									

THE PREFIX 1-AS OR 2-AS SHALL BE ADDED TO ALL REINFORCING BAR MARKS USED IN THE APPROACH SLABS AT ABUTMENTS A-1 OR A-2 RESPECTIVELY UNLESS SHOWN OTHERWISE.

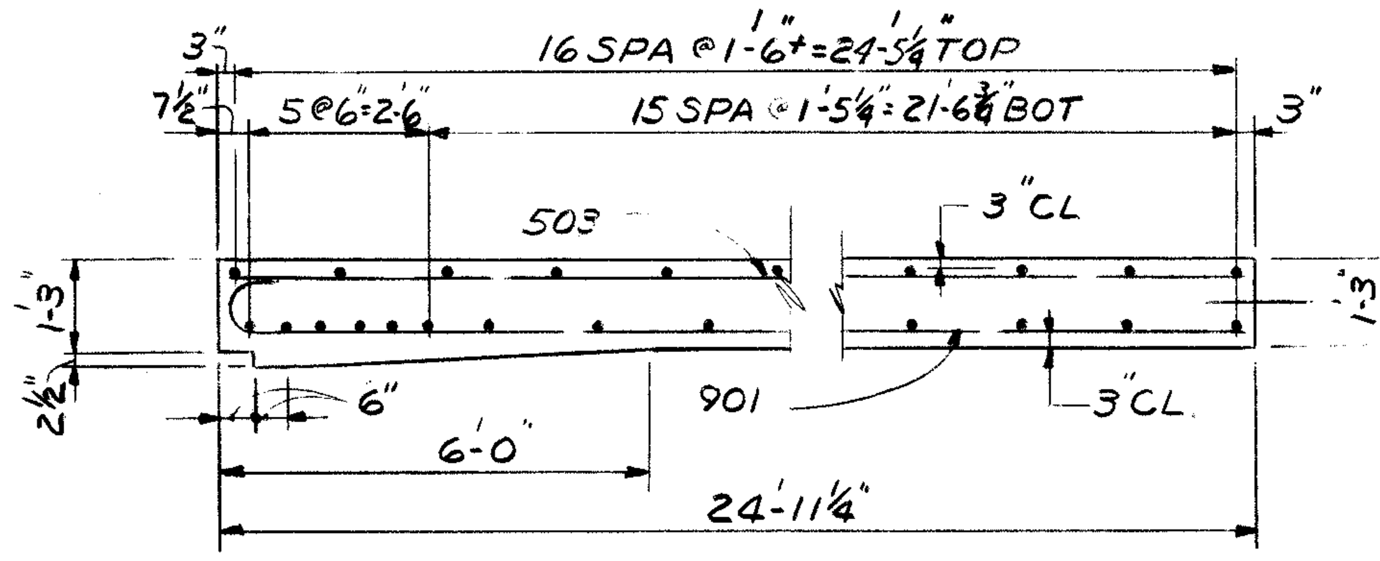


KEY PLAN

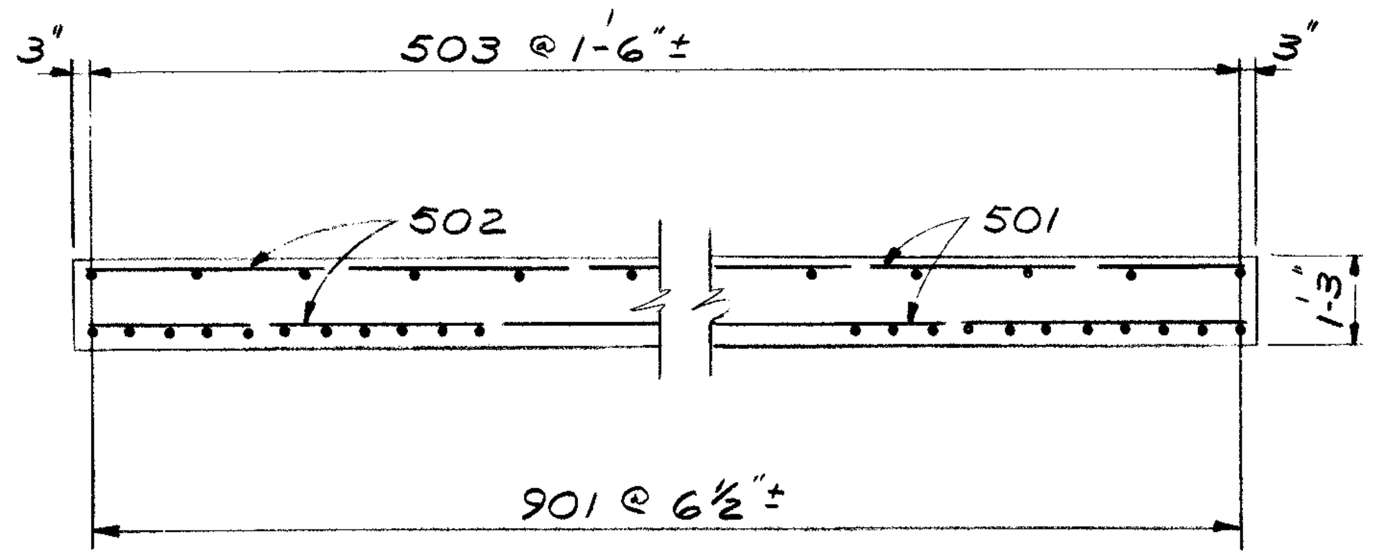
(E.B.) DENOTES EAST BOUND LANES
(W.B.) DENOTES WEST BOUND LANES



SECTION A-A



SECTION B-B



SECTION C-C

FOR DETAILS & NOTES NOT SHOWN SEE STATE OF OHIO STANDARD DWG. AS-1-72.

756 SQ. YDS. CLASS "C" CONCRETE.
(TOTAL FOR FOUR APPROACH SLABS)

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

14 / 14

DALTON • DALTON ASSOCIATES

APPROACH SLAB DETAILS

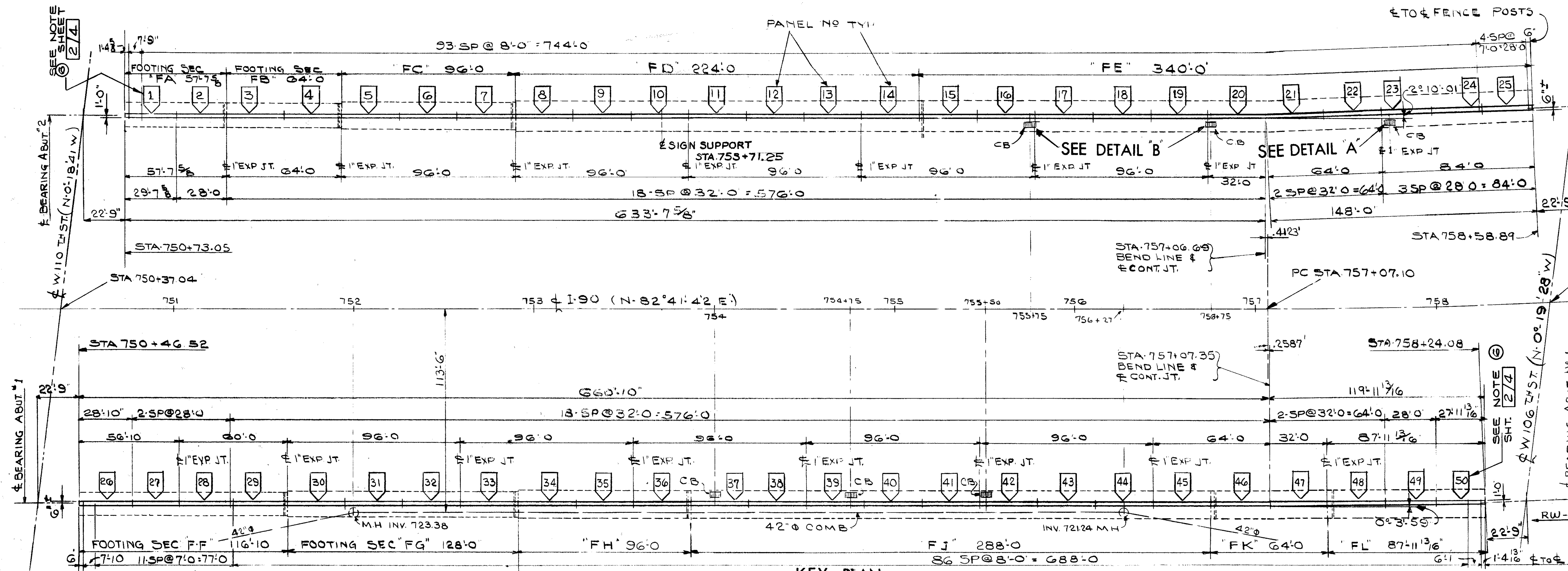
BRIDGE NO. CUY-90-1152 L/R
OVER WEST 98th ST
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
STD.	JLH		CVW	RDH	12-23-74	

FED. RD.	STATE	PROJECT	
2	OHIO		

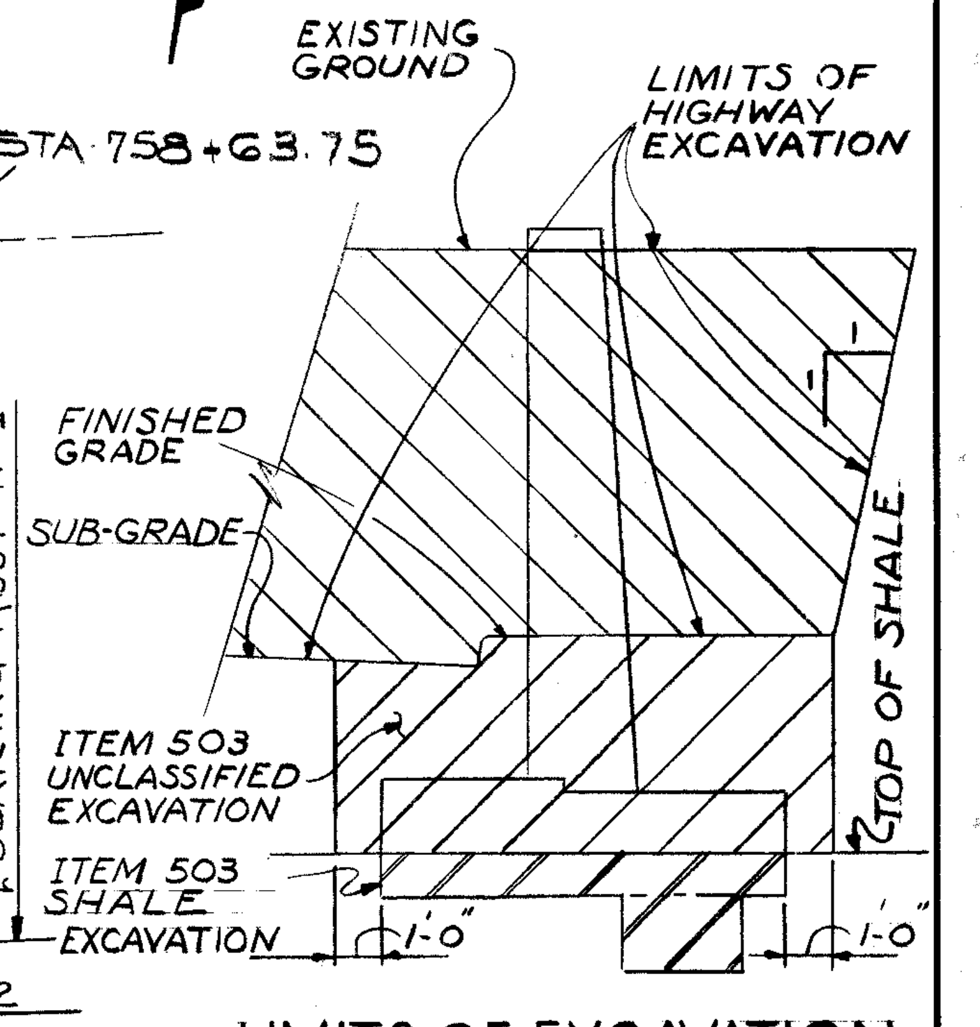
490
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

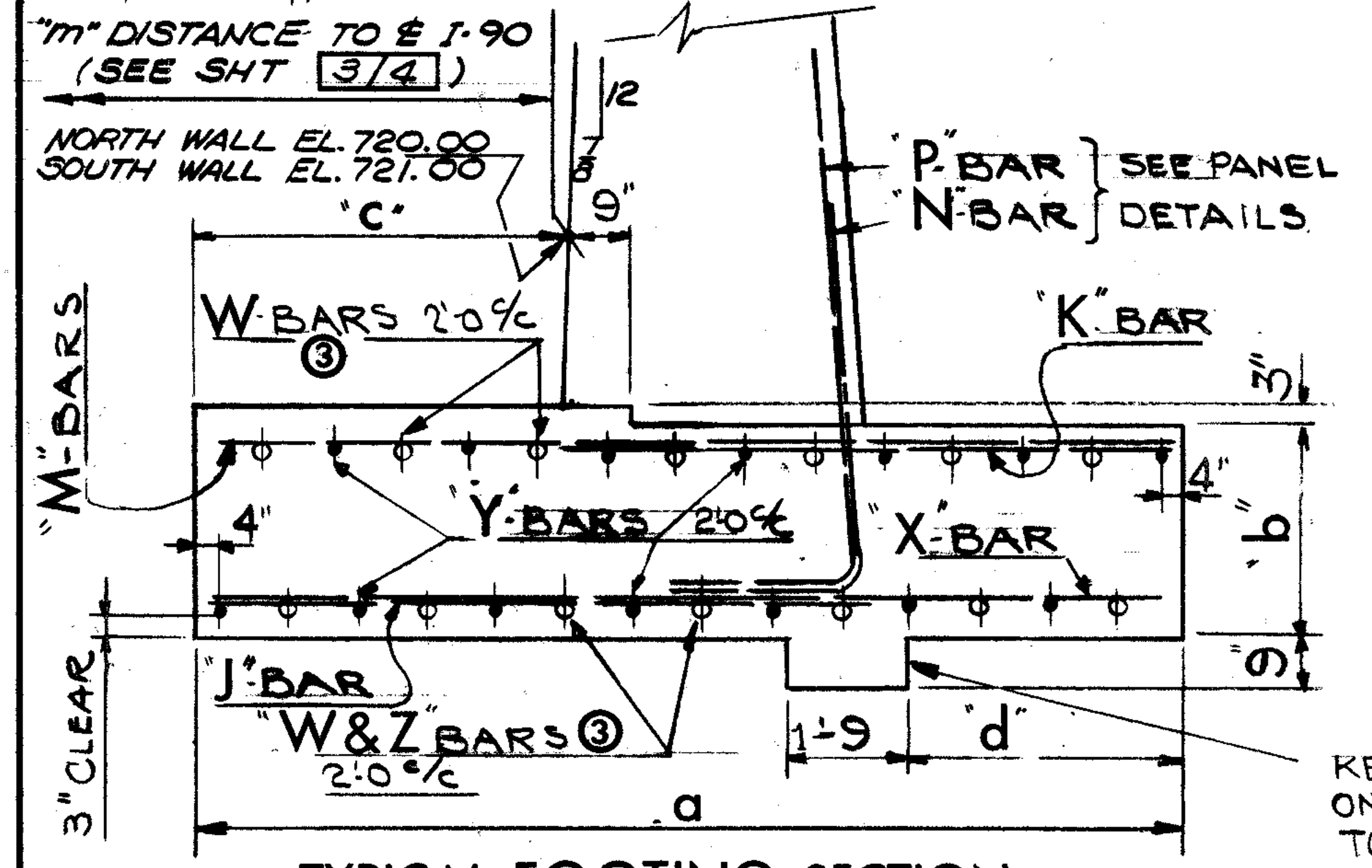


KEY PLAN

FOR OFFSETS TO FACE OF WALL SEE TABLE ON SHEET 3/4

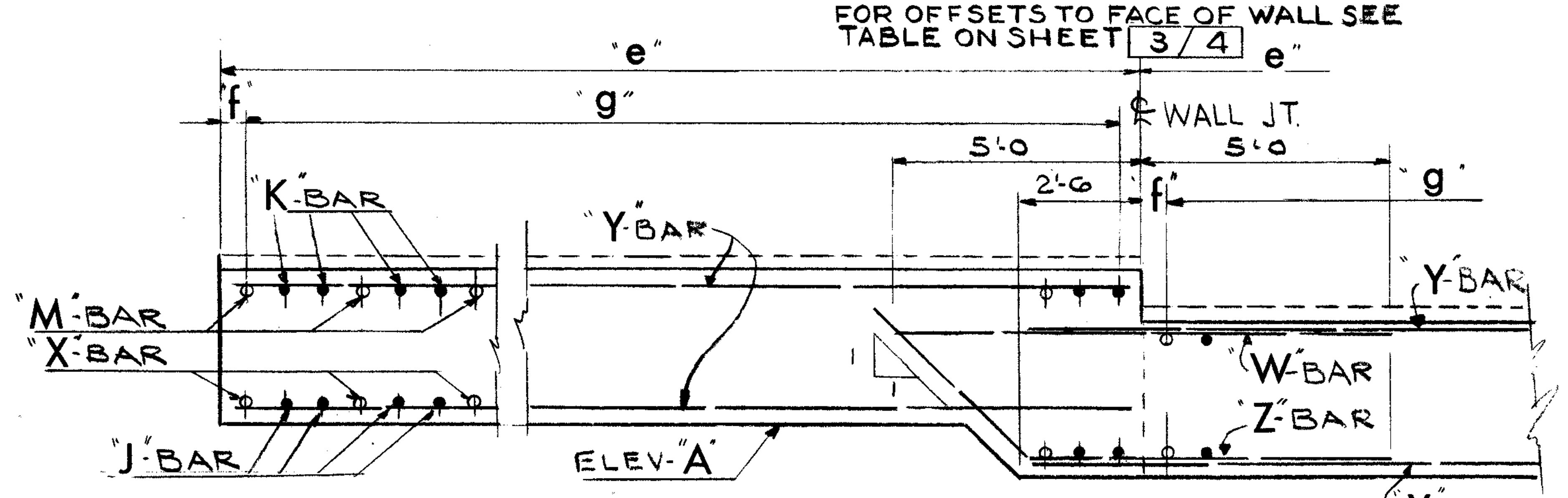


LIMITS OF EXCAVATION
TYPICAL UNLESS NOTED



TYPICAL FOOTING SECTION

(SEE TYPICAL SECTION & TABLE SHT. 3/4)



KEY MAY BE OMITTED FOR FOOTINGS ON ROCK OR SHALE PROVIDED THAT THE TOE OF THE FOOTING IS PLACED AGAINST UNDISTURBED ROCK OR SHALE TO A DEPTH OF 12"

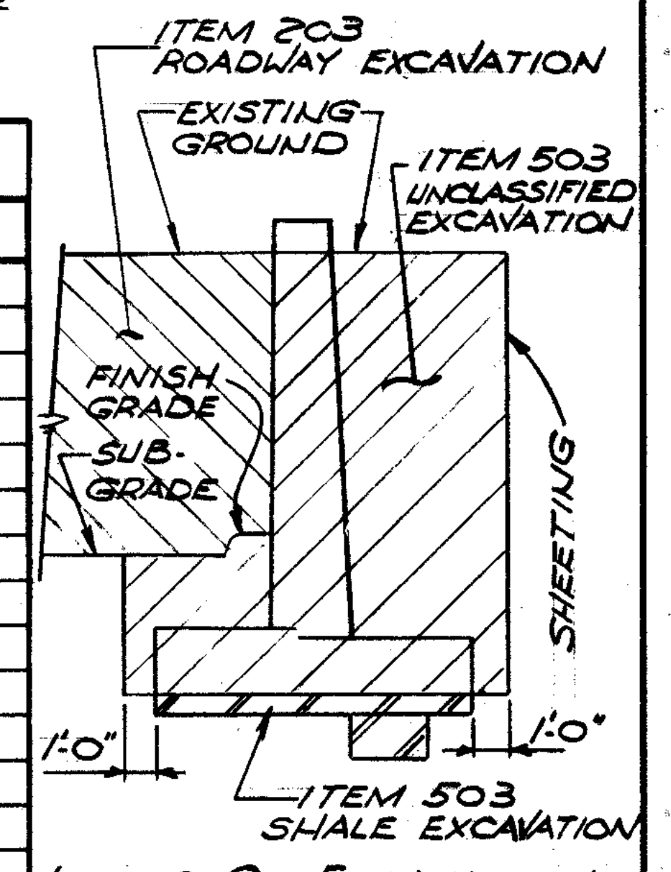
FOOTING ELEVATION

(KEY NOT SHOWN)

I-90-1(50)19 TYPE CODE 7223

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	LEFT	RIGHT		
503	10953	CU. YD.	UNCLASSIFIED EXCAVATION	4545	6408		
503	1002	CU. YD.	SHALE EXCAVATION (WITHOUT KEY)	546	456		
503	LUMP	L. SUM	COFFERDAMS, CRIBS AND SHEETING	LUMP	SUM		
509	748577	LBS.	REINFORCING STEEL	386154	362423		
511	2903	CU. YD.	CLASS 'C' CONCRETE FOOTINGS (WITHOUT KEY)	1469	1434		
511	3936	CU. YD.	CLASS 'C' CONCRETE ABOVE FOOTINGS	1992	1944		
512	36	SQ. YD.	TYPE "B" WATERPROOFING	18	18		
512	1342	LIN. FT.	PREMOLDED SEALING STRIP	678	664		
516	1349	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER	684	665		
513	5124	CU. YD.	POROUS BACKFILL	1200	3924		
			QUANTITIES CHECKED: HGH 10-69				



LIMITS OF EXCAVATION
FOR SOUTH WALL BETWEEN STA 754+00 TO STA 757+50
FOR NORTH WALL BETWEEN STA 756+50 TO STA 758+58.89

FOOTING SEC	FOOTING DIMENSIONS								FOOTING REINFORCING BARS																		"F" ①
	ELEV "A" ②	"a"	"b"	"c"	"d"	"e"	"f"	"g"	J-bar		X-bar		K-bar		M-bar		Y-bar					W-bar		Z-bar			
									MARK	Nº	MARK	Nº	MARK	Nº	MARK	Nº	MARK	■	Nº	MARK	Nº	MARK	Nº	MARK	Nº		
FA	713.0	13'-5	3'-1	5'-1⅞	3'-8	57'-7⅝	6"	68 SP@10" = 56'-8"	901	46	902	23	801	46	802	23	503	1	14	516	14	501	18	502	6	6300	
FB	712.0	14'-4	3'-2	5'-6⅞	4'-0	64'-0	4"	95 SP@8" : 63'-4"	903	64	904	32	803	64	804	32	540	2	28	506	14	501	21	502	7	6700	
FC	710.5	15'-3	3'-3	5'-11¾	4'-4	96'-0	4½"	127 SP@9" = 95'-3	1108	85	1109	43	1001	85	1002	43	503	3	48	507	16	501	35	502	7	7800	
FD	709.5	15'-3	3'-3	5'-11¾	4'-4	224'-0	3	298 SP@9" = 223'-6"	1108	199	1109	100	1001	199	1002	100	503	8	128	–	–	501	91	502	7	7800	
FE	710.5	15'-3	3'-3	5'-11¾	4'-4	340'-0	6"	452 SP@9" = 339'-0	1108	302	1109	151	1001	302	1002	151	503	11	176	508	16	501	140	-	-	7800	
FF	712.5	13'-5	3'-1	5'-1⅞	3'-8	116'-10	6"	139 SP@10" = 115'-10"	901	93	902	47	801	93	802	47	503	3	42	509	14	501	42	502	6	6300	
FG	711.5	14'-4	3'-2	5'-6⅞	4'-0	128'-0	4"	191 SP@8" = 127'-4"	903	128	904	64	803	128	804	64	503	4	56	510	14	501	49	502	7	6700	
FH	710.5	15'-3	3'-3	5'-11¾	4'-4	96'-0	4½"	127 SP@9" = 95'-3"	1108	85	1109	43	1001	85	1002	43	503	3	48	507	16	501	35	502	7	7800	
FJ	709.5	15'-3	3'-3	5'-11¾	4'-4	288'-0	4½"	383 SP@9" = 287'-3"	1108	256	1109	128	1001	256	1002	128	505	10	160	511	16	501	119	502	7	7800	
FK	710.5	15'-3	3'-3	5'-11¾	4'-4	64'-0	6"	84 SP@9" = 63'-0"	1108	56	1109	29	1001	56	1002	29	505	2	32	506	16	501	21	502	7	7800	
FL	711.5	15'-3	3'-3	5'-11¾	4'-4	87'-11 13/16	6"	116 SP@9" = 87'-0"	1108	78	1109	39	1001	78	1002	39	503	2	32	512	16	501	28	-	-	7800	

RW-1
RW-2

■ INDICATES NO. OF LENGTHS REQ'D FOR EACH LINE

FOUNDATION BEARING PRESSURE

① FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF "F" LBS. PER SQ. FT.

FOOTINGS

② FOOTINGS FOR THE FOLLOWING SUBSTRUCTURES SHALL EXTEND A MINIMUM OF 3" INTO UNDISTURBED ROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

③ W BAR CENTERED UNDER EACH EXP. & CONT. JOINT IN STEM

FOR DETAIL A, SEE SHEET 3/4

FOR DETAIL B, SEE SHEET 3/4

④ SHALE EXCAVATION AND FOOTING CONCRETE FOR THE KEY, IF NEEDED, WILL BE AT THE SAME UNIT PRICE AS BID FOR ITEM 503-*SHALE EXCAVATION, AND ITEM 511-CLASS "C" CONCRETE FOOTINGS*

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1 / 4

DALTON • DALTON ASSOCIATES

RETAINING WALL
KEY PLAN & FOOTING DETAILS

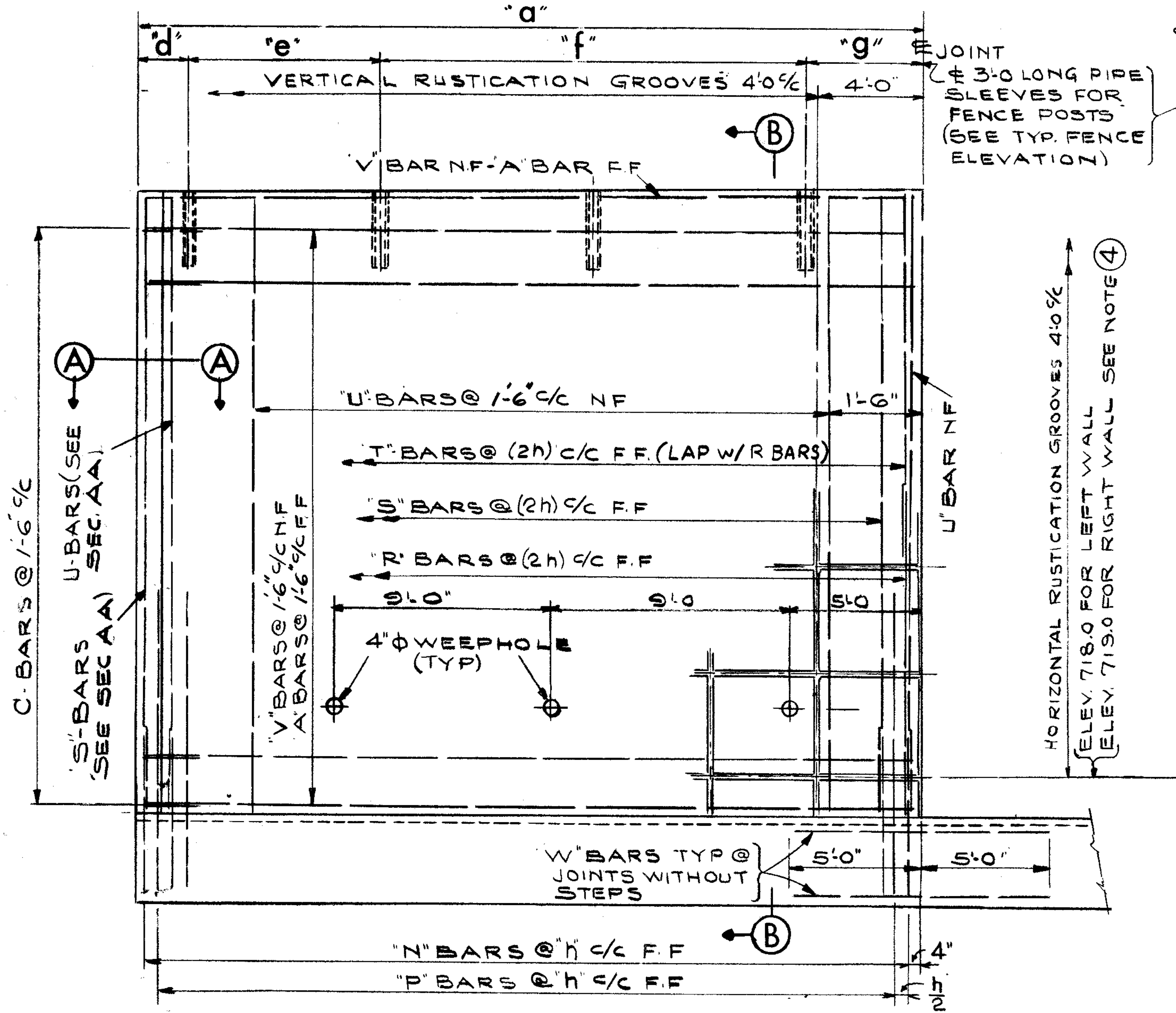
CUYAHOGA COUNTY

STA-750+73.05 TO STA-758+58.89 LEFT
STA-750+46.52 TO STA-758+24.08 RIGHT

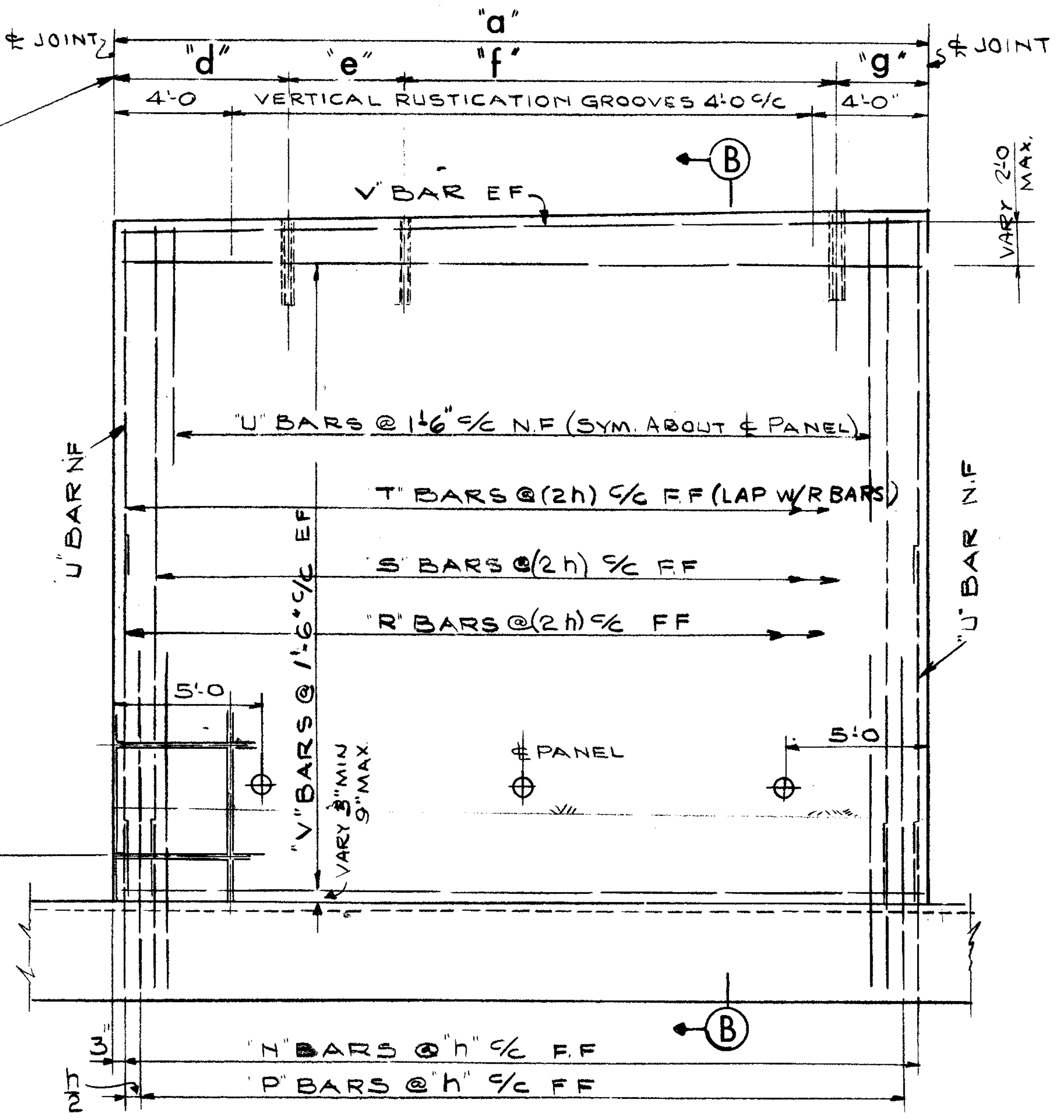
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
gJP	aw		HGH	RDH	2-23-70	

FED. RD.	STATE	PROJECT
2	OHIO	

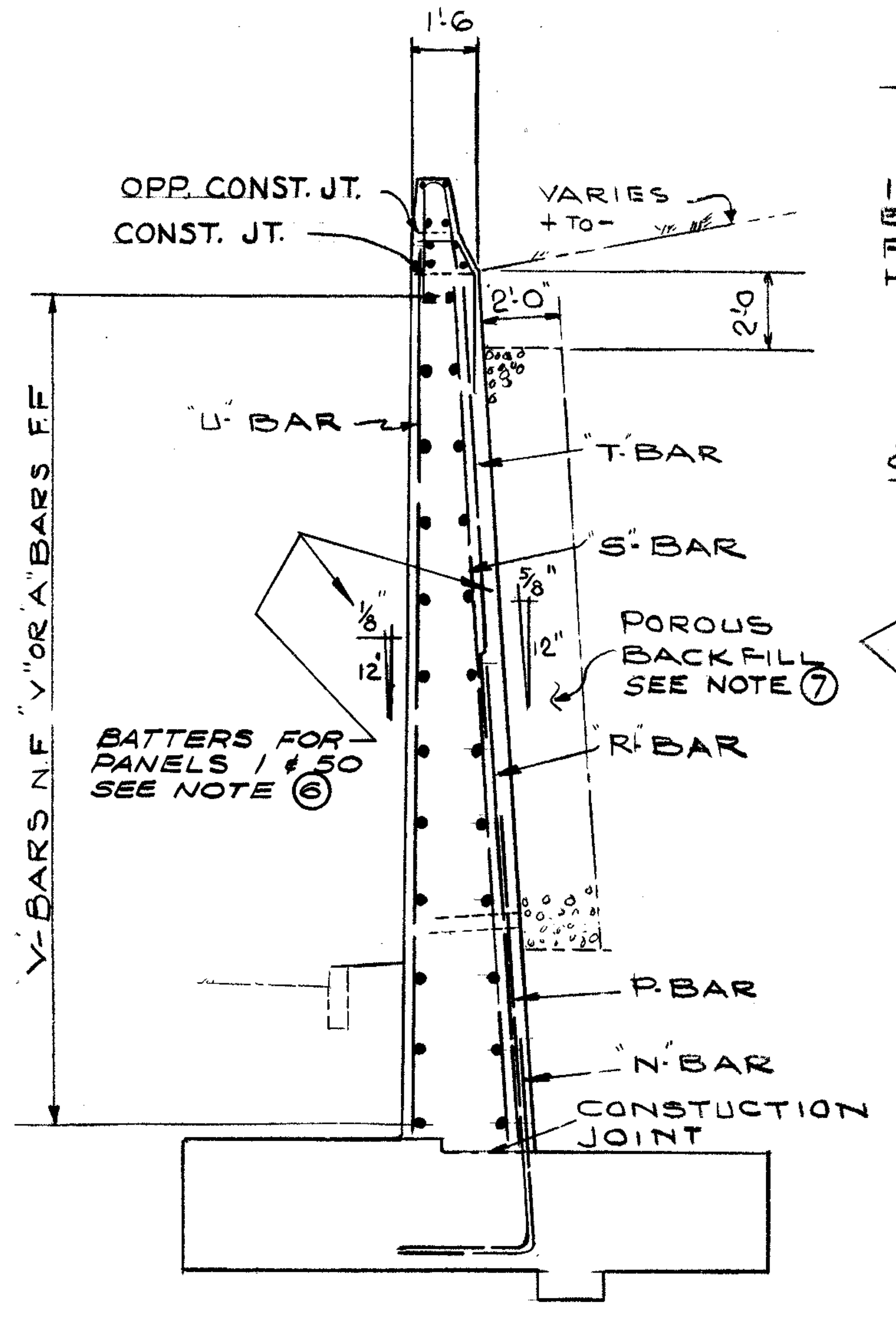
CUYAHOGA COUNTY
CUY - 90 - 10.40



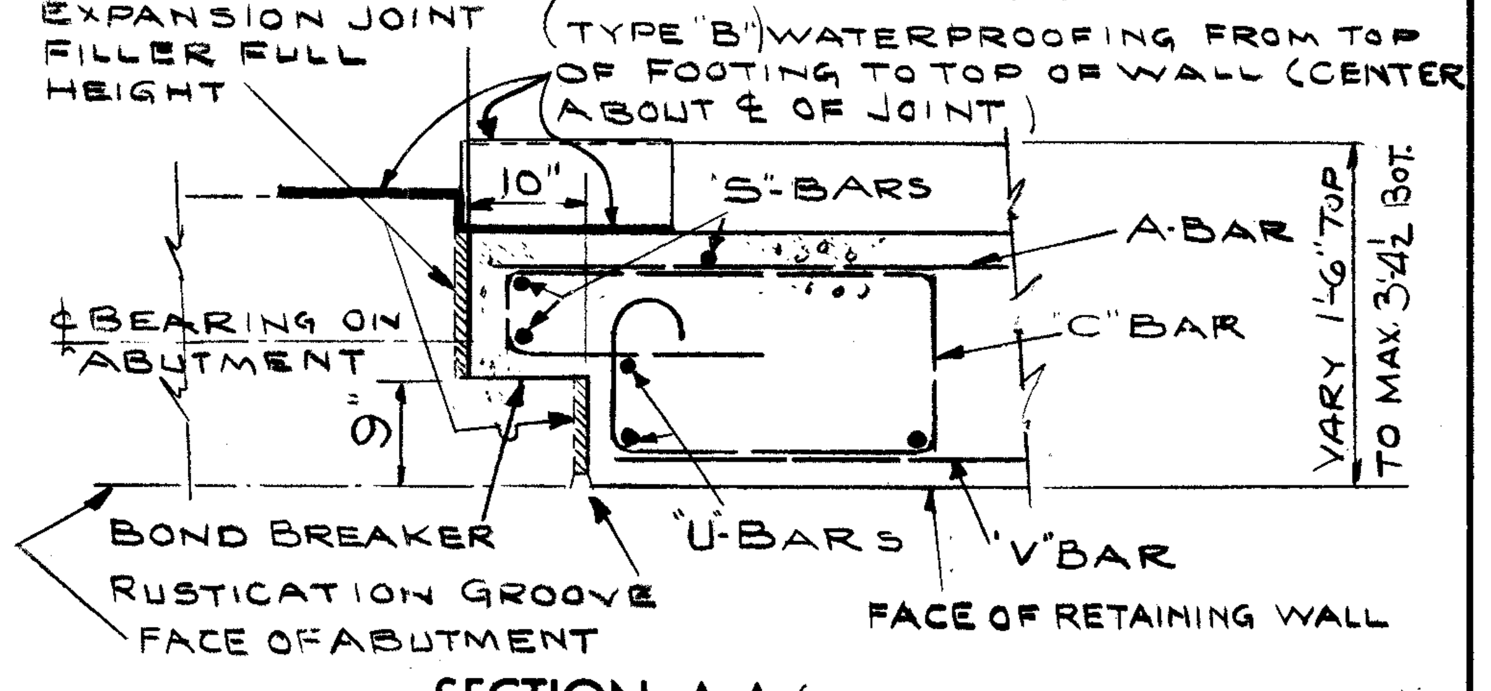
PANEL ELEVATION Nº 1



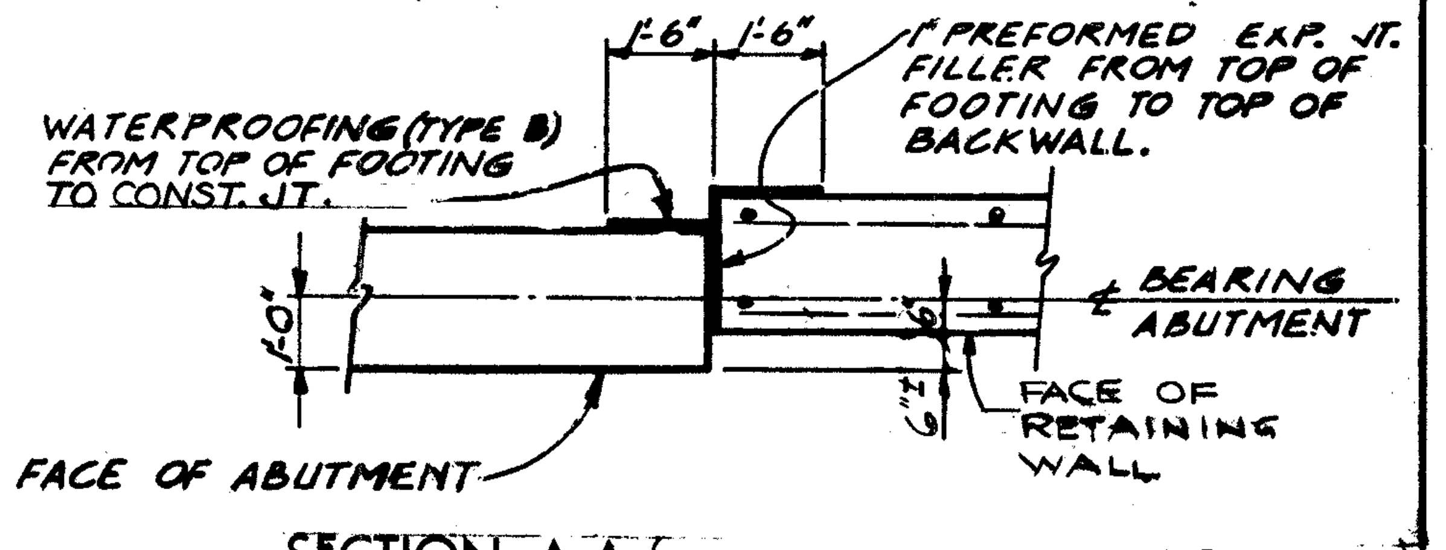
PANEL ELEVATION Nº 2



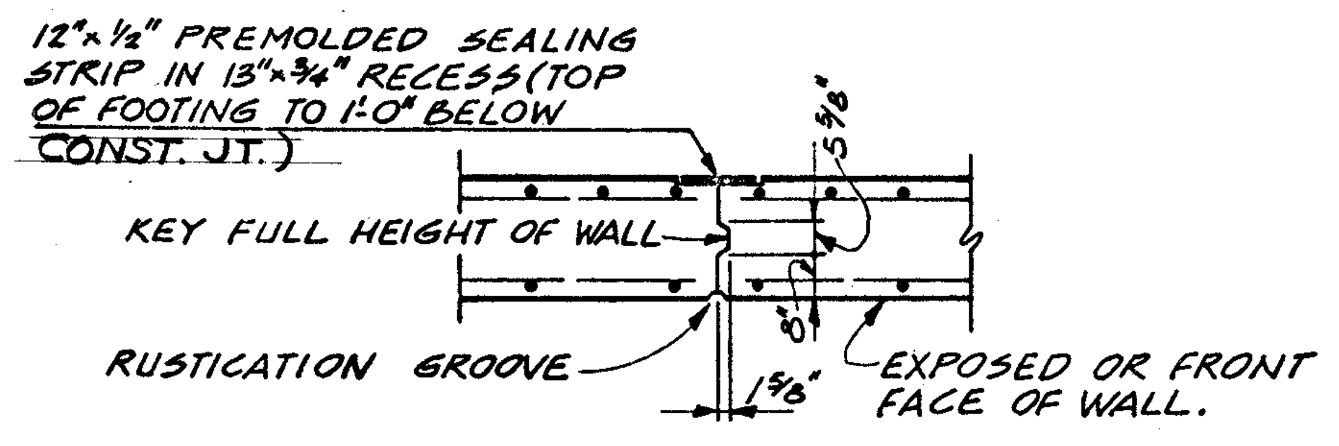
SECTION B-B



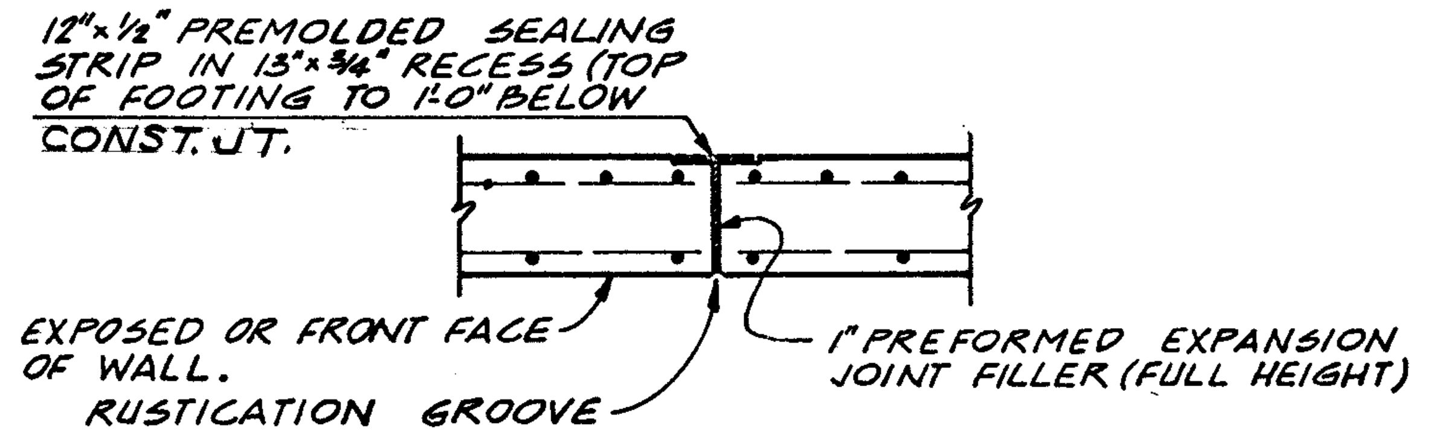
SECTION A-A (FOR PANEL Nº 1 & 50 ONLY)
(TYPE 1)



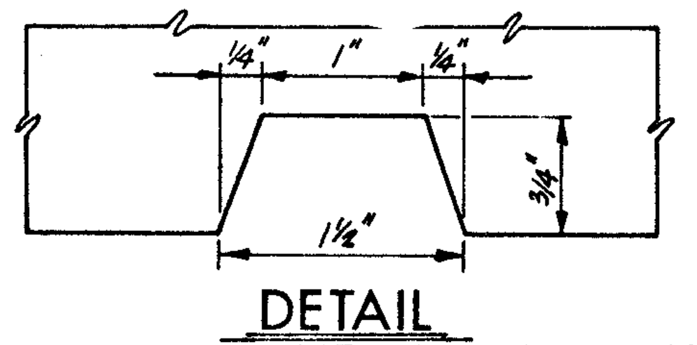
SECTION A-A (FOR PANEL Nº 25 & 26 ONLY)
(TYPE 2)



CONTRACTION JOINT DETAIL
(TYPE 3)



EXPANSION JOINT DETAIL
(TYPE 4)



DETAIL
RUSTICATION GROOVE

⑦ THE POROUS BACKFILL FOR THE SOUTH WALL BETWEEN STA. 751+50 TO STA. 754+00 WILL BE INCLUDED IN ITEM 203, ROADWAY EMBANKMENT FOR PAYMENT. THE POROUS BACKFILL FROM STA 754+00 TO 757+50 SHALL FILL THE EXCAVATION FROM BACK OF RETAINING WALL TO FACE OF SHEETING AND BE INCLUDED UNDER ITEM 518 FOR PAYMENT.

PANEL ELEV. Nº	PANEL DIMENSIONS							RETAINING WALL REINFORCING BARS (PER PANEL)																						
								N-bar		P-bar		R-bar		S-bar		T-bar		U-bar		V-bar		A-bar		B-bar		C-bar		D-bar		E-bar	
	PANEL Nº	a	d	e	f	g	h	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	MARK	NO	
1	1	29'-7 5/8	1'-4 5/8	7'-9	2-SP@ 8'-0 =16'-0	4'-6	1'-4	1101	22	1102	22	1103	11	514	13	541	11	515	21	540	25	516	17	513	20	601	1-SET	539	20	606	20	RW-1 LEFT OR NORTH WALL
2	2	28'-0	3'-6	—	3-SP@ 8'-0 =24'-0	0'-6	1'-4	1101	21	1102	21	1103	11	514	11	541	11	515	19	517	42	—	—	513	19	—	—	DO	19	DO	19	
2	3,4	32'-0	7'-6	—	3-SP@ 8'-0 =24'-0	0'-6	1'-2	1104	28	1105	27	1106	14	518	14	537	14	519	22	509	42	—	—	513	22	—	—	DO	22	DO	22	
2	5,6,7	32'-0	7'-6	—	3-SP@ 8'-0 =24'-0	0'-6	0'-9	1003	43	1004	42	1005	22	1006	21	520	22	521	22	509	46	—	—	513	22	—	—	DO	22	DO	22	
2	8,9,10,11,15,16,17,18	32'-0	7'-6	—	3-SP@ 8'-0 = 24'-0	0'-6	0'-9	1003	43	1004	42	1005	22	1006	21	522	22	523	22	509	46	—	—	513	22	—	—	DO	22	DO	22	
2	12,13,14,19,20,21,22	32'-0	7'-6	—	3-SP@ 8'-0 = 24'-0	0'-6	0'-9	1003	43	1004	42	1005	22	1006	21	524	22	505	22	509	48	—	—	513	22	—	—	DO	22	DO	22	
2	23	28'-0	7'-6	—	2-SP@ 8'-0 =16'-0	4'-6	0'-9	1003	37	1004	37	1005	19	1006	18	525	19	504	19	517	48	—	—	513	19	—	—	DO	19	DO	19	
2	24	28'-0	3'-6	—	3-SP@8'-0 =24'-0	0'-6	0'-9	1003	37	1004	37	1005	19	1006	18	525	19	504	19	517	48	—	—	513	19	—	—	DO	19	DO	19	
⑤1	25	28'-0	0'-6	—	3-SP@7'-0 =21'-0	6'-6	0'-9	1003	37	1004	37	1005	19	1006	18	526	19	527	19	517	48	—	—	513	19	—	—	DO	19	DO	19	
⑤1	26	28'-10	0'-6	7'-10	2-SP@7'-0 =14'-0	6'-6	1'-4	1101	22	1102	21	1103	11	528	13	542	11	529	20	541	42	—	—	513	20	—	—	DO	20	DO	20	RW-2 RIGHT OR SOUTH WALL
2	27,28	28'-0	6'-6"	—	3-SP@7'-0 :21'-0	0'-6	1'-4	1101	21	1102	21	1103	11	528	10	542	11	529	19	517	42	—	—	513	19	—	—	DO	19	DO	19	
2	29	32'-0	7'-6	—	3-SP@8'-0 :24'-0	0'-6	1'-4	1101	24	1102	24	1103	12	519	12	542	12	528	22	509	42	—	—	513	22	—	—	DO	22	DO	22	
2	30,31,32,33	32'-0	7'-6	—	3-SP @8'-0 =24'-0	0'-6	1'-2	1104	28	1105	27	1106	14	531	14	542	14	532	22	509	44	—	—	513	22	—	—	DO	22	DO	22	
2	34,35,36	32'-0	7'-6	—	3-SP @ 8'-0 : 24'-0	0'-6	0'-9	1003	43	1004	42	1005	22	1006	21	520	22	533	22	509	46	—	—	513	22	—	—	DO	22	DO	22	
2	37,38,39,46,47	32'-0	7'-6	—	3-SP @ 8'-0 · 24'-0	0'-6	0'-9	1003	43	1004	42	1005	22	1006	21	534	22	517	22	509	48	—	—	513	22	—	—	DO	22	DO	22	
2	40,41,42,43,44,45	32'-0	7'-6	—	3-SP @ 8'-0 · 24'-0	0'-6	0'-9	1003	43	1004	42	1005	22	1006	21	524	22	530	22	509	48	—	—	513	22	—	—	DO	22	DO	22	
2	48	32'-0	7'-6	—	3-SP @ 8'-0 : 24'-0	0'-6	0'-9	1003	43	1004	42	1005	22	1006	21	538	22	536	22	509	46	—	—	513	22	—	—	DO	22	DO	22	
2	49	28'-0	3'-6	—	3-SP @ 8'-0 · 24'-0	0'-6	0'-9	1003	37	1004	37	1005	19	1006	18	538	19	536	19	517	46	—	—	513	19	—	—	DO	19	DO	19	
1	50	27'-11 13/16	1'-4 13/16	6'-1	2-SP @ 8'-0 : 16'-0	4'-6	0'-9	1003	37	1004	37	1005	19	1006	20	522	19	536	20	536	27	517	19	513	19	602	1-SET	539	19	606	19	

NOTES

① ABBREVIATIONS USED ARE:

NF-NEAR FACE
FF-FAR FACE
EF-EACH FACE

② THE PREFIX 1RW, 2RW, ETC., SHALL BE ADDED TO ALL REINFORCING BAR MARKS UNLESS SHOWN OTHERWISE.

③ ALL HORIZONTAL DIMENSIONS ARE GIVEN TO FRONT FACE OF WALL UNLESS NOTED OTHERWISE.

④ RUSTICATION GROOVES MAY BE TERMINATED 12" BELOW FINISHED GROUND LEVEL (BOTH HORIZONTAL AND VERTICAL)

STRIATED WALL PANELS MUST BE COORDINATED WITH THE PANELS OF THE ABUTMENTS FOR W-106 TH. & W.-110 TH. STREET BRIDGES (STRIATION MAY BE TERMINATED 12" BELOW FINISHED GROUND LEVEL)

⑤ SAME AS PANEL ELEVATION Nº 1 EXCEPT OPP. HAND.

⑥ BATTER FRONT FACE OF WALL ⅛"/FT. WARP PANELS 1 AND 50 TO MATCH VERTICAL FACE OF ABUTMENTS AT 110 TH. AND 106 TH. STREETS BATTER ON BACK OF WALL IN PANELS 1 AND 50 SHOULD INCREASE TO ¾"/FT. AT ABUTMENTS.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

2 / 4

DALTON · DALTON ASSOCIATES

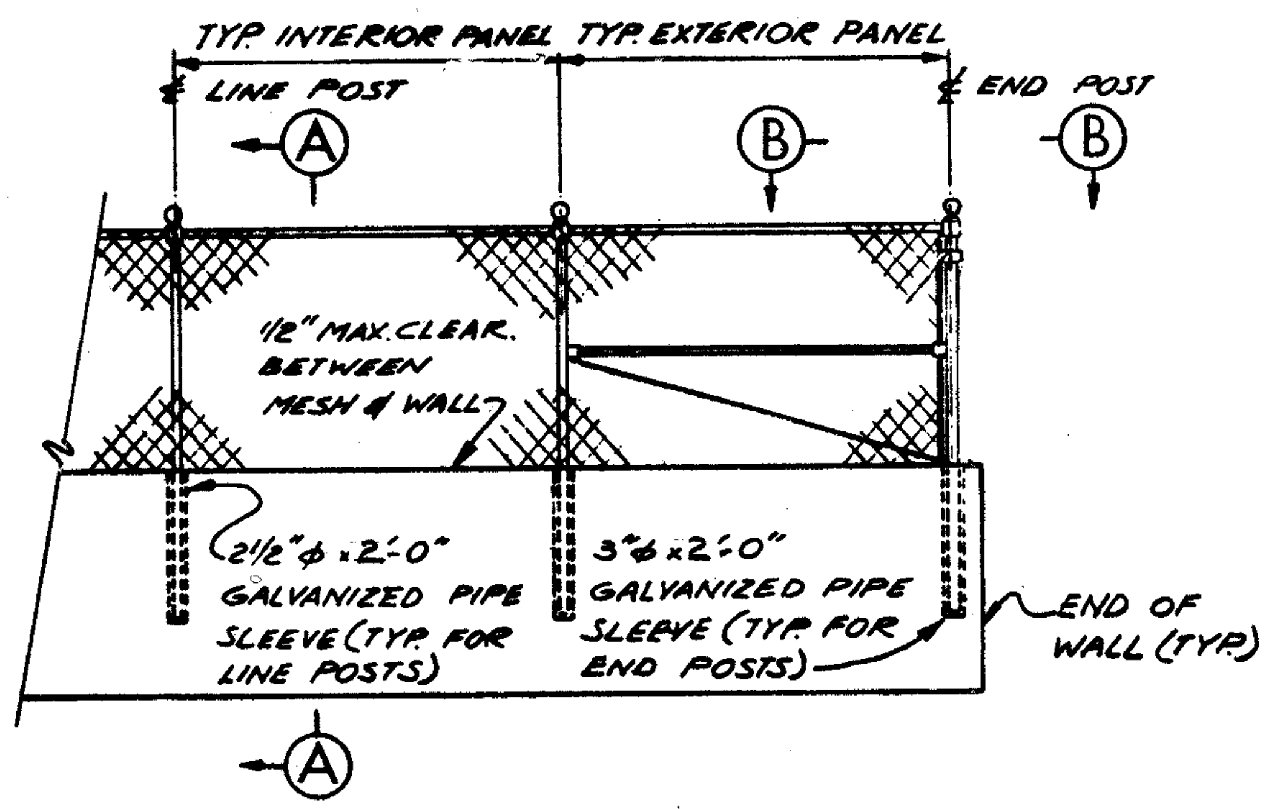
RETAINING WALL
STEM DETAILS
CUYAHOGA COUNTY
STA-750+73.05 TO STA-758+58.89 LEFT
STA-750+46.52 TO STA-758+24.08 RIGHT

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	CW		HGH	RDH	2-23-70	

FED. RD.	STATE	PROJECT	
2	OHIO		

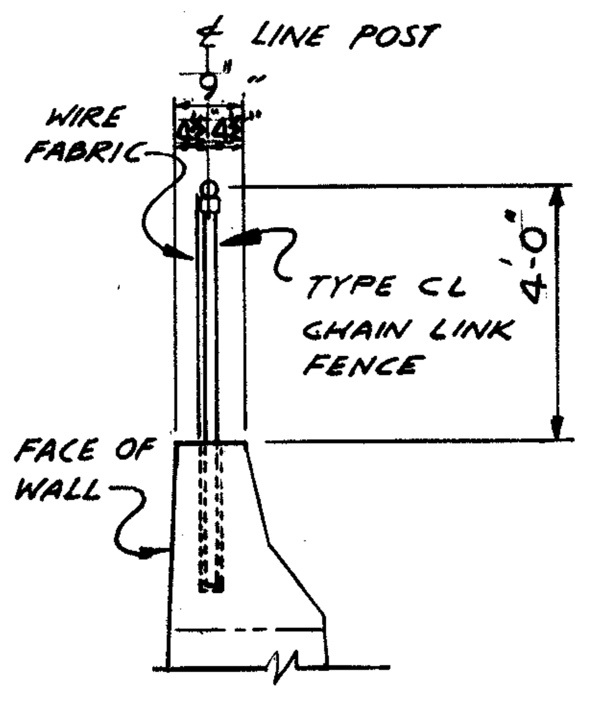
492 / 713

CUYAHOGA COUNTY
CUY - 90 - 10.40

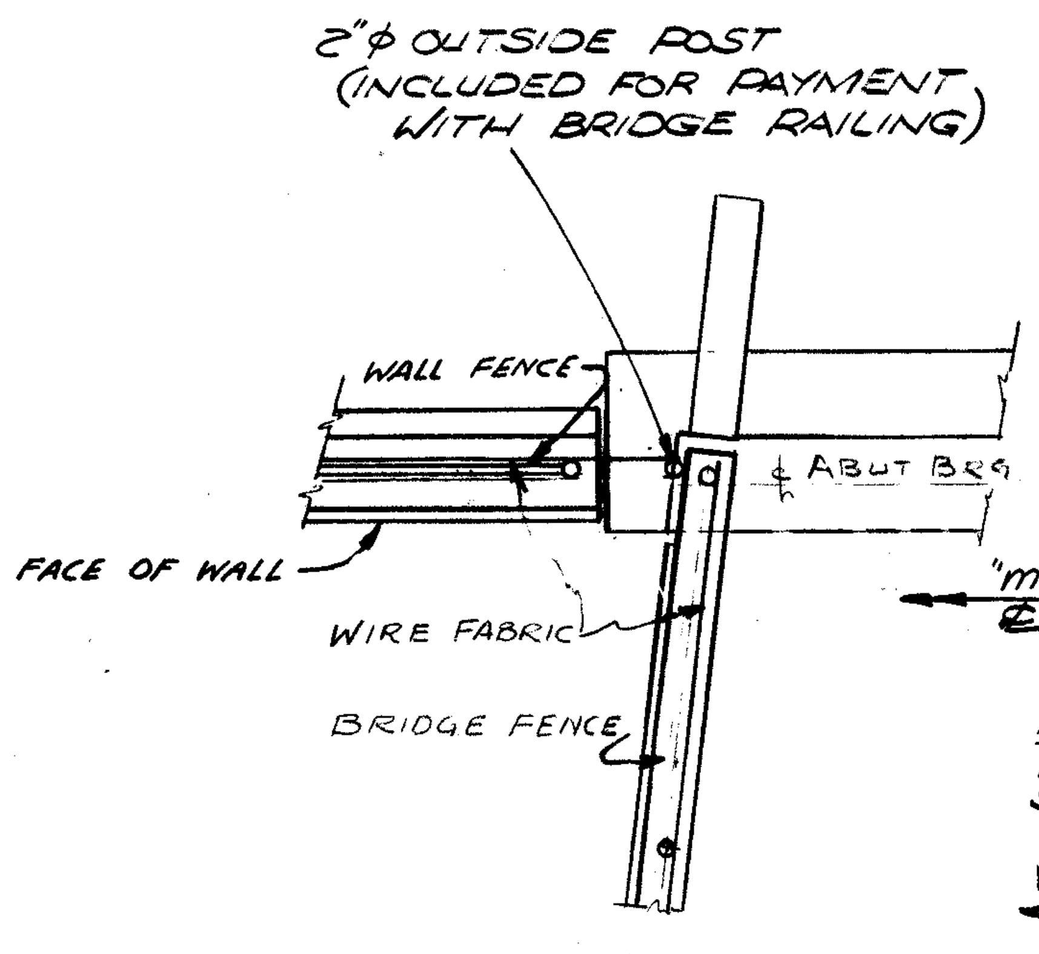


TYPICAL FENCE ELEVATION

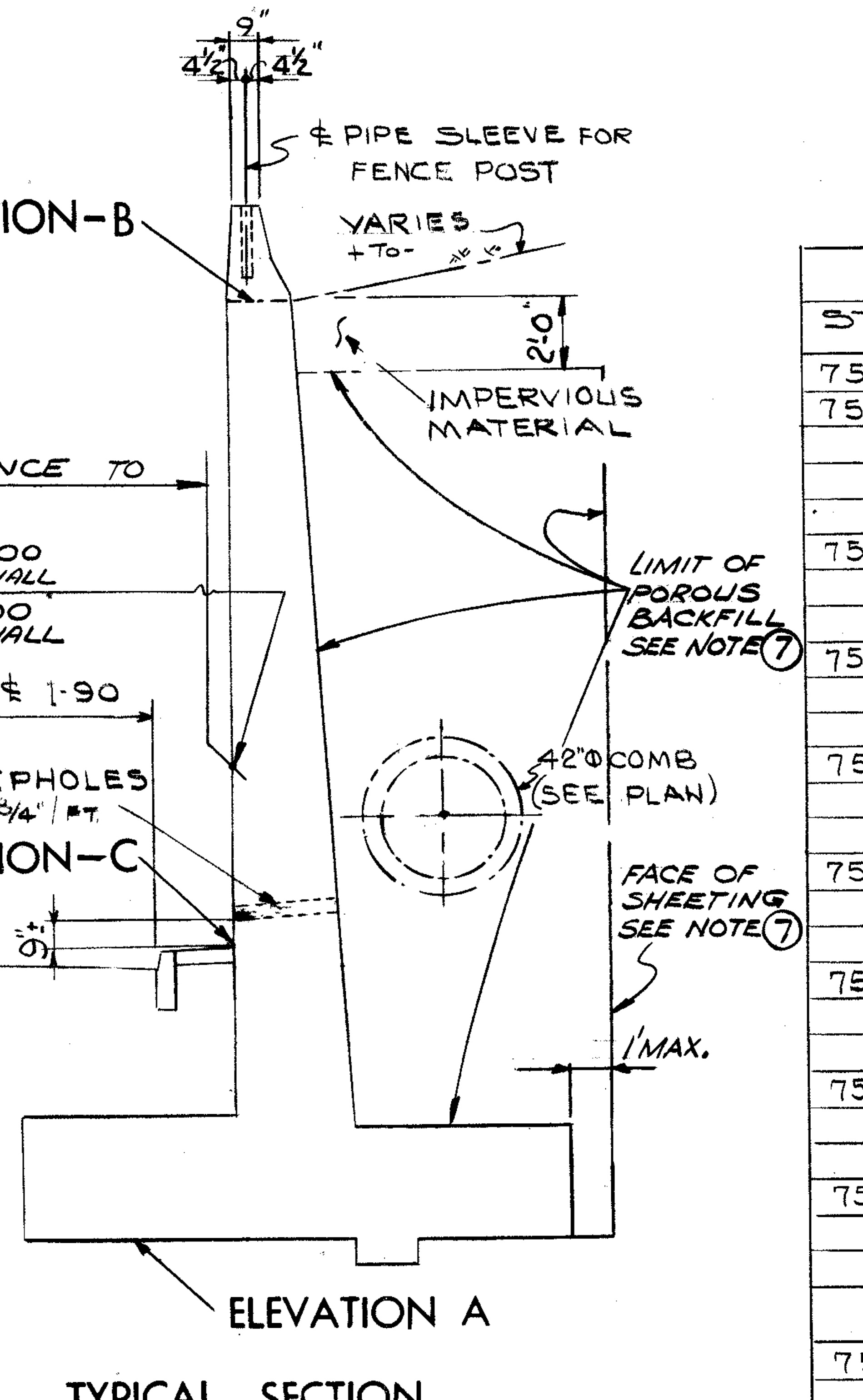
FOR FENCE DETAILS NOT SHOWN, SEE STD. CONSTRUCTION DRAWING F-1. PIPE SLEEVES INCLUDED FOR PAYMENT WITH ITEM-511, WALL CONCRETE. ALL FENCE MATERIALS INCLUDED FOR PAYMENT WITH ROADWAY QUANTITIES.



SECTION A-A

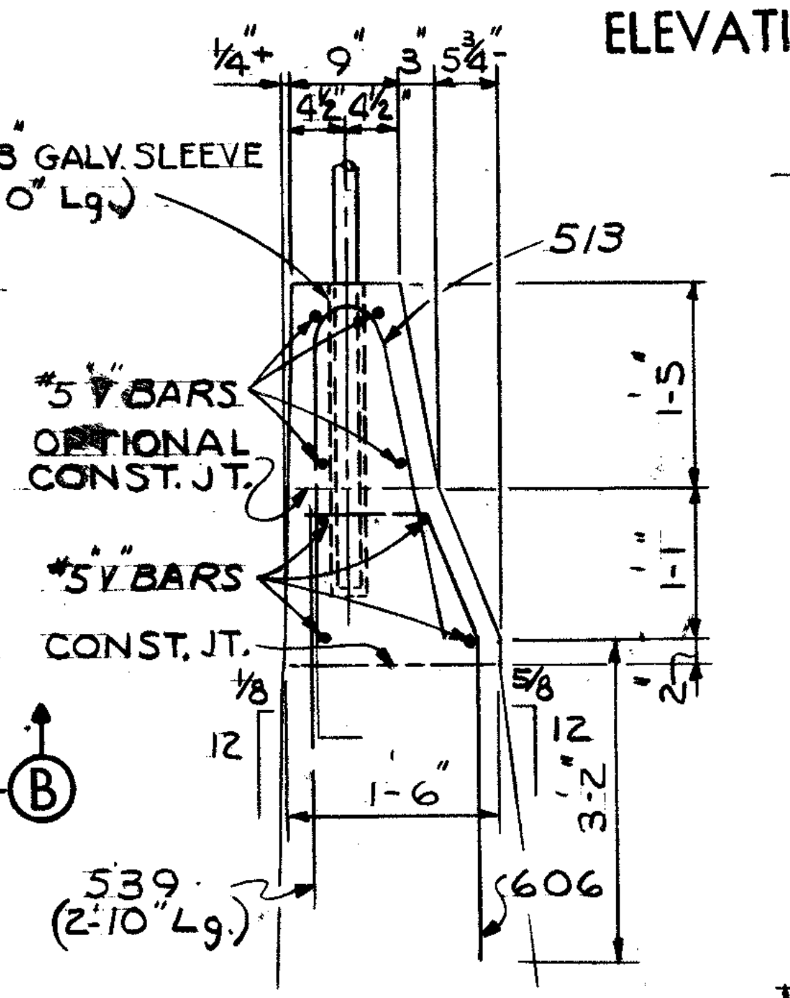


VIEW B-B

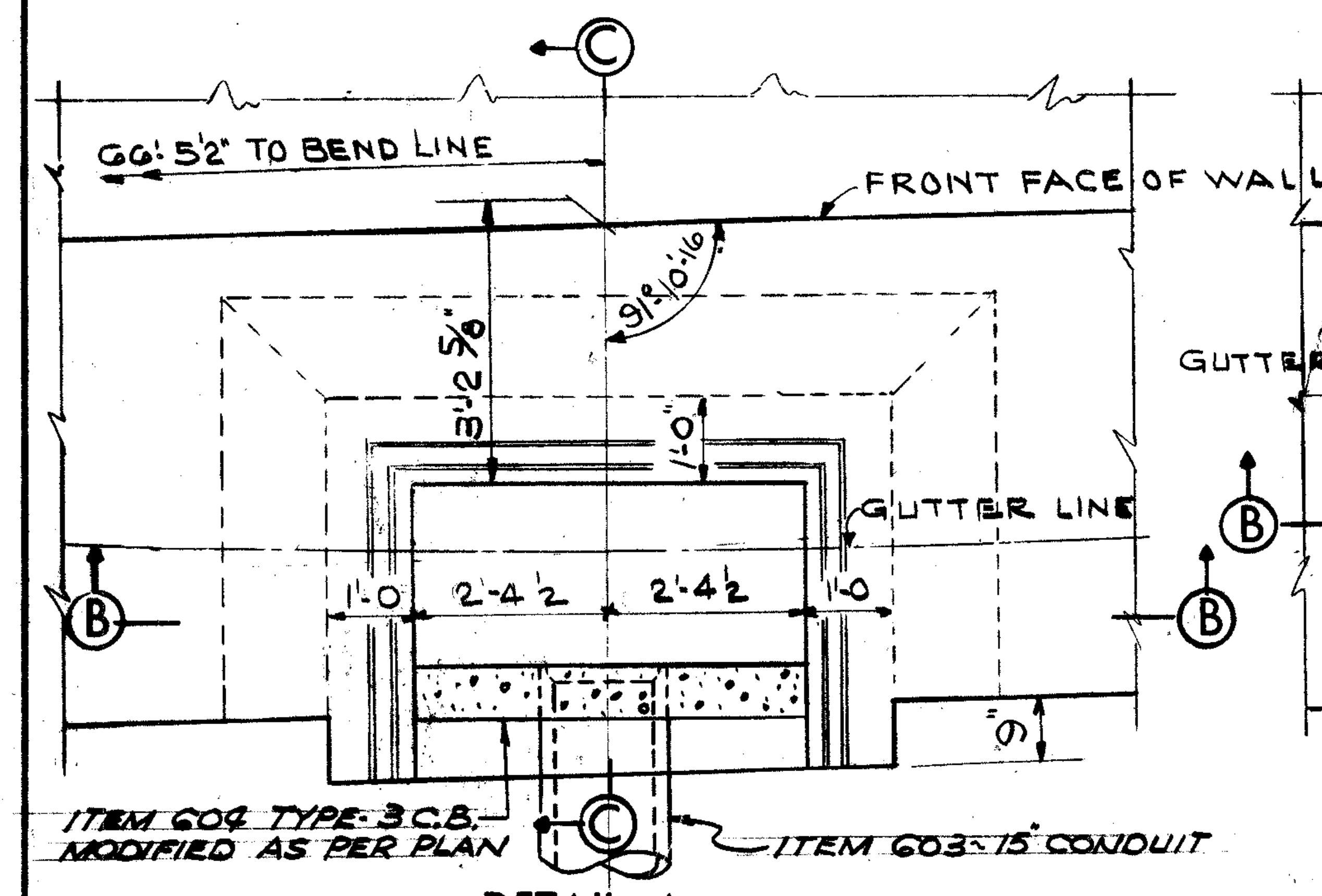


TYPICAL SECTION

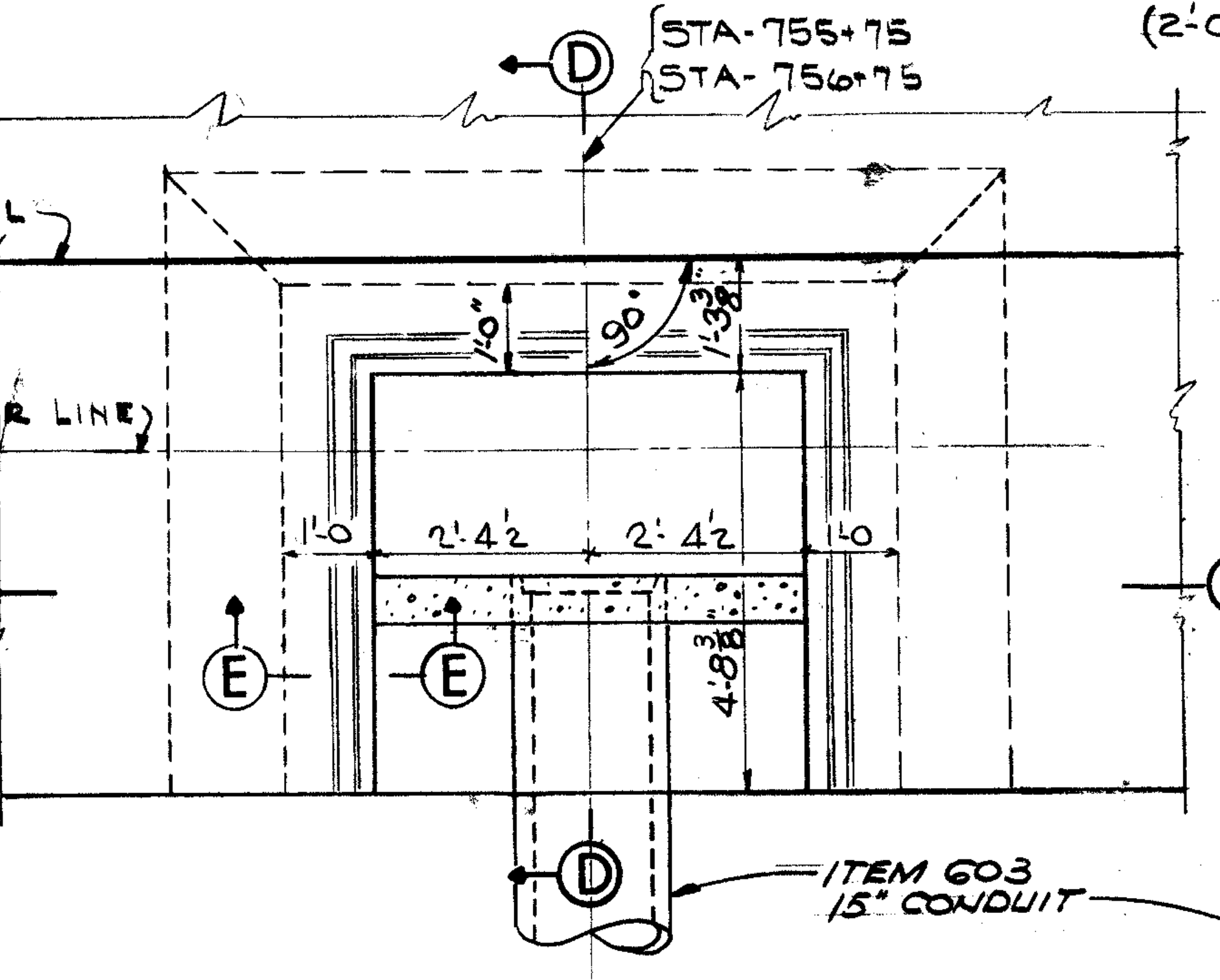
SEE TABLE



BARRIER DETAIL

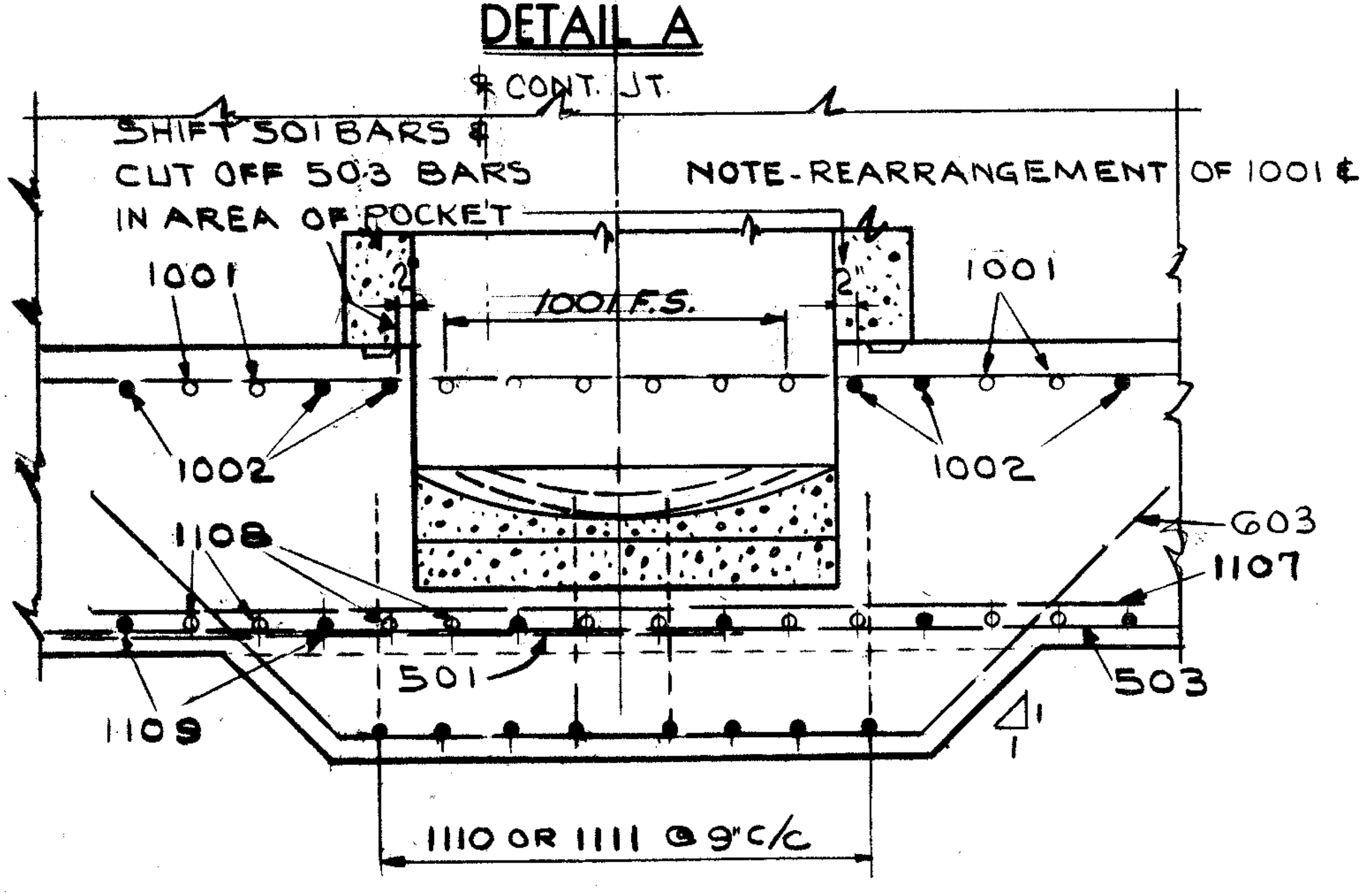


DETAIL A

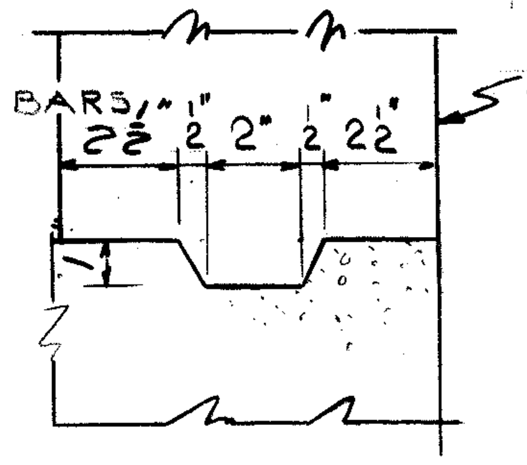


DETAIL B

NOTE-REARRANGEMENT OF 1001 & 1002 BARS

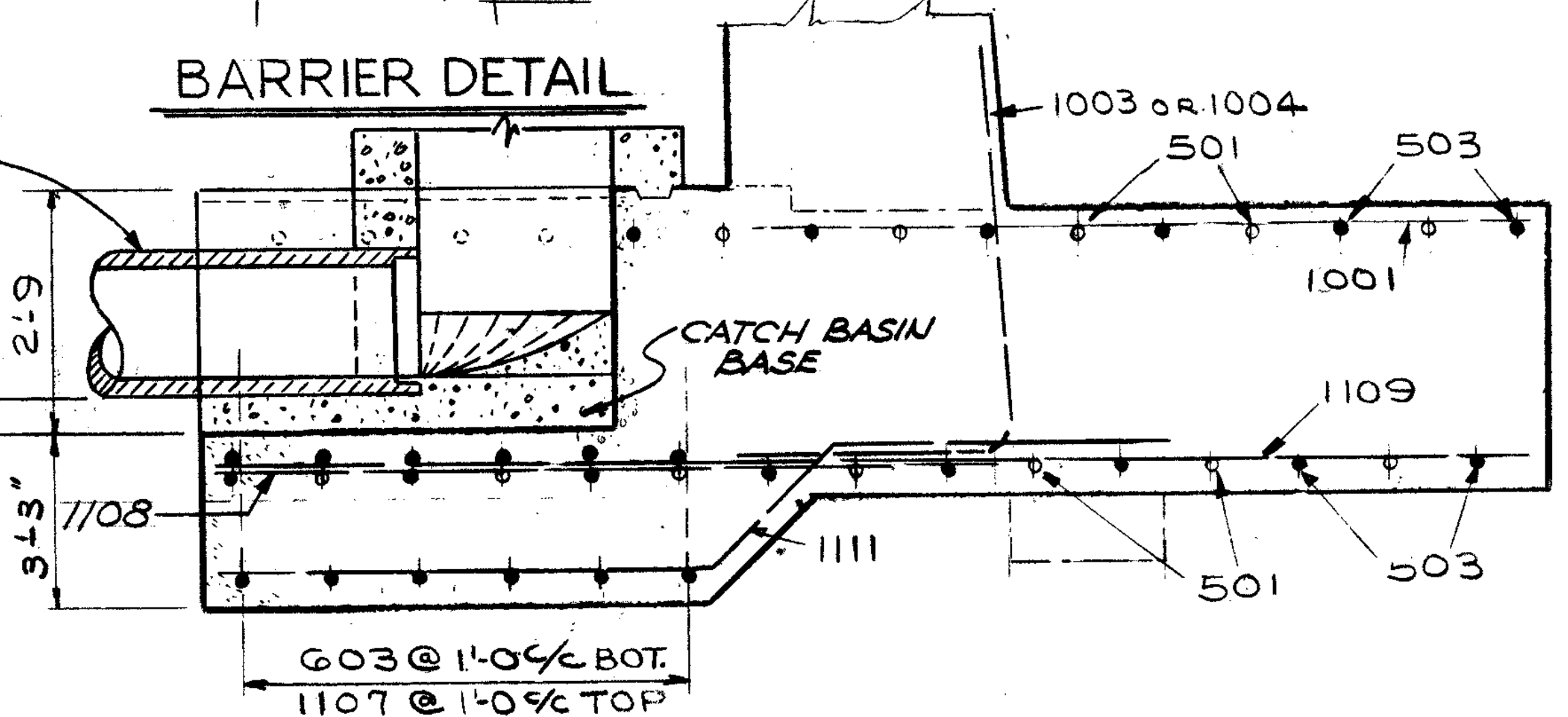


SECTION B-B

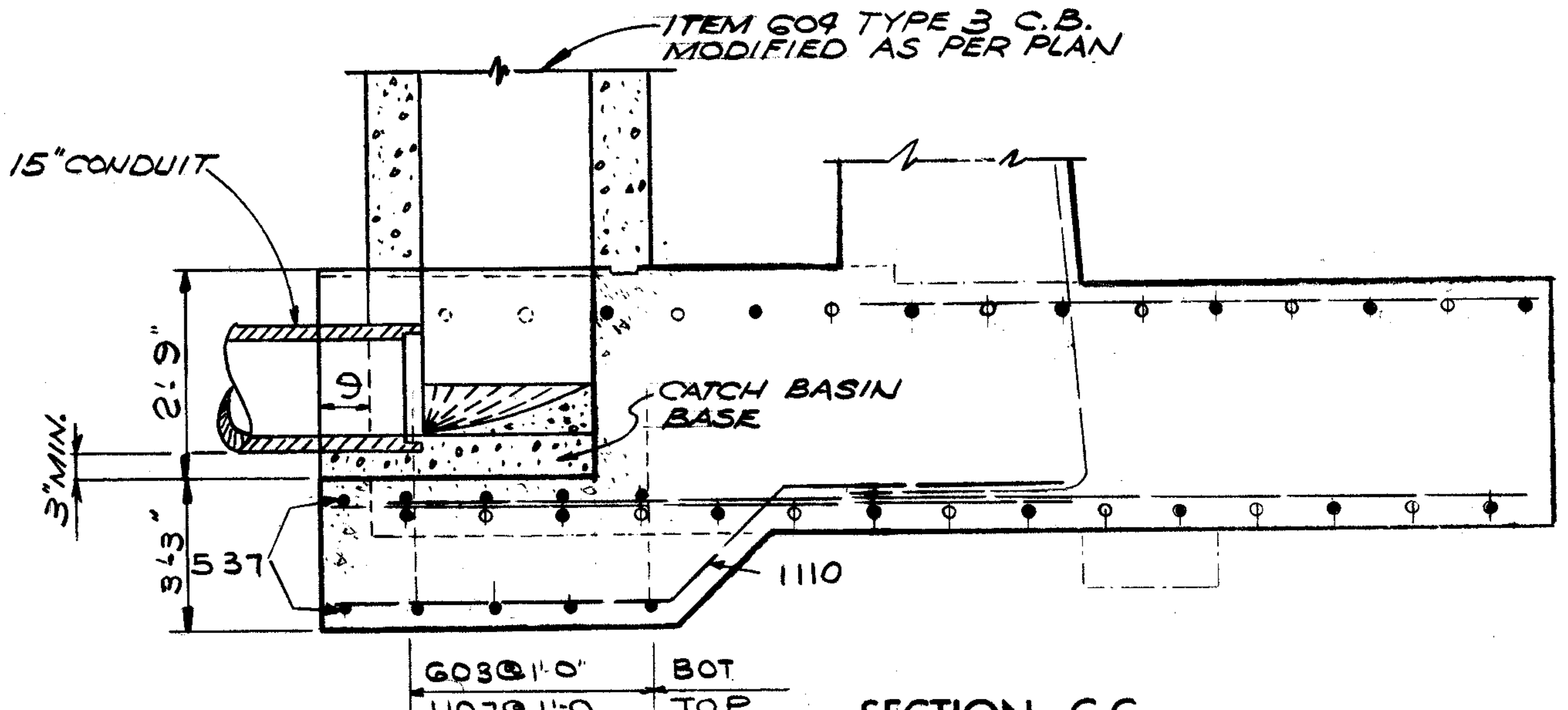


SECTION E-E

(KEY AROUND C.B. POCKET)



SECTION D-D



SECTION C-C

(FOR BARS NOT CALLED SEE SECTION D-D)

NOTE:
FOR CATCH BASIN LOCATIONS, ELEVATIONS AND PIPE SLOPES SEE DRAINAGE PLANS

ELEVATIONS & OFFSETS (LEFT OR NORTH WALL)

STATION	ELEV "A"	ELEV "B"	ELEV "C"	① "m" (FT)	TYPE JOINT ⊞	END OF PANEL No.
750+73.05	713.00	740.04	719.67	107.117	EXP. TYPE 1	—
751+02.69	713.00	739.56	719.46	107.117	CONT. TYPE 3	1
+30.69	712.00	739.70	719.25	107.117	EXP. TYPE 4	2
+62.69	712.00	739.85	719.02	107.117	CONT. TYPE 3	3
+94.69	710.50	740.01	718.79	107.117	EXP TYPE 4	4
752+26.69	710.50	740.16	718.56	107.117	CONT TYPE 3	5
+58.69	710.50	740.32	718.31	107.117	CONT TYPE 3	6
+90.69	709.50	740.47	718.03	107.117	EXP TYPE 4	7
753+22.69	709.50	740.63	717.75	107.117	CONT TYPE 3	8
+54.69	709.50	740.78	717.46	107.117	CONT TYPE 3	9
+86.69	709.50	740.94	717.18	107.117	EXP TYPE 4	10
754+18.69	709.50	741.09	716.90	107.117	CONT TYPE 3	11
+50.69	709.50	741.25	716.67	107.117	CONT TYPE 3	12
+82.69	709.50	741.40	716.46	107.117	EXP TYPE 4	13
755+14.69	709.50	741.56	716.27	107.117	CONT TYPE 3	14
+46.69	710.50	741.71	716.12	107.117	CONT TYPE 3	15
+78.69	710.50	741.86	716.01	107.117	EXP TYPE 4	16
756+10.69	710.50	742.02	715.89	107.117	CONT TYPE 3	17
+42.69	710.50	742.17	715.79	107.117	CONT TYPE 3	18
+74.69	710.50	742.33	715.73	107.117	EXP TYPE 4	19
757+06.69	710.50	742.48	715.73	107.117	CONT TYPE 3	20
+39.56	710.50	742.65	715.81	108.195	CONT TYPE 3	21
+72.47	710.50	742.80	715.94	109.005	EXP TYPE 4	22
758+01.27	710.50	742.94	716.08	109.492	CONT TYPE 3	23
+30.07	710.50	743.08	716.25	109.773	CONT TYPE 3	24
+58.89	710.50	743.72	716.54	109.847	EXP. TYPE 2	25
RIGHT OR SOUTH WALL						
750+46.52	712.50	740.27	719.88	107.617	EXP. TYPE 2	—
+75.35	712.50	739.73	719.67	107.617	CONT. TYPE 3	26
751+03.35	712.50	739.83	719.47	107.617	EXP TYPE 4	27
+31.35	712.50	739.93	719.27	107.617	CONT. TYPE 3	28
+63.35	711.50	740.04	719.04	107.617	EXP. TYPE 4	29
+95.35	711.50	740.15	718.81	107.617	CONT. TYPE 3	30
752+27.35	711.50	740.26	718.58	107.617	CONT. TYPE 3	31
+59.35	711.50	740.38	718.39	107.617	EXP. TYPE 4	32
+91.35	710.50	740.49	718.27	107.617	CONT. TYPE 3	33
753+23.35	710.50	740.60	718.14	107.617	CONT. TYPE 3	34
+55.35	710.50	740.71	718.02	107.617	EXP. TYPE 4	35
+87.35	709.50	740.83	717.89	107.617	CONT TYPE 3	36
754+19.35	709.50	740.94	717.78	107.617	CONT TYPE 3	37
+51.35	709.50	741.05	717.71	107.617	EXP. TYPE 4	38
+83.35	709.50	741.16	717.72	107.617	CONT TYPE 3	39
755+15.35	709.50	741.28	717.84	107.617	CONT TYPE 3	40
+47.35	709.50	741.39	718.01	107.617	EXP TYPE 4	41
+79.35	709.50	741.50	718.23	107.617	CONT TYPE 3	42
756+11.35	709.50	741.61	718.45	107.617	CONT TYPE 3	43
+43.35	709.50	741.72	718.70	107.617	EXP. TYPE 4	44
+75.35	709.50	741.84	719.00	107.617	CONT TYPE 3	45
757+07.35	710.50	741.95	719.35	107.617	CONT TYPE 3	46
+38.49	710.50	742.06	719.73	107.784	EXP. TYPE 4	47
+69.63	711.50	742.17	720.17	108.205	CONT TYPE 3	48
+96.87	711.50	742.27	720.59	108.784	CONT. TYPE 3	49
758+24.08	711.50	742.87	721.05	109.557	EXP. TYPE 1	50

⊞ SEE SHEET 2/4 FOR JOINT DETAIL

① "m" MEASURED FROM ℄ I-90 TO FACE OF WALLS, AT EL. 720.00 FOR THE NORTH WALL & EL. 721.00 FOR THE SOUTH WALL.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

3/4

DALTON · DALTON ASSOCIATES

RETAINING WALL DETAILS

CUYAHOGA COUNTY

STA-750+73.05 TO STA+758+58.89 LEFT
STA 750+46.52 TO STA+758+24.08 RIGHT

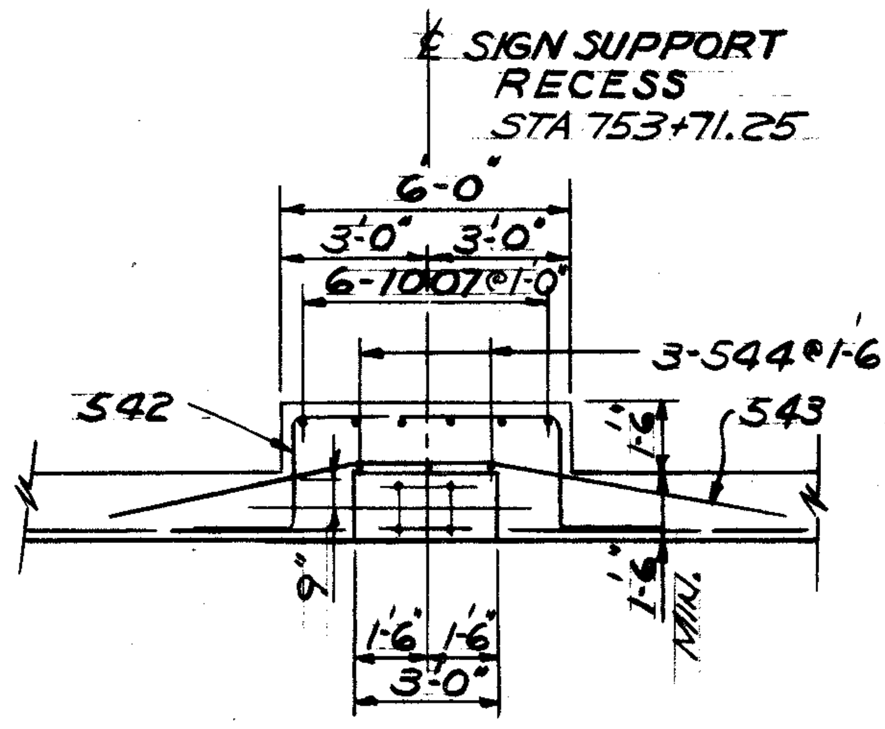
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
gFP.	cw		HGN	RAW	2-23-[illegible]	

FED. RD.	STATE	PROJECT	
2	OHIO		

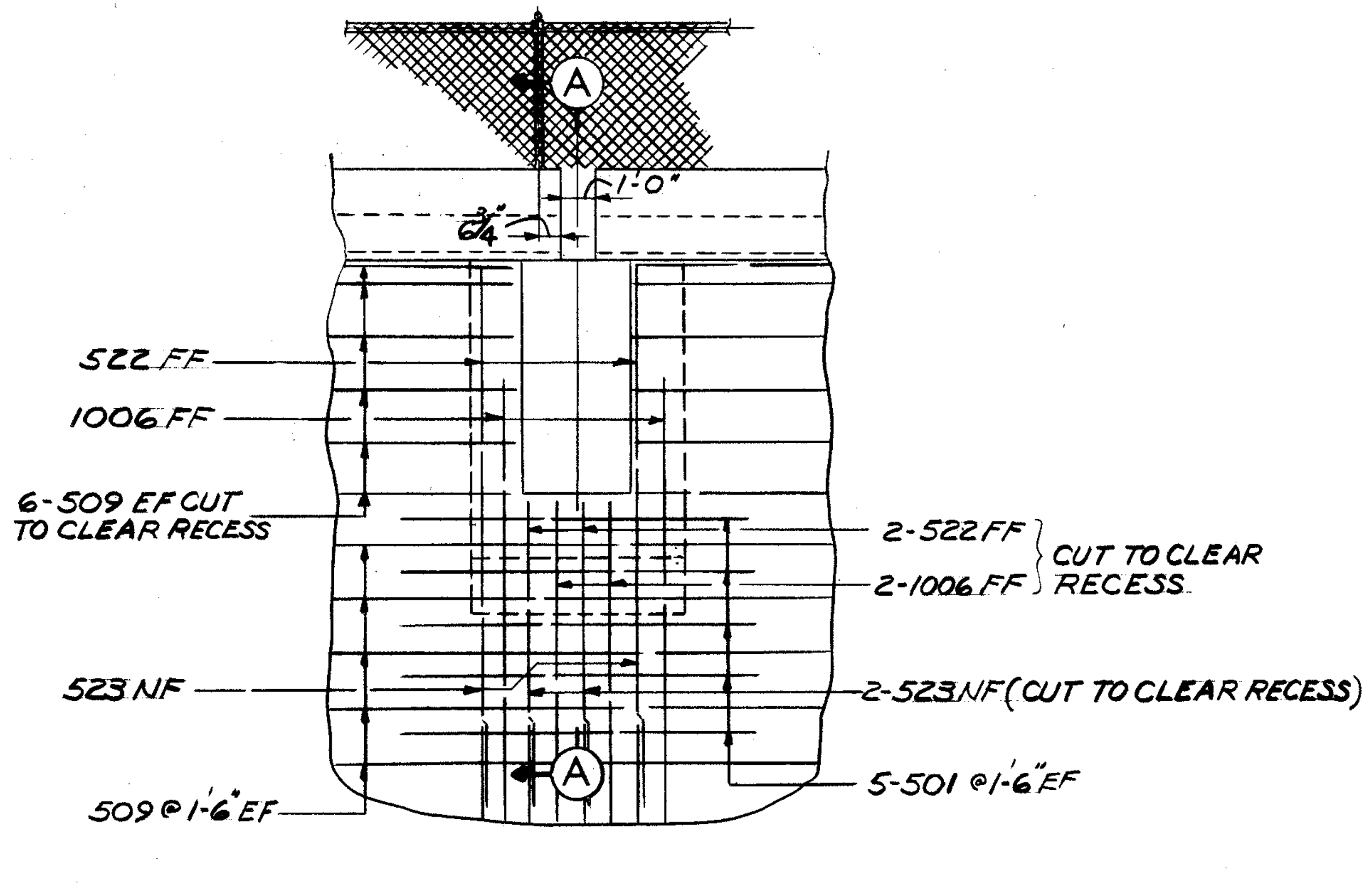
493
713

CUYAHOGA COUNTY
CUY-90-10.40

MARK	NO. REQ'D	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	INCRM.	WEIGHT LBS.
				RETAINING WALL RW-1					
1RW 501	315	10- 0	ST						3285
1RW 502	27	11- 7	12	7- 5	4- 3	3- 0			326
1RW 503	366	30- 0	ST						11452
1RW 504	38	28- 6	ST						1130
1RW 505	154	27-10	ST						4471
1RW 506	14	12- 8	ST						185
1RW 507	16	12-11	ST						216
1RW 508	16	27- 1	ST						452
1RW 509	926	31- 8	ST						30584
1RW 513	536	6- 2	22	3- 0	2- 5				3447
1RW 514	24	23- 2	ST						580
1RW 515	40	22-11	ST						956
1RW 516	31	29- 3	ST						946
1RW 517	186	27- 8	ST						5367
1RW 518	28	24- 4	ST						711
1RW 519	44	24- 1	ST						1105
1RW 520	66	13- 4	ST						918
1RW 521	66	25-10	ST						1778
1RW 522	176	15- 0	ST						2754
1RW 523	176	27- 4	ST						5018
1RW 524	154	15- 6	ST						2490
1RW 525	38	15- 9	ST						624
1RW 526	19	16- 5	ST						325
1RW 527	19	29- 1	ST						576
1RW 537	30	6- 5	ST						201
1RW 539	536	3- 6	ST						1957
1RW 540	53	28- 4	ST						1566
1RW 541	22	6- 9	ST						155
1RW 542	6	14- 6	4	2- 8	5- 8	2- 0			91
1RW 543	5	11- 6	17	1- 2	3-10	3- 6			60
1RW 544	3	8- 6	ST						27
SERIES	1-SET	7-11		1- 2	0- 5				
OF	OF 17=	TO	24	TO	TO	1- 6	2- 3	0- 3	253
1RW 601	17 BARS	11-11		2- 6	1- 9				
1RW 603	16	14- 4	19	4- 0	4- 7	4- 7	4- 0		344
1RW 606	536	4-11	19	0-10	0- 6	0-11	3- 2		3958
1RW 801	46	7- 8	ST						942
1RW 802	23	13- 1	ST						803
1RW 803	64	8- 1	ST						1381
1RW 804	32	14- 0	ST						1196
1RW 901	46	7-11	ST						1238
1RW 902	23	13- 1	ST						1023
1RW 903	64	8- 5	ST						1831
1RW 904	32	14- 0	ST						1523
1RW1001	586	8-10	ST						22274
1RW1002	294	14-11	ST						18871
1RW1003	885	9- 2	13	3- 2	6- 3	0- 5			34908
1RW1004	867	16-11	13	3- 2	14- 0	0-11			63111
1RW1005	453	15- 0	ST						29239
1RW1006	432	24- 6	ST						45543
1RW1007	6	13- 8	11	8- 3	2- 2	3- 6	1- 6		353
1RW1101	43	9- 8	13	3- 6	6- 5	0- 5			2208
1RW1102	43	17- 6	13	3- 6	14- 3	0-11			3998
1RW1103	22	19- 0	ST						2221
1RW1104	56	9- 9	13	3- 6	6- 6	0- 5			2901
1RW1105	54	18- 6	13	3- 6	15- 3	1- 0			5308
1RW1106	28	20- 4	ST						3025
1RW1107	16	12- 0	ST						1020
1RW1108	586	9- 0	ST						28021
1RW1109	294	14-11	ST						23300
1RW1110	8	11- 8	11	4- 0	3-11	4- 0	2- 6		496
1RW1111	16	13- 1	11	5- 5	3-11	4- 0	2- 6		1112
				TOTAL RETAINING WALL RW-1 =					386154
				RETAINING WALL RW-2					
2RW 501	294	10- 0	ST						3066
2RW 502	34	11- 7	12	7- 5	4- 3	3- 0			411
2RW 503	178	30- 0	ST						5570
2RW 505	192	27-10	ST						5574
2RW 506	16	12- 8	ST						211
2RW 507	16	12-11	ST						216
2RW 509	944	31- 8	ST						31179
2RW 510	14	16- 6	ST						241
2RW 511	16	25- 2	ST						420
2RW 512	16	30-10	ST						515
2RW 513	536	6- 2	22	3- 0	2- 5				3447
2RW 517	259	27- 8	ST						7474
2RW 519	12	25- 1	ST						314
2RW 520	66	13- 6	ST						929
2RW 522	19	14- 7	ST						289
2RW 524	132	15- 6	ST						2134
2RW 528	55	23-10	ST						1367
2RW 529	58	23- 7	ST						1427
2RW 530	132	28- 0	ST						3855
2RW 531	56	25- 2	ST						1470
2RW 532	88	24-11	ST						2287
2RW 533	66	26- 3	ST						1807
2RW 534	110	14-10	ST						1702
2RW 536	88	26-10	ST						2463
2RW 538	41	13-10	ST						592
2RW 539	536	3- 6	ST						1957
2RW 541	42	28- 6	ST						1248
2RW 542	101	7- 3	ST						764
SERIES	1-SET	7-11		1- 2	0- 5				
OF	OF 19=	TO	24	TO	TO	1- 6	2- 3	0- 3	290
2RW 602	19 BARS	12- 5		2- 8	1-11				
2RW 606	536	4-11	19	0-10	0- 6	0-11	3- 2		3958
2RW 801	93	7- 8	ST						1904
2RW 802	47	13- 1	ST						1642
2RW 803	128	8- 1	ST						2763
2RW 804	64	14- 0	ST						2392
2RW 901	93	7-11	ST						2503
2RW 902	47	13- 1	ST						2091
2RW 903	128	8- 5	ST						3663
2RW 904	64	14- 0	ST						3046
2RW1001	475	8-10	ST						18055
2RW1002	239	14-11	ST						15341
2RW1003	719	9- 2	13	3- 2	6- 3	0- 5			28360
2RW1004	704	16-11	13	3- 2	14- 0	0-11			51246
2RW1005	368	15- 0	ST						23753
2RW1006	353	24- 6	ST						37214
2RW1101	88	9- 8	13	3- 6	6- 5	0- 5			4520
2RW1102	87	17- 6	13	3- 6	14- 3	0-11			8089
2RW1103	45	19- 0	ST						4543
2RW1104	112	9- 9	13	3- 6	6- 6	0- 5			5802
2RW1105	108	18- 6	13	3- 6	15- 3	1- 0			10615
2RW1106	56	20- 4	ST						6050
2RW1108	475	9- 0	ST						22713
2RW1109	239	14-11	ST						18941
				TOTAL RETAINING WALL RW-2 =					362423
						GRAND TOTAL =			748,577



PLAN



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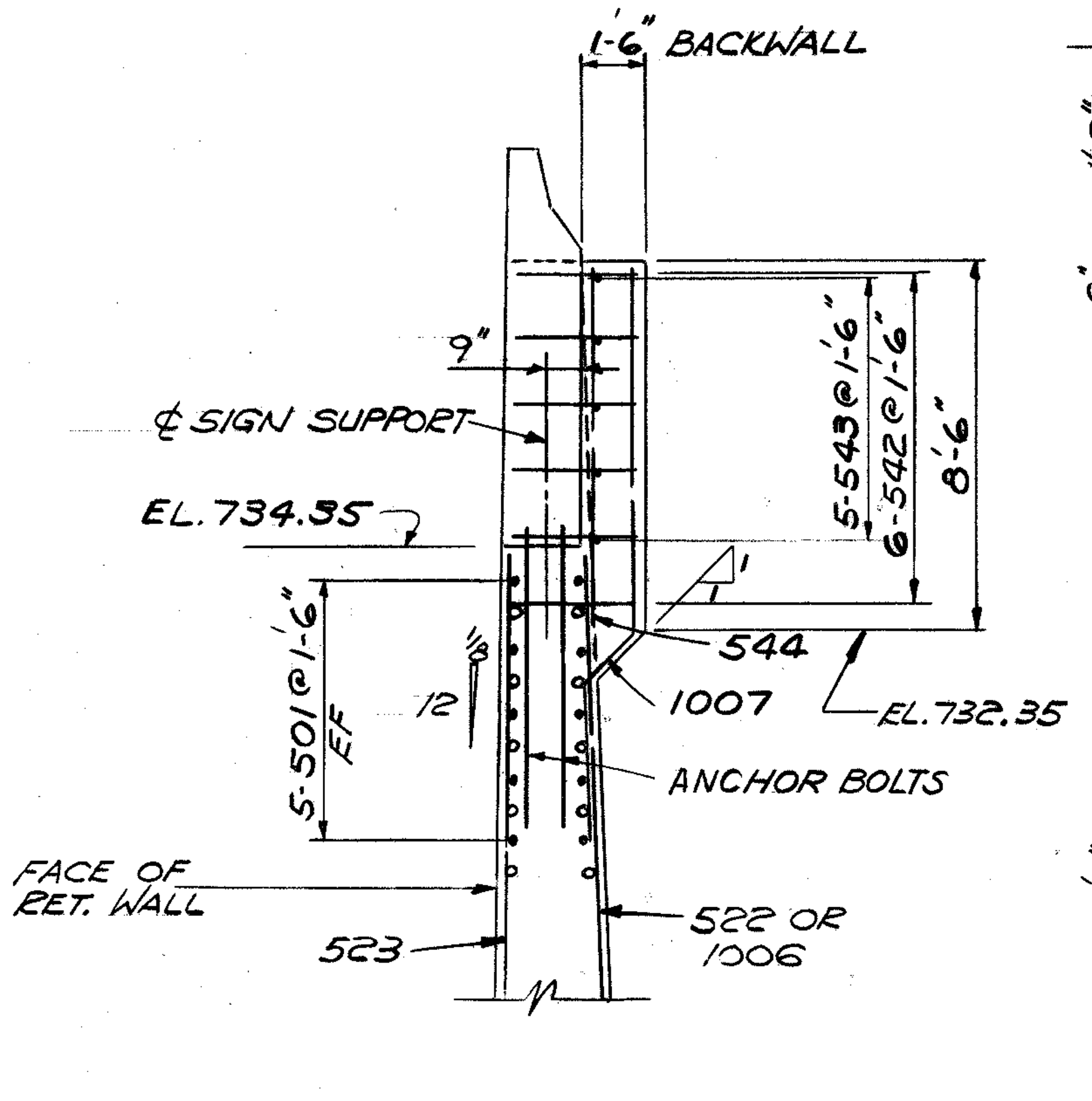
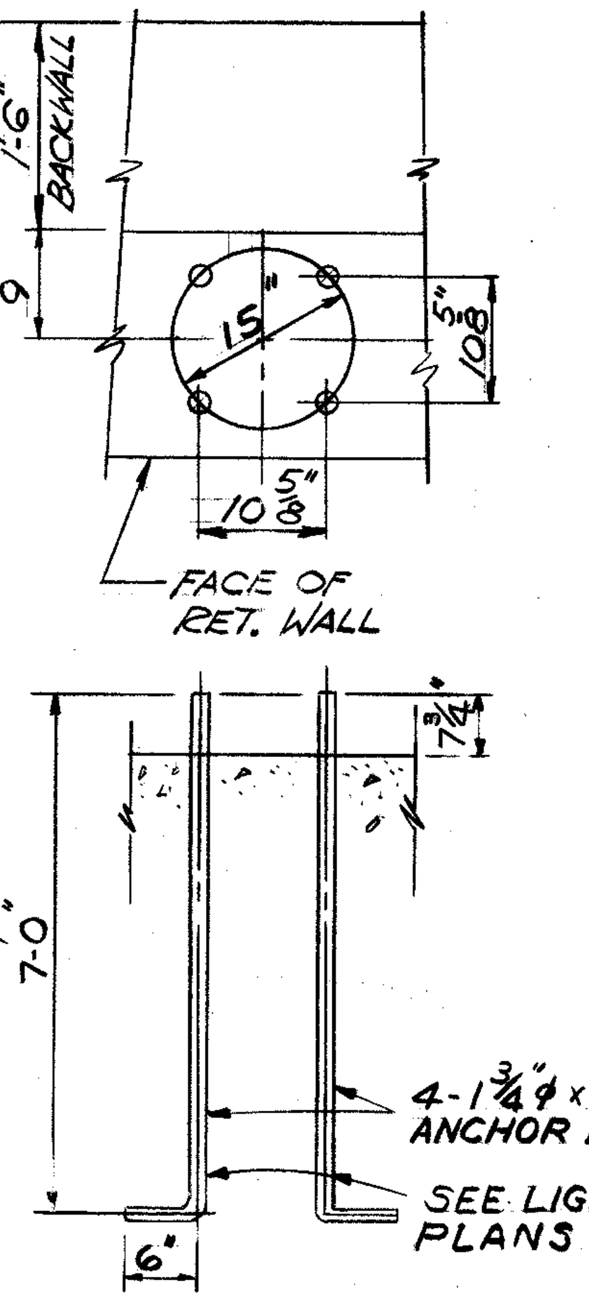
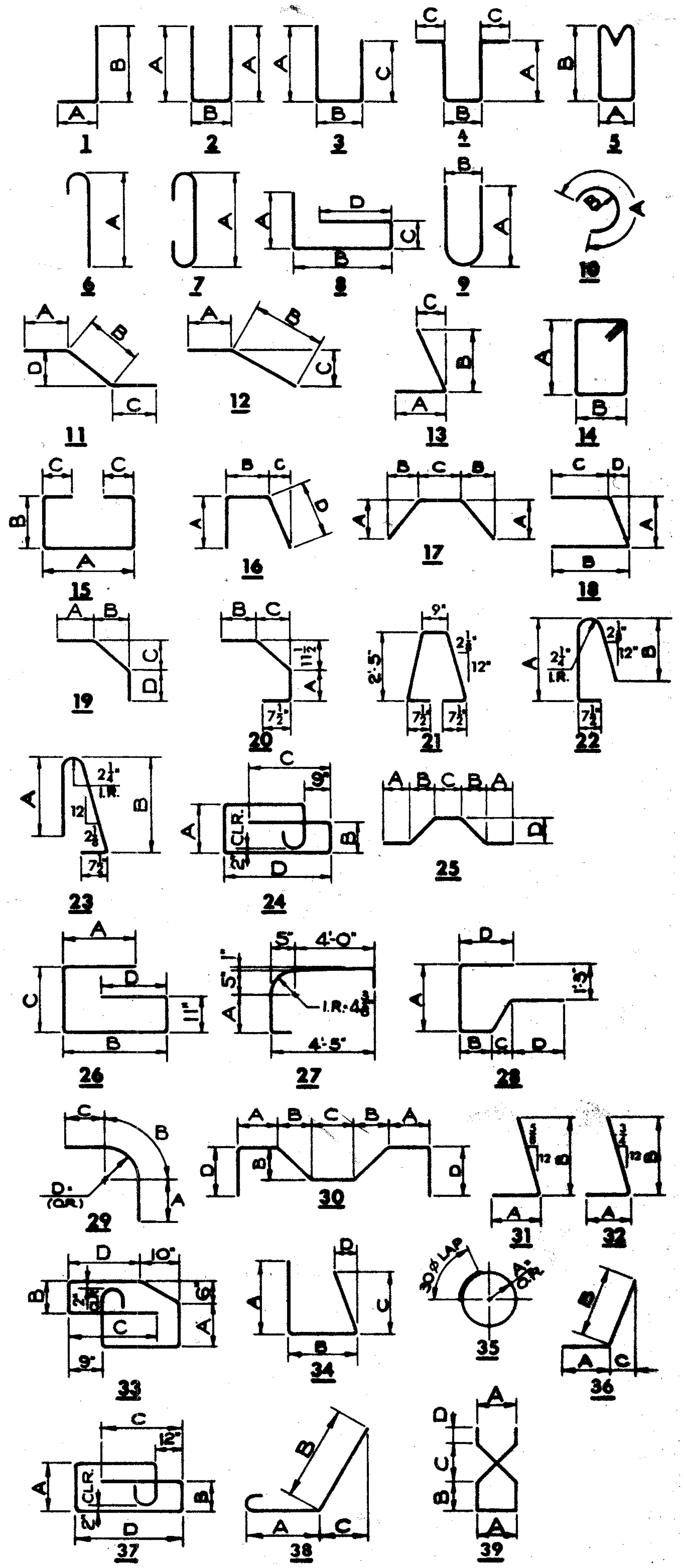


SECTION A-A



ANCHOR BOLT DETAILS



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

4 / 4

DALTON-DALTON ASSOCIATES

RETAINING WALL REINFORCING SCHEDULE

CUYAHOGA COUNTY

STA 750+73.05 TO STA 758+58.89 LEFT
STA 750+46.52 TO STA 758+24.08 RIGHT

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JFP	JWW		HGH JFP	RDW	2-23-70	

P-18

GENERAL LIGHTING NOTES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

494
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

LIGHTING PLAN INDEX

SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS S625 AND S713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

625.03 - GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS: THE CITY OF CLEVELAND DIVISION OF LIGHT AND POWER, 1825 LAKESIDE AVE. CLEVELAND, OHIO, 44114
THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP PERMISSIBLE ON BRANCH CIRCUITS. THE PROJECT WILL RECEIVE 480-VOLT TWO-WIRE SECONDARY SERVICE ONE SIDE GROUNDED FROM THE POWER SUPPLING AGENCY.

THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF CONTINUOUS LIGHTING WITH 1.2 FOOT CANDLE AVERAGE INITIAL, WITH A MAXIMUM UNIFORMITY RATIO OF 4.0 TO 1.

625.04 - 713.00 TEMPORARY LIGHTING, AS PER PLAN

THIS ITEM SHALL CONSIST OF MAINTAINING EXISTING LIGHTING OR PROVIDING TEMPORARY LIGHTING FOR ROADWAYS AS FURTHER DESCRIBED BELOW:

EXISTING LIGHTING ON ALL EXISTING ROADWAYS REMAINING OPEN TO TRAFFIC THROUGH THE PROJECT AREA SHALL BE MAINTAINED. SHOULD THE CONTRACTOR REQUIRE THE REMOVAL OF LIGHTING FROM AN EXISTING ROADWAY, THE CONTRACTOR SHALL THEN BE RESPONSIBLE FOR ADEQUATE TEMPORARY LIGHTING OF THAT PORTION OF THE EXISTING ROADWAY AFFECTED BY THE REMOVAL OF THE EXISTING LIGHTING.

ON TEMPORARY ROADWAYS; SEE M.E.L.P. PLANS.

ON PERMANENT NEW ROADWAYS OPENED TO TRAFFIC, EITHER THE PERMANENT NEW LIGHTING SHALL BE INSTALLED BEFORE OPENING, OR TEMPORARY LIGHTING PROVIDING AN AVERAGE INITIAL INTENSITY OF 1.2 FOOTCANDLES SHALL BE INSTALLED BEFORE OPENING.

UNDER BRIDGES WHEN UNDERPASS LIGHTING IS SPECIFIED, WHERE TRAFFIC IS MAINTAINED THROUGH THE UNDERPASS AND WHEN THE BRIDGE IS IN A STATE OF CONSTRUCTION THAT THE SLAB OR DECK IS FORMED OR CLOSED OFF OVERHEAD, THE UNDERPASS LIGHTING SHALL BE ENERGIZED TEMPORARILY OR FROM THE PERMANENT CIRCUITS. THIS SHALL BE PERFORMED WHITHIN THE SAME EIGHT HOUR PERIOD THAT THE UNDERPASS IS CLOSED OFF OVERHEAD.

WHEN TEMPORARY LIGHTING IS TO BE INSTALLED, AND A DETAILED LAYOUT IS NOT SHOWN IN THE PLANS, THE CONTRACTOR SHALL SUBMIT FOUR (4) SETS OF THE PROPOSED DETAILED PLANS TO THE ENGINEER FOR REVIEW AND APPROVAL. THESE PLANS SHALL SHOW LOCATION OF POLES, LENGHT OF BRACKET ARMS, TYPE AND SIZE OF LUMINAIRES AND LAMPS, MOUNTING HEIGHT, AND OTHER PERTINENT INFORMATION.
WOOD POLES WITH OVERHEAD WIRING MAY BE USED. ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED BY THE CONTRACTOR AND THE TEMPORARY LIGHTING INSTALLATIONS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR WHEN NO LONGER NEEDED.

RECONDITIONED OR APPROVED USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE A FOR STRENGTH REQUIREMENT AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. MOUNTING HEIGHT FOR TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 27 FEET AND MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET.

THE CITY OF CLEVELAND WILL PAY FOR ELECTRICAL ENERGY AND MAINTENANCE FOR UNDISTURBED LIGHTING ON EXISTING ROADWAYS AND FOR PERMANENT LIGHTING PLACED IN OPERATION. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL, AND MAINTENANCE OF ANY TEMPORARY LIGHTING REQUIRED.

THE LUMP SUM BID PRICE FOR 'ITEM 625 - TEMPORARY LIGHTING, AS PER PLAN' SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO PROVIDE THE TEMPORARY LIGHTING AS SPECIFIED.

PLAN SPECIFICATION REFERENCES

REFERENCES TO ITEM 625 AND 713 IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS S625 AND S713.
REFERENCES SHALL BE MADE TO THE STANDARD CONSTRUCTION DRAWINGS AS LISTED ON THE TITLE SHEET.

713·21 HIGH MAST LUMINAIRES

1000 WATT LUMINAIRES FOR HIGH MAST LIGHTING SHALL HAVE A SINGLE RATED 480 VOLT 1000 WATT INTEGRAL PEAK LOAD AUTOTRANSFORMER TYPE BALLAST AND SHALL CONFORM TO THE PHOTOMETRIC REQUIREMENTS FOR ASYMMETRIC DISTRIBUTIONS.

625·07 - 713·11 LUMINAIRES.

400-WATT LUMINAIRES SHALL HAVE DUAL RATED 240/480 VOLT INTEGRAL REGULATOR BALLASTS AND SHALL BE GENERAL ELECTRIC M400, WESTINGHOUSE OV-25, MCGRAW-EDISON 'UNISTYLE', OR EQUAL APPROVED BY THE ENGINEER.

1000-WATT LUMINAIRES SHALL HAVE SINGLE RATED 480-VOLT 1000-WATT INTEGRAL REGULATOR BALASTS AND SHALL BE GENERAL ELECTRIC M-1000, WESTINGHOUSE OV-50, MCGRAW-EDISON 'UNISTYLE', OR EQUAL APPROVED BY THE ENGINEER.

625.07 - 713.13 UNDERPASS LUMINAIRES

250-WATT UNDERPASS LUMINAIRES SHALL BE HOLOPHANE "UNDERPASS WALLPACK 600" OR EQUAL WESTINGHOUSE, MCGRAW-EDISON, OR GENERAL ELECTRIC UNDERPASS UNIT APPROVED BY THE ENGINEER, AND SHALL BE FURNISHED WITH AN INTEGRAL FUSE HOLDER AND 10-AMPERE FUSE. THE INTEGRAL BALLAST SHALL BE OF A REGULATOR TYPE RATED FOR 480 VOLTS.

PENDANT MOUNTED 250 - WATT LUMINAIRES FOR THE USE IN UNDERPASS LIGHTING SHALL BE I. E. S. TYPE I, HOLOPHANE "REFRACTOPACK 200", WESTINGHOUSE "ENCLOSED VISCOUNT-VB-15, OR APPROVED EQUAL, TOTALLY ENCLOSED, VERTICAL BURNING LAMP, LUMINAIRE.

625.08 - 713.14 LAMPS

MERCURY LAMPS SHALL BE GENERAL ELECTRIC 'BONUS LINE', WESTINGHOUSE 'LIFEGUARD', SYLVANIA 'ROUGH SERVICE', OR EQUAL APPROVED BY THE ENGINEER.

ESTIMATED QUANTITIES.

AN ESTIMATED QUANTITY OF " 420 LIN. FT. OF 605, 4-INCH SHALLOW PIPE UNDERDRAINS" IS PROVIDED IN THE LIGHTING GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER IN PROVIDING POSITIVE DRAINAGE FOR PULL BOXES IN FILL AREAS. IT IS INTENDED THAT ALL PULL BOXES IN THESE AREAS BE PROVIDED WITH SUCH DRAINAGE, PROVIDED THE LENGTH OF UNDERDRAIN NECESSARY TO OBTAIN A SATISFACTORY OUTFALL DOES NOT EXCEED 20 FEET APPROXIMATELY. A PERFORATED PVC PIPE OR CONDUIT MATERIAL APPROVED BY THE ENGINEER MAY BE USED IN THE CONSTRUCTION OF THIS ITEM.

625.12 - TRENCH

EXCAVATION MAY BE ACCOMPLISHED WITH MECHANICAL TRENCHING AND BORING EQUIPMENT EXCEPT THAT THE CONTRACTOR MAY NOT USE A TRENCHER THAT PRODUCES SUCH A LIFTING FORCE AS TO DESTROY THE EDGE OF SIDEWALK.

TRENCH 3' - 6" DEEP SHALL BE EMPLOYED AS SHOWN ON DRAWING NO. 522 WHERE COMMUNICATIONS CONDUIT IS INSTALLED WITH THE LIGHTING DISTRIBUTION CIRCUITS.

625 PLASTIC CAUTION TAPE

THE LOCATION OF UNDERGROUND DUCT CABLE AND CONDUIT INSTALLED SHALL BE MARKED BY THE USE OF A CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE LINE. THE IDENTIFYING TAPE SHALL BE AN INERT MATERIAL APPROX. 6" WIDE POLYETHYLENE PLASTIC, HIGHLY RESISTANT TO ALKALIS, ACID OR OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THE TAPE SHALL BE IN BRIGHT YELLOW FOR CONTRAST WITH THE SOIL, WITH IDENTIFYING PRINTING ("ELECTRIC") IN BLACK LETTERS, ONE SIDE ONLY. THE IDENTIFYING LETTERING SHALL BE REPEATED CONTINUOUSLY THE FULL LENGTHS OF THE TAPE. TAPES SHALL BE SUPPLIED IN CONTINUOUS ROLLS. IDENTIFYING TAPES SHALL BE BURIED IN THE ELECTRIC LINE TRENCH. TRENCHES SHALL REQUIRE ONE STRIP PLACED APPROXIMATELY DOWN THE CENTER LINE. THE TAPE SHALL BE LOCATED APPROXIMATELY 8" TO 12" BELOW THE FINAL FINISHED GRADE MINIMUM. THE TAPE SHALL BE PLACED IN THE TRENCH WITH PRINTED SIDE UP AND SHALL BE ESSENTIALLY PARALLEL WITH THE FINISHED SURFACE. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE TAPE IS NOT PULLED, DISTORTED, OR OTHERWISE MISPLACED IN COMPLETING THE TRENCH BACKFILL. (ALLEN SYSTEM-TERRA TAPE, TECTA TAPE OR APPROVED EQUAL). THE TAPE SHALL BE PAID FOR PER LIN. FT. OF "625 PLASTIC CAUTION TAPE", COMPLETE AND IN PLACE.

LAMPS

METAL HALIDE LAMPS SHALL BE GENERAL ELECTRIC "STANDARD LINE" OR EQUAL WESTINGHOUSE, SYLVANIA, OR OTHER APPROVED BY THE ENGINEER.

625.13 - 713.04 CONDUIT JACKED UNDER PAVEMENT, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING CONDUIT OF THE SIZE OR SIZES INDICATED UNDER EXISTING PAVEMENT AND CONTINUOUS SHOULDERS BY AN APPROVED METHOD SUCH AS 'DRILLING' OR 'JACKING'.

THE CONTRACTOR SHALL PLACE THE CONDUIT WITH THE LEAST AMOUNT OF DISTURBANCE TO THE EXISTING PAVEMENT, SUBBASE, BERM PAVEMENT, OR SHOULDERS OF THE ROADWAY. ALL PUSH PITS OR ANY NECESSARY EXCAVATIONS SHALL BE BACKFILLED AND RESTORED IN ACCORDANCE WITH 625.01.

MEASUREMENT OF THE CONDUIT SHALL BE THE ACTUAL AMOUNT OF LINEAL FEET INSTALLED UNDER PAVEMENT AND SHOULDERS, MEASURED IN PLACE, AS ACCEPTED BY THE ENGINEER. THE UNIT PRICE BID FOR ITEM 625 'CONDUIT JACKED UNDER PAVEMENT, AS PER PLAN' SHALL BE FULL COMPENSATION FOR EXCAVATION, DRILLING OR JACKING, BACKFILLING, COMPACTION, RESTORATION, AND ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

625.13 - 713.04 CONDUIT ON STRUCTURES

EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE OZ TYPE AX, CROUSE-HINDS TYPE XJ-4, APPLETON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER. EACH EXPANSION FITTING SHALL HAVE A COPPER EXTERNAL BONDING JUMPER.

625-713 POLYVINYL CHLORIDE PLASTIC CONDUIT

THIS SPECIFICATION COVERS POLYVINYL CHLORIDE CONDUIT FOR EITHER DIRECT BURIAL IN EARTH OR FOR ENCASEMENT IN CONCRETE AND SHALL BE OF THE SIZE AND TYPE SPECIFIED.

CONDUIT FURNISHED UNDER THIS SPECIFICATION SHALL COMPLY WITH ONE OF THE FOLLOWING:

FOR 3" COMMUNICATIONS CONDUIT

(A) CONDUIT CONFORMING TO NEMA STANDARDS PUBLICATION NO. TC1 WITH THE EXCEPTIONS THAT (1) CONDUIT AND CONDUIT FITTINGS COMPOSED OF STYRENE POLYMERS OR COPOLYMERS SHALL NOT BE ACCEPTABLE AND (2) THE PHYSICAL REQUIREMENTS, TC1-3.03 DEFLECTION TEMPERATURE, TC1-3.04 TENSILE PROPERTIES, AND THE TEST METHODS, TC1-4.05 DEFLECTION TEMPERATURES, TC1-4.06 TENSILE PROPERTIES, SHALL NOT BE REQUIRED.

(B) CONDUIT CONFORMING TO NEMA STANDARDS PUBLICATION NO. TC6 WITH THE EXCEPTION THAT CONDUIT AND CONDUIT FITTINGS COMPOSED OF ACRYLONITRILE-BUTADIENE-STYRENE (ABS) SHALL NOT BE ACCEPTABLE.

FOR 4" MEDIAN RACEWAY

(C) CONDUIT CONFORMING TO THE REQUIREMENTS OF (A), ABOVE, WITH THE ADDITIONAL EXCEPTIONS THAT WHERE 4 INCH NOMINAL SIZE CONDUIT IS TO BE ENCASED IN CONCRETE IT SHALL BE PERMISSIBLE TO USE CONDUIT HAVING A MINIMUM WALL THICKNESS OF 0.075 INCHES AND AN OUTSIDE DIAMETER NOT LESS THAN 4.202 INCHES NOR MORE THAN 4.360 INCHES INSTEAD OF THOSE DIMENSIONS SPECIFIED IN NEMA STANDARDS PUBLICATION NO. TC1.

FOR ANY GIVEN INSTALLATION THE MIXED USE OF THE CONDUITS DESCRIBED IN (A) AND (B) SHALL BE PROHIBITED.

WHEN THE CONDUIT DESCRIBED IN (C) IS USED IN A GIVEN INSTALLATION ALL SUCH CONDUIT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER.

GENERAL LIGHTING NOTES

GENERAL LIGHTING NOTES

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CONNECTOR KITS

AT THE OPTION OF THE CONTRACTOR, TYPE IX CABLE CONNECTIONS MAY BE SUBSTITUTED WHERE TYPE II OR III CABLE CONNECTIONS ARE SPECIFIED IN HAND HOLES OR TRANSFORMER BASES OF LIGHT POLES.

TYPE I THROUGH TYPE VII CABLE CONNECTIONS IN PULL BOXES, JUNCTION BOXES, AND OTHER ENCLOSURES BELOW GROUND MAY BE ACCOMPLISHED BY THE USE OF EITHER OF THE FOLLOWING:

1. A SLEEVE OR TEE CABLE CONNECTOR CONFORMING TO THE GENERAL REQUIREMENTS OF STYLE "S" OR "H", OR OTHER CONNECTING DEVICE APPROVED BY THE ENGINEER. THE CONNECTOR SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND THE CONNECTION SHALL BE SEALED AND WATERPROOFED WITH A HI-DIELECTRIC COMPOUND SUCH AS "AQUA SEAL" AS MANUFACTURED BY KEARNEY, OR EQUAL APPROVED BY THE ENGINEER. THE SEALING MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS TO MAKE A WATER-TIGHT CONNECTION. CONNECTIONS NOT ACCOMPLISHED IN-LINE OR IN TEE FORM SHALL BE ADDITIONALLY PROTECTED BY USE OF A HI-DIELECTRIC PVC, OR OTHER APPROVED MATERIAL, BOOT WITH AN APPROVED FASTENING DEVICE.
2. A PREASSEMBLED KIT, AS MANUFACTURED BY JOY OR BUSSMAN, OR APPROVED EQUAL, WITH A WATERPROOF OR WATER-TIGHT RATING ACCEPTABLE TO THE ENGINEER.

STANDARD CONSTRUCTION DRAWING HL-3.

POLE BASE DETAILS SHOWN ON THIS DRAWING ARE ESSENTIALLY FOR GALVANIZED STEEL POLES. FOR ALUMINUM DESIGNS, OR OTHER PERMITTED STEEL MATERIAL DESIGNS, VARIATIONS FROM THESE DETAILS WILL BE ACCEPTABLE, AS APPROVED BY THE ENGINEER.

STANDARD CONSTRUCTION DRAWING HL-15.

WEEPHOLE DIAMETERS OF 1/8 INCH SHOWN ON THIS DRAWING SHALL BE INCREASED TO 1/4 INCH.

625.18 - 713.19 CONTROL CENTER

THE FOLLOWING SPECIFICATION FOR THE CONTROL CENTERS ARE SUPPLEMENTARY TO SECTION 625.18 AND 713.19 INDICATING SPECIFIC ITEMS PERTAINING TO THIS PROJECT:

HEAVY-DUTY SAFETY SWITCH ("SERVICE SWITCH")

VOLTS	AMPS	SQUARE D	COLUMBUS ELEC. WORKS
600	30	W999FA221A	CEW101SS4630
600	60	W999FA231	CEW101SS4660
600	100	W999FA232	CEW101SS46100

LIGHTING CONTROLLER ("CONTACTOR")

VOLTS	AMPS	SQUARE D	COLUMBUS ELEC. WORKS
600	30	W939FA609A	CEW17SS4630
600	60	W939FA610A	CEW17SS4660
600	100	W939FA629A	CEW17SS56100

PHOTOELECTRIC CELL 713.20

PHOTOELECTRIC CELL AND MOUNTING HARDWARE SHALL BE TORK 2000 WITH MOUNTING HARDWARE, FISHER-PIERCE 6660 WITH MOUNTING HARDWARE, GENERAL ELECTRIC C402G200 WITH MOUNTING HARDWARE OR APPROVED EQUAL. SEE LIGHTING PLAN AND SHEET NO. 454 FOR LOCATIONS.

TRANSFORMER ENCLOSURES

TRANSFORMER ENCLOSURES SHALL BE, AT MINIMUM, THE SIZE AND DIMENSIONS AS SHOWN ON THE TRANSFORMER ENCLOSURE DETAIL. TRANSFORMER ENCLOSURES SHALL BE ON A CONCRETE PAD AS DETAILED ON SHEET NUMBER 523.

TRANSFORMER ENCLOSURES SHALL BE MCGRAW-EDISON, GENERAL ELECTRIC COMPANY OR APPROVED EQUAL AND WITH TRANSFORMER IN PLACE, SHALL BE OF "DEAD FRONT" CONSTRUCTION.

TRANSFORMERS

TRANSFORMERS FOR 480 VOLT SECONDARY, TWO-WIRE GROUNDED NEUTRAL SERVICE SHALL BE SINGLE PHASE OIL-FILLED TYPE AND SIMILAR TO THOSE AS SPECIFIED IN THE SUPPLEMENTAL SPECIFICATIONS FOR M.E.L.P. CUY-90-10.40.

SERVICE TO CONTROL CENTERS

THERE WILL BE NO SEPARATE PAYMENT FOR SERVICE TO CONTROL CENTERS UNDER THIS SECTION OF THE PLAN. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS COVERING WORK PERFORMED FOR THE DIVISION OF LIGHT AND POWER SEE M.E.L.P. SECTION OF THIS PLAN.

PAYMENT FOR ITEM 625 CONTROL CENTER WILL BE MADE UNDER A LUMP SUM PRICE. INCLUDED IS THE TRANSFORMER ENCLOSURE, IN PLACE, CONCRETE MOUNTING PAD WITH ANCHOR BOLTS, IN PLACE, ALL NECESSARY WIRING, CONDUIT, CONDUIT ELLS, GROUND RODS, PHOTOELECTRIC CONTROL, HEAVY DUTY SAFETY SWITCH, LIGHTING CONTROLLER, A SINGLE PHASE, TWO WIRE GROUNDED NEUTRAL SERVICE, OIL-FILLED TRANSFORMER AND ALL INCIDENTALS NECESSARY TO PROVIDE A COMPLETE SERVICE FOR THE CONTROL CENTER.

625 - SERVICE TO UNDERPASS LIGHTING, AS PER PLAN

THIS ITEM SHALL CONSIST OF PROVIDING COMPLETE ELECTRICAL SERVICE, EXCEPT FOR LUMINAIRES, LAMPS, AND STRUCTURE GROUNDING, FOR AN UNDERPASS LIGHTING SYSTEM ON BRIDGES AS PER PLAN . THE INSTALLATION WORK SHALL INCLUDE CONDUITS, CONDUIT GROUNDING, MOUNTINGS, FITTINGS, JUNCTION BOXES, CABLES, AND ALL INCIDENTALS NECESSARY TO COMPLETE, READY FOR USE, THE SERVICE AS DETAILED ON SHEET 519 . THE LUMP SUM PRICE BID FOR 'ITEM 625 - SERVICE TO UNDERPASS LIGHTING, AS PER PLAN' SHALL INCLUDE PAYMENT FOR ALL EQUIPMENT, LABOR, AND MATERIALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED. COMPONENT PARTS NOT SPECIFICALLY MENTIONED BUT REQUIRED FOR SATISFACTORY OPERATION OF THIS ITEM SHALL BE FURNISHED AND CONSIDERED PAID FOR AS PART OF THE ITEM.

625 - ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

THE PAY ITEMS IN THE LIGHTING GENERAL SUMMARY INCLUDE THE PULL BOX OR JUNCTION BOX ADJACENT TO EACH LIGHTED SIGN AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

839 - HIGH VOLTAGE DIRECT CURRENT TEST

A HIGH VOLTAGE DIRECT CURRENT TEST, AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 839, SHALL BE PERFORMED ON ALL DISTRIBUTION CABLE AND DUCT CABLE SYSTEMS TO BE INSTALLED ON THIS PROJECT. THE TEST SHALL NOT BE PERFORMED UNTIL AFTER ALL NEW CONSTRUCTION, SUCH AS GUARD RAIL, FENCE, DELINEATOR POSTS, SIGN SUPPORTS, ETC., IN THE IMMEDIATE VICINITY OF THE LOCATION OF THE CABLE RUN BEING TESTED, HAS BEEN COMPLETED.

SPECIFICATIONS - COMMUNICATION SUB-SYSTEM FOR EMERGENCY CALL-BOX INSTALLATION

THE GENERAL NOTES HERIN ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS.

EMERGENCY CALL/BOXES AND SUPPORTS

THE FURNISHING AND INSTALLATION OF CALL/BOXES, SUPPORTS, CABLING AND WIRING AS DESIGNATED IN THE PLAN IS BY OTHERS AND THEREFORE IS NOT A PART OF THIS CONTRACT.

EMERGENCY CALL/BOX FOUNDATIONS

IN ADDITION TO SECTION 625.06 THE CONTRACTOR SHALL FURNISH A 1 INCH PLYWOOD TEMPLATE AND ANCHOR BOLT ASSEMBLY AS DETAILED ON SHEET NO. 522 . THIS TEMPLATE AND ANCHOR BOLT ASSEMBLY SHALL REMAIN IN PLACE AND ONLY REMOVED WHEN THE CALL-BOX SUPPORT IS INSTALLED. THE CONTRACTOR, AS DIRECTED BY THE ENGINEER, MAY FURNISH A REINFORCED PRE-CAST FOUNDATION IN LIEU OF CAST-IN-PLACE.

PAYMENT FOR EMERGENCY CALL-BOX FOUNDATIONS SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH AND THIS PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND PLACE ALL CONDUITS, ELBOWS, ELECTRICAL METALLIC TUBING AND INCIDENTALS AS DETAILED IN THIS PLAN.

625.12 TRENCH

GENERALLY THE TRENCHING FOR THIS SUB-SYSTEM IS IN COMMON WITH LIGHTING OR TRAFFIC CONTROL ALTHOUGH THERE ARE AREAS WHERE TRENCHING IS REQUIRED FOR THE COMMUNICATION SUB-SYSTEM. THIS TRENCHING SHALL NOT EXCEED 12 INCHES IN WIDTH AND SHALL FOLLOW ALL OTHER REQUIREMENTS AS SPECIFIED IN SECTION 625.12 AND AS DIRECTED BY THE ENGINEER.

625 PLASTIC CAUTION TAPE

THE LOCATION OF UNDERGROUND COMMUNICATIONS CONDUIT INSTALLED SHALL BE MARKED BY THE USE OF A CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE LINE. THE IDENTIFYING TAPE SHALL BE AN INERT MATERIAL APPROX. 6" WIDE POLYETHYLENE PLASTIC, HIGHLY RESISTANT TO ALKALIS, ACID OR OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THE TAPE SHALL BE IN BRIGHT GREEN FOR CONTRAST WITH THE SOIL, WITH IDENTIFYING PRINTING (TELEPHONE) IN BLACK LETTERS, ONE SIDE ONLY. THE IDENTIFYING LETTERING SHALL BE REPEATED CONTINUOUSLY THE FULL LENGTHS OF THE TAPE. TAPES SHALL BE SUPPLIED IN CONTINUOUS ROLLS. IDENTIFYING TAPES SHALL BE BURIED IN THE ELECTRIC LINE TRENCH. TRENCHES SHALL REQUIRE ONE STRIP PLACED APPROXIMATELY DOWN THE CENTER LINE. THE TAPE SHALL BE LOCATED APPROXIMATELY 8" TO 12" BELOW THE FINAL FINISHED GRADE MINIMUM. THE TAPE SHALL BE PLACED IN THE TRENCH WITH PRINTED SIDE UP AND SHALL BE ESSENTIALLY PARALLEL WITH THE FINISHED SURFACE. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE TAPE IS NOT PULLED, DISTORTED, OR OTHERWISE MISPLACED IN COMPLETING THE TRENCH BACKFILL. (ALLEN SYSTEM-TERRA TAPE, TECTA TAPE OR APPROVED EQUAL). THE TAPE SHALL BE PAID FOR PER LIN. FT. OF "625 PLASTIC CAUTION TAPE".COMPLETE AND IN PLACE.

POLYVINYL CHLORIDE PLASTIC CONDUIT.

THIS SPECIFICATION IS LISTED ON SHEET NO. 494 OF THIS PLAN. 3 INCH POLYVINYL CHLORIDE PLASTIC CONDUIT PVC SHALL BE USED FOR ALL OTHER RUNS AS PER PLAN.

LEGEND

○•○	2-1000W. METAL HALIDE SYMMETRIC LUMINAIRES 80' MOUNTING HEIGHT
⧗	2-1000W. METAL HALIDE ASYMMETRIC LUMINAIRES 80' MOUNTING HEIGHT
■—●	LIGHT POLE AND LUMINAIRE, 1000W. MERCURY VAPOR TYPE III, 51.7' MOUNTING HEIGHT
■—○	LIGHT POLE AND LUMINAIRE, 400W. MERCURY VAPOR TYPE III, 36.7' MOUNTING HEIGHT
■—⬬	LIGHT POLE AND LUMINAIRE, 400W. MERCURY VAPOR TYPE II, 36.7' MOUNTING HEIGHT
⊠	CALL-BOX FOUNDATION
◗ ♦	UNDERPASS LUMINAIRE, 250W. 15' MOUNTING HEIGHT
1-1/4" — — — — 2" —·—·— 3" ⁃⁃⁃⁃⁃	713.04 CONDUIT FOR LIGHTING
3" ⁃⁃⁃⁃⁃	713.04 CONDUIT FOR COMMUNICATIONS
— — — —	POLYV~~INYL~~ CHLORIDE PLASTIC CONDUIT
·········	UNIT TYPE DUCT-CABLE SYSTEM
□	SINGLE PULL BOX
◫	DOUBLE PULL BOX
■	JUNCTION BOX
▲	CONTROL CENTER
■═■ ■—	OVERHEAD SIGN SUPPORTS
⫽⫽⫽⫽	PROPOSED M.E.L.P. UNDERGROUND DUCTS

LIGHT POLE PLAN DESIGNATION

24+90/11'
(F) 17BE16 P.C.
D"

STATION / OFFSET (FROM EDGE OF PAVEMENT)
(F) = POLE REFERENCE LETTER
17 = CIRCUIT NUMBER
BE = CONTROL CENTER ID
16 = POLE NUMBER WITHIN CIRCUIT
D = FOUNDATION DEPTH FOR HIGH MAST
P.C. = POLE TOP MOUNTED PHOTOELECTRIC CELL FOR CONTROL CENTERS.

LIGHT POLE DATA CUY - 90 - 10.40

REFERENCE LETTER	DESIGN NUMBER	POLE SHAFT BASE DIAMETER	FOUNDATION ANCHOR BOLTS	TRANSFORMER BASE STYLE
B	A 3BB 80 D	15.18"	2" X 90" 22.0" BC.	
C	AT 15B 51.7	10 "	11/4" 48" 17.25"BC	AT-C
E	AT 10B 41.7	9 "	1" X 40" 17.25"BC	AT-C
F	AT 12B 36.7	8.5"	1" X 40" 15.0"BC	AT-A
G	AT 10B 36.7	8.5"	1" X 40" 15.0"BC	AT-A

GENERAL LIGHTING NOTES

QUANTITY SUMMARY

LIGHTING & COMMUNICATIONS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

REVISED BY JM DATE 12/4/73
CHECKED BY ER DATE 12/14/73

CALCULATED BY ER DATE 2/23/72
CHECKED BY JM DATE 3/29/72

I-90-1(50)19

TYPE CODE 7223

LINE NO.	ITEM	STRUCTURE NO. CUY-90-						ROADWAY SHEET NO.										SUB-TOTAL CITY STATE FEDERAL	PROJECT GRAND TOTAL	ITEM	UNIT	DESCRIPTION	LINE NO.
		1057	1089	1109	1127	1146	1152	494	505	506	507	508	509	510	511	504							
1	G25								2	3	2	7	6	3	6			29	29	SG25	EACH	LIGHT POLE DESIGN,"HIGH MAST", A 3BB 80 D"B",	1
2	G25											1	1					2	2	SG25	EACH	LIGHT POLE DESIGN AT 15B 51.7 "C"	2
3	G25								4	15	19	4	3	13	14			72	72	SG25	EACH	LIGHT POLE DESIGN, AT 12B 36.7 "F"	3
4	G25										4	1			6			11	11	SG25	EACH	LIGHT POLE DESIGN, AT 10B 36.7 "G"	4
5																							5
6																							6
7																							7
8	G25									4	5	1		11	5			26	26	SG25	EACH	LIGHT POLE BRACKET ARM 12 FT.	8
9	G25									1				1	1			3	3	SG25	EACH	LIGHT POLE BRACKET ARM 10 FT.	9
10																							10
11	G25												1	3	3			7	7	SG25	EACH	LIGHT POLE FOUNDATION, HIGH MAST, 30" BARRIER MEDIAN, D= 24'	11
12									1	1		5	5		3			15	15	SG25	EACH	LIGHT POLE FOUNDATION, HIGH MAST, 30" BARRIER MEDIAN, D= 19'	12
13	G25								1	2	2							5	5	SG25	EACH	LIGHT POLE FOUNDATION, HIGH MAST, 30" BARRIER MEDIAN, D=9'-6"	13
14	G25											1	1					2	2	SG25	EACH	LIGHT POLE FOUNDATION, 24" x 10' MIN. DEPTH	14
15	G25								4	15	23	5	3	13	20			83	83	SG25	EACH	LIGHT POLE FOUNDATION, 24" x 6' MIN. DEPTH	15
16	G25															20		20	20	SG25	EACH	CALL BOX FOUNDATION, AS PER PLAN	16
17	G25															3		3	3	SG25	EACH	CALL BOX FOUNDATION, BARRIER MEDIAN SECTION, AS PER PLAN	17
18																							18
19	G25								4	6	4	14	12	6	12			58	58	SG25	EACH	LUMINAIRE, HIGH MAST 1000W. TYPE III,	19
20	G25											1	1					2	2	SG25	EACH	LUMINAIRE, 1000W. TYPE III M.C., S713.11	20
21	G25									13	24			16	16			69	69	SG25	EACH	LUMINAIRE, 400W. TYPE III M.C., S713.11	21
22	G25								4	6	5	6	3	8	10			42	42	SG25	EACH	LUMINAIRE, 400W. TYPE II M.C., S713.11	22
23																							23
24	G25	4																4	4	SG25	EACH	LUMINAIRE, 250W. TYPE I. N.C., 713.11	24
25	G25	8			16	8	16											48	48	SG25	EACH	LUMINAIRE, 250W. WALL MOUNTED, ASYMMETRIC UNDERPASS UNIT, S713.13	25
26																							26
27	G25								4	6	4	14	12	6	12			58	58	SG25	EACH	LAMP, 1000W. METAL HALIDE	27
28	G25											1	1					2	2	SG25	EACH	LAMP, 1000W S713.14 *MERCURY*	28
29	G25				42	28	39		4	19	29	6	3	24	26			220	220	SG25	EACH	LAMP, 400W S713.14 *MERCURY*	29
30	G25	12			16	8	16											52	52	SG25	EACH	LAMP, 250W, S713.14 *MERCURY*	30
31																							31
32	G25							*Lump*										LUMP	LUMP	SG25	LUMP	TEMPORARY LIGHTING, AS PER PLAN	32
33																							33
34	G25								6	18	25	13	10	16	26	23		137	137	SG25	EACH	GROUND ROD, S713.16	34
35																							35
36	G25								1	11	24	7	4	33	53	5		138	138	SG25	EACH	"SINGLE PULL BOX", AS PER PLAN	36
37	G25										7			4	3	73		87	87	SG25	EACH	"DOUBLE PULL BOX", AS PER PLAN	37
38	625										1	2	2	4	2			11	11	S625	EACH	**SPECIAL MEDIAN BARRIER PULL BOX, AS PER PLAN**	38
39	G25									617	1702	255	285		454			3313	3313	SG25	LIN.FT.	TRENCH, 12" MAX. WIDTH x 3'-6" MIN. DEPTH	39
40	G25								725	2378	3740	1295	765	5239	4869	7793		26804	26804	SG25	LIN.FT.	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	40
41	G25								725	2995	5442	1550	1050	5239	5323			22324	22324	SG25	LIN.FT.	YELLOW PLASTIC CAUTION TAPE "ELECTRICAL" AS PER PLAN	41
42	G25															7793		7793	7793	SG25	LIN.FT.	GREEN PLASTIC CAUTION TAPE "COMMUNICATIONS" AS PER PLAN	42
43																							43
44	G25										100	55		120	90			365	365	SG25	LIN.FT.	CONCRETE ENCASED 3", S713.04 CONDUIT	44
45	G25	580	255	260	440	450	430			318	2088		75	2951	1567			9414	9414	SG25	LIN.FT.	CONDUIT, 3" S713.04	45
46	G25	540	245	245	694	218	359						90					2391	2391	SG25	LIN.FT.	CONDUIT, 2" S713.04	46
47	G25															6385		6385	6385	SG25	LIN.FT.	CONDUIT, 3" POLYVINYL CHLORIDE TYPE II, AS PER PLAN	47
48	625															3		3	3	SG25	EACH	WEATHER HEAD FOR 3" S713.04 CONDUIT	48
49	G25	1109					352		1340	2054	9188	6300	5042	10408	8168			43961	43961	SG25	LIN.FT.	#4AWG 600 VOLT DISTRIBUTION CABLE	49
50	G25								392	1944	2788	714	428	2416	2402			11084	11084	SG25	LIN.FT.	#10AWG POLE AND BRACKET CABLE	50
51	G25								765	2837	5039	1565	915	2807	5108			19036	19036	SG25	LIN.FT.	1 1/2 IN. DUCT-CABLE, W/2 #4AWG, 600V. *CABLES*	51
52									712														52
53																							53
54																							54
55	G25								2	8	62	2	4	28	58			164	164	SG25	EACH	CONNECTOR KIT, TYPE I S713.15, AS PER PLAN	55
56	G25								4	17	24	6	4	21	26			102	102	SG25	EACH	CONNECTOR KIT, TYPE II S713.15, AS PER PLAN	56
57	G25								4	17	24	6	4	21	26			102	102	SG25	EACH	CONNECTOR KIT, TYPE III S713.15, AS PER PLAN	57
58	G25	12								12	20	14	2	40	48			148	148	SG25	EACH	CONNECTOR KIT, TYPE VII B S713.15, AS PER PLAN	58
59	G25									4				8	8			20	20	SG25	EACH	CONNECTOR KIT, TYPE VII C S713.15, AS PER PLAN	59
60	G25										LUMP							LUMP	LUMP	SG25	LUMP	CONTROL CENTER "BE" (BELMONT & W.117TH ST.)	60
61																							61
62	G25													LUMP				LUMP	LUMP	SG25	LUMP	CONTROL CENTER "MA" (N. MARGINAL RD. #4)	62
63																							63
64	G25														LUMP			LUMP	LUMP	SG25	LUMP	CONTROL CENTER "AL" (W.58 TH ST. & S. MARGINAL RD. #5)	64
65																							65
66	G25	1																1	1	SG25	EACH	STRUCTURE GROUND, *BRIDGE No.* CUY-90-1057	66
67	G25		1															1	1	SG25	EACH	STRUCTURE GROUND, *BRIDGE No.* CUY-90-1089	67
68	G25			1														1	1	SG25	EACH	STRUCTURE GROUND, *BRIDGE No.* CUY-90-1105	68
69	G25				1													1	1	SG25	EACH	STRUCTURE GROUND, *BRIDGE NO.* CUY-90-1127	69
70	G25					1												1	1	SG25	EACH	STRUCTURE GROUND, *BRIDGE No.* CUY-90-1146	70
71	G25						1											1	1	SG25	EACH	STRUCTURE GROUND, *BRIDGE No.* CUY-90-1152	71
72																							72
73	G25	6	1		3	2	3						1	3	3	4		26	26	SG25	EACH	JUNCTION BOX, 18"x8"x6", S713.10	73
74																							74
75	G25	LUMP																LUMP	LUMP	SG25	LUMP	SERVICE TO UNDERPASS LIGHTING, *BRIDGE No.* CUY-90-1057 AS PER PLAN	75
76	G25				LUMP													LUMP	LUMP	SG25	LUMP	SERVICE TO UNDERPASS LIGHTING, *BRIDGE No.* CUY-90-1127 AS PER PLAN	76
77	G25					LUMP												LUMP	LUMP	SG25	LUMP	SERVICE TO UNDERPASS LIGHTING, *BRIDGE No.* CUY-90-1146 AS PER PLAN	77
78	G25						LUMP											LUMP	LUMP	SG25	LUMP	SERVICE TO UNDERPASS LIGHTING, *BRIDGE No.* CUY-90-1152 AS PER PLAN	78
79																							79
80	G05							*420*										*420*	*420*	*605*	*Lin.Ft.*	*4 INCH SHALLOW PIPE UNDERDRAIN*	80
81																							81
82	839	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP		LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP			LUMP	LUMP	839	LUMP	HIGH VOLTAGE TEST	82
83																							83
84	625																	1	1	S625	EACH	PORTABLE POWER UNIT	84

LIGHTING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

REVISED BY DATE 12/4/73 CALCULATED BY DATE 2/23/72
CHECKED BY DATE 12/14/73 CHECKED BY DATE 3/29/72

CUYAHOGA COUNTY
CUY - 90 -10.40

LINE NUMBER	STATION	STATION	SIDE	LIGHT POLE-DESIGN HIGH MAST, 80' M.H."B"	LIGHT POLE-DESIGN AT 15B 51.7'"C"	LIGHT POLE-DESIGN AT 12B 36.7'"F"	LIGHT POLE-DESIGN AT 10B 36.7'"G"	BRACKET ARM 12 FT.	BRACKET ARM 10 FT.	HIGH MAST FOUNDATION D = 19'-0"	HIGH MAST FOUNDATION D = 9'-6"	LIGHT POLE FOUNDATION 24"x10' MIN. DEPTH	LIGHT POLE FOUNDATION 24"x6' MIN. DEPTH	HIGH MAST LUMINAIRE 1000W. I.E.S. TYPE III	LUMINAIRE 1000W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE II M.C.	LAMP 1000W. METAL HALIDE	LAMP 1000W. H.36-15GV	LAMP 400W. H.33-1CD	GLARE SHIELD	GROUND ROD	BARRIER MEDIAN PULL BOX	"SINGLE PULL BOX" AS PER PLAN	"DOUBLE PULL BOX" AS PER PLAN	TRENCH, 12" MAX. WIDTH x 36" MIN. DEPTH	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	CONCRETE ENCASED 3", 713.04 CONDUIT	YELLOW PLASTIC CAUTION TAPE	3", 713.04 CONDUIT	2" 713.04 CONDUIT	#4 AWG 600 VOLT DISTRIBUTION CABLE	#10 AWG 600 VOLT POLE & BRACKET CABLE	713.02 UNIT TYPE DUCT-CABLE W/2-#4 AWG	713.15 CONNECTOR KITS TYPE I	713.15 CONNECTOR KITS TYPE II	713.15 CONNECTOR KITS TYPE III	713.15 CONNECTOR KITS TYPE VII B	713.15 CONNECTOR KITS TYPE VIII C	CONTROL CENTER	18"x8"x6" JUNCTION BOX	713.20 30 AMP FUSED DISCONNECT TYPE "H"
	FROM	TO	UNIT	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	LUMP	EA.	EA.
85	STATIONING REFERENCED TO ℄ I-90																																									
86																																										
87	721+40	725+95	LT.	1							1			2				2				1																				1
88	725+95	728+00	LT.	MATCH LINE																												420										
89																																										
90	721+40	723+45	RT.	1						1				2				2				1																				1
91	723+45	728+00	RT.	MATCH LINE																												920										
92																																										
93	STATIONING REFERENCED TO B/L RAMP "5"																																									
94																																										
95		27+45	LT.			1							1				1			1		1											98			1	1					
96	27+45	28+50	LT.	MATCH LINE																							105		105					110								
97																																										
98	STATIONING REFERENCED TO B/L RAMP "8"																																									
99																																										
100		22+80	RT.	(SIGN SERVICE № 34)																				1											2							
101	22+80	24+90	RT.			1							1				1			1		1					210		210				98	220		1	1					
102	24+90	26+60	RT.			1							1				1			1		1					170		170				98	180		1	1					
103	26+60	28+30	RT.			1							1				1			1		1					170		170				98	180		1	1					
104	28+30	29+00	RT.	MATCH LINE																							70		70					75								
105																																										
106	ROADWAY SUB-TOTAL SH.#505			2		4				1	1		4	4			4	4		4		6		1			725		725			1340	392	765	2	4	4					2
107																																										
108	STATIONING REFERENCED TO ℄ I-90																																									
109																																										
110	728+00	728+31.25	RT.	1							1			2				2				1										72										1
111	728+31.25	732+45	RT.	1							1			2				2				1										848										1
112		732+45	RT./LT.	MATCH LINE																							24		24	24		58										
113	732+45	732+90	RT.	(SIGN SERVICE № 40)																			1									110			2							1
114	MATCH LINE	736+31.25	RT.	1							1			2				2				1					24		24	24		58										1
115	736+31.25	737+00	RT.	MATCH LINE																												148										
116	STATIONING REFERENCED TO B/L RAMP "7"																																									
117																																										
118	45+60 W.117	24+00	RT.			1							1			1				1		1					110		110				98	120		1	1					
119	24+00	25+20	RT.			1							1			1				1		1					120		120				98	130		1	1					
120	25+20	26+40	RT.			1							1			1				1		1					120		120				98	130		1	1					
121	26+40	27+00	RT.																					1			60		60					70				2				
122	27+00	27+60	RT.			1							1				1			1		1					60		60				98	70		1	1					
123	27+60	28+80	RT.			1							1				1			1		1					120		120				98	130		1	1					
124	28+80	30+00	RT.			1							1				1			1		1					120		120				98	130		1	1					
125	30+00	30+10	RT.																					1			10		10					20				2				
126																																										
127	STATIONING REFERENCED TO B/L RAMP "8"																																									
128																																										
129	29+00	30+00	RT.			1							1			1				1		1					100		100				98	105		1	1					
130	30+00	27+00 #7	RT./LT.																								70		70			160										
131		33+00	RT.			1							1			1				1		1											98			1	1					
132	33+00	43+25 W.117	LT.																								45		45					55								
133																																										
134	STATIONING REFERENCED TO B/L RAMP "9"																																									
135	42+60 W.117	31+70	RT.			1							1				1			1		1					100		100				98	110		1	1					
136	31+70	31+80	RT.																					1			10		10					20				2				
137	31+80	33+60	RT.			1							1				1			1		1					180		180				98	190		1	1					
138	33+60	35+70	RT.			1							1				1			1		1					210		210				98	220		1	1					
139	35+70	36+50	RT.	MATCH LINE																							170		170				98	175		1	1					
140	STATIONING REFERENCED TO ℄ W.117TH ST.																																									
141																																										
142		41+63	LT.			1							1			1				1		1											98			1	1					
143	41+63	43+25	LT.																					1		162			162					172					2			
144	43+25	44+05	LT.																					1		80			80	80		180						2				
145	44+05	43+95	LT.					1								1				1							10		10				94	20		1	1					
146	44+05	45+60	LT.																					1		155			155	155		330							2			
147	45+60	45+70	LT.					1								1				1							10		10				94	20								
148	45+60	47+30	LT.			1							1			1				1		1				170			170				98	180		1	1					
149	47+30	47+80	LT.																					1		50			50					60	2							
* 150	47+80	48+43	LT.																								10		10		63	146						2			1	
* 151	48+43	49+22	LT.	MATCH LINE																											79	168										
152		40+50	RT.			1							1			1				1		1											98			1	1					
153	40+50	42+60	RT.																					1			210		210					220				2				
154	42+50	42+60	RT.					1								1				1							10		10				94	20								
155																																										
156	31+80 #9	43+75	XING																					1			35		35	35		90			2							
157	43+75	44+82	RT.			1							1			1				1		1					107		107				98	117		1	1					
158	44+82	46+60	RT.																					1			178		178					188				2				
159	46+60	46+50	RT.					1								1				1							10		10				94	20								

* STRUCTURE # CUY-90-1057

LIGHTING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

REVISED BY JM DATE 12/4/73 CALCULATED BY ER DATE 2/23/72
CHECKED BY ER DATE 12/14/73 CHECKED BY JM DATE 3/29/72

CUYAHOGA COUNTY
CUY - 90 -10.40

LINE NUMBER	STATION	STATION	SIDE	LIGHT POLE-DESIGN HIGH MAST, 80' M.H."B"	LIGHT POLE-DESIGN AT 15B 51.7'"C"	LIGHT POLE-DESIGN AT 12B 36.7'"F"	LIGHT POLE-DESIGN AT 10B 36.7'"G"	BRACKET ARM 12 FT.	BRACKET ARM 10 FT.	HIGH MAST FOUNDATION D=19'-0"	HIGH MAST FOUNDATION D=9'-6"	LIGHT POLE FOUNDATION 24"x10' MIN. DEPTH	LIGHT POLE FOUNDATION 24"x6' MIN. DEPTH	HIGH MAST LUMINAIRE 1000W. I.E.S. TYPE III	LUMINAIRE 1000W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE II M.C.	LAMP 1000W. METAL HALIDE	LAMP 1000W. H.36-15GV	LAMP 400W. H.33-1CD	GLARE SHIELD	GROUND ROD	BARRIER MEDIAN PULL BOX	"SINGLE PULL BOX" AS PER PLAN	"DOUBLE PULL BOX" AS PER PLAN	TRENCH, 12" MAX. WIDTH x 36" MIN. DEPTH	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	CONCRETE ENCASED 3" 713.04 CONDUIT	YELLOW PLASTIC CAUTION TAPE	3" 713.04 CONDUIT	2" 713.04 CONDUIT	#4 AWG 600 VOLT DISTRIBUTION CABLE	#10 AWG 600 VOLT POLE & BRACKET CABLE	713.02 UNIT TYPE DUCT-CABLE W/2 #4 AWG	713.15 CONNECTOR KITS TYPE I	713.15 CONNECTOR KITS TYPE II	713.15 CONNECTOR KITS TYPE III	713.15 CONNECTOR KITS TYPE VII B	713.15 CONNECTOR KITS TYPE VII C	CONTROL CENTER	18"x8"x6" JUNCTION BOX	713.20 30 AMP FUSED DISCONNECT TYPE 'X'
	FROM	TO	UNIT	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	LUMP	EA.	EA.
160	STATIONING REFERENCED TO W.117TH ST. (CON'T.)																																									
161																																										
162	46+60	47+95	RT.																					1			135		135					145	2							
* 163	47+95	48+13	RT.																								10		10		18	56						2			1	
* 164	48+13	49+07	RT.																												94	208						2			1	
* 165	49+07	49+27	RT.	MATCH LINE																											15	40										
166																																										
* 167	STRUCTURE SUB-TOTAL																														269	618						6			3	
168	ROADWAY SUB-TOTAL SH.#506			3		15		4		1	2		15	6		13	6	6		19		18		11		617	2378		2378	318		2054	1944	2837	8	17	17	12	4			3
169																																										
170	STATIONING REFERENCED TO ℄ I-90																																									
171																																										
172	728+00	730+40	LT.	1							1			2				2				1										490										1
173	730+40	730+40	XING																					1			90		90	90		200			2							
174	MATCH LINE	732+45	XING																					1			120		120	120		250			2							
175	733+98	734+45	LT.	1							1			2				2				1	1									114			2							1
176	734+45	734+45	XING																					1			125		125	125		270			4							
177	734+45	737+00	LT.	MATCH LINE																												520										
178	736+31.25	36+40#11	XING																					1			150		150	150		310			2							
179	734+45	36+40#11	LT.																								180		180					190								
180	STATIONING REFERENCED TO ℄ RAMP "5"																																									
181																																										
182	28+50	29+35	LT.			1							1				1			1		1					85		85				98	90		1	1					
183	29+35	29+80	LT.																					1			45		45					55				2				
184	29+80	31+25	LT.			1							1				1			1		1				145			145				98	155		1	1					
185	31+25	33+10	LT.			1							1				1			1		1				185			185				98	195		1	1					
186	33+10	53+08 W.117	LT.			1							1			1				1		1				105			105				98	115		1	1					
187													1																													
188	730+40 ML	30+50	XING																					1			85		85	85		190										
189	30+50	33+70	LT.																					1		↑			↑					330	4							
190	STATIONING REFERENCED TO ℄ RAMP "11"																																									
191																																										
192		36+70	LT.			1							1				1			1		1											98			1	1					
193	36+70	36+95	LT.																					1			25		25					35				2				
194	36+95	37+90	LT.			1							1				1			1		1					95		95				98	105		1	1					
195	37+90	39+10	LT.			1							1			1				1		1					120		120				98	130		1	1					
196																								1																		
197	39+10	40+30	LT.			1							1			1				1		1					120		120				98	130		1	1					
198	40+30	41+50	LT.			1							1			1				1		1					120		120				98	130		1	1					
199	41+50	52+35 W.117	LT./RT.																								105		105					115								
200	STATIONING REFERENCED TO ℄ RAMP "12"																																									
201																																										
202	54+95 W.117	34+10	LT.			1							1			1				1		1					70		70				98	80		1	1					
203	34+10	35+83	LT.			1							1			1				1		1					173		173	173		366	98			1	1					
204	35+83	37+00	LT.	MATCH LINE																							117		117					122								
205																																										
206	STATIONING REFERENCED TO ℄ W.117TH ST.																																									
207																																										
* 208	49+22	49+91	LT.																												69	148						2			1	
* 209	49+91	50+50	LT.																					1		10			10		59	138			4							
210	50+50	732+45 ML	LT.																								70	70	70			160			2							
211	50+50	51+40	LT.																					1		90			90	90		400			2			2				
212	51+40	51+50	LT.					1								1				1							10		10				94	20								
213	51+40	52+50	LT.																					1		110			110	110		480			4							
214	52+50	33+70#5	XING																					1		40			40	40		200			4							
215	33+70#5	54+97	LT.																						3	232			232	232		1452								"BE"		
216	53+08	53+80	LT.																					1		↑			↑					82				2				
217	53+80	54+88	LT.			1							1			1				1		1			3	↑			↑				98	118								
218	53+88	54+97	LT.																							↑			↑	15		50	186							↑		
219	54+88	56+60	LT.																					1		172			172					182				2				
220	56+60	56+85	LT.																					1		15			15					25					2			
221	56+85	56+83	LT.					1								1				1							10		10					20		1	1					
222	64+60 CONN	58+12	LT.			1							1			1				1		1				55			55	55		130	94			1	1					
223	58+12	60+36	LT.			1							1			1				1		1		1@40		224			224	224		488	94		2@40	1	1					
224	60+36	62+55	LT.																					1+1		219			219	219		478			2+2							
225	62+55	62+65	LT.						1							1				1						10			10				90	20								
226																																										
* 227	49+22	49+55	RT.																												33	76						2			1	
* 228			RT.																																							
* 229	49+55	50+50	RT.																												95	210						2			1	
* 230	50+50	50+65	RT.																					1			10		10		15			50	4			2				
231	50+65	734+45 ML	RT.																								30	30	30			160										
232	50+65	50+75	RT.			1							1			1				1		1					10		10				98	20		1	1					
233	50+65	52+35	RT.																					1			170		170					1080	6			2				
234	52+35	52+25	RT.					1								1				1							10		10				94	20								

* STRUCTURE #CUY-90-1057

LIGHTING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

REVISED BY JM DATE 12/4/73 CALCULATED BY ER DATE 2/23/72 CUYAHOGA COUNTY
CHECKED BY ER DATE 12/14/73 CHECKED BY JM DATE 3/29/72 CUY-90-10.40

LINE NUMBER	STATION	STATION	SIDE	LIGHT POLE-DESIGN HIGH MAST, 80' M.H."B"	LIGHT POLE-DESIGN AT 15B 51.7 "C"	LIGHT POLE-DESIGN AT 12B 36.7 "F"	LIGHT POLE-DESIGN AT 10B 36.7 "G"	BRACKET ARM 12 FT.	BRACKET ARM 10 FT.	HIGH MAST FOUNDATION D=24'-0"	HIGH MAST FOUNDATION D=19'-0"	HIGH MAST FOUNDATION D=9'-6"	LIGHT POLE FOUNDATION 24"x10' MIN. DEPTH	LIGHT POLE FOUNDATION 24"x6' MIN. DEPTH	HIGH MAST LUMINAIRE 1000W. I.E.S. TYPE II	LUMINAIRE 1000W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE II M.C.	LAMP 1000W. METAL HALIDE	LAMP 1000W. H.36-15GV	LAMP 400W. H.33-1CD	GLARE SHIELD	GROUND ROD	BARRIER MEDIAN PULL BOX	"SINGLE PULL BOX" AS PER PLAN	"DOUBLE PULL BOX" AS PER PLAN	TRENCH, 12" MAX. WIDTH x 3'-6" MIN. DEPTH	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	CONCRETE ENCASED 3", 713.04 CONDUIT	YELLOW PLASTIC CAUTION TAPE	3", 713.04 CONDUIT	2" 713.04 CONDUIT	#4AWG 600 VOLT DISTRIBUTION CABLE	#10AWG 600 VOLT POLE & BRACKET CABLE	713.02 UNIT TYPE DUCT-CABLE W/2#4AWG	713.15 CONNECTOR KITS TYPE I	713.15 CONNECTOR KITS TYPE II	713.15 CONNECTOR KITS TYPE III	713.15 CONNECTOR KITS TYPE VII B	713.15 CONNECTOR KITS TYPE VIII C	CONTROL CENTER	18"x8"x6" JUNCTION BOX	713.20 30 AMP FUSED DISCONNECT TYPE "H"
	FROM	TO	UNIT	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	LUMP	EA.	EA.
235	STATIONING REFERENCED TO ℄ W.117TH ST.(CON'T.)																																										
236																																											
237	52+35	53+80	RT.																						1			145		145	145		1240			6			2				
238	53+80	53+90	RT.					1									1				1							10		10	10		40	94			1	1					
239	53+80	54+95	RT.																							1		115		115	115		1000			6			2				
240	54+95	55+95	RT.																						1			100		100					110				2				
241	55+95	55+85	RT.					1									1				1							10		10					20								
242	55+95	57+40	RT.				1							1			1				1		1					145		145				94	155		1	1					
243	57+40	59+25	RT.				1							1			1				1		1					185		185				94	195		1	1					
244	59+25	61+52	RT.				1							1			1				1		1					227		227				94	237		1	1					
245	STATIONING REFERENCED TO ℄ ELMWOOD-SECTOR CONNECTOR																																										
246																																											
247		58+10	RT.			1								1			1				1		1											98			1	1					
248	58+10	59+60	RT.			1								1			1				1		1					150		150				98	160		1	1					
249	59+60	61+10	RT.			1								1			1				1		1					150		150				98	160		1	1					
250	61+10	62+87	RT.			1								1			1				1		1					177		177				98	187		1	1					
251	62+87	64+18	RT.				1							1			1				1		1					131		131				94	141		1	1					
252	64+18	56+85W.117	RT.																									50		50					60								
253																																											
254	56+85W.117	64+60	XING																						1		90			90	90		200			2							
255																																											
* 256	STRUCTURE SUB-TOTAL																															271	572						6			3	
257	ROADWAY SUB-TOTAL SH.#507			2		19	4	5	1			2		23	4		24	5	4		29		25	1	23	4	1702	3740	100	5442	2088		9188	2788	5039	62	24	24	20		"BE"		2
258																																											
259	STATIONING REFERENCED TO ℄ I-90																																										
260																																											
261	737+00	738+40	LT.	1							1				2				2				1										290										1
262	738+40	742+55	LT.	1						1					2				2				1										850										1
263	742+55	746+90	LT.	1							1				2				2				1										850										1
264	746+90	752+00	LT.	1	MATCH LINE						1				2				2				1	1@+65									1060						2@+65				1
265																																											
266		744+15	LT.		1								1			1				1			1											134			1	1					
267	744+15	46+90#12	LT.																						1			275		275					285				2				
268	46+90#12	48+95#12	LT.																						1			205		205					215				2				
269																																											
270																																											
271	737+00	740+50	RT.	1							1				2				2				1										710										1
272	740+50	744+56.25	RT.	1						1					2				2				1										832										1
273	744+56.25	749+40	RT.	1							1				2				2				1										988										1
274	749+40	750+10	RT.																					1									160						2				
275	750+10	752+00	RT.	MATCH LINE																													390										
276	STATIONING REFERENCED TO ℄ RAMP "9"																																										
277																																											
278	36+50	36+95	RT.																						1			45		45					50				2				
279	36+95	37+40	RT.			1								1				1			1		1				45			45				98	55		1	1					
280	37+40	39+30	RT.			1								1				1			1		1				190			190				98	200		1	1					
281																																											
282	STATIONING REFERENCED TO ℄ RAMP 12"																																										
283	37+00	37+45	LT.																						1			45		45					50				2				
284	37+45	37+55	LT.					1										1			1													94									
285	37+45	39+35	LT.			1								1				1			1		1					190		190				98	200		1	1					
286	39+35	41+15	LT.			1								1				1			1		1					180		180				98	190		1	1					
287	41+15	43+60	LT.																						1			245		245					255				2				
288	43+60	48+00 PED	EAST				1							1				1			1		1					55	55	55			130	94			1	1					
289	43+60	744+15M	LT.																									55		55					65								
290	STATIONING REFERENCED TO ℄ W.110TH ST.																																										
291																																											
292		45+55	LT.																						1																		
** 293	45+55	48+00	LT.																						1		20			20		245										1	
** 294																																											
295																																											
** 296	STRUCTURE SUB-TOTAL																															245										1	
297	ROADWAY SUB-TOTAL SH.#508			7	1	4	1	1		2	5		1	5	14	1		6	14	1	6		13	2	7		255	1295	55	1550			6300	714	1565		6	6	14				7
298																																											
299	STATIONING REFERENCED TO ℄ I-90																																										
300																																											
301	752+00	753+71	LT.																					1									352			2							
302		753+71	XING																									90		90		90	200			2						1	
303		757+16.25	LT.	1							1				2				2				1																				
304	757+16.25	762+05	LT.								1				2				2				1										998						2				1
305																																											1
306	762+05	766+95	LT.	1											2				2				1										1000										1
307	766+95	767+00	LT.	MATCH LINE						1																							20										
308																																											
309																																											

* STRUCTURE # CUY-90-1057
** STRUCTURE # CUY-90-1089

LIGHTING QUANTITIES SUB-SUMMARY

LIGHTING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

REVISED BY Jm DATE 12/4/73 CALCULATED BY ER DATE 2/23/72
CHECKED BY ER DATE 12/14/73 CHECKED BY Jm DATE 3/29/72

CUYAHOGA COUNTY
CUY - 90 -10.40

LINE NUMBER	STATION FROM	STATION TO	SIDE UNIT	LIGHT POLE-DESIGN HIGH MAST, 80' M.H."B" EA.	LIGHT POLE-DESIGN AT 15B 51.7'"C" EA.	LIGHT POLE-DESIGN AT 12B 36.7'"F" EA.	LIGHT POLE-DESIGN AT 10B 36.7'"G" EA.	BRACKET ARM 12 FT. EA.	BRACKET ARM 10 FT. EA.	HIGH MAST FOUNDATION D = 24'-0" EA.	HIGH MAST FOUNDATION D = 19'-0" EA.	HIGH MAST FOUNDATION D = 9'-6" EA.	LIGHT POLE FOUNDATION 24"x10' MIN. DEPTH EA.	LIGHT POLE FOUNDATION 24"x6' MIN. DEPTH EA.	HIGH MAST LUMINAIRE 1000W. I.E.S. TYPE III EA.	LUMINAIRE 1000W. I.E.S. TYPE III M.C. EA.	LUMINAIRE 400W. I.E.S. TYPE III M.C. EA.	LUMINAIRE 400W. I.E.S. TYPE II M.C. EA.	LAMP 1000W. METAL HALIDE EA.	LAMP 1000W. H.36-15GV EA.	LAMP 400W. H.33-1CD EA.	GLARE SHIELD EA.	GROUND ROD EA.
310	STATIONING REFERENCED TO ℄ I-90 (CON'T)																						
311																							
312		766+95	XING																				
313	766+95	767+00	LT.	MATCH LINE																			
314																							
315	752+00	754+56.25	RT.	1							1				2				2				1
316	758+35	759+80	RT.	1							1				2				2				1
317	759+80	764+26.25	RT.	1							1				2				2				1
318	764+26.25	767+00	RT.	MATCH LINE																			
319		760+15	RT.																				
320	760+15	762+30	RT.		1								1			1				1			1
321																							
322	STATIONING REFERENCED TO Ƀ RAMP "13"																						
323																							
324		65+25	LT.			1								1				1			1		1
325	65+25	67+00	LT.	MATCH LINE																			
326																							
327	STATIONING REFERENCED TO Ƀ RAMP "14"																						
328																							
329	762+30 ML	63+00	RT.																				
330	63+00	64+00	RT.			1								1				1			1		1
331	64+00	65+80	RT.			1								1				1			1		1
332	65+80	67+00	RT.	MATCH LINE																			
333																							
334	STATIONING REFERENCED TO W. 106 ST.																						
335																							
336		47+55	LT.																				
337	47+55	50+00	LT.																				
338																							
339																							
340																							
* 341	STRUCTURE SUB-TOTAL																						
342	ROADWAY SUB-TOTAL SH.#509			6	1	3				1	5		1	3	12	1		3	12	1	3		10
343																							
344	STATIONING REFERENCED TO ℄ I-90																						
345	776+00	770+15	LT.																				
346	770+15	772+35.76	LT.	1						1					2				2				1
347	772+35.76	773+60	LT.																				
348	773+60	776+00	LT.	MATCH LINE																			
349	767+00	769+63.64	RT.	1						1					2				2				1
350	769+63.64	771+85	RT.																				
351	771+85	774+58	RT.	1						1					2				2				1
352																							
353	767+00	767+90	LT.																				
354		770+28	LT.																				
** 355	770+28	771+24	LT.																				
** 356	771+24	771+42	LT.																				
** 357	771+42	771+60	LT.																				
** 358	771+60	772+70	LT.																				
359	772+70	774+58	LT.																				
360	774+58	774+95	LT.																				
361	774+58	52+80 RD#4	LT./RT.																				
362		774+58	XING																				
363	772+70	772+35.76	XING																				
364	772+35.76	772+10	XING																				
365																							
366	STATIONING REFERENCED TO Ƀ RAMP "13"																						
367																							
368	67+00	67+15	LT.			1								1				1			1		1
369	67+15	69+05	LT.			1								1				1			1		1
370	69+05	70+95	LT.			1								1				1			1		1
371	70+95	45+68 WEST	LT.																				
372	STATIONING REFERENCED TO Ƀ RAMP "14"																						
373																							
374	67+00	67+60	RT.			1								1				1			1		1
375	67+60	69+40	RT.			1								1				1			1		1
376	69+40	40+10	LT.																				
377	STATIONING REFERENCED TO ℄ N. MARGINAL RD#4																						
378																							
379	46+00 WEST	50+90	RT.			1								1				1			1		1
380	50+90	52+30	RT.			1								1				1			1		1
381	52+30	52+80	RT.																				
382		52+80	RT./LT.																				
383	52+80	53+15	RT.																				
384	53+15	53+70	RT.			1								1				1			1		1

LINE NUMBER	BARRIER MEDIAN PULL BOX EA.	"SINGLE PULL BOX" AS PER PLAN EA.	"DOUBLE PULL BOX" AS PER PLAN EA.	TRENCH, 12" MAX. WIDTH x3'6" MIN. DEPTH L.F.	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH L.F.	CONCRETE ENCASED 3", 713.04 CONDUIT L.F.	YELLOW PLASTIC CAUTION TAPE L.F.	3", 713.04 CONDUIT L.F.	2" 713.04 CONDUIT L.F.	#4AWG 600 VOLT DISTRIBUTION CABLE L.F.	#10AWG 600 VOLT POLE & BRACKET CABLE L.F.	713.02 UNIT TYPE DUCT-CABLE W/2" #4AWG L.F.	713.15 CONNECTOR KITS TYPE I EA.	713.15 CONNECTOR KITS TYPE II EA.	713.15 CONNECTOR KITS TYPE III EA.	713.15 CONNECTOR KITS TYPE VII B EA.	713.15 CONNECTOR KITS TYPE VII C EA.	CONTROL CENTER EA.	18"x8"x6" JUNCTION BOX EA.	713.20 30 AMP FUSED DISCONNECT TYPE "H" EA.
310																				
311																				
312		1			75		75	75		170			2							
313					5		5					10								
314																				
315										522										1
316	1@+35									310			2@65							1
317										912										1
318										558										
319		1														2				
320				215			215				134	225		1	1					
321																				
322																				
323																				
324											98			1	1					
325					175		175					180								
326																				
327																				
328																				
329				70			70					75								
330					100		100				98	110		1	1					
331					180		180				98	190		1	1					
332					120		120					125								
333																				
334																				
335																				
336		1																		
337		1			20		20		245											
338																				
339																				
340																				
* 341									335											
342	2	4		285	765		1050	75		5042	428	915	4	4	4	4			1	6
343																				
344																				
345	1									640			2							
346									221	462										1
347	1+1				41		41	50		288			2+2							
348										490										
349										538										1
350	1								221	462			2							
351										566										1
352																				
353		1			90		90					95	2							
354		1																		
** 355					10		10		96										1	
** 356									18										1	
** 357									18										1	
** 358		2			35		35		120											
359		2			188		188					198	2			2				
360		1			37		37					47				2				
361		2			60	120	60			280			4							
362					120		120	120		260										
363					80		80	80		180										
364		1			125		125	125		270			2							
365																				
366																				
367																				
368					15		15				98	20		1	1					
369					190		190				98	200		1	1					
370					190		190				98	200		1	1					
371					60		60	60		140										
372																				
373																				
374					60		60				98	65		1	1					
375					180		180				98	190		1	1					
376					55		55					65								
377																				
378																				
379					30		30				98	75		1	1					
380					140		140				98	290		1	1					
381			3		50		50	50		130	300	60						"MA"		
382					65		65	130		300										
383		1			35		35					45				2				
384					55		55				98	65		1	1					

* STRUCTURE # CUY-90-1109
** STRUCTURE # CUY-90-1127

LIGHTING QUANTITIES SUB-SUMMARY

LIGHTING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

REVISED BY JM DATE 12/4/73
CHECKED BY ER DATE 12/14/73

CALCULATED BY ER DATE 2/23/72
CHECKED BY JM DATE 3/29/72

CUYAHOGA COUNTY
CUY - 90 -10.40

LINE NUMBER	STATION	STATION	SIDE	LIGHT POLE-DESIGN HIGH MAST, 80' M.H.'B'	LIGHT POLE-DESIGN AT 15B 51.7'C'	LIGHT POLE-DESIGN AT 12B 36.7'F'	LIGHT POLE-DESIGN AT 10B 36.7'G'	BRACKET ARM 12 FT.	BRACKET ARM 10 FT.	HIGH MAST FOUNDATION D=24'-0"	HIGH MAST FOUNDATION D=19'-0"	HIGH MAST FOUNDATION D=9'-6"	LIGHT POLE FOUNDATION 24"x10' MIN. DEPTH	LIGHT POLE FOUNDATION 24"x6' MIN. DEPTH	HIGH MAST LUMINAIRE 1000W. I.E.S. TYPE III	LUMINAIRE 1000W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE II M.C.	LAMP 1000W. METAL HALIDE	LAMP 1000W. H.36-15GV	LAMP 400W. H.33-1CD	GLARE SHIELD	GROUND ROD	BARRIER MEDIAN PULL BOX	"SINGLE PULL BOX" AS PER PLAN	"DOUBLE PULL BOX" AS PER PLAN	TRENCH, 12" MAX. WIDTH x 3'6" MIN. DEPTH	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	CONCRETE ENCASED 3" 713.04 CONDUIT	YELLOW PLASTIC CAUTION TAPE	3" 713.04 CONDUIT	2" 713.04 CONDUIT	#4 AWG 600 VOLT DISTRIBUTION CABLE	#10 AWG 600 VOLT POLE & BRACKET CABLE	713.02 UNIT TYPE DUCT-CABLE W/2" #4 AWG	713.15 CONNECTOR KITS TYPE I	713.15 CONNECTOR KITS TYPE II	713.15 CONNECTOR KITS TYPE III	713.15 CONNECTOR KITS TYPE VIII B	713.15 CONNECTOR KITS TYPE VIII C	CONTROL CENTER	18"x8"x6" JUNCTION BOX	713.20 30 AMP FUSED DISCONNECT TYPE "H"
	FROM	TO	UNIT	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	LUMP	EA.	EA.
385	STATIONING REFERENCED TO ℄ WEST BLVD.																																										
386																																											
387		37+35	LT.			1								1			1				1		1											98			1	1					
388	37+35	40+10	LT.																						1			275		275	275		570							2			
389	40+10	40+11	LT.					1									1				1							10		10	10		40	94			1	1					
390																																											
391	40+11	40+95	LT.																						1			84		84	84		188			2							
392	40+95	41+80	LT.			1								1			1				1		1					85		85					95		1	1					
393	41+80	42+00	LT.																						1			20		20					30					2			
394	42+00	42+40	LT.																						1			40		40					50				2				
395	42+40	43+50	LT.																						1			110		110					120				2				
396	43+50	44+15	LT.																						1			65		65					75				2				
397	44+15	44+74	LT.																						1			59		59					69				2				
398	44+74	44+84	LT.					1									1				1							10		10					20		1	1					
399		45+68	LT.																						1															2			
400	45+68	47+03	LT.																						1			135		135	135		290						2				
401	47+03	47+13	LT.					1									1				1							10		10				94	20								
402	47+03	49+49	LT.																						1			246		246	246		512						2				
403	49+49	49+59	LT.					1									1				1							10		10				94	20								
404	49+49	61+15 WESTERN	RT.																						1			25		25	25		70			2							
405		61+15 WESTERN	XING																						1			70		70	70		160						2				
406	61+15 WESTERN	61+07 WESTERN	LT.					1									1				1							8		8				94	18		1	1					
407	61+15 WESTERN	51+60	LT.																						1			125		125	125		270						2				
408	51+60	51+70	LT.					1									1				1							10		10				94	20								
409	51+60	54+15	LT.			1								1			1				1		1					255		255	255		530	98			1	1					
410		38+90	RT.			1								1			1				1		1											98			1	1					
411	38+90	41+10	RT.																						1			220		220	220		460						2				
412	41+10	41+00	RT.					1									1				1							10		10				94	20		1	1					
413	41+10	42+40	RT.																						1			150		150	150		320						2				
414	42+40	42+80	RT.																						1			40		40					50				2				
415	42+80	43+75	RT.																						1			95		95					105				2				
416	43+75	44+55	RT.																						1			80		80					90				2				
417	44+55	45+18	RT.																						1			63		63					73	4							
418	45+18	44+74	XING																									80		80	80		360										
419	45+18	46+00	XING																							1		85		85	85		380			2			2	2			
420	46+00	45+68	RT./LT.																									90		90	90		200										
421	46+00	45+92	RT.					1									1				1							8		8				94	18		1	1					
422	46+00	48+50	RT.																						1			250		250	250		520						2				
423	48+50	48+40	RT.					1									1				1							10		10				94	20		1	1					
424	48+50	49+40	RT.																						1			90		90	90		200						2				
425	49+40	50+51	RT.																						1			111		111	111		242						2				
426	50+51	50+41	RT.					1									1				1							10		10				94	20		1	1					
427	50+51	53+00	RT.			1								1			1				1		1					249		249				98	259		1	1					
428	49+40	62+23 WESTERN	RT.					1									1				1							35		35	35		90	94			1	1					
429																																											
430																																											
431																																											
432																																											
433																																											
434																																											
435																																											
436																																											
** 437	STRUCTURE SUB-TOTAL																															694											
438	ROADWAY SUB-TOTAL SH.#510			3		13		11		3				13	6		16	8	6		24		16	4	33	4		5239	120	5239	2951		10,408	2416	2807	28	21	21	40	8	"MA"	3	3
439																																											
440	STATIONING REFERENCED TO ℄ I-90																																										
441																																											
442	776+00	776+80	LT.	1							1				2				2				1										170										1
443		782+12.75	LT.	1							1				2				2				1																				1
* 444	782+13	787+80	LT.	1						1					2				2				1	1+1								166	1194			2+2							1
445	787+80	791+25	LT.	MATCH LINE																													700										
446																																											
447			LT.																																								
448	776+00	779+02.75	RT.	1						1					2				2				1										616										1
449		785+23.29	RT.	1					1						2				2				1																				1
450	785+23.29	790+50	RT.	1					1						2				2				1										1074										1
451	790+50	791+25	RT.																														160										
452		779+95	RT.																						1																	1	
* 453	779+95	780+93	RT.																								10			10		98										1	
* 454	780+93	781+09	RT.																													16											
* 455	781+09	782+13	RT.																						1		10			10		104											
456	782+13	783+02	RT.																						1		89			89	89												
457																																											
458																																											
459																																											

* STRUCTURE # CUY-90-1146
** STRUCTURE # CUY-90-1127

LIGHTING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

502
713

REVISED BY JM DATE 12/4/73
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CALCULATED BY ER DATE 2/23/72
CHECKED BY JM DATE 3/29/72

CUYAHOGA COUNTY
CUY - 90 -10.40

LINE NUMBER	STATION	STATION	SIDE	LIGHT POLE-DESIGN HIGH MAST, 80' M.H."B"	LIGHT POLE-DESIGN AT 15B 51.7"C"	LIGHT POLE-DESIGN AT 12B 36.7"F"	LIGHT POLE-DESIGN AT 10B 36.7"G"	BRACKET ARM 12 FT.	BRACKET ARM 10 FT.	HIGH MAST FOUNDATION D=24'-0"	HIGH MAST FOUNDATION D=19'-0"	HIGH MAST FOUNDATION D=9'-6"	LIGHT POLE FOUNDATION 24"x10' MIN. DEPTH	LIGHT POLE FOUNDATION 24"x6' MIN. DEPTH	HIGH MAST LUMINAIRE 1000W. I.E.S. TYPE III	LUMINAIRE 1000W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE II M.C.	LAMP 1000W. METAL HALIDE	LAMP 1000W. H.36-15GV	LAMP 400W. H.33-1CD	GLARE SHIELD	GROUND ROD	BARRIER MEDIAN PULL BOX	"SINGLE PULL BOX" AS PER PLAN	"DOUBLE PULL BOX" AS PER PLAN	TRENCH, 12" MAX. WIDTH x 36" MIN. DEPTH	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	CONCRETE ENCASED 3" 713.04 CONDUIT	YELLOW PLASTIC CAUTION TAPE	3" 713.04 CONDUIT	2" 713.04 CONDUIT	#4AWG 600 VOLT DISTRIBUTION CABLE	#10AWG 600 VOLT POLE & BRACKET CABLE	713.02 UNIT TYPE DUCT-CABLE W/2 #4 AWG	713.15 CONNECTOR KITS TYPE I	713.15 CONNECTOR KITS TYPE II	713.15 CONNECTOR KITS TYPE III	713.15 CONNECTOR KITS TYPE VII B	713.15 CONNECTOR KITS TYPE VII C	CONTROL CENTER	18"x8"x6" JUNCTION BOX	713.20 30 AMP FUSED DISCONNECT TYPE "H"
	FROM	TO	UNIT	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	LUMP	EA.	EA.
460	STATIONING REFERENCED TO ℄ I-90 (CON'T)																																										
461																																											
* 462	783+02	783+90	RT.																								10			10		88										1	
* 463	783+90	784+03	RT.																													13										1	
* 464	784+03	784+16	RT.																													13										1	
* 465	784+16	784+95	RT.																						2		10			10		79				4							
466	784+95	50+90 RD#5	RT/LT.																						2			45	90	45			220			4							
467	784+95	785+23.29	XING																									80		80	80		180										
468	784+95	787+80	RT.																						1		285			285					295				2				
469		787+80	RT./LT.																									125		125	125		270										
470	787+80	788+20	RT.																						1		40			40					50				2				
471																																											
472																																											
473	STATIONING REFERENCED TO ℄ RAMP "16"																																										
474																																											
475	55+20 RD#5	89+60	RT.			1								1				1			1		1					65		65	65		150	98			1	1					
476	89+60	91+40	RT.																									180		180					190								
477	STATIONING REFERENCED TO ℄ N. MARGINAL RD. #4																																										
478																																											
479		55+50	LT.			1								1				1			1		1											98			1	1					
480	55+50	57+20	LT.																						1			170		170					180				2				
481	57+20	57+28	LT.					1										1			1							8		8					18		1	1					
482	57+20	57+67	LT.																						1			47		47	47		114						2				
483	57+67	58+22	LT.																						1			55		55	55		130			2							
484	58+22	58+85	LT.			1								1				1			1		1					63		63				98	73		1	1					
485	58+85	60+40	LT.			1								1				1			1		1					155		155				98	165		1	1					
486																																											
487		63+63	LT.					1									1				1													94			1	1					
488	63+63	63+73	LT.																						1			10		10					20					2			
489	63+73	65+28	LT.			1								1			1				1		1					155		155				98	165		1	1					
490	65+28	66+73	LT.			1								1			1				1		1					145		145				98	155		1	1					
491	66+73	67+20	LT.																						1			47		47					57				2				
492	67+20	68+12	LT.			1								1			1				1		1					92		92				98	102		1	1					
493	68+12	69+50	LT.			1								1			1				1		1					138		138				98	148		1	1					
494	69+50	69+60	LT.																						1			10		10					20	2							
495	69+60	70+30	LT.	MATCH LINE																					1			70		70	70				160	2							
496																																											
497	STATIONING REFERENCED TO ℄ MARGINAL RD. #5																																										
498																																											
499		50+50	RT.					1									1				1													94			1	1					
500	50+50	50+60	RT.																						1			10		10					20	2				2			
501	50+60	50+70	RT.																							3		10		10	10		80								"AL"		
502		50+70	RT./LT.																						1			70		70	70		160						2				
503	50+70	50+90	RT.																						2			20		20	40		120			4							
504		50+90	RT./LT.																									65		65	130		300			4							
505	50+60	52+25	RT.			1								1			1				1		1					165		165				98	175		1	1					
506	52+25	52+40	RT.																						1			15		15					25	2							
507	52+40	86+60	XING																						1			70		70	70		160			2							
508	52+40	53+53	RT.																						1+1			113		113	59		138		64	2+2							
509	53+53	53+70	RT.			1								1			1				1		1					17		17				98	27		1	1					
510	53+70	54+08	RT.																						1			38		38					48					2			
511	54+08	55+10	RT.			1								1			1				1		1					102		102				98	112		1	1					
512	55+10	55+20	RT.																						1			10		10					20				2				
513	55+20	55+75	RT.																						1			55		55	55		130			2							
514	55+75	56+40	RT.																						1			65		65					75	2							
515	56+40	57+02	RT.																						1			62		62	62		144			2							
516																																											
517	STATIONING REFERENCED TO ℄ WESTERN AVE. EXTENDED																																										
518																																											
519																																											
520																																											
521																																											
522		69+35	LT.				1							1			1				1		1											94			1	1					
523	69+35	71+00	LT.																						1			165		165					175				2				
524	71+00	60+40 RD#4	LT./RT.																									50		50	50				120								
525	71+00	71+10	LT.				1							1			1				1		1					10		10				94	20		1	1					
526	71+10	72+85	LT.			1								1			1				1		1					175		175				98	185		1	1					
527																																											
528																																											
529																																											
530																																											
531																																											
532																																											
533																																											
534																																											

* STRUCTURE # CUY-90-1152

LIGHTING QUANTITIES SUB-SUMMARY

LIGHTING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

REVISED BY JM DATE 12/4/73 CALCULATED BY ER DATE 2/23/72
CHECKED BY ER DATE 12/14/73 CHECKED BY JM DATE 3/29/72

CUYAHOGA COUNTY
CUY - 90 -10.40

LINE NUMBER	STATION	STATION	SIDE	LIGHT POLE-DESIGN HIGH MAST, 80' M.H."B"	LIGHT POLE-DESIGN AT 15B 51.7 "C"	LIGHT POLE-DESIGN AT 12B 36.7 "F"	LIGHT POLE-DESIGN AT 10B 36.7 "G"	BRACKET ARM 12 FT.	BRACKET ARM 10 FT.	HIGH MAST FOUNDATION D=24'-0"	HIGH MAST FOUNDATION D=19'-0"	HIGH MAST FOUNDATION D=9'-6"	LIGHT POLE FOUNDATION 24"x10 MIN. DEPTH	LIGHT POLE FOUNDATION 24"x6' MIN. DEPTH	HIGH MAST LUMINAIRE 1000W. I.E.S. TYPE III	LUMINAIRE 1000W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE III M.C.	LUMINAIRE 400W. I.E.S. TYPE II M.C.	LAMP 1000W. METAL HALIDE	LAMP 1000W. H.36-15GV	LAMP 400W. H.33-1CD	GLARE SHIELD	GROUND ROD	BARRIER MEDIAN PULL BOX	"SINGLE PULL BOX" AS PER PLAN	"DOUBLE PULL BOX" AS PER PLAN	TRENCH, 12" MAX. WIDTH x 36" MIN. DEPTH	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	CONCRETE ENCASED 3" 713.04 CONDUIT	YELLOW PLASTIC CAUTION TAPE	3" 713.04 CONDUIT	2" 713.04 CONDUIT	#4 AWG 600 VOLT DISTRIBUTION CABLE	#10 AWG 600 VOLT POLE & BRACKET CABLE	713.02 UNIT TYPE DUCT-CABLE W/2#4 AWG	713.15 CONNECTOR KITS TYPE I	713.15 CONNECTOR KITS TYPE II	713.15 CONNECTOR KITS TYPE III	713.15 CONNECTOR KITS TYPE VIII B	713.15 CONNECTOR KITS TYPE VIII C	CONTROL CENTER	18"x8"x6" JUNCTION BOX	713.20 30 AMP FUSED DISCONNECT TYPE "H"
	FROM	TO	UNIT	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	LUMP	EA.	EA.
535	STATIONING REFERENCED TO ℄ W.100TH ST																																										
536																																											
537		150+82	RT.			1								1				1			1		1											98			1	1					
538	150+82	57+20 RD.#4	RT.																									65		65					75								
539	57+67 RD.#4	151+88	RT.																						1			50		50	50		120			2							
540	151+88	152+30	RT.				1							1				1			1		1					45		45				94	55		1	1					
541	152+30	152+70	RT.																						1			40		40					50				2				
542	152+70	152+92	RT.																						1			22		22					32				2				
543	152+92	153+70	RT.																						1			78		78					88				2				
544	153+70	154+75	RT.																						1			105		105					115					2			
545	154+75	155+20	RT.				1							1				1			1		1					45		45				94	55		1	1					
546	155+20	156+40	RT.				1							1				1			1		1					120		120				94	130		1	1					
547	156+40	44+40 W.98	LT.																						1			100		100					110	2			2				
548	44+40 W.98	157+40	XING.																						1			70		70	70				320	2			2				
549	157+40	157+48	LT.						1									1			1		1					8		8				90	8		1	1					
541-A		152+70	RT./LT.																						1			50		50	50		120			2							
551		153+20	LT.																						1											2							
552	153+20	154+00	LT.																						1			80		80					90				2				
553	154+00	154+75	LT.																						1			75		75					85				2				
554		154+75	LT./RT.																									50		50	50		120										
555																																											
556	STATIONING REFERENCED TO ℄ W.98TH ST.																																										
557																																											
558		44+36	LT.					1									1				1													94			1	1					
559	44+36	44+40	LT.																									10		10					20								
560	157+40 W100	45+40	LT.																						1			35		35					45				2				
561	45+40	45+66	LT.																						1			26		26					36				2				
562	45+66	46+38	LT.																						1			72		72					82				2				
563	46+38	47+26	LT.																						1			88		88					98				2				
564	47+26	47+55	LT.																						1			29		29					39				2				
565	47+55	47+95	LT.				1							1			1				1		1					40		40				94	50		1	1					
566	47+95	48+24	LT.																						1			29		29					39	2							
567																																											
568		44+40	LT./RT.																						1			80		80	80		360			2			2				
569	44+40	50+70 RD.#5	RT.																									45		45	45		220										
570	50+70 RD.#5	45+37	RT.					1									1				1							30		30				94	40		1	1					
571	50+70 RD.#5	45+75	RT.																						1			60		60					70				2				
572	45+75	46+46	RT.																						1			71		71					81				2				
573	46+46	47+33	RT.																						1			87		87					97				2				
574	47+33	48+35	RT.																						1			102		102					112	2							
575	48+35	63+73 RD.#4	LT.																									70		70	70				160								
576	63+73 RD.#4	49+35	RT.			1								1			1				1		1					45		45				98	55		1	1					
577																																											
578	STATIONING REFERENCED TO ℄ I-90																																										
579																																											
580	791+25	793+20	LT.																														400										
581	791+25	795+55	RT.																														870										
582																																											
583																																											
584	STRUCTURE SUB-TOTAL #1146																															218											
585	STRUCTURE SUB-TOTAL #1152																															359	352									2	
586	ROADWAY SUB-TOTAL SH#511			6		14	6	5	1	3	3			20	12		16	10	12		26		27	2	52	3	454	4869	90	5323	1567		8168	2402	5108	58	26	26	48	8	"AL"	3	6
587																																											
588																																											
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REVISED BY JM DATE 12/4/73
CHECKED BY ER DATE 12/14/73

CALCULATED BY ER DATE 2/23/72
CHECKED BY JM DATE 3/29/72

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

504
713

COMMUNICATIONS QUANTITIES SUB-SUMMARY

CUYAHOGA COUNTY
CUY - 90 - 10.40

LINE NUMBER	STATION	STATION	SIDE	CALL BOX FOUNDATION AS PER PLAN	CALL BOX BARRIER MEDIAN FOUNDATION AS PER PLAN	GROUND ROD		SINGLE PULL BOX	DOUBLE PULL BOX	GREEN PLASTIC CAUTION TAPE	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	3", 713.04 CONDUIT	3" P.V.C. TYPE II AS PER PLAN	18" x 8" x 6" JUNCTION BOX	3" WEATHER HEAD
	FROM	TO	UNIT	EA.	EA.	EA.		EA.	EA.	L.F.	L.F.	L.F.	L.F.	EA.	EA.
610	STATIONING REFERENCED TO ℄ I-90														
611															
612		722+00	RT.						1						
613	722+00	722+80	RT.							80	80		80		
614	722+80	24+80#8	RT.						1	L	L		200		
615	24+80#8	724+75	XING						1	50	50	100			
616	724+75	727+25	RT.						1	250	250		250		
617	727+25	728+00	RT.	MATCH LINE						75	75		75		
618															
619	ROADWAY SUB-TOTAL SH.#								4	455	455	100	605		
620															
621	STATIONING REFERENCED TO ℄ I-90														
622															
623	728+00	729+85	RT.						1	85	85		85		
624		729+85	XING							100	100	200			
625	729+85	30+20#7	XING						1	60	60	120			
626	@	30+15#7	RT.	1		1									
627	@	30+10#7	RT.					L							
628	30+20#7	732+60	RT.						1	230	230		230		
629	732+60	734+80	RT.						1	220	220		220		
630	734+80	737+00	RT.	MATCH LINE						220	220		220		
631															
632	STATIONING REFERENCED TO ℄ W. 117TH ST.														
633	M.E.L.P.#19759	38+60 ±	LT.						1			35			1
634	38+60	40+95	LT.						1	235	235	470			
635	40+95	41+63	LT.							68	68	136			
636	41+63	43+15	LT.						1	L	L	304			
637	@	43+20	LT.	1		1									
638	@	43+25	LT.					L							
639	43+15	45+30	LT.						1	L	L	430			
640	45+30	47+70	LT.						1	L	L		240		
* 641	47+70	49+22	LT.	MATCH LINE						L	L	304			
642															
* 643	STRUCTURE SUB-TOTAL											304			
644	ROADWAY SUB-TOTAL SH.#			2		2			9	1218	1218	1695	995		1
645															
646	STATIONING REFERENCED TO ℄ I-90 & BL RAMP "5"														
647															
648	729+85 N1	29+90#5	XING						1	185	185	370			
649	@	29+85#5	LT.	1		1									
650	@	29+80#5	LT.					L							
651	29+90	M.E.L.P. N-81	ELMWOOD						1	75	75	185			1
652	29+90	31+75	LT.						1	L	L		185		
653	31+75	33+60	LT.						1	L	L		185		
654															
655	STATIONING REFERENCED TO ℄ W. 117TH ST.														
656															
* 657	49+22	50+60	LT.						1	L	L	276			
658	50+60	52+43	LT.						1	L	L		183		
659	52+43	33+60#5	XING						1	L	L	70			
660	33+60#5	54+64	RT.						1	L	L		206		
661	54+64	56+70	RT.						1	L	L		206		
662	@	56+65	RT.	1		1									
663	@	56+60	RT.					L							
664	56+70	64+65 ELM	XING						1	L	L	190			
665	64+65 ELM	59+15	RT.						1	L	L	158			
666	59+15	60+95	RT.						1	15	15	186			
667	60+95	62+75	RT.						1	L	L	180			
668	62+75	49+55±	WESTERN						1	85	85	170			
669	49+55±	M.E.L.P. 20327	WESTERN									40			1
670															
671															
672															
673															
674															
675	STATIONING REFERENCED TO BL RAMP#11														
676															
677	@	36+95	LT.					L							
678	@	37+00	LT.	1		1									
679	@	37+05	LT.						1						
680		37+05	LT./RT.						1	40	40	80			
681															
* 682	STRUCTURE SUB-TOTAL											276			
683	ROADWAY SUB-TOTAL SH.#			3		3			16	400	400	1629	965		2
684															

* STRUCTURE # CUY-90-1057

LINE NUMBER	STATION	STATION	SIDE	CALL BOX FOUNDATION AS PER PLAN	CALL BOX BARRIER MEDIAN FOUNDATION AS PER PLAN	GROUND ROD		SINGLE PULL BOX	DOUBLE PULL BOX	GREEN PLASTIC CAUTION TAPE	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	3", 713.04 CONDUIT	3" P.V.C. TYPE II AS PER PLAN	18" x 8" x 6" JUNCTION BOX	3" WEATHER HEAD
	FROM	TO	UNIT	EA.	EA.	EA.		EA.	EA.	L.F.	L.F.	L.F.	L.F.	EA.	EA.
685	STATIONING REFERENCED TO ℄ I-90 & RAMPS														
686															
687	737+00	737+25	RT.						1	25	25		25		
688	737+25	37+05#11	RT./LT.							270	270	540			
689	737+25	37+05#9	RT.						1	105	105	210			
690	@	37+00#9	RT.	1		1									
691	@	36+95#9	RT.					L							
692	37+05	39+30	RT.							L	L		225		
693	39+30	39+55	RT.						1	25	25		25		
694	39+55	742+05	RT.						1	250	250		250		
695	742+05	744+55	RT.						1	250	250		250		
696	744+55	747+05	RT.						1	250	250		250		
697	747+05	748+95	RT.						1	190	190		190		
698	@	749+00	RT.	2		2									
699	@	749+05	RT.					1							
700	748+95	749+05	XING						1	225	225	450			
701	748+95	749+00	24' RT.							↓	↓	90		1	
702	748+05	749+00	24' RT.							↓	↓	90			
703	749+00	48+95	LT.					L		↑	↑	135			
704	@	49+00#12	LT.	1		1									
705	748+95	45+45 W.110	LT.+RT.						2	185	185	370			
706	45+45 W.110	751+75	RT.						1	130	130	260			
707	751+75	752+00	RT.	MATCH LINE						25	25	50			
708															
709	STATIONING REFERENCED TO W. 110TH ST.														
710															
* 711	45+50	48+05	RT.					1		20	20	255			
712															
* 713	STRUCTURE SUB-TOTAL											255			
714	ROADWAY SUB-TOTAL SH.#			4		4		2	11	1950	1950	2195	1215	1	
715															
716	STATIONING REFERENCED TO ℄ I-90														
717	752+00	754+20	RT.						1	220	220	440			
718	754+20	756+65	RT.						1	245	245	490			
719	756+65	47+45 W.106	LT.						1	160	160	320			
720	47+45 W.106	47+50 W.106	LT./RT.						1	50	50	100			
721	47+50 W.106	60+05	RT.						1	140	140	280			
722	RAMP#14 @	60+10	RT.	1		1									
723	RAMP#14 @	60+15	RT.					L							
724	60+05	760+00	XING						1	235	235	470			
725	60+05	760+02.25	24' RT.		1	1				↑	↑	95			
726	60+15	760+02.25	24' RT.									95		1	
727	760+02.25	760+00	LT.						1			140			
728	60+05	63+00#14	RT.						1+1	L	L		295		
729	63+00#14	762+85	XING						1	40	40	80			
730	762+85	765+05	RT.						1	220	220		220		
731	765+05	767+00	RT.	MATCH LINE						195	195		195		
732	@	760+05	LT.	1		1									
733	STATIONING REFERENCED TO ℄ W. 106TH ST.														
734															
** 735	47+50	50+10	RT.					1		20	20	260			
736															
** 737	STRUCTURE SUB-TOTAL											260			
738	ROADWAY SUB-TOTAL SH.#			2	1	3		1	11	1525	1525	2510	710	1	
739															
740	STATIONING REFERENCED TO ℄ I-90 ETAL.														
741															
742	767+00	767+10	RT.						1	10	10		10		
743	767+10	769+45	RT.						1	235	235		235		
744	769+45	41+90 WEST	LT.						1	50	50	50			
745	@	41+95 WEST	LT.	1		1									
746	@	42+00 WEST	LT.					L							
*** 747	769+45	771+65	RT.						1	20	20	440			
748	771+65	774+95	RT.						1	330	330		330		
749	@	775+00	RT.	1		1									
750	@	775+05	RT.					1							
751	774+95	775+05	XING						1	200	200	400			
752	774+95	775+00	24' RT.		1	1				↑	↑	75			
753	775+05	775+00	LT.							↑	↑	75			
754	775+00	774+95	LT.					L		↑	↑	125			
755	@	775+00	LT.	1		1									
756	775+05	53+20 RD.#4	LT.	1		1			1	95	95	190			
757	@	53+15 RD.#4	LT.					L							
758															
759															

* STRUCTURE # CUY-90-1089
** STRUCTURE # CUY-90-1109
*** STRUCTURE # CUY-90-1127

LINE NUMBER	STATION	STATION	SIDE	CALL BOX FOUNDATION AS PER PLAN	CALL BOX BARRIER MEDIAN FOUNDATION AS PER PLAN	GROUND ROD		SINGLE PULL BOX	DOUBLE PULL BOX	GREEN PLASTIC CAUTION TAPE	TRENCH, 12" MAX. WIDTH x 24" MIN. DEPTH	3", 713.04 CONDUIT	3" P.V.C. TYPE II AS PER PLAN	18" x 8" x 6" JUNCTION BOX	3" WEATHER HEAD
	FROM	TO	UNIT	EA.	EA.	EA.		EA.	EA.	L.F.	L.F.	L.F.	L.F.	EA.	EA.
760															
761															
762	774+95	776+00	RT.							105	105		105		
763															
* 764	STRUCTURE SUB-TOTAL											440			
765	ROADWAY SUB-TOTAL SH.#			4	1	5		1	7	1045	1045	915	680	1	
766															
767	STATIONING REFERENCED TO ℄ I-90 ET. AL.														
768															
769	776+00	777+40	RT.						1	140	140		140		
770	777+40	779+95	RT.						1	255	255		255		
** 771	779+95	782+20	RT.						1	L	L	450			
772	782+20	782+90	RT.						1	L	L	140			
773	782+90	45+50 W.98	LT.						1	60	60	60			
774	@	45+45 W.98	LT.	1		1									
775	@	45+40 W.98	LT.					L							
*** 776	782+90	785+05	RT.						1	L	L	430			
777	785+05	788+10	RT.						1+1	L	L		305		
778	@	788+15	RT.	1		1									
779	@	788+20	RT.					L							
780	788+10	54+00 RD.#5	RT.						1+1	100	100	200			
781	@	54+03 RD.#5	RT.	1		1									
782	@	54+08 RD.#5	RT.					L							
783	788+10	788+20	XING						1	200	200	400			
784	788+10	788+15	24' LT.		1	1				↑	↑	75			
785	788+20	788+15	24' LT.							↑	↑	75		1	
786	788+15	788+10	LT.							↑	↑	125			
787	@	788+15	LT.	1		1									
788	788+20	67+30 RD.#4	LT.						1+1	125	125	250			
789	@	67+25 RD.#4	LT.	1		1									
790	@	67+20 RD.#4	LT.					L							
791	788+20	791+00	LT.						1	280	280		280		
792	791+00	91+00#16	XING						1	40	40	80			
793	91+00	93+45#16	RT.						EXIST.	L	L		245		
** 794	STRUCTURE SUB-TOTAL											450			
*** 795	STRUCTURE SUB-TOTAL											430			
796	ROADWAY SUB-TOTAL SH.#			5	1	6		1	15	1200	1200	1405	1225	1	

* STRUCTURE # CUY-90-1127
** STRUCTURE # CUY-90-1146
*** STRUCTURE # CUY-90-1152

COMMUNICATIONS QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

505
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

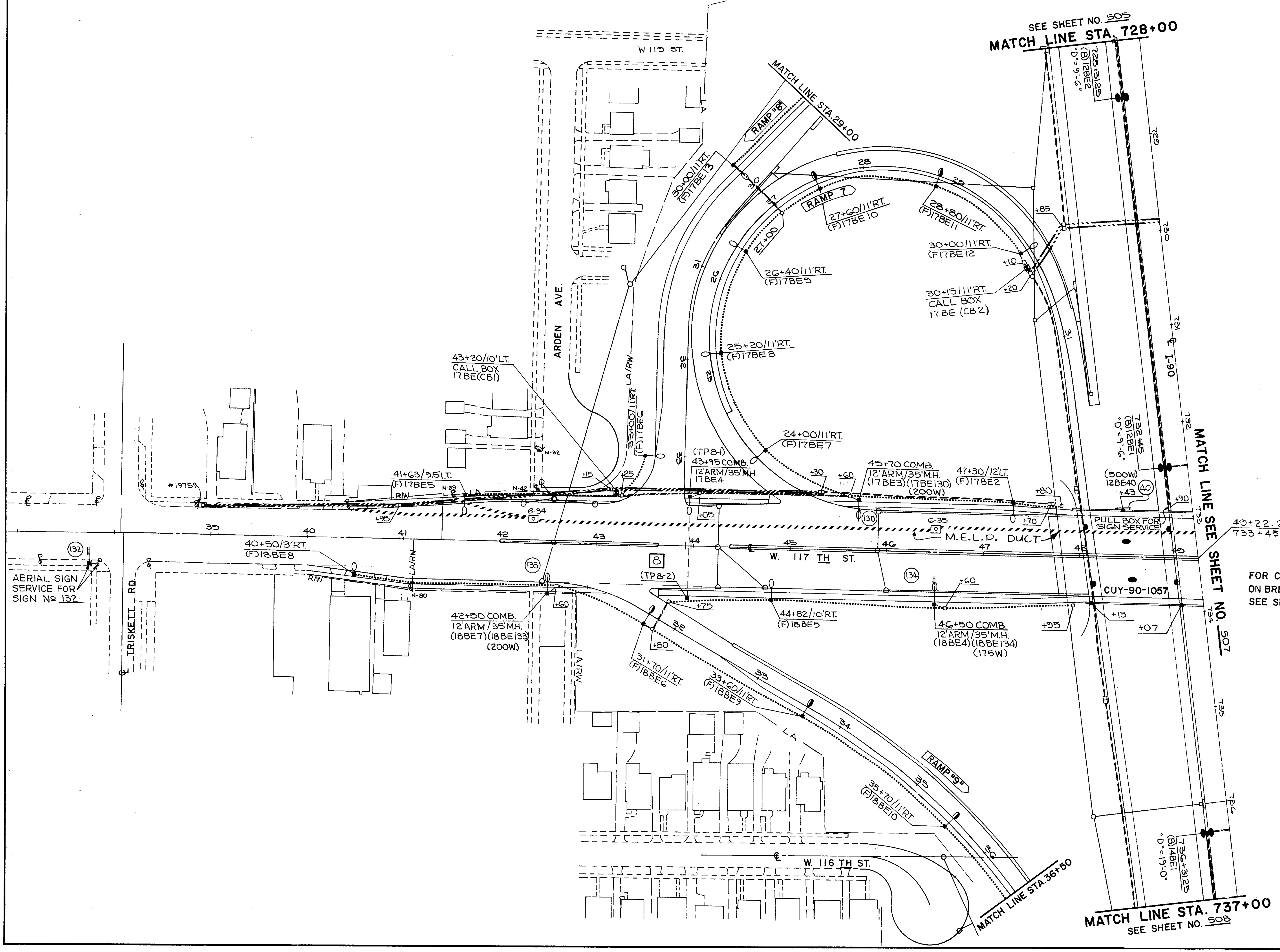
STA. 715+00 TO 728+00

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

506
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



FOR CONDUIT PLACEMENT
ON BRIDGE NO. CUY-90-1057
SEE SHEET NO. 513

GRAPHIC SCALE
0 50 100 150 200

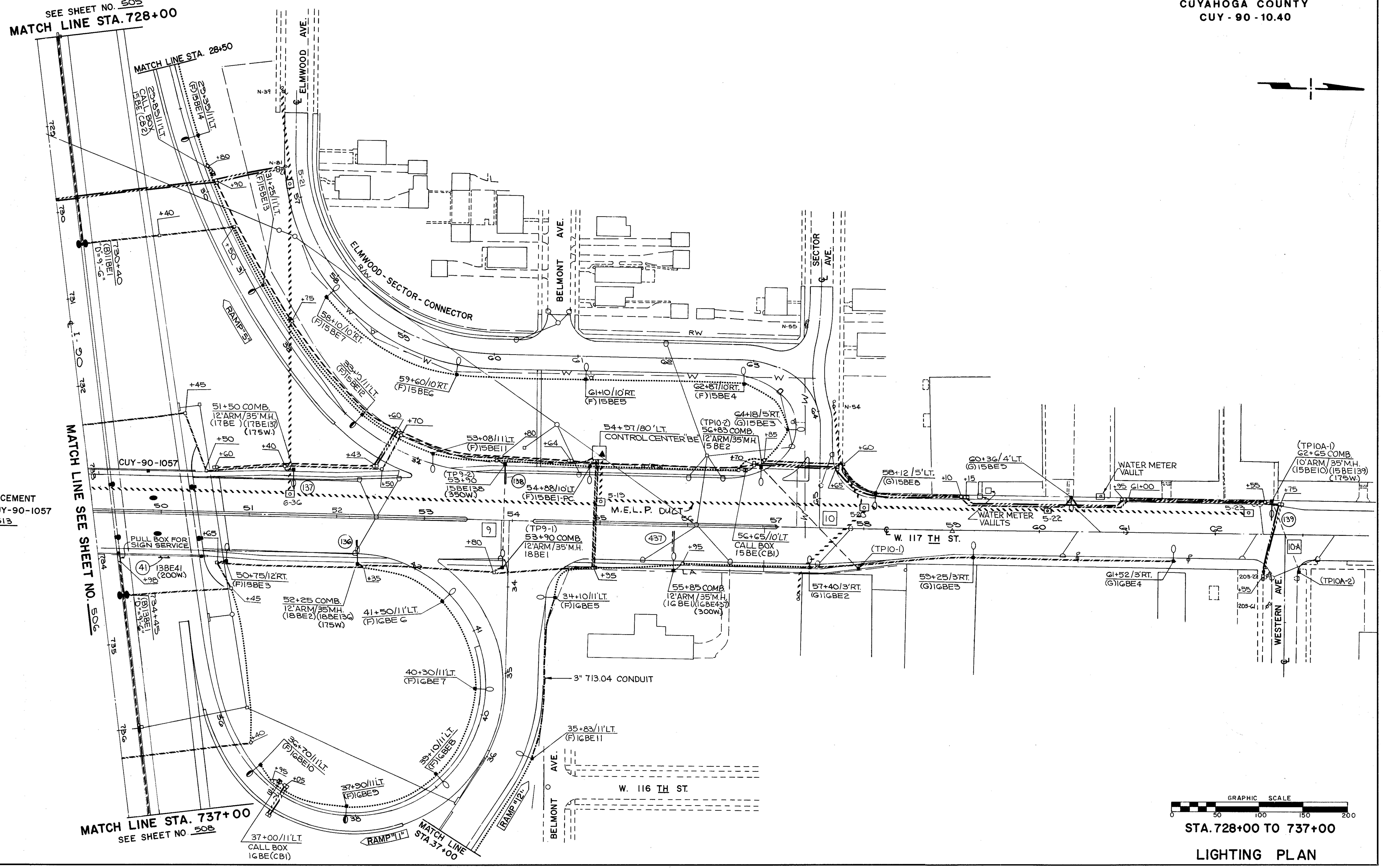
STA. 728+00 TO 737+00

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

507
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



FOR CONDUIT PLACEMENT
ON BRIDGE NO. CUY-90-1057
SEE SHEET NO. 513

STA. 728+00 TO 737+00

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

508
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

GRAPHIC SCALE
0 50 100 150 200

STA. 737+00 TO 752+00

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

509
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

STA. 752+00 TO 767+00

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

510
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

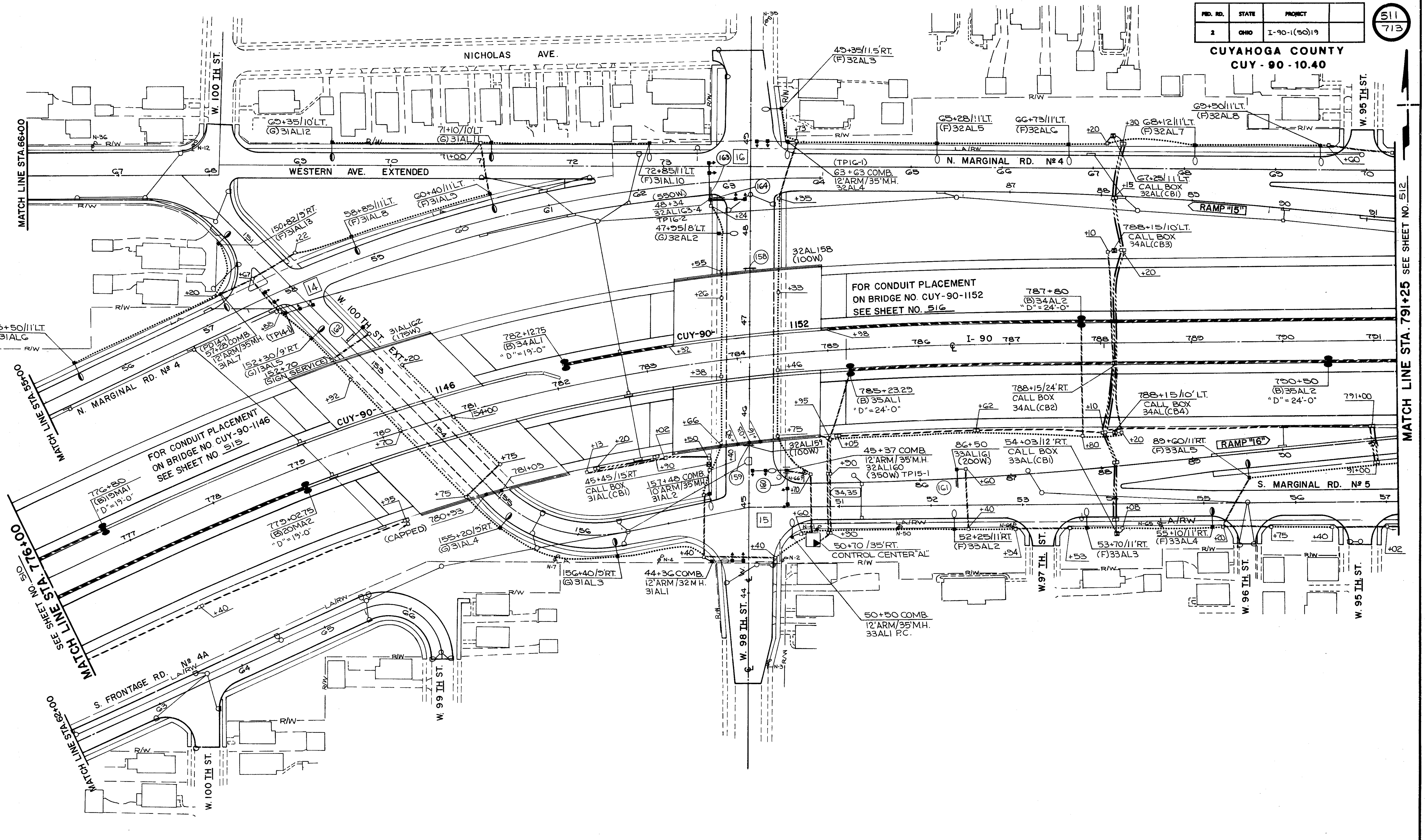
STA. 767+00 TO 776+00

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

511
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



GRAPHIC SCALE
0 50 100 150 200

STA. 776+00 TO 791+25

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

512
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

NOTE:
AFTER CONSTRUCTION OF CONTROL CENTER "AL" AND CIRCUITS 33, 34 AND 35, REMOVE TEMPORARY CONNECTION FOR CIRCUIT 33 AL IN PULL BOX AT STA. 44+63 LORAIN AVE. AND FOR CIRCUITS 34 AND 35 REMOVE CONNECTION AT CONTROL CENTER "LN", ALSO REMOVE CIRCUIT CABLE FROM CONTROL CENTER "LN" TO POLES 34 AL5 AND 35 AL5 RESPECTIVELY.

