S-18

81-S

CONVENTIONAL SIGNS

Center Line		Existing Sewer	
Existing R/W		Proposed Sewer	
Proposed R/W		Existing Manhole	
Limited Access Line	—LA—	Proposed Manhole	
Temporary R/W	—T—	Existing Catch Basin	
Work Agreement Line		Proposed Catch Basin	
Property Line	—PL—	Manhole Abandoned	
Original Lot Line	O.L. 78 / O.L. 79	Catch Basin Abandoned	
Water Line	—W—	Existing Guard Rail	
Water Valve		Proposed Guard Rail	
Water Hydrant		Fence	
Gas Line	—G—	Existing Retaining Wall	
Gas Valve		Railroad	
Telephone Underground	—T—	Existing Trees Removed	
Electric Underground	—E—		
Power Pole			
Light Pole			
Telephone Pole			

SHEETS DELETED FROM PLAN
24, 240, 243 thru 251, 267 268, 274 thru 288, 324 thru 327

ADDED SHEET 401A

STATE OF OHIO
DEPARTMENT of TRANSPORTATION

CUY-480-1.90
CUYAHOGA COUNTY
CITY OF NORTH OLMSTED
OLMSTED TOWNSHIP

[I-480-4(12)156]

NOTE: Project designation CUY 80 appearing throughout this plan shall be considered to read CUY 480

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO	I-480-4(12)156	

1/427

CUYAHOGA COUNTY
CUY-480-1.90

"LIMITED ACCESS"

This improvement is especially designed for thru traffic and has been declared a Limited Access Highway or Freeway by action of the Director of Highways, in accordance with the provisions of Sec. 5511.02 of The Revised Code of Ohio.

1977 SPECIFICATIONS

The Standard Specifications of the State of Ohio, Department of Transportation incl. 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 maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved Thomas M. Frase
Date 6-22-77 District Deputy Director of Transportation

Approved Robert B. Pfeffer
Date 3-29-78 Engineer, Bureau of Bridges and Structural Design

Approved R. E. Cathcart
Date 3-29-78 Chief Engineer, Planning and Design

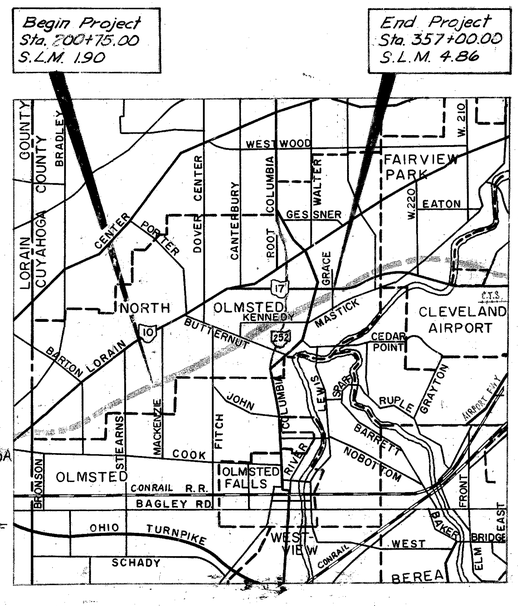
Approved David L. Weis
Date 3-29-78 Director, Department of Transportation

INDEX OF SHEETS

Sht. Nos. 396, 397, 398, 399 & 380 revised 4-11-79 WTF
Sht. No. 380 revised 4-20-79 WTF
Sht. Nos. 381A & 382A added and Sht. Nos 381 & 382 revised 8-10-79 WTF
Sheets 351 & 393 revised 10-24-79 EBL

LINE DATA

Begin Project	Sta. 200+75.00	
End Project	Sta. 357+00.00	
Net Length of Project	15,625.00 L.F. or 2.959 Mi.	
Additional Work		
I-480	Sta. 198+75.0 to Sta. 200+750	200.0 L.F.
	Sta. 357+00.0 to Sta. 359+500	250.0 L.F.
Butternut Ridge Rd.	Sta. 5+00.0 to Sta. 14+20.0	920.0 L.F.
Relocated S.R 252	Sta. 58+0.00 to Sta. 80+00	2200.0 L.F.
Columbia Rd. (Temp.)	Sta. 0+00.00 to Sta. 7+08.87	708.87 L.F.
Fitch Rd. (Temp.)	Sta. 0+75.00 to Sta. 9+50.43	875.43 L.F.
	Add for Sign Work	100.00 L.F.
Mastick Rd Storm Sewer		647.0 L.F.
	Total Additional Work =	5901.30 L.F.
	Net Length of Work =	21,526.30 L.F. or 4.076 Mi.



LOCATION MAP

SCALE OF MILES 0 1 2 3

Portion To Be Improved
State Routes
U.S. Routes
Interstate Routes
City Streets
To Be Improved Under Separate Contract

SCALES

PLAN	0 50	1"=50'
PROFILE: HORIZ.	0 50	1"=50'
VERT.	0 20	1"=20'
CROSS SECTIONS	0 10	1"=10'
PAVEMENT DETAILS	0 20	1"=20'

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE
801	4-25-77
808	1-1-71
836	3-12-75
838	1-13-77
839	11-25-70
842	8-29-74
843	10-23-75
844	11-8-74
846	4-25-77
847	4-3-76
998	2-19-74
950	4-25-77
951	4-25-77
1001	1-3-77
8625	1-11-74
5713	1-11-74

STANDARD DRAWINGS

NUMBER	DATE
BP-1	6-1-65
BP-2	12-6-76
BP-3	12-6-76
BP-4	12-6-76
BP-5	8-11-75
BP-7	12-6-76
BP-9	12-6-76
BP-10	1-3-75
BP-12	8-11-75
CB-1-2 A&B	6-1-65
CB-2-3 & 2-4	6-1-65
CB-3A	1-1-76
CB-4	9-1-69
CB-5	9-1-69
CB-6	6-1-65
CB-45B A	6-6-68
F-1	5-1-76
F-3	5-1-76
F-4	5-1-76
F-5	5-1-76
F-6	5-1-76
GR-1	12-6-76
GR-2B	12-6-76
GR-3	12-6-76
GR-4	12-6-76
GR-4A	7-26-76
GR-5	1-1-71
GR-6	1-1-71
F-2	5-1-76
HW-3	6-1-65
HW-4	1-1-70
I-2	6-6-69
I-2A	6-6-69
L-1	6-1-73
MC-1	6-13-69
MC-3	6-1-73
MC-4	7-26-76
MC-6	6-1-65
MC-7	10-15-76
MH-1	6-12-75
MH-2	6-12-75
MH-3	6-12-75
MH-5	6-12-75
HL-1	9-6-73
HL-2	7-27-73
HL-3	7-27-73
HL-4	1-21-76
HL-5	9-6-73
HL-6	3-22-77
HL-7	1-21-76
HL-8	1-21-76
HL-9	3-22-77
HL-10	1-21-76
HL-11	4-6-73
HL-12	4-6-73
TC-7.65	10-1-74
TC-12.30	10-1-74
TC-21.10	10-1-74
TC-21.20	4-18-77
TC-21.40	8-19-77
TC-22.10	8-19-77
TC-31.21	8-27-76
TC-32.10	8-27-76
TC-32.11	8-27-76
TC-41.10	8-19-77
TC-41.20	4-1-77
TC-41.50	4-1-77
TC-42.10	8-19-77
TC-42.20	4-1-77
TC-51.10	6-2-75
TC-51.14	6-2-75
TC-52.10	4-1-77
TC-52.20	4-1-77
TC-61.10	8-19-77
TC-71.10	12-1-75
TC-72.20	8-29-77
TC-81.10	4-18-77
TC-82.10	9-5-75
TC-88.10	9-5-75
TC-83.20	9-5-75
TC-89.20	9-5-75
TC-85.10	9-5-75
TC-85.20	9-5-75
AS-1-72	6-30-72
BR-1-67	10-15-71
RB-1-55	2-2-59
SD-1-69	6-12-69

DESIGN DESIGNATION

1970 A.D.T. = 26,500
1987 A.D.T. = 58,900
D.H.V. = 2,945
D. (directional distribution) 67%
T. (percent B&C trucks) 5%
V. (design speed) 60 M.P.H.

PLANS PREPARED BY
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
75 PUBLIC SQUARE
CLEVELAND, OHIO
FOR
STATE OF OHIO

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE:

REV 4-5-78

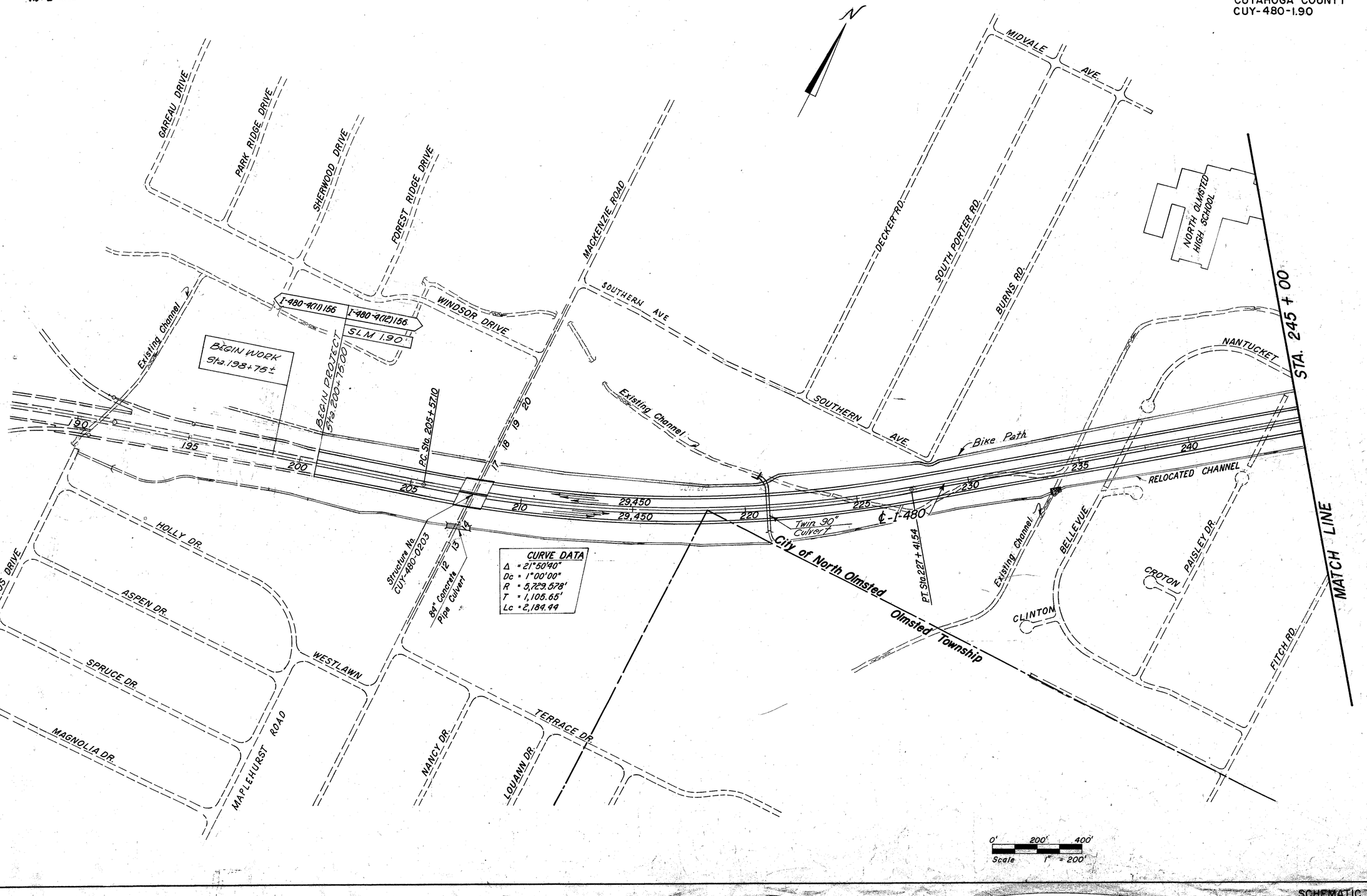
FILE NUMBER	CUYAHOGA COUNTY CUY480-1.90 00391
	DATE OF LETTING
	CONTRACT NUMBER

SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

2
427

CUYAHOGA COUNTY
CUY-480-1.90

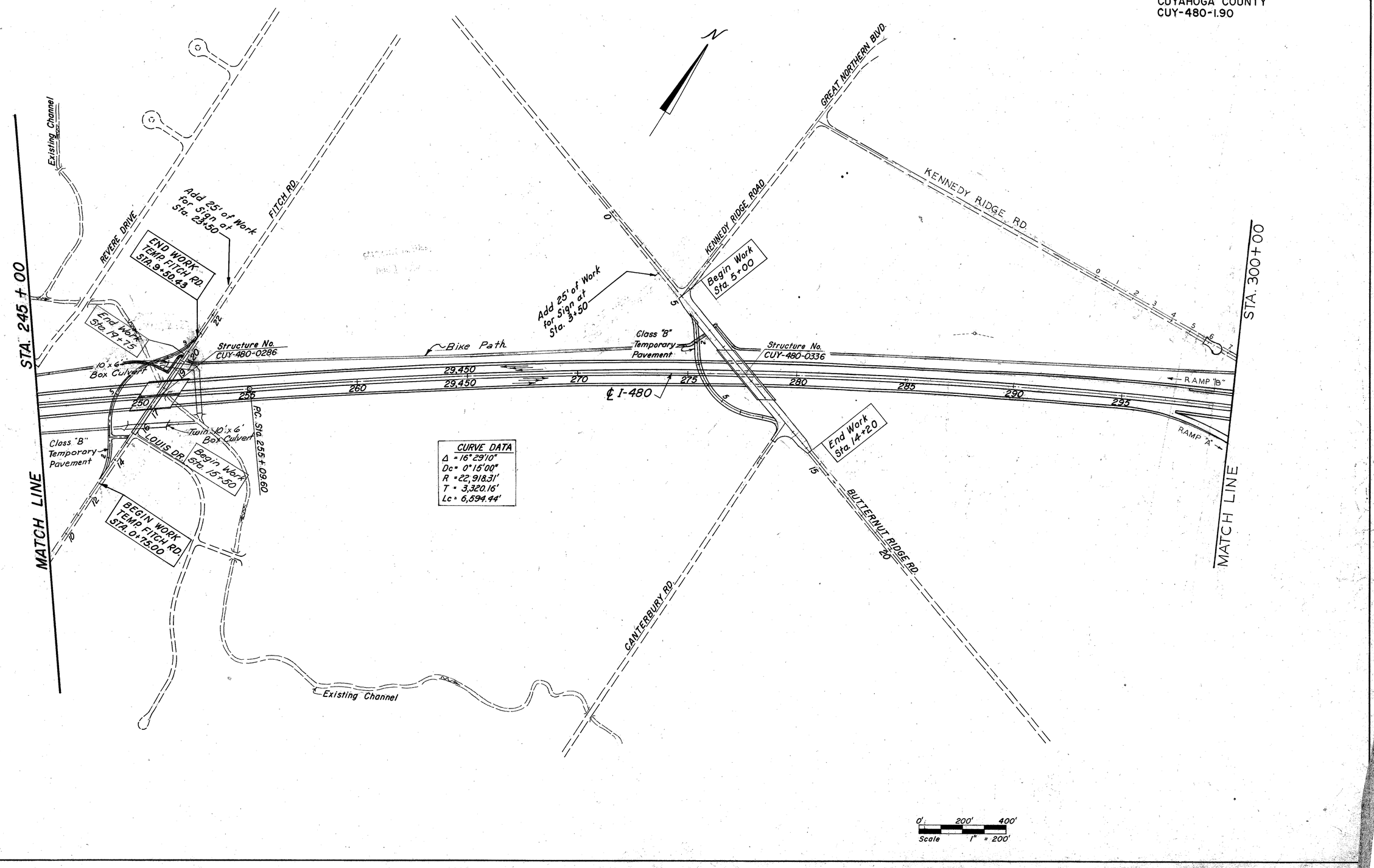


SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

3
427

CUYAHOGA COUNTY
CUY-480-1.90



SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

4/427

CUYAHOGA COUNTY
CUY-480-1.90

Add 25' of Work for Sign at Sta. 85+83

N

BROOKPARK RD. (S.R. 17)

END WORK STA. 80+00

17,800

17,800

60

Ramp "B" 6,900

Ramp "D" 6,200

Ramp "G" 750

End Pav't Sta. 78+99.50

75

Ramp "F" 8,600

Bike Path

8

10

7,650

STA. 300+00

Structure No. CUY-480-0398

305 310 315 320 325 330 335 340 350

℄ I-480

6,200

Ramp "E"

20 21 22 23

KENNEDY RIDGE ROAD

PT. Sta. 321+40.04

END WORK TEMP. COLUMBIA RD. STA. 7+08.87

End Work Sta. 21+05

Class "B" Temporary Pavement

COLUMBIA RD. (S.R. 252)

24

22

20

P.C. Sta. 337 + 72.63

(4,880)

36,600

36,600

18

16

Begin Work Sta. 16+75

Structure No. CUY-480-0447

I-480-9(16)161

END WORK STA. 359+50.00

6

5

3

2

℄ PROJECT END Sta. 357+00.00

I-480-9(12)156

S.L.M. 4.86

GRACE AVE.

MASTICK RD.

PARK LANE

I-480 Sta. 360+56 ±
740' Rt. Proposed 84" Storm Sewer Outlet

Waste Water Treatment Plant

MATCH LINE

7,650

8,600

Ramp "C"

Relocated S.R. 252

83

Ramp "A"

BEGIN WORK STA. 58+00

9,250

9,250

80

Begin Pav't Sta. 60+20

SUNSET OVAL

BEGIN WORK TEMP. COLUMBIA RD. STA. 0+00.00

CURVE DATA
Δ = 15°23'43"
Dc = 0°28'00"
R = 12,277.67'
T = 1,659.49'
Lc = 3,298.99'

Add 25' of Work for Sign at Sta. 54+00

0' 200' 400'
Scale 1" = 200'

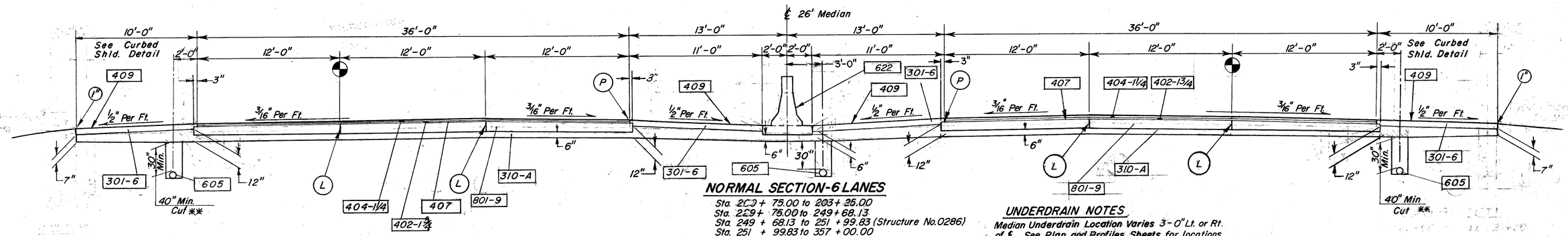
SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

5
427

CUYAHOGA COUNTY
CUY-480-1.90

TYPICAL SECTIONS
TYPE 404 on 801



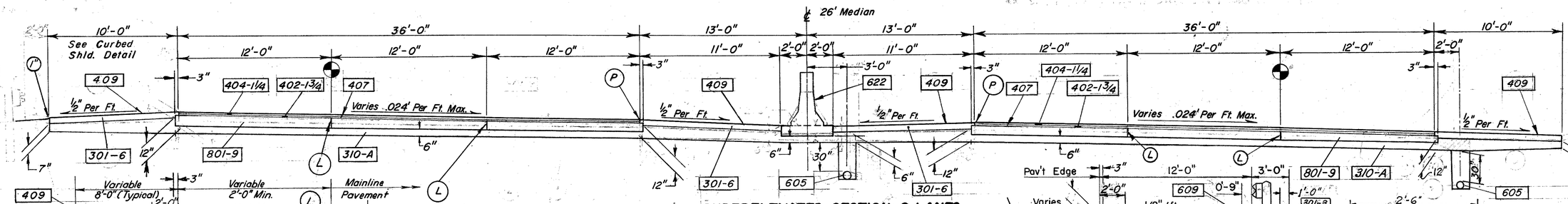
NORMAL SECTION-6 LANES

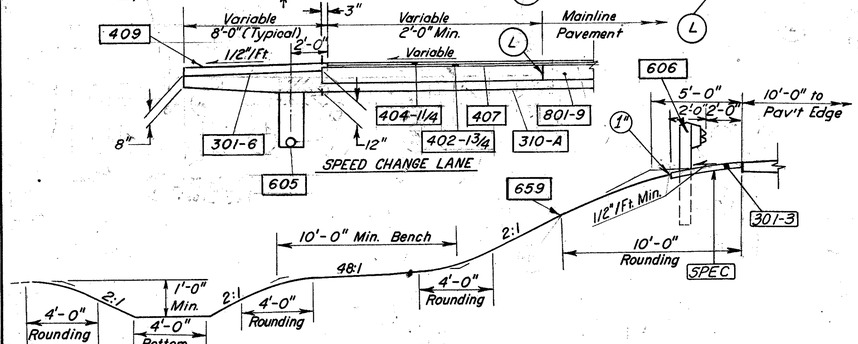
Sta. 203 + 75.00 to 203 + 25.00
Sta. 229 + 75.00 to 249 + 68.13
Sta. 249 + 68.13 to 251 + 99.83 (Structure No. 0286)
Sta. 251 + 99.83 to 357 + 00.00

UNDERDRAIN NOTES

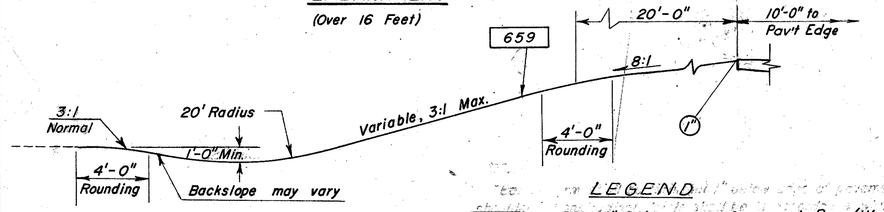
Median Underdrain Location Varies 3'-0" Lt. or Rt. of ℄, See Plan and Profiles Sheets for locations

** See Plan and Profile Sheets for Underdrain Profiles





EMBANKMENT
(Over 16 Feet)



EMBANKMENT
(16 Feet & Under)

LEGEND

301-3	301-3" Bituminous Aggregate Base (Weed Control)
SPEC	Herbicide for Weed Control

See Sheet No. 20 for Note on Weed Control Beneath Guard Rail.

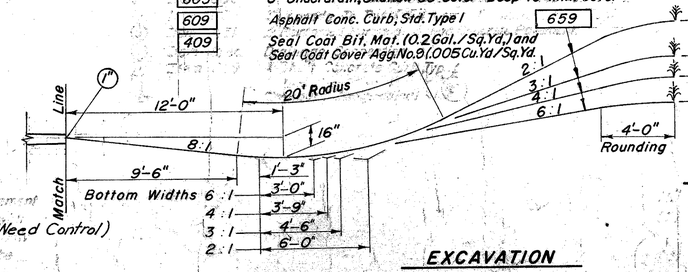
SUPERELEVATED SECTION-6 LANES

Sta. 203 + 25.00 to 206 + 98.25 (Curve Left)
Sta. 206 + 98.25 to 208 + 70.34 (Structure No. 0203)
Sta. 208 + 70.34 to 229 + 75.00 (Curve Left)

ITEM — LEGEND

ITEM	
404-11/4	1 1/4" Asphalt Concrete
402-13/4	1 3/4" Asphalt Concrete
407	Tack Coat (0.10 Gal./Sq.Yd.) and Cover Aggregate
801-9	9" Portland Cement Concrete Base
310-A	Subbase Grading "A", as per plan, Thickness as shown
301-6	6" Bituminous Aggregate Base,
622	Concrete Barrier, Type H
606	Guard Rail Type 5
659	Seeding & Mulching
605	6" Underdrain, Shallow 30" Cover - Deep 40" Min. Cover
609	Asphalt Conc. Curb, Std. Type I
409	Seal Coat Bit. Mat. (0.2 Gal./Sq.Yd.) and Seal Coat Cover Agg. No. 9 (.005 Cu.Yd./Sq.Yd.

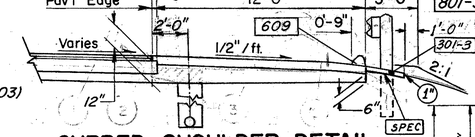
(L) Standard Longitudinal Joint
(P) Profile Grade
Hot Longitudinal Joint (See Proposal Note)
(1") Drop Shoulder 1 inch

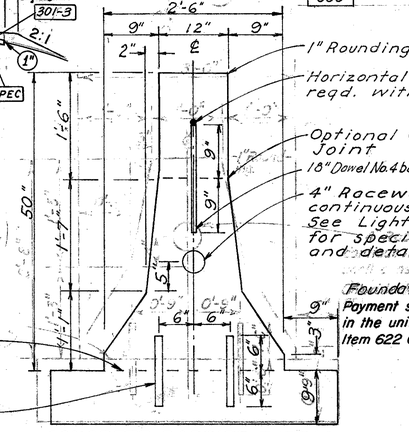


EXCAVATION

CURBED SHOULDER DETAIL

Sta. 205+22.00 to Sta. 207+23.25 (Lt.)
Sta. 208+45.34 to Sta. 215 + 03.00 (Lt.)
Sta. 244+97.00 to Sta. 249 + 93.13 (Lt. & Rt.)
Sta. 251 + 74.83 to Sta. 256 + 03.00 (Lt. & Rt.)





CONCRETE BARRIER TYPE H

Foundation & Roadway: Payment shall be included in the unit price bid for Item 622 Concrete Barrier.

NOTE:

For median details at bridge piers, see sheet no. 21
For median mounted light poles and pullboxes see sheet no. 325 & 326
For median mounted overhead sign support foundations see sheet no. 273

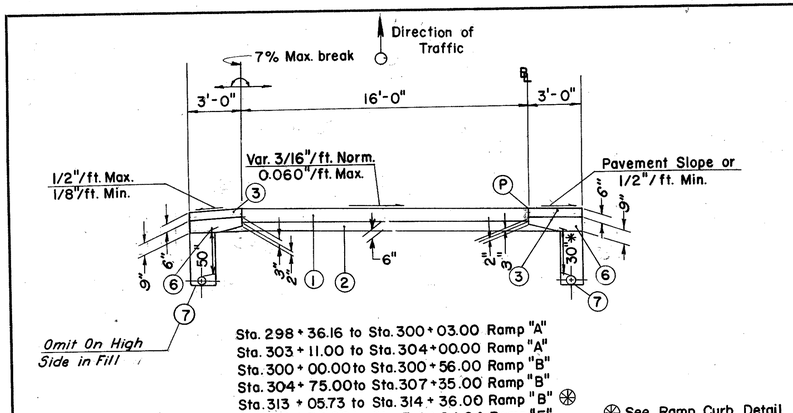
TYPICAL SECTIONS

TYPE 451

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

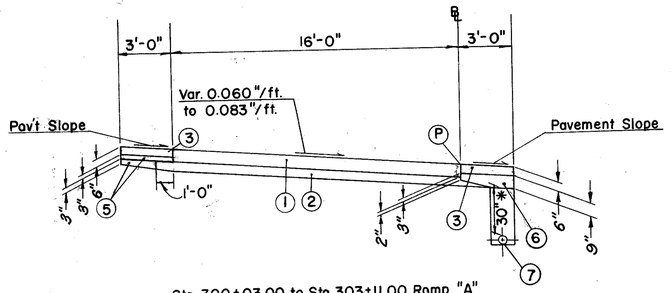
CUYAHOGA COUNTY
CUY-480-1.90

6 / 427

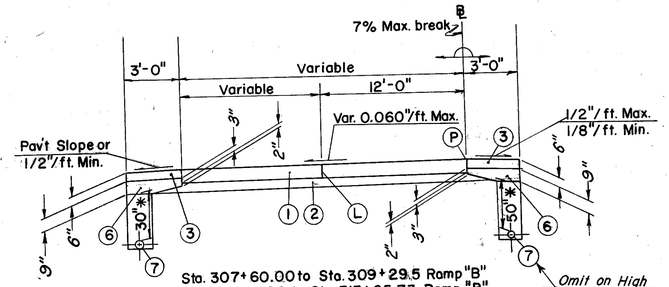


Sta. 298 + 36.16 to Sta. 300 + 03.00 Ramp "A"
Sta. 303 + 11.00 to Sta. 304 + 00.00 Ramp "A"
Sta. 300 + 00.00 to Sta. 300 + 56.00 Ramp "B"
Sta. 304 + 75.00 to Sta. 307 + 35.00 Ramp "B"
Sta. 313 + 05.73 to Sta. 314 + 36.00 Ramp "B" ⊛
Sta. 311 + 38.00 to Sta. 319 + 04.04 Ramp "E"

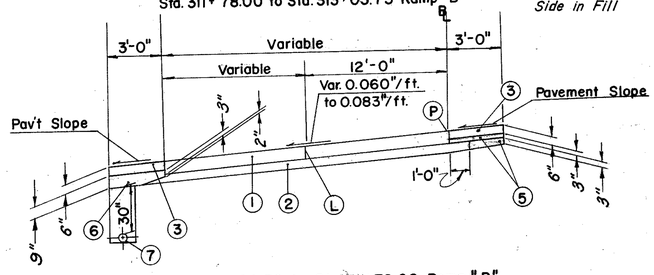
⊛ See Ramp Curb Detail



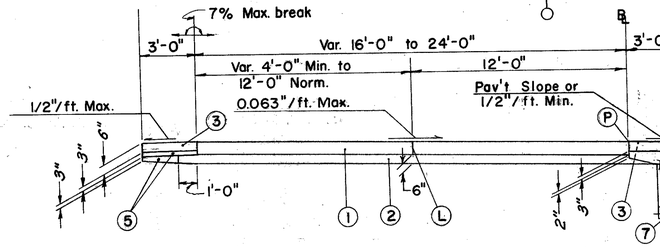
Sta. 300 + 03.00 to Sta. 303 + 11.00 Ramp "A"
Sta. 300 + 56.00 to Sta. 304 + 75.00 Ramp "B"
Sta. 314 + 36.00 to Sta. 314 + 76.79 Ramp "B"
Sta. 297 + 04.49 to Sta. 305 + 11.02 Ramp "C"
Sta. 298 + 62.79 to Sta. 308 + 73.23 Ramp "D"
Sta. 310 + 37.09 to Sta. 311 + 30.00 Ramp "E"



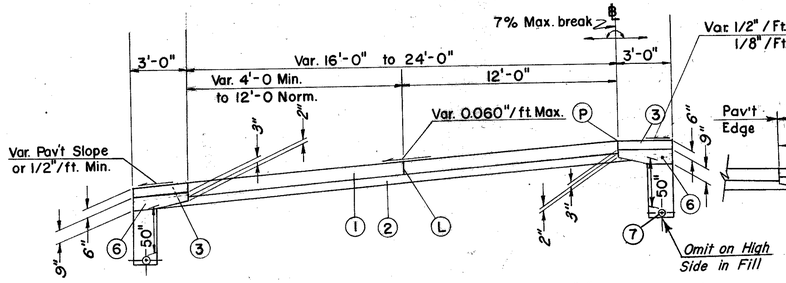
Sta. 307 + 60.00 to Sta. 309 + 29.5 Ramp "B"
Sta. 311 + 78.00 to Sta. 313 + 05.73 Ramp "B"



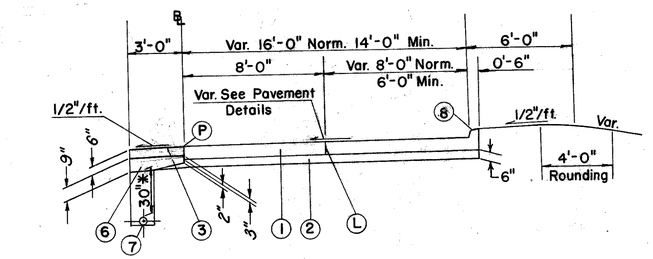
Sta. 309 + 29.50 to Sta. 311 + 78.00 Ramp "B"



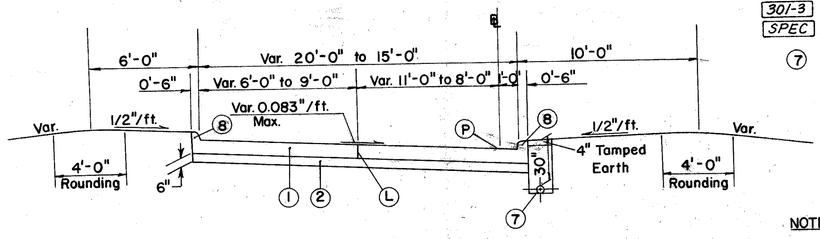
Sta. 307 + 35.00 to Sta. 307 + 60.00 Ramp "B"
Sta. 304 + 00.00 to Sta. 304 + 30.00 Ramp "A"
Sta. 313 + 47.38 to Sta. 321 + 46.52 Ramp "F"



Sta. 304 + 30.00 to Sta. 308 + 52.84 Ramp "A"

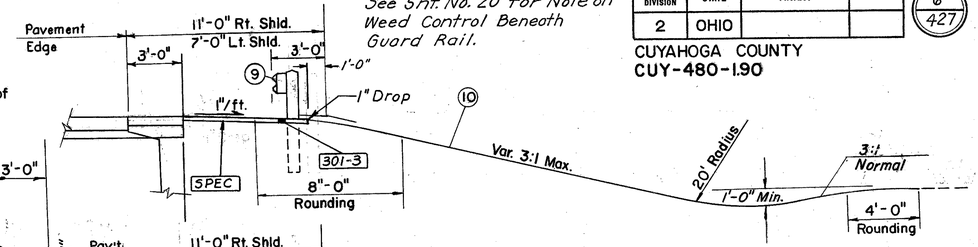


Sta. 312 + 88.29 to Sta. 314 + 96.00 Ramp "G"

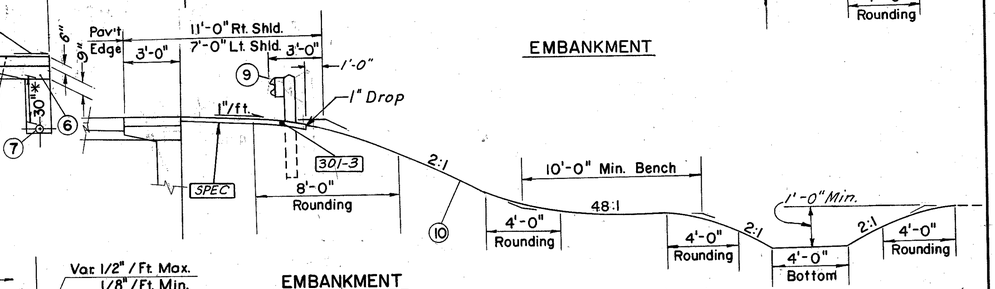


Sta. 314 + 76.79 to Sta. 315 + 76.79 Ramp "B"
Sta. 296 + 04.49 to Sta. 297 + 04.49 Ramp "C"
Sta. 297 + 12.79 to Sta. 298 + 62.79 Ramp "D"
Sta. 309 + 37.09 to Sta. 310 + 37.09 Ramp "E"

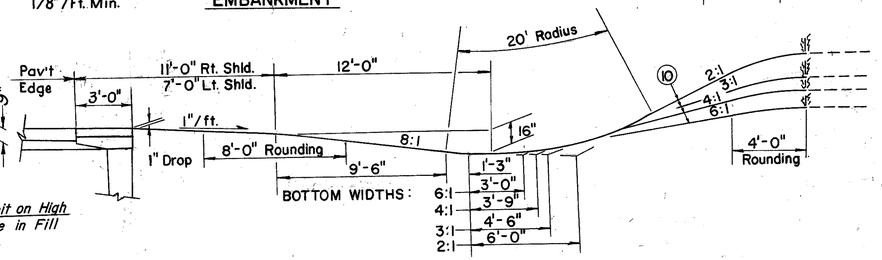
See Sht. No. 20 for Note on Weed Control Beneath Guard Rail.



EMBANKMENT



EMBANKMENT



EXCAVATION

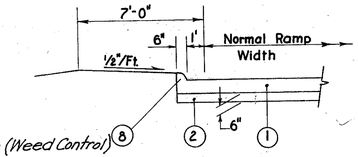
LEGEND

(1) Item 451 9" Reinforced Portland Cement Concrete Pavement.
(2) Item 310 Subbase Grading "A" as per Plan (See General Notes).
(3) Item 301 6" Bituminous Aggregate Base, 702.01 *AC-20* or 702.09 RT-11 or 12

(5) Item 310 Subbase (Thickness as Shown).
(6) Special Drainage Connection, using No. 8 Aggregate, (See Note in Proposal).
(7) Item 605 6" Underdrain, Shallow 30" Cover - Deep 50" Cover, Subgrade to Top of Pipe.
(8) Item 609 Curb, Type 2-A.
(9) Item 606 Guard Rail, Type 5

(10) Item 659 Seeding & Mulching.

(P) Profile Grade.
(L) Standard Longitudinal Joint.
301-3 *Item 301 - 3" Bituminous Aggregate Base (Weed Control)*
SPEC *Item Special - Herbicide for Weed Control*



RAMP CURB DETAIL

(7) SEQUENCE OF OPERATIONS FOR PLACING PIPE UNDERDRAIN

(1) Install pipe underdrains on outside shoulders.
(2) Place subbase out to outside edge of underdrain or to one foot beyond edge of pavement where no underdrain is present.
(3) Construct Item 451.
(4) Remove subbase and any contaminated backfill over drain and replace with No. 8 or No. 78 Aggregate as shown by (7)
(5) Complete shoulder construction.
(6) Payment shall be made for all subbase placed under this operation.

NOTES

(1) Typical sections shown facing in the direction of traffic.
(2) Earth berm shall be finished 1" below edge of paved shoulder except where berm slopes toward shoulder.
✳ 50" in cut.

RAMP TYPICAL SECTIONS

TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

7
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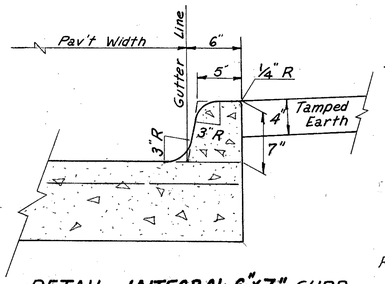
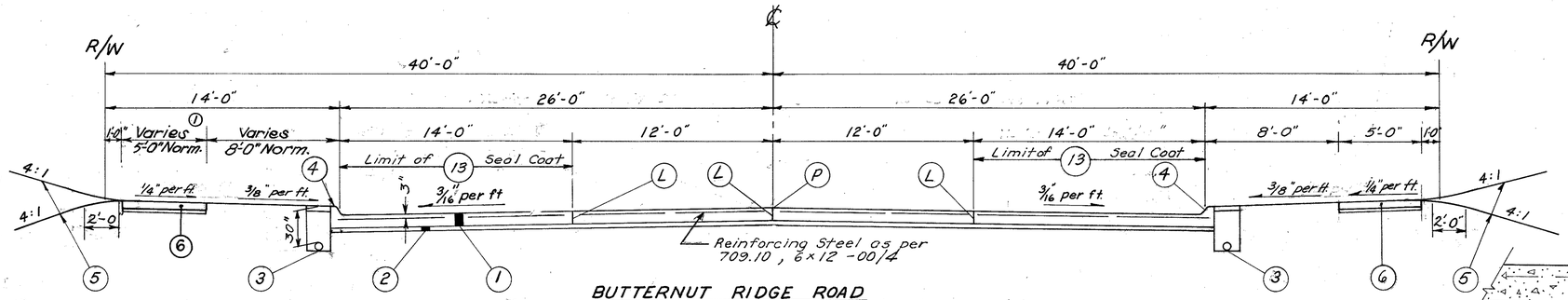
CUYAHOGA COUNTY
CUY-480-1.90

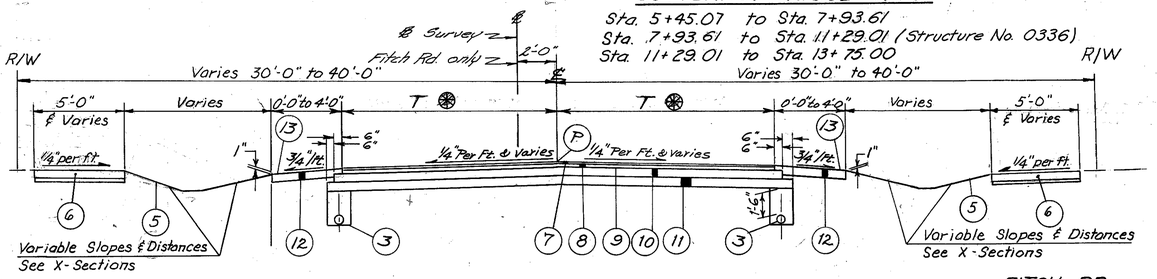


DETAIL INTEGRAL 6"x7" CURB

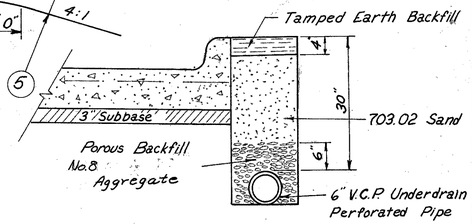


BUTTERNUT RIDGE ROAD

Sta. 5+45.07 to Sta. 7+93.61
Sta. 7+93.61 to Sta. 11+29.01 (Structure No. 0336)
Sta. 11+29.01 to Sta. 13+75.00



⊛ Width Transition from proposed pavt. to Existing pavt.



CURB & UNDERDRAIN DETAIL

609-Concrete Curb 6"x7" Integral

NOTE: 706.08 Perforated Bell & Spigot Vitrified Clay Pipe with perforations in accordance with AASHO M65 Shall be used for pipe underdrains. In addition, three lugs designed to center and align the pipe and provide a 3/8 gap between pipe lengths shall be provided in the bell end of each pipe.

608 - 4½" Concrete Walk, as per plan

Payment for this item shall include a 2" granulated slag or screening bed as per 703.08 or 703.10.

CANTERBURY RD.

Sta. 8+50 to Sta. 8+99.69
(T = 12' to 8')

COLUMBIA RD.

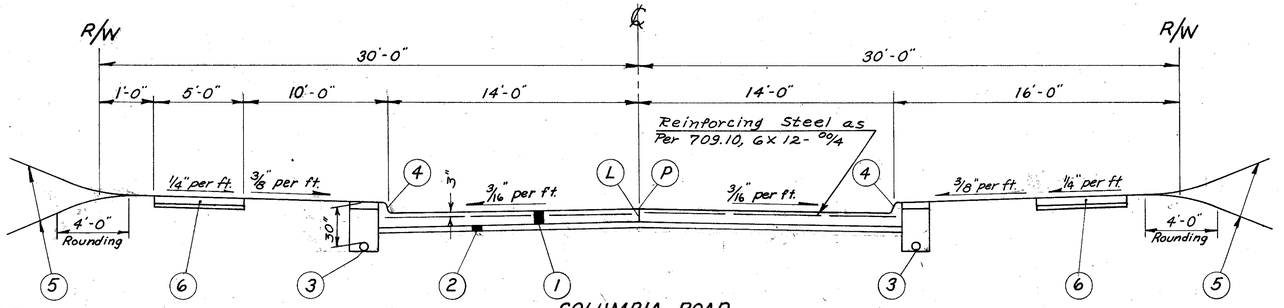
Sta. 16+75 to Sta. 17+00
Sta. 20+88 to Sta. 21+00
(T = 12' to 11')

BUTTERNUT RIDGE RD.

Sta. 5+00.00 to Sta. 5+45.07
Sta. 13+75.00 to Sta. 14+20.00
(T = 26' to 9')

FITCH RD.

Sta. 15+50 to Sta. 19+40 (Omit Stabilized Shlds.)
(T = 10')



COLUMBIA ROAD

Sta. 17+00.00 to Sta. 17+42.03
Sta. 17+42.03 to Sta. 20+44.79 (Structure No. 0447)
Sta. 20+44.79 to Sta. 20+88.00

ITEM		DESCRIPTION
(7)	404 - 1"	Asphalt Concrete AC20
(8)	402	2" Asphalt Concrete AC20
(9)	408	Bituminous Prime Coat, 702.02, MC-30 or MC-70; 702.03, primer 20; or 702.09, RT-2 or RT-3, applied @ 0.4 Gal./Sq. Yd.
(10)	304	6" Aggregate Base
(11)	310	6" Subbase
(12)	411	6" Stabilized Crushed Aggregate
(13)	409	Seal Coat Using 0.008 Cu. Yd. No. 9 Aggregate Per Sq. Yd. And 0.40 Gal. Bituminous Material Per Sq. Yd.

NOTE:

1. The location of sidewalks vary in these sections as shown on the plan and profile sheets.
2. Cross section shall govern over typical section where variable conditions are encountered in slopes.

ITEM		DESCRIPTION
(1)	451	9" Reinforced Portland Cement Concrete Pavement as Per Plan See Note Sht. No. 11
(2)	310	3" Subbase 703.08 or 703.10
(3)	605	6" Underdrain, 706.08 as per plan , See Detail
(4)	609	Concrete Curb, Integral 6"x7", See Detail
(5)	659	Seeding and Mulching
(6)	608	4½" Concrete Walk, as per plan, (See Note Above)
(L)		Standard Longitudinal Joint
(P)		Profile Grade

FITCH RD, BUTTERNUT RIDGE ROAD & COLUMBIA ROAD TYPICAL SECTIONS

TYPICAL SECTIONS

TYPE 451

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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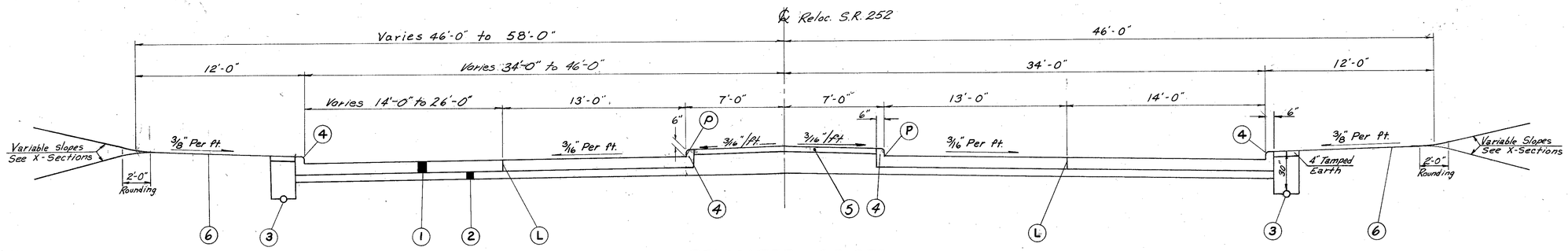
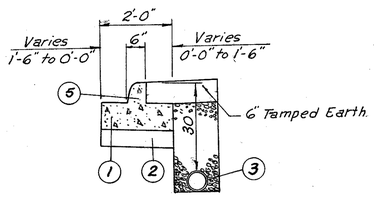
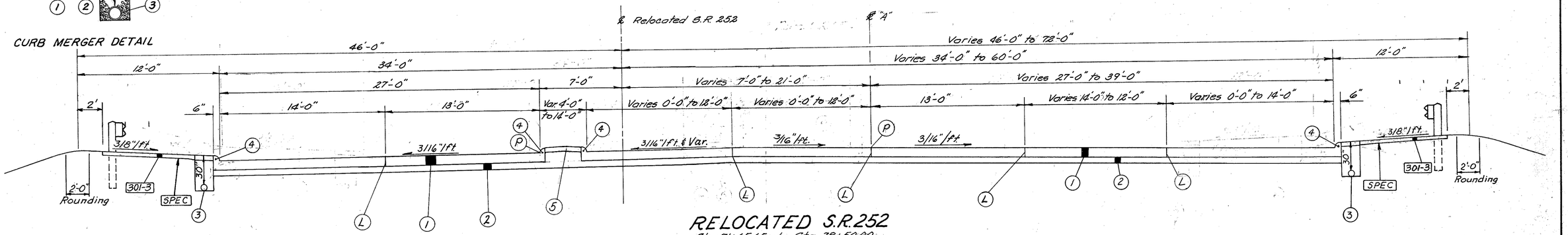




RELOCATED S.R. 252

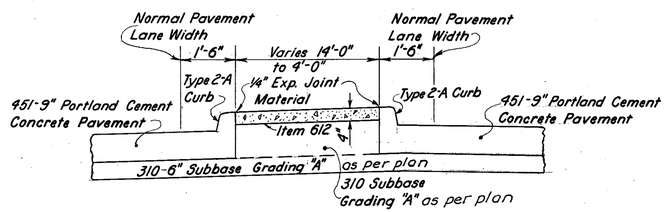
Sta. 60+20.00 to Sta 68+13.49
Sta. 68+13.49 to Sta. 71+50.43 (Structure No. 0398)
Sta. 71+50.43 to Sta. 71+65.65

CURB MERGER DETAIL



RELOCATED S.R. 252

Sta. 71+65.65 to Sta. 78+50.00



612-4" CONCRETE MEDIAN

NOTES

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" 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.

ITEM		DESCRIPTION
(1)	451	9" Reinforced Portland Cement Concrete Pav't.
(2)	310	6" Subbase Grading "A", As Per Plan
(3)	605	6" Underdrain
(4)	609	Curb Type 2-A
(5)	612	4" Concrete Median
(6)	659	Seeding & Mulching
(P)		Profile Grade
(L)		Standard Longitudinal Joint
301-3	301	3" Bituminous Aggregate Base (Weed Control)
SPEC	SPECIAL	Herbicides for Weed Control

See Sheet No. 20 for note on Weed Control Beneath Guard Rail.

FHWA REGION	STATE	PROJECT	
5	OHIO		

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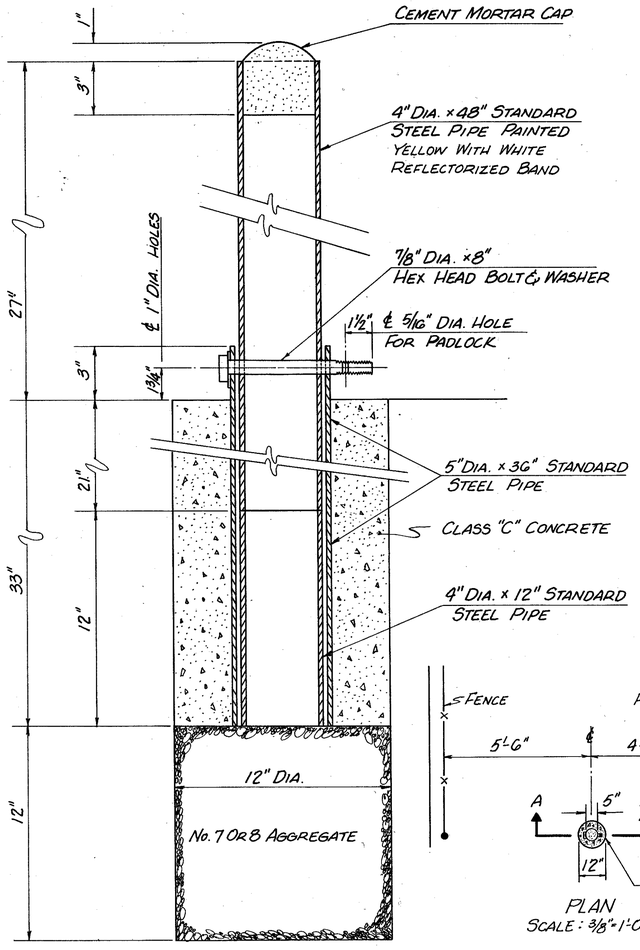
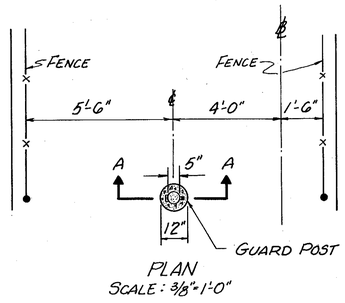
GUARD POST DETAIL
SCALE: 3"=1'-0"

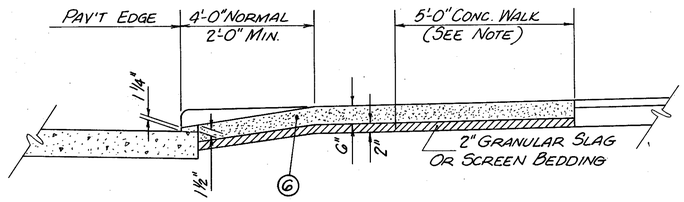


SECTION A-A

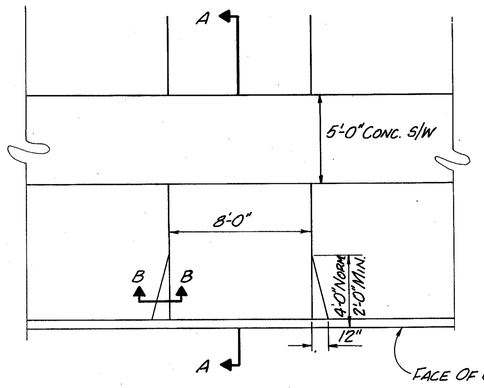


PLAN
SCALE: 3/8"=1'-0"

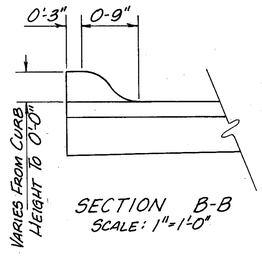
CURB RAMP DETAIL
BIKE PATH



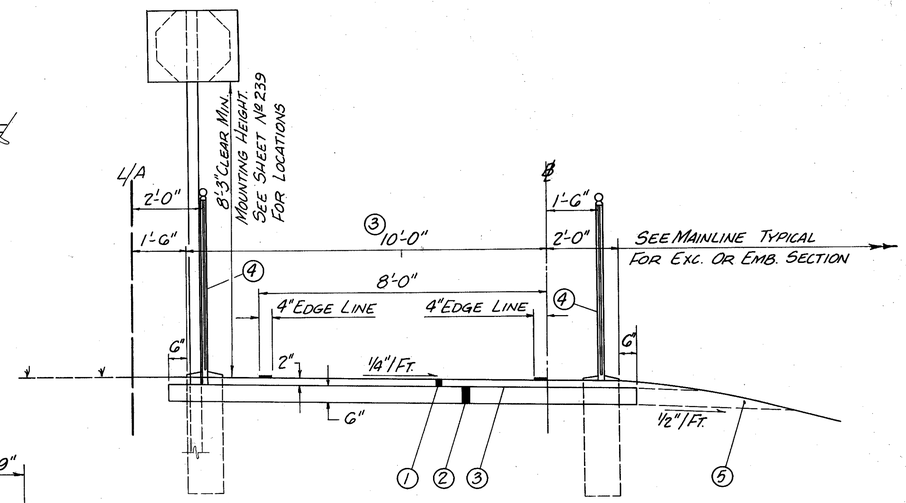
SECTION A-A
SCALE: ½"=1'-0"



PLAN
SCALE: ¼"=1'-0"



SECTION B-B
SCALE: 1"=1'-0"



TYPICAL SECTION
BIKE PATH
SCALE: ½"=1'-0"

ITEM 606 SPECIAL GUARD POST

This Item Shall Consist Of The Construction Of Guard Posts As Detailed. The Construction Shall Include The Furnishing, Assembling And Erecting Of All Component Parts And Material, Complete In Place At The Location Shown On The Plans Or As Directed By The Engineer.

The Standard Steel Pipes, Bolt And Washer Shall Be Galvanized As Defined In 711.02. Painting Shall Be In Accordance With Item 519. Concrete Shall Be Class "C" In Accordance To Section 511.03. The Cement Mortar Cap Shall Be Composed Of A Stiff Mixture Of One Part Cement And Two Parts Of Clean, Sharp Sand. A Padlock Shall Be Furnished With Each Post And Shall Be Either Brass Or Bronze Padlock Equal To Master No. 4 B.K.A. Or Wilson Bohannan & Co. All Padlocks Supplied On The Project Shall Have The Same Key. Two Master Keys Shall Be Supplied By The Contractor To The City Of North Olmsted.

The Payment For Each, Item 606 Special Guard Posts Shall Include The Total Cost For Furnishing All Materials And The Construction Of The Guard Post As Detailed.

ITEM 608 BIKE PATH CURB RAMP

Materials, Forming And Finishing For This Item Shall Be As Defined In Item 608. The 2 Inch Granular Slag Or Screen Bedding Shall Be As Defined In 703.08 Or 703.10. The Payment For Each, Item 608 Bike Path Curb Ramp Shall Include The Total Cost For Furnishing All Materials And Constructing Of The Curb And Walk Of The Ramp Including The Removal Of The Existing Curb Where Required. For Additional Notes And Details See Stanard Drawing BP-12.

Note:

Where The Bike Path Crosses Any New Concrete Walk, The Specified 4½" Walk Thickness Shall Be Incleased To 6". The Transition From The Normal 4½" To 6" Shall Be Accomplished In A Distance Of One Foot On Either Side Of The Bike Path. The Cost Of The Additional Thickness And The Cost Of All Incidental And Pertinent Work Necessary To Obtain The Increased Thickness Shall Be Included In The Unit Price Bid Per Sq. Ft. For Item 608, 4½" Concrete Walk, As Per Plan. For Typical Section, See Sheet No. 7.

LEGEND

①	404	2" Asphalt Concrete, Ac=20 (See Note 5) (Bike Path)
②	304	Aggregate Base (Thickness As Shown)
③	408	Bituminous Prime Coat, 702.02, Mc-30 Or Mc-70, 702.03 Primer 20 Or 702.09, RT-2 Or RT-3 Applied At 0.4 Gal. Per Sq. Yd.
④	607	Fence, Type CL.
⑤	605	Aggregate Drains (See Note 4)
⑥	608	Bike Path Curb Ramp

Note:

1. The Location Of The L/A Line And Fence May Vary As Shown On The Plan And Profile Sheets.
2. Cross Section Shall Govern Over Typical Section Where Variable Conditions Are Encountered In Slopes.
3. Bike Path Width May Vary At Crossroad Locations. See Plan And Profile Sheets.
4. Item 605 Aggregate Drains Shall Be Placed At Fifty(50) Foot Intervals And At Low Points.
5. The Laboratory Will Establish A Job Mix Formula For The Bikeway Design Using A Bitumen Content Slightly Greater Than Normal.

BIKE PATH TYPICAL SECTIONS & DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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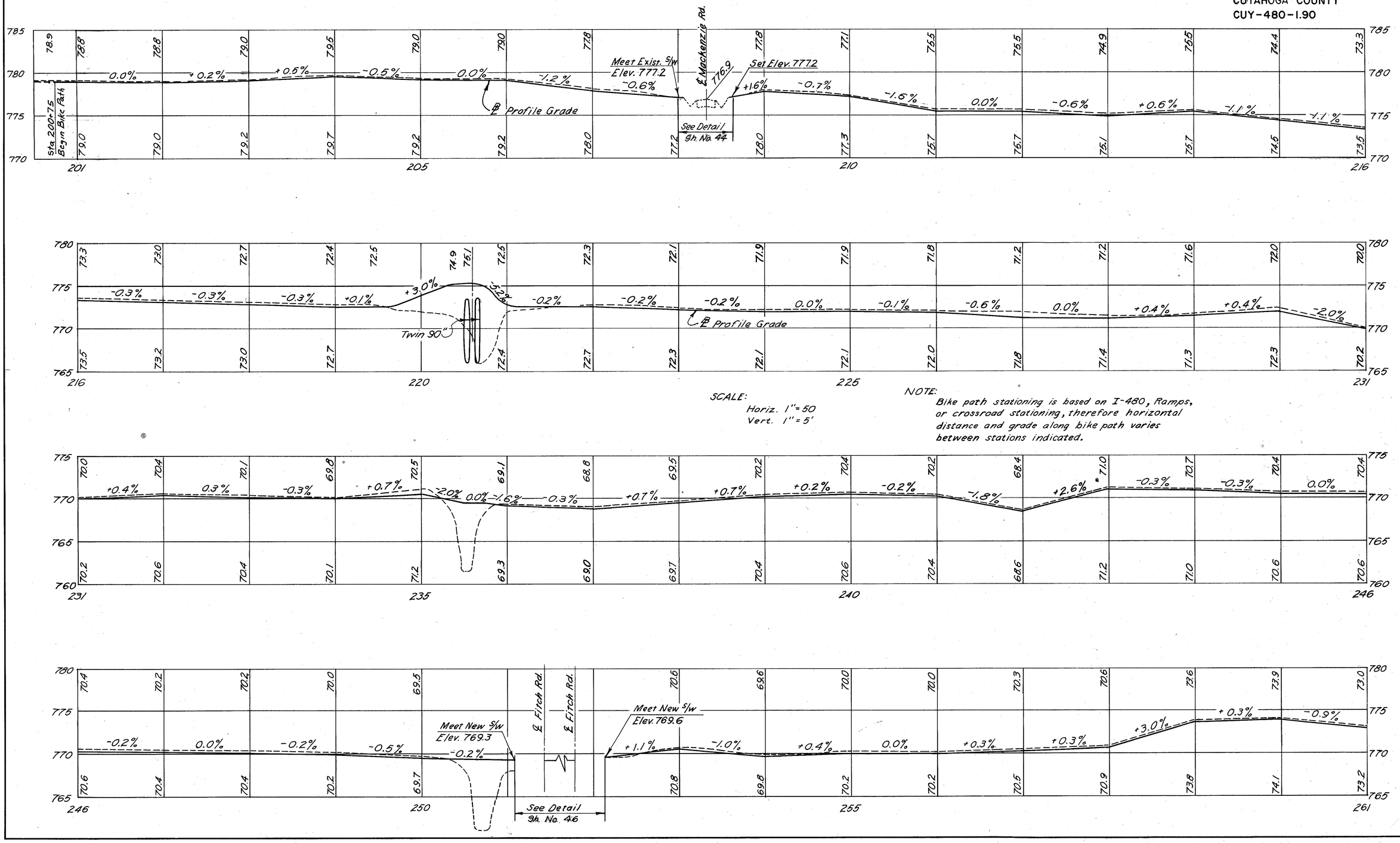
CUYAHOGA COUNTY
CUY-480-1.90

BIKE PATH PROFILE



SCALE:
Horiz. 1"=50
Vert. 1"=5'

NOTE:
Bike path stationing is based on I-480, Ramps, or crossroad stationing, therefore horizontal distance and grade along bike path varies between stations indicated.

Bike Path Profile Sta. 201+00 to Sta. 261+00

BIKE PATH PROFILE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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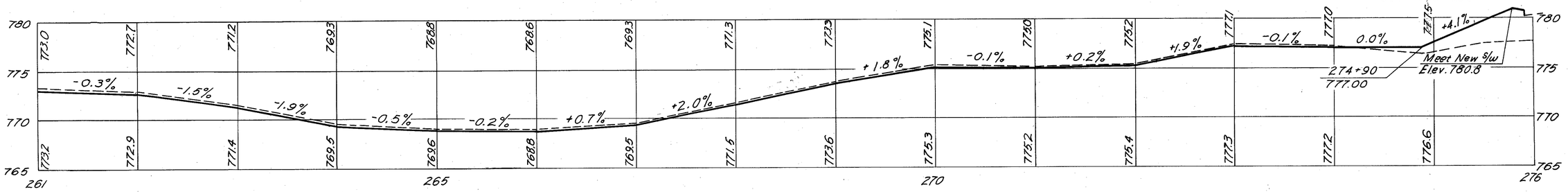
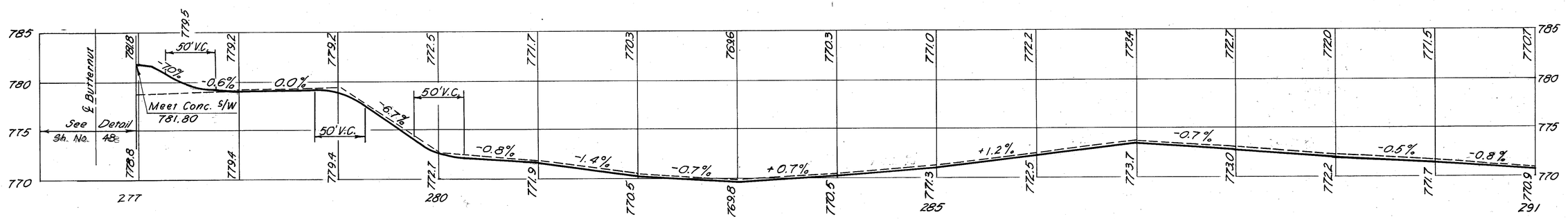
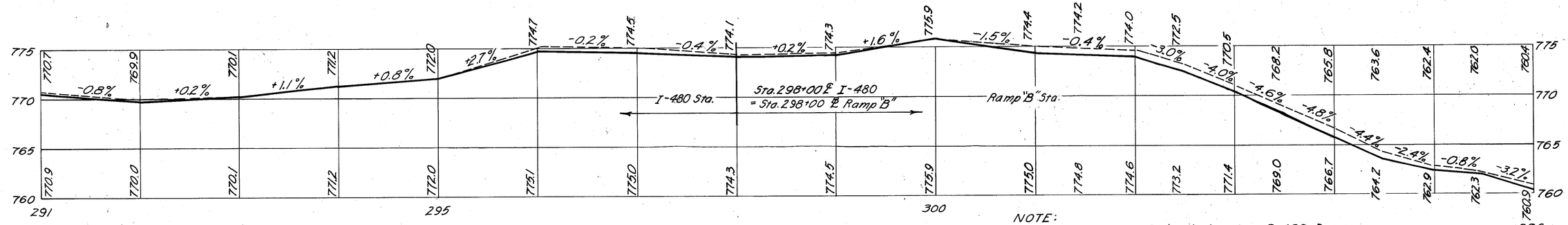
CUYAHOGA COUNTY
CUY-480-1.90

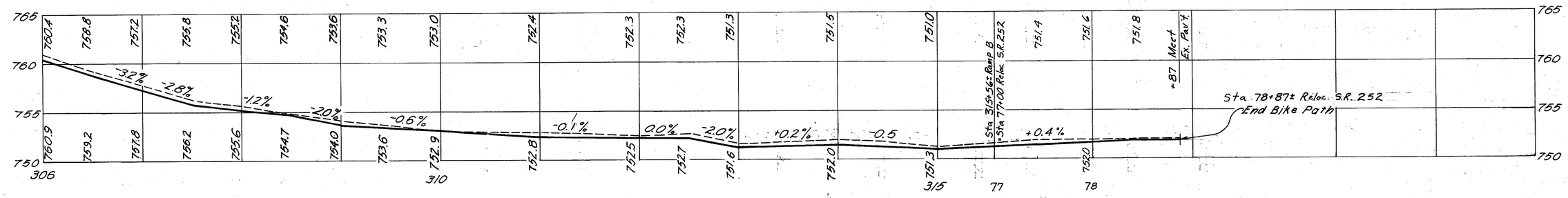






SCALE:
Horiz. 1" = 50'
Vert. 1" = 5'

NOTE:
Bike path stationing is based on I-480, Ramps, or crossroad stationing, therefore horizontal distance and grade along bike path varies between stations indicated.



Bike Path Profile Sta. 261+00 to Sta. 317+75

CALC. BY J.L. DATE 7-17-72
CHKD. BY TRB DATE 7-31-72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

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GENERAL NOTES

ITEM 619, FIELD OFFICE

The Contractor shall provide a minimum of 800 sq. ft of floor space and in addition the requirements of Item 619, 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.

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.

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.*

622 CONCRETE BARRIER, TYPE H

The 50"high concrete barrier shall be built to the dimensions shown in the plan details. The upper 18"may be constructed intregrally with the bottom,or separately with #4 rebar dowels at 4' max. spacing. Start and end dowels 6"from barrier vertical joints. Barrier foundation shall be 9"deep and 18"wider than the base of the barrier. The top width shown on the details is minimum and shall vary with transitions around sign support foundations and bridge and bridge piers. At end terminals, taper the upper 18"to 0"in 6'.

Concrete barrier if constructed on top of an approach slab shall omit the 9" foundation. Dowels shall be retained to tie barrier to the approach slab

MONUMENTS

Monuments shall be constructed in accordance with details shown on Standard Drawing MC-1. For locations, see Sheet No. 402

ELEVATION DATUM

All elevations are based on U.S.G.S. datum.

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.

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. TREES	No. STUMPS
18"	116	4
30"	26	2
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.

UTILITIES

The Contractor shall notify, at least two working days before breaking ground, all public service corporations having wires, poles pipes, conduits, manholes or other structures which may be affected by this operation, including all structures which are affected and not shown on these plans. He shall conduct his operations in such a manner as to avoid damages to any and all utilities, and all work required for public or private utilities will be done by and at the expense of their respective owners, unless otherwise noted on these plans.

UTILITY OWNERSHIP

East Ohio Gas Co.
1201 East 55th Street
Cleveland, Ohio 44103

Ohio Bell Telephone Co.
820 W. Superior Avenue, Room 703
Cleveland, Ohio 44113

Cleveland Electric Illuminating Co.
Illuminating Building, Public Square
Cleveland, Ohio 44113

Department of Public Utilities
Div. of Utilities Engineering
1201 Lakeside Avenue
Cleveland, Ohio 44114

City of North Olmsted
Engineering Department
5252 Dover Center Road
North Olmsted, Ohio 44070

DUST CONTROL

50 Tons of 616 Calcium Chloride & 1500 M gallons of water, 616 are to be used at the direction of and in amounts requested by the Engineer for dust control within the limits of the project.

WATERING AND MOWING PERMANENT SEEDED AREAS

The following estimated quantities are to be used as directed by the Engineer to promote growth and to care for the permanent seeded areas, as per 659.09.

659	Water	450	M Gal.
659	Mowing	900	M S.F.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

The rounded corners shown on typical sections Apply to all cross sections, even though otherwise shown on these plans.

PAVEMENT ELEVATIONS

Pavement edge elevations where curb is used are at the face of the curb unless otherwise indicated.

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.

607 FENCE, TYPE CL, MODIFIED *AS PER PLAN*

In lieu of standard height shown on Standard Drawing F-1, Fence, Type CL, Modified shall be constructed to a height of 8 feet.

607 FENCE ERECTION - SCHEDULE OF OPERATIONS

For the protection of pedestrians, children, and animals, the Contractor shall, so schedule and prosecute the work that the erection of the right-of-way fence shall be performed prior to any other operation in the area. In his Progress Schedule, the Contractor shall include a complete schedule of how he proposes to erect the right of way fence.

PAVEMENT JOINTS IN CONCRETE BASE

In lieu of the requirements for transverse joints at 17' spacing of Standard Drawing BP-4 on this project, the maximum spacing between transverse joints may be increased to 20'. Contraction joints shall be skewed with the right edge of the joint 4' ahead of the left edge in the direction of travel for a 24' wide pavement. The first 25 joints away from the pressure relief joints shall not be skewed and shall be doweled as per BP-4. Contraction joints shall be protected by the use of roving jute or joint sealer if construction traffic is to be permitted on the base prior to the placement of bituminous surface courses.

COATED DOWEL BARS

Dowel bars required on Std. Dwg. BP-4 shall be coated in accordance with Supplemental Specification 948.

STATION MARKING

The Contractor shall stencil station numbers into both sides of the concrete barrier before it takes its final set. The complete station number is to be marked each 100 feet. The numerals shall be 3 to 4 inches in height and ¼ inch in depth. The station numbers shall be placed parallel with the pavement edge and centered on the top of the concrete barrier. Payment shall be included in the contract price bid per Item 622 - Concrete Barrier.

PART-WIDTH CONSTRUCTION

Because of the necessity of building (portions of) this project under traffic and constructing the pavement part at a time, extreme care shall be taken to prevent the construction of a butt joint on centerline in the 304 and 310 courses.

This shall be accomplished by building the 304 and 310 courses placed with the first portion of the pavement built, at least eighteen (18) inches beyond the centerline and by surfacing no closer than eighteen (18) inches to this edge of the above courses. When the second portion of the pavement is built, at least twelve (12) inches of these projecting courses shall be broken down and thoroughly keyed in with the newly placed corresponding courses in the second portion of pavement built. Payment for this operation shall be included in the unit prices bid for the pertinent pavement items.

LOCATIONS OF GUARDRAIL

The locations of guardrail runs as shown in these plans are subject to adjustment to assure that the planned installations will afford maximum protection for traffic.

WEED CONTROL BENEATH GUARDRAIL

See note on Sheet No. 20

Calc. By J.L. 7-17-72
Chkd. By T.R.B. 7-31-72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

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GENERAL NOTES

REVIEW OF DRAINAGE FACILITIES.

Before any work is started on the project, and before the project is accepted by the State, representatives of the State, the City and the Contractor shall make a visual inspection of the existing storm and Sanitary Sewers which are to remain in service and which may be affected by the work. A record of the inspection shall be kept in writing by the State. All new sewers, inlets and manholes constructed as a part of the project shall be free of all foreign matter and in a clean condition before they will be accepted by the State. All existing sewers inspected initially by the above mentioned parties shall be maintained and left in the same condition as 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. The cost of making inspections and any repairing or correcting of sewers as a result of construction operations shall be included in the unit prices bid for the respective pipe items on the contract.

EXISTING UNDERDRAINS

Where existing underdrains are encountered and no provision has been made for new underdrains, they shall be connected to new inlet with 6 inch Type "F" pipe. A quantity of 100 feet has been provided in the General Summary to be used as directed by the Engineer for that purpose. The materials shall not be order by the Contractor unless prior approval is received from the Project Engineer.

REINFORCED CONCRETE CATCH BASINS

Catch basins over 12 feet in depth shall be built of Class C Concrete reinforced by placing ½" diameter bars 12" center to center both vertically and horizontally with a 2" clearance from the inside face of the wall. Payment for furnishing and placing the reinforcing steel shall be included in the unit price bid for Item 604 Reinforced Concrete Catch Basin.

ITEM 202 - STRUCTURES REMOVED

This item shall consist of removal of the swimming pool at station 310+00 Ramp D, 130' Left shown on Sht. No. 62. Work shall include removal of approximately 380 L.F. of steel sheet piling to approximately 1' below existing grade, removal of approx. 2280 S.F. concrete & masonry apron, and backfilling with approx. 2000 C.Y. of earthwork in accordance with 202.02. Floors shall be broken and drains that are not removed shall be sealed with masonry or precast clay stoppers.

All materials, labor, and equipment to accomplish the above shall be included in the Lump Sum for Item 202 - Structures Removed.

SANITARY MANHOLES

The sanitary manholes shall be cast in place concrete built according to the details shown on Standard Drawing "MANHOLE No. 1," or they shall be precast reinforced concrete manholes, with 706.11 joints as detailed on Standard Drawing "MANHOLE No. 5.

PIPE CUT-OFFS

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 in accordance with Standard Construction Drawing MC-4.

Cost of joint and collar shall be included in the unit price bid for the pertinent 603 conduit item.

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. 25.

The following estimated quantities have been included in the General Summary for venting these wells.

Item 602 Concrete Masonry, as per plan — 4.00 Cu. Yd.
Item 603 3" Conduit, Type F, 707.08 Standard Weight Bituminous Coated — 200 Lin. Ft.

CATCH BASIN LOCATION

The station location of a C.B. as shown on the plans is the center of grate.

INLET LOCATION

The location of an inlet as shown on the plans is to the center of the manhole cover, or to the center of grate for I-3H Inlets.

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.

MANHOLE COVERS

The Contractor shall set the frames for manhole covers at such an elevation and inclination as to place the surface of the cover in the plane of the finished surface except on slopes steeper than I on 4.

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.

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 drainage system when such drains carry flow from any plumbing fixtures including floor drains and sink drains or drains from livestock lots or barns.

Existing pipe carrying flow which comes within the category outlined above shall be plugged with Class "C" concrete at the right-of-way line. Payment for said plugging shall be included in the unit price bid for item 203 excavation.

NO. 6 CATCH BASIN MODIFIED, AS PER PLAN.

Modification of catch basin shall consist of lowering the grate an additional 2" and warping the shoulder pavement for 5'-0" around the basin.

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 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

SPRING DRAINS

Reference is made to the *Standard Drawing No. MC-1* showing the method of draining any spring *that may be shown* on the plan or encountered during construction as determined by the Engineer. The following estimated quantities have been included in the General Summary for this purpose. The length or exact location shall be determined by the Engineer.

Item 605 - 6" Unclassified Pipe Underdrain, 707.01, Type III or 707.12, as per plan 450 L.F.

Item 605 - Aggregate Drains for springs, as per plan 15 L.F.

The Contractor shall not order materials for "Spring Drains" until authorized by the Engineer and in the event no springs are encountered, the item shall be nonperformed.

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 to* place any of these items. The Engineer shall check and non-perform quantities or adjust locations and quantities for these items where indicated by field conditions during construction.

FARM DRAINS

All farm drains which are encountered during construction shall be provided with unobstructed outlets under the direction of the Engineer. Existing collectors which are located below the roadway ditch elevations and which cross the roadway shall be replaced within the right-of-way limits by item 603 conduit, type B, one commercial size larger than the existing conduit.

Existing collectors and isolated farm drains which are encountered above the elevation of the roadway ditches shall be outletted into the roadway ditch by 603 type F Conduit. The optimum outlet elevation shall be, if possible, one foot above the flowline elevation of the ditch.

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

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

Item 603 6" Conduit, Type B 100 Lin. Ft.
Item 603 6" Conduit, Type F 100 Lin. Ft.
Item 603 6" Conduit, Type E 100 Lin. Ft.
Item 601, Rock Channel Protection Type B (18" thick) w/ Bedding 6 Cu. Yd

Necessary bends or branches 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.

STORM SEWER CONDUITS REQUIRING RESILIENT AND FLEXIBLE GASKET JOINTS

Field testing of storm sewer conduits using 706.11 or 706.12 joints as specified in Section 603.06 is waived.

Revised D.R.S. 4-5-78

GENERAL NOTES

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ITEM 451, 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT AS PER PLAN
Butternut Ridge Road and Columbia Road

All applicable provisions of Item 451 as set forth in the Construction and and Material Specifications shall apply unless modified herein and the following shall be considered as supplemental to the provisions set forth therein.

Curing material for exposed concrete shall conform to Interim Federal Specification TT-C00800 Type 1 (chlorinated rubber liquid membrane forming compound).

High Early Strength Portland Cement shall be used for base or pavement replacement unless otherwise directed by the Engineer.

Bituminous Material (451.08) ---------- 702.01, 702.02, and 702.04.

The placing of reinforcement by vibratory means will not be permitted.

JOINTS: Longitudinal key joints and vertical faces of existing rigid pavement shall be cleaned of foreign material and given an application of bituminous material in a manner which results in a residual coating of 1/4 gallon per square yard before the adjoining slab is poured.

When not shown on the Plans, or provided for elsewhere, joints in the pavement within intersections shall be of the type, and at such locations, as designated by the Engineer.

In those areas where a pavement is being widened using a section consisting of a Portland Cement Concrete Pavement with or without an Asphalt Concrete Surface Course, traverse joints shall be placed in the base to match joints in the original concrete base, as shown on the Plans and/or as directed by the Engineer.

(d) Contraction Joint. The location of the joints should be clearly marked on the forms in such a manner that the center line can be readily determined for the sawing operation.

Unless otherwise approved by the Engineer the following method should be used. Immediately after the finishing machine has cleared the joint, and prior to any hand finishing, a transverse slot 2" in depth shall be cut into the plastic concrete with a steel plate 3/8" thick and of sufficient length to cut a slot the total width of the pavement in one operation. The plate shall have the cutting edge serrated and shall be moved longitudinally in such a manner as to provide a sawing action while it is being forced into the concrete. The plate shall be reinforced in such a manner as will keep it rigid and in straight alignment and it shall be suspended and guided from a movable bridge, of an approved design, so that the plate will be held rigidly perpendicular to the surface of the slab and at right angles to the center line of the pavement when it is inserted in the concrete.

Immediately following the removal of the steel cutting plate, a 1/4" x 2" premolded joint filler meeting the requirements of 705.03 shall be inserted in the slot so that the top edge of the filler is flush with the top of the concrete slab. The pavement shall then be finished as required elsewhere.

This joint shall be sawed within 3 days with a 3/8" thick blade cutting a kerf 2" deep. Any residual joint filler remaining in the slot shall be removed by a suitable means and the joint cleaned, protected and sealed as provided elsewhere.

(f) Hinge Joint. When called for on the Plans or in the Proposal, two hinge joints shall be sawed into the pavement, at the 1/3 points, between successive contraction joints or between adjacent contraction and expansion joints. Hinge joints shall not be placed as an extension of either a contraction, expansion or construction joint in an adjacent slab, but may be used to extend a longitudinal tied joint of a more or less perpendicular intersecting roadway when approved by the Engineer. In order to insure the correct indentification of the sawed joint for extension when adjacent or future lanes are placed, a 3" block letter, C, for contraction or construction and H. for hinge, shall be impressed 1/4" into the finished slab adjacent to and at each end of the joint. If it is not possible to place two successive hinge joints as herein specified, the sawed contraction joint described herein shall be used. When hinged joints are used the spacing between successive contraction and/or expansion joints shall not generally exceed 75 feet and the intermediate hinge joint spacing shall not exceed 25 feet except as approved by the Engineer.

Hinge joints shall be constructed in the same manner as the contraction joint described in (d) above except that no dowel assembly is required and the reinforcing mesh in the pavement or base shall be carried through the joint. Care shall be taken that the mesh reinforcement is not cut when the joint is being sawed.

CONSOLIDATING AND FINISHING: Vibratory finishing will not be permitted.

Unless otherwise specified the pavement shall be given a broom finish using a broom of an approved type, not less than 18 inches in width of bass or bassine fiber not more than 5 inches in length. The strokes shall be from edge to edge of the slab, one stroke per width of broom with adjacent strokes slightly overlapped and shall be drawn without "tearing" of the concrete and so as to produce regular corrugations approximately 1/16 inch depth.

Brooms shall be washed thoroughly at frequent intervals during each day. Any coarse or long bristles which cause irregularities shall be trimmed or removed.

CURING: The curing of concrete, which is to be covered with asphalt concrete, may be accomplished thru the use of an approved Asphalt Membrane Curing Compound which meets the moisture retention properties set forth in 705.07. The use of asphalt membrane curing compound on exposed surfaces will not be permitted.

PROTECTION AGAINST RAIN: In order that the concrete may be properly protected against the effects of rain before the concrete is sufficiently hardened, the Contractor will be required to have available at all times materials for the protection of the surface of the unhardened concrete. Such protective materials shall consist of standard covering material such as burlap or cotton mats, curing paper, or plastic sheeting material for the protection of the surface of the pavement. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of unhardened concrete with the protective covering.

SURFACE SMOOTHNESS: All sections of pavement that have been ground, repaired or replaced by the Contractor shall be given a protective application of the specified curing compound.

TEXTURING
ITEM 451-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

On Ramps A, B, C, D, E, F, & G and S.R. 252 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 inch between centers and shall be 0.10 inch to 0.20 inch deep and 0.08 inch to 0.12 inch wide. The texturing shall be included in in the unit price bid for Item 451 Reinf. Port. Cem. Conc. Pvmt.

MAINTENANCE OF TRAFFIC - SR 252

In the event that the interchange of SR-252 with I-480 becomes operational before the portion south of the interchange is opened, the following estimated quantities have been added to the general summary to be used as directed by the Engineer for maintaining traffic at the interchange.

60 each - Item 606 Temporary Drums.

MAINTENANCE OF TRAFFIC

Where the work called for under this contract involves the closing of streets or the re-routing of traffic the Contractor shall prosecute to the fullest extent the work involved so as to reduce to a minimum the length of time the roadway will be closed to the traffic. No street will be closed until necessary for construction as determined by the Engineer. The Contractor is required to notify the City of North Olmsted in writing (14) fourteen days in advance of closing of an existing street.

In order to maintain traffic and provide the necessary temporary pavement for this contract, the following items of work are required:

MACKENZIE RD.

Two Way traffic shall be maintained at all times by the use of the existing pavement or temporary roadway surfaced with 410 Aggregate or 404 Asphalt as directed by the Engineer.

SOUTHERN AVE., BURNS RD., BELLVUE DR., REVERE DR., KENNEDY RIDGE RD. AND GRACE AVE.

The Contractor is not required to maintain through traffic on these streets and may close the facilities as directed by the Engineer. However the Contractor shall provide for and maintain local traffic with safe and satisfactory access to abutting properties at all times, and Southern Ave. and Burns Rd. shall not be closed to through traffic for more than 30 days.

BUTTERNUT RIDGE RD., COLUMBIA RD. AND FITCH RD.

The Contractor shall at all times maintain two lanes of traffic on either the existing pavement or the temporary road as shown on sheets Nos. 65, 66 & 67.

All of the above are included in the lump sum price bid for Item 614 "Maintaining Traffic" except that the cost of the temporary detour roads for Fitch Rd, Butternut Ridge Rd. and Columbia Rd. shall be paid for as Item 615 "Temporary Pavement Class B". An estimate of the following items has been included in the General Summary for use as directed by the Engineer.

Item 404 - Asphalt Concrete or an Approved Bituminous Premixed Surface Course for Maintaining Traffic - 150 C.Y.

Item 410 - Traffic Compacted Surface, Type A or B - 150 C.Y.

Item 410 - Traffic Compacted Surface, Type C - 75 C.Y.

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.

Item	207	- Temporary Seeding & Mulching	80,000 S.Y.
Item	659	- Commercial Fertilizer (12-12-12)	18 Tons
Item	659	- Water	180 M Gals.
Item	207	- Temporary Slope Drains	2,700 L.F.
Item	207	- Temporary Benches, Dikes, Dams and Sediment Basins.	550 C.Y.
Item	659	- Repair Seeding & Mulching	20,000 S.Y.
Item	659	MOWING	900 M S.F.
Item	207	Straw or hay bales	800 Each

CALC. BY J.L. DATE 7-17-72
CHKD. BY J.R.B. DATE 8-1-72

GENERAL SUMMARY

CHKD. BY T.R.B. DATE 7-10-72
CHKD. BY J.L. DATE 7-27-72
REV. BY T.R.B. DATE 1-21-76

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Type Code 6707 unless otherwise Noted.

ITEM	SHEET NUMBERS	TOTALS FROM SHEET NO.	COST PARTICIPATION	INTER-STATE	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
		16						**ROADWAY**
SPEC.		3,477		3,477	3,477	Sq. Yds.	SPECIAL	Herbicides for Weed Control
301		290		290	290	Cu. Yds.	301	Bituminous Aggregate Base (Weed Control) 702.01, AC-20; or 702.09, RT-11 or RT-12
201		LUMP		LUMP	LUMP		201	Clearing & Grubbing
202		3288		3288	3288	Sq. Yds.	202	Pavement Removed
202		15,279		15,279	15,279	Sq. Ft.	202	Sidewalk Removed
202		200		200	200	Lin. Ft.	202	Guard Rail Removed
606		60		60	60	Each	606	Temporary Drums
203		1457,690		1457,690	1457,690	Cu. Yds.	203	Excavation, Not Including Embankment Construction
203		505,971		505,971	505,971	Cu. Yds.	203	Embankment
203	4,159 7,401 3,277 6065 2843 2331 3710 2999 2449 3604 3826	209,365		252,029	252,029	Sq. Yds.	203	Subgrade Compaction
203		77		77	77	Hours	203	Proof Rolling
404		150		150	150	Cu. Yds.	404	Asphalt Concrete Or An Approved Bituminous Premixed Surface Course
								For Maintaining Traffic
410		150		150	150	Cu. Yds.	410	Traffic Compacted Surface, Type A or B
410		75		75	75	Cu. Yds.	410	Traffic Compacted Surface, Type C
604	30			30	30	Each	604	Reference Monument
604	5			5	5	Each	604	Monument Assembly
604		2		2	2	Each	604	Monument Box Adjusted to Grade
606		10		10	10	Each	606	Bridge Terminal Assembly, Type A
202	Lump			Lump	Lump		202	Parcel 165 WL, Removal of one detached frame garage 12'x18', one detached frame shed 8'x12', and one 1½ story frame barn 23'x35'
606		7		7	7	Each	606	Special Guard Posts
606		8,324		8,324	8,324	Lin. Ft.	606	Guard Rail, Type 5
607	2			2	2	Each	607	4' Gate, Type CL
607	1			1	1	Each	607	14' Gate, Type CL
607	42,716			42,716	42,716	Lin. Ft.	607	Fence, Type CL
615	LUMP LUMP LUMP			LUMP	LUMP		615	Temporary Roads
615	1700 1610 1280			4,590	4,590	Sy. Yds.	615	Temporary Pavement Class B
616		1,500		1,500	1,500	M. Gals.	616	Water
616		50		50	50	Tons	616	Calcium Chloride
606		14		14	14	Each	606	Anchor Assembly, Type T
606		16		16	16	Each	606	Anchor Assembly, Type A
607	1,262			1,262	1,262	Lin. Ft.	607	Fence, Type CL, Modified, As Per Plan
SPECIAL		2		2	2	Each	Special	Plugging Oil or Gas Wells
202	LUMP			Lump	Lump		202	Structures Removed
								PAVEMENT
301	3 9 90 133 273 214 140 258 223	11,148		12,491	12,491	Cu. Yds.	301	Bituminous Aggregate Base, 702.01, AC 20; or 702.09, RT-11 or RT-12
304	101	3,251		3,352	3,352	Cu. Yds.	304	Aggregate Base
310	1535 501 1053 455 461 611 545 463 620 734	41,218		48,196	48,196	Cu. Yds.	310	Subbase, Grading A, As Per Plan
310	106 27 12 18 19 22 30 14	713		961	961	Cu. Yds.	310	Subbase
310	294	57		351	351	Cu. Yds.	310	Subbase, 703.08 or 703.10
402	34 66 68 67 59 67 95	6,032		6,488	6,488	Cu. Yds.	402	Asphalt Concrete, AC 20
404	16 48 49 48 43 48 68	4,347		4,667	4,667	Cu. Yds.	404	Asphalt Concrete, AC 20
408	242	7256		7,498	7,498	Gals.	408	Bituminous Prime Coat: 702.02, MC-30 or MC-70; 702.03, Primer 20; or 702.09, RT-2 or RT-3
409	1028 142 278 222 144 251 233	12,822		15,120	15,120	Gals.	409	Seal Coat Bituminous Material, 702.02, MC-800 or MC-3000; 702.03, CBAE-800;
409	21 4 8 6 4 7 7	320		377	377	Cu. Yds.	409	Seal Coat Cover Aggregate No 9 | 702.04, RS-1, RS-2, CRS-1 or CRS-2; or 702.09, RT-9 or RT-10
411	15	2		17	17	Cu. Yds.	411	Stabilized Crushed Aggregate
Spec.	4 12 83 7 29 24 15 47 18	345		584	584	Cu. Yds.	Spec.	Drainage Connection Using No. 8 Aggregate
407	136 142 142 124 143 199	12,177		13,063	13,063	Gals.	407	Tack Coat: 702.02, RC-250; or 702.04, SS-1, SS1h, MS-2, or RS-1
451		232		232	232	Sq. Yds.	451	7" Reinforced Portland Cement Concrete Pavement
801	1372 1418 1417 1232 1417 1996	123,169		132,021	132,021	Sq. Yds.	801	9" Portland Cement Concrete Base
451	3304	335		3,639	3,639	Sq. Yds.	451	9" Reinforced Portland Cement Concrete Pavement, As Per Plan
451	6418 2523 5368 2305 178 712 356 356 719 511	8728		28,674	28,674	Sq. Yds.	451	9" Reinforced Portland Cement Concrete Pavement
452		425		425	425	Sq. Yds.	452	6" Plain Portland Cement Concrete Pavement
608		5		5	5	Each	608	Bike Path Curb Ramp
608		14,707		14,707	14,707	Sq. Ft.	608	4½" Concrete Walk, As Per Plan
608		663		663	663	Sq. Ft.	608	Reinforced Concrete Walk, As Per Plan
609	3313 1547 2253 141			7,254	7,254	Lin. Ft.	609	Concrete Curb, Standard Type 2-A
609	1076			1,076	1,076	Lin. Ft.	609	Curb, Integral, 6"x7"
609		164		164	164	Lin. Ft.	609	Concrete Curb, Standard Type 3-A
609		3,593		3593	3593	Lin. Ft.	609	Asphalt Concrete Curb, AC-20, Standard Type I
611	232 151	124		507	507	Sq. Yds.	611	Reinforced Concrete Approach Slab (T=14")
611	195	800		995	995	Sq. Yds.	611	Reinforced Concrete Approach Slab (T=15")
612	30 41 20 27			118	118	Sq. Yds.	612	Concrete Traffic Island
622		14,727		14,727	14,727	Lin. Ft.	622	Concrete Barrier, Type H
612	983 318 143			1,444	1,444	Sq. Yds.	612	4" Concrete Median
608		3		3	3	Each	608	Standard Curb Ramp
Spec.	165	288		453	453	Lin. Ft.	Spec.	Pressure Relief Joint, Type A
404		842		842	842	Cu. Yds.	404	Asphalt Concrete, AC-20 (Bike Paths)
407	5 5 5 5 5 7	427		459	459	Tons	407	Cover Aggregate

Revised D.R.S. 4-5-78

GENERAL SUMMARY

CHKD. BY T.R.B. DATE 7-10-72
CHKD. BY J.L. DATE 7-27-72
REV. BY T.R.B. DATE 1-21-74

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ITEM	SHEET NUMBERS	SHEET TOTAL	COST PARTICIPATION INTERSTATE	GRAND TOTAL	UNIT	ITEM	DESCRIPTION (Type Code 6707 unless otherwise Noted.)
		17-					DRAINAGE
602		4.0	4.0	4.0	Cu.Yd.	602	Concrete Masonry, As Per Plan
202		Lump	Lump	Lump		202	Structure Removed
202		5	5	5	Each	202	Manholes Removed
202		~~499~~	499	499	Lin.Ft	202	Pipe Removed 24" and Under
202		423	423	423	Lin.Ft.	202	Pipe Removed over 24"
202	1	5	6	6	Each	202	Catch Basin Removed
503	19 47		66	66	Cu.Yd.	503	Excavation For Structure
509	5,192 83,483 107,550 2,511		198,736	198,736	Pound	509	Reinforcing Steel
511	434 536		970	970	Cu.Yd.	511	Class "C" Concrete, Headwall
518	11	11	22	22	Cu.Yd.	518	Porous Backfill
602	4.8 59.0 23.3	29.6	116.7	116.7	Cu.Yd.	602	Concrete Masonry
603		200	200	200	Lin.Ft.	603	3" Conduit, Type F, 707.08 Standard Weight, Bituminous Coated
603	36 21	250	307	307	Lin.Ft.	603	6" Conduit, Type B
603	38 117		155	155	Lin.Ft.	603	6" Conduit, Type C, 706.08, with Class C Bedding
603	90 90 30 30 20 10 10 20	690	990	990	Lin.Ft.	603	6" Conduit, Type F
603	51 51 154	~~69~~	316	316	Lin.Ft.	603	12" Conduit, Type C, 706.02, Class C Bedding or 706.08-Encased
603		~~100~~	100	100	Lin.Ft.	603	6" Conduit, Type E
603	541 495		1036	1036	Lin.Ft.	603	12" Conduit, Type B
603	83 93	76	252	252	Lin.Ft.	603	12" Conduit, Type B, 706.02 or 706.08, with 706.11 or 706.12 Joints
603	59 98		157	157	Lin.Ft.	603	12" Conduit, Type C
603	31 7 7	20	65	65	Lin.Ft.	603	12" Conduit, Type C, 706.01, 706.02, with Class C Bedding, or 706.08 Encased
603		40	40	40	Lin.Ft.	603	12" Conduit, Type F
603	125		125	125	Lin.Ft.	603	12" Conduit, Type C, 706.02, Class C Bedding
603		4	4	4	Lin.Ft.	603	12" Conduit, Type F, 707.05, Type C
603	83 90		173	173	Lin.Ft.	603	15" Conduit, Type B, 706.02 or 706.08 with 706.11 or 706.12 Joints
603	110 195 112	1,342	1,759	1,759	Lin.Ft.	603	15" Conduit, Type B
603	99		99	99	Lin.Ft.	603	15" Conduit, Type C, 706.02 with Class C Bedding, or 706.08 Encased
603	118		118	118	Lin.Ft.	603	12" Conduit, Type C, 706.02, 1500D-load, Class C Bedding, or 706.08 Encased
603	15	1,123	1,138	1,138	Lin.Ft.	603	15" Conduit, Type C
603	98		98	98	Lin.Ft.	603	15" Conduit, Type C, 706.01, Class 3, 706.02, 706.08 E.S. or 707.13
603	5 225		230	230	Lin.Ft.	603	15" Conduit, Type C, 706.02, Class C Bedding
603	46 85 60	382	573	573	Lin.Ft.	603	15" Conduit, Type F, 707.05
603	120 125	452	697	697	Lin.Ft.	603	18" Conduit, Type B
603		62	62	62	Lin.Ft.	603	18" Conduit, Type C
603	51 188		239	239	Lin.Ft.	603	18" Conduit, Type C, 706.02, 1500D-load, Class C Bedding
603	42		42	42	Lin.Ft.	603	18" Conduit, Type C, 706.02, 1500D-load with Class C Bedding, or 706.08 Encased
603	53		53	53	Lin.Ft.	603	18" Conduit, Type C, 706.01, 706.02, or 706.08, Class C Bedding
603	42 50		92	92	Lin.Ft.	603	18" Conduit, Type F, 707.05
603		15	15	15	Lin.Ft.	603	21" Conduit, Type C
603	200	142	342	342	Lin.Ft.	603	21" Conduit, Type B
603	215	126	341	341	Lin.Ft.	603	21" Conduit, Type C, 706.02, 706.08 E.S., or 707.13
603	295		295	295	Lin.Ft.	603	21" Conduit, Type B, 706.02, 2250D-load, or 707.13
603	80		80	80	Lin.Ft.	603	21" Conduit, Type B, 706.02, 1750D-load, or 707.13
603	170		170	170	Lin.Ft.	603	21" Conduit, Type C, 706.02, 2250D-load, or 707.13
603	230	215	445	445	Lin.Ft.	603	24" Conduit, Type C, 706.02, 706.08 E.S., or 707.13
603	109	649	758	758	Lin.Ft.	603	24" Conduit, Type B
603	60		60	60	Lin.Ft.	603	24" Conduit, Type F, 707.05
603		52	52	52	Lin.Ft.	603	27" Conduit, Type C
603		8	8	8	Lin.Ft.	603	27" Conduit, Type C, 706.02, 1500D-load, Class C Bedding, or 706.08 Encased
603		171	171	171	Lin.Ft.	603	30" Conduit, Type B, 706.02, 1500D-load, or 707.13
603		594	594	594	Lin.Ft.	603	33" Conduit, Type B
603		~~960~~	960	960	Lin.Ft.	603	36" Conduit, Type C
603		250	250	250	Lin.Ft.	603	42" Conduit, Type C
603		650	650	650	Lin.Ft.	603	54" Conduit, Type C, 706.02, 1250D-load, or 707.14
603		420	420	420	Lin.Ft.	603	60" Conduit, Type B, 706.02, 1750D-load, or 707.14
603		1010	1010	1010	Lin.Ft.	603	60" Conduit, Type C, 706.02, 1750D-load, or 707.14
603		375	375	375	Lin.Ft.	603	60" Conduit, Type C, 706.02, 1500D-load, or 707.14
603		350	350	350	Lin.Ft.	603	66" Conduit, Type B, 706.02, 1250D-load, or 707.14

GENERAL SUMMARY

CALC. BY T.R.B. DATE 7-10-72
CHKD. BY J.L. DATE 7-26-72
REV. BY T.R.B. DATE 1-21-76

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
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ITEM	SHEET NUMBERS (30 31 32 47 48 49 51 53 54 55 56 57 58 59 60 61 62 63 64 91 92 93 94 101 102)	Sheet Total 17-18	COST PARTICIPATION INTER-STATE	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
							Type Code 6707 unless otherwise Noted.
							DRAINAGE (Continued)
603		1000	1000	1000	Lin.Ft.	603	66" Conduit, Type C
603		400	400	400	Lin.Ft.	603	72" Conduit, Type B
603		1561	1561	1561	Lin.Ft.	603	72" Conduit, Type C
603		1568	1568	1568	Lin.Ft.	603	78" Conduit, Type C, 706.02, 3000D-load, or 707.14 (0.109")
603		747	747	747	Lin.Ft.	603	78" Conduit, Type C, 706.02, 2000D-load, or 707.14
603	234		234	234	Lin.Ft.	603	84" Conduit, Type B, 706.02, 3000D-load, As Per Plan
603	96		96	96	Lin.Ft.	603	Conduit, Type A, 84", 706.02, 1500D-load, or 90", 707.07
603	402		402	402	Lin.Ft.	603	84" Conduit, Type C, 706.02, 3000D-load, or 707.14 (0.109")
603	12		12	12	Lin.Ft.	603	84" Conduit, Type C, 706.02, 3000D-load, As Per Plan
603	415		415	415	Lin.Ft.	603	Conduit, Type A, 90", 706.02, or 102", 707.07
603	150		150	150	Lin.Ft.	603	Radius Conduit, Type A, 90", 706.02, or 102", 707.07, As Per Plan
604	1 2	2	3	3	Each	604	Catch Basin, Standard No. 2-3, without Window
604	1 2 2 2 2 2	11	22	22	Each	604	Catch Basin, Standard No. 2-2-B
604		2	2	2	Each	604	Catch Basin, Standard No. 4
604	1 1 1		4	4	Each	604	Catch Basin, Standard No. 3-A
604	2 2 4		8	8	Each	604	Catch Basin, No. 3-C
604	2 2 1 1	13	19	19	Each	604	Catch Basin, Standard No. 5
604		8	8	8	Each	604	Catch Basin, Standard No. 5-A
604		3	3	3	Each	604	Catch Basin, Standard No. 6
604	8	6	14	14	Each	604	Paved Shoulder Inlet, Standard No. 2-A-6
604	2 8		10	10	Each	604	Paved Shoulder Inlet, Standard No. 2-A-8
604	2		2	2	Each	604	Paved Shoulder Inlet, Standard No. 2-A-10
604		21	21	21	Each	604	Median Inlet, No. I-3H
609	2 3		5	5	Each	604	Inlet, No. A-I-1
604	4	1	5	5	Each	604	Catch Basin, Standard No. 5 with Grate B
609		2	2	2	Each	604	Catch Basin, Standard No. 6, Modified, As Per Plan
604	1 1 2 1 1	3	9	9	Each	604	Manhole, Standard No. 1
609		5	5	5	Each	604	Manhole, Standard No. 5
604	2 2 3 2	4	13	13	Each	604	Manhole, Standard No. 2
604	1		1	1	Each	604	Catch Basin, Standard No. 3 with Concrete Apron
609	1 1		2	2	Each	604	Manhole Adjusted to Grade
604		7	7	7	Each	604	Catch Basin, Standard No. 5-A, Reinforced Concrete
605		450	450	450	Lin.Ft.	605	6" Unclassified Pipe Underdrain, 707.01, Type III, or 707.12, As Per Plan
605	21 259 250 50 100 50 50	432	1,212	1,212	Lin.Ft.	605	6" Unclassified Pipe Underdrains
605	990 1,081 25 960 615 1,035 718	16,244	21,668	21,668	Lin.Ft.	605	6" Deep Pipe Underdrains
605	1428 1280 510 826 96 537 100 175	26,402	31,354	31,354	Lin.Ft.	605	6" Shallow Pipe Underdrains
605	108 366 570 202		1,246	1,246	Lin.Ft.	605	6" Underdrain, 706.08 Perforated, as Per Plan
605		15	15	15	Lin.Ft.	605	Aggregate Drains for Springs, as per plan.
605	282 175	1255	1712	1712	Lin.Ft.	605	Aggregate Drains
							SANITARY - TYPE CODE Y060
603		425	425	425	Lin.Ft.	603	8" Conduit, Type B, 706.02, 3000D-load with 706.11 Joints
603		35	35	35	Lin.Ft.	603	8" Conduit, Type B, 706.08, Encased, With 706.12 Joints
603	715		715	715	Lin.Ft.	603	8" Conduit, Type B, 706.08, With 706.12 Joints
603		233	233	233	Lin.Ft.	603	8" Conduit, Type C, 706.08 E.S., With 706.12 Joints
603	120		120	120	Lin.Ft.	603	6" Conduit, Type B, 706.08, With 706.12 Joints
202	1 2 1	2	6	6	Each	202	Manholes Removed
603		33	33	33	Lin.Ft.	603	36" Conduit, Type B, 706.02, 1750D-load With 706.11 Joints
603		110	110	110	Lin.Ft.	603	36" Conduit, Type B, 706.02, 2750D-load With 706.11 Joints
604	1	3 6	10	10	Each	604	Manhole, Standard No. 5 with 706.11 Joints
604	1 1 1 1		4	4	Each	604	Manhole Adjusted To Grade
604		1	1	1	Each	604	Manhole Reconstructed to Grade, AS PER PLAN

GENERAL SUMMARY

CAMD. BY T.R.B. CHKD. 7-7-72
CHKD. BY J.L. DATE 7-26-72
REV. BY T.R.B. DATE 1-21-76

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
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ITEM	SHEET NUMBERS	Sheet Total	COST PARTICIPATION INTER-STATE	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
	9-11 49 54 58 59 62 63 91 92 93 94	18					Type Code 6707 unless otherwise Noted.
							WATER WORK TYPE CODE Y-060
							See Sheet No. 197 For Quantities
							STRUCTURES OVER 20' SPAN
							Structure No. CUY-480-0203 See Sheet No.329 For Quantities
							Structure No. CUY-480-0286 See Sheet No.345 For Quantities
							Structure No. CUY-480-0336 See Sheet No.362 For Quantities
							Structure No. CUY-480-0398 See Sheet No.372 For Quantities
							Structure No CUY-480-0447 See Sheet No.391 For Quantities
							TRAFFIC CONTROL
							See Sheet No.234 For Quantities
							LIGHTING
							See Sheet No. 290 For Quantities
							EROSION CONTROL - TYPE CODE Y005
601	180 185		365	365	Cu.Yd.	601	Rock Channel Protection, Type A with Bedding
601	3 350	114	467	467	Cu. Yd.	601	Rock Channel Protection, Type B with Bedding
601	62 135 125	2	324	324	Sq. Yd.	601	Riprap using 6" Reinforced Concrete Slab
659	18	34	52	52	Ton	659	Commercial Fertilizer (12-12-12)
659		170	170	170	Ton	659	Agricultural Liming
659		371,919	371,919	371,919	Sq. Yd.	659	Seeding and Mulching
660	4	40	44	44	Sq. Yd.	660	Sodding
660		126	126	126	Sq. Yd.	660	Reinforced Sodding
667	250 250 250 125 125	4,807	5,807	5,807	Sq. Yd.	667	Seeding and Jute Matting
207	80,000		80,000	80,000	Sq. Yd.	207	Temporary Seeding & Mulching
659	630		630	630	M Gal.	659	Water
207	2700		2,700	2,700	Lin. Ft.	207	Temporary Slope Drains
207	550		550	550	Cu. Yd.	207	Temporary Benches, Dikes, Dams, and Sediment Basins
659	20,000		20,000	20,000	Sq. Yd.	659	Repair Seeding & Mulching
659	1800		1,800	1,800	M.Sq.Ft.	659	Mowing
207	800		800	800	Each	207	Straw or Hay Bales
619	Lump		Lump	Lump		619	Field Office
623			Lump	Lump		623	Construction Layout Stakes
614	Lump		Lump	Lump		614	Maintaining Traffic

SUB-SUMMARY

CALC. BY T.R.B. DATE 7-7-72
CHKD. BY J.L. DATE 7-26-72
REV. BY T.R.B. DATE 1-21-76

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
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TYPE CODE 6707 UNLESS OTHERWISE SHOWN

ITEM	SHEET NUMBERS																													SHEET TOTAL Carried To Sheet 12	UNIT	ITEM	DESCRIPTION
	9-11	19-20A	28	29	30	31	32	33	35	37	38	39	40	41	42	44	45	46	47	48	49	51	52	53	54	55	56	57	60				**ROADWAY**
Special		3477																												3,477	Sq. Yds.	Special	Herbicides for Weed Control
301		290																												290	Cu. Yds.	301	Bituminous Aggregate Base (Weed Control) 702.01, AC-20; or 702.09, RT-11 or RT-12
201	LUMP																													LUMP		201	Clearing and Grubbing
202						360	254									40	230		179	800	704					721				3288	Sq. Yds.	202	Pavement Removed
202																1375	727	2,800	502	2250	1,850					2,125	1,415	2,235		15,279	Sq. Ft.	202	Sidewalk Removed
202																									200					200	Lin. Ft.	202	Guard Rail Removed
203		1,457,690																												1,457,690	Cu. Yds.	203	Excavation, Not Including Embankment Construction
203		505,971																												505,971	Cu. Yds.	203	Embankment
203		205,842															232	953					937			523	448	430		209,365	Sq. Yds.	203	Subgrade Compaction
203		77																												77	Hours	203	Proof Rolling
404	150																													150	Cu. Yds.	404	Asphalt Concrete Or An Approved Bituminous Premixed Surface Course
																																	For Maintaining Traffic
410	150																													150	Cu. Yds.	410	Traffic Compacted Surface, Type A or B
410	75																													75	Cu. Yds.	410	Traffic Compacted Surface, Type C
604																			1		1									2	Each	604	Monument Box Adjusted to Grade
606			4				1	3																1	1					10	Each	606	Bridge Terminal Assembly, Type A
606			1	1		1		1	2	1	1	1	1	2	1		1							1	1					16	Each	606	Anchor Assembly, Type A.
606			1,062.5	1,612.5		912	1533.5	1016	512.5	112.5	90	385	162.5	275	112.5		62.5						125	100	75		87.5	87.5		8,324	Lin Ft.	606	Guard Rail, Type 5
606																2		2		2									1	7	Each	606	Special Guard Post
Special	2																													2	Each	Special	Plugging Oil or Gas Wells
606	60																													60	Each	606	Temporary Drums
606			1	1			1	1	2	1		2	1	2	1		1													14	Each	606	Anchor Assembly, Type T.
616	1,500																													1,500	M.Gals.	616	Water
616	50																													50	Tons	616	Calcium Chloride
																																	PAVEMENT
301		11,148																												11,148	Cu. Yds.	301	Bituminous Aggregate Base, 702.01, AC-20; or 702.09, RT-11 or RT-12
304		2,735																152	4	20	4		177			17	72	70		3,251	Cu. Yds.	304	Aggregate Base
310		41,218																												41,218	Cu. Yds.	310	Subbase, Grading A, As Per Plan
310		229																159					156			22	75	72		713	Cu. Yds.	310	Subbase
310																3	20									34				57	Cu. Yds.	310	Subbase, 703.08 or 703.10
402		5920																48					30			6	14	14		6,032	Cu. Yds.	402	Asphalt Concrete, AC 20
404		4229																24		6	1	17	38			4	14	14		4,347	Cu. Yds.	404	Asphalt Concrete, AC 20
407		12,177																												12,177	Gals.	407	Tack Coat: 702.02, RC-250, or 702.04, SS-1, SS-1h, MS-2, or RS-1
408		6,058																364		42	9		414			40	167	162		7,256	Gals.	408	Bituminous Prime Coat: 702.02, MC-30 or MC-70; 702.03, Primer 20; or 702.09, RT-2 or RT-3
409		12,787																	12	18						5				12,822	Gals.	409	Seal Coat Bituminous Material: 702.02, MC-800 or MC-3000; 702.03, CBAE-800; 702.04, RS-1,
409		320																												320	Cu. Yds.	409	Seal Coat Cover Aggregate No.9 RS-2, CRS-1 or CRS-2; or 702.09, RT-9 or RT-10
411																										2				2	Cu. Yds.	411	Stabilized Crushed Aggregate
Spec.		345																												345	Cu. Yds.	Spec	Drainage Connection Using No. 8 Aggregate
407		427																												427	Tons	407	Cover Aggregate
451																	232													232	Sq. Yds.	451	7" Reinforced Portland Cement Concrete Pavement
451																40										295				335	Sq. Yds.	451	9" Reinforced Portland Cement Concrete Pavement, As Per Plan
451		8,728																												8,728	Sq. Yds.	451	9" Reinforced Portland Cement Concrete Pavement
801		123,169																												123,169	Sq. Yds.	801	9" Portland Cement Concrete Base
452																			7	61	20		17			144	46	130		425	Sq. Yds.	452	6" Plain Portland Cement Concrete Pavement
608																3,056	482	5306	910	2243	1,890					535	50	235		14,707	Sq. Ft.	608	4½" Concrete Walk, As Per Plan
608																					325					338				663	Sq. Ft.	608	Reinforced Concrete Walk, As Per Plan
608		5																												5	Each	608	Bike Path Curb Ramp
608																	2				1									3	Each	608	Standard Curb Ramp
609																	164													164	Lin. Ft.	609	Concrete Curb; Standard Type 3-A
609		2,672																					467				220	234		3,593	Lin. Ft.	609	Asphalt Concrete Curb, AC-20, Standard Type I
611																										124				124	Sq. Yds.	611	Reinforced Concrete Approach Slab (T=14")
611		800																												800	Sq. Yds.	611	Reinforced Concrete Approach Slab (T=15")
622		14,727																												14,727	Lin. Ft.	622	Concrete Barrier, Type H
Spec		288																												288	Lin. Ft.	Spec.	Pressure Relief Joint, Type A
404		842																												842	Cu. Yds.	404	Asphalt Concrete, AC-20 (Bike Paths)

SUB-SUMMARY

CALC. BY T.R.B. DATE 7-6-72
CHKD. BY J.L. DATE 7-25-72
REV. BY T.R.B. DATE 1-21-76

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

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ITEM	SHEET NUMBERS																				COST PARTICIPATION INTER-STATE	SHEET TOTAL	UNIT	ITEM	DESCRIPTION
	9-10	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46					Type Code 6707 unless otherwise Noted.
																									DRAINAGE
202				Lump																Lump	Lump	Lump		202	Structure Removed
202				1	1	3															5	5	Each	202	Manholes Removed
202					270	57												172			499	499	Lin.Ft.	202	Pipe Removed 24" and Under
202				264	39	120															423	423	Lin.Ft.	202	Pipe Removed Over 24"
202					1	4															5	5	Each	202	Catch Basin Removed
602	4.0																				4.0	4.0	Cu.Yd.	602	Concrete Masonry, As Per Plan
518					11																11	11	Cu.Yd.	518	Porous Backfill
602		0.3	0.3	1.5	24.7	1.3	0.3													1.2	29.6	29.6	Cu.Yd.	602	Concrete Masonry
603	200																				200	200	Lin.Ft.	603	3" Conduit, Type F, 707.08 Standard Weight, Bituminous Coated
603	100			50								60		40							250	250	Lin.Ft.	603	6" Conduit, Type B
603	100		20	40	30	20	30	30	100	30	10	60	30	40	90	30	30				690	690	Lin.Ft.	603	6" Conduit, Type F
603	100																				100	100	Lin.Ft.	603	6" Conduit, Type E
603																			76		76	76	Lin.Ft.	603	12" Conduit, Type B, 706.02 or 706.08 with 706.11 or 706.12 Joints
603																				60	60	60	Lin.Ft.	603	12" Conduit Type C, 706.02, Class C Bedding or 706.08 Encased
603																		20			20	20	Lin.Ft.	603	12" Conduit, Type C, 706.01, 706.02, with Class C Bedding, or 706.08 Encased
603																				4	4	4	Lin.Ft.	603	12" Conduit, Type F, 707.05, TYPE C
603																		40			40	40	Lin.Ft.	603	12" Conduit, Type F
603			121	232	204	67	126		117		184	37		39	182					33	1,342	1,342	Lin.Ft.	603	15" Conduit, Type B
603				28	265	250		400									180				1,123	1,123	Lin.Ft.	603	15" Conduit, Type C
603		36	66	20	46	162	52														382	382	Lin.Ft.	603	15" Conduit, Type F, 707.05
603				118										166			168				452	452	Lin.Ft.	603	18" Conduit, Type B
603					52												10				62	62	Lin.Ft.	603	18" Conduit, Type C
603																142					142	142	Lin.Ft.	603	21" Conduit, Type B
603																15					15	15	Lin.Ft.	603	21" Conduit, Type C
603												126									126	126	Lin.Ft.	603	21" Conduit, Type C, 706.02, 706.08E.S. or 707.13
603				229								92	183		145						649	649	Lin.Ft.	603	24" Conduit, Type B
603															52						52	52	Lin.Ft.	603	24" Conduit, Type C
603												215									215	215	Lin.Ft.	603	24" Conduit, TYPE C, 706.02, 706.08E.S., or 707.13
603																				8	8	8	Lin.Ft.	603	27" Conduit, Type C, 706.02, 1500D-load, Class C Bedding, or 706.08 Encased
603												171									171	171	Lin.Ft.	603	30" Conduit, Type B, 706.02, 1500 D-load or 707.13
603								168	285	141											594	594	Lin.Ft.	603	33" Conduit, Type B
603								300	650												950	950	Lin.Ft.	603	36" Conduit, Type C
603									250												250	250	Lin.Ft.	603	42" Conduit, Type C
603									100	550											650	650	Lin.Ft.	603	54" Conduit, Type C, 706.02, 1250 D-load, or 707.14
603											420										420	420	Lin.Ft.	603	60" Conduit, Type B, 706.02, 1750 D-load, or 707.14
603										450	560										1010	1010	Lin.Ft.	603	60" Conduit, Type C, 706.02, 1750 D-load, or 707.14
603											25	350									375	375	Lin.Ft.	603	60" Conduit, Type C, 706.02, 1500 D-load, or 707.14
603												350									350	350	Lin.Ft.	603	66" Conduit, Type B, 706.02, 1250 D-load, or 707.14
603												300	700								1000	1000	Lin.Ft.	603	66" Conduit, Type C
603													300	100							400	400	Lin.Ft.	603	72" Conduit, Type B
603														900	661						1561	1561	Lin.Ft.	603	72" Conduit, Type C

SUB-SUMMARY

CALC. BY T.R.B. DATE 7-6-72
CHKD. BY J.L. DATE 7-25-72
REV. BY T.R.B. DATE 1-21-76

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

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ITEM	SHEET NUMBERS																						COST PARTICIPATION INTER-STATE	SHEET TOTAL	UNIT	ITEM	DESCRIPTION
	20	9-10	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46						Type Code 6707 unless otherwise Noted.
																											DRAINAGE (Continued)
603																341	406						747	747	Lin.Ft.	603	78" Conduit, Type C, 706.02, 2000 D-load, or 707.14
603																	605	963					1568	1568	Lin.Ft.	603	78" Conduit, Type C, 706.02, 3000 D-load, or 707.14 (0.109")
604											1	1	1	2	2								7	7	Each	604	Catch Basin, Standard No. 5-A, Reinforced Concrete
604							1														1		2	2	Each	604	Catch Basin, Standard No. 2-3, without Window
604						3	1												2		5		11	11	Each	604	Catch Basin, Standard No. 2-2-B
604													2										2	2	Each	604	Catch Basin, Standard No. 4
604									1			1		1	1	5	2	2					13	13	Each	604	Catch Basin, Standard No. 5
604									2	5	1												8	8	Each	604	Catch Basin, Standard No. 5-A
604																					1		1	1	Each	604	Catch Basin, Standard No. 5 with Grate B
604										2		1											3	3	Each	604	Catch Basin, Standard No. 6
604													1		1								2	2	Each	604	Catch Basin, Standard No. 6, Modified, As Per Plan
604				1	3	2	1	1	1	2	1	1	1	1	1	3	1	1					21	21	Each	604	Median Inlet, No. I-3H
604			1	1			2	2															6	6	Each	604	Paved Shoulder Inlet, Standard No. 2-A-6
604					1	1												1					3	3	Each	604	Manhole, Standard No. 1
604												1	2			2							5	5	Each	604	Manhole, Standard No. 5
604												1	1				1	1					4	4	Each	604	Manhole, Standard No. 2
605		450																					450	450	Lin.Ft.	605	6" Unclassified Pipe Underdrain, 707.01, Type III, or 707.12, As Per Plan
605															332			100					432	432	Lin.Ft.	605	6" Unclassified Pipe Underdrains
605									592	980	986	806	847	980	655	204	994	400					16,244	16,244	Lin.Ft.	605	6" Deep Pipe Underdrains
605			2082	980	2220	2948	2962	2445	2410	940	980	980	970	980	980	944	980	1601					26,402	26,402	Lin.Ft.	605	6" Shallow Pipe Underdrains
605		15																					15	15	Lin.Ft.	605	Aggregate Drains for Springs, as per plan.
605			182	177	141	82	69	84	64	135	172	143											1255	1255	Lin.Ft.	605	Aggregate Drains
																											EROSION CONTROL - TYPE CODE Y005
601		6	3.6	2.6	7.4	72.5	19.1	2.7															114	114	Cu.Yd.	601	Rock Channel Protection, Type B, with Bedding
601			2																				2	2	Sq.Yd.	601	Rip Rap Using 6" Reinforced Concrete Slab
659	34																						34	34	Ton	659	Commercial Fertilizer (12-12-12)
659	170																						170	170	Ton	659	Agricultural Liming
659	371,919																						371,919	371,919	Sq.Yd.	659	Seeding and Mulching
660			126																				126	126	Sq.Yd.	660	Reinforced Sodding
660												20	20										40	40	Sq.Yd.	660	Sodding
667			446				140	523	730	482	298	250	125	543	327	438	250	250					4,807	4,807	Sq.Yd.	667	Seeding and Jute Matting
																											SANITARY - TYPE CODE Y060
603						35																	35	35	Lin.Ft.	603	8" Type B, 706.08, Encased With 706.12 Joints
603																					233		233	233	Lin.Ft.	603	8" Type C, 706.08 E.S., With 706.12 Joints
603							110																110	110	Lin.Ft.	603	36" Type B, 706.02, 2750 D-load, With 706.11 Joints
603																				33			33	33	Lin.Ft.	603	36" Type B, 706.02, 1750 D-load, With 706.11 Joints
603							425																425	425	Lin.Ft.	603	8" Type B, 706.02, 3000 D-load, with 706.11 Joints
604						1	2													2	1		6	6	Each	604	Manhole, Standard No. 5, with 706.11 Joints
604							1																1	1	Each	604	Manhole Reconstructed To Grade, AS PER PLAN

PAVEMENT CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

19
427

CUYAHOGA COUNTY
CUY-480-1.90

801-9" PORTLAND CEMENT CONCRETE BASE

Sta. 200+75 to 206+98.25 = 623.25 L.F.
Sta. 208+70.34 to 249+68.13 = 4,097.79 L.F.
Sta. 251+99.83 to 357+00.00 = 10,500.17 L.F.
Total = 15,221.21 L.F.

	15,221.21'x36'x2÷9	=	121,769.7 S.Y.
Add for base under median shoulder:	15,221.21'x0.25'x2÷9	=	+845.6 S.Y.
Add for base under left shoulder:	12,121.21'x0.25'÷9	=	+336.7 S.Y.
Add for base under right shoulder:	12,421.21'x0.25'÷9	=	+345.0 S.Y.
Deduct for pressure relief joints (Sht. No. 20):	288'x4'÷9	=	-128.0 S.Y.
	TOTAL	=	123,169.0 S.Y.

Total 801-9" Portland Cement Concrete Base to General Summary = 123,169 S.Y.

451-9" REINFORCED PORTLAND CEMENT CONCRETE

Sta. 298+36.16 to 304+00.00 (Ramp A)	563.84'x16'÷9	=	1,002.4 S.Y.
Sta. 305+50.00 to 308+52.84 (Ramp A)	302.84'x24'÷9	=	807.6 S.Y.
Sta. 302+00.00 to 307+35.00 (Ramp B)	535.00'x16'÷9	=	951.1 S.Y.
Sta. 297+04.49 to 305+11.02 (Ramp C)	806.53'x16'÷9	=	1,433.8 S.Y.
Sta. 298+62.79 to 307+73.23 (Ramp D)	910.44'x16'÷9	=	1,618.6 S.Y.
Sta. 310+37.09 to 317+00.00 (Ramp E)	662.91'x16'÷9	=	1,178.5 S.Y.
Sta. 313+45.38 to 319+96.52 (Ramp F)	651.14'x24'÷9	=	1,736.4 S.Y.
	TOTAL	=	8,728.4 S.Y.

Total 451-9" to General Summary = 8,728 S.Y.

611-APPROACH SLABS (T=15")

Bridge No. Cuy. I-480-0203	25'x36'÷9x4	=	400 S.Y.
Bridge No. Cuy. I-480-0286	25'x36'÷9x4	=	400 S.Y.
	TOTAL	=	800 S.Y.

Total 611-Approach Slabs (T=15") to General Summary = 800 S.Y.

301-BITUMINOUS AGGREGATE BASE

Median:
Sta. 200+75.00 to 207+23.25 = 648.25 L.F.
Sta. 208+45.34 to 249+93.13 = 4,147.79 L.F.
Sta. 251+74.83 to 357+00.00 = 10,525.17 L.F.
Total = 15,321.21 L.F.
(15,321.21 L.F. x 11'x2x.50÷27)-(15,221.21 L.F. x 2x.0625÷27) = 6,171.5 C.Y.

Left Shoulder:
Sta. 200+75.00 to 205+22.00 = 447.00 L.F.
Sta. 215+03.00 to 244+97.00 = 2,994.00 L.F.
Sta. 256+03.00 to 288+00.00 = 3,197.00 L.F.
Sta. 301+00.00 to 309+72.66 = 872.66 L.F.
Sta. 317+72.66 to 322+45.69 = 473.03 L.F.
Sta. 335+45.69 to 357+00.00 = 2,154.31 L.F.
Total = 10,138.00 L.F.
(10,138.00 L.F x 10'x.50÷27)-(10,138.00 L.F. x.0625÷27) = 1,853.9 C.Y.

Left Shoulder with Curb:
Sta. 205+22.00 to 207+23.25 = 201.25 L.F.
Sta. 208+45.34 to 215+03.00 = 657.66 L.F.
Sta. 244+97.00 to 249+93.13 = 496.13 L.F.
Sta. 251+74.83 to 256+03.00 = 428.17 L.F.
Total = 1,783.21 L.F.
(1,783.21 L.F. x 12'x.50÷27)-(1,683.21 L.F. x.0625÷27) = 400.2 C.Y.

Right Shoulder:
Sta. 200+75.00 to 207+23.25 = 648.25 L.F.
Sta. 208+45.34 to 244+97.00 = 3,651.66 L.F.
Sta. 256+03.00 to 289+38.35 = 3,335.35 L.F.
Sta. 297+38.35 to 305+66.00 = 827.65 L.F.
Sta. 317+11.02 to 318+60.00 = 148.98 L.F.
Sta. 331+04.04 to 357+00.00 = 2,595.96 L.F.
Total = 11,207.85 L.F.
(11,207.85 L.F x 10'x.50÷27)-(11,157.85 L.F. x.0625÷27) = 2,049.7 C.Y.

Right Shoulder with Curb:
Sta. 244+97.00 to 249+93.13 = 496.13 L.F.
Sta. 251+74.83 to 256+03.00 = 428.17 L.F.
Total = 924.30 L.F.
(924.30 L.F x 12'x.50÷27)-(874.30 L.F x.0625÷27) = 203.4 C.Y.
Sub-Total = 10,678.7 C.Y.

301-BITUMINOUS AGGREGATE BASE (CONT.)

Deduct for Pier Protection:

Butternut Ridge Road:	(88'+60')x3.0	=	444.0 S.F.
Relocated S.R. 252:	(104'+60')x3.0	=	492.0 S.F.
Columbia Road:	(48'+60')x3.0	=	324.0 S.F.
	Total	=	1,260.0 S.F.
1,260.0 S.F. x.50'÷27		=	-23.3 C.Y.
	I-480 Sub-Total	=	10,655.4 C.Y.

Ramps:

Sta. 298+36.16 to 304+00.00 (Ramp A)	563.84'x2x3'	=	3,383.0 S.F.
Sta. 305+50.00 to 308+52.84 (Ramp A)	302.84'x2x3'	=	1,817.0 S.F.
Sta. 302+00.00 to 307+35.00 (Ramp B)	535.00'x2x3'	=	3,210.0 S.F.
Sta. 297+04.49 to 305+11.02 (Ramp C)	806.53'x2x3'	=	4,839.2 S.F.
Sta. 298+62.79 to 307+73.23 (Ramp D)	910.44'x2x3'	=	5,462.6 S.F.
Sta. 310+37.09 to 317+00.00 (Ramp E)	662.91'x2x3'	=	3,977.5 S.F.
Sta. 313+45.38 to 319+96.52 (Ramp F)	651.14'x2x3'	=	3,906.8 S.F.
	Total	=	26,596.1 S.F.
26,596.1 S.F. x.50'÷27		=	492.5 C.Y.
	TOTAL	=	11,147.9 C.Y.

Total 301-Bituminous Aggregate Base to General Summary = 11,148 C.Y.

622-CONCRETE BARRIER, TYPE H

Sta. 200+75.00 to 207+23.25	=	648.25 L.F.
Sta. 208+45.34 to 249+93.13	=	4,147.79 L.F.
Sta. 251+74.83 to 357+00.00	=	10,525.17 L.F.
Deduct for inlet: 21x20'	=	-420.00 L.F.
Deduct for median light poles: 66x2.5'	=	-165.00 L.F.
Deduct for overhead sign support foundation: 1x10'	=	-10.00 L.F.
	TOTAL =	14,726.21 L.F.

Total 622-Concrete Barrier, Type H to General Summary = 14,727 L.F.

310-SUBBASE (REGULAR GRADING)

Ramp A	Sta. 298+36.16 to 304+00.00 (Lt)	=	563.84 L.F.
Ramp B	Sta. 302+00.00 to 307+25.00 (Rt)	=	525.00 L.F.
Ramp C	Sta. 297+04.49 to 305+11.02 (Lt)	=	806.53 L.F.
Ramp D	Sta. 298+62.79 to 307+73.23 (Lt)	=	910.44 L.F.
Ramp E	Sta. 310+37.09 to 317+00.00 (Lt)	=	662.91 L.F.
Ramp F	Sta. 313+45.38 to 319+96.52 (Rt)	=	651.14 L.F.
	TOTAL	=	4,119.86 L.F.
4,119.86 x 1.5 ÷ 27		=	228.9 C.Y.

Total 310-Subbase to General Summary = 229 C.Y.

310-6" SUBBASE (GRADING "A")

Sta. 298+36.16 to 304+00.00 (Ramp A)	563.84'x20'	=	11,276.8 S.F.
Sta. 305+50 to 308+52.84 (Ramp A)	302.84'x30'	=	9,085.2 S.F.
Sta. 302+00.00 to 307+25.00 (Ramp B)	525.00'x20'	=	10,500.0 S.F.
Sta. 307+25.00 to 307+35.00 (Ramp B)	10.00'x22'	=	222.0 S.F.
Sta. 297+04.49 to 305+11.02 (Ramp C)	806.53'x20'	=	16,130.6 S.F.
Sta. 298+62.79 to 307+73.23 (Ramp D)	910.44'x20'	=	18,208.8 S.F.
Sta. 310+37.09 to 317+00.00 (Ramp E)	662.91x20'	=	13,258.2 S.F.
Sta. 313+45.38 to 319+96.52 (Ramp F)	651.14x28'	=	18,231.9 S.F.
	TOTAL	=	96,913.5 S.F.
96,913.5 S.F. x 6/12 ÷ 27		=	1,794.7 C.Y.
Total 310-6" Subbase From Sheet No 20A		=	39,423.6 C.Y.

Total 310-6" Subase (Grading A) to General Summary = 41,218 C.Y.

SPECIAL-DRAINAGE CONNECTION USING NO. 8 AGGREGATE

Sta. 298+36.16 to 304+00.00 (Ramp A)		=	563.84 L.F.
Sta. 305+50.00 to 308+52.84 (Ramp A)	302.84'x2	=	605.68 L.F.
Sta. 302+00.00 to 307+25.00 (Ramp B)		=	525.00 L.F.
Sta. 307+25.00 to 307+35.00 (Ramp B)	10.00'x2	=	20.00 L.F.
Sta. 297+04.49 to 305+11.02 (Ramp C)		=	806.53 L.F.
Sta. 298+62.79 to 307+73.23 (Ramp D)		=	910.44 L.F.
Sta. 310+37.09 to 317+00.00 (Ramp E)		=	662.91 L.F.
Sta. 313+45.38 to 319+96.52 (Ramp F)		=	651.14 L.F.
	TOTAL	=	4,745.54 L.F.
4,745.54 L.F. x 1.96 ÷ 27		=	344.5 C.Y.

Total Special-Drainage Connection to General Summary = 345 C.Y.

203-SUBGRADE COMPACTION

Total length of thru lanes from Item 801 = 15,221.21 L.F.	15,221.21'x36'x2÷9	=	121,769.7 S.Y.
Total length of median shld. from Item 301 = 15,321.21 L.F.	15,321.21'x11'x2÷9	=	37,451.8 S.Y.
Total length of left shld. w/o curb from Item 301 = 10,138.00 L.F.	10,138.00'x10'÷9	=	11,264.4 S.Y.
Total length of left shld. w/curb from Item 301 = 1,783.21 L.F.	1,783.21'x12'÷9	=	2,377.6 S.Y.
Total length of right shld. w/o curb from Item 301 = 11,207.85 L.F.	11,207.85'x10'÷9	=	12,453.2 S.Y.
Total length of right shld. w/curb from Item 301 = 924.30 L.F.	924.30'x12'÷9	=	1,232.4 S.Y.
Total area of ramps from Item 451-9"		=	8,728.4 S.Y.
Total area of approach slabs from Item 611		=	800.0 S.Y.
Total area under concrete barrier median:	15,321.21'x4'÷9	=	6,809.4 S.Y.
Total area of ramp shoulders from Item 301:	26,596.1 S.F.÷9	=	2,955.1 S.Y.
		TOTAL =	205,842.0 S.Y.

Total 203 Subgrade Compaction to General Summary = 205,842 S.Y.

Rev. L.J.P. 10-27-77
D.R.H. 3-1-89
T.R.B. 3-17-69
Rev. WAM 11/75

PAVEMENT CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT		20 / 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

203 EARTHWORK & 659 SEEDING & MULCHING

Sht. No.	Location Sta. to Sta.	203 Excavation Not Including Embankment C.Y.	203 Embankment C.Y.	659 Seeding & Mulching S.Y.
	I-480			
27	190+00 to 200+00	3,044	3012	3,654
28	200+00 to 210+00	9,282	87,757	23,182
29	210+00 to 220+00	7,514	92,557	20,901
30	220+00 to 230+00	6,788	41,234	18,574
31	230+00 to 240+00	8,708	39,279	16,534
32	240+00 to 250+00	10,641	84,612	20,055
33	250+00 to 260+00	2,553	88,326	19,672
34	260+00 to 270+00	9,348	17,295	12,439
35	270+00 to 280+00	115,504	0	15,911
36	280+00 to 290+00	69,907	0	14,739
37	290+00 to 300+00	64,114	0	12,782
38	300+00 to 310+00	182,598	0	11,695
39	310+00 to 320+00	132,159	18	8,164
40	320+00 to 330+00	140,595	0	16,641
41	330+00 to 340+00	151,021	0	17,690
42	340+00 to 350+00	67,052	0	14,182
43	350+00 to 360+00	8,299	526	7,523
	Mackenzie Rd.			
44	12+50 to 18+00	51	19	523
	Fitch Rd.			
46	14+50 to 20+00	5,479	283	2,040
	Butternut Ridge Rd.			
47	2+00 to 6+00	150	145	514
48	6+00 to 10+50	36	1,205	1,246
49	10+50 to 15+00	1,370	766	1,598
	Kennedy Ridge			
51	4+00 to 8+00	139	18	494
52	20+00 to 23+00	183	13	384
	S.R. 252			
53	60+20 to 70+00	31,134	0	10,502
54	70+00 to 80+50	1,302	24,057	7,655
	Columbia Rd.			
55	16+30 to 21+70	72	187	193
	Grace Ave.			
56	1+50 to 5+50	200	13	449
57	5+50 to 9+00	195	9	272
	Ramp A			
58	297+36.16 to 309+82.07	71,749	0	15,943
	Ramp B			
59	298+00 to 308+00	54,023	0	12,440
60	308+00 to 315+76.79	1,287	6,332	7,944
	Ramp G			
60	312+86.73 to 315+54.45	0	3,603	1,326
	Ramp C			
61	296+04.49 to 307+11.02	146,163	0	24,605
	Ramp D			
62	297+12.79 to 309+73.23	53,165	12,829	25,839
	Ramp E			
63	309+37.09 to 321+04.04	62,526	0	13,791
	Ramp F			
64	312+20.22 to 322+46.52	39,339	1,876	16,412
20A	Deduct for Bike Path from Item 404			- 15,146
15	Deduct for Item 601	(2×832 C.Y.) + 325 S.Y. =		S - 1,989
15	Deduct Seeding & Mulching	SUB-TOTAL ITEM 659		381,373
15	Deduct for Item 660			- 170
15	Deduct for Item 667	1,457,690	505,971	SF-58,07
20	Deduct for Weed Control	1,457,690	505,971	- 3,477
	Totals to Gen. Sum.	1,457,690	505,971	371,919

659 COMMERCIAL FERTILIZER

SubTotal 659 Seeding & Mulching 381,373 S.Y
Deduct for Weed Control Beneath Guard Rail = - 3,477 S.Y.

Total for Fertilizer & Liming = 377,896 S.Y.

$377{,}896\ Sq.Yd. \times \frac{20\ Lb.}{1000\ Sq.Ft.} \times \frac{9\ Sq.Ft.}{Sq.Yd.} \times \frac{1\ Ton}{2000\ Lb.} = 34.0\ Ton$

659 AGRICULTURAL LIMING

$377{,}896\ Sq.Yd. \times \frac{100\ Lb}{1000\ Sq.Ft.} \times \frac{9\ Sq.Ft.}{Sq.Yd.} \times \frac{1\ Ton}{2000\ Lb} = 170\ Ton$

203 PROOF ROLLING

Sheet No.	203 Subgrade Compaction
19	205,842
69	329
70	306
71	1,009
72	2,843
73	2,331
74	3,667
75	2,985
76	2,449
77	3,556
78	3,825
Total	229,642

Total 203 PROOF ROLLING = $\frac{229{,}642\ S.Y.}{3000\ S.Y./Hr.}$ = 76.5 Hrs.

Total to General Summary = 77 Hrs.

WEED CONTROL BENEATH GUARDRAIL

Guardrail located east of the Turnpike tollbooth on I-480 and SR-252 shall not be erected until the Contractor has prepared the subgrade and paved the area beneath the guardrail run as shown in the Typical Sections.

Special care shall be exercised by coordination between the Contractors, to insure the 301 bituminous aggregate base is installed in the proper locations prior to erecting the guardrail runs.

Preparation of the subgrade shall include an application of SIMAZINE pre-emergance herbicide. The rate and method of application shall be in strict conformance with the manufacturer's instructions. The Contractor shall have the necessary permit from the Ohio Department of Agriculture before applying herbicide.

After setting the guardrail posts but before attaching the rail elements, any damage to the pavement resulting from the post-setting operations shall be repaired and additional paving material shall be compacted around the posts sufficient to prevent water from collecting.

Cost of all materials, equipment, and labor necessary to accomplish the above shall be included in the unit prices bid for Item 301-Bituminous Aggregate Base (Weed Control) and Item Special-Herbicides for Weed Control. Estimated quantities for these items are calculated below.

I-480
From Sheet Nos. 28 thru 42 - Item 606: 7,749.5'+(13×25')+(13×12.5')=8,237 L.F.
8,237 L.F. × 4' ÷ 9 = 3,660.9 S.Y.
Deduct for 12' curbed shoulder (Sheet No. 5) 1,839 L.F. × 2' ÷ 9 = -408.7 S.Y.

SR-252
From Sheet Nos. 53 & 54 - Item 606: 175'+(1×25')+(1×12.5')=212.5 L.F.
212.5 L.F. × 9.5' ÷ 9 = 224.3 S.Y.
SUB-TOTAL = 3,476.5 S.Y.

Total Item Special - Herbicides for Weed Control to General Summary = 3,477 S.Y.

3,476.5 S.Y. × 3" ÷ 36 = 289.7 C.Y.

Total Item 301-Bituminous Aggregate Base (Weed Control) to General Summary = 290 C.Y.

609 ASPHALT CONCRETE CURB

Sta. 205+22.00 to Sta. 207+23.25 = 201.25 L.F. x 1 = 201.25
Sta. 208+45.34 to Sta. 215+03.00 = 657.66 L.F. x 1 = 657.66
Sta. 244+97.00 to Sta. 249+93.13 = 496.13 L.F. x 2 = 992.26
Sta. 251+74.83 to Sta. 256+03.00 = 428.17 L.F. x 2 = 856.34
Sub Total = 2,707.51 L.F.

Deduct for Inlets -6'×6' = 36.00 L.F.

Total 609 to General Summary = 2,672 L.F.

ITEM SPECIAL-PRESSURE RELIEF JOINT TYPE "A"

Bridge No. Cuy-480-0203 = 36'×4 = 144 L.F.
Bridge No. Cuy-480-0286 = 36'×4 = 144 L.F.
Total = 288 L.F.

Total Special Pressure Relief Joint Type "A" To General Summary = 288 L.F.

D.B.H. 3-4-69
T.R.B. 3-17-69
Rev. WAM 11/75
Rev. L.J.P. 10-28-77

Calc. WAM 12/75
CK. TRB 12/75
Rev. L.J.P. 10-28-77

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

20A
427

CUYAHOGA COUNTY
CUY-480-1.90

ITEM 310-6" SUBBASE GRADING "A"

I-480
Total Area under I-480 from Item 203:
121,769.7+37,451.8+11,264.4+2,377.6+
+12,953.2+1,232.4+800.0+6,809.4 = 194,158.5 S.Y.
194,158.5 S.Y. x 6" ÷ 36 = 32,359.8 C.Y.
Add for subbase under Median Shoulder:
15,321.21 L.F. x 2 x 10.75'x. 3755 F. ÷ 27 = 4,575.1 C.Y.
Add for subbase under left shoulder w/o curb:
10,138.0 L.F. x 9.75'x. 2917' ÷ 27 = 1,067.9 C.Y.
Add for subbase under left shoulder w/curb:
1,783.21 L.F. x 11.75'x. 25' ÷ 27 = 194.0 C.Y.
Add for subbase under right shoulder w/o curb:
11,207.85 L.F. x 9.75'x. 2917' ÷ 27 = 1,180.6 C.Y.
Add for subbase under right shoulder w/curb:
929.30 L.F. x 11.75'x. 25' ÷ 27 = 100.6 C.Y.
Deduct for pressure relief joints:
-288 L.F. x 8'x. 5 ÷ 27 = -42.7 C.Y.
Deduct for pier protection:
Butternut Ridge Rd. = (88'+60') x 3' = -444 S.F.
Reloc. S.R. 252 = (104'+60') x 3' = -492 S.F.
Columbia Rd. = (48'+60') x 3' = -3245 S.F.
Total area = -12605 S.F.
-12605 S.F. x 0.25' ÷ 27 = -11.7 C.Y.

Total = 39,423.6 C.Y.

Total 310-6" Subbase Grading "A" to Sht. No. 19 = 39,423.6 C.Y.

ITEM 402 - 1 3/4" ASPHALT CONCRETE

From Sub-Total
Item 801 = 121,769.7 S.Y. x 0.0486 YD. = 5,919.4 C.Y.

Total 402 - Asphalt Concrete To General Summary = 5,920 C.Y.

ITEM 404 - 1 1/4" ASPHALT CONCRETE

From Sub-Total
Item 801 = 121,769.7 S.Y. x 0.03472 YD. = 4,228.1 C.Y.

Total 404 - Asphalt Concrete To General Summary = 4,229 C.Y.

ITEM 407 - TACK COAT

From Sub-Total
Item 801 = 121,769.7 S.Y. x 0.1 Gal/S.Y. = 12,177.0 Gal.
121,769.7 S.Y. x 7 lb ÷ 2000 ton/lb = 426.2 tons

Total 407 - Tack Coat To General Summary = 12,177 Gal.
Total 407 - Cover Aggregate To General Summary = 427 tons

ITEM 409 - SEAL COAT

Shoulder Area from Item 301 = 10,655.4 C.Y. x 36 ÷ 6" = 63,932.4 S.Y.
Aggregate No. 9
63,932.4 S.Y. x .005 C.Y./S.Y. = 319.7 C.Y.

Total 409 - Seal Coat Aggregate To General Summary = 320 C.Y.

Bituminous Material
63,932.4 S.Y. x 0.20 Gal./S.Y. = 12,786.5 Gal.

Total 409 - Seal Coat Bituminous Material To General Summary = 12,787 Gal.

BIKE PATH - PAVEMENT CALCULATION
CONTRACT CUY-480-1.90

304 - AGGREGATE BASE

Sta. 200+75 To Sta. 208+31.93 ℄ I-480
732 x 13.00 ÷ 9 = 1,057.3 S.Y.
Sta. 208+31.93 To Sta. 251+06 ℄ I-480
4,240 x 13.00 ÷ 9 = 6,124.4 S.Y.
Sta. 252+18 To Sta. 274+71.90 ℄ I-480
2,264 x 13.00 ÷ 9 = 3,270.2 S.Y.
Sta. 274+71.90 To Sta. 275+60 ℄ I-480
[34 x (13.00+9.00) ÷ 2 + 76 x 9.00] ÷ 9 = 117.6 S.Y.
Sta. 276+97.5 ℄ I-480 To Sta. 78+85 ℄ Reloc. S.R. 252
4,011 x 13.00 ÷ 9 = 5,793.7 S.Y.

MISC. QUANTITIES
Southern Ave. 0.51" x 20² ÷ 9 = 22.7 S.Y.
Nantucket Dr. 2' x 12' ÷ 9 = 2.7 S.Y.
Kennedy Ridge Rd. 0.48" x 20² ÷ 9 = 21.3 S.Y.
Total = 16,409.9 S.Y.

Bike Path Total = 16,409.9 S.Y. x 9/36 = 2,735.0 C.Y. to General Summary

404 - ASPHALT CONCRETE (Ac. 20)

Sta. 200+75 To Sta. 208+31.93 ℄ I-480
732 x 12.00 ÷ 9 = 976.0 S.Y.
Sta. 208+31.93 To Sta. 251+06 ℄ I-480
4,240 x 12.00 ÷ 9 = 5,653.3 S.Y.
Sta. 252+18 To Sta. 274+71.90 ℄ I-480
2,264 x 12.00 ÷ 9 = 3,018.7 S.Y.
Sta. 274+71.90 To Sta. 275+60 ℄ I-480
[34 x (12.00+8.00) ÷ 2 + (76 x 8.00)] ÷ 9 = 105.3 S.Y.
Sta. 276+97.50 ℄ I-480 To Sta. 78+85 ℄ Reloc. S.R. 252
4,011 x 12.00 ÷ 9 = 5,348.0 S.Y.

MISC. QUANTITIES
Southern Ave. 0.48" x 20² ÷ 9 = 21.3 S.Y.
Nantucket Dr. 2' x 12' ÷ 9 = 2.7 S.Y.
Kennedy Ridge Rd. 0.46" x 20² ÷ 9 = 20.4 S.Y.
Total = 15,145.7 S.Y.

Bike Path Total = 15,145.7 S.Y. x 2/36 = 841.4 C.Y. (Rounded to Column #1 on this Sheet)

Total 404 Asphalt Concrete (Bike Paths) to General Summary = 842 C.Y.

408 - BITUMINOUS PRIME COAT

From Item 404 = 15,145.7 S.Y.
Bike Path Total = 15,145.7 S.Y. x 0.40 Gal/S.Y. = 6,058.3 Gal.

Total 408 Bituminous Prime Coat To General Summary 6,058 Gal.

608 - BIKE PATH CURB RAMP

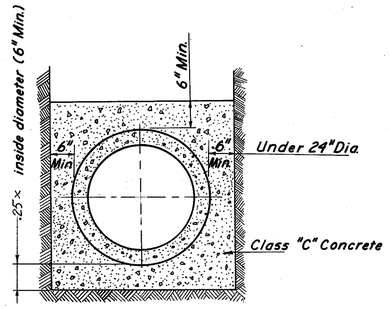
Southern Ave.	Sta. 7+19	1 Each
Nantucket Dr.	Sta. 13+58	1 Each
Butternut Ridge Rd.	Sta. 6+88	2 Each
Relocated S.R. 252	Sta. 78+87	1 Each
	Total	5 Each

Total 608 Bike Path Curb Ramp To General Summary 5 Each

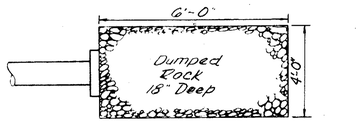
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

21
427

CUYAHOGA COUNTY
CUY-480-1.90

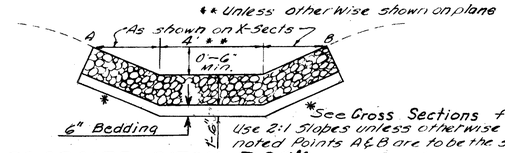


ENCASEMENT DETAIL

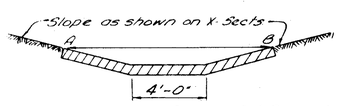


To be used as noted in areas where no ditches are to be constructed

MEDIAN OUTLET PROTECTION

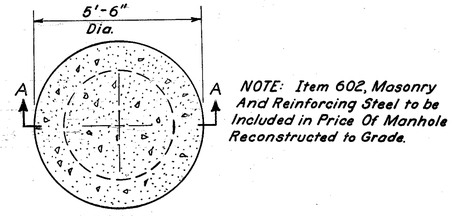


ROADSIDE DITCH ROCK CHANNEL PROTECTION



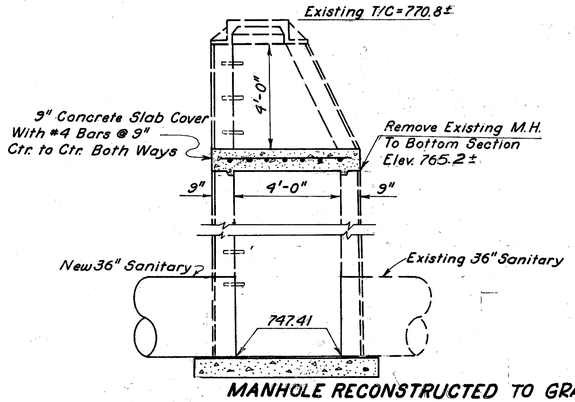
Points A & B are to be the same elev.

ROADWAY DITCH SOD & J.M. DETAIL

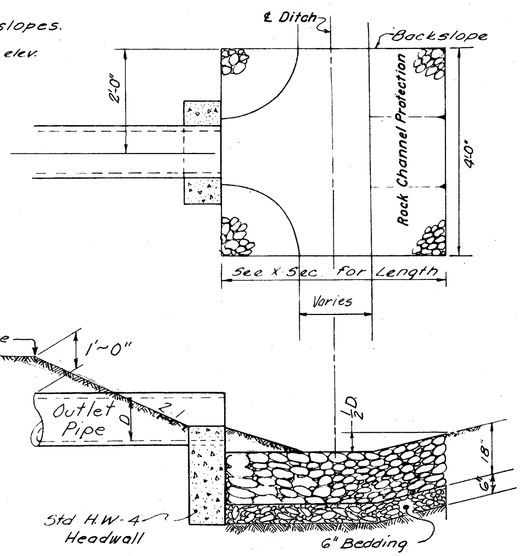


NOTE: Item 602, Masonry And Reinforcing Steel to be Included in Price Of Manhole Reconstructed to Grade.

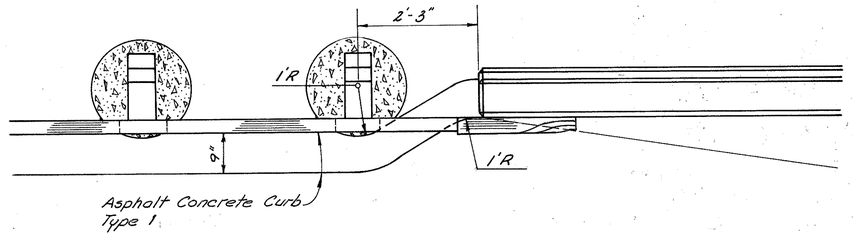
PLAN



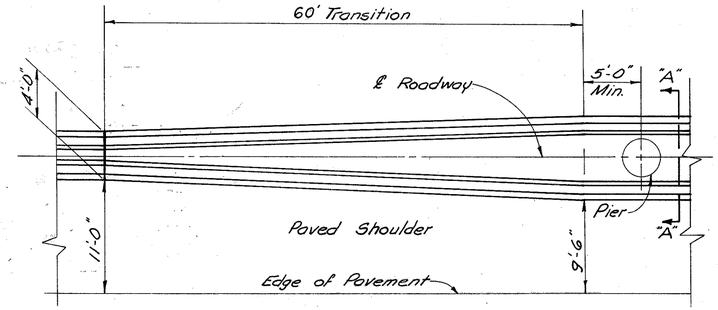
MANHOLE RECONSTRUCTED TO GRADE
AS PER PLAN - SECTION A-A
Scale: None
Sta. 246+58, 42' Lt. ℄ I-80

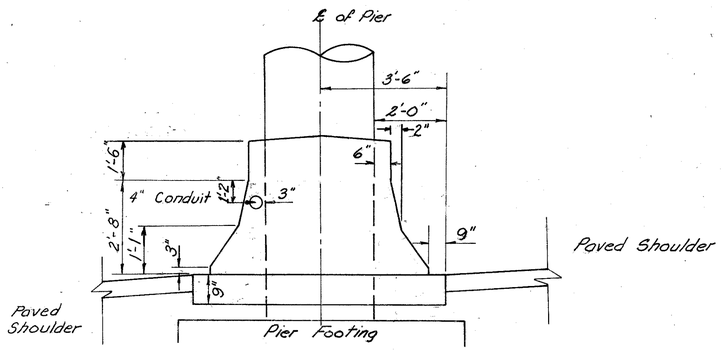


ROCK CHANNEL PROTECTION FOR OUTLETS INTO SIDE DITCH



CURB TRANSITION AT BRIDGE PARAPET





The 4" Raceway shall consist of Polyvinyl Chloride Material (718.07). All materials, labor, equipment and incidentals necessary to perform this item shall be included in the unit price bid for Item 622 Concrete Barrier.

SPECIAL DETAILS

3-C CATCH BASIN

CUYAHOGA COUNTY
CUY-480-1.90

NOTES

CASTINGS shall meet the requirements of 604, except that the grate material shall be restricted to 711.13 ASTM A536 Grade 65-45-12. Exposed part of curb casting to be thoroughly cleaned and given one coat of asphalt varnish or coal tar pitch paint.

WEIGHTS minimum -

Curb casting	100 pounds
Gutter grate	130 pounds
Gutter frame	300 pounds

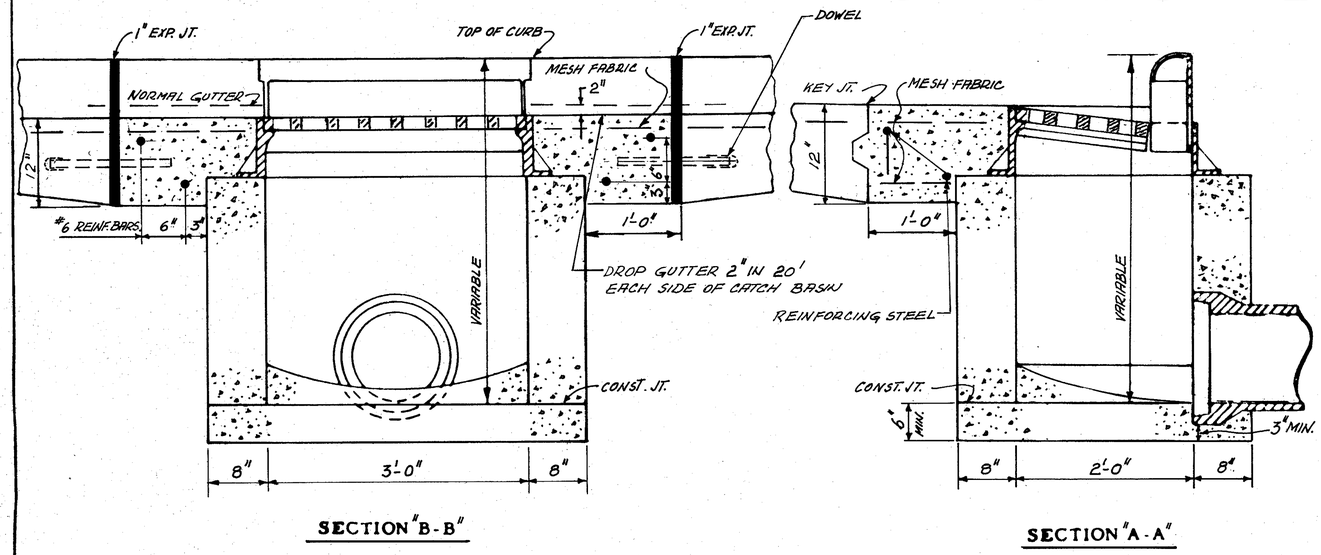
BEARING AREAS or frame and grate shall be so fitted and finished as to provide a firm and even seat for the portions of the grate in the frame. No projections shall exist on bearing areas of either casting and the grate shall seat in its frame without rocking. The frame and grate shall be fitted, matched and marked before delivery to the project.

DOWELS shall be 1 1/8 inch round, smooth bars 18 inches long spaced as shown hereon and greased.

PAVEMENT: The portion blocked out of the pavement shall be placed after the casting has been set but shall be paid for as part of the pavement.

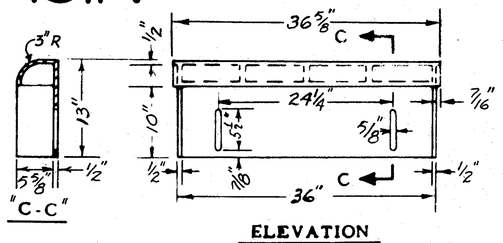
CONCRETE for brick and cast in place or precast chambers shall be CLASS "C."

EXPANSION JOINT- The elastomeric Expansion Joint seal shall be omitted when an asphalt concrete surface is part of pavement. The 1" expansion joint material shall be omitted when a flexible base is used.

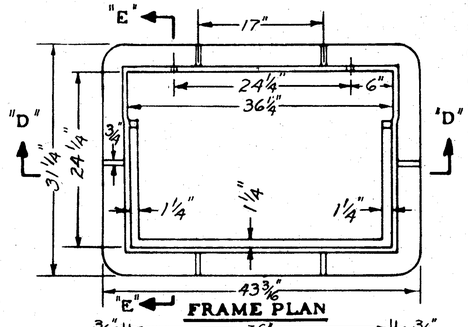


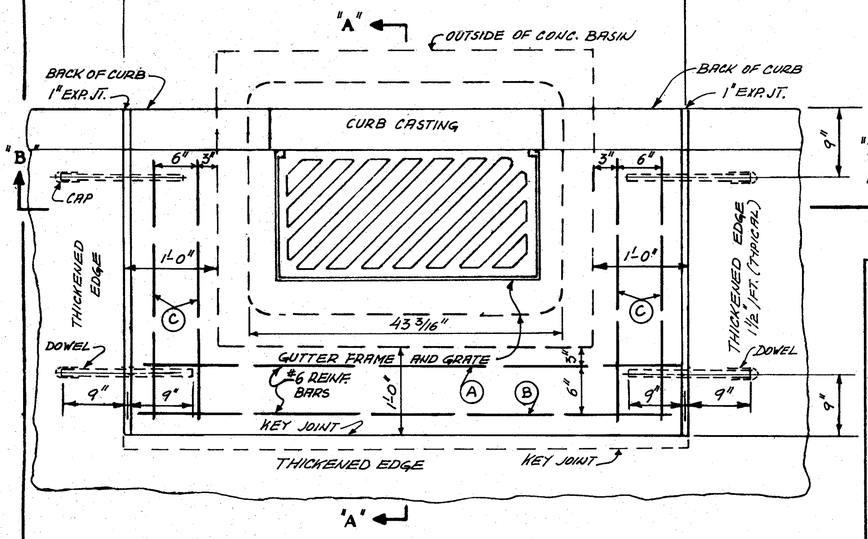
SECTION "B-B"

SECTION "A-A"

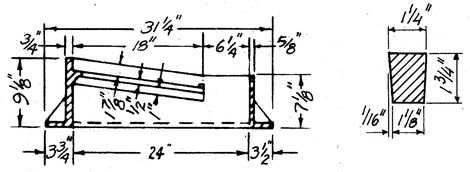


ELEVATION
RADIUS CURB BOX



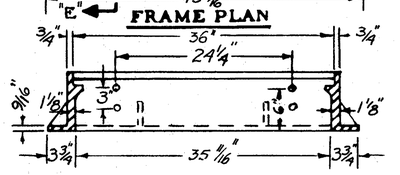


PLAN OF CATCH BASIN



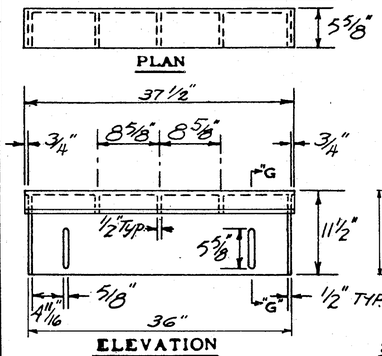
SECTION "E-E"

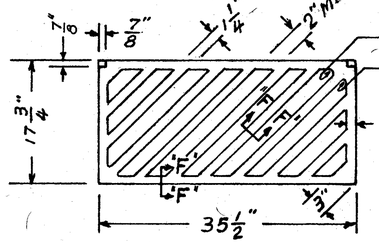
SECTION "F-F"



SECTION "D-D"

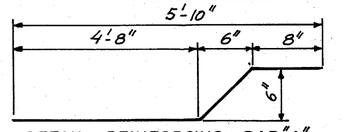
CURB CASTING FOR CURB CUT IN DRIVEWAYS TYPE "A-2"





BAR LIST

MARK	NO. REQ'D.	SHAPE	LENGTH	WT.
A	1	BENT	5'-10"	9 #
B	1	BENT	5'-10'	9 #
C	4	STR.	2'-10"	4.25 #



DETAIL - REINFORCING BAR "A"
BAR "B" OPPOSITE HAND

Note: This catch basin is identical with the Cuyahoga County Standard No. 3-C Catch Basin

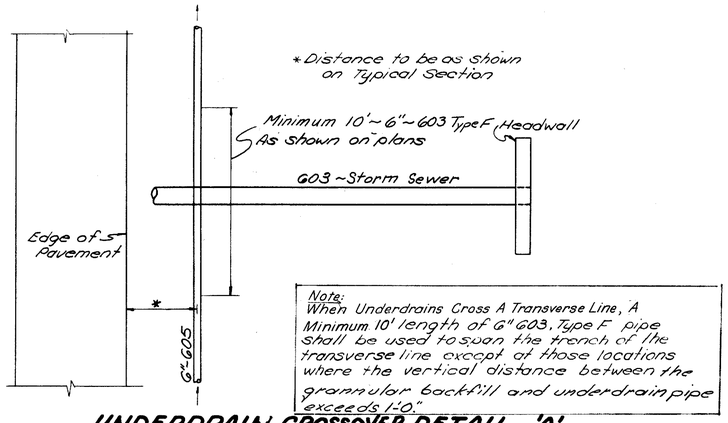
Revised D.R.S. 4-5-78

NO. 3-C CATCH BASIN

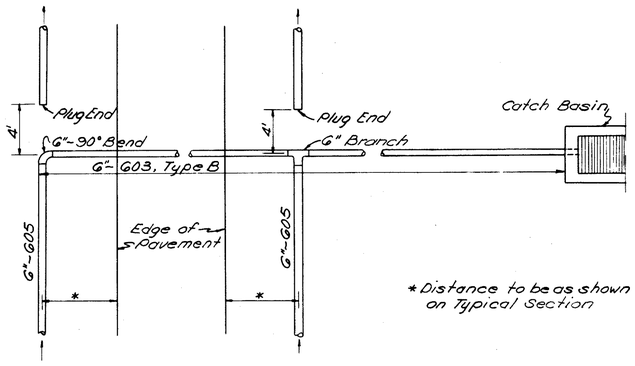
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

23
427

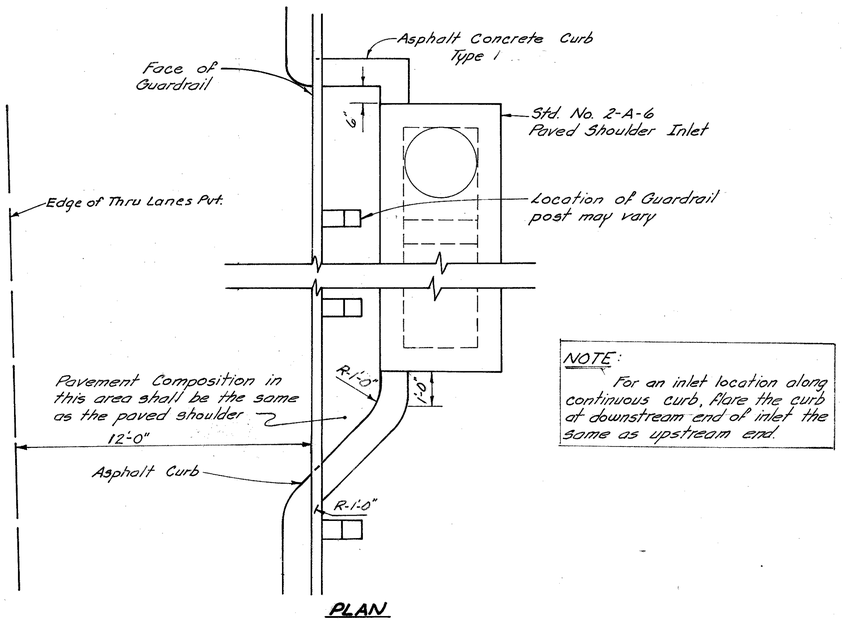
CUYAHOGA COUNTY
CUY-480-1.90



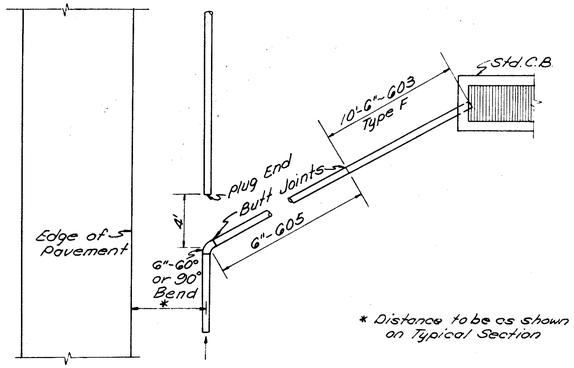
UNDERDRAIN CROSSOVER DETAIL 'A'



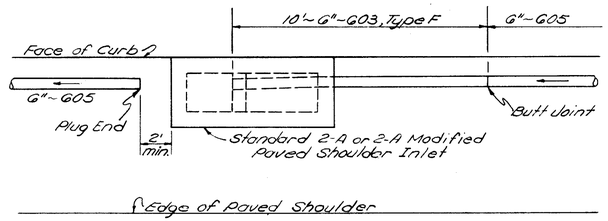
UNDERDRAIN OUTLET DETAIL 'D'



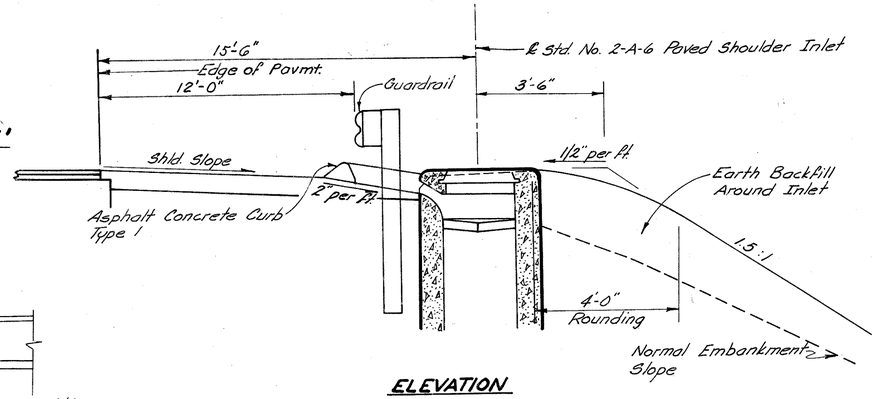
PLAN



UNDERDRAIN OUTLET DETAIL 'B'

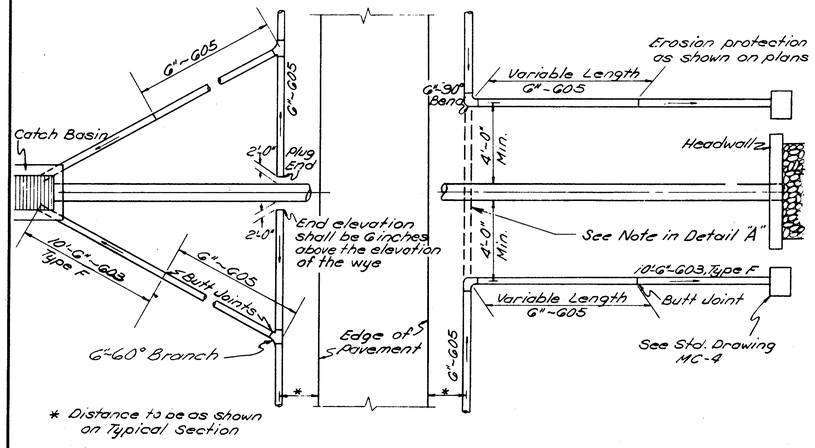


UNDERDRAIN OUTLET DETAIL 'E'

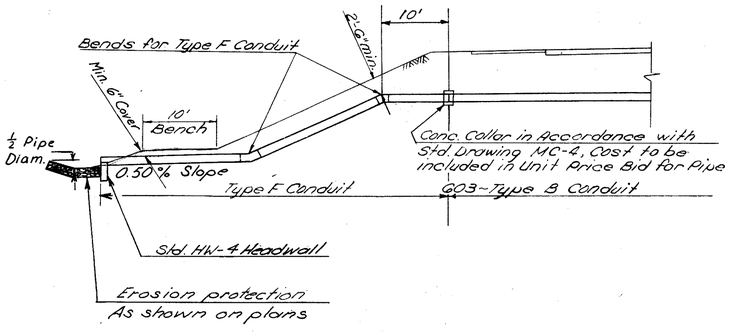


ELEVATION

CURB AND INLET FOR EROSION CONTROL



UNDERDRAIN OUTLET DETAIL 'C'



STORM SEWER OUTLET DETAIL IN HIGH FILL

SPECIAL DETAILS

SUPERELEVATION TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

I-80

Dc = 1°00'00" CURVE LT. MAX. SUPER = 0.024 ft/ft

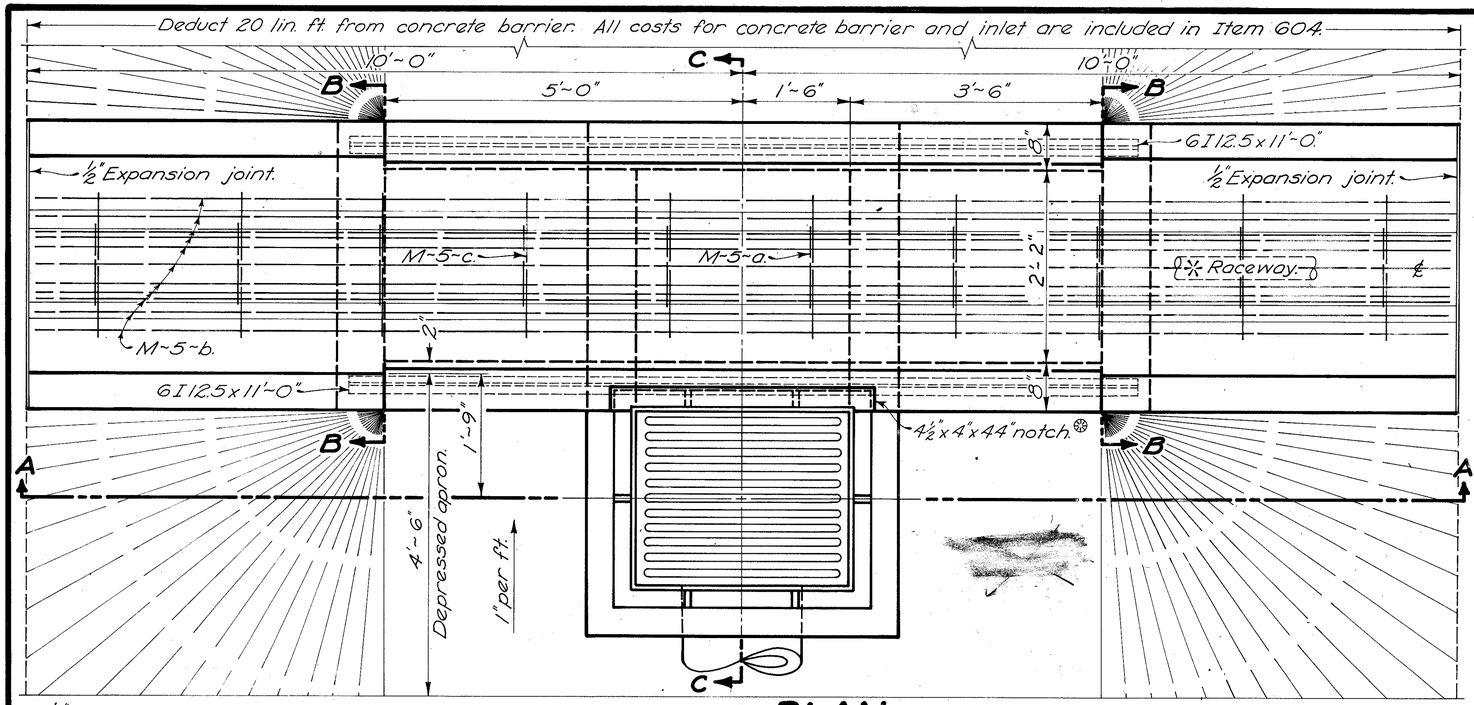
WESTBOUND LANES				REMARKS	STATION	PROFILE GRADE	EASTBOUND LANES			
49' LT.	37' LT.	25' LT.	13' LT.				13' RT.	25' RT.	37' RT.	49' RT.
794.45	794.64	794.83	794.64	Transition	203 +25	794.64	794.64	794.83	794.64	794.45
794.70	794.89	795.08	794.89		+50	794.89	794.89	795.08	794.91	794.74
794.95	795.14	795.33	795.14		+75	795.14	795.14	795.33	795.18	795.03
795.20	795.39	795.58	795.39		204 +00	795.39	795.39	795.58	795.45	795.32
795.44	795.63	795.82	795.63		+25	795.63	795.63	795.82	795.72	795.62
795.64	795.83	796.02	795.85		+50	795.85	795.85	796.04	795.97	795.91
795.79	795.98	796.17	796.06		+75	796.06	796.06	796.25	796.23	796.21
795.88	796.08	796.27	796.25		205 +00	796.25	796.25	796.44	796.47	796.50
795.94	796.14	796.35	796.42		+25	796.42	796.42	796.61	796.70	796.80
795.98	796.20	796.43	796.57		+50	796.57	796.57	796.79	796.94	797.09
796.02	796.25	796.49	796.71		+75	796.71	796.71	796.94	797.16	797.39
796.05	796.30	796.56	796.83		206 +00	796.83	796.83	797.09	797.35	797.62
796.08	796.36	796.64	796.93		+25	796.93	796.93	797.22	797.50	797.78
796.14	796.43	796.72	797.01		+50	797.01	797.01	797.30	797.59	797.88
796.21	796.50	796.79	797.08		+75	797.08	797.08	797.37	797.66	797.95
796.27	796.55	796.84	797.13		207 +00	797.13	797.13	797.42	797.71	797.99
796.30	796.58	796.87	797.16		+25	797.16	797.16	797.45	797.74	798.02
796.31	796.59	796.88	797.17		+50	797.17	797.17	797.46	797.75	798.03
796.31	796.59	796.88	797.17		+75	797.17	797.17	797.46	797.75	798.03
796.29	796.57	796.86	797.15		208 +00	797.15	797.15	797.44	797.73	798.01
796.25	796.53	796.82	797.11		+25	797.11	797.11	797.40	797.69	797.97
796.19	796.47	796.76	797.05		+50	797.05	797.05	797.34	797.63	797.91
796.12	796.40	796.69	796.98		+75	796.98	796.98	797.27	797.56	797.84
796.03	796.31	796.60	796.89		209 +00	796.89	796.89	797.18	797.47	797.75
795.92	796.20	796.49	796.78		+25	796.78	796.78	797.07	797.36	797.64
795.79	796.07	796.36	796.65		+50	796.65	796.65	796.94	797.23	797.51
795.65	795.93	796.22	796.51		+75	796.51	796.51	796.80	797.09	797.37
795.49	795.77	796.06	796.35		210 +00	796.35	796.35	796.64	796.93	797.21
795.31	795.59	795.88	796.17		+25	796.17	796.17	796.46	796.75	797.03
795.11	795.39	795.68	795.97		+50	795.97	795.97	796.26	796.55	796.83
794.90	795.18	795.47	795.76		+75	795.76	795.76	796.05	796.34	796.62
794.66	794.95	795.24	795.53		211 +00	795.53	795.53	795.82	796.11	796.39
794.41	794.70	794.99	795.28		+25	795.28	795.28	795.57	795.86	796.14
794.14	794.43	794.72	795.01		+50	795.01	795.01	795.30	795.59	795.87
793.86	794.15	794.44	794.73		+75	794.73	794.73	795.02	795.31	795.59
793.56	793.85	794.14	794.43		212 +00	794.43	794.43	794.72	795.01	795.29
793.26	793.54	793.83	794.12		+25	794.12	794.12	794.41	794.70	794.98
792.95	793.23	793.52	793.81		+50	793.81	793.81	794.10	794.39	794.67
792.64	792.92	793.21	793.50		+75	793.50	793.50	793.79	794.08	794.36
792.33	792.61	792.90	793.19		213 +00	793.19	793.19	793.48	793.77	794.05
792.02	792.30	792.59	792.88		+25	792.88	792.88	793.17	793.46	793.74
791.71	791.99	792.28	792.57		+50	792.57	792.57	792.86	793.15	793.43
791.40	791.68	791.97	792.26		+75	792.26	792.26	792.55	792.84	793.12
791.09	791.37	791.66	791.95		214 +00	791.95	791.95	792.24	792.53	792.81
790.78	791.06	791.35	791.64		+25	791.64	791.64	791.93	792.22	792.50
790.47	790.75	791.04	791.33		+50	791.33	791.33	791.62	791.91	792.19
790.16	790.44	790.73	791.02		+75	791.02	791.02	791.31	791.60	791.88
789.85	790.13	790.42	790.71		215 +00	790.71	790.71	791.00	791.29	791.57
789.54	789.82	790.11	790.40		+25	790.40	790.40	790.69	790.98	791.26
789.23	789.51	789.80	790.09		+50	790.09	790.09	790.38	790.67	790.95
788.92	789.20	789.49	789.78		+75	789.78	789.78	790.07	790.36	790.64
788.61	788.89	789.18	789.47	Full Super .024 ft/ft	216 +00	789.47	789.47	789.76	790.05	790.33
788.30	788.58	788.87	789.16		+25	789.16	789.16	789.45	789.74	790.02
787.99	788.27	788.56	788.85		+50	788.85	788.85	789.14	789.43	789.71

I-80

Dc = 1°00'00" CURVE LT. MAX. SUPER = 0.024 ft/ft

WESTBOUND LANES				REMARKS	STATION	PROFILE GRADE	EASTBOUND LANES			
49' LT.	37' LT.	25' LT.	13' LT.				13' RT.	25' RT.	37' RT.	49' RT.
787.68	787.96	788.25	788.54	Full Super .024 ft/ft	216 +75	788.54	788.54	788.83	789.12	789.40
787.37	787.65	787.94	788.23		217 +00	788.23	788.23	788.52	788.81	789.09
787.06	787.34	787.63	787.92		+25	787.92	787.92	788.21	788.50	788.78
786.75	787.03	787.32	787.61		+50	787.61	787.61	787.90	788.19	788.47
786.44	786.72	787.01	787.30		+75	787.30	787.30	787.59	787.88	788.16
786.13	786.41	786.70	786.99		218 +00	786.99	786.99	787.28	787.57	787.85
785.82	786.10	786.39	786.68		+25	786.68	786.68	786.97	787.26	787.54
785.51	785.79	786.08	786.37		+50	786.37	786.37	786.66	786.95	787.23
785.20	785.48	785.77	786.06		+75	786.06	786.06	786.35	786.64	786.92
784.89	785.17	785.46	785.75		219 +00	785.75	785.75	786.04	786.33	786.61
784.58	784.86	785.15	785.44		+25	785.44	785.44	785.73	786.02	786.30
784.27	784.55	784.84	785.13		+50	785.13	785.13	785.42	785.71	785.99
783.96	784.24	784.53	784.82		+75	784.82	784.82	785.11	785.40	785.68
783.65	783.93	784.22	784.51		220 +00	784.51	784.51	784.80	785.09	785.37
783.34	783.62	783.91	784.20		+25	784.20	784.20	784.49	784.78	785.06
783.03	783.31	783.60	783.89		+50	783.89	783.89	784.18	784.47	784.75
782.72	783.00	783.29	783.58		+75	783.58	783.58	783.87	784.16	784.44
782.41	782.69	782.98	783.27		221 +00	783.27	783.27	783.56	783.85	784.13
782.10	782.38	782.67	782.96		+25	782.96	782.96	783.25	783.54	783.82
781.79	782.07	782.36	782.65		+50	782.65	782.65	782.94	783.23	783.51
781.48	781.76	782.05	782.34		+75	782.34	782.34	782.63	782.92	783.20
781.17	781.45	781.74	782.03		222 +00	782.03	782.03	782.32	782.61	782.89
780.86	781.14	781.43	781.72		+25	781.72	781.72	782.01	782.30	782.58
780.55	780.83	781.12	781.41		+50	781.41	781.41	781.70	781.99	782.27
780.24	780.52	780.81	781.10		+75	781.10	781.10	781.39	781.68	781.96
779.93	780.21	780.50	780.79		223 +00	780.79	780.79	781.08	781.37	781.65
779.62	779.90	780.19	780.48		+25	780.48	780.48	780.77	781.06	781.34
779.31	779.59	779.88	780.17		+50	780.17	780.17	780.46	780.75	781.03
779.00	779.28	779.57	779.86		+75	779.86	779.86	780.15	780.44	780.72
778.69	778.97	779.26	779.55		224 +00	779.55	779.55	779.84	780.13	780.41
778.38	778.66	778.95	779.24		+25	779.24	779.24	779.53	779.82	780.10
778.07	778.35	778.64	778.93		+50	778.93	778.93	779.22	779.51	779.79
777.76	778.04	778.33	778.62		+75	778.62	778.62	778.91	779.20	779.48
777.45	777.73	778.02	778.31		225 +00	778.31	778.31	778.60	778.89	779.17
777.14	777.42	777.71	778.00		+25	778.00	778.00	778.29	778.58	778.86
776.83	777.11	777.40	777.69		+50	777.69	777.69	777.98	778.27	778.55
776.52	776.80	777.09	777.38		+75	777.38	777.38	777.67	777.96	778.24
776.21	776.49	776.78	777.07		226 +00	777.07	777.07	777.36	777.65	777.94
775.89	776.18	776.47	776.76		+25	776.76	776.76	777.05	777.34	777.63
775.58	775.87	776.16	776.45		+50	776.45	776.45	776.74	777.03	777.32
775.29	775.58	775.87	776.16		+75	776.16	776.16	776.45	776.72	777.00
775.09	775.35	775.61	775.88	Transition	227 +00	775.88	775.88	776.14	776.39	776.65
774.95	775.18	775.42	775.62		+25	775.62	775.62	775.85	776.07	776.29
774.84	775.06	775.28	775.39		+50	775.39	775.39	775.58	775.74	775.91
774.73	774.94	775.16	775.19		+75	775.19	775.19	775.36	775.45	775.55
774.64	774.85	775.06	775.00		228 +00	775.00	775.00	775.19	775.22	775.25
774.54	774.75	774.97	774.84		+25	774.84	774.84	775.03	775.01	775.00
774.46	774.66	774.87	774.70		+50	774.70	774.70	774.89	774.84	774.80
774.38	774.58	774.78	774.59		+75	774.59	774.59	774.78	774.70	774.63
774.31	774.50	774.69	774.50		229 +00	774.50	774.50	774.69	774.58	774.48
774.24	774.43	774.62	774.43		+25	774.43	774.43	774.62	774.48	774.35
774.19	774.38	774.57	774.38		+50	774.38	774.38	774.57	774.40	774.23
774.17	774.36	774.55	774.36		+75	774.36	774.36	774.55	774.36	774.17

Deduct 20 lin. ft. from concrete barrier. All costs for concrete barrier and inlet are included in Item 604.



NOTES

WALLS: The sections between the base and the upper permissible construction joint may be built of brick, concrete block, or cast-in-place concrete, 8" nominal thickness, for depths of 12' or less.

The unit above the upper permissible construction joint may be precast or cast-in-place.

Concrete for precast or cast-in-place construction shall meet the requirements of 511 Class C.

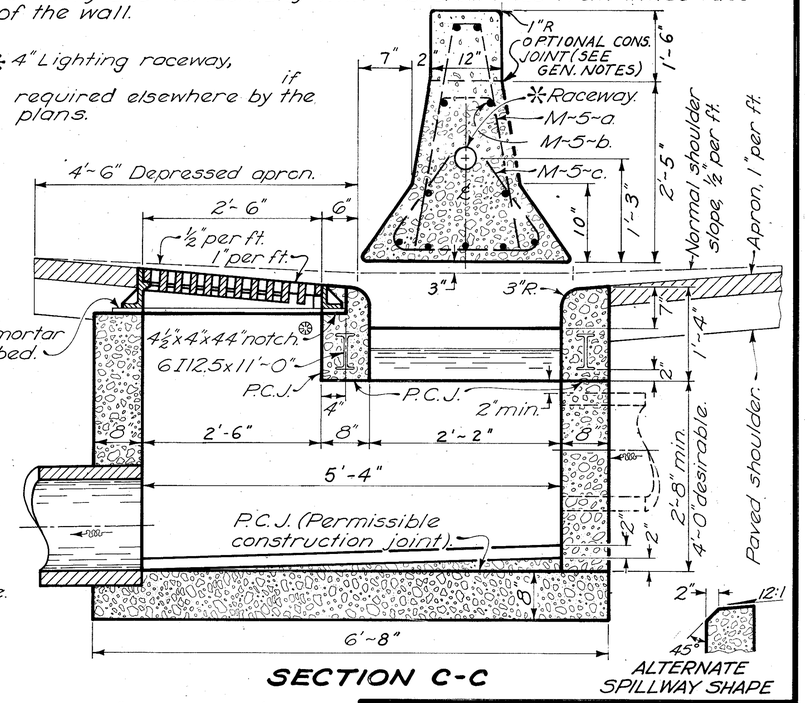
If a skewed pipe protrudes more than 2" inside a wall, the pipe shall be trimmed flush and finished to produce a neat appearance.

STEPS shall be in accordance with Standard Drawing MH-1. Minimum weight of frame and cover shall be 540 pounds.

GRATE LOCATION: In superelevated curves or at other locations where there is unequal discharge from the directional roadways, the inlet grating shall be located in the roadway which discharges the major flow.

INLETS OVER 12 FEET IN DEPTH shall be built of Class C concrete reinforced by placing ½" bars 12" center-to-center both vertically and horizontally with a 2" clearance from inside face of the wall.

✻ 4" Lighting raceway, if required elsewhere by the plans.



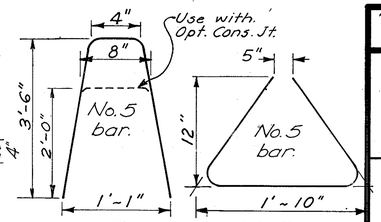
SECTION C-C

ALTERNATE SPILLWAY SHAPE

✻ After casting is placed, fill notch with Class C concrete.

STEEL LIST

INLET No.	W	M-5-a		M-5-b		M-5-c		6 I 12.5	
		No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.
OPT. C.J.	→	4'-6							
I-3H	12"	10	7'-4"	11	19'-8"	10	4'-1"	2	11'-0"



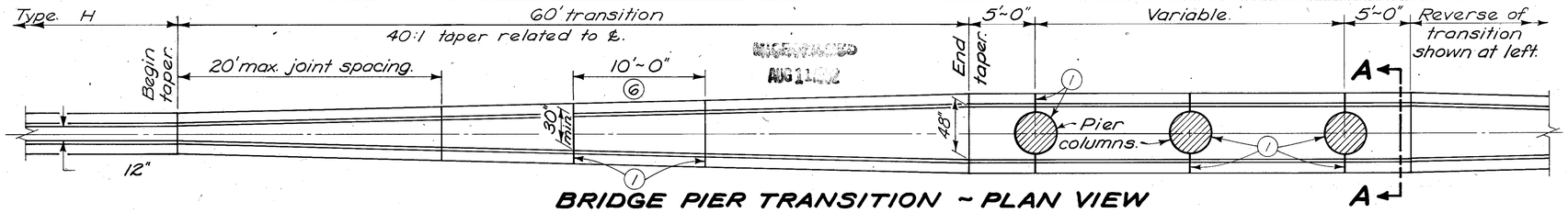
M-5-a M-5-c

I-3H

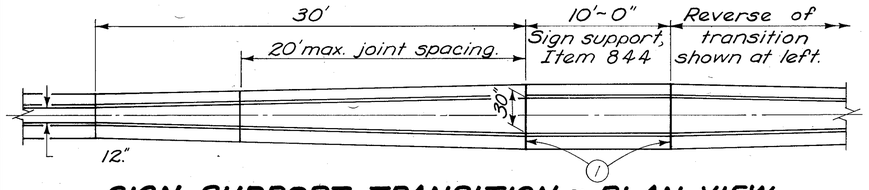
MEDIAN INLETS

NOTE: Drawing not to scale, dimensions govern. See General Notes for optional top construction.

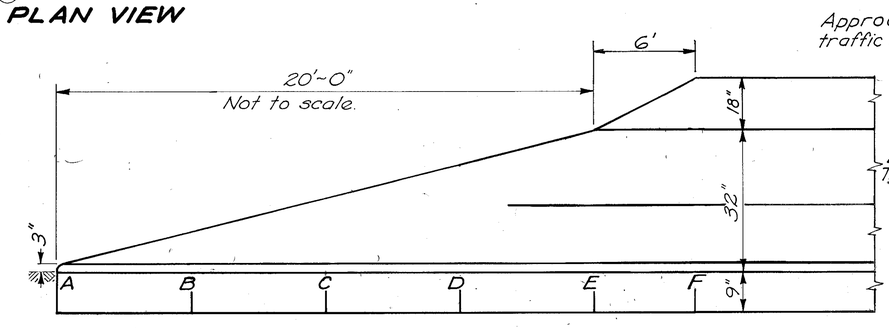
MEDIAN INLET DETAILS



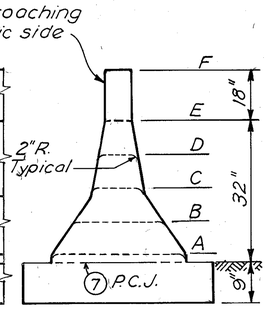
BRIDGE PIER TRANSITION ~ PLAN VIEW



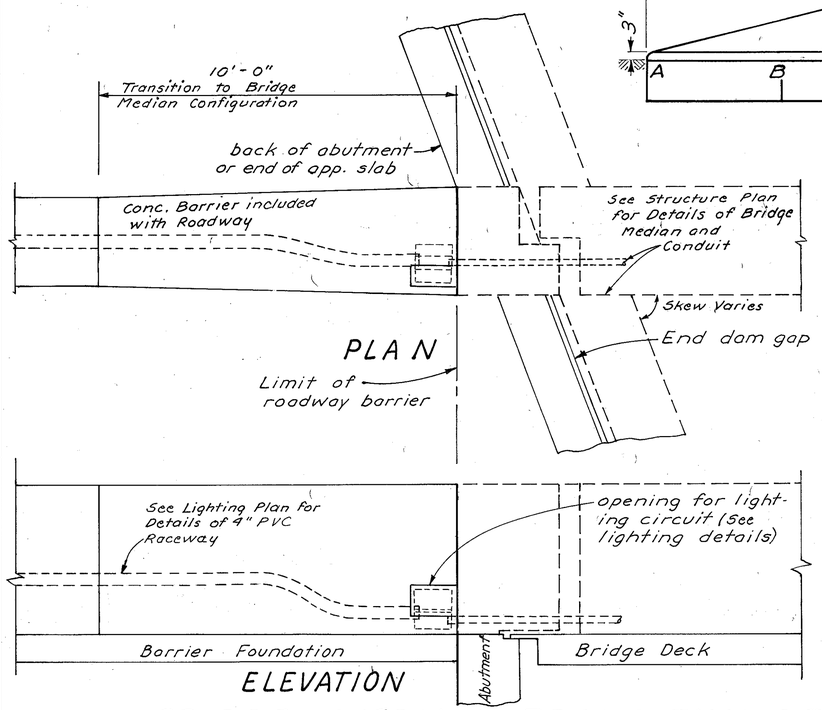
SIGN SUPPORT TRANSITION ~ PLAN VIEW



PROFILE VIEW

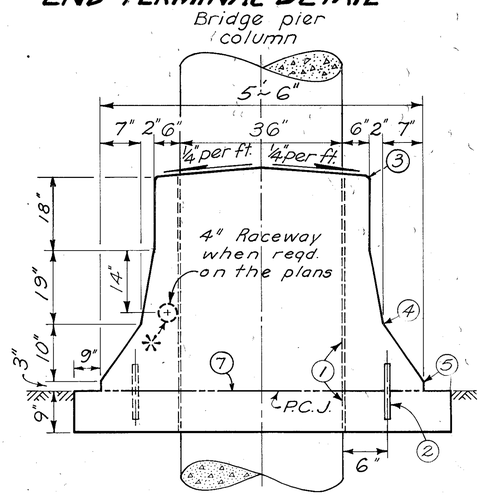


END VIEW



BRIDGE MEDIAN TRANSITION DETAIL

END TERMINAL DETAIL



BRIDGE PIER TRANSITION SECTION A-A

NOTES

JOINTS: Unsealed contraction joints spaced at 20' max. shall be constructed throughout the run of Concrete Barrier except that expansion joints shall be used at the center line of and around each bridge pier column and on either side of overhead sign supports. See 625 Light pole foundation drawing for other joint details.

Contraction joints may be constructed with metal inserts inside the forms, preformed full width joint filler, a grooving tool, or by sawing. Inserts or tooled or sawed joints shall have a 1½" min. depth. All joints shall be constructed for the full height of the barrier including the base.

LIGHTING: The 4" polyvinyl chloride raceway shall be included in the unit price bid for 622.