GRAPHIC SCALE
0 50 100 150 200

STA. 791+25 TO 792+00
EXISTING
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

* EXPANSION COUPLING REQUIRED
ON 1¼" CONDUIT THROUGH SLAB

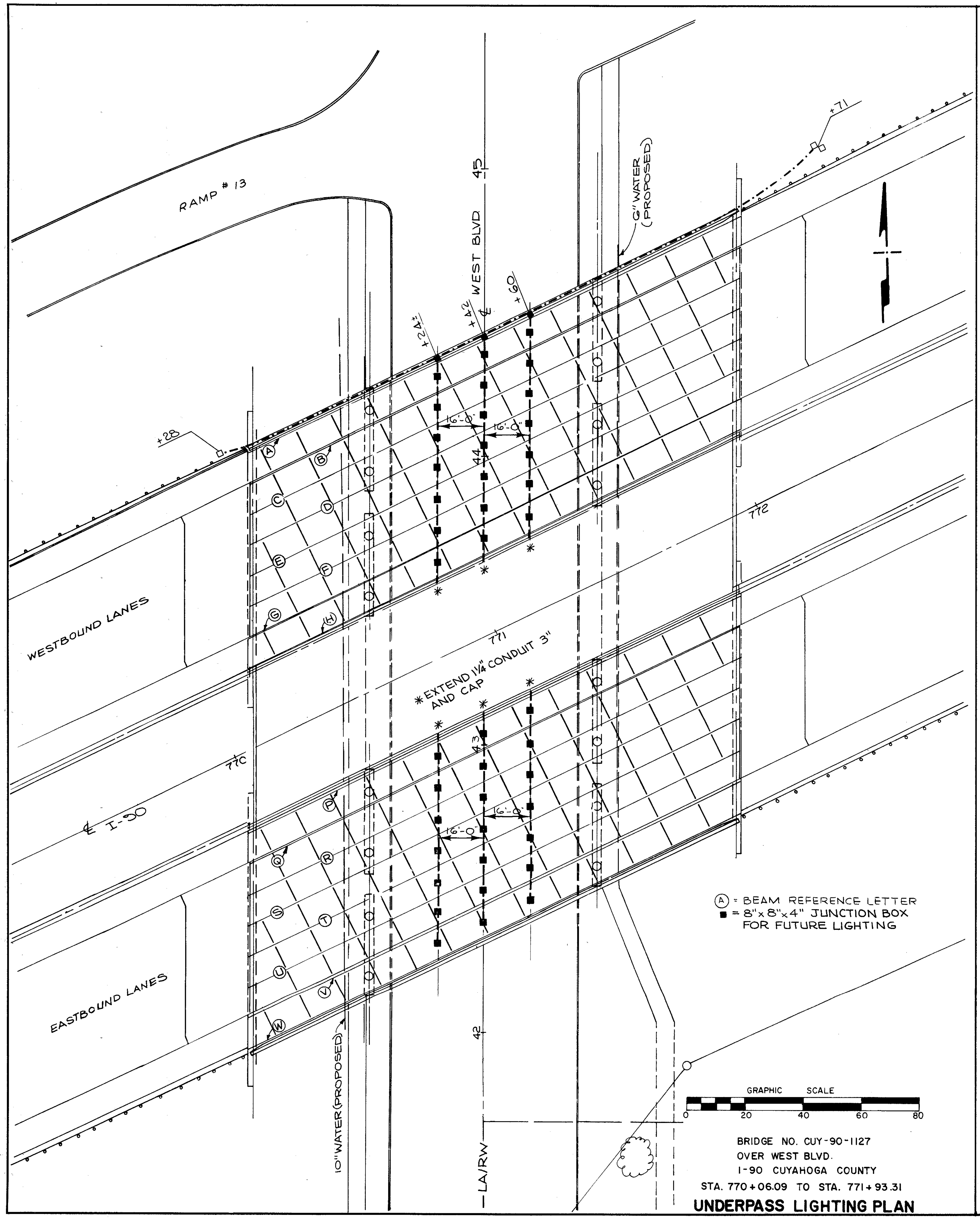
BRIDGE NO. CUY-90-1057
UNDER WEST 117TH ST.
I-90 CUYAHOGA COUNTY
STA. 733+45.34

UNDERPASS LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

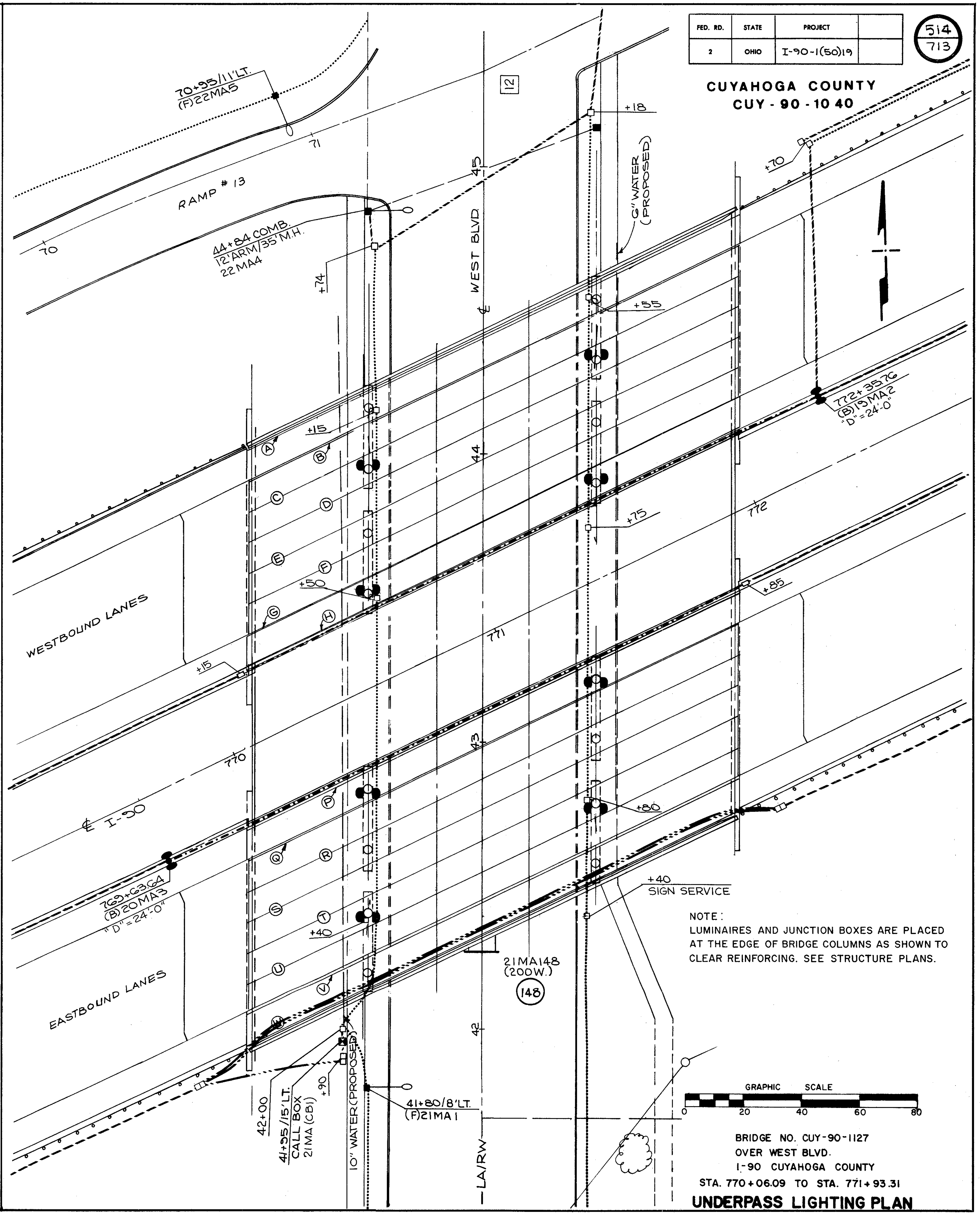
514
713

CUYAHOGA COUNTY
CUY - 90 - 10 40



BRIDGE NO. CUY-90-1127
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

UNDERPASS LIGHTING PLAN



NOTE:
LUMINAIRES AND JUNCTION BOXES ARE PLACED AT THE EDGE OF BRIDGE COLUMNS AS SHOWN TO CLEAR REINFORCING. SEE STRUCTURE PLANS.

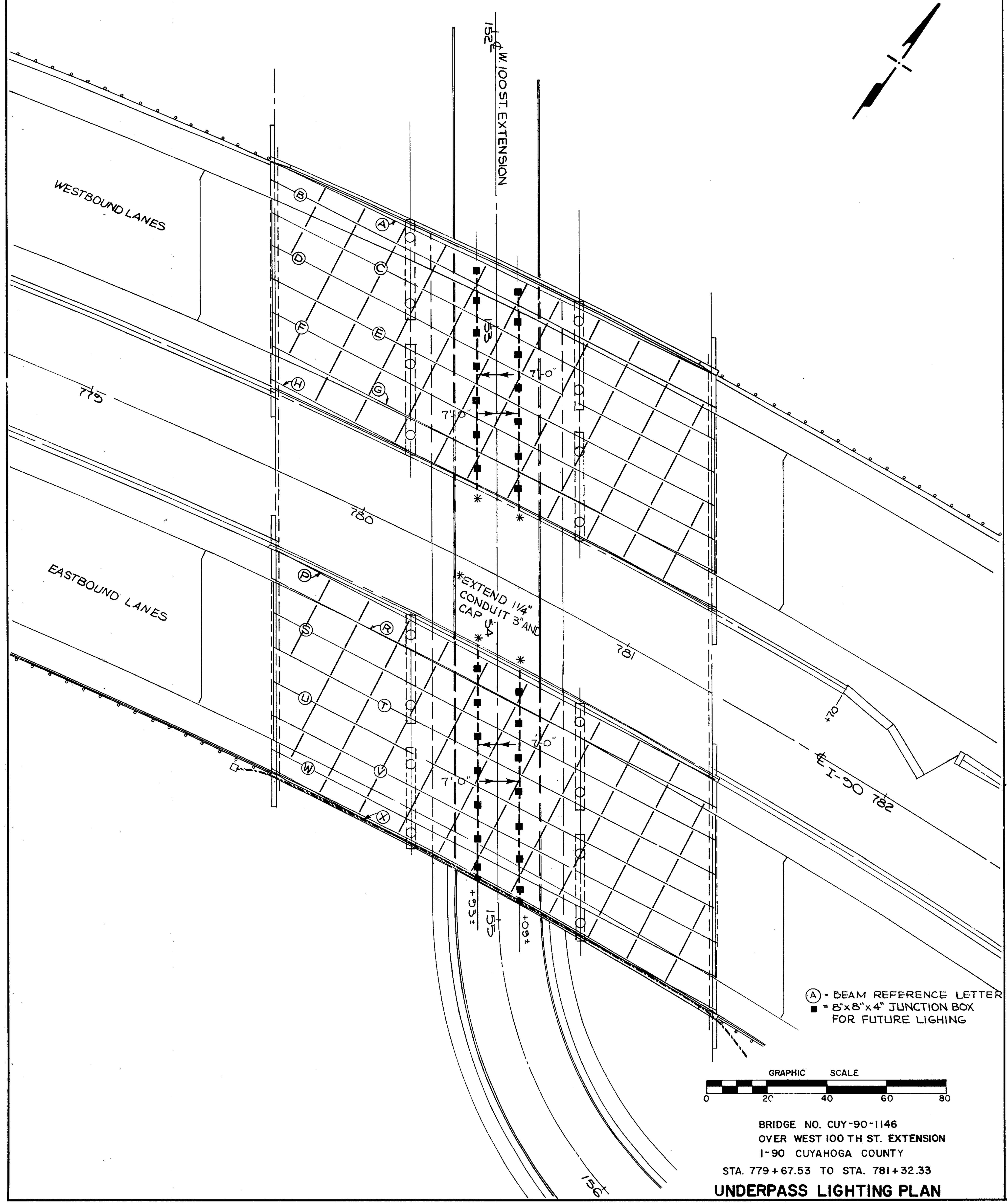
BRIDGE NO. CUY-90-1127
OVER WEST BLVD.
I-90 CUYAHOGA COUNTY
STA. 770+06.09 TO STA. 771+93.31

UNDERPASS LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

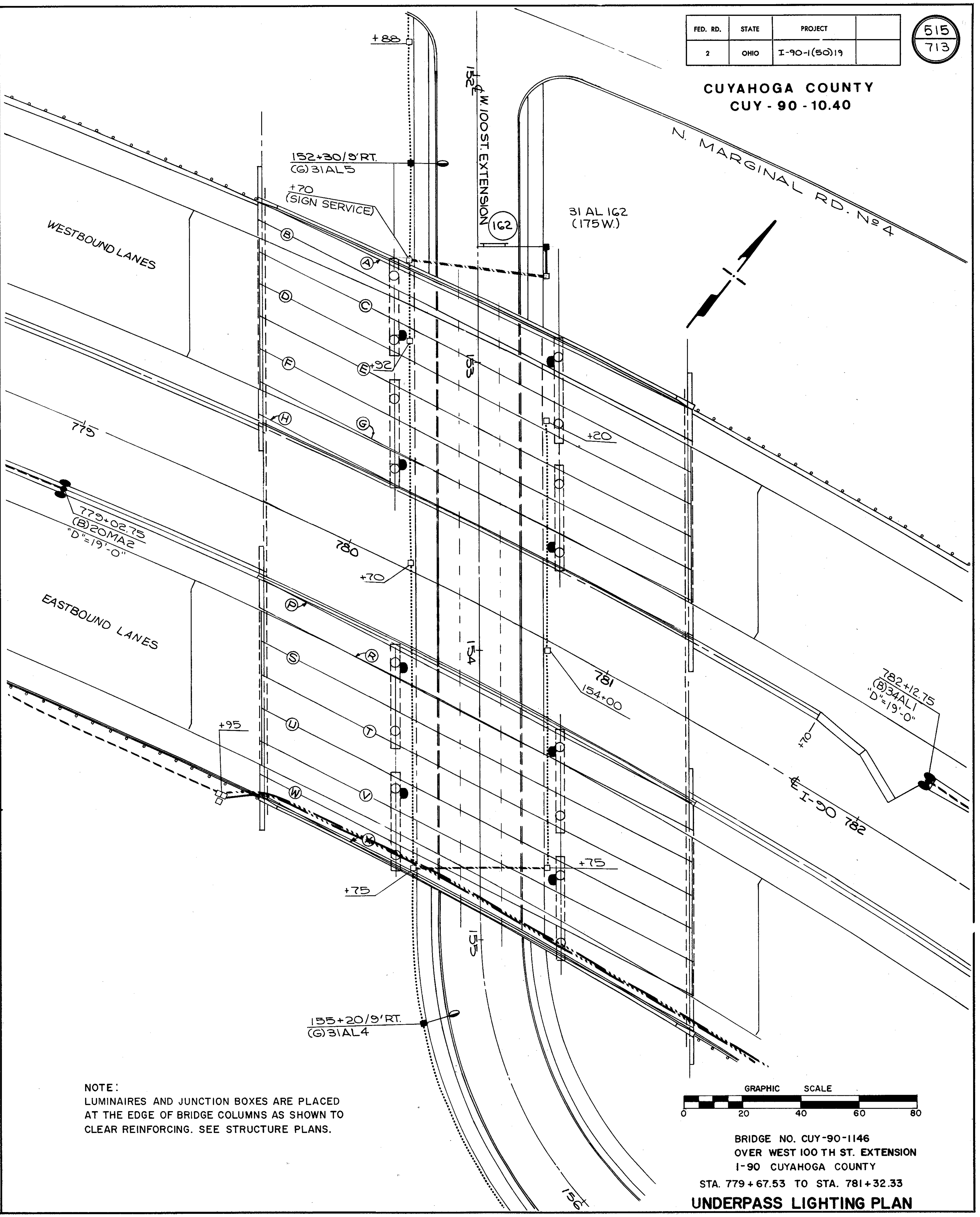
515
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



BRIDGE NO. CUY-90-1146
OVER WEST 100 TH ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

UNDERPASS LIGHTING PLAN



NOTE:
LUMINAIRES AND JUNCTION BOXES ARE PLACED AT THE EDGE OF BRIDGE COLUMNS AS SHOWN TO CLEAR REINFORCING. SEE STRUCTURE PLANS.

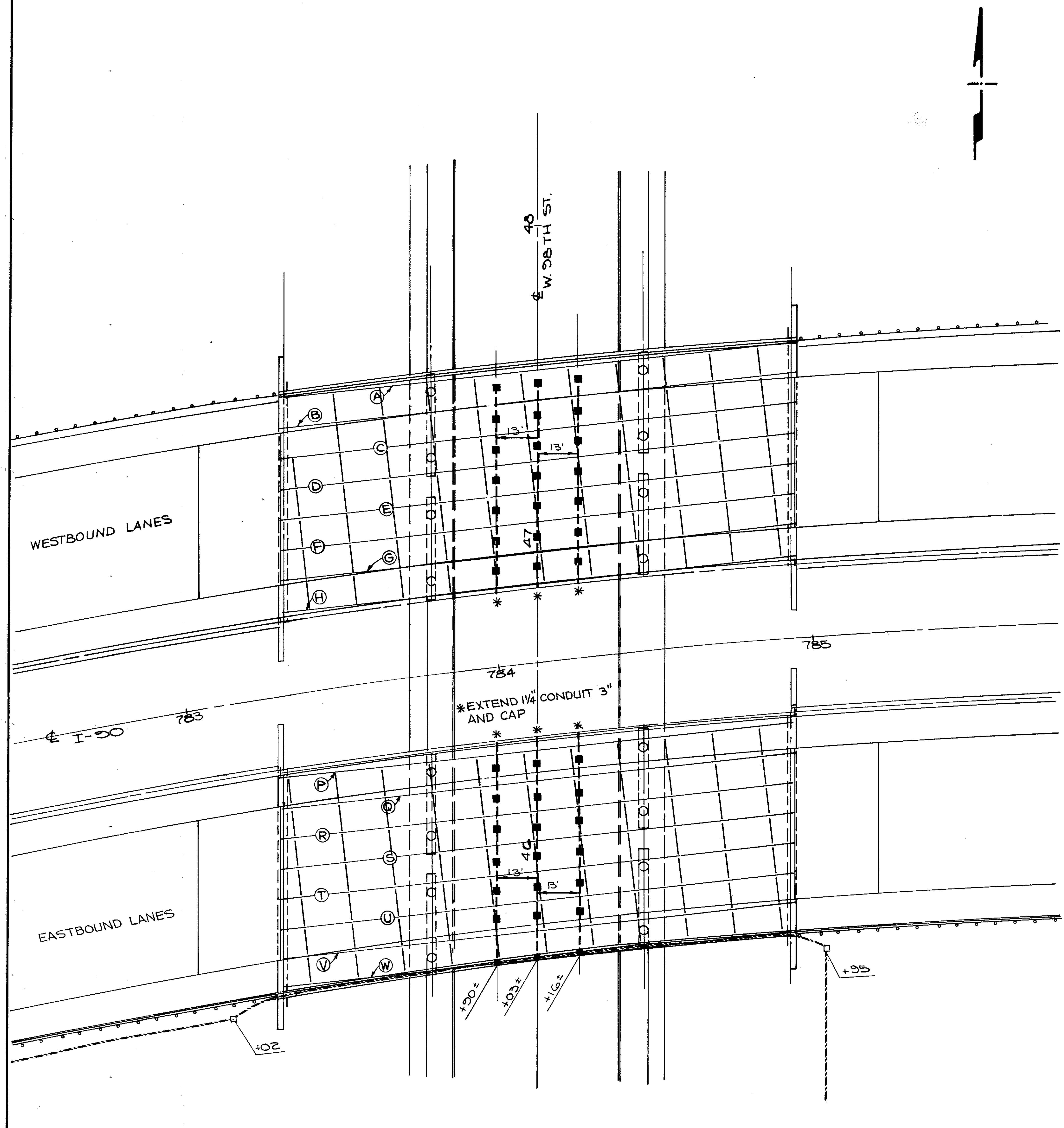
BRIDGE NO. CUY-90-1146
OVER WEST 100 TH ST. EXTENSION
I-90 CUYAHOGA COUNTY
STA. 779 + 67.53 TO STA. 781 + 32.33

UNDERPASS LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

516
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

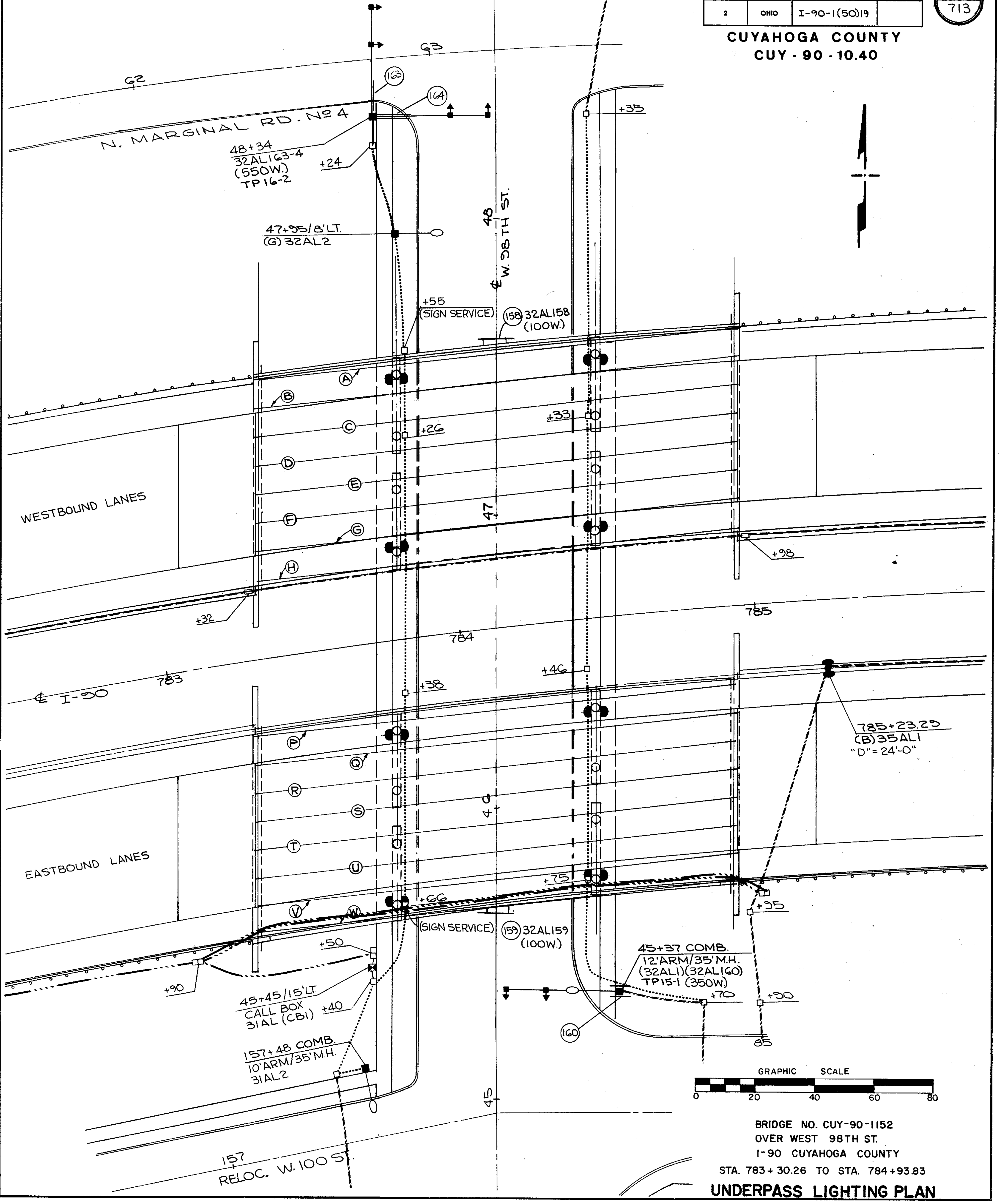


Ⓐ = BEAM REFERENCE LETTER
■ = 8"× 8"× 4" JUNCTION BOX FOR FUTURE LIGHTING

GRAPHIC SCALE
0 20 40 60 80

BRIDGE NO. CUY-90-1152
OVER WEST 98TH ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

UNDERPASS LIGHTING PLAN



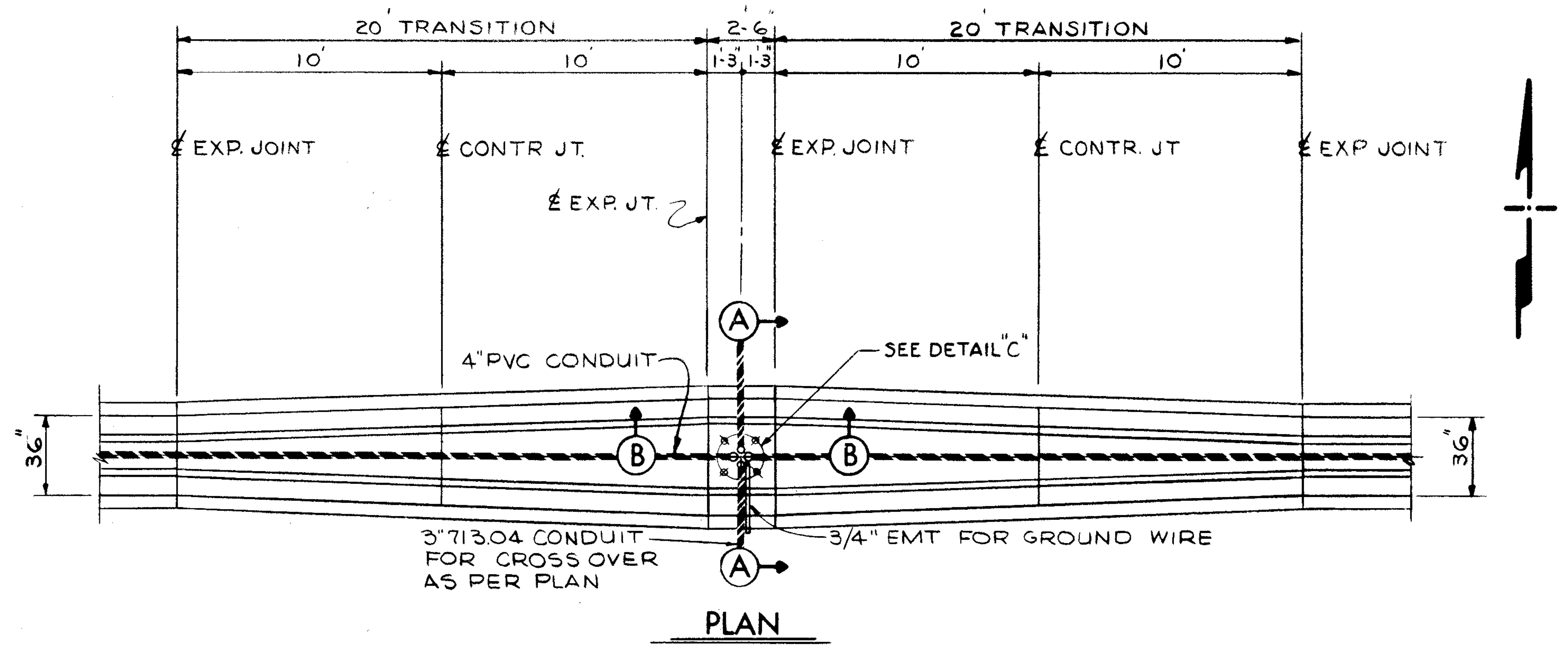
GRAPHIC SCALE
0 20 40 60 80

BRIDGE NO. CUY-90-1152
OVER WEST 98TH ST.
I-90 CUYAHOGA COUNTY
STA. 783 + 30.26 TO STA. 784 + 93.83

UNDERPASS LIGHTING PLAN

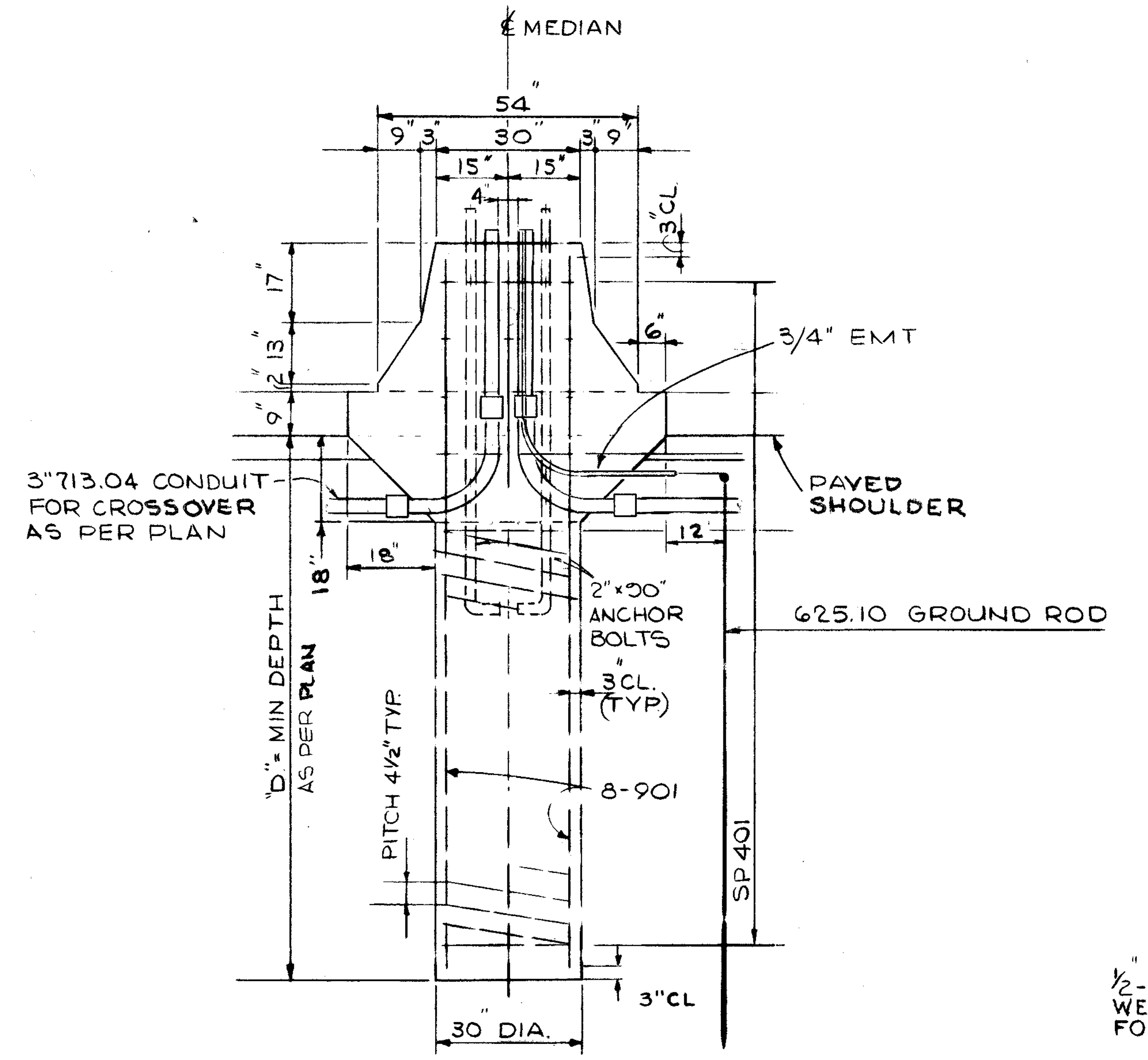
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

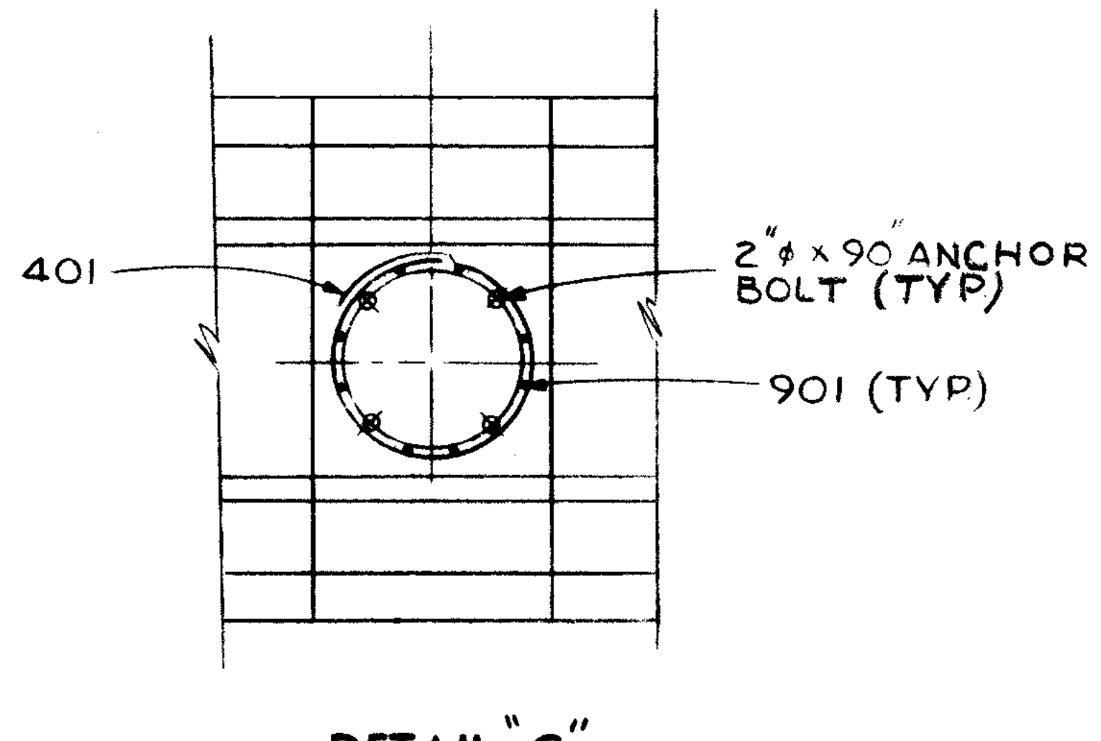


PLAN

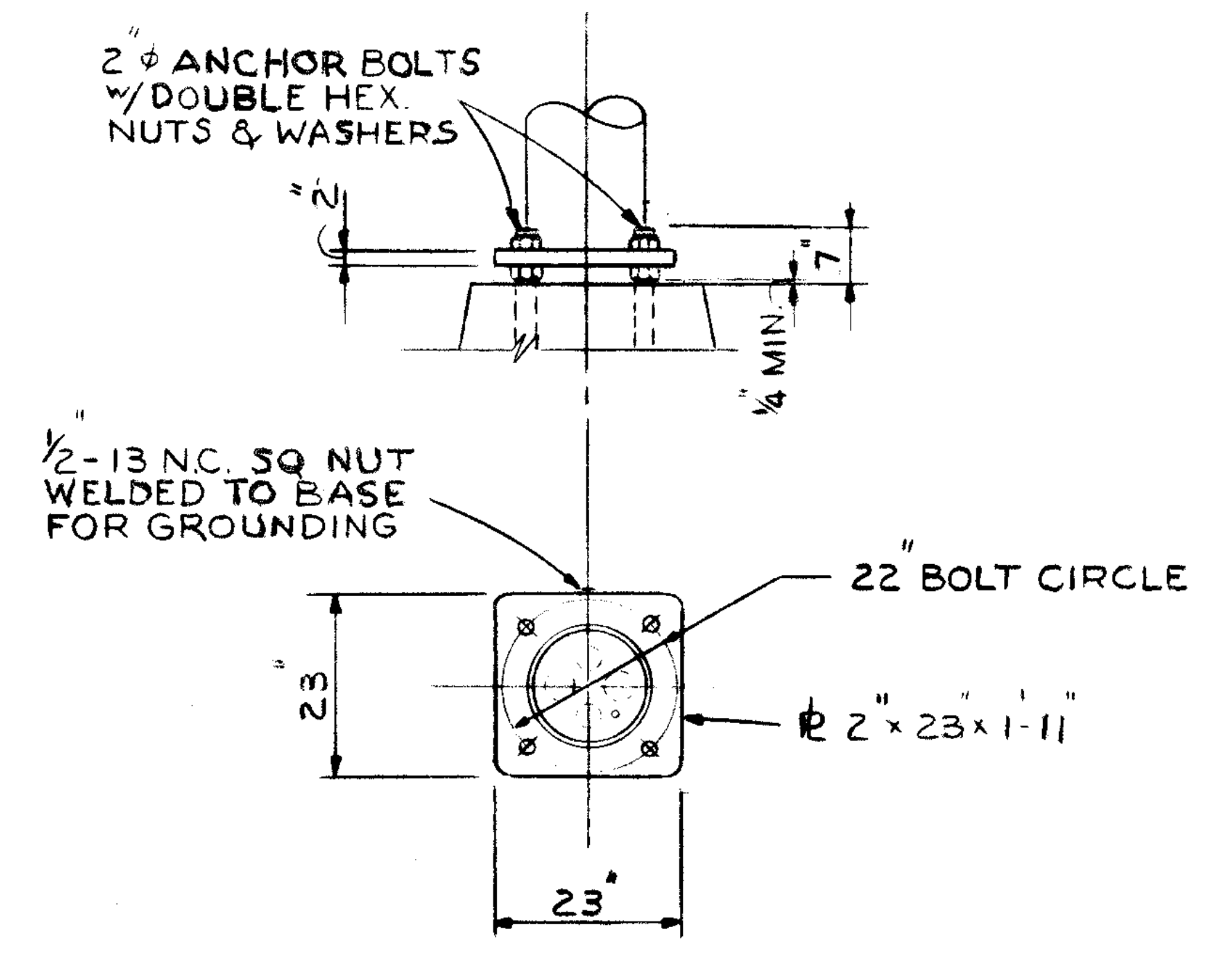
FOUNDATION - CONSTRUCTION OF THE SPECIAL BARRIER SECTION FOR MEDIAN LIGHT POLE SUPPORT SHALL CONFORM TO THE REQUIREMENTS OF 625 AND 622. THE UNIT PRICE BID FOR EACH ITEM 625, LIGHT POLE FOUNDATION, HIGH MAST, 30" BARRIER MEDIAN, D=XX' SHALL BE FULL COMPENSATION FOR EXCAVATION FORMING AND PLACING THE BARRIER SECTION AS DETAILED REINFORCING, KEYING AND DOWELING INTO ADJACENT STANDARD BARRIER SECTIONS, FURNISHING AND PLACING ANCHOR BOLTS, CONDUIT ELLS AND ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.



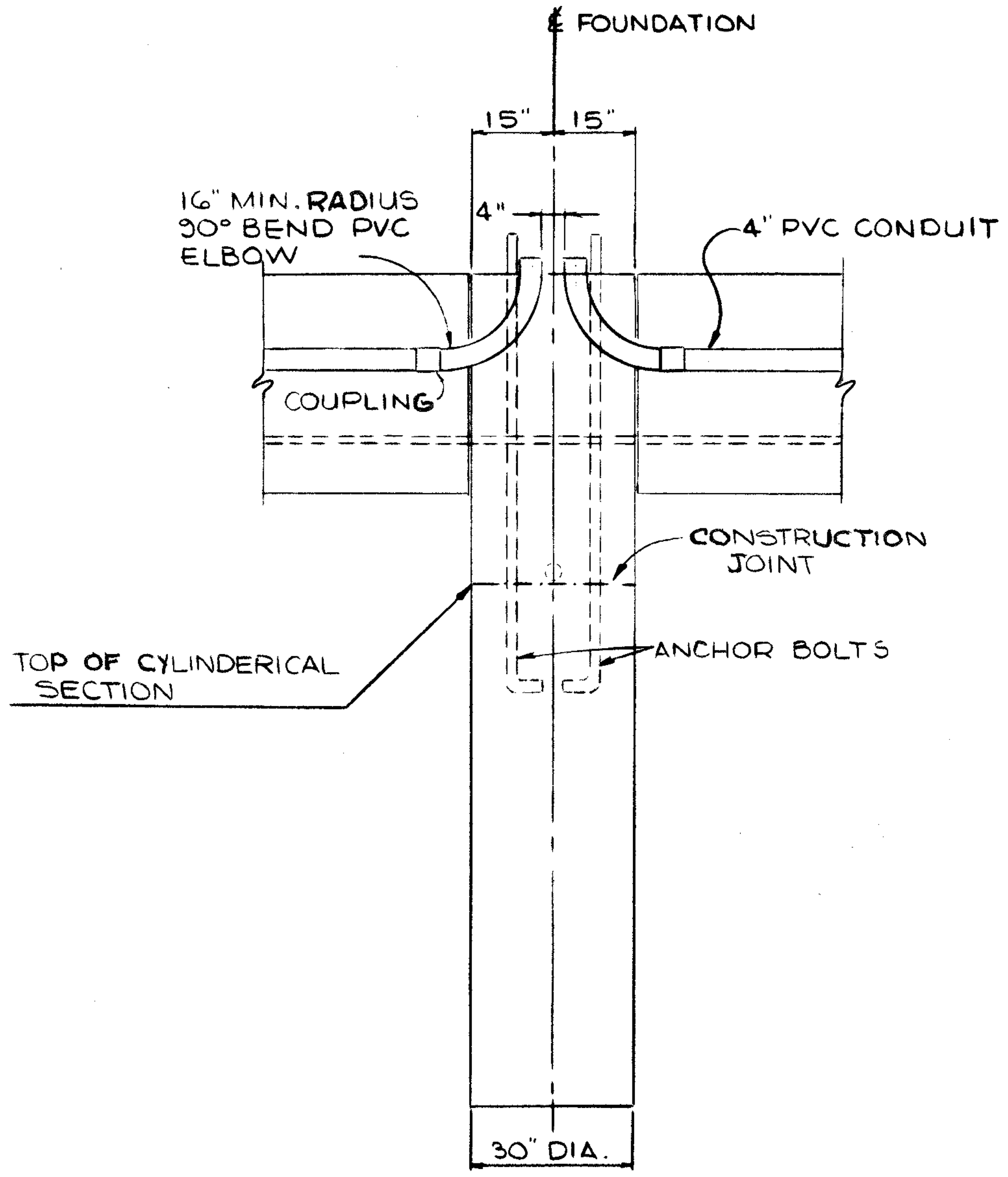
SECTION A-A



DETAIL "C"



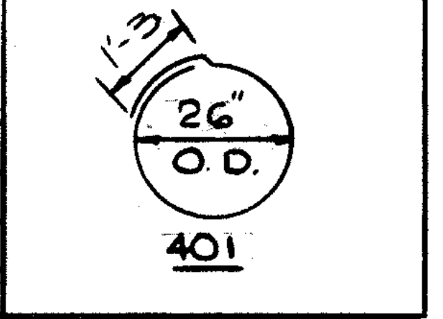
BASE DETAILS



SECTION B-B

SPIRAL REINFORCEMENT SCHEDULE				
MARK	NO. REQ'D.	COR. DIA. OF SPIRAL	LENGTH OF SPIRAL	PITCH
SP401	1	2'-0"	"D" MIN+(35)	4 ½"

REINFORCEMENT SCHEDULE			
MARK	NO. REQ	LENGTH	TYPE
901	8	"D" MIN+35"	ST.



401

SOILS - THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY 75% IN DRY OR WET SAND, 80% IN SILTY CLAY, 110 % IN SOFT CLAY, AND BY 180 % IN WET SILT.

RACEWAY - 4" RACEWAY IN THE MEDIAN BARRIER SHALL CONSIST OF POLYVINYL CHLORIDE MATERIAL. PAYMENT FOR FURNISHING AND PLACING THE RACEWAY MATERIAL SHALL BE INCLUDED ON THE UNIT PRICES BID FOR THE 622 CONCRETE BARRIER AND FOR 625 FOUNDATION ITEMS.

REINFORCING STEEL - THE COST AND PLACEMENT OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 625 LIGHT POLE FOUNDATION.

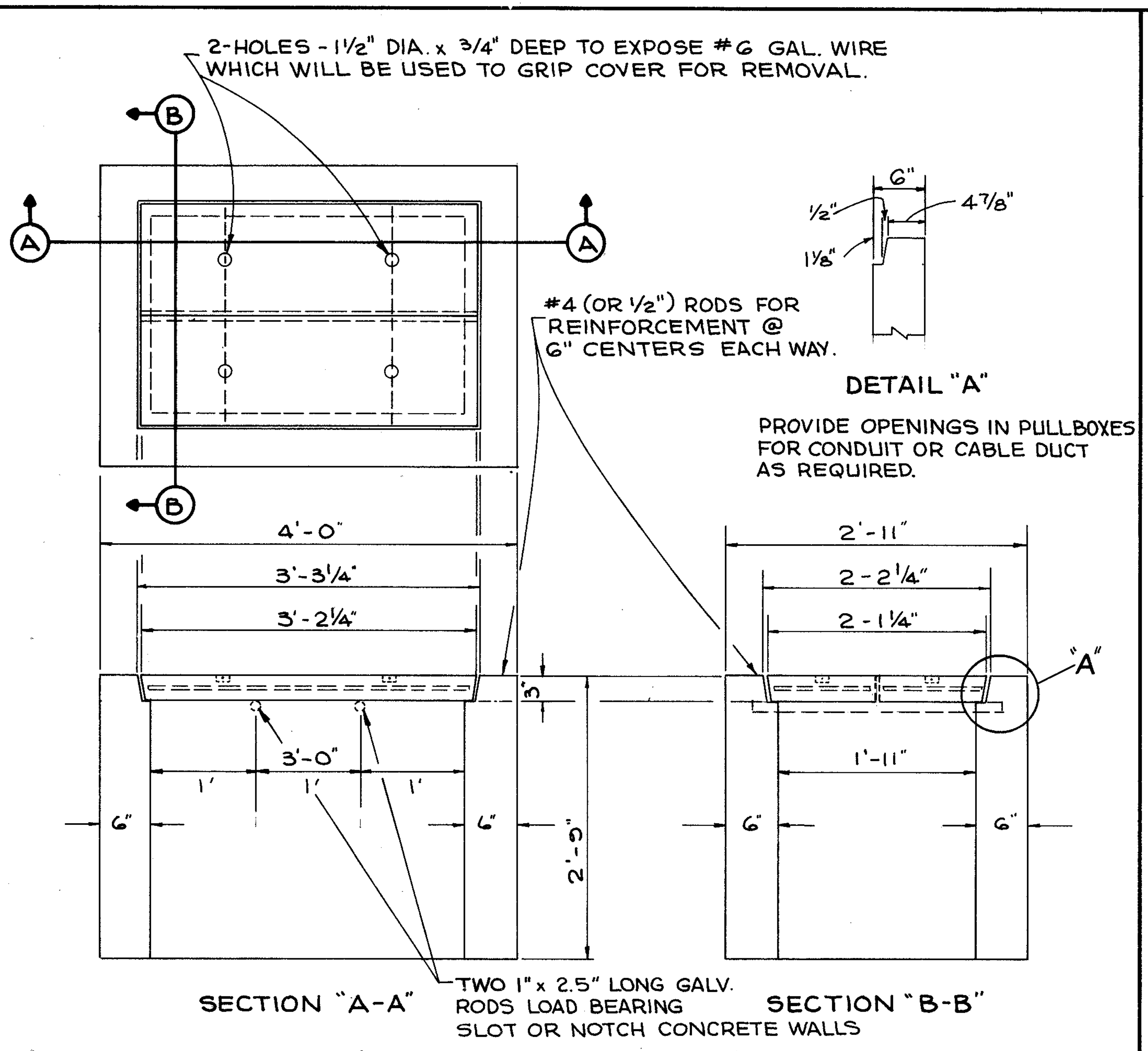
NOTE: THIS DETAIL IS ADAQUATE ONLY FOR A POLE WITH A 22" BOLT CIRCLE.

PULLBOX - WHERE A PULLBOX IS SPECIFIED IN A STANDARD BARRIER SECTION THE UNIT PRICE BID FOR EACH "ITEM 625, SPECIAL MEDIAN BARRIER PULLBOX, AS PER PLAN" SHALL BE FULL COMPENSATION FOR FORMING THE PULLBOX CAVITY, FURNISHING AND PLACING THE COVER FRAME, COVER PLATE, AND CONDUIT ELLS, AND ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED. THE PULLBOX SHALL BE AS DETAILED IN STANDARD DRAWING HL-17A AND HL-17B.

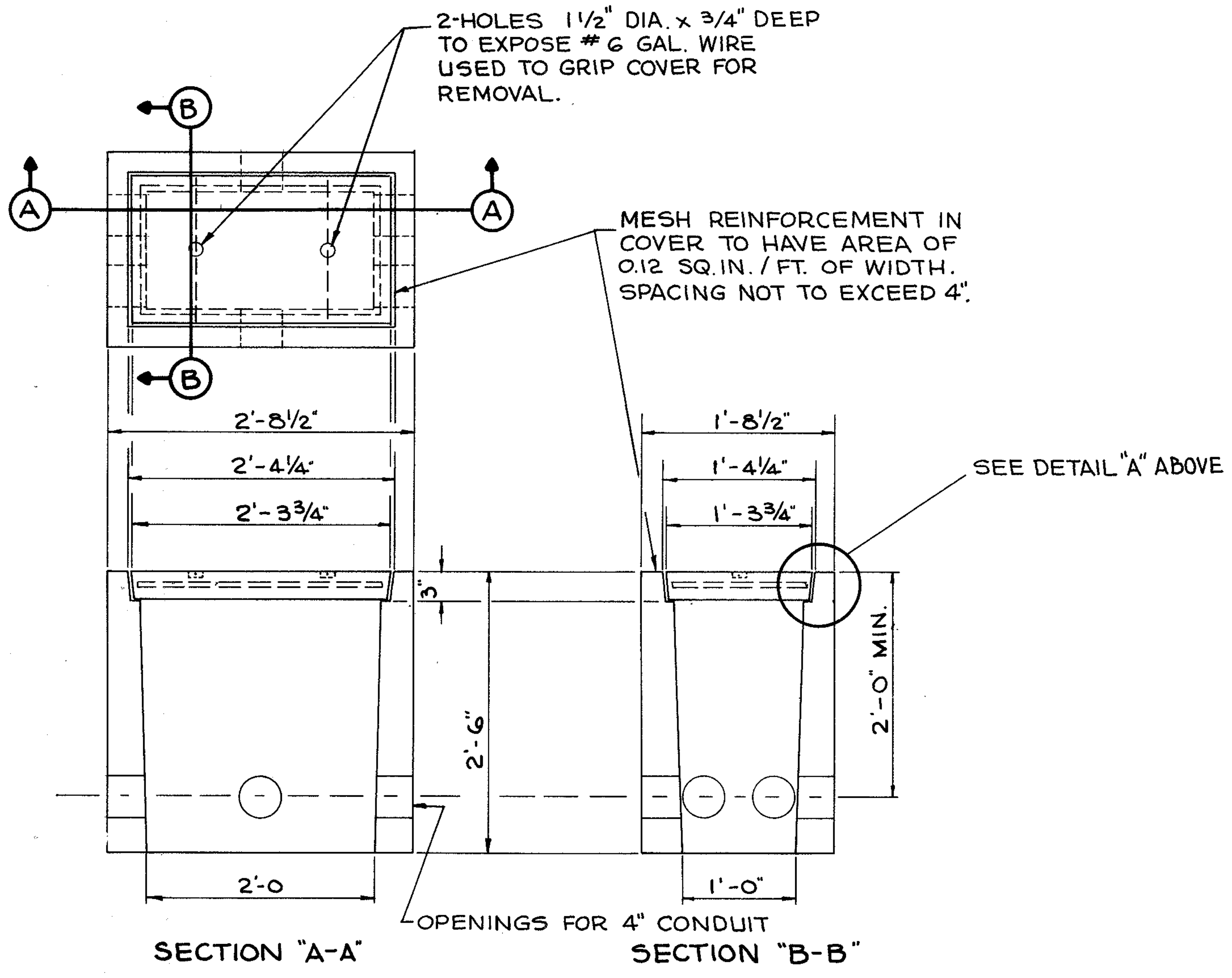
BARRIER MEDIAN FOUNDATION DETAILS
FOR 80' HIGH MAST POLES
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY - 90 - 10.40

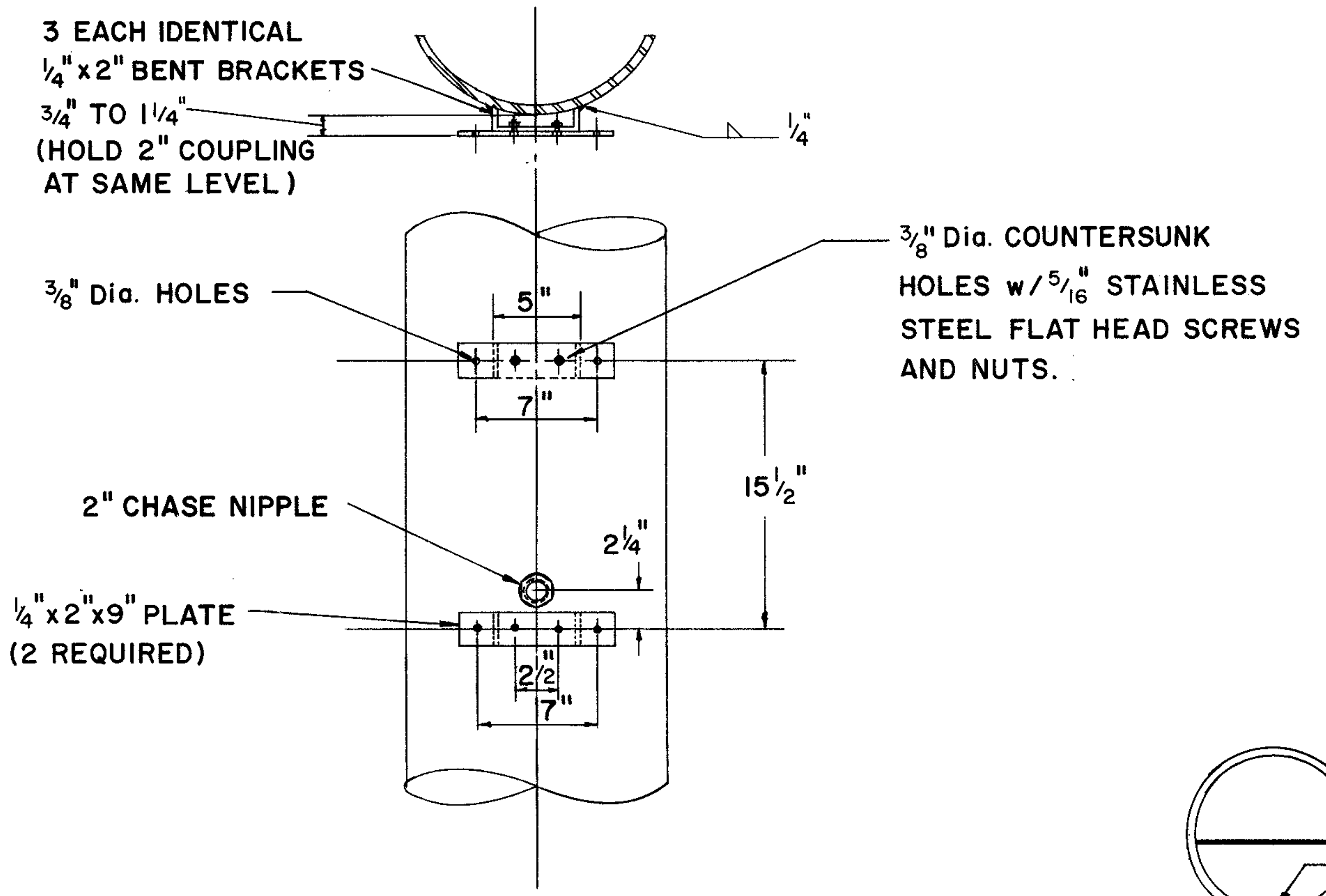


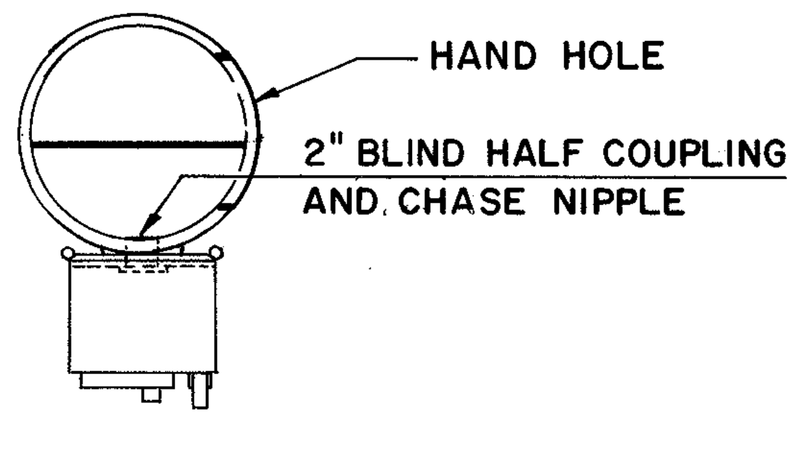
"DOUBLE PULL BOX"



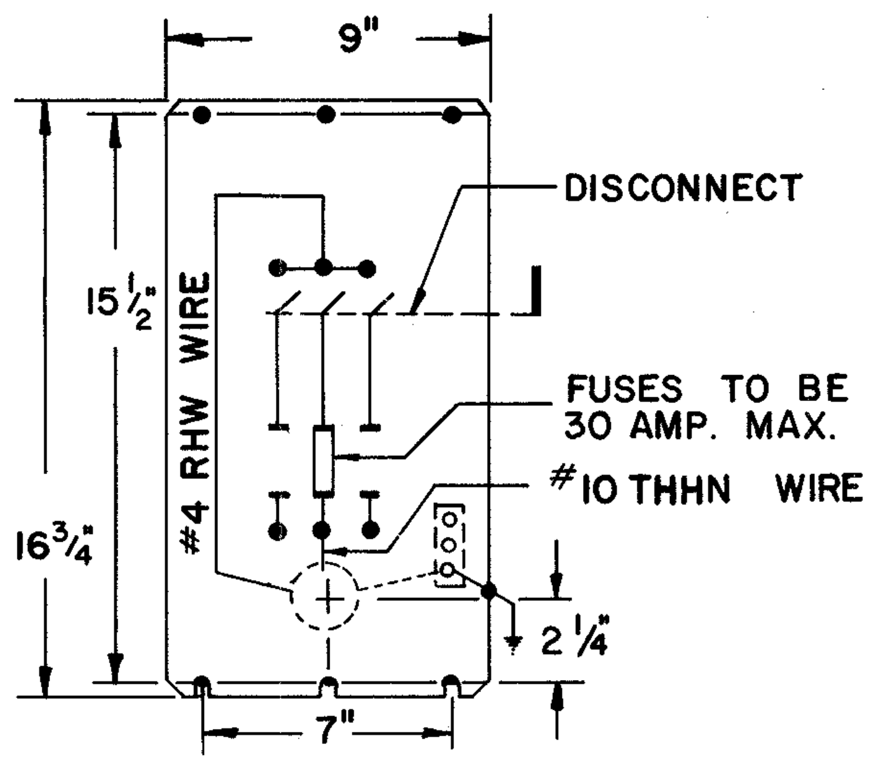
" SINGLE PULL BOX "

PULL BOX DETAILS

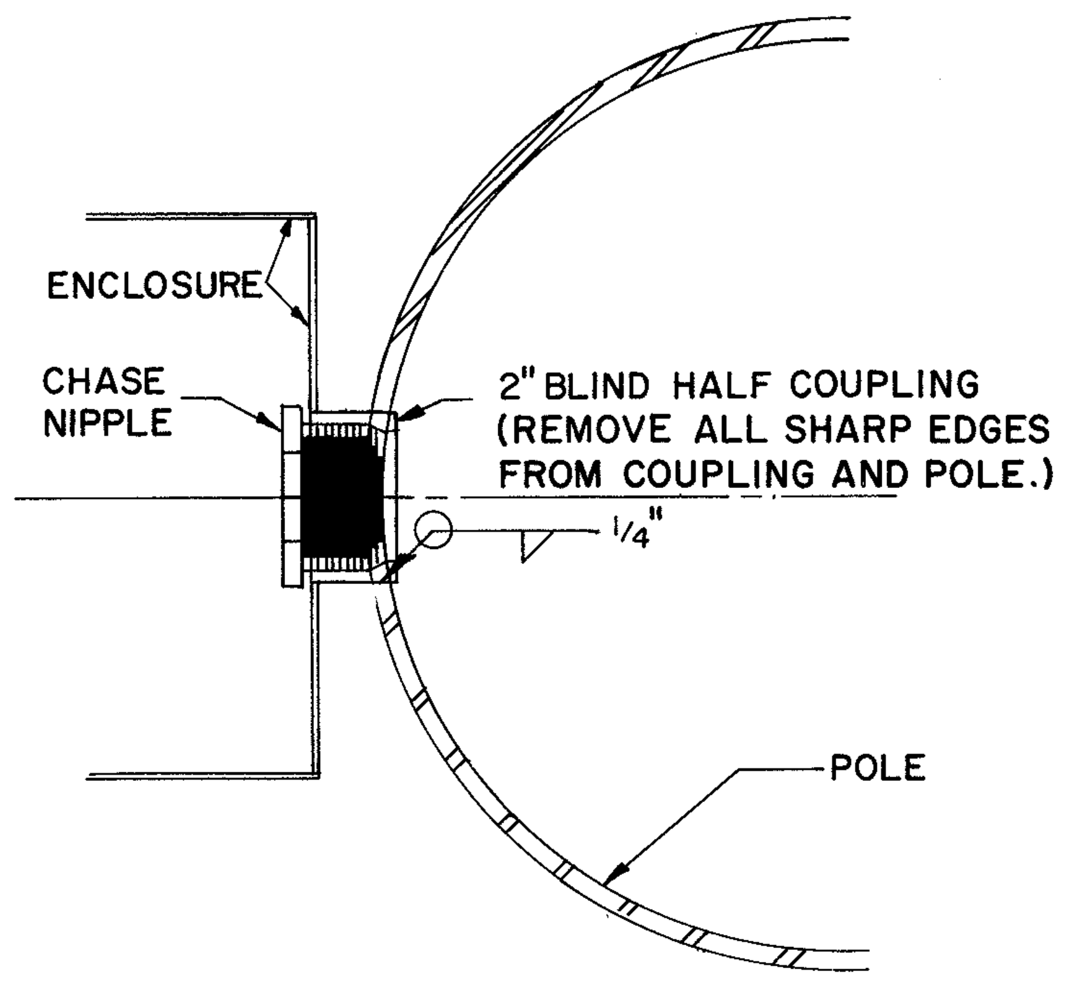




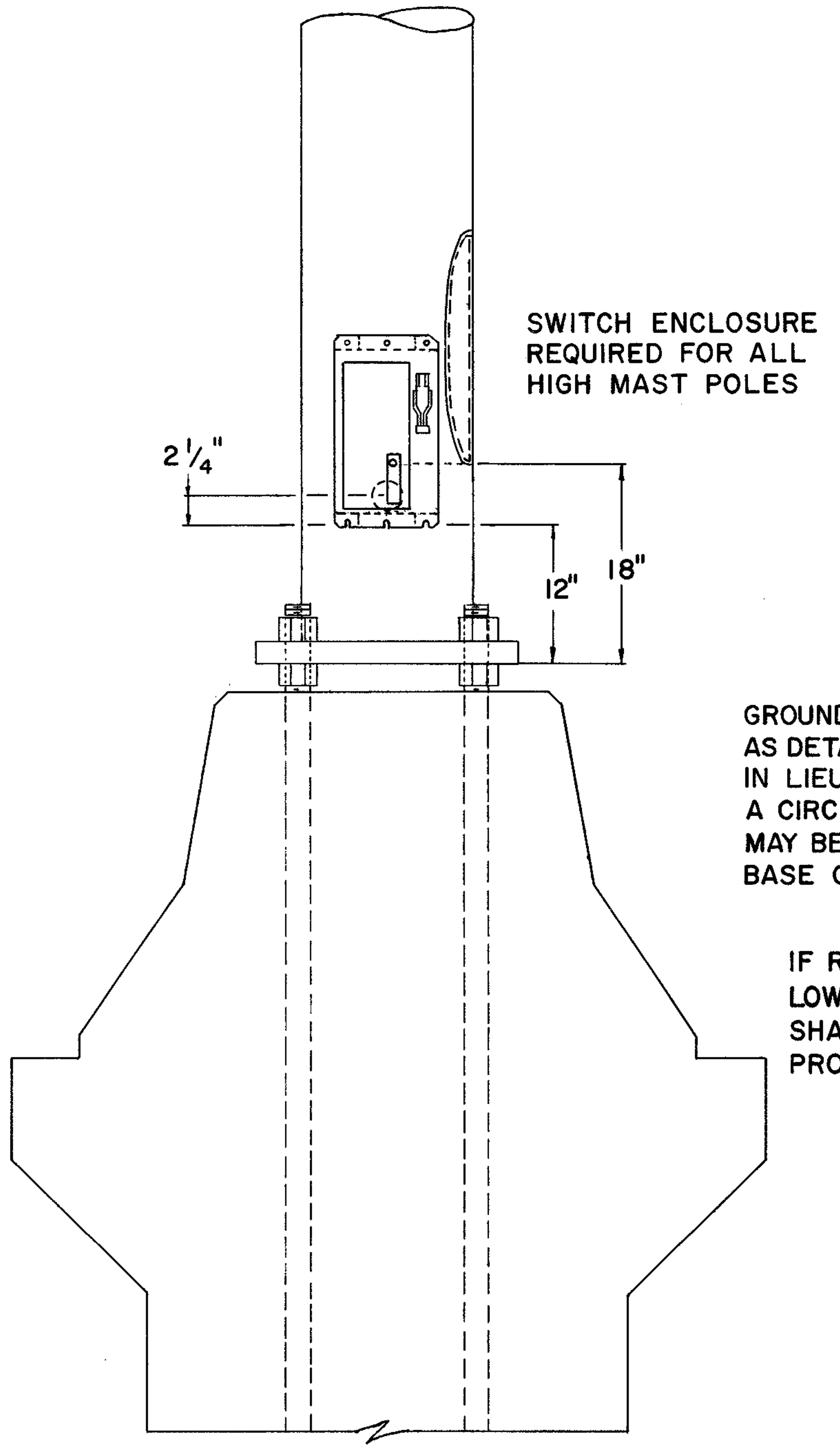
ENCLOSURE MOUNTING BRACKET

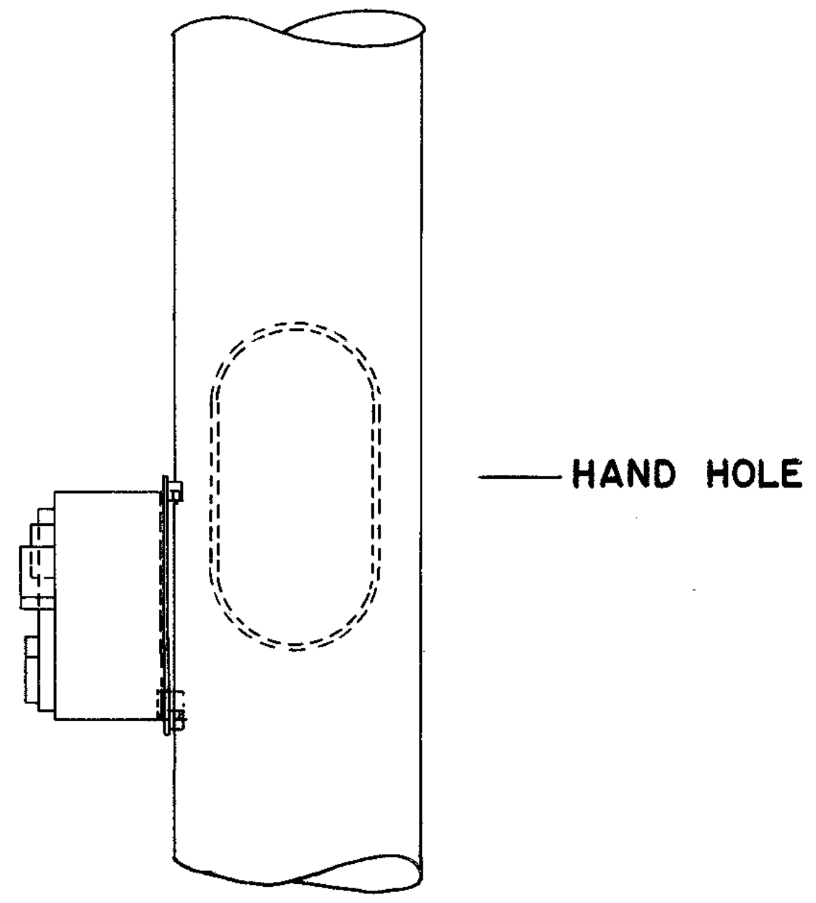


480 VOLT SERVICE



2" WIRE INLET DETAIL





GROUND POLE AT ANCHOR BOLT AS DETAILED ON SHEET Nº 517
IN LIEU OF SWITCH ENCLOSURE AS DETAILED, A CIRCUIT BRAKER OR OTHER SWITCH DEVICE MAY BE SUPPLIED FOR USE INSIDE THE POLE BASE OPPOSITE THE HAND HOLE.

IF RECEPTICAL IS SUPPLIED FOR A LOWERING DEVICE THE RECEPTICAL SHALL HAVE GROUND FAULT OVERCURRENT PROTECTION.

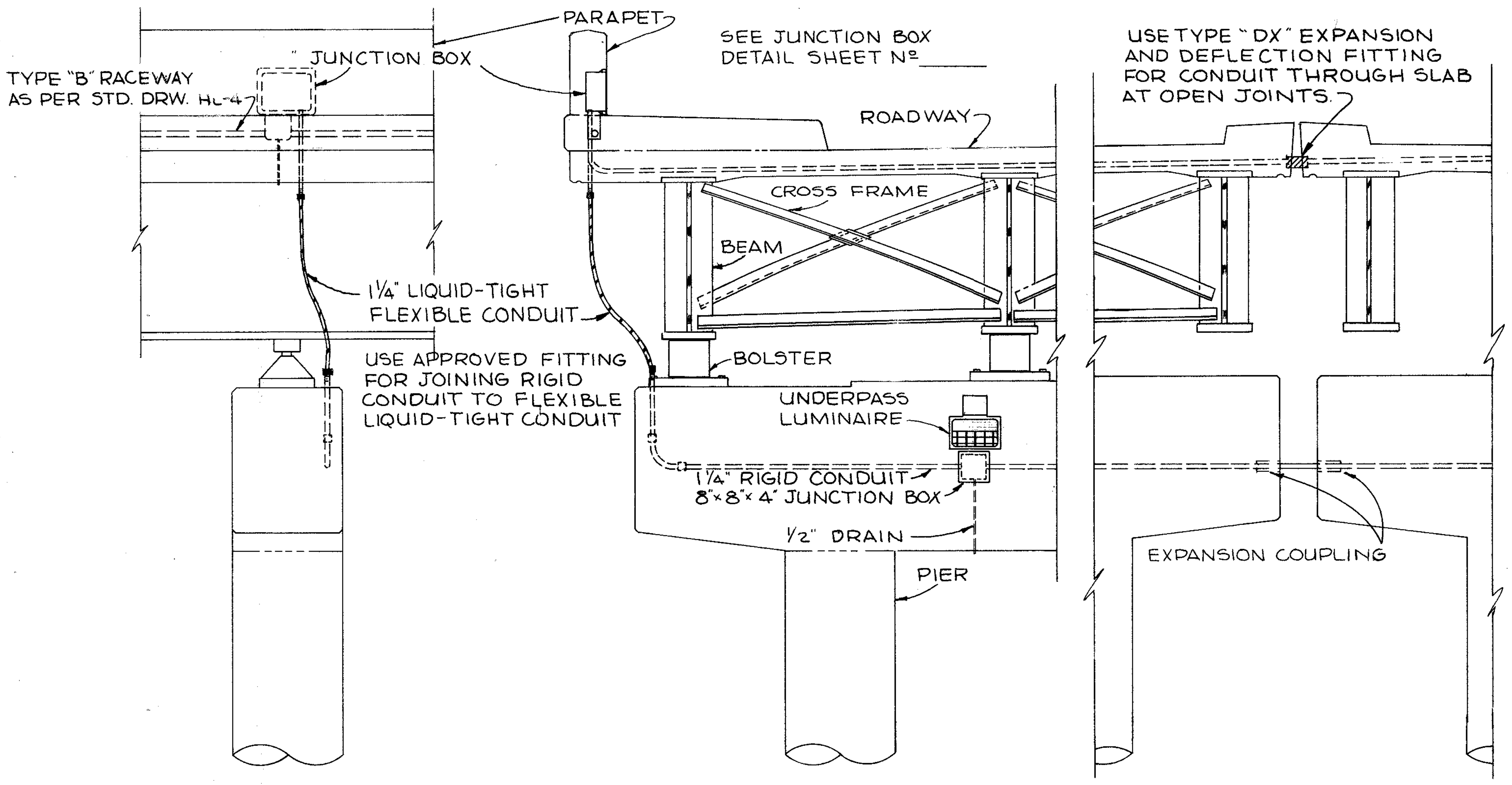
SWITCH ENCLOSURE DETAIL

LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

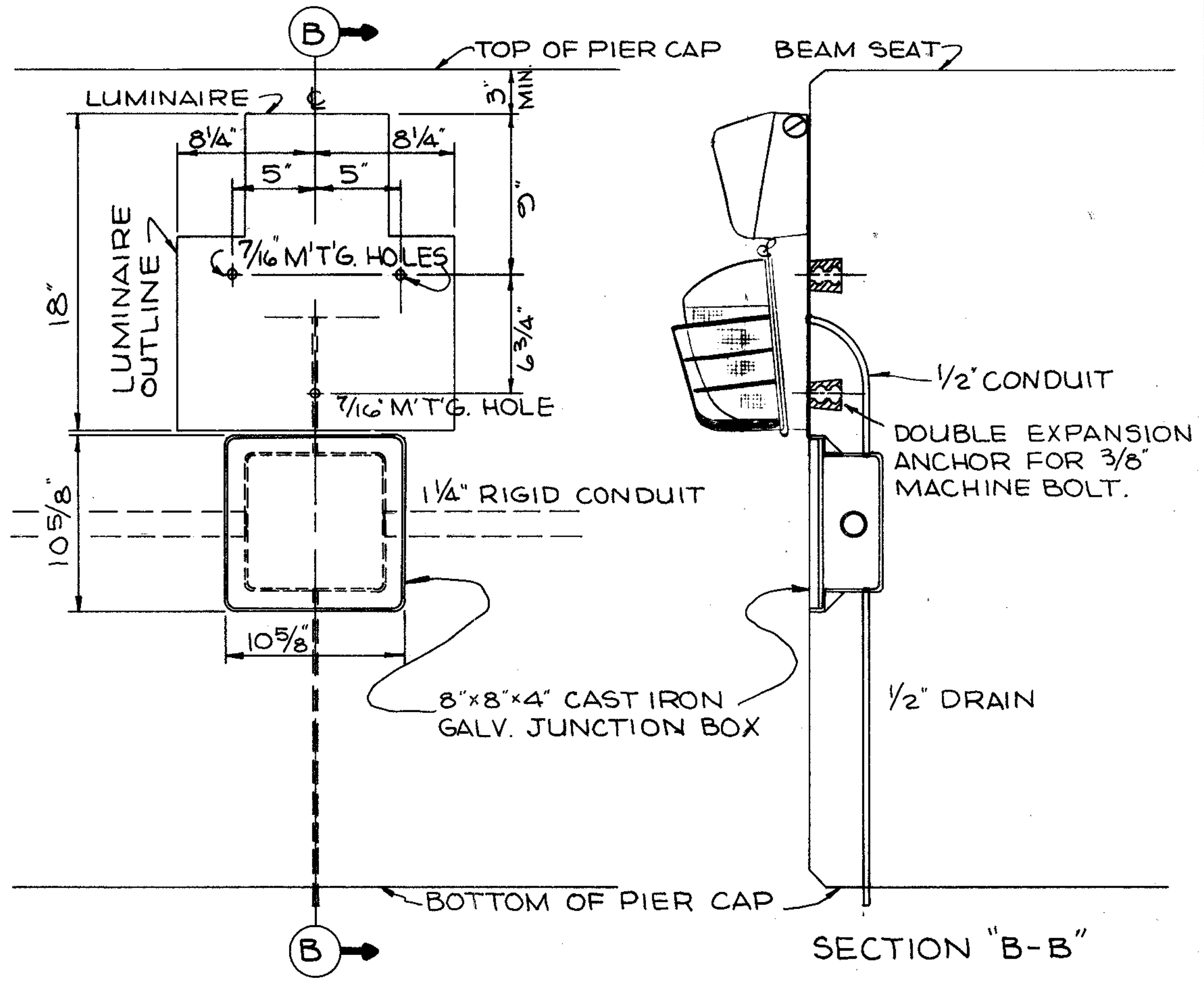
CUYAHOGA COUNTY
CUY - 90 - 10.40

TYPICAL INSTALLATION FOR WALL MOUNTED OR PIER MOUNTED UNDERPASS LUMINAIRES

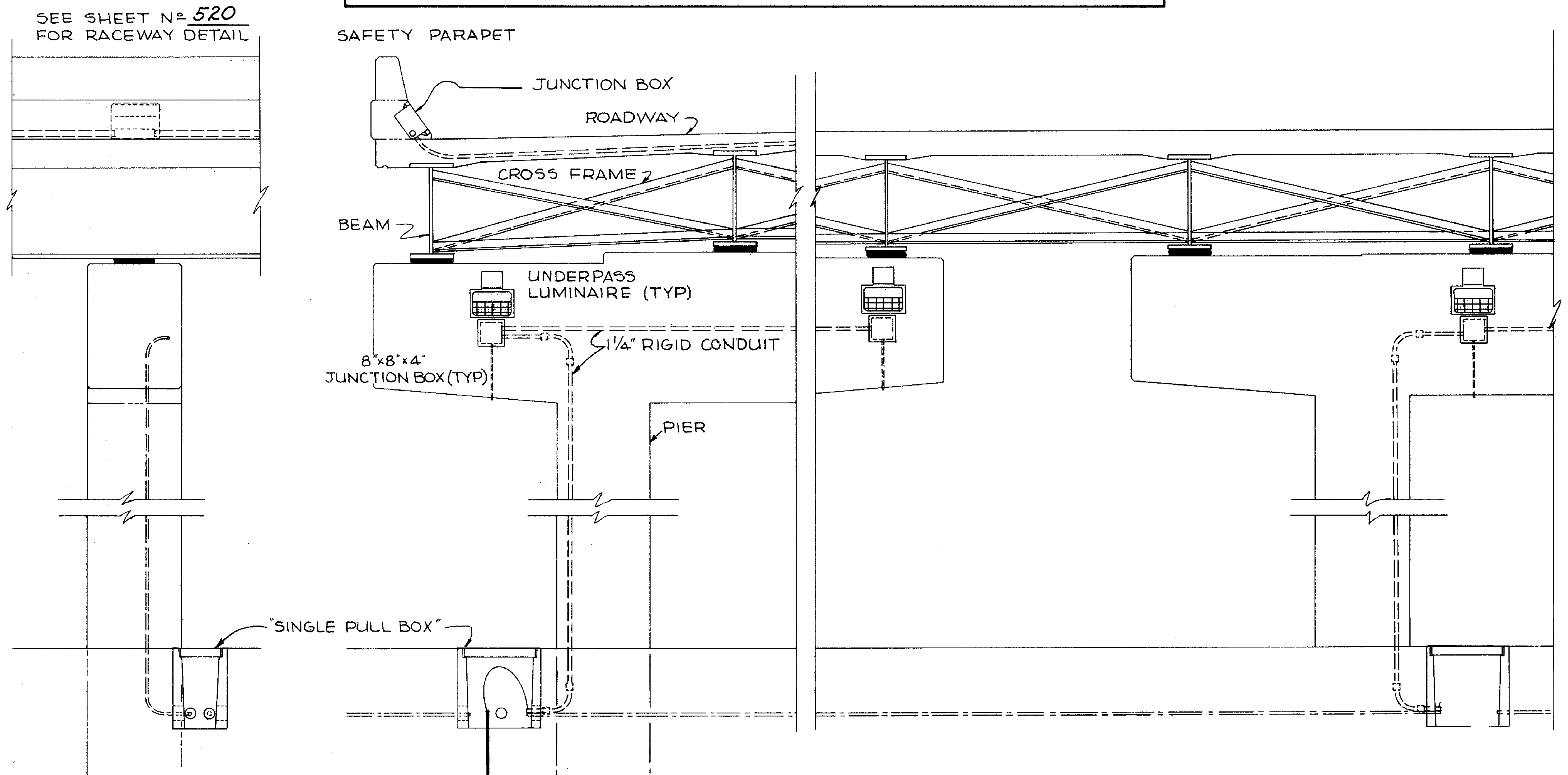


END VIEW

ELEVATION VIEW AND SECTION
TYPICAL W. 117th STREET



WALL MOUNTED UNDERPASS LUMINAIRE
DIMENSIONS AND INSTALLATION DETAIL



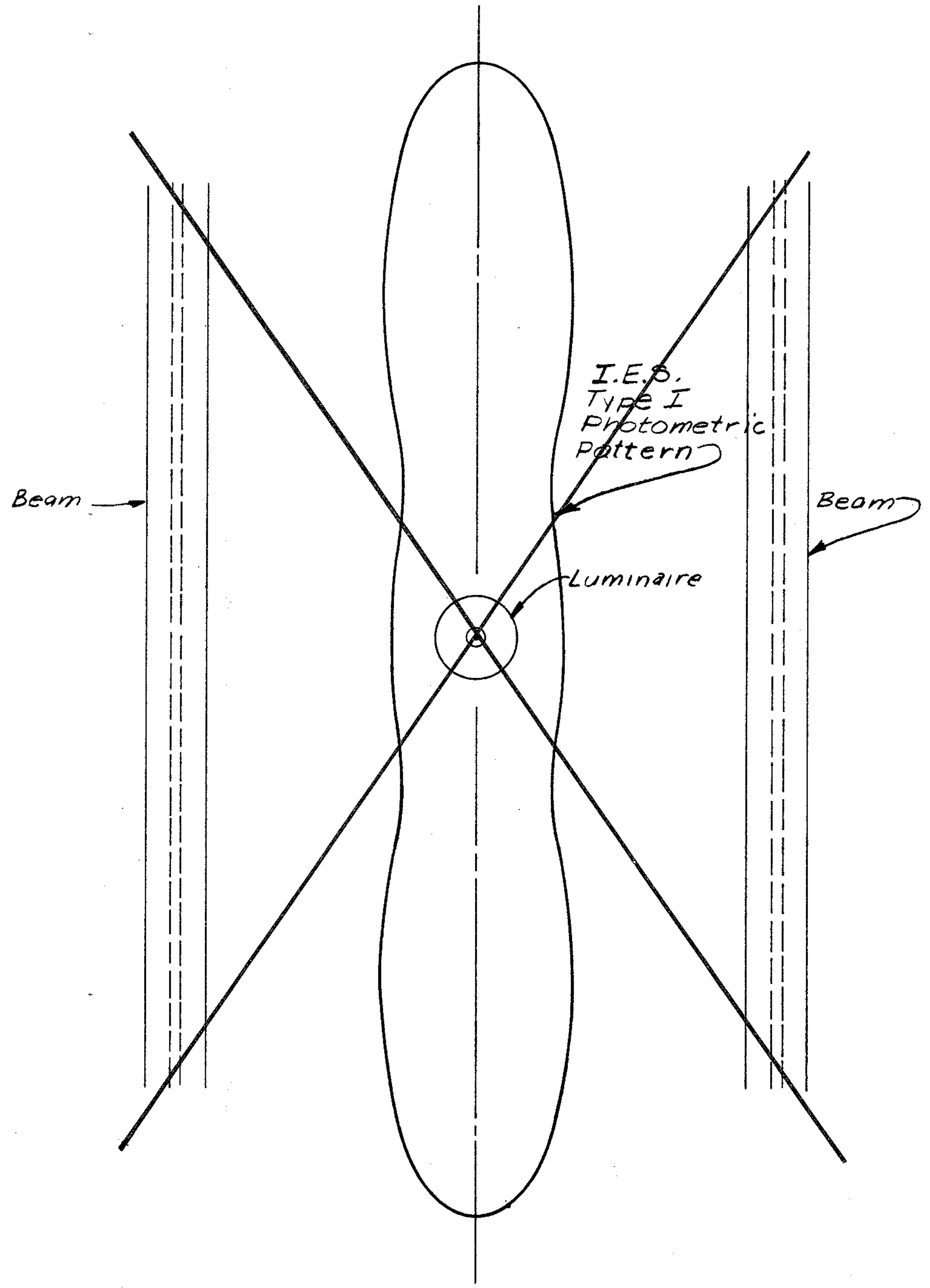
END VIEW

ELEVATION VIEW AND SECTION
TYPICAL WEST BLVD. W. 100th AND W. 98th STREETS

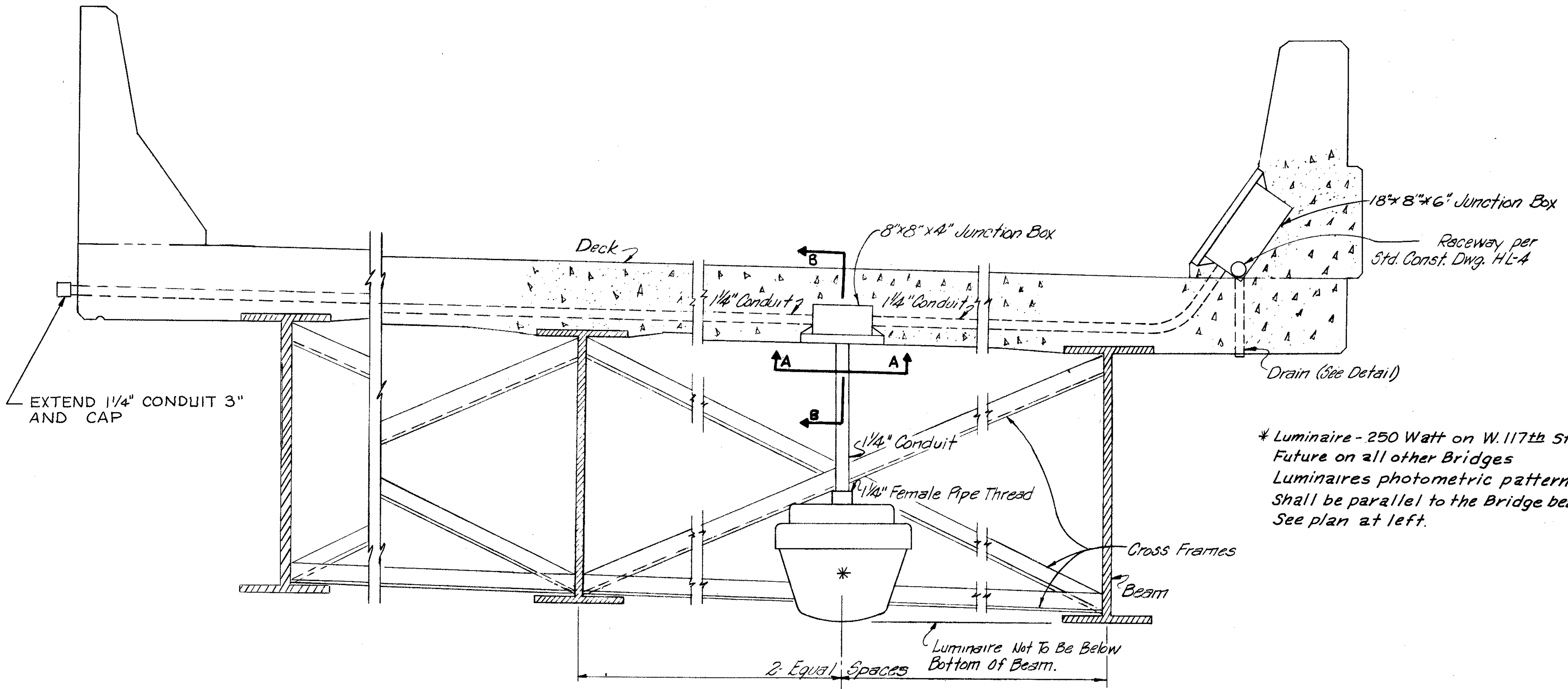
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

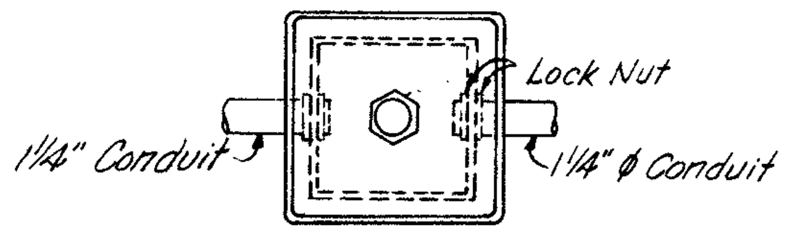


PHOTOMETRIC PLAN

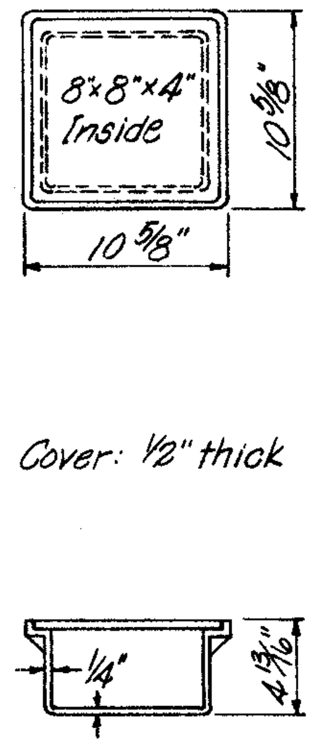


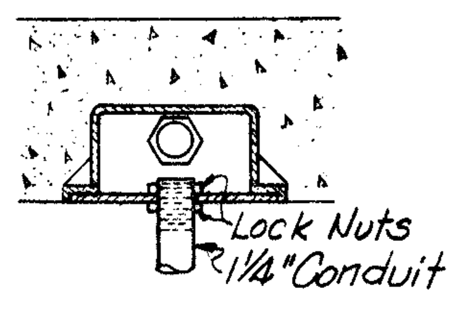
* Luminaire - 250 Watt on W. 117th St.
Future on all other Bridges
Luminaires photometric pattern
Shall be parallel to the Bridge beams
See plan at left.

SECTION THROUGH PILASTER SHOWING JUNCTION BOX IN SAFETY CURB AND UNDER STRUCTURE LUMINAIRE MOUNTING



PLAN A-A of Junction Box





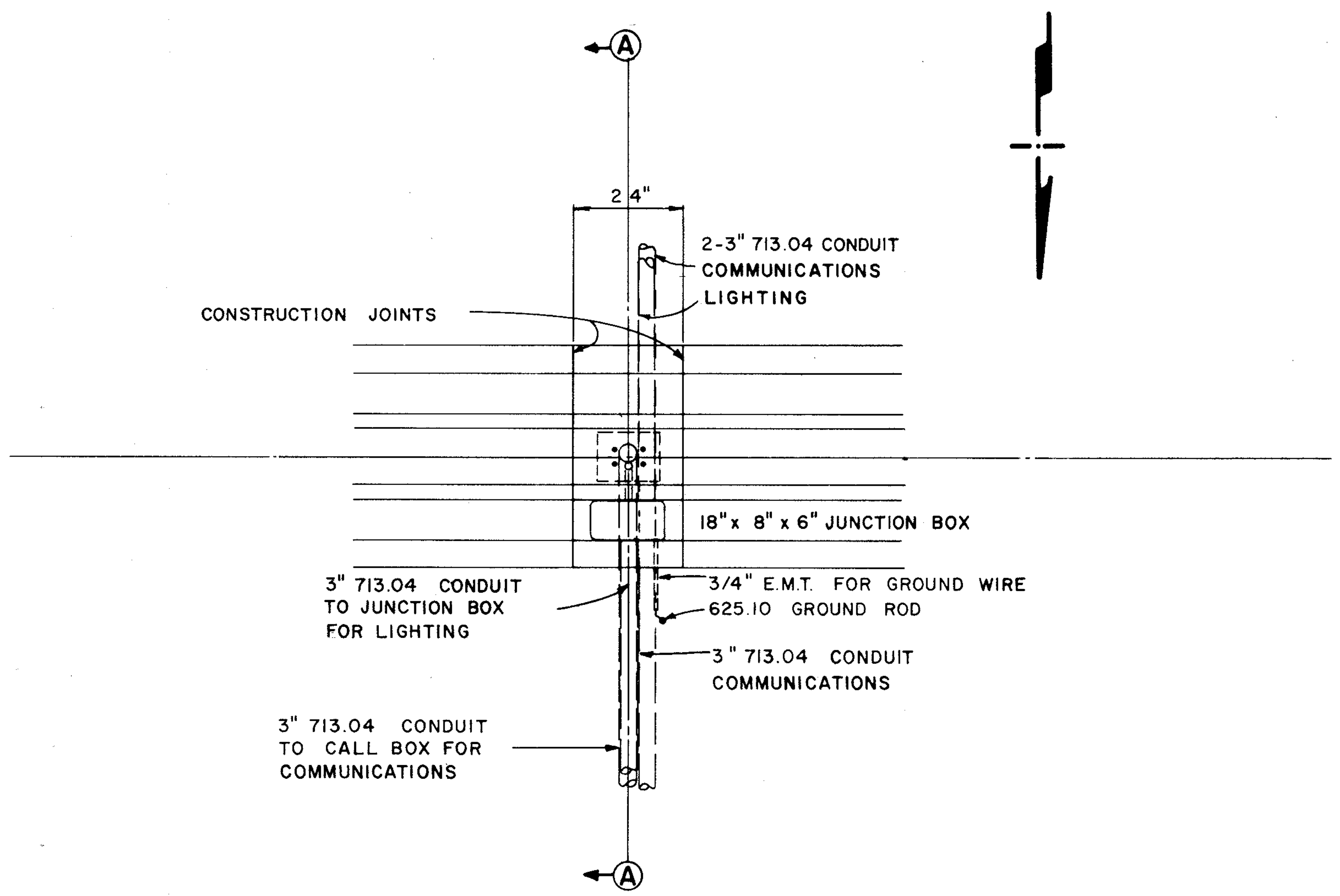
JUNCTION BOX DETAILS

SECTION B-B

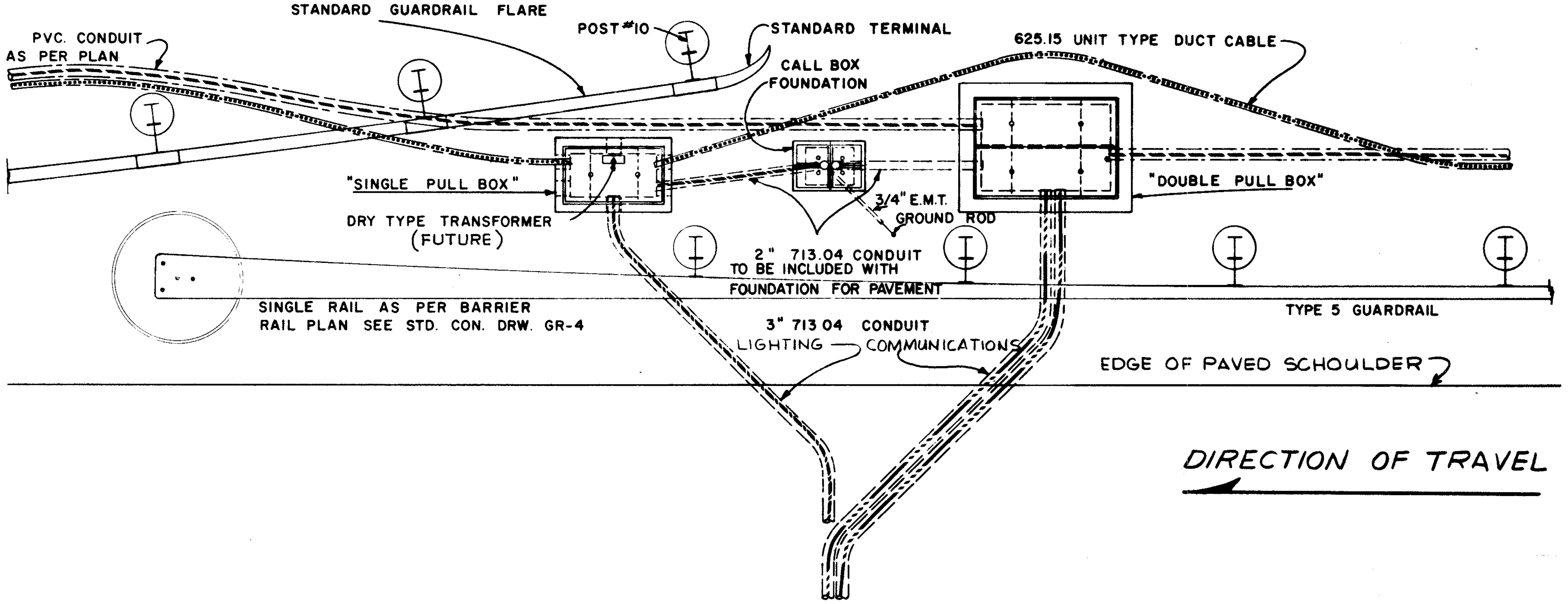
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

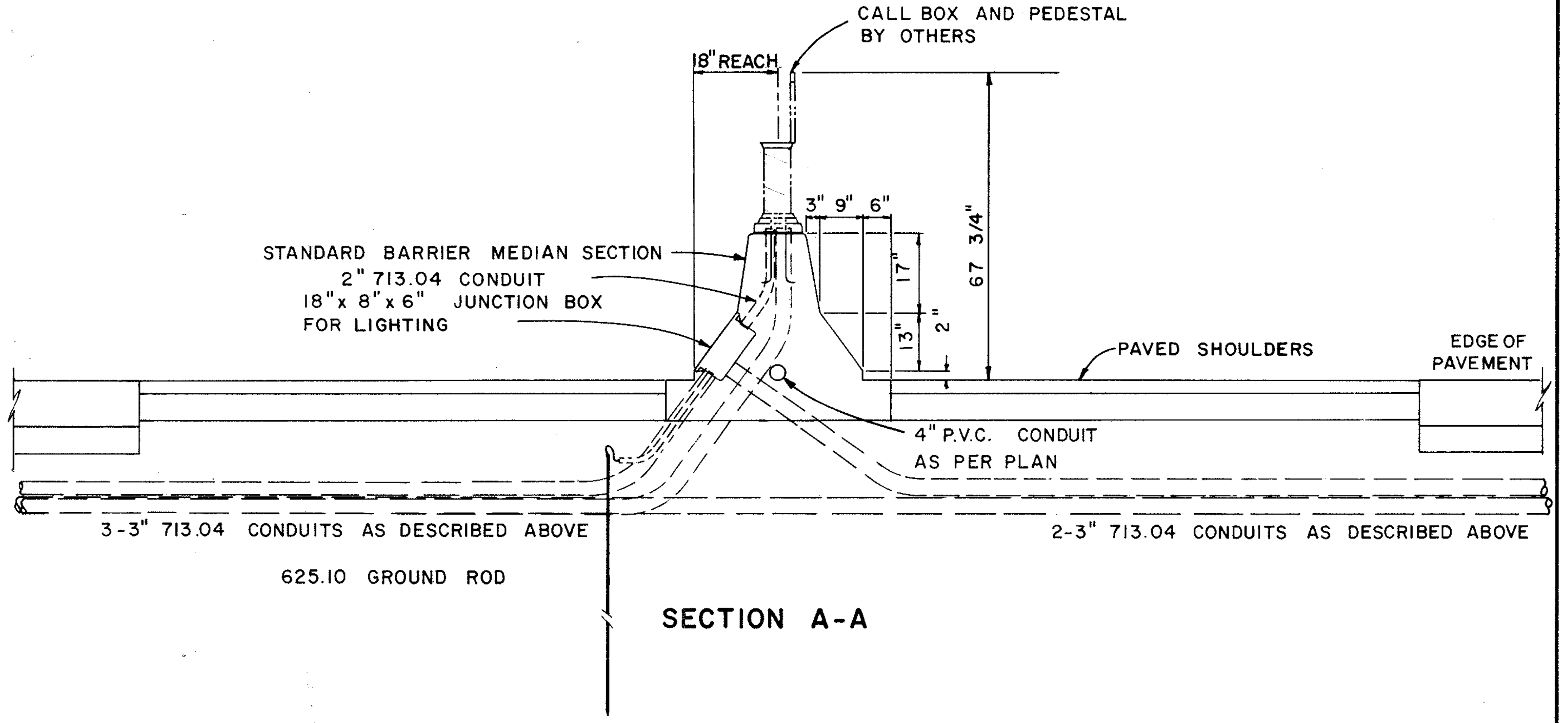
CUYAHOGA COUNTY
CUY - 90 - 10.40



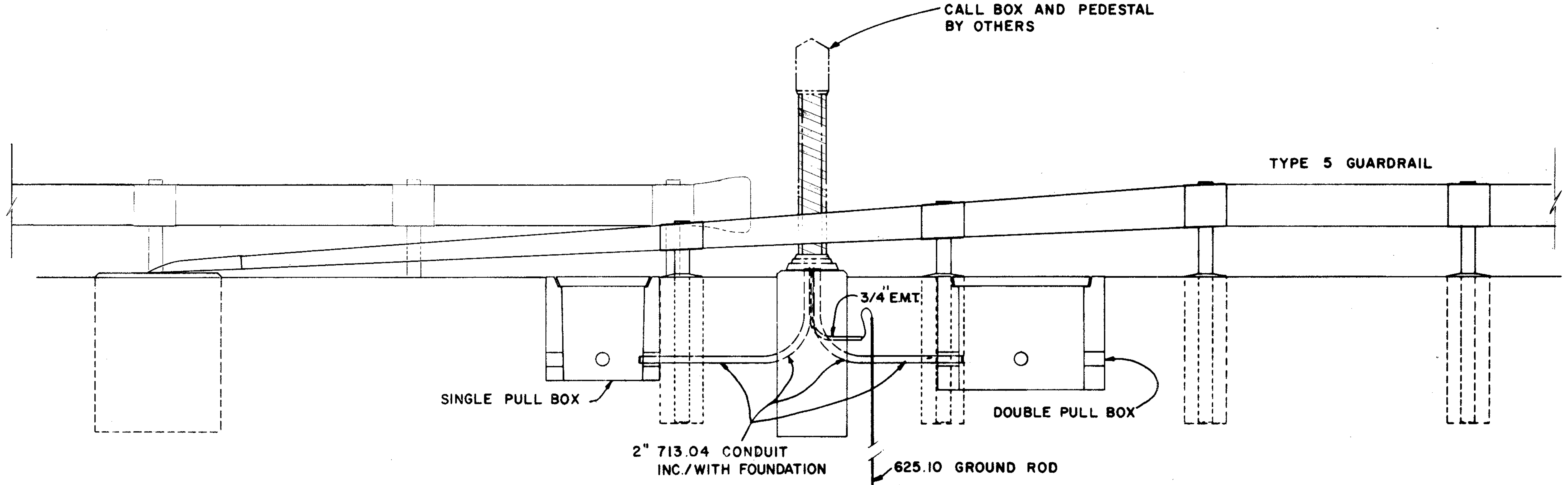
PLAN



PLAN
WHEN GUARDRAIL IS PRESENT FOR OTHER PURPOSES



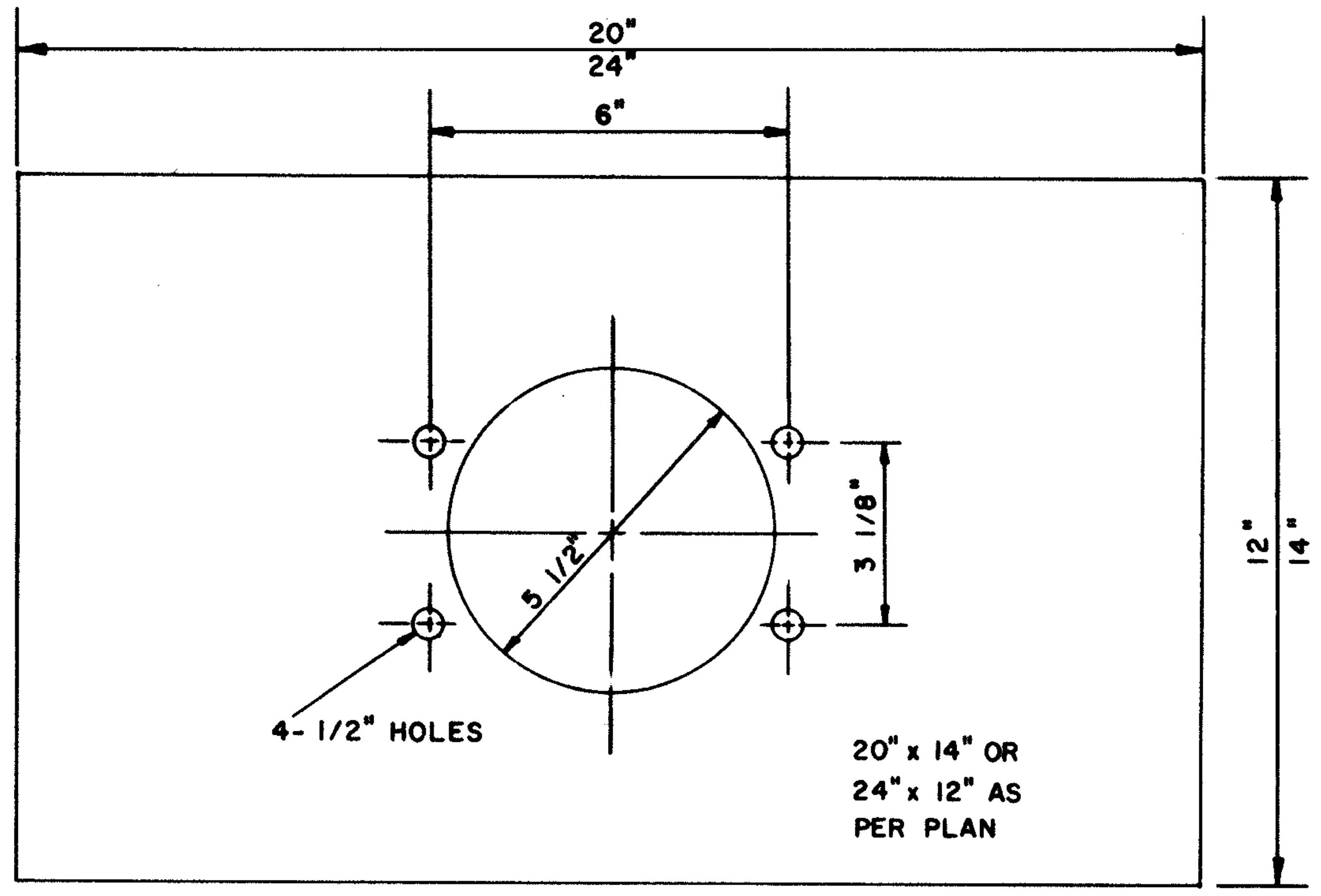
SECTION A-A



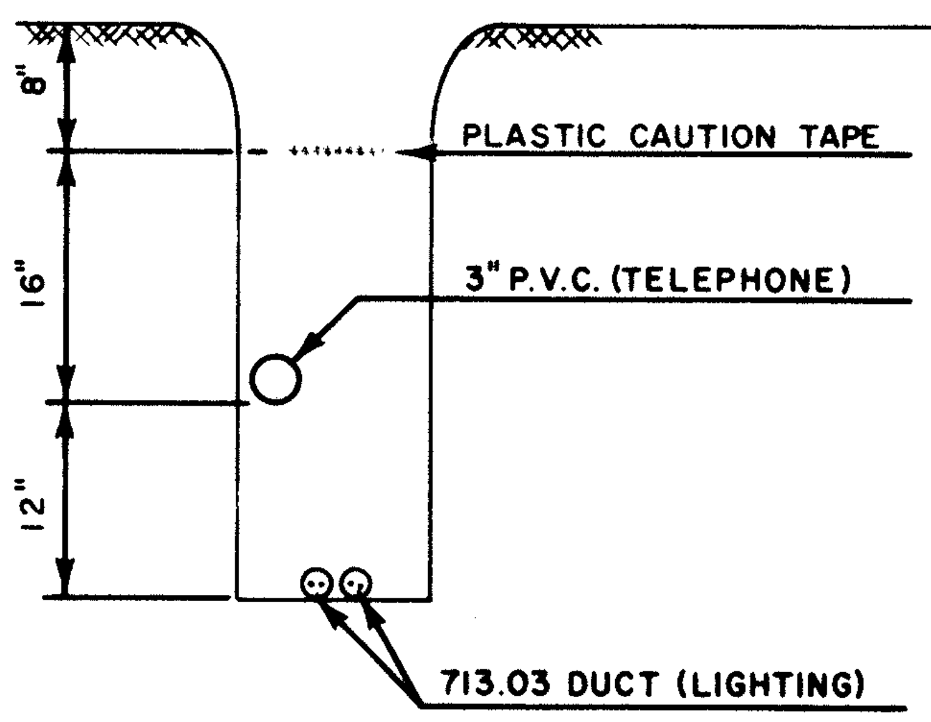
CALL BOX LOCATION DETAILS
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

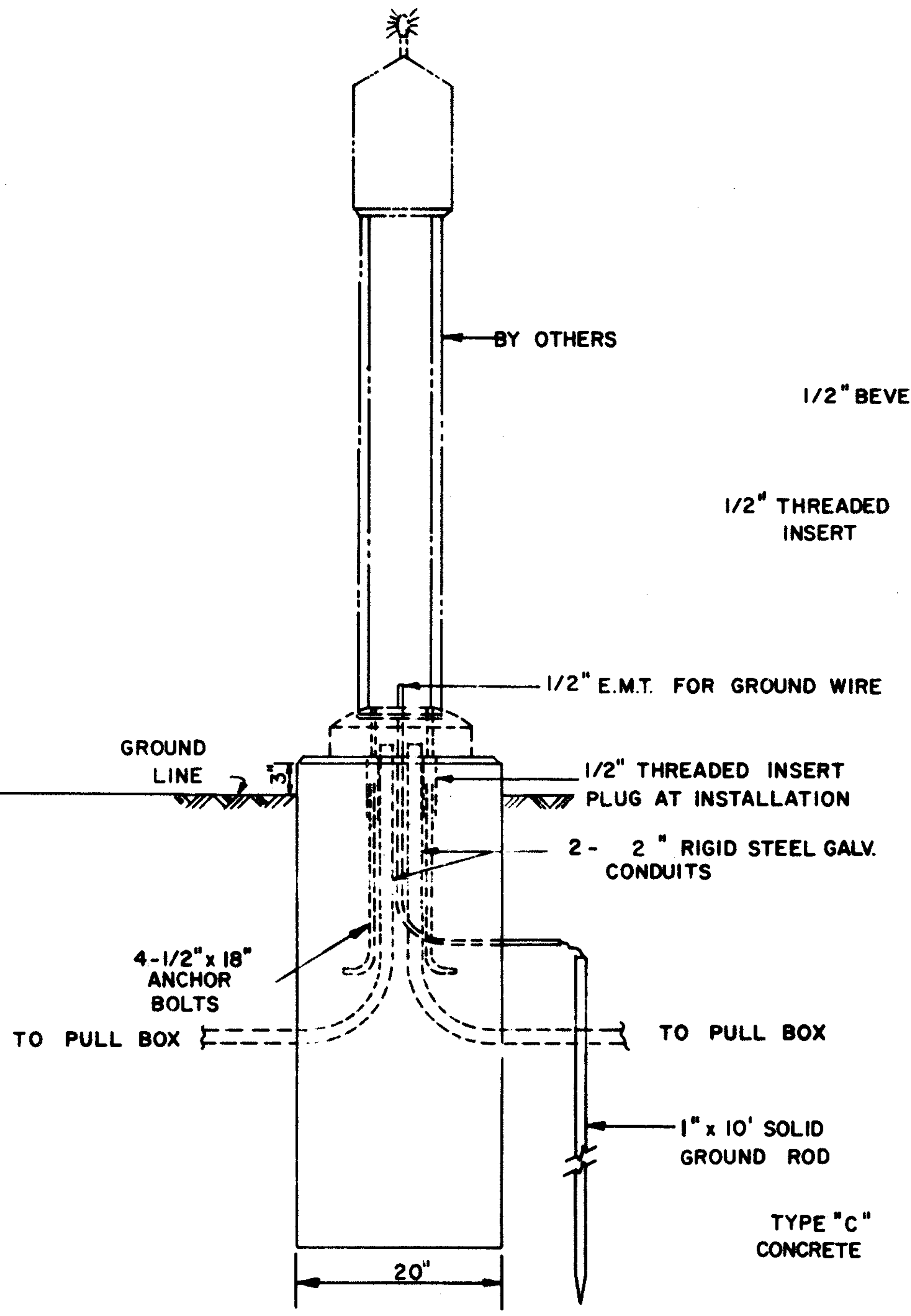
CUYAHOGA COUNTY
CUY - 90 -10.40



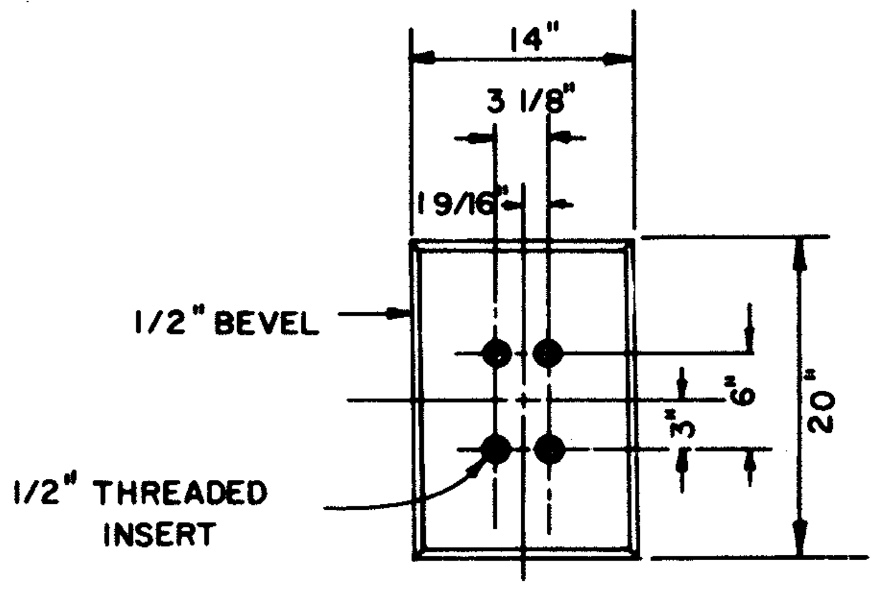
TOP VIEW
OF TEMPLATE



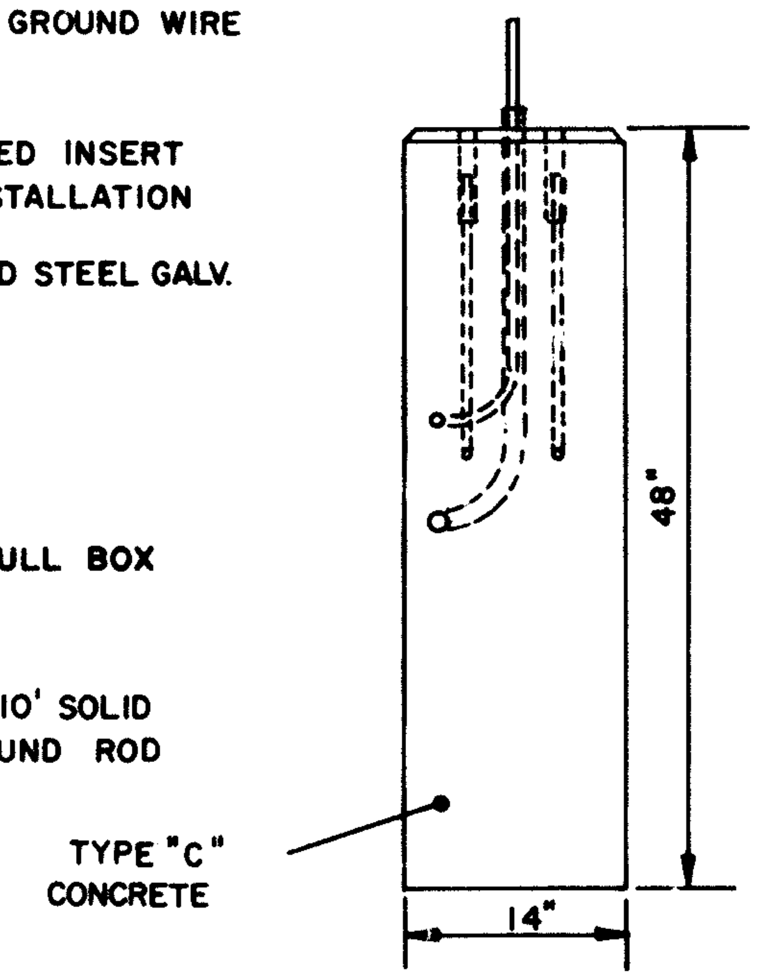
COMMON TRENCH



FRONT VIEW

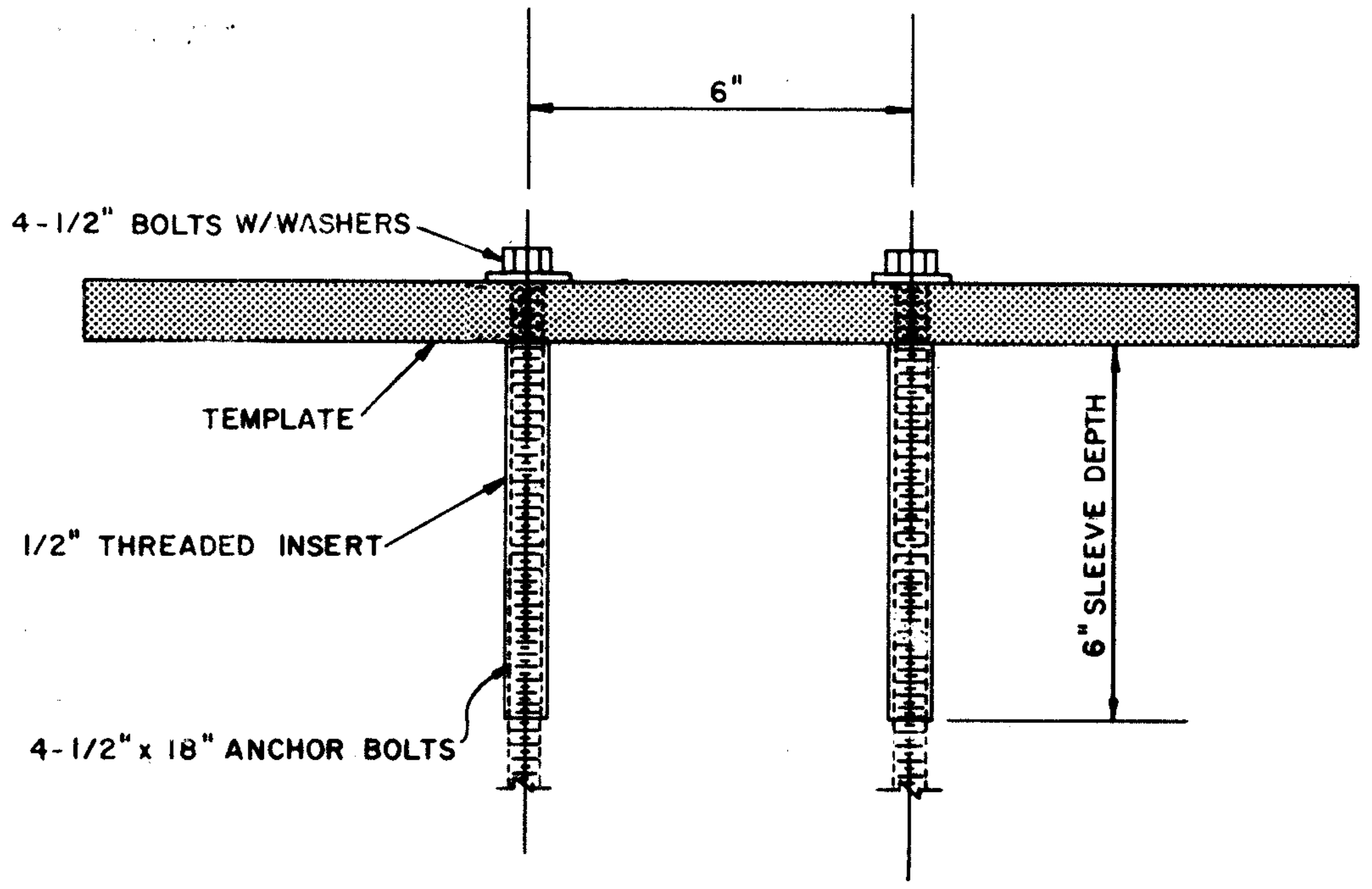


TOP VIEW

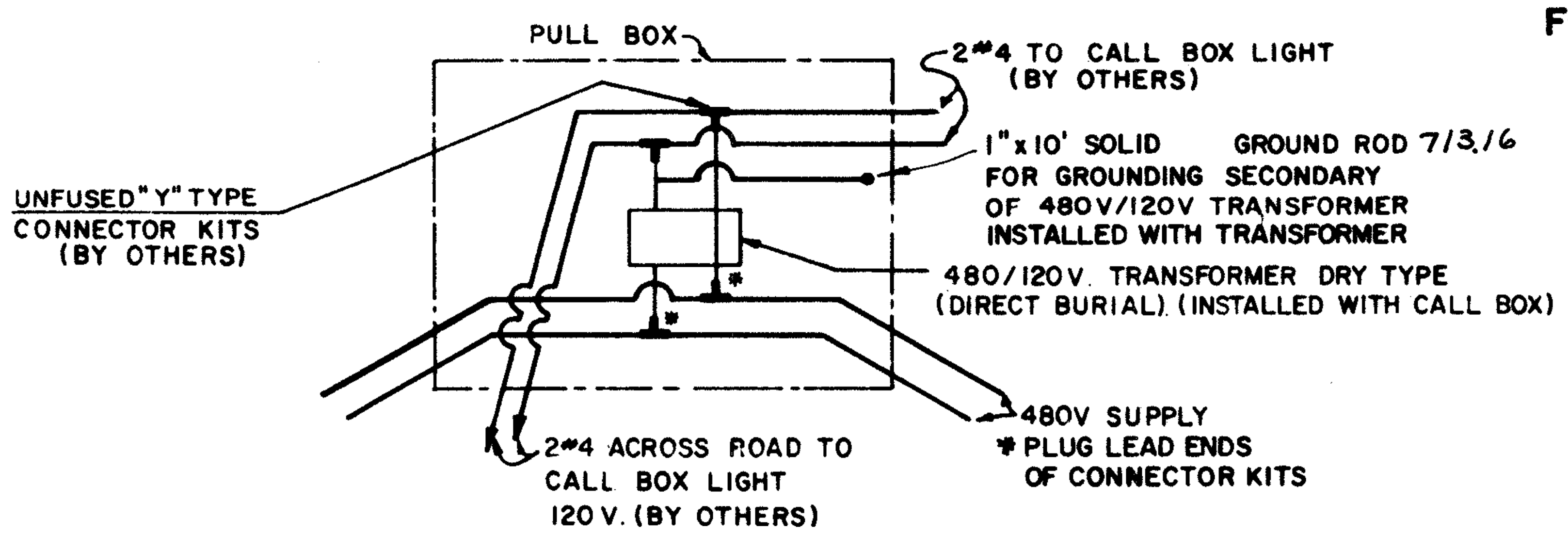


SIDE VIEW

FOUNDATION DETAILS



FRONT VIEW
TEMPLATE & ANCHOR BOLT ASSEMBLY

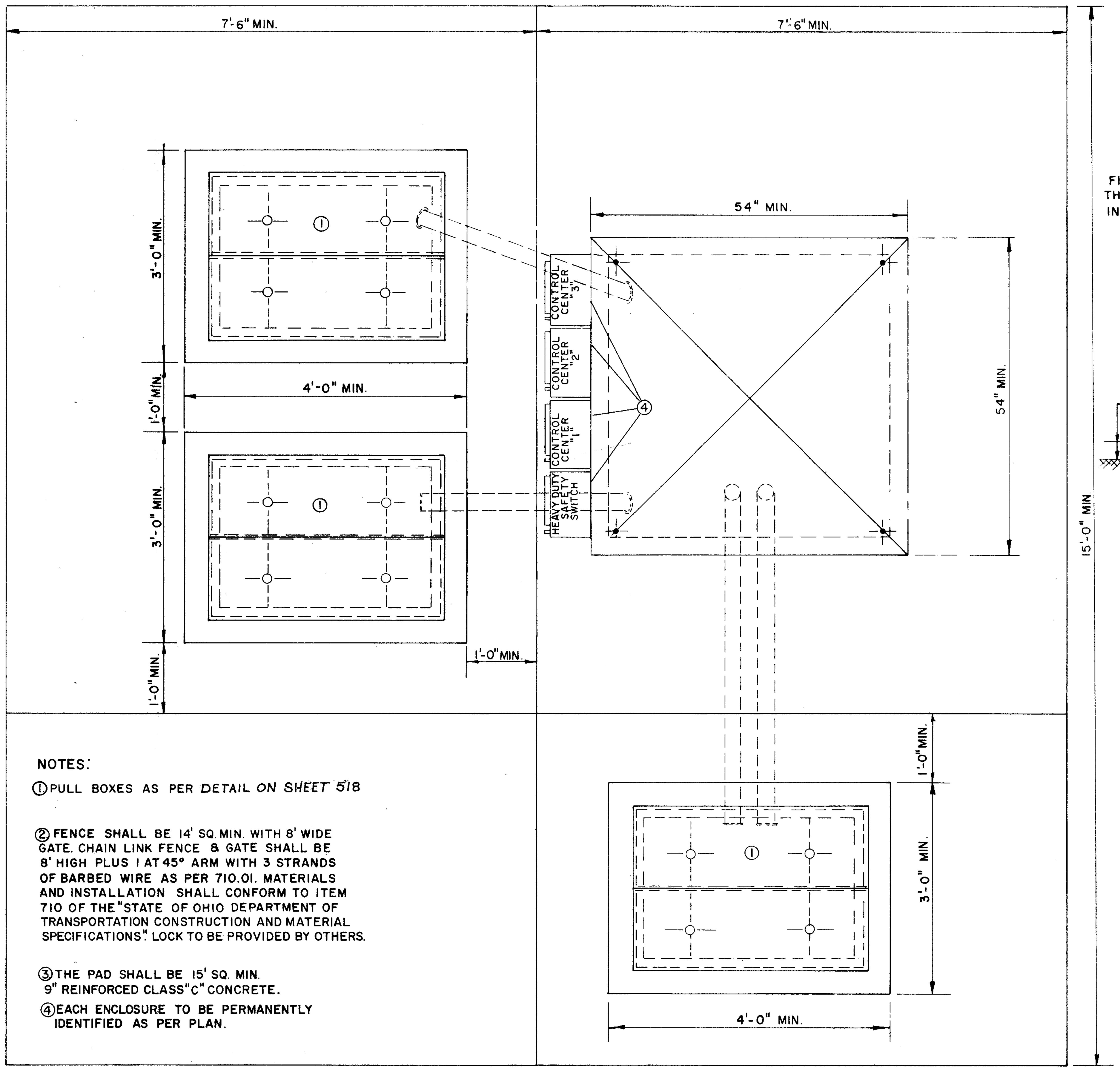


WIRING IN TRANSFORMER PULL BOX

EMERGENCY CALL BOX DETAILS
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40



NOTES:

①PULL BOXES AS PER DETAIL ON SHEET 518

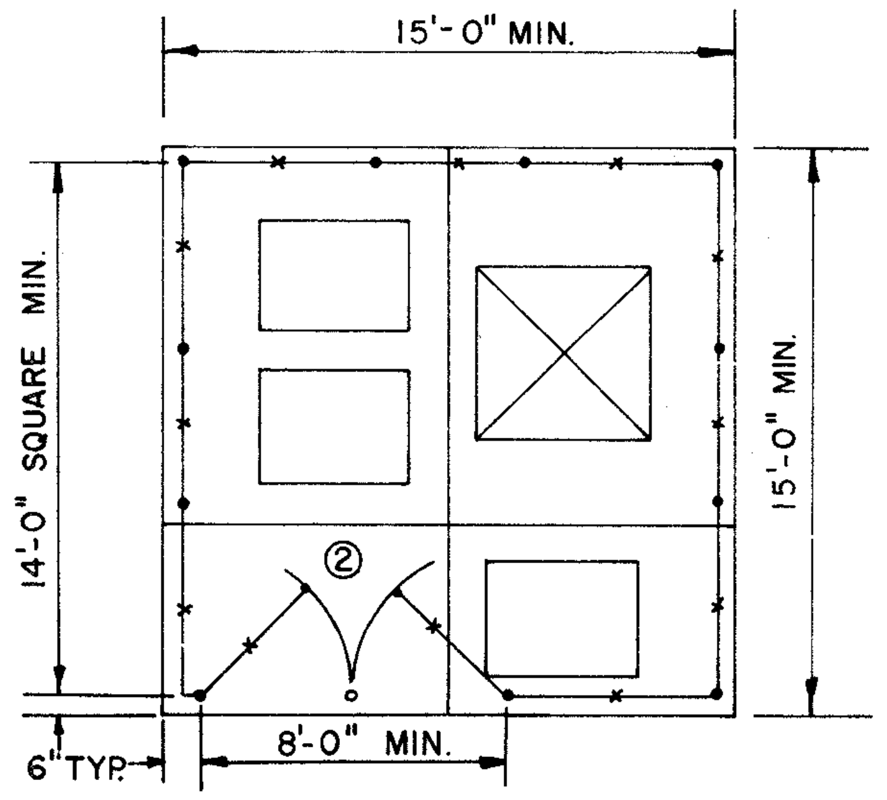
②FENCE SHALL BE 14' SQ. MIN. WITH 8' WIDE GATE. CHAIN LINK FENCE & GATE SHALL BE 8' HIGH PLUS 1 AT 45° ARM WITH 3 STRANDS OF BARBED WIRE AS PER 710.01. MATERIALS AND INSTALLATION SHALL CONFORM TO ITEM 710 OF THE "STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS". LOCK TO BE PROVIDED BY OTHERS.

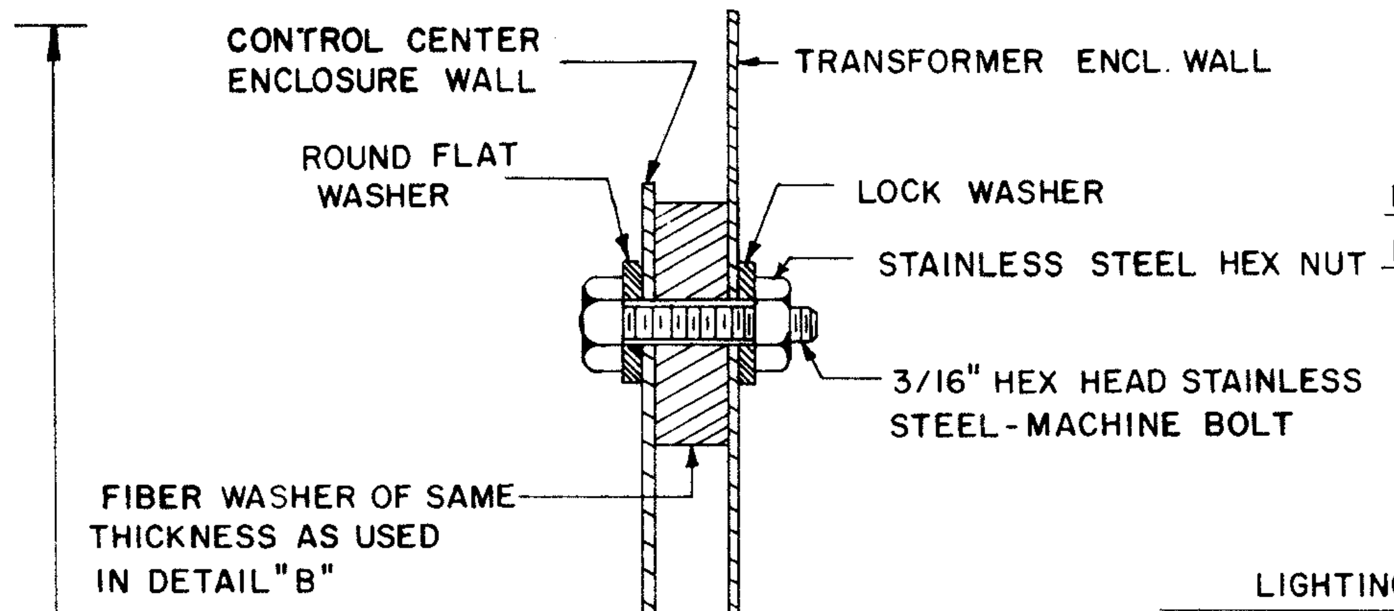
③THE PAD SHALL BE 15' SQ. MIN. 9" REINFORCED CLASS "C" CONCRETE.

④EACH ENCLOSURE TO BE PERMANENTLY IDENTIFIED AS PER PLAN.

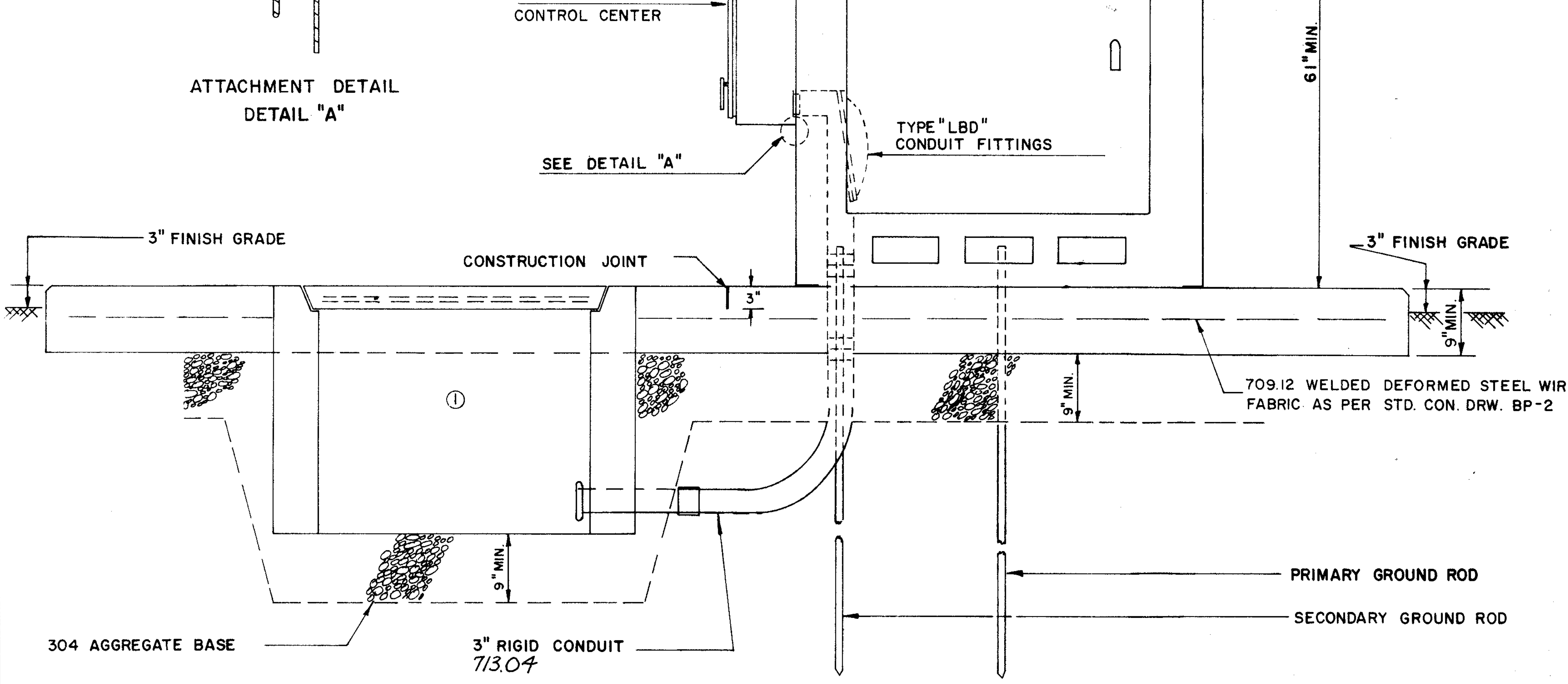
⑤SEE STANDARD DRAWING HL-16 FOR WIRING OF CONTROL CENTERS.

PLAN

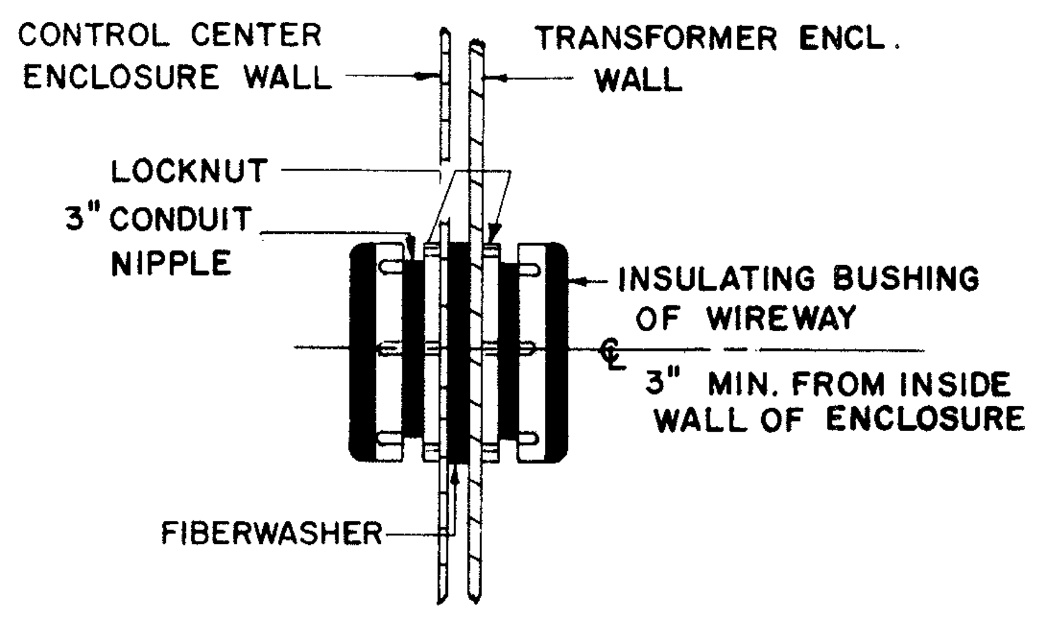




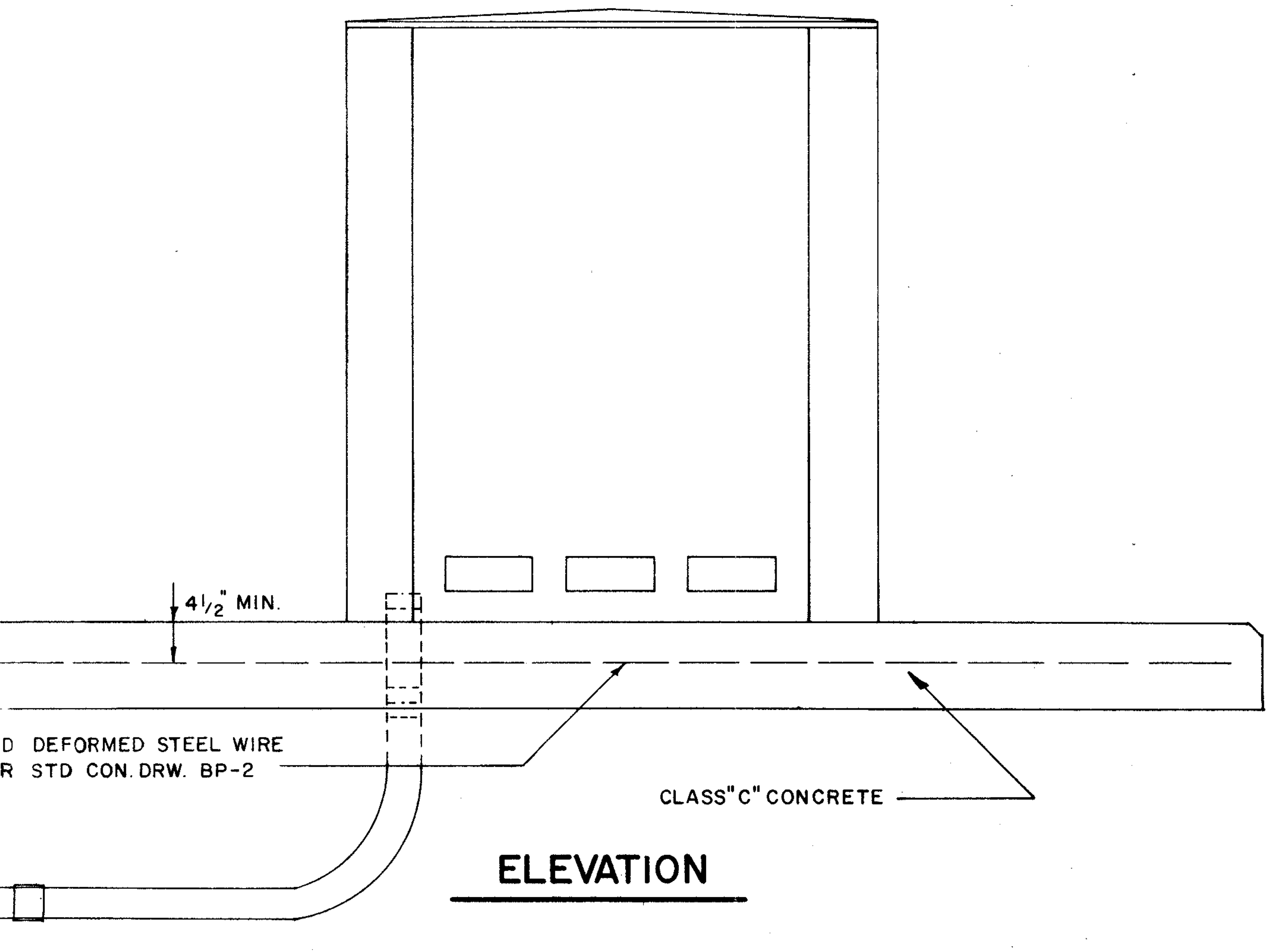
ATTACHMENT DETAIL
DETAIL "A"



SIDE VIEW



THROUGH WIREWAY DETAIL
DETAIL "B"



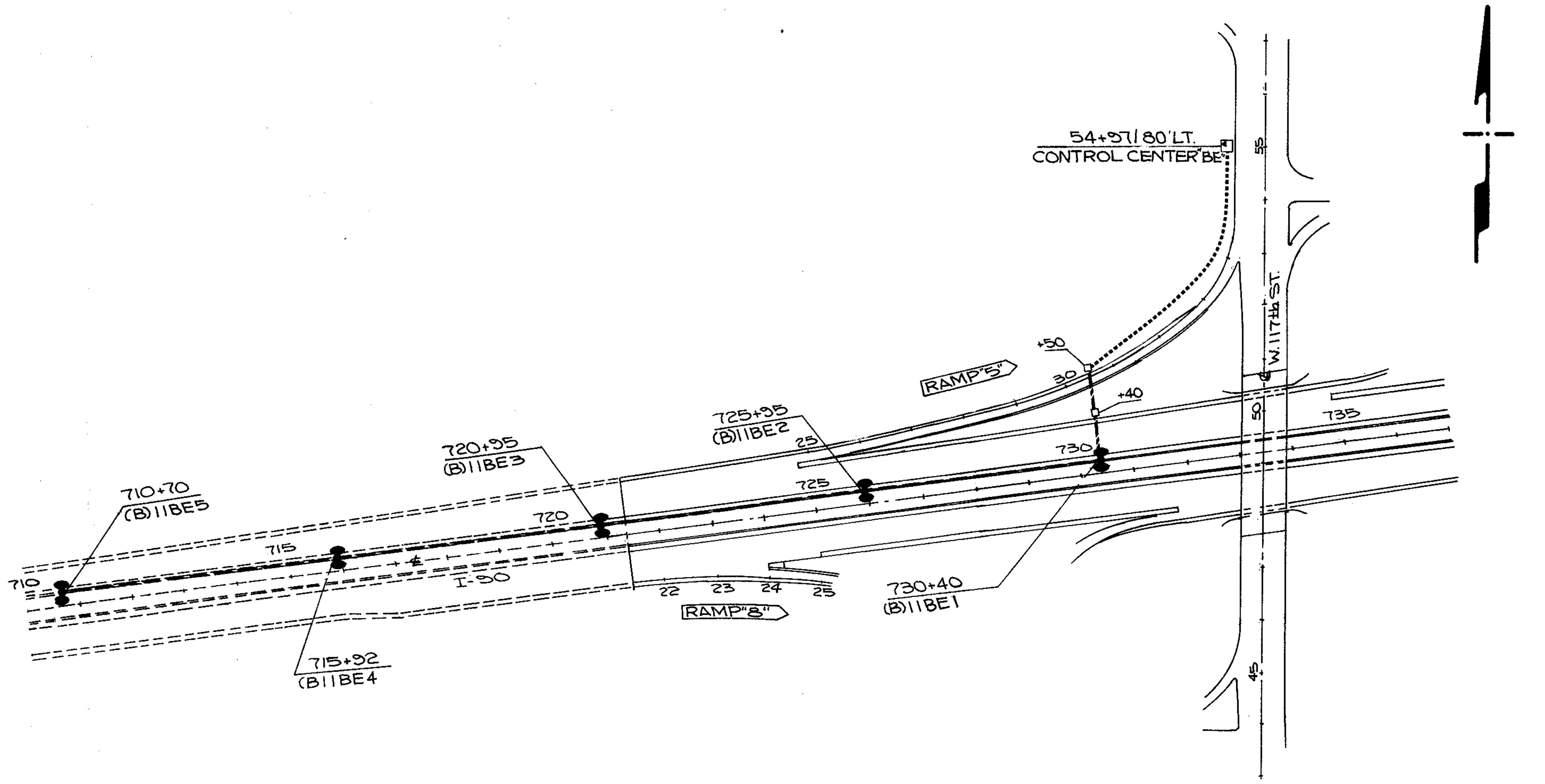
ELEVATION

CONTROL CENTER DETAIL LIGHTING PLANS

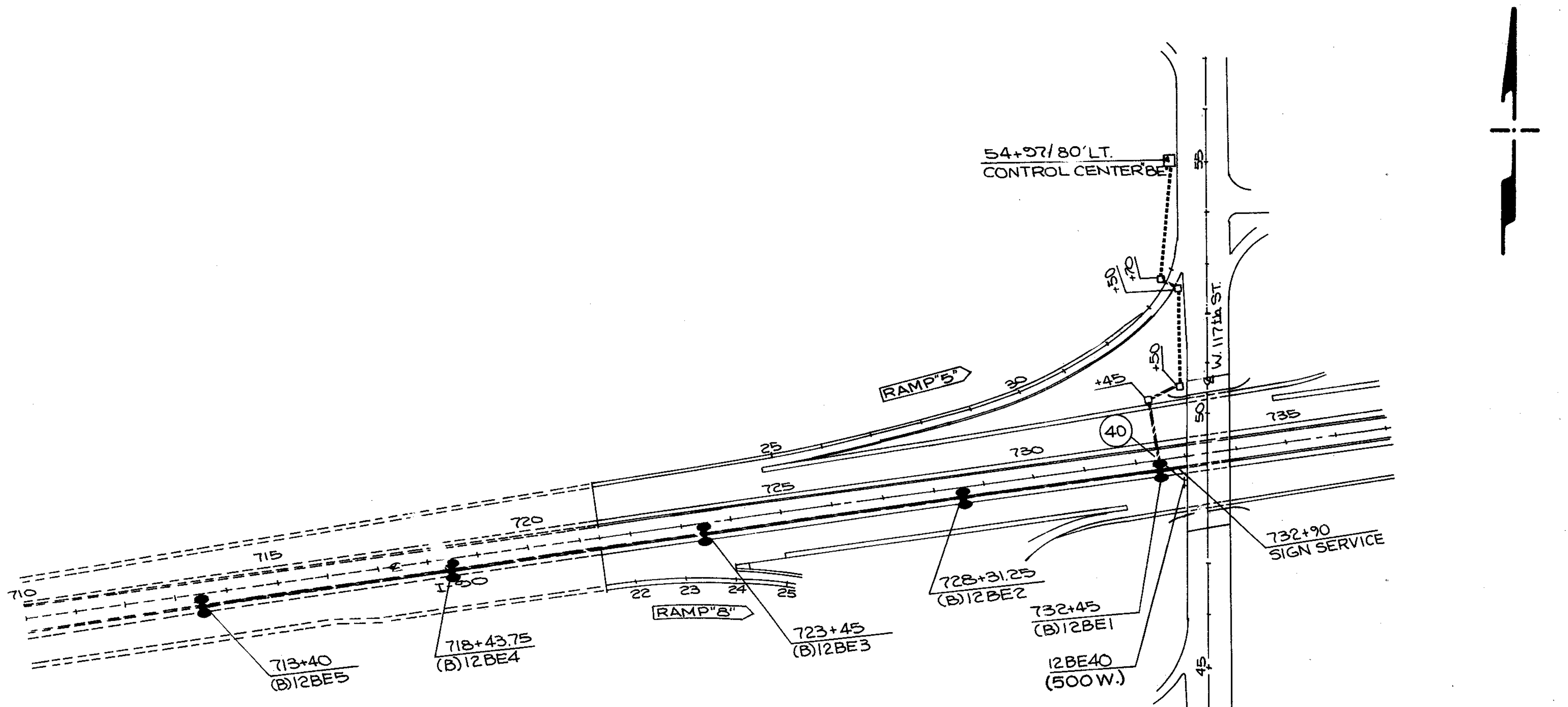
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

524
713

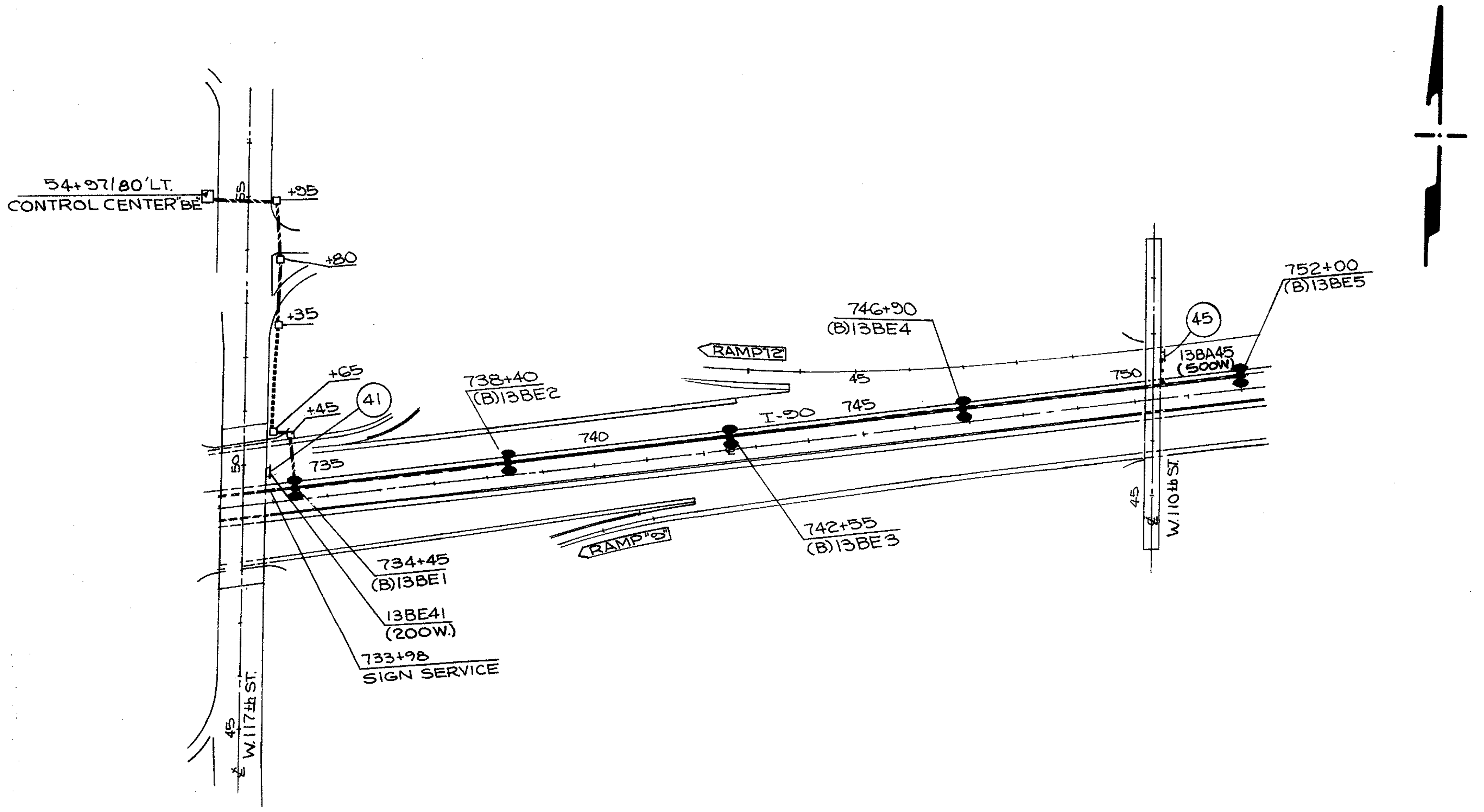
CUYAHOGA COUNTY
CUY - 90 - 10.40



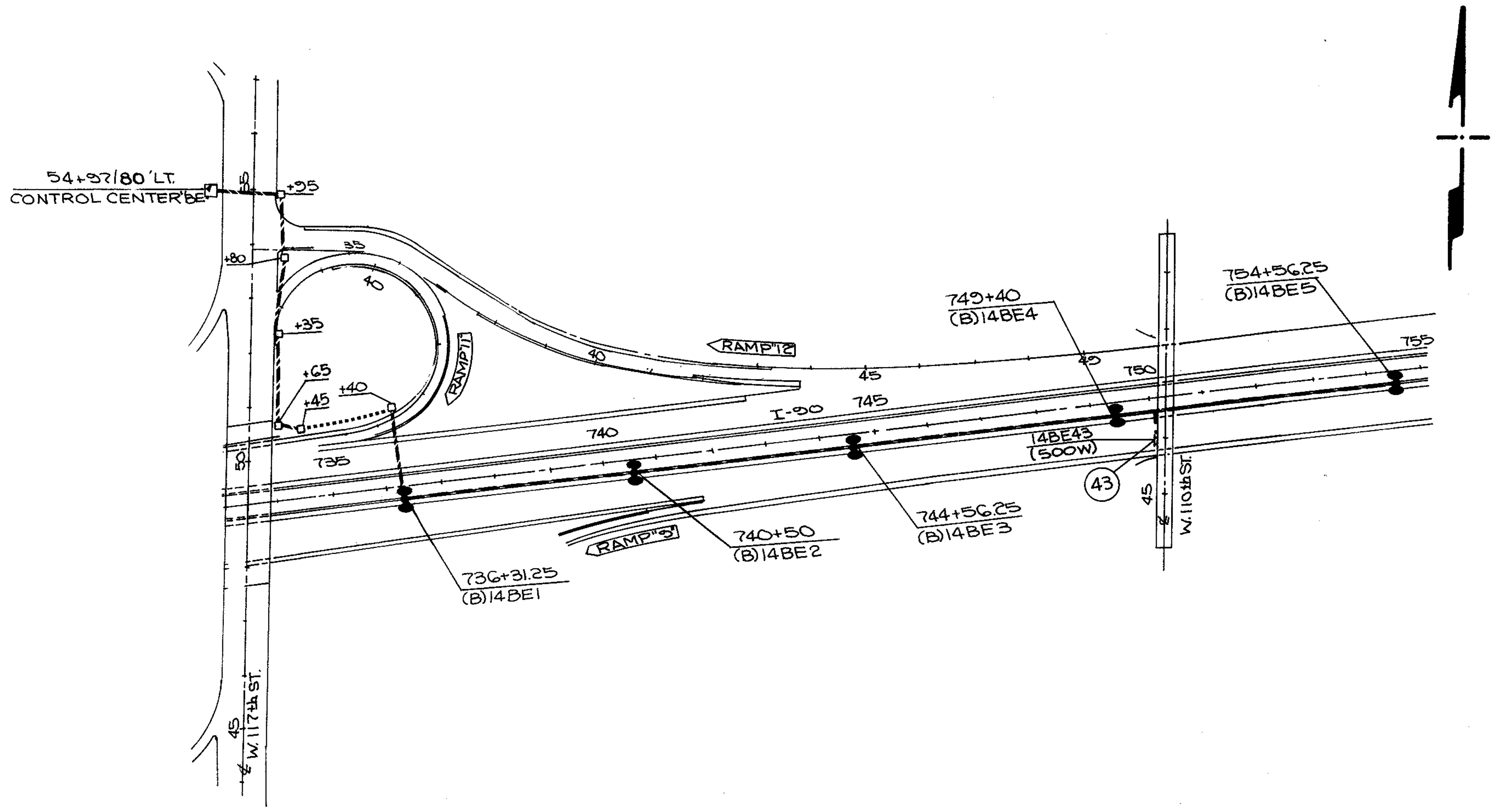
CIRCUIT No. 11BE
CONNECTED LOAD 11.52 KVA



CIRCUIT No. 12BE
CONNECTED LOAD 12.19 KVA



CIRCUIT No. 13BE
CONNECTED LOAD 12.48 KVA



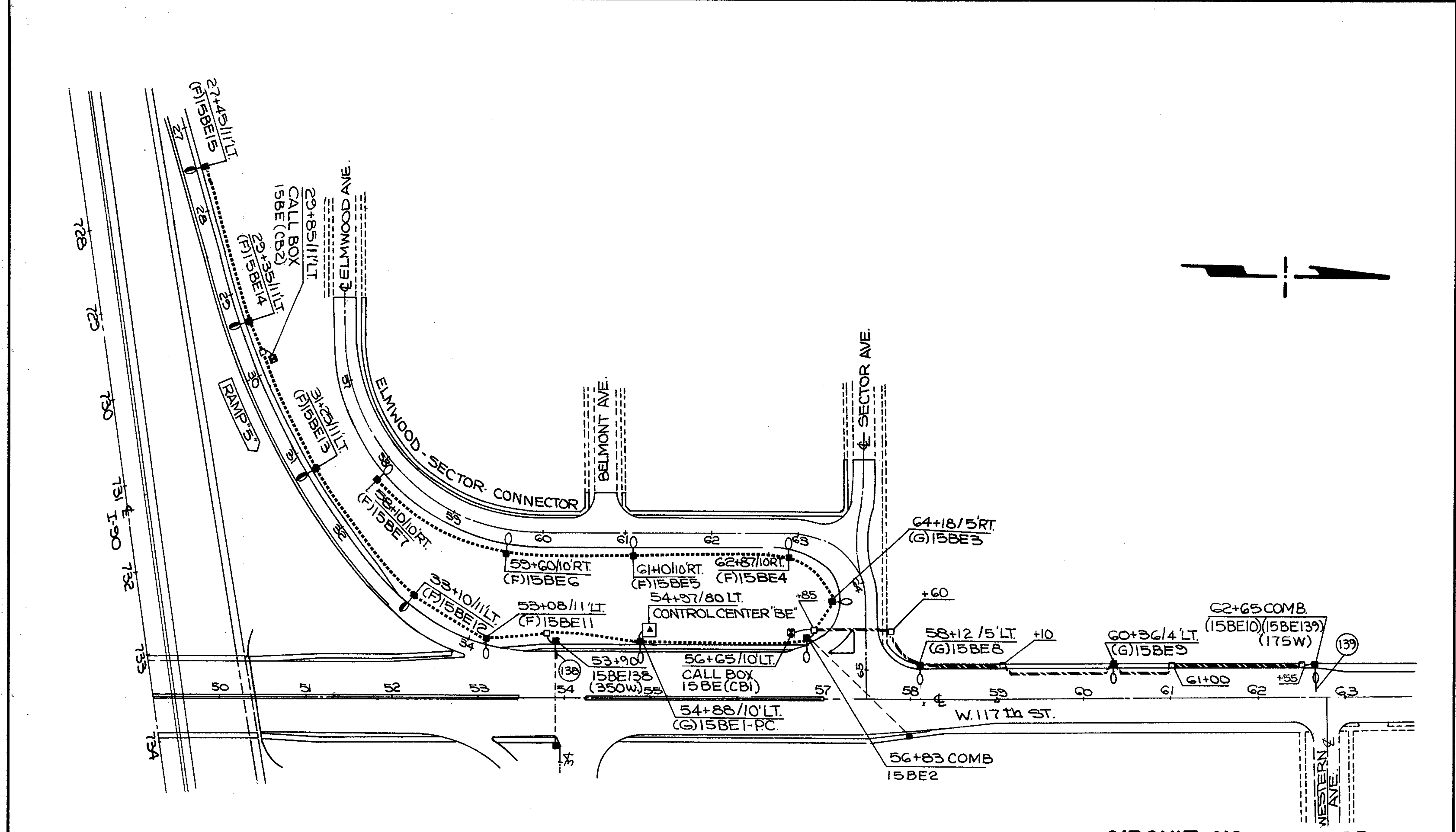
CIRCUIT No. 14BE
CONNECTED LOAD 12.19 KVA

LIGHTING PLAN

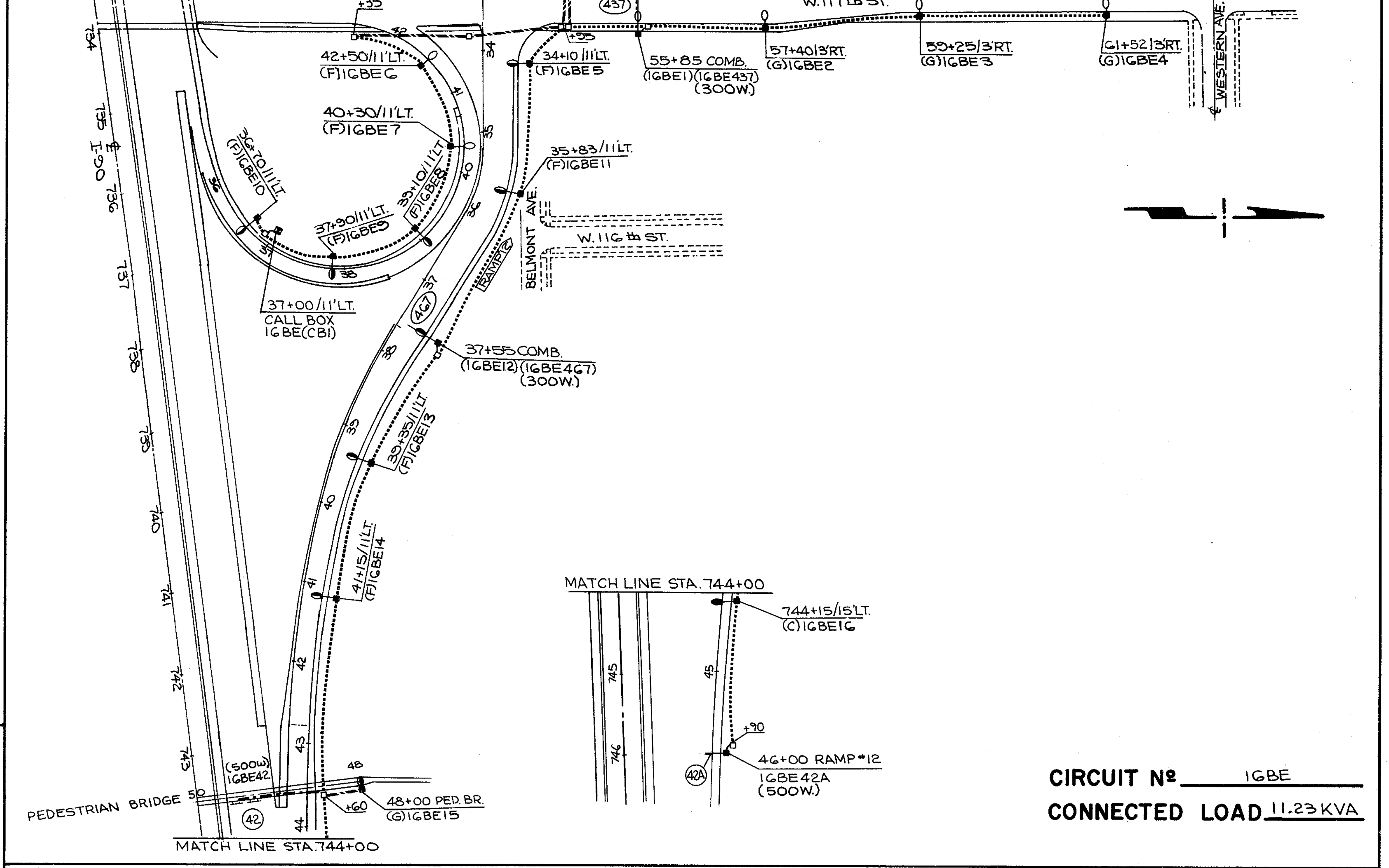
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

525
713

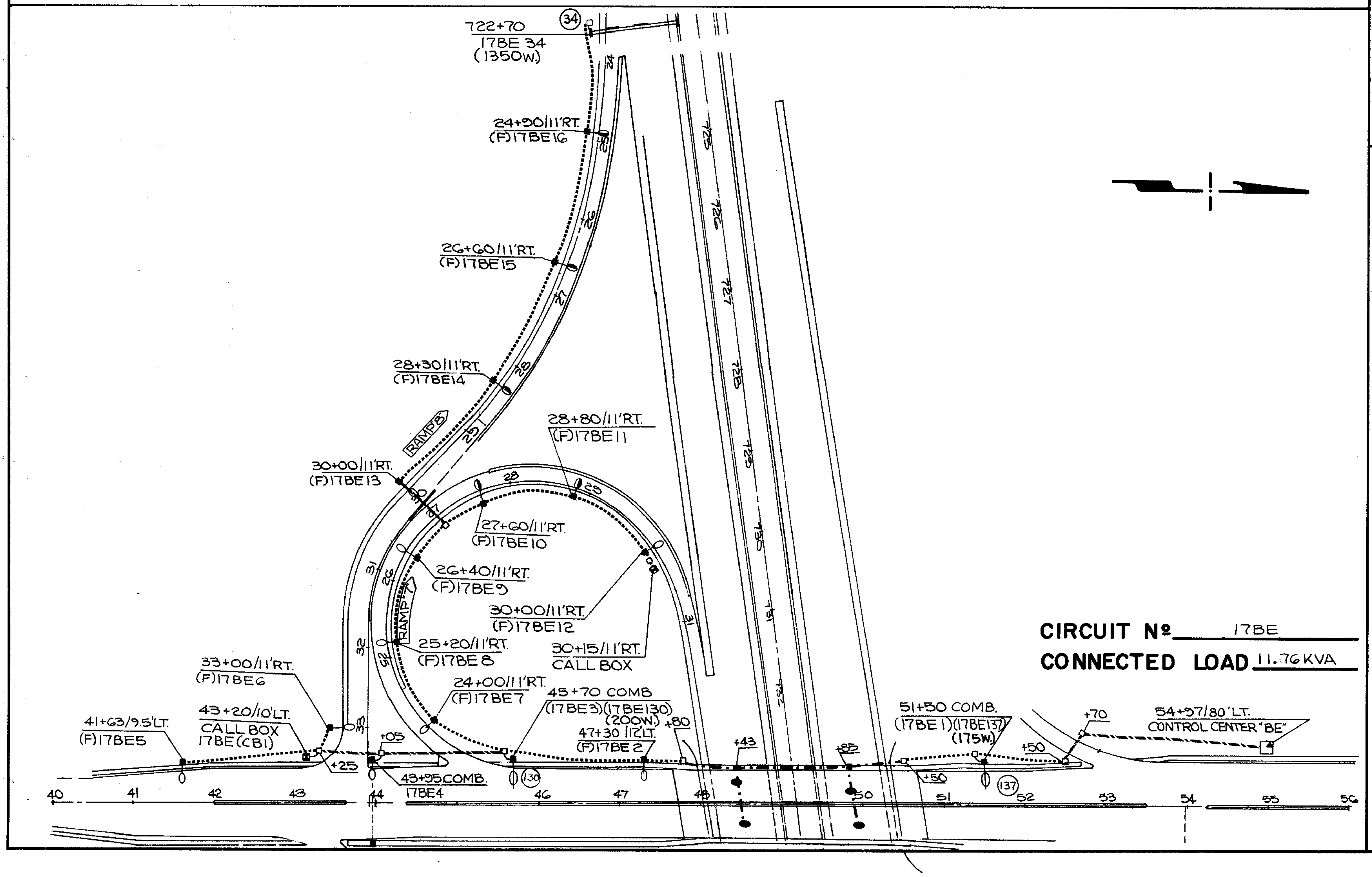
CUYAHOGA COUNTY
CUY - 90 - 10.40



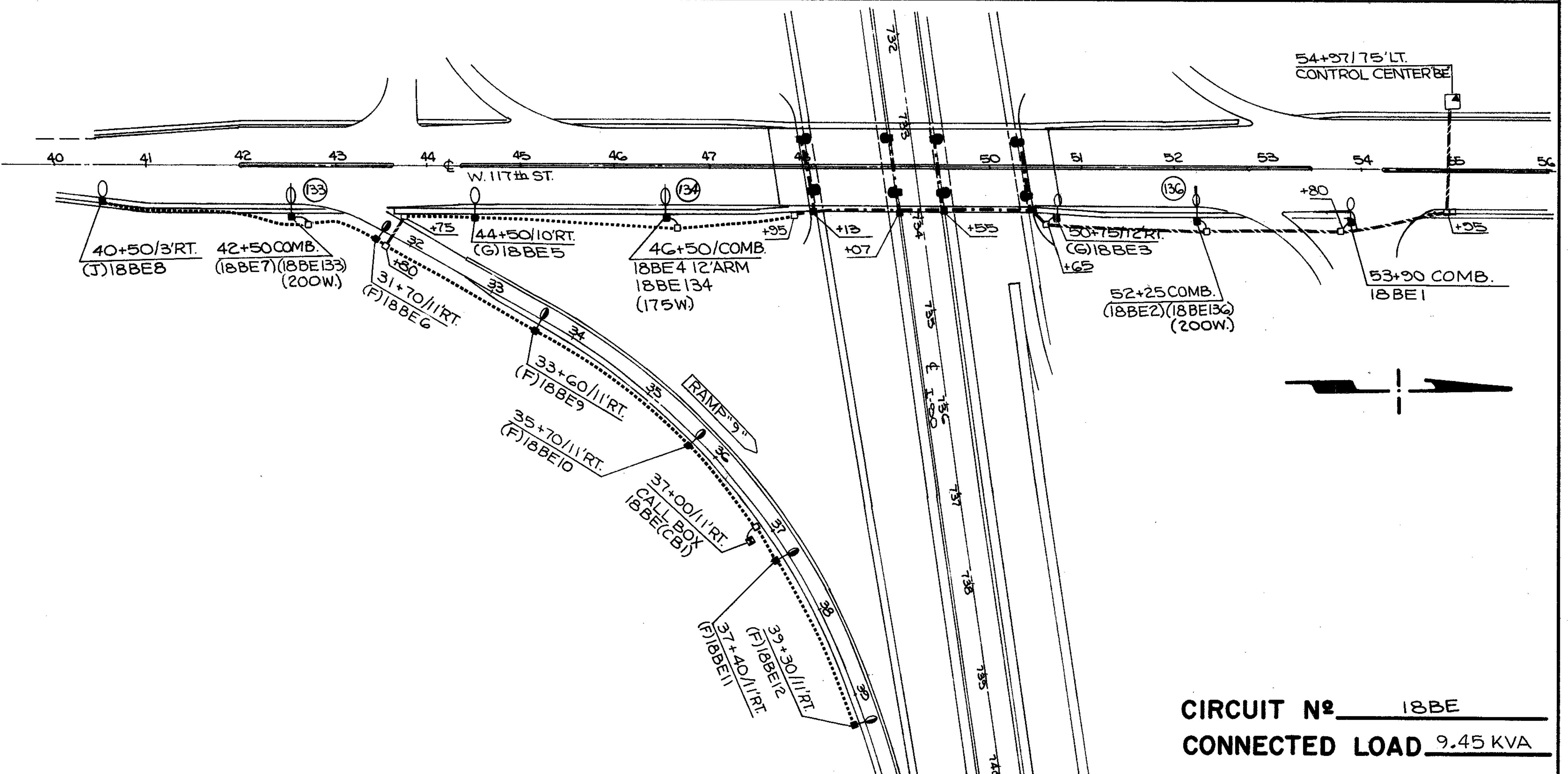
CIRCUIT No 15BE
CONNECTED LOAD 8.30 KVA



CIRCUIT No 16BE
CONNECTED LOAD 11.23 KVA



CIRCUIT No 17BE
CONNECTED LOAD 11.76 KVA

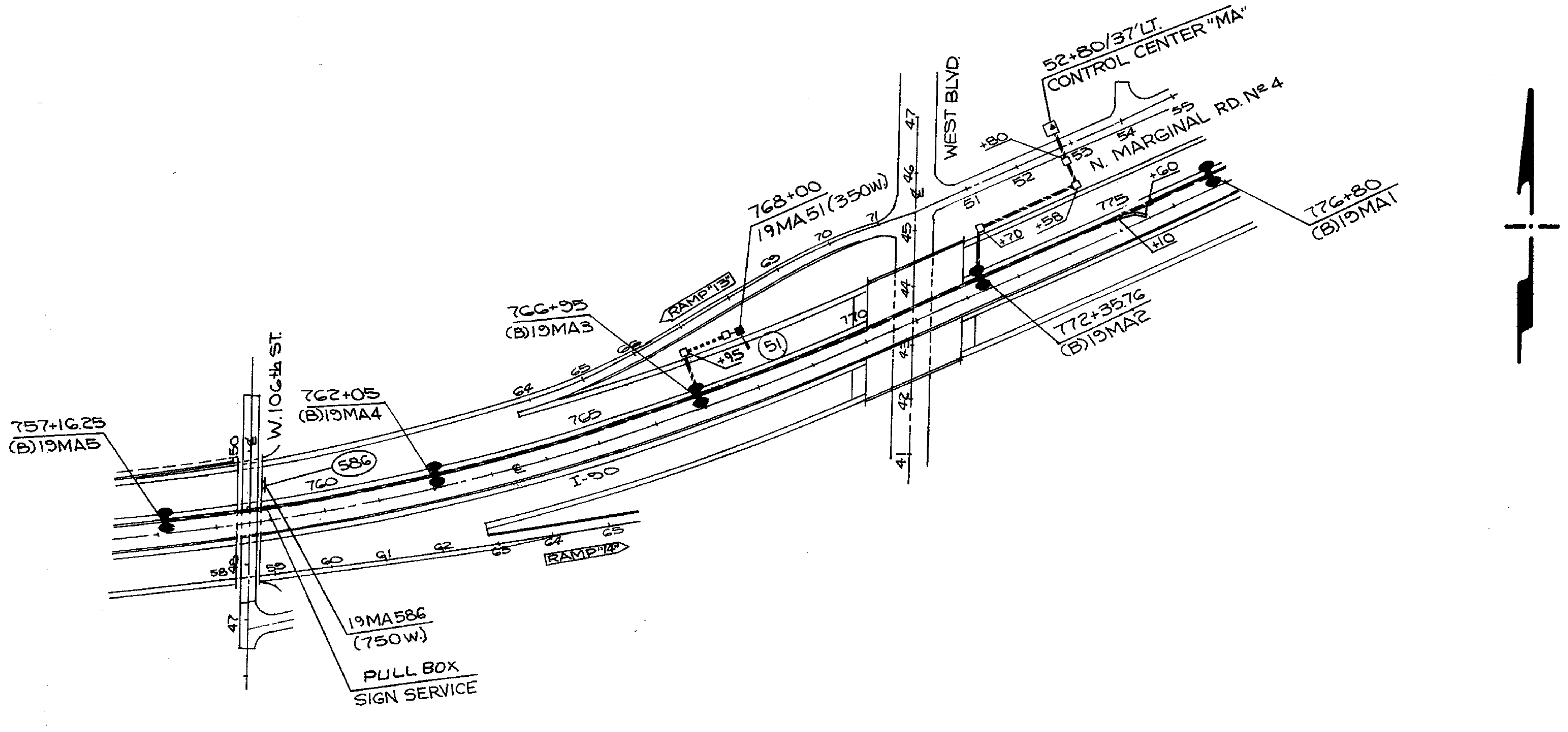


CIRCUIT No 18BE
CONNECTED LOAD 9.45 KVA

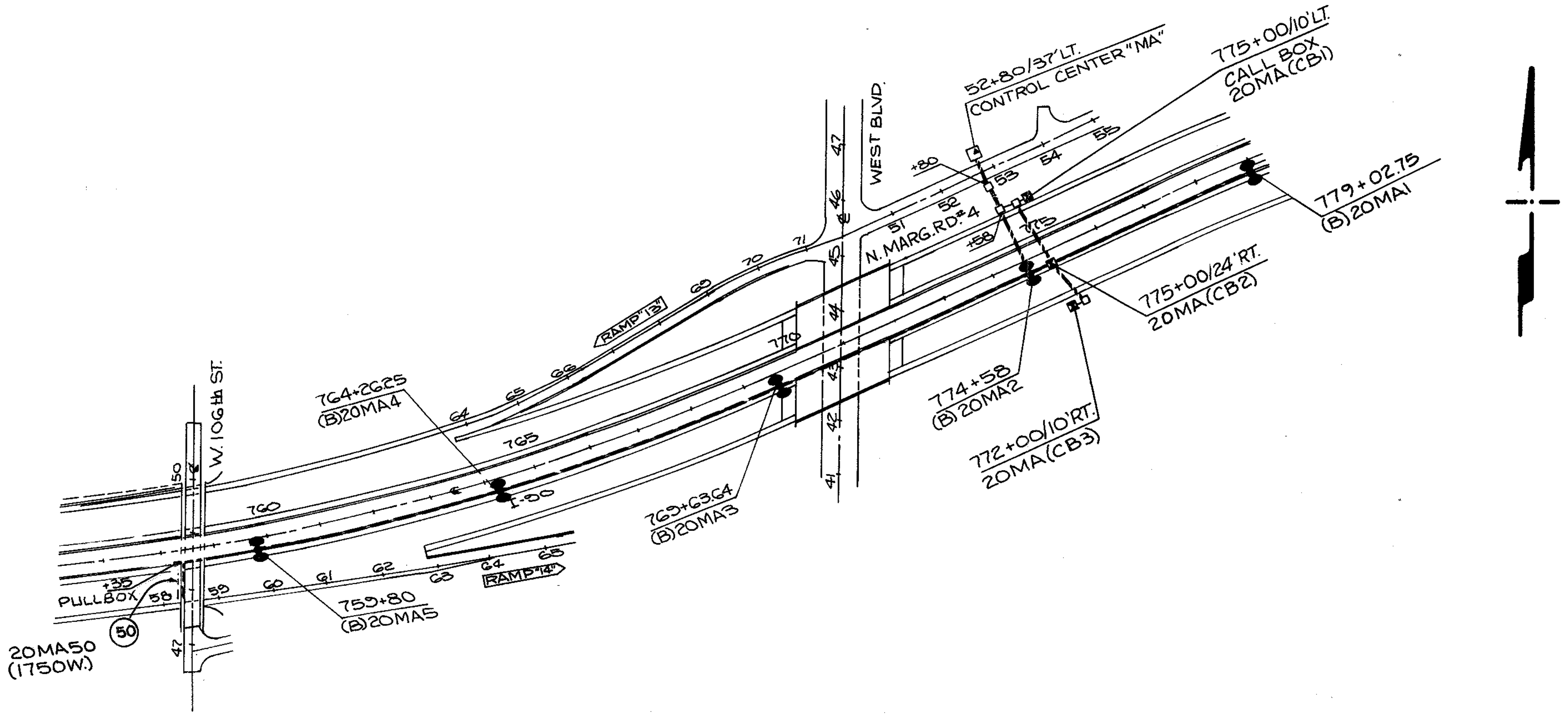
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

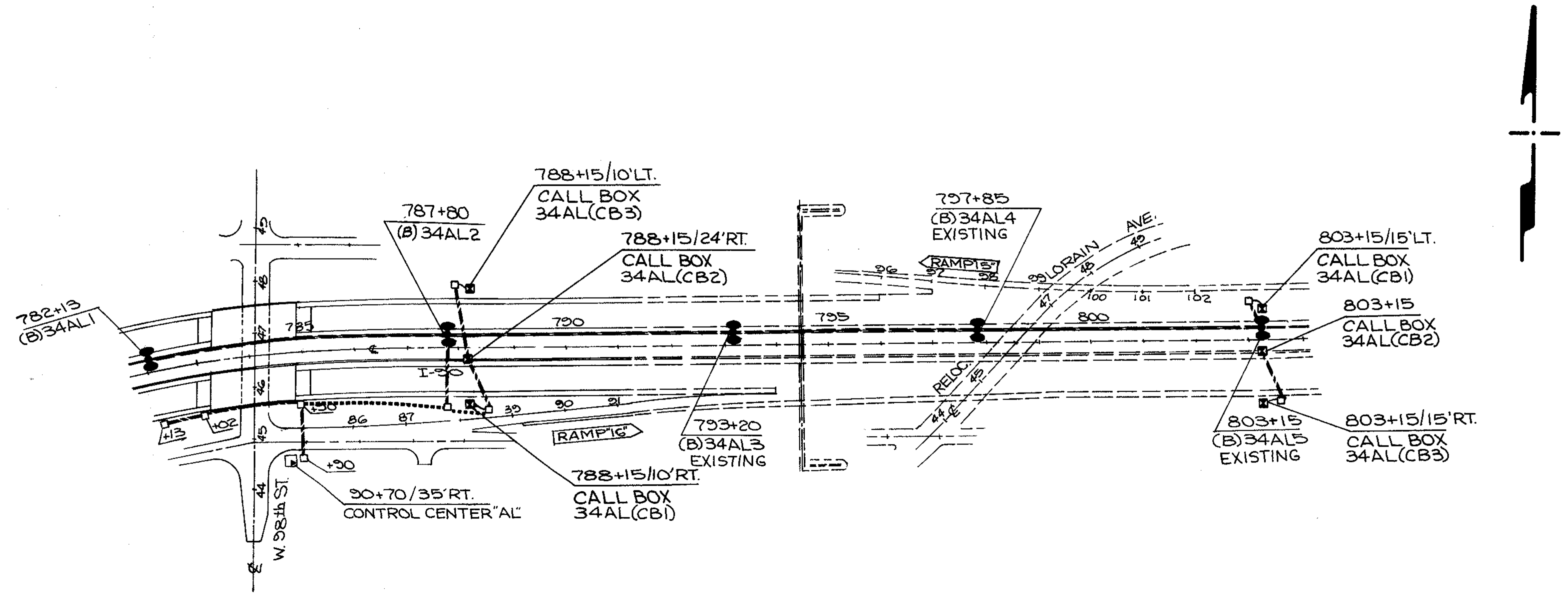
CUYAHOGA COUNTY
CUY - 90 - 10.40



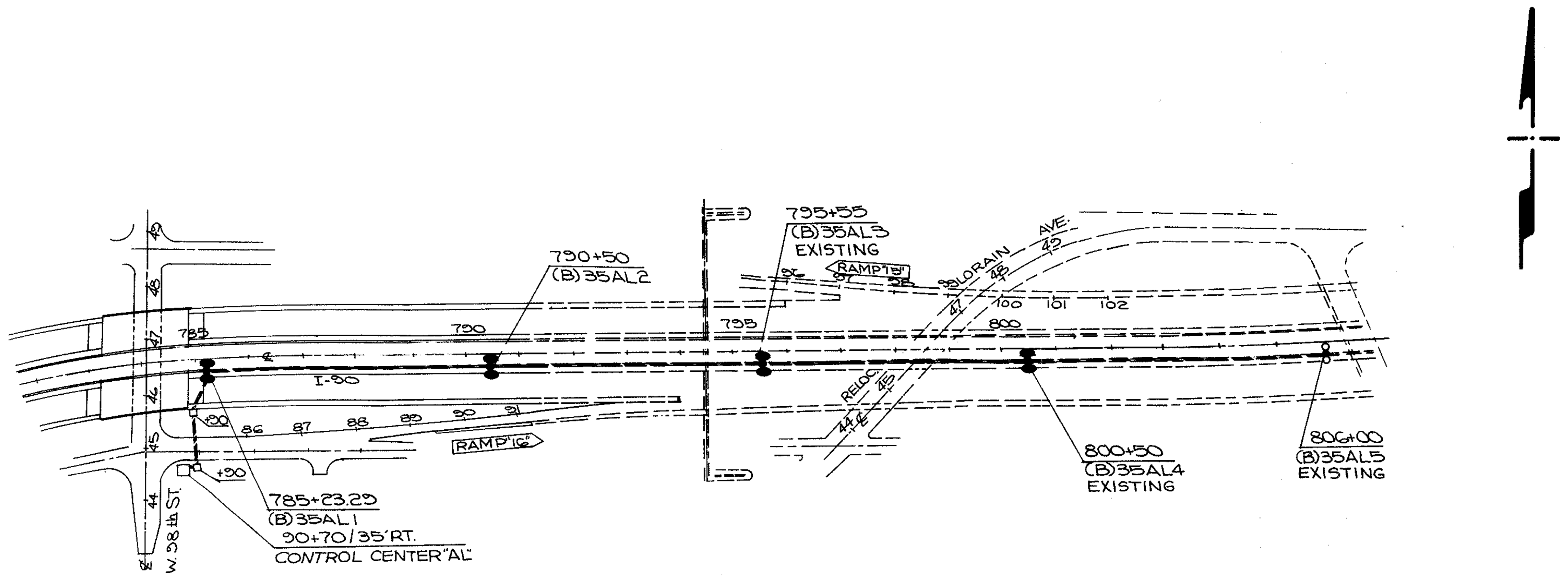
CIRCUIT № 19MA
CONNECTED LOAD 13.00 KVA



CIRCUIT № 20MA
CONNECTED LOAD 14.44 KVA



CIRCUIT № 34AL
CONNECTED LOAD 13.15 KVA

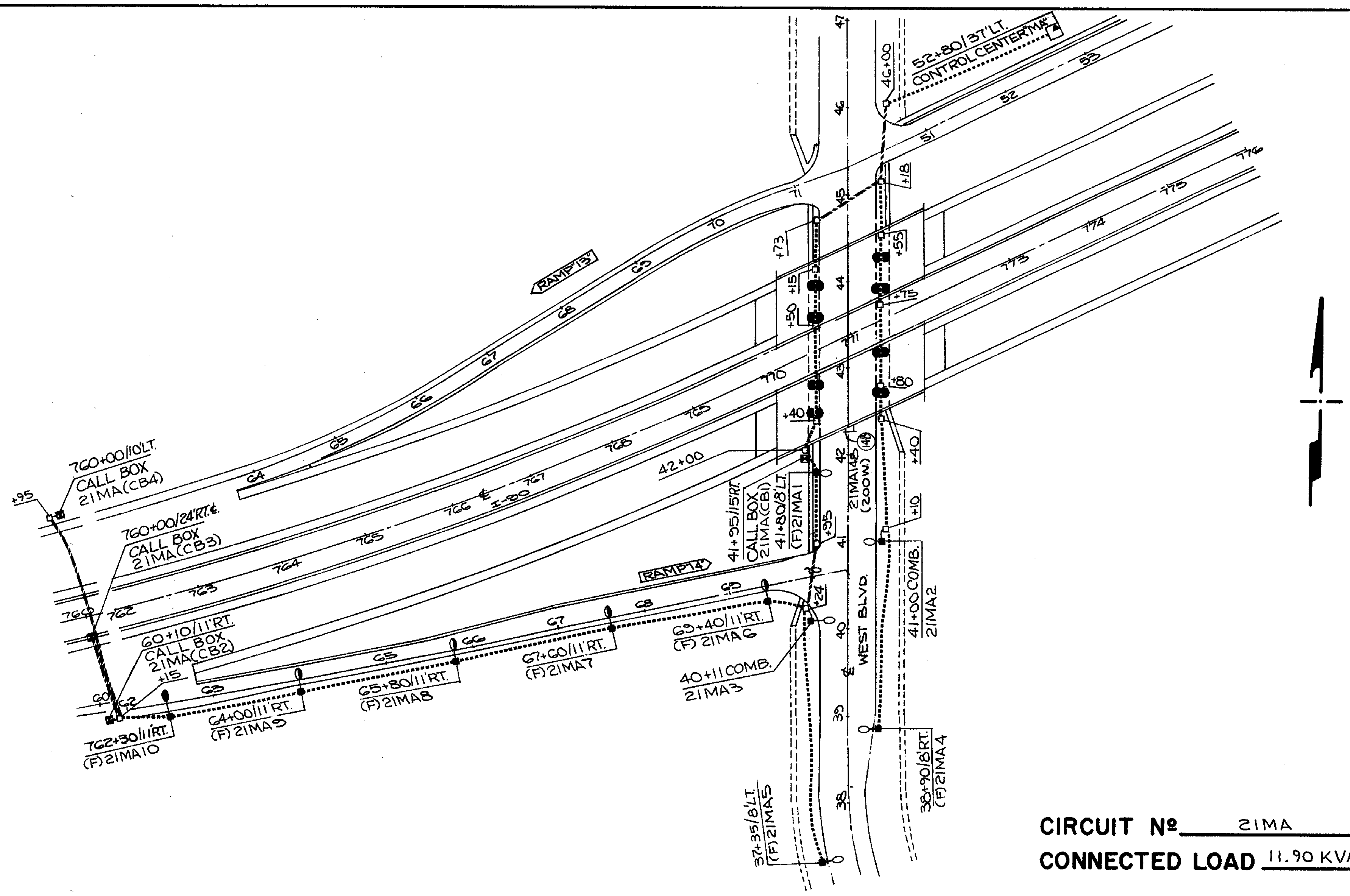


CIRCUIT № 35AL
CONNECTED LOAD 11.52 KVA

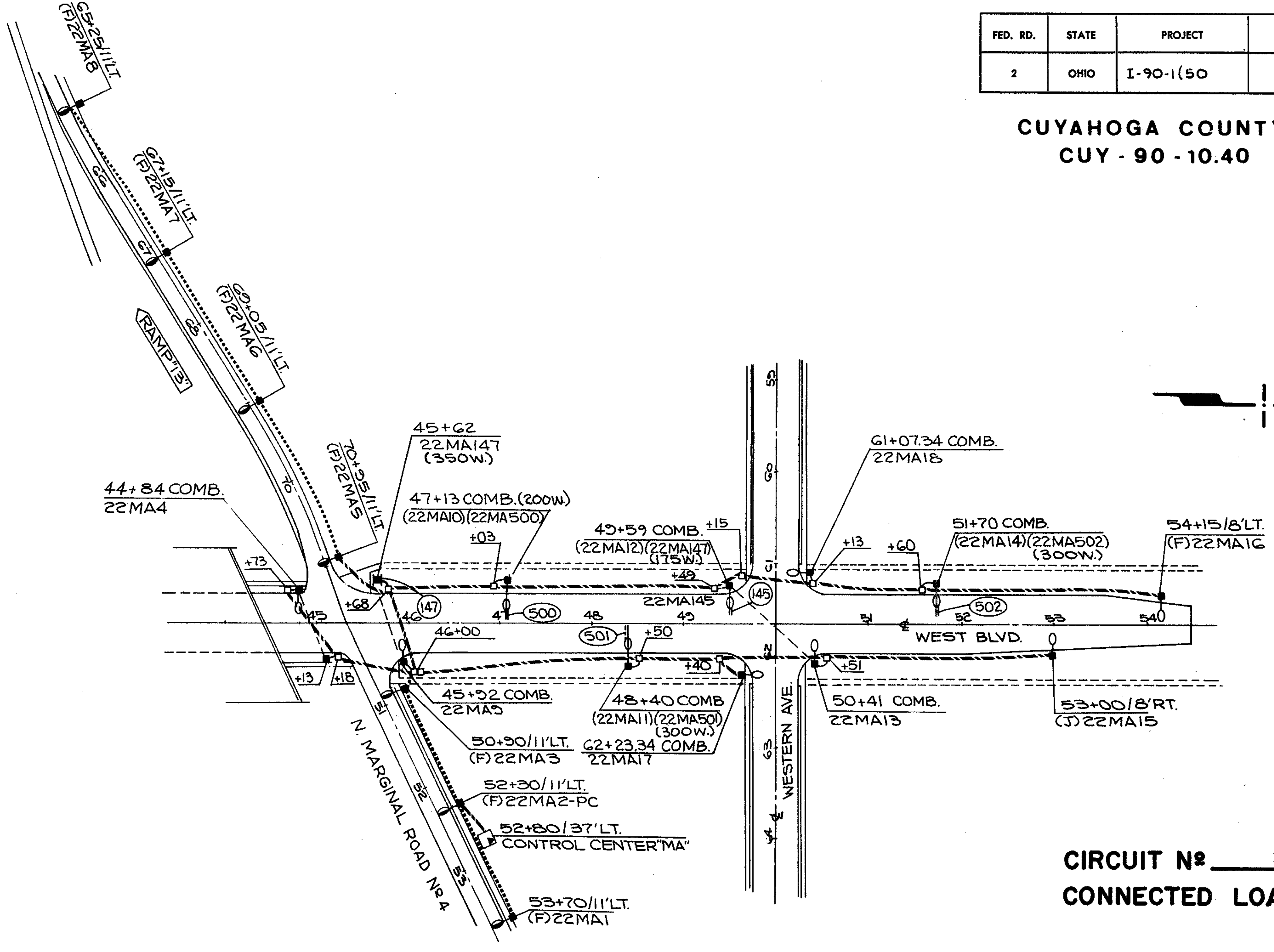
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)	

CUYAHOGA COUNTY
CUY - 90 - 10.40



CIRCUIT № 21MA
CONNECTED LOAD 11.90 KVA

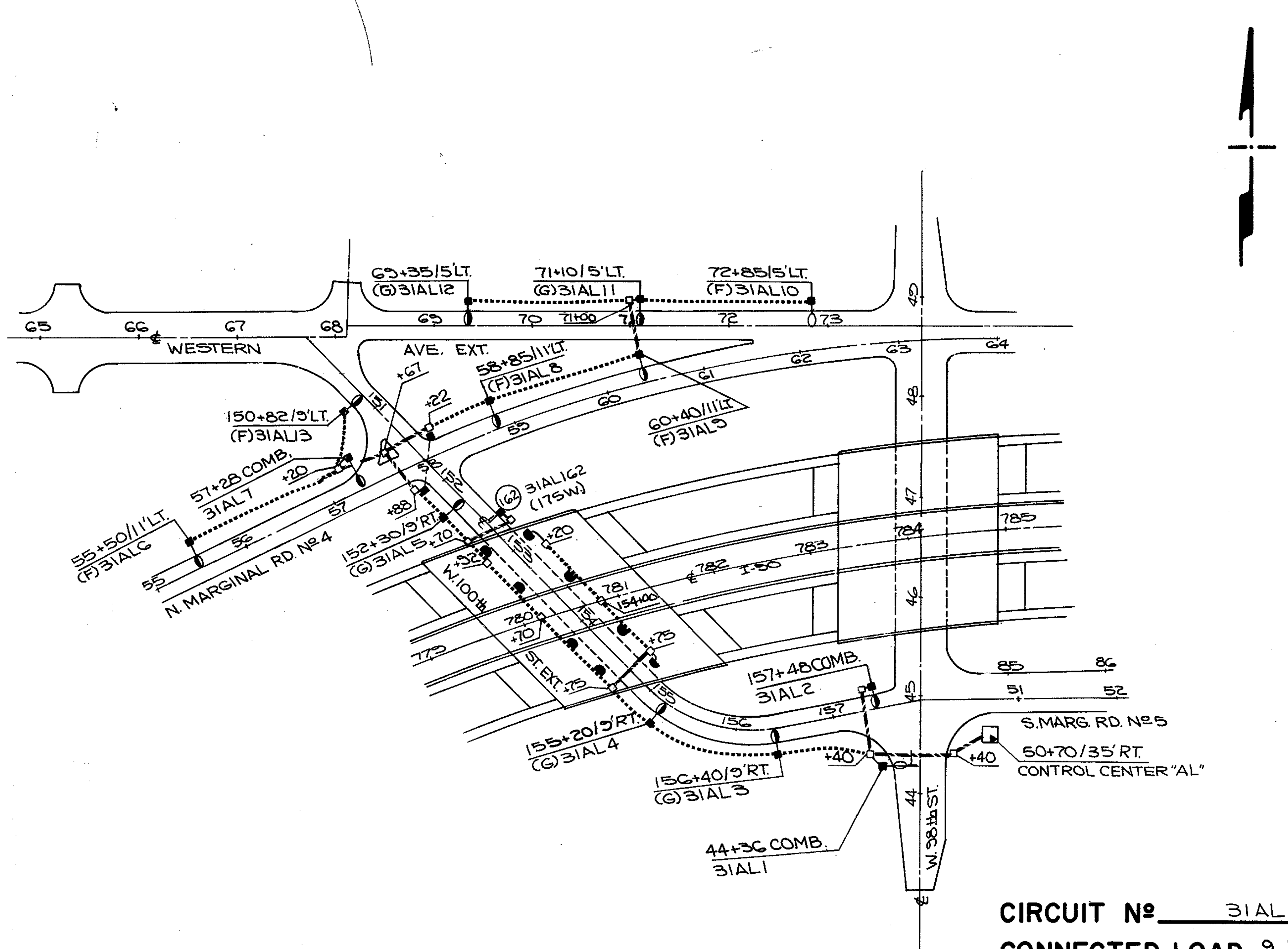


CIRCUIT № 22MA
CONNECTED LOAD 10.51 KVA

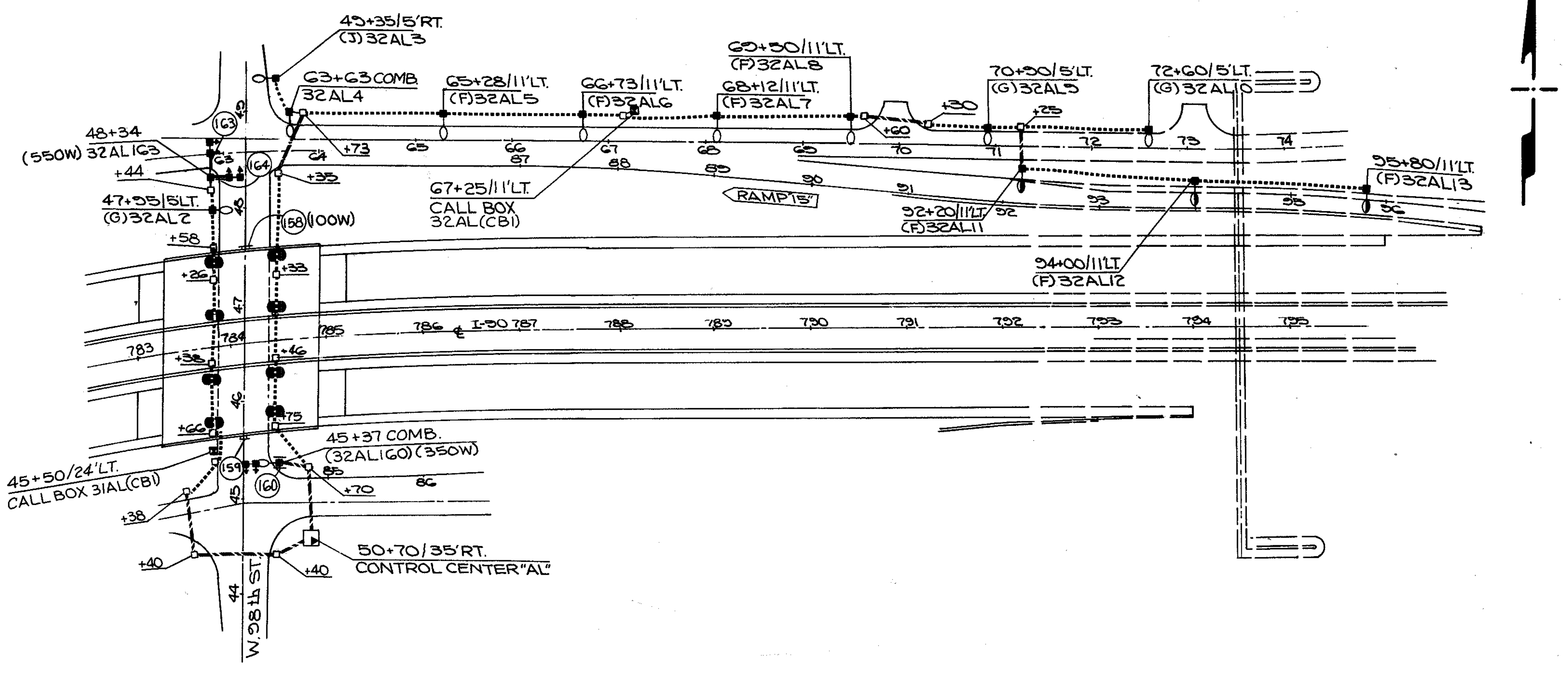
LIGHTING PLAN

FED. RD.	STATE	PROJECT	
2	OHIO		

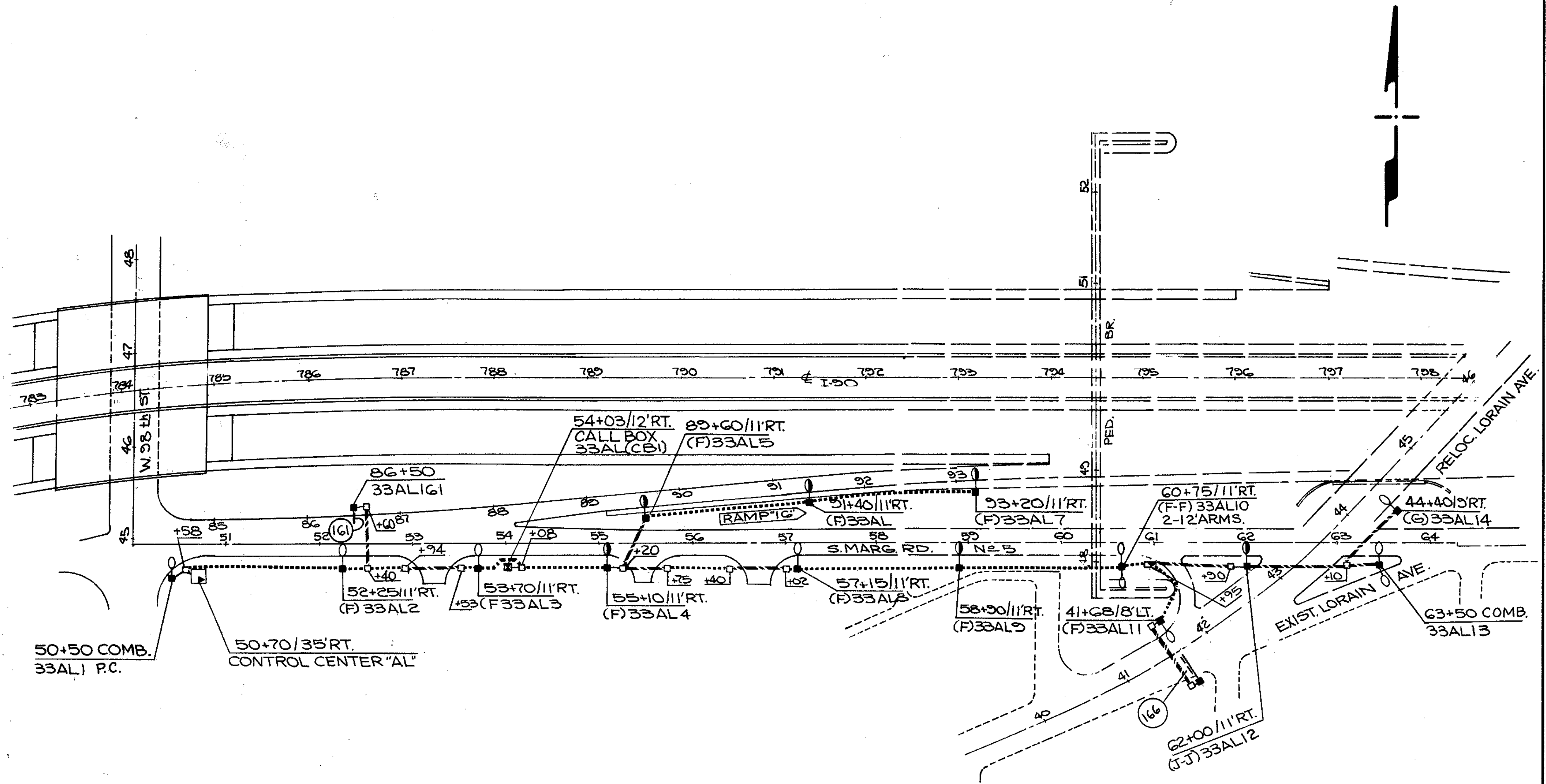
CUYAHOGA COUNTY
CUY - 90 - 10.40



CIRCUIT Nº 31AL
CONNECTED LOAD 9.17 KVA



CIRCUIT Nº 32AL
CONNECTED LOAD 13.34 KVA



CIRCUIT Nº 33AL
CONNECTED LOAD 8.16 KVA

CONTROL CENTER DATA

CONTROL CENTER	LOCATION STA.	LOCATION SIDE	CONNECTED LOAD KVA	SERVICE CONDUCTORS SIZE	CONTROL CENTER AMP	CIRCUIT Nº	FIXTURE 1000 WATTS	FIXTURE 400 WATTS	FIXTURE 250 WATTS	FIXTURE 175 WATTS	FIXTURE 150 WATTS	FIXTURE 100 WATTS	CIRCUITS CONDUCTORS SIZE	CIRCUIT FUSE AMP
"BE"	54+97	80'LT.	11.52	SEE M.E.L.P.	30 AMP	11BE	10						#4 AWG	30AMP
	W. 117 th ST.		12.19	PLANS	——	12BE	10		2*				#4 AWG	30AMP
			12.48		——	13BE	10		2*			2*	#4 AWG	30AMP
			12.19		30 AMP	14BE	10		2*				#4 AWG	30AMP
			8.30		——	15BE		15		3*	②		#4 AWG	25AMP
			11.23		——	16BE	1	15	4*	2*	①	6*	#4 AWG	30AMP
			11.76		30AMP	17BE		16	4* 4 U.P.	3*	②	2*	#4 AWG	30AMP
			8.98		——	18BE		12	8 U.P.	1*	①	2*	#4 AWG	25AMP
"BE"			88.65		100 AMP SAFETY SW.		41	58	26	9	⑥	12		
"MA"	52+80	37'LT.	13.00		30 AMP	19 MA	10		3*	2*			#4 AWG	30AMP
	N.MARG.RD.4		14.44		——	20 MA	10		7*		③		#4 AWG	35AMP
			11.90		30AMP	21 MA	1	9	16 U.P.		④	2*	#4 AWG	30AMP
			10.51		——	22MA		18		3*		8*	#4 AWG	30AMP
"MA"			49.85		100AMP SAFETY SW.		21	27	26	5	⑦	10		
"AL"	50+70	35'RT.	9.17		30AMP	31 AL		13	8 U.P.	1*			#4 AWG	25AMP
	S.MARG.RD.5		13.34		——	32AL		13	16 U.P.	4*	①	4*	#4 AWG	30AMP
			8.16		——	33AL		16			①	2*	#4 AWG	25AMP
			13.15		30 AMP	34 AL	10			2*	⑥		#4 AWG	30AMP
			11.52		——	35AL	10						#4 AWG	30AMP
"AL"			55.34		100 AMP SAFETY SW.		20	42	24	7	⑧	6		

* MERCURY VAPOR SIGN LIGHTING   UP = UNDERPASS LIGHTING   (Nº) = CALL BOX BEACONS FUTURE

LIGHTING PLAN

-4

81-d

TRAFFIC CONTROL GENERAL NOTES

FED. RD.	STATE	PROJECT	
2	OHIO	1-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

ITEM 606 GUARDRAIL

606 TEMPORARY BEAM RAIL

A QUANTITY OF 250 LINEAL FEET OF ITEM 606 TEMPORARY BEAM RAIL IS HEREBY PROVIDED FOR PLACEMENT AS DIRECTED BY THE ENGINEER IN CREATING ANY NECESSARY TEMPORARY TERMINALS WHICH MAY BE NEEDED IN ORDER TO OPEN THE PROJECT TO TRAFFIC. PAYMENT WILL BE MADE AT THE UNIT PRICE BID PER LINEAL FOOT FOR THE ACTUAL LENGTH OF ITEM 606 TEMPORARY BEAM RAIL USED.

606 INTERIM BARRELS, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND PLACING ON 12'-6" CENTERS OF 55 GALLON BARRELS AS DIRECTED BY THE ENGINEER FOR THE PURPOSE OF CHANNELIZING TRAFFIC AND CLOSING THE MAINLINE ROADWAY TO CREATE ANY NECESSARY TEMPORARY TERMINALS WHICH MAY BE REQUIRED TO OPEN THIS PROJECT TO TRAFFIC.

AN ESTIMATED QUANTITY OF 400 BARRELS IS HEREBY PROVIDED. HOWEVER, PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH BARREL COMPLETE IN PLACE.

LOCATIONS OF GUARDRAIL

THE LOCATIONS OF GUARDRAIL RUNS AS SHOWN IN THESE PLANS ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER TO ASSURE THAT THE PLANNED INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

ITEM 614 MAINTENANCE OF TRAFFIC

614 MAINTENANCE OF TRAFFIC

MODIFYING SPECIFICATION 104.04 THIS ITEM OF WORK SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH TRAFFIC CONTROL DETAILS SHOWN ON SHEET 29,30 IN ADDITION TO REQUIREMENTS OF THIS STANDARD SPECIFICATION.

MAINTENANCE OF CONSTRUCTION SIGNING

THE STANDARD W-43-30 "NO OUTLET" SIGNS AND CITY OF CLEVELAND STANDARD "NOT A THRU STREET - LOCAL ACCESS ONLY", 24" X 48" BLACK ON WHITE REFLECTORIZED SHEETING-TYPE SIGNS SHALL BE ERECTED IN PLACE OF THE "ROAD CLOSED AHEAD" SIGNS ONLY AFTER THE CONSTRUCTION WORK ON THE AFFECTED CITY STREETS IS COMPLETED.

614 TEMPORARY SIGNS AND SUPPORTS FOR MAINTAINING TRAFFIC

THE FOLLOWING REQUIREMENTS SHALL BE ADHERED TO REGARDING MATERIALS AND PLACEMENT OF SIGNS TO BE FURNISHED, INSTALLED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE PLANS.

SIGNS SHALL BE ALUMINUM SHEET OR PLYWOOD TYPE WITH REFLECTIVE SHEETING IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 815. SIGN MATERIAL SHALL CONFORM WITH THE FOLLOWING SCHEDULE:

INDIVIDUAL SIGN AREA	MATERIAL
LESS THAN 10 SQ. FT.	0.060 ALUMINUM SHEET
10-16 SQ. FT.	0.080 ALUMINUM SHEET
16-20 SQ. FT.	0.100 ALUMINUM SHEET
OVER 20 SQ. FT.	3/4 INCH PLYWOOD

THE CONTRACTOR SHALL HAVE THE OPTION OF FURNISHING EXTRUSHEET ALUMINUM PANELS AS A SUBSTITUTE FOR PLYWOOD.

ALL SUPPORTS FOR GROUND MOUNTED SIGNS NOT ERECTED ON DRUMS OR OVERPASS MOUNTED SHALL BE STEEL CHANNEL TYPE, DRIVEN TO A MINIMUM DEPTH OF 5 FEET. SIGNS SHALL HAVE 1, 2, OR 3 SEPARATE SUPPORTS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

TOTAL SIGN ASSEMBLY AREA (SQ. FT.)	SUPPORT TYPE SIGN LENGTH (HORIZONTAL)		
	4 FT. OR LESS	4 - 10 FT.	11 FT. OR MORE
10 OR LESS	1 - 4 LB. POST	2 - 3 LB. POSTS	——
11 - 20	1 - 6 LB. BEAM	2 - 4 LB. POSTS	——
21 - 75	——	2 - 6 LB. BEAMS	3 - 6 LB. BEAMS

SUPPORTS FOR GROUND MOUNTED SIGNS GREATER THAN 75 SQ. FT. IN AREA SHALL BE AS DIRECTED BY THE ENGINEER.

MOUNTING HEIGHT AND LATERAL PLACEMENT OF TEMPORARY SIGNS SHALL BE IN ACCORDANCE WITH FIGURES S-2 AND S-3 (PAGES 14 AND 15) OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

STANDARDS AND SIGN LAYOUTS FOR TEMPORARY SIGNS ARE AVAILABLE FROM THE OFFICE OF HIGHWAY DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO, 43215.

(CONTINUED)

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL TEMPORARY SIGNS AND SUPPORTS WHEN NO LONGER NEEDED, AND HE SHALL RESTORE EACH SIGN SITE TO ITS ORIGINAL CONDITION.

ALL SIGNS AND SUPPORTS FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

BASIS OF PAYMENT FOR THE ABOVE DESCRIBED WORK SHALL BE INCLUDED IN THE LUMP SUM ITEM OF WORK FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 620 DELINEATORS

620 DELINEATORS, AS PER PLAN

THE CONTRACTOR SHALL HAVE THE OPTION OF DRIVING OR CONCRETE EMBEDDING THE DELINEATOR POST IN ACCORDANCE WITH DETAILS OF SHEET 631 .

POSTS MAY BE TRIMMED ON THE EMBEDDED ENDS TO ADJUST FOR GRADE AND REQUIRED DELINEATOR MOUNTING HEIGHT. CONCRETE SHALL BE CLASS "C".

IN EITHER CASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO UNDERGROUND UTILITIES OR CABLE DURING PERFORMANCE OF THIS ITEM OF WORK.

THE QUANTITY FURNISHED AND INSTALLED SHALL BE PAID FOR AT THE PRICE BID PER EACH WHICH PRICE SHALL BE FULL COMPENSATION FOR EITHER TYPE OF INSTALLATION.

620 INTERIM DELINEATORS, AS PER PLAN

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING INTERIM DELINEATORS AS SPECIFIED ON PLAN SHEETS

THIS ITEM SHALL INCLUDE 2 POUNDS PER FOOT STEEL DRIVE POSTS 4'-0" LONG BOLTED TO INSIDE OF INTERIM BARRELS FURNISHED UNDER 606 USING A MINIMUM OF THREE 5/16" STEEL BOLTS SPACED ON 12" CENTERS. POST FLANGES SHALL BE 90 DEGREES TO INTERIM EDGE LINES FACING APPROACHING TRAFFIC.
TYPE C2 DELINEATORS SHALL BE MOUNTED ON THE DRIVE POST FLANGES WITH THE TOP OF THE DELINEATOR 4' ABOVE THE PAVEMENT.

THE QUANTITY FURNISHED AND INSTALLED WILL BE PAID FOR AT THE PRICE BID PER EACH WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING DRIVE POSTS AND DELINEATORS INCLUDING NECESSARY HARDWARE, LABOR AND EQUIPMENT.

ITEM 625 ELECTRICAL DEVICES

625 CAPPING OF CONDUIT

ALL CONDUIT IN FOUNDATIONS WHICH WILL NOT HAVE WIRE OR CABLE PULLED INTO IT DURING CONSTRUCTION SHALL HAVE THE ENDS CLOSED WITH CAPPED BUSHINGS OR OTHERWISE SEALED IN AN APPROVED MANNER TO COMPLETELY KEEP ALL MOISTURE AND FOREIGN MATTER OUT OF THE CONDUIT.

625 WIRE AND CABLE

WIRE AND CABLE INSTALLATION SHALL CONFORM TO SECTION 625.14 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS AND SHALL BE OF THE SIZES AND TYPES SHOWN ON THE PLANS.

WIRE OR CABLE INSTALLED IN CONDUIT ON OR WITH SIGN STRUCTURES SHALL BE #10 THHN, 600 VOLT STANDARD COPPER WIRE (713.02 POLE AND BRACKET CABLE).

CABLE INSTALLED UNDERGROUND LEADING FROM THE PULLBOX TO THE DISCONNECT SWITCH SHALL BE #4 AWG SINGLE CONDUCTOR CIRCUIT CABLE.

SIGN LIGHTING

625 SIGN SERVICE

THIS ITEM SHALL CONSIST OF THE COMPLETION OF THE ELECTRICAL SYSTEM AND COMPONENTS FROM THE CONNECTORS IN THE PULL BOX (INCLUDED WITHIN THE ROADWAY LIGHTING QUANTITIES) TO THE PRIMARY SIDE OF THE DISCONNECT SWITCH.

WORK WILL INCLUDE FURNISHING AND INSTALLING (INCLUDING TRENCHING AND BACKFILLING) THE 2 INCH GALVANIZED STEEL CONDUIT AND COUPLINGS FROM THE PULL BOX TO THE CONDUIT ELL IN THE SIGN SUPPORT FOUNDATION.

THIS ITEM WILL ALSO INCLUDE FURNISHING AND INSTALLING NO. 4 OR 6 AWG 600 VOLT DISTRIBUTION CIRCUIT CABLE AS PER 713.02 FROM THE CONNECTORS TO THE DISCONNECT SWITCH.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

625 SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS

THIS ITEM OF WORK SHALL CONSIST OF THE COMPLETION OF THE ELECTRICAL SYSTEM AND COMPONENTS CONNECTING THE CONNECTORS IN THE PULL BOX (INCLUDED WITHIN THE ROADWAY LIGHTING QUANTITIES) WITH THE PRIMARY SIDE OF THE DISCONNECT SWITCH.

WORK WILL INCLUDE FURNISHING AND INSTALLING (INCLUDING TRENCHING AND BACKFILLING) THE 1-1/4" METAL CONDUIT AND NO. 4 OR 6 AWG 600 VOLT DISTRIBUTION CIRCUIT CABLE AS PER 713.02 FROM THE PULL BOX TO THE SWITCH ENCLOSURE AND SHALL ALSO INCLUDE ALL FITTINGS AND FASTENERS NEEDED TO COMPLETE THIS ITEM OF WORK.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT THE CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

625 MERCURY VAPOR SIGN LIGHTING LUMINAIRE, WITH BALLAST AND LAMP

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING MERCURY VAPOR SIGN LIGHTING LUMINAIRES WITH LAMP AND INTEGRAL BALLAST AS SPECIFIED BELOW.

THE LUMINAIRE SHALL BE NO MORE THAN 8-1/2" HIGH OVERALL BY 16" WIDE BY 18-1/4" DEEP INCLUDING THE BALLAST ENCLOSURE. THESE MEASUREMENTS SHALL BE CHECKED WHEN THE LUMINAIRE IS RESTING ON A HORIZONTAL TABLE TOP WITH THE LENS UP.

THE OUTER HOUSING OF THE LUMINAIRE, THE FRAME FOR THE LENS, AND THE BALLAST HOUSING SHALL BE OF CAST ALUMINUM WITH A FINISH OF GRAY BAKED ACRYLIC BASE ENAMEL.

THE LAMP HOUSING BODY SHALL HAVE 3-5/16" DIAMETER HOLES DRILLED ACCORDING TO THE MOUNTING PLATE DESIGN SHOWN ON SHEET . THE CENTERLINE OF TWO OF THE BOLTHOLES SHALL BE 1-3/8" AWAY FROM AND PARALLEL WITH THE PROJECTION OF THE LAMP CENTERLINE ON THE BASE OF THE LAMP HOUSING.

THE REFLECTOR SHALL BE MADE OF A SINGLE PIECE OF ALUMINUM, DIE FORMED TO SHAPE AND PROCESSED TO DISTRIBUTE THE LIGHT EVENLY OVER THE SIGN AREA. A HEAVY DUTY MOGUL BASE LAMPHOLDER SHALL BE SECURELY FASTENED TO THE REFLECTOR AND THE REFLECTOR SHALL BE SECURELY FASTENED TO THE LAMP HOUSING.

THE LUMINAIRE SHALL HAVE A BOROSILICATE GLASS LENS CAPABLE OF WITHSTANDING THERMAL SHOCK AND IMPACT OF FREEZING RAIN AND HAIL. THE LENS SHALL BE EITHER CLEAR OR HAVE A MILD DIFFUSION PATTERN MOLDED INTO ITS INNER SURFACE. A PERMANENT, FLEXIBLE, WATERPROOF SEALER SHALL BE USED TO SEAL THE LENS INTO ITS FRAME. A CONTINUOUS WATER PROOF GASKET SHALL BE PROVIDED TO SEAL THE LENS AND FRAME UNIT TO THE LAMP HOUSING. THIS GASKET SHALL BE SO DESIGNED TO STAY IN THE PROPER POSITION FOR AT LEAST 10 YEARS REGARDLESS OF THE NUMBER OF TIMES THE LENS UNIT IS OPENED FOR SERVICE OR ADJUSTMENT.

THE LENS UNIT SHALL BE HINGED ON ONE EDGE AND FASTENED ON THE OTHER EDGE WITH SPRING LOADED LATCHES THAT REQUIRE NO TOOLS TO OPEN. THE HINGES, LATCHES AND ALL OTHER EXTERNAL FASTENERS SHALL BE OF STAINLESS STEEL.

THE LUMINAIRE SHALL BE PROVIDED WITH AN INTEGRAL BALLAST OF AT LEAST 90% POWER FACTOR, AND OF THE CONSTANT WATTAGE AUTOTRANSFORMER TYPE TO PROVIDE PLUS OR MINUS 5% LAMP WATT VARIATION FOR A PLUS OR MINUS 10% LINE VOLTAGE VARIATION. PRIMARY SUPPLY VOLTAGE SHALL BE 60 HERTZ AND 120, 208, 240, 277 OR 480 VOLTS AS SPECIFIED IN THE PLANS. THE LUMINAIRE SHALL OPERATE SATISFACTORILY OVER ANY EXPECTED OUTDOOR TEMPERATURES DOWN TO -20 DEGREES F. SELF-BALLASTED MERCURY VAPOR LAMP TYPE LUMINAIRES ARE NOT ACCEPTABLE.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH "625 MERCURY VAPOR SIGN LIGHTING LUMINAIRE WITH BALLAST AND LAMP, BY RATING" FURNISHED TO THE JOB FOR INSTALLATION UNDER ITEM 625 "MERCURY VAPOR LIGHTED SIGN WIRED COMPLETE."

625 MERCURY VAPOR LIGHTED SIGN, WIRED COMPLETE

THIS ITEM SHALL CONSIST OF THE INSTALLATION OF THE MERCURY VAPOR LUMINAIRES FURNISHED UNDER "625 MERCURY VAPOR SIGN LIGHTING LUMINAIRE, WITH LAMP BY RATING". IT WILL ALSO INCLUDE FURNISHING AND INSTALLATION OF THE ELECTRICAL COMPONENTS AND HARDWARE FROM THE DISCONNECT SWITCH TO THE LUMINAIRE INCLUDING FURNISHING AND INSTALLING THE 2.16#/FT. ALUMINUM CHANNEL AND FIXTURE MOUNTING PLATE WITH "J" BOLTS. THESE ITEMS WILL BE MOUNTED ON THE "G" SUPPORT ARM WHICH IS INCLUDED WITH ITEM 816 OVERHEAD SIGN SUPPORT BY TYPE.

LUMINAIRES SHALL BE MOUNTED AS SHOWN ON SHEET 560. WIRING SHALL BE NOT LESS THAN #12 THW IN 3/4" DIAMETER CONDUIT. THE WIRES SHOULD BE CONTINUOUS FROM A JUNCTION BOX ON THE TOP CHORD OF THE SIGN SUPPORT OR ON STRUCTURE MOUNTED CONDUIT TO THE FIRST FIXTURE, AND THEN CONTINUOUS TO THE SECOND, THIRD AND FOURTH FIXTURES ON A SINGLE SIGN. ON MULTIPLE SIGN INSTALLATIONS EACH SIGN SHALL HAVE A SEPARATE JUNCTION BOX SO THAT, IF MAINTENANCE IS NEEDED, THE SIGN AND ALL ELECTRICAL DEVICES ATTACHED TO IT CAN BE DISCONNECTED AS A UNIT FROM THE SUPPORT BY DISCONNECTING ONLY TWO WIRES AND THE U-BOLTS ATTACHING IT TO THE SUPPORT.

(CONTINUED)

CONDUIT FOR THE MERCURY VAPOR SIGN LIGHTING SHALL BE AS FOLLOWS:

1. A SCREW-ON-COVER, 1-1/4" DOUBLE HUB JUNCTION BOX SHALL BE FASTENED TO A 1-1/4" COUPLING WELDED TO THE TOP TRUSS CHORD OF THE SIGN SUPPORT ARM WITH A SHORT 1-1/4" NIPPLE. ON STRUCTURE MOUNTED SIGNS THE JUNCTION BOX SHALL BE ATTACHED TO THE CONDUIT MOUNTED ON STRUCTURE.

2. A LENGTH OF 3/4" P.V.C. COVERED FLEXIBLE WATERPROOF CONDUIT SHALL CONNECT THE JUNCTION BOX THROUGH A 1-1/4" X 3/4" BUSHING TO A 3/4" LR OR LL CONDULET ON THE SIGN BRACKET NEAREST THE POLE ON WHICH THE SWITCH ENCLOSURE IS MOUNTED.

3. 3/4" RIGID CONDUIT SHALL CONNECT THE LR OR LL CONDULET TO A 3/4" LB CONDULET SO ARRANGED AS TO LINE UP THE SHORT END WITH THE 1-1/8" DIAMETER HOLES IN THE SIGN BRACKET AND FIXTURE SUPPORT ARM. THIS RIGID CONDUIT SHALL BE FASTENED TO THE SIGN BRACKET WITH NOT LESS THAN 2 CONDUIT CLAMPS PLACED WITHIN 3" OF THE CONDULET FITTINGS AND NOT MORE THAN 24" C/C.

4. 3/4" RIGID CONDUIT SHALL CONNECT THE ABOVE LB CONDULET TO THE SHORT END OF ANOTHER LB CONDULET FITTING AT THE OTHER END OF THE FIXTURE SUPPORT ARM. THIS CONDUIT SHALL BE RUN THROUGH BOTH 1-1/8" DIAMETER HOLES IN THE FIXTURE SUPPORT ARM, BE JOGGED OUT OF THE WAY OF THE FASTENERS ON THE DIAGONAL BRACING RODS. WHEN REQUIRED, BE FASTENED NEAR EACH END ON AT NOT LESS THAN 24" C/C, AND BE MADE TO A LENGTH THAT, WHEN SCREWED INTO BOTH CONDULET FITTINGS, THE REAR CONDULET SHALL BE APPROXIMATELY CENTERED ON THE SIGN BRACKET WEB AND THE FRONT CONDULET SHALL FIT SNUGLY AGAINST THE OUTER PLATE OF THE FIXTURE SUPPORT ARM. THE LONG END OF THE FRONT CONDULET SHALL BE ANGLED DOWNWARD APPROXIMATELY 30 DEGREES, WHEN VIEWED FROM THE FRONT OF THE SIGN, TO ALLOW THE NEXT PIECE OF CONDUIT TO BE JOGGED EASILY TO LAY ALONG THE CENTERLINE AND APPROXIMATELY 3/8" IN FRONT OF FLANGE OF THE CHANNEL THAT SUPPORTS THE LIGHTING FIXTURES.

5. A 3/4" TYPE "T" CONDULET FITTING SHALL BE LOCATED WITHIN APPROXIMATELY 18" OF THE NEAR EDGE OF EACH FIXTURE ON THE SIGN. 3/4" RIGID CONDUIT SHALL BE CONNECTED FROM THE LB CONDULET FITTING DESCRIBED ABOVE TO THE FIRST "T" CONDULET. STRAIGHT LENGTHS OF CONDUIT SHALL CONNECT AS MANY "T" CONDULETS AS ARE REQUIRED FOR THE NUMBER OF LUMINAIRES SPECIFIED FOR THE SIGN. A THREADED PLUG SHALL BE USED TO CLOSE THE OPENING IN THE LAST "T" CONDULET USED ON EACH SIGN INSTALLATION. SUITABLE CONDUIT CLAMPS SHALL BE USED ON 24" CENTERS TO HOLD THE ENTIRE RUN OF CONDUIT ON THE CENTERLINE OF THE CHANNEL FLANGE AS LISTED UNDER ITEM 4 ABOVE.
THE TYPE "T" CONDULETS SHALL BE SO ORIENTED THAT THE THIRD TAPPED OPENING SHALL BE PERPENDICULAR TO THE FACE OF THE SIGN.

6. A LENGTH OF 3/4" P.V.C. COVERED WATERPROOF FLEXIBLE CONDUIT SHALL CONNECT EACH FIXTURE TO EACH CORRESPONDING "T" CONDULET. THE LENGTH OF THIS CONDUIT SHALL BE SO ARRANGED TO MAKE A NEAT AND GRADUAL CURVE INTO THE FIXTURE WITHOUT EITHER SHARP BENDS OR DROOPING APPEARANCE. WIRING FOR MERCURY VAPOR SIGN LIGHTING SHALL BE SIZED AND INSTALLED ACCORDING TO THE NATIONAL ELECTRICAL CODE BUT SHALL BE NOT LESS THAN NO. THW AND SHALL BE SPLICED ONLY IN JUNCTION BOXES OR IN THE WIRING ENCLOSURE OF THE LUMINAIRE. ALL WIRING SHALL BE IN CONDUIT, INSIDE STRUCTURAL CHORDS AND POLES, OR IN ELECTRICAL BOXES AND FIXTURES. SOLDERLESS CONNECTORS, OF THE PROPER SIZE AND TYPE, MAY BE USED WHERE SPLICES AND JUNCTIONS ARE ALLOWED ABOVE GROUND LEVEL.
HOWEVER, WHEN USED, THEY SHALL BE SECURELY TAPED WITH WATER RESISTANT ELECTRICAL TAPE TO FORM A WATERPROOF JOINT. WHEN SOLDERLESS CONNECTORS ARE NOT USED, ALL SPLICES AND JUNCTIONS ABOVE GROUND SHALL BE SOLDERED AND DOUBLE TAPED TO MAKE A WATERPROOF ELECTRICAL JOINT.

PAYMENT FOR THIS ITEM SHALL BE AT THE CONTRACT UNIT PRICE BID FOR THE FOLLOWING:

1. 625 MERCURY VAPOR LIGHTED SIGN, WIRED COMPLETE.
2. 625 MERCURY VAPOR LIGHTED SIGN, WIRED COMPLETE (STRUCTURE MOUNTED.)

PAYMENT SHALL INCLUDE ALL LABOR AND MATERIALS TO CONNECT ALL LUMINAIRES ON ONE SIGN INTO THE DISCONNECT SWITCH ENCLOSURE, INCLUDING CONDUIT ON STRUCTURE FOR STRUCTURE MOUNTED SIGNS. WHEN MORE THAN ONE SIGN IS MOUNTED ON AN INSTALLATION, EACH SIGN SHALL BE CONSIDERED AS A SEPARATE PAY ITEM.

625 DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKETS

THIS ITEM SHALL INCLUDE THE FABRICATING, FURNISHING AND INSTALLATION OF DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKETS WHEN ENCLOSURES ARE MOUNTED ON EXISTING OVERHEAD SIGN SUPPORTS (NOT PART OF THIS PROJECT) OR ATTACHED TO CONCRETE BRIDGE COLUMNS OR ABUTMENTS.

WORK SHALL CONSIST OF FIELD DRILLING, ATTACHMENT AND HARDWARE AS DETAILED ON SHEET 630 .

BASIS OF PAYMENT SHALL BE AT THE BID PRICE PER EACH MOUNTING BRACKET WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING, FABRICATION, AND INSTALLATION INCLUDING ALL LABOR, MATERIAL, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

TRAFFIC CONTROL GENERAL NOTES

FED. RD.	STATE	PROJECT	
	OHIO	1-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

625 DISCONNECT SWITCH WITH ENCLOSURE

THIS ITEM SHALL INCLUDE FURNISHING OF A 30 AMP. 600 VOLT FUSED DISCONNECT SWITCH IN A NEMA 4 STAINLESS STEEL ENCLOSURE ATTACHED TO EACH SIGN SUPPORT ON SHEET 630 .

THE DISCONNECT SWITCH SHALL BE A 3 POLE, SOLID NEUTRAL TYPE MEETING THE REQUIREMENTS OF 713.19, 10.

THE ENCLOSURE SHALL MEET THE REQUIREMENTS OF 713.20 WITH THE FOLLOWING EXCEPTIONS.

1. THE STENCILED LEGEND OR PLATE SHALL READ "SIGN LIGHTING".
2. A CHASE NIPPLE SHALL BE FURNISHED AND INSTALLED IN THE BACK OF THE ENCLOSURE.
3. A FACTORY INSTALLED HUB SHALL NOT BE PROVIDED ON THE TOP.
4. A SCREENED VENTILATION OPENING SHALL NOT BE PROVIDED.
5. MOUNTING POLES, SLOTS AND CHASE NIPPLE LOCATION SHALL MATCH THOSE PROVIDED ON THE SWITCH ENCLOSURE BRACKET AND SIGN SUPPORT.

EACH SWITCH ENCLOSURE SHALL BE FURNISHED WITH ONE PADLOCK. PADLOCKS SHALL HAVE A BRASS BODY AND WROUGHT IRON SHACKLE EQUAL TO RUSSWIN NO. 2882 KA OR MASTER NO. 4 KA OR APPROVED EQUAL. PADLOCKS SHALL BE ALL KEYED ALIKE WITH MASTER KEY 3476.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE PER EACH AT CONTRACT UNIT PRICE, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT TO COMPLETE THIS ITEM OF WORK.

625 INSPECTION AND TESTING OF SIGN LIGHTING

ELECTRICAL TESTS OF SIGN LIGHTING CIRCUITS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 625.22 WITH THE FOLLOWING ADDITIONS:

1. A VOLTAGE AND AMPERAGE MEASUREMENT SHALL BE MADE AT THE SIGN SUPPORT SWITCH.
2. WHERE A LOW VOLTAGE TAP TRANSFORMER IS USED, THE VOLTAGE SHALL BE MEASURED TO DETERMINE THE APPLICABLE TAP.
3. DURING THE PERFORMANCE TEST PERIOD, ADJUSTMENTS TO FIXTURE AIMING ANGLES SHALL BE MADE TO OBTAIN MAXIMUM UNIFORMITY AS DIRECTED BY THE ENGINEER.

THE ABOVE MEASUREMENTS AND VOLTAGE TAP SELECTION NOTATIONS SHALL BE INCLUDED IN THE TEST REPORTS FURNISHED TO THE ENGINEER.

SIGNAL EQUIPMENT

TRAFFIC SIGNAL SPECIFICATIONS

I. GENERAL

A. SCOPE OF WORK

THE CONTRACTOR SHALL INSTALL TRAFFIC SIGNALS AT THE INTERSECTIONS SHOWN IN THE PLANS.

THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY SO THAT THE TRAFFIC SIGNALS WILL BE COMPLETE, ACCEPTED AND READY FOR SERVICE.

B. GENERAL

ANY ITEMS OF LABOR, MATERIALS, AND EQUIPMENT REQUIRED, BUT NOT SHOWN AS A SEPARATE PAY ITEM IN THE PROPOSAL SHALL BE FURNISHED AND INSTALLED AS INCIDENTAL TO THE CONTRACT.

THE REFERENCE TO ANY NAME, MAKE AND MODEL NUMBER IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE AND IS TO INDICATE TO BIDDERS THE DESIGN THAT WILL BE ACCEPTABLE. BIDS ON OTHER NAMES, MAKES AND NUMBERS WILL BE CONSIDERED. BEFORE ANY EQUIPMENT IS ORDERED OR INSTALLATION OF A TRAFFIC SIGNAL SYSTEM IS BEGUN, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER*. THE SCHEDULE SHALL INCLUDE EIGHT (8) SETS OF CATALOG CUTS, DIAGRAMS, DRAWINGS, BROCHURES, DATA SHEETS, MANUFACTURER'S CERTIFICATES OF COMPLIANCE OR OTHER DESCRIPTIVE DATA AS MAY BE REQUIRED AND SHALL INCLUDE COMPLETE DESCRIPTIVE DATA ON THE SIGNALS, WIRING DIAGRAMS, COMPLETE CABLE DESCRIPTIONS, TEST DATA, MAKE AND CAPACITY OF ALL APPARATUS. THE CONTRACTOR SHALL IDENTIFY THE ITEM ON EACH SHEET AND SHALL MARK ALL PRINTS "RECORD DRAWING". ONE COPY WILL BE RETURNED MARKED "APPROVED", IF FOUND SATISFACTORY, IN THE EVENT ANY ITEMS OF MATERIAL OR EQUIPMENT CONTAINED IN THE SCHEDULE FAIL TO COMPLY WITH THE SPECIFICATION REQUIREMENTS, SUCH ITEMS WILL BE REJECTED.

ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THESE SPECIFICATIONS SHALL BE NEW, FIRST QUALITY, OF THE LATEST DESIGN, AND FREE FROM DEFECTS AND POOR WORKMANSHIP.

ALL MAJOR ITEMS OF EQUIPMENT SUCH AS CONTROLLERS, SIGNALS, DETECTORS, POLES, TYPES OF CABLES, ETC. SHALL BE OF THE SAME MANUFACTURE AND SAME TYPE IN ORDER TO ASSURE UNIFORMITY, INTERCHANGEABILITY OF COMPONENTS,SINGLE RESPONSIBILITY AND MOST SATISFACTORY SERVICE.

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II SIGNAL SPECIFICATIONS

A. INSTALLATION

1. THE CONTRACTOR SHALL CONFORM TO THE NATIONAL ELECTRIC CODE AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS IN PERFORMING CONTRACT WORK. HE SHALL OBSERVE THE REGULATIONS OF UTILITIES IN THE AREA OF THEIR EQUIPMENT AND EXERCISE DUE CAUTION IN CONSTRUCTION WORK NEAR THEIR FACILITIES.
2. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES HAVING INSTALLATIONS IN THE AREA TO SECURE AND AFFIRM DATA ON UTILITY LOCATIONS. THESE AGENCIES AND UTILITIES SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO ANY EXCAVATION IN AREAS CONTAINING THEIR INSTALLATIONS.
3. THE CONTRACTOR SHALL INSTALL THE POWER TO THE CONTROLLER CABINET AND PROVIDE 120/240 VOLTS, 30 AMP SERVICE AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING AND PROVIDING THE POWER IN THE MANNER SHOWN IN THE PLANS THROUGH THE ELECTRIC COMPANY. THE COST OF OBTAINING THE POWER SHALL BE INCLUDED IN THE BID PRICE FOR "POWER CABLE."
4. TRAFFIC SIGNAL CABLE SHALL ENTER THE CONTROLLER CABINETS AND RUN CONTINUOUSLY FROM SIGNAL HEAD TO SIGNAL HEAD WITHOUT SPLICES. PRESSURE TYPE CONNECTORS WILL BE USED TO MAKE CONNECTIONS INSIDE THE CONTROLLER CABINET. CABLE ENTRANCES SHALL BE PROTECTED BY A SUITABLE WEATHER HEAD AND DRIP LOOP WHEN ENTERING TRAFFIC FIXTURES.
5. ALL WIRES IN THE CONTROLLER CABINET SHALL BE LABELED, NEATLY LASHED AND FASTENED TO THE CABINET WITH CLAMPS. THIS SHALL INCLUDE WIRES TO THE DETECTORS, SIGNAL HEADS, PEDESTRIAN UNITS, INTERCONNECT EQUIPMENT AND ALL MISCELLANEOUS EQUIPMENT.
6. ALL SPLICES IN PULL BOXES SHALL BE OF THE WEATHERPROOF POURED TYPE.
7. ALL CURRENT CARRYING WIRES SHALL BE COPPER UNLESS OTHERWISE SPECIFIED.
8. NO SPLICES SHALL BE PERMITTED IN ANY ELECTRICAL CONDUCTOR WITH THE EXCEPTION OF DETECTOR LOOP WIRE TO DETECTOR LEAD-IN CABLE SPLICES IN PULL BOXES.

B. EQUIPMENT

ALL EQUIPMENT SHALL BE FURNISHED WITH TWO WIRING DIAGRAMS, SERVICE MANUAL AND INSTRUCTIONS ON INSTALLATION AND MAINTENANCE.

* THE DIVISION 12 TRAFFIC ENGINEER AND CITY OF CLEVELAND COMMISSIONER OF TRAFFIC SHALL BE PROVIDED AN OPPORTUNITY TO INSPECT AND COMMENT ON TRAFFIC CONTROL ITEMS PRIOR TO FINAL ACCEPTANCE BY THE ENGINEER.

METHOD OF MEASUREMENT

SUPPLEMENTING ITEM 625.24, LINEAR MEASUREMENTS FOR PAYMENT OF VARIOUS TRAFFIC SIGNAL BID ITEMS SHALL BE MADE AS FOLLOWS:

1) SIGNAL CABLE, POWER CABLE, INTERCONNECT CABLE, LOOP DETECTOR LEAD-IN CABLE, SERVICE CABLE.

THE LENGTH MEASURED HORIZONTALLY FROM CENTER TO CENTER OF PULLBOXES, POLES, FOUNDATIONS, OR SIGNAL HEADS; PLUS THE FOLLOWING:

1. FIVE FEET PER EACH PULLBOX, POLE, OR TERMINATION AT CONTROLLER OR SIGNAL HEAD TO ALLOW FOR SLACK AND SPLICING OF LEADS.
2. THE LENGTH MEASURED VERTICALLY FROM TRENCH BOTTOM TO POLE OUTLET OR MAST ARM ATTACHMENT ON VERTICAL RUNS.

MULTIPLIERS AS CONTAINED IN 625.24 PARAGRAPH (C) AND (E) SHALL NOT BE USED FOR MULTI-CONDUCTOR CABLES COVERED IN THIS NOTE.

2) LOOP DETECTOR WIRE

MEASURED HORIZONTALLY FROM CENTER LINE OF PULLBOX TO PAVEMENT EDGE, TO LOOP THROUGH LOOP SAWSLOTS FOR THE NUMBER OF TURNS REQUIRED AND THENCE RETURNING TO THE PULLBOX, PLUS FIVE FEET AT EACH END TO ALLOW FOR SLACK AND SPLICES.

3) LOOP DETECTOR PAVEMENT CUTTING

MEASURED ALONG THE SAWCUT FROM OUTSIDE EDGE OF PAVEMENT OR CURB, TO LOOP AND AROUND THE LOOP, USING THE RECTANGULAR PERIMETER DIMENSIONS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER BUT NOT INCLUDING CHAMFER CUTS AT LOOP CORNERS.

INCLUDING ANY ADDITIONAL MESSENGER REQUIRED FOR ATTACHMENT OF
4) MESSENGER WIRE WITH ACCESSORIES

MEASURED HORIZONTALLY FROM CENTER TO CENTER OF POLE TO POLE; OR BULLRING (AERIAL CORNER) TO POLE; OR BULLRING TO BULLRING: BUT NOT MESSENGER TO POLES, BULLRINGS OR STRAIN INSULATORS BY WRAPPING OR BENDING.

MARKING OF CABLE

ALL CABLES SHALL BE MARKED OR TAGGED AT ALL PULL BOXES, SIGNAL SUPPORTS, AND CONTROLLERS WITH TAG, SO AS TO BE INDIVIDUALLY IDENTIFIED.

THE TAG SHALL BE NOT LESS THAN 0.031" THICK [redacted] PLASTIC, AND SHALL BE EMBOSSED OR ENGRAVED WITH LETTERS OR NUMBERS OF NOT LESS THAN 1/4" HIGH. IT SHALL BE SECURELY ATTACHED WITH AN AWG #14 COPPER WIRE. MARKINGS SHALL CONSIST OF THE FOLLOWING OR VARIATIONS THEREOF: GROUND, GRD.; PHASE A, 0 A; COMMON, COM; PHASE A DETECTOR, DET-A; POWER, AC+ OR AC-; ETC.

PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF THE VARIOUS CABLES.

625 TRAFFIC SIGNAL HEADS, BY TYPE

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING VEHICULAR TRAFFIC SIGNAL HEADS OF THE TYPE AND SIZE SHOWN ON THE PLANS AND INSTALLING THEM AS SHOWN ON THE DETAIL SHEET NO.625 AND AS HEREIN SPECIFIED.

ALL TRAFFIC SIGNALS SHALL MEET THE LATEST ITE (INSTITUTE OF TRAFFIC ENGINEERS) STANDARDS FOR "ADJUSTABLE FACE TRAFFIC CONTROL SIGNAL HEAD STANDARDS". THE TRAFFIC SIGNALS SHALL ALSO MEET THE FOLLOWING REQUIREMENTS:

1. EIGHT (8") TWELVE (12") TRAFFIC SIGNAL SECTIONS SHALL BE INSTALLED WITH A COMBINATION TUNNEL TYPE HOOD EIGHT (8") TWELVE (12") INCHES LONG, WITH AN OPEN SLOT AT THE BOTTOM OF THE HOOD.
2. REFLECTORS SHALL BE HIGHLY POLISHED SILVERED GLASS, HIGHLY SPECULAR FINISHED ALUMINUM.
3. ALL TRAFFIC SIGNALS SHALL BE ARRANGED FOR SPAN WIRE, MAST ARM, PEDESTAL, POLE MOUNTING.
4. GLASS LENSES, NUMBER AND SIZE, SHALL BE AS INDICATED ON THE INTERSECTION DRAWING. THESE LENSES SHALL MEET THE LATEST ITE STANDARDS FOR LENSES.
5. ALL SIGNAL OPTICAL UNITS SHALL PRODUCE STANDARD (ITE DEFINITION) LIGHT DISTRIBUTIONS.
6. ALL TRAFFIC SIGNALS AND SIGNAL SERVICE ENTRANCE FIXTURES SHALL BE PAINTED ACCORDINGLY WITH THE FOLLOWING:

   FINISH ON BODY OF SIGNAL, OUTSIDE OF HOOD, DOORS AND SERVICE ENTRANCE FIXTURE - FEDERAL YELLOW.

   FINISH ON INSIDE OF HOOD - FLAT BLACK.

PAINT REQUIREMENTS:

1ST COAT (ALL SURFACES) - EPON OXIDE BAKING PRIMER, FEDERAL SPEC. TT-P-636.
2ND COAT (ALL SURFACES) - MEDIUM GRAY ALKYD UREA EXTERIOR BAKING ENAMEL, FEDERAL SPEC. TT-E-480B.
3RD COAT (YELLOW SURFACE) - FEDERAL YELLOW ALKYD UREA EXTERIOR BAKING ENAMEL, FEDERAL SPEC. TT-E-489B, COLOR 13538
3RD COAT (FLAT BLACK SURFACES) - ALKYD UREA BLACK SYNTHETIC, HEAT-RESISTING GLYCERYL PHTHALATE TYPE 4, INSTRUMENT BLACK, MILITARY SPEC. E-5557.

7. STAINLESS STEEL LATCHING DEVICES AND SPAN WIRE HANGERS SHALL NOT BE PAINTED.
8. BALANCE ADJUSTORS SHALL BE INSTALLED IF NECESSARY TO MAINTAIN THE TRAFFIC SIGNALS IN A VERTICAL POSITION.
9. TRAFFIC SIGNAL ASSEMBLIES:

TRAFFIC SIGNAL HEAD, 3 SECTION 8" LENSES, ONE-WAY

A COMPLETED ONE-WAY THREE-SECTION, TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR MAST ARM MOUNTING:

A. MAST ARM HANGER.
B. UNIVERSAL JOINT.
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE.
D. 1-1/2" GALVANIZED LOCK NUTS.
E. ONE, EIGHT INCH, THREE-SECTION TRAFFIC SIGNAL INCLUDING RED, YELLOW AND GREEN LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
F. BOTTOM CAP.
G. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 3 SECTION 8" LENSES, ONE-WAY

A COMPLETED ONE-WAY THREE-SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING:

A. GALVANIZED SPAN WIRE HANGER FOR 3/8" MESSENGER WIRE
B. BALANCE ADJUSTOR
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE
D. 1-1/2" GALVANIZED LOCK NUTS
E. ONE, EIGHT INCH, THREE-SECTION TRAFFIC SIGNAL INCLUDING RED, YELLOW AND GREEN LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
F. BOTTOM CAP
G. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

(CONTINUED)

TRAFFIC SIGNAL HEAD, 3 SECTION 12" LENSES, ONE-WAY

A COMPLETED ONE-WAY THREE-SECTION, TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR MAST ARM MOUNTING:

A. MAST ARM HANGER
B. UNIVERSAL JOINT
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE.
D. 1-1/2" GALVANIZED LOCK NUTS.
E. ONE, TWELVE INCH, THREE SECTION TRAFFIC SIGNAL INCLUDING RED, YELLOW AND GREEN LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
F. BOTTOM CAP
G. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 3 SECTION 12" LENSES, ONE-WAY

A COMPLETED ONE-WAY THREE-SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING:

A. GALVANIZED SPAN WIRE HANGER FOR 3/8" MESSENGER WIRE
B. BALANCE ADJUSTOR
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE
D. 1-1/2" GALVANIZED LOCK NUTS
E. ONE, TWELVE INCH, THREE-SECTION TRAFFIC SIGNAL INCLUDING RED, YELLOW AND GREEN LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
F. BOTTOM CAP
G. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 3 SECTION 12" LENSES, ONE-WAY WITH ARROWS

A COMPLETE ONE-WAY THREE SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING:

A. GALVANIZED SPAN WIRE HANGER FOR 3/8" MESSENGER WIRE
B. BALANCE ADJUSTOR
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE
D. 1-1/2" GALVANIZED LOCK-NUTS
E. ONE, TWELVE INCH, THREE-SECTION TRAFFIC SIGNAL INCLUDING ONE RED 12-INCH LENS AND 12-INCH YELLOW AND GREEN ARROW LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
F. BOTTOM CAP
G. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 5 SECTIONS, 3-8" LENSES, 2-12" LENSES, ONE-WAY WITH ARROWS

A COMPLETED FIVE SECTION, TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR MAST ARM MOUNTING:

A. MAST ARM HANGER
B. UNIVERSAL JOINT
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE.
D. 1-1/2" GALVANIZED LOCK NUTS.
E. ONE FIVE SECTION TRAFFIC SIGNAL INCLUDING 8-INCH RED, YELLOW AND GREEN LENSES AND 12-INCH YELLOW AND GREEN ARROW LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
F. BOTTOM CAP.
G. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 5 SECTION 3-8" LENSES, 2-12" LENSES ONE-WAY WITH ARROWS

A COMPLETED ONE-WAY FIVE-SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING:

A. GALVANIZED SPAN WIRE HANGER FOR 3/8" MESSENGER WIRE
B. BALANCE ADJUSTOR
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE
D. 1-1/2" GALVANIZED LOCK NUTS
E. ONE, FIVE-SECTION TRAFFIC SIGNAL INCLUDING 8-INCH RED, YELLOW AND GREEN LENSES AND 12-INCH YELLOW AND GREEN ARROW LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
F. BOTTOM CAP
G. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 2-3 SECTION 8" LENSES, TWO-WAY

A COMPLETE TWO-WAY, 2-3 SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING:

A. GALVANIZED SPAN WIRE HANGER FOR 3/8" MESSENGER WIRE.
B. BALANCE ADJUSTOR
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE.
D. 1-1/2" GALVANIZED LOCK NUTS
E. 1-1/2" DIAMETER TOP BRACKET ASSEMBLY
F. TWO, EIGHT INCH, THREE-SECTION TRAFFIC SIGNALS INCLUDING RED, YELLOW AND GREEN LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
G. BOTTOM BRACKET ASSEMBLY
H. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC CONTROL GENERAL NOTES

TRAFFIC CONTROL GENERAL NOTES

625 TRAFFIC SIGNAL HEADS, BY TYPE (CONTINUED)

TRAFFIC SIGNAL HEAD, 2-3 SECTION, 3-8" AND 3-12" LENSES, TWO-WAY

A COMPLETE TWO-WAY, 2-3 SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING.

A. GALVANIZED SPAN WIRE HANGER FOR 3/8" MESSENGER WIRE
B. BALANCE ADJUSTOR
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE
D. 1-1/2'' GALVANIZED LOCK NUTS
E. 1-1/2" DIAMETER TOP BRACKET ASSEMBLY
F. ONE EIGHT INCH AND ONE TWELVE INCH, THREE-SECTION TRAFFIC SIGNAL INCLUDING RED, YELLOW AND GREEN LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
G. BOTTOM BRACKET ASSEMBLY
H. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 3 SECTION, 3-8" LENSES,5 SECTION, 3-8" LENSES WITH 2-12" LENS ARROWS, TWO-WAY

A COMPLETE TWO-WAY, 3 SECTION AND 5 SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING:

A. GALVANIZED SPAN WIRE HANGER FOR 3/8" MESSENGER WIRE.
B. BALANCE ADJUSTOR.
C. 1-1/2" SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE.
D. 1-1/2" GALVANIZED LOCK NUTS.
E. 1-1/2'' DIAMETER TOP BRACKET ASSEMBLY.
F. ONE, EIGHT INCH, THREE SECTION TRAFFIC SIGNAL AND ONE, EIGHT INCH, THREE SECTION TRAFFIC SIGNAL WITH TWO TWELVE INCH LENS ARROW SECTIONS INCLUDING 2 RED, 2 YELLOW, 2 GREEN 8-INCH LENSES AND 12-INCH YELLOW AND GREEN ARROW LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
G. BOTTOM BRACKET ASSEMBLY.
H. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

TRAFFIC SIGNAL HEAD, 2-3 SECTION, 8" LENSES, 5 SECTION, 3-8" LENSES WITH 2-12'' LENS ARROWS, THREE-WAY

A COMPLETE THREE-WAY, 2-3 SECTION AND 1-5 SECTION TRAFFIC SIGNAL ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENT PARTS FOR SPAN WIRE MOUNTING:

A. GALVANIZED SPAN WIRE HANGER FOR 3/8'' MESSENGER WIRE.
B. BALANCE ADJUSTOR.
C. 1-1/2'' SERVICE ENTRANCE HEAD WITH GALVANIZED NIPPLE.
D. 1-1/2'' GALVANIZED LOCK NUTS.
E. 1-1/2'' DIAMETER TOP BRACKET ASSEMBLY.
F. TWO, EIGHT INCH, THREE SECTION TRAFFIC SIGNALS AND ONE, EIGHT INCH, THREE SECTION TRAFFIC SIGNAL WITH TWO TWELVE INCH LENS ARROW SECTIONS INCLUDING 3 RED, 3 YELLOW, 3 GREEN 8-INCH LENSES AND 12-INCH YELLOW AND GREEN ARROW LENSES WITH ALL REQUIRED COMPONENTS TO LOCK THE SIGNALS IN PLACE AND PROVIDE A WATER AND DUST TIGHT INSTALLATION.
G. BOTTOM BRACKET ASSEMBLY.
H. ALL OTHER INCIDENTALS NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

10. THE CONTRACTOR SHALL FURNISH AND INSTALL A TRAFFIC SIGNAL LAMP IN EACH TRAFFIC SIGNAL SECTION. SIGNAL LAMPS SHALL CONFORM TO THE REQUIREMENTS OF ''A STANDARD FOR TRAFFIC SIGNAL LAMPS'' AS APPROVED BY THE INSTITUTE OF TRAFFIC ENGINEERS (ITE) BOARD OF DIRECTION ON DECEMBER 26, 1967 WITH THE FOLLOWING EXCEPTIONS AND QUALIFICATIONS:

    A. BRASS SCREW BASES SHALL BE REQUIRED.
    B. LAMP SIZES SHALL BE AS FOLLOWS:

	WATTS	RATED LIFE	LIGHT CENTER
1. 12'' DIAMETER RED; GREEN; ARROWS	150W.	6000HR.	3''
2. 12'' DIAMETER YELLOW	69W.	6000HR.	3''
3. 8'' DIAMETER RED; GREEN	121W.	6000HR.	2-7/16''
4. 8'' DIAMETER YELLOW	69W.	6000HR.	2-7/16''

LAMPS SHALL BE INSTALLED WITH THE OPEN PORTION OF THE FILAMENT IN THE UPWARD POSITION.

COST OF FURNISHING AND INSTALLING LAMPS SHALL BE INCLUDED IN THE BID PRICE OF EACH ITEM REQUIRING LAMPS.

SIGNALS SHALL BE INSTALLED SUCH THAT THE LOWEST POINT OF THE SIGNAL IS SIXTEEN (16) TO SEVENTEEN (17) FEET ABOVE THE PAVEMENT SURFACE.

SIGNALS INSTALLED ON SPAN WIRE AND MAST ARMS SHALL HAVE THEIR RED INDICATIONS HUNG IN THE SAME LEVEL HORIZONTAL PLANE.

PAYMENT FOR ITEM 625 ''TRAFFIC SIGNALS'' WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH SIGNAL ASSEMBLY (BY TYPE) MOUNTED IN PLACE, TESTED AND ACCEPTED.

PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED LAMP

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING INCANDESCENT COLORED LAMP PEDESTRIAN SIGNAL HEADS OF THE SIZE SHOWN ON THE PLANS, AND INSTALLING THEM AS SHOWN ON THE DETAIL SHEET NO. 626 AND AS HEREIN SPECIFIED. PEDESTRIAN SIGNALS SHALL BE IN ACCORDANCE WITH ''ADJUSTABLE FACE PEDESTRIAN SIGNAL HEAD STANDARD'' AS APPROVED BY THE INSTITUTE OF TRAFFIC ENGINEERS (ITE) BOARD OF DIRECTION JUNE 29, 1963, WITH THE FOLLOWING EXCEPTIONS AND QUALIFICATIONS:

1. A PEDESTRIAN SIGNAL HEAD SHALL BE A COMPLETE UNIT CAPABLE OF DISPLAYING BOTH OF THE INDICATIONS ''WALK'' AND ''DON'T WALK'' TO ONE APPROACH OF PEDESTRIAN TRAFFIC, TOGETHER WITH ALL INCIDENTAL ITEMS DESCRIBED BELOW AND IN THE DETAILS WHICH ARE REQUIRED TO COMPLETE THE INSTALLATION.

2. THE NOMINAL SIZE OF EACH UNIT LENSE FACE SHALL BE 11 X 14 OR 16 X 22 INCHES. THE ''WALK'' INDICATION SHALL BE ''LUNAR WHITE'' LIGHT AND THE ''DON'T WALK'' INDICATION SHALL BE ''PORTLAND ORANGE'' LIGHT.

3. VISORS SHALL BE 6 INCHES IN LENGTH AND SHALL EXTEND FROM THE TOP AND BOTH SIDES OF THE LENSE.

4. EXTERIOR METAL SURFACES INCLUDING MOUNTING BRACKETS SHALL BE FINISHED WITH YELLOW COLOR PAINT WITH THE EXCEPTION OF THE INTERIOR SURFACE OF VISORS WHICH SHALL BE FINISHED WITH FLAT BLACK (INSTRUMENT BLACK) PAINT.

5. ALL NECESSARY BRACKETS, NIPPLES, CONDUIT, TRUNNIONS, AND OTHER HARDWARE REQUIRED FOR EITHER PEDESTAL TOP OR POLE MOUNTING AS SHOWN ON THE PLANS AND DETAILS, SHALL BE INCLUDED IN, AND CONSIDERED INCIDENTAL TO, THE UNIT PRICE BID FOR PEDESTRIAN SIGNAL HEADS.

6. INCANDESCENT COLORED LAMP TYPE PEDESTRIAN SIGNALS SHALL BE SIMILAR IN CONSTRUCTION TO GAS FILLED GRID TYPE PEDESTRIAN SIGNALS WITH THE FOLLOWING EXCEPTIONS:

    A. ILLUMINATION SHALL BE PROVIDED BY TYPE A-U INCANDESCENT LAMPS WHICH SHALL EMIT A LUNAR WHITE OR ORANGE LIGHT AS REQUIRED BELOW, AND REFLECTOR OF THE PROPER SHAPE TO FULLY AND EVENLY LIGHT THE ''DONT'' LENSE OR THE ''WALK'' LENSE. ONE ORANGE PRODUCING LAMP SHALL BE PLACED IN THE ''DONT'' LENSE COMPARTMENT AND TWO WHITE AND ONE ORANGE LAMPS SHALL BE PLACED IN THE ''WALK'' LENSE COMPARTMENT. WIRING AND CONNECTIONS SHALL BE ARRANGED IN A MANNER THAT DURING ONE PERIOD BOTH THE ''DONT'' AND ''WALK'' LENSES ARE ILLUMINATED BY ORANGE LAMPS AND THERE SHALL BE NO POSSIBILITY OF ONE ORANGE LAMP NOT FUNCTIONING, THEREBY PROVIDING ILLUMINATION OF ONLY ONE LAMP; AND DURING ANOTHER PERIOD ONLY THE ''WALK'' LENSE WILL BE ILLUMINATED BY THE TWO WHITE LAMPS. THERE SHALL BE NO LEAKAGE OF LIGHT BETWEEN THE TWO LENSE COMPARTMENTS. THERE SHALL BE NO POSSIBILITY OF ONLY ONE LENSE COMPARTMENT BEING ILLUMINATED DURING THE ''DONT WALK'' INTERVAL DUE TO BULB FAILURE OR OTHER MALFUNCTION.

    B. THE REFLECTOR, IF ASSEMBLED OF MORE THAN ONE PIECE, SHALL BE FABRICATED WITH WELDS, SCREWS, RIVETS OR OTHER POSITIVE LOCKING FASTENERS. THE USE OF ONLY TAB AND SLOT ASSEMBLY METHODS WILL NOT BE PERMITTED.

    C. THE REFLECTOR SHALL BE RIGIDLY ASSEMBLED OR CONSTRUCTED OF A MATERIAL WHICH WILL NOT CORRODE, CHANGE COLOR OR CHANGE REFLECTIVE PROPERTIES SIGNIFICANTLY UNDER NORMAL URBAN ATMOSPHERIC CONDITIONS.

    D. A POSITIVE ELECTRICAL ''FAIL SAFE'' SHALL BE PROVIDED WHICH SHALL GUARANTEE AGAINST THE DISPLAY OF AN ORANGE ''DONT'' OR AN ORANGE "WALK" SPEARATELY. THAT IS, A LAMP BURN OUT OR OTHER FAULT CONDITION SHALL NEVER RESULT IN EITHER LENS BEING ILLUMINATED IN ORANGE WITHOUT THE OTHER LENS BEING SIMILARLY ILLUMINATED. THIS SHALL BE ACCOMPLISHED WITHOUT THE USE OF RELAYS, MECHANICAL MEANS, MOVING PARTS OR SEPARATE FILTERS.

    PAYMENT FOR ITEM 625 PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED LAMP WILL BE AT THE UNIT PRICE BID PER EACH, COMPLETE AND INSTALLED, INCLUDING SIGNAL HEAD, LIGHT SOURCE, MOUNTING BRACKETS, MISCELLANEOUS FITTINGS AND TESTING.

625 WEATHERHEAD AND CONDUIT RISER

THE WEATHERHEAD AND CONDUIT RISER SHALL CONSIST OF A WEATHERHEAD, THREE INCH CONDUIT FITTINGS AND ELLS, AND STAINLESS STEEL STRAPS AS SHOWN IN DETAIL ON PAGE 627 .

THE WEATHER HEAD SHALL BE CAST ALUMINUM OR GALVANIZED CAST FERROUS METAL AND SHALL PREVENT ENTRY OF WATER INTO THE CONDUIT.

CONDUIT SHALL BE TYPE III AS SPECIFIED IN 713.04. STAINLESS STEEL STRAPS SHALL BE 3/4 OF AN INCH WIDE BY 0.20 INCH THICK AND SHALL BE SPACED AT MAXIMUM INTERVALS OF FIVE (5) FEET.

PAYMENT FOR 625 ''WEATHERHEAD AND CONDUIT RISER'' WILL BE MADE AT UNIT PRICE BID FOR EACH WEATHERHEAD AND CONDUIT RISER INSTALLATION COMPLETELY INSTALLED AND ACCEPTED INCLUDING ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK.

TESTING OF TRAFFIC SIGNALS

THE CONTRACTOR SHALL FURNISH ALL PERSONNEL, EQUIPMENT AND APPLIANCES REQUIRED TO SUCCESSFULLY TEST THE COMPLETED INSTALLATIONS.

THE CONTRACTOR SHALL TEST AND DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE, THAT THE CIRCUITS ARE PROPERLY CONNECTED, CONTINUOUS AND FREE FROM SHORT CIRCUITS, CROSSES AND UNSPECIFIED GROUNDS, AND THAT THEY ARE CONNECTED IN ACCORDANCE WITH WIRING INSTRUCTIONS AND THAT EACH CIRCUIT IS OPERABLE CORRECTLY AND INDEPENDENTLY OF ANY OTHER CIRCUIT.

THE CONTRACTOR SHALL TEST EACH UNGROUNDED CIRCUIT AND SPACE WIRES FOR SIGNALS, INTERCONNECT AND DETECTORS TERMINATING AT THE TRAFFIC CONTROLLER CABINET FOR RESISTANCE TO GROUND. THIS RESISTANCE TO GROUND SHALL BE NOT LESS THAN TEN (10) MEGOHMS. THE CONTRACTOR SHALL FURNISH A COMPLETE REPORT OF ALL MEGOHM READINGS OF EACH CIRCUIT AND SPARE CONDUCTORS IN CABLES APPEARING AT THE CONTROLLER BASE. THE GROUND ROD AT THE TRAFFIC CONTROLLER SHALL HAVE A RESISTANCE OF NOT MORE THAN 15 OHMS TO GROUND.

AFTER ALL CIRCUITS AND SPARE CONDUCTORS HAVE BEEN TESTED THE CONTRACTOR WILL INSTALL THE TRAFFIC CONTROLLER AND CONNECT THE FIELD WIRING TO THE TERMINAL CONTACTS OF THE TRAFFIC CONTROLLER. THE COMPLETED INSTALLATION SHALL OPERATE CONTINUOUSLY FOR A PERIOD OF ONE WEEK WITHOUT INTERRUPTION OR FAILURE ATTRIBUTABLE TO POOR WORKMANSHIP OR DEFECTIVE MATERIAL PRIOR TO ACCEPTANCE AND AFTER ANY DEFECTIVE PARTS HAVE BEEN REPLACED AND ALL FAULTS CORRECTED.

THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY OF CORRECTING MALFUNCTIONS OF THE INSTALLATION. POWER FOR THE TEST WILL BE FURNISHED FROM THE SERVICE INSTALLED AS A PART OF THIS CONTRACT. THE COST OF THE POWER TO CONDUCT THE TEST WILL BE BORNE BY THE CONTRACTOR. COSTS OF CONDUCTING TESTS BY THE CONTRACTOR SHALL BE INCLUDED IN THE BID PRICE FOR THE ITEM TESTED.

MAINTENANCE OF NEW TRAFFIC SIGNAL INSTALLATIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF EACH TRAFFIC SIGNAL HE HAS IN PART OR FULLY CONSTRUCTED UNTIL SUCH TIME AS THE TESTING REQUIREMENTS ARE SATISFIED, AND THE SIGNAL INSTALLATION IS COMPLETE AND ACCEPTED BY THE ENGINEER.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE CITY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES ARE LOCATED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO TROUBLE CALLS. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAULTS, EQUIPMENT MALFUNCTIONS, AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTORS NOTIFICATION OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT, EXCEPT POLES AND CONTROL EQUIPMENT, SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTORS NOTIFICATION OF THE OUTAGE.

ALL POLES AND CONTROL EQUIPMENT WHICH ARE DAMAGED AND WHICH MUST BE REPLACED SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTORS NOTIFICATION OF THE OUTAGE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

(CONTINUED)

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICULAR ACCIDENT, THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT AT THOSE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE FROM THE CITY OF CLEVELAND FOR POLICE SERVICES AND MAINTENANCE BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE MAINTENANCE SERVICE IN ONE OR MORE OF THE FOLLOWING MANNERS:

1. 7:00 AM - 7:00 PM WITH THE CITY PROVIDING COVERAGE FROM 7:00 PM - 7:00 AM AT THE CONTRACTORS EXPENSE, AS PREVIOUSLY PROVIDED HEREIN.

2. 24-HOUR SERVICE BY THE CONTRACTOR.

3. COMPLETE CITY MAINTENANCE AT THE CONTRACTORS EXPENSE, AS PREVIOUSLY PROVIDED HEREIN.

THE CONTRACTOR SHALL INDICATE THE MANNER IN WHICH HE PROPOSES TO PROVIDE THE ABOVE SERVICE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEMS.

THIS ITEM SHALL BE CONSIDERED A SUBSIDIARY WORK ITEM AND THE COST THEREOF INCLUDED IN THE PRICE BID FOR THE RESPECTIVE TRAFFIC SIGNAL BID ITEMS.

625 COVERING OF TRAFFIC SIGNAL HEADS

ALL TRAFFIC SIGNAL HEADS, BOTH VEHICULAR AND PEDESTRIAN, ERECTED AT LOCATIONS WHERE TRAFFIC WILL BE MAINTAINED PRIOR TO ENERGIZING OF THE SIGNAL, SHALL BE COVERED.

THE COVERING SHALL BE PLASTIC COATED BURLAP BLANKETS AS PER ITEM 705.00. THEY SHALL BE FIRMLY ATTACHED AND COMPLETELY COVER THE SIGNAL HEAD WITHOUT DAMAGE TO THE HEAD. THE COVERING SHALL BE MAINTAINED IN PLACE AT ALL TIMES WHILE TRAFFIC IS USING THE AREA AND THE SIGNAL IS NOT IN OPERATION.

PAYMENT SHALL BE AT THE UNIT PRICE BID PER EACH FOR ITEM 625 "COVERING OF TRAFFIC SIGNAL HEADS" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO ERECT, MAINTAIN AND REMOVE THE COVERING.

625, MAINTENANCE OF EXISTING SIGNAL INSTALLATION

THE EXISTING TRAFFIC SIGNAL(S) SHALL BE KEPT IN OPERATION UNTIL THE NEW SIGNAL IS OPERATIONAL. IF EXISTING ITEMS ARE TO BE INCORPORATED INTO THE NEW SIGNAL, SUCH ITEMS SHALL NOT BE REINSTALLED UNTIL ALL OTHER NEW WORK WHICH CAN BE DONE PRIOR TO THE RELOCATION WORK IS COMPLETED. AT THIS TIME, THE EXISTING SIGNAL MAY BE TURNED OFF. WHEN NOT IN OPERATION, SIGNAL HEADS SHALL BE BAGGED. WHEN NO SIGNAL IS IN OPERATION AT THE LOCATION, TRAFFIC SHALL BE MAINTAINED THROUGH THE USE OF STOP SIGNS.

SIGNAL CONTROL OF THE INTERSECTION SHALL NOT BE INTERRUPTED DURING THE HOURS OF 6:00 A.M. TO 9:00 A.M. AND 3:00 P.M. TO 6:00 P.M. ON WEEKDAYS. SIGNALS SHALL BE INOPERATIVE NO LONGER THAN SIX HOURS.

PAYMENT WILL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ''ITEM 625 MAINTENANCE OF EXISTING SIGNAL INSTALLATION.

202 REMOVAL OF EXISTING SIGNAL INSTALLATION

IN ACCORDANCE WITH STANDARD SPECIFICATION 202, THIS ITEM SHALL INCLUDE THE REMOVAL OF THE SIGNAL HEADS, CONTROLLER, STRAIN POLES, POLE FOUNDATIONS, CABLES, MESSENGER WIRES, AND ALL OTHER PORTIONS OF THE EXISTING TRAFFIC SIGNAL WHICH ARE NOT TO BE REUSED IN THE NEW INSTALLATION.

WITH THE EXCEPTION OF ITEMS TO BE RELOCATED AND INCORPORATED INTO THE NEW INSTALLATIONS OR WHOSE REMOVAL IS OTHERWISE NECESSARY TO PERMIT THE INSTALLATION OF THE NEW SIGNAL EQUIPMENT, NO ITEM SHALL BE REMOVED UNTIL THE NEW INSTALLATION IS IN FULL OPERATION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PAYMENT FOR "ITEM 202, REMOVAL OF EXISTING SIGNAL INSTALLATION" WILL BE MADE AT THE UNIT PRICE BID PER EACH INTERSECTION WHEREIN EXISTING SIGNAL EQUIPMENT IS TO BE REMOVED.

TRAFFIC CONTROL GENERAL NOTES

FED. RD.	STATE	PROJECT	
2	OHIO	1-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

625 LOOP DETECTOR AMPLIFIER

THE LOOP DETECTOR AMPLIFIER IS AN ELECTRONIC DEVICE THAT WILL DETECT THE PRESENCE OR MOTION OF A MASS OF METAL. THIS DETECTION IS ACCOMPLISHED BY THE PASSAGE OF A CAR OVER A WIRE LOOP IMBEDDED IN THE ROADWAY.

THE AMPLIFIER SHALL CONFORM TO THE FOLLOWING:

1. THE DETECTOR SHALL OPERATE SATISFACTORILY AT ANY TEMPERATURE BETWEEN -30 F. AND +165 F.
2. THE OPERATING VOLTAGE SHALL BE 115 VOLT, 60 CYCLE.
3. THE INTERNAL CIRCUITRY SHALL BE INCORPORATED INTO PRINTED CIRCUIT BOARD ASSEMBLIES.
4. THE DETECTOR DESIGN SHALL INCLUDE A FIXED FREQUENCY CRYSTAL WHICH WILL GENERATE A SINE WAVE FORM OF SIGNAL.
5. NO EXTERNAL EQUIPMENT SHALL BE NECESSARY FOR INSTALLATION, TUNING OR SENSITIVITY ADJUSTMENTS.
6. VARIOUS TYPES OF OUTPUTS SHALL BE AVAILABLE INCLUDING PULSE AND PRESENCE. THESE OUTPUTS SHALL BE AVAILABLE BY SWITCHING FROM ONE TO THE OTHER WITHOUT CHANGING ANY INTERNAL PARTS.
7. ALL TRANSISTORS, CRYSTALS, AND RELAYS SHALL BE OF THE PLUG-IN TYPE TO FACILITATE REPLACEMENT.
8. THE AMPLIFIER AND POWER SUPPLY SHALL BE CAPABLE OF DRIVING SEVERAL LOOPS FROM THE ONE SOURCE. THE AMPLIFIER SHALL BE CAPABLE OF DETECTING VEHICLES IN A TOTAL AREA OF UP TO 400 SQ. FT. AND SHALL PROPERLY FUNCTION WITH LEAD-IN LENGTHS TOTALING UP TO 750 FEET.

THE ABOVE TYPES OF LOOP DETECTOR AMPLIFIERS AND POWER SUPPLY SHALL BE AUTOMATIC SIGNAL NO. LD-1, OR LD-2 DECATUR NO. L.S.M.H. OR AUTOMATIC CONTROL EQUIPMENT MODEL LD-100 OR APPROVED EQUAL.

PAYMENT FOR ITEM 625 ''LOOP DETECTOR AMPLIFIER'' WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH DETECTOR AMPLIFIER, COMPLETELY WIRED AND INSTALLED IN CONTROLLER CABINET.

625 SIGNAL CABLE -/C, #12 AWG, BY TYPE

TRAFFIC SIGNAL CABLE SHALL BE WEATHERPROOF AND SHALL CONSIST OF THE NUMBER OF CONDUCTORS AS SPECIFIED ON THE PLANS. ALL CONDUCTORS SHALL BE AWG #12. CABLES SHALL BE INSULATED, JACKETED, RATED 600 VOLTS FOR USE IN UNDERGROUND CONDUIT OR AS AERIAL CABLE SUPPORTED BY A MESSENGER. IT SHALL BE COLOR CODED AND IN EVERY RESPECT FOLLOW THE INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION SPECIFICATION NUMBER 19-1-67.

WIRES SHALL BE STRANDED.

PAYMENT FOR ITEM 625 "TRAFFIC SIGNAL CABLE -/C #12 AWG" WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT BY TYPE, IN PLACE, COMPLETED AND ACCEPTED, INCLUDING WIRING, TERMINALS, CONNECTIONS, TESTING, AND ALL INCIDENTALS NECESSARY.

625 INTERCONNECT CABLE -/C #12 AWG, BY TYPE

INTERCONNECT CABLE SHALL BE WEATHERPROOF AND SHALL CONSIST OF THE NUMBER OF CONDUCTORS AS SPECIFIED ON THE PLANS. ALL CONDUCTORS SHALL BE AWG #12. CABLES SHALL BE INSULATED, JACKETED, AND RATED FOR 600 VOLTS FOR USE IN UNDERGROUND CONDUIT OR AS AERIAL CABLE SUPPORTED BY A MESSENGER. IT SHALL BE COLOR CODED AND IN EVERY RESPECT FOLLOW THE INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION SPECIFICATION NUMBER 19-1-67. CONDUCTORS SHALL BE STRANDED.

PAYMENT FOR ITEM 625 "INTERCONNECT CABLE -/C #12 AWG, BY TYPE" WILL BE MADE AT THE LINEAL PRICE BID PER LINEAL FOOT, IN PLACE, COMPLETED, AND ACCEPTED INCLUDING WIRING, TERMINALS, CONNECTIONS, SPLICING, TESTING AND ALL INCIDENTALS NECESSARY.

625 PEDESTRIAN PUSHBUTTON WITH SIGN

PUSHBUTTONS SHALL BE OF TWO PIECE CONSTRUCTION, CONSISTING OF A HOUSING AND A REMOVABLE COVER PLATE ASSEMBLY. THE COVER PLATE ASSEMBLY SHALL CONSIST OF ONE SET OF NORMALLY OPEN CONTACTS AND ALL THE NECESSARY MECHANICAL AND ELECTRICAL COMPONENTS REQUIRED FOR THE OPERATION OF THE PEDESTRIAN PUSHBUTTON. THE HOUSING SHALL HAVE A SINGLE ONE-HALF INCH (1/2'') CONDUIT THREADED OPENING (TOP OR BOTTOM). THE COVER PLATE AND HOUSING WILL CONSIST OF A CAST ALUMINUM ALLOY MATERIAL. ALL CAST METAL PARTS SHALL HAVE A TENSILE STRENGTH OF NOT LESS THAN 17,000 POUNDS PER SQUARE INCH. THE ALLOY USED SHALL BE S-5A OR CS-72A OF ASTM SPECIFICATION B-26-60T. ONLY METAL COMPONENTS WILL BE PERMITTED ON THE OUTSIDE OF THE PUSHBUTTON. THE PUSHBUTTON SHALL BE WATERPROOF AND DESIGNED FOR RUGGED OPERATION.

PEDESTRIAN PUSHBUTTONS INSTALLED ON STEEL SIGNAL POLES AND ON PEDESTRIAN SIGNAL POLE UNITS SHALL BE SERVICED BY CABLES INSIDE THE POLES. THE CONTRACTOR SHALL DRILL THE PROPER SIZE HOLES IN THE STEEL POLES IN BACK OF THE PUSHBUTTON, INSTALL AN INSULATED BUSHING, CAST PUSHBUTTON SADDLE AND ROUTE THE CABLE THROUGH THE PUSHBUTTON IN SUCH A MANNER THAT THE CABLE WILL NOT APPEAR ON THE OUTSIDE OF THE POLES. ALL PUSHBUTTONS SHALL BE INSTALLED WITH THE CENTER OF THE PUSHBUTTON A HEIGHT OF 4'-0'' ABOVE THE GROUND. THE PUSHBUTTONS SHALL BE LOCATED ON THE SIDE OF POLES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

(CONTINUED)

THE HOUSING AND COVER PLATE SHALL BE PAINTED WITH (2) COATS OF DARK GREEN ENAMEL.

A 9'' X 12'' SIGN WITH BLACK LEGEND ON A WHITE BACKGROUND SHALL BE FURNISHED AND INSTALLED AT A POINT ON THE POLE 6'' CLEAR DISTANCE ABOVE THE TOP OF THE PUSHBUTTON. THE SIGN SHALL BE FABRICATED FROM .010 ALUMINUM OR ENAMELED STEEL AND SHALL BEAR THE LEGEND SHOWN ON DETAIL SHEET NO.626 .

SIGNS AND PUSHBUTTONS SHALL BE ORIENTED TO FACE THE CROSSWALK TO WHICH THEY APPLY UNLESS OTHERWISE NOTED ON THE PLANS.

PAYMENT FOR ITEM 625, PEDESTRIAN PUSHBUTTON WITH SIGN, WILL BE MADE AT THE CONTRACT UNIT PRICE EACH, COMPLETELY ASSEMBLED AND MOUNTED IN PLACE INCLUDING SIGN TESTED, AND ACCEPTED.

625 POWER CABLE 3/C #6 AWG - RHW STRANDED

POWER CABLE SHALL BE WEATHERPROOF AND SHALL BE 3 CONDUCTOR AWG #6 RHW STRANDED COPPER. POWER CABLE SHALL BE INSTALLED FROM THE CONTROLLER CABINET THROUGH THE APPROPRIATE CONDUIT, SIGNAL POLE, AND WEATHERHEAD. IT SHALL BE ATTACHED BY THE POWER COMPANY TO THE SERVICE CABLE WITH PRESSURE CONNECTORS COVERED WITH MASTIC INSULATION. THREE SINGLE CONDUCTOR #6 RHW WIRES MAY BE SUBSTITUTED: HOWEVER PAYMENT WILL BE BASED UPON THE EQUIVALENT LENGTH OF 3 CONDUCTOR CABLE.

PAYMENT FOR ITEM 625 ''POWER CABLE'' 3/C #6 AWG - RHW STRANDED WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT, IN PLACE, COMPLETE AND ACCEPTED, INCLUDING WIRING, TERMINALS, CONNECTIONS, TESTING, AND ALL INCIDENTALS NECESSARY AND SHALL ALSO INCLUDE ANY COSTS INCURRED TO ARRANGE THE SERVICE INSTALLATION BY THE POWER COMPANY IN CONFORMANCE WITH THE PLANS.

625 LOOP DETECTOR PAVEMENT CUTTING

LOOP DETECTOR PAVEMENT CUTTING SHALL CONSIST OF A 1-1/4 INCH OR 2 INCH X 1/4 INCH WIDE SAW CUT IN ACCORDANCE WITH TYPICAL LOOP DETECTOR INSTALLATION DETAIL. THE SAW CUT SHALL BE FILLED WITH A JOINT SEALER AFTER THE WIRE HAS BEEN INSTALLED. THE JOINT SEALER SHALL BE AS SPECIFIED ON SHEET 633 .

PAYMENT FOR ITEM 625 ''LOOP DETECTOR PAVEMENT CUTTING'' WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT FOR SAW CUTTING AND TREATMENT INCLUDING JOINT SEALER.

CONCRETE PULLBOXES

PULLBOXES SPECIFIED IN THE TRAFFIC SIGNAL ITEMS AS ''SINGLE PULLBOX, CONCRETE AS PER PLAN'' SHALL BE THE SAME AS THOSE SPECIFIED IN THE ROADWAY LIGHTING GENERAL NOTES AND DETAILS EXCEPT THAT AIR BELLS SHALL NOT BE USED AND AGGREGATE DRAINS SHALL BE PROVIDED IN THE BOTTOMS OF ALL PULLBOXES.

625 LOOP DETECTOR WIRE AND LEAD-IN CABLE

LOOP DETECTOR WIRE SHALL CONSIST OF SINGLE CONDUCTOR, INSULATED, NO. 14 AWG RHW/600V. STRANDED COPPER WIRE, AND BE INSTALLED IN ACCORDANCE WITH THE TYPICAL LOOP DETECTOR DETAIL. EACH WIRE LOOP SHALL CONSIST OF THE NUMBER OF TURNS AS REQUIRED BY THE MANUFACTURER OF THE LOOP DETECTOR. THE LOOP WIRE SHALL RUN CONTINUOUSLY TO THE ADJACENT PULL BOX WHERE IT SHALL BE SPLICED TO THE LOOP DETECTOR LEAD-IN CABLE.

PAYMENT FOR ITEM 625 ''LOOP DETECTOR WIRE'' WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT IN PLACE FOR #14 DETECTOR WIRE AND SHALL INCLUDE DETECTOR WIRE, INSTALLATION, JACKET, CONDUIT FROM ROADWAY EDGE TO PULLBOX SPLICE AND ALL INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION. THE ESTIMATED QUANTITIES OF LOOP DETECTOR WIRE SHOWN ON THE PLANS IS BASED ON AN ANTICIPATED REQUIRED NUMBER OF TURNS. PAYMENT WILL BE BASED ON THE ACTUAL LINEAL FEET INSTALLED AS THIS IS CONTROLLED BY THE DETECTOR MANUFACTURER'S REQUIREMENTS FOR LOOPS.

PAYMENT FOR ITEM 625 ''LOOP DETECTOR LEAD-IN CABLE'' WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT IN PLACE FOR #14 AWG 2 COND. POLYETHYLENE INSULATED, TWISTED PAIR, SHIELDED AND JACKETED CABLE, INCLUDING SOLDERED WATERPROOF POURED SPLICE.

625 CABLE SUPPORT ASSEMBLY

A CABLE SUPPORT ASSEMBLY SHALL BE INSTALLED FOR EACH GROUP OF CABLES PASSING THROUGH EACH WIRE OUTLET NEAR THE TOP OF THE POLE. IT SHALL BE ATTACHED TO THE ''J'' HOOK AS SHOWN IN THE PLANS AND SHALL CONSIST OF THE FOLLOWING MAJOR ITEMS:

1. ONE PIECE OF THREE-STRAND COPPER-CLAD MESSENGER, LENGTH AS REQUIRED.
2. TWO HOT-DIPPED GALVANIZED THIMBLES.
3. TWO #6 SPLIT BOLT CONNECTORS.
4. ONE BRONZE OR STAINLESS STEEL CABLE GRIP WITH SINGLE ''U'' EYE BALE.
5. ALL OTHER MISCELLANEOUS ITEMS THAT MAY BE NECESSARY TO MAKE THE ASSEMBLY COMPLETE.

(CONTINUED)

THE MESSENGER SHALL BE 0.164 INCHES IN DIAMETER CONSISTING OF THREE STRANDS OF 0.075 INCH COPPER-COVERED STEEL WIRES TWISTED IN THE FORM OF A CABLE. GUY THIMBLES SHALL BE GROOVED TO FIT THE GUY STRAND AND BENT TO THE PROPER RADIUS TO PREVENT THE STRAND FROM BEING SHARPLY BENT. THE CABLE GRIP SHALL HAVE A SINGLE ''U'' EYE BALE. THE GRIPS SHALL BE OF THE PROPER SIZE TO FIT THE CABLE AND SHALL HAVE A MINIMUM RATED BREAKING STRENGTH OF 250 LBS.

THE GRIP SHALL BE EITHER THE ''CLOSED'', OR ''SPLIT WITH ROD'' TYPE.

PAYMENT FOR ITEM 625 CABLE SUPPORT ASSEMBLY WILL BE MADE AT THE CONTRACT UNIT PRICE EACH, COMPLETELY ASSEMBLED IN PLACE AND ACCEPTED.

625 GROUNDING OF EACH SIGN AND SIGNAL SUPPORT

EACH SIGN SUPPORT OR STRUCTURE SHALL BE GROUNDED WITH A #4 INSULATED CONDUCTOR. THE GROUNDING CONDUCTOR SHALL BE CONNECTED TO THE SWITCH THEN TO THE COMPRESSION CONNECTOR IN THE SIGN SUPPORT THEN TO A 1"×10' GROUND ROD. GROUND CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO GROUND ROD AND THEN TAPED WITH PLASTIC ELECTRICAL TAPE AT EACH EXPOSED PORTION OF CONDUCTOR. THE WELDED CONNECTION AND TAPED PORTION SHALL BE PAINTED 2 COATS OF INSULATING ENAMEL.

ITEM 815 SIGNS (SIGN ERECTION)

815 SIGN ERECTION, EXTRUSHEET OR FLAT SHEET TYPE

THE CONTRACTOR SHALL ERECT SIGN PANELS AS INDICATED ON THE SCHEMATIC SIGNING PLAN SHEET NUMBER (S) 553-560 . THE PANELS WILL BE FURNISHED BY OTHERS AND SHALL BE MOUNTED ON THE BRACKETS OR BEAM SUPPORTS PROVIDED IN THE PLANS.

ALL SIGN MATERIAL AND ACCESSORIES WILL BE FURNISHED AND TRANSPORTED BY OTHERS TO A DELIVERY POINT DESIGNATED BY THE CONTRACTOR ON OR NEAR THE SUBJECT PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HANDLING, PROTECTION AND STORAGE OF THE SIGN PANELS AND ACCESSORIES FROM THE TIME OF UNLOADING BY OTHERS AT THE DELIVERY POINT.

LARGE GUIDE SIGNS (OVER 8 FEET IN HEIGHT) MAY BE DELIVERED IN TWO PIECES. WORK SHALL ALSO CONSIST OF ASSEMBLY OF THESE PANELS INCLUDING ATTACHMENT OF DEMOUNTABLE SIGN LEGEND, WHERE NECESSARY, AND ERECTION OF SIGNS IN CONFORMANCE WITH THE SCHEMATIC SIGN PLAN.

THE CONTRACTOR SHALL SUBMIT, IN THREE COPIES, A SCHEDULE FOR SIGN ERECTION TO THE ENGINEER AT LEAST 120 CALENDAR DAYS PRIOR TO THE START OF ANY SCHEDULED ERECTION WORK. THE SCHEDULE SHALL INCLUDE PROPOSED DATES, SIGN NUMBERS, AND DELIVERY POINT. THE ENGINEER WILL FURNISH COPIES OF THE SCHEDULE TO THE DIVISION TRAFFIC ENGINEER AND TO THE ENGINEER OF DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO, 43215

THE PRICE BID PER SQUARE FOOT FOR "ITEM 815, SIGN ERECTION, BY TYPE", SHALL INCLUDE PAYMENT FOR ALL NECESSARY EQUIPMENT, LABOR, AND TOOLS TO STORE, ASSEMBLE, AND ERECT THE SIGNS AS SPECIFIED.

815 INTERIM COVERING FOR SIGNS

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING AN ITERIM COVER AND ATTACHMENT MATERIALS FOR SIGNS SO INDICATED IN THE PLANS OR AS DIRECTED BY THE ENGINEER. THIS ITEM SHALL ALSO INCLUDE THE SUBSEQUENT REMOVAL OF COVERS WHEN DIRECTED BY THE ENGINEER.

MATERIAL FOR COVERING SHALL BE PLASTIC COATED BURLAP BLANKETS IN CONFORMANCE WITH 705.06.

THE ENGINEER SHALL APPROVE THE METHOD PROPOSED FOR ATTACHING INTERIM COVERS TO SIGNS PRIOR TO INSTALLATION OF COVERS.

WORK SHALL INCLUDE ALL NECESSARY MATERIAL, HARDWARE, LABOR, AND EQUIPMENT REQUIRED TO PERFORM THE REQUIRED ITEM OF WORK.

BASIS OF PAYMENT SHALL BE INTERIM COVERING FOR SIGNS, PER SQUARE FOOT.

IN ADDITION TO THE — SQ. FT. REFERRED TO IN THE PLANS, AN ADDITIONAL QUANTITY OF 1500 SQ. FT. FOR ITEM 815, INTERIM COVERING FOR SIGNS, HAVE BEEN INCLUDED TO COVER SIGNS AS DIRECTED BY THE ENGINEER.

EXISTING SIGNS

EXISTING SIGNS LOCATED WITHIN THE ROADWORK AREAS WHICH ARE NECESSARY FOR INTERIM OR PERMANENT TRAFFIC CONTROL SHALL BE REMOVED AND RE-ERECTED IN LOCATIONS INDICATED BY THE PLANS OR AS APPROVED BY THE ENGINEER. STOP SIGNS WILL BE MAINTAINED AT ALL TIMES WHILE TRAFFIC IS MAINTAINED. THE COST OF REMOVAL, RE-ERECTION AND SUBSEQUENT REMOVAL IF REQUIRED SHALL BE CONSIDERED A SUBSIDIARY WORK ITEM, THE COST OF WHICH SHALL BE INCLUDED IN THE PRICE BID FOR THE ROADWAY WORK ITEMS. THE SIGNS WHICH ARE TO BE RE-ERECTED ON THE BERMS SHALL BE LOCATED WITH THE CENTER LINE OF SUPPORT ON THE P.I. OF THE SHOULDER.

SIGN LOCATIONS

ALL SIGNS SHALL BE PLACED NORMAL TO THE ROADWAY ON WHICH THEY ARE STATIONED UNLESS OTHERWISE NOTED ON THE PLANS.

TRAFFIC CONTROL GENERAL NOTES

TRAFFIC CONTROL GENERAL NOTES

FED. RD.	STATE	PROJECT	
2	OHIO	1-90-1(50)19	

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ITEM 816 STRUCTURAL SUPPORTS

COVER BASES

COVER BASES SHALL BE PROVIDED FOR ALL OVERHEAD SIGN AND SIGNAL SUPPORT FOUNDATIONS THAT ARE LOCATED IN SIDEWALKS, TREE LAWNS OR IN TRAFFIC ISLANDS USED AS WALKS. PAYMENT FOR COVER BASES AND ALL TOOLS, MATERIALS, AND LABOR NECESSARY TO ERECT THE COVER BASES SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 816, OVERHEAD SIGN SUPPORTS OR FOR ITEM 816 SIGNAL SUPPORT.

FOUNDATIONS

816 CONCRETE FOUNDATIONS, FOR SIGN SUPPORTS

PAYMENT FOR THIS ITEM SHALL BE BASED ON PLAN DIMENSIONS (OR DIMENSIONS AS MODIFIED BY THE ENGINEER IN LIEU OF PLAN QUANTITIES) AS REQUIRED IN SUPPLEMENTAL SPECIFICATION 816.

PAYMENT FOR REINFORCING STEEL AND INSTALLATION ONLY OF CONDUIT ELLS SHALL BE INCLUDED IN THE COST OF CONCRETE FOUNDATIONS FOR OVERHEAD SIGN SUPPORTS. CONCRETE SHALL BE CLASS "C".

BASIS OF PAYMENT SHALL BE AS FOLLOWS:

1. CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATIONS, PER CUBIC YARD.
2. CONCRETE FOR GROUND MOUNTED SIGN SUPPORT FOUNDATION, PER CUBIC YARD.

816 ROCK EXCAVATION

WHERE SOLID ROCK IS ENCOUNTERED IN EXCAVATION FOR SIGN SUPPORT FOUNDATIONS, THE DEPTH TO BE EXCAVATED BELOW ROCK SURFACE MAY BE DECREASED AS DIRECTED BY THE ENGINEER TO A MAXIMUM OF THIRTY-FIVE (35) PERCENT OF DEPTH SPECIFIED IN THE PLANS.

816 CONSTRUCTION LAYOUT STAKES FOR SIGNS AND TRAFFIC SIGNALS

THE CONTRACTOR SHALL STAKE OUT ALL SIGNS AND TRAFFIC SIGNAL SUPPORTS IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816 PRIOR TO INSTALLATION OF ANY FOUNDATIONS OR SUPPORTS.

AFTER STAKEOUT THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF SEVEN (7) DAYS IN ADVANCE OF SCHEDULED WORK. SUPPORT LOCATIONS FOR EACH SUPPORT WILL BE FIELD CHECKED AND APPROVED BY THE ENGINEER WHO SHALL COORDINATE WITH THE DIVISION AND/OR CITY TRAFFIC ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION WORK REQUIRED.

IF BOTH MAJOR AND MINOR TYPE SUPPORTS ARE INCLUDED WITHIN THE PROJECT IT WILL BE PERMISSIBLE TO PERFORM THE CONSTRUCTION STAKE-OUT AND FIELD INSPECTION IN TWO (2) STAGES, ONE FOR MAJOR SUPPORTS AND ONE FOR MINOR SUPPORTS.

COST FOR THIS ITEM OF WORK WILL BE INCLUDED IN THE LUMP SUM BID ITEM. 623 FOR CONSTRUCTION LAYOUT STAKES.

GROUND MOUNTED SUPPORTS

816 STRUCTURAL SUPPORTS, STEEL BEAM (TYPE)

THE STRUCTURAL STEEL BEAM SUPPORTS INCLUDING 6 POUND BEAMS, 4 POUND POST AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123 AND A-153 RESPECTIVELY. ALL FABRICATION SHALL BE COMPLETED PRIOR TO GALVANIZING.

QUANTITIES FOR ITEM 816 "STRUCTURAL SUPPORTS, STEEL BEAM (TYPE)", APPEARING IN THE QUANTITY TABLES ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT SUPPORT LENGTHS PRIOR TO FABRICATION AND GALVANIZING OF SUPPORTS. PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE BID PER LIN. FT. WHICH PRICE AND PAYMENT SHALL INCLUDE ALL COSTS IN CONNECTION WITH THE EMBEDMENT OF THE SUPPORTS.

THE COST OF THE CONCRETE USED FOR EMBEDMENT IF REQUIRED WILL BE A SEPARATE PAY ITEM.

816 STRUCTURAL SUPPORTS DRIVEN TYPE

DRIVEN TYPE STRUCTURAL SUPPORTS WILL BE DRIVEN TO A DEPTH OF FIVE FEET (5' - 0") MINIMUM BELOW GROUND LINE IN SUCH A MANNER THAT NO DEFORMATION WITHIN THE LENGTH OF THE SUPPORT, OR DAMAGE TO THE SUPPORT, WILL OCCUR.

PRIOR TO INSTALLATION EACH SUPPORT SHALL BE SIGNIFICANTLY MARKED WITH PAINT AT A LOCATION ON THE SUPPORT 5' - 6" FROM THE EMBEDDED END, AND APPROVED BY THE ENGINEER.

"STRUCTURAL SUPPORTS 6 LB. BEAM, DRIVEN AND 6 LB. BEAM, AS PER PLAN DRIVEN" WILL INCLUDE THE 10" X 12" X 1/4" SOIL PLATE DETAILED IN THE PLANS.

PAYMENT FOR INSTALLATION OF SIGN SUPPORTS BY THE ABOVE METHOD SHALL BE INCLUDED IN THE COST OF THE VARIOUS SUPPORT TYPES SPECIFIED INCLUDING ALL LABOR, EQUIPMENT AND MATERIALS REQUIRED.

816 STRUCTURAL SUPPORTS, 6 LB. BEAM, AS PER PLAN, DRIVEN

THIS ITEM SHALL CONSIST OF THE FURNISHING, ASSEMBLY, AND INSTALLATION OF TWO (2) 3 LB. PER FOOT DRIVE POSTS (6 LB. BEAM) IN COMBINATION WITH A SQUARE SEAMLESS TUBULAR POST EXTENSION SPLICED TO THE TOP OF THE 6 LB. BEAM. DETAILS ARE SHOWN ON SHEET 644 .

SQUARE SEAMLESS TUBULAR POST MATERIAL SHALL BE MILD STEEL CONFORMING TO ASA 1020 STEEL, MINIMUM YIELD STRENGTH 35,000 PSI, ULTIMATE YIELD 55,000 PSI.

WORK SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND HARDWARE NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK.

BASIS OF PAYMENT SHALL BE FOR STRUCTURAL SUPPORTS, 6 LB. BEAM, AS PER PLAN DRIVEN PER LINEAR FOOT MEASURED BY TOTAL LENGTH OF COMBINATION BEAM FROM END TO END.

816 INTERIM STEEL POSTS, 4 LBS. PER FOOT, AS PER PLAN

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING 4 POUND PER LINEAR FOOT STEEL POSTS AS SPECIFIED FOR INTERIM LANE WIDTH TRANSITIONS.

THIS ITEM SHALL INCLUDE 4 POUNDS PER FOOT STEEL POSTS 11' - 0" LONG BOLTED TO THE INSIDE OF INTERIM BARRELS FURNISHED UNDER 606 USING A MINIMUM OF THREE 5/16" STEEL BOLTS SPACED ON 12" CENTERS.

POST FLANGES SHALL BE 90 DEGREES TO INTERIM EDGE LINES FACING APPROACHING TRAFFIC. STEEL BEARING PLATES 3" X 2" SHALL BE USED AT EACH BOLT OUTSIDE THE BARREL TO PREVENT PULL THROUGH. MOUNTING OF SIGNS ON THE DRIVE POSTS WITH THE BOTTOM OF THE SIGNS 7' ABOVE THE PAVEMENT SHALL BE INCLUDED IN ITEM 815.

THE QUANTITY FURNISHED AND INSTALLED WILL BE PAID FOR AT THE PRICE BID PER LIN. FT. WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING DRIVE POSTS INCLUDING NECESSARY HARDWARE, LABOR AND EQUIPMENT.

816 POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF THE FURNISHING AND INSTALLATION OF STAINLESS STEEL STRAPS, MOUNTING BRACKETS, AND HARDWARE AS DETAILED ON SHEET 629 .

BASIS OF PAYMENT SHALL BE AT THE CONTRACT BID PRICE PER EACH POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN, WHICH PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK.

202 REMOVAL OF EXISTING SIGN INSTALLATIONS

THIS WORK SHALL CONSIST OF THE REMOVAL OF ALL EXISTING SIGN INSTALLATIONS ON MAIN ROADWAY, RAMPS AND APPROACH ROADWAYS WITHIN WORK LIMITS OF THIS PROJECT.

WORK SHALL ALSO INCLUDE REMOVAL OF SIGN SUPPORTS AND FOUNDATIONS AS REQUIRED IN SECTION 202.

ALL SIGNS, SUPPORTS, AND ACCESSORIES REMOVED SHALL BE STORED NEATLY WITHIN THE LIMITS OF THE PROJECT AT LOCATIONS APPROVED BY THE ENGINEER FOR REMOVAL BY STATE FORCES. THIS WORK SHALL INCLUDE DISPOSAL OF ALL WASTE MATERIAL.

TO ASSURE MAINTENANCE OF ADEQUATE TRAFFIC CONTROL AT ALL TIMES, NO SIGNS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

PAYMENT FOR REMOVAL OF EXISTING SIGNS SHALL INCLUDE ALL NECESSARY LABOR AND EQUIPMENT REQUIRED TO PERFORM THE REQUIRED WORK AS INDICATED ABOVE.

1. BASIS OF PAYMENT SHALL BE AS FOLLOWS FOR SIGNS FORTY (40) SQUARE FEET OR GREATER:

   REMOVAL OF EXISTING MAJOR SIGN INSTALLATIONS AS PER PLAN AT THE CONTRACT PRICE PER EACH.

2. BASIS OF PAYMENT SHALL BE AS FOLLOWS FOR ALL OTHER SIGNS:

   REMOVAL OF EXISTING SIGN INSTALLATIONS AS DIRECTED BY THE ENGINEER AND INCLUDED WITH ITEM 201 CLEARING AND GRUBBING.

OVERHEAD SUPPORTS

816 OVERHEAD SIGN SUPPORT, BY TYPE

ALL COMPONENT PARTS OF THE OVERHEAD SIGN SUPPORTS SHALL BE STEEL, EXCEPT FOR THE TRUSS AND COMPONENTS FOR THE NUMBER 7 SERIES WHICH SHALL BE ALUMINUM. FOR SPECIFIC DETAILS AND MATERIALS, SEE SHEET NUMBERS 636 THROUGH 639 .

COST OF FURNISHING AND INSTALLING THE SIGN BRACKETS AND THE FIXTURE SUPPORT ARM, LENGTH "G", WITH MOUNTING HOLES AND HARDWARE SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

MODIFYING SUPPLEMENTAL SPECIFICATION 816 SWITCH ENCLOSURE MOUNTING BRACKETS INCLUDING MOUNTING BOLTS AND DRILLED HOLES SHALL BE FURNISHED AND INSTALLED UNDER PAYMENT FOR 816 OVERHEAD SIGN SUPPORT STRUCTURES AT THE CONTRACT PRICE PER OVERHEAD SIGN SUPPORT, BY TYPE.

PAYMENT FOR THIS ITEM SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH OVERHEAD SIGN SUPPORT, BY TYPE, INSTALLED IN PLACE AND ACCEPTED, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL ANCHOR BOLTS, 2" AND 3/4" EMT CONDUIT ELLS (FOR INSTALLATION UNDER 816 CONCRETE FOUNDATIONS, FOR SIGN SUPPORTS), AND FOR FURNISHING AND INSTALLING EACH OVERHEAD SIGN SUPPORT STRUCTURE SHOWN ON SHEETS 561-567,587 INCLUDING FIXTURE SUPPORT ARMS, SWITCH ENCLOSURE MOUNTING BRACKET, SIGN BRACKETS AND ALL COMPONENT PARTS NECESSARY TO MAKE A COMPLETE WORKABLE INSTALLATION READY FOR SIGN ERECTION, INSTALLATION OF DISCONNECT SWITCH AND ENCLOSURE, GROUND ROD AND WIRE CONNECTIONS AND SIGN WIRING.

ERECTION OF THESE SUPPORTS SHALL BE ACCOMPLISHED IN A MANNER MEETING THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 816.

ALL BRACKETS FOR OVERHEAD SIGNS SHALL BE FABRICATED FROM 4" X 3-1/16" X 1/4" 2.85 LB. PER LINEAR FT. T-6061 ALUMINUM "Z" BAR.

PAYMENT FOR THIS ITEM SHALL BE MADE AS INCIDENTAL TO THE VARIOUS OVERHEAD SIGN SUPPORTS.

816 ALTERNATE DESIGNS FOR OVERHEAD SIGN SUPPORTS

IF THE CONTRACTOR DESIRES TO FURNISH AN ALTERNATE DESIGN FOR OVERHEAD SIGN SUPPORTS, THE ALTERNATE DESIGNS MUST BE SUBMITTED TO THE STATE AT LEAST 21 DAYS PRIOR TO OPENING OF BIDS. THE BIDDER WILL BE NOTIFIED AS TO ACCEPTANCE OR REJECTION OF ALTERNATE DESIGN AT LEAST 7 DAYS BEFORE BIDS ARE TO BE OPENED. ALTERNATE DESIGNS MUST UTILIZE TUBULAR STRUCTURAL MEMBERS. SUBMISSIONS SHALL BE MADE TO OHIO DEPARTMENT OF HIGHWAYS, OFFICE OF DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO, 43215.

ERECTION OF OVERHEAD SPAN TYPE SIGN SUPPORTS (7 SERIES)

IN ALL CASES, SPAN TYPE OVERHEAD SIGN SUPPORTS AND SIGNS SHALL BE ERECTED CONCURRENTLY. AT NO TIME SHALL THE BOX TRUSSES BE ERECTED WITHOUT THE SIGN BEING IN PLACE WITHIN EIGHT (8) HOURS.

816 SIGN SUPPORT IDENTIFICATION DECALS (816 D6)

EACH SIGN SUPPORT INSTALLATION SHALL BE IDENTIFIED BY A COMBINATION OF LETTERS AND NUMBERS WHICH WILL INDICATE THE COUNTY, ROUTE, AND STRAIGHT LINE MILEAGE (SAMPLES: LAK-2-0.02, CUY-90-17.58).

IDENTIFYING NUMBERS SHALL BE AS INDICATED ON SHEET 635 IN THESE PLANS OR AS SPECIFIED BY THE MAINTAINING AGENCY.

IDENTIFICATION SHALL BE BY ADHESIVE TYPE DECALS WITH SILVER WHITE REFLECTIVE CHARACTERS ON A REFLECTIVE INTERSTATE GREEN BACKGROUND IN ACCORDANCE WITH MILITARY SPECIFICATIONS MIL-R-13689A.

THE TOP LEGEND OF THE DECAL SHALL BE LOCATED APPROXIMATELY 8 FEET ABOVE THE GROUND LINE, ON THE QUADRANT OF THE SURFACE OF THE SIGN SUPPORT THAT FACES ONCOMING TRAFFIC.

TWO IDENTIFICATION DECALS SHALL BE FURNISHED FOR SIGN SUPPORT INSTALLATION SPANNING OPPOSING DIRECTIONS OF TRAFFIC.

THE COST OF FURNISHING AND ATTACHING THE SIGN SUPPORT DECALS SHALL BE AN INCIDENTAL ITEM TO THE VARIOUS SIGN SUPPORT ITEMS.

SIGNAL RELATED SUPPORTS

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND ERECTION OF POLES AS SHOWN AND SPECIFIED IN THE PLANS.

SHAFTS SHALL BE TAPERED TUBES.

EACH POLE SHALL BE GALVANIZED AND INCLUDE THE FURNISHING OF ANCHOR BOLTS, TYPE III RIGID FERROUS METAL 3" CONDUIT ELL AND A 3/4" ELECTRICAL METALLIC TUBING ELL FOR GROUNDING LEAD FOR INSTALLATION IN FOUNDATIONS PLUS HANDHOLE WITH COVER, "J" HOOK, POLE CLAMP, AND CABLE SERVICE ENTRANCE WITH BLIND HALF-COUPLING FOR EACH POLE IN ACCORDANCE WITH DETAILS ON SHEET 634.

THE POLES SHALL BE INSTALLED AND ADJUSTED TO THE PROPER RAKE SO THAT THE WEIGHT OF THE SIGNAL INSTALLATION WILL NOT CAUSE THE POLES TO BE OFF VERTICAL ALIGNMENT BY MORE THAN 1%.

BASIS OF PAYMENT SHALL BE AT THE CONTRACT BID PRICE PER EACH 816 SIGNAL STRAIN POLE - GA BY SIZE, INCLUDING ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS RELATED TO THIS ITEM OF WORK.

816 SIGNAL SUPPORT, BY SIZE

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND ERECTING THE SIGNAL SUPPORTS AS SHOWN AND SPECIFIED IN THE PLANS. VERTICAL SHAFTS AND MAST ARMS SHALL BE TAPERED TUBES FABRICATED FROM STEEL HAVING A MINIMUM YIELD STRENGTH OF 52,000 PSI. AND GALVANIZED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816. THE MAST ARMS SHALL BE ATTACHED TO THE POLE BY FOUR HIGH STRENGTH STEEL BOLTS. THIS CONNECTION SHALL DEVELOP THE FULL MOMENT RESISTING CAPABILITIES OF THE ARM.

THIS ITEM SHALL ALSO INCLUDE THE FURNISHING OF ANCHOR BOLTS. TYPE III RIGID FERROUS METAL 3" CONDUIT ELLS, AND A 3/4" ELECTRICAL METALLIC TUBING ELL FOR GROUNDING LEAD FOR INSTALLATION IN THE FOUNDATION PLUS A (4"X8"), CURVED, FLUSH HANDHOLE WITH COVER, "J" HOOK, AND REMOVABLE POLE CAP FOR EACH POLE IN ACCORDANCE WITH DETAILS ON SHEET 625 AND 634.

BASIS OF PAYMENT SHALL BE AT THE CONTRACT PRICE BID PER EACH 816 SIGNAL SUPPORT, BY SIZE, INCLUDING ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS RELATED TO THIS ITEM OF WORK.

MESSENGER WIRE 7 - STRAND (BY SIZE) WITH ACCESSORIES

MESSENGER WIRE SHALL BE UTILITY GRADE GALVANIZED STEEL AS PER ASTM A 122 & 218 CLASS B. IT SHALL CONSIST OF SEVEN STRAND (3/8" NOMINAL DIAMETER) WITH A BREAKING LOAD OF 11,500 LBS. GALVANIZED STEEL LASHING RODS SHALL BE USED TO SUSPEND THE SIGNAL CABLE FROM THE MESSENGER WIRE, TIGHTLY SECURED. WET-PORCELAIN STRAIN INSULATORS (600 VOLT), GUY CLAMPS, AND GALVANIZED PREFORMED GUY GRIP DEAD ENDS, THIMBLES, AND BULL RINGS (WHEN REQUIRED) WITH A RATED LOADING STRENGTH EQUAL TO OR GREATER THAN THE BREAKING LOAD OF THE MESSENGER WIRE SHALL BE INSTALLED AS SHOWN ON THE PLANS AND/OR SPECIFIED BY THE ENGINEER. THE MESSENGER WIRE SHALL BE INSTALLED SO THAT THE ENTIRE LOAD OF THE SIGNAL EQUIPMENT WILL NOT CAUSE SAG TO EXCEED A MAXIMUM OF 5% OR A MINIMUM OF 3% OF THE SPAN.

PAYMENT FOR ITEM 625 "MESSENGER WIRE (BY SIZE) 7 STRAND WITH ACCESSORIES" WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT (MEASURED TO CENTER OF POLE OR AERIAL CORNERS) COMPLETELY ASSEMBLED IN ACCORDANCE WITH THE TYPICAL SIGNAL INSTALLATION DETAILS AND SHALL INCLUDE MESSENGER WIRE, LASHING RODS, STRAIN INSULATORS, PREFORMED GUY GRIPS, THIMBLES, GUY CLAMPS, AND AERIAL CORNER BULL RINGS, AS DESCRIBED ABOVE AND SHOWN ON THE DETAILS ON SHEET.

816 CONCRETE FOR SIGNAL SUPPORT FOUNDATION

TRAFFIC SIGNAL POLE FOUNDATION SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS. THE CONTRACTOR SHALL STAKE THE LONGITUDINAL AND LATERAL LOCATION AND THE ELEVATION OF THE TOP OF EACH FOUNDATION SUBJECT TO THE APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ELEVATION, OFFSET AND LEVEL OF EACH FOUNDATION. EXCAVATIONS SHALL BE MADE TO THE DIMENSIONS SHOWN ON THE PLANS AND SHALL BE PERFORMED BY MEANS OF AN EARTH AUGER OF THE SPECIFIED DIAMETER UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WHERE SUB-SURFACE OBSTRUCTIONS ARE ENCOUNTERED, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO REMOVE THE OBSTRUCTION OR TO REPLACE THE EXCAVATED MATERIAL AND RELOCATE THE FOUNDATION. IF CAVING OF THE FOUNDATION OCCURS, THE CONTRACTOR SHALL EXCAVATE TO THE SPECIFIED DEPTH, MAINTAINING THE SIDEWALLS AS NEARLY VERTICAL AS POSSIBLE. NO PAYMENT SHALL BE MADE FOR ANY EXCAVATION, CONCRETE OR REINFORCING STEEL USED IN EXCESS OF THE PLANNED QUANTITIES.

PORTLAND CEMENT CONCRETE SHALL BE USED AND SHALL CONFORM WITH CLASS "C" OF THE CURRENT "CONSTRUCTION AND MATERIAL SPECIFICATIONS" BY THE DEPARTMENT OF TRANSPORTATION OF THE STATE OF OHIO.

THE CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL OR COMPACTED EMBANKMENT. THE FOUNDATION SHALL HAVE ANCHOR BOLTS AND CONDUITS ACCURATELY HELD IN POSITION WITH A TEMPLET WHEN CONCRETE IS POURED. FORMS SHALL BE USED FOR THE UPPER PORTION OF ALL FOUNDATIONS AND NO BACKFILLING SHALL BE PERMITTED FROM THE BOTTOM TO WITHIN 6 INCHES BELOW GROUND LEVEL. NO GROUTING OF CONCRETE SHALL BE PERMITTED BETWEEN THE FOUNDATION AND THE STEEL POLE.

PAYMENT FOR ITEM 816 "CONCRETE FOR SIGNAL SUPPORT FOUNDATIONS" SHALL BE MADE PER CUBIC YARD FOR EACH FOUNDATION CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL FOUNDATION DETAILS AND SHALL INCLUDE CONCRETE, REINFORCING STEEL, EXCAVATION AND BACKFILL. A 3"MIN. CONDUIT SHALL BE USED FOR SIGNAL CABLES; IN ADDITION COMBINATION POLE FOUNDATIONS SHALL ALSO HAVE A 2" MIN. CONDUIT.

TRAFFIC CONTROL GENERAL NOTES

TRAFFIC CONTROL GENERAL NOTES

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

816 SIGNAL SUPPORT, PEDESTAL MOUNTED

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PEDESTAL MOUNTED SIGNAL SUPPORTS IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS AND DETAILS ON SHEET 626 .

THE PEDESTAL SHAFT SHALL BE CIRCULAR SEAMLESS STEEL OR ALUMINUM TUBE HAVING A MINIMUM OUTSIDE DIAMETER OF FOUR AND ONE-HALF (4-1/2) INCHES AND MINIMUM WALL THICKNESS OF ONE-EIGHTH (1/8) INCH.

THE PEDESTAL SHAFT FOR VEHICULAR SIGNALS SHALL BE OF SUCH LENGTH THAT THE CENTER OF THE BOTTOM SIGNAL LENS WHEN INSTALLED SHALL BE APPROXIMATELY ELEVEN FEET - SIX INCHES (11'-6") ABOVE THE CONCRETE FOUNDATION.

A SQUARE TRANSFORMER TYPE PEDESTAL BASE OF THE DIMENSIONS SHOWN SHALL BE PROVIDED OF STEEL, ALUMINUM, OR CAST IRON CONSTRUCTION.

WHEN PEDESTRIAN SIGNALS ARE SPECIFIED TO BE MOUNTED ON INDEPENDENT PEDESTALS THE PEDESTAL SHALL BE OF A LENGTH SUCH THAT THE BOTTOM OF THE "WALK" INDICATION SHALL BE APPROXIMATELY 8 FEET ABOVE THE CONCRETE FOUNDATION.

THE BASE SHALL BE PROVIDED WITH A DOOR HELD FIRMLY IN PLACE WITH BRASS OR STAINLESS STEEL SCREWS. THE DOOR SHALL PROVIDE AN OPENING OF NOT LESS THAN 50 SQUARE INCHES. INTERNAL FLANGES FOR THE ANCHOR BOLTS SHALL BE CONSTRUCTED INTEGRAL WITH THE BASE AND SHALL ACCOMMODATE FOUNDATION BOLTS SPACED 90 DEGREES APART IN A CIRCLE. 12-3/4 INCH DIAMETER ANCHOR BOLTS SHALL BE FURNISHED WITH EACH PEDESTAL AND SHALL NOT BE LESS THAN 5/8 INCH IN DIAMETER AND NOT LESS THAN 20 INCHES LONG.

IF STEEL OR CAST IRON COMPONENTS ARE FURNISHED AS SPECIFIED ABOVE, THEY SHALL BE GALVANIZED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816. ONE-QUARTER INCH (1/4") PREFORMED EXPANSION MATERIAL SHALL BE PLACED BETWEEN THE BOTTOM OF THE PEDESTAL BASE AND FOUNDATION.

BASIS OF PAYMENT FOR THIS ITEM OF WORK SHALL BE AT THE CONTRACT PRICE PER EACH "SIGNAL SUPPORT, PEDESTAL MOUNTED" WHICH PRICE SHALL INCLUDE FURNISHING AND INSTALLING THE SHAFT, BASE, AND EXPANSION MATERIAL, FURNISHING ANCHOR BOLTS (INSTALLED AS PART OF THE CONCRETE FOUNDATION), INCLUDING ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO PERFORM THIS ITEM OF WORK.

816 CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATION

CONTROLLER AND PEDESTAL FOUNDATIONS SHALL BE CONSTRUCTED AS SHOWN IN THE PLAN. THE CONTRACTOR SHALL STAKE THE LONGITUDINAL AND LATERAL LOCATION AND ELEVATION OF THE TOP OF EACH FOUNDATION SUBJECT TO THE APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ELEVATION, OFFSET AND LEVEL OF EACH FOUNDATION. EXCAVATIONS SHALL BE MADE TO THE DIMENSIONS SHOWN ON THE PLANS. WHERE SUB-SURFACE OBSTRUCTIONS ARE ENCOUNTERED, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO REMOVE THE OBSTRUCTION OR TO REPLACE THE EXCAVATED MATERIAL AND RELOCATE THE FOUNDATION. IF CAVING OF THE EXCAVATION OCCURS, THE CONTRACTOR SHALL EXCAVATE TO THE SPECIFIED DEPTH, MAINTAINING THE SIDEWALLS AS NEARLY VERTICAL AS POSSIBLE. NO PAYMENT SHALL BE MADE FOR ANY EXCAVATION OR CONCRETE USED IN EXCESS OF THE PLANNED QUANTITIES.

PORTLAND CEMENT CONCRETE SHALL BE USED AND SHALL CONFORM WITH CLASS "C" OF THE CURRENT "CONSTRUCTION AND MATERIAL SPECIFICATIONS" PREPARED BY THE DEPARTMENT OF TRANSPORTATION OF THE STATE OF OHIO. THE CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL OR COMPACTED EMBANKMENT. THE FOUNDATION SHALL HAVE ANCHOR BOLTS AND CONDUIT ACCURATELY HELD IN POSITION WITH A TEMPLET WHEN CONCRETE IS POURED. FORMS SHALL BE USED FOR THE UPPER PORTION OF ALL FOUNDATIONS AND NO BACKFILLING SHALL BE PERMITTED FROM THE BOTTOM TO WITHIN 6 INCHES BELOW GROUND LEVEL.

CONCRETE FOR SERVICE STEP IN FRONT OF CONTROLLER AS SHOWN IN DETAIL ON SHEET NO. 627 WILL BE INCLUDED IN THE ABOVE DESCRIBED CONCRETE.

PAYMENT FOR ITEM 816 "CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATION" SHALL BE MADE PER CUBIC YARD FOR EACH FOUNDATION CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL FOUNDATION DETAILS AND SHALL INCLUDE CONCRETE, EXCAVATION AND BACKFILL.

OVERPASS STRUCTURE MOUNTED SIGN SUPPORT

816 OVERPASS STRUCTURE MOUNTED SIGN SUPPORT (BY TYPE)

THIS ITEM OF WORK SHALL CONSIST OF THE FURNISHING, FABRICATION, AND ERECTION OF THE MATERIALS FOR THE OVERPASS STRUCTURE MOUNTED SIGN SUPPORTS IN ACCORDANCE WITH MATERIALS AND REQUIREMENTS SPECIFIED IN THESE PLANS AND DETAILED ON SHEET 639.

WORK SHALL INCLUDE ALL NECESSARY FRAMING, SIGN BRACKETS, LIGHT FIXTURE SUPPORT ARMS, WELDING, BOLTS, COMPLETE AND READY FOR INSTALLATION OF ELECTRICAL SIGN LIGHTING COMPONENTS.

BASIS OF PAYMENT SHALL BE AT THE BID PRICE PER EACH OVER-PASS STRUCTURE MOUNTED SIGN SUPPORT, BY TYPE INCLUDING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS REQUIRED TO PERFORM THE ITEM OF WORK.

SIGNS MOUNTED ON TRAFFIC SIGNAL SPANS

816 SPAN WIRE MOUNTED SIGN ATTACHMENT, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF THE FURNISHING AND INSTALLATION OF STEEL ANGLES, SPAN WIRE MOUNTING BRACKET, AND HARDWARE AS DETAILED ON SHEET 629 .

BASIS OF PAYMENT SHALL BE AT THE CONTRACT BID PRICE PER EACH SPAN WIRE MOUNTED SIGN ATTACHMENT, AS PER PLAN WHICH PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK.

816 MAST ARM MOUNTED SIGN ATTACHMENT, AS PER PLAN

THIS ITEM OF WORK IS RELATED TO THE ATTACHMENT OF THE REGULATORY SIGNS TO TRAFFIC SIGNAL MAST ARMS AS DESIGNATED IN THE PLANS. THE WORK SHALL CONSIST OF INSTALLATION OF STEEL ANGLE (2#/L.F.), HANGER BRACE (1-1/4" X 3/8" X 6" MIN.), UNIVERSAL JOINT (TRAFFIC SIGNAL TYPE), CLAMP AND CLEVIS (IF NOT SUPPLIED WITH MAST ARM) AND ALL NECESSARY INCIDENTALS TO SUSPEND THE SIGN FROM THE MAST ARM. ALL SIGNS SHALL HAVE A TWO POINT SUSPENSION. BALANCE ADJUSTORS SHALL BE INSTALLED IF NECESSARY TO MAINTAIN THE SIGN IN A VERTICAL POSITION.

BASIS OF PAYMENT SHALL BE AT THE CONTRACT BID PRICE PER EACH MAST ARM MOUNTED SIGN ATTACHMENT, AS PER PLAN WHICH PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK.

CERTIFICATION AND APPROVAL OF SIGN SUPPORT & SIGN LIGHTING ITEMS

THE CONTRACTOR SHALL SUBMIT THROUGH PROPER CHANNELS THE DRAWINGS, INFORMATION AND SAMPLES AS REQUIRED BELOW:

A. 11 COPIES OF SHOP DRAWINGS AND MATERIAL LISTS FOR APPROVAL:
    1. OVERHEAD SIGN SUPPORTS
    2. BREAKAWAY SIGN SUPPORTS
    3. SIGN LIGHTING LAYOUT PLAN AND DETAILS FOR WIRING, CONDUIT SIZE AND PLACEMENT FROM SIGN DISCONNECT SWITCH TO FIXTURE.

B. 11 COPIES OF CATALOG CUTS (DESCRIPTIONS OF SAMPLES OF FABRICATORS STANDARD ITEMS) AS SHOWN IN THE PLANS OR THEIR EQUALS FOR APPROVAL OF THEIR USE.

C. CERTIFICATIONS AND/OR SAMPLES FOR ALL MATERIAL WHICH HAVE BEEN APPROVED ABOVE UNDER "A" AND "B".

D. APPROVAL OF ITEMS UNDER "A" AND "B" SHALL BE IN THE HAND OF THE CONTRACTOR PRIOR TO ANY PURCHASE OR INSTALLATION.

E. CERTIFICATIONS OF SAMPLES UNDER "C" MUST BE IN HAND AND APPROVED PRIOR TO CONTRACT COMPLETION.

IN ADDITION, THE ENGINEER SHALL FORWARD THREE COPIES OF ALL SUBMISSIONS ON TRAFFIC SIGNAL ITEMS TO THE COMMISSIONER OF TRAFFIC, CITY OF CLEVELAND, WHO MAY THEN COMMENT ON THE QUALITY OF THESE ITEMS.

MILE MARKER LOCATIONS

THE LOCATIONS SHOWN IN THE PLANS FOR MILE MARKERS ARE ONLY APPROXIMATE. THE BUREAU OF TRANSPORTATION TECHNICAL SERVICES WILL LOCATE THE LONGITUDINAL POSITION OF MILE MARKERS BY A PAINT BLOTCH ON THE COMPLETED PAVEMENT EDGE. ON DIVIDED HIGHWAYS, ONLY ONE PAVEMENT EDGE WILL BE MARKED. MARKERS FOR THE OPPOSITE DIRECTION WILL BE SET "ACROSS" FROM THOSE ON THE MARKED EDGE. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER 30 DAYS IN ADVANCE OF THE PLANNED MARKER INSTALLATION. THE PROJECT ENGINEER SHALL THEN NOTIFY THE BUREAU OF TRANSPORTATION TECHNICAL SERVICES. ANY DELINEATOR THAT IS WITHIN FIFTY FEET OF A MILE MARKER SHALL BE NON-PERFORMED.

625 PLAN SPECIFICATION REFERENCES

REFERENCE TO ITEMS 625 AND 713 IN THESE PLANS SHALL BE CONSIDERED AS RESPECTIVE REFERENCES TO S625 AND S 713.

TRAFFIC CONTROL GENERAL NOTES

CONTROLLER SPECIFICATIONS

SIGNAL CONTROLLERS

THIS ITEM OF WORK SHALL INCLUDE FURNISHING AND INSTALLATION OF THE CONTROLLER BY THE CONTRACTOR. FOLLOWING INSTALLATION THE CONTRACTOR SHALL TURN OVER TO THE ENGINEER WHO SHALL FORWARD TO THE CITY OF CLEVELAND TRAFFIC ENGINEERING OFFICE COPIES OF ALL NECESSARY COLOR CODE CHARTS USED IN FIELD WIRING OF THE CONTROLLER; DIAGRAMS; ETC. WHICH ARE NECESSARY TO INTERPRET THE COLOR CODING AND LABELS USED TO IDENTIFY THE FIELD WIRING ENTERING AND LEAVING THE CONTROLLER.

THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF THE TRAFFIC SIGNAL EQUIPMENT FOLLOWING THE INSTALLATION UNTIL SUCH TIME AS THE TESTING REQUIREMENTS ARE SATISFIED AND THE INSTALLATION IS COMPLETE AND ACCEPTED. THE CONTRACTOR WILL BE RESPONSIBLE FOR IMMEDIATE ACTION TO CORRECT ANY FAILURES OR DEFECTS IN THE TRAFFIC SIGNAL EQUIPMENT DURING OPERATION THAT OCCUR PRIOR TO ACCEPTANCE OF THE INSTALLATION.

FULL-ACTUATED CONTROLLERS SHALL BE SOLID STATE, FIVE MODULE WITH CONCURRENT PEDESTRIAN PHASES. FULL-ACTUATED CONTROLLERS SHALL MEET THE FOLLOWING SPECIFICATIONS:

THESE CONTROLLERS SHALL MEET ALL REQUIREMENTS AS OUTLINED IN THE INSTITUTE OF TRAFFIC ENGINEERS TECHNICAL REPORT #3 DATED 1958, OR LATEST REVISION.

THE CONTROL SYSTEM SHALL BE OF MODULAR PLUG-IN TYPE. ALL CONTROLLER COMPONENTS SHALL BE SOLID-STATE.

THE CONTROL SYSTEM SHALL BE DESIGNED TO OPERATE ON 105V TO 125V AC, 60 HZ.

ALL CONTROL CIRCUITS SHALL EMPLOY INTEGRATED CIRCUIT COMPONENTS FOR MAXIMUM RELIABILITY.

THE CONTROL SYSTEM SHALL BE DESIGNED TO OPERATE IN AMBIENT TEMPERATURES OF -30 F TO 160 F.

THE CONTROLLER SHALL CONTINUE NORMAL OPERATION IN THE EVENT OF A 0.25 SECOND POWER INTERRUPTION.

ALL CIRCUIT BOARDS SHALL CONSIST OF PRINTED COPPER CIRCUITS.

ALL PRINTED CIRCUIT BOARDS SHALL BE CONSTRUCTED TO INSURE TROUBLE-FREE OPERATION.

THE CONTROLLER SHALL BE DESIGNED FOR FAIL-SAFE OPERATION.

ALL VEHICLE PHASE MODULES SHALL BE FURNISHED WITH MULTIPLE EXTENSION LIMITS AND ALL-RED TIMING CAPABILITY.

ALL VEHICLE ACTUATED PHASE MODULES SHALL BE PROVIDED WITH GUARANTEED PASSAGE TIME.

ALL ACTUATED PHASE MODULES SHALL HAVE REMOTE RECALL CAPABILITY.

ALL VEHICLE ACTUATED PHASES WITH CONCURRENT PEDESTRIAN PHASES SHALL BE PROVIDED WITH GUARANTEED PEDESTRIAN WALK AND CLEARANCE TIME.

THE PHASE MODULES SHALL INCLUDE AN INDIVIDUAL ILLUMINATED INDICATOR FOR INDICATING THE INTERVAL TIMING AND MAXIMUM TIMING TERMINATION.

THE MODULE SHALL PROVIDE FOR THE SETTING UP OF EACH INTERVAL OR PERIOD BY MEANS OF SETTING CALIBRATED DIALS. THE TIMING DIALS SHALL BE CALIBRATED IN SECONDS AND SHALL GIVE A CLEAR VISUAL INDICATION OF THE LENGTH OF EACH INTERVAL. THE TIMING DIALS SHALL BE ON THE FRONT OF THE MODULE. IT SHALL NOT BE NECESSARY TO REMOVE OR CHANGE WIRES OR CONTACTS OR USE ANY TOOLS IN MAKING INTERVAL ADJUSTMENT.

IN THE ABSENCE OF OPPOSING CALLS THE CONTROLLER SHALL REMAIN IN A REST CONDITION ON THE LAST CALLED PHASE. ALSO, SWITCHES SHALL BE PROVIDED FOR RECALLING ANY ONE OR ALL PHASES.

THE CONTROLLER SHALL BE PROVIDED WITH INPUTS FOR AUTOMATIC PHASE SKIPPING ABILITY.

THE AFOREMENTIONED TYPE OF FULL-ACTUATED CONTROLLERS SHALL BE CROUSE-HINDS SFT2 SERIES, OR EAGLE SIGNAL DIVISION ET600 SERIES, OR ECONOLITE SERIES D-4000 OR EQUAL.

THE CONTROLLER SHALL HAVE THE CAPABILITY TO BE COORDINATED BY AUXILIARY EQUIPMENT TO FUNCTION IN AN INTERCONNECTED PROGRESSIVE SYSTEM.

THE COORDINATION EQUIPMENT SHALL BE INCLUDED WITHIN THIS ITEM AND SHALL BE EAGLE ET-228-AAA, CROUSE-HINDS PCU-153 OR ANY OTHER APPROVED EQUAL, THREE DIAL, THREE OFFSET TYPE EQUIPMENT.

(CONTINUED)

SEMI-ACTUATED CONTROLLERS SHALL HAVE CONCURRENT PEDESTRIAN PHASES AND INCLUDE A THREE DIAL BACKGROUND COORDINATING UNIT.

SEMI-ACTUATED CONTROLLERS SHALL MEET THE FOLLOWING SPECIFICATIONS:

THIS CONTROLLER SHALL MEET ALL REQUIREMENTS AS OUTLINED IN THE INSTITUTE OF TRAFFIC ENGINEERS TECHNICAL REPORT #3 DATED 1958 OR LATEST REVISION.

THE CONTROL SYSTEM SHALL BE OF MODULAR CONSTRUCTION AND ALL COMPONENTS SHALL BE SOLID-STATE.

THE CONTROL SYSTEM SHALL BE DESIGNED TO OPERATE ON 105 V TO 125 V AC 60 HZ.

THE CONTROL SYSTEM SHALL BE DESIGNED TO OPERATE IN AMBIENT TEMPERATURES OF -30 F TO 160 F.

THE CONTROLLER SHALL CONTINUE NORMAL OPERATION IN THE EVENT OF A 0.25 SECOND POWER INTERRUPTION.

ALL PRINTED CIRCUIT BOARDS SHALL BE CONSTRUCTED TO INSURE TROUBLE-FREE OPERATION.

THE CONTROLLER SHALL HAVE THE CAPABILITY OF MANUAL CONTROL THROUGH EACH INTERVAL.

THE CONTROLLER SHALL BE DESIGNED FOR FAIL-SAFE OPERATION.

THE VEHICLE ACTUATED PHASE WITH CONCURRENT PEDESTRIAN PHASE SHALL BE PROVIDED WITH GUARANTEED PEDESTRIAN WALK AND CLEARANCE TIME.

THE CONTROLLER SHALL INCLUDE INDIVIDUAL ILLUMINATED INDICATORS FOR INDICATING THE INTERVAL TIMING AND MAXIMUM TIMING TERMINATION.

THE MODULE SHALL PROVIDE FOR THE SETTING UP OF EACH INTERVAL OR PERIOD BY MEANS OF SETTING CALIBRATED DIALS. THE TIMING DIALS SHALL BE CALIBRATED IN SECONDS AND SHALL GIVE A CLEAR VISUAL INDICATION OF THE LENGTH OF EACH INTERVAL. THE TIMING DIALS SHALL BE ON THE FRONT OF THE MODULE. IT SHALL NOT BE NECESSARY TO REMOVE OR CHANGE WIRES OR CONTACTS OR TO USE ANY TOOLS IN MAKING INTERVAL ADJUSTMENT.

THE CONTROLLER SHALL ALWAYS REMAIN IN A REST CONDITION IN THE NON-ACTUATED PHASE, CHANGING TO THE ACTUATED PHASE ONLY AS A RESULT OF VEHICLE DETECTION OR PEDESTRIAN PUSH BUTTON ACTUATION.

THE CONTROLLER SHALL HAVE THE CAPABILITY TO BE COORDINATED BY AUXILIARY EQUIPMENT TO FUNCTION IN AN INTERCONNECTED PROGRESSIVE SYSTEM.

THE AFOREMENTIONED TYPE OF SEMI-ACTUATED CONTROLLER WITH A THREE DIAL BACKGROUND COORDINATING UNIT SHALL BE EAGLE ET-495 SEMI-ACTUATED SOLID STATE CONTROLLER AND WITH EAGLE ET-228-AAA TYPE COORDINATING UNIT, OR CROUSE-HINDS SERIES SST-23 SEMI-ACTUATED CONTROLLER AND WITH A CROUSE-HINDS DCU-153 COORDINATING UNIT OR EQUAL.

CONTROLLER CABINET:

THE CABINET SHALL BE CLEAN-CUT IN DESIGN AND APPEARANCE AND SHALL CONFORM TO THE FOLLOWING:

IT SHALL BE MADE OF DIE CAST ALUMINUM ALLOY WITH A WALL THICKNESS OF APPROXIMATELY ONE-QUARTER INCH AND MINIMUM OF 18,000 PSI YIELD STRENGTH.

THE MINIMUM INSIDE DIMENSIONS SHALL BE : HEIGHT 38'', WIDTH 28'' AND DEPTH 12-7/16''.

THE CABINET SHALL CONTAIN AT LEAST 7.7 CUBIC FEET OF USABLE VOLUME.

A HINGED DOOR, WITH SPLICE PANEL, SHALL BE PROVIDED ON THE FRONT OF THE CABINET WHICH SHALL INCLUDE SUBSTANTIALLY THE FULL AREA OF THE FRONT OF THE CABINET.

ALL DOORS SHALL BE FULLY GASKETED WITH ELASTOMERIC GASKETING MATERIAL SO THAT WHEN CLOSED THEY SHALL FIT CLOSELY TO THE GASKETING MATERIAL, MAKING THE CABINET WEATHER RESISTENT AND DUST TIGHT. THREE POINT LATCHING SHALL BE PROVIDED FOR THIS PURPOSE.

THE DOOR SHALL BE PROVIDED WITH LOCK WITH PERMANENT TYPE LUBRICATION AND A WEATHERPROOF TAB AND FURNISHED WITH TWO KEYS FOR BOTH THE DOOR AND THE POLICE PANEL.

AN ELBOW VENT SHALL BE MOUNTED ON BOTH SIDES OF THE CABINET BASE AND SHALL BE MACHANICALLY SCREENED AND BAFFLED TO PROTECT AGAINST RAIN, DUST AND ALL TYPES OF FOREIGN OBJECTS.

THERE SHALL BE ONE BAR DOOR STOP AT APPROXIMATELY 135 DEGREES.

THE DOOR PINS, RECESSED TO PREVENT BREAK AND ENTRY, SHALL BE GREASE LUBRICATED AND FABRICATED OF A NONCORRODING MATERIAL.

CABINET SHALL CONTAIN TWO CAST METAL SHELVES FOR THE SUPPORT OF TRAFFIC CONTROL EQUIPMENT. THE SHELVES SHALL BE ADJUSTABLE ON A MINIMUM OF 1-1/2'' CENTERS FROM A MINIMUM OF 10'' FROM THE TOP OF THE CABINET TO THE BOTTOM OF THE CABINET.

(CONTINUED)

THE CABINET SHALL BE EQUIPPED WITH A POLICE PANEL DOOR AND THE FOLLOWING EQUIPMENT:

1 EACH THYRECTOR PROVIDING STEADY STATE INPUT VOLTAGE OF 150 RMS OR 210 PEAK AND PROVIDING A MAXIMUM CURRENT OF 3 AMPS AT 0.001 SEC. PULSE AT 60 HZ. FOR LIGHTNING PROTECTION OF TRAFFIC CONTROL EQUIPMENT FOR CONNECTION ACROSS THE LINE AFTER THE FUSE AND BEFORE FLASHER FILTERS, MOUNTED USING 150 V. MINIMUM BREAKDOWN INSULATED HOLLOW RIVET USING #8-32 SCREW.

10 EACH 12 WIRE TERMINAL BLOCKS (PENN UNION #6012 MARATHON #6012 OR APPROVED EQUAL).

3 EACH 4 PDT 10 AMPERE 250 V.A.C. SWITCH (CUTLER-HAMMER #7693, CARLING ELECTRIC IL 253 OR APPROVED EQUAL).

1 EACH GROUND BUS BAR WITH 15 GROUND TERMINAL POINTS.

THE OUTGOING TRAFFIC CONTROL SIGNAL CIRCUITS SHALL BE OF THE SAME POLARITY AS THE LINE SIDE OF THE POWER SUPPLY; THE COMMON RETURN OF THE SIGNAL CIRCUIT SHALL BE OF THE SAME POLARITY AS THE GROUND SIDE OF THE POWER SUPPLY.

THE GROUNDED SIDE OF THE POWER SUPPLY SHALL BE GROUNDED TO THE CONTROLLER CABINET IN AN APPROVED MANNER.

THE CABINET SHALL BE BASE MOUNTED AND FURNISHED WITH TWO 3/4'' X 16'' ANCHOR BOLTS FOR KEYING TO A CONCRETE-FOUNDATION. A DRAWING SHOWING PROPER CONSTRUCTION OF THE CABINET FOUNDATION AND METHOD OF MOUNTING THE CABINET SHALL BE FURNISHED WITH THE CABINET BASE.

THE CABINET SHALL BE EQUIPPED WITH A TOP MOUNTED VENTILATION FAN 134 C.F.M. AT 0.160'' OF WATER STATIC PRESSURE. SEPARATE ADJUSTABLE THERMOSTAT TO BE INCLUDED.

ALL CAST PIECES SHALL BE CLEAN, SMOOTH, AND FREE FROM FLAWS, CRACKS, BLOWHOLES, AND OTHER IMPERFECTIONS.

A FLEXIBLE PLASTIC OR OTHER INSULATING MATERIAL IS TO BE MOUNTED WITH SHEET METAL SCREWS TO COVER SWITCH TERMINALS ON THE POLICE PANEL.

THE CABINET AND FAN HOUSING SHALL BE PRIME COATED AND SHALL BE FINISHED WITH TWO COATS OF ALUMINUM GRAY ENAMEL PAINT.

PAYMENT FOR ITEM 625 ''TRAFFIC SIGNAL CONTROLLER, BY TYPE'', AS PER PLAN SHALL BE MADE ON AN EACH BASIS, COMPLETELY INSTALLED IN PLACE, TESTED AND ACCEPTED, AND INCLUDING ALL INCIDENTALS NECESSARY.

GUARANTEES AND WARRANTIES

THE MANUFACTURER'S NORMAL WARRANTIES FOR TRAFFIC SIGNAL CONTROLLERS, ASSOCIATED CONTROL EQUIPMENT, LOOP DETECTOR AMPLIFIERS AND OTHER MANUFACTURER'S EQUIPMENT FOR WHICH GUARANTEES ARE NORMALLY PROVIDED SHALL BE ASSIGNED AND DELIVERED TO THE STATE.

THE CONTRACTOR SHALL INSTALL AND HANDLE ITEMS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES, PROVIDED SUCH PROCEDURES ARE NOT IN CONFLICT WITH THE PLANS AND SPECIFICATIONS.

COSTS FOR PROVISION AND PERFORMANCE OF GUARANTEES AND WARRANTIES HEREIN DESCRIBED SHALL BE INCIDENTAL TO AND INCLUDED IN THE UNIT PRICE(S) BID FOR THE VARIOUS TRAFFIC CONTROL ITEMS.

CONTROLLER SPECIFICATIONS

TRAFFIC CONTROL QUANTITY SUMMARY

CALCULATED BY LCL DATE 1-16-74
CHECKED BY F.K.B. DATE 11-20-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

★ I-90-1(50)19

TYPE CODE 7223

DELINEATORS

PAVEMENT MARKING

** TOTAL INCLUDES ADD'L 1500 S.F. PER GENERAL NOTES

LINE	GUIDE SIGNS								●	●	REGULATORY AND WARNING SIGNS								TRAFFIC SIGNALS (BY INTERSECTION)										PARTICIPATION		TOTAL	ITEM	UNIT	DESCRIPTION	LINE
	SHEET NO.								SHT NO.	SHT NO.	SHEET NO.								SHEET NO.										CITY STATE	★ CITY STATE FEDERAL					
	553	554	555	556	557	558	559	560	573/578	578	579	580	581	582	583	584	585	586	593 8	9	594 10	595 10-A	596 11	12	597 13	598 14	599 15	16							
70																									2				0	2	2	S625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS W/ARROWS 3 SECTION, 8 IN. LENS, TWO WAY	70
71																								1			1	1	0	3	3	S625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS, ONE WAY WITH ARROWS	71
72																			4	4	1	2	2	5		6	5	3	0	32	32	S625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY	72
73																					1	2			2				0	5	5	S625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, TWO WAY	73
74																							2						0	2	2	S625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 3-8 IN. LENS, 3-12 IN. LENS, TWO WAY	74
75			2																1	1	1	1	1		1	1	1	2	0	12	12	S625	EACH	WEATHERHEAD AND CONDUIT RISER (3")	75
76																						8							0	8	8	S625	EACH	COVERING OF TRAFFIC SIGNAL HEADS	76
77	486	709	162	683	583	497	677/105*					66		66		176													105	4105	4210	815	SF	SIGN ERECTION, EXTRUSHEET TYPE	77
78											94	384	12	157	93	393	615												0.	1748	1748	815	SF	SIGN ERECTION, FLAT SHEET TYPE	78
79																													0.	1500	1500	815	SF	INTERIM COVERING FOR SIGNS **	79
80						54	56																						0.	110	110	815	SF	INTERIM OVERLAY	80
81	1																												0	1	1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 7.6, DES. 4 MOD. (108 FT. SPAN)	81
82							1																						0	1	1	816	EACH	OVERHEAD SIGN SUPPORT, NO.12.30 , DES. 2, POLE = 23' ARMS= 20'	82
83						1																							0	1	1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 12.30 , DES. 6 , POLE = 26' ARMS= 26'	83
84				1																									0	1	1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 12.30 , DES. 8 , POLE = 26' ARMS= 27'	84
85												1																	0,	1	1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 15.0 IN. X 10.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.465 IN. X 25 FT.- 3 IN. + 7 GA. 7.0 IN. X 4.20 IN. X 20 FT.- 0 IN.	85
86														1		2													0	3	3	816	EACH	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.50 IN. X 25 FT.- 0 IN. + 7 GA. 7.0 IN. X 4.48 IN. X 18 FT.- 0 IN.	86
87																1													0	1	1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 6 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 3 GA. 8.0 IN. X 3.80 IN. X 30 FT.- 0 IN.	87
88		2		3	2		2																						0	9	9	816	EACH	STRUCTURE MOUNTED SIGN SUPPORT SPL.	88
89							1																						0	1	1	816	EACH	OVERHEAD SIGN SUPPORT, NO.12.30, DES.4 MOD., POLE = 23' ARMS = 24'	89
90						1																							0	1	1	816	EACH	STRUCTURE MOUNTED SIGN SUPPORT, NO. 18.2, DES. 7	90
91											1	10		1		4	11												0	27	27	816	EACH	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN	91
92			32			65	16				148	375	29	263	171	322	651												0.	2072	2072	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST (STEEL)	92
93		29		29	83	53	50/69*									88	98												69	430	499	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM , DRIVEN (STEEL)	93
94												49				49	98												0.	196	196	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM ,AS PER PLAN, DRIVEN (STEEL)	94
95																			1	3	2	2	2		2	3	1	2	0	18	18	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)	95
96	20.8	21.5	4.1	6.9		6.7	8.3					3.2		4.1		11.3													0.0	86.9	86.9	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION	96
97					1																								0.0	1	1	816	EACH	CANTILEVER SIGN SUPPORT NO.12.30, DES.5 MOD. POLE = 9 FT. ARMS = 25 FT.	97
98																			6.4	8.0	10.1	10.1	10.1	12.7	13.2	7.4	7.2	8.2	0.0	93.4	93.4	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION	98
99																			1.5	2.2	1.9	1.9	1.4	1.2	3.6	3.1	2.4	1.9	0.0	21.1	21.1	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS	99
100																	6												0	6	6	816	EACH	MAST ARM MOUNTED SIGN ATTACHMENT, AS PER PLAN	100
101												9				5													0	14	14	816	EACH	SPAN WIRE MOUNTED SIGN ATTACHMENT, AS PER PLAN	101
102			1																										0	1	1	816	EACH	CANTILEVER SIGN SUPPORT NO.12.30 DES. 1 POLE = 23 FT. ARMS = 11.0 FT.	102
103		1																											0	1	1	816	EACH	COMB. SIGN & LIGHT SUPPORT NO.12.30 , DES. 2 MOD. POLE = 30 FT. ARMS = 18 FT.	103
104		1																											0	1	1	816	EACH	COMB. SIGN & LIGHT SUPPORT NO.12.30 , DES. 3 MOD. POLE = 30 FT. ARMS = 22 FT.	104
105		2																											0	2	2	816	EACH	COMB. SIGN & LIGHT SUPPORT NO.12.30 , DES. 1 MOD. POLE = 30 FT. ARMS = 11 FT.	105
106		1																											0	1	1	816	EACH	COMB. SIGN & LIGHT SUPPORT NO.12.30 , DES. 1 MOD. POLE = 30 FT ARMS = 16 FT.	106
107																																			107
108																											1		0	1	1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 7 GA. 12.0'' X 7.94'' X 29'-0'' MAST ARM = 7 GA. 9.0'' X 3.96'' X 36'-0''	108
109																											1		0	1	1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 3 GA. 13.0'' X 8.80'' X 30'-0'' MAST ARM = 3 GA. 9.0'' X 6.90'' X 15'-0'' + 7 GA. 7.4'' X 3.76'' X 26'-0'' MAST ARM = 3 GA. 9.0'' X 6.90'' X 15'-0'' + 7 GA. 7.4'' X 3.76'' X 26'-0''	109
110																												1	0	1	1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 3 GA. 15.0'' X 11.22'' X 27'-0'' MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0'' MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0'' SIGN ARM = 7 GA. 10.0'' X 8.18'' X 13'-0'' SIGN ARM = 7 GA. 10.0'' X 8.46'' X 11'-0''	110
111																												1	0	1	1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 7 GA. 13.0'' X 8.80'' X 30'-0'' MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0''	111
112																										1			0	1	1	816	EACH	TRAFFIC SIGNAL SUPPORT, POLE = 7 GA. 11.0'' X 9.18'' X 13'-0'' ARM = 4'' SCH. 80 GRADE A X 10'-0''	112
113																										1			0	1	1	816	EACH	TRAFFIC SIGNAL SUPPORT, POLE = 7 GA. 14.0'' X 11.06'' X 21'-0'' MAST ARM = 7 GA. 9.0'' X 3.96'' X 36'-0'' MAST ARM = 7 GA. 8.0'' X 3.24'' X 34'-0''	113
114																									2	1	1		0	4	4	816	EACH	COMBINATION PEDESTRIAN SIGNAL SUPPORT, POLE = 11 GA. 8.50'' X 4.30'' X 30'-0''	114
115																								1					0	1	1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.08'' X 28'-0'' SIGN ARMS = 4'' SCH. 80 GRADE A X 10'-0''	115
116																								1					0	1	1	816	EACH	SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.36'' X 26'-0''	116
117																						1							0	1	1	816	EACH	SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.43'' X 25'-6''	117
118																						1			1				0	2	2	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0 '' X 10.80 '' X 30'-0'' SIGN ARMS = 2 - 7 GA. 6.0'' X 4.46'' X 11'-0''	118
119																					1								0	1	1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 12.0 IN. X 7.52 IN. X 32FT.-0 IN.	119
120																					1								0	1	1	816	EACH	SIGNAL STRAIN POLE, POLE = 3 GA. 12.0 IN. X 7.52 IN. X 32 FT. - 0 IN.	120
121																				1									0	1	1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0''X 11.15''X 27'-6'' MAST ARM = 7 GA. 8.0'' X 3.52'' X 32'-0'' SIGN ARMS = 2 - 7 GA. 6.90'' X 5.08 '' X 13'-0''	121
122																			1										0	1	1	816	EACH	SIGNAL SUPPORT, POLE = 3 GA. 12.0 IN. X 8.22 IN. X 27 FT. - 0 IN. MAST ARM = 7 GA. 7.0 IN. X 3.92 IN. X 22 FT. - 0 IN.	122
123																			1	1			2	2	1				0	7	7	816	EACH	COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.	123

* - NO FEDERAL PARTICIPATION

TRAFFIC CONTROL QUANTITY SUMMARY

TRAFFIC CONTROL QUANTITY SUMMARY

CALCULATED BY L.C.L. DATE 1-16-74
CHECKED BY F.K.B. DATE 11-20-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

549
713

CUYAHOGA COUNTY
CUY - 90 10.40

★ I-90-1(50)19

TYPE CODE 7223

✱(TOTAL INCLUDES ADD'L 400 EA. PER GENERAL NOTES)

DELINEATORS

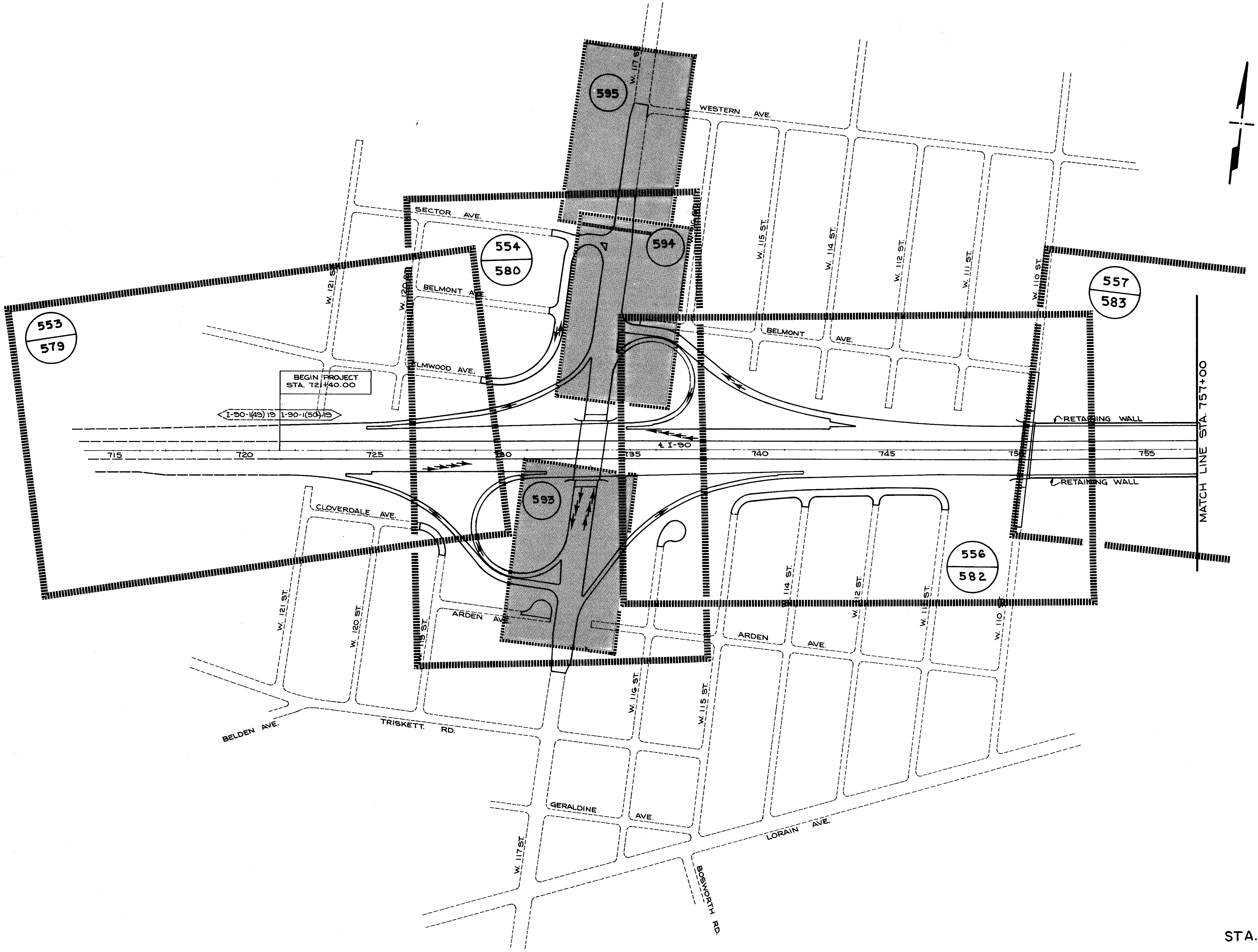
PAVEMENT MARKING

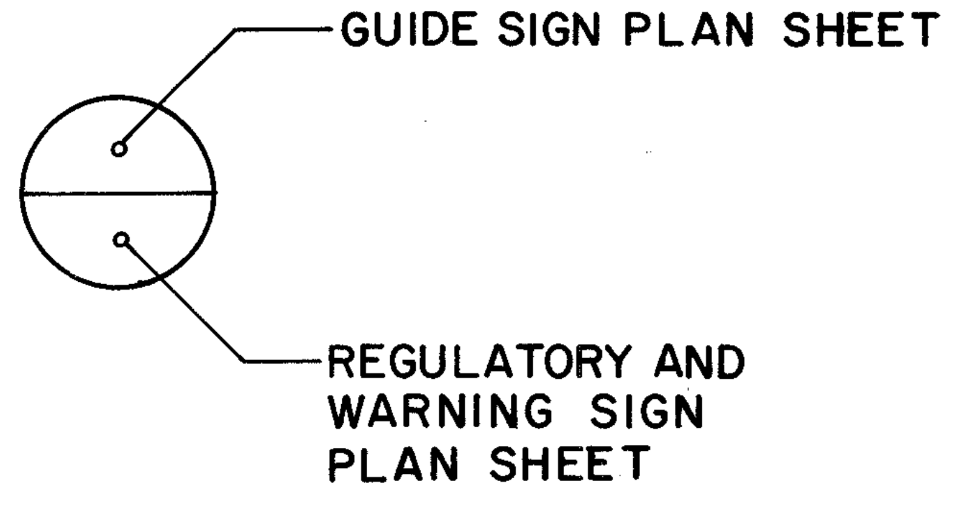
LINE	GUIDE SIGNS								●	●	REGULATORY AND WARNING SIGNS								TRAFFIC SIGNALS (BY INTERSECTION)										PARTICIPATION		TOTAL	ITEM	UNIT	DESCRIPTION	LINE
	SHEET NO.								SHT NO.	SHT NO.	SHEET NO.								SHEET NO.										CITY STATE	★ CITY STATE FEDERAL					
	553	554	555	556	557	558	559	560	573/578	578	579	580	581	582	583	584	585	586	593		594	595	596		597	598	599								
																			8	9	10	10-A	11	12	13	14	15	16							
1																				1		1			1				0	3	3	202	EACH	REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION	1
2																													0	400	400	606	EACH	INTERIM BARRELS, AS PER PLAN, ✱	2
3																																			3
4			LUMP																										0	LUMP	LUMP	S625	LSUM	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATIONS	4
5										3																			0	3	3	620	EACH	DELINEATORS, TYPE X-1, POST MOUNTED	5
6										9																			0	9	9	620	EACH	DELINEATORS, TYPE X-4, POST MOUNTED	6
7										222																			0	222	222	620	EACH	DELINEATORS, TYPE D POST MOUNTED	7
8										2																			0	2	2	620	EACH	DELINEATORS, TYPE D BRACKET MOUNTED	8
9																																			9
10									1.12																					1.12	1.12	621	MILE	4 IN. LANE LINES	10
11									3.42																					3.42	3.42	621	MILE	6 IN. LANE LINES	11
12									2.94																					2.94	2.94	621	MILE	4 IN. CENTERLINES	12
13									8.05																					8.05	8.05	621	MILE	4 IN. EDGE LINES	13
14																																			14
15									3594																					3594	3594.	621	LF	4 IN. CHANNELIZING LINES	15
16									3261																					3261	3261	621	LF	8 IN. CHANNELIZING LINES	16
17									256																					256	256	621	LF	4 IN. DOTTED LINE (WHITE)	17
18									5424																					5424	5424.	621	LF	12 IN. CROSSWALK LINE	18
19									1356																					1356	1356.	621	LF	24 IN. STOP LINE	19
20									221																					221	221.	621	LF	12 IN. BROAD TRANSVERSE LINES (WHITE)	20
21									917																					917	917.	621	LF	24 IN. BROAD TRANSVERSE LINES (WHITE)	21
22									445																					445	445.	621	LF	12 IN. BROAD TRANSVERSE LINES (YELLOW)	22
23									9498																					9498	9498	621	LF	CURB MARKING	23
24																																			24
25									4562																					4562	4562	621	SF	ISLAND MARKING	25
26																																			26
27									37																					37	37	621	EACH	PAVEMENT ARROWS	27
28									16																					16	16	621	EACH	PAVEMENT WORD ''ONLY'', AS PER PLAN	28
29																																			29
30																			260	291	474	235	92	12	161	836	200	252	0.	2813	2813	S625	LF	TRENCH, 24 IN. DEEP	30
31																			640	839	971	205	691	713	381	413	398	492	0.	5743	5743	S625	LF	CONDUIT, 3 IN.,S713.04, RIGID FERROUS METAL	31
32																			218	1103	350	43	235	230	40	1146	278	645	0.	4288	4288	S625	LF	CONDUIT, 3 IN., PVC, TYPE II	32
33			1																7	10	8	5	7	7	4	11	5	6	0	71	71	S625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN	33
34																			1	3	3	1	1	2	1	3	2	3	0	20	20	S625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN	34
35	1	6	2	1		1	2					1		1		3			5	6	5	5	5	5	7	7	5	5	0	73	73	S625	EACH	GROUND ROD	35
36	1	8	2	3	3	4	6					1		1		3			1	1	1	1	1	1	1	1	1	1	0	42	42	S625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE	36
37			1																										0	1	1	S625	EACH	120 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP	37
38		8				2	6					3		3		8													0	30	30	S625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP	38
39	2	4	1	2	4	5	5																						0	23	23	S625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP	39
40	4	2		6	2																								0	14	14	S625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP	40
41	1	6	2	1	1	3	4					1		1		3													0	23	23	S625	EACH	SIGN SERVICE	41
42		2		2	1	1	3																						0	9	9	S625	EACH	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS	42
43	3	6	2	1	1	4	7					3		3		8													0	38	38	S625	EACH	SIGNS WIRED COMPLETE (MERCURY VAPOR LIGHTING)	43
44		2		3	2	1	2																						0	10	10	S625	EACH	STRUCTURE MOUNTED SIGN WIRED COMPLETE (MERCURY VAPOR LIGHTING)	44
45		4		4	2	2	4																						0	16	16	S625	EACH	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET	45
46																			3	4	4	3	3	4	6	2	4	4	0	37	37	S625	EACH	CABLE SUPPORT ASSEMBLY	46
47																				28	28	28	28	28		84	28	28	0.	280	280	S625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA	47
48																			916	1805	1326	808	1110	1114	1571	1347	1196	1144	0.	12,337	12,337	S625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA	48
49																			610	1630	805		556	576		1587		890	0.	6654	6654	S625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA	49
50																			105	115	240	250	215	418	105	45	95	190	0.	1778.	1778.	S625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE	50
51																			314	380	552	116	262	492	402	536	472	570	0.	4096	4096	S625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE	51
52																			315	175	505	8	469	468	110	958	400	380	0.	3788	3788	S625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED	52
53																			107	120	158	86	119	250	116				0.	956.	956.	S625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA	53
54			70																										0.	70.	70.	S625	LF	MESSENGER WIRE, 3 STRAND, 1/4 IN. WITH ACCESSORIES IMSA	54
55																			127	176	232	40	129	154	171	268	206	285	0.	1788.	1788.	S625	LF	LOOP DETECTOR PAVEMENT CUTTING	55
56																			1	1	2	1	1	2	1	2	2	2	0	15	15	S625	EACH	LOOP DETECTOR AMPLIFIER	56
57																				2	2	2	2	2		6	2	2	0	20	20	S625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN (R-73C-9)	57
58																			2	4	4	4	4	6	8	6	6	6	0	50	50	S625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.	58
59																			1			1	1						0	3	3	S625	EACH	SIGNAL CONTROLLER, 2 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT	59
60																				1	1			1	1		1	1	0	6	6	S625	EACH	SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/CABINET ANDCOORDINATION UNIT	60
61																										1			0	1	1	S625	EACH	SIGNAL CONTROLLER, 2 PHASE, FULLY ACTUATED, SOLID STATE, W/ CABINET AND COORDINATION UNIT	61
62																			2	2								2	0	6	6	S625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. LENS, ONE WAY	62
63																				1									0	1	1	S625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. LENS, WITH ARROW, ONE WAY	63
64																					1								0	1	1	S625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS W/ARROWS 2-3 SECTION, 8 IN. LENS, THREE WAY	64

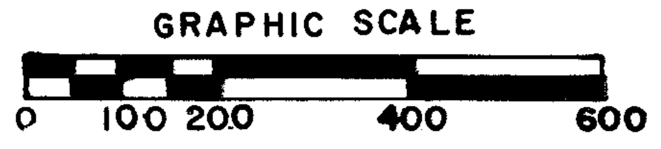
TRAFFIC CONTROL QUANTITY SUMMARY

FED. RD.	STATE	PROJECT		
2	OHIO	I-90-1(50)19		551 713

CUYAHOGA COUNTY
CUY-90-10.40



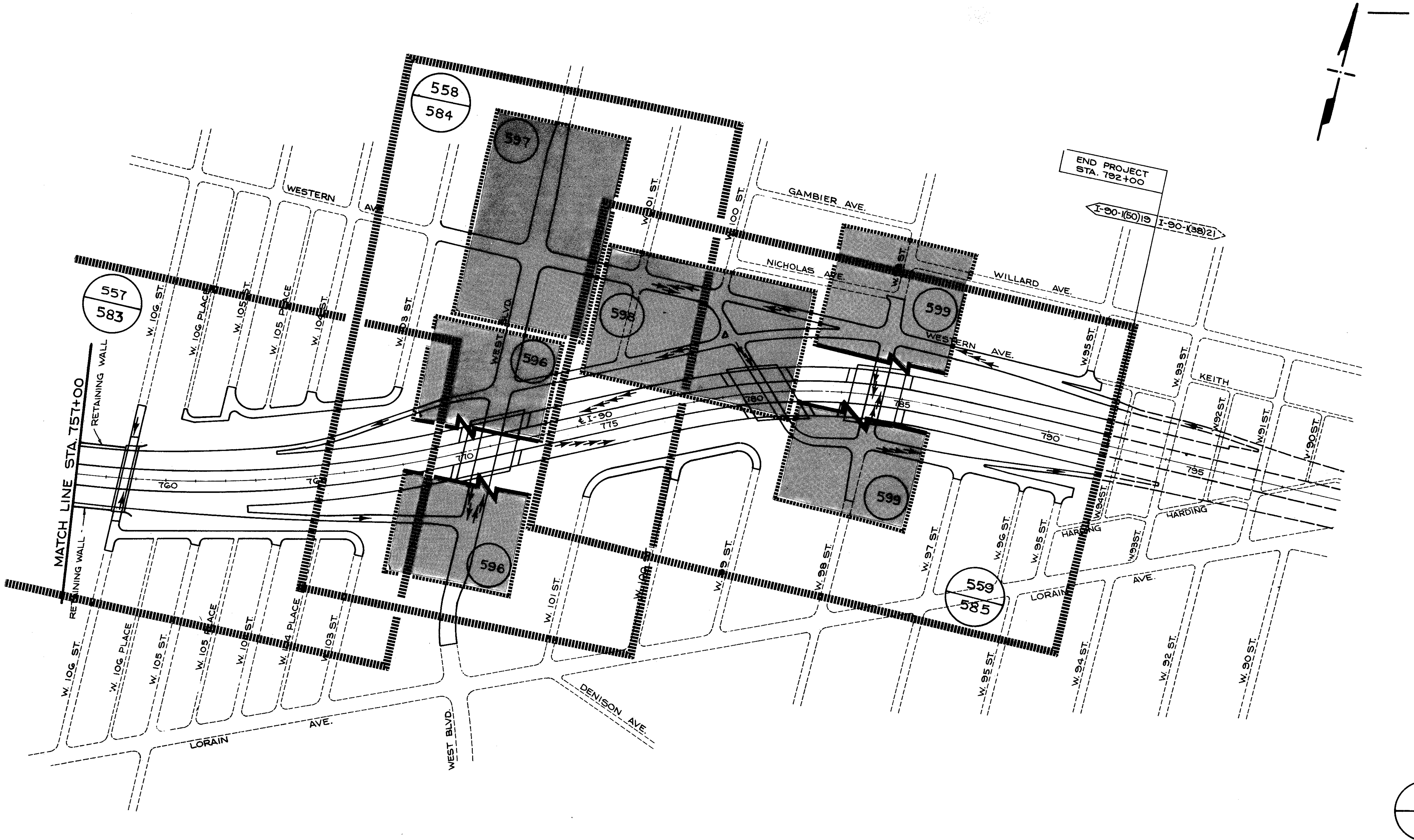


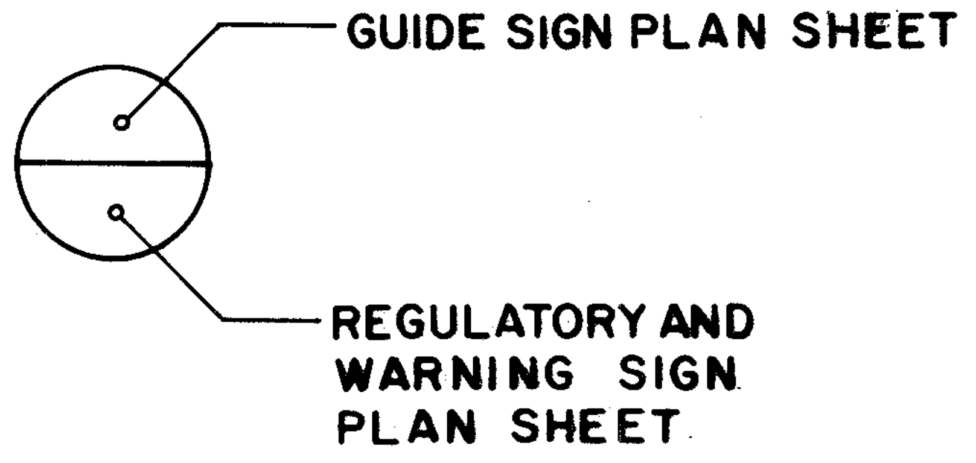


KEY MAP
STA. 721+40.00 TO STA. 757+00.00
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY-90-10.40





GRAPHIC SCALE
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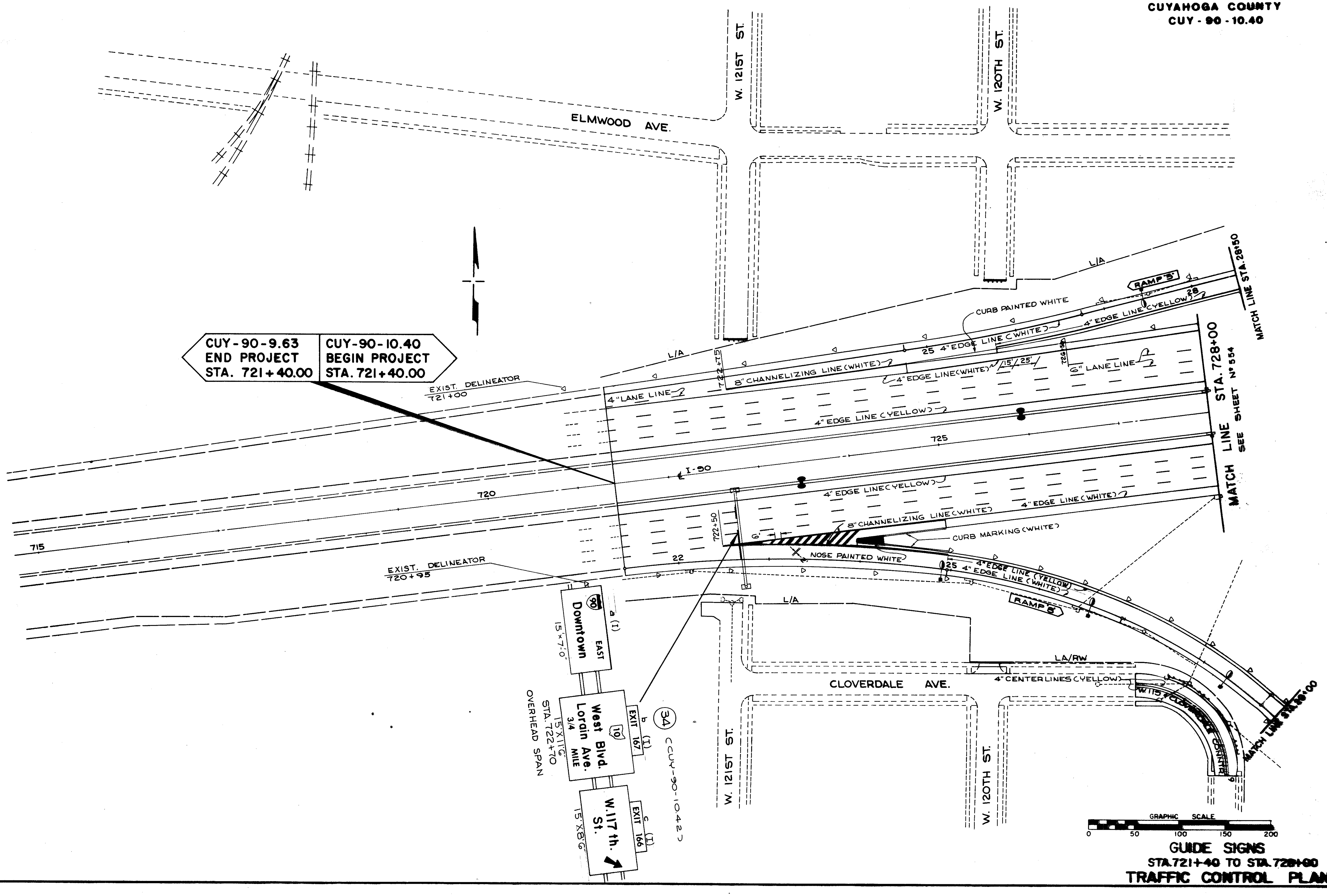
KEY MAP
STA. 757 + 00.00 TO STA. 792 + 00.00
TRAFFIC CONTROL PLANS

FORM D D A-8

FED. RD. NO.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40



GUIDE SIGNS
STA.721+40 TO STA.728+90
TRAFFIC CONTROL PLANS

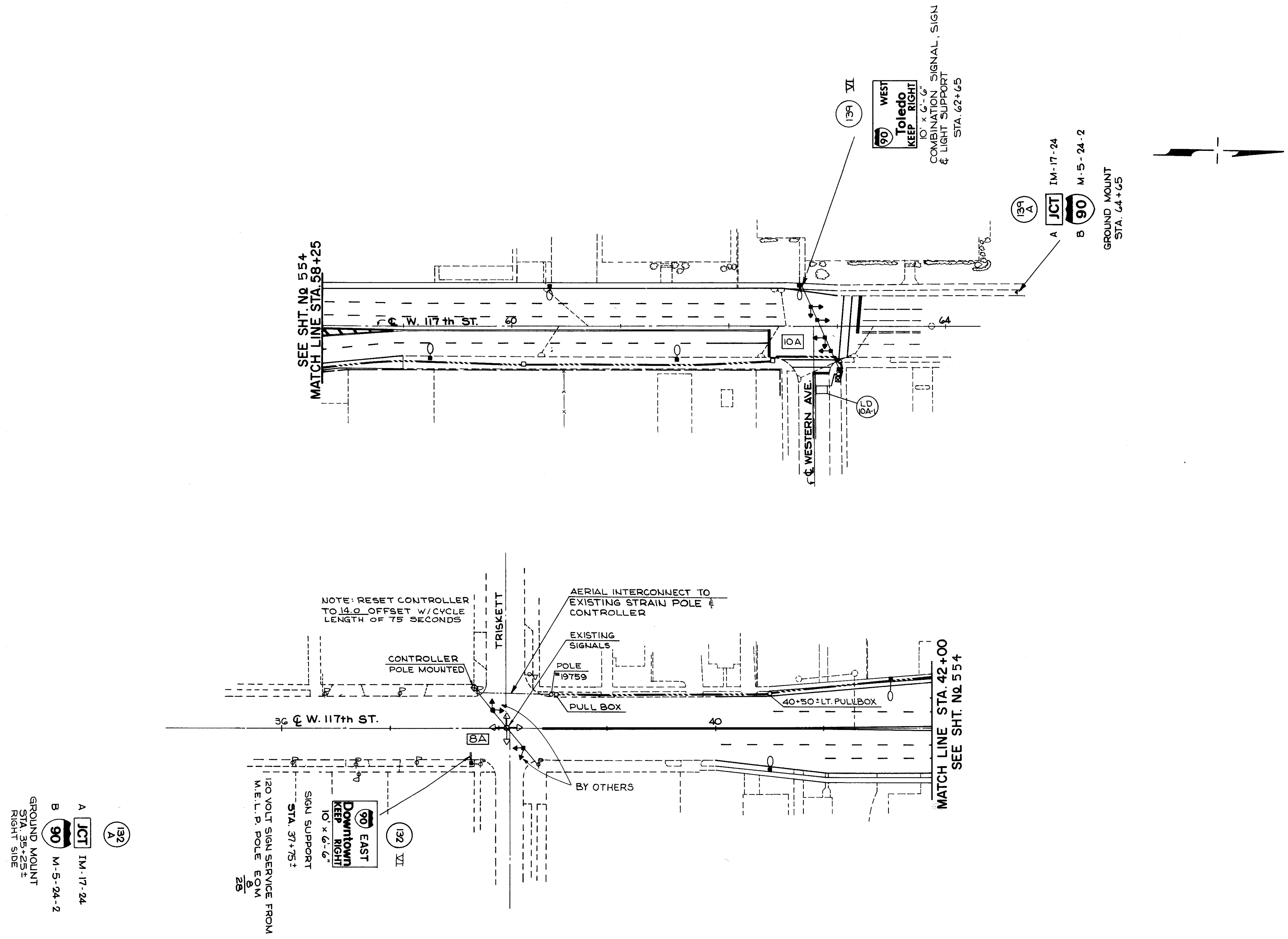
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

GUIDE SIGNS
STA.728+00 TO STA.737+00
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY-90-10.40



GRAPHIC SCALE
0 50 100 150 200

GUIDE SIGNS
W. 117th ST.
STA. 36+00 TO STA. 42+00
STA. 58+25 TO STA. 64+00

TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

556
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

GUIDE SIGNS
STA.737+00 TO STA.752+00
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

GUIDE SIGNS
STA.752+00 TO STA.767+00
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

558
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

GUIDE SIGNS
STA.767+00 TO STA.776+00
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

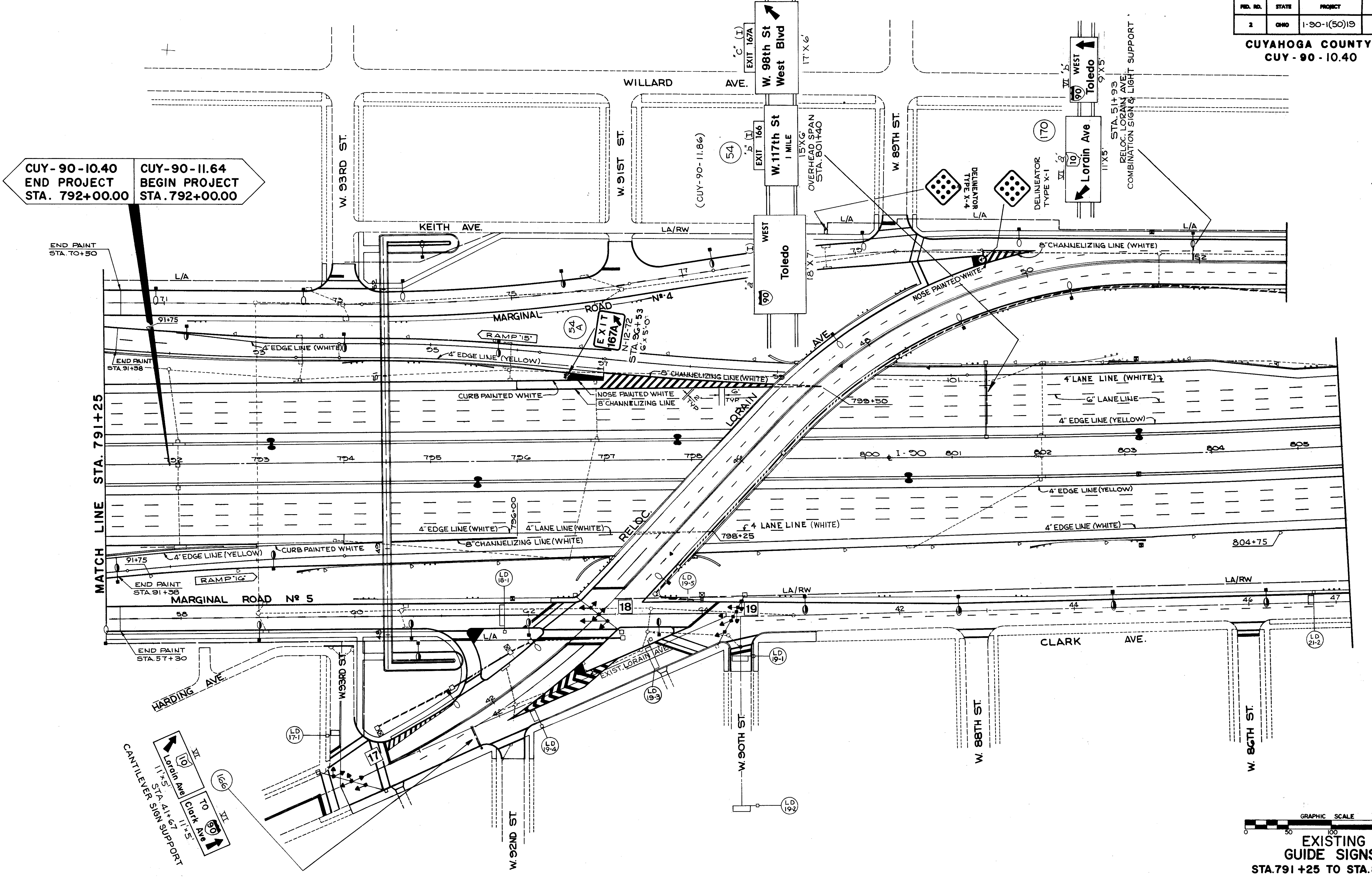
559
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

GUIDE SIGNS
STA.776+00 TO STA.791+25
TRAFFIC CONTROL PLANS

FED. RD. NO.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

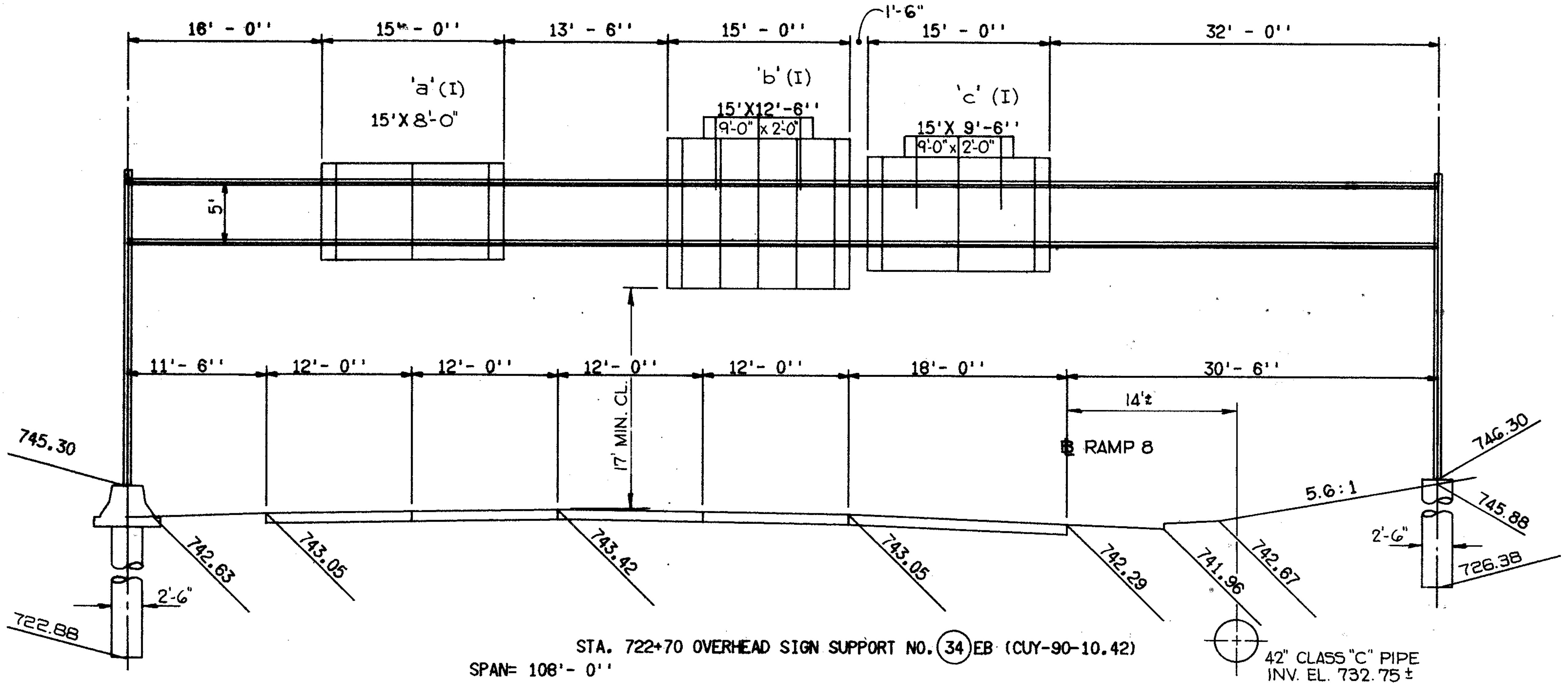


EXISTING
GUIDE SIGNS
STA. 791+25 TO STA. 805+50

TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40



STA. 722+70 OVERHEAD SIGN SUPPORT NO. ㉞ EB (CUY-90-10.42)
SPAN= 108'- 0''

FOR FOUNDATION DETAILS
SEE STANDARD DWG.
Nº 816-20.001

816 NO. 7. 6 DESIGN 4 MOD.

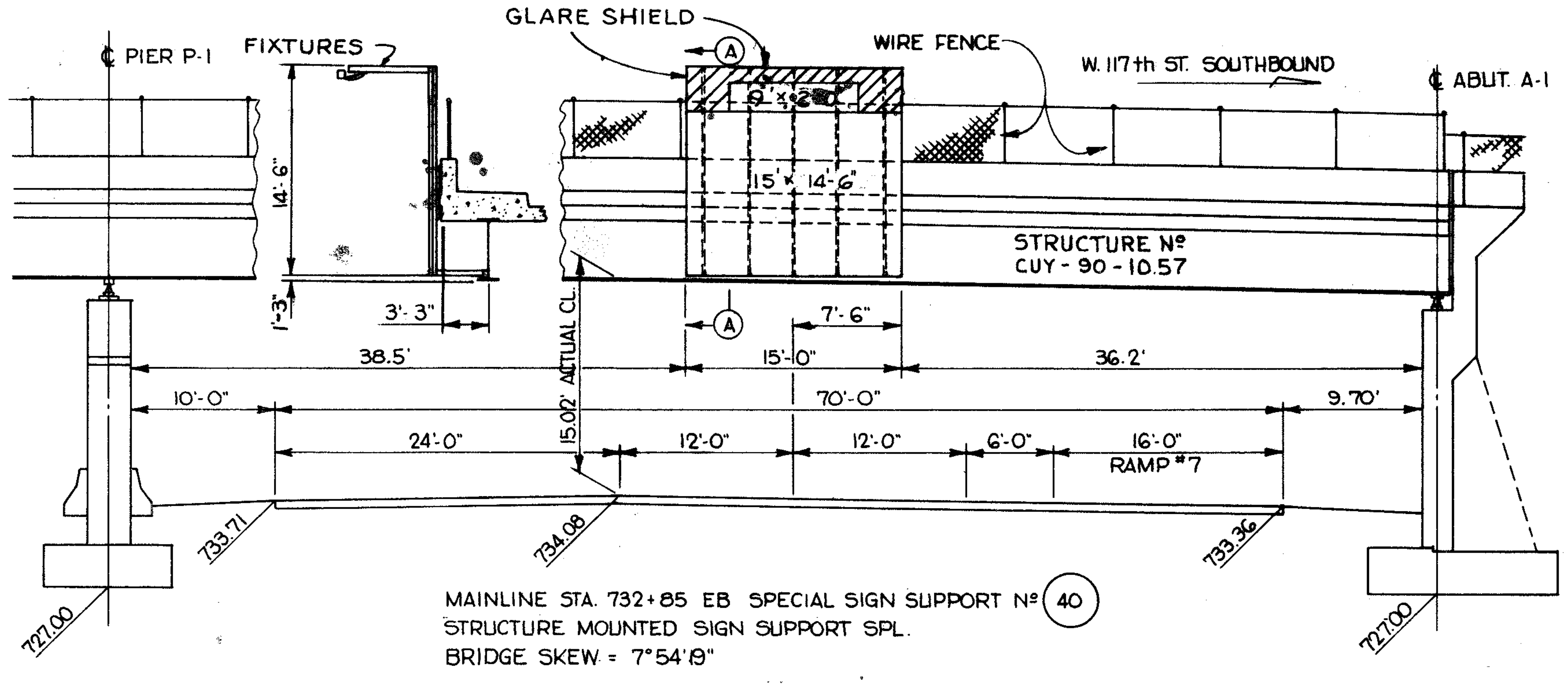
LT. POLE =25'- 0'' RT. POLE = 24'-0"

FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº TC-21.10

'a' (I)
15'X 8'-0''= 120.0 SQ.FT.
SPACING = 14 5/8", 75 3/8", 75 3/8", 14 5/8"
NO. OF BRACKETS = 3, HT. = 8'-0", TYPE "Z"
FIXTURES = 2@ 4'-6", 6'-0", 4'-6" (175 W.)