MEASUREMENT: 622 Concrete Barrier, including transitions and end terminals and pier sections, is paid for in linear feet with the following deductions for structures covered under other items.

604 I-3 Median inlets _____ 20 Lin. Ft.
625 Light pole foundation _____ 2.5 Lin. Ft.
844 Overhead sign support foundation _ 10 Lin. Ft.

The following table gives information to compute the volume of the various type barriers:

CUBIC YARDS PER LINEAR FOOT

Barrier	Top	Base
TYPE H	0.206	0.111
SECTION A-A‡	0.672	0.194

‡ Deduct 1.3 Cu. Yd. for each 36" dia. pier column.

1. Expansion joint, ¾" min. Preformed Filler 705.03.
2. No. 8 deformed steel bars, 12" long, spaced on staggered 4' centers. The End Terminal will require shorter dowels between points A & C. Omit dowels when top is constructed integral with the base.
3. 1" Radius or ¾" chamfer.
4. Permissible 10" radius.
5. Permissible 1" radius
6. 844 Overhead Sign Support Foundation, if specified in the plan.
7. Permissible construction joint.

NOTE: Drawing not to scale, dimensions govern. See General Notes for optional top construction.

CONCRETE BARRIER DETAILS

SUPERELEVATION TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

26
427

CUYAHOGA COUNTY
CUY-480-1.90

I-80

Dc = 1°00'00" CURVE LT. MAX. SUPER = 0.024 ft/ft

WESTBOUND LANES				REMARKS	STATION	PROFILE GRADE	EASTBOUND LANES			
49' LT.	37' LT.	25' LT.	13' LT.				13' RT.	25' RT.	37' RT.	49' RT.
794.45	794.64	794.83	794.64		203 +25	794.64	794.64	794.83	794.64	794.45
794.70	794.89	795.08	794.89		+50	794.89	794.89	795.08	794.91	794.74
794.95	795.14	795.33	795.14		+75	795.14	795.14	795.33	795.18	795.03
795.20	795.39	795.58	795.39		204 +00	795.39	795.39	795.58	795.45	795.32
795.44	795.63	795.82	795.63		+25	795.63	795.63	795.82	795.72	795.62
795.64	795.83	796.02	795.85		+50	795.85	795.85	796.04	795.97	795.91
795.79	795.98	796.17	796.06		+75	796.06	796.06	796.25	796.23	796.21
795.88	796.08	796.27	796.25		205 +00	796.25	796.25	796.44	796.47	796.50
795.94	796.14	796.35	796.42		+25	796.42	796.42	796.61	796.70	796.80
795.98	796.20	796.43	796.57		+50	796.57	796.57	796.79	796.94	797.09
796.02	796.25	796.49	796.71		+75	796.71	796.71	796.94	797.16	797.39
796.05	796.30	796.56	796.83		206 +00	796.83	796.83	797.09	797.35	797.62
796.08	796.36	796.64	796.93		+25	796.93	796.93	797.22	797.50	797.78
796.14	796.43	796.72	797.01		+50	797.01	797.01	797.30	797.59	797.88
796.21	796.50	796.79	797.08		+75	797.08	797.08	797.37	797.66	797.95
796.27	796.55	796.84	797.13		207 +00	797.13	797.13	797.42	797.71	797.99
796.30	796.58	796.87	797.16		+25	797.16	797.16	797.45	797.74	798.02
796.31	796.59	796.88	797.17		+50	797.17	797.17	797.46	797.75	798.03
796.31	796.59	796.88	797.17		+75	797.17	797.17	797.46	797.75	798.03
796.29	796.57	796.86	797.15		208 +00	797.15	797.15	797.44	797.73	798.01
796.25	796.53	796.82	797.11		+25	797.11	797.11	797.40	797.69	797.97
796.19	796.47	796.76	797.05		+50	797.05	797.05	797.34	797.63	797.91
796.12	796.40	796.69	796.98		+75	796.98	796.98	797.27	797.56	797.84
796.03	796.31	796.60	796.89		209 +00	796.89	796.89	797.18	797.47	797.75
795.92	796.20	796.49	796.78		+25	796.78	796.78	797.07	797.36	797.64
795.79	796.07	796.36	796.65		+50	796.65	796.65	796.94	797.23	797.51
795.65	795.93	796.22	796.51		+75	796.51	796.51	796.80	797.09	797.37
795.49	795.77	796.06	796.35		210 +00	796.35	796.35	796.64	796.93	797.21
795.31	795.59	795.88	796.17		+25	796.17	796.17	796.46	796.75	797.03
795.11	795.39	795.68	795.97		+50	795.97	795.97	796.26	796.55	796.83
794.90	795.18	795.47	795.76		+75	795.76	795.76	796.05	796.34	796.62
794.66	794.95	795.24	795.53		211 +00	795.53	795.53	795.82	796.11	796.39
794.41	794.70	794.99	795.28		+25	795.28	795.28	795.57	795.86	796.14
794.14	794.43	794.72	795.01		+50	795.01	795.01	795.30	795.59	795.87
793.86	794.15	794.44	794.73		+75	794.73	794.73	795.02	795.31	795.59
793.56	793.85	794.14	794.43		212 +00	794.43	794.43	794.72	795.01	795.29
793.26	793.54	793.83	794.12		+25	794.12	794.12	794.41	794.70	794.98
792.95	793.23	793.52	793.81		+50	793.81	793.81	794.10	794.39	794.67
792.64	792.92	793.21	793.50		+75	793.50	793.50	793.79	794.08	794.36
792.33	792.61	792.90	793.19		213 +00	793.19	793.19	793.48	793.77	794.05
792.02	792.30	792.59	792.88		+25	792.88	792.88	793.17	793.46	793.74
791.71	791.99	792.28	792.57		+50	792.57	792.57	792.86	793.15	793.43
791.40	791.68	791.97	792.26		+75	792.26	792.26	792.55	792.84	793.12
791.09	791.37	791.66	791.95		214 +00	791.95	791.95	792.24	792.53	792.81
790.78	791.06	791.35	791.64		+25	791.64	791.64	791.93	792.22	792.50
790.47	790.75	791.04	791.33		+50	791.33	791.33	791.62	791.91	792.19
790.16	790.44	790.73	791.02		+75	791.02	791.02	791.31	791.60	791.88
789.85	790.13	790.42	790.71		215 +00	790.71	790.71	791.00	791.29	791.57
789.54	789.82	790.11	790.40		+25	790.40	790.40	790.69	790.98	791.26
789.23	789.51	789.80	790.09		+50	790.09	790.09	790.38	790.67	790.95
788.92	789.20	789.49	789.78		+75	789.78	789.78	790.07	790.36	790.64
788.61	788.89	789.18	789.47		216 +00	789.47	789.47	789.76	790.05	790.33
788.30	788.58	788.87	789.16		+25	789.16	789.16	789.45	789.74	790.02
787.99	788.27	788.56	788.85		+50	788.85	788.85	789.14	789.43	789.71

Transition

Full Super .024 ft/ft

I-80

Dc = 1°00'00" CURVE LT. MAX. SUPER = 0.024 ft/ft

WESTBOUND LANES				REMARKS	STATION	PROFILE GRADE	EASTBOUND LANES			
49' LT.	37' LT.	25' LT.	13' LT.				13' RT.	25' RT.	37' RT.	49' RT.
787.68	787.96	788.25	788.54		216 +75	788.54	788.54	788.83	789.12	789.40
787.37	787.65	787.94	788.23		217 +00	788.23	788.23	788.52	788.81	789.09
787.06	787.34	787.63	787.92		+25	787.92	787.92	788.21	788.50	788.78
786.75	787.03	787.32	787.61		+50	787.61	787.61	787.90	788.19	788.47
786.44	786.72	787.01	787.30		+75	787.30	787.30	787.59	787.88	788.16
786.13	786.41	786.70	786.99		218 +00	786.99	786.99	787.28	787.57	787.85
785.82	786.10	786.39	786.68		+25	786.68	786.68	786.97	787.26	787.54
785.51	785.79	786.08	786.37		+50	786.37	786.37	786.66	786.95	787.23
785.20	785.48	785.77	786.06		+75	786.06	786.06	786.35	786.64	786.92
784.89	785.17	785.46	785.75		219 +00	785.75	785.75	786.04	786.33	786.61
784.58	784.86	785.15	785.44		+25	785.44	785.44	785.73	786.02	786.30
784.27	784.55	784.84	785.13		+50	785.13	785.13	785.42	785.71	785.99
783.96	784.24	784.53	784.82		+75	784.82	784.82	785.11	785.40	785.68
783.65	783.93	784.22	784.51		220 +00	784.51	784.51	784.80	785.09	785.37
783.34	783.62	783.91	784.20		+25	784.20	784.20	784.49	784.78	785.06
783.03	783.31	783.60	783.89		+50	783.89	783.89	784.18	784.47	784.75
782.72	783.00	783.29	783.58		+75	783.58	783.58	783.87	784.16	784.44
782.41	782.69	782.98	783.27		221 +00	783.27	783.27	783.56	783.85	784.13
782.10	782.38	782.67	782.96		+25	782.96	782.96	783.25	783.54	783.82
781.79	782.07	782.36	782.65		+50	782.65	782.65	782.94	783.23	783.51
781.48	781.76	782.05	782.34		+75	782.34	782.34	782.63	782.92	783.20
781.17	781.45	781.74	782.03		222 +00	782.03	782.03	782.32	782.61	782.89
780.86	781.14	781.43	781.72		+25	781.72	781.72	782.01	782.30	782.58
780.55	780.83	781.12	781.41		+50	781.41	781.41	781.70	781.99	782.27
780.24	780.52	780.81	781.10		+75	781.10	781.10	781.39	781.68	781.96
779.93	780.21	780.50	780.79		223 +00	780.79	780.79	781.08	781.37	781.65
779.62	779.90	780.19	780.48		+25	780.48	780.48	780.77	781.06	781.34
779.31	779.59	779.88	780.17		+50	780.17	780.17	780.46	780.75	781.03
779.00	779.28	779.57	779.86		+75	779.86	779.86	780.15	780.44	780.72
778.69	778.97	779.26	779.55		224 +00	779.55	779.55	779.84	780.13	780.41
778.38	778.66	778.95	779.24		+25	779.24	779.24	779.53	779.82	780.10
778.07	778.35	778.64	778.93		+50	778.93	778.93	779.22	779.51	779.79
777.76	778.04	778.33	778.62		+75	778.62	778.62	778.91	779.20	779.48
777.45	777.73	778.02	778.31		225 +00	778.31	778.31	778.60	778.89	779.17
777.14	777.42	777.71	778.00		+25	778.00	778.00	778.29	778.58	778.86
776.83	777.11	777.40	777.69		+50	777.69	777.69	777.98	778.27	778.55
776.52	776.80	777.09	777.38		+75	777.38	777.38	777.67	777.96	778.24
776.21	776.49	776.78	777.07		226 +00	777.07	777.07	777.36	777.65	777.94
775.89	776.18	776.47	776.76		+25	776.76	776.76	777.05	777.34	777.63
775.58	775.87	776.16	776.45		+50	776.45	776.45	776.74	777.03	777.32
775.29	775.58	775.87	776.16		+75	776.16	776.16	776.45	776.72	777.00
775.09	775.35	775.61	775.88		227 +00	775.88	775.88	776.14	776.39	776.65
774.95	775.18	775.42	775.62		+25	775.62	775.62	775.85	776.07	776.29
774.84	775.06	775.28	775.39		+50	775.39	775.39	775.58	775.74	775.91
774.73	774.94	775.16	775.19		+75	775.19	775.19	775.36	775.45	775.55
774.64	774.85	775.06	775.00		228 +00	775.00	775.00	775.19	775.22	775.25
774.54	774.75	774.97	774.84		+25	774.84	774.84	775.03	775.01	775.00
774.46	774.66	774.87	774.70		+50	774.70	774.70	774.89	774.84	774.80
774.38	774.58	774.78	774.59		+75	774.59	774.59	774.78	774.70	774.63
774.31	774.50	774.69	774.50		229 +00	774.50	774.50	774.69	774.58	774.48
774.24	774.43	774.62	774.43		+25	774.43	774.43	774.62	774.48	774.35
774.19	774.38	774.57	774.38		+50	774.38	774.38	774.57	774.40	774.23
774.17	774.36	774.55	774.36		+75	774.36	774.36	774.55	774.36	774.17

Full Super .024 ft/ft

Transition

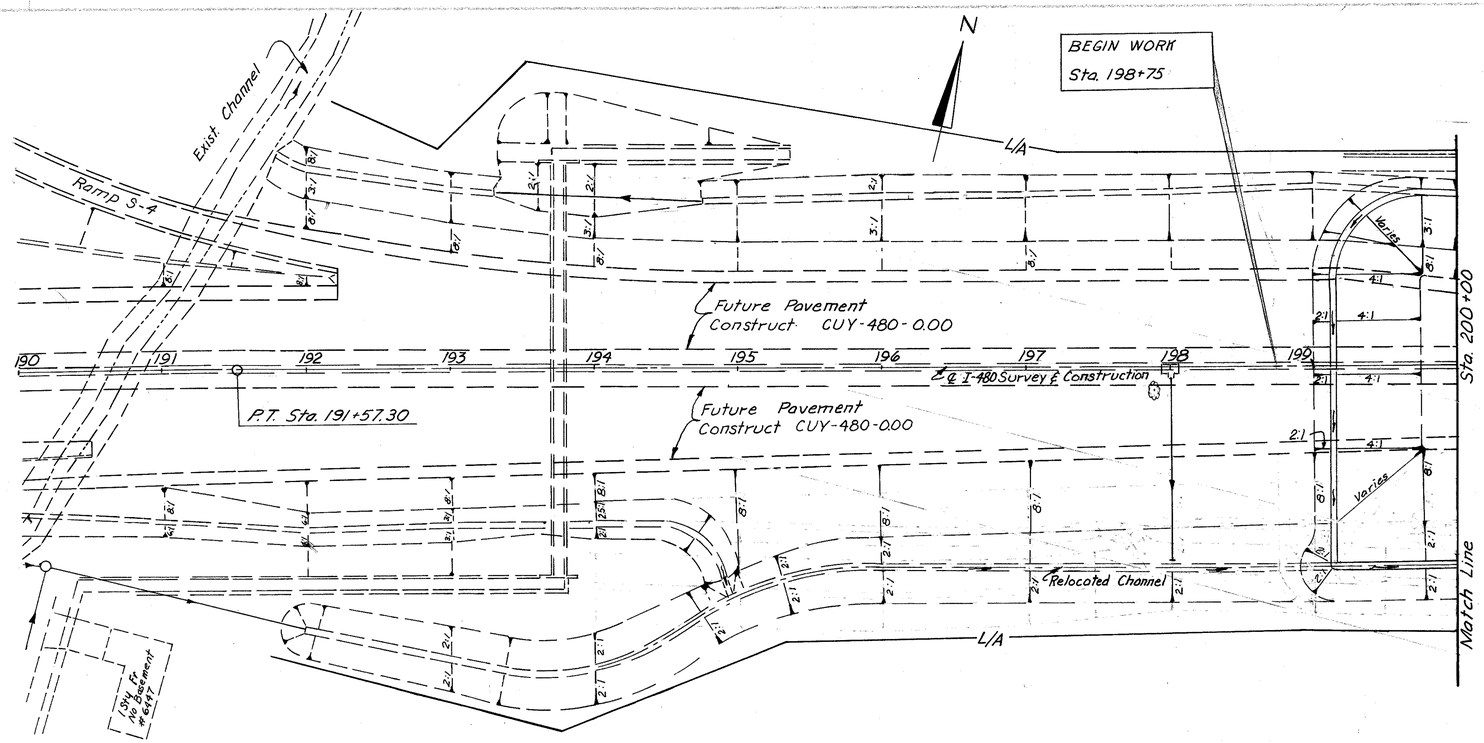
81-S

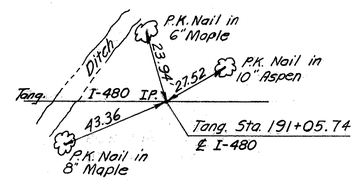
REG. NO. DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		

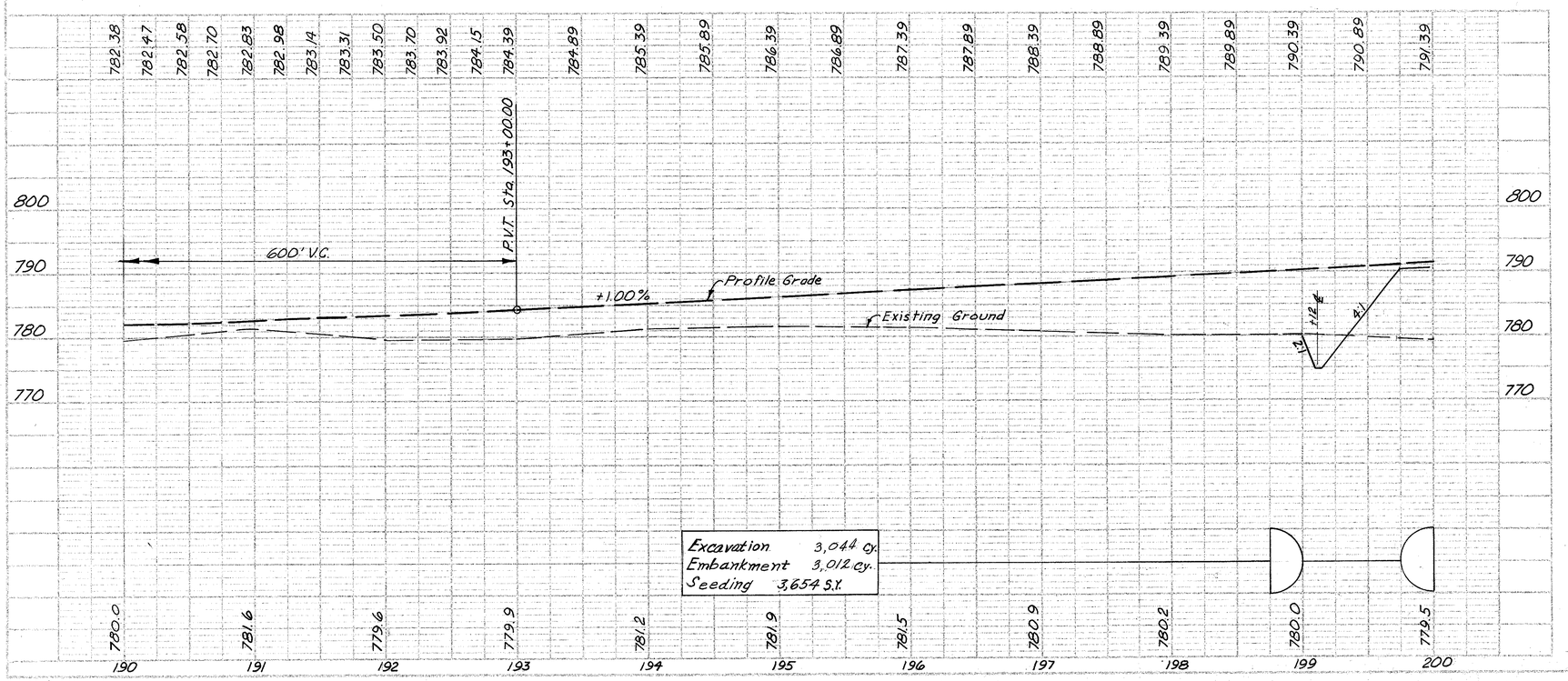
27
427

CUYAHOGA COUNTY
CUY-480-1.90

CROSS REFERENCE	
Sht. No.	Item
104	Cross Sections







Excavation	3,044 cy.
Embankment	3,012 cy.
Seeding	3,654 S.Y.

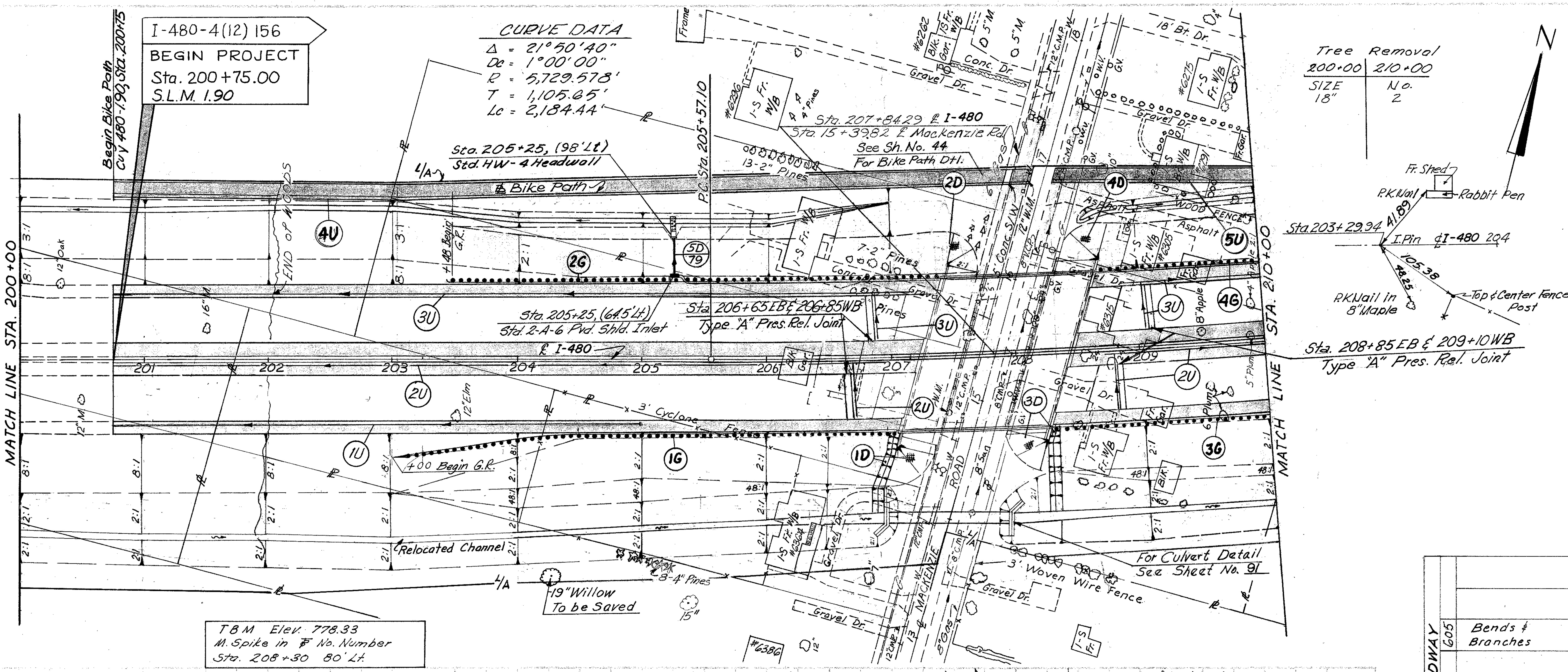
E.J.K. 6-8-70
H.J.H. 6-23-70

PLAN & PROFILE STA. 190 + 00 TO STA. 200 + 00

CUYAHOGA COUNTY
CUY. 480-1.90

I-480-4(12) 156
BEGIN PROJECT
Sta. 200+75.00
S.L.M. 1.90

CURVE DATA
Δ = 21°50'40"
Dc = 1°00'00"
R = 5,729.578'
T = 1,105.65'
Lc = 2,184.44'



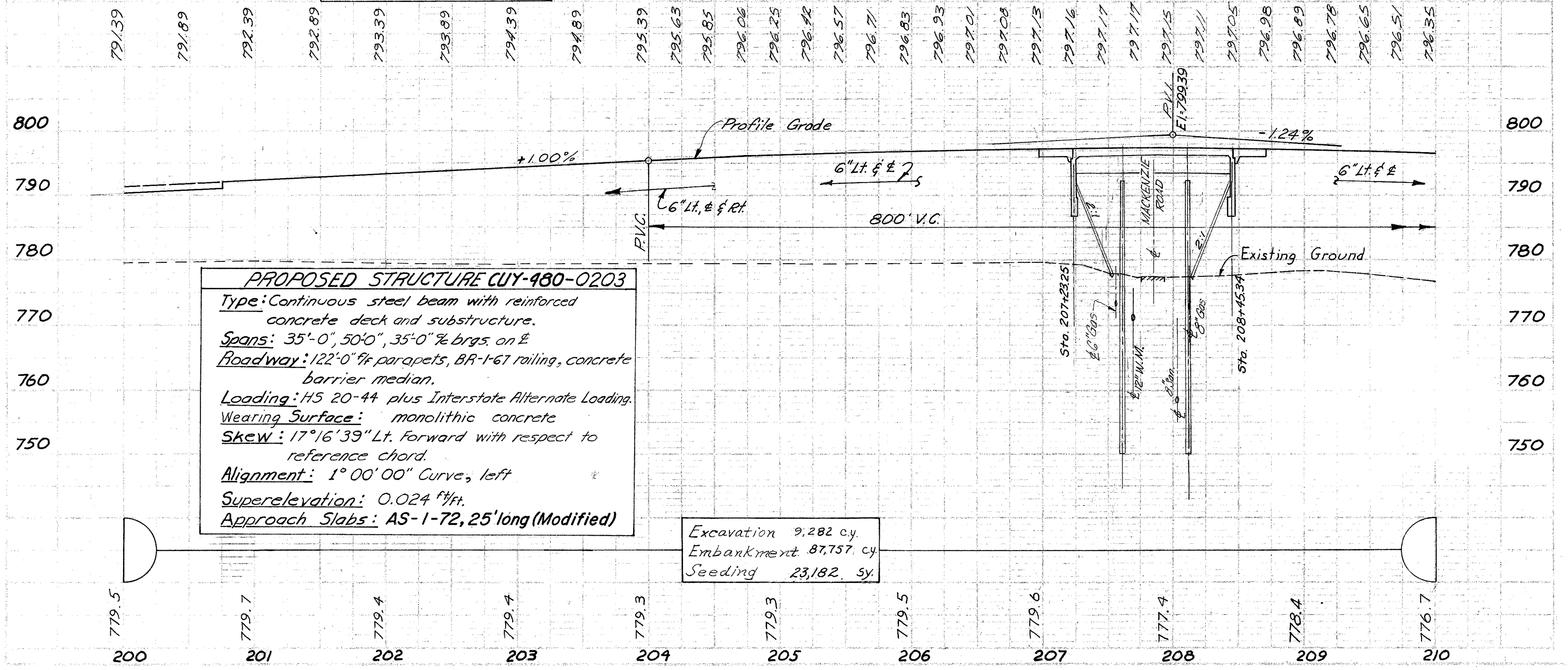
Tree Removal

200+00	210+00
SIZE	No.
18"	2

CROSS REFERENCE	
Sht. No.	Item
217	Reloc. Water Line
104-107	Cross Sections
328	Mackenzie Rd. Structure
44	Mackenzie Rd. Plan & Profile
91	Culvert Detail
26	Superelevation Table

Estimated Quantities

Ref. No.	Side	Location	DRAIN. 605 Aggregate Drains L.F.
4U	Lt.	201+00 to 206+00	122
5U	Lt.	208+65 to 210+00	60
Total			182



PROPOSED STRUCTURE CUY-480-0203

Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 35'-0", 50'-0", 35'-0" c/c brgs. on ℄
Roadway: 122'-0" f/f parapets, BR-1-67 railing, concrete barrier median.
Loading: HS 20-44 plus Interstate Alternate Loading.
Wearing Surface: monolithic concrete
Skew: 17°16'39" Lt. Forward with respect to reference chord.
Alignment: 1° 00' 00" Curve, left
Superelevation: 0.024 ft/ft.
Approach Slabs: AS-1-72, 25' long (Modified)

Excavation 9,282 c.y.
Embankment 87,757 c.y.
Seeding 23,182 sy.

Estimated Quantities

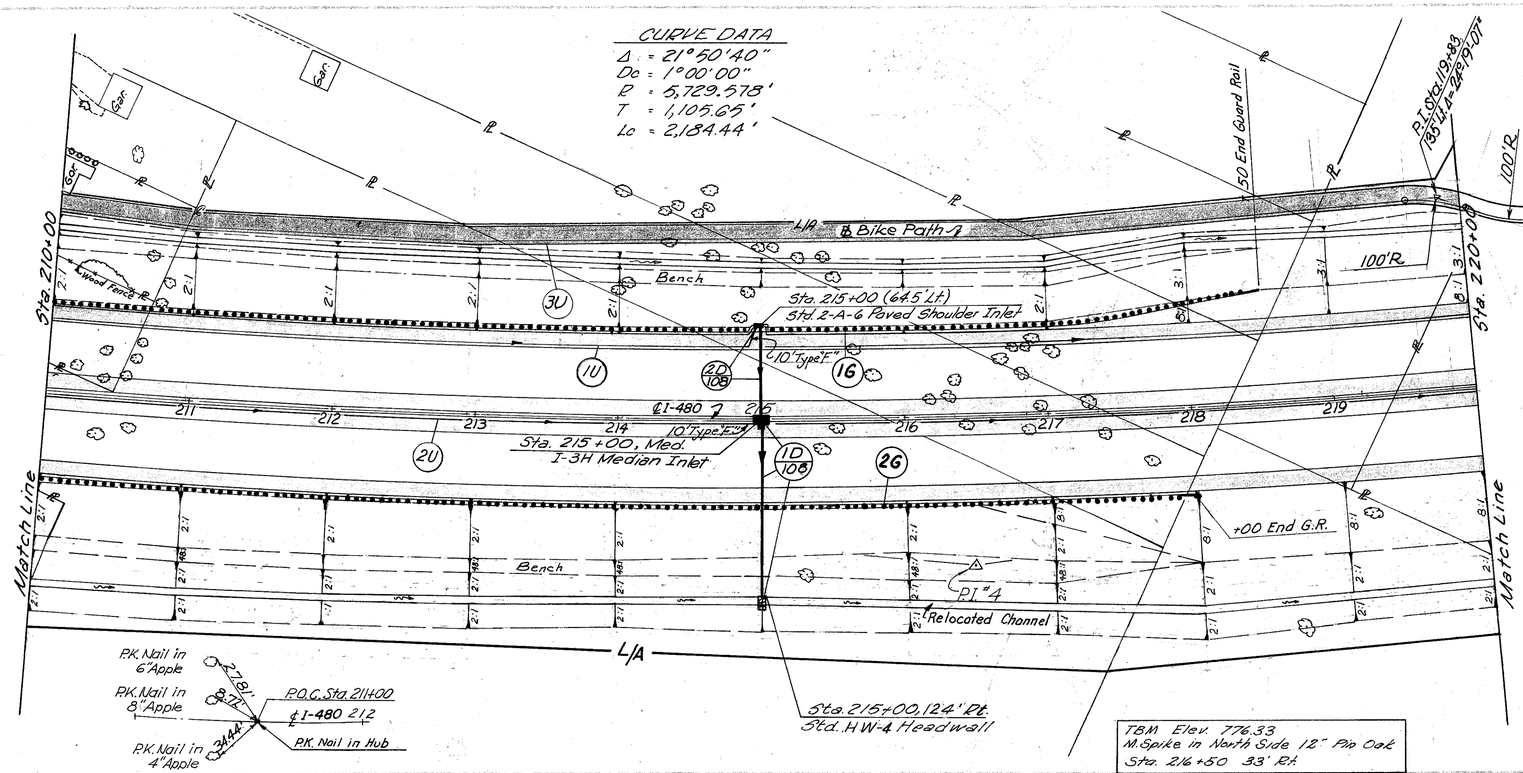
Ref. No.	Side	Location	ROADWAY 605 Bends & Branches Ea.	ROADWAY 606 Bridge Terminal Assembly, Type "A" Ea	ROADWAY 606 Guard Rail Type 5 L.F.	ROADWAY 606 Anchor Ass. Type T Ea.	ROADWAY 606 Anchor Ass. Type A Ea.	DRAINAGE 601 Rock Channel Protection Type "B" C.Y.	DRAINAGE 601 Rip Rap, Using 6" Reinf. Conc. Slab S.Y.	DRAINAGE 604 Std. 2-A-6 Paved Shoulder Inlet Ea.	DRAINAGE 605 Underdrain Shallow 6" L.F.	DRAINAGE 667 Seeding and Jute Matting S.Y.	DRAINAGE 660 Reinforced Sodding S.Y.	DRAINAGE 603 Type "F" 707.05 15" L.F.	DRAINAGE 602 Concrete Masonry C.Y.
1D *	Rt.	207+00										109	65		
2D	Lt.	207+40										104			
3D *	Rt.	208+25										134	61		
4D	Lt.	208+75										99			
5D	Lt.	205+25						3.6	2.2	1				36	0.27
1U	Rt.	200+75-205+00									425				
1G	Rt.	203+00 to Struct.		1	375		1								
2G	Lt.	203+48 to Struct.		1	375	1									
3G	Rt.	Struct. to 210+00		1	175										
4G	Lt.	Struct. to 210+00		1	137.5										
2U	Rt.	200+75-206+95 208+75-210+00	2								833				
3U	Lt.	200+75-207+10 208+30-210+00	2								824				
Total			☒	4	1062.5	1	1	3.6	2.2	1	2082	446	126	36	0.27

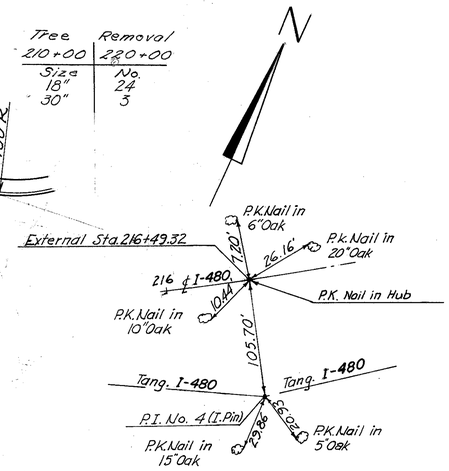
*Replace the top 12" of porous material behind the wingwalls with soil prior to installing the special sod.

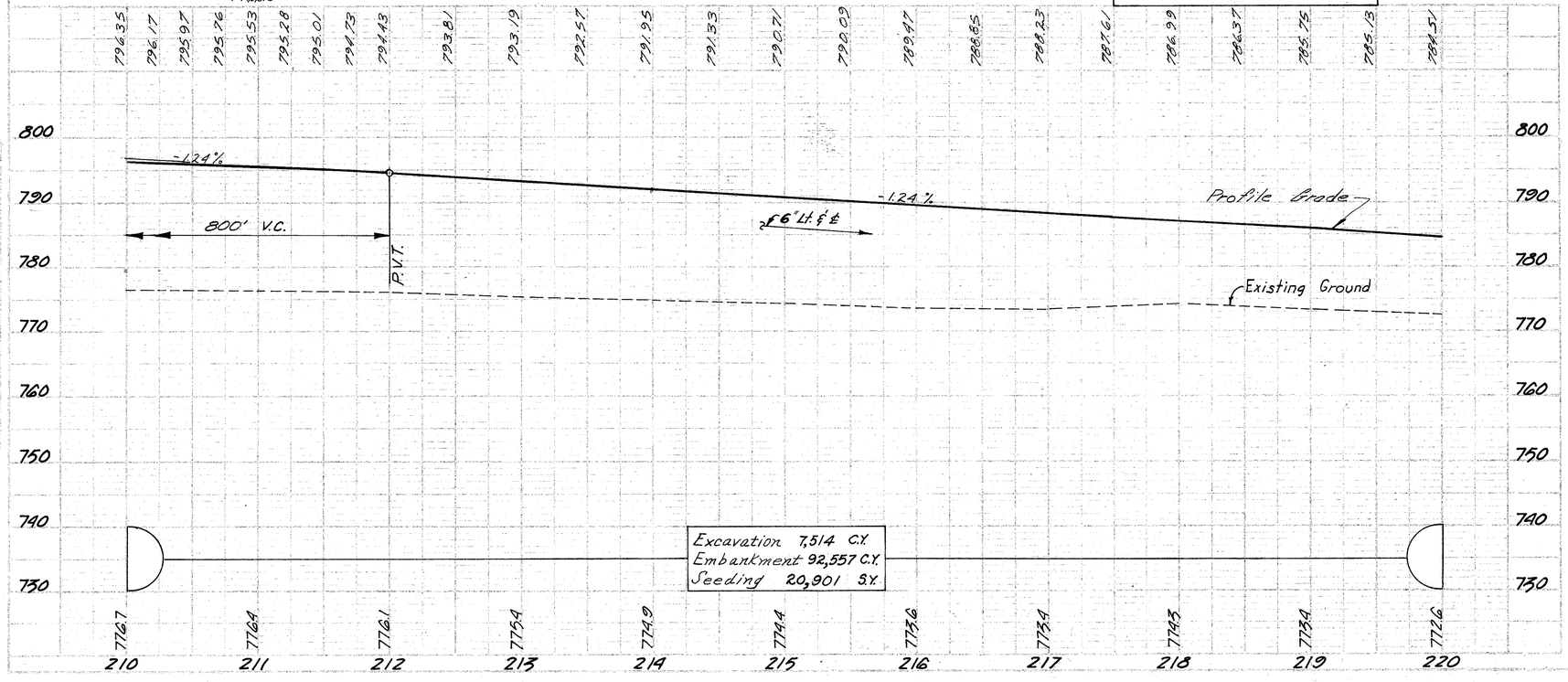
Note: For Curb Transition at Bridge Parapet See Sheet No. 21.

E.J.K. 6-9-70
H.J.H. 6-23-70

PLAN & PROFILE STA. 200+00 TO STA. 210+00







CUYAHOGA COUNTY
CUY-480-1.90

CURVE DATA
Δ = 21°50'40"
Dc = 1°00'00"
R = 5,729.578'
T = 1,105.65'
Lc = 2,184.44'

Excavation 7,514 C.Y.
Embankment 92,557 C.Y.
Seeding 20,901 S.Y.

Tree	Removal
210+00	220+00
Size	No.
18"	24
30"	3

CROSS REFERENCE	
Sht. No.	Item
107-109	Cross Sections
26	Superelevation Table

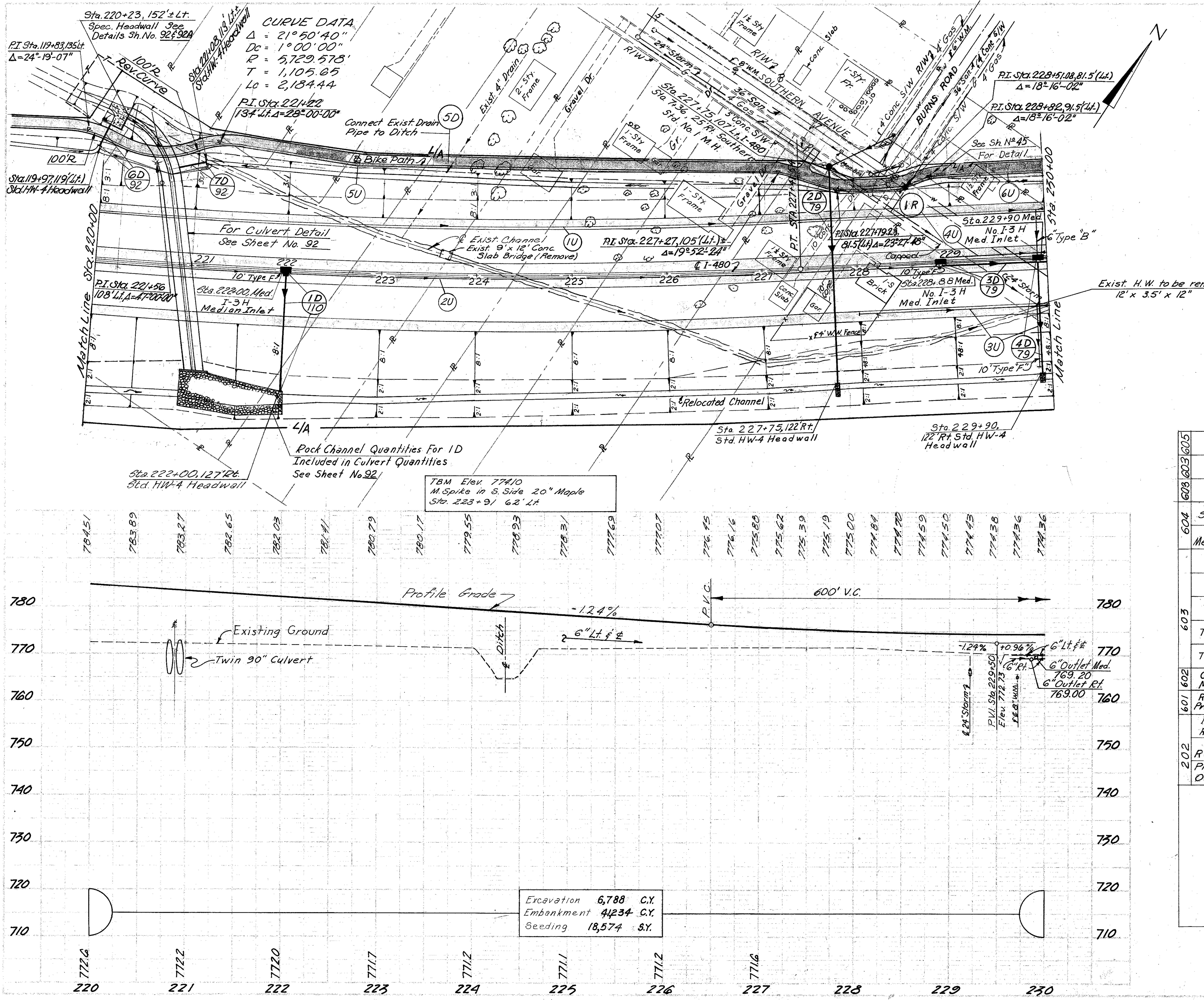
Estimated Quantities

Ref. No.	Side	Location	DRANAGE 601 Rock Channel Protection, Type "B" C.Y.	DRANAGE 605 Aggregate Drains L.F.	DRANAGE 602 Concrete Masonry C.Y.	DRANAGE 603 Type "F" 6" L.F.	DRANAGE 603 Type "B" 15" L.F.	DRANAGE 603 Type "F" 707.05 15" L.F.	DRANAGE I-3H Median Inlet Ea.	DRANAGE 604 Std. 2-A-6 Paved Shoulder Inlet Ea.	DRANAGE 605 Underdrain Shallow 6" L.F.	ROADWAY 606 Guard Rail Type 5 L.F.	ROADWAY Anchor Ass. Type T. Ea.	ROADWAY Anchor Ass. Type A. Ea.			
1D	Med.	215+00	2.6		.25		56	66	1								
2D	Lt.	215+00					65			1							
1U	Lt.	210+00 - 220+00				10					1000						
2U	Rt.	210+00 - 220+00				10					980						
3U	Lt.	210+50 to 220+00		177													
1G	Lt.	210+00 to 218+50										825		1			
2G	Rt.	210+00 to 218+00										787.5	1				
Total			2.6	177	.25	20	121	66	1	1	1,980	1,612.5	1	1			

E.J.K. 6-9-70
H.J.H. 6-23-70

Tree Removal 220+00 Size	230+00 No.
18"	9
30"	2
42"	1

CROSS REFERENCE	
Sht. No.	Item
45	Water Work
109-112	Cross Sections
92	Culvert Detail
45	Southern & Burns Plan & Profile
26	Superelevation Table



Excavation	6,788 C.Y.
Embankment	41,234 C.Y.
Seeding	18,574 S.Y.

Estimated Quantities			DRAIN. 605 Aggregate Drains
Ref. No.	Side	Location	L.F.
5U	Lt.	221+50 to 227+50	123
6U	Lt.	229+00 to 230+00	18
Total			141

Ref. No.	Side	Location	605 Underdrain Shallow 6"	603 Type "B" 6"	603 Type "C" 15" L.F.	604 Std. No. 1 M.H. Ea.	604 No. I-3 H Median Inlet Ea.	603 Type "F" 6" L.F.	603 Type "B" 24" L.F.	603 Type "B" 18" L.F.	603 Type "F" 707.05 15" L.F.	603 Type "B" 15" L.F.	602 Concrete Masonry C.Y.	601 Rock Channel Protection Type "B" C.Y.	202 Manhole Removed Ea.	202 Structure Removed Lump	202 Pipe Removed Over 24" L.F.
1D	Med.	222+00					1				20	102	0.25				
2D	Lt./Rt.	227+75				1			229				0.43	4.2			
3D	Med.	228+88 to 229+90					1					102					
4D	Med.	229+90					1			118			0.31	3.2			
5D	Lt.	223+68						10									
1R	Lt./Rt.	227+75 to 229+87													2	Lump	264
6D	Lt.	119+97 to 120+08										28	0.25				
7D	Lt.	220+82 to 221+08			28								0.25				
1U	Lt.	220+00 - 230+00	1000	50													
2U	Rt.	220+00 - 228+88	868					20									
3U	Rt.	228+00 - 230+00	252					10									
4U	Lt.	229+00 - 230+00	100														
Total			2220	50	28	1	3	40	229	118	20	232	1.49	7.4	2*	Lump	264

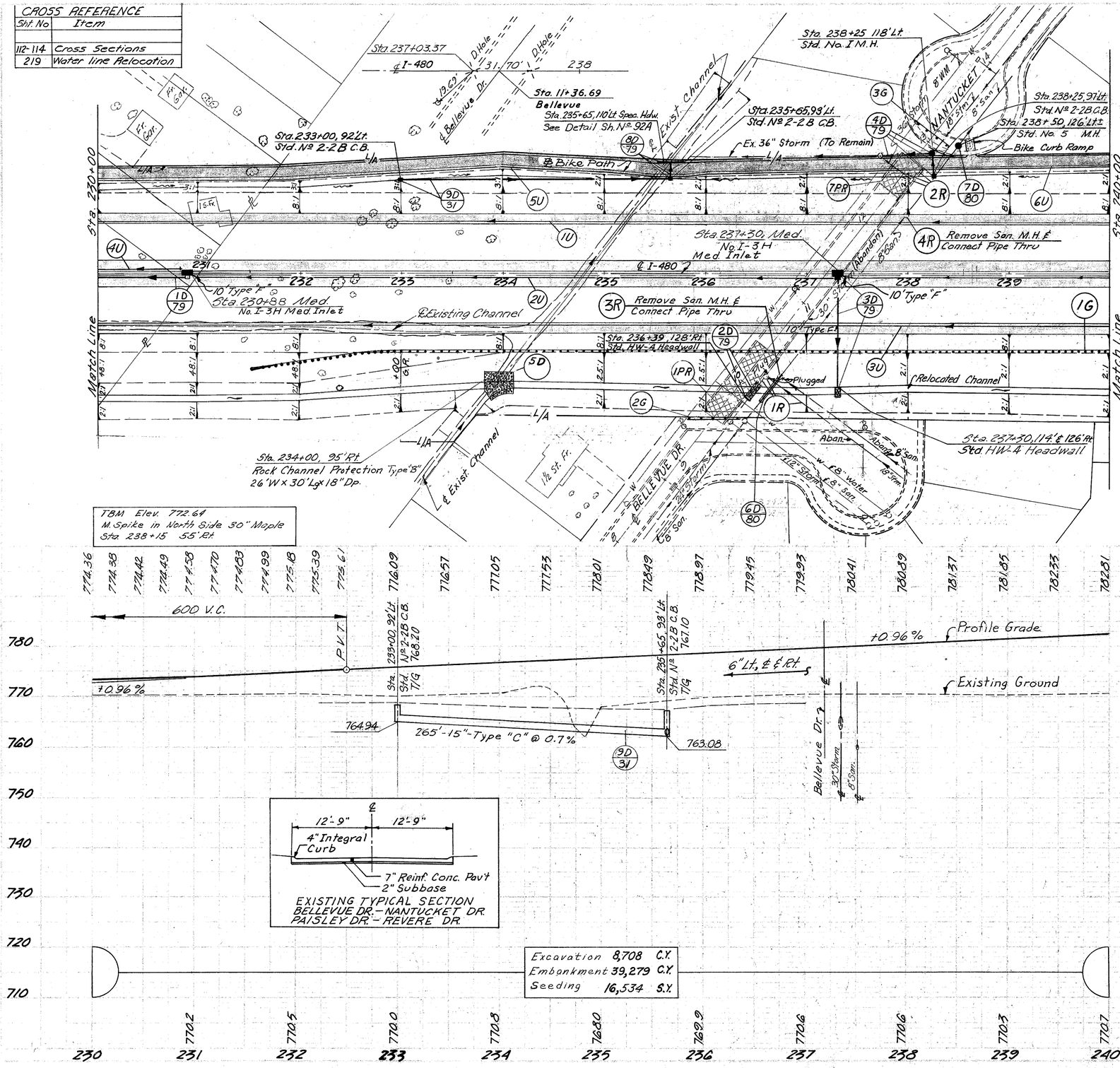
* 1 M.H. Sanitary

E.J.K. 6-16-70
H.J.H. 6-25-70

PLAN & PROFILE STA. 220+00 TO STA. 230+00

OHIO
CUYAHOGA COUNTY
480-1.90

CROSS REFERENCE	
Sht. No	Item
112-114	Cross Sections
219	Water line Relocation



Tree	Removal
230+00	240+00
Size	No.
18"	13
30"	3

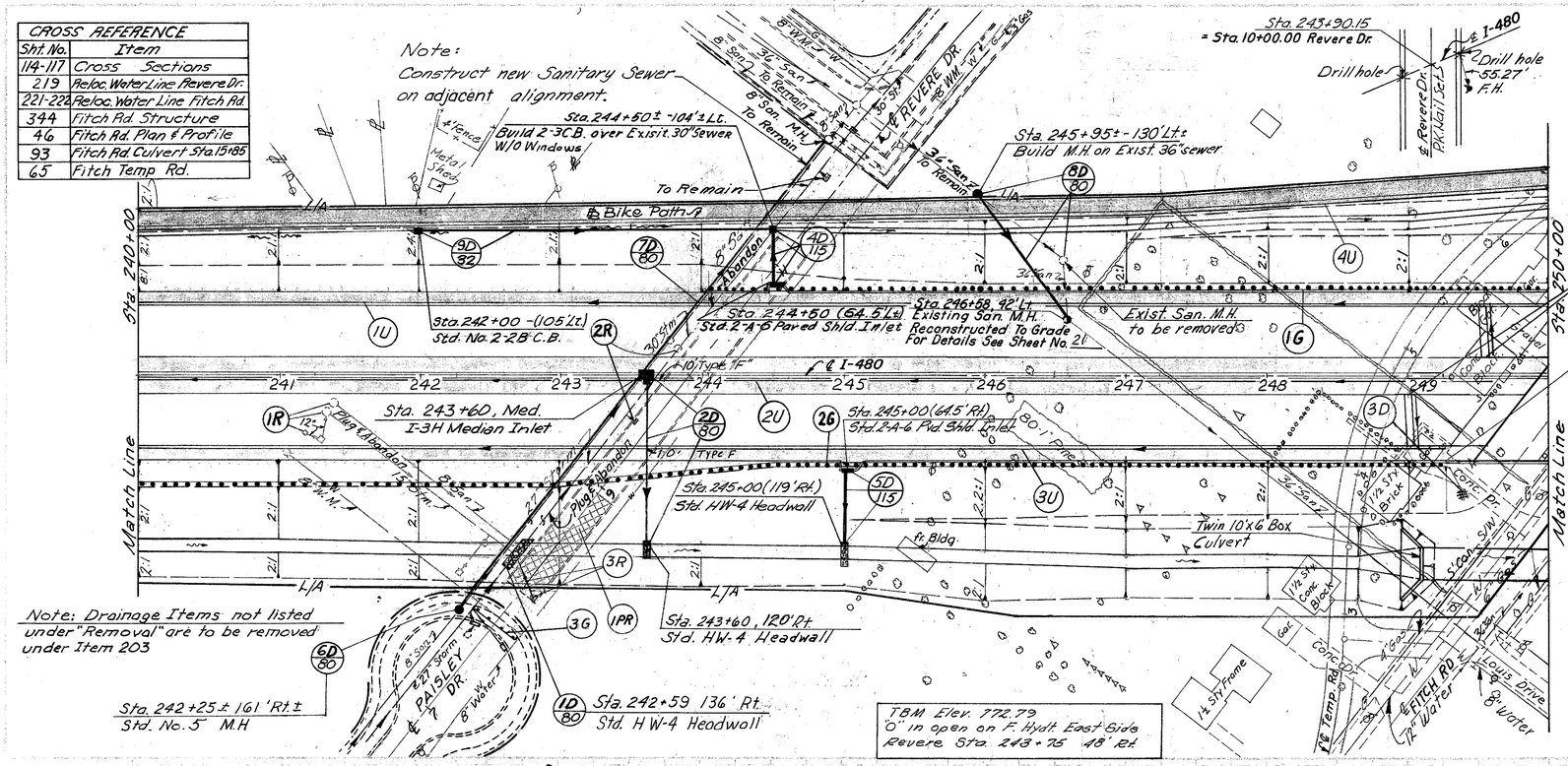
			DRAIN.		
Estimated Quantities			603	605	605
			Type "F"	Underdrain Shallow	Aggregate Drains
			6"	6"	
Ref. No.	Side	Location	L.F.	L.F.	L.F.
1U	Lt.	230+00-240+00		1000	
2U	Rt.	231+00-240+00	20	870	
3U	Rt.	230+00-240+00	10	990	
4U	Lt.	230+00-230+88		88	
5U	Lt.	230+50-235+50			62
6U	Lt.	238+50-240+00			20
Total			30	2948	82

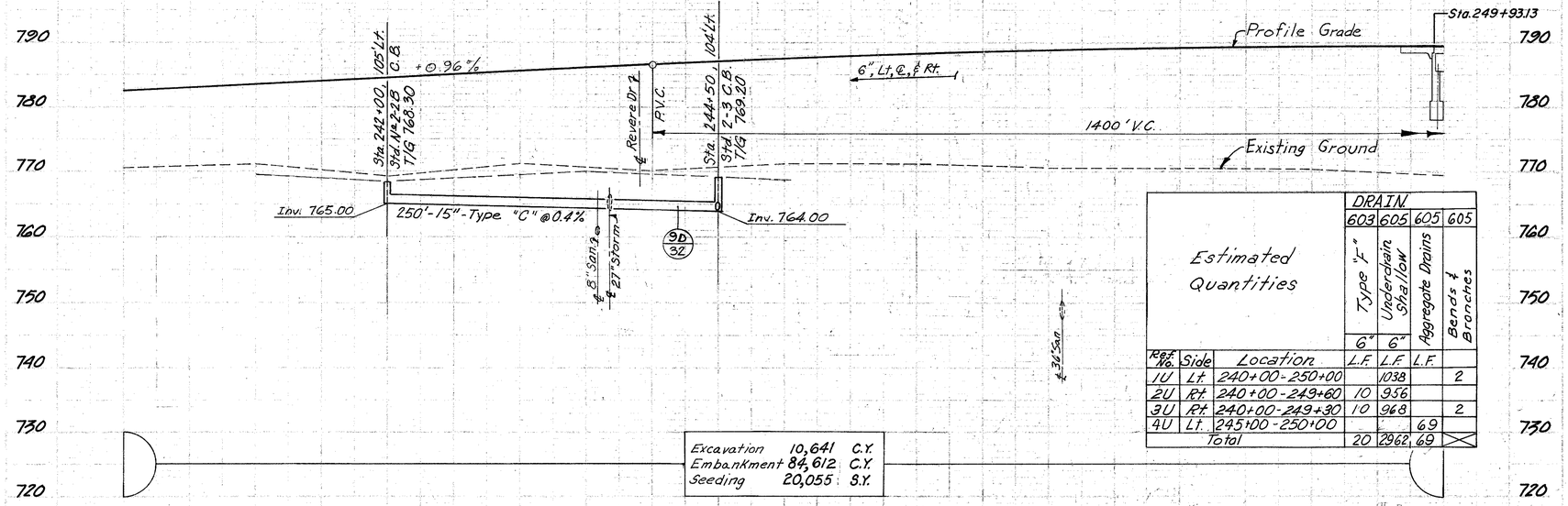
			DRAINAGE																ROADWAY		
Estimated Quantities			518	202				601	602	604	603					604			606		202
			Porous Backfill	Pipe Removed 24" and under	Pipe Removed Over 24"	M.H. Removed	C.B. Removed	Rock Channel Protection-Type "B"	Concrete Masonry	Std. No. 2-2B C.B.	Type "C"	Type "B"	Type "F" 707.05	Type "C"	Type "B" 706.08 E.S. Encased with 706.12 Joints	Std. No. 1 M.H.	Std. No. 5 M.H. with 706.11 joints	No. I-3H Median Inlet	Type A Anchor Assembly	Guard Rail Type 5	Pavement Removed
											15"	15"	15"	18"	8"						
Ref. No.	Side	Location	C.Y.	L.F.	L.F.	Ea.	Ea.	C.Y.	C.Y.	Ea.	L.F.	L.F.	L.F.	L.F.	L.F.	Ea.	Ea.	Ea.	Ea.	L.F.	S.Y.
1R	Rt.	236+39 to 237+00		160		1															
2R	Lt.	237+75 to 238+25		30	39		1														
8D	Lt.	235+65	11						24	1		17									
1D	Med.	230+88										98						1			
2D	Rt.	236+39						8.4	.43												
3D	Rt.	237+30						4.1	.25			68	46					1			
9D	Lt.	233+00 to 235+65								1	265										
4D	Lt.	237+74 to 238+25								1		211		52		1					
5D	Rt.	234+00						60.0													
1G	Rt.	231+50 to 240+00																	1	825	
2G	Lt/Rt	9+50± Bellevue																		50	
3G	Lt/Rt	13+10± Bellevue																		37	
1PR	Lt/Rt	9+55± to 10+40 Bellevue																			250
2PR	Lt/Rt	12+40 to 12+75 Bellevue																			110
											Sanitary										
3R	Rt.	236+75 to 237+44		80		1															
4R	Lt.	237+99				1															
6D	Rt.	236+66													35						
7D	Lt.	238+50															1				
Total			11	270	39	3	1	72.5	24.68	3	265	204	46	52	35	1	1	2	1	912	360

▨ Pavement Removed

[redacted] E.J.K. [redacted] 6-16-70
[redacted] H.J.H. [redacted] 6-23-70

PLAN & PROFILE STA. 230+00 TO STA. 240+00





CROSS REFERENCE	
Sht. No.	Item
114-117	Cross Sections
219	Reloc. Water Line Revere Dr.
221-222	Reloc. Water Line Fitch Rd.
344	Fitch Rd. Structure
46	Fitch Rd. Plan & Profile
93	Fitch Rd. Culvert Sta. 15+85
65	Fitch Temp Rd.

Note:
Construct new Sanitary Sewer on adjacent alignment.

Note: Drainage Items not listed under "Removal" are to be removed under Item 203

Tree Removal	
240+00	250+00
Size	No.
18"	4
30"	2

Excavation 10,641 C.Y.
Embankment 84,612 C.Y.
Seeding 20,055 S.Y.

Estimated Quantities			DRAIN.			
			603	605	605	605
			Type "F" 6"	Underdrain Shallow 6"	Aggregate Drains	Bends & Branches
Ref. No.	Side	Location	L.F.	L.F.	L.F.	
1U	Lt.	240+00-250+00		1038		2
2U	Rt.	240+00-249+60	10	956		
3U	Rt.	240+00-249+30	10	968		2
4U	Lt.	245+00-250+00			69	
Total			20	2962	69	☒

		Item	Size	Unit	1R	2R	3R	1G	2G	3G	9D	1D	2D	3D	4D	5D	1PR	6D	7D	8D	Total
DRAINAGE	604	Std. No. 2-3 C.B. W/O Windows		Ea.											1						1
		Std. No. 2-2B C.B.		Ea.							1										1
ROADWAY	202	Pav't Removed		S.Y.													254				254
	606	Type T Anchor Assembly		Ea.				1													1
		Bridge Terminal Assembly, Type "A"		Ea.					1												1
		Guard Rail Type 5		L.F.				584	912.5	37											1533.5
DRAINAGE	667	Seeding and Jute Matting		S.Y.										140							140
	603	Type "C"	15"	L.F.							250										250
	604	I-3H Median Inlet		Ea.									1								1
		Std. No. 5 M.H. with 706.11 Joints		Ea.														1		1	2
		Manhole Reconst. to Grade as per Plan		Ea.																1	1
	603	Type "B" 706.02 D-2750 -706.11 Joint	36"	L.F.																110	110
		Type "F" 707.05	15"	L.F.									59		44	59					162
		Type "B"	15"	L.F.									67								67
		Type "B" 706.02 D-3000 with 706.11 Joints	8"	L.F.															425		425
	604	Std. 2-A-6 Paved Shoulder Inlet		Ea.											1	1					2
	602	Concrete Masonry		C.Y.								.49	.26			.27					1.29
	601	Rock Channel Protection Type "B"		C.Y.								8.5	2.9			4.4					191
	202	Catch Basin Removed		Ea	2	1	1														4
		Manholes Removed		Ea.	2	1														1	4
		Pipe Removed over 24"		L.F.																120	120
		Pipe Removed 24" and Under		L.F.	23		34														57
Estimated Quantities		Side			Rt.	R/L	R/L	Lt.	Rt.	Lt./Rt.	Lt.	Rt.	Rt.	Rt.	Lt.	Rt.	Lt./Rt.	Rt.	R/L	Lt.	
		Location			241+15 to 241+52	243+48 to 243+82	8+12 to 8+26 Paisley Dr.	244+03.5 to 250+00	240+00 to 249+25.0	7+75± Paisley Dr.	242+00 to 244+50	242+60 to 242+72	243+60	249+20	244+50	245+00	8+07± to 8+95 Revere Dr.	242+25	242+25 to 244+89	245+95± to 246+58	Total
																		SANITARY			

▨ Pavement Removed
For Typical Section See Sheet No. 31

E.J.K. 6-16-70
H.J.H. 6-25-70

2 OHIO

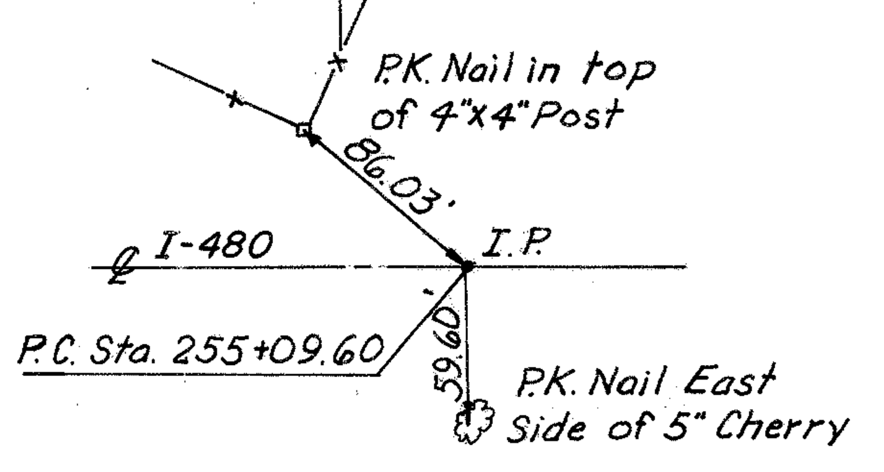
CUYAHOGA COUNTY

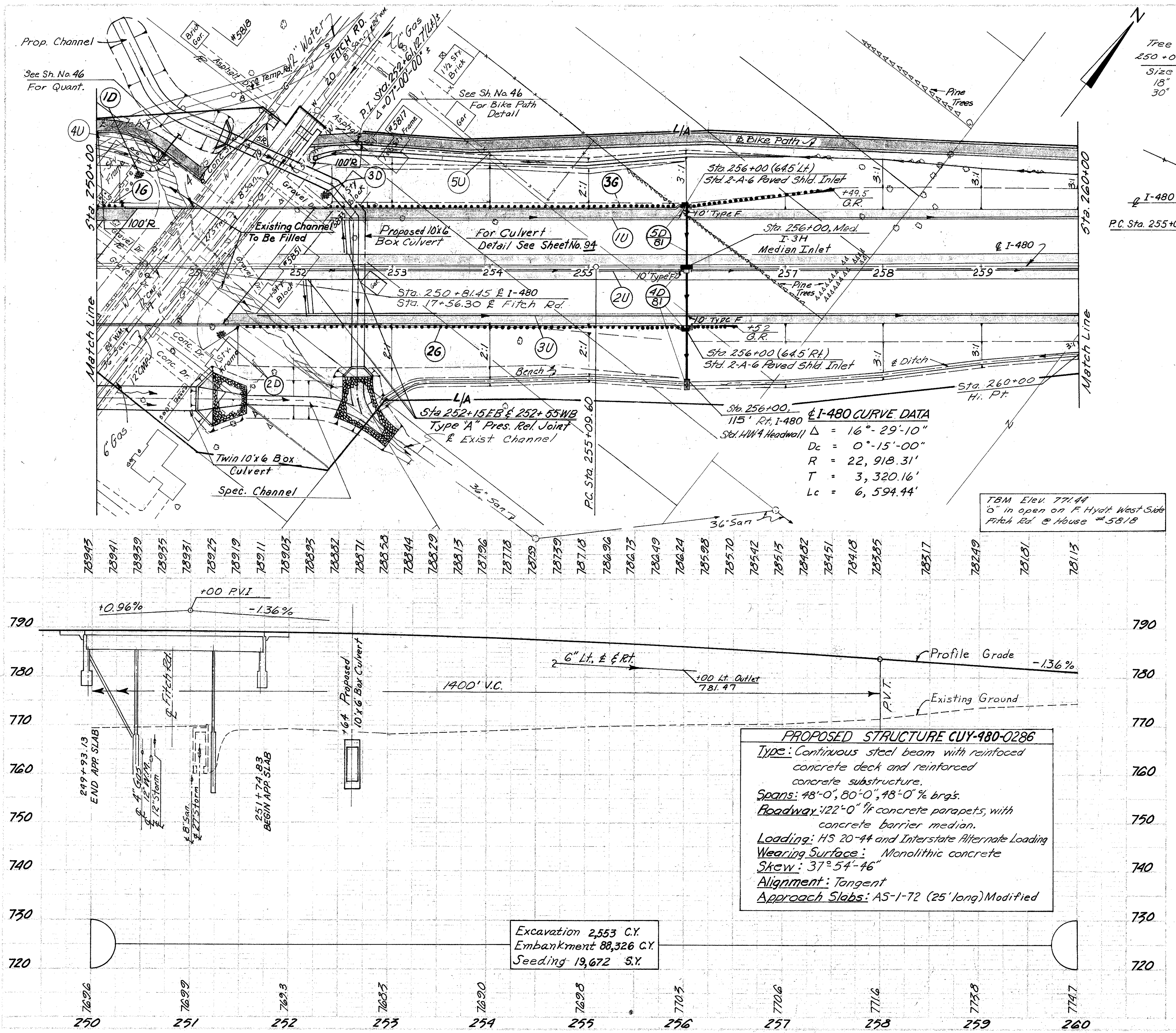
CUY-480-1.90

CROSS REFERENCE	
Sht. No.	Item
117-119	Cross Sections
46	Fitch Rd. Plan & Profile
93	Fitch Rd. Culvert Sta. 15+85
94	Fitch Rd. Culvert Sta. 19+10
221-222	Reloc. water line
65	Fitch Temp. Rd.

Tree Removal

250+00	260+00
Size	No.
18"	6
30"	4





℄ I-480 CURVE DATA
Δ = 16°-29'-10"
Dc = 0°-15'-00"
R = 22,918.31'
T = 3,320.16'
Lc = 6,594.44'

TBM Elev. 771.44
"O" in open on F. Hydt. West Side Fitch Rd. @ House #5818

PROPOSED STRUCTURE CUY-480-0286

Type: Continuous steel beam with reinforced concrete deck and reinforced concrete substructure.
Spans: 48'-0", 80'-0", 48'-0" ℄ brg's.
Roadway: 122'-0" f/f concrete parapets, with concrete barrier median.
Loading: HS 20-44 and Interstate Alternate Loading
Wearing Surface: Monolithic concrete
Skew: 37°54'-46"
Alignment: Tangent
Approach Slabs: AS-1-72 (25' long) Modified

Excavation 2,553 C.Y.
Embankment 88,326 C.Y.
Seeding 19,672 S.Y.

Estimated Quantities

Ref. No.	Side	Location	ROADWAY 606 Bridge Terminal Assembly, Type "A" Ea.	606 Anchor Ass. Type A Ea.	606 Anchor Ass. Type T Ea.	606 Guard Rail Type 5 L.F.	DRAINAGE 604 Std. 2-A-6 Paved Shoulder Inlet Ea.	604 No. I-3H Median Inlet Ea.	667 Seeding and Jute Matting S.Y.	605 Underdrain Shallow 6" L.F.	Type "F" 6" L.F.	603 Type "F" 707.05 15" L.F.	603 Type "B" 15" L.F.	602 Concrete Masonry C.Y.	601 Rock Channel Protection Type "B" C.Y.	605 Aggregate Drain L.F.
1D	Lt.	250+25							164							
2D	Rt.	251+50							234							
3D	Lt.	252+50							125							
4D	Med	256+00					1	1				52	62	.26	2.7	
5D	Lt.	256+00					1						64			
1G	Lt.	250+00 to 250+28.5	1			28.5										
2G	Rt.	251+39.5 to 256+52	1		1	500										
3G	Lt.	252+37.0 to 257+49.5	1	1		487.5										
1U	Lt.	252+35 to 260+00								800	10					
2U	Rt.	252+00 to 260+00								780	10					
3U	Rt.	251+65 to 260+00								865	10					
4U	Lt.	250+50														18
5U	Lt.	252+20 to 256+00														66
	Total		3	1	1	1016	2	1	523	2445	30	52	126	.26	2.7	84

Note: For Curb Transition at Bridge Parapet See Sheet No. 21.

E.J.K. 6-22-70
H.J.H. 6-26-70

250+00 260+00

Fed. Rd. Div.	State	Project	Total Sheets
2	OHIO		

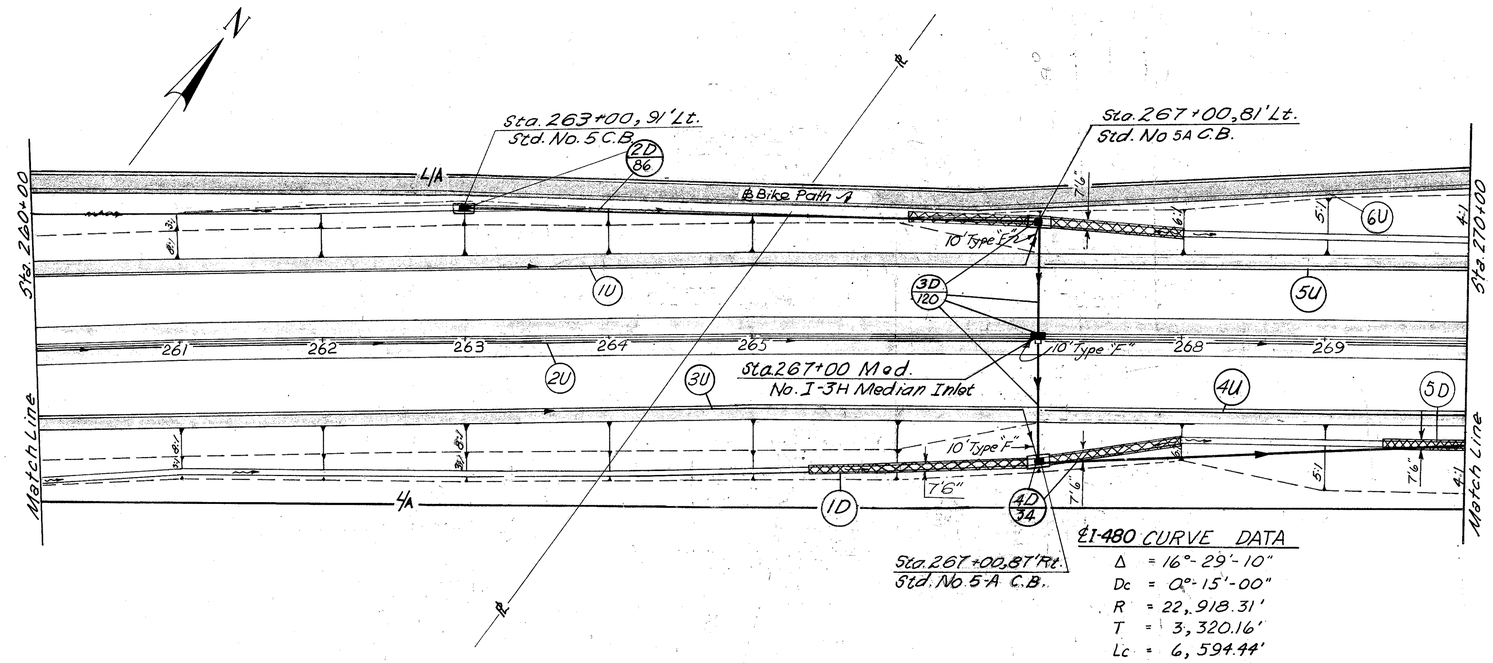
34
427

CUYAHOGA COUNTY
CUY-480-1.90

Tree	Removal
260+00	270+00
Size	No.
	None

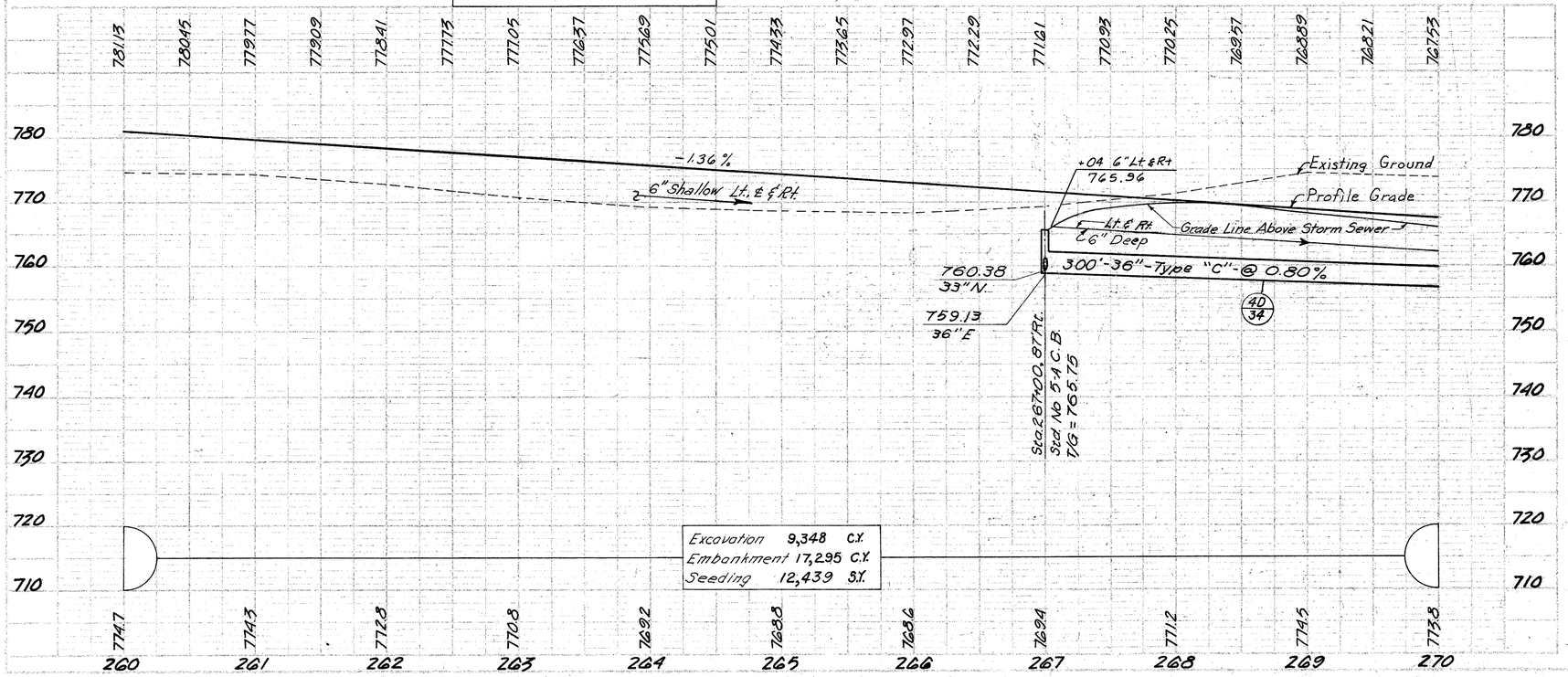
CROSS REFERENCE

Sht. No.	Item
119-120	Cross Sections



℄ I-480 CURVE DATA
Δ = 16°-29'-10"
Dc = 0°-15'-00"
R = 22,918.31'
T = 3,320.16'
Lc = 6,594.44'

TBM Elev. 770.68
M. Spike in 8" Walnut
Sta. 267+15 20' Lt.



Excavation 9,348 C.Y.
Embankment 17,295 C.Y.
Seeding 12,439 S.Y.

Estimated Quantities

Ref. No.	Side	Location	667 Seeding and Jute Matting S.Y.	605 Bends & Branches Ea.	605 Deep 6" L.F.	605 Shallow 6" L.F.	604 Std. No. 5-A C.B. Ea.	604 Std. No. 5 C.B. Ea.	604 I-3H Median Inlet Ea.	603 Type "F" 6" L.F.	603 Type "C" 36" L.F.	603 Type "B" 33" L.F.	603 Type "C" 15" L.F.	605 Aggregate Drains L.F.
1D	Rt.	265+40 to 268+00	216											
2D	Lt.	263+00 to 267+00	326					1					400	
3D	Lt./Rt.	267+00	140				1		1			168		
4D	Rt.	267+00 to 270+00					1				300			
5D	Rt.	269+43 to 270+00	48											
1U	Lt.	260+00 to 267+00				715				10				
2U	Rt.	260+00 to 270+00				980				10				
3U	Rt.	260+00 to 267+00				715				10				
4U	Rt.	267+04 to 270+00			296									
5U	Lt.	267+04 to 270+00			296									
6U	Lt.	267+00 to 270+00												64
Total			730		592	2410	2	1	1	30	300	168	400	64

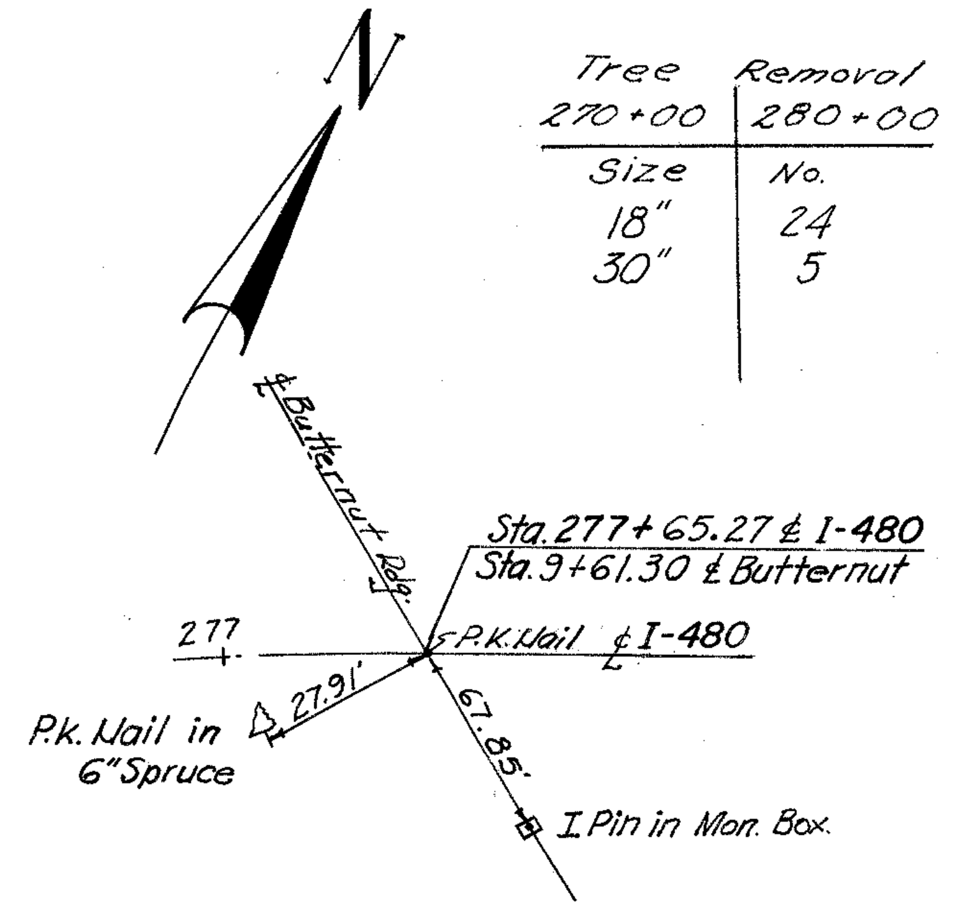
E.J.K. 6-22-70
T.R.B. 7-8-70

PLAN & PROFILE STA. 260+00 TO STA. 270+00

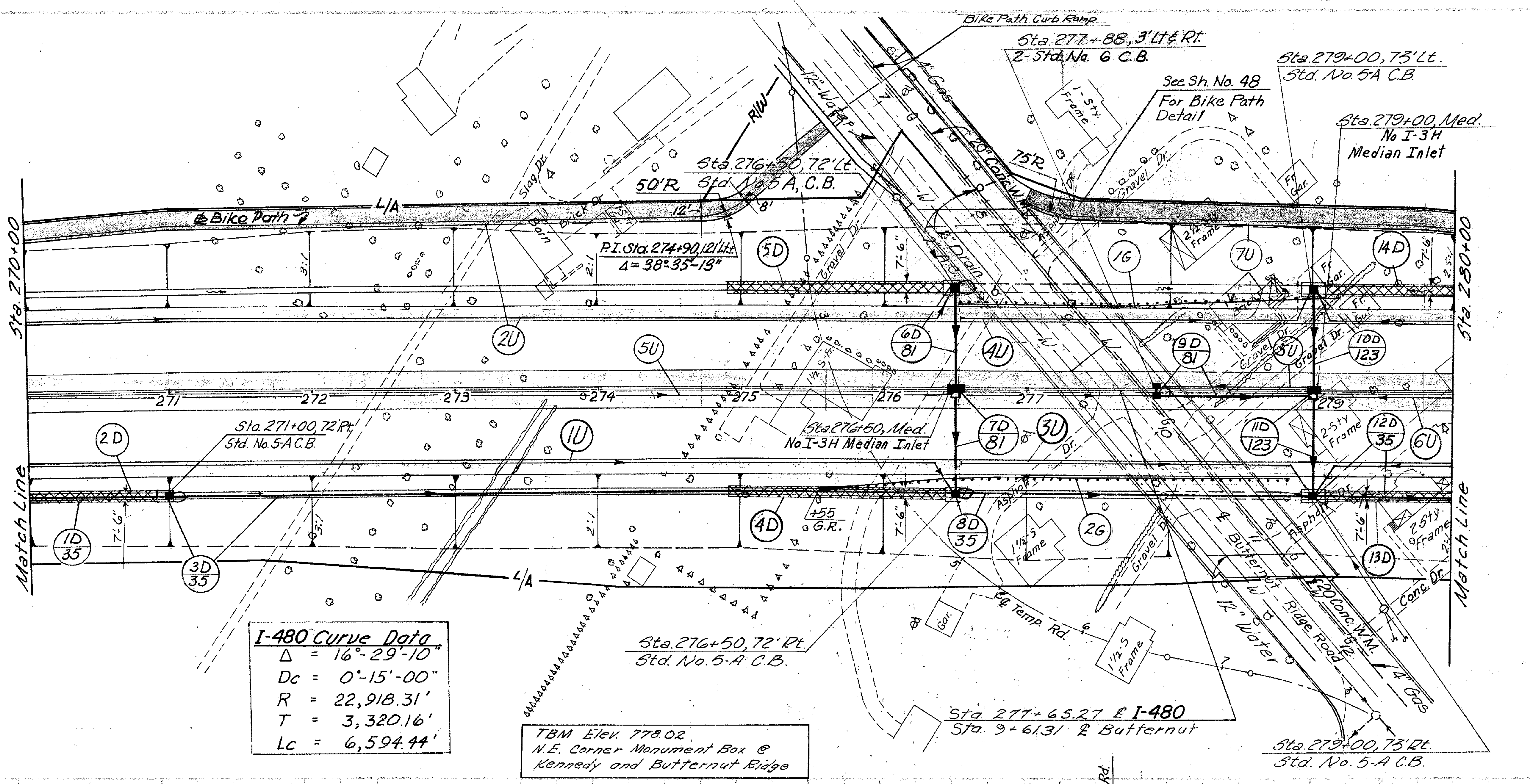
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

Tree Removal 270+00	280+00
Size	No.
18"	24
30"	5

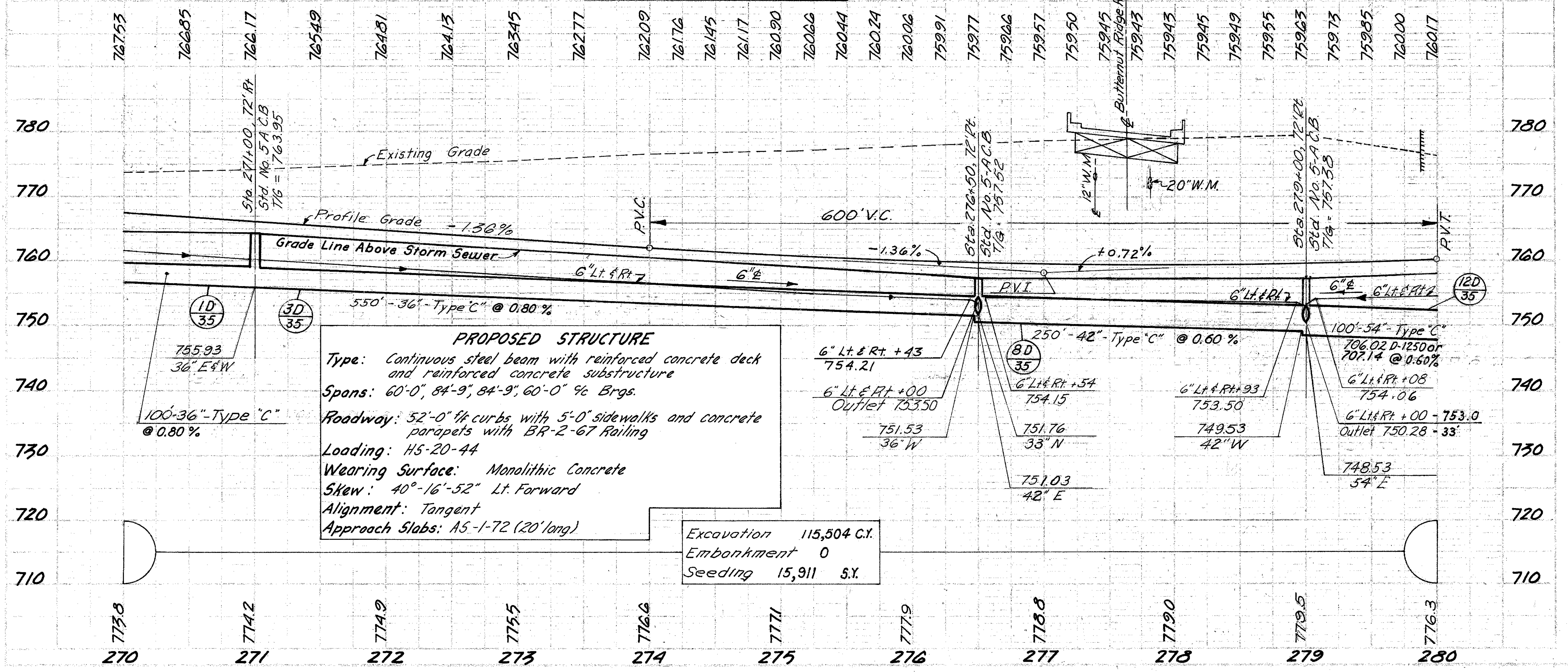


CROSS REFERENCE	
Sht. No.	Item
121-124	Cross Sections
	Butternut Ridge
47-50	Plan & Profile
68	Pav't. Details
223-224	Reloc. Water Line
361	Structure
66	Temporary Rd.



I-480 Curve Data
Δ = 16°-29'-10"
Dc = 0°-15'-00"
R = 22,918.31'
T = 3,320.16'
Lc = 6,594.44'

TBM Elev. 778.02
N.E. Corner Monument Box @
Kennedy and Butternut Ridge



PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck and reinforced concrete substructure

Spans: 60'-0", 84'-9", 84'-9", 60'-0" c/c Brgs.

Roadway: 52'-0" f/f curbs with 5'-0" sidewalks and concrete parapets with BR-2-67 Railing

Loading: HS-20-44

Wearing Surface: Monolithic Concrete

Skew: 40°-16'-52" Lt. Forward

Alignment: Tangent

Approach Slabs: AS-1-72 (20' long)

Excavation	115,504	C.Y.
Embankment	0	
Seeding	15,911	S.Y.

Estimated Quantities

			Ref. No.	1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	13D	14D	1U	2U	3U	4U	5U	6U	7U	1G	2G	
			Side	Rt.	Rt.	Rt.	Rt.	Lt.	Lt./Med.	Med./Rt.	Rt.	Med.	Lt./Med.	Med./Rt.	Rt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt./Lt.	Rt.	Lt.	Lt.	Rt.	
			Location	270+00 to 271+00	270+00 to 270+93	271+00 to 276+50	274+93 to 276+43	274+93 to 276+43	276+50	276+50	276+50 to 279+00	277+88 to 279+00	279+00	279+00	279+00 to 280+00	279+07 to 280+00	279+07 to 280+00	270+00 to 276+50	270+00 to 276+50	276+54 to 280+00	276+54 to 280+00	270+00 to 279+00	279+00 to 280+00	277+50 to 280+00	276+53 to 279+15.5	275+55 to 278+80	Total
606	Anchor Ass. Type T.		Ea.																						1	1	2
606	Anchor Ass. Type A		Ea.																						1	1	2
606	Guard Rail Type 5 Standard		L.F.																						225	287.5	512.5
605	Shallow	6"																				850	90				940
667	Seeding and Jute Matting		S.Y.		77		125	125								77	78										482
605	Bends & Branches		Ea.															1	1	2	2						
605	Deep	6"	L.F.															653	653	337	337						1980
604	Std No. 6 C.B.		Ea.									2															2
604	No. I-3H Median Inlet		Ea.							1				1													2
604	Std. No. 5-A C.B.		Ea.			1			1		1		1		1												5
603	Type "C" 706.02 D-1250 or 707.14	54"	L.F.												100												100
603	Type "C"	42"	L.F.								250																250
603	Type "C"	36"	L.F.	100		550																					650
603	Type "B"	33"	L.F.						72	69			73	71													285
603	Type "B"	15"	L.F.									117															117
603	Type "F"	6"	L.F.															10	10	20	20	30	10				100
605	Aggregate Drains		L.F.																111					24			135

CALC. BY E.J.K. DATE 6-22-70
CHKD. BY T.R.B. DATE 7-8-70

PLAN & PROFILE STA. 270+00 TO STA. 280+00

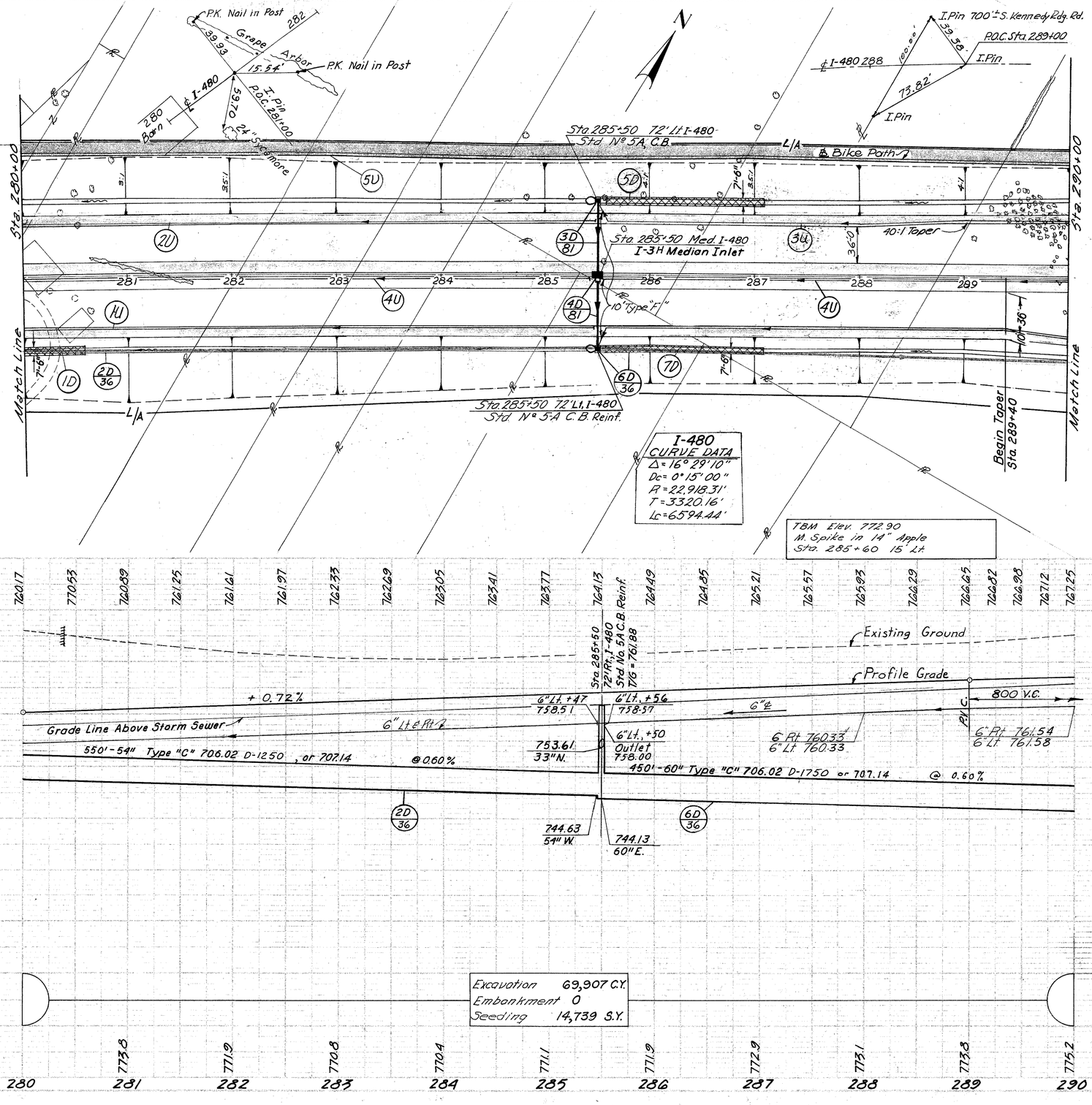
OHIO

CUYAHOGA COUNTY

CUY-480-1.90

Tree Removal	
280+00	290+00
Size 18"	No. 5

CROSS REFERENCE	
Sht. No.	Item
124-125	Cross Sections



			603	603	603	603	604	604	604	605	605	605	605	667
			Type "F"	Type "B"	Type "C" 706.02 D-1250 or 707.14	TYPE "C" - 706.02 D-1750 or 707.14	Std. No. 5-A C.B. Reinforced	Std. No 5-A C.B.	No. I-3H Median Inlet	Shallow	Deep	Bends & Branches	Aggregate Drains	Seeding and Jute Matting
			6"	33"	54"	60"				6"	6"			
Estimated Quantities			L.F.	L.F.	L.F.	L.F.	Ea	Ea.	Ea.	L.F.	L.F.	Ea.	L.F.	S.Y.
Ref. No.	Side	Location												
1D	Rt.	280+00 to 280+57												48
2D	Rt.	280+00 to 285+50			550									
3D	Lt./Med.	285+50		72				1						
4D	Med./Rt.	285+50		69					1					
5D	Rt.	285+57 to 287+07												125
6D	Rt.	285+50 to 290+00				450	1							
7D	Rt.	285+57 to 287+07												125
5U	Lt.	280+50 to 290+00											172	
4U	Rt.	280+00 to 290+00	10							980				
1U	Rt.	280+00 to 290+00	10								990			
2U	Lt.	280+00 to 285+47									547			
3U	Lt.	285+50 to 290+00	10								449	1		
		Total	30	141	550	450	1	1	1	980	1,986	X	172	298

CALC. BY E.J.K. 6-22-70
CHKD. BY T.R.B. 7-8-70

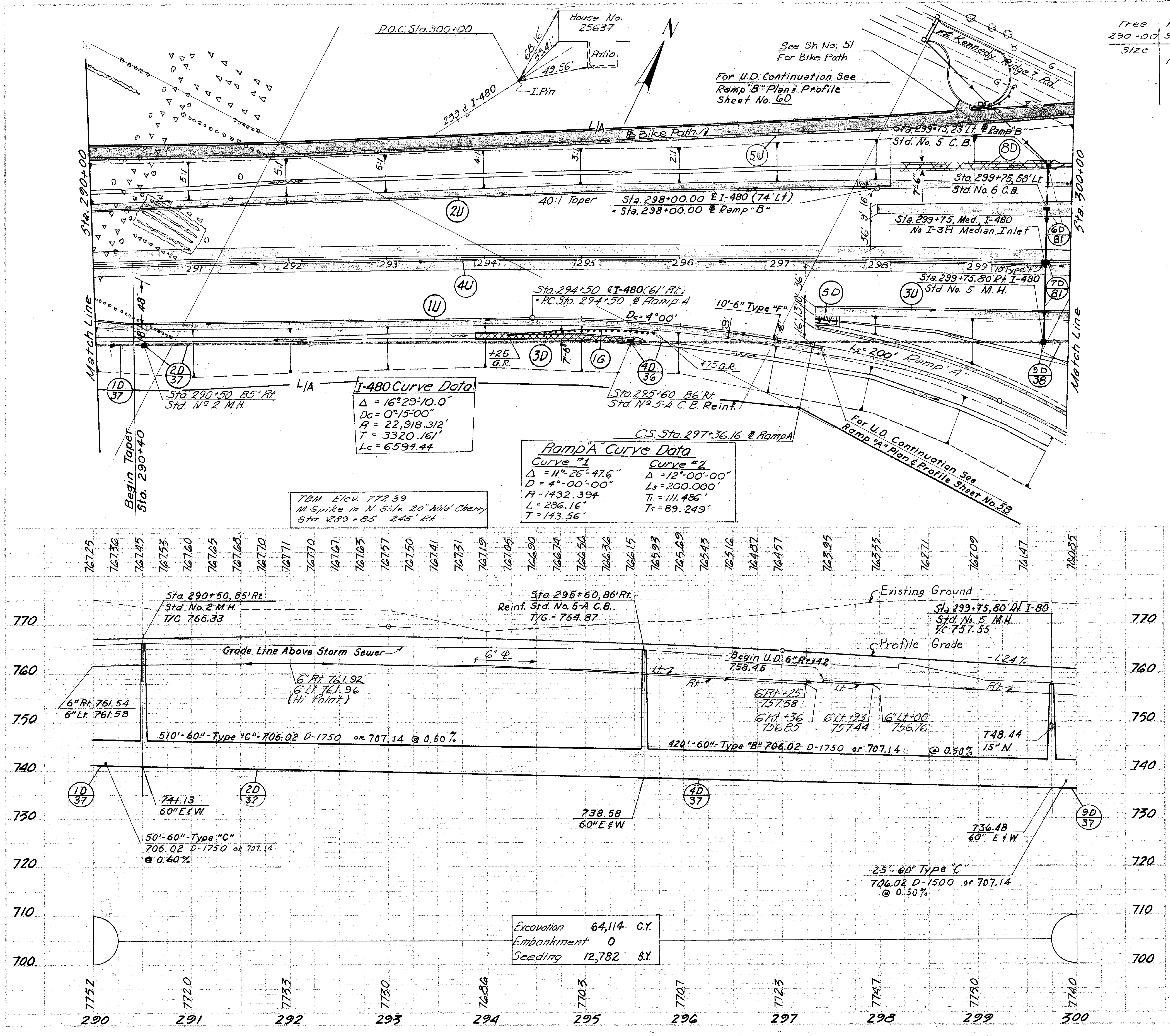
PLAN & PROFILE STA. 280+00 TO STA. 290+00

2	OHIO		

CUYAHOGA COUNTY
CUY- **480-1.90**

Tree	Removal
290+00	300+00
Size	No.
	None

CROSS REFERENCE	
Sht. No.	Item
125-128	Cross Sections
51	Kennedy Ridge W. Cul-De-Sac.
58	Ramp "A" Plan & Profile
73	Ramp "A" Pavt. Detail
232	Kennedy Ridge Water Line
60	Ramp "B" Plan & Profile
74	Ramp "B" Pavt. Detail



Excavation	64,114	C.Y.
Embankment	0	
Seeding	12,782	S.Y.

Estimated Quantities

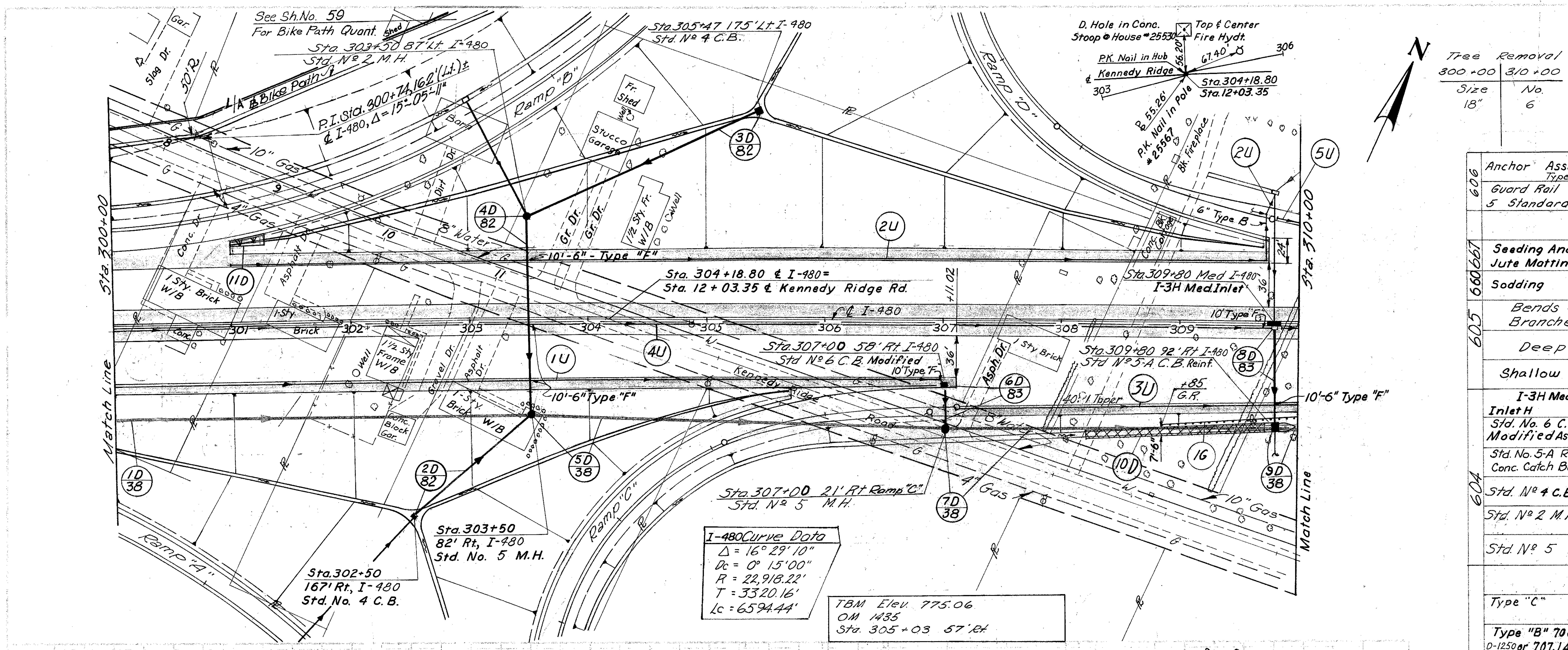
Ref. No.	Side	Location	605 Aggregate Drains L.F.	606 Anchor Ass. Type T Ea.	606 Anchor Ass. Type A Ea.	606 Guardrail Type "5" L.F.	603 Type "F" 6" L.F.	667 Seeding & Jute Matting S.Y.	660 Sodding S.Y.	605 Shallow 6" L.F.	605 Deep 6" L.F.	604 No. I-3H Median Inlet Ea.	604 Std. No. 6 C.B. Ea.	604 Std. No. 5 C.B. Ea.	604 Std. No 5-A C.B. Reinforced Ea.	604 Std. No 2 M.H. Ea.	604 Std. No. 5 M.H. Ea.	603 Type "C"-706.02 D-1500 or 707.14 60" L.F.	603 Type "B"-706.02 D-1750 or 707.14 60" L.F.	603 Type "C"-706.02 D-1750 or 707.14 60" L.F.	603 Type "B" 15" L.F.
1D	Rt.	290+00 to 290+50																		50	
2D	Rt.	290+50 to 295+60														1				510	
3D	Rt.	294+03 to 295+53						125													
4D	Rt.	295+60 to 300+00													1				420		
5D	Rt	297+40 to 297+70							20												
6D	Lt./med.	299+75											1	1							104
7D	med./Rt.	299+75										1									80
8D	Lt.	298+25 to 299+75						125													
9D	Rt.	299+75 to 300+00															1	25			
1U	Rt.	290+00 to 297+75									738										
2U	Lt.	290+00 to 298+00									806										
3U	Lt.	297+42 to 300+00									262										
1G	Rt.	294+25 to 295+75		1	1	112.5															
4U	Rt.	290+00 to 300+00					10			980											
5U	Lt.	290+50 to 298+00	149																		
		Total	149	1	1	112.5	10	250	20	980	1806	1	1	1	1	1	1	25	420	560	184

19

E.J.K. 6-22-70
T.R.B. 7-8-70

PLAN & PROFILE STA 290+00 TO STA 300+00

CUYAHOGA COUNTY
CUY-480-1.90

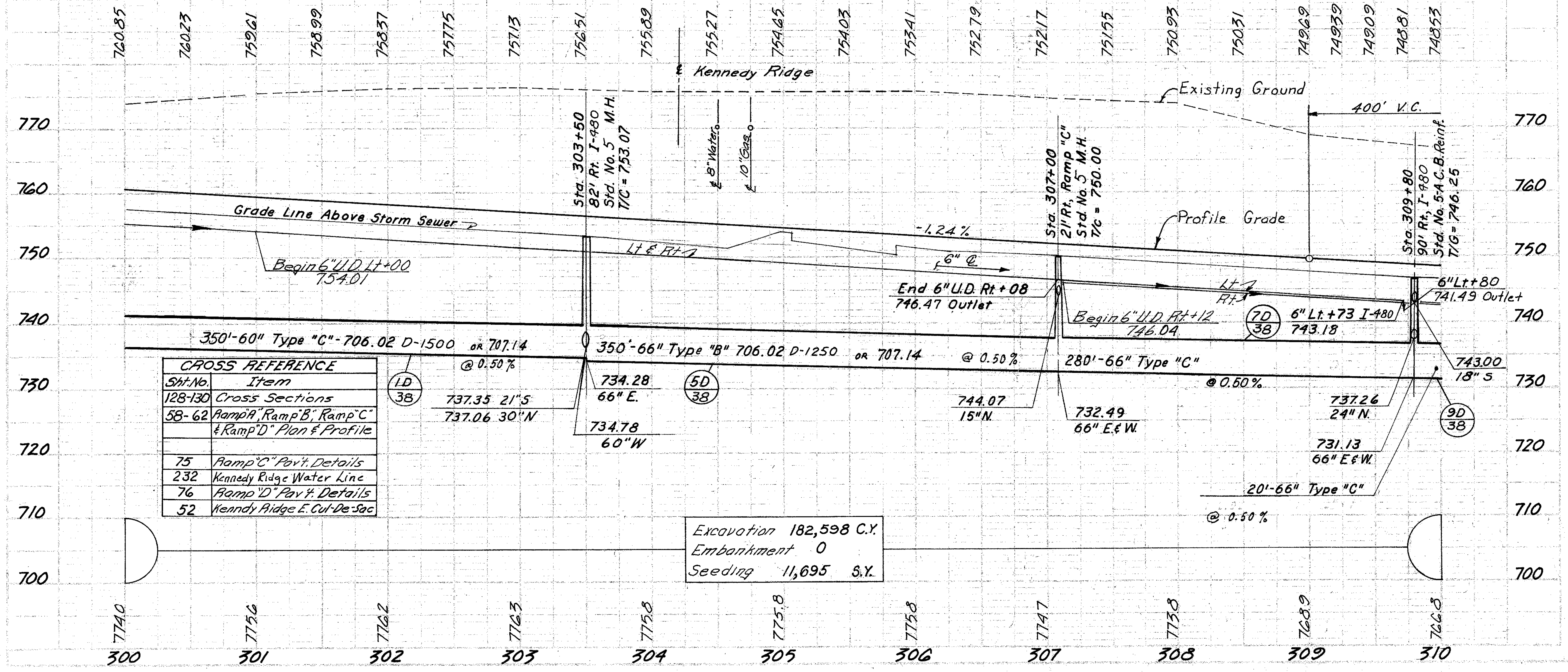


I-480 Curve Data
Δ = 16° 29' 10"
Dc = 0° 15' 00"
R = 22,918.22'
T = 3320.16'
Lc = 6594.44'

TBM Elev. 775.06
OM 1435
Sta. 305+03 57' Rt.

Tree Removal
300+00 | 310+00

Size	No.
18"	6



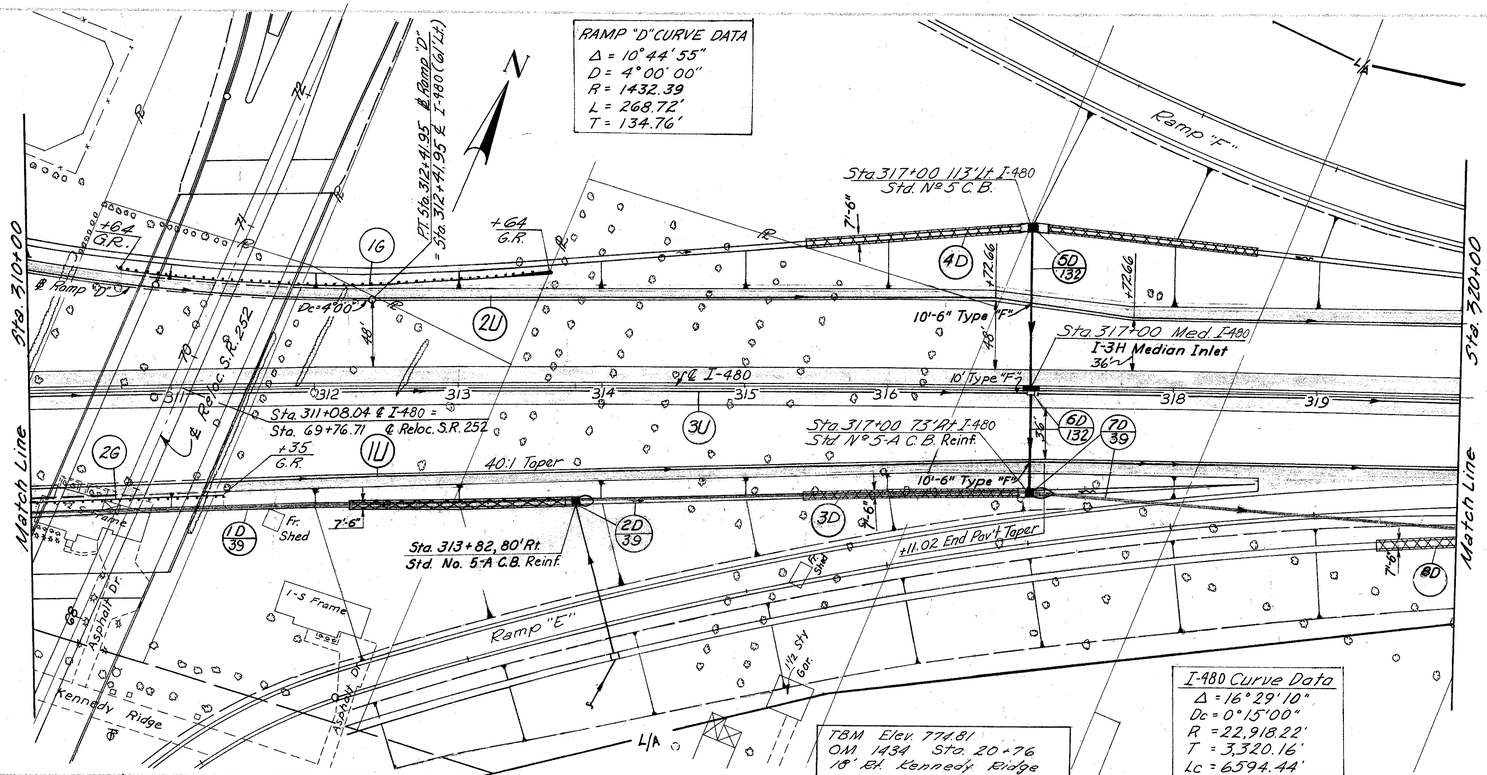
CROSS REFERENCE	
Sht. No.	Item
128-130	Cross Sections
58-62	Ramp "A", Ramp "B", Ramp "C" & Ramp "D" Plan & Profile
75	Ramp "C" Pav't. Details
232	Kennedy Ridge Water Line
76	Ramp "D" Pav't. Details
52	Kenndy Ridge E. Cul-De-Sac

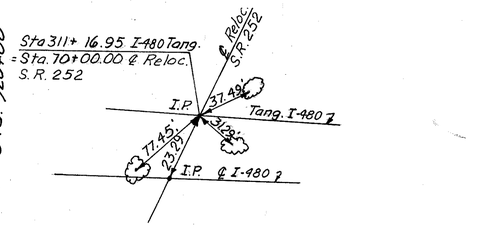
Excavation 182,598 C.Y.
Embankment 0
Seeding 11,695 S.Y.

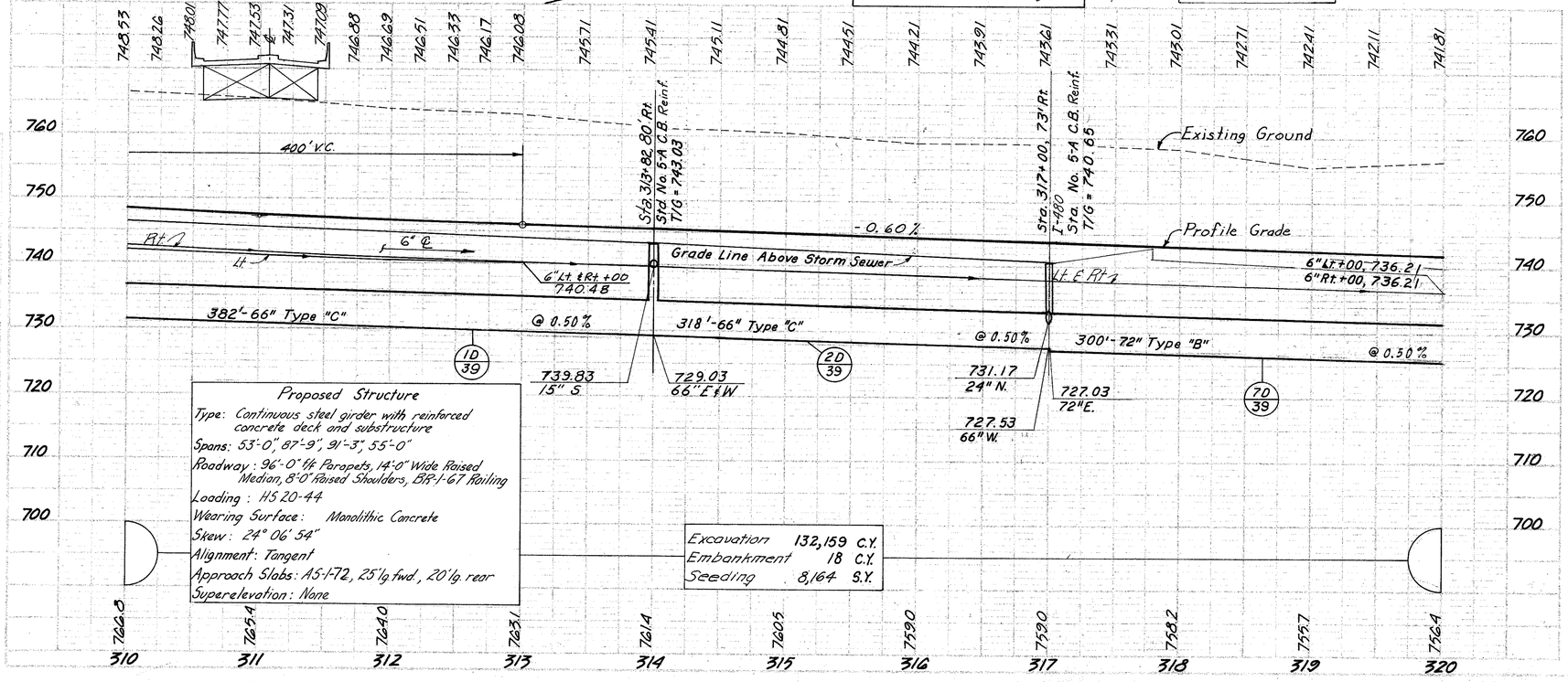
Estimated Quantities

	Item	Size	Unit	1D			2D	3D	4D	5D	6D	7D	8D	9D	10D	11D		5U	1U	2U	3U	4U	1G	Total
	Side			Rt.			Rt.	Lt.	Lt./Rt.	Rt.	Rt.	Rt.	Rt.	Rt.	Rt.	Lt.		Lt.	Rt.	Lt.	Rt.	Rt.	Rt.	
	Location			300+00 to 303+50			302+53 to 303+50	303+50 to 305+46	303+50	303+50 to 307+00	307+00	307+00 to 309+80	309+80	309+80 to 310+00	308+25 to 309+75	301+00 to 301+30		309+84 To 310+00	300+00 to 307+00	301+00 to 309+80	307+12 to 310+00	300+00 to 310+00	308+85 to 310+00	
606	Anchor Assembly Type A		Ea.																				1	1
606	Guard Rail Type 5 Standard		L.F.																				90	90
667	Seeding And Jute Matting		S.Y.												125									125
660	Sodding		S.Y.													20								20
605	Bends & Branches		Ea.																					╳
605	Deep	6"	L.F.															16	680	873	278			1,847
605	Shallow	6"	L.F.																			970		970
604	I-3H Median Inlet H		Ea.										1											1
604	Std. No. 6 C.B. Modified As per Plan		Ea.								1													1
604	Std. No. 5-A Reinforced Conc. Catch Basin		Ea.											1										1
604	Std. Nº 4 C.B.		Ea.				1	1																2
604	Std. Nº 2 M.H.		Ea.						1															1
604	Std. Nº 5 M.H.		Ea.							1		1												2
603	Type "C"	66"	L.F.									280		20										300
603	Type "B" 706.02 D-1250 or 707.14	66"	L.F.							350														350
603	Type "C" 706.02 D-1500 or 707.14	60"	L.F.	350																				350
603	Type "B" 706.02 D-1500 or 707.13	30"	L.F.						171															171
603	Type "C" 706.02 706.08 E.S., or 707.13	24"	L.F.					215																215
603	Type "B"	24"	L.F.										92											92
603	Type "C" 706.02 706.08 E.S., or 707.13	21"	L.F.				126																	126
603	Type "B"	15"	L.F.								37													37
603	Type "F"	6"	L.F.																20	10	10	20		60
603	Type "B"	6"	L.F.																	60				60

E.J.K. 6-30-70
T.R.B. 7-8-70







RAMP "D" CURVE DATA
Δ = 10°44'55"
D = 4°00'00"
R = 1432.39
L = 268.72'
T = 134.76'

I-480 Curve Data
Δ = 16°29'10"
Dc = 0°15'00"
R = 22,918.22'
T = 3,320.16'
Lc = 6594.44'

TBM Elev. 774.81
OM 1434 Sta. 20+76
18' Rt. Kennedy Ridge

Proposed Structure
Type: Continuous steel girder with reinforced concrete deck and substructure
Spans: 53'-0", 87'-9", 91'-3", 55'-0"
Roadway: 96'-0" f/f Parapets, 14'-0" Wide Raised Median, 8'-0" Raised Shoulders, BR-1-67 Railing
Loading: HS 20-44
Wearing Surface: Monolithic Concrete
Skew: 24° 06' 54"
Alignment: Tangent
Approach Slabs: AS-1-72, 25' lg. fwd., 20' lg. rear
Superelevation: None

Excavation	132,159	C.Y.
Embankment	18	C.Y.
Seeding	8,164	S.Y.

Tree Removal 310+00 Size	320+00 No.
18"	7
30"	5

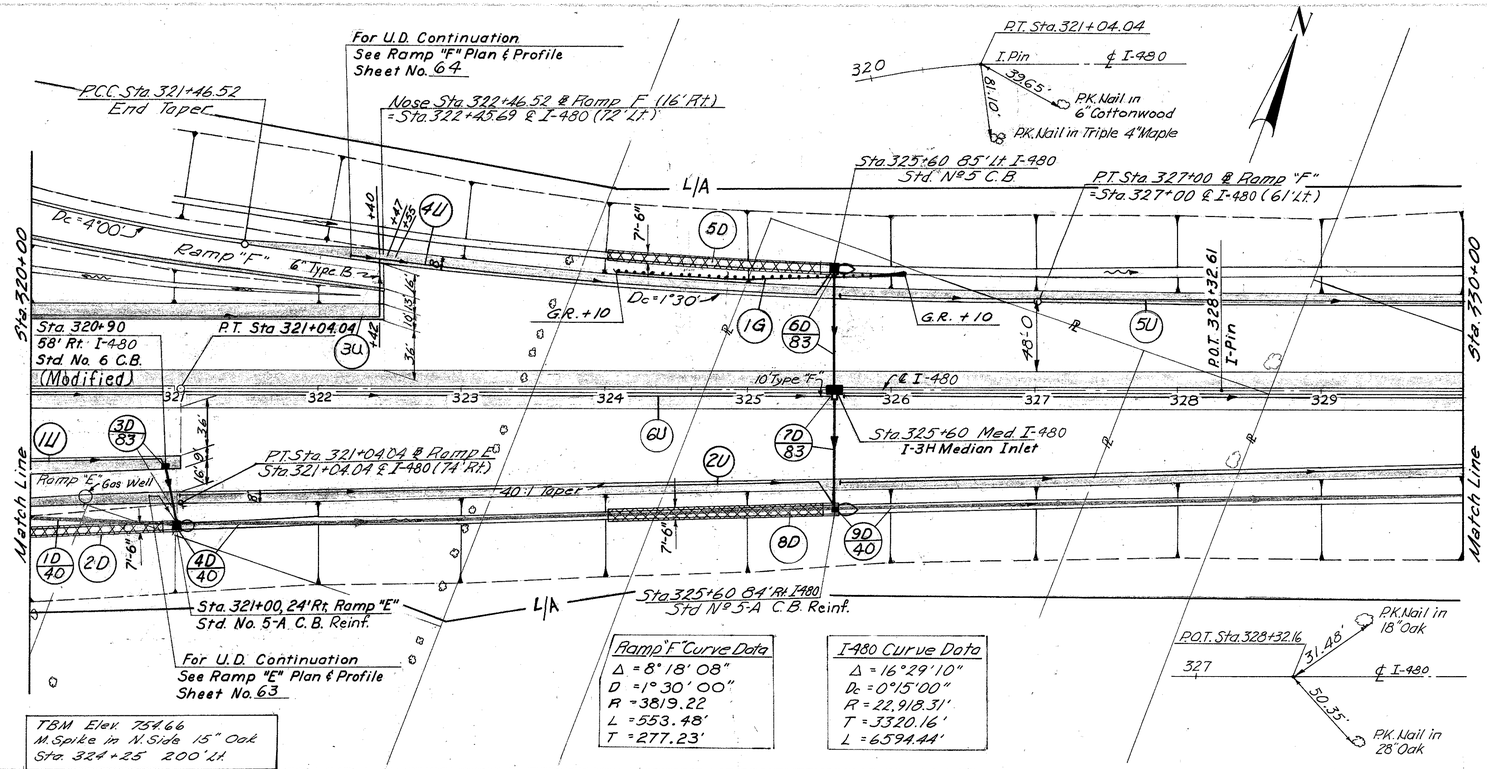
CROSS REFERENCE	
Sht. No.	Item
130-133	Cross Sections
53-54	Reloc. S.R. 252 Plan & Profile
372	Reloc. S.R. 252 Structure
63	Ramp "E" Plan & Profile
64	Ramp "F" Plan & Profile
52	Kennedy Ridge E. Cul-De-Sac
76	Ramp "D" Pav't Details

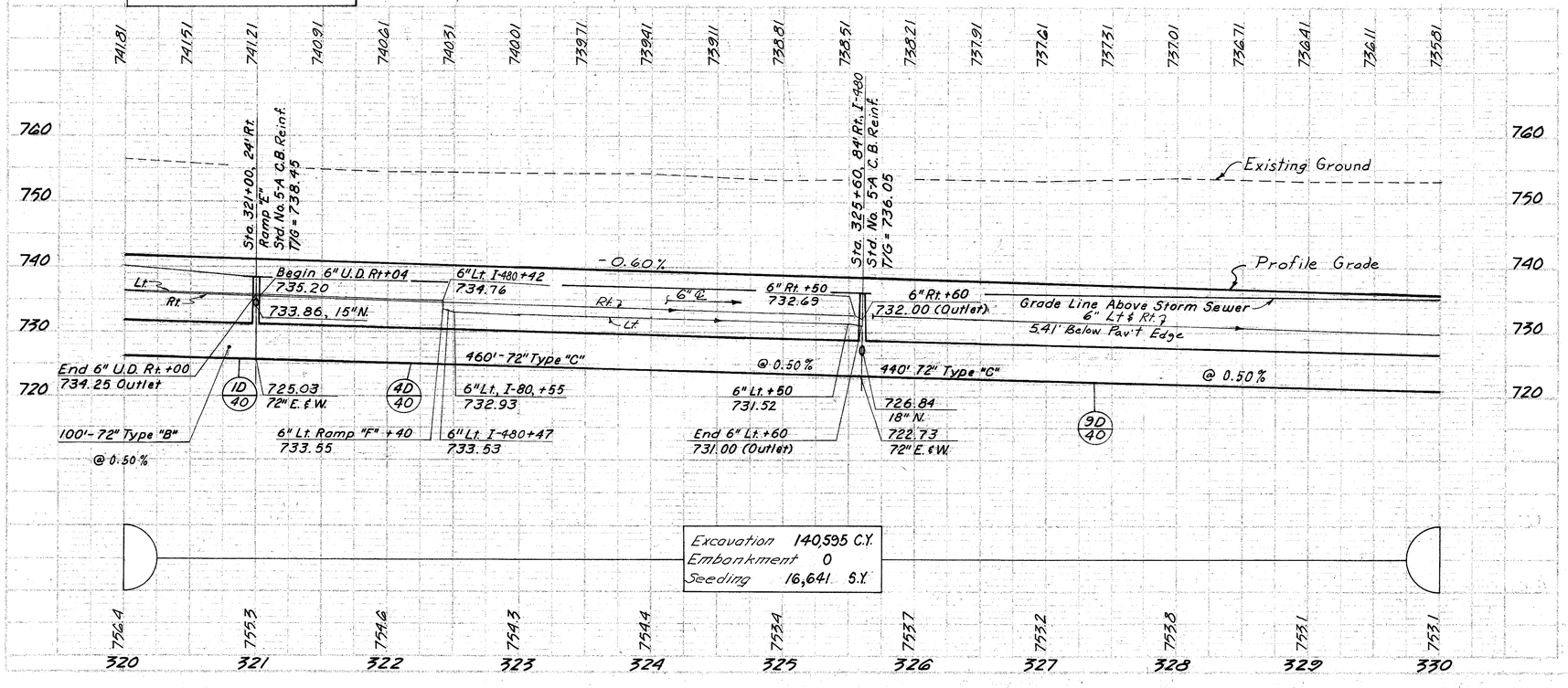
Estimated Quantities

Ref. No.	Side	Location	603 Type "F" 6" L.F.	603 Type "B" 24" L.F.	603 TYPE "B" 72" L.F.	603 TYPE "C" 66" L.F.	604 Std No. 5 C.B. Ea.	604 Std. No. 5-A C.B. Reinforced Ea.	604 I-3H Median Inlet Ea.	605 Deep 6" L.F.	605 Bends & Branches Ea.	605 Shallow 6" L.F.	667 Seeding And Jute Matting S.Y.	606 Guard Rail Type 5 Standard L.F.	606 Anchor Ass. Type A Ea.	606 Anchor Ass. Type T. Ea.
1D	Rt.	310+00 to 317+00				382							125			
2D	Rt.	314+00 to 317+00				318		1								
3D	Rt.	315+43 to 316+93											125			
4D	Lt.	315+43 to 318+57											250			
5D	Lt./Med.	317+00		113			1									
6D	Med./Rt.	317+00		70					1							
7D	Rt.	317+00 to 320+00			300			1								
8D	Rt.	319+43 to 320+00											48			
1G	Lt.	310+64 to 313+64												262.5	1	1
2G	Rt.	310+00 to 311+35												122.5		1
1U	Rt.	310+00 to 320+00	10							990						
2U	Lt.	310+00 to 320+00	10							990						
3U	Rt.	310+00 to 320+00	10									980				
		Total	30	183	300	700	1	2	1	1980	X	980	548	385	1	2

E.J.K. 6-30-70
T.R.B. 7-9-70

PLAN & PROFILE STA. 310+00 TO STA. 320+00





2	OHIO

CUYAHOGA COUNTY
CUY-480-1.90

CROSS REFERENCE	
Sht. No.	Item
133-135	Cross Section
63	Ramp "E" Plan & Profile
77	Ramp "E" Pav't. Detail
64	Ramp "F" Plan & Profile
78	Ramp "F" Pav't. Detail

Tree Removal 320+00 330+00

Size	No.
18"	10
30"	1

	Item	Size	Unit	1D	2D	3D	4D	5D	6D	7D	8D	9D		1G		1U	2U	3U	4U	5U	6U	Total
606	Anchor Ass. Type T.		Ea.											1								1
	Anchor Ass. Type A.		Ea.											1								1
	Guard Rail Type 5 Std.		L.F.											162.5								162.5
667	Seeding And Jute Matting		S.Y.		77			125			125											327
605	Shallow	6"	L.F.																		980	980
	Bends & Branches		Ea.														1	1	2			X
	Unclassified	6"	L.F.																332			332
	Deep	6"	L.F.													90	890	240		435		1655
604																						
	I-3H Median Inlet		Ea.							1												1
	Std Nº 6 C.B. Modified As Per Plan		Ea.			1																1
	Std Nº 5-A C.B. Reinforced		Ea.				1					1										2
	Std. Nº 5 C.B.		Ea.						1													1
603	Type "C"	72"	L.F.				460					440										900
	Type "B"	72"	L.F.	100																		100
	Type "B"	18"	L.F.						85	81												166
	Type "B"	15"	L.F.			39																39
	Type "F"	6"	L.F.													10	10		10		10	40
	Type "B"	6"	L.F.															40				40
Estimated Quantities	Side			Rt.	Rt.	Rt.	Rt.	Lt.	Lt./Med.	Rt./Med.	Rt.	Rt.		Lt.		Rt.	Rt.	Lt.	Lt.	Lt.	Rt.	
	Location			320+00 to 321+00	320+00 to 320+93	321+00	321+00 to 325+60	324+03 to 325+53	325+60	325+60	324+03 to 325+53	325+60 to 330+00		324+10 to 326+10		320+00 to 321+00	321+04 to 330+00	320+00 to 322+42	322+40 to 325+60	325+65 to 330+00	320+00 to 330+00	Total
	Ref. No.			1D	2D	3D	4D	5D	6D	7D	8D	9D		1G		1U	2U	3U	4U	5U	6U	

E.J.K. 6-30-70
F.R.B. 7-8-70

PLAN & PROFILE STA 320+00 TO STA 330+00

2	OHIO		

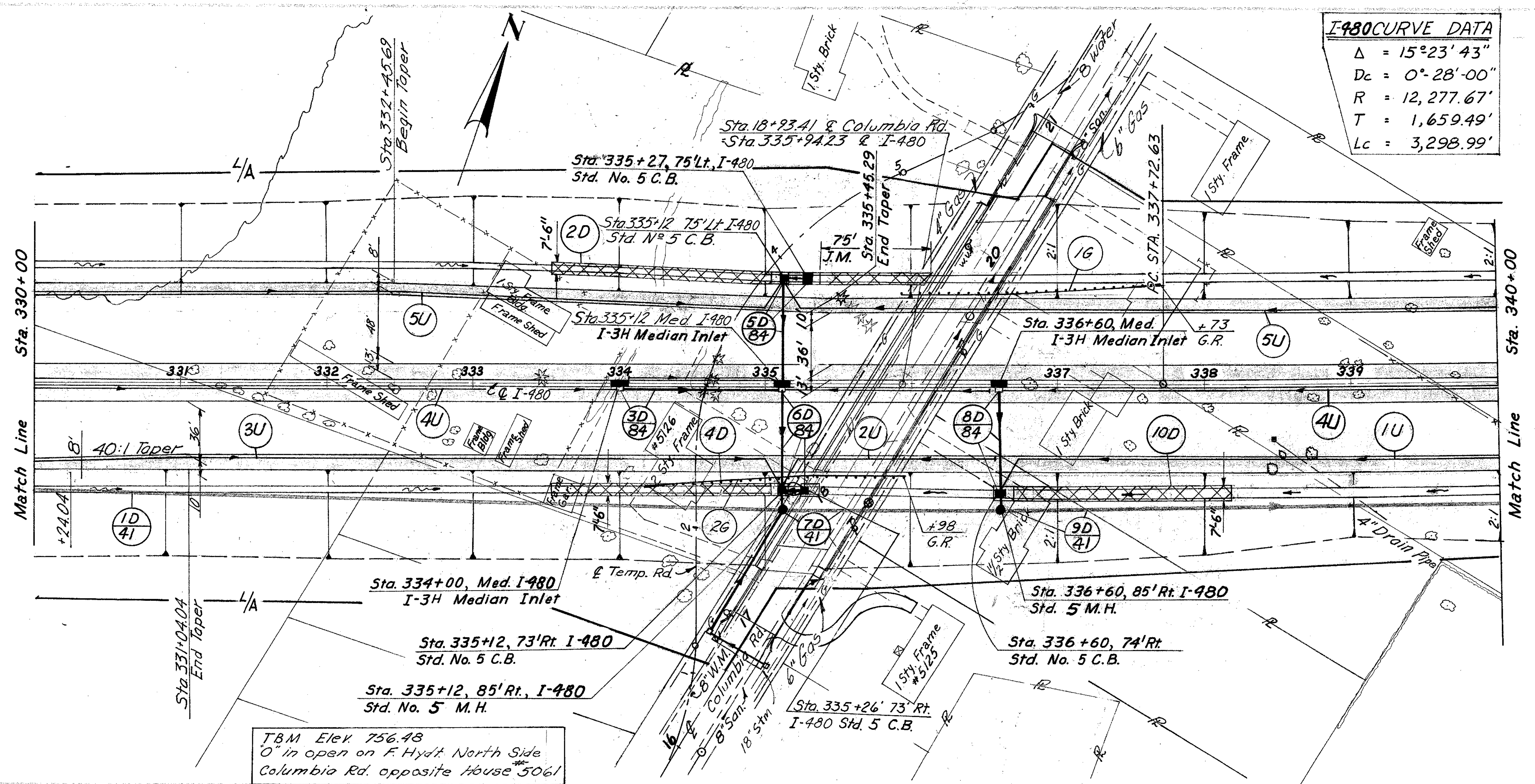
CUYAHOGA COUNTY
CUY-480-1.90

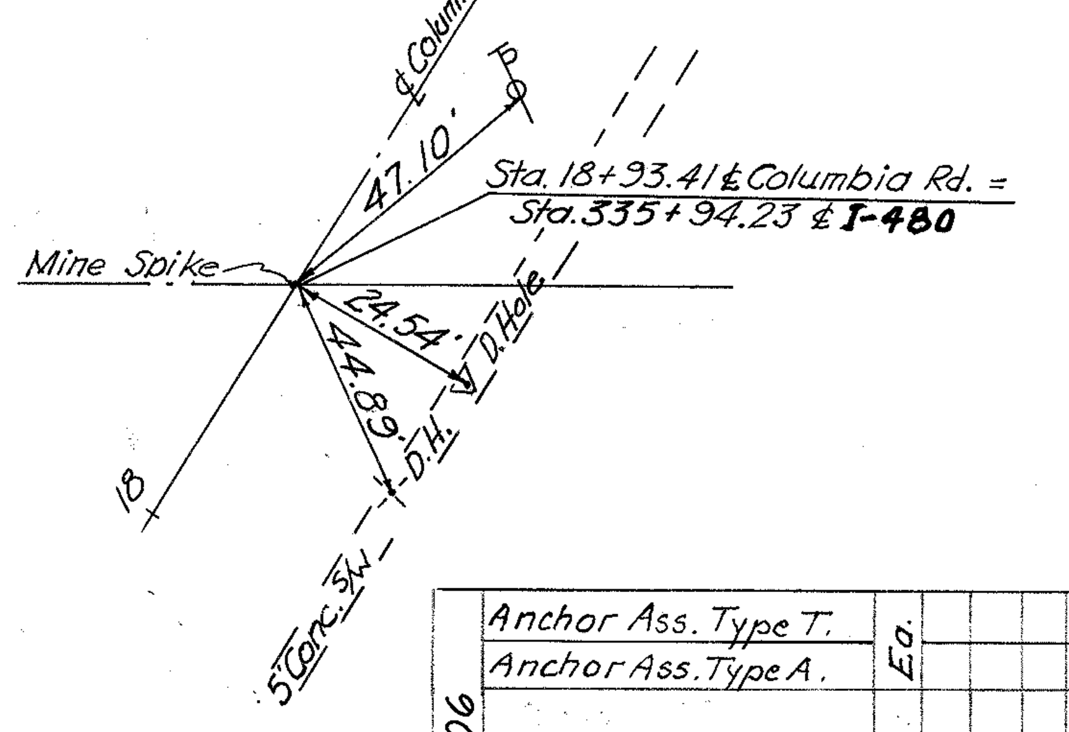
CROSS REFERENCE	
Sht. No.	**Item**
135-138	Cross Sections
55	Columbia Rd. Plan & Profile
233	Water Line Relocation
102	Reloc. San. Sewer
78	Ramp "F" Pav't Detail
67	Columbia Rd. Temp. Rd.

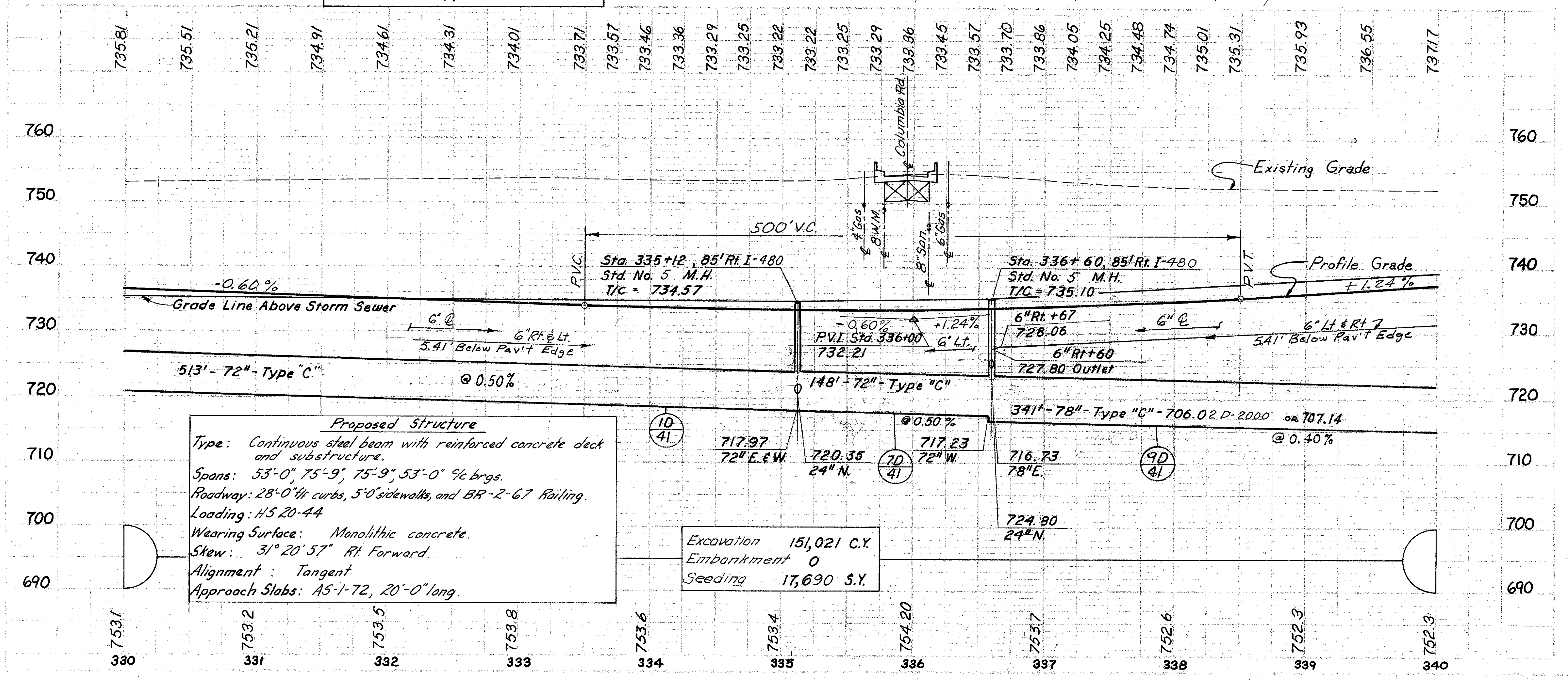
I-480 CURVE DATA

Δ = 15°23' 43"
Dc = 0°-28'-00"
R = 12, 277.67'
T = 1,659.49'
Lc = 3,298.99'

Tree 330+00	Removal 340+00
Size	No.
18"	4
30"	1







Proposed Structure

Type: Continuous steel beam with reinforced concrete deck and substructure.
Spans: 53'-0", 75'-9", 75'-9", 53'-0" c/c brgs.
Roadway: 28'-0" f/f curbs, 5'-0" sidewalks, and BR-2-67 Railing.
Loading: HS 20-44
Wearing Surface: Monolithic concrete.
Skew: 31° 20' 57" Rt. Forward.
Alignment: Tangent
Approach Slabs: AS-1-72, 20'-0" long.

Excavation	151,021 C.Y.
Embankment	0
Seeding	17,690 S.Y.

Estimated Quantities

Ref. Nº	Side	Location	606 Anchor Ass. Type T. (Ea.)	606 Anchor Ass. Type A. (Ea.)	606 Guard Rail Type 5 Standard (L.F.)	667 Seeding and Jute Matting (S.Y.)	605 Shallow 6" (L.F.)	605 Bends & Branches (Ea.)	605 Deep 6" (L.F.)	604 No. I-3H Median Inlet (Ea.)	604 Std. Nº 5 C.B. (Ea.)	604 Std. Nº 5 M.H. (Ea.)	TYPE "C"-706.02 D-2000 or 707.14 78" (L.F.)	TYPE "C" 72" (L.F.)	603 Type "C" 24" (L.F.)	603 Type "B" 24" (L.F.)	603 Type "B" 15" (L.F.)	603 Type "F" 6" (L.F.)
1D	Rt.	330+00 to 335+12												513				
2D	Lt.	333+55 to 336+09				188												
3D	Med.	334+00 to 335+12								1							112	
4D	Rt.	333+55 to 335+05				125												
5D	Lt./Med.	335+12									2				15	75		
6D	Med./Rt.	335+12								1	2				27	70		
7D	Rt.	335+12 to 336+60										1		148				
8D	Med./Rt.	336+60								1	1				10		70	
9D	Rt.	336+60 to 340+00										1	341					
10D	Rt.	336+60 to 338+17				125												
1G	Lt.	335+98 to 337+73	1	1	137.5													
2G	Rt.	334+23 to 335+98	1	1	137.5													
1U	Rt.	336+60 to 340+00						1	343									10
2U	Rt.	335+12 to 336+55						1	148									10
3U	Rt.	330+00 to 335+12						1	512									10
4U	Rt. & Lt.	330+00 to 340+00					944	1										40
5U	Lt.	330+00 to 340+00						2	1001									20
		Total	2	2	275	438	944		2004	3	5	2	341	661	52	145	182	90

E.J.K. DATE 6-30-70
BY T.R.B. DATE 7-8-70

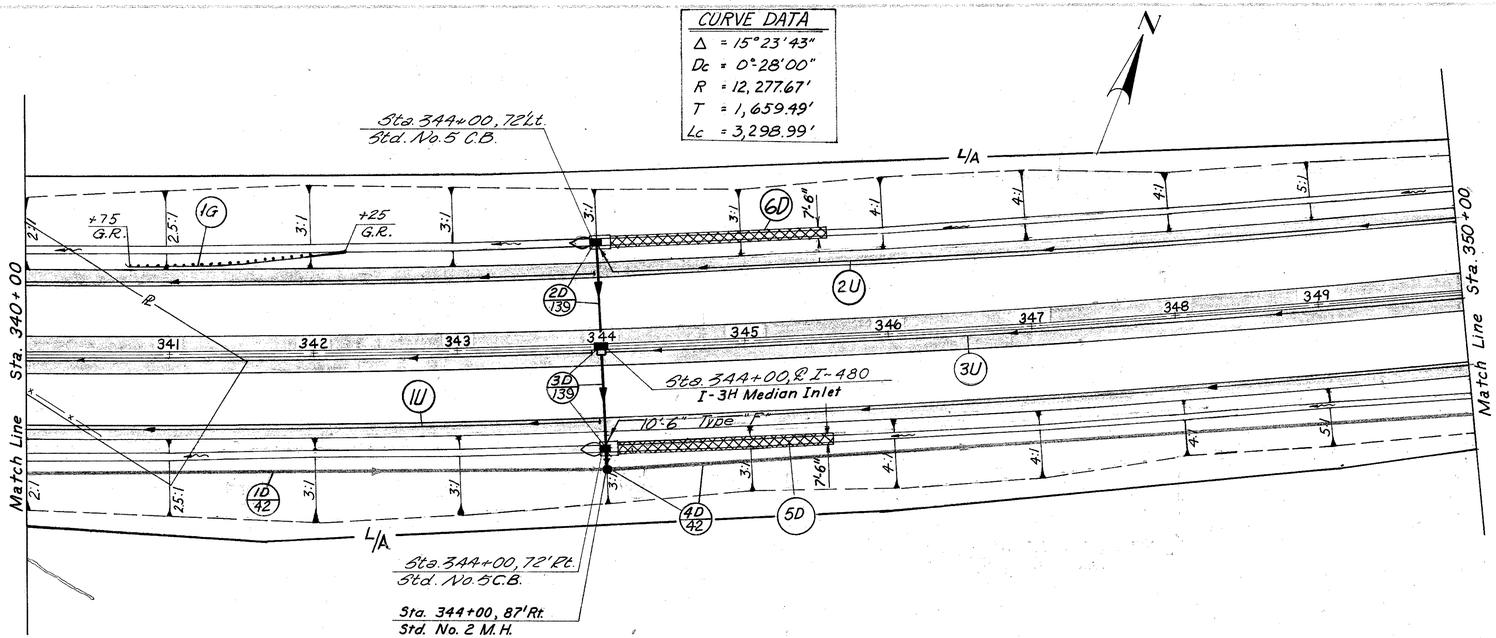
PLAN & PROFILE STA. 330+00 TO STA. 340+00

CUYAHOGA COUNTY
CUY-480-1.90

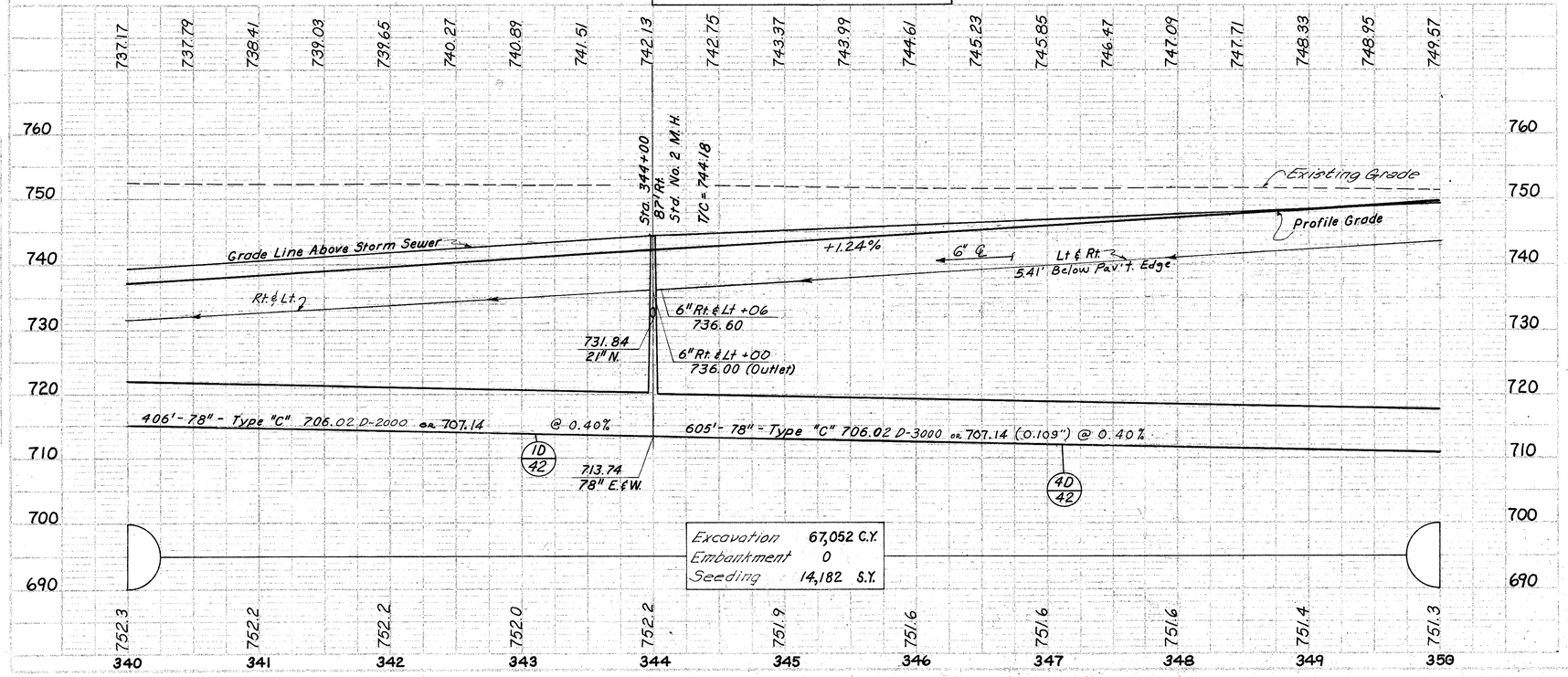
Tree	Removal
340+00	350+00
Size	No.
	None

CROSS REFERENCE	
Sht. No.	Item
138-140	Cross Sections

CURVE DATA
Δ = 15°23'43"
Dc = 0°28'00"
R = 12,277.67'
T = 1,659.49'
Lc = 3,298.99'



TBM Elev. 753.19 #15
M. Spike N. Side 20" Elm 400' ± W. of Grace Ave and 300' ± N. of Mastick



Excavation	67,052 C.Y.
Embankment	0
Seeding	14,182 S.Y.

Estimated Quantities

	Side	Location	606 Anchor Ass. Type T. Ea.	606 Anchor Ass. Type A. Ea.	606 Guard Rail Type 5 Standard L.F.	667 Seeding And Jute Matting S.Y.	605 Shallow 6" L.F.	605 Bends & Branches Ea.	605 Deep 6" L.F.	604 No. I-3H Median Inlet Ea.	604 Std. Nº 5 C.B. Ea.	604 Std. No. 2 M.H. Ea.	603 TYPE "C" - 706.02 D-3000 or 707.14 (0.109") 78" L.F.	603 TYPE "C" - 706.02 D-2000 or 707.14 78" L.F.	603 Type "C" 21" L.F.	603 Type "B" 21" L.F.	603 Type "F" 6" L.F.
1D	Rt.	340+00 to 344+00												406			
2D	Lt/Med	344+00									1					72	
3D	Lt/Med	344+00								1	1				15	70	
4D	Rt.	344+00 to 350+00										1	605				
5D	Rt.	344+07 to 345+57				125											
6D	Lt.	344+07 to 345+57				125											
1G	Lt.	340+75 to 342+25	1	1	112.5												
1U	Rt.	340+00 to 350+00							997								10
2U	Lt.	340+00 to 350+00						1	997								10
3U	Rt.	340+00 to 350+00					980										10
Total			1	1	112.5	250	980	X	1994	1	2	1	605	406	15	142	30

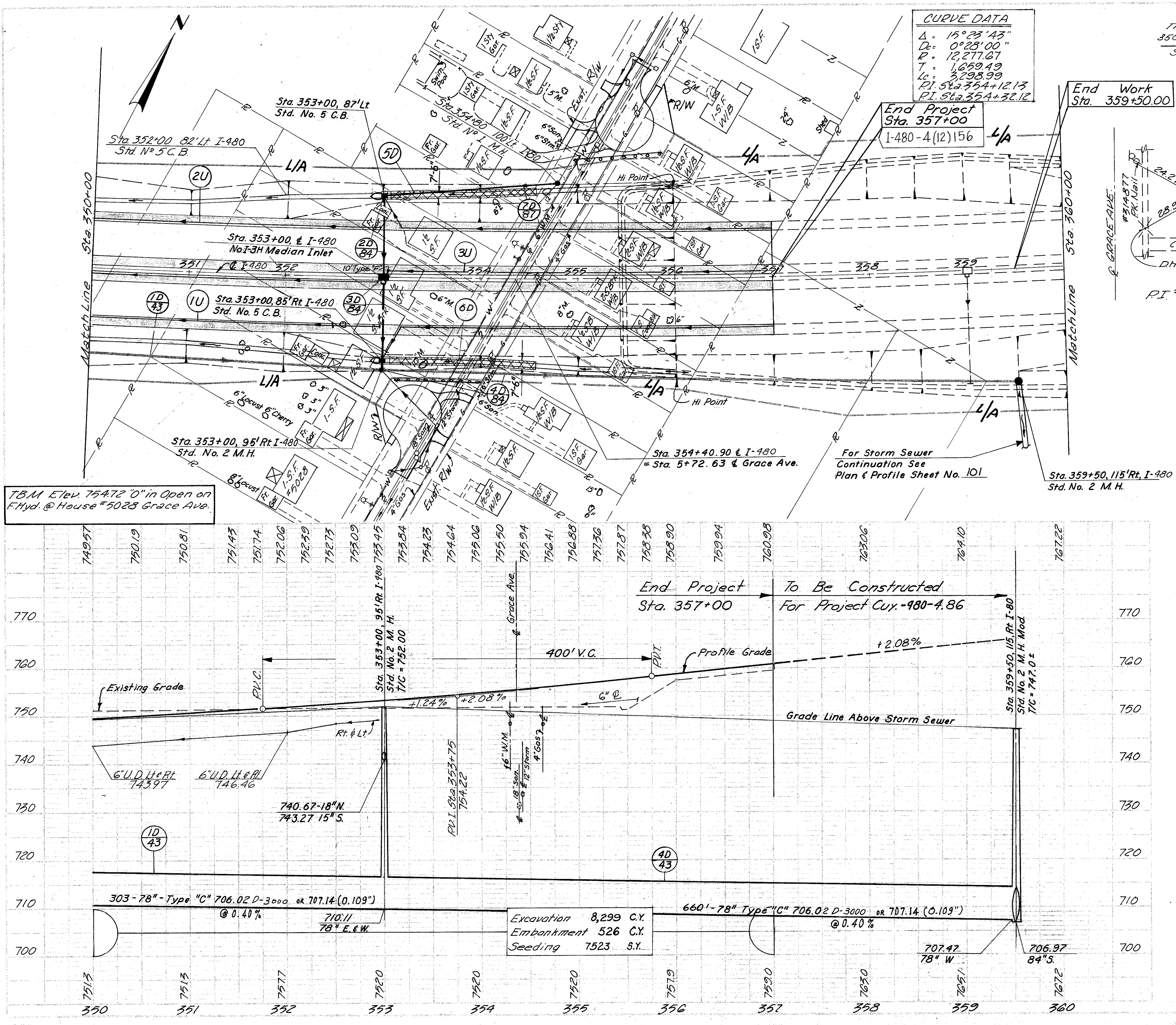
[redacted] E.J.K. [redacted] 7-7-70
[redacted] 7-20-70

PLAN & PROFILE STA 340+00 TO STA 350+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

43
427

CUYAHOGA COUNTY
CUY-**480-1.90**

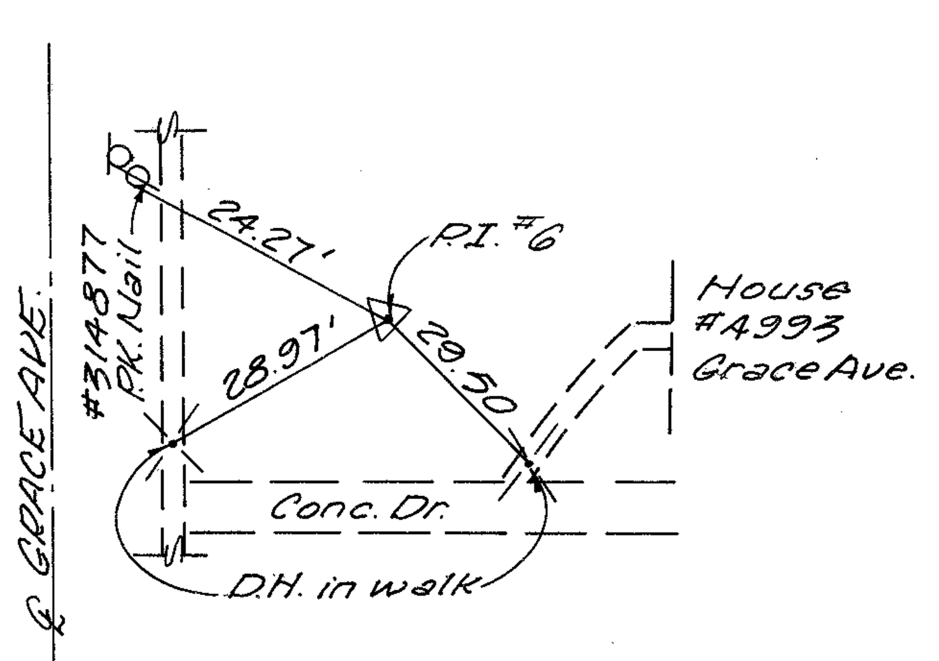


Excavation 8,299 C.Y.
Embankment 526 C.Y.
Seeding 7523 S.Y.

CURVE DATA
Δ = 15°23'43"
Dc = 0°28'00"
R = 12,277.67
T = 1,659.49
Lc = 3,298.99
P.I. Sta. 354+12.13
P.I. Sta. 354+32.12

Tree 350+00	Removal 360+00
Size	No.
18"	2

CROSS REFERENCE	
Sht. No.	Item
140-141	Cross Sections
56-57	Grace Ave. Cul-De-Sac
101	Storm Sewer Outlet



P.I. #6 Reference

Estimated Quantities

				1D	2D	3D	4D	5D	6D	7D			1U	2U	3U	
Ref. No.			Side	Rt.	Lt./Med.	Med./Rt.	Rt.	Lt.	Rt.	Lt.			Rt.	Lt.	Rt. & Lt.	
			Location	350+00 to 353+00	353+00	353+00	353+00 to 359+25	353+07 to 354+57	353+07 to 354+57	354+80 to 353+00			350+00 to 357+00	350+00 to 357+00	350+00 to 357+00	Total
667	Seeding and Jute Matting		S.Y.					125	125							250
605	Shallow	6"	L.F.										458	453	690	1601
605	Bends & Branches		Ea.													☒
605	Deep	6"	L.F.										200	200		400
605	Unclassified	6"	L.F.										50	50		100
604	I-3H Median Inlet		Ea.			1										1
604	Std. No 5 C.B.		Ea.		1	1										2
604	Std. No. 2 M.H.		Ea.				1									1
604	Std. No. 1 M.H.		Ea.							1						1
603	Type "F"	6"	L.F.										10	10	10	30
603	TYPE "C" - 706.02 D-3000 or 707.14 (0.109")	78"	L.F.	303			660									963
603	Type "B"	18"	L.F.		86	82										168
603	Type "C"	18"	L.F.			10										10
603	Type "C"	15"	L.F.							180						180

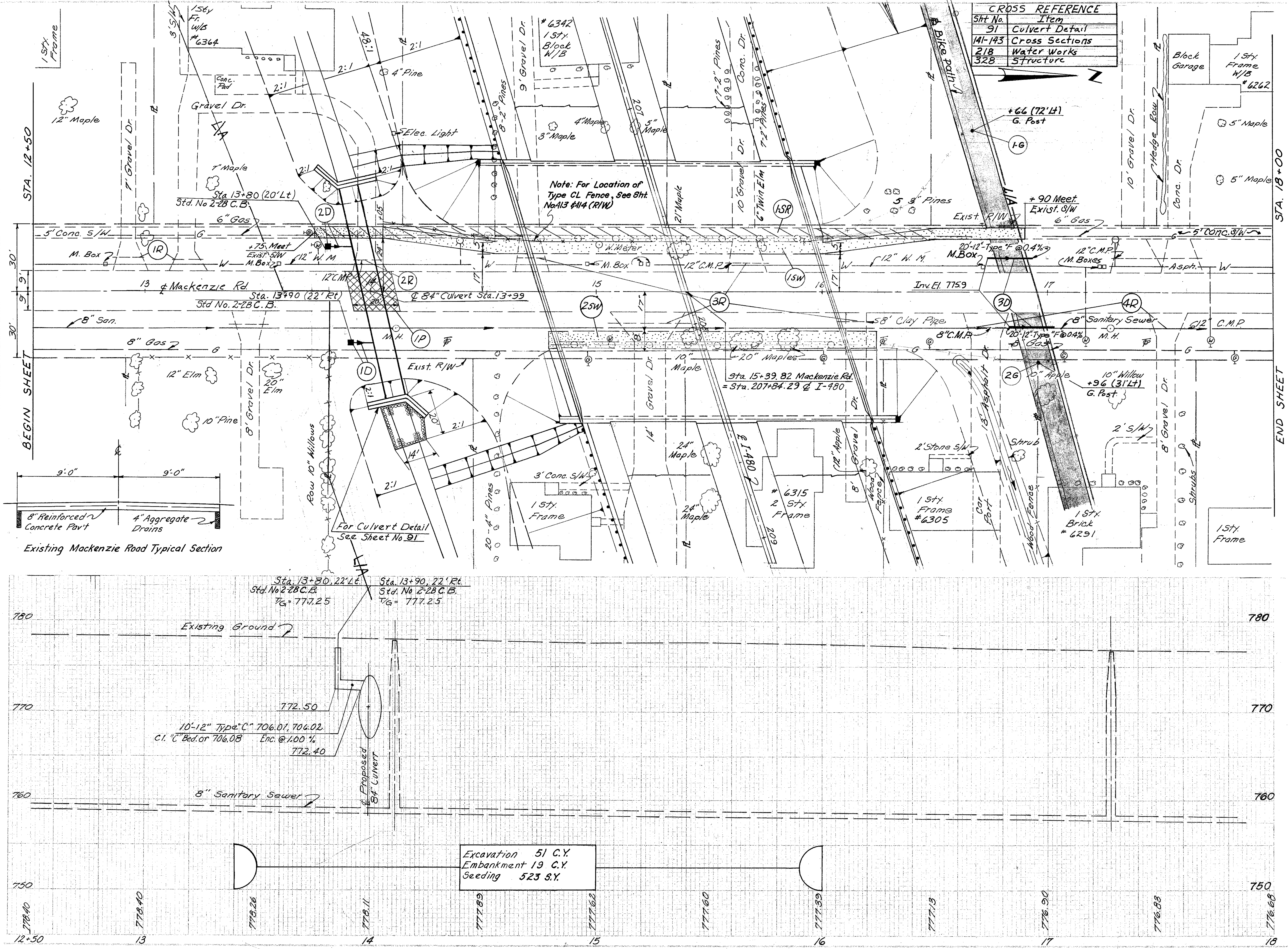
E.J.K. 7-7-70
F.R.B. 7-20-70

PLAN & PROFILE STA 350+00 TO STA 360+00

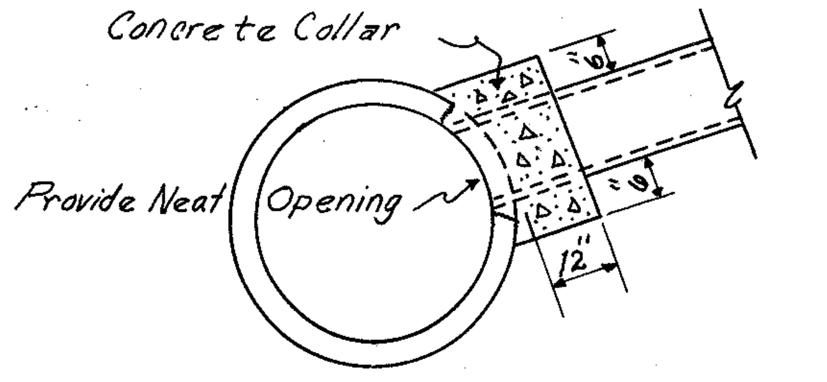
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

44
427

CUYAHOGA COUNTY
CUY-480-1.90



CROSS REFERENCE	
Sht No.	Item
91	Culvert Detail
141-143	Cross Sections
218	Water Works
328	Structure



Backfill around collar after concrete has attained sufficient strenth.
Cost of concrete collar is included in the contract unit price bid per lin. ft. for the pertinent item involved.

CONCRETE COLLAR DETAIL FOR ITEM 1D AND 2D

DRAINAGE

Estimated Quantities

Ref. No.	Side	Location	202 Pipe Removed 24" & Under (L.F.)	603 Type "C" 706.01, 706.02 Cl. "C" Bed. or 706.08 Enc., 12" (L.F.)	603 Type "F", 12" (L.F.)	604 Std. No. 2-2B C.B. (Ea.)
1D	Rt.	13+90 to 14+00		10		1
2D	Lt.	13+80 to 13+90		10		1
3D	Lt./Rt.	16+73 to 17+03			40	
1R	Lt.	12+85 to 13+25	28			
2R	Lt./Rt.	13+37 to 14+05	30			
3R	Lt./Rt.	14+65 to 16+20	80			
4R	Rt.	16+64 to 17+62	34			
		Total	172	20	40	2

Estimated Quantities

Ref. No.	Side	Location	202 Exist. Pav't Removed & Disposed of (S.Y.)	202 Exist. S.W Removed & Disposed of (S.F.)	310 3" Subbase 703.08 or 703.10 (C.Y.)	451 9" Reinf. Conc. Pav't, as per plan (S.Y.)	608 4½" Concrete Walk, As Per Plan (S.F.)	606 Special Guard Posts (Ea.)
1P	Lt./Rt.	13+91 to 14+11	40		3	40		
1SW	Lt.	13+75 to 16+90					1,953	
2SW	Rt.	14+79 to 16+24					1,103	
1SR	Lt.	13+75 to 16+50		1,375				
1G	Lt	16+66						1
2G	Rt	16+96						1
		Total	40	1,375	3	40	3,056	2

[redacted] L.R.K. [redacted] 10-1-70
[redacted] T.R.B. [redacted] 10-5-70

MACKENZIE ROAD PLAN & PROFILE STA. 12+50 TO 18+00

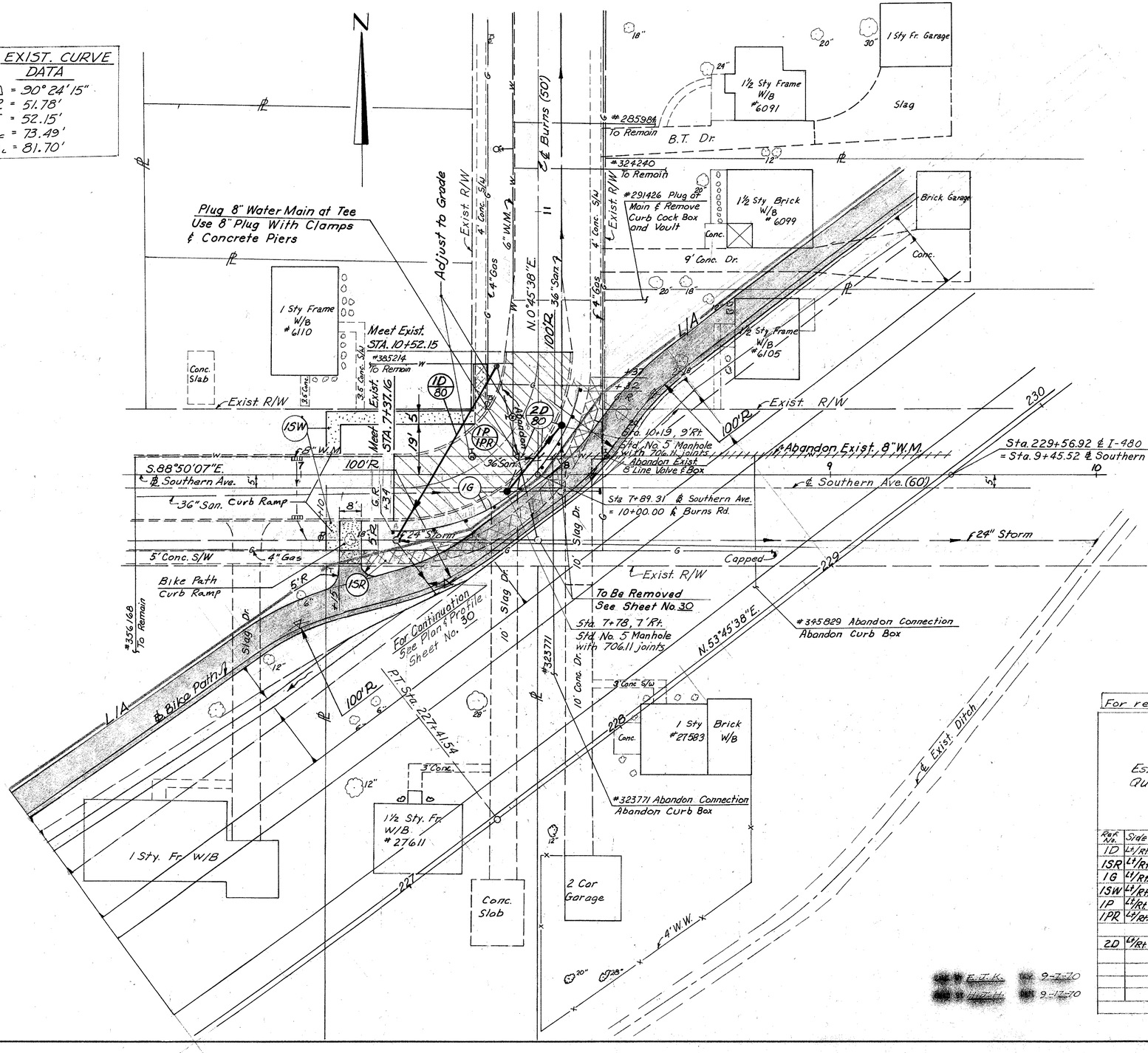
CROSS REFERENCE	
Sht. No.	Item
30	Plan & Profile

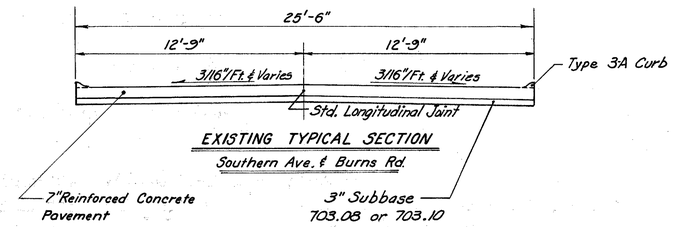
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

45
427

CUYAHOGA COUNTY
CUY-480-1.90

EXIST. CURVE DATA
Δ = 90° 24' 15"
R = 51.78'
T = 52.15'
L_c = 73.49'
A_L = 81.70'





Note: Pavement to be removed & replaced within original limits as shown.

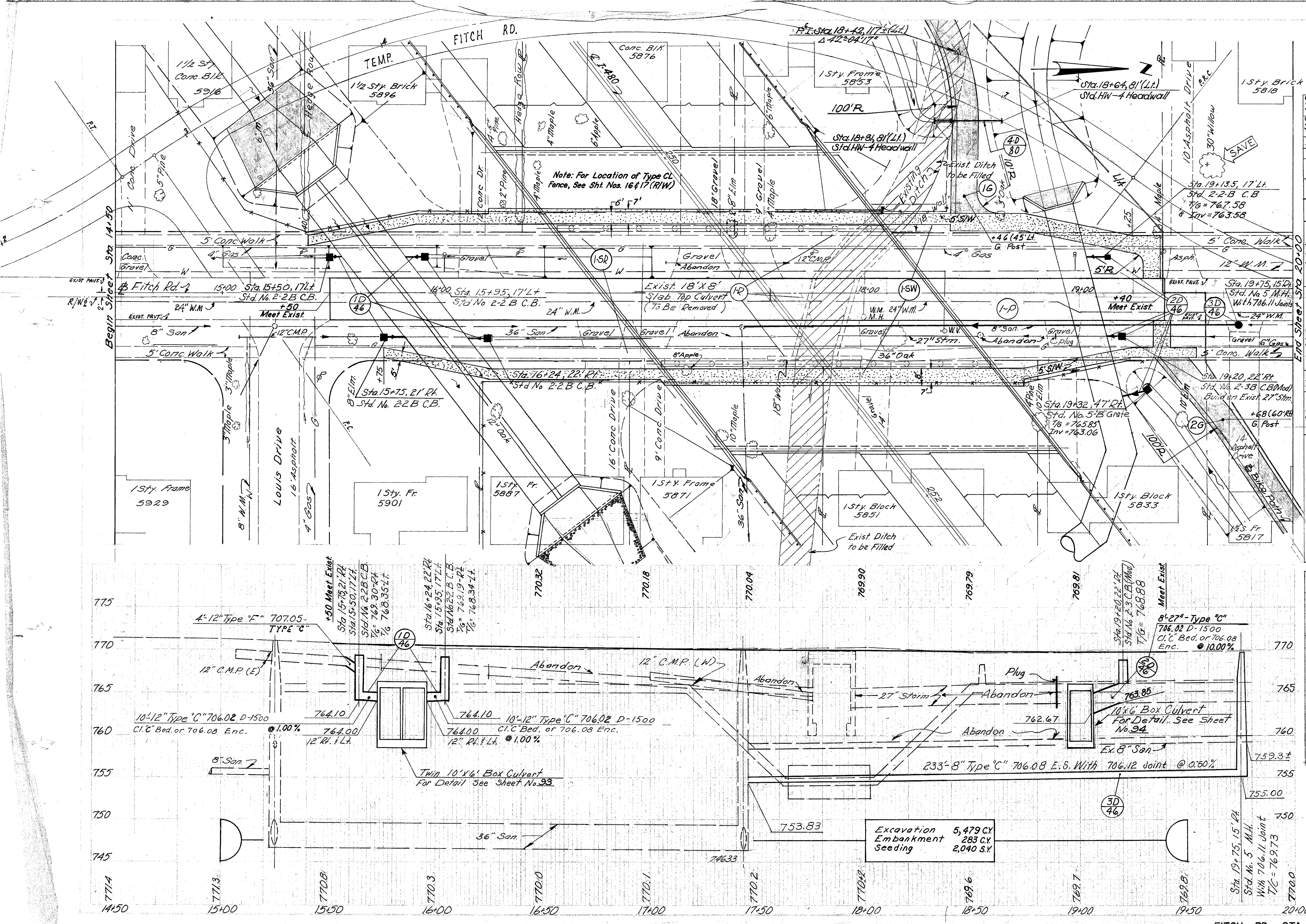
Estimated Quantities		
Item	Description	Quantity
Special	8" Plugging Exist. Water Main	1
Special	Plugging Service Connection	1
Special	Remove Abandoned Curb Cock Valve Box	1
Special	Adjust Existing Waterworks Structures to Grade	2
	Total to Water Work - General Summary Sht. No. 197	

For removal quantities (drainage) see sheet № 30

Estimated Quantities			603		604		606			608	202		451	203	310	609	
			Type B 706.02 with 706.11 Joints & 706.12 Bars 12"	Type B 706.02 with 706.11 Joints 36"	Std. No. 5 M.H. with 706.11 joints		Guard Rail Type 5	Anchor Ass. Type A	Anchor Ass. Type T	Curb Ramp	Pavement Removed	Sidewalk Removed	7" Reinforced Conc. Pavt.	Subgrade Compaction	Subbase 703.08 or 703.10	Curb, Type 3-A	
Ref. No.	Side	Location	L.F.	L.F.	EA.		L.F.	Ea.		Ea.	S.Y.	S.F.	S.Y.	S.Y.	C.Y.	L.F.	
1D	Lt/Rt.	7+36 to 10+41	76														
1SR	Lt/Rt.	7+15 to 10+37 Burns										727					
1G	Lt/Rt.	7+34 to 10+32 Burns					62.5	1	1								
1SW	Lt/Rt.	7+10 to 7+70								2	482						
1P	Lt/Rt.	7+37.2 to 10+52 Burns											232	232	20	164	
1PR	Lt/Rt.	7+37.2 (Sta.) to 10+52.1 (Burns)									230						
		Sanitary															
2D	Lt/Rt.	7+78 to 10+19		33	2												
		Total	76	33	2		62.5	1	1	2	482	230	727	232	232	20	164

E.T.K. 9-7-70
W.E.H. 9-12-70

CUYAHOGA COUNTY
CUY-480-1.90



Excavation	5,479 C.Y.
Embankment	283 C.Y.
Seeding	2,040 S.Y.

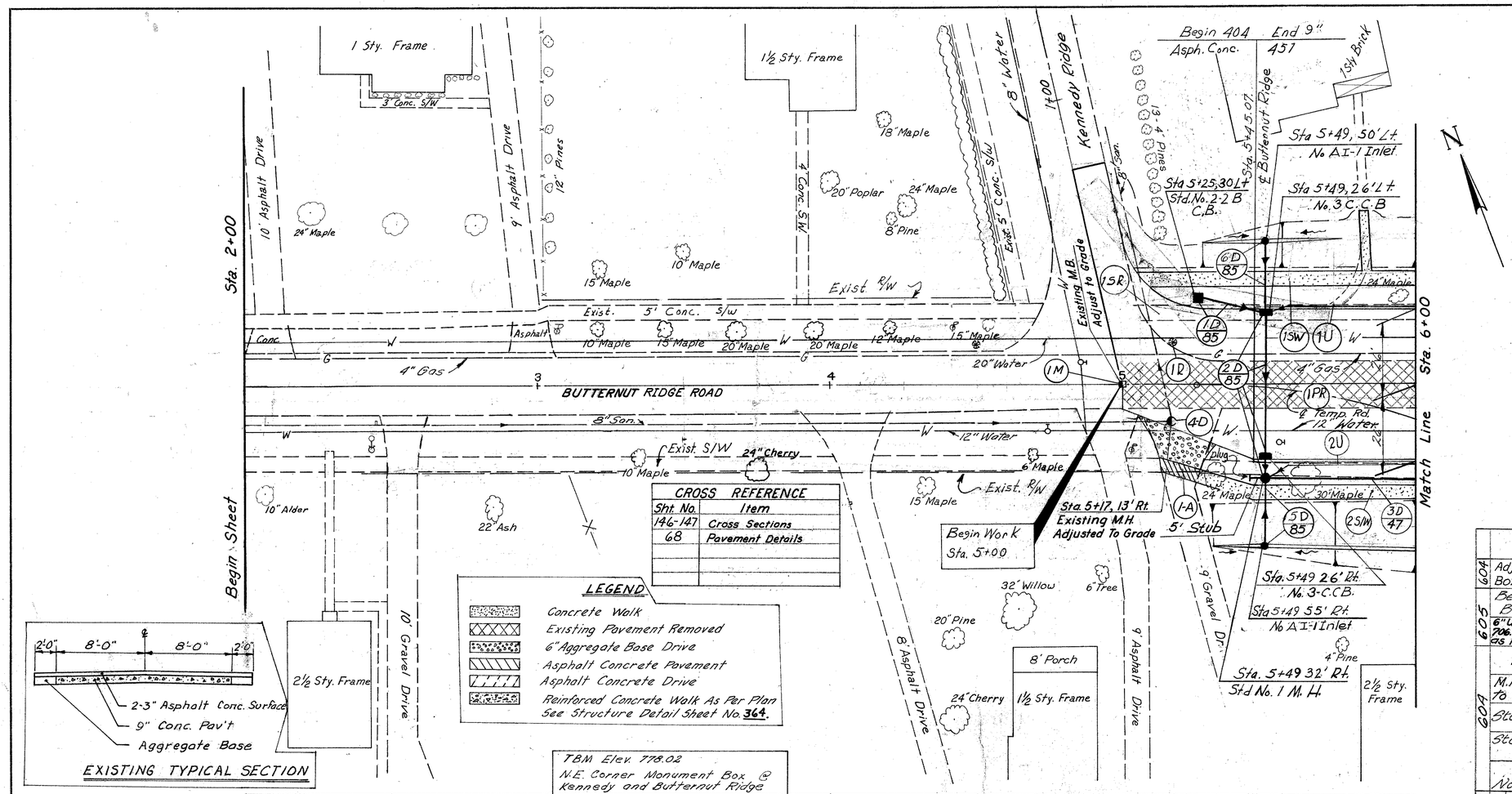
Item No.	Item	Size	Unit	1D	2D	1-R	1-P	1-SR	1-SW	SANITARY	3D		Total
608	4½" Concrete Walk As Per Plan		S.F.						5306				5306
408	Bituminous Prime Coat		Gal.				364						364
404	Asphalt Concrete		C.Y.				24						24
402	Asphalt Conc.		C.Y.				48						48
310	6" Subbase		C.Y.				159						159
304	6" Aggregate Base		C.Y.				152						152
203	Subgrade Compaction		S.Y.				953						953
604	Std. No. 2-3 C.B. w/ windows		Ea.		1								1
	Std. No. 2-2B C.B.		Ea.	4	1								5
	Std. No. 5 C.B. Grate "B"		Ea.		1								1
	Std. No. 5 M.H. With 706.11 Joints		Ea.								1		1
603	Type "F" 707.05 - TYPE "C"	12"	L.F.	4									4
	Type "C" 706.02 D-1500 Cl. "C" Bedding or 706.08 Enc.	27"	L.F.		8								8
		12"	L.F.	38	22								60
	Type "C" 706.08 E.S. With 706.12 Joints	8"	L.F.								233		233
602	Concrete Masonry		C.Y.	69									69
202	Exist. S/W Removed		S.F.					2800					2800
	Exist Culvert Removed		Lump			Lump							Lump
	Estimated Quantities		Side	Lt. & Rt.	Rt.	Lt./Rt.	Lt. & Rt.	Lt. & Rt.	Lt. & Rt.		Rt.		
			Location	15+50 to 16+24	19+20 to 19+32	17+85	15+50 to 19+40	15+90 Lt. to 19+25 Rt.	15+90 Lt. to 19+25 Rt.		17+42 to 19+75		Total

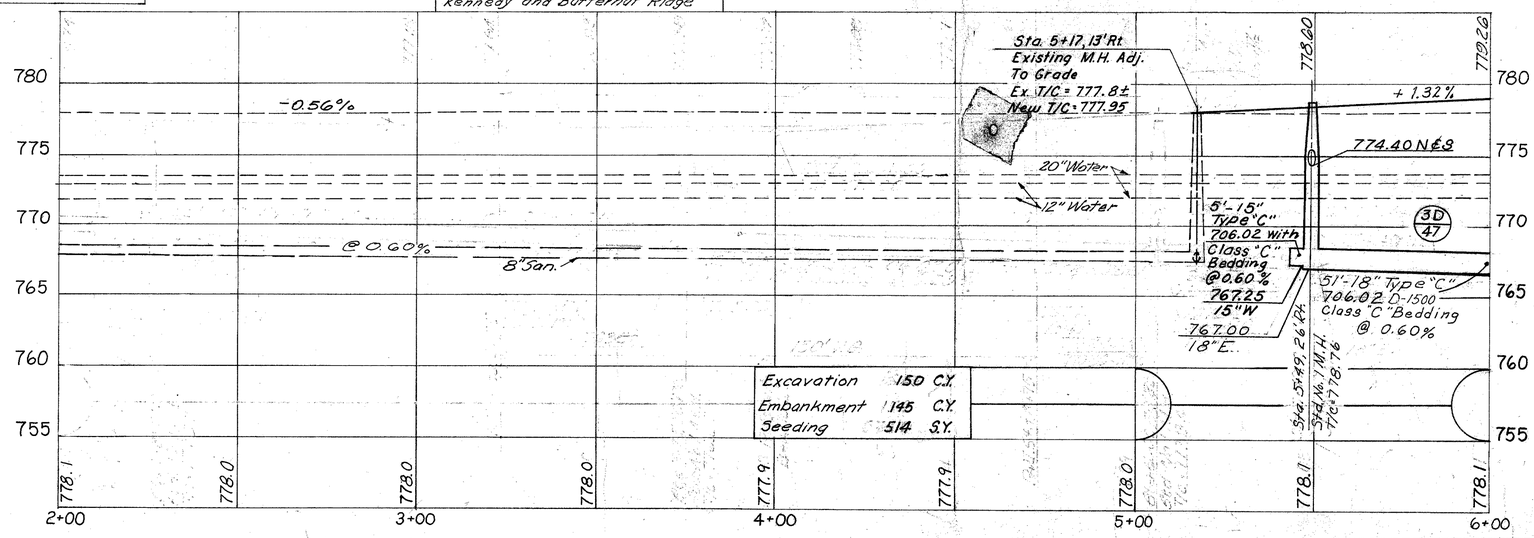
	Item No.	Item	Size	Unit	4D			1G	2G	Total
RDWY.	606	Special Guard Post		Ea.				1	1	2
DRAIN.	603	Type "B"	15"	L.F.	33					33
	602	Concrete Masonry		C.Y.	0.5					0.5
		Estimated Quantities		Side	Lt.			Lt.	Rt.	
				Location	18+31 to 18+64			18+46	19+68	Total

CROSS REFERENCE	
Sht. No.	Item
144-145	Cross Sections
221-222	Relocated Water Lines
93 & 94	Culvert Details
65	Fitch Temp. Rd.

J.L. 12-10-71
G.M.K. 12-14-71

FITCH RD. STA. 14+50 TO STA. 20+00





FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

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427

CUYAHOGA COUNTY
CUY-480-1.90

EXISTING TYPICAL SECTION

CROSS REFERENCE	
Sht. No.	Item
146-147	Cross Sections
68	Pavement Details

LEGEND

- ▨ Concrete Walk
- ☒ Existing Pavement Removed
- ▨ 6" Aggregate Base Drive
- ▨ Asphalt Concrete Pavement
- ▨ Asphalt Concrete Drive
- ▨ Reinforced Concrete Walk As Per Plan See Structure Detail Sheet No. 364.

TBM Elev. 778.02
N.E. Corner Monument Box @ Kennedy and Butternut Ridge

Excavation	150	C.Y.
Embankment	145	C.Y.
Seeding	514	S.Y.

Roadway			304	202	409		608	202	452
Estimated Quantities			6" Aggregate Base	Exist. S./W. Removed	Seal/Coat Bituminous Material @ 0.40 Gal. S.Y.	Seal/Coat Cover Aggregate No. 8 @ 0.008 C.Y./S.Y.	4 ½" Concrete Walk As Per Plan	Exist. Pav't Removed	6" Plain Concrete Pav't.
Ref. No.	Side	Location	C.Y.	S.F.	Gal.	C.Y.	S.F.	S.Y.	S.Y.
1-A	Rt.	5+12	4		11.6	0.2			7
1PR	Lt./Rt.	5+00 to 6+00						179	
1S.R.	Lt.	5+05 to 6+00		502					
1S.W.	Lt.	5+05 to 6+00					535		
2S-W	Rt.	5+25 to 6+00					375		
Total			4	502	11.6	☒	910	179	7

				Ref. No.	1D	2D	3D	5D	6D	1M	1U	2U		4D	Total
				Side	Lt.	Lt.&Rt.	Rt.	Rt.	Lt.	℄	Lt.	Rt.		Rt.	
Estimated Quantities				Location	5+25 to 5+49	5+49	5+49 to 6+00	5+49	5+49	5+00	5+49 to 6+00	5+49 to 6+00		5+17	
604	Adjust Monument Box to Grade			Ea.						1					1
605	Bends & Branches			Ea.							1	1			☒
605	6" Underdrain 706.08 Perforated as Per Plan			L.F.							54	54			108
604	No AI-1 Inlet			Ea.				1	1						2
604	M.H. Adjusted to Grade			Ea.										1	1
604	Std. No. 1 M.H.			Ea.		1									1
604	Std. No. 2-2 B. C.B.			Ea.	1										1
604	No. 3-C C.B.			Ea.		2							SANITARY		2
603	With Class "C" Bedding	Type "C" 706.02 D-1500	18"	L.F.			51								51
603	With Class "C" Bedding	Type "C" 706.02	15"	L.F.			5								5
603	With Class "C" Bedding	Type "C" 706.02 or 706.08 Enc.	12"	L.F.		51									51
603	With Class "C" Bedding	Type "C" 706.01, 706.02 or 706.08	12"	L.F.	24	7									31
603	Type "C" 706.08 with Class "C" Bedding		6"	L.F.				17	21						38

L.M.B. 6-24-70
F.J.C. 7-20-70

BUTTERNUT RIDGE RD. STA. 2+00 TO STA. 6+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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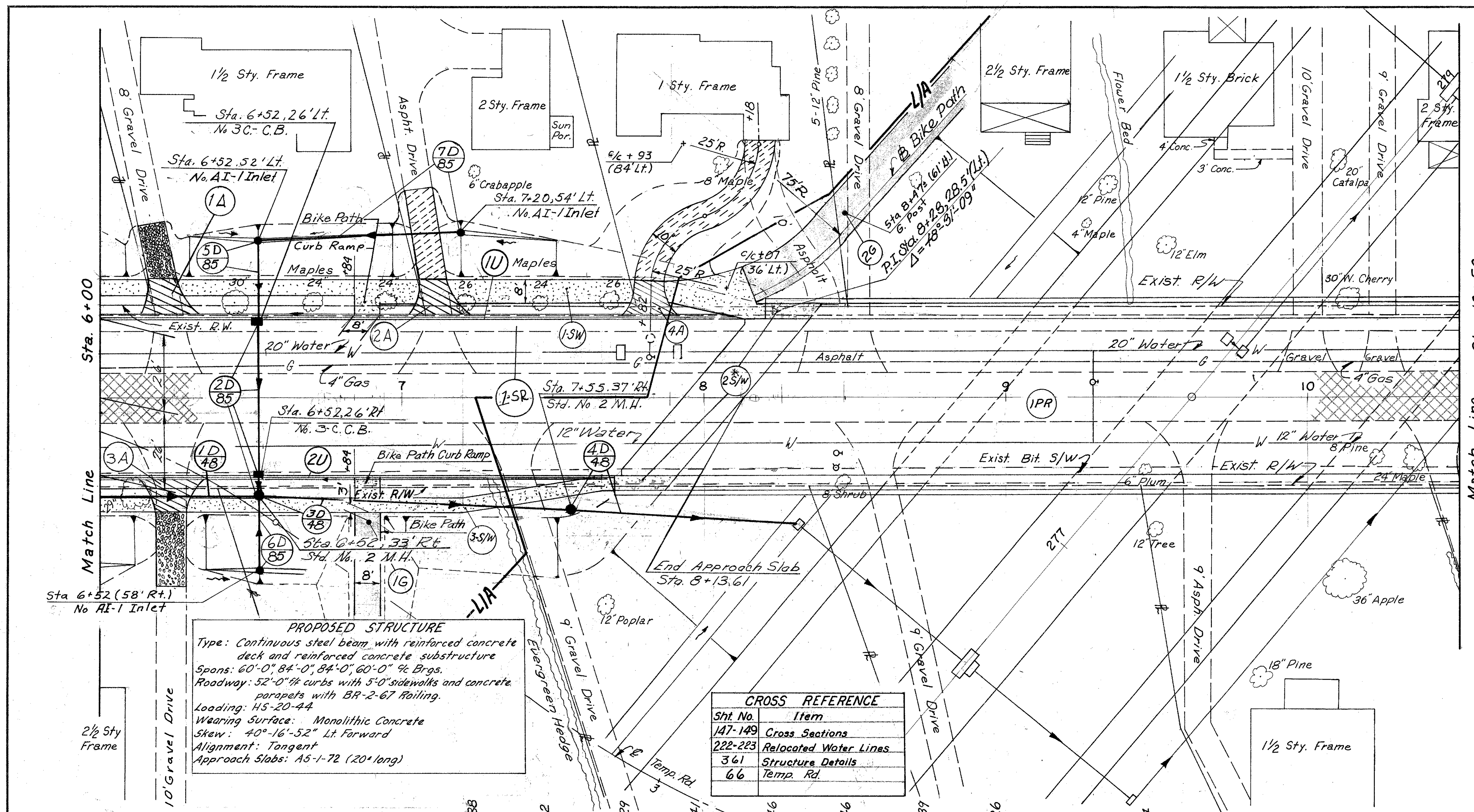
427

CUYAHOGA COUNTY
CUY-480-1.90

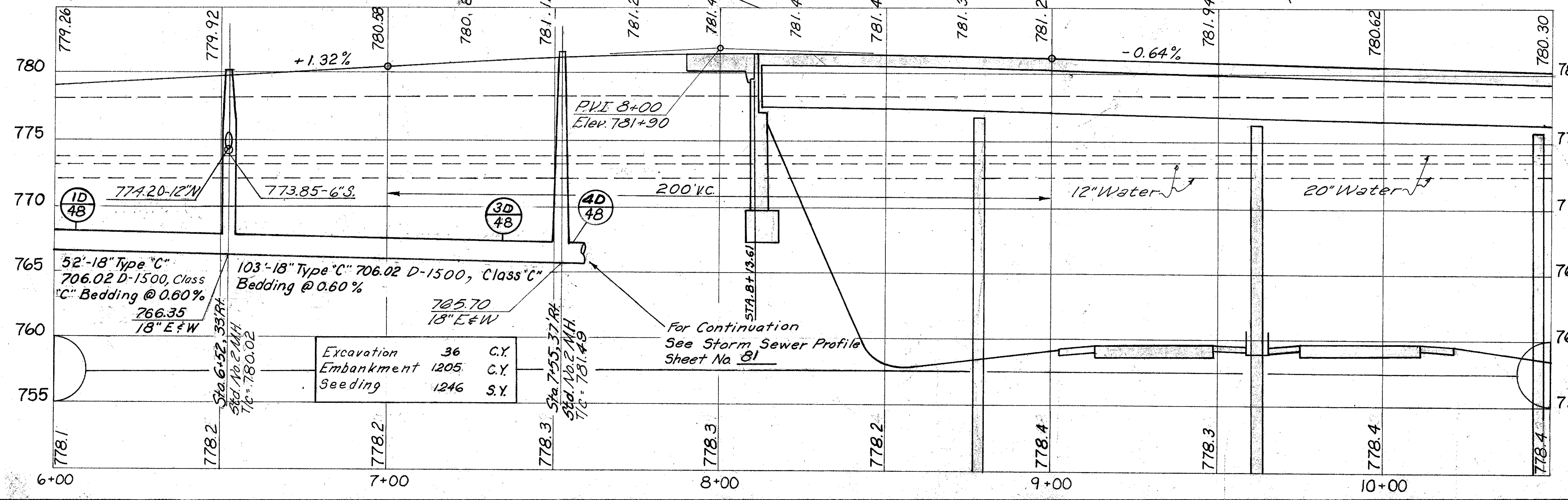


PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck and reinforced concrete substructure
Spans: 60'-0", 84'-0", 84'-0", 60'-0" c/c Brgs.
Roadway: 52'-0" f/f curbs with 5'-0" sidewalks and concrete parapets with BR-2-67 Railing.
Loading: HS-20-44
Wearing Surface: Monolithic Concrete
Skew: 40°-16'-52" Lt. Forward
Alignment: Tangent
Approach Slabs: AS-1-72 (20' long)

CROSS REFERENCE

Sht. No.	Item
147-149	Cross Sections
222-223	Relocated Water Lines
361	Structure Details
66	Temp. Rd.



Excavation	36	C.Y.
Embankment	1205	C.Y.
Seeding	1246	S.Y.

ROADWAY Estimated Quantities			202		304	404	408	452	608	409	409
			Exist. Pav't. Removed	Exist. S/W Removed	6" Aggregate Base	2" Asphalt Concrete	Prime Coat @ 0.40 gal. S/Y	6" Plain Concrete Pav't.	4½" Conc. S/W as per plan	Seal Coat Bituminous Mater.	Seal Coat Cover Aggregate
Ref. No.	Side	Location	S.Y.	S.F.	C.Y.	C.Y.	Gal.	S.Y.	S.F.	Gal.	C.Y.
1-A	Lt.	6+31			2.6			15		6	.1
2A	Lt.	7+17				1.7	12	16			
3-A	Rt.	6+26			5.0			15		12	.2
4A	Lt.	7+82			12.7	4.2	30	15			
1PR	Lt/Rt.	6+00 to 10+50	800								
1-SR	Lt.	6+00 to 10+50		2250							
1-SW	Lt.	6+00 to 8+13							1383		
3-S/W	Rt.	6+00 to 7+70							860		
Total			800	2250	20.3	5.9	42	61	2243	18	X

Estimated Quantities			Ref. No.	1D	2D	3D	4D	5D	6D	7D	1SW	1U	2U	1G	2G	Total
			Side	Rt.	Lt&Rt.	Rt.	Rt.	Lt.	Rt.	Lt.	Lt.	Lt.	Rt.	Rt.	Lt.	
			Location	6+00 to 6+52	6+52	6+52 to 7+55	7+55 to 776+50, I-80	6+52	6+52	6+52 to 7+20	6+88	6+00 to 8+03	6+00 to 7+63	6+88	8+47	
606	Guard Post, As Per Plan		Ea											1	1	2
603	Type "C" 706.01, 706.02 or 706.08 with Class "C" Bedding	12"	Ea.		7											7
605	Bends & Branches		Ea.													X
605	6" Underdrain 706.08 Perforated as Per Plan		L.F.									203	163			366
604	No. AI-1 Inlet		Ea.					1	1	1						3
604	Std. No. 2 M.H.		Ea.		1	1										2
604	No. 3-C C.B.		Ea.		2											2
603	Type "F" 707.05	18"	L.F.				42									42
603	Type "C" 706.02 D-1500 Class "C" Bedding	18"	L.F.	52		103	33									188
603	Type "C" 706.02 with Cl. "C" Bedding or 706.08 Enc.	12"	L.F.		51											51
603	Type "C" 706.08 with Class "C" Bedding	6"	L.F.					26	24	67						117

Note: For Legend Detail See Sheet No. 47
* Quantity Carried On Sheet No. 49

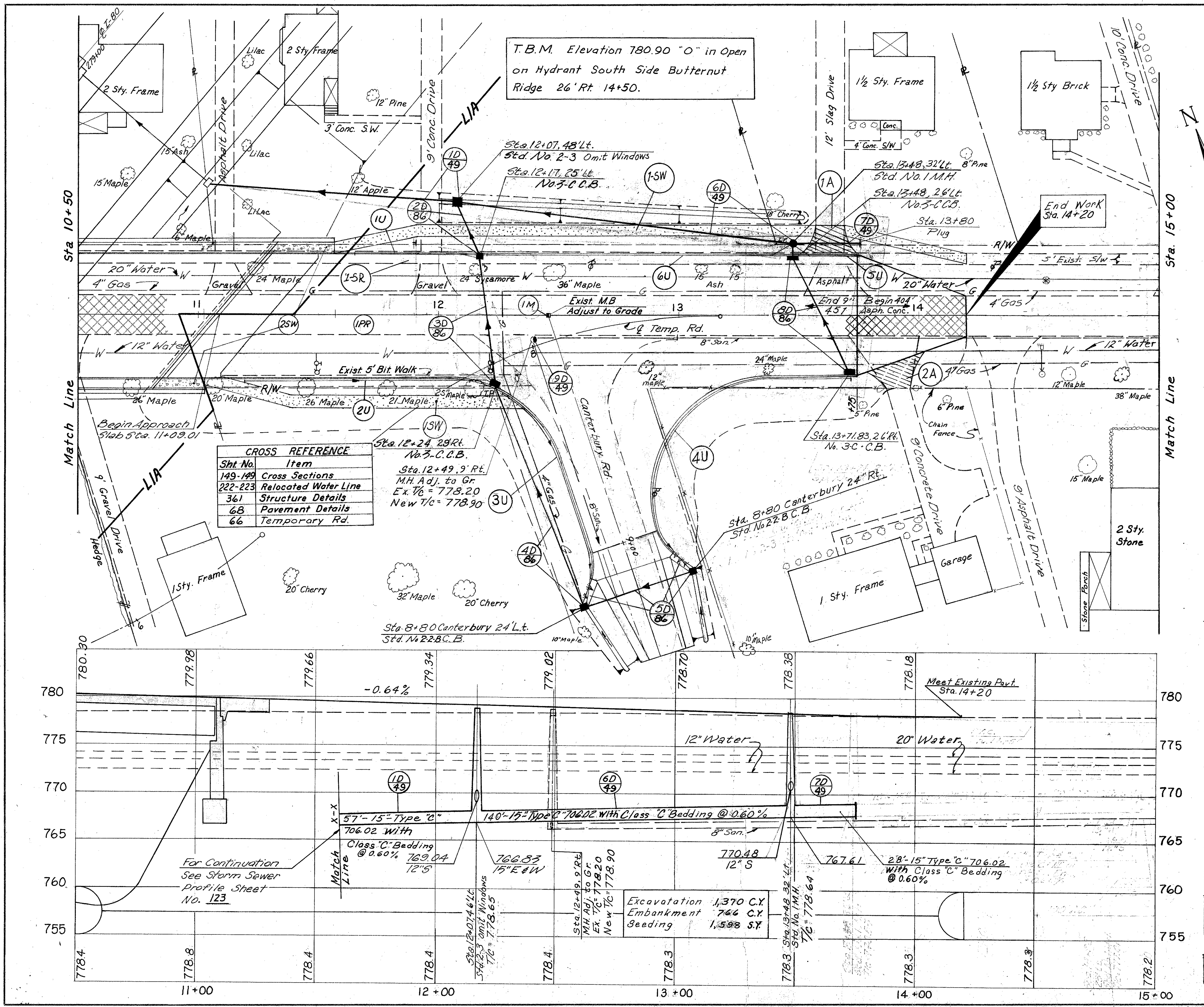
For Reinf. Concrete Walk, As Per Plan,
See Struct. Det. Sheet No. 364

M.L.B. 6-24-70
F.J.C. 7-20-70

BUTTERNUT RIDGE RD. STA. 6+00 TO STA. 10+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90



T.B.M. Elevation 780.90 "O" in Open on Hydrant South Side Butternut Ridge 26' Rt. 14+50.

CROSS REFERENCE	
Sht. No.	Item
149-149	Cross Sections
222-223	Relocated Water Line
361	Structure Details
68	Pavement Details
66	Temporary Rd.

Excavatation	1,370	C.Y.
Embankment	766	C.Y.
Seeding	1,598	S.Y.

ROADWAY Estimated Quantities			202		304	404	408	452	608		
			Exist. Pavt. Removed	Exist. S/W Removed	6" Aggregate Base	2" Asphalt Conc.	Prime Coat @ 0.40 gal. S/Y.	6" Plain Concrete Pavt.	4½" Concrete Walk As Per Plan	Reinforced Conc. Walk As Per Plan	Curb Ramp
Ref. No.	Side	Location	S.Y.	S.F.	C.Y.	C.Y.	Gal.	S.Y.	S.F.	S.F.	Ea.
1-A	Lt.	13+63						20			
2-A	Rt.	13+90	46		4	1	9				
1PR	Lt/Rt.	10+50 to 14+20	658								
1SR	Lt.	10+50 to 14+20		1850							
1SW	Lt.	11+57 to 14+20							1890		1
2SW	Lt/Rt.	As Indicated *								325	
Total			704	1850	4	1	9	20	1890	325	1

* Includes Sheet 48 - 2SW

	Estimated Quantities		Ref. No.	1D	2D	3D	4D	5D	6D	7D	8D	1M	1-U	2-U	3U	4U	5U	6U		9-D			Total
			Side	Lt.	Lt.	Lt./Rt.	Lt.	Lt./Rt.	Lt.	Rt.	Lt./Rt.	℄	Lt.	Rt.	Lt.	Rt.	Lt.	Lt.		Lt.			
			Location	11+05 to 12+05	12+07 to 12+17	12+17 to 12+25	9+78 to 8+80 Cby.	9+20 Canterbury	12+07 to 13+48	13+48 to 13+80	13+48 to 13+71.83	12+46	11+67 to 12+17	11+20 to 12+05	10+25 Cby. to 8+80	13+71, Butt. to 8+80 Cby.	13+48 to 13+75	12+22 to 13+48		12+40			
660	Sodding		S.Y.					4															4
605	Bends & Branches		Ea.										1	1			1	1					X
605	6" Underdrain 706.08 Perforated as Per Plan		L.F.										50	122	100	145	27	126					570
604	M.H. Adjust to Grade		Ea																	1			1
604	Std. No. 2-3 C.B. omit Windows		Ea.	1																			1
604	Std. No. 1 M.H.		Ea.						1														1
604	Adjust Monument Box to Grade		Ea.									1											1
604	No. 3-C C.B.		Ea.		1	1					2								SANITARY				4
604	Std. No. 2-2-B C.B.		Ea				1	1															2
603	Type "F" 707.05	15"	L.F.	46																			46
603 Class "C" Bedding	Type "C" 706.02	15"	L.F.	57					140	28													225
603 Class "C" Bedding	Type "C" 706.01 706.02 or 706.08	12"	L.F.								7												7
603 Class "C" Bedding	Type "C" 706.02	12"	L.F.		25		100																125
603	Type "C" 706.02 with Class "C" Bedding or 706.08 Encased	12"	L.F.			54		47			53												154

Note: For Legend Detail See Sheet No. 47
For Reinforced Concrete Walk, As Per Plan, See Structure Detail Sheet No. 364

M.L.B. 6-2
F.J.C. 7-2

BUTTERNUT RIDGE RD. STA. 10+50 TO STA. 15+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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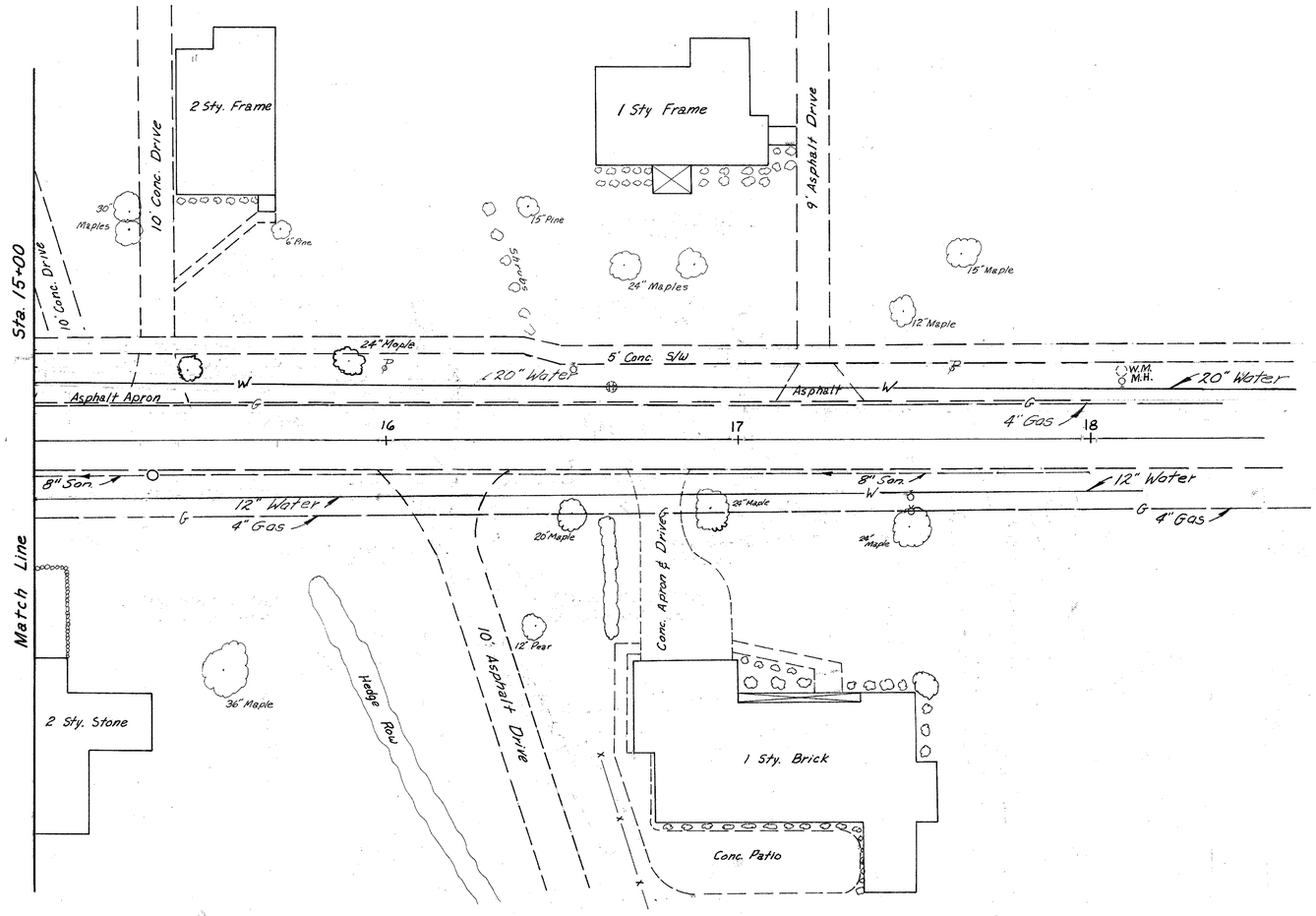
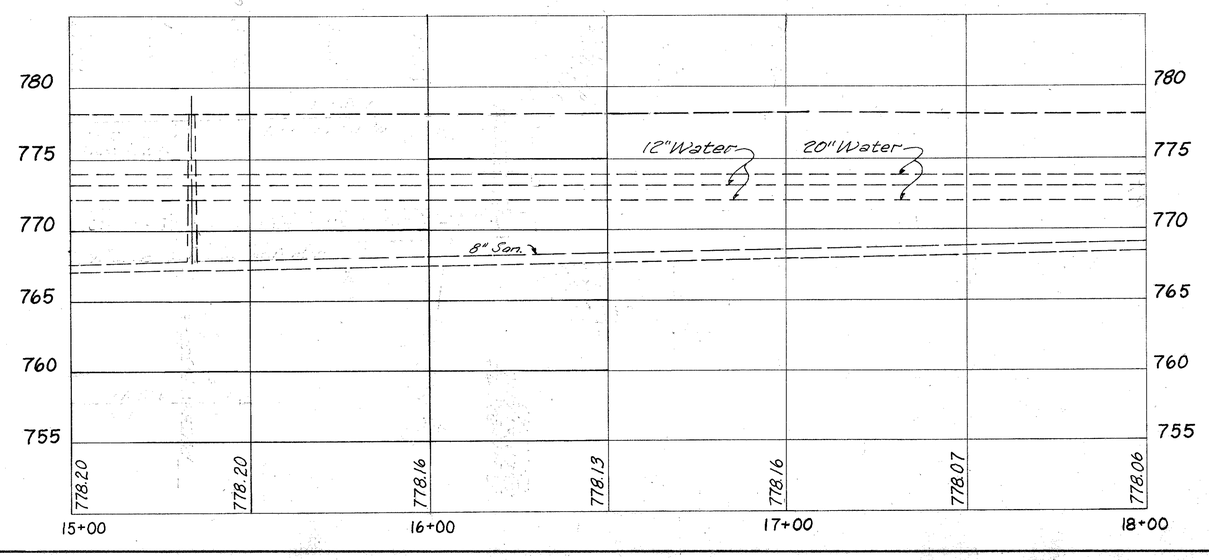
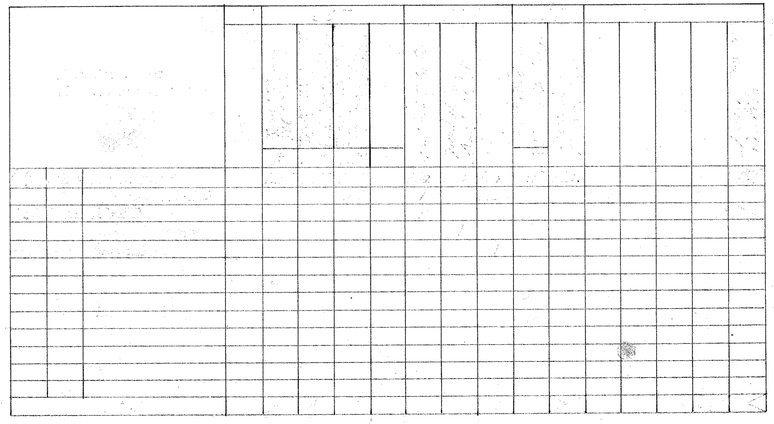
427

CUYAHOGA COUNTY
CUY-480-1.90







BUTTERNUT RIDGE RD. STA. 15 + 00 TO STA. 18 + 00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

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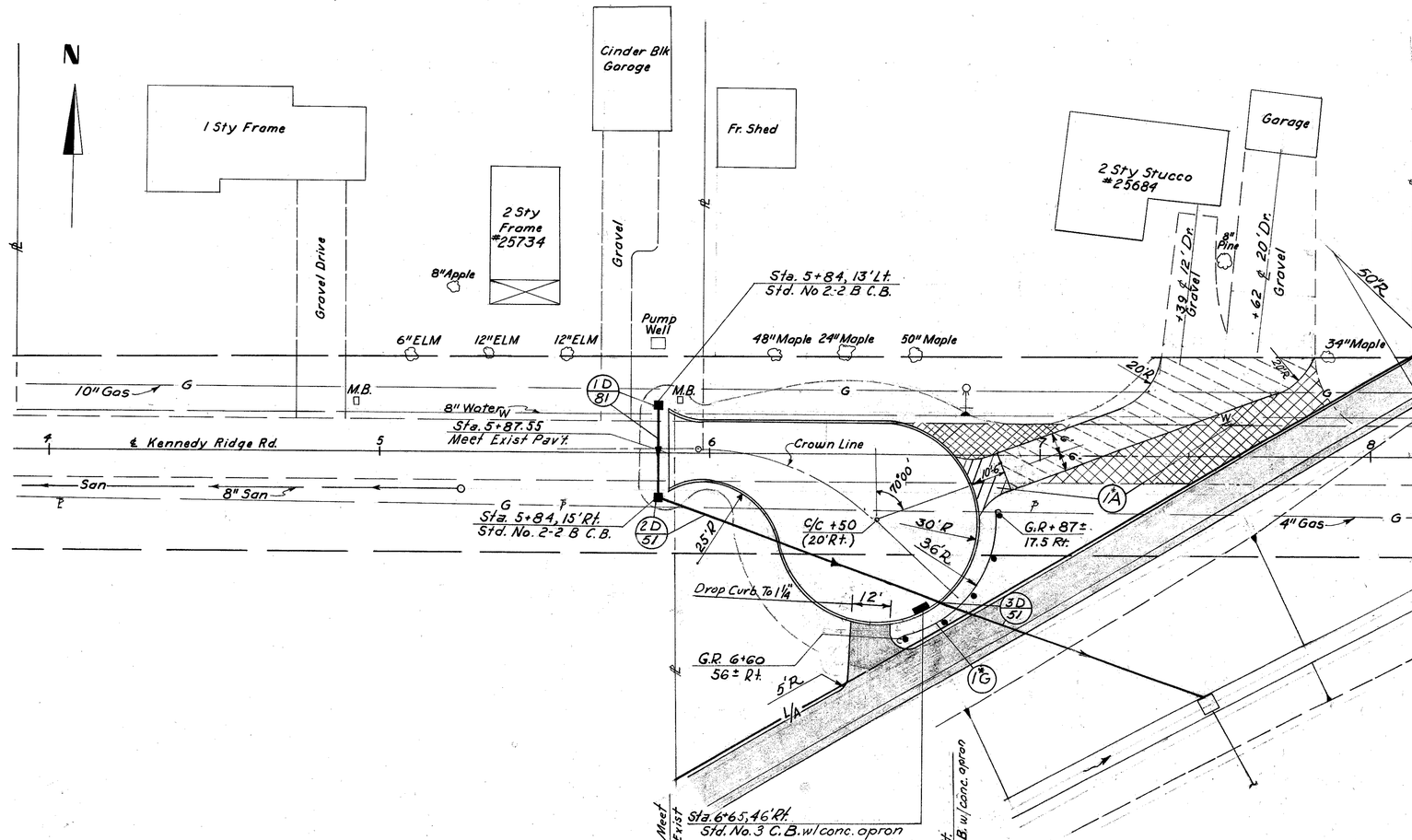
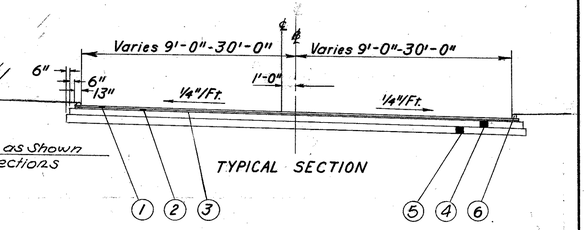
LEGEND

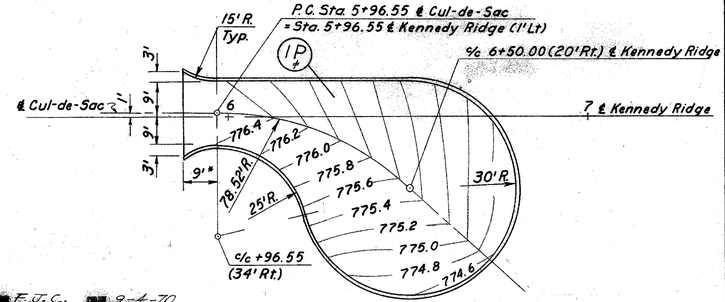
- Existing Pavement And Shoulder Area to be Removed And Area Graded And Reseeded. Cost to be Included in Item 659 Seeding And Mulching
- Asphalt Concrete Drive
- Concrete Drive

CROSS REFERENCE	
Sht. No.	Item
153	Cross Sections
224	Water Works





(1) Item 404 1¼" Asphalt Concrete [illegible]
(2) Item 402 1¼" Asphalt Concrete [illegible]
(3) Item 408 Bituminous Coat 702.09 Rt 2 or Rt-3 Applied At The Rate Of 0.40 Gallons Per Sq. Yd.
(4) Item 304 6" Aggregate Base Course
(5) Item 310 6" Subbase
(6) Item 609 Asphalt Concrete Curb - Type I



F.H.C. 9-4-70
W.A.M. 10-16-70

* Taper Curb Height From 6" to 2"
†For Roadway Quantities See Sheet No. 52

Estimated Quantities			603		604	606	
			Type "A" 706.02D-1500 or 706.08 End. w/ Class "C" Bedding	Type "F" 707.05	6" Asphalt Concrete	Std. No. 2-2 B C.B.	Std. No. 3 C.B. w/conc. apron
			12"	15"			
Ref. No	Side	Location	L.F.	L.F.	C.Y	Ea.	Ea.
1D	Lt.	5+84	28			1	
2D	Rt.	5+84 to 6+68	90			1	
3D	Rt.	6+68 to 299+75 I-80		85			1
					17		
		Total	118	85	17	2	1

KENNEDY RIDGE RD. PLAN & PROFILE STA. 4+00 TO STA. 8+00 (WEST CUL-DE-SAC)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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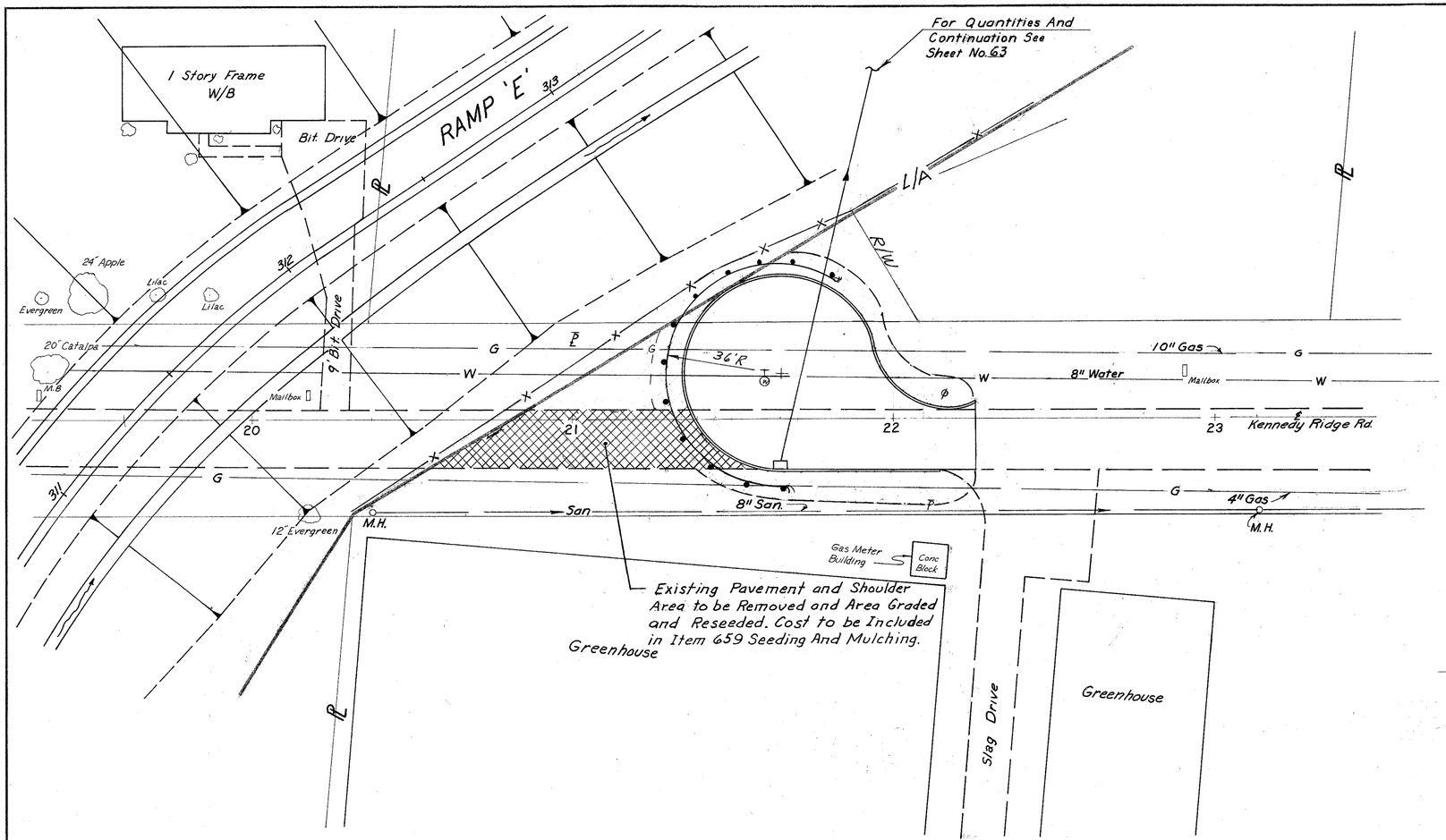
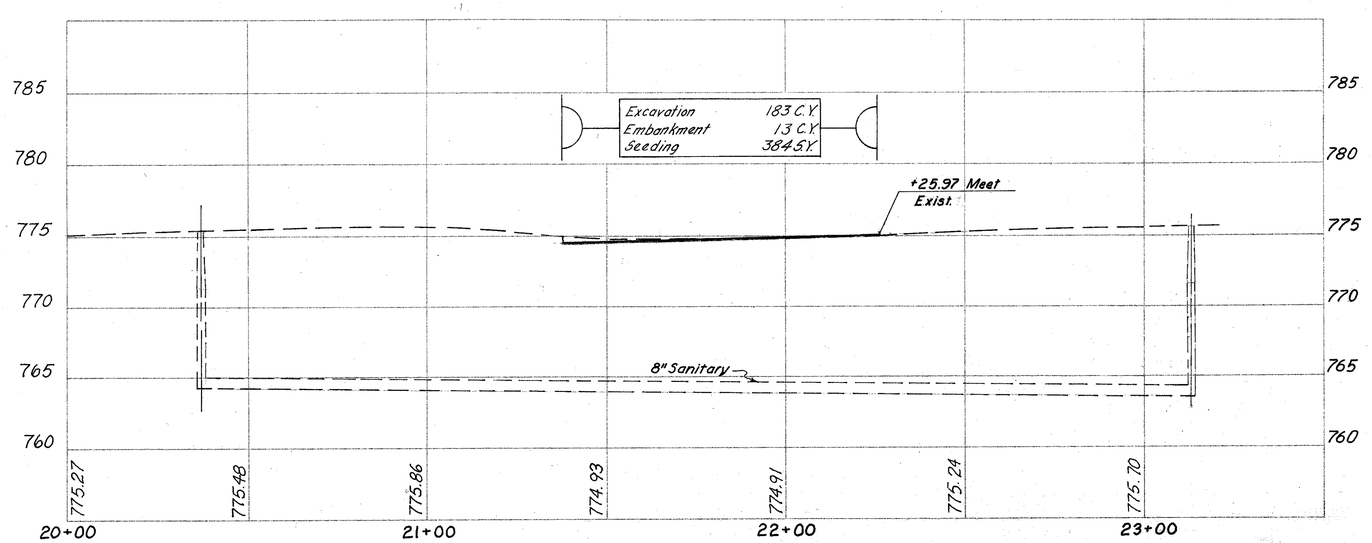
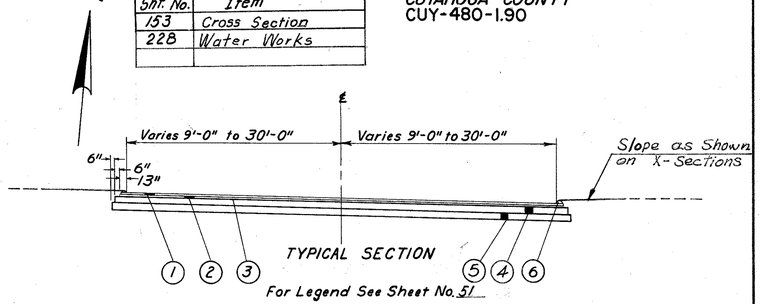
427

CUYAHOGA COUNTY
CUY-480-1.90

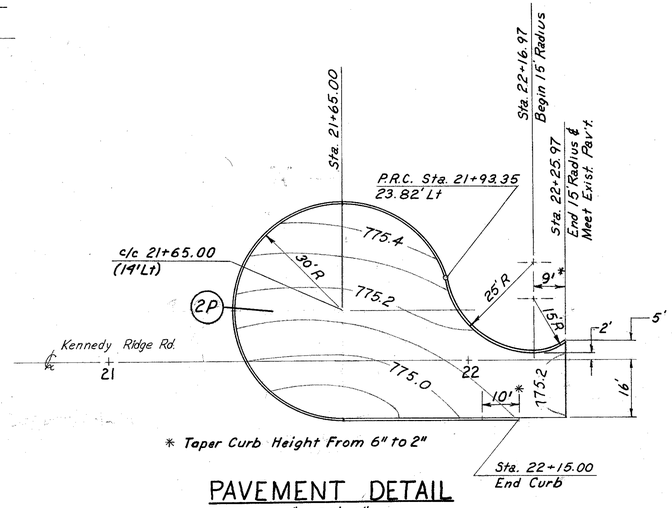
CROSS REFERENCE	
Sht. No.	Item
153	Cross Section
228	Water Works







For Legend See Sheet No. 51



* Taper Curb Height From 6" to 2"

PAVEMENT DETAIL

Scale : 1" = 20'-0"

Ref No.	Location	203 Sub-grade Compaction S.Y.	304 6" Aggregate Base C.Y.	310 6" Subbase C.Y.	402 Asphalt Concrete C.Y.	404 Asphalt Concrete C.Y.	408 Bituminous Prime Coat @ 0.40 Gal/S.Y. Gal.	452 6" Plain Concrete Pav't. S.Y.	606 Guard Rail Type 5 L.F.	609 Asphalt Concrete Curb L.F.
1-P	W. Cul-De-Sac Sht. 51	482	78	80	15	15	177			240
2-P	E. Cul-De-Sac	455	74	76	15	15	177			227
1-G	W. Cul-De-Sac Sht. 51								50	
2-G	E. Cul-De-Sac								75	
1-A	Sta. 6+50 Sht. 51		25			8	60	17		
	Total	937	177	156	30	38	414	17	125	467

12	F.T.C.	2-4-70
13	W.A.M.	10-16-70

KENNEDY RIDGE RD. PLAN & PROFILE STA. 20+00 TO STA. 23+00 (EAST CUL-DE-SAC)

FED. RD. DIVISION	STATE	PROJECT	[illegible]
2	OHIO		

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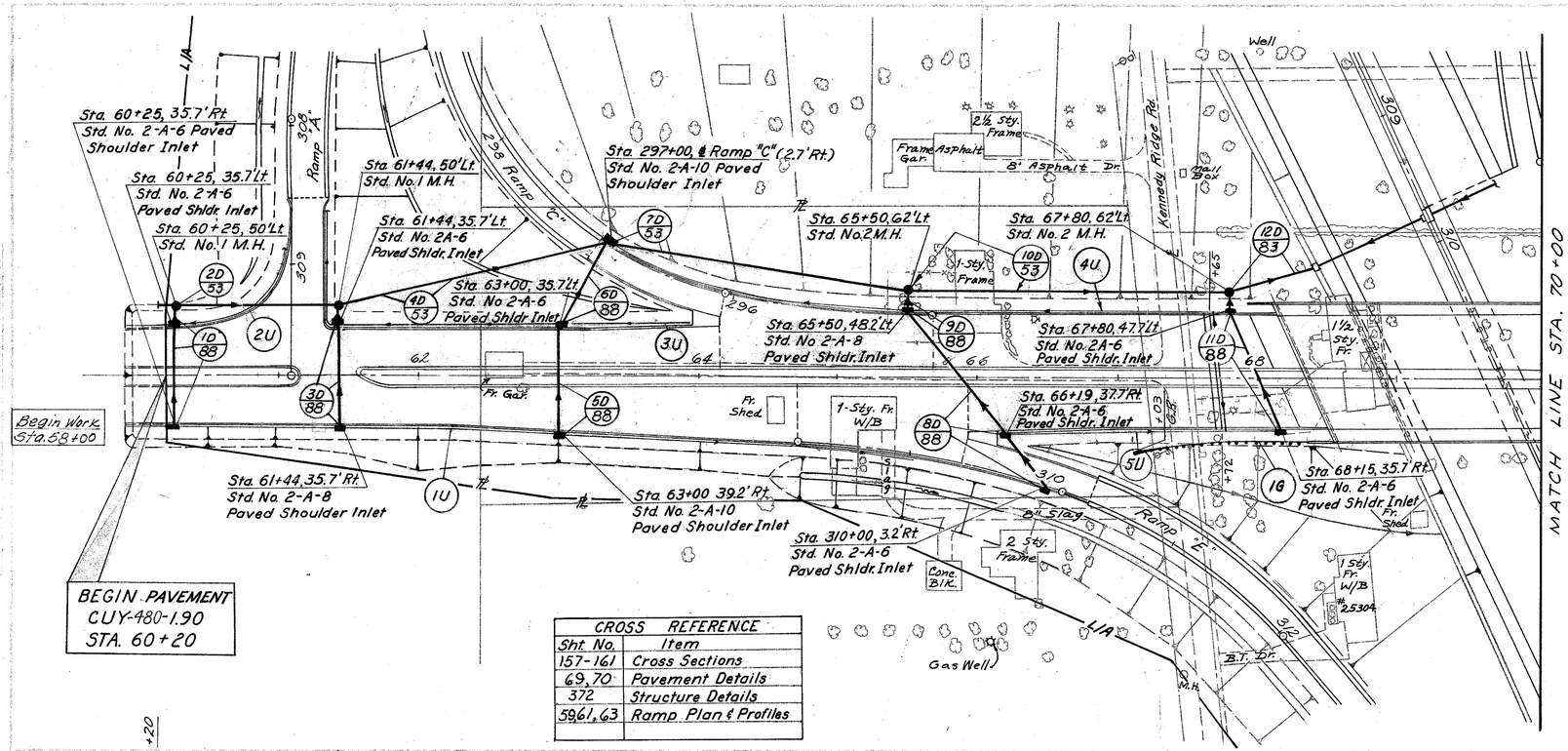
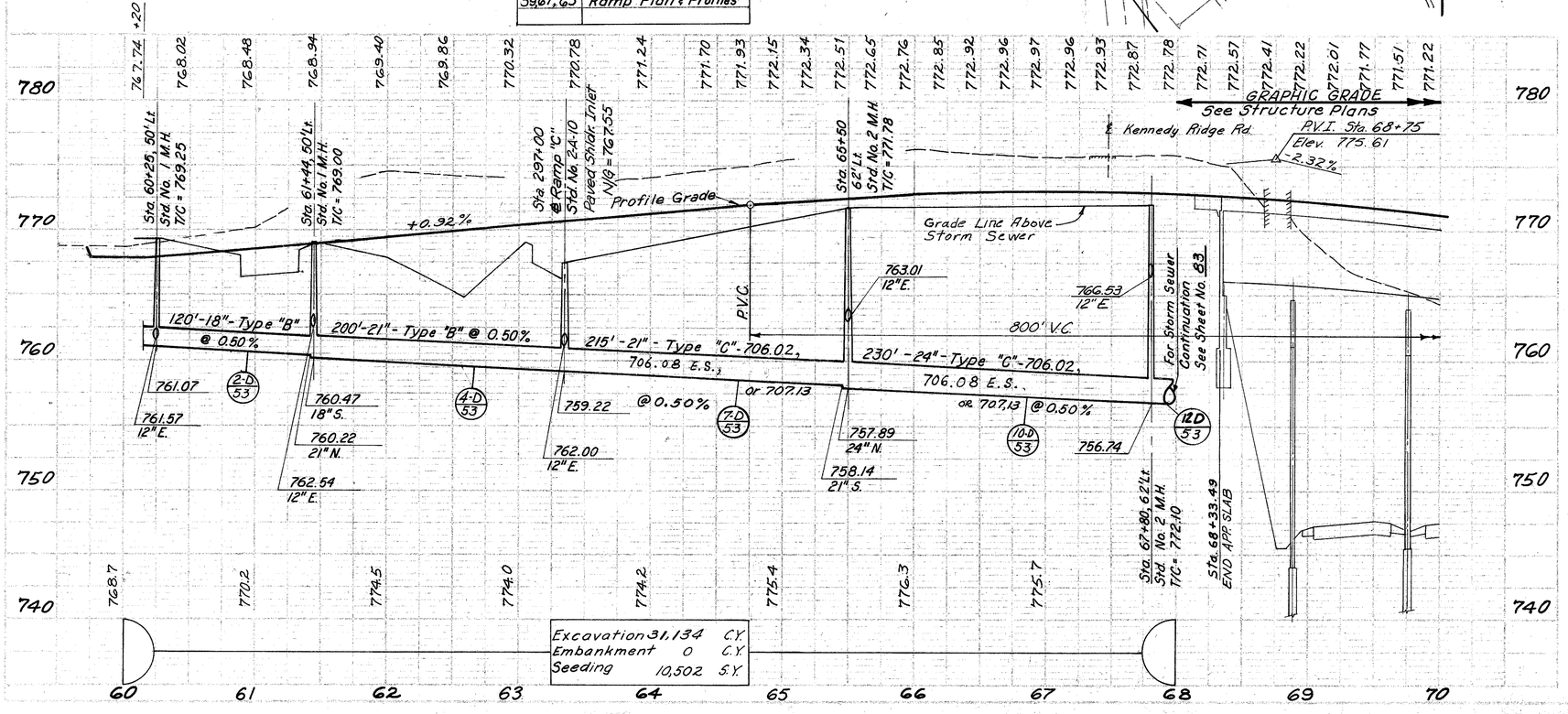
427

CUYAHOGA COUNTY
CUY-480-1.90



CROSS REFERENCE	
Sht. No.	Item
157-161	Cross Sections
69, 70	Pavement Details
372	Structure Details
59, 61, 63	Ramp Plan & Profiles



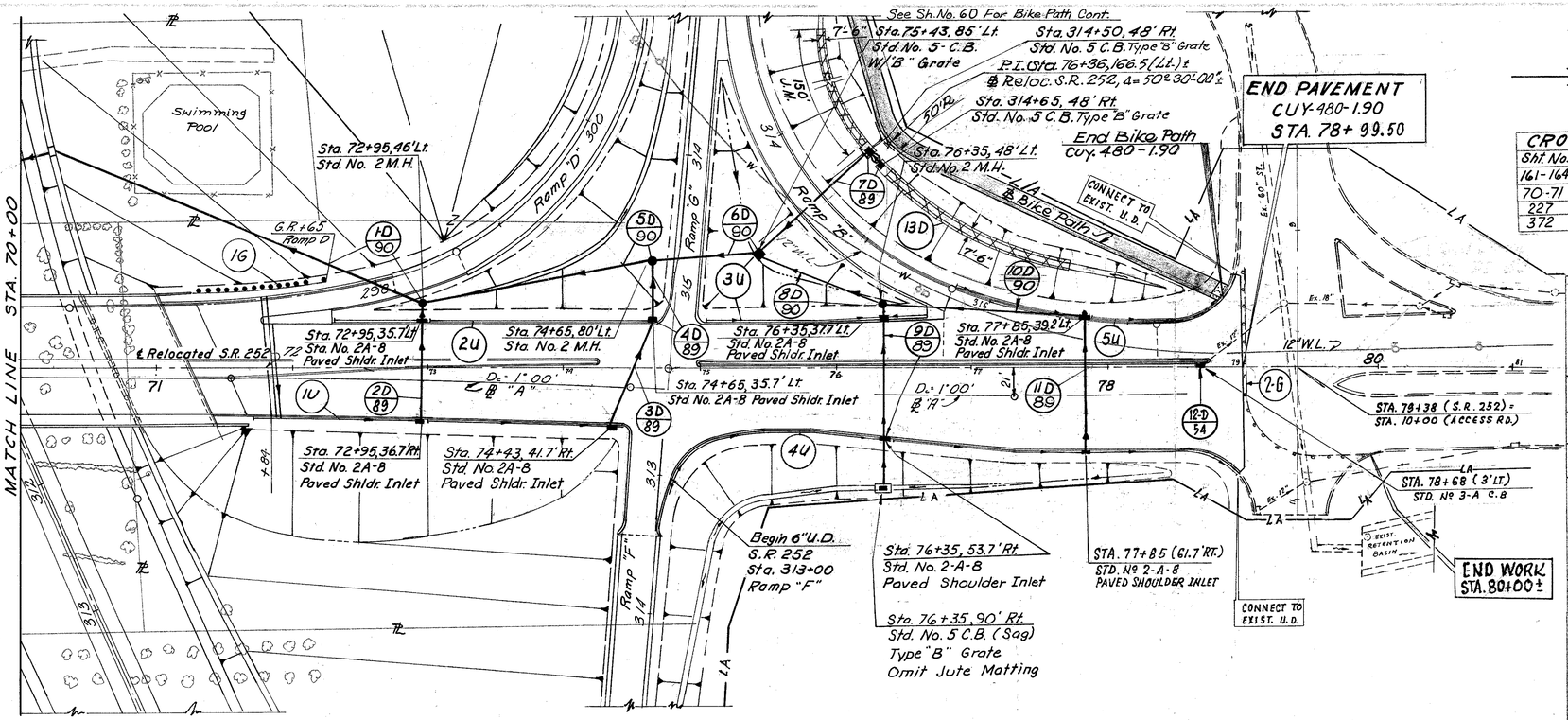
Excavation 31,134 C.Y.
Embankment 0 C.Y.
Seeding 10,502 S.Y.

Estimated Quantities

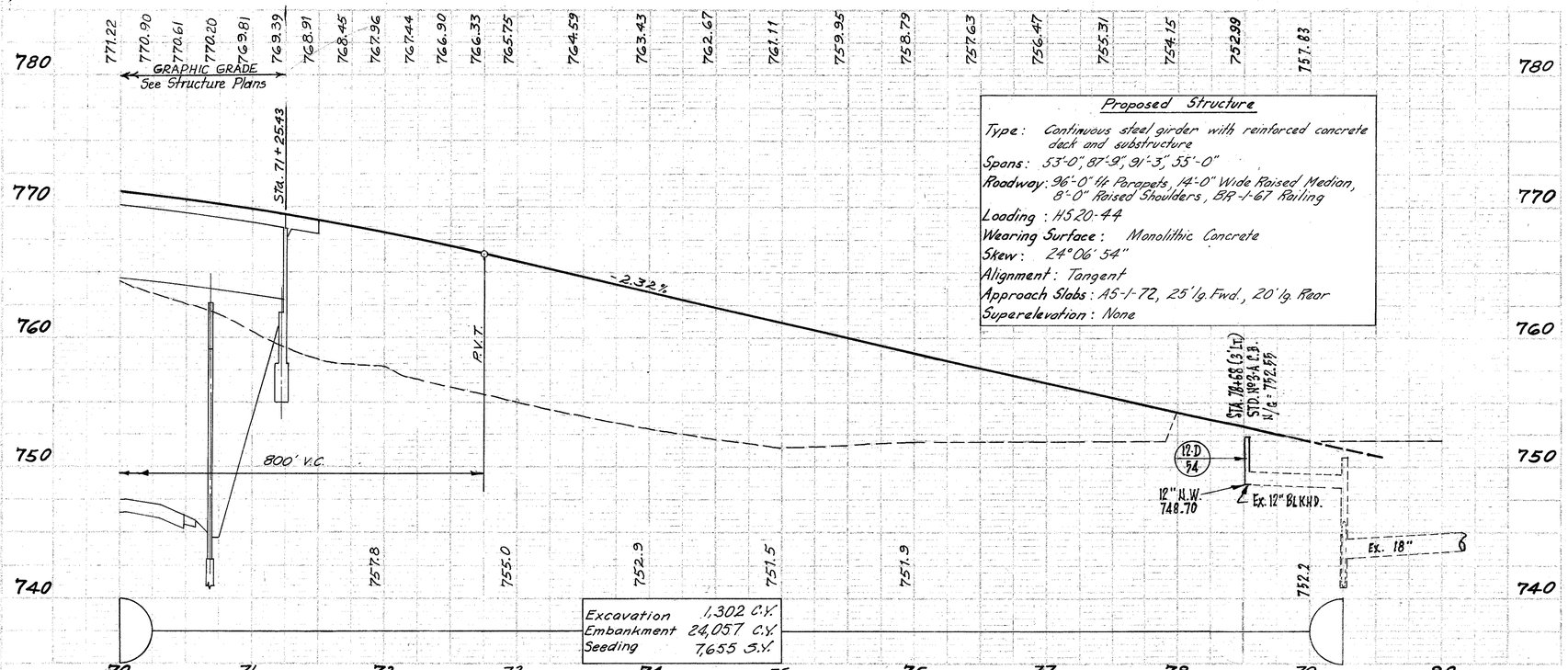
Item	Description	Size	Unit	1D	2D	3D	4D	5D	6D	7D	8D	9D	10D	11D	12D	1G	1U	2U	3U	4U	5U	TOTAL
	Side			Lt/Rt	Lt.	Lt/Rt.	Lt.	Lt/Rt.	Lt.	Lt.	Lt/Rt.	Lt.	Lt.	Lt/Rt.	Lt.	Rt.	Rt.	Lt.	Lt.	Lt.	Rt.	
	Location			60+25	60+25 to 61+44	61+44	61+44 to 297+00 Ramp "C"	63+00	63+00 to 297+00 Ramp "C"	297+00 to 65+30	310+00 Ramp "E" to 65+50	65+50	65+50 to 67+80	68+15 to 67+80	67+80 to 309+80, I-80	67+03 to Str.	60+25 to 309+00 Ramp "E"	60+25 to 309+00 Ramp "A"	61+44 to 63+95	296+04 Ramp "C" to 67+80	66+19 to 68+15	
606	Bridge Terminal Assembly, Type A		Ea.													1						1
	Anchor Assembly Type "A"		Ea.													1						1
	Guard Rail Type 5 Standard		L.F.													100						100
	Bends & Branches		Ea.																	1	1	☒
605																						
	Shallow	6"	L.F.														495	95	231	384	223	1428
604	Std. No. 2 M.H.		Ea.										1		1							2
	Std. No. 1 M.H.		Ea.		1		1															2
	Std No. 2-A-10 Paved Shldr. Inlet		Ea.					1		1												2
	Std. No. 2-A-8 Paved Shldr. Inlet		Ea.			1						1										2
	Std. No. 2-A-6 Paved Shldr. Inlet		Ea.	2		1			1		2			2								8
603	Type "F" 707.05	24"	L.F.												60							60
	Type "C" 706.02 706.08 E.S.	24"	L.F.										230									230
	or 707.13	21"	L.F.							215												215
	Type "B"	21"	L.F.				200															200
	Type "B"	18"	L.F.		120																	120
	Type "C"	12"	L.F.	15		15						15		14								59
	Type "B"	12"	L.F.	71		72		74	74		162			88								541
	Type "F"	6"	L.F.														30	10	20	20	10	90

E.J.K. 7-8-70
H.J.H. 7-14-70

RELOCATED S.R. 252 PLAN & PROFILE STA 60+20.00 TO STA 70+00



CROSS REFERENCE	
Sht. No.	Item
161-164	Cross Section
70-71	Pavement Detail
227	Water Works
372	Structure Plan



Proposed Structure

Type: Continuous steel girder with reinforced concrete deck and substructure
Spans: 53'-0", 87'-9", 91'-3", 55'-0"
Roadway: 96'-0" f/f Parapets, 14'-0" Wide Raised Median, 8'-0" Raised Shoulders, BR-1-67 Railing
Loading: HS20-44
Wearing Surface: Monolithic Concrete
Skew: 24° 06' 54"
Alignment: Tangent
Approach Slabs: AS-1-72, 25' lg. Fwd., 20' lg. Rear
Superelevation: None

Excavation	1,302	C.Y.
Embankment	24,057	C.Y.
Seeding	7,655	S.Y.

606	Bridge Terminal Assembly, As Per Plan		Ea.																						1	1
	Terminal Assembly Ty. "A"		Ea.																						1	1
	Guard Rail Type 5 Standard		L.F.																						75	75
667	Seeding and Jute Matting		SY													250										250
202	Guard Rail Removed		L.F.															200								200
605	Bends Branches		Ea.																	1						X
	Unclassified	6"	L.F.																			21				21
	Shallow	6"	L.F.																	322	210	121	420	207		1280
604	Std. No 3-A C.B		Ea.											1												1
	Std. No 2 M.H.		Ea	1				1			1															3
	Std. No 5 C.B. W/"B" Grate		Ea						1	2		1														4
	Std. No. 2-A-8 Paved Shldr. Inlet		Ea		2	1	1					2		2												8
603																										
	Type "C" 706.02 D-2250 or 707.13	21"	L.F.					170																		170
	Type "B" 706.02 D-2250 or 707.13	21"	L.F.	295																						295
	Type "B" 706.02 D-1750 or 707.13	21"	L.F.						80																	80
	Type "C" 706.01 Cl. III 706.02, 706.08ES or 707.13	15"	L.F.								98															98
	Type "C"	15"	L.F.							15																15
	Type "B"	15"	L.F.							110																110
	Type "C"	12"	L.F.		10		42					46														98
	Type "B"	12"	L.F.		71	81						92	150	101												495
	Type "F"	6"	L.F.																	20	20	20	20	10		90
Estimated Quantities	Location			309+80 I-80 to 72+95	72+95	74+43 to 74+65	74+65	72+95 to 74+65	74+65 to 75+43	314+50 "B" to 314+65	75+43 to 76+35	76+35	76+35 to 77+85	77+85	78+68	312+64 Ramp "B" to 77+72		79+04 to 80+00 ±		71+68 to 74+43	72+30 to 74+65	75+04 to 76+66	313+00 Ramp "F" 78+94	316+76 Ramp "B" 78+94	Str. to 297+65 ℄ "D"	TOTAL
	Side			Lt.	Lt./Rt.	Lt./Rt.	Lt.	Lt.	Lt.	Lt.	Lt.	Lt./Rt.	Lt.	Lt./Rt.	Lt.	Lt.		Lt./Rt.		Rt.	Lt.	Lt.	Rt.	Lt.	Lt.	
	Ref. No.			1-D	2-D	3-D	4-D	5-D	6-D	7-D	8-D	9-D	10-D	11-D	12-D	13-D		2-G		1-U	2-U	3-U	4-U	5-U	1-G	

[redacted] E.J.K. [redacted] 7-8-70
[redacted] H.J.H. [redacted] 7-14-70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

55
427

CUYAHOGA COUNTY
CUY-480-1.90

LEGEND

- Reinforced Concrete Walk, As Per Plan See Structure Detail Sheet No. 393
- Concrete Walk
- Stabilized Shoulder
- Asphalt Concrete Pav't
- Asphalt Concrete Drive
- Exist Pavt Removed

CROSS REFERENCE	
Sht No.	Item
154-155	Cross Sections
390	Structure Detail
232	Relocated Water Line
67	Temporary Rd. 3

EXISTING TYPICAL

℄ Columbia Rd.
22'-0"
14'-0"
4" Brick
4" Concrete
Concrete Flush Curb
3" Asphaltic Concrete Surface Course
6" Asphaltic Concrete

℄ Temp. Rd.
2 Sty. Frame
10' Asph. Drive
9' Asph. Drive
3'6" Walnuts
Hedge Row
20" Cottonwoods
24" Catalpa
4" Pine
4" Gas
6" Pine
℄ I-480
335+94.23
Existing R/W
For Curb Turnout Detail See Sheet No. 68
Sta. 16+80, 21' Lt.
Std. 2-2-B C.B.
T/G = 754.13
Sta. 17+62.03
End App. Slab 18
Sta. 18+93.41 Columbia Rd.
=Sta. 335+94.23 ℄ I-480
20+24.79
Begin App Slab
End Work
Sta. 21+00
8" Sanitary
18" Strm.
Gravel
Asph.
Plug & Abandon
San. Strm.
M.H.
C.B.
6" Gas
20'-0"
Meet Exist. S/w Sta. 16+90
Begin Work
Sta. 16+75
Sta. 16+80, 21' Rt.
Build Std. 2-2-B C.B.
Over Existing Sewer
T/G = 754.13
℄ + 38.5
24' Rt.
℄ + 38.5
80' Rt.
28' R
Drive Curve Data
Δ = 90°00'00"
R = 28.00'
L = 43.98'
C = 39.60
10 Conc. Drive
12' Conc. Drive
10' Asphalt Drive
Meet Exist.
1 Sty. Frame
1½ Sty. Brick
Sta. 21+05, 15' Rt.
Std. No. 5 M.H.
With 706.11 Joints
Sta. 20+95, 21' Rt.
Std. No. 1 M.H.

Estimated Quantities

Ref#	Side	Location	202 Exist. Pav't Rem. S.Y.	202 Exist. S/w & Drive Rem. S.F.	304 6" Aggregate Base C.Y.	404 Asphalt Conc. C.Y.	452 6" Plain Portland Cement Conc. Pav't S.Y.	608 Reinf. Conc. Walk As Per Plan ϕ S.F.	608 4½" Concrete Walk As Per Plan S.F.
1PR	Lt/Rt	Sta. 16+75 to Sta. 21+00	661						
1SW	Lt/Rt	Sta. 16+90 to Sta. 21+00		2125				338	535
1A	Rt	Sta. 17+10.5	60				125		
2A	Lt	Sta. 20+76			0.4	1	1.9		
Total			721	2125	X	1	144	338	535

ϕ See Structure

Reference No.		1P	2P		Total
611	Approach Slabs (T = 14")	S.Y.	62		124
451	9" Reinforced P.C. Conc. Pav't, As Per Plan	S.Y.	146	149	295
411	6" Stabilized Crushed Aggregate	C.Y.	2		2
409	Seal Coat Cover Aggregate @ 0.008 c.y./s.y.	C.Y.	0.1		X
408	Seal Coat Bit. Material @ 0.30 gal./s.y.	Gal.	5		5
404	Bituminous Prime Coat @ 0.40 Gal/S.Y.	Gal.	27		40
310	Asphalt Conc.	C.Y.	2	1	3
	3" Subbase 703.08 or 703.10	C.Y.	17	17	34
	6" Subbase	C.Y.	14	8	22
304	6" Aggregate Base	C.Y.	11	6	17
402	2" Asphalt Conc.	C.Y.	4	2	6
203	Subgrade Compaction	S.Y.	279	244	523

Estimated Quantities					
605	Bends & Branches 706.08 Perforated As Per Plan	6"	L.F.		X
604	Std. No. 2-2-B C.B.		Ea.	1	2
	Std. No. 5 M.H. With 706.11 Joints		Ea.	1	1
	Std. No. 1 M.H.		Ea.	1	1
603	Type "F" 707.05	18"	L.F.	50	50
	Type "C" 706.01, 706.02 or 706.08 with Class "C" Bedding	18"	L.F.	53	53
	Type "C" 706.02D-1500 With Class "C" Bedding or 706.08 Encased	18"	L.F.	42	42
	Type "B"	6"	L.F.	36	36
	Type "F"	6"	L.F.	10	30
				10	

SANITARY

Ref. No.	Side	Location	16+80 to 335+42.80	20+95	21+05	Total
4D	Rt.	21+05			1	1
1U	Lt.	16+80 to 17+32	1			1
2U	Rt.	16+80 to 17+47	1			1
3U	Lt.	20+33 to 20+95		1		1
4U	Rt.	20+56 to 20+95		1		1
		Total	2	2	1	5

Sta. 17+33
754.90 754.76 754.62 754.48 754.34 754.20 754.06 754.92
17+62.03 20+24.79
-0.28%
+88 753.81
Sta. 21+00.00
Meet Exist. Pav't
755 750 745 740 735 730
Plug and Abandon
18" Storm
751.5
Abandon
746.98
8" Sanitary
Remove Under 203
Remove Under Item 203
Plug and Abandon
Abandon
Exist. 8" Sanitary
Sta. 16+80, 21' Rt.
Std. 2-2B C.B.
T/G = 754.13
Sta. 20+95, 21' Rt.
Std. No. 1 M.H.
T/C = 753.17
Sta. 21+05, 15' Rt.
Std. No. 5 M.H.
With 706.11 Joints
T/C = 753.30
Excavation 72 C.Y.
Embankment 187 C.Y.
Seeding 193 S.Y.
Relocated 8" Sanitary
For Details See Sheet No. 102
755.01 754.93 754.85 754.68 754.58 754.45 754.34 754.27 754.07 753.90 753.77 753.68 753.64
16+30 17+00 18+00 19+00 20+00 21+00 21+70

W.A.P. 9-17-70
B.L.P. 10-7-70

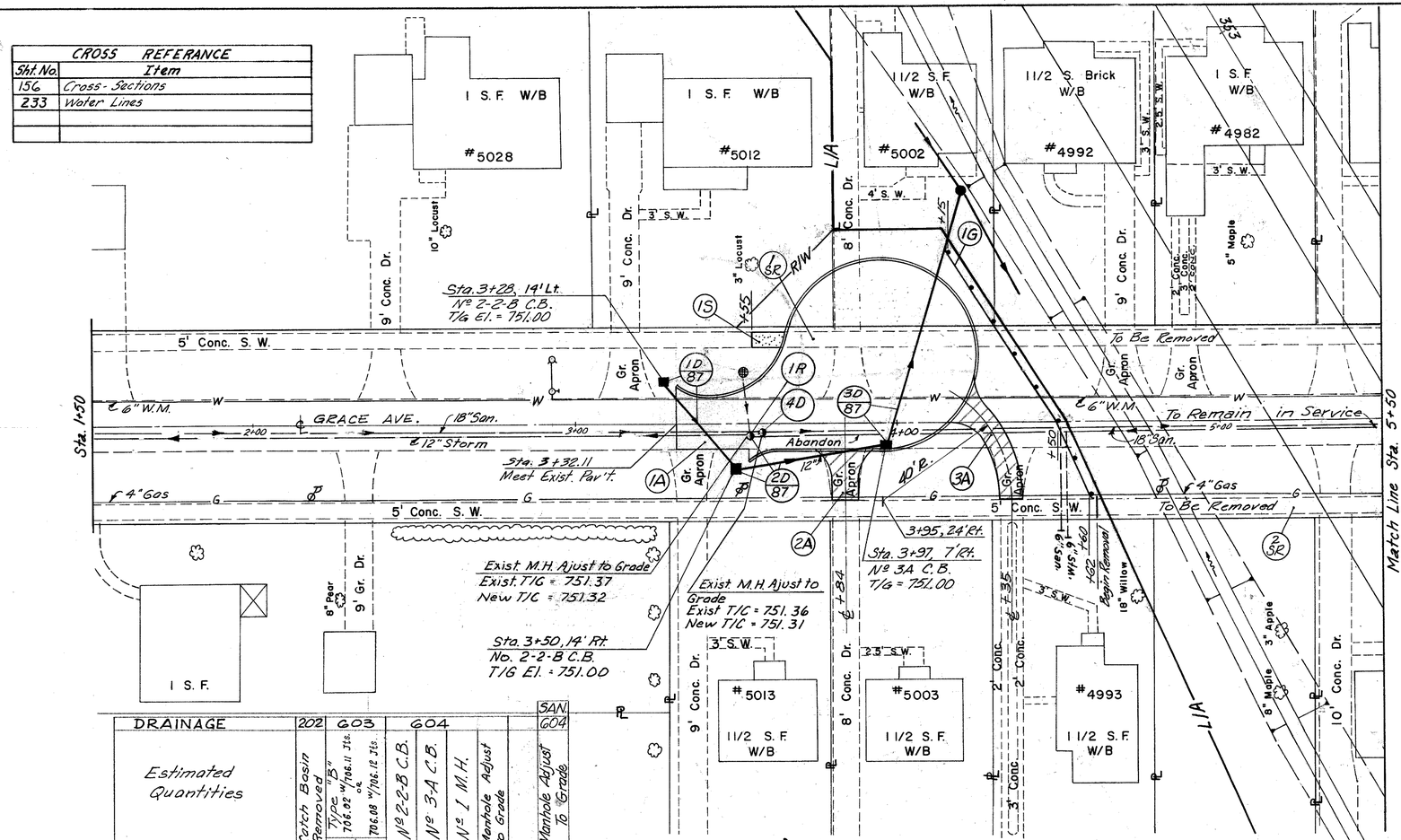
COLUMBIA ROAD STA. 16+30 TO STA. 21+70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

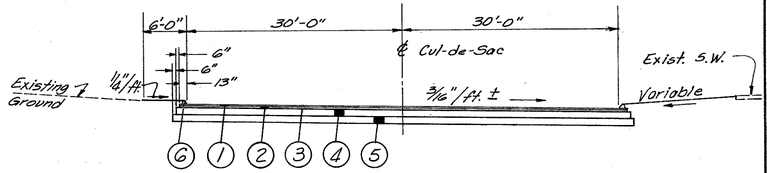
CUYAHOGA COUNTY
CUY-480-1.90

56
427

CROSS REFERANCE	
Sht. No.	Item
156	Cross-Sections
233	Water Lines

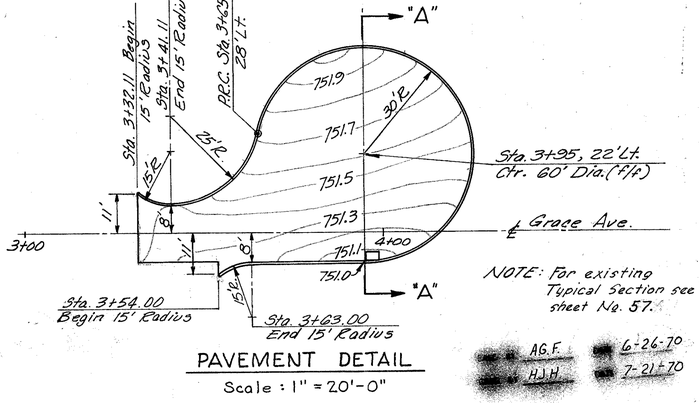


DRAINAGE			202	603		604				SAN 604
Estimated Quantities			Catch Basin Removed	Type "B" 706.02 w/706.11 Its. o/e 12"	706.08 w/706.12 Its. 15"	No 2-2-B C.B.	No 3-A C.B.	No 1 M.H.	Manhole Adjust to Grade	Manhole Adjust To Grade
REF NO.	Side	Location	Ea.	L.F.	L.F.	Ea.	Ea.	Ea.	Ea.	Ea.
1D	Lt.	3+28 to 3+50		36		1				
2D	Rt.	3+50 to 3+97		47		1			1	
3D	R/L	3+97 to 353.00			83		1			
1R	Lt.	3+52	1					1		
SANITARY										
4D	Rt	3+78								1
Total			1	83	83	2	1	1	1	1



SECTION "A-A"
Scale : 1" = 10'-0"

1. 1½" 404 Asphalt Concrete
2. 1¼" 402 Asphalt Concrete
3. 408 Bituminous Coat, 702.09 RT-2 or RT-3 Applied at the rate of 0.40 Gallons per Sq. Yd.
4. 6" 304 Aggregate Base Course
5. 6" 310 Subbase
6. 609 Asphalt Concrete Curb - Type 1



NOTE: For existing Typical Section see sheet No. 57.

PAVEMENT DETAIL
Scale : 1" = 20'-0"

A.G.F. 6-26-70
H.J.H. 7-21-70

ROADWAY			202	304	310	402	404	408	452	606	608	609	203		
Estimated Quantities			Exist. Sidewalk Removed and Disposed	6" Aggregate Base Course	6" Subbase	1½" Asphalt Concrete	1¼" Asphalt Concrete	Prime Coat 702.09 RT-2 or RT-3	6" Plain Portland Cement Conc. Pav't.	Guard Rail Type 5	4" Concrete Walk 2" Pav. Plan	Asphalt Concrete Curb - Type 1	Subgrade Compaction		
REF NO.	Side	Location	S.F.	C.Y.	C.Y.	C.Y.	C.Y.	Gal.	S.Y.	L.F.	S.F.	L.F.	S.Y.		
1A	R/L	Cul-De-Sac		72	75	14	14	167				220	448		
2A	Rt.	3+84							15						
3A	Rt.	4+35							31						
1G	R/L	4+15 to 4+60								87.5					
1S	Lt.	3+55 to 3+65									50				
1SR	Lt.	3+55 to 5+50	975												
2SR	Rt.	4+62 to 5+50	440												
TOTAL			1415	72	75	14	14	167	46	87.5	50	220	448		

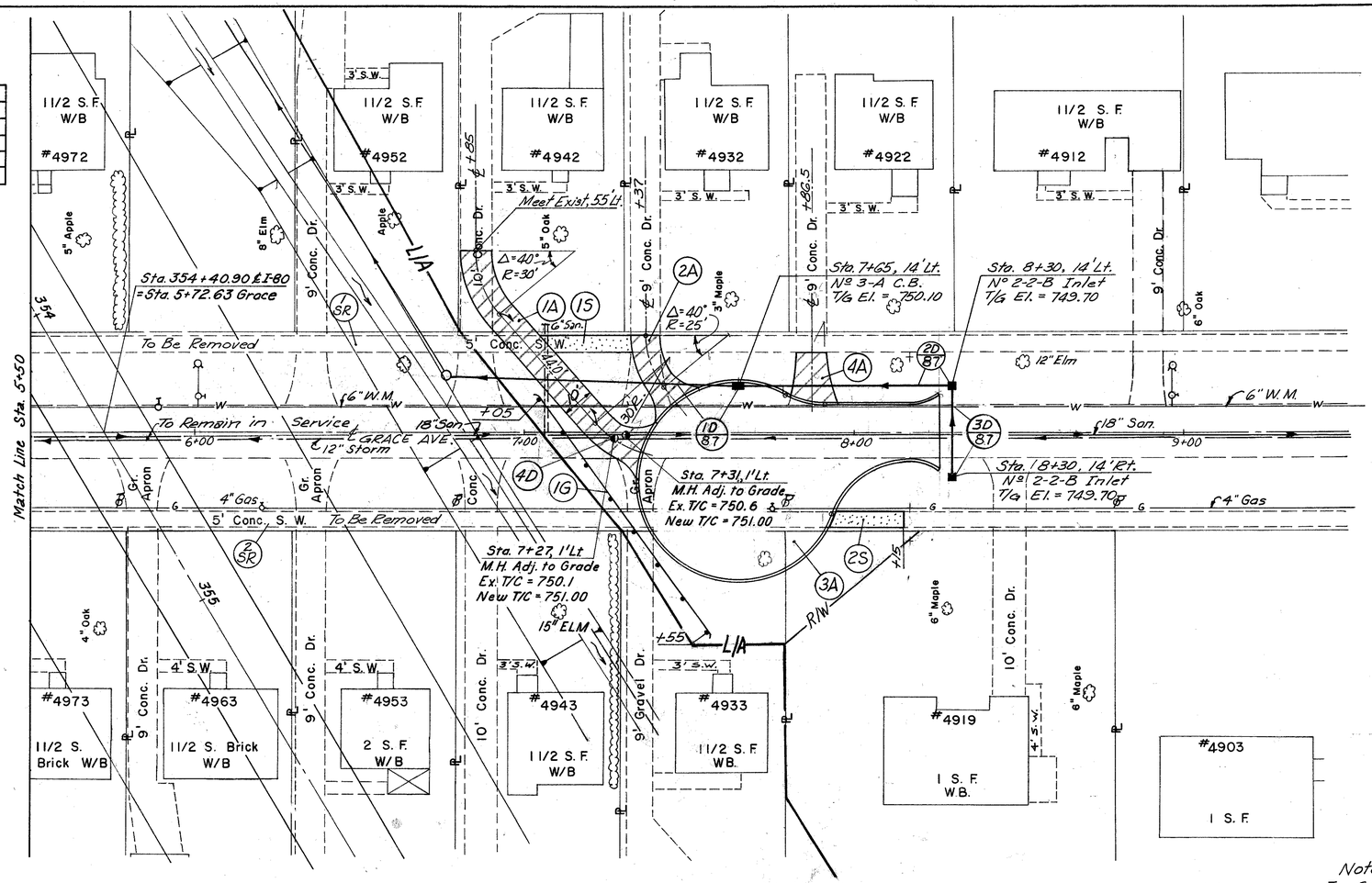
GRACE AVE. PLAN & PROFILE STA. 1+50 TO STA. 5+50 (SOUTH CUL-DE-SAC)

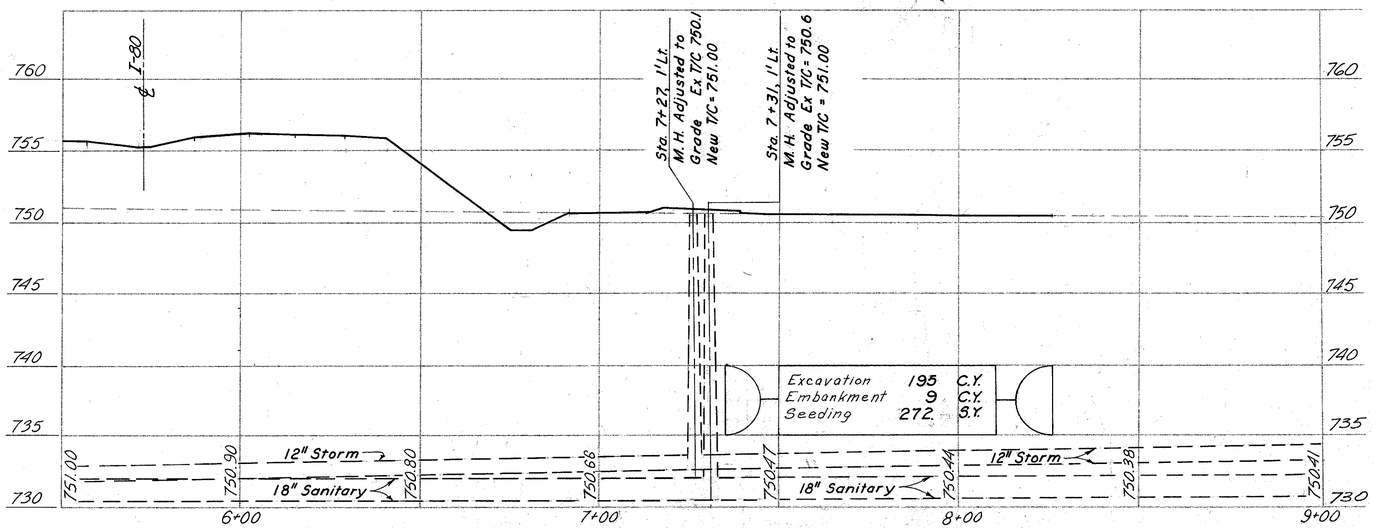
CROSS REFERANCE	
Sht. No.	Item
156	Cross-Sections
233	Water Lines

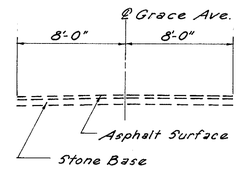
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

57/427

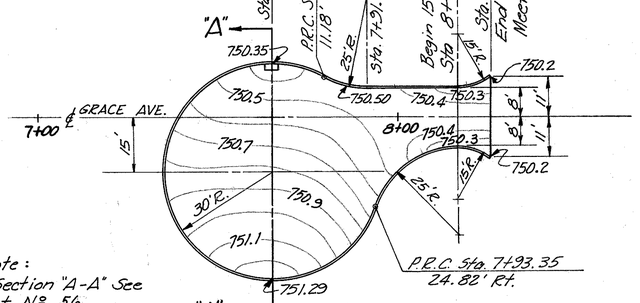
CUYAHOGA COUNTY
CUY-480-1.90







GRACE AVE. TYPICAL SECTION



Note: For Section "A-A" See Sheet Nº. 56

PAVEMENT DETAIL
Scale : 1" = 20'-0"

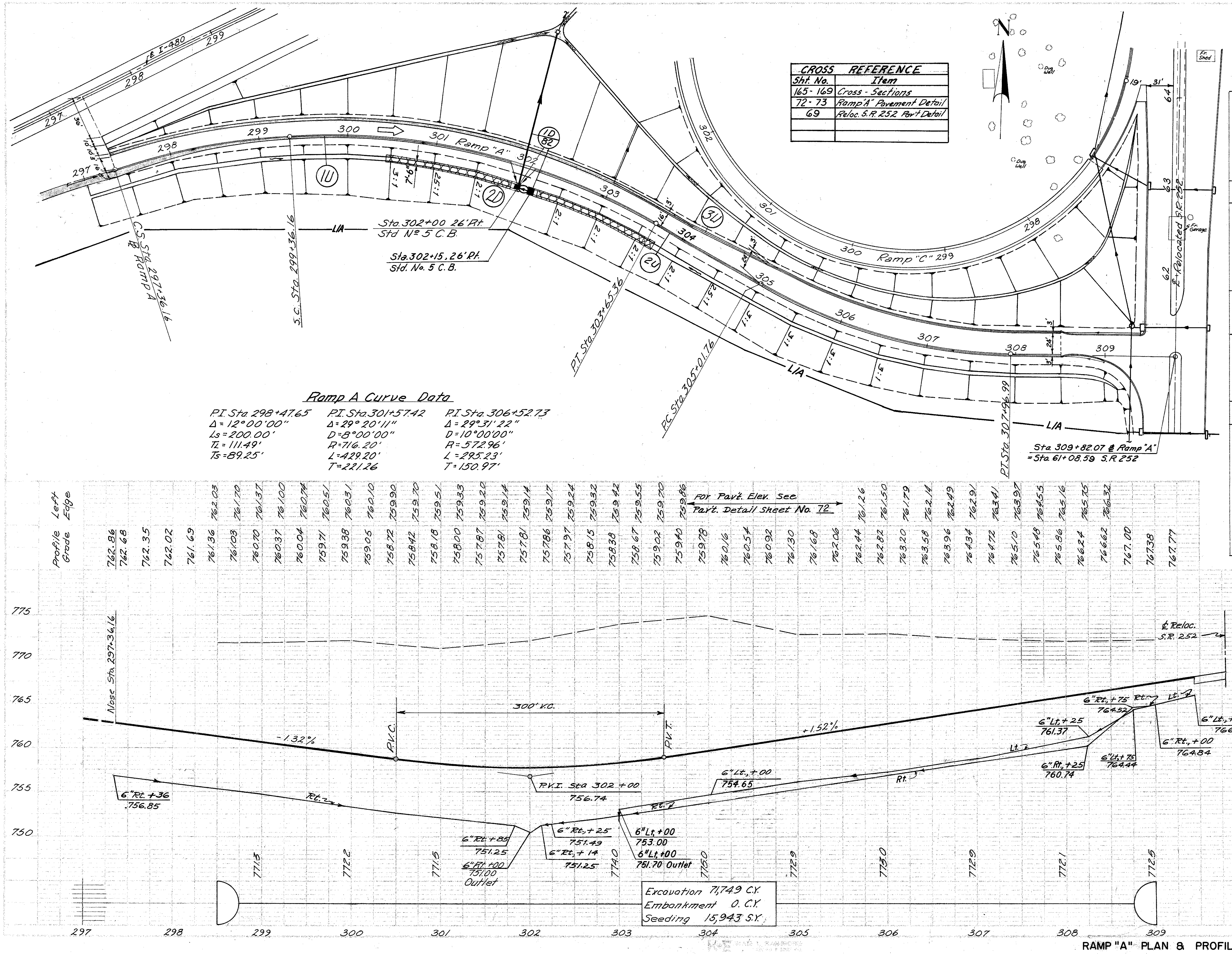
A.G.F. 6/25/70
H.J.H. 7-20-70

Estimated Quantities			SAN.	DRAINAGE					ROADWAY											
			604	603		604			202	304	310	402	404	408	452	606	608	609	203	
			Manhole Adjust To Grade	Type "B" 12" 706.02 ℄ 15" 706.03 Pipe Culverts		Nº 2-2-B C.B.		M.H. Adj. to Grade Std. No. 3-4 C.B.	Exist. Sidewalk Removed and Disposed	6" Aggregate Base Course	6" Subbase	1½" Asphalt Conc.	¼" Asphalt Conc.	Prime Coat 702.09 or 27.2	6" Non Portland Cement Conc. Pav't.	Guard Rail Type 5	4½" Conc. Walk ℄ As. Per Plan	Asphalt Conc. Curb - Type 1	Subgrade Compaction	
Prop. No.	Side	Location	E.A.	L.F. 12"	L.F. 15"	E.A.	Ea.	Ea.	S.F.	C.Y.	C.Y.	C.Y.	C.Y.	Gal.	S.Y.	L.F.	S.F.	L.F.	S.Y.	
1D	Lt.	354+40.90 to 7+65			90		1													
2D	Lt.	7+65 to 8+30		65		1														
3D	L/R	8+30		28		1														
4D	Lt	7+27 to 7+31	1				1													
1A	L/R	6+85 to 7+36													87					
2A	Lt.	7+37													25					
3A		Cul-de-Sac								70	72	14	14	162				234	430	
4A	Lt.	7+86.5													18					
1S	Lt.	7+05 to 7+32															135			
2S	Rt.	7+95 to 8+15															100			
1SR	Lt.	5+50 to 7+32							910											
2SR	Rt.	5+50 to 8+15							1325											
1G	L/R	7+05 to 7+55														87.5				
TOTAL			1	93	90	2	1	1	2235	70	72	14	14	162	130	87.5	235	234	430	

GRACE AVE. PLAN & PROFILE STA. 5+50 TO STA. 9+00 (NORTH CUL-DE-SAC)

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90



CROSS REFERENCE	
Sht. No.	Item
165 - 169	Cross - Sections
72 - 73	Ramp "A" Pavement Detail
69	Reloc. S.R. 252 Pav't Detail

Ramp A Curve Data

P.I. Sta. 298+47.65	P.I. Sta. 301+57.42	P.I. Sta. 306+52.73
Δ = 12°00'00"	Δ = 29°20'11"	Δ = 29°31'22"
Ls = 200.00'	D = 8°00'00"	D = 10°00'00"
TL = 111.49'	R = 716.20'	R = 572.96'
Ts = 89.25'	L = 429.20'	L = 295.23'
	T = 221.26	T = 150.97'

Excavation 71,749 C.Y.
Embankment 0. C.Y.
Seeding 15,943 S.Y.

Estimated Quantities

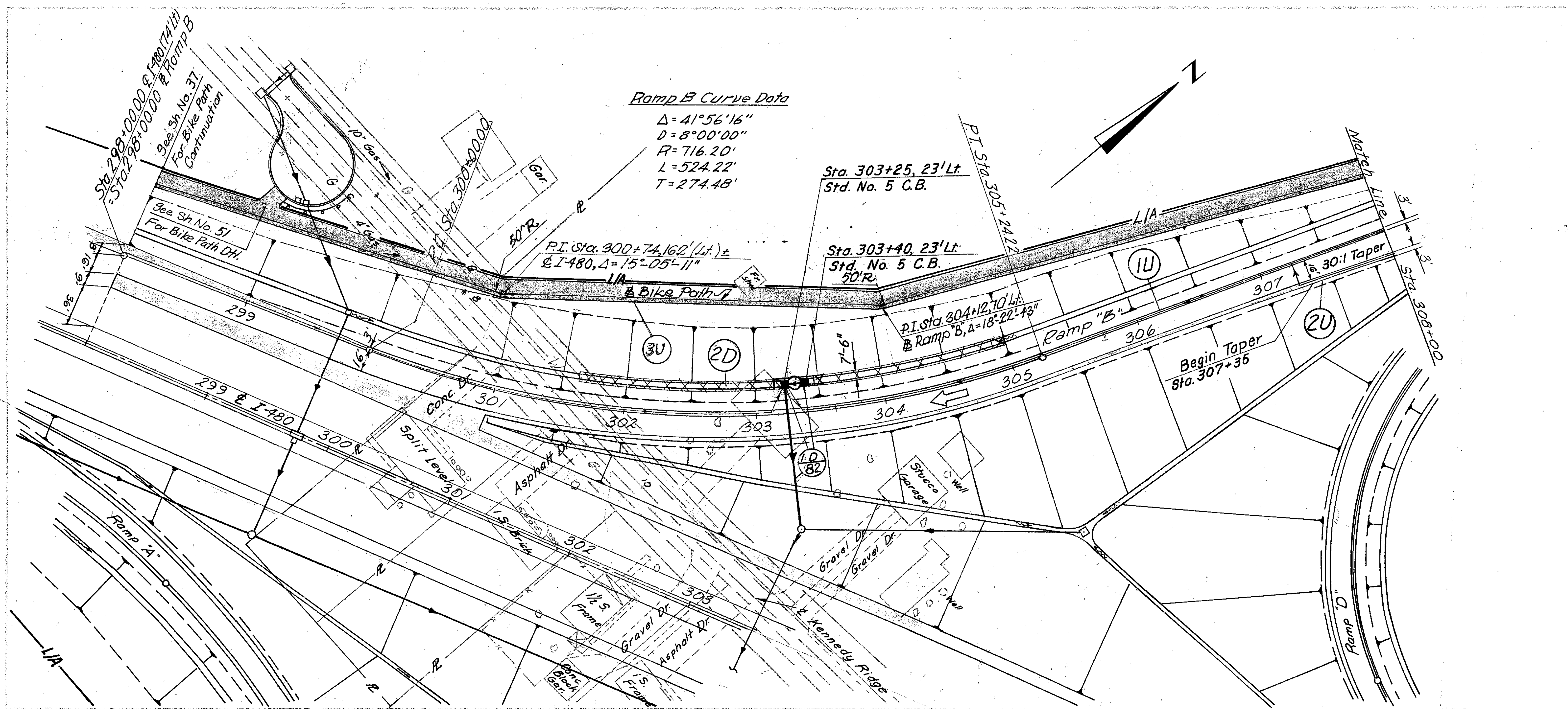
Ref. No.	Side	Location	667 Seeding And Jute Matting S.Y.	605 Bends & Branches Ea.	605 Unclassified 6" L.F.	605 Shallow 6" L.F.	605 Deep 6" L.F.	604 Std. No 5 C.B. Ea.	603 Type "B" 15" L.F.	603 Type "F" 6" L.F.
1D	Rt.	302+00						2	195	
2D	Rt.	300+43 to 303+72	250							
1U	Rt.	297+36 to 302+00		3			364			10
2U	Rt.	302+00 to 309+00		1	50	25	626			10
3U	Lt.	304+00 to 309+45		1	209	485				10
		Total	250	X	259	510	990	2	195	30

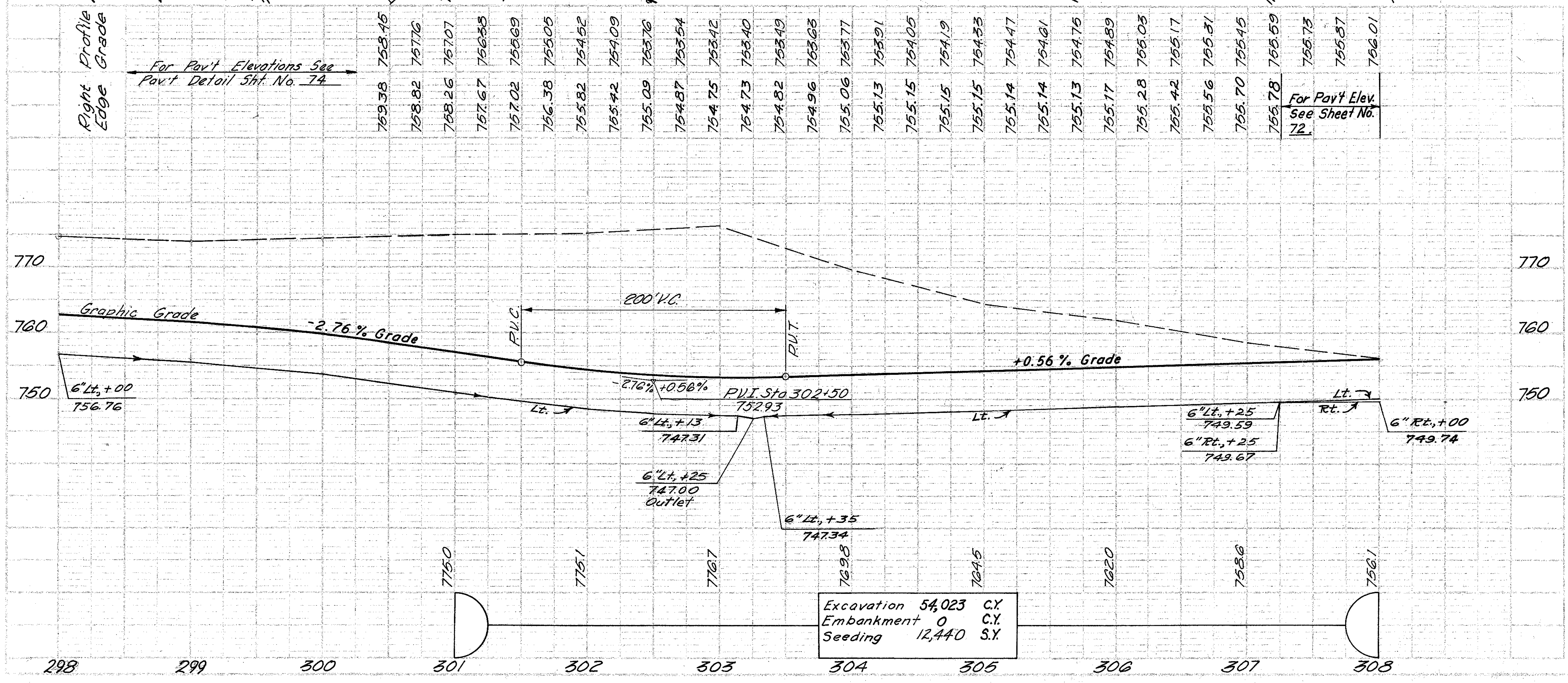
E.J.K. 7-16-70
H.J.H. 7-23-70

RAMP "A" PLAN & PROFILE STA. 297+36.16 TO STA. 309+82.07

CUYAHOGA COUNTY
CUY-480-1.90

CROSS REFERENCE	
Sht. No.	Item
170-173	Cross-Sections
74	Pavement Details
51	Kennedy Ridge W. Cul De Sac
224-225	Water Line





Estimated Quantities

Ref. No.	Side	Location	667 Seeding and Jute Matting S.Y.	605 Aggregate Drains L.F.	605 Bends & Branches Ea.	605 Deep 6" L.F.	604 Std. No. 5 C.B. Ea.	603 Type "B" 18" L.F.	603 Type "F" 6" L.F.	603 Type "B" 6" L.F.
1D	Lt/Rt	303+25					2	125		
2D	Lt.	301+67 to 305+00	250							
1U	Lt.	298+00 to 308+00			3	1,006			20	
2U	Rt.	307+25 to 308+00			2	75				21
3U	Lt.	298+50 to 308+00		282						
		Total	250	282	X	1,081	2	125	20	21

E.J.K. 7-16-17
H.J.H. 7-23-17

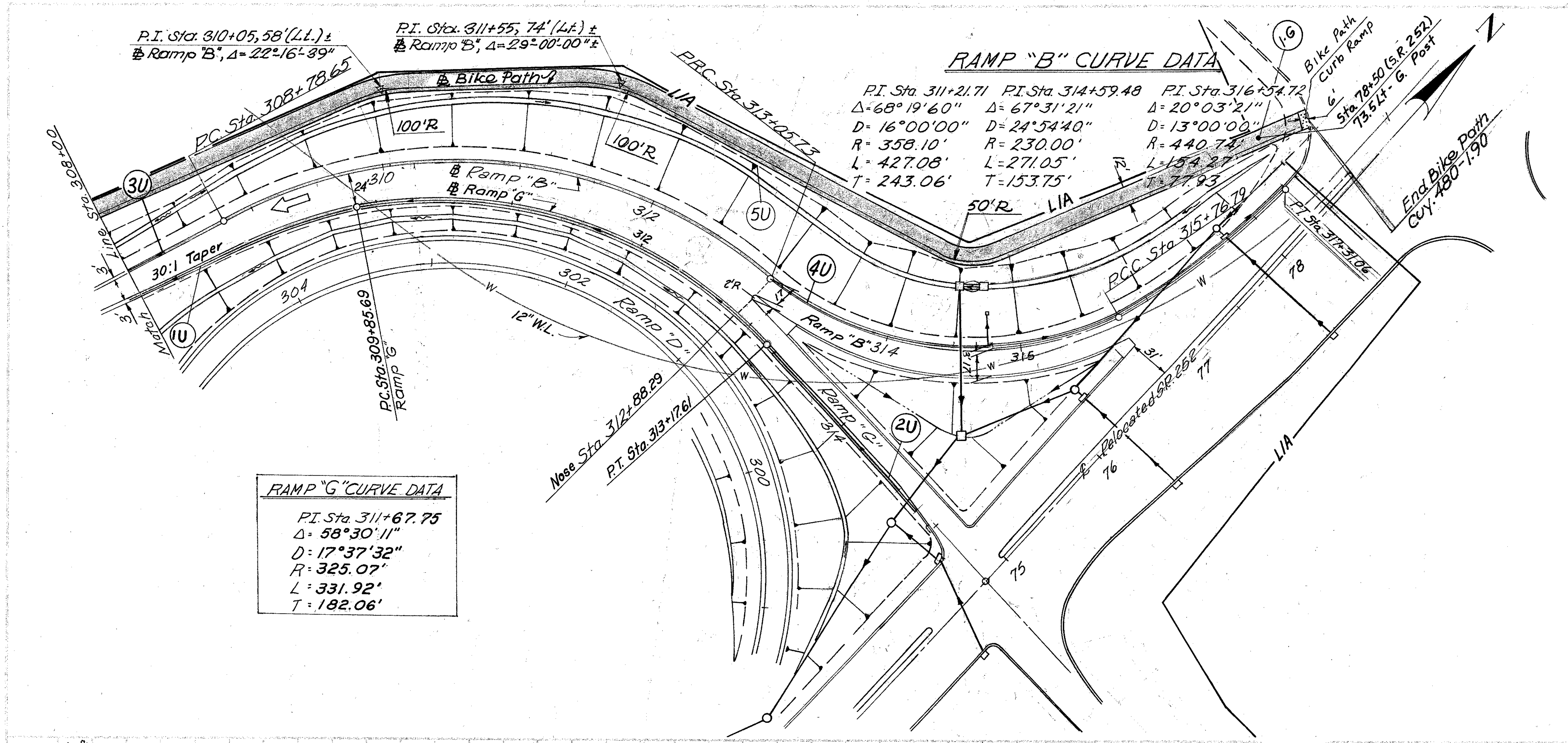
RAMP "B" PLAN & PROFILE STA. 298+00 TO STA 308+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

60
427

CUYAHOGA COUNTY
CUY-480-1.90

CROSS REFERENCE	
Sht. No.	Item
173-176 & 195	Cross Section
71,72	Pavement Detail
225-227	Water Work

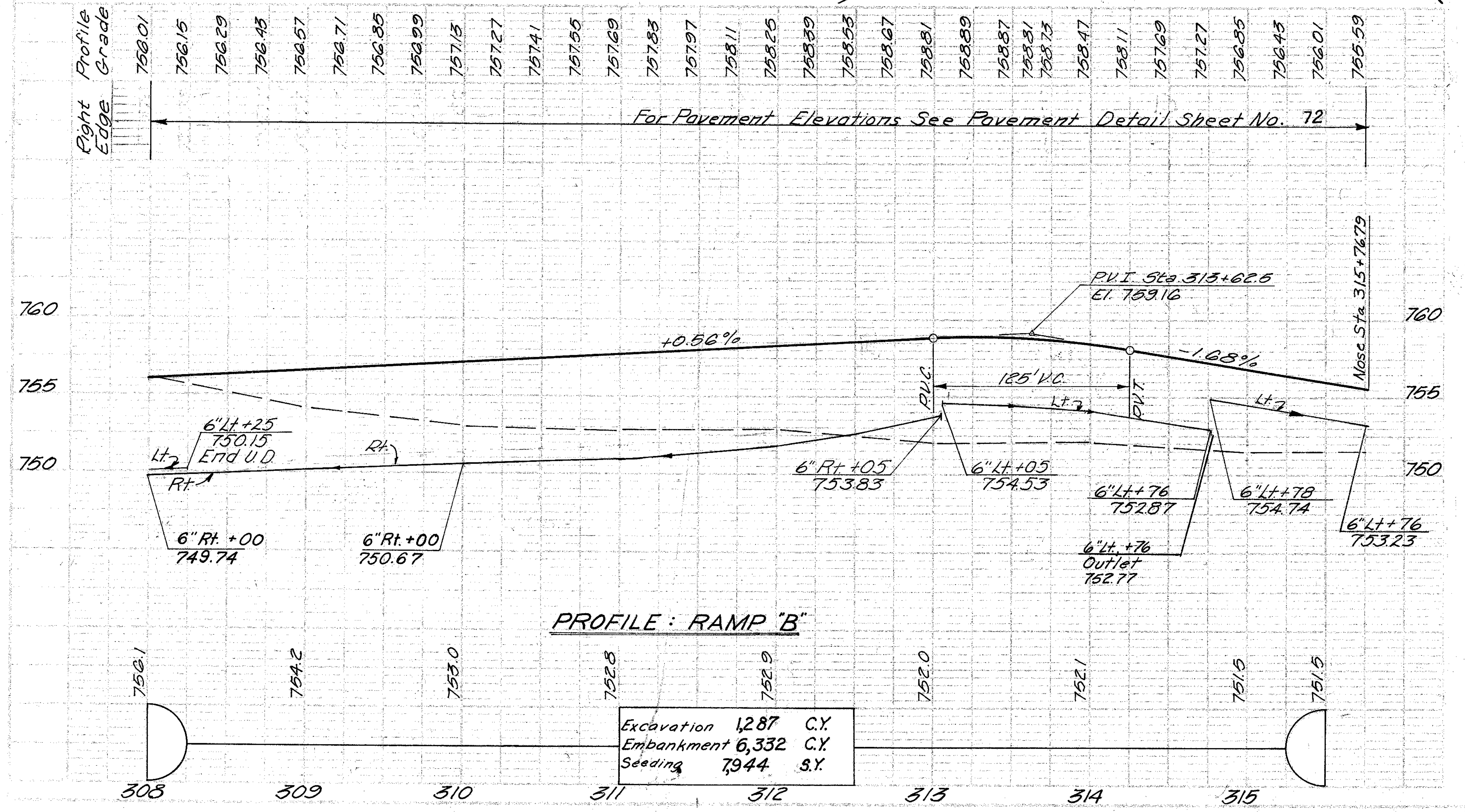


RAMP "B" CURVE DATA

P.I. Sta. 311+21.71	P.I. Sta. 314+59.48	P.I. Sta. 316+54.72
Δ = 68° 19' 60"	Δ = 67° 31' 21"	Δ = 20° 03' 21"
D = 16° 00' 00"	D = 24° 54' 40"	D = 13° 00' 00"
R = 358.10'	R = 230.00'	R = 440.74'
L = 427.08'	L = 271.05'	L = 154.27'
T = 243.06'	T = 153.75'	T = 77.93'

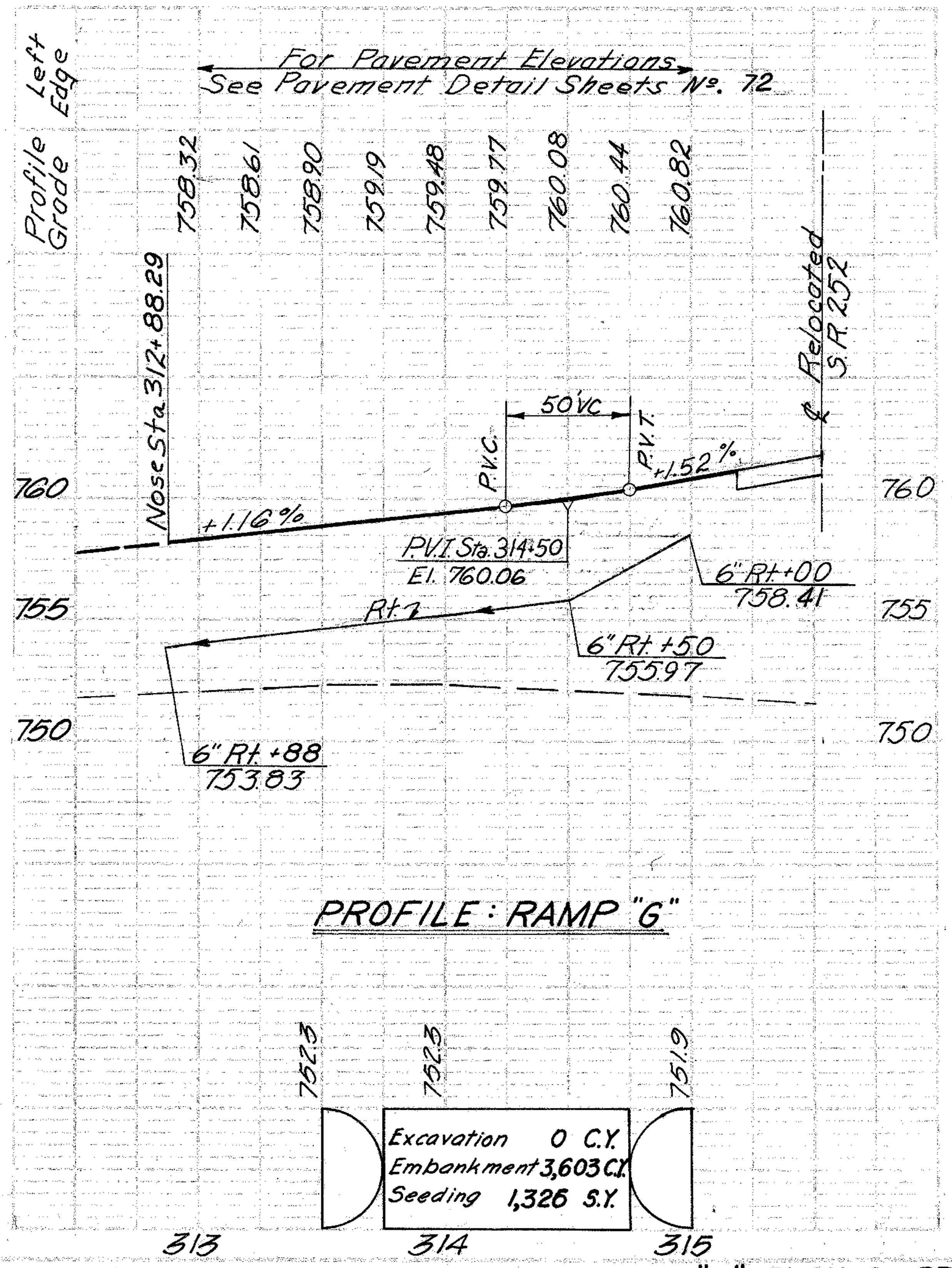
RAMP "G" CURVE DATA

P.I. Sta. 311+67.75
Δ = 58° 30' 11"
D = 17° 37' 32"
R = 325.07'
L = 331.92'
T = 182.06'



PROFILE: RAMP "B"

Excavation 1,287 C.Y.
Embankment 6,332 C.Y.
Seeding 7,944 S.Y.



PROFILE: RAMP "G"

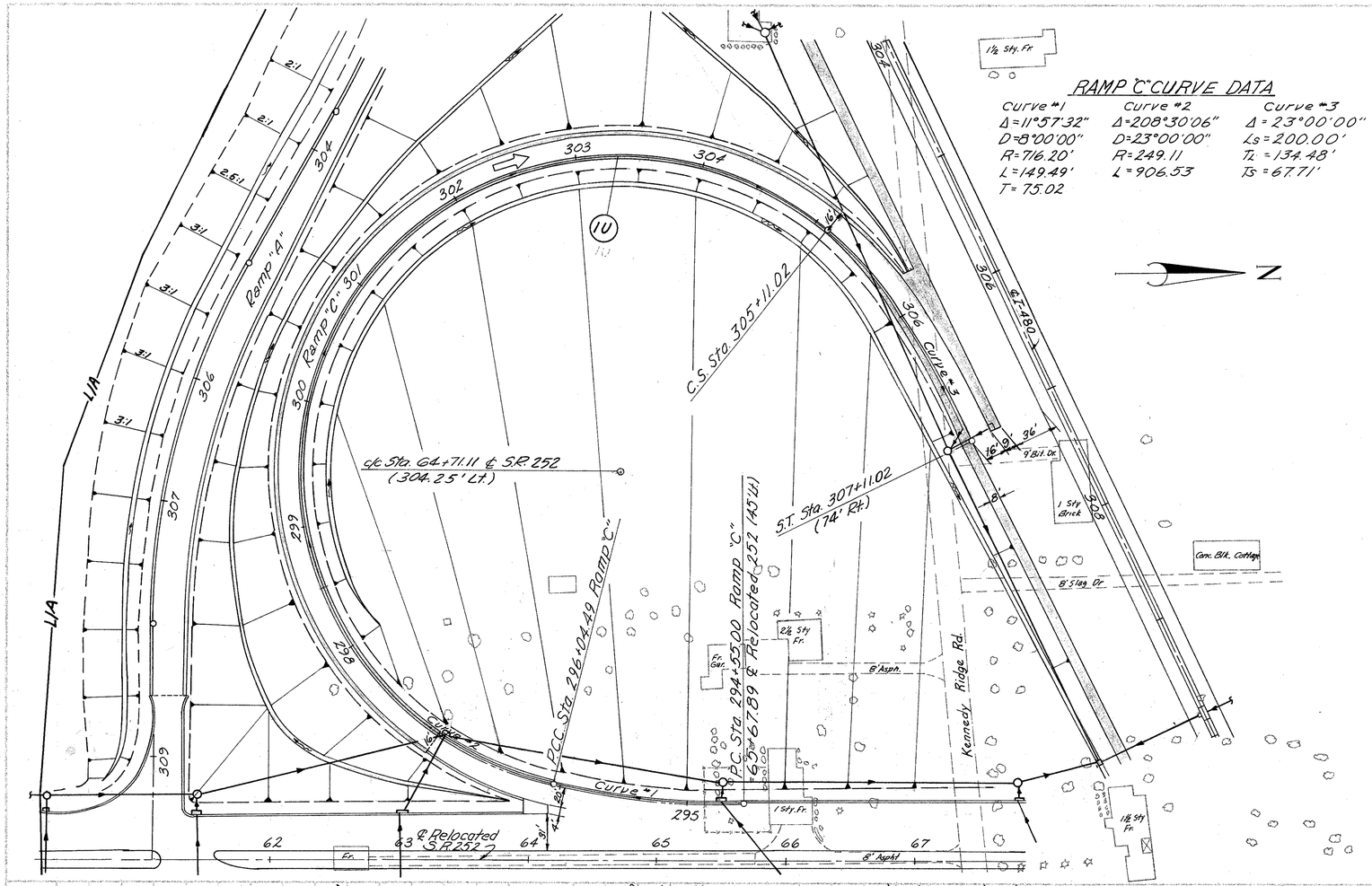
Excavation 0 C.Y.
Embankment 3,603 C.Y.
Seeding 1,326 S.Y.

Estimated Quantities

Ref. No.	Side	Location	606 Special Guard Posts Ea	605 Bends & Branches Ea.	605 Unclassified 6" L.F.	605 Shallow 6" L.F.	605 Deep 6" L.F.	605 Aggregate Drains L.F.	603 Type "F" 6" L.F.
1G	Lt	78+50-S.R. 252	1						
1U	Rt.	308+00 to 313+05			200	278			
2U	Rt.	312+88 to 315+00 "G"			50	162			
3U	Lt.	308+00 to 308+25					25		
4U	Lt.	313+05 to 316+76		1		386			10
5U	Lt.	310+50 to 311+00						175	
		Total	1	╳	250	826	25	175	10

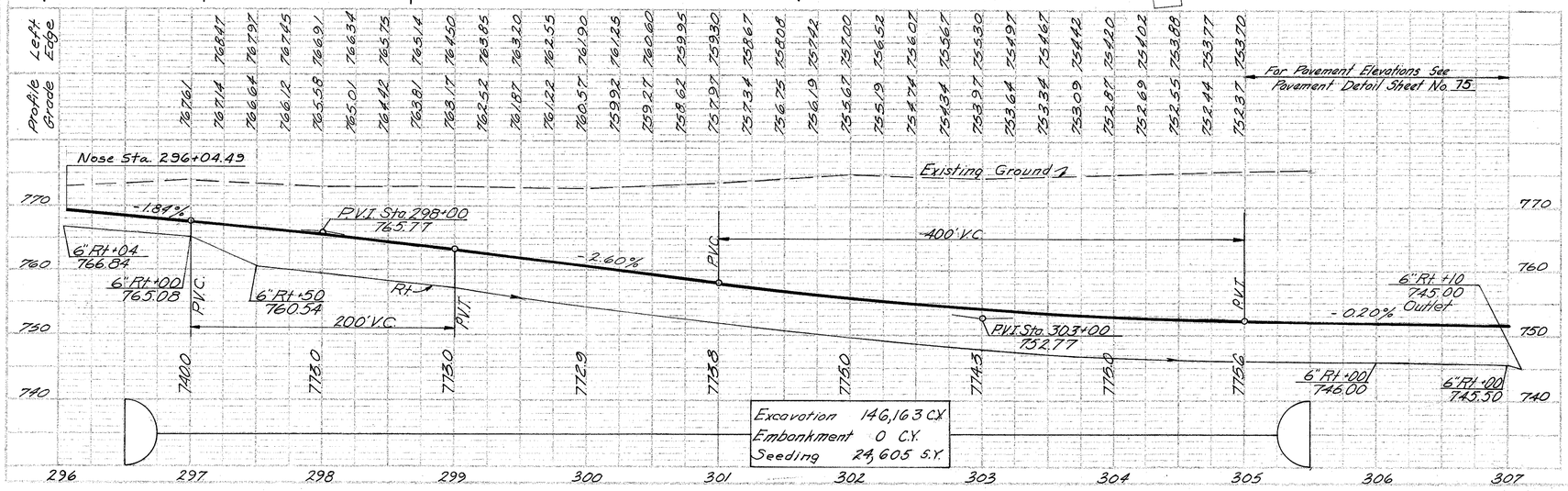
[redacted] E.J.K. [redacted] 7-20-70
[redacted] H.J.H. [redacted] 7-27-70

RAMP "B" PLAN & PROFILE STA. 308+00.00 TO STA. 315 + 76.79
RAMP "G" PLAN & PROFILE STA. 312 +86.73 TO STA. 315 + 54.45



RAMP "C" CURVE DATA

Curve #1	Curve #2	Curve #3
Δ = 11°57'32"	Δ = 208°30'06"	Δ = 23°00'00"
D = 8°00'00"	D = 23°00'00"	Ls = 200.00'
R = 716.20'	R = 249.11	Tl = 134.48'
L = 149.49'	L = 906.53	Ts = 67.71'
T = 75.02		



CROSS REFERENCE	
Sht. No.	Item
177-180	Cross-Sections
69 & 75	Pavement Details

605	Bends & Branches		EA.	1			
	Unclassified		L.F.	50			50
	Shallow	6"	L.F.	96			96
	Deep	6"	L.F.	960			960
603	Type "F"	6"	L.F.	10			10

Estimated Quantities

Ref. No.	Side	Location	Total
1U	Rt	296+04 to 307+00	

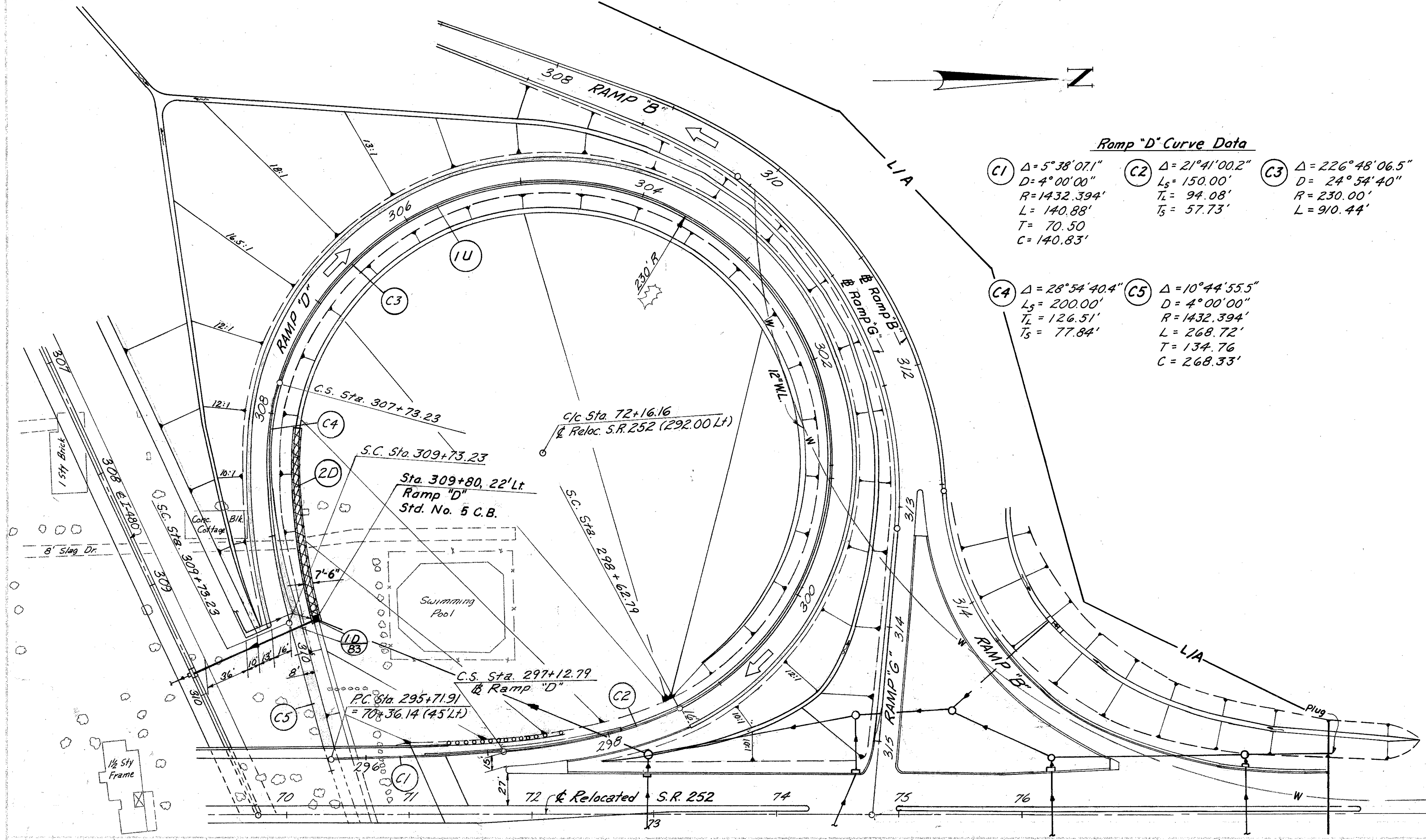
E. J. K. 7-20-70
C. S. B. 7-28-70

RAMP "C" PLAN & PROFILE STA. 296+04.49 TO STA. 307+11.02

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

CROSS REFERENCE	
Sht. No.	Item
181-186	Cross Sections
76	Pavement Details



Ramp "D" Curve Data

Ⓒ1
$\Delta = 5°38'07.1''$
$D = 4°00'00''$
$R = 1432.394'$
$L = 140.88'$
$T = 70.50$
$C = 140.83'$

Ⓒ2
$\Delta = 21°41'00.2''$
$L_s = 150.00'$
$T_L = 94.08'$
$T_S = 57.73'$

Ⓒ3
$\Delta = 226°48'06.5''$
$D = 24°54'40''$
$R = 230.00'$
$L = 910.44'$

Ⓒ4
$\Delta = 28°54'40.4''$
$L_s = 200.00'$
$T_L = 126.51'$
$T_S = 77.84'$

Ⓒ5
$\Delta = 10°44'55.5''$
$D = 4°00'00''$
$R = 1432.394'$
$L = 268.72'$
$T = 134.76$
$C = 268.33'$

	Estimated Quantities			1D	2D	1U	Total
	Side			Lt/Rt	Rt.	Lt.	
	Location			309+80	308+25 to 309+73	297+13 to 309+65	
667	Seeding and Jute Matting		S.Y.		125		125
605	Bends & Branches		Ea.			1	☒
	Unclassified	6"	L.F.			100	100
	Shallow	6"	L.F.			537	537
	Deep	6"	L.F.			615	615
604							
	Std. No. 5 C.B.		Ea.	1			1
603							
	Type "B"	24"	L.F.	109			109

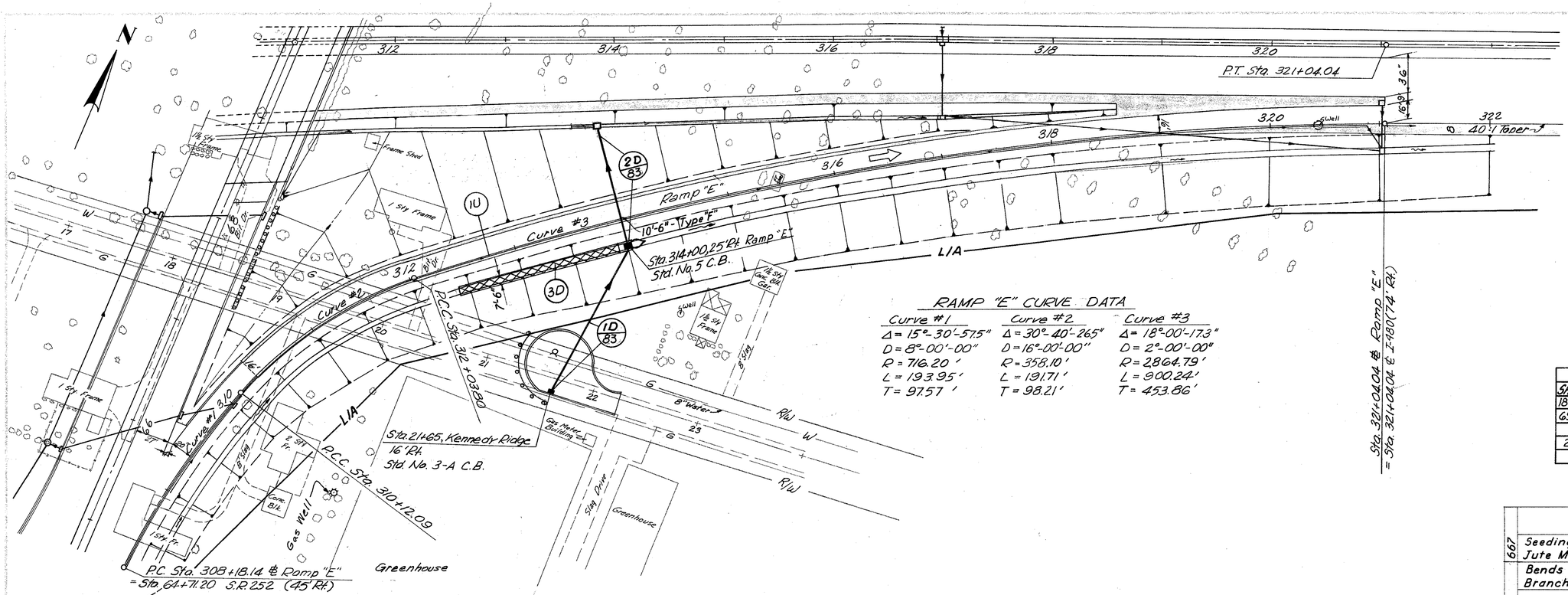
Profile Grade	Right Edge
765.03	For Pav't Elev. See Pav't Detail Sht. No. 70
764.29	
763.55	
762.81	764.11
762.07	763.40
761.33	762.66
760.59	761.92
759.85	761.18
759.11	760.44
758.40	759.73
757.76	759.09
757.20	758.53
756.71	758.04
756.28	757.61
755.92	757.25
755.64	756.97
755.39	756.72
755.14	756.47
754.89	756.22
754.64	755.97
754.39	755.72
754.14	755.47
753.89	755.22
753.64	754.97
753.39	754.72
753.14	754.47
752.89	754.22
752.64	753.97
752.39	753.72
752.14	753.47
751.89	753.22
751.64	752.97
751.39	752.72
751.14	752.47
750.89	752.22
750.64	751.97
750.39	751.72
750.14	751.47
749.89	751.22
749.64	750.97

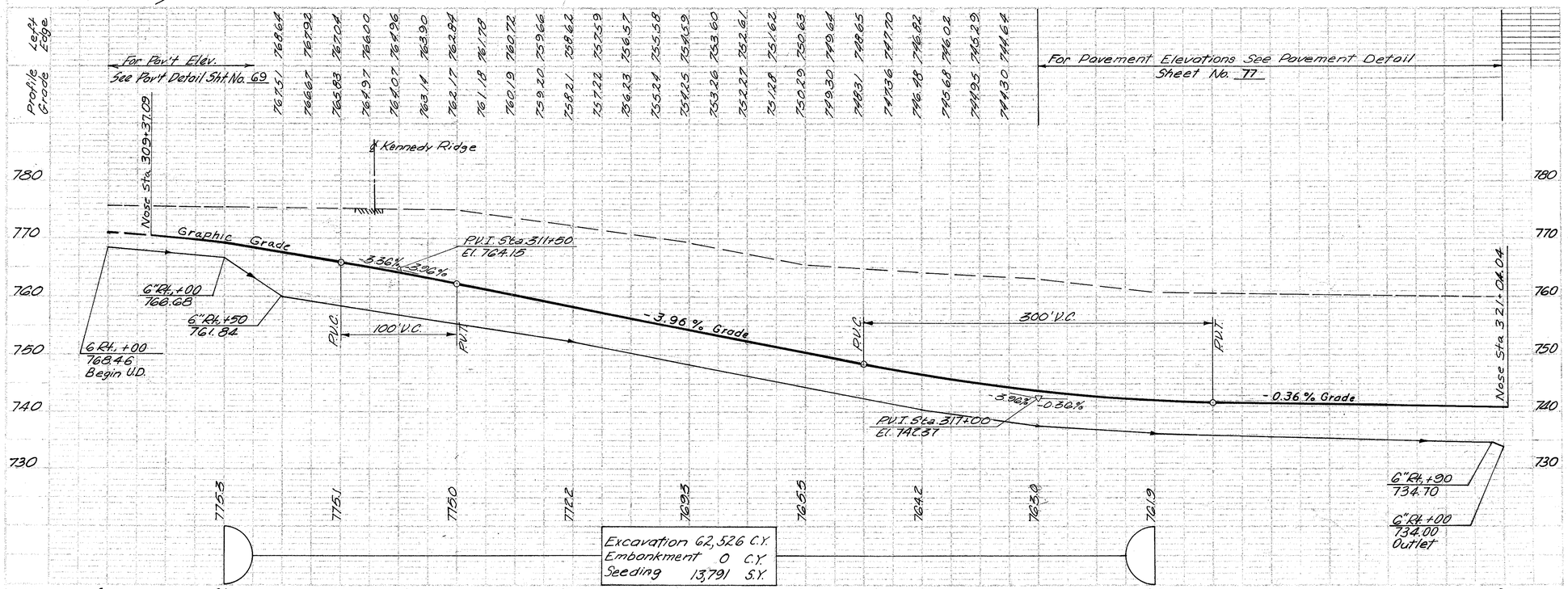
For Pav't Elev. See Pav't Detail Sheet No. 76

Excavation	53,165	C.Y.
Embankment	12,829	C.Y.
Seeding	25,839	S.Y.

E. J. K. 7-20-70
L. R. B. 7-28-70

RAMP "D" PLAN & PROFILE STA. 297+12.79 TO STA. 309+73.23





FED. RD DIVISON	STATE	PROJECT	TYPE FUNDS
2	OHIO		

63
427

CUYAHOGA COUNTY
CUY-480-1.90

RAMP "E" CURVE DATA

Curve #1	Curve #2	Curve #3
Δ = 15°-30'-57.5"	Δ = 30°-40'-26.5"	Δ = 18°-00'-17.3"
D = 8°-00'-00"	D = 16°-00'-00"	D = 2°-00'-00"
R = 716.20'	R = 358.10'	R = 2864.79'
L = 193.95'	L = 191.71'	L = 900.24'
T = 97.57'	T = 98.21'	T = 453.86'

Excavation 62,526 C.Y.
Embankment 0 C.Y.
Seeding 13,791 S.Y.

CROSS REFERENCE	
Sht. No.	Item
187-190	Cross-Sections
69 & 77	Pavement Details
52	Kennedy Ridge E. Cul De Sac
228	Water Works

Estimated Quantities

Ref. No.	Side	Location	667 Seeding and Jute Matting S.Y.	605 Bends & Branches Ea.	605 Unclassified 6" L.F.	605 Shallow 6" L.F.	605 Deep 6" L.F.	604 Std. No. 5 C.B. Ea.	604 Std. No. 3-A C.B. Ea.	603 Type "C" 706.02 or 706.08 Encased w/Class "C" Bedd'g. 15" L.F.	603 Type "F" 707.05 15" L.F.	603 Type "B" 15" L.F.	603 Type "F" 6" L.F.
1D	Rt.	21+65 K.R. to 314+00							1	99	60		
2D	Rt./Lt.	314+00						1				112	
3D	Rt.	312+43 to 313+93	125										
1U	Rt.	309+00 to 321+00		1	50	100	1,035						20
Total			125	☒	50	100	1,035	1	1	99	60	112	20

[redacted] E.J.K. [redacted] 7-21-70
[redacted] T.R.B. [redacted] 7-28-70

RAMP "E" PLAN & PROFILE STA. 309+37.09 TO STA. 321+04.04

FED. RD. DIVISON	STATE	PROJECT	TYPE FUNDS
2	OHIO		

64
427

CUYAHOGA COUNTY
CUY-480-1.90

Sta. 74+77.84 ℄ S.R. 252
= Sta. 315+54.45 ℄ Ramp "G"
= Sta. 312+20.22 ℄ Ramp "F"

RAMP "F" CURVE DATA

P.I. Sta. 319+25.25
Δ = 17°-50'-49.8"
D = 4°-00'-00"
R = 1432.39'
L = 446.18'
T = 224.91'

P.I. Sta. 324+23.75
Δ = 8°-18'-8.0"
D = 1°-30'-00"
R = 3819.72'
L = 553.48'
T = 277.23'

P.C. Sta. 317+00.34
Begin Taper Sta. 319+25.25
P.C.C. Sta. 321+46.52
End Taper
Sta. 322+46.52 ℄ Ramp "F" (16' Rt.)
= Sta. 322+45.69 ℄ I-480 (72' Lt.)

L/A
Ramp "G"
Ramp "F"
℄ S.R. 252
℄ Reloc. S.R. 252
℄ I-480
314
316
317
318
322
320
Dc = 4°00'
Dc = 1°30'
16°31'01.36"
1U
24'
75
74
73
72

CROSS REFERENCE	
Sht. No.	Item
191-194	Cross-Sections
71 & 78	Pavement Details

Profile Grade
Right Edge

760.05 758.72 758.80 757.88 756.96 756.04 755.12 754.20 753.28 752.36 751.44 750.52 749.60 748.68 747.76 746.84 745.92 745.00 744.08 743.16 742.24 741.32 740.40 740.52 740.42 740.32 740.22 740.12 740.02 739.92 739.82 739.72 739.62 739.52
758.25 757.33 756.41 755.49 754.57 753.65 752.73 751.81 750.89 749.97 749.05 748.13 747.21 746.29 745.37 744.45 743.53 742.61 741.69 740.77 740.85 740.93 741.01 741.09 741.17 741.25 741.33 741.41 741.49 741.57 741.65 741.73 741.81 741.89

For Part Elev. See Part Detail Sheet No. 78

760
750
740
730

400' V.C.
P.V.C.
P.V.T.
P.V.I. Sta. 318+00
El. 741.82
-3.65%
-0.40%
Lt.
Nose Sta. 322+46.52

6" Lt. +00
756.97
6" Lt. +45
753.66
6" Lt. +75
748.94
6" Lt. +25
745.43
6" Lt. +40
733.55

For Continuation of U.D. See Sheet No. 29.

752.6 753.1 753.5 753.8 753.9 753.8 753.9 753.8

Excavation 39,339 C.Y.
Embankment 1,876 C.Y.
Seeding 16,412 S.Y.

313 314 315 316 317 318 319 320 321 322

Estimated Quantities					
Ref. No.	Size			Location	Total
1U	Bends & Branches		Ea.		X
	Unclassified	6"	LF		50
	Shallow	6"	LF	3(3+00 to 322+43	175
	Deep	6"	LF		718

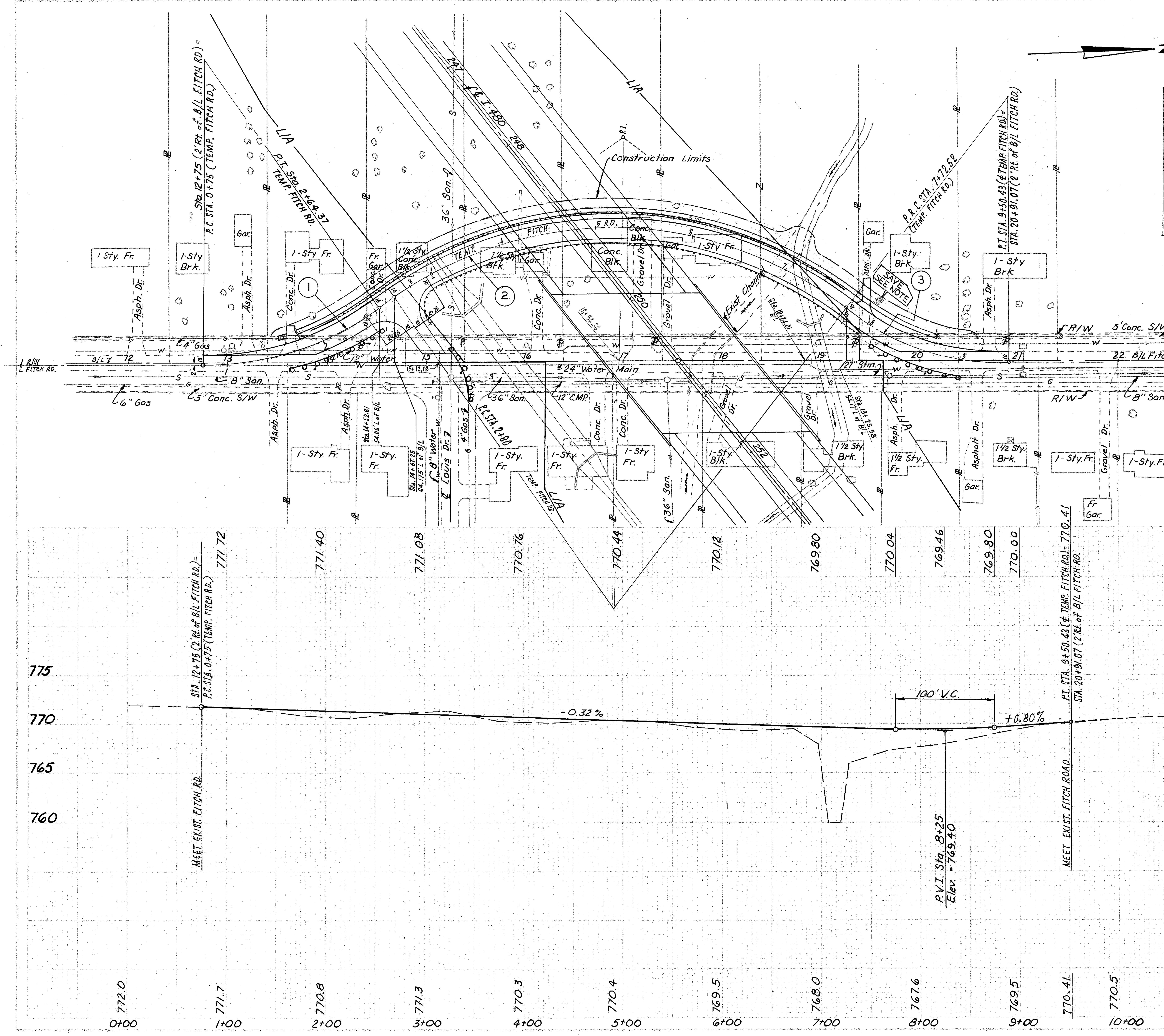
605

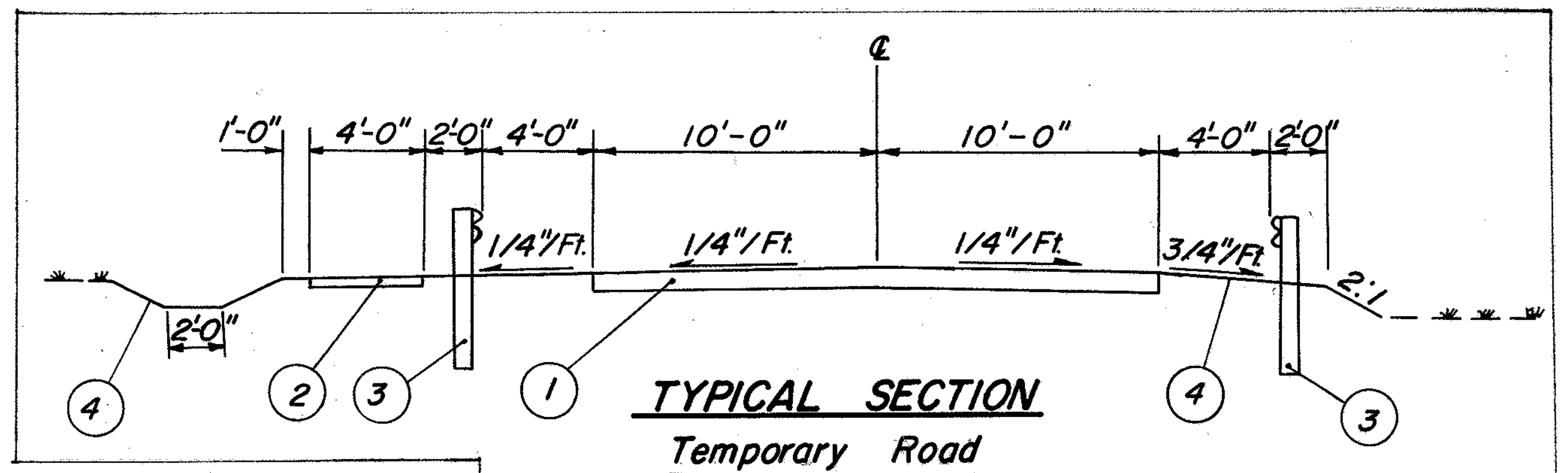
RAMP "F" PLAN & PROFILE STA. 312+20.22 TO STA. 322+46.52

CALC BY GMK DATE 7-17-72
CHKD. BY J.L. DATE 7-24-72

65
427

CUYAHOGA COUNTY
CUY-480-1.90





TYPICAL SECTION

Temporary Road

LEGEND

① Class "B" Temporary Pavement
② 2" Bituminous Walk
③ Guard Rail, Type 5
④ Temporary Seeding & Mulching (Construction Limits + 2')

QUANTITIES		
Item 615	Class "B" Temporary Pavement	1700 S.Y.
Item 615	Temporary Road	Lump

Note: Items ②, ③ & ④ are to be included in the unit bid price for Item 615 Temporary Road.

CURVE DATA

Curve ①	Curve ②	Curve ③
Δ = 35° 00' 00"	Δ = 72° 30' 00"	Δ = 37° 30' 00"
R = 310'	R = 387.65'	R = 271.84'
L = 189.37'	L = 490.52'	L = 177.92'
T = 97.74'	T = 284.24'	T = 92.28'
Dc = 18°-28'-57"	Dc = 14°-46'-49"	Dc = 21°-04'-38"
	EXT = 93.80 ±	

NOTE: THE CONTRACTOR SHALL TRIM THE TREE NOTED "SAVE" IN AN APPROPRIATE FASHION TO ALLOW AMPLE CLEARANCE TO MOVING VEHICLES ON TEMPORARY FITCH ROAD.

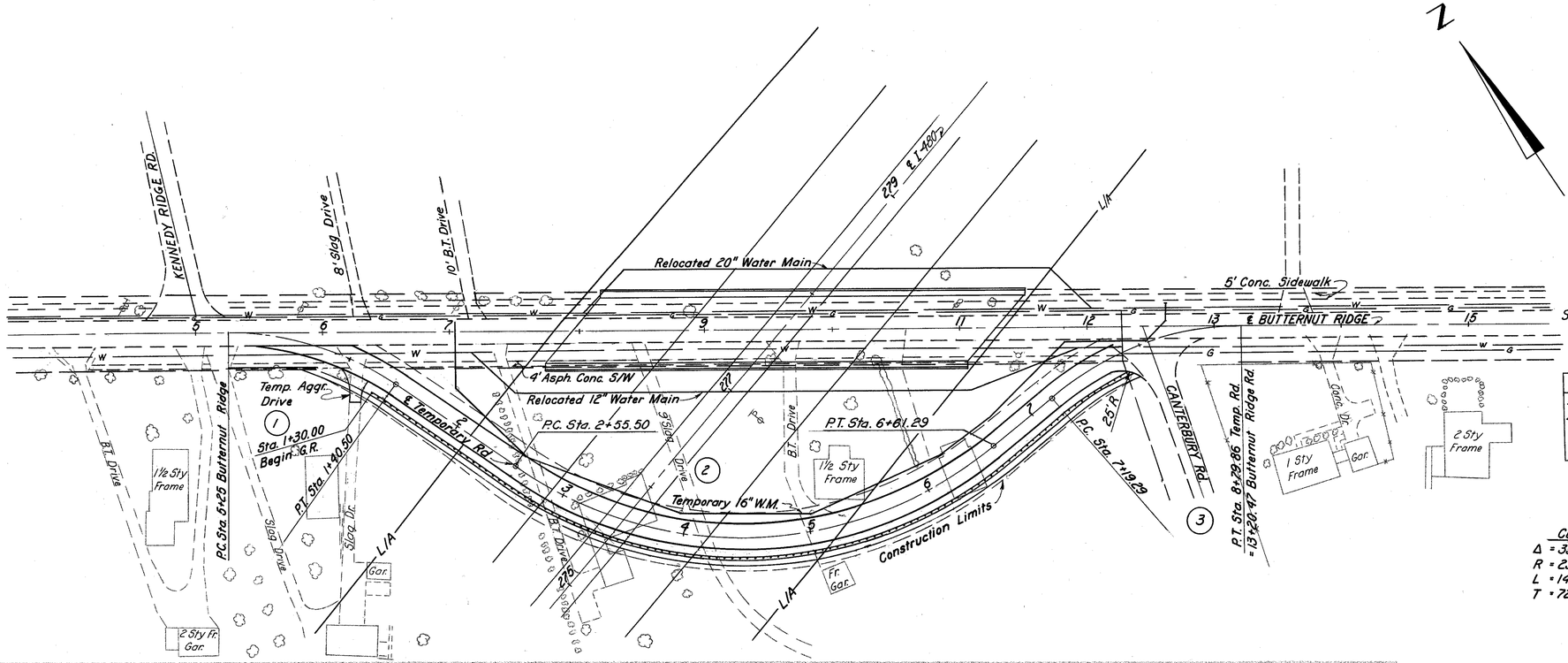
NOTE: The Contractor shall maintain all pavement markings on temporary pavement as per 614.03 which cost shall be included in lump sum price bid for Item 614 Maintaining Traffic.
See Sheet No. 269 for pavement marking details and amounts.

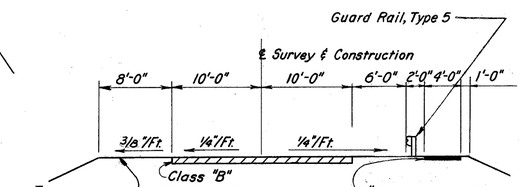
FITCH TEMPORARY ROAD PLAN & PROFILE STA. 0+00 TO STA. 10+00

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

66
427

CUYAHOGA COUNTY
CUY—480-1.90





TYPICAL SECTION
Temporary Road

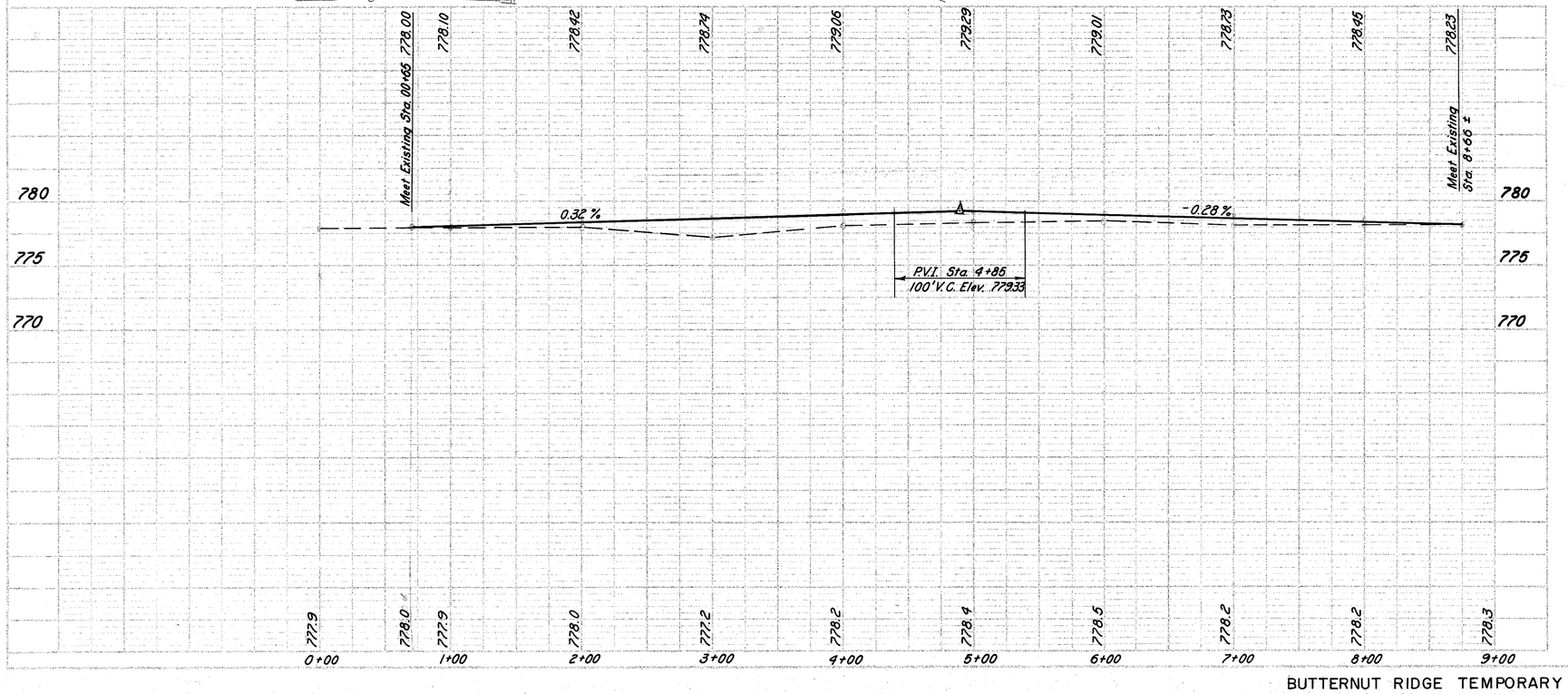
QUANTITIES

Item 615	Class "B" Temporary Pavement	1610 S.Y.
Item 615	Temporary Road	Lump

CURVE DATA

Curve 1	Curve 2	Curve 3
Δ = 35°00'00"	Δ = 75°00'00"	Δ = 40°00'00"
R = 230'	R = 310'	R = 230'
L = 140.50	L = 405.79	L = 160.57
T = 72.52	T = 237.87	T = 83.71

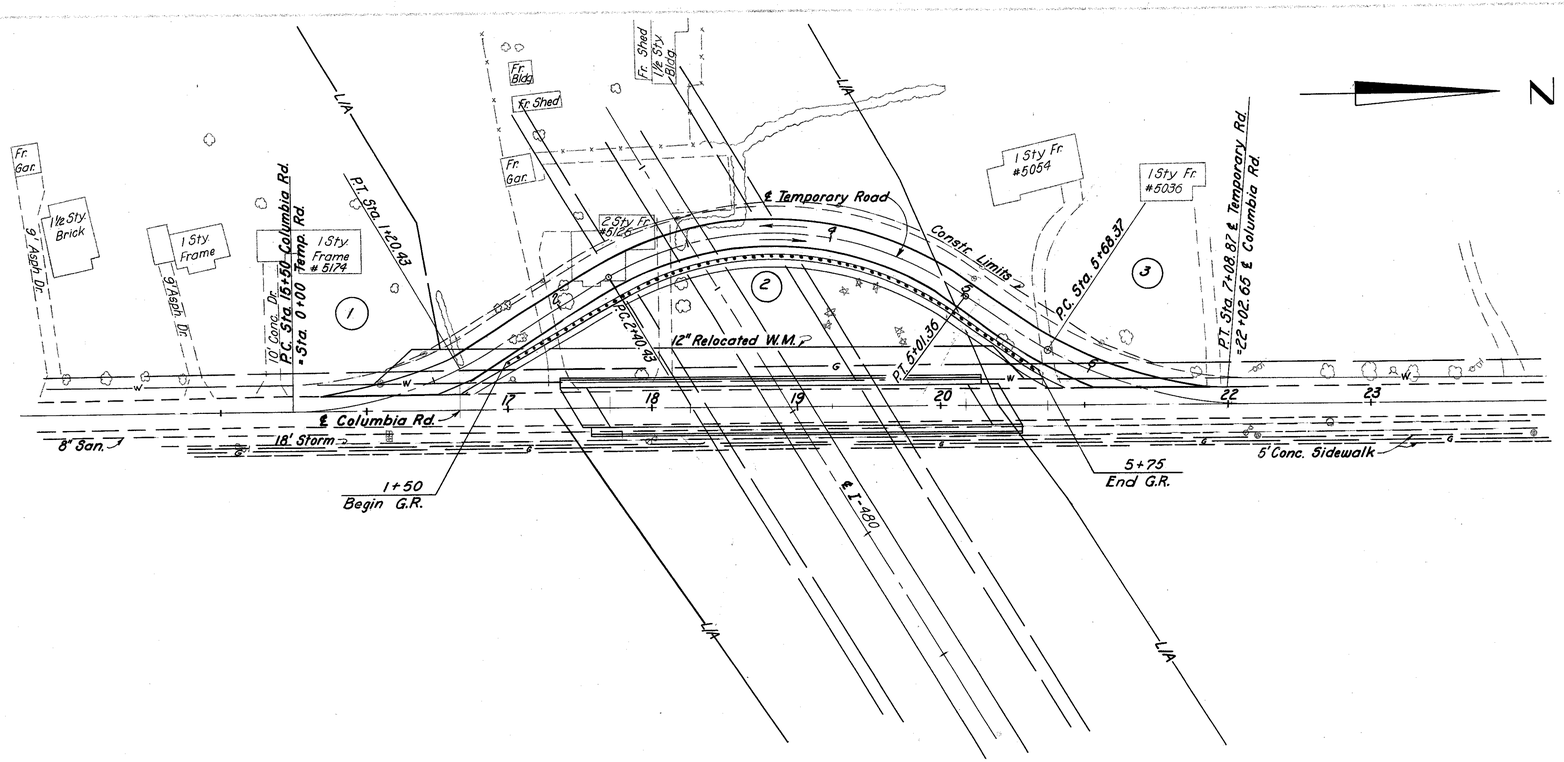
NOTE:
Guard Rail, Type 5, Temporary Seeding & Mulching, (Construction Limits ± 2') and 2" Bituminous Walk to be included In the Unit Bid Price For Item 615 - Temporary Road.
The Contractor shall maintain all pavement marking as per 614.03 which cost shall be included in lump sum price bid for Item 614 Maintaining Traffic.
See Sheet NO.269 for pavement marking details and amounts.

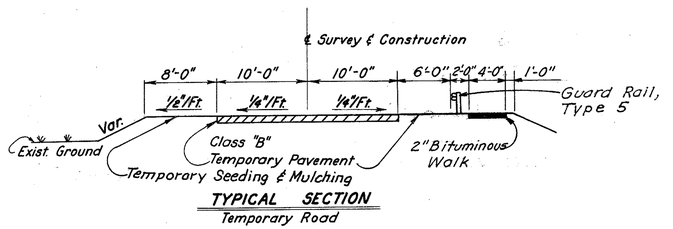


DES. BY W.A.R. DATE 9-21-70
RED. BY W.A.M. DATE 9-25-70

BUTTERNUT RIDGE TEMPORARY ROAD PLAN & PROFILE STA. 0+00 TO STA. 9+00

CUYAHOGA COUNTY
CUY-480-1.90





TYPICAL SECTION
Temporary Road

QUANTITIES

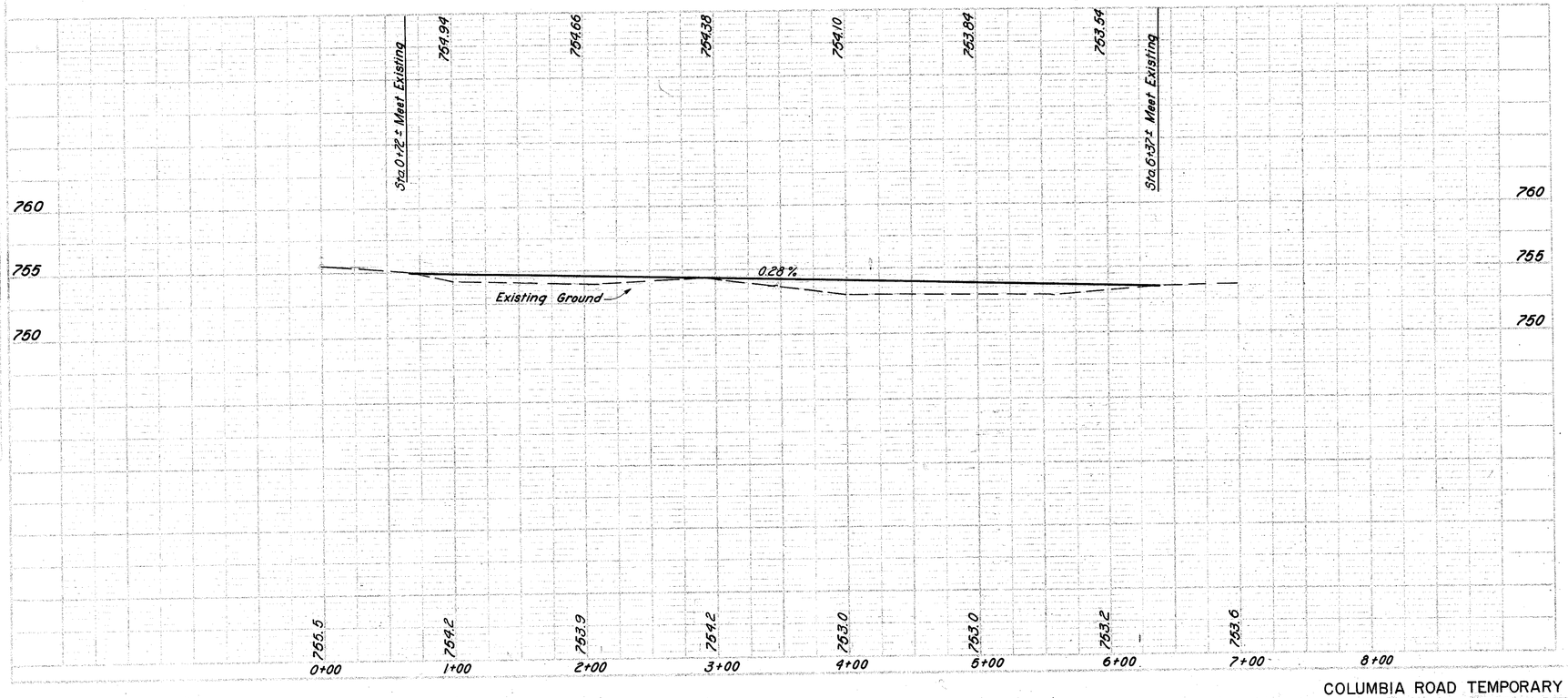
Item 615	Class "B" Temporary Pavement	1280 S.Y.
Item 615	Temporary Road	Lump

CURVE DATA

CURVE No. 1	CURVE No. 2	CURVE No. 3
Δ = 30°0'00"	Δ = 65°00'00"	Δ = 35°00'00"
R = 230'	R = 230'	R = 230'
L = 120.43	L = 260.93	L = 140.50'
T = 61.63	T = 146.53'	T = 72.52'

NOTE -
Guard Rail, Type 5, Temporary Seeding & Mulching (Construction Limits ± 2') and 2" Bituminous Walk to be Included In The Unit Bid Price For Item 615 - Temporary Road.

The Contractor shall maintain all pavement markings as per 614.03 which cost shall be included in lump sum price bid for Item 614 "Maintaining Traffic. See sheet no. 269 for pavement marking details and amounts.



CALC. BY W.A.P. DATE 9-21-70
CHKD. BY W.A.M. DATE 9-25-70

COLUMBIA ROAD TEMPORARY ROAD PLAN & PROFILE STA. 0+00 TO STA. 7+00

S-19

61-5

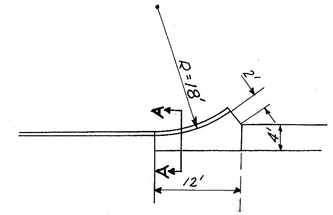
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

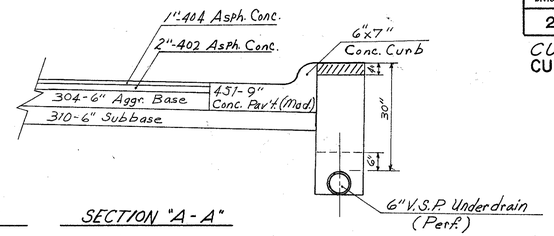
68 / 427

CUYAHOGA COUNTY
CUY-480-1.90

LEGEND

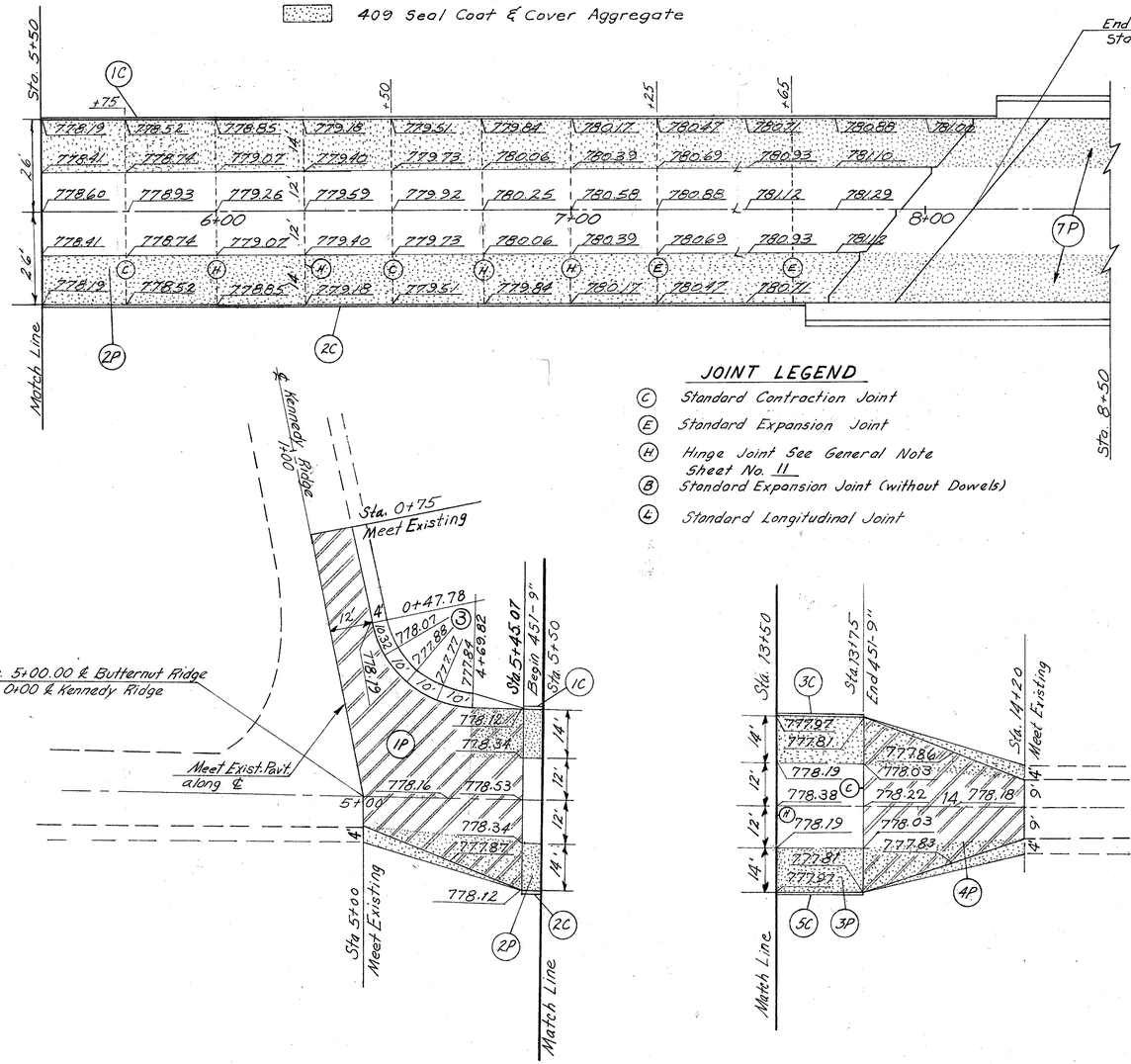
- Asphalt Concrete Pavement
- Stabilized Shoulder
- 409 Seal Coat & Cover Aggregate





CURB FLAIR DETAIL

SECTION "A-A"



JOINT LEGEND

- (C) Standard Contraction Joint
- (E) Standard Expansion Joint
- (H) Hinge Joint See General Note Sheet No. 11
- (B) Standard Expansion Joint (without Dowels)
- (L) Standard Longitudinal Joint

CURB CURVE DATA				
No.	Δ	R	L	C
1	72°14'00"	50'	63.03	58.94'
2	107°46'00"	50'	94.04	80.78'
3	77°00'20"	30'	40.32	37.35'

Estimated Quantities	203 Subgrade Compaction	402 2" Asphalt Concrete	304 6" Aggregate Base	310 6" Subbase	404 3" Subbase 703.08 or 703.10	408 1" Asphalt Concrete	409 Bituminous Prime Coat @ 0.40 Gal. S.Y.	409 Seal Coat Bituminous Material 0.40 Gal./S.Y.	409 Seal Coat Cover Aggregate 0.008 Cy./S.Y.	411 6" Stabilized Crushed Aggregate		451 9" Reinf. Conc. Pavt. as per plan	611 Approach Slab (T=14")	609 Concrete Curb Integral 6"x7"
Ref. No.	S.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	Gal.	Gal.	C.Y.	C.Y.		S.Y.	S.Y.	L.F.
1-P	315	17	51	53		8	122	41	0.9	7				
2-P	1,579				132			334	6.7			1464	116	
3-P	1,564				130			247	4.9			1449	116	
4-P	185	10	30	31		5	72	37	0.8	3				
5-P	381				32							382		
6-P	135	7	20	22		3	48	14	0.3	5		9		
1-C														275
2-C														226
3-C														218
4-C														215
5-C														142
7-P								355	7.1					
Total	4159	34	101	106	294	16	242	1028	20.7	15		3304	232	1076

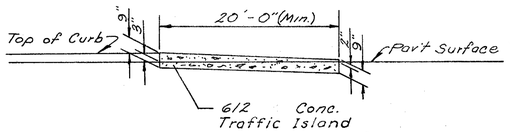
Rev. L.J.P. 10-26-76
[redacted] D.P.H. 6-26-70
[redacted] F.H.C. 7-20-70

Butternut Ridge Rd. Pavement Detail Sta. 5+50 to Sta. 13+50

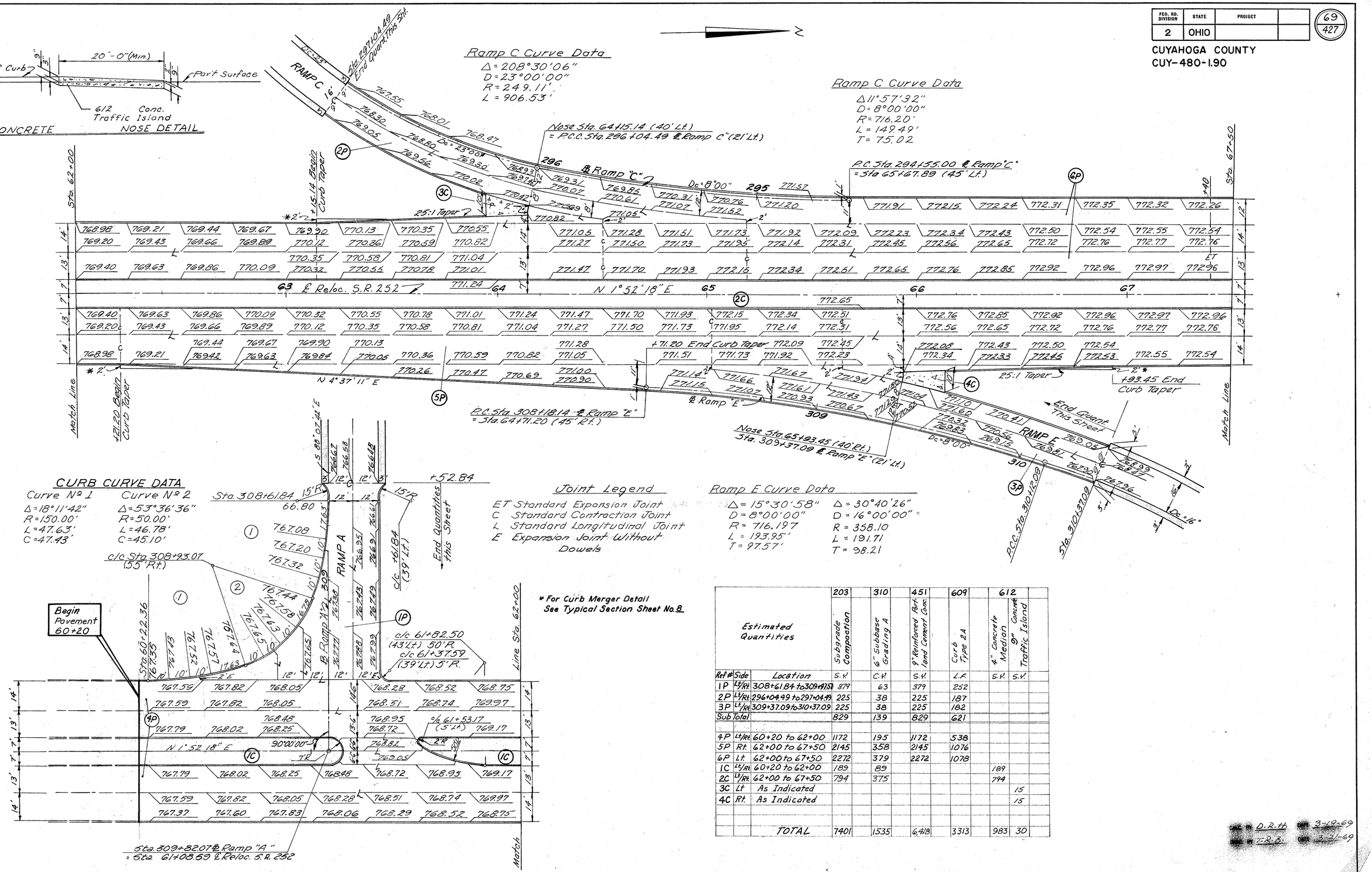
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

69
427



CONCRETE NOSE DETAIL



CURB CURVE DATA

Curve Nº 1	Curve Nº 2
Δ = 18°11'42"	Δ = 53°36'36"
R = 150.00'	R = 50.00'
L = 47.63'	L = 46.78'
C = 47.43'	C = 45.10'

Joint Legend

ET Standard Expansion Joint
C Standard Contraction Joint
L Standard Longitudinal Joint
E Expansion Joint Without Dowels

Ramp E Curve Data

Δ = 15°30'58"	Δ = 30°40'26"
D = 8°00'00"	D = 16°00'00"
R = 716.197	R = 358.10
L = 193.95'	L = 191.71
T = 97.57'	T = 98.21

Estimated Quantities			203		310		451		609		612		
			Subgrade Compaction		6" Subbase Grading A		9" Reinforced Port. Land Cement Conc.		Curb Type 2A		4" Concrete Median	9" Concrete Traffic Island	
Ref #	Side	Location	S.Y.		C.Y.		S.Y.		L.F.		S.Y.	S.Y.	
1P	Lt/Rt	308+61.84 to 309+47.51	879		63		379		252				
2P	Lt/Rt	296+04.49 to 297+04.49	225		38		225		187				
3P	Lt/Rt	309+37.09 to 310+37.09	225		38		225		182				
Sub Total			829		139		829		621				
4P	Lt/Rt	60+20 to 62+00	1172		195		1172		538				
5P	Rt.	62+00 to 67+50	2145		358		2145		1076				
6P	Lt.	62+00 to 67+50	2272		379		2272		1078				
1C	Lt/Rt	60+20 to 62+00	189		89						189		
2C	Lt/Rt	62+00 to 67+50	794		375						794		
3C	Lt	As Indicated										15	
4C	Rt.	As Indicated										15	
		TOTAL	7401		1535		6418		3313		983	30	

D.R.H. 3-19-69
D.R.B. 3-21-69

RELOCATED S.R. 252 STA. 60 + 00 TO STA. 67 + 50 PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

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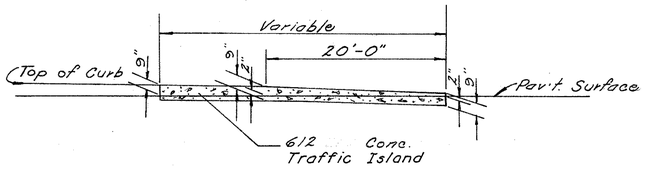
427

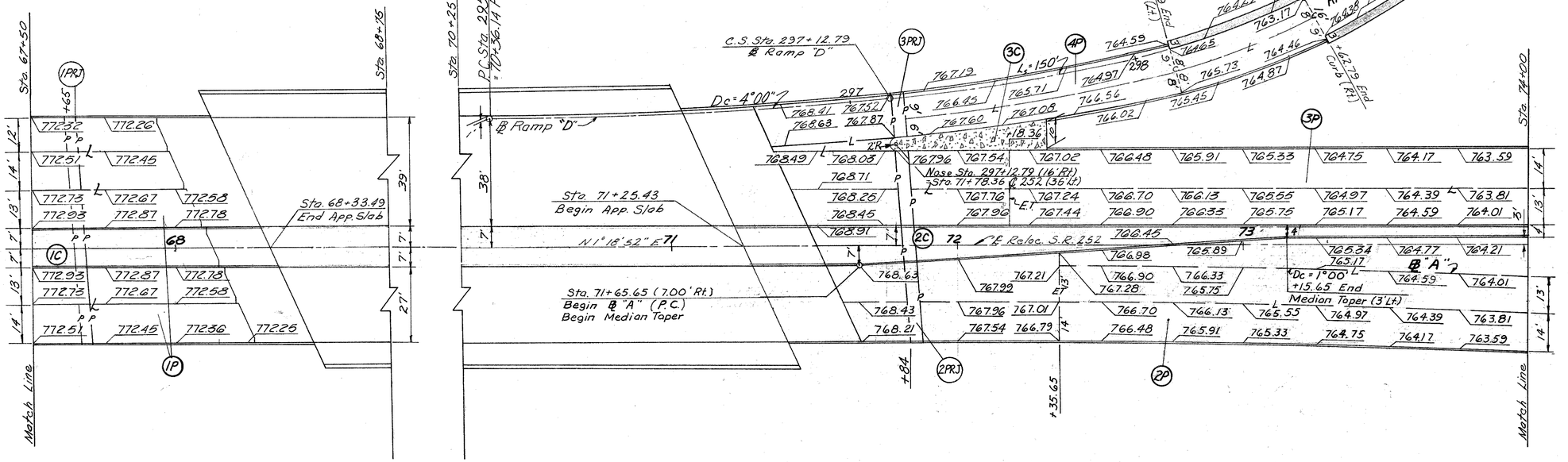
CUYAHOGA COUNTY
CUY-480-1.90



CONCRETE NOSE DETAIL

Ramp D Curve Data

Δ = 5°38'07"	Δ = 21°41'00"	Δ = 226°48'07"
D = 4°00'00"	Ls = 150.00'	D = 24°54'40"
R = 1432.39'	Tl = 94.08'	R = 230.00'
L = 140.88	Ts = 57.73	L = 910.44'
T = 70.50		



JOINT LEGEND
ET Standard Expansion Joint
C Standard Contraction Joint
L Standard Longitudinal Joint

℄ "A" CURVE DATA

Dc = 1°00'00"
Δ = 2°49'57"
R = 5,729.58'
L = 283.25'
T = 141.65'

Estimated Quantities			203		301		310	SPEC		451	609	611	612		611	Spec.
			Subgrade Compaction		6" Bituminous Aggregate Base		6" Subbase Grading A	Pres. Relief Joint Type "A"		9" Reinforced Port. Land Cement Conc.	Curb Type 2A	Approach Slab (7"=14")	4" Concrete Median	9" Conc. Traffic Island	Approach Slab (7"=15")	Drainage Connection
Ref#	Side	Location	S.Y.		C.Y.		C.Y.	L.F.		S.Y.	L.F.	S.Y.	S.Y.	S.Y.	S.Y.	C.Y.
1P	Lt/Rt	67+50 to 68+33.49	604				101			453	327	151				
2P	Rt.	71+25.43 to 74+00	1031				172			953	532				78	
3P	Lt.	71+25.43 to 74+00	1007				168			890	517				117	
4P	Lt/Rt.	297+12.79 to 298+62.79	306		2.8		51			289	203					3.6
1PRJ	Lt./Rt.	67+80 to 67+87					-72	81		-30	-16		-6			
2PRJ	Lt/Rt.	71+78 to 71+84					-60	68		-25	-12		-5			
3PRJ	Rt.	297+13 to 297+17(D)					-14	16		-7	-4					
1C	Lt/Rt.	67+50 to 68+33.49	121				57						121			
2C	Lt/Rt.	71+25.43 to 74+00	208				98						208			
3C	Lt.	As Indicated												41		
		TOTAL	3277		2.8		501	165		2523	1547	151	318	41	195	3.6

Rev. D.R.S. 10-31-77
D.R.# 3-19-69
7.2.B. 3-26-69

RELOCATED S.R. 252 – STA. 67 + 50 TO STA. 74 + 00 PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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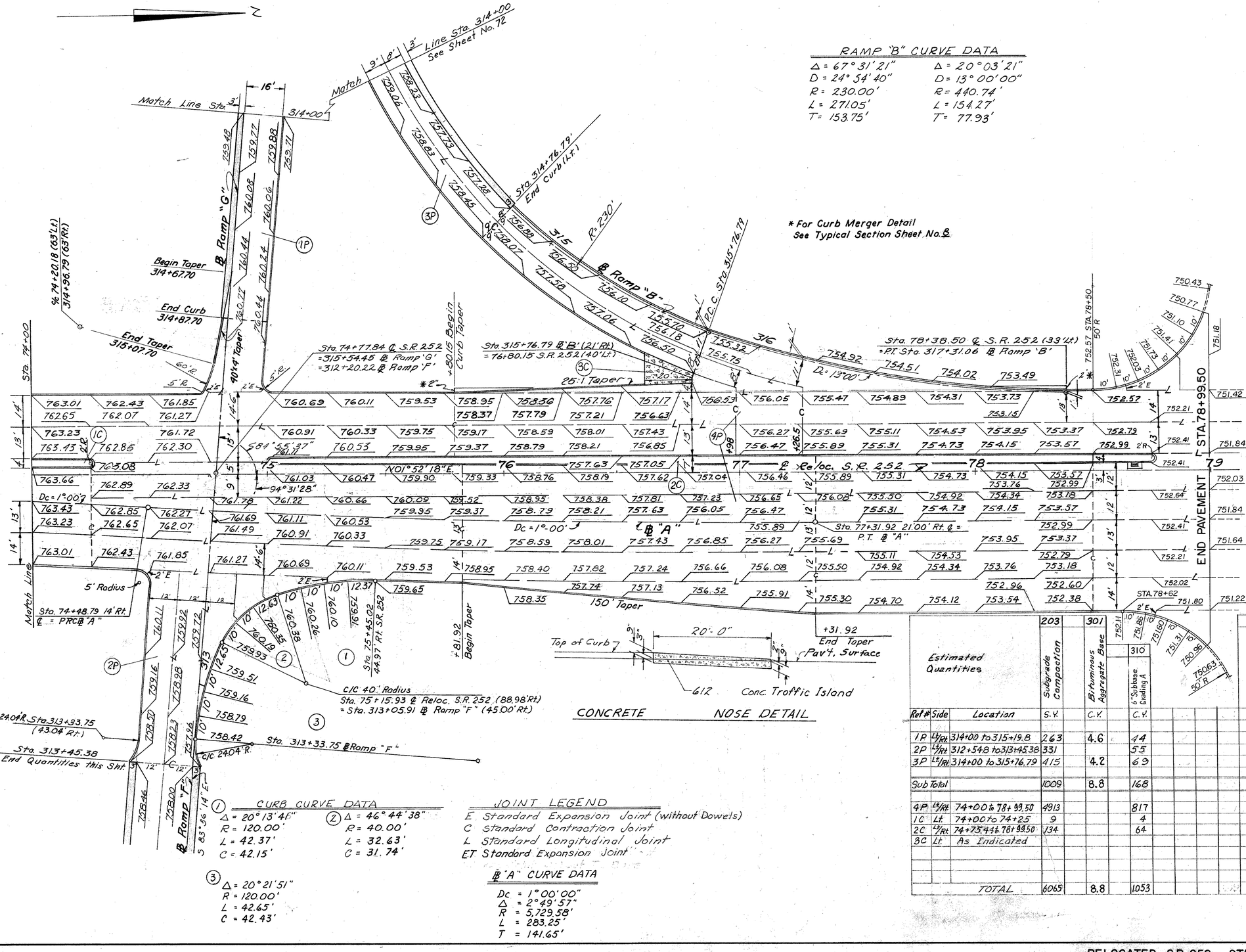
427

CUYAHOGA COUNTY
CUY-480-1.90



Estimated Quantities

Ref #	Side	Location	203 Subgrade Compaction S.Y.	301 Bituminous Aggregate Base C.Y.	310 6" Subbase Grading A C.Y.	609 Curb Type 2-A L.F.	612 9" Concrete Traffic Island S.Y.	612 4" Concrete Median S.Y.	451 9" Reinforced Portland Cement Concrete S.Y.	Spec. Drainage Connection C.Y.
1P	Lt/Rt	314+00 to 315+19.8	263	4.6	44	154			237	6.0
2P	Lt/Rt	312+54.8 to 313+45.38	331		55	217			331	
3P	Lt/Rt	314+00 to 315+76.79	415	4.2	69	269			390	5.5
Sub Total			1009	8.8	168	640			958	11.5
4P	Lt/Rt	74+00 to 78+99.50	4913		817	1613			4910	
1C	Lt.	74+00 to 74+25	9		4			9		
2C	Lt/Rt	74+75.44 & 78+99.50	134		64			134		
3C	Lt.	As Indicated					20			
		TOTAL	6065	8.8	1053	2253	20	143	5868	11.5

D.R.H. 3-20-69
T.R.B. 3-20-69

RELOCATED S.R. 252 – STA. 74 + 00 TO STA. 79 + 00 PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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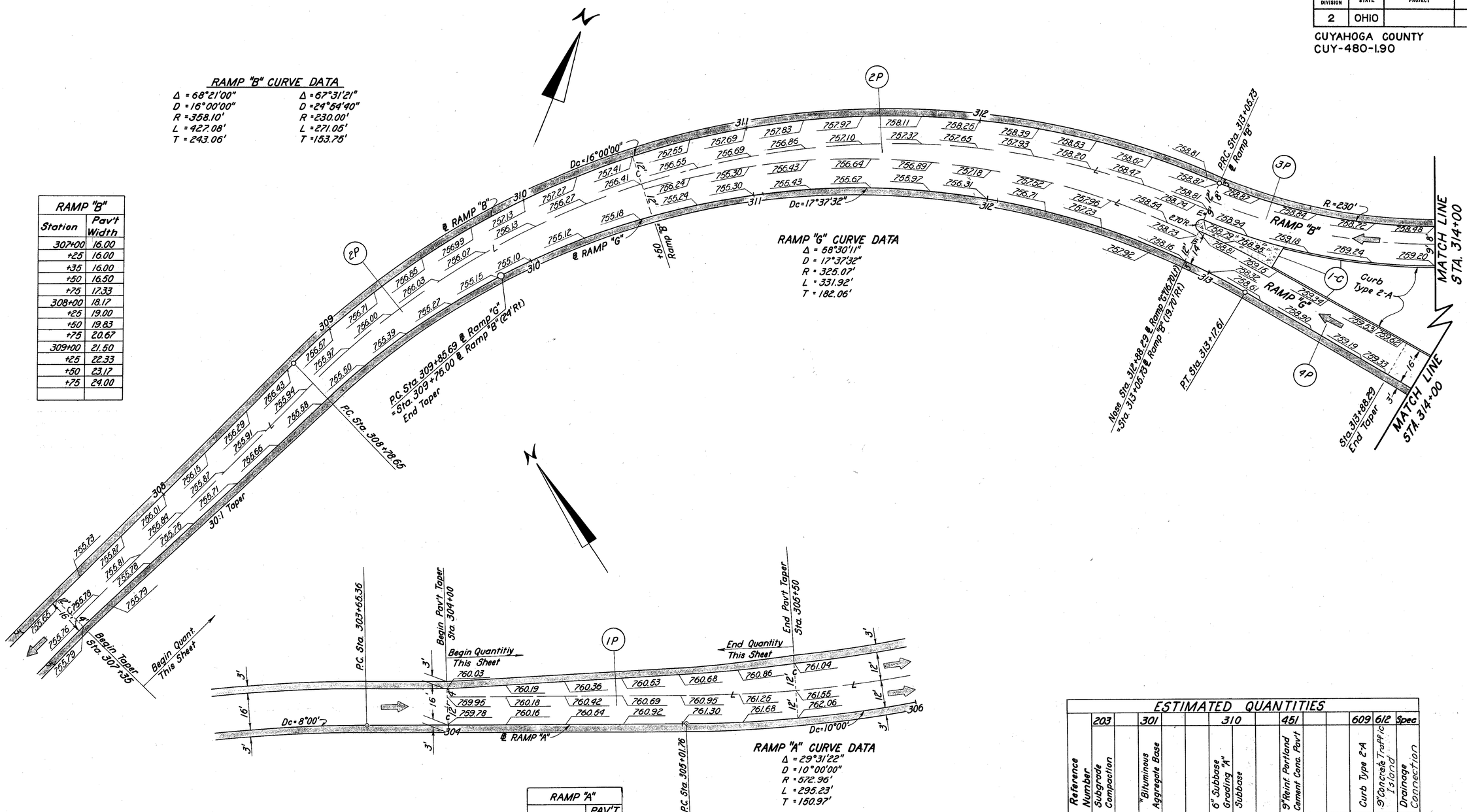
CUYAHOGA COUNTY
CUY-480-1.90

RAMP "B" CURVE DATA

Δ = 68°21'00"
D = 16°00'00"
R = 358.10'
L = 427.08'
T = 243.06'

Δ = 67°31'21"
D = 24°54'40"
R = 230.00'
L = 271.05'
T = 153.75'

RAMP "B"	
Station	Pav't Width
307+00	16.00
+25	16.00
+35	16.00
+50	16.50
+75	17.33
308+00	18.17
+25	19.00
+50	19.83
+75	20.67
309+00	21.50
+25	22.33
+50	23.17
+75	24.00



RAMP "G" CURVE DATA

Δ = 58°30'11"
D = 17°37'32"
R = 325.07'
L = 331.92'
T = 182.06'

RAMP "A" CURVE DATA

Δ = 29°31'22"
D = 10°00'00"
R = 572.96'
L = 295.23'
T = 150.97'

RAMP "A"	
STATION	PAV'T WIDTH
304+00	16.00
+25	17.33
+50	18.67
+75	20.00
305+00	21.33
+25	22.67
+50	24.00

ESTIMATED QUANTITIES

Reference Number	203 Subgrade Compaction	301 Bituminous Aggregate Base	310 6" Subbase Grading "A"	310 Subbase	451 9" Reinf. Portland Cement Conc. Pav't	609 Curb Type 2-A	612 9" Concrete Traffic Island	Spec Drainage Connection
	S.Y.	C.Y.	C.Y.	C.Y.	S.Y.	L.F.	S.Y.	C.Y.
1P	433	16.7	72		333			21.8
2P	1968	61.8	310	26.7	1598			46.2
3P	213	5.2	35		182			6.8
4P	229	6.2	38		192			8.1
1C						141	27	
Total	2843	89.9	455	26.7	2305	141	27	82.9

D.R.H. 4-6-71 4-15-71

RAMP "A" STA. 304+00 TO 305+50 & RAMP "B" & "G" - PAVEMENT DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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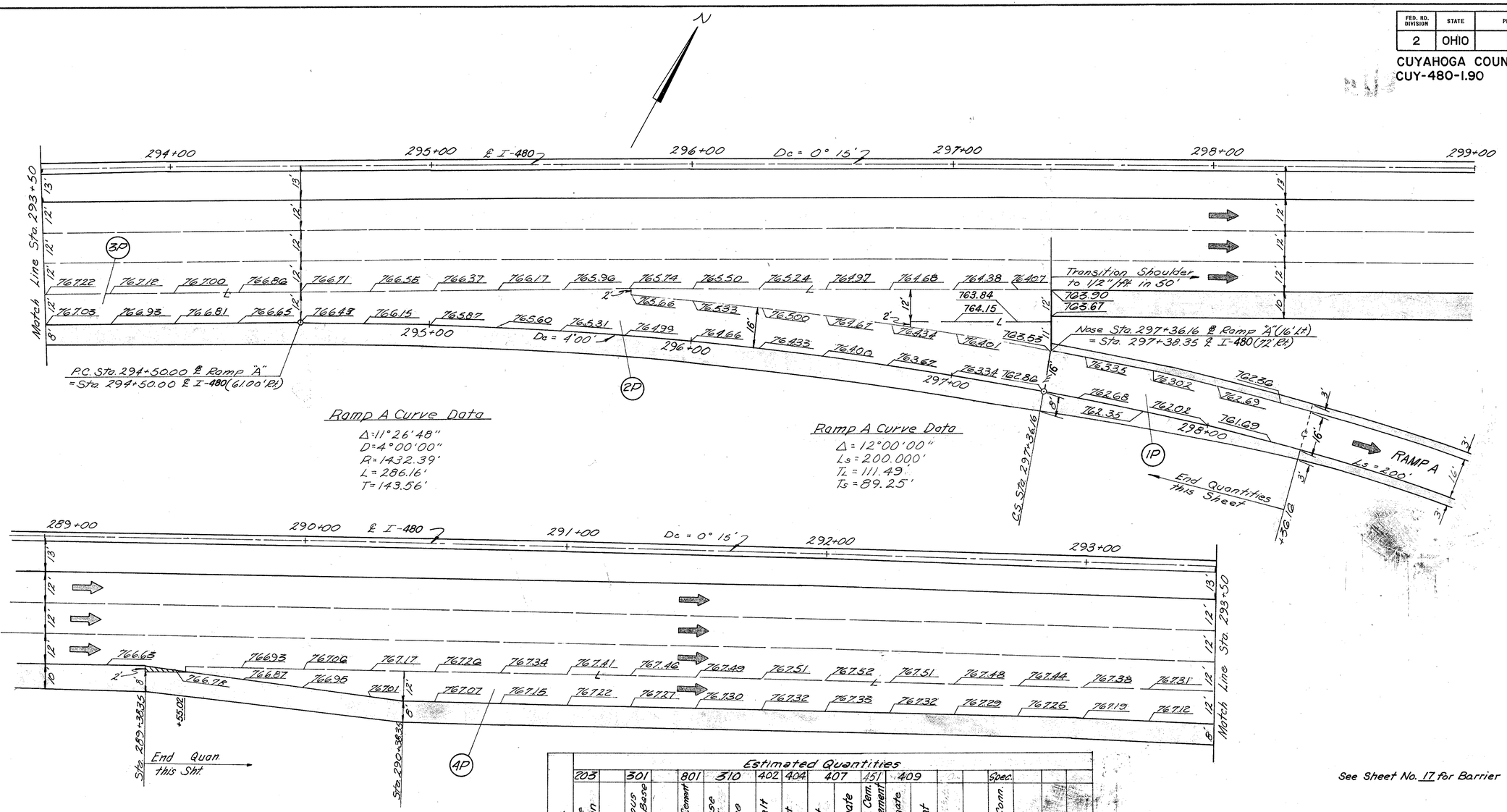
CUYAHOGA COUNTY
CUY-480-1.90



Extend 801 Concrete Base 2' from edge of pavement and surface with 3" of 301. No deduction in normal shoulder quantities shall be made for this area.

Joint Legend
E Standard Expansion Joint
C Standard Contraction Joint
L Standard Longitudinal Joint

See Typical Section Sheet No. 5

Estimated Quantities

Ref. No.	203 Subgrade Compaction S.Y.	301 6" Bituminous Aggregate Base C.Y.	801 9" Portland Cement Conc. Base S.Y.	310 Subbase Grading 'A' C.Y.	310 Subbase C.Y.	402 Asphalt Concrete C.Y.	404 Asphalt Concrete C.Y.	407 Tack Coat Gal.	407 Cover Aggregate Ton	451 9" Reinf. Port. Conc. Pavement S.Y.	409 No.9 Aggregate C.Y.	409 Seal Coat Gal.	Spec. Drainage Conn. C.Y.
1P	272	16		41	12					178			7.4
2P	989	42	743	192		36	26	74	2.6		1	51	
3P	222	15	136	47		7	5	14	0.5		1	18	
4P	848	60	493	181		23	17	48	1.7		2	73	
Total	2331	133	1372	461	12	66	48	136	5	178	4	142	7.4

See Sheet No. 17 for Barrier Quantities

R.A.T. 2-5-69
Rev WRM 11/75
Rev. L.J.P. 10-26-77

RAMP "A" PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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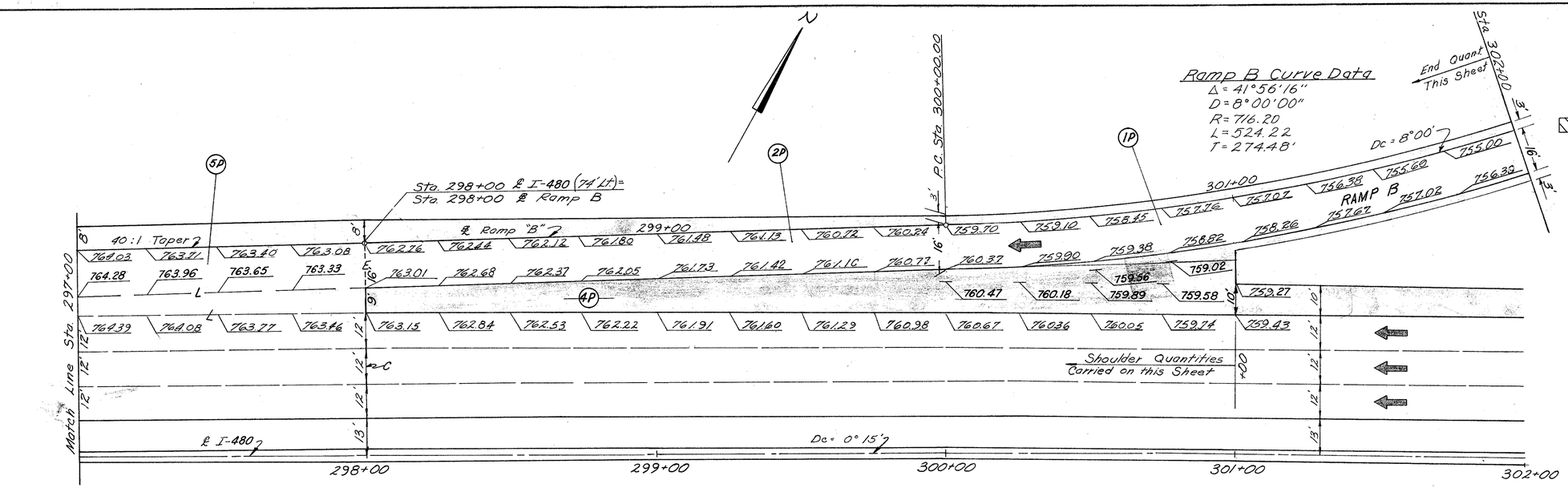
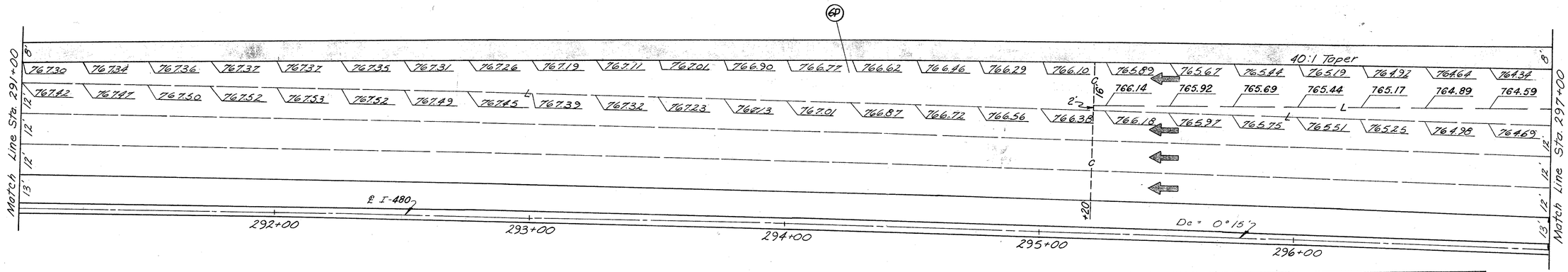
CUYAHOGA COUNTY
CUY-480-1.90

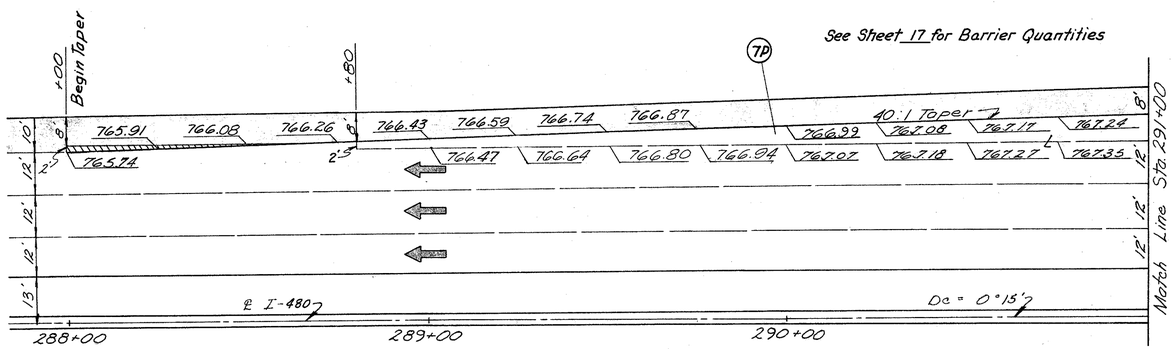


Extend 801 Concrete Base 2' from edge of pavement and surface with 3" of 301. No deduction in normal shoulder quantities shall be made for this area.

Joint Legend
E Standard Expansion Joint
C Standard Contraction Joint
L Standard Longitudinal Joint

See Typical Section Sheet 5





Estimated Quantities

Ref. No	203 Subgrade Compaction	301 Bituminous Aggregate Base		801 9" Portland Cem. Conc. Base	310 Subbase grading 'A'	310 Subbase	402 Asphalt Concrete	404 Asphalt Concrete	407 Tack Coat	407 Cover Aggregate	451 9" Reinf. Port. Cem. Concrete Pavement	409 No. 9 Aggregate	409 Seal Coat				SPEC Drainage Conn
Ref #	S.Y.	C.Y.		S.Y.	C.Y.	C.Y.	C.Y.	C.Y.	Gal.	Ton	S.Y.	C.Y.	Gal.				C.Y.
1P	456	22.6			63	5.9					356						14.6
2P	478	20.4			61	12.2					356						14.6
4P	489	81.5			9							2	98				
5P	353	15		267	68		13	9	27	0.9		1	18				
6P	1533	88		1017	313		49	35	102	3.6		3	107				
7P	401	45		134	97		6	5	13	0.5		2	55				
Total	3710	2725		1418	611	18.1	68	49	142	5	712	8	278				29.2

R.H.T. 2469
2-10-69
Rev. W.R.M. 11/75
Rev. L.J.P. 10-26-77

RAMP "B" PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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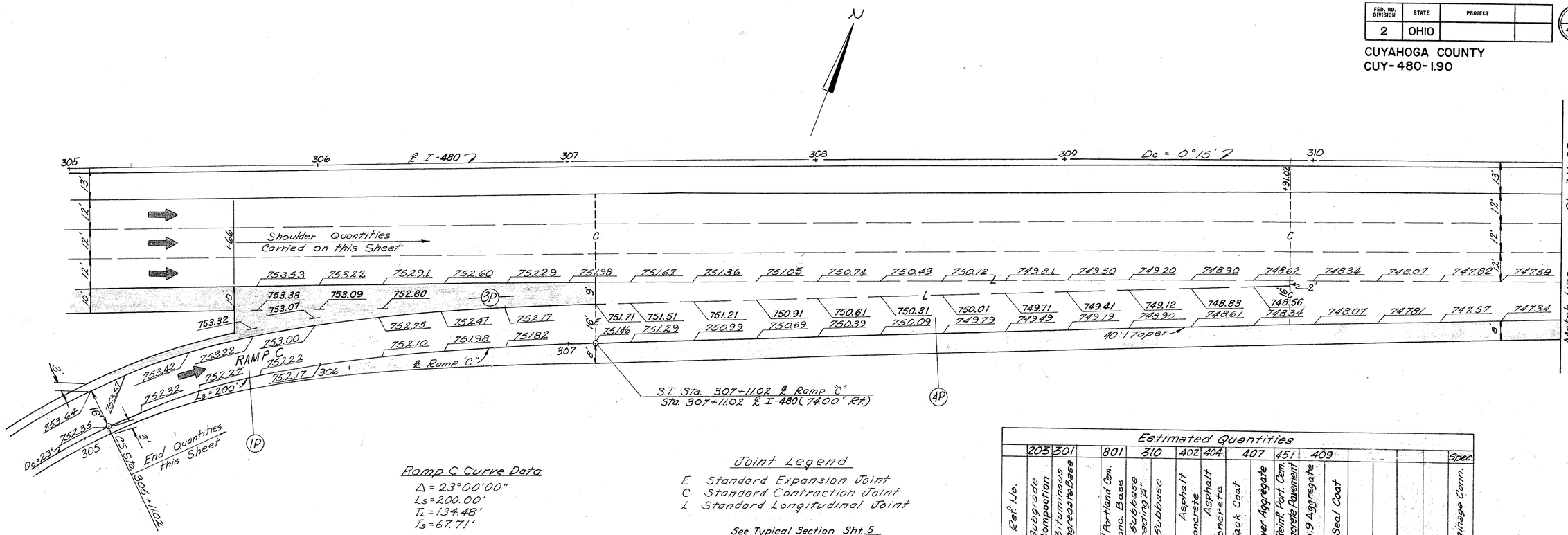
CUYAHOGA COUNTY
CUY-480-1.90



Ramp C Curve Data

Δ = 23°00'00"
Ls = 200.00'
T_L = 134.48'
T_S = 67.71'

Joint Legend

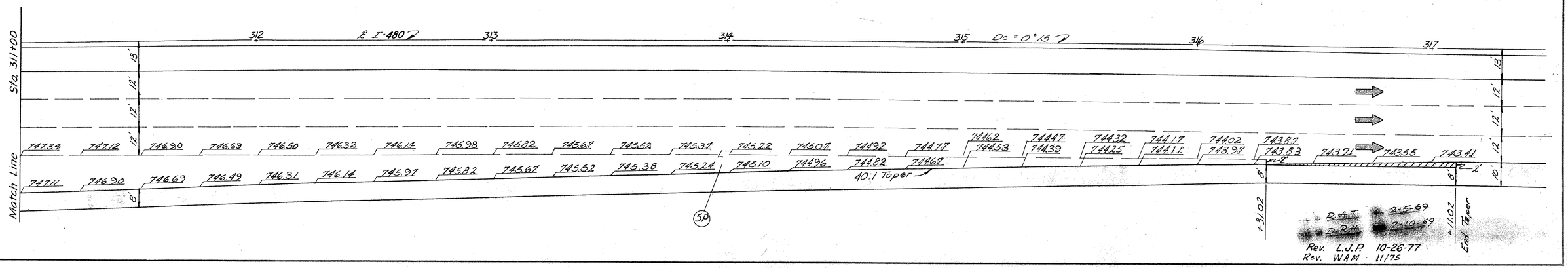
E Standard Expansion Joint
C Standard Contraction Joint
L Standard Longitudinal Joint

See Typical Section Sht. 5

Extend 801 Concrete Base 2' from edge of pavement and surface with 3" of 301. No deduction in normal shoulder quantities shall be made for this area.