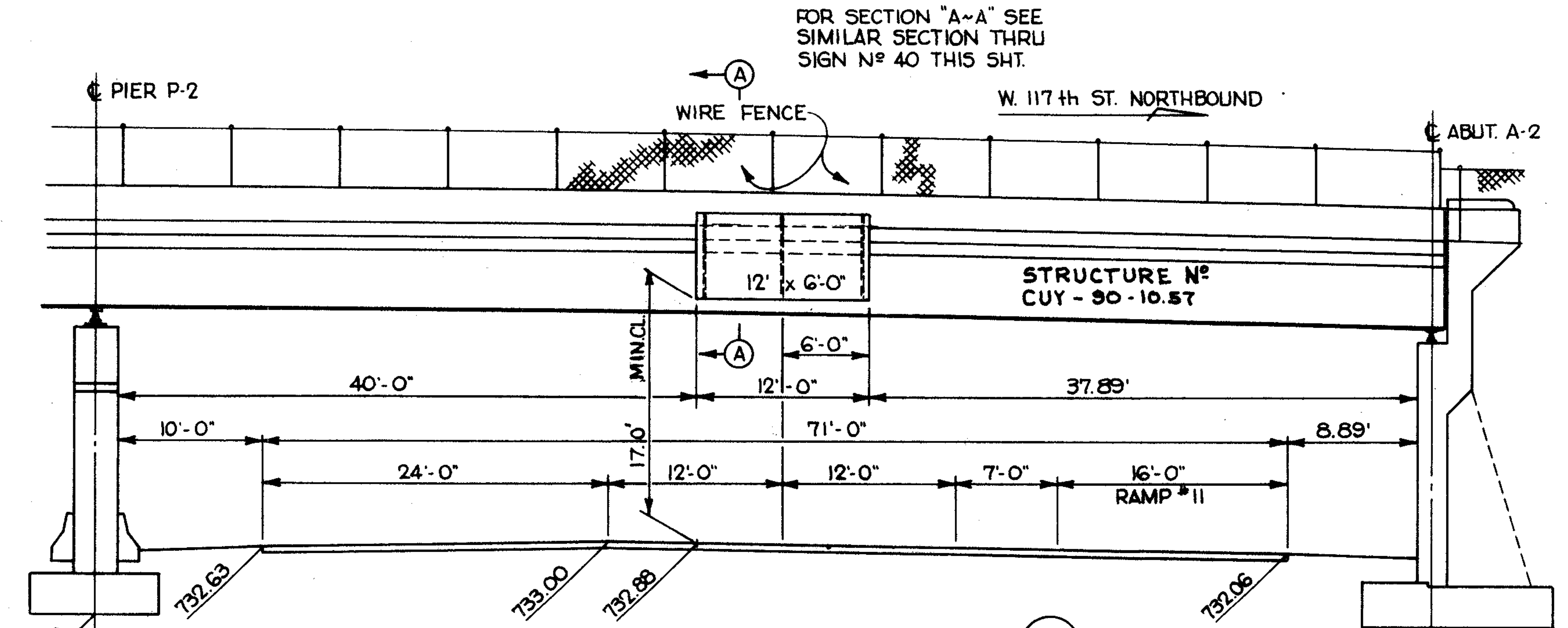
'b' (I)
15'X12'-6''= 187.5 SQ.FT.
+ 9'-0" x 2'-0" = 18.0 SQ. FT. } 205.5 SQ. FT. TOTAL
SPACING=14 5/8'',38'',37 3/8'',38'',37 3/8'',14 5/8'',
NO. OF BRACKETS=5,HT.=12'-6''.
TYPE 'Z'
FIXTURES = 2 @ 4'-6", 6'-0", 4'-6" (250 W.)

'c' (I)
15'X 9'-6''= 142.5 SQ.FT.
+ 9'-0" x 2'-0" = 18.0 SQ. FT. } 160.5 SQ. FT. TOTAL
SPACING=14 5/8'',75 3/8'',75 3/8'',14 5/8'',
NO. OF BRACKETS=3,HT.= 9'-6''
TYPE 'Z'
FIXTURES = 2@ 4'-6", 6'-0", 4'-6" (250W.)



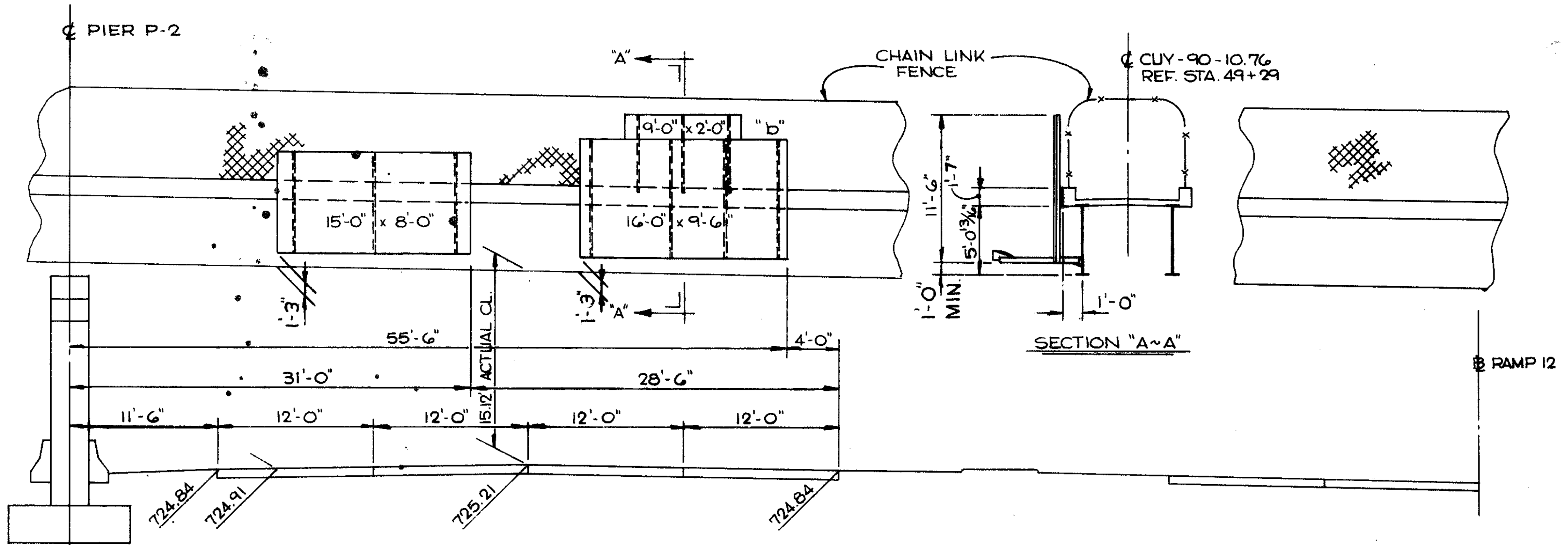
MAINLINE STA. 732+85 EB SPECIAL SIGN SUPPORT Nº ㊵
STRUCTURE MOUNTED SIGN SUPPORT SPL.
BRIDGE SKEW = 7°54'19"

15'-0" x 14'-6" = 217.50 SQ. FT. TOTAL
*9'-0" x 2'-0" = 18.0 SQ.FT. EXIT. PANEL
SPACING = 14 5/8", 38", 37 3/8, 38", 37 3/8", 14 5/8"
Nº OF BRACKETS = 5, HT. = 14'-6", TYPE "Z"
FIXTURES = 2@ 4'-6", 6'-0", 4'-6" (250 W.)



MAINLINE STA. 734+00 WB SPECIAL SIGN SUPPORT Nº ㊶
STRUCTURE MOUNTED SIGN SUPPORT SPL.
BRIDGE SKEW = 7° 54' 19"

12'-0" x 6'-0" = 72.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3, HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3'-0", 6'-0", 3'-0" (100 W.)



STA. 743+60 WB SPECIAL SIGN SUPPORT Nº ㊷
STRUCTURE MOUNTED SIGN SUPPORT SPL.
BRIDGE SKEW = NONE

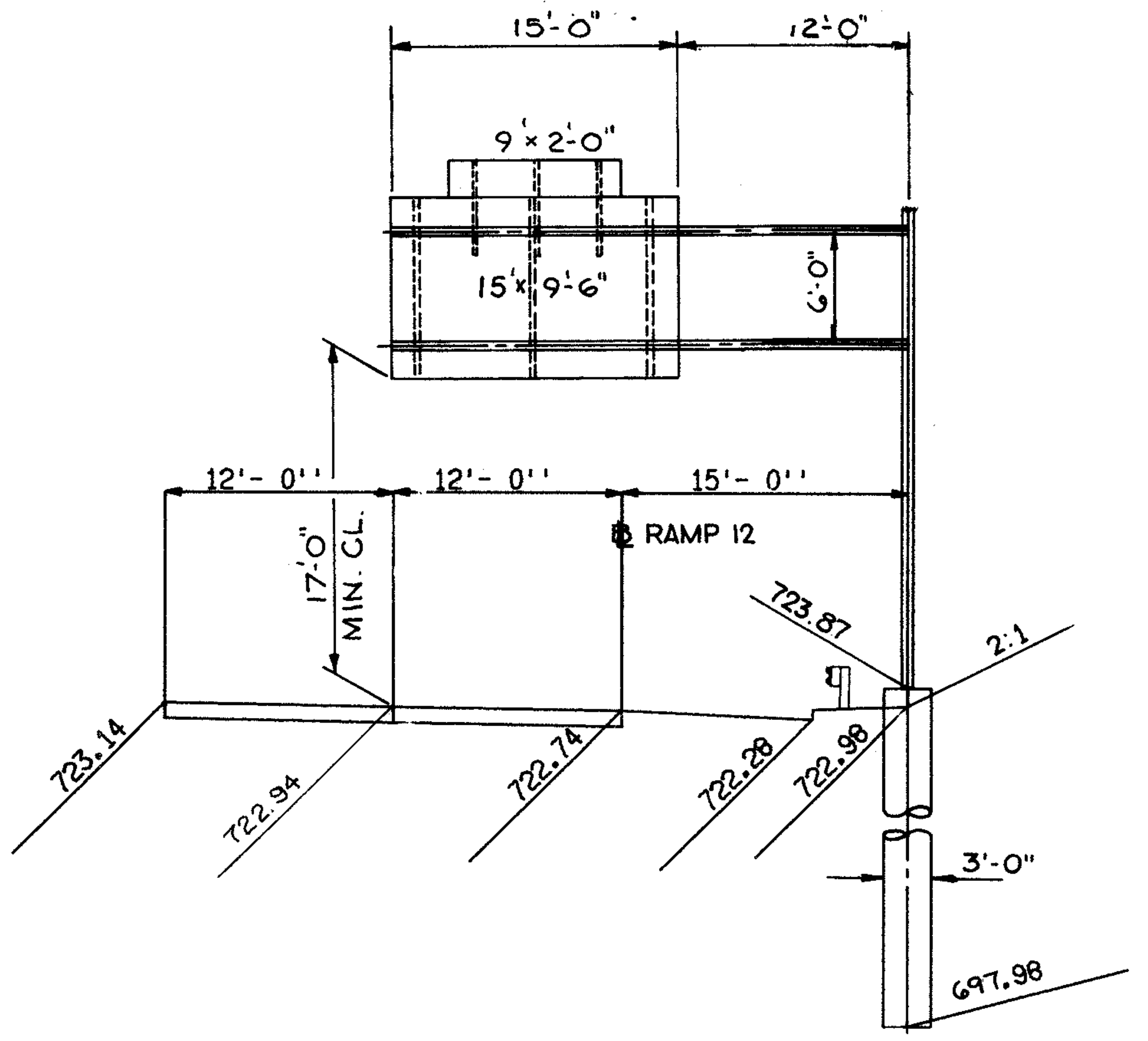
"a"
15'-0" x 8'-0" = 120.0 SQ. FT.
SPACING = 14 5/8", 75 3/8, 75 3/8", 14 5/8"
Nº OF BRACKETS = 3, HT. = 8'-0", TYPE "Z"
FIXTURES = 2@ 4'-6", 6'-0", 4'-6" (175 W.)

"b"
16'-0" x 9'-6" = 152.0 SQ. FT.
+ 9'-0" x 2'-0" = 18.0 SQ. FT. } 170.0 SQ. FT. TOTAL
SPACING = 8 5/8", 75 3/8", 50", 49 3/8", 8 5/8"
Nº OF BRACKETS = 4, HT. = 9'-6",
TYPE "Z"
FIXTURES = 2 @ 4'-0", 8'-0", 4'-0" (250W.)

GUIDE SIGN DETAILS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40



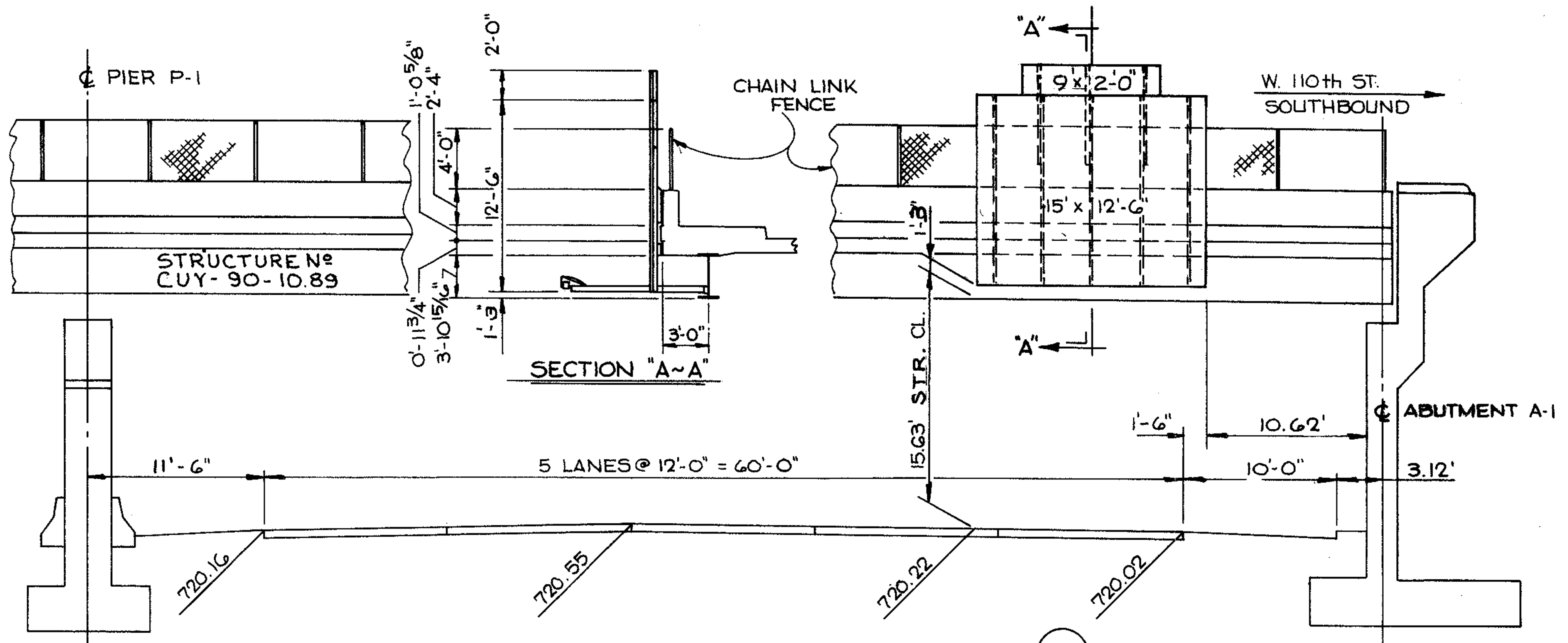
IN LIEU OF REINFORCING SHOWN ON STANDARD DWG. Nº 816-20.001, THE NUMBER OF REINFORCING BARS SHALL BE 8-#8

STA 46+00 RAMP 12 OVERHEAD SIGN SUPPORT NO. (42A) (CUY-90-10.81) WB

T'C-NO. 12.30 DESIGN 8

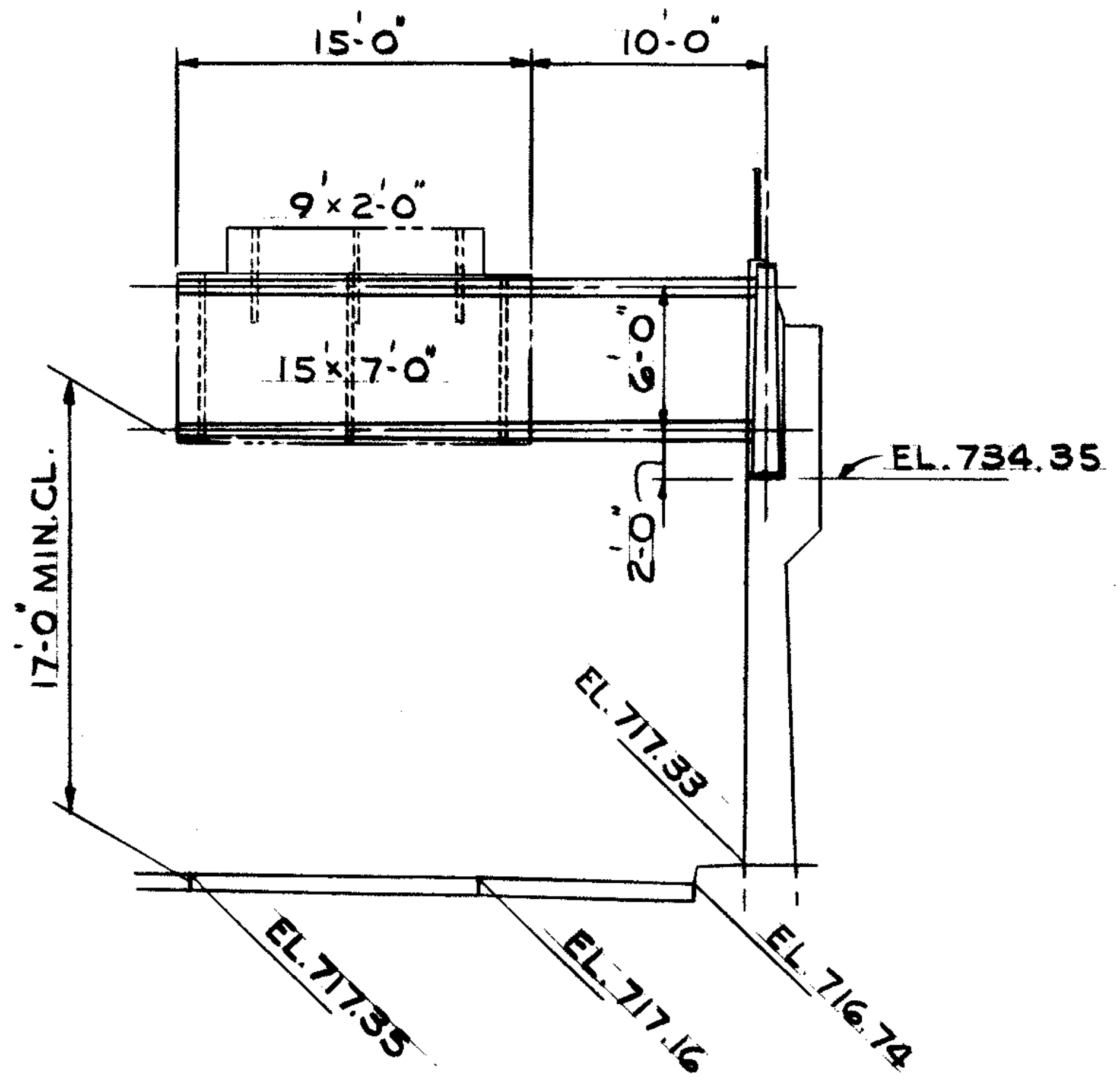
ARMS=27'- 0'' POLE= 26'- 0''

15'X 9'-6''= 142.5 SQ.FT.
9' X 2'-0" = 18.0 SQ. FT. } 160.5 SQ. FT. TOTAL
SPACING=14 5/8'',75 3/8'',75 3/8'',14 5/8'',
NO. OF BRACKETS=3, HT.= 9'-5''.
TYPE "Z"
FIXTURES = 2@4'-6", 6'-0", 4'-6" (250W.)



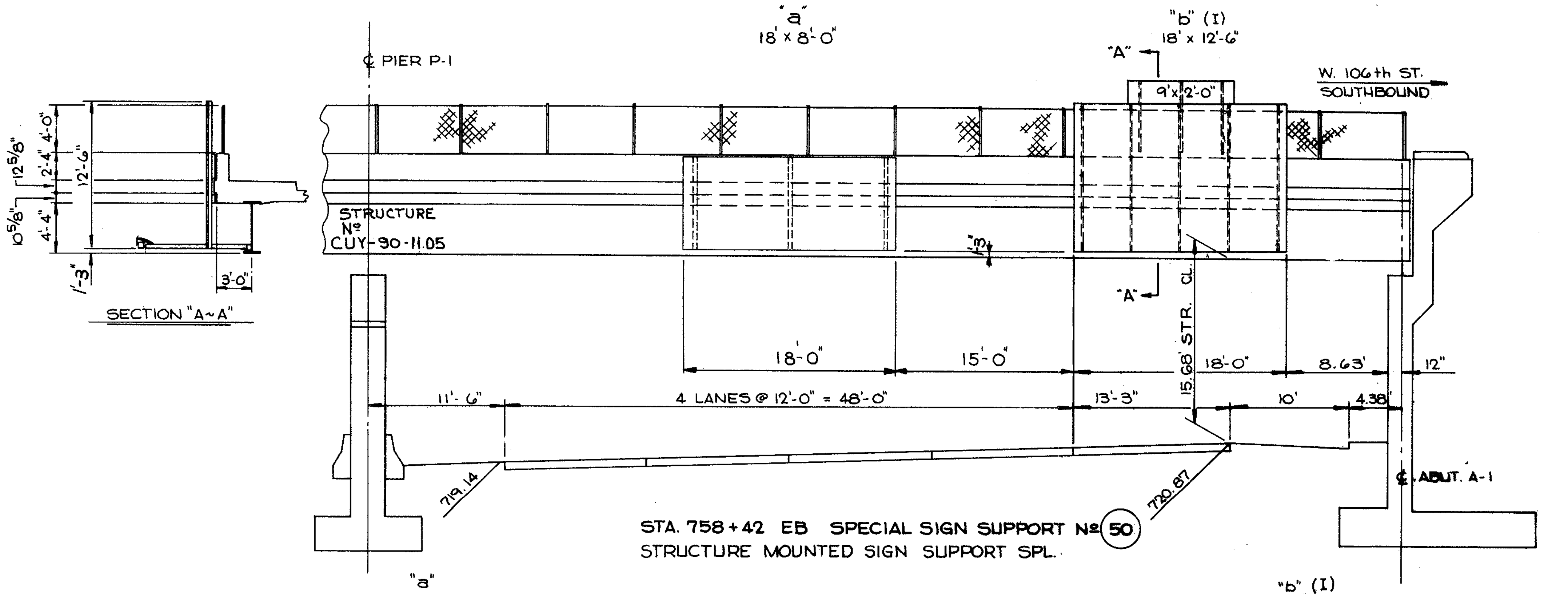
STA. 750+15 EB SPECIAL SIGN SUPPORT Nº (43)
STRUCTURE MOUNTED SIGN SUPPORT SPL.

15'x 12'-6" = 187.5' SQ. FT.
+ 9'x 2'-0" = 18.0 SQ. FT. } 205.5 SQ. FT. TOTAL
SPACING = 14 5/8", 38", 37 3/8", 38", 37 3/8, 14 5/8"
Nº OF BRACKETS = 5, HT. = 12'-6",
TYPE "Z"
FIXTURES = 2@ 4'-6", 6'-0", 4'-6" (250 W.)
BRIDGE SKEW = 6° 59' 37"



STA. 753+71.25 WB SPECIAL SIGN SUPPORT NO. (45)
TC-NO. 12.30 DESIGN 5 MOD.
ARMS = 25'-0" POLE = 9'-0"

15'-0" x 7'-0" = 105.0 SQ. FT.
9'-0" x 2'-0" = 18.0 SQ. FT. } 123.0 SQ. FT. TOTAL
SPACING = 14 5/8", 75 3/8", 75 3/8", 14 5/8"
NO. OF BRACKETS = 3, HT. = 7'-0" TYPE "Z"
FIXTURES = 2@4'-6", 6'-0", 4'-6" (175 W)



STA. 758+42 EB SPECIAL SIGN SUPPORT Nº (50)
STRUCTURE MOUNTED SIGN SUPPORT SPL.

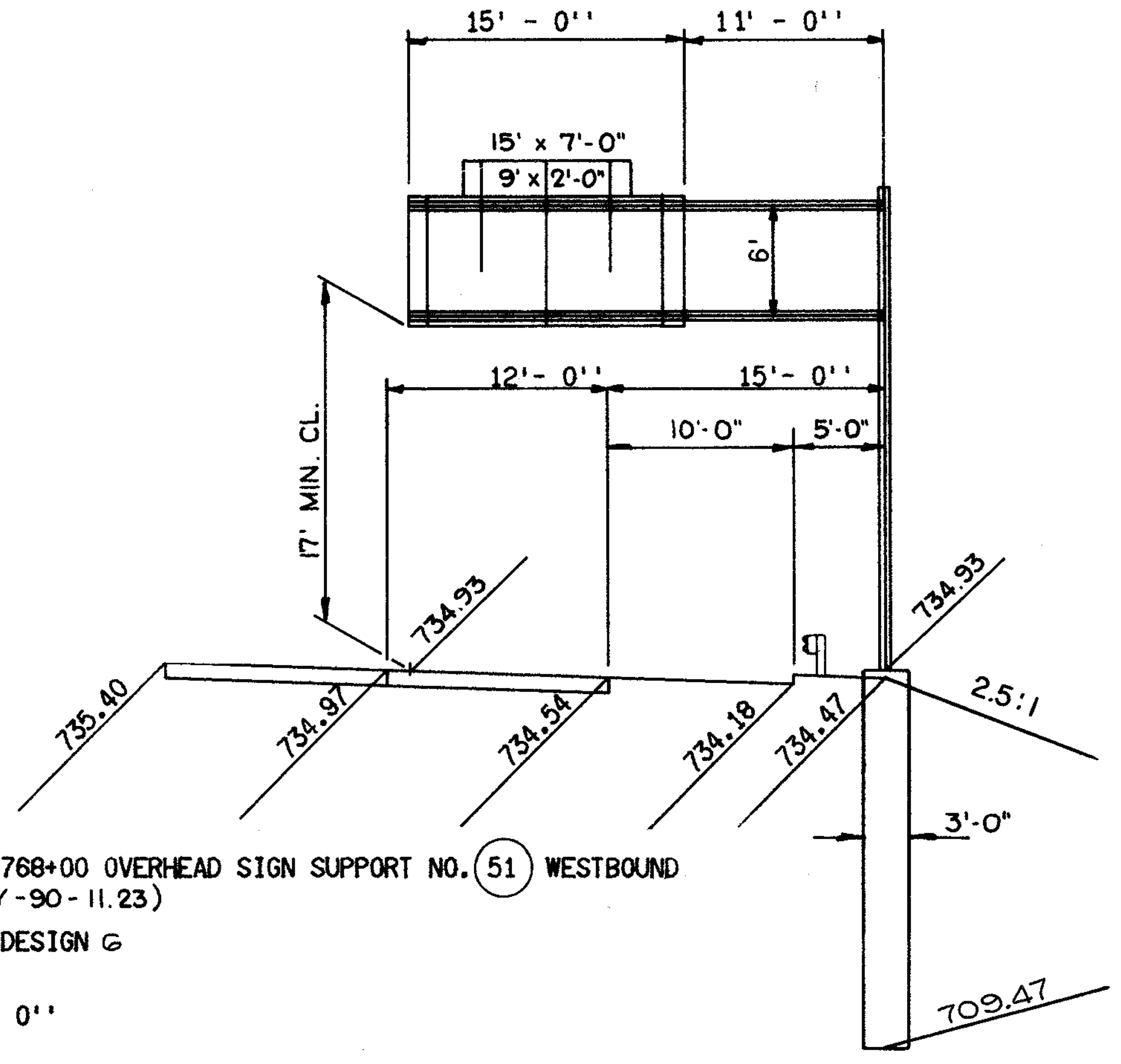
"a"
18' x 8'-0" = 144.0 SQ. FT.
SPACING = 8 5/8", 99 3/8", 99 3/8", 8 5/8"
Nº OF BRACKETS = 3, HT. = 8'-0", TYPE "Z"
FIXTURES = 2 @ 4'-0", 10'-0", 4'-0". (175 W)
BRIDGE SKEW = 9° 16' 41"

"b" (I)
18' x 12'-6" = 225.0 SQ. FT.
9' x 2'-0" = 18.0 SQ. FT. } 243.0 SQ. FT. TOTAL
SPACING = 8 5/8", 50", 49 3/8", 50", 49 3/8, 8 5/8"
Nº OF BRACKETS = 5, HT. = 12'-6",
TYPE "Z"
FIXTURES = 2 @ 4'-0", 10'-0", 4'-0" (250 W.)
BRIDGE SKEW = 9° 16' 41"

GUIDE SIGN DETAILS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40



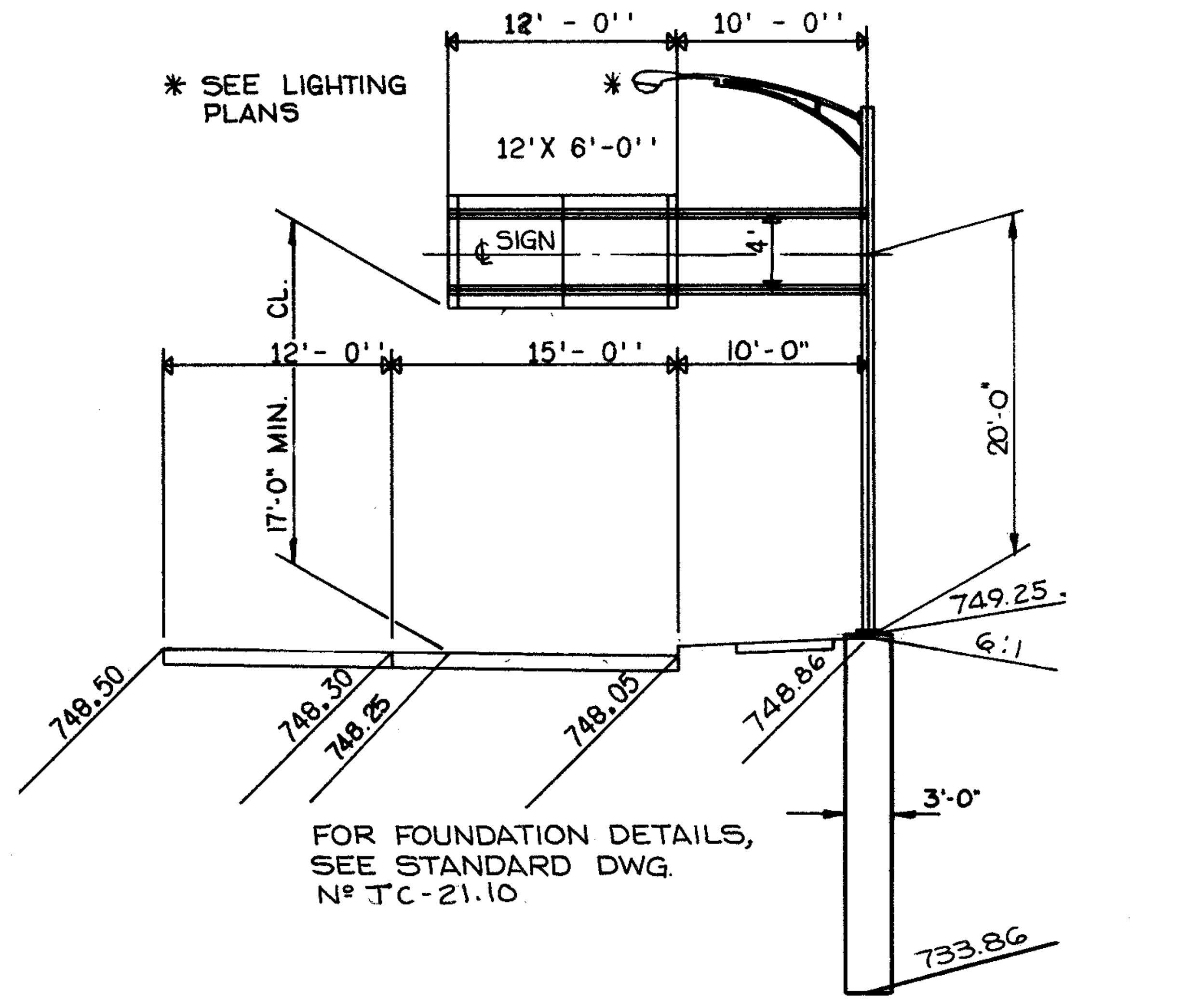
STA 768+00 OVERHEAD SIGN SUPPORT NO. (51) WESTBOUND
(CUY -90 - 11.23)

TC- NO. 12.30 DESIGN 6

ARMS=26'- 0''

15' x 7'-0" = 105.0 SQ. FT.
+ 9' x 2'-0" = 18.0 SQ. FT. } 123.0 SQ. FT. TOTAL
SPACING = 14 5/8", 75 3/8", 75 3/8", 14 5/8"
Nº OF BRACKETS = 3, HT. = 7'-0", TYPE "Z"
FIXTURES = 2@ 4'-6", 6'-0", 4'-6" (175 W)

IN LIEU OF REINFORCING SHOWN ON STANDARD DWG. TC-21.10 , THE NUMBER REINFORCING BARS SHALL BE 10-#9

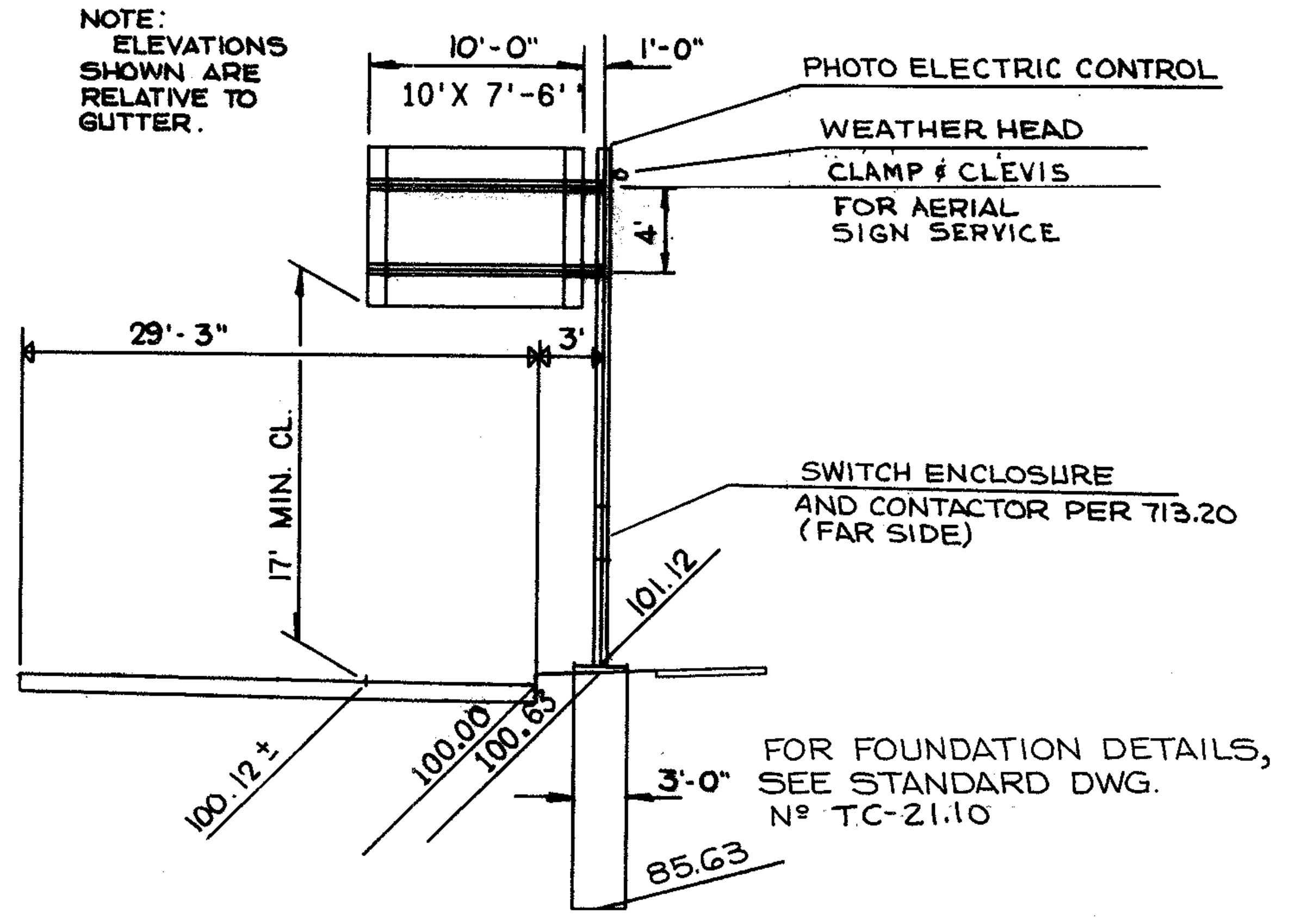


FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº TC-21.10

W. 117 th ST. STA. 45+70 SOUTHBOUND COMB. SIGN & LIGHT SUPPORT Nº (130)
TC-Nº 12.30 DESIGN 3 (MOD.)
ARMS = 22'-0" POLE = 30'-0"

12' x 6'-0" = 72.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3, HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3', 6', 3' (100W.)

NOTE:
ELEVATIONS SHOWN ARE RELATIVE TO GUTTER.



FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº TC-21.10

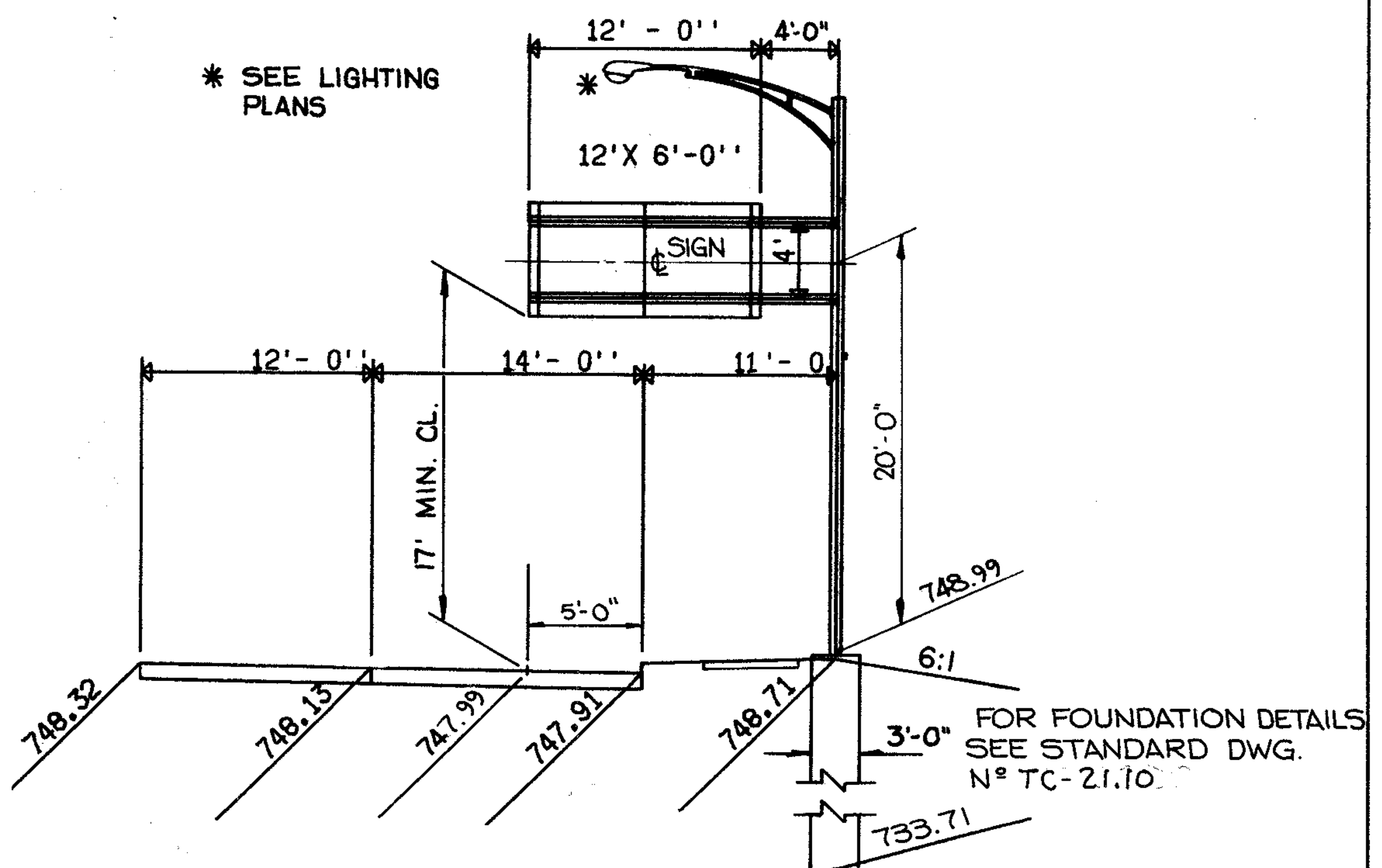
W. 117 th ST. STA. 37+75± CANTILEVER SIGN SUPPORT Nº (132)
NORTHBOUND
TC-Nº 12.30 DESIGN 1
ARMS = 11'-0"

10' x 7'-6" = 75.0 SQ. FT.
SPACING = 10 3/8", 99 3/8", 10 1/4"
Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"
FIXTURES = 1@ 5'-0", 5'-0" (120 VOLT, 175 W.)

GUIDE SIGN DETAILS

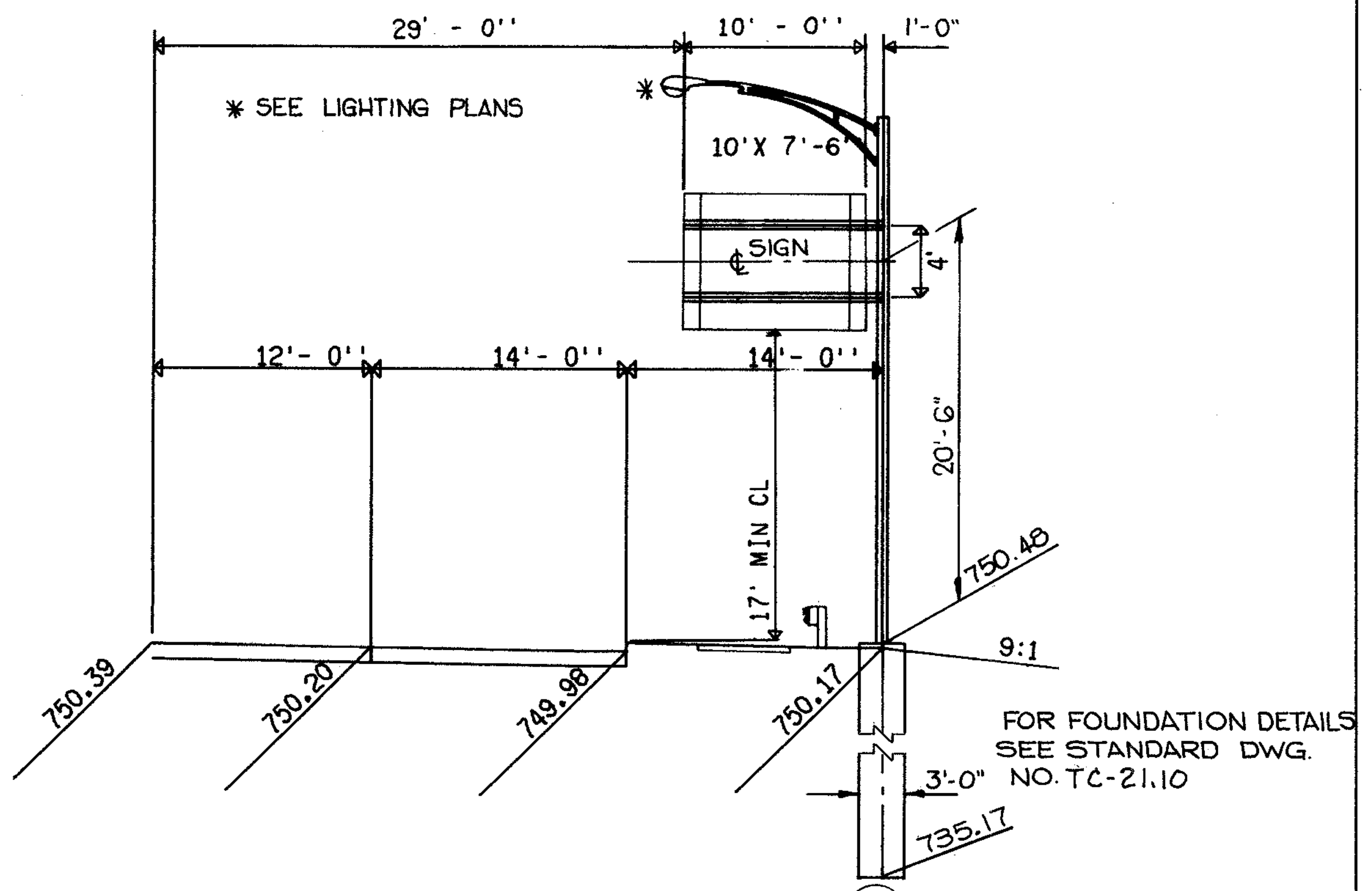
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

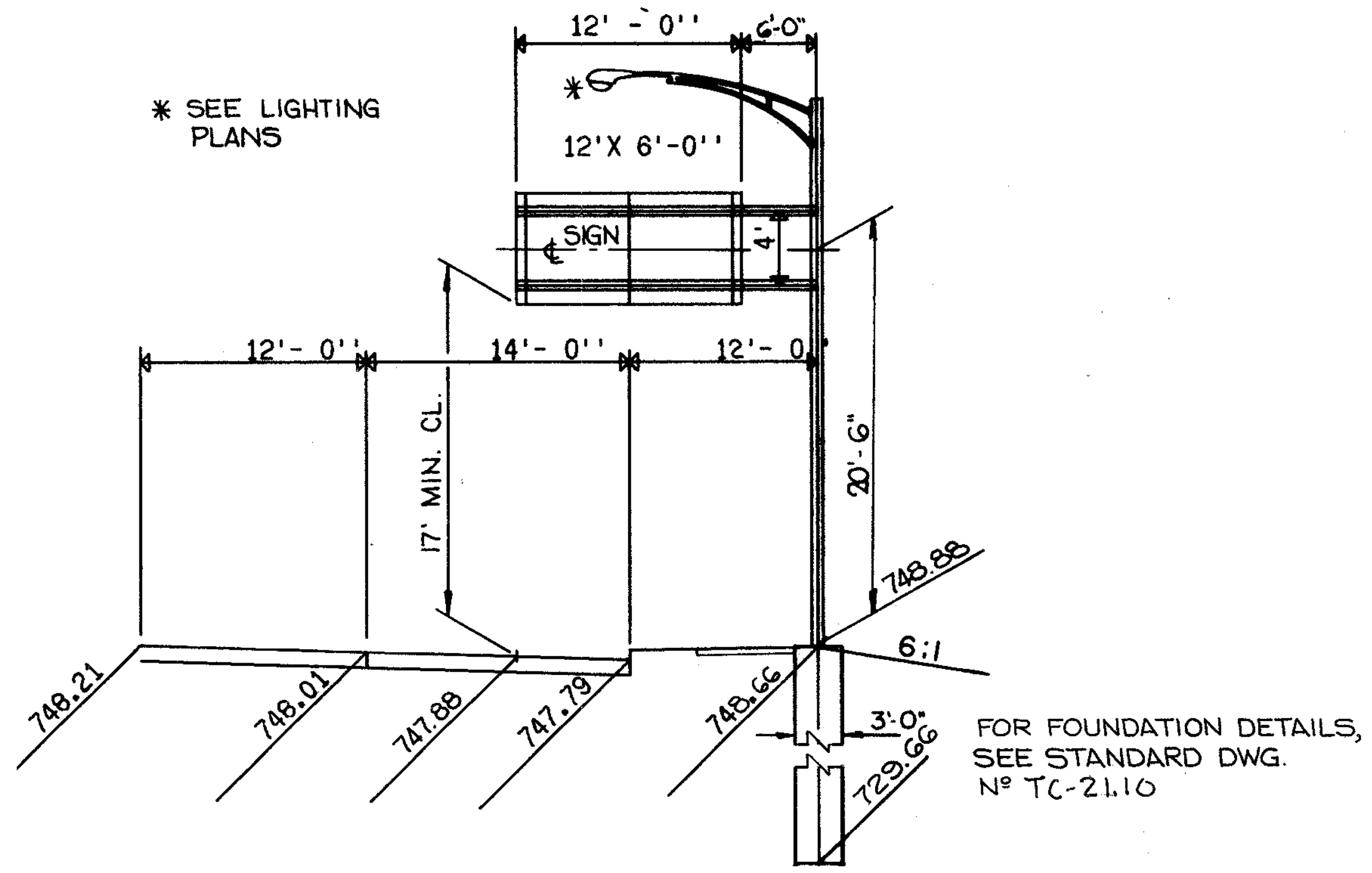


W. 117 th ST. STA. 42+50 NORTHBOUND COMB. SIGN & LIGHT SUPPORT Nº (133)
TC-Nº 12.30 DESIGN 1 (MOD.)
POLE = 30'-0" ARMS = 16'-0"

12' x 6'-0" = 72.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3, HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3', 6', 3' (100 W.)

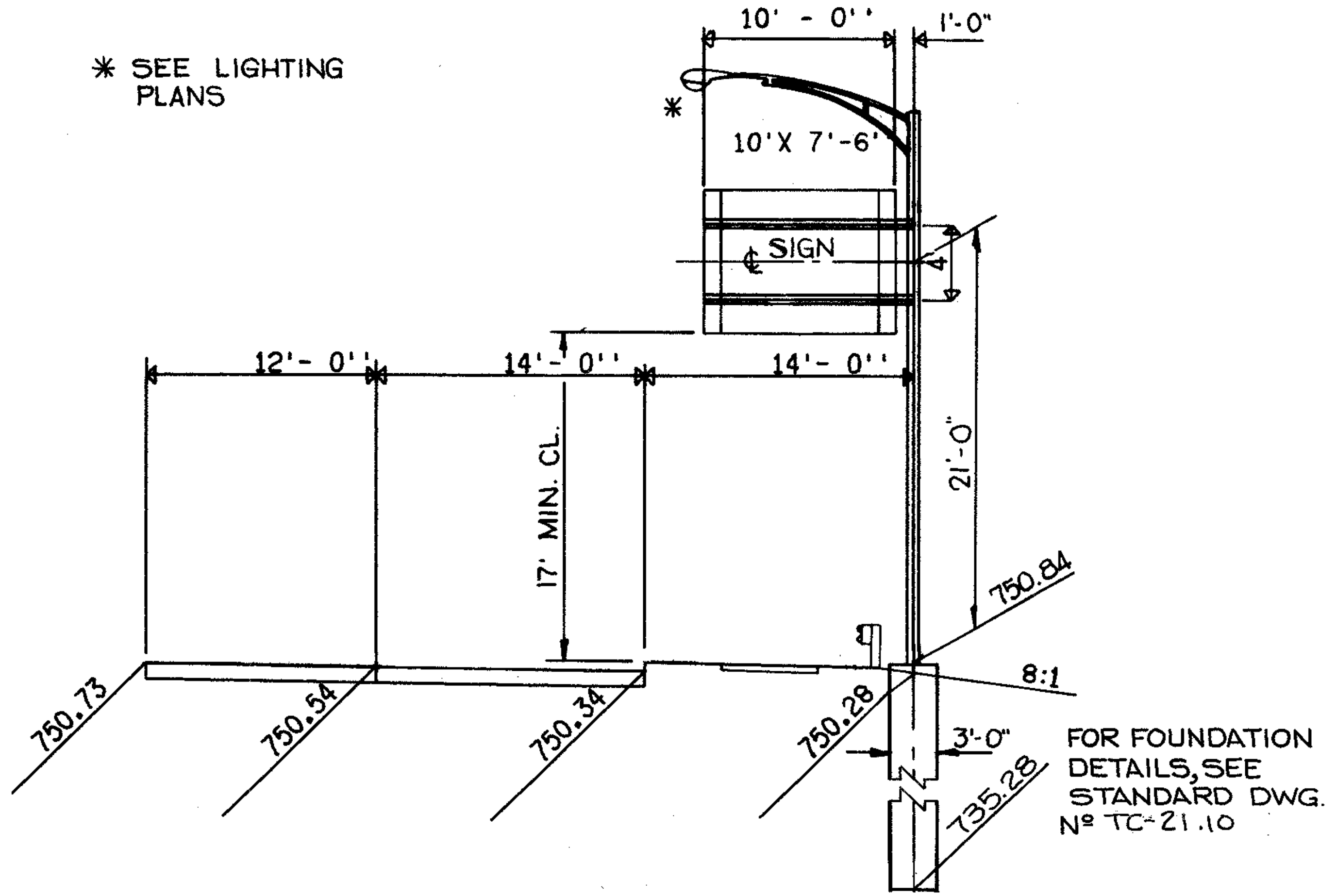


W. 117 th ST. STA. 46+50 NORTHBOUND COMB. SIGN & LIGHT SUPPORT Nº (134)
TC-Nº 12.30 DESIGN 1 (MOD.)
ARMS = 11'-0" POLE = 30'-0"
10' x 7'-6" = 75.0 SQ. FT.
SPACING = 10⅜", 99⅜", 10¼"
Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"
FIXTURES = 1@ 5'-0", 5'-0" (175 W.)



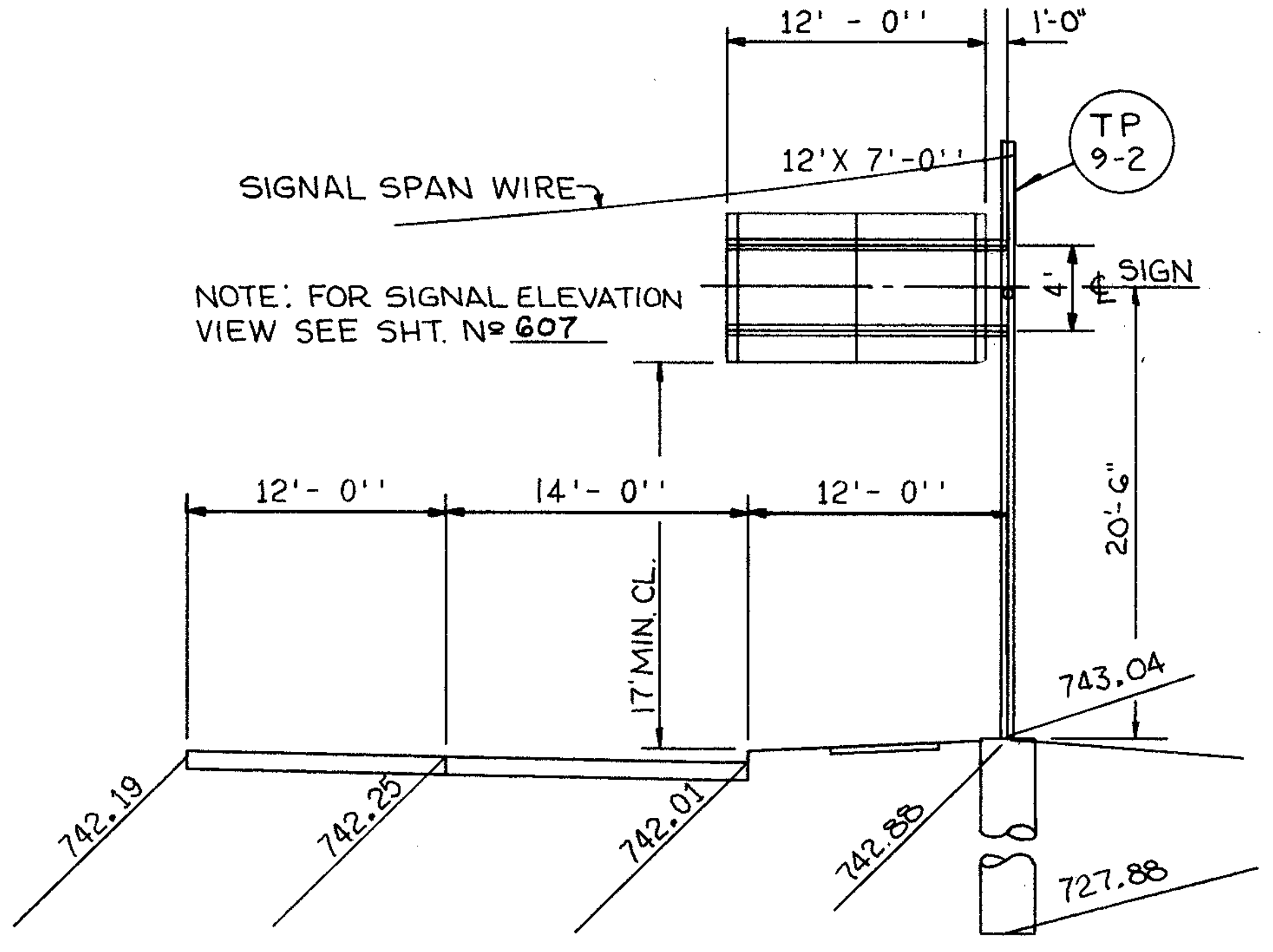
W. 117 th ST. STA. 52+25 NORTHBOUND COMB. SIGN & LIGHT SUPPORT Nº (136)
TC-Nº 12.30 DESIGN 1 (MOD.)
POLE = 30'-0" ARMS = 18'-0"

12' x 6'-0" = 72.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3, HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3', 6', 3' (100 W.)



W. 117th ST. STA. 51+50 SOUTHBOUND COMB. SIGN & LIGHT SUPPORT Nº (137)
TC- Nº 12.30 DESIGN 1 (MOD.)
ARMS = 11'-0" POLE = 30'-0"

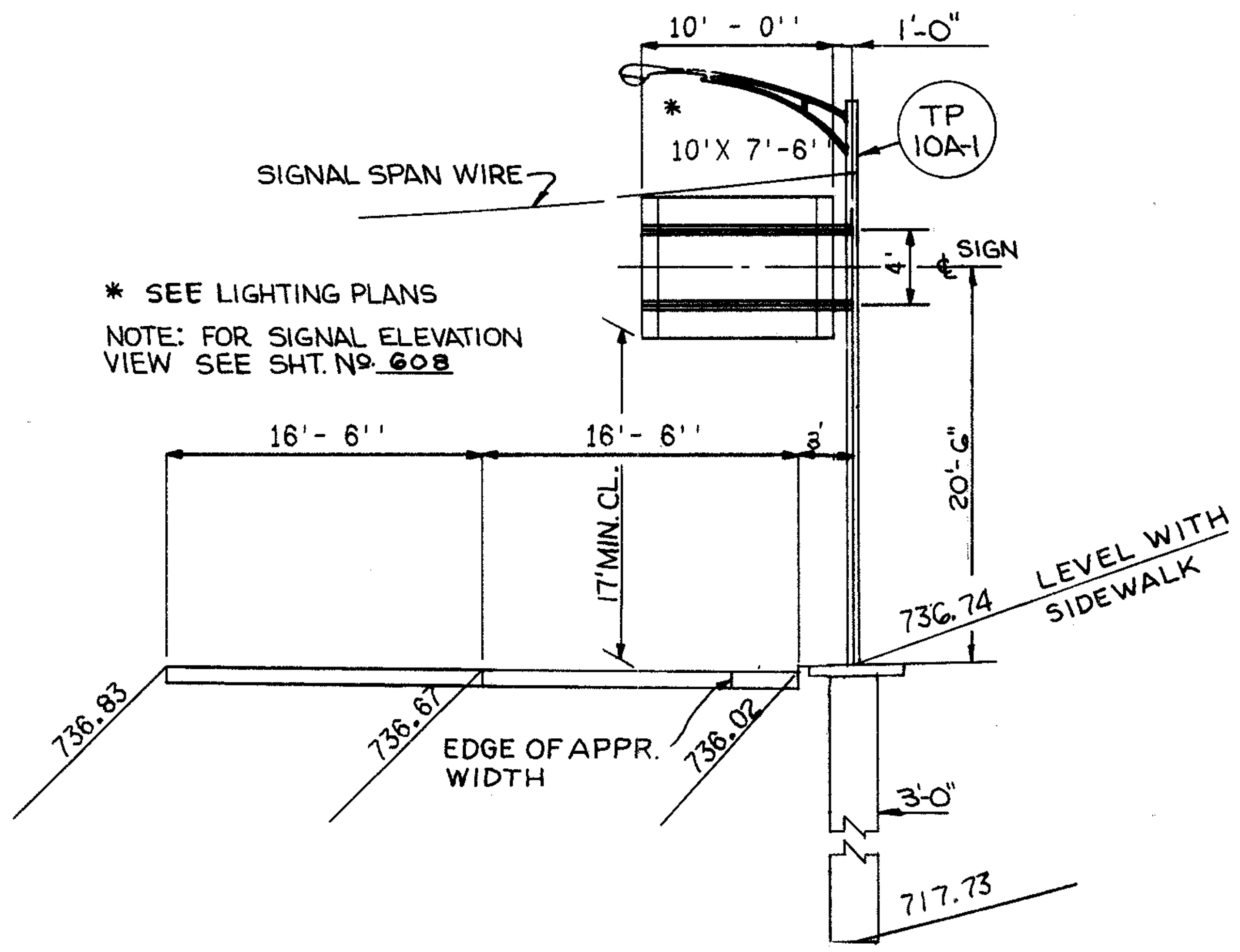
10' x 7'-6" = 75.0 SQ. FT.
SPACING = 10⅜", 99⅜", 10¼"
Nº OF BRACKETS = 2, HT. = 7-6", TYPE "Z"
FIXTURES = 1@ 5', 5' (175 W.)



W. 117TH ST. STA 53+90 SB COMB. SIGNAL AND SIGN SUPPORT NO. (138)

POLE = 27'-6" ARMS = 13'-0" (SEE TC-Nº 12.30 DESIGN 1)

12' x 7-0" = 84.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3, HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3', 6', 3' (175 W.)



W. 117TH ST. STA. 62+65 SB COMB. SIGNAL, SIGN AND LIGHT SUPPORT NO. (139)

POLE = 30'-0" ARMS = 11'-0" (SEE TC-Nº 12.30 DESIGN 1)

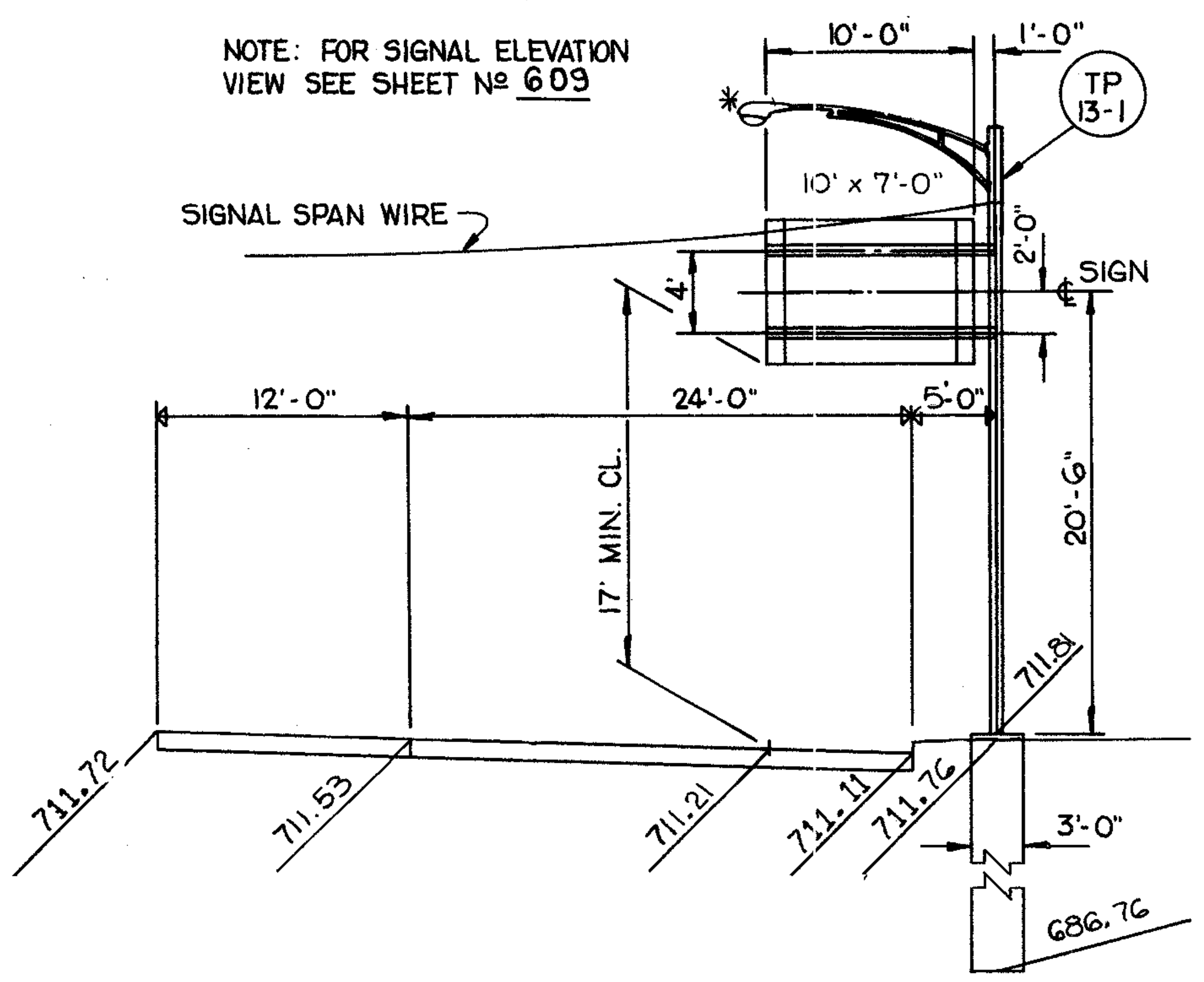
10' x 7'-6" = 75.0 SQ. FT.
SPACING = 10⅜", 99⅜", 10¼"
Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"
FIXTURES = 1@ 5', 5' (175 W.)

GUIDE SIGN DETAILS

FORM D D A-8

✱ SEE LIGHTING PLANS

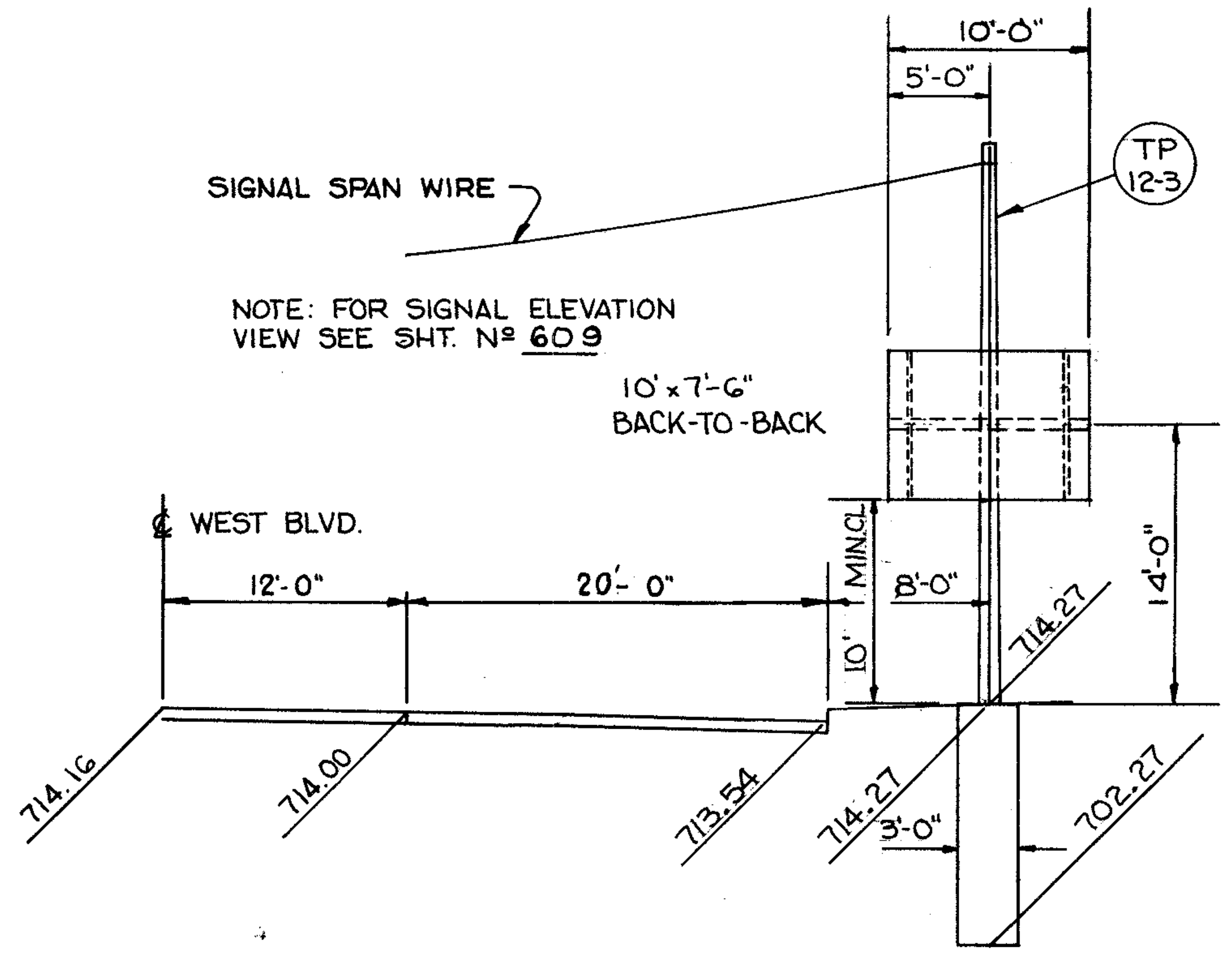
NOTE: FOR SIGNAL ELEVATION VIEW SEE SHEET Nº 609



WEST BLVD. STA. 49+59 SB COMB. SIGNAL, SIGN & LIGHT SUPPORT Nº (145)

POLE = 30'-0" ARMS = 11'-0" (SEE TC- Nº 12.30 DESIGN 1)

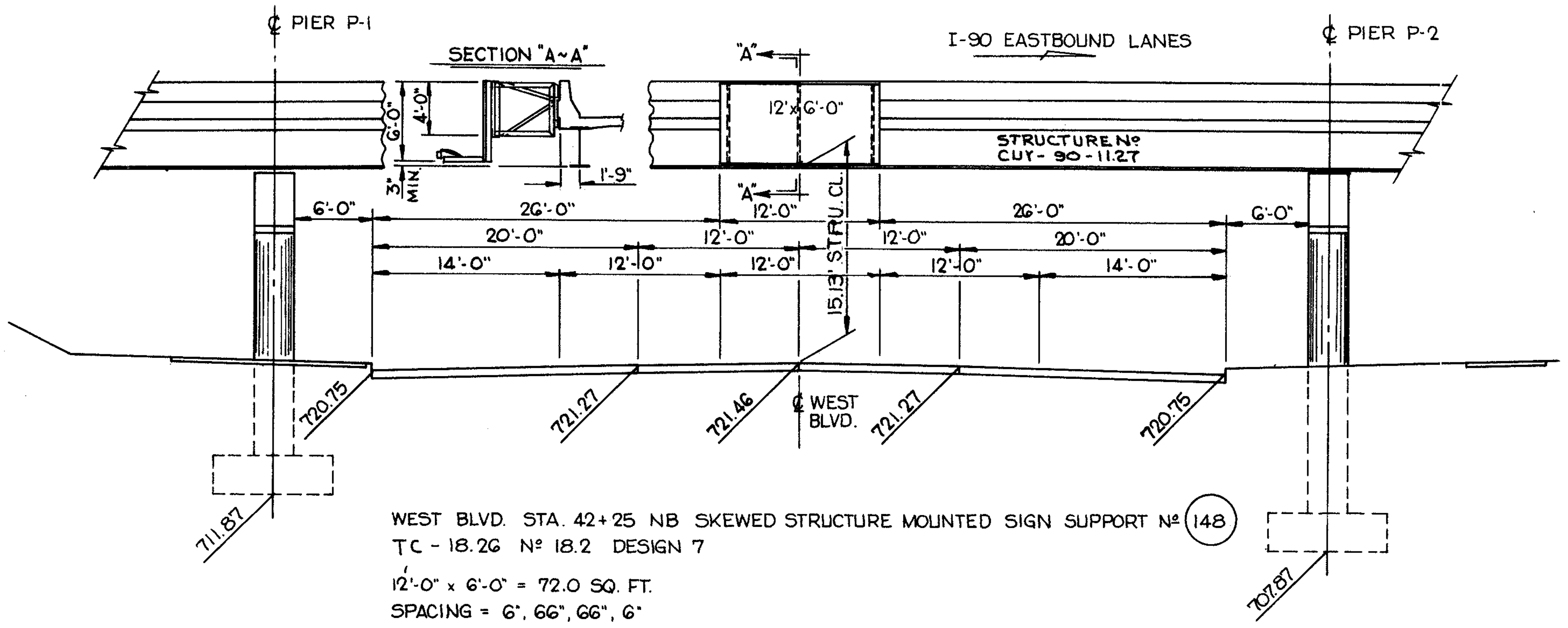
10' x 7'-0" = 70.0 SQ. FT.
SPACING = 10 3/8", 99 3/8, 10 1/4"
Nº OF BRACKETS = 2, HT. = 7'-0", TYPE "Z"
FIXTURES = 1@ 5', 5' (175 W.)



WEST BLVD. STA. 45+51 S.B. COMB. SIGNAL & SIGN SUPPORT Nº (147)
POLE = 28'-0" ARMS = 4" SCH. 80 GRADE "A" x 10'-0"~ 2 REQ.D
(SEE 816 Nº 9.12 DESIGN 2)

"a"	"b"
10' x 7'-6" = 75.0 SQ. FT.	10'x7'-6" = 75.0 SQ.FT.
SPACING = 10 3/8, 99 3/8, 10 1/4"	SPACING = 10 3/8, 99 3/8, 10 1/4"
Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"	Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"
FIXTURES = 1@ 5', 5' (175 W.)	FIXTURES = 1@ 5', 5' (175W.)

NOTE: FRAME Nº 2 SHOWN IN SECTION, FOR FRAME Nº'S 1 & 3 SEE STD. DWGS.



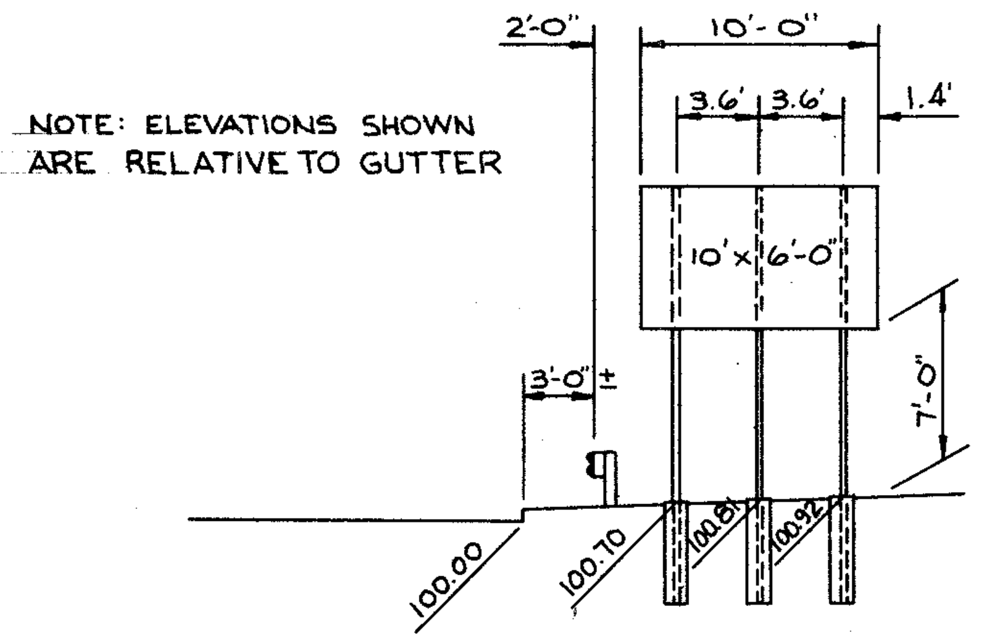
WEST BLVD. STA. 42+25 NB SKEWED STRUCTURE MOUNTED SIGN SUPPORT Nº (148)
TC - 18.26 Nº 18.2 DESIGN 7

12'-0" x 6'-0" = 72.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3, HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3'-0", 6'-0", 3'-0" (100 W.)
BRIDGE SKEW = 25° 28' 28"
SIGN SKEW = 0° 28' 28"

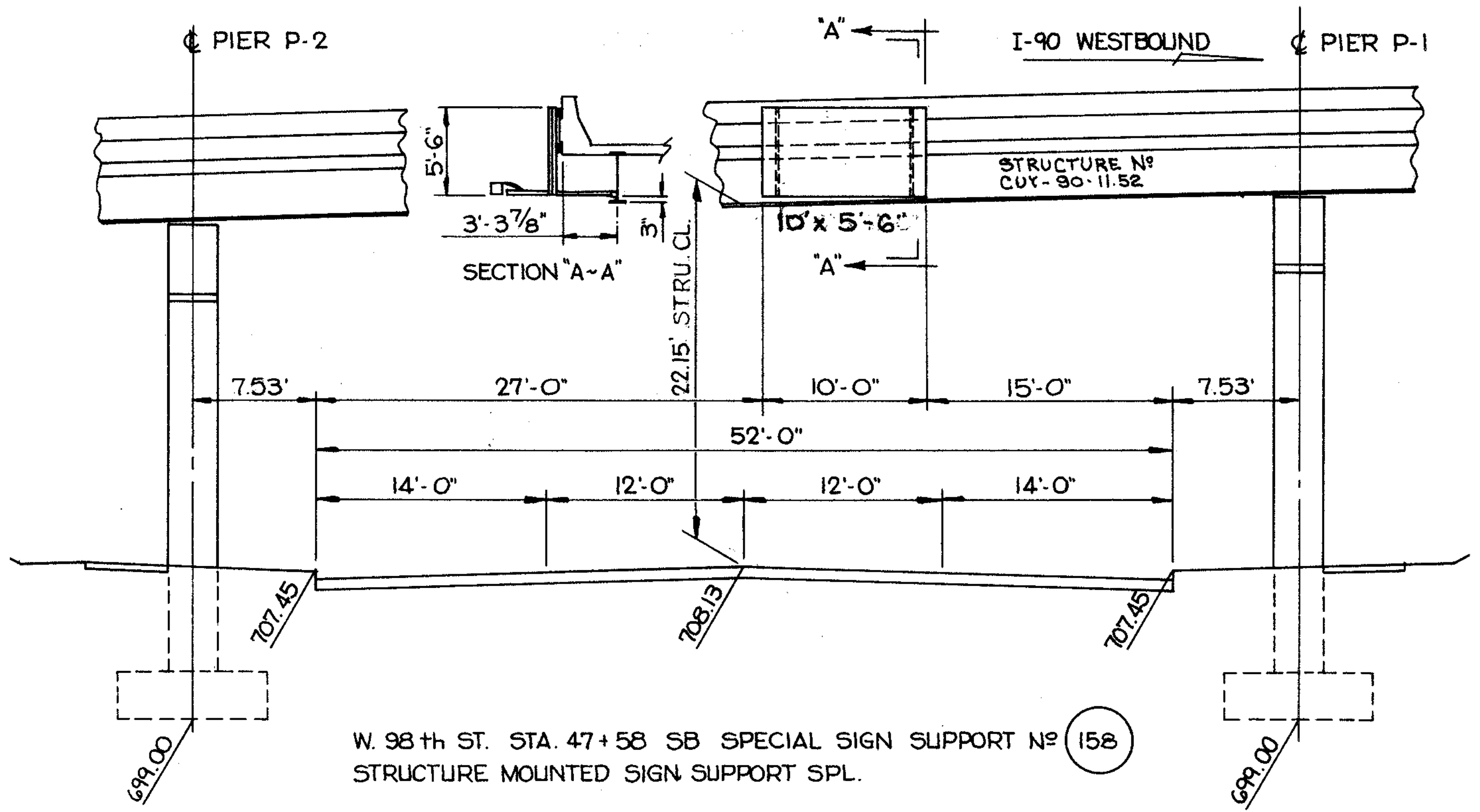
GUIDE SIGN DETAILS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

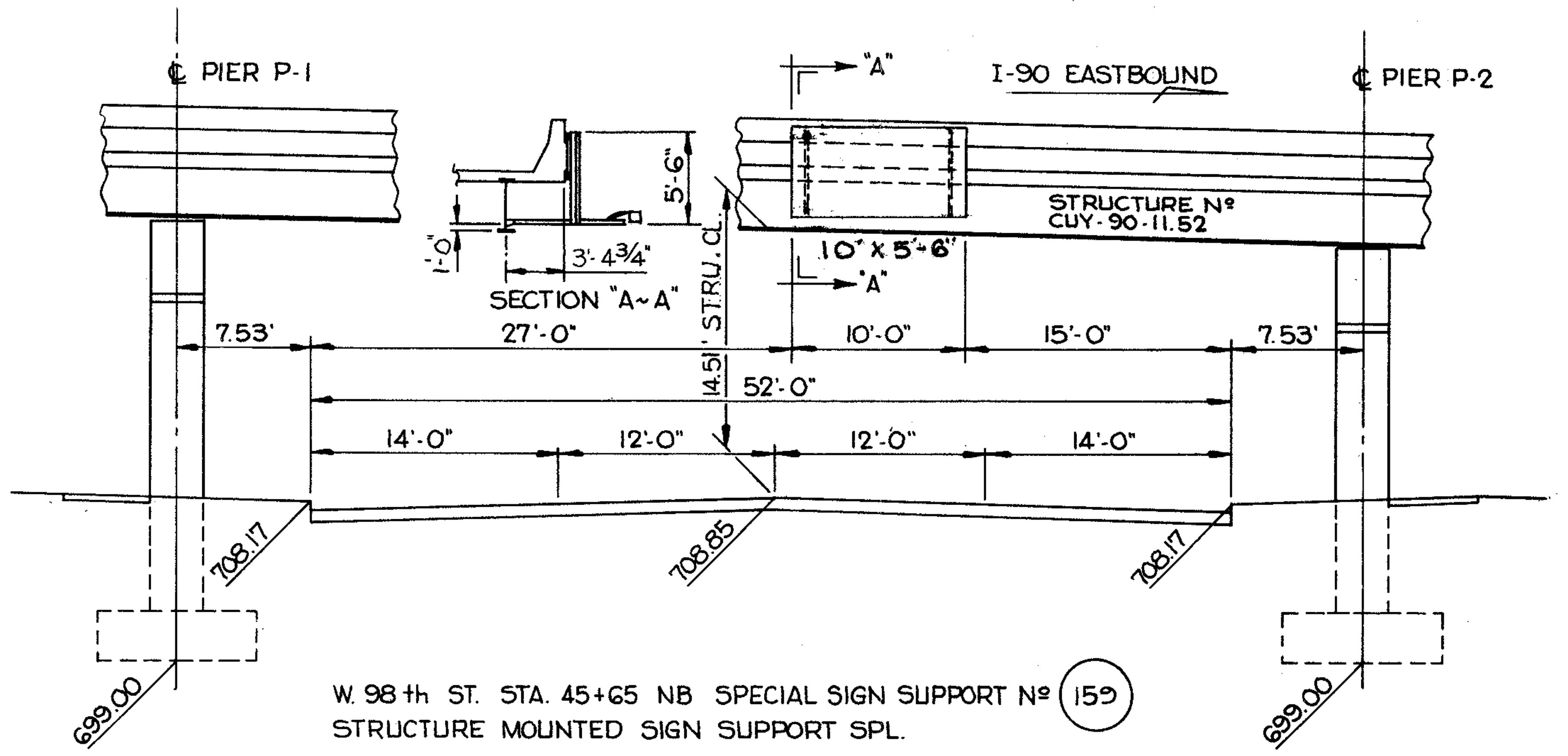


WEST BLVD. STA 35+65
GROUND MOUNTED SIGN SUPPORT · Nº ⑮⓪ 150
10'X 6'-0" = 60.0 SQ. FT.
3 - 6# BEAMS @ 17'-6"



W. 98th ST. STA. 47+58 SB SPECIAL SIGN SUPPORT Nº (158)
STRUCTURE MOUNTED SIGN SUPPORT SPL.

10'-0" x 5'-6" = 55.0 SQ. FT.
SPACING = 10 3/8", 99 3/8", 10 1/4"
Nº OF BRACKETS = 2, HT. = 5'-6", TYPE "Z"
FIXTURES = 1@ 5'-0", 5'-0", (100 W.)
BRIDGE SKEW = 6° 29' 09"

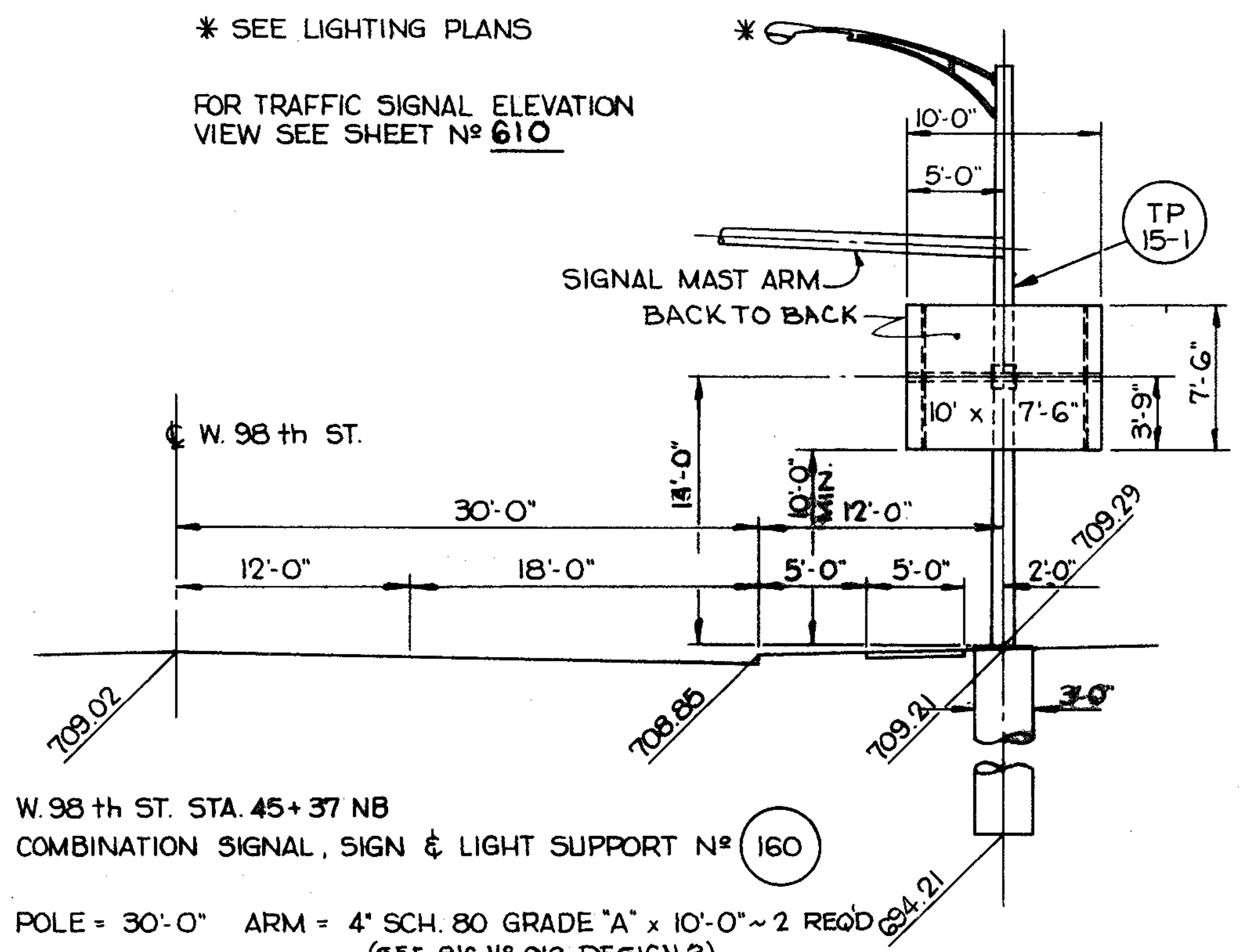


W. 98th ST. STA. 45+65 NB SPECIAL SIGN SUPPORT Nº (159)
STRUCTURE MOUNTED SIGN SUPPORT SPL.

10'-0" x 5'-6" = 55.0 SQ. FT.
SPACING = 10 3/8, 99 3/8", 10 1/4"
Nº OF BRACKETS = 2, HT. = 5'-6", TYPE "Z"
FIXTURES = 1 @ 5'-0", 5'-0" (100 W.)
BRIDGE SKEW = 6° 29' 09"

* SEE LIGHTING PLANS

FOR TRAFFIC SIGNAL ELEVATION
VIEW SEE SHEET Nº **610**

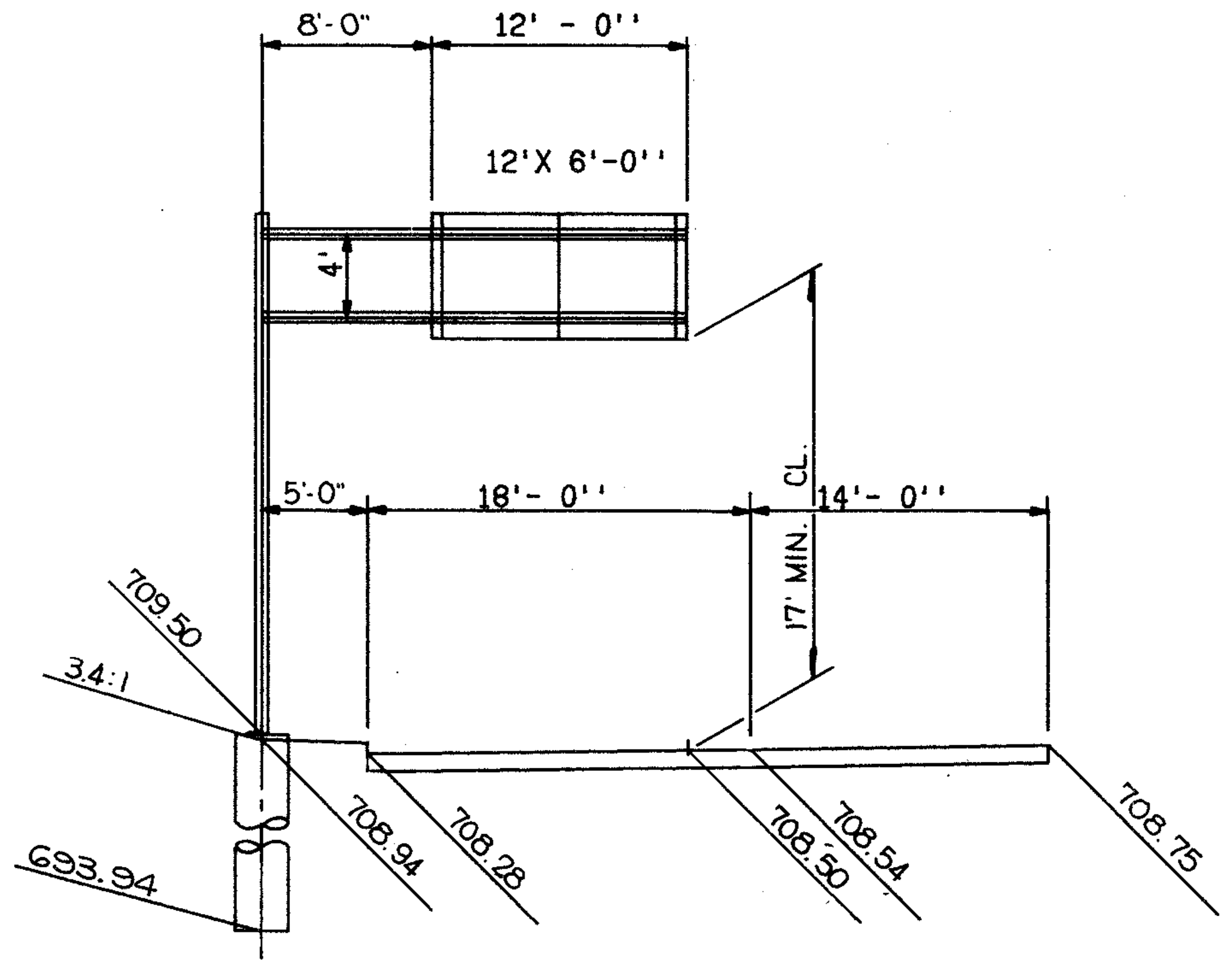


W. 98th ST. STA. 45+37 NB
COMBINATION SIGNAL, SIGN & LIGHT SUPPORT Nº (160)

POLE = 30'-0" ARM = 4" SCH. 80 GRADE "A" x 10'-0" ~ 2 REQ'D
(SEE 816 Nº 912 DESIGN 2)

a	b
10'-0" x 7'-6" = 75.0 SQ. FT.	10'-0" x 7'-6" = 75.0 SQ. FT.
SPACING = 10 3/8", 99 3/8", 10 1/4	SPACING = 10 3/8", 99 3/8, 10 1/4"
Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"	Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"
FIXTURES = 1@ 5'-0", 5'-0" (175 W)	FIXTURES = 1@ 5'-0", 5'-0" (175 W)

FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº 816-20.001



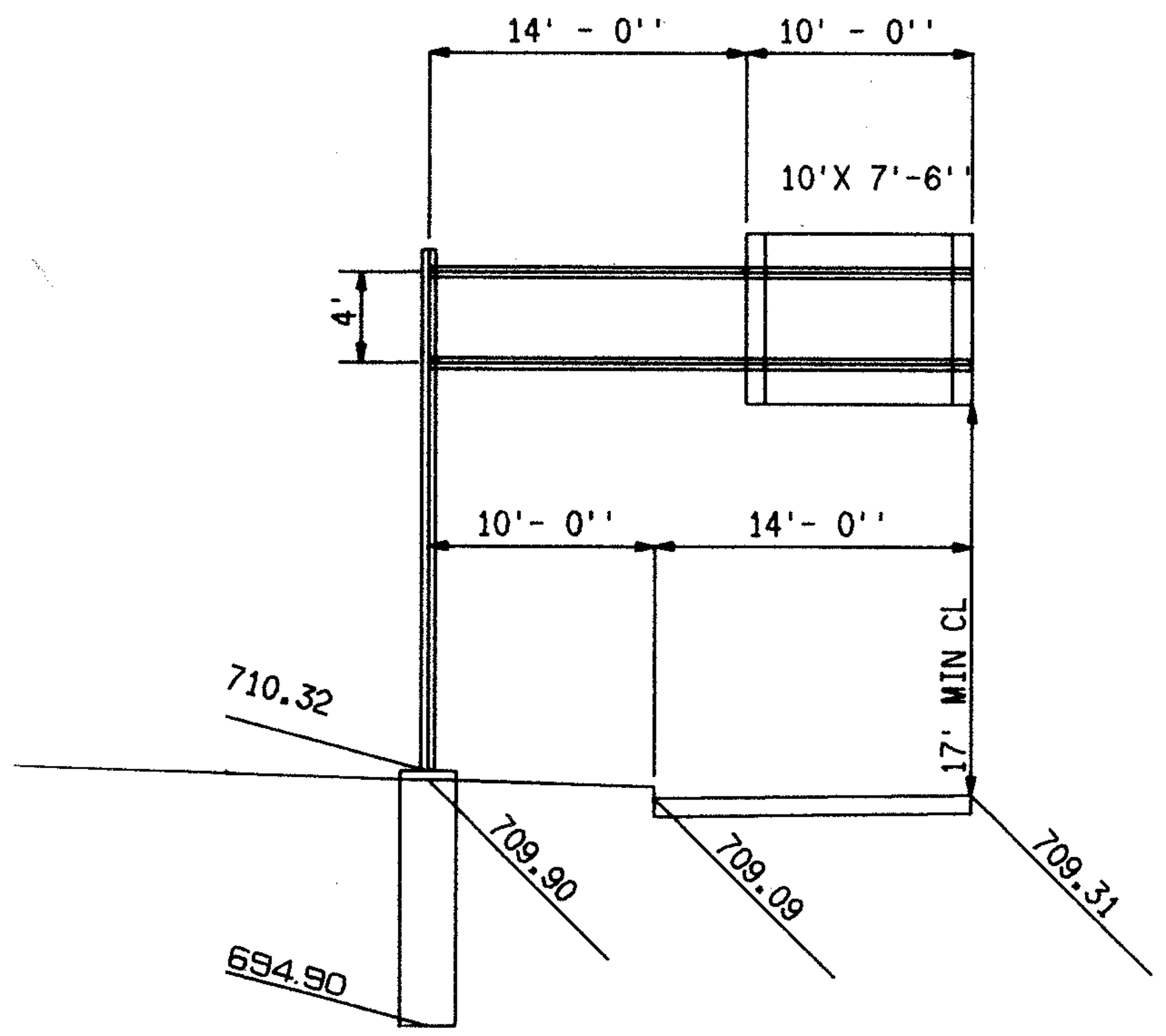
RAMP Nº 16 STA. 86+50 OVERHEAD SIGN SUPPORT Nº (161)
TC Nº 12.30 DESIGN 2

12'-0" x 6'-0" = 72.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3, HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3'-0", 6'-0", 3'-0" (100W.)

GUIDE SIGN DETAILS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40



IN LIEU OF REINFORCING SHOWN ON STANDARD DWG. TC- 21.10 THE NUMBER OF REINFORCING BARS SHALL BE 8-#8

RELOC. W. 100 TH. ST. STA. 152+60 SIGN SUPPORT NO. (162)

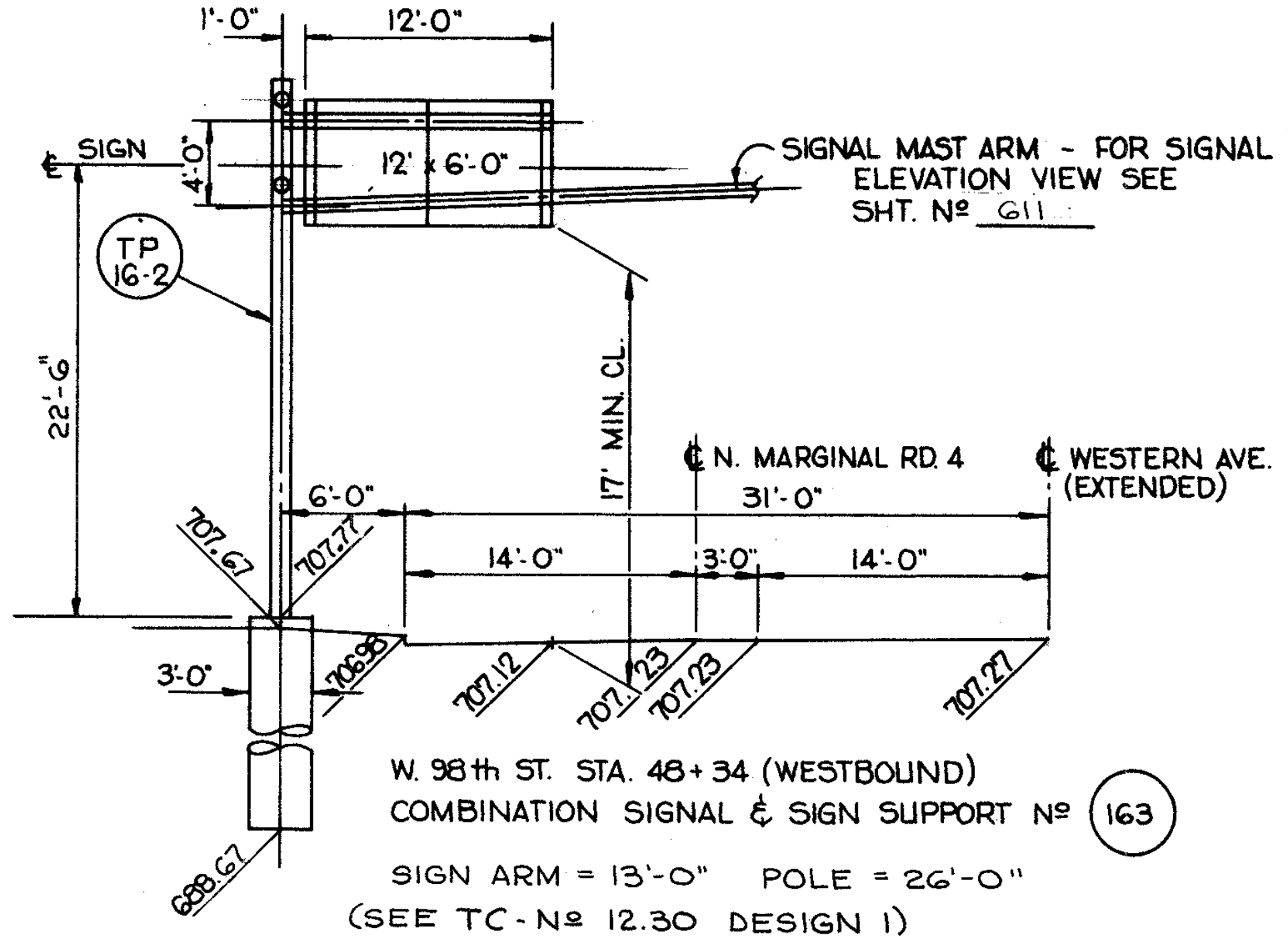
~~STC~~-NO.12.30 DESIGN 4 MODIFIED

ARMS=24'- 0'' POLE=23'- 0''

10'X 7'-6''= 75.0 SQ.FT.

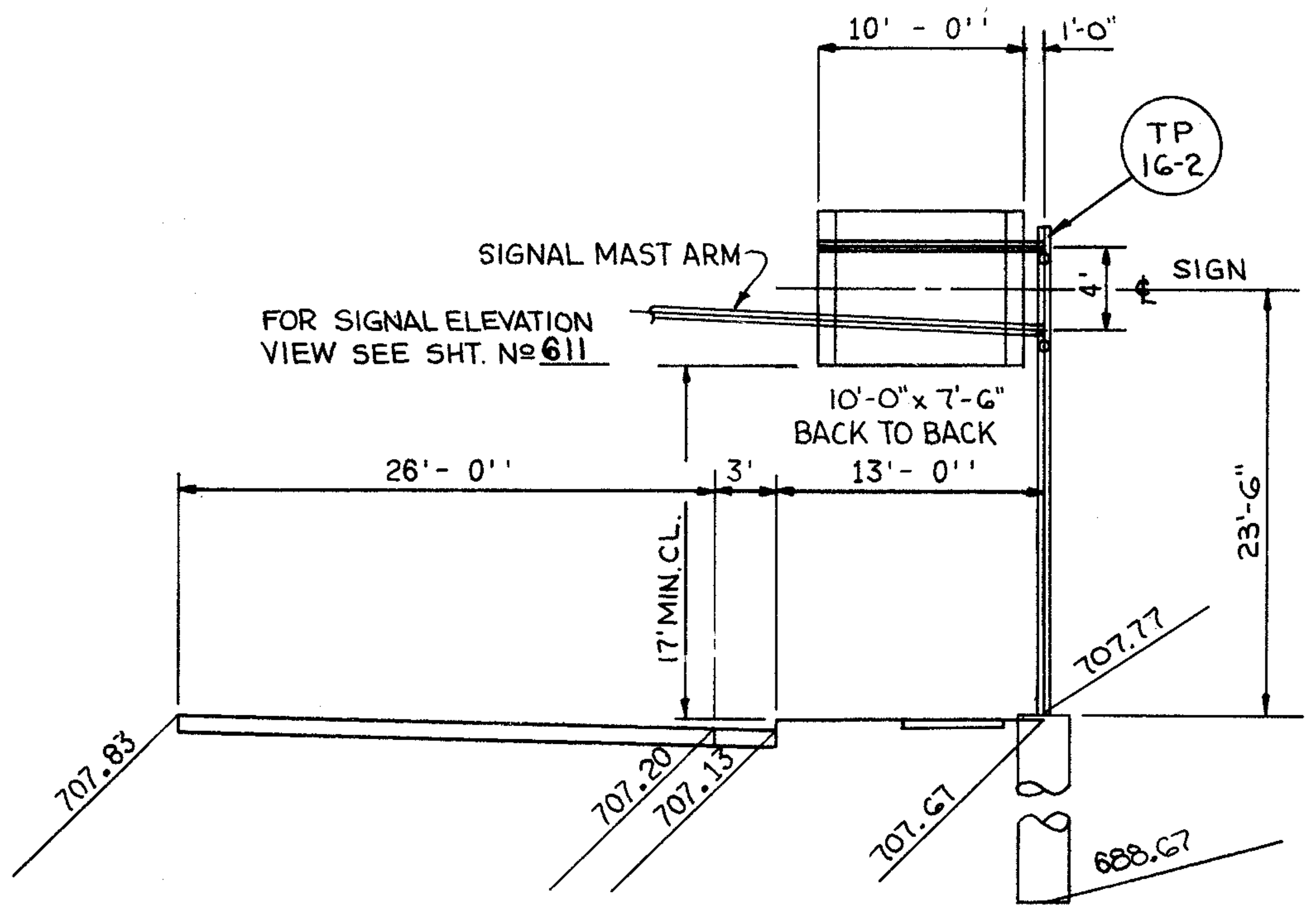
SPACING =10 3/8, 99 3/8, 10 1/4, (INCHES)

NO. OF BRACKETS = 2 HT. = 7'-6'' , TYPE Z
FIXTURES = 1 @ 5'-0" (175 WATT)



W. 98th ST. STA. 48 + 34 (WESTBOUND)
COMBINATION SIGNAL & SIGN SUPPORT Nº (163)

SIGN ARM = 13'-0" POLE = 26'-0"
(SEE TC - Nº 12.30 DESIGN 1)
12'-0" x 6'-0" = 72.0 SQ. FT.
SPACING = 6", 66", 66", 6"
Nº OF BRACKETS = 3. HT. = 6'-0", TYPE "Z"
FIXTURES = 2@ 3'-0" 6'-0", 3'-0" (100W.)



W. 98 th ST. STA. 48 + 34 (SOUTHBOUND)
COMBINATION SIGNAL & SIGN SUPPORT Nº (164)
SIGN ARM = 11'-0" POLE = 27'-0"
(SEE TC Nº 12.30 DESIGN 1)

(a)	(b)
10'-0" x 7'-6" = 75.0 SQ. FT.	10'-0" x 7'-6" = 75.0 SQ. FT.
SPACING = 10 3/8", 99 3/8", 10 1/4"	SPACING = 10 3/8, 99 3/8", 10 1/4"
Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"	Nº OF BRACKETS = 2, HT. = 7'-6", TYPE "Z"
FIXTURES = 1@ 5'-0", 5'-0" (175 W.)	FIXTURES = 1@ 5'-0", 5'-0" (175 W.)

GUIDE SIGN DETAILS

GUIDE SIGNS QUANTITIES SUB-SUMMARY

CALCULATED BY M S C DATE 12-26-73
CHECKED BY BHB DATE 1-7-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 553

```
ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
815    SIGN ERECTION, EXTRUSHEET TYPE                                      SF
PARTICIPAT 4 / FHWA DOT  OHIO DOT  CITY OF CLEVELAND
* AREA             SIGN NO.  STRUCTURE NO.  STATION    REFERENCE TO
15X8    /          34A (I)   CUY 90 1042    722+70 EB  MAINLINE I 90       120.00
15X12.5+9X2 /      34B (I)                                                 205.50
15X9.5+9X2 /       34C (I)                                                 160.50
                                                                       ----------
                                                          TOTAL         486.00 SF

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    OVERHEAD SIGN SUPPORT, NO. 7.6, DES. 4 MOD. (108 FT. SPAN)          EACH
PARTICIPAT 4 / FHWA DOT  OHIO DOT  CITY OF CLEVELAND
1 / SIGN NO. 34 (CUY 90 1042)  STA. 722+70 EB  MAINLINE  SPAN = 108 FT.    1.00
                                                                       ----------
                                                          TOTAL            1.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION                       CY
PARTICIPAT 4 / FHWA DOT  OHIO DOT  CITY OF CLEVELAND

* CU. YDS. LEFT SIDE.  SIGN NO. 34   STATION    REFERENCE TO
(4.71+4.00+6.87)X10/27 /             722+70 EB  MAINLINE I 90              5.77

0.7854X2.5X2.5X18.25X2/27/                                                 6.64
2.5X2.5X0.92X2/27 /  RIGHT SIDE                                            0.43
6.58X2.5X2.5/27/                                                           1.52
0.7854X2.5X2.5X16.5X2/27 /                                                 6.00
0.7854X2.5X2.5X2.5/27 /                                               _____0.46
                                                                        20.82 CY

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    GROUND ROD                                                          EACH
* EACH      SIGN NO.
  1 /       34 (I)                                                         1.00
                                                                       ----------
                                                          TOTAL            1.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP  EACH
* EACH      SIGN NO.
  2 /       34A (I)                                                        2.00
                                                                       ----------
                                                          TOTAL            2.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP  EACH
* EACH      SIGN NO..

  2 /       34B (I)                                                        2.00
  2 /       34C (I)                                                        2.00
                                                                       ----------
                                                          TOTAL            4.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    SIGN SERVICE                                                        EACH
* EACH      SIGN NO.
  1 /       34 (I)                                                         1.00
                                                                       ----------
                                                          TOTAL            1.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    SIGNS WIRED COMPLETE                                                EACH
* EACH      SIGN NO.
  1 /       34A (I)                                                        1.00

  1 /       34B (I)                                                        1.00
  1 /       34C (I)                                                        1.00
                                                                       ----------
                                                          TOTAL            3.00
```

```
ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                     EACH
* EACH      SIGN NO.
  1 /       34 (I)                                                         1.00


                                                                       ----------
                                                          TOTAL            1.00
```

SUB-TOTAL PLAN SHEET NO 553

CUY 90 1040 GUIDE SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
1	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
2	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
4	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP
1	625	EACH	SIGN SERVICE
3	625	EACH	SIGNS WIRED COMPLETE
486	815	SF	SIGN ERECTION, EXTRUSHEET TYPE
1	816	EACH	OVERHEAD SIGN SUPPORT, No. 7.6, DES. 4 MOD. (108 FT. SPAN)
20.8	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION

PLAN SHEET NO 554

```
ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
815    SIGN ERECTION, EXTRUSHEET TYPE                                      SF
PARTICIPAT 4 / FHWA DOT  OHIO DOT  CITY OF CLEVELAND
* AREA          SIGN NO.  STRUCTURE NO.  STATION    REFERENCE TO
12X6 /          133 (VI)                 42+50 NB   W. 117 ST.             72.00
10+7.5 /        134 (VI)                 46+50 NB                          17.50
12X6 /          130 (VI)                 45+70 SB                          72.00
10X7.5 /        137 (VI)                 51+50 SB                          75.00
9X3 /           131                      29+45      RAMP 8                 27.00
12X6 /          136 (VI)                 52+25 NB   W. 117 ST.             72.00
12X7 /          138 (VI)                 53+90 SB                          84.00

15X14.5 /       40 (I)    CUY 90 1057    732+85 EB  MAINLINE I 90         217.50
12X6 /          41 (V)    CUY 90 1057    734+00 WB                         72.00
                                                                       ----------
                                                          TOTAL         709.00 SF

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    COMB. SIGN & LIGHT SUPPORT  NO. 12.30, DES. 1 MOD.  POLE = 30 FT  ARMS = 16 FT.  EACH
1 / SIGN NO. 133 (VI)      STA. 42+50 NB  W. 117 ST.                       1.00
                                                                       ----------
                                                          TOTAL            1.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    COMB. SIGN & LIGHT SUPPORT  NO. 12.30, DES. 1 MOD.  POLE = 30 FT. ARMS = 11 FT.  EACH
1 / SIGN NO. 134 (VI)      STA. 46+50 NB  W. 117ST.                        1.00
1 / SIGN NO. 137 (VI)      STA. 51+50 SB  W. 117 ST.                       1.00
                                                                       ----------
                                                          TOTAL            2.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    COMB. SIGN & LIGHT SUPPORT NO. 12.30, DES.3  MOD. POLE = 30 FT. ARMS = 22 FT.  EACH
1 / SIGN NO. 130 (VI)      STA. 45+70 SB  W. 117 ST.                       1.00
                                                                       ----------
                                                          TOTAL            1.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    COMB. SIGN & LIGHT SUPPORT  NO. 12.30, DES.2  MOD.  POLE = 30 FT. ARMS = 18 FT.  EACH
1 / SIGN NO. 136 (VI)      STA. 52+25 NB  W. 117 ST.                       1.00
                                                                       ----------
                                                          TOTAL            1.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    STRUCTURE MOUNTED SIGN SUPPORT SPL.                                 EACH
1 / SIGN NO. 40 (I) (CUY 90 1057)  STA. 732+85 EB  MAINLINE I 90           1.00

1 / SIGN NO. 41 (VI) (CUY 90 1057)  STA. 734+00 WB  MAINLINE I 90          1.00
                                                                       ----------
                                                          TOTAL            2.00
```

```
ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION                       CY
* CU. YDS.              SIGN NO.   STATION    REFERENCE TO
0.7854X3X3X14.5/27 /    130 (VI)   45+70 EB   W. 117 ST.                   3.80
3X3X0.89/27 /                                                              0.30
0.7854X3X3X14.5 /27 /   133 (VI)   42+50 NB                                3.80
3X3X0.78/27 /                                                              0.26
0.7854X3X3X14.5 /27 /   134 (VI)   46+50 NB                                3.80
3X3X0.81/27 /                                                              0.27
0.7854X3X3X18.5 /27 /   136 (VI)   52+25 NB                                4.84
3X3X0.72/27 /                                                              0.24
0.7854X3X3X14.5/27/      137 (VI)   51+50 SB                               3.80

3X3X1.06/27 /                                                              0.35
                                                                       ----------
                                                          TOTAL         21.46 CY

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    GROUND ROD                                                          EACH
* EACH      SIGN NO.
  1 /       130 (VI)                                                       1.00
  1 /       133 (VI)                                                       1.00
  1 /       134 (VI)                                                       1.00
  1 /       136 (VI)                                                       1.00
  1 /       137 (VI)                                                       1.00
  1 /       138 (VI)                                                       1.00
                                                                       ----------
                                                          TOTAL            6.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP  EACH
* EACH      SIGN NO.
  2 /       41 (V)                                                         2.00
  2 /       130 (VI)                                                       2.00
  2 /       133 (VI)                                                       2.00
  2 /       136 (VI)                                                       2.00
                                                                       ----------
                                                          TOTAL            8.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP  EACH
* EACH      SIGN NO.
  1 /       134 (VI)                                                       1.00
  1 /       137 (VI)                                                       1.00
  2 /       138 (VI)                                                       2.00
                                                                       ----------
                                                          TOTAL            4.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP  EACH
* EACH      SIGN NO.
  2 /       40 (I)                                                         2.00
                                                                       ----------
                                                          TOTAL            2.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    SIGN SERVICE                                                        EACH
* EACH      SIGN NO.
  1 /       130 (VI)                                                       1.00
  1 /       133 (VI)                                                       1.00
  1 /       134 (VI)                                                       1.00

  1 /       136 (VI)                                                       1.00
  1 /       137 (VI)                                                       1.00

  1 /       138 (VI)                                                       1.00
                                                                       ----------
                                                          TOTAL            6.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
625    SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS                            EACH
* EACH      SIGN NO.
  1 /       40 (I)                                                         1.00
  1 /       41 (V)                                                         1.00
                                                                       ----------
                                                          TOTAL            2.00

ITEM   DESCRIPTION                                                         UNIT
-------------------------------------------------------------------------------
816    STRUCTURAL SUPPORT, 6 LB. BEAM                                      LF
*               SIGN NO.   STATION    REFERENCE TO
15.5+13.5 /     131        28+90 EB   RAMP 8                              29.00
                                                                       ----------
                                                          TOTAL        29.00 LF
```

GUIDE SIGNS QUANTITIES SUB-SUMMARY

GUIDE SIGNS QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-26-73
CHECKED BY BHB DATE 1-7-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 554 (CONT'D)

```
ITEM   DESCRIPTION                                                   UNIT
-------------------------------------------------------------------------
625    SIGNS WIRED COMPLETE                                          EACH
* EACH     SIGN NO.
  1 /      130 (VI)                                                  1.00
  1 /      133 (VI)                                                  1.00
  1 /      134 (VI)                                                  1.00

  1 /      136 (VI)                                                  1.00
  1 /      137 (VI)                                                  1.00
  1 /      138 (VI)                                                  1.00
                                                               ----------
                                                   TOTAL             6.00
```

```
ITEM   DESCRIPTION                                                   UNIT
-------------------------------------------------------------------------
625    STRUCTURE MOUNTED SIGN WIRED COMPLETE                         EACH
* EACH     SIGN NO.
  1 /      40 (I)                                                    1.00
  1 /      41 (V)                                                    1.00
                                                               ----------
                                                   TOTAL             2.00
```

```
ITEM   DESCRIPTION                                                   UNIT
-------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE               EACH
* EACH     SIGN NO.
  1 /      40 (I)                                                    1.00
  1 /      41 (V)                                                    1.00

  1 /      130 (VI)                                                  1.00
  1 /      133 (VI)                                                  1.00
  1 /      134 (VI)                                                  1.00

  1 /      136 (VI)                                                  1.00
  1 /      137 (VI)                                                  1.00
  1 /      138 (VI)                                                  1.00
                                                               ----------
                                                   TOTAL             8.00
```

```
ITEM   DESCRIPTION                                                   UNIT
-------------------------------------------------------------------------
625    DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET                  EACH
* EACH     SIGN NO.
  2 /      40 (I)                                                    2.00

  2 /      41 (V)                                                    2.00


                                                               ----------
                                                   TOTAL             4.00
```

SUB-TOTAL PLAN SHEET NO. 554

CUY 90 1040 GUIDE SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	COMB. SIGN & LIGHT SUPPORT NO. 12.30, DES. 2 MOD. POLE = 30 FT. ARMS = 18 FT.
1	816	EACH	COMB. SIGN & LIGHT SUPPORT NO. 12.30, DES. 3 MOD. POLE = 30 FT. ARMS = 22 FT.
2	816	EACH	COMB. SIGN & LIGHT SUPPORT NO. 12.30, DES. 1 MOD. POLE = 30 FT. ARMS = 11 FT.
1	816	EACH	COMB. SIGN & LIGHT SUPPORT NO. 12.30, DES. 1 MOD. POLE = 30 FT ARMS = 16 FT.
6	625	EACH	GROUND ROD
8	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
8	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP
4	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
2	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP
6	625	EACH	SIGN SERVICE
2	625	EACH	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS
6	625	EACH	SIGNS WIRED COMPLETE
2	625	EACH	STRUCTURE MOUNTED SIGN WIRED COMPLETE
4	625	EACH	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET
709.	815	SF	SIGN ERECTION, EXTRUSHEET TYPE
2	816	EACH	STRUCTURE MOUNTED SIGN SUPPORT SPL.
21.5	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION
29	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM

PLAN SHEET NO. 555

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
815    SIGN ERECTION, EXTRUSHEET TYPE                                       SF
PARTICIPAT 4 / FHWA DOT  OHIO DOT  CITY OF CLEVELAND
* AREA              SIGN NO.  STRUCTURE NO.  STATION    REFERENCE TO
10X7.5 /            132 (VI)                 37+75 NB   W. 117 ST.              75.00
10X7.5 /            139 (VI)                 62+65 SB                           75.00
2X1 /               139A (A)                 64+65 SB                            2.00
2X2 /               139A (B)                                                     4.00
2X1 /               132A (A)                 35+25 NB                            2.00
2X2 /               132A (B)                                                     4.00
                                                                           ----------
                                                           TOTAL           162.00 SF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    CANTILEVER SIGN SUPPORT  NO. 12.30 DES. 1   POLE = 23 FT. ARMS = 11.0 FT.   EACH

1 / SIGN NO. 132(VI) STA. 37+75 NB W. 117 ST.                               1.00
                                                                      ----------
                                                           TOTAL            1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    STRUCTURAL SUPPORTS, 3 LB. DRIVE POST                                LF
*            SIGN NO.   STATION    REFERENCE TO       PLAN SHEET NO.
16 /         132A       35+25 NB   W. 117 ST.         8A                   16.00
16 /         139A       64+65 SB   W. 117 ST.         8A                   16.00
                                                                      ----------
                                                           TOTAL           32.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT

--------------------------------------------------------------------------------
816    CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION                        CY
* CU. YDS.                SIGN NO.    STATION    REFERENCE TO   PLAN SHEET NO.
0.7854X3X3X14.5 /27 /     132 (VI)    37+75 NB   W. 117 ST.     8A          3.80
3X3X0.99/27 /                                                               0.33

                                                                      ----------
                                                           TOTAL            4.13 CY
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    GROUND ROD                                                           EACH
* EACH     SIGN NO.
  1 /      132 (VI)                                                         1.00
  1 /      139 (VI)                                                         1.00
                                                                      ----------
                                                           TOTAL            2.00
```

```
ITEM   DESCRIPTION                                                          UNIT

--------------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP   EACH
* EACH     SIGN NO.
  1 /      139 (VI)                                                         1.00
                                                                      ----------
                                                           TOTAL            1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    120 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP   EACH
* EACH     SIGN NO.
  1 /      132 (VI)                                                         1.00
                                                                      ----------
                                                           TOTAL            1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    SIGN SERVICE                                                         EACH

* EACH     SIGN NO.

  1 /      132 (VI)                                                         1.00
  1 /      139 (VI)                                                         1.00
                                                                      ----------

                                                           TOTAL            2.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    SIGNS WIRED COMPLETE                                                 EACH
* EACH     SIGN NO.
  1 /      132 (VI)                                                         1.00
  1 /      139 (VI)                                                         1.00
                                                                      ----------
                                                           TOTAL            2.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                      EACH

* EACH     SIGN NO.

  1 /      132 (VI)                                                         1.00
  1 /      139 (VI)                                                         1.00
                                                                      ----------
                                                           TOTAL            2.00
```

SUB-TOTAL PLAN SHEET NO. 555

CUY 90 1040 GUIDE SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
1	625	EACH	120 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
1	816	EACH	CANTILEVER SIGN SUPPORT NO. 12.30 DES. 1 POLE = 23 FT. ARMS = 11.0 FT.
2	625	EACH	GROUND ROD
2	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
1	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
2	625	EACH	SIGN SERVICE
2	625	EACH	SIGNS WIRED COMPLETE
162.	815	SF	SIGN ERECTION, EXTRUSHEET TYPE
32.	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST
4.1	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION

PLAN SHEET NO. 556

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
815    SIGN ERECTION, EXTRUSHEET TYPE                                       SF
PARTICIPAT 4 / FHWA DOT  OHIO DOT  CITY OF CLEVELAND
* AREA              SIGN NO.  STRUCTURE NO.  STATION    REFERENCE TO
9X3 /               140                      39+40 WB   RAMP 12                 27.00
15X8 /              42A (I)   CUY 90 1076    743+60 WB  MAINLINE I 90          120.00
16X9.5+9X2 /        42B (I)   CUY 90 1076                                      170.00
15X9.5+9X2 /        42A (I)   CUY 90 1081    46+00 WB   RAMP 12                160.50
15X12.5+9X2 /       43 (I)    CUY 90 1089    750+15 EB                         205.50
                                                                           ----------

                                                           TOTAL           683.00 SF
```

```
ITEM   DESCRIPTION                                                          UNIT

--------------------------------------------------------------------------------
816    STRUCTURAL SUPPORT, 6 LB. BEAM                                       LF
*            SIGN NO.   STATION    REFERENCE TO
15+14 /      140        39+40 WB   RAMP 12                                 29.00
                                                                      ----------
                                                           TOTAL           29.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    OVERHEAD SIGN SUPPORT, NO. 12.30 , DES. 8 , POLE = 26'               EACH
1 / SIGN NO. 42A (I) (CUY 90 1081)   STA. 46+00 WB RAMP 12   ARMS = 27 FT.  1.00
                                                                      ----------
                                                           TOTAL            1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------

816    STRUCTURE MOUNTED SIGN SUPPORT SPL.                                  EACH
1 / SIGN NO. 43 (I) (CUY 90 1089)    STA.  750+15 EB  MAINLINE I 90         1.00
1 / SIGN NO. 42A (I) (CUY 90 1076)   STA.  743+60 WB  MAINLINE I 90         1.00
1 / SIGN NO. 42B (I) (CUY 90 1076)   STA. 743+60 WB  MAINLINE I 90          1.00
                                                                      ----------
                                                           TOTAL            3.00
```

GUIDE SIGNS QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-26-73
CHECKED BY BHB DATE 1-7-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 556 (CONT'D)

ITEM	DESCRIPTION	UNIT
816	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION	CY

* CU. YDS.	SIGN NO.	STATION	REFERENCED TO	
0.7854X3X3X24.5/27/	42 A	46+00	RAMP 12	6.41
3X3X1.39/27/				0.46
			TOTAL	6.87 CY

ITEM	DESCRIPTION	UNIT
625	GROUND ROD	EACH

* EACH	SIGN NO.	
1 /	42A (I)	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP	EACH

* EACH	SIGN NO.	
2 /	42A (I)	2.00
	TOTAL	2.00

ITEM	DESCRIPTION	UNIT
625	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP	EACH

* EACH	SIGN NO.	
2 /	42B (I)	2.00
2 /	42A (I)	2.00
2 /	43 (I)	2.00
	TOTAL	6.00

ITEM	DESCRIPTION	UNIT
625	SIGN SERVICE	EACH

* EACH	SIGN NO.	
1 /	42A (I)	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS	EACH

* EACH	SIGN NO.	
1 /	42 (I)	1.00
1 /	43 (I)	1.00
	TOTAL	2.00

ITEM	DESCRIPTION	UNIT
625	SIGNS WIRED COMPLETE	EACH

* EACH	SIGN NO.	
1 /	42A (I)	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	STRUCTURE MOUNTED SIGN WIRED COMPLETE	EACH

* EACH	SIGN NO.	
1 /	42A (I)	1.00
1 /	42B (I)	1.00
1 /	43 (I)	1.00
	TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE	EACH

* EACH	SIGN NO.	
1 /	42 (I)	1.00
1 /	42A (I)	1.00
1 /	43 (I)	1.00
	TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET	EACH

* EACH	SIGN NO.	
2 /	42 (I)	2.00
2 /	43 (I)	2.00
	TOTAL	4.00

SUB-TOTAL PLAN SHEET NO 556

CUY 90 1040 GUIDE SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
1	625	EACH	GROUND ROD
3	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
2	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
6	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP
1	625	EACH	SIGN SERVICE
2	625	EACH	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS
1	625	EACH	SIGNS WIRED COMPLETE
3	625	EACH	STRUCTURE MOUNTED SIGN WIRED COMPLETE
4	625	EACH	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET
683	815	SF	SIGN ERECTION, EXTRUSHEET TYPE
1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 12.30, DES. 8, POLE = 26' ARMS= 27'
3	816	EACH	STRUCTURE MOUNTED SIGN SUPPORT SPL.
29.	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM, DRIVEN
6.9	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATIONS

PLAN SHEET NO 557

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, EXTRUSHEET TYPE	SF

PARTICIPAT 4 / FHWA DOT OHIO DOT CITY OF CLEVELAND

* AREA	SIGN NO.	STRUCTURE NO.	STATION	REFERENCE TO	
18X8 /	50A	CUY 90-1105	758+42 EB	MAINLINE I 90	144.00
18X12.5+9X2 /	50C (I)	CUY 90 1105			243.00
3X3 /	149A		65+00 EB	RAMP 14	9.00
2X2.5 /	149B				5.00
9X4 /	149C				36.00
6X5 /	50A		63+00		30.00
14X7+9X2 /	45 (I)		753+71 WB	MAINLINE I 90	116.00
				TOTAL	583.00

ITEM	DESCRIPTION	UNIT
816	STRUCTURE MOUNTED SIGN SUPPORT SPL.	EACH

1 / SIGN NO. 50A	(CUY 90 1105)	STA. 758+42 EB	MAINLINE I 90	1.00
1 / SIGN NO. 50C (I)	(CUY 90 1105)	STA. 758+42 EB	MAINLINE I 90	1.00
			TOTAL	2.00

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORT, 6 LB. BEAM	LF

*	SIGN NO.	STATION	REFERENCE TO	
17+17 /	504	63+00 EB	RAMP 14	34.00
20+15+14 /	149	65+00 EB	RAMP 14	49.00
			TOTAL	83.00 LF

ITEM	DESCRIPTION	UNIT
816	CANTILEVER SIGN SUPPORT NO. 12.30 DES. 5 MOD. POLE = 9'-0" ARMS = 25'-0"	EACH

EACH	SIGN NO.	STATION	REFERENCED TO	
1/	45 (1)	753 + 71 WB	MAINLINE I-90	1.00
			TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP	EACH

* EACH	SIGN NO.	
2 /	50C (I)	2.00
	TOTAL	2.00

ITEM	DESCRIPTION	UNIT
625	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS	EACH

* EACH	SIGN NO.	
1 /	50	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET	EACH

* EACH	SIGN NO.	
2 /	50	2.00
	TOTAL	2.00

ITEM	DESCRIPTION	UNIT
625	SIGNS WIRED COMPLETE	EACH

EACH	SIGN NO.	
1/	45 (1)	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	STRUCTURE MOUNTED SIGN WIRED COMPLETE	EACH

* EACH	SIGN NO.	
1 /	50A	1.00
1 /	50C (I)	1.00
	TOTAL	2.00

ITEM	DESCRIPTION	UNIT
625	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE	EACH

* EACH	SIGN NO.	
1 /	50C (I)	1.00
1 /	50	1.00
1/	45 (I)	1.00
	TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP	EACH

EACH	SIGN NO.	
2/	45 (1)	2.00
2/	50 A (1)	2.00
	TOTAL	4.00

ITEM	DESCRIPTION	UNIT
625	SIGN SERVICE	EACH

EACH	SIGN NO.	
1/	45 (1)	1.00
	TOTAL	1.00

SUB-TOTAL PLAN SHEET NO 557

CUY 90 1040 GUIDE SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
3	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
4	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
2	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 250 WATT LAMP
1	625	EACH	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS
2	625	EACH	STRUCTURE MOUNTED SIGN WIRED COMPLETE
2	625	EACH	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET
583.	815	SF	SIGN ERECTION, EXTRUSHEET TYPE
2	816	EACH	STRUCTURE MOUNTED SIGN SUPPORT SPL.
83.	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM, DRIVEN
1	816	EACH	CANTILEVER SIGN SUPPORT NO. 12.30 DES. 5 MOD. POLE = 9'-0" ARMS = 25'-0"
1	625	EACH	SIGN SERVICE
1	625	EACH	SIGNS WIRED COMPLETE

PLAN SHEET NO 558

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, EXTRUSHEET TYPE	SF

PARTICIPAT 4 / FHWA DOT OHIO DOT CITY OF CLEVELAND

* AREA	SIGN NO.	STRUCTURE NO.	STATION	REFERENCE TO	
15X7+9X2 /	51	CUY 90 1123	768+00 WB	MAINLINE I 90	123.00
1X4 /	51A		768+89 WB		4.00
1X4 /	51B		768+89 EB		4.00
2X1 /	151A		40+58	WEST BLVD.	2.00
2X2 /	151B				4.00
1.666X1.25 /	151C				2.08
12X6 /	148 (I)		42+25 NB		72.00
10X6 /	150		35+65 NB		60.00
10X7.5 /	147A (I)		45+62 SB		75.00
*	(VI)				
10X7.5 /	147B (I)				75.00
*	(VI)				
10X7 /	145 (I)		49+59 SB		70.00
2X1 /	145A (A)		59+50 SB		2.00
2X2 /	145A (B)				4.00
				TOTAL	497.08 SF

ITEM	DESCRIPTION	UNIT
816	OVERHEAD SIGN SUPPORT, NO. 12.30, DES. 6, POLE = 26'	EACH

1 / SIGN NO. 51 (I)	(CUY 90 11.23)	STA. 768+00 WB	MAINLINE I 90 ARMS = 26 FT.	1.00
			TOTAL	1.00

GUIDE SIGNS QUANTITIES SUB-SUMMARY

GUIDE SIGNS QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-26-73
CHECKED BY BHB DATE 1-2-74

✱ NO FEDERAL PARTICIPATION

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 558 (CONT'D)

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
816    STRUCTURAL SUPPORTS, 3 LB. DRIVE POST                      LF
*            SIGN NO.   STATION      REFERENCE TO
16 /         51A        768+89 WB    MAINLINE I 90                 16.00
16 /         51B        768+89 EB    MAINLINE I 90                 16.00
16 /         145A       59+50 SB     WEST BLVD.                    16.00
17 /         151        40+58        WEST BLVD.                    17.00
                                                               ----------
                                                     TOTAL         65.00 LF
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
816    STRUCTURE MOUNTED SIGN SUPPORT, NO. 18.2, DES. 7           EACH
1 / SIGN NO. 148 (I)   STA. 42+25 NB  WEST BLVD.                    1.00
                                                               ----------
                                                     TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
816    STRUCTURAL SUPPORT, 6 LB, BEAM                             LF
*                    SIGN NO.   STATION     REFERENCE TO
17.5+17.5+17.5 /     150        35+65 NB    WEST BLVD.             52.50
                                                               ----------
                                                     TOTAL         52.50 LF
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
816    CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION              CY
* CU. YDS.                SIGN NO.    STATION     REFERENCE TO
0.7854X3X3X24.5/27 /      51 (I)      768+00 WB   MAINLINE I 90     6.41
3X3X0.96/27 /                                                       0.32
                                                               ----------
                                                     TOTAL          6.73 CY
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    GROUND ROD                                                 EACH
* EACH      SIGN NO.
  1 /       51 (I)                                                  1.00
                                                               ----------
                                                     TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP   EACH
* EACH      SIGN NO.
  2 /       148 (I)                                                 2.00
                                                               ----------
                                                     TOTAL          2.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP   EACH
* EACH      SIGN NO.

  2 /       51 (I)                                                  2.00
  1 /       145 (I)                                                 1.00
  1 /       147A (I) (VI)                                           1.00
  1 /       147B (I) (VI)                                           1.00
                                                               ----------
                                                     TOTAL          5.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    SIGN SERVICE                                               EACH
* EACH      SIGN NO.
  1 /       51 (I)                                                  1.00
  1 /       145 (I)                                                 1.00
  1 /       147 (VI)                                                1.00
                                                               ----------
                                                     TOTAL          3.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS                   EACH
* EACH      SIGN NO.
  1 /       148 (I)                                                 1.00
                                                               ----------
                                                     TOTAL          1.00
```

```
ITEM  DESCRIPTION _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
815    INTERIM    OVERLAY                                         S.F.
AREA         SIGN NO.
2'x7'        148                                                  14.0
10'x 2'      147 a                                                20.0
10'x 2'      147 b                                                20.0
                                                               ----------
                                                     TOTAL        54.0
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    SIGNS WIRED COMPLETE                                       EACH
* EACH      SIGN NO.
  1 /       51 (I)                                                  1.00
  1 /       145 (I)                                                 1.00
  1 /       147A (I)                                                1.00
  1 /       147B (I)                                                1.00
                                                               ----------
                                                     TOTAL          4.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    STRUCTURE MOUNTED SIGN WIRED COMPLETE                      EACH
* EACH      SIGN NO.
  1 /       148 (I)                                                 1.00
                                                               ----------
                                                     TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE            EACH
* EACH      SIGN NO.
  1 /       51 (I)                                                  1.00
  1 /       145 (I)                                                 1.00
  1 /       147 (I) (VI)                                            1.00

  1 /       148 (I)                                                 1.00
                                                               ----------
                                                     TOTAL          4.00
```

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
625    DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET               EACH
* EACH      SIGN NO.
  2 /       148 (I)                                                 2.00


                                                               ----------
                                                     TOTAL          2.00
```

SUB-TOTAL PLAN SHEET NO. 558

CUY 90 1040 GUIDE SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
1	625	EACH	GROUND ROD
4	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
2	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP
5	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
3	625	EACH	SIGN SERVICE
1	625	EACH	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS
4	625	EACH	SIGNS WIRED COMPLETE
1	625	EACH	STRUCTURE MOUNTED SIGN WIRED COMPLETE
2	625	EACH	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET
497.	815	SF	SIGN ERECTION, EXTRUSHEET TYPE
1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 12.30, DES. 6 , POLE = 26' ARMS= 26'
1	816	EACH	STRUCTURE MOUNTED SIGN SUPPORT, NO. 18.2, DES. 7
65.	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST
53.	816	LF	STRUCTURAL SUPPORT, 6 LB, BEAM
6.7	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION
54.0	815	S.F.	INTERIM OVERLAY

PLAN SHEET NO. 559

```
ITEM   DESCRIPTION                                                UNIT
---------------------------------------------------------------------------
815    SIGN ERECTION, EXTRUSHEET TYPE                             SF
PARTICIPAT 4 / FHWA DOT  OHIO DOT  CITY OF CLEVELAND
* AREA          SIGN NO.  STRUCTURE NO.  STATION     REFERENCE TO
 9X7.5 /        160A                     45+37 NB    W. 98 ST.       67.50
 9X7.5 /        160B                                                 67.50
12X6 /          161                      86+50 EB    RAMP 16         72.00
10X7.5 /        162                      152+60 SB   W. 100 ST.      75.00
12X6 /          163                      48+34 WB    W. 98 ST.       72.00
10X7.5 /        164A                     48+34 SB    W. 98 ST.       75.00

10X7.5 /        164B                                                 75.00
2X1 /           164A (A)                 275' NORTH OF CENTERLINE OF  2.00
2X2 /           164A (B)                 WILLARD AVE. (SB)            4.00

3.5X5.5 /       165A                     67+00 WB    N. MARGINAL RD. NO. 4   19.25
9X4 /           165B                                                 36.00
✱ 5X3.5 /       152                      INSTALLED MIDWAY BETWEEN W. 99 ST.   17.50
```

```
AREA            SIGN NO.   STRUCTURE   STATION   REFERENCE TO
                           NO.

✱ 3.5X5 /       153                    INSTALLED 4' SOUTH OF SOUTH EDGE            17.50
✱ 3.5X5   /     155                    PAVEMENT LORAIN AVE.                        17.50
✱ 3.5X5 /       154                    INSTALLED N. SIDE LORAIN AVE. 75' E.        17.50
✱ 3.5X5 /       156                    OF WEST EDGE PAVEMENT OF W. 98 ST.          17.50
✱ 3.5X5 /       157                    80' W. OF CENTERLINE W. 98 ST. (WB)         17.50
  10X5.6 /      158                    47+58 SB    W. 98 ST.                       56.00
  10X5.6 /      159                    45+65 NB    W. 98 ST.                       56.00
                                                                              ----------
                                                                   TOTAL      782.25 SF
```

```
ITEM      DESCRIPTION                                                          UNIT
-----------------------------------------------------------------------------------
616       OVERHEAD SIGN SUPPORT, NO. 12.30 DES. 4 MOD.   POLE = 23'   ARMS = 24'   EACH
1 / SIGN NO. 162                  STA. 152 + 60 EB      W. 100 ST.EXTENDED      1.00
                                                                         ----------
                                                                 TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                        UNIT
---------------------------------------------------------------------------------
816    STRUCTURAL SUPPORT, 6 LB. BEAM, DRIVEN                             LF

  *              SIGN NO.   STATION              REFERENCE TO
✱ 17.5 /         153        INSTALLED 4 FT. SOUTH EDGE                    17.50
  *              155        PAVEMENT LORAIN AVE.
✱ 17.5 /         154        INSTALLED W. SIDE LORAIN                      17.50
  *              156        AVE. 75' E. OF WEST EDGE

  *                         PAVEMENT OF W. 98 ST.
✱ 17 /           157        80' W. OF CENTERLINE W. 97 ST.                17.00
  20.5+15.5+13.5 /  165        67+00 WB  N. MARG. RD. NO. 4               49.50
✱ 17 /           152        INSTALLED MIDWAY BETWEEN W. 99 ST. AND        17.00
                            W. 100 ST. SOUTH SIDE OF LORAIN AVE.
                                                                     ----------
                                                          TOTAL        118.50 LF
```

```
ITEM   DESCRIPTION                                                        UNIT
---------------------------------------------------------------------------------
816    STRUCTURE MOUNTED SIGN SUPPORT SPL.                                EACH
1 / SIGN NO. 158   STA. 47+58 SB   W. 98 ST.                                1.00
1 / SIGN NO. 159   STA. 45+65 NB   W. 98 ST.                                1.00
                                                                     ----------
                                                          TOTAL             2.00
```

```
ITEM   DESCRIPTION                                                        UNIT
---------------------------------------------------------------------------------
816    OVERHEAD SIGN SUPPORT, NO. 12.30 , DES. 2, POLE = 23'              EACH
1 / SIGN NO. 161   STA. 86+50 EB  RAMP 16    ARMS = 20 FT.                  1.00
                                                                     ----------
                                                          TOTAL             1.00
```

```
ITEM   DESCRIPTION                                                        UNIT
---------------------------------------------------------------------------------
816    STRUCTURAL SUPPORTS, 3 LB. DRIVE POST                              LF
*            SIGN NO.   STATION      REFERENCE TO
16 /         164 A      275' NORTH OF CENTERLINE                           16.00
*                       OF WILLARD AVE. (SB)
                                                                     ----------
                                                          TOTAL            16.00 LF
```

GUIDE SIGNS QUANTITIES SUB-SUMMARY

GUIDE SIGNS QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-26-73
CHECKED BY BHB DATE 1-7-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 559 (CONT'D)

ITEM DESCRIPTION — UNIT
816 CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION — CY

* CU. YDS.	SIGN NO.	STATION	REFERENCE TO	
0.7854X3X3X14.5 /27 /	162	152+60 SB	W. 100 ST. EXT.	3.80
3X3X0.92 /27 /				0.31
0.7854X3X3X14.5 /27 /	161	86+50 EB	RAMP 16	3.80
3X3X1.06/27 /				0.35
			TOTAL	8.26 CY

ITEM DESCRIPTION — UNIT
625 GROUND ROD — EACH

* EACH	SIGN NO.	
1 /	161	1.00
1 /	162	1.00
	TOTAL	2.00

ITEM DESCRIPTION — UNIT
625 480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP — EACH

* EACH	SIGN NO.	
1 /	158	1.00
1 /	159	1.00
2 /	161	2.00
2 /	163	2.00
	TOTAL	6.00

ITEM DESCRIPTION — UNIT
625 480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP — EACH

* EACH	SIGN NO.	
1 /	160A	1.00
1 /	160B	1.00
1 /	162	1.00
1 /	164A	1.00
1 /	164B	1.00
	TOTAL	5.00

ITEM DESCRIPTION — UNIT
625 SIGN SERVICE — EACH

* EACH	SIGN NO.	
1 /	160	1.00
1 /	161	1.00
1 /	162	1.00
1 /	163 & 164	1.00
	TOTAL	4.00

ITEM DESCRIPTION — UNIT
625 SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS — EACH

* EACH	SIGN NO.	
1 /	158	1.00
1 /	159	1.00
	TOTAL	2.00

ITEM DESCRIPTION
815 INTERIM OVERLAY — S.F.

AREA	SIGN NO.	
8 x 2	163	16.0
10 x 2	164 a	20.0
10 x 2	164 b	20.0
	TOTAL	56.0

ITEM DESCRIPTION — UNIT
625 SIGNS WIRED COMPLETE — EACH

* EACH	SIGN NO.	
1 /	160A	1.00
1 /	160B	1.00
1 /	161	1.00
1 /	163	1.00
1 /	164A	1.00
1 /	164B	1.00
1 /	162	1.00
	TOTAL	7.00

ITEM DESCRIPTION — UNIT
625 STRUCTURE MOUNTED SIGN WIRED COMPLETE — EACH

* EACH	SIGN NO.	
1 /	158	1.00
1 /	159	1.00
	TOTAL	

ITEM DESCRIPTION — UNIT
625 30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE — EACH

* EACH	SIGN NO.	
1 /	158	1.00
1 /	159	1.00
1 /	160	1.00
1 /	161	1.00
1 /	162	1.00
1 /	163 & 164	1.00
	TOTAL	6.00

ITEM DESCRIPTION — UNIT
625 DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET — EACH

* EACH	SIGN NO.	
2 /	158	2.00
2 /	159	2.00
	TOTAL	4.00

SUB-TOTAL PLAN SHEET NO 559

CUY 90 1040 GUIDE SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
2	625	EACH	GROUND ROD
6	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
6	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP
5	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 175 WATT LAMP
4	625	EACH	SIGN SERVICE
3	625	EACH	SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS
7	625	EACH	SIGNS WIRED COMPLETE
2	625	EACH	STRUCTURE MOUNTED SIGN WIRED COMPLETE
4	625	EACH	DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKET
782	815	SF	SIGN ERECTION, EXTRUSHEET TYPE
1	816	EACH	OVERHEAD SIGN SUPPORT, No. 12.30, DES. 2, POLE = 23' ARMS= 20'
1	816	EACH	OVERHEAD SIGN SUPPORT, No. 12.30, DES.4MOD. POLE 23' ARMS= 24'
2	816	EACH	STRUCTURE MOUNTED SIGN SUPPORT SPL.
16	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST
119	816	LF	STRUCTURAL SUPPORT, 6 LB, BEAM, DRIVEN
56.0	815	S.F.	INTERIM OVERLAY
8.3	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-7-73
CHECKED BY TKI DATE 12-14-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 553 - 560

ITEM DESCRIPTION — UNIT
621 6 IN. LANE LINES — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
135 X 6 /	721+40	723+90	47', 59' & 71'	I-90	810.00
*			LT. & RT.		
75 /	721+40	722+30	83' LT.	I-90	75.00
825X 6 /	724+15	745+90	47', 59' & 71'	I-90	4950.00
*			LT. & RT.		
105 X 3 /	746+15	748+70	47', 59' & 71' LT.	I-90	315.00
105 X 4 /	746+15	748+70	47', 59', 71' & 83'	I-90	420.00
*			RT.		
390 X 8 /	748+95	759+10	47', 59', 71' & 83'	I-90	3120.00
*			LT. & RT.		
1245 X 6 /	759+35	792+30	47', 59' & 71'	I-90	7470.00
*			LT. + RT.		
				TOTAL	17160.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. LANE LINES — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
60 /	721+40	722+75	83' TO 89' LT.	I-90	60.00
75 /	730+95	733+25	83' TO 89' LT.	I-90	75.00
90 /	733+10	735+90	89' TO 83' RT.	I-90	90.00
105 /	759+35	762+35	83' TO 89' LT.	I-90	105.00
				TOTAL	330.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. EDGE LINES (WHITE) — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
335 /	721+40	724+75	96' TO 108' LT.	I-90	335.00
1343 /	721+40	734+83	83' TO 106' LT.	I-90	1343.00
1180 /	730+95	742+75	83' LT.	I-90	1180.00
1475 /	749+00	763+75	95' TO 108' LT.	I-90	1475.00
3315 /	759+35	792+50	83' LT.	I-90	3315.00
1092 /	724+98	735+90	83' RT.	I-90	1092.00
1415 /	731+75	745+90	108' TO 83' RT.	I-90	1415.00
1532 /	741+75	757+07	108' TO 95' RT.	I-90	1532.00
2981 /	762+69	792+50	83' RT.	I-90	2981.00
				TOTAL	14668.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. EDGE LINES (YELLOW) — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
7250 X 2 /	720+00	792+50	35' LT. & RT.	I-90	14500.00
				TOTAL	14500.00 LF

ITEM DESCRIPTION — UNIT
621 8 IN. CHANNELIZING LINES — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
248 /	722+50	724+98	83' RT.	I-90	248.00
247 /	722+50	724+95	83' TO 122' RT.	I-90	247.00
200 /	722+75	724+75	89' TO 94' LT.	I-90	200.00
135 /	731+75	733+10	95' TO 89' RT.	I-90	135.00
158 /	733+25	734+83	89' TO 94' LT.	I-90	158.00
160 /	741+75	743+35	94' TO 89' RT.	I-90	160.00
325 /	742+75	746+00	83' LT.	I-90	325.00
326 /	742+77	746+00	122' TO 83' LT.	I-90	326.00
344 /	759+25	762+69	83' RT.	I-90	344.00
344 /	759+25	762+69	83' TO 106' RT.	I-90	344.00
140 /	762+35	763+75	89' TO 94' LT.	I-90	140.00
				TOTAL	2627.00 LF

ITEM DESCRIPTION — UNIT
621 24 IN. BROAD TRANSVERSE STRIPES (WHITE) — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
158 /	722+50	723+97	83' TO 102' RT.	I-90	158.00
303 /	743+74	746+00	105' TO 83' LT.	I-90	303.00
456 /	759+25	762+69	83' TO 106' RT.	I-90	456.00
				TOTAL	917.00 LF

ITEM DESCRIPTION — UNIT
621 CURB MARKING (WHITE) — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
70 /	724+28	724+98	93' RT.	I-90	70.00
58 /	742+75	743+33	93' LT.	I-90	58.00
				TOTAL	128.00 LF

ITEM DESCRIPTION — UNIT
621 ISLAND MARKING (WHITE) — SF

* SF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
232.5 /	723+97	724+28	98' RT.	I-90	232.50
287 /	743+33	743+74	100' LT.	I-90	287.00
				TOTAL	519.50 SF

ITEM DESCRIPTION — UNIT
621 4 IN. EDGE LINES (WHITE) — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
824 /	24+75	32+99	CL	RAMP 5	824.00
739 /	21+40	28+79	CL	RAMP 8	739.00
422 /	28+79	33+01	25' TO 31' RT.	RAMP 8	422.00
719 /	24+56	31+75	BL	RAMP 7	719.00
916 /	32+59	41+75	BL	RAMP 9	916.00
599 /	34+83	40+82	BL	RAMP 11	599.00
50 /	34+17	34+67	43' TO 37' LT.	RAMP 12	50.00
811 /	34+67	42+78	37' TO 24' LT.	RAMP 12	811.00
622 /	42+78	49+00	BL	RAMP 12	622.00
705 /	63+75	70+80	BL	RAMP 13	705.00
1175 /	57+07	68+82	BL	RAMP 14	1175.00
60 /	68+82	69+42	BL TO 6' RT.	RAMP 14	60.00
129 /	89+21	90+50	16' RT.	RAMP 16	129.00
88 /	90+50	91+38	BL	RAMP 16	88.00
				TOTAL	7859.00 LF

ITEM DESCRIPTION — UNIT
621 6 IN. LANE LINES — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
90 /	30+38	32+78	13' RT.	RAMP 8	90.00
90 X 2 /	34+39	36+79	13' & 25' LT.	RAMP 12	180.00
30 X 2 /	36+79	37+59	12' & 24' LT.	RAMP 12	60.00
195 /	37+59	42+79	12' LT.	RAMP 12	195.00
225 /	42+79	48+79	12' RT.	RAMP 12	225.00
75 /	67+28	69+28	12' LT.	RAMP 14	75.00
90 /	89+75	91+90	12' LT.	RAMP 15	90.00
				TOTAL	915.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. LANE LINES — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
117 /	86+53	89+50	12' LT.	RAMP 15	117.00
				TOTAL	117.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. EDGE LINES (YELLOW) — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
100 /	25+75	26+75	14' TO 16' RT.	RAMP 5	100.00
720 /	26+75	33+95	16' RT.	RAMP 5	720.00
383 /	24+96	28+79	16' LT.	RAMP 8	383.00
415 /	23+60	27+75	16' TO 18' LT.	RAMP 7	415.00
300 /	27+75	30+75	18' LT.	RAMP 7	300.00
816 /	32+59	40+75	16' TO 14' LT.	RAMP 9	816.00
100 /	35+83	36+83	15' TO 18' RT.	RAMP 11	100.00
167 /	36+83	38+50	18' RT.	RAMP 11	167.00
328 /	38+50	41+78	18' TO 16' RT.	RAMP 11	328.00
515 /	37+63	42+78	BL	RAMP 12	515.00
100 /	64+75	65+75	14' TO 16' RT.	RAMP 13	100.00
481 /	65+75	70+56	16' RT.	RAMP 13	481.00
30 /	70+56	70+86	16' TO 19' RT.	RAMP 13	30.00
266 /	62+84	65+50	16' LT.	RAMP 14	266.00
150 /	65+50	67+00	16' TO 24' LT.	RAMP 14	150.00
263 /	67+00	69+63	24' LT.	RAMP 14	263.00
60 /	69+63	69+93	24' TO 27' LT.	RAMP 14	60.00
46 /	90+92	91+38	BL	RAMP 15	46.00
129 /	89+21	90+50	BL	RAMP 16	129.00
88 /	90+50	91+38	16' LT	RAMP 16	88.00
				TOTAL	5457.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. CHANNELIZING LINES — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
49 /	89+58	90+07	25' LT.	RAMP 15	49.00
49 /	89+58	90+07	25' TO 29' LT.	RAMP 15	49.00
271 /	86+50	89+21	16' RT	RAMP 16	271.00
272 /	86+50	89+20	16' TO 37' RT.	RAMP 16	272.00
				TOTAL	641.00 LF

ITEM DESCRIPTION — UNIT
621 8 IN. CHANNELIZING LINES — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
55 /	32+78	33+33	13' RT.	RAMP 8	55.00
55 /	33+84	34+39	13' LT.	RAMP 12	55.00
55 /	33+84	34+39	34' TO 13' LT.	RAMP 12	55.00
55 /	69+28	69+83	12' LT.	RAMP 14	55.00
				TOTAL	220.00 LF

ITEM DESCRIPTION — UNIT
621 12 IN. CROSSWALK LINE — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
37 /	33+90	34+21	20' RT. TO BL	RAMP 5	37.00
48 /	34+01	34+42	22' RT. TO BL	RAMP 5	48.00
51 /	33+39	33+40	50' RT. TO 1' LT.	RAMP 8	51.00
70 /	33+48	33+49	67' RT. TO 3' LT.	RAMP 8	70.00
63 /	23+00	23+53	23' LT. TO BL	RAMP 7	63.00
43 /	23+29	23+64	20' LT. TO BL	RAMP 7	43.00
75 /	30+85	31+54	BL TO 22' LT.	RAMP 9	75.00
45 /	31+25	31+66	BL TO 19' LT.	RAMP 9	45.00
42 /	41+73	42+08	20' RT. TO BL	RAMP 11	42.00
70 /	41+84	42+47	23' RT. TO BL	RAMP 11	70.00
81 /	33+68	33+69	3' RT. TO 78' LT.	RAMP 12	81.00
63 /	33+77	33+78	BL TO 63' LT.	RAMP 12	63.00
35 /	71+04	71+16	23' RT. TO 10' LT.	RAMP 13	35.00
48 /	71+12	71+29	28' RT. TO 17' LT.	RAMP 13	48.00
54 /	69+82	69+92	27' RT. TO 26' LT.	RAMP 14	54.00
67 /	69+89	70+02	37' RT. TO 28' LT.	RAMP 14	67.00
				TOTAL	892.00 LF

ITEM DESCRIPTION — UNIT
621 24 IN. STOP LINE — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
44 /	33+33	33+35	44' RT. TO BL	RAMP 8	44.00
57 /	33+82	33+84	BL TO 57' LT.	RAMP 12	57.00
48 /	69+77	69+87	21' RT. TO 26' LT.	RAMP 14	48.00
				TOTAL	149.00 LF

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-7-73
CHECKED BY TKI DATE 12-14-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

574
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

ITEM DESCRIPTION — UNIT
621 12 IN. BROAD TRANSVERSE STRIPES (WHITE) — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
139 /	86+50	88+18	16' TO 27' RT.	RAMP 16	139.00
				TOTAL	139.00 LF

ITEM DESCRIPTION — UNIT
621 CURB MARKING (WHITE) — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
100 /	24+75	25+75	14' RT.	RAMP 5	100.00
186 /	32+99	33+87	BL	RAMP 5	186.00
79 /	33+01	33+51	31' TO 81' RT.	RAMP 8	79.00
196 /	22+60	24+56	BL	RAMP 7	196.00
58 /	27+17	27+75	19' LT.	RAMP 7	58.00
100 /	30+75	31+75	17' TO 14' LT.	RAMP 7	100.00
201 /	30+58	32+59	BL	RAMP 9	201.00
100 /	40+75	41+75	14' LT.	RAMP 9	100.00
100 /	34+83	35+83	14' TO 17' RT.	RAMP 11	100.00
54 /	38+51	39+05	19' RT.	RAMP 11	54.00
187 /	40+82	42+69	BL	RAMP 11	187.00
71 /	24+25	24+96	20' TO 19' LT.	RAMP 8	71.00
79 /	33+67	34+17	43' TO 93' LT.	RAMP 12	79.00
58 /	42+78	43+36	34' RT.	RAMP 12	58.00
100 /	63+75	64+75	14' TO 16' RT.	RAMP 13	100.00
78 /	70+80	71+43	6' TO 38' LT.	RAMP 13	78.00
89 /	69+42	69+91	6' TO 66' RT.	RAMP 14	89.00
61 /	90+77	91+38	25' LT.	RAMP 15	61.00
62 /	88+59	89+21	18' TO 17' LT.	RAMP 16	62.00
62 /	88+58	89+20	29' TO 37' LT.	RAMP 16	62.00
				TOTAL	2021.00 LF

ITEM DESCRIPTION — UNIT
621 CURB MARKING (YELLOW) — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
98 /	28+79	29+77	BL	RAMP 8	98.00
110 /	32+25	33+35	BL	RAMP 8	110.00
19 /	33+35	33+51	BL TO 7' LT.	RAMP 8	19.00
59 /	27+16	27+75	19' LT.	RAMP 7	59.00
19 /	33+67	33+83	7' RT. TO BL	RAMP 12	19.00
87 /	33+83	34+70	BL	RAMP 12	87.00
13 /	36+62	36+75	BL	RAMP 12	13.00
88 /	36+75	37+63	1' RT.	RAMP 12	88.00
39 /	70+86	71+17	19' TO 36' RT.	RAMP 13	39.00
20 /	69+93	70+11	27' TO 33' LT.	RAMP 14	20.00
337 /	86+47	89+84	BL	RAMP 15	337.00
108 /	89+84	90+92	BL TO 1' RT.	RAMP 15	108.00
345 /	84+72	88+17	BL	RAMP 16	345.00
104 /	88+17	89+21	BL TO 1' LT.	RAMP 16	104.00
				TOTAL	1446.00 LF

ITEM DESCRIPTION — UNIT
621 ISLAND MARKING (WHITE) — SF

* SF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
98 /	33+87	34+02	22' RT.	RAMP 5	98.00
77 /	24+35	24+48	22' LT.	RAMP 7	77.00
84 /	32+57	32+70	22' LT.	RAMP 9	84.00
70 /	41+75	41+84	22' RT.	RAMP 11	70.00
308 /	88+18	89+59	22' RT.	RAMP 16	308.00
				TOTAL	637.00 SF

ITEM DESCRIPTION — UNIT
621 ISLAND MARKING (YELLOW) — SF

* SF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
1117 /	29+77	32+25	17' TO 19' LT.	RAMP 8	1117.00
918 /	34+70	36+62	5' RT.	RAMP 12	918.00
				TOTAL	2035.00 SF

ITEM DESCRIPTION — UNIT
621 PAVEMENT ARROWS — EACH

* EACH	STATION	TYPE	OFFSET	REFERENCED TO	
1 /	32+03	LEFT	6.5' RT.	RAMP 8	1.00
1 /	32+03	LEFT & RIGHT	19' RT.	RAMP 8	1.00
1 /	33+03	LEFT	6.5' RT.	RAMP 8	1.00
1 /	33+03	LEFT & RIGHT	19' RT.	RAMP 8	1.00
1 /	34+12	LEFT	6.5' LT.	RAMP 12	1.00
1 /	34+12	LEFT & RIGHT	19' LT.	RAMP 12	1.00
1 /	34+12	RIGHT	31' LT.	RAMP 12	1.00
1 /	35+12	LEFT	6.5' LT.	RAMP 12	1.00
1 /	35+12	LEFT & RIGHT	19' LT.	RAMP 12	1.00
1 /	35+12	RIGHT	31' LT.	RAMP 12	1.00
1 /	68+50	LEFT & RIGHT	6' LT.	RAMP 14	1.00
1 /	68+50	LEFT	18' LT.	RAMP 14	1.00
1 /	69+50	LEFT & RIGHT	6' LT.	RAMP 14	1.00
1 /	69+50	LEFT	18' LT.	RAMP 14	1.00
				TOTAL	14.00

ITEM DESCRIPTION — UNIT
621 PAVEMENT WORD ''ONLY'', AS PER PLAN — EACH

* EACH	STATION	OFFSET	REFERENCED TO	
1 /	32+61	6.5' RT.	RAMP 8	1.00
1 /	34+58	6.5' LT.	RAMP 12	1.00
1 /	34+58	31' LT.	RAMP 12	1.00
1 /	69+00	18' LT.	RAMP 14	1.00
			TOTAL	4.00

ITEM DESCRIPTION — UNIT
621 4 IN. LANE LINES — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
36 /	40+07	40+88	16' RT.	W. 117 ST.	36.00
72X2 /	41+03	42+80	16' & 28' RT.		144.00
54 /	40+55	41+84	16' LT		54.00
63X2 /	41+99	43+52	16' & 28' LT.		126.00
315X2 /	44+42	52+72	16' & 28' RT.		630.00
315X2 /	45+14	53+44	16' & 28' LT.		630.00
54 /	54+48	55+77	16' RT.		54.00
72 /	54+48	56+25	28' RT.		72.00
72X2 /	55+14	56+91	16' & 28' LT.		144.00
54 /	55+62	56+91	40' LT.		54.00
45 /	57+96	59+00	23' TO 15' RT.		45.00
99 /	59+15	61+64	15' RT.		99.00
135X2 /	58+74	62+19	8' & 20' LT.		270.00
				TOTAL	2358.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. CENTERLINES — MILE
UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
260X2 /	38+40	41+00	CL	W. 117 ST.	520.00
100X 2 /	41+00	42+00	CL TO 2' RT. & LT.		200.00
434+2 /	58+02	62+36	4' LT. OF CL		436.00
98X2 /	58+02	59+00	12' TO 4' RT. OF CL		196.00
				TOTAL	1352.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. CHANNELIZING LINES — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
57X2 /	42+95	43+52	16' & 28' RT.	W.117ST.	114.00
57X2 /	42+95	43+52	16' & 28' RT.	W. 117 ST.	114.00
57X2 /	44+42	44+99	16' & 28' LT.		114.00
118 /	43+54	44+72	43' RT.		118.00
57X2 /	52+87	53+44	16' & 28' RT.		114.00
57X2 /	54+42	54+99	16' & 28' LT.		114.00
105 /	55+92	56+97	16' RT.		105.00
57 /	56+40	5+			57.00
57 /	56+40	56+97	28' RT.		57.00
57 /	58+02	58+59	8' & 20' LT.		57.00
57 /	61+79	62+36	15' RT.		57.00
186 /	51+84	53+70	40' LT.		186.00
88 /	51+84	52+71	40' TO 45' LT.		88.00
				TOTAL	1295.00 LF

ITEM DESCRIPTION — UNIT
621 4 IN. DOTTED LINE — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	RADIUS	
32X2 /	56+98	57+95	16' TO 12' LT. & RT.	W. 117 ST.		64.00
32X2 /	56+98	57+95	28' TO 24' LT. & RT.			64.00
40	43 + 75	44 + 38	58' LT. TO 27' RT.	W. 117 ST.	75'	40.00
36	53 + 49.5	54 + 09	16' LT. TO 55' RT.	W. 117 ST.	60'	36.00
18	54 + 28	54 + 67	57' RT. TO 29' RT.	W. 117 ST.	55'	18.00
34	40 + 70.5	41 + 36.5	46' LT. TO 19' RT.	WEST BLVD.	75'	34.00
					TOTAL	256.00 LF

ITEM DESCRIPTION — UNIT
621 8 IN. CHANNELIZING LINES — LF

73 /	52+98	53+70	49' TO 40' LT.	W. 117TH ST.	73.00
177 /	53+70	55+47	40' LT.		177.00
				TOTAL	250.00 LF

ITEM DESCRIPTION — UNIT
621 12 IN. CROSSWALK LINE — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
82 /	57+86	57+87	39' RT. TO 43' LT.	W. 117ST.	82.00
76 /	57+95	57+96	38' RT. TO 38' LT.		76.00
61 /	63+02	63+06	31' RT. TO 29' LT.		61.00
59 /	63+11	63+16	30' RT. TO 29' LT.		59.00
				TOTAL	278.00 LF

ITEM DESCRIPTION — UNIT
621 24 IN. STOP LINE — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
43 /	43+52	43+54	2' TO 45' RT.	W. 117 ST.	43.00
42 /	44+40	44+42	2' TO 44' LT.		42.00
42 /	53+44	53+46	2' TO 44' RT.		42.00
52 /	54+40	54+42	2' TO 54' LT.		52.00
40 /	56+97	56+99	2' TO 42' RT.		40.00
40 /	58+00	58+02	3' RT. TO 37' LT.		40.00
26 /	62+36	62+38	3.5' TO 29.5' RT.		26.00
36 /	63+17	63+22	6.5' RT. TO 29.5' LT.		36.00
				TOTAL	321.00 LF

ITEM DESCRIPTION — UNIT
621 12 IN. BROAD TRANSVERSE STRIPES (WHITE) — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
82 /	51+95	53+38	40' LT.	W. 117 ST.	82.00
				TOTAL	82.00 LF

ITEM DESCRIPTION — UNIT
621 12 IN. BROAD TRANSVERSE STRIPES (YELLOW) — LF

* LF	FROM STATION	TO STATION	OFF SET	REFERENCE TO	
55 /	58+02	58+84	3' RT.	W. 117 ST.	55.00
				TOTAL	55.00 LF

ITEM DESCRIPTION — UNIT
621 ISLAND MARKING (YELLOW) — SF

* SF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
60 /	41+97	42+12	CL	W. 117 ST.	60.00
60 /	44+37	44+52	CL		60.00
60 /	43+37	44+52	CL		60.00
60 /	53+33	53+48	CL		60.00
60 /	54+23	54+38	CL		60.00
60 /	56+85	57+00	CL		60.00
25 /	57+97	58+02	7' RT.		25.00
				TOTAL	385.00 SF

ITEM DESCRIPTION — UNIT
621 CURB MARKING (YELLOW) — LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
136X2 /	42+12	43+48	2' RT. & LT.	W. 117 ST.	272.00
881X2 /	44+52	53+33	2' RT. & LT.		1762.00
247X2 /	54+38	56+85	2' RT. & LT.		494.00
				TOTAL	2528.00 LF

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-7-73
CHECKED BY TKI DATE 12-14-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

ITEM DESCRIPTION UNIT
621 PAVEMENT ARROWS EACH

* EACH	STATION	TYPE	OFFSET	REFERENCE TO	
1 /	53+70	RIGHT	47' LT.	W. 117 ST.	1.00
1 /	54+67	LEFT	9' RT.		1.00
1 /	54+70	RIGHT	47' LT.		1.00
1 /	55+67	LEFT	9' RT.		1.00
1 /	55+70	RIGHT	47' LT.		1.00
1 /	56+67	LEFT	9' RT.		1.00
1 /	56+70	RIGHT	47' LT.		1.00
				TOTAL	7.00

ITEM DESCRIPTION UNIT
621 PAVEMENT WORD ''ONLY'', AS PER PLAN EACH

* EACH	STATION	OFFSET	REFERENCE TO	
1 /	54+20	47' LT.	W. 117 ST.	1.00
1 /	55+20	47' LT.		1.00
1 /	56+17	9' RT.		1.00
1 /	56+20	47' LT.		1.00
			TOTAL	4.00

ITEM DESCRIPTION UNIT
621 CURB MARKING (WHITE) LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
250 /	40+00	42+50	42' RT.	W. 117 ST.	250.00
151 /	40+50	42+00	29' TO 42' LT.		151.00
107 /	42+00	43+07	42' LT.		107.00
866 /	43+58	52+24	42' RT.		866.00
83 /	43+96	44+79	42' TO 46' LT.		83.00
693 /	45+90	52+83	42' LT.		693.00
265 /	53+75	56+40	54' LT.		265.00
62 /	53+28	53+90	46' TO 42' RT.		62.00
261 /	54+89	57+50	42' RT.		261.00
150 /	57+50	59+00	42' TO 25' RT.		150.00
437 /	58+13	62+50	34' LT.		437.00
50 /	62+50	63+00	34' TO 29' LT.		50.00
				TOTAL	3375.00 LF

ITEM DESCRIPTION UNIT
621 4 IN. LANE LINES MILE

UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
99 /	35+65	38+14	7' RT.	WEST BLVD.	99.00
27 /	38+30	38+88	8' TO 16' RT.		27.00
18 /	39+01	39+34	19' RT.		18.00
144 /	36+26	39+95	12' LT.		144.00
108 /	41+97	44+70	17' LT.		108.00
108 /	41+41	44+14	7' & 19' RT.		108.00
117 /	45+89	48+86	19' RT.		117.00
99 /	45+89	48+38	7' RT.		99.00
117 /	46+46	49+43	17' LT.		117.00
81 /	51+13	53+14	17'		81.00
45 /	53+29	54+34	16' TO 11' LT.		45.00
18 /	51+61	51+94	5' LT.		18.00
63 /	50+41	51+94	19' RT.		63.00
90 /	52+09	54+34	19' TO 11' RT.		90.00
				TOTAL	1134.00 LF

ITEM DESCRIPTION UNIT
621 4 IN. CENTERLINES MILE

UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
452X2 /	35+54	40+06	5' LT. OF CL	WEST BLVD.	904.00
60X2 /	38+40	39+00	5' LT. TO 6' RT.		120.00
106X2 /	39+00	40+06	6' RT. OF CL		212.00
352X2 /	41+28	44+80	5' LT. OF CL		704.00
429X2 /	45+79	49+58	5' LT. OF CL		858.00
159X2 /	50+41	52+00	7' RT. OF CL		318.00
250X2 /	52+00	54+50	7' RT. TO CL		500.00
				TOTAL	3616.00 LF

ITEM DESCRIPTION UNIT
621 4 IN. CHANNELIZING LINES LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
57 /	35+54	36+11	12' LT.		57.00
57 /	39+49	40+06	19' RT.		57.00
57 /	41+25	41+82	17' LT.		57.00
57 /	44+29	44+86	7' RT.		57.00
62 /	44+29	44+91	19' RT.		62.00
57 /	45+74	46+31	17' LT.		57.00
105 /	48+53	49+58	7' RT.		105.00
57 /	49+01	49+58	19' LT.		57.00
57 /	50+41	50+98	17' LT.		57.00
105 /	50+41	51+46	5' LT.		105.00
				TOTAL	671.00 LF

ITEM DESCRIPTION UNIT
621 12 IN. CROSSWALK LINE LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
67 /	40+12	40+13	32' RT. TO 35' LT.	WEST BLVD.	67.00
72 /	40+21	40+22	32' RT. TO 40' LT.		72.00
92 /	45+50	45+83	34' LT. TO 50' RT.		92.00
79 /	45+61	45+90	32' LT. TO 42' RT.		79.00
80 /	49+64	49+65	40' RT. TO 40' LT.		80.00
108 /	49+73	49+74	54' RT. TO 54' LT.		108.00
108 /	50+25	50+26	54' RT. TO 54' LT.		108.00
80 /	50+34	50+35	40' RT. TO 40' LT.		80.00
				TOTAL	686.00 LF

ITEM DESCRIPTION UNIT
621 24 IN. STOP LINE LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
26 /	40+06	40+08	6' TO 32' RT.	WEST BLVD.	26.00
28 /	41+22	41+27	32' TO 4' LT.		28.00
41 /	44+81	44+98	5' LT. TO 32' RT.		41.00
29 /	45+67	45+77	5' TO 32' LT.		29.00
42 /	49+58	49+60	32' RT. TO 6' LT.		42.00
43 /	50+39	50+41	7' RT. TO 35' LT.		43.00
				TOTAL	209.00 LF

ITEM DESCRIPTION UNIT
621 12 IN. BROAD TRANSVERSE STRIPES (YELLOW) LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
157 /	38+62	40+06	CL	WEST BLVD.	157.00
				TOTAL	157.00 LF

ITEM DESCRIPTION UNIT
621 ISLAND MARKING (YELLOW) SF

* SF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
36 /	40+06	40+12	CL	WEST BLVD.	36.00
				TOTAL	36.00 SF

ITEM DESCRIPTION UNIT
621 PAVEMENT ARROWS EACH

* EACH	STATION	TYPE	OFFSET	REFERENCE TO	
1 /	48+30 NB	LEFT	CL	WEST BLVD.	1.00
1 /	49+30 NB	LEFT	CL		1.00
1 /	50+69 SB	LEFT	CL		1.00
1 /	50+96 SB	LEFT	CL		1.00
1 /	51+69 SB	LEFT	CL		1.00
1 /	44+53 NB	LEFT	CL		1.00
				TOTAL	6.00

ITEM DESCRIPTION UNIT
621 PAVEMENT WORD ''ONLY'', AS PER PLAN EACH

* EACH	STATION	OFFSET	REFERENCE TO	
1 /	48+80	CL	WEST BLVD.	1.00
1 /	51+19	CL		1.00
1 /	44+03	CL		1.00
			TOTAL	3.00

ITEM DESCRIPTION UNIT
621 4 IN. LANE LINES MILE

UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
63 /	58+69	60+22	11' RT.	WESTERN AVE.	63.00
90 /	59+69	60+94	11' LT.		90.00
99 /	62+37	64+86	11' RT.		99.00
72 /	63+09	64+86	11' LT.		72.00
63 /	65+76	67+77	11' LT.		63.00
54 /	65+90	67+19	11' RT.		54.00
189 /	68+42	73+31	CL		189.00
				TOTAL	630.00 LF

ITEM DESCRIPTION UNIT
621 4 IN. CENTERLINES MILE

UNITS LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
57X2 /	62+78		48' TO 105' RT	W. 117 ST.	114.00
233X2 /	58+61	60+94	CL	WESTERN AVE.	466.00
255X2 /	62+37	64+92	CL		510.00
199X2 /	65+63	67+62	CL		398.00
				TOTAL	1488.00 LF

ITEM DESCRIPTION UNIT
621 4 IN. CHANNELIZING LINES LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
57 /	60+37	60+94	11' RT.	WESTERN AVE.	57.00
51 /	62+50	63+01	32' RT OF CL	W. 117 ST.	51.00
32 /	62+61	62+93	41' RT OF CL		32.00
57 /	62+37	62+94	11' LT.		57.00
				TOTAL	197.00 LF

ITEM DESCRIPTION UNIT
621 12 IN. CROSSWALK LINE LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
50 /	61+00	61+01	25' RT. TO 25' LT.	WESTERN AVE.	50.00
52 /	61+09	61+10	26' RT. TO 26' LT.		52.00
52 /	62+21	62+22	26' RT. TO 26' LT.		52.00
50 /	62+30	62+31	25' RT. TO 25' LT.		50.00
52 /	64+92	64+93	26' RT. TO 26' LT.		52.00
62 /	65+01	65+02	31' RT. TO 31' LT.		62.00
62 /	65+53	65+54	31' RT. TO 31' LT.		62.00
52 /	65+62	65+63	26' RT. TO 26' LT.		52.00
42 /	68+24	66+33	18' RT. TO 23' LT.		42.00
32 /	68+35	68+42	14' RT. TO 17' LT.		32.00
28 /	71+89	71+90	14' RT. TO 14' LT.		28.00
28 /	71+98	71+99	14' RT. TO 14' LT.		28.00
49 /	73+52	73+53	31' RT. TO 18' LT.		49.00
59 /	73+61	73+62	34' RT. TO 25' LT.		59.00
				TOTAL	670.00 LF

ITEM DESCRIPTION UNIT
621 24 IN. STOP LINE LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
15 /	62+78	62+92	46' RT.	W. 117 ST.	15.00
26 /	60+94	60+96	25' RT. TO 1' LT.	WESTERN AVE.	26.00
26 /	62+36	62+37	1' RT. TO 25' LT.		26.00
				TOTAL	67.00 LF

ITEM DESCRIPTION UNIT
621 4 IN. CHANNELIZING LINES LF.