Estimated Quantities

Ref. No.	203 Subgrade Compaction S.Y.	301 Bituminous Aggregate Base C.Y.	801 9" Portland Cem. Conc. Base S.Y.	310 Subbase Grading 24" C.Y.	310 Subbase C.Y.	402 Asphalt Concrete C.Y.	404 Asphalt Concrete C.Y.	407 Tack Coat Gal.	407 Cover Aggregate Ton	451 9" Reinf. Port. Cem. Concrete Pavement S.Y.	409 No.9 Aggregate C.Y.	409 Seal Coat Gal.	Spec. Drainage Conn. C.Y.
IP	498	23.7		60.4	19.2					356			14.5
3P	214	40		7							1	43	9
4P	1216	57	881	240		42	30	88	3.1		2	69	
5P	1071	93	536	238		25	18	54	1.9		3	110	
Total	2999	213.7	1417	545.4	19.2	67	48	142	5	356	6	222	23.5



Rev. L.J.P. 10-26-77
Rev. W.A.M. - 11/75

RAMP "C" PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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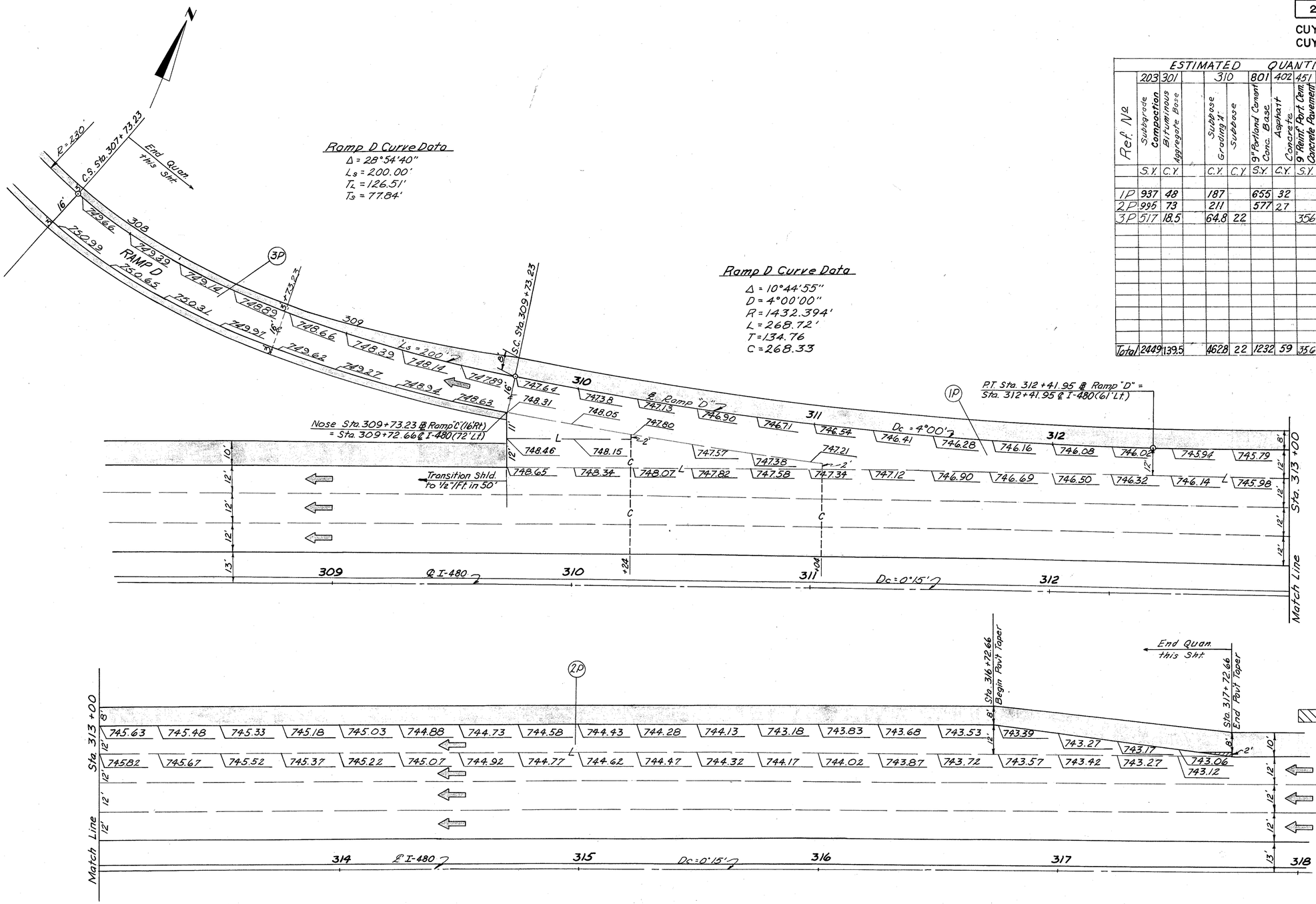
CUYAHOGA COUNTY
CUY-480-1.90



Ramp D Curve Data
Δ = 28°54'40"
Ls = 200.00'
TL = 126.51'
Ts = 77.84'

Ramp D Curve Data
Δ = 10°44'55"
D = 4°00'00"
R = 1432.394'
L = 268.72'
T = 134.76
C = 268.33

ESTIMATED QUANTITIES

Ref. №	203 Subgrade Compaction S.Y.	203 Subgrade Compaction C.Y.	301 Bituminous Aggregate Base	310 Subbase Grading A" C.Y.	310 Subbase C.Y.	801 9" Portland Cement Conc. Base S.Y.	402 Asphalt Concrete C.Y.	451 9" Reinf. Port. Cem. Concrete Pavement S.Y.	404 Asphalt Concrete C.Y.	407 Tack Coat Gal.	SPEC Drainage Course C.Y.	409 No. 9 Aggregate C.Y.	409 Seal Coat Gal.	407 Cover Aggregate Ton
1P	937	48		187		655	32		23	66		2	58	2.3
2P	995	73		211		577	27		20	58		2	86	2.2
3P	517	18.5		64.8	22			356			14.5			
Total	2449	139.5		462.8	22	1232	59	356	43	124	14.5	4	144	5

Extend 801 Concrete Base 2' from edge of pavement and surface with 3" of 301. No deduction in normal shoulder quantities shall be made for this area.

Joint Legend
E Standard Expansion Joint
C Standard Contraction Joint
L Standard Longitudinal Joint

-See Typical Section Sht. No. 5

R.A.T. 2-5-69
~~R.A.T.~~ ~~2-10-69~~
Rev. WAW. 11/75
Rev. L.J.P. 10-26-77

RAMP "D" PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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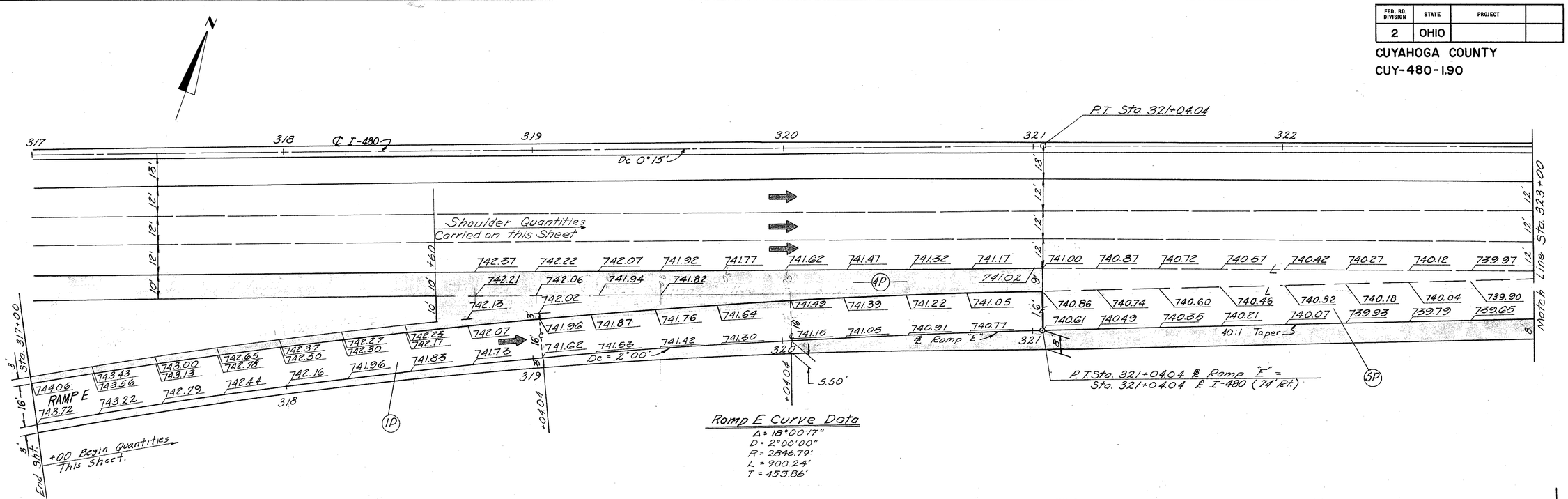
427

CUYAHOGA COUNTY
CUY-480-1.90



See Sheet No. 17 for Barrier Quantities

Joint Legend

E Standard Expansion Joint
C Standard Contraction Joint
L Standard Longitudinal Joint

See Typical Section Sht. 5

Extend 801 Concrete Base 2' from edge of pavement and surface with 3" of 301. No deduction in normal shoulder quantities shall be made for this area.

Estimated Quantities

Ref. No.	203 Subgrade Composition S.Y.	301 Bituminous Aggregate Base C.Y.		801 9" Portland Cement Conc. Base S.Y.	310 Subbase Grading A C.Y.	310 Subbase C.Y.	402 Asphalt Concrete C.Y.	404 Asphalt Concrete C.Y.	407 Tack Coat Gal.	407 Cover Aggregate Ton	451 9" Reinf. Port. Cem. Concrete Pavement S.Y.	409 No. 9 Aggregate C.Y.	409 Seal Coat Gal.					Spec. Drainage Conn. C.Y.
1P	963	40.8			130.9	30.4					719							29.5
4P	355	67			12							2	71					19
5P	665	29		496	130		24	17	50	2		1	35					
6P	1373	90		857	286		40	29	86	3		3	107					
7P	248	31		64	61		3	2	7	0.2		1	38					
Total	3604	257.8		1417	619.9	30.4	67	48	143	5	719	7	251					46.5

R.A.T. 2-4-69
D.R.H. 2-11-69
Rev. WAM 11/75
Rev. L.J.P. 10-26-77

RAMP "E" PAVEMENT DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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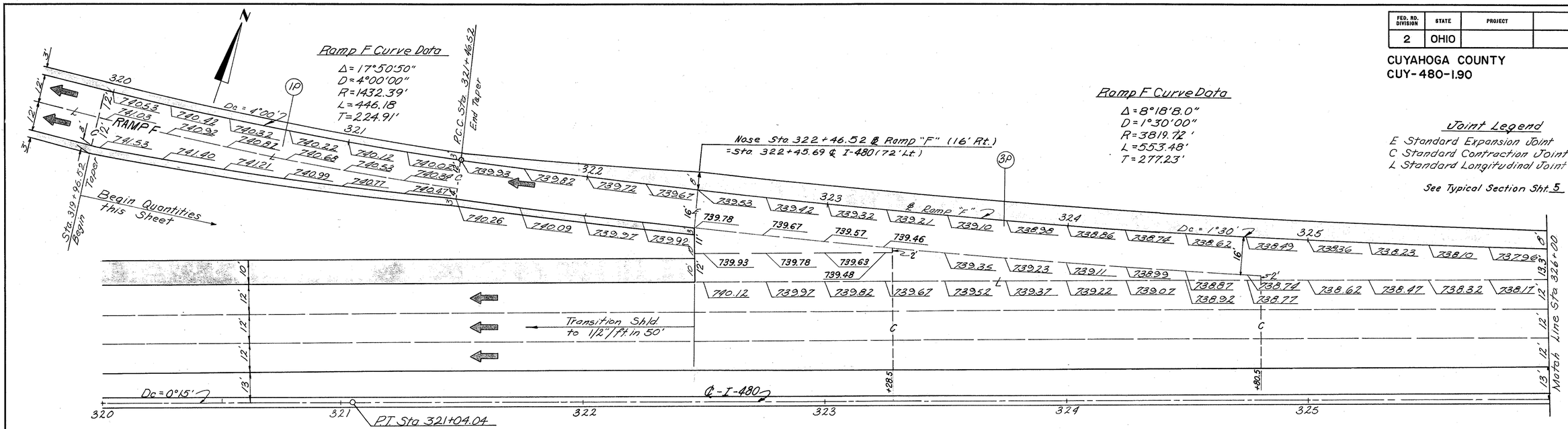
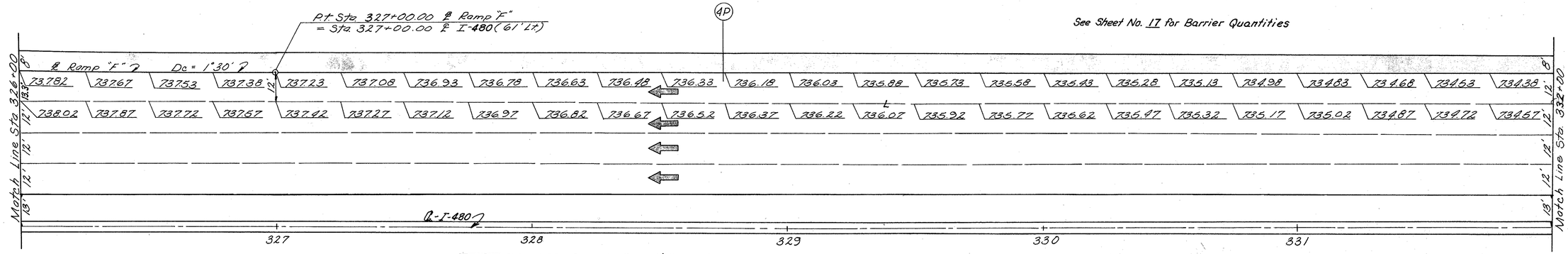
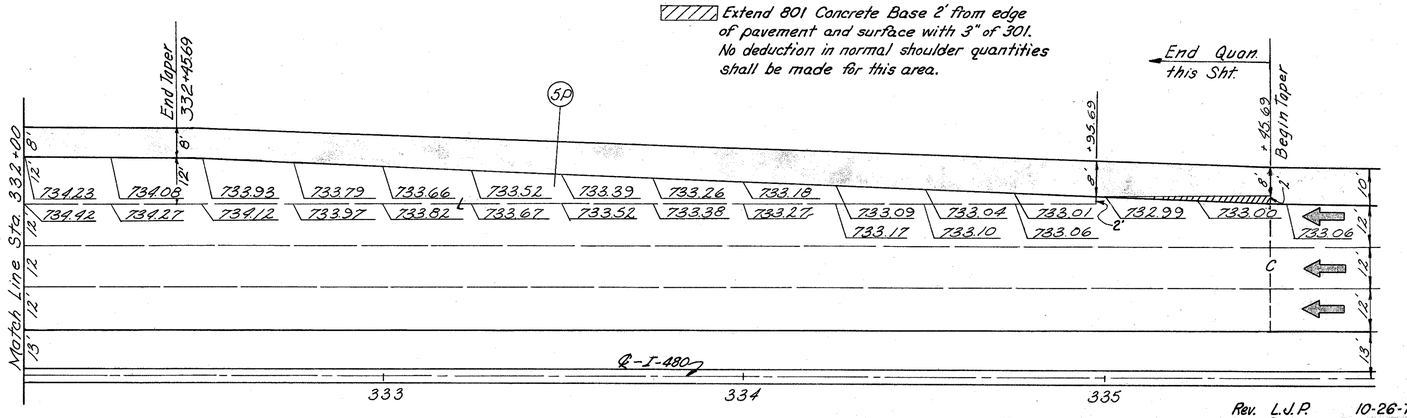
427

CUYAHOGA COUNTY
CUY-480-1.90







Rev. L.J.P. 10-26-77
R.A.T. 2-25-69
Rev D.R.H. 2-19-69
Rev W.H.M. 11-7-75

Estimated Quantities

Ref. No.	203 Subgrade Compaction S.Y.	301 Bituminous Aggregate Base C.Y.	801 9" Portland Cement Concrete Base S.Y.	310 Subbase Grading A C.Y.	310 Subbase C.Y.	402 Asphalt Concrete C.Y.	404 Asphalt Concrete C.Y.	407 Tack Coat Gal.	407 Cover Aggregate Ton	451 9" Reinf. Port. Cem. Concrete Pavement S.Y.	409 No. 9 Aggregate C.Y.	409 Seal Coat Gal.	Spec. Drainage Conn. C.Y.
1P	706	324		92.1	13.6					511			18.2
3P	1205	52	901	235		43	31	90	3.2		2	63	
4P	1341	88	824	281		39	28	82	2.9		3	107	
5P	574	51	271	126		13	9	27	0.9		2	63	
Total	3826	2234	1996	734.1	13.6	95	68	199	7	511	7	233	18.2

RAMP "F" PAVEMENT DETAIL

CUYAHOGA COUNTY
CUY-480-1.90

℄ I-480

Sta. 227+75.107 Lt. I-480
Sta. 7+36.25 Rt. Southern Ave., Std. No. 1 Manhole ℄ = 771.5±

Ditch Elev. 770.25
2.0'±
8:1
767.13
Exist 24"W
Prop. 24"S
22.9'-24"- Type "B" @ 1.00%
8:1
48:1
2:1
2:1
764.90
Sta. 227+75.122 Rt. Std. HW-4 Headwall
Rock Channel Protection Type "B" 4' W x 14 Lg x 24" Dp.
2D/80

Sta. 228+88 Med. I-480 No. I-3H Median Inlet N/G = 774.06
Sta. 229+90 Med. I-480 No. I-3H Median Inlet N/G = 773.86
Sta. 230+88. Med. No. I-3H I-480 Median Inlet N/G = 774.06

102'-15" Type "B" @ 1.00%
98' 15" Type "B" @ 1.00%
768.27
3D/30
769.20
6" U.D. Outlet
767.25
767.00
18'-5"
768.23
1D/31

Sta. 229+90 Med. I-480 No. I-3H Med. Inlet N/G = 773.86
Sta. 229+90. 122 Rt. I-480 Std. HW-4 Headwall

8:1
48:1
2:1
2:1
761.00
767.25. 15 E&W
18"-18"- Type "B" @ 2.90%
763.52
Rock Channel Protection Type "B" 4'W x 11'Lg x 24" Dp.
4D/30

Sta. 237+30 Med. I-480 No. I-3H Median Inlet N/G = 779.76
Sta. 237+74 117 Lt. I-480 Existing M.H. Existing ℄ 789.70
Sta. 237+30. 114' Rt. I-480 Std. HW-4 Headwall

10'
8:1
68'-15"- Type "B" @ 1.00%
37'-15" Type "F" @ 41.50%
2.2:1
707.05
2:1
774.0
773.22
762.02
762.07
30/31
9'-15"- Type "F" @ .50%
Rock Channel Protection Type "B" 4' W x 14' Lg. x 24" Dp.

Sta. 238+25
118' Lt. I-480 Std. No. 1 M.H. ℄ = 771.0±
52'-18"- Type "C" @ 1.00%
762.10
Ex. 36" W
762.94
18" E
40/31
763.43
18" W
Ex. 18 N.

NOTE: See Misc. Detail Sheet For R.C.P.

Sta. 205+25 (98' Lt.) Std. HW-4 Headwall
Sta. 205+25 (64'6" Lt.) Std. 2-A-6 Paved Shoulder Inlet
794.88
15:1
12.6%
2:1
27'-15" Type "F" @ 12.6%
789.60
5D/28
778.05
707.05
778.10
9'-15" Type "F" @ 0.50%
Rock Channel Protection Type "B" 4' W x 12' L x 24" Dp.

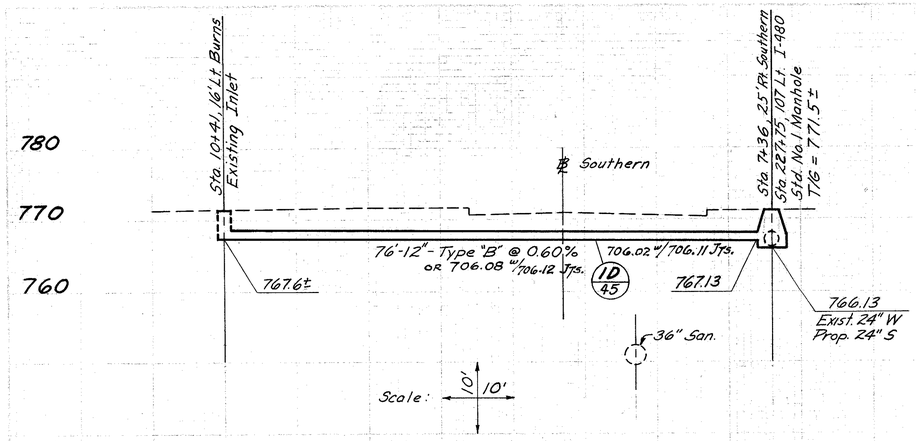
Sta. 235+65 110 Lt. Special Headwall See Detail Sh. No. 924
Sta. 235+65 98' Lt. Std. No. 2-2B C.B. T/G 767.10
Inv. 762.31
17'-15"- Type "B" @ 1.00%
30/31
Inv. 763.08

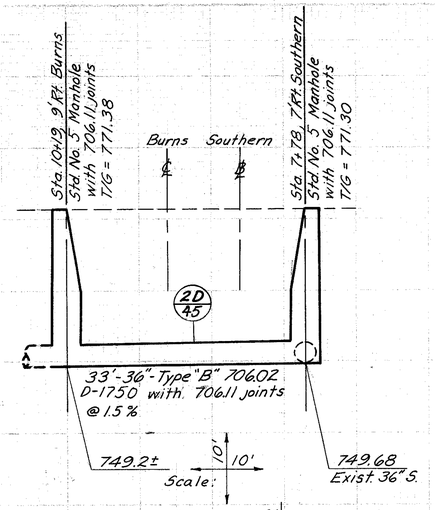
Sta. 238+25 118' Lt. I-480 Std. No. 1 M.H. T/C 771.0±
Sta. 238+25. 97' Lt. Std. No. 2-2B C.B. T/G 768.60
4D/31
763.43
18" W.
763.79
Inv. 764.00
21'-15" Type "B" @ 1.00%

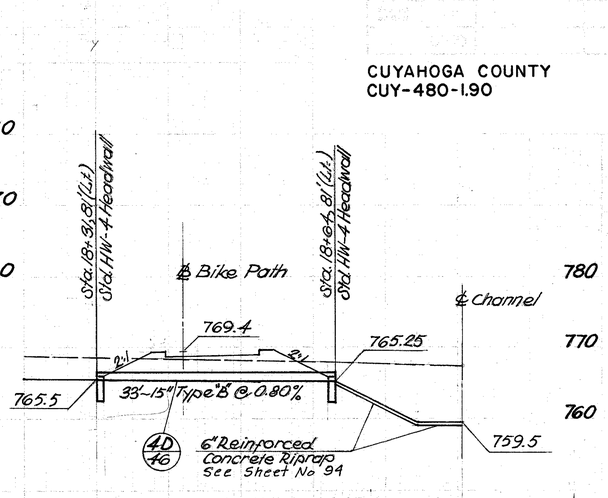
Sta. 236+39 128' Rt. I-480 Std. HW-4 Headwall
764.48
762.2
Rock Channel Protection Type "B" 6' W x 19' Lg. x 24" Dp.
Existing 24" Stm.
2D/31

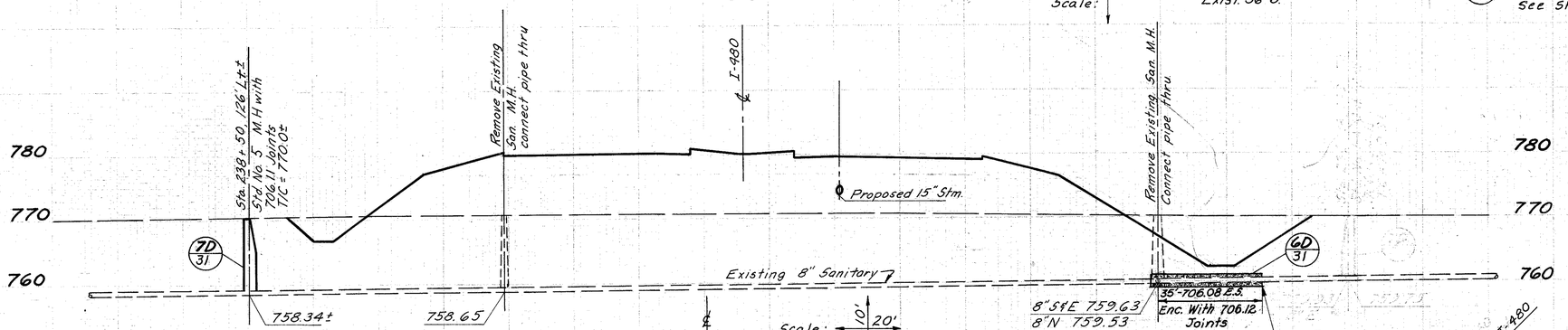
STORM SEWER PROFILES STA. 205+25 TO STA. 238+25

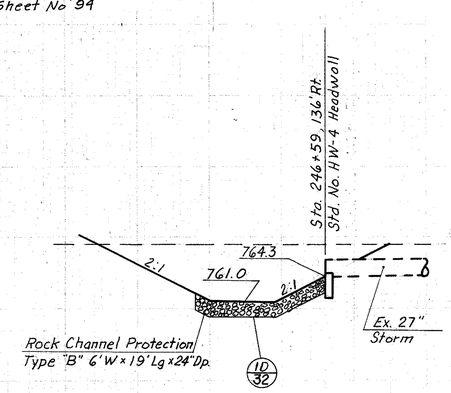
CUYAHOGA COUNTY
CUY-480-1.90

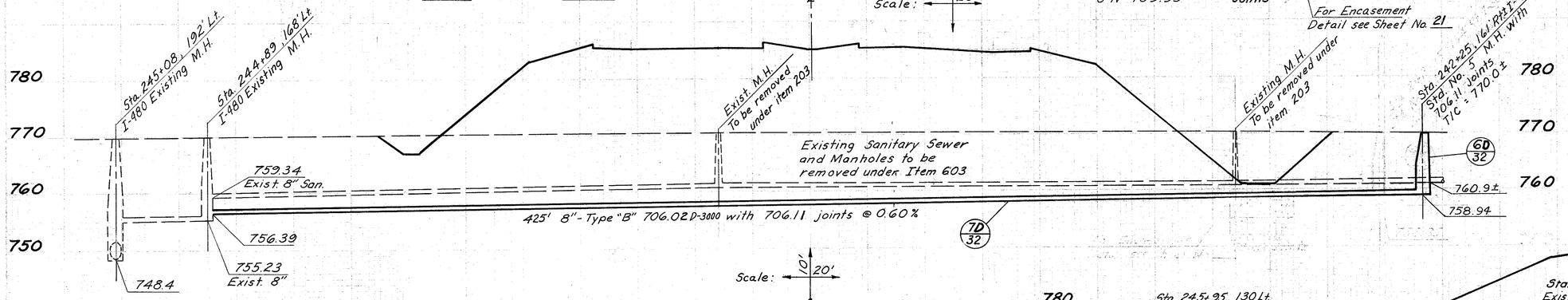


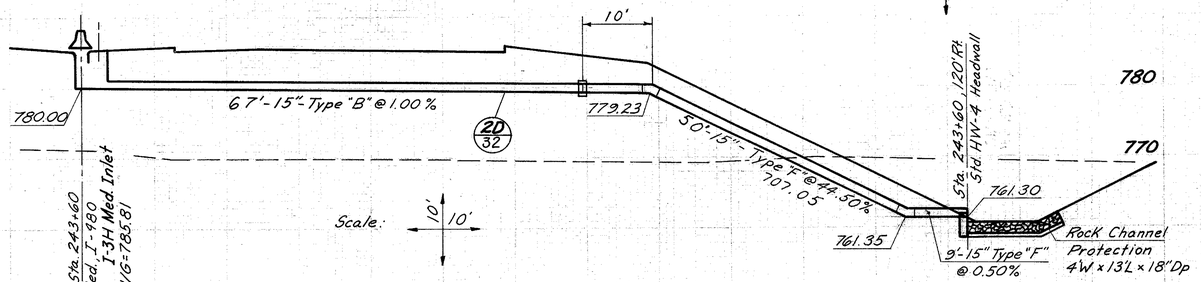


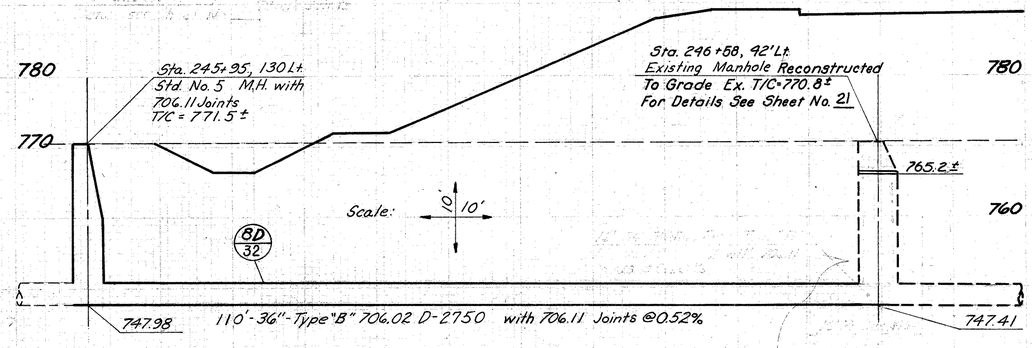












STORM SEWER PROFILES STA. 236+38 to 245+95, ℄ SOUTHERN & BURNS

CUYAHOGA COUNTY
CUY-480-1.90

785.00
54'-15" Type "B" @ 1.00%
780.15
Sta. 256+00 (645' Lt.)
Std. 2-A-6 Paved Shoulder Inlet
5D/33
Sta 256+00, Med. I-480
No. I-3H Median Inlet
N/G. 785.16
Sta. 256+00 (645' Rt.)
Std. 2-A-6 Paved Shoulder Inlet
785.00
4:1
62'-15" Type "B" @ 1.00%
779.50
10'-15" Type "B" @ 1.00%
4D/56
778.88
12'-15" Type "F" @ 1.00%
778.76
27'-15" Type "F" @ 34.00%
769.48
Sta. 256+60, 115' Rt.
Std. HW-4 Headwall
769.53
13'-15" Type "F" @ 0.50%
Rock Channel protection Type "B"
4'W x 9'L x 24" Dp.

Sta 277+88, 3' Rt.
Std. No. 6 C.B.
T/G: 759.01
Sta 277+88, 3' Lt.
Std. No. 6 C.B.
T/G = 759.01
℄ I-480
Sta 277+88, 3' Rt.
Std. No. 6 C.B.
T/G = 759.01
754.94
754.35
752.50
9'-15"-Type "B" @ 1.00%
9D/35
112'-15" Type "B" @ 0.60%
754.35
15" N&E
Relocated 20" W.M.
Sta 279+00 Med. I-480
No. I-3H Median Inlet
% 759.17
753.66
752.16
36" N&S

Sta. 7+55, 37' Rt.
Butternut Ridge
Std. No. 2 M.H.
T/c = 781.49
3D/48
10'
33'-18"-Type "C", 706.02 D-1500 @ 0.60%
42'-18"-Type "F" 707.05 @ 36.00%
765.70
4D/48
765.44
For Continuation of Storm Sewer Profile See Plan & Profile Sheet No. 48
Sta. 276+50, 72' Lt., I-480
Std. No. 5A C.B.
T/G = 757.49
752.76
752.74
6"U.D. Outlet 753.84
72'-33"-Type "B" @ 0.70%
6D/35
Sta. 276+50, Med., I-480
No. I-3H Median Inlet
N/G = 759.31
752.24
69'-33"-Type "B" @ 0.70%
7D/35
Sta. 276+50, 72' Rt., I-480
Std. No. 5-A C.B.
T/G = 757.52
751.76
6"U.D. Outlet 753.84
751.53
36"W
751.03
42" E

Sta. 285+50, 72' Lt. I-480
Std. No. 5A C.B.
T/G = 761.88
72'-33" Type "B" @ 2.50%
757.13
3D/36
Sta. 285+50, Med., I-480
No. I-3H Median Inlet
N/G = 763.67
755.33
4D/36
Sta. 285+50, 72' Rt., I-480
Std. No. 5-A C.B. Reinf.
T/G = 761.88
69'-33" Type "B" @ 2.50%
753.61
744.63
54"W
744.13
60" E

Sta 299+75, 23', Lt. ℄ Ramp "B"
Std. No. 5 C.B.
T/G = 758.09
℄ Ramp "B"
Sta. 299+75, 58' Lt.
Std. No. 6 C.B.
T/G = 760.82
For Continuation of Storm Sewer Profile See Sheet No. 51
99'-18"-Type "B" @ 3.00%
3D/51
753.84
6D/37
752.62
Sta 299+75 Med. I-480
No. I-3H Median Inlet
N/G = 760.70
60'-18"-Type "B" @ 3.00%
750.72
80'-15" Type "B" @ 3.00%
7D/37
748.32
Sta. 299+75, 80' Rt. I-480
Std. No. 5 M.H.
T/c = 757.55
736.48
60" E&W

℄ Kennedy Ridge Rd.
Sta. 5+84.13 Lt.
Std. No. 2-2 B C.B.
T/G 776.50
Sta. 5+84.15 Rt.
Std. No. 2-2 B C.B.
T/G = 776.38
773.50
1D/51
773.36
12" E&N
28'-12" Type "C" @ 0.50%
706.02 D-1500 OR 706.08 ENC. W/CL. "C" BED'G.

STORM SEWER PROFILES STA. 256+00 to STA. 290+75, ℄ KENNEDY RIDGE

FED. ROAD DIVISION	STATE	PROJECT	
5	OHIO		

82
427

CUYAHOGA COUNTY
CUY-480-1.90

Sta 303+25, 23' Lt. Ramp "B"
Std No 5 C.B.
T/G = 750.75

℄ Ramp "B"

Sta 303+25, 23' Lt. Ramp "B"
Std. No. 5 C.B.
T/G = 750.75

Sta 303+40, 23' Lt. Ramp "B"
Std. No. 5 C.B.
T/G = 750.80

745.50
18" E

15'-18" Type "B" @ 1.00%

745.65

110'- 18"- Type "B" @ 3.20%

745.50
18" N & S.
6" UD Outlet
747.00

1D 59

Sta 303+50, 87' Lt., I-480
Std. No. 2 M.H.
T/C = 753.10

741.98
18"

737.83
30"

℄ I-480

171'- 30" Type "B" 706.02 D-1500 or 707.13 @ 0.45%

4D 38

For Continuation
See Profile 2D
Below

737.06

Sta 303+50, 82' Rt. I-480
Std No. 5 M.H.
T/C = 753.07

737.35
21" S

734.78
60" E

734.28
66" W

Sta 302+00, 26' Rt.
Ramp "A"
Std. No. 5 C.B.
T/G = 754.15

Sta 302+15.26' Rt.
Ramp "A"
Std. No. 5 C.B.
T/G = 754.17

749.90

15'-15"- Type "B" @ 1.00%

1D 58

750.05

℄ Ramp "A"

Sta 302+00, 26' Rt.
Ramp "A"
Std. No. 5 C.B.
T/G = 754.15

180'- 15"- Type "B" @ 5.10%

6" U.D. Outlet
751.00

749.90
15" E

Sta 303+50, 82' Rt. I-480
Std No. 5 M.H.
T/C = 753.07

For Continuation
See Profile 4D
Above

126'-21" Type "C" 706.02, 706.08 E.S., or 707.13 @ 2.30%

2D 38

737.35
21" S

734.78
60" E

734.28
66" W

737.06
30" N

Sta 302+50, 167' Rt. I-480
Std. No. 4 C.B.
Window Elev. 743.08

740.25

740.75

Sta 303+50, 87' Lt. I-480
Std. No. 2 M.H.
T/C = 753.10

215'-24"- Type "C" 706.02, 706.08 E.S., or 707.13 @ 0.30%

3D 38

741.98
18" N

737.83
30" S

738.33
24"

Sta 305+47, 175' Lt. I-480
Std. No. 4 C.B.
Window Elev. 742.08

739.00

STORM SEWER PROFILES STA. 303+25 to STA. 305+47

CUYAHOGA COUNTY
CUY-480-1.90

Sta. 307+30, 58' Rt. I-480
Std. No. 6 C.B. (Mod.)
T/G = 751.68
℄ Ramp "C"
Sta. 307+00, 21' Rt.
℄ Ramp "C"
Std. No. 5 M.H.
T/C = 750.00
37'-15" - Type "B" @ 3.20%
6"U.D. Outlet
746.50
745.25
6D 38
744.07
732.49
66" E & W

℄ I-480
Sta. 320+90, 58' Rt. I-480
Std. No. 6 C.B. (Mod.)
T/G = 740.80
℄ Ramp "E"
Sta. 321+00, 24' Rt.
Ramp "E"
Std. No. 5-A C.B. Reinf.
T/G = 738.45
6"U.D. Outlet
735.50
734.25
39'-15" - Type "B" @ 1.00%
3D 40
733.86
725.03
72" E & W
6"U.D. Outlet
734.00

Sta. 309+80, 22' Lt.
Ramp "D"
Std. No. 5 C.B.
T/G = 745.45
℄ Ramp "D"
Sta. 309+80, Med. I-480
No. I-3H Median Inlet
Lt. ℄ Rt.
N/G = 748.29
For Continuation
See Reloc. S.R. 252
Sewer Profiles
Sheet No. 90
1D 54
738.12
21"
737.87
24"
6"U.D. Outlet
741.49
109'-24" - TYPE "B" @ 1.25%
1-D 62
F.L. 24": 736.50
92'-24" - TYPE "B" @ 2.00%
8-D 38
F.L. 24": 734.70
Sta. 309+80.92' Rt. I-480
Std. No. 5-A C.B. Reinf.
T/G = 746.25
743.56
731.13
66" E & W
60'-24" - Type "F"
707.05 @ 42.00%

Sta. 67+80.62' Lt.
Relocated S.R. 252
Std. No. 2 M.H.
T/C = 772.10
766.53
12" E
12D 53
0.5%
756.59
756.74
For Storm Sewer
Continuation
See Sheet No. 53

Sta. 313+82, 80' Rt. I-480
Std. No. 5-A C.B. Reinf.
T/G = 743.03
℄ Ramp "F"
Sta. 314+00, 25' Rt. Ramp "F"
Std. No. 5 C.B.
T/G = 731.75
112'-15" Type "B" @ 5.97%
2D 63
746.40
747.00
70'-15" - Type "F" 707.05 @ 34.00%
739.00
729.03
66" E & W

℄ Kennedy Ridge
Sta. 21+65.16' Rt.
Std. No. 3-A C.B.
T/G = 774.80
10'
89'-15" Type "B" - 706.02 D-1500 or 706.08 Encased @ 1.00%
w/Class "C" Bedding
1D 63
768.31
769.30

Sta. 325+60, 85' Lt. I-480
Std. No. 5 C.B.
T/G = 736.05
Sta. 325+60, Med. I-480
No. I-3H Median Inlet
N/G = 737.39
Sta. 325+60. 84' Rt. I-480
Std. No. 5-A C.B. Reinf.
T/G = 736.05
85'-18" - Type "B" - @ 1.60%
6"U.D. Outlet
731.00
729.50
6D 40
728.14
81'-18" Type "B" @ 1.60%
6"U.D. Outlet
732.00
7D 40
726.84
722.73
66" E & W

STORM SEWER PROFILE STA. 307+00 to STA. 325+60

CUYAHOGA COUNTY
CUY-480-1.90

Sta. 334+00, Med., I-480
No I-3H Median Inlet
T/G = 733.00

112'-15" - Type "B" @ 1.00%

728.83

3D 41

727.71

Sta. 335+12, Med., I-480
No. I-3H Median Inlet
T/G = 732.76

723.80
24" N&S

Sta. 335+12, 75' Lt., I-480
2 Std. No. 5 C.B.
T/G = 730.82

Sta. 335+12, 75' Lt., I-480
Std. No. 5 C.B.
T/G = 730.82

Sta. 335+27, 75' Lt., I-480
Std. No. 5 C.B.
T/G = 730.85

725.00
725.00
24" N&S

5D 41

725.18

15'-24" - Type "C" @ 1.00%

Sta. 335+12, Med., I-480
No. I-3H Median Inlet
T/G = 732.76

Sta. 335+12, 73' Rt., I-480
Std. No. 5 C.B.
T/G = 730.82

Sta. 335+27
73' Rt., I-480
Std. No. 5 C.B.
T/G = 730.85

720.86
24" N&S

6D 41

725.85

726.00

15'-24" - Type "C" @ 1.00%

75'-24" - Type "B" @ 1.60%

6" U.D. Outlet
727.00

725.00
24" N

5D 41

70'-24" Type "B" @ 4.20%

723.80

727.71
15" W

6D 41

Relocated 12" W.M.
Crosses Storm
Sewer @ 60' Rt.
of I-80 ℄
Elev. 724.63

725.85
15" E

720.86

12'-24" Type "C" @ 4.25%

720.35

Sta. 335+12, 73' Rt., I-480
Std. No. 5 C.B.
T/G = 730.82

Sta. 335+12, 85' Rt., I-480
Std. No. 5 C.B.
T/G = 734.57

717.97
72" E & W

Sta. 336+60, Med., I-480
No I-3H Median Inlet
T/G = 733.16

725.99

70'-15" Type "B" @ 1.00%

6" U.D. Outlet
727.80

8D 41

Sta. 336+60, 74' Rt., I-480
Std. No. 5 C.B.
T/G = 731.59

Sta. 336+60, 84' Rt., I-480
Std. No. 5 M.H.
T/C = 735.10

15" - 725.29

724.50

724.30

717.33 - 72" W
716.73 - 78" E

For Storm
Sewer Continuation
See Sheet No. 87

8D 41

10'-24" Type "C"
@ 2.00%

2D 55

732.00
18" S

Sta. 353+00, 87' Lt., I-480
Std. No. 5 C.B.
T/G = 749.15

Sta. 353+00, Med. I-480
No. I-3H Median Inlet
T/G = 752.99

Sta. 353+00, 85' Rt., I-480
Std. No. 5 C.B.
T/G = 749.35

Sta. 353+00, 95' Rt., I-480
Std. No. 2 M.H.
T/C = 752.00

For Storm Sewer
Continuation
See Sheet No. 87

86'-18" - Type "B" @ 1.00%

82'-18" - Type "B" @ 1.00%

2D 43

3D 43

742.85

741.99

743.10
15" E

741.17

743.27
15" S

10'-18" - Type "C"
@ 5.00%

740.67

3D 87

710.11
78" E & W

Sta. 344+00, 72' Rt. I-480
Std. No. 5 C.B.
T/G = 739.85

3D 42

Sta. 344+00, 87' Rt., I-480
Std. No. 2 M.H.
T/C = 744.18

732.74

731.84

15'-21" - Type "C"
@ 6.00%

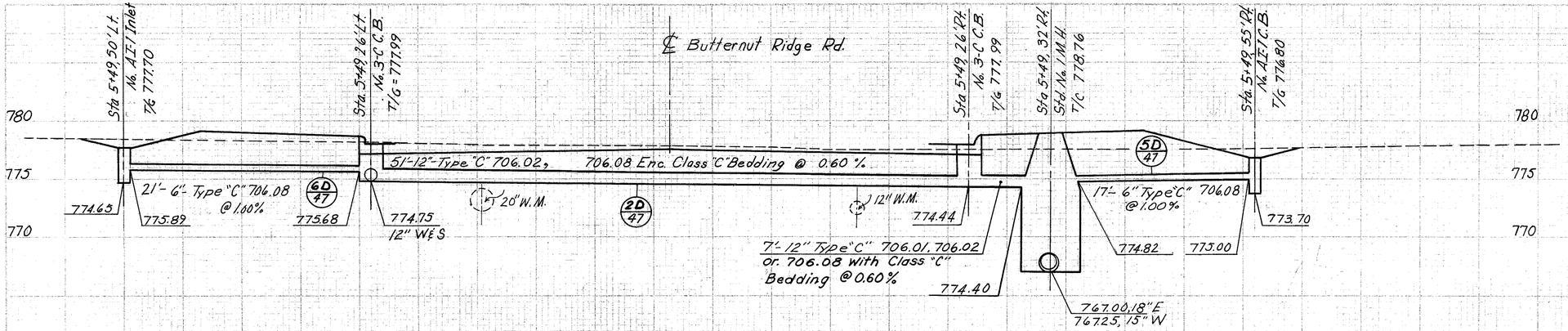
For Continuation
See Cross Section
Sheet No 139

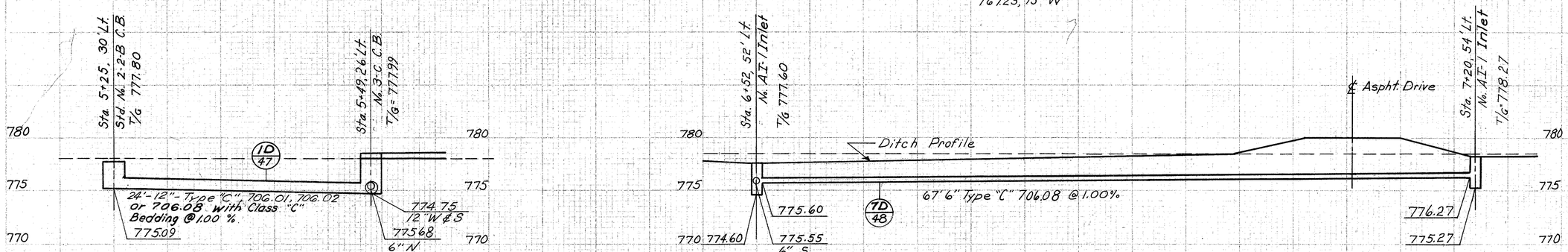
713.74
78" E & W

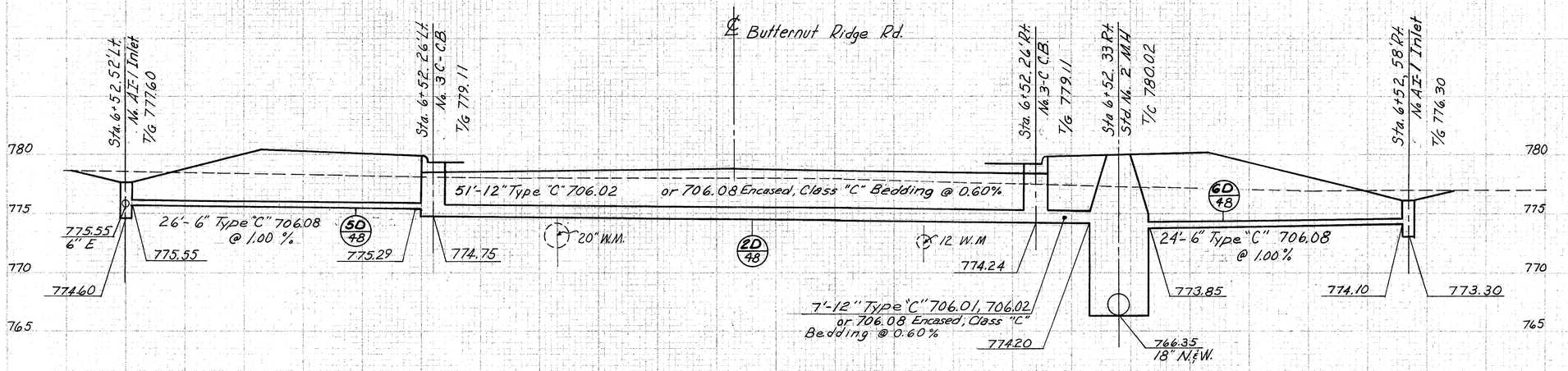
STORM STORM PROFILES STA. 334+00 to STA. 353+00

PROJECT ENGINEER	STATE	PROJECT		85
2	OHIO			427

CUYAHOGA COUNTY
CUY-480-1.90

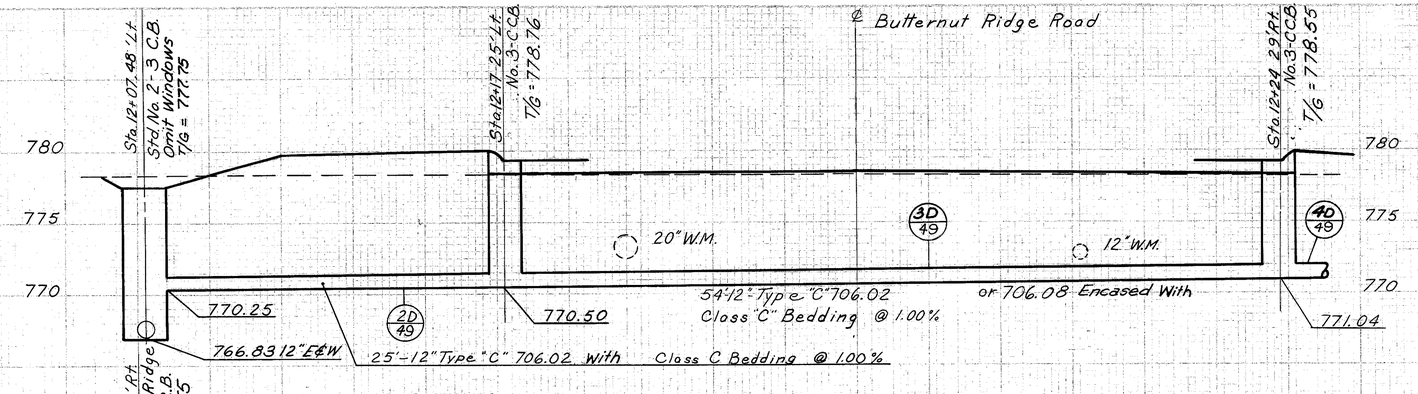


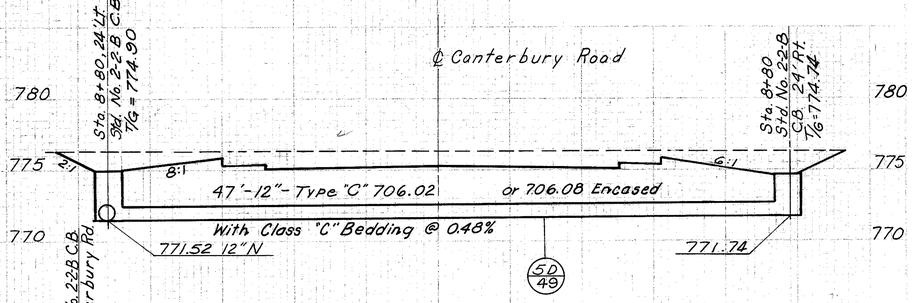


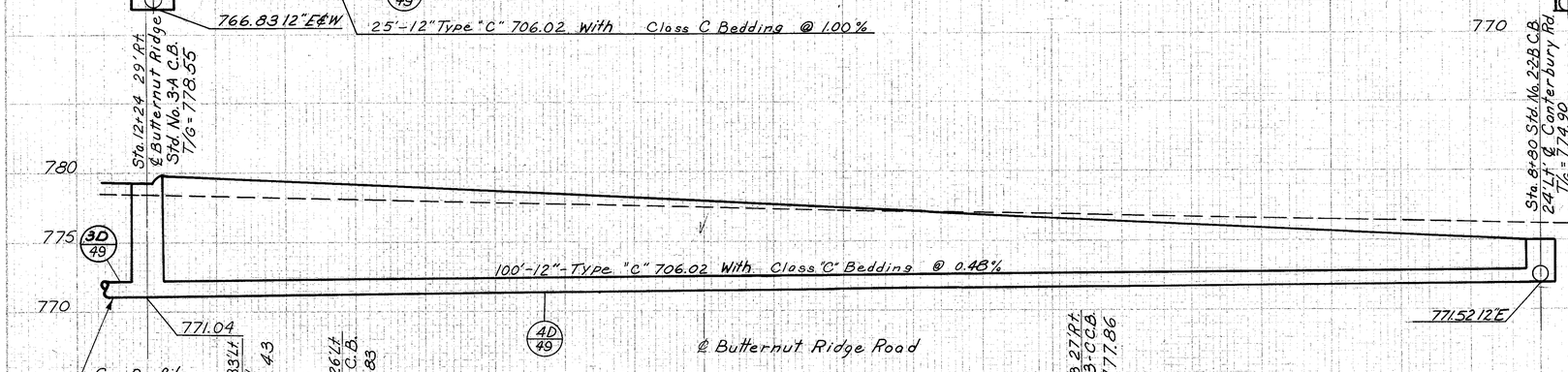


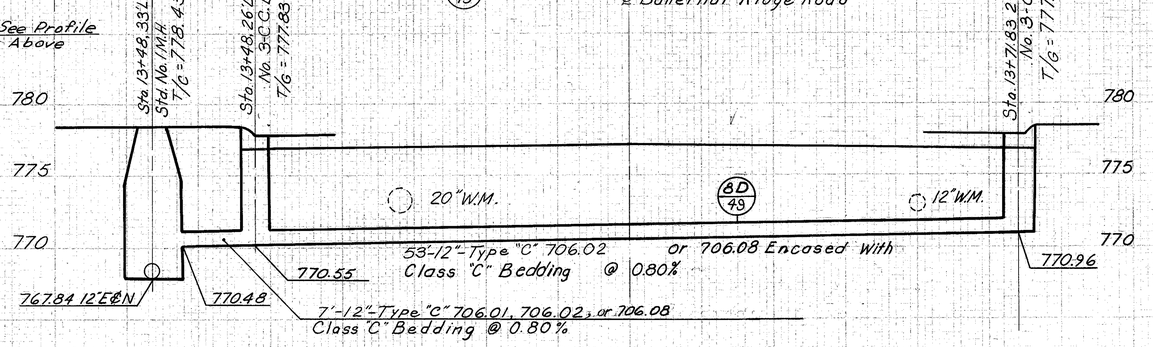
STORM SEWER PROFILES, (BUTTERNUT RIDGE)

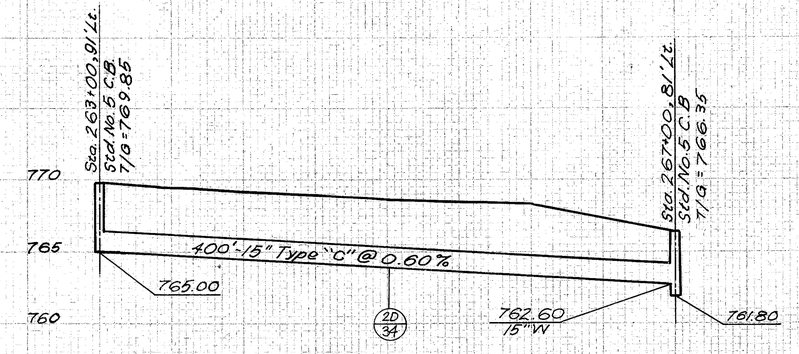
CUYAHOGA COUNTY
CUY-480-1.90









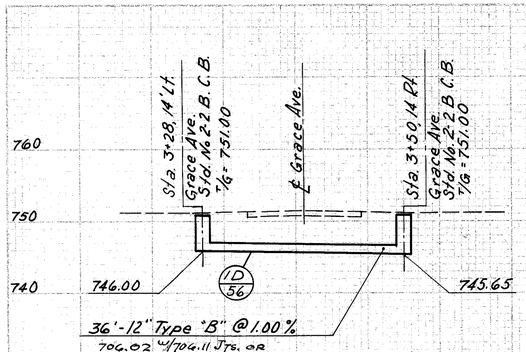


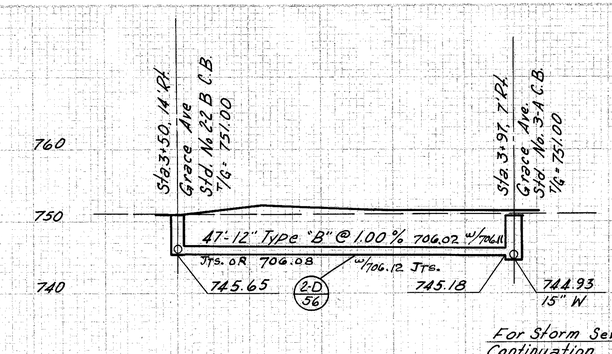
STORM SEWER PROFILES, (BUTTERNUT RIDGE)

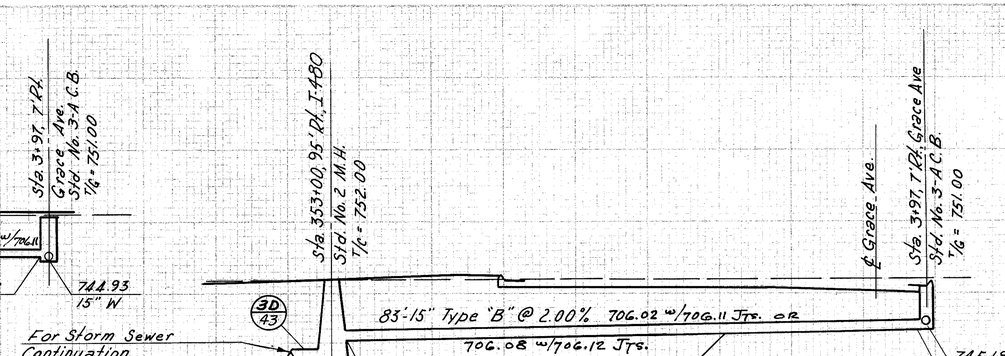
FED. AID PROJECT	STATE	PROJECT	
2	OHIO		

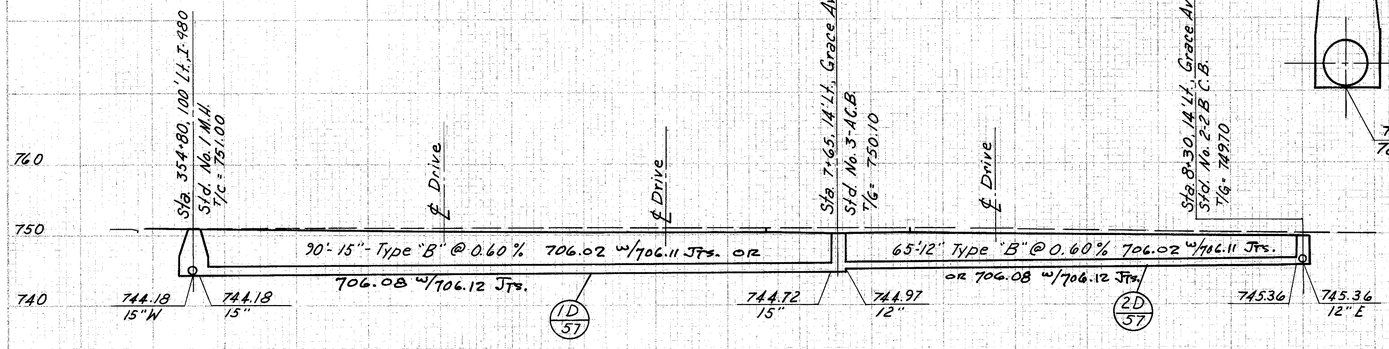
87
427

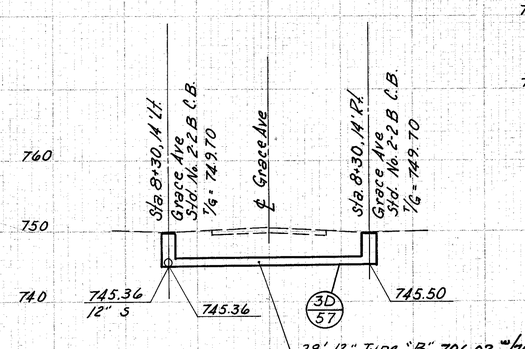
CUYAHOGA COUNTY
CUY-480-1.90

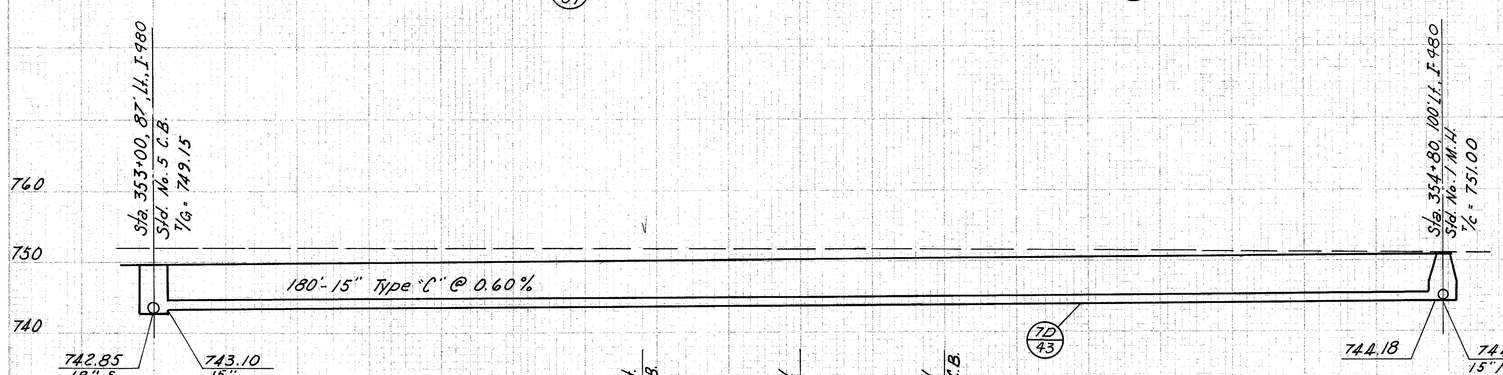


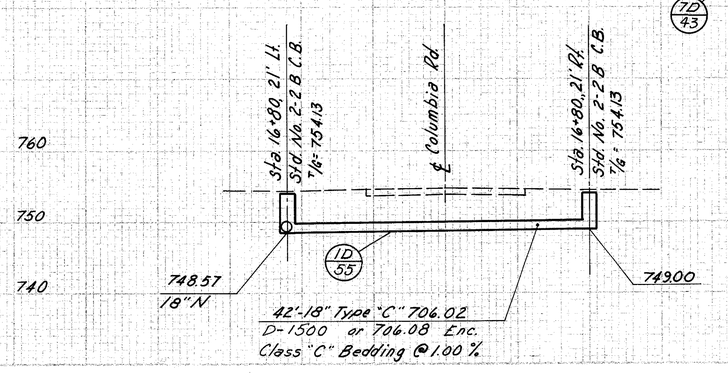


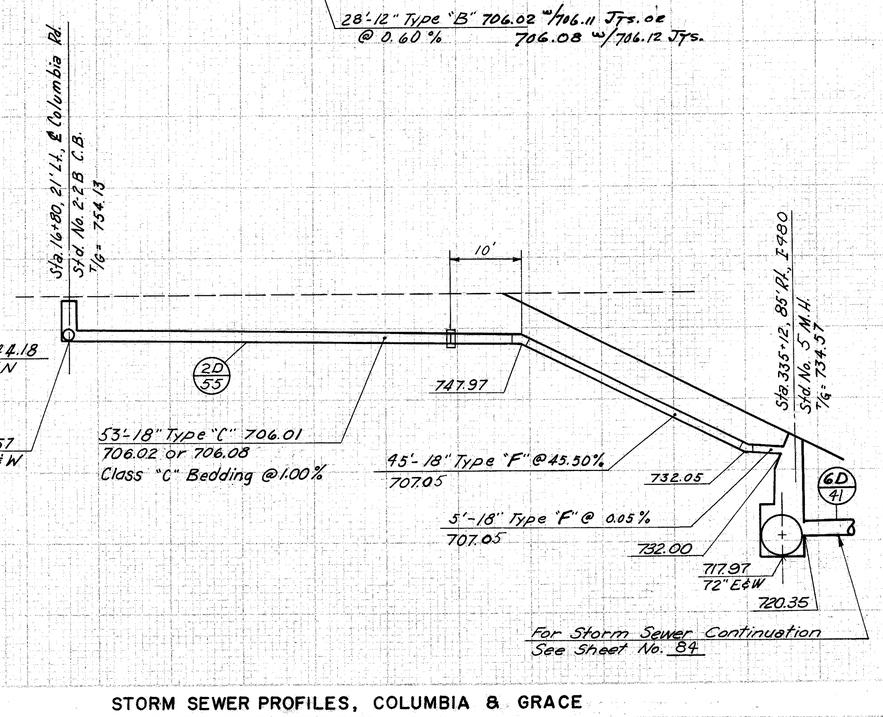










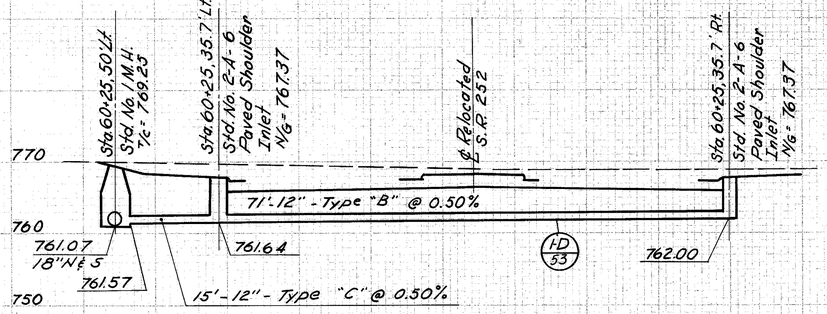


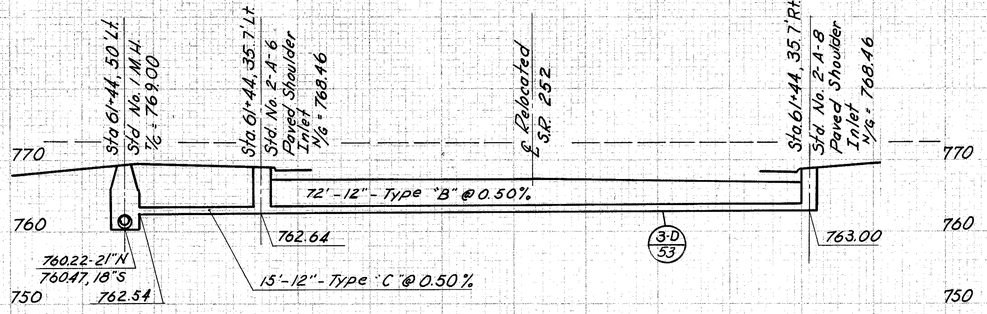
STORM SEWER PROFILES, COLUMBIA & GRACE

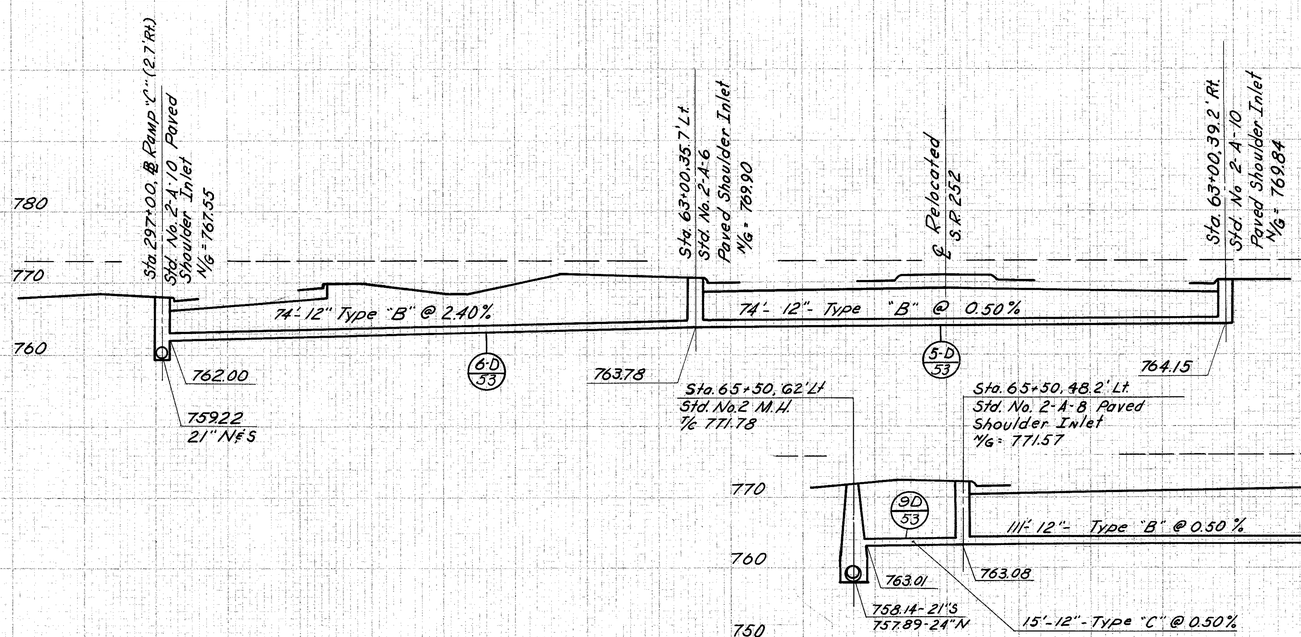
FED. HWY. DIVISION	STATE	PROJECT		
2	OHIO			

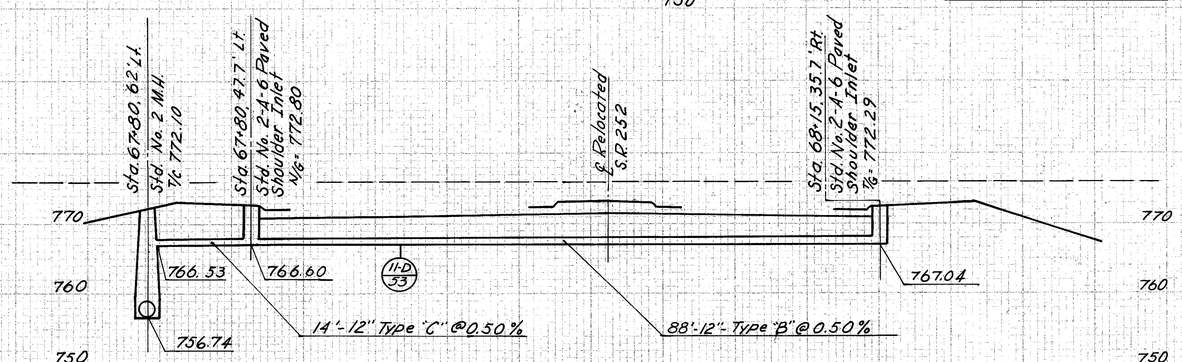
88
427

CUYAHOGA COUNTY
CUY-480-1.90





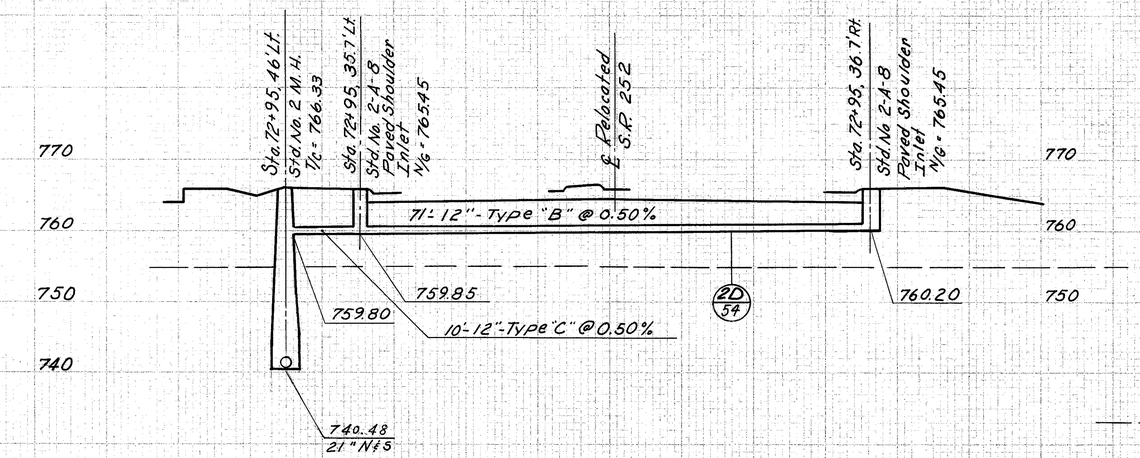


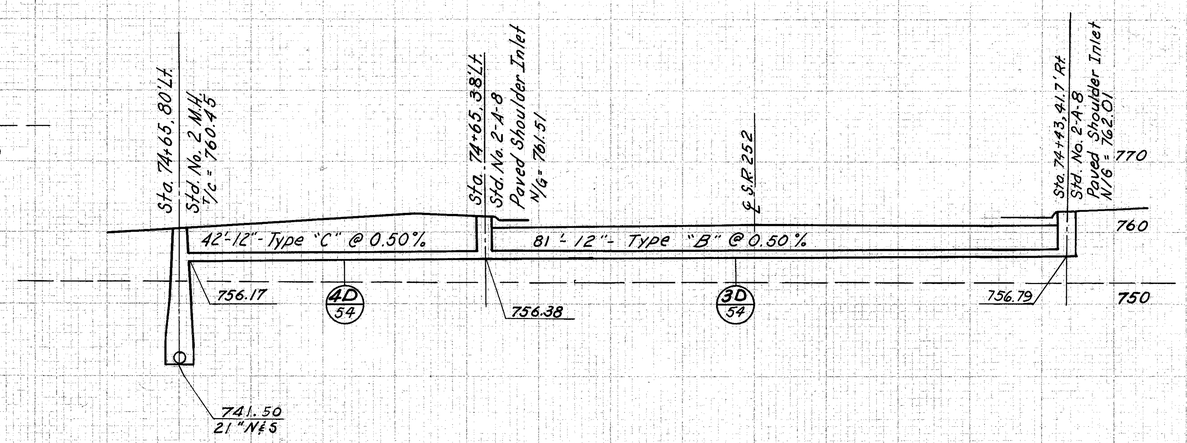


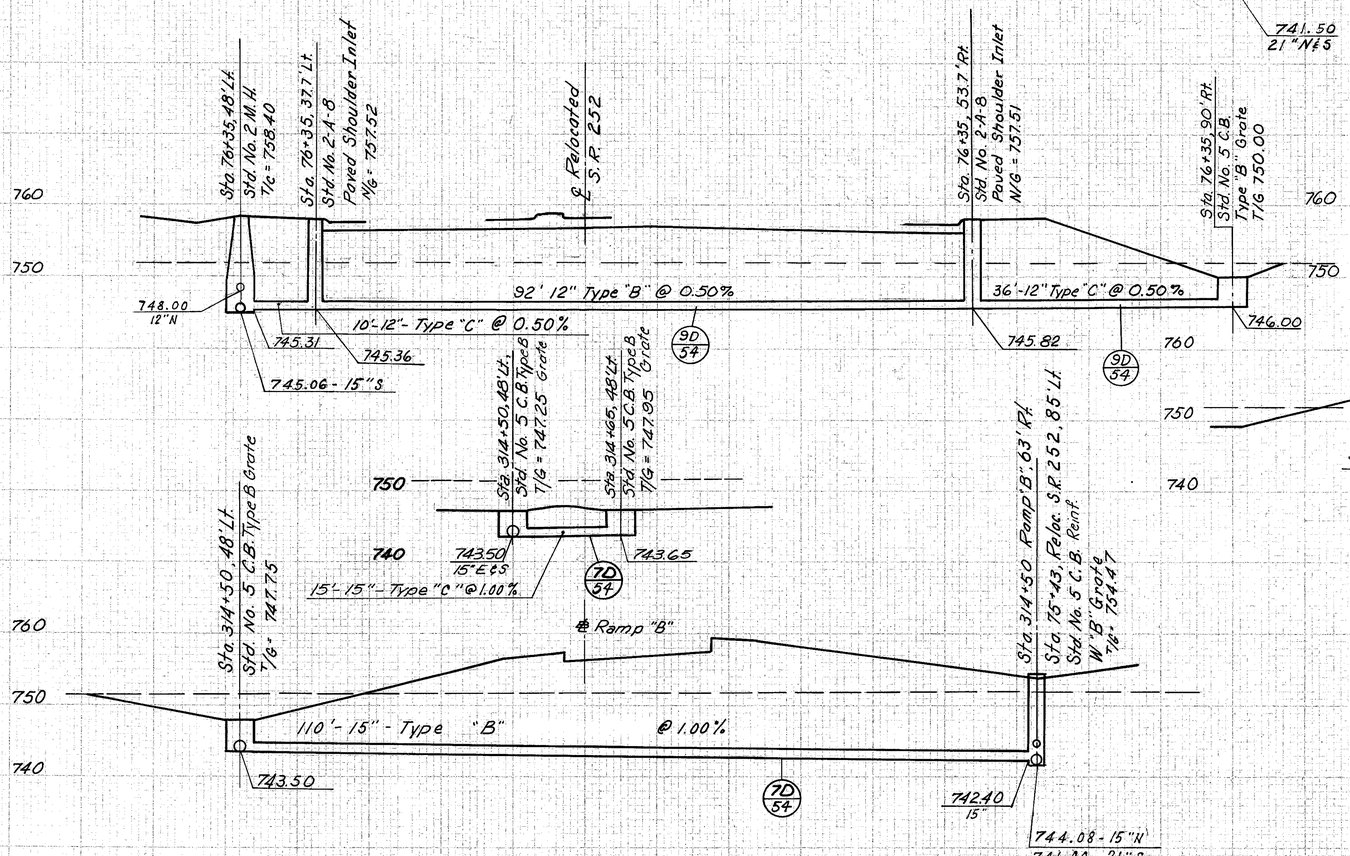
STORM SEWER PROFILES RELOCATED S.R. 252

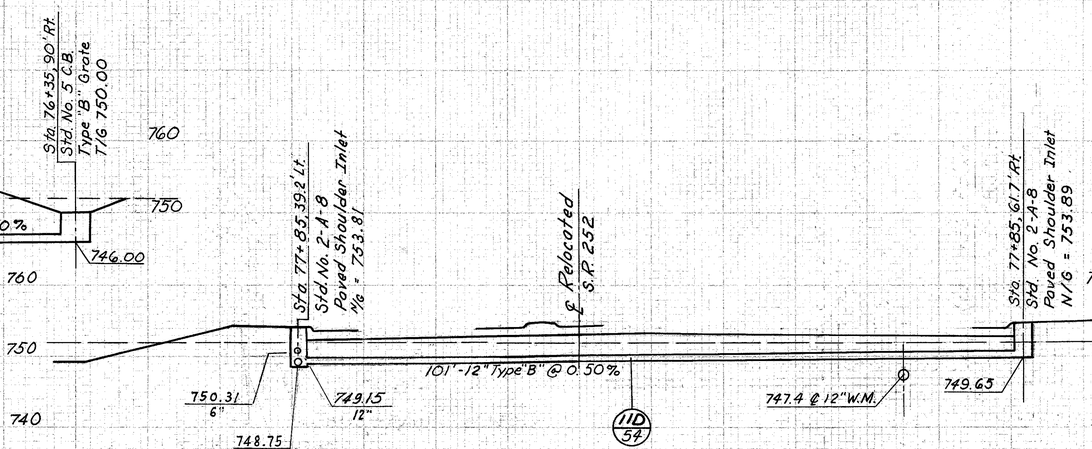
SHEET NO.	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90







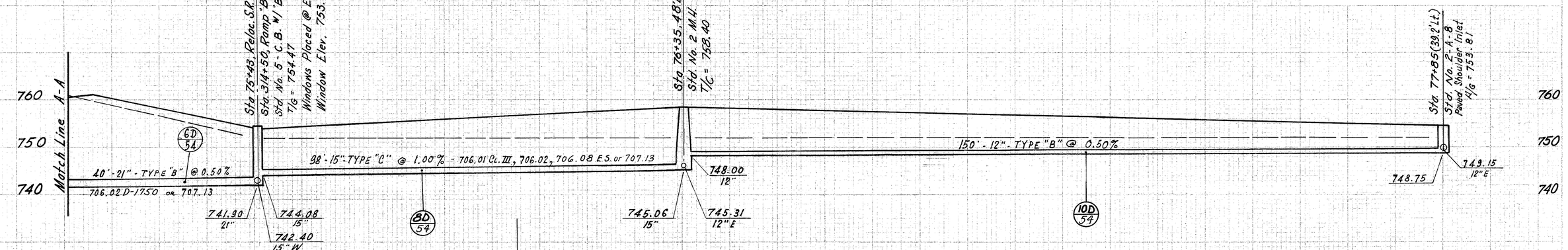


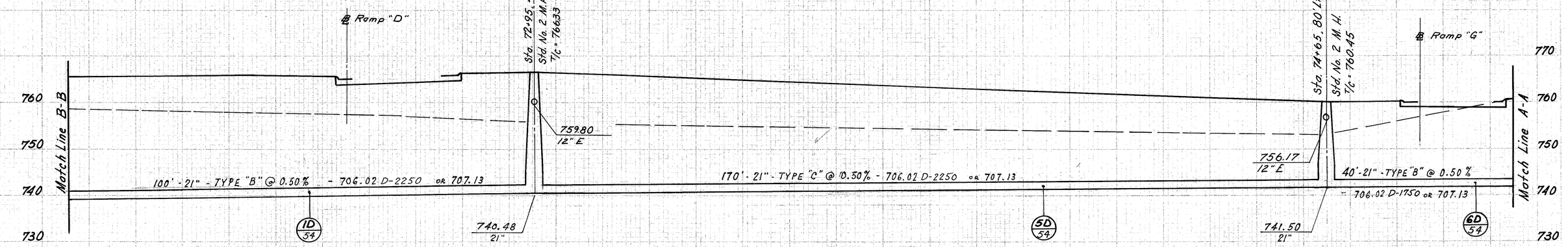
STORM SEWER PROFILES RELOCATED S.R. 252

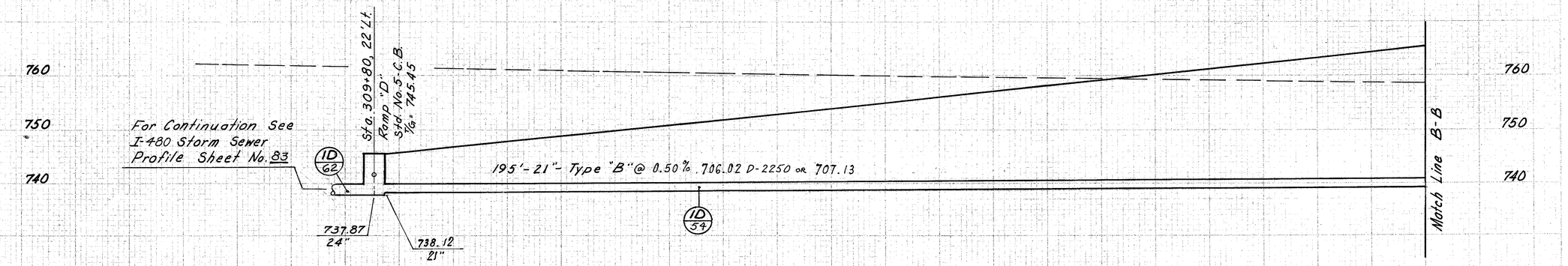
SHEET	STATE	PROJECT	
2	OHIO		

90
427

CUYAHOGA COUNTY
CUY-480-1.90





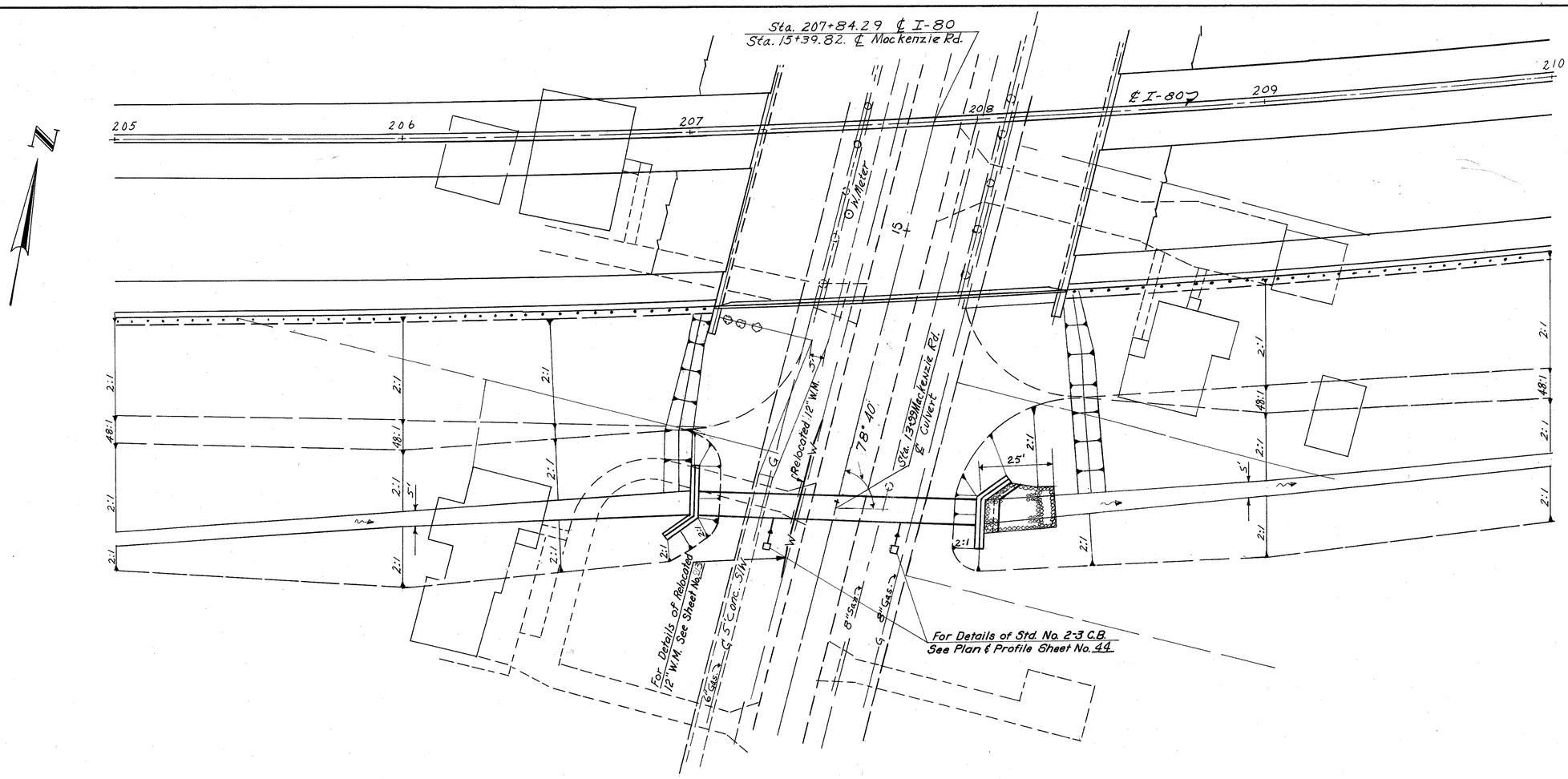


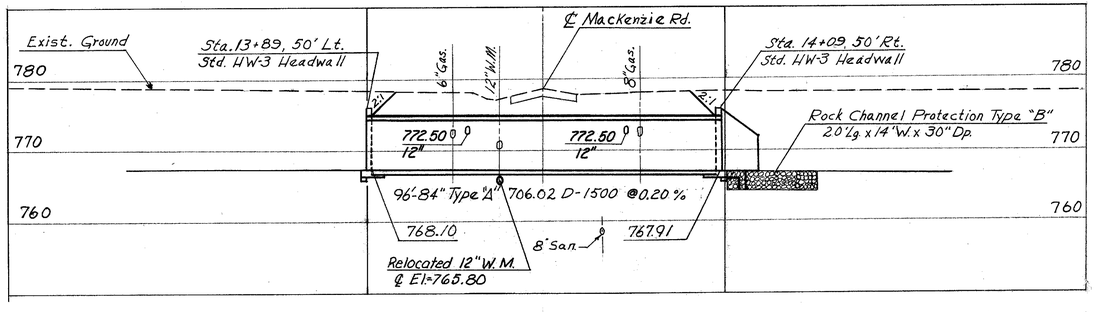
STORM SEWER PROFILES RELOCATED S.R. 252

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

91
127

CUYAHOGA COUNTY
CUY-480-1.90





DRAINAGE STRUCTURE Sta 13+99 Mackenzie Road					
DESIGN INFORMATION					
D_A	Q_{50}	HW_{50}	Q_{100}	HW_{100}	
131 Ac.	254 c.f.s.	774.45	290 c.f.s.	775.0	
TYPE HEADWALL HW-3 ϕ 15°					
ESTIMATED QUANTITIES					
Item 509 - Reinforcing Steel			5,192	LBS.	
Item 601 - Rock Channel Protection Type "B" with bedding			2.7	C.Y.	
Item 602 - Concrete Masonry			4.78	C.Y.	
Item 603 - 84" Conduit, Type "A" 706.02 D-1500 or 90" 707.07			96	L.F.	

DES BY J.L. DATE 3-17-70
DRS BY E.J.K. CHK 3-20-70

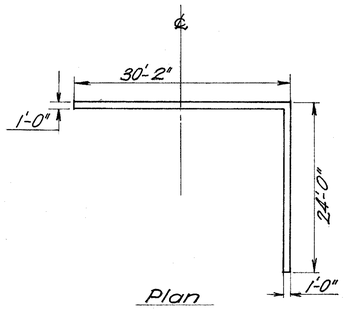
CULVERT DETAIL STA. 13+99 MACKENZIE RD

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

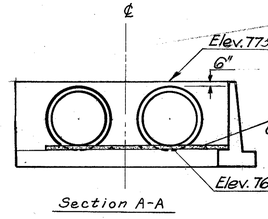
92/427

CUYAHOGA COUNTY
CUY-480-1.90

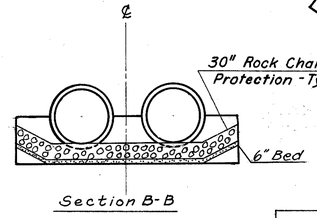
NOTE: For Special Headwall Details See Sheet No. 92A



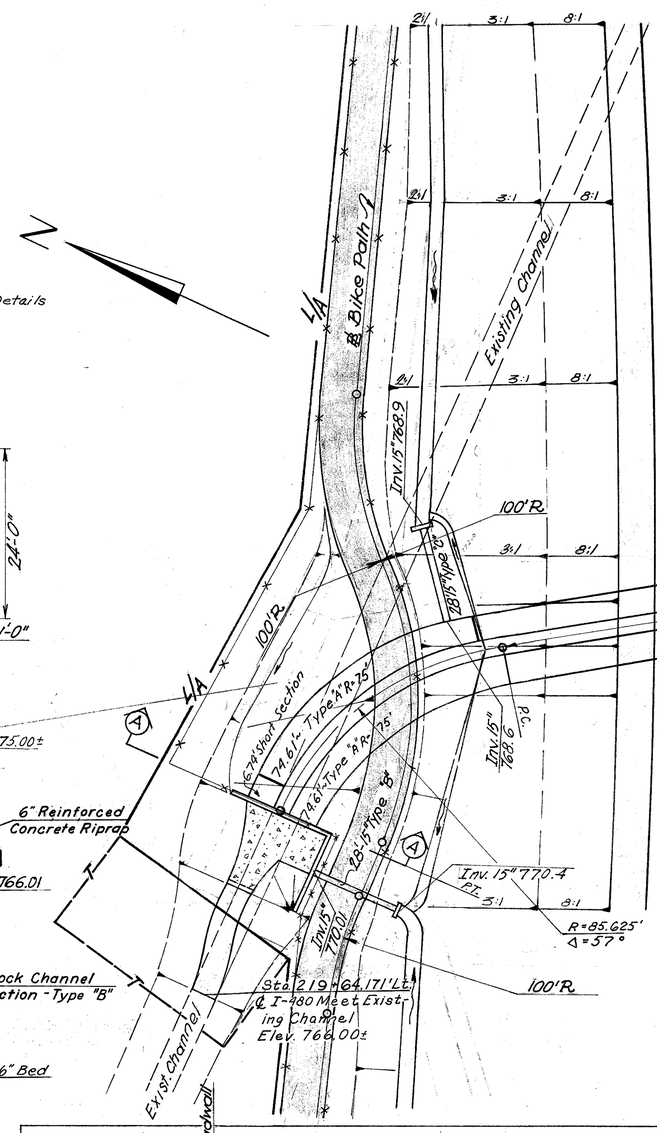
Plan

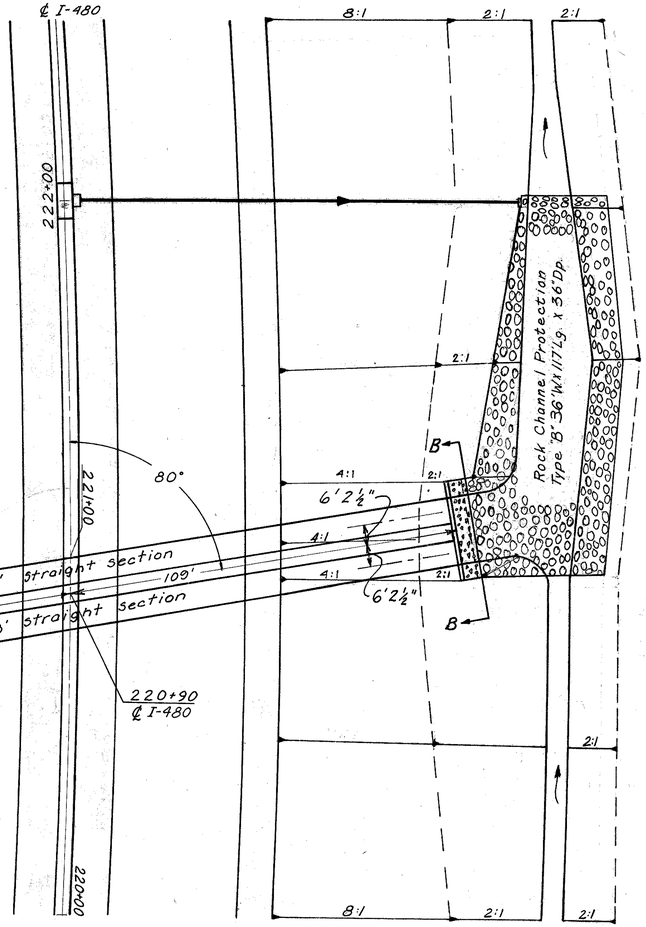


Section A-A



Section B-B





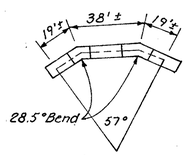
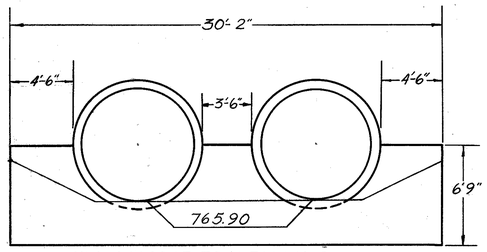


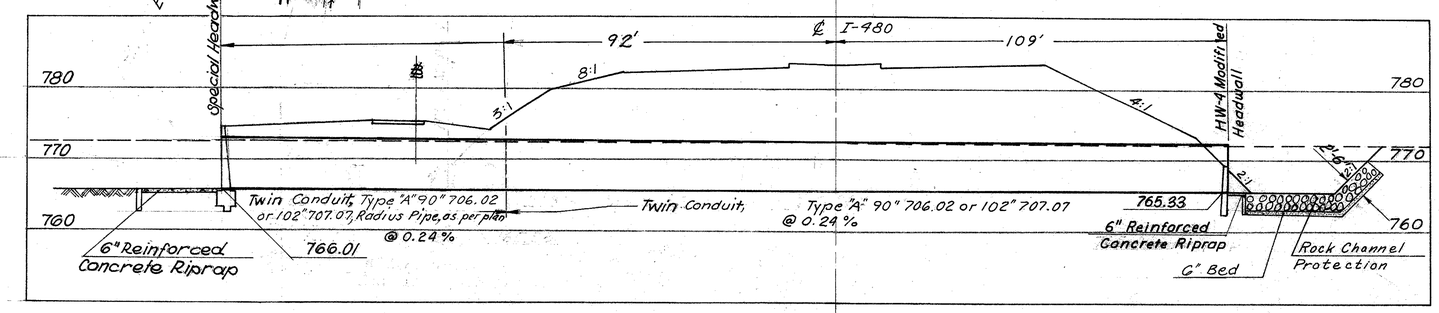
Diagram A.

Item 603 Conduit Type "A" 90" 706.02 or 102" 707.07, Radius Pipe as per plan.

The Contractor may substitute prefabricated Pipe Bends and Normal Sections making up the 57° turn in Lieu of the Radius Pipe as shown. The Turn will be accomplished with a minimum of two Bends of Equal Deflection, Similar to Diagram A. Final approval by the Engineer shall be obtained at the Time of Construction, regardless of the Method used. The Entire Culvert will be of the same Material.



HW-4 MODIFIED HEADWALL
SCALE: 1" = 5'
NOTE: SOUTH WALL SHOWN



DRAINAGE STRUCTURE STA. 220+90 I-480				
DESIGN INFORMATION				
Da	Q50	HW_{50}	Q100	HW100
351 Ac.	493 cfs	772.0	562 cfs	772.5
Special Headwall & HW-4 Modified Headwall				
ESTIMATED QUANTITIES				
Item	601 - 6" Reinforced Concrete Riprap			62 S.Y.
Item	601 - Rock Channel Protection "B"			350 C.Y.
Item	602 - Concrete Masonry			59 C.Y.
Item	603 - Conduit, Type "A" 90" 706.02 or 102" 707.07			415 L.F.
Item	603 - Conduit, Type "A" 90" 706.02 or 102" 707.07, Radius Pipe as per plan			150 L.F.
Item	518 - Porous Backfill			11 C.Y.

E.J.K. 8-10-70
H.J.H. 8-13-70
Rev. WRM 10-15-75

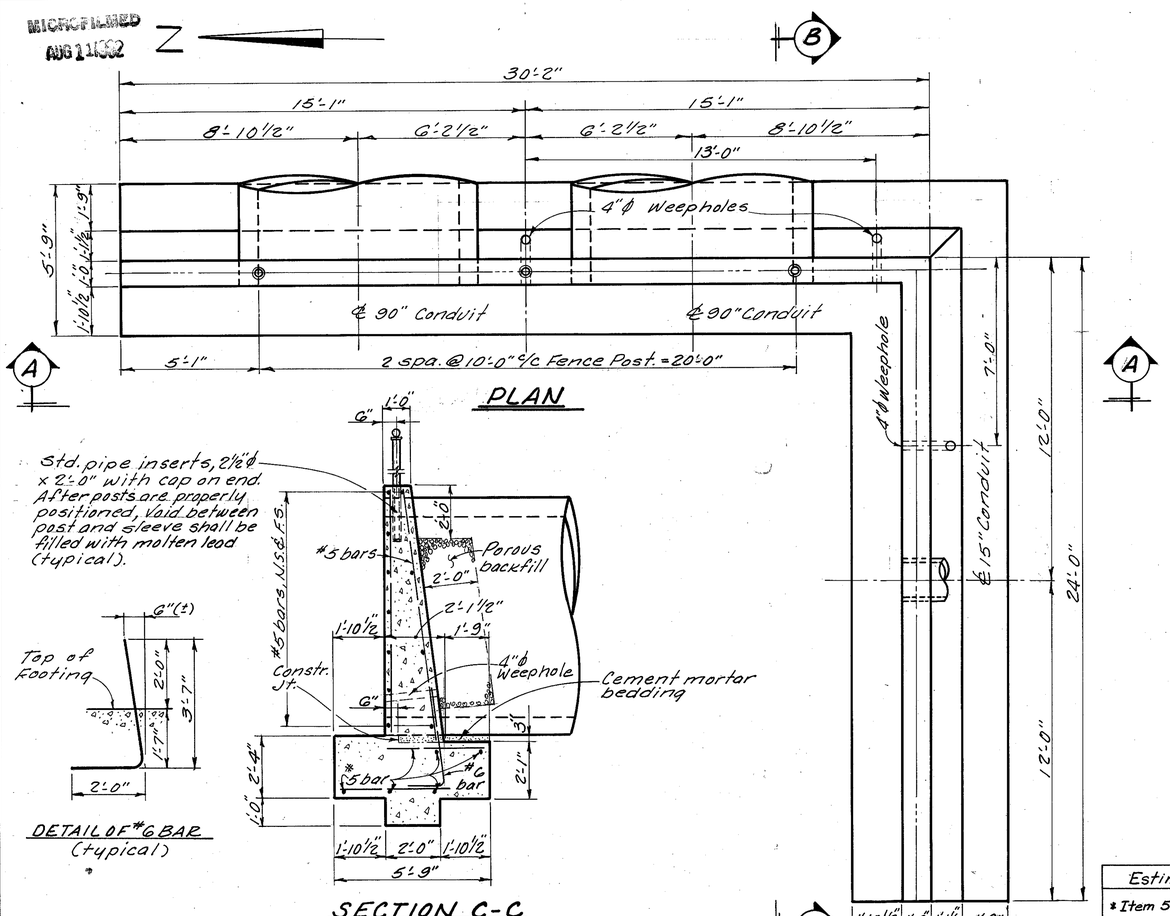
CULVERT DETAIL STA. 220+90 ℄ I-80

Calc. R.T. 10-9-75
Chk. WAM 10-15-75

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

92A
427

CUYAHOGA COUNTY
CUY-480-1.90



PLAN

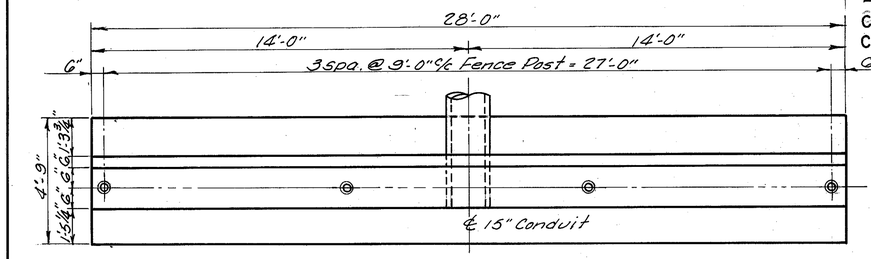
DETAIL OF #6 BAR (typical)

SECTION C-C

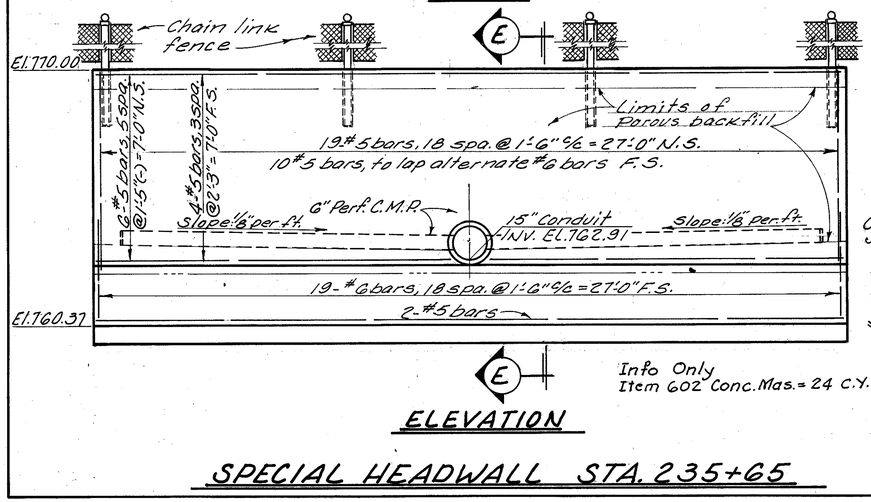
Note: In bar callouts: N.S. indicates near side. F.S. indicates far side.

Estimated Quantities	
*Item 518 Porous Backfill	11 CY
*Item 602 Conc. Masonry	59 CY
*For Information Only	

VIEW A-A

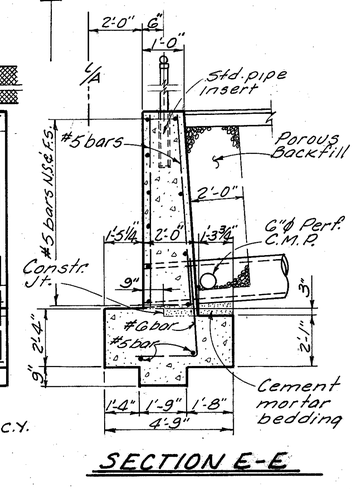


PLAN



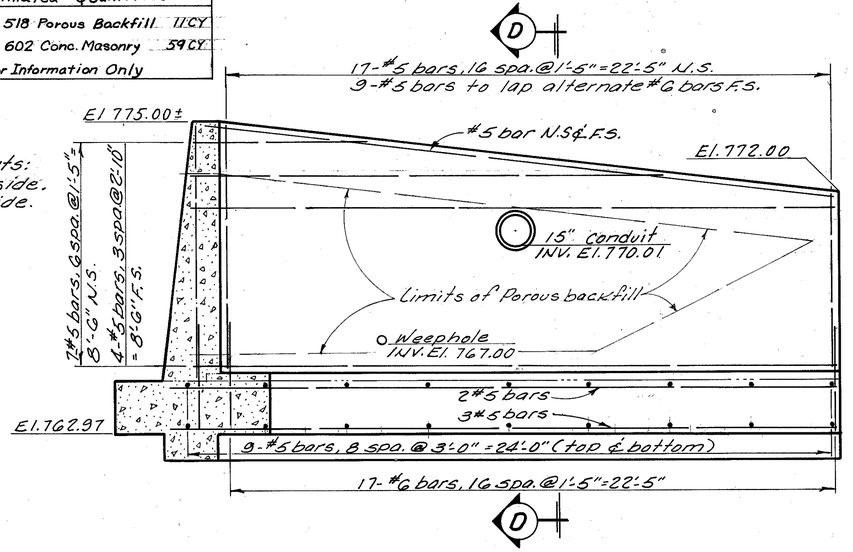
ELEVATION

Info Only
Item 602 Conc. Mas. = 24 C.Y.

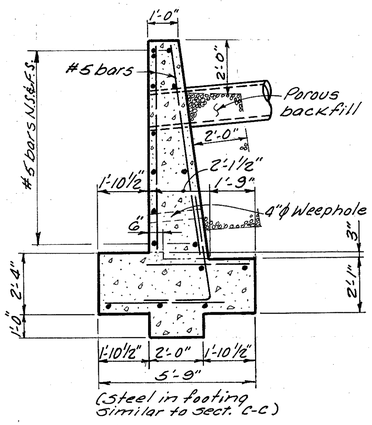


SECTION E-E

SPECIAL HEADWALL STA. 235+65



VIEW B-B



(Steel in footing similar to Sect. C-C)

SECTION D-D

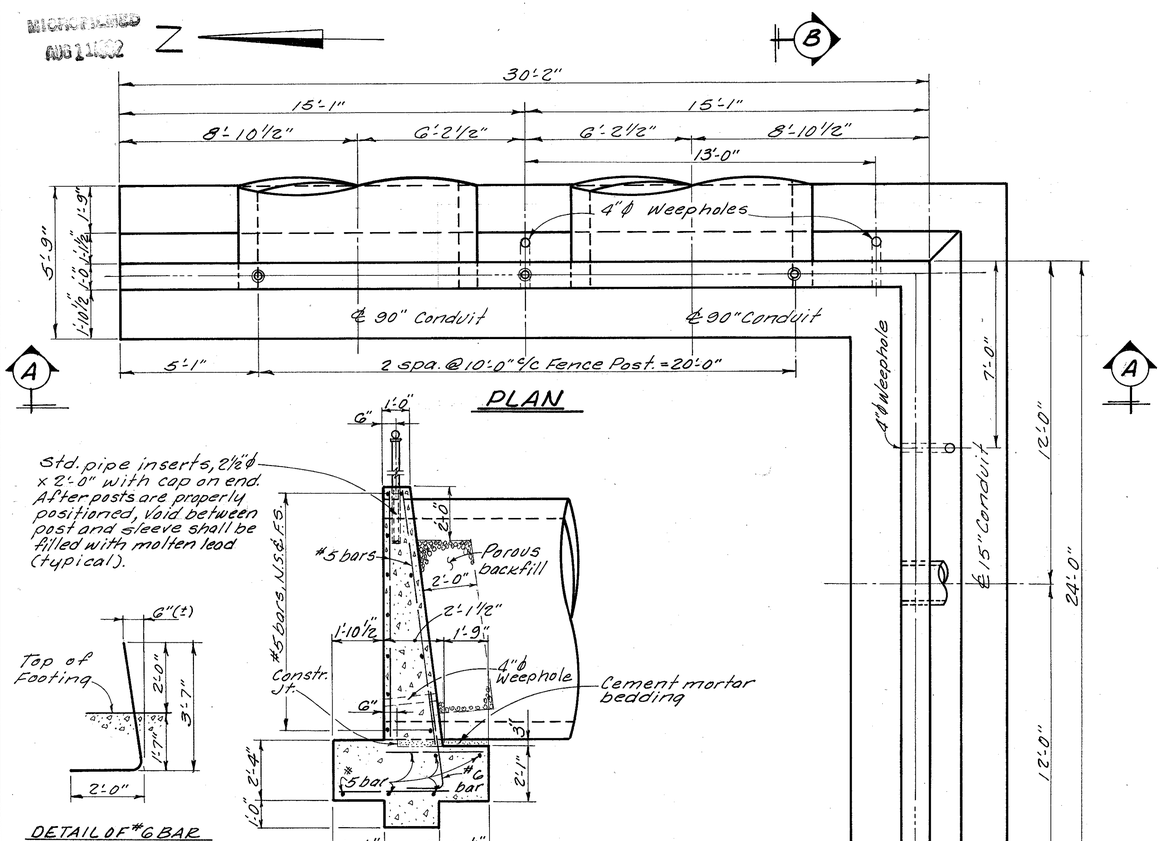
SPECIAL HEADWALL STA. 220+23

Calc. R.T. 10-9-75
Chk. WAM 10-15-75

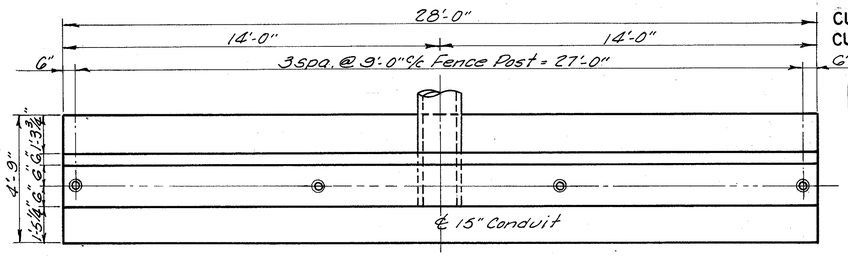
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

92A
A27

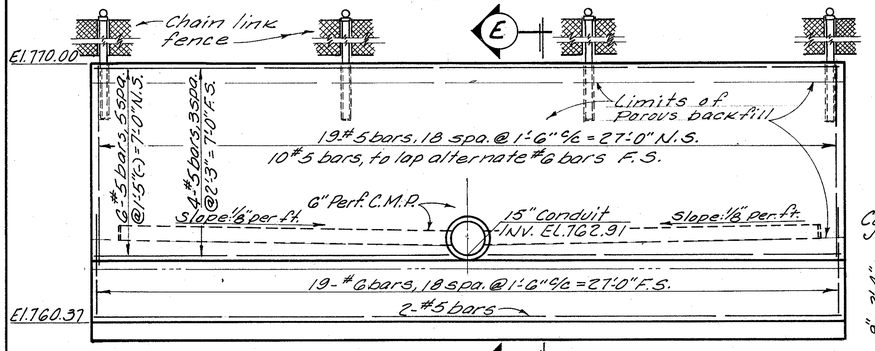
CUYAHOGA COUNTY
CUY-480-1.90



PLAN

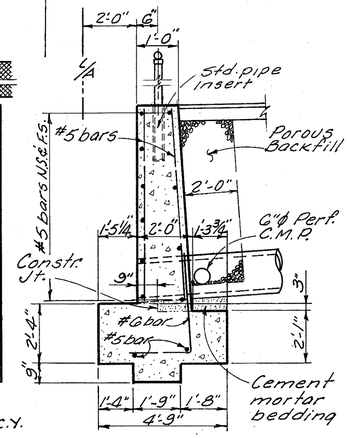


PLAN



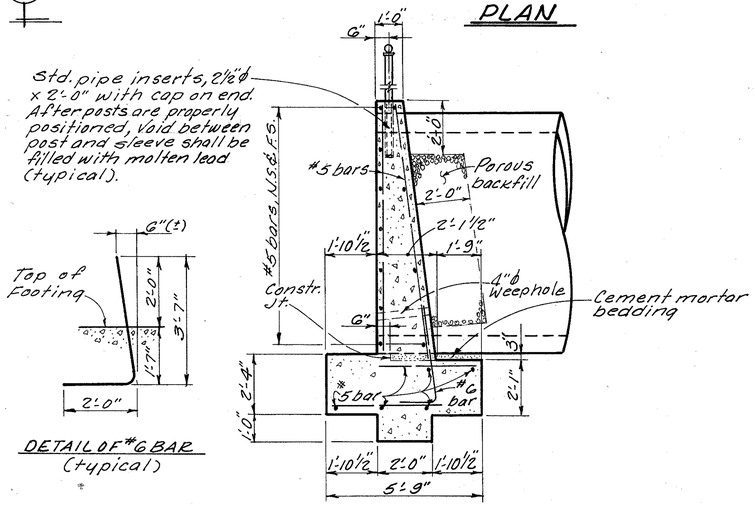
ELEVATION

Info Only
Item 602 Conc. Mas. = 24 C.Y.



SECTION E-E

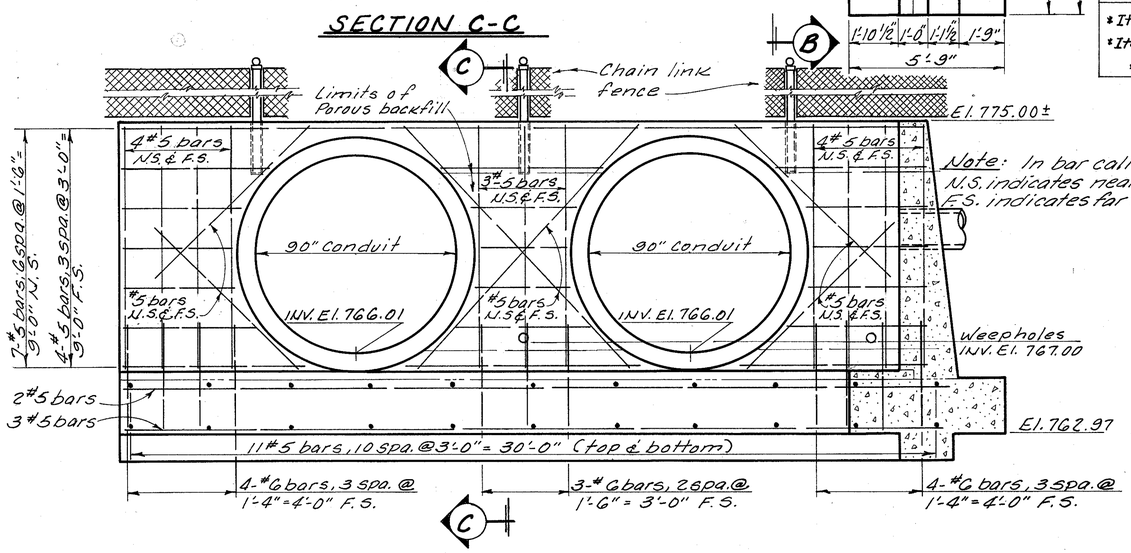
SPECIAL HEADWALL STA. 235+65



DETAIL OF #6 BAR (typical)

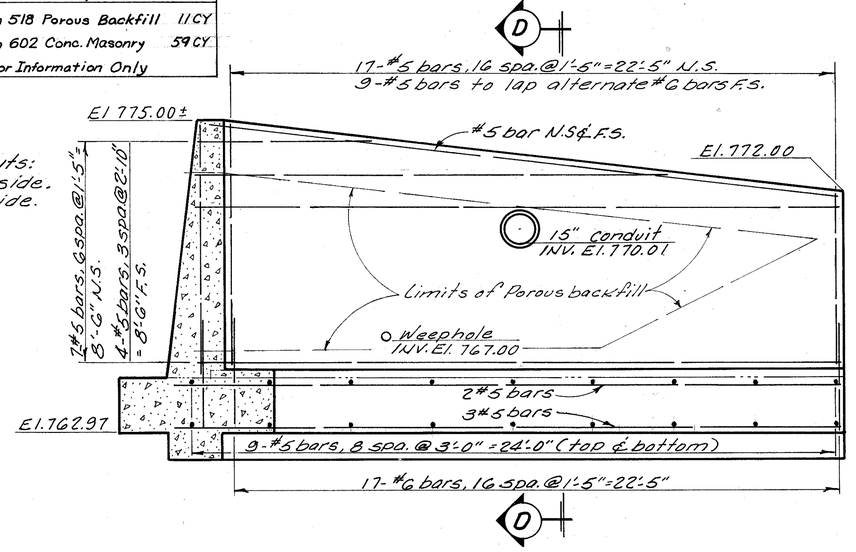
SECTION C-C

Estimated Quantities	
* Item 518 Porous Backfill	11 CY
* Item 602 Conc. Masonry	59 CY
* For Information Only	

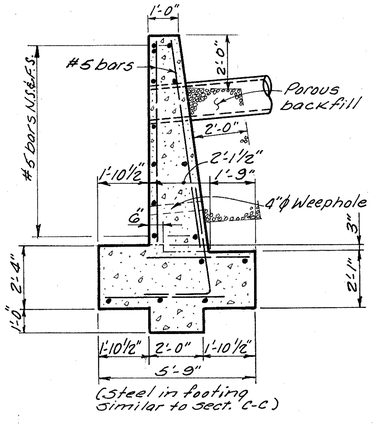


Note: In bar callouts: N.S. indicates near side. F.S. indicates far side.

VIEW A-A



VIEW B-B



SECTION D-D

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

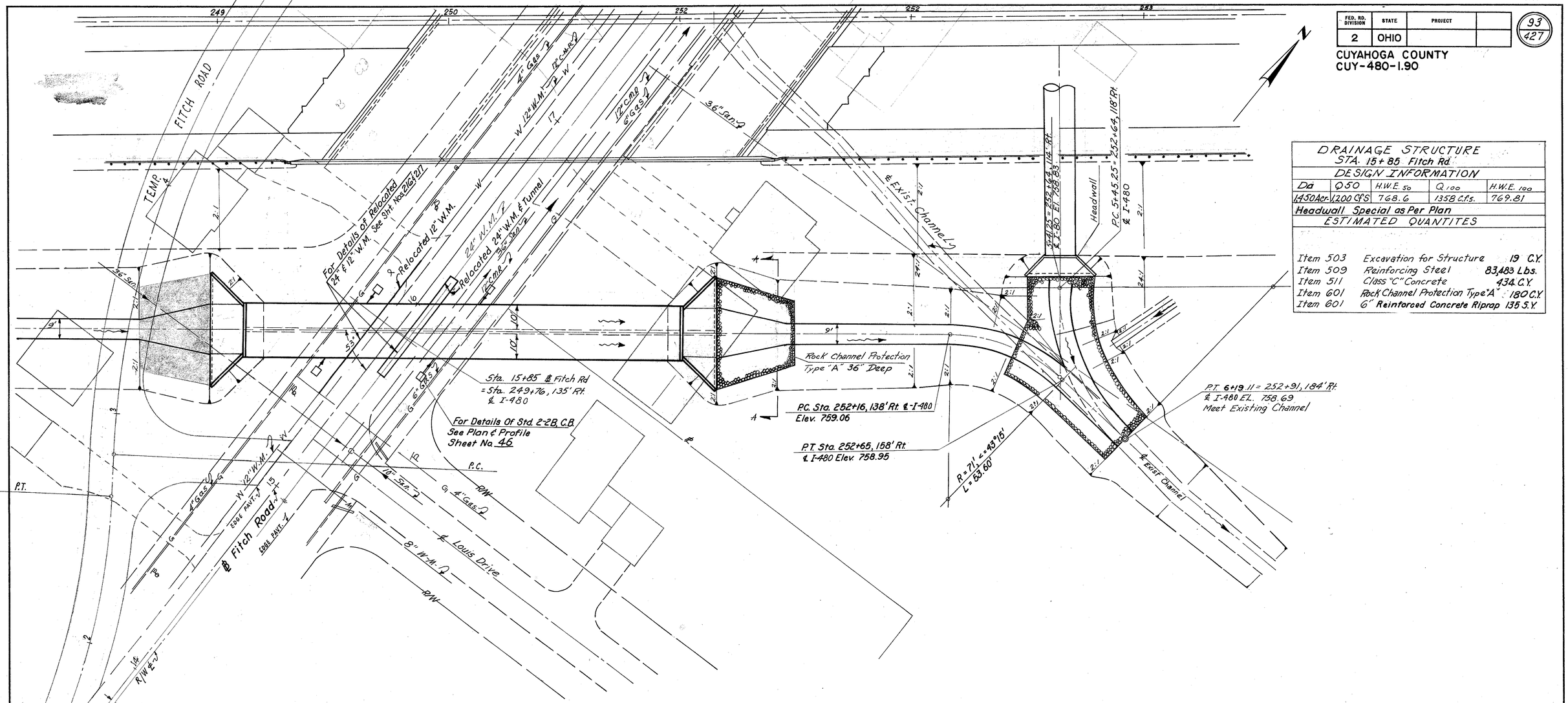
93
427

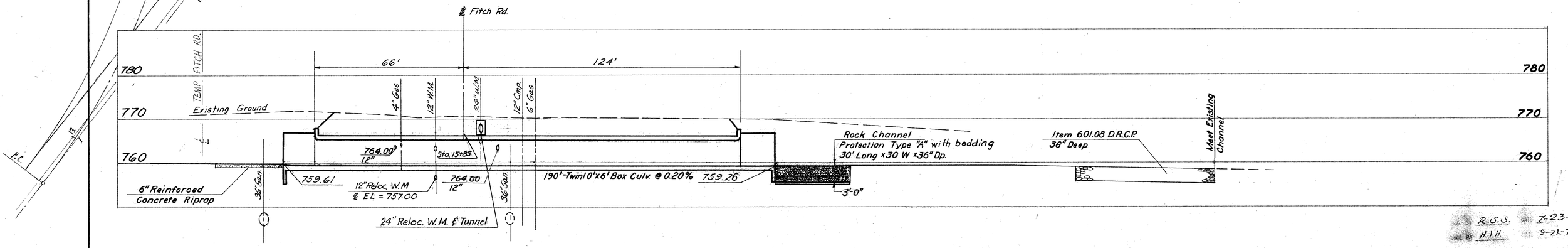
CUYAHOGA COUNTY
CUY-480-1.90

DRAINAGE STRUCTURE STA. 15+85 Fitch Rd.				
DESIGN INFORMATION				
Da	Q 50	H.W.E. 50	Q 100	H.W.E. 100
1430 Acr-V	1200 CFS	768.6	1358 C.F.S.	769.81
Headwall Special as Per Plan				

ESTIMATED QUANTITES

Item 503	Excavation for Structure	19 C.Y.
Item 509	Reinforcing Steel	83,483 Lbs.
Item 511	Class "C" Concrete	434 C.Y.
Item 601	Rock Channel Protection Type "A"	180 C.Y.
Item 601	6" Reinforced Concrete Riprap	135 S.Y.





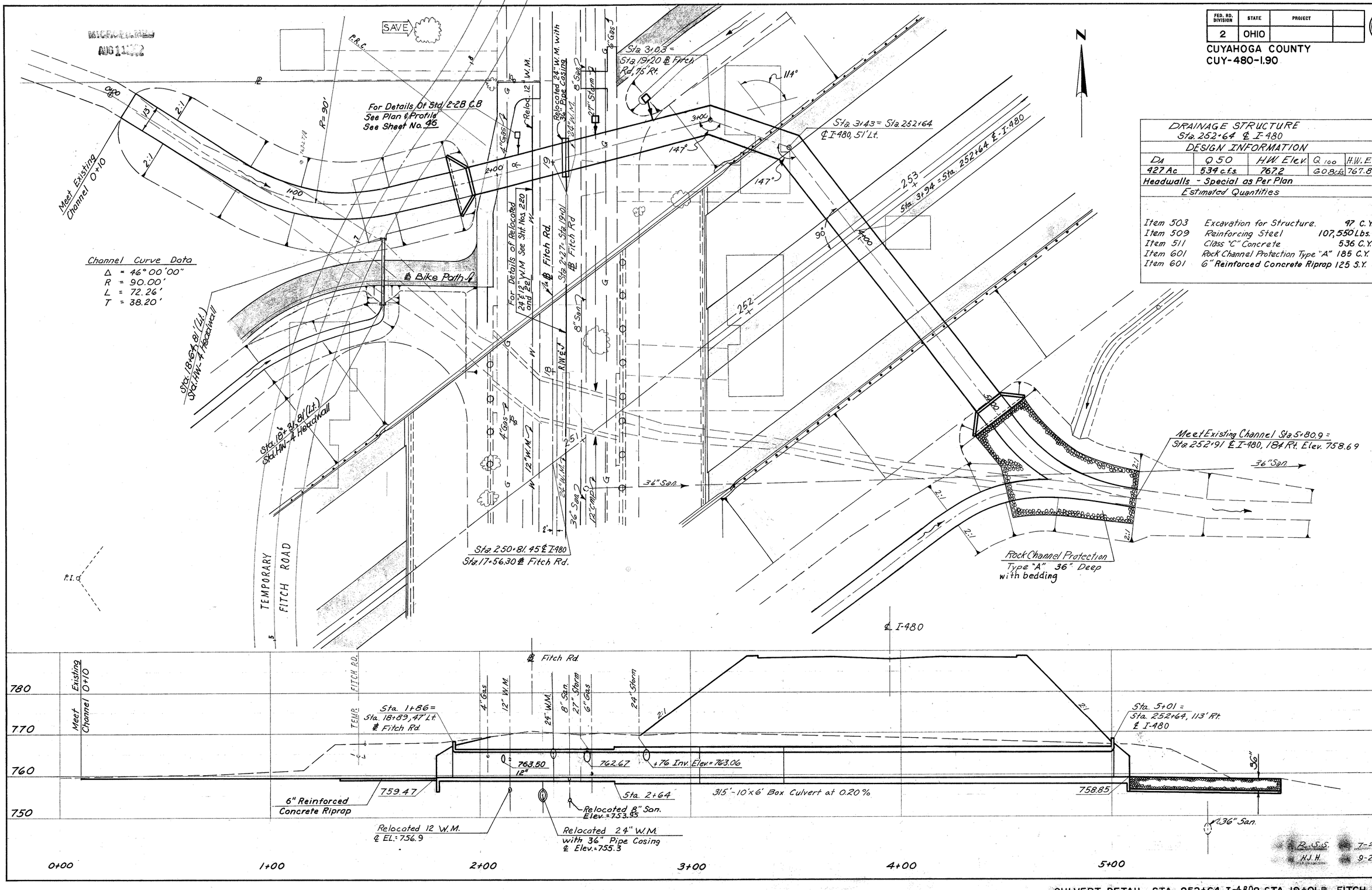
CULVERT DETAIL - STA. 15+85 ℄ FITCH ROAD

R.S.S. 7-23-70
CHKD BY H.J.H. 9-21-70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

94
427

CUYAHOGA COUNTY
CUY-480-1.90



DRAINAGE STRUCTURE Sta. 252+64 ℄ I-480				
DESIGN INFORMATION				
D_A	Q 50	H.W. Elev.	Q 100	H.W.E. 100
427 Ac	539 c.f.s.	767.2	608 c.f.s.	767.87
Headwalls - Special as Per Plan				
Estimated Quantities				
Item 503	Excavation for Structure.	97 C.Y.		
Item 509	Reinforcing Steel	107,550 Lbs.		
Item 511	Class "C" Concrete	536 C.Y.		
Item 601	Rock Channel Protection Type "A"	185 C.Y.		
Item 601	6" Reinforced Concrete Riprap	125 S.Y.		

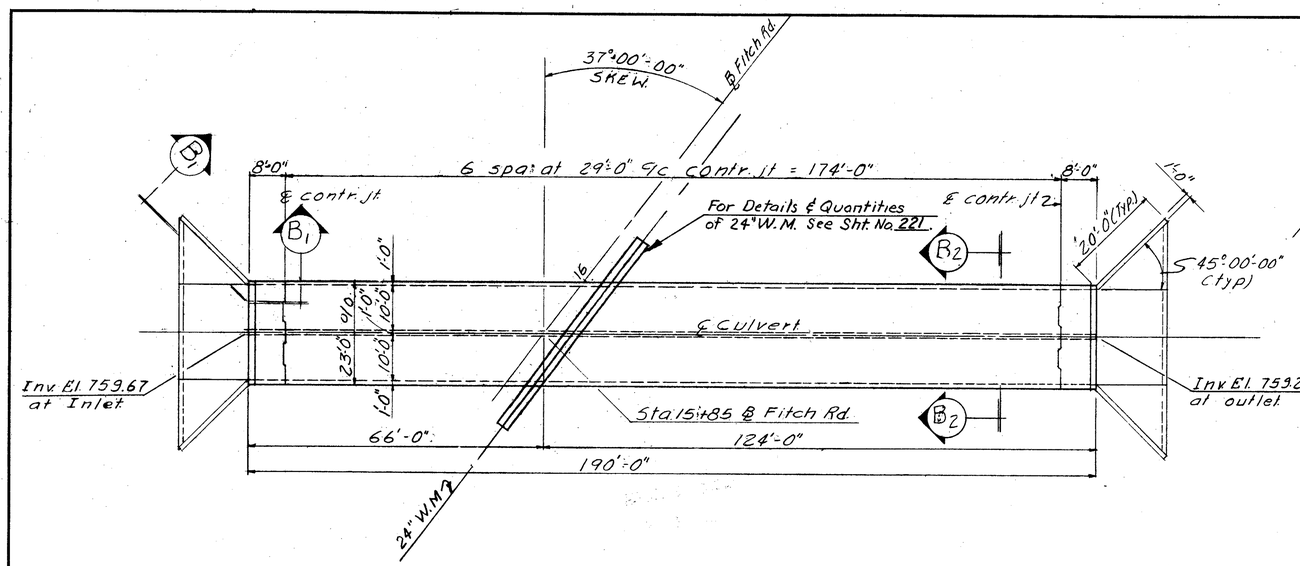
R.S.S. 7-23-70
H.J.H. 9-22-70

CULVERT DETAIL STA. 252+64 I-480 & STA. 19+01 ℄ FITCH Rd.

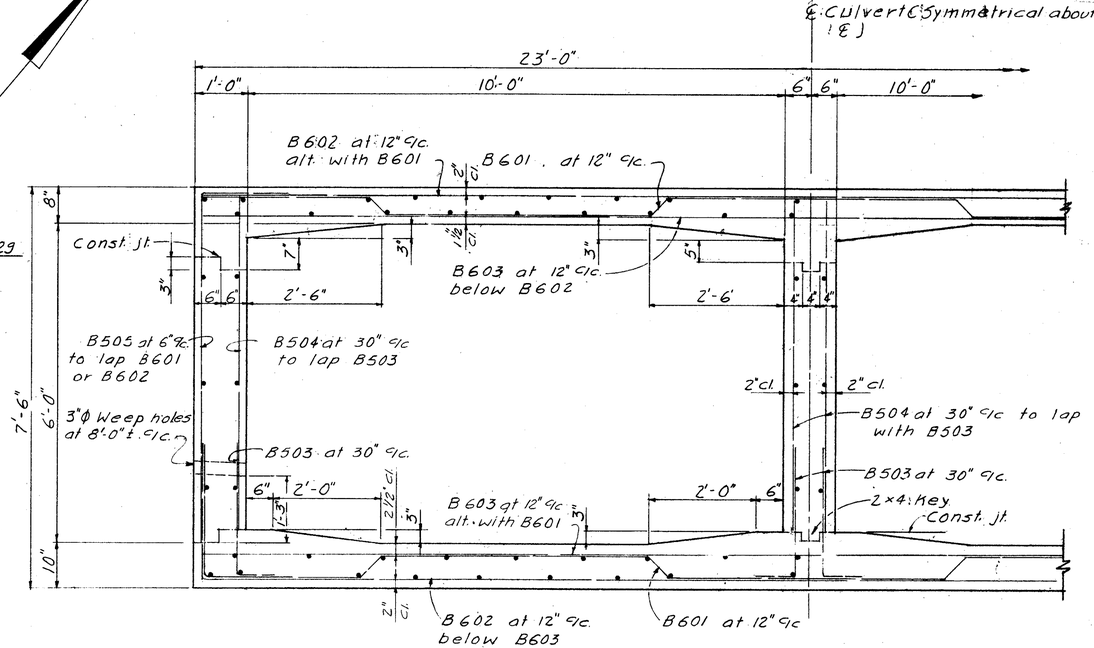
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

95
427

CUYAHOGA COUNTY
CUY-480-1.90

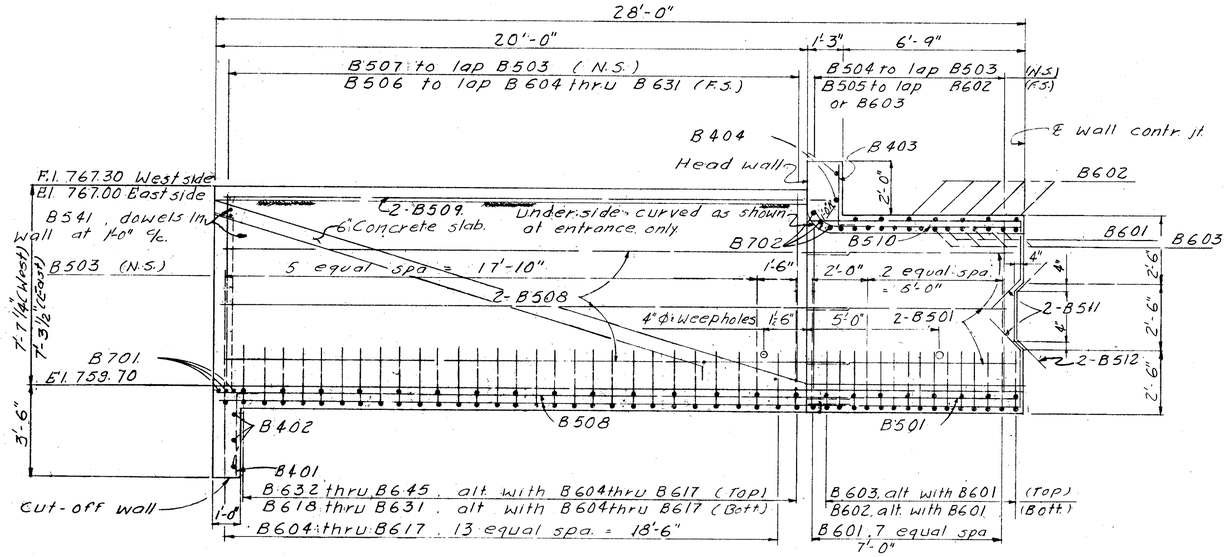


SCHEMATIC PLAN

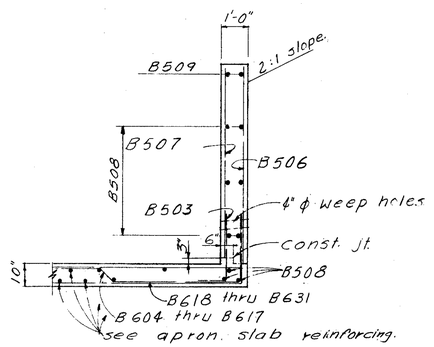


Note:- All longitudinal bars shall be B501 for exterior sections and B502 for interior sections.

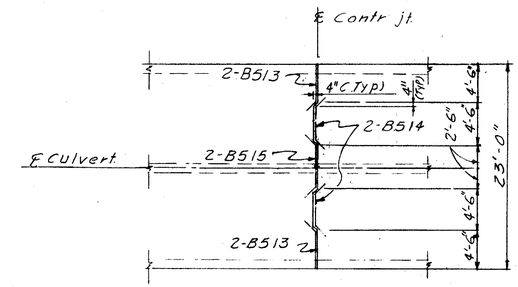
SECTION B2-B2



ELEVATION B1-B1



SECTION B3-B3



SLAB CONTRACTION JOINT DETAILS

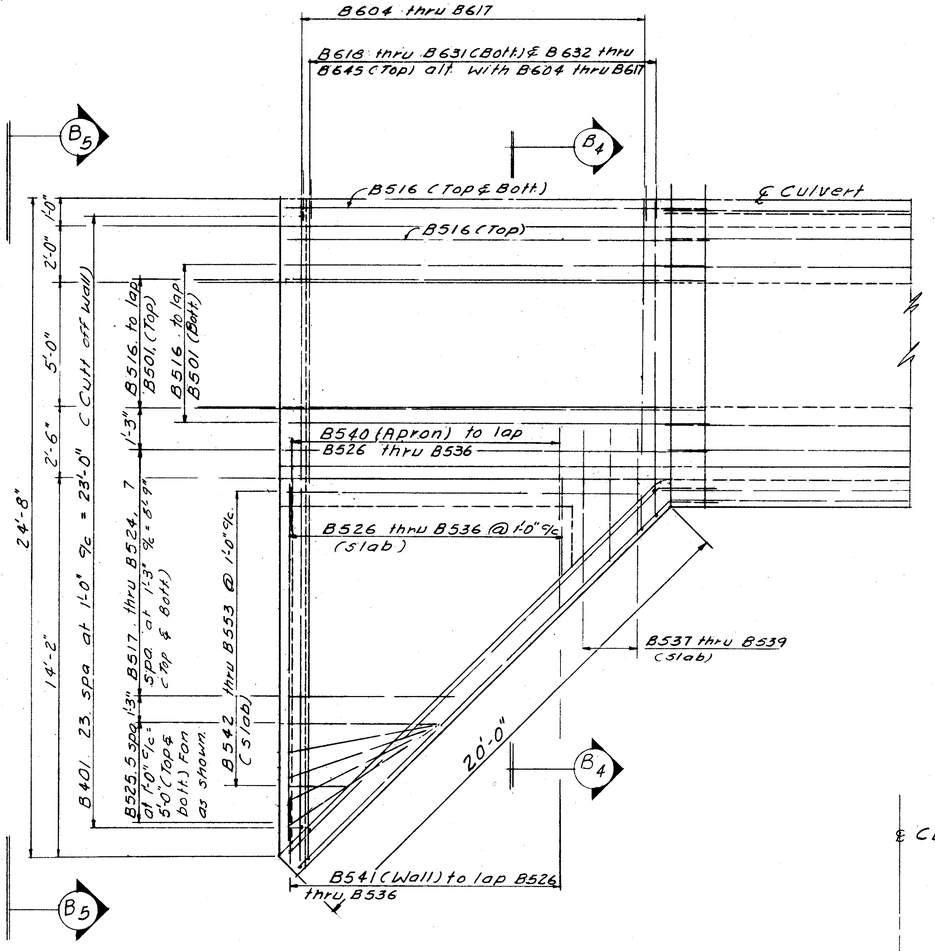
(For wall contraction jt. details see Elev. B1-B1)

CULVERT AT STA 15+85 ℄ FITCH

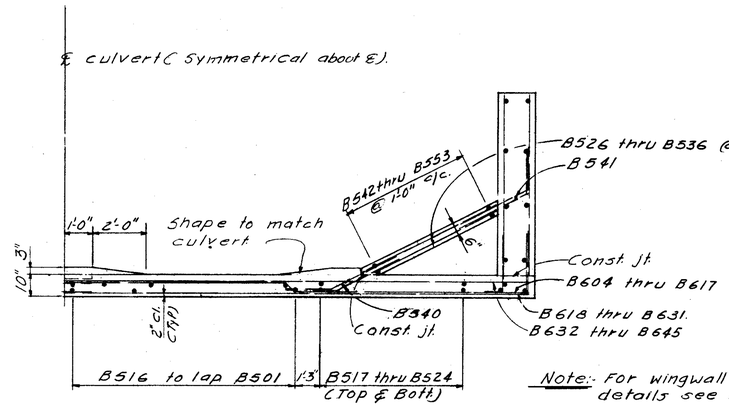
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

96
427

CUYAHOGA COUNTY
CUY-480-1.90

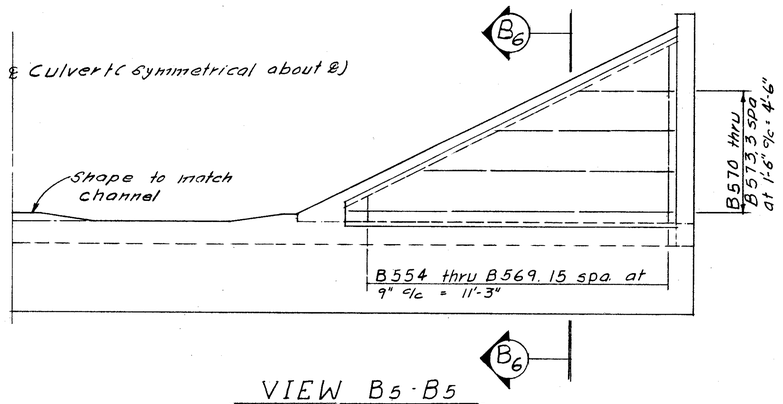


HALF APRON SLAB REINFORCING

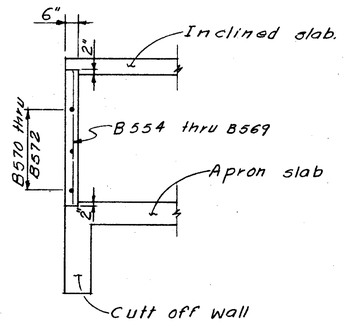


Note:- For wingwall dimensions & reinforcing details see Elev. B1 - B1.

SECTION B4 - B4



VIEW B5 - B5



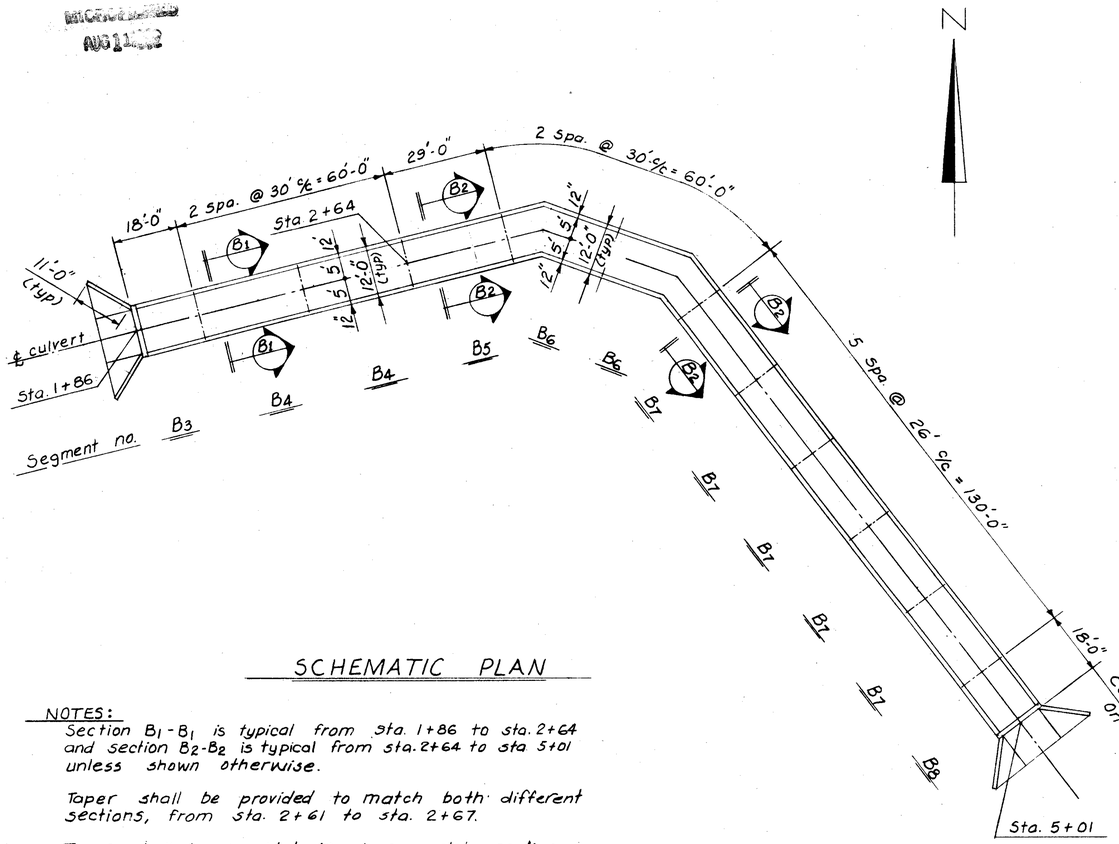
SECTION - B6 - B6

Note:- Only sidewall reinforcing is shown for simplicity

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

97
427

CUYAHOGA COUNTY
CUY-480-1.90



SCHEMATIC PLAN

NOTES:

Section B_1-B_1 is typical from sta. 1+86 to sta. 2+64 and section B_2-B_2 is typical from sta. 2+64 to sta 5+01 unless shown otherwise.

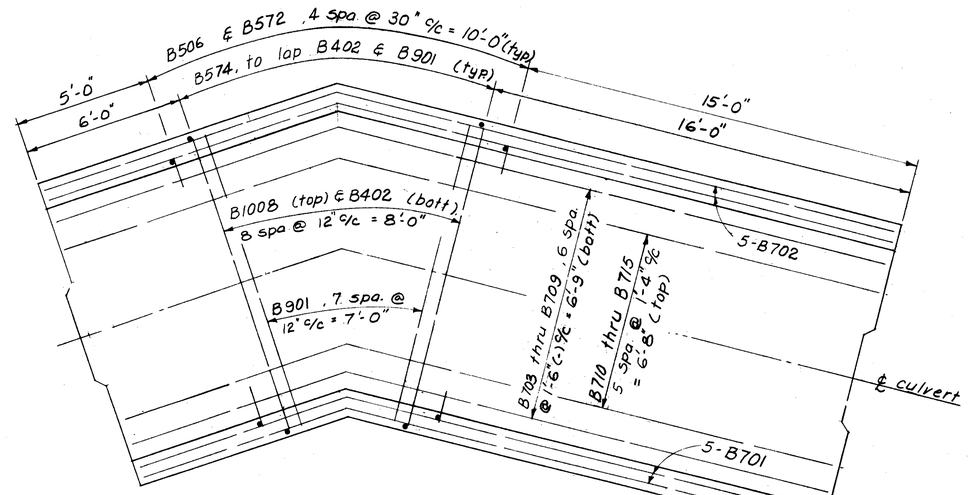
Taper shall be provided to match both different sections, from sta. 2+61 to sta. 2+67.

Taper shall be provided in Apron slab section to match channel section and culvert barrel section.

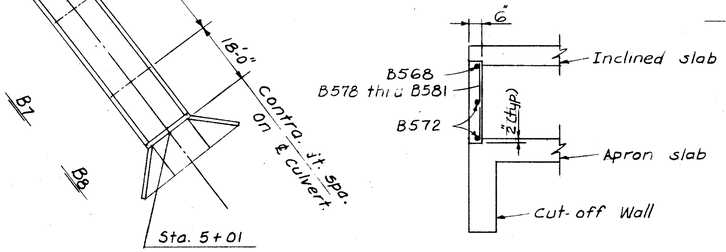
PLAN

ELEVATION

CONTRACTION JOINT DETAILS



BOTTOM SLAB PLAN
SEGMENT-B_6

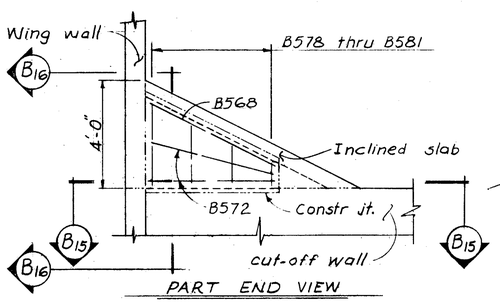


SECTION B_{16}-B_{16}

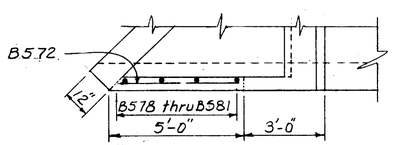
NOTES:

All dimensions shown are on ℄ culvert

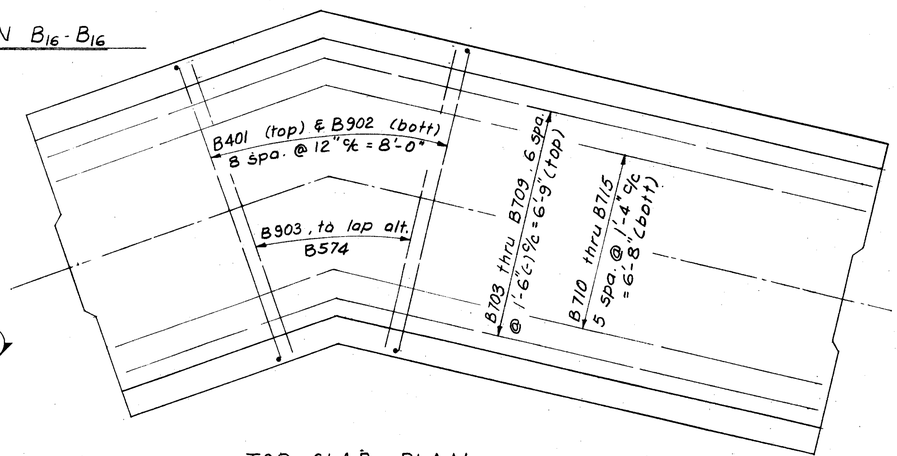
All dimensions, details and reinforcing steel, not shown, are same as per section B_2-B_2



PART END VIEW



SECTION B_{15}-B_{15}



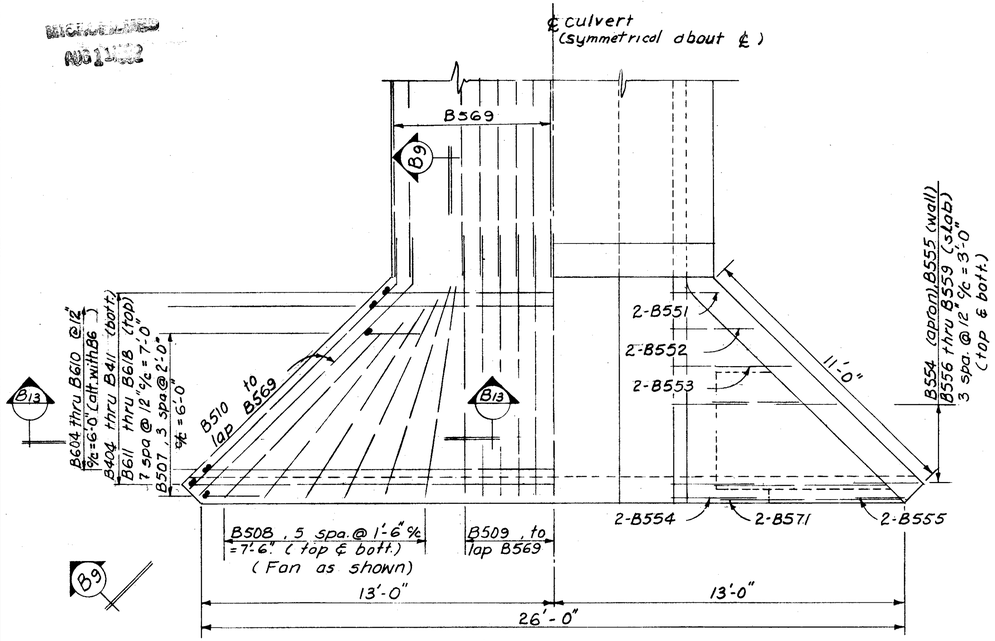
TOP SLAB PLAN
SEGMENT - B_6

Culvert Detail Sta. 1+01 ℄ Fitch Rd & 252+64

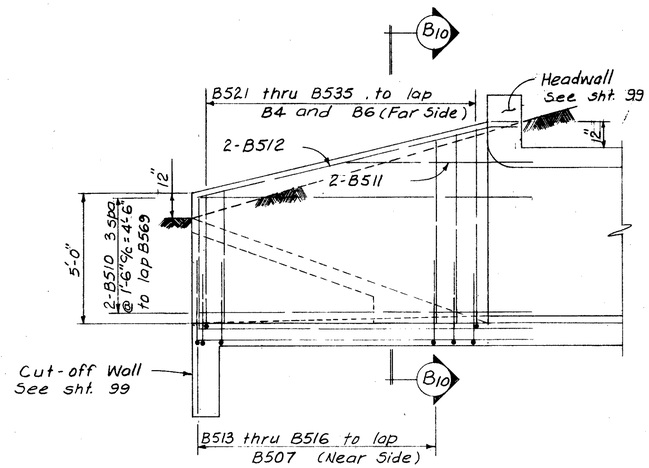
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

98
427

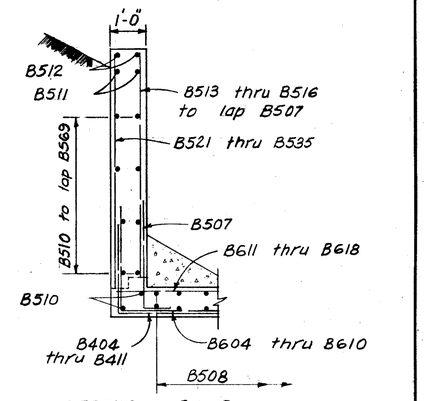
CUYAHOGA COUNTY
CUY-480-1.90



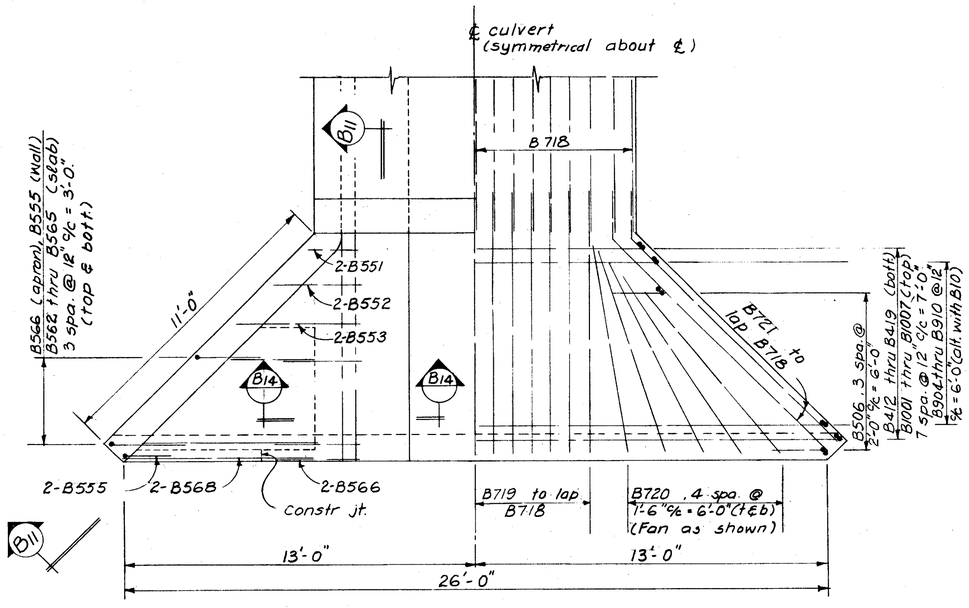
APRON SLAB - SEGMENT B3



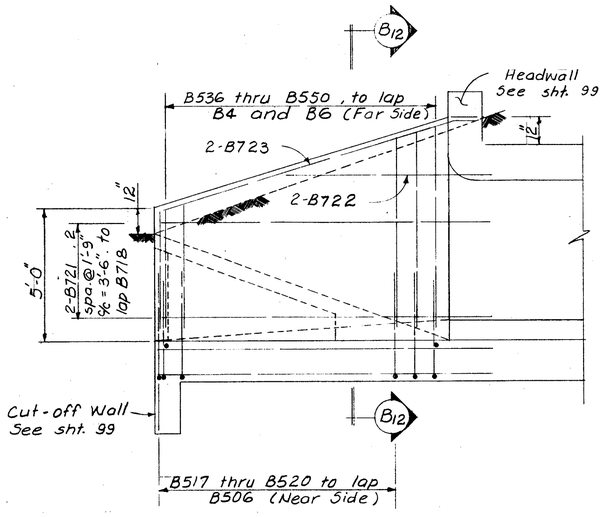
SECTION B9 - B9



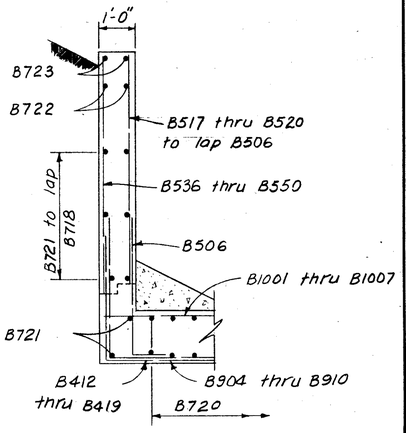
SECTION B10 - B10



APRON SLAB - SEGMENT B8



SECTION B11 - B11



SECTION B12 - B12

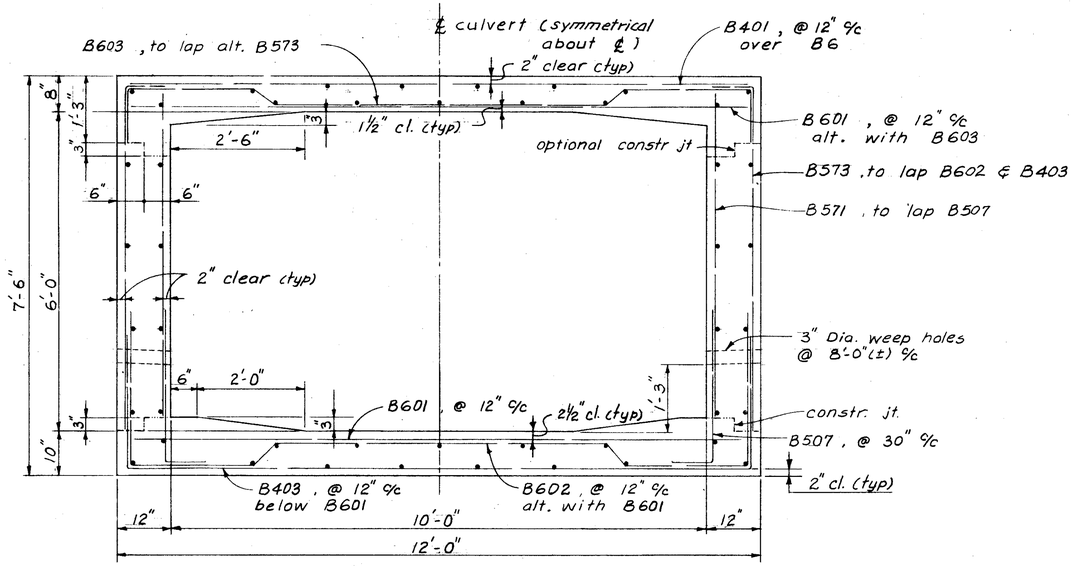
NOTE:
Apron slab rein. is shown on one side and 6" thick slab rein. is shown on other side, in Apron Slab - Segment B3 and B8

Culvert Detail Sta. 19+01 ℄ Fitch Rd ℄ 252+64 I-

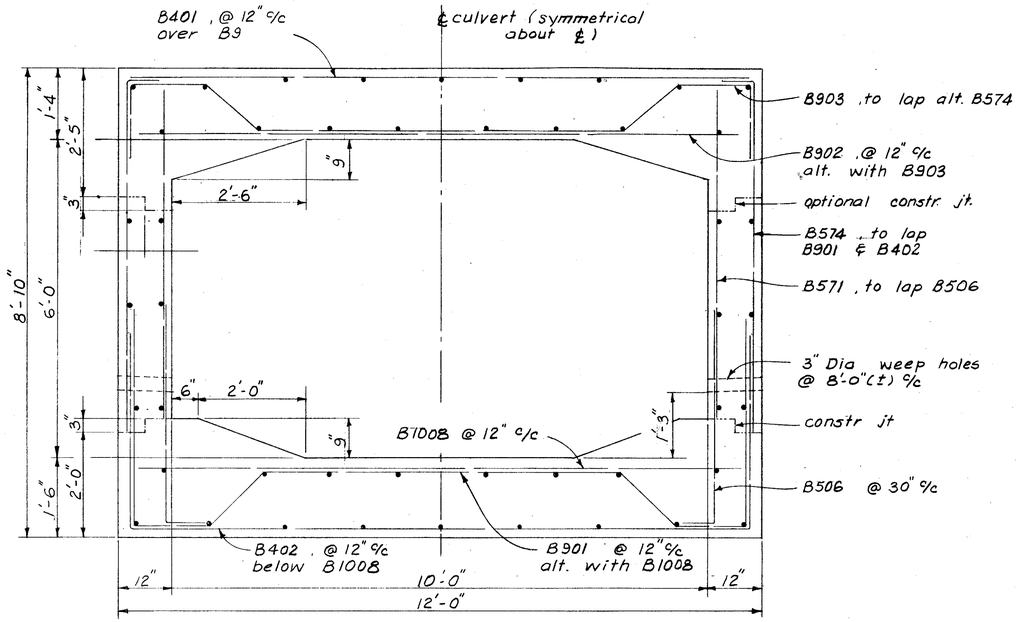
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

99
427

CUYAHOGA COUNTY
CUY-480-1.90

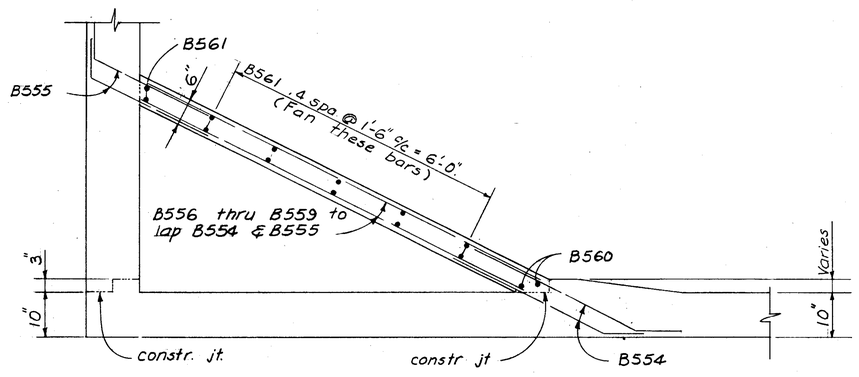


SECTION B_1-B_1



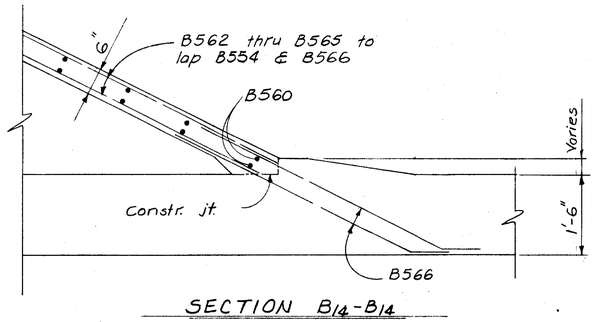
SECTION B_2-B_2

NOTE:
All longitudinal reinforcing bars are B569 for Segment B_3; B570 for Segment B_4; B716 for Segment B_5; B717 for Segment B_7; and B718 for Segment B_8; except as otherwise shown.



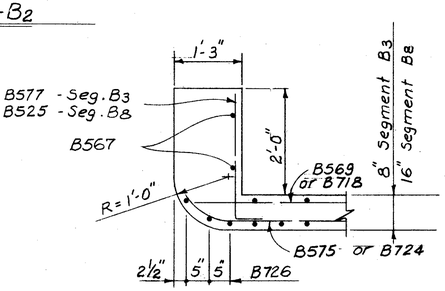
SECTION B_{13}-B_{13}

NOTE:
For details, dimensions and reinforcing, not shown, see Apron slab - Segment B_3.

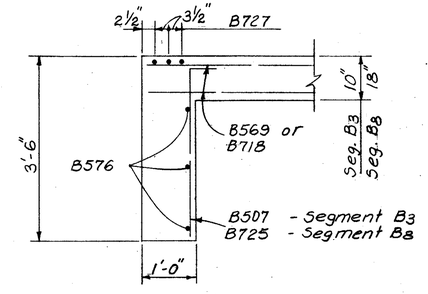


SECTION B_{14}-B_{14}

NOTE:
For details, dimensions and reinforcing, not shown, see Section B_{13}-B_{13} and Apron slab - Segment B_8



HEADWALL DETAILS



CUT-OFF WALL DETAILS

Culvert Detail sta. 19+01 ℄ Fitch Rd ℄ 252+64 ±

B1-5

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

100
427

CUYAHOGA COUNTY
CUY-480-1.90

CULVERT AT STA 15+85 ℄ FITCH RD.

MARK	NUM	LTH.	WT.	TYPE	A	B	C	D	E	NOTE
B401	48	3'-5"	112	1	3'-0"	0'-6"				
B402	12	25'-6"	204	ST						
B403	48	2'-8"	88	1	2'-3"	0'-6"				
B404	4	23'-8"	63	ST						
				1						
B501	180	7'-8"	1440	ST						
B502	540	28'-8"	16146	ST						
B503	372	2'-10"	1098	1	2'-3"	0'-8"				
B504	344	6'-2"	2213	ST						
B505	760	8'-0"	6341	1	6'-6"	1'-7"				
B506	112	7'-6"	876	ST						
B507	28	7'-3"	212	ST	7'-3"					
B508	36	21'-5"	804	ST						
B509	8	20'-6"	171	ST						
B510	48	8'-9"	401	2	0'-10"	6'-10"	1'-3"			
B511	28	3'-9"	110	3	2'-3"	1'-2"	0'-0"	1'-2"		
B512	14	3'-2"	47	4			1'-2"	1'-8"	1'-2"	
B513	28	5'-8"	163	3	4'-2"	1'-2"		1'-2"		
B514	28	5'-0"	146	4			1'-2"	3'-6"	1'-2"	
B515	14	6'-2"	89	4			1'-2"	4'-8"	1'-2"	
B516	52	16'-6"	840	ST						
B517	4	15'-0"		ST						1
THRU			340	VARY LENGTH BY 1'-2½"						
B524	4	6'-6"		ST						1
B525	24	5'-8"	142	ST						
B526	4	15'-6"		ST						1.
THRU			462	VARY LENGTH BY 0'-11"						
B536	4	4'-6"		ST						1.
B537	4	5'-6"		ST						1.
THRU			57	VARY LENGTH BY 1'-0"						
B539	4	3'-6"		ST						1
B540	88	2'-4"	221	3	0'-10"	1'-2"		1'-2"		
B541	88	2'-6"	237	3	1'-0"	1'-2"		1'-2"		
B542	4	13'-3"		ST						1
THRU			388	VARY LENGTH BY 1'-0"						
B553	4	2'-3"		ST						1
* For bars B554 thru B573, See table on right bottom										
B601	380	26'-8"	16353	5	2'-6"	3'-0"	0'-5"	5'-0"	0'-5"	
B602	190	27'-4"	7848	1	2'-6"	22'-8"	2'-6"			
B603	570	22'-8"	19408	ST						
B604	4	47'-9"		4	2'-6"	12'-7"	0'-5"	12'-11"	0'-5"	1
THRU			1850	VARY LENGTH BY 1'-0"						
				VARY DIM 'B' BY 0'-6"						
B617	4	28'-3		4	2'-6"	6-1"	0'-5"	6'-5"	0'-5"	1
B618	4	27'-11"		1	2'-6"	25'-6"				1
THRU			1808	VARY LENGTH & DIM 'B' BY 1'-0"						
B631	4	14'-11"		1	2'-6"	12'-6"				1
B632	4	25'-6"		ST						1
THRU			1598	VARY LENGTH BY 1'-0"						
B645	4	12'-6"		ST						1
B701	12	25'-9"	632	ST						
B702	6	22'-8"	204	ST						

REPLACEMENT STEEL

RE401	1	6'-3"	ST							
RE501	1	6'-7"	ST							
RE601	1	6'-11"	ST							
RE701	1	7'-3"	ST							

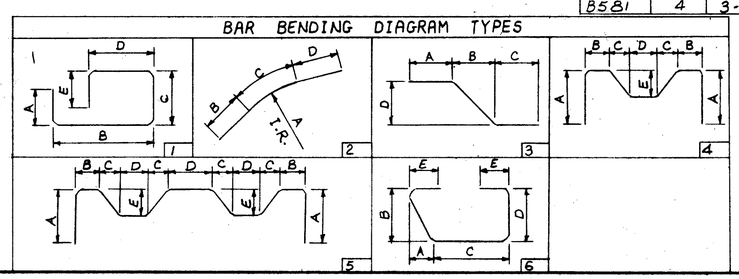
CULVERT AT STA. 19+01 ℄ FITCH RD. AND 252+64 I-80

MARK	NUM.	LTH.	WT.	TYPE	A	B	C	D	E	NOTE
B401	313	11-6	2404	ST						
B402	238	18-9	2981	1	3-8	11-8	3-8			
B403	79	16-5	866	1	2-6	11-8	2-6			
B404	1	16-9		1	2-6	12-0	2-6			1
THRU			129	VARY LTH. & DIM. 'B' BY 2-1						
B411	1	31-4		1	2-6	26-7	2-6			1
B412	1			1	3-8	12-0	3-8			1
THRU		19-1	141	VARY LTH. & DIM. 'B' BY 2-1						
B419	1	33-8		1	3-8	26-7	3-8			1
B501	44	5-5	249	4	0-0	0-0	1-1	3-4	1-1	
B502	44	4-5	203	4	0-0	0-0	1-1	2-4	1-1	
B503	88	5-3	482	6	1-1	1-1	3-10			
B504	24	3-5	85	6	1-1	1-1	2-0			
B505	64	4-1	273	6	1-1	1-1	2-8			
B506	200	4-11	1026	1	4-2	0-10				
B507	99	3-9	387	1	3-0	0-10				
B508	24	8-0	200	ST.	8-0					
B509	11	12-0	138	ST	12-0					
B510	20	12-1	252	6	1-1	1-1	10-8			
B511	4	6-5	27	6	1-1	1-1	5-0			
B512	4	12-0	50	6	0-11	0-3	11-1			
B513	2	4-9		ST						1
THRU			47	VARY LTH. BY 0-7						
B516	2	6-6		ST						1
B517	2	4-3		ST						1
THRU			46	VARY LTH. BY 0-10						
B520	2	6-9		ST						1
B521	2	5-0		ST						1
THRU			196	VARY LTH. BY 0-2						
B535	2	7-4		ST						1
B536	2	4-6		ST						1
THRU			190	VARY LTH. BY 0-2½						
B550	2	7-5		ST						1
B551	8	3-2		6	0-8	0-4	2-6			1
THRU			132	VARY LTH. & DIM 'C' BY 0-9						
B553	8	4-8		6	0-8	0-4	4-0			1
B554	16	3-8	62	6	0-8	0-4	3-0			
B555	32	3-5	114	6	0-4	0-8	2-9			
B556	4	3-4		ST.						1
THRU			88	VARY LTH. BY 1-3						
B559	4	7-1		ST.						1
B560	8	6-9	56	ST.						
B561	48	7-6	375	ST.						
B562	4	2-3		ST						1
THRU			72	VARY LTH. BY 1-4						
B565	4	6-3		ST						1
B566	16	6-0	100	6	0-8	0-4	5-3			
B567	4	11-6	48	ST						
B568	5	5-3	27	ST						
B569	39	17-6	712	ST						
B570	92	29-6	283	ST						
B571	276	6-2	1810	ST						
B572	8	4-8	39	ST						
B573	314	6-11	2265	1	6-5	0-9				
B574	950	7-1	7018	1	6-7	0-2				
B575	7	17-9	130	2	0-9	16-6	1-3			
B576	6	26-4	165	ST						
B577	15	3-1	48	1	2-4	0-9				
B578	4	1-0		1						1
THRU			35	VARY LTH. BY 0-9						
B581	4	3-3		1						1

CULVERT AT STA. 19+01 ℄ FITCH RD. AND 252+64 I-80

MARK	NUM.	LTH.	WT.	TYPE	A	B	C	D	E	NOTE
B601	158	11-6	2729	ST						
B602	78	17-6	2050	4	2-11	2-5	0-5	6-0	0-5	
B603	78	13-7	1591	4	1-0	2-5	0-4	6-3	0-4	
B604	1	18-4		4	2-11	2-8	0-5	6-4	0-5	1
					VARY	DIM. 'B' BY	0-7			
THRU			265		VARY	DIM 'D' BY	1-1½			
					VARY	LTH BY	2-3½			
B610	1	32-1		4	2-11	6-2	0-5	13-1	0-5	1
B611	1	12-5		ST						1
THRU			173		VARY	LTH BY	2-0			
B618	1	26-5		ST						1
B701	40	26-0	2126	6	6-6	4-4	18-0			
B702	40	32-6	2657	6	9-6	6-3	21-3			
B703	4	26-10		6	7-0	4-6	18-6			1
					VARY	DIM. 'A' BY	0-4½			
THRU			1674		VARY	DIM 'B' BY	0-3			
					VARY	DIM 'C' BY	0-5			
					VARY	LTH. BY	0-9½			
B709	4	31-7		6	9-3	6-0	21-0			1
B710	4	27-5		6	7-3	4-9	18-8			1
					VARY	DIM 'A' BY	0-4			
THRU			1435		VARY	DIM 'B' BY	0-2			
					VARY	DIM 'C' BY	0-5			
					VARY	LTH BY	0-9			
B715	4	31-2		6	8-11	5-7	20-9			1
B716	46	28-6	2680	ST						
B717	230	25-6	11988	ST						
B718	38	17-6	1359							
B719	13	10-6	279	ST						
B720	20	8-0	327	ST						
B721	16	12-9	417	6	1-6	1-6	10-9			
B722	4	8-0	65	6	1-6	1-6	6-0			
B723	4	12-1	99	6	0-11	0-3	11-3			
B724	8	17-9	290	2	0-9	16-6	1-3			
B725	44	3-7	322	1	3-0	0-9				
B726	6	11-6	141	ST						
B727	6	25-6	313	ST						
B901	237	20-3	16317	4	4-1	1-6	1-0	6-8	1-0	
B902	237	11-6	9267	ST						
B903	238	14-10	12003	4	1-5	1-6	1-0	6-10	1-0	
B904	1	20-2		4	4-1	1-3	1-0	7-0	1-0	1
					VARY	DIM 'B' BY	0-10			
THRU			670		VARY	DIM 'D' BY	1-0			
					VARY	LTH BY	2-8			
B910	1	36-2		4	4-1	6-3	1-0	13-0	1-0	1
B1001	1	12-6		ST						1
THRU			585		VARY	LTH BY	2-3½			
B1007	1	26-3		ST						1
B1008	238	11-6	11777	ST						
					REPLACEMENT STEEL					
RE401	1	6-3		ST						
RE501	1	6-7		ST						
RE601	1	6-11		ST						
RE701	1	7-2		ST						
RE901	1	7-10		ST						
RE1001	1	8-2		ST						

BAR BENDING DIAGRAM TYPES



NOTES

1. INDICATES SERIES BAR. EACH BAR VARIES FROM ADJACENT BAR(S) BY TABULATED AMOUNT(S). CALCULATED TO NEAREST 1/8 INCH. WEIGHT SHOWN IS FOR ENTIRE SERIES UTILIZING AVERAGE LENGTH.

BAR SIZE DESIGNATION

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A701 IS A NO. 7 SIZE BAR AND A1040 IS A NO. 10 SIZE.

* CULVERT AT STA 15+85 ℄ FITCH RD

MARK	NUM	LTH	WT.	TYPE	A	B	C	D	E	NOTE
B554	4	6'-3"		ST						1
thru			242	Vary length by 0'-4¼"						
B569	4	1'-0"		ST						1
B570	4	3'-6"		ST						1
thru			129	Vary length by 2'-1½"						
B573	4	12'-0"		ST						1

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY-480-1.90

Note: Not to Scale

NOTE:
THE CONTRACTOR WILL NOT BE PERMITTED TO REMOVE ANY TREES FROM PARCEL 251S & 251T UNLESS PRIOR APPROVAL IS RECIEVED FROM THE ENGINEER AND THE CITY OF NORTH OLMSTED.

Estimated Quantities

		DRAINAGE ITEM	603	603	603	604	509	602
			84" TYPE "C" 706.02 D-3000 OR 707.14 (0.109")	84" TYPE "C" 706.02 D-3000, as per plan	84" TYPE "B" 706.02 D-3000, as per plan	STD. № 2 MANHOLE	REINFORCING STEEL	MASONRY
Ref. No.	Side	Location	LIN. FEET	LIN. FEET	LIN. FEET	EACH	LBS.	CU. YDS.
1-D	℄	0+00 To 4+02	402			1		
2D	℄	4+02 To 6+46		12	234	1	2511	23.3
		Total	402	12*	234*	2	2511	23.3

*NOTE:
The Contractor Will Not Be Permitted To Install The 246 Lin. Feet Of 84" Dia. Storm Sewer Outlet Conduit By Use Of The Open Trench Method.
The Contractor Shall Submit In Writing His Proposed Construction Methods To The Director And Receive Approval Before Work Is Started on The Construction of The Conduit.

Note: Two Way Traffic Shall be Maintained At All Times On Mastick Road. See Maintenance Of Traffic Note Sheet 11

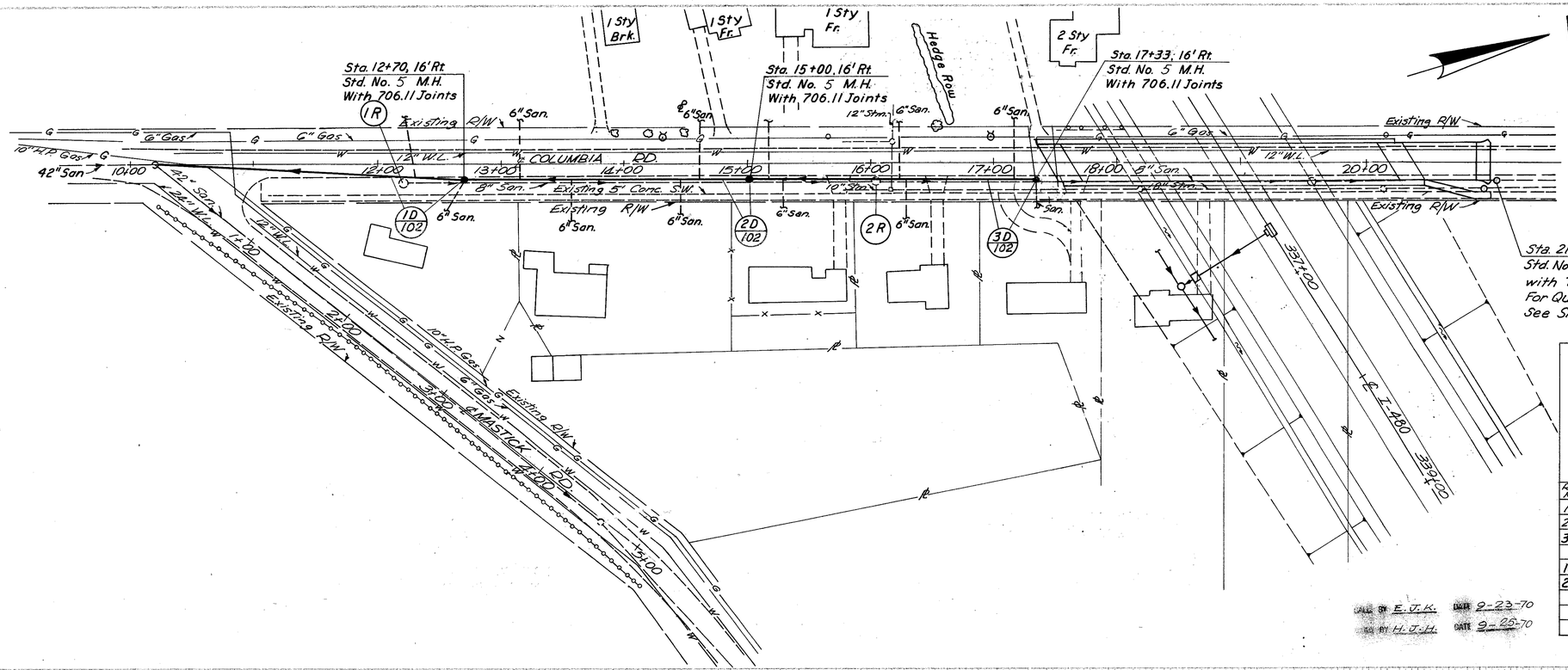
E.J.K. 3-22-71
H.J.H. 3-24-71

STORM SEWER OUTLET STA. 2+99± ℄ MASTICK ROAD

FED. ROAD DIVISION	STATE	PROJECT		
2	OHIO			

102
427

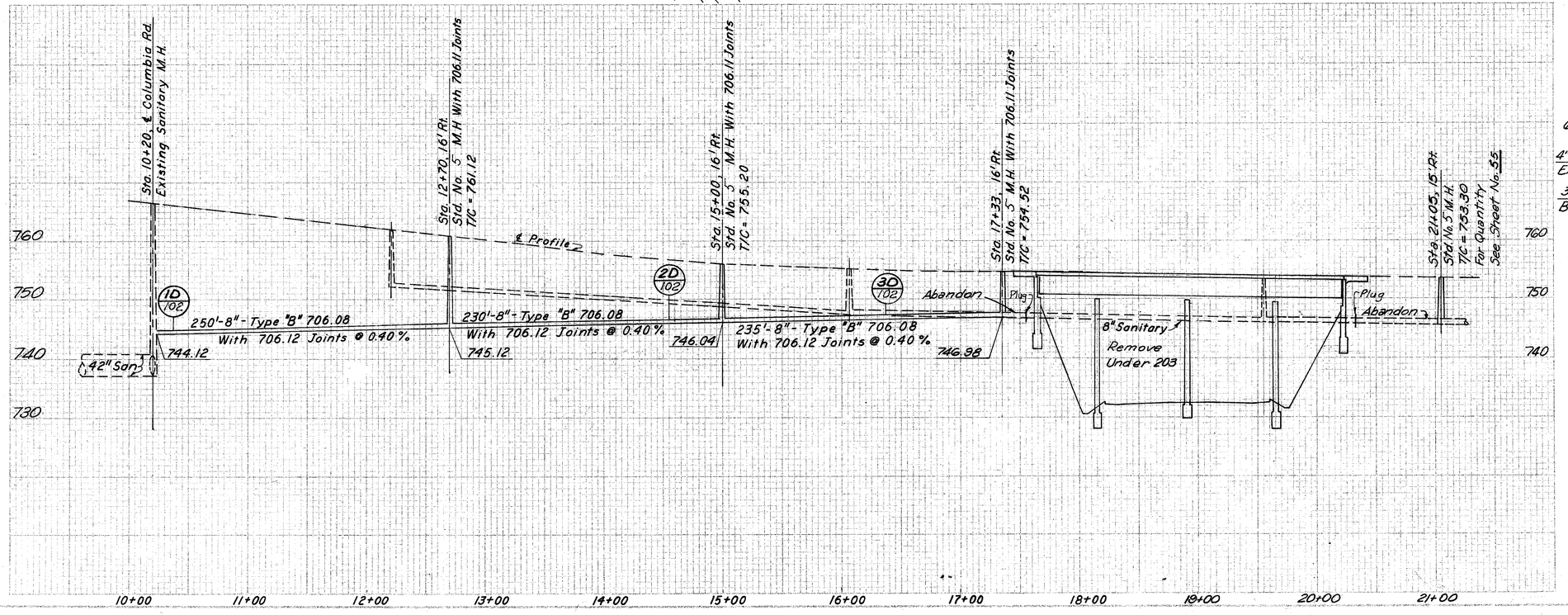
CUYAHOGA COUNTY
CUY-480-1.90

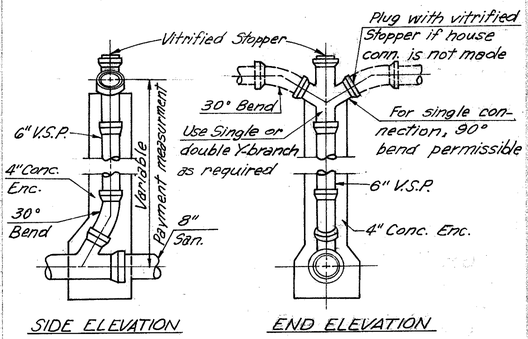


CALC. BY E.J.K. DATE 9-23-70
CK. BY H.J.H. DATE 9-25-70

SANITARY SEWER

Estimated Quantities			202 Manhole Removed	603 Type "B" 706.08 With 706.12 Joints 8"	603 Type "B" 706.08 With 706.12 Joints 6"	604 Std No. 5' M.H. With 706.11 Joints
Ref. No.	Side	Location	Ea.	L.F.	L.F.	Ea.
1D	Rt.	10+20 to 12+70		250	16	1
2D	Rt.	12+70 to 15+00		230	56	1
3D	Rt	15+00 to 17+33		235	48	1
1R	Rt	12+20	1			
2R	Rt.	16+05	1			
		TOTAL	2	715	120	3





TYPICAL HOUSE CONNECTION FOR SEWERS IN EXCESS OF 10' DEEP

Note:

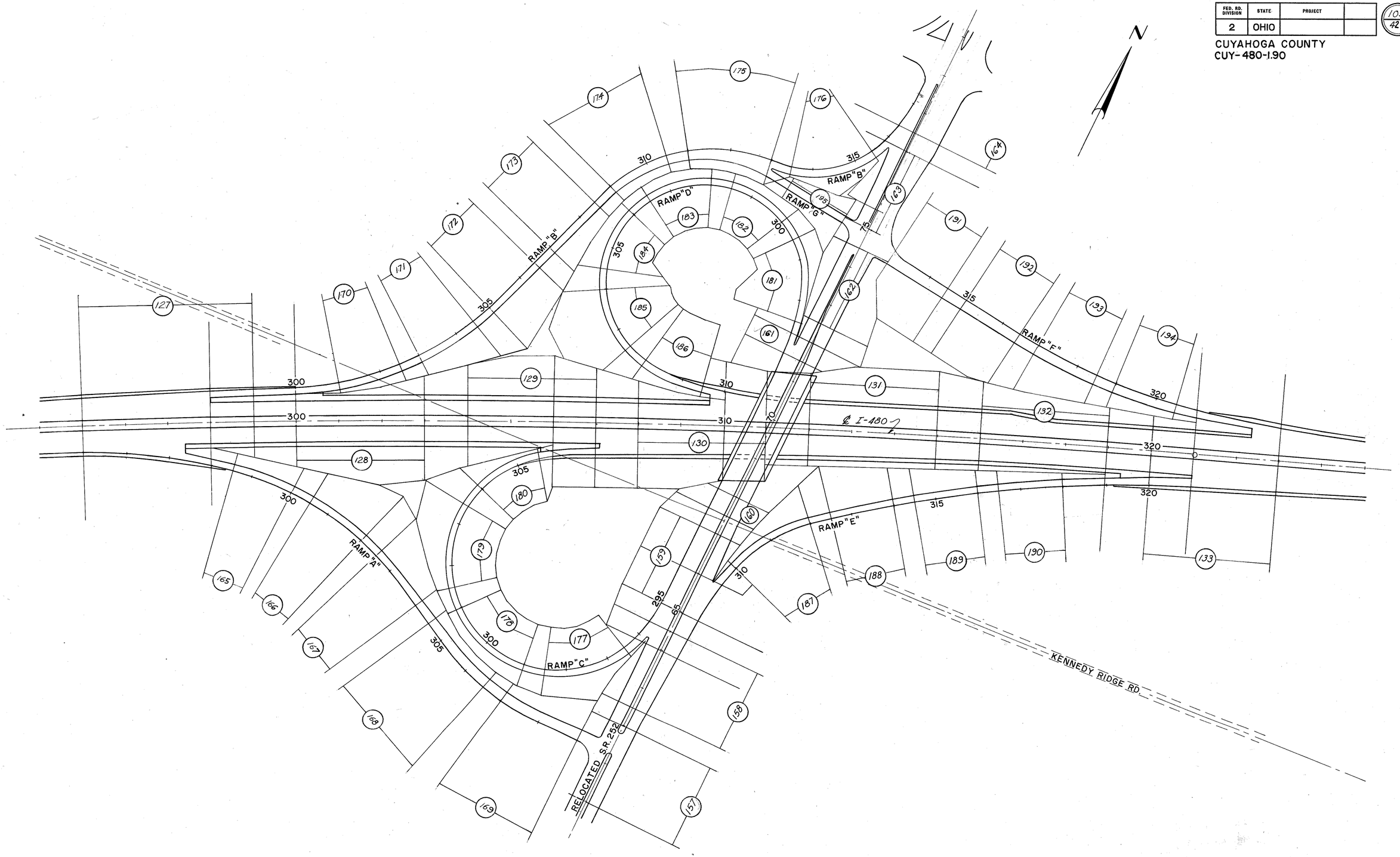
1. Standard Y-Branch connection is permissible for depths less than 10 feet.
2. Payment for Pipe Specials, Concrete Encasement and other incidentals required to make house connections to new sewers will be included in the unit price bid per lineal feet for the pertinent 6" conduit Item 603.
3. 6" Riser pipe will be 706.08 Encased and will be installed at such locations as determined by the Engineer in the field.

COLUMBIA RD. 8" SANITARY SEWER RELOCATION

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

103
427

CUYAHOGA COUNTY
CUY-480-1.90



CROSS SECTION INDEX

CUYAHOGA COUNTY
CUY-480-1.90

℄

790
780
770
760

4A
℄ BIKE PATH
778.8
776.1
3:1
2:1
8:1
790
Match Line
769.3
780
770
760
150 160 170
2:1
345 2260

225
2475

792.39
201+00
779.7
BEGIN PROJECT
Sta. 200+75.00

790
780
770
760

8:1
3:1
2:1
775.8
℄
79135
200+00
779.5
Sta. 199+75, 112' Rt.
Begin toe of slope ditch
Elev. 778.30±
780
770
150 160
769.5
301 2144
1196 8155

220.5

60' Radius
Meet Exist. Ditch
Sta. 199+12, 60' Lt.
Elev. 775.10
- 0.60 % →
TRANSVERSE DITCH PROFILE @ Sta. 199+12
For Plan Location see Sheet No. 27

3651 Misc. Quantity Sta. 198+75 to Sta. 200+00 I-480

Misc. Quantity Sta. 198+75 to 200+00
3044 3012

Sta. 199+12, 139' Rt.
Elev. 769.7±
Outlet to Channel

790
780
770
760

3:1
2:1
775.4
To be constructed under Imp. No. CUY 80-000
8:1
Match Line
769.69
780
770
150 160
2:1

790.39
199+00
780.0
BEGIN WORK
Sta. 198+75.00

Begin Sta. 198+75.00

790
780
770
760

3:1
2:1
775.1
To be constructed under Imp. No. CUY 80-0.00
℄
8:1
Match Line
769.89
780
770
150 160
2:1

789.39
198+00
780.2

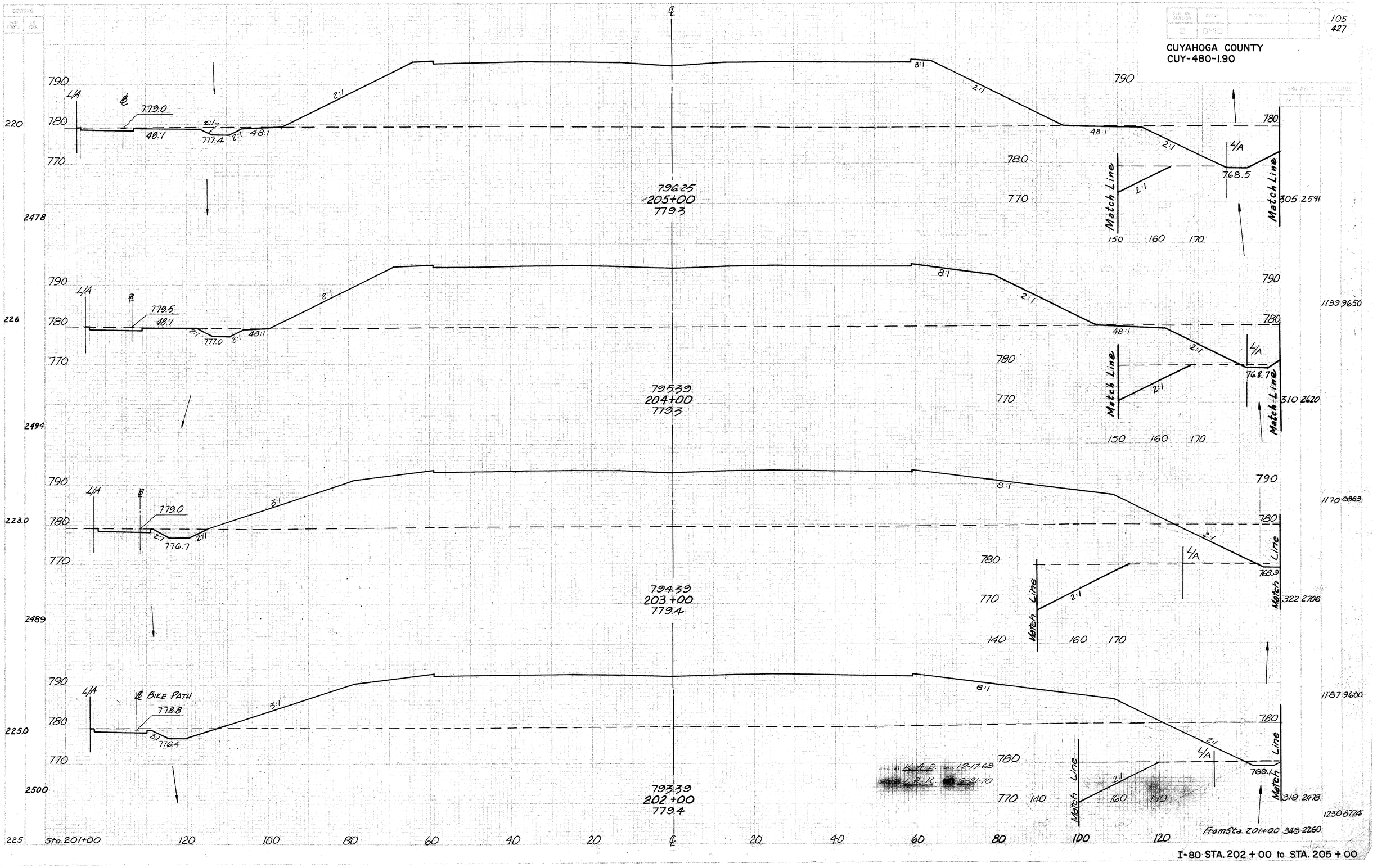
12-16-68
8-21-70

120 100 80 60 40 20 20 40 60 80 100 120

I-80 STA. 198 + 00 to STA. 201 + 00

105
427

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 202 + 00 to STA. 205 + 00

106
427

CUYAHOGA COUNTY
CUY-480-1.90

190
0

790
780
770
FWD
BACK
L/A
℄
777.8
2:1
48:1
776.5
2:1
48:1
2:1
Bldg.
Bldg.
Bldg.
2:1
48:1
790
L/A
170' Rt.
780
2:1
2:1
767.7

796.89
209+00
778.4

Fwd 316 2812
Back 0 0

Begin ditch Sta. 208+50
Ele. 276.70

2734 Misc. Quantity Mackenzie Rd.
to Sta. 209+00 I-80

Structure No. Cuy-80-0203
See Site Plan Sheet No. 328

790
780
770
L/A
℄
777.2

L/A
163' Rt.
Add for
Struc. (East)
790
780
770

111 7136

797.15
208+00
777.4

Add for
Struc. (West)

34 3869

1520 Misc. Quantity Sta. 207+00 I-80
to Mackenzie Rd.

0
181

790
780
770
L/A
℄
777.8
777.7
48:1
2:1

L/A
167' Rt.
790
780
770
2:1
84" Concrete
Culvert
For Detail
See Sheet
No. 95

Fwd 0 0
Back 240 2842

797.13
207+00
779.6

2050

℄ BIKE PATH
790
780
770
L/A
779.0
2:1
48:1
777.6
2:1
48:1
2:1

188

L/A
172' Rt.
790
780
770
48:1
2:1
2:1
768.3

1020 10182

2267

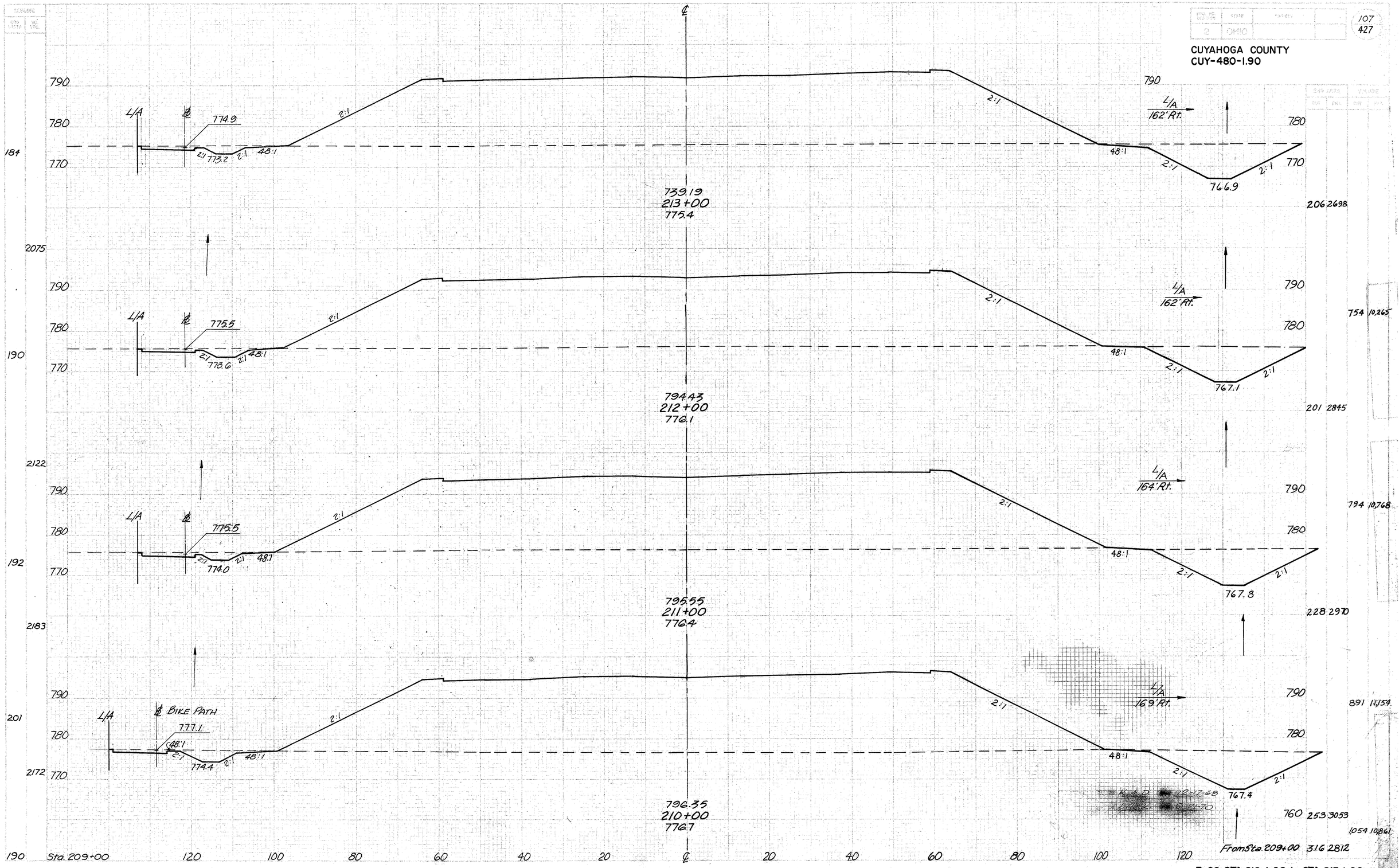
796.83
206+00
779.5

311 2643
1141 9692

220 Sta. 205+00
120 100 80 60 40 20 ℄ 20 40 60 80 100 120
180
From 205+00 305 2591

I-80 STA. 206+00 to STA. 209+00

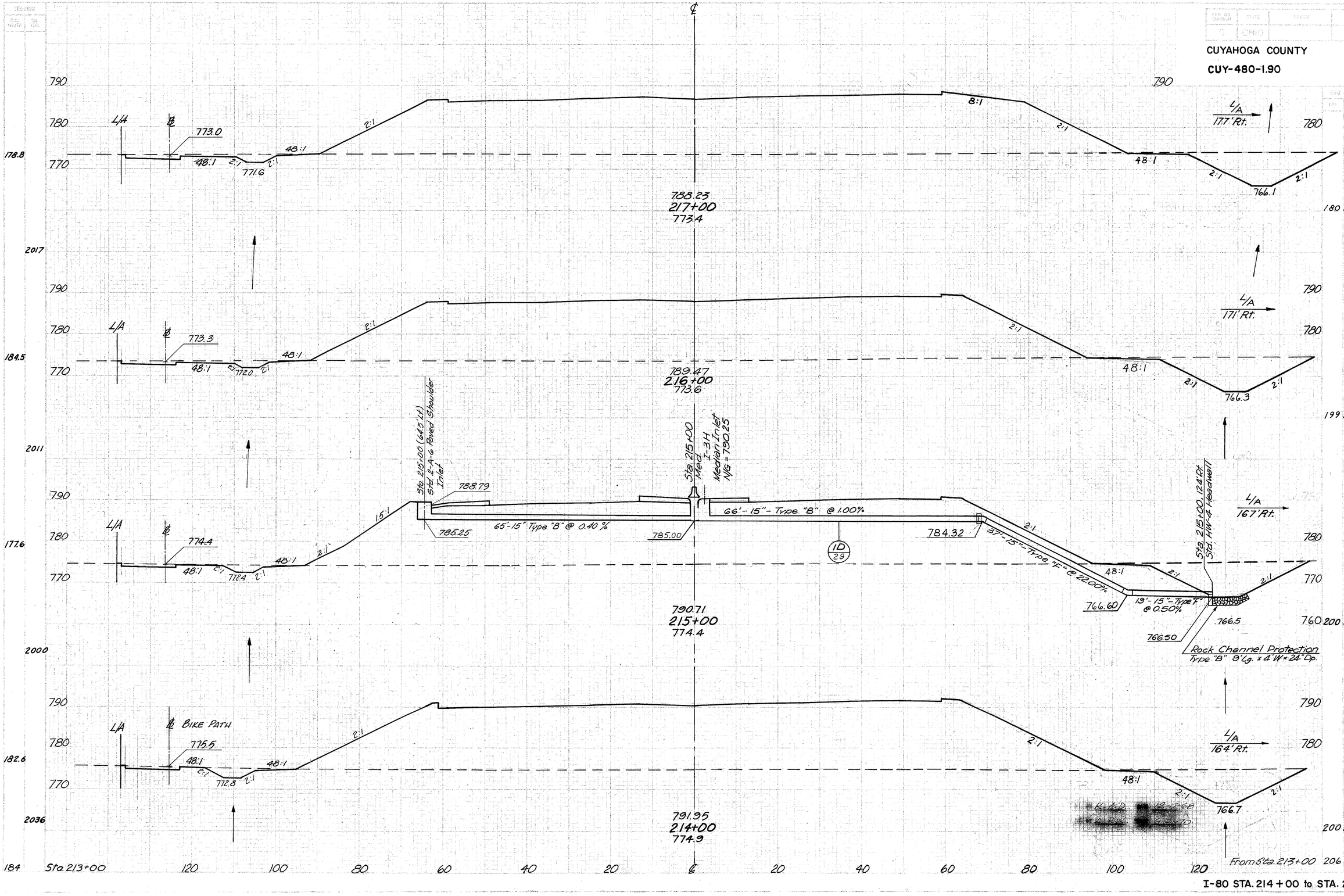
CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 210 + 00 to STA. 213 + 00

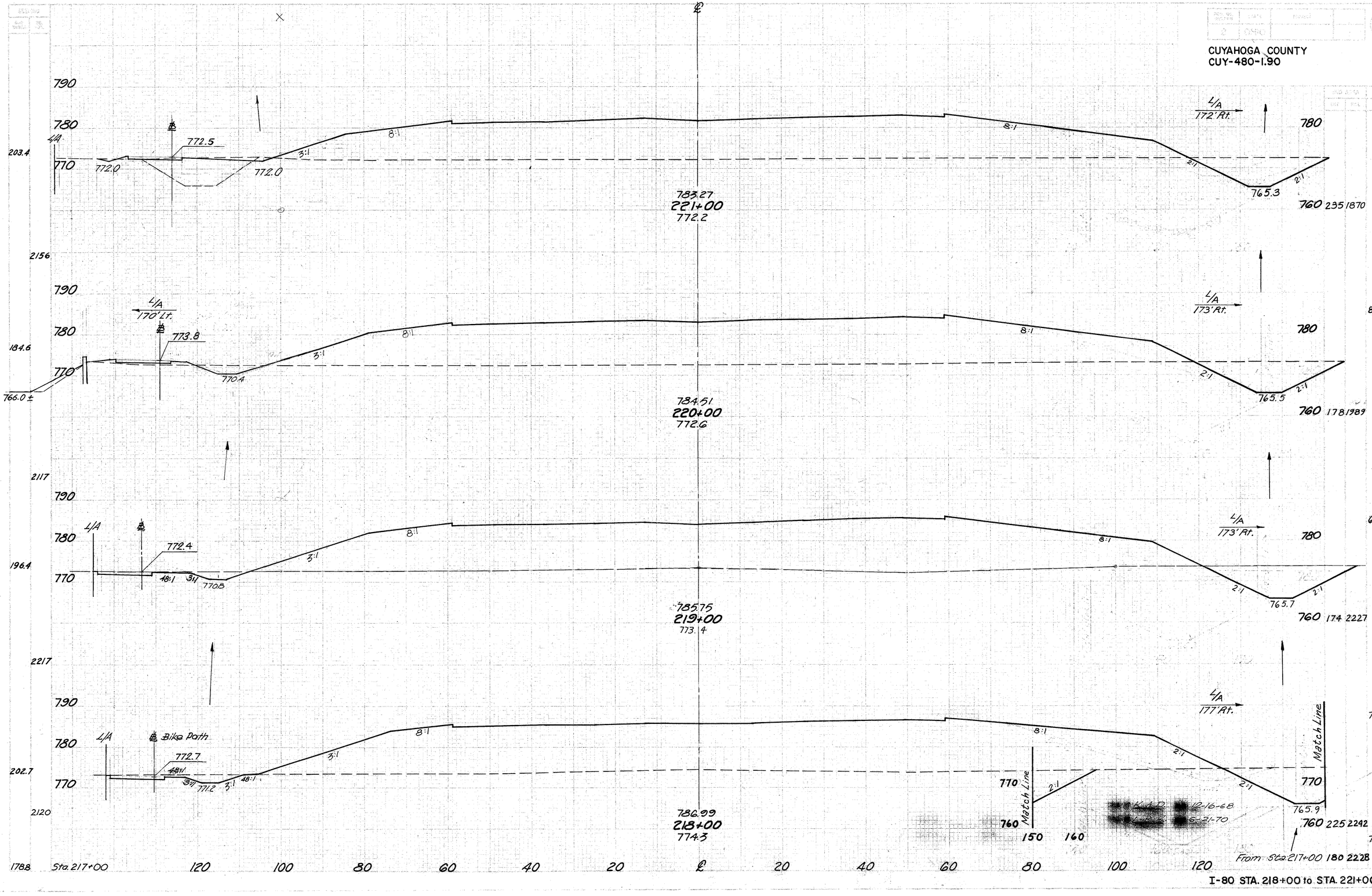
CUYAHOGA COUNTY

CUY-480-1.90



I-80 STA. 214 + 00 to STA. 217 + 00

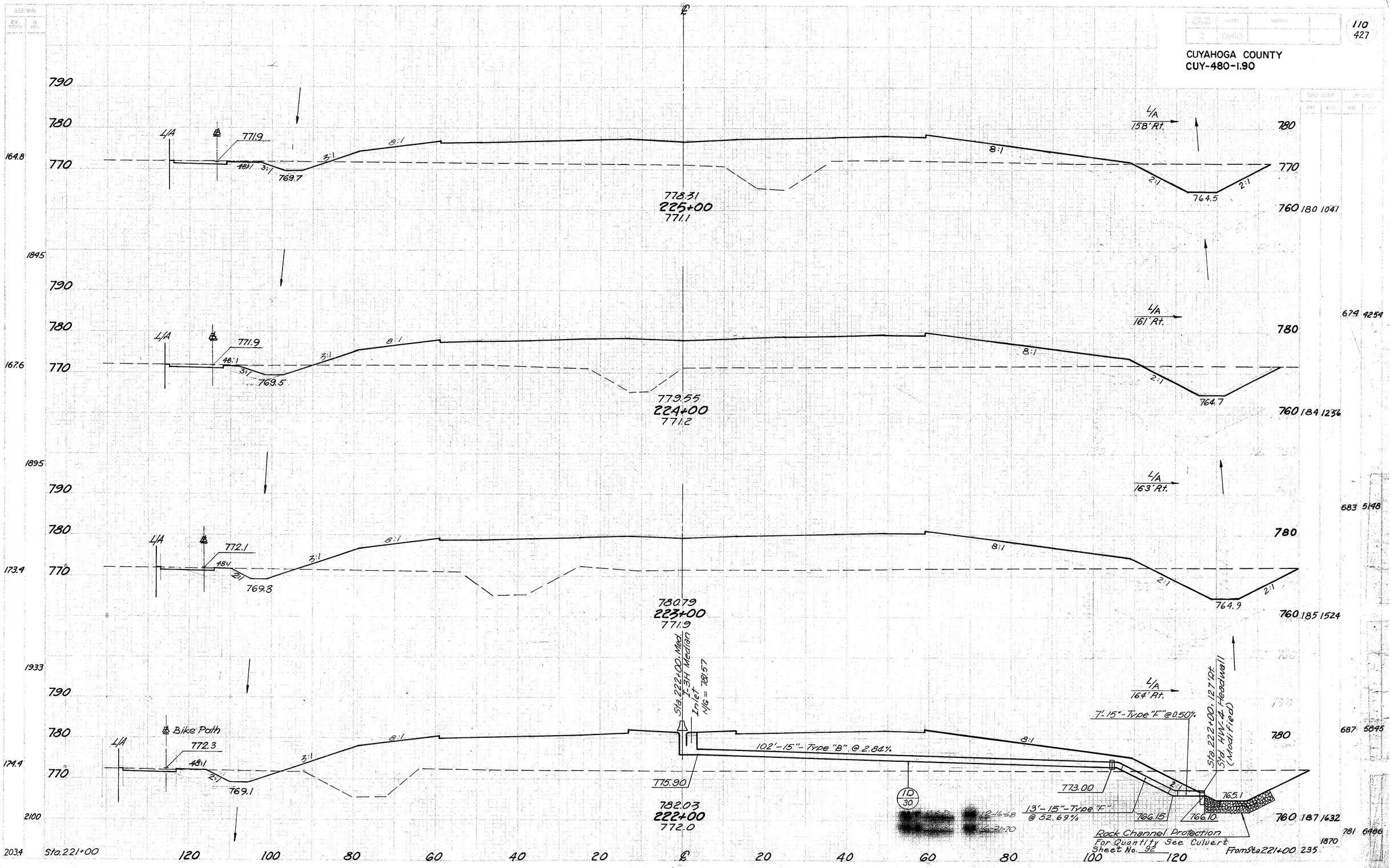
CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 218+00 to STA. 221+00

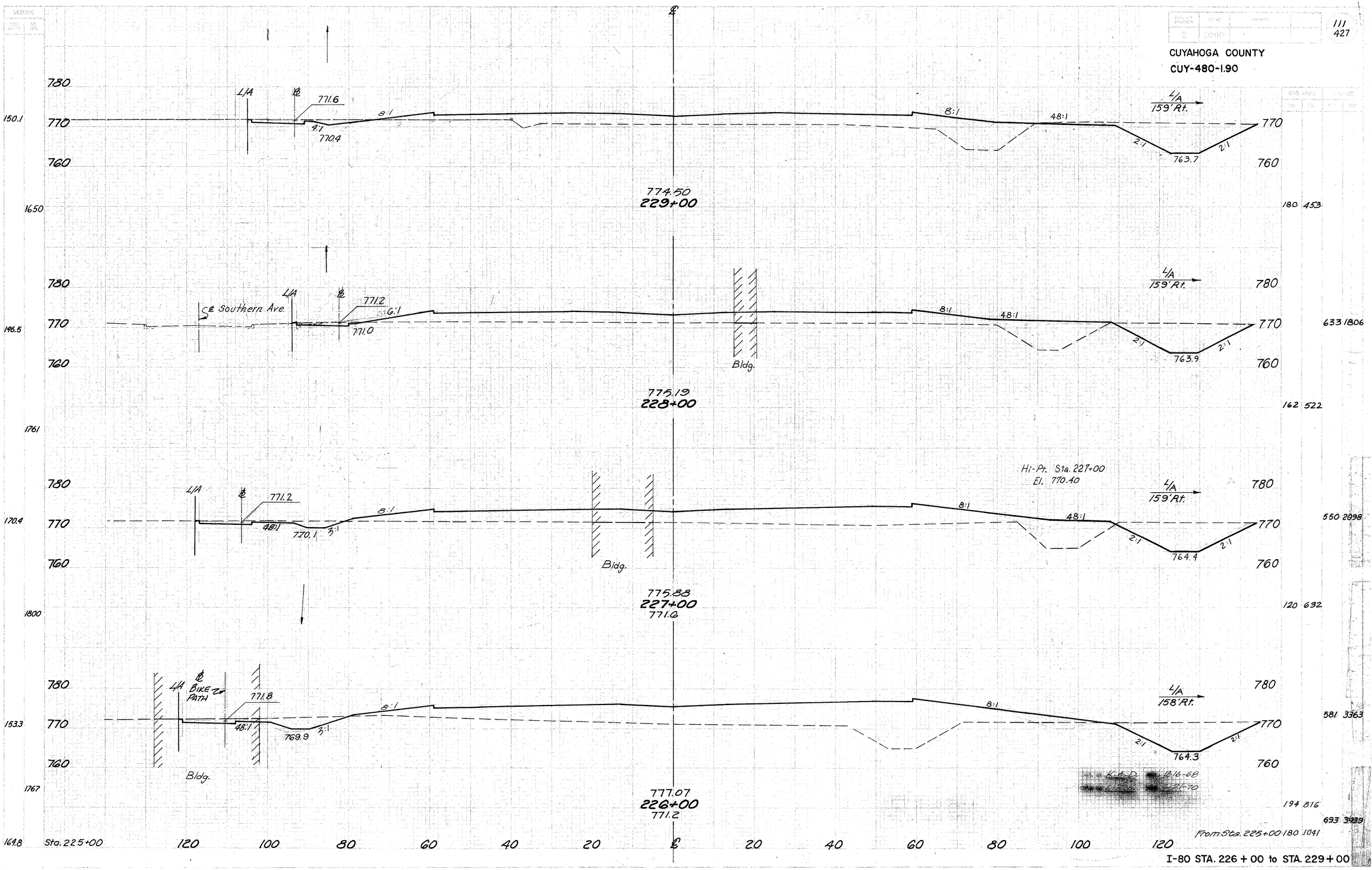
110
427

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 222 + 00 to STA. 225 + 00

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 226 + 00 to STA. 229 + 00

CUYAHOGA COUNTY
CUY-480-1.90

Outlet Ditch
to Spec. Channel
Sta. 233+50
Ele. 762.72

Sta. 233+00, 92' Lt.
Std. No. 2-2B CB
T/G 768.20

780
770
760
163.4
1733

L/A
℄
770.1
4:1
48:1
3:1
8:1
Inv. 764.94

770.09
233+00
770.0

8:1
48:1
2:1
762.9
2:1
L/A
167' Rt.

780
770
760
251 815

780
770
760
1484

L/A
℄
770.4
4:1
2:1
768.9
8:1

8:1
48:1
2:1
763.1
2:1
L/A
165' Rt.

780
770
760
796 2713

775.18
232+00
770.5
1650

780
770
760
148.5

L/A
℄
770.0
6:1
3:1
769.2
8:1

8:1
48:1
2:1
763.2
2:1
L/A
159' Rt.

780
770
760
659 2178

774.58
231+00
770.2
1656

780
770
760
149.7

L/A
℄ BIKE PATH
772.0
4:1
3:1
770.1
8:1

8:1
48:1
2:1
763.5
2:1
L/A
159' Rt.

780
760
735 1783

774.36
230+00
1667

220 437
791 1648

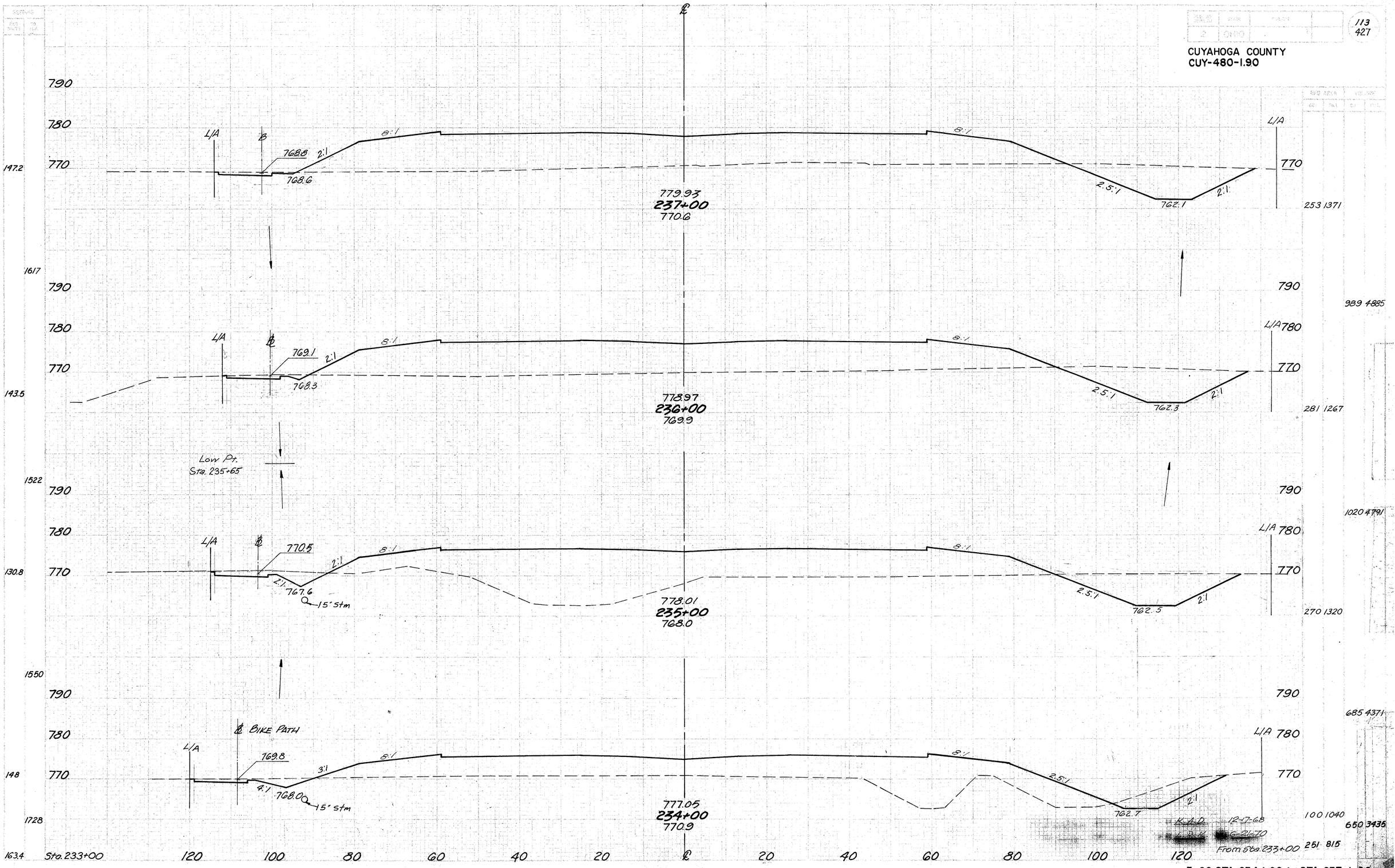
150.1 Sta. 229+00 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

From Sta. 229+00 180 453

I-80 STA. 230+00 to STA. 233+00

CUYAHOGA COUNTY
CUY-480-1.90

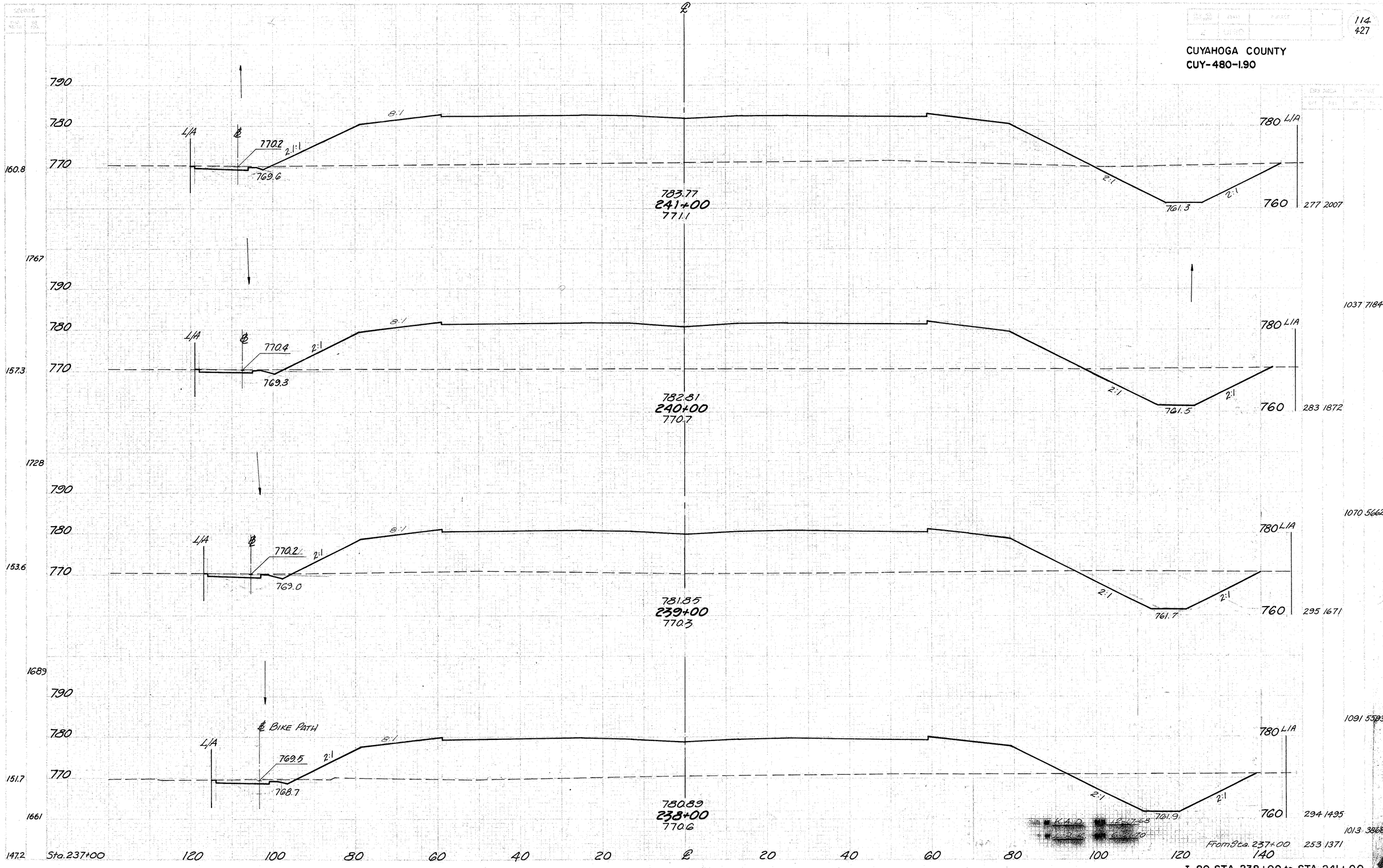
113
427



I-80 STA. 234 + 00 to STA. 237 + 00

114
427

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 238+00 to STA. 241+00

115
427

CUYAHOGA COUNTY
CUY-480-1.90

173.0
790
780
770
L/A
℄
770.4
768.6
Sta. 244+50 (Rt) 6.45 ft
Std. No 2-A-6 Paved Std. Inlet
N/G 786.15
Sta. 244+50 LM Ft
Std. No 2-B-0.8 Over Exist. 30" Sewer
TG 769.20
2:1
8:1
1.5:1
4D/32
782.72
780
770
40'-15" Type "F" @ 55.0 %
764.02
Inv. 764.00
4'-15" Type "F" @ 0.50%
787.53
245+00
771.1
786.28
782.75
Sta. 245+00 (645 Rt)
Std. No 2-A-6 Paved Median Inlet
50'-15" Type "F" @ 42 ± %
Sta. 245+00 (119 Rt)
Std. HW-4 Headwall
761.60
761.65
760.5
9'-15" Type "F" @ 0.50 %
Rock Channel Protection Type "B" 4 W x 15' L x 24" Dp.
780
760 323 2412

1906
790
780
770
L/A
℄
770.7
770.0
15" stm
170.1
710
2:1
8:1
786.65
244+00
770.0
760.7
760 365 2583
1274 9251

1856
790
780
770
L/A
℄
771.0
4:1
770.0
15" stm
1642
785.69
243+00
771.2
760.9
760 252 2424
617 9272

1808
790
780
770
L/A
℄ BIKE PATH
768.4
1789
1613
Sta. 242+00 10.5 ft
Std. No 2-2B-0.36
TG 768.30
784.73
242+00
769.2
761.1
760 273 2380
972 10784
1019 8124
160.8
Sta. 241+00
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140
From Sta. 241+00 277 2007

I-80 STA. 242+00 to STA. 245+00

116
427

CUYAHOGA COUNTY
CUY-480-1.90

Misc. Quantities Sta. 249+00
To 250+00 I-480 (Fitch Rd Area)

23183 | 0 Fwd 2036 Back

790
780
770
760

℄ 770.0 | L/A | 24:1 | 2:1 | 3:1 | 767.0 | 2:1

789.38
249+00
770.4

2:1 | 24:1 | 2:1 | 759.7 | Match Line

Fwd 0 0
Back 449 2781

2283 | 201.5

℄ 770.2 | L/A | 25:1 | 767.4 | 2:1

789.16
248+00
770.5

2:1 | 24:1 | 2:1 | 759.9 | Match Line

395 2367

2139 | 183.2

℄ 770.2 | L/A | 3:1 | 767.8 | 2:1

788.78
247+00
770.6

2:1 | 24:1 | 2:1 | 760.1 | Match Line

301 2737

2122 | 199.2 | 2067

℄ BIKE PATH | ℄ 770.4 | L/A | 4:1 | 768.2 | 2:1

788.24
246+00
771.1

2:2:1 | 24:1 | 2:1 | 760.3 | Match Line

348 2645

From Sta. 245+00 323 2412

Match Line: 140 | 160 | 780 | 770 | 760 | L/A

1563 10459
1400 10378
1331 9936
1428 9325

173 Sta. 245+00 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

I-80 STA. 246+00 to STA. 249+00

CUYAHOGA COUNTY
CUY-480-1.90

790
780
770

1625 Fwd
0 Back

L/A
℄
770.6
3:1
2:1
48:1
767.5
Bldg.
2:1

788.58
253+00
768.3

2:1
48:1
2:1
765.00
2:1
L/A
780
770
Fwd. 49 3200
Back 0 0

790
780
770
L/A
L/A
152' Lt.
Bldg.
789.03
252+00

2:1
48:1
2:1
759.06
L/A
202' Rt.
Add for
Structure (East)
Misc. Channel
Excavation
East Side
770
760
2:1
17 17180
813 1260
0 0

Structure No. Cuy.-80-0286
See Site Plan Sheet No. 228

790
780
770
L/A
157' Lt.
789.31
251+00
770.0
L/A
187' Rt.
Bldg.
0 0
0 0

8374 Misc. Quantity Sta. 250+00
To 253+00 I-80 (Fitch Rd Area)

Add for
Structure (West)
Misc Channel
Excavation West Side
350 11503
719 556

790
780
770
L/A
℄ BIKE PATH
769.5
48:1
2:1
766.6
2:1
Bldg.
789.43
250+00
769.7
L/A
0 0
0 0
From Sta. 249+00 0 0

120 100 80 60 40 20 ℄ 20 40 60 80 100 120

I-80 STA. 250+00 to STA. 253+00

SEEDING

FED. ROAD DIV. NO.	STATE	COUNTY	
2	OHIO		

118
427

CUYAHOGA COUNTY
CUY-480-1.90

EXC. AREA | EMBANK
CU. YDS. | CU. YDS.

1524 | 1711 | 1557 | 1717 | 1536 | 1706 | 1530 | 1753 | 1625

790 / 780 / 770 / 760

L/A — ℄ — 770.3 — 48:1 — 160.5 — 3:1 — 8:1 — 2:1 — 8:1 — 3:1 — 769.0 3:1 — L/A

785.13
257+00
770.6

16 2475

59 9553

L/A — ℄ — 770.0 — 3:1 — 48:1 — 769.0 — 3:1 — 8:1 — 2:7:1 — 3:1 — 768.2 3:1 — L/A

786.24
256+00
770.3

16 2684

72 9768

L/A — ℄ — 770.0 — 48:1 — 3:1 — 768.5 — 2:1 — 4:1 — 2:1 — 2:1 — 766.1 2:1 — L/A

787.18
255+00
769.8

23 2591

93 10239

L/A — ℄ BIKE PATH — 769.6 — 3:1 — 768.0 — 2:1 — 2:1 — 2:1 — 765.8 2:1 — L/A

787.96
254+00
769.0

27 2938

141 11367

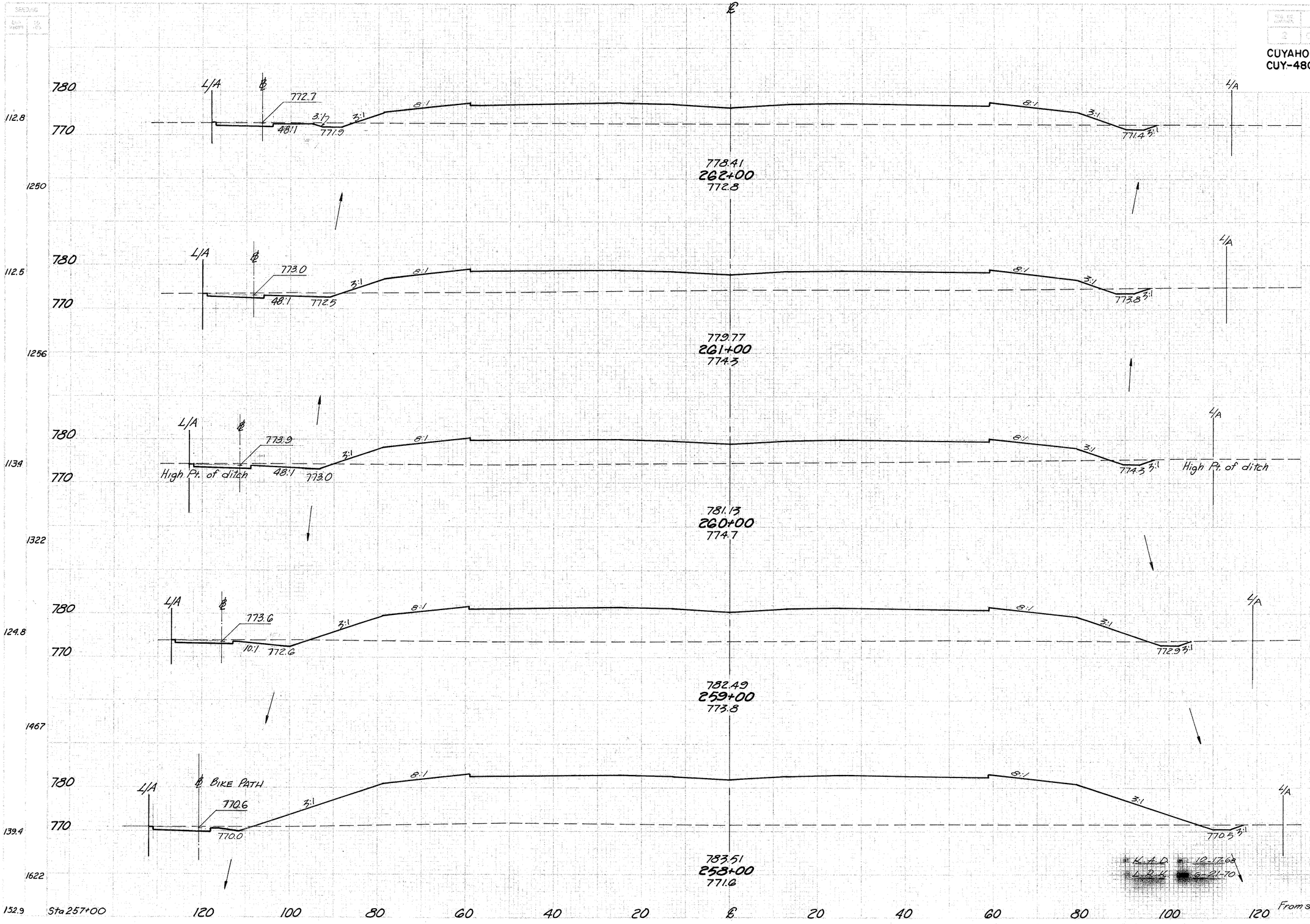
From sta. 253+00 49 3200

Sta. 253+00 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

K.A.O. 12-17-68
K.R.K. 6-21-70

I-80 STA. 254+00 to STA. 257+00

CUYAHOGA COUNTY
CUY-480-1.90



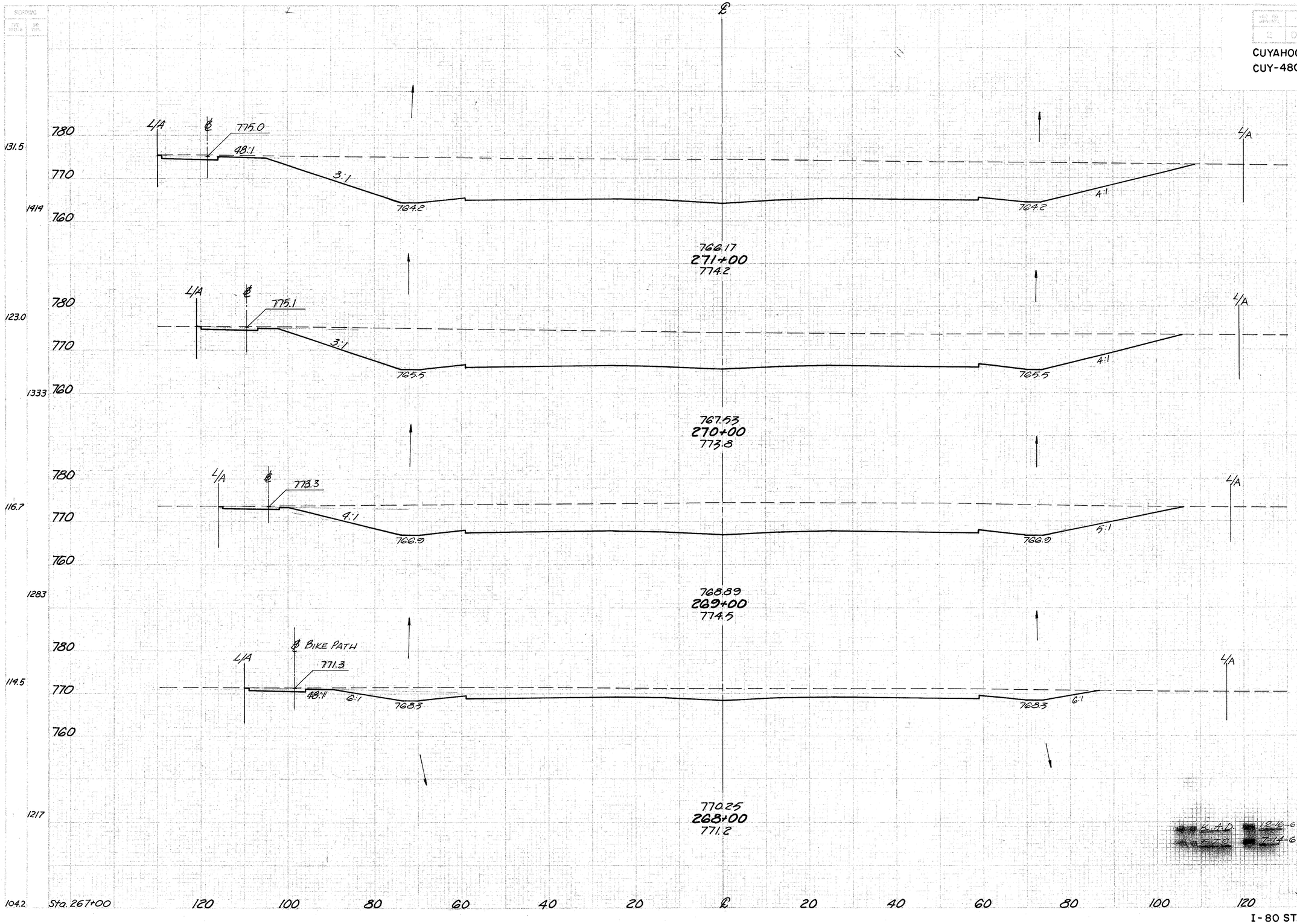
I-80 STA. 258+00 to STA. 262+00

120
427

CUYAHOGA COUNTY
CUY-480-1.90

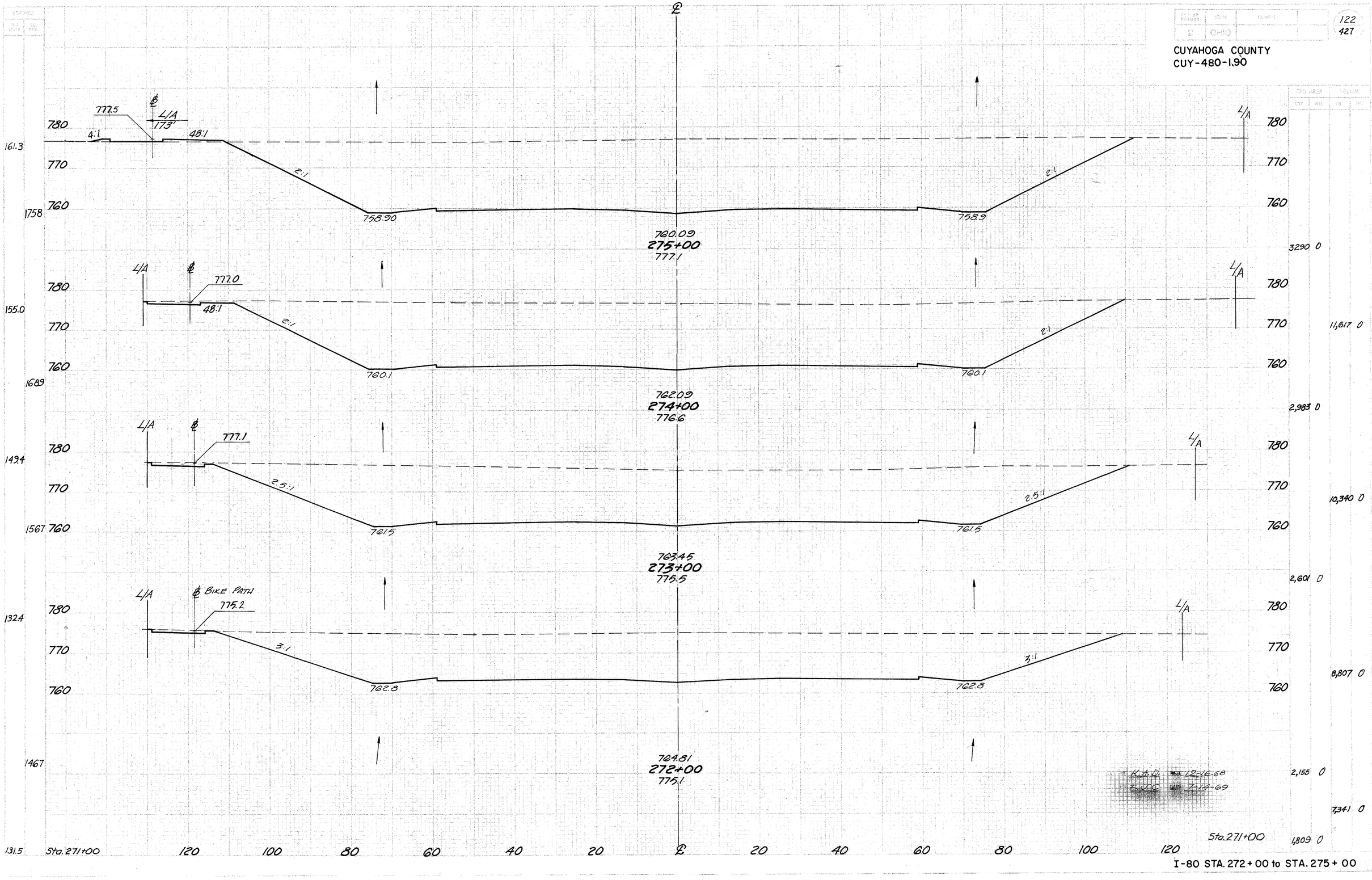
I-80 STA. 263+00 to STA. 267+00

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 268+00 to STA. 271+00

CUYAHOGA COUNTY
CUY-480-1.90



K.H.D. 12-16-68
T.J.C. 7-12-69

I-80 STA. 272 + 00 to STA. 275 + 00

123
427

CUYAHOGA COUNTY
CUY-480-1.90

147.5 780 770 1,756 760

L/A ℄ 779.2 — 19:1 — Sta 279+00, 73' Lt., I-480 Std. No. 5A C.B. T/G = 757.33 — 8:1 — 73'-33" Type "B" @ 0.66 % — 6"U.D. Outlet 753.00 — 752.60 — 10D/35 — 752.16 — 753.25 15" W — 11D/35 — 71'-33" Type "B" @ 2.50 % — 8:1 — Sta 279+00, Med., I-480 No. E-3H C.B. Median Inlet T/G = 759.17 — Sta 279+00, 73' Rt., I-480 Std. No. 5-A. C.B. T/G = 757.38 — 750.28 — 749.53 42" W — 748.53 54" E — 750.90 — 6" U.D. Outlet 753.00 — 10'-15" Type "C" 706.02 with Class "C" Bedding @ 0.60% — 2:1 — 36'-15" Type "F" 707.04 @ 43.00% — 10/49 — 766.43 — X-X — Match Line See Sheet No. 49 — L/A — 780 770 760 — 4,145 0

1684 780 770 760

L/A ℄ 779.2 — 2:1 — 12:1 — 757.7 — 759.43 278+00 — 12:1 — 757.7 — 42" Stm. — 2:1 — 279+00 — L/A — 780 770 760 — 15,235 0

1895

750 ℄ BIKE PATH

L/A 781.8 — 2½V — 2:1 — 2:1 — 757.9 — 12:1 — 759.52 277+00 — 12:1 — 757.9 — 2:1 — L/A — 780 770 760 — 14,945 0

172.8 1,817

750

-837 deduct for crushed aggregate

154.3 L/A 260' Lt. — 2:1 — 8:1 — 758.1 — 760.06 276+00 — 8:1 — 758.1 — 2:1 — L/A — 780 770 760 — 14,404 0

1756

R.I.D. 12-16-68
R.O.C. 12-16-69

3,988 0 — 3,790 0 — 13,111 0 — 3,290 0

161.3 Sta. 275+00 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 Sta. 275+00

I-80 STA. 276+00 to STA. 279+00

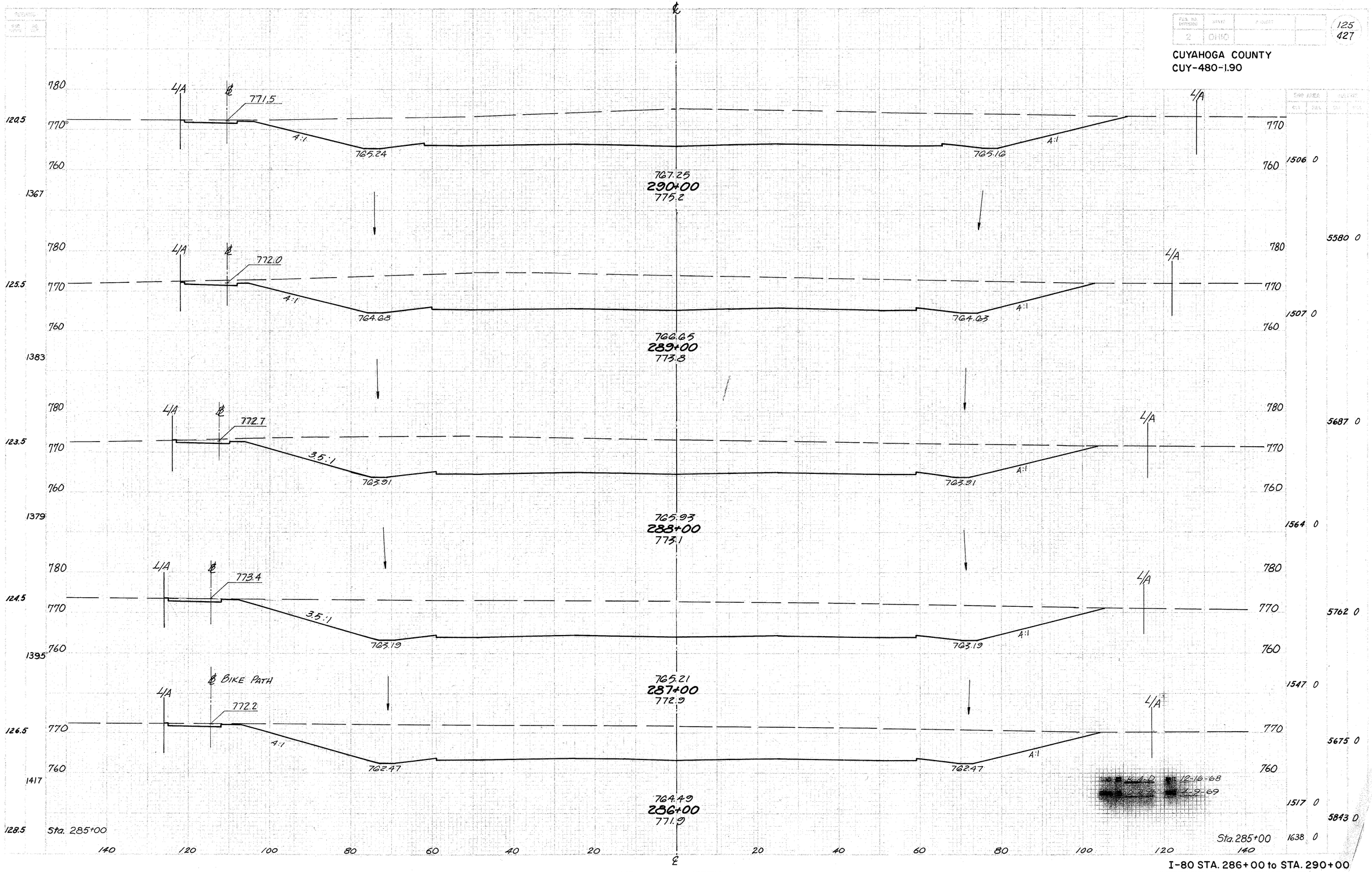
2	OHIO		

124
427

CUYAHOGA COUNTY
CUY-480-1.90

I-80 STA.280+00 to STA. 285+00

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 286+00 to STA. 290+00

REVISIONS | DATE | PROJECT
2 OHIO
126
427

CUYAHOGA COUNTY
CUY-480-1.90

END AREA | VOLUME
CUT | FILL | CUT | FILL

℄

780
770
760
750

L/A ℄ 771.2 — 4:1 — 763.0 — 765.1 — 4:1 — L/A

117 | 1292 | 767.19 | 294+00 | 768.6 | 770 | 760 | 1006.0

L/A ℄ 770.1 — 5:1 — 765.4 — 765.5 — 4:1 — L/A

115.5 | 1264 | 767.57 | 293+00 | 773.0 | 780 | 770 | 760 | 750 | 3993.0 | 1150.0

L/A ℄ 769.9 — 5:1 — 765.6 — 765.6 — 4:1 — L/A

112 | 1275 | 767.71 | 292+00 | 773.3 | 780 | 770 | 760 | 750 | 4450.0 | 1253.0

High Point 292+00 — High Point 292+00

L/A ℄ BIKE PATH 770.7 — 48:1 — 5:1 — 765.5 — 765.5 — 4:1 — L/A

117.5 | 1322 | 767.60 | 291+00 | 772.0 | 780 | 770 | 760 | 750 | 4463.0 | 1157.0

K.A.D. 12-17-68
L.L. 4-9-69

120.5 Sta. 290+00 — Sta. 290+00 1506.0 — 4932.0

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

I-80 STA. 291+00 to STA. 294+00

CUYAHOGA COUNTY
CUY-480-1.90

END AREA | VOLUME
CUT | FILL | CUT | FILL

96 889 — 64 Fwd / Back 148 — 1489 — 120 — 1356 — 124 — 1342 — 1175 — 1303 — 117

L/A 780 / 770 / 760 — ℄ 774.3 — 48:1 — 2:1 — 8:1 — 759.8 — 8:1 — L/A 245' Rt — Match Line Ramp "A"

762.09
299+00
775.0

770 — 2709 0

L/A 780 / 770 / 760 — ℄ 774.1 — 48:1 — 2:1 — 8:1 — 761.0 — Ramp "A" — Match Line — 8:1 — 8:1 — 761.3 — L/A 195' Rt — ℄ Ramp "A" — 3.5:1 — 760.0 — 770 — 3100 0

763.33
298+00
774.7

Fwd. 2205 0
Back 3086 0

L/A 780 / 770 / 760 — ℄ 774.5 — 48:1 — 2:1 — 8:1 — 762.3 — 8:1 — 761.6 — 4:1 — L/A 156' Rt. — 770 — 3881 0

764.57
297+00
772.3

2250 0

L/A 780 / 770 / 760 — ℄ 774.7 — 48:1 — 2:1 — 8:1 — 763.4 — 8:1 — 762.9 — 4:1 — L/A 780 / 770 / 760 — 6971 0

765.69
296+00
770.7

1514 0

L/A 770 / 760 — ℄ BIKE PATH 772.0 — 48:1 — 3:1 — 8:1 — 764.4 — 8:1 — 764.1 — 4:1 — L/A — 770 — 4839 0

12-17-68
4-1-69

766.56
295+00
770.3

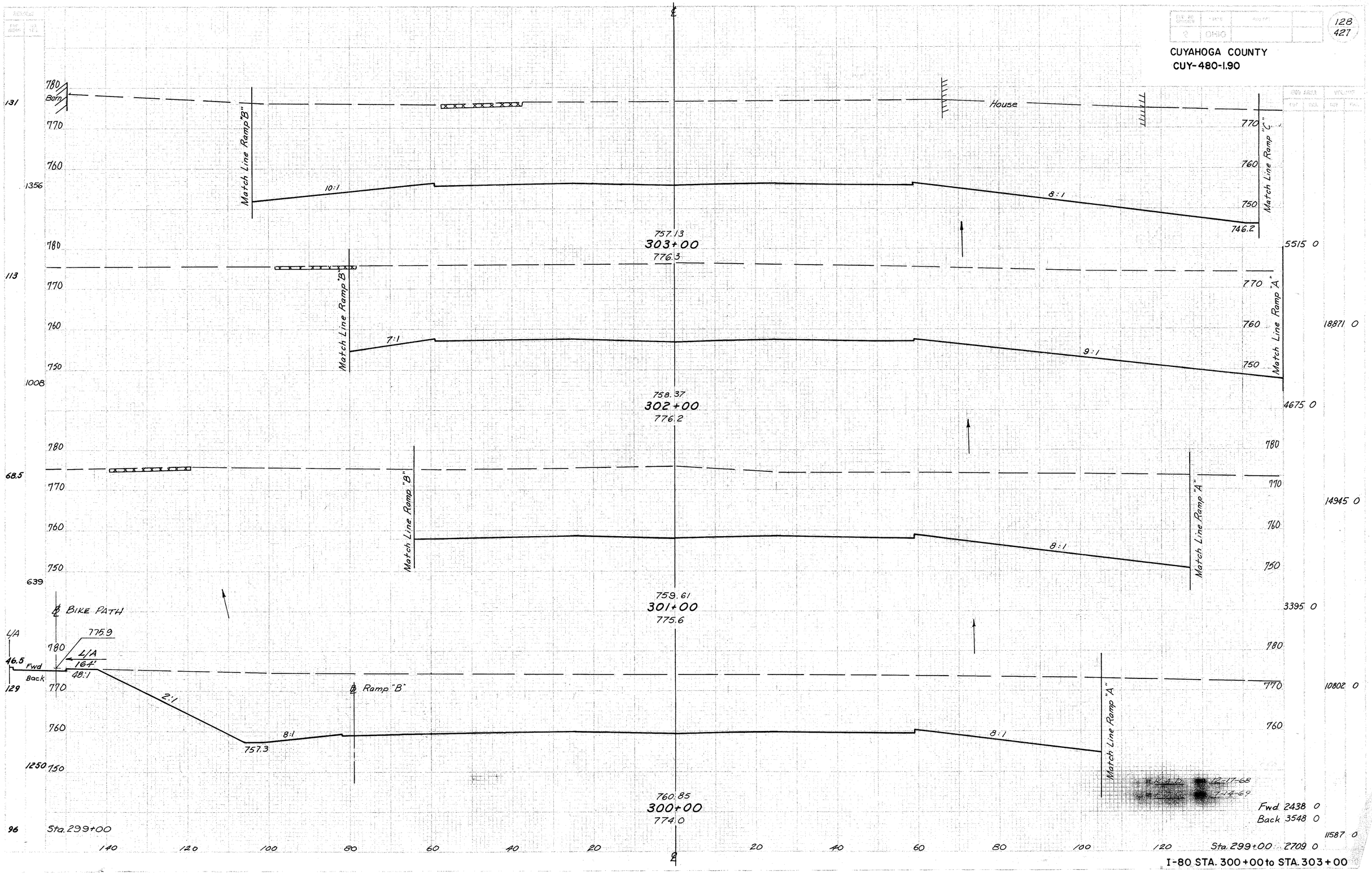
1099 0
3898 0

Sta. 294+00 — 1006 0

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 Sta. 294+00

I-80 STA. 295+00 to STA. 299+00

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 300+00 to STA. 303+00

CUYAHOGA COUNTY
CUY-480-1.90

END AREA VOLUME

780
770
760
750

134.5
159.5 Fwd.
95.5 Back
1633
1156
112.5
1281
118
1383
131

Match Line Ramp "D"
746.2
12:1
752.17
307+00
774.7
℄ Ramp "C"
9.7:1
749.2
770
760
750
Match Line
6140 0

Match Line
745.1
12:1
753.41
306+00
775.8
℄ Ramp "C"
8.7:1
749.6
24190 0

Fwd. 6922 0
Back 4637 0

Match Line Ramp "B"
11:1
754.65
305+00
775.8
7:1
752.1
Match Line Ramp "C"
18248 0

5217 0

Match Line Ramp "B"
10:1
755.89
304+00
775.8
8:1
749.8
Match Line Ramp "C"
19267 0

5187 0

19819 0

Sta. 303+00

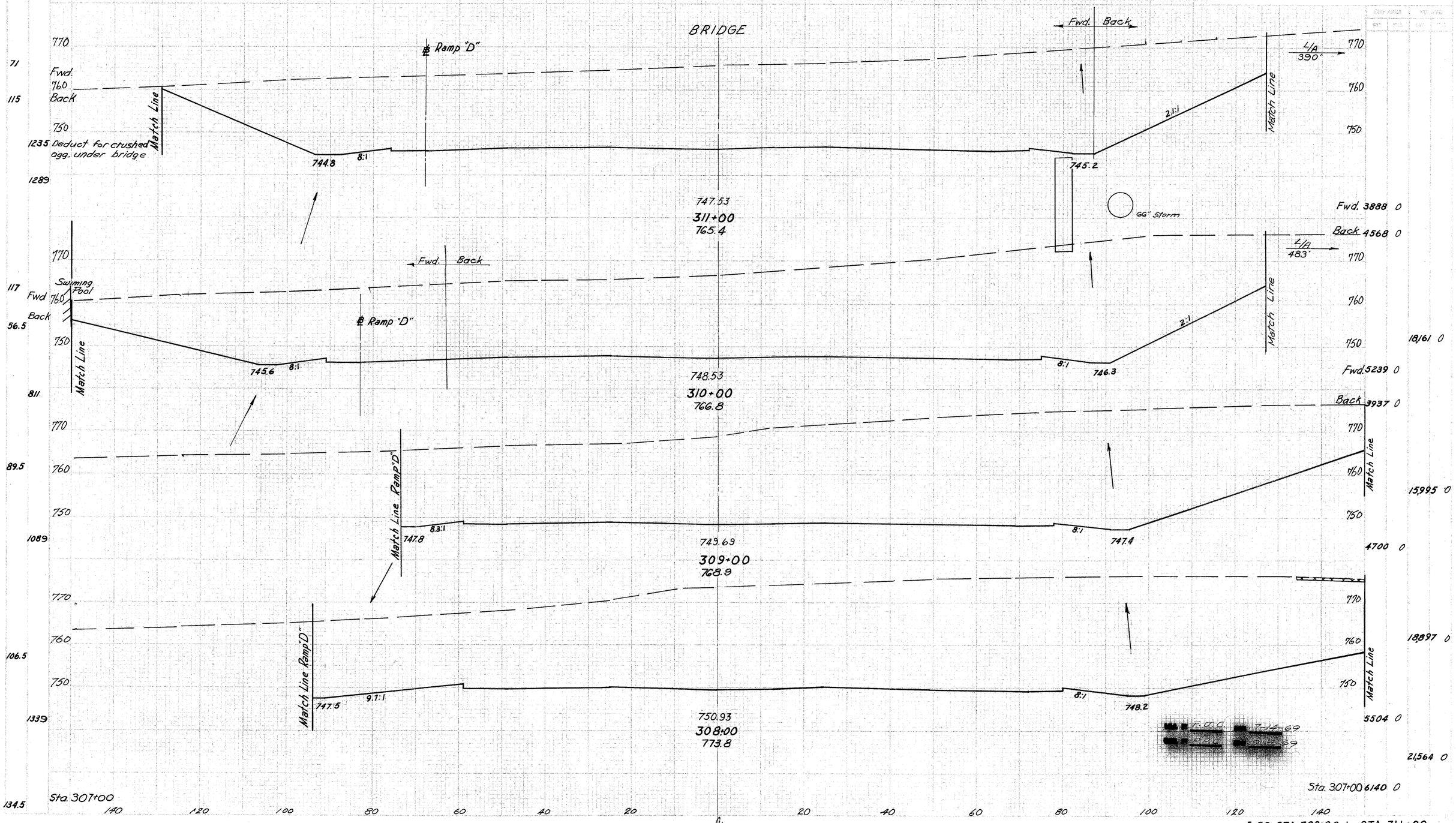
140 120 100 80 60 40 20 20 40 60 80 100 120

Sta. 303+00 5515 0

BY K.A.D. DATE 12-17-68
CK BY D.E.M. DATE 1-7-69

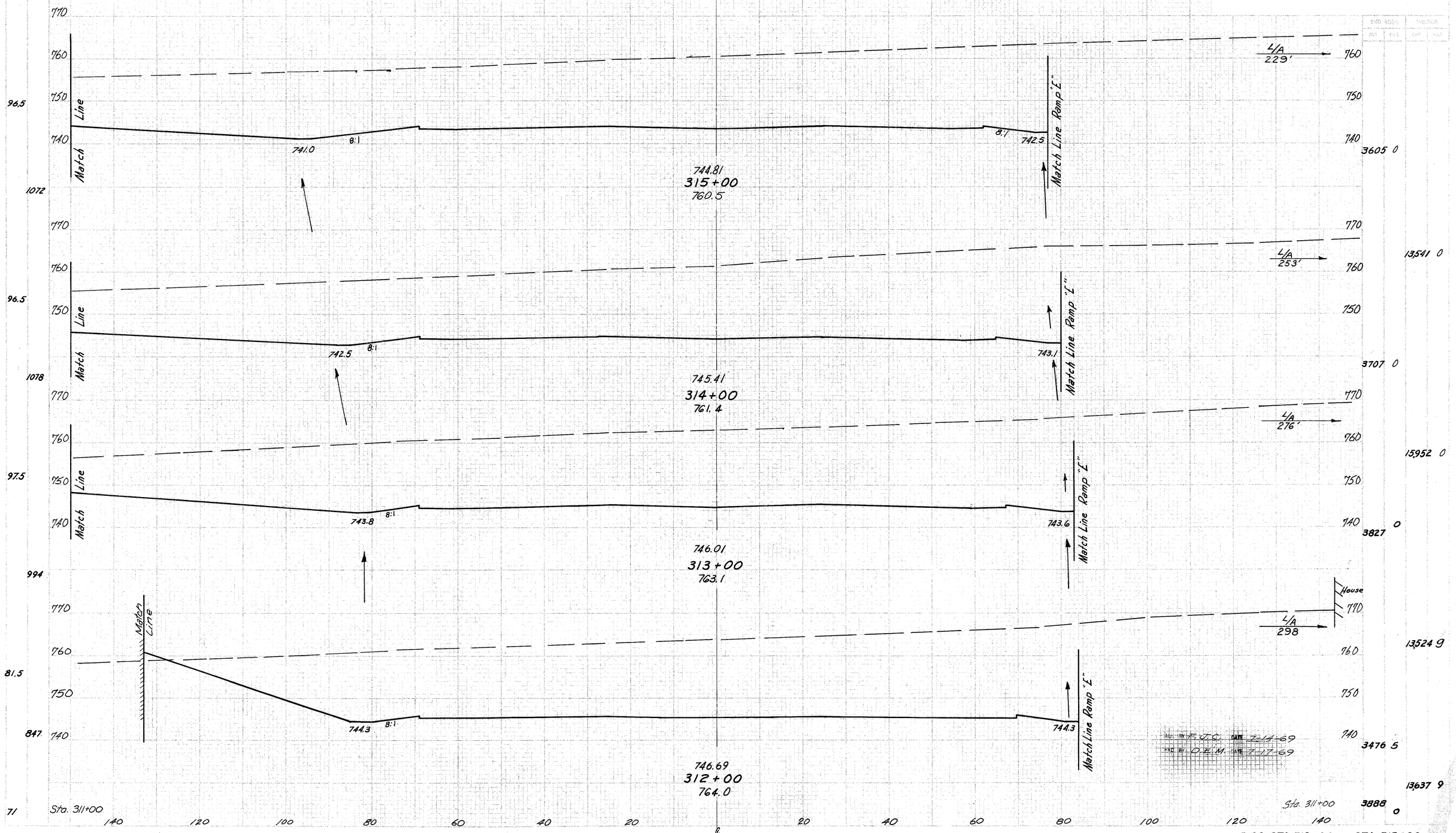
I-80 STA. 304+00 to STA. 307+00

CUYAHOGA COUNTY
CUY-480-1.90



I-80 STA. 308+00 to STA. 311+00

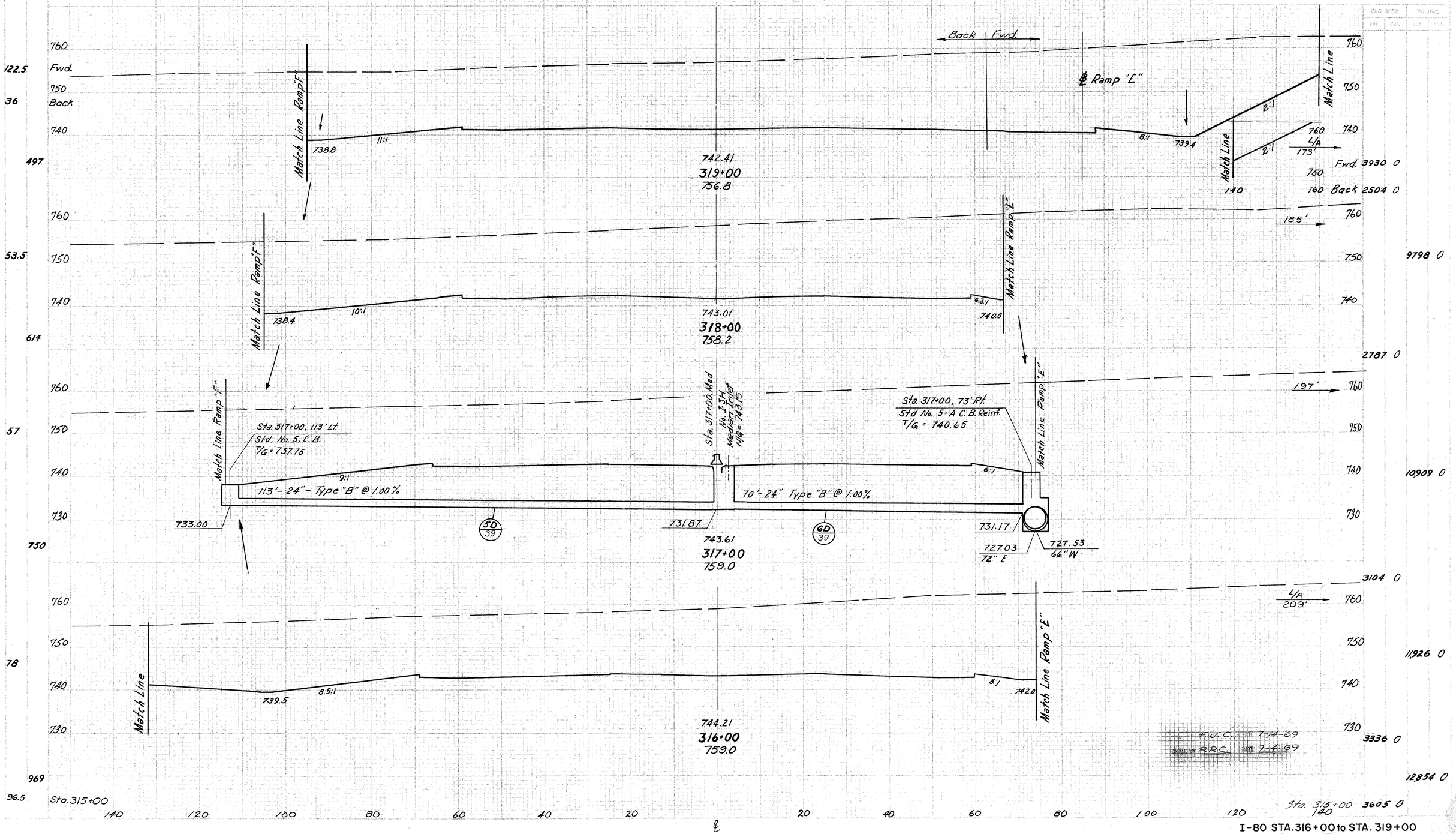
CUYAHOGA COUNTY
CUY-480-1.90



DRAWN BY T.J.C. DATE 7-14-69
TRACED BY D.E.M. DATE 7-17-69

I-80 STA. 312+00 to STA. 315+00

CUYAHOGA COUNTY
CUY-480-1.90



F.H.C. 7-14-69
P.P.C. 9-4-69

I-80 STA. 316+00 to STA. 319+00

CUYAHOGA COUNTY
CUY-480-1.90

℄A 159' Lt.
℄A 161' Rt.
℄A 177' Lt.
℄A 196' Lt.
℄A 154'
℄A 158'

℄ Ramp "F"
℄ Ramp "E"
Match Line Ramp "F"
Match Line
Fwd.
Back

760
750
740
730

137.5
1586
158
1844
174 Fwd
95 Back
1136
109.5
1289
122.5

2:1

737.5
737.7
737.9
739.1
739.4
739.5
738.2
738.6
739.0
737.8

740.01
323+00
759.3

740.61
322+00
754.6

741.21
321+00
755.3

741.81
320+00
756.4

3943 O
14,253 O
3748 O
16,202 O
5001 O
15,841 O
3553 O
13,857 O
3930 O

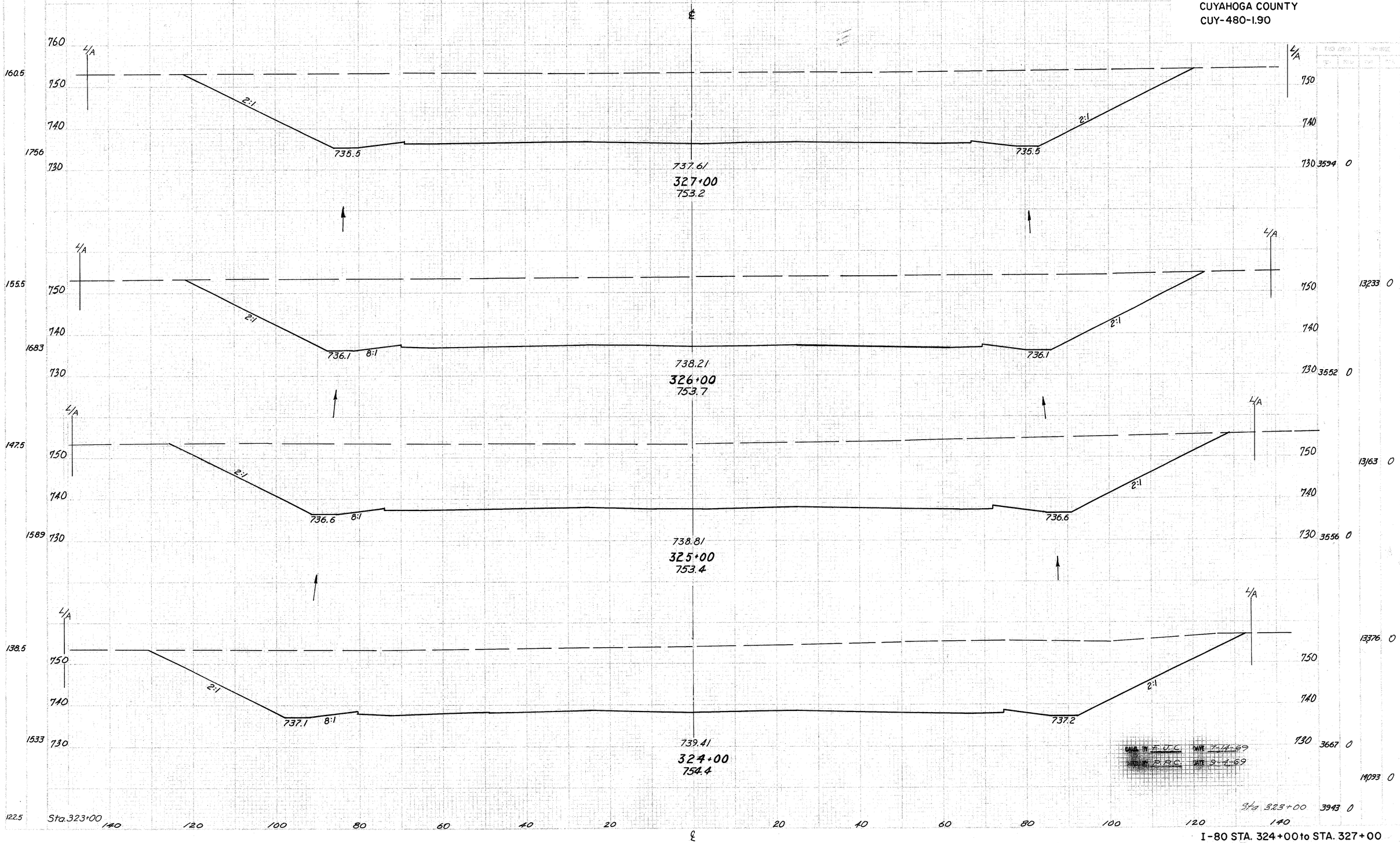
CALC. BY E.J.C. DATE 7-14-69
CHKD. BY R.P.C. DATE 9-4-69

Sta. 319+00 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140 Sta. 319+00

I-80 STA. 320+00 to STA. 323+00

REV. NO. ON SHEET	STATE	PROJECT		134
2	OHIO			427

CUYAHOGA COUNTY
CUY-480-1.90



CHKD. BY F.U.C. DATE 7-14-69
RECD. BY P.B.C. DATE 9-4-69

I-80 STA. 324+00 to STA. 327+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

136
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

END WIDTH	30 YDS

END AREA		VOLUME	
CUT	FILL	CUT	FILL

℄

℄/A

760
750
740
730

180.5
1936
168
1831
161.5
1864
174
1945
176

2:1

731.2
731.2
731.4
731.5
731.9
732.0
732.5
732.6
731.4

733.22
335+00
753.4

733.46
334+00
754.9

734.01
333+00
753.8

734.61
332+00
753.5

℄/A
1.71' Rt.

4424 0
16691 0

℄/A
1.54' Rt.

4589 0
16698 0

4428 0
15889 0
4152 0
14884 0
3885 0

Sta. 331+00 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 Sta. 331+00

℄

I-80 STA. 332+00 to STA. 335+00

PRO. RD. DIVISION	STATE	PROJECT		137 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

QUANTITIES		END AREA VOLUMES			
END AREA	SQ. YDS.	CUT	FILL	CUT	FILL
140	1597				
				3392	0
147.5	1786			13357	0
				3821	0
174	1906			15104	0
	-589 deduct for crushed agg.				
				4335	0
169	1942			16019	0
				4315	0
180.5				16184	0
				4424	0

Sta. 335+00

Sta. 336+00

Sta. 338+00

Sta. 339+00

760 / 750 / 740 / 730

L/A

2:1

733.92

735.93
339+00
752.3

732.7

732.73

734.74
338+00
752.6

House

731.86

733.86
337+00

731.14

731.20

733.36
336+00
754.2

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

APP'D 9-F-69 DATE 7-14-69
REC 9-F-69

I-80 STA. 336+00 to STA. 339+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

138
427

CUYAHOGA COUNTY
CUY-480-I.90

SEEDING

END	SQ. YDS.
137	1547
141.5	1581
143	1556
137	1539
140	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		2389	0
		9361	0
		2666	0
		10153	0
		2817	0
		10865	0
		3050	0
		11,930	0
		3392	0

℄

℄ 740.89
343+00
752.0

℄ 739.65
342+00
752.2

℄ 738.41
341+00
752.2

℄ 737.17
340+00
752.3

℄

Sta. 339+00

Sta. 339+00

I-80 STA. 340+00 to STA. 343.00

APPROVED: F.H.W.A. 7-14-69
O.H.D. BY: D.P.C. DATE: 9-4-69

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

139
427

CUYAHOGA COUNTY
CUY-480-I.90

SEEDING

END WIDTH	SQ YDS
115	
131.9	
122.5	
139.7	
129	
144.4	
131	
146.9	
133.5	
150.3	
137	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
1000	0		
		4302	0
		5354	0
1568	0		
		6137	0
1746	0		
		7075	0
2074	0	8264	0
2389	0		

℄

760
750
740

L/A

4:1 — 743.09 — 747.09 — 348+00 — 751.6 — 745.1 — 4:1

4:1 — 743.85 — 745.85 — 347+00 — 751.6 — 743.8 — 4:1

4:1 — 742.6 — 744.61 — 346+00 — 751.6 — 742.6 — 4:1

3:1 — 741.37 — 743.37 — 345+00 — 751.9 — 741.37 — 3:1

Sta. 344+00, 72' Lt., I-480
Std. No. 5 C.B.
T/G = 739.85

Sta. 344+00
Med. I-480
I-3H. Median
Inlet T/G = 741.07

Sta. 344+00, 72' Rt., I-480
Std. No. 5 C.B.
T/G = 739.85

2D/42

3D/42

70'-21" Type "B" Class "B" Bedding @ 0.80%

72'-21" Type "B" Class "B" Bedding @ 0.80%

733.88 — 733.30 — 742.13 — 344+00 — 752.2 — T32.74

For Continuation
See Sewer Profile
Sheet No. 84

Sta. 343+00

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

DRAWN BY R.D.C. DATE 7-14-69
CHKD BY P.C. DATE 9-1-69

I-80 STA 344+00 to STA 348+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

140
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

FED WIDTH	SQ. YDS.
109	1219
110.5	1203
106	1158
102.5	1208
115	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		269	0
		1004	0
		278	0
		1493	0
		528	0
		2333	0
		732	0
		3208	0
		1000	0

℄

760 / 750 / 740

L/A

6:1 749.0

752.06
352+00
752.0

6:1 749.2

L/A

L/A

6:1 748.6

750.81
351+00
751.0

6:1 748.8

L/A

L/A

6:1 747.4

749.57
350+00
751.0

6:1 747.6

L/A

L/A

5:1 746.3

748.33
349+00
751.0

5:1 746.3

Sta. 348+00

Des. T.J.C. 7-14-69
Chk. R.R.C. 9-4-69

Sta. 348+00

120 100 80 60 40 20 ℄ 20 40 60 80 100 120

I-80 STA. 349+00 to STA. 352+00

SHEETS

FED. ROAD DIST.	STATE	DIST.	
2	OHIO		

141
427

CUYAHOGA COUNTY
CUY-480-1.90

END AREA — CUT | FILL
VOLUME — CUT | FILL

To Be Constructed Under Project CUY.-80-4.86

760.98
357+00
751.0

750.4 | 750.4

758.90
356+00
752.0

751.0 Hi Pt | 751.0 Hi Pt

0 Fwd
147 Back

Fwd 0 0
Back 953 14

2930 63

1439

756.88
355+00
752.0

750.2 | 750.5

623 20

1670 109

1192

755.06
354+00
752.0

749.8 | 750.1

279 39

615 213

1217

753.45
353+00
752.0

749.4 | 749.6

53 76

587 141

1253

264 0

112 | 102.5 | 116.5 | 109

Sta. 352+00

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

1-80 STA. 353+00 to STA. 357+00

S-19

61-S

SEEDING
END WIDTH 0 175

70 60 50 40 30 20 10 ℄ 10 20 30 40 50

FED. AID PROJECT | STATE | PROJECT
2 | OHIO

142
427

CUYAHOGA COUNTY
CUY-480-1.90

780 / 775

I-480 Match Line

3/8"/Ft. 777.95 8:1 777.00

15+00
777.61

3/8"/Ft. 778.20 8:1 777.20

14+50
777.86

8:1 8:1 777.50

14+00
778.09

4:1 1½"/Ft. 4:1 2'

777.50

Misc. Quantities Mackenzie Rd. to
℄A line South of I-480 Sta. 13+40

108

13+50
778.23

13+00
778.37

12+50
778.37

I-480 Match Line

3/8"/Ft. 777.95 8:1 776.6 2:1 778.22

8:1

BID AREA		VOLUME	
CUT	FILL	CUT	FILL
	11	4	
			5 5
	0	3	
			5 0
	1	2	
	3	2	
			0 0
	0	0	
			0 0
	0	0	

J.F.K. 7-3-70
F.J.C. 8-4-70

MACKENZIE ROAD STA. 12+50 TO 15+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

143
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

END WIDTH	SQ. YDS.
0	240
86.5 Fwd.	
0 Back	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		0	0
0	0		
		0	0
0	0		
		0	0
9	3		
		18	5
12	4	21	7
11	4		

18+00
776.67

17+50
776.82

17+00
776.90

16+50
777.12

16+00
777.39

15+50
777.56

End seeding

12" Cmp.

12" Cmp.

I-480

I-480

Match Line

Match Line

777.45 8:1 776.70

8:1 2:1 776.4 3/8" /ft. 777.45 777.70

3/8" /ft. 777.70 8:1 776.90

8:1 2:1 776.5 3/8" /ft. 777.70 777.95

Sta. 15+00

MACKENZIE ROAD STA. 15+50 TO 18+00

DIST. OFFICE	STATE	PROJECT	
2	OHIO		

144
427

CUYAHOGA COUNTY
CUY-480-1.90

SHEET NO.	AREA CUT	AREA FILL	VOLUME CUT	VOLUME FILL
52	35	42		
267			56	53
44	25	15		
242			60	18
43	40	4		
156			2715	0
			69	3
13	34	0		
51				
64			30	0
	Fwd 30	0		
	Back 4	0		
10	3	0	3	0
28			3	0
0	0	0		

Match Line I-80

770.68 3/8"/Ft. 4:1 4:1 12:1 770.2 769.2 770.24 EP 12:1 6:1 769.4 770.68 3/8"/Ft. 4:1 769.7

17+00
770.11

770.60 3/8"/Ft. 3:1 4:1 6:1 769.9 769.0 770.39 EP 6:1 8:1 769.3 770.76 3/8"/Ft. 4:1

16+50
770.00

Sta. 16+24 22' Rt.
Std. No. 2-EB C.B.
TG=769.19

770.50 3/8"/Ft. 1:1 2:1 4:1 769.5 768.7 770.52 EP 24:1 769.9 770.42

Sta. 15+95, 17Lt
Std. No. 22B C.B.
TG 768.34

16+00
770.27

℄ 24" W.M.

Sta. 15+75 21' Rt.
Std. No. 2-2B C.B.
TG=769.30

770.68 3/8"/Ft. 2:1 2.5:1 764.10 770.91 EP

Misc. Quan. Sta. 15+00 Fitch Rd.
To L/A Line South Side I-480

Sta. 15+50, 17Lt
Std. No. 22B C.B.
TG=768.35

15+50
770.80

769.0

Twin 10'x6' Box Culvert
Sta. 15+85

Sta. 15+25

15+00
771.26

14+50
771.44

J.F.K. 7-3-70
[redacted] 8-1-70

FITCH RD.-STA. 14+50 TO STA. 17+00

SEEDING

FED. ROAD DIVISION	STATE	PROJECT		145 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

	END AREA		VOLUMES	
	CUT	FILL	CUT	FILL
765	0	0	0	0
Sta. 19+40 Fwd	0	0		
Back	22	0		
			2674	0
			38	8
770	29	10		
765			47	36
770	22	29		
765			60	45
760				
770	43	19		
765			74	48
770	37	33		
765			67	70
	Sta. 17+00		35	42

10'x6' Box Culvert
Sta. 19+01

20+00
769.95

19+50
769.82

19+00
769.66

18+50
769.56

18+00
770.24

17+50
770.17

Sta. 19+25 (17 Lt.)
Std. 2-28 C.B
T/G = 767.58

Sta. 19+20 (22' Rt.)
Std. 2-28 C.B
T/G = 768.88

27" Storm

8" San.

Sta. 19+25

Sta. 17+00

Bike Path

Match Line I-480

768.59 769.87 768.10 769.65 768.75 769.4 769.25 769.85 768.6 769.91 768.90 769.5 769.91 769.96 768.8 770.16 769.05 769.8 769.3 770.30 770.10 769.0 770.42 769.20 770.0

4:1 10:1 6:1 24:1 7:1 12:1 8:1 3/8"/Ft.

EP

J.F.K. 7-3-70
CHKD BY T.J.C. DATE 8-4-70

FITCH RD. - STA. 17 + 50 TO STA. 20 + 00

SEE 146

CHAN WIDTH | 30 YDS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

146
427

CUYAHOGA COUNTY
CUY-480-1.90

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
4+50	0	0	0	0
4+00	0	0	0	0
3+50	0	0	0	0
3+00	0	0	0	0
2+50	0	0	0	0

4+50
777.91

Drive Sta. 4+07

4+00
777.93

3+50
778.00

Drive Sta. 3+00

3+00
777.96

Drive Sta. 2+56

2+50
778.00

DES. BY U.F.K. DATE 7-3-70
DRWG. BY F.J.C. DATE 8-4-70

BUTTERNUT RIDGE ROAD STA. 2+50 to STA. 4+50

SEEDING

EAR FIBER	LIME TONS
392	
364	
328	
-27	
-45	
289	
145	
+43	
37	
2	

75 60 50 40 30 20 10 0 10 20 30 40 50

REG. PO DIVISION | STATE: OHIO | PROJECT | | SHEET 147 427

CUYAHOGA COUNTY
CUY-480-1.90

60 70

780 4:1 4:1 777.8 780.58 7+00 778.23 4:1 775

780 4:1 4:1 777.6 779.92 6+50 778.15 4:1 776.3 4:1 775

780.11 780.01 779.18 N176 -7.3% 780 Deduct for Driveway Sta. 6+31 775 Deduct for Driveway Sta. 6+26 Drive Sta. 6+31

779.19 N176 780.02 780.12 -8.8% 780 775 Drive Sta. 6+26 Drive 6+31 Drive 6+26

780 4:1 4:1 779.20 6+00 778.11 4:1 777.0 4:1 775

780 4:1 4:1 777.7 4:1 778.60 5+50 778.15 4:1 776.8 4:1 775

Match Line Kennedy Ridge Rd.

777.95 777.8 777.9 Meet Exist. +0.42% Drive Sta. 5+12

780 775 Meet Existing 5+00 778.0 Begin Work Sta. 5+00 Drive Sta. 5+00

Misc. Seeding For Intersection

Kennedy Ridge Rd. Sta. 0+50 to Sta. 0+75 From Sheet No. 152

Misc. Quantity For Intersection Drive 5+12

Kennedy Ridge Rd. Sta. 0+50 to Sta. 0+75 From Sheet No. 152

	END AREA CUT	END AREA FILL	VOLUMES CUT	VOLUMES FILL
4	221			
8	342			
5	149			
11	205			
Drive 6+31			0	-3
Drive 6+26			-2	-1
7	73			
32	111			
Fwd	28	47		
Back	25	37		
			41	0
			50	34
			24	0
			3	0
FWD	29	0		
Back	0	0		

BUTTERNUT RIDGE ROAD STA. 5+00 to 7+00

FED. ROAD DESIGNTN	STATE	PROJECT	
2	OHIO		

148
427

CUYAHOGA COUNTY
CUY-480-1.90

STA	END AREA CUT	END AREA FILL	VOLUMES CUT	VOLUMES FILL
9+50	0	0		
			0	0
9+00	0	0		
			0	0
8+50	0	0		
			0	0
8+00	0	0		
			14	190
			+1	+52
7+50	3	256		
			6	412
			-2	+8
Sta. 7+00	4	221		

780.91 NG

Misc. Quantity Sta. 7+50 Butternut Ridge - To I-480

Drive Sta. 7+82

Meet Exist. -6.0% 781.82 781.72

Bldg.

-41 Deduct for Driveway Sta. 7+17

74 778.0 -8.9% 781.26 781.16 780.33

Drive Sta. 7+17

186 Misc. Quantity Sta. 7+50 Butternut Ridge to I-480 L/A (North Side)

BUTTERNUT RIDGE ROAD STA. 7 + 50 to STA. 9 + 50

FED. RD. DIV. NO.	STATE	PROJECT	
2	OHIO		

149
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

END AREA		VOLUME	
CUT	FILL	CUT	FILL
Fwd 18	55		
Back		25	104
9	57		
		8	53
Misc. Quantity For Structure		104	54
0	0		
		0	0
0	0		
		0	0
0	0		
		0	0
0	0		

Canterbury Rd

Match Line

Match Line

STRUCTURE

STRUCTURE

STRUCTURE

	SEEDING END AREA	SEEDING SQ. YDS.
	47	197
Fwd.	29	
Back	0	

256 Misc. Quantity L/A I-480 (South Side) to Sta. 12+00 Butternut Ridge

780 / 775

77.79

779.34
12+00
778.38

779.66
11+50
778.38

11+00
778.47

10+50
778.43

10+00
778.43

75 60 50 40 30 20 10 0 10 20 30 40 50 60 70

LAID BY [illegible] DATE 11-3-70
CHKD. BY [illegible] DATE 11-4-70

BUTTERNUT RIDGE ROAD STA. 10 + 00 to STA. 12 + 00

FED. AID DIVISION	STATE	PROJECT	
2	OHIO		

150
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING END WIDTH	SEEDING 30 YDS	
0		
31		End Seeding Sta. 14+20
		Misc. Quantity at End Of Work
22		
-20		Deduct for Driveway Sta. 13+90
161		
-13		Deduct for Driveway Sta. 13+63
36		
150		
18		
395		Canterbury Rd. Sta. 8+50 to Sta. 9+50 From Sheet No. 152
108		
208		Misc. Quantity For Canterbury Rd. Intersection
21		
125		
24		Sta. 12+00

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
775	0	0		
			0	0
780	0	0		
End Work Sta. 14+20 Back	4	0		
775				
			38	0
780				
	102	0		
775				
Drive 13+90			1	0
Drive 13+63			4	0
			292	58
780				
775				
780				
	214	62		
Fwd 775 Back				
			342	99
780				
	155	45		
775				
Canterbury Rd. Sta. 8+50 to Sta. 9+50 From Sheet No. 152			135	66
			256	130
Misc. Quantity Canterbury Rd. Intersection			35	62
780				
	122	96		
775				
			130	140
Sta. 12+00	18	55		

778.82 778.72 778.89 N76 +9.4% Drive Sta. 13+63

778.82 +9.0% Meet Exist. Drive Sta. 13+82

778.5 778.39 13+50 778.25

778.3 778.70 13+00 778.28

778.1 778.90 12+50 778.36

14+50 778.25

14+00 778.25

Match Line

Match Line

Match Line

JFK 7-2-70
FJC 8-3-70

BUTTERNUT RIDGE ROAD STA. 12+50 to STA. 14 + 50

FED. HIGHWAY DIVISION	STATE	PROJECT	
2	OHIO		

151
427

CUYAHOGA COUNTY
CUY-480-1.90

SECTIONS

END WIDTH	END AREA

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		0	0
		0	0
		0	0
		0	0

Drive Sta. 16+78

Drive Sta. 16+18

16+50
778.13

16+00
778.16

15+50
778.20

Drive Sta. 15+34

Drive Sta 15+10

15+00
778.20

DRN. BY J.F.K. DATE 7-2-70
CHK. BY E.J.C. DATE 8-3-70

BUTTERNUT RIDGE ROAD STA. 15 + 00 to STA. 16 + 50

CUYAHOGA COUNTY
CUY-480-1.90

℄ Kennedy Ridge Road

END AREA		VOLUM		SEEDING	
CUT	FILL	CUT	FILL	END WIDTH	SQ. YDS.
0	0			0	
				24	
		0	0		
					189
				44	
0	0				
		0	0		
					206
		0	0	30	
				0	
		17	0		0
		24	0	0	
		41	0		395

780
775
0
2+00
776.92
780
775
0
1+50
777.60
780
775
0
1+00
778.28
780
775
FWD
Back Sta 0+75
0
4
37
780
775
10
0+50
778.62

780
775
0 0
780
775
0 0
780
775
0 0
780
775
FWD 0 0
Back 16 0
Sta. 0+75
780
775 21 0
Sta. 0+26.5 31 0

Total Seeding to Sheet No. 147
37

Total Earthwork Carried to Sheet 147

Total Seeding Carried to Sheet No. 150

30 20 10 ℄ 10 20 30

℄ Canterbury Road

780
775
FWD
Back
Match Line
A
A
780
775
Match Line
A
A
9+50
777.30
780
775
Match Line
B
B
780
775
Match Line
B
B
Butternut Ridge Rd.
Match Line
780
775
FWD 0 0
Back 39 24
63 44
780
775
9+00
776.50
30 24
780
775
4:1
8:1
775.1
8:1
4:1
774.9
780
775
FWD
Back
Meet Existing Pav't
8+50
775.90
72 22
780
775
8+00
775.54
FWD 48 0
Back 0 0
0 0
0 0

Total Earthwork Carried to Sheet No. 150
135 66

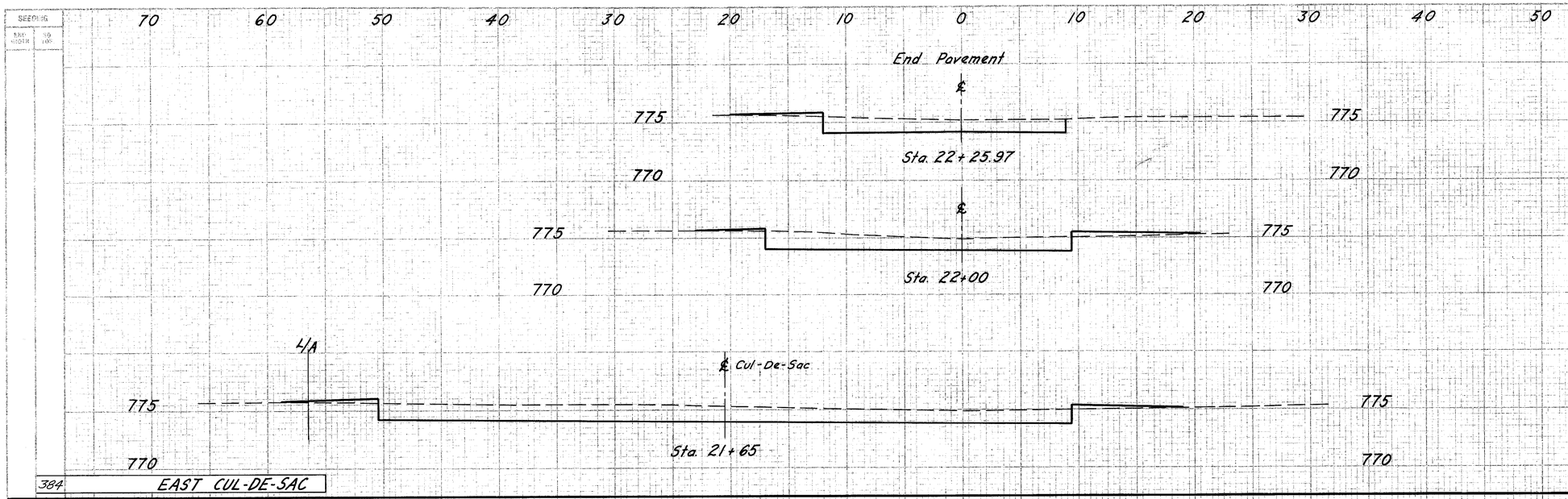
30 20 10 ℄ 10 20 30

KENNEDY RIDGE RD. 0+50 to 2+00
CATERBURY RD. 8+00 to 9+50

SEEDING

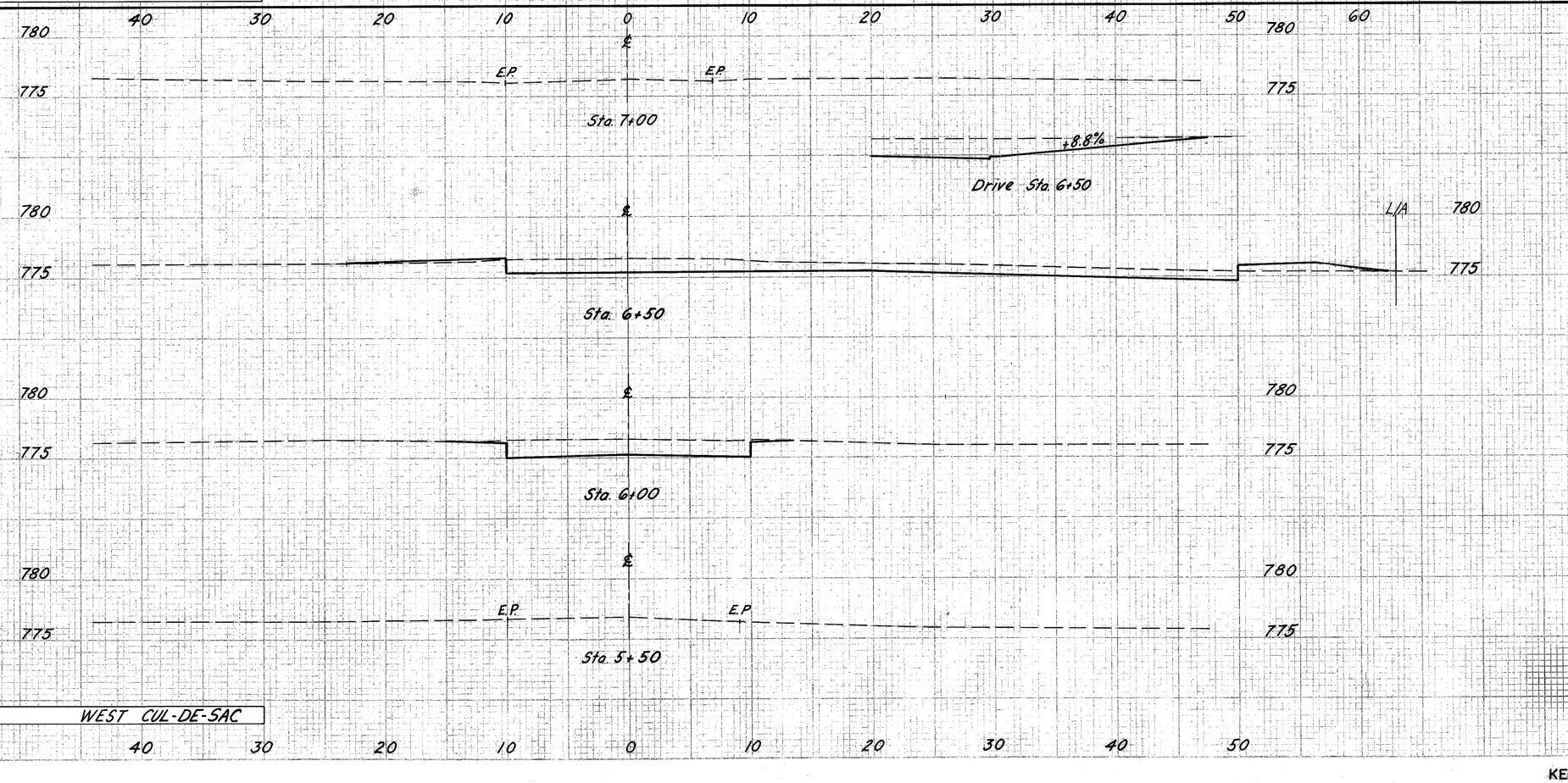
FED. AID DIVISION	STATE	PROJECT		SHEET NO.	TOTAL SHEETS
2	OHIO			153	427

CUYAHOGA COUNTY
CUY-480-1.90



384 EAST CUL-DE-SAC

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
Sta. 22+26 Fwd.	0	0		
Back	27	0		
			30	2
	36	9		
			76	6
Misc. Quantity			30	
Fwd.	81	9	47	5
Sta. 21+34 Back	0	0		
EAST CUL-DE-SAC			183	13



494 WEST CUL-DE-SAC

Drive Sta. 6+50	0	0	
			1 0
			50 9
	54	9	
			75 9
	27	0	
			13
Begin Work Sta. 5+87.55 Fwd	31	0	
Back	0	0	
			0 0
	0	0	
WEST CUL-DE-SAC			139 18

CALC. J.E.K. DATE 7-2-70
CHKD. BY T.W.G. DATE 8-3-70

KENNEDY RIDGE RD. (EAST CUL-DE-SAC / WEST CUL-DE-SAC)

FED. HIG. DIVISION	STATE	PROJECT	
2	OHIO		

154
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
		0	0		
				4	12
		14	13		
-15	Deduct for Driveway Sta. 17+10.5			26	47
		14	38		
112	Misc. Quantity Sta. 16+75 Columbia Rd. to L/A on South Side of I-480			13	35
		0	0		
				0	0
		0	0		
				0	0
		0	0		

℄ STRUCTURE

18+00
754.58

8" San.

Misc. to Structure

Match Line

754.76
17+50
754.68

754.86 755.00 Meet Existing

0 20 40 60 80 100 120 750.0

Drive Sta. 17+10.5

754.90
17+00
754.85

Begin Work
Sta. 16+75

Sta. 16+75

16+50
754.93

16+00
755.14

8" San.

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

LAID BY J.F.K. DATE 7-2-70
TRACED BY J.J.C. DATE 8-3-70

COLUMBIA RD. STA. 16 + 00 TO STA. 18 + 00

REG. RD. DIVISION	STATE	ROUTE		155
2	OHIO			427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING			END AREA		VOLUMES	
END WIDTH	SQ. YDS.		CUT	FILL	CUT	FILL
		750	0	0		
					0	0
		755				
			0	0		
		750				
					0	0
		755				
130	Misc. Quantity Sta. 21+00 Columbia Rd. to L/A on North Side I-80					
		End Work Sta. 21+00	14	48		
		750				
					20	55
-34	Deduct for Driveway Sta. 20+76					
		755				
		750	14	30		
		Misc. to Structure			9	38
		755				
		750	0	0		

22+00
753.58

8" San.

21+50
753.68

End Work
Sta. 21+00

753.81
20+88
753.77

755
-6.8%
754.63
754.53
753.64
N16
750
70 60 50 40 30 20 10

Drive Sta. 20+76
Skew 79°

Match Line

753.92
20+50
753.90

STRUCTURE

8" San.

20+00
754.07

10 20 30 40 50 60 70

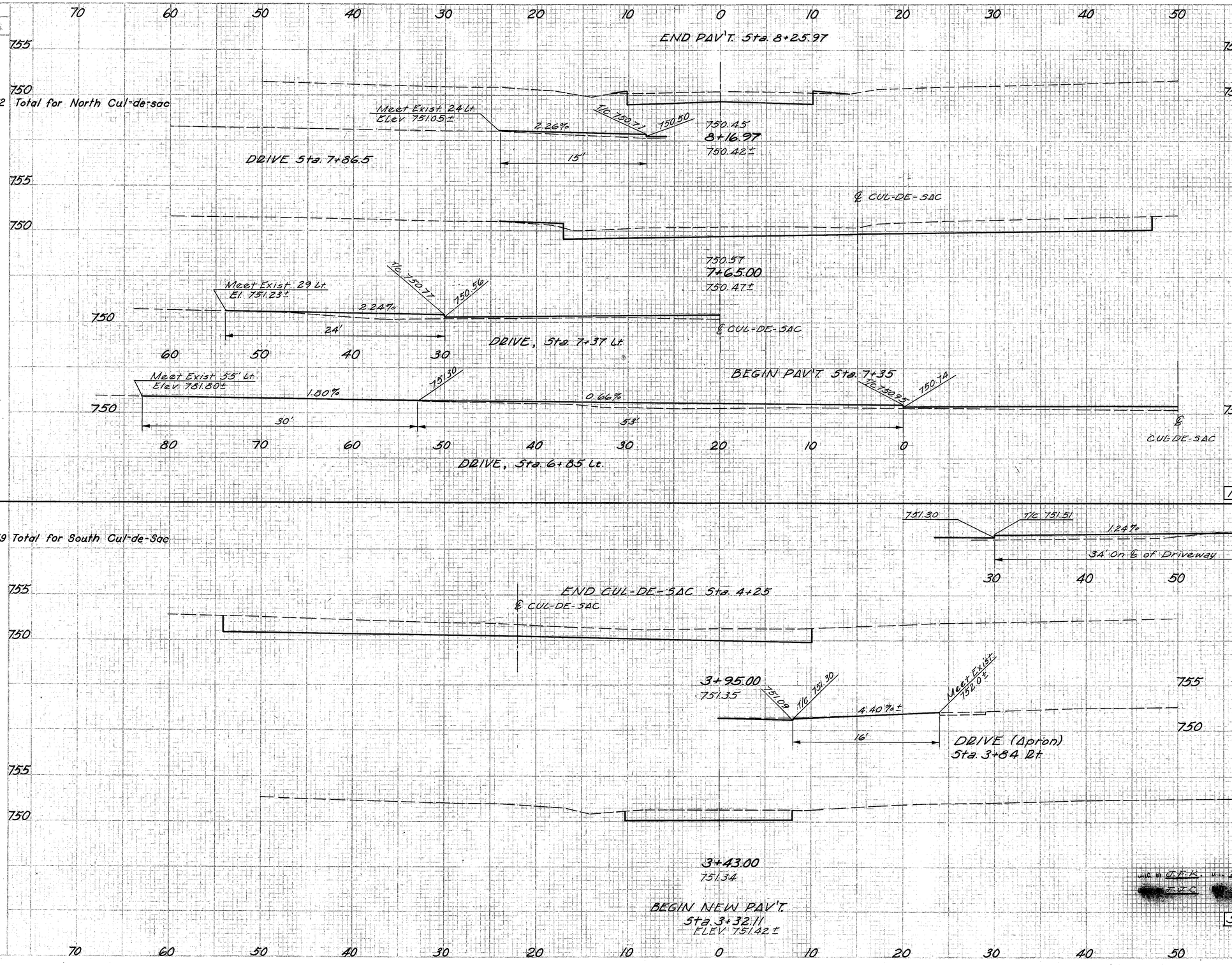
COLUMBIA RD. - STA. 20+00 TO STA. 22+00

SEEDING	
BAND WIDTH	SQ. YDS.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

156
427

CUYAHOGA COUNTY
CUY-480-1.90



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
Misc.			10	0
Sta. 8+16.5 Lt.	23	1		
Drive, Sta. 7+86.5 Lt.	—	—	2	-2
			96	2
	77	1		
Drive, Sta. 7+37 Lt.	—	—	2	-3
Misc.			78	19
Drive Sta. 6+85 Lt.	—	—	7	-7
Drive Sta. 4+35 Lt.	—	—	2	-3
Misc.			78	16
	90	0		
Drive Sta. 3+84 Rt.	—	—	3	0
			108	0
	22	0		
Misc.			9	0

NORTH CUL-DE-SAC	TOTAL	195	9
SOUTH CUL-DE-SAC	TOTAL	200	13

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

157
427

CUYAHOGA COUNTY
CUY-480-1.90

RELOCATED S.R. 252 STA. 60+00 TO STA. 62+00

SEEDING	
END WIDTH	SQ YDS.
129	661
109	44
322	
72	
433	
84	
486	
91	
483	

FED. NO. OF ROADS	STATE	PROJECT		158 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

END AREA		VOLUME	
CUT	FILL	CUT	FILL
770			
		1093	0
780			
		1889	0
770			
		947	0
		417	0
780			
		1004	0
770			
		467	0
		944	0
780			
770		552	0
		1230	0
780			
770		775	0
760			
		1496	0
		840	0

℄ Ramp "C"

End Quantity

780
770

771.70
64+50
774.8

℄A

4:1

℄ Ramp "C"

End Quantity

780
770

Fwd
Back

Match Line Ramp "C"

771.24
64+00
774.2

Match Line Ramp "C"

6:1
770.3

770.78
63+50
773.8

Match Line Ramp "C"

4:1
765.8

770.32
63+00
774.1

Match Line Ramp "C"

5.6:1
764.5

779.86
62+50
774.5

Sta. 62+00

140 120 100 80 60 40 20 0 20 40 60 80 100

RELOCATED S.R. 252 STA. 63+00 TO STA. 64+50

SEEDING	
END WIDTH	50 YDS.
131	691
118	614
103	185
997	174
911	154
786	

Fwd
Back

Σ End Quantities

PER SG DESIGN	STATE	PROJECT		159
2	OHIO			427

CUYAHOGA COUNTY
CUY-480-1.90

END AREA		VOLUME	
CUT	FILL	CUT	FILL
1146	0		
		2109	0
1132	0		
		2129	0
1167	0		
1557	0		
		2750	0
1412	0		
		2561	0
1354	0		
		2267	0
1093	0		

780
770
8:1
772.97
67+00
775.7
3:1
768.4
Match Line Ramp "E"
L/A
188
10:1
772.92
66+50
776.0
℄
℄ Ramp "E"
771.6
Match Line Ramp "E"
L/A
167
11:1
772.76
66+00
776.3
℄ Ramp "C"
Ramp "E"
Match Line
8:1
769.9
1:1
L/A
772.51
65+50
775.8
℄ Ramp "C"
℄ Ramp "E"
8:1
770.5
4:1
L/A
772.15
65+50
775.4
8:1
770.7
4:1
L/A

Sta. 64+50

140 120 100 80 60 40 20 0 20 40 60 80 100

RELOCATED S.R. 252 STA. 65+00 TO STA. 67+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

160
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

FED. WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

STRUCTURE

771.73
69+50
776.3

℄

STRUCTURE

772.18
69+00
769.5

STRUCTURE

772.53
68+50
774.0

772.78
68+00
775.9

772.93
67+50
776.0

Match Line I-480

Match Line I-80

Match Line Ramp "E"

Match Line Ramp "E"

3:1

6:1

3:1

760.0

764.7

770 760 780 770 780 770 780 770 780 770 780 770 725

0 75

Fwd.
Back

1264

Misc. Quantity
Sta. 68+00 to Match Line I-480

570 130

0 0
0 0
0 0
0 0
Fwd. 0 0
Back 893 0
4562 0
2044 0
1314 0
2278 0
1146 0

140 120 100 80 60 40 20 0 20 40 60 80 100

RELOCATED S.R. 252 STA. 67+50 TO STA. 69+50

SEEDING	
SQ. YDS.	

FED. ROAD DIVISION	STATE	PROJECT	SHEET
2	OHIO		

161
427

CUYAHOGA COUNTY
CUY-480-1.90

℄ Ramp "D"

770
760
93 Fwd.
189 Back
End Quantity
13:1
4:1
Match Line I-480
767.96
72+00
757.8

℄ Ramp "D"

867
770
760
123 Fwd.
0 Back
End Quantity
7.4:1
3.3:1
Match Line I-480
768.91
71+50
758.4

1136 Misc. Quantity
Sta. 71+50 to Match Line I-80

Misc - Quantity
Sta. 71+50 to Match Line I-480

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
Fwd -	750	134	986	
Back		0	1818	
			293	2967
Fwd -	24		1386	
Back -	0		0	
			380	1728

STRUCTURE

769.77
71+00
760.5

STRUCTURE

770.52
70+00
762.7

℄

STRUCTURE

771.18
70+00
764.3

140 120 100 80 60 40 20 0 20 40 60 80 100

RELOCATED S.R. 252 STA. 70+00 TO STA. 72+00

FED. ROAD DIVISION	STATE	PROJECT		162
2	OHIO			427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

EVO WIDTH	SQ YDS
22	233
62	408
85	508
98	529
93	514
93	

Match Line Ramp "G"
11.5:1
762.27
74+50
752.2

Match Line Ramp "F"

Match Line Ramp "G"
7:1
6:1
763.43
74+00
752.9

Match Line Ramp "F"

℄

Match Line Ramp "D"
6:1
764.59
73+50
753.9

Match Line Ramp "F"
7:1

Match Line Ramp "D"
6:1
765.75
73+00
755.0

End Quantity

℄

Match Line Ramp "D"
5:1
766.90
72+50
756.3

Match Line L 80

Sta. 72+00

Sta. 72+00

SHD AREA CUT	SHD AREA FILL	VOLUME CUT	VOLUME FILL
760			
750			
	0	875	
			0 1967
760			
750	0	1249	
			0 2433
760			
750	0	1379	
		3	2485
770			
760			
	4	1305	
750			
		76	2257
770			
760			
	37	1133	
750			
	35	1961	
	0	984	

CALC. BY JLG DATE 5-26-69
CHK. BY [illegible] DATE 5-26-69

140 120 100 80 60 40 20 0 20 40 60 80 100

RELOCATED S.R. 252 STA. 72+50 TO STA. 74+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

END WIDTH	SQ YDS
112	472
58	383
80	511
Fwd 104 / Back 74	253
17	108
22	

℄ Ramp "B"

℄ BIKE PATH

760
L/A
751.2
48:1
48:1
4:1
748.8
4:1
154' L/A

756.47
77+00

760
3:1
L/A
2:1
750.6

Match Line Ramp "B"

760
750
3:1
757.63
76+50
3:1
L/A
3:1
750.4

Sta. 76+35
Ditch Elev. 750.25

Match Line Ramp "B"

760
750
4A:1
758.79
76+00
751.9
4:1
3:1
L/A
750.4

End Quantity

Fwd
Back
760.41
5:1
760
750
759.95
75+50
751.7
4:1
L/A
4:1
750.7

Match Line Ramp "G"

760
750
761.11
75+00
751.5

Match Line Ramp "F"

Sta. 74+50

140 120 100 80 60 40 20 0 20 40 60 80 100

RELOCATED S.R. 252 STA. 75+00 TO STA. 77+00

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
750				
	78	419		
				83 900
760				
	12	553		
750				
				18 1271
760				
750	7	820		
760				16 1725
750				
Fwd-	10	1043		
Back	10	837		
760				9 1507
750				
	0	791		
				0 1543
	0	875		

Sta. 74+50

SEEDING	
LINE LENGTH	SQ. YDS.

FED. RD. DIVISION	STATE		
2	OHIO		

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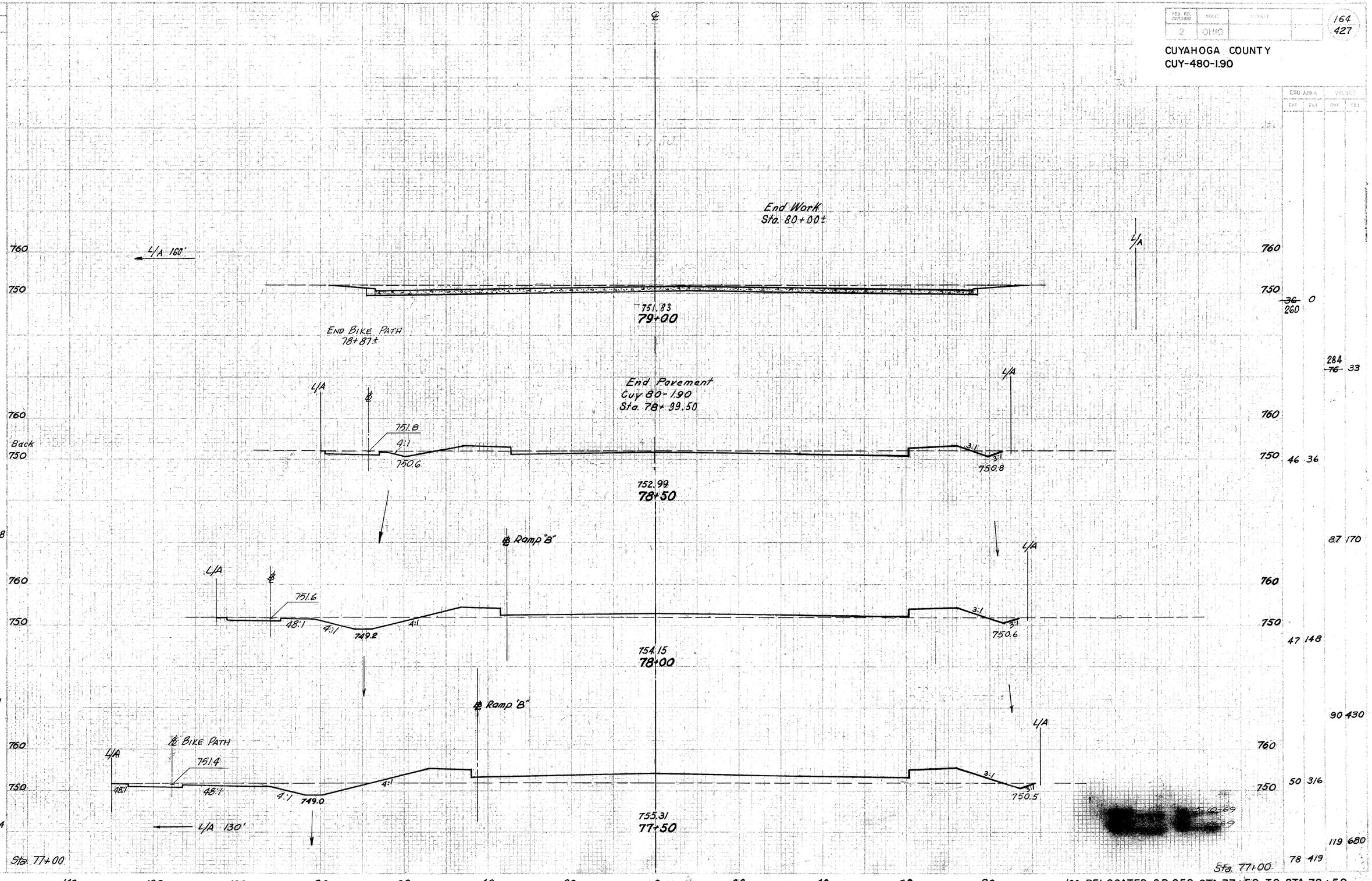
CUYAHOGA COUNTY
CUY-480-1.90

END AREA		VOLUME	
CUT	FILL	CUT	FILL



760
750
36 0
260
284
76 33
760
750
46 36
87 170
760
750
47 148
90 430
760
750
50 316
119 680
78 419

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
127	662			1721	0
111.5	592			2886	0
101.5	538			2406	0
92	544			1203	0
				2036	0
				1599	0
		Fwd.		996	0
		Back		0	0

Misc. Quantity Sta. 298+00 ℄ I-480 (Rt) to Sta. 298+50 Ramp "A"

Misc. quantity Sta 298+00 ℄ I-480 (Rt) to Sta. 298+50 Ramp "A"

RAMP "A" STA. 298+50 TO STA. 300+00

FED. RD. DIVISION	STATE	PROJECT		166
2	OHIO			427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING	
END WIDTH	SQ. YDS.
277	211
1097	184
960	161.5
849	144
753	127

Misc. Quantity Sta. 301+50 to Sta. 302+50 ℄ Ramp A (30' Lt.)

Add for misc. quantities Sta. 301+50 to Sta. 302+50 ℄ Ramp "A", 130' Lt.

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		2748	0
		3773	0
		6437	0
		3179	0
		5276	0
		2519	0
		4252	0
		2074	0
		3513	0
		1721	0

Match Line I-480

745.1 — 9:1 — 757.81 302+00 772.5 — 8:1 — 755.4 — 2:1

℄/A 92' Rt.

Match Line I-480

746.8 — 8.3:1 — 757.87 301+50 772.0 — 8:1 — 755.5 — 2:1

℄/A 100' Rt.

Match Line I-480

749.8 — 8:1 — 758.18 301+00 771.5 — 8:1 — 755.9 — 2.5:1

℄/A 105' Rt.

Match Line I-480

752.5 — 8:1 — 758.72 300+50 772.0 — 8:1 — 756.4 — 3:1

Sta. 300+00

200 180 160 140 120 100 80 60 40 20 ℄ 20 40 60 Sta. 300+00

RAMP "A" STA. 300+50 TO STA. 302+00

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ YDS.	CUT	FILL	CUT	FILL
122.5	724			1732	0
138	831			3532	0
161	960			4222	0
184.5	1099			5126	0
	211			2083	0
				2477	0
				3059	0
				6326	0
				3773	0

Match Line Ramp "C"

780 / 770 / 760 / 750

8:1 — 756.0 — 759.78 — 304+00 — 775.0 — 8:1 — 757.6 — 2:1

Match Line Ramp "C"

8:1 — 754.0 — 759.02 — 303+50 — 775.0 — 8:1 — 756.8 — 2:1

Match Line Ramp "C"

8:1 — 751.2 — 758.38 — 303+00 — 774.0 — 8:1 — 756.1 — 2:1

Match Line Ramp "C"

9:1 — 748.2 — 757.97 — 302+50 — 773.0 — 8:1 — 755.6 — 2:1

Sta. 302+00

200 180 160 140 120 100 80 60 40 20 0 20 40 60 Sta. 302+00

RAMP "A" STA. 302+50 TO STA. 304+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
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SEEDING			END AREA		VOLUME	
END WIDTH	SQ. YDS.		CUT	FILL	CUT	FILL
99	533	770 760				
93	514	770 760	1039	0	1983	0
92	524	770 760	1103	0	2108	0
96.5	569	770 760	1174	0	2222	0
108.5	642	770 760	1227	0	2384	0
122.5		Sta. 304+00	1348	0	2852	0
			1732	0		

Match Line Ramp "C"

9:1 760.0 — 8:1 — 761.5 — 3:1
763.58 306+50 772.3

8:1 759.4 — 8:1 — 760.7 — 3:1
762.82 306+00 773.0

8:1 758.9 — 8:1 — 759.9 — 3:1
762.06 305+50 773.0

7:1 758.4 — 8:1 — 759.1 — 3:1
761.30 305+00 772.9

8:1 757.4 — 8:1 — 758.3 — 2.5:1
760.54 304+50 773.0

200 180 160 140 120 100 80 60 40 20 ℄ 20 40 60 Sta. 304+00

RAMP "A" STA. 304+50 TO STA. 306+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

SEEDING			END AREA		VOLUME	
END WIDTH	SQ. YDS.		CUT	FILL	CUT	FILL
193	978	770 / 760 — variable; Match Line Ramp "C"; 4:1; 4:1; 767.38 / 309+00 / 772.5	1276	0		
159	776	770 / 760 — variable; Match Line Ramp "C"; 14:1; 762.3; 8:1; 4:1; 764.4; 766.62 / 308+50 / 772.6	1210	0	2302	0
120.5	640	770 / 760 — Match Line Ramp "C"; 11:1; 761.7; 8:1; 3.5:1; 763.7; 765.86 / 308+00 / 772.1	956	0	2006	0
110	594	770 / 760 — Match Line Ramp "C"; 11:1; 761.3; 8:1; 3:1; 763.0; 765.10 / 307+50 / 772.9	979	0	1791	0
104	564	770 / 760 — Match Line Ramp "C"; 11:1; 760.7; 8:1; 3:1; 762.2; 764.34 / 307+00 / 772.9	1012	0	1843	0
99	Sta. 306+50		1039	0	1899	0

200 180 160 140 120 100 80 60 40 20 — Sta. 306+50 — 20 40 60

RAMP "A" STA. 307+00 TO STA. 309+00

SEEDING	
CUB YDS/FT	SQ YDS
123	664
116	622
108	558
93	1100

FED RD DIVISION	STATE	PROJECT		
2	OHIO			

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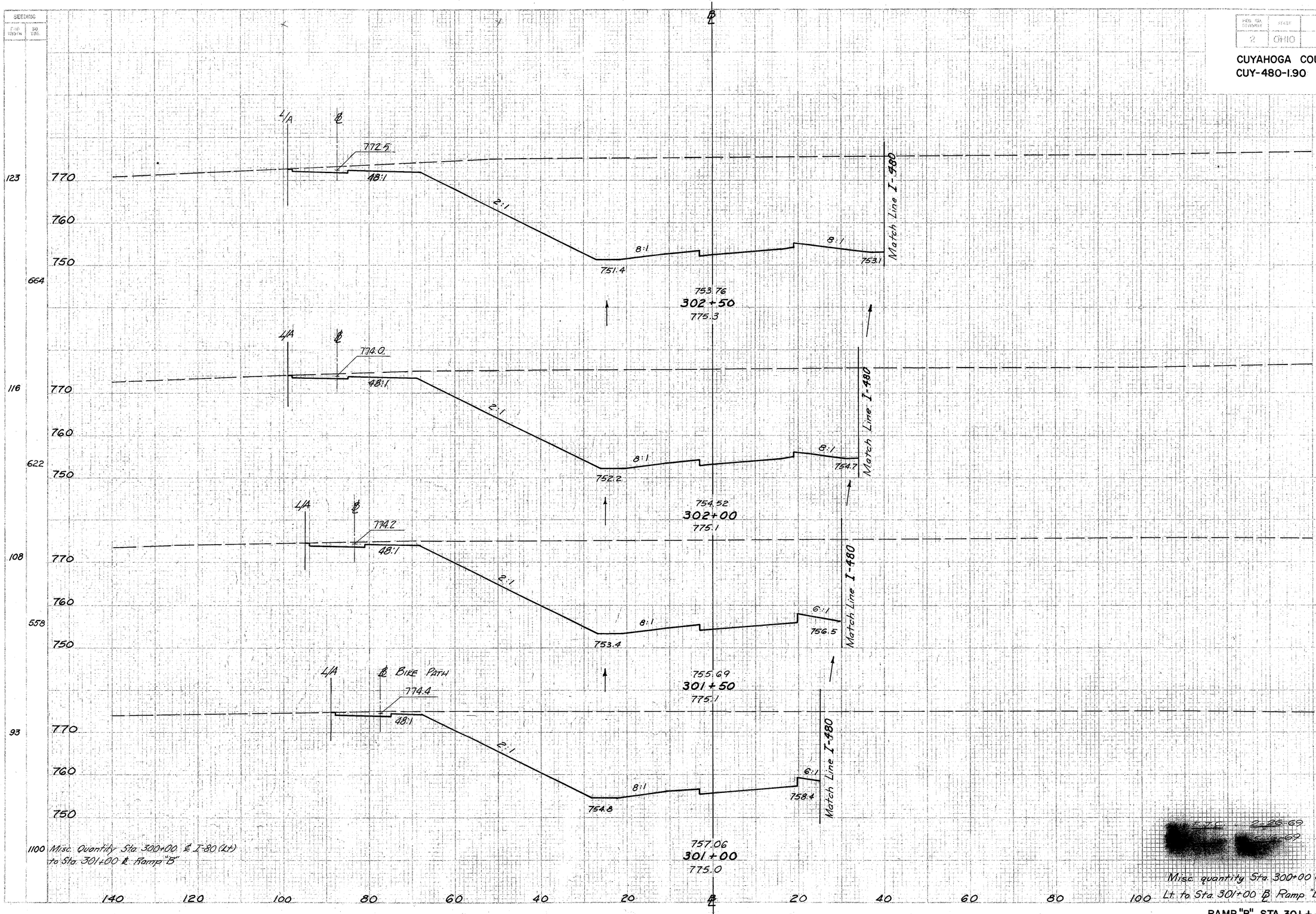
CUYAHOGA COUNTY
CUY-480-1.90



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		2078 0	
		3609 0	
		1819 0	
		3194 0	
		1630 0	
		2832 0	
		Fwd. 1429 0	
		Back 0 0	
		4467 0	

Misc. quantity Sta. 300+00 ℄ I-80, Lt. to Sta. 301+00 ℄ Ramp "B"

RAMP "B" STA. 301 + 00 TO STA. 302 + 50

FED. AID DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
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SEEDING

END STA.	NO. SQ. YDS.
539	
170	
882	
148	
800	
140	
757	
132	
708	
123	

Misc. Quantity Sta. 304+00 to Sta. 306+50 ℄ Ramp "B" (150' Rt)

Misc. quantity Sta 304+00 to Sta 306+50 ℄ Ramp "B" 150' Rt.

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		4013	0
		2509	0
		4651	0
		2519	0
		4526	0
		2369	0
		4419	0
		2404	0
		4150	0
		2078	0

L/A ℄ 763.6 48:1 3:1 8:1 751.8 10:1 746.4 Match Line I-80

754.05
304+50
766.7

L/A ℄ 765.8 48:1 2.5:1 8:1 751.5 8:1 747.5 Match Line I-80

753.77
304+00
769.8

L/A ℄ 768.2 48:1 2.3:1 8:1 751.2 8:1 750.0 Match Line I-80

753.49
303+50
773.3

℄ Bike Path
L/A 770.5 48:1 2:1 8:1 751.1 8:1 751.6 Match Line I-80
Low Point Sta 303+25

753.42
303+00
776.7

Sta. 302+50 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 Sta. 302+50

RAMP "B" STA. 303+00 TO STA. 304+50

FED. ROAD SYSTEM	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-I.90

SEEDING

SEED WIDTH	SQ YDS
145	851
162	949
180	1039
194	1010
170	

END AREA

CUT	FILL
1083	0
2514	0
1632	0
3457	0
2102	0
4354	0
2601	0
4732	0
2509	0

VOLUME

CUT	FILL

770
760
750

℄ L/A

758.8
48.1
4.5:1
8:1
753.0
9:1
747.2
755.17
306+50
760.0
Match Line Ramp 'D'

760.4
48.1
4:1
8:1
752.7
9:1
745.3
754.89
306+00
762.0
Match Line Ramp 'D'

762.0
48.1
3.5:1
8:1
752.4
10:1
745.1
754.61
305+50
763.3
Match Line Ramp 'D'

℄ BIKE PATH
762.4
48.1
3.3:1
8:1
752.1
10:1
744.3
754.33
305+00
764.5
Match Line I-80

6.9
6.9

Sta. 304+50

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

Sta 304+50

RAMP "B" STA. 305 + 00 TO STA. 306 + 50

DIVISION	OHIO			179 427
2	OHIO			

CUYAHOGA COUNTY
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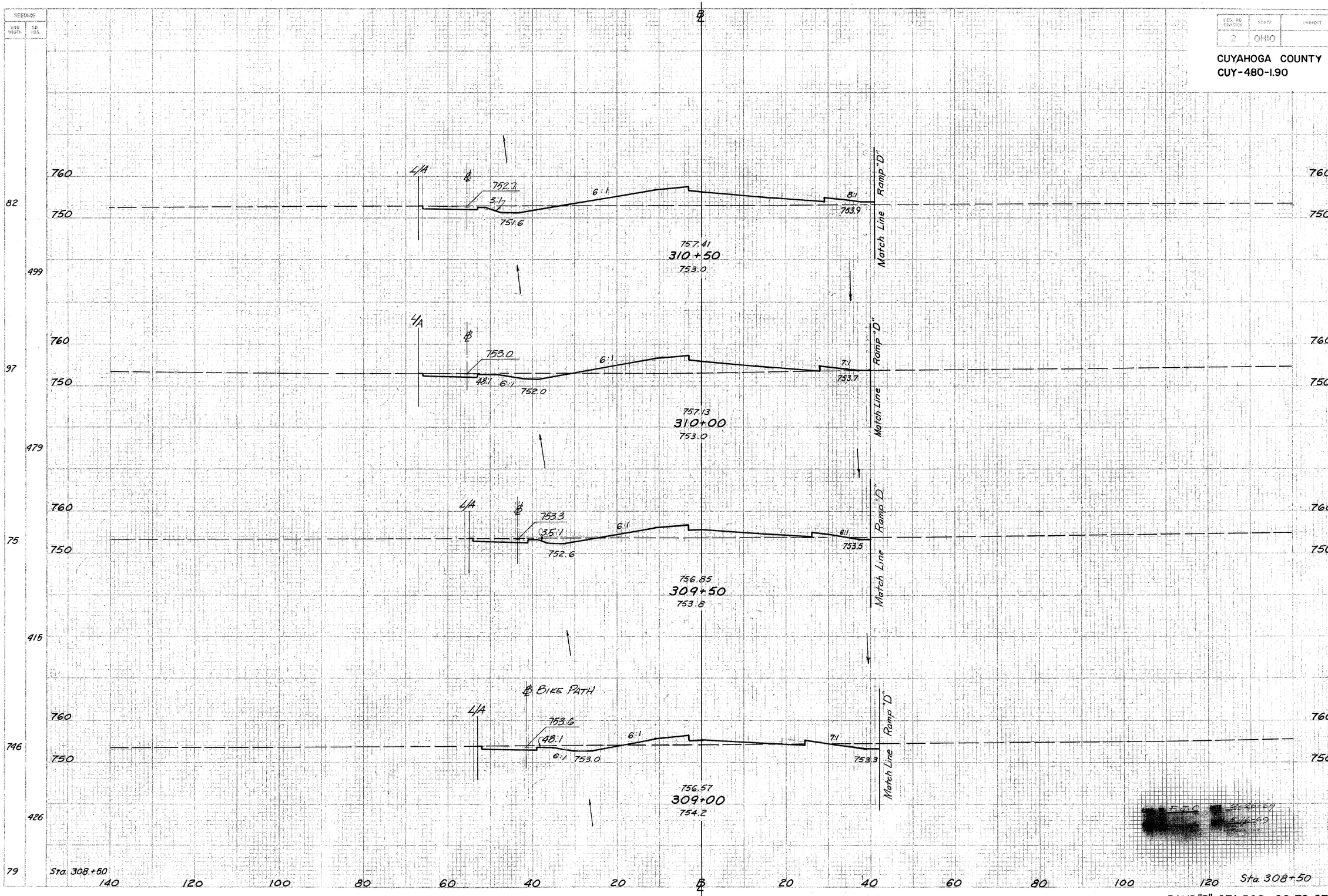
RAMP "B" STA. 307+00 TO STA. 308+50

FED. RD. DIVISION	STATE	PROJECT		174 / 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

SEGMENS		END AREA		VOLUME	
END WIDTH	SP. YDS.	CUT	FILL	CUT	FILL
82					
	499	16	175		
97					
	479	12	141	26	292
75					
	415	21	81	30	205
746					
	426	25	37	42	109
79		44	7	64	40



RAMP "B" STA. 309+00 TO STA. 310+50

FED. RD. DIVISION	STATE	PROJECT		175 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
CHO WIDTH	SQ YDS.	CUT	FILL	CUT	FILL
102	540			41 449	
93	517			84 695	
93	539			50 302	
101	525			87 528	
88	472			44 268	
82				72 459	
				34 228	
				48 412	
				18 217	
				31 363	
				16 175	

760 / 750

L/A — 48.1 — ℄ — 751.3 — 5:1 — 749.6 — 5:1 — 9:1 — 756.3 — Match Line Ramp "D"

758.81
313+00
752.0

760 / 750

L/A — 48.1 — ℄ — 752.3 — 35:1 — 750.0 — 5:1 — 8:1 — 755.5 — Match Line Ramp "D"

758.53
312+50
752.5

760 / 750

L/A — ℄ — 752.3 — 35:1 — 750.4 — 6:1 — 6:1 — 754.7 — Match Line Ramp "D"

758.25
312+00
752.9

760 / 750

L/A — ℄ — 752.3 — 48.1 — 6:1 — 750.8 — 6:1 — 7:1 — 754.3 — Match Line Ramp "D"

757.97
311+50
752.9

760 / 750

L/A — ℄ BIKE PATH — 752.4 — 6:1 — 751.2 — 6:1 — 8:1 — 754.1 — Match Line Ramp "D"

757.69
311+00
752.8

Sta. 310+50

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 Sta. 310+50

RAMP "B" STA. 311+00 TO STA. 313+00

SEEDING	
EACH WIDTH	SQ YDS
53	96
	585
115	
665	
125	
646	
108	
564	
97	
550	
102	

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2	OHIO			176 / 427

CUYAHOGA COUNTY
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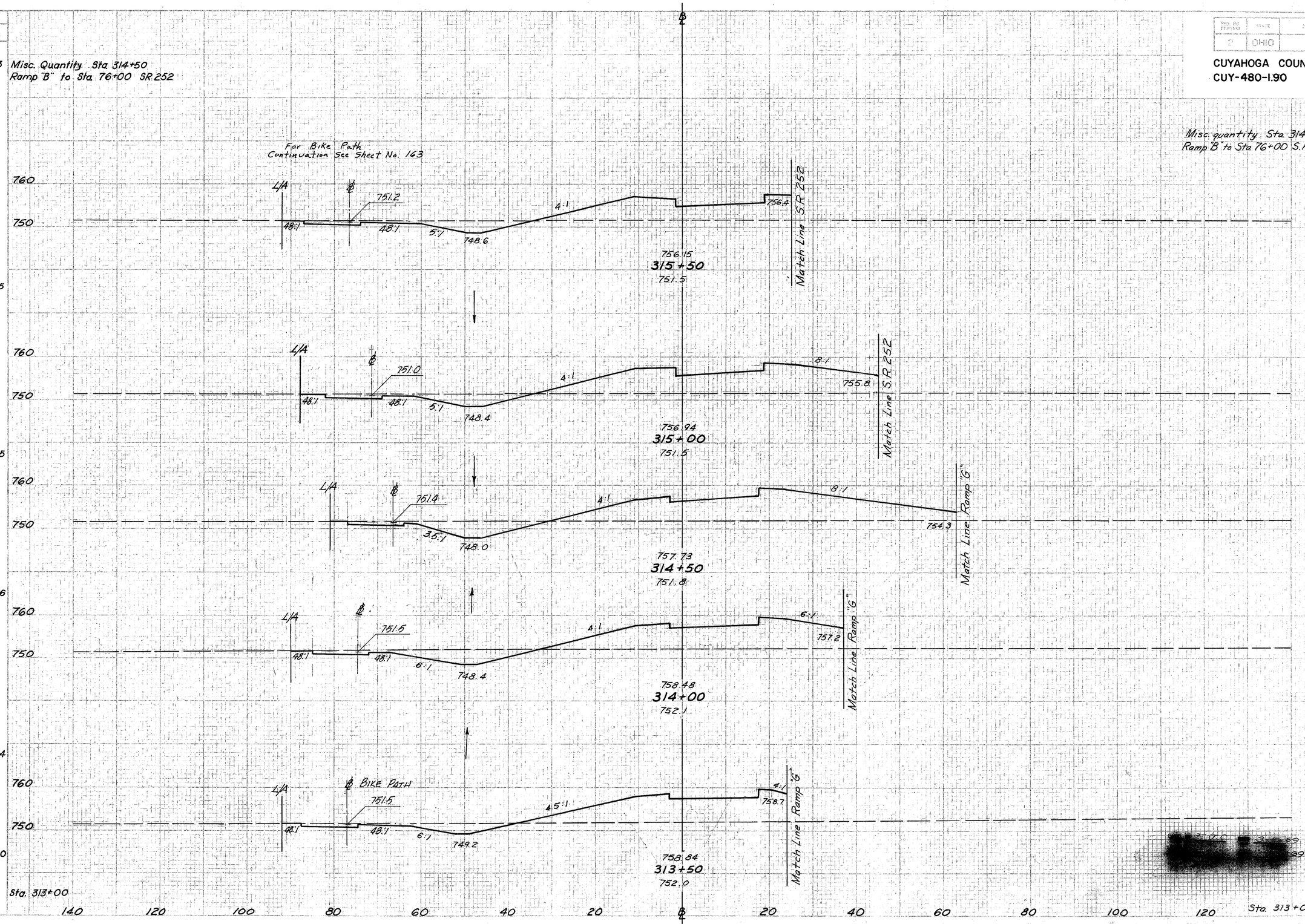
53 Misc. Quantity Sta 314+50
Ramp "B" to Sta 76+00 SR 252

For Bike Path
Continuation See Sheet No. 163



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
Misc. quantity Sta 314+50 Ramp B to Sta 76+00 S.R.252			79	0
Fwd	0	0		
Back	48	254		
			90	543
			50	333
			126	687
			86	409
			146	697
			72	344
			101	599
			37	303
			72	696
			41	449

RAMP "B" STA. 313+50 TO STA. 315+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
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SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
145.0	835			1638	0
155.3	838			3060	0
196.0	739			1667	0
120.1	625			2782	0
104.6	175			1338	0
				2180	0
				1016	0
				1655	0
				332	0
		Fwd.		771	0
		Back		0	0

Misc. quantity Sta. 296+50
Ramp "C" to Sta. 64+00 S.R. 252

Ramp "A" Match Line
761.7
11.3:1
762.1
variable
764.42
298+50
772.9

Ramp "A" Match Line
762.6
12:1
762.3
Begin Swale
variable
765.58
298+00
773.0

S.R. 252 Match Line
352.7
11:1
variable
766.64
297+50
773.0

S.R. 252 Match Line
4:1
265.9
variable
767.63
297+00
774.0

S.R. 252 Match Line
variable
768.56
296+50
773.5

RAMP "C" STA. 296+50 TO STA. 298+50

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
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SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
112.4	631	2413	0		
114.4	644	4271	0		
117.4	672	2199	0		
124.4	719	3843	0		
134.4	775	1952	0		
145		3519	0		
		1848	0		
		3345	0		
		1765	0		
		3151	0		
		1638	0		

Match Line Ramp "A"
8:1
variable
End Quantity
757.97
301+00
773.8
755.6
758.6
7.4:1
759.27
300+50
773.2
756.9
759.4
7.1:1
760.57
300+00
772.9
758.2
760.1
7.9:1
761.27
299+50
772.7
759.5
761.0
10:1
763.17
299+00
773.0
760.8
Sta. 298+50
RAMP "C" STA. 299+00 TO STA. 301+00

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
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SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
199.0					
	1069	5137	0		
186.0					
	931	9034	0		
149.0					
	772	7596	0		
129.0					
	681	6147	0		
116.0					
	635	5273	0		
112.4					

Match Line Ramp "A"

770 / 760 / 750

11.8:1 — 8:1 — variable — End Quantity

751.0

753.34
303+50
774.4

Match Line Ramp "A"

747.4

11:1 — 8:1 — variable — End Quantity

751.6

753.97
303+00
774.3

Match Line Ramp "A"

751.1

11:1 — 8:1 — variable — End Quantity

752.4

754.74
302+50
774.5

Match Line Ramp "A"

754.2

11:1 — 8:1 — variable — End Quantity

753.3

755.67
302+00
775.0

Match Line Ramp "A"

756.3

9:1 — 7' — 16' — 11' — 8:1 — variable — End Quantity

754.4

756.75
301+50
774.5

Sta. 301+00

140 120 100 80 60 40 20 20 40 60 80 100 120

Sta. 301+00

3584	0
3055	0
2640	0
2413	0
4678	0

RAMP "C" STA. 301+50 TO STA. 303+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

	END WIDTH	SQ. YDS.
Fwd.		311
Back	105.8	
		665
	113.4	
		675
	129.4	
		792
	155.4	
		985
		10,436 Area Encircled by Ramp "C"
	199	

Sta. 305+50 Ramp "C" to 306+00 I-480

Match Line I-480

8:1

8:1

variable

End Quantity

749.8

752.27
305+50
775.9

Sta. 305+50 Ramp "C" to 306+00 I-480

Match Line I-480

8:1

8:1

variable

End Quantity

750.0

752.37
305+00
775.6

Match Line I-480

750.8

9.4:1

8:1

variable

End Quantity

750.2

752.55
304+50
775.5

Match Line I-480

749.0

10.7:1

8:1

variable

End Quantity

750.5

752.87
304+00
775.0

Sta. 303+50

140 120 100 80 60 40 20 ℄ 20 40 60 80 100

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			4335	0
Fwd.	0	0		
Back	3114	0		
			5882	0
			3238	0
			6330	0
			3598	0
			7204	0
			4182	0
			52,853	0
			8629	0
			5137	0

Misc. Earthwork Ramp "C" Loop

69

69

RAMP "C" STA. 304+00 TO STA. 305+50

SHEET NO.	STATE	PROJECT	
2	OHIO		

181
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

LENGTH	SQ YDS
1769	
1372	
1384	
1406	
838	
1607	
1497 Fwd.	
0 Back	

Misc. Quantities
Area Encircled by Ramp "D"

Misc. Quantities Sta. 72+00
S.R. 252 to Sta. 297+50 Ramp "D"

Misc. Quantity Center of Loop

EMB AREA		SHRINKAGE	
CUT	FILL	CUT	FILL
		3819	710
		0	869
		0	1691
		0	958
		0	1844
		0	1034
		0	1833
		0	946
		47	1615
Fwd		51	798
Back		0	0
Misc. quantity Sta. 72+00 S.R. 252 to Sta. 297+50 Ramp "D"		0	237

RAMP "D" STA. 297+50 TO STA. 299+50

SHEET NO.	
END WIDTH	SQ. YDS.
113.0	631
114.2	646
118.4	685
128.3	738
137.2	Sta. 299+50

SQ. FT. DIVISION	STATE	PROJECT		182 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	303		
		0	697
0	450		
		0	888
0	509		
		0	1067
0	643		
		0	1400
0	869		

760
750
End Quantity
11:1
754.0
5:1
755.1
Match Line Ramp "B"
755.92
301+50
752.9

760
750
End Quantity
11:1
754.6
8:1
756.2
Match Line Ramp "B"
756.71
301+00
752.6

760
750
End Quantity
11:1
755.5
8:1
756.6
Match Line Ramp "G"
757.77
300+50
752.8

760
750
End Quantity
11:1
756.4
8:1
757.0
Match Line Ramp "G"
759.11
300+00
753.0

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 Sta 299+50

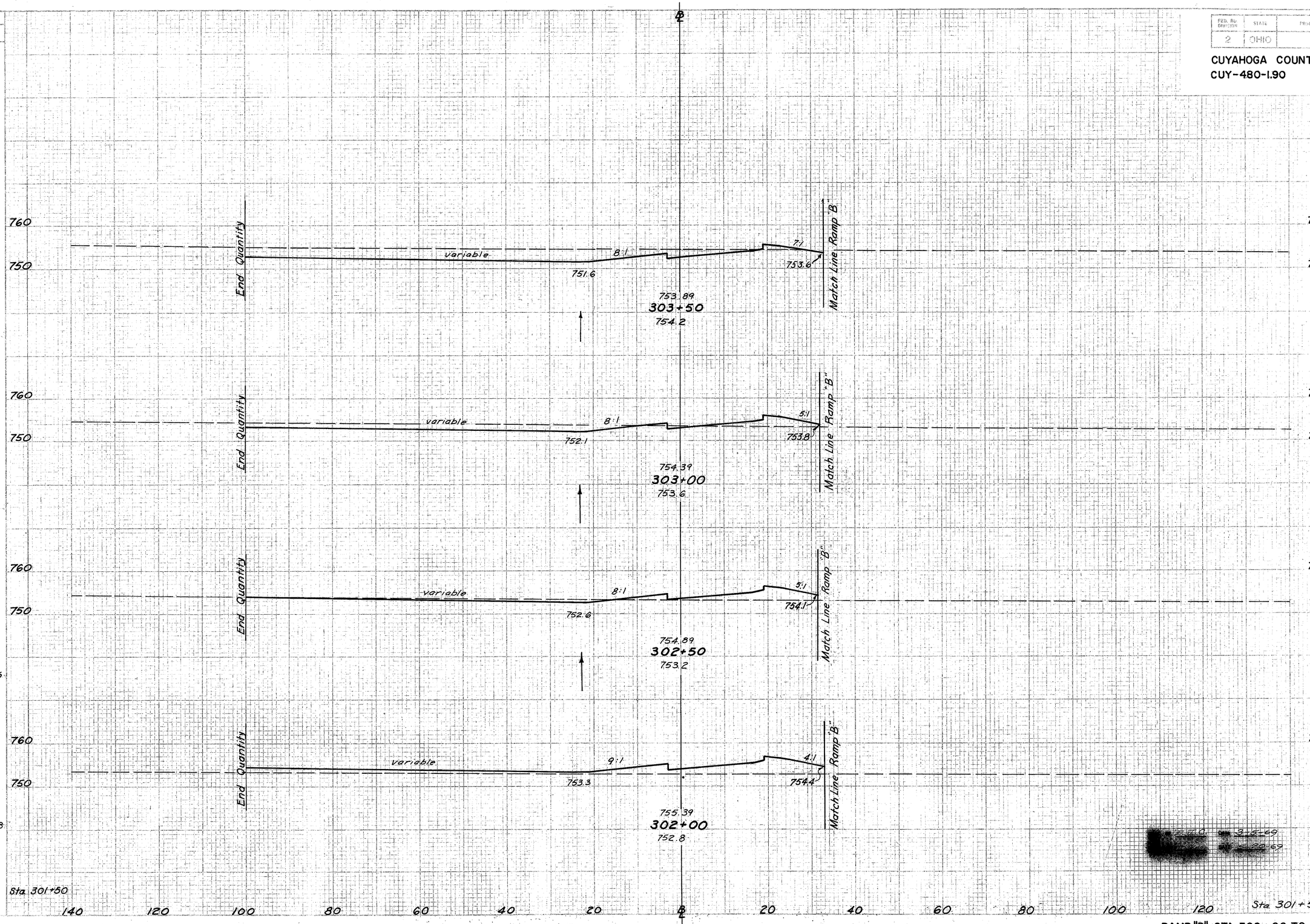
RAMP "D" STA. 300+00 TO STA. 301+50

FED. RD DIVISION	STATE	PROJECT		
2	OHIO			

183
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
CHG WIDTH	CHG TYPE	CUT	FILL	CUT	FILL
113.0	631			271	12
114.3	631			357	50
112.6	626			141	104
113.0	628			37	70
113				0	182
				0	449
				0	303



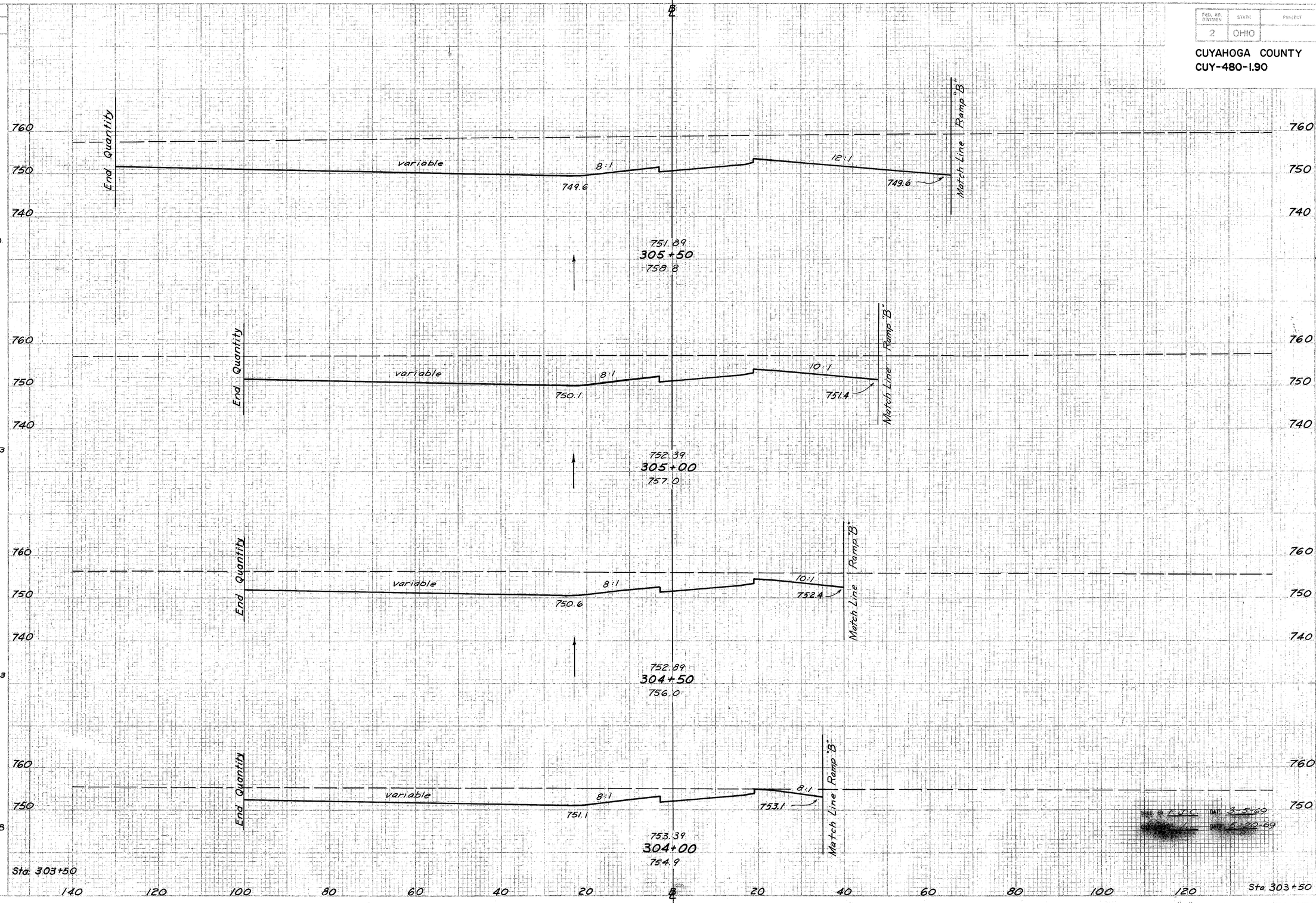
RAMP "D" STA. 302+00 TO STA. 303+50

FED. AID DIVISION	STATE	PROJECT		184 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

ENG. QUANT.	SQ. YDS.
173.4	833
126.7	683
118.3	643
113.0	628
113	



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	1444	0		
			2153	0
	881	0		
	1419	0		
	652	0		
	1023	0		
	453	0		
	271	12	670	11

DRAWN BY T.J.C. DATE 3-3-69
CHECKED BY [illegible] DATE 6-20-69

RAMP "D" STA. 304+00 TO STA. 305+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

185
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

END WIDTH	SQ YDS

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL

℄

End Quantity
760
750
740
variable
8:1
747.6
12:1
Match Line I-480
212.8
1349
749.89
307+50
763.0
2950 0

End Quantity
760
750
740
variable
8:1
748.1
16.5:1
Match Line I-480
272.6
1529
750.39
307+00
762.2
6358 0
3916 0

End Quantity
760
750
740
variable
8:1
748.6
18:1
Match Line Ramp "B"
278.0
1413
750.89
306+50
761.4
6995 0
3639 0

End Quantity
760
750
740
variable
8:1
749.1
13:1
Match Line Ramp "B"
746.4
230.4
1122
751.39
306+00
760.0
5641 0
2454 0

F.A.I.-C. 3-5-69
3-20-69

173.4
Sta. 305+50
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120
Sta. 305+50
1444 0
3609 0

RAMP "D" STA. 306+00 TO STA. 307+50

FED. RD. DIVISION	STATE	PROJECT		186 427
2	OHIO			

CUYAHOGA COUNTY
CUY-480-1.90

444 Misc. Quantities Sta. 309+50
Ramp "D" to Sta. 310+00 I-80

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
Misc. quantity Sta. 309+50 Ramp "D" to Sta. 310+00 I-480			2219	0
Fwd	0	0		
Back	2104	0		
			4057	0
			2278	0
			4570	0
			2658	0
			4891	0
			2625	0
			5162	0
Sta. 307+50			2950	0

151.1 — End Quantity — 770 / 750 / 740 — variable — 745.9 — 12:1 — 747.9 — Match Line I-480

867

747.89
309+50
764.4

160.6 — End Quantity — 770 / 760 / 750 / 740 — variable — 746.2 — 10:1 — 747.8 — Match Line I-480

914

748.39
309+00
764.7

168.2 — End Quantity — 770 / 750 — variable — 746.6 — 10:1 — 747.6 — Match Line I-480

982

748.89
308+50
765.3

185.3 — End Quantity — 770 / 760 / 750 — variable — 747.1 — 12:1 — 747.4 — Match Line I-480

1106

749.39
308+00
763.7

212.8 Sta. 307+50

140 120 100 80 60 40 20 0 20 40 60 80 100 120

RAMP "D" STA. 308+00 TO STA. 309+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

187
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
151.5	767	2250	0	3459	0
124.4	669	1486	0	2241	0
116.4	611	960	0	1463	0
103.4	544	620	0	944	0
924	422	400	0	717	0
151.1	676				

Misc. Quantity Sta. 310+00 Ramp "E" to Sta. 66+00 S.R. 252

Sta. 309+50

Quant. Match Line I-480

Quant. Match Line S.R. 252 Relocated

Match Line S.R. 252

Match Line S.R. 252

Match Line S.R. 252

762.17
312+00
775.0

764.07
311+50
775.0

765.83
311+00
775.1

767.51
310+50
775.0

310+00
775.3

6.7:1 8:1 2:1 760.0

2.5:1 8:1 761.8 757.8

8:1 8:1 3:1 763.5 763.5

8:1 8:1 3:1 767.2 765.2

8:1 8:1 3:1 768.7

L/A

Misc. Quantity Sta. 310+00 Ramp "E" to Sta. 66+00 S.R. 252

140 120 100 80 60 40 20 0 20 40 60 80 100 120

RAMP "E" STA. 310+00 TO STA. 312+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
152.4	872	2434	0	4541	0
161.4	931	2472	0	4727	0
173.4	1003	2634	0	5116	0
187.4	942	2892	0	4761	0
151.5		2250	0		

Match Line I-480

743.2 — 6:1 — 8:1 — 752.0 — 2:1

754.25
314+00
769.3

743.4 — 6:1 — 8:1 — 754.0 — 2:1

756.23
313+50
770.4

743.7 — 6:1 — 8:1 — 756.0 — 2:1

758.21
313+00
772.2

744.1 — 6.4:1 — 8:1 — 758.0 — 2:1

760.19
312+50
774.2

℄/A

760 750 740 780 770

Sta. 312+00

140 120 100 80 60 40 20 0 20 40 60 80 100 120

RAMP "E" STA. 312+50 TO STA. 314+00

FED RD DIVISION	STATE	PROJECT	
2	OHIO		

189/427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
115.4	653	1938	0	3580	0
119.6	668	1928	0	3676	0
121.0	735	2042	0	3979	0
143.3	821	2256	0	4342	0
152.4	Sta. 314+00	Sta. 314+00	2434	0	

Match Line I-480

742.1 6.2:1 8:1 744.3 2:1 L/A

746.48
316+00
764.2

Match Line I-480

742.4 5.8:1 8:1 746.1 2:1 L/A

748.31
315+50
764.8

Match Line I-480

742.6 5.6:1 8:1 748.1 2:1 L/A

750.29
315+00
765.5

Match Line I-480

742.9 5.8:1 8:1 750.1 2:1 L/A

752.27
314+50
767.4

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

RAMP "E" STA. 314+50 TO STA. 316+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

190
427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
	1111				
99.2		1682	0	5526	0
	560				
102.3		1749	0	3177	0
	578			3295	0
105.6		1810	0	3432	0
	600				
110.4		1896	0	3550	0
	628				
115.4		1938	0		

Misc. Quantity Sta. 318+00 Ramp "E" to Sta. 319+00 I-480

Misc. Quantity Sta. 318+00 Ramp "E" to Sta. 319+00 I-480

Match Line I-480

741.3
4:1
8:1
740.0
742.16
318+00
761.9
2:1

Match Line I-480

741.1
4:1
8:1
740.6
742.79
317+50
762.3
2:1

Match Line I-480

741.0
4:1
8:1
741.5
743.72
317+00
763.0
2:1

Match Line I-480

741.6
5:1
8:1
742.7
744.95
316+50
763.7
2:1

760
750
740
L/A

Sta. 316+00
140 120 100 80 60 40 20 0 20 40 60 80 100 120
Sta. 316+00

RAMP "E" STA. 316+50 TO STA. 318+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

SEEDING

ENG. WIDTH	SQ. YDS.
183	
	1014
182	
	1042
193	
	842
110	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
373	3		
		492	131
159	139		
		170	547
25	452		
		30	1195
8	839		

℄

℄/A

4.3:1 750.6 6.3:1

754.20
314+50
753.5

5:1 4:1 751.0

756.04
314+00
753.1

5:1 5:1 751.4

757.88
313+50
752.9

Var.

759.72
313+00
752.6

Match Line Reloc. S.R. 252

Match Line S.R. 252

Match Line

760 750 740

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

RAMP "F" STA. 313+00 TO STA. 314+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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427

CUYAHOGA COUNTY
CUY-480-1.90

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
190.3	1072	1824	0	3064	0
195.7	1081	485	0	2392	0
193.4	1065	1098	0	1683	0
190.2	1036	720	0	1012	3
183		373	3		

Misc. Quantity Sta. 313+50 to Sta. 316+50, 150' Rt. Ramp "F"

Misc. Quantity Sta. 313+50 to 316+00, 150' Rt. Ramp "F"

Match Line I-480

Match Line

Match Line

Sta. 314+50

Sta. 314+50

RAMP "F" STA. 315 +00 TO STA. 316 +50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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427

CUYAHOGA COUNTY
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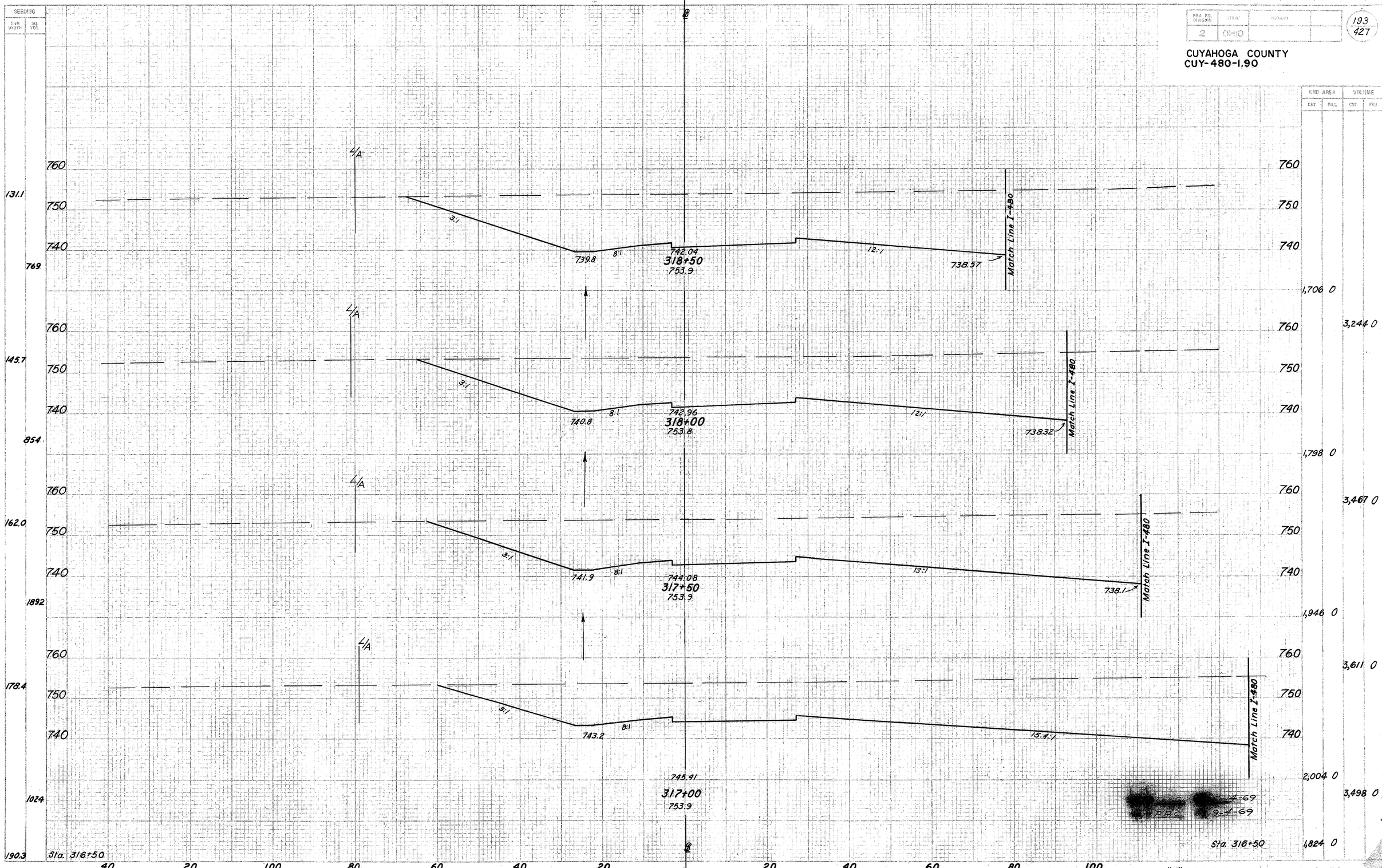
SEEDING		END AREA		VOLUME	
Each Width	SQ. YDS.	CUT	FILL	CUT	FILL
131.1	769	760 / 750 / 740			
145.7	854	760 / 750 / 740		1,706 0	
162.0	1892	760 / 750 / 740		3,244 0	
178.4	1024	760 / 750 / 740		1,798 0	
190.3				3,467 0	
				1,946 0	
				3,611 0	
				2,004 0	
				3,498 0	
				1,824 0	



RAMP "F" STA. 317+00 TO STA. 318+50

SEEDING	
CHD WIDTH	SQ. YDS.
101.6	611
	572
104.2	594
109.9	622
114.1	681
131.1	

FED. DIVISION	STATE	PROJECT	
5	OHIO		

194.
427

CUYAHOGA COUNTY
CUY-480-1.90

CHD AREA		WALKWAY	
CUT	FILL	CUT	FILL
	2147	0	
	1230	0	
	2363	0	
	1322	0	
	2550	0	
	1432	0	
	2788	0	
	1579	0	
	3042	0	
	1706	0	

Misc. Quantity Sta. 320+50 Ramp "F" to 321+00 I-480

Misc. Quantity Sta. 320+50 Ramp "F" to 321+00 I-480

748.32
320+50
753.9

740.52
320+00
753.8

740.82
319+50
753.8

741.33
319+00
753.9

2:1 738.1 8:1 6:1 739.2 Match Line I-480

2.2:1 738.3 8:1 7.3:1 739.08 Match Line I-480

2.5:1 738.6 8:1 9.6:1 738.94 Match Line I-480

3:1 739.1 8:1 11.4:1 738.77 Match Line I-480

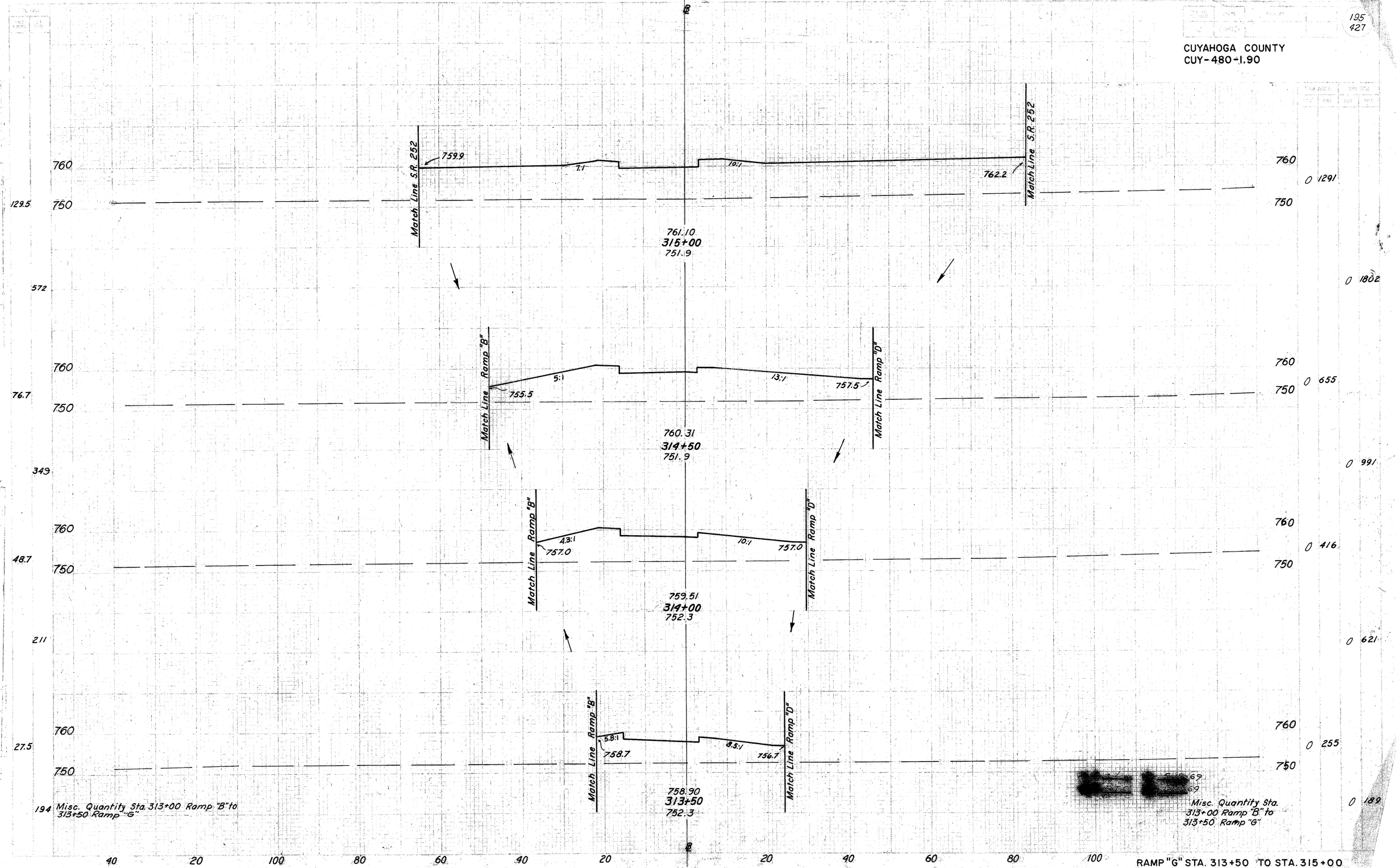
760 750 740

Sta. 318+50

40 20 100 80 60 40 20 0 20 40 60 80 100

RAMP "F" STA. 319+00 TO STA. 320+50

CUYAHOGA COUNTY
CUY-480-1.90



S-19

61-S

WATER WORK

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

196/427

1/38

CUYAHOGA COUNTY
CUY.-480-1.90

WINDSOR DR.
MACKENZIE RD.
Begin Project Sta. 200+75.00
SOUTHERN AVE.
BURNS DRIVE
EXIST. 8" W.M. TO BE REMOVED SEE SHEET NO. 45
NANTUCKET
NEW 12" W.M.
BELLEVUE
RELOCATED 8" W.M.
REVERE DR.
NEW 12" W.M.
TEMPORARY 16" W.M.
RELOCATED 12" W.M.
RELOCATED 24" W.M.
RELOCATED 12" W.M.
FITCH RD.
LOUIS DR.
MATCH LINE STA. 260+00
TEMPORARY 12" W.M.
RELOCATED 12" W.M.
I-80
City of North Olmsted
Olmsted Township
KENNEDY RIDGE
EXIST. 12" W.M.
RELOCATED 12" W.M.
PERMANENT 20" W.M.
TEMP. 16" W.M.
MATCH LINE STA. 260+00
CANTERBURY RD.
BUTTERNUT RIDGE RD.
COUNTRY CLUB BLVD.
EXIST. 12" W.M.
RELOCATED 12" W.M.
Ramp "B"
EXIST. 8" W.M.
RELOCATED 8" W.M. FOR CIRCULATION ONLY
Ramp "D"
RELOCATED 16" W.M.
Ramp "F"
Ramp "E"
Ramp "C"
Ramp "A"
Relocated S.R. 252
KENNEDY RIDGE ROAD
EXIST. 8" W.M.
MATCH LINE STA. 325+00
MATCH LINE STA. 325+00
COLUMBIA RD. (S.R. 252)
RELOCATED 12" W.M.
BROOKPARK ROAD (S.R. 17)
RELOCATED 12" W.M.
MASTICK ROAD
GRACE AVE.
END PROJECT STA 357+00.00
SUNSET OVAL

0 200 400
Scale 1" = 200'

Ronald A. Zurawski CITY ENGINEER CITY OF NORTH OLMSTED
APPROVED Mar. 13, 1978
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER AND HEAT
COMMISSIONER OF UTILITIES ENGINEERING
William J. Sweeney ENGINEER OF DESIGN REVIEW

WATER MAIN WORK-SCHEMATIC PLAN

WATERWORK SUMMARY

ALC. BY W.A.M. DATE 8-7-72
CHKD. BY T.R.B. DATE 8-9-72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

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2/38

TYPE CODE Y060

ITEM	45	200	217	218	219	220	221	222	223	224	225	225A	225B	228	229	230	231	282	233	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
Special							317													317	Lin. Ft.	Special	24" Prestressed Reinforced Concrete Cylinder Water Pipe and Fittings AWWA C 301-64, Including Tunnel
Special								451												451	Lin. Ft.	Special	20" Prestressed Reinforced Concrete Cylinder Water Pipe and Fittings AWWA C 301-64
Special							670		715											1385	Lin. Ft.	Special	16" Temporary By-Pass Connection Prestressed Reinforced Concrete Cylinder Water Pipe and Fittings AWWA C 301-64
Special															142	580	588			1310	Lin. Ft.	Special	16" Water Main Ductile Iron Pipe ASA Class 6 and Ductile Iron Fittings Class D, Cement Lined, with Boltless Restrained Push-On Joints
Special									30			18								48	Lin. Ft.	Special	12" Water Main Ductile Iron Pipe ASA Class 6 and Ductile Iron Fittings Class D, Cement Lined
Special			57	380	361	128			395			422	473		235		35	394	258	3138	Lin. Ft.	Special	12" Water Main Ductile Iron Pipe ASA Class 6 and Ductile Iron Fittings Class D, Cement Lined, with Boltless Restrained Push-On Joints
Special							30		44											74	Lin. Ft.	Special	12" Water Main Cast Iron Pipe ASA Class 25 and Cast Iron Fittings Class D, Cement Lined
Special			132																	132	Lin. Ft.	Special	12" Temporary by-pass connection cast iron pipe ASA class 25 and cast iron fittings class D, cement lined
Special										300	450	92								842	Lin. Ft.	Special	8" Water main ductile iron pipe ASA class 6 and ductile iron fittings class D, cement lined
Special				144																144	Lin Ft.	Special	8" Water Main Cast Iron Pipe ASA Class 25 and Cast Iron Fittings Class D, Cement Lined
Special									25		10	12	16	10				8		81	Lin. Ft.	Special	6" Water Main Cast Iron Pipe ASA Class 25 and Cast Iron Fittings Class D, Cement Lined, All Lead Joints
Special						20												8		28	Lin. Ft.	Special	4" Water Main Cast Iron Pipe ASA Class 24 and Cast Iron Fittings Class D, Cement Lined, All Lead Joints
Special							1	1												2	Each	Special	20" Cutting in Valve Complete and Vault on P.C.C.P
Special			2			2			1									2		7	Each	Special	12" Cutting in Valve Complete and No. 4 Valve Box
Special				2						1				1						4	Each	Special	8" Cutting in Valve Complete and No. 3 Valve Box
															1	2	2			5	Each	Special	16" Hub Valve and No. 4 Valve Box
Special				1	1				2			2	2		1		1	2		12	Each	Special	12" Hub Valve and No. 4 Valve Box
Special				1								1								2	Each	Special	8" Hub Valve and No. 3 Valve Box
Special												1	2						2	5	Each	Special	6" Hub Valve and No. 2 Valve Box
																		1		1	Each	Special	12"x 6" Tapping Sleeve and 6" Valve and No. 2 Valve Box
Special							2													2	Each	Special	24"x 16" Tapping Sleeve and 16" Valve and No. 4 Valve Box
Special									2											2	Each	Special	20"x 16" Tapping Sleeve and 16" Valve and No. 4 Valve Box
Special			2				1		1											4	Each	Special	12"x 12" Tapping Sleeve and 12" Valve and No. 4 Valve Box
Special						2														2	Each	Special	12"x 4" Tapping Sleeve and 4" Valve and No. 2 Valve Box
Special																		1		1	Each	Special	12"x 4" Tapping Sleeve
														1						1	Each	Special	8"x 6" Tapping Sleeve and 6" Valve and No. 2 Valve Box
Special							1	1												2	Each	Special	20" Valve Chamber
Special							1	1												2	Each	Special	4" Drain Complete
Special							1													1	Each	Special	2" Drain Complete
Special				1	1		2	2	2	1		2	1		2	2		2	1	19	Each	Special	2" Air Cock and No. 7 Valve Box Complete
Special							2	1												3	Each	Special	Water Main Drain Vault Complete
Special												1	2							3	Each	Special	Furnishing and Setting 6" Fire Hydrant
Special									2		1			1				1		5	Each	Special	6" Hydrant Relocated
Special						2												1		3	Each	Special	4" Hydrant Relocated
													1							1	Each	Special	New 2" Service Connection
Special													1							1	Each	Special	2" Meter Vault
													1							1	Each	Special	2" Meter Setting
Special							2		1						1					4	Each	Special	16" Plugging Existing Water Main
Special			2																	2	Each	Special	12" Plugging Existing Water Main
Special	1				1															2	Each	Special	8" Plugging Existing Water Main
Special														1						1	Each	Special	6" Plugging Existing Water Main
Special	1		9			6			1									2		19	Each	Special	Plugging Service Connection
Special	1		10			8												2		21	Each	Special	Remove Abondoned Curb Cock & Valve Box
Special						2			1					1						4	Each	Special	Adjust Curb Cock Valve Box to Grade
Special	2																			2	Each	Special	Adjust Existing Waterworks Structures to Grade
Special				1	3	1			1								1	1		8	Each	Special	Relocate, Retap and Reconnect Service Connection
Special																							
Special				1	1				2											4	Each	Special	(3/4"-2") Temporary Service Connection Complete As Specified
Special		1																		1	MFBM	Special	Sheeting Left in Place
202							167													167	Lin. Ft.	202	24" Water Main Removed

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WATERWORK NOTES

SCOPE OF WORK

The work contemplated under this contract comprises the furnishing and installing complete with valves, fire hydrants and other appurtenances, the following water main relocations and performing other incidental work necessary to abandon existing water facilities.

The following major items of work are included in this Project

1. Mackenzie Road - 12" Ductile Iron pipe - permanent relocation on the West side.
2. Bellevue Drive - Revere Drive - 12" Ductile Iron pipe permanent relocation through the limits of I-80 between Bellevue Drive and Nantucket Drive.
3. Fitch Road - 12" Ductile Iron pipe - permanent relocation on the West side of Fitch Road North and South of I-80; 24" Prestressed Concrete pipe permanent relocation on the East side of Fitch Road North and South of I-80.
4. Butternut Ridge Road - 20" Prest. Conc. pipe permanent relocation on the North side of I-80; 12" Ductile Iron pipe - permanent relocation on the South side of I-80.
5. Columbia Road - 12" Ductile Iron pipe - permanent relocation on the West side of Columbia Road
6. Grace Avenue - 12" Ductile Iron Pipe - permanent relocation through the limits of I-80.
7. Kennedy Ridge Great Northern - 8" and 12" Ductile Iron Pipe - Permanent relocation on the North side of I-80.
8. Kennedy Ridge - S.R. 252-16" Ductile Iron permanent relocation, East side.

The Contractor shall do all the work and furnish all the labor and material necessary for the final completion of this contract in the manner and under the conditions herein specified and provided and in accordance with the contract drawings.

DEFINITIONS

Whenever in these specifications or in any documents or instructions in construction where these specifications govern, the following terms are used, (or pronouns in place of them). 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 the District Deputy Director or District Engineer, The District Construction Engineer or the District Maintenance Engineer, or the Project Engineer assigned to administer the contract.

THE CITY, OR THE CITY OF CLEVELAND

The City, or the City of Cleveland, 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 waterwork, and to the preparation or manufacture of the materials to be used in the waterworks. The city inspector 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 previous 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 AND ELEVATIONS

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 AND 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, though not exclusive as follows: To perform all excavation, backfilling, sheeting, shoring, temporary and final repaving and to test the installation. Sand backfill shall be placed under existing and proposed pavement. 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 shall have been backfilled.

(C) - Chlorination: Following the 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 of Cleveland 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. 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 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.

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(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 valve boxes and covers, manhole rings and covers, ladders and ladder rungs and elsewhere when in the opinion of the Engineer, such protection is necessary.

(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

Notwithstanding 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 of Cleveland 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 of Cleveland. In the case of any item not specifically mentioned in the "Waterwork Notes", the State of Ohio Dept. of Transportation "Construction and Material Specifications — Jan. 1, 1977" shall govern.

HANDLING PIPE AND ACCESSORIES

(A) - Unloading: 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 pipe or fitting, the coat 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) - Wherever it becomes necessary in the opinion of 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 supply all materials, do all excavating, backfilling and repaving as may be required. The City will furnish the labor and equipment only for making the changes required, including tapping, in the location of existing house service connections and meters.

(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, fittings and valves to make the connections indicated; branch sleeves and valves shall be furnished by the Contractor, but 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, hydrants and appurtenances removed shall become the property of the Contractor.

WORK TO BE DONE BY THE CITY OF CLEVELAND, DIVISION OF WATER

(A)— The Contractor will furnish the piping material and the City will make all changes required, including tapping, in the location of existing house service connections and meters.

The Contractor shall do all the necessary excavation, backfilling and repaving required therefore. No charge will be assessed the Contractor for any of the labor furnished by the City.

(B) The City will install all tapping sleeves and valves, but the Contractor shall supply the tapping sleeves and valves, lead, and do all the necessary excavation, backfilling and repaving required therefore. In addition to the above requirements, the Contractor shall furnish all air compressors required for the work under the specified item.

(C) In locations shown on the plans the Contractor will be required to sleeve-in to the existing mains. 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. The charges 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. Charges may be obtained from the Permit-Sales Section of the Division of Water and Heat.

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 backfill under and around pipes, and satisfactory construction of all appurtenances and for such sheeting and shoring, 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 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 shall be provided.

(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.

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APPROVED 10/21 1977

William J. Sweeney ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

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WATER WORK NOTES

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(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. A quantity of 1-M.F.B.M. has been provided in the General Summary for Item Special – Sheeting Left in Place.

(B) - Whenever the excavations for the items of work described herein 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

(A) - All surplus material and such other material as the Engineer may deem unfit for use as backfill shall be disposed of by the Contractor so as to give a minimum of inconvenience to the public. In case of settlement after backfill, the Contractor shall supply sufficient material satisfactory to the Engineer to make up for the deficiency.

(B) - In the storing of excavated material, which is to be used as a backfill, the Contractor shall exercise care so as to avoid inconveniencing the public. If, in the opinion of the Engineer, it is necessary to remove this excavated material from the streets or lots, the Contractor shall be required to do so.

(C) - Any material which may spill or drip from vehicles by hauling in the streets, shall be removed and the streets cleaned by the Contractor, to the satisfaction of the Director of Public Service of the City of Cleveland or the proper officials of the municipality or township in which the work is being done.

(D) - When so directed by the Engineer, the Contractor shall immediately remove all excavated materials from the site and dispose of the same.

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 or ductile iron 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.

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 100 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 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, by-passes 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 Engineer will make allowance for any leakage at the valves, the removeable 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 allowances 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 lbs.) leakage is calculated by the application of the ratio determined from the square root of respective pressures, other factors being equal.

CLOSING VALVES

The closing of all gate valves on water mains for making connections, tests, or for any other cause, shall be done by the City of Cleveland. The Contractor shall notify the Cleveland Water Department three (3) weeks in advance of the shutdown and they will specify the time and/or special conditions, hours, etc.

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 existing water mains where indicated in the contract drawings. Concrete piers shall be

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APPROVED 10/21 1977

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

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placed when called for on the contract drawings, or ordered by the Engineer. The cost of furnishing and installing the plugs shall be included in the per linear foot price bid for the various sizes of new water mains and for size plug where shown on the existing water main.

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 pipe cuts, remove pipe and fittings and shall plug or cap mains, tees or crosses, plug connections at main or branches, shall do all the excavating, backfilling and repaving, all as required.

(B) - Plugging Service Connections:
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 plug the service connection.

The Contractor shall arrange with the Cleveland Water Department for the necessary 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" 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 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.

BACKFILLING

(A) - This work includes all backfilling, together with ramming, puddling, and rolling, as required; the grading of grounds; the replacing of surface and subsurface 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, sidewalk and driveways within the limits of the work shall be temporarily surfaced, maintained and finally replaced or repaved as set forth under roads, surfaces, sidewalks, driveways and curbing.

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(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 below.

(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 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 as specified in Sec. 703.02 of the "State of Ohio Department of Transportation Construction and Material Specifications."

(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 limestone 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 limestone shall be well graded from fine to coarse and free from slag, cinders, ashes, rubbish or other objectionable material. All limestone 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 limestone shall be thoroughly tamped before the 3 inch layer of sand is placed. The backfill around and to the depth of three (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 limestone five (5) inches thick on the entire width of the trench. On top of the compacted layer of limestone 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".

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 of 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) - When only a portion of the street is paved and the lines of excavation are in the unpaved portion of same, the Contractor shall use the utmost care in preventing injury to the pavement. If, in making the excavation or for any other cause the pavement is removed or injured by the Contractor, he shall furnish, place and maintain a temporary pavement wherever the pavement has been removed or damaged, so as to provide a safe and passable roadway until such time as the final pavement is completed.

(C) - All final paving of road surfaces, if so noted on the contract drawings, shall be done by the Contractor to the satisfaction of the Engineer and in conformity to the City of Cleveland "Standards and Specifications for Construction of Pavements, Sidewalks and Sewers" of the most recent issues.

The Contractor shall bear the entire cost of the work. The base of concrete pavement, ITEM 305, shall be installed on a carefully prepared bed level with the bottom of the abutting base over disturbed areas and shall be of the thickness specified, but in no case less than 7 inches 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. Asphalt concrete wearing course over such areas shall be neatly and squarely cut,
before the installation of a carefully toothed-in-to

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APPROVED 10/21 1977

William J. Sweeney ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK NOTES FOR INTERSTATE ROUTE 80 -

WATER WORK NOTES

adjacent pavement, unless otherwise specified. Expansion joints shall be installed between brick wearing course (if grouted) and curb or other substructure, where such restoration is required by these specifications.

(D) - All damaged or displaced curb shall be renewed or reset to the satisfaction of the Engineer. No faulty curb or curb less than 30 inches long will be permitted for re-use.

(E) - At locations not specifically mentioned, the Contractor shall restore the same type of pavement as encountered.

(F) - If prior to the expiration of this contract, 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 final pavement or road surface, he shall then backfill with sand properly rammed and replace the final pavement or road surface.

(G) - 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.

(H) - 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.

(I) - All work which the Contractor may do in connection with the opening up or replacing of pavements, road surfaces, sidewalks, driveways, or curbs, as well as the final repaving, shall be done at his expense, in accordance with the rules and requirements of the Street or Sidewalk Departments of the City of Cleveland, and in accordance with the additional requirements of these specifications. And the Contractor shall furnish evidence to the Engineer that the work has been completed to their satisfaction.

(J) - Tunneling will not be permitted without permission of the Engineer. In backfilling tunnels, sand shall be used as far as possible and balance of backfilling made with Class "C" concrete, rammed in place.

(K) - The Contractor shall make all pavement cuts by channeling machine, hand-operated pneumatic tools or by such other methods as will furnish a clean cut in the pavement and pavement base without undue shattering. The use of ball or weight to break the pavement will not be permitted.

WATERWORK NOTES

(L) - 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 pavement 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 Sec. 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 and the City 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.

ITEM SPECIAL — WATER MAINS

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.

CAST IRON AND DUCTILE IRON PIPE AND FITTINGS

(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 shall be 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 pounds and a tensile strength of not less than 18,000 pounds and shall be for class noted on the contract drawings. Pipe may be furnished in 12, 16, or 18 foot lengths. The centrifugally cast pipe shall conform to the American Standard Specification A21.6-1952 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. A21.51-1965

All ductile iron fittings shall be manufactured in accordance with A.S.A. A21.10 or AWWA C 100-55. Ductile iron shall have a minimum of 60,000 psi ultimate tensile strength; 42,000 psi yield point and 10% elongation. The chemical analysis shall be as follows: Carbon 3% minimum, Phosphorus .08% maximum and Silicon 2.75% maximum.

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(1) - The minimum thickness of the centrifugally cast iron and ductile iron pipe shall conform to the following table:

STANDARD THICKNESS OF CENTRIFUGALLY CAST IRON PIPE AND DUCTILE IRON PIPE

DUCTILE IRON PIPE

Size	Working Pressure	Thickness	Class
6"	350 p.s.i	0.43 in.	6
8"	350 p.s.i	0.45 in.	6
12"	350 p.s.i	0.49 in.	6
16"	350 p.s.i	0.52 in.	6

CAST IRON PIPE

Size	Working Pressure	Standard Thickness	Class
6"	250 p.s.i.	0.48 in.	25
8"	250 p.s.i.	0.52 in.	25
12"	250 p.s.i.	0.60 in.	25
4"	250 p.s.i.	0.44 in.	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. Joints for fittings may be of the boltless-restrained push-on type if approved by the Engineer. Drawings and assembly instructions along with pipe and fittings layout and schedule must be furnished. A minimum length of 18 feet of boltless restrained push on pipe shall be used on both sides of boltless restrained push on fittings.

(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 ($\frac{1}{2}$) inch joint opening) in the adjoining lengths of pipe. Pipe to be installed with air cocks or drains shall be cast with bosses thereon, and drilled and tapped for two (2) inch connections, and plugged in the shop with cast iron threaded plugs, before shipment.

(H) - Plugs for bell and spigot pipe and caps for lugged 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 required.

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William J. Sweeney ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK NOTES FOR INTERSTATE ROUTE 80 -

WATER WORK NOTES

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WATERWORK NOTES

(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. All ductile water main pipe and fittings shall be given, in addition to that specified,

protection with polyethylene encasement in accordance with ANSI A21.5-1972 (AWWA C105-72), Class "C" installation method "B". All fittings shall have ANSI A21.5-1972 protection.

CEMENT LINING

All cast iron or ductile iron pipe and fittings shall be given a cement mortar lining at the point of manufacture. The lining shall conform to the American Standard Specification A 21.4-1964 and all subsequent amendements thereto.

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.

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 fitting 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 Engineer. Open ends of pipes shall be kept plugged with a bulkhead during construction. In no event shall any portion of the damaged pipe be 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 "Standard Specifications for Laying Cast Iron Pipe" as adopted by the American Water Works Association.