* LF	FROM STATION	TO STATION	OFFSET	REFERENCE TO	
30 /	67+62	67+98	CL TO 1' RT.	WESTERN AVE.	30.00
42 /	67+62	67+98	1' TO 15' RT.		42.00
14 /	67+98		1' TO 15' RT.		14.00
22 /	68+10	68+32	14' RT.		22.00
50 /	68+10	68+32	14' TO 55' RT.		50.00
26 /	72+28	72+54	14' RT.		26.00
26 /	72+29	72+54	19' TO 14' RT.		26.00
				TOTAL	210.00 LF

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-2-73
CHECKED BY TKI DATE 12-14-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

```
ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    12 IN. BROAD TRANSVERSE STRIPES (YELLOW)                              LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
33 /        67+62         67+98        1' TO 15  RT.        WESTERN AVE.       33.00
53 /        68+10         68+28        14' TO 47' RT.                          53.00
                                                                         ----------
                                                               TOTAL       86.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    ISLAND MARKING (WHITE)                                                SF
* SF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
221 /       71+98         72+31        14' RT.              WESTERN AVE.      221.00
                                                                         ----------
                                                               TOTAL      221.00 SF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
600X2 /     43+75         49+75        CL                   W. 110 ST.       1200.00
                                                                         ----------
                                                               TOTAL     1200.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
375X2 /     47+25         51+00        CL                   W. 106 ST.        750.00
                                                                         ----------
                                                               TOTAL      750.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. LANE LINES                                                      MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
27 /        63+40         64+15        14' RT.              ELMWOOD-SECTOR CONN.  27.00
                                                                         ----------
                                                               TOTAL       27.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
861X2 /     56+00         64+61        CL                   ELMWOOD-SECTOR CONN.  1722.00
                                                                         ----------
                                                               TOTAL     1722.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CHANNELIZING LINES                                              LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
32 /        64+23         64+55        14' RT.              ELMWOOD-SECTOR CONN.  32.00
35 /        64+23         64+55        14' TO 19' RT.                          35.00
                                                                         ----------
                                                               TOTAL       67.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                 LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCE TO
38 /        60+47         60+49        21' LT. TO 17' RT.   ELMWOOD-SECTOR CONN.  38.00
39 /        60+56         60+58        22' LT. TO 17' RT.                      39.00
32 /        64+67         64+68        18' LT. TO 14' RT.                      32.00
36 /        64+76         64+77        22' LT. TO 14' RT.                      36.00
57 /        64+67         64+68        39' RT. TO 96' RT.                      57.00
36 /        64+76         64+77        29' RT. TO 65' RT.                      36.00
                                                                         ----------
                                                               TOTAL      238.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                      LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
14 /        64+61         64+63        CL TO 14' RT.        ELMWOOD-SECTOR CONN.  14.00
31 /        64+61         64+63        24' RT. TO 55' RT.                      31.00
                                                                         ----------
                                                               TOTAL       45.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    ISLAND MARKING (WHITE)                                                SF
* SF        FROM STATION  TO STATION   OFFSET
370 /       64+52         64+81        16' RT. TO 39' RT.   ELMWOOD-SECTOR CONN. 370.00
                                                                         ----------
                                                               TOTAL      370.00 SF
```

```
ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                 LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
36 /        47+78         47+79        18' LT. TO 18' RT.   BELMONT AVE.       36.00
46 /        47+87         47+88        27' LT. TO 19' RT.                      46.00
                                                                         ----------
                                                               TOTAL             LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                      LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
15 /        47+72         47+74        CL TO 15' RT.        BELMONT AVE.       15.00
                                                               TOTAL             LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
47 X 2 /    47+25         47+72        CL                   SECTOR AVE.        94.00
                                                                         ----------
                                                               TOTAL       94.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                 LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
26 /        47+77         47+80        13' LT. TO 13' RT.   SECTOR AVE.        26.00
30 /        47+86         47+89        13' LT. TO 17' RT.                      30.00
                                                                         ----------
                                                               TOTAL       56.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                      LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
13 /        47+47         47+51        CL TO 13' RT.        SECTOR AVE.        13.00
                                                                         ----------
                                                               TOTAL       13.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE

UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
168 /       48+89         50+57        CL                   W.119 & CLOVERDALE 168.00
*                                                              CONNECTOR
                                                                         ----------
                                                               TOTAL      168.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE
UNITS       LF
* LF        FROM STATION TO STATION    OFFSET               REFERENCED TO
275 /       40+00         42+75        CL                   SOUTH FRONTAGE ROAD 275.00
*                                                              NO. 1
200 /       43+45         45+45        CL                                     200.00
276 /       46+20         48+96        CL                                     276.00
                                                                         ----------
                                                               TOTAL      751.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                 LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
56 /        42+81         43+37        18' RT.              SOUTH FRONTAGE ROAD  56.00
*                                                              NO.1
37 /        42+91         43+28        27' RT.                                 37.00
32 /        45+53         45+71        14' LT. TO 21' RT.                      32.00
36 /        45+61         45+71        14' LT. TO 21' RT.                      36.00
52 /        45+61         46+13        21' RT. TO 17' RT.                      52.00
35 /        45+66         46+01        30' RT.    27' RT.                      35.00
                                                                         ----------
                                                               TOTAL      248.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                      LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
9 /         43+16         43+25        33' RT.              SOUTH FRONTAGE ROAD   9.00
*                                                              NO. 1
14 /        45+84         45+98        34' RT. TO 33' RT.                      14.00
                                                                         ----------
                                                               TOTAL       23.00 LF
```

```
ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
290 /       61+00         63+90        CL                   NORTH FRONTAGE ROAD 290.00
*                                                              NO. 2
275 /       64+70         67+45        CL                                     275.00
                                                                         ----------
                                                               TOTAL      565.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621/   12 IN. CROSSWALK LINE                                                 LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
52 /        64+08         64+60        20' LT.              NORTH FRONTAGE ROAD  52.00
*                                                              NO. 2
37 /        64+14         64+51        29' LT.                                 37.00
                                                                         ----------
                                                               TOTAL       89.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                      LF

* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
13 /        64+16         64+29        34' LT.              NORTH FRONTAGE ROAD  13.00
*                                                              NO. 2
                                                                         ----------
                                                               TOTAL       13.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                     MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
102 /       39+63         40+65        CL                   SOUTH FRONTAGE ROAD 102.00
*                                                              NO. 3
190 /       41+40         43+30        CL                                     190.00
290 /       44+10         47+00        CL                                     290.00
                                                                         ----------
                                                               TOTAL      582.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                 LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
48 /        38+42         38+53        19' RT. TO 29' LT.   SOUTH FRONTAGE ROAD  48.00
*                                                              NO. 3
35 /        38+53         38+6*        15' RT. TO 20' LT                       35.00
55 /        40+72         41+27        18' RT.                                 55.00
36 /        40+81         41+17        27H RT.                                 36.00
56 /        43+43         43+99        18' RT.                                 56.00
37 /        43+53         43+90        27( RT.                                 37.00
                                                                         ----------
                                                               TOTAL      267.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                      LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO

17 /        38+62         38+66        17' LT               SOUTH FRONTAGE ROAD  17.00
*                                                              NO. 3
12 /        41+02         41+14        33' RT.                                 12.00
13 /        43+74         43+87        33' RT.                                 13.00
                                                                         ----------
                                                               TOTAL       42.00 LF

ITEM   DESCRIPTION                                                           UNIT
----------------------------------------------------------------------------------
621    4 IN. LANE LINES                                                      MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET               REFERENCED TO
243 /       51+24         57+72        CL                   NORTH MARGINAL ROAD 243.00
*                                                              NO. 4
144 /       58+94         62+78        CL                                     144.00
45 X 2 /    64+28         65+48        CL & 12' RT.                            90.00
187 /       65+48         70+50        CL                                     187.00
                                                                         ----------
                                                               TOTAL      664.00 LF
```

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-7-73
CHECKED BY TKI DATE 12-14-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

577
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

```
ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. CHANNELIZING LINES                                                     LF

* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
57 /        50+67         51+24        CL                  NORTH MARGINAL ROAD          57.00
*                                                                NO. 4
57 /        58+37         58+94        CL                                               57.00
32 X 2 /    63+71         64+03        CL & 12' L.T                                     64.00
25 X 2 /    64+03         64+28        CL & 12' RT.                                    _50.00
                                                                                    ----------
                                                                        TOTAL       228.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                        LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO

49 /        50+38         50+67        14' RT. TO 25' LT.  NORTH MARGINAL ROAD          49.00
40 /        50+50         50+74        14' RT. TO 18' LT.        NO. 4                  40.00
69 /        53+85         54+54        17' LT.                                          69.00
48 /        53+95         54+43        27' LT.                                          48.00
30 /        57+70         57+80        14' LT. TO 14' RT.                               30.00
34 /        57+80         57+90        14' LT.    17' RT.                               34.00
43 /        58+14         58+30        15' LT. TO 25' RT.                               43.00
33 /        58+25         58+36        14' LT. TO 16' RT.                               33.00
54 /        63+55         63+56        38' LT. TO 16' RT.                               54.00
44 /        63+64         63+65        30' LT. TO 14' RT.                               44.00
44 /        63+64         63+65        30' LT. TO 14' RT.                               44.00
55 /        69+66         70+21        18' LT.                                          55.00
36 /        69+76         70+12        32' LT.                                         _36.00
                                                                                    ----------
                                                                        TOTAL       579.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                             LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
37 /        50+57         50+79        14' LT. TO 16' RT.  NORTH MARGINAL ROAD          37.00
*                                                                NO. 4

13 /        53+99         54+12        32' LT.                                          13.00
30 /        58+31         58+41        14' LT. TO 14' RT.                               30.00
42 /        63+69         63+71        28H LT. TO 14' RT.                               42.00
16 /        69+79         69+95        18' LT.                                         _16.00
                                                                                    ----------
                                                                        TOTAL       138.00 LF


ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    PAVEMENT ARROWS                                                              EACH
* EACH      STATION       TYPE         OFFSET              REFERENCED TO
1 /         50+97         LEFT         7' RT.              NORTH MARGINAL ROAD           1.00
*                                                              NO. 4
1 /         51+97         LEFT         7' RT.                                           _1.00
                                                                                    ----------
                                                                        TOTAL         2.00

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    PAVEMENT WORD ''ONLY'', AS PER PLAN                                          EACH
* EACH      STATION                    OFFSET              REFERENCED TO
1 /         51+47                      7' RT.              NORTH MARGINAL ROAD           1.00
*                                                                NO. 4
                                                                                    ----------
                                                                        TOTAL         1.00

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                            MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
295 /       60+00         62+95        CL                  SOUTH FRONTAGE ROAD         295.00
*                                                              NO. 4-A
283 /       63+85         66+68        CL                                          _283.00
                                                                                    ----------
                                                                        TOTAL       578.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                        LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
62 /        63+07         63+69        19' RT.             SOUTH FRONTAGE ROAD          62.00
*                                                              NO. 4-A
44 /        63+16         63+60        28' RT.                                         _44.00
                                                                                    ----------
                                                                        TOTAL       106.00 LF
```

```
ITEM   DESCRIPTION
------------------------------------------------------------------------------------UNIT--
621    24 IN. STOP LINE                                                              LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
14 /        63+43         63+57        33( RT.             SOUTH FRONTAGE ROAD          14.00
*                                                               NO. 4-A
                                                                                    ----------
                                                                        TOTAL        14.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. LANE LINES                                                             MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
171 /       152+25        156+81       CL                  W.100TH ST. EXTENDED        _171.00
                                                                                    ----------
                                                                        TOTAL       171.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    8 IN. CHANNELIZING LINES                                                     LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
22 /        67+34         67+56        11' RT. TO 13' RT.  WESTERN AVE.                 22.00
142 /       150+00        151+38       19' RT. TO CL       W.100TH ST. EXTENDED        _142.00
                                                                                    ----------
                                                                        TOTAL       164.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. CHANNELIZING LINES                                                     LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
57 /        156+81        157+38       CL                  W.100TH ST. EXTENDED         _57.00
                                                                                    ----------
                                                                        TOTAL        57.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                        LF

* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
22 /        151+29        151+37       47' RT. TO 27' RT.  W.100TH ST. EXTENDED         22.00
33 /        151+32        151+43       66' RT. TO 36' RT.                               33.00
30 /        151+41        151+51       14' RT. TO 14' LT.                               30.00
34 /        151+51        151+62       14' RT. TO 17' LT.                               34.00
48 /        157+34        157+47       32' RT. TO 14' LT.                               48.00
58 /        157+40        157+56       42' RT. TO 14' LT.                               58.00
72 /        64+90         65+62        26' LT.            WESTERN AVE                   72.00
41 /        65+08         65+49        36' LT.                                          41.00
67 /        64+94         65+61        27' RT.                                          67.00
40 /        65+07         65+47        36' RT.                                          40.00
53 /        67+86         68+39        30' LT. TO 19' LT.                               53.00
35 /        67+95         68+30        39' LT. TO 28' LT.                              _35.00
                                                                                    ----------
                                                                        TOTAL       533.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                             LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
20 /        151+26        151+33       40' RT. TO 22' RT.  W.100TH ST. EXTENDED         20.00
30 /        151+35        151+45       14' RT. TO 14' LT.                               30.00
43 /        157+29        157+41       27' RT. TO 14' LT.                               43.00
16 /        65+12         65+28        41' LT.             WESTERN AVE                  16.00
16 /        65+28         65+44        41' RT.                                          16.00
14 /        67+97         68+11        44' LT.                                         _14.00
                                                                                    ----------
                                                                        TOTAL       139.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------

621    ISLAND MARKING (WHITE)                                                       SF
* SF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
238         151+28        151+51       14' RT. TO 35' RT.  W.100TH ST. EXTENDED        _238.00
                                                                                    ----------
                                                                        TOTAL       238.00 SF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. LANE LINES                                                             MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
72 X 2 /    50+48         52+25        CL & 14' LT.        SOUTH MARGINAL ROAD         144.00
*                                                              NO. 5
189 /       52+25         57+30        CL                                          _189.00
                                                                                    ----------
                                                                        TOTAL       333.00 LF
```

```
ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                        LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
74 /        50+33         50+34        38' RT. TO 36' LT.  SOUTH MARGINAL ROAD          74.00
*                                                              NO. 5
56 /        50+42         50+43        27' RT. TO 29' LT.                               56.00
55 /        52+96         53+51        13' RT.                                          55.00
35 /        53+06         53+41        27' RT.                                          35.00
51 /        55+23         55+74        13' RT.                                          51.00
29 /        55+34         55+63        27H RT.                                          29.00
57 /        56+44         57+01        13' RT.                                          57.00
37 /        56+54         56+91        27H RT.                                         _37.00
                                                                                    ----------
                                                                        TOTAL       394.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                             LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
14 /        53+24         53+38        32  RT.             SOUTH MARGINAL ROAD          14.00
*                                                              NO. 5
11 /        55+49         55+60        32' RT.                                          11.00
15 /        56+73         56+88        32' RT.                                         _15.00
                                                                                    ----------

                                                                        TOTAL        40.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. LANE LINES                                                             MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
9 /         43+56         43+65        13' RT.             W.98TH ST.                    9.00
81 /        45+87         48+03        12' LT.                                          81.00
81 /        45+47         47+63        12' RT.                                         _81.00
                                                                                    ----------
                                                                        TOTAL       171.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. CENTERLINES                                                            MILE
UNITS       LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
435 X 2 /   43+00         44+35        CL TO 11' LT.       W.98TH ST.                  870.00
435 X 2 /   43+00         44+35        CL                                              870.00
288 X 2 /   45+32         48+20        CL                                              576.00
88 X 2 /    49+13         50+00        11' RT. TO CL                                   176.00
87 X 2 /    49+13         50+00        CL                                             _174.00
                                                                                    ----------
                                                                        TOTAL      2666.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    4 IN. CHANNELIZING LINES                                                     LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
57 /        43+80         44+37        12' RT.             W.98TH ST.                   57.00
57 /        45+30         45+87        12' LT.                                          57.00
57 /        47+63         48+20        12' RT.                                          57.00
57 /        49+13         49+70        12' LT.                                         _57.00
                                                                                    ----------
                                                                        TOTAL       228.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    12 IN. CROSSWALK LINE                                                        LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
61 /        44+36         44+47        32' LT. TO 28' RT.  W.98TH ST.                   61.00
70 /        44+44         44+57        37' LT. TO 32' RT.                               70.00
64 /        48+97         48+98        32' LT. TO 32' RT.                               64.00
54 /        49+06         49+07        27' LT. TO 27' RT.                               54.00
33 /        49+81         50+14        28' LT. TO 21' LT.                               33.00
24 /        49+88         50+11        36' LT. TO 31' LT.                              _24.00
                                                                                    ----------
                                                                        TOTAL       306.00 LF

ITEM   DESCRIPTION                                                                  UNIT
------------------------------------------------------------------------------------------
621    24 IN. STOP LINE                                                             LF
* LF        FROM STATION  TO STATION   OFFSET              REFERENCED TO
27 /        44+36         44+41        CL TO 27' RT.       W.98TH ST.                   27.00
27 /        45+25         45+31        26' LT. TO CL                                    27.00
26 /        48+20         48+22        CL TO 26' RT.                                    26.00
26 /        49+11         49+13        CL TO 26' LT.                                    26.00
22 /        49+89         50+11        41' LT. TO 36' LT.                              _22.00
                                                                                    ----------
                                                                        TOTAL       128.00 LF
```

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

PAVEMENT MARKING QUANTITIES SUB-SUMMARY

CALCULATED BY MSC DATE 12-7-73
CHECKED BY TKI DATE 12-14-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50) 19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

ITEM	DESCRIPTION	UNIT
621	12 IN. BROAD TRANSVERSE STRIPES (YELLOW)	LF

* LF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
91 /	50+00	44+35	CL TO 11' LT.	W.98TH ST.	91.00
56 /	49+10	50+00	11' RT. TO CL		56.00
				TOTAL	147.00 LF

ITEM	DESCRIPTION	UNIT
621	ISLAND MARKING (YELLOW)	SF

* SF	FROM STATION	TO STATION	OFFSET	REFERENCED TO	
60 /	44+35	44+41	CL TO 11' LT.	W.98TH ST.	60.00
60 /	49+07	49+13	CL TO 11' RT.		60.00
				TOTAL	120.00 SF

ITEM	DESCRIPTION	UNIT
621	PAVEMENT ARROWS	EACH

* EACH	STATION	TYPE	OFFSET	REFERENCED TO	
1 /	45+60	LEFT	6' LT.	W.98TH S.	1.00
1 /	45+60	THRU	12.5' LT.		1.00
1 /	46+60	LEFT	6' LT.		1.00
1 /	46+60	THRU	12.5' LT		1.00
1 /	46+90	LEFT	6' RT.		1.00
1 /	46+90	THRU	12.5' RT.		1.00
1 /	47+90	LEFT	6' RT.		1.00
1 /	47+90	THRU	12.5' RT.		1.00
				TOTAL	8.00

ITEM	DESCRIPTION	UNIT
621	PAVEMENT WORD ''ONLY'', AS PER PLAN	EACH

* EACH	STATION	OFFSET	REFERENCED TO	
1 /	46+10	6' LT.	W.98TH ST.	1.00
1 /	46+10	12.5' LT.		1.00
1 /	47+40	6' RT.		1.00
1 /	47+40	12.5' RT.		1.00
QUAN/TOTAL				
			TOTAL	4.00

SUB-TOTAL PLAN SHEET NO 553-560

CUY-90-10.40 PAVEMENT MARKINGS

TOTAL	ITEM	UNIT	DESCRIPTION
1.12	621	MILE	4 IN. LANE LINES
3.42	621	MILE	6 IN. LANE LINES
2.94	621	MILE	4 IN. CENTERLINES
4.27	621	MILE	4 IN. EDGE LINES (WHITE)
3.78	621	MILE	4 IN. EDGE LINES (YELLOW)
3594.	621	LF	4 IN. CHANNELIZING LINES
3261.	621	LF	8 IN. CHANNELIZING LINES
256.	621	LF	4 IN. DOTTED LINE (WHITE)
5424.	621	LF	12 IN. CROSSWALK LINE
1356.	621	LF	24 IN. STOP LINE
221.	621	LF	12 IN..BROAD TRANSVERSE STRIPES (WHITE)
917.	621	LF	24 IN. BROAD TRANSVERSE STRIPES (WHITE)
445.	621	LF	12 IN. BROAD TRANSVERSE STRIPES (YELLOW)
5524.	621	LF	CURB MARKING (WHITE)
3974.	621	LF	CURB MARKING (YELLOW)
1986.	621	SF	ISLAND MARKING (WHITE)
2576.	621	SF	ISLAND MARKING (YELLOW)
37	621	EACH	PAVEMENT ARROWS
16	621	EACH	PAVEMENT WORD ''ONLY'', AS PER PLAN

DELINEATORS

PLAN SHEET NO 553-560

ITEM	DESCRIPTION	UNIT
620	DELINEATORS, TYPE D POST MOUNTED	EACH

PARTICIPAT 4 / FHWA DOT OHIO DOT CITY OF CLEVELAND

* EACH	FROM STATION	TO STATION	SIDE	INTERVAL	REFERENCED TO	
3 /	722+00	724+00	LEFT	100 FT.	I-90	3.00
5 /	25+00	29+00	LEFT	100 FT.	RAMP 5	5.00
7 /	29+00	32+60	RIGHT	60 FT.	RAMP 5	7.00
4 /	32+90	33+80	RIGHT	30 FT.	RAMP 5	4.00
4 /	33+80	34+70	LEFT	30 FT.	RAMP 5	4.00
3 /	54+20	56+20	LEFT	100 FT.	W. 117TH ST.	3.00
5 /	21+75	24+95	RIGHT	80 FT.	RAMP 8	5.00
9 /	24+95	28+95	LEFT	50 FT.	RAMP 8	9.00
2 /	28+95	29+95	RIGHT	100 FT.	RAMP 8	2.00
5 /	30+55	31+75	RIGHT	30 FT.	RAMP 8	5.00
2 /	32+35	33+35	RIGHT	100 FT.	RAMP 8	2.00
5 /	22+60	23+80	RIGHT	30 FT.	RAMP 7	5.00
22 /	23+80	30+10	LEFT	30 FT.	RAMP 7	22.00
1 /	30+10	30+70	LEFT	60 FT.	RAMP 7	1.00
2 /	30+70	31+70	RIGHT	100 FT.	RAMP 7	2.00
8 /	732+70	739+70	RIGHT	100 FT.	I-90	8.00
4 /	30+60	31+50	RIGHT	30 FT.	RAMP 9	4.00
2 /	32+10	33+10	RIGHT	100 FT.	RAMP 9	2.00
1 /	33+10	33+90	RIGHT	80 FT.	RAMP 9	1.00
9 /	33+90	37+90	LEFT	50 FT.	RAMP 9	9.00
3 /	38+70	40+30	LEFT	80 FT.	RAMP 9	3.00
2 /	40+30	41+10	RIGHT	80 FT.	RAMP 9	2.00
7 /	741+90	747+90	RIGHT	100 FT.	I-90	7.00
10 /	726+50	734+50	LEFT	100 FT.	I-90	10.00
2 /	35+50	36+10	LEFT	60 FT.	RAMP 11	2.00
19 /	36+10	41+50	RIGHT	30 FT.	RAMP 11	19.00
5 /	41+50	42+70	LEFT	30 FT.	RAMP 11	5.00
2 /	34+00	34+60	LEFT	60 FT.	RAMP 12	2.00
4 /	34+90	35+80	LEFT	30 FT.	RAMP 12	4.00
2 /	36+40	37+40	LEFT	100 FT.	RAMP 12	2.00
2 /	37+40	38+20	RIGHT	80 FT.	RAMP 12	2.00
3 /	38+70	39+70	RIGHT	50 FT.	RAMP 12	3.00
3 /	40+50	42+10	RIGHT	80 FT.	RAMP 12	3.00
1 /	42+10	43+10	RIGHT	100 FT.	RAMP 12	1.00
7 /	43+10	49+10	LEFT	100 FT.	RAMP 12	7.00
6 /	758+10	763+10	LEFT	100 FT.	I-90	6.00
2 /	64+10	64+80	LEFT	70 FT.	RAMP 13	2.00
3 /	64+80	66+20	RIGHT	70 FT.	RAMP 13	3.00
4 /	66+20	69+20	LEFT	100 FT.	RAMP 13	4.00
3 /	69+80	71+00	LEFT	40 FT.	RAMP 13	3.00
11 /	59+50	69+50	RIGHT	100 FT.	RAMP 14	11.00
2 /	63+75	64+75	RIGHT	100 FT.	NORTH MARGINAL ROAD NO.4	2.00
5 /	86+75	90+75	RIGHT	100 FT.	RAMP 15	5.00
2 /	90+75	91+75	LEFT	100 FT.	RAMP 15	2.00
5 /	84+75	88+75	LEFT	100 FT.	RAMP 16	5.00
4 /	88+75	91+75	RIGHT	100 FT.	RAMP 16	4.00
					TOTAL	222.00

ITEM	DESCRIPTION	UNIT
620	DELINEATORS, TYPE D BRACKET MOUNTED	EACH

* EACH	FROM STATION	TO STATION	SIDE	INTERVAL	REFERENCED TO	
2 /	757+50	758+50	RIGHT	100 FT.	I-90	2.00
					TOTAL	2.00

ITEM	DESCRIPTION	
620	DELINEATORS TYPE X-4, POST MOUNTED	EACH

EACH	STREET		
REF. PLAN SHEET 579			
1	S. END W. 121 st. ST.	(N. OF I-90)	1
1	N. END W. 121 st. ST.	(S. OF I-90)	1
1	S. END W. 120 th. ST.	(N. OF I-90)	1
REF. PLAN SHEET 580			
1	N. END W. 118 th. ST.	(N. OF ARDEN AVE.)	1
1	E. END ARDEN AVE.	(W. OF 117 th ST.)	1
1	W. END ARDEN AVE.	(E. OF 117 th. ST.)	1
1	W. END BELMONT AVE.	(E. OF 117th ST.)	1
REF. PLAN SHEET 582			
1	S. END W. 112 th. ST.	(N. OF I-90)	1
1	S. END W. 111 th ST.	(N. OF I-90)	1
		TOTAL	9

ITEM	DESCRIPTION	
620	DELINEATORS, TYPE X-1, POST MOUNTED	EACH

EACH	REF. TO--	
REF. PLAN SHEET 580		
1	SIGN 434	1
REF. PLAN SHEET. 585		
1	STA. 72+20 RT. WESTERN AVE. EXTENDED	1
1	SIGN 557	1
	TOTAL	3

DELINEATORS
SUB-TOTAL PLAN SHEET NO 553-560

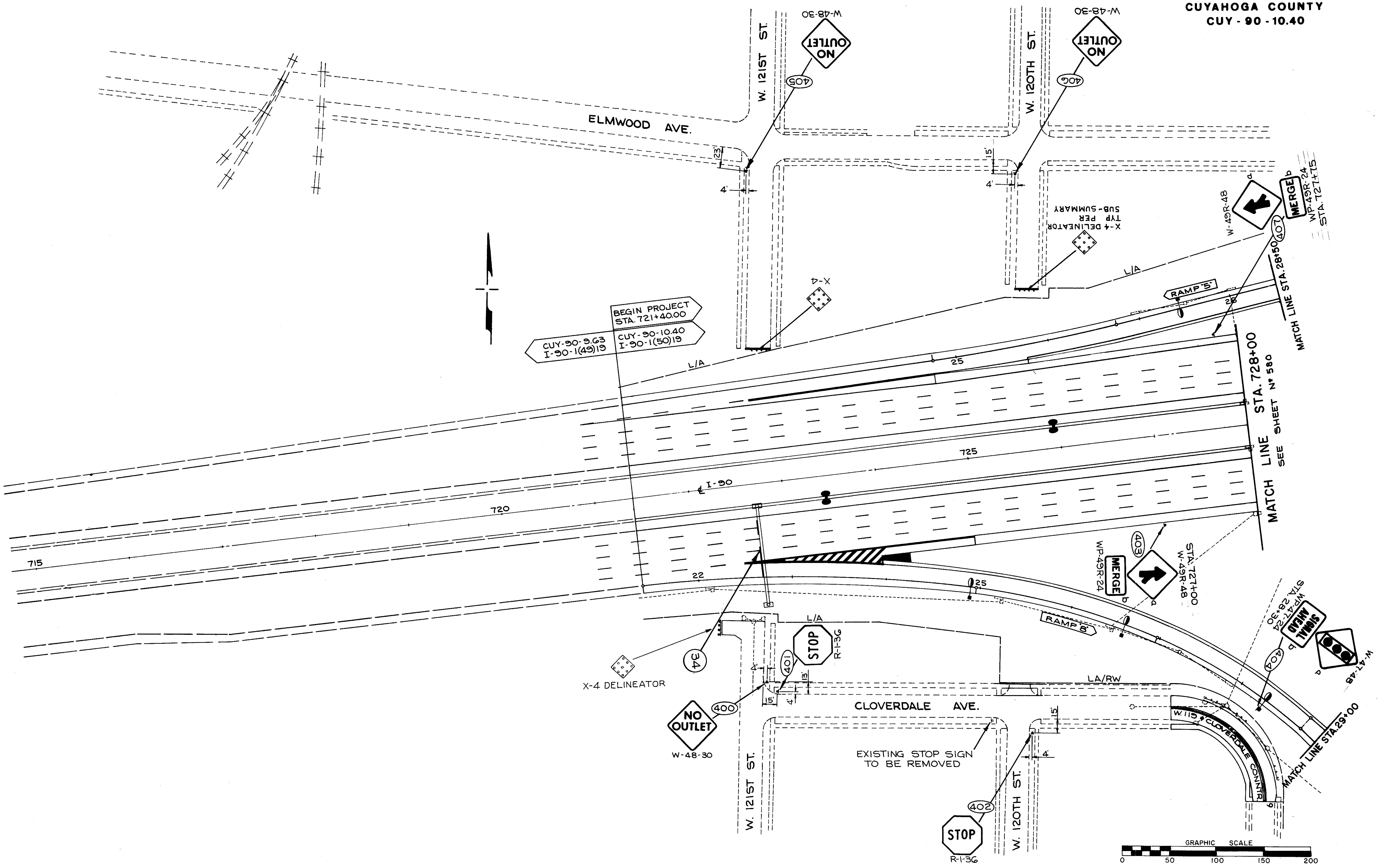
CUY-90-10.40 DELINEATORS

TOTAL	ITEM	UNIT	DESCRIPTION
222	620	EACH	DELINEATORS, TYPE D POST MOUNTED
2	620	EACH	DELINEATORS, TYPE D BRACKET MOUNTED
9	620	EACH	DELINEATORS, TYPE X-4 ,POST MOUNTED
3	620	EACH	DELINEATORS, TYPE X-1, POST MOUNTED

DELINEATOR SUB-SUMMARY
AND
PAVEMENT MARKING QUANTITIES SUB-SUMMARY

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY-90-10.40



REGULATORY & WARNING SIGNS
STA. 721+40 TO STA. 728+00

TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

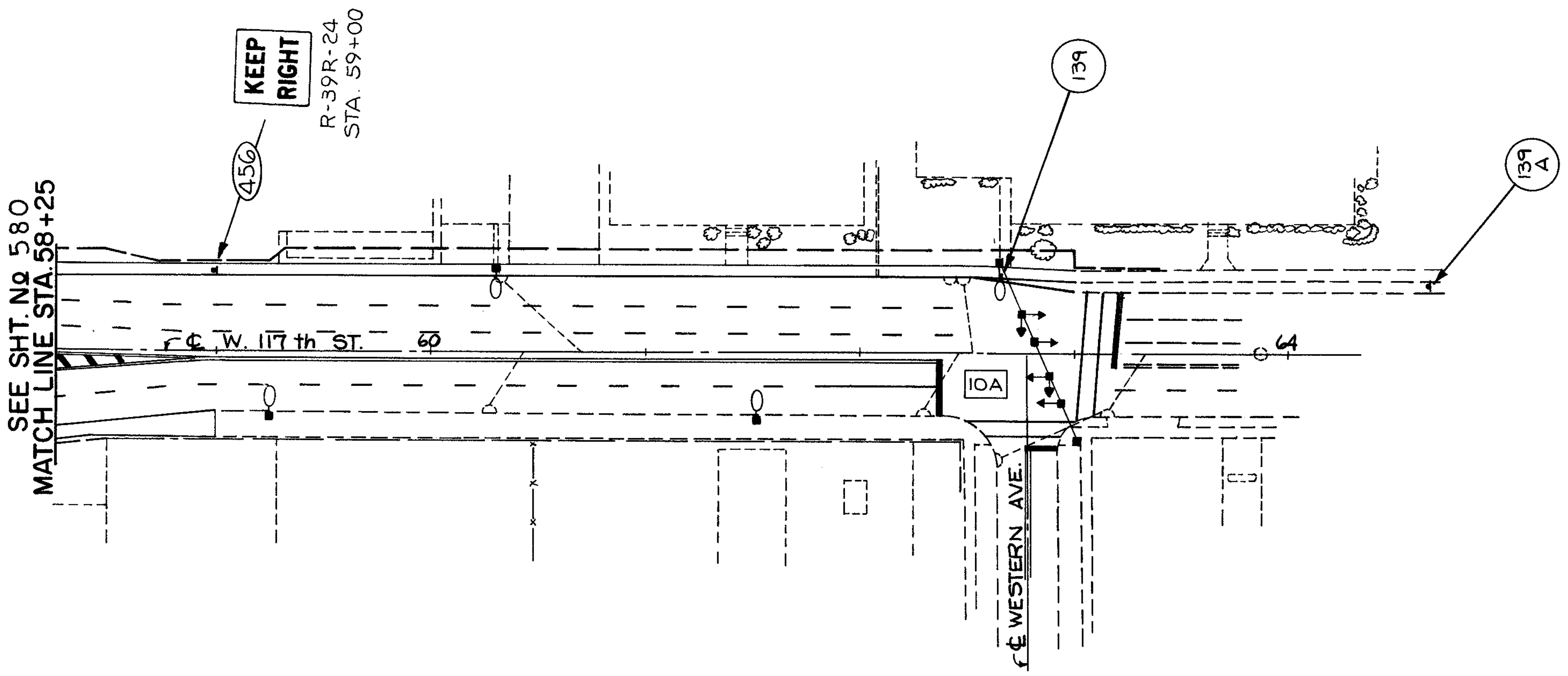
REGULATORY & WARNING SIGNS
STA.728+00 TO STA.737+00
TRAFFIC CONTROL PLANS

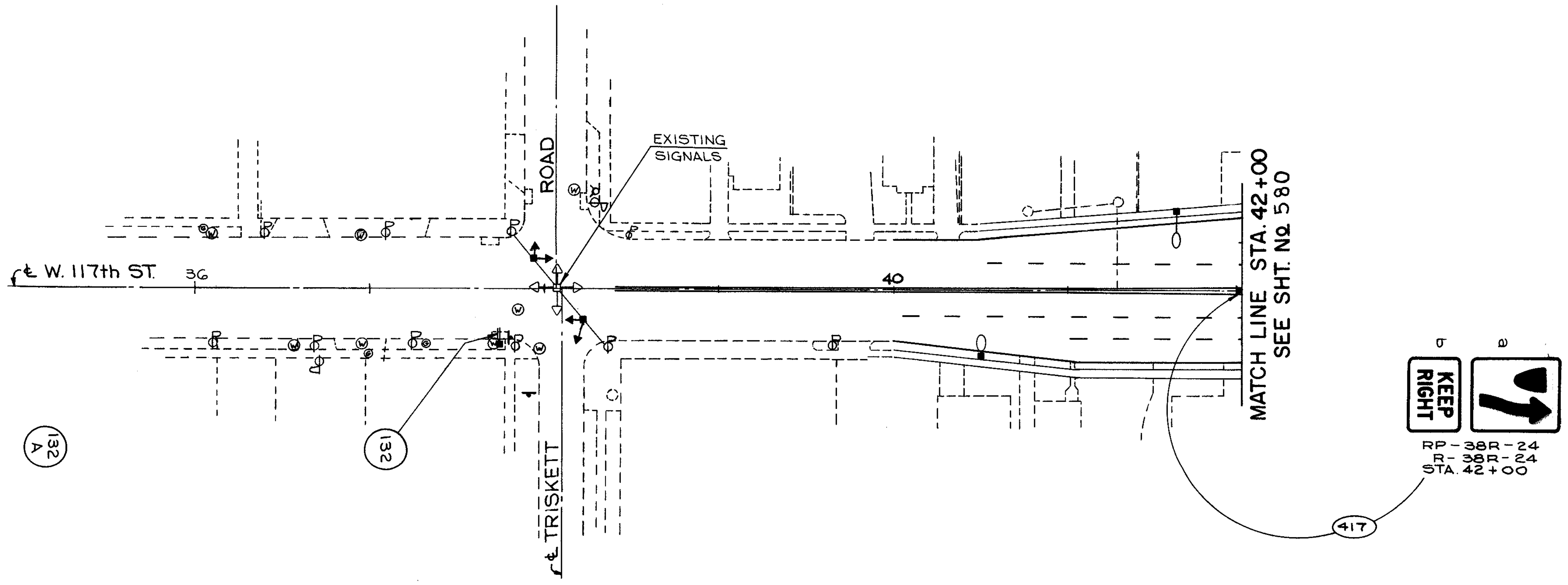
FORM D D A-6

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

581
713

CUYAHOGA COUNTY
CUY-90-10.40





GRAPHIC SCALE
0 50 100 150 200

REGULATORY & WARNING SIGNS
W. 117th ST.
STA. 36+00 TO STA. 42+00
STA. 58+25 TO STA. 64+00

TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

582
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

462

NOT A THRU STREET
LOCAL ACCESS ONLY

TO BE INSTALLED
ON THE N.E. CORNER
OF THE INTERSECTION
OF W. 115TH ST. &
ARDEN AVE.

463

NOT A THRU STREET
LOCAL ACCESS ONLY

TO BE INSTALLED
ON THE N.E. CORNER
OF THE INTERSECTION
OF W. 114TH ST. &
ARDEN AVE.

464

NOT A THRU STREET
LOCAL ACCESS ONLY

TO BE INSTALLED
ON THE N.E. CORNER
OF THE INTERSECTION
OF W. 112TH ST. &
ARDEN AVE.

465

NOT A THRU STREET
LOCAL ACCESS ONLY

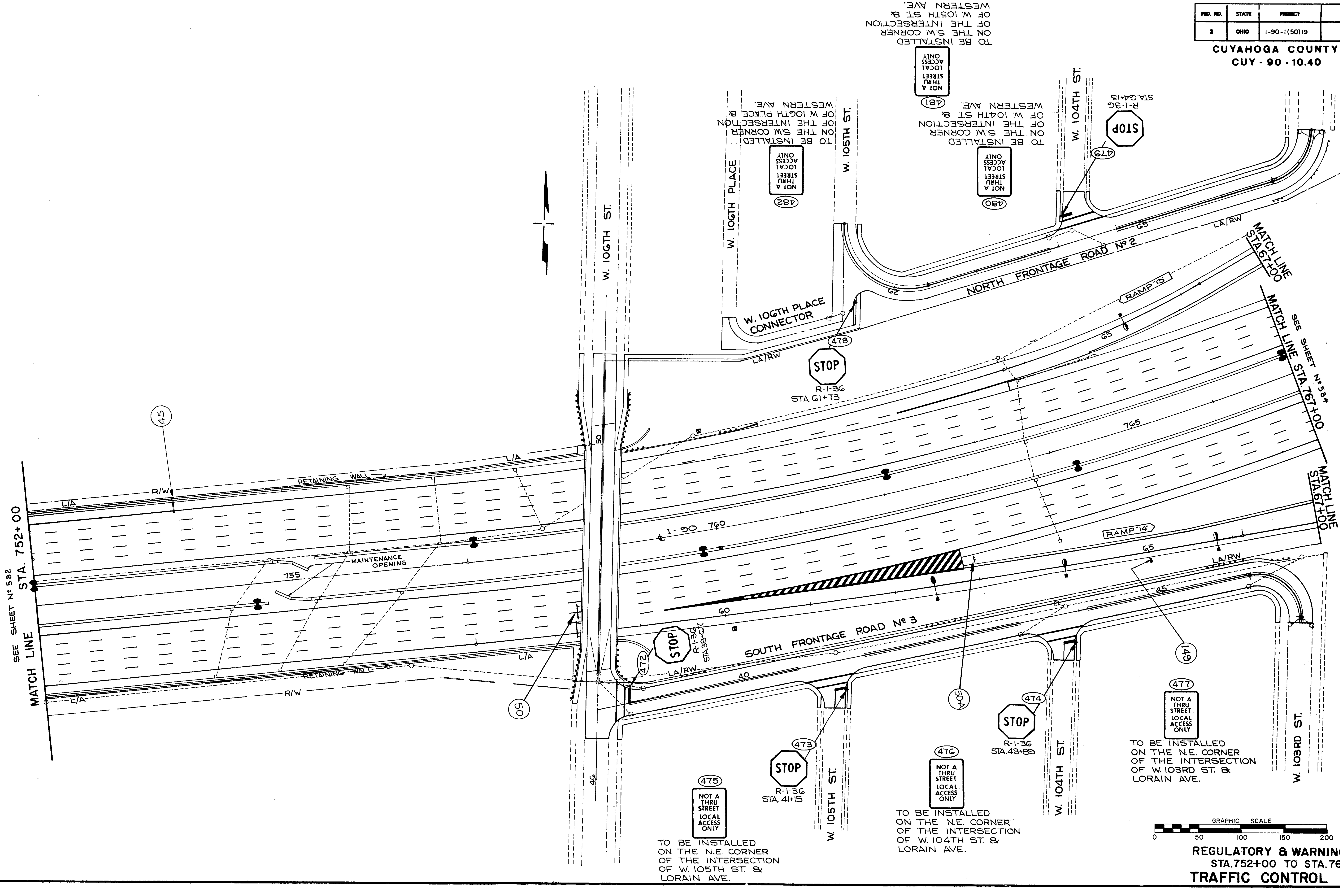
TO BE INSTALLED
ON THE N.E. CORNER
OF THE INTERSECTION
OF W. 111TH ST. &
ARDEN AVE.

GRAPHIC SCALE
0 50 100 150 200

REGULATORY & WARNING SIGNS
STA.737+00 TO STA.752+00
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40



REGULATORY & WARNING SIGNS
STA.752+00 TO STA.767+00

TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(56)19	

584 / 713

CUYAHOGA COUNTY
CUY - 90 - 10.40

GRAPHIC SCALE
0 50 100 150 200

REGULATORY & WARNING SIGNS
STA.767+00 TO STA.776+00
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)119

CUYAHOGA COUNTY
CUY - 90 - 10.40

521 NOT A THRU STREET LOCAL ACCESS ONLY
TO BE INSTALLED ON THE N.E. CORNER OF THE INTERSECTION OF W. 100TH ST. & LORAIN AVE.

522 NOT A THRU STREET LOCAL ACCESS ONLY
TO BE INSTALLED ON THE N.E. CORNER OF THE INTERSECTION OF W. 99TH ST. & LORAIN AVE.

574 NOT A THRU STREET LOCAL ACCESS ONLY
TO BE INSTALLED ON THE N.E. CORNER OF THE INTERSECTION OF W. 97TH ST. & LORAIN AVE.

575 NOT A THRU STREET LOCAL ACCESS ONLY
TO BE INSTALLED ON THE N.E. CORNER OF THE INTERSECTION OF W. 96TH ST. & LORAIN AVE.

576 NOT A THRU STREET LOCAL ACCESS ONLY
TO BE INSTALLED ON THE N.E. CORNER OF THE INTERSECTION OF W. 95TH ST. & LORAIN AVE.

REGULATORY & WARNING SIGNS
STA.776+00 TO STA.791+25
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

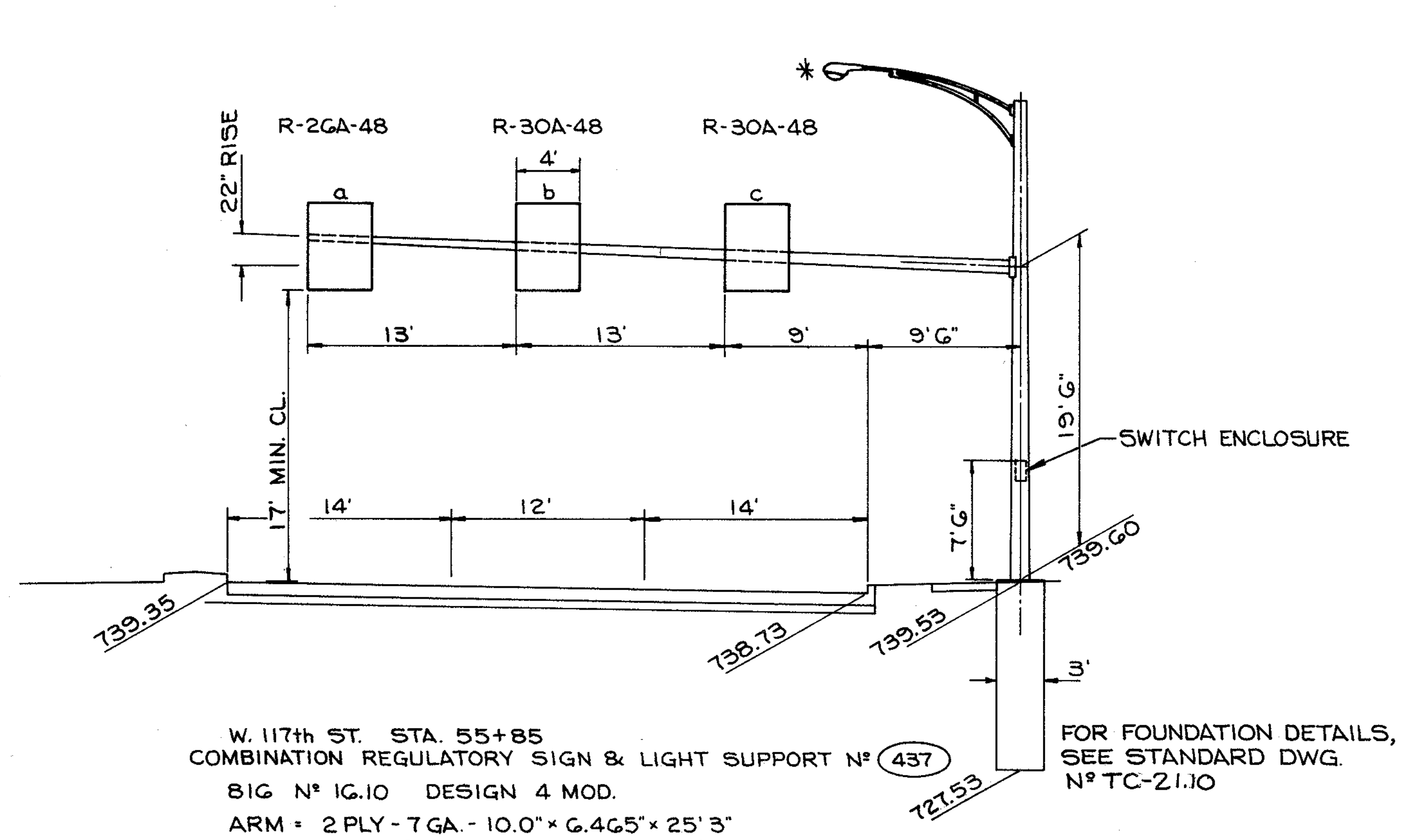
CUYAHOGA COUNTY
CUY - 90 - 10.40

EXISTING
REGULATORY & WARNING SIGNS
STA.791 +25 TO STA. 805+50
TRAFFIC CONTROL PLANS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

* SEE LIGHTING PLANS

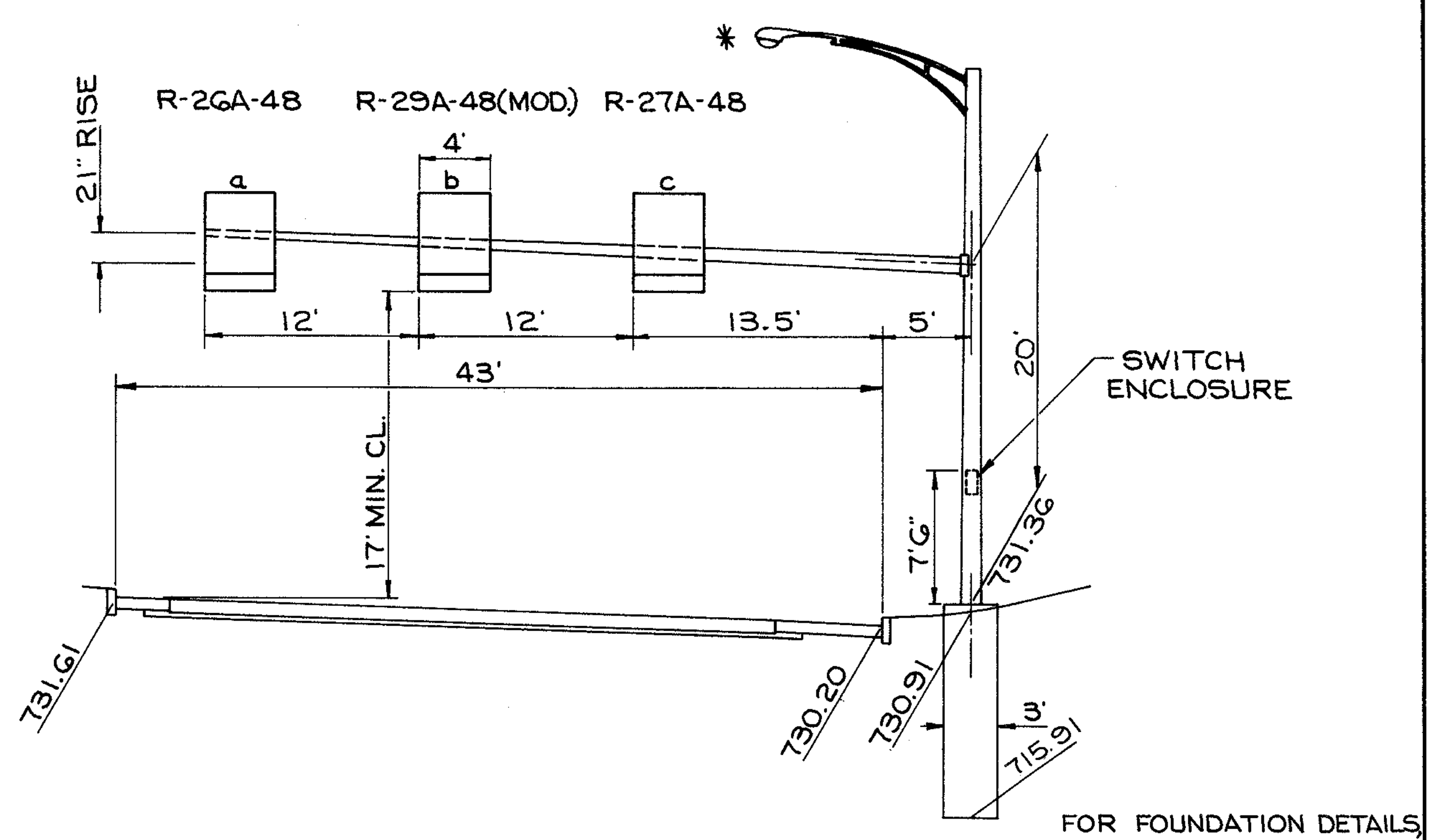


FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº TC-21.10

W. 117th ST. STA. 55+85
COMBINATION REGULATORY SIGN & LIGHT SUPPORT Nº (437)
816 Nº 16.10 DESIGN 4 MOD.
ARM = 2 PLY - 7 GA. - 10.0" × 6.465" × 25' 3"
7 GA. - 7.0" × 4.20" × 20' 0"
POLE = 0 GA. - 15.0" × 10.80" × 30' 0"

a	b	c
SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.
SPACING = 6", 36", 6"	SPACING = 6", 36", 6"	SPACING = 6", 36", 6"
Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z
FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)

* SEE LIGHTING PLANS

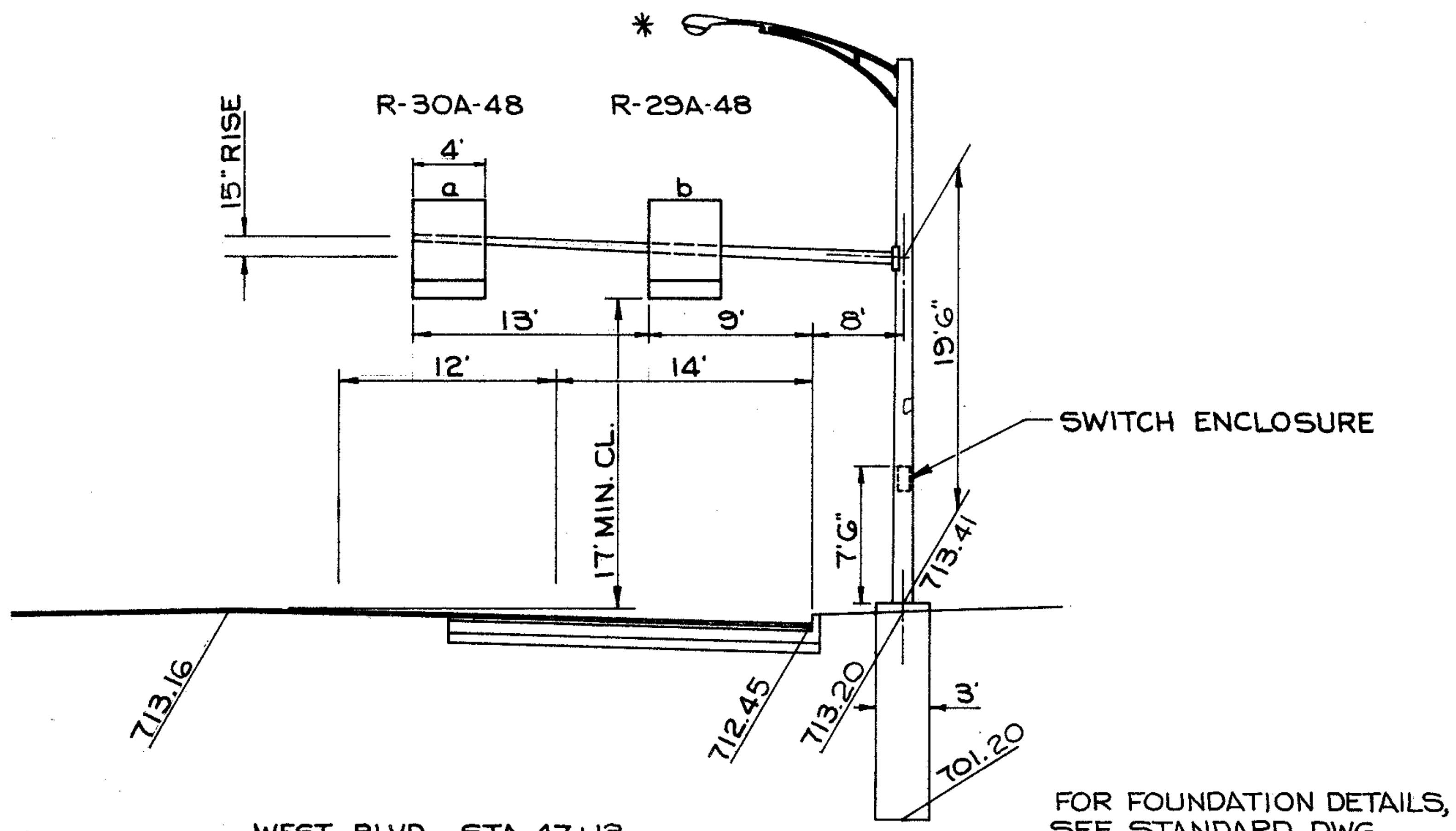


FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº TC-21.10

RAMP 12 STA. 37+55
COMBINATION REGULATORY SIGN & LIGHT SUPPORT Nº (467)
816 Nº 16.10 DESIGN 4 MOD.
ARM = 2 PLY - 7 GA. - 10.0" × 6.50" × 25' 0"
7 GA. - 7.0" × 4.48" × 18' 0"
POLE = 0 GA. - 14.0" × 9.80" × 30' 0"

a	b	c
SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.
SPACING = 6", 36", 6"	SPACING = 6", 36", 6"	SPACING = 6", 36", 6"
Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z
FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)

* SEE LIGHTING PLANS

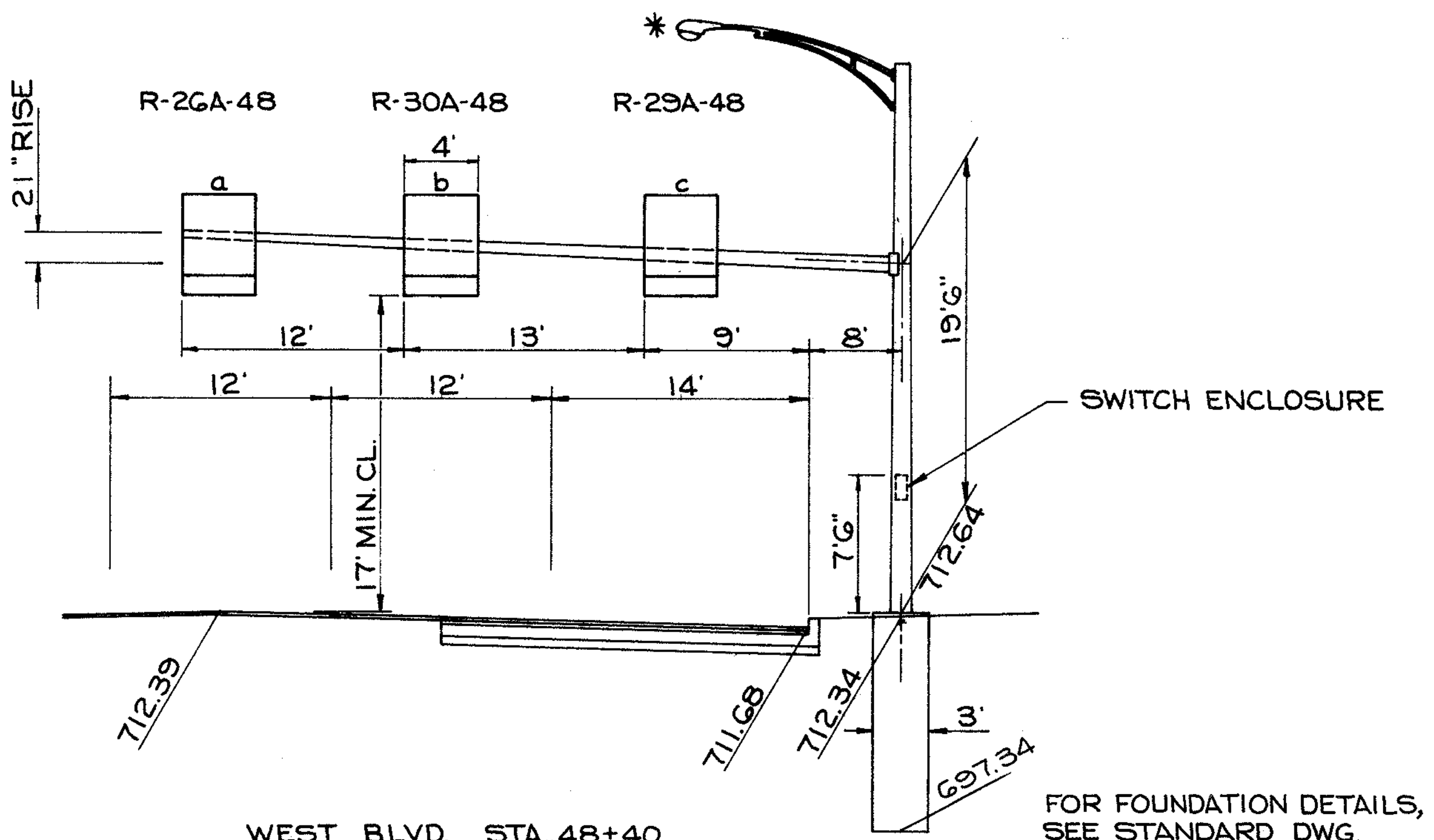


FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº TC-21.10

WEST BLVD. STA. 47+13
COMBINATION REGULATORY SIGN & LIGHT SUPPORT Nº (500)
816 Nº 16.10 DESIGN 6 MOD.
ARM = 3 GA. - 8.0" × 3.80" × 30' 0"
POLE = 3 GA. - 11.0" × 6.80" × 30' 0"

a	b
SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.
SPACING = 6", 36", 6"	SPACING = 6", 36", 6"
Nº OF BRACKETS = 2, HT. = 5'6" TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z
FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)

* SEE LIGHTING PLANS

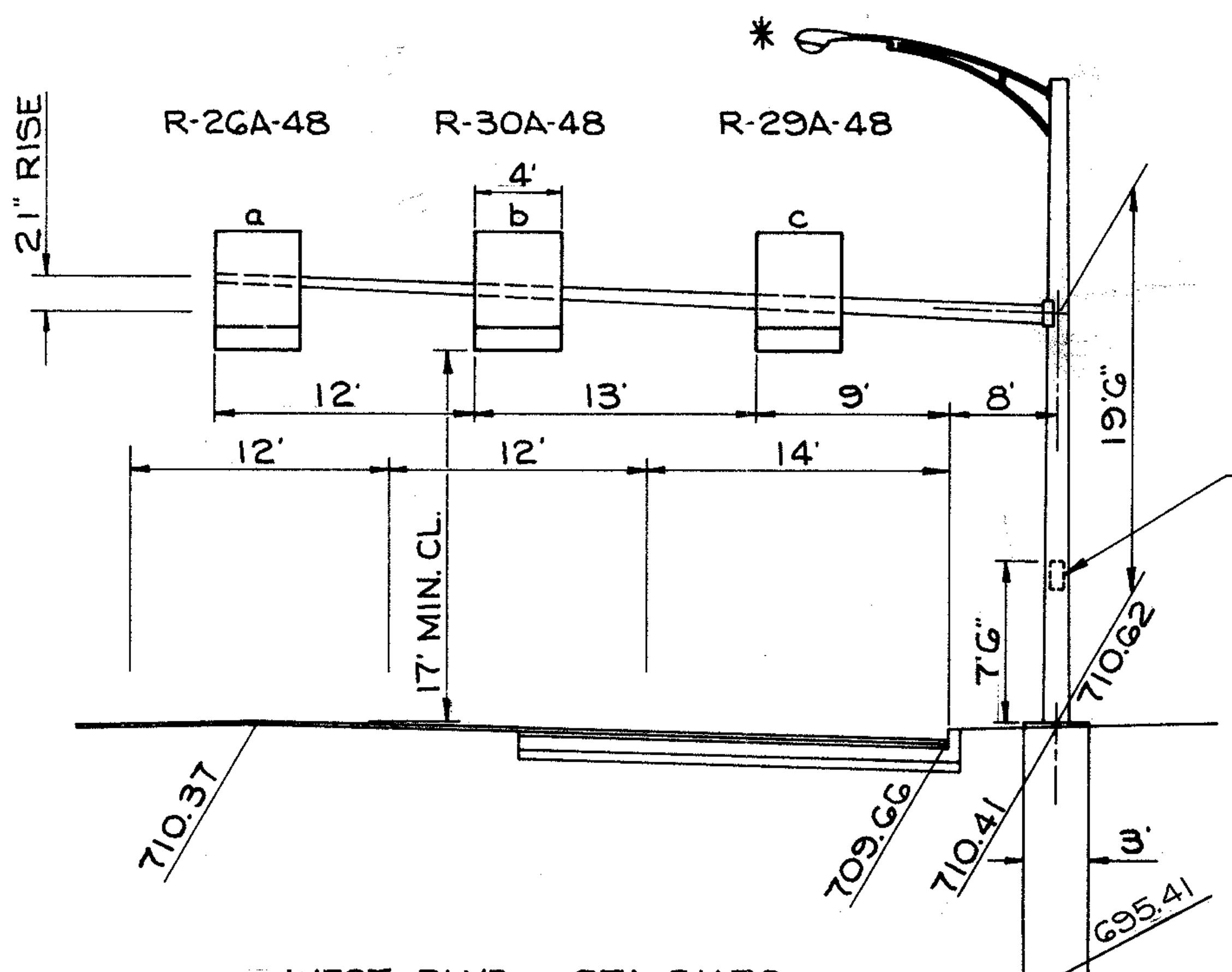


FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº TC-21.10

WEST BLVD. STA. 48+40
COMBINATION REGULATORY SIGN & LIGHT SUPPORT Nº (501)
816 Nº 16.10 DESIGN 4 MOD.
ARM = 2 PLY - 7 GA. - 10.0" × 6.50" × 25' 0"
7 GA. - 7.0" × 4.48" × 18' 0"
POLE = 0 GA. - 14.0" × 9.80" × 30' 0"

a	b	c
SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.
SPACING = 6", 36", 6"	SPACING = 6", 36", 6"	SPACING = 6", 36", 6"
Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z
FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)

* SEE LIGHTING PLANS



FOR FOUNDATION DETAILS,
SEE STANDARD DWG.
Nº JC-21.10

WEST BLVD. STA. 51+70
COMBINATION REGULATORY SIGN & LIGHT SUPPORT Nº (502)
816 Nº 16.10 DESIGN 4 MOD.
ARM = 2 PLY - 7 GA. - 10.0" × 6.50" × 25' 0"
7 GA. - 7.0" × 4.48" × 18' 0"
POLE = 0 GA. - 14.0" × 9.80" × 30' 0"

a	b	c
SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.	SIGN = 4'0" × 5'6" = 22 SQ. FT.
SPACING = 6", 36", 6"	SPACING = 6", 36", 6"	SPACING = 6", 36", 6"
Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z	Nº OF BRACKETS = 2, HT. = 5'6", TYPE Z
FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)	FIXTURES = 1@ 2'0", 2'0" (100W)

REGULATORY SIGN DETAILS

REGULATORY & WARNING QUANTITIES SUB-SUMMARY

CALCULATED BY TKI DATE 12-5-73
CHECKED BY MSC DATE 12-20-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 579

PARTICIPAT 1 / FHWA DOT OHIO DOT CITY OF CLEVELAND

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, FLAT SHEET TYPE	SF

* AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
6.25/	400	W-48-30		N.E. CORNER OF W.121ST ST. AND CLOVERDALE AVE.	6.25
9.0 /	401	R-1-36		N.E. CORNER OF W.121ST ST. AND CLOVERDALE AVE.	9.00
9.0 /	402	R-1-36		S.E. CORNER OF W.120TH ST. AND CLOVERDALE AVE.	9.00
16 /	403 A	W-49R-48	727+00 RT.	I-90	16.00
3 /	403 B	WP-49R-24			3.00
16 /	404 A	W-47-48	28+30 RT.	RAMP 8	16.00
3 /	404 B	WP-47-24			3.00
6.25 /	405	W-48-30		S.W. CORNER OF W.121ST ST. AND ELMWOOD AVE.	6.25
6.25/	406	W-48-30		S.W. CORNER OF W.120TH ST. AND ELMWOOD AVE.	6.25
16 /	407 A	W-49R-48	727+75 LT.	I-90	16.00
3 /	407 B	WP-49R-24			3.00
				TOTAL	93.75 SF

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST	LF

*LF	SIGN NO.	
15.5 /	400	15.50
15 /	401	15.00
15 /	402	15.00
35.5 /	403	35.50
15.5 /	405	15.50
15.5 /	406	15.50
35.5 /	407	35.50
	TOTAL	147.50 LF

ITEM	DESCRIPTION	UNIT
816	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.	
1 /	404	1.00
	TOTAL	1.00

SUB-TOTAL PLAN SHEET NO. 579

/ CUY-90-10.40 REGULATORY AND WARNING SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
93.75	815	SF	SIGN ERECTION, FLAT SHEET TYPE
1	816	EACH	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN
148.	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST

PLAN SHEET NO. 580

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, FLAT SHEET TYPE	SF

AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
.25/	[illegible]	W-48-30		S.E. CORNER OF W.119TH ST. AND ARDEN AVE.	6.25
[illegible]	408	R-31A-36MOD	25+80 LT	RAMP 8	7.50
9	410	R-1-36		N.W. CORNER OF W.118TH ST. AND ARDEN AVE.	9.00
[illegible]	411 A	R-31A-36MOD	31+00 RT.	RAMP 8	7.50
[illegible]	411 B	R-41A-36			6.00
[illegible]	412 A	R-43R-36	[illegible] LT	W.117TH ST.	3.00
[illegible]	412 B	R-41B-36			9.00
	412 C	R-43L-36			3.00
[illegible]	412 D	R-31A-36 MOD			7.50
[illegible]	413 A	R-43R-36	43+96 LT		3.00
[illegible]	413 B	R-41B-36			9.00
[illegible]	413 C	R-43L-36			3.00
[illegible]	413 D	R-31A-36 MOD			7.50
6.25/	414	R-15B-30	34+00 RT	RAMP 7	6.25
20 /	415	W-98-48	53+70 LT	W.117TH ST.	20.00
[illegible]	416	R-30C-36	42+92 LT		9.00
5 /	[illegible]	[illegible]			5.00
5	[illegible]	[illegible]			5.00

CONT'D

AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
4 /	421	R-22-24	43+95 RT.	W.117TH ST.	4.00
4 /	422	R-22-24	43+95 LT.	W.117TH ST.	4.00
4 /	423 A	R-121-24	43+95 RT.	W.117TH ST.	4.00
3 /	423 B	RP-121-24			3.00
4 /	424 A	R-121-24	43+95 LT.	W.117TH ST.	4.00
3 /	424 B	RP-121-24			3.00
6.25/	425	R-15B-30	31+70 RT.	RAMP 9	6.25
6.25/	426	W-48-30		N.W. CORNER OF W.116TH ST. AND ARDEN AVE.	6.25
6.25/	427	W-48-30		N.E. CORNER OF W.116TH ST. AND ARDEN AVE.	6.25
6.25/	428	W-2-30	56+00 RT.	ELMWOOD-SECTOR CONNECTOR	6.25
6.25/	429 A	W-76P-30	58+10 RT.	ELMWOOD-SECTOR CONNECTOR	6.25
3 /	429 B	WP-76P-24			3.00
9 /	430	R-1-36	60+60 LT.	ELMWOOD-SECTOR CONNECTOR	9.00
9 /	431 A	W-47-36	62+87 RT.	ELMWOOD-SECTOR CONNECTOR	9.00
3 /	431 B	WP-47-24			3.00
6.25/	432 A	W-76P-30	63+00 LT.	ELMWOOD-SECTOR CONNECTOR	6.25
3 /	432 B	WP-76P-24			3.00
9 /	433	R-1-36	47+78 RT.	SECTOR AVE.	9.00
4 /	434	W-28-24	64+55 RT.	ELMWOOD-SECTOR CONNECTOR	4.00
5 /	436 A	R-38R-24	56+98	W.117TH ST.	5.00
3 /	436 B	RP-38R-24			3.00
22 /	437 A	R-26A-46	55+85 RT.	W.117TH ST.	22.00 *
22 /	437 B	R-30A-48			22.00 *
22 /	437 C	R-30A-48			22.00 *
6.25/	438	R-32R-30	54+45 LT.	W.117TH ST.	6.25
6.25/	439	R-32R-30	55+50 LT.	W.117TH ST.	6.25
5 /	440	R-37R-24	54+27	W.117TH ST.	5.00
4 /	441 A	R-121-24	53+90 LT.	W.117TH ST.	4.00
3 /	441 B	RP-121-24			3.00
4 /	442 A	R-121-24	53+90 RT.	W.117TH ST.	4.00
3 /	442 B	RP-121-24			3.00
4 /	443	R-22-24	53+90 LT.	W.117TH ST.	4.00
4 /	444	R-22-24	53+90 RT.	W.117TH ST.	4.00
5 /	445	R-37R-24	53+45	W.117TH ST.	5.00
6. /	446	R-15B-30	33+10 LT.	RAMP 5	6.25
20 /	447	W-98-48	52+25 RT.	W.117TH ST.	20.00
6.25/	448	R-15B-30	41+50 LT.	RAMP 11	6.25
3 /	449 A	R-43R-36	53+90 RT.	W.117 TH ST.	3.00
9 /	449 B	R-41B-36			9.00
3 /	449 C	R-43L-36			3.00
3 /	450 A	R-43R-36	54+58 RT.	W.117TH ST.	3.00
9 /	450 B	R-41B-36			9.00
3 /	450 C	R-43L-36			3.00
10 /	451	R-31C-48 MOD	34+20 RT.	RAMP 12	10.00
10 /	452	R-31C-48 MOD	34+20 LT.	RAMP 12	10.00
6 /	453	R-41A-36	35+83 LT.	RAMP 12	6.00
6.25/	454	W-48-30		N.W. CORNER OF W.116TH ST. AND BELMONT AVE.	6.25
5 /	585	R-25E-R-24	53+90 LT.	W. 117TH ST.	5.00
1.5 /	588	R-72D-12	42+32 LT.	W. 117TH ST.	1.50
1.5 /	589	R-72D-12	42+56 RT.	W. 117TH ST.	1.50
1.5 /	590	R-72D-12	54+79 RT.	W. 117TH ST.	1.50
1.5 /	591	R-72D-12	54+28 LT.	W. 117TH ST.	1.50
				TOTAL	384.25 SF

* SIGN ERECTION, EXTRUSHEET TYPE 66 SQ. FT.

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST	LF

* LF	SIGN NO.	
15.5 /	408	15.50
14.5 /	409	14.50
15 /	410	15.00
14.5 /	411	14.50
16.3 /	416	16.30
14.5 /	418	14.50
14.5 /	419	14.50
15.5 /	426	15.50
15.5 /	427	15.50
15.5 /	428	15.50

CONT'D

L.F.	SIGN NO.	
15 /	430	15.00
15.5 /	432	15.50
15 /	433	15.00
14.8 /	434	14.80
14.5 /	436	14.50
14.5 /	438	14.50
14.5 /	439	14.50
14.5 /	440	14.50
14.5 /	445	14.50
14.5 /	451	14.50
14.5 /	452	14.50
15.5 /	454	15.50
11.5 /	588	11.50
11.5 /	589	11.50
11.5 /	590	11.50
11.5 /	591	11.50
	TOTAL	374.60 LF

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORT, 6 LB. BEAM, AS PER PLAN, DRIVEN	LF

* LF	SIGN NO.	
16.25 /	412	16.25
16.25 /	449	16.25
16.25 /	450	16.25
	TOTAL	48.75 LF

ITEM	DESCRIPTION	UNIT
816	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.	
1 /	413	1.00
1 /	414	1.00
1 /	415	1.00
1 /	425	1.00
1 /	429	1.00
1 /	431	1.00
1 /	447	1.00
1 /	446	1.00
1 /	448	1.00
1 /	453	1.00
	TOTAL	10.00

ITEM	DESCRIPTION	UNIT
816	SPAN WIRE MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.	
1 /	421	1.00
1 /	422	1.00
1 /	423	1.00
1 /	424	1.00
1 /	441	1.00
1 /	442	1.00
1 /	443	1.00
1 /	444	1.00
1 /	585	1.00
	TOTAL	9.00

ITEM	DESCRIPTION	UNIT
816	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 15.0 IN. X 10.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.465 IN. X 25 FT.- 3 IN. 7 GA. 7.0 IN. X 4.20 IN. X 20 FT.- 0 IN.	EACH

* EACH	SIGN NO.	STATION	LOCATION	
1 /	437	55+85 RT.	W.117TH ST.	1.00
			TOTAL	1.00

REGULATORY & WARNING QUANTITIES SUB-SUMMARY

CALCULATED BY TKI DATE 12-5-73
CHECKED BY MSC DATE 12-20-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 580 (CONT'D)

ITEM	DESCRIPTION	UNIT
625	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE	EACH

* EACH	SIGN. NO.	
1 /	437	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	GROUND ROD	EACH

* EACH	SIGN NO.	
1 /	437	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP	EACH

* EACH	SIGN NO.	
1 /	437 A	1.00
1 /	437 B	1.00
1 /	437 C	1.00
	TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	SIGN SERVICE	EACH

* EACH	SIGN NO.	
1 /	437	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	SIGNS WIRED COMPLETE	EACH

* EACH	SIGN NO.	
1 /	437 A	1.00
1 /	437 B	1.00
1 /	437 C	1.00
	TOTAL	3.00

ITEM	DESCRIPTION	UNIT
816	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION	CY

UNITS CF

*	SIGN NO.	STATION	LOCATION	
0.7854 X 3 X 3 X 11.50 /	437	55+85 RT.	W.117TH ST.	81.29
3 X 3 X .57 /				5.13
			TOTAL	86.42 CF

SUB-TOTAL PLAN SHEET NO. 580

CUY-90-1040 REGULATORY & WARNING SIGN

TOTAL	ITEM	UNIT	DESCRIPTION
1	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
3	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP
1	625	EACH	SIGN SERVICE
3	625	EACH	SIGNS WIRED COMPLETE
384.25	815	SF	SIGN ERECTION, FLAT SHEET TYPE
1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.465 IN. X 25 FT.- 3 IN. 7 GA. 7.0 IN. X 4.20 IN. X 20 FT.- 0 IN.
10	816	EACH	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN
375.	816	LF	STRUCTURAL SUPPORTS, " LB. DRIVE POST
49.	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM, AS PER PLAN, DRIVEN
3.2	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION
9	816	EACH	SPAN WIRE MOUNTED SIGN ATTACHMENT, AS PER PLAN
66	815	SF	SIGN ERECTION, EXTRUSHEET TYPE

PLAN SHEET NO. 581

PARTICIPAT 1 / FHWA DOT OHIO DOT CITY OF CLEVELAND

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, FLAT SHEET TYPE	SF

* AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
5 /	417 A	R-38R-24	42+00	W.117TH ST.	5.00
3 /	417 B	RP-38R-24			3.00
4 /	456	R-39R-24	58+95 RT.		4.00
				TOTAL	12.00 SF

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORTS, 4 LB. DRIVE POST	LF

* LF	SIGN NO.	
14.5 /	417	14.50
14 /	456	14.00
	TOTAL	28.50 LF

SUB-TOTAL PLAN SHEET NO 581

CUY-90-10.40 REGULATORY AND WARNING SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
12	815	SF	SIGN ERECTION, FLAT SHEET TYPE
29	816	LF	STRUCTURAL SUPPORTS, 4 LB. DRIVE POST

PLAN SHEET NO. 582

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, FLAT SHEET TYPE	SF

* AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
16 /	459 A	W-49R-48	739+00 RT.	I-90	16.00
3 /	459 B	WP-49R-24			3.00
9 /	460	R-1-36	43+27 RT.	SOUTH FRONTAGE ROAD NO. 1	9.00
9 /	461	R-1-36	46+00 RT.	SOUTH FRONTAGE ROAD NO. 1	9.00
8 /	462	CLEVE. ST'D.		N.E. CORNER OF W.115TH ST. AND ARDEN AVE.	8.00
8 /	463	CLEVE. ST'D.		N.E. CORNER OF W.114TH ST. AND ARDEN AVE.	8.00
8 /	464	CLEVE. ST'D.		N.E. CORNER OF W.112TH ST. AND ARDEN AVE.	8.00
8 /	465	CLEVE. ST'D.		N.E. CORNER OF W.111TH ST. AND ARDEN AVE.	8.00
16 /	466 A	W-49R-48	740+00 LT.	I-90	16.00
3 /	466 B	WP-49R-24			3.00
22 /	467 A	R-26A-48	37+55 LT.	RAMP 12	22.00*
22 /	467 B	R-29A-46MOD			22.00*
22 /	467 C	R-27A-48			22.00*
16 /	468 A	W-47-48	41+15 LT.	RAMP 12	16.00
3 /	468 B	WP-47-24			3.00
16 /	469 A	W-47-48	41+15 RT.	RAMP 12	16.00
3 /	469 B	WP-47-24			3.00
6.25/	470	W-48-30		S.W. CORNER OF W.112TH ST. AND BELMONT AVE	6.25
6.25/	471	W-48-30		S.W. CORNER OF W.111TH ST. AND BELMONT AVE	6.25
6.25/	592 A	W-76P-30	44 + 00 RT.	SOUTH FRONTAGE ROAD NO. 1	6.25
3/	592 B	WP-76P-24			3.00
6.25/	593 A	W-76P-30	47 + 15 LT.	SOUTH FRONTAGE ROAD NO. 1	6.25
3/	593 B	WP-76P-24			3.00
				TOTAL	157.00 SF

* SIGN ERECTION EXTRUSHEET TYPE 66 SQ FT.

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST	LF

* LF	SIGN NO.	
35.5 /	459	35.50
15 /	460	15.00
15 /	461	15.00
16 /	462	16.00
16 /	463	16.00
16 /	464	16.00
16 /	465	16.00
35.5 /	466	35.50
35.5 /	469	35.50
15.5 /	470	15.50
15.5 /	471	15.50
15.5 /	592	15.50
15.5 /	593	15.50
	TOTAL	262.50

ITEM	DESCRIPTION	UNIT
816	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.	
1 /	468	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
816	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.50 IN. X 25 FT.- 0 IN. 7 GA. 7.0 IN. X 4.48 IN. X 18 FT.- 0 IN.	EACH

* EACH	SIGN NO.	STATION	LOCATION	
1 /	467	37+55 LT.	RAMP 12	1.00
			TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE	EACH

* EACH	SIGN NO.	
1 /	467	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	GROUND ROD	EACH

* EACH	SIGN NO.	
1 /	467	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP	EACH

* EACH	SIGN NO.	
1 /	467 A	1.00
1 /	467 B	1.00
1 /	467 C	1.00
	TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	SIGN SERVICE	EACH

* EACH	SIGN NO.	
1 /	467	1.00
	TOTAL	1.00

ITEM	DESCRIPTION	UNIT
625	SIGNS WIRED COMPLETE	EACH

* EACH	SIGN NO.	
1 /	467 A	1.00
1 /	467 B	1.00
1 /	467 C	1.00
	TOTAL	3.00

REGULATORY & WARNING QUANTITIES SUB-SUMMARY

CALCULATED BY TKI DATE 12-5-73
CHECKED BY MSC DATE 12-20-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

PLAN SHEET NO. 582 (CONT'D)

ITEM	DESCRIPTION	UNIT
816	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATIONS	CY

UNITS CF

	SIGN NO.	STATION	LOCATION	
0.7854 X 3 X 3 X 14.5 /	467	37+55 LT.	RAMP 12	102.50
3 X 3 X 0.95 /				8.55
			TOTAL	111.05 CF

SUB-TOTAL PLAN SHEET NO. 582

CUY-90-10.40 REGULATORY AND WARNING SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
1	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
3	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP
1	625	EACH	SIGN SERVICE
3	625	EACH	SIGNS WIRED COMPLETE
157	815	SF	SIGN ERECTION, FLAT SHEET TYPE
1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.50 IN. X 25 FT.- 0 IN. + 7 GA. 7.0 IN. X 4.48 IN. X 18 FT.- 0 IN.
1	816	EACH	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN
263	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST
4.1	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION
66	815	SF	SIGN ERECTION EXTRUSHEET TYPE

PLAN SHEET NO. 583

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, FLAT SHEET TYPE	SF

* AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
9 /	472	R-1-36	38+67 LT.	SOUTH FRONTAGE ROAD NO. 3	9.00
9 /	473	R-1-36	41+15 RT.	SOUTH FRONTAGE ROAD NO. 3	9.00
9 /	474	R-1-36	43+89 RT.	SOUTH FRONTAGE ROAD NO. 3	9.00
8 /	475	CLEVE. ST'D.	N.E. CORNER	OF W.105TH ST. AND LORAIN AVE.	8.00
8 /	476	CLEVE. ST'D.	N.E. CORNER	OF W.104TH ST. AND LORAIN AVE.	8.00
8 /	477	CLEVE. ST'D.	N.E. CORNER	OF W.103RD ST. AND LORAIN AVE.	8.00
9 /	478	R-1-36	61+73 RT.	NORTH FRONTAGE ROAD NO. 2	9.00
9 /	479	R-1-36	64+13 LT.	NORTH FRONTAGE ROAD NO. 2	9.00
8 /	480	CLEVE. ST'D.	S.W. CORNER	OF W.104TH ST. AND WESTERN AVE.	8.00
8 /	481	CLEVE. ST'D.	S.W. CORNER	OF W.105TH ST. AND WESTERN AVE.	8.00
8 /	482	CLEVE. ST'D.	S.W. CORNER	OF W. 106TH PL. AND WESTERN AVE.	8.00
				TOTAL	93.00 SF

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST	LF

* LF	SIGN NO.	
15 /	472	15.00
15 /	473	15.00
15 /	474	15.00
16 /	475	16.00
16 /	476	16.00
16 /	477	16.00
15 /	478	15.00
15 /	479	15.00
16 /	480	16.00
16 /	481	16.00
16 /	482	16.00
	TOTAL	171.00 LF

SUB-TOTAL PLAN SHEET NO. 583

CUY-90-10.40 REGULATORY AND WARNING SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
93.	815	SF	SIGN ERECTION, FLAT SHEET TYPE
171.	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST

PLAN SHEET NO. 584

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, FLAT SHEET TYPE	SF

* AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
7.5 /	483 A	R-31A-36MOD	67+60 RT.	RAMP 14	7.50
6 /	483 B	R-41A-36			6.00
7.5 /	484 A	R-31A-36MOD	67+60 LT.	RAMP 14	7.50
6 /	484 B	R-41A-36			6.00
3 /	485 A	R-43R-36	69+80 RT.	RAMP 14	3.00
9 /	485 B	R-41B-36			9.00
3 /	485 C	R-43L-36			3.00
7.5 /	485 D	R-31A-36 MOD.			7.50
3 /	486 A	R-43R-36	69+90 LT.	RAMP 14	3.00
9 /	486 B	R-41B-36			9.00
3 /	486 C	R-43L-36			3.00
7.5 /	486 D	R-31A- 36 MOD.			7.50
4 /	487 A	R-121-24	40+72 RT.	WEST BLVD.	4.00
3 /	487 B	RP-121-24			3.00
4 /	488 A	R-121-24	40+37 LT.	WEST BLVD.	4.00
3 /	488 B	RP-121-24			3.00
4 /	489 A	R-120-24	40+43 LT.	WEST BLVD.	4.00
3 /	489 B	RP-120-24			3.00
4 /	490 A	R-120-24	43+00 LT.	WEST BLVD.	4.00
3 /	490 B	RP-120-24			3.00
8 /	491	CLEVE. ST'D.	N.E. CORNER	OF W.101ST ST. AND LORAIN AVE.	8.00
4 /	492 A	R-120-24	43+00 RT.	WEST BLVD.	4.00
3 /	492 B	RP-120-24			3.00
32 /	493	R-7B-48	775+65 RT.	I-90	32.00
16 /	494 A	W-49R-48			16.00
3 /	494 B	WP-49R-24			3.00
20 /	495	R-16B-48	769+75 LT.	I-90	20.00
32 /	496	R-7B-48	774+35 LT.	I-90	32.00
5 /	497	R-44R-24	44+93 LT.	WEST BLVD	5.00
5 /	498	R-44L-24	45+80 RT.	WEST BLVD	5.00
3 /	499 A	R-43L-36	45+62 LT.	WEST BLVD	3.00
3 /	499 B	R-43R-36			3.00
22 /	500 A	R-30A-48	47+13 LT.	WEST BLVD.	22.00*
22 /	500 B	R-29A-48			22.00*
22 /	501 A	R-26A-48	48+40 RT.	WEST BLVD.	22.00*
22 /	501 B	R-30A-48			22.00*
22 /	501 C	R-29A-48			22.00*
22 /	502 A	R-26A-48	51+70 LT.	WEST BLVD.	22.00*
22 /	502 B	R-30A-48			22.00*
22 /	502 C	R-29A-48			22.00*
9 /	503	R-1-36	58+40 RT.	WESTERN AVE.	9.00
8 /	504	CLEVE. ST'D.	58+02 RT.	WESTERN AVE.	8.00
9 /	505	R-1-36	58+02 LT.	WESTERN AVE.	9.00
6.25/	506	R-15B-30	70+25 RT.	RAMP 13	6.25
6.25/	507	R-15B-30	70+25 LT.	RAMP 13	6.25
3 /	508 A	R-43R-36	45+30 RT.	WEST BLVD.	3.00
9 /	508 B	R-41B-36			9.00
3 /	508 C	R-43L-36			3.00
9 /	509	R-41B-36	45+90 RT.	WEST BLVD.	9.00
7.5 /	510	R-31A-36	50+90 RT.	NORTH MARGINAL ROAD NO. 4	7.50
7.5 /	511	R-31A-36	50+90 LT.	NORTH MARGINAL ROAD NO. 4	7.50
6 /	512 A	R-41A-36	53+00 RT	NORTH MARGINAL ROAD NO. 4	6.00
7.5 /	512 B	R-31A-36			7.50
6 /	513 A	R-41A-36	53+00 LT.	NORTH MARGINAL ROAD NO. 4	6.00
7.5 /	513 B	R-31A-36			7.50
3 /	514	R-43R-36	53+90 RT.	NORTH MARGINAL ROAD NO. 4	3.00
3 /	515 A	R-43R-36	53+98 LT.	NORTH MARGINAL ROAD NO. 4	3.00
9 /	515 B	R-1-36			9.00
8 /	516	CLEVE. ST'D.	65+10 RT.	WESTERN AVE.	8.00
9 /	517	R-1-36	65+42 RT.	WESTERN AVE.	9.00
9 /	518	R-1-36	65+10 LT.	WESTERN AVE.	9.00
9 /	519 A	W-1-36	65+90 RT.	WESTERN AVE.	9.00
4 /	519 B	W-143-24			4.00
				TOTAL	392.50 SF

* SIGN ERECTION, EXTRUSHEET TYPE 176 SQ.FT.

REGULATORY & WARNING QUANTITIES SUB-SUMMARY

CALCULATED BY TKI DATE 12-5-73
CHECKED BY MSC DATE 12-20-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90-10.40

PLAN SHEET NO. 584 (CONT'D)

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST	LF

* LF	SIGN NO.		
14.5 /	484		14.50
14 /	490		14.00
16 /	491		16.00
14 /	492		14.00
34 /	495		34.00
15 /	503		15.00
16 /	504		16.00
15 /	505		15.00
14.5 /	506		14.50
14.5 /	507		14.50
15 /	509		15.00
14.5 /	510		14.50
14.5 /	512		14.50
14.5 /	513		14.50
13.3 /	514		13.30
16 /	516		16.00
15 /	517		15.00
15 /	518		15.00
36.5 /	519		36.50
		TOTAL	321.80 LF

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORT, 6 LB. BEAM, AS PER PLAN, DRIVEN	LF

* LF	SIGN NO.	
16.25 /	485	16.25
16.25 /	486	16.25
16.25	508	16.25
		48.75

ITEM	DESCRIPTION	UNIT
816	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.		
1 /	483		1.00
1 /	494		1.00
1 /	499		1.00
1 /	511		1.00
		TOTAL	4.00

ITEM	DESCRIPTION	UNIT
816	SPAN WIRE MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.		
1 /	487		1.00
1 /	488		1.00
1 /	489		1.00
1 /	497		1.00
1 /	498		1.00
		TOTAL	5.00

ITEM	DESCRIPTION	UNIT
816	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 6 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 3 GA. 8.0 IN. X 3.80 IN. X 30 FT.- 0 IN.	EACH

* EACH	SIGN NO.	STATION	LOCATION		
1 /	500	47+13 LT.	WEST BLVD.		1.00
				TOTAL	1.00

ITEM	DESCRIPTION	UNIT
816	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.50 IN. X 25 FT.- 0 IN. 7 GA. 7.0 IN. X 4.48 IN. X 18 FT.- 0 IN.	EACH

* EACH	SIGN NO.	STATION	LOCATION		
1 /	501	48+40 RT.	WEST BLVD.		1.00
1 /	502	51+70 LT.	WEST BLVD.		1.00
				TOTAL	2.00

ITEM	DESCRIPTION	UNIT
625	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE	EACH

* PLAN SHEET NO. 26

1 /	500		1.00
1 /	501		1.00
1 /	502		1.00
		TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	GROUND ROD	EACH

* EACH	SIGN NO.		
1 /	500		1.00
1 /	501		1.00
1 /	502		1.00
		TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP	EACH

* PLAN SHEET NO. 26

1 /	500 A		1.00
1 /	500 B		1.00
1 /	501 A		1.00
1 /	501 B		1.00
1 /	501 C		1.00
1 /	502 A		1.00
1 /	502 B		1.00
1 /	502 C		1.00
		TOTAL	8.00

ITEM	DESCRIPTION	UNIT
625	SIGN SERVICE	EACH

* EACH	SIGN NO.		
1 /	500		1.00
1 /	501		1.00
1 /	502		1.00
		TOTAL	3.00

ITEM	DESCRIPTION	UNIT
625	SIGNS WIRED COMPLETE	EACH

* EACH	SIGN NO.		
1 /	500 A		1.00
1 /	500 B		1.00
1 /	501 A		1.00
1 /	501 B		1.00
1 /	501 C		1.00
1 /	502 A		1.00
1 /	502 B		1.00
1 /	502 C		1.00
		TOTAL	8.00

ITEM	DESCRIPTION	UNIT
816	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION	CY

UNITS CF *	SIGN NO.	STATION	LOCATION		
0.7854 X 3 X 3 X 11.5	/ 500	47+13 LT.	WEST BLVD.		81.29
3 X 3 X .71 /					6.39
0.7854 X 3 X 3 X 14.5	/ 501	48+40 RT.	WEST BLVD.		102.50
3 X 3 X .80 /					7.20
0.7854 X 3 X 3 X 14.5	/ 502	51+70 LT.	WEST BLVD.		102.50
3 X 3 X .71					6.39
				TOTAL	306.27 CF

ITEM	DESCRIPTION	
816	STRUCTURAL SUPPORT 6LB. BEAM, DRIVEN	LF

LF	SIGN NO.		
36	493		36
36	496		36
16.25	515		16.25
		TOTAL	88.25

SUB-TOTAL PLAN SHEET NO. 584

CUY-90-10.40 REGULATORY AND WARNING SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
3	625	EACH	GROUND ROD
3	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
8	625	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE, BALLAST AND 100 WATT LAMP
3	625	EACH	SIGN SERVICE
8	625	EACH	SIGNS WIRED COMPLETE
392.5	815	SF	SIGN ERECTION, FLAT SHEET TYPE
2	816	EACH	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 4 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 2 PLY - 7 GA. 10.0 IN. X 6.50 IN. X 25 FT.- 0 IN. + 7 GA. 7.0 IN. X 4.48 IN. X 18 FT.- 0 IN.
1	816	EACH	OVERHEAD SIGN SUPPORT, NO. 16.10, DES. 6 MOD. POLE = 0 GA. 14.0 IN. X 9.80 IN. X 30 FT.- 0 IN. ARM = 3 GA. 8.0 IN. X 3.80 IN. X 30 FT.- 0 IN.
4	816	EACH	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN
322.	816	LF	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST
88.	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM, DRIVEN
11.3	816	CY	CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATION
5	816	EACH	SPAN WIRE MOUNTED SIGN ATTACHMENT, AS PER PLAN
49.	816	LF	STRUCTURAL SUPPORT, 6LB. BEAM, AS PER PLAN DRIVEN
176	815	SF	SIGN ERECTION, EXTRUSHEET TYPE

PLAN SHEET NO. 585

ITEM	DESCRIPTION	UNIT
815	SIGN ERECTION, FLAT SHEET TYPE	SF

* AREA	SIGN NO.	OHIO MUTCD	STATION	LOCATION	
9 /	520	R-1-36	63+60 RT.	SOUTH FRONTAGE ROAD NO. 4-A	9.00
8 /	521	CLEVE. ST'D. N.E. CORNER OF W.100TH ST. AND LORAIN AVE.			8.00
8 /	522	CLEVE. ST'D. N.E. CORNER OF W.99TH ST. AND LORAIN AVE.			8.00
20 /	523	R-16B-48	777+75 RT.	I-90	20.00
16 /	524 A	W-49R-48	789+00 RT.	I-90	16.00
3 /	524 B	WP-49R-24			3.00
16 /	525 A	W-49R-48	91+00 LT.	RAMP 15	16.00
3 /	525 B	WP-49R-24			3.00
7.5 /	526	R-31B-36MOD	66+50 RT.	WESTERN AVE.	7.50
7.5 /	527 A	R-31B-36MOD	67+50 RT.	WESTERN AVE.	7.50
4 /	527 B	R-121-24			4.00
3 /	527 C	RP-121-24			3.00
9 /	528 A	W-47-36	68+35 RT.	WESTERN AVE. EXTENDED	9.00
3 /	528 B	WP-47-24			3.00
8 /	528 C	W-32-48			8.00
3 /	529 A	R-43R-36	67+92 LT.	WESTERN AVE.	3.00
9 /	529B	R-1-36			9.00
3 /	530A	R-43R-36	68+50 LT	WESTERN AVE. EXTENDED	3.80
9 /	530B	R-41B-36			9.00
9 /	531A	R-41B-36	68+50 LT.	WESTERN AVE. EXTENDED	9.00
4 /	531 B	R-121-24			4.00
3 /	531 C	RP-121-24			3.00
9 /	532A	W-71-36	70+50 LT.	WESTERN AVE. EXTENDED	9.00
3 /	532B	WP-71-24			3.00
9 /	533A	W-71-36	70+50 RT.	WESTERN AVE. EXTENDED	9.00
3 /	533B	WP-71-24			3.00
6 /	534	R-41A-36	71+10 RT.	WESTERN AVE. EXTENDED	6.00
6 /	535	R-41A-36	71+10 LT.	WESTERN AVE. EXTENDED	6.00
6.25/	537 A	W-76P-30	72+85 LT.	WESTERN AVE. EXTENDED	6.25
3 /	537 B	WP-76P-24			3.00
3 /	538 A	R-43R-36	73+45 LT.	WESTERN AVE. EXTENDED	3.00
3 /	538 B	R-43L-36			3.00
9 /	539	R-41B-36	63+63 LT	NORTH MARGINAL ROAD NO. 4	9.00
3 /	540 A	R-43R-36	63+69 RT.	NORTH MARGINAL ROAD NO. 4	3.00
9 /	540 B	R-41B-36			9.00
3 /	540 C	R-43L-36			3.00
6 /	541	R-41A-36	66+00 LT.	NORTH MARGINAL ROAD NO. 4	6.00
6 /	542	R-41A-36	66+00 RT.	NORTH MARGINAL ROAD NO. 4	6.00
12 /	543	R-10-36	68+12 LT.	NORTH MARGINAL ROAD NO. 4	12.00
3 /	544A	R-43R-36	69+77 LT.	NORTH MARGINAL ROAD NO. 4	3.00
9 /	544B	R-1-36			9.00
3 /	545	R-43R-36	69+95 RT.	NORTH MARGINAL ROAD NO. 4	3.00
8 /	546	CLEVE. ST'D. S.W. CORNER OF W.95TH ST. AND WILLARD AVE.			8.00
6 /	547	R-41A-36	55+50 LT.	NORTH MARGINAL ROAD NO. 4	6.00

REGULATORY & WARNING QUANTITIES SUB-SUMMARY

REGULATORY & WARNING QUANTITIES SUB-SUMMARY

CALCULATED BY TKS DATE 12-5-73
CHECKED BY MSC DATE 12-20-73

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90-10.40

PLAN SHEET NO. 585 (CONT'D)

AREA	SIGN NO.	OHIOMUTCD	STATION	LOCATION	
9 /	561 A	W-2-36	152+30 LT.	W.100TH ST. EXTENDED	9.00
4 /	561 B	W-143-24			4.00
9 /	562 A	W-2-36	152+30 RT.	W. 100TH ST. EXTENDED	9.00
4 /	562 B	W-143-24			4.00
6 /	563	R-41A-36	155+20 RT.	W.100TH ST. EXTENDED	6.00
6 /	564	R-41A-36	155+20 LT.	W.100TH ST. EXTENDED	
9 /	565	R-41B-36	157+17 RT.	W.100TH ST. EXTENDED	9.00
3. /	566 A	R-43R-36	157+50 LT.	W.100TH ST. EXTENDED	3.00
9 /	566 B	R-41B-36			9.00
3. /	566 C	R-43L-36			3.00
3 /	567 A	R-43L-36	50+50 RT.	SOUTH MARGINAL ROAD NO. 5	3.00
3 /	567 B	R-43R-36			3.00
3 /	568 A	R-43R-36	53+38 RT.	SOUTH MARGINAL ROAD NO. 5	3.00
9 /	568 B	R-1-36			9.00
3 /	569	R-43R-36	53+23 LT.	SOUTH MARGINAL ROAD NO. 5	3.00
3 /	570 A	R-43R-36	55+60 RT.	SOUTH MARGINAL ROAD NO. 5	3.00
9 /	570 B	R-1-36			9.00
3 /	571	R-43R-36	55+50 LT.	SOUTH MARGINAL ROAD NO. 5	3.00
3 /	572 A	R-43R-36	56+86 RT.	SOUTH MARGINAL ROAD NO. 5	3.00
9 /	572 B	R-1-36			
3 /	573	R-43-36	56+70 LT.	SOUTH MARGINAL ROAD NO. 5	3. 0
8 /	574	CLEVE. ST'D.		N.E. CORNER OF W.97TH ST. AND LORAIN AVE.	8.00
8 /	575	CLEVE. ST'D.		N.E. CORNER OF W.96TH ST. AND LORAIN AVE.	8.00
8 /	576	CLEVE. ST'D.		N.E. CORNER OF W.95TH ST. AND LORAIN AVE.	8.00
9 /	577 A	R-1-36	49+86 LT.	W. 98 TH ST.	
6. /	577 B	R-41B-30			6.25
3 /	577 C	R-43R-36			3.00
3 /	577 D	R-43L-36			3.00
9 /	578 A	R-1-36	50+14 LT.	W. 98 TH	9.00
6.25 /	578 B	R-41B-30			6.25
3. /	578 C	R-43R-36			3.00
3. /	578 D	R-43L-36			3.00
5 /	579	R-44L-24	48+98 RT.	W.98TH ST.	5.00
5 /	580	R-44R-24	48+33 LT.	W.98TH ST.	5.00
4 /	581 A	R-120-24	47+00 LT.	W.98TH ST.	4.00
3 /	581 B	RP-120-24			3.00
4 /	582 A	R-120-24	46+00 RT.		4.00
3 /	582 B	RP-120-24			3.00
6 /	548	R-41A-36	58+50 RT.	NORTH MARGINAL ROAD NO. 4	6.00
3 /	549	R-43R-36	57+20 RT.	NORTH MARGINAL ROAD NO. 4	3.00
5 /	550	R-44L-24	57+75	NORTH MARGINAL ROAD NO. 4	5.00
3 /	551	R-43L-36	151+93 RT.	W. 100TH ST. EXTENDED	3.00
3 /	552 A	R-43R-36	58+45 RT.	NORTH MARGINAL ROAD NO. 4	3.00
9 /	552 B	R-41B-36			9.00
3. /	553 A	R-43L-36	58+35 LT.	NORTH MARGINAL ROAD NO. 4	3.80
9 /	553 B	R-41B-36			9.00
4 /	554 A	R-120-24	58+85 LT.	NORTH MARGINAL ROAD NO. 4	4.00
3 /	554 B	RP-120-24			3.00
6 /	555	R-41A-36	60+40 LT.	NORTH MARGINAL ROAD NO. 4	6.00
6 /	556	R-41A 36	60+40 RT.	NORTH MARGINAL ROAD NO. 4	6.00
4 /	557	W-28-24	151+30 RT.	W. 100 TH ST. EXTENDED	4.00
9 /	558	R-41B-36	151+40 RT.	W. 100 TH ST. EXTENDED	9.00
9 /	559	R-41B-36	58+09 LT.	NORTH MARGINAL ROAD NO. 4	9.00
5 /	560	R-44R-24	58+06 RT.	NORTH MARGINAL ROAD NO. 4	5.00
5 /	583	R-44R-24	45+37 RT.	W. 98 TH ST.	5.00
5 /	584	R-44L-24	44+36 LT.	W. 98 TH ST.	5.00
				TOTAL	614.75 SF

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORTS, 3 LB. DRIVE POST	LF

* LF	SIGN NO.	
15 /	520	15.00
16 /	521	16.00
16 /	522	16.00
34 /	523	34.00
35.5 /	524	35.50
35.5 /	525	35.50
14.5 /	526	14.50
29 /	527	29.00

CONT'D

AREA	SIGN NO.	
39.5 /	528	39.50
30 /	531	30.00
16.25 /	532	16.25
16.25 /	533	16.25
14 /	534	14.00
13.25 /	538	13.25
15 /	539	15.00
14 /	541	14.00
14 /	542	14.00
13.25 /	545	13.25
16 /	546	16.00
14 /	548	14.00
14 /	556	14.00
14.8 /	557	14.80
15 /	558	15.00
15 /	559	15.00
36.5 /	561	36.50
14 /	564	14.00
15 /	565	15.00
13.25 /	569	13.25
13.25 /	571	13.25
13.25 /	573	13.25
16 /	574	16.00
16 /	575	16.00
16 /	576	16.00
14 /	581	14.00
14 /	582	14.00
	TOTAL	651.05 LF

ITEM	DESCRIPTION	UNIT
816	STRUCTURAL SUPPORT, 6 LB. BEAM, DRIVEN	LF

* LF	SIGN NO.	
16.25 /	529	16.25
16.25 /	544	16.25
16.25 /	553	16.25
16.25 /	568	16.25
16.25 /	570	16.25
16.25 /	572	16.25
	TOTAL	97.50 LF

ITEM	DESCRIPTION	UNIT
816	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.	
1 /	535	1.00
1 /	537	1.00
1 /	543	1.00
1 /	547	1.00
1 /	549	1.00
1 /	551	1.00
1 /	554	1.00
1 /	555	1.00
1 /	562	1.00
1 /	563	1.00
1 /	567	1.00
	TOTAL	11.00

ITEM	DESCRIPTION		LF
816	STRUCTURAL SUPPORT 6LB. BEAM, AS PER PLAN, DRIVEN		
LF	SIGN NO.		
16.25	530		16.25
16.25	540		16.25
16.25	552		16.25
16.25	566		16.25
16.25	577		16.25
16.25	578		16.25
		TOTAL	97.50

ITEM	DESCRIPTION	UNIT
816	MAST ARM MOUNTED SIGN ATTACHMENT, AS PER PLAN	EACH

* EACH	SIGN NO.	
1 /	550	1.00
1 /	560	1.00
1 /	579	1.00
1 /	580	1.00
1 /	583	1.00
1 /	584	1.00
	TOTAL	6.00

SUB-TOTAL PLAN SHEET NO 585

CUY-90-10.40 REGULATORY AND WARNING SIGNS

TOTAL	ITEM	UNIT	DESCRIPTION
614.75	815	SF	SIGN ERECTION, FLAT SHEET TYPE
11	816	EACH	POLE MOUNTED SIGN ATTACHMENT, AS PER PLAN
651.	816	LF	STRUCTURAL SUPPORTS, 4 LB. DRIVE POST
98.	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM, DRIVEN
6	816	EACH	MAST ARM MOUNTED SIGN ATTACHMENT, AS PER PLAN
98.	816	LF	STRUCTURAL SUPPORT, 6 LB. BEAM, AS PER PLAN, DRIVEN

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

593
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

COLOR SEQUENCE AND MOVEMENT CHART

PHASE	A				B				FLASHING
	8 RAMP 8 P P W. 117 TH.				8 ACTUATED				
SIGNAL \ INTERVAL	1	2	3	4	5	6	7		
1, 2, 3, 4	G	G	Y	R	R	R	R		Y
5, 6	R	R	R	R	G	Y	R		R
a, b	W	FL.DW	DW	DW	DW	DW	DW		OUT
FIXED TIME	37	8	3	2		3	2		
INITIAL INTERVAL					5				
VEHICLE INTERVAL					2				
MAXIMUM (SEC.)					20				
OFFSET = 14% (SAME AS INTERSECTION 8A)									

FOR GUIDE SIGNS SEE SHEET Nº 554
FOR REGULATORY & WARNING SIGNS SEE SHT. Nº 580

REF. NO	DESCRIPTION	LOCATION
TC 8-1	CONTROLLER	W 117 ST. STA. 43+00, 53' LT.
TP 8-1	COMB. SIGNAL + LIGHT SUPPORT	W 117 ST. STA. 43+95, 53' LT.
TP 8-2	TRAFFIC SIGNAL SUPPORT	W 117 ST. STA. 43+95, 53' RT.
PD 8-1	PEDESTRIAN SIGNAL SUPPORT	W 117 ST. STA. 43+33, 53' LT.
LD 8-1	LOOP DETECTOR	RAMP 8 STA. 33+08
LD 8-2	LOOP DETECTOR	RAMP 8 STA. 31+33

GRAPHIC SCALE
0 20 40 60

TRAFFIC CONTROL
W. 117 ST. AT
RAMPS Nº. 7, 8, & 9.

81-D Q-4

FED. RD.	STATE	PROJECT
2	OHIO	I-90-I(50)19

594
713

CUYAHOGA COUNTY
CUY-90-10.40

FOR GUIDE SIGNS SEE SHT. No 554
FOR REGULATORY & WARNING SIGNS SEE SHT. No 580

NOTE 'A' - CONDUIT CONTINUED TO JUNCTION BOX AT SECTOR AVE STA 48+72 18' LT (REF TO SERVICE POLE No N-54 STA. 48+70 18' LT)

REF. NO	DESCRIPTION	LOCATION
TC 9-1	CONTROLLER	W 117 ST. STA. 54+60 65' RT.
TP 9-1	COMB. SIGNAL + LIGHT SUPPORT	W 117 ST. STA. 53+90 54' RT.
TP 9-2	COMB. SIGNAL + SIGN SUPPORT	W 117 ST. STA. 53+90 65' LT.
PD 9-1	PEDESTRIAN SIGNAL SUPPORT	W 117 ST. STA. 54+66 53' RT.
PD 9-2	PEDESTRIAN SIGNAL SUPPORT	W 117 ST. STA. 53+21 65' LT.
PD 9-3	PEDESTRIAN SIGNAL SUPPORT	W 117 ST. STA. 52+70 53' LT.
LD 9-1	LOOP DETECTOR	RAMP 12 STA. 34+08
LD 9-2	LOOP DETECTOR	RAMP 12 STA. 35+83

REF. NO	DESCRIPTION	LOCATION
TC 10-1	CONTROLLER	W 117 ST. STA. 56+78 80' LT.
TP 10-1	TRAFFIC SIGNAL SUPPORT	W 117 ST. STA. 57+95 47.5' RT.
TP 10-2	TRAFFIC SIGNAL SUPPORT	W 117 ST. STA. 56+83 67' LT.
PD 10-1 PD 10-2 LD 10-1	PEDESTRIAN SIGNAL SUPPORT PEDESTRIAN SIGNAL SUPPORT LOOP DETECTOR	W 117 ST. STA. 57+91 48' LT. W 117 ST. STA. 57+73 65' LT. W 117ST. STA. 57+27
LD 10-2	LOOP DETECTOR	ELMWOOD SECTOR CONN. STA. 64+36
LD 10-3	LOOP DETECTOR	ELMWOOD SECTOR CONN. STA. 61+25

9 W. 117 TH. RAMP 12 — 9 PED. ACTUATED — 9 ACTUATED — FLASHING

PHASE	A				B				C				
SIGNAL / INTERVAL	1	2	3	4	5	6	7	8	9	10	11		12
1, 2, 3, 4	G	G	G①	G②	G	G	Y④	R④	R	R	R		Y
5	-G►	-G►	Y③	R③	R	R	R	R	-G►	-G►	-G►		Y
6, 7	R	R	R	R	R	R	R	R	G	Y	R		R
a, b	W	FL. DW	DW	DW	DW	DW	DW	DW	DW	DW	DW		OUT
c, d	DW	DW	DW	DW	W	FL. DW	DW	DW	DW	DW	DW		OUT
FIXED TIME	14	11	3	2		3	3	2		3	2		
INITIAL INTERVAL									5				
VEHICLE INTERVAL									2				
MAXIMUM (SEC.)									25				
PED. TIMER *					*7	3							

OFFSET=77% (63% FROM INTERSECTION 8)
① BECOMES Y WHEN PHASE C FOLLOWS
② BECOMES R " " " "
③ REMAINS -G► " " " "
④ REMAINS G WHEN PHASE A FOLLOWS
* UPON PEDESTRIAN ACTUATION ONLY

10 W. 117 TH. ELMWOOD SECTOR CONN. — 10 ACTUATED — 10 ACTUATED — FLASHING

PHASE	A				B				C				
SIGNAL / INTERVAL	1	2	3	4	5	6	7		8	9	10	11	12
1	G	G	G①	G②	G/◄G	Y④	R③		R	R	R	R	Y
2	G	G	G①	G②	G	Y③	R③		R	R	R	R	Y
3, 4	R	R	R	R	R	R	R		G	G	Y	R	R
5, 6	G	G	Y	R	R	R	R		R	R	R	R	Y
a, b	DW	DW	DW	DW	DW	DW	DW		W	FL. DW	DW	DW	OUT
c, d	W	FL. DW	DW	DW	DW	DW	DW		DW	DW	DW	DW	OUT
FIXED TIME	15	15	3	2		3	2			10	3	2	
INITIAL INTERVAL					4				5				
VEHICLE INTERVAL					2				2				
MAXIMUM (SEC.)					10				10				
PED. TIMER *									*7	11			

OFFSET= 73% (4% LESS THAN INTERSECTION 9)
① BECOMES Y WHEN PHASE C FOLLOWS
② BECOMES R WHEN PHASE C FOLLOWS
③ BECOMES G WHEN PHASE A FOLLOWS
* UPON PEDESTRIAN ACTUATION ONLY
④ BECOMES G/◄ Y-WHEN PHASE A FOLLOWS

COLOR SEQUENCE AND MOVEMENT CHART

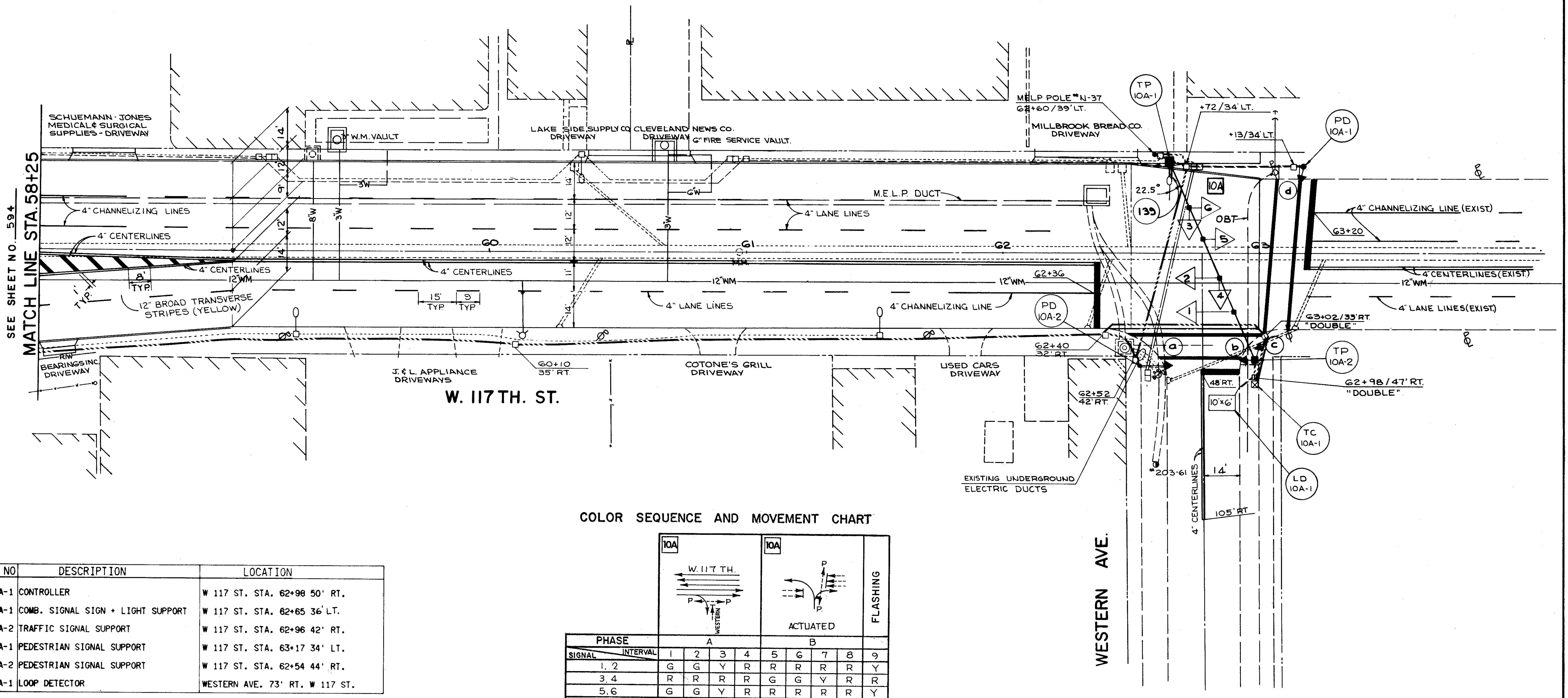
GRAPHIC SCALE
0 20 40 60

TRAFFIC CONTROL
W. 117 STREET
AT RAMPS No. 5, 11, & 12
& SECTOR AVE.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

FOR GUIDE SIGNS SEE SHT. Nº 555
FOR REGULATORY ¢ WARNING SIGNS SEE SHT. Nº 581



REF. NO	DESCRIPTION	LOCATION
TC 10A-1	CONTROLLER	W 117 ST. STA. 62+98 50' RT.
TP 10A-1	COMB. SIGNAL SIGN + LIGHT SUPPORT	W 117 ST. STA. 62+65 36' LT.
TP 10A-2	TRAFFIC SIGNAL SUPPORT	W 117 ST. STA. 62+96 42' RT.
PD 10A-1	PEDESTRIAN SIGNAL SUPPORT	W 117 ST. STA. 63+17 34' LT.
PD 10A-2	PEDESTRIAN SIGNAL SUPPORT	W 117 ST. STA. 62+54 44' RT.
LD 10A-1	LOOP DETECTOR	WESTERN AVE. 73' RT. W 117 ST.

COLOR SEQUENCE AND MOVEMENT CHART

	10A W. 117 TH. P P WESTERN				10A P P. ACTUATED				FLASHING
PHASE	A				B				
SIGNAL / INTERVAL	1	2	3	4	5	6	7	8	9
1, 2	G	G	Y	R	R	R	R	R	Y
3, 4	R	R	R	R	G	G	Y	R	R
5, 6	G	G	Y	R	R	R	R	R	Y
a, b	W	FL. DW	DW	DW	DW	DW	DW	DW	OUT
c, d	DW	DW	DW	DW	W	FL. DW	DW	DW	OUT
FIXED TIME	38	7	3	2		8	3	2	
INITIAL INTERVAL					5				
VEHICLE INTERVAL					2				
MAXIMUM (SEC.)					12				
PED. TIMER ✳					✳7				
OFFSET= 14% (59% LESS THAN INTERSECTION 10)									
✳ UPON PEDESTRIAN ACTUATION ONLY									
NOTE: TIME FOR INTERVAL 6 BASED ON LENGTH OF CROSSWALK									

GRAPHIC SCALE
0 20 40 60

TRAFFIC CONTROL
W. 117 STREET
AT WESTERN AVENUE

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

COLOR SEQUENCE AND MOVEMENT CHART

11 — RAMP 14, WEST, ACTUATED (Phase A); 11 (Phase B); FLASHING

PHASE	A				B				
SIGNAL / INTERVAL	1	2	3	4	5	6	7	8	9
1, 2	R	R	R	R	G	G	Y	R	Y
3, 4	G	G	Y	R	R	R	R	R	R
5, 6	R	R	R	R	G	G	Y	R	Y
a, b	W	FL. DW	DW	DW	DW	DW	DW	DW	OUT
c, d	DW	DW	DW	DW	W	FL. DW	DW	DW	OUT
FIXED TIME		10	3	2	35	10	3	2	
INITIAL INTERVAL	5								
VEHICLE INTERVAL	2								
MAXIMUM (SEC.)	10								
PED. TIMER ✳	✳7								
OFFSET = 27%									

✳ UPON PEDESTRIAN ACTUATION ONLY

COLOR SEQUENCE AND MOVEMENT CHART

12 — WEST BLVD., MARG. 4 (Phase A); 12 ACTUATED (Phase B); 12 ACTUATED (Phase C); FLASHING

PHASE	A				B				C				
SIGNAL / INTERVAL	1	2	3	4	5	6	7		8	9	10	11	12
1, 2	G	G	Y	R	R	R	R		R	R	R	R	Y
3, 4	R	R	R	R	R	R	R		G	G	Y	R	R
5	G	G	G①	G②	G / G	Y③ / Y	R④		R	R	R	R	Y
6	G	G	G①	G②	G	Y③	R④		R	R	R	R	Y
a, b, e, f	W	FL. DW	DW	DW	DW	DW	DW		DW	DW	DW	DW	OUT
c, d	DW	DW	DW	DW	DW	DW	DW		W	FL. DW	DW	DW	OUT
FIXED TIME	22	10	3	2		3	2			10	3	2	
INITIAL INTERVAL					4				5				
VEHICLE INTERVAL					2				2				
MAXIMUM (SEC.)					8				10				
PED. TIMER ✳									✳7	13			

OFFSET = 70% (43% GREATER THAN INTERSECTION 11)

① BECOMES Y WHEN PHASE C FOLLOWS
② BECOMES R WHEN PHASE C FOLLOWS
③ REMAINS G WHEN PHASE A FOLLOWS
④ BECOMES G WHEN PHASE A FOLLOWS
✳ UPON PEDESTRIAN ACTUATION ONLY

FOR GUIDE SIGNS SEE SHT Nº 558
FOR REGULATORY & WARNING SIGNS SEE SHT Nº 584

REF. NO	DESCRIPTION	LOCATION
TC 11-1	CONTROLLER	W BLVD. STA. 40+07 40' RT.
TP 11-1	COMB. SIGNAL + LIGHT SUPPORT	W BLVD. STA. 40+11 40' LT.
TP 11-2	COMB. SIGNAL + LIGHT SUPPORT	W BLVD. STA. 41+00 40' RT.
PD 11-1	PEDESTRIAN SIGNAL SUPPORT	W BLVD. STA. 40+15 39' RT.
PD 11-2	PEDESTRIAN SIGNAL SUPPORT	W BLVD. STA. 40+93 49' LT.
LD 11-1	LOOP DETECTOR	RAMP 14 STA. 69+55
LD 11-2	LOOP DETECTOR	RAMP 14 STA. 67+80

REF. NO	DESCRIPTION	LOCATION
TC 12-1	CONTROLLER	W BLVD. STA. 45+23 50' RT.
TP 12-1	TRAFFIC SIGNAL SUPPORT	W BLVD. STA. 45+13 39' RT.
TP 12-2	COMB. SIGNAL + LIGHT SUPPORT	W BLVD. STA. 44+84 39' LT.
TP 12-3	COMB. SIGNAL + SIGN SUPPORT	W BLVD. STA. 45+62 40' LT.
TP 12-4	COMB. SIGNAL + LIGHT SUPPORT	W BLVD. STA. 45+92 44' RT.
LD 12-1	LOOP DETECTOR	W BLVD. STA. 44+97
LD 12-2	LOOP DETECTOR	MARG. RD. 4 STA. 50+97
LD 12-3	LOOP DETECTOR	MARG. RD. 4 STA. 52+72

TRAFFIC CONTROL
WEST BLVD. AT RAMPS 13 & 14 & MARGINAL RD. Nº. 4

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

597
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

COLOR SEQUENCE AND MOVEMENT CHART

PHASE	A	A			B	B	B	B	C	C	C	C	FLASHING
	13 WEST BLVD. WESTERN ACTUATED				13				13				
SIGNAL / INTERVAL	1	2			4	5	6	7	8	9	10	11	12
1	R/◄G-	R/◄Y-			G	G	Y	R	R	R	R	R	R
2	R	R			G	G	Y	R	R	R	R	R	R
3	R/◄G-	R/◄Y-			G	G	Y	R	R	R	R	R	R
4	R	R			G	G	Y	R	R	R	R	R	R
5, 6, 7, 8	R	R			R	R	R	R	G	G	Y	R	R
a, b, e, f	DW	DW			DW	DW	DW	DW	W	FL. DW	DW	DW	OUT
c, d, g, h	DW	DW			W	FL. DW	DW	DW	DW	DW	DW	DW	OUT
FIXED TIME		3			13	10	3	2	12	13	3	2	
INITIAL INTERVAL	4												
VEHICLE INTERVAL	2												
MAXIMUM (SEC.)	12												
OFFSET = 73.% (3% GREATER THAN INTERSECTION 12)													

REF. NO	DESCRIPTION	LOCATION
TC 13-1	CONTROLLER	W BLVD. STA. 49+53 45' LT.
TP 13-1	COMB. SIGNAL, SIGN + LIGHT SUPPORT	W BLVD. STA. 49+59 41' LT.
TP 13-2	COMB. SIGNAL + LIGHT SUPPORT	W BLVD. STA. 50+41 41' RT.
PD 13-1	PEDESTRIAN SIGNAL SUPPORT	W BLVD. STA. 49+64 58' LT.
PD 13-2	COMB. PED. SIGNAL + LIGHT SUPPORT	W BLVD. STA. 50+37 58' LT.
PD 13-3	PEDESTRIAN SIGNAL SUPPORT	W BLVD. STA. 50+37 58' RT.
PD 13-4	COMB. PED. SIGNAL + LIGHT SUPPORT	W BLVD. STA. 49+64 58' RT.
LD 13-1	LOOP DETECTOR	W BLVD. STA. 49+53
LD 13-2	LOOP DETECTOR	W BLVD. STA. 50+46

FOR GUIDE SIGNS SEE SHT. No 558
FOR REGULATORY & WARNING SIGNS SEE SHT No 584

TRAFFIC CONTROL

WEST BOULEVARD
AT WESTERN AVENUE

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

COLOR SEQUENCE AND MOVEMENT CHART

	14 ACTUATED				14 ACTUATED				FLASHING
PHASE	A				B				
SIGNAL / INTERVAL	1	2	3	4	5	6	7	8	9
1, 2	R	R	R	R	G	G	Y	R	R
3, 4	G	G	Y	R	R	R	R	R	Y
5, 6	R	R	R	R	G	G	Y	R	R
a, b, c, d	DW	DW	DW	DW	W	FL. DW	DW	DW	OUT
e, f	W	FL. DW	DW	DW	DW	DW	DW	DW	OUT
FIXED TIME		18	3	2		9	3	2	
INITIAL INTERVAL	4				5				
VEHICLE INTERVAL	2				2				
MAXIMUM (SEC.)	24				14				
PED. TIMER ✱	✱7	18			✱7	9			
OFFSET (REF. INTERSECTION 15)									
✱ UPON PEDESTRIAN ACTUATION ONLY									

REF. NO	DESCRIPTION	LOCATION
TC 14-1	CONTROLLER	N MARG RD 4 STA. 57+06 35' LT.
TP 14-1	TRAFFIC SIGNAL SUPPORT	RELOC W 100 ST. STA. 151+93 24' RT.
TP 14-2	TRAFFIC SIGNAL SUPPORT	N MARG RD 4 STA. 57+20 26' RT.
PD 14-1	COMB. PED. SIGNAL + LIGHT SUPPORT	N MARG RD 4 STA. 57+28 25' LT.
PD 14-2	PEDESTRIAN SIGNAL SUPPORT	N MARG RD 4 STA. 58+17 25' LT.
PD 14-3	PEDESTRIAN SIGNAL SUPPORT	RELOC W 100 ST. STA. 152+14 23' LT.
PD 14-4	PEDESTRIAN SIGNAL SUPPORT	RELOC W 100 ST. STA. 151+47 18' RT.
LD 14-1	LOOP DETECTOR	RELOC W 100 ST. STA. 151+00
LD 14-2	LOOP DETECTOR	N MARG RD 4 STA. 58+72
LD 14-3	LOOP DETECTOR	WESTERN AVE. STA. 66+90
LD 14-4	LOOP DETECTOR	N MARG RD 4 STA. 60+47

FOR GUIDE SIGNS SEE SHT No 559
FOR REGULATORY & WARNING SIGNS SEE SHT No 585

TRAFFIC CONTROL
N. MARGINAL RD. No. 4
AT RELOC. 100 ST. & W. 101 ST.

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

	15 ACTUATED				15				15 ACTUATED				FLASHING
PHASE	A				B				C				
SIGNAL / INTERVAL	1	2	3	4	5	6	7	8	9	10	11		12
1, 2	G	G	Y	R	R	R	R	R	R	R	R		R
3, 4	R	R	R	R	G	G	Y	R	R	R	R		Y
5	R	R	R	R	G	G	G①	G②	G	Y③	R③		Y
6	R	R	R	R	G	G	G①	G②	G ←G-	Y⑤	R④		Y
a, b, e, f	DW	DW	DW	DW	W	FL.DW	DW	DW	DW	DW	DW		OUT
c, d	W	FL.DW	DW	DW	DW	DW	DW	DW	DW	DW	DW		OUT
FIXED TIME		9	3	2	11	15	3	2		3	2		
INITIAL INTERVAL	4								5				
VEHICLE INTERVAL	2								2				
MAXIMUM (SEC.)	12								13				
PED. TIMER *	*7												

OFFSET 22% FROM INTERSECTION 14
① BECOMES Y WHEN PHASE A FOLLOWS
② BECOMES R WHEN PHASE A FOLLOWS
③ REMAINS G WHEN PHASE B FOLLOWS
④ BECOMES G WHEN PHASE B FOLLOWS
* UPON PEDESTRIAN ACTUATION ONLY
⑤ BECOMES G/←Y- WHEN PHASE B FOLLOWS

	16				16 ACTUATED				16 ACTUATED				FLASHING
PHASE	A				B				C				
SIGNAL / INTERVAL	1	2	3	4	5	6	7		8	9	10	11	12
1	G	G	G①	G②	G	Y③	R④		R	R	R	R	R
2	G	G	G①	G②	G ←G-	Y③ ←Y-	R④		R	R	R	R	R
3, 4	G	G	Y	R	R	R	R		R	R	R	R	R
5, 6	R	R	R	R	R	R	R		G	G	Y	R	R
a, b	DW	DW	DW	DW	DW	DW	DW		W	FL.DW	DW	DW	OUT
c, d, e, f	W	FL.DW	DW	DW	DW	DW	DW		DW	DW	DW	DW	OUT
FIXED TIME	14	6	3	2		3	2			12	3	2	
INITIAL INTERVAL					4				5				
VEHICLE INTERVAL					2				2				
MAXIMUM (SEC.)					6				22				
PED. TIMER *									*7				

OFFSET 13% FROM INTERSECTION 15
① BECOMES Y WHEN PHASE C FOLLOWS
② BECOMES R WHEN PHASE C FOLLOWS
③ REMAINS G WHEN PHASE A FOLLOWS
④ BECOMES G WHEN PHASE A FOLLOWS
* UPON PEDESTRIAN ACTUATION ONLY

FOR GUIDE SIGNS SEE SHT № 559
FOR REGULATORY & WARNING SIGNS SEE SHT № 585

REF. NO	DESCRIPTION	LOCATION
TC 15-1	CONTROLLER	W 98 ST. STA. 44+39 50' LT.
TP 15-1	COMB. SIGNAL SIGN + LIGHT SUPPORT	W 98 ST. STA. 45+37 42' RT.
TP 15-2	COMB. SIGNAL + LIGHT SUPPORT	W 98 ST. STA. 44+36 40' LT.
PD 15-1	PEDESTRIAN SIGNAL SUPPORT	W 98 ST. STA. 44+51 39' RT.
PD 15-2	CO . PED. SIGNAL + LIGHT SUPPORT	W 98 ST. STA. 45+11 42' LT.
LD 15-1	LOOP DETECTOR	W 98 ST. STA. 45+20
LD 15-2	LOOP DETECTOR	RELOC W 100 ST. STA. 157+00
LD 15-3	LOOP DETECTOR	RELOC W 100 ST. STA. 155+25

REF. NO	DESCRIPTION	LOCATION
TC 16-1	CONTROLLER	W 98 ST. STA. 48+99 47' RT.
TP 16-1	COMB. SIGNAL + LIGHT SUPPORT	W 98 ST. STA. 48+99 41.5' RT.
TP 16-2	COMB. SIGNAL + SIGN SUPPORT	W 98 ST. STA. 48+34 42' LT.
PD 16-1	PEDESTRIAN SIGNAL SUPPORT	W 98 ST. STA. 48+39 41' RT.
PD 16-2	PEDESTRIAN SIGNAL SUPPORT	W 98 ST. STA. 48+95 39' LT.
LD 16-1	LOOP DETECTOR	W 98 ST. STA. 48+32
LD 16-2	LOOP DETECTOR	N MARG RD 4 STA. 64+01
LD 16-3	LOOP DETECTOR	N MARG RD 4 STA. 65+75

TRAFFIC CONTROL
W. 98 STREET AT MARGINAL ROADS 4&5

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY- 90 - 10.40

SYMBOL LEGEND

☐	PULL BOX
■	JUNCTION BOX
Ⓐ	PEDESTRIAN PUSH BUTTON
ⓐ ←○	PEDESTRIAN SIGNAL
◁	TRAFFIC SIGNAL
☒	TRAFFIC CONTROLLER
▭	LOOP DETECTOR

CABLE LEGEND

=========	SIGNAL CABLE, STRANDED 7/c Nº 12 AWG
—— - ——	SIGNAL CABLE, STRANDED 2/c Nº 12 AWG
——•——	LOOP DETECTOR LEAD-IN CABLE, STRANDED, 2/c Nº 12 AWG., TWISTED PAIR, SHIELDED
—— E ——	POWER CABLE 3/c Nº 6 AWG STRANDED RHW
——IC——	INTERCONNECT CABLE, STRANDED, 12/c Nº 12 AWG

W. 117 TH. ST.
WIRING DIAGRAM

FORM D D A-8

FED. RD.	STATE	PROJECT
2	OHIO	I-90-1(50)19

601
713

CUYAHOGA COUNTY
CUY-90-10.40

SYMBOL LEGEND

□	PULL BOX
■	JUNCTION BOX
Ⓐ	PEDESTRIAN PUSH BUTTON
ⓐ←○	PEDESTRIAN SIGNAL
◁	TRAFFIC SIGNAL
☒	TRAFFIC CONTROLLER
▭	LOOP DETECTOR

CABLE LEGEND

========	SIGNAL CABLE, STRANDED 7/c Nº 12 AWG
— · —	SIGNAL CABLE, STRANDED 2/c Nº 12 AWG
—•—	LOOP DETECTOR LEAD-IN CABLE, STRANDED, 2/c Nº 12 AWG., TWISTED PAIR, SHIELDED
— E —	POWER CABLE 3/c Nº 6 AWG STRANDED RHW
— IC —	INTERCONNECT CABLE, STRANDED, 12/c Nº 12 AWG

W. 117 TH. ST.
WIRING DIAGRAM

FORM DD 4-6

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

602
713

CUYAHOGA COUNTY
CUY-90-10.40

SYMBOL LEGEND

□	PULL BOX
■	JUNCTION BOX
Ⓐ	PEDESTRIAN PUSH BUTTON
ⓐ←○	PEDESTRIAN SIGNAL
◁	TRAFFIC SIGNAL
☒	TRAFFIC CONTROLLER
▭	LOOP DETECTOR

CABLE LEGEND

═ ═ ═	SIGNAL CABLE, STRANDED 7/c Nº 12 AWG
—— - ——	SIGNAL CABLE, STRANDED 2/c Nº 12 AWG
——•——	LOOP DETECTOR LEAD-IN CABLE, STRANDED, 2/c Nº 12 AWG., TWISTED PAIR, SHIELDED
—— E ——	POWER CABLE 3/c Nº 6 AWG STRANDED RHW
——IC——	INTERCONNECT CABLE, STRANDED, 12/c Nº 12 AWG

W. 117 TH. ST.

WIRING DIAGRAM

FORM DD A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

603
713

CUYAHOGA COUNTY
CUY-90-10.40

SYMBOL LEGEND

□	PULL BOX
■	JUNCTION BOX
Ⓐ	PEDESTRIAN PUSH BUTTON
ⓐ ←○	PEDESTRIAN SIGNAL
◁	TRAFFIC SIGNAL
☒	TRAFFIC CONTROLLER
▭	LOOP DETECTOR

CABLE LEGEND

═ ═ ═	SIGNAL CABLE, STRANDED 7/c Nº 12 AWG
— - —	SIGNAL CABLE, STRANDED 2/c Nº 12 AWG
—•—	LOOP DETECTOR LEAD-IN CABLE, STRANDED, 2/c Nº 12 AWG., TWISTED PAIR, SHIELDED
— E —	POWER CABLE 3/c Nº 6 AWG STRANDED RHW
—IC—	INTERCONNECT CABLE, STRANDED, 12/c Nº 12 AWG

WEST BLVD.
WIRING DIAGRAM

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

604
713

CUYAHOGA COUNTY
CUY-90-10.40

SYMBOL LEGEND

□	PULL BOX
■	JUNCTION BOX
Ⓐ	PEDESTRIAN PUSH BUTTON
ⓐ—◀—○	PEDESTRIAN SIGNAL
◁	TRAFFIC SIGNAL
☒	TRAFFIC CONTROLLER
▭	LOOP DETECTOR

CABLE LEGEND

═ ═ ═	SIGNAL CABLE, STRANDED 7/c Nº 12 AWG
—— - ——	SIGNAL CABLE, STRANDED 2/c Nº 12 AWG
——•——	LOOP DETECTOR LEAD-IN CABLE, STRANDED, 2/c Nº 12 AWG., TWISTED PAIR, SHIELDED
—— E ——	POWER CABLE 3/c Nº 6 AWG STRANDED RHW
——IC——	INTERCONNECT CABLE, STRANDED, 12/c Nº 12 AWG

WEST BLVD.

WIRING DIAGRAM

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

605
713

CUYAHOGA COUNTY
CUY-90-10.40

SYMBOL LEGEND

☐	PULL BOX
■	JUNCTION BOX
Ⓐ	PEDESTRIAN PUSH BUTTON
ⓐ←○	PEDESTRIAN SIGNAL
◁	TRAFFIC SIGNAL
☒	TRAFFIC CONTROLLER
▭	LOOP DETECTOR

CABLE LEGEND

═ ═ ═	SIGNAL CABLE, STRANDED 7/c Nº 12 AWG
— - —	SIGNAL CABLE, STRANDED 2/c Nº 12 AWG
—•—	LOOP DETECTOR LEAD-IN CABLE, STRANDED, 2/c Nº 12 AWG., TWISTED PAIR, SHIELDED
— E —	POWER CABLE 3/c Nº 6 AWG STRANDED RHW
—IC—	INTERCONNECT CABLE, STRANDED, 12/c Nº 12 AWG

N. MARGINAL RD. Nº 4
WIRING DIAGRAM

FORM D D A-6

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY- 90-10.40

SYMBOL LEGEND

☐ PULL BOX
■ JUNCTION BOX
Ⓐ PEDESTRIAN PUSH BUTTON
ⓐ←○ PEDESTRIAN SIGNAL
◁ TRAFFIC SIGNAL
☒ TRAFFIC CONTROLLER
▭ LOOP DETECTOR

CABLE LEGEND

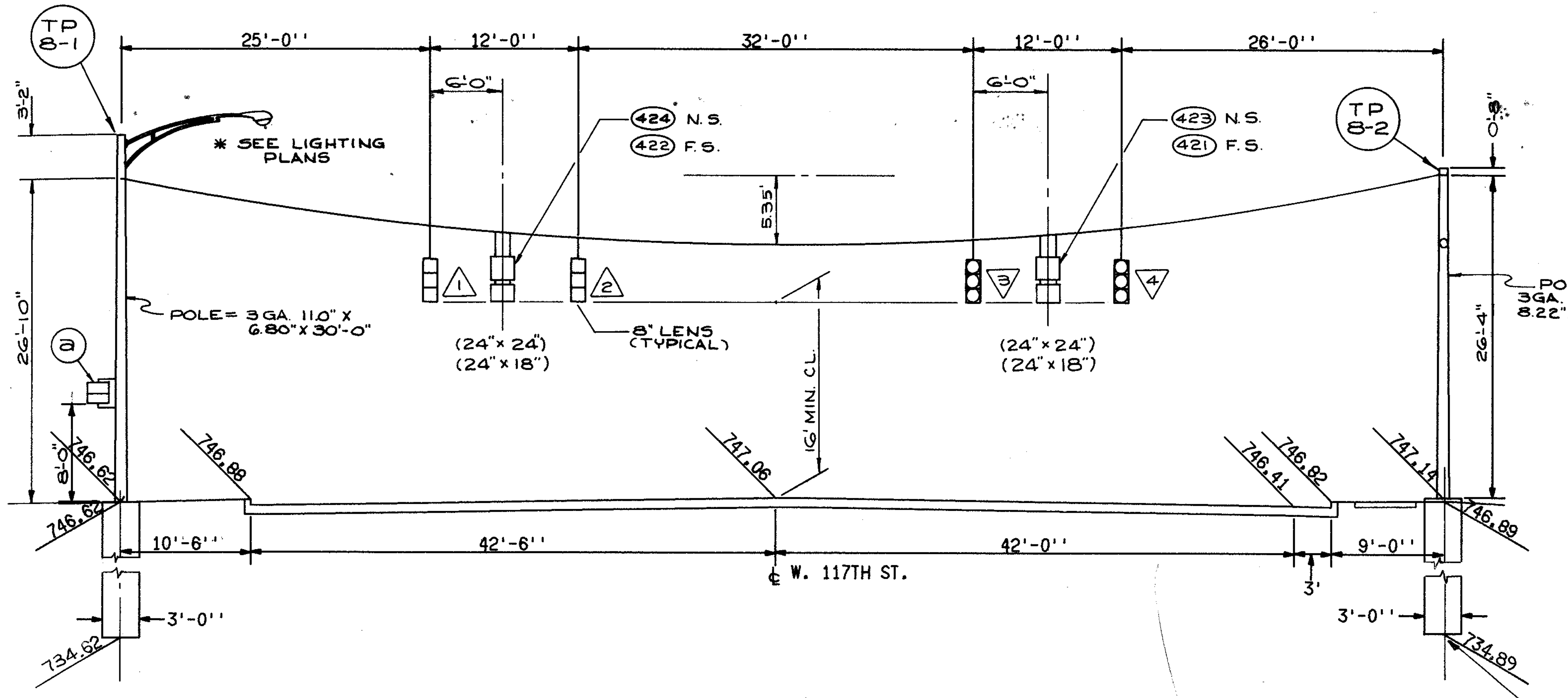
=========	SIGNAL CABLE, STRANDED 7/c Nº 12 AWG
—— - ——	SIGNAL CABLE, STRANDED 2/c Nº 12 AWG
——•——	LOOP DETECTOR LEAD-IN CABLE, STRANDED, 2/c Nº 12 AWG., TWISTED PAIR, SHIELDED
—— E ——	POWER CABLE 3/c Nº 6 AWG STRANDED RHW
——IC——	INTERCONNECT CABLE, STRANDED, 12/c Nº 12 AWG

W. 98TH ST.
WIRING DIAGRAM

FORM D D A-8

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

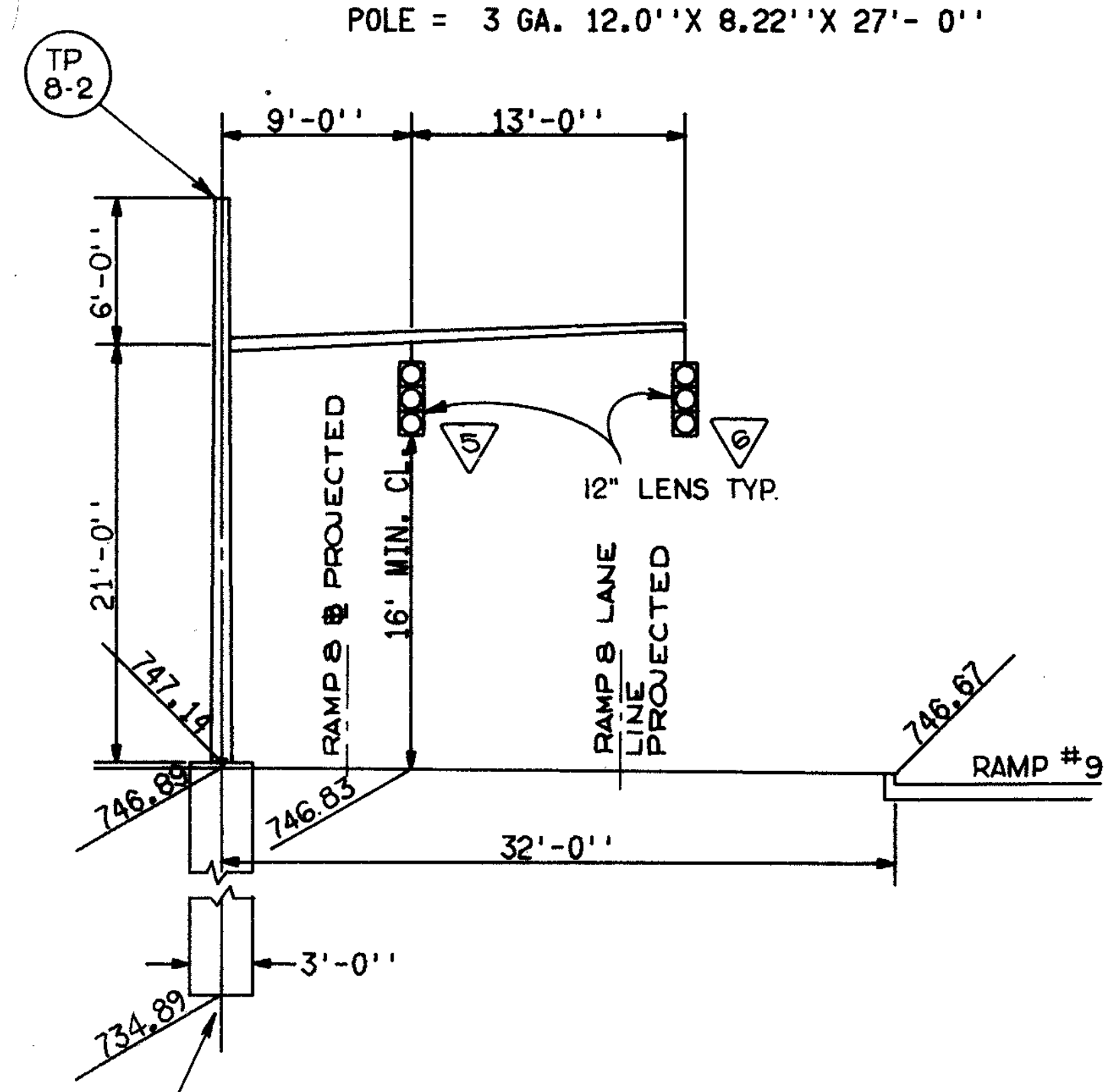


IN LIEU OF REINFORCING SHOWN ON
SHEET No. 634, THE NUMBER OF
REINFORCING BARS SHALL BE 8-#6

COMBINATION SIGNAL & LIGHT SUPPORT TP 8-1
TRAFFIC SIGNAL SUPPORT TP 8-2
W. 117TH ST. STA. 43+95 53' LT. AND 54' RT.
NORTHBOUND

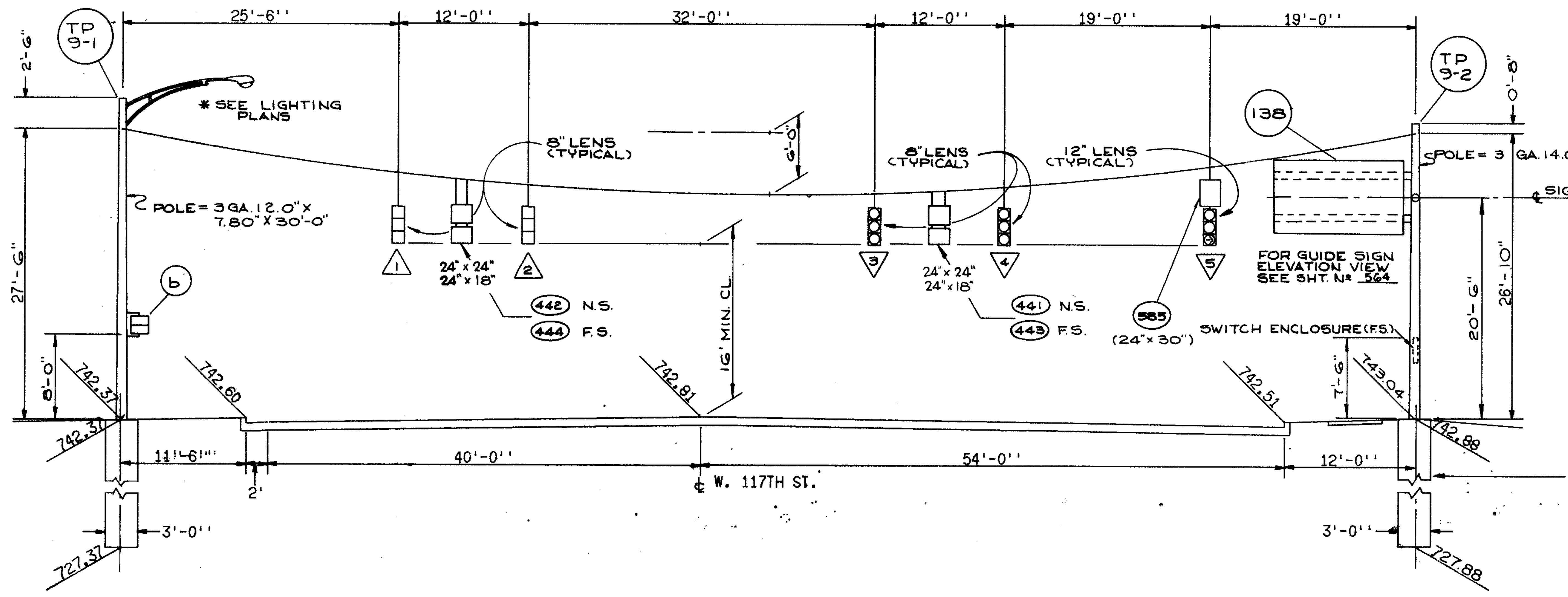
IN LIEU OF REINFORCING SHOWN ON
SHEET No. 634, THE NUMBER OF
REINFORCING BARS SHALL BE 8-#6

ARM = 7 GA. 7.0''X 3.92''X 22'- 0''
POLE = 3 GA. 12.0''X 8.22''X 27'- 0''



TRAFFIC SIGNAL SUPPORT TP 8-2
W. 117TH ST. STA. 43+95 54' RT.
EASTBOUND

SIGN ARMS = 7 GA. 6.90" x 5.08" x 13'-0" (2 REQ'D)

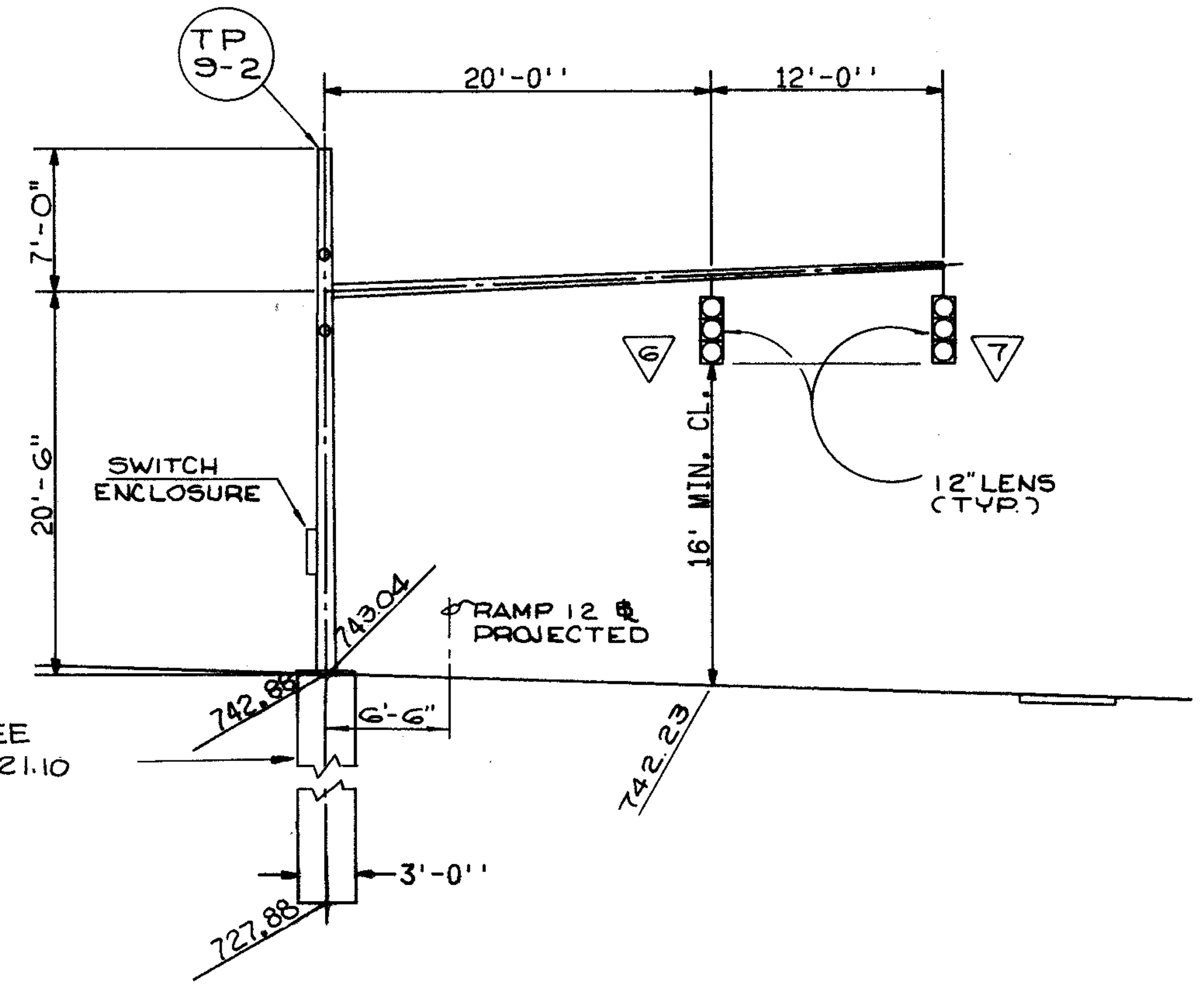


FOR FOUNDATION DETAILS, SEE
SEE STANDARD DWG. No. TC-21.10

IN LIEU OF REINFORCING SHOWN ON
SHEET No. 634, THE NUMBER OF
REINFORCING BARS SHALL BE 8-#6

COMB. SIGNAL AND LIGHT SUPPORT TP 9-1 AND COMB SIGNAL AND SIGN SUPPORT TP 9-2
W. 117TH ST. STA 53+90 54' RT. AND W. 117TH ST. STA. 53+90 66' LT.
SOUTHBOUND

ARM = 7 GA.- 8.0''X 3.52''X 32'- 0''
POLE = 3 GA.-15.0''X 11.15''X 27'- 6''



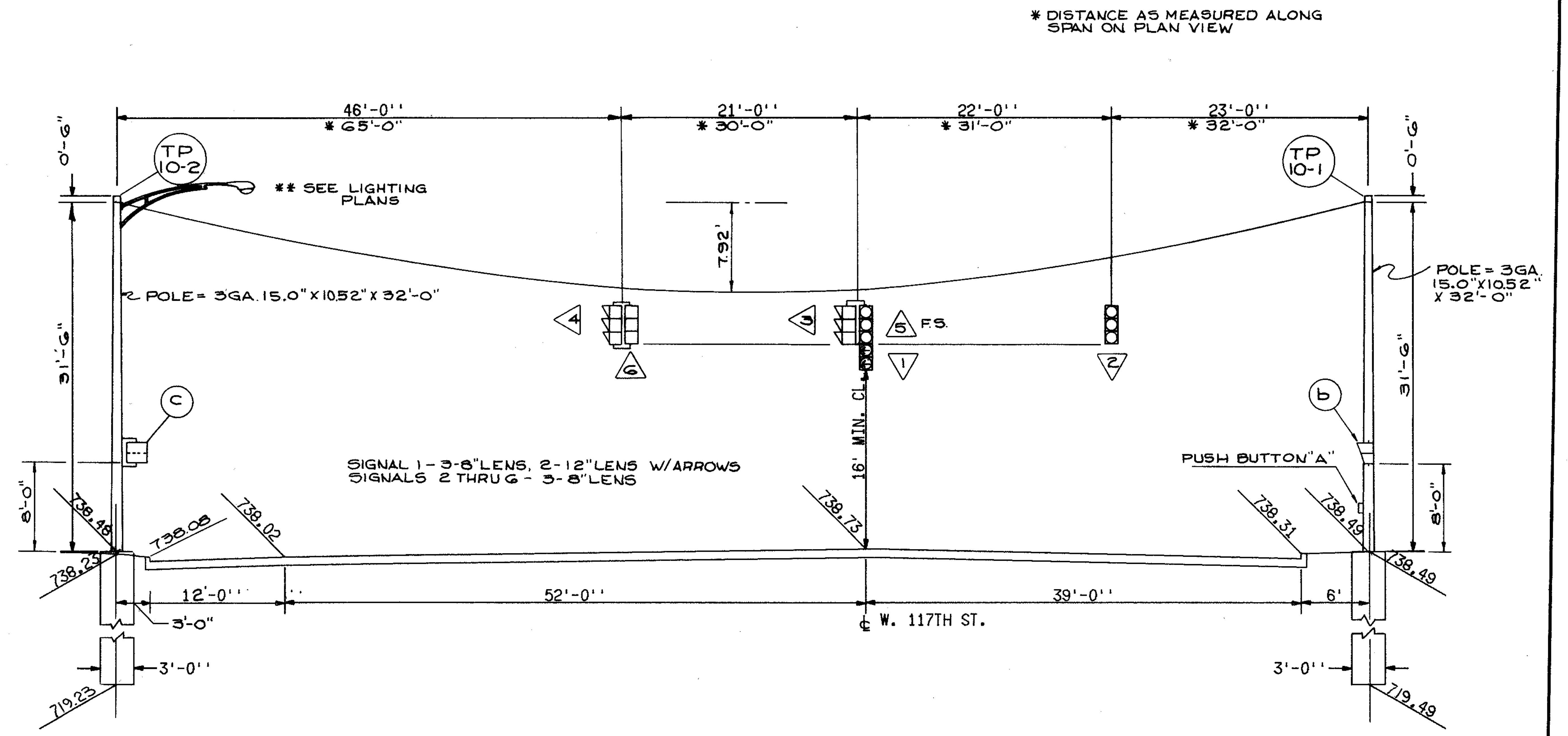
COMBINATION SIGNAL AND SIGN SUPPORT TP 9-2
W. 117TH ST. STA 53+90 66' LT.
WESTBOUND

TRAFFIC SIGNAL DETAILS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

608
713

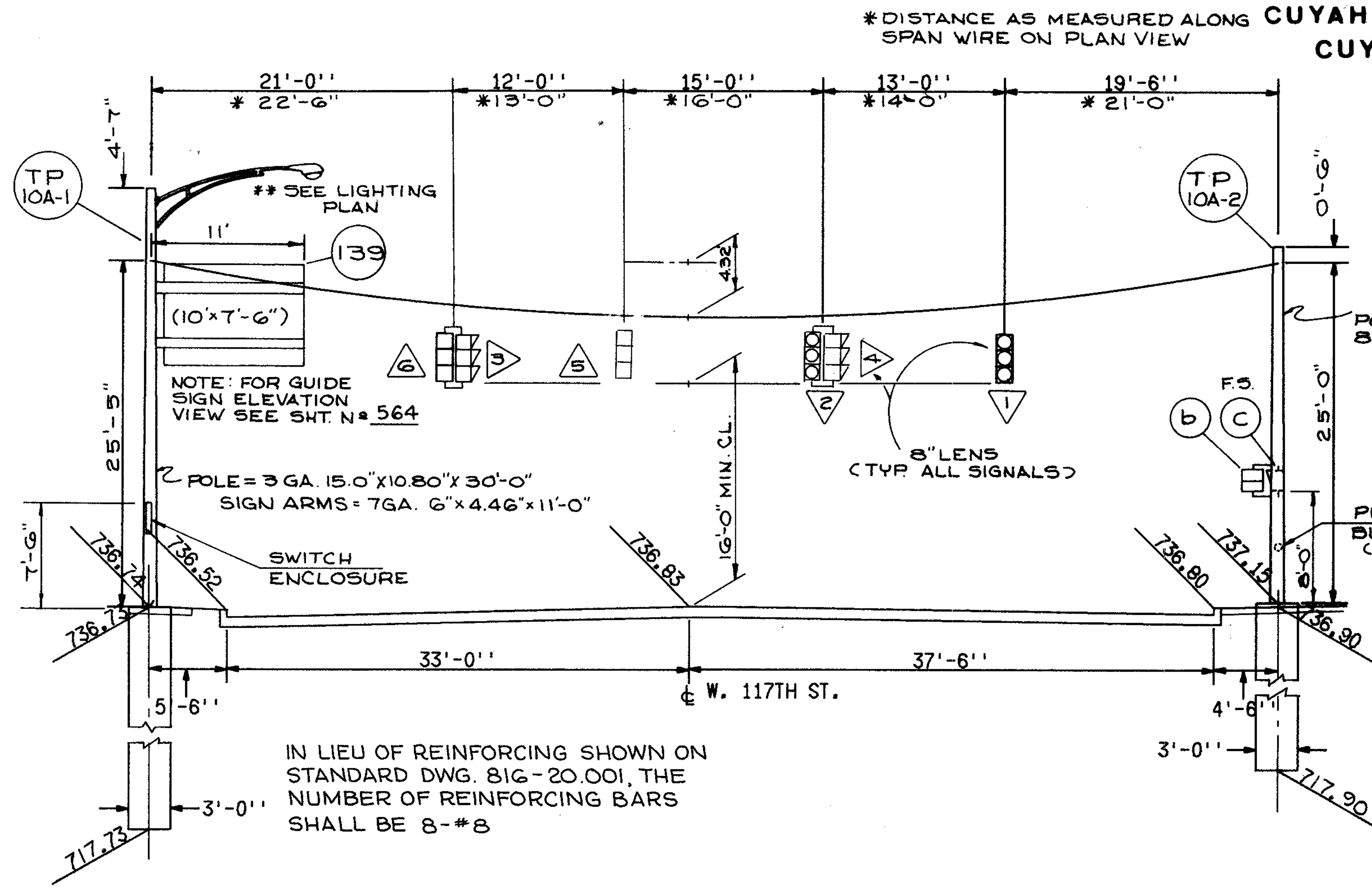
CUYAHOGA COUNTY
CUY - 90 - 10.40



IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#8

COMB. SIGNAL AND LIGHT SUPPORT TP 10-2 AND TRAFFIC SIGNAL SUPPORT TP 10-1
W. 117TH ST. STA. 56+83 67' LT. AND W. 117TH ST. STA. 57+95 45' RT.
NORTH BOUND (SKEWED ALONG SPAN WIRE)

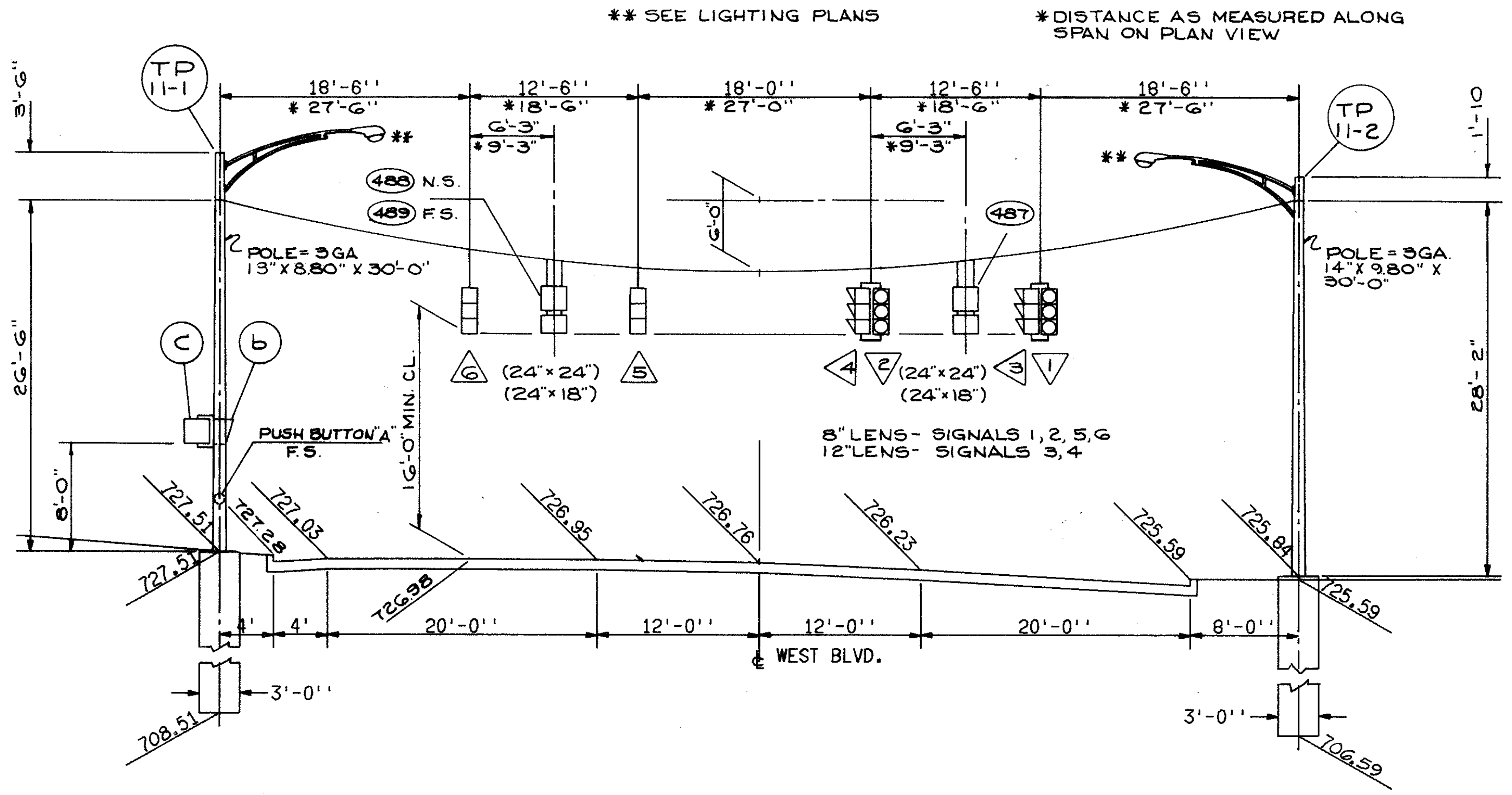
IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#8



IN LIEU OF REINFORCING SHOWN ON STANDARD DWG. 816-20.001, THE NUMBER OF REINFORCING BARS SHALL BE 8-#8

IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#8.

COMB. SIGNAL, SIGN & LIGHT SUPPORT TP 10A-1 AND TRAFFIC SIGNAL SUPPORT TP 10A-2
W. 117TH ST. STA. 62+65 38.5 LT. AND W. 117TH ST. STA. 62+96 42' RT.
NORTHBOUND
(SKEWED ALONG SPAN)



IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#6

COMBINATION SIGNAL AND LIGHT SUPPORT TP 11-1 AND TP 11-2
WEST BLVD. STA. 40+11 40' LT. AND WEST BLVD. STA. 41+00 40' RT.
NORTHBOUND (SKEWED ALONG SPAN WIRE)

IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#6

TRAFFIC SIGNAL DETAILS

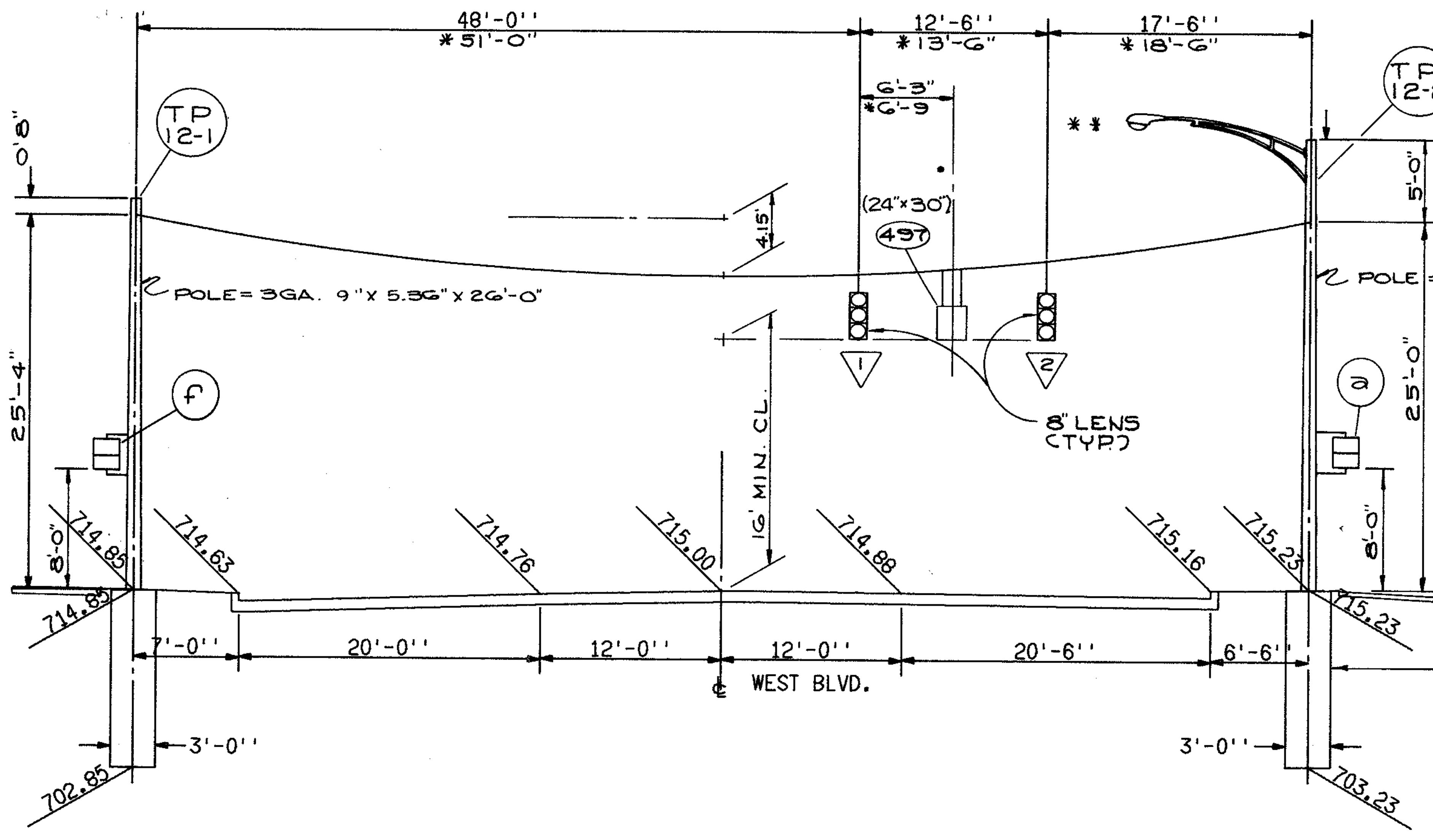
FORM D D A-6

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

*DISTANCE AS MEASURED ALONG SPAN WIRE ON PLAN VIEW

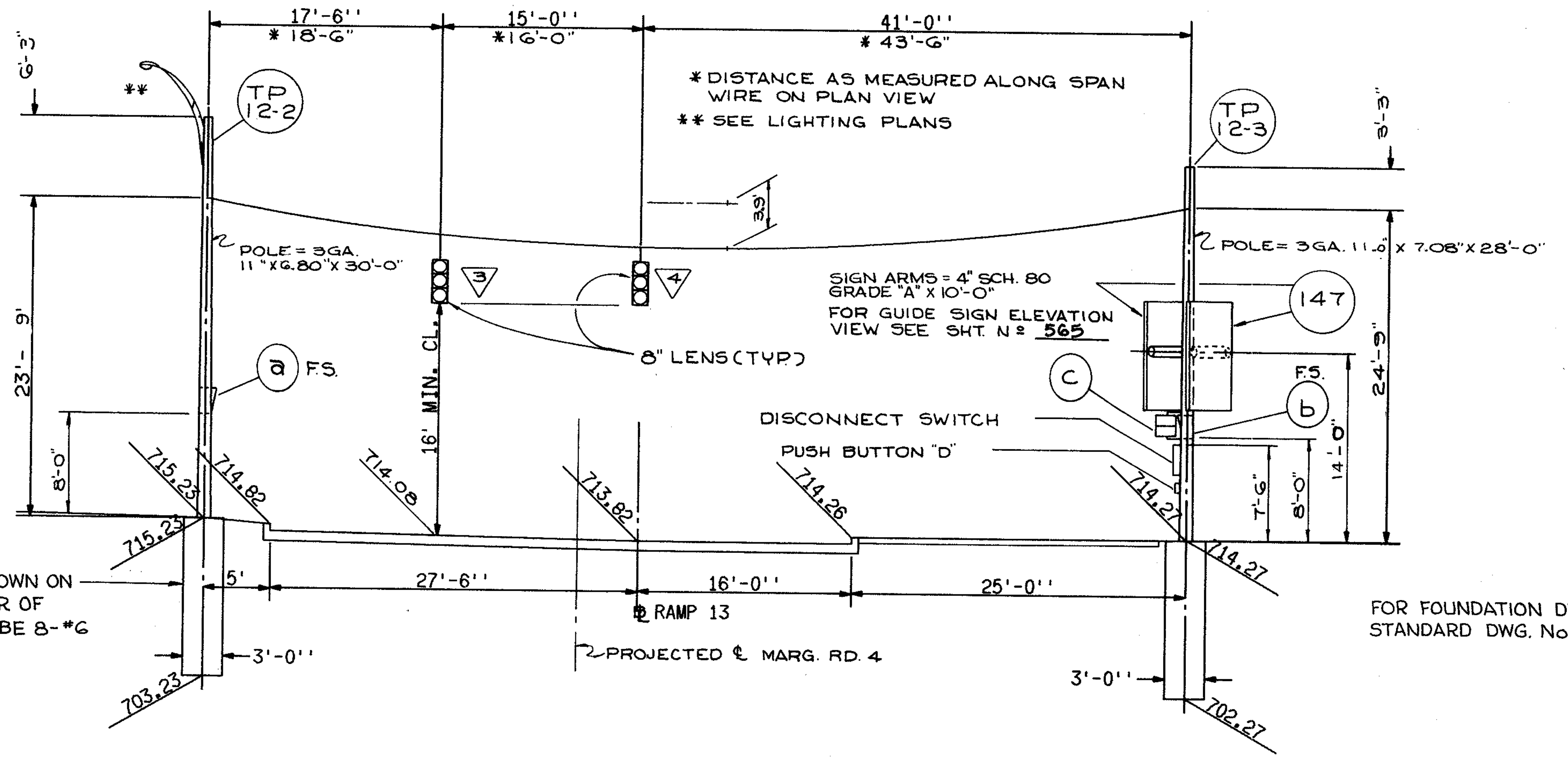
**SEE LIGHTING PLANS



IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#6

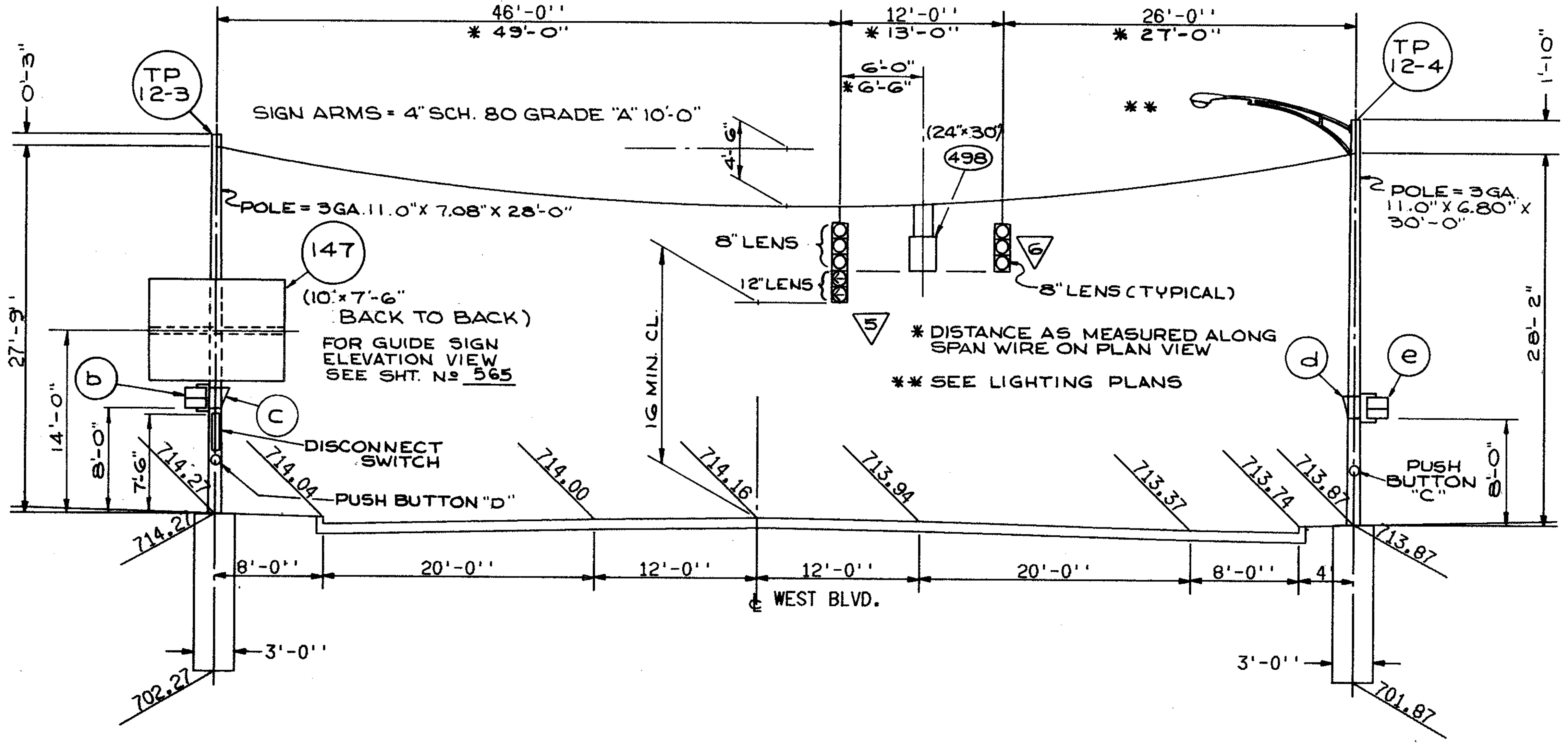
IN LIEU OF REINFORCING SHOWN ON SHEET No.634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#6

TRAFFIC SIGNAL SUPPORT TP 12-1 AND COMB. SIGNAL AND LIGHT SUPPORT TP 12-2
WEST BLVD. STA. 45+13 39' RT. AND WEST BLVD. STA. 44+84 39' LT.
SOUTHBOUND (SKEWED ALONG SPAN WIRE)



FOR FOUNDATION DETAILS, SEE STANDARD DWG. No. 816-20.001

COMB. SIGNAL + LIGHT SUPPORT TP 12-2 AND COMB. SIGNAL + SIGN SUPPORT TP 12-3
WEST BLVD. STA. 44+84 39' LT. AND WEST BLVD. STA. 45+62 40' LT.
WESTBOUND (SKEWED ALONG SPAN WIRE)



FOR FOUNDATION DETAILS SEE STANDARD DWG. No. 816-20.001

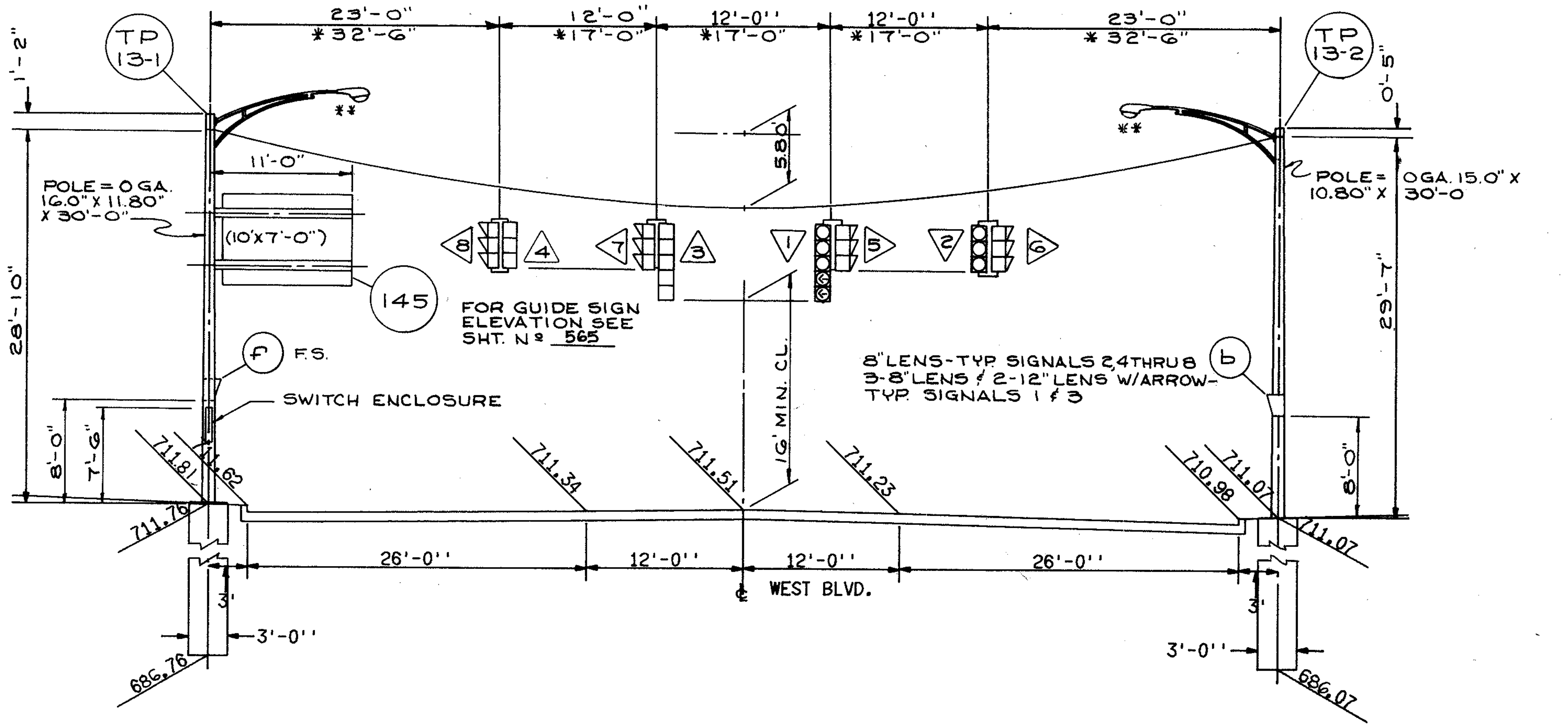
COMB. SIGNAL + SIGN SUPPORT TP 12-3 AND COMB. SIGNAL + LIGHT SUPPORT TP 12-4
WEST BLVD. STA. 45+62 40' LT. AND WEST BLVD. STA 45+92 44' RT.
NORTH BOUND (SKEWED ALONG SPAN WIRE)

IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#6

SIGN ARMS = 7GA. 6"x 4.46"x 11'-0"

**SEE LIGHTING PLANS

*DISTANCE AS MEASURED ALONG SPAN WIRE ON PLAN VIEW



IN LIEU OF REINFORCING SHOWN ON STANDARD DWG. 816-20.001, THE NUMBER OF REINFORCING BARS SHALL BE 8-#8

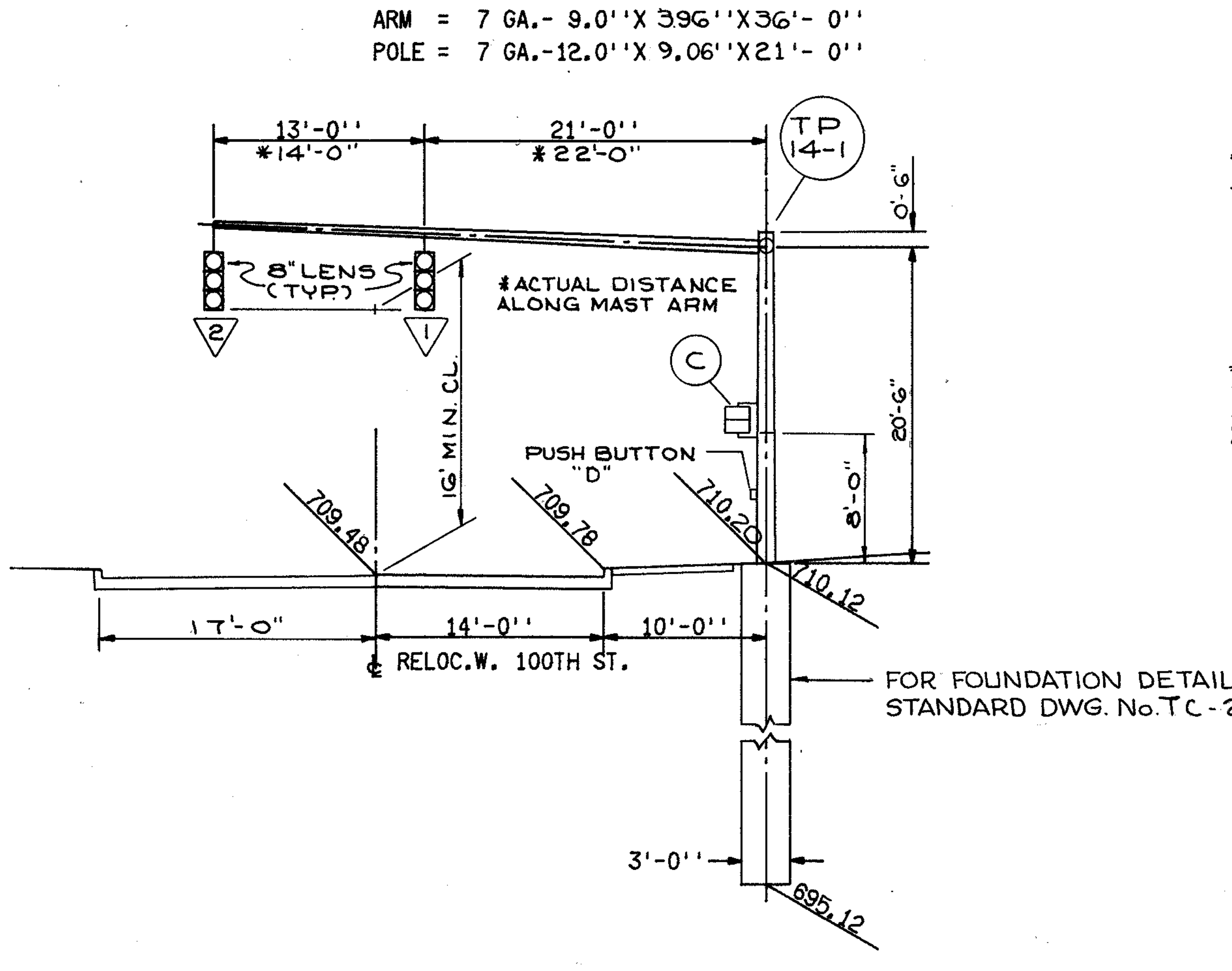
COMB. SIGNAL, SIGN AND LIGHT SUPPORT TP 13-1 WEST BLVD. STA. 49+59 41' LT.
COMB. SIGNAL AND LIGHT SUPPORT TP 13-2 WEST BLVD. STA. 50+41 41' RT.
NORTHBOUND (SKEWED ALONG SPAN WIRE)

IN LIEU OF REINFORCING SHOWN ON SHEET No. 634, THE NUMBER OF REINFORCING BARS SHALL BE 8-#8

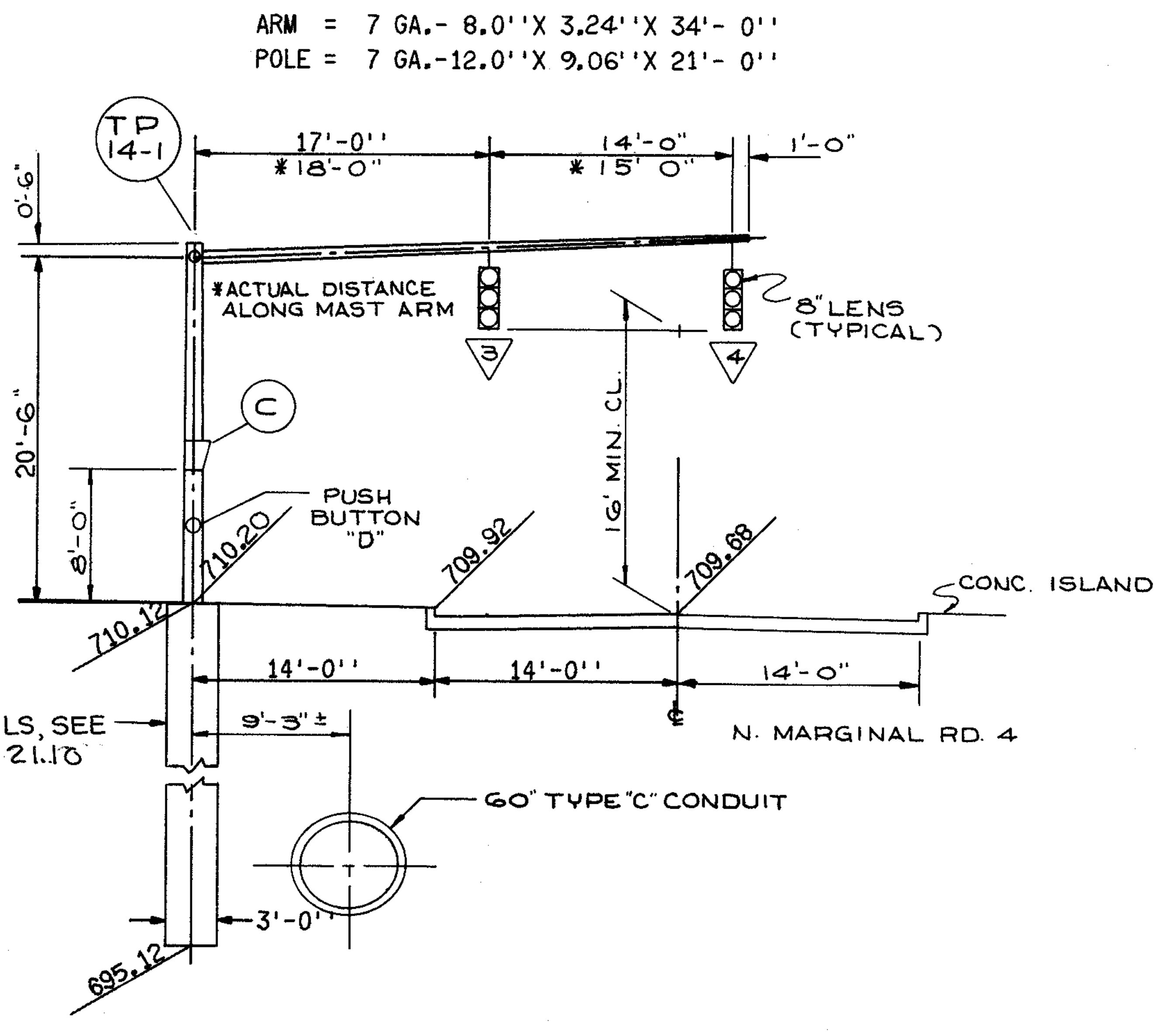
TRAFFIC SIGNAL DETAILS

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

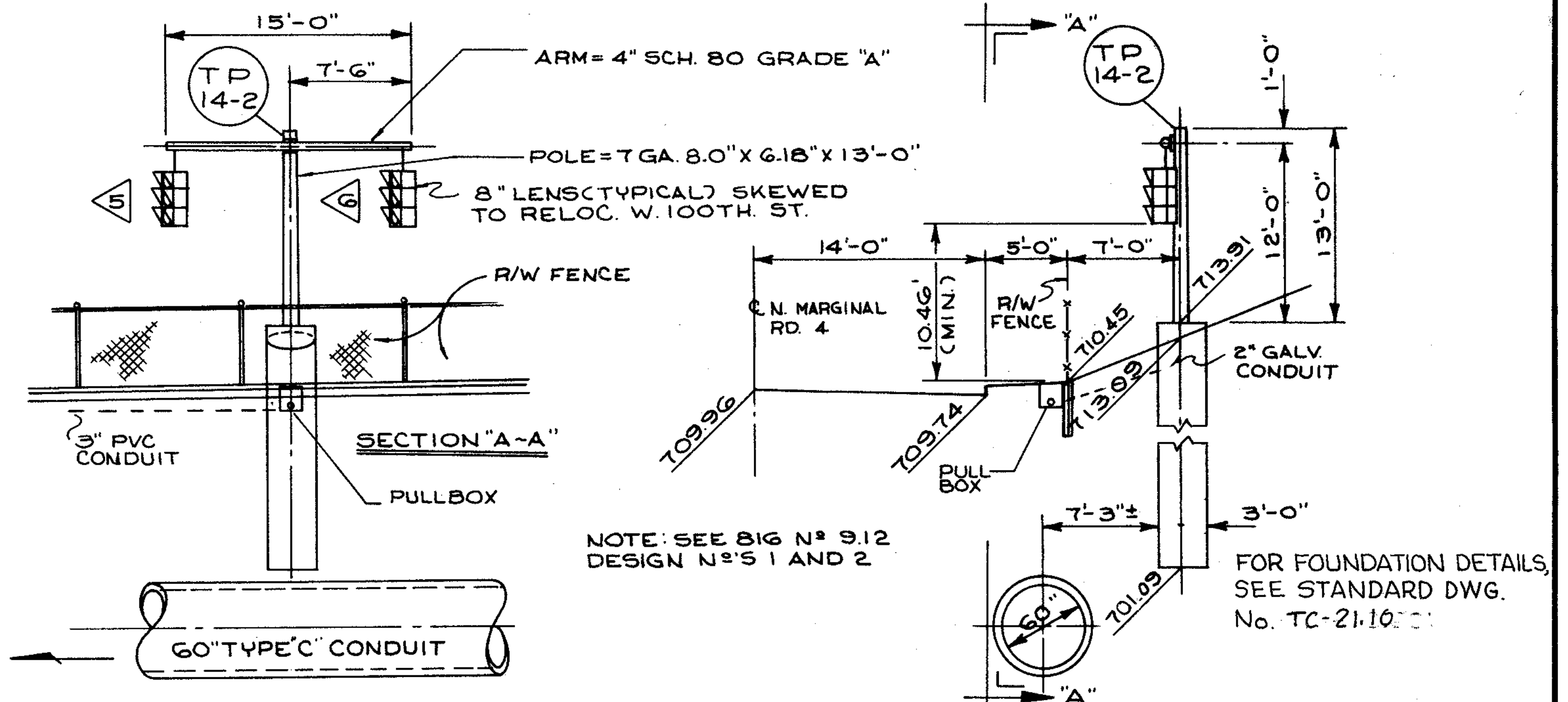
CUYAHOGA COUNTY
CUY - 90 - 10.40



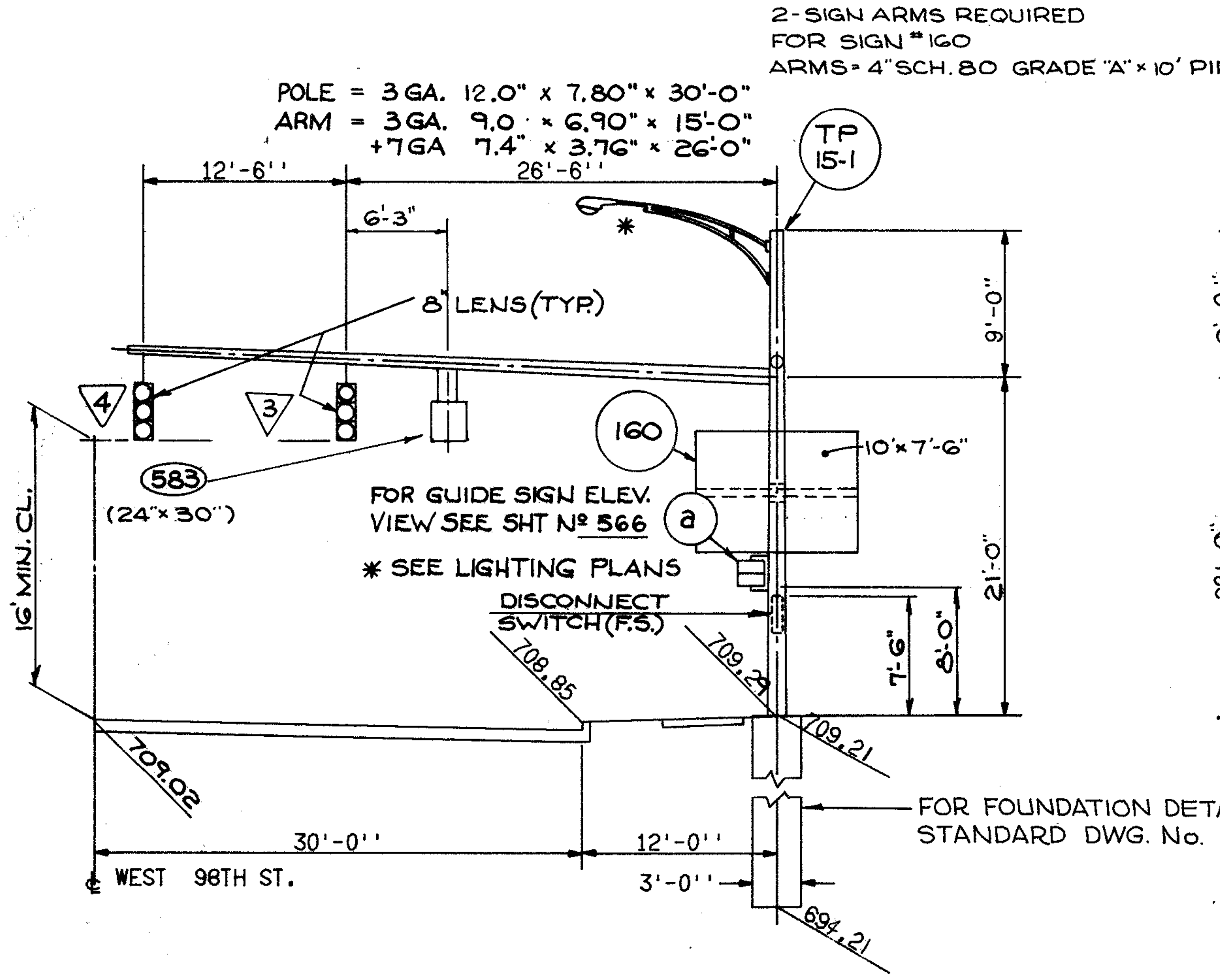
TRAFFIC SIGNAL SUPPORT TP 14-1 RELOC. W. 100TH ST. STA. 151+93 24' RT.
SOUTHBOUND
(SKEWED ALONG MAST ARM)



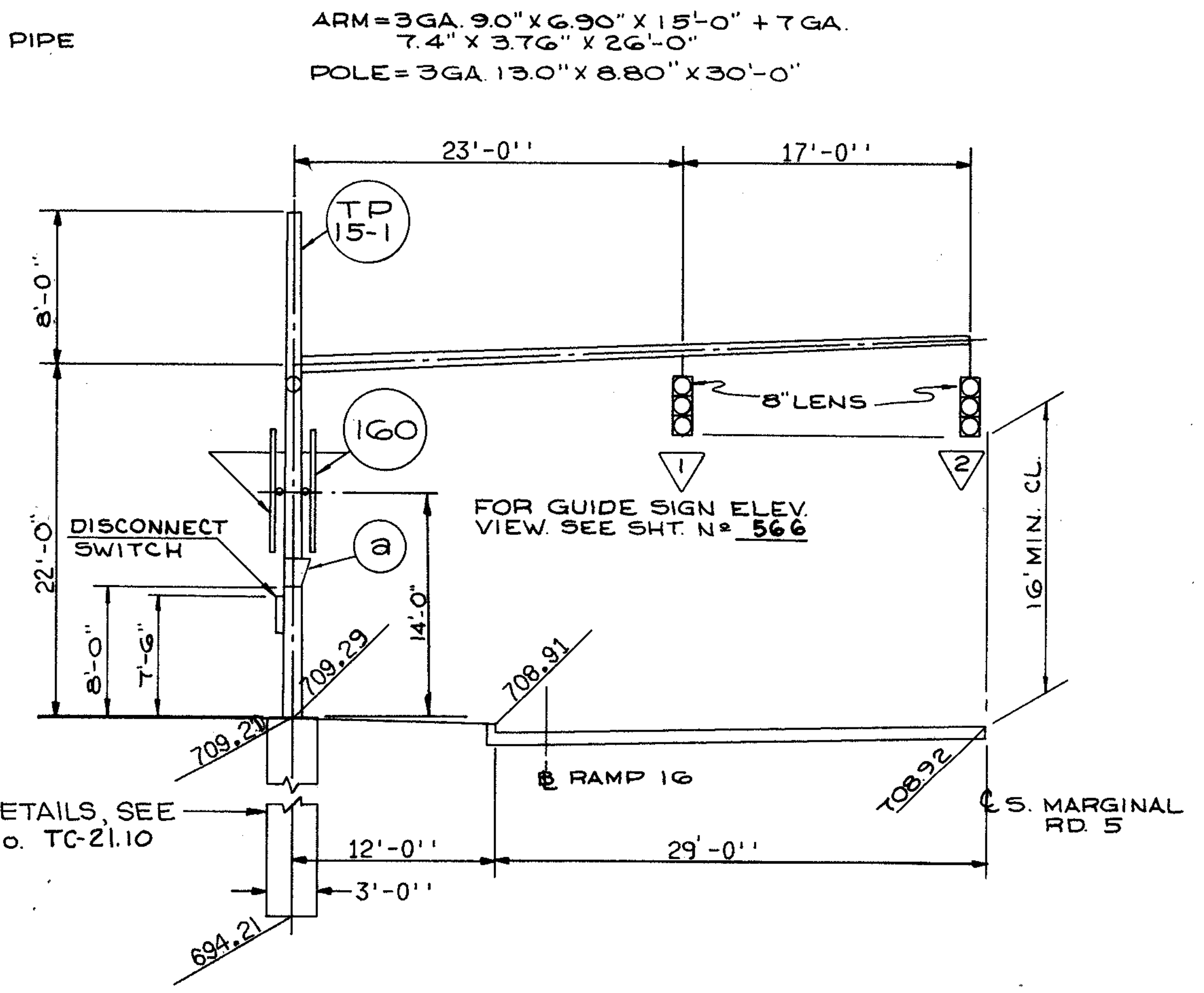
TRAFFIC SIGNAL SUPPORT TP 14-1 RELOC. W. 100TH ST. STA. 151+93 24' RT.
WESTBOUND
(SKEWED ALONG MAST ARM)



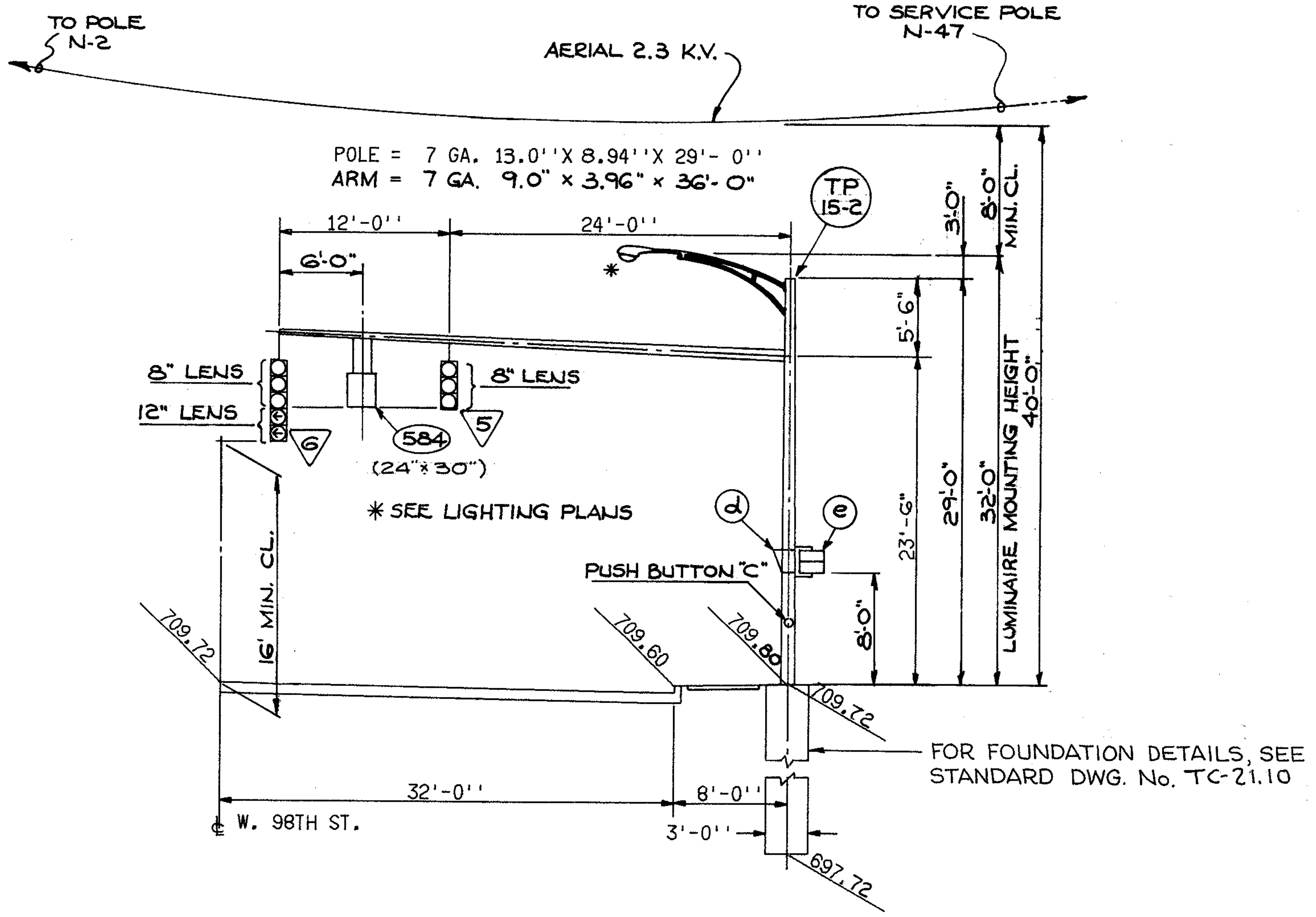
TRAFFIC SIGNAL SUPPORT TP 14-2 N. MARG. RD. 4 STA. 57+20 26'-0" RT.