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 a depth of 2½ 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.

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 pipe and ductile iron pipe line 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 connections 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.

BASIS OF PAYMENT

The footage measured as provided above shall be paid for at the contract 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. plug 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, equipment, tools and incidentals necessary to complete this item, except for the items specifically listed as separate pay items.

The chlorination of the newly laid water mains by the City of Cleveland, Division of Water, will be at no expense to the Contractor.

PRESTRESSED CONCRETE CYLINDER PIPE (Continued)

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 1948 Standard" B 16.1.

(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 steel. All dimensions shall be according to American Standard Heavy. Bolts and nuts shall be delivered to the field free from grease, rust and dirt and shall be properly protected from moisture and dirt in the field. Gaskets for flanged pipe shall be 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 Z. The ends of the steel cylinders shall be beveled. The weld material and the welding procedure shall conform to the AWWA C-206-62 "Tentative 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.

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 AWWA Specifications C 203-62 and C 204-62. The enamel 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) - Zinc coated pipe ends for rubber gasket joints are not to be coated.

(C) - No primer or coating is required for the grooved steel bands at the ends of the concrete cylinder pipe to receive victaulic type couplings.

(D) - All finished surfaces shall be coated with white lead and tallow or equal and not primed.

(E) - After erection all exposed or damaged coatings on surfaces buried under ground, all bolts on flanges and victaulic couplings shall be cleaned and painted with three field coats of Inertol 50 or Bitumastic 50 or approved equal.

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CITY ENGINEER
CITY OF NORTH OLMSTED

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK NOTES FOR INTERSTATE ROUTE 80-

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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, repaving, 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

(A) All prestressed concrete pipe to be furnished shall conform to these specifications and shall conform to the latest AWWA C 301-64 "Standard Specifications for Reinforced Concrete Water Pipe-Steel Cylinder Type, Prestressed" and to specific requirements called for in Plan and Profile General Notes.

(B) The prestressed concrete cylinder pipe shall be furnished in uniform length of not less than sixteen 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
16"	1"	1-1/4"
20"	1-1/4"	1-1/4"
24"	1-1/2"	1-1/4"

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 (8) per cent. 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 ASTM designation: C 150-52, "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 at 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 moisture 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 tensile 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.

* (H-1) SEE CONTINUATION, RIGHT

(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 than 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 fibre 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 tensile 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 ASTM Specifications as follows:

ASTM DESIGNATION	A 82-34	A 227-47T
Title	Cold-drawn steel wire for concrete reinforcement	Hard-drawn steel spring wire
Min. Ultimate Strength: 6 GA. U.S.S.	80,000 PSI	192,000 PSI
Min. Elastic Limit: 6 GA. U.S.S.	64,000 PSI	100,000 PSI

The elastic limit shall be determined by the Johnson Method.

(K) The thickness of sheets for the steel cylinder and the diameter of wire used, as well as the centerline spacing at which it is placed and the tension under which it is wound around the lined cylinder shall be such that the zero compression pressure be at least 50 pounds plus 1½ times the static pressure. The maximum centerline spacing of the wire shall not exceed one inch and the wire shall not be lighter than #6 gauge U.S.S. The lined cylinder shall not be wrapped with wire until at least 6 days after placing of the concrete.

* (H-1) In addition an epoxy resin surface sealer, moisture insensitive per ASTM-D-638, ASTM-E-84, Class "A" fire resistant with 100% solid tensile strength cured of 3,000 PSI, of 6 mills minimum thickness, FDA and USDA approved of high build-concrete gray, all shop applied.

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PRESTRESSED CONCRETE CYLINDER PIPE (Continued)

(L) Steel of special section of spigot joint rings shall conform to ASTM designation: A 31-52T, Grade A, specifications for "Boiler Rivet Steel and Rivets".

(M) 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 283-46T, Grade A, specification for "Structural Quality Low and Intermediate Tensile Strength Carbon Steel Plates", or any subsequent amendments thereto.

(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 ASTM 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 tees, wyes, or branch openings, shall also be of cylinder construction. In all cases, the reinforcement shall adequately compensate for the openings in the pipe wall. If the special piece is prestressed, then the area of the steel in the cylinder and cage, 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 cage 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 cage. All bends and special pieces shall be provided with joint rings corresponding to those in the straight pipe.

(Q) All vertical bends, where the deflections is 15° or greater, flanged pipe between the vertical bends, and all concrete cylinder pipe reducers shall be constructed of steel cylinders of 3/16" thickness plate and shall have the same longitudinal and circumferential steel in the cage 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, pitometer, and air cock connections, and shall be drilled and tapped and provided with 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 end 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

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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 completed 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, ASTM designation: A 27-52T

(X) All steel forgings shall conform to "Standard Specifications for Carbon-Steel Forgings, ASTM designation: A 235-52T

(Y) All forged or rolled steel pipe flanges shall conform to the "Standard Specifications for Forged or Rolled Steel Pipe Flanges for General Service, ASTM designation: A 181-49, Grade 1".

(Z) All structural steel including angles for anchor rings shall conform to "Tentative Specifications for Steel for Bridges and Buildings, ASTM designation: A 7-52T".

(AA) - All cast iron pipe and fittings shall conform to the requirements as outlined under "Cast Iron and Ductile Iron Pipe and Fittings" of these specifications.

(CC) - Iron castings must be smooth and free from blowholes and other defects and the material shall conform to "Standard Specifications for Gray Iron Castings, ASTM Designation: A 48-48, Class No.30." and all subsequent amendments thereto.

(DD) - Closure pieces with Dresser or Smith - Blair 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.

(EE) - Tests, inspection, reports and analyses of tests of samples for all materials shall be furnished in accordance with previous instructions in these notes.

*ALL JOINTS SHALL BE ELECTRICALLY BONDED THAT ARE NOT WELDED TIED.

ELECTROLYSIS TEST STATIONS SHALL BE PROVIDED AS SHOWN ON THE CONTRACT DRAWINGS.

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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 and welded tied joints marked "X", "Y", and "Z" as shown on the contract drawings or as required and as specified in the section of these notes titled "Laying Pipe" and shall properly make all field welds for the above tied 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, and coated in accordance with section (H-1) "Prestressed Concrete Cylinder Pipe" of these water work notes.

* SEE NOTES BELOW

(For continuation of Prestressed Concrete Cylinder Pipe Notes - see sheet No. 203)

VICTAULIC PIPE COUPLINGS

(a) Where shown on the drawings or where required, the Contractor shall furnish and install Victaulic type couplings for connection of line valves to prestressed concrete cylinder or steel pipe reducers. Steel pipe ends shall be fabricated and grooved as indicated on the drawings, Detail A. The couplings shall be adapted for installation on shouldered end of cast iron pipe 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 bolts 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 Iron Castings", A.S.T.M. Designation A 47-61. Bolts shall be manufactured by the coupling manufacturer and shall comply in material with the requirements of bolts for flanged joints specified above. Bolts and nuts shall be galvanized or cadmium plated.

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

The unit price stipulated to be paid per linear foot of water pipe "Item Special - Prestressed Concrete Cylinder Pipe and Fittings" classified to size shall include the furnishing, laying, painting and inspection and testing of prestressed concrete pipe, concrete cylinder fittings, cast iron pipe and fittings, Victaulic and Dresser Couplings, the excavation, sheeting and shoring, backfilling, sand backfilling, seeding and sodding, sidewalk replacement and the temporary and permanent repaving for the above main and the furnishing of all labor, materials, tools, appliances and equipment required to complete the as shown or specified.

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PRESTRESSED CONCRETE CYLINDER PIPE(Continued)

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 or 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 Director.

(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 so 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.

DRAWINGS

(A) - The Contractor shall submit to the Director for approval, duplicate prints of all shop drawings as developed by the fabricator, for concrete pipe, fittings and specials, and miscellaneous details, such as air cock and drain forgings, castings, etc. Drawings shall include details, layouts and laying schedule for all pieces furnished requiring drawing submittal.

(B) - 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 furnish to the Director three (3) reproduceable tracings on cloth or mylar of each drawing. No work shall be done in the shop until after the drawings have been finally approved. Drawings shall be on composite sheets 24"x36". No smaller sheets will be accepted.

(C) - The approval of the drawings by the Director shall not relieve the Contractor of any of his obligations in connection with this contract.

(D) - The Contractor shall submit to the Director a copy of the manufacturer's design calculations.

EXPERIENCE QUALIFICATIONS

All bidders will be required to show to the satisfaction of the Director that the type and size of pipe and fittings he 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.

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" 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's specifications on file at 1201 Lakeside Avenue Cleveland 14, Ohio and the Fire Hydrant Detail shown on sheet No. 216

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 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 the nozzles pointing toward the road and at an angle of forty-five degrees therefrom. Where hydrant branch piping is parallel with, or not at right-angles to the curb, the Contractor shall release swivel head bolts and adjust the hydrant nozzles to face the road at the proper angle. A hydrant without swivel heads will be adjusted by the City where necessary to correct the angle on nozzles. The elevation shall conform to the established grade with tops of frost casing at least four (4) inches above grade.

(E) - Connection to Main: The hydrant shall be connected to the main pipe with a cast iron branch controlled by the independent gate valve of the same size as hydrant, except as otherwise directed.

(F) - Drainage at Hydrant: Drainage shall be provided at the base of the hydrant by filling around the elbow with coarse gravel or crushed stone to at least six (6) inches above the waste opening. Wherever a hydrant is set in rock, clay or other impervious soil, the trench shall be widened and deepened on each side of the hydrant base, which space shall be filled compactly with coarse gravel or broken stone mixed with coarse sand of sufficient quantity to absorb all water to be drained from the hydrant when the 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: The hydrant shall be thoroughly cleaned of dirt or foreign matter before setting.

BASIS OF PAYMENT

(A) - The unit price stipulated to be paid for Each "Item Special-Furnishing and Setting 6" Fire Hydrant" shall include furnishing hydrant, setting, testing, painting, excavating, sheeting and shoring, backfilling, and the furnishing of all labor, material, equipment, tools and appliances necessary to complete the work as specified or as shown.

(B) - The cast iron pipe will be paid for under cast iron pipe and fittings.

(C) - The valves and valve boxes will be paid for under Valves.

FIRE HYDRANTS RELOCATED

WORK INCLUDED

The Contractor shall remove the hydrants and properly set in place and connect at the locations shown on the drawings or as directed by the Engineer. This shall include all excavation, backfilling, seeding and sodding, and repaving required for the proper completion of the work included under this contract.

MATERIALS

All hydrants to be relocated must be in good condition. All other materials and appurtenances necessary for the proper completion of this item shall be of the kind and grade called for in these notes for the particular kind of construction in which the materials are to be used.

CONSTRUCTION METHODS

The construction methods shall conform to the requirements of the Item "Furnishing and Setting 6" Fire Hydrants", as set forth elsewhere in these notes.

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BASIS OF PAYMENT

The work included in this item shall be paid for at the contract unit price bid for each "Item Special- Fire Hydrants Relocated", which price and payment shall constitute full compensation for removing, setting and reconnecting according to the provisions of these specifications for the particular type of construction called for on the plans, and for all excavation, backfilling, seeding and sodding and repaving, and the furnishing of all material, labor, equipment, 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 indicated for removal) , the hydrant becomes the property of the Contractor and shall be disposed of as he sees fit. The cost of such disposal shall be included in the price for Item 203 Excavation not including Embankment Construction, As Per Plan.

2-INCH GALVANIZED BLACK IRON AND BRASS PIPE FOR FLUSHING CONNECTIONS, AIR COCKS AND DRAINS

PAYMENT

No separate payment shall be made for 2-inch pipe. Payment shall be made at the contract unit price bid for the item with which the pipe is used.

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.

BRASS PIPE AND FITTINGS

All brass pipe and fittings shall be extra strong, 2-inch pipe size and the pipe shall conform to A.S.T.M. Specifications B 43-42. Fittings shall be extra strong weight and shall have sound, well fitting threads.

GALVANIZED BLACK IRON PIPE AND FITTINGS

All galvanized black iron pipe, nipples and couplings shall be extra strong black iron pipe A.S.T.M. Designation A-120. The fittings shall be beaded, of malleable iron, extra heavy weight. 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.

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, gate valves and valve boxes and covers, of the various sizes and types specified or ordered 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 Water Works Service of the American Water Works Association AWWA C-500-61 or latest revision thereof and in addition shall comply with the following supplementary requirements. All gate valves shall be of the non-revolving double disc parallel seat bottom wedge or side wedge type. All gate valves 20 inches and over in size shall include by-pass 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, non-rising stems.

(C) - 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.

(D) - Victaulic Ends: Victaulic ends shall conform to the dimensions given on the contract drawings.

(E) - Flange Ends: The end flanges of flanged end gate valves shall conform in dimensions and drilling to the "American 125 pound Cast Iron Flanges Standard", unless otherwise ordered.

(F) - Screw Ends: All 2-inch gate valves and under shall be made with screw ends, unless otherwise specified.

(G) - 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.

(H) - 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: 20-inch valves shall be provided with 3-in. by-passes; valves 24-in. to 30 in., inclusive, shall be provided with 4-in. by-passes; valves 36-in. to 42-in., inclusive, shall be provided with 6-in. by-passes; 48 in. valves shall be provided with 8-in. by-passes.

(I) - 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 pounds Cast Iron Flange Standard. Flanges shall be plain face with a smooth finish.

(J) - Marking: All gate valves 3 inches 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.

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(K) - Stuffing Boxes: The stuffing box on each gate valve 3 inches or over, must be separate from the dome and fastened to it by bolts. For 2 inch valves and under, the stuffing boxes may be formed in the dome of the valve. When required by the Director, valves 16 inches 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, Garlock No. 8990, or National No. 62273l or approved equal.

(L) - 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 RINGS		BODY AND GATE RINGS			GATE RINGS	
				BOTTOM WEDGE			
VALVE SIZE	FACE	DEPTH	THICKNESS AT BASE OF THREADS	FACE THICKNESS	FACE	FACE THICKNESS	DEPTH
3"	9/16	9/16	3/16	3/16	5/8	5/32	1/4
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
16"	1-1/8	3/4	1/4	9/32	1-1/4	13/16	1/2
20"	1-3/8	1-1/8	5/16	3/8	1-3/8	3/8	5/8
24"	1-3/8	1-1/8	5/16	3/8	1-3/8	3/8	5/8
30"	1-1/2	1-1/4	3/8	7/16	1-1/2	7/16	3/4
SIDE WEDGE							
3"	13/32	1/2	3/16	3/16	ALL BRONZE DISC		
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
16"	3/4	1	15/32	3/8	7/8	3/16	13/32
20"	7/8	1-5/16	17/32	7/16	1	1/4	17/32
24"	1-1/16	1-3/8	21/32	1/2	1-3/16	5/16	19/32
30"	1-5/16	1-1/2	25/32	1/2	1-7/16	5/16	19/32

DIMENSIONS IN INCHES

(M) - 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

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stems at the base of the thread shall not be 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
2	0.469	4
3	0.859	4
4	0.859	3
6	1.000	3
8	1.000	3
10	1.125	3
12	1.188	3
16	1.438	3
20	1.896	3
24	1.980	2
30	2.480	2

(N) - 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 inches square and 2 inches 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. On 3 inch valves and under, they shall be 1-1/4 inches square on top, 1-3/8 inches square at base and 1-1/2 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.

(O) - 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. All valves to be so made that they can be easily operated.

(P) - 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.

(Q) - 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 travelling on bronze-faced tracks and provided with suitable bronze scrapers or two stainless steel rollers travelling 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 1 and the stainless steel shall be ASTM A 276-55, Type 302.

(R) - 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 of 1/4 inches 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.

(S) - 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 provide easy operation without bending or twisting.

(T) - 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.

(V) - 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.

(W) - 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.

(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 inch valves and under shall be made entirely of bronze, except handwheels which shall be of malleable iron.

(BB) - Cast Iron Parts: The bodies, covers, discs, frames, etc., of all gate valves 3 inches 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 valve 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 silicone bronze (ASTM B 98-55, Alloy A) or stainless steel (ASTM A 276-55, 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 of an inch or more shall be rejected, and for parts whose thickness is one (1) inch or more, castings being thinner than specified by .08 of an 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) The certificate shall describe the method of test.

(J) - Cast Iron: (1) Quality: Cast iron shall conform to ASTM Specifications A 126, 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.

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ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT
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SUBJECT WATER WORK NOTES FOR INTERSTATE ROUTE 80

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(L) - 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 A.

Grade Three cast bronze shall conform to the properties of ASTM B 132, Alloy B.

Grade Four rolled bronze shall conform to the properties of ASTM B 21, Alloy A (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 4,000 PSI, and shall have the following chemical composition:

Copper, per cent	91.0
Tin, per cent	0.0
Zinc, per cent	5.0
Lead, per cent	4.0

Silicon Bronze - This bronze shall conform to ASTM Specification B 98, Alloy A.

Stainless Steel - The stainless steel shall conform to ASTM Specifications A 276, Type 302.

Cast Iron - The cast iron shall conform to ASTM Specification A 126, Class B.

(M) - 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.

(N) - Chemical Analysis: Chemical analysis of the material used shall be furnished by the Contractor whenever required by the Engineer.

(O) - 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.

(P) - 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.

3" and under	300 PSI -	No time requirement
4" through 12"	400 PSI -	No time requirement
14" through 20"	300 PSI -	for 15 minutes, drop pressure to 150 PSI, then elevate again to 300 PSI for 15 minutes - a total of 1/2 hour
24" through 48"	300 PSI -	for 1/2 hour, drop pressure to 150 PSI, then elevate again to 300 PSI for 30 minutes - a total of 1 hour

This is a modification of Section 29 of the "Standard Specifications AWWA 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.

(Q) - 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 flanged lead or screwed ends as required under the following items: Cast iron pipe and fittings, furnishing and setting 6" (six inch) hydrants, and 2-inch galvanized black iron pipe and brass pipe 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 equal to 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 City or State may require. Such officer 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 carried 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, and after the drawings have been finally approved, the Contractor shall again furnish to the Engineer fourteen additional prints, six of which shall be furnished to the Director of Public Utilities of the City of Cleveland, of each drawing. No work shall be done in the shop until after the drawings have been finally approved.

BASIS OF 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 cock, drain valves, check and gate valves, including by-pass valves, operating nuts, valve boxes and other accessories and appurtenances and the furnishing of all labor, tools, materials and appliances necessary to complete the work as specified or as shown.

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NOTE:

(a) - Air Cock is included for payment in Item Special-2"Air Cock and Valve Box Complete.
(b) - Drain Valve is included for payment in Item Special-2" Drain Complete and 4" Drain Complete.

ITEM SPECIAL-TAPPING SLEEVE AND VALVE AND VALVE BOX

WORK INCLUDED

(A) The Contractor shall furnish the tapping sleeve, valve and valve boxes for the locations shown on the drawings or as directed by the Engineer, of the sizes shown or required for the proper completion of the work included under this contract.

(B) In general, the work of this item contemplates the furnishing and delivery of the material to the proper location on the job. The City of Cleveland, Division of Water, will install the tapping sleeves and valves, but the Contractor shall do all the necessary excavation and backfilling required therefor and repaving if so noted on the contract drawings. Where tapping sleeve and valve is to be installed and tap made in prestressed concrete cylinder pipe, the Contractor shall arrange for the work with the pipe fabricator or valve supplier. The work shall be performed under the supervision of the Division of Water and Heat.

QUALITY OF VALVES

The tapping sleeve and valves shall be A.P. Smith Manufacturing Company or approved equal. All sleeves shall be of the class and size as shown or as directed and shall conform for materials, tests, painting, drawings, etc., to the requirements of the item cast iron pipes and fittings, of these specifications, insofar as they apply. The valves furnished and used under this item shall comply with the requirements of the item "Valves" of this contract, whenever the same may be pertinent. The provisions of the sections (U), (V) and (W) of the item on valves pertaining to grease cases shall apply to the tapping sleeves and valves.

BASIS OF PAYMENT

The unit price stipulated for each "Item Special - Tapping Sleeve and Valve and Valve Box" furnished under this item shall include the furnishing and delivery to the proper location and shall include performing all excavation, sheeting and shoring, backfilling, sand backfilling, seeding and sodding and repaving, if so noted on the contract drawings and the furnishing of all labor, materials, tools and equipment necessary to complete the work as specified or as shown. The installation of the tapping sleeves and valves by the City of Cleveland, Division of Water, will be at no expense to the Contractor.

ITEM SPECIAL-CUTTING-IN VALVE AND VALVE BOX COMPLETE

WORK INCLUDED

Due to operating pressures and use demand, it is necessary that a hub valve be cut-in by the Contractor.

The time of installation will be set by the Division of Water and Heat.

The Contractor will do all pipe cutting and installing.

The Contractor shall furnish the hub valve, valve box complete, Standard 38 Dresser or Smith-Blair Couplings, or approved equal, cast iron pipe and lead for the instal-

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lation. The Contractor shall excavate, tight sheet and shore as necessary the work, pit, backfill and repave as necessary. The work shall be performed under the supervision of the Division of Water and Heat.

BASIS OF PAYMENT

The work included in this item shall be paid for at the unit price bid for each "Item Special-Cutting-In-Valves and Valve Box, Complete" and classified as to size. The price and payment shall constitute full compensation for performing all excavation, sheeting, shoring, backfilling and repaving as necessary and the furnishing of all materials, labor, tools, equipment and incidentals necessary to complete this item.

BRICK AND PLAIN CONCRETE MASONRY

WORK INCLUDED

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 main drain and pitometer vaults, access and anchorage manholes, valve chambers, anchors, piers at pipe bends and under line valves, floors for drain and valve vaults, 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.

BRICK AND MASONRY MATERIAL

The material furnished by the Contractor for the various kinds of masonry construction to be constructed shall conform to the following Ohio Department of Transportation (O.D.O.T.) Specifications.

(A) All brick furnished and used shall be No. 2 shale brick, O.D.O.T. Section 704.01, or concrete brick, O.D.O.T. Section 704.02.

(B) Portland cement shall conform to the requirements of O.D.O.T. Section 701.04 (ASTM C-150 Type I).

(C) Fine aggregate for mortar or grout shall conform to the requirements of O.D.O.T. Section 703.03.

(D) Aggregate for portland cement concrete shall conform to the requirements of O.D.O.T. Section 703.02.

(E) All water shall be clean and accurately measured for each batch of concrete.

(F) All plain concrete shall be O.D.O.T. Section 499 Class "C".

(G) All cement mortar shall be mixed in the proportion of one (1) part of cement to three (3) parts of sand, except the mortar for manholes, which shall be 1:2 mix.

MANHOLE CONSTRUCTION

(A) All brick manholes, brick necks and extensions shall be built in accordance with the contract drawings.

(B) The walls of manholes shall be built of brick laid in 1:3 portland cement mortar, with brick arranged radially as headers, forming a wall nine (9) inches thick. In deep manholes, the wall shall be 13 inches thick below a point 12 feet 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 inches (3/8") thick.

(C) 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 a proper height as indicated by the contract drawings.

(D) 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 (½) inch thick.

BASIS OF PAYMENT

Payment for brick or plain concrete masonry shall be included in the unit price bid for the item in which it is used. Payment for concrete piers and anchors shall be included in the unit price bid for Item Special - Water Mains.

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 and covers, 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 Materials Specifications", except that:

(A) Manhole frame and covers cast iron shall conform to ASTM Designation 48 Class No. 30.

(B) Valve boxes and covers shall be gray iron castings, in which appearance and dimension tolerances are primary considerations and strength is not a primary or major consideration. Valve boxes and covers shall be ASTM Designation A-48 with no specific requirement as to Class. Chemical composition shall not be considered, but the material shall be of good quality and of such character as shall make the metal of the castings strong, tough and of even grain. The metal shall be made without any admixture of cinder iron or other inferior metal.

Workmanship and finish shall conform substantially to the dimensions on the Contract Drawings or furnished drawings. The castings shall be free from injurious defects, cracks, gas holes, flaws, and excessive shrinkage. Additional inspection may be made at the project or work site. Inspection shall be visual inspection for appearance and surface smoothness in comparison with samples accepted as standard.

Sample castings from each pattern, when required by the Engineer, shall be submitted by the manufacturer for the purpose of establishing standards of appearance and dimensional tolerances. The manufacturer shall certify that his product conforms to these specifications. Each certification so furnished shall be signed by an authorized agent of the manufacturer.

(C) All structural steel shall meet the requirements of the ASTM Designation A-7-46.

(D) All bronze bolts and nuts shall conform to the 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 as specified in 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.

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.

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SUBJECT WATER WORK NOTES FOR INTERSTATE ROUTE 80-

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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 *UNLESS SHOWN IN DETAILS ON THE CONTRACT DRAWINGS.*

PAINTING

All miscellaneous metal work not galvanized shall be thoroughly cleaned and given three (3) field coats of coal tar pitch equal to Inertol 50 or Bitumastic 50 or approved equal.

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 drawings and be in accordance with the requirements of Section 711.13 of The State of Ohio D.O.T. Construction and Materials Specifications.

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 poured 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.

BASIS OF PAYMENT

No separate payment will be made for Miscellaneous Metal Work. The furnishing, erecting, machining, fitting, adjusting, bolting, cleaning and painting of all Miscellaneous Metal Work and the furnishing of all labor, materials, tools and equipment shall be included in the contract unit prices bid for the pertinent "Item Special - Masonry Structures" and "Item Special - Valves."

ITEM SPECIAL — ADJUST FIRE HYDRANT AND VALVE BOX TO GRADE

WORK INCLUDED

The Contractor shall perform all operations necessary to the adjusting of the existing Hydrant and Valve Box to the new grade at the locations shown on Sheet Nos. 217 through 233 The work shall include excavating, tamping earth under the valve box, backfilling, inserting extension sections on the hydrants, seeding and sodding required for the proper completion of the work under this contract.

The adjusted height of the hydrant hose connection above the ground or pavement grade shall be in accordance with the requirements of the City of Cleveland Fire Department.

BASIS OF PAYMENT

The work included in this item shall be paid for at the contract unit price bid for each "Item Special - Adjust *FIRE* Hydrant and Valve Box to Grade". This price and payment shall constitute full compensation for performing all of the requirements of this item, furnishing all necessary materials, labor, tools, equipment, supplies and incidentals.

ITEM SPECIAL — ADJUST EXISTING WATERWORKS STRUCTURES TO GRADE

WORK INCLUDED

The Contractor shall raise or lower the existing waterworks structures to fit the revised grade.

BASIS OF PAYMENT

The work included in this item shall be paid for at the contract unit price bid for each "Item Special - Adjust Existing Waterworks Structures to Grade", which price and payment shall constitute full compensation for adjusting valve boxes, vaults, access manholes and any required excavation, backfilling, tamping, seeding and sodding, pavement restoration and for the furnishing of all labor, equipment, materials, tools and incidentals necessary to complete this Item.

ITEM SPECIAL — REMOVE ABANDONED CURB COCK AND VALVE BOX

WORK INCLUDED

The Contractor shall either remove or leave in place the abandoned curb cock. The valve box shall either be removed or broken off at least 1' below the ground surface and backfilled. If the valve box is in a paved area, the area shall be restored to match the existing pavement.

BASIS OF PAYMENT

The work included in this item shall be paid for at the contract unit price bid for each "Item Special - Remove Abandoned Curb Cock and Valve Box", which price and payment shall constitute full compensation for abandoning the valve and removing the valve box, backfilling, seeding, repaving, and for the furnishing of all materials, labor, equipment, tools and incidentals necessary to complete this item. All removed materials shall become the property of the Contractor.

ITEM SPECIAL — "SERVICE CONNECTION EXTENDED"

The Contractor will furnish the piping material for and the City shall make all changes required in the relocation of existing house connections and meters from the corporation cock to the curb cock. The Contractor shall do all the necessary excavation, backfilling and repaving required. Materials to be furnished by the Contractor are listed on Sheet No. 215 A. The Contractor shall do all work from Curb Cock Box to the dwelling where necessary.

BASIS OF PAYMENT

The actual number of "Item Special - Service Connection Extended" shall be paid for at the contract unit price. The price and payment shall constitute full compensation for performing all of the requirements of the item including the furnishing of all *MATERIALS,* labor, tools, equipment and incidentals.

The labor, tools, equipment and incidentals furnished by the City of Cleveland, Division of Water, will be at no expense to the Contractor.

ITEM SPECIAL - NEW SERVICE CONNECTIONS
ITEM SPECIAL - RELOCATE RETAP AND RECONNECT SERVICE CONNECTIONS

A TAP IS TO BE MADE ON THE NEW WATER MAIN AND THE NEW OR EXISTING SERVICE CONNECTION SHALL BE CONNECTED TO THE NEW WATER MAIN. MATERIALS TO BE FURNISHED BY THE CONTRACTOR ARE LISTED ON SHEET NOS. 215 A AND 215 B. THE CONTRACTOR SHALL FURNISH THE PIPING MATERIALS AND THE CITY SHALL MAKE THE NEW CONNECTIONS AND SHALL MAKE ALL CHANGES NECESSARY TO RECONNECT EXISTING CONNECTIONS. THE CONTRACTOR SHALL DO ALL EXCAVATION, BACKFILLING AND REPAVING. THE CONTRACTOR SHALL DO ALL WORK FROM CURB COCK BOX TO THE DWELLING WHERE NECESSARY.

BASIS OF PAYMENT

THE ACTUAL NUMBER OF "ITEM SPECIAL - NEW SERVICE CONNECTIONS" AND "ITEM SPECIAL RELOCATE, RETAP AND RECONNECT SERVICE CONNECTIONS" SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE. THIS PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL OF THE REQUIREMENTS OF THESE ITEMS, INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT, SUPPLIES AND INCIDENTALS. THE LABOR, TOOLS, EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER, will BE AT NO EXPENSE TO THE CONTRACTOR.

GENERAL NOTES

The exact location of existing underground structures, utilities, etc. is not known and the information shown on the plans is to be used at the contractors risk.

The water line stationing is along horizontal centerlines of the pipe. The elevations are based on sea level datum.

The static head used for both design and testing shall be measured from elevation 927.00. The field testing head shall be 75 p.s.i. plus that due to the static head, but in no case less than 100 p.s.i..

The Contractor shall notify R.J. METTLER, INSP. & ENFORC'T. three working days prior to starting any water works construction. Call 694-*3065*

ITEM SPECIAL — WATER MAINS (CONT'D)

PUSH - ON & BOLTLESS RESTRAINED JOINTS

(A) - Where lugged or restrained joints are used in place of bell & bell or bell and spigot joints for cast lead joints as indicated or shown on the drawings, the Contractor shall supply pipe and fittings having lugged joints or positive restrained compression locked joint in push-on or slip-on joint. Lugged joints shall in all respects comply to the Standard A.W.W.A. Specifications and dimensions for the class of pipe and fittings specified. Positive restrained compression locked joint push-on or slip-on joint shall have ends with positive compression locked joint in push-on or slip-on joint providing a restrained flexible joint using corrosion resistant locking so as to provide a minimum of stress in the joint, but providing a minimum of 400 lbs. per inch of pipe circumference resistance to separation of joint.

Locking grooves or slots will be allowed in plain end of pipe; however, thickness of pipe shall be not less than that for :

(1) U.S.A.S. A 21.6 (A.W.W.A. C 106) Class 26 for Cast Iron pipe. *
(2) U.S.A.S. A 21.51 (A.W.W.A. C 151) Class 57 for Ductile Iron Pipe. *

* No minus casting tolerances will be permitted.

All bolt dimensions and other features shall strictly comply with those which have been established under the American Water Works Association Standards. Drawings shall be furnished in accordance with section C-2, sheet № 202, drawings, fully and distinctly illustrating and describing and giving complete layout and assembly direction for the joint to be furnished. Approval of The City of Cleveland, Division of Water will be required. Coating and protection shall be required in accordance with Section K, Cast Iron and Ductile Iron Pipe and Fittings. If grooved, joint must be polyethylene wrapped, as described in Section K.

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SUBJECT WATER WORK NOTES FOR INTERSTATE ROUTE 80 -

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ITEM SPECIAL – 24" REINFORCED CONCRETE CYLINDER WATER PIPE PRESTRESSED AND FITTINGS INCLUDING TUNNEL. (SHEET No. 221)

Work Included

The contractor shall construct a reinforced concrete tunnel in accordance with the details shown on Sheet No. 221 and furnish and install the 24" Diameter Reinforced Concrete Cylinder Water Pipe within the tunnel as shown.

The reinforced concrete tunnel shall be constructed in accordance with the applicable work requirements of the State of Ohio Department of Transportation Construction and Material Specifications dated January 1, 1977, as follows:

(a) Item 202 – Removal of 24" Water Main Pipe.
(b) Item 503 – Excavation for Structures.
(c) Item 509 – Reinforcing Steel.
(d) Item 511 – Concrete for Structures.

The Reinforced Concrete Cylinder Water Pipe shall be furnished and installed in accordance with the applicable requirements of City of Cleveland Division of Water and Heat Specifications for Constructing Water Mains.

Basis of Payment

The work under this item will be paid for at the contract unit price bid for each Linear Foot of "Item Special-24" Water Main Prestressed Reinforced Concrete Cylinder Pipe and Fittings including Tunnel", which price and payment shall constitute full compensation for performing all requirements of this item of work and for furnishing of all labor, materials, small tools and equipment necessary to complete this work in place.

ITEM SPECIAL – TEMPORARY BY-PASS CONNECTION

Work Included

The contractor shall furnish and install the "Temporary By-Pass Connection" using pipe and fittings as specified in the plans. The specifications for laying, backfilling, testing, etc., are shown elsewhere in these notes. Only new pipe is to be used in the temporary connections. When the temporary connection is no longer required, the pipe shall be removed and shall remain the property of the contractor.

Basis of Payment

The work included in this item shall be paid for at the contract unit price bid per Linear Foot for "Item Special – Temporary By-Pass Connection", which price and payment shall constitute full payment for furnishing, installing and removing the pipe and fittings, excavation, backfilling, replacing existing pavement, sidewalk, curb, and the furnishing of all materials, labor, equipment, tools, and appliances necessary to complete the work. The work shall also include the cutting and removing of the existing pipe, constructing concrete piers, testing and chlorinating.

ITEM SPECIAL – CUTTING-IN VALVES (P.C.C.P. ONLY)

Work Included

The contractor shall furnish all the P.C.C.P., and shall properly set in place and connect at the locations shown on the drawings, or as dictated by the Engineer for the proper completion of work included under this contract.

It will be necessary that a full length of P.C.C.P. be removed and that a "Victaulic" End Valve be cut in by the contractor using a short piece of P.C.C.P. Follower Ring Closure Piece and proper reducers along with Air Cock and/or Drain Assemblies as required to properly complete the connection.

The contractor shall furnish the "Victaulic" End Valve, Valve Vaults, Valve Boxes and covers of the size and types specified as required for the proper completion of the work included under this contract.

Basis of Payment

The work included in this item shall be paid for at the contract unit price bid for each "Item Special – Cutting-In Valve, Complete and Vault", classified as to size, shall constitute full compensation for performing all of the requirements of this item, furnishing all necessary materials, labor, equipment, TOOLS, supplies and incidentals.

ITEM SPECIAL-ADJUST CURB COCK VALVE BOX TO GRADE

Work Included

The contractor shall raise or lower the existing Valve Box to fit the revised grade by excavating under or tamping backfill under the valve box to insure that the box has a firm footing, or by using appropriate extension stem sections, if needed.

Basis of Payment

The work included in this item shall be paid for at the contract unit price bid for each "Item Special – Adjust Curb Cock Valve Box to Grade", which price and payment shall constitute full compensation for adjusting the valve box, excavation, tamping earth under valve box, backfilling, seeding, sodding, repaving and for furnishing all labor, materials, small tools, equipment and incidentals required to complete this item of work in place.

ITEM SPECIAL-2" DRAIN COMPLETE AND 4" DRAIN COMPLETE

Work Included

The contractor shall furnish pipe of the sizes shown with a 4" Tangent Outlet at the locations shown on the plans and shall furnish and install the 4" pipe and valve and valve box as shown in the "Water Work Details".

Basis of Payment

The work included in this item shall be paid for at the contract unit price bid for each "Item Special-4" Drain Complete", which price and payment shall constitute full compensation for furnishing and installing all materials, labor, equipment, tools and appliances necessary to complete this item, but shall not include payment for the Drain Vault, which shall be paid for under "Item Special – Water Main Drain Vault Complete".

ITEM SPECIAL-2" AIR COCK AND VALVE BOX COMPLETE

WORK INCLUDED

The Contractor shall furnish pipe with 2" air cock connection and furnish and install the 2" Air Cock and Valve Box as shown in the "Water Work Details," at the locations shown in the plans.

PAYMENT

The work include in this item shall be paid for at the contract unit price bid for each "Item Special-2" Air Cock and Valve Box Complete," which price and payment shall constitute full payment for the furnishing and installing of all materials, labor, equipment, tools and appliances necessary to complete this item of work in place.

ITEM SPECIAL-TEMPORARY SERVICE CONNECTION

WORK INCLUDED

The Contractor shall furnish the piping material, but the City shall make all changes necessary to connect Temporary Service. The Contractor shall furnish all materials and do all necessary excavation, backfilling, seeding sodding and repaving required in making these Temporary Service Connections. Work shall be done in accordance with the requirements specified in the Waterwork Notes for "Relocate, Retap and Reconnect Service Connection" This Item includes reconnecting to existing water main.

PAYMENT

The work included in this item shall be paid for at the contract unit price per each for "Item Special-Temporary Service Connection." This price and payment shall constitute full compensation for the furnishing of all labor, materials, small tools and equipment required to complete work as specified or as shown in the plans. The labor, tools, equipment and incidentals furnished by the City of Cleveland, Division of Water, will be at no expense to the Contractor.

ITEM SPECIAL – METER SETTING

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIAL FOR AND SHALL ARRANGE FOR THE INSTALLATION BY THE CITY OF METER SETTINGS (ASSEMBLIES) IN THE NEW VAULTS AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER MATERIALS REQUIRED FOR EACH SIZE AND TYPE OF INSTALLATION HAVE BEEN TABULATED IN THESE NOTES – SEE "MATERIALS REQUIRED FOR INSTALLATION." THE NECESSARY DIMENSION AND OTHER DETAILS ARE INCLUDED IN THE DETAILED PLAN SECTION. THE CONTRACTOR SHALL PROVIDE THE NECESSARY LABOR AND EQUIPMENT FOR HANDLING THE MATERIAL AND ASSISTING THE CITY IN THE INSTALLATION.

THE CITY OF CLEVELAND, DIVISION OF WATER, WILL INSTALL ALL NECESSARY PIPE, FITTINGS, VALVES AND METER IN THE NEW VAULTS INCLUDING THE FURNISHING OF ALL NECESSARY LABOR, TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

MEASUREMENT

THE METER SETTINGS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH UNIT LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED

PAYMENT

PAYMENT FOR THIS WORK, PERFORMED JOINTLY BY THE CITY AND THE CONTRACTOR, WILL BE AT THE CONTRACT PRICE BID FOR EACH "ITEM SPECIAL – METER SETTING" CLASSIFIED BY PIPE SIZE, COMPLETE. THIS PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS (INCLUDING PIPE, VALVES AND MISCELLANEOUS METAL), LABOR, TOOLS, EQUIPMENT, SUPPLIES AND INCIDENTALS. THE LABOR, TOOLS EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER, WILL BE AT NO EXPENSE TO THE CONTRACTOR.

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

William J. Sweeney ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK NOTES FOR INTERSTATE ROUTE 80–

WATERWORK NOTES

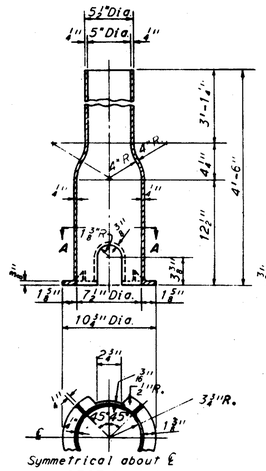
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

213/427

18/38

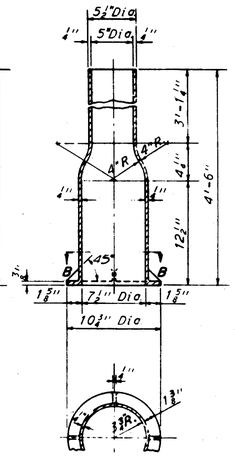
CUYAHOGA COUNTY

CUY-480-1.90



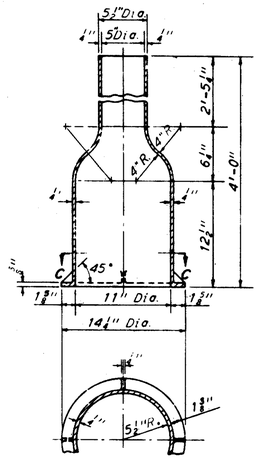
SECTION A-A

Base No. 1 for 1½" and 2" Valves
Est. Wt. 69#



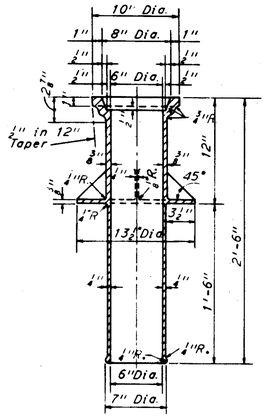
SECTION B-B

Base No. 2 and 3 for 3", 4", 6" and 8" Valves
Est. Wt. 71#



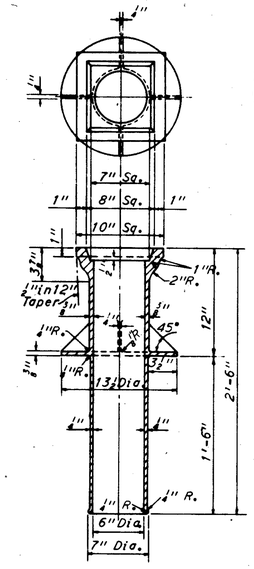
SECTION C-C

Base No. 4 for 10", 12" and 16" Valves
Est. Wt. 79#



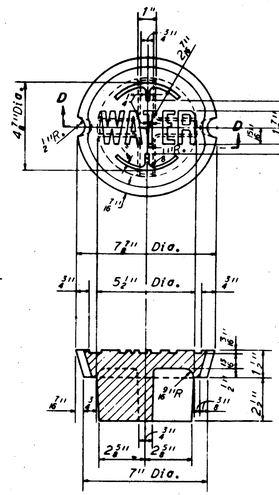
SECTION OF TOP WITH ROUND HEAD NO. 1 AND 2

Est Wt. 73#



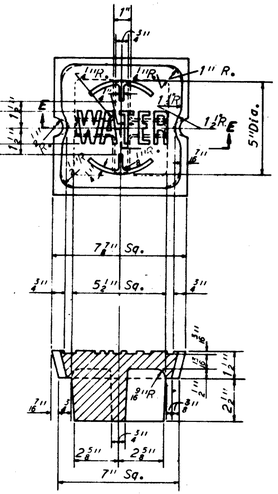
SECTION OF TOP WITH SQUARE HEAD NO. 3 AND 4

Est. Wt. 85#



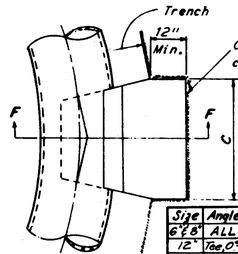
SECTION D-D

Detail of round cover for No. 1 and 2 top
Est. Wt. 20#



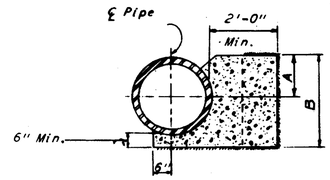
SECTION E-E

Detail of square cover for No. 3 and 4 top
Est. Wt. 23#



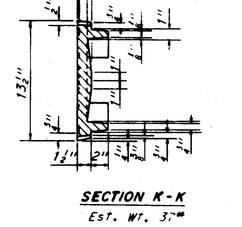
PLAN

Size	Angle	A	B	C
6"&8"	ALL	0'-4"	1'-2"	2'-0"
12"	Tee 0°-15°	1'-0"	2'-0"	2'-0"
12"	90°	1'-6"	3'-2"	2'-0"
20"		1'-6"	3'-0"	4'-0"
24"	6°-15°	1'-6"	3'-3"	4'-0"



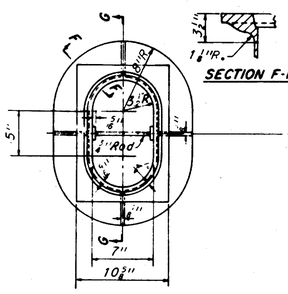
SECTION-FF CONCRETE PIER FOR BENDS

Scale ½" = 1'-0"



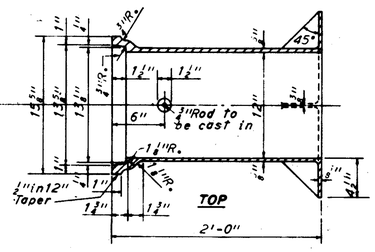
SECTION K-K

Est. Wt. 37#



PLAN

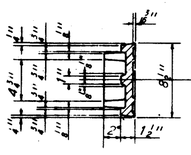
SECTION F-F



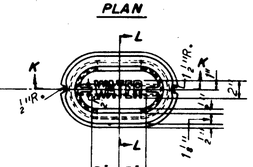
TOP

SECTION G-G

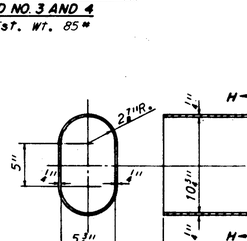
Air Cock Box No.5 is Top and Cover
Air Cock Box No.6 is Top, Base 2'-6" Long and Cover
Flushing Box No.7 is Top, Base 5'-0" Long and Cover
Est. Wt. 128#



SECTION L-L



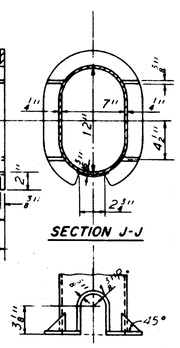
COVER



SECTION H-H

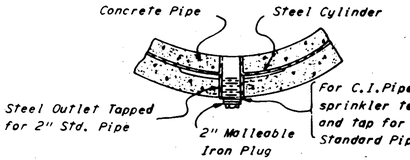
BASE

Est. Weight 2'-6" Long= 70#
Est. Weight 5'-0" Long= 126#



SECTION J-J

This opening to be in 5'-0" base only.



2" DRAIN CONNECTION

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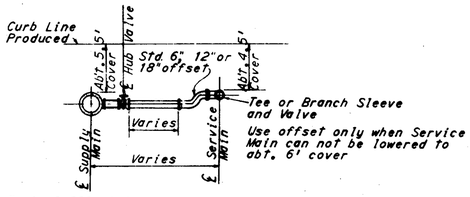
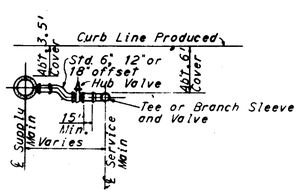
CITY OF NORTH OLMSTED

APPROVED 10/21 1977

STANDARD DETAILS - VALVE AND AIR COCK BOXES

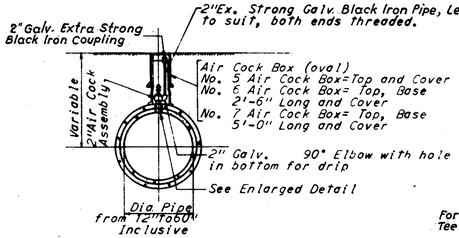


Typical Offset Connection Where Supply Main Is Lower Than Service Main

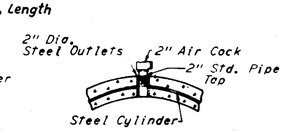


Typical Offset Connection Where Supply Main Is Higher Than Service Main

TYPICAL OFFSET CONNECTIONS



DETAIL OF 2" AIRCOCK INSTALLATION FOR CONCRETE MAINS



ENLARGED DETAIL SHOWING CONNECTION FOR AIRCOCK OR PITOMETER

For Cast Iron or Ductile Iron Pipe use Sprinkler Tee and Tapped for 2" I.D. Standard Thread.

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

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT: WATER WORK DETAILS FOR INTERSTATE 80

SCALE AS SHOWN | NO.

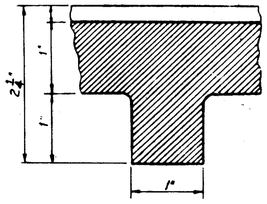
WATER WORK DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

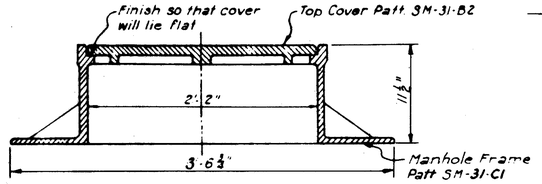
214/427

CUYAHOGA COUNTY
CUY-480-1.90

19/38



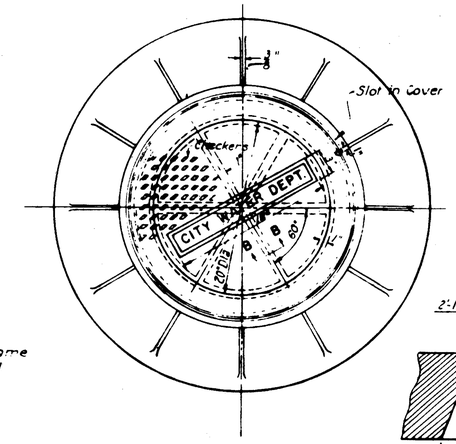
FULL SIZE SECTION B-B



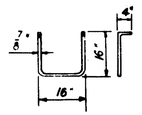
MANHOLE FRAME AND COVER MARK NO. 3

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 : 1½"=1'-0"

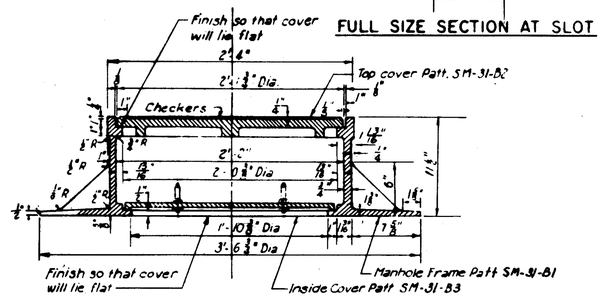


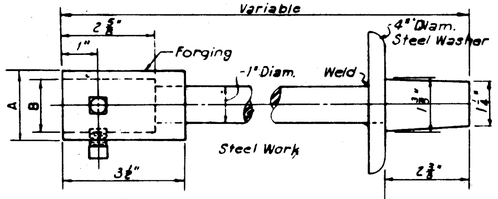
FULL SIZE SECTION AT SLOT



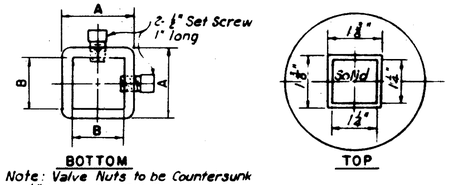
DETAIL OF MANHOLE STEP (D 1)

Number required depends on the depth of vault





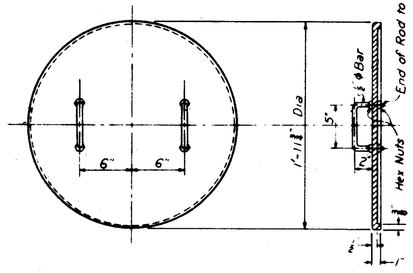
DETAIL OF VALVE EXTENSION STEM



Note: Valve Nuts to be Countersunk ⅛" to receive Set Screws.

Scale : 6"=1'-0"

VALVE SIZE	A	B
2" and smaller	2"	1½"
4" to 20"	2½"	2"

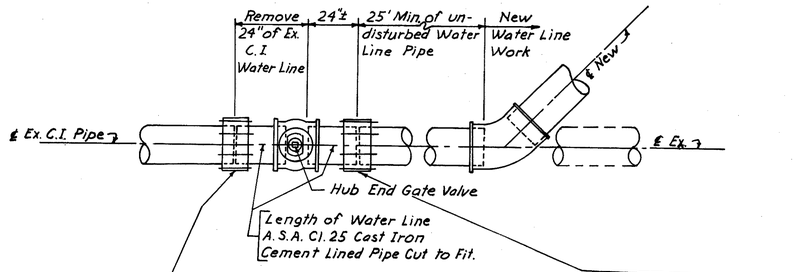


INSIDE COVER (C.I.) PATT. SM-31-B3

MANHOLE FRAME AND COVERS MARK SM-31B

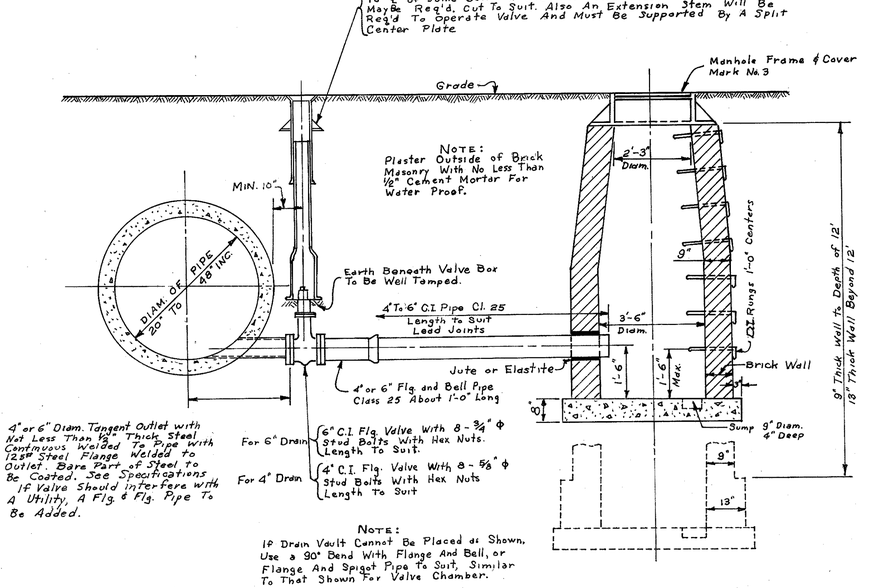
Consisting of { C.I Manhole Frame Patt SM-31-B1
C.I Top Cover Patt SM-31-B2
C.I Inside Cover Patt SM-1-B3
Approximate Weight - 766#

Scale : 1½"=1'-0"



CUTTING-IN VALVE DETAIL

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



TYPICAL DETAIL OF 4" OR 6" DRAIN AND VAULT

DETAIL SHOWN FOR 48" PIPE

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 1977

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK DETAILS FOR INTERSTATE 80

SCALE	NO.
AS SHOWN	

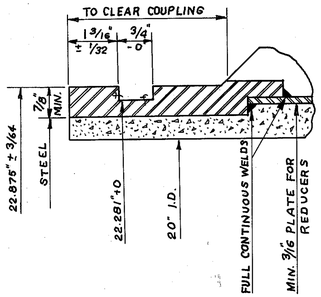
WATER WORK DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

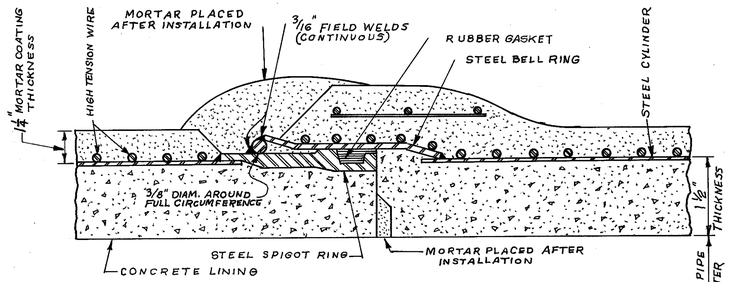
215/427

CUYAHOGA COUNTY
CUY. -480-1.90

20/38

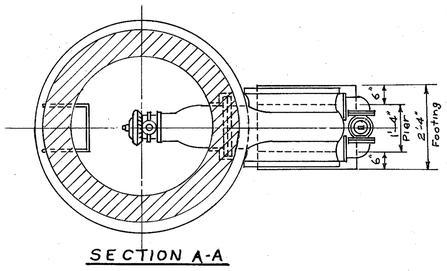


DETAIL "A"
FOR STYLE Nº 44 Victaulic COUPLING.

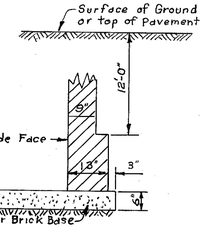


DETAIL " X"

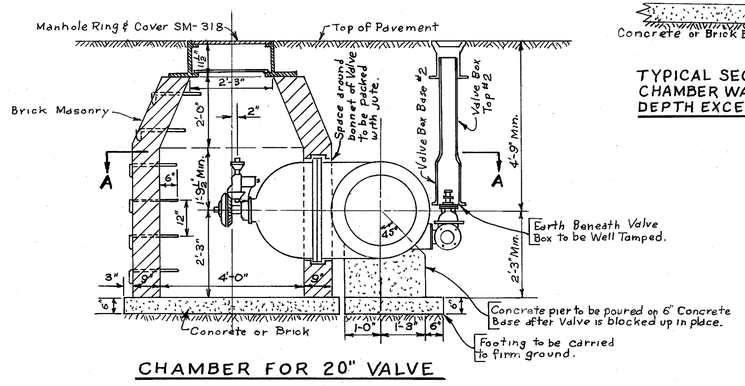
PRESTRESSED CONCRETE CYLINDER PIPE SHOWN.
SPECIAL NOTE: CLAMP TYPE RESTRAINED JOINT MAY BE USED.



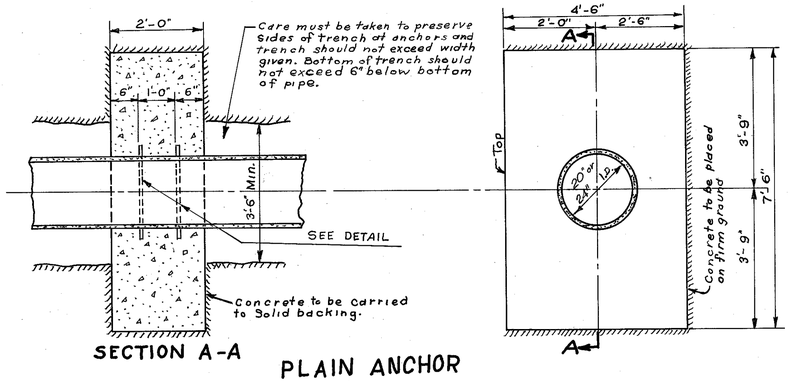
SECTION A-A



TYPICAL SECTION OF CHAMBER WALL WHEN DEPTH EXCEEDS 12'-0"

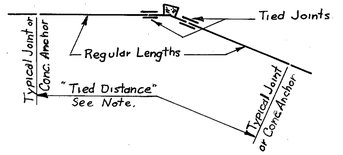


CHAMBER FOR 20" VALVE

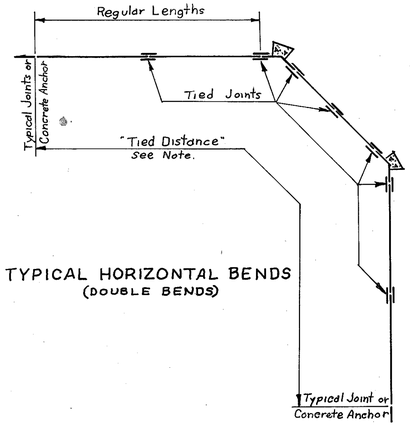


SECTION A-A

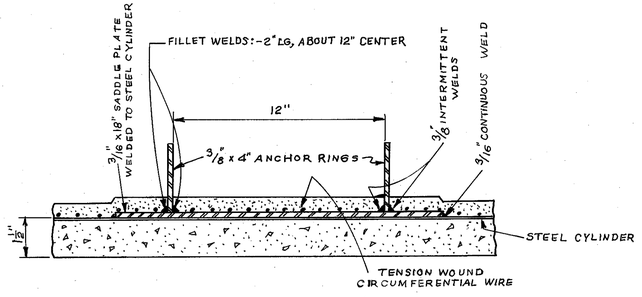
PLAIN ANCHOR



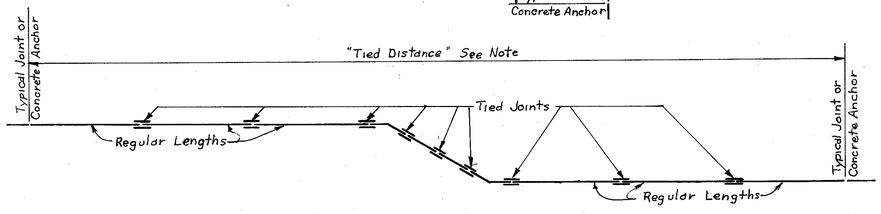
TYPICAL HORIZONTAL BENDS
(SINGLE BENDS)



TYPICAL HORIZONTAL BENDS
(DOUBLE BENDS)

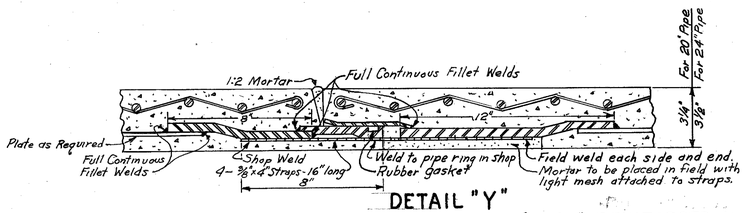


ANCHOR DETAIL FOR 20" & 24" PIPE



TYPICAL VERTICAL BENDS

NOTE:
THE ABOVE LAYOUTS SHOW TYPICAL ARRANGEMENTS FOR BOTH HORIZONTAL AND VERTICAL BENDS. SPECIAL CASES MAY REQUIRE A COMBINATION OF HORIZONTAL AND VERTICAL "TIED DISTANCES" OR THE "TIED DISTANCE" MAY END AT AN ANCHOR INSTEAD OF A TYPICAL JOINT. THE ALIGNMENT DRAWINGS GIVE DEFINITE "TIED DISTANCES" AT ALL REQUIRED POINTS.



DETAIL "Y"
WELDED TYPE TIED JOINTS FOR 20" & 24" REINFORCED CONCRETE CYLINDER PIPE PRESTRESSED

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 1977

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATER WORK DETAILS FOR INTERSTATE 80

SCALE AS SHOWN | NO.

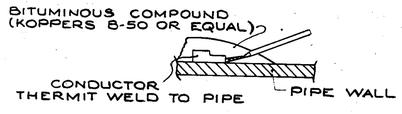
WATERWORK DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

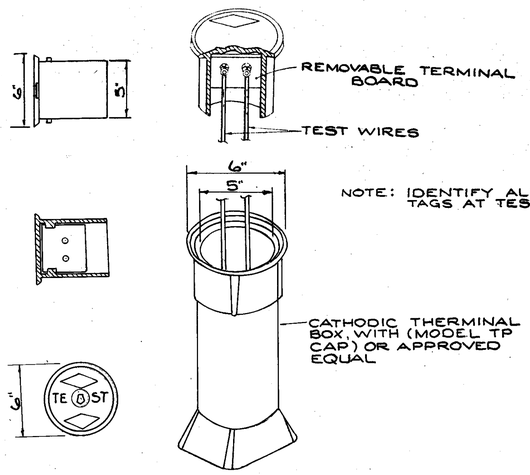
215A 427

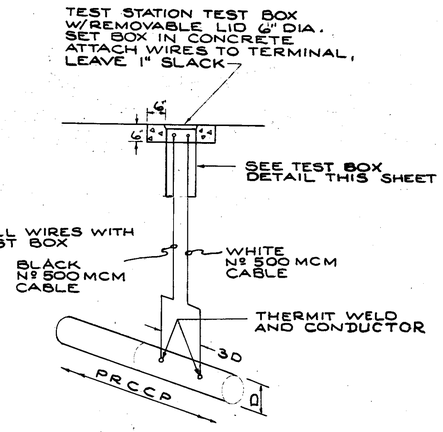
20A 38

CUYAHOGA COUNTY
CUY. -480-1.90



BOND TO PIPES



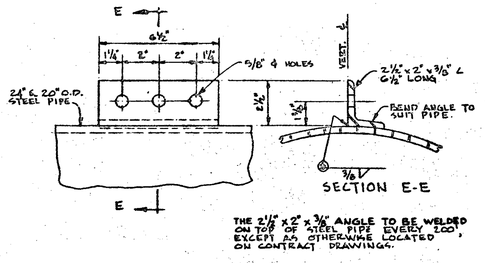


TEST STATION DETAIL

TEST STATION TEST BOX

NOTE: PAYMENT FOR ELECTROLYSIS BONDS AND ELECTROLYSIS TEST TAPS SHALL BE INCLUDED IN PAYMENT FOR RESPECTIVE WATER MAIN PIPE

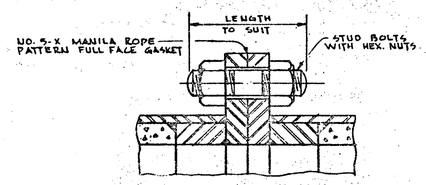
ELECTROLYSIS TEST STATION



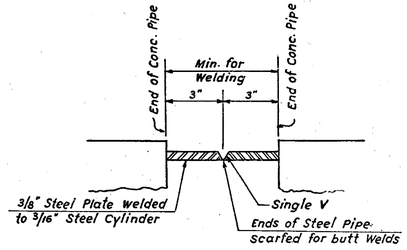
ELECTROLYSIS DRAIN CONNECTION
SCALE ~ 3/4" = 1'-0"

MATERIALS REQUIRED FOR
ITEM SPECIAL, RELOCATE, RETAP AND RECONNECT SERVICE CONNECTION
3/4" or 1" GENERAL SUPPLY WATER CONNECTION

ON CAST IRON PIPE		
1	3/4" or 1"	Corporation Cock - Copper to Iron
1	3/4" or 1"	Curb Cock - Copper to Iron
1		Curb Cock Box Bottom
1		Curb Cock Box Top
X # feet	3/4" or 1"	Copper Tubing
		OR
1	3/4" or 1"	Compression Corporation Stop
1	3/4" or 1"	Oraseal Compression Valve
1		Oraseal Box
1		Oraseal Box Footpiece
X # feet	3/4" or 1"	Copper Tubing

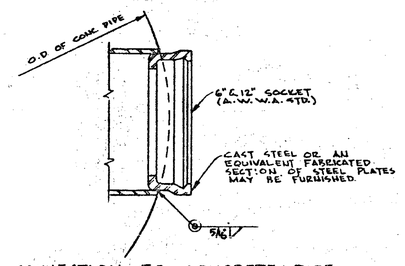


SECTION THROUGH ℄ SHOWING
TYPICAL DETAILS OF FLANGE CONNECTIONS
NO SCALE



DETAIL "Z"

SEE SHEET 203, FLANGED JOINTS, (C)
NOT TO SCALE



CONNECTION TO CONCRETE PIPE
NO SCALE

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT: WATER WORK DETAILS FOR INTERSTATE 80

SCALE AS SHOWN | NO.

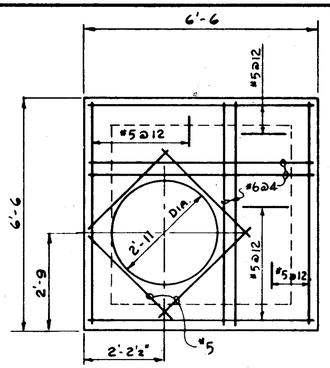
WATERWORK DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO		

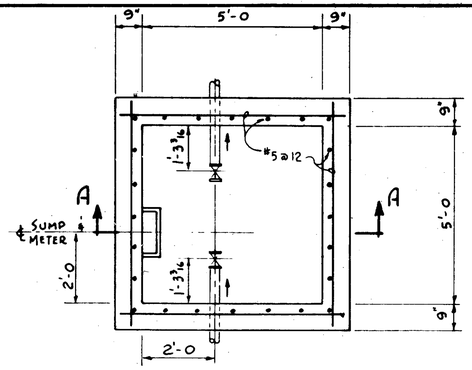
215 B 427

20 B 38

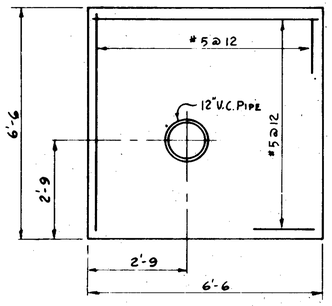
CUYAHOGA COUNTY
CUY-480-1.90



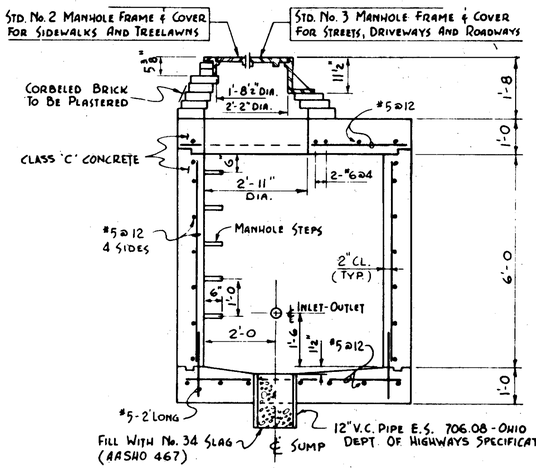
PLAN - TOP SLAB



PLAN



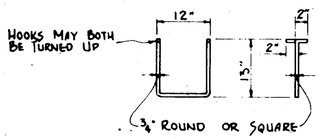
PLAN - BOTTOM SLAB



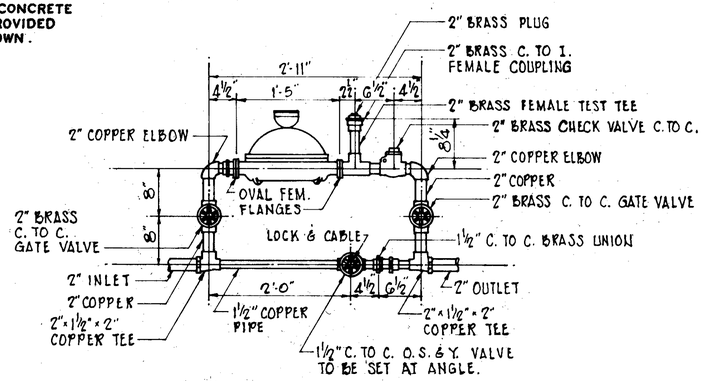
SECTION A-A

1½" AND 2" METER VAULT

NOTE: A PRECAST REINFORCED CONCRETE METER VAULT MAY BE PROVIDED IN LIEU OF THE VAULT SHOWN.



DETAIL OF MANHOLE STEPS



2" METER SETTING

SIDE ELEVATION

SCALE: 1" = 1'-0"

MATERIALS REQUIRED FOR INSTALLATION

ITEM SPECIAL - 2" METER SETTING

COPPER

1	2"	Streamline Coupling, Copper to Iron, female
1	2"	Streamline Coupling, Copper to Iron, male
1	2"	Streamline Tee, Copper to Iron, male
23 inches	2"	Copper Tubing - Hard
1	2"	Brass Screw Plug
1	1-1/2"	O.S.Y. Gate Valve - Copper to Copper
2	2"	Streamline Hand Wheel Gate Valves, Copper to Copper
1	2"	Streamline Swing Gate Check Valve, Copper to Copper
2	2"	Streamline Street Ells - Copper to Copper
1	1-1/2"	Streamline Union, Copper to Copper
2	2" x 1-1/2" x 2"	Streamline Tees, Copper to Iron, female
14 inches	2"	Copper Tubing - Hard
25 inches	1-1/2"	Copper Tubing - Hard
1 lb.		Special Solder
1	2"	Meter

MATERIALS REQUIRED FOR INSTALLATION
ITEM SPECIAL-NEW 2" SERVICE CONNECTION
2" CONNECTION FOR GENERAL SUPPLY

1	SOM x 2"	Strap Saddle
1	2"	Corporation Cock, Copper to Iron
1	2" x 12"	Brass Nipple
1	2"	Square Head Gate Valve
2	2"	Strm. Unions, Copper to Iron, male
x # feet	2"	Copper Tubing
1	#2	Valve Box Top
1	#2	Valve Box Cover
1	#2	Valve Box Bottom

OR

1	SOM* x 2"	Branch Sleeve
1	2"	Tap Valve
2	2"	Strm. Unions, Copper to Iron, male
x # feet	2"	Copper Tubing
1	#2	Valve Box Top
1	#2	Valve Box Cover
1	#2	Valve Box Bottom
x # lbs.		Pig Lead (per size of main)

OR

1	SOM* x 2"	Strap Saddle
1	2"	Oriseal Valve, Iron to Iron
1	2" x 6"	Brass Nipple
2	2"	Strm. Unions - Copper to Iron, male
x # feet	2"	Copper Tubing
1	#2	Valve Box Top
1	#2	Valve Box Cover
1	#2	Valve Box Bottom
1		Stationary Rod

* SOM means Size of Main

NOTE: IN ALL OF THESE CONNECTION SETTINGS, ONE 2" STREAMLINE COUPLING (COPPER TO COPPER) IS TO BE USED FOR EVERY 20 FEET OR PORTION THEREOF OVER THE INITIAL 20 FEET OF CONNECTION.

Ronald A. Zurowski CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED Mar. 13, 1978

William S. Sweeney ENGINEER OF DESIGN REVIEW

1ST HIGH SERVICE DISTRICT

DEPARTMENT of PUBLIC UTILITIES
DIVISION of WATER & HEAT
CLEVELAND, OHIO

SUBJECT: WATER WORK DETAILS FOR INTERSTATE 480

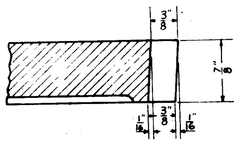
DRAWN BY	SCALE	
TRACED BY		
CHECKED BY	DATE	NO.

FHWA REGION	STATE	PROJECT	
5	OHIO		

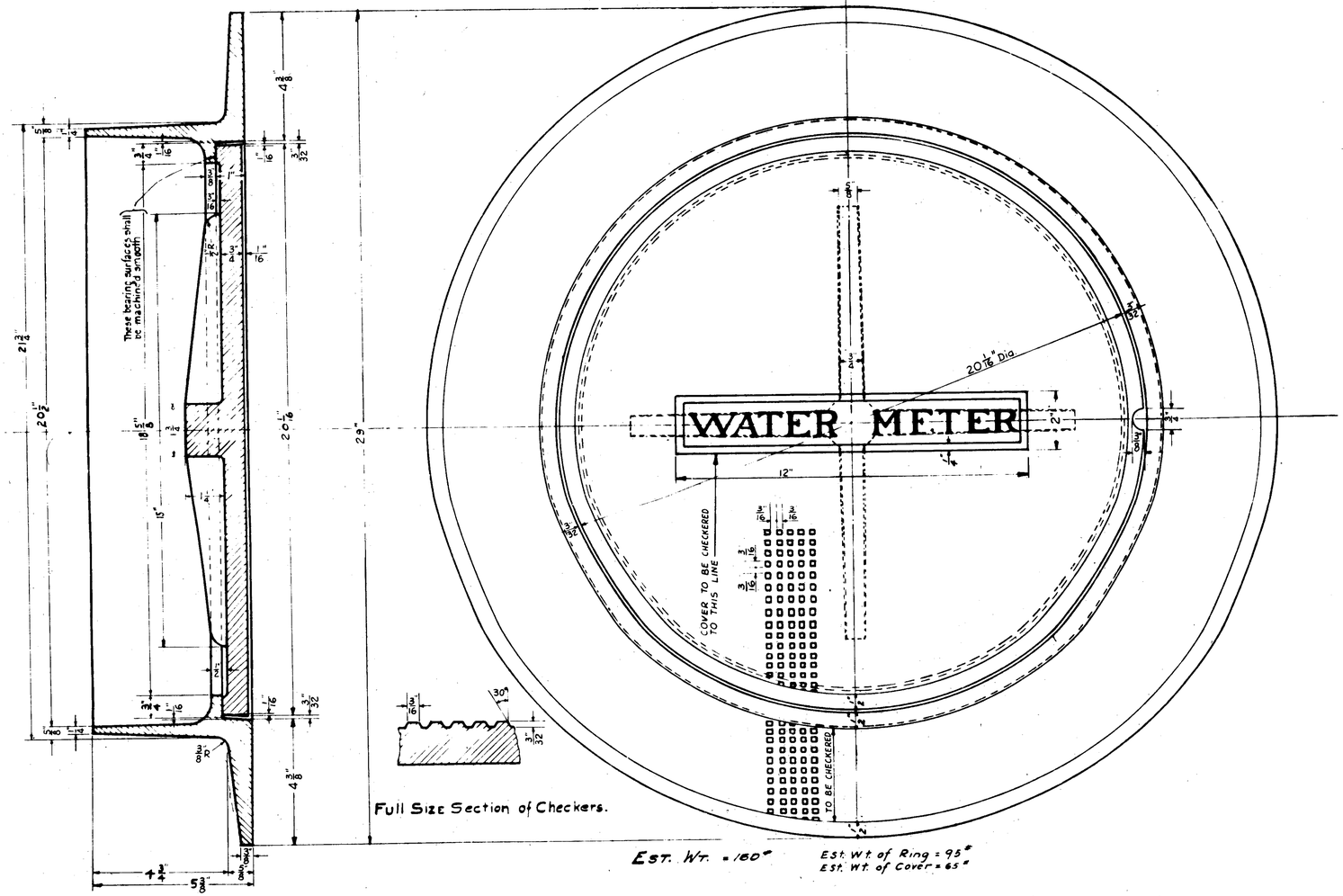
215 C 427

CUYAHOGA COUNTY
CUY-480-1.90

20 C 38



Full Size Section At Slot.



Ronald A. Zurawski CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED Mar. 13, 1978

William J. Lowery ENGINEER OF DESIGN REVIEW

REPRODUCED FROM CITY OF CLEVELAND
WATER DEPARTMENT DWG. No. C 482

1ST HIGH SERVICE DISTRICT

DEPARTMENT of PUBLIC UTILITIES
DIVISION of WATER & HEAT
CLEVELAND, OHIO

SUBJECT: WATER WORK DETAILS FOR INTERSTATE 480

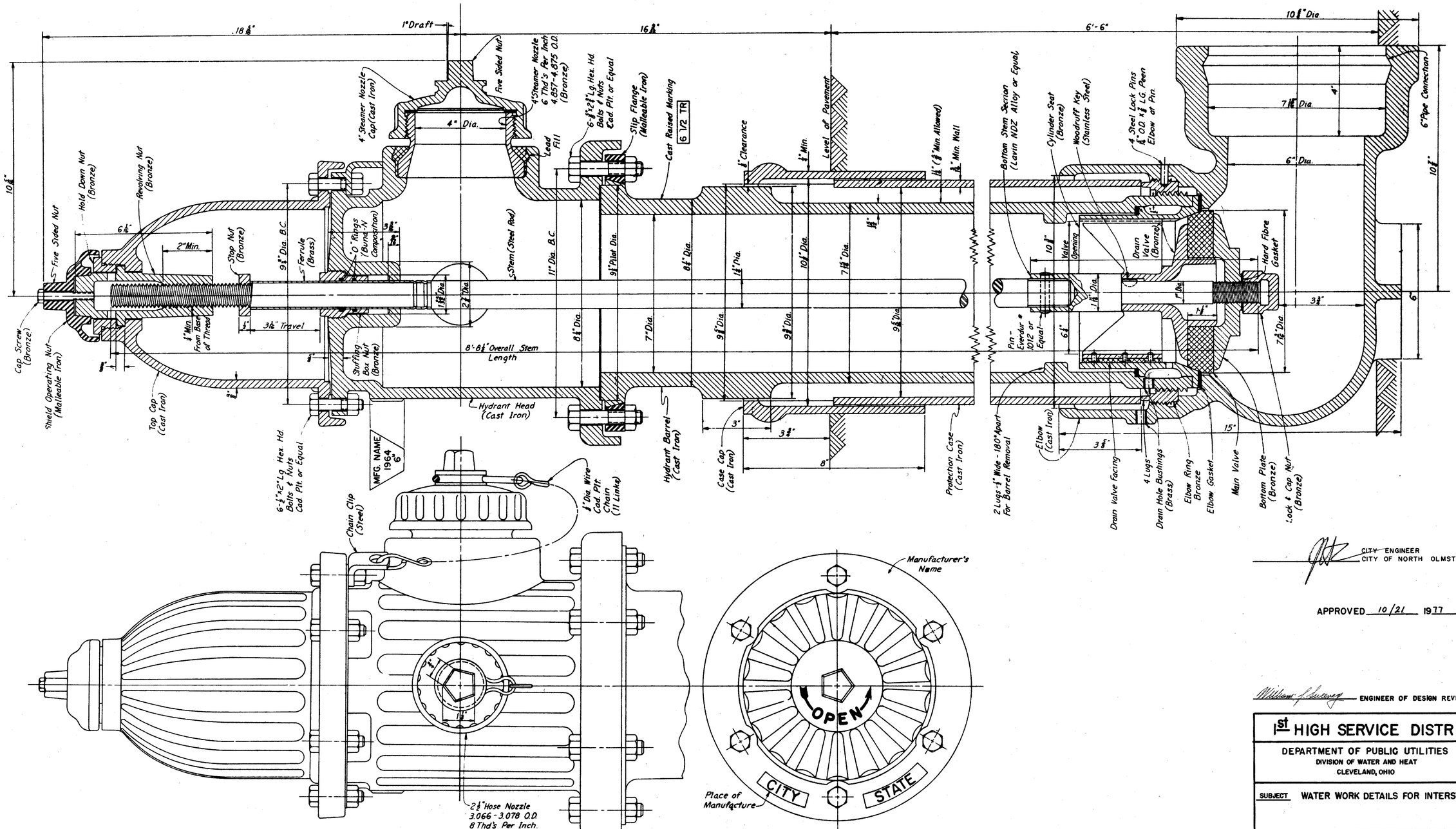
DRAWN BY	SCALE	
TRACED BY		
CHECKED BY	DATE	NO.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

216
427

21
38

CUYAHOGA COUNTY
CUY – 480 – 1.90



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CITY OF NORTH OLMSTED

APPROVED 10/21 1977

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT: WATER WORK DETAILS FOR INTERSTATE 80

SCALE	NO.
AS SHOWN	

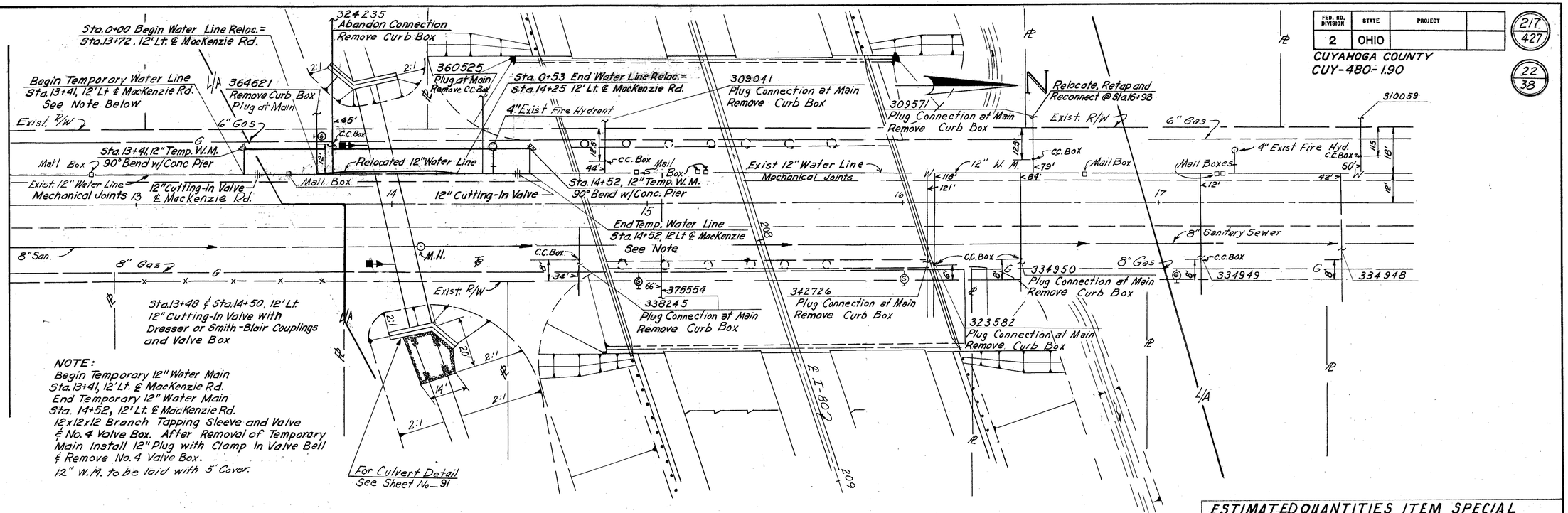
WATERWORK DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

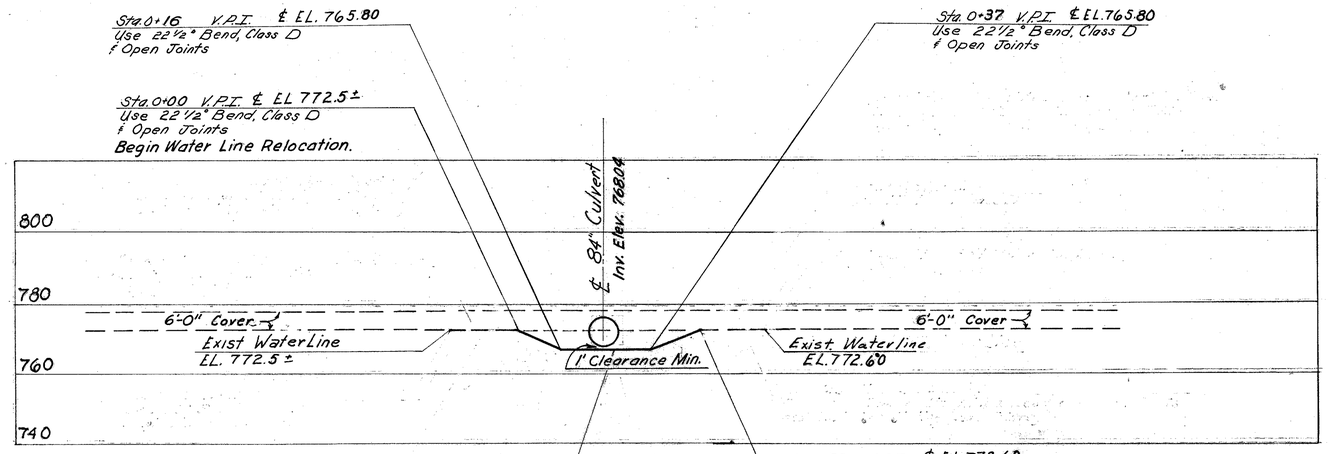
CUYAHOGA COUNTY
CUY-480-1.90

217
427

22
38



NOTE:
Begin Temporary 12" Water Main Sta. 13+41, 12' Lt. & MacKenzie Rd.
End Temporary 12" Water Main Sta. 14+52, 12' Lt. & MacKenzie Rd.
12x12x12 Branch Tapping Sleeve and Valve & No. 4 Valve Box. After Removal of Temporary Main Install 12" Plug with Clamp In Valve Bell & Remove No. 4 Valve Box.
12" W.M. to be laid with 5' Cover.



12" Water Main Ductile Iron Pipe A.S.A. Class 6, with Ductile Iron Fittings Class D, Cement Lined, With Boltless Restrained Push-On Joints

NOTE: For pipe with boltless restrained Push-on joints, see note on sheet No. 211

ESTIMATED QUANTITIES ITEM SPECIAL

DESCRIPTION	Quantity
12" Temporary By-Pass Connection, ASACI. 25 Cast Iron Pipe and Cast Iron Fittings Cl-D, CEMENT LINED	132 Lin. Ft.
12" Cutting-In Valve & No. 4 Valve Box Complete	2 Each
12"x12" Tapping Sleeve & 12" Valve & No. 4 Valve Box	2 Each
12" Plugging Existing Water Main	2 Each
Plugging Service Connections	9 Each
Remove Abandoned Curb Cock Valve Box	10 Each
12" Water Main Ductile Iron Pipe ASA Class 6 with Ductile Iron Fittings Class D, Cement Lined, with boltless Restrained Push-On Joints	57 Lin. Ft.

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CITY OF NORTH OLMSTED

APPROVED 10/21, 1977

ENGINEER OF DESIGN REVIEW

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN LOWERING IN MACKENZIE ROAD FOR CULVERT

DRAWN BY
TRACED BY
CHECKED BY DATE NO.

WATER-MAIN RELOCATION - MACKENZIE Rd. (Reloc)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

218/427

23/38

Sta. 0+28 8"x12" D.I. Increaser, Class D, (B&S) Bell Large End

Sta. 0+25 8"x8"x8" C.I. Tee, Class D, w/Conc. Pier. Connect to Exist. 8" Water Main

Sta. 0+00 8" Cutting-In Valve & Box No. 3 = Sta. 9+00 21' Lt. & Bellevue Drive

Sta. 0+40 12" Hub Valve No. 4 Valve Box

Exist. 8" Hub Valves Abandon

Abandon Exist. 8" W.M.

Abandon Exist. Hydrant

℄ I-480

Exist. R/W

Relocated 12" Water Main

Sta. 3+80 12"x8" Reducer
Use Solid Poured Solid Ductile Iron Sleeves & Short Pipe to Connect

Sta. 4+00 End Water Main Instal = Sta. 13+00± 21' Lt. & Nantucket
8" Cutting-In Valve & No. 3 Box

8" W.M.

Exist. 6" Hydrant

℄ Bellevue Dr.

℄ Nantucket

9+00 10+00 11+00 12+00 13+00 14+00

24" Storm

30" Storm

18" Storm

8" San.

Remove

Exist. 8" Hub Valve Abandon

Exist. R.W.

Sta. 0+25 65' Rt. ℄ Bellevue Dr.
8" Hub Valve & Box Complete
Δ-45° Bend, Cl. D, w/Concrete Pier

Sta. 0+00 Begin Water Line Install.

770 760 750

Buried 5½' Copper Pipe Plug at Main when Complete

L.I. Temp. Pipe

Abandon

Abandon

Sta. 0+80, 100' Rt. ℄ Bellevue Dr.
Δ 45° Bend, Cl. D, W/Concrete Pier
Connect to Existing Water Line

4"1743
Connect/Exist'g

8" W.M.

Existing

12" Storm

8" San. To Remain

18" Storm

8" San.

Connect Exist. Service
Connection to New 8" Water Main

℄ Bellevue

24" Storm
Inv. 764.38

Sta. 0+11 V.P.I. & Elev. 763.10
Use 22½° Bend, Class D

Sta. 0+08 V.P.I. & Elev. 764.30
Use 22½° Bend, Class D

8" Water Main A.S.A. Cl-25 Cast Iron Pipe, Cement Lined, & Cast Iron Fittings Class D

12" Storm
Inv. 764.55

8" San.
760.25

Sta. 1+44 & Elev. 763.90
Connect to Exist. W.M.

Exit 6" Hydrant

L/A

ESTIMATED QUANTITIES		
ITEM	DESCRIPTION	QUANTITY
Special	12" Water Main Ductile Iron pipe ASA Class 6 with Ductile Iron Fittings Class 'D', Cement Lined, with Boltless Restrained Push-On Joints	380 Lin. Ft.
Special	8" Cutting-In Valve Complete & No. 3 Valve Box	2 Each
Special	2" Air Cock & No. 7 Valve Box Complete	1 Each
Special	8" Hub Valve & No. 3 Valve Box	1 Each
Special	8" Water Main A.S.A. Cl-25 Cast Iron Pipe, Cement Lined, & Cast Iron Fittings Class D	144 Lin. Ft.
Special	1" Temporary Service Connection Complete as Specified	1 Each
Special	12" Hub Valve & No. 4 Valve Box	1 Each
Special	RELOCATE, RETAP AND RECONNECT SERVICE CONNECTION	1 Each

NOTE: There shall be 6' cover on all service connections

Test Head to this point

Sta. 3+14, 12"x12"x2 Tapped Sprinkler D.I. Tee Class D Bell x Bell x 2" I.D. Thr'd Outlet - 2" Air Cock & No. 7 Valve Box Complete. Bury Valve Box 1'-0" Below Finish Ground Grade

Test Head to this point

Sta. 3+74 V.P.I. & Elev. 764.3
Use 22½° Bend Cl-D

Sta. 3+20 V.P.I. & Elev. 772.7
Use 22½° Bend Cl-D

℄ I-80 Elev. 779.86

36" Storm

Sta. 3+80 & Elev. 764.30
Connect to Exist. W.M.

790 780 770 760 750

Sta. 0+28 Begin Water Line Instal.

770.0 766.3 766.3 771.6 771.3 766.3 768.3

6' Cover

1'0" Min. Clearance

Existing 8" Water Line & Elev. 764.30

0 1 2 3 4

Sta. 0+48 V.P.I. & Elev. 764.3
Use 22½° Bend Cl-D

Sta. 1+21 V.P.I. & Elev. 771.3
Use 22½° Bend Cl-D

12" Water Main Ductile Iron Pipe ASA Class 6 with Ductile Iron Fittings, Class D, Cement Lined, with Boltless Restrained Push-On Joints

Sta. 0+66 V.P.I. & Elev. 756.5
Use 22½° Ductile Iron Bend, Cl-D

Sta. 0+79 V.P.I. & Elev. 756.5
Use 22½° Ductile Iron Bend, Cl-D

NOTE: For pipe with boltless restrained push-on joints, see note on sheet No. 211

Sta. 3+48 V.P.I. & Elev. 760.5
Use 22½° Ductile Iron Bend, Cl-D

Sta. 3+66 V.P.I. & Elev. 760.5
Use 22½° Ductile Iron Bend, Cl-D

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 1977

COMMISSIONER DIVISION OF WATER ENGINEER

ENGINEER OF DESIGN REVIEW

REVISIONS

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN UNDER I-80 CONNECTING BELLEVUE AND NANTUCKET

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

12" WATER MAIN BELLEVUE — NANTUCKET

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

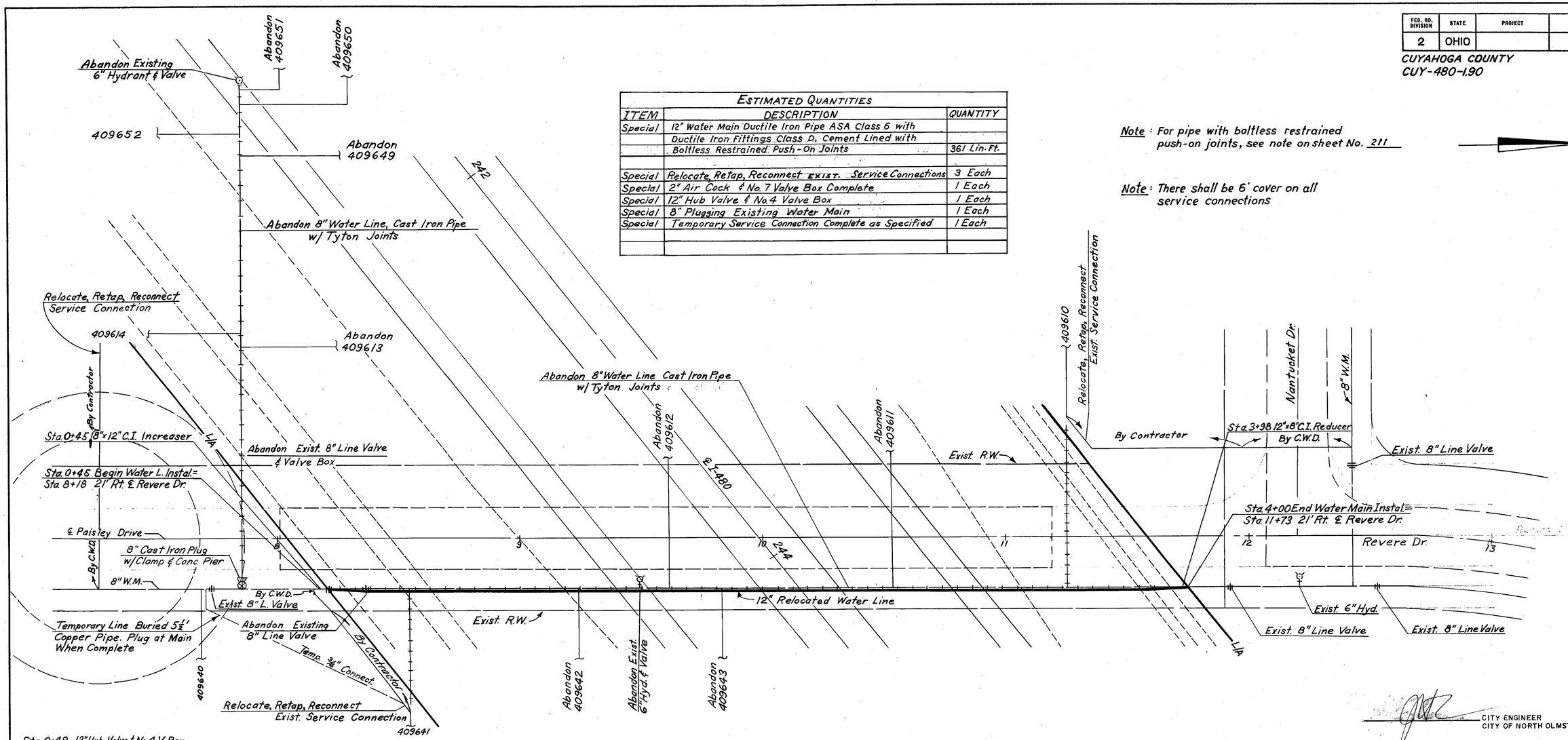
219/427

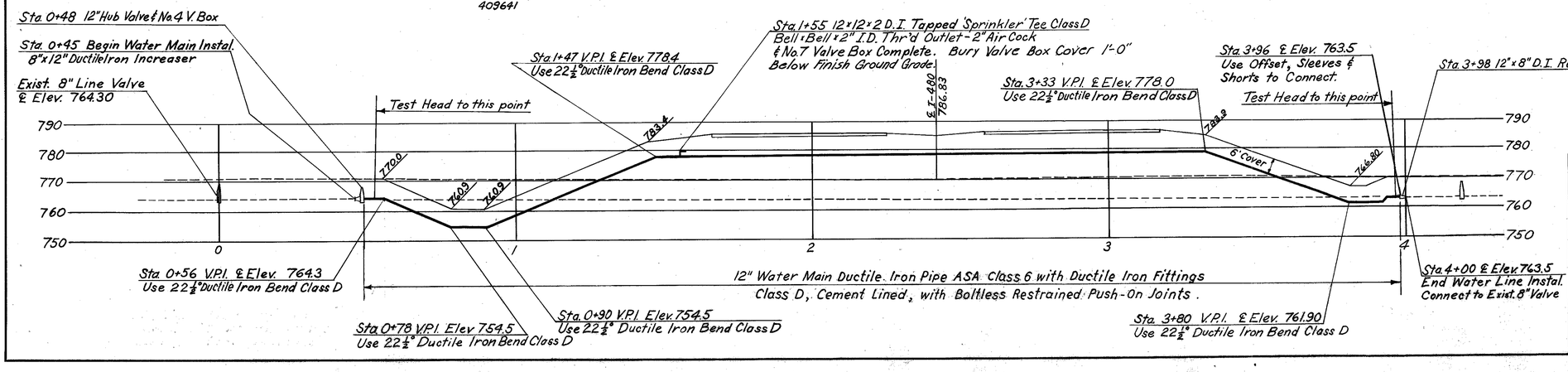
24/38

ESTIMATED QUANTITIES		
ITEM	DESCRIPTION	QUANTITY
Special	12" Water Main Ductile Iron Pipe ASA Class 6 with	
	Ductile Iron Fittings Class D, Cement Lined with	
	Boltless Restrained Push-On Joints	361 Lin. Ft.
Special	Relocate, Retap, Reconnect Exist. Service Connections	3 Each
Special	2" Air Cock & No. 7 Valve Box Complete	1 Each
Special	12" Hub Valve & No. 4 Valve Box	1 Each
Special	8" Plugging Existing Water Main	1 Each
Special	Temporary Service Connection Complete as Specified	1 Each

Note : For pipe with boltless restrained push-on joints, see note on sheet No. 211

Note : There shall be 6' cover on all service connections





CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

ENGINEER OF DESIGN REVIEW

REVISIONS

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN UNDER I-80 CONNECTING PAISLEY DRIVE AND REVERE DRIVE

DRAWN BY
TRACED BY
CHECKED BY DATE NO.

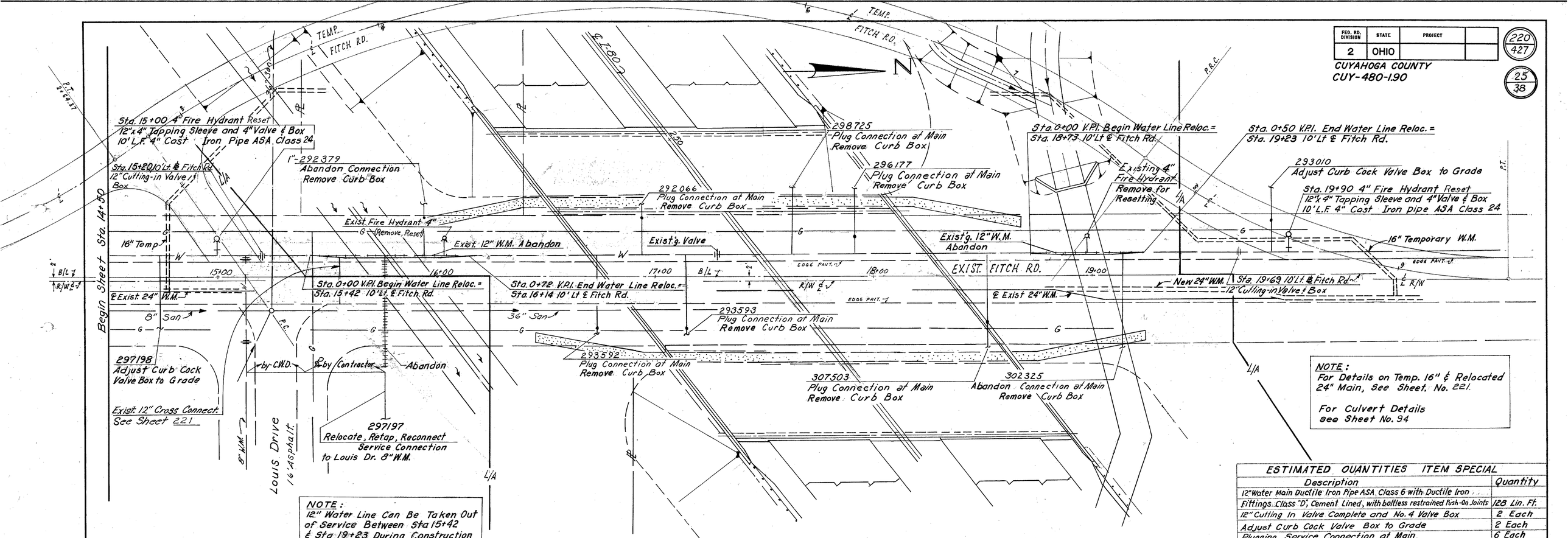
12" WATER MAIN – PAISLEY DR. TO REVERE DR.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

220 / 427

25 / 38

CUYAHOGA COUNTY
CUY-480-1.90



NOTE:
12" Water Line Can Be Taken Out of Service Between Sta 15+42 & Sta 19+23 During Construction

NOTE:
For Details on Temp. 16" & Relocated 24" Main, See Sheet, No. 221.

For Culvert Details see Sheet No. 94

NOTE: There shall be 6' cover on all service connections.

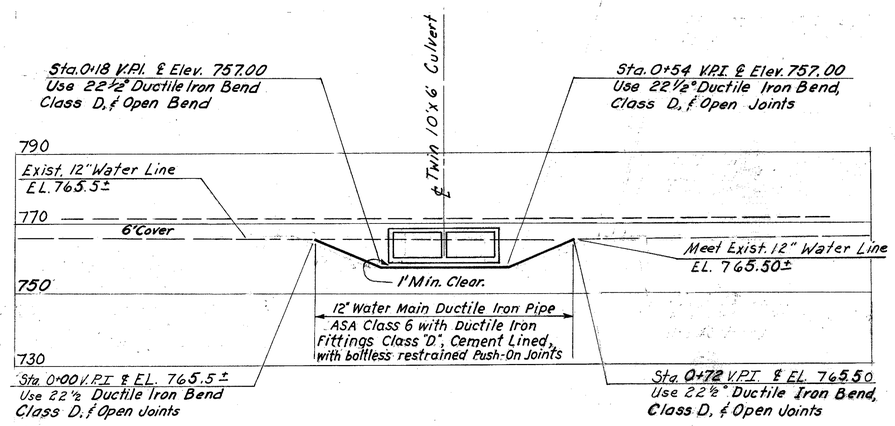
ESTIMATED QUANTITIES ITEM SPECIAL

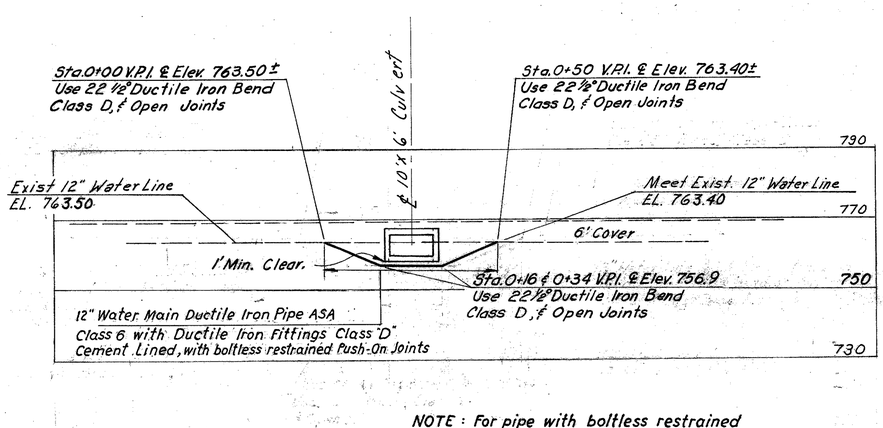
Description	Quantity
12" Water Main Ductile Iron Pipe ASA Class 6 with Ductile Iron Fittings Class "D", Cement Lined, with boltless restrained Push-On Joints	128 Lin. Ft.
12" Cutting In Valve Complete and No. 4 Valve Box	2 Each
Adjust Curb Cock Valve Box to Grade	2 Each
Plugging Service Connection at Main	6 Each
Remove Abandoned Curb Cock Box	8 Each
Relocate, Retap, Reconnect EXISTING Service Conn.	1 Each
4" Hydrant Relocated	2 Each
12"x4" Tapping Sleeve and 4" Valve and No. 2 Valve Box	2 Each
4" Water Main Cast Iron Pipe ASA Class 24, Cement Lined, Cast Iron Fitting Class D, all Lead Joints.	20 Lin. Ft.

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

ENGINEER OF DESIGN REVIEW





NOTE: For pipe with boltless restrained push-on joints, see note on Sheet No. 211

REVISIONS

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN LOWERING IN FITCH ROAD FOR CULVERTS

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

12" WATER MAIN RELOCATION FITCH Rd. (Reloc)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

221
427

26
38

Sta. 15+28, 86' Lt. & Fitch Rd. = Sta. 1+11 & 16" Temp. By-Pass Use 45° Bend, Concrete Pier & Elev. 768.0

Sta. 14+78, 35' Lt. & Fitch Rd. = Sta. 0+40 & 16" Temp. By-Pass Use 45° Bend, Conc. Pier & Elev. 767.1

Temporary 16" Water Main

Sta. 18+80, 86' Lt. & Fitch Rd. Sta. 4+63 & 16" Temp. By-Pass Use 45° Bend, Concrete Pier & Elev. 763.5

Sta. 19+48, 18' Lt. & Fitch Rd. = Sta. 5+59 & 16" Temp. By-Pass Use 45° Bend, Concrete Pier & Elev. 765.0

Sta. 20+20, 18' Lt. & Fitch Rd. Sta. 6+31 & 16" Temp. By-Pass Use 45° Bend, Concrete Pier & Elev. 765.0

Sta. 20+39 1' Rt. & Fitch Rd. = Sta. 6+58 & 16" Temp. By-Pass Use 45° Bend. Concrete Pier & Elev. 765.0

Begin Temp. By-Pass Connect Sta. 14+78.4 Rt. & Fitch Rd = Sta. 0+00 & 16" Temp. By-Pass 24"x16"x16" Branch Tapping Sleeve & Valve & No. 4 Valve Box. * After Removal of Temp. Main, install 16" Plug w/Clamp in Valve Bell & Remove No. 4 Valve Box

* ON P.C.C.P.

End Temp. By-Pass Connection Sta 20+39.9 Rt. & Fitch Road = Sta. 6+67 & 16" Temp. By-Pass 24"x16"x16" Branch Tapping Sleeve & Valve & No 4 Valve Box. * After Removal of Temp. Main install 16" Plug w/Comp in Valve Bell & Remove No. 4 Valve Box.

* ON P.C.C.P.

End 24" Water Main Relocation at Existing Joint Sta. 19+69, 9' Rt. & Fitch Road Sta. 4+11 & 24" Water Main

Sta. 19+68, 9' Rt. & Fitch Rd. Sta. 4+10 & 24" Water Main H.P.I. Bend 15°-0' w/Concrete Pier.

Sta. 19+51, 45' Rt. & Fitch Rd. = Sta. 3+93 & 24" Water Main H.P.I. Bend, 15°-1' w/Concrete Pier

Sta 20+23 9' Rt & Fitch Rd 20" Cutting In Valve Assembly See Sheet 214 For Vault Detail.

Sta. 19+49, 4.5' Rt. & Fitch Rd. = Sta. 3+91 & 24" Water Main V.P.I. Bend 15°-0' & Elev. 765.0

Sta. 18+59.4.5 Rt. & Fitch Road = Sta. 3+01 & 24" Water Main V.P.I. Bend 15°-0' & Elev. 765.0

Sta. 18+94, 4.5' Rt. & Fitch Road = Sta. 3+36 & 24" Water Main V.P.I. Bend 15°-0' & Elev. 755.1

Provide 36" Concrete Pipe Casing 17'-0"±

Sta. 19+14 4.5" Rt. & Fitch Road = Sta 3+56 & 24" Water Main V.P.I. Bend 15°-0' & Elev. 755.61

Sta. 19+12 4" Drain See Detail Sheet 214 Reinforced Plain Anchor

Sta 20+15 4" Drain Valve

Expose Exist. Joint and Tie by Field Welding See Note ①. See Detail Sheet 215.

Reducer 24"x20"

2" Air Cock and Box

Short Pipe

Closure Piece

2" Air Cock & Box

Reset See Sheet 220

Remove Valve Box Abandon To Remain For Cross Connection

Exist. Valve

Exist. Closure Piece

ELECTROLYSIS TEST STATION SEE DETAIL ON SHEET No. 215 A

Exist. 24" Water Main

2" Drain & Vault

4" Drain & Vault

2" Iron Pipe Outlet with Plug

Exist. 5' Conc. Walk

Exist. Ditch

Exist. 5' Conc. Walk

ELECT. TEST STATION

C.C. Box

Vault 2 Lengths Tied Distance

2 Lengths All Tied

Pipe & Fittings

Tied Distance

2 Lengths

Relocate 12" Cross Connect
4-12° C.I. ⅛ Bends (B&S)
1-12° C.I. 1/16 Bend (B&B)
1-12° C.I. 1/16 Bend (B&S)
5 Concrete Piers

Begin 24" Water Main Relocation at Existing Joint
Sta. 15+58, 4.5' Rt. & Fitch Road = Sta. 0+00 & 24" Water Main & Elev. 767.0±

NOTE:
Pipe Joint Location Where Passing Over Culvert Edge Shall Conform to Mfr's. Recommendation for Such Installations.

Partial Relocation Connect to Existg. Pipe

Sta. 14+94, 45' Rt. & Fitch Rd Exist. 20" Victaulic End Valve & Elev. 767.10±

Exist. Profile

Existing 24" W.M.

Exist. Joint See Note ①

V.P.I. Δ=15°-0'

V.P.I. Δ=22°-30'

2" I.P. Outlet w/Plug

52'-0"

35'-6"

60' Min

55' Min.

Tied Distance See Detail Sheet 215

Plain Concrete Anchor See Detail Sheet

Remove Begin Partial Relocation

Existing

To be Removed or Filled with Concrete and Abandoned (old W.M.)

Remove 40' Min.

1' Min Clear.

End Partial Relocation

42' Min.

Tied Distance See Detail Sheet 215

ESTIMATED QUANTITIES ITEM SPECIAL	
DESCPTION	QUANTITY
24" Prestressed Reinforced Concrete Cylinder Pipe & Fittings (AWWA C301-64) Including Tunnel	317 Lin. Ft.
20" Cutting-In Valve Complete & Vault on P.C.C.P.	1 Each
4" Drain Complete	1 Each
2" Air Cock and No. 7 Valve Box Complete	2 Each
24"x16" Tapping Sleeve & 16" Valve w/No. 4 Valve Box	2 Each
2" Drain Complete	1 Each
16" Temporary By-Pass Connection Prestressed Rein. Conc. Cylinder Water Pipe & Fittings (AWWA C301-64)	670 Lin. Ft.
16" Plugging Existing Water Main	2 Each
12" Water Main Cast Iron Pipe A5A Cl. 25 w/Cast Iron Fittings Cl. D. Cement Lined	30 Lin. Ft.
12"x12" Tapping Sleeve & 12" Valve & No. 4 Valve Box	1 Each
20" Valve Chamber	1 Each
Water Main Drain Vault Complete	2 Each

NOTE:
16" Temporary By-Pass to be Constructed with 36" Minimum Cover.

For Details on 12" W.M. See Sheet No. 220

Estimated Quantities — 24" W.M. Removed			
Ref. No.	Side	Location	L.F.
	Rt.	Sta. 17+18 to Sta. 17+36	18
	Rt.	Sta. 18+23 to Sta. 19+72	149
		Totals	167

202

CONSTRUCTION PROCEDURE

The 16" Temporary By-Pass Connection Shall be Completed, Tested, and Approved by the City of Cleveland Water Department Prior to Performing any Work on the 24" Water Line Between the Limits Indicated.

Relocated 24" Water Main Test: All Relocated 24" Water Main Work Including Valve Shall Be left Exposed For Visual Inspection During Test. Test Shall Be at Static Pressure.

NOTE ①
The Contractor Shall Locate all Pipe Ends Where Connections are to be Made Along With Next Joint to Determine Exact Elevation, Direction and Joint Deflection. No Pipe Fabrication Drawing Will be Approved Until This Information is Furnished the Director of Public Utilities. All Information Shall be Taken Under the Supervision of the Engineer.

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

ENGINEER OF DESIGN REVIEW

REVISIONS

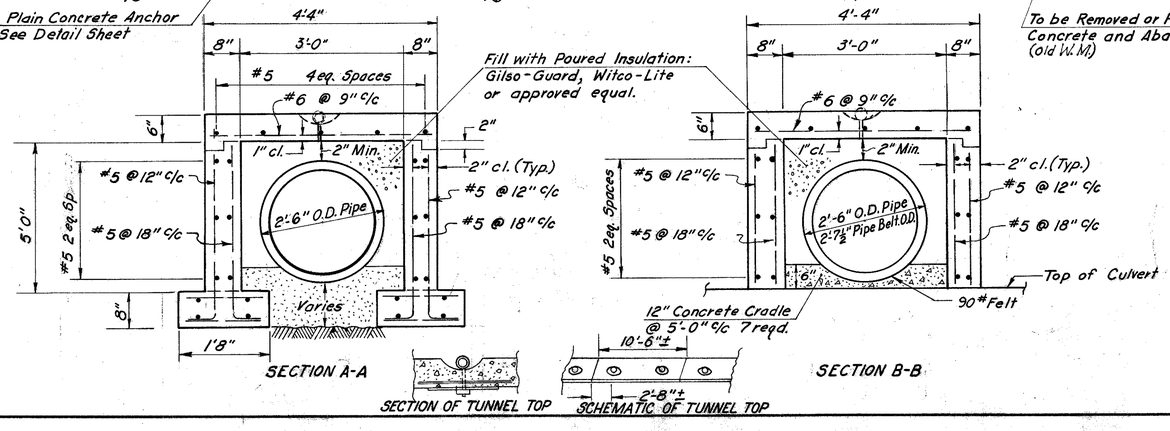
1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 24" WATER MAIN AND 16" TEMPORARY WATER MAIN ON FITCH ROAD

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO. SM-1858-A

24" MAIN & 16" TEMPORARY WATER MAIN - FITCH ROAD

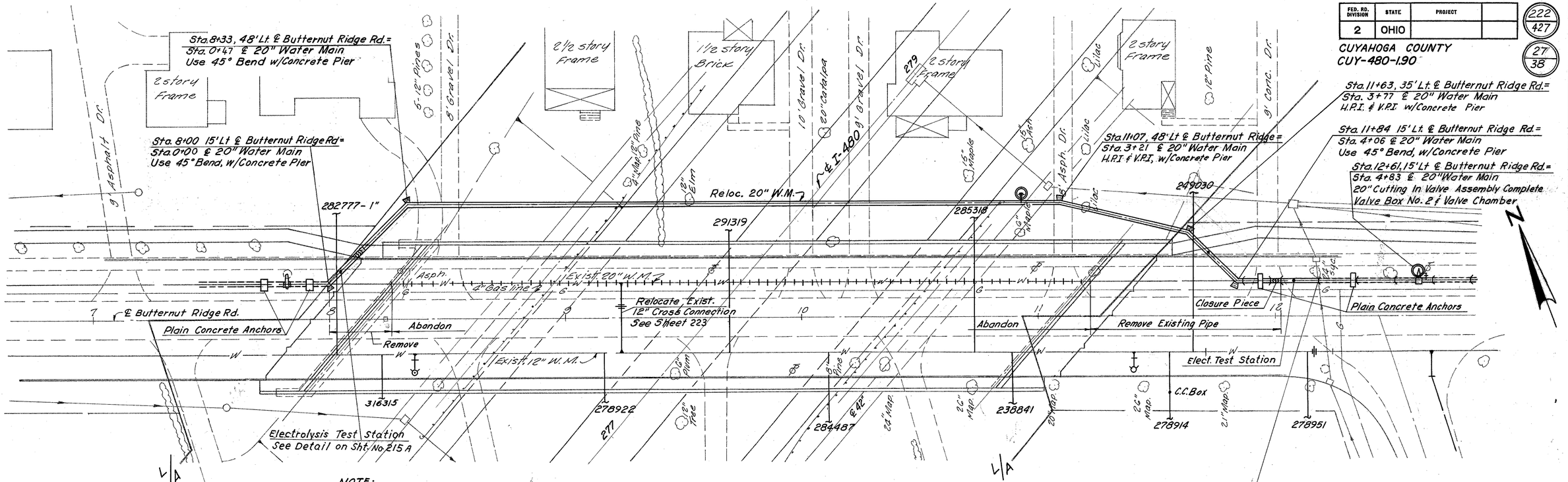


FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

222/427

27/38

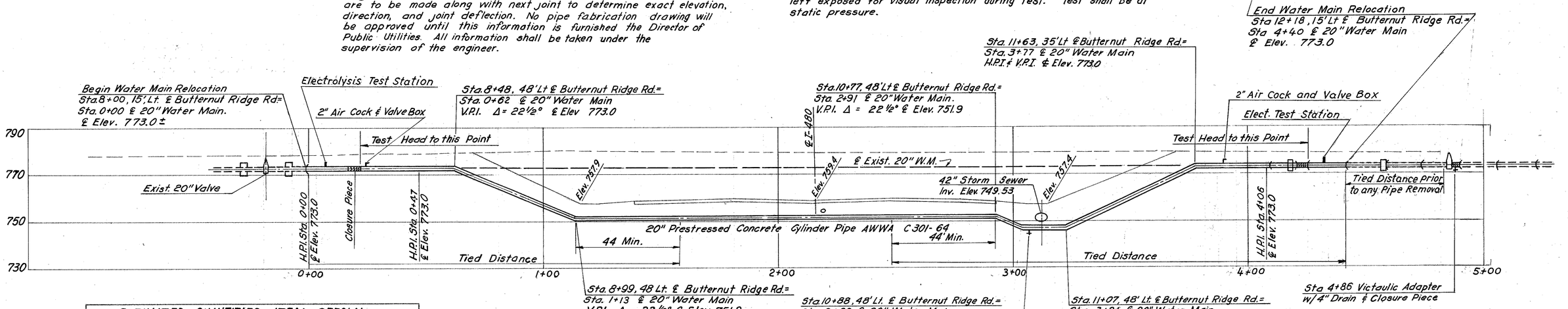
CUYAHOGA COUNTY
CUY-480-1.90



NOTE:

① The contractor shall locate all pipe end where connections are to be made along with next joint to determine exact elevation, direction, and joint deflection. No pipe fabrication drawing will be approved until this information is furnished the Director of Public Utilities. All information shall be taken under the supervision of the engineer.

② All relocated 20" Water Main Work, including valve, shall be left exposed for visual inspection during test. Test shall be at static pressure.



ESTIMATED QUANTITIES ITEM SPECIAL	
Description	Quantity
20" Prestressed Reinforced Concrete Cylinder Water Pipe and Fittings (AWWA C 301-64)	451 Lin. Ft.
20" Cutting in Valve Assembly Complete & Vault on PCCP	1 Each
2" Air Cock and Valve Box No. 7 Complete	2 Each
4" Drain Complete	1 Each
20" Valve Chamber	1 Each
Water Main Drain Vault Complete	1 Each

APPROVED 10/21 19 77

CITY ENGINEER
CITY OF NORTH OLMSTED

William J. Sweeney — ENGINEER OF DESIGN

REVISIONS

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 20" WATER MAIN UNDER I-80 ON BUTTERNUT RIDGE ROAD

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE

NO. SM-971-A

20" WATER MAIN - BUTTERNUT RIDGE ROAD

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

223/427

28/38

CUYAHOGA COUNTY
CUY-480-1.90

Sta. 7+09, 15' Rt. ℄ Butternut Ridge Rd., 12" Cutting In Valve & Valve Box No. 4

Begin 12" Water Main Relocation
Sta. 7+38 15' Rt ℄ Butternut Ridge Rd.=
Sta. 0+00 H.P.I. ℄ 12" Water Main
Use 45° Bend, Cl-D, w/Conncrete Pier

Relocate, Retap & Reconnect Service Connection to Relocated 12" W.M.

Note: There should be 6' cover on all service connections.

Reloc. 20" W.M. (See Sheet 222)

Exist. 12" Cross Connection Abandon

Plug Connection at Main
Abandon C.C. Box

Sta. 12+60, 12' Rt. ℄ Butternut Ridge Rd.=
Sta. 6+72 ℄ 16" Temp. By-Pass
Use 45° Bend w/Concrete Pier

Sta. 12+76, 4' Lt. ℄ Butternut Ridge Rd. =
Sta. 6+94, ℄ 16" Temp. By-Pass
Use 45° Bend w/Concrete Pier

2" Temporary Service Connection

℄ Butternut Ridge Rd.
Reset Exist. Hydrant at Sta. 7+34

Exist. 20" W.M.
Exist. 4" Gas line

Abandon Service Connect

Exist. 12" Line Valve

25' Min. Undisturbed

Abandon Service Connect

Relocated 12" Water Main

℄ Canterbury

Adjust Curb Box to Grade

Sta. 7+73, 50' Rt. ℄ Butternut Ridge Rd.=
Sta. 0+49 ℄ 12" Water Main
Use 45° Bend, Cl-D, w/Concrete Pier

Sta. 11+03 50' Rt ℄ Butternut Ridge Rd.=
Sta. 3+79 ℄ 12" Water Main
Use 45° Bend, Cl-D, w/Concrete Pier

Sta. 11+79, 12' Rt. ℄ Butternut Ridge Rd.=
Sta. 5+91 ℄ 16" Temp. By-Pass
Use 45° Bend. w/Concrete Pier

Relocate Extend Connection To Fire Hydrant

Sta. 7+62, 85' Rt. ℄ Butternut Ridge Rd.=
Sta. 1+23 ℄ 16" Temp. By-Pass
Use 22½° Bend w/Concrete Pier

℄ I-480

Sta. 10+80, 97' Rt ℄ Butternut Ridge=
Sta. 4+59 ℄ 16" Temp. By-Pass
Use 11¼° Bend w/Concrete Pier

End Temp. By-Pass Connection
Sta. 12+76, 15' Lt. ℄ Butternut Ridge Rd=
Sta. 7+05 ℄ 16" Temp. By-Pass Connect 20"x16" Branch Tapping Sleeve ℄ 16" Tapping Valve ℄ No. 4 Valve Box. After Removal of Temp. Main, Complete Cross Connection to 12" W.M. by Installing 16"x12" Reducer in Valve Bell, 12" Ductile Iron Pipe 12"x 12" Branch Tapping Sleeve 12" Tapping Valve No. 4 Valve Box, with Concrete Pier.

Sta. 7+05, 28' Rt ℄ Butternut Ridge Rd.=
Sta. 0+43 ℄ 16" Temp. By-Pass
Use 45° Bend. w/Concrete Pier

Sta. 8+80, 134' Rt ℄ Butternut Ridge Rd.=
Sta. 2+51 ℄ 16" Temp. By-Pass
Use 22½° Bend w/Concrete Pier

End Water Main Relocation
Sta. 11+38, 15' Rt ℄ Butternut Ridge Rd.=
Sta. 4+28 H.P.I. ℄ 12" Water Main
Use 45° Bend, Cl-D, w/Concrete Pier

Sta. 11+20, 70' Rt. ℄ Butternut Ridge Rd.=
Sta. 5+07 ℄ 16" Temp. By-Pass
Use 11¼° Bend, w/Concrete Pier

1½ sty. Frame

1 sty. Frame

1½ sty. Brick

Begin Tempory By-Pass Connection
Sta. 7+05, 15' Lt. ℄ Butternut Ridge Rd. =
Sta. 0+00 ℄ 16" Temp. By-Pass Connection 20"x16" Branch Tapping Sleeve ℄ 16" Tapping Valve ℄ No. 4 Valve Box. After Removal of Temporary Main, Install 16" Plug w/Clamp In Valve Bell & Remove No. 4 Valve Box

℄ Temporary Roadway

Sta. 9+92 134' Rt. ℄ Butternut Ridge Rd.=
Sta. 3+63 ℄ 16" Temp. By-Pass
Use 22½° Bend w/Concrete Pier

Sta. 7+57, 33' Rt ℄ Butternut Ridge Rd.=
Sta. 0+25 ℄ 12" Water Main
12" Hub Valve ℄ Valve Box No. 4

Sta. 0+40, 12x12x2 Tapped "Sprinkler" Tee
Bell x Bell x 2" I.D. Thr'd. Outlet - 2" Air Cock ℄ No. 7 Valve Box Complete

NOTE:
16" Temporary By-Pass to be Constructed with 2'-6" Minimum Cover

Sta. 10+98, 50' Rt ℄ Butternut Ridge Rd=
Sta. 3+74 ℄ 12" Water Main
12" Hub Valve ℄ Valve Box No. 4

Sta. 13+87, 12x12x2 Tapped "Sprinkler" Tee
Bell x Bell x 2" I.D. Thr'd. Outlet - 2" Air Cock ℄ No. 7 Valve Box Complete

Sta. 0+00 H.P.I.
Begin Water Main Relocation
℄ Elev. 773.27

Sta. 7+72, 50' Rt. ℄ Butternut Ridge Rd.=
Sta. 0+48 ℄ 12" Water Main
V.P.I. Use 22½° Ductile Iron Bend, ℄ Elev. 773.27

Sta. 10+82 50" Rt ℄ Butternut Ridge Rd=
Sta 3+58 ℄ 12" Water Main
V.P.I. Use 22½° Ductile Iron Bend
℄ Elev. 773.90

Sta. 4+28 H.P.I.
End Water Main Relocation
℄ Elev. 773.90±
Connect to Exist. Water Main

780
760
740

18" Sewer

33" Sewer

℄ I-480

Exist. 12" W.M.

6' Cover

Sta. 3+79 H.P.I. ℄ Elev. 773.90

0 2 3 4

Sta. 8+25, 50' Rt. ℄ Butternut Ridge Rd.=
Sta. 1+01 ℄ 12" Water Main
V.P.I. Use 22½° Ductile Iron Bend, ℄ Elev. 751.20

42" Sewer
Inv. Elev. 250.3±

Sta. 10+21, 50' Rt. ℄ Butternut Ridge Rd.=
Sta. 2+97 ℄ 12" Water Main
V.P.I. Use 22½° Ductile Iron Bend, ℄ Elev 748.90

2 Lengths 36' Minimum

Lead or Slip on Joints

2 Lengths 36' Minimum

Lead or Slip on Joints

Note: For pipe with boltless restrained push-on joints, see note on sheet No. 211

12" Water Main Ductile Iron Pipe A.S.A. Class 6 and Ductile Iron Fittings, Class D, Cement Lined, with Boltless Restrained Push-On Joints

12" Water Main Cast Iron Pipe A.S.A. Class 25 and Cast Iron Fittings Class D, Cement Lined.

12" Water Main Cast Iron Pipe A.S.A. Class 25 and Cast Iron Fittings Class D, Cement Lined.

Construction Procedures
The 16" Temporary By-Pass Connections shall be completed tested, and approved by the City of Cleveland Water Department prior to performing any work on the 20" Water Main between the limits indicated.

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 1977

William J. Sweeney ENGINEER OF DESIGN REVIEW

ESTIMATED QUANTITIES ITEM SPECIAL

Description	Quantity
12" Water Main Ductile Iron Pipe A.S.A. Class 6 ℄ Ductile Iron Fittings Class "D", Cement Lined, with Boltless Restrained Push-on Joints	395 Lin. Ft.
12" Water Main Ductile Iron Pipe A.S.A. Class 6 ℄ Ductile Iron Fittings Class "D", Cement Lined	30 Lin. Ft.
12 Water Main Cast Iron Pipe A.S.A. Class 25 ℄ Cast Iron Fittings Class "D", Cement Lined,	44 Lin. Ft.
12" Cutting In Valve Complete ℄ Valve Box No. 4	1 Each
12"x12" Tapping Sleeve ℄ 12" Tapping Valve Box No. 4	1 Each
2" Air Cock ℄ Valve Box No. 7 Complete	2 Each
12" Hub Valve ℄ Valve Box No. 4	2 Each
6" Water Main Cast Iron Pipe A.S.A. Class 25 ℄ Cast Iron Fittings Class D, Cement Lined, All Lead Joints	25 Lin. Ft.
6" Hydrant Relocated.	2 Each
2" Temporary Service Connection as Indicated	2 Each
Adjust Curb Cock Valve Box to Grade	1 Each
20"x16" Tapping Sleeve ℄ 16" Valve ℄ Valve Box No 4.	2 Each
16" Plugging Existing Water Main	1 Each
16" Prestressed Reinforced Concrete Cylinder Water Pipe (AWWA C 301-64)	715 Lin. Ft.
Relocate, Retap and Reconnect Service Connection	1 Each
Plug Existing Service Connection	1 Each

REVISIONS	

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT RELOCATED 12" WATER MAIN AND 16" TEMPORARY BY-PASS ON BUTTERNUT RIDGE ROAD

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

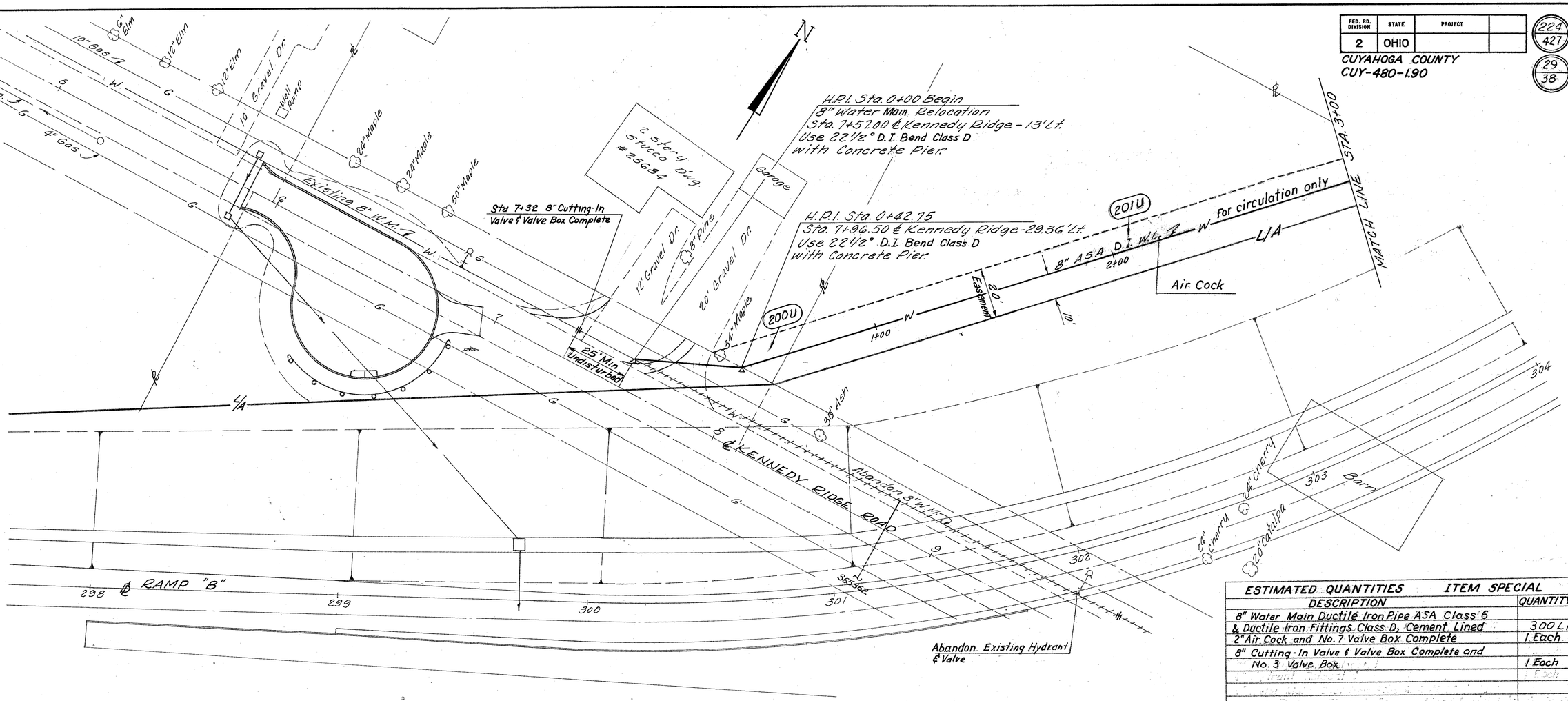
12" MAIN & 16" TEMPORARY WATER MAIN - BUTTERNUT RIDGE ROAD

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

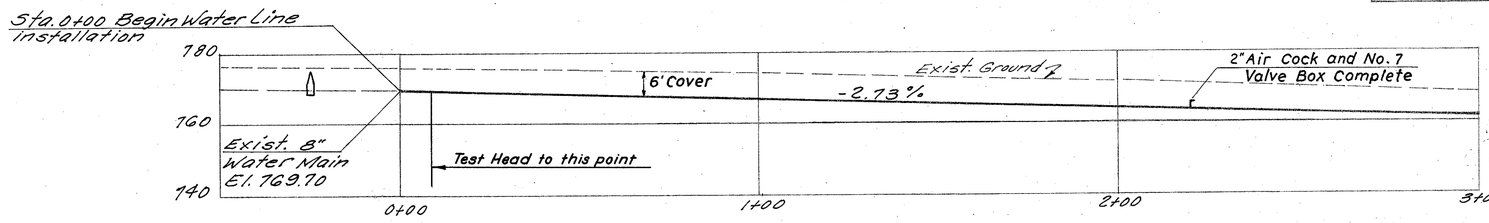
224/427

29/38

CUYAHOGA COUNTY
CUY-480-1.90



ESTIMATED QUANTITIES ITEM SPECIAL	
DESCRIPTION	QUANTITY
8" Water Main Ductile Iron Pipe ASA Class 6 & Ductile Iron Fittings Class D, Cement Lined	300 L.F.
2" Air Cock and No. 7 Valve Box Complete	1 Each
8" Cutting-In Valve & Valve Box Complete and No. 3 Valve Box	1 Each



CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 1977

ENGINEER OF DESIGN REVIEW

NOTE: For pipe with boltless restrained push-on joints, see note on sheet No. 211

REVISIONS	

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT RELOCATED 8" & 12" WATER MAIN FROM KENNEDY RIDGE ROAD TO S.R. 252

DRAWN BY
TRACED BY
CHECKED BY
DATE
SCALE
NO.

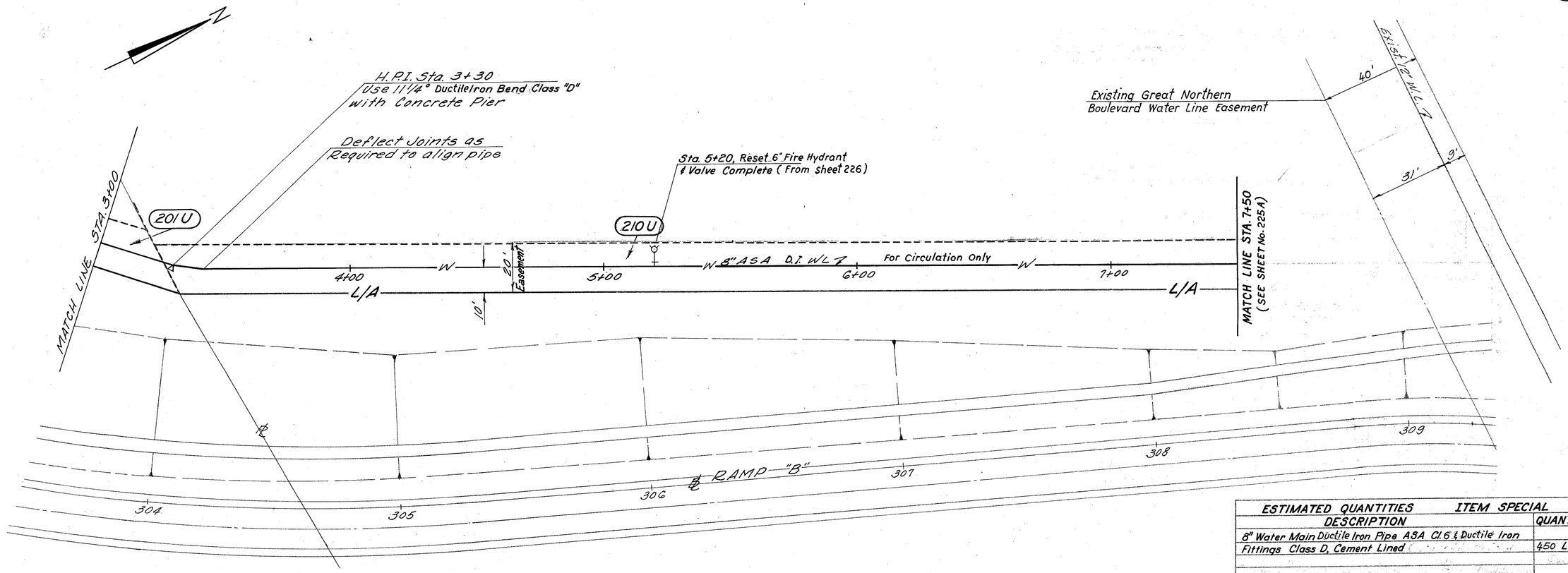
8" & 12" WATER MAIN - KENNEDY RIDGE to S.R. 252

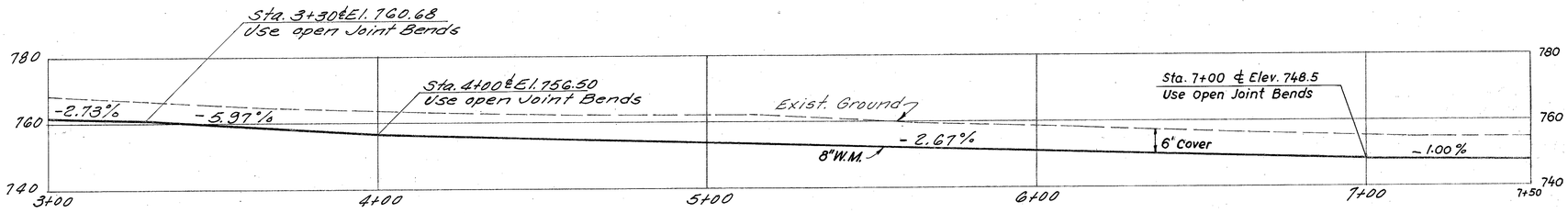
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

225/427

30/38





ESTIMATED QUANTITIES ITEM SPECIAL DESCRIPTION	QUANTITY
8" Water Main Ductile Iron Pipe ASA Cl. 6 & Ductile Iron Fittings Class D, Cement Lined	450 Lin. Ft.
6" Hydrant Relocated	1 Each
6" Water Main Cast Iron Pipe ASA Cl. 25 & Cast Iron Fittings Class D, Cement Lined (Lead Joints)	10 Lin. Ft.

NOTE : For pipe with boltless restrained push-on joints, see note on sheet No. 211

Ronald A. Farnworth — CITY ENGINEER, CITY OF NORTH OLMSTED

William J. Sweeney — ENGINEER OF DESIGN REVIEW

APPROVED Mar. 13, 1978

REVISIONS	

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT RELOCATED 8" & 12" WATER MAIN FROM KENNEDY RIDGE ROAD TO S.R. 252

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

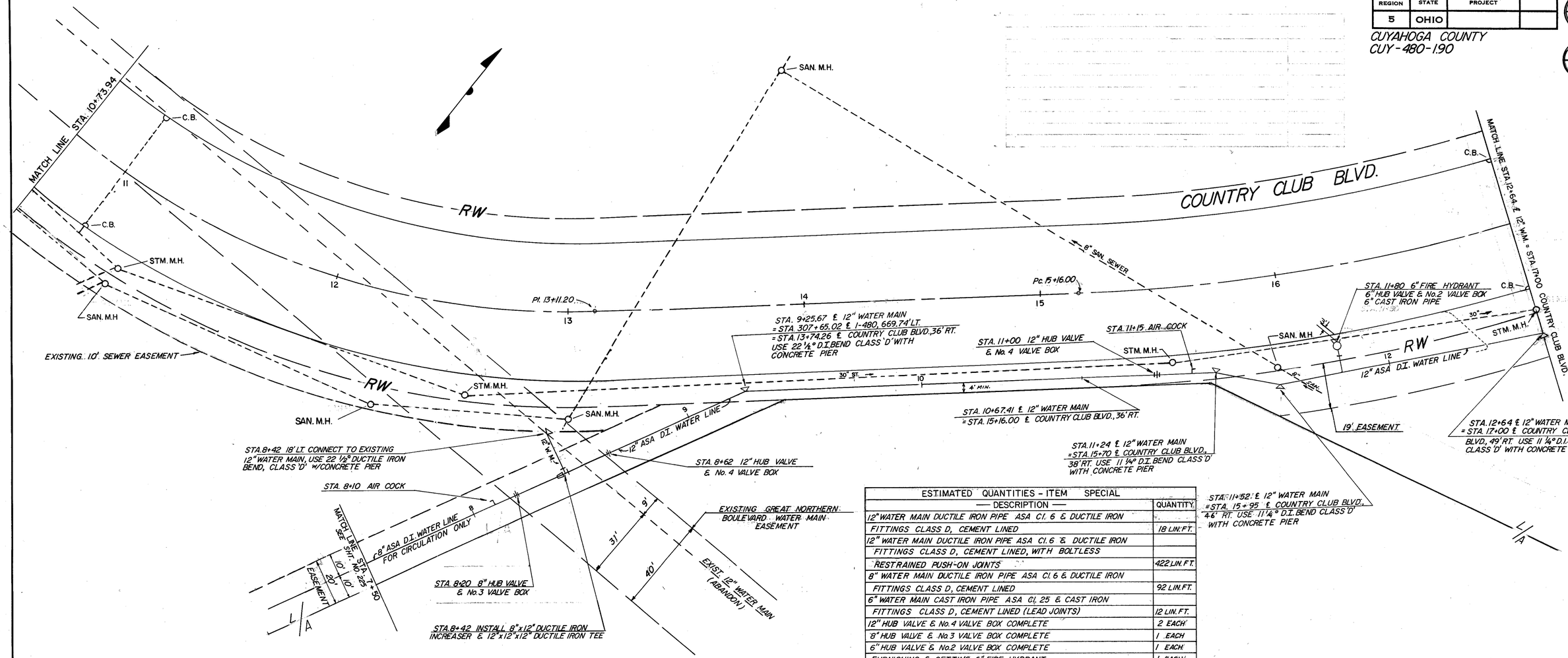
8" & 12" WATER MAIN - KENNEDY RIDGE to S.R. 252

FHWA REGION	STATE	PROJECT	
5	OHIO		

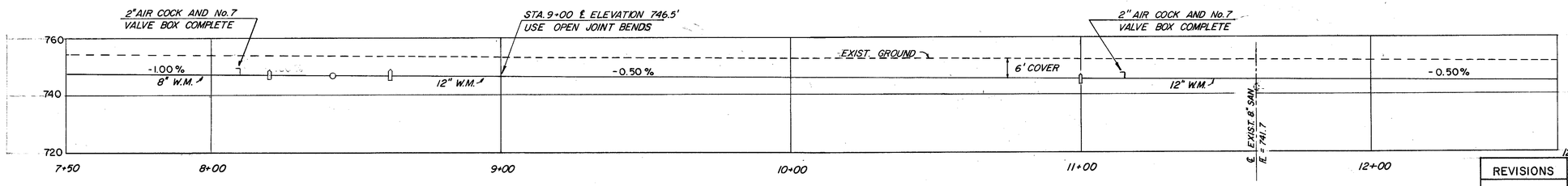
225A
427

30A
38

CUYAHOGA COUNTY
CUY-480-1.90



ESTIMATED QUANTITIES - ITEM SPECIAL	
— DESCRIPTION —	QUANTITY
12" WATER MAIN DUCTILE IRON PIPE ASA Cl. 6 & DUCTILE IRON FITTINGS CLASS D, CEMENT LINED	18 LIN. FT.
12" WATER MAIN DUCTILE IRON PIPE ASA Cl. 6 & DUCTILE IRON FITTINGS CLASS D, CEMENT LINED, WITH BOLTLESS RESTRAINED PUSH-ON JOINTS	422 LIN. FT.
8" WATER MAIN DUCTILE IRON PIPE ASA Cl. 6 & DUCTILE IRON FITTINGS CLASS D, CEMENT LINED	92 LIN. FT.
6" WATER MAIN CAST IRON PIPE ASA Cl. 25 & CAST IRON FITTINGS CLASS D, CEMENT LINED (LEAD JOINTS)	12 LIN. FT.
12" HUB VALVE & No. 4 VALVE BOX COMPLETE	2 EACH
8" HUB VALVE & No. 3 VALVE BOX COMPLETE	1 EACH
6" HUB VALVE & No. 2 VALVE BOX COMPLETE	1 EACH
FURNISHING & SETTING 6" FIRE HYDRANT	1 EACH
2" AIR COCK & No. 7 VALVE BOX COMPLETE	2 EACH



NOTE: FOR PIPE WITH BOLTLESS RESTRAINED PUSH-ON JOINTS, SEE NOTE ON SHT. 211

Ronald A. Fursenko — CITY ENGINEER
CITY of NORTH OLMSTED

APPROVED Mar. 13, 1978

William J. Sweeney — ENGINEER of DESIGN REVIEW

REVISIONS

1ST HIGH SERVICE DISTRICT

DEPARTMENT of PUBLIC UTILITIES
DIVISION of WATER & HEAT
CLEVELAND, OHIO

SUBJECT: RELOCATED 8" & 12" WATER MAIN FROM KENNEDY RIDGE ROAD TO S.R. 252

DRAWN BY	SCALE	
TRACED BY		
CHECKED BY	DATE	NO.

8" & 12" WATER MAIN — KENNEDY RIDGE to S.R. 252

FHWA REGION	STATE	PROJECT	
5	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

2258
427

30.B
38

COUNTRY CLUB BLVD.

RW

MATCH LINE STA. 12+64 & 12" WATER MAIN = STA. 17+00 COUNTRY CLUB BLVD.

C.B.

STM. M.H.

PC. 17+73.15

PC. 18+25.60

18

19

20

21

22

23

STA. 14+25 ℄ 12" WATER MAIN
= STA. 18+55 ℄ COUNTRY CLUB BLVD.
43° RT. USE 22 1/2° D.I. BEND CLASS 'D'
WITH CONCRETE PIER

STA. 15+02 ℄ 12" WATER MAIN
= STA. 19+63 ℄ COUNTRY CLUB BLVD.
45° RT. USE 22 1/2° D.I. BEND CLASS 'D'
WITH CONCRETE PIER

STA. 15+54 ℄ 12" WATER MAIN
= STA. 20+39 ℄ COUNTRY CLUB BLVD.
49° RT. USE 11 1/4° D.I. BEND CLASS 'D'
WITH CONCRETE PIER

Pt. 20+57.42

STA. 20+57.42 ℄ COUNTRY CLUB BLVD. 49° RT.

STA. 14+00 12" HUB VALVE
& No.4 VALVE BOX

STA. 14+55 6" FIRE HYDRANT
6" HUB VALVE & No.2 VALVE BOX
6" CAST IRON PIPE

STA. 14+35 AIR COCK

STA. 16+65 6" FIRE HYDRANT
6" HUB VALVE & No.2 VALVE BOX
6" CAST IRON PIPE

STA. 17+00 12" HUB VALVE
& No.4 VALVE BOX

STA. 80+15
EXIST. VALVE

EXISTING GREAT NORTHERN BLVD.
WATER MAIN EASEMENT

30" ST.

60" ST.

R/W

9' EASEMENT

19' EASEMENT

12" ASA D.I. WATER LINE

STA. 13+91
NEW 2" SERVICE CONNECTION
2" METER VAULT COMPLETE
2" METER SETTING

NOTE: THERE SHALL BE 6' COVER
ON ALL SERVICE CONNECTIONS

L/A

RAMP "B"

317

EXIST. 12" WATER MAIN
(ABANDON)

78

RELOCATED 16" WATER MAIN
SEE SHEET No. 231

S.R. 252

MATCH LINE STA. 77+50

STA. 17+37 ℄ 12" WATER MAIN
= STA. 78+89.8 ℄ S.R. 252, 3' RT.
CONNECT TO RELOCATED 16" WATER MAIN
16"x16"x12" D.I. TEE (SEE SHT. 231)

80

9'

31'

40'

49'

17'

ESTIMATED QUANTITIES — ITEM SPECIAL

DESCRIPTION	QUANTITY
12" WATER MAIN DUCTILE IRON PIPE ASA CI.6 & DUCTILE IRON FITTINGS CLASS 'D', CEMENT LINED, WITH BOLTLESS RESTRAINED PUSH-ON JOINTS	473 LIN. FT.
12" HUB VALVE & No.4 VALVE BOX COMPLETE	2 EACH
2" AIR COCK & No.7 VALVE BOX COMPLETE	1 EACH
FURNISHING & SETTING 6" FIRE HYDRANT	2 EACH
6" HUB VALVE & No.2 VALVE BOX COMPLETE	2 EACH
6" WATER MAIN CAST IRON PIPE ASA CI.25 & CAST IRON FITTINGS CLASS 'D', CEMENT LINED, LEAD JOINTS	16 LIN. FT.
NEW 2" SERVICE CONNECTION	1 EACH
2" METER VAULT COMPLETE	1 EACH
2" METER SETTING	1 EACH

EXIST. 24" STORM
℄ = 743.0

2" AIR COCK AND No.7
VALVE BOX COMPLETE

EXISTING GROUND

-0.58 %

12" W.M.

6" COVER

+1.24 %

1' MIN. CLEARANCE

STA. 15+75 ℄ ELEV. 743.0
USE OPEN JOINT BENDS

STA. 17+37 END WATER
MAIN INSTALLATION

℄ RELOCATED S.R. 252

RELOCATED 16" WATER
MAIN ℄ ELEV. 745.0

TEST HEAD TO THIS POINT

760
740
720

12+64
13+00
14+00
15+00
16+00
17+00
17+40

NOTE: FOR PIPE WITH BOLTLESS RESTRAINED
PUSH-ON JOINTS, SEE NOTE ON SHT. No. 211

Ronald A. Zurawski — CITY ENGINEER
CITY of NORTH OLMSTED

APPROVED Mar. 13, 1978

William J. Sweeney — ENGINEER of DESIGN REVIEW

REVISIONS

1ST HIGH SERVICE DISTRICT

DEPARTMENT of PUBLIC UTILITIES
DIVISION of WATER & HEAT
CLEVELAND, OHIO

SUBJECT: RELOCATED 8"&12" WATER MAIN FROM KENNEDY RIDGE RD. TO S.R. 252

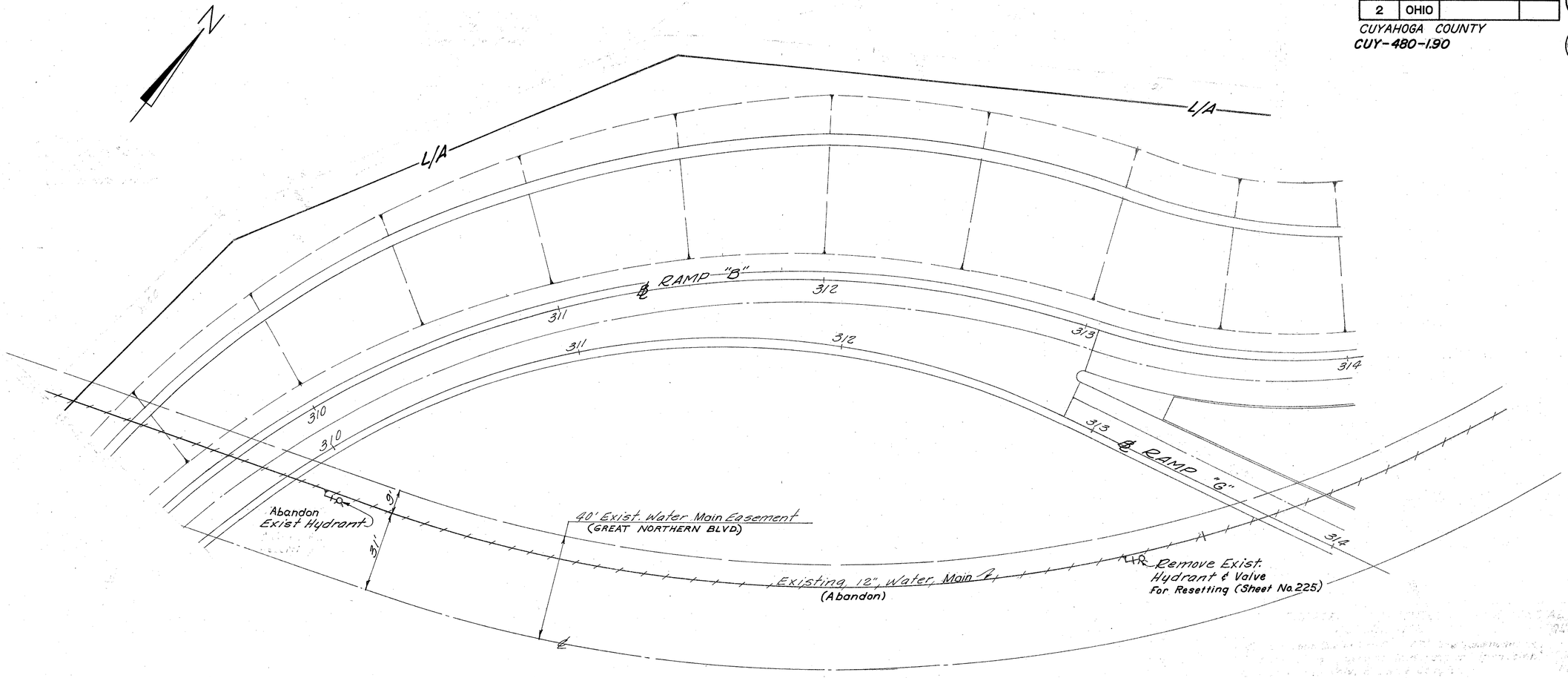
DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

226
427

CUYAHOGA COUNTY
CUY-480-1.90

31
38



Ronald A. Zuravchak — CITY ENGINEER, CITY OF NORTH OLMSTED

William J. Sweeney — ENGINEER OF DESIGN REVIEW

APPROVED Mar. 13, 1978

REVISIONS	

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT RELOCATED 8" & 12" WATER MAIN FROM KENNEDY RIDGE ROAD TO S.R. 252

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

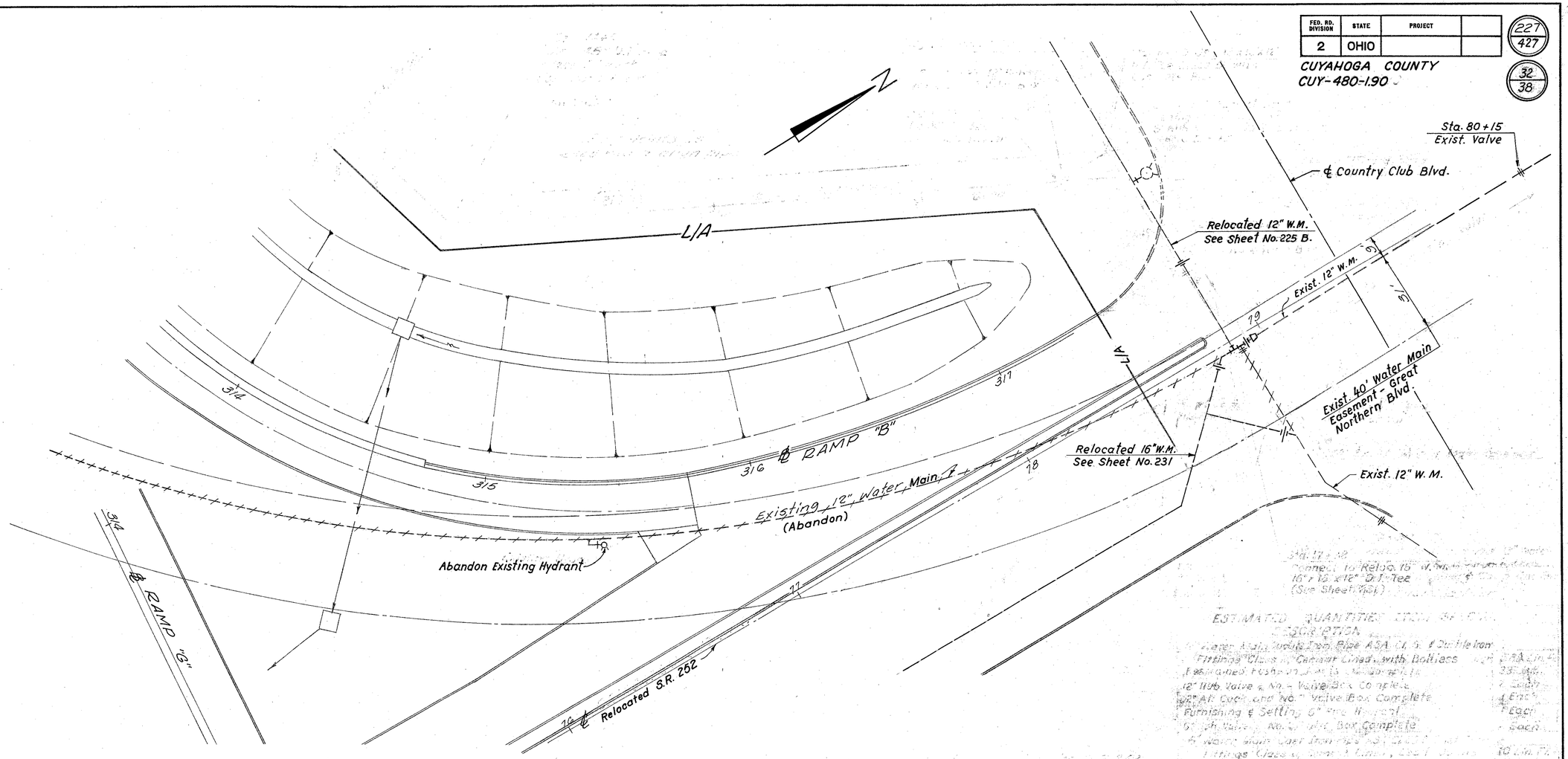
8" & 12" WATER MAIN - KENNEDY RIDGE to S.R. 252

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

227
427

32
38

CUYAHOGA COUNTY
CUY-480-1.90



Ronald A. Zurowski — CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED Mar. 13, 1978

William J. Lucente — ENGINEER OF DESIGN / REVIEW

REVISIONS	

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT RELOCATED 8" & 12" WATER MAIN FROM KENNEDY RIDGE ROAD TO S.R.252

DRAWN BY
TRACED BY
CHECKED BY
DATE
SCALE
NO.

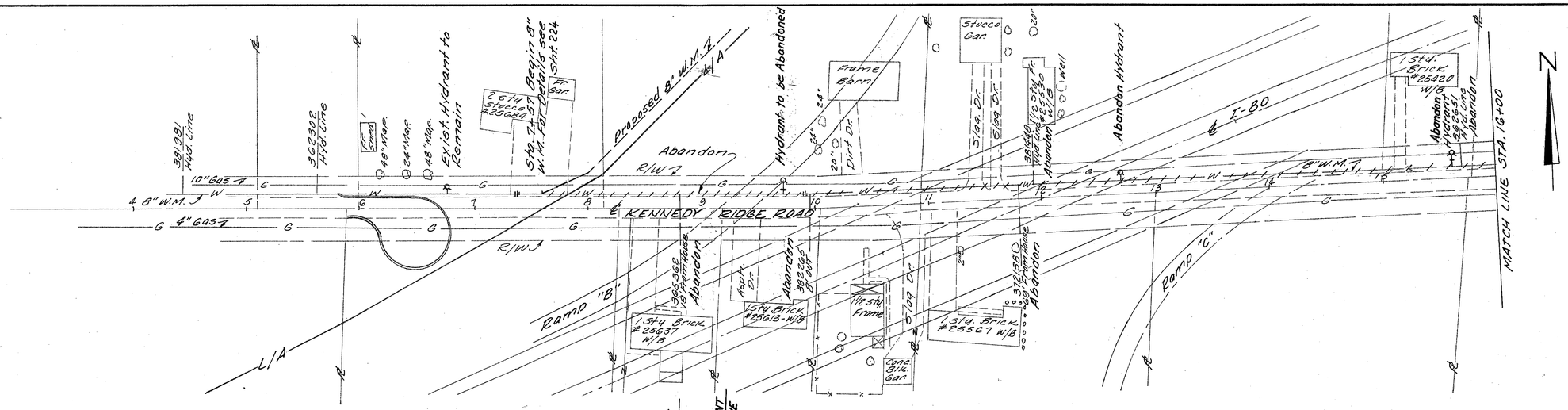
8" & 12" WATER MAIN - KENNEDY RIDGE to S.R. 252

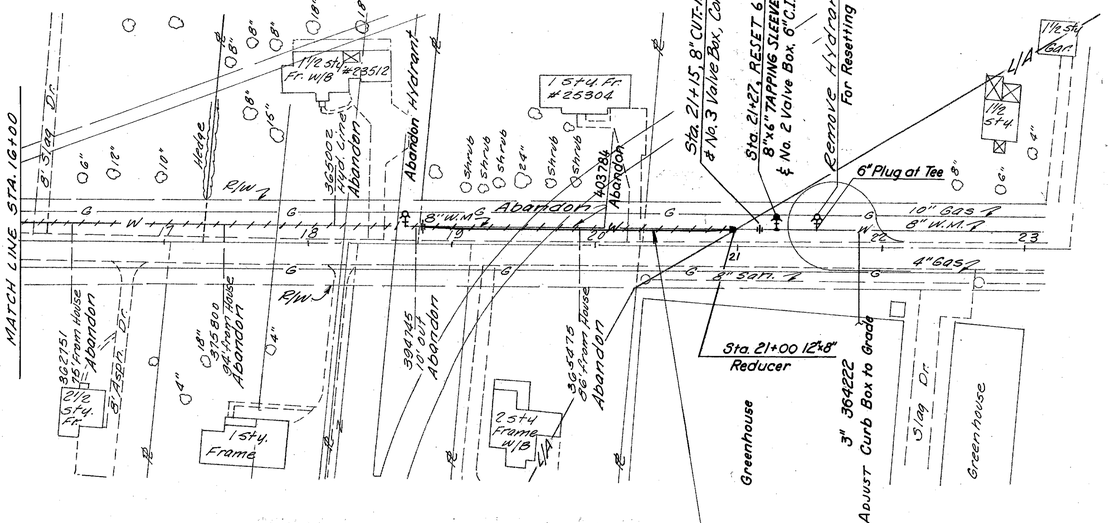
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

228
427

33
38

CUYAHOGA COUNTY
CUY-480-1.90





NOTE:
For Details on Continuation of New 12" Water Main
See Sheet No. 229

ESTIMATED QUANTITIES — ITEM SPECIAL	
DESCRIPTION	QUANTITY
6" Hydrant Relocated	1 Each
6" Plugging Existing Water Main	1 Each
6" Water Main Cast Iron Pipe ASA Cl. 25 & Cast Iron Fittings Class D, Cement Lined (Lead Joints)	10 Lin. Ft.
8"x6" Tapping Sleeve and 6" Valve and No. 2 Valve Box	1 Each
Adjust Curb Cock Valve Box to Grade	1 Each
8" Cutting-in Valve Complete and No. 3 Valve Box	1 Each

NOTE: For pipe with boltless restrained push-on joints, see note on Sheet No. 211

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

ENGINEER OF DESIGN REVIEW

REVISIONS

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 8" WATER MAIN ON KENNEDY RIDGE ROAD

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

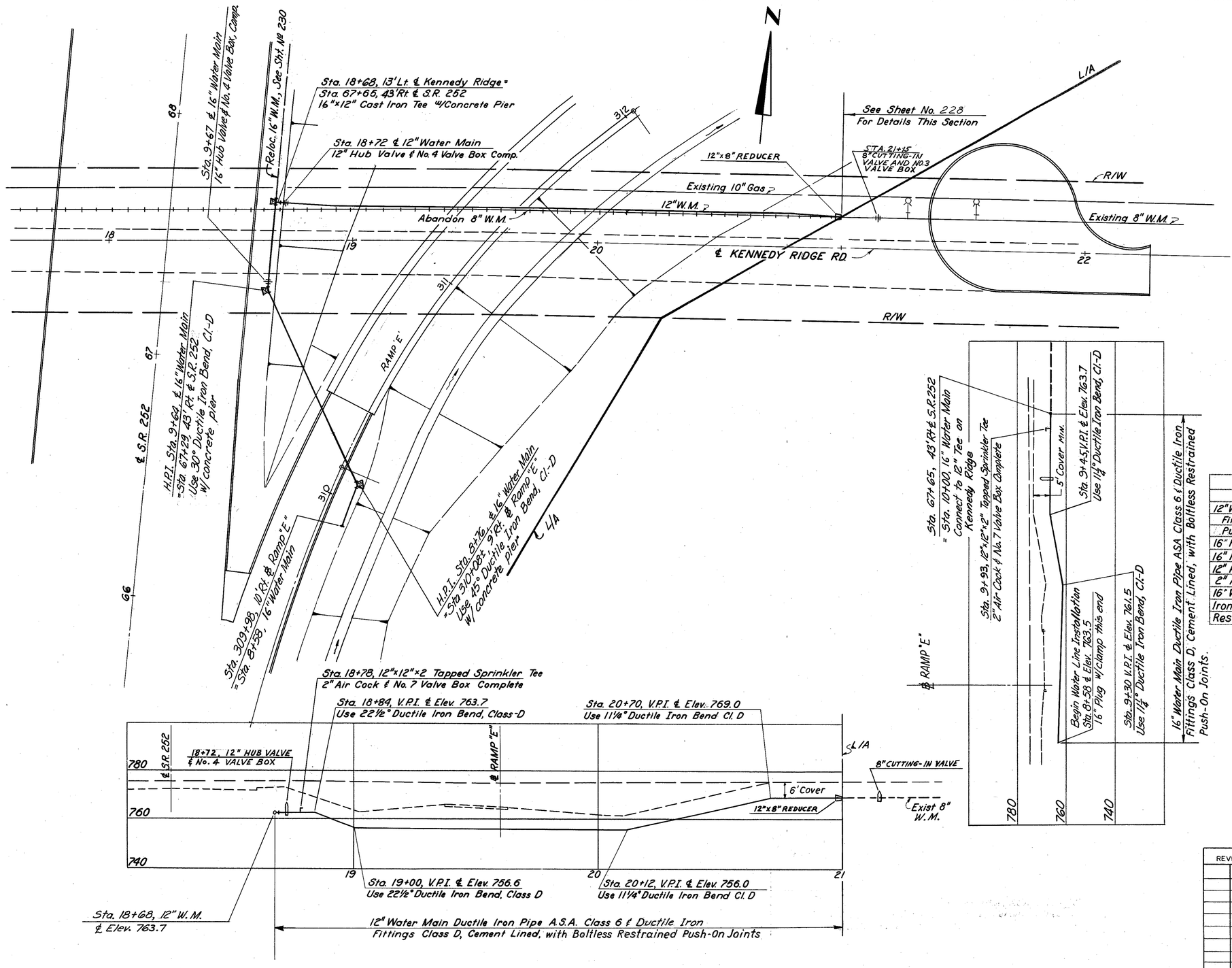
12" WATER MAIN KENNEDY RIDGE RD.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

229
427

34
38

CUYAHOGA COUNTY
CUY-480-1.90



NOTE: For pipe with boltless restrained push-on joints, see note on sheet No. 211

ESTIMATED QUANTITIES ITEM SPECIAL

DESCRIPTION	QUANTITY
12" Water Main Ductile Iron Pipe ASA Cl. 6 ℄ Ductile Iron Fittings Cl. D, Cement Lined, with Boltless Restrained Push-On Joints	235 L.F.
16" Hub Valve & No. 4 Valve Box Complete	1 Ea.
16" Plugging Water Main	1 Ea.
12" Hub Valve & No. 4 Valve Box Complete	1 Ea.
2" Air Cock & No. 7 Valve Box Complete	2 Ea.
16" Water Main Ductile Iron Pipe ASA Class 6 ℄ Ductile Iron Fittings Class D, Cement Lined, with Boltless Restrained Push-On Joints	142 L.F.

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

ENGINEER OF DESIGN REVIEW

REVISIONS

1st. HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN ON KENNEDY RIDGE ROAD
EAST TO S.R. 252

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

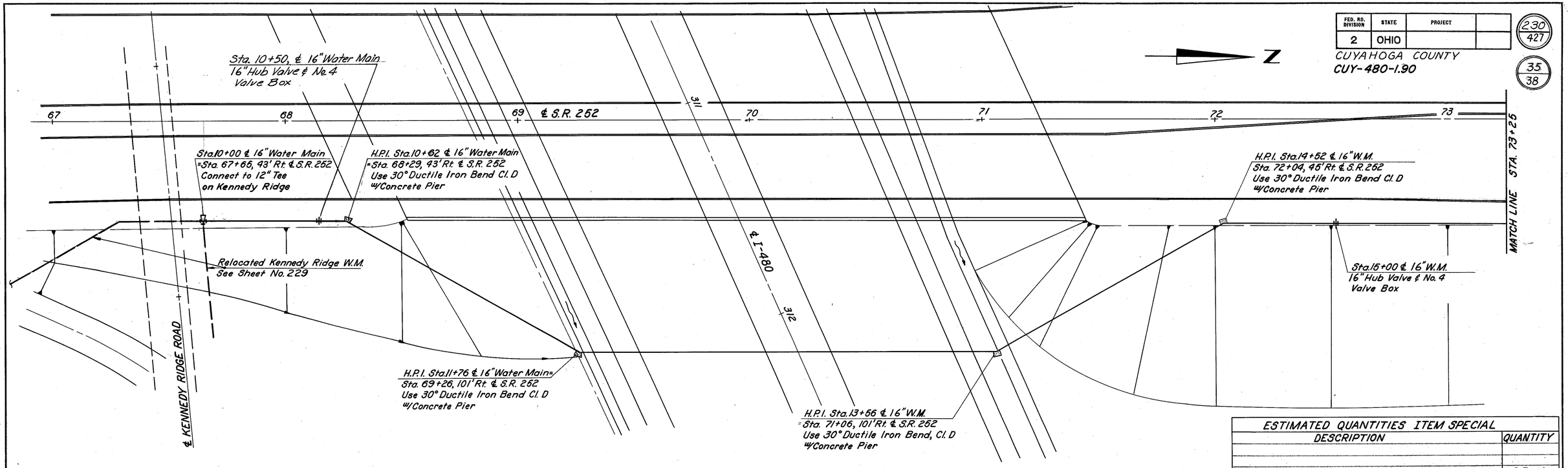
12" WATER MAIN KENNEDY RIDGE ROAD (EAST) to S.R. 252

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

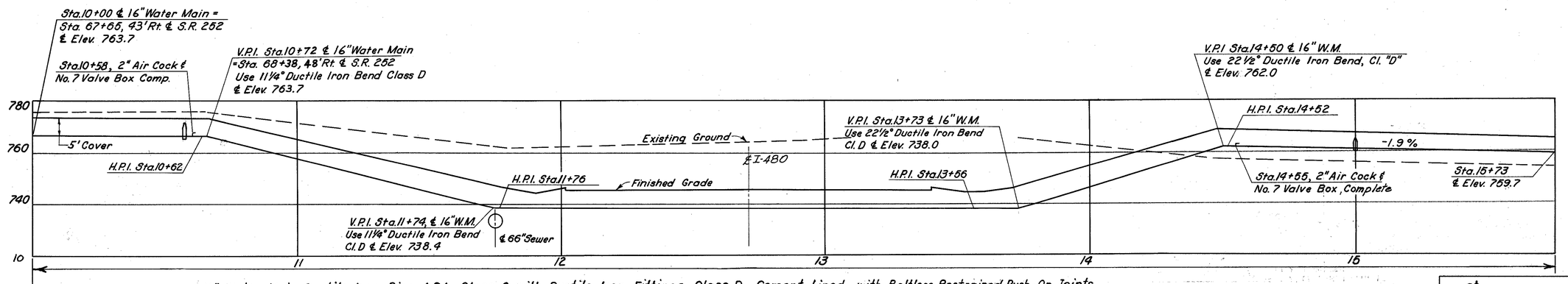
230
427

35
38



ESTIMATED QUANTITIES ITEM SPECIAL

DESCRIPTION	QUANTITY
2" Air Cock & No. 7 Valve Box Complete	2 Each
16" Hub Valve & No. 4 Valve Box, Complete	2 Each
16" Water Main Ductile Iron Pipe ASA Class 6 & Ductile Iron Fittings Class D, Cement Lined, with Boltless Restrained Push-On Joints	580 L.F.



16" Water Main Ductile Iron Pipe ASA Class 6 with Ductile Iron Fittings Class D, Cement Lined, with Boltless Restrained Push-On Joints

NOTE: For pipe with boltless restrained push-on joint, see note on sheet No. 211

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

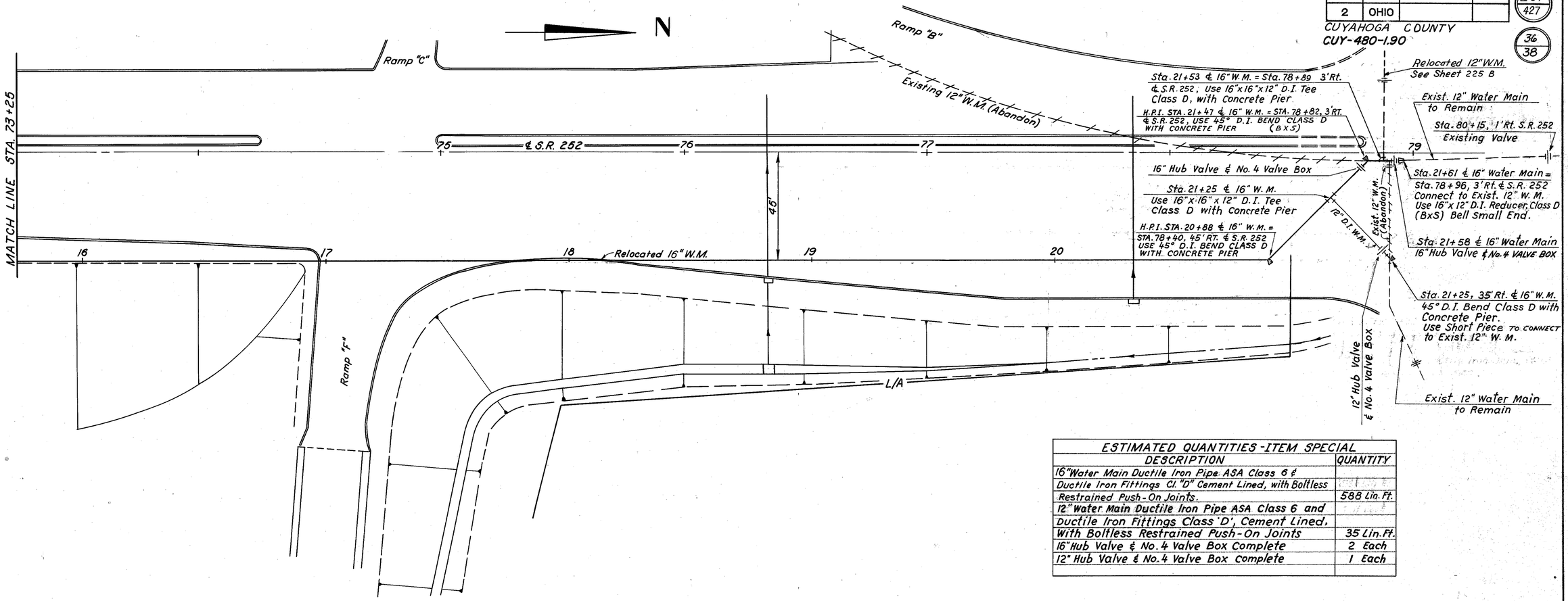
SUBJECT WATER MAIN UNDER I-80 AT S.R. 252

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

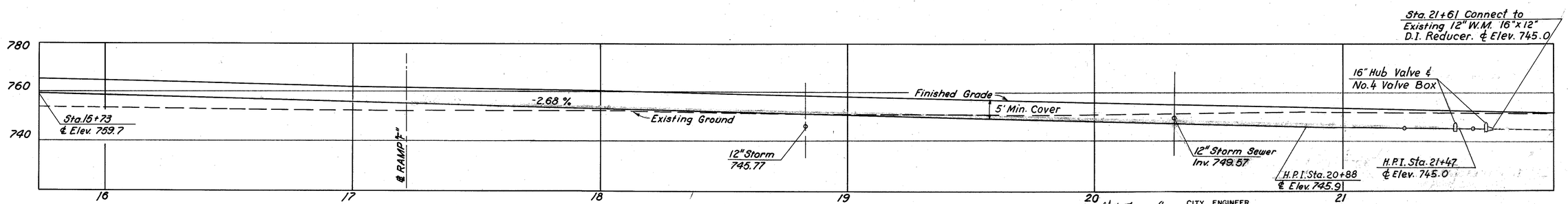
231
427

CUYAHOGA COUNTY
CUY-480-1.90

36
38



ESTIMATED QUANTITIES - ITEM SPECIAL	
DESCRIPTION	QUANTITY
16" Water Main Ductile Iron Pipe ASA Class 6 ℄ Ductile Iron Fittings Cl. "D" Cement Lined, with Boltless Restrained Push-On Joints.	588 Lin. Ft.
12" Water Main Ductile Iron Pipe ASA Class 6 and Ductile Iron Fittings Class 'D', Cement Lined, With Boltless Restrained Push-On Joints	35 Lin. Ft.
16" Hub Valve ℄ No. 4 Valve Box Complete	2 Each
12" Hub Valve ℄ No. 4 Valve Box Complete	1 Each



NOTE: For pipe with boltless restrained push-on joints, see note on sheet No. 211

Ronald A. Furaushi CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED Mar. 13, 1978

William J. Lucevic ENGINEER OF DESIGN REVIEW

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

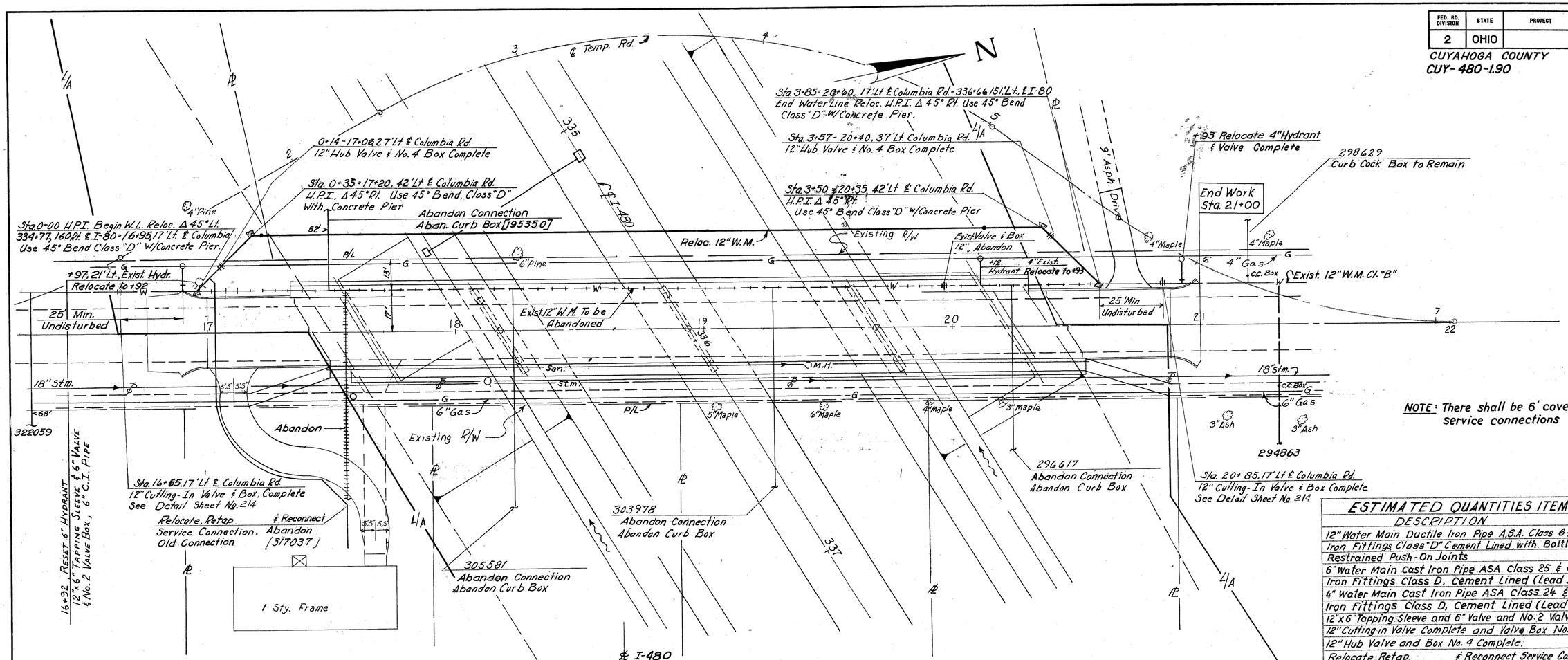
SUBJECT 16" WATER MAIN AT S.R. 252

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

232
427

37
38

CUYAHOGA COUNTY
CUY-480-1.90



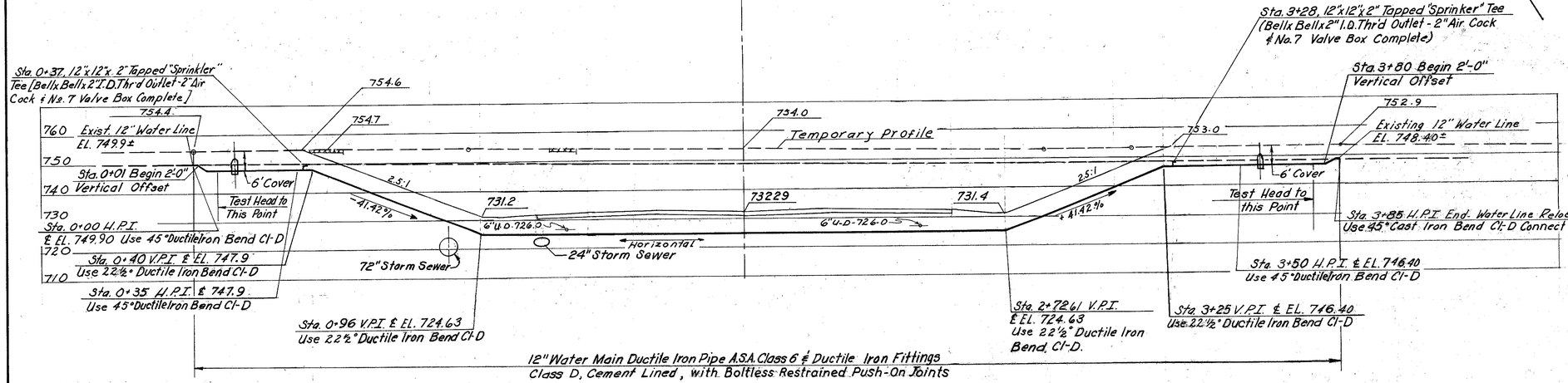
NOTE: There shall be 6' cover on all service connections

ESTIMATED QUANTITIES ITEM SPECIAL

DESCRIPTION	Quantity
12" Water Main Ductile Iron Pipe A.S.A. Class 6 & Ductile Iron Fittings Class "D" Cement Lined with Boltless Restrained Push-On Joints	394 Lin. Ft.
6" Water Main Cast Iron Pipe ASA Class 25 & Cast Iron Fittings Class D, Cement Lined (Lead Joints)	8 Lin. Ft.
4" Water Main Cast Iron Pipe ASA Class 24 & Cast Iron Fittings Class D, Cement Lined (Lead Joints)	8 Lin. Ft.
12"x6" Tapping Sleeve and 6" Valve and No. 2 Valve Box	1 Each
12" Cutting in Valve Complete and Valve Box No. 4	2 Each
12" Hub Valve and Box No. 4 Complete.	2 Each
Relocate, Retap & Reconnect Service Connection	1 Each
2" Air Cock & No. 7 Valve Box Complete	2 Each
12"x4" Tapping Sleeve	1 Each
4" Hydrant Relocated	1 Each
6" Hydrant Relocated	1 Each

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77



12" Water Main Ductile Iron Pipe A.S.A. Class 6 & Ductile Iron Fittings Class D, Cement Lined, with Boltless Restrained Push-On Joints

NOTE: For pipe with boltless restrained push-on joints, see note on sheet No. 211

William J. Mulvey — ENGINEER OF DESIGN REVIEW

REVISIONS

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND OHIO

SUBJECT RELOCATED 12" WATER MAIN UNDER I-80 AT COLUMBIA ROAD

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

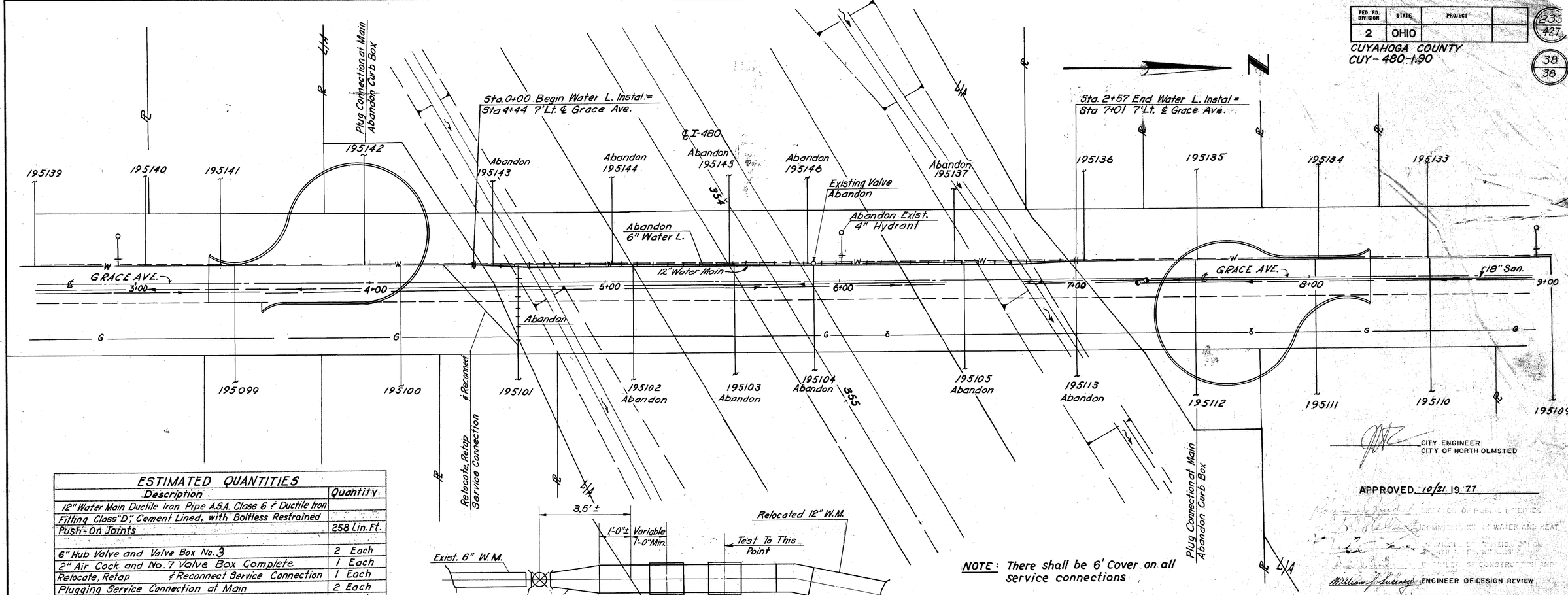
WATER MAIN RELOCATION COLUMBIA Rd. (Reloc.)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

233
427

38
38



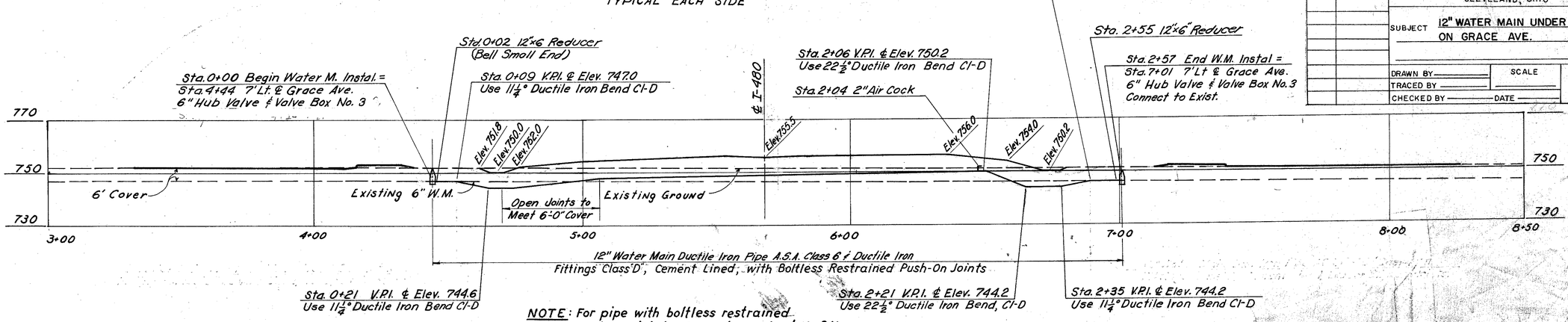
NOTE: There shall be 6' Cover on all service connections

Extend Connection - Work to be Done Before 6" W.M. in L/A is Disturbed.

TYPICAL EACH SIDE

ESTIMATED QUANTITIES

Description	Quantity
12" Water Main Ductile Iron Pipe A.S.A. Class 6 ℄ Ductile Iron Fitting Class "D", Cement Lined, with Boltless Restrained Push-On Joints	258 Lin. Ft.
6" Hub Valve and Valve Box No. 3	2 Each
2" Air Cock and No. 7 Valve Box Complete	1 Each
Relocate, Retap ℄ Reconnect Service Connection	1 Each
Plugging Service Connection at Main	2 Each
Remove Abandoned Curb Cock Box	2 Each



NOTE: For pipe with boltless restrained push-on joints, see note on sheet No. 211

CITY ENGINEER
CITY OF NORTH OLMSTED

APPROVED 10/21 19 77

DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER AND HEAT
CHIEF OF PLANNING
CHIEF OF CONSTRUCTION AND
William J. Sweeney ENGINEER OF DESIGN REVIEW

REVISION	

1st HIGH SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 12" WATER MAIN UNDER I-80 ON GRACE AVE.

DRAWN BY
TRACED BY
CHECKED BY
SCALE
DATE
NO.

GRACE AVE. RELOCTED W.M.

GENERAL SUMMARY
TRAFFIC CONTROL

CALC. BY AQF DATE 11/4/70
CHKD. BY HJH DATE 11-29-71
REV. AQF 1-7-76

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

234
427

TYPE CODE 6707 UNLESS OTHERWISE SHOWN

ITEM	SHEET NUMBERS							COST PARTICIPATION		GRAND TOTAL	UNIT	ITEM	DESCRIPTION
	236	237	238	239	241		266		INTER-STATE				
			95						95	95	Each	620	Delineator, Type C, Post Mounted
			106						106	106	Each	620	Delineator, Type D, Post Mounted
			7.16						7.16	7.16	Mile	621	4" Edge Lines, Yellow
			7.48						7.48	7.48	Mile	621	4" Edge Lines, White
			0.49						0.49	0.49	Mile	621	4" Lane Lines
			4.44						4.44	4.44	Mile	621	8" Lane Lines
				84					84	84	L.F.	621	12" Stop Lines
			2533						2533	2,533	L.F.	621	Channelizing Lines
			219						219	219	L.F.	621	24" Stop Lines
			998						998	998	L.F.	621	24" Broad Transverse Stripes
			1,406						1,406	1,406	S.F.	621	Island Marking
			1,988						1,988	1,988	L.F.	621	Curb Marking
			14						14	14	Each	621	Lane Arrows
			5						5	5	Each	621	Word "ONLY" on pavement
				114					114	114	L.F.	621	8' Crosswalk with diagonal striping
				4.29					4.29	4.29	Mile	621	4" Edge Lines, As Per Plan, White
27									27	27	Each	844	Ballast, Type CMRI-175-480V.
4									4	4	Each	844	Ballast, Type CMRI-250-480V.
14									14	14	Each	844	Disconnect Switch with Enclosure, Type "X".
13									13	13	Each	SG25	Ground Rod
17									17	17	Each	844	Signs Wired
14									14	14	Each	844	Sign Service
27									27	27	Each	844	Mercury Vapor Luminaire with 175 Watt Lamp
4									4	4	Each	844	Mercury Vapor Luminaire with 250 Watt Lamp
	36								36	36	L.F	844	Structural Support W 6 X 8.5 Beam
2401	349								2750	2750	Sq.Ft.	844	Signs Erected Extrusheet
	442			171			5		618	618	Sq.Ft.	844	Signs Erected Flat Sheet
					300				300	300	Sq.Ft.	844	Interim Covering For Signs
	274			295					569	569	L.F.	844	Ground Mounted Support, No. 3 Post
	419								419	419	L.F.	844	Ground Mounted Support No. 4 Post
	48								48	48	L.F.	844	Ground Mounted Support, No. 6 Post
	52			78					130	130	L.F.	844	Ground Mounted Support, No. 4 Post, As Per Plan
	169								169	169	L.F	844	Structural Support 5 4 X 7.7 Beam
	79								79	79	L.F.	844	Structural Support, W10 X 11.5 Beam
	16								16	16	Each	844	Breakaway Sign Support Connection
	7.6								7.6	7.6	Cu.Yd.	844	Concrete for Embedded Foundations
65.69									65.7	65.7	Cu.Yd.	844	Concrete for Anchor Base Foundations
							1		1	1	Each	844	Mast Arm Sign Attachment
1									1	1	Each	844	Overhead Sign Support No. 7.65, Design No. 6 Mod., 64'-0" Span
1									1	1	Each	844	Overhead Sign Support No. 7.65, Design No. 8 Mod., 84'-0" Span
1									1	1	Each	844	Overhead Sign Support No. 12.30 Design No. 3 Modified, 23' Pole, 16' Arm
2									2	2	Each	844	Overhead Sign Support No. 12.30 Design No. 3 Modified 23' Pole, 17' Arm
1									1	1	Each	844	Overhead Sign Support No. 12.30 Design No. 3 Modified, Combination Sign & Luminaire, 35'-6" Pole & 16' Sign Arm
1									1	1	Each	844	Overhead Sign Support No. 12.30 Design No. 5 Mod. 24' Arm, 26' Pole
1									1	1	Each	844	Overhead Sign Support No. 12.30 Design No. 5 Modified 26'-6" Pole, 24' Arm
1									1	1	Each	844	Overhead Sign Support No. 12.30 Design No. 8 Modified 26'-6" Pole, 26' Arm
1									1	1	Each	844	Overhead Sign Support No. 12.30 Design No. 9 Modified 27' Pole, 26' Arm
1									1	1	Each	844	Overhead Sign Support No 12.30 Design No 10 Modified 28' Pole, 29' Arm
1									1	1	Each	844	Overhead Sign Support No 12.30 Design No. 11
1									1	1	Each	844	Overhead Sign Support No. 12.30 Design No 11 Modified 28'-6" Pole, 26' Arm

GENERAL SUMMARY
TRAFFIC CONTROL

CALC. BY QQF DATE 11-5-70
CHKD. BY HJH DATE 11-29-71
REV. QQF 11-18-75

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

235
427

TYPE CODE 6707 UNLESS OTHERWISE SHOWN

ITEM	SHEET NUMBERS 265	SHEET NUMBERS 266	COST PARTICIPATION INTER-STATE	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
							TRAFFIC SIGNALS
	1		1	1	Each	843	Semi Actuated Signal Controller (2 Phase) Modular, with Cabinet, As Per Plan.
		1	1	1	Each	843	Actuated Signal Controller (3 Phase Semi) Modular, with Cabinet, As Per Plan.
	6	5	11	11	Each	842	Vehicular Signal Head, 3 Section 12" Lens, One Way
		1	1	1	Each	842	Vehicular Signal Head, 5 Section 12" Lens, One Way
	502	124	626	626	L.F.	842	Signal Cable, 5 Conductor #14 AWG
		294	294	294	L.F.	842	Signal Cable, 7 Conductor #14 AWG
	1455	544	1999	1999	L.F.	842	Interconnect Cable 5 Conductor #14 AWG
	616	267	883	883	L.F.	5625	Conduit 3", 5713.04
	1226	550	1776	1776	L.F.	5625	Conduit 2", 5713.04
	225	390	615	615	L.F.	842	Power Cable, 3 Conductor #8 AWG
	1640	306	1946	1946	L.F.	842	Trench
	3	3	6	6	Ea.	5625	Ground Rod
	13	6	19	19	Ea.	5625	Pullbox 18" Circular 5713.09
	1	1	2	2	Ea.	842	Loop Detector Amplifier
	134	250	384	384	L.F.	842	Loop Detector Wire
	120	500	620	620	L.F.	842	Loop Detector Lead-in Cable
	58	318	376	376	L.F	842	Loop Detector Pavement Cutting
	2	2	4	4	Ea.	842	Cable Support Assembly
	1		1	1	Ea.	842	Combination Signal and Luminaire Support, .2500" x 12.0" dia. x 35'-6" pole, .1793" x 8.0" dia x 32' Arm
	1		1	1	Ea.	842	2 Mast Arm Signal Support; .2500" x 12.0" dia. x 21'-0" pole, .1793" x 8.0" dia. x 26' Arm & .1793" x 8.0" dia. x 27' Arm.
		1	1	1	Ea.	842	Combination Signal, Sign & Luminaire Support; .3125" x 15.00" dia. x 35'-6" pole, .1793" x 7.00" dia. x 25'-0" & .1793" x 7.00" dia x 19'-0" Signal Arms, .1793" x 7.00" x 10'-0" Sign Arm.
		1	1	1	Ea.	842	Combination Signal & Luminaire Support; .3125" x 15.00" dia. x 35'-6" Pole, .2500" x 10.00" dia x 42'-0" Signal Arm
	4.10	7.86	11.96	11.96	C.Y.	842	Concrete for Anchor Base Foundations
		0.74	0.74	0.74	C.Y.	842	Concrete for Controller Cabinet and Pedestal Foundation

OVERHEAD SIGNS SUB-SUMMARY

AGF 11/2/70
REV. AGF 11-10-75

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

236
427

CUYAHOGA COUNTY
CUY-480-1.90

Support No.	Station	844																														S625	844				Support No.
		1 No. 7.65, Des. 6 Mod. (64'-0" Span)	No. 7.65 Des. 8 Mod. (84'-0" Span)		No. 12.30, Des. 3 Mod. 23' Pole, 16' Arm	No. 12.30, Des. 3 Mod. 23' Pole, 17' Arm	No. 12.30, Des. 3 Mod. Comb. Sign & Luminaire 35'-6" Pole, 16' Arm	No. 12.30, Des. 5 Mod. Comb. Sign, Signal & Luminaire Support	No. 12.30, Des. 5 Mod. 26' Pole, 24' Arm	No. 12.30, Des. 5 Mod. 26'-6" Pole, 24' Arm	No. 12.30, Des. 8 Mod. 26'-6" Pole, 26' Arm	No. 12.30, Des. 9 Mod. 27' Pole, 26' Arm	No. 12.30, Des. 10 Mod. 28' Pole, 29' Arm	No. 12.30, Des. 11	No. 12.30, Des. 11 Mod. 28'-6" Pole, 26' Arm		Concrete for Anchor Base Foundation	Signs Erected Extrusheet	Mercury Vapor Luminaire With 175 Watt Lamp	Mercury Vapor Luminaire With 250 Watt Lamp	Ballasts				Disconnect Switch Type "X" Enclosure		Ground Rod	Signs Wired	Sign Service			
		Ea.	Ea.		Ea.	Ea.	Ea.	Ea.*	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.		CU.Yd.	Sq.Ft.	Ea.	Ea.	Type CMRI-175-480 Volt. Ea.	Type CMRI-250-480 Volt Ea.			Ea.		Ea.	Ea.	Ea.			
109	217+00 I-480 W.B.									1							3.14	117	2		2				1		1	1	1			109
110	244+60 I-480 E.B.													1			4.71	259		2		2			1		1	1	1			110
111	244+80 I-480 W.B.								1								3.14	117	2		2				1		1	1	1			111
112	276+80 I-480 E.B.														1		4.58	259		2		2			1		1	1	1			112
113	295+50 I-480 E.B.												1				4.58	243	2		2				1		1	1	1			113
114	58+00 Reloc. S.R. 252 N.B.					1											1.61	78	2		2				1		1	1	1			114
115	65+00 Reloc. S.R. 252 N.B.				1												3.01	84	2		2				1		1	1	1			115
116	64+70 Reloc. S.R. 252 S.B.						1										3.08	84	2		2				1		1	1	1			116
119	312+25 I-480 W.B.										1						3.93	182	2		2				1		1	1	1			119
120	74+55 Reloc. S.R. 252 S.B.							1*									3.93	95	1		1				1		—	1	1			120
121	77+75 Reloc. S.R. 252 S.B.					1											3.21	84	2		2				1		1	1	1			121
122	81+75 Reloc. S.R. 252 S.B.	1															9.92	192.5	3		3				1		1	3	1			122
123	324+60 I-480 W.B.		1														12.79	393	5		5				1		1	2	1			123
124	341+00 I-480 W.B											1					4.06	213.5	2		2				1		1	1	1			124
	Totals	1	1		1	2	1	1*	1	1	1	1	1	1	1		65.69	2401	27	4	27	4			14		13	17	14			

* = For payment of Combination Support see Sheet No. 235
Unless otherwise noted, all O.H. Sign pay items are carried on this sheet.

GROUND MOUNTED SIGNS SUB-SUMMARY

CHD. BY GMK 11-17-71
CHKD BY HJH 11-30-71
REV. AGF 11-12-75

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

237
427

Station	Distance Rt. or Lt. of Survey to ℄ Post or ℄ Nearest Post of the Sign	Type of Sign		Number of Supports	844 Signs Erected Extruded Sheet	844 Signs Erected Flat Sheet		844 Ground Mounted Support #3 Post	844 Ground Mounted Support #4 Post	844 Ground Mounted Support #6 Post	844 Ground Mounted Support #4 Post As Per Plan	844 Structural Support 5 x 7.7 Beam	844 Structural Support W 6 x 8.5	844 Structural Support W 16 x 11.5 Beam	844 Breakaway Sign Support Connection		844 Concrete for Embedded Foundations		Remarks
				Ea.	Sq. Ft.	Sq. Ft.		Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.			Lin. Ft.	Ea.		Cu. Yd.		
I-480 203+00	64.0' Rt	IM-39-36, M-5A-36-3		1		16.5				17.0									
I-480 210+95	64' Rt & Lt	M-41-12		1/1		2.0/2.0		12.0/12.0											Field Locate
I-480 224+00	62.17' Rt.	R-7B-48		2	32.0							36			2		0.5		
I-480 234+00	65.74' Rt.	GJ-4 (17'x5')		2	85.0									40	2		2.2		
BELLEVUE & FITCH	See Remarks	W-48-30		1		6.25			13										Field Locate
REVERE & BUTTERNUT	See Remarks	W-48-30		1		6.25			13										Field Locate
I-480 263+75	64' Rt & Lt	M-41-12		1/1		2.0/2.0		12.0/12.0											Field Locate
I-480 263+00	65.08' Lt.	GJ-4 (14'x5')		2	70.0									39	2		2.8		
I-480 278+50	62' Lt	R-7B-48		2	32.0							35			2		0.5		
GREAT N. BLVD. & KENNEDY	See Remarks	W-48-30		1		6.25			13										Field Locate
I-480 288+00	64.0' Lt.	IM-40-36, M-5A-36-3		1		16.5				16.0									
Ramp "A" 303+00	8.42' Rt. ℄	M-2-36-3, M-25-30, D-4-2 (11'x4')		2	44.0	16.25							36		2		0.7		
Reloc. S.R.252 54+00	30.25' Rt.	IM-17-21, M-5-24-3		1		7.2		13.0											
I-480 302+00	64.8' Lt.	W-49R-48		2		16.0			30										
I-480 304+00	64.8' Rt.	W-49R-48		2		16.0			32										
Reloc. S.R. 252 60+75	47.0' Lt.	R-41B-36, R-43R-36, R-43L-36		1		15.0			13		13								SOW
Reloc. S.R. 252 61+08	℄	R-37R-24		1		5.0		12.0											
Reloc. S.R. 252 61+40	42.0' Lt.	R-41B-36, R-43R-36, R-43L-36		1		15.0			13		13								SOW
Reloc. S.R. 252 61+75	℄	R-37R-24		1		5.0		12.0											
Reloc. S.R. 252 64+20	66.0' Lt.	W-97-48		2		20.0			30										
Ramp "A" 299+00	9.82' Rt. ℄	W-47-48		2		16.0			30										
Ramp "A" 307+50	7.5' Rt. / 31.5' Lt.	R-41A-36, R-41A-36		2/2		60/60		26/26											
Ramp "D" 310+00	13.0' Rt. ℄	W-97-48		2		20.0			31										
I-480 316+75	64' Rt & Lt	M-41-12		1/1		2.0/2.0		12.0/12.0											Field Locate
I-480 319+00	64.0' Lt.	M-5A-36-3		1		12.0			14										
I-480 335+00	64.0' Rt.	IM-39-36, M-5A-36-3		1		16.5				15									
Reloc. S.R. 252 85+83	52.0' Lt.	IM-17-21, M-5-24-3		1		7.2		13											
Ramp "F" 318+00	8.42' Lt. ℄	M-37-36, M-2-36-3, M-24-30, D-4-1 (11'x2')		2	22.0	20.75						26			2		0.5		
I-480 318+00	63.5' Rt.	W-49R-48		2		16.0			31										
Reloc. S.R. 252 73+00	40.0' Lt.	W-49R-48		2		16.0			31										
Reloc. S.R. 252 74+20	5.0' Lt.	R-37R-24		1		5.0		12											
Reloc. S.R. 252 74+38	52.0' Rt.	R-41B-36, R-43L-36, R-43R-36, R-121-24		1		17.0			13		13								SOW
Reloc. S.R. 252 75+05	60.0' Rt.	R-41B-36, R-43L-36, R-43R-36		1		15.0			13		13								SOW
Ramp "B" 315+00	4.25' Lt. ℄	R-15B-30		2		6.25		12											
Ramp "E" 310+10	7.25' Rt. ℄	R-15B-30		2		6.25		12											
Ramp "F" 314+50	31.5 Rt. / 7.5 Lt.	R-41A-36, R-41A-36, R-31(SPEC)-36, R-31(SPEC)-36		2/2		13.5/13.5		26/26											
Ramp "F" 320+00	9.23' Lt. ℄	W-47-48		2		16.0			30										
Ramp "G" 313+50	19.5' Lt. ℄	R-2-48		2		6.5			30										
Ramp "G" 314+75	19.25' Lt. ℄	R-15B-30		1		6.25		12											
KENNEDY & COLUMBIA	See Remarks	W-48-30		1		6.25			13										Field Locate
I-480 346+00	62.17' Rt.	R-7B-48		2	32.0							36			2		0.5		
I-480 352+00	62.17' Lt	R-7B-48		2	32.0							36			2		0.5		
GRACE & MASTICK	See Remarks	W-48-30		1		6.25			13										Field Locate
GRACE & BROOKPARK	See Remarks	W-48-30		1		6.25			13										Field Locate
PROJECT TOTAL					349	442.05		274	469	48	32	169	36	79	16		7.8		

* Double + Incised Post

TRAFFIC CONTROL SUB-SUMMARY

11-10-70
11-25-70
REV. 1-7-76

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

238
427

CUYAHOGA COUNTY
CUY.-480- 1.90

621 PAVEMENT MARKING

Roadway	Station	To Station	Side	4" Yellow Edge Line L.F.	4" White Edge Line L.F.	4" Lane Line L.F.	6" Lane Line L.F.	Channelg Line L.F.	24" Stop Line L.F.	Curb Marking L.F.	Island Marking Sq. Ft.	24" Broad Transverse Stripes L.F.	Lane Arrow Ea.	Word On Pavem't. Ea.
I-480 W.B.	200+75	298+00	Lt.	9,725	9,725		19,450							
" "" " "	293+50	296+40	"		290	290								
" """ " "	296+40	298+00	"		160			160						
" """ " "	298+00	309+73	"	1,173	1,173		2,346							
" """ " "	309+73	311+25	"					304				201		
" """ " "	311+25	313+98	"			273								
" " "" " "	309+73	322+46	"	1,273	1,273		2,546							
" " "	322+46	325+00	"					508				328		
" " "	325+00	328+73	"			373								
" " "	322+46	357+00	"	3,454	3,454		6,908							
I-480 E.B.	200+75	297+38	Rt.	9,663	9,663		19,326							
" """ " "	292+94	295+50	"			256								
" """ " "	295+50	297+38	"					376				219		
" """ " "	297+38	307+11	"	973	973		1,946							
" """ " "	307+11	309+25	"		214			214						
" """ " "	309+25	311+43	"		218	218								
" """ " "	307+11	321+04	"	1,393	1,393		2,786							
" """ " "	321+04	322+50	"		146			146						
" """ " "	322+50	325+45	"		295	295								
" """" " "	321+04	357+00	"	3,596	3,596		7,192							
Ramp "A"	297+36	305+02	L/R	766	766									
" " "	305+02	307+86	L/R	284	284	236								
" " "	307+86	309+38	L/R	67	67			225	55	180		53	6	2
Ramp "B"	298+00	314+77	Lt.		1,677									
" " "	299+00	309+75	Rt.	1,075										
" " "	312+75	313+38	Rt.					60			243			
" " "	313+38	315+57	Rt.							219				
" " "	314+77	317+31	Lt.							254				
Ramp "C"	294+55	297+04	Rt.							249				
" " "	296+24	297+04	Lt.							80				
" " "	297+04	306+11	Lt.	907										
" " "	297+04	307+11	Rt.		1,007									
Ramp "D"	296+67	298+13	Lt.							146				
" " "	297+67	298+63	Rt							96				
" " "	298+13	309+73	Lt.		1,160									
" " "	298+63	309+73	Rt.	1,110										
Ramp "E"	308+18	310+37	Rt.							219				
" " "	309+58	310+37	Lt.							82				
" " "	310+37	320+04	Lt.	967										
" " "	310+37	321+04	Rt.		1,067									
Ramp "F"	312+74	313+45	L/R					50	45	148		46		
" " "	312+74	319+97	Rt.			723								
" " "	312+99	314+64	Rt.										6	2
" " "	313+45	322+47	L/R	902	902									
Ramp "G"	309+86	314+87	Rt.	501										
" " "	313+21	314+97	Lt.							176				
Reloc. S.R.252	60+20	61+00	L/R			160			26					
" " " "	61+08	61+15	L/R							22	77			
" " " "	61+50	61+82	L/R							71	312			
" " " "	61+54	74+25	L/R			2,542		118	67	24	46		2	1
" " " "	63+95	64+75	Lt.					140				135		
" " " "	65+50	66+15	Rt.					110			135	16		
" " " "	71+36	72+32	Lt.					42			369			
" " " "	74+90	75+00	L/R							22	44			
" " " "	75+08	78+50	L/R			1,568			26					
" " " "	76+60	77+10	Lt.					80			180			
TOTAL - INTERSTATE				37,829	39,503	6,934	62,500	2,533	219	1,988	1,406	998	14	5

620 Delineators

Roadway	Station	To Station *	Side *	Interval	C Post	D Post	
I-480	290+40	296+40	Rt.	100'	7		
Ramp "A"	296+40	297+20	Rt.	80'	1		
" " "	297+20	297+70	Rt.	50'	1		
" " "	297+70	303+70	Lt.	50'		13	
" " "	303+70	304+50	Rt.	80'	2		
" " "	304+50	308+50	Rt.	50'	8		
I-480	298+00	300+00	Lt.	100'	3		
Ramp "B"	300+00	300+80	Lt.	80'	1		
" " "	300+80	305+30	Rt.	50'		10	
" " "	305+30	306+10	Lt.	80'	2		
" " "	306+10	308+10	Lt.	100'	2		
" " "	308+10	308+80	Lt.	70'	1		
" " "	308+80	312+80	Lt.	40'	10		
" " "	312+80	313+50	Lt.	70'	1		
" " "	313+50	315+60	Rt.	30'		8	
" " "	315+60	316+80	Lt.	30'	5		
Ramp "C"	294+60	295+60	Rt.	100'	2		
" " "	295+60	296+20	Rt.	60'	1		
" " "	296+20	305+50	Lt.	30'		32	
" " "	305+50	306+10	Rt.	60'	2		
" " "	306+10	307+10	Rt.	100'	1		
Ramp "D"	296+50	297+50	Lt.	100'	2		
" " "	297+50	298+10	Lt.	60'	1		
" " "	298+10	308+10	Rt.	30'		34	
" " "	308+10	308+70	Rt.	60'		1	
" " "	308+70	316+70	Lt.	100	9		
S.R. 252 (Ramp "E")	62+42 ±	308+90	Rt.	100'	3		
Ramp "E"	308+90	309+60	Rt.	70'	1		
" " "	309+60	312+00	Lt.	40'		7	
" " "	312+00	312+70	Lt.	70'		1	
" " "	312+70	320+70	Rt.	100'	9		
Ramp "F" to I-480	313+50	322+46	Lt.	100'	20		
PROJECT TOTAL					95	106	

* All Upstation Regardless of Traffic Flow (direction)

Item 621 Pavement Marking

4" Lane Lines = 6,934 × 15/40 ÷ 5,280 = .49 Mi.
6" Lane Lines = 62,500 × 15/40 ÷ 5,280 = 4.44 Mi.
4" Yellow Edge Lines = 37,829 ÷ 5,280 = 7.16 Mi.
4" White Edge Lines = 39,503 ÷ 5,280 = 7.48 Mi.

CALC. BY OGF DATE 12-19-75
CHKD. BY J.R.B. DATE 1-27-76

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

SUB-SUMMARY

Location	Distance Rt. or Lt. of Survey to ℄ Post or ℄ Nearest Post of the Sign	Type of Sign(s)	Number of Supports	844 Signs Erected Flat Sheet Sq. Ft.	844 Ground Mounted Support #3 Post L.F.	844 Ground Mounted Support #4 Post, As per Plan L.F.	Remarks
12+50 Mackenzie Rd.	21' Rt.	W-76B-30	1	6.25	15.5		
16+72 Mackenzie Rd.	30' Lt.	R-1-24	1	4.00	14.0		
* 16+85 Mackenzie Rd.	31' Lt.	R-15E-30, N-15A-24, M-7-24	1	9.00		15.5	R-15E-30 Top Sign
16+88 Mackenzie Rd.	29' Rt.	R-15E-30, N-15A-24, M-7-24	1	9.00		15.5	R-15E-30 Top Sign
* 17+02.5 Mackenzie Rd.	30' Rt.	R-1-24	1	4.00	15.0		
21+30 Mackenzie Rd.	21' Rt.	W-76B-30	1	6.25	15.5		
227+49 I-480	114' Lt.	N-15A-24, R-15E-30, M-7-24	1	9.00	14.0		Facing Southern
6+00 Southern Ave.	22' Rt.	W-76B-30	1	6.25	15.5		
12+80 Burns Rd.	14' Lt.	W-76B-30	1	6.25	15.5		
238+56 I-480	124' Lt	N-15A-24, R-15E-30, M-7-24	1	9.00	15.0		Facing Nantucket
15+55 Fitch Rd.	16' Rt.	W-76B-30	1	6.25	15.5		
18+38 Fitch Rd.	40' Lt.	R-1-24	1	4.00	14.0		
18+56 Fitch Rd.	43' Lt.	N-15A-24, R-15E-30, M-7-24	1	9.00		15.5	M-7-24 Top Sign
* 19+35 Fitch Rd.	31.5' Rt.	N-15A-24, R-15E-30, M-7-24	1	9.00		15.5	M-7-24 Top Sign
19+55 Fitch Rd.	33' Rt.	R-1-24	1	4.00	14.0		
23+50 Fitch Rd.	14' Lt.	W-76B-30	1	6.25	15.5		
3+50 Butternut Ridge Rd.	14' Rt.	W-76B-30	1	6.25	15.5		
6+80 Butternut Ridge Rd.	42' Rt.	N-15A-24, R-15E-30, M-7-24	1	9.00		15.5	M-7-24 Top Sign
6+94 Butternut Ridge Rd.	42' Rt	R-1-24	1	4.00	13.0		
8+13 Butternut Ridge Rd.	45' Lt.	R-1-24	1	4.00	13.0		
8+26 Butternut Ridge Rd.	34' Lt.	R-15E-30, N-15A-24, M-7-24	1	9.00	13.5		Back to Back Signs
11+91 Butternut Ride Rd.	31' Lt.	W-76B-30	1	6.25	15.5		
6+40 Kennedy Ridge Rd.	53' Rt.	N-15A-30, R-15E-30, M-7-24	1	9.00	15.5		
78+55 Reloc. S.R. 252	76' Lt.	M-7-24, R-15E-30	1	8.00	15.0		
78+65 Reloc. S.R. 252	58' Lt.	R-1-24, M-7-24, M-14A-24	1	8.00	14.5		
PROJECT TOTAL				171.00	294.5	77.5	

Location	621 4" White Edge Lines, As Per Plan L.F.	621 12" Stop Line L.F.	621 8" Crosswalk with 12" Diag. Stripes @ 4'-0" c/c L.F.
200+75 to 207+98 I-480	723		
208+60 to 220+00 I-480	1,140		
220+00 to 250+00 I-480	3,000		
250+00 to 251+10 I-480	125		
252+30 to 274+90 I-480	2,260		
274+90 to 275+60 I-480	90		
277+00 to 280+00 I-480	295		
280+00 to 300+00 I-480	2,000		
300+00 Ramp "B" to 312+15 Ramp "B"	1,215		
312+15 Ramp "B" to 78+65 S.R. 252	470		
16+72 to 16+84 Mackenzie Rd. (30' Lt)		12	
16+90 to 17+02 Mackenzie Rd. (30' Rt)		12	
18+40 to 18+52 Fitch Rd. (40' Lt.)		12	
19+36 to 19+52 Fitch Rd. (30' Rt.)		16	
6+84 to 6+92 Butternut Ridge Rd. (40' Rt.)		8	
8+13 to 8+18 Butternut Ridge Rd. (31/43' Lt.)		12	
78+65 to 78+70 Reloc. S.R. 252 (58/76' Lt.)		12	
℄ 16+87± Mackenzie Rd.			18
℄ 7+12 ± Southern Ave.			24
℄ 19+36 ± Fitch Rd.			20
℄ 6+88 ± Butternut Ridge Rd.			52
TOTALS	11,318	84	114

* = 8'-3" Min. Clear Mtg. Hgt.
See Bike Path Typical Section Sheet 8A

Item 621 Pavement Marking

$\frac{11,318 \text{ L.F.} \times 2}{5,280} = 4.29$ Miles

Calc T.R.B. 1-76
Chk. H.J.H 1-76

FED. RD DIVISION	STATE	PROJECT	
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TRAFFIC CONTROL NOTES

844 SIGNS FURNISHED BY THE STATE

THE CONTRACTOR SHALL SUBMIT, IN TRIPLICATE, 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 DISTRICT TRAFFIC ENGINEER AND TO THE ENGINEER OF DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO 43215.

844 PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE PADLOCKS EQUAL TO MASTER NO. 4 BKA OR WILSON BOHANNAN 660 AND SHALL BE KEYED IN ACCORDANCE WITH 844.10.

PAYMENT WILL BE INCLUDED IN THE BID FOR THE ITEM (S) BEING LOCKED.

842 SIGNAL POLES and SIGNAL STRAIN POLES

Signal Support shall be fabricated as per 816-16.10 details on sheet 278.
Wall thickness in this plan are referred to by gauge numbers in lieu of wall thickness in inches. The gauge numbers shown in this plan shall be interpreted as follows.

GAUGE NO.	NOMINAL THICKNESS INCHES
11	.1196
7	.1793
3	.2391
0	.299

625 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.

844 MILE MARKER LOCATION

The locations shown in the plans for mile markers are approximate. The Bureau of Transportation Technical Services will locate the longitudinal position of the mile markers by a point mark on the completed pavement edge. On divided highways only one pavement edge will be marked. Markers for the opposite direction shall 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 will then notify the Bureau of Transportation Technical Services. Any Delineator within 50 feet of a mile marker shall be omitted.

844 BALLAST

In addition to the requirements of 844.10, ballast for mercury vapor luminaires shall be located within the luminaire housing or contained in a weatherproof housing contiguous to the luminaire.

844 Mast Arm Mounted Sign Attachment

This work shall consist of furnishing and installing the mast arm sign attachment and sign bracket.
Payment will be at the bid price per each item 844 "Mast Arm Sign Attachment" including all hardware and incidentals.

844 DRIVE POST

Drive post shall be steel in accordance with 712.20.

844 ALTERNATE DESIGNS FOR SIGN SUPPORTS

IF THE CONTRACTOR DESIRES TO FURNISH ALTERNATE DESIGNS OR MATERIALS FOR 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.

SUBMISSIONS SHALL BE MADE TO OHIO DEPARTMENT OF TRANSPORTATION, BUREAU OF DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO 43215.

844 INTERIM COVERING FOR SIGNS

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING AN INTERIM 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 705.09.

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 -0- SQ. FT. REFERRED TO IN THE PLANS, AN ADDITIONAL QUANTITY OF 300 SQ. FT. FOR ITEM 844 INTERIM COVERING FOR SIGNS, HAS BEEN INCLUDED TO COVER SIGNS AS DIRECTED BY THE ENGINEER.

844 GROUND MOUNTED SUPPORTS, NO. POST, AS PER PLAN

THIS WORK SHALL CONSIST OF THE FURNISHING, ASSEMBLY, AND INSTALLATION OF TWO (2) NO. 2 DRIVE POSTS (NO. 4 POST) IN COMBINATION WITH A SQUARE WELDED OR SEAMLESS GALVANIZED TUBULAR PORT EXTENSION SPLICED TO THE TOP OF THE NO. 6 POST

SQUARE TUBULAR POST MATERIAL SHALL CONFORM TO ASTM A 570 GRADE B.

WORK SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND HARDWARE NECESSARY TO PERFORM THE REQUIRED WORK.

BASIS OF PAYMENT WILL BE FOR 844 GROUND MOUNTED SUPPORTS, NO. 4 POST, AS PER PLAN, PER LINEAR FOOT MEASURED BY THE TOTAL OVERALL LENGTH OF COMBINATION POST.

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 ALUM. SHEET
10-16 SQ. FT.	0.080 ALUM. SHEET
16-20 SQ. FT.	0.100 ALUM. SHEET

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 (HORIZ.)		
	4 FT. OR LESS	4-10 FT.	11 FT. OR MORE
10 OR LESS	1-4 LB. POST	2-3 LB. POST	-
10-20	1-6 LB. BEAM	2-4 LB. POST	-

SUPPORTS FOR GROUND MOUNTED SIGNS GREATER THAN 20 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 2-9 AND 2-10) OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

STANDARDS AND SIGN LAYOUTS FOR TEMPORARY SIGNS ARE AVAILABLE FROM THE BUREAU OF DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO 43215.

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.

Signal Cable

Signal Cable shall be stranded Conductor type.

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MAINTENANCE OF NEW OR TEMPORARY 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 MIS-ALIGNED 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 CONSTRUDED 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.

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 OUTAGE.

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 INVOLVE 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 OFRCES 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 EXPESNE, 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 OUTAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION TO 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.

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CUYAHOGA COUNTY
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N

WINDSOR DR.

Sta. 21+30

W-76B-30

N-12C-72
EXIT 3
Stearns Rd
(14'X6')(c)

N-12C-120
EXITS (A,B)
80 20
Loran Rd
Norwalk
1½ MILES
(16'X12'0")(b)

07
Sta. 194+15.2

10
3'X3'

Sta. 191+00
STOP AHEAD
W-45-48

480 ENDS
2½ MILES
(13'X7'-6")(a)

STA. 190+00

RAMP S-4
3,970

MATCH LINE

Pedestrian Overpass

200

BEGIN PROJECT
CUY 480-1.90
Sta. 200+75

BIKE PATH

6" Lane Line (Typ.

4" Edge Line (Typical)

480 EAST
Sta. 203+00
M-5A-36-3
IM-39-36

Sta. 16+72
R-1-24
STOP

Sta. 16+85
R-15E-30
MOTOR VEHICLES AND MOTORCYCLES PROHIBITED

M-7-24
N-15A-24
BIKE ROUTE

12" White
Stop Bar

18

8' Crosswalk With Diagonal Stripes

STOP
R-1-24
Sta. 17+02.5

12" White Stop Bar

BIKE PATH

I

N-12C-72
EXIT 3
Stearns Rd
NEXT RIGHT
(15'X6')

109
Sta. 217+00

STA. 220+00

MATCH LINE

15,100 I-480 WEST BOUND

210

15,100 I-480 EAST BOUND

15

13

MACKENZIE RD.

Sta. 12+60
W-76B-30

MOTOR VEHICLES AND MOTORCYCLES PROHIBITED
R-15E-30
Sta. 19+85

BIKE ROUTE
M-7-24
N-15A-24

MILE
4
N-41-12
sta 210+95

HOLLY DR.

ASPEN DR.

WESTLAWN DR.

TERRACE DR.

NOTE: Signs shown dashed to be constructed for Cuy-480-0.00

SIGNING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-480-1.90

N

STA. 190+00

MATCH LINE

RAMP S-4
3,970

Sta. 191+00
STOP AHEAD
W-45-48

3'x3'

N-12C-72
EXIT 3
Stearns Rd
(14'x6')(c)

N-12C-120
EXITS (A-B)
Lorain Rd
Norwalk
1/2 MILES
(16'x12'0")(b)

(107)
Sta. 194+15.2

480
2 1/2 MILES
ENDS
(13'x7'-6")(a)

200

Pedestrian Overpass

BEGIN PROJECT
CUY 480-1.90
Sta. 200+75

BIKE PATH

6" Lane Line (Typ.)

4" Edge Line (Typical)

480
EAST
Sta. 203+00
IM-39-36
M-5A-36-3

WINDSOR DR.
Sta. 21+30
W-76B-30

M-7-24
N-15A-24
BIKE ROUTE

Sta. 16+85
R-15E-30
MOTOR VEHICLES AND MOTORCYCLES PROHIBITED

Sta. 16+24
R-1-24
STOP

12" White Stop Bar

18
8' Crosswalk With Diagonal Stripes

STOP
R-1-24
Sta. 17+02.5

20

I

N-12C-72
EXIT 3
Stearns Rd
NEXT RIGHT
(15'x6')
(109)
Sta. 217+00

STA. 220+00

MATCH LINE

BIKE PATH

12" White Stop Bar

15,100 I-480 WEST BOUND

210

15,100 I-480 EAST BOUND

15

13

MACKENZIE RD.

W-76B-30
Sta. 12+50

MOTOR VEHICLES AND MOTORCYCLES PROHIBITED
Sta. 19+38
R-15E-30

BIKE ROUTE
M-7-24
N-15A-24

MILE
4
N-41-12
Sta 210+95

HOLLY DR.

ASPEN DR.

WESTLAWN DR.

TERRACE DR.

NOTE: Signs shown dashed to be constructed for Cuy-480-0.00

SIGNING PLAN

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CUYAHOGA COUNTY
CUY-480-1.90

N

DECKER RD.

SOUTHERN AVE.

PORTER DR.

BURNS RD.

W-76B-30
Sta. 12+80

6' CROSSWALK WITH DIAGONAL STRIPES

W-76B-30
Sta. 6+00

STA. 220+00

BIKE PATH

MATCH LINE

SPEED LIMIT 55 MINIMUM 40
R-7B-48
Sta. 224+00

BIKE ROUTE
MOTOR VEHICLES AND MOTORCYCLES PROHIBITED
Sta. 227+49
M-7-24
R-15A-24
R-15E-30

15,100
230
15,100
240

BIKE ROUTE
MOTOR VEHICLES AND MOTORCYCLES PROHIBITED
Sta. 238+56
M-7-24
N-15A-24
R-15E-30

NANTUCKET

REVERE DR.

BUTTERNUT RIDGE RD.

NO OUTLET
W-48-30
FIELD LOCATE

BIKE PATH

N-12C-72
EXIT 3
Steams Rd.
1 MILE
(15'X6')
111
Sta. 244+80

STA. 250+00

MATCH LINE

II

Sta. 234+00
IR 71
5
Youngstown 77
GJ-4
(17'X5')

BELLEVUE

PAISLEY DR.

FIELD LOCATE
W-48-30

NO OUTLET

BELLEVUE

FITCH RD.

N-12C-72
EXIT 6
252
North Olmsted
Olmsted Falls
1 MILE
(19'X12.0')
110
Sta. 244+60

I

FITCH RD.

W-76B-30
Sta. 15+55

SIGNING PLAN

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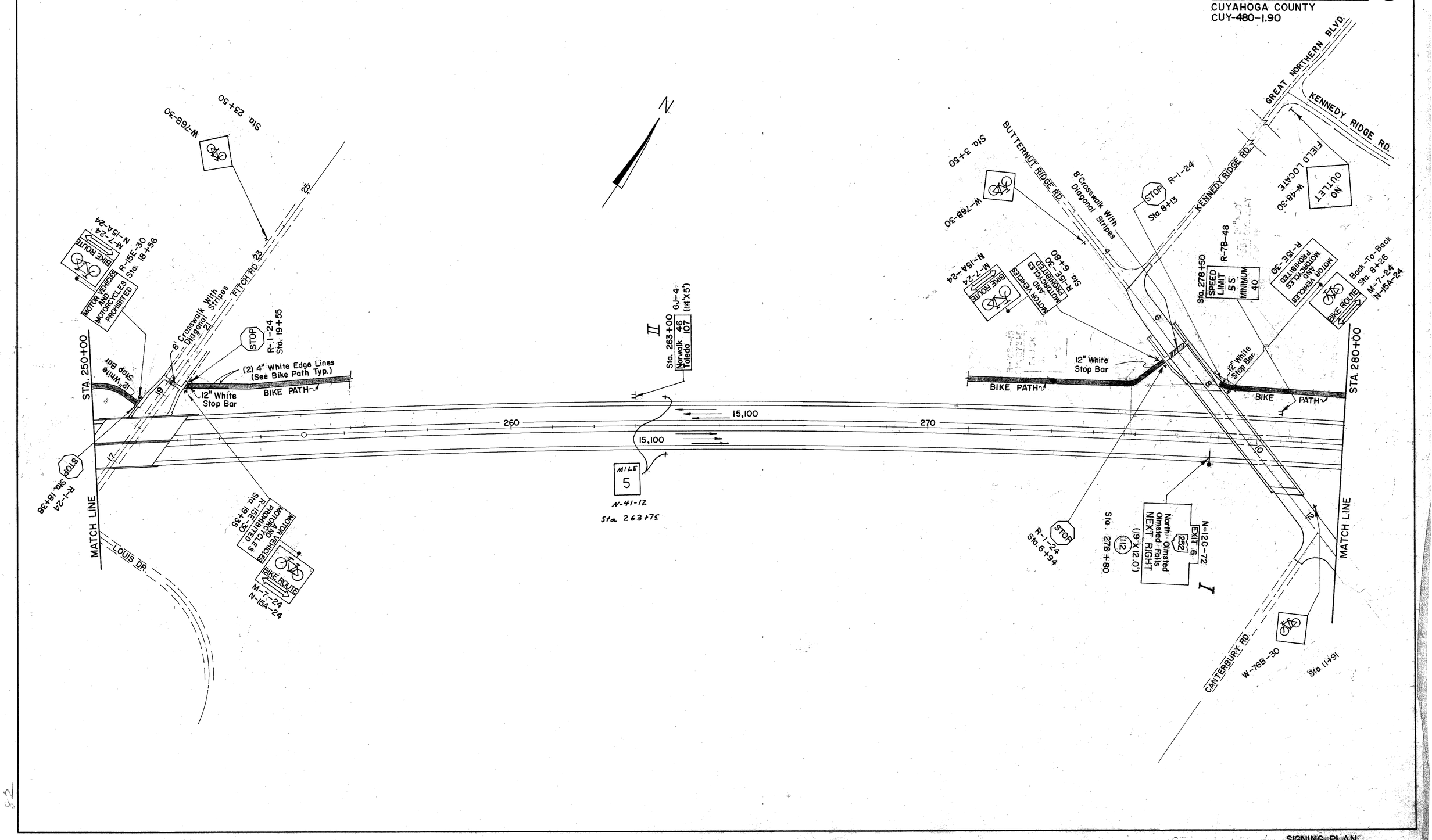

SIGNING PLAN

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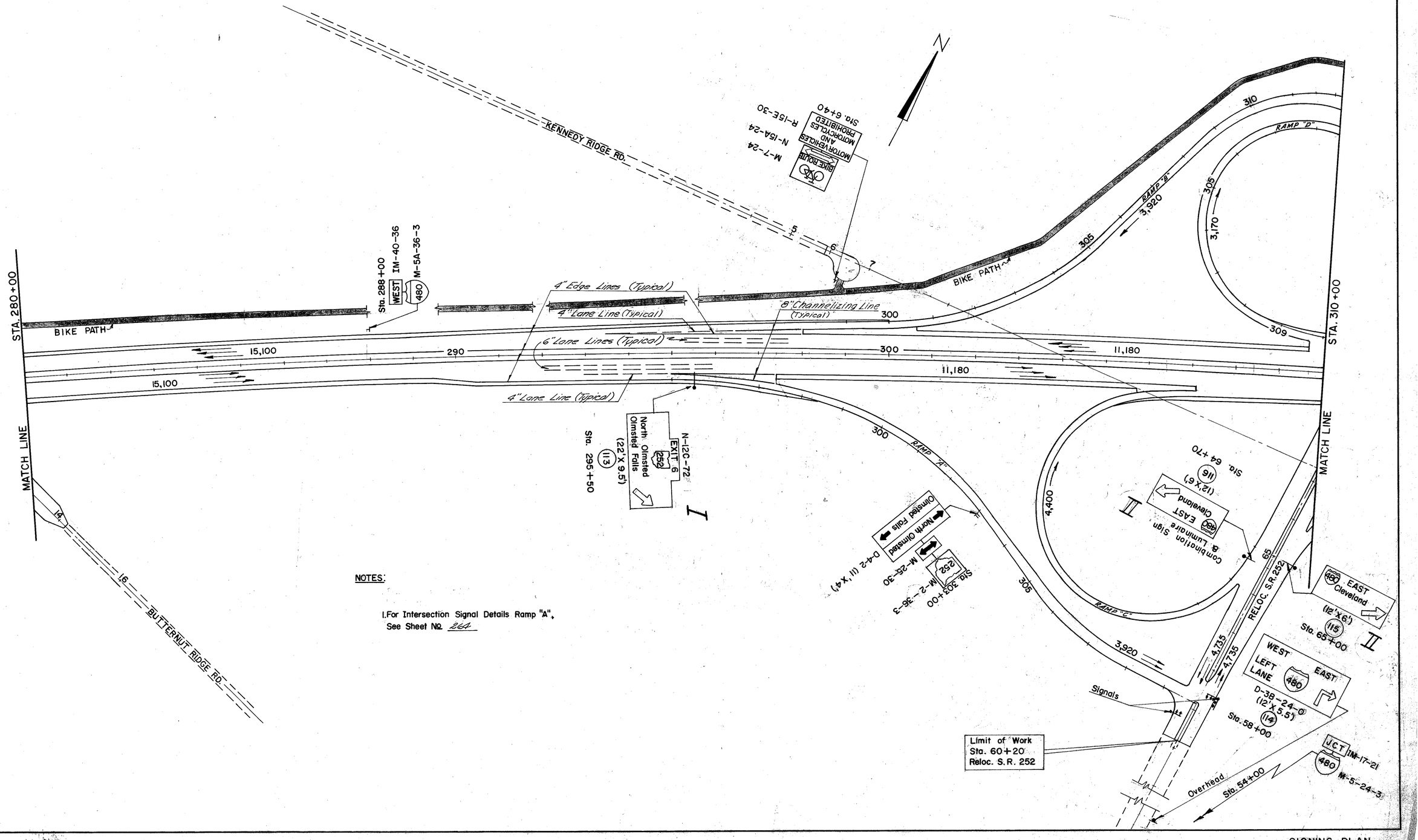

NOTES:

1. For Intersection Signal Details Ramp "A", See Sheet No. 264

SIGNING PLAN

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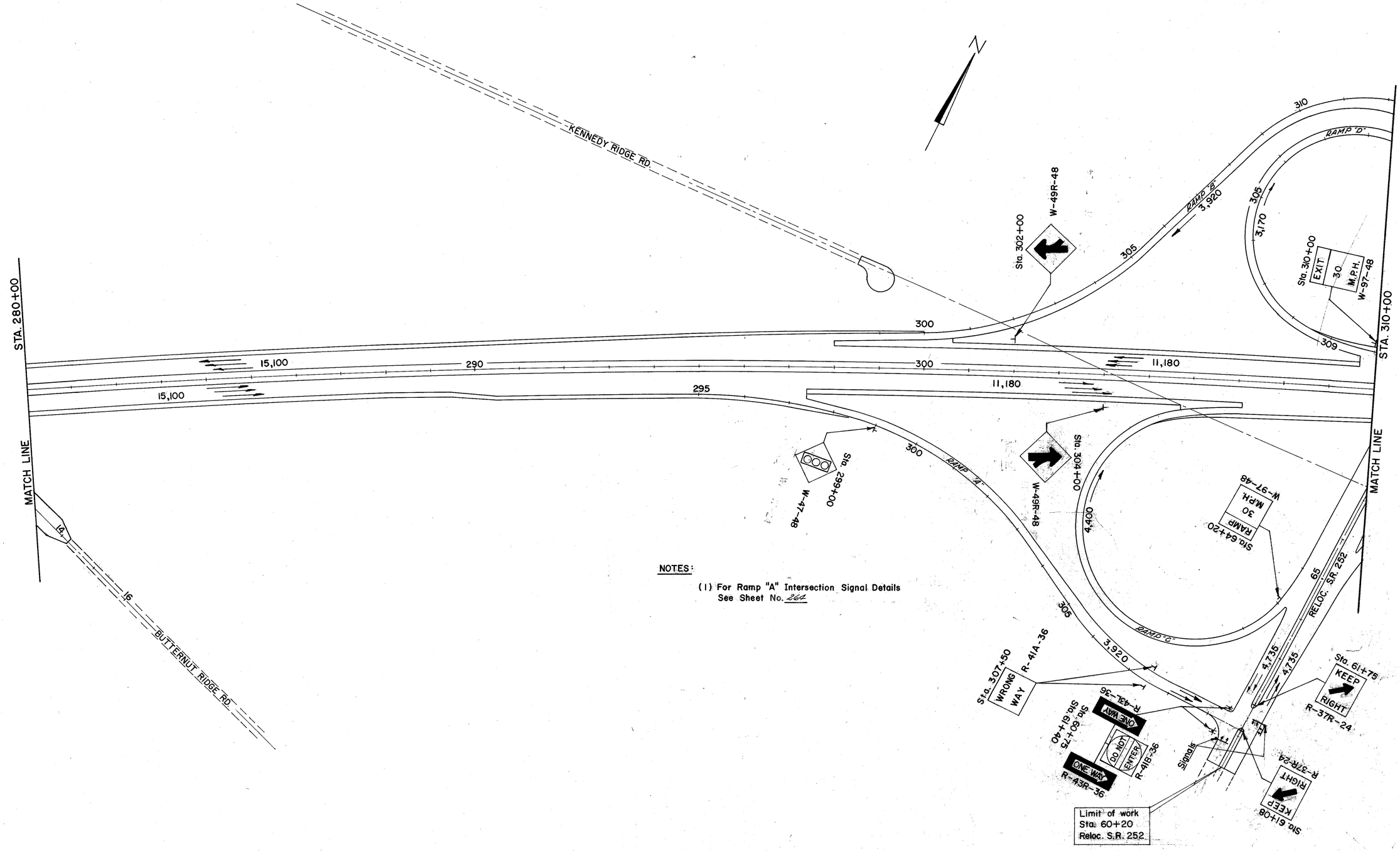

NOTES:

(1) For Ramp "A" Intersection Signal Details
See Sheet No. 264

SIGNING PLAN

FED. RD. DIVISION	STATE	PROJECT	
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BIKE PATH
RAMP "B"
RAMP "G"
RAMP "D"
RELOCATED S.R. 252
Combination Sign, Luminaire & Signals Sta. 74+55
Sta. 77+75
Signals
Sta. 312+25 N-12C-84 EXIT 6A SOUTH Olmsted Falls (21'X 7') (19)
Sta. 318+00 M-37-36 M-2-36-3 M-24-30 D-4-1, (11'X 2') NORTH 252 North Olmsted
N-12C-84 EXIT 63 NORTH 252 North Olmsted (b) (22'X 7')
N-12C-84 EXIT 6A SOUTH 252 Olmsted Falls NEXT RIGHT (a) (18'X 9.5')
Sta. 324+60
Sta. 319+00 M-5A-36-3 480
Sta. 85+83 I-M-17-21 M-5-24-3 480 I-JCT
Shopping Center ONLY (b) (13'X 6.5')
Cleveland Toledo KEEP RIGHT (a) (10'X 8.5')
Sta. 81+75
Black Letters on Yellow Background
Limit of Pavt Sta. 78+99.5 Reloc. S.R. 252.
12' Stop Bar
BIKE ROUTE MOTOR VEHICLES AND MOTORCYCLES PROHIBITED
M-7-24 R-15E-30 Sta. 78+55
(2) 4" White Edge Lines (See Bike Path Typical)
Sta. 78+65 STOP R-1-24 END BIKE ROUTE M-14A-24 M-7-24
RELOC. S.R. 252
Exist. S.R. 252
STA. 310+00
STA. 340+00
MATCH LINE
4,400
14,350
15,580
3,170
18,750
320
330
315
310
70
75
84
82
80
9.15
20
18
16
MILE 6
N-41-12
Sta 316+55
Sta. 335+00 EAST 480 M-5A-36-3 IM-39-36
KENNEDY RIDGE RD.
COLUMBIA RD.
MASTICK RD.

NOTES:

(1) For Ramp "F" Intersection Signals See Sheet No. 265

SIGNING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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Limit of work
Sta. 79+00
Reloc. S.R. 252

Sta. 313+50 YIELD R-2-48

Sta. 314+75 Ramp "G"
Sta. 315+00 Ramp "B"
PEDESTRIANS AND BICYCLES PROHIBITED R-15B-30

80
9|15
9|15
9
77+35

ONLY R-26A-30 | ONLY R-26A-30 | ONLY R-30A-30 | ONLY R-30A-30 | R-29A-30

RELOCATED S.R. 252

R-43R-36 ONE WAY ENTER DO NOT
R-43L-36 ONE WAY
Sta. 75+05

RAMP "B"
313
RAMP "G"
RAMP "D"
WP-49-24
R-3R-24 KEEP RIGHT
Sta. 74+20
75
Signals
Sta. 73+00

WRONG WAY R-41A-36
Sta. 314+50
R-3 (SPEC)-36
HAND HOLD

315
RAMP "F"
4,400
320
Sta. 320+00
W-47-48

R-43R-36 ONE WAY ENTER DO NOT
R-43L-36 ONE WAY
R-121-24
Sta. 74+38

STA. 310+00
70
14,350
320
330
15,580
320
18,750
18,750
20
18
16
Exist. S.R. 252
STA. 340+00

315
RAMP "E"
3,170
310
MATCH LINE
MATCH LINE

Sta. 318+00 (I-480)
W-49R-48

Sta. 310+10
PEDESTRIANS AND BICYCLES PROHIBITED R-15B-30

NOTE: For Ramp "F" Intersection Signals
See Sheet No. 265

KENNEDY RIDGE RD.
FIELD LOCATE W-48-30 NO OUTLET
COLUMBIA RD.
COLUMBIA RD.
MASTICK RD.

SIGNING PLAN

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N

STA. 340+00

MATCH LINE

N-12C-84
EXIT 6B
252
NORTH
North Olmsted
NEXT RIGHT
Sta. 341+00
(124)

19'X9.5'

SPEED LIMIT 55 MINIMUM 40

R-7B-48

Sta. 346+00

SPEED LIMIT 55 MINIMUM 40

R-7B-48

Sta. 352+00

FIELD LOCATE
NO OUTLET
W-48-30

GRACE AVE.

MASTICK ROAD

350

18,750

18,750

360

10

15

20

BROOKPARK ROAD S.R. 17

LIMIT OF WORK
CONTRACT CUY-80-1.90
Sta. 357+00

N-12C-132
EXITS 6-8-A
252
North Olmsted
Olmsted Falls
1 MILE
Sta. 375+00
(79)

18'X12.0'

LUCILLE AVE.

GEORGETTE AVE.

STA 370+00

END SHEET

MILE
7
N-41-12
Sta 369+75

NOTE: Sign shown dashed to be Constructed under Contract Nº Cuy-480-4.86

SIGNING PLAN

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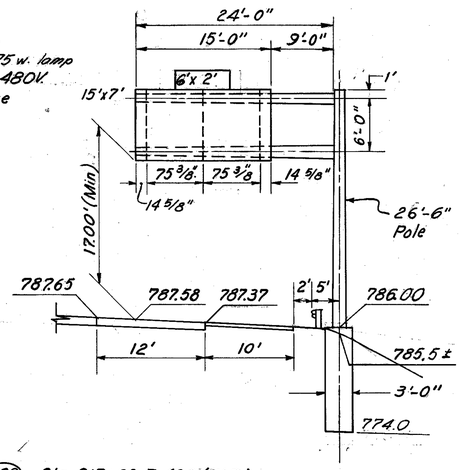
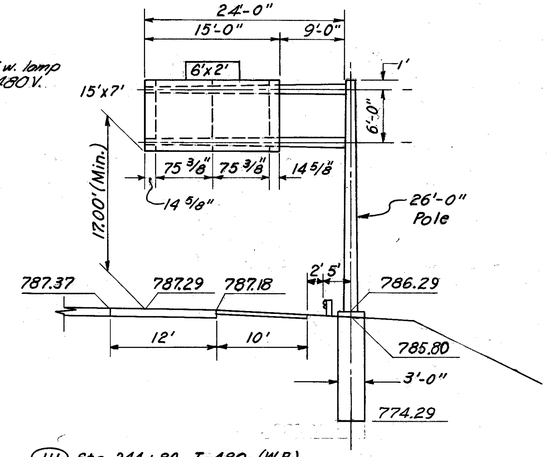
(3) 7' Z Brackets
2 M.V. Luminaire w/175 w. lamp
2 Ballast CMRI-175-480V.
(1) Type "X" Enclosure

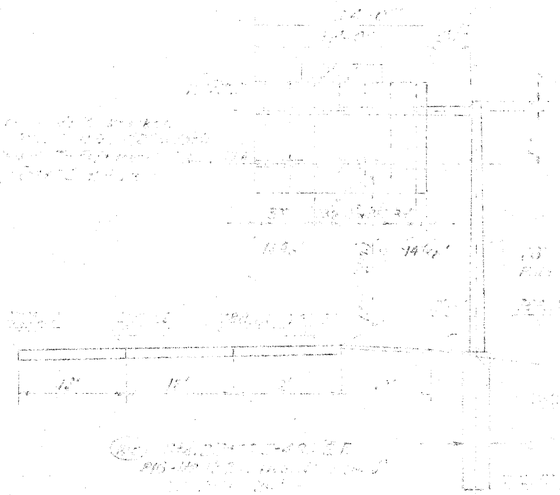


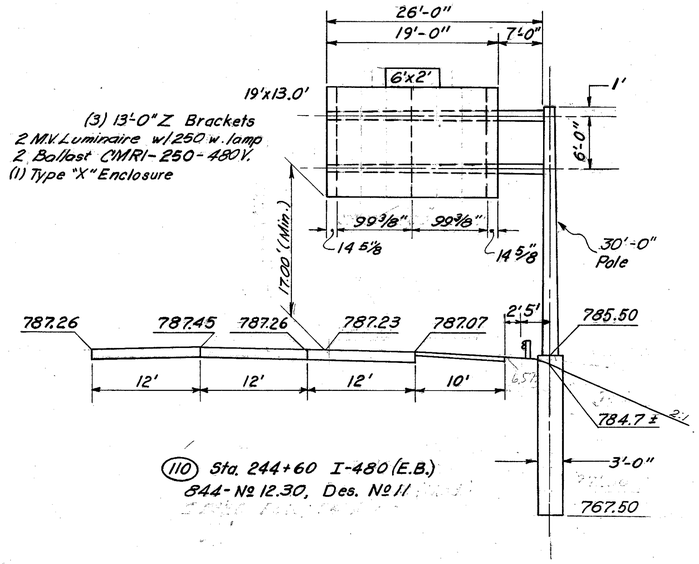
(109) Sta. 217+00 I-480 (W.B.)
844 Nº 12.30, Des. Nº 5 (Mod.)
24' Arm, 26'-6" Pole

(3) 7' Z Brackets
2 M.V. Luminaires w/175 w. lamp
2 Ballast CMRI-175-480V.
(1) Type "X" Enclosure



(111) Sta. 244+80 I-480 (W.B.)
844 Nº. 12.30, Des. Nº. 5 (Mod.)
24' Arm, 26 Pole





(110) Sta. 244+60 I-480 (E.B.)
844-Nº 12.30, Des. Nº 11

SIGNING ELEVATION

FED. RD. DIVISION	STATE	PROJECT	
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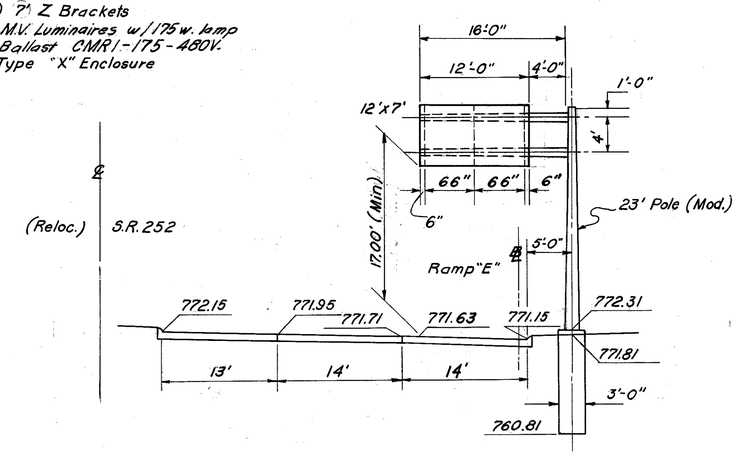
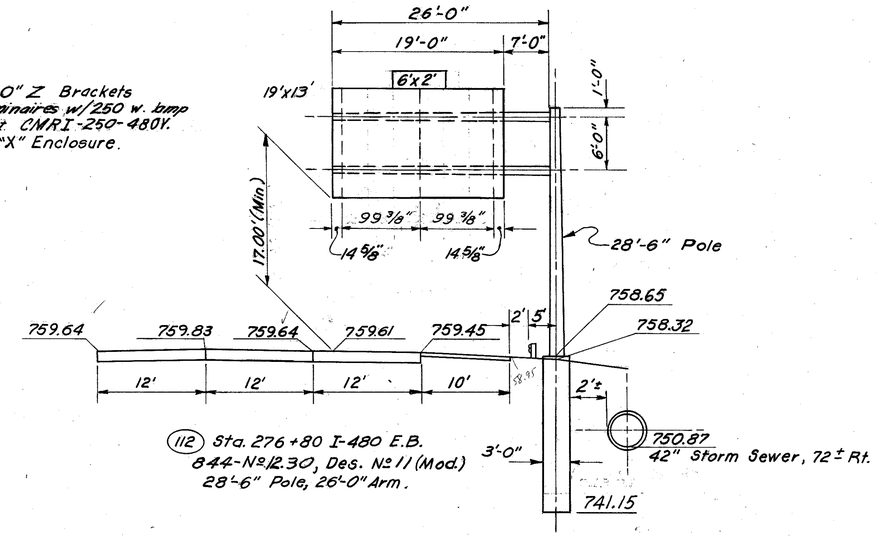
(3) 7' Z Brackets
2 M.V. Luminaires w/175 w. lamp
2 Ballast CMRI-175-480V.
(1) Type "X" Enclosure



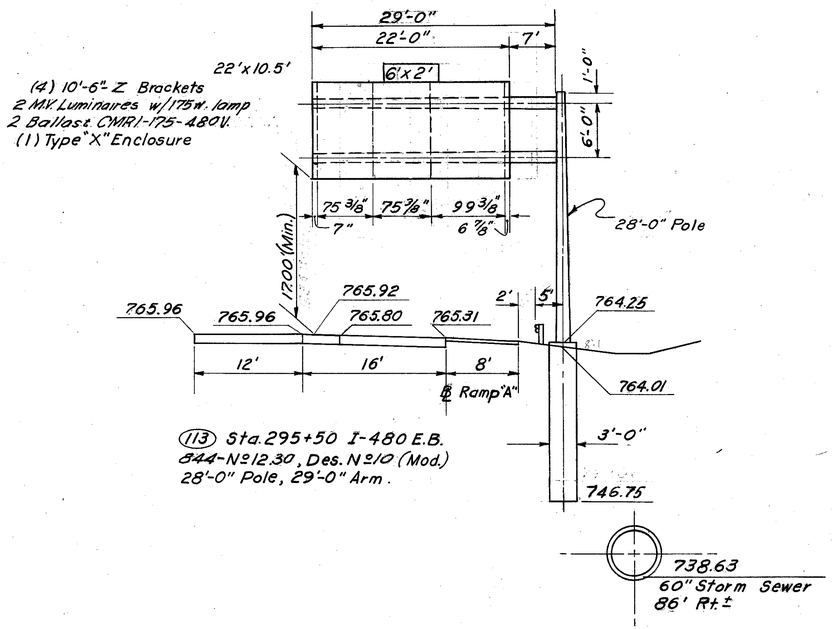
(115) Sta. 65+00 Reloc. S.R. 252 (N.B.)
844-№ 12.30 Des. № 3 (Mod.)
23'-0" Pole, 16'-0" Arm.

(3) 13'-0" Z Brackets
2 M.V Luminaires w/250 w. lamp
2 Ballast CMRI-250-480V.
(1) Type "X" Enclosure.



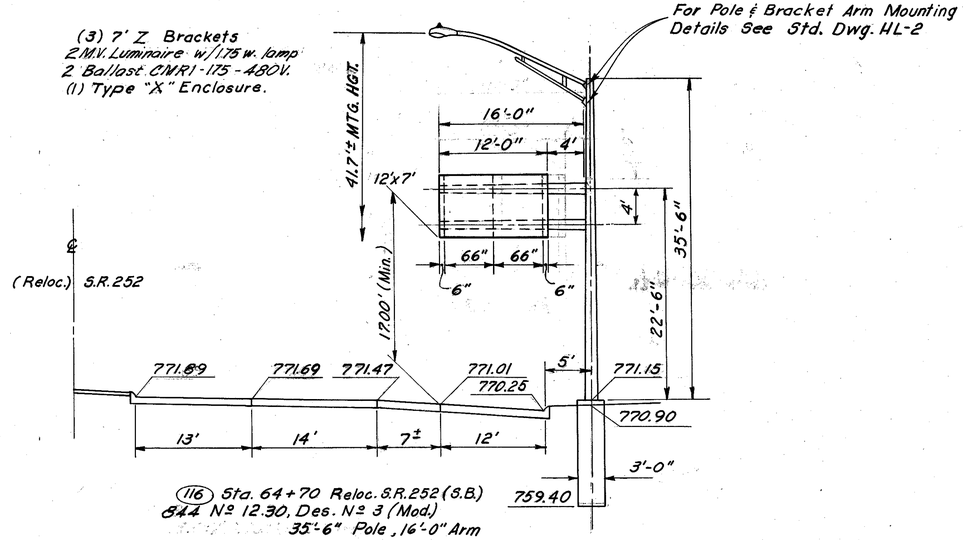
(112) Sta. 276+80 I-480 E.B.
844-№ 12.30, Des. № 11 (Mod.)
28'-6" Pole, 26'-0" Arm.

(4) 10'-6"± Z Brackets
2 M.V. Luminaires w/175 w. lamp
2 Ballast CMRI-175-480V.
(1) Type "X" Enclosure



(113) Sta. 295+50 I-480 E.B.
844-№ 12.30, Des. № 10 (Mod.)
28'-0" Pole, 29'-0" Arm.

(3) 7' Z Brackets
2 M.V. Luminaire w/175 w. lamp
2 Ballast CMRI-175-480V.
(1) Type "X" Enclosure.



(116) Sta. 64+70 Reloc. S.R. 252 (S.B.)
844 № 12.30, Des. № 3 (Mod.)
35'-6" Pole, 16'-0" Arm

COMBINATION O.H. SIGN & LUMINAIRE SUPPORT

SIGNING ELEVATION

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
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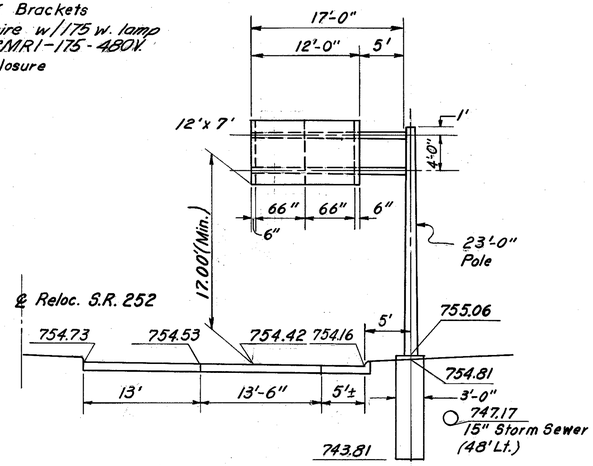
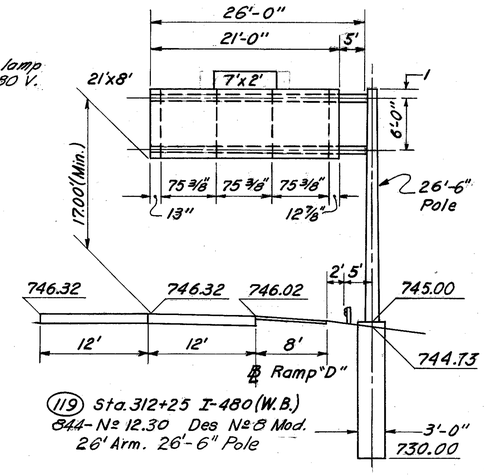
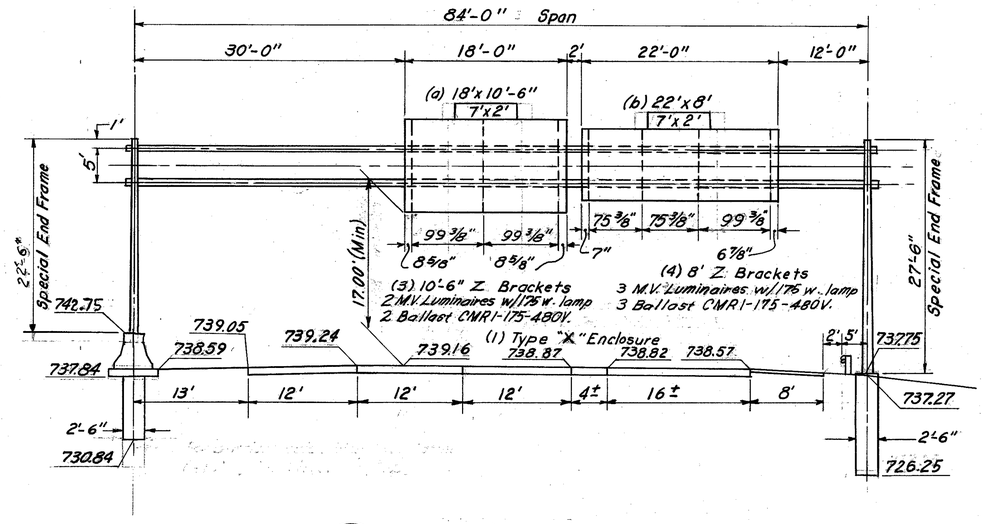
(3) 7' Z Brackets
2 M.V. Luminaire w/175 w. lamp
2 Ballast CMR1-175-480V.
(1) Type "X" Enclosure



(121) Sta. 77+75 Reloc. S.R. 252 (S.B.)
844-№ 12.30 Des. №3 Mod.
23' Pole, 17' Arm

(4) 8' Z Brackets
3 M.V. Luminaire w/175 w. lamp
3 Ballast CMR1-175-480 V.
(1) Type "X" Enclosure





(123) Sta. 324+60 I-480 (W.B.)
844-№ 765 Des. №8 Modified
Concrete Barrier Median Foundation
24'-0" Left End Frame (Spec.)
27'-6" Right End Frame (Spec.)

SIGNING ELEVATION

FED. RD. DIVISION	STATE	PROJECT	
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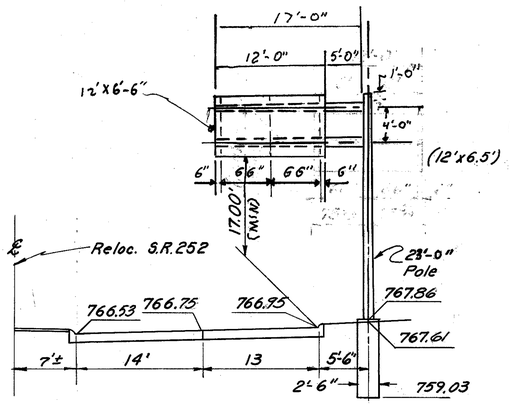
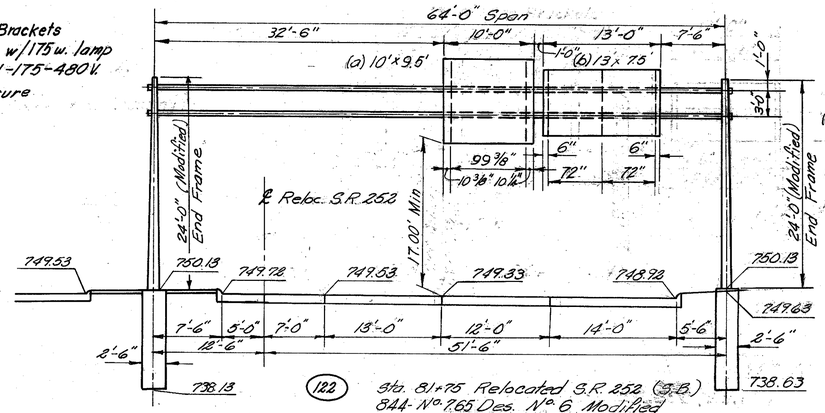


(114) Sta. 58+00 Reloc. S.R.252 (N.B.)
844-No 12.30 Des. No 3 (M00)
23'-0" Pole, 17'-0" Arm

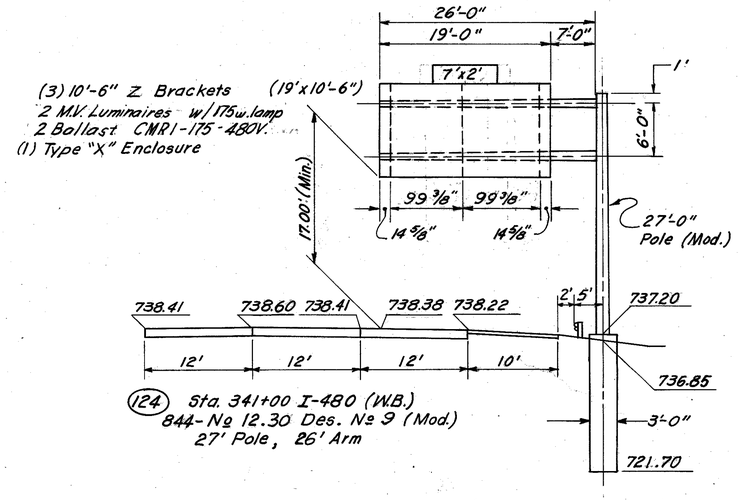
(3) 6'-6" Z Brackets
2 M.V. Luminaires w/175 w. lamp
2 Ballast CMRI-175-480V.
(1) Type "X" Enclosure



(122) Sta. 81+75 Relocated S.R.252 (S.B.)
844-No. 765 Des. No. 6 Modified

(a) (2) 9'-6" Z Brackets
1 M.V. Luminaire w/175 w. lamp
1 Ballast CMRI-175-480V.
(b) (3) 7'-6" Z Brackets
2 M.V. Luminaire w/175w. lamp
2 Ballast CMRI-175-480V.
(1) Type "X" Enclosure

NOTE:
Sign No. 114 and 122 are not to be constructed until verification of location and elevation are coordinated by the Project Engineer with adjacent project.



(124) Sta. 341+00 I-480 (W.B.)
844-No 12.30 Des. No 9 (Mod.)
27' Pole, 26' Arm

SIGNING ELEVATION

FED. RD. DIVISION	STATE	PROJECT	
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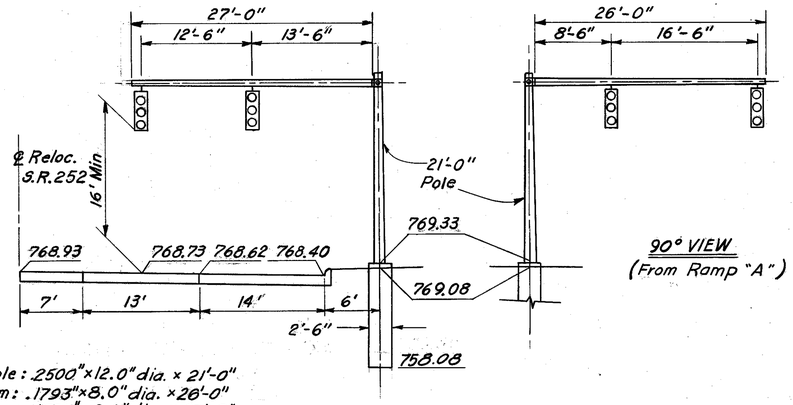
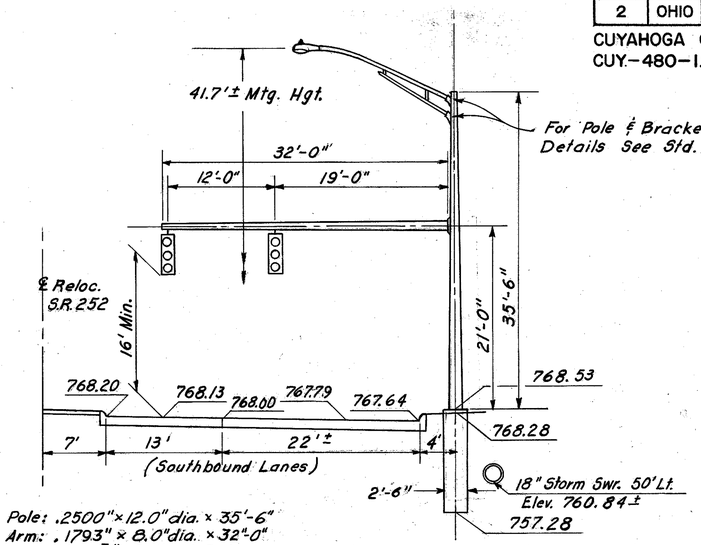


90° VIEW
(From Ramp "A")

Pole : .2500" x 12.0" dia. x 21'-0"
Arm : .1793" x 8.0" dia. x 26'-0"
Arm : .1793" x 8.0" dia. x 27'-0"
Base Data - (4) 1¾" x 90" A. Bolts on 16" B.C.

Sta. 61+37 Reloc. S.R.252, 40' Rt.

SIGNAL SUPPORT



Pole : .2500" x 12.0" dia. x 35'-6"
Arm : .1793" x 8.0" dia. x 32'-0"
Base Data - (4) 1¾" x 90" A. Bolts on 16" B.C.

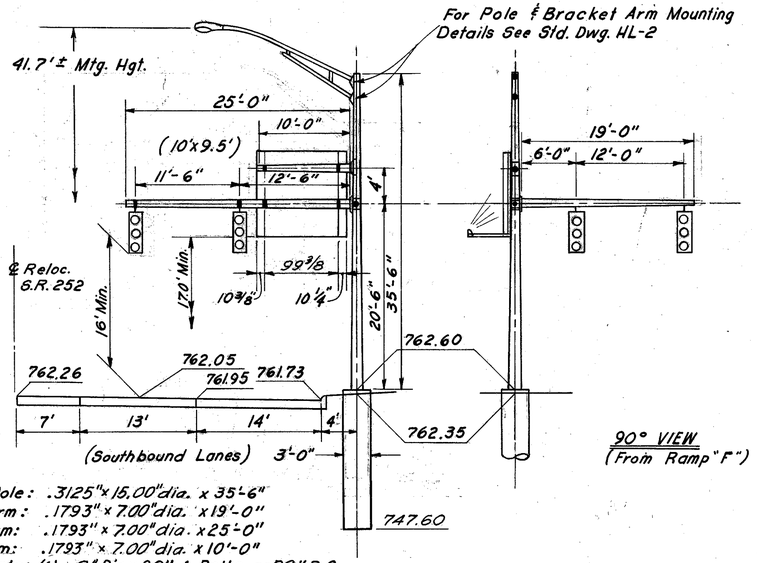
Sta. 60+70 Reloc. S.R. 252, 46' Lt.

COMBINATION SIGNAL & LUMINAIRE SUPPORT

Sign No (120)

(2) 9.5' Z Brackets
1 MV Luminaire w/175 w. lamp
1 Ballast CMR1-175-480V.
(1) Type "X" Enclosure

NOTE:
Sign to be erected to face Northbound Traffic

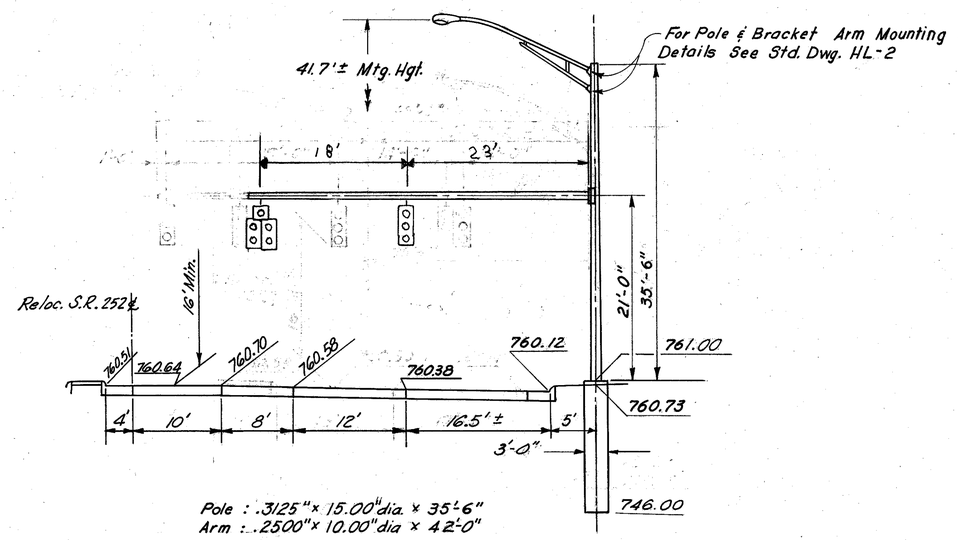


90° VIEW
(From Ramp "F")

Pole : .3125" x 15.00" dia. x 35'-6"
Arm : .1793" x 7.00" dia. x 19'-0"
Arm : .1793" x 7.00" dia. x 25'-0"
Arm : .1793" x 7.00" dia. x 10'-0"
Base Data: (4) 2" Dia. x 90" A. Bolts on 22" B.C.

Sta. 74+55 Reloc. S.R. 252, 38' Lt.

COMBINATION SIGNAL, SIGN & LUMINAIRE SUPPORT



Pole : .3125" x 15.00" dia. x 35'-6"
Arm : .2500" x 10.00" dia x 42'-0"

Base Data : (4) 2" x 90" A. Bolts on 22" B.C.

Sta. 75+23 Reloc. S.R. 252, 51'-6" Rt.

COMBINATION SIGNAL & LUMINAIRE SUPPORT

SIGNAL POLE ELEVATION

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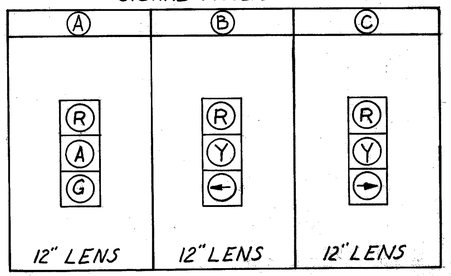
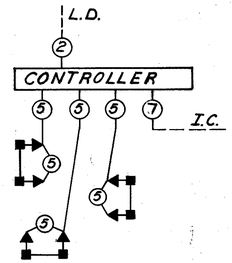
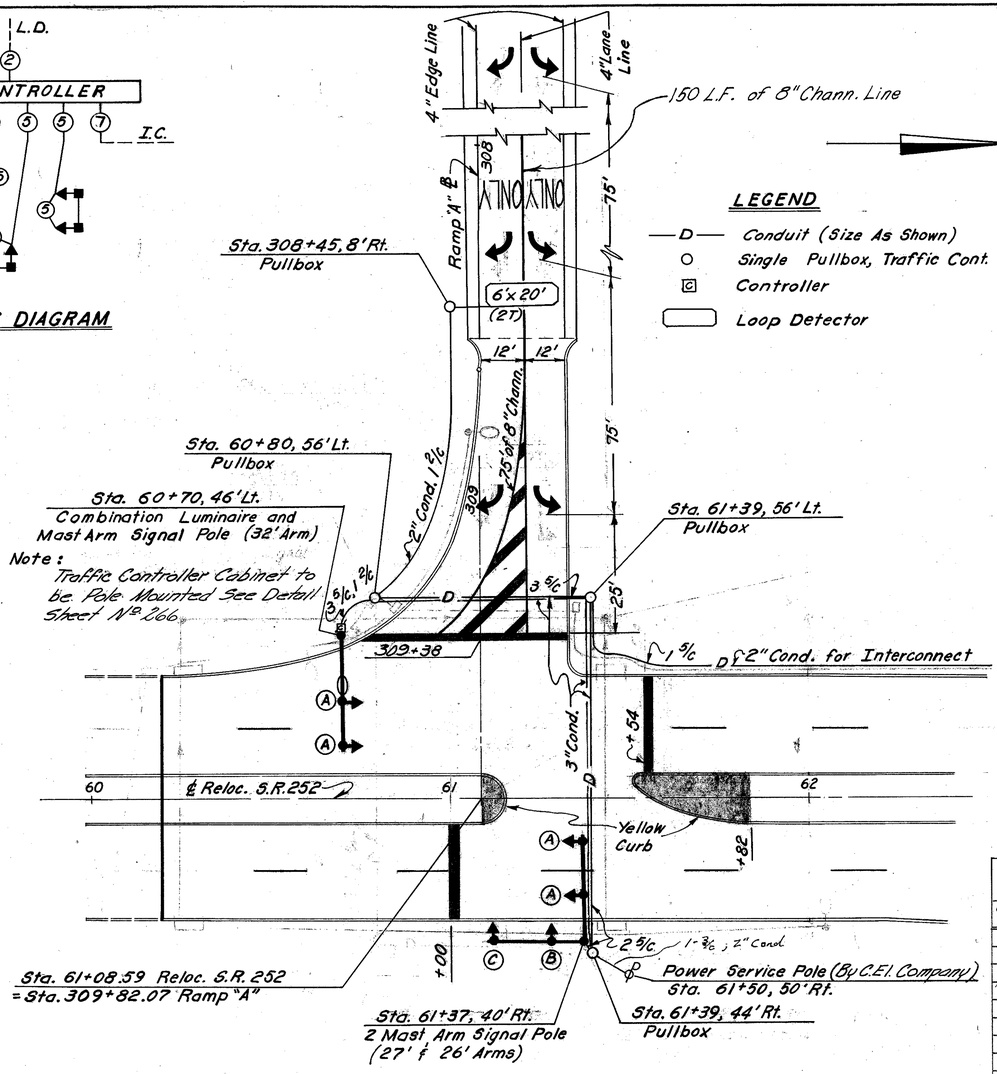
SIGNAL FACES



SIGNAL PHASES		TIMING
A	←	R/W 44 Sec.
	→	A.I. 4 sec.
		Red 2 Sec.
B	↓	Int 10 Sec
		Ext 4 sec
		A.I. 4 sec
		Red 2 Sec

WIRING DIAGRAM





LEGEND

- —D— Conduit (Size As Shown)
- ○ Single Pullbox, Traffic Cont.
- [C] Controller
- ▭ Loop Detector

CONTROLLER REQUIREMENTS

S.R. 252 & Ramp "A"

Semi-Actuated Signal Controller (2 Phase) Modular with Cabinet, As Per Plan.

The Controller shall include the following:

1. Flasher
2. Coordination Unit
3. Cabinet - 4.3 Cu.Ft., As Per Plan (Pole Mounted)
4. Wiring within cabinet for Loop Detector.
5. Main Timer

The Controller shall have Phase A recall on for semi-actuated operation.

Coordination shall be provided (By Background Cycle Type coordination units) to assure that ϕA Yellow at S.R. 252 and Ramp "A" cannot occur until 35 seconds after ϕ A2 Yellow occurs at S.R. 252 and Ramp "F" [illegible]

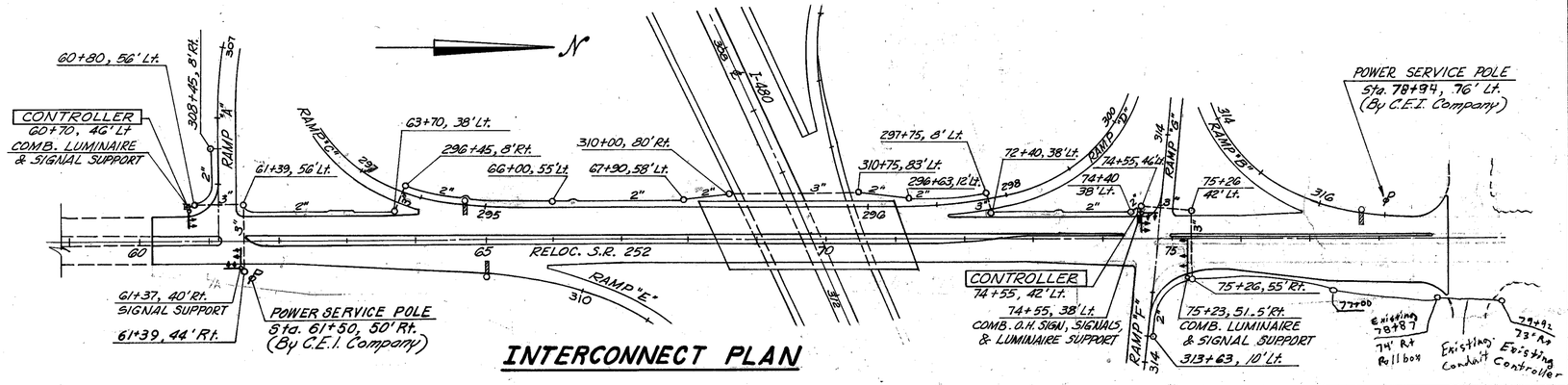
The background cycle shall be eighty seconds.

SIGNAL DISPLAY SCHEDULE

PHASE		A			B			FLASH	
MOVEMENT		R/W	C1	C2	R/W	C1	C2		
SIGNAL	Ⓐ	G	Y	R	R	R	R	Y	
	Ⓑ	R	R	R	G	Y	R	R	
	Ⓒ	R	R	R	G	Y	R	R	

Note: For Signal Support Details, See Sheet No. 263

INTERCONNECT PLAN

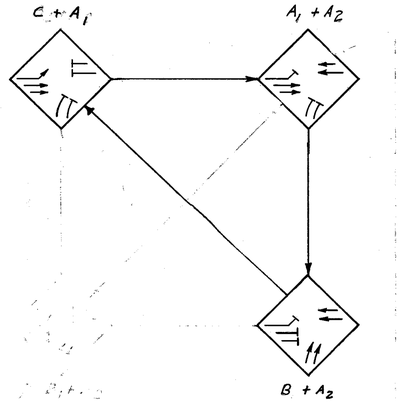


QUANTITIES

QUANTITY	ITEM	UNIT	DESCRIPTION
1	843	Ea.	Semi Actuated Signal Controller (2 Phase) Modular with Cabinet, As Per Plan.
6	842	Ea.	Vehicular Signal Head, 3 Section, 12" Lens, One Way
1	842	Ea	Loop Detector Amplifier
134	842	L.F.	Loop Detector Wire
120	842	L.F.	Loop Detector Lead in Cable
58	842	L.F.	Loop Detector Pavement Cutting
502	842	L.F.	Signal Cable 5/c No. 14 AWG
1455	842	L.F.	Interconnect Cable 9/c No. 14 AWG
225	842	L.F.	Power Cable 3/c No. 8 AWG
3	S625	Ea.	Ground Rod
13	S625	Ea.	Pullbox 18" Circular S713.09
616	S625	L.F.	Conduit 3" S713.04
1226	S625	L.F.	Conduit 2" S713.04
1640	842	L.F.	Trench
2	842	Ea.	Cable Support Assembly
1	842	Ea.	Combination Signal and Luminaire Support, .2500"x12.0" dia. x 35'-6" Pole, .1793"x 8" dia. x 32' Arm
1	842	Ea.	2 Mast Arm Signal Support, .2500"x12.0" dia. x 21'-0" Pole, .1793"x 8" dia. x 26' Arm & .1793" x 8" dia. x 27' Arm.
4.10	842	C.Y.	Concrete for Anchor Base Foundations.

RELOC. S.R.252 & RAMP "A" INTERSECTION

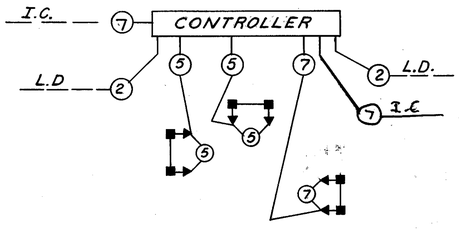
1, 3, 4	5, 6	2
R Y G	R Y →	R Y ← G
12" Lens	12" Lens	12" Lens



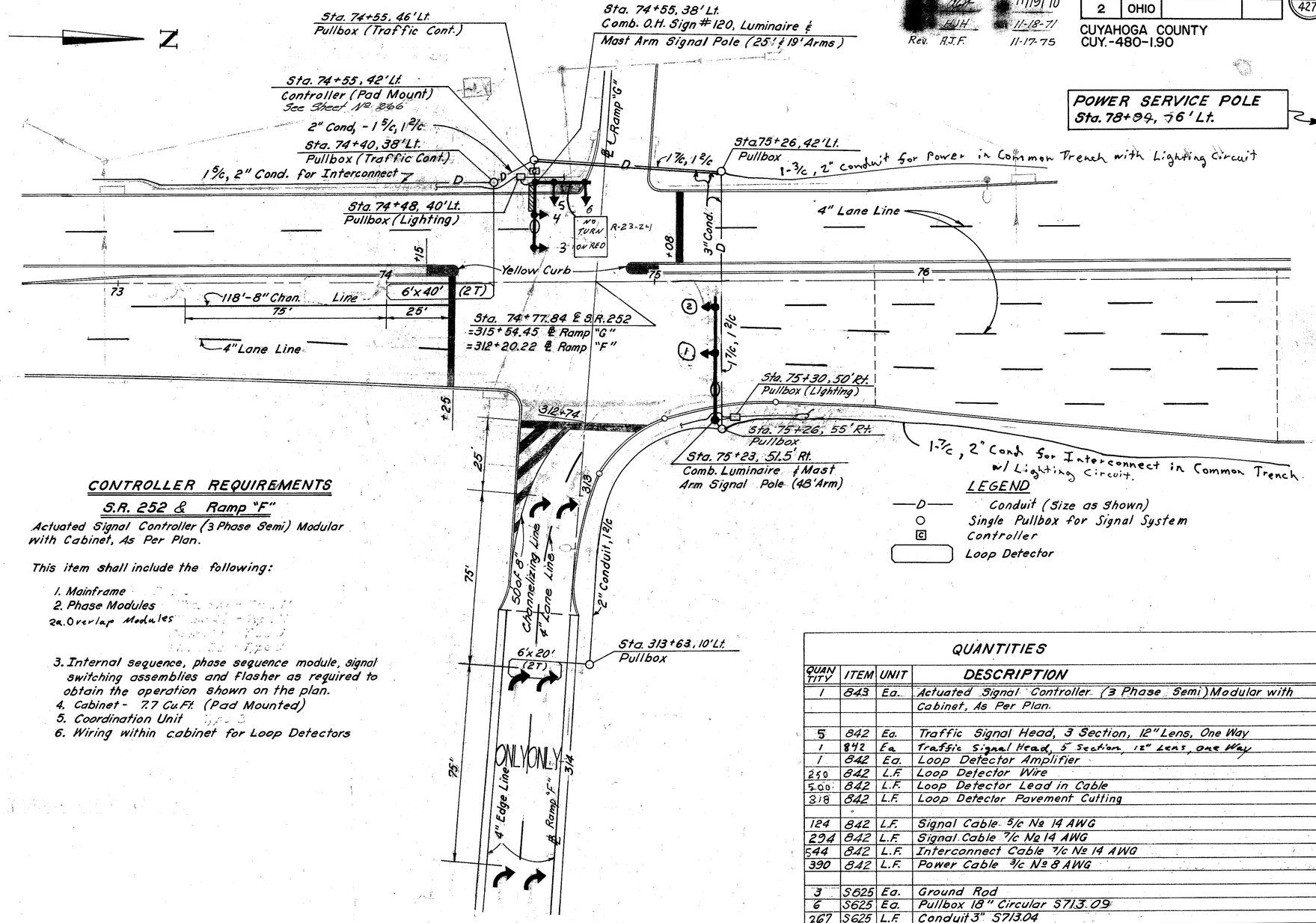
SIGNAL PHASING

SIGNAL DISPLAY SCHEDULE

PHASE		A1 + A2			B + A2			C + A1				FLASH
MOVEMENT		R/W	C1	C2	R/W	C1	C2	R/W	C			
SIGNAL	1	G	Y	R	R	R	R	G	G			Y
	2	G	Y	R	R	R	R	G/Ltd	G/Ltd			Y
	3,4	G	G	G	G	Y	R	R	R			Y
	5,6	R	R	R	G	Y	R	R	R			R



WIRING DIAGRAM



POWER SERVICE POLE
Sta. 78+84, 76' Lt.

LEGEND

—D— Conduit (Size as Shown)
○ Single Pullbox for Signal System
C Controller
Loop Detector

CONTROLLER REQUIREMENTS

S.R. 252 & Ramp "F"

Actuated Signal Controller (3 Phase Semi) Modular with Cabinet, As Per Plan.

This item shall include the following:

1. Mainframe
2. Phase Modules
2a. Overlap Modules
3. Internal sequence, phase sequence module, signal switching assemblies and flasher as required to obtain the operation shown on the plan.
4. Cabinet - 7.7 Cu.Ft. (Pad Mounted)
5. Coordination Unit
6. Wiring within cabinet for Loop Detectors

Note: For Signal Support Details, See Sheet No. 264

Note: For Interconnect Plan & Quantities See Sheet No. 265

Note: A 12'x40' Left Turn Detector Loop is to be installed at 79+00 (℄) as directed by the Engineer and Connected to the Controller at 80+00. Quantities are included in the estimated Amounts on this sheet.

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2	OHIO		

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QUANTITIES

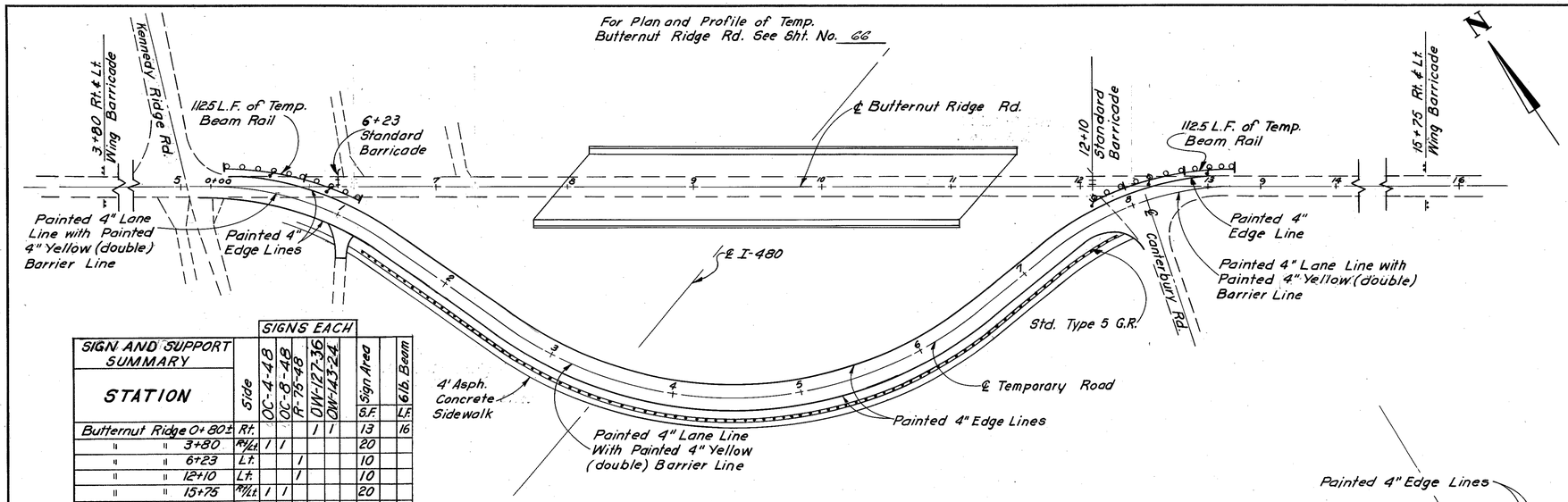
QUANTITY	ITEM	UNIT	DESCRIPTION
1	843	Ea.	Actuated Signal Controller (3 Phase Semi) Modular with Cabinet, As Per Plan.
5	842	Ea.	Traffic Signal Head, 3 Section, 12" Lens, One Way
1	842	Ea.	Traffic Signal Head, 5 Section, 12" Lens, one Way
1	842	Ea.	Loop Detector Amplifier
250	842	L.F.	Loop Detector Wire
500	842	L.F.	Loop Detector Lead in Cable
318	842	L.F.	Loop Detector Pavement Cutting
124	842	L.F.	Signal Cable 5/c No 14 AWG
294	842	L.F.	Signal Cable 7/c No 14 AWG
544	842	L.F.	Interconnect Cable 7/c No 14 AWG
390	842	L.F.	Power Cable 3/c No 8 AWG
3	S625	Ea.	Ground Rod
6	S625	Ea.	Pullbox 18" Circular S713.09
267	S625	L.F.	Conduit 3" S713.04
550	S625	L.F.	Conduit 2" S713.04
306	842	L.F.	Trench
2	842	Ea.	Cable Support Assembly
1	842	Ea.	Combination Signal, Sign & Luminaire Support; .3125"x 15.00" dia. x 35'-6" Pole; .1793"x 7.00" dia. x 25'-0" & .1793"x 7.00" dia. x 19'-0" Signal Arms, .1793"x 7.00"x 10'-0" Sign Arm.
1	842	Ea.	Combination Signal & Luminaire Support; .3125"x 15.00" dia. x 35'-6" Pole, .2500" x 10.00" dia. x 42'-0" Signal Arm
7.86	842	C.Y.	Concrete for Anchor Base Foundations
0.74	842	C.Y.	Concrete for Controller Cabinet and Pedestal Foundations
5	844	S.F.	Signs Erected, Flat Sheet Type
1	844	EACH	Mast Arm Sign Attachment

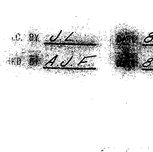
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

269
427

CUYAHOGA COUNTY
CUY - 480 - 1.90

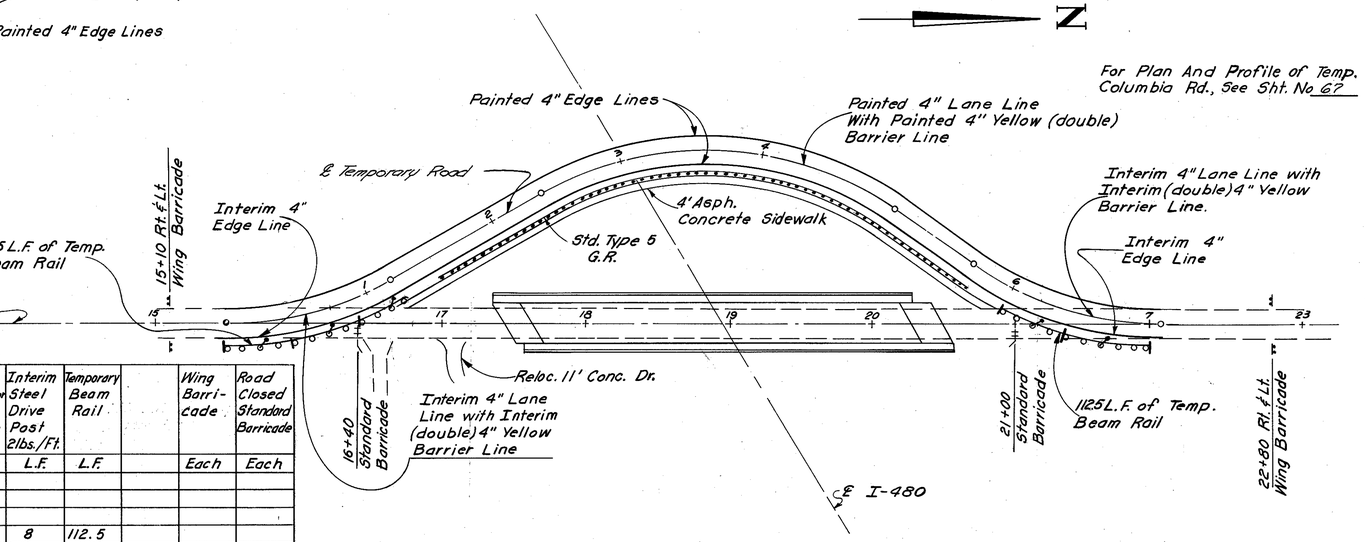
8-23-71
8-25-71





LEGEND

= Temporary Beam Rail
= Interim Sign (OW-138-30)
= Interim Delineator (double D Type)
= Standard Barricade
= Wing Barricade (Std. unless otherwise noted).



SIGN AND SUPPORT SUMMARY

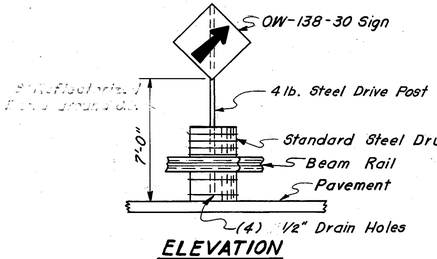
STATION	Side	SIGNS EACH OC-4-48	OC-8-48	R-75-48	OW-127.36	OW-143.24	Sign Area S.F.	6 lb. Beam L.F.
Butternut Ridge 0+80±	Rt.				1	1	13	16
" " 3+80	Rt/Lt.	1	1				20	
" " 6+23	Lt.			1			10	
" " 12+10	Lt.			1			10	
" " 15+75	Rt/Lt.	1	1				20	
" " 18+75±	Lt.				1	1	13	16
Columbia Rd. 12+10	Rt.				1	1	13	16
" " 15+10	Rt/Lt.	1	1				20	
" " 16+40	Rt.			1			10	
" " 21+00	Rt.			1			10	
" " 22+80	Rt/Lt.	1	1				20	
" " 25+80	Lt.				1	1	13	16
TOTAL		4	4	4	4	4	172	64

≠

STATION	Side	Interval	Painted 4" Edge Line L.F.	Interim 4" Edge Line L.F.	Painted 4" Lane Line L.F.	Interim 4" Lane Line L.F.	Painted 4" Yellow Barrier Line L.F.	Interim 4" Yellow Barrier Line L.F.	Interim Sign OW-138-30 Each	Sign Area Sq. Ft.	Interim Steel Drive Post 4lbs./Ft. L.F.	Interim Delineator As Per Plan Each	Interim Steel Drive Post 2lbs./Ft. L.F.	Temporary Beam Rail L.F.	Wing Barricade Each	Road Closed Standard Barricade Each
Temp. Butternut Ridge 0+00 to 7+85	Rt.		785													
" " " 0+00 to 8+80	℄				880		1,760									
" " " 0+15 to 8+80	Lt.		865													
" " " 0+10 to 1+10	Lt.	12.5							3	18.9	33	2	8	112.5		
" " " 7+75 to 8+75	Lt.	12.5							3	18.9	33	3	12	112.5		
Butternut Ridge 3+80	Rt/Lt.														2	
" " 6+23	Lt.															1
" " 12+10	Lt.															1
" " 15+75	Rt/Lt.														2	
Temp. Columbia Rd. 0+00 to 0+75	℄					75		150								
" " " 0+00 to 1+00	Rt.			100												
" " " 0+00 to 7+00	Lt.		700													
" " " 0+75 to 6+35	℄				560		1,120									
" " " 0+00 to 1+25	Rt	12.5'							3	18.9	33	3	12	137.5		
" " " 1+00 to 6+07	Rt.		507													
" " " 6+00 to 7+00	Rt.	12.5'							3	18.9	33	2	8	112.5		
" " " 6+07 to 7+09	Rt.			107												
" " " 6+35 to 7+09	℄					74		148								
Columbia Rd. 15+10	Rt/Lt.			34											2	
" " 16+40	Rt.															1
" " 21+00	Rt.															1
" " 22+80	Rt/Lt.														2	
TOTAL		50.0	2857	241	1440	149	2,880	298	12	75.6	132	10	40	475.0	8	4

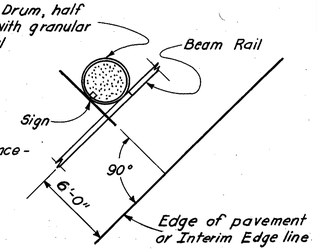
≠ Iterim pavement marking shall be used on all permanent pavement or pavement not to be removed or resurfaced. Quantities and locations of pavement marking shown are approximate only.

NOTE: Quantities shown on this sheet are for information only and the cost to furnish, erect, maintain and subsequently remove same shall be included under Item 614 and may be revised as required by the Engineer.



ELEVATION

NOTE: Erect OW-138-30 signs on first barrel, then as shown. For placement details see plans above.



SIGN ATTACHMENT TO TEMPORARY BEAM RAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480- 1.90

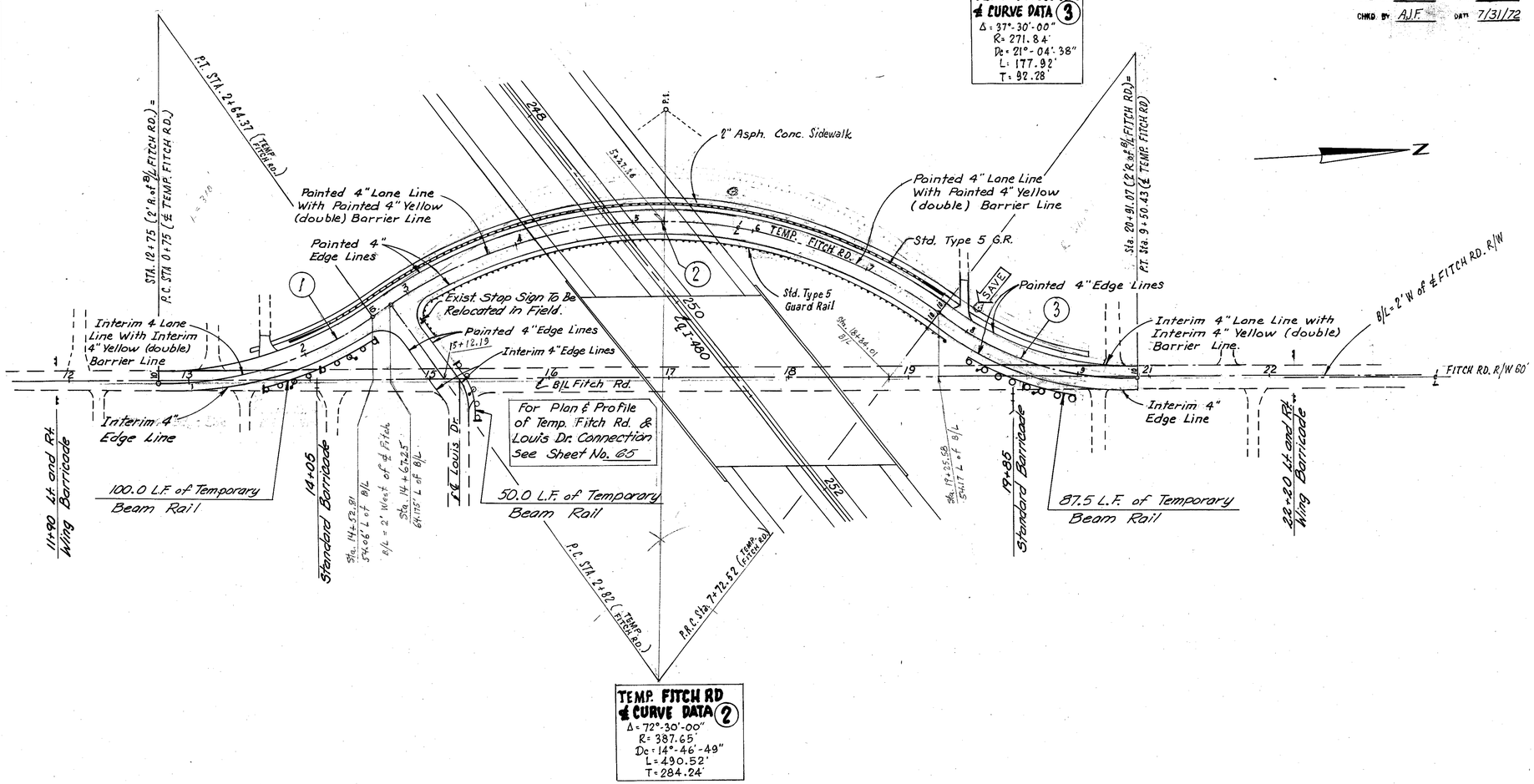
270
427

CALC. BY G.M.K. DATE 7/20/72
CHKD. BY A.J.F. DATE 7/31/72

TEMP. FITCH RD. ℄ CURVE DATA (1)
Δ = 35°-00'-00"
R = 310.00
Dc = 18°-28'-57"
L = 189.37'
T = 97.74'

TEMP. FITCH RD. ℄ CURVE DATA (3)
Δ = 37°-30'-00"
R = 271.84'
Dc = 21°-04'-38"
L = 177.92'
T = 92.28'

TEMP. FITCH RD ℄ CURVE DATA (2)
Δ = 72°-30'-00"
R = 387.65'
Dc = 14°-46'-49"
L = 490.52'
T = 284.24'



≠ See Sheet No. 263 For Note

STATION	Side	Interval	Painted 4" Edge Line L.F.	Interim 4" Edge Line L.F.	Painted 4" Lane Line L.F.	Interim 4" Lane Line L.F.	Painted 4" Yellow Barrier Line L.F.	Interim 4" Yellow Barrier Line L.F.	Interim Sign OW-138-30 Each	Sign Area Sq. Ft.	Interim Steel Drive Post 4lbs./Ft. L.F.	Interim Delineator As Per Plan Each	Interim Steel Drive Post 2lbs./Ft. L.F.	Temporary Beam Rail L.F.		Wing Barricade Each	Road Closed Standard Barricade Each
Temp. Fitch Rd. 0+75 to 1+60	℄					85		170									
" " " 1+60 to 3+10	℄				750		1500										
" " " 3+10 to 9+98	℄					88		176									
" " " 0+75 to 9+98	Lt.		923														
" " " 0+75 to 1+90	Rt.			115													
" " " 1+90 to 0+59 Louis Dr.	Rt.		129														
Louis Dr. 0+59 to 0+95	Rt.			36													
" " 0+71 to 1+05	Lt.			34													
" " 0+71 to 8+80 Fitch Rd.	Rt.		745														
Temp. Fitch Rd. 8+80 to 9+98	Rt.			124													
" " " 1+60 to 2+55±	Rt.	12.5							3	18.75	33	2	8	100.0			
" " " 8+33 to 9+17±	Rt.	12.5							3	18.75	33	2	8	87.5			
Louis Dr. 0+71 to 1+20±	Lt.	12.5							2	12.50	22	1	4	50.0			
Exist. Fitch Rd. 11+90	L/R															2	
" " " 22+20	L/R															2	
" " " 14+05	Rt.																1
" " " 19+85	Rt.																1
TOTAL			1797	309	750	173	1500	346	8	50.0	88	5	20	237.5		4	2

SIGN AND SUPPORT SUMMARY		SIGNS EACH							
STATION	Side	OC-4-48	OC-8-48	R-75-48	OW-127-36	OW-143-24	Sign Area S.F.		6 lb. Beam L.F.
Fitch Rd. 8+90 ±	Rt.				1	1	13		16
" " 11+90	R/L	1	1						
" " 14+05	Rt.			1					
" " 19+85	Rt.			1					
" " 22+20	R/L	1	1						
" " 25+20	Lt.				1	1	13		16
TOTAL		2	2	2	2	2	26		32

NOTE: For Legend and Sign Attachment to Temporary Beam Rail Details, See Sheet No. 269

Quantities shown on this sheet are for information only and the cost to furnish, erect, maintain and subsequently remove some shall be included under Item 614 and may be revised as required by the Engineer.

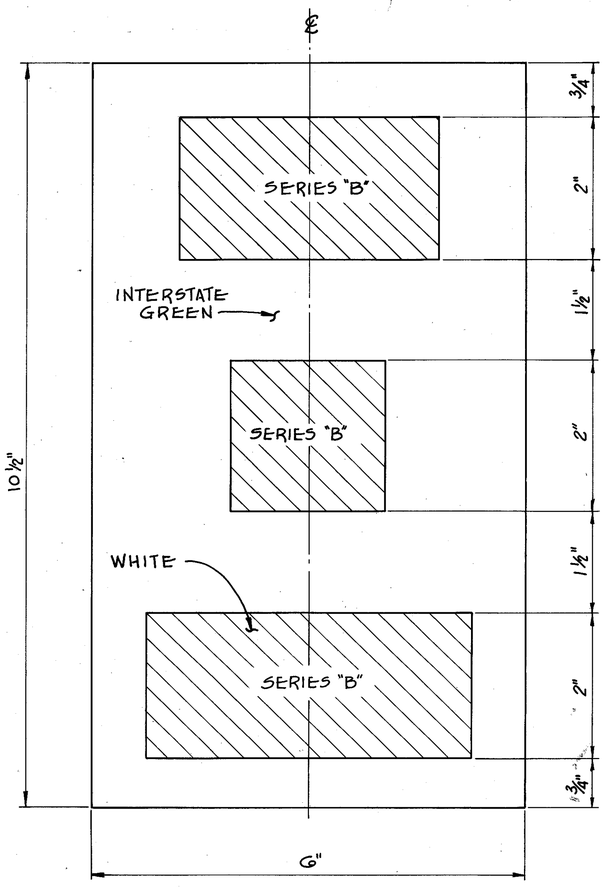
ITEM 614 MAINTAINING TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

8.71
427

CALC. BY M.L.B. DATE 6-18-71
CHKD. BY A.J.F. DATE 7-6-71

CUYAHOGA COUNTY
CUY - 480 - 1.90



LEGEND VARIES, SEE TABLE

CUY
480
2.21

EXAMPLE

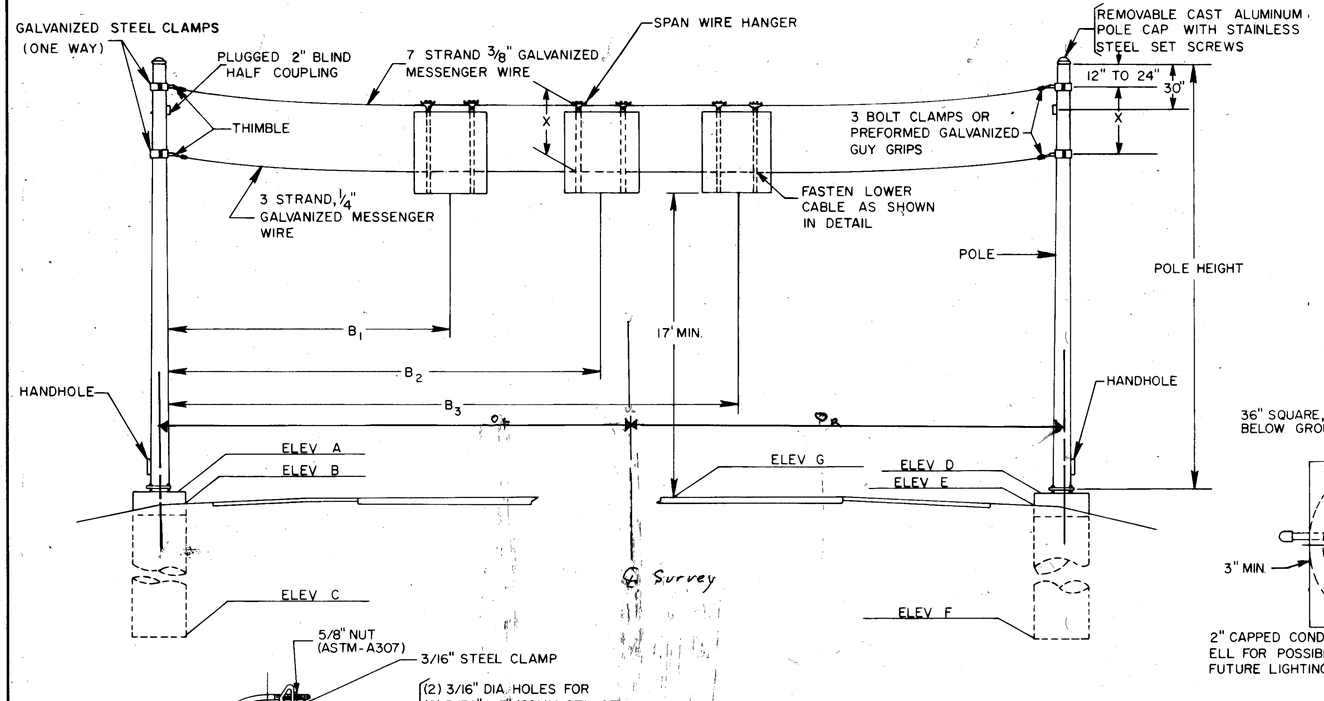
SUPPORT NO.	STATION	LOCATION	DIRECTION	DECAL LEGENDS		
				COUNTY	RT	MILEAGE
109	217+00	I-480	W.B.	CUY	480	2.21
110	244+60	I-480	E.B.	CUY	480	2.73
111	244+80	I-480	W.B.	CUY	480	2.74
112	276+80	I-480	E.B.	CUY	480	3.34
113	295+50	I-480	E.B.	CUY	480	3.69
114	306+40	I-480	Rt.	CUY	480	3.90
116	308+40	I-480	Rt.	CUY	480	3.94
115	309+65	I-480	Rt.	CUY	480	3.96
119	312+25	I-480	W.B.	CUY	480	4.01
120	312+55	I-480	Lt.	CUY	480	4.02
121	313+85	I-480	Lt.	CUY	480	4.04
122	315+75	I-480	Lt.	CUY	480	4.08
123	324+60	I-480	W.B.	CUY	480	4.25
124	341+00	I-480	W.B.	CUY	480	4.56

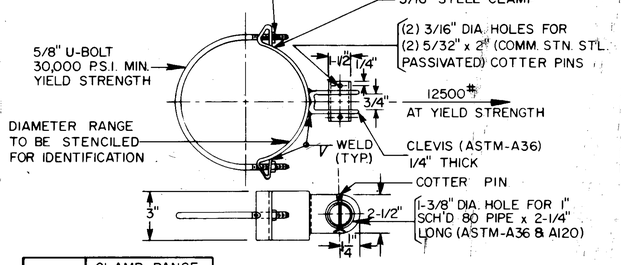
SIGN SUPPORT IDENTIFICATION DECALS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA 480 - 1.90

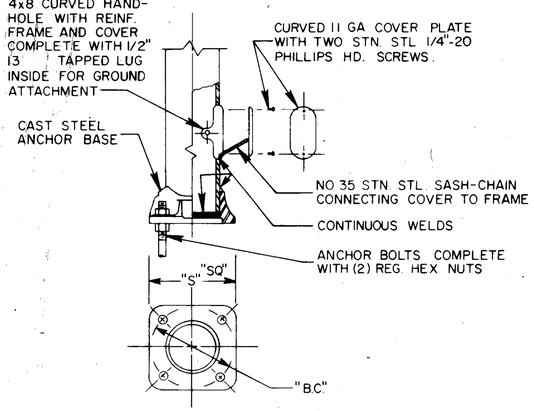
277
427

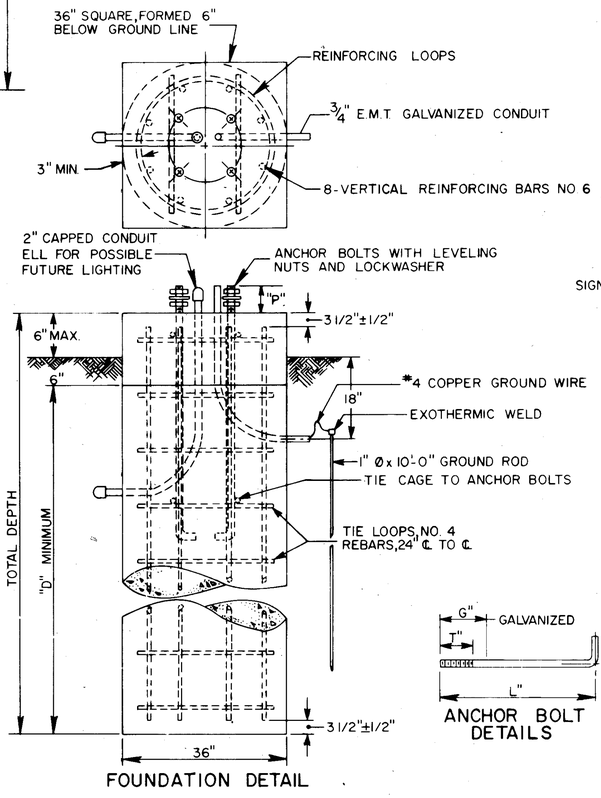




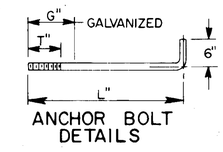
TYPE	CLAMP RANGE	
	MIN.	MAX.
I	3.1"	3.6"
II	3.6"	4.4"
III	4.4"	5.2"
IV	5.2"	5.8"
V	5.8"	6.8"
VI	6.8"	7.9"
VII	7.9"	9.0"
VIII	9.0"	10.1"
IX	10.1"	11.3"
X	11.3"	12.1"
XI	12.1"	13.4"
XII	13.4"	14.5"
XIII	14.5"	15.5"
XIV	15.5"	16.5"

SPAN WIRE CLAMP DETAILS

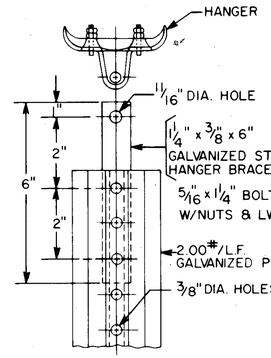


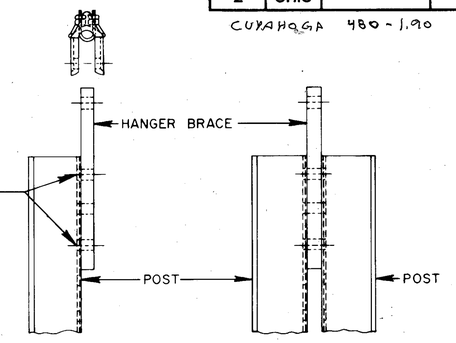


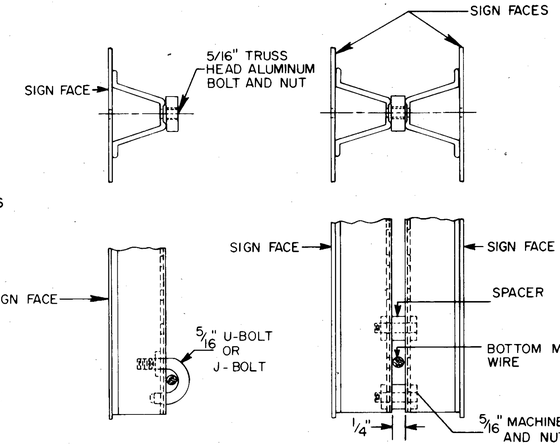
FOUNDATION DETAIL



ANCHOR BOLT DETAILS







SIGN ATTACHMENT DETAILS

O_L	O_R	SUPP. NO.	STATION LOCATION	SPAN LENGTH	SIGN 1		SIGN 2		SIGN 3		SIGN 4		SIGN 5		SIGN 6		LEFT HAND STRAIN POLE			RIGHT HAND STRAIN POLE			BOLT CIRCLE	"D" MIN.	"P"	"S"	L	T	G	ANCHOR BOLT	ELEVATIONS							DIMEN-SION X
					A_1	B_1	A_2	B_2	A_3	B_3	A_4	B_4	A_5	B_5	A_6	B_6	DIA.	GA	HEIGHT	DIA.	GA	HEIGHT									A	B	C	D	E	F	G	
59.35	72.65	—	77+35	132	7.5	61.35	7.5	73.35	7.5	85.35	7.5	98.35	7.5	111.35	—	—	13"	0	30'	13"	0	29'	18"	11'	8.5"	18 1/2"	90°	10"	12"	2" X 90°	754.5	754.0	739.5	755.5	755.0	740.5	755.3	36"

BUREAU OF DESIGN SERVICES
OHIO DEPARTMENT OF HIGHWAYS

SPAN WIRE
SIGN SUPPORT
DETAILS

DATE 6/13/72

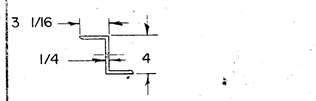
APPROVED _____
ENGINEER OF DESIGN SERVICES

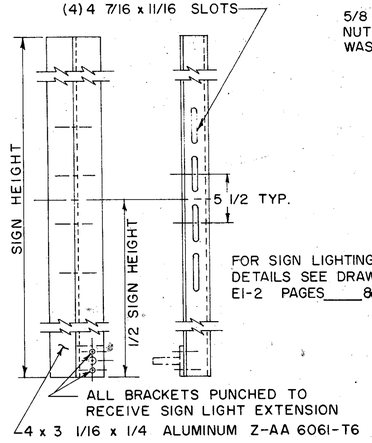
JJC 6/8/72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

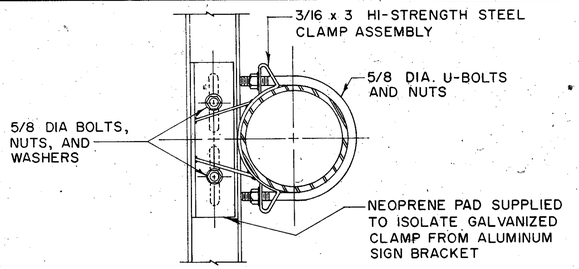
273
427

CUYAHOGA COUNTY
CUY-480-1.90

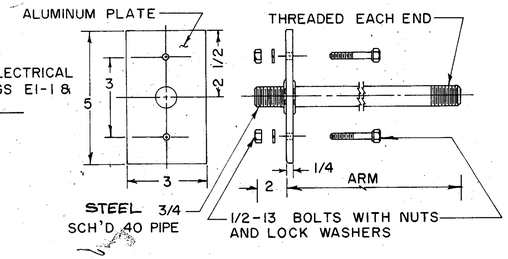




SIGN BRACKET

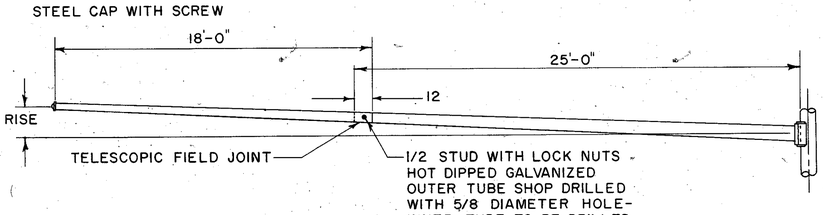


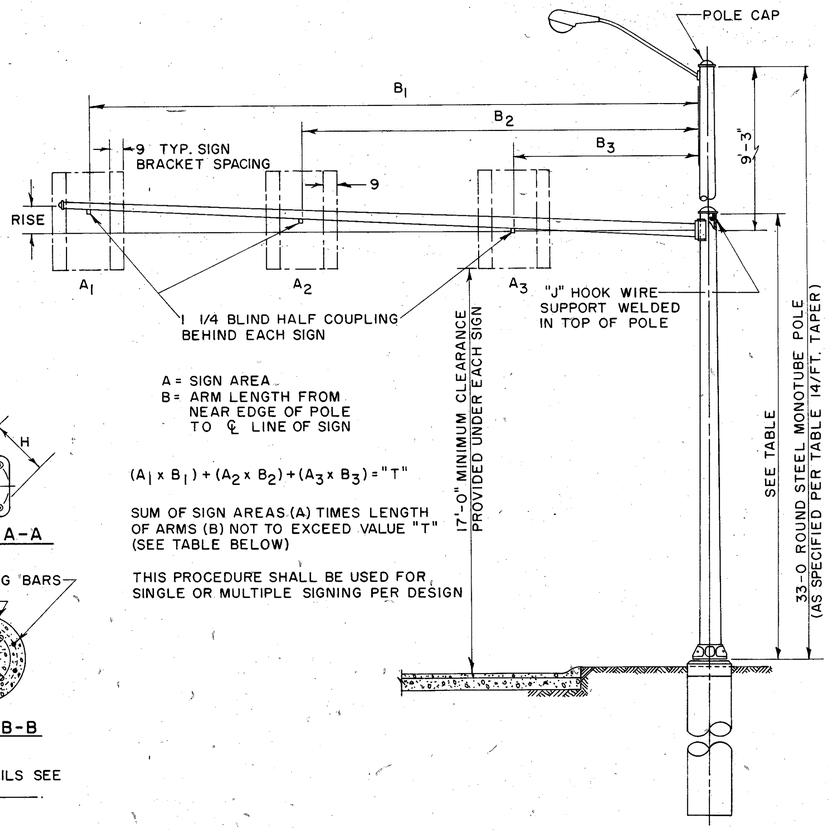
CLAMP ASSEMBLY



SIGN LIGHTING SUPPORT ARM

DES. NO.	ARM SIZE
3 4	2' - 9"
5 6	3' - 3"
7	4' - 3"





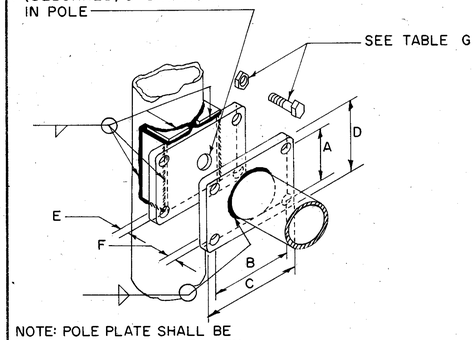
A = SIGN AREA
B = ARM LENGTH FROM NEAR EDGE OF POLE TO ℄ LINE OF SIGN

$(A_1 \times B_1) + (A_2 \times B_2) + (A_3 \times B_3) = "T"$

SUM OF SIGN AREAS (A) TIMES LENGTH OF ARMS (B) NOT TO EXCEED VALUE "T" (SEE TABLE BELOW)

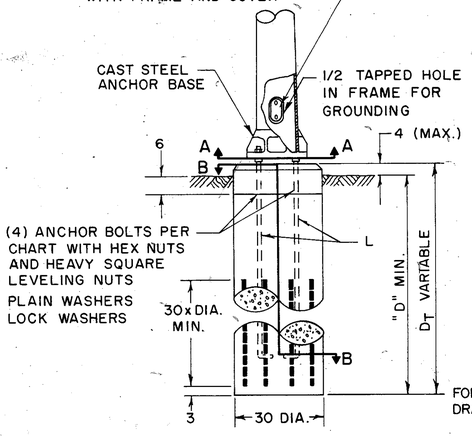
THIS PROCEDURE SHALL BE USED FOR SINGLE OR MULTIPLE SIGNING PER DESIGN

SIGN BRACKET & FIXTURE SUPPORT ARM DETAIL

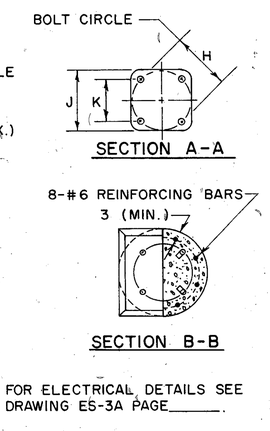


NOTE: POLE PLATE SHALL BE WELDED TO POLE WITH 1/4 GUSSET PLATES ON TOP, BOTTOM & SIDES

ARM ATTACHMENT DETAIL



FOUNDATION & POLE BASE DETAIL



FRONT ELEVATION & SIGN PLACEMENT DETAIL

DES. NO.	POLE SIZE	SIGN SIZE		MAX. SIGN AREA	VALUE "T"	RISE MIN	RISE MAX	ARM SIZE	ARM ATTACHMENT DATA A	B	C	D	E	F	G	ANCHOR BOLT DATA H	J	K	L	REINF. BAR TYPE	REINF. BAR NO. REQ'D	FOUNDATIONS "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	A 27 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

816-16.10

DATE 5-31-68

APPROVED _____
ENGINEER OF TRAFFIC

LIGHTING GENERAL NOTES

LAID BY T.R.B. DATE 6/76
CHKD. BY W.A.M. DATE 6/76

FHWA REGION	STATE	PROJECT	
5	OHIO		

289
427

CUYAHOGA COUNTY
CUY-480-1.90

SPECIFICATIONS
THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.
REFER TO STANDARD CONSTRUCTION DRAWINGS LISTED ON THE TITLE SHEET.

PLAN SPECIFICATION REFERENCES
ALL REFERENCES TO ITEM 625 AND 713 IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS S625 AND S713.

625.03 - GENERAL
THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS THE CLEVELAND ELECTRIC ILLUMINATING CO.
ILLUMINATING BUILDING
CLEVELAND, OHIO 44113

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, CONTROLLED, FROM THE CLEVELAND ELECTRIC ILLUMINATING CO. CUY. 480-0336

THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF FULL LIGHTING WITH 1.2 FOOT CANDLE AVERAGE INITIAL ILLUMINATION WITH A MAXIMUM UNIFORMITY RATIO OF 4.0 TO 1.0.

CONNECTOR KITS
AT THE OPTION OF THE CONTRACTOR, TYPE IX CABLE CONNECTIONS MAY BE SUBSTITUTED WHERE TYPE II OR TYPE III CABLE CONNECTIONS ARE SPECIFIED IN HAND HOLES OR TRANSFORMER BASES OF LIGHT POLES.
TYPE I THRU 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, THE SCOTCH NO. 2200 COMPOUND MANUFACTURED BY 3-M COMPANY, OR KIT AS MANUFACTURED BY BLACKBURN, OR EQUAL APPROVED BY THE ENGINEER. THE SEALING MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS TO MAKE 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.

625.07 - 713.13 UNDERPASS LUMINAIRES
UNDERPASS LUMINAIRES SHALL BE HOLOPHANE "UNDERPASS WALLPACK" 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, SINGLE RATED 120 OR 480 VOLTS, AND DESIGNED FOR USE WITH A 100 WATT HIGH PRESSURE SODIUM LAMP. A POLYCARBONATE LENS IS REQUIRED ON ALL 120 V. UNITS

LIGHT POLE ANCHOR BOLTS FOR BRIDGES AND RETAINING WALLS
ANCHOR BOLTS FOR MOUNTING LIGHT POLES ON BRIDGES AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF 713.01 AND DETAILS SHOWN ON THE PLANS AND STANDARD DRAWINGS, OR THE APPROVED SHOP DRAWINGS FOR THE RESPECTIVE POLES TO BE PLACED THEREON. PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR EACH SET OF THE SIZE REQUIRED AND NECESSARY TO INSTALL ONE POLE, AND THIS PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND PLACING THE BOLTS.

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.

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.

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.

ITEM 625 - SERVICE TO UNDERPASS LIGHTING, AS PER PLAN
THIS ITEM SHALL CONSIST OF PROVIDING COMPLETE ELECTRICAL SERVICE, EXCEPT FOR LUMINAIRES, LAMPS, AND STRUCTURE GROUNDING SYSTEMS, FOR AN UNDERPASS LIGHTING SYSTEM ON BRIDGE NO. CUY. 480-0203, CUY. 480-0286, AND CUY 480-0398. THE INSTALLATION WORK SHALL INCLUDE CONDUITS, MOUNTINGS, FITTINGS, JUNCTION BOXES, CABLES, AND ALL INCIDENTALS NECESSARY TO COMPLETE, READY FOR USE, THE SERVICE AS DETAILED ON SHEETS 317-320.

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.

HIGH VOLTAGE DIRECT CURRENT TESTS
A HIGH VOLTAGE 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, FENCES, DELINEATOR POSTS, SIGNS ET CETERA, IN THE IMMEDIATE VICINITY OF THE LOCATION OF THE CABLE RUN BEING TESTED HAS BEEN COMLETED. THE TESTING REQUIREMENTS OF 625.22(b) ARE HEREBY WAIVED FOR THOSE CIRCUITS ON WHICH THE HIGH VOLTAGE TEST IS TO BE PERFORMED.

S713.02 ELECTRICAL CABLES
IN LIEU OF THE REQUIREMENTS LISTED UNDER S713.02 PARAGRAPHS 2(a) AND 2(b), ALL CABLE TO BE USED FOR 300 AND 600 VOLT SERVICE SHALL BE UL TYPE RHH OR RHW OR RHH/RHW AND FURTHER MEET THE REQUIREMENTS OF UL TYPE USE.
ALL SINGLE CONDUCTOR CABLES TO BE USED FOR 300 AND 600 VOLT SERVICE SHALL NOT HAVE A SEPARATE OUTER COVERING. ALTERNATE BIDS FOR 5K.V. CABLE SHALL BE FOR AN XLP TYPE UL MV-90, DRY.

LIGHT POLES
THE REQUIREMENTS OF S713.01, PARAGRAPH 2(a) REQUIRING CIRCULAR CROSS SECTIONS FOR POLE SHAFTS IS HEREBY WAIVED. THE CROSS SECTION OF THE SHAFT MAY BE CIRCULAR OR MULTISIDED (WITH NO LESS THAN 8 SIDES) AND THE DIAMETERS OR ACROSS THE FLAT DIMENSIONS MEASURED AT ANY POINT ALONG THE LONGITUDINAL AXIS SHALL NOT VARY FROM EACH OTHER MORE THAN 3/16 INCH. THE CROSS SECTION OF THE BRACKET ARMS SHALL BE COMPATIBLE WITH THAT OF THE POLE ALL OTHER REQUIREMENTS OF S713.01 SHALL APPLY.

713.07 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 CONFORM TO NEMA STANDARDS PUBLICATION No. TC6-74 WITH THE EXCEPTION THAT CONDUIT AND CONDUIT FITTINGS COMPOSED OF ACRYLONITRILE-BUTADIENE-STYRENE (ABS) SHALL NOT BE ACCEPTABLE.
AS AN ALTERNATE TO POLYVINYL CHLORIDE, CORRUGATED COILABLE POLYPROPYLENE CONFORMING TO NEMA STANDARDS PUBLICATION NO. TC 5 MAY BE USED.

CONTROL CENTER
A 20 AMP BY-PASS SWITCH RATED 240 VOLTS, COMPLETE WITH WIRE AND CONDUIT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

THE CLEVELAND ELECTRIC ILLUMINATING CO. WILL MAKE FINAL CONNECTION TO THE SWITCH FOR MANUAL BY-PASS CONTROL OF THEIR LIGHTING CONTROLLER.

COST OF SWITCH TO BE INCLUDED IN THE UNIT PRICE BID FOR CONTROL CENTER, AS PER PLAN. FOR DETAILS, SEE SHEET NO. 323

ESTIMATED QUANTITIES
AN ESTIMATED QUANITY OF 650 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.
IT IS INTENDED THAT ALL PULL BOXES 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.

625.07-713.11 HIGH PRESSURE SODIUM LUMINAIRES
25,000 LUMEN HORIZONTAL STYLE B LUMINAIRES, DESIGNED FOR USE WITH 150 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 120 VOLT, 150 WATT INTEGRAL REGULATOR BALLASTS. STYLE B LUMINAIRES SHALL BE GENERAL ELECTRIC M-400, WESTINGHOUSE OV-25, MCGRAW EDISON "UNISTYLE-400," OR EQUAL APPROVED BY THE ENGINEER. A P.E. CELL IS REQUIRED ON ALL 120 V. UNITS

25,000 LUMEN HORIZONTAL STYLE B LUMINAIRES, DESIGNED FOR USE WITH 250 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 480 VOLT, 250 WATT INTEGRAL REGULATOR BALLASTS. STYLE B LUMINAIRES SHALL BE GENERAL ELECTRIC M-400, WESTINGHOUSE OV-25, MCGRAW EDISON "UNISTYLE-400," OR EQUAL APPROVED BY THE ENGINEER. (Continued on Sheet 289A.)

ITEM 625 - TEMPORARY LIGHTING, AS PER PLAN

This item shall consist of maintaining existing lighting or providing lighting for temporary 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 around Bridges No. Cuy 480-0286, Cuy 480-0336 and Cuy 480-0447 temporary lighting providing an average initial intensity of 1.2 footcandles shall be installed before opening of the temporary pavements to traffic.

Where 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, length 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 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 North Olmsted 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 above and on Sheet 322.

LIGHTING GENERAL NOTES

ALUMINUM TRANSFORMER BASES.

WHEN INDICATED IN THE PLANS, LIGHT POLES SHALL BE EQUIPPED WITH CAST ALUMINUM TRANSFORMER BASES CONFORMING TO THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS AS INSTRUCTED BY FHWA NOTICE N5040.20. THE CONTRACTOR SHALL SUBMIT A CERTIFICATE FROM THE MANUFACTURER THAT THE BASE MEETS THE AASHTO CRITERIA. THE CERTIFICATION SHALL BE ACCOMPANIED BY REPORTS OF TESTS PERFORMED BY THE MANUFACTURER OR OTHER AGENCIES. IF TEST RESULTS HAVE BEEN EVALUATED AND FOUND ACCEPTABLE BY FHWA, A COPY OF THE APPROVAL LETTER FROM FHWA SHALL ACCOMPANY THE CERTIFICATION.

TRANSFORMER BASES SHALL BE PERMANENTLY MARKED OR LABELED TO INDENTIFY THAT THEY MEET THE REQUIREMENTS OF FHWA NOTICE N5040.20

PADLOCKS AND KEYS.

EACH ENCLOSURE SHALL BE FURNISHED WITH A PADLOCK. PADLOCKS SHALL BE EITHER BRASS OR BRONZE EQUAL TO WILSON BOHANNAN 660A AND SHALL BE KEYED ALIKE TO 81060. PAYMENT WILL BE INCLUDED IN THE BID FOR ITEM(S) BEING LOCKED.

TRANSITION JUNCTION BOX

THE UNIT PRICE BID FOR EACH "ITEM 625, TRANSITION JUNCTION BOX" SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING THE JUNCTION BOX AS SHOWN IN THE DETAIL ON SHEET 323B, AND ALL LABOR MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

PULL BOX COVERS

SUPPLEMENTING S713.09(3), COVERS FOR CIRCULAR PULLBOXES SHALL BE PRECAST, STEEL REINFORCED CONCRETE OF THE SIZE AND DIMENSIONS DETAILED IN THE PLANS, WITH TWO (2) NO.4 GA. GALVANIZED STEEL LIFTING EYES RECESSED FLUSH WITH THE TOP OF THE COVER. THE COVER SHALL BE CONSTRUCTED WITH 4 x 4/6 REINFORCING MESH AND CLASS C CONCRETE WITH NO.4 AGGREGATE CONFORMING TO ITEM 499 OF THE SPECIFICATIONS. PAYMENT FOR PULLBOX COVERS FOR CIRCULAR PULLBOXES, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 625-"PULLBOX, BY SIZE, CIRCULAR, WITH CONCRETE COVER, AS PER PLAN."

HIGH PRESSURE SODIUM LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX," SYLVANIA "LUMALUX," WESTINGHOUSE "CERAMALUX" OR EQUAL APPROVED BY THE ENGINEER. THE 100 WATT LAMP SHALL HAVE AN OPERATING VOLTAGE OF 100 VOLTS.

625.07-713.11 HIGH PRESSURE SODIUM LUMINAIRES (Continued)

53,000 LUMEN HORIZONTAL STYLE B LUMINAIRES, DESIGNED FOR USE WITH 310 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 480 VOLT, 310 WATT INTEGRAL REGULATOR BALLASTS.
STYLE B LUMINAIRES SHALL BE GENERAL ELECTRIC M-400, WESTINGHOUSE OV-25, Mc GRAW-EDISON "UNISTYLE-400", OR EQUAL APPROVED BY THE ENGINEER.

25,000 LUMEN HORIZONTAL STYLE B LUMINAIRES, DESIGNED FOR USE WITH 200 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 480 VOLT, 200 WATT INTEGRAL REGULATOR BALLASTS. STYLE B LUMINAIRES SHALL BE GENERAL ELECTRIC M-400, WESTINGHOUSE OV-25, Mc GRAW-EDISON "UNISTYLE-400," OR EQUAL APPROVED BY THE ENGINEER.

B.J.S. DATE 7-28-71
T.R.B. " 8-4-71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

290
427

CUYAHOGA COUNTY
CUY. 480-1.90

GENERAL SUMMARY - LIGHTING QUANTITIES

REFERENCE	STRUCTURES 0203 303	0286 306	0336 308	0398 311	0447 313				289	*100% STATE	ROADWAY 303	304	305	306	307	308	309	310	311	312	313	314	315	316	GRAND TOTAL (Normal)	ITEM	UNIT	DESCRIPTION	REF. LETTER	REFERENCE
1											5	6	6	5	5	6	6	4	7	6	6	4			66	S625	Each	Light Pole, Design A12BB37.5 D, (Median Mounted)	A	1
2																		1	2	1			7	6	17	S625	Each	Light Pole, Design AT15B41.7	B	2
3																		5	11	1			14	11	42	S625	Each	Light Pole, Design AT12B34.2	C	3
4				3																					3	S625	Each	Light Pole, Design A12B40 (Bridge Mounted)	D	4
5					2																				2	S625	Each	Light Pole, Design A8B32.5 (Bridge Mounted)	E	5
6			3																						3	S625	Each	Light Pole, Design A12B32.5 (Bridge Mounted)	F	6
7																							2		2	S625	Each	Bracket Arm (6')		7
8	1	1	1	1							5	6	6	5	5	6	6	10	19	8	6	4	21	17	128	S625	Each	Ground Rod		8
9																							1	2	3	S625	Each	Bracket Arm (15')		9
10																		1	2	1			7	6	17	S625	Each	Light Pole Foundation 24"x8' Deep		10
11																		5	11	1			14	11	42	S625	Each	Light Pole Foundation 24"x6' Deep		11
12				4																			10	8	22	S625	Each	STYLE 'B' LUMINAIRE, TYPE III, WITH 250 WATT H.P.S. BALLAST		12
13				4																			10	8	22	S625	Each	LAMP, 250 WATT, HIGH PRESSURE SODIUM		13
14																		5	11	1			14	11	42	S625	Each	Style 'B' Luminaire, Type II, with 200 W. H.P.S. Ballast,		14
15			3		2																				5	S625	Each	Style 'B' Luminaire, Type II, with 150 W. H.P.S. Ballast, with P.E. cell		15
16											10	12	12	10	10	12	12	9	15	13	12	8			135	S625	Each	Style 'B' Luminaire, Type III, with 310 W. H.P.S. Ballast		16
17	3	4																							7	S625	Each	Luminaire, Underpass, w/100 W. H.P.S. Ballast (120 Volt Service) S713.13		17
18			6	12																					18	S625	Each	Luminaire, Underpass, w/100 W. H.P.S. Ballast (480 Volt Service) S713.13		18
19											10	12	12	10	10	12	12	9	15	13	12	8			135	S625	Each	Lamp, 310 Watt, High Pressure Sodium		19
20																		5	11	1			14	11	42	S625	Each	Lamp, 200 Watt, High Pressure Sodium		20
21	3	4	6	12																					25	S625	Each	Lamp, 100 Watt, High Pressure Sodium		21
22			3		2																				5	S625	Each	Lamp, 150 Watt, HIGH PRESSURE SODIUM		22
23		1																							1	S625	Each	Structure Grounding System, Bridge No. Cuy.480-0286		23
24			1																						1	S625	Each	Structure Grounding System, Bridge No. Cuy.480-0336		24
25				1																					1	S625	Each	Structure Grounding System, Bridge No. Cuy.480-0398		25
26					1																				1	S625	Each	Structure Grounding System, Bridge No. Cuy.480-0447		26
27	1																								1	S625	Each	STRUCTURE GROUNDING SYSTEM, BRIDGE No. CUY-480-0203		27
28												64	100	128		300		210	310	105	226		1320	311	3,074	S625	Lin. Ft.	Conduit, 3" S713.04		28
29	134	194	690	676	309						63			48		110			10		57		51		2,342	S625	Lin. Ft.	Conduit, 2" S713.04		29
30											1	1	1	3		6		3	7	1	4		11	8	46	S625	Each	Pull Box, 18" Diameter S713.09, WITH CONCRETE COVER, AS PER PLAN		30
31																							3		3	S625	Each	Pull Box, 24" Diameter S713.09, WITH CONCRETE COVER, AS PER PLAN		31
32			1410	1488	668						3893	6428	6360	3944	5066	6990	5744	3148	6310	4780	6560	3360	5582	682	72,413	S625	Lin. Ft.	No. 4 AWG, 600 Volt Distribution Cable		32
33			276	303	168						775	930	930	775	775	930	930	1193	2323	1135	930	620	2382	1916	17,291	S625	Lin. Ft.	No. 10 AWG, Pole And Bracket Cable		33
34																														34
35																		1188	2653	475			3080	3104	10,500	S625	Lin. Ft.	1½" Duct Cable With 2 No. 4 AWG, 600 Volt Cables		35
36																														36
37			3	4	2													6	12	2			24	19	72	S625	Each	Connector Kit, Type II, as per plan		37
38			3	4	2													6	12	2			24	19	72	S625	Each	Connector Kit, Type III, as per plan		38
39											10	12	12	10	10	12	12	8	14	12	12	8			132	S625	Each	Connector Kit, Type VI, as per plan		39
40											10	12	12	12	10	14	12	8	14	12	12	8	2	2	140	S625	Each	Connector Kit, Type VII-C, as per plan		40
41												2	4	6		6		4	10		8		44	12	96	S625	Each	Connector Kit, Type VIII, as per plan		41
42												2	4			6		4	6	2	6		14	2	46	S625	Each	Connector Kit, Type IX, as per plan		42
43									650																650	605	Lin. Ft.	4" Shallow Pipe Underdrain		43
44																														44
45			3	3	2																				8	S625	Sets	Light Pole Anchor Bolts For Structure, S713.01		45
46											43	64	100	156		390		1318	2823	555	263		4046	3220	12,978	S625	Lin. Ft.	Trench, 24" Deep		46
47																1					1				2	S625	Each	Glare Shield, S713.11, Style 'B' Luminaire		47
48																									Lump	839	Lump	High Voltage Test		48
49																														49
50											5	6	6	5	5	6	6	4	7	6	6	4			66	S625	Each	MEDIAN LIGHT POLE FOUNDATION		50
51												1	1	1		1		1	1		2				8	S625	Each	MEDIAN PULL BOX		51
52											2			2											4	S625	Each	TRANSITION JUNCTION BOX		52
53																														53
54			3	3	2																				8	S625	Each	Junction Box, 18" x 8" x 6"		54
55																														55
32A																														32A
35A																														35A

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CALC. BY B.J.S. DATE 7-28-71
CHKD. BY T.R.B. DATE 8-2-71

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CUYAHOGA COUNTY
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GENERAL SUMMARY - LIGHTING QUANTITIES

	0203 303	0286 306	0336 308	0398 311	0447 313	303	304	305	306	307	308	309	310	311	312	313	314	315	316	320	321	322	GRAND TOTAL (Normal)	ITEM	UNIT	DESCRIPTION	REFERENCE
1											LUMP												Lump	S625	Lump	Service Pole 1	1
2																Lump							Lump	S625	Lump	Service Pole 2	2
3						LUMP																	Lump	S625	Lump	Service Pole 3	3
4									LUMP														Lump	S625	Lump	Service Pole 4	4
5																											5
6								LUMP															Lump	S625	Lump	Control Center No. 1	6
7											LUMP												Lump	S625	Lump	Control Center No. 2	7
8																											8
9																		Lump					Lump	S625	Lump	Control Center No. 4	9
10																Lump							Lump	S625	Lump	Control Center No. 5	10
11																											11
12	Lump																						Lump	S625	Lump	Service to Underdeck Lighting, Bridge No. Cuy. 80-0203	12
13		Lump																					Lump	S625	Lump	Service to Underdeck Lighting, Bridge No. Cuy. 80-0286	13
14			Lump																				Lump	S625	Lump	Service to Underdeck Lighting, Bridge No. Cuy. 80-0336	14
15				Lump																			Lump	S625	Lump	Service to Underdeck Lighting, Bridge No. Cuy. 80-0398	15
16																											16
17																						LUMP	Lump	S625	Lump	Butternut Ridge Temporary Lighting, As Per Plan	17
18																						LUMP	Lump	S625	Lump	Columbia Road Temporary Lighting, As Per Plan	18
19																						LUMP	Lump	S625	Lump	Fitch Road Temporary Lighting, As Per Plan	19
20																											20
21																											
22																											
23																											
24																											
25																											
26																											
27																											
28																											
29																											
30																											
31																											
32																											
33																										ALTERNATE BID ITEMS	
34																											
35			1410	1488	668		3893	6428	6360	3944	5066	6990	5744	3148	6310	4780	6560	3360	5582	682			72,413	S625	Lin.Ft.	No. 4 AWG, 5000 Volt Distribution Cable	
36														1188	2653	475			3080	3104			10,500	S625	Lin.Ft.	1½" Duct Cable With 2 No. 4 AWG 5000 Cables	
37																											
38																											
39			3	4	2									6	12	2			24	19			72	S625	Each	Connector Kit, Type II, for 5000 Volt Cable, As Per Plan	
40			3	4	2									6	12	2			24	19			72	S625	Each	Connector Kit, Type III for 5000 Volt Cable, As Per Plan	
41							10	12	12	10	10	12	12	8	14	12	12	8					132	S625	Each	Connector Kit, Type VI for 5000 Volt Cable, As Per Plan	
42							10	12	12	12	10	14	12	8	14	12	12	8	2	2			140	S625	Each	Connector Kit, Type VIII-C for 5000 Volt Cable, As Per Plan	
43								2	4	6		6		4	10		8		44	12			96	S625	Each	Connector Kit, Type VIII for 5000 Volt Cable, As Per Plan	
44								2	4			6		4	6	2	6		14	2			46	S625	Each	Connector Kit, Type IX for 5000 Volt Cable, As Per Plan	
45																											
46																											
47																											

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CUYAHOGA COUNTY
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LIGHTING QUANTITIES SUB-SUMMARY

Reference No		Station	Station	Light Pole Design A (288 37.50	Light Pole Design AT (2834.2	Light Pole Design AT (5841.7	Luminaire, Underpass 100 Watt H.P.S. 513.13	Lamp 100 Watt	MEDIAN Light Pole Foundation	Light Pole Foundation 24"x6'	Light Pole Foundation 24"x8'	Luminaire Type III 310 Watt. H.P.S.	Luminaire Type II 200 Watt. H.P.S.	Lamp, 310 Watt High Pressure Sodium	Lamp 200 Watt High Pressure Sodium	TRANSITION Box	Median Barrier Pull Box As Per Plan	Pull Box 18" Dia. S 713.09	Pole & Bracket Cable, No. 10 A.W.G	Ground Rod	Connector Kits: Type II	Type III	Type VI	Type VII-C	Type VIII	Type IX	No. 4 AWG. 600 Volts Distribution Cable	1½" Duct Cable ¾ No. 4 A.W.G. 600 Volt Cable	Conduit 2" Diameter S 713.04	Conduit 3" Diameter S 713.04	Trench 24" Deep	Structure Grounding System Conn-480-0203	Service Pole # 3	Service to Underdeck Lighting Conn-480-0203
				Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.		Ea.	Ea.	L.F.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Ea.	Lump	Lump
1	℄	202+13		1					1			2		2					155	1			2	2				996							
2	℄	202+13	204+38																							470							
3	℄	204+38		1					1			2		2					155	1			2	2				364							
4	℄	204+38	206+60																							928							
5	℄	206+60		1					1			2		2					155	1			2	2				296			64	64			
6	℄	206+60	207+17																							268							
7	℄	207+17														1									4								Lump		
8	℄	207+17	208+51																							576		134						
9	℄	208+51														1									4										
10	℄	208+51	209+07																							264							
11	℄	209+07		1					1			2		2					155	1			2	2				632							
12	℄	209+07	211+46																							996							
13	℄	211+46		1					1			2		2					155	1			2	2				908							
14	℄	211+46	212+00																							245							
15	Rt.	16+17	Mackenzie Rd.				3	3										1		1					2							1	Lump		
16	Rt.	16+60	Mackenzie Rd.																							146		63		43			Lump		
17	ROADWAY TOTALS SHEET No. 303			5					5			10		10		2		1	775	5			10	10	10			3898		63		43		Lump		
18	STRUCTURE TOTALS SHEET No. 303						3	3												1										134				1	Lump	
19	℄	212+00	213+85																							760							
20	℄	213+85		1					1			2		2					155	1			2	2				996							
21	℄	213+85	216+24																							996							
22	℄	216+24		1					1			2		2					155	1			2	2											
23	℄	216+24	216+90																							304							
24	℄	216+90																1							2										
25	℄	216+90	218+63																							732							
26	℄	218+63		1					1			2		2					155	1			2	2											
27	℄	218+63	221+07																							1016							
28	℄	221+07		1					1			2		2					155	1			2	2											
29	℄	221+07	223+41																							976							
30	℄	223+41		1					1			2		2					155	1			2	2											
31	℄	223+41	225+80																							996							
32	℄	225+80		1					1			2		2					155	1			2	2											
33	℄	225+80	227+00																							500							
34	℄/Lt.	216+90	216+90																							148		64	64					
35	Lt.	216+90																1							2										
36	ROADWAY TOTALS SHEET No. 304			6					6			12		12		1		1	930	6			12	12	2	2		6428		64	64				
37	℄	227+00	228+19																							496							
38	℄	228+19		1					1			2		2					155	1			2	2											
39	℄	228+19	228+71																							248							
40	℄	228+71																1							4										
41	℄	228+71	230+58																							788							
42	℄	230+58		1					1			2		2					155	1			2	2											
43	℄	230+58	232+97																							996							
44	℄	232+97		1					1			2		2					155	1			2	2											
45	℄	232+97	235+36																							996							
46	℄	235+36		1					1			2		2					155	1			2	2											
47	℄	235+36	237+75																							996							
48	℄	237+75		1					1			2		2					155	1			2	2											
49	℄	237+75	240+14																							996							
50	℄	240+14		1														1					2	2											
51	℄	240+14	241+00																							364							
52	℄/Lt.	228+71	228+71																							296				64	64			
53	Lt.	228+71																						4										
54	Lt.	228+71	228+71																							184				36	36			
55	Lt	228+71																														Lump		
56	ROADWAY TOTALS SHEET No. 305			6														6					12	12	4	4		6360				Lump	100	100
57	℄	241+00	242+53																							632							
58	℄	242+53		1														1					2	2											
59	℄	242+53	244+70																							908							
60	℄	244+70																						2										
61	℄	244+70	244+92																							128							
62	℄	244+92		1														1					2	2											
63	℄	244+92	247+31																							996							
64	℄	247+31		1														1					2	2											
65	℄	247+31	249+70																							498							
66	℄	249+70		1														1					2	2											
67	℄	249+87																1																	
68	℄	249+87	251+81																							194							
69	℄	251+81																1																	
70	℄	252+20		1														1					2	2											
71	℄	252+20	254+00																							370							
72	Lt.	244+70																						2										
73	Rt.	244+70																						2										
74	Lt.	18+45	Fitch Rd.								Lump														1										
75	Lt.	18+17 Fitch Rd.	18+45 Fitch Rd.																							48	116			28				
76	Lt.	18+17	Fitch Rd.									Lump								4	4		1		1			2							
77	ROADWAY TOTALS SHEET No. 306			5							Lump		5	2		10		10			1	3	775	5			10	12	6	48	3944		128	156	
78	STRUCTURE TOTALS SHEET No. 306											Lump								4	4				1					194					
79	℄	254+00	254+62																							134							
80	℄	254+52		1														1					2	2											
81	℄	254+62	257+07																							1020							
82	℄	257+07		1														1					2	2											
83	℄	257+07	259+52																							1020							
84	℄	259+52		1														1					2	2											
85	℄	259+52	26+97																							1020							
86	℄	261+97		1														1					2	2											
87	℄	261+97	264+43																							1024							
88	℄	264+43		1														1					2	2											
89	℄	264+43	266+50																							848							
90	ROADWAY TOTALS SHEET No. 307			5										5				10					10	10				5066							

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LIGHTING QUANTITIES SUB – SUMMARY

Reference No		Station	Station	Light Pole, Design A12883.1-D	Light Pole, Design A'12834.2	Light Pole Design A'15841.7	Service to Lighting Cab. 480-0336	Light Pole Design A12832.5	MEDIAN Light Pole Foundation	Luminaire, Underpass 100 Watt H.P.S. S713.13	Lamp 100 Watt S713.14	Luminaire Type III 310 Watt, H.P.S.	Luminaire Type II 150 Watt, H.P.S.	Lamp, 310 Watt High Pressure Sodium	Lamp 150 Watt High Pressure Sodium	Glare Shield Style B Luminaire	Median Barrier Pull Box, As Per Plan	Pull Box 18" Dia. S713.09	Pole & Bracket Cable, No.10 A.W.G	Ground Rod	Light Pole Anchor Bolts S713.01	Connector Kits: Type II	Type III	Type VI	Type VIII-C	Type VIII	Type IX	No. 4 A.W.G. 600 Volts Distribution Cable	1½" Duct Cable ⅞ #4 A.W.G. 600 Volt Cable	Conduit 2" Diameter S713.04	Conduit 3" Diameter S713.04	Trench 24" Deep	Control Center #2	Service Pole #1	Junction Box 18"×8"×6"	Structure Grounding System CUY-480-0336
				Ea.	Ea.	Ea.	LUMP	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	Ea.	SETS	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	L.F.	L.F.	L.F.	L.F.	LUMP		Ea.	Ea.
91	℄	266+50	266+89																								176								
92	℄	266+89		1					1			2		2					155	1				2	2			1020								
93	℄	266+89	269+34																								1020								
94	℄	269+34		1					1			2		2					155	1				2	2					244						
95	℄	269+34	271+79																								1020								
96	℄	271+79		1					1			2		2					155	1				2	2					238						
97	℄	271+79	274+24																								1020								
98	℄	274+24		1					1			2		2					155	1				2	2					924						
99	℄	274+24	276+70																								1024								
100	℄	276+70		1					1			2		2		1			155	1				2	2					872						
101	℄	276+70	276+90																								120								
102	℄	276+90															1							2		2										
103	℄	276+90	279+11																								924								
104	℄	279+11		1					1			2		2					155	1				2	2					110			100			
105	℄	279+11	280+00																								376								
106	℄/Rt.	276+90	276+90																								148		64	64					
107	Rt.	276+90																1								2		320		70	70					
108	℄/Lt.	276+90	276+66																																	
109	Lt.	276+66			LUMP					6	6							1		1					2	2	440		100	100					
110	Lt./Rt.	276+66	Butternut Ridge 7+50																													LUMP			
111	Rt.	7+50	Butternut Ridge Rd.																								120	50		30	LUMP				
112	Lt.	Butternut Ridge 7+90	7+60																																	
113	Lt./Rt.	7+60	Butternut Ridge Rd.															2							2	2	152		66	66					
114	Lt.	Butternut Ridge 7+60	8+20																								130	60		60					
115	Lt.	Butternut Ridge 8+20	8+75																								120	55							
116	Lt.	8+75	Butternut Ridge Rd.					1				1		1					92		1	1	1												1	
117	Lt.	Butternut Ridge 8+75	10+97																								464	222							
118	Lt.	10+97	Butternut Ridge Rd.					1				1		1					92		1	1	1												1	
119	Lt.	Butternut Ridge 10+97	11+62																								150	65							
120	Lt.	11+62	Butternut Ridge Rd.															1																		
121	Rt.	Butternut Ridge 7+60	9+82																								464	222							
122	Rt.	9+82	Butternut Ridge Rd.					1				1		1					92		1	1	1												1	
123	Rt.	Butternut Ridge 9+82	11+08																								272	126							1
124	Rt.	11+08	Butternut Ridge Rd.															1																		
125	ROADWAY TOTALS		SHEET No.308	6						6			12		12		1	1	6	930	6				12	14	6	6	6990		110	300	390	LUMP	LUMP		
126	STRUCTURE TOTALS		SHEET No.308		LUMP	3		6	6		3		3						276	1	3	3	3						1470		690					3	1
127	℄	280+00	281+52																								628								
128	℄	281+52		1					1			2		2					155	1				2	2											
129	℄	281+52	283+93																								1004								
130	℄	283+93		1					1			2		2					155	1				2	2											
131	℄	283+93	286+34																								1004								
132	℄	286+34		1					1			2		2					155	1				2	2											
133	℄	286+34	288+75																								1004								
134	℄	288+75		1					1			2		2					155	1				2	2											
135	℄	288+75	291+16																								1004								
136	℄	291+16		1					1			2		2					155	1				2	2											
137	℄	291+16	293+57																								1004								
138	℄	293+57		1					1			2		2					155	1				2	2											
139	℄	293+57	294+00																								96								
140	ROADWAY TOTALS		SHEET No.309	6						6			12		12				6	930	6				12	12			5744								
141	℄	294+00	296+00																								176								
142	℄	296+00				1			1															2												
143	℄	298+45				1			1															2				1020								
144	℄	298+45	299+57																																	
145	℄	299+57															1																		
146	℄	299+57	300+66																								238								
147	℄	300+66				1			1															2				1020								
148	℄	300+66	302+87																																	
149	℄	302+87				1			1															2				924								
150	℄	302+87	305+00																																	
151	Rt.	295+60	Ramp "A"																								872								
152	Rt.	Ramp "A" 295+60	297+00																																	
153	Rt.	297+00	Ramp "A"															1																		
154	Rt.	Ramp "A" 297+00	298+00																					2				1020								
155	Rt.	298+00	Ramp "A"																																	
156	Rt.	RAMP "A" 298+00	298+98																								244								
157	Rt.	RAMP "A" 298+98				1			1															2				238								
158	Rt.	RAMP "A" 298+90	300+95																																	
159	Rt.	300+95	Ramp "A"			1			1															2				924								
160	Rt.	RAMP "A" 300+95	302+00																																	
161	Rt./℄	RAMP "A" 298+00	I-480 298+45																								924								
162	℄/Lt.	I-480 299+57	RAMP "B" 299+57																																	
163	Lt.	RAMP "B" 299+57															1																		
164	Lt.	RAMP "B" 299+57	299+62																					2				110								
165	Lt.	RAMP "B" 299+62				1			1															2				924								
166	Lt.	RAMP "B" 299+62	301+45																																	
167	Lt.	301+45	Ramp "B"			1			1															2				924								
168	Lt.	RAMP "B" 301+45	303+30																																	
169	Lt.	303+30	Ramp "B"			1			1															2				924								
170	Lt.	RAMP "B" 303+30	304+25																																	
171	ROADWAY TOTALS		SHEET No.310	4	5	1			4	5	1	9	5	9	5		1	3	1193	10		6	6	8	8	4	4	3148	1188		210	1318				

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LIGHTING QUANTITIES SUB – SUMMARY

Reference No		Station	Station	Light Pole Design A12B3'5"D	Light Pole Design AT12B3'4"2	Light Pole Design A12B40' Br. Mounted	Light Pole Anchor Bolts for Structures	MEDIAN Light Pole Foundation	Light Pole Foundation 24"x6'	Light Pole Foundation 24"x8'	Luminaire Type III 310 Watt, H.P.S.	Luminaire Type II 200 Watt, H.P.S.	Lamp 310 Watt High Pressure Sodium	Lamp 200 Watt High Pressure Sodium	Luminaire, Underpass 100 Watt H.P.S. S713.13	Median Barrier	Pull Box, AS Per Plan	Pull Box 18"Dia. S713.09	Pole & Bracket Cable, No. 10 A.W.G.	Ground Rod	Lamp 100 Watt High Pressure Sodium	Connector Kits: Type II	Type III	Type VI	Type VIII-C	Type VIII	Type IX	LUMINAIRE TYPE III 250 WATT H.P.S.	Junction Box 18"x8"x6"	Service to Underdeck Lighting CUY-480-0398	Structure Grounding System CUY-480-0398	LAMP 250 WATT HIGH PRESSURE SODIUM	Junction Box, 18"x8"x6"
				Ea.	Ea.	Ea.	Ea.	Sets	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	LUMP	Ea.	Ea.	Ea.	Ea.
172	℄	305+00	305+08																								52					
173	℄	305+08		1				1		2		2						155	1				2	2							1	1
174	℄	305+08	307+29																								924					
175	℄	307+29		1				1		2		2						155	1				2	2								
176	℄	307+29	309+50																								924					
177	℄	309+50		1				1		2		2						155	1				2	2							1	1
178	℄	309+50	312+10																								1080					
179	℄	312+10		1				1		2		2						155	1				2	2							1	1
180	℄	312+10	314+47																								988					
181	℄	314+47		1				1		2		2						155	1				2	2								
182	℄	314+47	316+83																								984					
183	℄	316+83		1				1		2		2						155	1				2	2								
184	℄	316+83	318+65																								384					
185	℄	318+65															1									2						
186	℄	318+65	319+25																								140					
187	℄	319+25		1				1		2		2						155	1				2	2								
188	℄	319+25	320+00																								160					
189	℄/Rt	I-480 318+65	RAMP "E" 318+65																								210					
190	Rt.	RAMP "E" 312+10	312+90																									85			80	
191	Rt.	312+90	RAMP "E"	1				1		1		1						92	1		1	1										
192	Rt.	RAMP "E" 312+90	314+80																									200			190	
193	Rt	314+80	RAMP "E"	1				1		1		1						92	1		1	1										
194	Rt.	RAMP "E" 314+80	316+70																									200			190	
195	Rt.	316+70	RAMP "E"	1				1		1		1						92	1		1	1										
196	Rt	RAMP "E" 316+70	318+60																									200			190	
197	Rt.	318+60	RAMP "E"	1				1		1		1						92	1		1	1										
198	Rt.	RAMP "E" 318+60	318+65																								30		5		5	
199	Rt.	318+65	RAMP "E"																1						2							
200	Rt.	RAMP "C" 305+00	305+85																									90			85	
201	Rt	305+85	RAMP "C"	1				1		1		1						92	1		1	1										
202	Rt.	RAMP "C" 305+85	308+70																									295			285	
203	Rt.	308+70	RAMP "C"																1						2							
204	Rt/Lt.	RAMP "C" 308+70	RAMP "D" 308+55																								450			215	215	
205	Lt.	RAMP "D" 305+00	305+62																									67			62	
206	Lt.	305+62	RAMP "D"	1				1		1		1						92	1		1	1										
207	Lt.	RAMP "D" 305+62	307+04																									152			142	
208	Lt.	307+04	RAMP "D"	1				1		1		1						92	1		1	1										
209	Lt.	RAMP "D" 307+04	308+55																									161			151	
210	Lt.	308+55	RAMP "D"																1						2							
211	Lt.	RAMP "D" 308+55	308+50																								30		5		5	
212	Lt.	308+50	RAMP "D"	1				1		1		1						92	1		1	1										
213	Lt.	308+50	310+14																									174			164	
214	Lt.	310+14	RAMP "D"		1				1	1		1						113	1		1	1										
215	Lt.	310+14	310+80																									76			66	
216	Lt.	310+80	RAMP "D"										12		1		1		12						2							LUMP
217	Lt.	RAMP "D" 310+80	312+14																									144			134	
218	Lt.	312+14	RAMP "D"																1						2							
219	Rt.	S.R. 252 67+30	68+19																									94			89	
220	Rt.	68+19	S.R. 252																1						2							
221	Rt.	S.R. 252 68+19	68+90																								162		71			
222	Rt.	68+90	S.R. 252			1	1											101			1	1					1					1	1
223	Rt	S.R. 252 68+90	70+69																								378		179			1	
224	Rt.	70+69	S.R. 252						1	1										101			1	1						1	1	
225	Rt.	S.R. 252 70+69	71+50																													
226	Lt	S.R. 252 67+30	67+90																													
227																																
228																																
229	Lt.	67+90	S.R. 252						1											113			1	1						1		1
230	Lt.	S.R. 252 67+90	69+80																													
231	Lt.	69+80	S.R. 252						1	1										101			1	1						1		1
232	Lt.	S.R. 252 69+80	71+35																													
233	Lt.	71+35	S.R. 252																													
234	Lt	S.R. 252 71+35	71+50																													
235	Lt.	RAMP "F" 314+00	315+10																													
236	Lt.	315+10	RAMP "F"		1				1				1		1					92	1		1	1								
237	Lt.	RAMP "F" 315+10	317+00																													
238	Lt.	317+00	RAMP "F"		1				1				1		1					92	1		1	1								
239	Lt.	RAMP "F" 317+00	318+90																													
240	Lt.	318+90	RAMP "F"		1				1				1		1					92	1		1	1								
241	Lt.	RAMP "F" 318+90	320+00																													
242	ROADWAY TOTALS		SHEET No. 311	7	11	2			7	11	2	15	11	15	11		1	7	2323	19		12	12	14	14	10	6	6310	2653	10	310	2823
243	STRUCTURE TOTALS		SHEET No. 311			3	3								12				303	1	12	4	4				4	1488	676			LUMP	1	4	3
244	℄	320+00	321+66																									342				
245	℄	321+66		1					1			2		2						155	1			2	2							
246	℄	321+66	323+93																									948				
247	℄	323+93		1					1			2		2						155	1			2	2							
248	℄	323+93	326+20																									474				
249	℄	326+20		1					1			2		2						155	1			2	2							
250	℄	326+20	328+47																									474				
251	℄	328+47		1					1			2		2						155	1			2	2							
252	℄	328+47	330+74																									948				
253	℄	330+74		1					1			2		2						155	1			2	2							
254	℄	330+74	333+01																									948				
255	℄	333+01		1					1			2		2						155	1			2	2							
256	℄	333+01	334+00																									416				
257	Lt.	RAMP "F" 320+00	320+80																										85		80	
258	Lt.	320+80	RAMP "F"		1				1				1		1					92	1		1	1								
259	Lt.	RAMP "F" 320+80	322+85																										215		205	
260	Lt.	322+85	RAMP "F"			1					1	1		1						113	1		1	1								
261	Lt.	RAMP "F" 322+85	324+50																										175		165	
262	Lt.	324+50	RAMP "F"																1								2					
263	Lt/℄	RAMP "F" 324+50	I-480 323+93																									230		105	105	
264	ROADWAY TOTALS		SHEET No. 312	6	1	1			6	1	1	13	1	13	1		1		1135	8		2	2	12	12		2	4780	475		105	555

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CUYAHOGA COUNTY
CUY-480-1.90

LIGHTING QUANTITIES SUB-SUMMARY

Reference No		Station	Station	Light Pole Design A1288 37.5 D	Light Pole Design A1288 34.2	Light Pole Design A1584 1.7	Light Pole Design A88 32.5 Bk. Mounted	Light Pole Anchor Bolts for Structures	MEDIAN Light Pole foundation	Light Pole foundation 24"x6'	Light Pole foundation 24"x8'	Luminaire Type III 310 Watt, H.P.S.	Luminaire Type II 150 Watt, H.P.S.	Lamp, 310 Watt, High Pressure Sodium	Lamp 150 Watt High Pressure Sodium	Glare Shield Style C Luminaire	Median Barrier Pull Box, AS Per Plan	Pull Box 18" Dia. S 713.09	Pole & Bracket Cable, No. 10 A.W.G.	Ground Rod	Service Pole #2	Connector Kits: Type II	Type III	Type VI	Type VIII-C	Type VIII	Type IX	Structure Grounding System CUY-480-0447 No. 4 AWG, 600 Volts Distribution Cable	1½" Duct Cable ⅜"-#4 AWG, 600 Volt Cable	Conduit 2" Diameter S 713.04	Conduit 3" Diameter S 713.09	Trench 24" Deep	Control Center #5	Junction Box 18"x8"x6"
				Ea.	Ea.	Ea.	Ea.	Sets	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	Ea.	Lump	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	L.F.	L.F.	L.F.	L.F.	Lump	Ea.
265	℄	334+00	334+50																									220						
266	℄	334+50															1									4									
267	℄	334+50	335+29																									356						
268	℄	335+29		1					1		2		2		1			155	1				2	2				632						
269	℄	335+29	336+77																															
270	℄	336+77		1					1		2		2					155	1				2	2				1024						
271	℄	336+77	339+23																															
272	℄	339+23		1					1		2		2					155	1				2	2				708						
273	℄	339+23	340+90																															
274	℄	340+90															1									2								
275	℄	340+90	341+70																									360						
276	℄	341+70		1					1		2		2					155	1				2	2				1028						
277	℄	341+70	344+17																															
278	℄	344+17		1					1		2		2					155	1				2	2				1004						
279	℄	344+17	346+58																															
280	℄	346+58		1					1		2		2					155	1				2	2				208						
281	℄	346+58	347+00																															
282	℄/Rt.	334+50	334+50																									296				64	64	
283	Rt.	334+50															1									4								
284	Rt./Lt.	334+50	COLUMBIA RD 16+80																									432			98	98		
285	Lt.	16+80	COLUMBIA RD.																														LUMP	
286	Rt.	17+44	COLUMBIA RD.														1																	
287	Rt.	COLUMBIA RD. 17+44	18+24																								1	180		80				
288	Rt.	18+24	COLUMBIA RD.		1	1				1		1						84				1	1					316		148				1
289	Rt.	COLUMBIA RD. 18+24	19+72																															
290	Rt.	19+72	COLUMBIA RD.		1	1				1		1						84				1	1											1
291	Rt.	COLUMBIA RD. 19+72	20+75																									226		103		22		
292	Rt.	20+75	COLUMBIA RD.														1									2								
293	Rt.	COLUMBIA RD. 20+75	20+90																									90		35		15		
294	Rt.	20+90	COLUMBIA RD.																		LUMP													
295	℄/Lt.	340+90	340+90																									148			64	64		
296	Lt.	340+90															1									2								
297	ROADWAY TOTALS		SHEET No. 313	6					6		12		12		1	2	4	930	6	LUMP			12	12	8	6		6560		57	226	263	LUMP	
298	STRUCTURE TOTALS		SHEET No. 313		2	2					2		2					168				2	2				1	668		309				2
299	℄	347+00	349+00																									820						
300	℄	349+00		1					1		2		2					155	1				2	2										
301	℄	349+00	351+41																									1004						
302	℄	351+41		1					1		2		2					155	1				2	2										
303	℄	351+41	353+87																									1024						
304	℄	353+87		1					1		2		2					155	1				2	2										
305	℄	353+87	356+33																									512						
306	℄	356+33		1					1		2		2					155	1				2	2										
307	ROADWAY TOTALS		SHEET No. 314	4					4		8		8					620	4				8	8				3360						

Reference No.		Station	Station	Light Pole Design A1288 37.5 D	Light Pole Design A1288 34.2	Light Pole Design A1584 1.7	Bracket Arm (6')	Bracket Arm (5')	MEDIAN Light Pole foundation	Light Pole foundation 24"x6'	Light Pole foundation 24"x8'	Luminaire Type III 310 Watt, H.P.S.	Luminaire Type II 150 Watt, H.P.S.	Lamp 250 Watt, High Pressure Sodium	Lamp 200 Watt, High Pressure Sodium	Median Barrier Pull Box, AS Per Plan	Pull Box 18" Dia. S 713.09	Pole & Bracket Cable, No. 10 A.W.G.	Ground Rod	Connector Kits: Type II	Type III	Type VI	Type VIII-C	Type VIII	Type IX	Control Center #4	No. 4 A.W.G. 600 Volts Distribution Cable	1½" Duct Cable ⅜"-#4 AWG 600 Volt Cable	Conduit 2" Diameter S 713.04	Conduit 3" Diameter S 713.04	Trench 24" Deep
				Ea.	Ea.	Ea.		Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	Ea.		Ea.	Ea.	Ea.	Ea.	Ea.	Lump	L.F.	L.F.	L.F.	L.F.	L.F.
308	Rt.	S.R. 252 71+50	71+85																							80		35		35
309	Rt.	71+85	S.R. 252															1							2					
310	Rt.	S.R. 252 71+85	72+32																								57			47
311	Rt.	72+32	S.R. 252			1					1	1		1				113	1		1	1								
312	Rt.	S.R. 252 72+32	73+86																								164			154
313	Rt.	73+86	S.R. 252			1					1	1		1				113	1		1	1								
314	Rt.	S.R. 252 73+86	74+45																								69			59
315	Rt.	74+45	S.R. 252															1							2					
316	Rt.	S.R. 252 74+45	75+30																							190		85		85
317	Rt.	75+30	S.R. 252															1							2	2				
318	Rt.	75+23	S.R. 252				1					1	1		1			95			1	1								
319	Rt.	S.R. 252 75+30	76+80																							640		150		150
320	Rt.	76+80	S.R. 252															1							2	2				
321	Rt.	S.R. 252 76+80	76+85																							30		5		5
322	Rt.	76+85	S.R. 252			1					1	1		1				113	1		1	1								
323	Rt.	S.R. 252 76+85	78+45																								170			160
324	Rt.	78+45	S.R. 252			1					1	1		1				113	1		1	1								
325	Lt.	RAMP "F" 3/4+00	313+20																								85			80
326	Lt.	313+20	RAMP "F"		1						1			1		1		92	1		1	1								
327	Lt./Rt.	RAMP "F" 313+20	S.R. 252 75+30																								100			90
328	Lt.	75+35	S.R. 252		1						1	1		1				113	1		1	1								
329	Lt.	S.R. 252 73+35	73+40																							30		5		5
330	Lt.	73+40	S.R. 252															1							2	2				
331	Lt.	S.R. 252 73+40	74+70																							560		130		130
332	Lt.	74+70	S.R. 252															1							4					
333	Lt.	74+55	S.R. 252			1					1	1		1				95			1	1								
334	Lt./Rt.	S.R. 252 74+70	RAMP "G" 314+70																								57			47
335	Rt.	314+70	RAMP "G"	1							1		1	1				92	1		1	1								
336	Lt.	S.R. 252 74+70	S.R. 252 75+00																							160		30		30
337	Lt.	75+00	S.R. 252															1							4					
338	Lt.	S.R. 252 75+00	76+80																							760		180		180
339	Lt.	76+80	S.R. 252												1										4	2				
340	Lt.	S.R. 252 76+80	76+40																								50			40
341	Lt.	76+40	S.R. 252		1						1	1		1				113	1		1	1								
342	Lt./Rt.	S.R. 252 76+80	76+80																							440		100		100
343	Lt.	S.R. 252 76+80	77+65																							760		170		85
344	Lt	77+65	S.R. 252												1										2	8				
345	Lt.	S.R. 252 77+65	77+35																								40			30
346	Lt.	77+35	S.R. 252				1					1	1		1			113			1	1								
347	Lt.	S.R. 252 77+65	78+45																							900		160		80
348	Lt.	78+45	S.R. 252												1										8	2				
349	Lt.	S.R. 252 78+45	78+45																							200		20		10
350	Lt.	78+45	S.R. 252																											
351	Lt.	S.R. 252 78+45	80+45																							LUMP				
352	Lt.	80+45	S.R. 252															1							2		470		200	200
353	Lt.	S.R. 252 80+45	80+56																							80		30		30
354	Lt.	80+56	S.R. 252															1							2					
355	Lt.	S.R. 252 80+56	81+65																								119			109
356	Lt.	81+65	S.R. 252															1							2					
357	Lt.	S.R. 252 71+50	71+52																								7			2
358	Lt.	71+52	S.R. 252		1						1	1		1				113	1		1	1								
359	Lt.	S.R. 252 71+52	RAMP "D" 236+45																								158			148

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LIGHTING QUANTITIES SUB – SUMMARY

Reference No		Station	Station	Light Pole Design A 12B 31.5 D Ea.	Light Pole Design A 12 B 34.2 Ea.	Light Pole Design A 11 S 84.1, 7 Ea.	Bracket Arm (15') Ea.	MEDIAN Light Pole Foundation Ea.	Light Pole Foundation 24"x 6' Ea.	Light Pole Foundation 24"x 8' Ea.	Luminaire Type III 250 Watt H.P.S. Ea.	Luminaire Type II 200 Watt H.P.S. Ea.	Lamp 250 Watt High Pressure Sodium Ea.	Lamp 200 Watt High Pressure Sodium Ea.	Median Barrier Pull Box As Per Plan Pull Box 18" Dia. S 713.09 Ea.	Pole & Bracket Cable No. 10 A.W.G. L.F.	Ground Rod Ea.	Connector Kits: Type II Ea.	Type III Ea.	Type VI Ea.	Type VIII-C Ea.	Type VIII Ea.	Type IX Ea.	No. 4 A.W.G. 600 Volts Distribution Cable 1½" Duct Cable ⅜ #4 A.W.G. 600 Volt Cable L.F.	Conduit 3" Diameter S 713.04 L.F.	Trench 24" Deep L.F.
410	Lt.	62 + 80	S.R. 252		1					1	1		1			113	1	1	1						
411	Lt.	S.R. 252 62 + 80	63 + 80																						
412	Lt.	63 + 80	S.R. 252												1							2			
413	Lt.	S.R. 252 63 + 80	64 + 60																				182		81	81
414	Lt.	64 + 60	S.R. 252												1							2				
415	Lt.	64 + 70	S.R. 252				1				1		1			113		1	1							
416	Lt.	S.R. 252 64 + 60	66 + 32																				182		172	
417	Lt.	66 + 32	S.R. 252		1					1	1		1			113	1	1	1							
418	Lt.	S.R. 252 66 + 32	67 + 30																				103		98	
419	Rt.	RAMP "A" 302 + 10	302 + 92																				97		92	
420	Rt.	302 + 92	RAMP "A"		1				1			1		1		92	1	1	1							
421	Rt.	RAMP "A" 302 + 92	304 + 89																				207		197	
422	Rt.	304 + 89	RAMP "A"		1				1			1		1		92	1	1	1							
423	Rt.	RAMP "A" 304 + 89	306 + 86																				207		197	
424	Rt.	306 + 86	RAMP "A"		1				1			1		1		92	1	1	1							
425	Rt.	RAMP "A" 306 + 86	308 + 80																				204		194	
426	Rt.	308 + 80	RAMP "A"		1				1			1		1		92	1	1	1							
427	Rt.	297 + 30	RAMP "C"		1				1			1		1		92	1	1	1							
428	Rt.	RAMP "C" 297 + 30	298 + 72																				152		142	
429	Rt.	298 + 72	RAMP "C"		1				1			1		1		92	1	1	1							
430	Rt.	RAMP "C" 298 + 72	300 + 14																				152		142	
431	Rt.	300 + 14	RAMP "C"		1				1			1		1		92	1	1	1							
432	Rt.	RAMP "C" 300 + 14	301 + 62																				158		148	
433	Rt.	301 + 62	RAMP "C"		1				1			1		1		92	1	1	1							
434	Rt.	RAMP "C" 301 + 62	302 + 95																				143		133	
435	Rt.	302 + 95	RAMP "C"		1				1			1		1		92	1	1	1							
436	Rt.	RAMP "C" 302 + 95	304 + 36																				151		141	
437	Rt.	304 + 36	RAMP "C"		1				1			1		1		92	1	1	1							
438	Rt.	RAMP "C" 304 + 36	305 + 00																				69		64	
439	Rt.	311 + 00	RAMP "E"		1				1			1		1		92	1	1	1							
440	Rt.	RAMP "C" 311 + 00	312 + 10																				115		110	
441	ROADWAY TOTALS SHEET No. 316			11	6	2	11	6	8	11	8	11	8	1916	17	19	19	2	12	2	682	3104	311	3220		

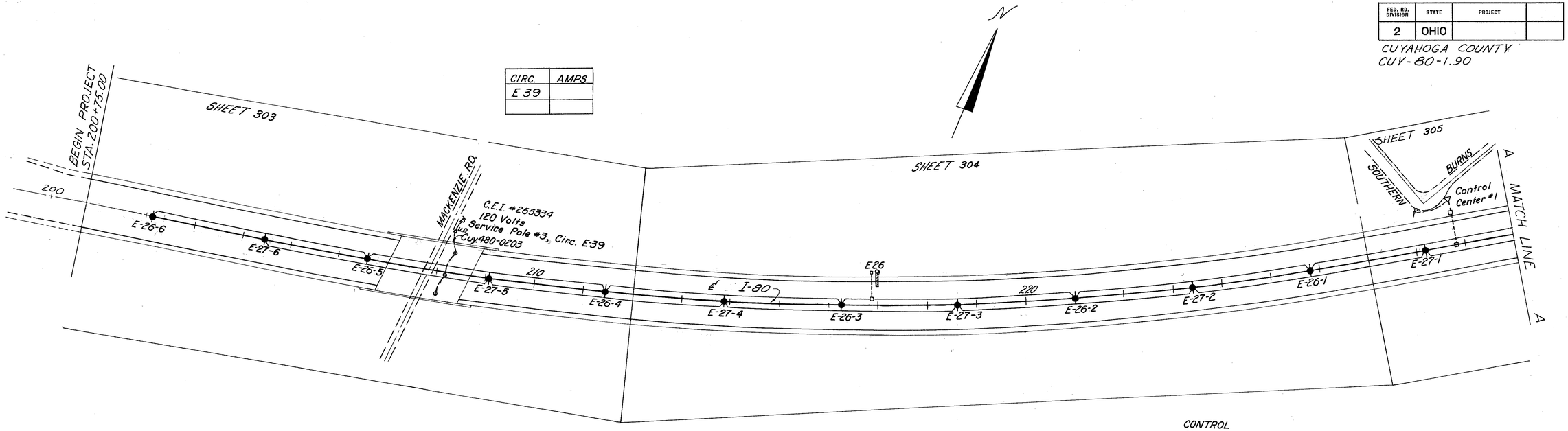
Reference No		Station	Station	Light Pole Design A 12B 31.5 D Ea.	Light Pole Design A 12 B 34.2 Ea.	Light Pole Design A 11 S 84.1, 7 Ea.	Bracket Arm (15') Ea.	MEDIAN Light Pole Foundation Ea.	Light Pole Foundation 24"x 6' Ea.	Light Pole Foundation 24"x 8' Ea.	Luminaire Type III 250 Watt H.P.S. Ea.	Luminaire Type II 200 Watt H.P.S. Ea.	Lamp 250 Watt High Pressure Sodium Ea.	Lamp 200 Watt High Pressure Sodium Ea.	Median Barrier Pull Box As Per Plan Pull Box 18" Dia. S 713.09 Ea.	Pole & Bracket Cable No. 10 A.W.G. L.F.	Ground Rod Ea.	Connector Kits: Type II Ea.	Type III Ea.	Type VI Ea.	Type VIII-C Ea.	Type VIII Ea.	Type IX Ea.	No. 4 A.W.G. 600 Volts Distribution Cable 1½" Duct Cable ⅜ #4 A.W.G. 600 Volt Cable L.F.	Conduit 3" Diameter S 713.04 L.F.	Trench 24" Deep L.F.
360	Lt.	298 + 45	RAMP "D"												1						4					
361	Lt.	RAMP "D" 298 + 45	S.R. 252 73 + 40																				300		65	65
362	Lt.	RAMP "D" 298 + 45	298 + 51																				32	6		6
363	Lt.	298 + 51	RAMP "D"		1				1		1		1			92	1	1	1							
364	Lt.	RAMP "D" 298 + 51	299 + 94																				153		143	
365	Lt.	299 + 94	RAMP "D"		1				1		1		1			92	1	1	1							
366	Lt.	RAMP "D" 299 + 94	301 + 36																				152		142	
367	Lt.	301 + 36	RAMP "D"		1				1		1		1			92	1	1	1							
368	Lt.	RAMP "D" 301 + 36	302 + 78																				152		142	
369	Lt.	302 + 78	RAMP "D"		1				1		1		1			92	1	1	1							
370	Lt.	RAMP "D" 302 + 78	304 + 20																				152		142	
371	Lt.	304 + 20	RAMP "D"		1				1		1		1			92	1	1	1							
372	Lt.	RAMP "D" 304 + 20	305 + 00																				85		80	
373	Lt.	RAMP "B" 304 + 25	305 + 09																				89		84	
374	Lt.	305 + 09	RAMP "B"		1				1		1		1			92	1	1	1							
375	Lt.	RAMP "B" 305 + 09	306 + 91																				192		182	
376	Lt.	306 + 91	RAMP "B"		1				1		1		1			92	1	1	1							
377	Lt.	RAMP "B" 306 + 91	308 + 73																				192		182	
378	Lt.	308 + 73	RAMP "B"		1				1		1		1			92	1	1	1							
379	Lt.	RAMP "B" 308 + 73	310 + 23																				160		150	
380	Lt.	310 + 23	RAMP "B"		1				1		1		1			92	1	1	1							
381	Lt.	RAMP "B" 310 + 23	311 + 73																				160		150	
382	Lt.	311 + 73	RAMP "B"		1				1		1		1			92	1	1	1							
383	Lt.	RAMP "B" 311 + 73	313 + 23																				160		150	
384	Lt.	313 + 23	RAMP "B"		1				1		1		1			92	1	1	1							
385	Lt.	RAMP "B" 313 + 23	314 + 60																				147		137	
386	Lt.	314 + 60	RAMP "B"		1				1		1		1			92	1	1	1							
387	Lt.	RAMP "B" 314 + 60	S.R. 252 71 + 65																				210		200	
388	ROADWAY TOTALS SHEET No. 315			14	7	2	1	14	7	10	14	10	14	3	11	2382	21	24	24	2	44	14	LUMP 5582	3080	51	1320	4046
389	Rt.	58 + 10	S.R. 252												1						2					
390	Rt.	S.R. 252 58 + 10	60 + 35																				235		225	
391	Rt.	60 + 35	S.R. 252												1						2					
392	Rt.	S.R. 252 60 + 35	61 + 80																				155		145	
393	Rt.	61 + 80	S.R. 252		1				1	1		1				113	1		1	1						
394	Rt.	S.R. 252 61 + 80	63 + 85																				215		205	
395	Rt.	63 + 85	S.R. 252		1				1	1		1				113	1		1	1						
396	Rt.	S.R. 252 63 + 85	65 + 10																				135		125	
397	Rt.	65 + 10	S.R. 252												1						2					
398	Rt.	S.R. 252 65 + 10	65 + 54																				54		44	
399	Rt.	65 + 54	S.R. 252		1				1	1		1				113	1		1	1						
400	Rt.	S.R. 252 65 + 10	66 + 25																				250		115	115
401	Rt.	66 + 25	S.R. 252												1						2					
402	Rt.	S.R. 252 66 + 25	67 + 20																				105		95	
403	Rt.	67 + 20			1				1	1		1				113	1		1	1						
404	Rt.	S.R. 252 67 + 20	67 + 30																				15		10	
405	Lt.	60 + 35	S.R. 257												1						2					
406	Lt.	60 + 70	S.R. 252				1			1		1				113			1	1						
407	Lt.	S.R. 252 60 + 35	61 + 50																				250		115	115
408	Lt.	61 + 50	S.R. 252												1						2					
409	Lt.	S.R. 252 61 + 50	62 + 80																				140		130	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

297
427

CUYAHOGA COUNTY
CUY-80-1.90

CIRC.	AMPS
E39	

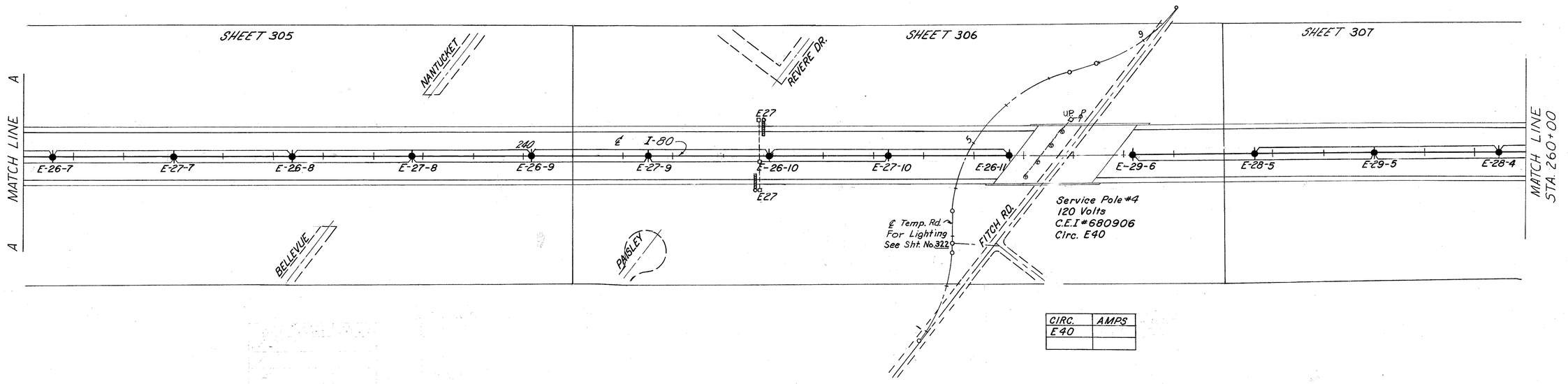


CIRC.	AMPS
E26	
E27	

CONTROL CENTER #1

E26
E27

NOTE:
FOR KEY PLAN LEGEND AND DESIGN CRITERIA SEE SHEET NO. 299



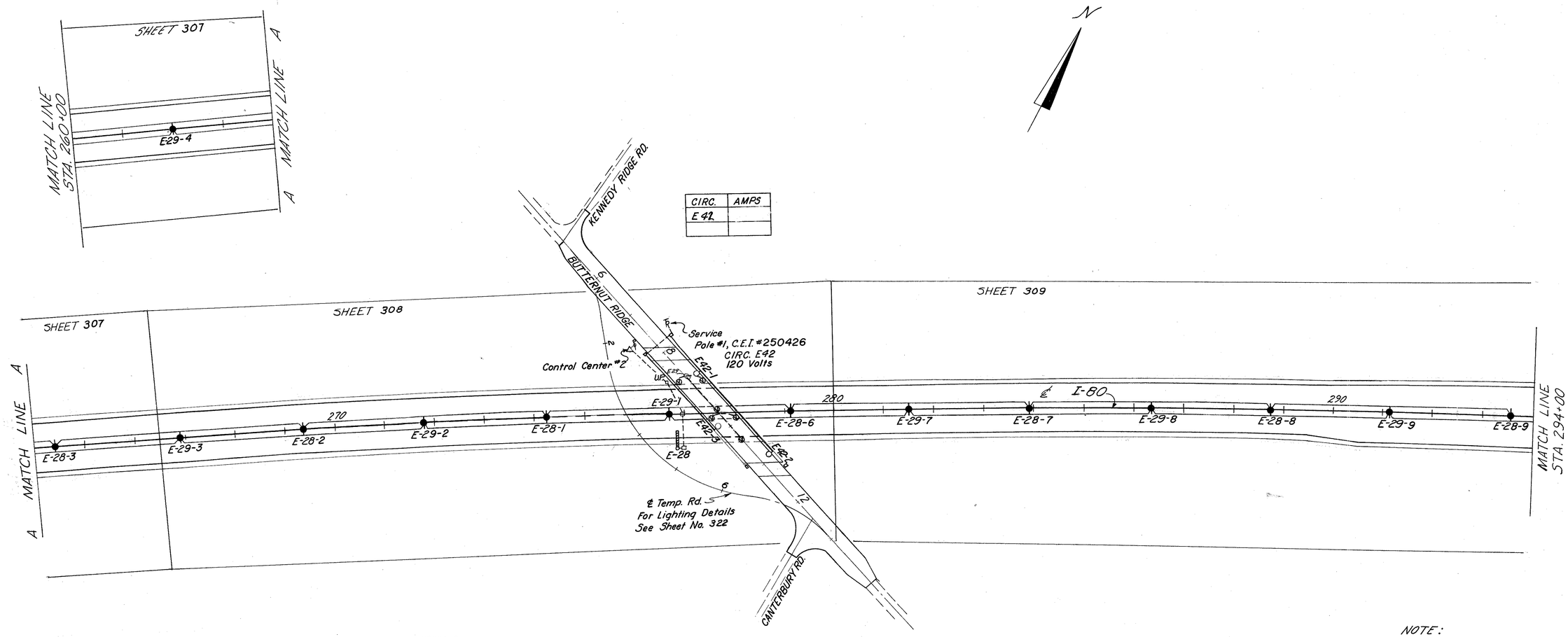
CIRC.	AMPS
E40	

KEY LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

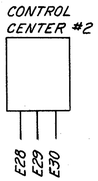
298
427

CUYAHOGA COUNTY
CUY-80-1.90



CIRC.	AMPS
E42	

CIRC.	AMPS
E28	
E29	
E30	Spare



NOTE:
FOR KEY PLAN LEGEND AND DESIGN CRITERIA SEE SHEET NO. 299

KEY LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

299
427

CUYAHOGA COUNTY
CUY-480-1.90

CIRC	AMPS
E32	
E33	
E34	
E35	
E36	

CONTROL CENTER #4
SPARE E32 E33 E34 E35 E36

MATCH LINE 80+50

Control Center #4

E-32

E32-1

E32-2

E33-1

END PAVEMENT STA. 78+50

E32

S.R. 282

MATCH LINE 80+50

N

SHEET 315

SHEET 310

SHEET 311

SHEET 316

SHEET 312

RAMP "A"

RAMP "B" 315

RAMP "C"

RAMP "D"

RAMP "E"

RAMP "F" 315

E34-1 E34-2 E34-3 E34-4 E34-5 E34-6 E34-7 E34-8 E34-9 E34-10 E34-11 E34-12 E34-13 E34-14 E34-15 E34-16 E34-17 E34-18 E34-19 E34-20 E34-21 E34-22

E35-1 E35-2 E35-3 E35-4 E35-5 E35-6 E35-7 E35-8 E35-9 E35-10 E35-11 E35-12 E35-13 E35-14 E35-15 E35-16 E35-17

E36-1 E36-2 E36-3 E36-4 E36-5 E36-6 E36-7 E36-8 E36-9 E36-10 E36-11 E36-12 E36-13 E36-14 E36-15 E36-16 E36-17

E-29-10 E-33 E-33-3 E-34

E32-4 E32-5 E32-6 E32-7 E32-8 E32-9 E32-10 E32-11

E33-2 E33-4 E33-5 E33-8 E33-9 E33-10 E33-11

E35 E36

SR 252

I-80

Cuy 80-0598

MATCH LINE STA. 325+00

BEGIN PAVEMENT STA. 60+20

295 300 305 310 315 320 325 65 70 75 80 60 68

KEY PLAN LEGEND

- △ LIGHTING CONTROL CENTER
- ● 310 WATT LIGHT & POLE *
- ◆ TWIN 310 WATT LIGHTS & POLE *
- ○ 200 WATT LIGHT & POLE **
- □ PULL BOX (UP INDICATES UNDERPASS LIGHTING CONNECTION)
- ILLUMINATED OVERHEAD SIGN
- —— NO. 4 AWG CIRCUIT CABLE
- – – – RIGID FERROUS CONDUIT WITH NO. 4 CABLE
- COMBINATION SIGN, SIGNAL & LUMINAIRE
- COMBINATION SIGNAL & LUMINAIRE
- Ⓤ UNDERPASS LUMINAIRE

* EXCEPT LIGHTS ON S.R. 252 WILL BE 250 WATT.
** EXCEPT LIGHTS ON COLUMBIA ROAD AND BUTTERNUT RIDGE ARE TO BE 150 WATT.