COMB. SIGNAL. SIGN AND LIGHT SUPPORT TP 15-1
W. 98TH ST. STA. 45+37 42' RT.
NORTHBOUND



COMB. SIGNAL, SIGN AND LIGHT SUPPORT TP 15-1
W. 98TH ST. STA. 45+37 42' RT.
EASTBOUND



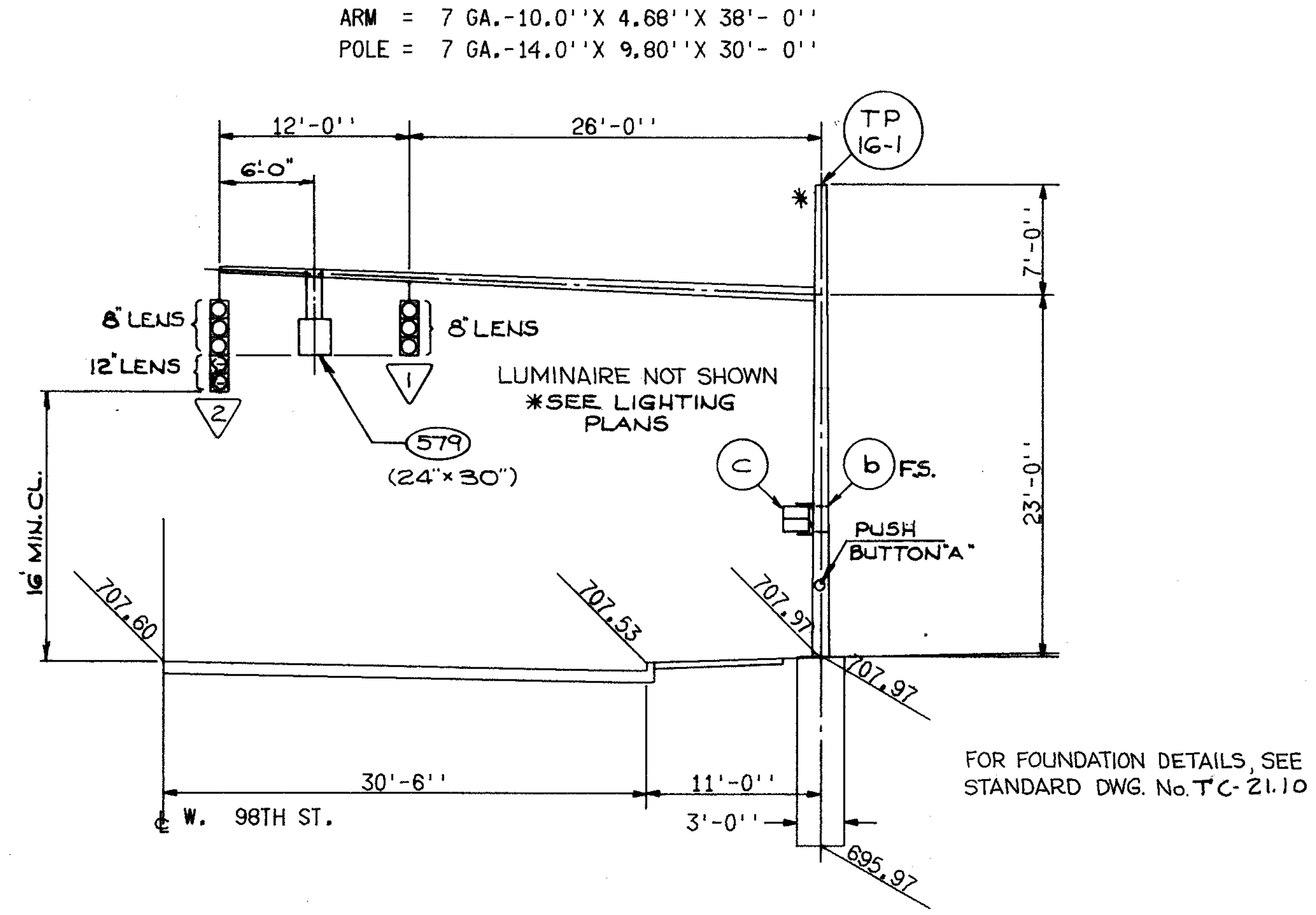
COMB. SIGNAL AND LIGHT SUPPORT TP 15-2
W. 98TH ST. STA. 44+36 40' LT.
SOUTHBOUND

TRAFFIC SIGNAL DETAILS

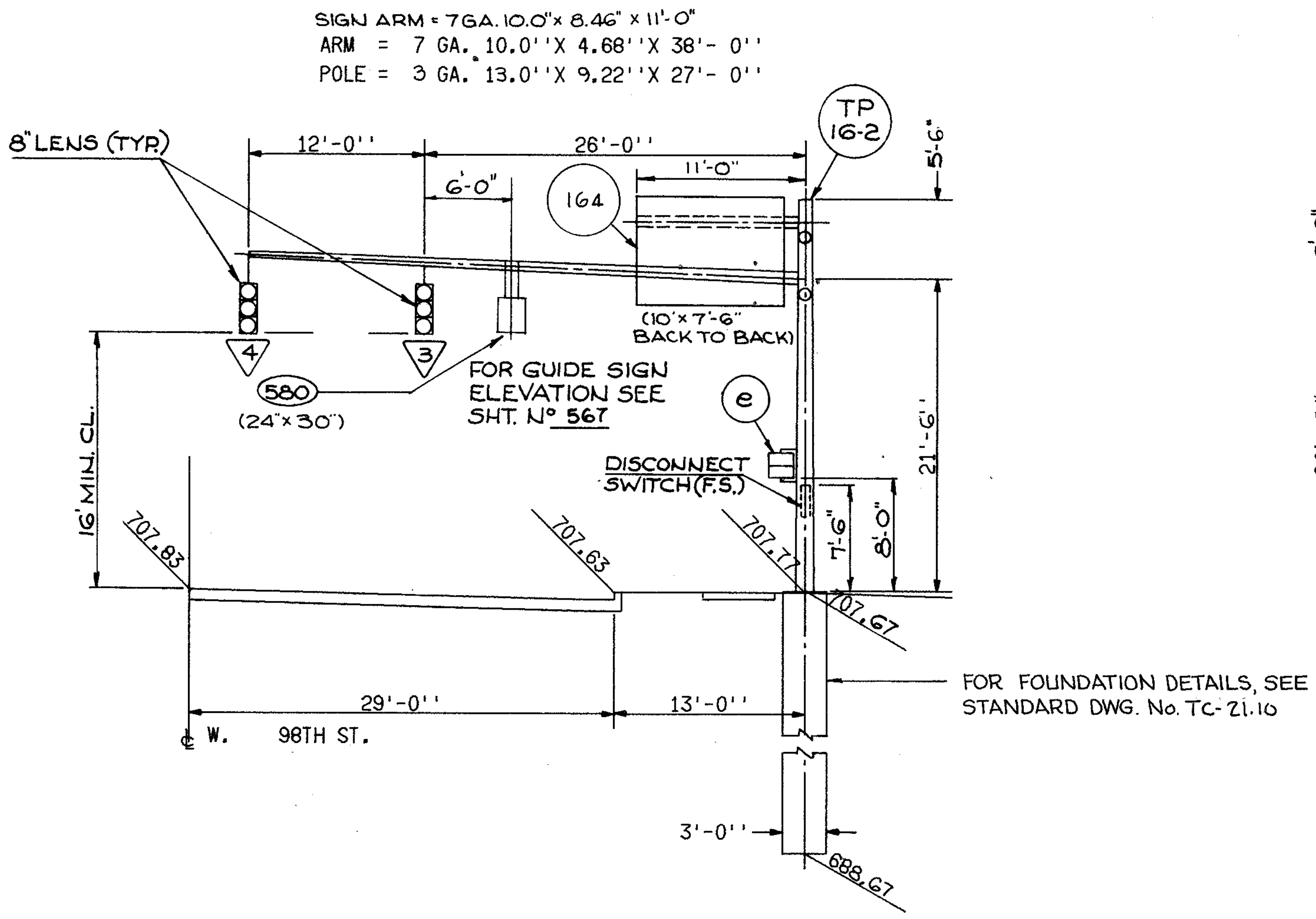
FORM DD A-6

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

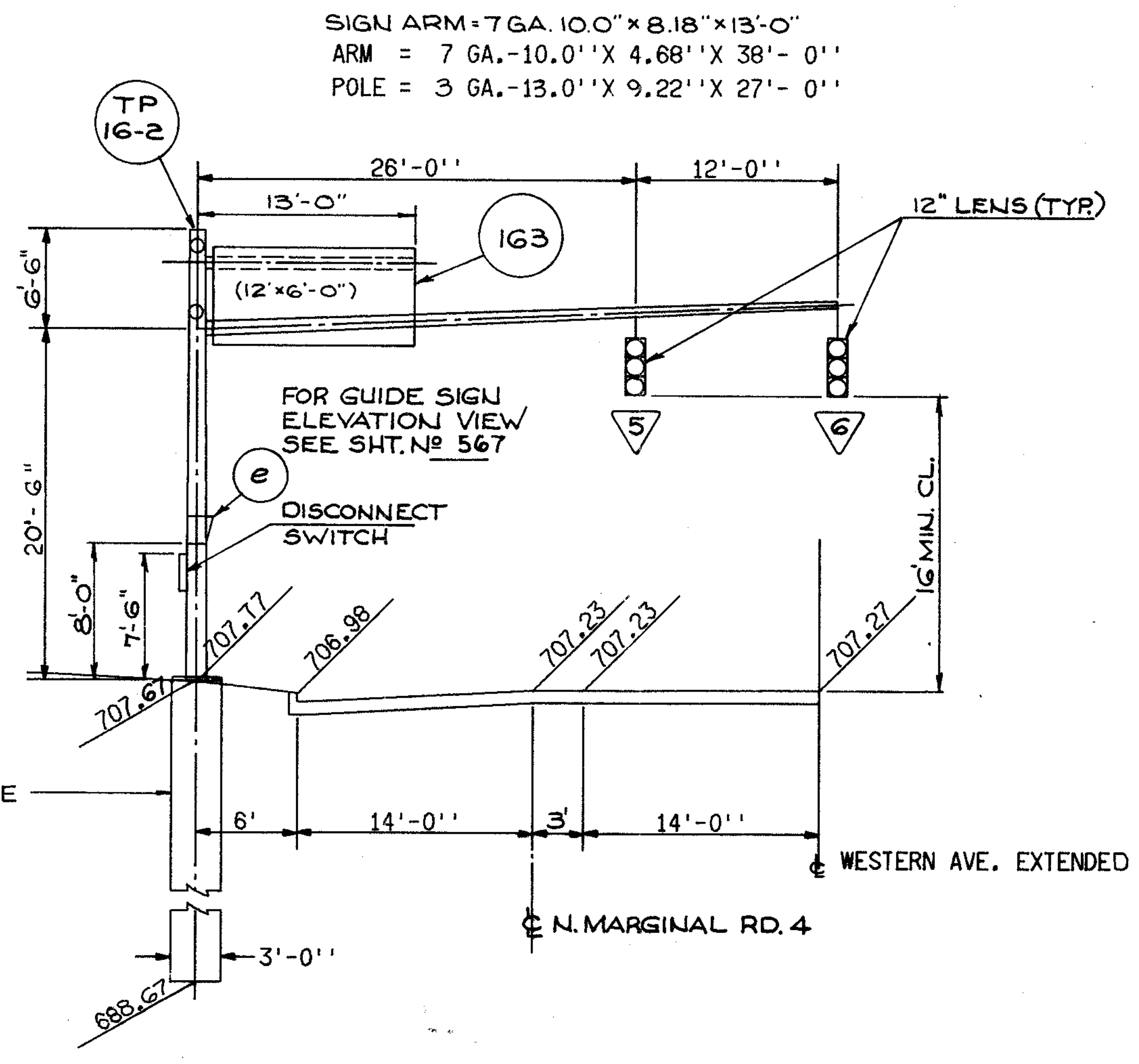
CUYAHOGA COUNTY
CUY - 90 - 10.40



COMBINATION SIGNAL AND LIGHT SUPPORT TP 16-1
W. 98TH ST. STA. 48+99 41.5' RT.
NORTHBOUND



COMBINATION SIGNAL AND SIGN SUPPORT TP 16-2
W. 98TH ST. STA. 48+34 42' LT.
SOUTHBOUND



COMBINATION SIGNAL AND SIGN SUPPORT TP 16-2
W. 98TH ST. STA. 48+34 42' LT.
WESTBOUND

TRAFFIC SIGNAL DETAILS

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY ACL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 8-A (PLAN SHEET NO. 555)

```
* W. 117TH ST. AND TRISKETT AVE. INTERSECTION 8-A
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                        EACH
*EA        REF. TO--
1 /        EXIST. POLE NO. 19759 W. 117TH STA. 38+50 LT.             1.00
                                                                 ---------
                                                      TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                  EACH
*EA        REF. TO--
1 /        EXIST. POLE NO. 19759                                     1.00
1 /        EXIST. POLE ON SW CORNER OF INTERSECTION 8-A              1.00
                                                                 ---------
                                                      TOTAL          2.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
614    MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION            LSUM
* LUMP SUM FOR INTERSECTION 8-A
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    MESSENGER WIRE, 3 STRAND, 1/4 IN. WITH ACCESSORIES   IMSA      LF
* LF       REF. TO--
70 /       AERIAL INTERCONNECT
                                                                    70.00
                                                                 ---------
                                                      TOTAL         70.00 LF
```

SUB TOTAL INTERSECTION 8-A

PLAN SHEET NO 555

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
LUMP	614	LSUM	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION
1.0	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
2.0	625	EACH	WEATHERHEAD AND CONDUIT RISER
70.0	625	LF	MESSENGER WIRE, 3 STRAND, 1/4 IN. WITH ACCESSORIES IMSA

INTERSECTION 8 (PLAN SHEET NO. 593)

```
* W. 117TH ST. AND RAMP 8 (INTERSECTION NO. 8)
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                            LF
* LF       FROM STA.      TO STA.       STREET                           -
155 /      31+53 RT.      33+08 RT.     RAMP 8                     155.00
105 /      43+98 LT.      43+98 RT.     W. 117TH                   105.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES
                                                                 ---------
                                                      TOTAL        260.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL          LF
* LF       FROM STA.      TO STA.       STREET
200 /      38+50 LT.      40+50 LT.     W. 117TH                   200.00
195 /      40+50 LT.      42+45 LT.                                195.00
60 /       42+45 LT.      43+05 LT.                                 60.00
5X2 /      43+00 LT.      43+05 LT.                                 10.00
70 /       43+28 LT.      43+98 LT.                                 70.00
105 /      43+98 LT.      43+98 RT.                                105.00
                                                                 ---------
                                                      TOTAL        640.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                   LF
* LF       FROM STA.      TO STA.       STREET
23 /       43+05 LT       43+28 LT.     W. 117TH                    23.00
155 /      31+53 RT.      33+08 RT.     RAMP 8                     155.00
40 /       33+08 RT.      43+28 LT.     RAMP 8 - W. 117TH           40.00
                                                                 ---------
                                                      TOTAL        218.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                        EACH
* EA       STREET         STATION       REF. TO
1 /        W. 117TH       40+50 LT.     INTERCONNECT                 1.00
1 /                       43+45 LT.     SERVICE POLE N-42            1.00
1 /                       43+28 LT.     PD 8-1                       1.00
1 /        RAMP 8         31+53 RT.     LD 8-2                       1.00
1 /                       33+08 RT.     LD 8-1                       1.00
1 /        W. 117TH       43+98 LT.     TP 8-1                       1.00
1 /                       43+98 RT.     TP 8-2                       1.00
                                                                 ---------
                                                      TOTAL          7.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                        EACH
* EA       STREET         STATION       REF. TO
1 /        W. 117TH       43+05 LT.     TC 8-1                       1.00
                                                                 ---------
                                                      TOTAL          1.00
                                                                 1
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    GROUND ROD                                                     EACH
* EA.      STREET         STATION       REF. TO
1 /        W. 117TH       42+42 LT.     SERVICE POLE N-42            1.00
1 /                       43+00 LT.     CONTROLLER TC 8-1            1.00
1 /                       43+95 LT.     TP 8-1                       1.00
1 /                       43+95 RT.     TP 8-2                       1.00
1 /                       43+33 LT.     PD 8-1                       1.00
                                                                 ---------
                                                      TOTAL          5.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                EACH
* EA
1 /        AT CONTROLLER TC 8-1  W. 117TH ST. STA. 43+00 LT.         1.00
                                                                 ---------
                                                      TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                         EACH
* EA       REF. TO
1 /        TP 8-2                                                    1.00
2 /        TP 8-1                                                    2.00
                                                                 ---------
                                                      TOTAL          3.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                   LF
* LF+LF+10                          FROM CONTROLLER TO --
5+25+5+10+10 /                      PED. SIGNAL B                   55.00
5+25+75+5+29+25 /                   SIGNAL 1 + 2                   164.00
5+5+12+5+10 /                                                       37.00

5+25+75+5+29+69 /                   SIGNAL 3 + 4                   208.00

5+5+12+5+10 /                                                       37.00
5+25+75+105+5+23+9 /                SIGNAL 5 + 6                   247.00
5+5+13+5+10 /                                                       38.00
5+25+75+5+10+10 /                   PED. SIGNAL A                  130.00
                                                                 ---------
                                                      TOTAL        916.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    INTERCONNECT CABLE, STRANDED  12/C NO. 12 AWG  IMSA            LF
* LF+5                      FROM CONTROLLER--   TO CONTROLLER--
5+60+5+195+5+200 /          TC 8-1              (EXIST.) AT TRISKETT 470.00
5+35+65+30+5 /                                                     140.00
                                                                 ---------
                                                      TOTAL        610.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE            LF
* LF+5                    FROM--              TO--
5+60+5+30+5 /             CONTROLLER TC 8-1   SERVICE POLE N-42    105.00
                                                                 ---------
                                                      TOTAL        105.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                 LF
* LOOP PERIMETER X NO. OF TURNS   LOOP REF. NO. LOCATION
68X2 /                            LD 8-1       RAMP 8              136.00
(11+5)2 /  LOOP TO PULLBOX                                          32.00
54X2 /                            LD 8-2       RAMP 8              108.00
(14+5)2 /  LOOP TO PULLBOX                                          38.00
                                                                 ---------
                                                      TOTAL        314.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED    LF
* LF+LF+10          FROM CONTROLLER TO--
5+25+40+10 /                      LD 8-1                            80.00
5+25+40+155+10 /                  LD 8-2                           235.00
                                                                 ---------
                                                      TOTAL        315.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES  IMSA       LF
* LF
25+12+32+12+26 /   SPANNING TP 8-1 AND TP 8-2                      107.00
                                                                 ---------
                                                      TOTAL        107.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                                 LF
* LF LOOP PERIMETER + LEAD-IN     LOOP REF. NO.
68+3 /                            LD 8-1                            71.00
54+2 /                            LD 8-2                            56.00
                                                                 ---------
                                                      TOTAL        127.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    LOOP DETECTOR AMPLIFIER                                        EACH
* EACH     FOR LOOP DETECTOR
1 /        LD 8-1 AND LD 8-2                                         1.00
                                                                 ---------
                                                      TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.   EACH

* EACH     PED. SIGNAL REF.   SUPPORT REF.
1 /        B                  PD 8-1                                 1.00
1 /        A                  TP 8-1                                 1.00
                                                                 ---------
                                                      TOTAL          2.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 2 PHASE, SEMI-ACTUATED, SOLID STATE         EACH
         W/ CABINET
         AND COORDINATION UNIT
*          REF. TO--
1 /        TC 8-1                                                    1.00
                                                                 ---------
                                                      TOTAL          1.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION,  12 IN. LENS, ONE WAY          EACH
* EACH     SIGNAL REF. NO.
2 /        5 AND 6                                                   2.00
                                                                 ---------
                                                      TOTAL          2.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY            EACH
* EACH     SIGNAL REF. NO.
4 /        1, 2, 3 AND 4                                             4.00
                                                                 ---------
                                                      TOTAL          4.00
```

```
ITEM   DESCRIPTION                                                    UNIT
--------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                  EACH
* EACH     REF. TO--
1 /        SERVICE POLE N-42 W. 117TH ST. STA. 42+42 LT.             1.00
                                                                 ---------
                                                      TOTAL          1.00
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 8 (CONT'D)

```
ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, 3 GA, 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.     EACH
* EA        REF. TO--
1 /         TP 8-1                                                        1.00
                                                                 ----------
                                                         TOTAL            1.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
816    SIGNAL SUPPORT, POLE = 3 GA, 12.0 IN. X 8.22 IN. X 27 FT. - 0 IN.          EACH
                       MAST ARM = 7 GA, 7.0 IN. X 3.92 IN. X 22 FT. - 0 IN.
* EA        REF. TO--
1 /         TP 8-2                                                        1.00
                                                                 ----------
                                                         TOTAL            1.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
816    PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN. )           EACH
* EA        REF. TO
1 /         PD 8-1                                                        1.00
                                                                 ----------
                                                         TOTAL            1.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                           CF
UNITS       CF
*                            SUPPORT REF. NO.
9X0.5+0.7854X9X11.5 /        TP 8-1                                   85.79
9X0.75+0.7854X9X11.5   /     TP 8-2                                   88.04
                                                                 ----------
                                                         TOTAL        173.83 CF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS                 CF
UNITS       CF
*                            REF. TO--
0.7854X4X3 /                 PD 8-1                                    9.42
2.25X2.83X3 /                TC 8-1                                   19.10
5X5X0.5 /                    CONC. PAD                                12.50
                                                                 ----------
                                                         TOTAL         41.03 CF
```

SUB-TOTAL INTERSECTION 8 (PLAN SHEET NO. 593)

CUY-90-11.46 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	SIGNAL SUPPORT, POLE = 3 GA, 12.0 IN. X 8.22 IN. X 27 FT. - 0 IN. MAST ARM = 7 GA, 7.0 IN. X 3.92 IN. X 22 FT. - 0 IN.
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, 3 GA, 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.
260.	625	LF	TRENCH, 24 IN. DEEP
640.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
218.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
7	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
1	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
5	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
3	625	EACH	CABLE SUPPORT ASSEMBLY
916.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
610.	625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA
105.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
314.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
315.	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
107.	625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA
127.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
1	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 2 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. LENS, ONE WAY
4	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
1	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
6.4	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
1.5	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 9 (PLAN SHEET NO. 594)

```
* W. 117TH ST. AND RAMP 12  INTERSECTION NO. 9
ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
202    REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION                  EACH
* EA
1 /         REMOVAL OF EXISTING INSTALLATION AT INTERSECTION OF W. 117TH ST.      1.00
*           AND BELMONT AVE.
                                                                 ----------
                                                         TOTAL            1.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                              LF
* LF        FROM STA.             TO STA.               REF. TO-
50 /        54+61 RT. W. 117TH    34+39 LT. RAMP 12     SERVICE POLE N-152       50.00
122 /       53+84 RT              53+85 LT. W. 117TH    TP 9-1 TO TP 9-2        122.00
61 /        53+85 LT.             53+24 LT.             TP 9-2 TO PD 9-2         61.00
58 /        52+70 LT.             53+24 LT.             PD 9-3 TO PD 9-2         58.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED WITH LIGHTING QUANTITIES
                                                                 ----------
                                                         TOTAL          291.00 LF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL            LF
* LF        FROM STA.             TO STA.               REF. TO--
280 /       47+90 RT. W. 117TH    50+70 RT. W. 117TH    INTERCONNECT            280.00
107 /       42+12 LT. RAMP 12     53+84 RT.             TP 9-1 AND INTERCONNECT 107.00
80X2 /      53+84 RT. W. 117TH    54+61 RT.             TP 9-1 TO PD 9-1        160.00
10 /        53+84 RT.             53+90 RT.             TP 9-1                   10.00
10X2 /      54+61 RT.             54+60 RT.             PD 8-1 TO TC 9-1         20.00
5 /         54+61 RT.             54+66 RT.             PD 9-1                    5.00
122 /       53+84 RT.             53+85 LT.             TP 9-1 TO TP 9-2        122.00
5 /         53+85 LT.             53+90 LT.             TP 9-2                    5.00
5 /         52+70 LT.             52+70 LT.             PD 9-3                    5.00
60 /        52+70 LT.             53+24 LT.             PD 9-3 TO PD 9-2         60.00
5 /         53+21 LT.             53+24 LT.             PD 9-2                    5.00
60 /        54+61 RT.             34+39 LT. RAMP 12     SERVICE POLE N-152       60.00
                                                                 ----------
                                                         TOTAL          839.00 LF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                     LF
* LF        FROM STA.             TO STA.               REF. TO--
195 /       43+98 RT. W. 117TH    45+90 RT. W. 117TH    INTERCONNECT            195.00
200 /       45+90 RT.             47+90 RT.             INTERCONNECT            200.00
210 /       50+70 RT.             42+12 LT. RAMP 12     INTERCONNECT            210.00
60 /        53+24 LT.             53+85 LT. W. 117TH    PD 9-2 TO TP 9-2         60.00
33 /        54+61 RT.             34+08 LT. RAMP 12     LD 9-1                   33.00
175 /       34+08 LT. RAMP 12     35+83 LT.             LD 9-2                  175.00
230 /       54+61 RT. W. 117TH    56+87 RT. W. 117TH    INTERCONNECT            230.00
                                                                 ----------
                                                         TOTAL         1103.00 LF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                          EACH
* EA        STATION               STREET                REF. TO--
1 /         45+90 RT.             W. 117TH              INTERCONNECT              1.00
1 /         47+90 RT.                                   INTERCONNECT              1.00
1 /         50+70 RT.                                   INTERCONNECT              1.00
1 /         42+12 LT.             RAMP 12               INTERCONNECT              1.00
1 /         52+70 LT.             W. 117TH              PD 9-3                    1.00
1 /         53+24 LT.                                   PD 9-2                    1.00
1 /         53+85 LT.                                   TP 9-2                    1.00
1 /         34+08 LT.             RAMP 12               LD 9-1                    1.00
1 /         35+83 LT.                                   LD 9-2                    1.00
1 /         34+39 LT.                                   SERVICE POLE N-152        1.00
                                                                 ----------
                                                         TOTAL           10.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                          EACH
* EA        STATION               STREET                REF. TO--
1 /         53+84 RT.             W. 117TH              TP 9-1                    1.00
1 /         54+61 RT.                                   TC 9-1                    1.00
1 /         54+60.5 RT.                                 TC 9-1                    1.00
                                                                 ----------
                                                         TOTAL            3.00
```

```
ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    GROUND ROD                                                       EACH
* EA        STATION               STREET                REF. TO--
1 /         54+60 RT.             W. 117TH              TC 9-1                    1.00
1 /         53+90 RT.                                   TP 9-1                    1.00
1 /         53+90 LT.                                   TP 9-2                    1.00
1 /         54+66 RT.                                   PD 9-1                    1.00
1 /         53+21 LT.                                   PD 9-2                    1.00
1 /         52+70 LT.                                   PD 9-3                    1.00
                                                                 ----------
                                                         TOTAL            6.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                  EACH
* EA        STATION               REF. TO--
1 /         54+60 RT. W. 117TH    TC 9-1                                  1.00
                                                                 ----------
                                                         TOTAL            1.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                           EACH
* EA.       REF. TO--
3 /         TP 9-1                                                        3.00
1 /         TP 9-2                                                        1.00
                                                                 ----------
                                                         TOTAL            4.00

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG  IMSA                     LF
* LF + 10       FROM              TO
4 + 10 /        PUSHBUTTON C      PED. SIGNAL d                          14.00
4 + 10 /        PUSHBUTTON D      PED. SIGNAL c                          14.00
                                                                 --------
                                                         TOTAL          28.00 LF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                     LF
* LF+10                              FROM CONTROLLER TO--
10+80+10+30+26+10+12+5+10 /          SIGNALS 1 + 2                      193.00
10+80+10+30+70+10+12+5+10 /          SIGNALS 3 + 4                      237.00
10+80+10+30+101+5+10 /               SIGNAL  5                          246.00
10+80+123+5+23+20+10+12+5+10 /       SIGNALS 6 + 7                      298.00
10+5+10+5+10 /                       PED. SIGNAL A                       40.00
10+80+10+10+5+10 /                               B                      125.00
10+80+123+60+5+10+5+10 /                         C                      303.00
10+80+123+60+60+5+10+5+10 /                      D                      363.00
                                                                 ----------
                                                         TOTAL         1805.00 LF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG  IMSA               LF
* LF        FROM CONTROLLER TC 8-1 TO CONTROLLER TC 9-1
5+30+75+110+200                                                         420.00
205+185+215+120+85+15                                                   825.00
*           FROM CONTROLLER TC 9-1 TO CONTROLLER TC 10-1
15+235+115+20 /                                                         385.00
                                                                 ----------
                                                         TOTAL         1630.00 LF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                   LF
* LF  PERIMETER X NO. OF TURNS    REF. TO--
92X2+10X2 /                       LD 9-1 RAMP 12 STA. 34+08             204.00
78X2+10X2 /                       LD 9-2 RAMP 12 STA. 35+83             176.00
                                                                 ----------
                                                         TOTAL          380.00 LF

ITEM   DESCRIPTION                                                      UNIT
---------------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE              LF
* LF        FROM--                TO--
15+65+35 / TC 9-1                 SERVICE POLE N-152                    115.00
                                                                 ----------
                                                         TOTAL          115.00 LF
```

FORM DD A-6

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 9 (CONT'D)

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED   LF
* LF                       FROM CONTROLLER TO--

10+35+5 /                  LD 9-1                                         50.00

10+35+75+5 /               LD 9-2                                        125.00
                                                                      ---------
                                                         TOTAL           175.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES  IMSA             LF
* LF       FROM--                  TO--
120 /      TP 9-1                  TP 9-2                                120.00
                                                                      ---------
                                                         TOTAL           120.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                                       LF
* LF  LOOP PERIMETER + LEAD-IN     REF, TO--
92+3 /                             LD 9-1                                 95.00
78+3 /                             LD 9-2                                 81.00
                                                                      ---------
                                                         TOTAL           176.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    LOOP DETECTOR AMPLIFIER                                              EACH
* EA       FOR LOOP DETECTORS
1 /        LD 9-1 AND LD 9-2                                               1.00
                                                                      ---------
                                                         TOTAL             1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN                               EACH
* EA       REF, TO--
1 /        PD 9-2 (PUSHBUTTON D)                                           1.00
1 /        PD 9-3 (PUSHBUTTON C)                                           1.00
                                                                      ---------
                                                         TOTAL             2.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.   EACH
* EA       PED. SIGNAL REF.        SUPPORT REF.
1 /        A                       PD 9-1                                  1.00
1 /        B                       TP 9-1                                  1.00
1 /        C                       PD 9-2                                  1.00
1 /        D                       PD 9-3                                  1.00
                                                                      ---------
                                                         TOTAL             4.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE               EACH
         W/ CABINET
         AND COORDINATION UNIT
* EA       REF TO--
1 /        TC 9-1                                                          1.00
                                                                      ---------
                                                         TOTAL             1.00  3
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. LENS, ONE WAY WITH ARROWS     EACH
* EA       SIGNAL REF. NO.--
1 /        5                                                               1.00
                                                                      ---------
                                                         TOTAL             1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY                  EACH
* EA       SIGNAL REF. NO.--
4 /        1, 2, 3 + 4                                                     4.00
                                                                      ---------
                                                         TOTAL             4.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                        EACH
* EA       REF. TO--
1 /        SERVICE POLE N-152                                              1.00
                                                                      ---------
                                                         TOTAL             1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.   EACH
* EA       REF. TO--
1 /        TP 9-1                                                          1.00
                                                                      ---------
                                                         TOTAL             1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0''X 11.15''X 27'-6''     EACH
                                       MAST ARM = 7 GA. 8.0'' X 3.52'' X 32'-0''
                                       SIGN ARMS = 2 - 7 GA. 6.90'' X 5.08 '' X 13'-0''
* EA.      REF. TO--
1 /        TP 9-2                                                          1.00
                                                                      ---------
                                                         TOTAL             1.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION,   12 IN. LENS, ONE WAY               EACH
* EA       SIGNAL REF. NO.--
2 /        6 AND 7                                                         2.00
                                                                      ---------
                                                         TOTAL             2.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN. )     EACH
* EA       REF. TO--
1 /        PD 9-1  W. 117TH ST. STA. 54+66 RT.                             1.00
1 /        PD 9-2                53+21 LT.                                 1.00
1 /        PD 9-3                52+70 LT.                                 1.00
                                                                      ---------
                                                         TOTAL             3.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                               CF
UNITS      CF
*                               REF. TO--
9X0.5+0.7854X9X14.5 /           TP 9-1                                   107.00
9X0.66+0.7854X9X14.5 /          TP 9-2                                   108.44
                                                                      ---------
                                                         TOTAL           215.44 CF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS                     CF
UNITS      CF
*                               REF. TO--
0.7854X4X3 /                    PD  9-1                                    9.42
0.7854X4X3 /                    PD 9-2                                     9.42
0.7854X4X3 /                    PD 9-3                                     9.42
2.25X2.83X3 /                   TC 9-1                                    19.10
5X5X0.5 /                       CONCRETE PAD                              12.50

                                                                      ---------
                                                         TOTAL            59.88 CF
```

SUB-TOTAL INTERSECTION 9 (PLAN SHEET NO. 594)

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0''X 11.15''X 27'-6'' MAST ARM = 7 GA. 8.0'' X 3.52'' X 32'-0'' SIGN ARMS = 2 - 7 GA. 6.90'' X 5.08 '' X 13'-0''
1	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. LENS, ONE WAY WITH ARROWS
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.
1	202	EACH	REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION
291.	625	LF	TRENCH, 24 IN. DEEP
839.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
1103.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
10	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
3	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
6	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
4	625	EACH	CABLE SUPPORT ASSEMBLY
28	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
1805.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
1630.	625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA
115.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
380.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
175.	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
120.	625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA
176.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
1	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
4	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. LENS, ONE WAY
4	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
3	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
8.0	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
2.2	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 10 (PLAN SHEET NO. 594)

```
* W. 117TH ST. AND ELMWOOD-SECTOR CONNECTOR RD.  INTERSECTION 10
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                                  LF
* LF       FROM STA.         TO STA.        STREET
110 /      56+87 RT.         56+78 LT.      W. 117TH                     110.00
14 /       56+78 LT.         56+78 LT.      ELMWOOD-SECTOR CONN.          14.00
280 /      64+36 RT.         61+25 RT.                                   280.00
70 /       57+73 LT. 117TH   48+72 LT.      SECTOR AVE.                   70.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED WITH LIGHTING QUANTITIES
                                                                      ---------
                                                         TOTAL           474.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL                LF
* LF       FROM STA.                       TO STA.
14X2 /     56+78 LT. W. 117TH              56+78 LT. W. 117TH             28.00
110X2 /    56+78 LT.                       56+87 RT.                     220.00
97 /       56+78 LT.                       57+73 LT.                      97.00
70 /       57+73 LT.                       48+72 LT. SECTOR AVE.          70.00
105 /      56+87 RT.                       57+89 RT. W. 117TH            105.00
221 /      57+89 RT.                       60+10 RT.                     221.00
230 /      60+10 RT.                       62+40 RT.                     230.00
                                                                      ---------
                                                         TOTAL           971.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                              EACH
* EA       STA.          STREET          REF. TO--
1 /        64+36 RT.     ELMWOOD-SECTOR  LD 10-2                           1.00
1 /        61+25 RT.                     LD 10-3                           1.00
1 /        57+73 LT.     W. 117TH        PD 10-2                           1.00

1 /        48+72 LT.     SECTOR AVE.     SERVICE POLE N-54                 1.00
1 /        57+88 LT.     W. 117TH        PD 10-1                           1.00
1 /        57+89 RT.                     TP 10-1                           1.00
1 /        60+10 RT.                     INTERCONNECT                      1.00
1 /        62+40 RT.                     INTERCONNECT                      1.00
                                                                      ---------
                                                         TOTAL             8.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                              EACH

* EA       STA.          STREET          REF. TO--
1 /        56+78 LT.     W. 117TH        TP 10-2                           1.00
1 /        56+87 RT.                     LD 10-1                           1.00
1 /        56+78 LT.                     TC 10-1                           1.00
                                                                      ---------
                                                         TOTAL             3.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    GROUND ROD                                                           EACH
* EA.      REF. TO--         STA.
1 /        TC 10-1           56+78 LT. W. 117TH                            1.00
1 /        TP 10-1           57+95 RT.                                     1.00
1 /        TP 10-2           56+83 LT.                                     1.00
1 /        PD 10-1           57+91 LT.                                     1.00
1 /        PD 10-2           57+73 LT.                                     1.00
                                                                      ---------
                                                         TOTAL             5.00
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                      EACH
1 /        AT CONTROLLER TO 10-1  W. 117TH ST. STA. 56+78 LT.              1.00
                                                                      ---------
                                                         TOTAL             1.00
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 10 (CONT'D)

```
ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                             EACH
* EA       REF. TO--
4 /        TP 10-2              56+86 LT.                                  4.00
                                                                     ----------
                                                              TOTAL        4.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                       LF
* LF+10                                   FROM CONTROLLER TO--
15+34+5+95+5+10 /                         SIGNAL HEAD 1                  164.00
15+34+5+126+5+10 /                        SIGNAL HEAD 2                  195.00
15+34+5+65+10+30+5+10 /                   SIGNAL HEAD 3 AND 4            174.00
15+34+5+65+10+30+5+10 /                   SIGNAL HEAD 5 AND 6            174.00
15+100+25+15+10 /                         PED. SIGNAL A                  165.00
15+110+105+7+15+10 /                      PED. SIGNAL B                  262.00
15+5+15+10 /                              PED. SIGNAL C                   45.00
15+100+7+15+10 /                          PED. SIGNAL D                  147.00
                                                                     ----------
                                                              TOTAL     1326.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    INTERCONNECT CABLE, STRANDED  12/C NO. 12 AWG  IMSA                LF
* LF+5                        FROM CONTROLLER--    TO CONTROLLER--
15+5+110+5+105+5+220+5 /      TC 10-1              TC 10A-1              470.00
230+5+70+5+20+5 /                                                        335.00
                                                                     ----------
                                                              TOTAL      805.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE                LF

* LF+5                        FROM--               TO--
15+5+100+5+70+5+35+5 /        CONTROLLER TC 10-1   SERVICE POLE N-54     240.00
                                                                     ----------
                                                              TOTAL      240.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                     LF
* LF LOOP PERIMETER X NO. OF TURNS                 LOOP REF. NO.--
92X2+35X2 /                                        LD 10-1               254.00
62X2+15X2 /                                        LD 10-2               154.00
38X3+15X2 /                                        LD 10-3               144.00
                                                                     ----------
                                                              TOTAL      552.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED   LF
* LF+10                       FROM CONTROLLER TO--
15+40+10 /                                 LD 10-2                        65.00
15+280+10 /                                LD 10-3                       305.00
15+110+10 /                                LD 10-1                       135.00
                                                                     ----------
                                                              TOTAL      505.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                       LF
* LF        FROM STA.--                    TO STA.--
40 /        56+78 LT. W. 117TH             64+36 RT. ELMWOOD-SECTOR CONN.     40.00
280 /       64+36 RT. ELMWOOD-SECTOR CONN. 61+25 RT.                         280.00
30 /        57+73 LT. W. 117TH             57+88 LT. W. 117TH                 30.00
                                                                     ----------
                                                              TOTAL      350.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES  IMSA           LF
* LF
65+30+31+32 /                 SPANNING TP 10-1 AND TP 10-2               158.00
                                                                     ----------
                                                              TOTAL      158.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                                     LF
* LF  LOOP PERIMETER + LEAD-IN             LOOP REF. NO.--
92+30 /                                    LD 10-1                       122.00
62+5 /                                     LD 10-2                        67.00
38+5 /                                     LD 10-3                        43.00
                                                                     ----------
                                                              TOTAL      232.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR AMPLIFIER                                            EACH
* EA       FOR DETECTOR NO.--
1 /        LD 10-1                                                         1.00
1 /        LD 10-2 AND LD 10-3                                             1.00
                                                                     ----------
                                                              TOTAL        2.00
```

```
ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG  IMSA                       LF
* LF + 10       FROM                TO
4 + 10 /        PUSHBUTTON A        PED. SIGNAL b                         14.00
4 + 10 /        PUSHBUTTON B        PED. SIGNAL a                         14.00
                                                                     ----------
                                                              TOTAL       28.00 LF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN                             EACH
* EA       REF. TO--
1 /        PUSHBUTTON A (TP 10-1)                                          1.00
1 /        PUSHBUTTON B (PD 10-1)                                          1.00
                                                                     ----------
                                                              TOTAL        2.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.   EACH
* EA       PED. SIGNAL REF.     SUPPORT REF.
1 /              A              PD 10-1                                    1.00
1 /              B              TP 10-1                                    1.00
1 /              C              TP 10-2                                    1.00
1 /              D              PD 10-2                                    1.00
                                                                     ----------
                                                              TOTAL        4.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE             EACH
         W/ CABINET
        AND  COORDINATION UNIT
* EA       REF. TO--
1 /        TC 10-1  W. 117TH ST. STA. 56+78 LT.                            1.00
                                                                     ----------
                                                              TOTAL        1.00   3

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS W/ARROWS   EACH
                           2-3 SECTION, 8 IN. LENS, THREE WAY
* EA       SIGNAL REF. NO.
1 /        1, 3 AND 5                                                      1.00
                                                                     ----------
                                                              TOTAL        1.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, TWO WAY                EACH
* EA       SIGNAL REF. NO.
1 /        4 AND 6                                                         1.00
                                                                     ----------
                                                              TOTAL        1.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY                EACH
* EA       SIGNAL REF. NO.
1 /        2                                                               1.00
                                                                     ----------
                                                              TOTAL        1.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                      EACH
* EA       REF. TO--
1 /        SERVICE POLE N-54  SECTOR AVE. STA. 48+70 LT.                   1.00
                                                                     ----------
                                                              TOTAL        1.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
816    SIGNAL STRAIN POLE, POLE = 3 GA. 12.0 IN. X 7.52 IN. X 32 FT. - 0 IN.   EACH
* EA       REF. TO--
1 /        TP 10-1  W. 117TH ST. STA. 57+95 RT.                            1.00
                                                                     ----------
                                                              TOTAL        1.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 12.0 IN. X 7.52 IN. X 32FT.-0 IN.   EACH
* EA       REF. TO--
1 /        TP 10-2  W. 117TH ST. STA. 56+83 LT.                            1.00
                                                                     ----------
                                                              TOTAL        1.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
816    PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN. )   EACH

* EA       REF. TO--
1 /        PD 10-1  W. 117TH ST. STA. 57+91 LT.                            1.00
1 /        PD 10-2  W. 117TH ST. STA. 57+73 LT.                            1.00
                                                                     ----------
                                                              TOTAL        2.00
```

```
ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                             CY
UNITS      CF
*                                 SUPPORT REF. NO.
9X0.75+0.7854X9X18.5  /              TP 10-2                             137.52
9X0.5+0.7854X9X18.5  /               TP 10-1                             135.27
                                                                     ----------
                                                              TOTAL      272.79 CF

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS                   CY
UNITS      CF
*                                 REF. TO--
0.7854X4X3 /                         PD 10-1                               9.42
0.7854X4X3 /                         PD 10-2                               9.42
2.25X2.83X3 /                        TC 10-1                              19.10
5X5X0.5 /                            CONC. PAD                            12.50
                                                                     ----------
                                                              TOTAL       50.45 CF
```

SUB-TOTAL INTERSECTION 10 (PLAN SHEET NO. 594)

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
1	625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS W/ARROWS 2-3 SECTION, 8 IN. LENS, THREE WAY
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 12.0 IN. X 7.52 IN. X 32FT.-0 IN.
1	816	EACH	SIGNAL STRAIN POLE, POLE = 3 GA. 12.0 IN. X 7.52 IN. X 32 FT. - 0 IN.
474.	625	LF	TRENCH, 24 IN. DEEP
971.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
350.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
8	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
3	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
5	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
4	625	EACH	CABLE SUPPORT ASSEMBLY
28	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
1326.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
805.	625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA
240.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
552.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
505.	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
158.	625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA 32 - 1967
232.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
2	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
4	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/CABINET AND COORDINATION UNIT
1	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
1	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, TWO WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
2	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
10.1	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
1.9	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 10A PLAN SHEET NO. 595)

```
* W. 117TH ST. AND WESTERN AVE. INTERSECTION 10-A
ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
202    REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION                    EACH
* EA.      REF. TO--
1 /        INTERSECTION 10-A                                               1.00
                                                                     ----------
                                                              TOTAL        1.00

ITEM   DESCRIPTION                                                        UNIT
-------------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                                LF
* LF        FROM STA.       TO STA.       STREET
65 /        62+40 RT.       63+02 RT.     W. 117TH                        65.00
20 /        62+40 RT.       62+52 RT.                                     20.00
90 /        61+55 RT.       62+40 RT.                                     90.00
20 /        63+02 RT.       62+98 RT.                                     20.00
40 /        62+72 LT.       63+13 LT.                                     40.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES
                                                                     ----------
                                                              TOTAL      235.00 LF
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 10-A (CONT'D)

```
ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL         LF
* LF       FROM STA.      TO STA.      STREET
20X2 /     62+98 RT.      63+02 RT.    W. 117 TH                        40.00
65 /       62+40 RT.      63+02 RT.                                     65.00
20 /       62+40 RT.      62+52 RT.                                     20.00
80 /       62+52 RT.      62+72 LT.                                     80.00
                                                                     ---------
                                                         TOTAL         205.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                  LF
* LF       FROM STA.      TO STA.      STREET
43 /       62+72 LT.      63+13 LT.    W. 117TH                         43.00
                                                                     ---------
                                                         TOTAL          43.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                       EACH
* EA       STA.           STREET       REF. TO--
1 /        62+40 RT.      W. 117TH     INTERCONNECT                      1.00
1 /        62+52 RT.                   PD 10A-2                          1.00
1 /        62+72 LT.                   TP 10A-1                          1.00
1 /        63+13 LT.                   PD 10A-1                          1.00
1 /        62+98 RT.                   TC 10A-1                          1.00
                                                                     ---------
                                                         TOTAL           5.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                       EACH
* EA       STA.           STREET       REF. TO--
1 /        63+02 RT.      W. 117TH     TP 10A-2                          1.00
                                                                     ---------
                                                         TOTAL           1.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    GROUND ROD                                                    EACH
* EA       STA.           STREET       REF. TO--
1 /        62+98 RT.      W. 117TH     TC 10A-1                          1.00
1 /        62+65 LT.                   TP 10A-1                          1.00
1 /        62+96 RT.                   TP 10A-2                          1.00
1 /        63+17 LT.                   PD 10A-1                          1.00
1 /        62+54 RT.                   PD 10A-2                          1.00
                                                                     ---------
                                                         TOTAL           5.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE               EACH
* EA       REF. TO--
1 /        CONTROLLER TC 10A-1                                           1.00
                                                                     ---------
                                                         TOTAL           1.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                        EACH
* EA       REF. TO--
3 /        TP 10A-2                                                      3.00
                                                                     ---------
                                                         TOTAL           3.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                  LF
* LF+10                      FROM CONTROLLER TO--
5 + 10 + 27 + 21 + 10 + 14 + 10 /       SIGNAL HEAD 1 AND 2             97.00
5 + 10 + 27 + 35 + 10 + 29 + 10 /       SIGNAL HEAD 3 AND 4            126.00
5 + 10 + 27 + 51 + 10 + 13 + 10 /       SIGNAL HEAD 5 AND 6            126.00
5 + 20 + 65 + 20 + 10 + 10 /            PED. SIGNAL A                  130.00
5 + 10 + 12 + 10 /                      PED. SIGNAL B                   37.00
5 + 10 + 12 + 10 /                      PED. SIGNAL C                   37.00
5 + 20 + 65 + 20 + 80 + 45 + 10 + 10 /  PED. SIGNAL D                  255.00
                                                                     ---------
                                                         TOTAL         808.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG  IMSA                  LF
* LF + 10      FROM              TO
4 + 10 /       PUSHBUTTON C      PED. SIGNAL d                          14.00
4 + 10 /       PUSHBUTTON D      PED. SIGNAL c                          14.00
                                                                     ---------
                                                         TOTAL          28.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE           LF
* LF+5                          FROM CONTROLLER TO--
20+65+5+20+5+80+5+15+35 /   SERVICE POLE N-37 STA. 62+60 LT.           250.00
                                                                     ---------
                                                         TOTAL         250.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                LF
* LF LOOP PERIMETER X NO. OF TURNS
32X3+ 10X2 / REF. LOOP LD 10A-1                                        116.00
                                                                     ---------
                                                         TOTAL         116.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED    LF
* LF+5
 3+5 /      REF. LOOP LD 10A-1                                           8.00
                                                                     ---------
                                                         TOTAL           8.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES  IMSA      LF
* LF
22+13+16+14+21 /   SPANNING TP 10A-1 AND TP 10A-2                       86.00
                                                                     ---------
                                                         TOTAL          86.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                                LF
* LF LOOP PERIMETER + LEAD-IN
32+8 /      REF. LOOP LD 10A-1                                          40.00
                                                                     ---------
                                                         TOTAL          40.00 LF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    LOOP DETECTOR AMPLIFIER                                       EACH
* EA
1 /         FOR LOOP DETECTOR LD 10A-1                                   1.00
                                                                     ---------
                                                         TOTAL           1.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN                        EACH
* EA        REF. TO--
1 /         PUSHBUTTON D (TP 10A-2)                                      1.00
1 /         PUSHBUTTON C (PD 10A-1)                                      1.00
                                                                     ---------
                                                         TOTAL           2.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.   EACH
* EA        REF. TO--
1 /         PED. SIGNAL A (PD 10A-2)                                     1.00
1 /         PED. SIGNAL B (TP 10A-2)                                     1.00
1 /         PED. SIGNAL C (TP 10A-2)                                     1.00
1 /         PED. SIGNAL D (PD 10A-1)                                     1.00
                                                                     ---------
                                                         TOTAL           4.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 2 PHASE, SEMI-ACTUATED, SOLID STATE        EACH
         W/ CABINET
         AND COORDINATION UNIT
* EA        REF. TO--
1 /         TC 10A-1                                                     1.00
                                                                     ---------
                                                         TOTAL           1.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY           EACH
* EA        REF. TO--
1 /         SIGNAL HEAD 1                                                1.00
1 /         SIGNAL HEAD 2                                                1.00
                                                                     ---------
                                                         TOTAL           2.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, TWO WAY           EACH
* EA        REF. TO--
1 /         SIGNAL HEAD 4 AND 5                                          1.00
1 /         SIGNAL HEAD 3 AND 6                                          1.00
                                                                     ---------
                                                         TOTAL           2.00
```

```
ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                 EACH
* EA        REF. TO--
1 /         SERVICE POLE N-37 W. 117TH ST. STA. 62+60 LT.                1.00
                                                                     ---------
                                                         TOTAL           1.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
625    COVERING OF TRAFFIC SIGNAL HEADS                              EACH
* EA        REF. TO--
1 /         SIGNAL 1                                                     1.00
1 /         SIGNAL 2 AND 4                                               1.00
1 /         SIGNAL 5                                                     1.00
1 /         SIGNAL 3 AND 6                                               1.00
1 /         PED. SIGNAL A                                                1.00
1 /         PED. SIGNAL B                                                1.00
1 /         PED. SIGNAL C                                                1.00
1 /         PED. SIGNAL D                                                1.00
                                                                     ---------
                                                         TOTAL           8.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0 '' X 10.80 '' X 30'-0''     EACH
                                       SIGN ARMS = 2 - 7 GA. 6.0'' X 4.46'' X 11'-0''
* EA        REF. TO--
1 /         TP 10A-1  W. 117TH ST. STA. 62+65 LT.                        1.00
                                                                     ---------
                                                         TOTAL           1.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
816    SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.43'' X 25'-6''    EACH
* EA        REF. TO--
1 /         TP 10A-2  W. 117TH ST. STA. 62+96 RT.                        1.00
                                                                     ---------
                                                         TOTAL           1.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
816    PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN. )   EACH
* EA        REF. TO--
1 /         PD 10A-1  W. 117TH ST. STA. 63+17 LT.                        1.00
1 /         PD 10A-2  W. 117TH ST. STA. 62+54 RT.                        1.00
                                                                     ---------
                                                         TOTAL           2.00

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                        CY
UNITS       CF
*                          REF. TO--
9X0.51+0.7854X9X18.5  /    TP 10A-1                                    135.36
9X0.75+0.7854X9X18.5  /    TP 10A-2                                    137.52
                                                                     ---------
                                                         TOTAL         272.88 CF

ITEM   DESCRIPTION                                                  UNIT
-----------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS              CY
UNITS       CF
*                               REF. TO--
0.7854X4X3 /               PD 10A-1                                      9.42
0.7854X4X3 /               PD 10A-2                                      9.42
2.25X2.83X3 /              TC 10A-1                                     19.10
5X5X0.5 /                  CONCRETE PAD                                 12.50
                                                                     ---------
                                                         TOTAL          50.45 CF
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 10-A (CONT'D)

SUB-TOTAL INTERSECTION 10-A (PLAN SHEET NO. 595)

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.43'' X 25'-6''
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0 '' X 10.80 '' X 30'-0'' SIGN ARMS = 2 - 7 GA. 6.0'' X 4.46'' X 11'-0''
1	202	EACH	REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION
235.	625	LF	TRENCH, 24 IN. DEEP
205.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
43.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
5	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
1	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
5	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
3	625	EACH	CABLE SUPPORT ASSEMBLY
28	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
808	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
250.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
116.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
8	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
86.	625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA
40.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
1	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
4	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 2 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, TWO WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
8	625	EACH	COVERING OF TRAFFIC SIGNAL HEADS
2	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
10.1	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
1.9	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 11 (PLAN SHEET NO. 596)

```
* WEST BLVD. AND RAMP 14  INTERSECTION 11
ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                            LF
* LF        FROM STA.              TO STA.
82 /        40+12 RT. WEST BLVD.   40+10 LT. WEST BLVD.                82.00
10 /        40+93 LT.              40+93 LT.                           10.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES
                                                                  ----------
                                                       TOTAL       92.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL          LF
* LF        FROM STA.              TO STA.
82 /        40+12 RT. WEST BLVD.   40+10 LT. WEST BLVD.                82.00
84 /        40+10 LT.              40+93 LT.                           84.00
90 /        40+12 RT.              41+00 RT.                           90.00
75 /        41+00 RT.              41+72 RT.                           75.00
205 /       41+72 RT.              43+70 RT.                          205.00
155 /       43+70 RT.              45+23 RT.                          155.00
                                                                  ----------
                                                       TOTAL      691.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                   LF
* LF        FROM STA.              TO STA.
50 /        40+10 LT. WEST BLVD.   69+55 RT. RAMP 14                   50.00
175 /       69+55 RT. RAMP 14      67+80 RT. RAMP 14                  175.00
10 /        40+93 LT. WEST BLVD.   40+93 LT. WEST BLVD.                10.00
                                                                  ----------
                                                       TOTAL      235.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                        EACH
* EA        STATION                REF. TO--
1 /         40+10 LT. WEST BLVD.   TP 11-1                             1.00
1 /         40+93 LT.              PD 11-2                             1.00
1 /         69+55 RT. RAMP 14      LD 11-1                             1.00
1 /         67+80 RT.              LD 11-2                             1.00
1 /         41+00 RT. WEST BLVD.   TP 11-2                             1.00
1 /         41+72 RT.              SERVICE POLE N-150                  1.00
1 /         43+70 RT.              INTERCONNECT                        1.00
                                                                  ----------
                                                       TOTAL        7.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                        EACH
* EA        STATION
1 /         40+12 RT. WEST BLVD.   TC 11-1                             1.00
                                                                  ----------
                                                       TOTAL        1.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    GROUND ROD                                                     EACH
* EA        STATION                REF. TO--
1 /         40+07 RT. WEST BLVD.   TC 11-1                             1.00
1 /         40+11 LT.              TP 11-1                             1.00
1 /         41+00 RT.              TP 11-2                             1.00
1 /         40+15 RT.              PD 11-1                             1.00
1 /         40+93 LT.              PD 11-2                             1.00
                                                                  ----------
                                                       TOTAL        5.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                EACH
* EA        REF. TO--
1 /         TC 11-1 WEST BLVD. STA. 40+07 RT.                          1.00
                                                                  ----------
                                                       TOTAL        1.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                         EACH
* EA        REF. TO--
3 /         TP 11-2                                                    3.00
                                                                  ----------
                                                       TOTAL        3.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG  IMSA                   LF
* LF + 10       FROM               TO
4 + 10 /        PUSHBUTTON A       PED. SIGNAL b                      14.00
4 + 10 /        PUSHBUTTON B       PED. SIGNAL a                      14.00
                                                                  ---------
                                                       TOTAL       28.00 LF
ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                   LF
* LF+10                            FROM CONTROLLER TO--
5+90+30+28+10+19+5+10 /            SIGNAL 1 AND 2                     197.00
5+90+30+28+10+19+5+10 /            SIGNAL 3 AND 4                     197.00
5+90+30+73+10+19+5+10 /            SIGNAL 5 AND 6                     242.00
5+5+15+10 /                        PED. SIGNAL A                       35.00
5+82+5+15+10 /                     PED. SIGNAL B                      117.00
5+82+5+15+10 /                     PED. SIGNAL C                      117.00
5+82+83+10+15+10 /                 PED. SIGNAL D                      205.00
                                                                  ----------
                                                       TOTAL     1110.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    INTERCONNECT CABLE, STRANDED  12/C NO. 12 AWG  IMSA            LF
* LF+5                             FROM CONTROLLER   TO CONTROLLER
5+95+80+203+158+15 /               TC 11-1           TC 12-1          556.00
                                                                  ----------
                                                       TOTAL      556.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE            LF
* LF+5                             FROM CONTROLLER TO--
5+95+80+35 /                       SERVICE POLE N-150                 215.00
                                                                  ----------
                                                       TOTAL      215.00 LF
```

```
ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                 LF
* LF   LOOP PERIMETER X NO. OF TURNS
*                                  LOOP REF. NO.
66X2+5X2 /                         LD 11-1                            142.00
52X2+8X2 /                         LD 11-2                            120.00
                                                                  ----------
                                                       TOTAL      262.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED    LF
* LF+10                            FROM CONTROLLER TO--
5+82+50+10 /                       LD 11-1                            147.00
5+82+50+175+10 /                   LD 11-2                            322.00
                                                                  ----------
                                                       TOTAL      469.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES  IMSA       LF
* LF
27.5+18.5+27+18.5+27.5 /           SPANNING TP 11-1 AND TP 11-2       119.00
                                                                  ----------
                                                       TOTAL      119.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                                 LF
* LF   PERIMETER & LEAD-IN
66+3 /      LOOP LD 11-1                                               69.00
52+8 /      LOOP LD 11-2                                               60.00
                                                                  ----------
                                                       TOTAL      129.00 LF

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    LOOP DETECTOR AMPLIFIER                                        EACH
* EA
1 /         FOR LOOP DETECTORS LD 11-1 AND LD 11-2                     1.00
                                                                  ----------
                                                       TOTAL        1.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN                         EACH
* EA        REF TO--
1 /         PUSHBUTTON A (TP 11-1)                                     1.00
1 /         PUSHBUTTON B (PD 11-1)                                     1.00
                                                                  ----------
                                                       TOTAL        2.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.   EACH
* EA        PED. SIGNAL REF.
1 /         A (PD 11-1)                                                1.00
2 /         B AND C (TP 11-1)                                          2.00
1 /         D (PD 11-2)                                                1.00
                                                                  ----------
                                                       TOTAL        4.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 2 PHASE, SEMI-ACTUATED, SOLID STATE         EACH
        W/ CABINET
         AND COORDINATION UNIT
* EA        REF. TO--
1 /         TC 11-1                                                    1.00
                                                                  ----------
                                                       TOTAL        1.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY            EACH
* EA        REF. TO--
2 /         SIGNALS 5 AND 6                                            2.00
                                                                  ----------
                                                       TOTAL        2.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 3-8 IN. LENS, 3-12 IN. LENS, TWO WAY   EACH
* EA        REF. TO--
2 /         SIGNALS 1,3 AND 2,4                                        2.00
                                                                  ----------
                                                       TOTAL        2.00

ITEM   DESCRIPTION                                                    UNIT
------------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                  EACH
* EA        REF. TO--
1 /         SERVICE POLE N-150                                         1.00
                                                                  ----------
                                                       TOTAL        1.00
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 11 (CONT'D)

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.   EACH
* EA        REF. TO--
1 /         TP 11-1  W. BLVD. STA. 40+11 LT.                                     1.00
1 /         TP 11-2  W. BLVD. STA. 41+00 RT.                                     1.00
                                                                           ----------
                                                               TOTAL             2.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN. )     EACH
* EA        REF. TO--
1 /         PD 11-1  W. BLVD. STA. 40+15 RT.                                     1.00
1 /         PD 11-2  W. BLVD. STA. 40+93 LT.                                     1.00
                                                                           ----------
                                                               TOTAL             2.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                               CY
UNITS       CF
*                          SIGNAL SUPPORT
9X0.5+0.7854X9X18.5  /     TP 11-1                                             135.27
9X0.75+0.7854X9X18.5  /    TP 11-2                                             137.52
                                                                           ----------
                                                               TOTAL           272.79 CF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS                     CY
UNITS       CF
*                          REF. TO--
0.7854X4X3 /               PD 11-1                                               9.42
0.7854X4X3 /               PD 11-2                                               9.42
2.25X2.83X3 /              TC 11-1                                              19.10

                                                                           ----------
                                                               TOTAL            37.95 CF
```

SUB-TOTAL INTERSECTION 11 (PLAN SHEET NO. 596)

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
2	816	EACH	COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.
92.	625	LF	TRENCH, 24 IN. DEEP
691.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
235.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
7	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
1	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
5	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
3	625	EACH	CABLE SUPPORT ASSEMBLY
28	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
1110.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
556.	625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA
215.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
262.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
469.	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
119.	625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA
129.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
1	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
4	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 2 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 3-8 IN. LENS, 3-12 IN. LENS, TWO WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
2	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
10.1	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
1.4	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 12 (PLAN SHEET NO. 596)

```
* WEST BLVD. AND RAMP 13 - MARGINAL RD. 4  INTERSECTION 12
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                                  LF
* LF        FROM STA.               TO STA.
12 /        45+23 RT. W. BLVD.      45+23 RT. W. BLVD.                          12.00


* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES
                                                                           ----------
                                                               TOTAL            12.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL                LF
* LF        FROM STA.               TO STA.
12X2 /      45+23 RT. W. BLVD.      45+23 RT. W. BLVD.                          24.00
90 /        45+23 RT.               44+76 LT.                                   90.00
70X2/       45+23 RT.               45+93 RT.                                  140.00
90 /        44+76 LT.               45+66 LT.                                   90.00
172 /       45+93 RT.               47+65 RT.                                  172.00
197 /       47+65 RT.               49+62 RT.                                  197.00
                                                                           ----------
                                                               TOTAL           713.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                         LF
* LF        FROM STA.               TO STA.
30/         45+93 RT. W. BLVD.      50+97 LT. MARG RD 4                         30.00
175 /       50+97 RT. MARG RD 4     52+72 LT.                                  175.00
25 /        44+97 RT. W. BLVD.      45+23 RT. W. BLVD.                          25.00
                                                                           ----------
                                                               TOTAL           230.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                              EACH
* EA.       STATION                 REF. TO--
1 /         50+97 LT. MARG RD 4     LD 12-2                                      1.00
1 /         52+72 RT.               LD 12-3                                      1.00
1 /         44+97 RT. W.BLVD.       LD 12-1                                      1.00
1 /         44+76 LT.               TP 12-2                                      1.00
1 /         45+66 LT.               TP 12-3                                      1.00
1 /         45+93 RT.               TP 12-4                                      1.00
1 /         47+65 RT.               INTERCONNECT                                 1.00
                                                                           ----------
                                                               TOTAL             7.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                              EACH
* EA        STATION                 REF. TO--
1 /         45+23 RT W BLVD.        TP 12-1                                      1.00
1 /         45+23 RT. W BLVD.       TC 12-1                                      1.00
                                                                           ----------
                                                               TOTAL             2.00
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    GROUND ROD                                                           EACH
* EA        STATION                 REF. TO--
1 /         45+23 RT W BLVD.        TC 12-1                                      1.00
1 /         45+13 RT.               TP 12-1                                      1.00
1 /         44+84 LT                TP 12-2                                      1.00
1 /         45+62 LT.               TP 12-3                                      1.00
1 /         45+92 RT                TP 12-4                                      1.00
                                                                           ----------
                                                               TOTAL             5.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------

625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                      EACH
* EA
1 /         AT CONTROLLER TC 12-1                                                1.00
                                                                           ----------
                                                               TOTAL             1.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                               EACH
* EA        REF. TO--
2 /         TP 12-2                                                              2.00
2 /         TP 12-4                                                              2.00
                                                                           ----------
                                                               TOTAL             4.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG  IMSA                         LF
* LF + 10        FROM              TO

4 + 10 /         PUSHBUTTON C      PED. SIGNAL d                                14.00

4 + 10 /         PUSHBUTTON D      PED. SIGNAL c                                14.00
                                                                           ----------
                                                               TOTAL            28.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                         LF
* LF+10                                   REF. TO--
12+90+10+26+19+10+14+5+10 /               SIGNAL HEAD 1 AND 2                  196.00
12+90+10+26+19+10+16+5+10 /               SIGNAL HEAD 3 AND 4                  198.00
12+70+5+30+27+10+13+5+10 /                SIGNAL HEAD 5 AND 6                  182.00
12+90+10+15+10 /                          PED SIGNAL A                         137.00
12+90+90+5+15+10X2 /                      PED SIGNAL B AND C                   232.00
12+70+5+15+10X2 /                         PED SIGNAL D AND E                   122.00
12+10+15+10 /                             PED SIGNAL F                          47.00
                                                                           ----------
                                                               TOTAL          1114.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    INTERCONNECT CABLE, STRANDED  12/C NO. 12 AWG  IMSA                  LF
* LF+5                                    FROM CONTROLLER TC 12-1 TO--
12+5+70+5+172+5+197+5 /                   CONTROLLER TC 13-1 AT                471.00
85+5+10+5 /                               INTERSECTION 13                      105.00
                                                                           ----------
                                                               TOTAL           576.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE                  LF
* LF+5                                    FROM CONTROLLER TO--
12+5+153+5+198+5+5+35 /                   SERVICE POLE N-150 W BLVD.STA 41+72 RT.   418.00
                                                                           ----------
                                                               TOTAL           418.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                       LF
* LF (PERIMETER X NO. OF TURNS + LEAD-IN)
*                                         REF. TO--
62X2+30X2 /                               LD 12-1                              184.00
60X2+17X2 /                               LD 12-2                              154.00
60X2+17X2 /                               LD 12-3                              154.00
                                                                           ----------
                                                               TOTAL           492.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED   LF
* LF+10                                   FROM CONTROLLER TO--
12+25+10 /                                LD 12-1                               47.00
12+71+30+10 /                             LD 12-2                              123.00
12+65+175+10 /                            LD 12-3                              298.00

                                                                           ----------
                                                               TOTAL           468.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES  IMSA             LF
* LF                                      SPANNING SIGNAL SUPPORTS
51+13.5+18.5 /                            TP 12-1 AND TP 12-2                   83.00
18.5+16+43.5 /                            TP 12-2 AND TP 12-3                   78.00
49+13+27 /                                TP 12-3 AND TP 12-4                   89.00
                                                                           ----------
                                                               TOTAL           250.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                                       LF
* LF (PERIMETER + LEAD-IN)                REF. TO--
62+28 /                                   LD 12-1                               90.00
60+2X2 /                                  LD 12-2 AND LD 12-3                   64.00
                                                                           ----------
                                                               TOTAL           154.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------

625    LOOP DETECTOR AMPLIFIER                                              EACH
* EA        AT CONTROLLER                 FOR DETECTORS
1 /                                       LD 10-1                                1.00
1 /                                       LD 10-2 AND LD 10-3                    1.00
                                                                           ----------
                                                               TOTAL             2.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN                               EACH
* EA        REF. TO--
1 /         PUSHBUTTON C (TP 12-4)                                               1.00

1 /         PUSHBUTTON D (TP 12-3)                                               1.00
                                                                           ----------
                                                               TOTAL             2.00
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 12 (CONT'D)

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.   EACH
* EA        REF. TO--
1 /         PED SIGNAL F           TP 12-1                               1.00
2 /         PED SIGNAL D AND E     TP 12-4                               2.00
2 /         PED SIGNAL C AND B     TP 12-3                               2.00
1 /         PED SIGNAL A           TP 12-2                               1.00
                                                                   ----------
                                                     TOTAL               6.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE               EACH
         W/ CABINET
          AND COORDINATION UNIT
* EA        REF. TO--
1 /         TC 12-1                                                      1.00
                                                                   ----------
                                                     TOTAL               1.00   3

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS, ONE WAY WITH ARROWS EACH
* EA        REF. TO--
1 /         SIGNAL HEAD 5                                                1.00
                                                                   ----------
                                                     TOTAL               1.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY                  EACH
* EA        REF. TO--
5 /         SIGNAL 1, 2, 3, 4 AND 6                                      5.00

                                                                   ----------
                                                     TOTAL               5.00

* FOR WEATHERHEAD AND CONDUIT RISER SEE INTERSECTION 11 QUANTITIES
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.36'' X 26'-0''           EACH
* EA        REF. TO
1 /         TP 12-1 STA. 45+13 RT W BLVD.                                1.00
                                                                   ----------
                                                     TOTAL               1.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.   EACH
* EA        REF. TO--
1 /         TP 12-2 STA. 44+84 LT W BLVD.                                1.00
1 /         TP 12-4 STA. 45+92 RT W BLVD.                                1.00
                                                                   ----------
                                                     TOTAL               2.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.08'' X 28'-0''   EACH
                                       SIGN ARMS = 4'' SCH. 80 GRADE A X 10'-0''
* EA        REF. TO--
1 /         TP 12-3 STA. 45+62 LT W BLVD.                                1.00
                                                                   ----------
                                                     TOTAL               1.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                               CY
UNITS       CF
*                                  REF. TO--
9X0.5+0.7854X9X11.5 /              TP 12-1                              85.79
9X0.5+0.7854X9X11.5 /              TP 12-2                              85.79
9X0.5+0.7854X9X11.5 /              TP 12-3                              85.79
9X0.5+0.7854X9X11.5 /              TP 12-4                              85.79
                                                                   ----------
                                                     TOTAL             343.16 CF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS                     CY
UNITS       CF
*                                  REF. TO--
2.25X2.83X3 /                      TC 12-1                              19.10
5X5X0.5 /                          CONC. PAD                            12.50

                                                                   ----------
                                                     TOTAL              31.60 CF
```

SUB-TOTAL INTERSECTION 12 (PLAN SHEET NO. 596)

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 12.0" X 8.08" X 28'-0" SIGN ARMS = 4" SCH. 80 GRADE A X 10'-0"
1	816	EACH	SIGNAL STRAIN POLE, POLE = 3 GA. 12.0'' X 8.36'' X 26'-0''
2	816	EACH	COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.
12	625	LF	TRENCH, 24 IN. DEEP
713	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
230	625	LF	CONDUIT, 3 IN., PVC, TYPE II
7	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
2	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
5	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
4	625	EACH	CABLE SUPPORT ASSEMBLY
28	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
1114.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
576.	625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA
418.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
492	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
468	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
250.	625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA
154.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
2	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
6	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
1	625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS, ONE WAY WITH ARROWS
5	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
12,7	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
1.2	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 13 (PLAN SHEET NO. 597)

* WEST BLVD. AND WESTERN AVE. INTERSECTION 13

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
202    REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION                      EACH
* EA        REF. TO--
1 /         INTERSECTION 13                                              1.00
                                                                   ----------
                                                     TOTAL               1.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                                  LF
* LF        FROM STA.              TO STA.
86 /        49+62 RT W BLVD        49+62 LT W BLVD                      86.00
50 /        49+62 LT               60+72 RT WESTERN                     50.00
25 /        50+48 RT               50+37 RT W BLVD                      25.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES
                                                                   ----------
                                                     TOTAL             161.00 LF

ITEM   DESCRIPTION                                                          UNIT

--------------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL                LF
* LF        FROM STA.              TO STA.
50 /        49+62 LT W BLVD.       60+72 RT WESTERN                     50.00
10X2 /      49+53 LT               49+62 LT W BLVD.                     20.00
75 /        49+62 LT               50+37 LT                             75.00
86 /        49+62 LT               49+62 RT                             86.00
90 /        49+62 RT               50+48 RT                             90.00
15 /        49+62 LT               49+64 LT                             15.00
20 /        49+62 RT               49+64 RT                             20.00
25 /        50+37 RT               50+48 RT                             25.00
                                                                   ----------
                                                     TOTAL             381.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                         LF
* LF        FROM STA.              TO STA.
15 /        49+59 LT W BLVD        49+62 LT W BLVD                      15.00
25 /        50+37 LT               50+46 LT                             25.00
                                                                   ----------
                                                     TOTAL              40.00 LF
```

```
ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                              EACH

* EA        STATION                REF. TO--
1 /         60+72 RT WESTERN       SERVICE POLE N-18                     1.00
1 /         50+37 LT W. BLVD       PD 13-2                               1.00

1 /         49+62 RT               INTERCONNECT AND PD 13-4              1.00
1 /         50+48 RT               PD 13-3                               1.00
                                                                   ----------
                                                     TOTAL               4.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    GROUND ROD                                                           EACH
* EA        STATION                REF. TO--
1 /         49+53 LT W BLVD        TC 13-1                               1.00
1 /         49+59 LT               TP 13-1                               1.00

1 /         50+41 RT               TP 13-2                               1.00
1 /         49+64 LT               PD 13-1                               1.00
1 /         50+37 LT               PD 13-2                               1.00
1 /         50+37 RT               PD 13-3                               1.00
1 /         49+64 RT               PD 13-4                               1.00
                                                                   ----------
                                                     TOTAL               7.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                      EACH
* EA        AT CONTROLLER
6 /         TC 13-1                                                      6.00
                                                                   ----------
                                                     TOTAL               6.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                               EACH
* EA        REF. TO--

1 /         TP 13-1                                                      1.00
                                                                   ----------
                                                     TOTAL               1.00

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                         LF
* LF+10                            FROM CONTROLLER TO--
10+5+31+32.5+17+17+5+10 /          SIGNAL HEAD 1                       127.50
10+5+31+32.5+17+17+17+5+10 /       SIGNAL HEAD 2                       144.50
10+5+31+32.5+17+5+10 /             SIGNAL HEAD 3                       110.50
10+5+31+32.5+5+10 /                SIGNAL HEAD 4                        93.50
10+5+31+32.5+17+17+5                                                   117.50

5+17+5+10 /                        SIGNAL HEAD 5 AND 6                  37.00
10+5+31+32.5+5+5+17+5+10 /         SIGNAL HEAD 7 AND 8                 120.50

10+75+5+15+10X2 /                  PED SIGNAL A AND H                  125.00
10+5+15+10 /                       PED SIGNAL F                         40.00
10+15+15+10 /                      PED SIGNAL G                         50.00
10+85+20+15+10X2 /                 PED SIGNAL D AND E                  150.00
10+85+90+10+15+10 /                PED SIGNAL B                        220.00
10+85+90+25+15+10 /                PED SIGNAL C                        235.00
                                                                   ----------
                                                     TOTAL            1571.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE                  LF
* LF+5                             FROM CONTROLLER TO--
10+5+50+5+35 /                     SERVICE POLE N-18                   105.00
                                                                   ----------
                                                     TOTAL             105.00 LF

ITEM   DESCRIPTION                                                          UNIT
--------------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                       LF
* LF (PERIMETER X NO. OF TURNS + LEAD-IN)
*                                  REF. TO--

52X2+45X2 /                        LD 13-1                             194.00
52X2+52X2 /                        LD 13-2                             208.00
                                                                   ----------
                                                     TOTAL             402.00 LF
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 13 (CONT'D)

ITEM DESCRIPTION — UNIT
625 LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED — LF

* LF+5	FROM CONTROLLER TO--	
10+5 /	PULLBOX AT STA. 49+62 LT	15.00
10+75+10 /	PULLBOX AT STA. 50+37 LT	95.00
	TOTAL	110.00 LF

ITEM DESCRIPTION — UNIT
625 MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA — LF

* LF	SPANNING SIGNAL SUPPORTS	
32.5+17+17+17+32.5 /	TP 13-1 AND TP 13-2	116.00
	TOTAL	116.00 LF

ITEM DESCRIPTION — UNIT
625 LOOP DETECTOR PAVEMENT CUTTING — LF

* LF (PERIMETER + LEAD-IN)	REF. TO--	
52+37 /	LD 13-1	89.00
52+30 /	LD 13-2	82.00
	TOTAL	171.00 LF

ITEM DESCRIPTION — UNIT
625 LOOP DETECTOR AMPLIFIER — EACH

* EA	AT CONTROLLER FOR--	
1 /	LD 13-1 AND 13-2	1.00
	TOTAL	1.00

ITEM DESCRIPTION — UNIT
625 PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN. — EACH

* EA	SIGNAL REF.	SUPPORT REF.	
2 /	A AND H	PD 13-2	2.00
1 /	B	TP 13-2	1.00
1 /	C	PD 13-3	1.00
2 /	D AND E	PD 13-4	2.00
1 /	F	TP 13-1	1.00
1 /	G	PD 13-1	1.00
		TOTAL	8.00

ITEM DESCRIPTION — UNIT
625 SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT — EACH

* EA	REF. TO--	
1 /	CONTROLLER TC 13-1	1.00
	TOTAL	1.00

ITEM DESCRIPTION — UNIT
625 TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS W/ARROWS 3 SECTION, 8 IN. LENS, TWO WAY — EACH

* EA	SIGNAL REF.	
2 /	1, 5 AND 3, 7	2.00
	TOTAL	2.00

ITEM DESCRIPTION — UNIT
625 TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, TWO WAY — EACH

* EA	SIGNAL REF.	
2 /	2, 6 AND 4, 8	2.00
	TOTAL	2.00

ITEM DESCRIPTION — UNIT
625 WEATHERHEAD AND CONDUIT RISER — EACH

* EA	REF TO--	
1 /	SERVICE POLE N-18 WESTERN AVE STA 60+70 RT	1.00
	TOTAL	1.00

ITEM DESCRIPTION — UNIT
816 COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0 '' X 10.80 '' X 30'-0'' SIGN ARMS = 2 - 7 GA. 6.0'' X 4.46'' X 11'-0'' — EACH

* EA	REF TO--	
1 /	TP 13-1 W BLVD STA 49+59 LT	1.00
	TOTAL	1.00

ITEM DESCRIPTION — UNIT
816 COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN. — EACH

* EA	REF. TO--	
1 /	TP 13-2 W BLVD STA 50+41 RT	1.00
	TOTAL	1.00

ITEM DESCRIPTION — UNIT
816 PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.) — EACH

* EA	SUPPORT REF.	
1 /	PD 13-1 W BLVD STA 49+64 LT	1.00
1 /	PD 13-3 W BLVD STA 50+37 RT	1.00
	TOTAL	2.00

ITEM DESCRIPTION — UNIT
816 COMBINATION PEDESTRIAN SIGNAL SUPPORT, POLE = 11 GA. 8.50'' X 4.30'' X 30'-0'' — EACH

* EA	SUPPORT REF.	
1 /	PD 13-2 W BLVD STA 50+37 LT	1.00
1 /	PD 13-4 W BLVD STA 49+64 RT	1.00
	TOTAL	2.00

ITEM DESCRIPTION — UNIT
816 CONCRETE FOR SIGNAL SUPPORT FOUNDATION — CY

UNITS CF

*	REF. TO--	
9X0.55+0.7854X9X24.5 /	TP 13-1	178.13
9X0.5+0.7854X9X24.5 /	TP 13-2	177.68
	TOTAL	355.81 CF

ITEM DESCRIPTION — UNIT
816 CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS — CY

UNITS CF

*	REF. TO--	
0.7854X4X3 /	PD 13-1	9.42
4+0.7854X4X6 /	PD 13-2	22.85
0.7854X4X3 /	PD 13-3	9.42
4+0.7854X4X6 /	PD 13-4	22.85
2.25X2.83X3 /	CONTROLLER TC 13-1	19.10
5X5X0.5 /	CONCRETE PAD	12.50
	TOTAL	96.15 CF

SUB-TOTAL INTERSECTION 13 (PLAN SHEET NO. 597)

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
2	816	EACH	COMBINATION PEDESTRIAN SIGNAL SUPPORT, POLE = 11 GA. 8.50'' X 4.30'' X 30'-0''
2	625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS W/ARROWS 3 SECTION, 8 IN. LENS, TWO WAY
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, POLE = 3 GA. 15.0 '' X 10.80 '' X 30'-0'' SIGN ARMS = 2 - 7 GA. 6.0'' X 4.46'' X 11'-0''
1	816	EACH	COMBINATION SIGNAL STRAIN POLE, 3 GA. 12.0 IN. X 7.80 IN. X 30 FT. - 0 IN.
1	202	EACH	REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION
161.	625	LF	TRENCH, 24 IN. DEEP
381.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
40.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
4	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
1	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
7	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
6	625	EACH	CABLE SUPPORT ASSEMBLY
1571.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
105.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
402.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
110.	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
116.	625	LF	MESSENGER WIRE, 7 STRAND, 3/8 IN. WITH ACCESSORIES IMSA
171.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
1	625	EACH	LOOP DETECTOR AMPLIFIER
8	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, TWO WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
2	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
13.2	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
3.6	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 14 (PLAN SHEET NO. 598)

*-N. MARGINAL RD. 4, AND RELOCATED W. 100TH ST. INTERSECTION 14

ITEM DESCRIPTION — UNIT
625 TRENCH, 24 IN. DEEP — LF

* LF	FROM STA.	TO STA.	
165 /	150+80 RT W 100TH	66+90 RT WESTERN	165.00
20 /	57+10 LT N MARG 4	57+28 LT N MARG 4	20.00
70 /	57+20 RT	151+95 RT W 100TH	70.00
8 /	57+20 RT	57+20 RT N MARG 4	8.00
55 /	151+95 RT W 100TH	152+13 LT W 100TH	55.00
40 /	152+13 LT	58+72 RT N MARG 4	40.00
175 /	58+72 RT N MARG 4	60+47 RT	175.00
228 /	60+47 RT	48+30 LT W 98TH	228.00
75 /	53+80 LT	54+55 LT N MARG 4	75.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES		TOTAL	836.00 LF

ITEM DESCRIPTION — UNIT
625 CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL — LF

* LF	FROM STA.	TO STA.	
62X2 /	57+10 LT N MARG 4	151+36 RT W 100TH	124.00
45 /	151+36 RT W 100TH	151+50 LT	45.00
57X2 /	151+36 RT	151+95 RT	114.00
55 /	151+95 RT	152+13 LT	55.00
75 /	53+80 LT.	54+55 LT N. MARG. 4	75.00
		TOTAL	413.00 LF

ITEM DESCRIPTION — UNIT
625 CONDUIT, 3 IN., PVC, TYPE II — LF

* LF	FROM STA.	TO STA.	
55 /	57+10 LT N MARG 4	151+00 RT W 100TH	55.00
185 /	151+00 RT W 100TH	66+90 RT WESTERN	185.00
20 /	57+10 LT N MARG 4	57+25 LT N MARG 4	20.00
70 /	57+20 RT	151+95 RT W 100TH	70.00
40 /	152+13 LT W 100TH	58+72 RT N MARG 4	40.00
175 /	58+72 RT N MARG 4	60+47 RT	175.00
228 /	60+47 RT	48+30 LT W 98TH	228.00
265 /	57+10 LT	54+55 LT N MARG 4	265.00
108 /	53+80 LT	54+88 LT	108.00
		TOTAL	1146.00 LF

ITEM DESCRIPTION — UNIT
625 'SINGLE' PULL BOX, CONCRETE AS PER PLAN — EACH

* EA	STATION	REF. TO--	
1 /	151+00 RT W 100TH	LD 14-1	1.00
1 /	66+90 RT WESTERN	LD 14-3	1.00
1 /	57+25 LT N MARG 4	PD 14-1	1.00
1 /	151+36 RT W 100TH	PD 14-4	1.00
1 /	151+50 LT	PD 14-2	1.00
1 /	57+20 RT N MARG 4	TP 14-2	1.00
1 /	152+13 LT W 100TH	PD 14-3	1.00
1 /	58+72 RT N MARG 4	LD 14-2	1.00
1 /	60+47 RT	LD 14-4	1.00
1 /	53+80 LT	INTERCONNECT	1.00
1 /	54+55 LT	INTERCONNECT	1.00
		TOTAL	11.00

ITEM DESCRIPTION — UNIT
625 'DOUBLE' PULL BOX, CONCRETE AS PER PLAN — EACH

* EA	STATION	REF TO--	
1 /	57+10 LT N MARG 4	TC 14-1	1.00
1 /	151+95 RT W 100TH	TP 14-1	1.00
1 /	57+35 LT N MARG 4	TC 14-1	1.00
		TOTAL	3.00

ITEM DESCRIPTION — UNIT
625 GROUND ROD — EACH

* EA	STATION	REF. TO--	
1 /	57+06 LT N MARG 4	TC 14-1	1.00
1 /	151+93 RT W 100TH	TP 14-1	1.00
1 /	57+20 RT N MARG 4	TP 14-2	1.00
1 /	57+28 LT	PD 14-1	1.00
1 /	58+17 LT	PD 14-2	1.00
1 /	152+14 LT W 100TH	PD 14-3	1.00
1 /	151+47 RT	PD 14-4	1.00
		TOTAL	7.00

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 14 (CONT'D)

ITEM	DESCRIPTION		UNIT
625	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE		EACH
* EA			
1 /	AT CONTROLLER TC 14-1		1.00
		TOTAL	1.00

ITEM	DESCRIPTION			UNIT
625	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA			LF
* LF + 10	FROM	TO		
4 + 10 /	PUSHBUTTON A	PED. SIGNAL b		14.00
4 + 10 /	PUSHBUTTON B	PED. SIGNAL a		14.00
4 + 10 /	PUSHBUTTON C	PED. SIGNAL d		14.00
4 + 10 /	PUSHBUTTON D	PED. SIGNAL c		14.00
4 + 10 /	PUSHBUTTON E	PED. SIGNAL f		14.00
4 + 10 /	PUSHBUTTON F	PED. SIGNAL e		14.00
			TOTAL	84.00 LF

ITEM	DESCRIPTION		UNIT
625	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA		LF
* LF	SIGNAL REF.--		
5+62+57+23+22+5+5+14+5+10 /	1 AND 2 (TP 14-1)		208.00
5+62+57+23+18+5+5+15+5+10 /	3 AND 4 (TP 14-1)		205.00
5+62+57+70+8+15+8+5+5+15			250.00
5+10 /	5 AND 6 (TP 14-2)		15.00
5+20+15+10 /	F (PD 14-1)		50.00
5+62+12+15+10 /	D (PD 14-4)		104.00
5+62+45+5+15+10X2 /	A AND E (PD 14-2)		152.00
5+62+57+5+15+10 /	C (TP 14-1)		154.00
5+62+57+55+5+15+10 /	B (PD 14-3)		209.00
		TOTAL	1347.00 LF

ITEM	DESCRIPTION		UNIT
625	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA		LF
* LF+5	FROM CONTROLLER TC 14-1 TO--		
5+5+62+5+57+5+55+5+40+5 /			244.00
175+5+228+5+70+5+80+5+10 /	CONTROLLER TC 16-2		583.00
5+4+265+75+108+175+30 /			662.00
71+12+5+10 /	CONTROLLER TC 12-1		98.00
		TOTAL	1587.00

ITEM	DESCRIPTION		UNIT
625	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE		LF
* LF+5	FROM CONTROLLER TC 14-1 TO--		
5+5+35 /	SERVICE POLE N-31		45.00
		TOTAL	45.00 LF

ITEM	DESCRIPTION		UNIT
625	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE		LF
* LF (PERIMETER X NO. OF TURNS + LEAD-IN X 2)			
*	REF. TO LOOP--		
64X2+12X2 /	LD 14-1		152.00
60X2+4X2 /	LD 14-2		128.00
54X2+10X2 /	LD 14-3		128.00
60X2+4X2 /	LD 14-4		128.00
		TOTAL	536.00 LF

ITEM	DESCRIPTION		UNIT
625	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED		LF
* LF+10	FROM CONTROLLER TO--		
5+55+10 /	LD 14-1		70.00
5+55+185+10 /	LD 14-3		255.00
5+62+57+55+40+10 /	LD 14-2		229.00
5+62+57+55+40+175+10 /	LD 14-4		404.00
		TOTAL	958.00 LF

ITEM	DESCRIPTION		UNIT
625	LOOP DETECTOR PAVEMENT CUTTING		LF
* LF (PERIMETER + LEAD-IN)	REF. TO--		
64+12 /	LD 14-1		76.00
60+4 /	LD 14-2		64.00
54+10 /	LD 14-3		64.00
60+4 /	LD 14-4		64.00
		TOTAL	268.00 LF

ITEM	DESCRIPTION			UNIT
625	LOOP DETECTOR AMPLIFIER			EACH
* EA		FOR DETECTORS--		
1 /		LD 14-1 AND LD 14-3		1.00
1 /		LD 14-2 AND LD 14-4		1.00
			TOTAL	2.00

ITEM	DESCRIPTION			UNIT
625	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN			EACH
* EA	PUSHBUTTON REF.	SUPPORT REF.		
1 /	E	PD 14-1		1.00
1 /	C	PD 14-4		1.00
2 /	B AND F	PD 14-2		2.00
1 /	D	TP 14-1		1.00
1 /	A	PD 14-3		1.00
			TOTAL	6.00

ITEM	DESCRIPTION			UNIT
625	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.			EACH
* EA	PED SIGNAL REF.	SUPPORT REF.		
2 /	A AND E	PD 14-2		2.00
1 /	B	PD 14-3		1.00
1 /	C	TP 14-1		1.00
1 /	D	PD 14-4		1.00
1 /	F	PD 14-1		1.00
			TOTAL	6.00

ITEM	DESCRIPTION		UNIT
625	SIGNAL CONTROLLER, 2 PHASE, FULLY ACTUATED, SOLID STATE, W/ CABINET AND COORDINATION UNIT		EACH
* EA	REF. TO--		
1 /	TC 14-1		1.00
		TOTAL	1.00

ITEM	DESCRIPTION		UNIT
625	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY		EACH
* EA	REF. TO SIGNALS		
6 /	1 THRU 6 PER PLAN		6.00
		TOTAL	6.00

ITEM	DESCRIPTION		UNIT
625	WEATHERHEAD AND CONDUIT RISER		EACH
* EA	REF. TO--		
1 /	SERVICE POLE N-31 STA 57+10 LT N MARG RD 4		1.00
		TOTAL	1.00

ITEM	DESCRIPTION		UNIT
816	TRAFFIC SIGNAL SUPPORT, POLE = 7 GA. 14.0'' X 11.06'' X 21'-0'' MAST ARM = 7 GA. 9.0'' X 3.96'' X 36'-0'' MAST ARM = 7 GA. 8.0'' X 3.24'' X 34'-0''		EACH
* EA	REF. TO--		
1 /	TP 14-1 STA. 151+93 RT W. 100TH		1.00
		TOTAL	1.00

ITEM	DESCRIPTION		UNIT
816	TRAFFIC SIGNAL SUPPORT, POLE = 7 GA. 11.0'' X 9.18'' X 13'-0'' ARM = 4'' SCH. 80 GRADE A X 10'-0''		EACH
* EA	REF. TO--		
1 /	TP 14-2 STA. 57+20 RT. N MARG RD 4		1.00
		TOTAL	1.00

ITEM	DESCRIPTION		UNIT
816	COMBINATION PEDESTRIAN SIGNAL SUPPORT, POLE = 11 GA. 8.50'' X 4.30'' X 30'-0''		EACH
* EA	REF. TO--		
1 /	PD 14-1 STA. 57+28 LT. N MARG RD 4		1.00
		TOTAL	1.00

ITEM	DESCRIPTION		UNIT
816	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)		EACH
* EA	REF. TO--		
1 /	PD 14-2 STA. 57+17 LT. N MARG RD 4		1.00
1 /	PD 14-3 STA. 152+14 LT. W 100TH		1.00
1 /	PD 14-4 STA. 151+47 RT. W 100TH		1.00
		TOTAL	3.00

ITEM	DESCRIPTION		UNIT
816	CONCRETE FOR SIGNAL SUPPORT FOUNDATION		CY
UNITS CF			
*	REF. TO--		
9X0.58+0.7854X9X14.5 /	TP 14-1		107.72
9X1.32+0.7854X9X11.5 /	TP 14-2		93.17
		TOTAL	200.89 CF

ITEM	DESCRIPTION		UNIT
816	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS		CY
UNITS CF			
*	REF. TO--		
4+0.7854X4X6 /	PD 14-1		22.85
0.7854X4X3 /	PD 14-2		9.42
0.7854X4X3 /	PD 14-3		9.42
0.7854X4X3 /	PD 14-4		9.42
2.25X2.83X3 /	TC 14-1		19.10
5X5X0.5 /	CONCRETE PAD		12.50
		TOTAL	82.73 CF

ITEM	DESCRIPTION		
625	CABLE SUPPORT ASSEMBLY		EA.
EA.	REF. TO		
2	TP 14-1		2.0
		TOTAL	2.0

SUB-TOTAL INTERSECTION 14 (PLAN SHEET NO. 598)

CUY-90-10.40 TRAFFIC SIGNALS

TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	TRAFFIC SIGNAL SUPPORT, POLE = 7 GA. 11.0'' X 9.18'' X 13'-0'' ARM = 4'' SCH. 80 GRADE A X 10'-0''
1	816	EACH	TRAFFIC SIGNAL SUPPORT, POLE = 7 GA. 14.0'' X 11.06'' X 21'-0'' MAST ARM = 7 GA. 9.0'' X 3.96'' X 36'-0'' MAST ARM = 7 GA. 8.0'' X 3.24'' X 34'-0''
1	816	EACH	COMBINATION PEDESTRIAN SIGNAL SUPPORT, POLE = 11 GA. 8.50'' X 4.30'' X 30'-0''
836.	625	LF	TRENCH, 24 IN. DEEP
413.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
1146.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
11	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
3	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
7	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
84.	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
1347.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
1587.	625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA
45.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
536.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
958.	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
268.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
2	625	EACH	LOOP DETECTOR AMPLIFIER
6	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
6	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 2 PHASE, FULLY ACTUATED, SOLID STATE, W/ CABINET AND COORDINATION UNIT
6	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
3	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
7.4	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
3.1	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS
2	625	EA.	CABLE SUPPORT ASSEMBLY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

FORM D D A-8

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

INTERSECTION 15
PLAN SHEET NO. 599

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

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* W. 98TH ST. AND RELOC. W. 100TH ST. - S. MARGINAL RD. 5 - RAMP 16
* INTERSECTION 15
ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                             LF
* LF         FROM STA.              TO STA.
60 /         45+14 LT W 98TH        45+65 LT W 98TH                    60.00
95 /         45+14 LT               45+37 RT                           95.00
45 /         44+44 LT               156+83 RT W 100TH                  45.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES
                                                                  ----------
                                                    TOTAL         200.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL           LF
* LF         FROM STA.              TO STA.
45 /         44+44 LT W 98TH        156+83 RT W 100TH                  45.00
5X2 /        44+39 LT               44+44 LT W 98TH                    10.00
13 /         44+36 LT               44+44 LT                           13.00
70X2 /       44+44 LT               45+14 LT                          140.00
85 /         44+44 LT               44+43 RT                           85.00
95 /         45+14 LT               45+37 RT                           95.00
10 /         44+43 RT               44+51 RT                           10.00
                                                                  ----------
                                                    TOTAL         398.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                    LF
* LF         FROM STA.              TO STA.
35 /         44+44 LT W 98TH        157+00 RT W 100TH                  35.00
175 /        157+00 RT W 100TH      155+25 RT                         175.00
40 /         45+14 LT W 98TH        45+45 LT W 98TH                    40.00

14 /         157+00 RT W 100TH      157+00 RT W 100TH                  14.00
14 /         155+25 RT              155+25 RT                          14.00
                                                                  ----------
                                                    TOTAL         278.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                         EACH
* EA         STATION                REF. TO
1 /          155+25 RT W 100TH      LD 15-3                             1.00
1 /          157+00 RT              LD 15-2                             1.00
1 /          45+45 LT W 98TH        LD 15-1                             1.00
1 /          44+43  RT              PD 15-1                             1.00

1 /          45+37  RT              TP 15-1                             1.00
                                                                  ----------
                                                    TOTAL               5.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                         EACH
* EA         STATION                REF. TO
1 /          44+44 LT W 98TH        TC 15-1                             1.00
1 /          45+14 LT               PD 15-2                             1.00
                                                                  ----------
                                                    TOTAL               2.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    GROUND ROD                                                      EACH
* EA         STATION                REF. TO
1 /          44+39 LT W 98TH        TC 15-1                             1.00
1 /          45+37 RT               TP 15-1                             1.00
1 /          44+36 LT               TP 15-2                             1.00
1 /          44+51 RT               PD 15-1                             1.00
1 /          45+11 LT               PD 15-2                             1.00
                                                                  ----------
                                                    TOTAL               5.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE                 EACH
* EA
1 /          AT CONTROLLER TC 15-1                                      1.00
                                                                  ----------
                                                    TOTAL               1.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG  IMSA                    LF
* LF + 10        FROM               TO
4 + 10 /         PUSHBUTTON C       PED. SIGNAL d                      14.00
4 + 10 /         PUSHBUTTON D       PED. SIGNAL c                      14.00
                                                                  ----------
                                                    TOTAL          28.00 LF
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ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                    LF
* LF+10                            FROM CONTROLLER TO
5+70+95+5+24+23+5+5+17+5                                          254.00
10 /                               SIGNALS 1 AND 2                 10.00
5+70+95+5+23+26.5+5+5+12.5+5                                      252.00
10 /                               SIGNALS 3 AND 4                 10.00
5+13+25.5+24+5+10 /                SIGNAL 5                        82.50
5+13+25.5+36+5+10 /                SIGNAL 6                        94.50
5+70+95+5+15+10 /                  PED SIGNAL A                   200.00
5+85+10+15+10X2 /                  PED SIGNAL B AND C             135.00
5+13+15+10X2 /                     PED SIGNAL D AND E              53.00
5+70+5+15+10 /                     PED SIGNAL F                   105.00
                                                              ----------
                                                  TOTAL       1196.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE             LF
* LF+5                             FROM CONTROLLER TO
5+5+45+5+35 /                      SERVICE POLE N-47               95.00
                                                              ----------
                                                  TOTAL         95.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE                  LF
* LF (PERIMETER X NO. OF TURNS + LEAD-IN)
*                                  REF. TO LOOP

62X2+20X2 /                        LD 15-1                        164.00
60X2+17X2 /                        LD 15-2                        154.00
60X2+17X2 /                        LD 15-3                        154.00
                                                              ----------
                                                  TOTAL        472.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED   LF
* LF+10                            FROM CONTROLLER TO
5+70+40+10 /                       LD 15-1                        125.00
5+35+10 /                          LD 15-2                         50.00
5+35+175+10 /                      LD 15-3                        225.00
                                                              ----------
                                                  TOTAL        400.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                                  LF
* LF (PERIMETER + LEAD-IN)         REF. TO LOOP
62+18 /                            LD 15-1                         80.00
60+3 /                             LD 15-2                         63.00
60+3 /                             LD 15-3                         63.00
                                                              ----------
                                                  TOTAL        206.00 LF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    LOOP DETECTOR AMPLIFIER                                         EACH
* EA                               FOR LOOP
1 /                                LD 15-1                          1.00
1 /                                LD 15-2 AND LD 15-3              1.00
                                                              ----------
                                                  TOTAL             2.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN                          EACH
* EA         PUSHBUTTON REF.       SUPPORT REF.
1 /          C                     TP 15-2                          1.00
1 /          D                     PD 15-1                          1.00
                                                              ----------
                                                  TOTAL             2.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.   EACH
* EA         PED SIGNAL            SUPPORT REF.
1 /          A                     TP 15-1                          1.00
2 /          B AND C               PD 15-1                          2.00
2 /          D AND E               TP 15-2                          2.00
1 /          F                     PD 15-2                          1.00
                                                              ----------
                                                  TOTAL             6.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE          EACH
         W/ CABINET
         AND COORDINATION UNIT

* EA
1 /          REF. TC 15-1                                           1.00
                                                              ----------
                                                  TOTAL             1.00  3
```

```
ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS, ONE WAY WITH ARROWS EACH
* EA         SIGNAL REF.           SUPPORT REF.
1 /          6                     TP 15-2                          1.00
                                                              ----------
                                                  TOTAL             1.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY             EACH
* EA         SIGNAL REF.           SUPPORT REF.
4 /          1, 2, 3 AND 4         TP 15-1                          4.00
1 /          5                     TP 15-2                          1.00
                                                              ----------
                                                  TOTAL             5.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                   EACH
* EA         REF. TO
1 /          SERVICE POLE N-47                                      1.00
                                                              ----------
                                                  TOTAL             1.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
625    CABLE SUPPORT ASSEMBLY                                          EACH
* EA         REF. TO
2 /          TP 15-1                                                2.00
2 /          TP 15-2                                                2.00
                                                              ----------
                                                  TOTAL             4.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
816    COMBINATION SIGNAL SUPPORT, POLE = 3 GA. 13.0'' X 8.80'' X 30'-0''  EACH
                                   MAST ARM = 3 GA. 9.0'' X 6.90'' X 15'-0''
                                            + 7 GA. 7.4'' X 3.76'' X 26'-0''
                                   MAST ARM = 3 GA. 9.0'' X 6.90'' X 15'-0''
                                            + 7 GA. 7.4'' X 3.76'' X 26'-0''
                                   SIGN ARMS = 2 - 4'' SCH. 80 GRADE A X 10'-0''

* EA         REF. TO
1 /          TP 15-1 STA. 45+37 RT W 98TH                           1.00
                                                              ----------
                                                  TOTAL             1.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
816    COMBINATION SIGNAL SUPPORT, POLE = 7 GA. 12.0'' X 7.94'' X 29'-0''  EACH
                               MAST ARM = 7 GA. 9.0'' X 3.96'' X 36'-0''

* EA         REF. TO
1 /          TP 15-2 STA. 44+36 LT W 98TH                           1.00
                                                              ----------
                                                  TOTAL             1.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
816    PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN. )  EACH
* EA         REF. TO
1 /          PD 15-1 STA. 44+51 RT W 98TH                           1.00
                                                              ----------
                                                  TOTAL             1.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
816    COMBINATION PEDESTRIAN SIGNAL SUPPORT, POLE = 11 GA. 8.50'' X 4.30'' X 30'-0''  EACH
* EA         REF. TO
1 /          PD 15-2 STA. 45+11 LT W 98TH                           1.00
                                                              ----------
                                                  TOTAL             1.00

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                          CY
UNITS      CF
*                                  REF. TO

9X0.58+0.7854X9X14.5   /           TP 15-1                        107.72
9X0.58+0.7854X9X11.5   /           TP 15-2                         86.51
                                                              ----------
                                                  TOTAL        194.23 CF

ITEM   DESCRIPTION                                                     UNIT
-------------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS                CY
UNITS      CF
*                                  REF. TO
4+0.7854X4X6 /                     PD 15-2                         22.85
0.7854X4X3 /                       PD 15-1                          9.42
2.25X2.83X3 /                      TC 15-1                         19.10
5X5X0.5 /                          CONCRETE PAD                    12.50

                                                              ----------
                                                  TOTAL         63.88 CF
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 15 (CONT'D)

INTERSECTION 15
SUB-TOTAL PLAN SHEET NO. 599

CUY-90-10.40

TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 7GA. 12.0" X 7.94" X 29'-0" MAST ARM = 7GA. 9.0" X 3.96" X 36'-0"
1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 3 GA. 13.0'' X 8.80'' X 30'-0'' MAST ARM = 3 GA. 9.0'' X 6.90'' X 15'-0'' + 7 GA. 7.4'' X 3.76'' X 26'-0'' MAST ARM = 3 GA. 9.0'' X 6.90'' X 15'-0'' + 7 GA. 7.4'' X 3.76'' X 26'-0''
1	816	EACH	COMBINATION PEDESTRIAN SIGNAL SUPPORT, POLE = 11 GA. 8.50" X 4.30" X 30'.0"
200	625	LF	TRENCH, 24 IN. DEEP
398	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
278	625	LF	CONDUIT, 3 IN., PVC, TYPE II
5	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
2	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
5	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
4	625	EACH	CABLE SUPPORT ASSEMBLY
28,	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
1196	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
95	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
472	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
400	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
206	625	LF	LOOP DETECTOR PAVEMENT CUTTING
2	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
6	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
1	625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS, ONE WAY WITH ARROWS
5	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
1	625	EACH	WEATHERHEAD AND CONDUIT RISER
1	625	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
7.2	625	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
2.4	625	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS

INTERSECTION 16
PLAN SHEET NO. 599

* W. 98 TH ST. AND N. MARG. RD. 4 INTERSECTION 16

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    TRENCH, 24 IN. DEEP                                          LF
* LF          FROM STA.              TO STA.
70 /          48+30 LT W 98TH        48+97 LT W 98TH                70.00
80 /          48+97 LT               49+03 RT                       80.00
95 /          49+35 RT               50+30 RT                       95.00
7 /           48+37 RT               48+39 RT                        7.00
* TRENCHING FOR THE REMAINING RUNS ARE COMBINED W/LIGHTING QUANTITIES
                                                              ---------
                                                 TOTAL         252.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL        LF
* LF          FROM STA.              TO STA.
70X2 /        48+30 LT W 98TH        48+97 LT W 98TH               140.00
80X2 /        48+97 LT               49+03 RT                      160.00
65 /          48+37 RT               49+03 RT                       65.00
100 /         50+30 RT               51+30 (APPROX.)               100.00
*                                    REF. PULLBOX ON SE CORNER WILLARD AVE.
10X2 /        48+99 RT               49+03 RT                       20.00
                                                                     0.00
7 /           48+37 RT               48+3* RT                        7.00
                                                              ---------
                                                 TOTAL         492.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    CONDUIT, 3 IN., PVC, TYPE II                                 LF
* LF          FROM STA.              TO STA.
130 /         45+45 LT W 98TH        46+75 LT W 98TH               130.00
165 /         46+75 LT               48+30 LT                      165.00
135 /         49+03 RT               50+30 RT                      135.00
40 /          49+03 RT               64+01 LT MARG RD 4             40.00
175 /         64+01 LT MARG RD 4     65+75                         175.00
                                                              ---------
                                                 TOTAL         645.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    'SINGLE' PULL BOX, CONCRETE AS PER PLAN                      EACH
* EA          STATION                REF TO--
1 /           46+75 LT W 98TH        INTERCONNECT                    1.00

1 /           48+37 RT               PD 16-1 AND LD 16-1             1.00
1 /           50+30 RT               SERVICE POLE N-35               1.00
1 /           51+30 RT (APPROX)      ON SE CORNER OF WILLARD AVE.    1.00
1 /           64+01 LT MARG RD 4     LD 16-2                         1.00
1 /           65+75 LT               LD 16-3                         1.00
                                                              ---------
                                                 TOTAL           6.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    'DOUBLE' PULL BOX, CONCRETE AS PER PLAN                      EACH
* EA          STATION                REF. TO--
1 /           48+30 LT W 98TH        TP 16-2                         1.00
1 /           48+97 LT               PD 16-2                         1.00
1 /           49+03 RT               TC 16-1                         1.00
                                                              ---------
                                                 TOTAL           3.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    GROUND ROD                                                   EACH
* EA          REF. TO--              STATION

1 /           TC 16-1                48+99 RT W 98TH                 1.00

1 /           TP 16-1                48+99 RT                        1.00

1 /           TP 16-2                48+34 LT                        1.00
1 /           PD 16-1                48+39 RT                        1.00
1 /           PD 16-2                48+95 LT                        1.00
                                                              ---------
                                                 TOTAL           5.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE              EACH
* EA
1 /           AT CONTROLLER TC 16-1                                  1.00
                                                              ---------
                                                 TOTAL           1.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG  IMSA                 LF
* LF + 10       FROM                 TO

4 + 10 /        PUSHBUTTON A         PED. SIGNAL b                  14.00

4 + 10 /        PUSHBUTTON B         PED. SIGNAL a                  14.00
                                                              ---------
                                                 TOTAL          28.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG  IMSA                 LF
* LF+10                              FROM CONTROLLER TO--
10+25+26+5+10 /                      SIGNAL HEAD 1                  76.00
10+25+38+5+10 /                      SIGNAL HEAD 2                  88.00
10+60+70+5+24+26+5+5+12+5                                          242.00
10 /                                 SIGNAL HEAD 3 AND 4            10.00
10+80+70+5+23+26+5+5+12+5                                          241.00
10 /                                 SIGNAL HEAD 5 AND 6            10.00
10+60+70+5+15+10 /                   PED SIGNAL E                  190.00
10+80+5+15+10X2 /                    PED SIGNAL A AND F            130.00
10+5+15+10X2 /                       PED SIGNAL B AND C             50.00

10+65+7+15+10 /                      PED SIGNAL D                  107.00
                                                              ---------
                                                 TOTAL        1144.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    INTERCONNECT CABLE, STRANDED  12/C NO. 12 AWG  IMSA          LF
* LF+5                               FROM CONTROLLER TC 16-1 TO--
10+5+135+5+100+5+20 /                EXISTING CONTROLLER AT WILLARD AVE.  280.00
10+5+80+5+70+5+165+5+130+5                                         480.00
40+5+70+5+10 /                       CONTROLLER TC 15-1            130.00
                                                              ---------
                                                 TOTAL         890.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE          LF
* LF+5                               FROM CONTROLLER TO--
10+5+135+5+35 /                      SERVICE POLE N-35             190.00
                                                              ---------
                                                 TOTAL         190.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    LOOP DETECTOR WIRE, NO.12 AWG RHW OR RHW TYPE                LF
* LF (PERIMETER X NO. OF TURNS + LEAD-IN)
*                                    REF. TO--
62X2+25X2 /                          LD 16-1                       174.00
84X2+15X2 /                          LD 16-2                       198.00
84X2+15X2 /                          LD 16-3                       198.00
                                                              ---------
                                                 TOTAL         570.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED    LF
* LF+10                              FROM CONTROLLER TO--
10+65+10 /                           LD 16-1                        85.00
10+40+10 /                           LD 16-2                        60.00
10+40+175+10 /                       LD 16-3                       235.00
                                                              ---------
                                                 TOTAL         360.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    LOOP DETECTOR PAVEMENT CUTTING                               LF
* LF (PERIMETER + LEAD-IN)           REF. TO--
62+25 /                              LD 16-1                        87.00
84+15 /                              LD 16-2                        99.00
84+15 /                              LD 16-3                        99.00
                                                              ---------
                                                 TOTAL         285.00 LF
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    LOOP DETECTOR AMPLIFIER                                      EACH
* EA                                 AT CONTROLLER FOR--
1 /                                  LD 16-1                         1.00
1 /                                  LD 16-2 AND 16-3                1.00
                                                              ---------
                                                 TOTAL           2.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN                       EACH
* EA        REF. TO--                SUPPORT REF.
1 /         PUSHBUTTON A             TP 16-1                         1.00
1 /         PUSHBUTTON B             PD 16-2                         1.00
                                                              ---------
                                                 TOTAL           2.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.    EACH
* EA        REF. TO--                SUPPORT REF.
1 /         PED. SIGNAL E            TP 16-2                         1.00
2 /         PED. SIGNAL A AND F      PD 16-2                         2.00
2 /         PED. SIGNAL B AND C      TP 16-1                         2.00
1 /         PED. SIGNAL D            PD 16-1                         1.00
                                                              ---------

                                                 TOTAL           6.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE       EACH
        W/ CABINET
        AND COORDINATION UNIT

* EA        REF. TO--
1 /         TC 16-1 STA. 48+99 RT W 98TH                             1.00
                                                              ---------
                                                .TOTAL           1.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION,   12 IN. LENS, ONE WAY       EACH
* EA        SIGNAL REF.              SUPPORT REF.

2 /         5 AND 6                  TP 16-2                         2.00
                                                              ---------
                                                 TOTAL           2.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS, ONE WAY WITH ARROWS EACH
* EA        SIGNAL REF.              SUPPORT REF.
1 /         2                        TP 16-1                         1.00
                                                              ---------
                                                 TOTAL           1.00
```

```
ITEM   DESCRIPTION                                                  UNIT
---------------------------------------------------------------------------
625    TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY          EACH
* EA        SIGNAL REF.
3 /         1, 3 AND 4                                               3.00
                                                              ---------
                                                 TOTAL           3.00
```

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

TRAFFIC SIGNAL QUANTITIES SUB-SUMMARY

CALCULATED BY LCL DATE 1-4-74
CHECKED BY EDR DATE 1-9-74

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

CUYAHOGA COUNTY
CUY - 90 - 10.40

INTERSECTION 16 (CONT'D)

```
ITEM   DESCRIPTION                                                       UNIT
----------------------------------------------------------------------------------
625    WEATHERHEAD AND CONDUIT RISER                                     EACH
* EA        REF. TO--
```

```
ITEM   DESCRIPTION                                                       UNIT
----------------------------------------------------------------------------------
614    MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION               LSUM
*           LUMP SUM FOR INTERSECTION OF WILLARD - W 98TH
```

```
ITEM    DESCRIPTION                                                      UNIT
----------------------------------------------------------------------------------
816     COMBINATION SIGNAL SUPPORT, POLE = 7 GA, 13.0" X 8.80" X 30'-0"  EACH
                               MAST ARM = 7 GA. 10.0" X 4.68" X 38'-0"
* EA        REF. TO--
1 /         TP 16-1 STA 48+99 RT W 98TH                                       1.00
                                                                         ----------
                                                             TOTAL            1.00
```

```
ITEM   DESCRIPTION                                                       UNIT
----------------------------------------------------------------------------------
816    COMBINATION SIGNAL SUPPORT, POLE = 3 GA. 15.0'' X 11.22'' X 27'-0''  EACH
                                   MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0''
                                   MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0''
                                   SIGN ARM = 7 GA. 10.0'' X 8.18'' X 13'-0''
                                   SIGN ARM = 7 GA. 10.0'' X 8.46'' X 11'-0''
* EA        REF. TO--
1 /         TP 16-2 STA 48+34 LT W 98TH                                       1.00
                                                                         ----------
                                                             TOTAL            1.00
```

```
ITEM   DESCRIPTION                                                       UNIT
----------------------------------------------------------------------------------
816    PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN. )  EACH
* EA        REF. TO--
1 /         PD 16-1 STA 48+39 RT W 98TH                                       1.00
1 /         PD 16-2 STA 48+95 LT W 98TH                                       1.00
                                                                         ----------
                                                             TOTAL            2.00
```

```
ITEM   DESCRIPTION                                                       UNIT
----------------------------------------------------------------------------------
816    CONCRETE FOR SIGNAL SUPPORT FOUNDATION                            CY
UNITS       CF
*                                  REFL TO--
9X0.5 +0.7854X9X11.5  /            TP 16-1                                   85.79
9X0.60+0.7854X9X18.5  /            PT 16-2                                  136.17
                                                                         ----------
                                                             TOTAL          221.96 CF
```

```
ITEM   DESCRIPTION                                                       UNIT
----------------------------------------------------------------------------------
816    CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS                  CY

UNITS       CF
*                                  REF. TO--
0.7854X4X3 /                       PD 16-1                                    9.42
0.7854X4X3 /                       PD 16-2                                    9.42
2.25X2.83X3 /                      TC 16-1                                   19.10
5X5X0.5 /                          CONC. PAD                                 12.50

                                                                         ----------
                                                             TOTAL           50.45 CF
```

```
ITEM    DESCRIPTION
----------------------------------------------------------------------------------
625     CABLE  SUPPORT  ASSEMBLY                                         EA.

EA.          REF. -  TO - -
2            TP  16-1                                                      2.0
2            TP  16-2                                                      2.0
                                                                         -----
                                                             TOTAL         4.0
```

INTERSECTION 16
SUB-TOTAL PLAN SHEET NO. 599

CUY-90-10.40 TRAFFIC SIGNALS

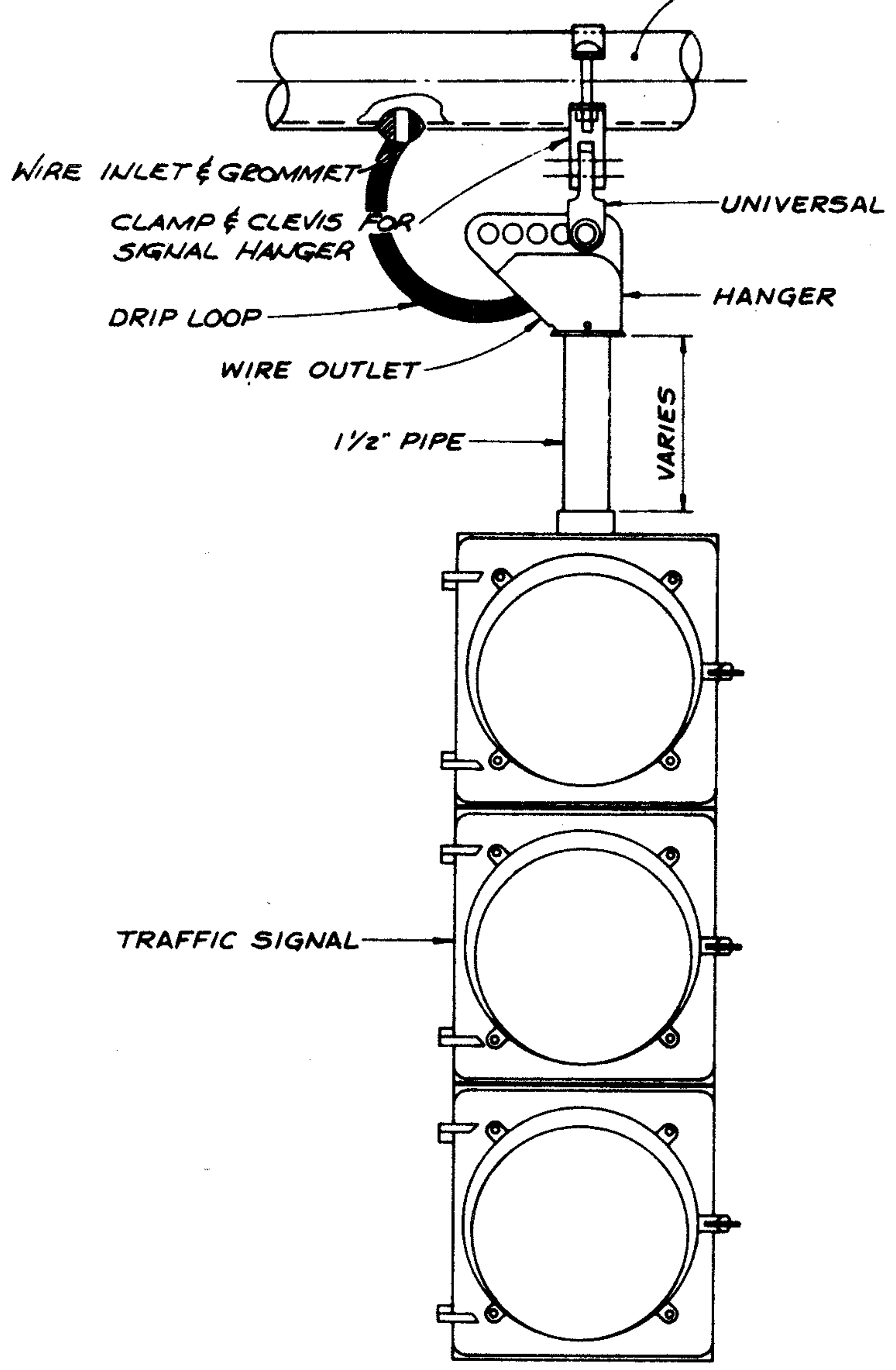
TOTAL	ITEM	UNIT	DESCRIPTION
1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 3 GA. 15.0'' X 11.22'' X 27'-0'' MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0'' MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0'' SIGN ARM = 7 GA. 10.0'' X 8.18'' X 13'-0'' SIGN ARM = 7 GA. 10.0'' X 8.46'' X 11'-0''
1	816	EACH	COMBINATION SIGNAL SUPPORT, POLE = 7 GA. 13.0'' X 8.80'' X 30'-0'' MAST ARM = 7 GA. 10.0'' X 4.68'' X 38'-0''
LUMP	614	LSUM	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION
252.	625	LF	TRENCH, 24 IN. DEEP
492.	625	LF	CONDUIT, 3 IN., 713.04, TYPE III, RIGID FERROUS METAL
645.	625	LF	CONDUIT, 3 IN., PVC, TYPE II
6	625	EACH	'SINGLE' PULL BOX, CONCRETE AS PER PLAN
3	625	EACH	'DOUBLE' PULL BOX, CONCRETE AS PER PLAN
5	625	EACH	GROUND ROD
1	625	EACH	30 AMP DISCONNECT SWITCH, WITH TYPE X ENCLOSURE
28	625	LF	SIGNAL CABLE, STRANDED, 2/C NO. 12 AWG IMSA
1144.	625	LF	SIGNAL CABLE, STRANDED, 7/C NO. 12 AWG IMSA
890.	625	LF	INTERCONNECT CABLE, STRANDED 12/C NO. 12 AWG IMSA
190.	625	LF	POWER CABLE, 3/C NO. 6 AWG STRANDED RHW OR RHW TYPE
570.	625	LF	LOOP DETECTOR WIRE, NO. 12 AWG RHW OR RHW TYPE
380.	625	LF	LOOP DETECTOR LEAD IN CABLE, STRANDED, 2/C NO. 12 AWG, TWISTED PAIR, SHIELDED
285.	625	LF	LOOP DETECTOR PAVEMENT CUTTING
2	625	EACH	LOOP DETECTOR AMPLIFIER
2	625	EACH	PEDESTRIAN SIGNAL PUSHBUTTON WITH SIGN
6	625	EACH	PEDESTRIAN SIGNAL HEAD, INCANDESCENT COLORED BULB TYPE, 18 IN. X 18 IN.
1	625	EACH	SIGNAL CONTROLLER, 3 PHASE, SEMI-ACTUATED, SOLID STATE W/ CABINET AND COORDINATION UNIT
2	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. LENS, ONE WAY
1	625	EACH	TRAFFIC SIGNAL HEAD, 5 SECTION, 3-8 IN. LENS, 2-12 IN. LENS, ONE WAY WITH ARROWS
3	625	EACH	TRAFFIC SIGNAL HEAD, 3 SECTION, 8 IN. LENS, ONE WAY
2	625	EACH	WEATHERHEAD AND CONDUIT RISER
2	816	EACH	PEDESTRIAN SIGNAL SUPPORT, PEDESTAL POLE (4 IN. X 7 FT - 6 IN.)
8.2	816	CY	CONCRETE FOR SIGNAL SUPPORT FOUNDATION
1.9	816	CY	CONCRETE FOR CONTROLLER AND PEDESTAL FOUNDATIONS
4	625	EA	CABLE SUPPORT ASSEMBLY

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-I(50)19	

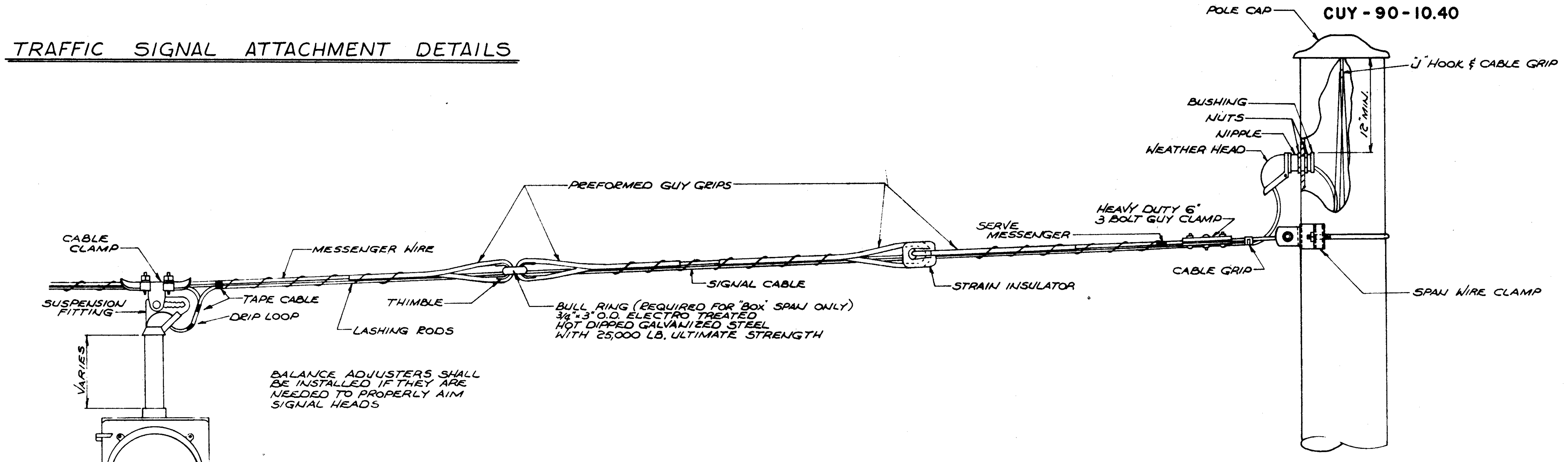
625
713

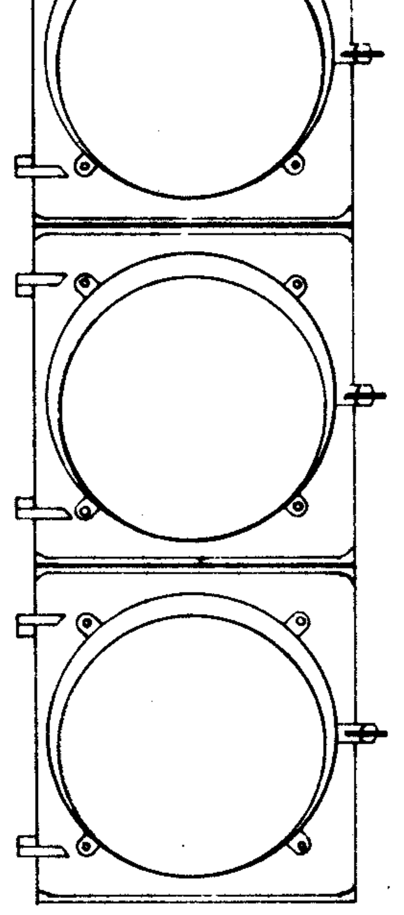
CUYAHOGA COUNTY
CUY-90-10.40

TRAFFIC SIGNAL ATTACHMENT DETAILS



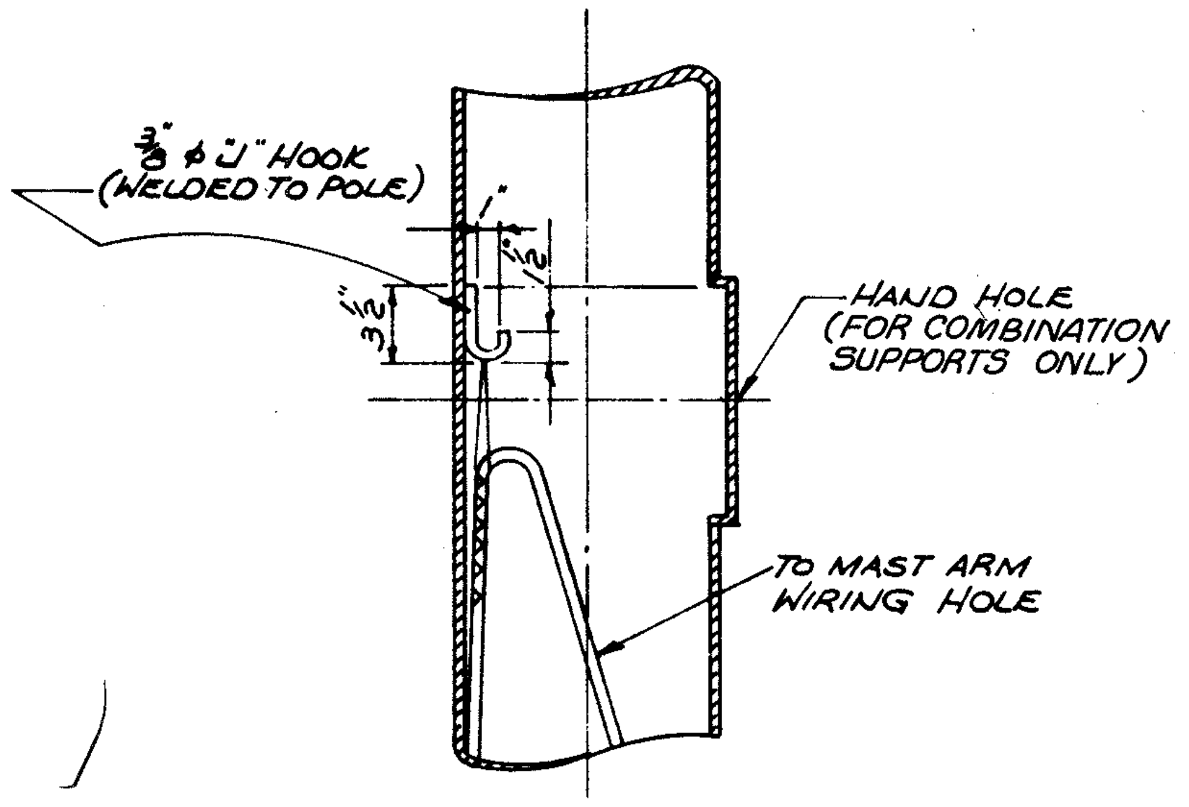
MAST ARM DETAIL



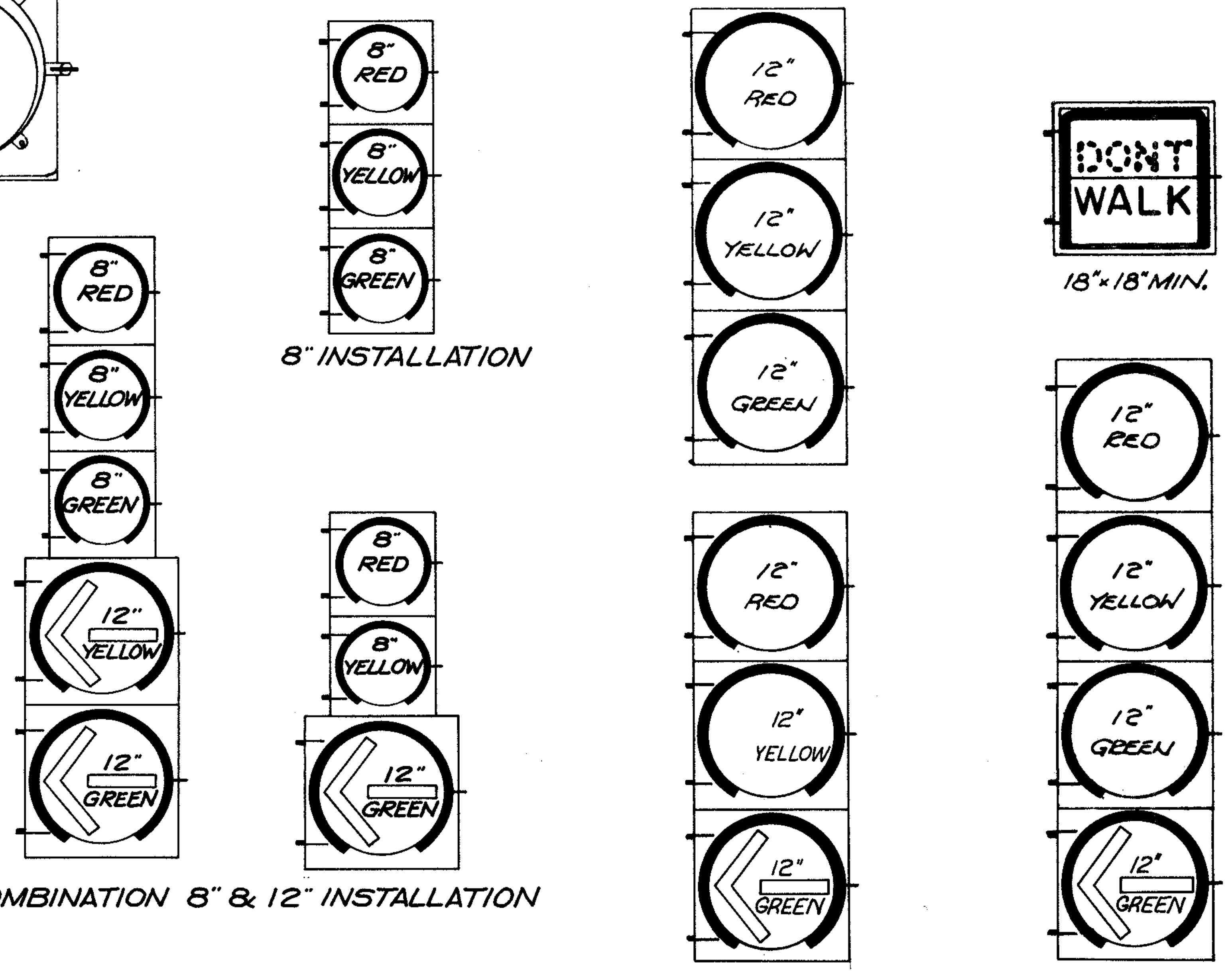


BALANCE ADJUSTERS SHALL BE INSTALLED IF THEY ARE NEEDED TO PROPERLY AIM SIGNAL HEADS

MESSENGER WIRE DETAIL



"J" HOOK DETAIL



COMBINATION 8" & 12" INSTALLATION

8" INSTALLATION

12" INSTALLATION

18"×18" MIN.

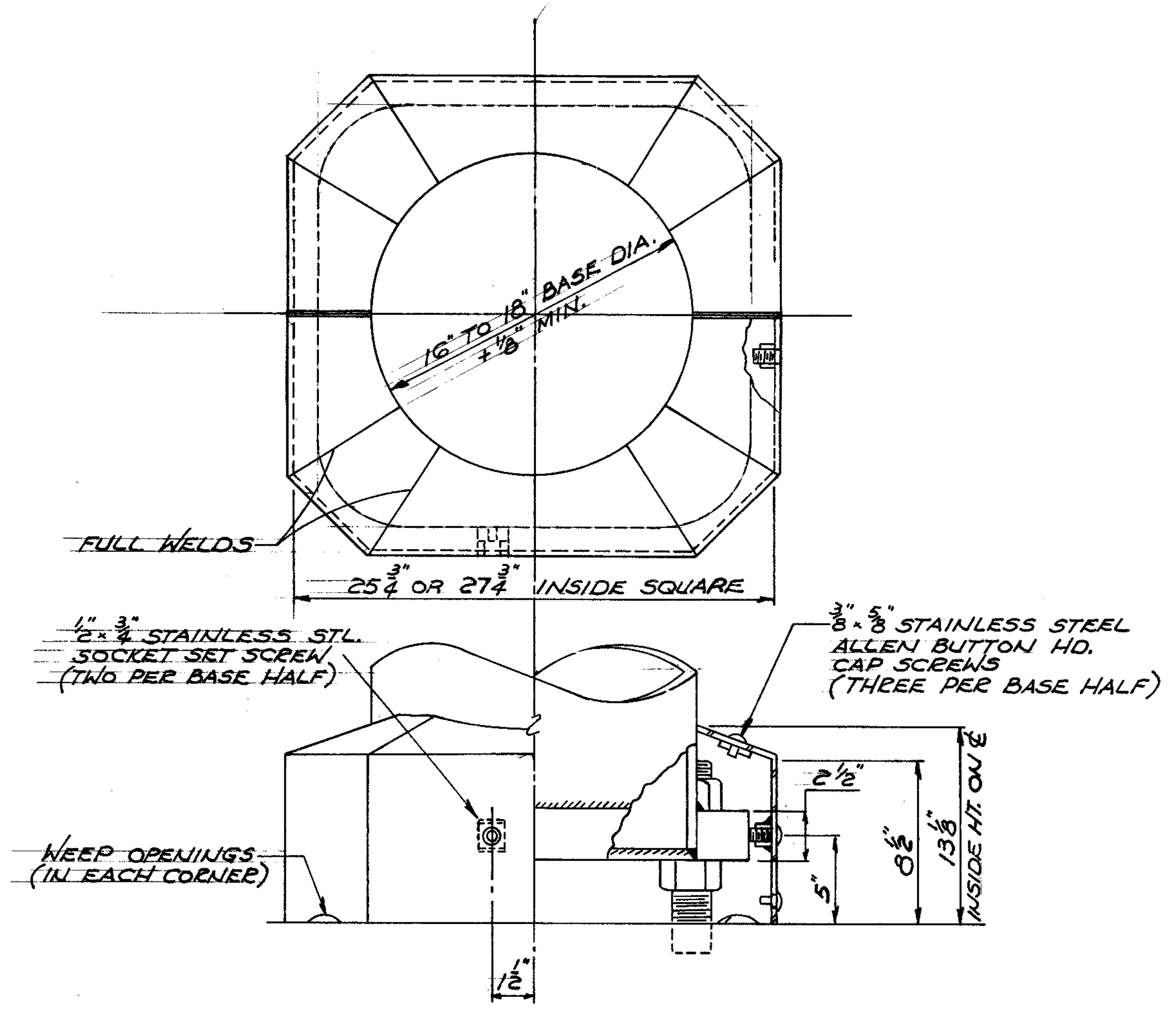
TYPICAL SIGNAL DETAILS

TRAFFIC SIGNAL DETAILS

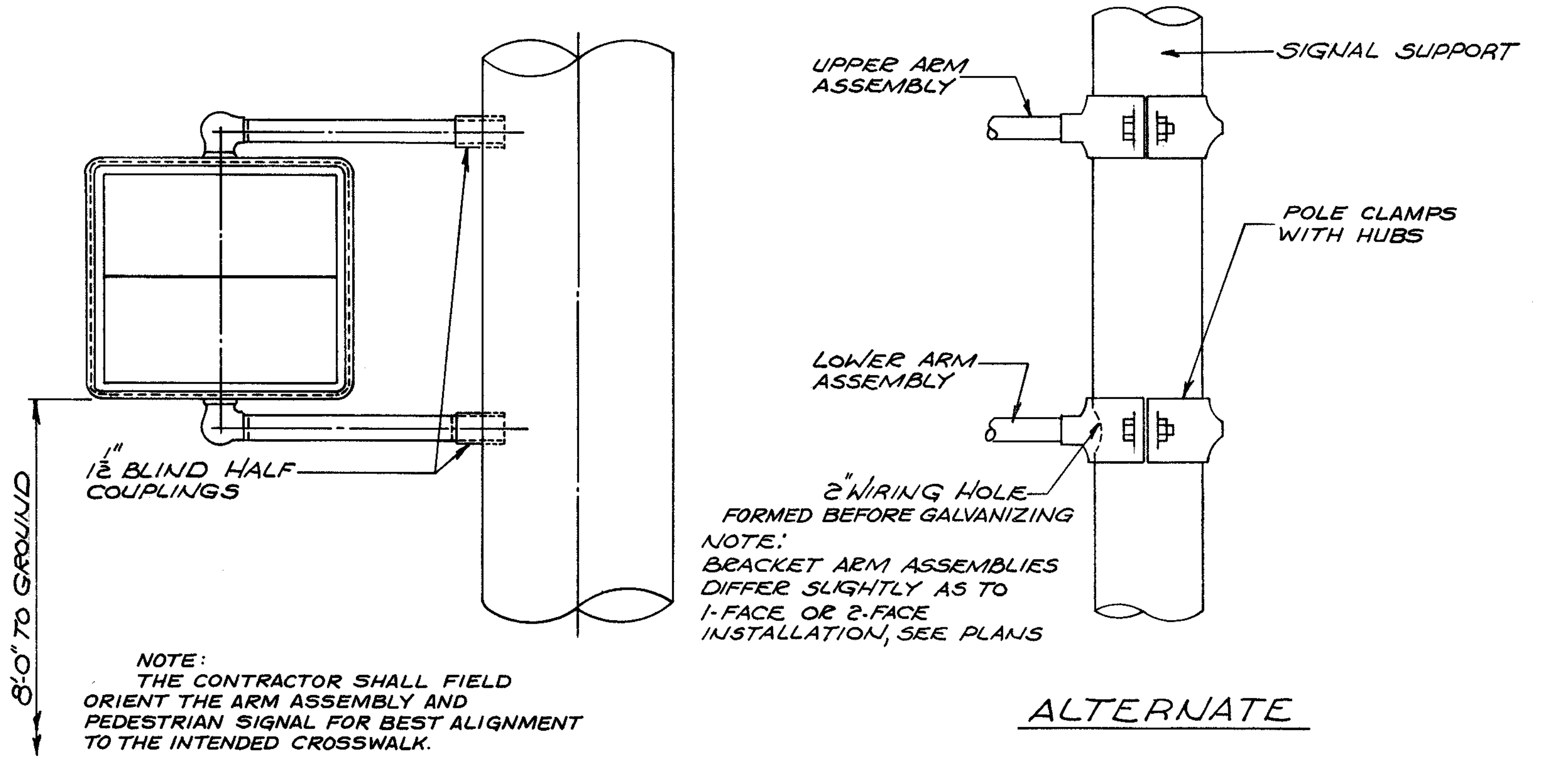
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1 (50)19	

626
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



SPLIT COVER BASE
FOR PLATE BASE POLES ONLY

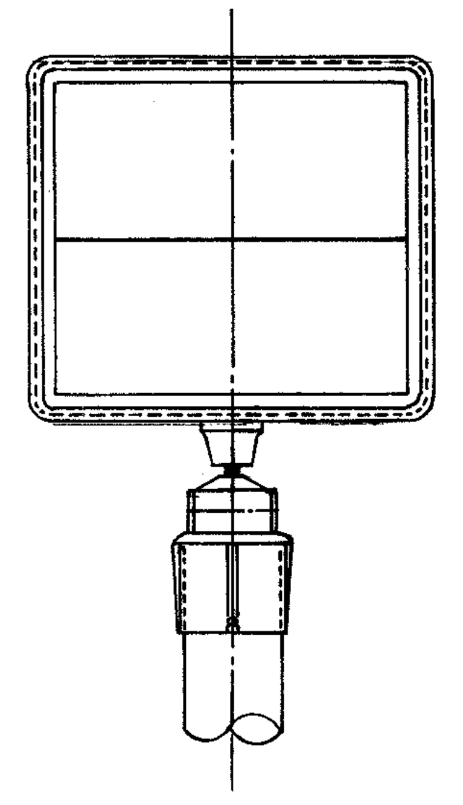


NOTE:
THE CONTRACTOR SHALL FIELD ORIENT THE ARM ASSEMBLY AND PEDESTRIAN SIGNAL FOR BEST ALIGNMENT TO THE INTENDED CROSSWALK.

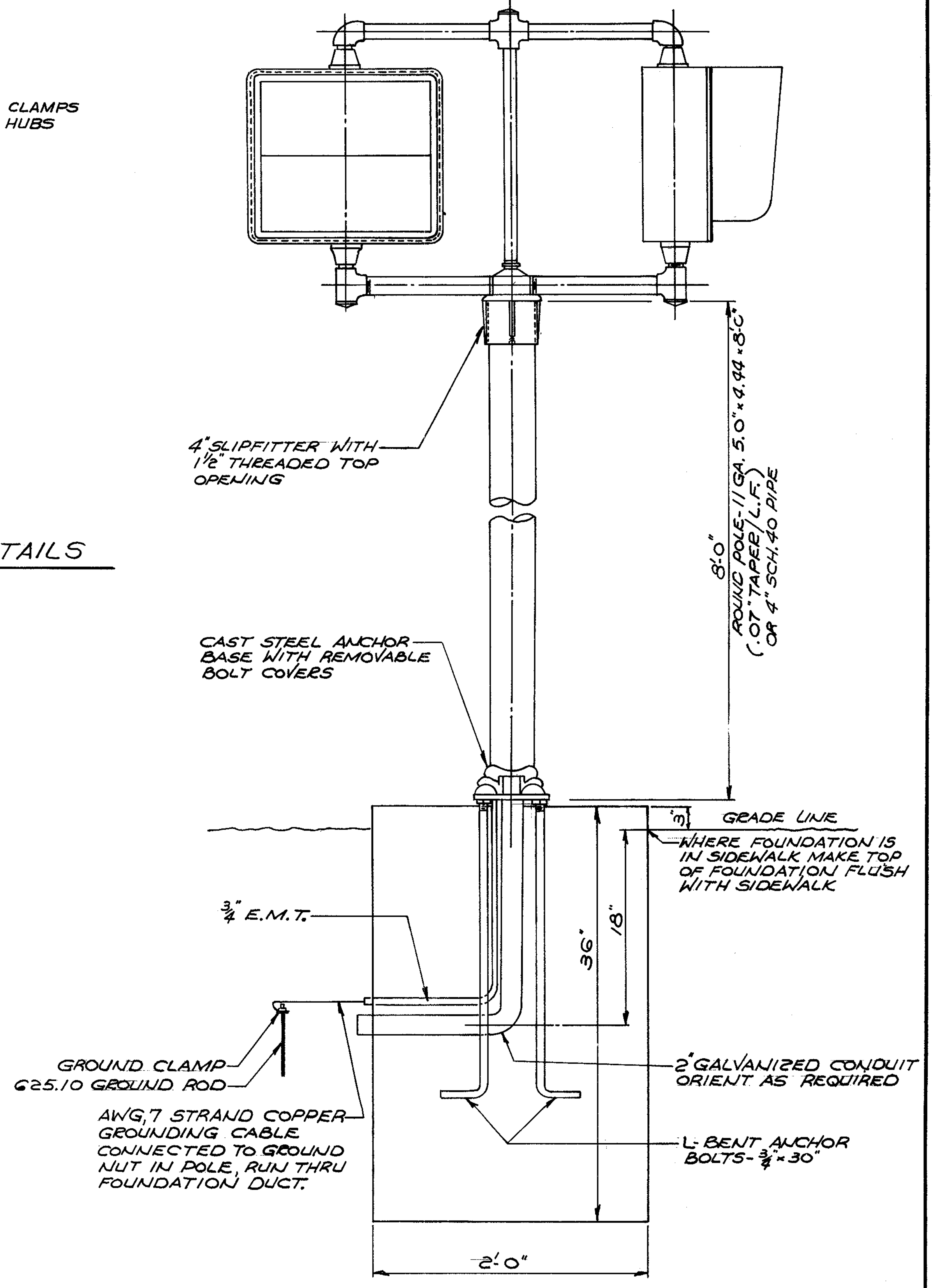
NOTE:
BRACKET ARM ASSEMBLIES DIFFER SLIGHTLY AS TO 1-FACE OR 2-FACE INSTALLATION, SEE PLANS

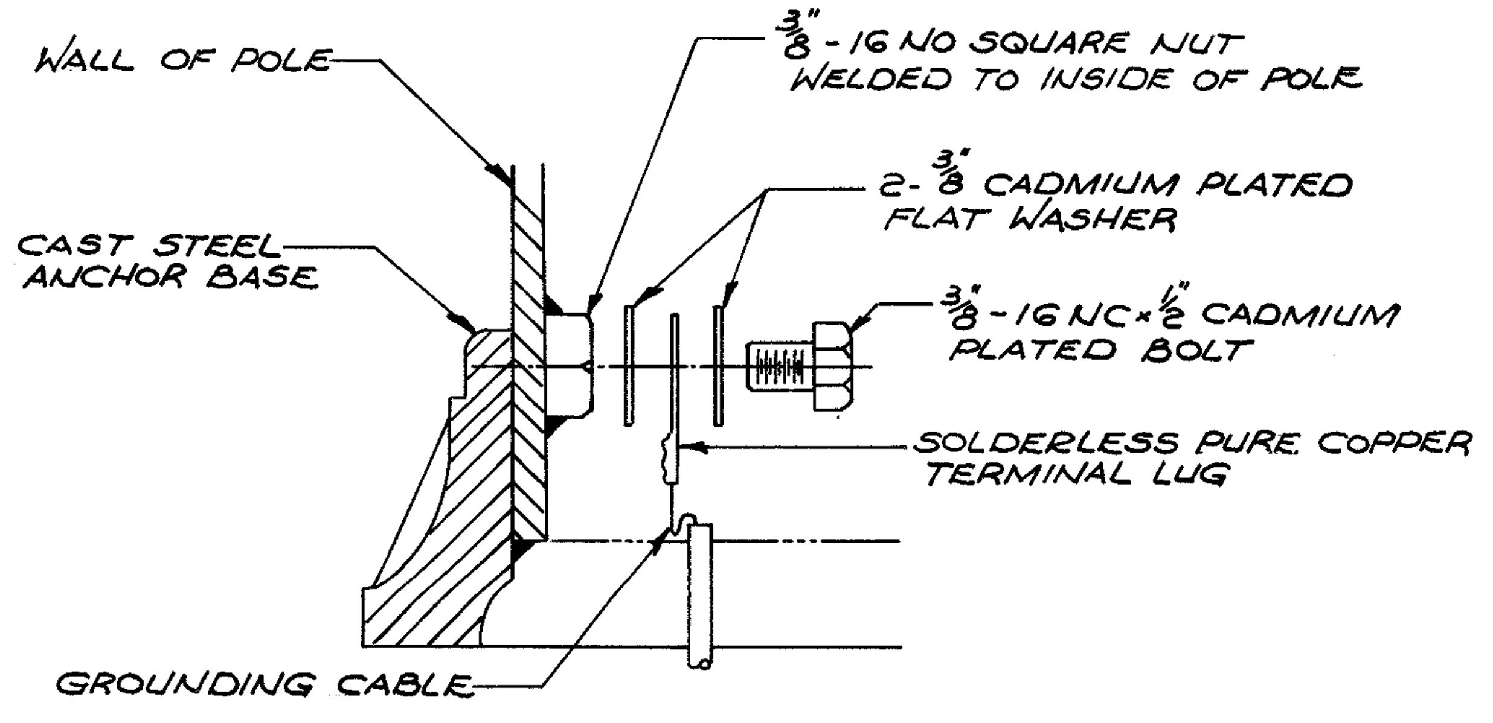
ALTERNATE

PEDESTRIAN SIGNAL HEAD INSTALLATION DETAILS

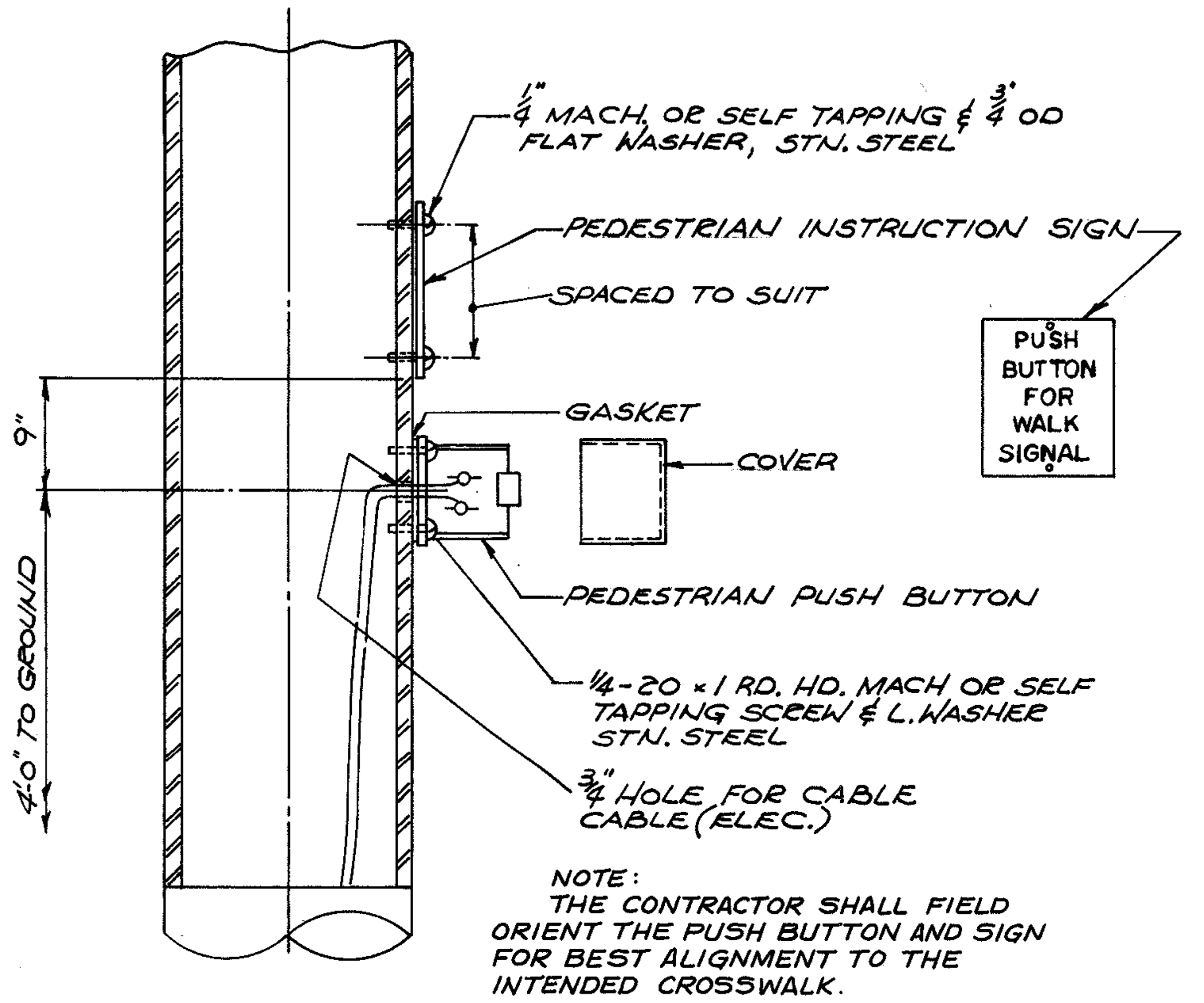


ONE WAY





TYPICAL GROUNDING CABLE CONNECTION



NOTE:
THE CONTRACTOR SHALL FIELD ORIENT THE PUSH BUTTON AND SIGN FOR BEST ALIGNMENT TO THE INTENDED CROSSWALK.

PEDESTRIAN PUSH BUTTON
INSTALLATION DETAILS

FORM D D A-6

TRAFFIC SIGNAL DETAILS

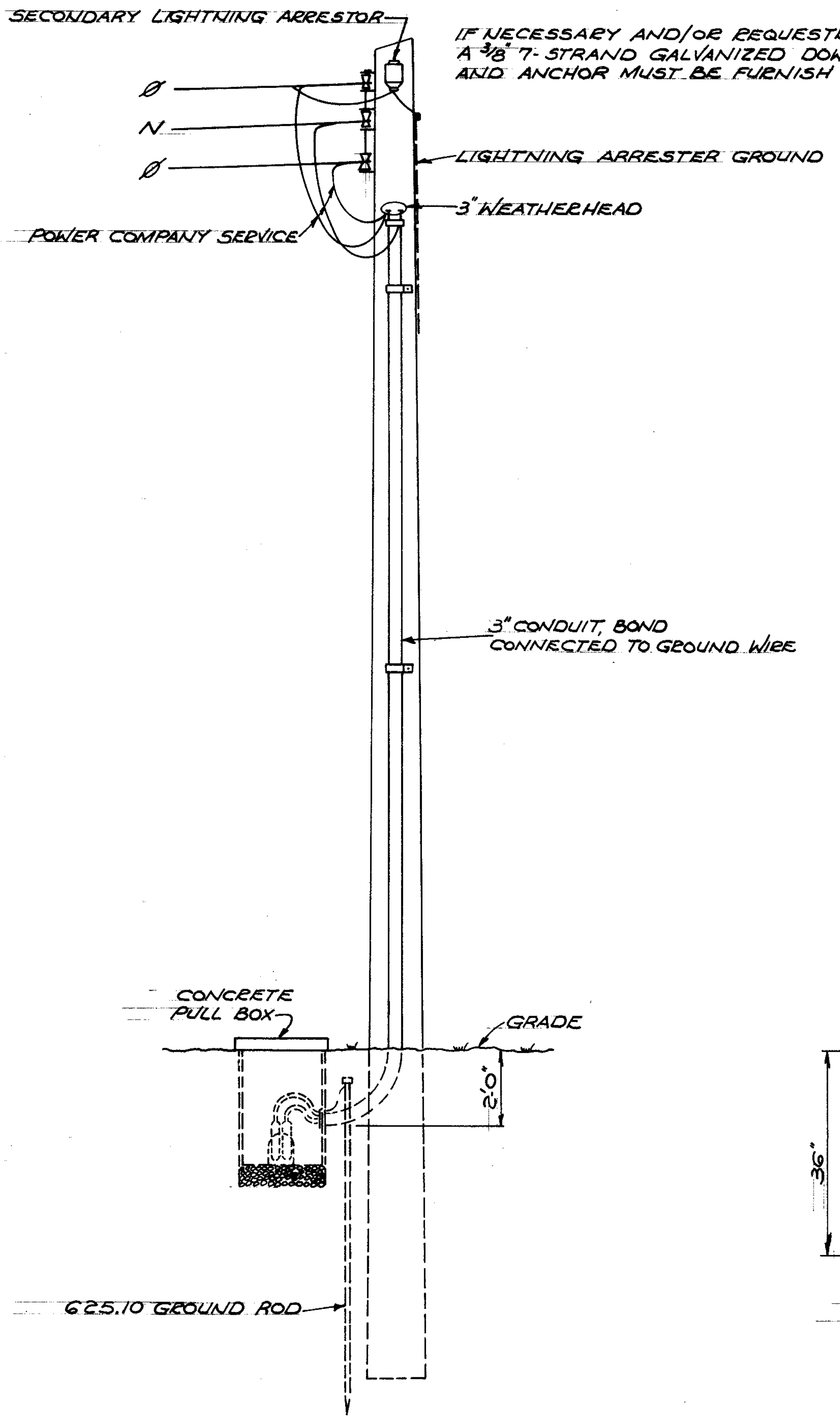
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

627
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

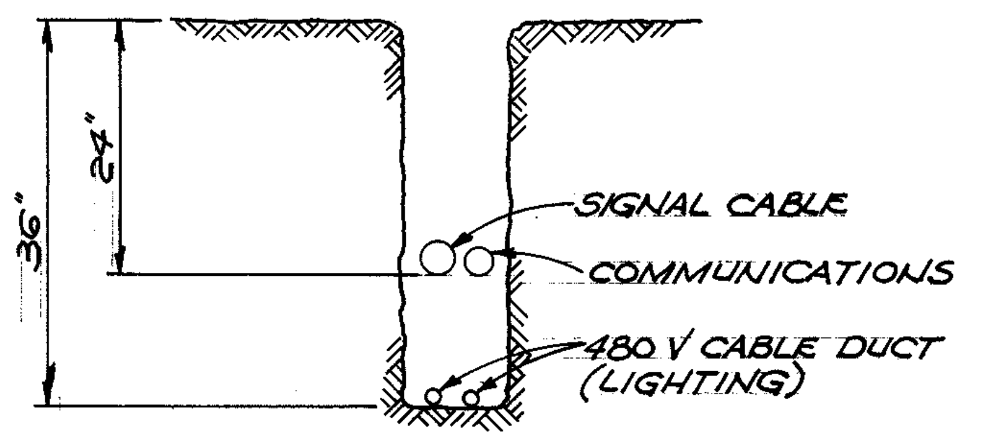
CONTRACTOR SHALL FIELD DETERMINE THE BEST ORIENTATION FOR MOUNTING THE EQUIPMENT ON THE POLE TO SUIT THE PARTICULAR LOCATION AND FACILITATE THE CONNECTION OF SUPPLY SERVICE BY THE POWER COMPANY

IF NECESSARY AND/OR REQUESTED BY THE POWER COMPANY A 3/8" 7-STRAND GALVANIZED DOWN GUY, INSULATOR, GUARD, AND ANCHOR MUST BE FURNISH AND INSTALLED.



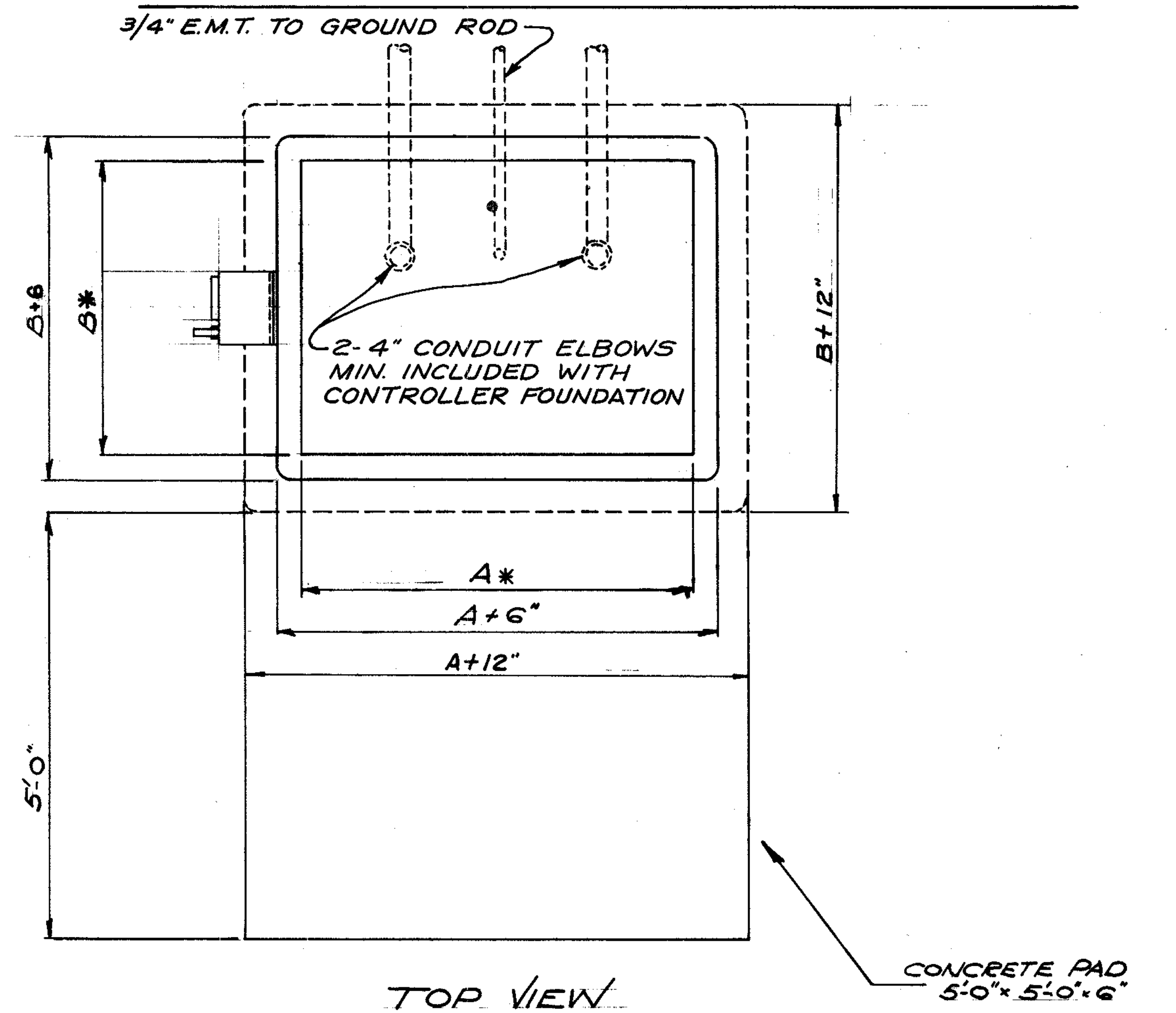
FRONT VIEW

SERVICE POLE



COMBINATION TRENCH

CONTROLLER ASSEMBLY & FOUNDATION



TOP VIEW

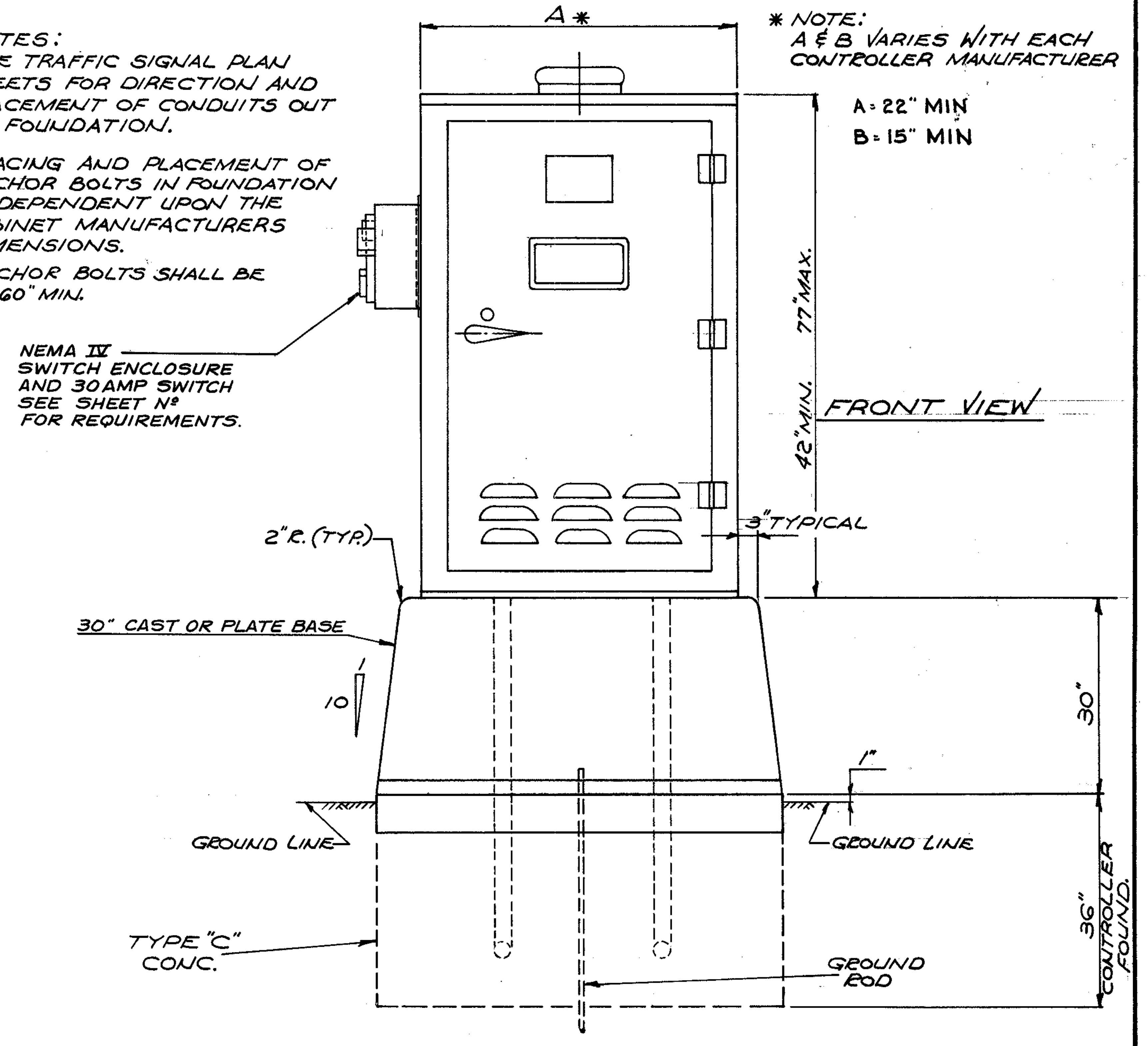
NOTES:
SEE TRAFFIC SIGNAL PLAN SHEETS FOR DIRECTION AND PLACEMENT OF CONDUITS OUT OF FOUNDATION.

SPACING AND PLACEMENT OF ANCHOR BOLTS IN FOUNDATION IS DEPENDENT UPON THE CABINET MANUFACTURERS DIMENSIONS.

ANCHOR BOLTS SHALL BE 3/4" × 60" MIN.

* NOTE:
A & B VARIES WITH EACH CONTROLLER MANUFACTURER

A = 22" MIN
B = 15" MIN



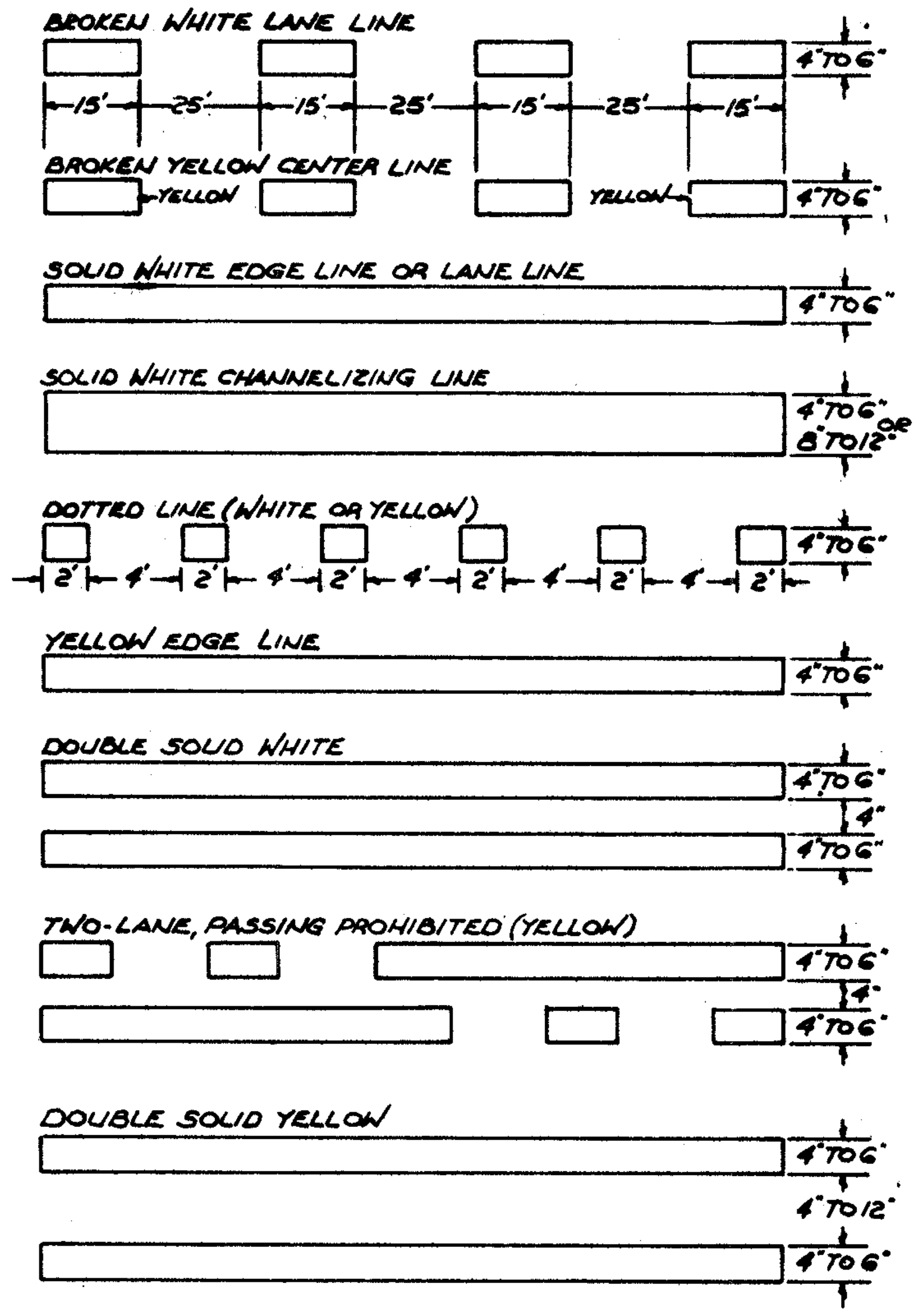
FRONT VIEW

TRAFFIC SIGNAL DETAILS

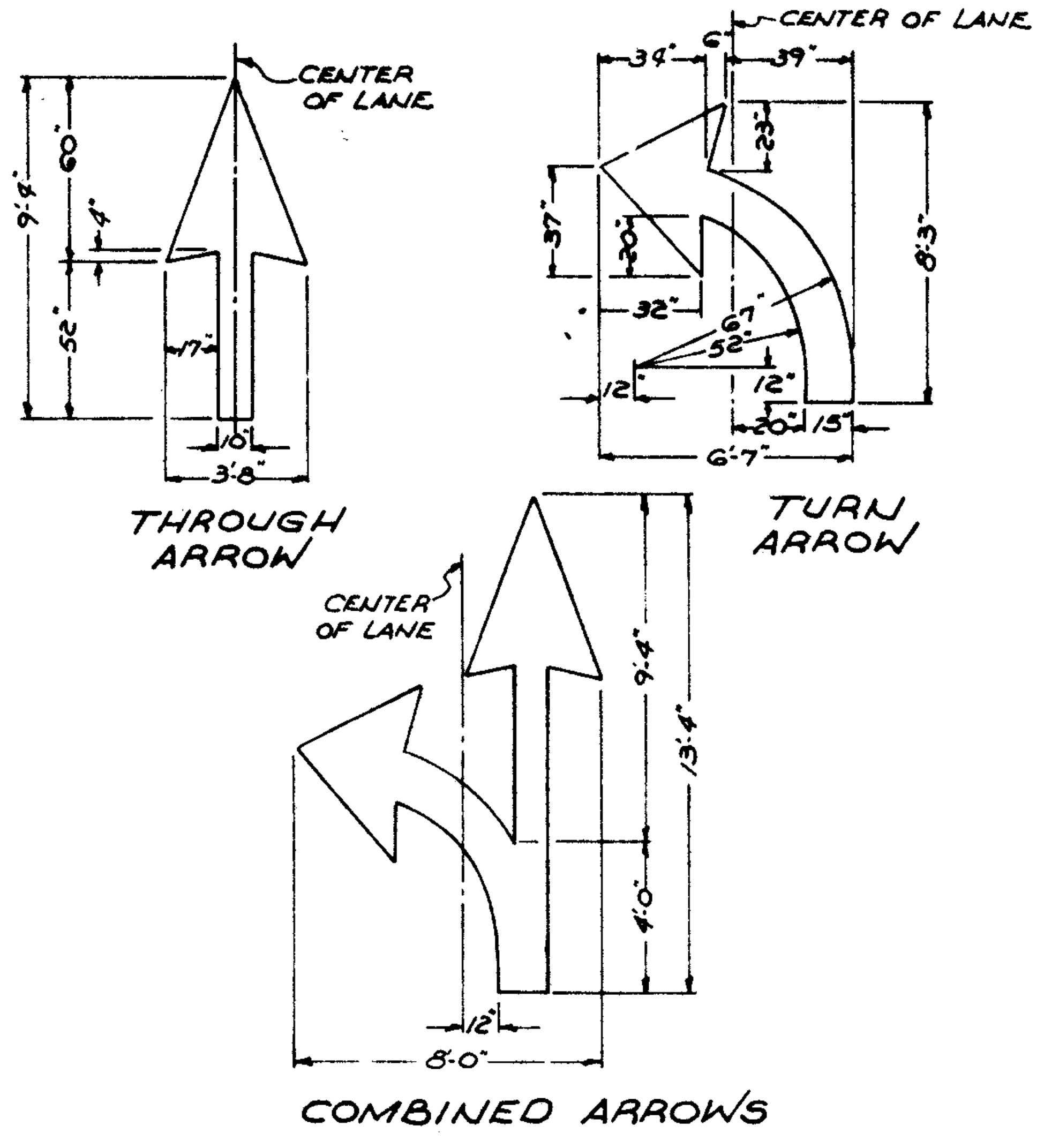
FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

628
713

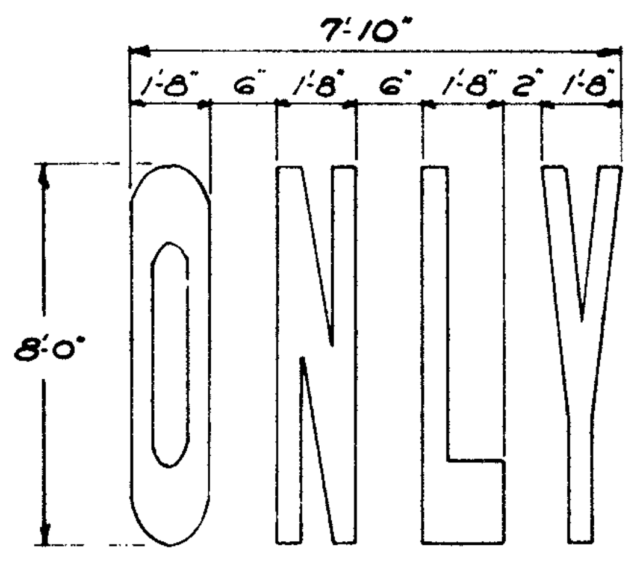
CUYAHOGA COUNTY
CUY - 90 - 10.40



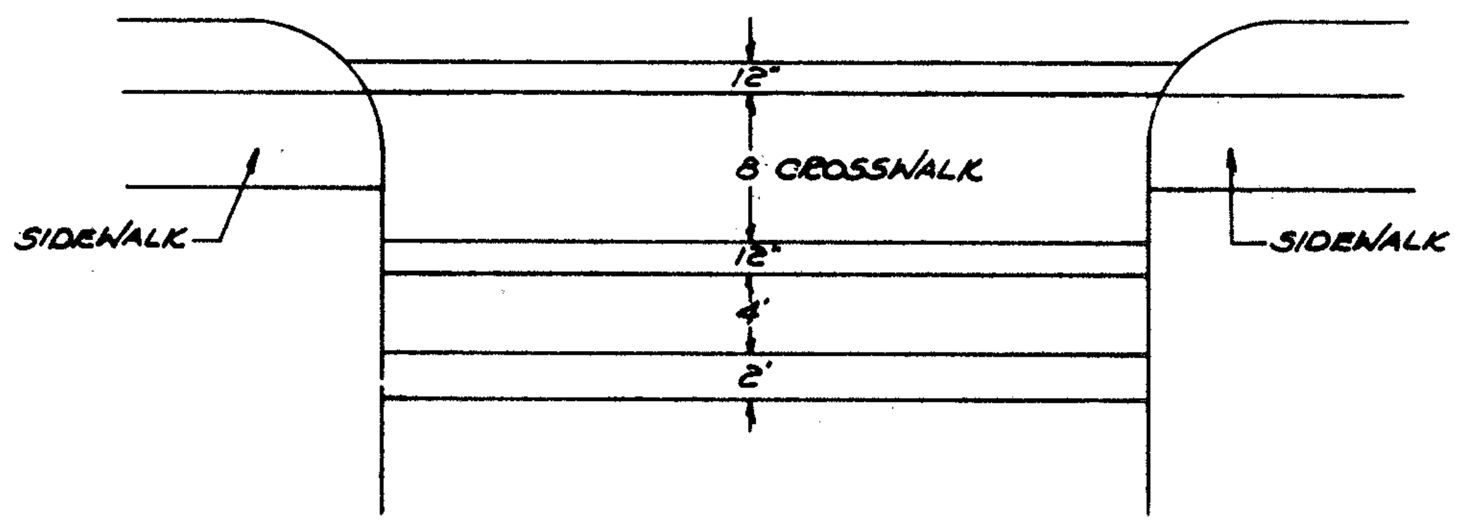
TYPES OF LONGITUDINAL LINES.



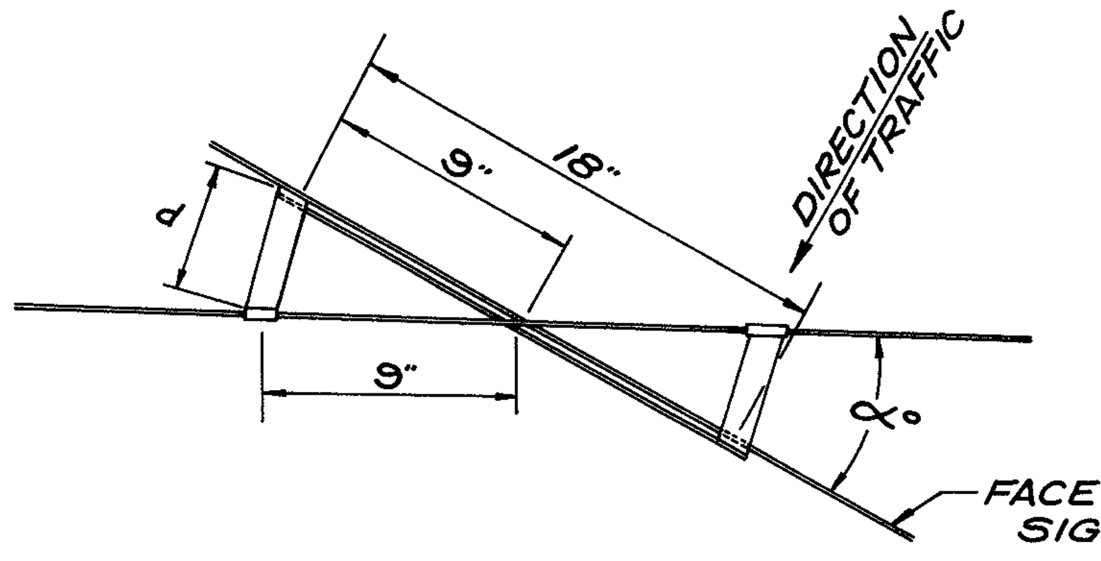
PAVEMENT ARROWS



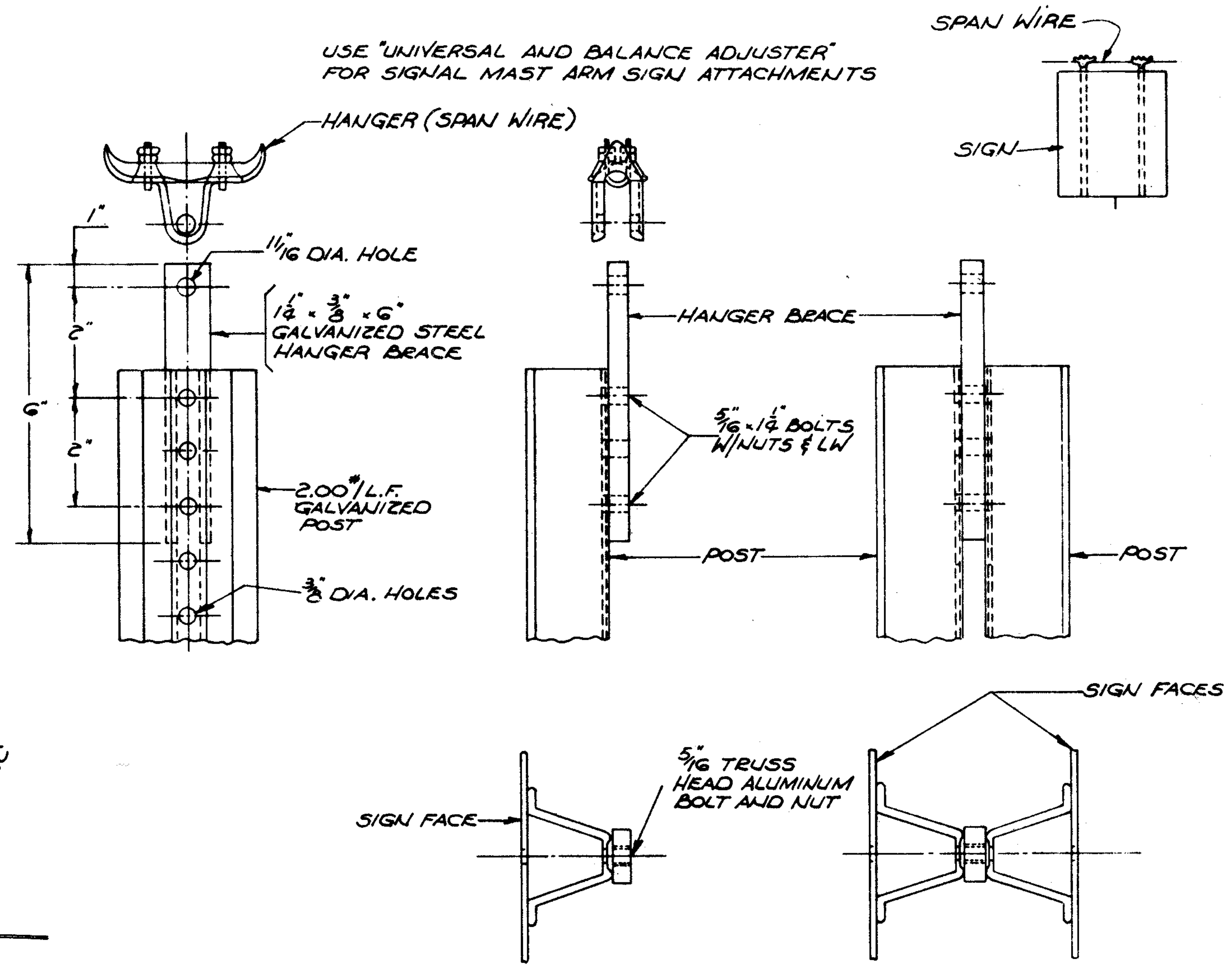
WORD TYPICAL



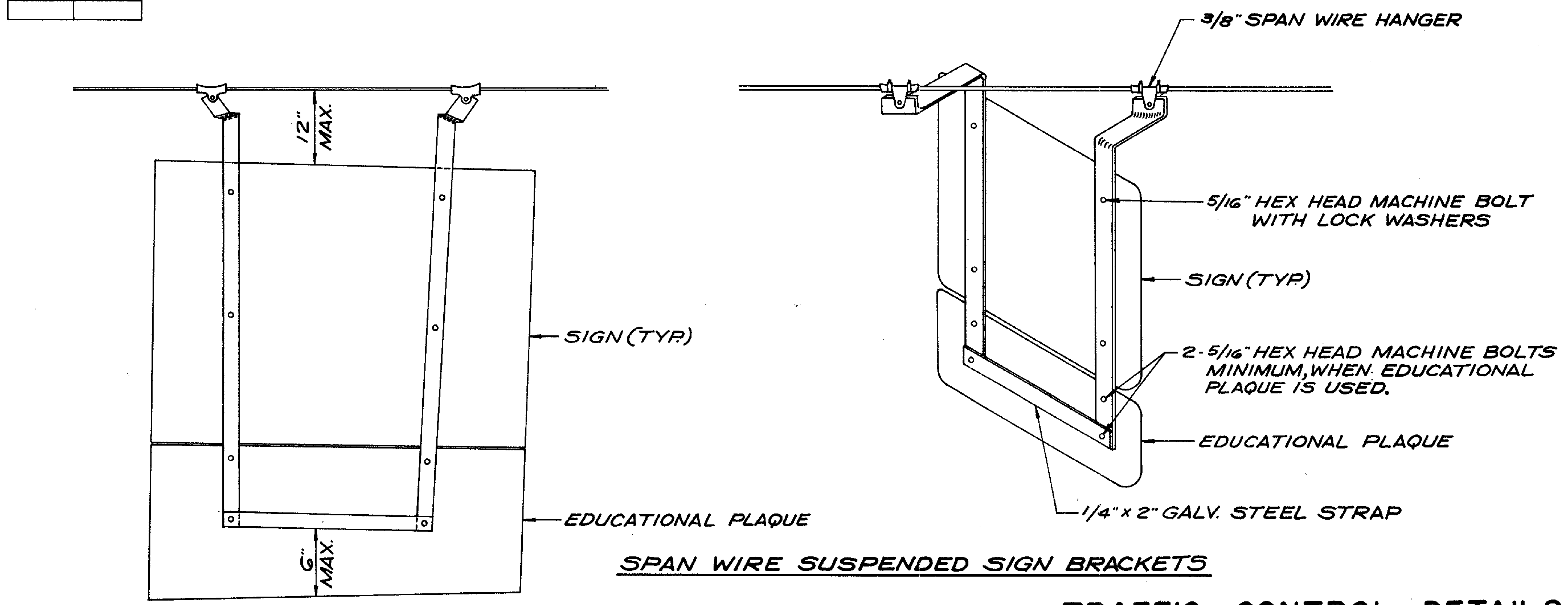
CROSSWALK TYPICAL



α°	d (IN)
0°	0
10°	1.6
20°	3.1
30°	4.7
40°	6.2
50°	7.6
60°	9



SIGN ATTACHMENT DETAILS



SPAN WIRE SUSPENDED SIGN BRACKETS

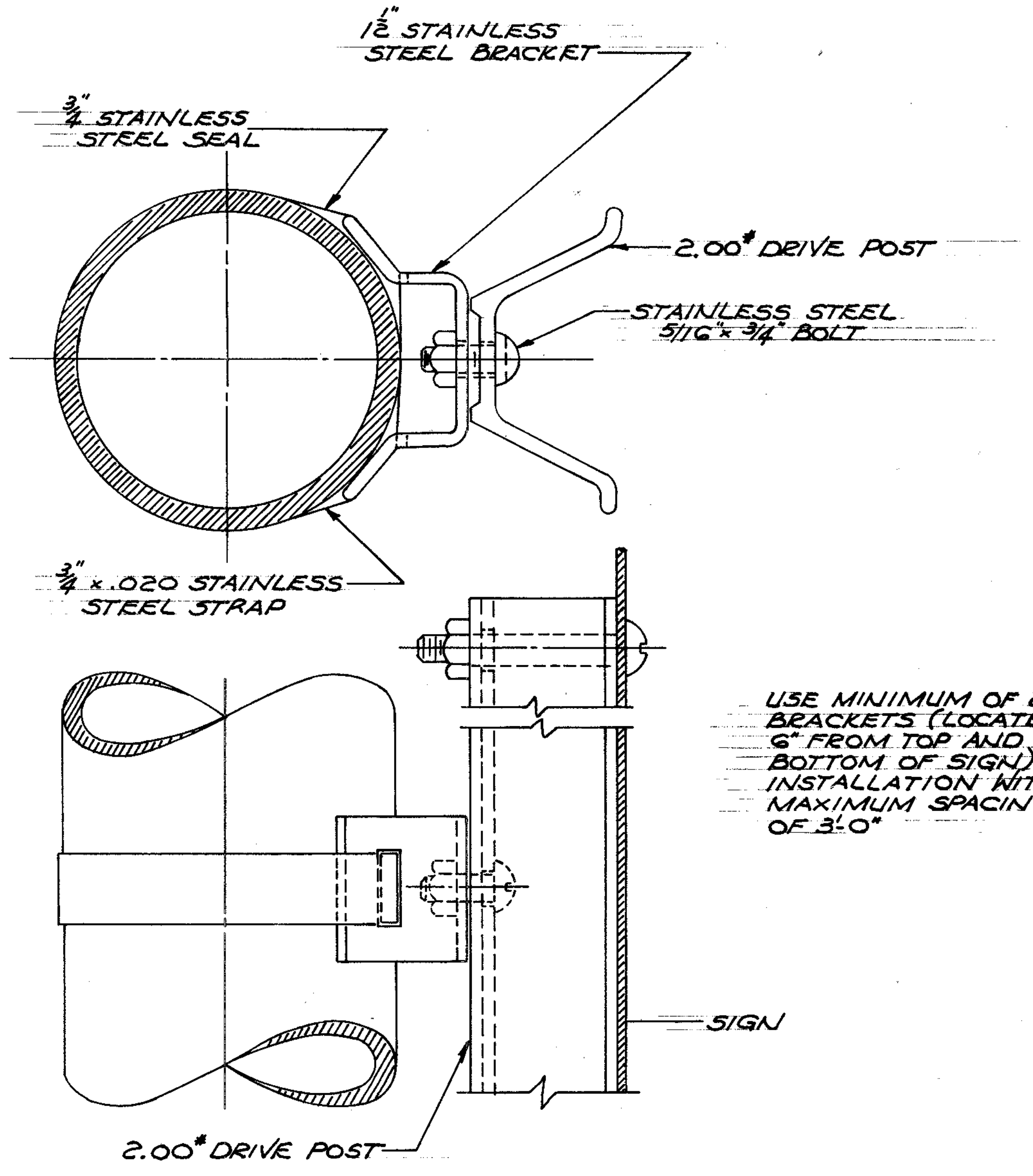
TRAFFIC CONTROL DETAILS

FORM D D A-9

FED. RD.	STATE	PROJECT	
2	OHIO	I-90-1(50)19	

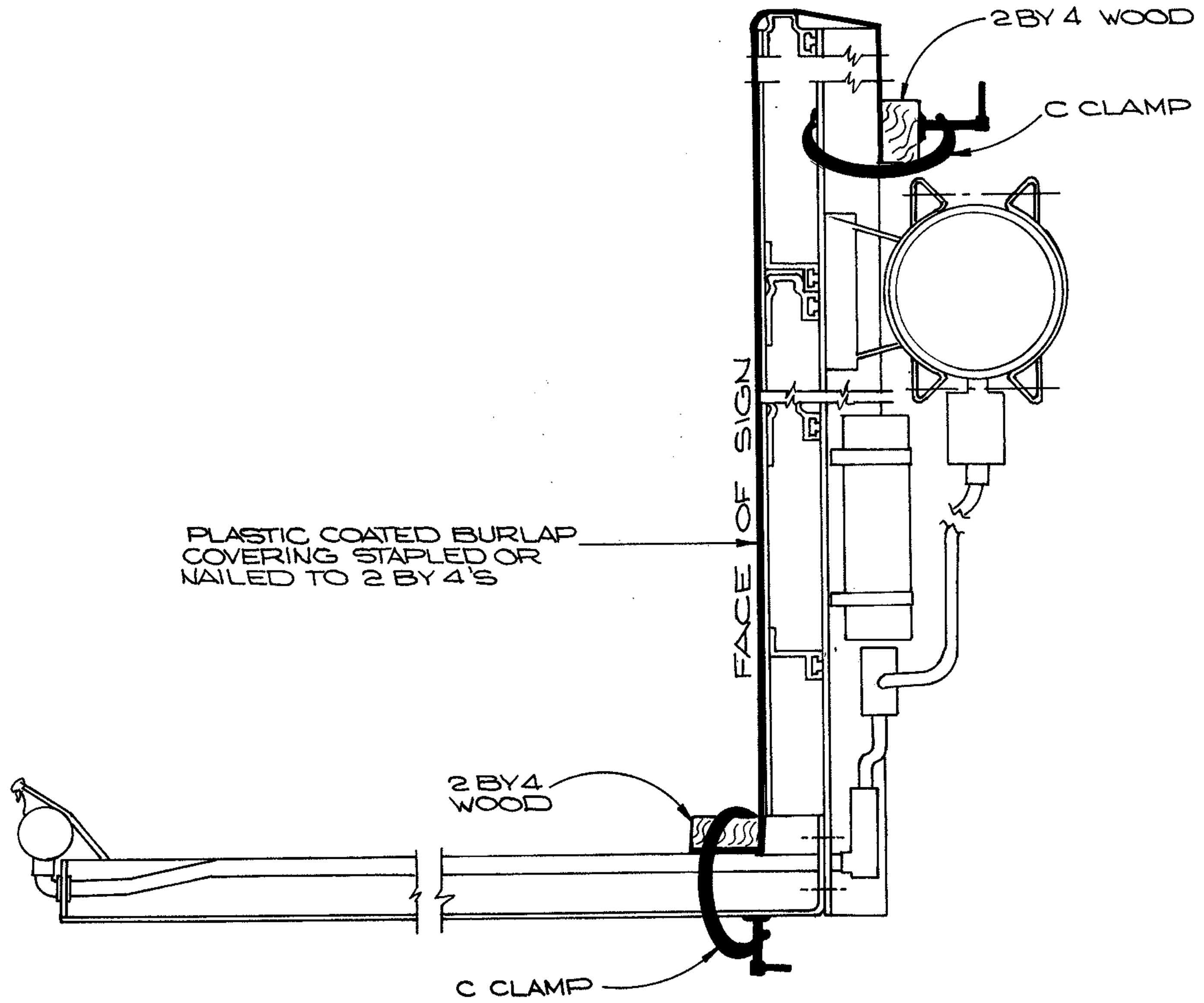
629
713

CUYAHOGA COUNTY
CUY - 90 - 10.40



USE MINIMUM OF 2 BRACKETS (LOCATED 6" FROM TOP AND BOTTOM OF SIGN) PER INSTALLATION WITH MAXIMUM SPACING OF 3'-0"

POLE MOUNTED SIGNS



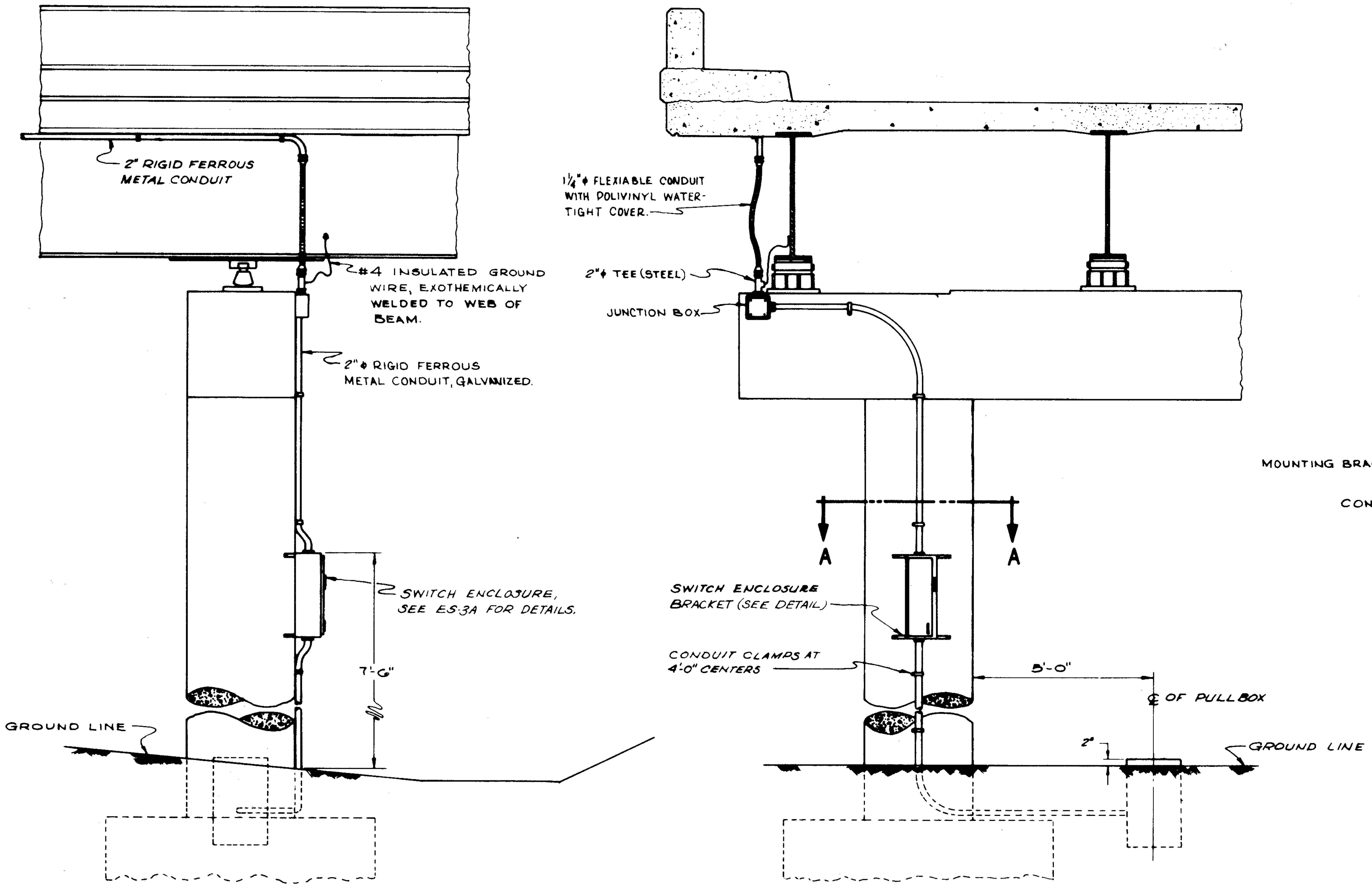
INTERIM COVERING ATTACHMENT

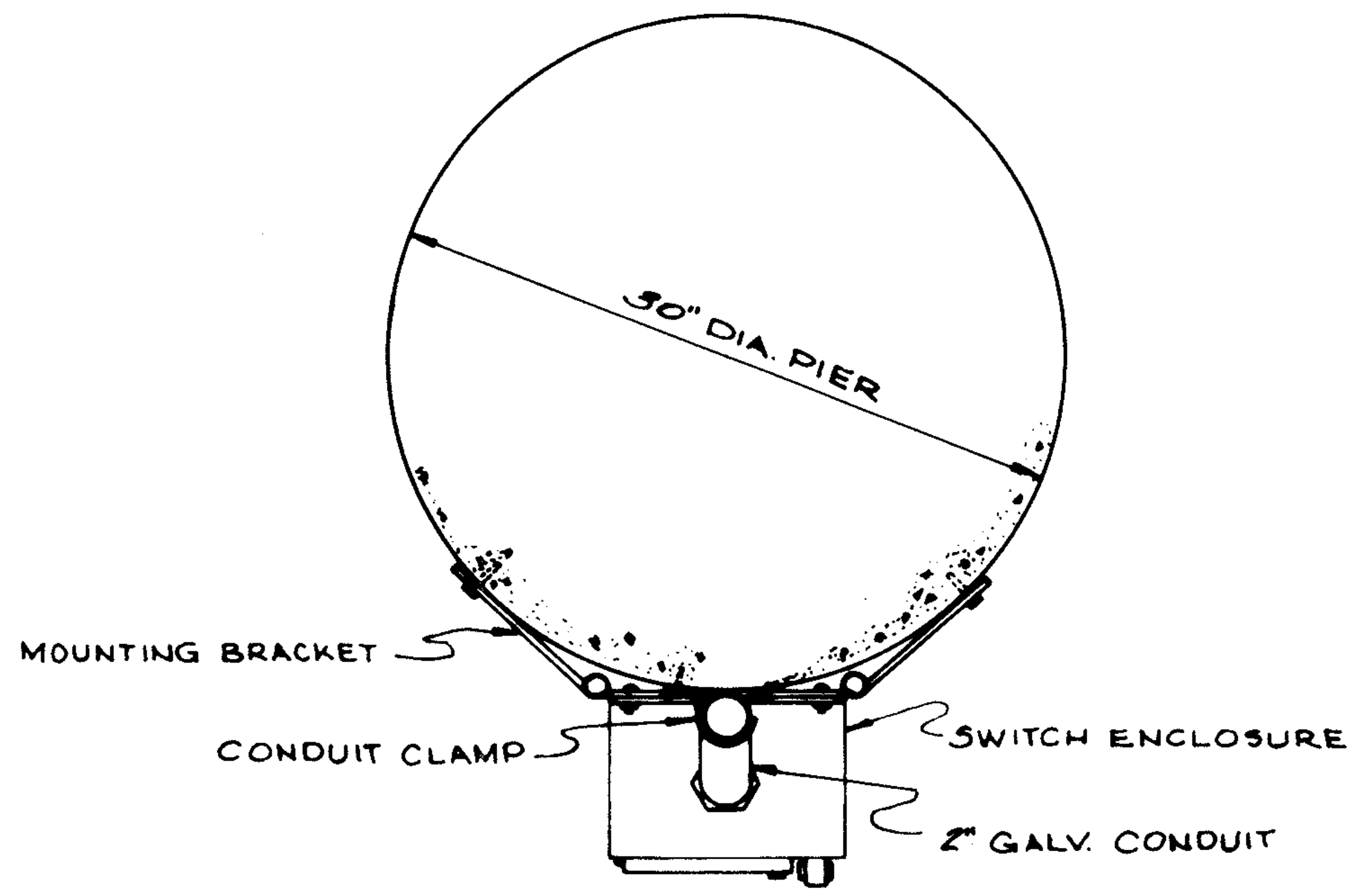
TRAFFIC CONTROL DETAILS

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO	I-90-1(50)19		

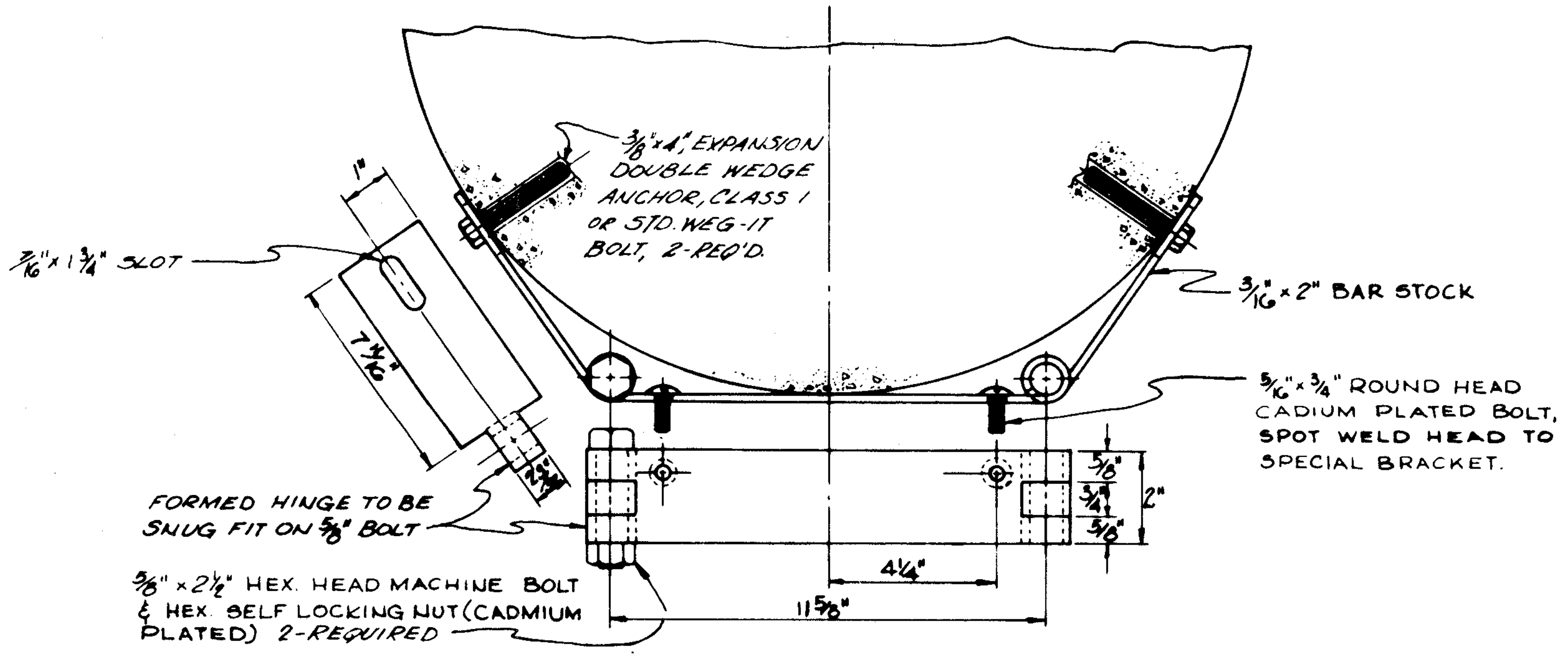
630
713

CUYAHOGA COUNTY
CUY - 90 - 10.40

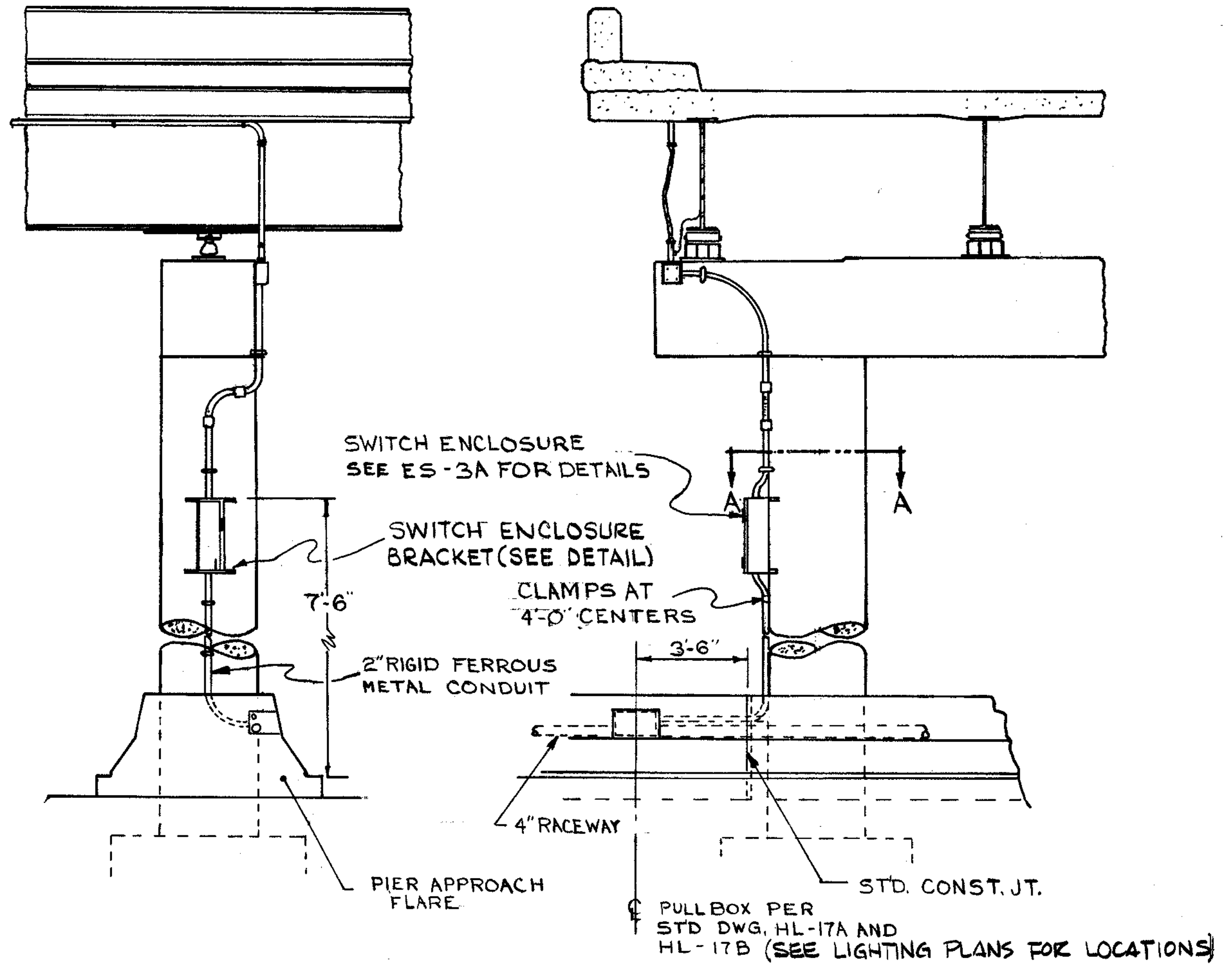




SECTION A-A



ENCLOSURE MOUNTING BRACKET



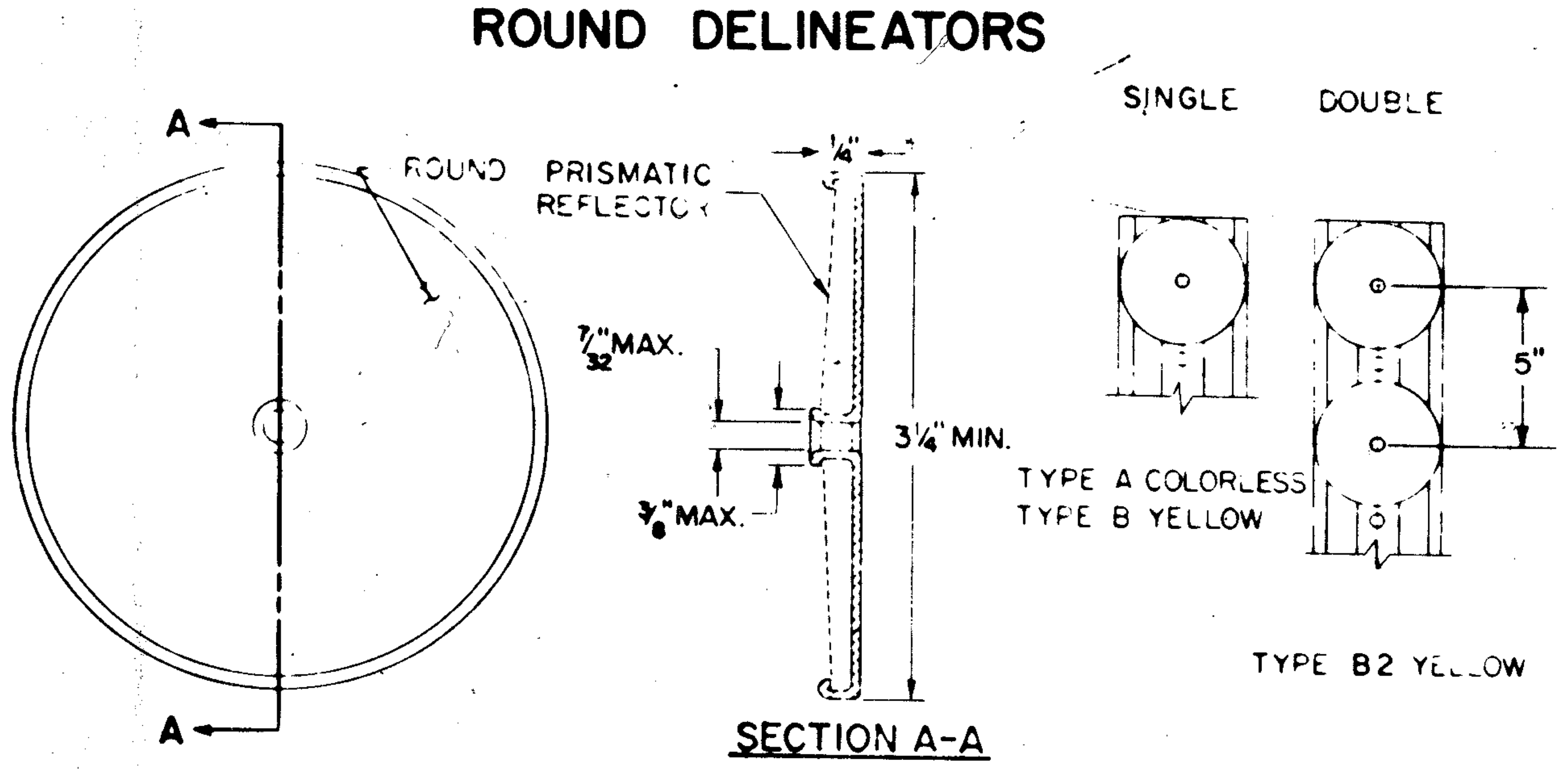
BARRIER MEDIAN SIGN SERVICE DETAIL

STRUCTURE MOUNTED SIGN SERVICE DETAILS

631
7/3

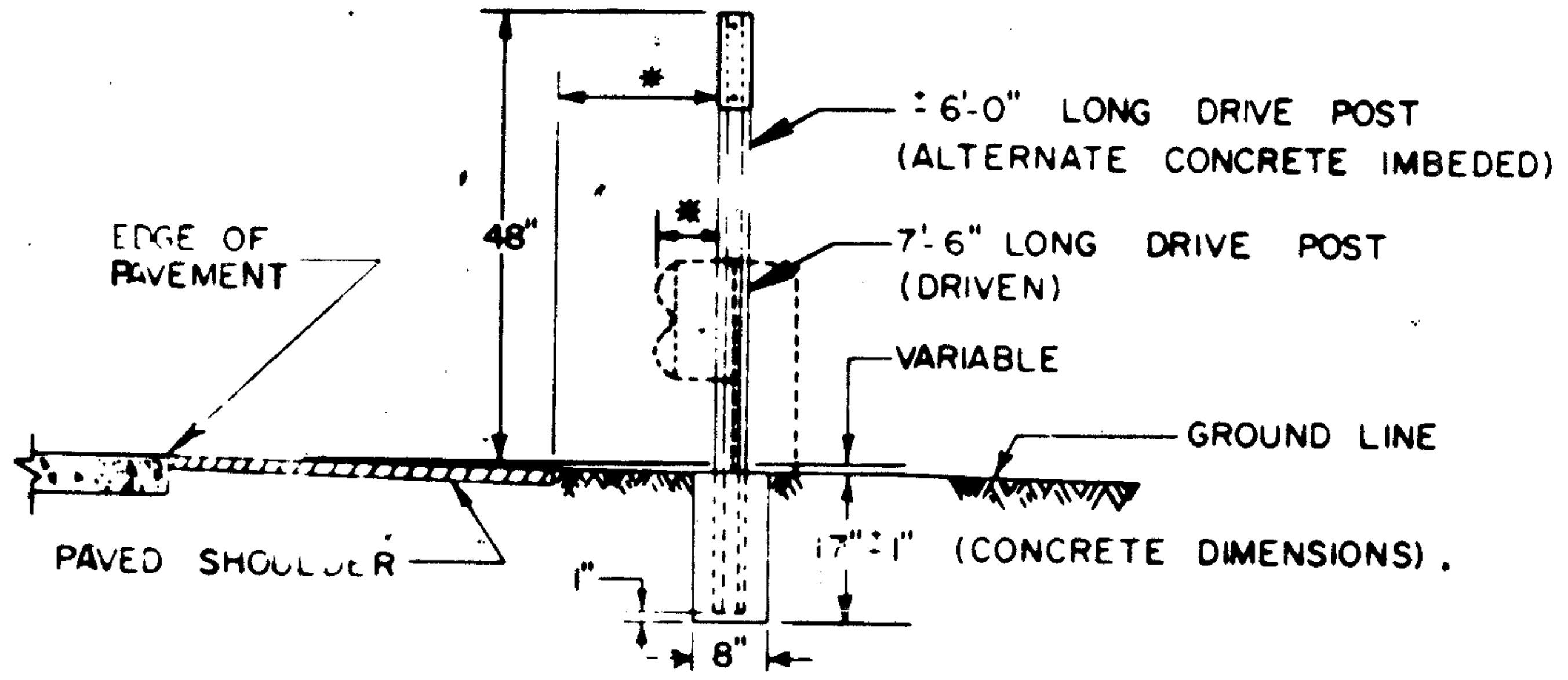
CUY-90-10.40

ROUND DELINEATORS



RECTANGULAR SHEET DELINEATORS

LATERAL PLACEMENT OF DELINEATORS

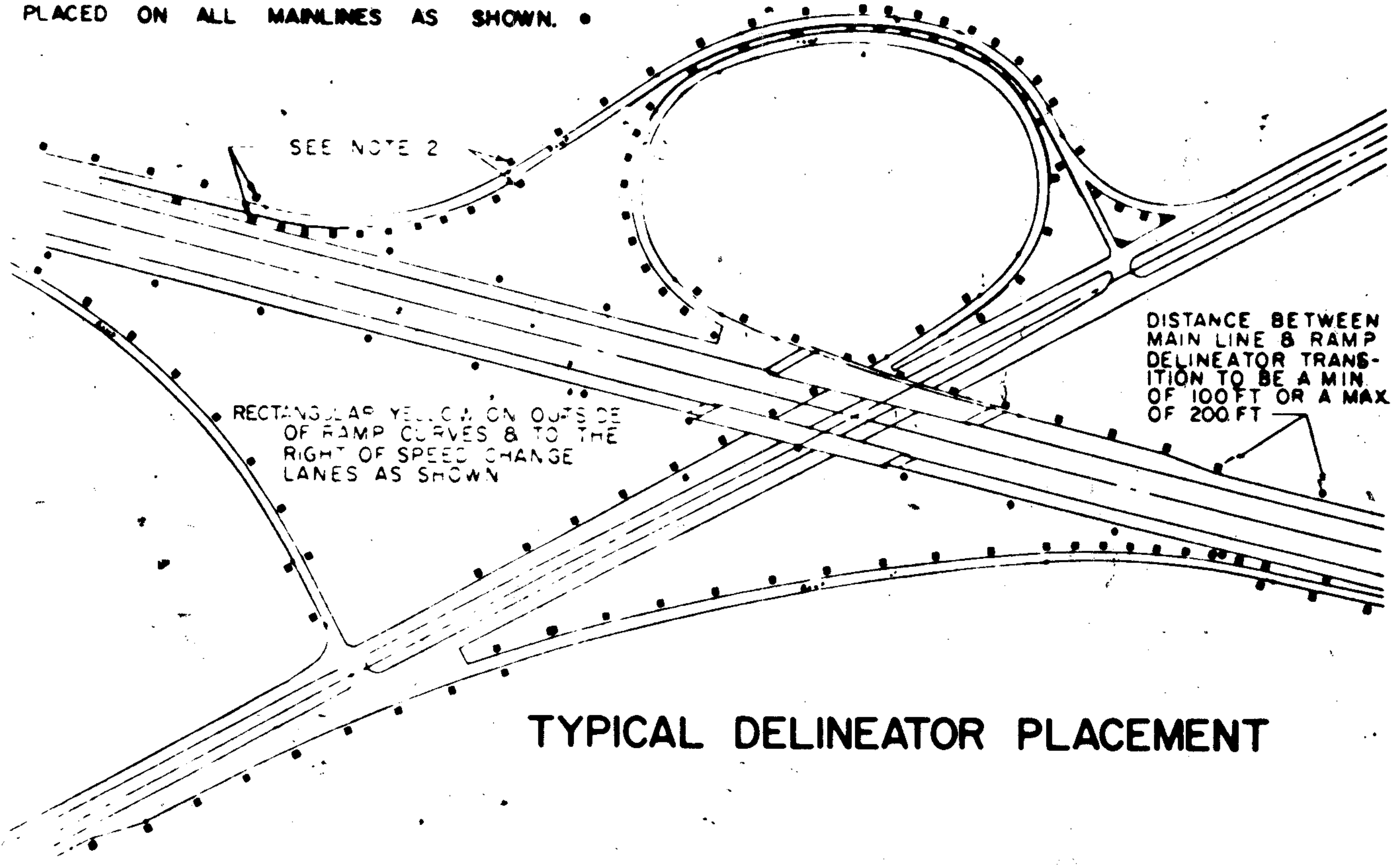


* DELINEATORS SHALL BE 6" BEHIND FACE OF TYPICAL GUARDRAIL LOCATION BUT WITH A MINIMIMUM DISTANCE OF 2'6" FROM EDGE OF PAVED SHOULDER WHERE GUARDRAIL IS NOT PRESENT

NOTE.

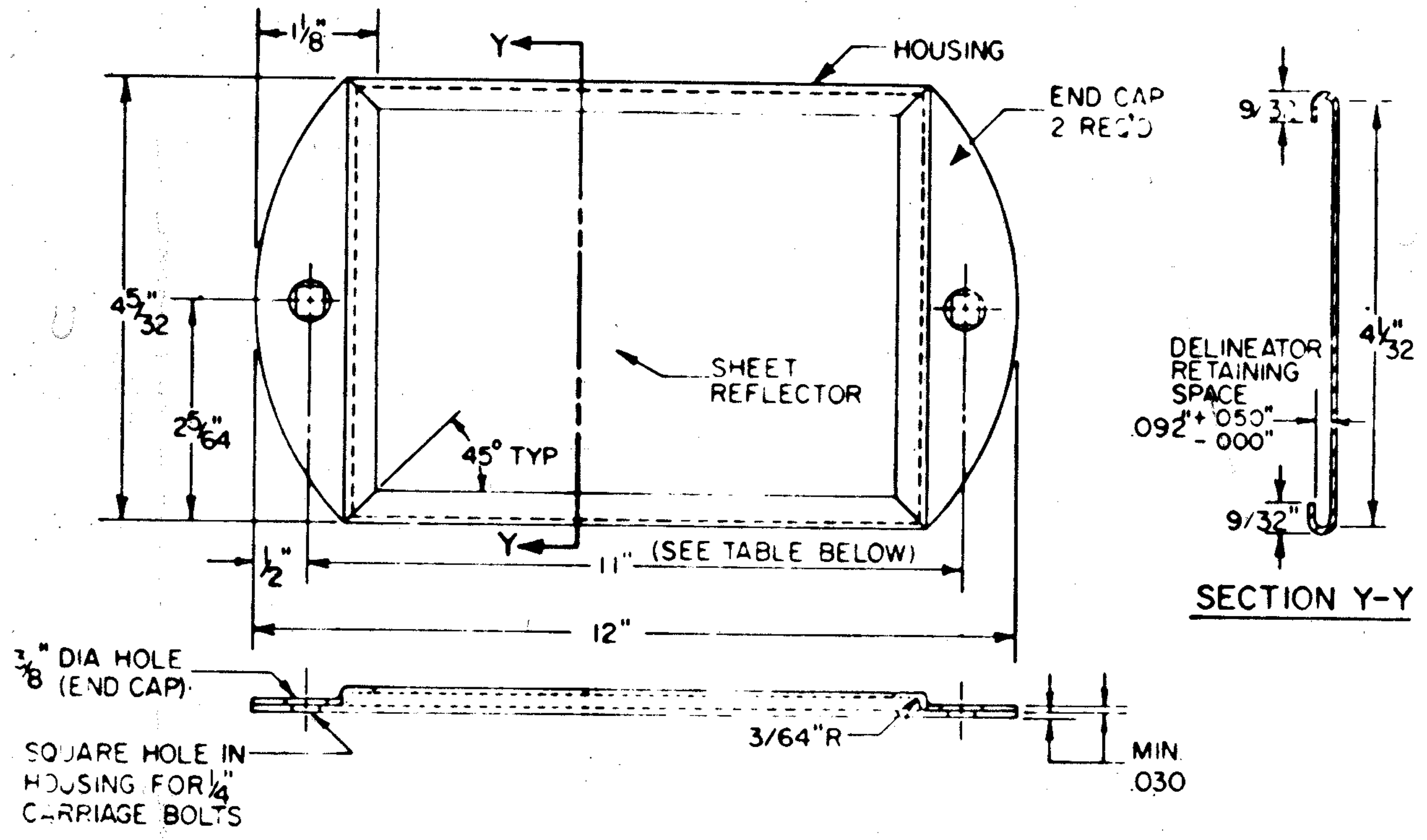
(A) RECTANGULAR YELLOW DELINEATORS TYPE D SHALL BE PLACED ON ALL RAMPS AS SHOWN. ■

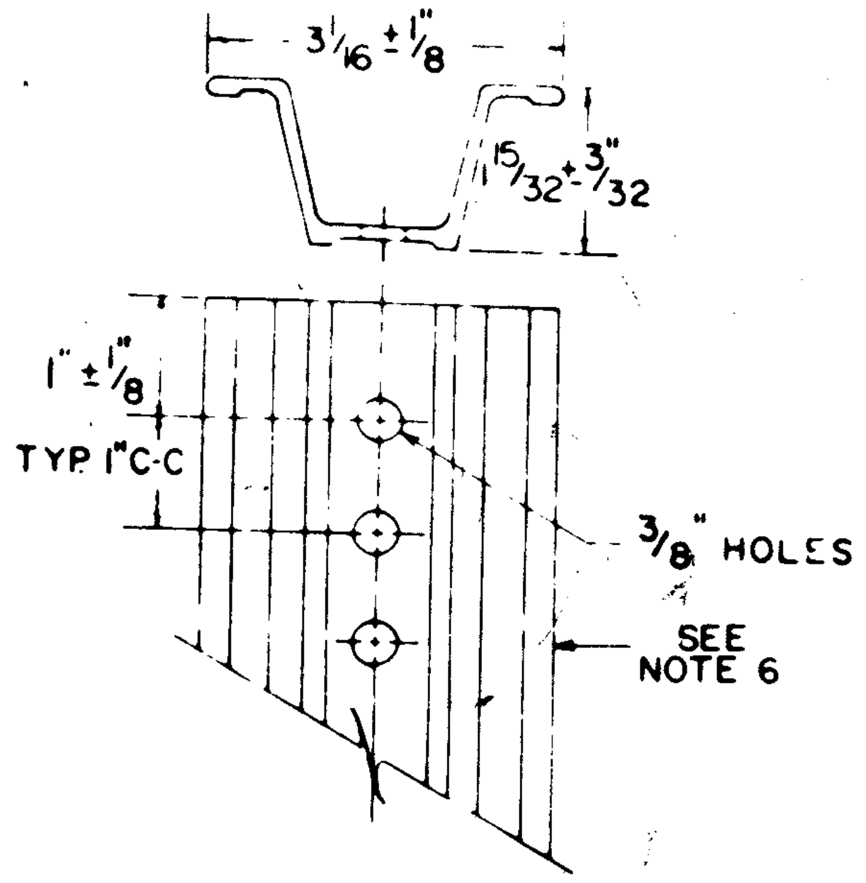
(B) ROUND COLORLESS DELINEATORS TYPE A SHALL BE PLACED ON ALL MAINLINES AS SHOWN. ●



TYPICAL DELINEATOR PLACEMENT

EMBEDDED GLASS SPHERE REFLECTOR





2 LB./FT. DELINEATOR DRIVE POST

TAMPER RESISTANT FASTENERS SHALL BE USED TO FASTEN DELINEATORS TO POST AS/OR SIMILAR TO ONE SHOWN ABOVE.

TAMPER RESISTANT FASTNERS

DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

RADII, FT.		SPACING ON CURVE	* TRANSITION SPACING	
FROM	TO			
TANGENT	1,801	100'	100'	100'
1,800	1,401	80'	100'	100'
1,400	1,001	70'	100'	100'
1,000	751	60'	100'	100'
750	551	50'	80'	100'
550	326	40'	70'	100'
325	———	30'	60'	100'

* SUCH AS 40' TO 70' TO 100' OR 100' TO 80' TO 50' OR ANY OTHER COMBINATION SHOWN ABOVE.

NOTES

1 TYPE A DELINEATORS ON THE RIGHT OF THE THROUGH ROADWAY ARE TO BE SPACED AT 200 FT. INTERVALS THROUGHOUT, REGARDLESS OF CURVES.

2. WHEN CROSSING FROM LEFT TO RIGHT OR FROM RIGHT TO LEFT ON THE RAMPS THE DELINEATORS AT THE POINT OF CROSSOVER ARE TO BE AT THE SAME STATION ON EACH SIDE.

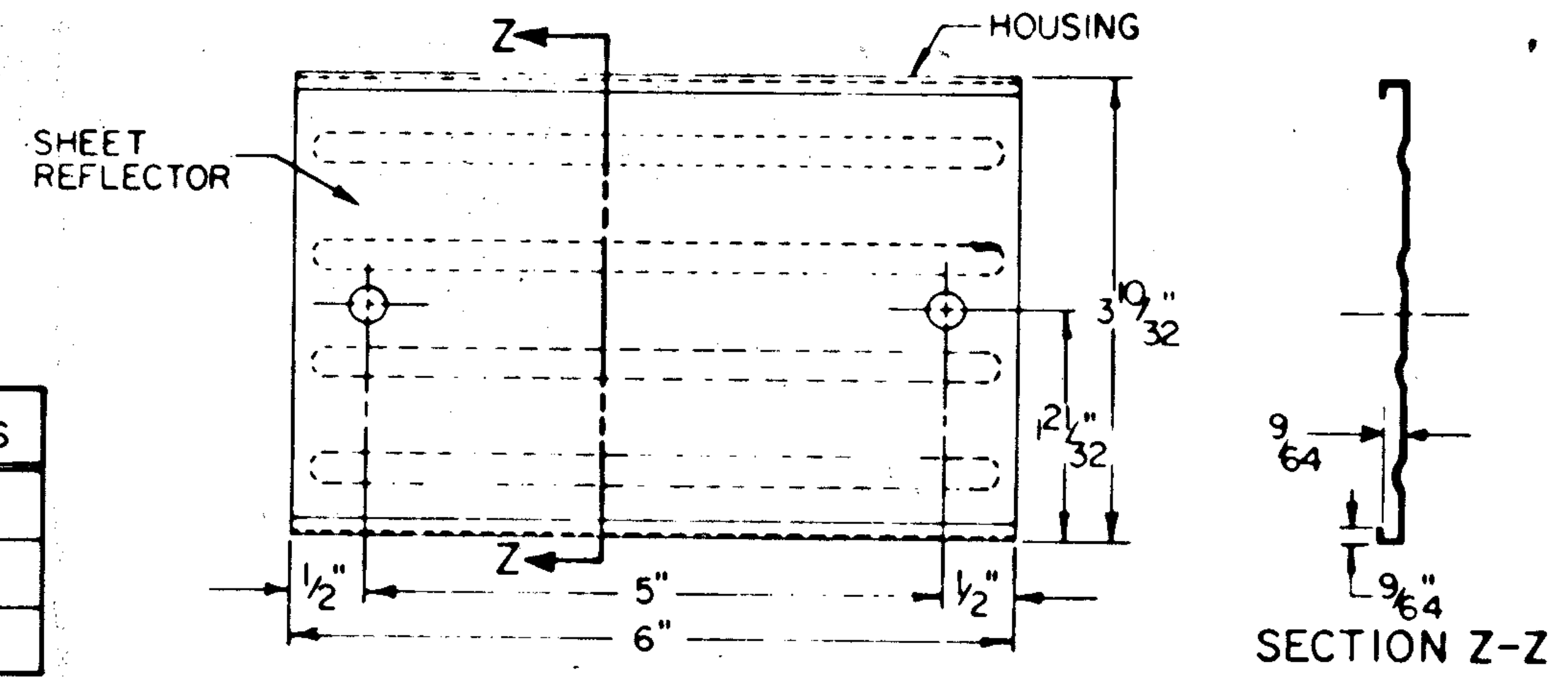
3 NO DELINEATORS ARE TO BE PLACED IN PAVED BERM

4. WHEN RADII OF CURVE ON RAMPS REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.

5. IN ADDITION TO MATERIALS LISTED IN 620.02, RECTANGULAR SHEET REFLECTORS MAY CONSIST OF REFLECTIVE SHEETING COMPOSED OF GLASS SPHERES IMBEDDED IN A WEATHER PROOF SYNTHETIC RESIN SHEET, THE REFLECTIVE FACE OF WHICH SHALL BE PLACED BEHIND AND SEALED TO A WEATHERPROOF RIGID PLASTIC FACE OF METHYL METHACRYLATE OF 0.060 INCHES MINIMUM THICKNESS.

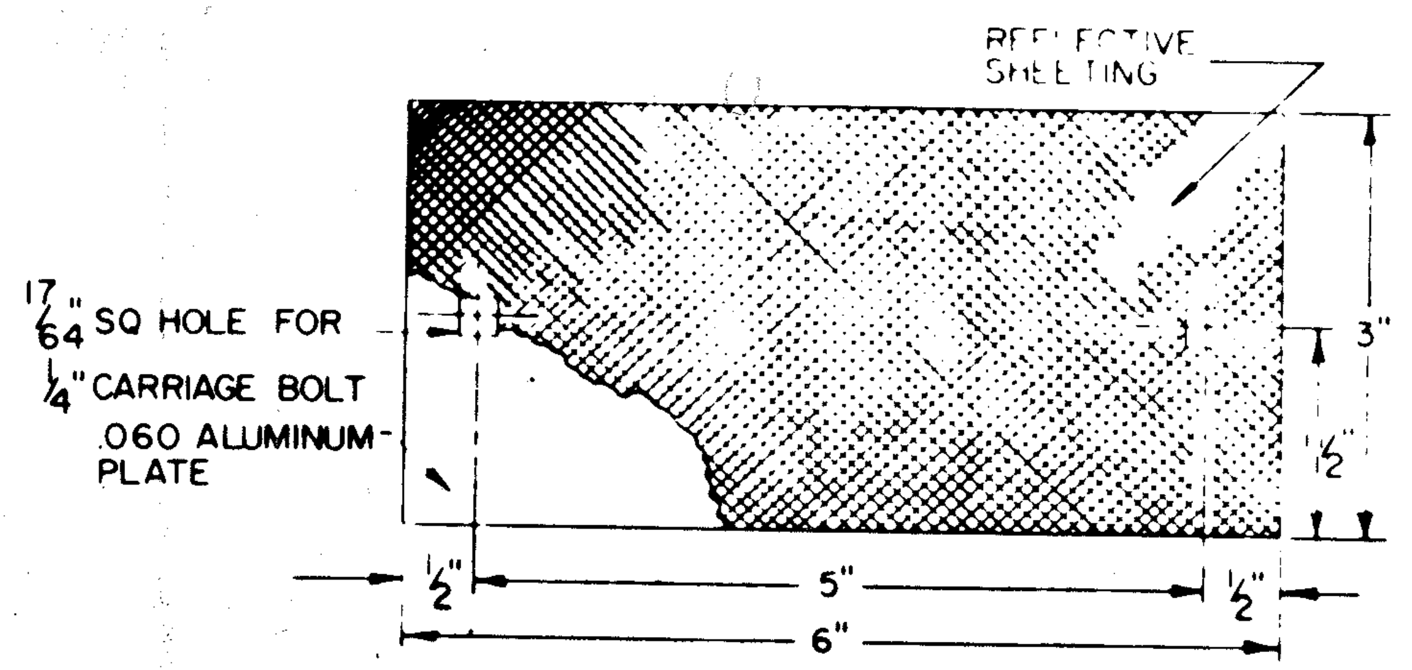
6. SUPPLEMENTING THE DRIVE POST DETAILS SHOWN, ALTERNATE POST SECTIONS MAY BE FURNISHED. ANY ALTERNATE SECTION FURNISHED SHALL MEET ALL THE MATERIAL REQUIREMENTS OF 620, HAVE A SHAPE APPROXIMATELY AS DETAILED, AND HAVE A MOMENT OF INERTIA EQUAL TO OR GREATER THAN THE SECTION DETAILED. THE REQUIREMENTS OF 712.20 REALTIVE TO MAXIMUM WEIGHT TOLERANCE ARE HEREBY WAIVED. NO ALTERNATE SECTION FURNISHED SHALL EXCEED THE WEIGHT OF THE CORRESPONDING SECTION BY MORE THAN 10 PERCENT.

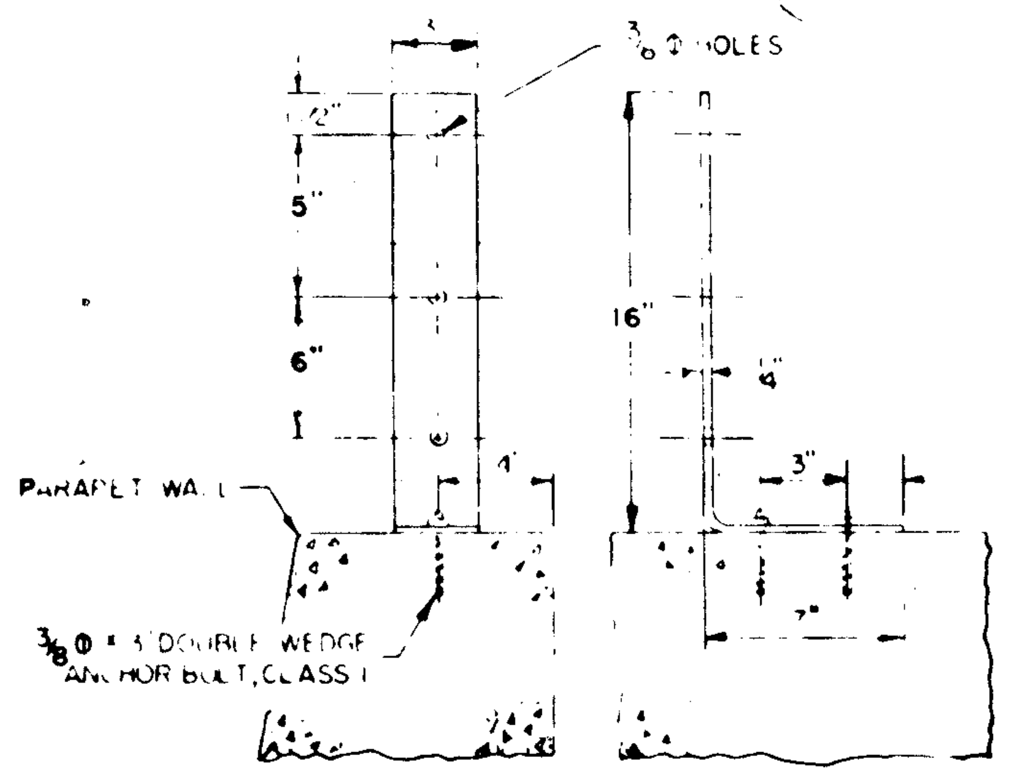
ACRYLIC PLASTIC PRISMATIC REFLECTOR



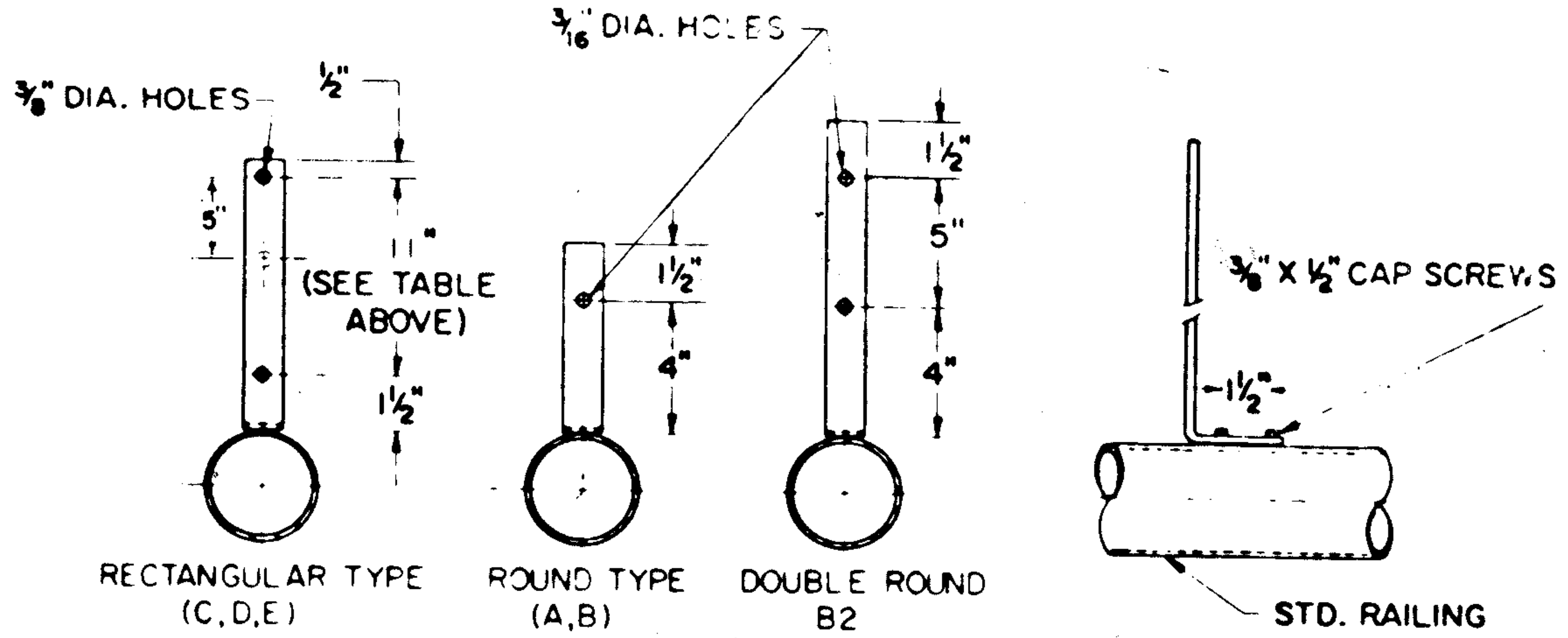
RECTANGULAR TYPES
C - COLORLESS
D - YELLOW
E - RED

REFLECTIVE SHEETING REFLECTOR





BRIDGE PARAPET BRACKET



ALL BRACKETS 1/4" x 1 1/4" STAINLESS STEEL

BRIDGE RAIL BRACKET

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

DELINEATOR DETAILS

DATE
1/1/73
3/12/73

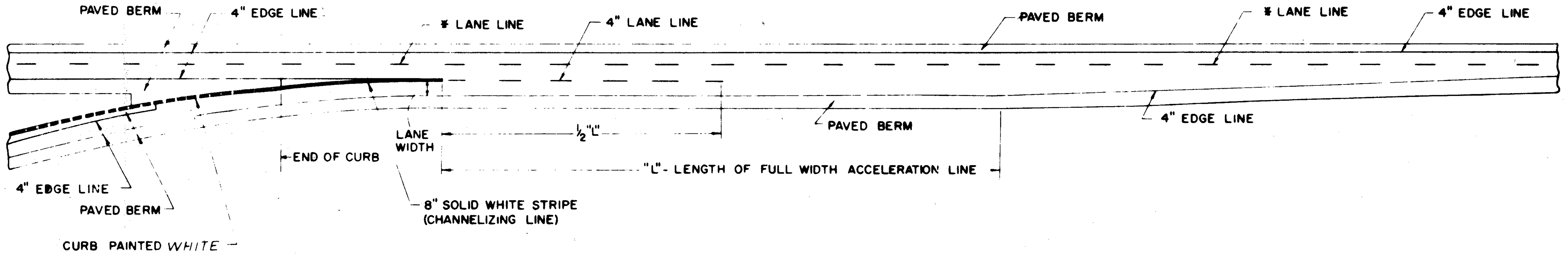
APPROVED
ENGINEER OF DESIGN SERVICES

FED RD DIVISION	STATE	PROJECT	
2	OHIO		

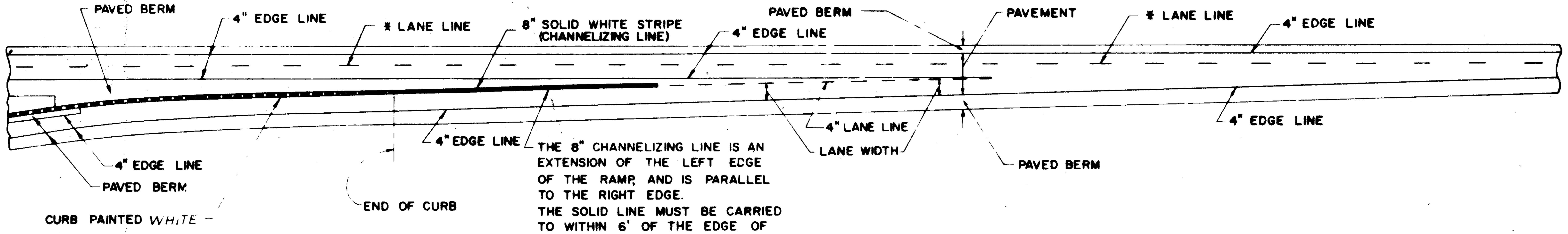
632
713

CUY-90-10.40

ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE



ENTRANCE TERMINAL - TAPERED ACCELERATION LANE



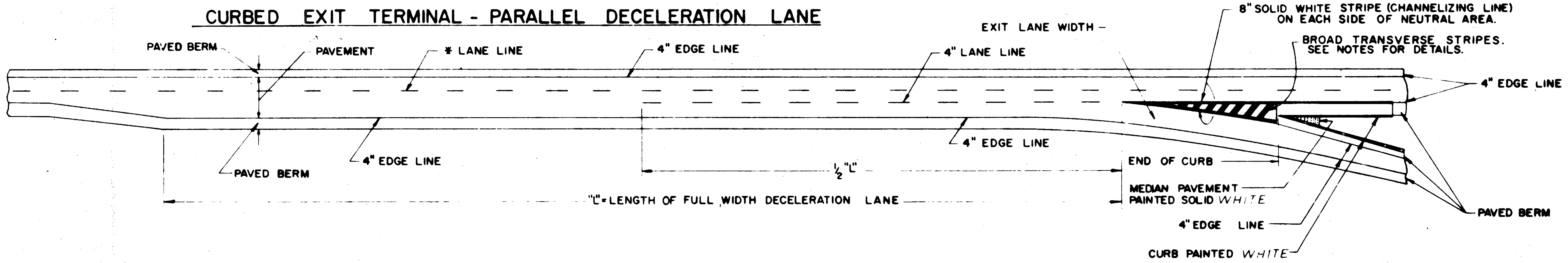
THE 8" CHANNELIZING LINE IS AN EXTENSION OF THE LEFT EDGE OF THE RAMP, AND IS PARALLEL TO THE RIGHT EDGE. THE SOLID LINE MUST BE CARRIED TO WITHIN 6' OF THE EDGE OF THE THROUGH LANE, OR TO THE END OF THE RAMP CURVE IF CLOSER. THE 4" DASHED LINE SHOULD CONTINUE TO THE EDGE OF THE THROUGH LANE.

NOTES

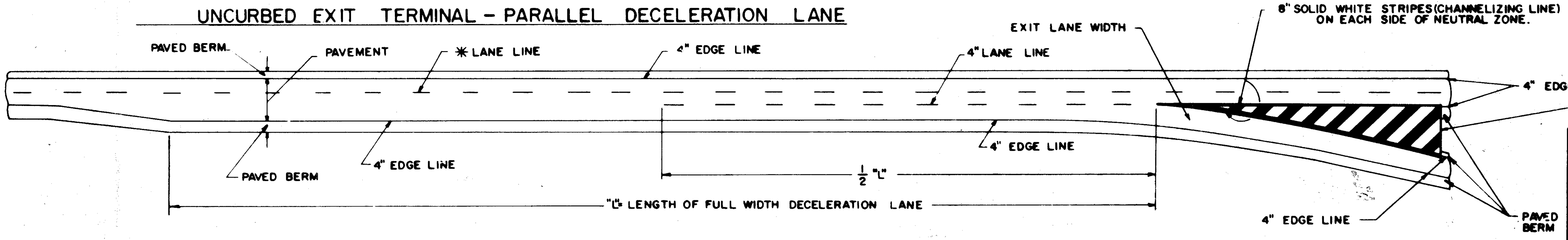
DIAGONAL STRIPES AT EXIT RAMPS SHALL BE 24" BROAD TRANSVERSE STRIPES, 621.11, WITH A 6' SPACE BETWEEN STRIPES.

✱ 6" LANE LINE ON INTERSTATE HIGHWAYS ONLY.
4" LANE LINE ON ALL OTHER HIGHWAYS.

CURBED EXIT TERMINAL - PARALLEL DECELERATION LANE



UNCURBED EXIT TERMINAL - PARALLEL DECELERATION LANE



BROAD TRANSVERSE STRIPES SEE NOTES FOR DETAILS.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

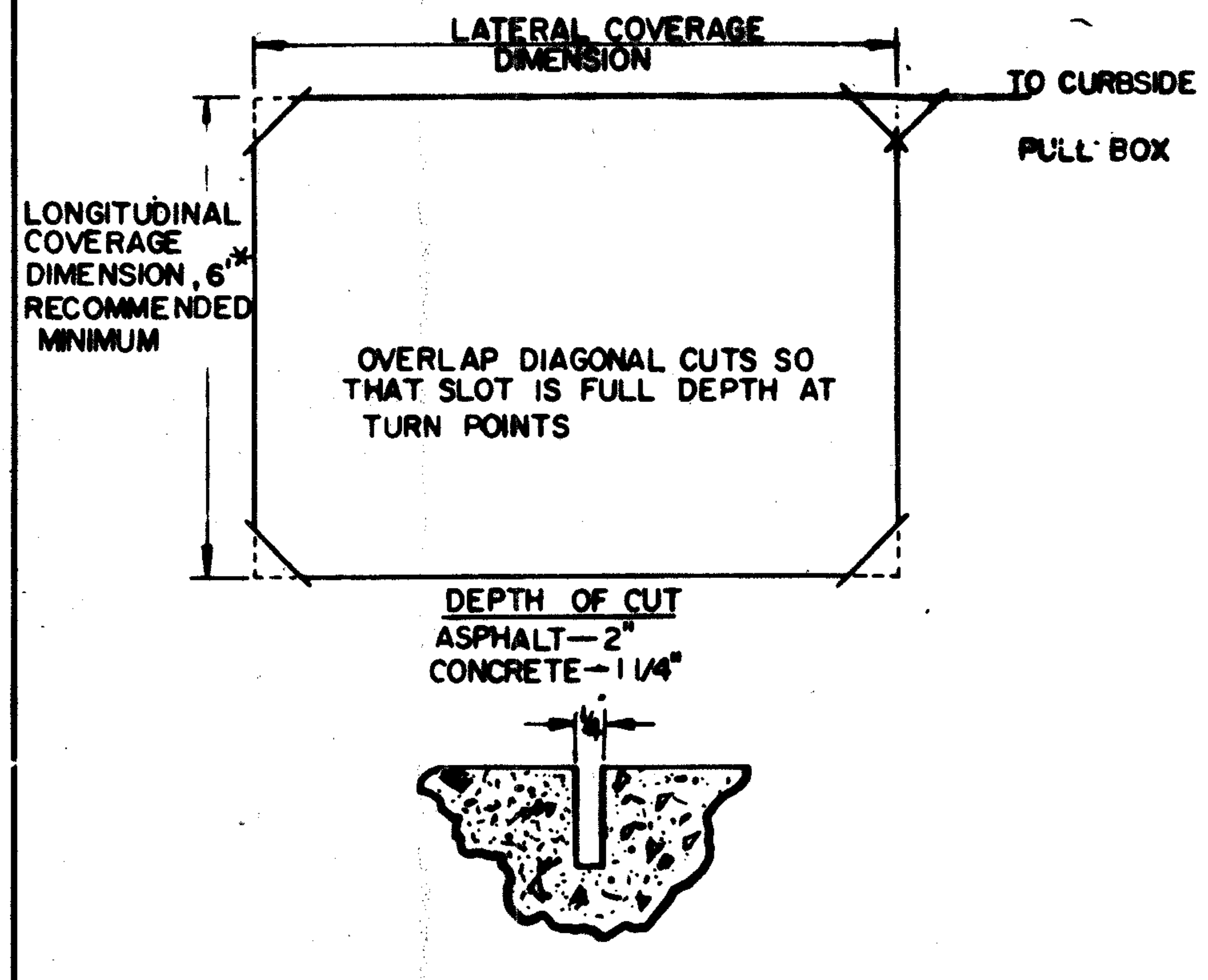
PAVEMENT MARKING	621	DATE 7-17-61 4-6-62 5-24-65 9-.. -67 4-17-68 1-11-72

APPROVED Robert E. Lower
ENGINEER OF TRAFFIC

FED RD DIVISION	STATE	PROJECT	
2	OHIO		

633/713

CUY-90-10.40



SOLID LINES SHOW SAW CUTS USED TO ACCOMODATE ROADWAY WIRE LOOP. DOTTED LINES SHOW UNUSED SAW CUTS.

FIGURE 1
TYPICAL LOOP SLOT CONSTRUCTION

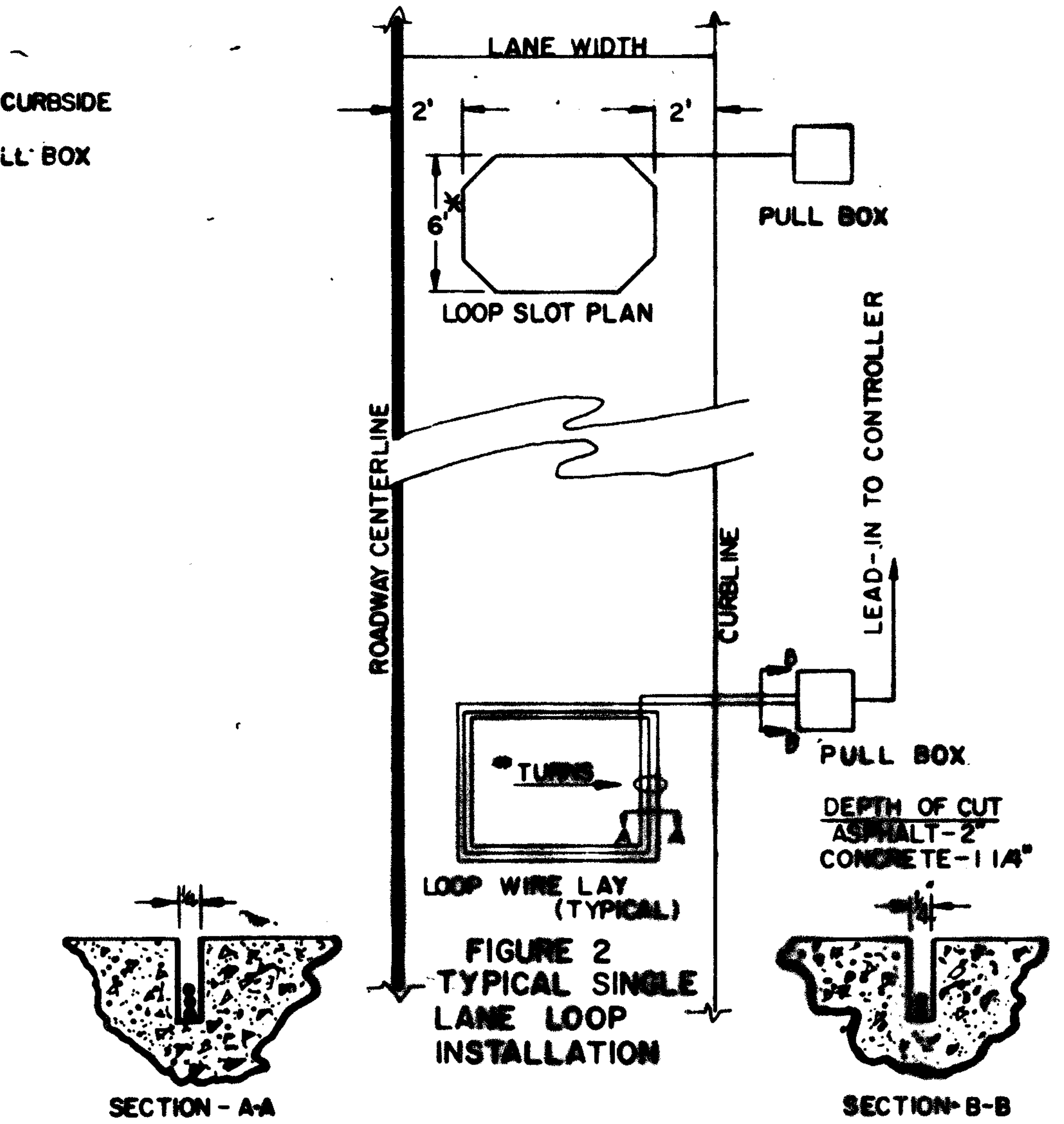


FIGURE 2
TYPICAL SINGLE LANE LOOP INSTALLATION

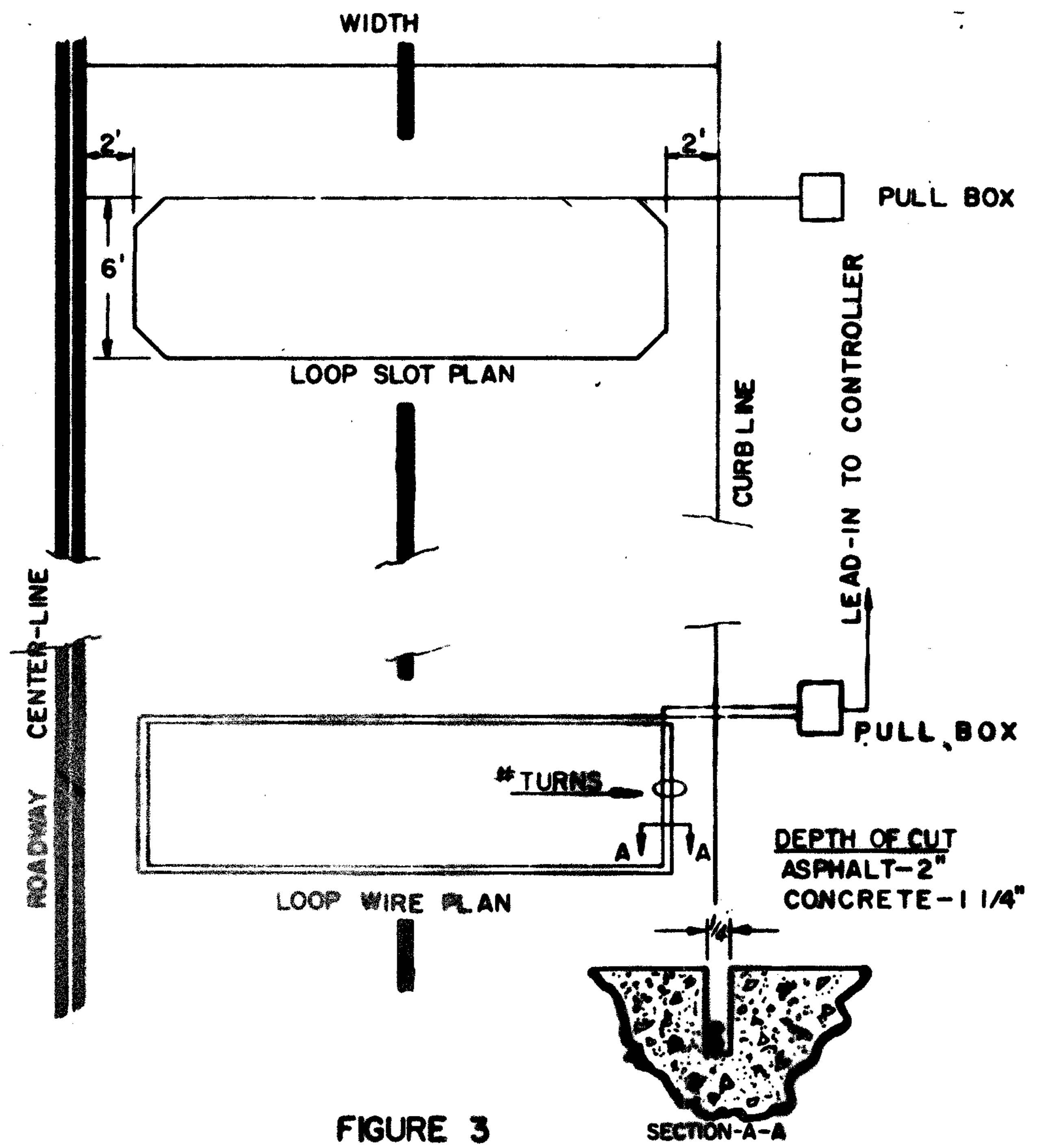


FIGURE 3
TYPICAL TWO LANE LOOP INSTALLATION

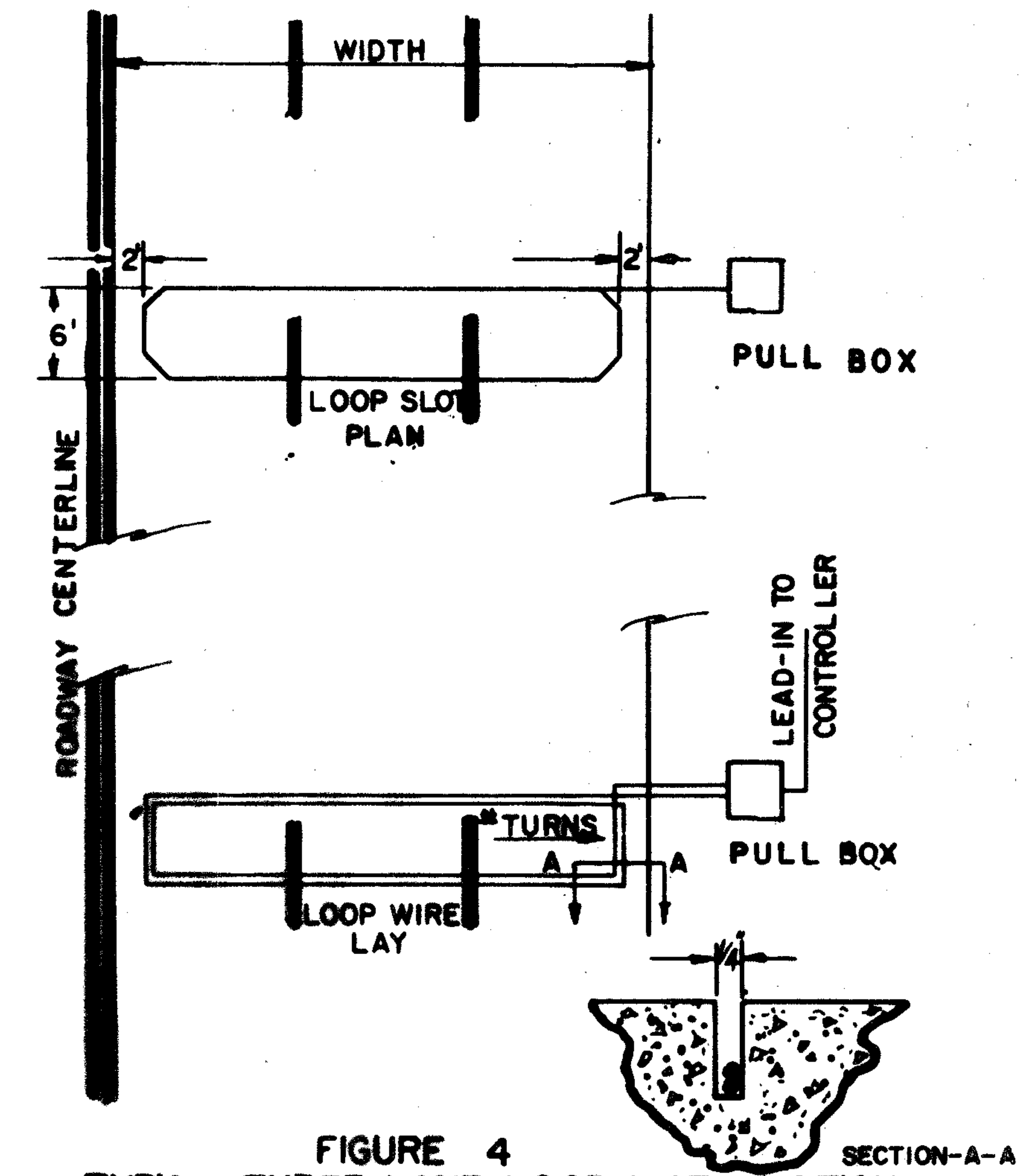


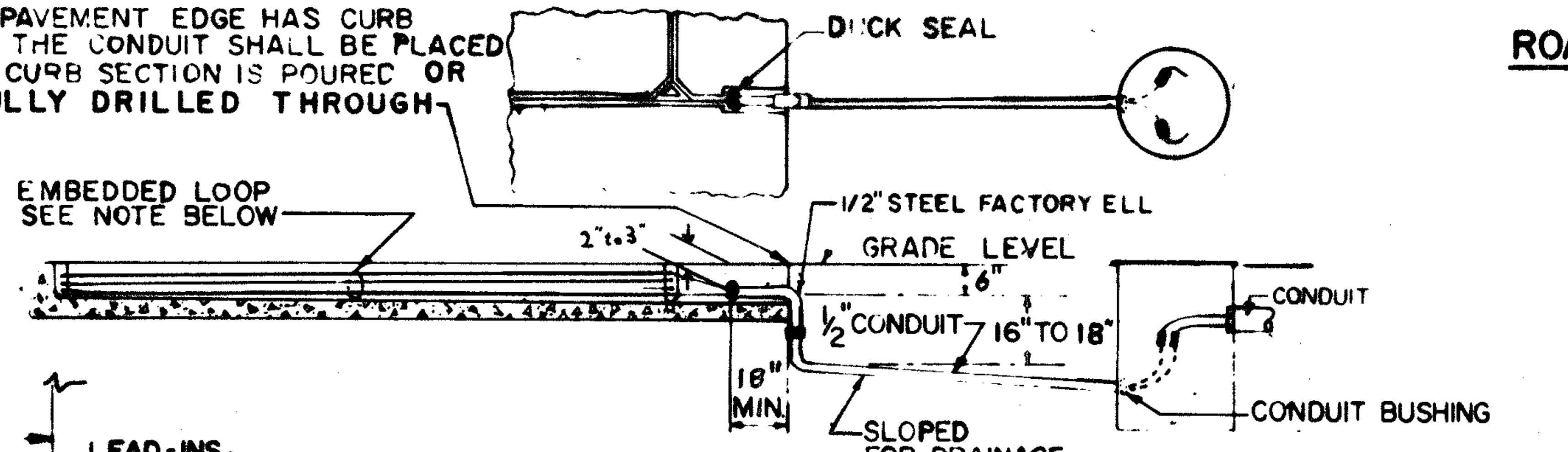
FIGURE 4
TYPICAL THREE LANE LOOP INSTALLATION

TABLE-1 ROADWAY LOOP CONSTRUCTION

LOOP PERIMETER	NO. OF TURNS
UP TO 40 FEET	3
40 TO 160 FEET	2
160 AND UP	1

MAINTAIN 6' MINIMUM DIMENSION IN DIRECTION OF TRAVEL.

WHERE PAVEMENT EDGE HAS CURB SECTION, THE CONDUIT SHALL BE PLACED BEFORE CURB SECTION IS POURED OR CAREFULLY DRILLED THROUGH CURB



NOTE:
IT IS EXTREMELY IMPORTANT THAT THE SAWED SLOT BE THOROUGHLY CLEANED AND COMPLETELY DRY BEFORE APPLYING SLOT SEALER

SPLICE TO LEAD IN CABLE BY SOLDERING AND APPLYING WATERPROOF SPLICING KIT

FIGURE 8
INTERFACE BETWEEN EMBEDDED LOOP AND ROAD SIDE PULL BOX

ROADWAY LOOP INSTALLATION

THE ROADWAY WIRE LOOP IS POSITIONED IN THE PAVEMENT IN A SAWED SLOT THAT OUTLINES THE REQUIRED DETECTION AREA. THE SLOT **SHALL** BE 1/4" WIDE AND FROM 1-1/4" **OR** 2" DEEP. RIGHT ANGLE TURNS **SHALL** BE CHAMFERED TO PREVENT SHARP BENDS OF WIRE (SEE FIG. 1). THE SLOT MUST BE BRUSHED AND BLOWN CLEAN OF ALL LOOSE MATERIAL. THE LOOP WIRE MUST BE CAREFULLY PUSHED INTO THE SLOT WITH A BLUNT STICK TO AVOID DAMAGING ITS INSULATION. RESISTANCE OF THE WIRE LOOP TO GROUND SHOULD BE CHECKED AFTER THE WIRE IS PLACED IN THE SLOT, BOTH BEFORE AND AFTER THE SLOT IS SEALED. THIS IS ESPECIALLY IMPORTANT IF THE ROADWAY WIRE LOOP IS SPLICED TO LEAD-IN CABLE AT CURBSIDE JUNCTION BOX. A RESISTANCE OF LESS THAN 10 MEGOHMS INDICATES A FAULTY SPLICE OR WIRE INSTALLATION WHICH MUST BE CORRECTED BEFORE THE ROADWAY LOOP IS SEALED IN PLACE. **INSTALLATIONS IN NEW ASPHALT PAVEMENT SHALL BE MADE IN THE SUBBASE PRIOR TO PLACING THE TOP COURSE.**

SEALING

A FLEXIBLE EMBEDDING SEALANT NO. 491-H.P. MANUFACTURED BY EUCLID CHEMICAL CO. OF CLEVELAND, OHIO OR *E-707* MANUFACTURED BY *THE BONDO CORP OF NORTHFORD,* CONNECTICUT OR EQUIVALENT. SHALL BE MIXED ACCORDING TO DIRECTIONS, POURED INTO THE SAW SLOTS AND LEFT UNDISTURBED UNTIL CURED INTO A SOLID MASS.

*DIMENSIONS

IN CASES WHERE THE LATERAL DIMENSION WOULD BE LESS THAN EIGHT (8) FEET, THE LONGITUDINAL DIMENSION SHALL BE INCREASED TO OBTAIN A MINIMUM AREA OF 48 S.F.

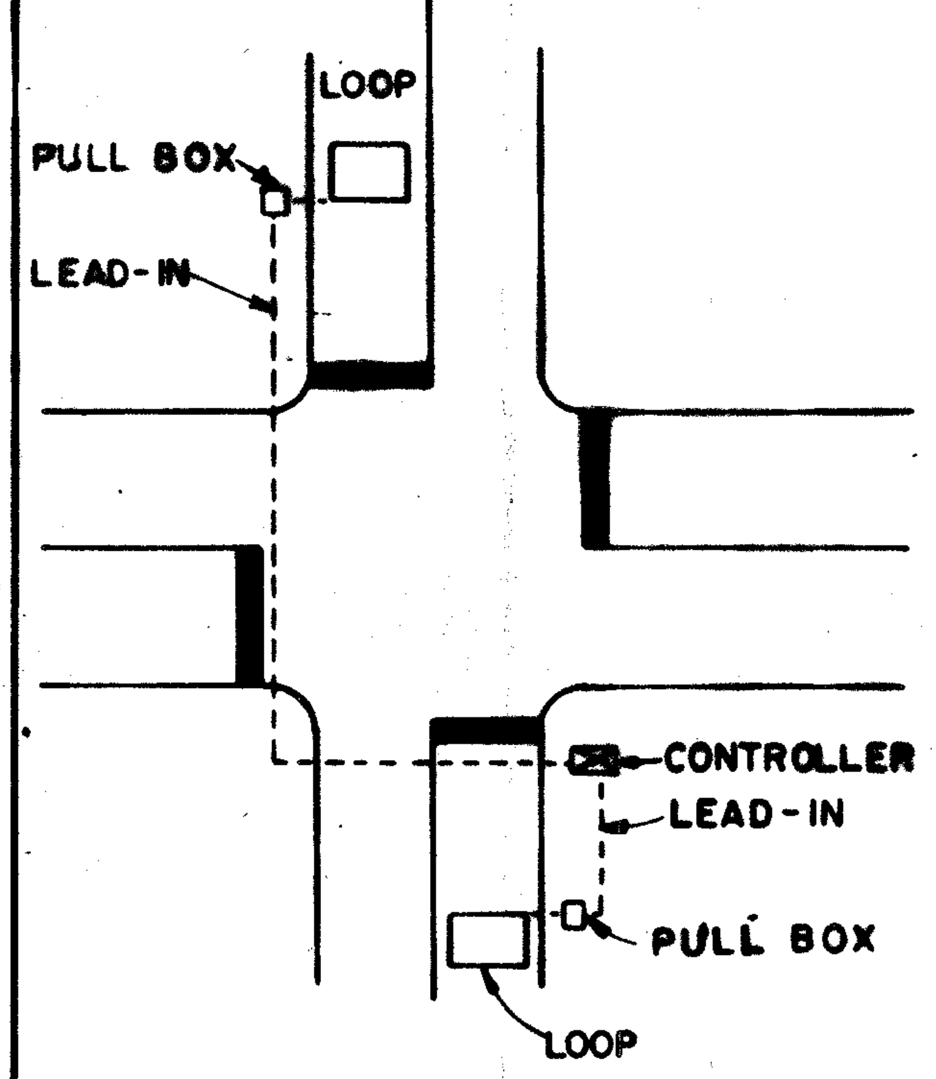


FIGURE 5
TYPICAL LEAD-IN DETAIL

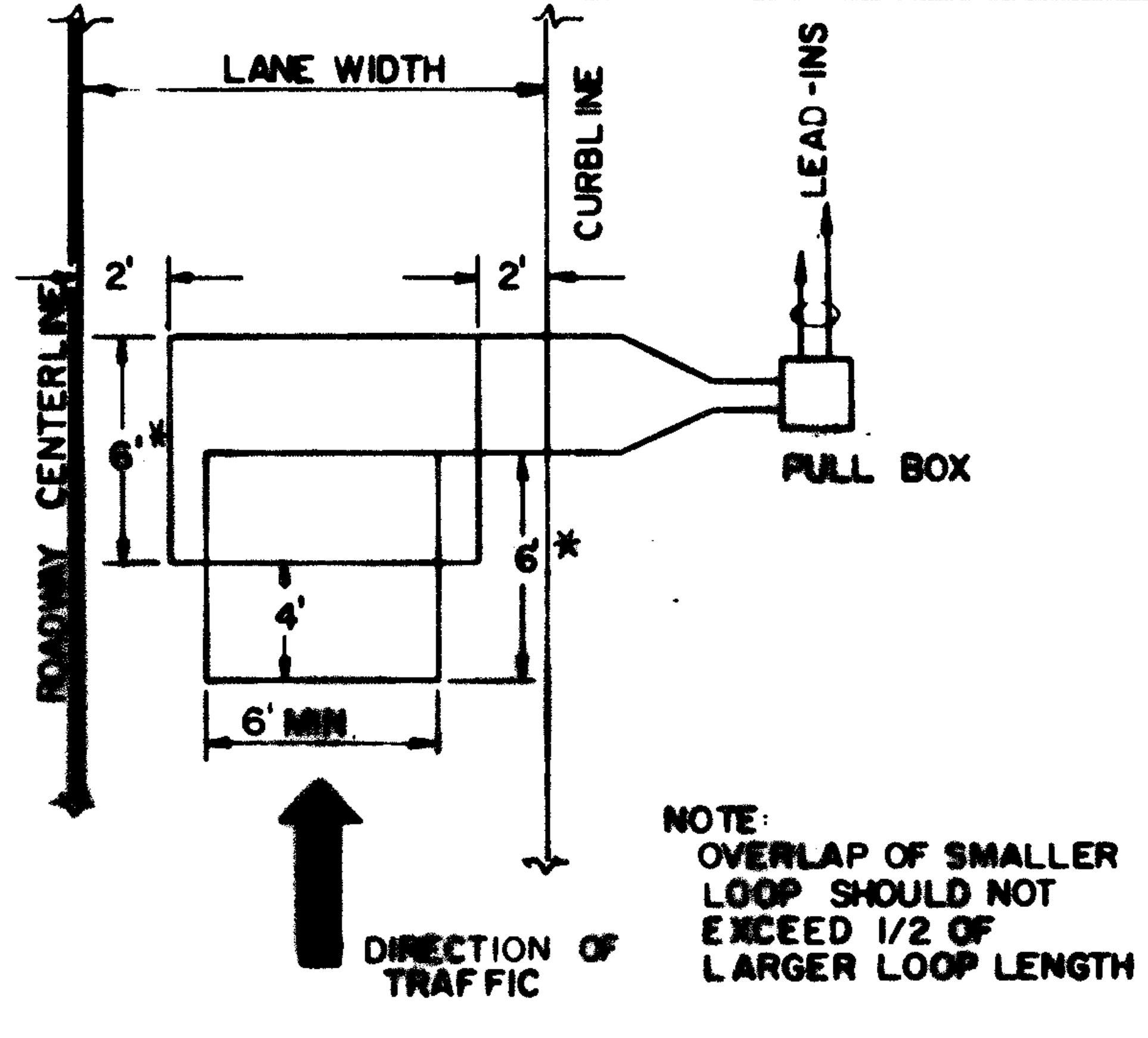


FIGURE 6
TYPICAL DIRECTIONAL DETECTION LOOP INSTALLATION (OVERLAPPED)

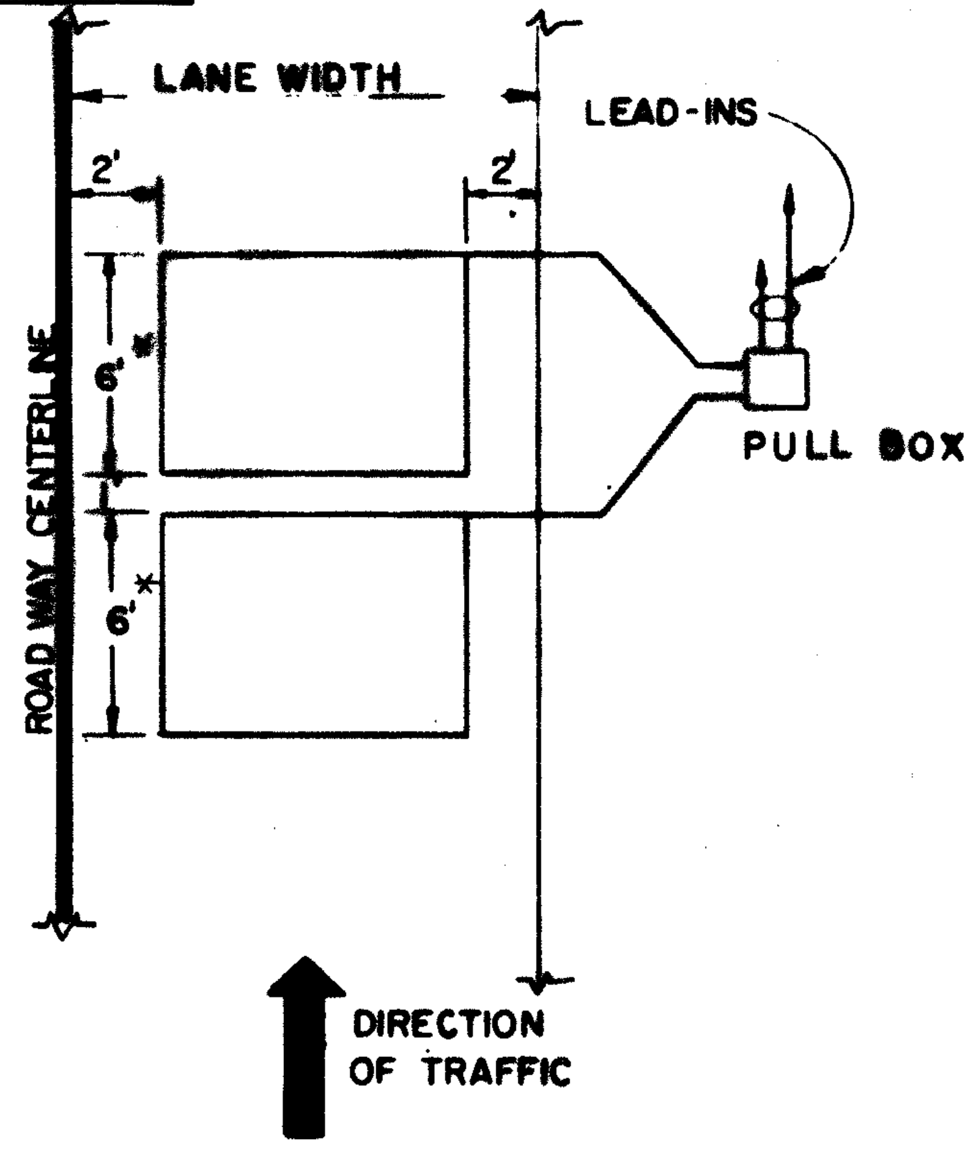


FIGURE 7
TYPICAL DIRECTIONAL DETECTION LOOP INSTALLATION (ADJACENT)

DEPTH OF CUT
ASPHALT—2"
CONCRETE—1 1/4"

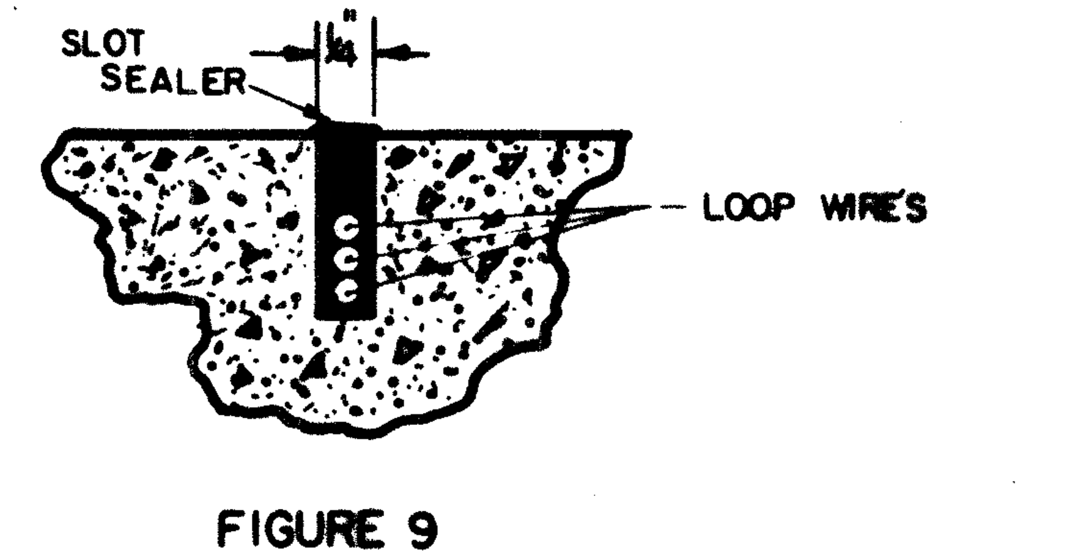


FIGURE 9
TYPICAL SLOT SEALING DETAIL

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

EMBEDDED VEHICLE DETECTOR LOOP DETAILS

Rev 11-3-67
Rev 6-1-71
Rev 2-3-72

APPROVED ____________
ENGINEER OF TRAFFIC

FHWA REGION	STATE	PROJECT	
5	OHIO		

634
7/13

CUY-90-10.40

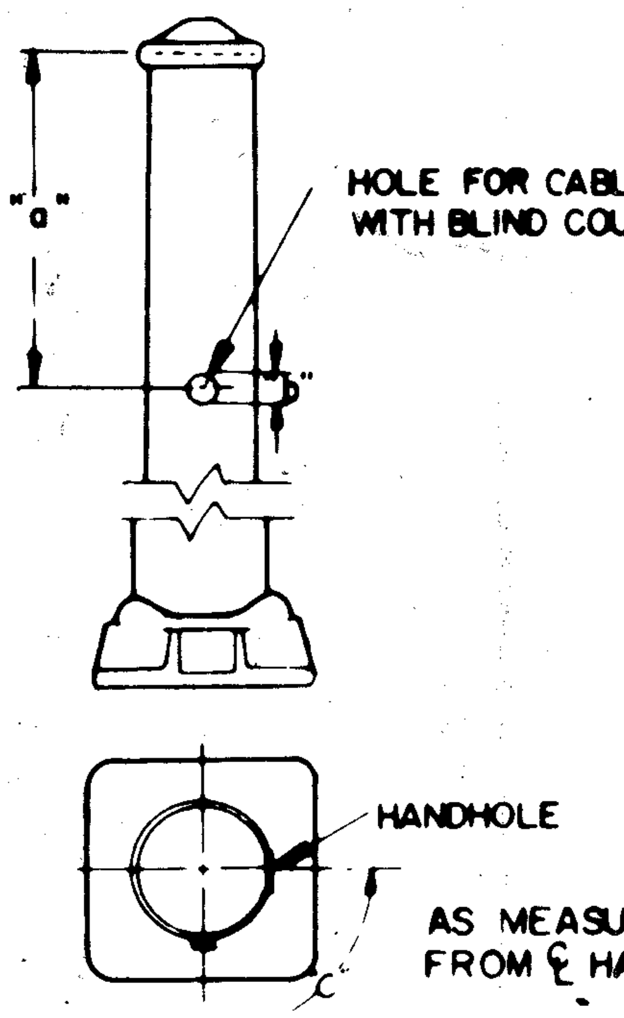
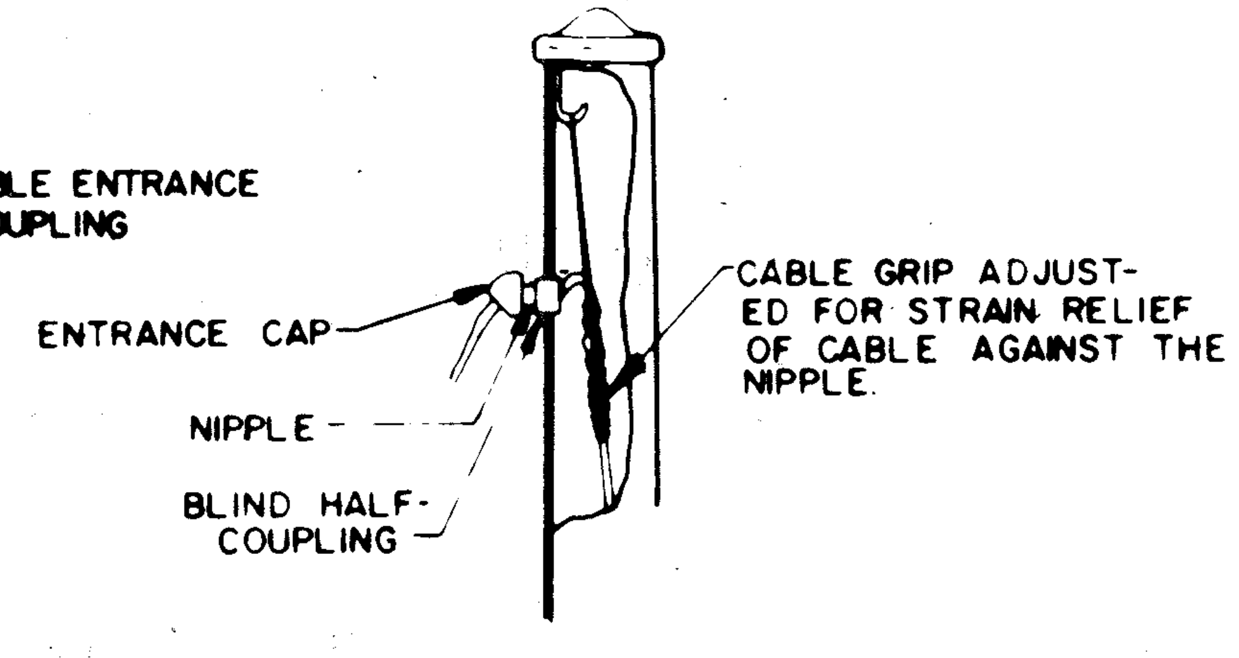


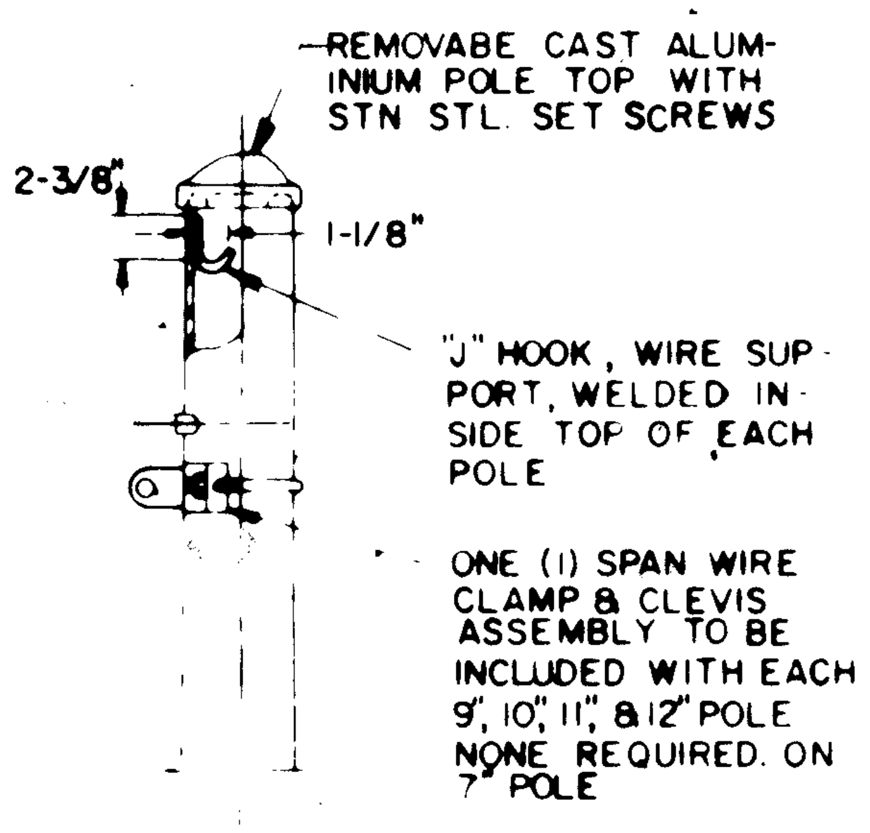
TABLE 2

CONFIG.	"a"	"b"	"c"
A	30"	2"	90°
B	30"	2"	180°
C	30"	2"	270°
D	48"	2"	90°
E	48"	2"	180°
F	48"	2"	270°
G	NO HOLE REQUIRED		

CABLE ENTRANCE LOCATION DETAIL

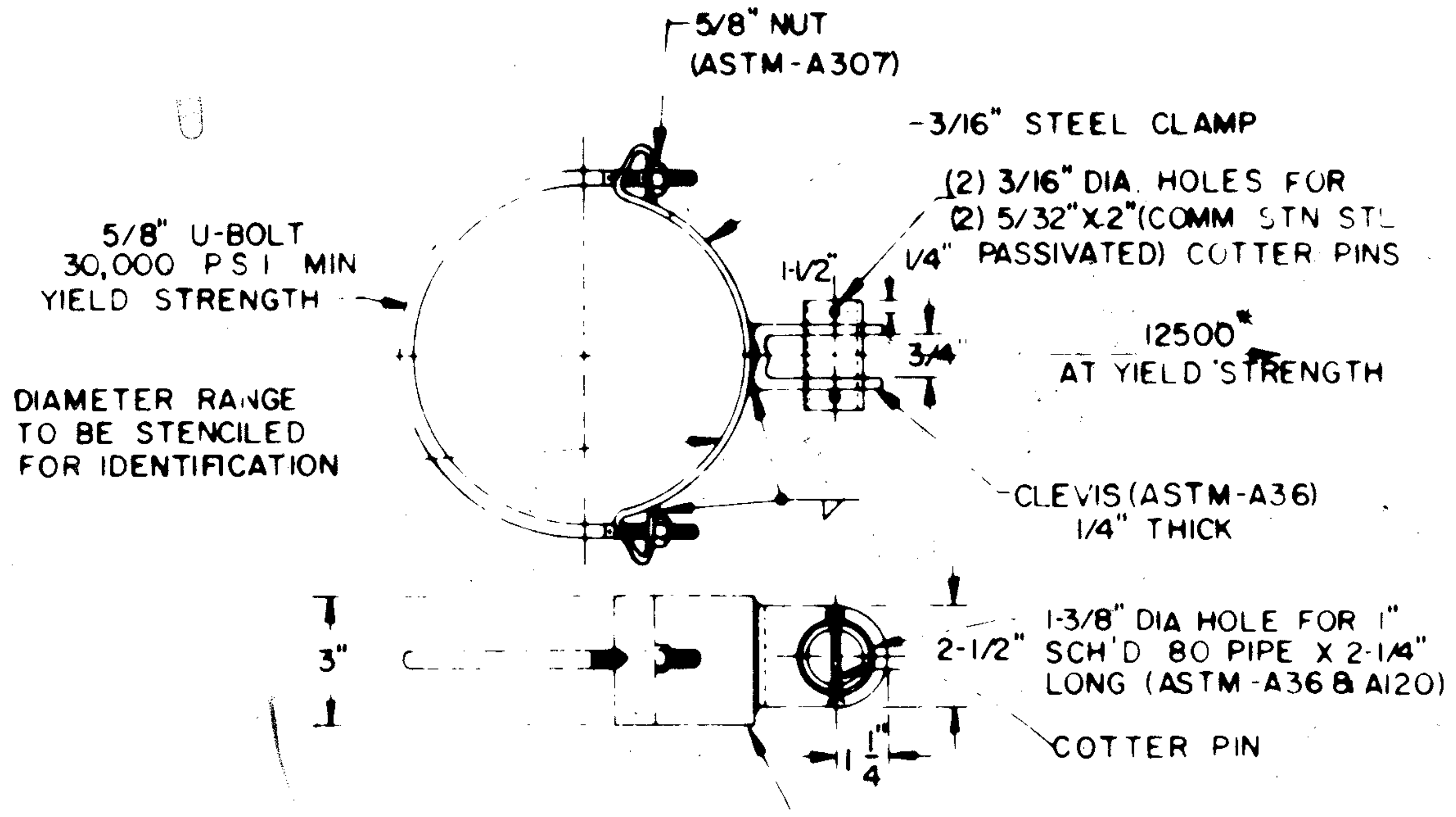


TYPICAL CABLE STRAIN RELIEF & ENTRANCE CAP DETAILS



ONE (1) SPAN WIRE CLAMP & CLEVIS ASSEMBLY TO BE INCLUDED WITH EACH 9', 10', 11', & 12" POLE NONE REQUIRED ON 7" POLE

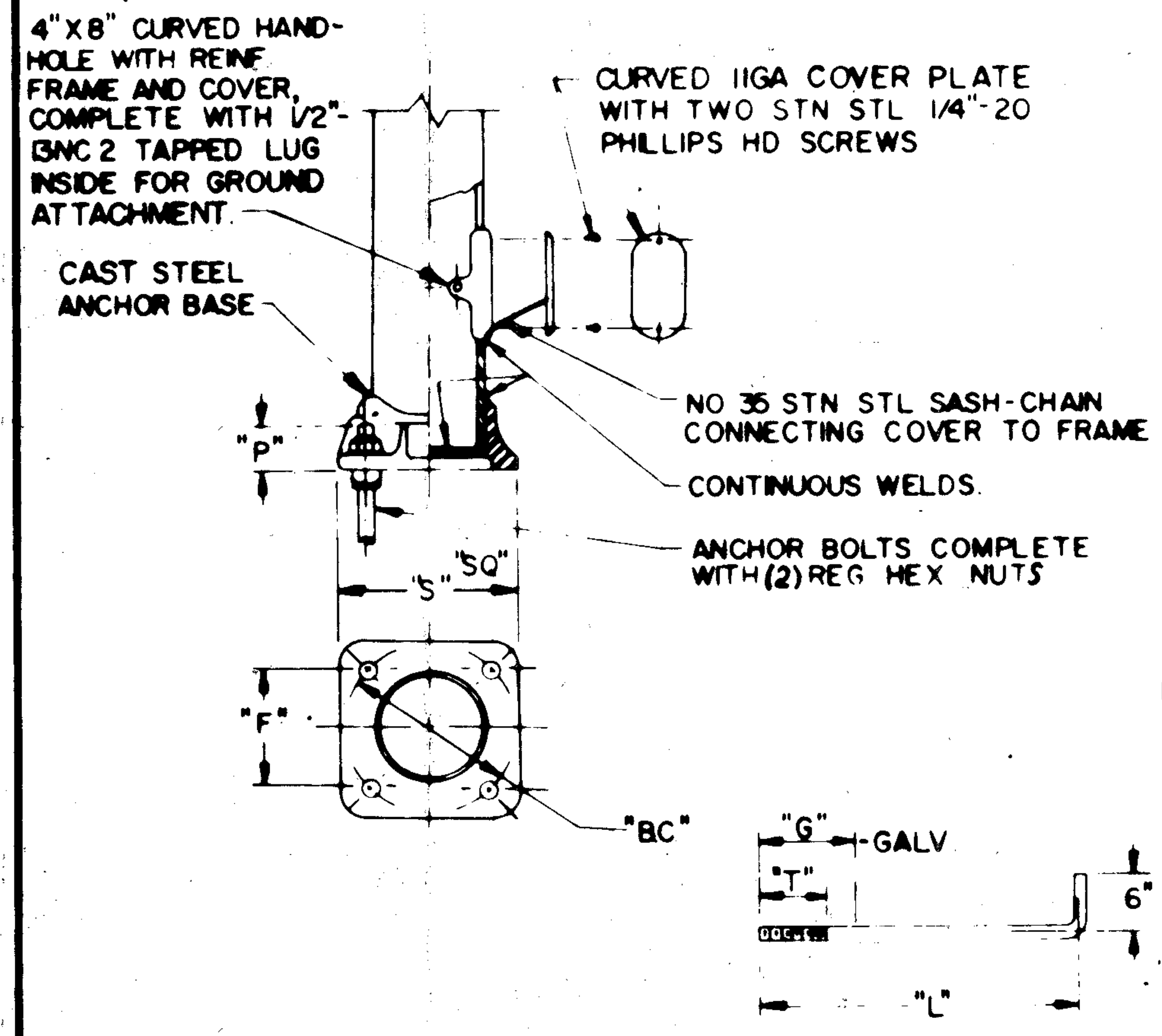
POLE TOP DETAILS



TYPE	CLAMP RANGE	
	MIN.	MAX.
I	31"	36"
II	36"	44"
III	44"	52"
IV	5.2"	5.8"
V	5.8"	6.8"
VI	6.8"	7.9"
VII	7.9"	9.0"
VIII	9.0"	10.1"
IX	10.1"	11.3"
X	11.3"	12.1"
XI	12.1"	13.4"
XII	13.4"	14.5"
XIII	14.5"	15.5"
XIV	15.5"	16.5"

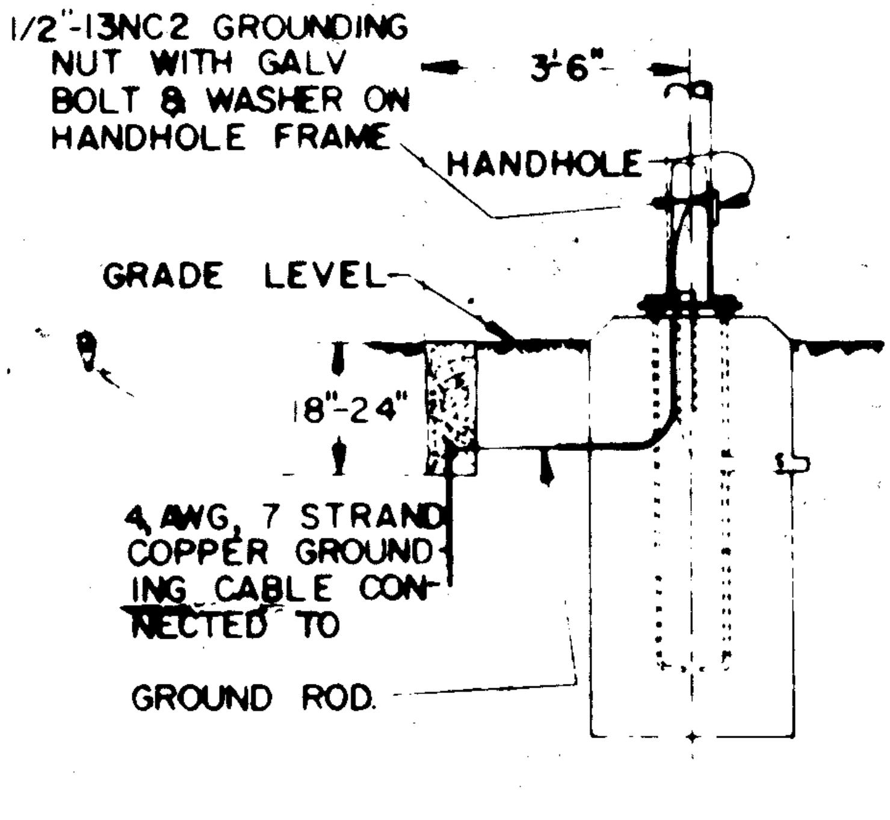
HOT DIPPED GALVANIZED ALL PARTS PER ASTM-A123 (EXCEPT COTTER PINS)

SPAN WIRE CLAMP DETAILS

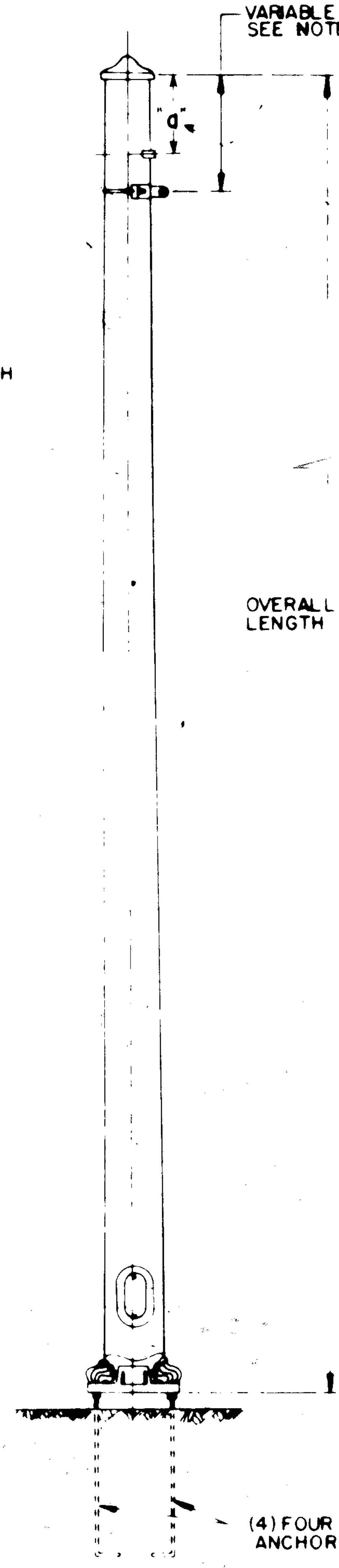


ANCHOR BASE DATA					ANCHOR BOLT DATA			
POLE DIA.	"BC"	"F"	"S"	"P"	SIZE	"L"	"T"	"G"
7"	10"	7 1/16"	10 1/2"	2 1/4"	1-1/4" X 48"	42"	8"	10"
9"	12-1/2"	8-7/8"	12-3/4"	3"	1-1/2" X 60"	54"	9"	11"
10"	13-1/2"	9-9/16"	14-1/8"	3-3/8"	1-1/2" X 60"	54"	9"	11"
11"	15"	10-5/8"	15-5/8"	3-5/8"	1-3/4" X 90"	84"	9"	11"
12"	16"	11-5/16"	17"	4"	1-3/4" X 90"	84"	9"	11"
14"	20	14 ½	20 ½	4 3/4	" "	"	"	"

TYPICAL HANDHOLE, ANCHOR BASE & ANCHOR BOLT DETAILS



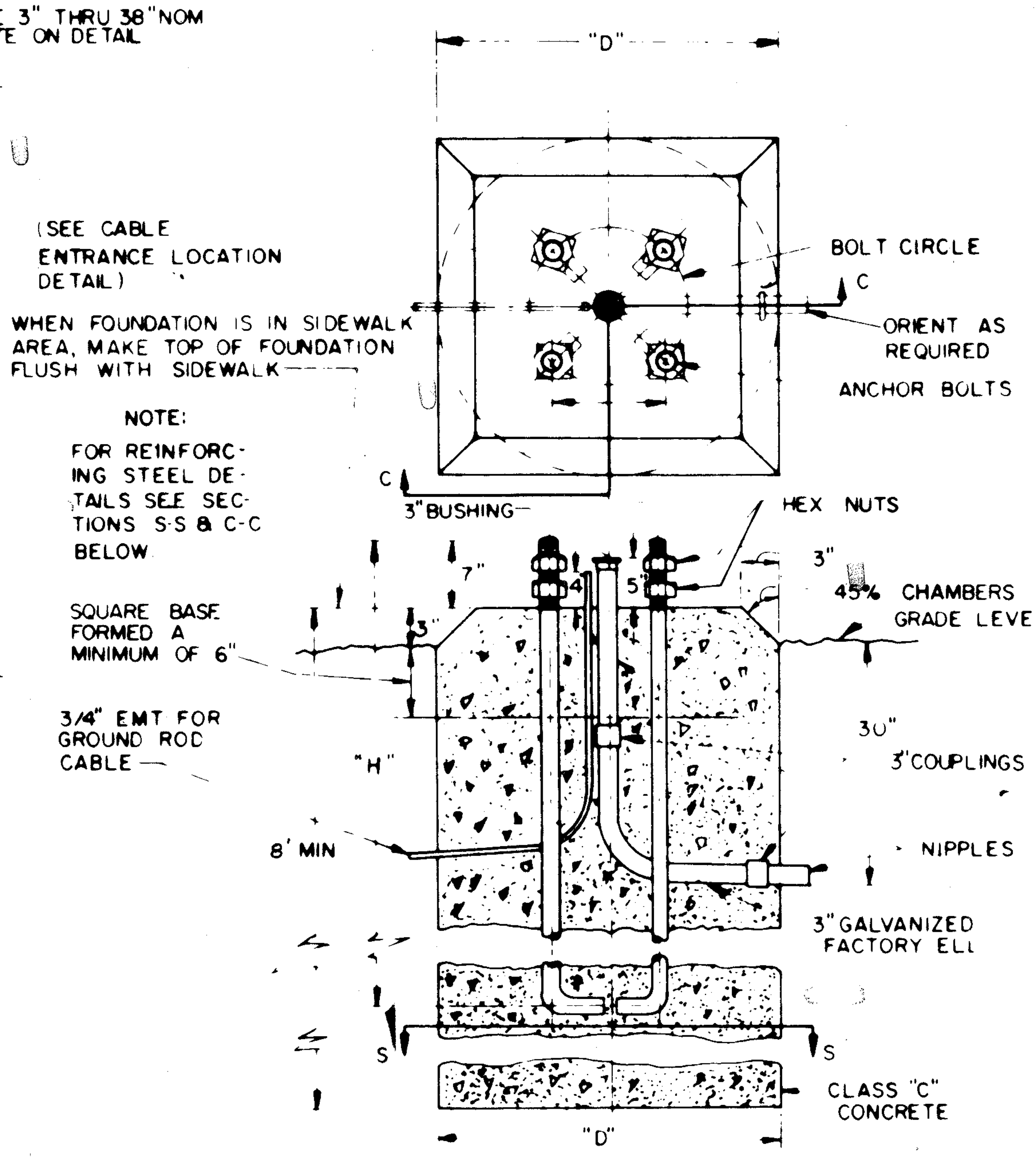
TYPICAL GROUND ROD DETAIL



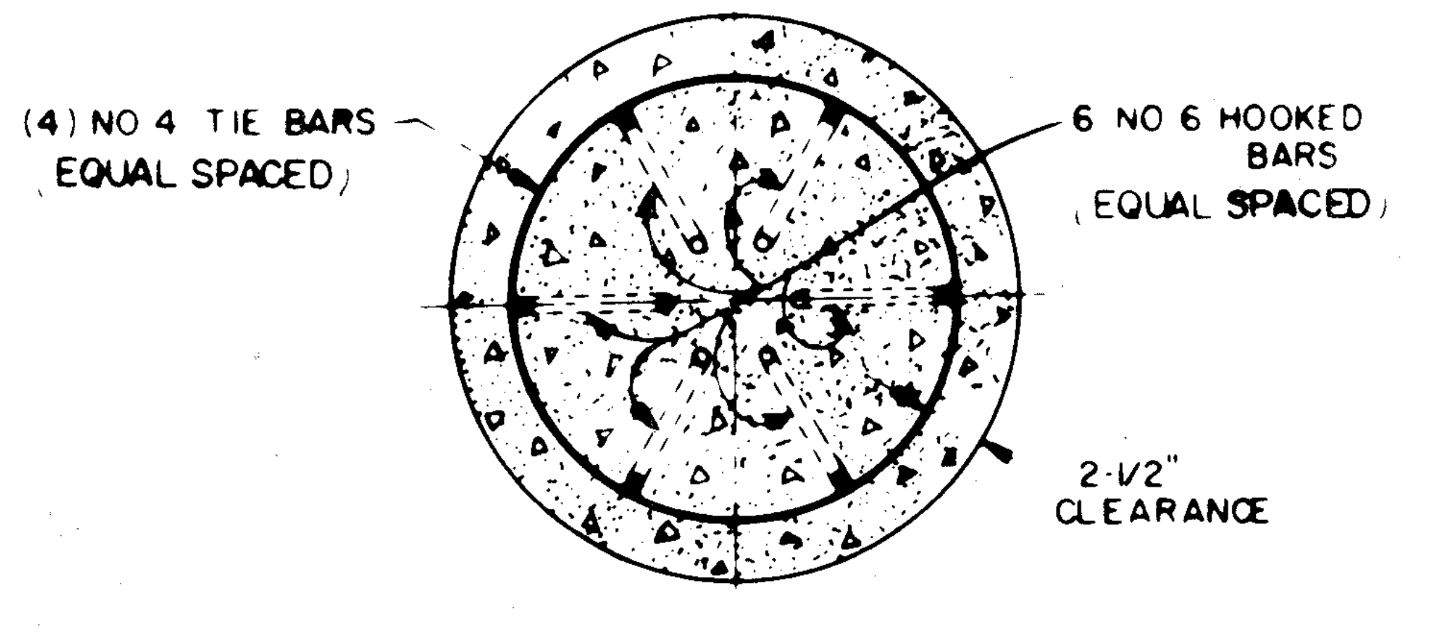
STEEL STRAIN POLE

TYPE	BASE DIA	TOP DIA	OVERALL LENGTH	WALL THICKNESS	~~DESIGN DATA FOR TRANSVERSE LOAD AT 18" DOWN FROM TOP~~		"H"	"D"
					~~ELAST. DEFL. RATE~~	~~LD AT YIELD STRESS (#)~~		
1	7.0"	4.20	20.0'	(3 GA.) 250"	~~.59"/100#~~	~~2135#~~	42"	24"
2	9.0"	5.36"	26.0'		~~.64"/100#~~	~~2730#~~	54"	24"
3	10.0"	6.36"			~~.44"/100#~~	~~3400#~~	54"	24"
4	11.0"	7.36"			~~.32"/100#~~	~~4140#~~	84"	30"
5	12.0"	8.36"			~~.24"/100#~~	~~4960#~~	84"	36"
6	14.0"	10.36"			~~.15"/100#~~	~~6854#~~	84"	36"
7	10.0"	6.08"	28.0'		~~.54"/100#~~	~~3140#~~	54"	24"
8	11.0"	7.08"			~~.41"/100#~~	~~3850#~~	84"	30"
9	12.0"	8.08"			~~.31"/100#~~	~~4590#~~	84"	36"
10	9.0"	4.80"	30.0'		~~1.10"/100#~~	~~2350#~~	54"	24"
11	10.0	5.80"			~~.74"/100#~~	~~2920#~~	54"	24"
12	11.0"	6.80"			~~.53"/100#~~	~~3560#~~	84"	30"
13	12.0	7.80"			~~.39"/100#~~	~~4260#~~	84"	36"

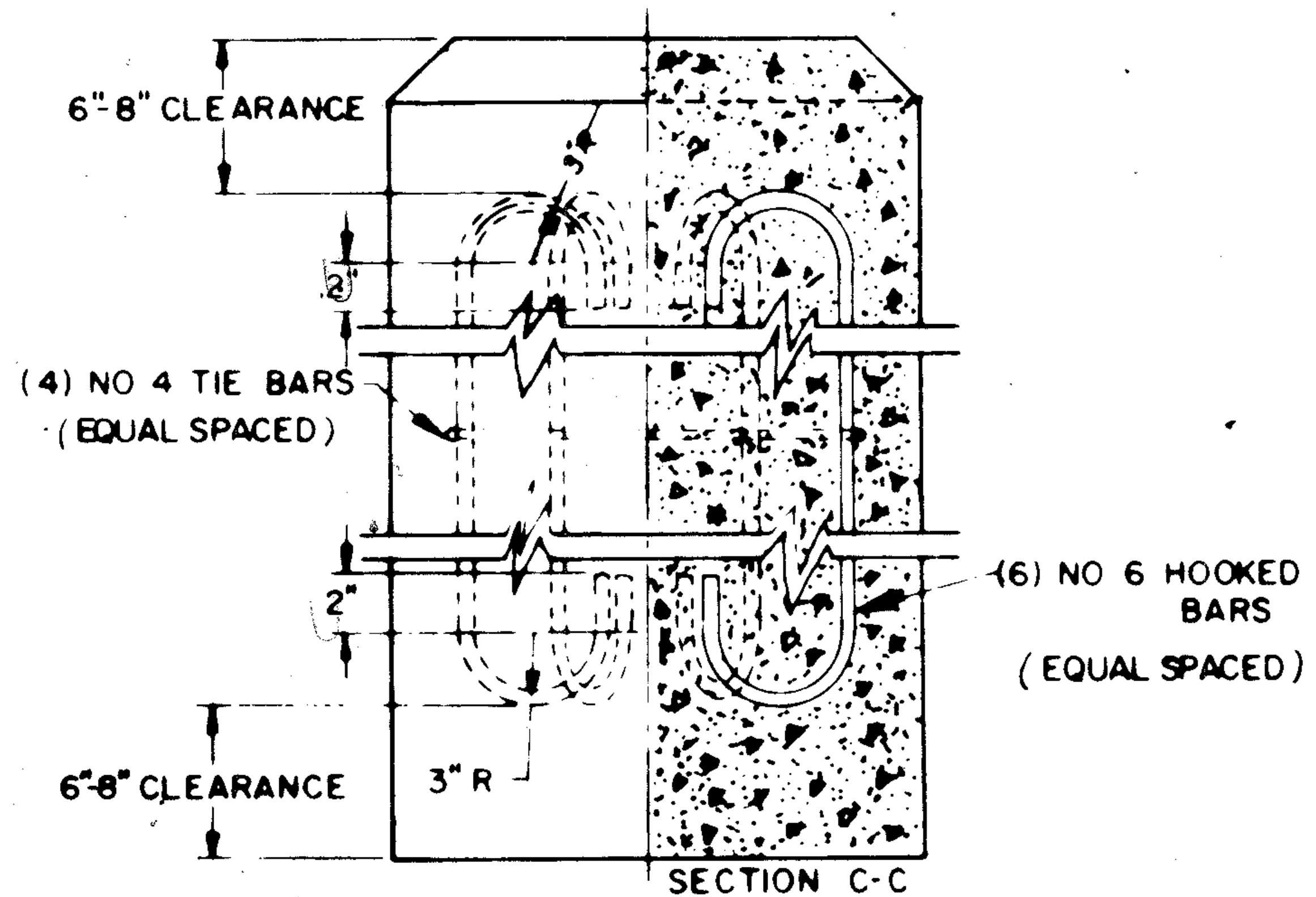
STRAIN POLE TYPES



TYPICAL STRAIN POLE FOUNDATION



SECTION - S-S



SECTION C-C

TYPICAL REINFORCING STEEL SECTIONS

NOTES

MATERIAL SPECIFICATIONS

1 TAPERED TUBES (S.A.E.-1020 STEEL PROCESSED TO MINIMUM YIELD STRESS OF 55,000 P.S.I.
2 CAST ANCHOR BASE & HANDHOLE FRAME - ASTM-A27-GRADE 65-35
3 HANDHOLE COVER PLATE - 11 GA STEEL SAE-1015
4 CAST ALUMINUM POLE TOP - ALUMINUM ALLOY 43
5 SPAN WIRE CLAMP - LOW ALLOY. HIGH STRENGTH STEEL ASTM-A242- OR 375, LOAD PRODUCING DISTORTION 12,500 LBS. DIRECT TENSION
6 ALL BOLTS & NUTS LESS THAN 5/8" DIA. PASSIVATED STAINLESS STEEL AISI-300 SERIES - COMMERCIAL GRADE
7 ALL OTHER NUTS & BOLTS 5/8" DIA & OVER - ASTM-A307 AND GALVANIZED IN ACCORDANCE WITH ASTM-A153
8 ANCHOR BASE & U-BOLTS - HIGH STRENGTH STEEL - MINIMUM YIELD STRESS 55,000 LBS SQ IN - MIN. ULTIMATE 90,000 PSI
9 WELDING ROD - ASTM-A233 - CLASS E60XX OR 70XX
10 GALVANIZING - WHEN SPECIFIED ASTM-A123

TRAFFIC SIGNAL POLE FOUNDATIONS

THE CONTRACTOR SHALL STAKE THE LONGITUDINAL AND LATERAL LOCATION, AND THE ELEVATION OF THE TOP OF EACH FOUNDATION SUBJECT TO THE APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER ELEVATION, OFFSET, AND LEVEL OF EACH FOUNDATION. THE FOUNDATION LOCATIONS MAY BE CHANGED AS DIRECTED BY THE ENGINEER, IN CASE OF SLOPE OR SUBSURFACE DIFFICULTIES.

EXCAVATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 503. EXCAVATION SHALL BE TO THE DIMENSIONS SHOWN ON THE PLANS, AND SHALL BE PERFORMED BY MEANS OF AN EARTH AUGER OF THE SPECIFIED DIA. UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

WHERE SUBSURFACE OBSTRUCTIONS ARE ENCOUNTERED, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO REMOVE THE OBSTRUCTION OR TO REPLACE THE EXCAVATED MATERIAL AND RELOCATE THE FOUNDATION.

IF CAVING OF THE EXCAVATION OCCURS, THE CONTRACTOR SHALL EXCAVATE THE SPECIFIED DEPTH MAINTAINING THE THE SIDES AS NEARLY VERTICAL AS POSSIBLE. NO PAYMENT SHALL BE MADE FOR ANY EXCAVTION, CONCRETE, OR REINFORCING STEEL USED IN EXCESS OF THE PLAN QUANTITES.

CONCRETE, CLASS C, SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 511, AND SHALL BE PLACED AGAINST UNDISTURBED SOIL OR COMPACTED EMBANKMENT. STEEL REINFORCEMENT BARS, WHERE REQUIRED, SHALL BE POSITIONED AS SHOWN ON THE PLANS AND PLACED IN ACCORDANCE WITH ITEM 509.

CYLINDRICAL ANCHOR BASE TYPE FOUNDATIONS FOR TRAFFIC SIGNAL POLES SHALL HAVE ANCHOR BOLTS AND CONDUIT ACCURATELY HELD IN POSITION WITH A TEMPLET WHILE CONCRETE IS PLACED. FORMS SHALL BE USED FOR THE UPPER PORTIONS OF ALL FOUNDATIONS AND NO BACKFILLING SHALL BE PERMITTED FROM THE BOTTOM TO SIX INCHES BELOW THE GRADE LEVEL. NO GROUTING OF CONCRETE SHALL BE PERMITTED BETWEEN THE FOUNDATION TOP AND THE POLE BASE.

TRAFFIC SIGNAL POLE

WHERE A WIRE ENTRANCE IS REQUIRED, THE SERVICE ENTRANCE HEAD SHALL BE LOCATED APPROXIMATELY 12" BELOW SPAN WIRE CLAMP

GROUND ROD

GROUND ROD SHALL BE IN ACCORDANCE WITH TYPICAL GROUND ROD DETAIL AND TESTED IN ACCORDANCE WITH 625.22 "CONSTRUCTION AND MATERIAL SPECIFICATIONS."

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

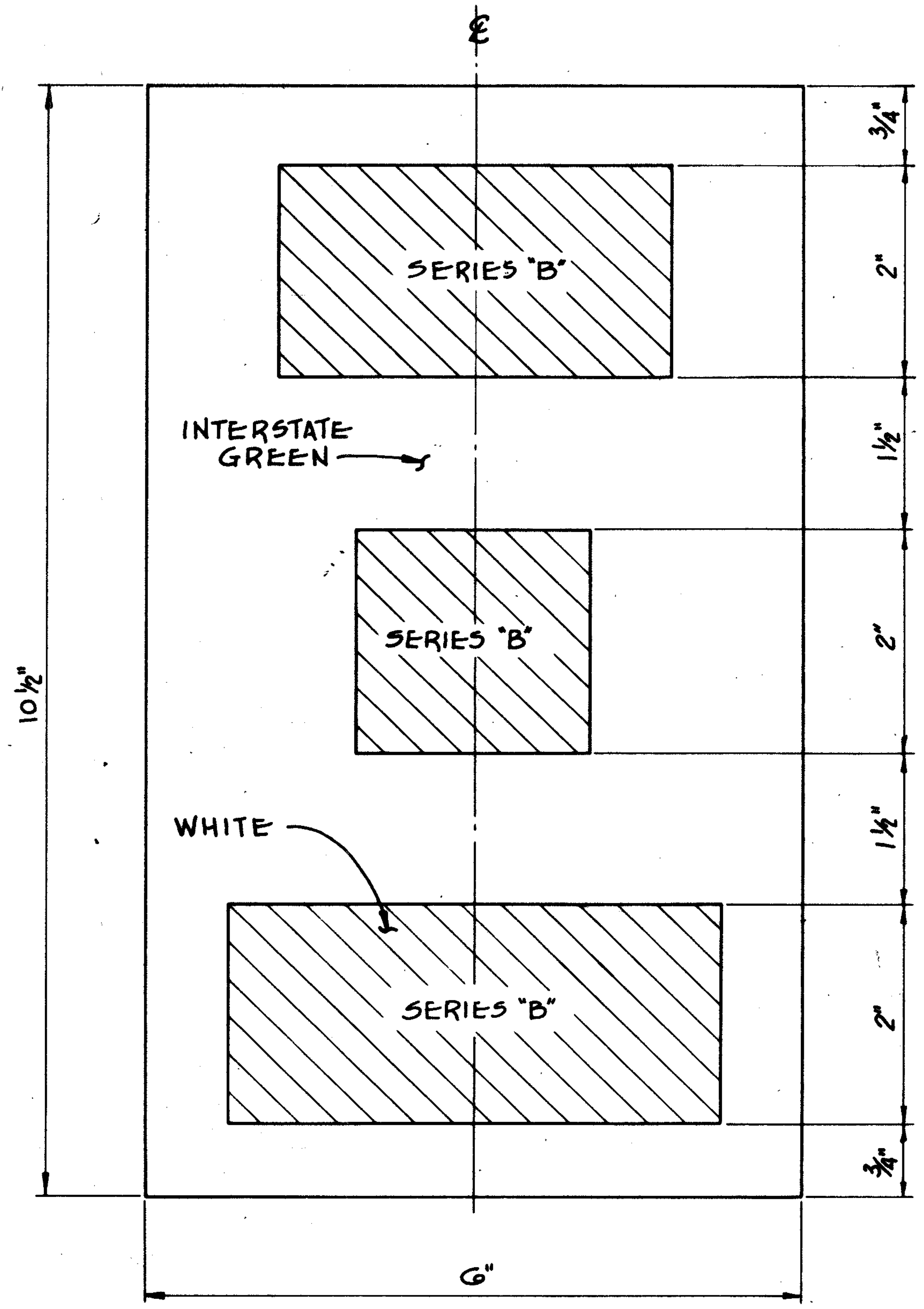
STEEL STRAIN POLE & FOUNDATION DETAILS

APPROVED ____________
ENGINEER OF TRAFFIC

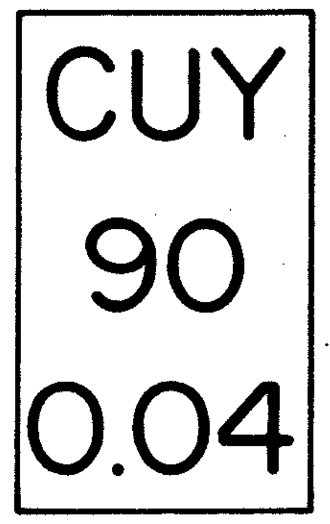
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

635
713

CUY-90-10.40



▨ LEGEND VARIES, SEE TABLE



EXAMPLE

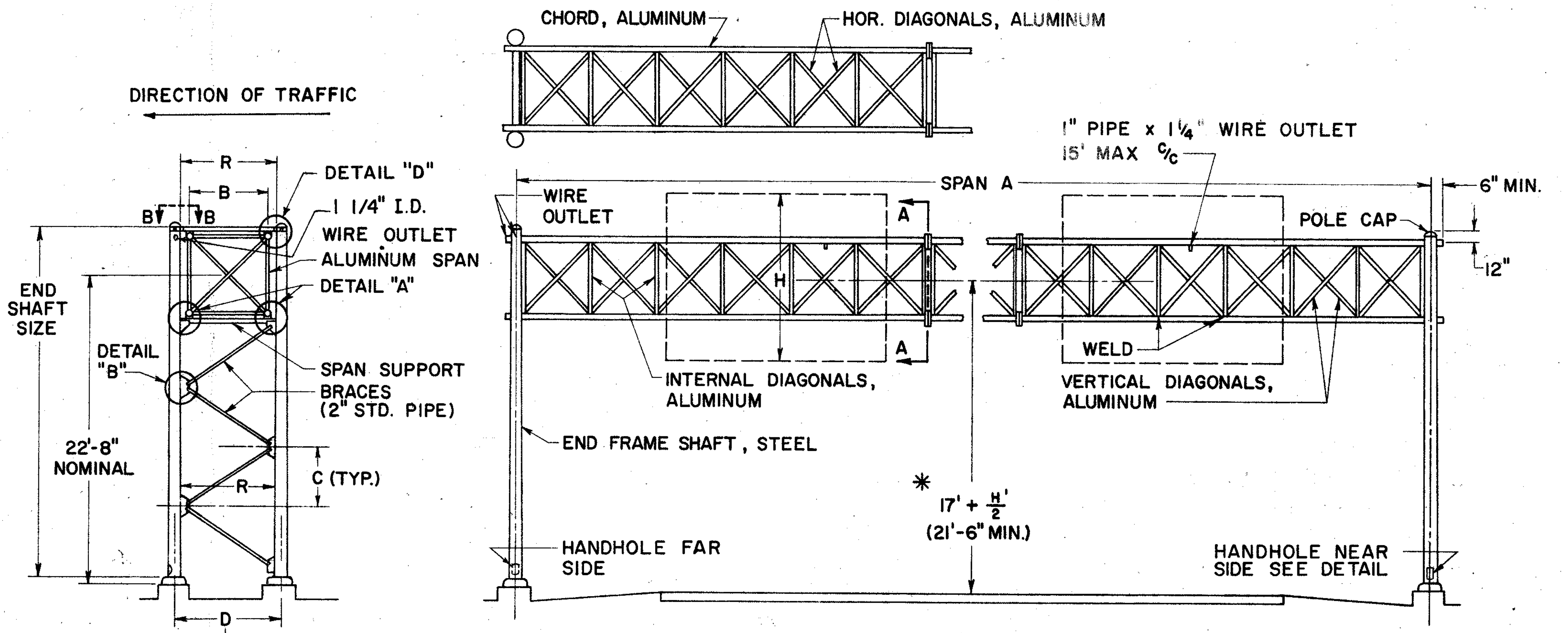
SUPPORT NO.	STATION	LOCATION	DIRECTION	DECAL LEGENDS		
				COUNTY	RT	MILEAGE

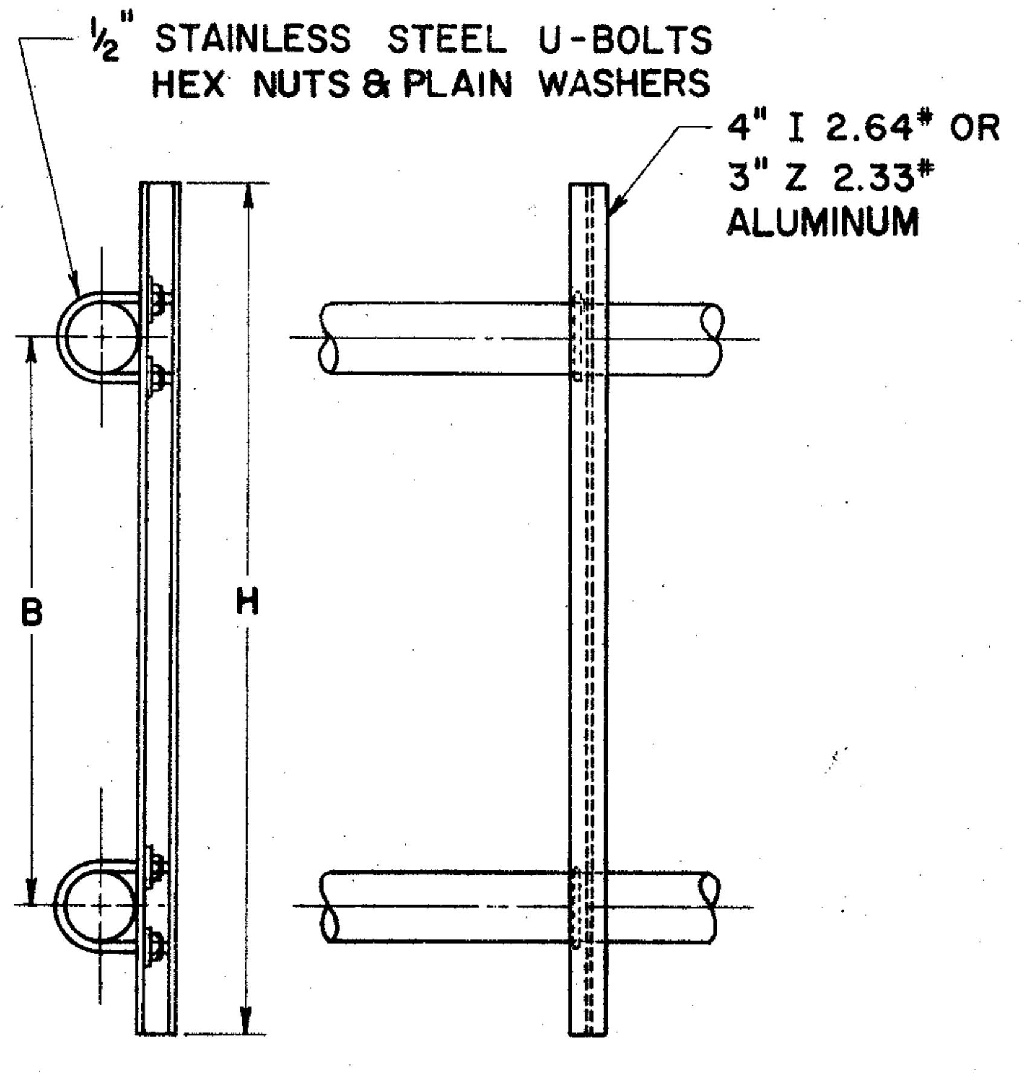
SIGN SUPPORT INDENTIFICATION DECALS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

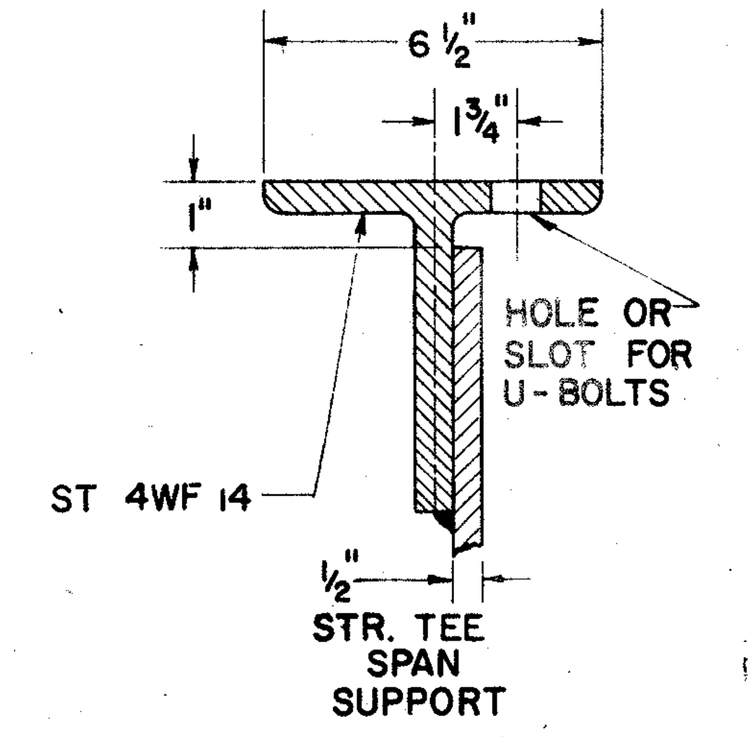
636
713

CUY-90-10.40





SIGN BRACKET



SECTION D-D

NOTES

MATERIALS

THE OVERHEAD SPAN TRUSS SHALL BE ALUMINUM AND THE END FRAMES SHALL BE STEEL.

SPAN TRUSS AND END FRAMES, INCLUDING HARDWARE, SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816 UNLESS OTHERWISE NOTED.

STEEL POLE BASES AND GUSSETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-373.

AFTER FABRICATION THE TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

FABRICATION

THE ENTIRE STEEL END FRAME SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SEC. 711.02.

MAXIMUM LENGTH OF SPAN SECTIONS IS 30 FT.

ERECTION

USE A MINIMUM OF 1" CAMBER IN SPAN TRUSS MEMBER FOR A 50' SPAN; ADD 1/4" OF CAMBER FOR EACH 5' OF INCREASE IN SPAN OVER 50'.

PAYMENT

PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

SOILS

THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY).

FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50 % IN DRY OR WET SAND, 60 % IN SILTY CLAY, 100 % IN SOFT CLAY, AND FROM 75 % TO 150 % IN WET SILT, DEPENDING ON QUICKSAND ACTION.

REINFORCING STEEL

COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

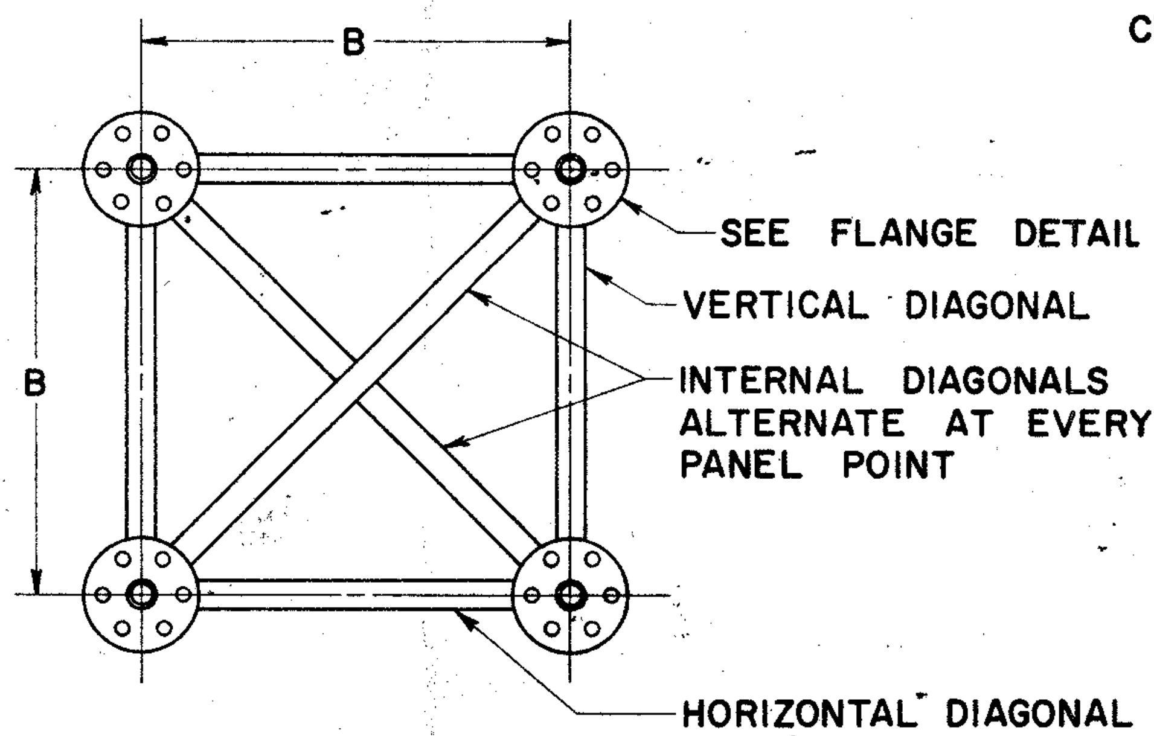
BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER.

*FOUNDATION ELEVATION

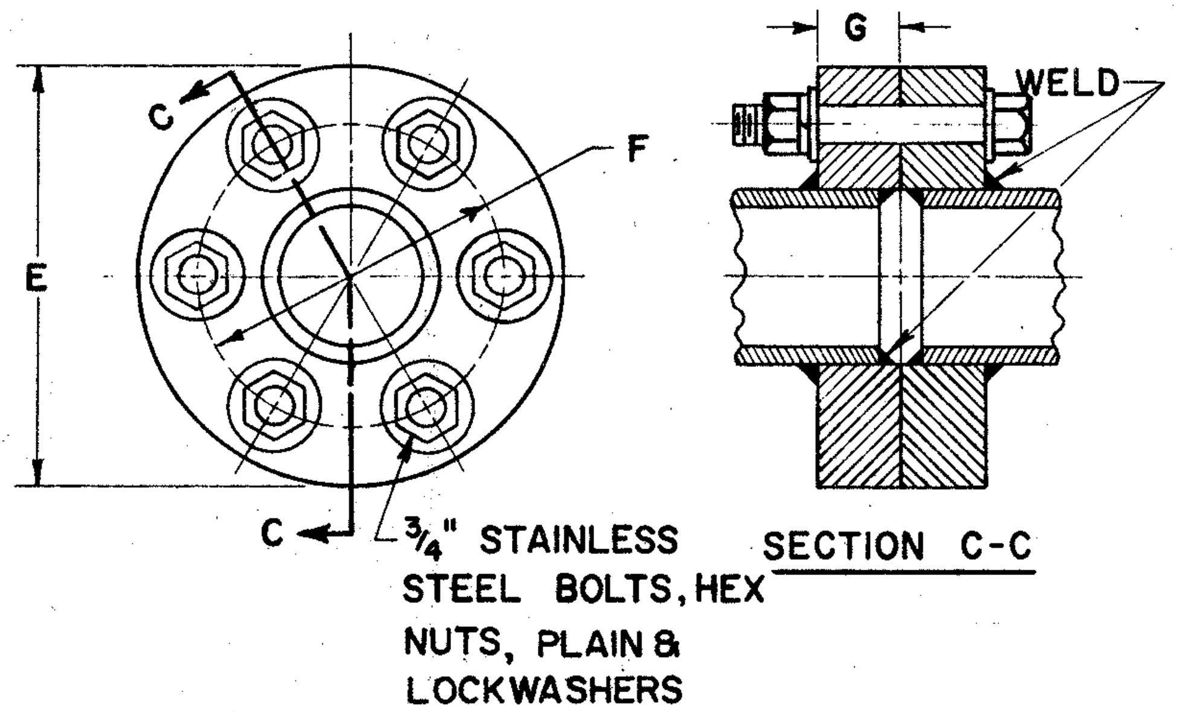
ELEVATION OF TOPS OF FOUNDATIONS SHALL BE BUILT UP SO THAT 17' CLEARANCE IS MAINTAINED OVER THE ENTIRE WIDTH OF THE PAVEMENT AND SHOULDERS.

DESIGN

THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.



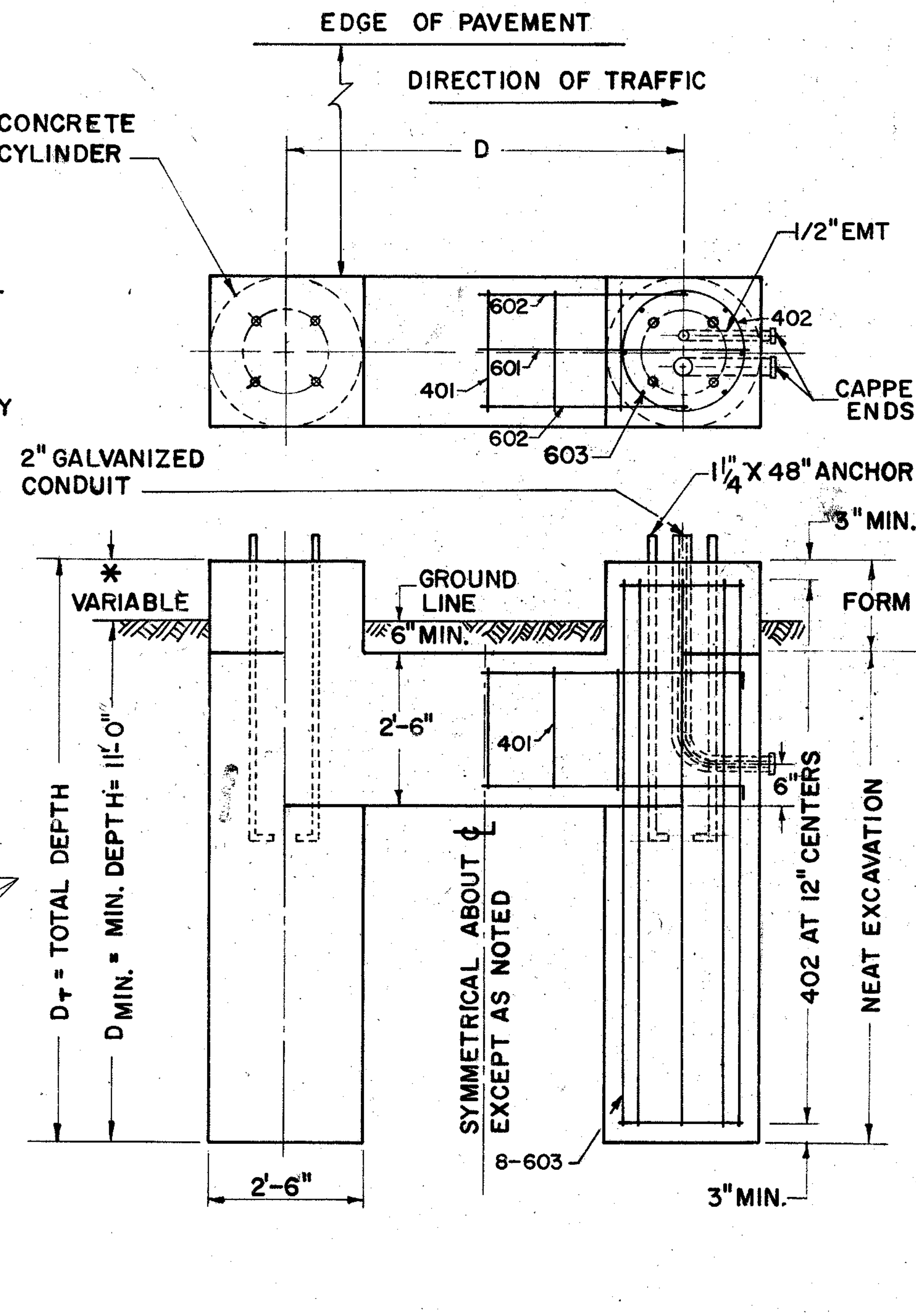
SECTION A-A



SECTION C-C

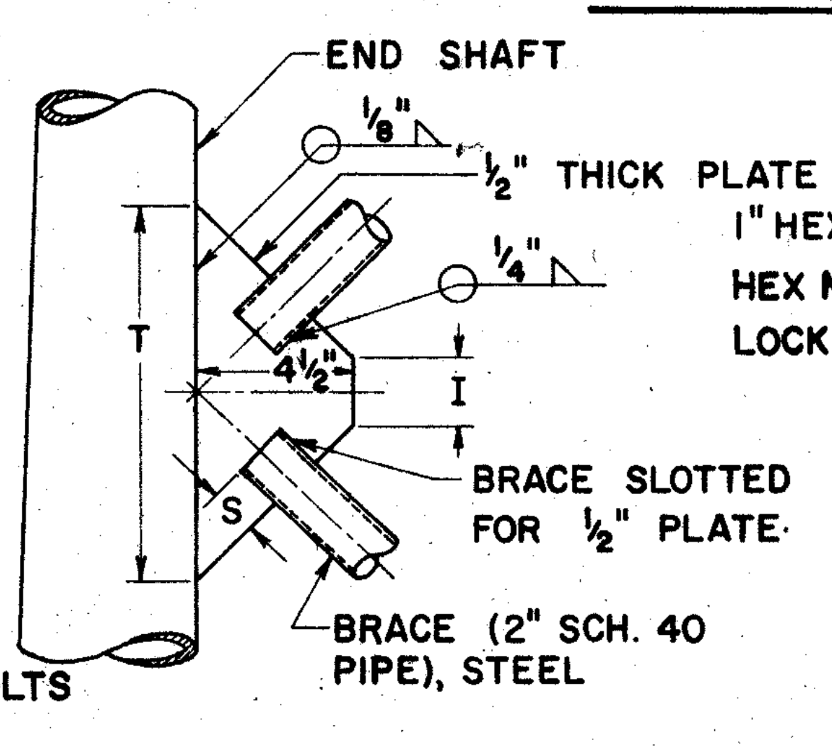
CAST FLANGE, B-26 ALLOY SG 70A-T7 (356-T7)

FLANGE DETAIL

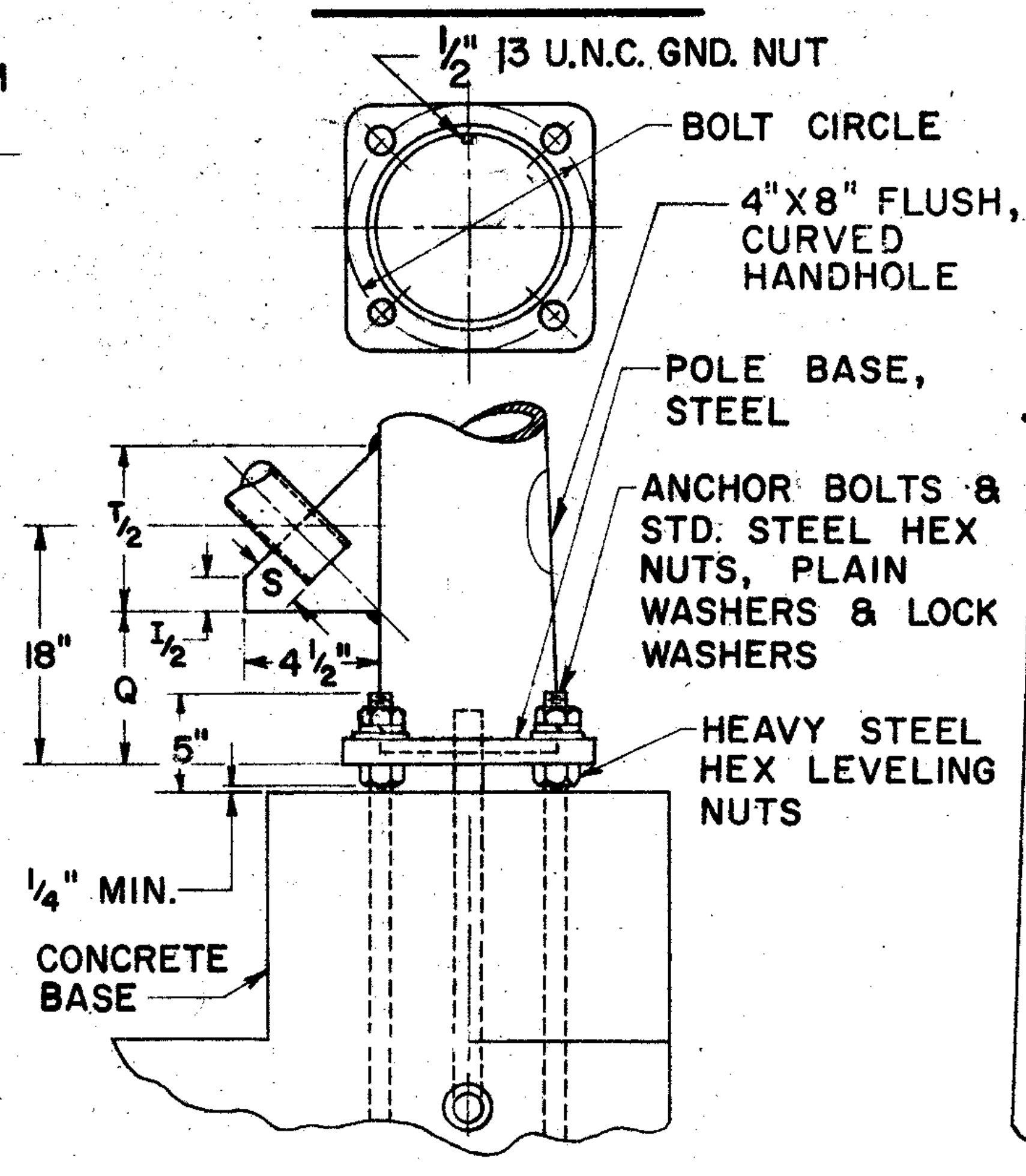


FOUNDATION DETAIL

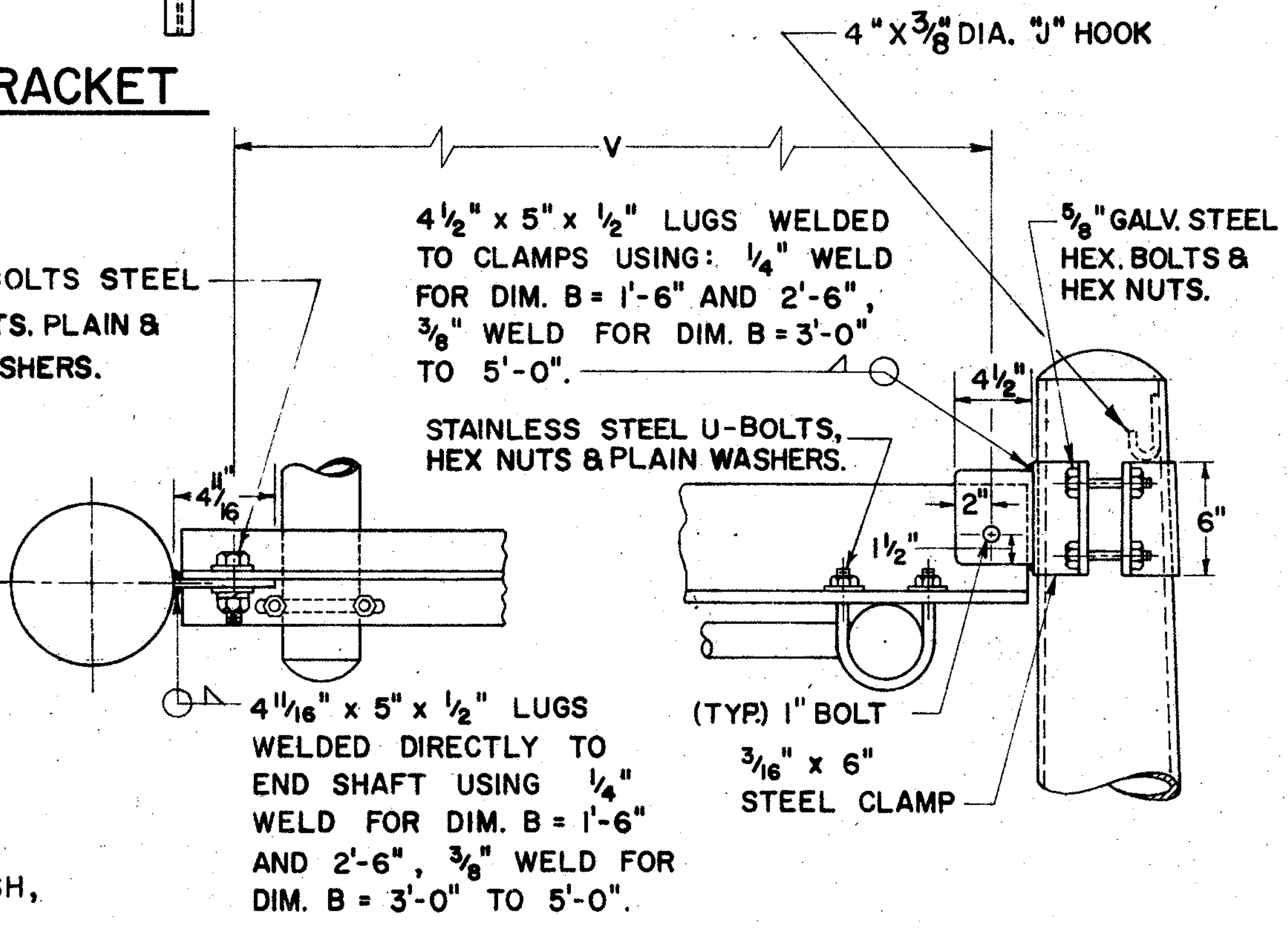
(RIGHT HAND SHOWN—LEFT HAND OPPOSITE)



DETAIL "B"



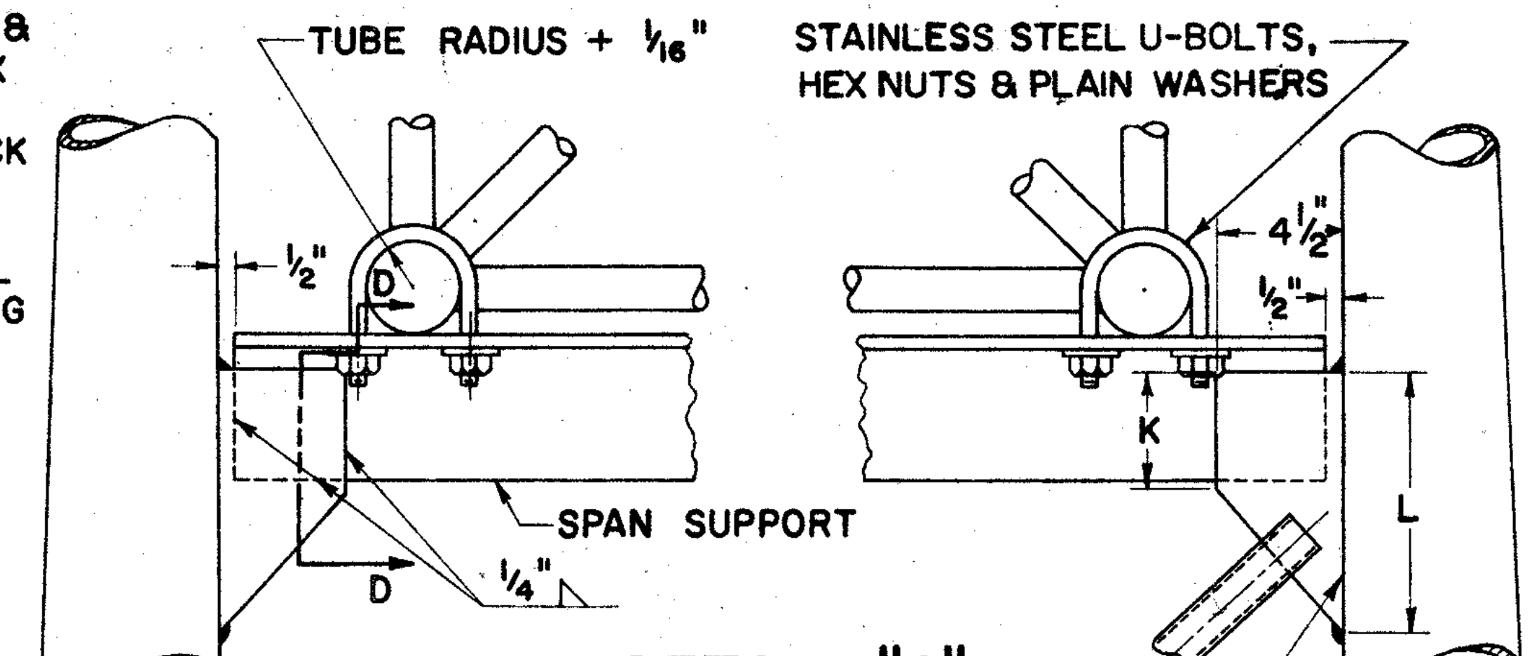
POLE BASE DETAIL



VIEW B-B

DETAIL "D"

UPPER SPAN SUPPORT (ALTERNATE METHODS)



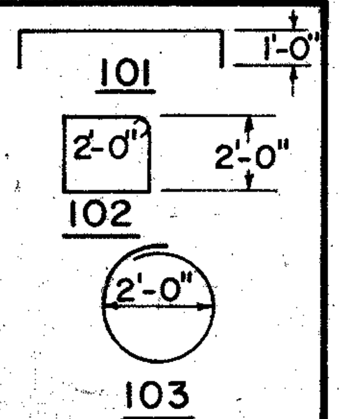
DETAIL "A"

LOWER SPAN SUPPORT

DESIGN NO.	SPAN A	B	C	D	E	END SHAFT	BRACE LENGTH	F	G	I	K	L	P	Q	R	S	T	U BOLTS	V	BOLT CIRCLE	SPAN SUPPORT SECTION D-D	CHORDS	HORIZONTAL AND INTERNAL DIAGONAL	VERTICAL DIAGONAL
1.	50' thru 65'	3'-0"	4'-11 3/4"	4'-5"	9 1/4"	8"X4.5 X25'-0",3GA	5'-10 13/16"	7 7/16"	1 3/8"	3 1/2"	4 3/4"	8"	12"	6 5/8"	3'-9"	1 1/2"	10"	5/8"	3'-3 5/8"	11"	Split Tee 3'-8"	4 3/4" X .188"	2" X .188"	1.660"X.140"
2.	70' thru 75'	4'-0"	4'-10 1/4"	5'-7"	9 1/4"	8"X6.22X25'-6",3GA	6'-7 1/8"	7 7/16"	1 3/8"	5/8"	4 3/4"	7 3/4"	12"	6 1/4"	4'-11"	1 1/2"	9 1/2"	5/8"	4'-5 5/8"	11"	Split Tee 4'-10"	4 3/4"X .188"	2' X .188"	1.900"X.145"
3.	76' thru 80'	4'-0"	4'-10 1/4"	5'-7"	11"	8"X6.22X25'-6",3GA	6'-7 1/8"	8 1/2"	1 1/2"	5/8"	4 3/8"	7 3/4"	12"	6 1/4"	4'-11"	1 1/2"	9 1/2"	5/8"	4'-5 5/8"	11"	Split Tee 4'-10"	5 1/2"X .250	2 1/2"X .188"	1.900"X.145"
4.	81' thru 110'	5'-0"	4'-8 1/2"	6'-7"	11"	8"X6.18X26'-0",3GA	7'-3 1/4"	8 1/2"	1 1/2"	—	3 1/2"	7 3/4"	12"	7 1/4"	5'-11"	1 3/4"	11 1/4"	3/4"	5'-5 5/8"	11"	Split Tee 5'-10"	5 1/2"X .250	2 1/2"X.188	2 1/2"X .188

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE
401	12"C/C	8'-6"	102
402	12"C/C	7"-6"	103
601	4	D+4'-0"	101
602	8	D+2'-0"	101
603	32	DT - 6"	STR.



BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD SIGN SUPPORTS

816
No.7.6

DATE
5-6-64
5-5-64
6-20-60

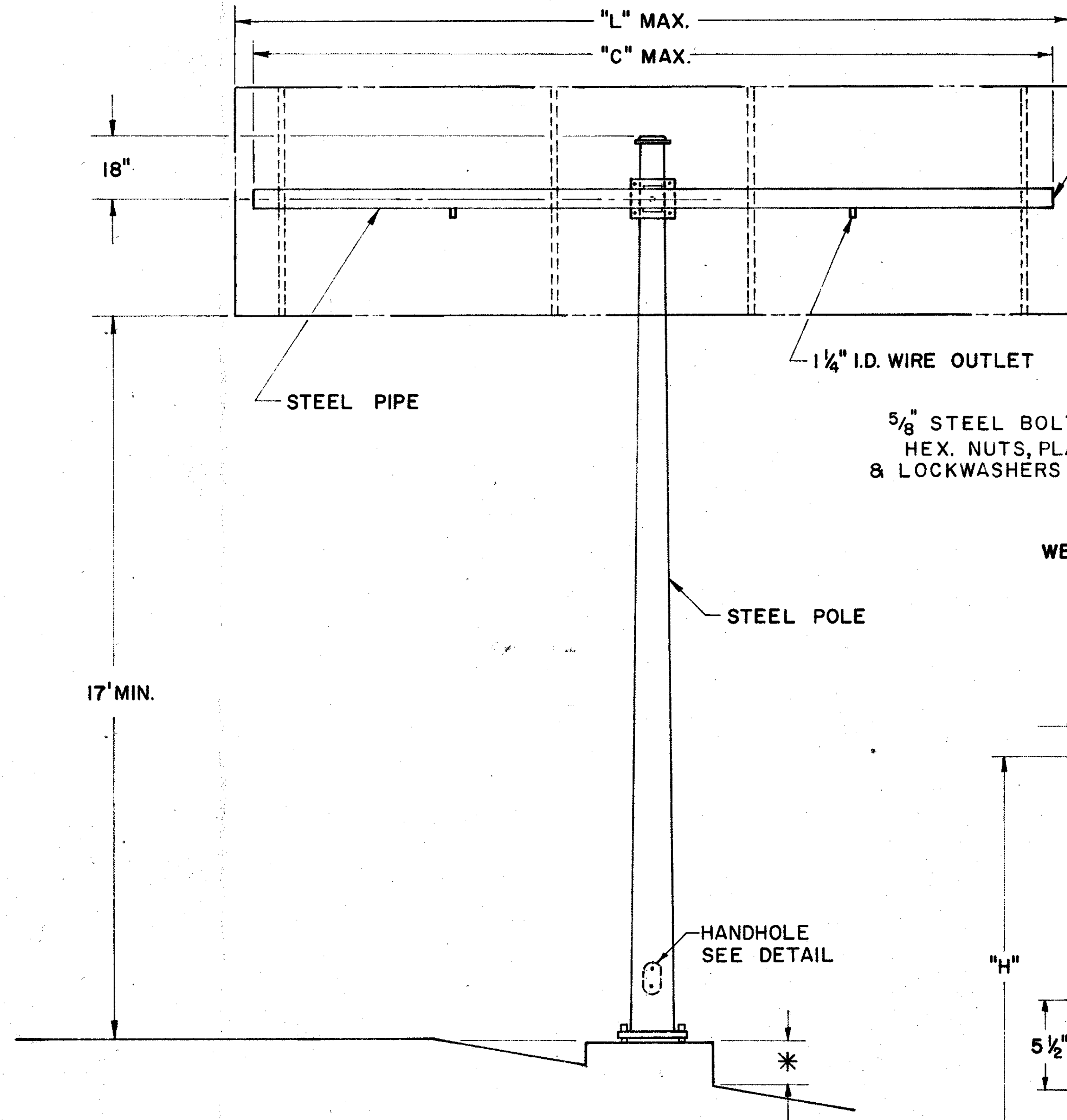
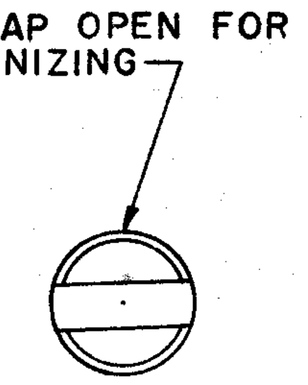
APPROVED ____________
ENGINEER OF TRAFFIC

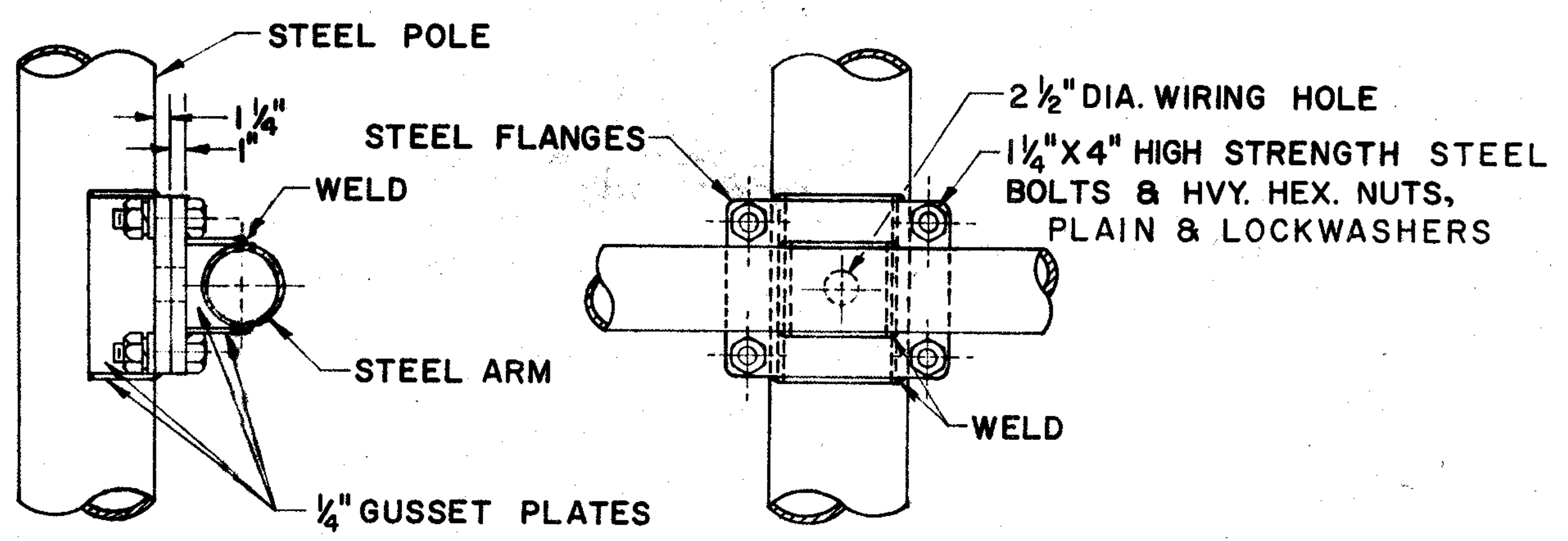
600 SQ. FT. SIGN AREA   OVERHEAD SIGN SUPPORT, 816 NO.7.6

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

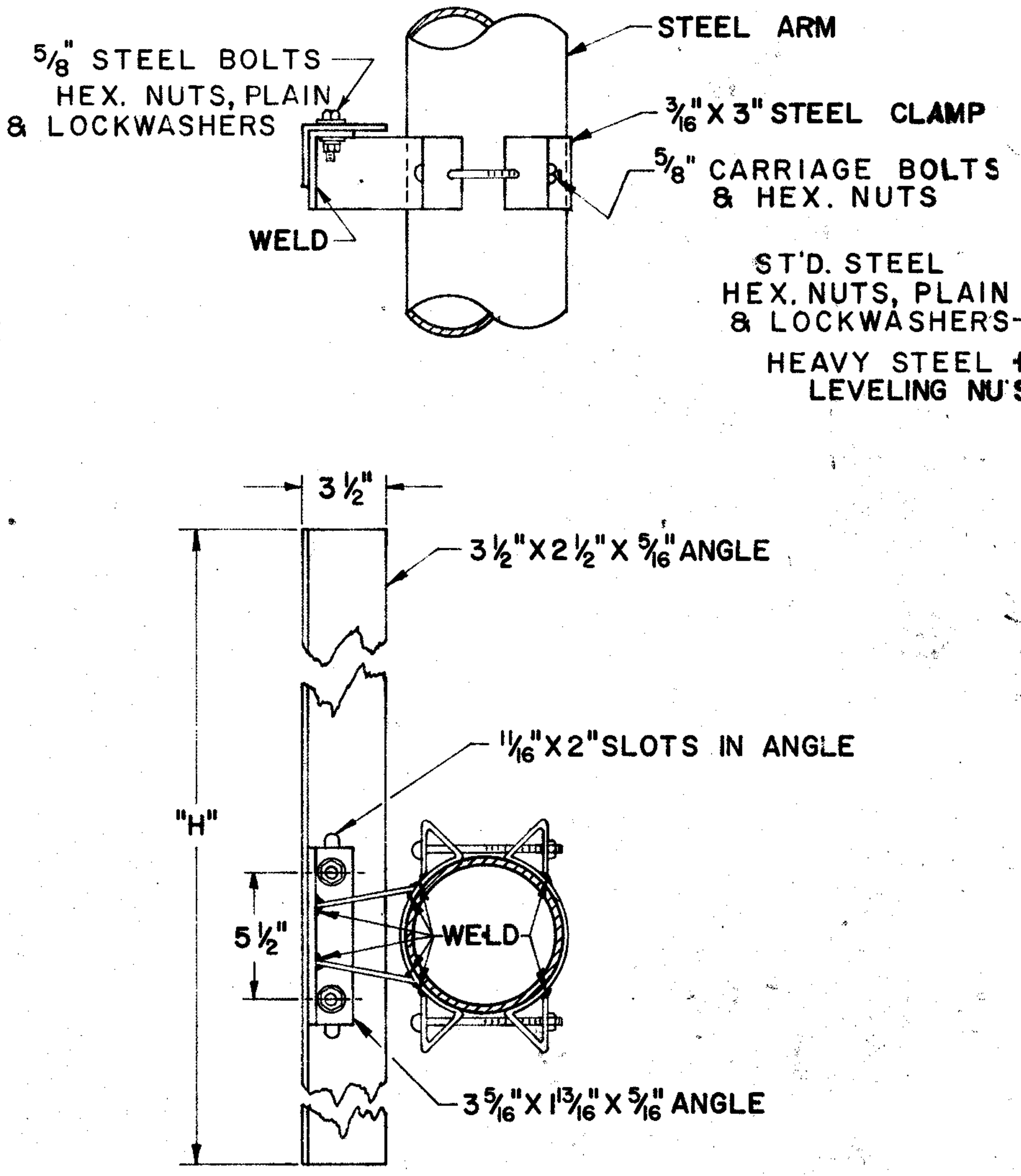
637
713

CUY-90-10.40

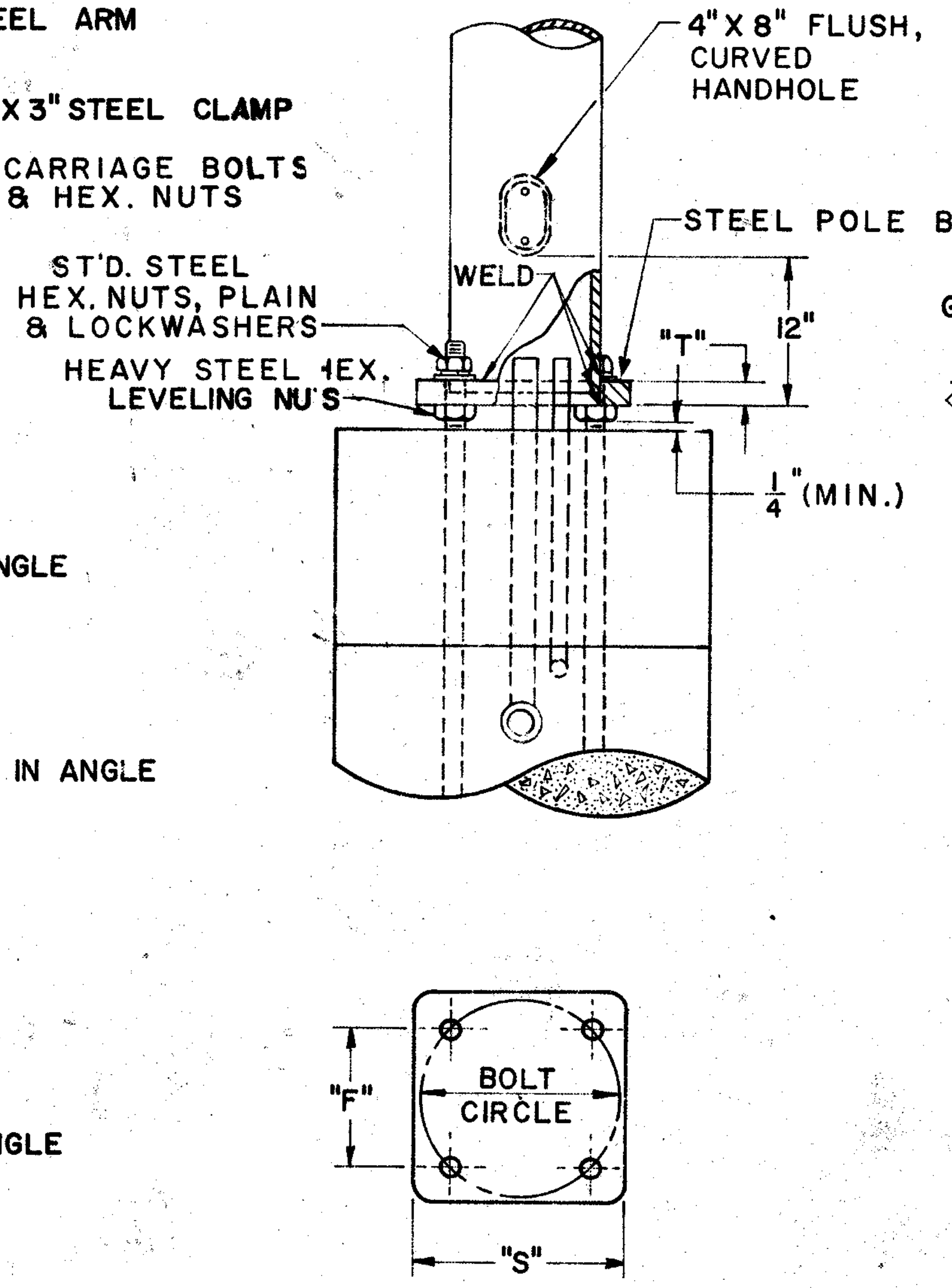





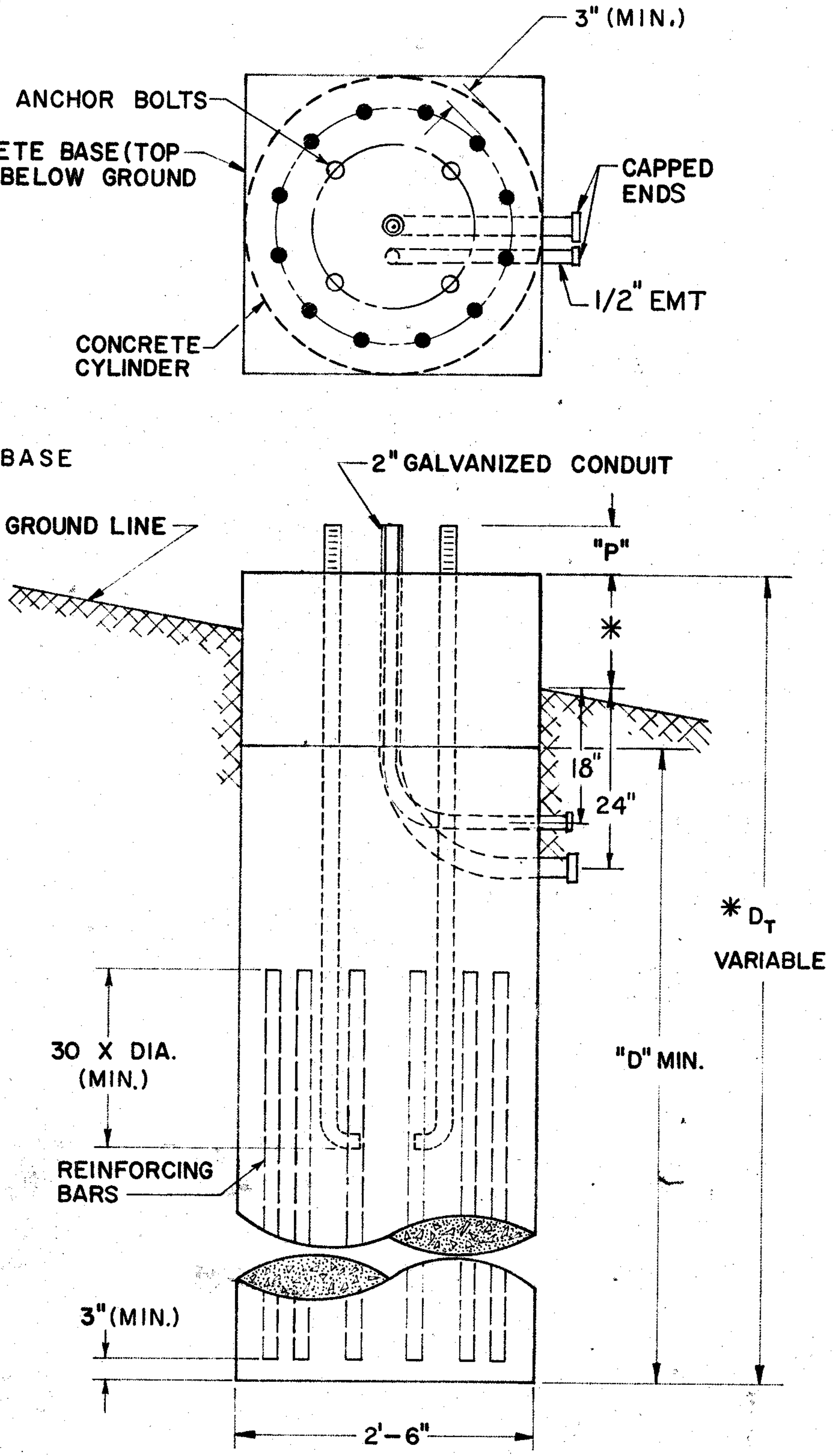
ARM ATTACHMENT



SIGN ATTACHMENT DETAIL



POLE DETAIL



FOUNDATION DETAIL

DESIGN NO.	POLE SIZE	PIPE SIZE	DIM C	DIM F	DIM P	DIM S	DIM T	BOLT CIRCLE	ANCHOR BOLT SIZE	MAX SIGN AREA	MAX. "L" WITH MAX. SIGN AREA	"D" MIN	REINF. BARS	
													TYPE	NO.
1	7ga, 11"X 7.99 X 21'-6"	4" SCH.40 GRADE A	18'	10⅝"	6½"	15⅝"	1½"	15"	1½"X60"	60	24'-9"	7'-0	#6	8
2	3ga, 13"X 9.99 X 21'-6"	4" SCH.80 GRADE A	14'	12¾"	7¾"	18½"	2"	18"	1¾"X90"	120	16'-9"	8'-6	#7	12
3	3ga, 13"X 9.99 X 21'-6"	6" SCH.40 GRADE A	20'	12¾"	7¾"	18½"	2"	18"	1¾"X90"	120	24'-0"	9'-0	#7	12

NOTES

FABRICATION – ALL PORTIONS OF THE SIGN SUPPORT, INCLUDING SIGN ATTACHMENTS, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. DESIGNATIONS A-123 AND A-153. THE CONDUIT SHALL BE GALVANIZED IN ACCORDANCE WITH SEC. 625.13 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS FOR PAYMENT.

* FOUNDATION – THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

MATERIAL – STEEL POLE BASES, FLANGES, AND END CAPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 30 GRADE B.
HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A 193 GRADE B 7.
AFTER FABRICATION TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

SOILS – THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

REINFORCING STEEL – REINFORCING STEEL AS SHOWN IN TABLE SHALL BE INSTALLED WHEN "D_T" EXCEEDS THE ANCHOR BOLT LENGTH BY MORE THAN 3 FT. THE COST AND PLACEMENT OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR 816 CONCRETE FOR SIGN SUPPORT FOUNDATION.

DESIGN
THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD
SIGN SUPPORT
816
No. 9.12
DATE
1-19-62
3-30-62

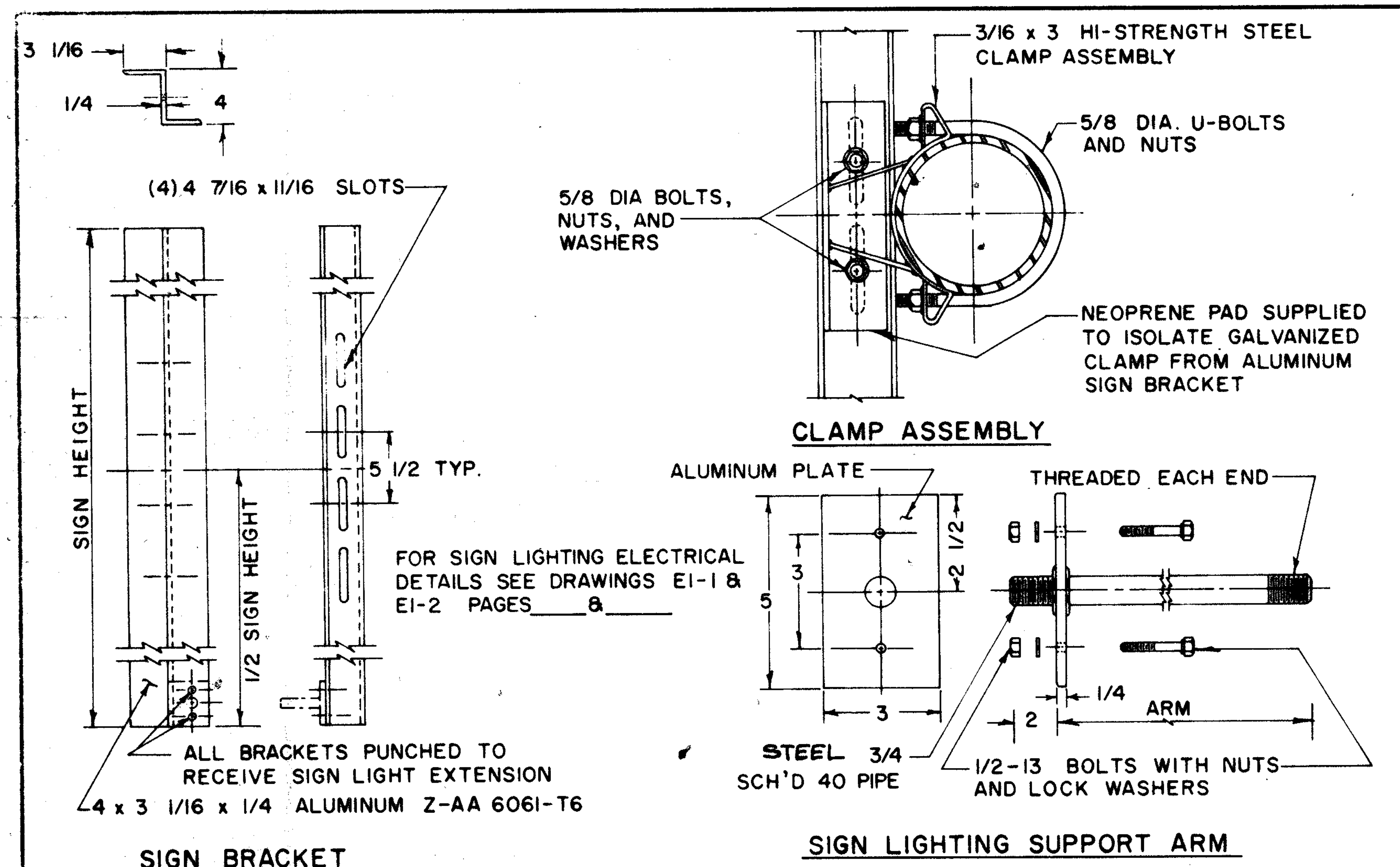
APPROVED Robert E. Conner
ENGINEER OF TRAFFIC

OVERHEAD SIGN SUPPORT, 816 No. 9.12

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

638/713

CUY-90-10.40



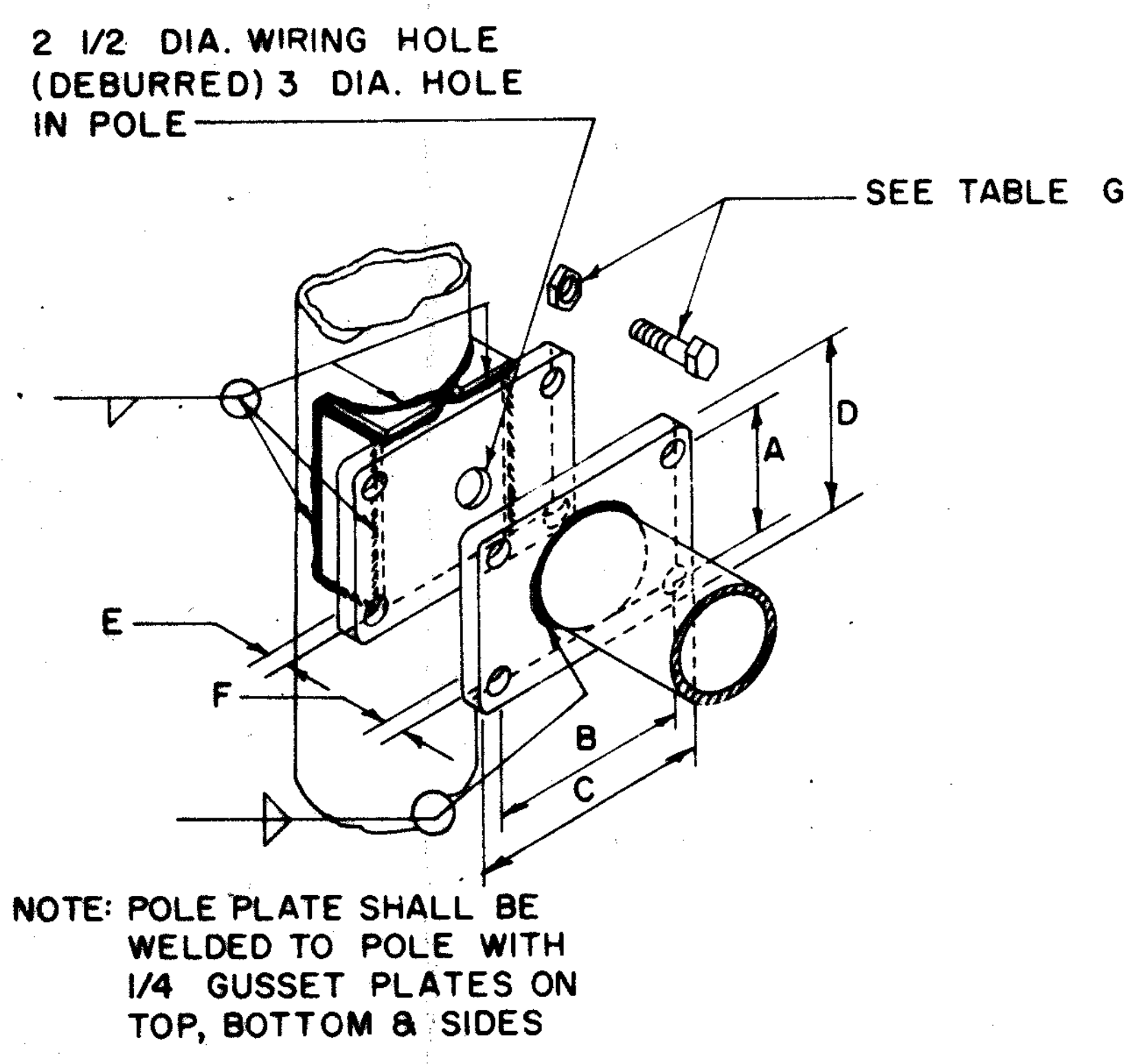
SIGN BRACKET

CLAMP ASSEMBLY

SIGN LIGHTING SUPPORT ARM

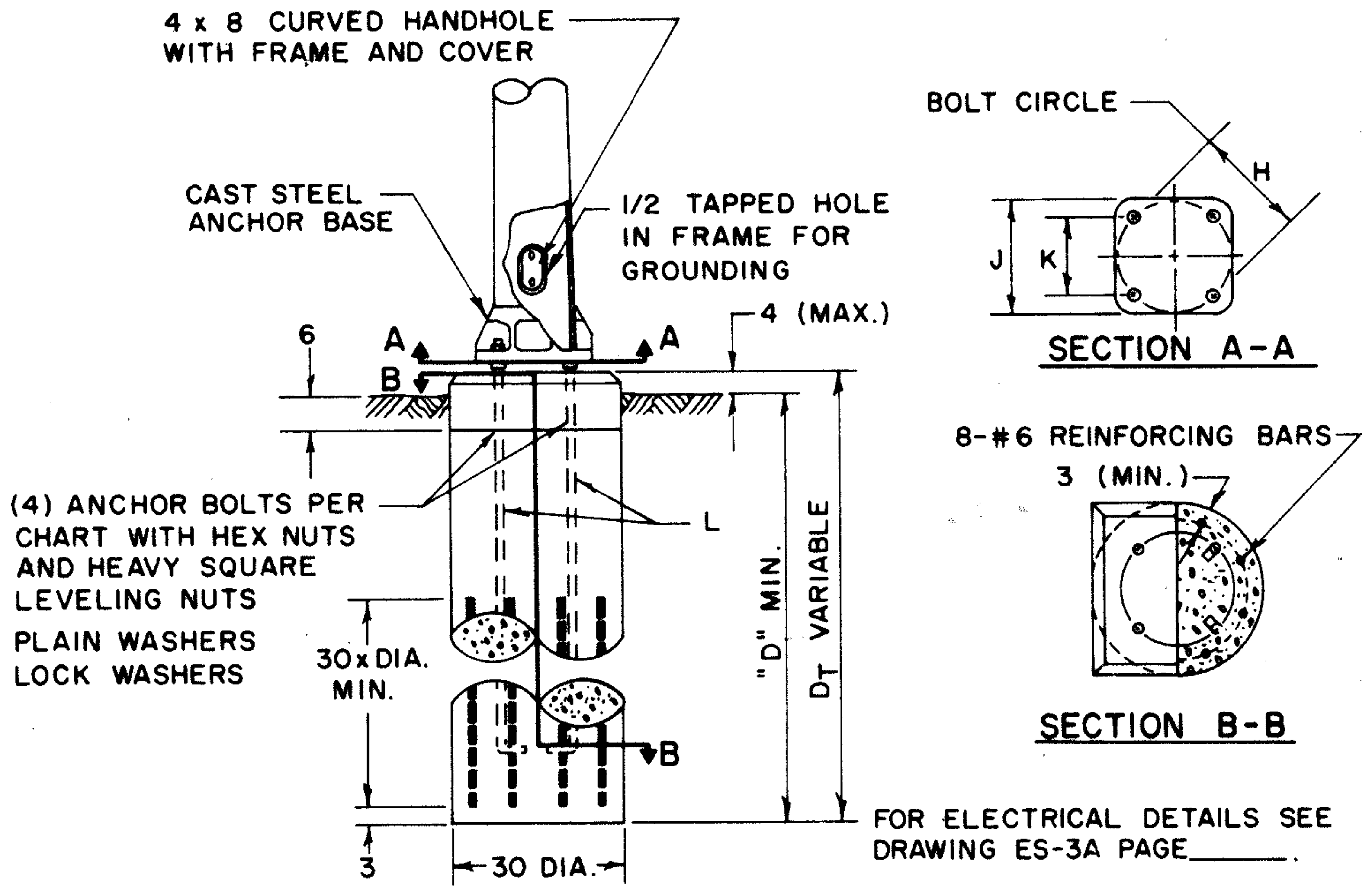
SIGN BRACKET & FIXTURE SUPPORT ARM DETAIL

DES. NO.	ARM SIZE
3 4	2' - 9"
5 6	3' - 3"
7	4' - 3"



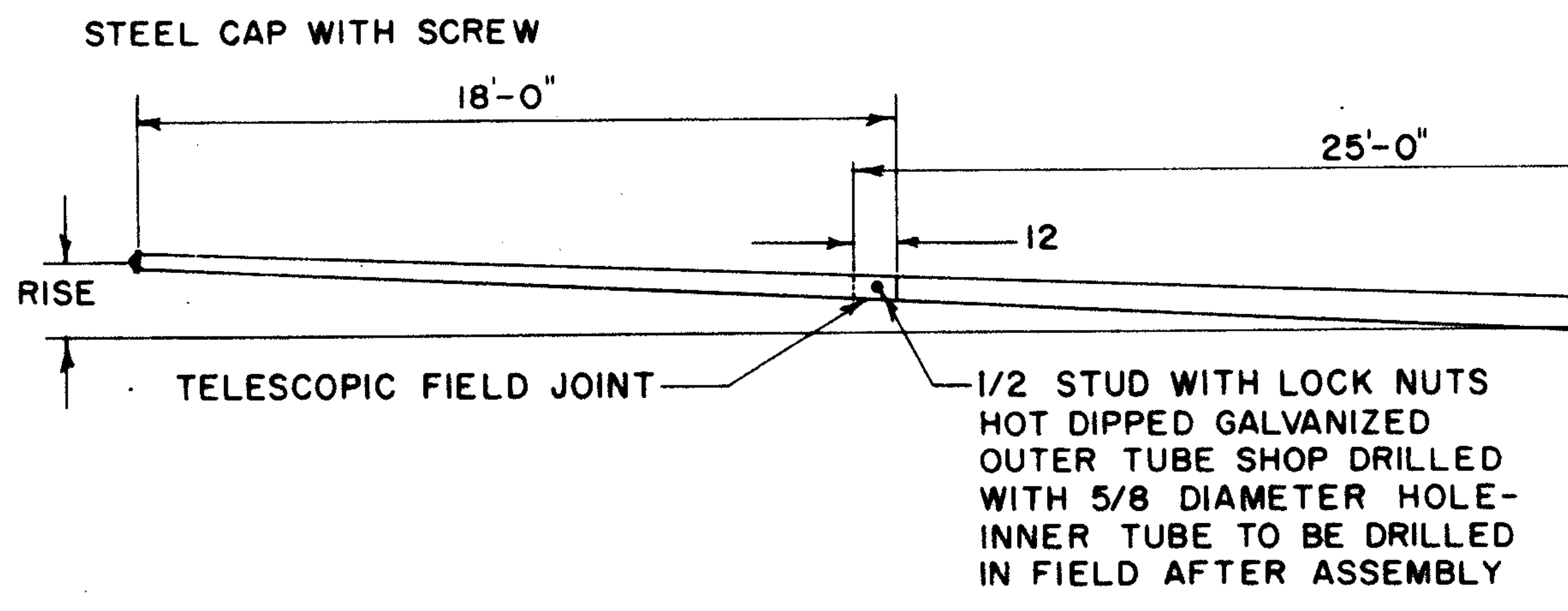
NOTE: POLE PLATE SHALL BE WELDED TO POLE WITH 1/4 GUSSET PLATES ON TOP, BOTTOM & SIDES

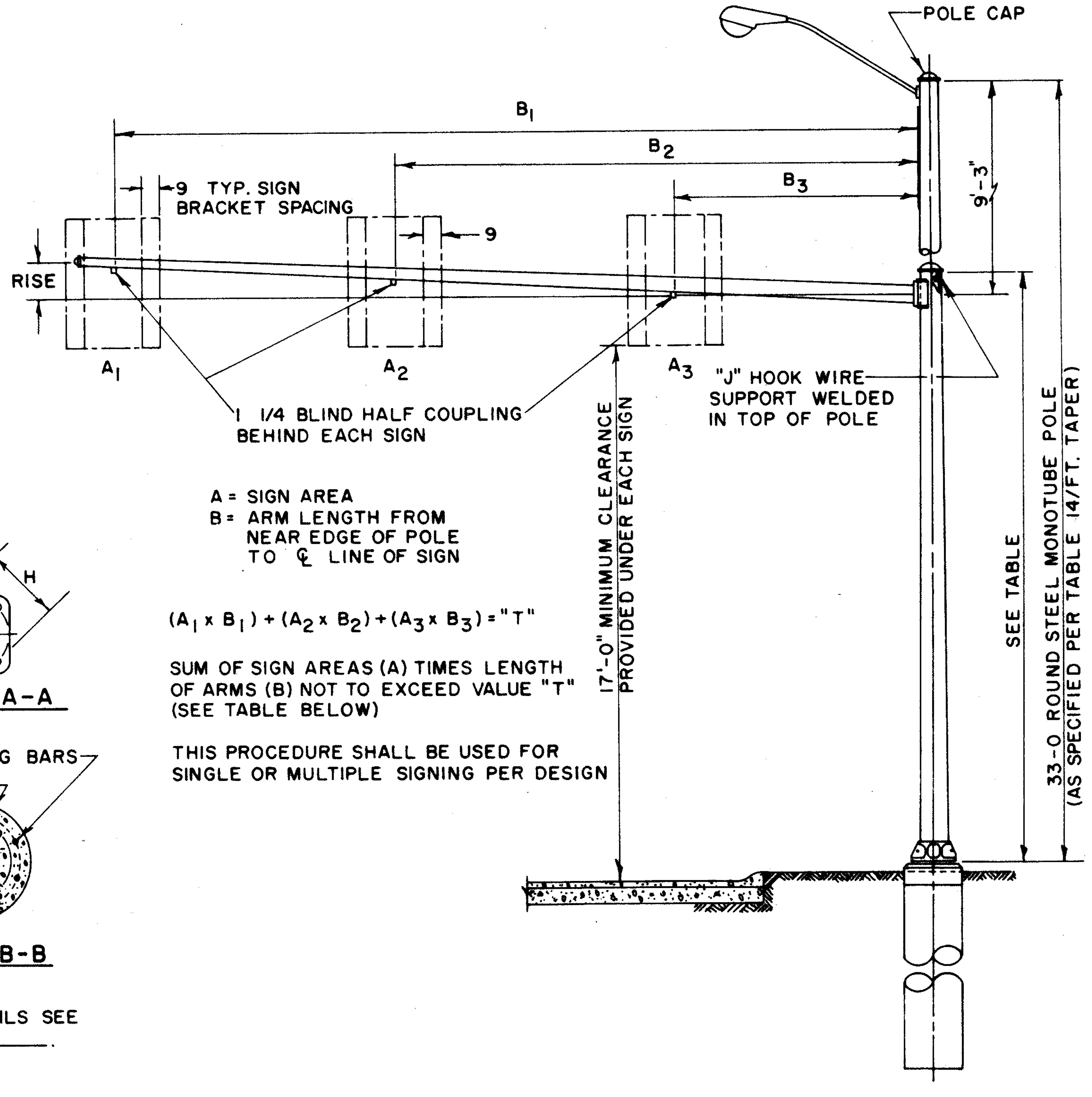
ARM ATTACHMENT DETAIL



FOR ELECTRICAL DETAILS SEE DRAWING ES-3A PAGE______.

FOUNDATION & POLE BASE DETAIL





A = SIGN AREA
B = ARM LENGTH FROM NEAR EDGE OF POLE TO ℄ LINE OF SIGN

$(A_1 \times B_1)+(A_2 \times B_2)+(A_3 \times B_3)=$ "T"

SUM OF SIGN AREAS (A) TIMES LENGTH OF ARMS (B) NOT TO EXCEED VALUE "T" (SEE TABLE BELOW)

THIS PROCEDURE SHALL BE USED FOR SINGLE OR MULTIPLE SIGNING PER DESIGN

FRONT ELEVATION & SIGN PLACEMENT DETAIL

DES. NO.	POLE SIZE	SIGN SIZE		MAX. SIGN AREA	VALUE "T"	RISE		ARM SIZE	ARM ATTACHMENT DATA							ANCHOR BOLT DATA				REINF. BAR		FOUNDATIONS
						MIN	MAX		A	B	C	D	E	F	G	H	J	K	L	TYPE	NO. REQ'D	"D" MIN.
1.	0ga 12" x 9.27" x 19'-6"	2'-6"	3'-0"	22.5	585	11	24	2-7ga-9.0" x 3.68" x 38'-0"	9	13 1/2	17 1/2	13	2	1 1/4	1 1/4	16	17	11 5/16	1 3/4 x 90	6	8	7'-0"
2.	7ga 11" x 8.27" x 19'-6"	2'-6"	3'-0"	22.5	315	9	18	7ga-8.0" x 4.08" x 28'-0"	8	12	16	12	1 1/4	1	1	15	15 5/8	10 5/8	1 1/2 x 60	6	8	5'-0"
3. A B	0ga 14" x 10.54" x 24'-9" 0ga 14" x 9.38" x 33'-0"	4'-0"	5'-6"	66.0	1485	11	23	2-7ga-9.0" x 3.96" x 36'-0"	9	13 1/2	17 1/2	13	2	1 1/4	1 1/4	20	20 1/2	14 1/8	2 x 96	6	8	8'-0"
4. A B	0ga 14" x 10.54" x 24'-9" 0ga 14" x 9.38" x 33'-0"	4'-0"	5'-6"	66.0	1881	12	28	2-7ga-10.0" x 6.50" x 25'-0" 7ga-7.0" x 4.48" x 18'-0"	11	14 1/2	18 1/2	15	2	1 1/4	1 1/4	20	20 1/2	14 1/8	2 x 96	6	8	8'-0"
5.	3ga 14" x 11.06" x 21'-0"	4'-0"	6'-0"	72.0	1848	11	24	3ga-11" x 5.68" x 38'-0"	11	15 1/2	19 1/2	15	2	1 1/4	1 1/4	20	20 1/2	14 1/8	1 3/4 x 90	6	8	7'-6"
6.	3ga 11" x 8.06" x 21'-0"	4'-0"	6'-0"	72.0	984	9	18	3ga-8.0" x 4.08" x 28'-0"	8	12	16	12	1 1/2	1	1	15	15 5/8	10 5/8	1 3/4 x 90	6	8	7'-6"
7.	0ga 12" x 9.06" x 21'-0"	5'-0"	7'-0"	105.0	1435	9	18	2-7ga-8.0" x 4.08" x 28'-0"	8	13 1/2	17 1/2	12	2	1 1/4	1 1/4	16	17	11 5/16	1 3/4 x 90	6	8	7'-6"

NOTE:
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.

NOTES

MATERIALS

STEEL	SAE 1020
POLES & ARMS PLATES ARM CAP & HANDHOLE COVER	A 36 AND A 441
ARM ATTACHMENT BOLT & NUTS	A 325
U-BOLTS ANCHOR BOLTS BOLT FOR ARM CAP & NUTS	A 307
CLAMP BODY	A 242 AND A 375
CAST BASE & HANDHOLE FRAME	A27 GRADE 65-35
ALL OTHERS	300 SERIES, STAINLESS
CONCRETE	CLASS "C"
ALUMINUM ALLOY	ALUMINUN NO.
3/4 PIPE	6063-T6
4 ZEE (SIGN BRACKETS)	6061-T6
PLATES	6061-T6
POLE TOP	# 43
FINISH	ASTM
GALVANIZING, STRUCTURAL STEEL	A 123
GALVANIZING STEEL HARDWARE	A 153
STAINLESS STEEL	PASSIVATED
ALUMINUM ALLOY	NATURAL

AFTER FABRICATION TAPPERED POLES & ARMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 55,000 PSI.

ALL MATERIALS SHALL CONFORM TO THE STATE OF OHIO, CONSTRUCTIONS & MATERIALS SPECIFICATION, AND THE SUPPLEMENTAL SPECIFICATONS 816, OR AS OTHER-WISE SPECIFIED.

SOILS

THE FOUNDATION DETAIL SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY.)

FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

FOUNDATIONS

THE TOP ELEVATION OF ALL FOUNDATIONS SHALL BE FORMED TO BE FLUSH WITH ADJOINING CONCRETE CONSTRUCTION, OR A MAXIMUM OF 4" ABOVE FINISHED GRADE.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD SIGN SUPPORT

DATE
5-31-68

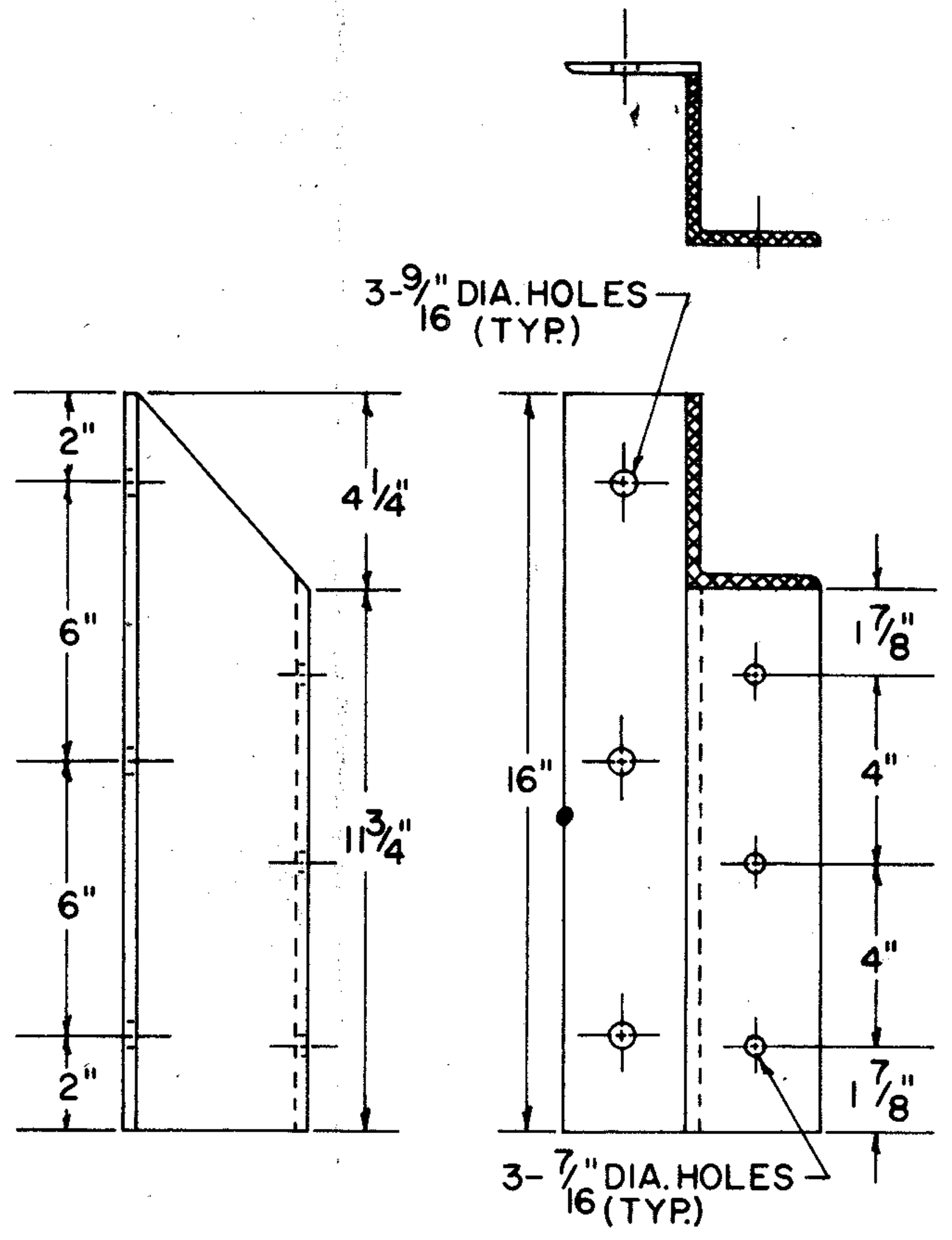
816-16.10

APPROVED____________
ENGINEER OF TRAFFIC

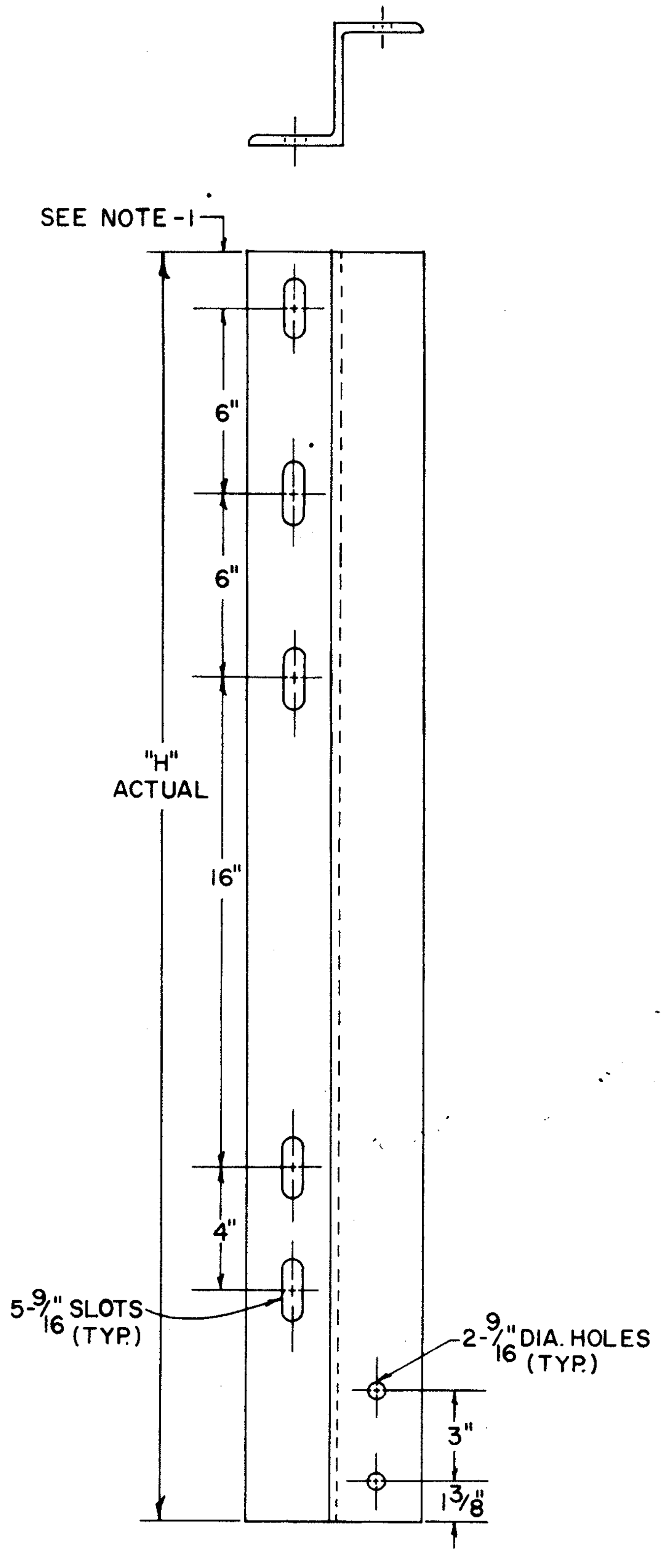
FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

CUY-90-10.40

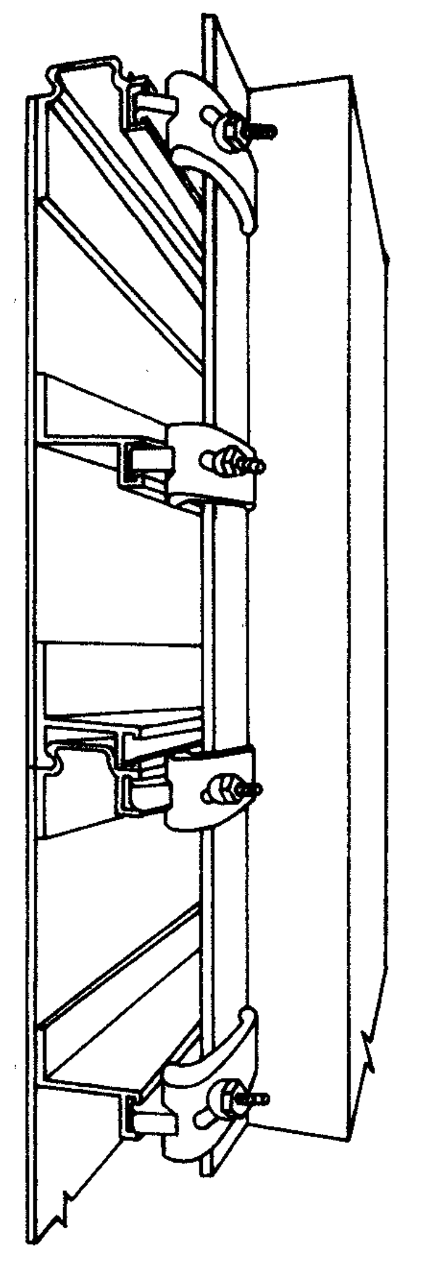
639/713



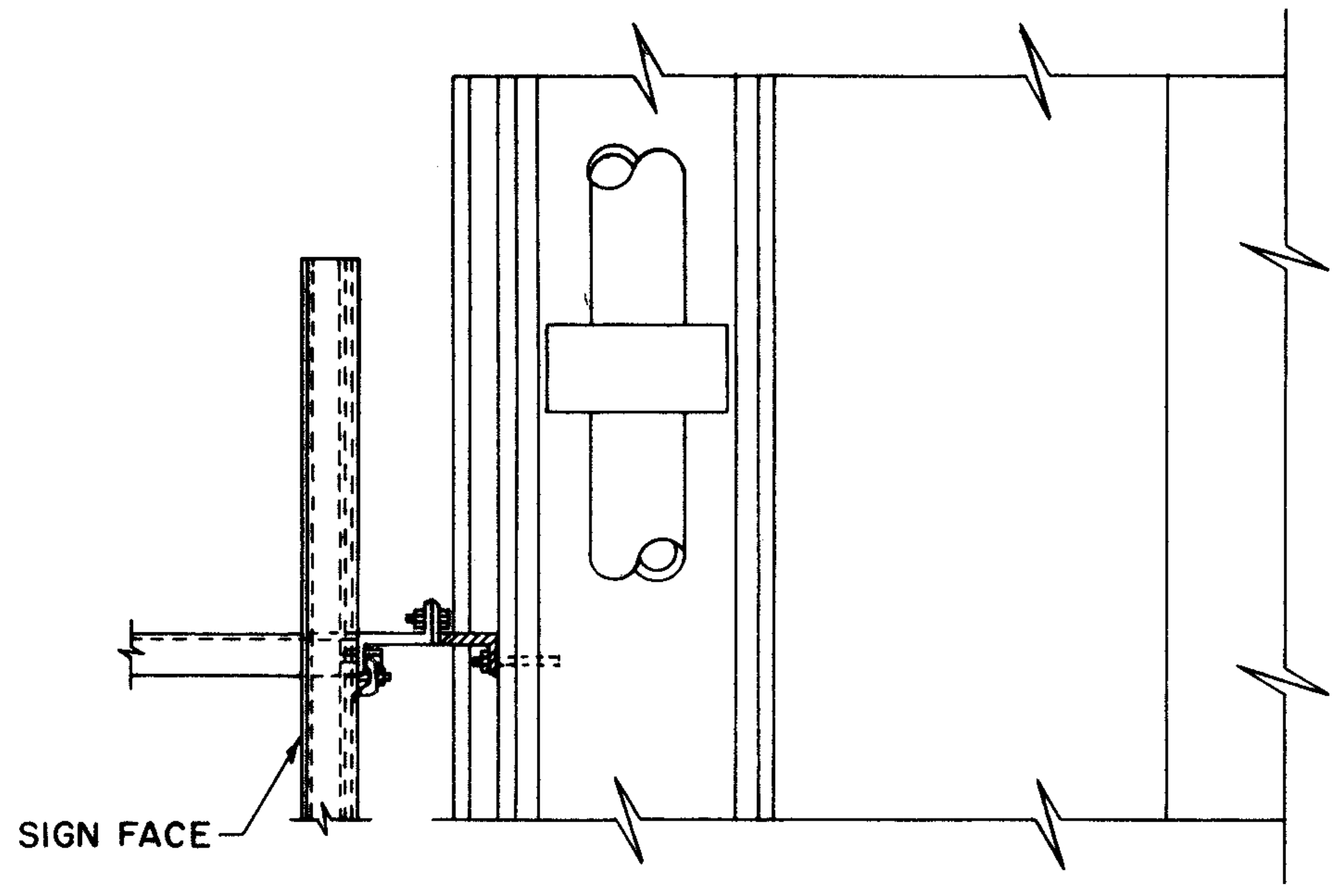
"Z" BAR-A
(4" x 3 1/16" x 1/4" @ 2.85 LB.)



"Z" BAR-C
(4" x 3 1/16" x 1/4" @ 2.85 LB.)



CLAMP ASSEMBLY



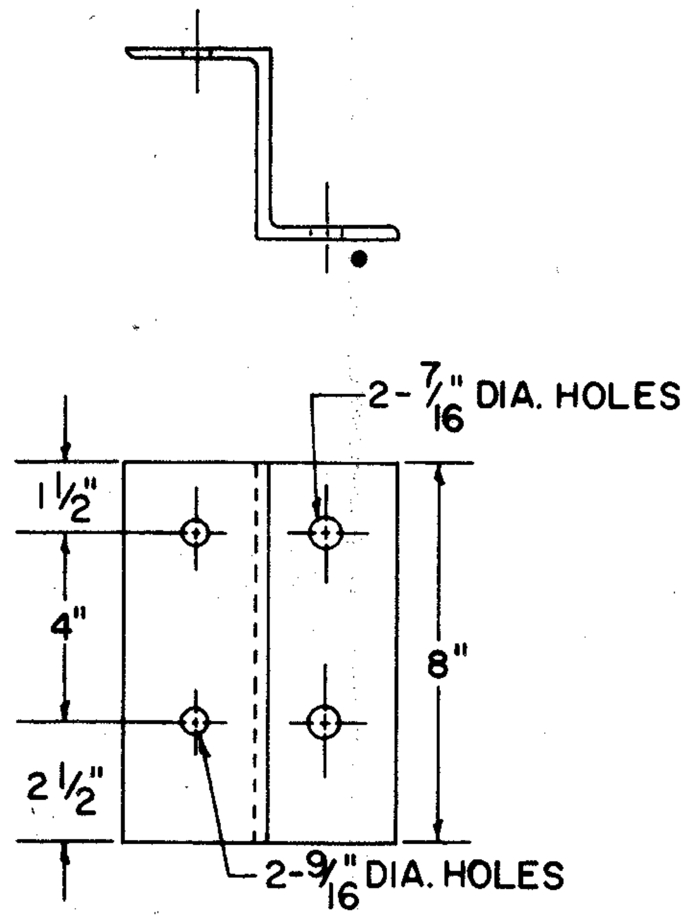
TOP VIEW

NOTES

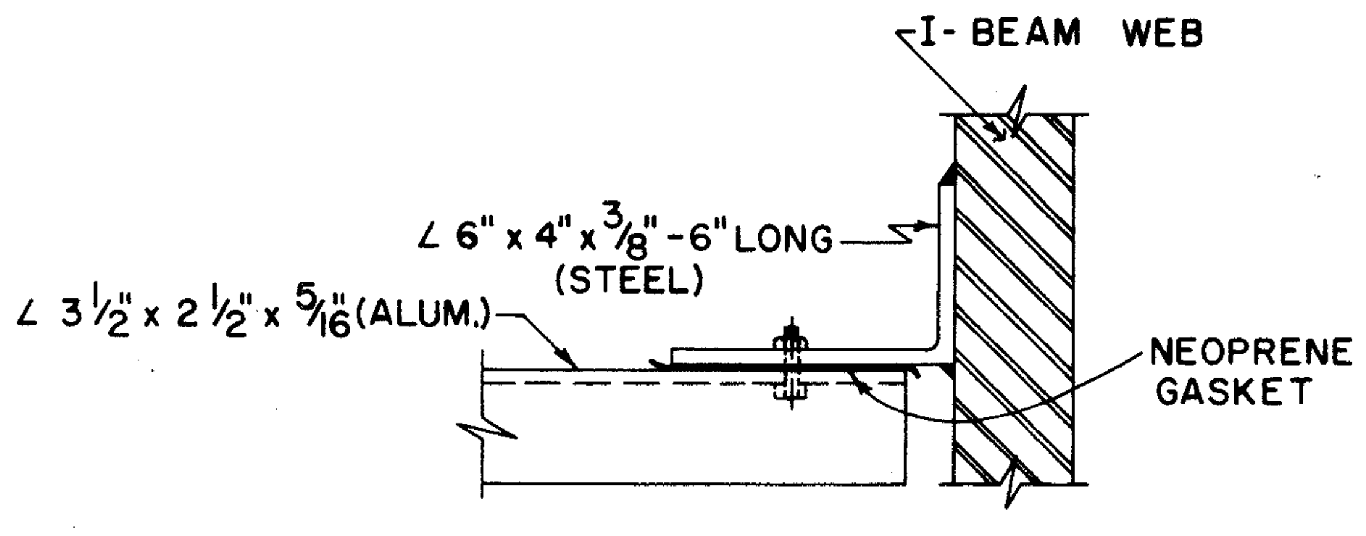
ALL STRUCTURAL SHAPES TO BE ALUMINUM, EXCEPT AS NOTED.

EXPANSION BOLTS TO BE GALVANIZED STEEL.

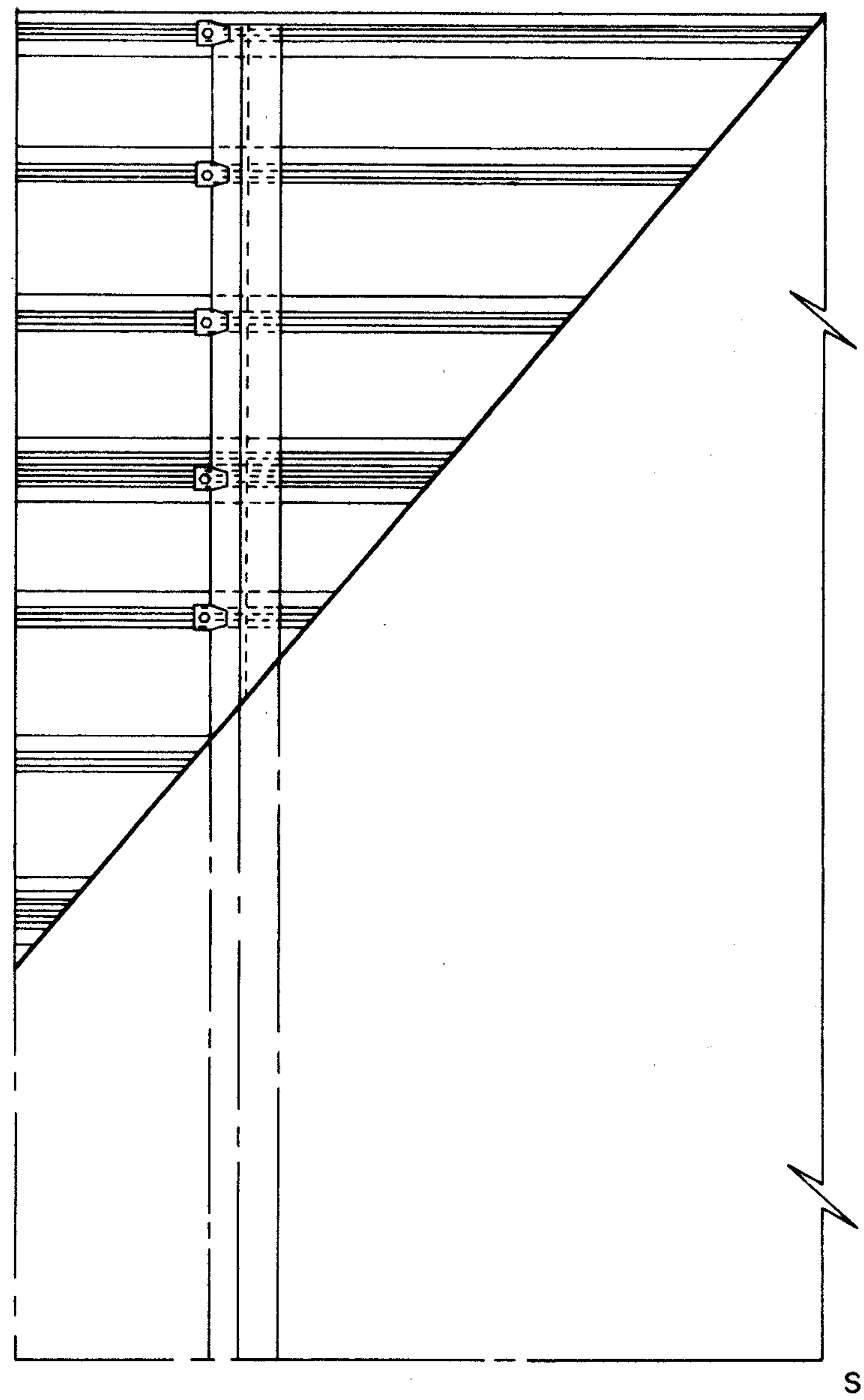
(1.) THIS DIMENSION VARIES FOR SIGNS OVER 4'-6" ON SLAB TYPE BRIDGES AND SIGNS OVER 5'-6" ON STEEL GIRDER TYPE BRIDGES.
(2.) FOR ELECTRICAL DETAIL SEE DRAWINGS,
EI-1 PAGE ______.
EI-2 PAGE ______.
(3.) ALL MATERIALS SHALL CONFORM TO THE STATE OF OHIO, CONSTRUCTION & MATERIALS SPECIFICATIONS, AND THE SUPPLEMENTAL SPECIFICATIONS 816, OR AS OTHER-WISE SPECIFIED.



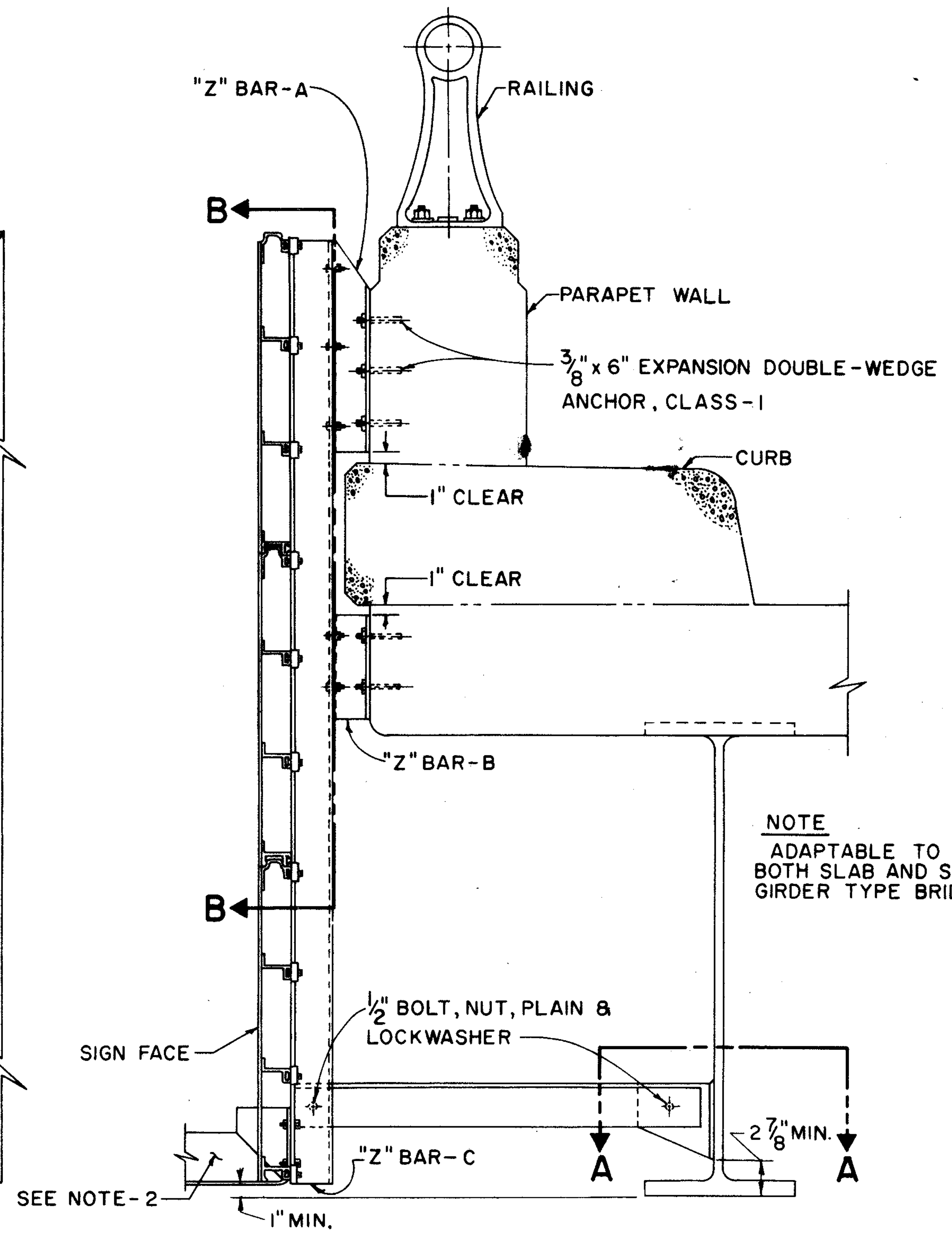
"Z" BAR-B
(4" x 3 1/16" x 1/4" @ 2.85 LB.)



SECTION A-A



SECTION B-B



NOTE
ADAPTABLE TO BOTH SLAB AND STEEL GIRDER TYPE BRIDGES.

SIDE VIEW BRIDGE MOUNT

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

SPECIAL SIGN SUPPORT

DATE
1-24-68
4-24-69

SPL-816

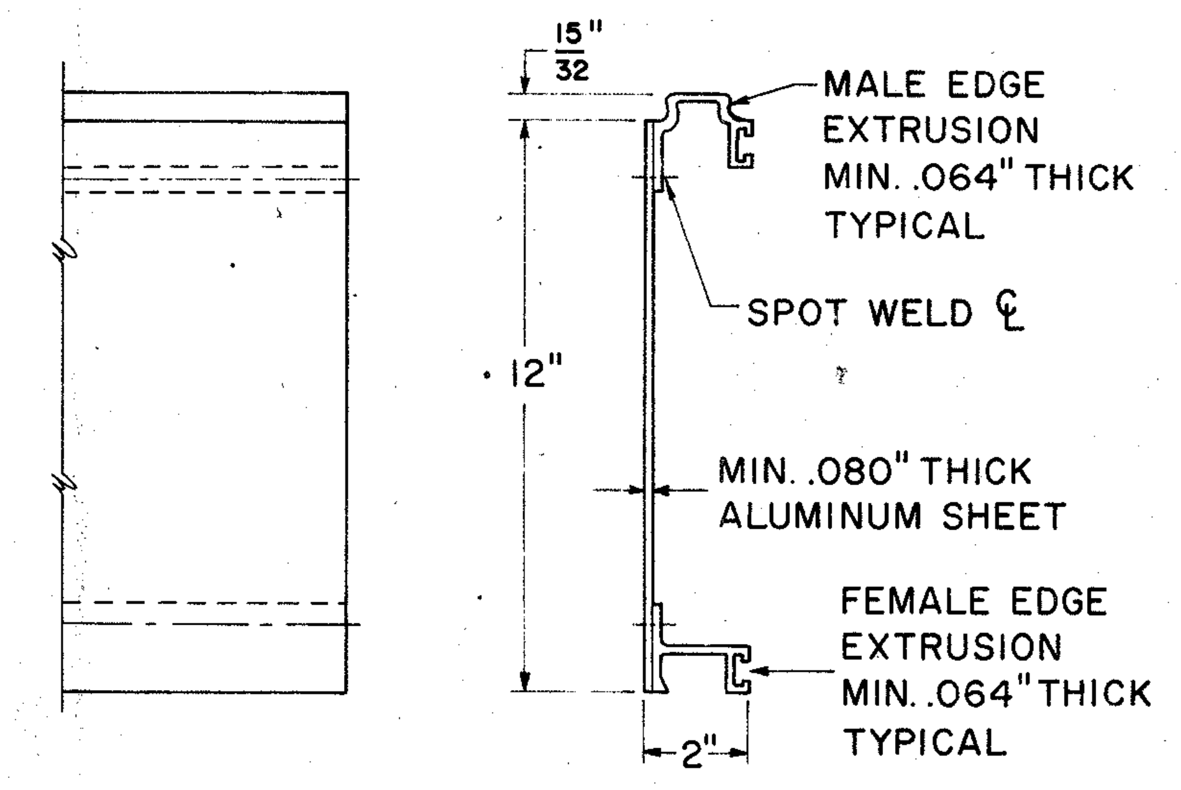
APPROVED ______________
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

640/713

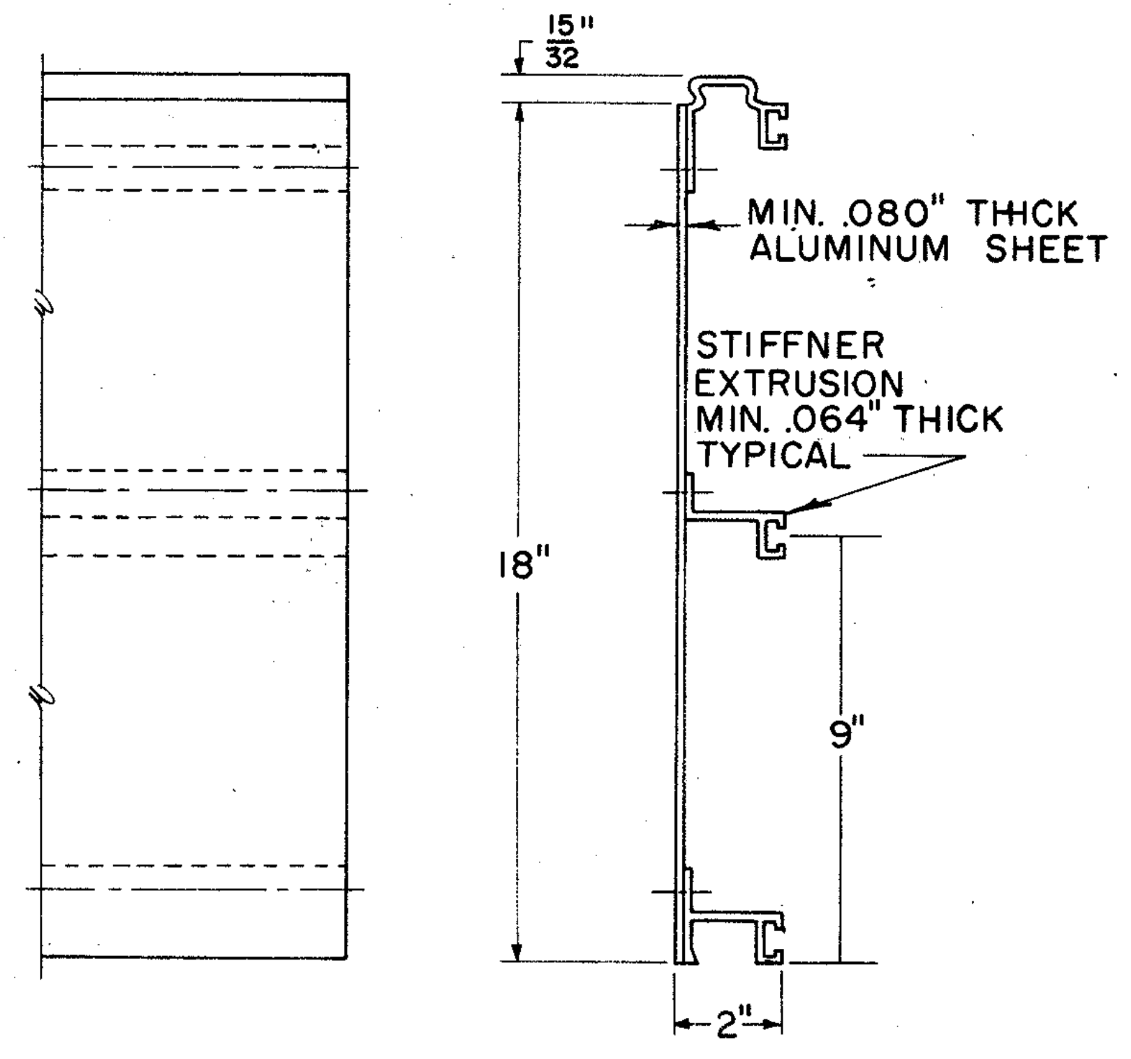
CUY-90-10.40

12" EXTRUSHEET PANEL



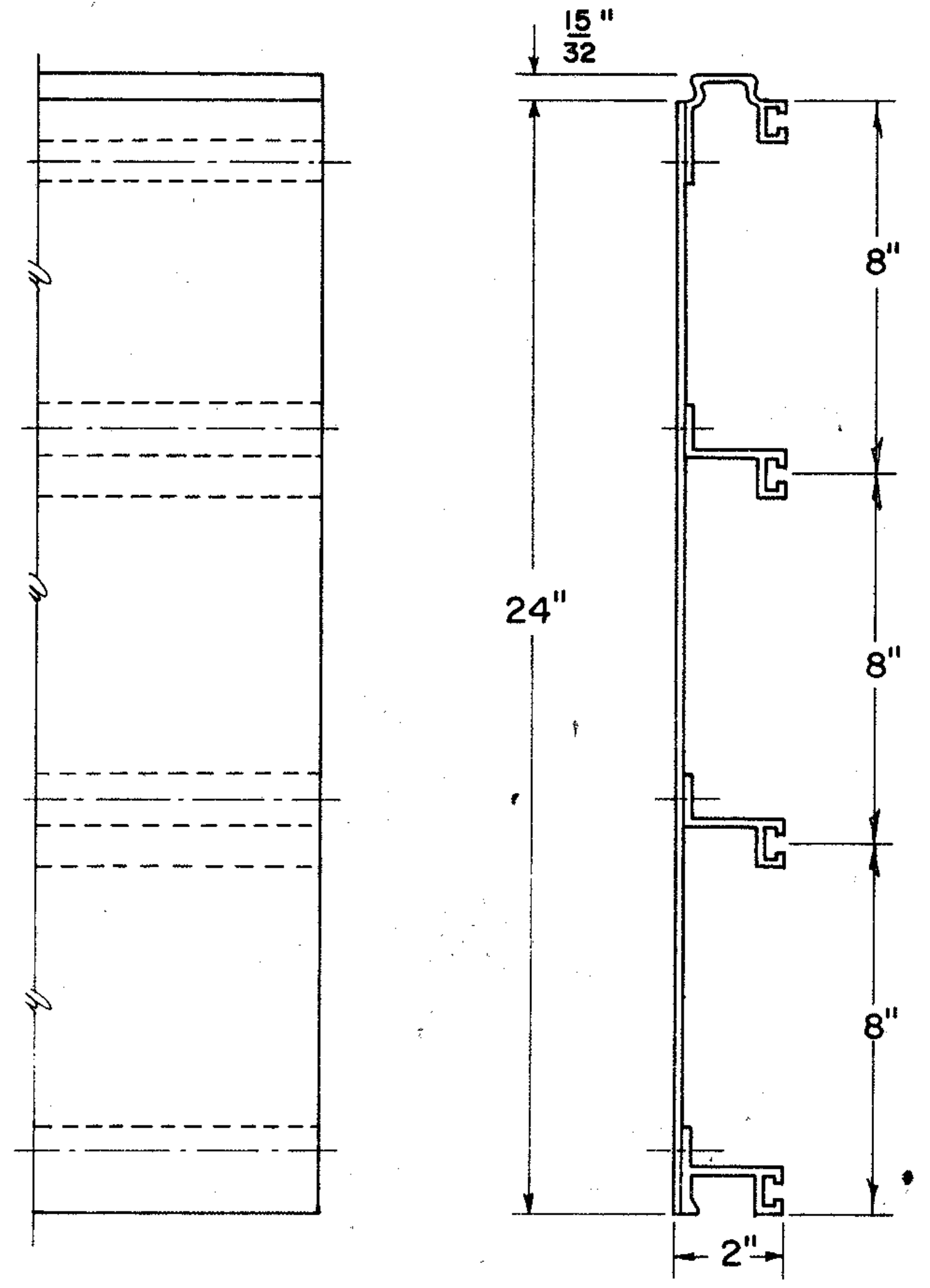
FRONT VIEW SIDE VIEW

18" EXTRUSHEET PANEL



FRONT VIEW SIDE VIEW

24" EXTRUSHEET PANEL



FRONT VIEW SIDE VIEW

NOTES:

EXTRUSHEET PANELS SHALL BE ALUMINUM; SPOT WELDING AND ALL MATERIALS SHALL CONFORM WITH SUPPLEMENTAL SPECIFICATION NO. 815

COMBINATIONS OF 12", 18", AND 24" PANELS ARE USED TO ATTAIN REQUIRED SIGN HEIGHT.

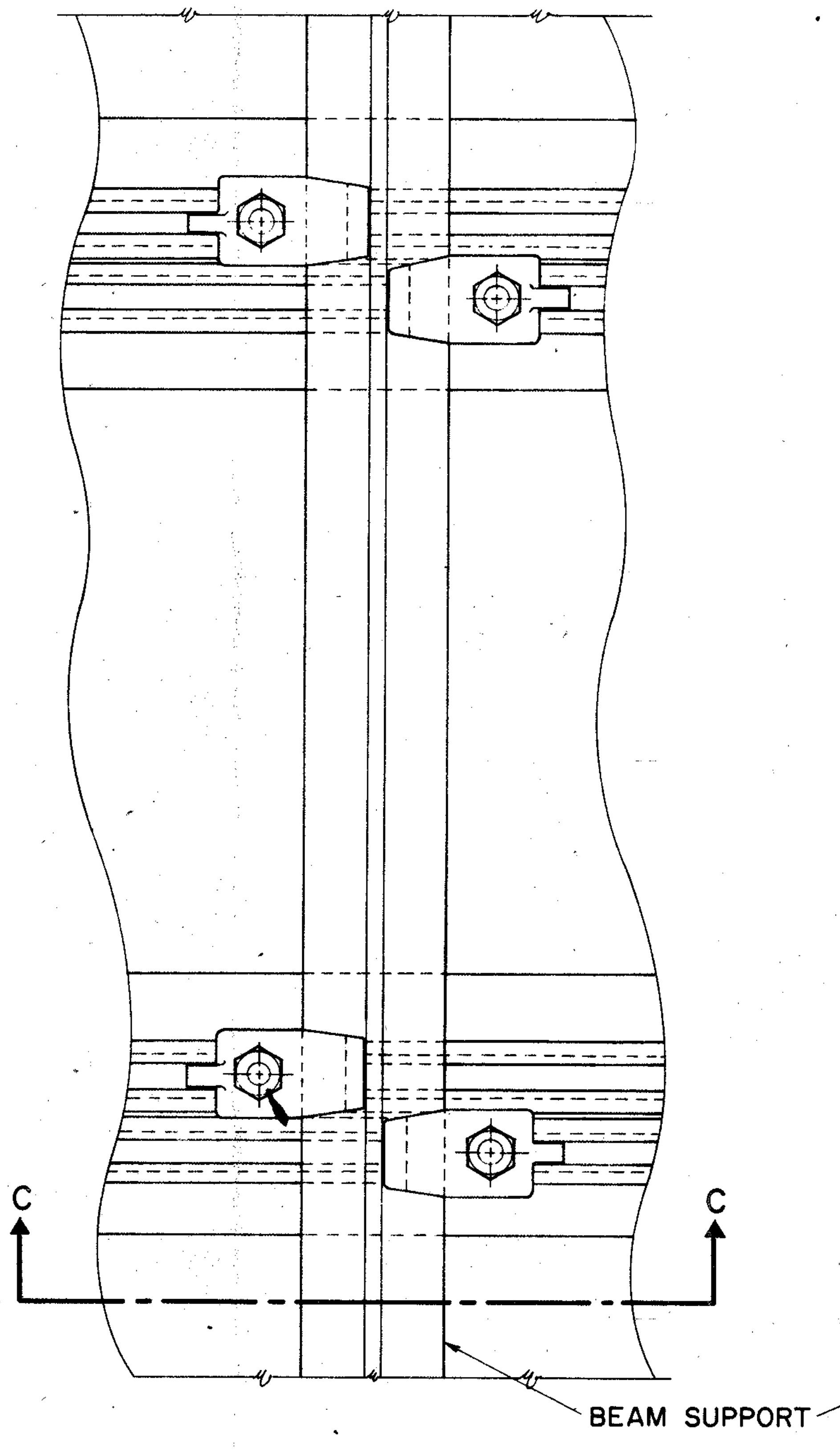
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN WITH NO SPLICES.

PANELS SHALL BE INTERLOCKED AND ERECTED WITH THE MALE EXTRUSION LOCATED AT THE TOP EDGE OF THE SIGN.

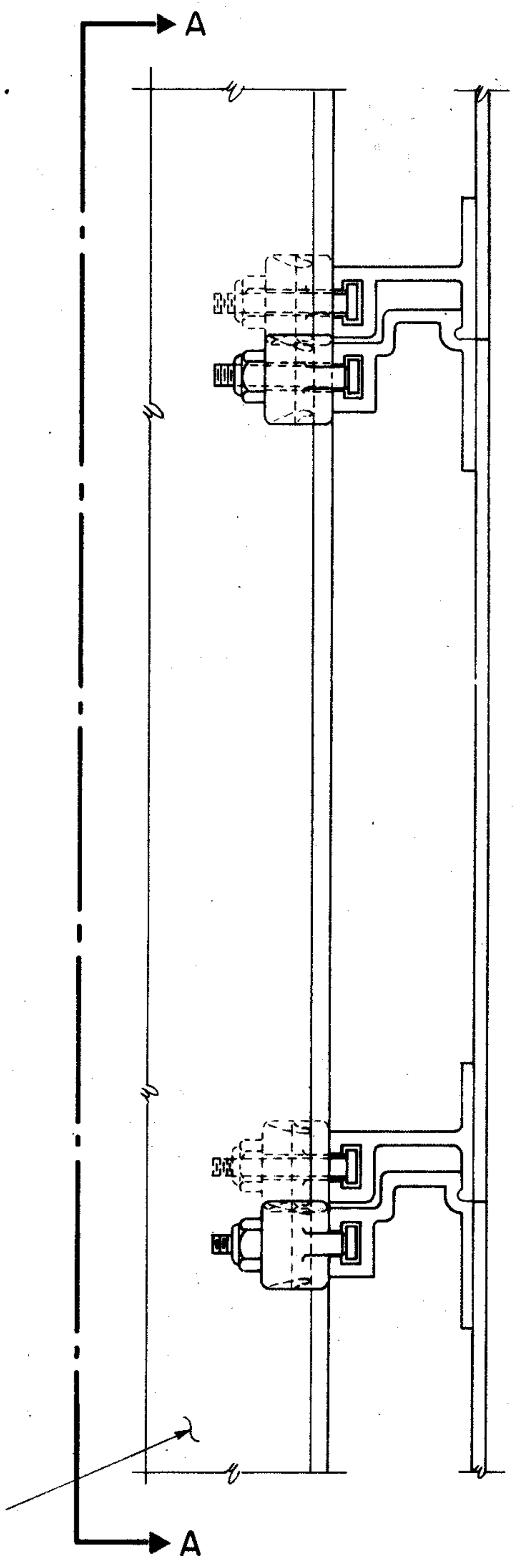
EXTRUSHEET PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT; AND ON BOTH SIDES AT TOP AND BOTTOM EDGE OF SIGN.

THE PANELS SHALL BE DESIGNED TO WITHSTAND A WIND LOAD OF 35 POUNDS PER SQUARE FOOT, IN ACCORDANCE WITH THE A.A.S.H.O. SPECIFICATION FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.

THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0".
THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".

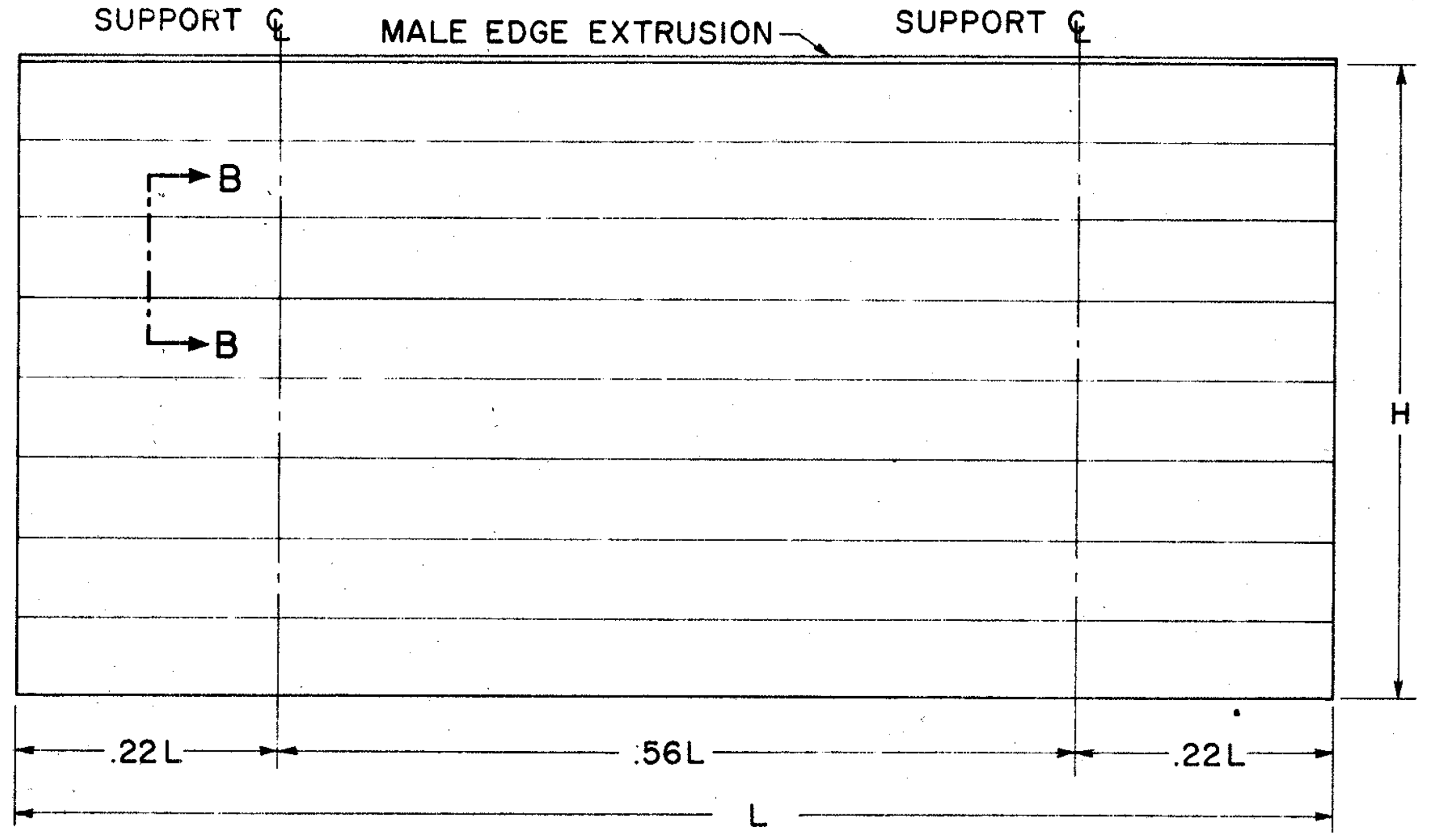


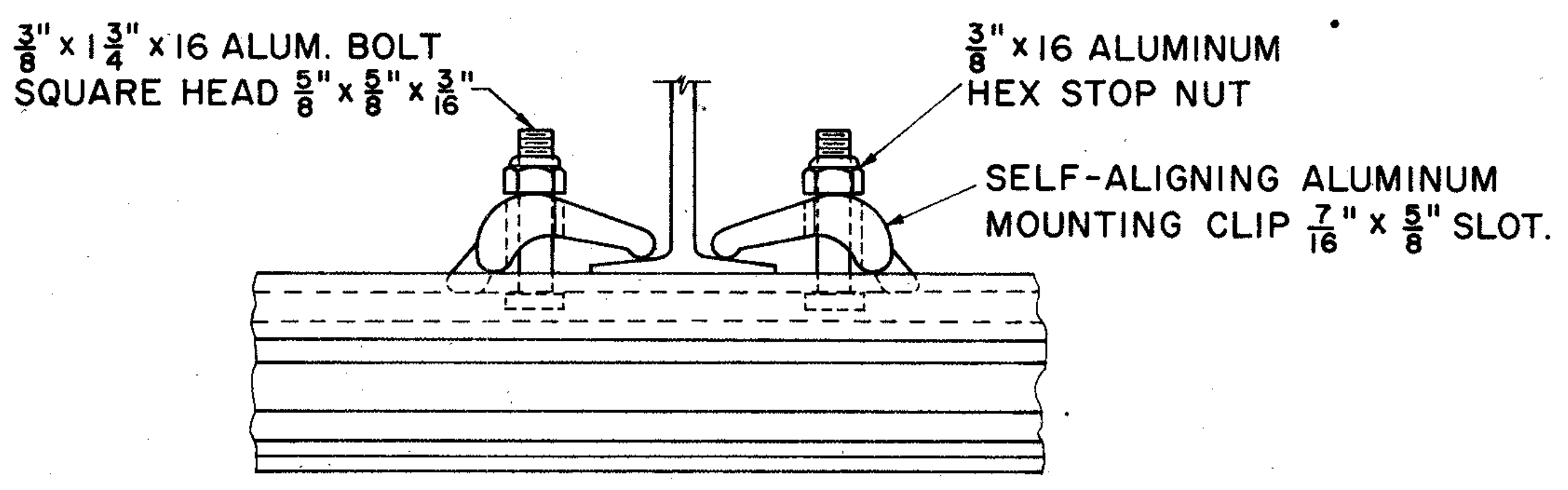
SECTION A-A



SECTION B-B

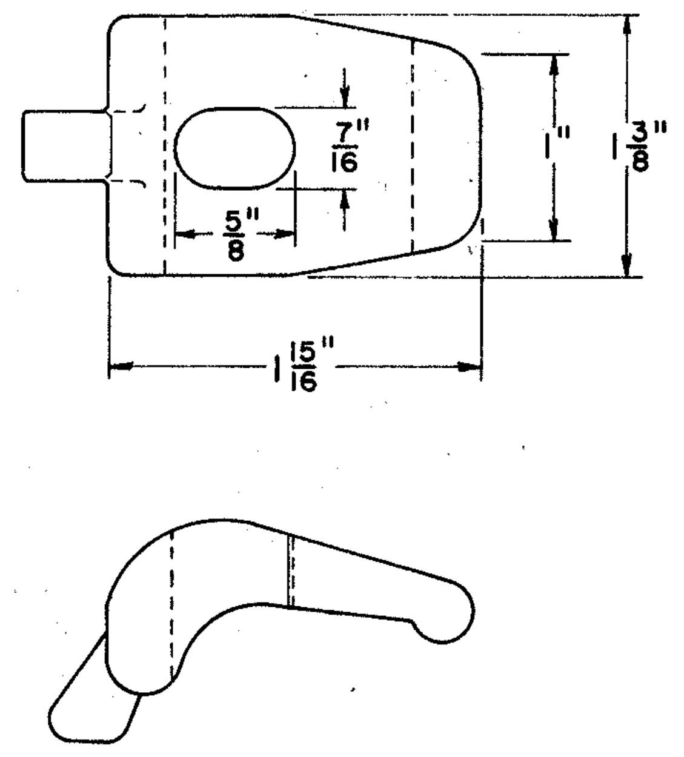
GENERAL ARRANGEMENT





SECTION C-C

CLIP DETAIL



SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM EXTRUSHEET PANEL SIGN	ECD 1	DATE 9-25-63 5-19-64 10-21-65 5-24-67

APPROVED Fred C Tarby
ENGINEER OF TRAFFIC

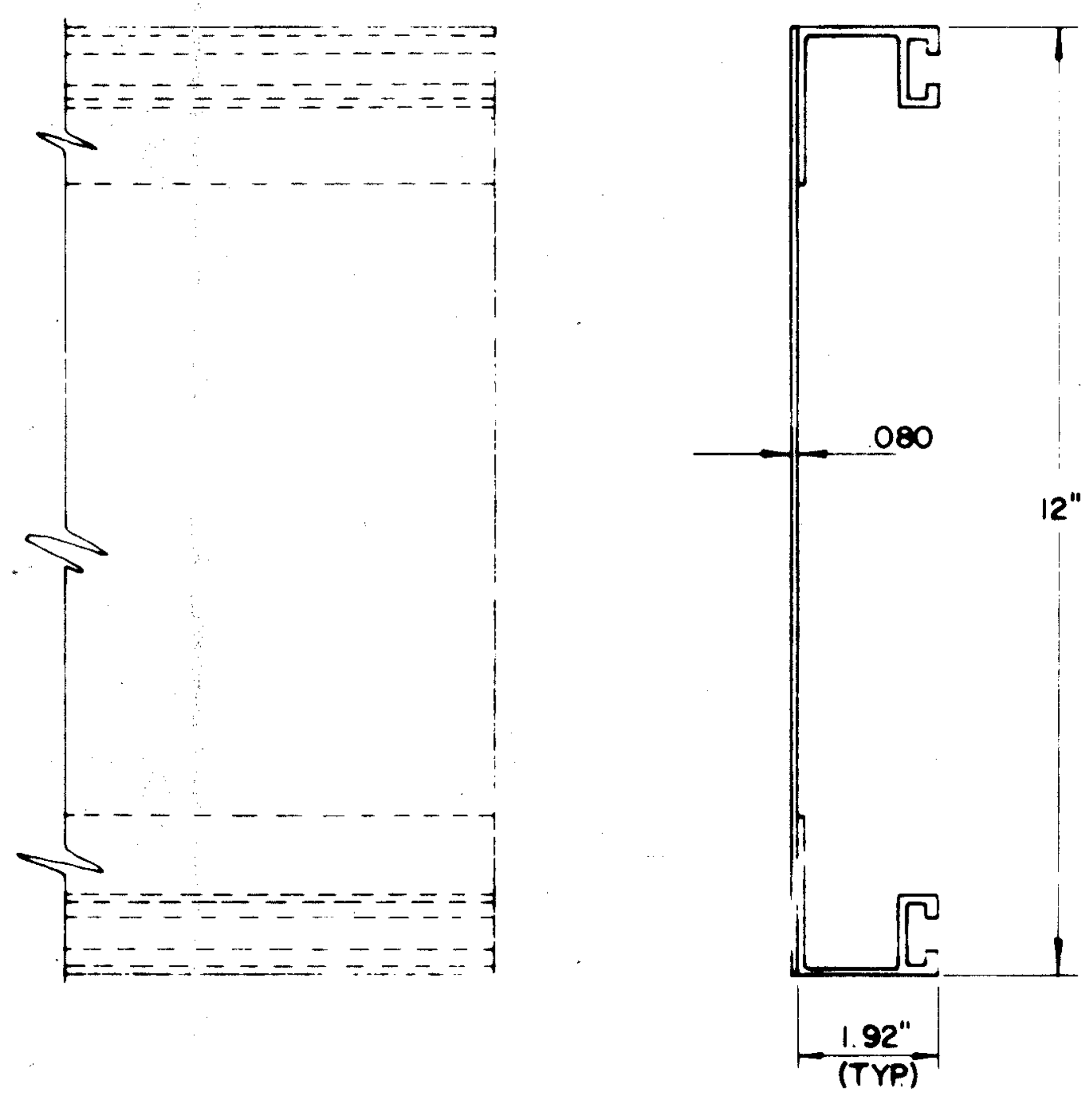
ALUMINUM EXTRUSHEET PANEL SIGN

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

641/713

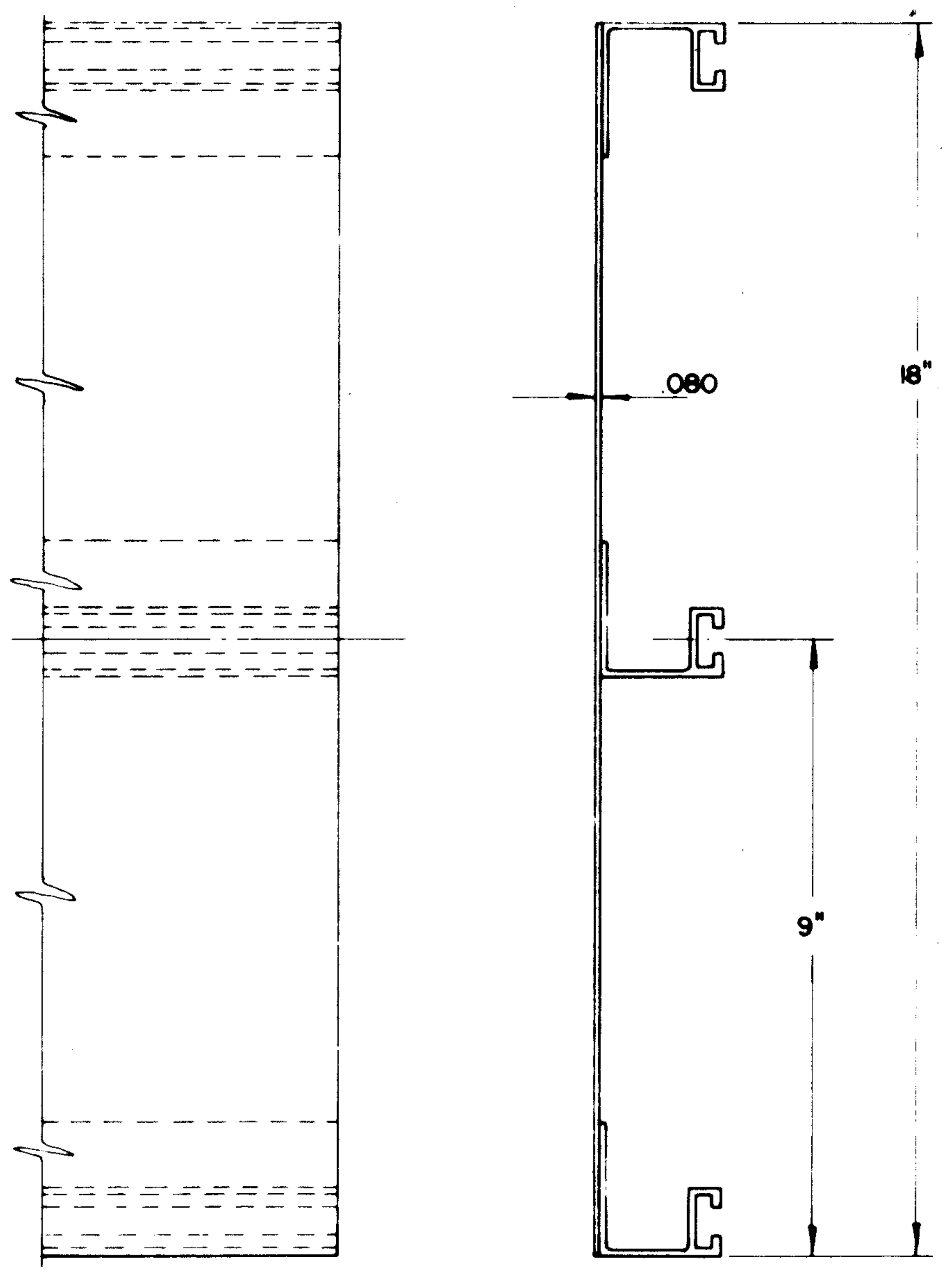
CUY-90-10.40

12" BOLTED-EXTRUSHEET PANEL



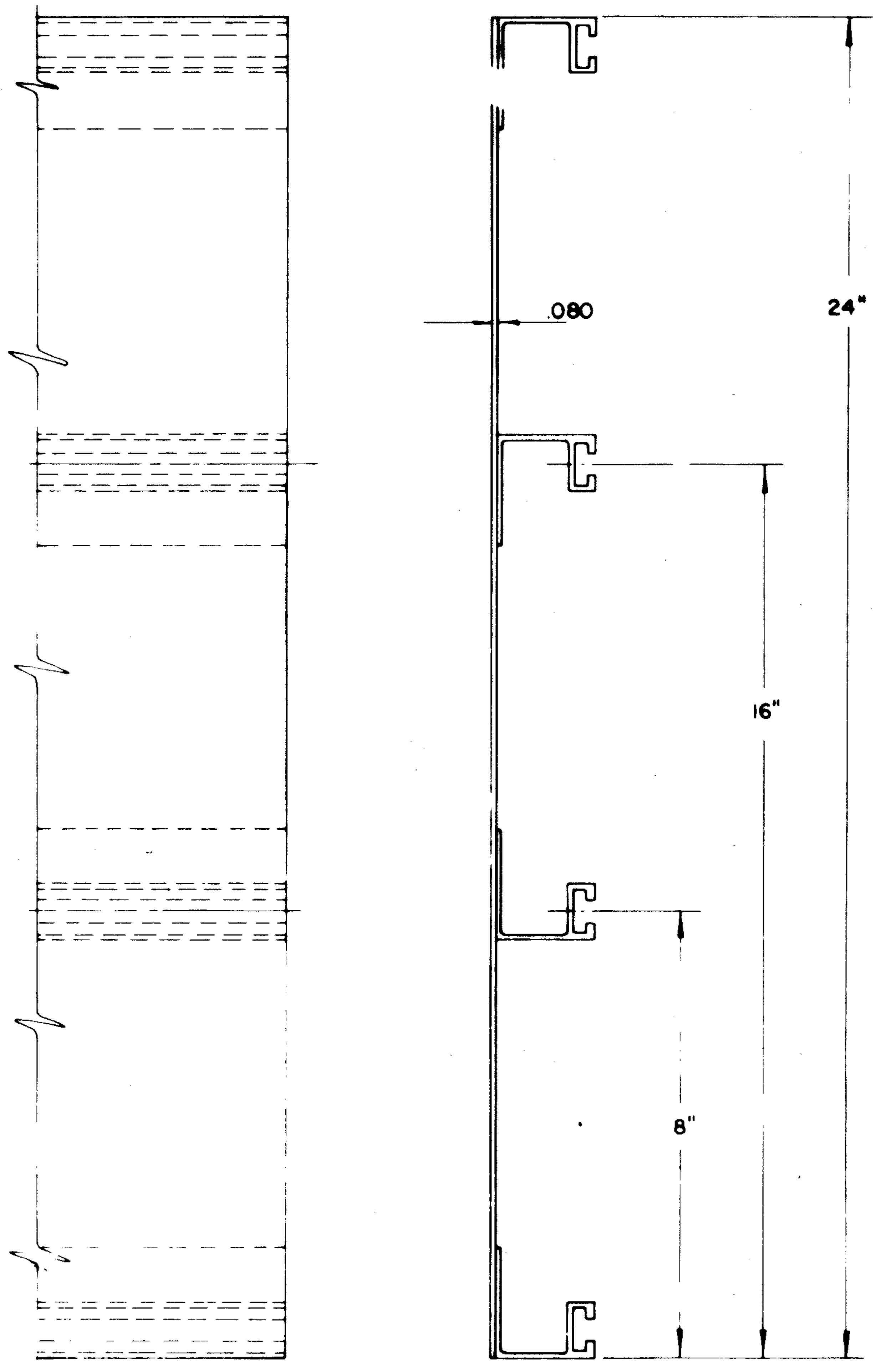
FRONT VIEW　SIDE VIEW

18" BOLTED-EXTRUSHEET PANEL



FRONT VIEW　SIDE VIEW

24" BOLTED-EXTRUSHEET PANEL



FRONT VIEW　SIDE VIEW

NOTES

EXTRU-SHEET PANELS SHALL BE ALUMINUM; SPOT WELDING, MATERIALS AND HARDWARE SHALL CONFORM WITH SPECIFICATION NO. 815

COMBINATIONS OF 12", 18" AND 24" PANELS ARE TO BE USED TO ATTAIN REQUIRED SIGN HEIGHT.

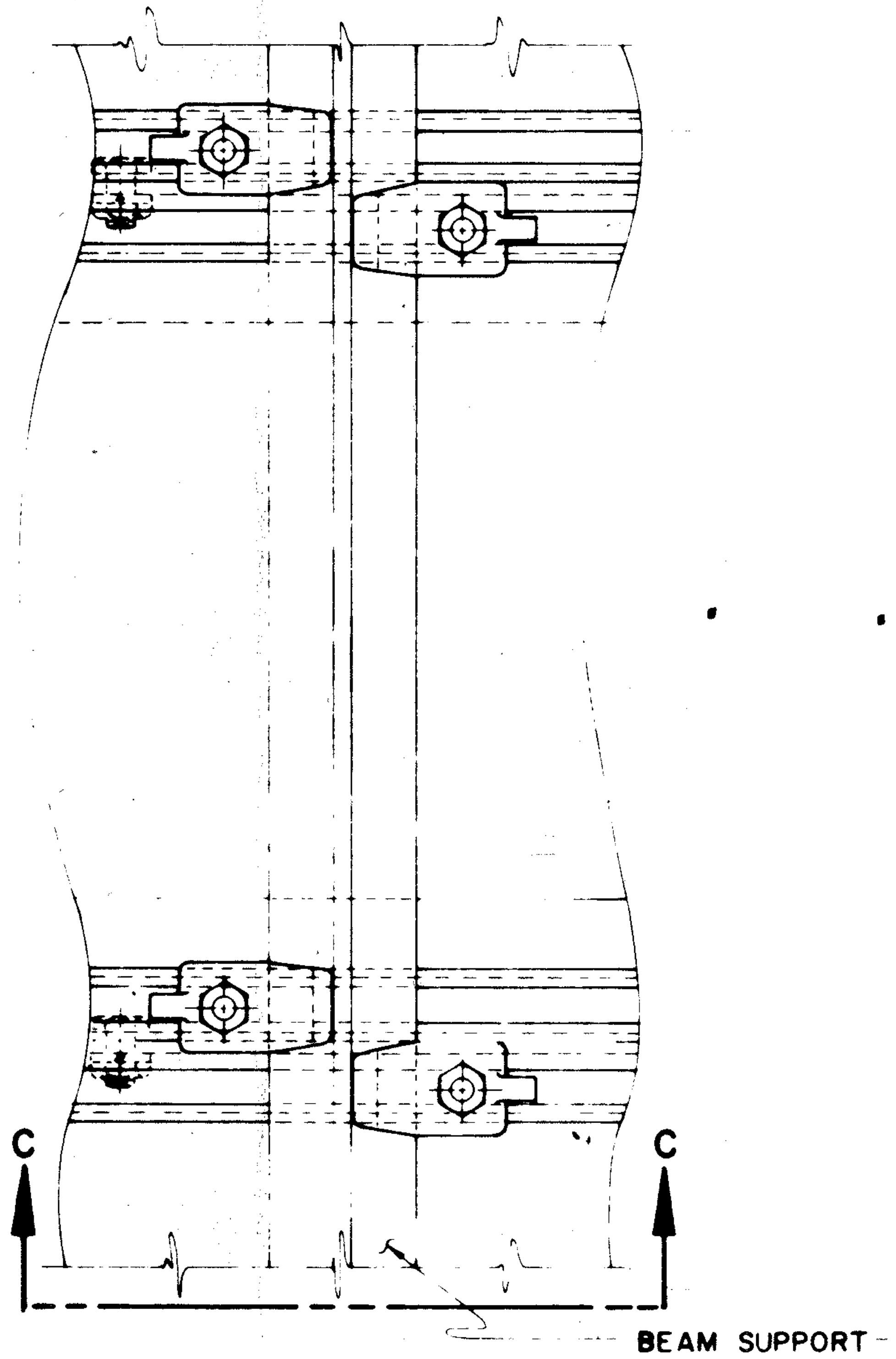
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN, WITH NO SPLICES.

THE PANELS SHALL BE ERECTED HORIZONTALLY AND BOLTED ON 24" CENTERS.

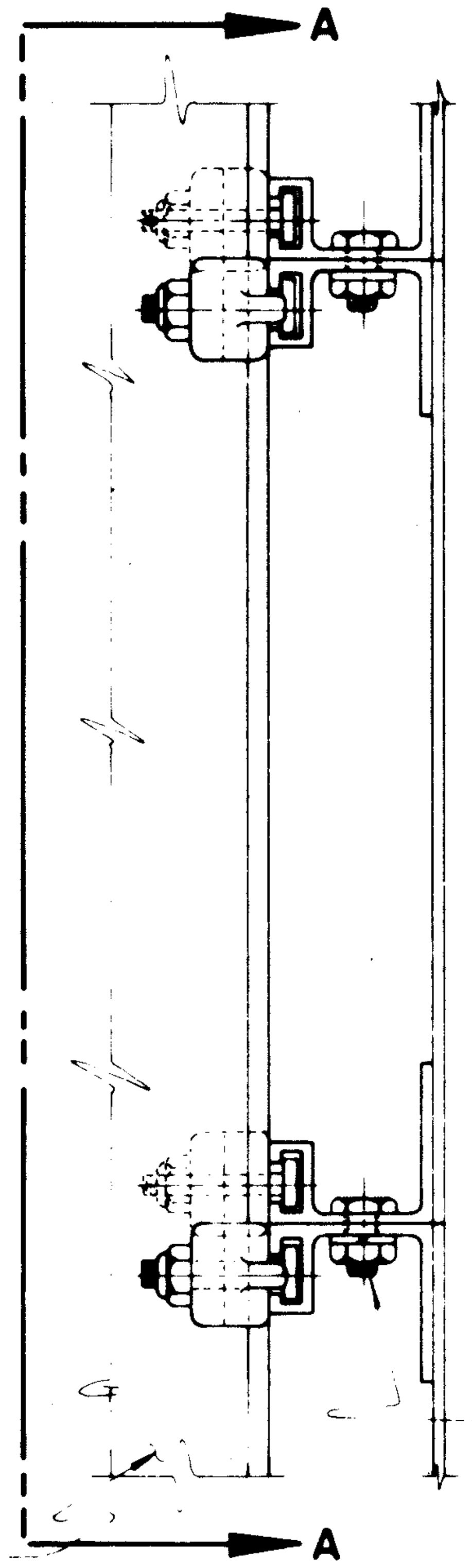
THE PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND BOTH SIDES AT TOP AND BOTTOM EDGES OF SIGN.

THE PANELS SHALL BE DESIGNED IN ACCORDANCE WITH THE A.A.S.H.O SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, BASE ON A WIND LOAD OF 35#/SQ. FT.

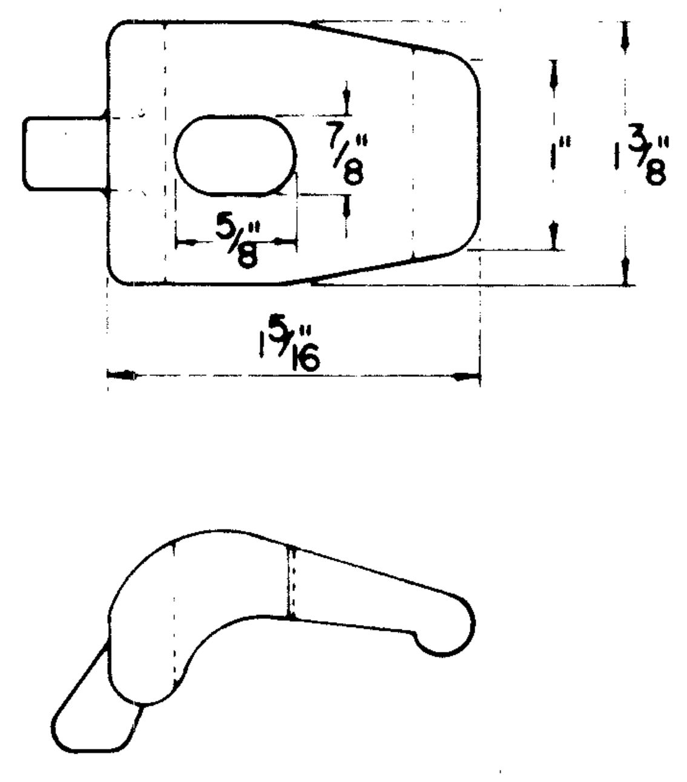
THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0". THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".



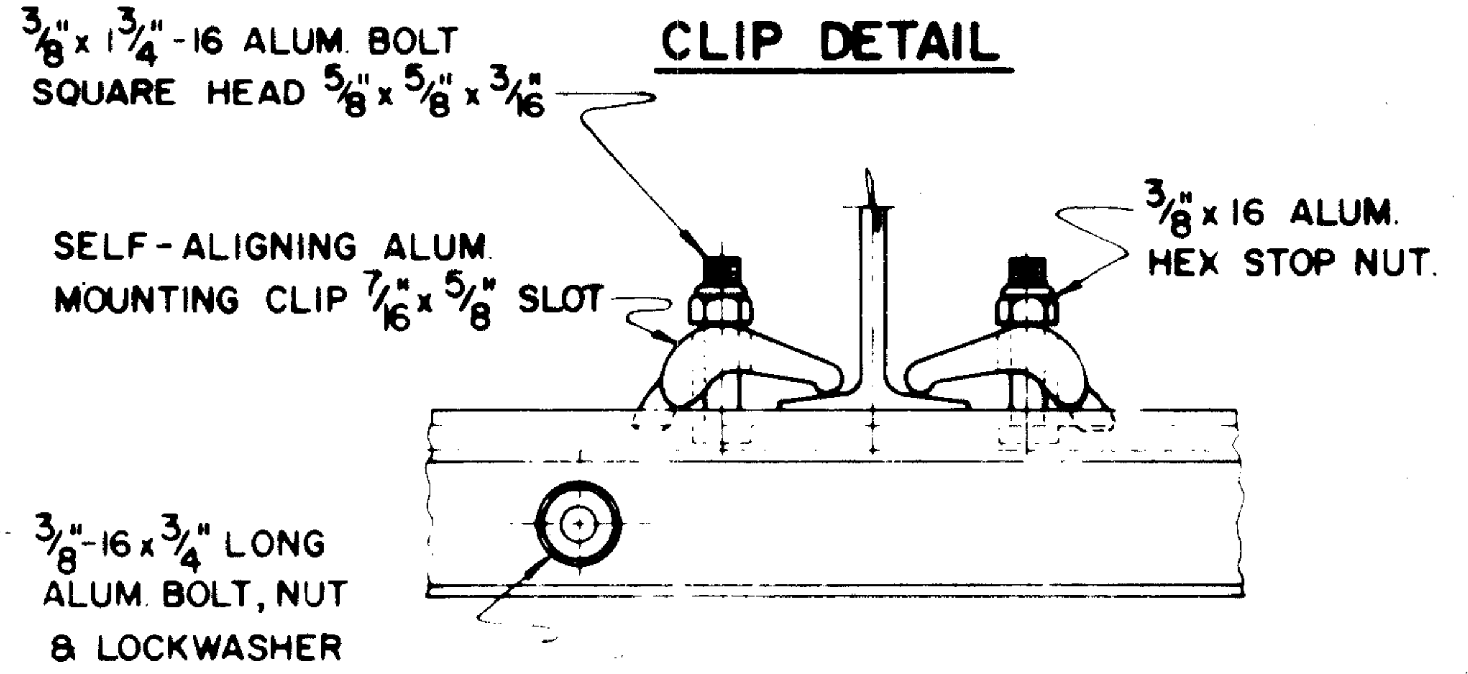
SECTION A-A



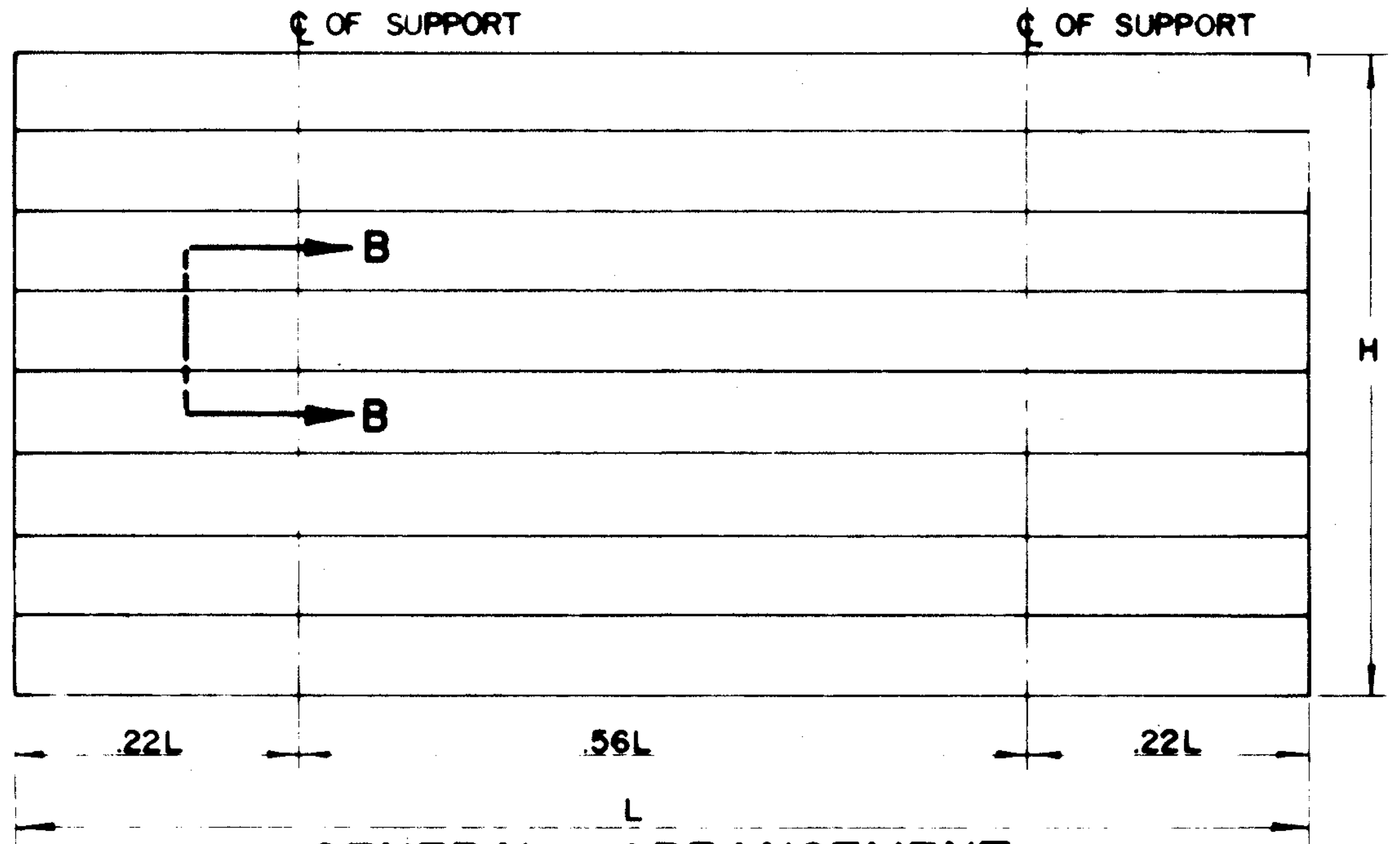
SECTION B-B



CLIP DETAIL



SECTION C-C



GENERAL ARRANGEMENT

SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM BOLTED
EXTRUSHEET
PANEL SIGN

ECD
2

DATE
10-14-65

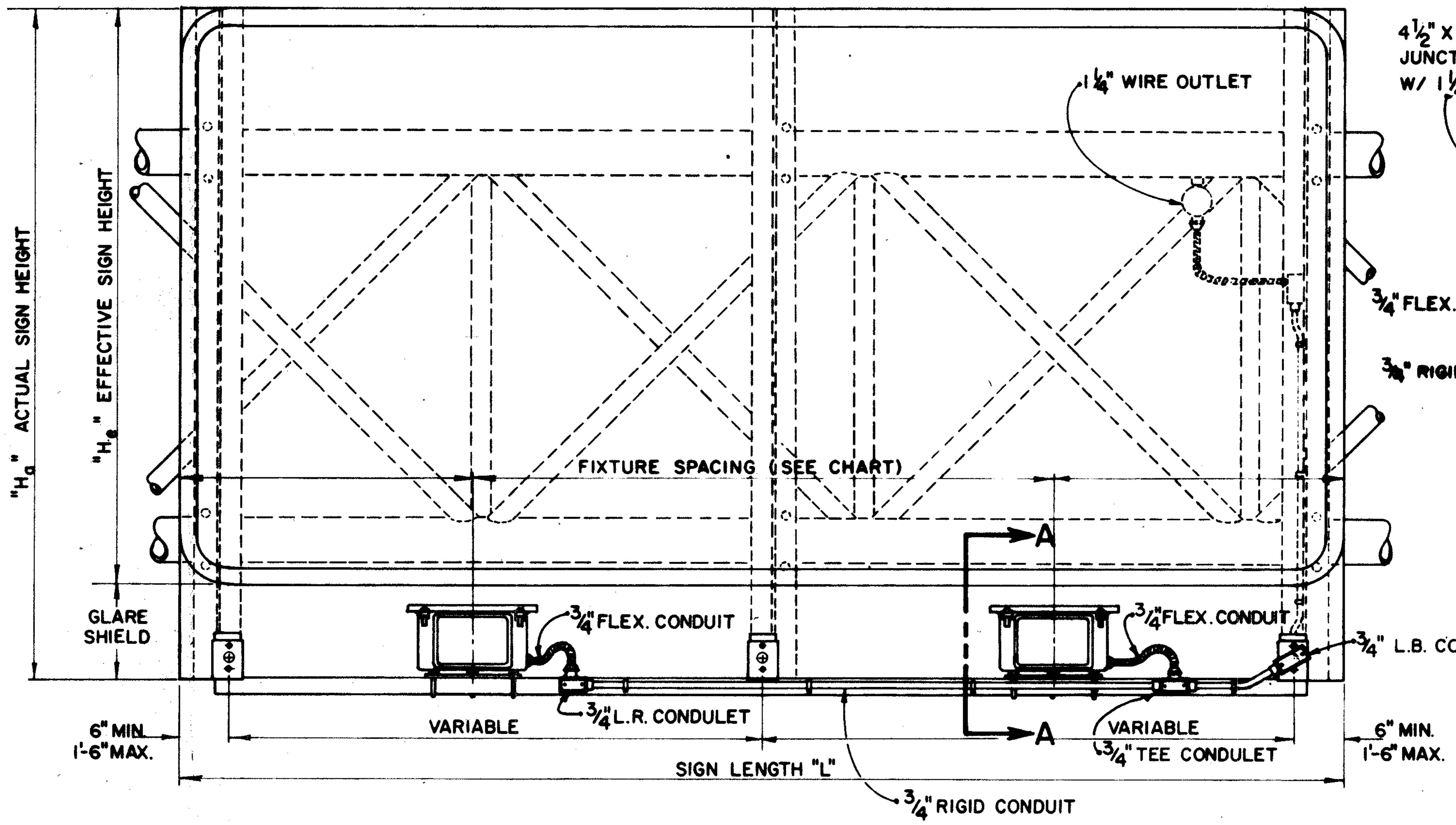
APPROVED Fred C. Tarbox
ENGINEER OF TRAFFIC

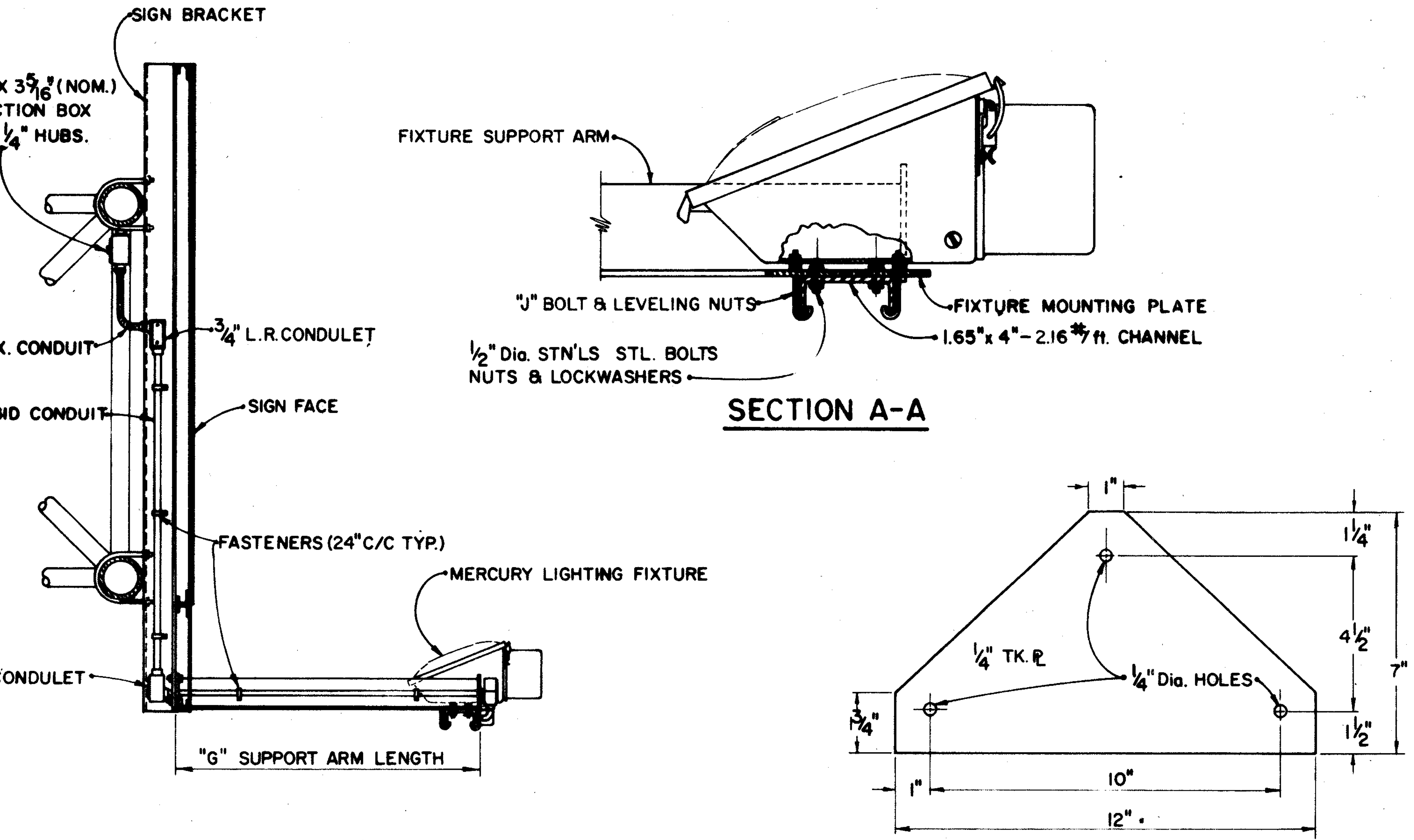
ALUMINUM BOLTED-EXTRUSHEET PANEL SIGN

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

642/713

CUY-90-10.40

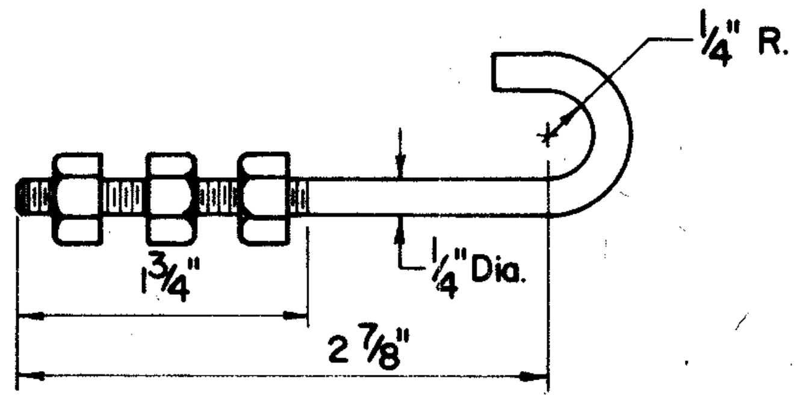




SECTION A-A

FIXTURE MOUNTING PLATE

(ALUMINUM)



"J" BOLT

(STAINLESS STEEL BOLT, NUTS & LOCKWASHERS)

SIGN LENGTH "L"	NO. OF FIXTURES	LIGHT FIXTURE SPACING						SUPPORT ARM SPACING					NO. OF SIGN BRACKETS
4'-0"	1	2"-0"	2'-0"					6"	36"	6"			2
5'-0"	1	2'-6"	2"-6"					6"	48"	6"			2
6'-0"	1	3'-0"	3'-0"					6"	60"	6"			2
7'-0"	1	3'-6"	3'-6"					6"	72"	6"			2
8'-0"	1	4'-0"	4'-0"					10 3/8"	75 3/8"	10 1/4"			2
9'-0"	1	4'-6"	4'-6"					16 3/8"	75 3/8"	16 1/4"			2
10'-0"	1	5'-0"	5'-0"					10 3/8"	99 3/8"	10 1/4"			2
11'-0"	1	5'-6"	5'-6"					16 3/8"	99 3/8"	16 1/4"			2
12'-0"	2	3'-0"	6'-0"	3'-0"				6"	66"	66"	6"		3
13'-0"	2	3'-6"	6'-0"	3'-6"				6"	72"	72"	6"		3
14'-0"	2	4'-0"	6'-0"	4'-0"				8 5/8"	75 3/8"	75 3/8"	8 5/8"		3
15'-0"	2	4'-6"	6'-0"	4'-6"				14 5/8"	75 3/8"	75 3/8"	14 5/8"		3
16'-0"	2	4'-0"	8'-0"	4'-0"				8 5/8"	75 3/8"	99 3/8"	8 5/8"		3
17'-0"	2	4'-6"	8'-0"	4'-6"				14 5/8"	75 3/8"	99 3/8"	14 5/8"		3
18'-0"	2	4'-0"	10'-0"	4'-0"				8 5/8"	99 3/8"	99 3/8"	8 5/8"		3
19'-0"	2	4'-6"	10'-0"	4'-6"				14 5/8"	99 3/8"	99 3/8"	14 5/8"		3
20'-0"	3	4'-0"	6'-0"	6'-0"	4'-0"			7"	75 3/8"	75 3/8"	75 3/8"	6 7/8"	4
21'-0"	3	4'-6"	6'-0"	6'-0"	4'-6"			13"	75 3/8"	75 3/8"	75 3/8"	12 7/8"	4
22'-0"	3	4'-0"	7'-0"	7'-0"	4'-0"			7"	75 3/8"	75 3/8"	99 3/8"	6 7/8"	4
23'-0"	3	4'-6"	7'-0"	7'-0"	4'-6"			13"	75 3/8"	75 3/8"	99 3/8"	12 7/8"	4
24'-0"	3	4'-0	8'-0"	8'-0	4'-0"			7"	75 3/8"	99 3/8"	99 3/8"	6 7/8"	4
25'-0"	3	4'-6"	8'-0"	8'-0"	4'-6			13"	75 3/8"	99 3/8"	99 3/8"	12 7/8"	4
26'-0"	4	4'-0"	6'-0"	6'-0"	6'-0"	4'-0"		7"	99 3/8"	99 3/8"	99 3/8"	6 7/8"	4
27'-0"	4	4'-6"	6'-0"	6'-0"	6'-0"	4'-6"		13"	99 3/8"	99 3/8"	99 3/8"	12 7/8"	4

EFFECTIVE SIGN HEIGHT "H"	SUPPORT ARM LENGTH "G"	APPROX. AIMING ANGLE	LAMP WATTS	ANSI LAMP CODE	BALLAST TYPE
3'-0" to 5'-0"	2'-9"	0°	100	H38-4HT	CMRI-100-(a)
5'-1" to 6'-6"	3"-3"	0°	175	H39-22KB	CMRI-175-(a)
6'-7" to 10'-0"	4'-3"	2°	175	H39-22KB	CMRI-175-(a)
10'-1" to 13'-0"	5'-9"	8°	250	H37-5KB	CMRI-250-(a)
13'-1" to 15'-0"	7'-3"	8°	250	H37-5KB	CMRI-250-(a)

(a) = OPERATING VOLTAGE (120V., 208V., 240V., 277V., OR 480V.)

BUREAU OF DESIGN SERVICES
OHIO DEPARTMENT OF HIGHWAYS

MERCURY VAPOR SIGN LIGHTING DETAILS

DATE
4-13-72

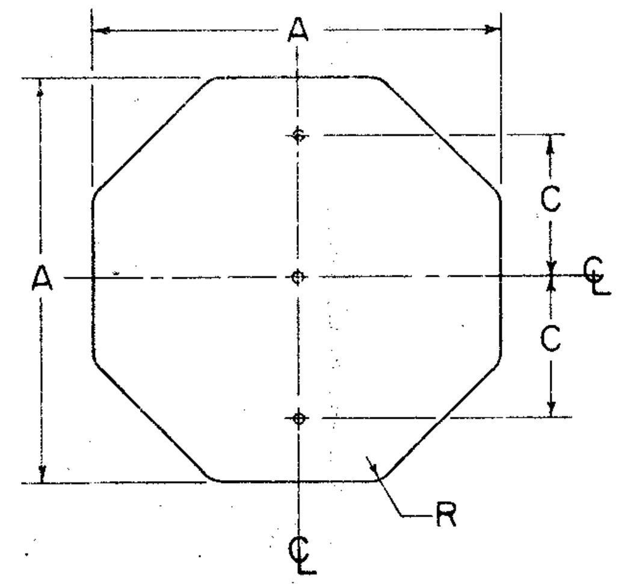
STANDARD CONSTRUCTION DRAWING

APPROVED ____________
ENGINEER OF DESIGN SERVICES

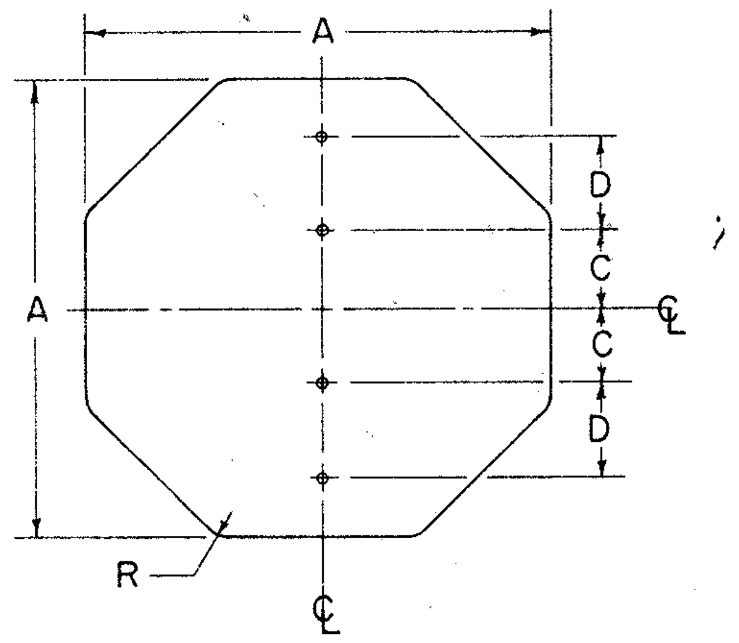
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

643/713

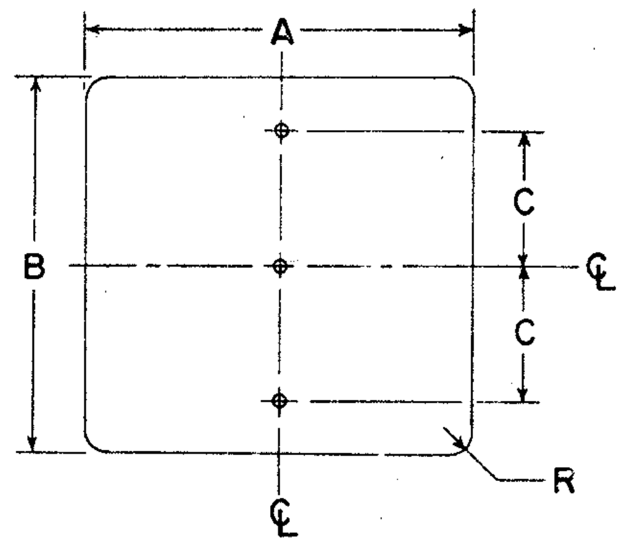
CUY-90-10.40



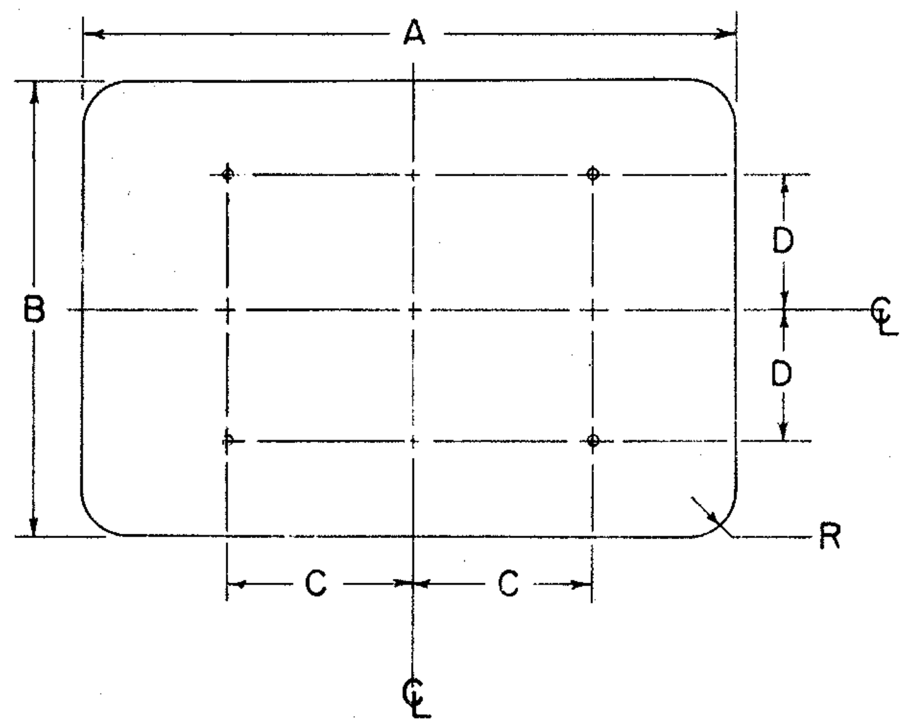
A	C	R	GAUGE
30	8	1 1/2	.080
36	8	1 1/2	.080



A	C	D	R	GAUGE
48	8	10	1 1/2	.100

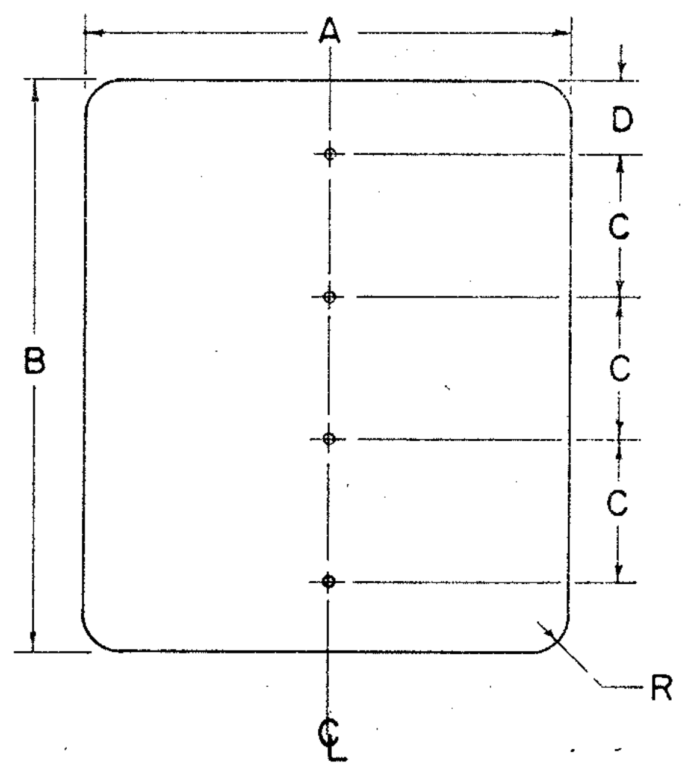


A	B	C	R	GAUGE
24	30	8	1 1/2	.063
24	48	15	1 1/2	.100
30	36	11	1 1/2	.080
30	42	12	1 1/2	.080
36	36	11	1 1/2	.080
36	42	15	1 1/2	.080
36	48	15	1 1/2	.080
48	24	10	3	.100
48	36	13	3	.100

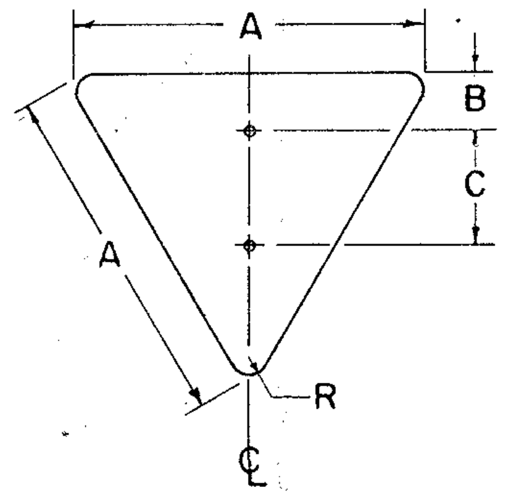


A	B	C	D	R	GAUGE
48	48	22	16	3	.100
48	60	22	22	3	.100

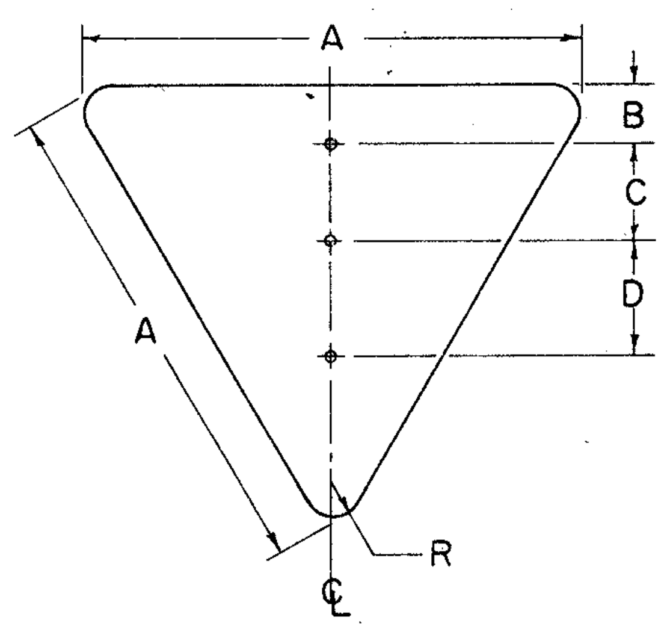
SPEED LIMIT SIGNS ON TWO **SUPPORTS**



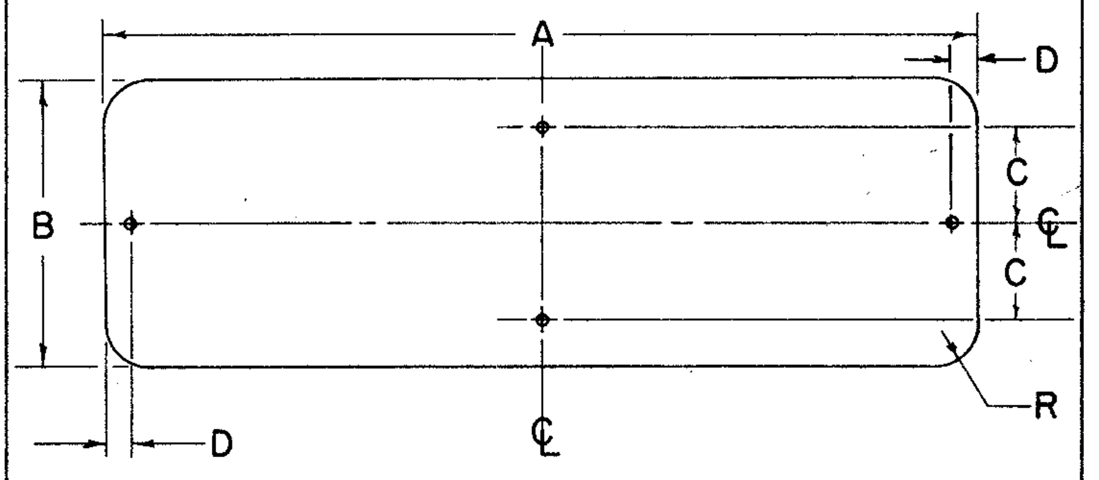
A	B	C	D	R	GAUGE
48	48	12	6	3	.100
48	60	15	7 1/2	3	.100



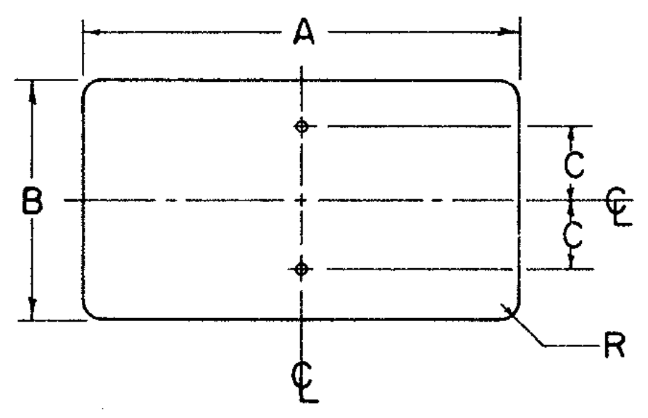
A	B	C	R	GAUGE
36	3	16	2 1/2	.080



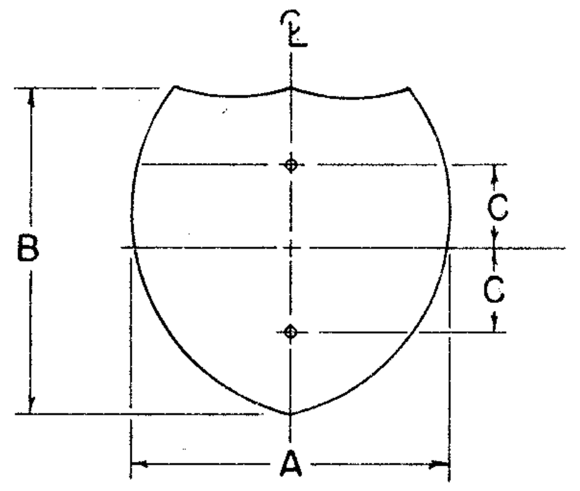
A	B	C	D	R	GAUGE
48	4	10	15	3	.100
60	5	10	15	4	.100



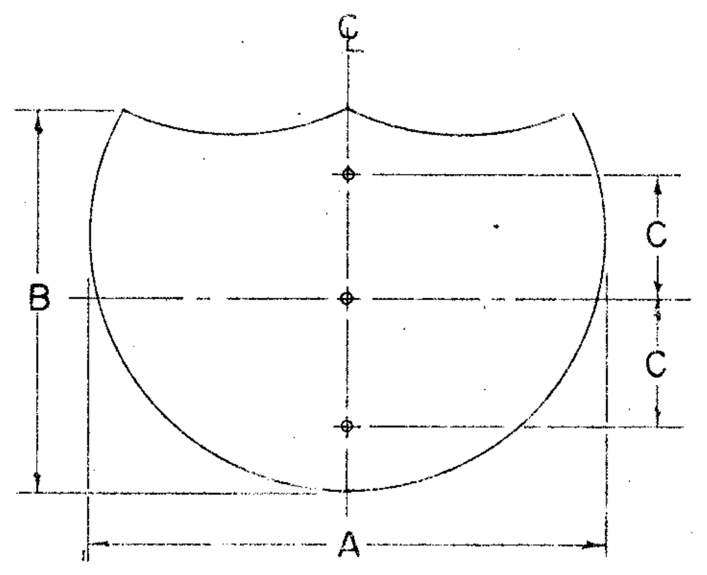
A	B	C	D	R	GAUGE
36	12	4	1	1 1/2	.080
72	12	—	16	1 1/2	.100
60	**12**	**—**	**13**	**1 1/2**	**.100**



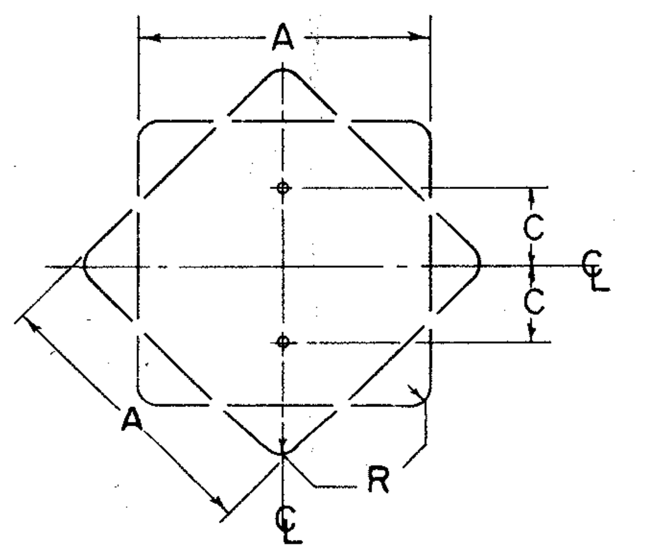
A	B	C	R	GAUGE
12	6	1 1/2	1 1/2	.063
20	15	6	1 1/2	.063
24	12	4 1/2	1 1/2	.063
24	18	7 1/2	1 1/2	.063
8	26	8	1	.063
36	18	7 1/2	1 1/2	.080



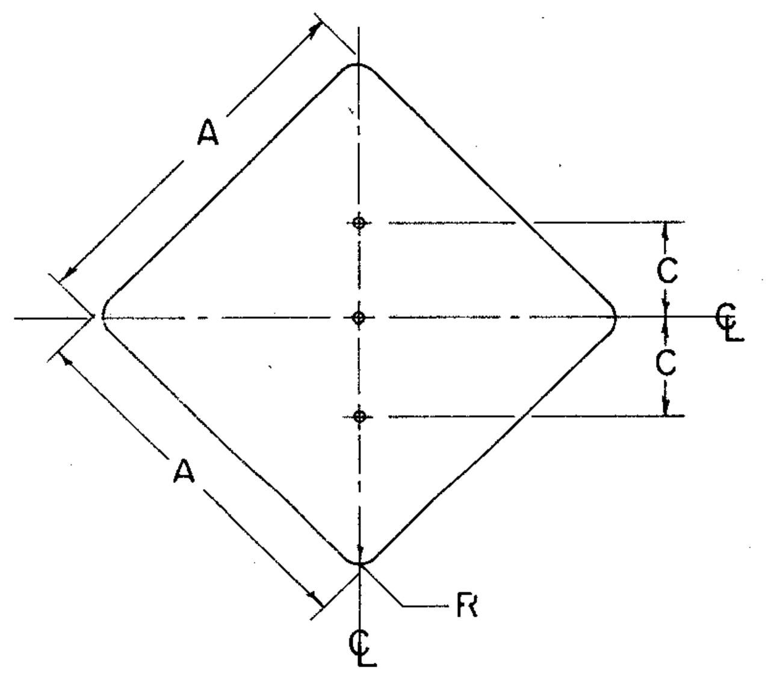
A	B	C	GAUGE
24	24	8	.063
30	24	8	.080



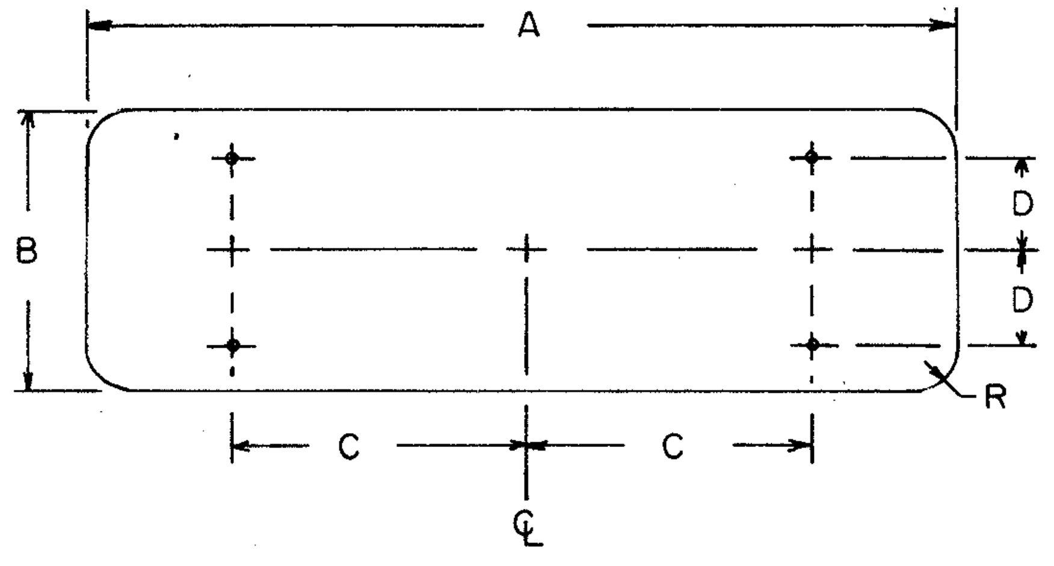
A	B	C	GAUGE
36	36	11	.080
48	36	11	.100



A	C	R	GAUGE
18	7 1/2	1 1/2	.063
24	8	1 1/2	.063
30	8	1 1/2	.080

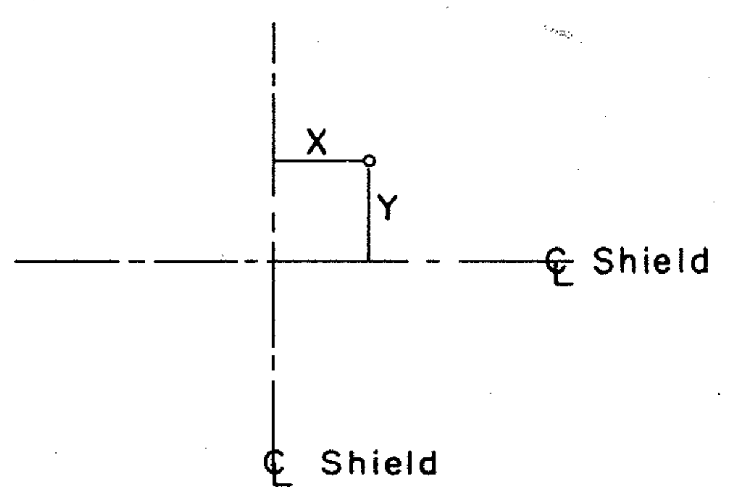


A	C	R	GAUGE
36	12	1 1/2	.080
48	14	3	.100



A	B	C	D	R	GAUGE
72	18	20	6	1 1/2	.100
72	24	20	8	1 1/2	.100
60	30	17	10	1 1/2	.100
96	18	27	6	1 1/2	.100

Location of holes on "Demountable Shields" (attached to guide signs)



SIZE	NO. HOLES	X	Y
(26) 24X24	4	7	7
30X24	4	8	8
(39) 36X36	4	10	10
		0	10
48X36	6	15	10

For notes on fastening see drawing for miscellaneous "Signing Items" sheet.

NOTES:

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.

MATERIAL

FLAT SIGN BLANKS SHALL BE FURNISHED IN ALUMINUM ALLOY 6061-T6, (ASTM-B209, GS11A-T6) WITH MILL FINISH.

BOLT HOLES

THE BOLT HOLES SHALL BE 3/8" IN DIAMETER, AND MAY BE DRILLED, BLANKED OR PUNCHED TO FINISHED SIZE.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

SIGN BLANK DETAILS

SBD

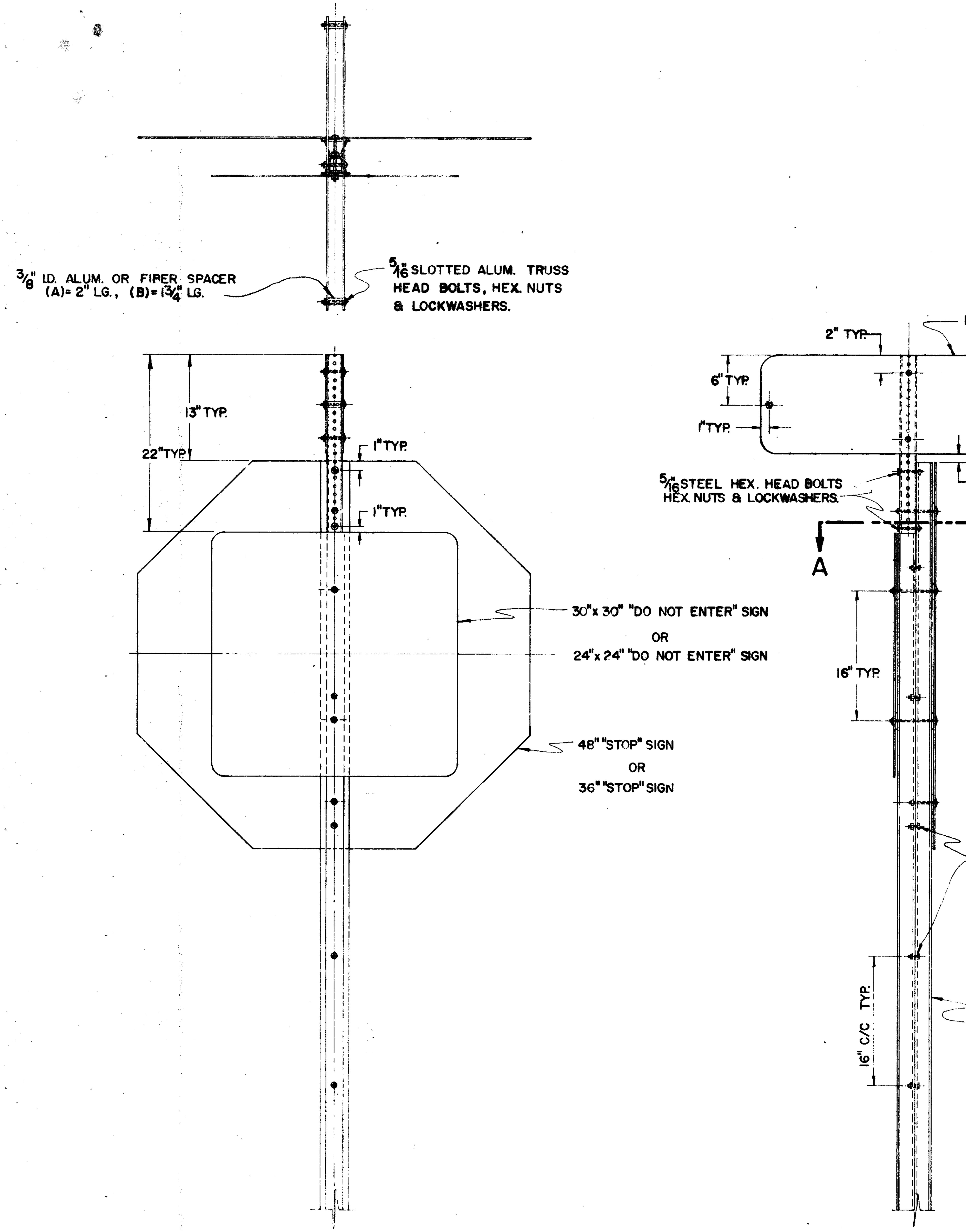
DATE
4-14-67
5-10-68
10-1-68
5-27-69
6-18-69

APPROVED ______________
ENGINEER OF TRAFFIC

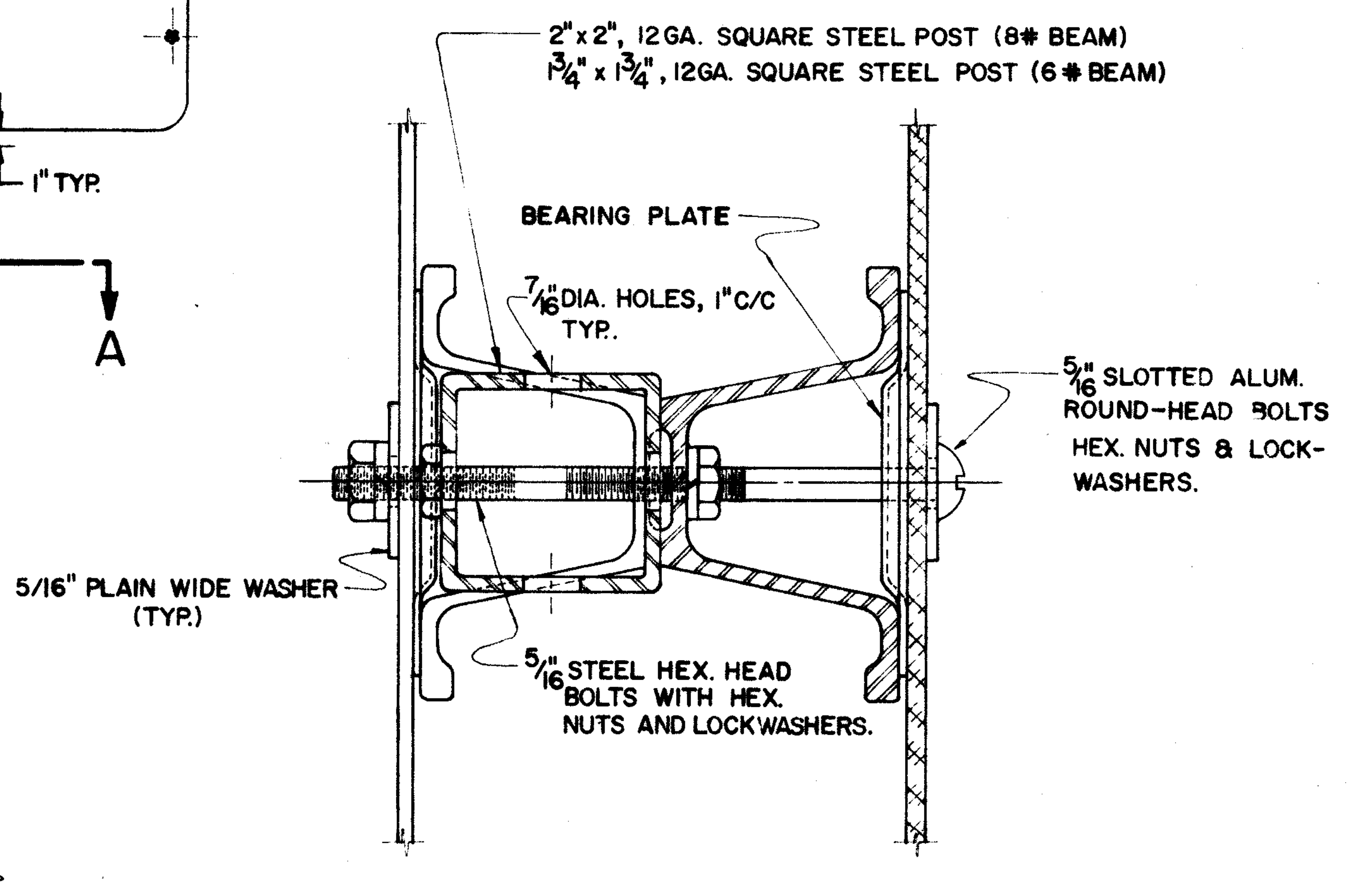
FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

644/713

CUY-90-10.40



"ONE WAY", "STOP", "DO NOT ENTER", SIGN INSTALLATION.



SECTION A-A

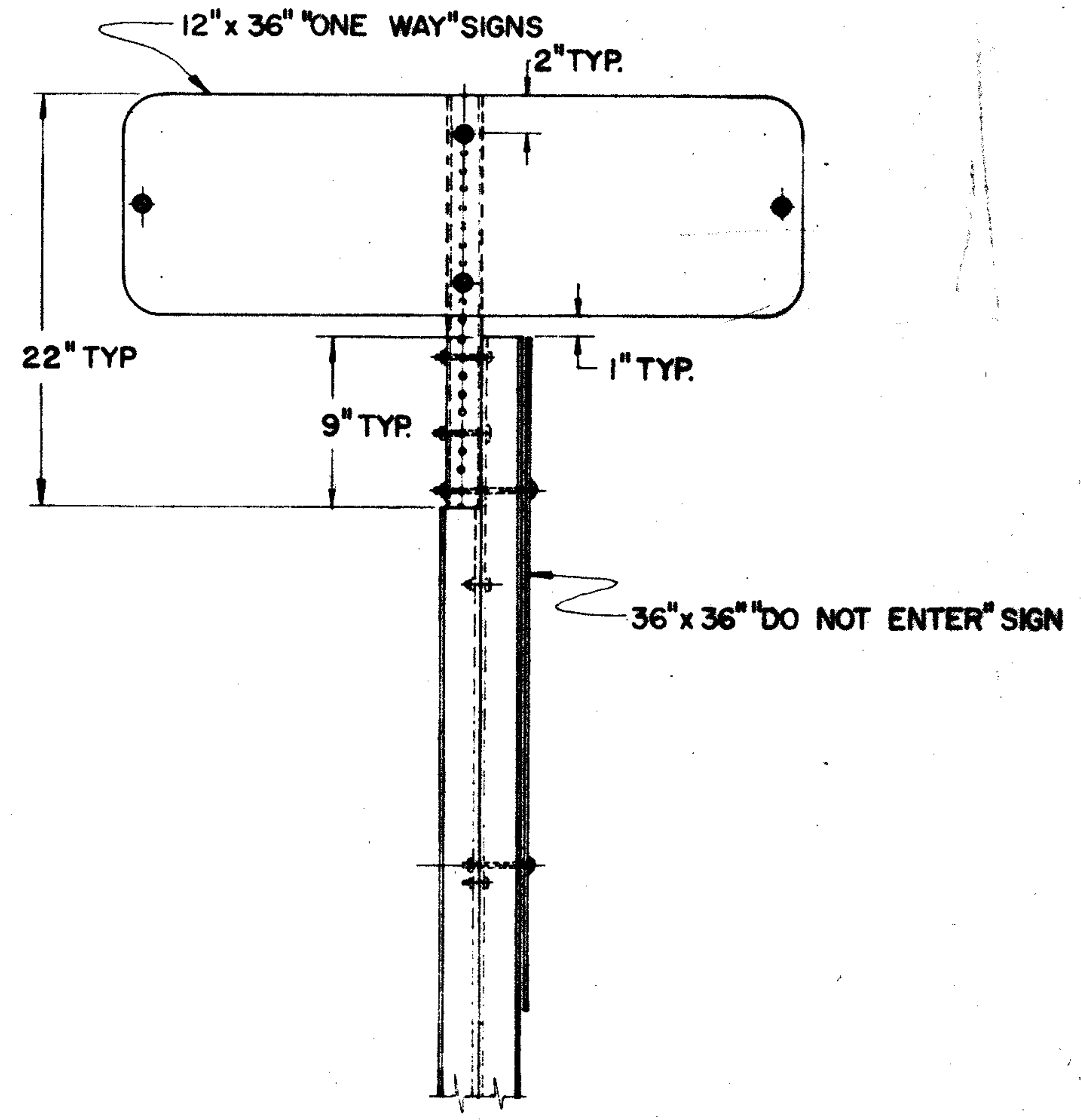
NOTES

MATERIALS

ALL SIGN MATERIALS SHALL BE IN ACCORDANCE WITH SUPPLEMENT SPECIFICATION 815.

ALL STRUCTURAL MATERIALS SHALL BE IN ACCORDANCE WITH SUPPLEMENT SPECIFICATION 816.

FOR SPECIFICATIONS FOR THE 2" & 1 3/4" SQUARE STEEL POST SEE GENERAL NOTES, SHEET NO. ____.



"ONE WAY", "DO NOT ENTER" SIGN INSTALLATION

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

SPECIAL "ONE WAY" SIGN SUPPORT DETAILS	SOW	DATE 2-7-66 4-18-67

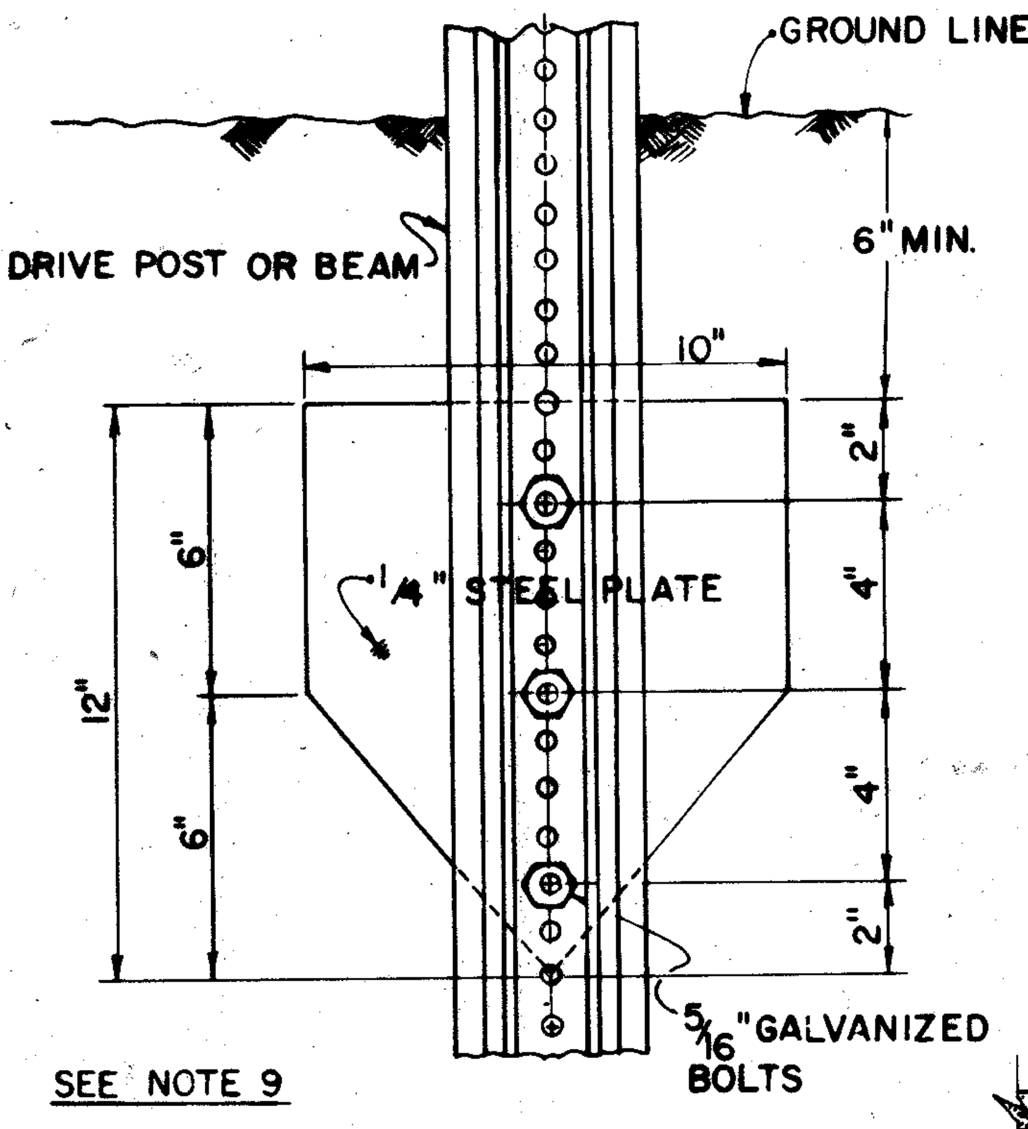
APPROVED ____________
ENGINEER OF TRAFFIC

SPECIAL "ONE WAY" SIGN SUPPORT DETAILS

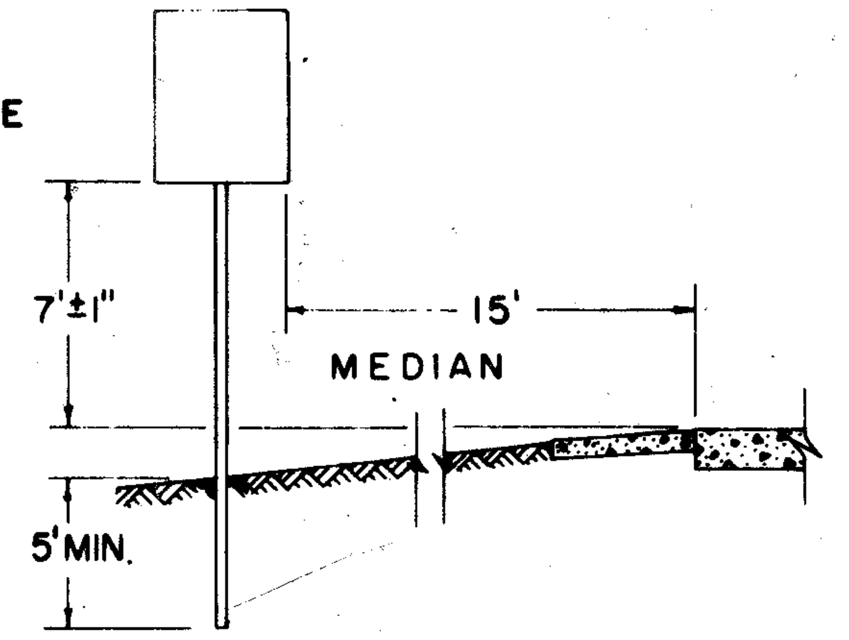
FED. RD. DIVISION	STATE	PROJ.	
2	OHIO		

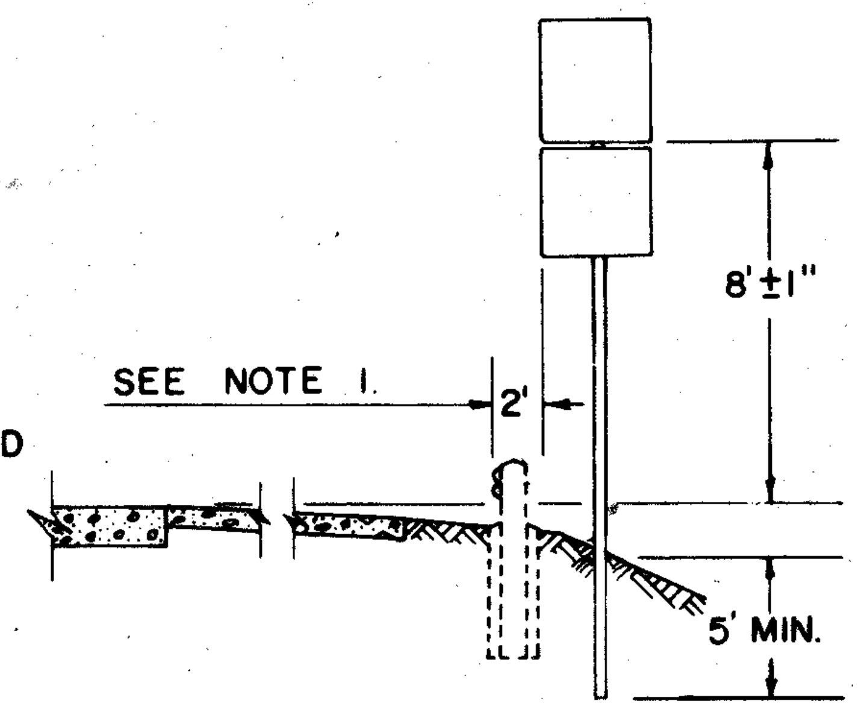
645
713

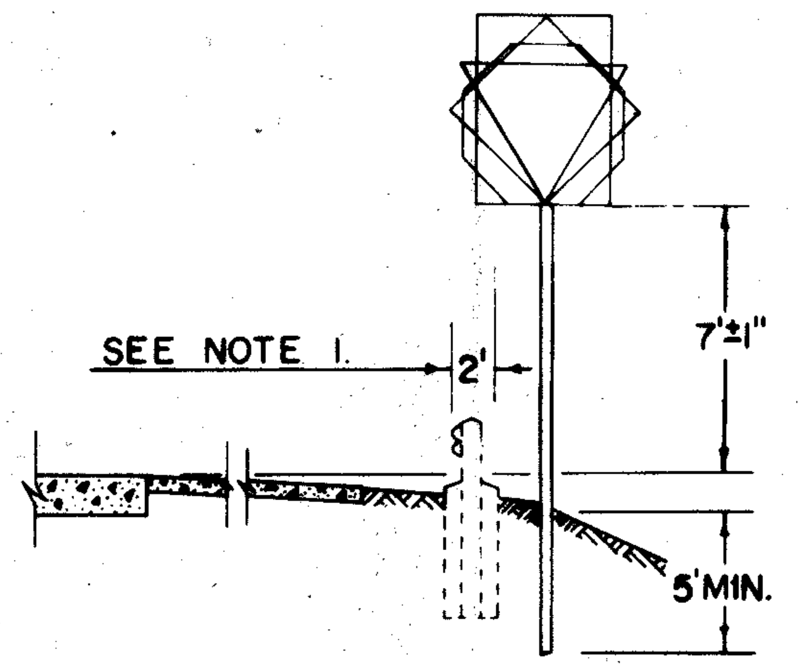
CUY-90-10.40

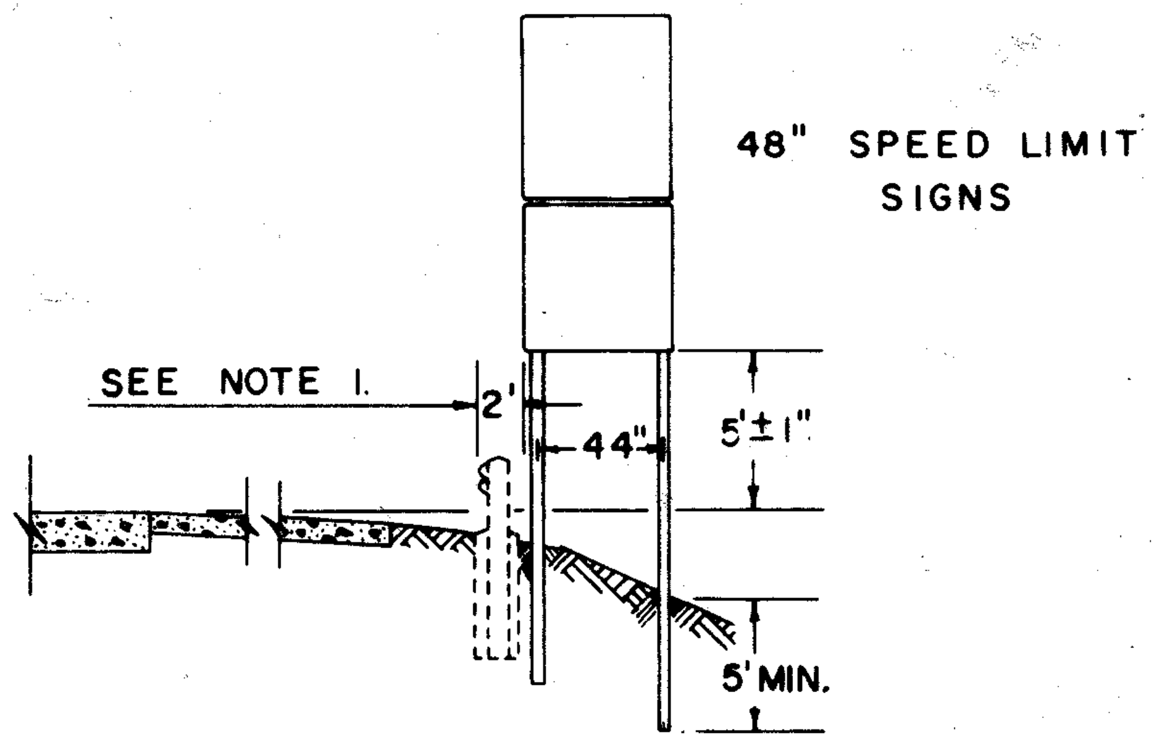


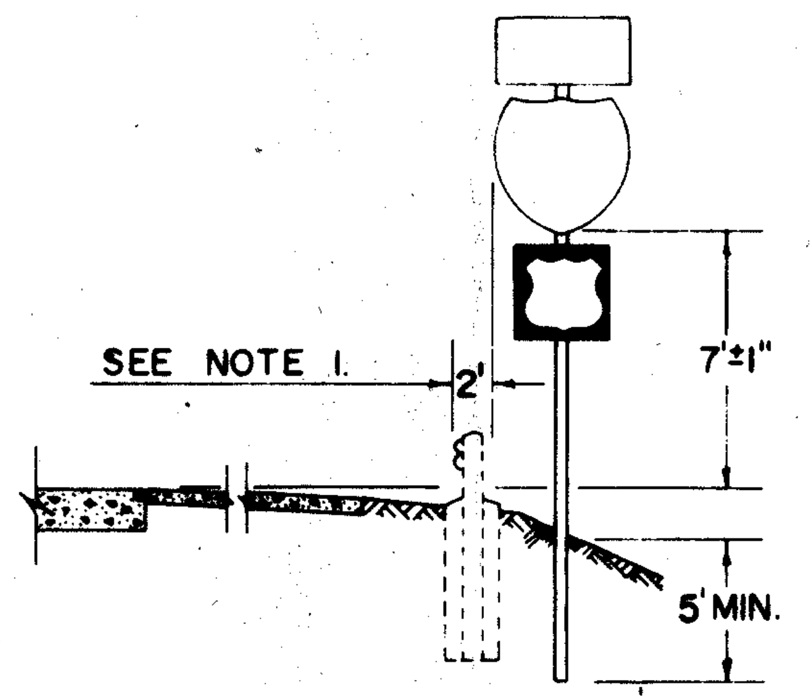
SOIL PLATE DETAIL

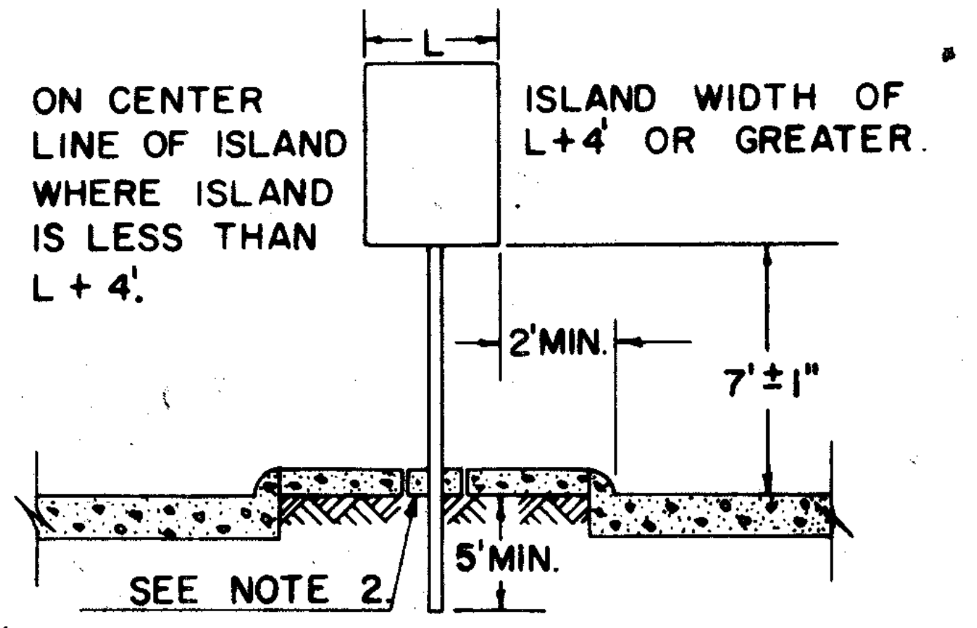


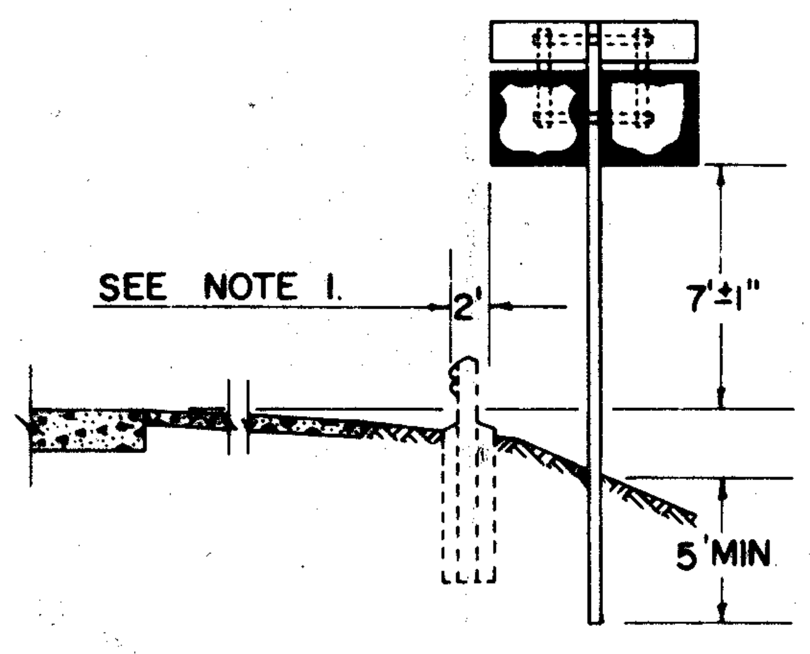


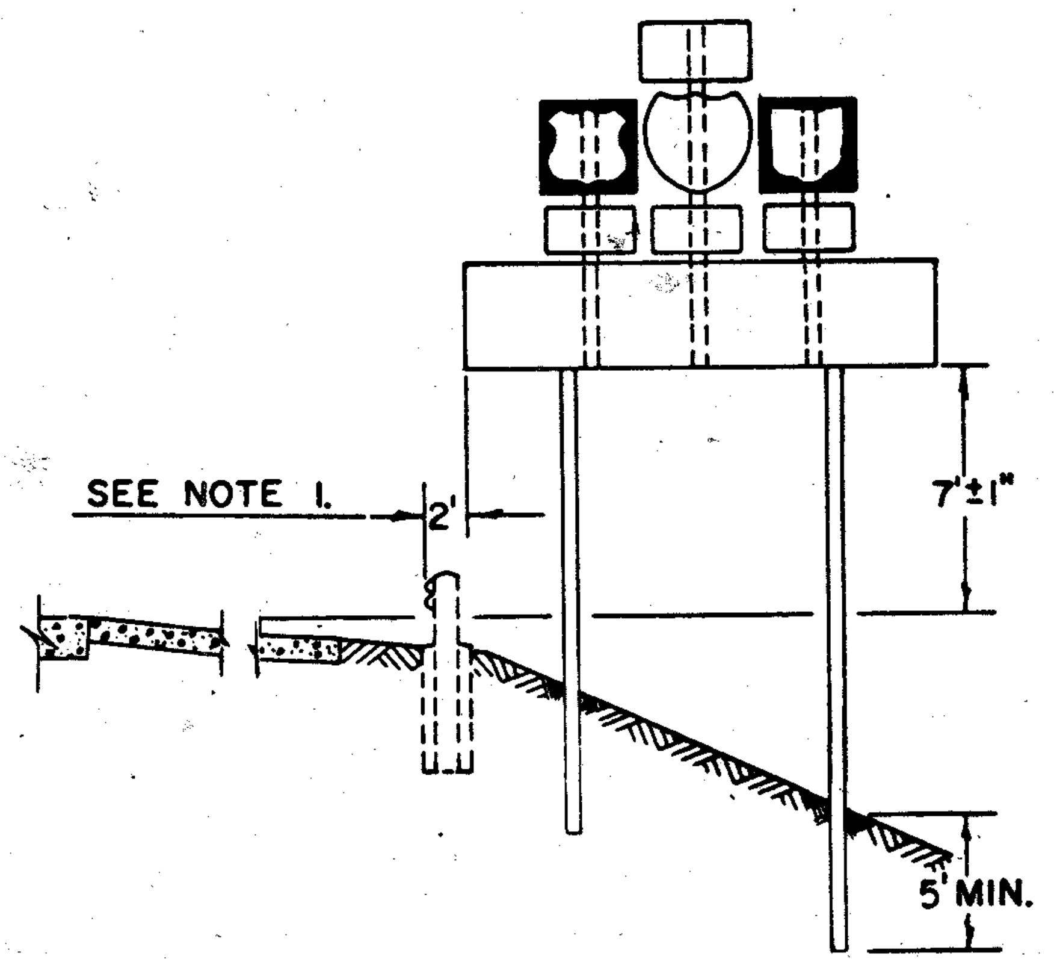


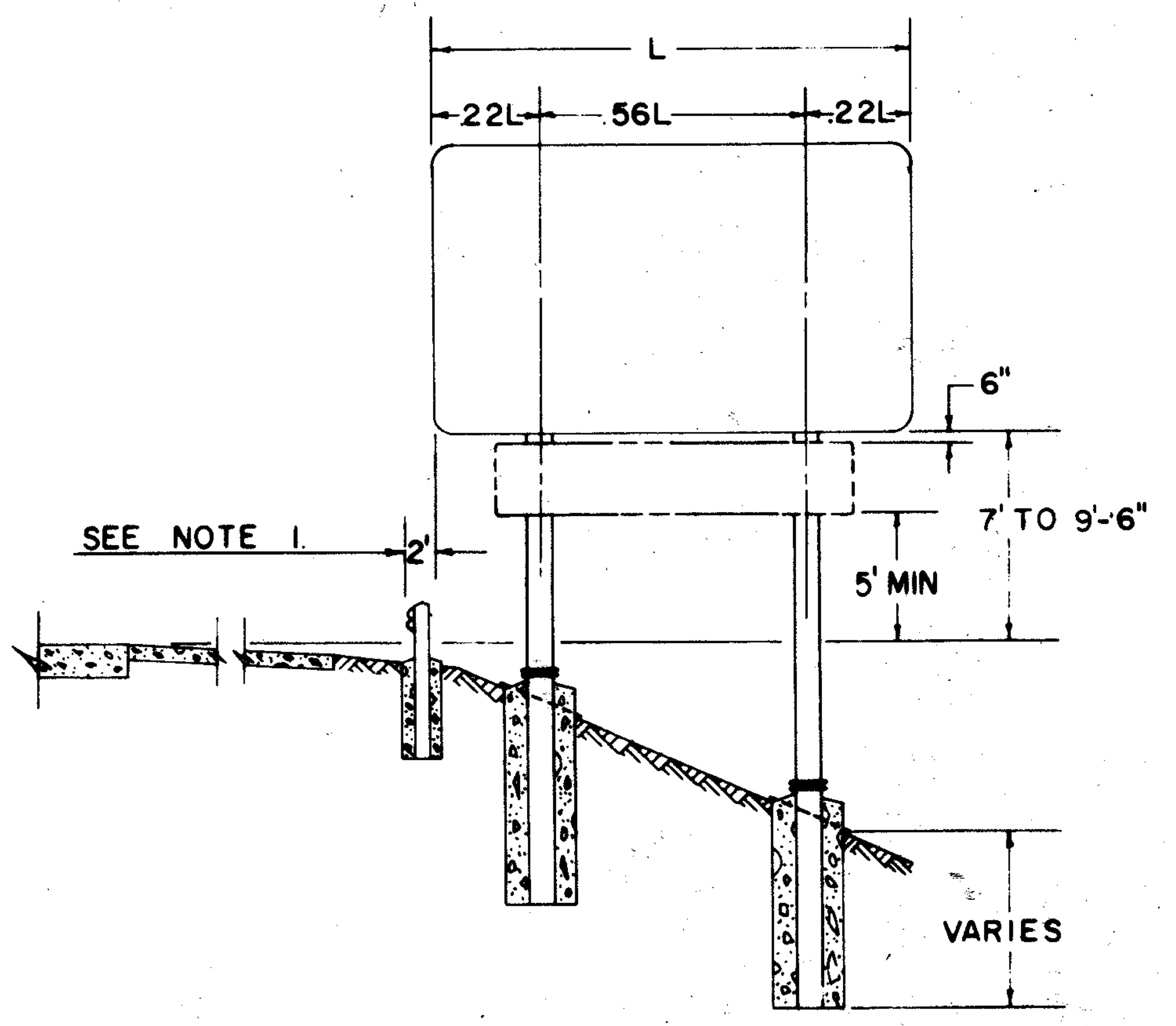


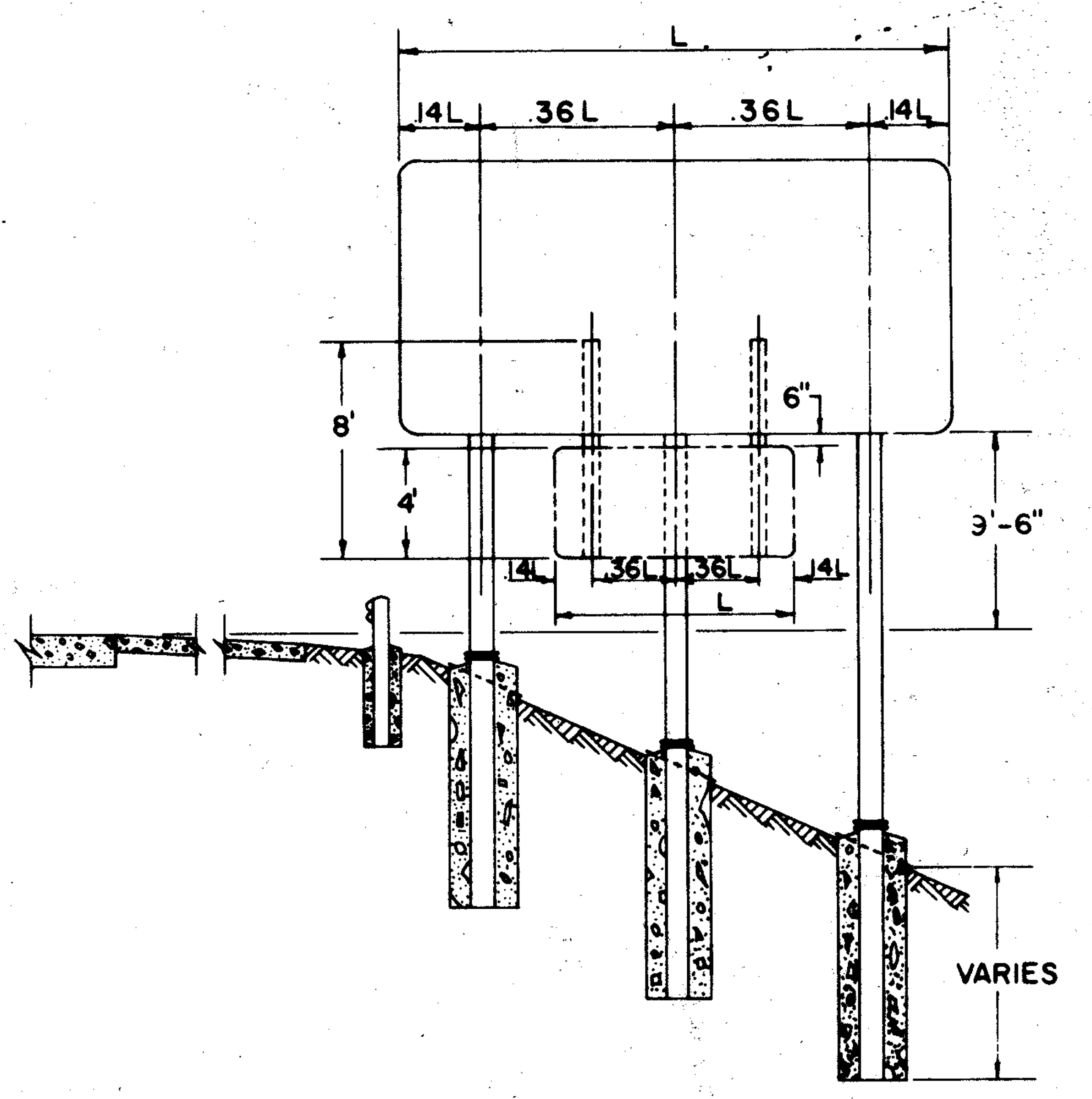


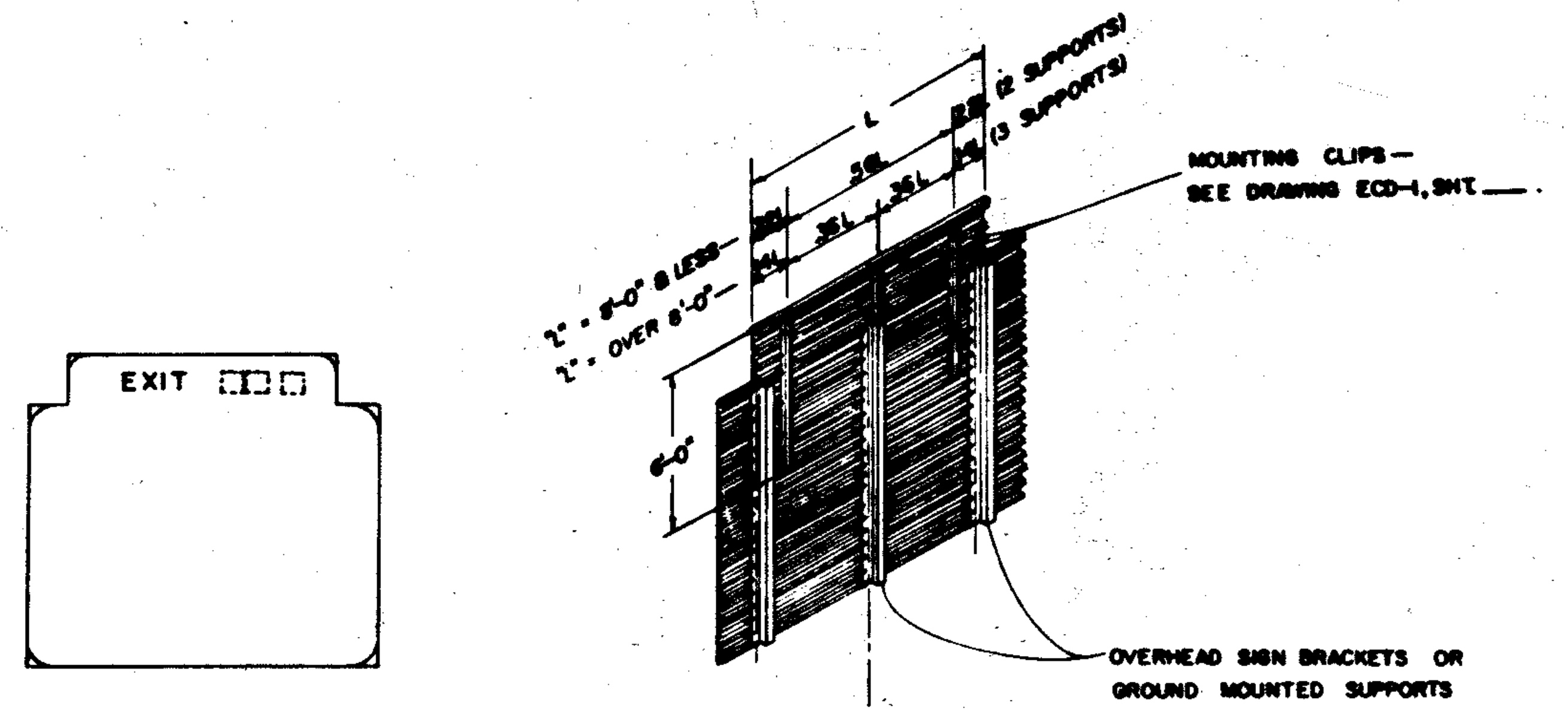




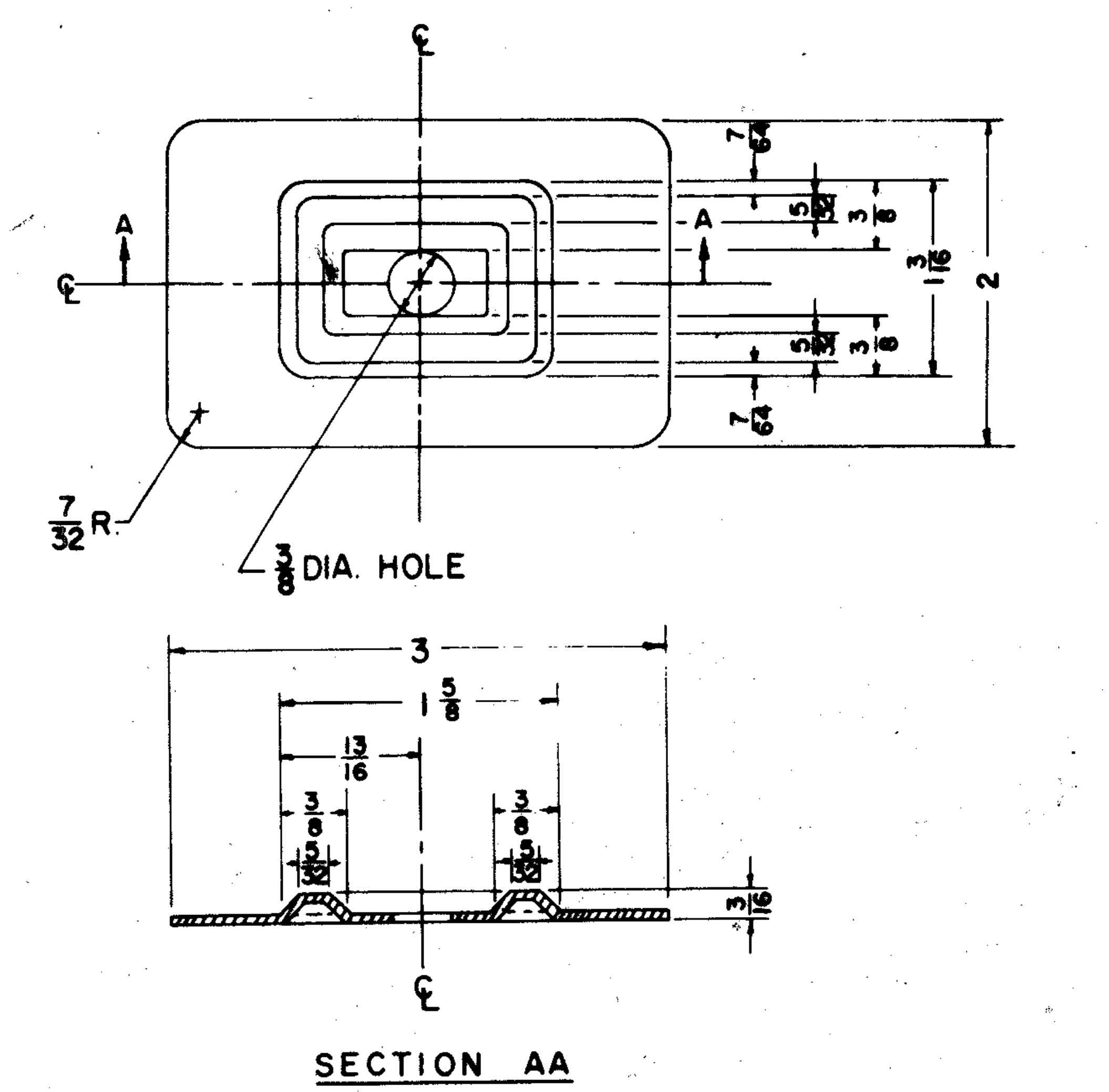






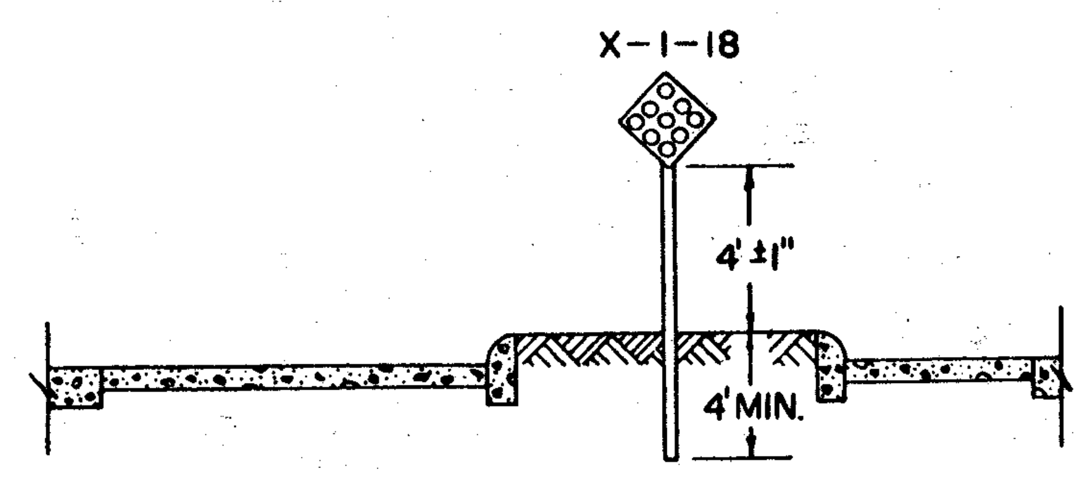


"EXIT" SIGN ATTACHMENT DETAIL



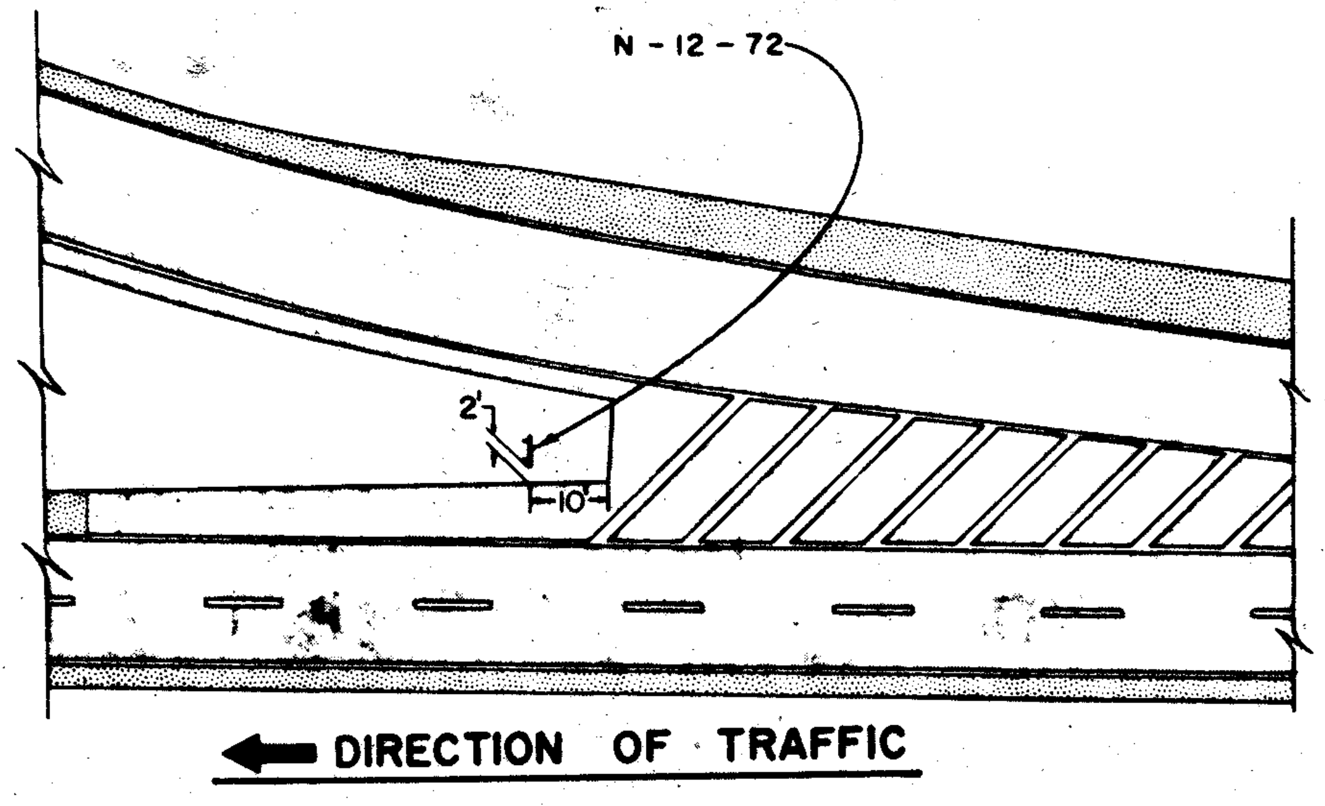
NOTE:
THE PLATE IS SYMMETRICAL ABOUT EITHER CENTERLINE.
METAL SHALL BE 16 GAUGE STEEL.
ALL DIMENSIONS ARE IN INCHES.

BEARING PLATE DETAIL



SIGN SUPPORT SPACING

L=FT	2 SUPPORTS		3 SUPPORTS		L=FT	2 SUPPORTS		3 SUPPORTS	
	.22	.56	.14	.36		.22	.56	.14	.36
5.0	1.10	2.80	0.70	1.80	17.0	3.74	9.52	2.38	6.12
6.0	1.32	3.36	0.84	2.16	18.0	3.96	10.08	2.52	6.48
7.0	1.54	3.92	0.98	2.52	19.0	4.18	10.64	2.66	6.84
8.0	1.76	4.48	1.12	2.88	20.0			2.80	7.20
9.0	1.98	5.04	1.26	3.24	21.0			2.94	7.56
10.0	2.20	5.60	1.40	3.60	22.0			3.08	7.92
11.0	2.42	6.16	1.54	3.96	23.0			3.22	8.28
12.0	2.64	6.72	1.68	4.32	24.0			3.36	8.64
13.0	2.86	7.28	1.82	4.68	25.0			3.50	9.00
14.0	3.08	7.84	1.96	5.04	26.0			3.64	9.36
15.0	3.30	8.40	2.10	5.40	27.0			3.78	9.72
16.0	3.52	8.96	2.24	5.76	28.0			3.92	10.08



NOTES

1. THE NEAR EDGE OF ALL MAIN LINE SIGNS, EXCEPT GORE INSTALLATIONS, SHALL BE LOCATED TWO FEET (2') BACK OF GUARD RAIL FACE. THIS DIMENSION SHALL BE DETERMINED BY ROADWAY TYPICAL SECTION & USED WHETHER OR NOT GUARD RAIL IS PRESENT.

ON RAMPS THE NEAR EDGE OF SIGNS SHALL BE LOCATED TWO FEET (2') BACK OF GUARD RAIL FACE. THIS DIMENSION WILL BE DETERMINED AND USED AS FOR MAIN LINE ABOVE.

ON APPROACHES THE NEAR EDGE OF SIGNS SHALL BE

(A) TWO FOOT (2') BEHIND EXISTING GUARD RAIL

(B) TWO FEET (2') FROM THE EDGE OF PAVED OR TRAVELED SHOULDER WITH A MINIMUM OF 6' FROM EDGE OF ROADWAY PAVEMENT.

2. POSTS PLACED IN CONCRETE MEDIANS SHALL BE INSTALLED BY DRIVING THROUGH A 6" SLEEVE OR CORE DRILLED HOLE. THE HOLE SHALL BE FILLED WITH ASPHALTIC CONCRETE AFTER THE POST IS IN THE PROPER POSITION.

3. HORIZONTAL BACK BRACING SHALL ALWAYS BE MOUNTED ON THE FRONT FLANGE OF THE SUPPORT EXCEPT WHERE SIGNS ARE MOUNTED BACK TO BACK. BACK BRACING SHALL NEVER EXTEND ABOVE TOP EDGE OF UPPERMOST SIGN PLATE AND SHALL BE ATTACHED TO SUPPORTS USING 5/16" GALVANIZED STEEL BOLTS.

4. SCREWS, NUTS, AND WASHERS FOR SIGN ERECTION SHALL BE ALUMINUM EXCEPT AS NOTED ABOVE. 5/16" TRUSS HEAD SLOTTED MACHINE SCREWS WITH HEX. NUTS PLAIN AND LOCKWASHERS SHALL BE USED. PLAIN WASHERS SHALL BE 5/16" "WIDE", USED ON SIGN FACE ONLY

5. SIGN INSTALLATIONS SHALL BE PLACED SO THAT SUPPORTS ARE NOT PLACED IN DRAINAGE DITCHES.

6. HORIZONTAL CLEARANCES SHOWN PERTAIN TO NON-CURBED SECTIONS. SECTIONS WITH UNMOUNTABLE CURB SHALL HAVE A HORIZONTAL CLEARANCE OF 2'-0" MINIMUM FROM THE CURB FACE TO THE SIGN EDGE.

7. VERTICAL AND HORIZONTAL CLEARANCE BETWEEN SIGNS ON ONE ASSEMBLY SHALL BE A MAXIMUM OF 2" AND A MINIMUM OF 1".

8. GALVANIZED STEEL BEARING PLATES SHALL BE INCLUDED BETWEEN ALL SHEET ALUMINUM SIGNS ATTACHED TO VERTICAL SUPPORTS AT EACH SIGN BOLT LOCATION.

9. SOIL PLATES SHALL BE ATTACHED TO ALL 6 LB. BEAMS BETWEEN POSTS AS DETAILED ON THIS SHEET, EXCEPT WHERE BEAMS ARE PLACED IN CONCRETE MEDIANS AS COVERED IN NOTE 2.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

TYPICAL
PLACEMENT OF
SIGNS

TPS-1

DATE
9-27-67
7-12-68
5-13-69
3-5-71
12-21-71
3-7-72

APPROVED ____________
ENGINEER OF TRAFFIC

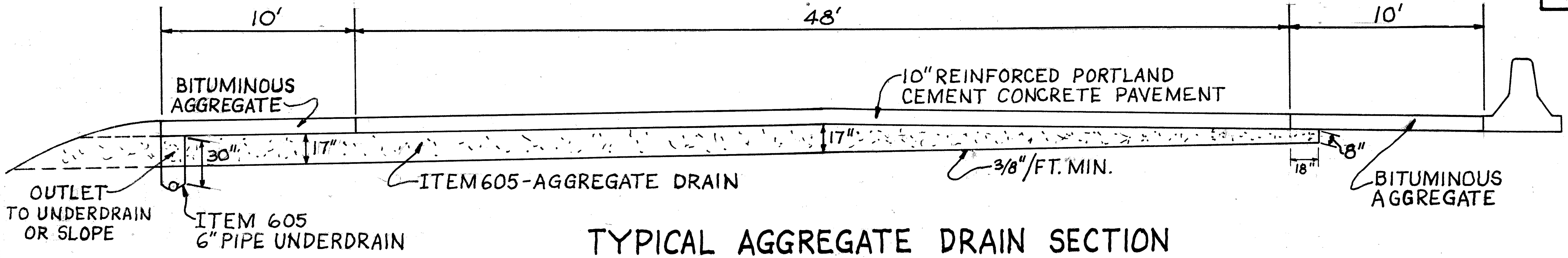
M & R 695

AGGREGATE DRAIN DETAILS

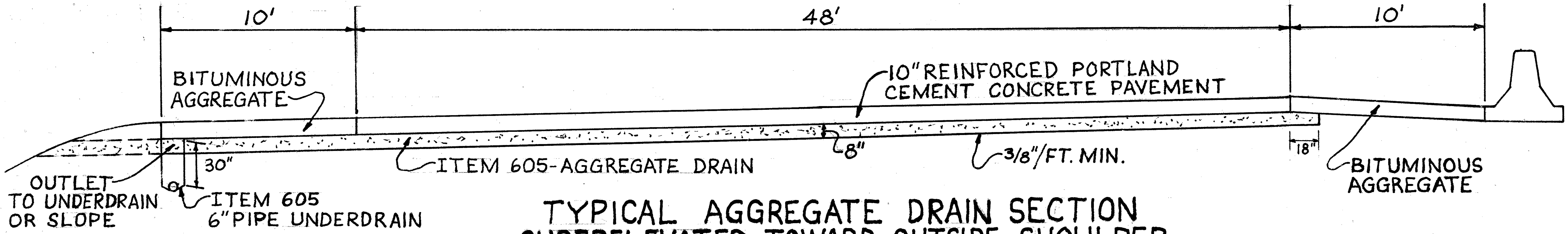
CUY. 90-10.40
CHANGE ORDER

1
5

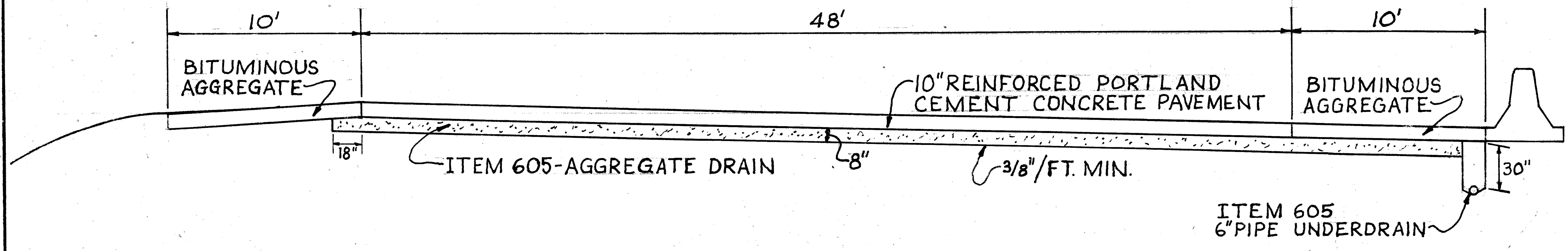
PLAN NO.



TYPICAL AGGREGATE DRAIN SECTION
NORMAL SECTION



TYPICAL AGGREGATE DRAIN SECTION
SUPERELEVATED TOWARD OUTSIDE SHOULDER



TYPICAL AGGREGATE DRAIN SECTION
SUPERELEVATED TOWARD MEDIAN

NOTE:
Aggregate drain details for ramps similar to superelevated sections. For additional details see Sheet 2.

M & R 695

CUY- 90 - 10.40
CHANGE ORDER

2
5

PLAN NO.

UNDERDRAINS

STATION TO STATION				605		603	6", 30° BEND	6" PLUG
				6" PIPE UNDERDRAIN UNCLASS'F'D.	6" PIPE UNDERDRAIN SHALLOW	6" CONDUIT TYPE F		
FROM	OFFSET	TO	OFFSET	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH
726 + 00 *	109' LT.	732 + 38	111' LT.		628	10	1	1
730 + 00 *	92' RT.	730 + 41	93' RT.		31	10	1	1
732 + 00 *	112' RT.	734 + 50	113' RT.		250			1
734 + 00 *	113' LT.	734 + 80	118' LT.		70	10	1	1
734 + 50	113' RT.	735+ 00	106' RT.	50				
750 + 00 *	104' RT.	754 + 00	105' RT.		390	10	1	1
750 + 00 *	104' LT.	755 + 75	105' LT.		565	10	1	1
755 + 25	25' RT.	756 + 00 *	26' RT.		65	10	1	1
755 + 75	105' LT.	756 + 00 *	104' LT.		15	10	1	1
756 + 25	25' RT.	762 + 00 *	26' RT.		565	10	1	1
757 + 75	105' LT.	757 + 90 *	104' LT.		5	10	1	1
763 + 75	25' RT.	768 + 00 *	26' RT.		415	10	1	1
765 + 57	93' LT.	766 + 00 *	92' LT.		33	10	1	1
774 + 00 *	26' LT.	779 + 14	25' LT.		504	10	1	1
782 + 50 *	26' LT.	782 + 75	25' LT.		15	10	1	1
786 + 00 *	26' LT.	792 + 10	235' LT.		600	10	1	1
791 + 80 *	92' RT.	792 + 10	93' RT.		20	10	1	1
	TOTAL 1			50	4171	150	15	16

NOTES

* PLUG PIPE END WITH 6" PLUG

FOR UNDERDRAIN DETAILS SEE NO. 295

GRADES FOR UNDERDRAINS SHALL BE AS DIRECTED BY THE ENGINEER.

UNDERDRAINS ADDED ON RAMPS WITH PAVED BERMS SHALL BE PLACED IN THE LOCATION SHOWN ON SHEET NO. 21 OF THE CUY. 90-10.40 PLANS.

UNDERDRAINS ADDED ON CURBED SECTIONS OF RAMPS WITHOUT A PAVED BERM SHALL BE PLACED IN THE LOCATION SHOWN ON SHEET NO. 23, FRONTAGE RDS., OF THE CUY. 90-10.40 PLANS.

M & R 695

CUY-90-10.40

CHANGE ORDER

3/5

PLAN NO.

UNDERDRAINS

STATION TO STATION				605		603		
				6" PIPE UNDERDRAIN UN-CLASSIFIED	6" PIPE UNDERDRAIN SHALLOW	6" CONDUIT TYPE F	6", 30° BEND	6" PLUG
FROM	OFFSET	TO	OFFSET	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH
RAMP 5								
27 + 50	0' LT.	27 + 50	6' LT.			6		
28 + 00	6' LT.	31 + 00 *	5' LT.		290	10	1	1
33 + 00 *	1' LT.	53 + 75 W. 117 th.	55' LT.	50		125		
RAMP 7								
26 + 00 *	5' RT.	30 + 75	26' RT.		575	30	1	1
RAMP 8								
25 + 75 *	5' RT.	26 + 50	8'-6" RT.		65	10	1	1
27 + 25	1' RT.	27 + 25	6' RT.			5		
27 + 85	6' RT.	28 + 75 *	5' RT.		90	10	1	1
RAMP 12								
36 + 00	1' RT.	36 + 00	6' RT.			5		
RAMP 13								
70 + 50	19' RT.	70 + 75 *	21 RT.		15	10	1	1
RAMP 14								
69 + 50 *	35' RT.	69 + 50	44' LT.			9		
TOTAL 2				50	1035	220	5	5
TOTAL 1				50	4171	150	15	16
GRAND TOTAL				100	5206	370	20	

* PLUG PIPE END WITH 6" PLUG.

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CHANGE ORDER

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PLAN NO.

ITEM 605 AGGREGATE DRAINS

STATION	LEFT SIDE		RIGHT SIDE	
	LIN.FT.	OUTLET TO	LIN.FT.	OUTLET TO
722 + 00	74	OUTSIDE UNDERDRAIN	75	OUTSIDE UNDERDRAIN
724 + 00	79	OUTSIDE UNDERDRAIN	92	OUTSIDE UNDERDRAIN
726 + 00	60	OUTSIDE UNDERDRAIN	59	OUTSIDE UNDERDRAIN
727 + 80	64	OUTSIDE UNDERDRAIN	59	OUTSIDE UNDERDRAIN
730 + 00	69	OUTSIDE UNDERDRAIN	59	OUTSIDE UNDERDRAIN
732 + 00	74	OUTSIDE UNDERDRAIN	80	OUTSIDE UNDERDRAIN
734 + 00	80	OUTSIDE UNDERDRAIN	76	OUTSIDE UNDERDRAIN
735 + 80	59	OUTSIDE UNDERDRAIN	71	OUTSIDE UNDERDRAIN
738 + 00	59	OUTSIDE UNDERDRAIN	65	OUTSIDE UNDERDRAIN
740 + 00	59	OUTSIDE UNDERDRAIN	61	OUTSIDE UNDERDRAIN
742 + 00	59	OUTSIDE UNDERDRAIN	83	OUTSIDE UNDERDRAIN
744 + 00	102	OUTSIDE UNDERDRAIN	77	OUTSIDE UNDERDRAIN
746 + 00	82	OUTSIDE UNDERDRAIN	72	OUTSIDE UNDERDRAIN
748 + 00	72	OUTSIDE UNDERDRAIN	71	OUTSIDE UNDERDRAIN
750 + 00	71	OUTSIDE UNDERDRAIN	71	OUTSIDE UNDERDRAIN
752 + 00	71	OUTSIDE UNDERDRAIN	71	OUTSIDE UNDERDRAIN
754 + 00	71	OUTSIDE UNDERDRAIN	71	TO #3 C.B. @ 105' RT.
755 + 62	71	OUTSIDE UNDERDRAIN	71	INSIDE UNDERDRAIN
757 + 90	71	OUTSIDE UNDERDRAIN	71	INSIDE UNDERDRAIN
760 + 00	75	OUTSIDE UNDERDRAIN	78	INSIDE UNDERDRAIN
SUBTOTAL 1	1422		1433	SUBTOTAL 2

ITEM 605 AGGREGATE DRAINS

STATION	LEFT SIDE		RIGHT SIDE	
	LIN.FT.	OUTLET TO	LIN.FT.	OUTLET TO
762 + 00	80	OUTSIDE UNDERDRAIN	89	INSIDE UNDERDRAIN
764 + 00	84	OUTSIDE UNDERDRAIN	59	INSIDE UNDERDRAIN
766 + 00	59	OUTSIDE UNDERDRAIN	59	INSIDE UNDERDRAIN
768 + 00	69	OUTSIDE SLOPE	59	INSIDE UNDERDRAIN
774 + 00	59	INSIDE UNDERDRAIN	69	OUTSIDE SLOPE
776 + 00	59	INSIDE UNDERDRAIN	69	OUTSIDE SLOPE
777 + 50	59	INSIDE UNDERDRAIN	69	OUTSIDE SLOPE
782 + 50	59	INSIDE UNDERDRAIN	69	OUTSIDE SLOPE
788 + 00	59	INSIDE UNDERDRAIN	69	OUTSIDE SLOPE
790 + 00	59	INSIDE UNDERDRAIN	49	2-A-16 INLET @ 93' RT.
791 + 80	59	INSIDE UNDERDRAIN	59	OUTSIDE UNDERDRAIN
RAMP 5				
25 + 50	22	UNDERDRAIN		
27 + 50	22	C.B @ 6' LT.		
29 + 00	22	UNDERDRAIN		
31 + 00	22	UNDERDRAIN		
33 + 00	16	UNDERDRAIN		
RAMP 8				
25 + 75			22	UNDERDRAIN
27 + 25			16	C.B. @ 6' RT.
28 + 75			22	UNDERDRAIN
SUBTOTAL 3	809		779	SUBTOTAL 4

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CHANGE ORDER

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PLAN NO.

ITEM 605 AGGREGATE DRAINS

STATION	LEFT SIDE		RIGHT SIDE	
	LIN. FT.	OUTLET TO	LIN. FT.	OUTLET TO
RAMP 7				
26 + 00	52			
28 + 00	22	UNDERDRAIN		
30 + 00	22	UNDERDRAIN		
RAMP 11				
36 + 75	21	UNDERDRAIN		
38 + 75	23	UNDERDRAIN		
40 + 75	64	UNDERDRAIN		
RAMP 9				
32 + 00			19	UNDERDRAIN
34 + 00			22	UNDERDRAIN
36 + 00			22	UNDERDRAIN
38 + 00			22	UNDERDRAIN
40 + 00			23	UNDERDRAIN
RAMP 12				
36 + 00			28	2-A-8-INLET @ RT.
38 + 00	38	UNDERDRAIN		
SUBTOTAL 5	242		136	SUBTOTAL 6

ITEM 605 AGGREGATE DRAINS

STATION	LEFT SIDE		RIGHT SIDE	
	LIN. FT.	OUTLET TO	LIN. FT.	OUTLET TO
RAMP 12 (CONT)				
40 + 00	30	UNDERDRAIN		
42 + 00	30	UNDERDRAIN		
RAMP 13				
66 + 00	22	UNDERDRAIN		
67 + 25	22	UNDERDRAIN		
68 + 75	22	UNDERDRAIN		
70 + 75	24	UNDERDRAIN		
RAMP 14				
64 + 00			22	UNDERDRAIN
66 + 00			25	UNDERDRAIN
68 + 00			30	UNDERDRAIN
69 + 50			30	C.B. @ 39+93 (32'LT.℄ W.BLVD)
SUBTOTAL 7	150		107	SUBTOTAL 8
GRAND TOTAL		1422 + 1433 + 809 + 779 + 242 + 136 + 150 + 107 = 5078 LIN. FT.		