LIGHTING DESIGN CRITERIA

	I-480	RAMPS	RELOC. S.R. 252
WIDTH	36' & 48'	16'	72'
AVERAGE INITIAL INTENSITY IN FOOTCANDLES	1.2	1.2	1.8
MINIMUM INITIAL INTENSITY IN FOOTCANDLES	0.3	0.3	0.45
DISTRIBUTION TYPE	III	II	III
LAMP WATTS	310	200	250
CLEAR HORIZONTAL LAMP			
NOMINAL MOUNTING HEIGHT	41.7'	34.2'	41.7'
BRACKET ARM LENGTH	12'	12'	15'

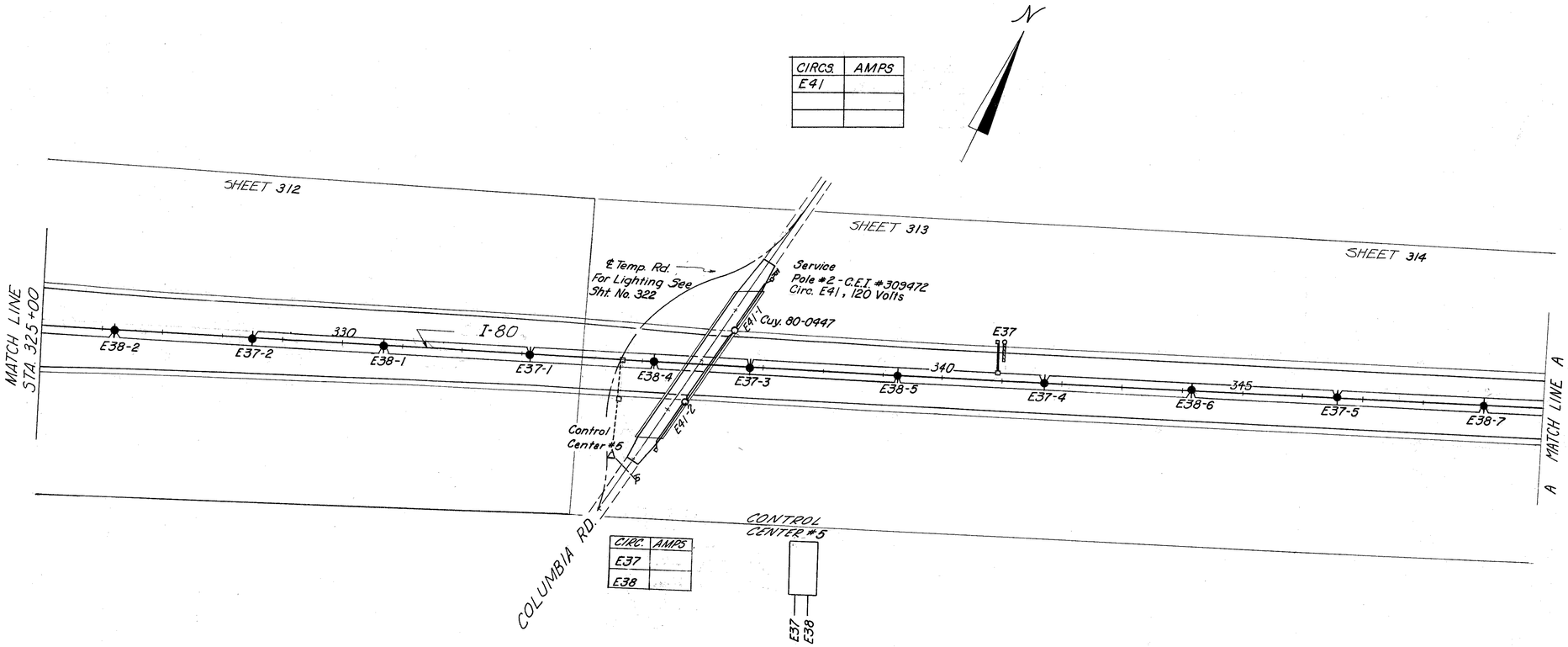
KEY LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

300
427

CUYAHOGA COUNTY
CUY.480-1.90

CIRCS.	AMPS
E41	

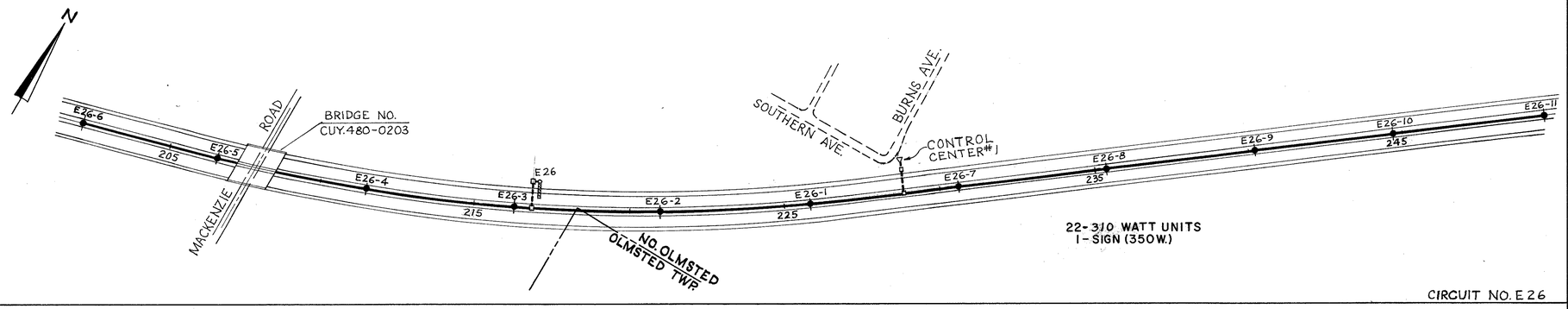


KEY LIGHTING PLAN

FHWA REGION	STATE	PROJECT	
5	OHIO		

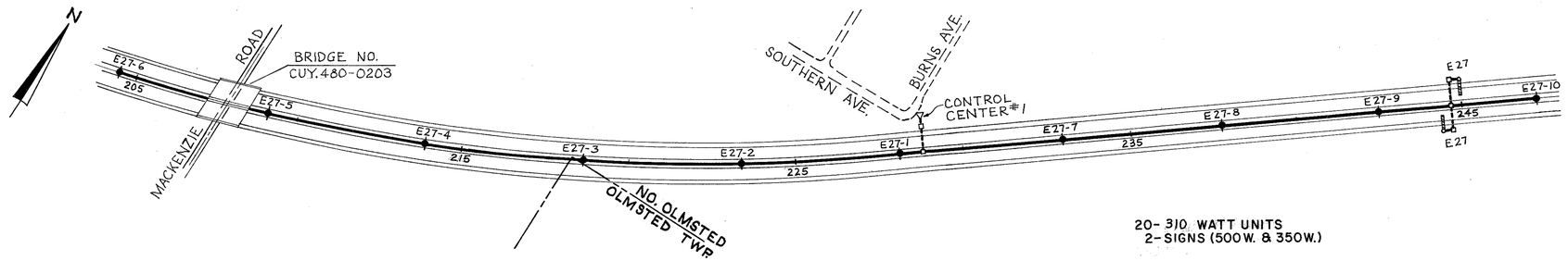
301
427

CUYAHOGA COUNTY
CUY. 480-1.90



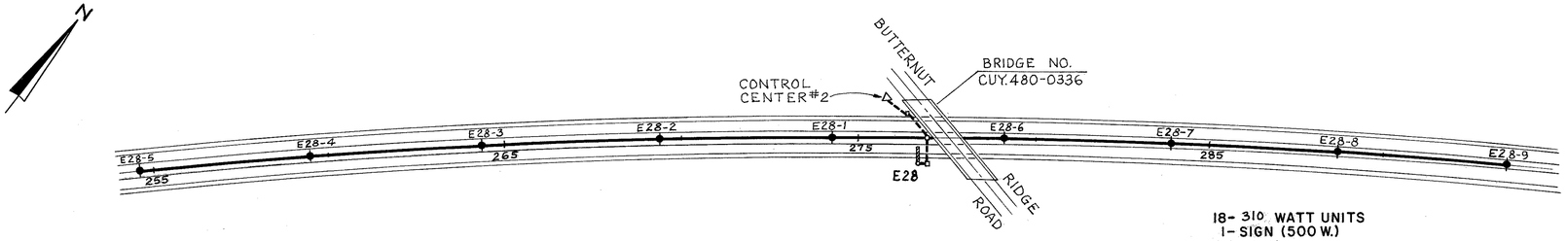
22-310 WATT UNITS
1-SIGN (350W.)

CIRCUIT NO. E 26



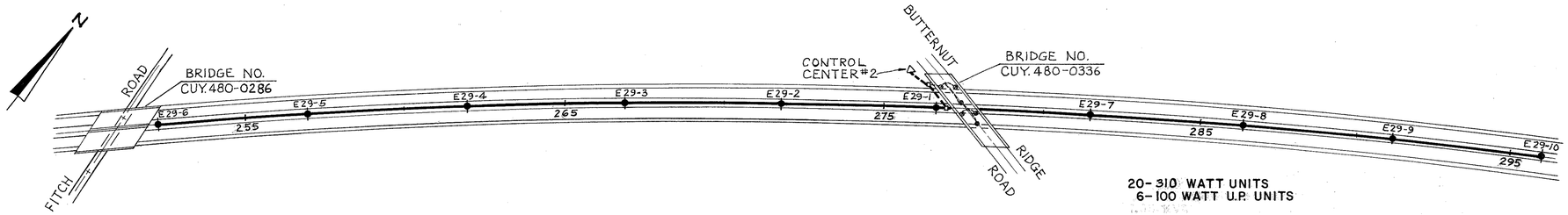
20-310 WATT UNITS
2-SIGNS (500W. & 350W.)

CIRCUIT NO. E 27



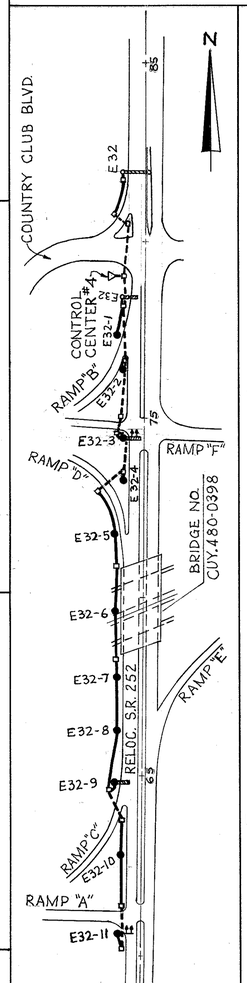
18-310 WATT UNITS
1-SIGN (500W.)

CIRCUIT NO. E 28



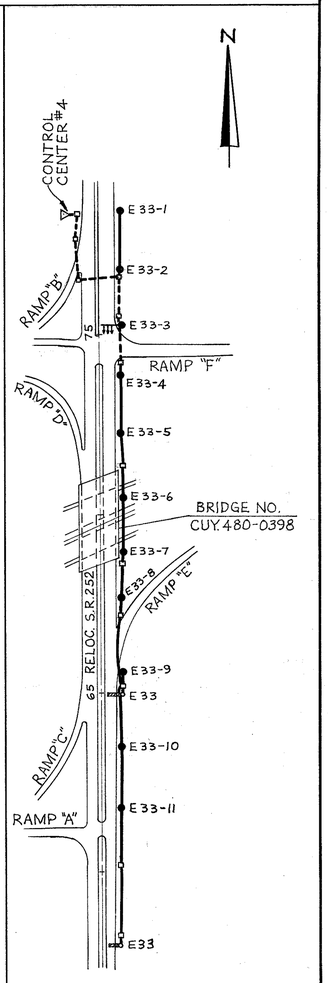
20-310 WATT UNITS
6-100 WATT U.P. UNITS

CIRCUIT NO. E 29



11-250 WATT UNITS
4-SIGNS (525W., 350W.
175W. & 350W.)
5.51 KVA

CIRCUIT NO. E 32



11-250 WATT UNITS
2-SIGNS (350W. & 350W.)
4.55 KVA

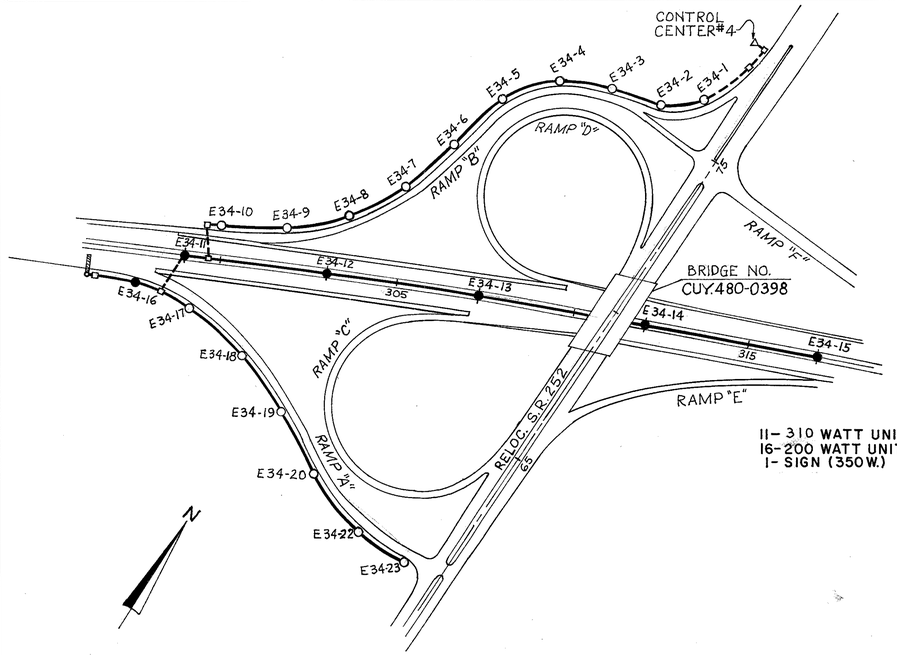
CIRCUIT NO. E 33

CIRCUIT MAPS

FHWA REGION	STATE	PROJECT	
5	OHIO		

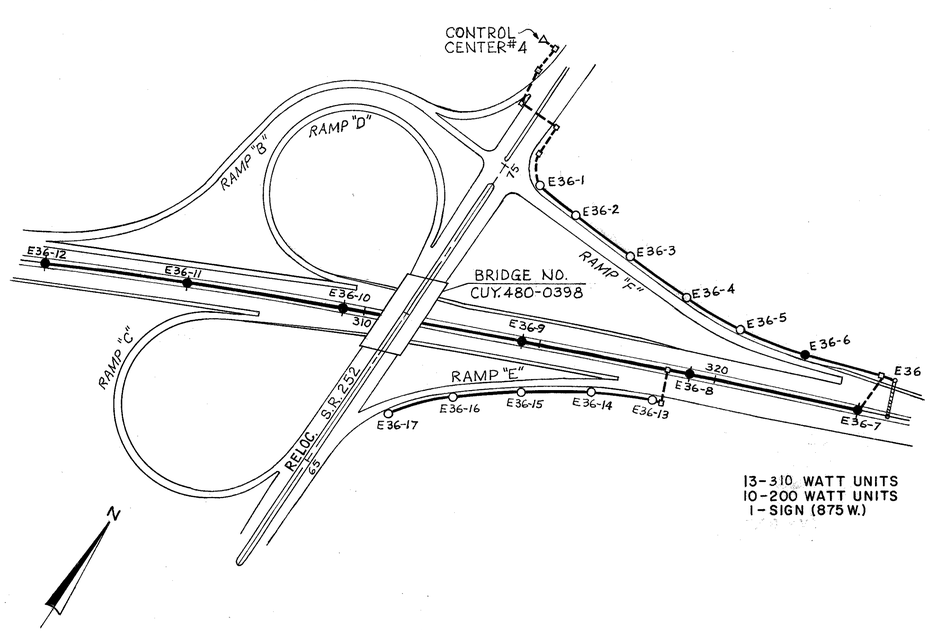
302
427

CUYAHOGA COUNTY
CUY.480-1.90



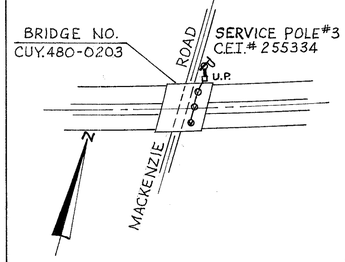
11-310 WATT UNITS
16-200 WATT UNITS
1-SIGN (350W.)

CIRCUIT NO. E 34

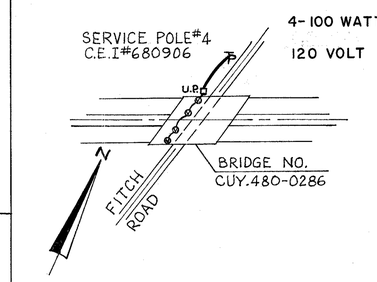


13-310 WATT UNITS
10-200 WATT UNITS
1-SIGN (875W.)

CIRCUIT NO. E 36



CIRCUIT NO. E 39



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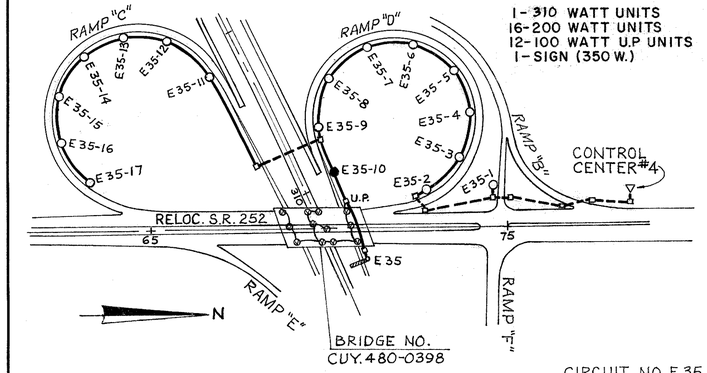
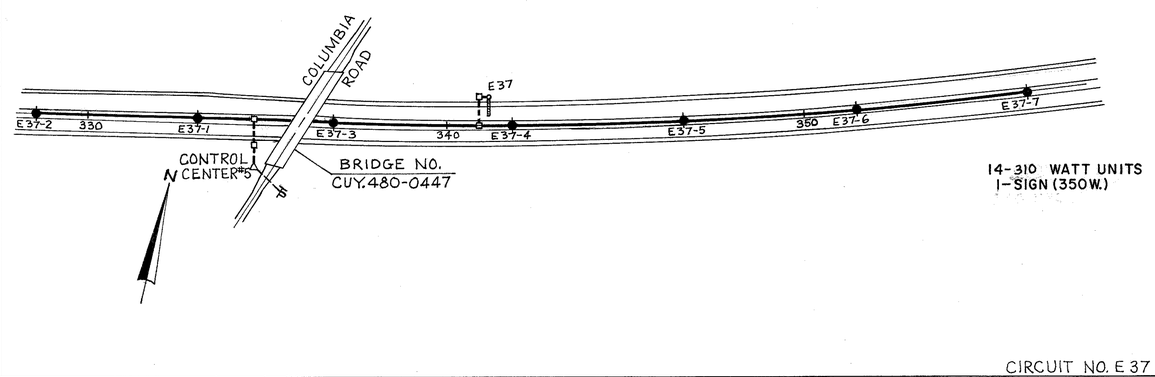


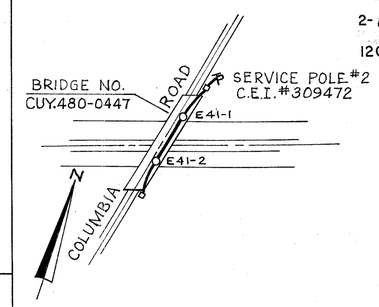
1-310 WATT UNITS
16-200 WATT UNITS
12-100 WATT U.P UNITS
1-SIGN (350 W.)

CIRCUIT NO. E 35



14-310 WATT UNITS
1-SIGN (350W.)

CIRCUIT NO. E 37



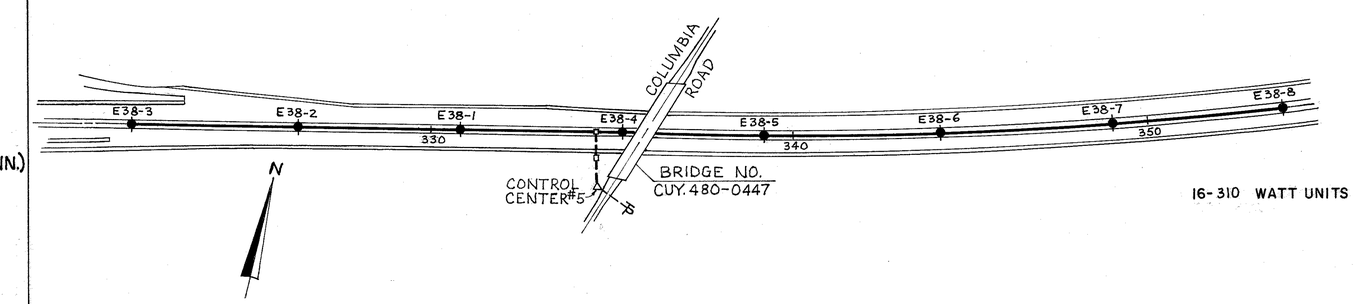
CIRCUIT NO. E 41

KEY PLAN LEGEND

- △ LIGHTING CONTROL CENTER
- ● 310 WATT LIGHT ¢ POLE *
- ⧫ TWIN 310 WATT LIGHTS ¢ POLE
- ○ 200 WATT LIGHT ¢ POLE **
- □ PULL BOX(U.P. INDICATES UNDERPASS LIGHTING CONN.)
- ILLUMINATED OVERHEAD SIGN
- —— NO.4 AWG CIRCUIT CABLE
- - - - RIGID FERROUS CONDUIT WITH NO.4 CABLE
- COMBINATION SIGN, SIGNAL ¢ LUMINAIRE
- COMBINATION SIGNAL ¢ LUMINAIRE
- Ⓤ UNDERPASS LUMINAIRE

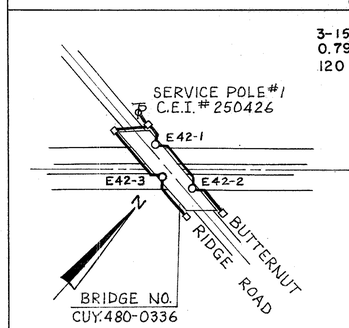
* EXCEPT LIGHTS ON S.R.252 WILL BE 250 WATT

** EXCEPT LIGHTS ON COLUMBIA ROAD AND BUTTERNUT RIDGE ROAD ARE TO BE 150 WATT.



16-310 WATT UNITS

CIRCUIT NO. E 38



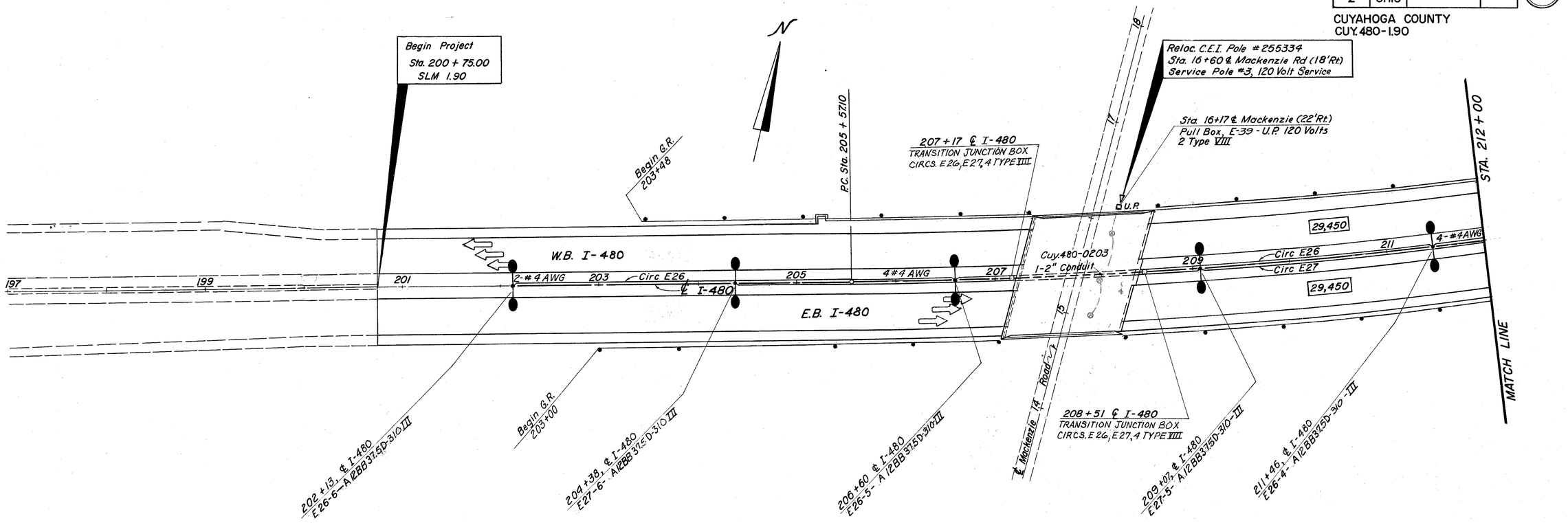
CIRCUIT NO. E 42

CIRCUIT MAPS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

303
427

CUYAHOGA COUNTY
CUY.480-1.90



LEGEND

- CONTROL CENTER
- PULL BOX
- OVERHEAD SIGN CONNECTION
- 1975 AVERAGE DAILY TRAFFIC
- UNDERPASS LUMINAIRE
- FERROUS METAL CONDUIT
- CABLE IN MEDIAN CONDUIT (SIZE & NUMBER INDICATED)
- (CABLE) DUCT CABLE (SIZE & NUMBER INDICATED)
- 310W LIGHT POLE & LUMINAIRE (ARM PERPENDICULAR TO STATIONING ℄)*
- 200W 100+82 W.B.I-480 (15'LT.) (STATION, LOCATION & OFFSET FROM PAV'T EDGE)**

E18-9- A T15 B40-250 II — POLE & LUMINAIRE DESCRIPTION

- IES DISTRIBUTION TYPE
- LAMP WATTS
- LUMINAIRE MOUNTING HEIGHT
- BRACKET (B-SINGLE, BB-DOUBLE)
- BRACKET ARM LENGTH
- BASE (A-ANCHOR, AT-ALUMINUM TRANSFORMER, ST-STEEL)
- POLE NUMBER
- CIRCUIT NUMBER

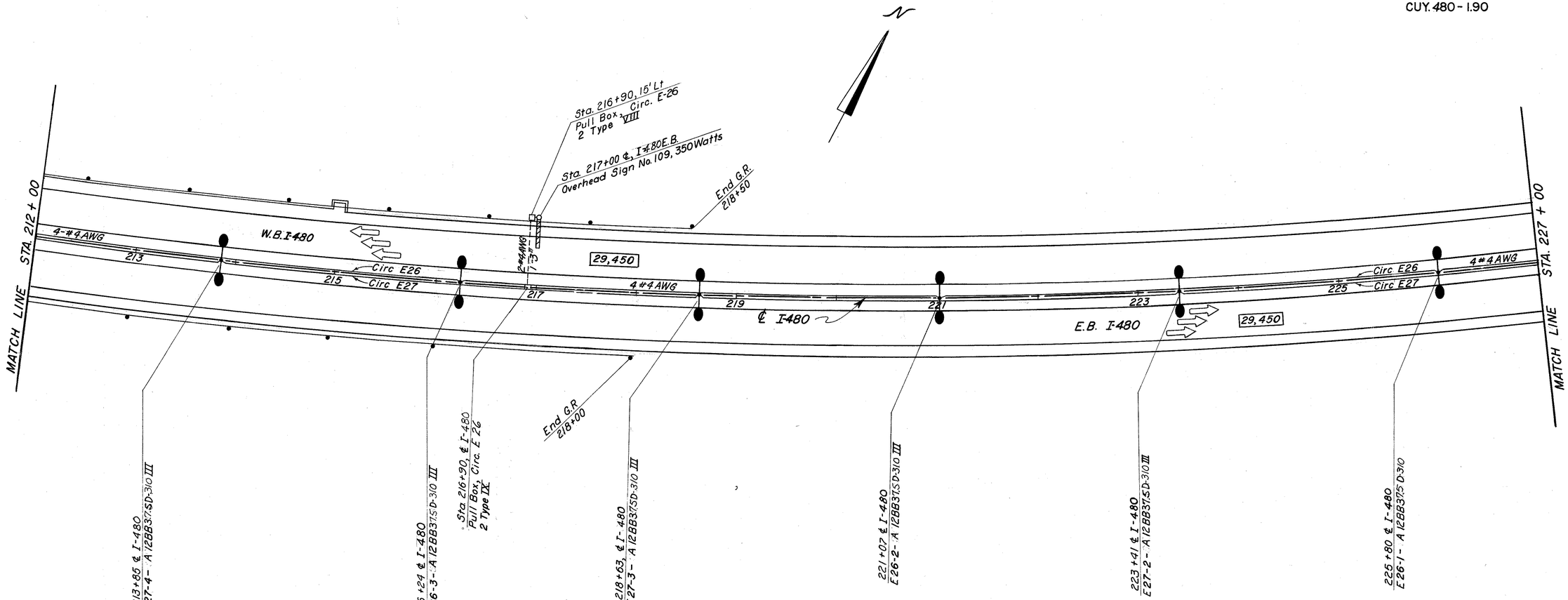
*EXCEPT LIGHTS ON S.R. 252 will be 250 Watts
**EXCEPT LIGHTS ON Columbia Road and Butternut Ridge Road Will be 150 Watts.

LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

304
427

CUYAHOGA COUNTY
CUY. 480 - 1.90

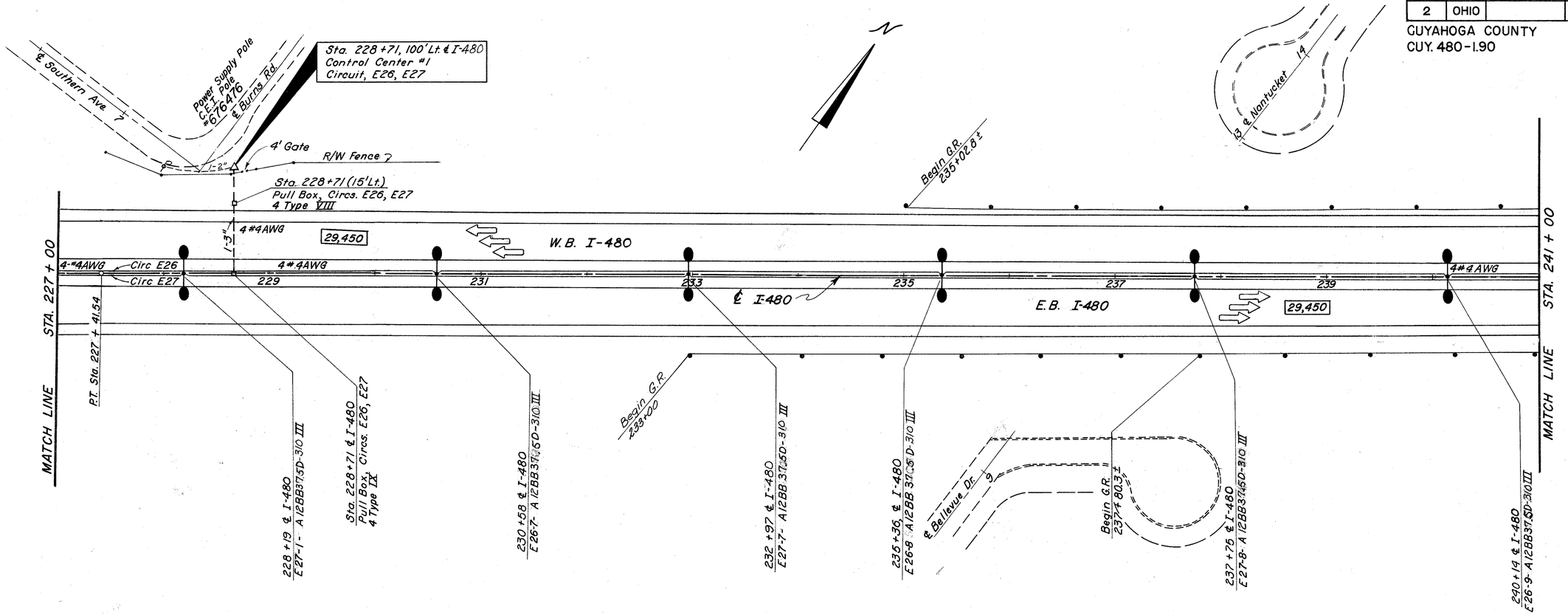


LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

305
427

GUYAHOGA COUNTY
CUY. 480-1.90

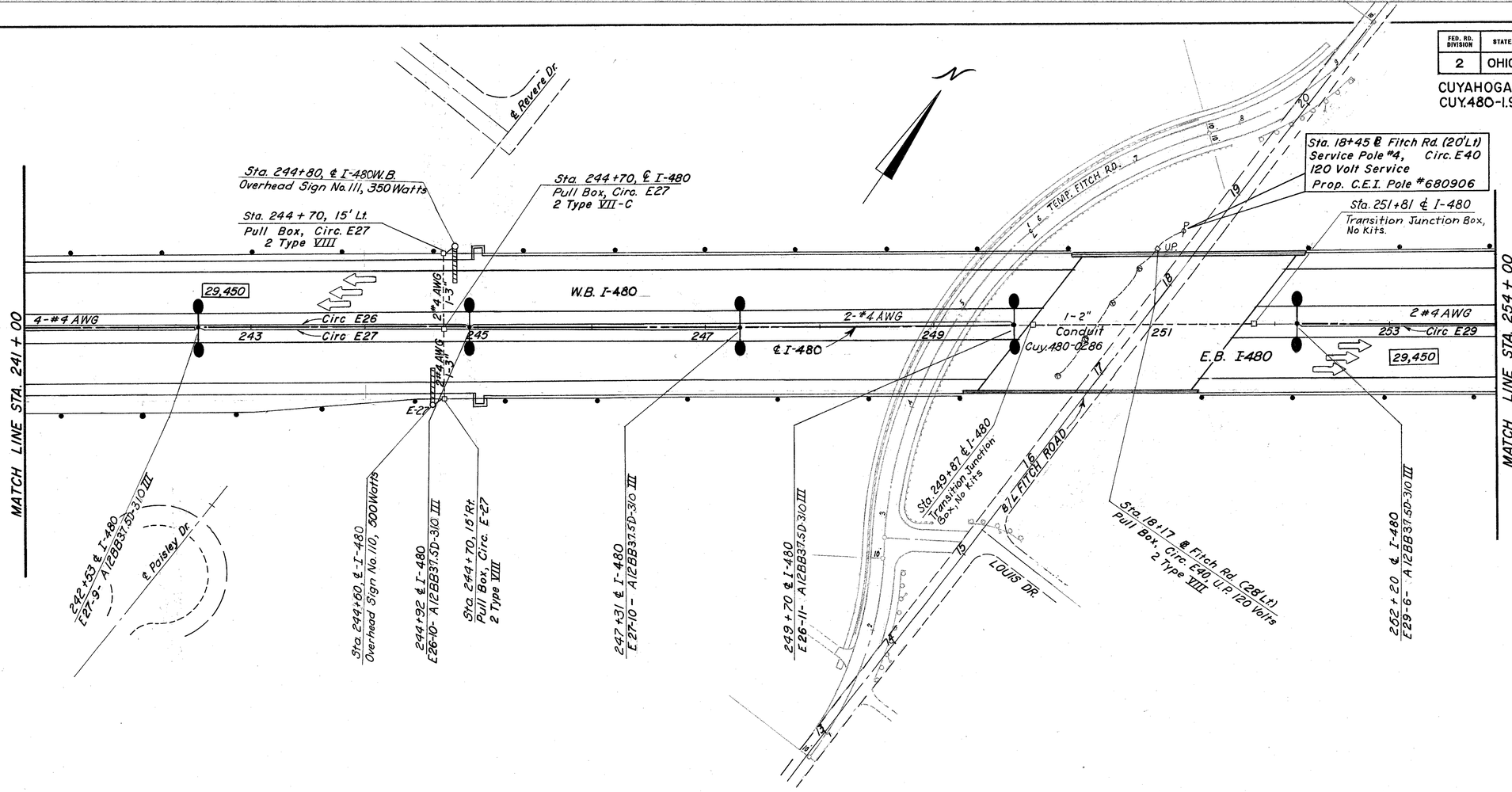


LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

306
427

CUYAHOGA COUNTY
CUY.480-1.90

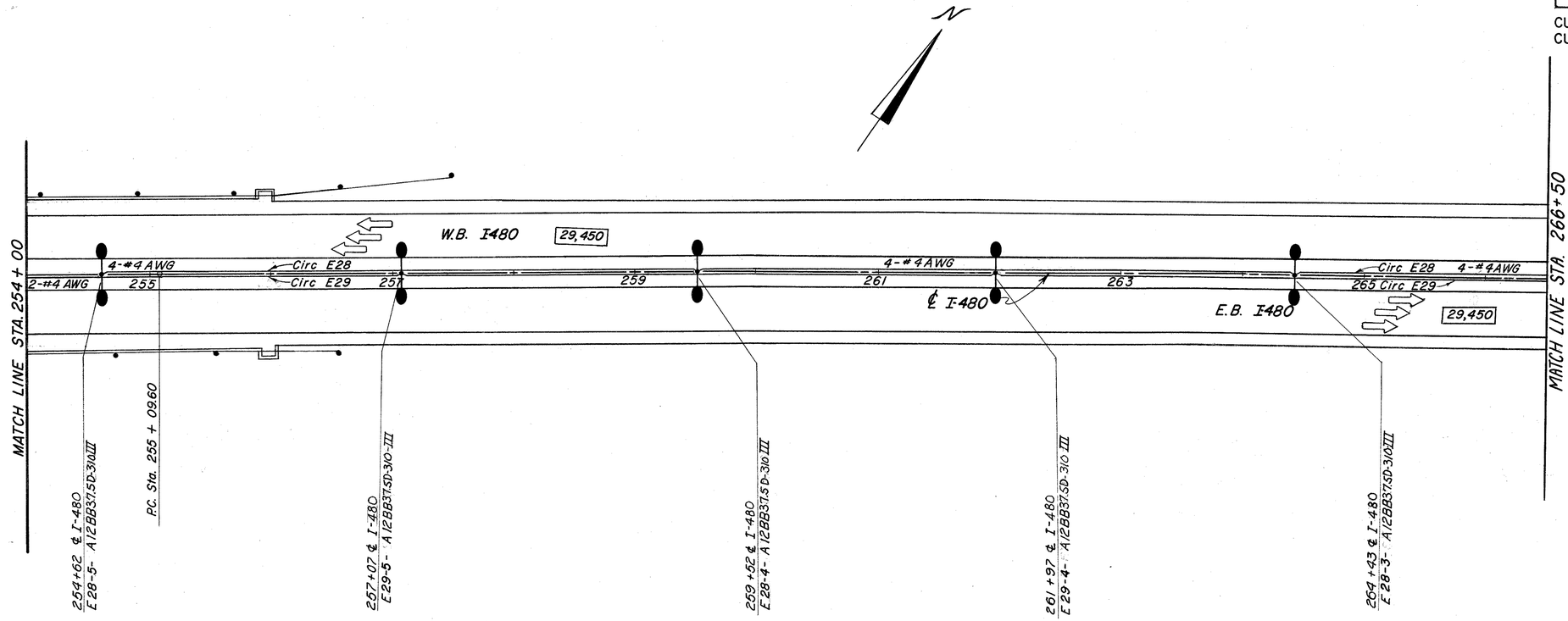


LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

307
427

CUYAHOGA COUNTY
CUY.480 - 1.90



LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

308
427

CUYAHOGA COUNTY
CUY.480-1.90

MATCH LINE STA. 266 + 50

MATCH LINE STA. 280 + 00

W.B. I-480 29,450

E.B. I-480 29,450

℄ I-480

4-#4 AWG

4#4 AWG

Circ E28

Circ E29

269

271

273

275

277

279

266+89 ℄ I-480
E29-3- A12BB37.5D-3/0 III

269+34 ℄ I-480
E28-2- A12BB37.5D-3/0 III

271+79 ℄ I-480
E29-2- A12BB37.5D-3/0 III

274+24 ℄ I-480
E28-1- A12BB37.5D-3/0 III

276+70 ℄ I-480
E29-1- A12BB37.5D-3/0 III
w/Glare Shield on North Side

Sta. 7+48.35 Rt.
Prop. 480 L Sub. Pole

R/W

Sta. 7+60 Butternut Ridge
Pull Box, Circ. E42 (9' Rt.)
2 Type VIII

Sta. 276+66, 15' Lt.
Pull Box, Circ. E28, E29
2 Type VIII 2 Type IX

Sta. 7+50, 40' Rt. ℄
Control Center #2
Circs. E28, E29, E30 (Spare)

Sta. 276+90, ℄ I-480
Pull Box Circ. E28, 29
2 Type IX 2 Type VII-C

4' Gate

L/A

2-#4 AWG 1.5"

2-#4 AWG E28

2-#4 AWG E29

U/G

1-2"

1-3" 2-#4 AWG

Sta. 7+90 Butternut Ridge (13' Lt.) Pavt

Service Pole #1 - C.E.I. Pole #250426
Circ. E42, 120 Volts

Sta. 7+60 Butternut Ridge (7' Lt.)
Pull Box, Circ. E42
2 Type IX

8+75 ℄ Butternut Ridge Rd.
A12B32.5 -150-II, 120 Volts

End G.R.
278+75±

Sta. 279+11 ℄ I-480
E28-6- A12BB37.5D-3/0 III

℄ TEMP. RD.

Sta. 276+80, ℄ I-480 E.B.
Overhead Sign No. 112, 500 Watts

276+90 I-480 WB (15' Lt.)
Pull Box, Circ. E28
2 Type VIII

9+82 ℄ Butternut Ridge
A12B32.5 -150-II, 120 Volt

(Cuy480-0236)

11+62 Butternut Ridge (9' Lt.)
Pull Box, Circ. E42-120 Volts
No Kits, Cap
Conductors

10+97 Butternut Ridge
A12B32.5 -150-II, 120 Volts

11+08 Butternut Ridge (9' Rt.)
Pull Box Circ. E42 120 Volts
No Kits, Cap Conductors

Butternut Ridge Road

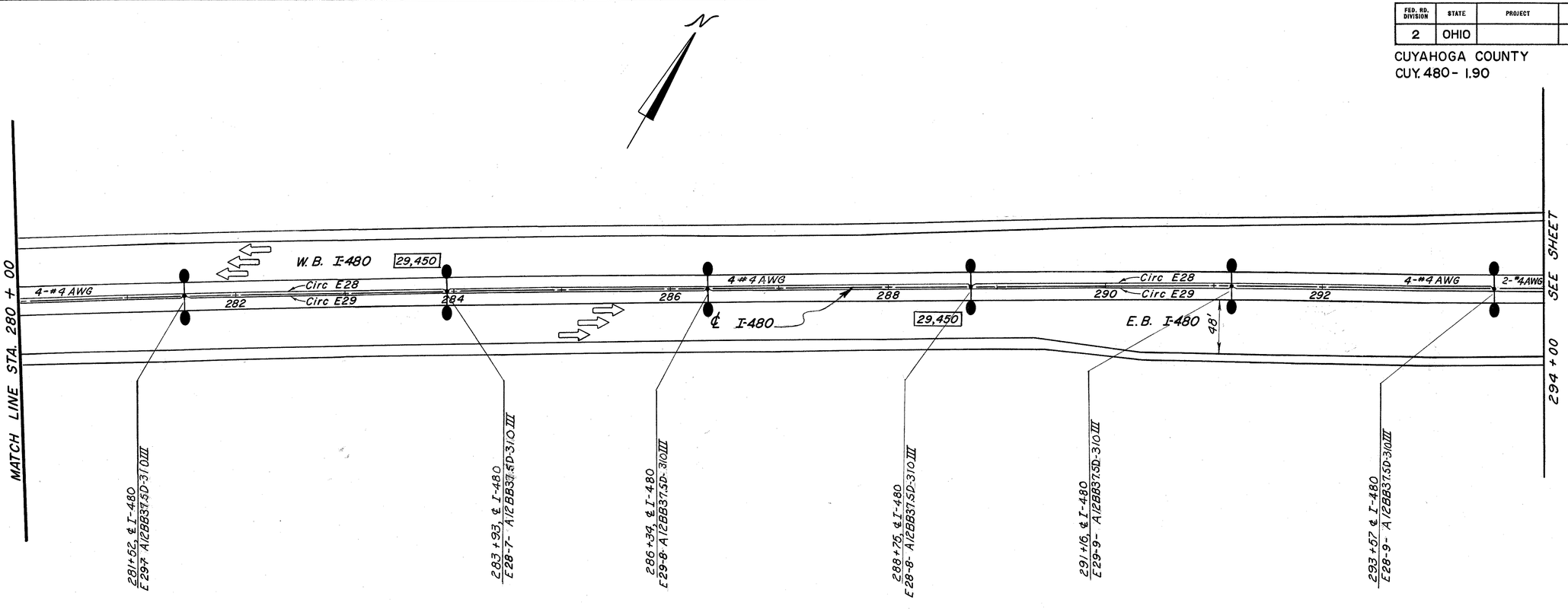
REV. 4-5-'78

LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

309
427

CUYAHOGA COUNTY
CUY. 480 - 1.90

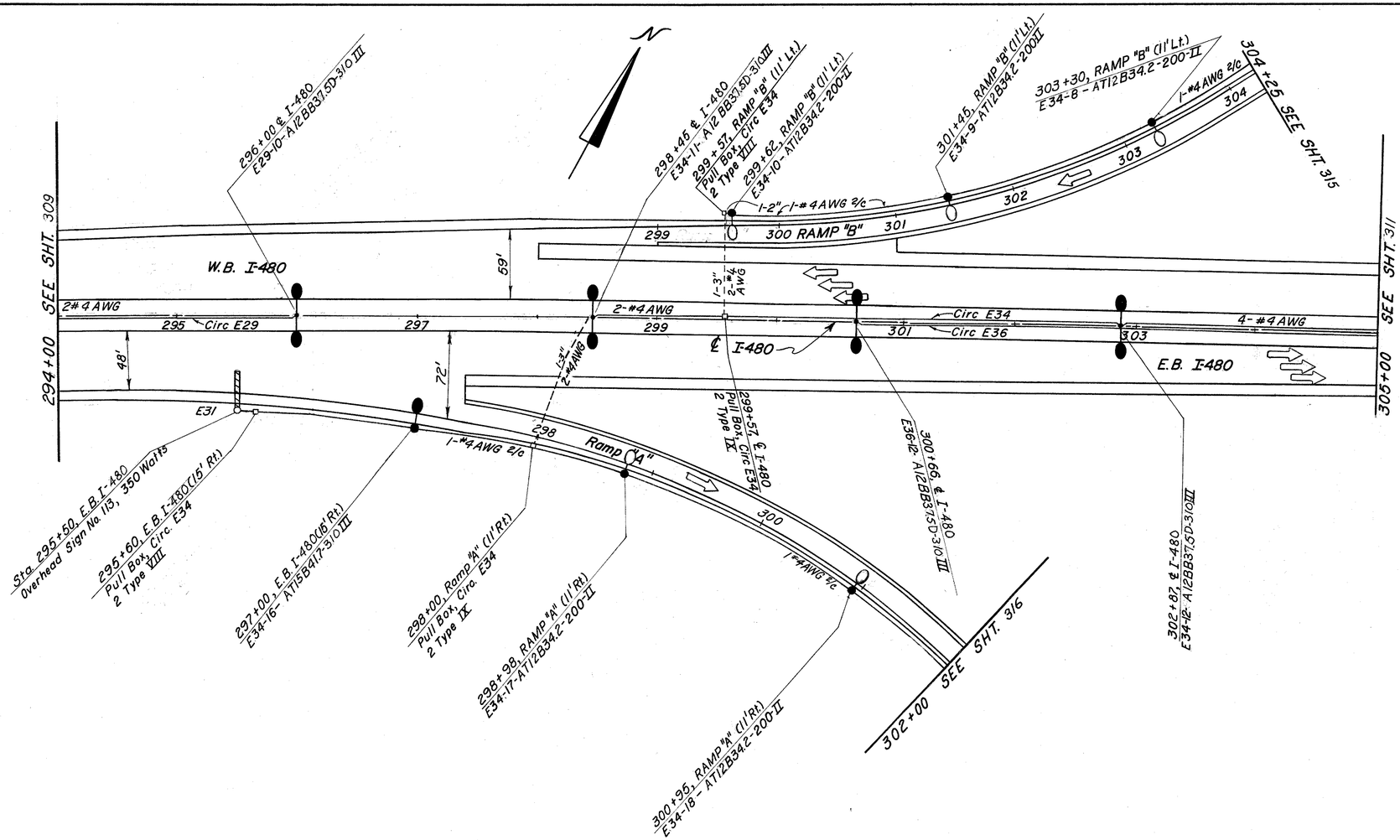


LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

310
427

CUYAHOGA COUNTY
CUY. 480-1.90



LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

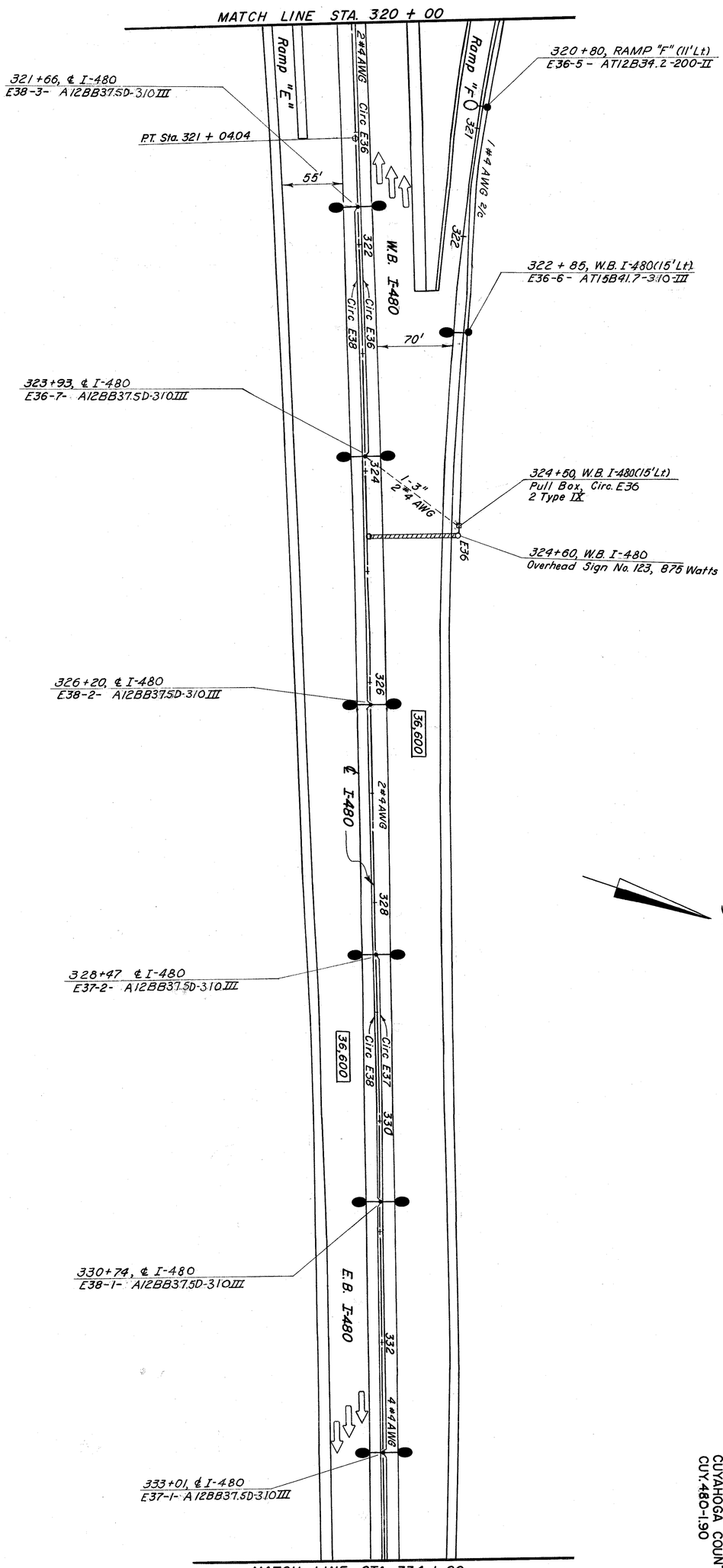
311
427

N

305+00 See Sht. 315
1 #4 AWG 2/c
305+62, RAMP "D" (11'Lt)
E35-7-AT12B34.2-200-II
306
RAMP "D"
307+04 RAMP "D" (11'Lt)
E35-8-AT12B34.2-200-II
308+50, RAMP "D" (11'Lt)
E35-9-AT12B34.2-200-II
308+55, RAMP "D" (11'Lt)
Pull Box Circ E35
2 Type IX
1-2"
1 #4 AWG 2/c
310+14, WB I-480 (15'Lt)
E35-10-AT15B41.7-310 III
69+80, S.R. 252
E32-6. A12 B 40 -250-III
310+80, W.B. I-480 (15'Lt)
Underpass Pull Box, Circ. E35
2 Type IX
71+35, S.R. 252 (13'Lt)
Pull Box, Circ. E32
2 Type VIII
71+50 See Sht. 315
1 #4 AWG 2/c
70+69, S.R. 252
E33-6- A12 B 40 -250 III
Sta 312+25, I-480W.B
Overhead Sign No. 119, 350 Watts
314+00 See Sht 315
315+10, RAMP "F" (11'Lt)
E36-2-AT12B34.2-200II
315
1 #4 AWG 2/c
317+00, RAMP "F" (11'Lt)
E36-3-AT12B34.2-200II
318+90, RAMP "F" (11'Lt)
E36-4-AT12B34.2-200II
RAMP "F"
319
319+25, ℄ I-480
E36-8- A12BB37.5D-310III
Sta 318+65 ℄ I-480
Pull Box, Circ. E36
2 Type IX
314+42, ℄ I-480
E36-9- A12BB37.5D-310 III
See Sht 310
305+00
305+08, ℄ I-480
E36-11 A12BB37.5D-310III
307+29, ℄ I-480
E34-13- A12BB37.5D-310 III
4-#4 AWG
Circ E34
Circ E36
306
308
310
72'
55'
1-3" 2-#4 AWG
70
1-2"
1 #4 AWG
2/c
Sta 312+14 (15'Lt)
Pull Box Circ. 35
2 Type VIII
W.B. I-480
312
4-#4 AWG
315
Circ E34
Circ E36
2 #4 AWG
318
Circ E36
2 #4 AWG
1-3"
2-#4 AWG
STA. 320+00
SHT. 312
305+00
Sht. 316
RAMP "C"
306
1 #4 AWG 2/c
E.B. I-480
Cuy480-0398
1-2"
2-#4 AWG
1-2"
1-#4 AWG
2/c
End G.R.
68+28
67+30
SEE SHT. 316
68
℄S.R.252
312+10, ℄ I-480
E34-14- A12BB37.5D-310 III
312+10
Sht. 316
314
1 #4 AWG 2/c
316
RAMP "E" 318
1 #4 AWG 2/c
1-2"
309+50 ℄ I-480
E36-10- A12BB37.5D-310III
308+70 EB I-480 (15'Rt.)
Pull Box, Circ E35
2 Type VIII
67+90, S.R. 252
E32-7- AT15B41.7-250-III
68+19, S.R. 252 (13'Rt.)
Pull Box, Circ. E33
2 Type VIII
68+90 S.R. 252
E33-7- A12 B 40 -250 III
305+85, RAMP "C" (11'Rt)
E35-11-AT12B34.2-200-II
312+90, RAMP "E" (11'Rt)
E36-16-AT12B34.2-200-II
314+80, RAMP "E" (11'Rt)
E36-15-AT12B34.2-200-II
316+83, ℄ I-480
E34-15- A12BB37.5D-310-III
316+70, RAMP "E" (11'Rt.
E36-14-AT12B34.2-200-II
318+60 RAMP "E" (11'Rt)
E36-13-AT12B34.2-200-II
318+65 RAMP "E" (11'Rt)
Pull Box, Circ E36
2 Type VIII

REV. 4-5-'78

LIGHTING PLAN



LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

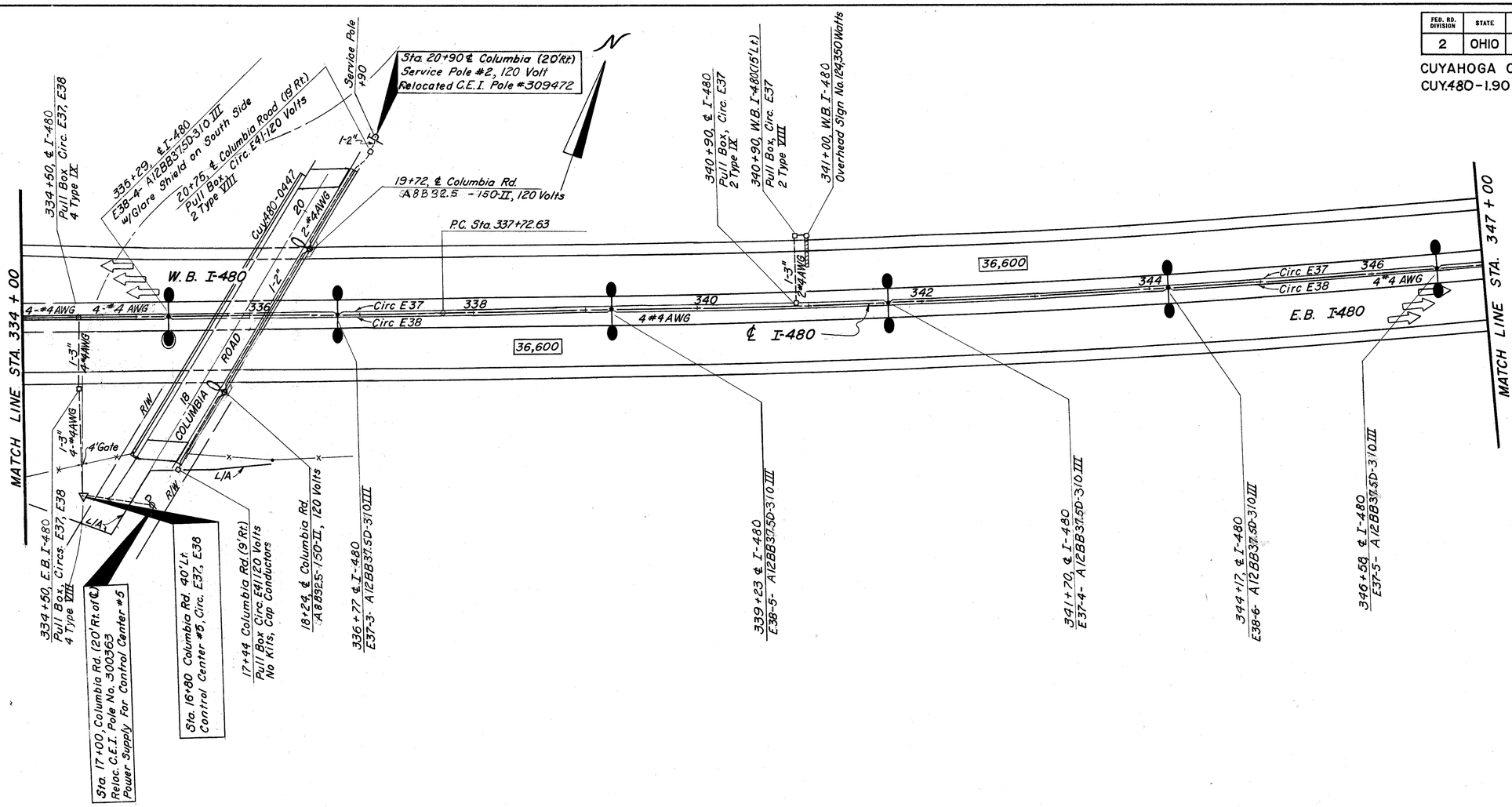
CUYAHOGA COUNTY
CUY-480-1.90

312
427

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

313
427

CUYAHOGA COUNTY
CUY.480-1.90



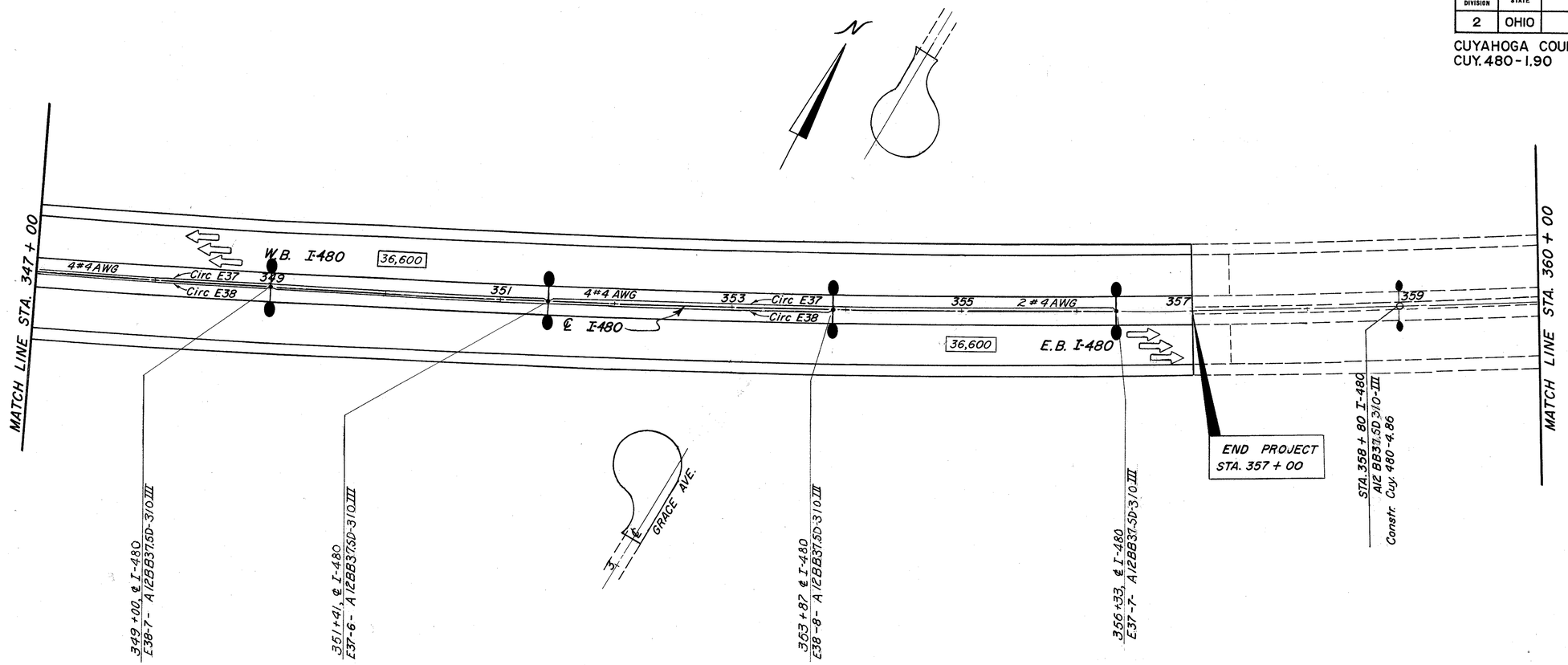
REV. 4-5-78

LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

314
427

CUYAHOGA COUNTY
CUY. 480 - 1.90

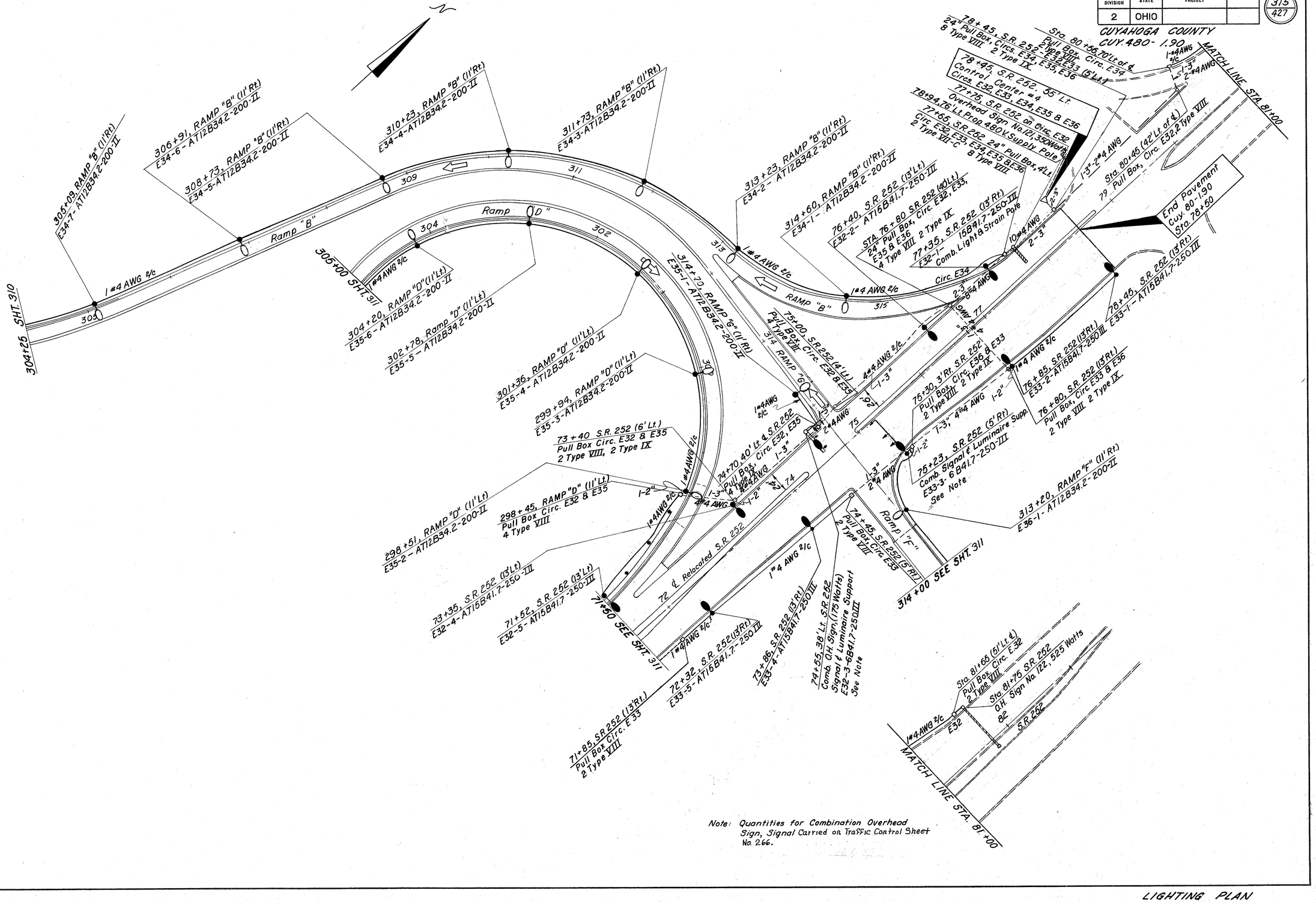


LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY. 480 - 1.90

315
427



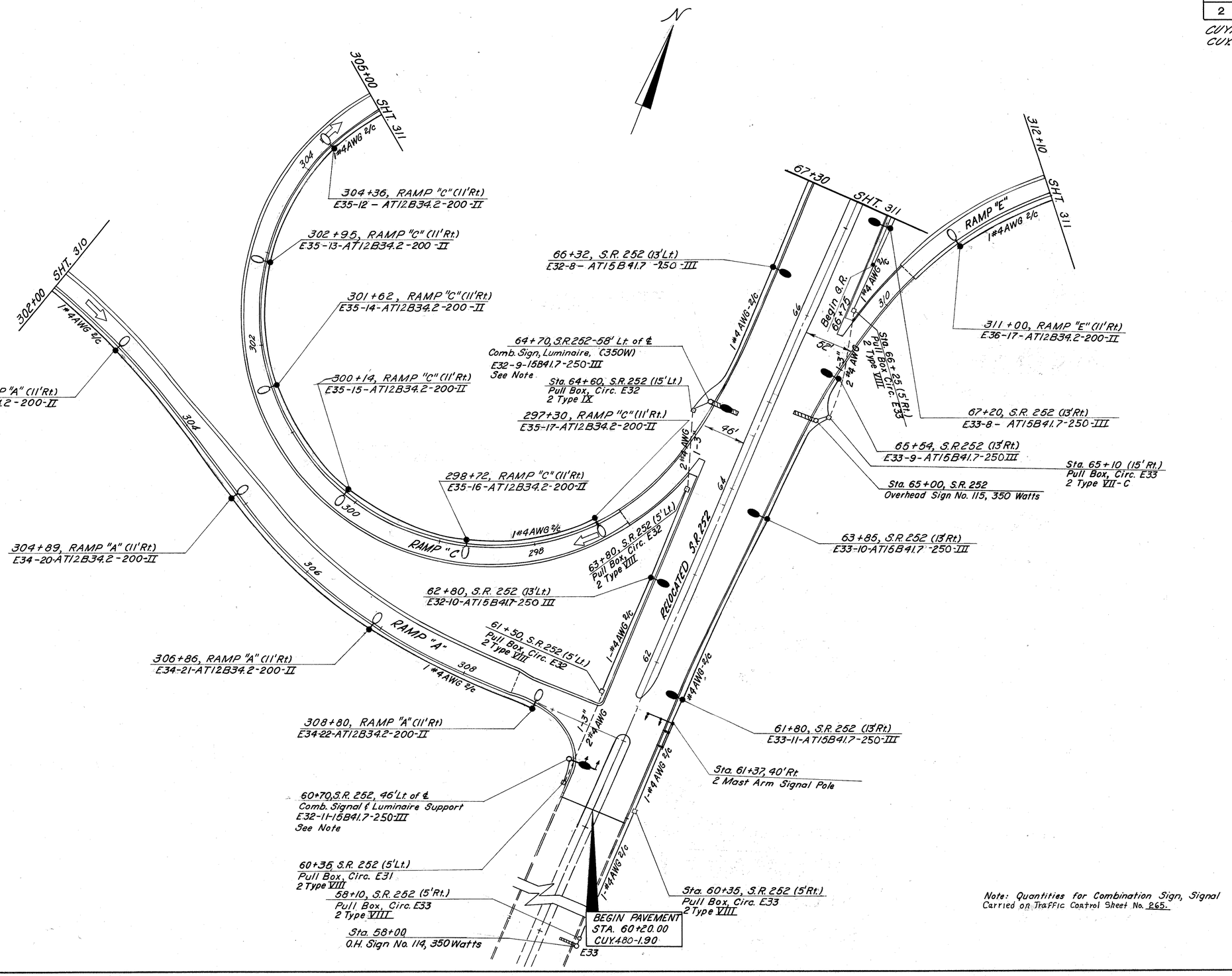
Note: Quantities for Combination Overhead Sign, Signal Carried on Traffic Control Sheet No. 266.

LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

316
427

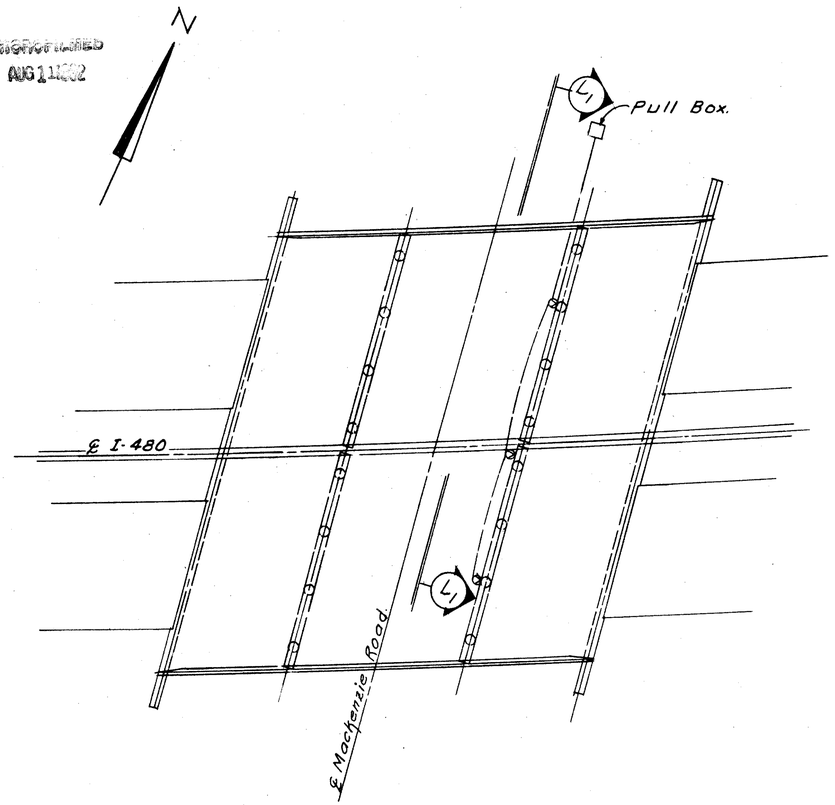
CUYAHOGA COUNTY
CUY-480-1.90



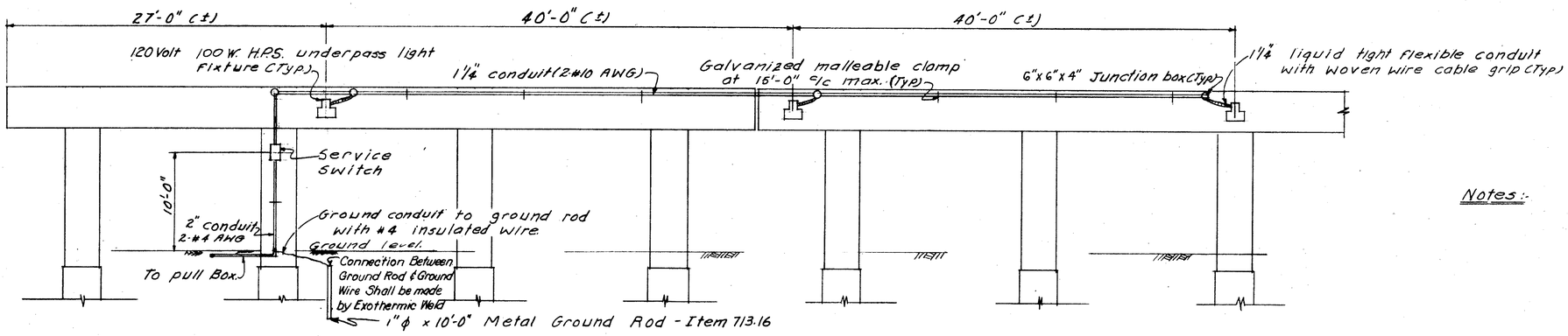
Note: Quantities for Combination Sign, Signal Carried on Traffic Control Sheet No. 265.

LIGHTING PLAN

RECEIVED
AUG 11 1972



SCHEMATIC PLAN
1"=20'



SECTION L1-L1

Notes:-

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

317
427

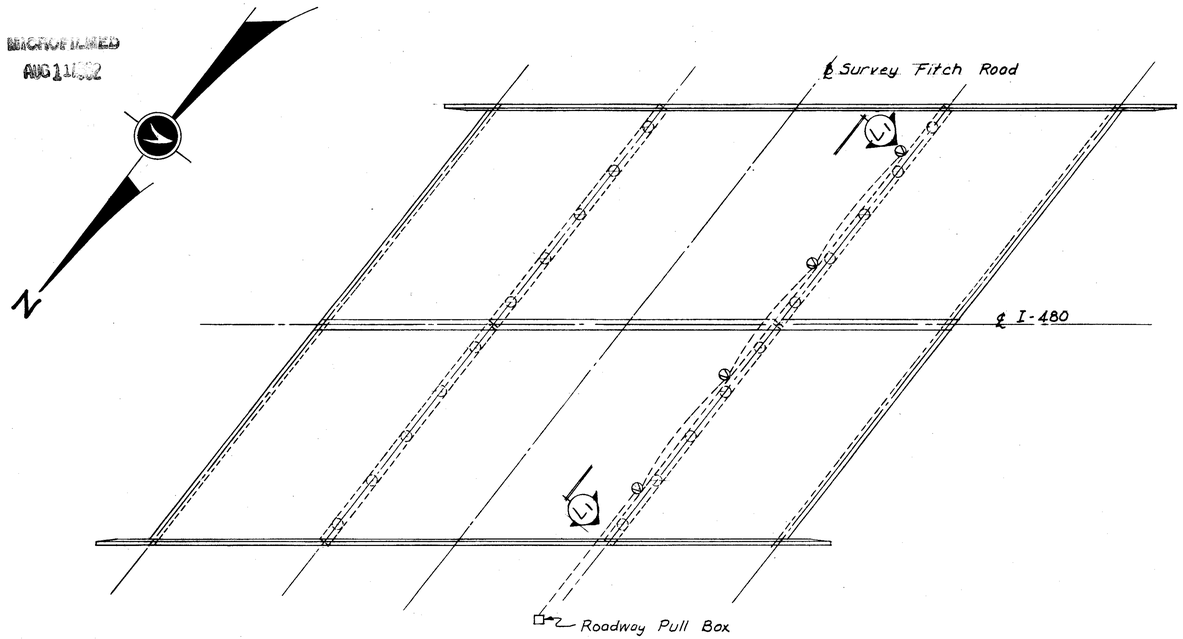
CUYAHOGA COUNTY
CUY.-80-1.90

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

UNDERPASS LIGHTING DETAILS
BRIDGE NO. CUY. 80-0203
I-80 OVER MACKENZIE ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S	R.S.S.		B.I.P.	G.W.M.	6/14/72	8-10-72

ARCHIVE FILMED
AUG 11 '82

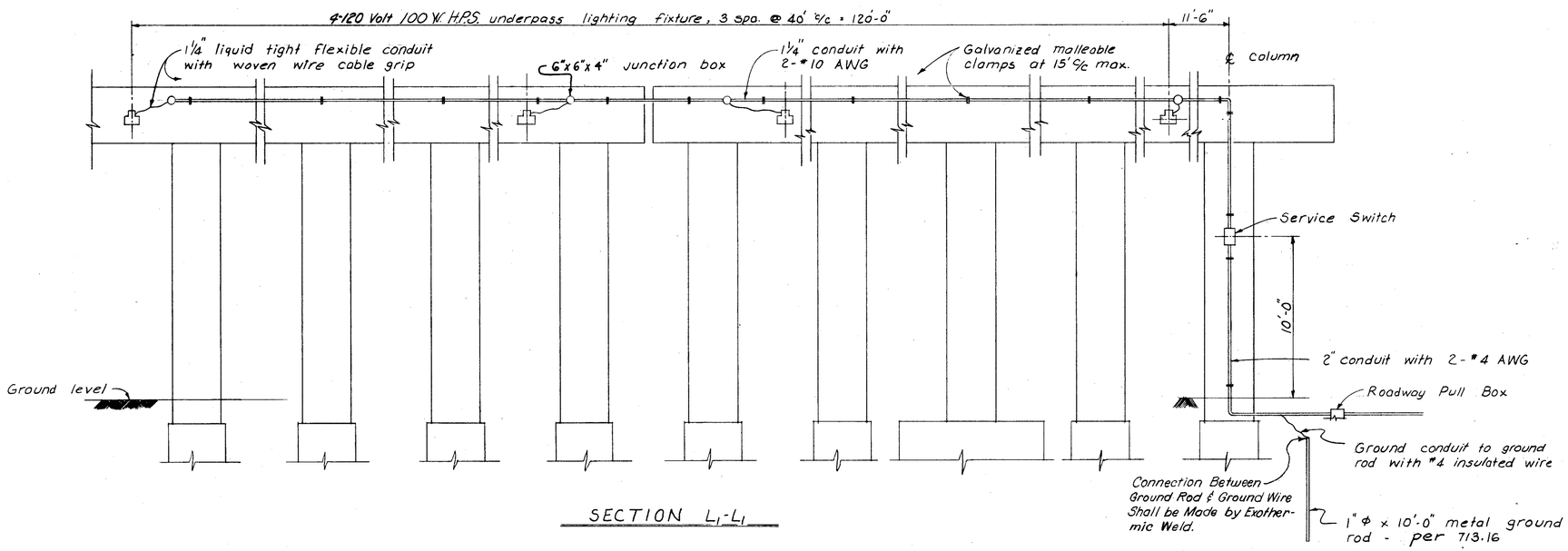


SCHEMATIC PLAN
1'=20'

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

318
427

CUYAHOGA COUNTY
CUY.-80-1.90



SECTION L1-L1

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

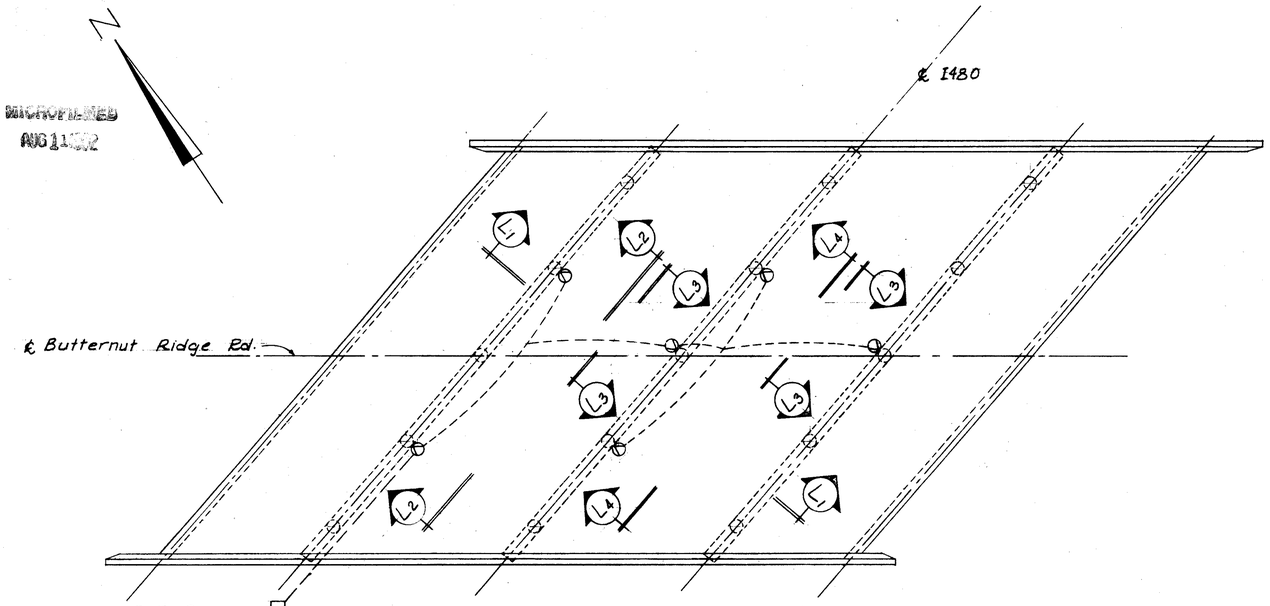
UNDERPASS LIGHTING DETAILS
BRIDGE NO. CUY. 80-0286
I-80 OVER FITCH RD.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P.		R.S.S.	G.W.M.	6/14/11	1991 B. 6-10-82

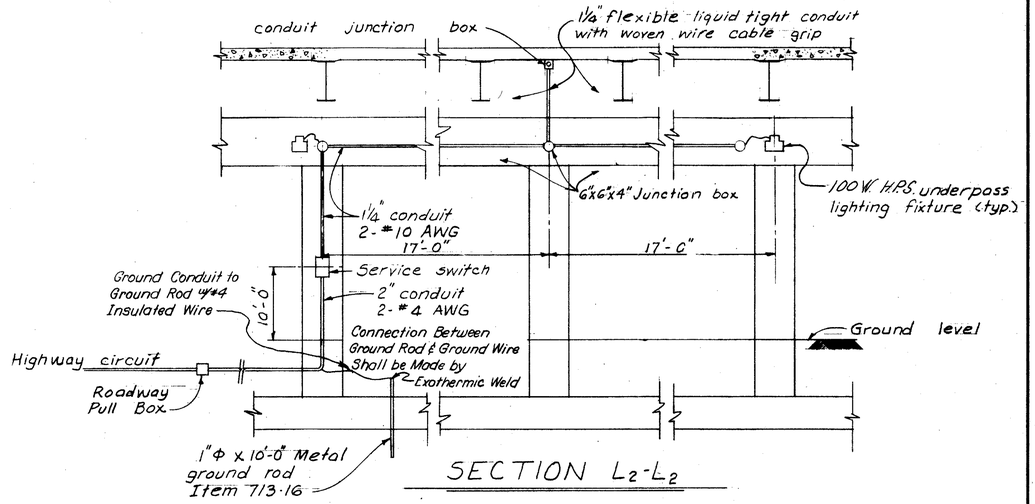
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

319
427

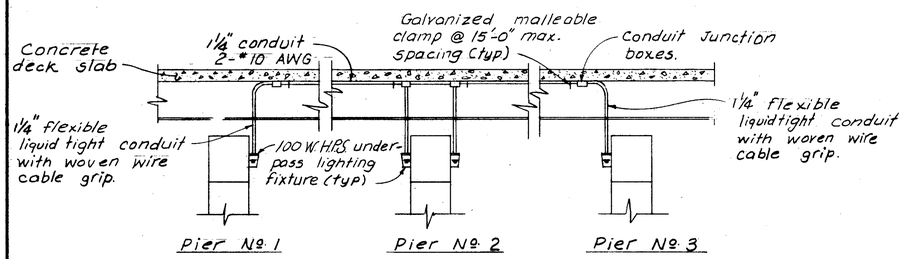
CUYAHOGA COUNTY
CUY.-80-1.90



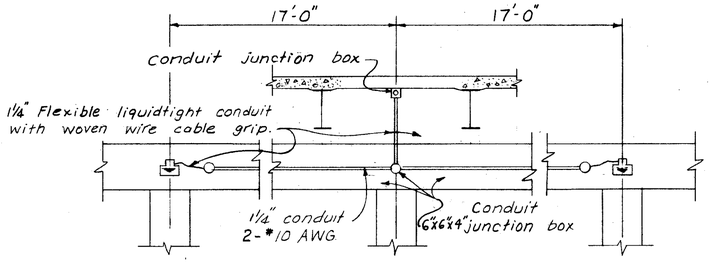
SCHEMATIC PLAN
No Scale



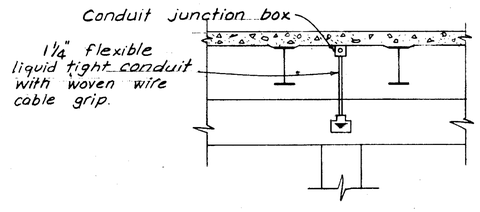
SECTION L_2-L_2



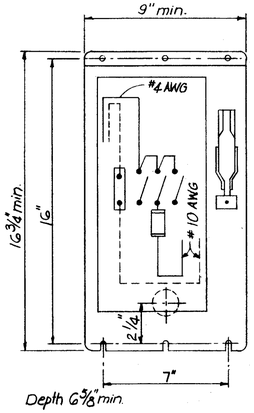
SECTION L_1-L_1



SECTION L_4-L_4



SECTION L_3-L_3



SERVICE SWITCH

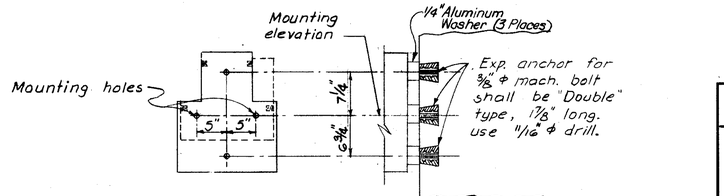
Space Provided For Knockout For Wiring Direct into Structure

Enclosure NEMA 4 watertight AISI 302 or 303 stainless steel with flange mounted switch handle.

120 Volt Circuits on Structure No's Cuy. 80-0286, Cuy. 80-0203

480 Volt
30 Amp Switch
20 Amp Fuse.

Switch shall be:
Square "D" H361NDS
Cutler Hammer 3589 x601-2F30
Westinghouse WHF-461-N
or approved equal.



Holes for expansion anchors shall be drilled at the time of installation of luminaire or cast in place initially.

UNDERPASS LUMINAIRE MOUNTINGS

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO · COLUMBUS, OHIO · WHEELING, W. VA.

UNDERPASS LIGHTING DETAILS
BRIDGE No. CUY. 80-0336
BUTTERNUT RIDGE RD. OVER I-80

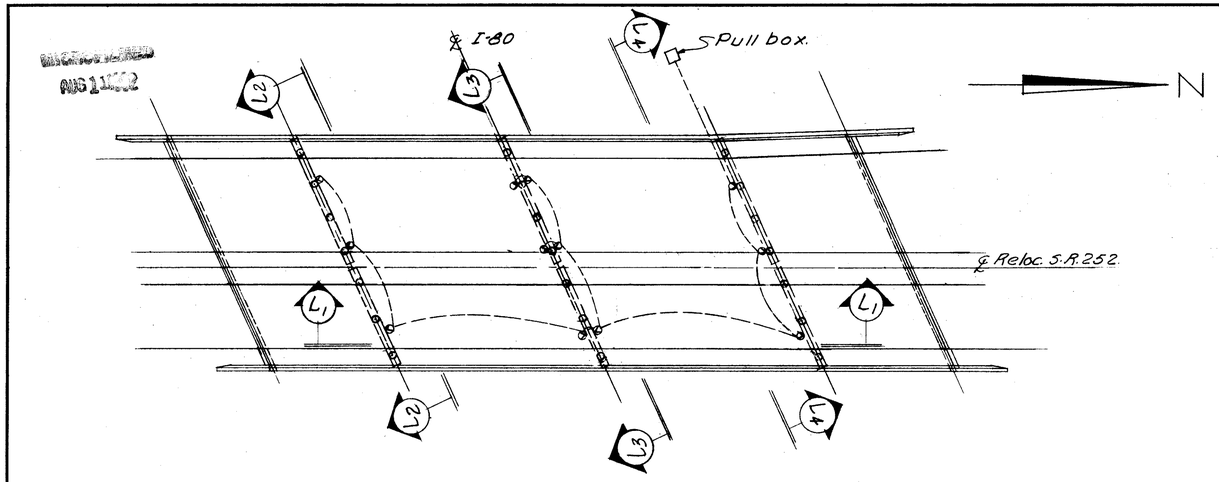
CUYAHOGA COUNTY
STA. 8+13.61
STA. 11+09.01

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P.		R.S.S.	G.W.M.	6/14/71	R.M.B. 6-10-77

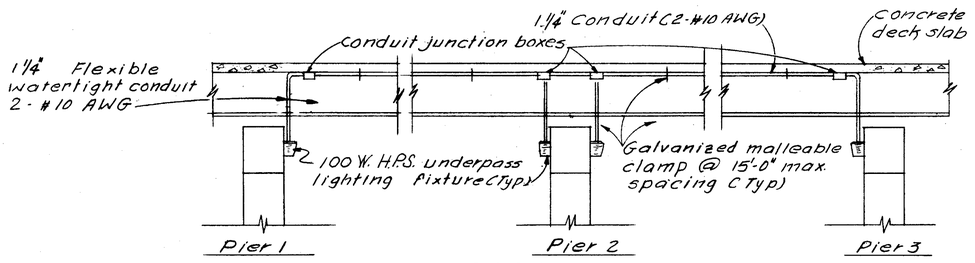
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

320
427

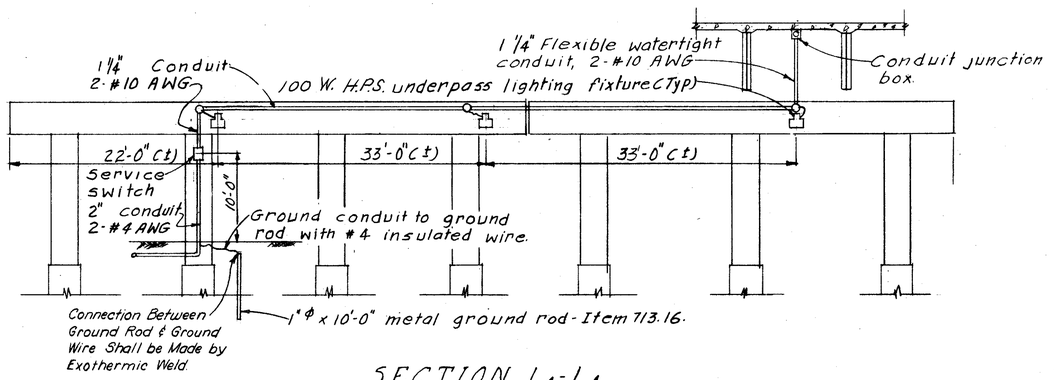
CUYAHOGA COUNTY
CUY.-80-1.90



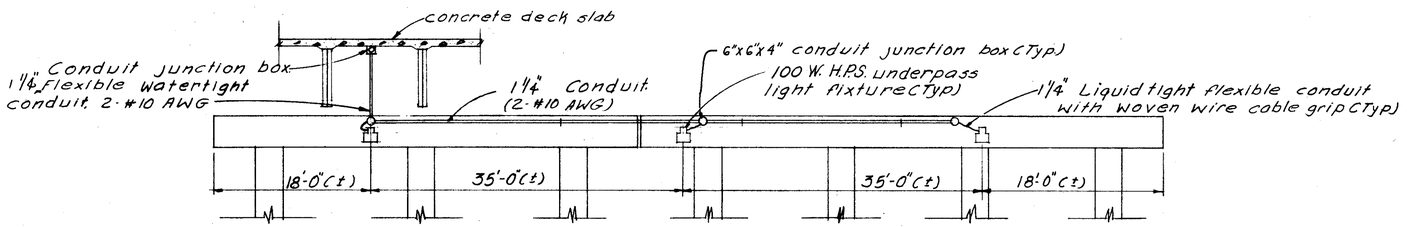
SCHEMATIC PLAN



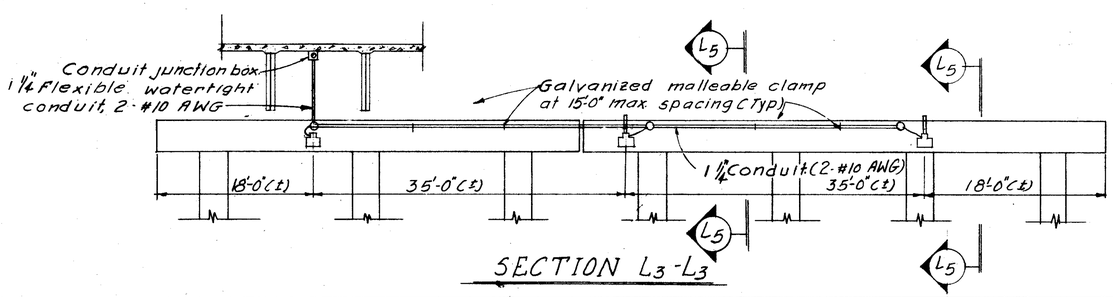
SECTION L_1-L_1



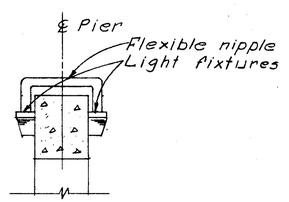
SECTION L_4-L_4



SECTION L_2-L_2



SECTION L_3-L_3



SECTION L_5-L_5

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

UNDERPASS LIGHTING DETAILS

BRIDGE No. CUY. 80—0398
RELOCATED S.R.252 OVER I-80
CUYAHOGA COUNTY STA. 68 +33.49
STA. 71 +25.43

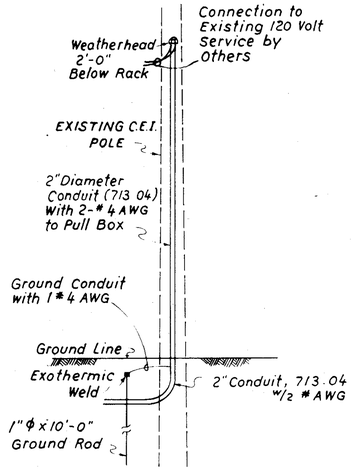
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	R.S.S.		B.I.P.	G.W.M.	6/14/71	R.M.B. 6-10-71

LIGHTING DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO		

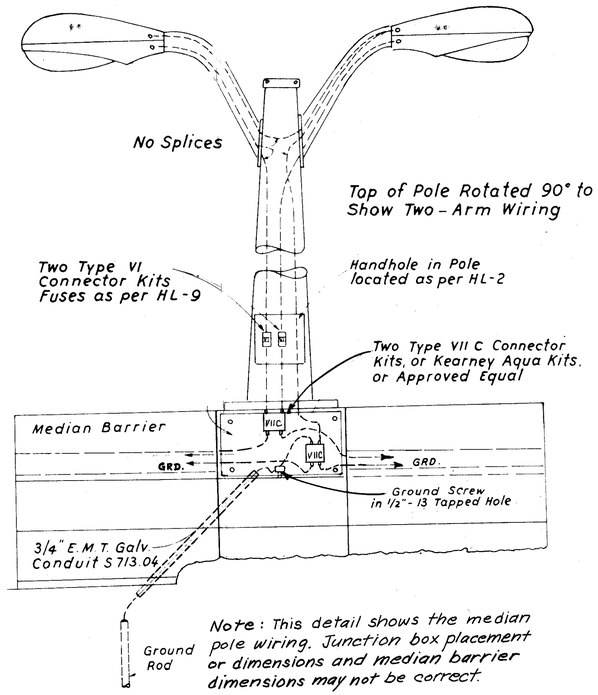
321
427

CUYAHOGA COUNTY
CUY-480-1.90

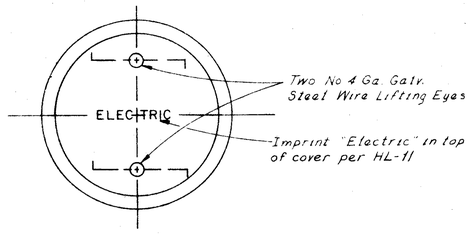


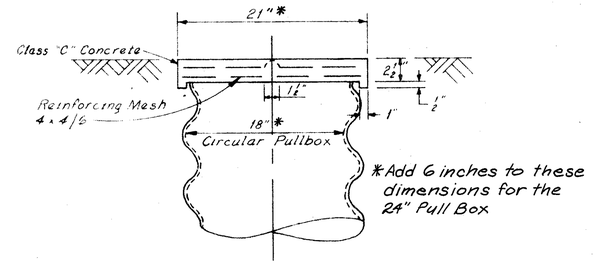
SERVICE POLE

#1 C.E.I. POLE #250426, STA. 7+90, BUTTERNUT RD.
#2 C.E.I. POLE #309472, STA. 20+90, COLUMBIA RD.
#3 C.E.I. POLE #255334, STA. 16+60, MACKENZIE RD.
#4 C.E.I. POLE #680906, STA. 15+45, FITCH RD.



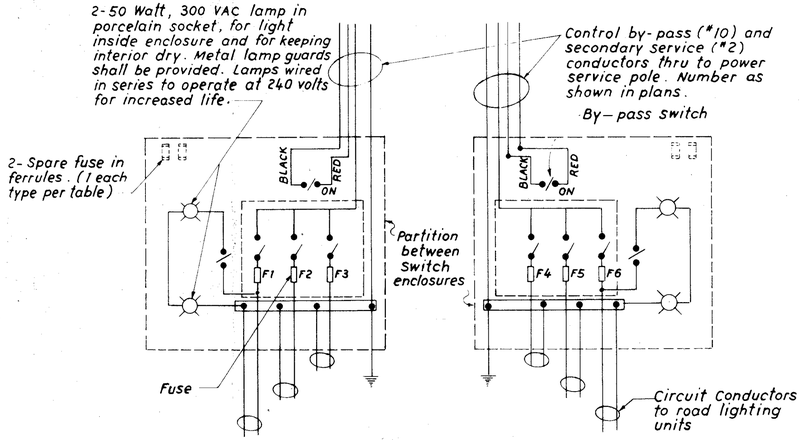
Note: This detail shows the median pole wiring. Junction box placement or dimensions and median barrier dimensions may not be correct.





*Add 6 inches to these dimensions for the 24" Pull Box

PULL BOX COVER DETAIL



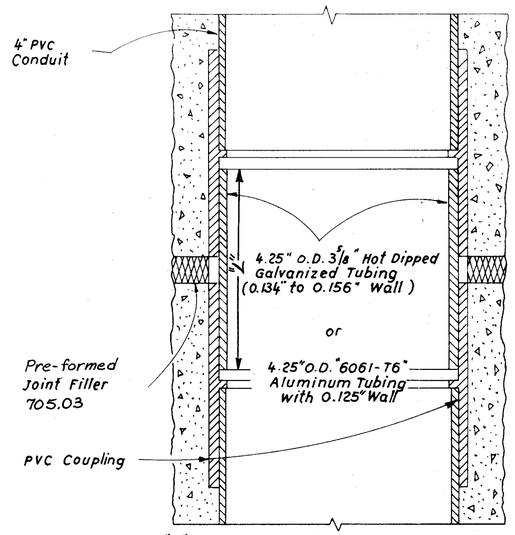
TYPICAL WIRING DIAGRAM
DOUBLE ENCLOSURE SHOWN

LIGHT POLE DATA

REFERENCE LETTER	DESIGN NUMBER	FOUNDATION ANCHOR BOLTS SIZE DIAM. x LENGTH	FOUNDATION ANCHOR BOLTS BOLT CIRCLE DIAMETER	TRANSFORMER BASE STYLE
A	A12BB37.5D #	1¼" x 70"	18"x 8"	NONE
B	AT15B41.7	1" x 40"	12½"	AT-X
C	AT12B34.2	1" x 40"	12½"	AT-X
D	A12B40	1¼" x 85"	12½"	NONE
E	A8B32.5	1¼" x 78"	12½"	NONE
F	A12B32.5	1¼" x 78"	12½"	NONE

The median pole base plate shall be steel 12" x 22", 1¼" thick, with 1½" diameter holes spaced to match the anchor bolts as shown in the detail on sheet 323A.

Note:
Conduit couplings as detailed herein shall be provided at all Median Barrier Joints where a joint filler is used, as required or permitted by item 622 or standard construction Drawing MC-9.



"L" is approx. 3¾" when Joint is ½"

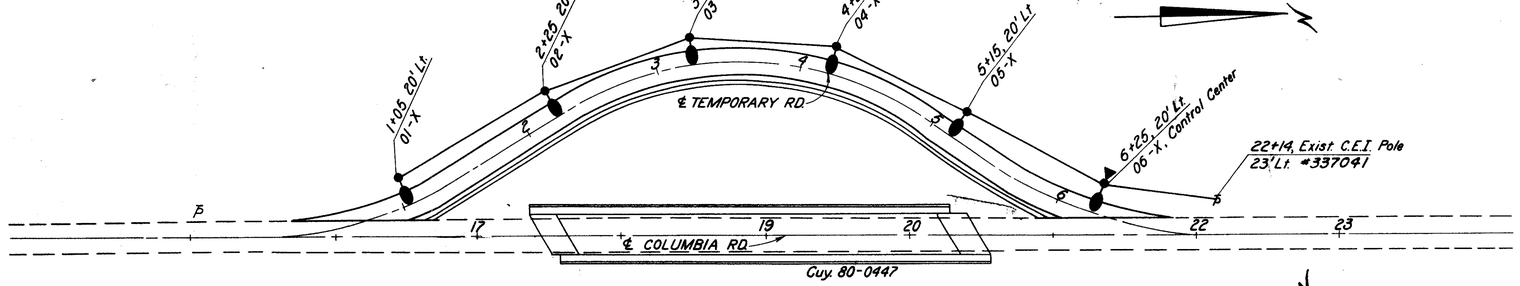
DETAILS OF CONSTRUCTION JOINT
4" PVC COUPLING IN MEDIAN CONCRETE BARRIER

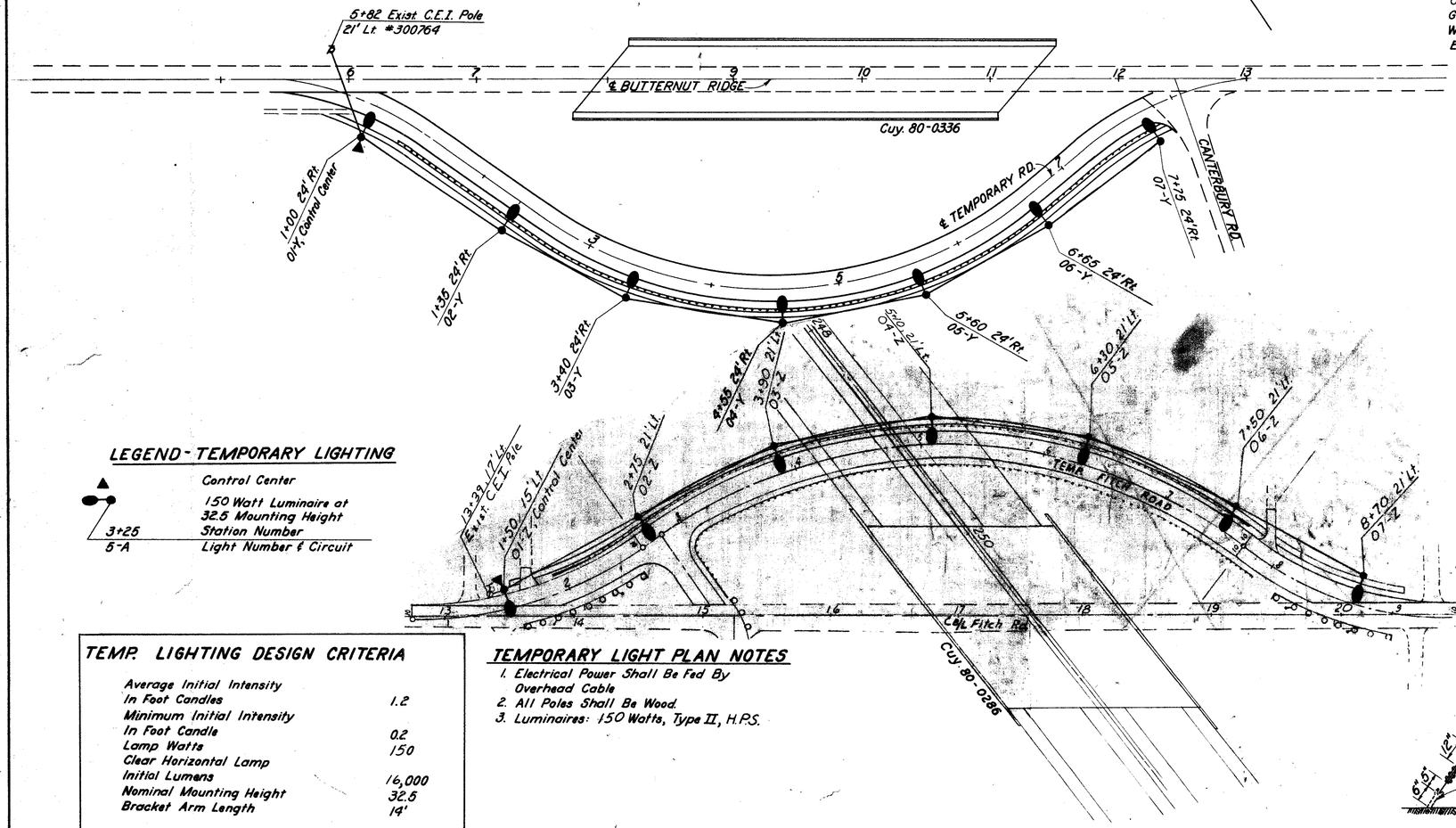
REV. 4-5-'78

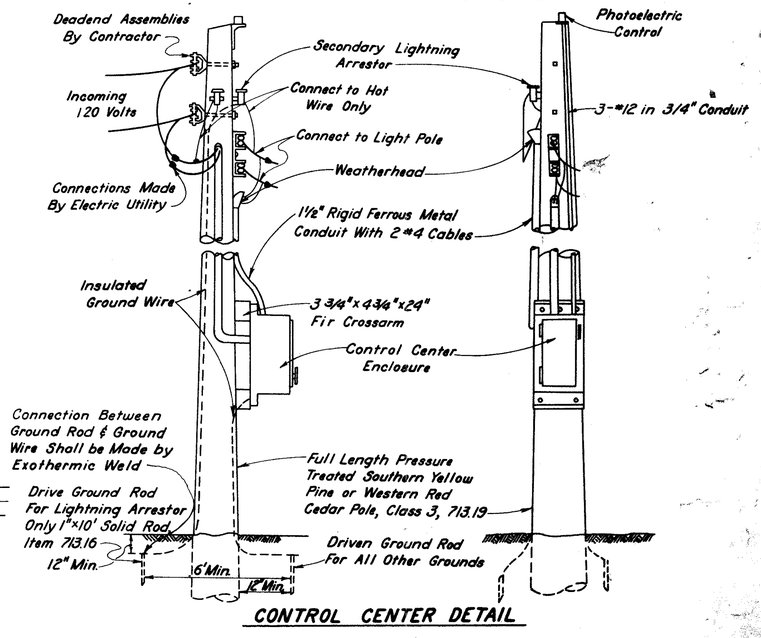
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

322
427

CUYAHOGA COUNTY
CUY-80-1.90







CONTROL CENTER DETAIL

LEGEND - TEMPORARY LIGHTING

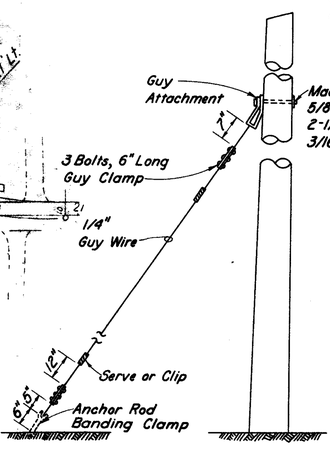
	Control Center
	150 Watt Luminaire at 32.5 Mounting Height
3+25	Station Number
5-A	Light Number & Circuit

TEMP. LIGHTING DESIGN CRITERIA

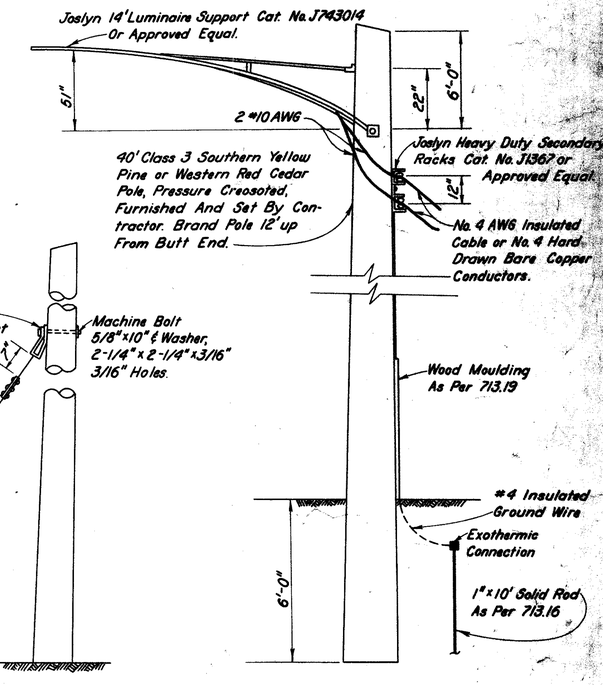
Average Initial Intensity In Foot Candles	1.2
Minimum Initial Intensity In Foot Candle	0.2
Lamp Watts	150
Clear Horizontal Lamp Initial Lumens	16,000
Nominal Mounting Height	32.5
Bracket Arm Length	14'

TEMPORARY LIGHT PLAN NOTES

1. Electrical Power Shall Be Fed By Overhead Cable
2. All Poles Shall Be Wood.
3. Luminaires: 150 Watts, Type II, H.P.S.



POLE GUY DETAIL



POLE AND BRACKET DETAIL

TEMPORARY LIGHTING PLAN & DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIC		

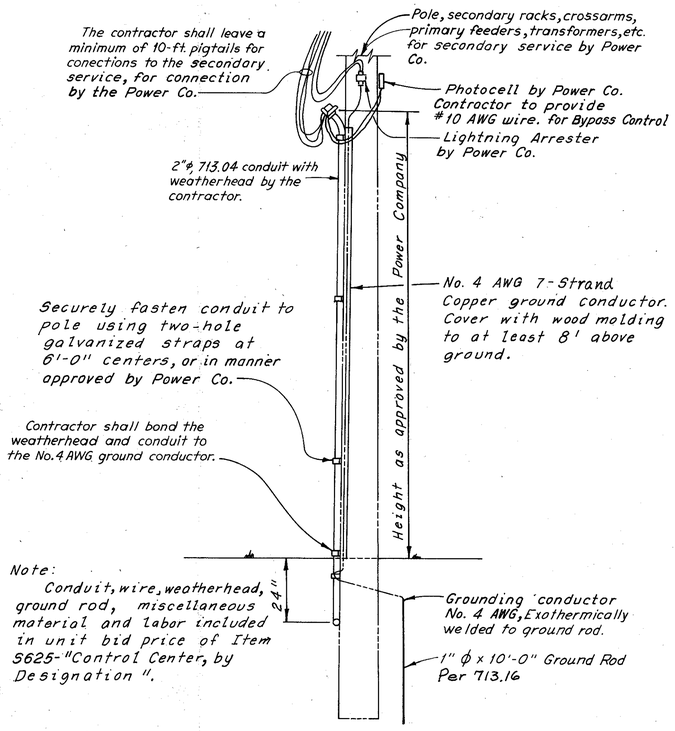
323
427

CUYAHOGA COUNTY
CUY-480-1.90

LIGHTING DETAILS

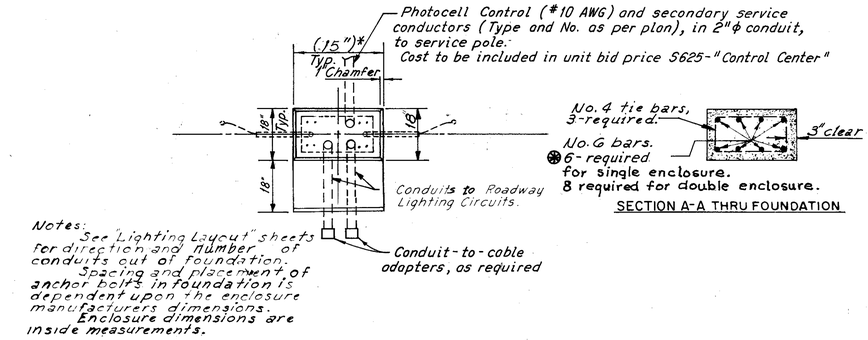
BYPASS SWITCH

A 20 Ampere by-poss switch rated at 240 volts, complete with #10 wire and conduit, shall be furnished and installed by the Contractor. The Cleveland Electric Illuminating Company will make final connection to the switch for manual bypass control of their lighting controller.

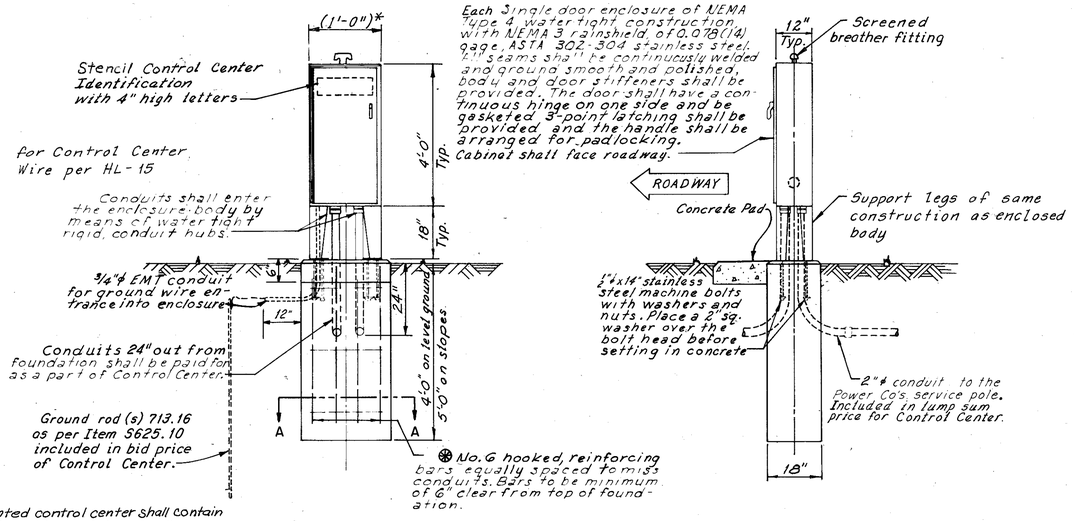


Note:
Conduit, wire, weatherhead, ground rod, miscellaneous material and labor included in unit bid price of Item 5625-"Control Center, by Designation".

POWER SERVICE
Scale 3/8" = 1'-0"



Notes:
"See Lighting Layout" sheets for direction and number of conduits out of foundation.
Spacing and placement of anchor bolts in foundation is dependent upon the enclosure manufacturers dimensions.
Enclosure dimensions are inside measurements.



CONTROL CENTER DETAILS
Scale: 1/2"=1'-0"

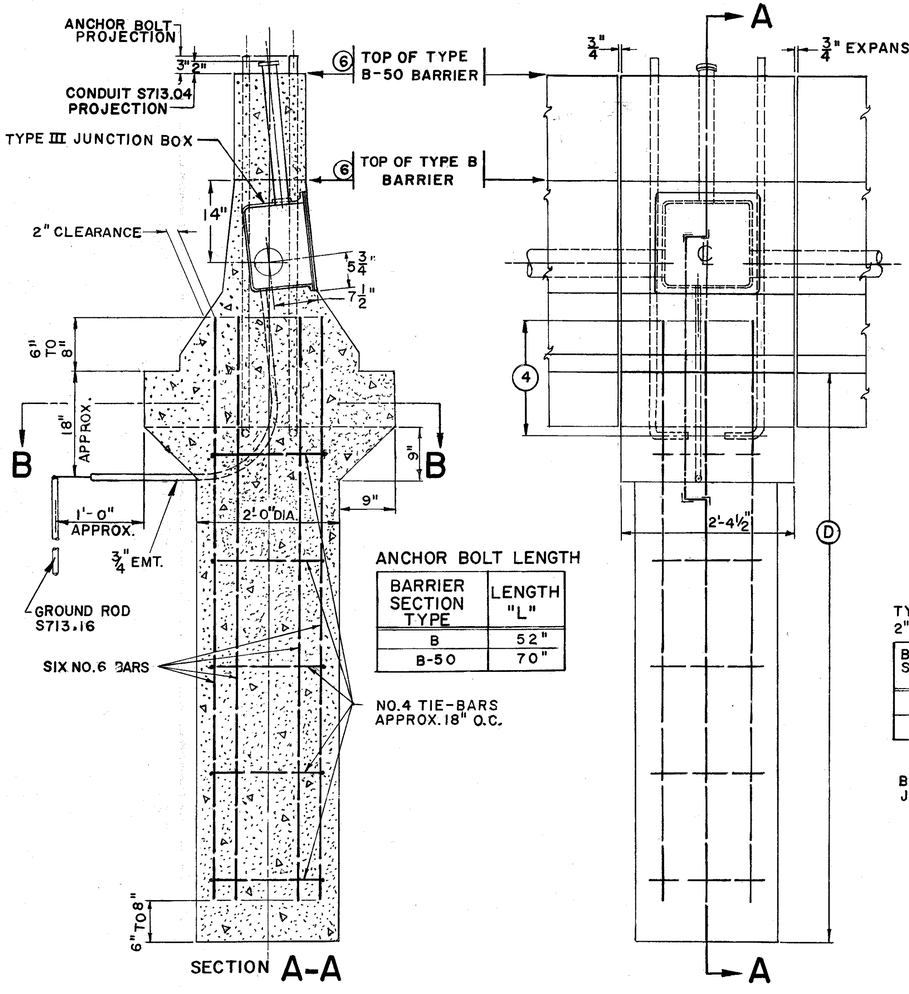
Note:
Each pad mounted control center shall contain two 50 watt, 300 VAC lamps in porcelain sockets with metal lamp guards. Install lamps in series to operate at 240 volts for increased lamp life.
For control centers with two enclosures, the contractor may install one lamp in each enclosure, with the two lamps operating in series. For control centers with single enclosures, both lamps shall be installed inside the enclosure.

Note:
Dimensions shown as ( )* are typical for single unit Control Center where a double Control Center is required (Control Center No 4), the dimension ( )* shall be doubled (2x).

MADE RMB DATE 7-18-77
TRACED ____ DATE ____
CHECKED ____ DATE ____
SCALE AS SHOWN

Rev 5-17-77

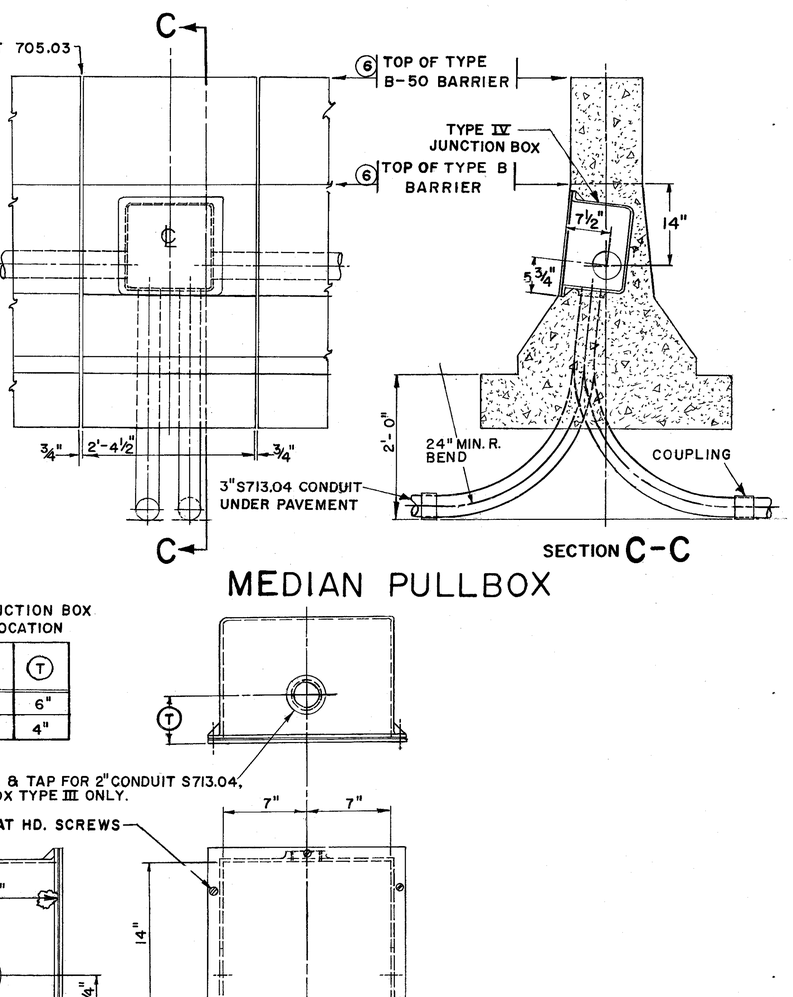
FOUNDATION AND PULL BOX DETAILS - MEDIAN MOUNTED LIGHT POLES - TYPE 3



SECTION **A-A**

MEDIAN LIGHT POLE FOUNDATION

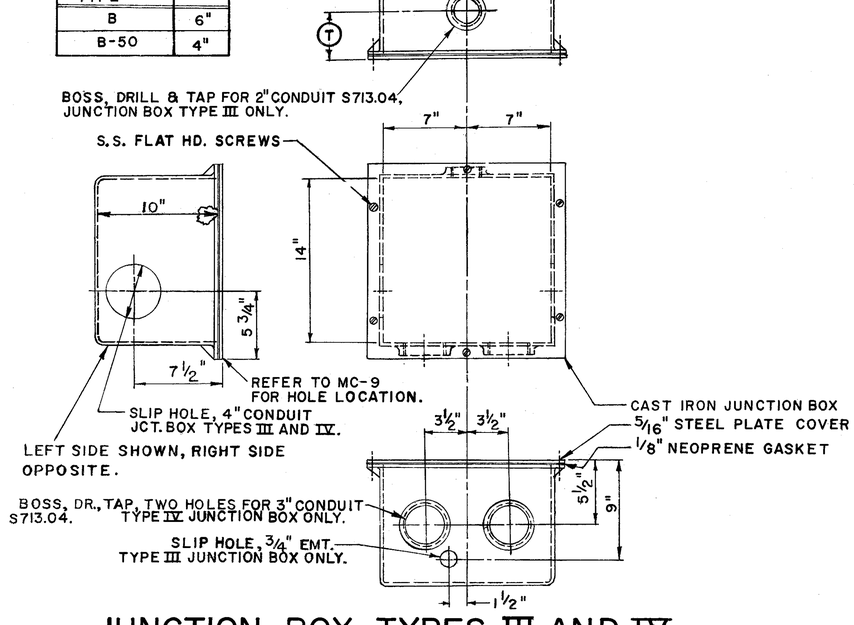
ANCHOR BOLT LENGTH	
BARRIER SECTION TYPE	LENGTH "L"
B	52"
B-50	70"



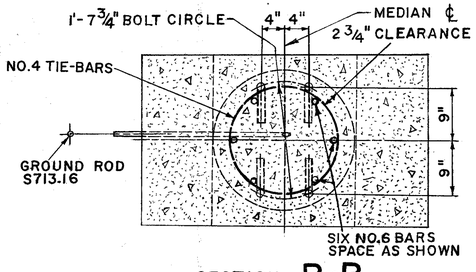
SECTION **C-C**

MEDIAN PULLBOX

TYPE III JUNCTION BOX 2" CONDUIT LOCATION	
BARRIER SECTION TYPE	(T)
B	6"
B-50	4"



JUNCTION BOX TYPES III AND IV



SECTION **B-B**

LIGHT POLE MOUNTING HEIGHT	(D) MINIMUM FOUNDATION DEPTH BELOW GRADE
40'	8'-0"
45'	9'-0"
50'	10'-0"

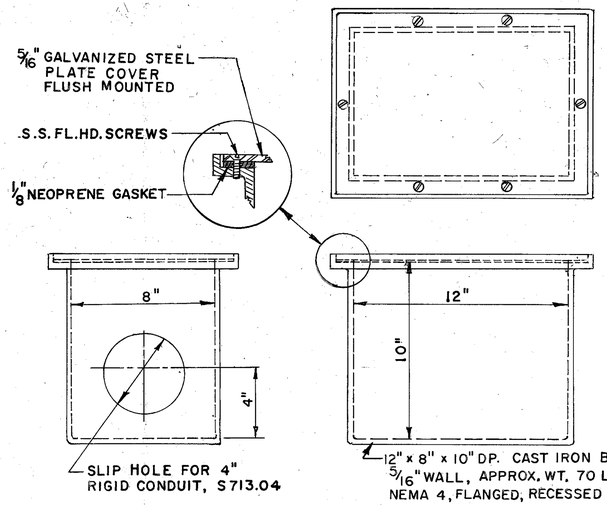
NOTES

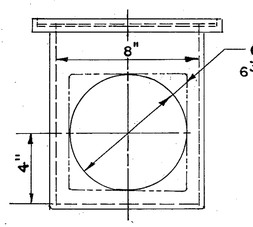
1. FOUNDATION TO BE CAST-IN-PLACE CLASS "C" CONCRETE.
2. REINFORCING TO COMPLY WITH AND BE PLACED IN ACCORDANCE WITH 509.
3. LIGHT POLE ANCHOR BOLTS TO BE 1¼" DIA. x LENGTH "L" INCLUDING 6" L-BEND, WITH ONE HEX NUT PER BOLT, PROJECTION ABOVE CONCRETE 3", THREAD LENGTH 3", GALVANIZED LENGTH 4".
4. MAINTAIN MINIMUM 17" OVERLAP OF ANCHOR BOLTS AND REINFORCEMENT BARS PER AASHTO.
5. THE TOP OF THE CONCRETE BARRIER SHALL BE FLAT, SMOOTH, AND LEVEL TO ELIMINATE NEED FOR LIGHT POLE SHIMS. GRIND SURFACE, IF REQUIRED, TO MAKE CONCRETE LEVEL.
6. REFER TO STANDARD CONSTRUCTION DRAWING MC-9 FOR BARRIER DIMENSIONS.
7. JUNCTION BOXES SHALL CONFORM TO S713.10, EXCEPT THAT GALVANIZED STEEL PLATE COVERS SHALL CONFORM TO ASTM A-242 OR A-36.
8. THE UNIT PRICE BID FOR EACH "ITEM S625, MEDIAN LIGHT POLE FOUNDATION," SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING ANCHOR BOLTS, REINFORCING, TYPE III JUNCTION BOX, EMT., AND ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.
9. THE UNIT PRICE BID FOR EACH "ITEM S625, MEDIAN PULL BOX," SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING TYPE IV JUNCTION BOX, CONDUIT ELLS, AND ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.
10. CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF 622 AND S625.

FHWA REGION	STATE	PROJECT	
5	OHIO		

323B
427

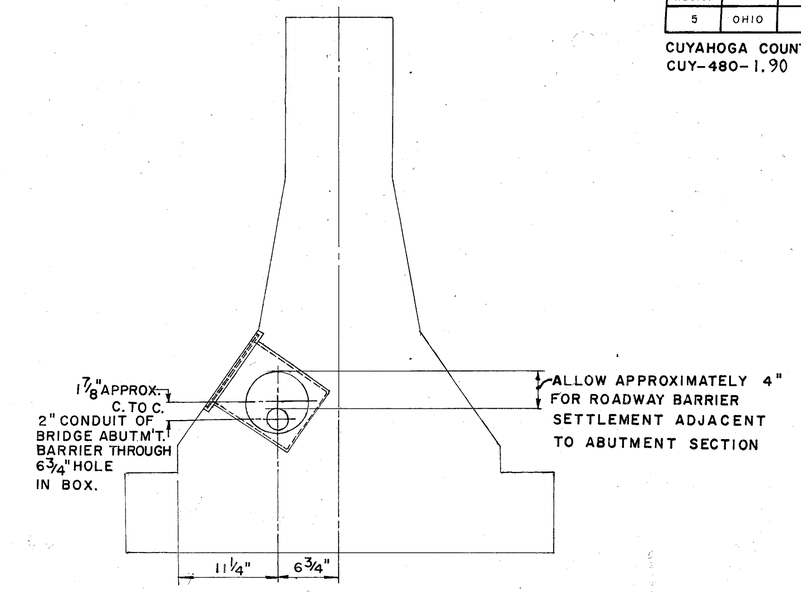
CUYAHOGA COUNTY
CUY-480-1.90



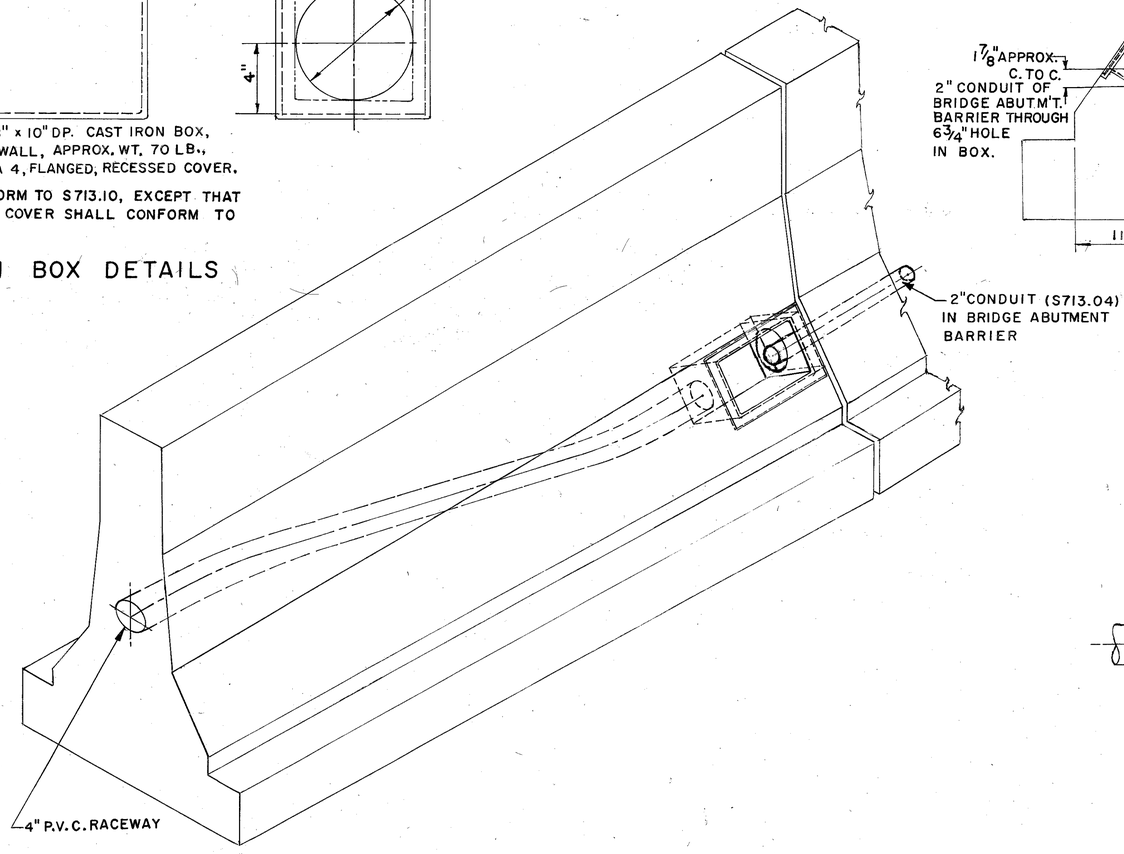


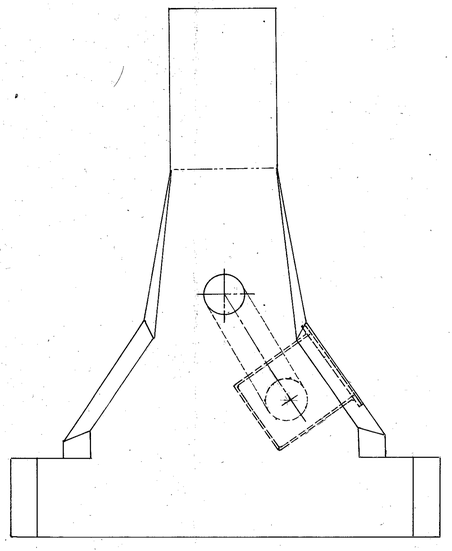
JUNCTION BOX SHALL CONFORM TO S713.10, EXCEPT THAT THE GALVANIZED STEEL PLATE COVER SHALL CONFORM TO ASTM A-242 OR A-36.

TRANSITION JUNCTION BOX DETAILS

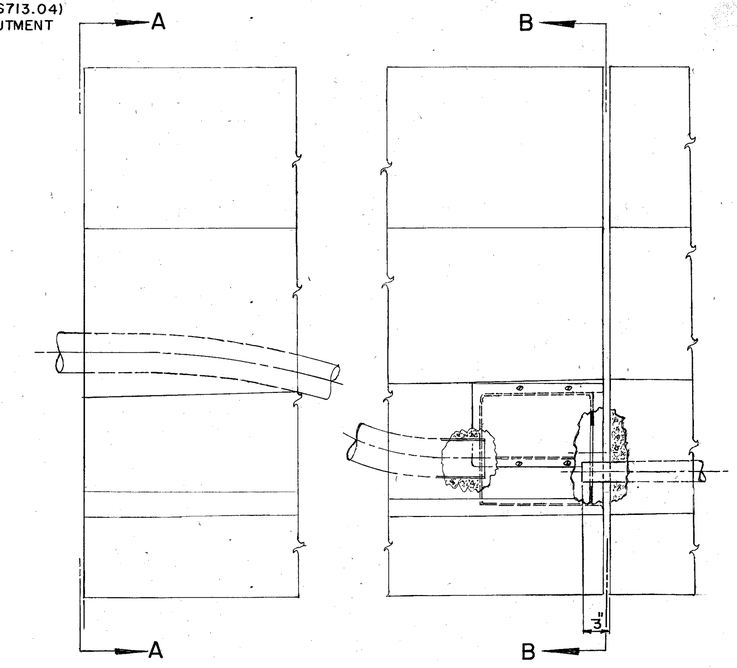


END ELEV. B-B





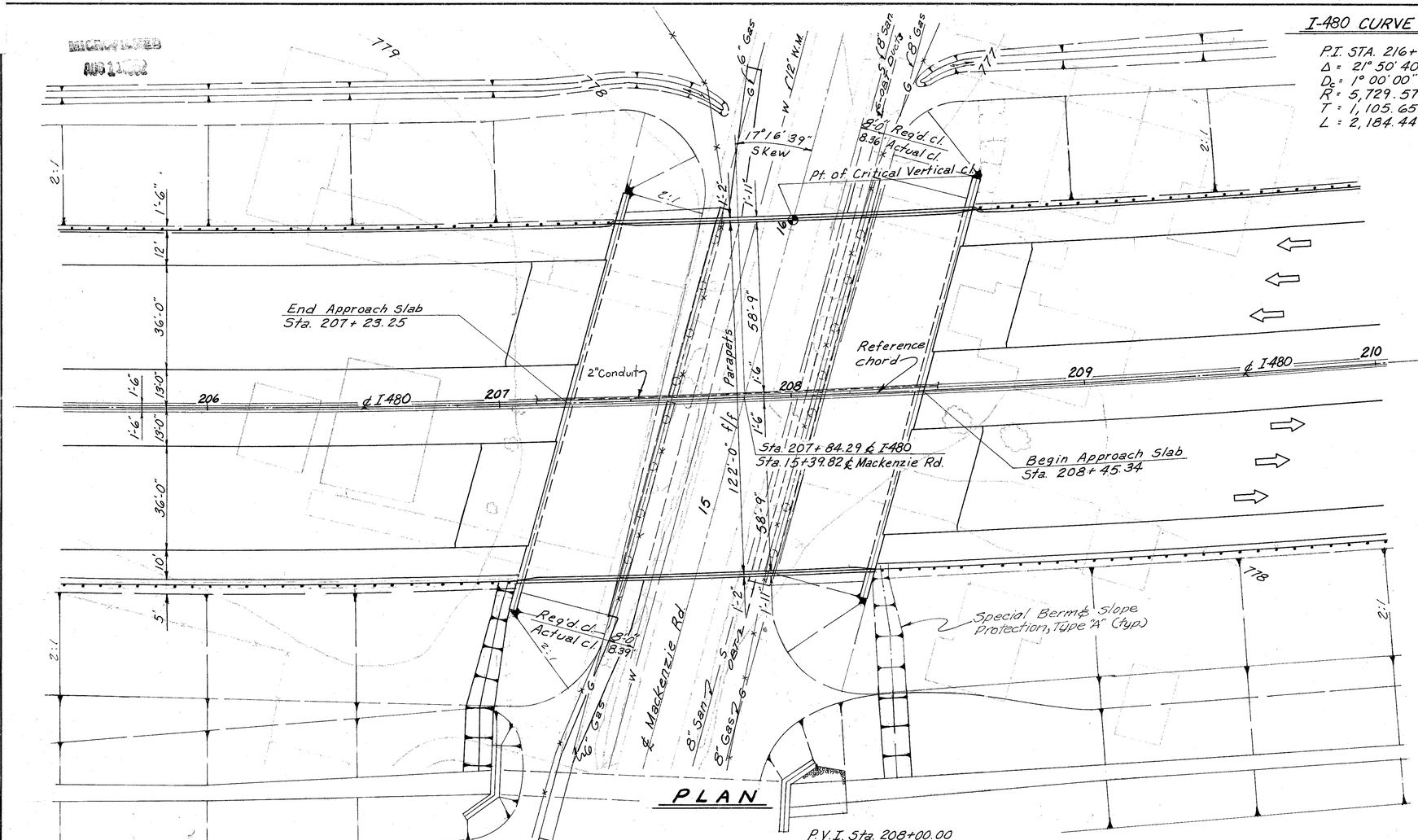
END ELEV. A-A



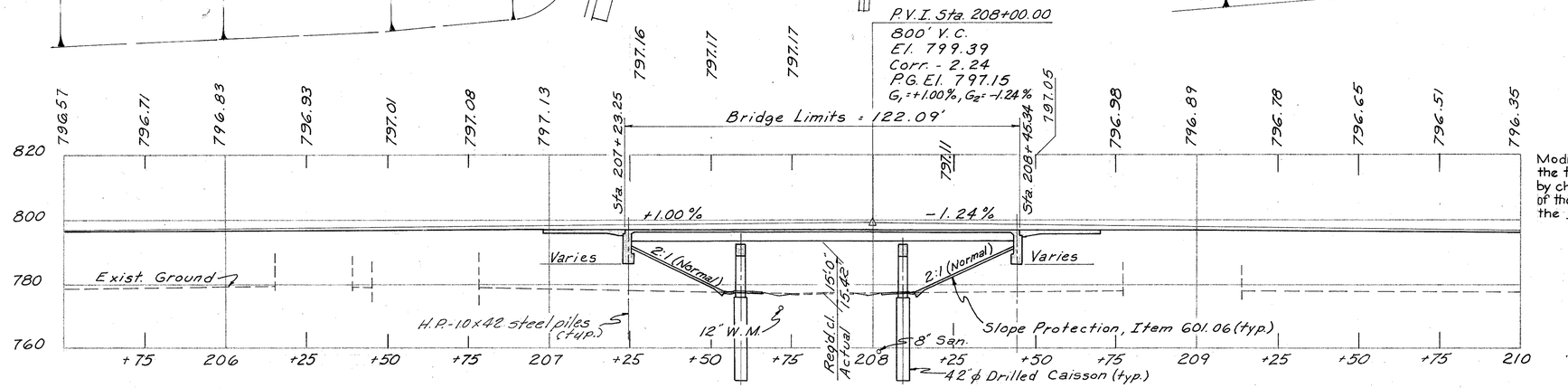
SIDE ELEVATION, TRANSITION BARRIER FROM ROADWAY TO BRIDGE CONFIGURATIONS

S-20

MICROFILMED
AUG 21 1972



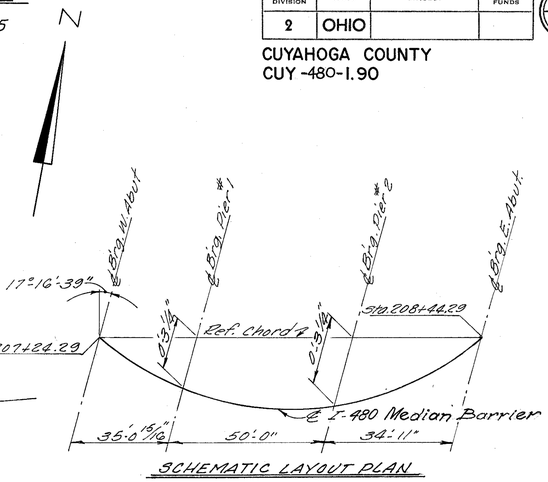
PLAN



PROFILE ALONG ℄ I-480

I-480 CURVE DATA

P.I. STA. 216+62.75
Δ = 21° 50' 40"
D_c = 1° 00' 00"
R = 5,729.578'
T = 1,105.65'
L = 2,184.44'



SCHEMATIC LAYOUT PLAN

NOTE:
Earthwork limits shown are schematic. Actual slopes shall conform to plan cross sections.

The Reference chord is a line between abutment bearing lines at Sta. 207+24.29 ℄ Sta. 208+44.29, ℄ I-480
Estimated Average Pay Length for Abutment piles is 25 Ft.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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427

CUYAHOGA COUNTY
CUY-480-1.90

PROPOSED STRUCTURE

TYPE: Continuous steel beam with reinforced concrete deck and substructure
SPANS: 35'-0", 50'-0", 35'-0" ℄ brgs. on ℄
ROADWAY: 122'-0" f/f parapets, BR-1-67 railing, concrete median barrier
LOADING: HS 20 - 44 plus Alternate Military Loading
WEARING SURFACE: monolithic concrete
SKEW: 17°-16'-39" Lt. forward with respect to reference chord.
ALIGNMENT: 1°-00'-00" Curve, left
SUPERELEVATION: 0.024 ft/ft.
APPROACH SLABS: AS-1-72, 25' long (Modified)

Modify AS-1-72 by providing 3" cover over the top rebars instead of the 2" shown, by changing from full width to the width of the approach pavement and by omitting the jacking holes.

TRAFFIC ESTIMATE

Design Year - 1987
Total A.D.T. - 4543

1/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SITE PLAN

BRIDGE № CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.W.M.	G.W.M.	M.B.		G.W.M.	7/2/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

329
427

CUYAHOGA COUNTY
CUY-480-1.90

SUPPLEMENTAL SPECIFICATION REFERENCES (CONT)

DESCRIPTION	NO.	DATE
PAINTING FOR NEW STRUCTURAL STEEL	846	4-25-77
INORGANIC ZINC SILICATE PAINT	950	4-25-77
BLUE-GREEN VINYL PAINT	951	4-25-77

DESIGN DATA (CONTINUED)

MONOLITHIC WEARING SURFACE THICKNESS IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1". DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, TOP MAT ONLY.

BRIDGE DECK FINISH

IN LIEU OF BEING FINISHED AS SPECIFIED IN 516.11 THE BRIDGE DECK SHALL BE TEXTURED TRANSVERSLY TO PROVIDED A RELATIVELY UNIFORM PATTERN OF GROOVES SPACED ON APPROXIMATELY 3/4 INCH CENTERS. GROOVES SHALL BE APPROXIMATELY 0.15 INCHES DEEP AND 0.10 INCHES WIDE. A STRIP OF SURFACE 9 TO 12 INCHES WIDE ADJACENT TO CURBS AND BARRIERS SHALL NOT BE TEXTURED.

STANDARD DRAWING REFERENCES

DESCRIPTION	DWG. NO.	SHT.	DATE
BOLTED SPLICES	SD-1-69	4	6-12-69
BRIDGE ROADWAY RAILING	BR-1-67	1	10-15-71 R
ROCKERS AND BOLSTERS	RB-1-55		2- 2-59 R
APPROACH SLABS	AS-1-72		6-30-72 R
STRUCTURE LIGHTING II	HL-5		9- 6-73 R
STRUCTURE GROUNDING	HL-7		1-21-76 R

(R INDICATES REVISED DATE)

SUPPLEMENTAL SPECIFICATION REFERENCES

DESCRIPTION	NO.	DATE
CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D	808	1-1-71
CONCRETE CURING AND PROTECTIVE MEMBRANE	836	3-12-75

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE '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 - HS20-44 AND THE ALTERNATE MILITARY LOADING

CONCRETE CLASS C - UNIT STRESS 1200 PSI FOR SUPERSTRUCTURE
UNIT STRESS 1333 PSI FOR SUBSTRUCTURE

STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20000 PSI

REINFORCING STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20000 PSI. SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82 OR A615.

EMBANKMENT CONSTRUCTION

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENTS.

PILES

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF-
35 TONS PER PILE FOR THE ABUTMENTS

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 WOULD BE HELD TO A MINIMUM.

ATTACHMENT OF GUARDRAIL TO CONCRETE PARAPETS

CONCRETE INSERT ANCHOR ASSEMBLIES PER STANDARD CONSTRUCTION DRAWINGS GR-3 AND GR-1 SHALL BE PLACED DURING PARAPET CONSTRUCTION.

PREFORMED BEARING PADS

IN LIEU OF THE HARDNESS REQUIREMENT OF 711.21, PREFORMED BEARING PADS SHALL HAVE A SHORE A DUROMETER OF 80± 10.

MINIMUM BAR LAP SHALL BE 30 DIAMETERS.

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GENERAL			
503	358	C.Y.	UNCLASSIFIED EXCAVATION	358						
505	LUMP	SUM	TEST PILE				LUMP			
507	1000	L.F.	STEEL PILES, HP10X42	1000						
509	144152	LB	REINFORCING STEEL	22645	51342	70165				
511	536	C.Y.	CLASS C CONCRETE, SUPERSTRUCTURE(SEE PROPOSAL NOTE)			536				
511	187	C.Y.	CLASS C CONCRETE, PIERS ABOVE CAISSONS		187					
511	120	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	120						
511	101	C.Y.	CLASS C CONCRETE, FOOTINGS	101						
512	318	L.F.	PREMOLDED SEALING STRIP	318						
513	241 600	LB	STRUCTURAL STEEL, PRIMER PER 846 (SEE PROPOSAL NOTE)			241 600				
846	241 600	LB	FIELD PAINTING OF STRUCTURAL STEEL			241 600				
516	251	S.F.	1 INCH PREFORMED EXPANSION JOINT FILLER	251						
516	151	S.F.	1/2 INCH PREFORMED EXPANSION JOINT FILLER	151						
516	231	S.F.	1/4 INCH PREFORMED EXPANSION JOINT FILLER	231						
516	32	EA.	1"X 10"X 16" LAMINATED ELASTOMERIC BEARINGS			32				
518	111	C.Y.	POROUS BACKFILL	111						
518	288	L.F.	6 INCH PERFORATED, HELICAL CSP, 707.01	288						
518	222	L.F.	6 INCH NON-PERFORATED, HELICAL CSP, INCLUDING SPECIALS, 707.01	222						
601	1052	S.Y.	CONCRETE SLOPE PROTECTION				1052			
S625			SEE SHEET 291 FOR LIGHTING SUMMARY							
808	536	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D			536				
SPEC	416	L.F.	42 INCH DIA. DRILLED CAISSONS		416					
SPEC	62,501	LB	EPOXY COATED REINFORCING STEEL(SEE PROPOSAL NOTE)			62,501				

2 116

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL NOTES AND ESTIMATED QUANTITIES

BRIDGE NO. CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.S.D.			B.I.P.	G.W.M.	7/8/69	4/3/78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

330
427

CUYAHOGA COUNTY
CUY-480-1.90

Caissons. This item shall consist of furnishing and installing caissons of the kind and size called for on the Plans and in the following Specifications. It shall be the Contractor's responsibility to furnish all labor, materials, tests and appurtenances required to complete the work as specified. In no way will the Contractor's responsibility be affected if the estimated pay length of the caissons shown on the Plans is different from that found at the site.

The Contractor shall locate the center of each caisson within a one-inch radius of the position shown on the plan. Caissons not located properly shall be re-installed at the contractor's expense.

The top elevation of each caisson shall be as established by the contract drawings. Upon the completion of a caisson, the Engineer shall record its location, size, depth of penetration, method of installation, and behavior during installation. For each caisson, a record of the location, size, depth of penetration, method of installation and behavior of each caisson during installation shall be kept. This data shall be recorded by the Engineer upon completion of the installation of a caisson. During the installation of a caisson, no jetting to aid in the penetration of the caisson shall be permitted without the approval of the Director.

The caissons shall be installed plumb or at the specified batter and shall not deviate more than one-sixteenth of an inch per foot from the specified axis. If the caisson axis varies more than this, the alignment of the caisson shall be corrected or if necessary, additional caissons shall be installed at no additional cost to the State. Where obstacles such as large boulders are encountered, they shall be removed. If water is encountered during the installation of any caisson, or if the nature of the excavation is such that there is danger of foreign substances, earth, or other debris contaminating or falling into the concrete mix during the placing operations, then the Contractor shall use steel shells for the placing of the caisson concrete. These steel shells may be left in place, or withdrawn, as the concrete is placed provided the concrete completely fills the excavated space to the top of the caissons. The concrete for the caissons is intended to be placed against the existing subsoils without the use of permanent forms, provided the following conditions are met: The earth excavation is clean, there is no excessive loss of concrete, and the diameter of the excavation is maintained at all times. If an artesian water condition is encountered during the installation of any caisson, the Contractor shall be responsible for any special procedures necessary to accomplish the installation, to the satisfaction of the Director.

If two caissons are spaced relatively close together, one of the holes shall be drilled, poured, and the concrete permitted to set, prior to drilling the other hole.

Depth of Caissons. The bottom of caisson elevation shown on the plans is approximate. The actual bottom of caisson elevation shall be determined by a minimum penetration of 18 inches into sound sandstone. This depth shall be confirmed by the Engineer after inspection of each hole.

Examination of Caissons. Before the placing of the ciasson concrete, the caisson excavation shall be clean and free from all foreign matter. In all cases, the excavation shall be inspected and approved by the Engineer. Upon his approval, the reinforcement may then be installed and the concrete placed. There shall be no water in the hole when the concrete is placed, except under certain conditions when artesian water is encountered.

Materials. Concrete for all caissons shall be Class "C" concrete and shall be controlled and placed according to the requirements of Item 511 for structures over 20 feet. Reinforcing steel shall meet the requirements of Item 509 and the vertical bars shall be deformed. Metal shells shall be water-tight and shall be of sufficient strength to withstand the earth pressures during the installation procedures.

Method of Measurement. The length of each caisson to be paid for shall be the completed and accepted length, measured along the axis of the caisson from the bottom of the drilled hole to the elevation of the top of the caisson.

Basis of Payment. The quantity of drilled caissons, measured as described above, shall be paid for at the contract unit price per liniar foot bid under "Special Items - Drilled Caissons," complete in place. This unit price and payment thereof shall constitute full compensation for furnishing all materials, except reinforcing steel, for all labor, the use of tools and equipment, and all incidentals necessary to complete this item.

Reinforcing Steel. The reinforcing steel shall not be included in the unit price bid per linear foot of caissons, but shall be paid for under Item 509.

3/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

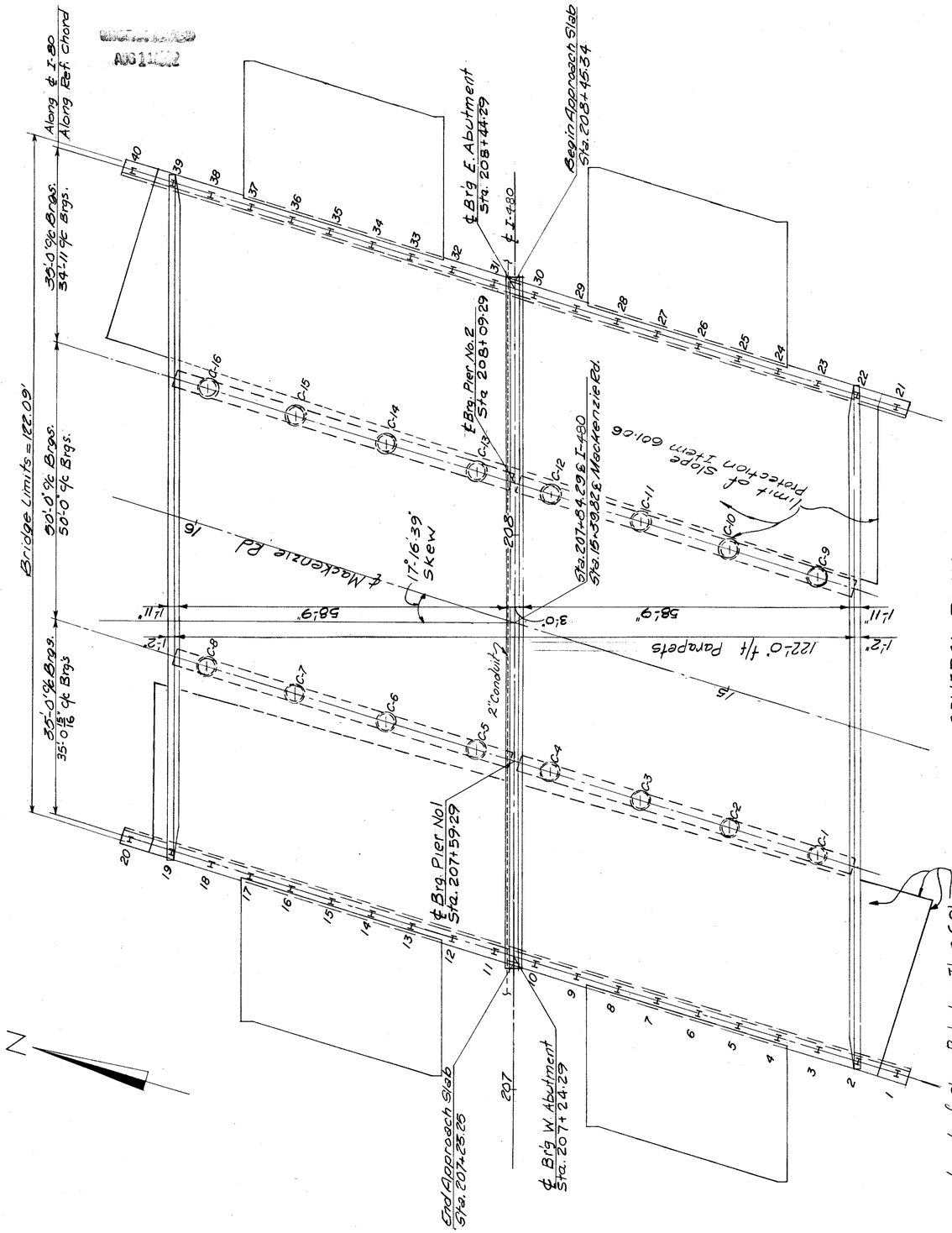
CAISSON NOTES
BRIDGE NO CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207+23.25
STA. 208+45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
				G.W.M.	9/8/69	

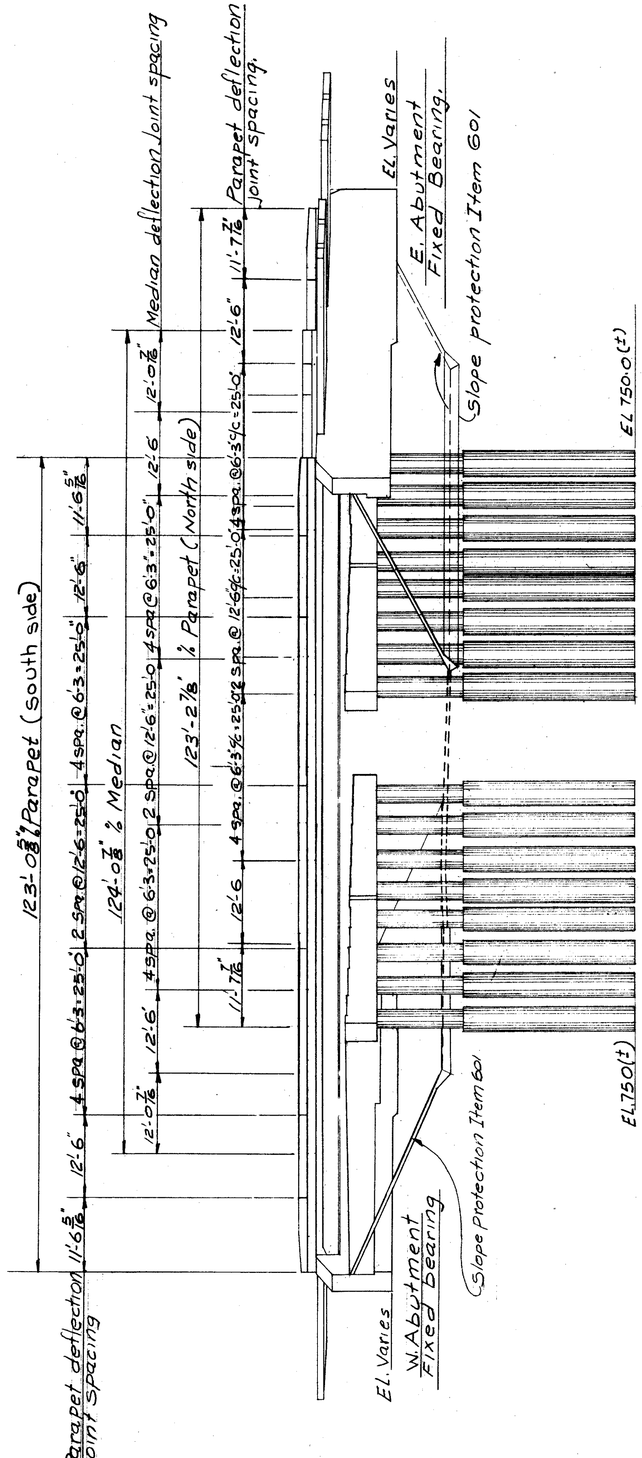
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

331
427

CUYAHOGA COUNTY
CUY.-480-1.90



GENERAL PLAN



ELEVATION

For detail of couplings for lighting conduit in median, see Standard Drawing HL-5.

PARAPET TRANSITIONS shall be as shown on Std. Drwg. BR-1-67 revised 10-15-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

4/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL PLAN

BRIDGE № CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

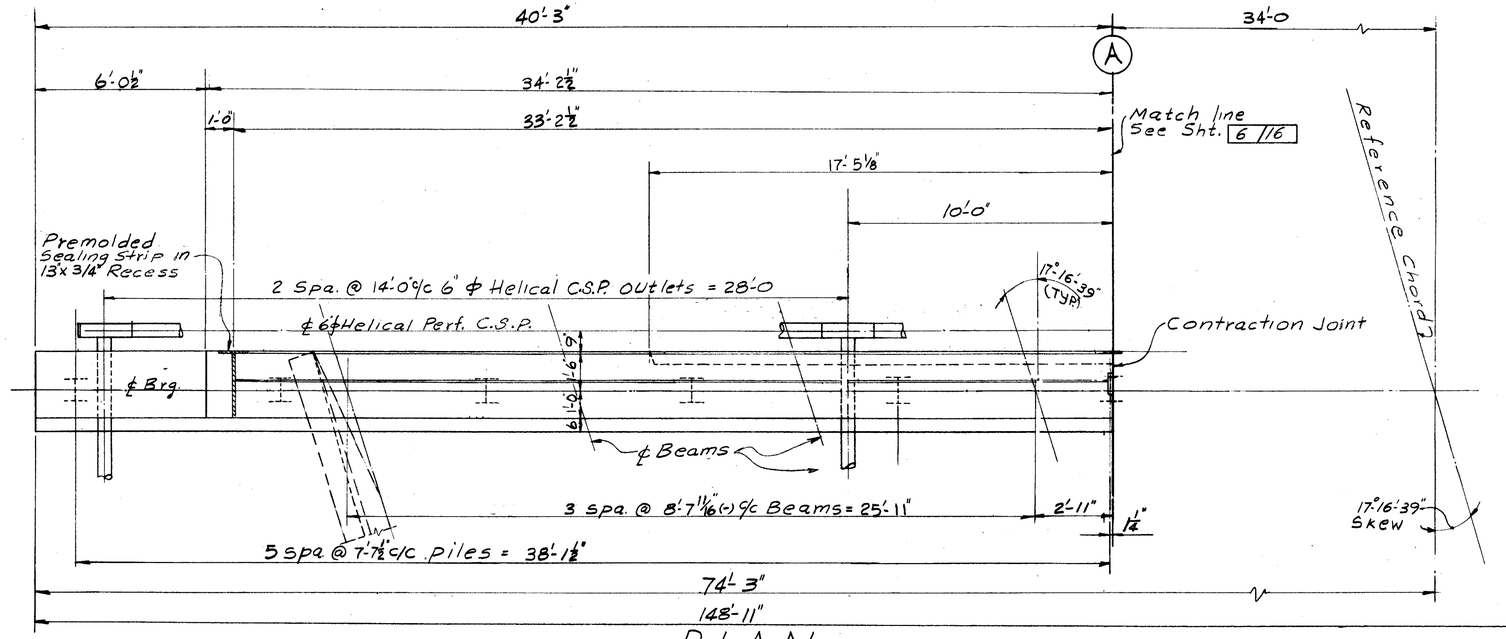
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			B.I.P.	G.W.M.	7/6/69	

K. & E., Cleveland 107155

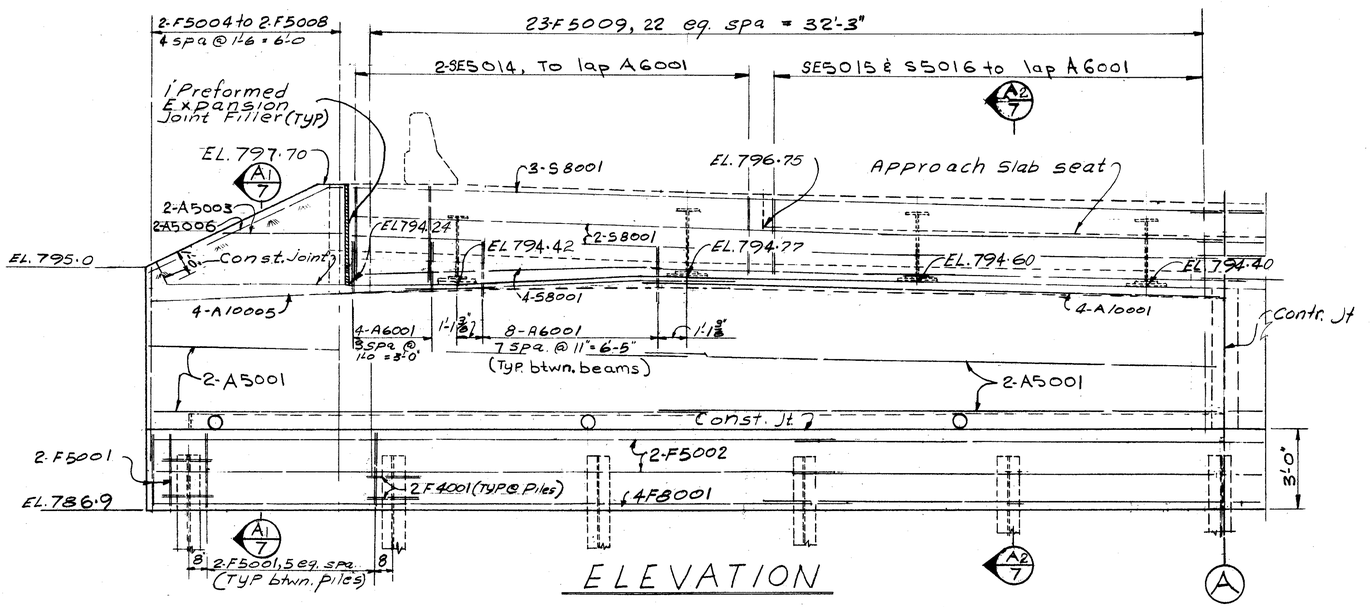
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

332
427

CUYAHOGA COUNTY
CUY-480- 1.90



PLAN



ELEVATION

N

NOTES

Porous Backfill 1'-6" thick, full length of abutment and wings, shall extend up to the plane of the subgrade & laterally to the surface of the embankment slopes as shown.

Outside ends of 6" Helical Perf. C.S.P shall be capped.

Reinforcing Bars Shown on this Sheet Which are Prefixed by 'S' are Superstructure bars and are Shown here for Placement Only.

Field bending of transverse bars Shall be Included with Item 509 for Payment.

Concrete Wingwalls above seats shall not be placed until the Structural Steel has been erected and bars which are to be threaded through the beam web have been placed.

Preformed Expansion Joint Filler Shall extend full length of Beam Seat.

Premolded Sealing Strip Shall extend full length of beam Seat and from beam seat to top of slab.

All piles are HP, 10 x 42 piles and are vertical.

For expansion joint details see common details Sheet 401.

For contraction joint details see detail Sheet 8/16

5/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

WEST ABUTMENT DETAILS

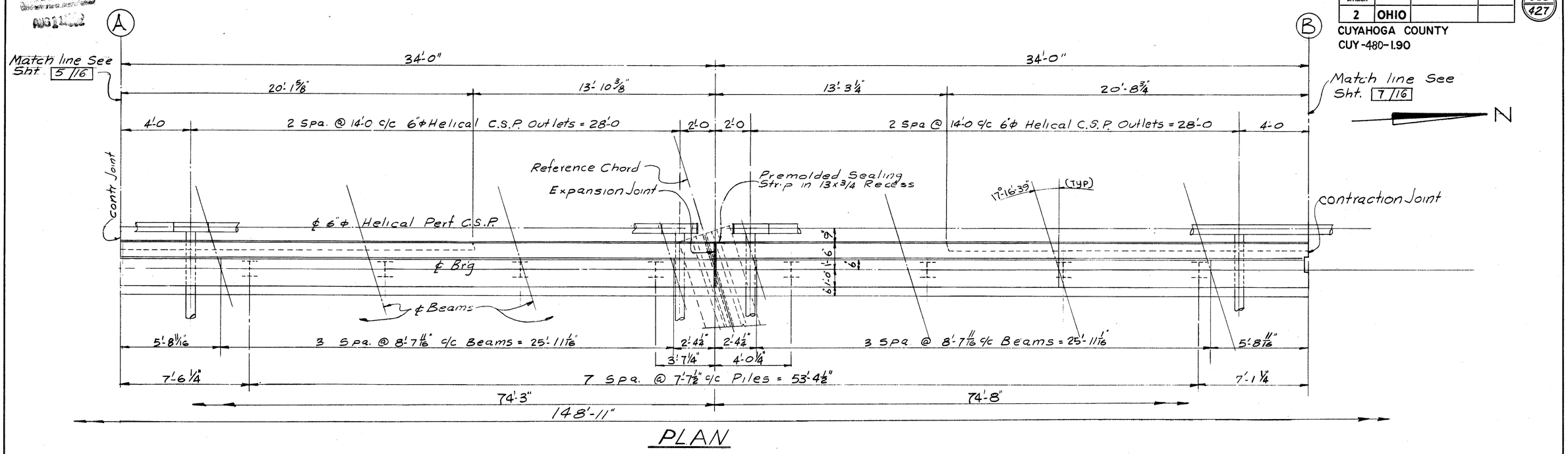
BRIDGE Nº CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	BA		B.I.P.	G.W.M.	7/1/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

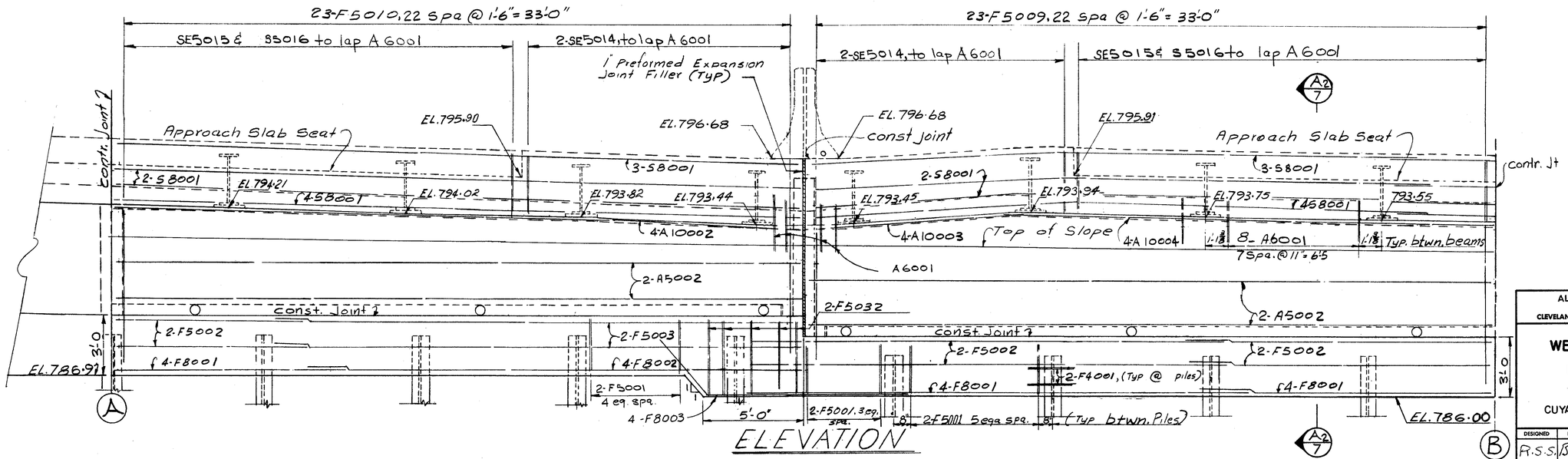
333
427

CUYAHOGA COUNTY
CUY-480-1.90



PLAN

For notes see sht 5/16



ELEVATION

6/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

WEST ABUTMENT DETAILS

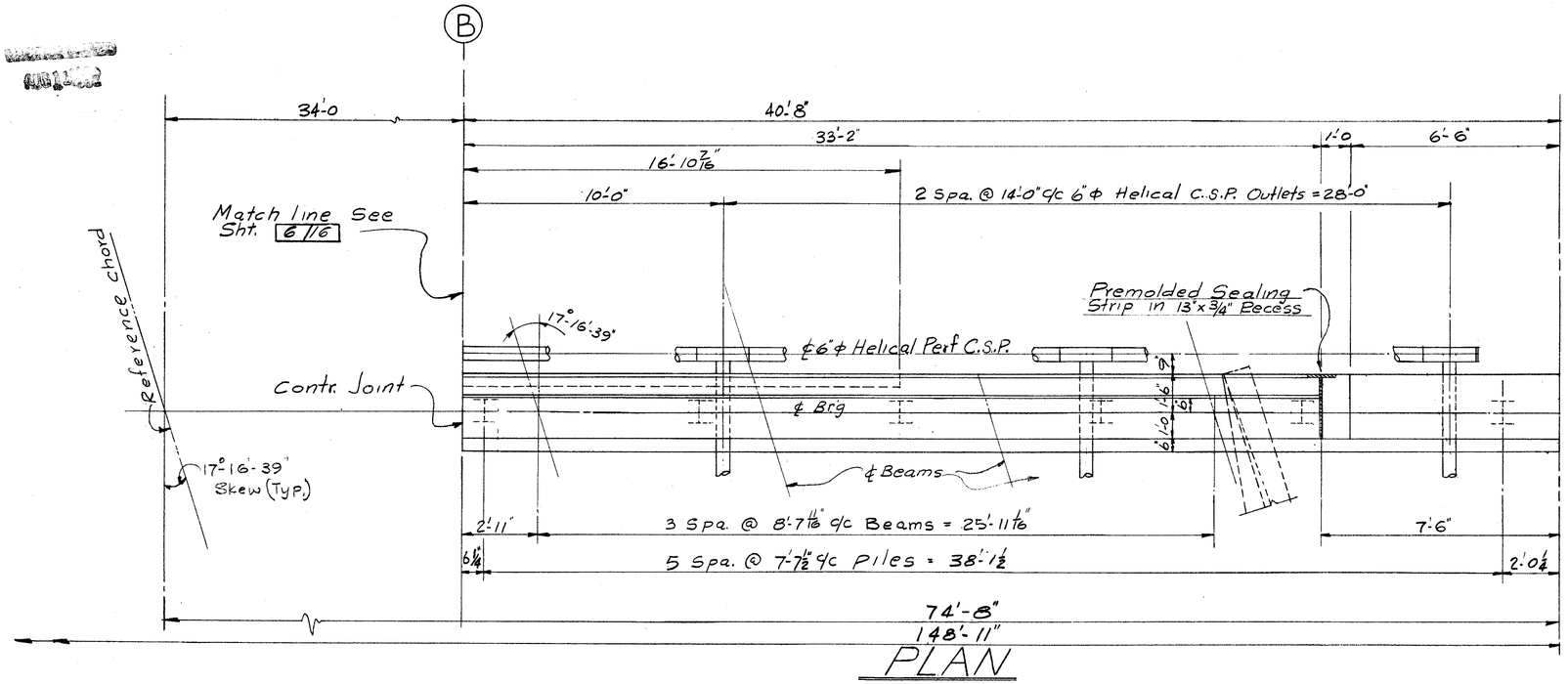
BRIDGE Nº CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	B.A.		B.I.P.	G.W.M.	7/7/83	

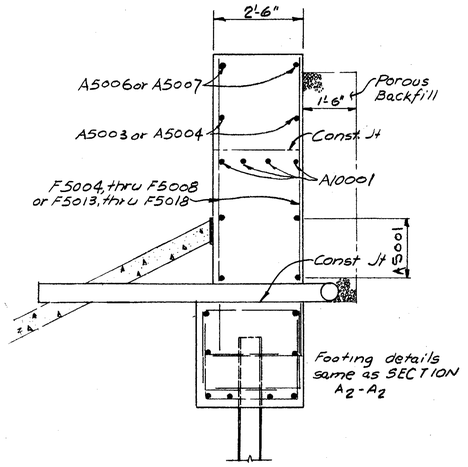
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

334
427

CUYAHOGA COUNTY
CUY-480-1.90

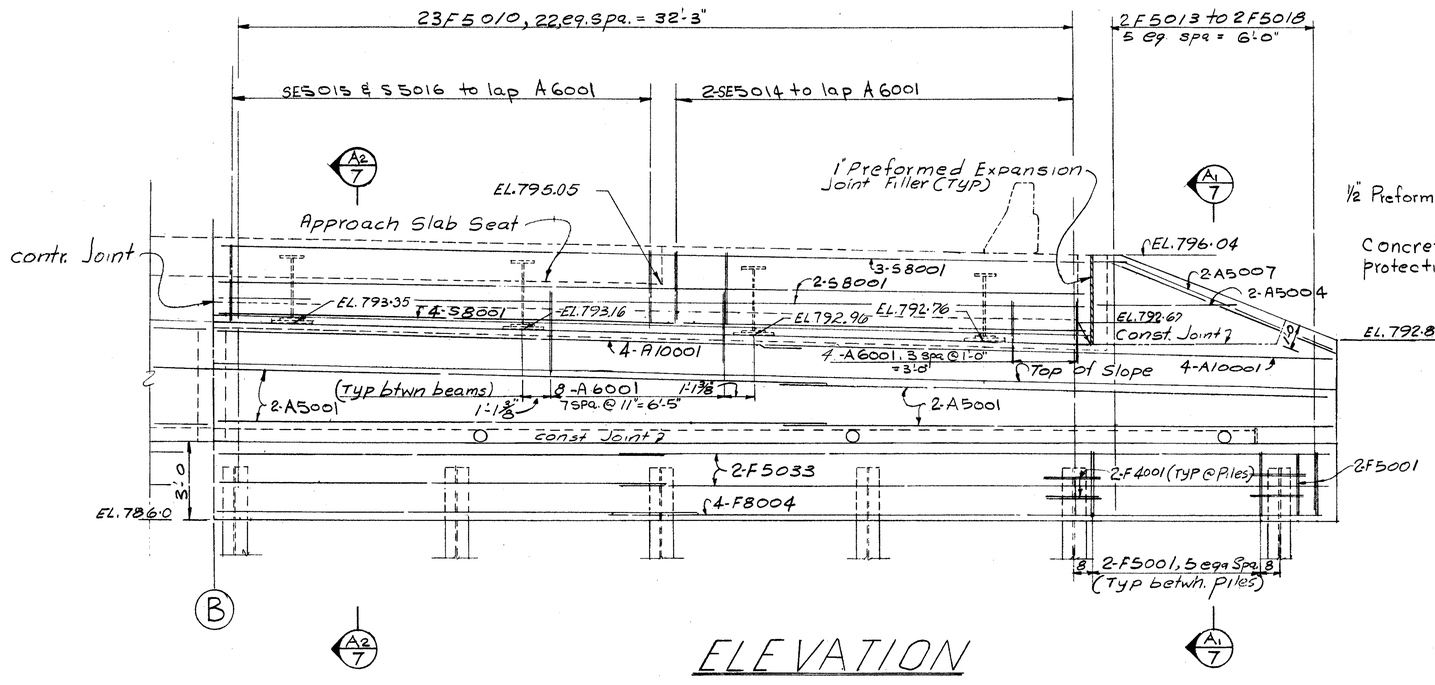


PLAN

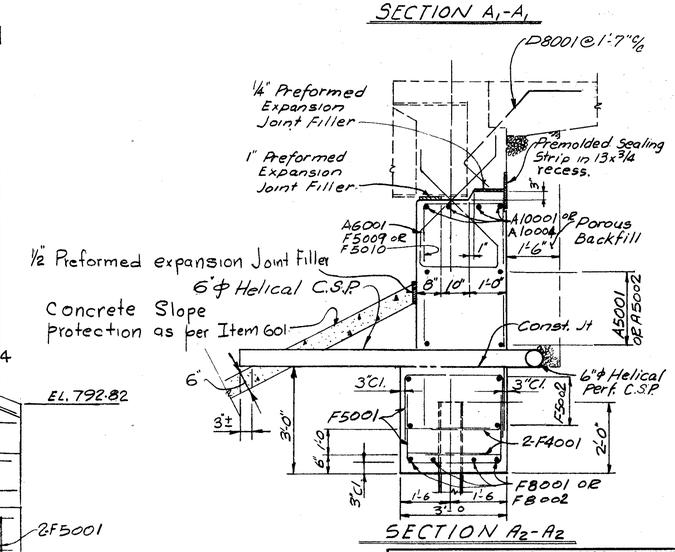


SECTION A1-A1

For notes see sht. no 5/16



ELEVATION



SECTION A2-A2

7/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

WEST ABUTMENT DETAILS

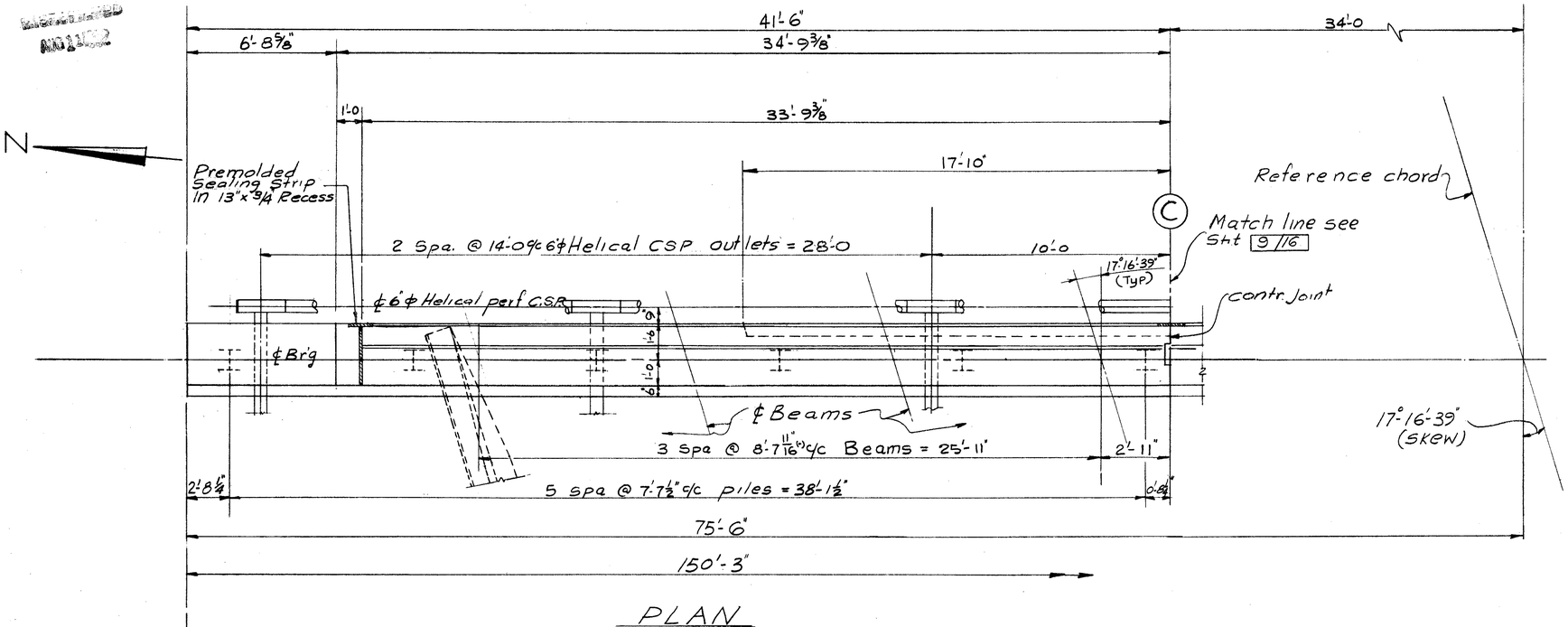
BRIDGE Nº CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	BD		B.I.P.	G.W.M.	7/1/69	

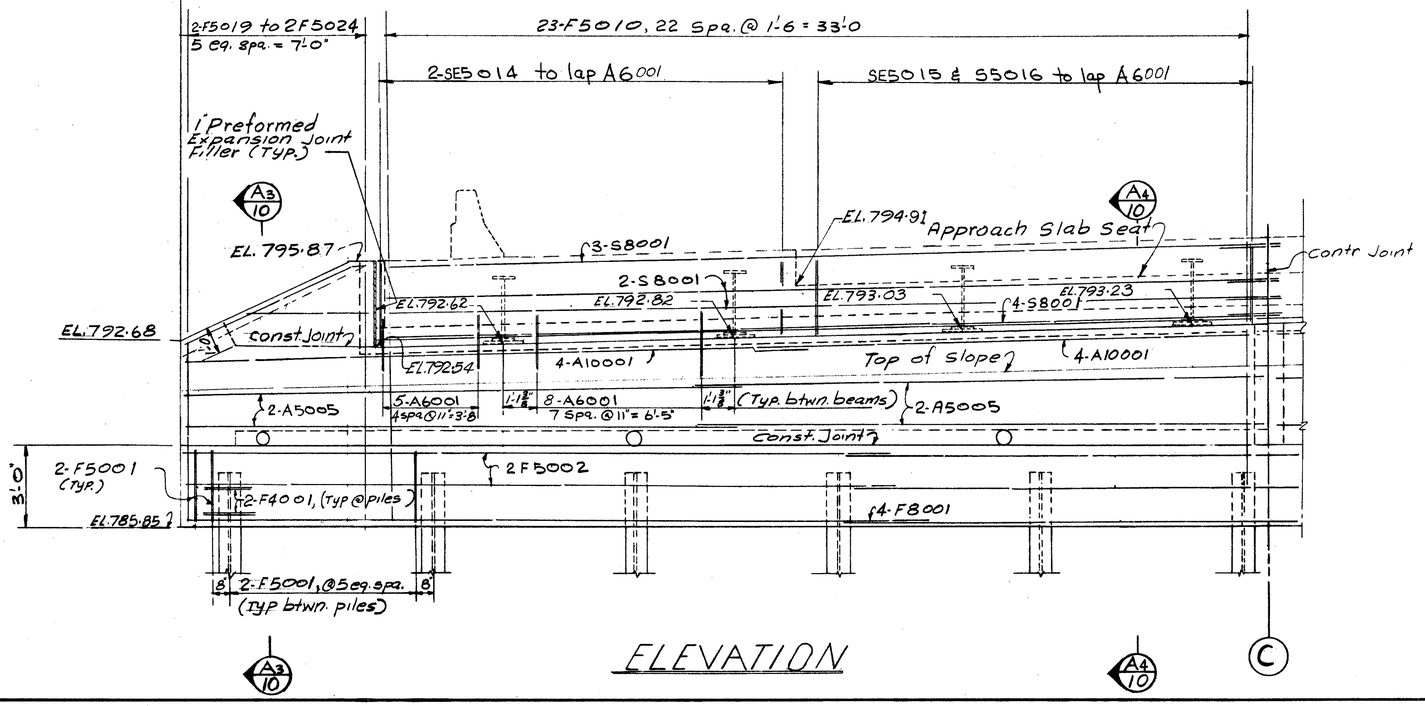
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

335
427

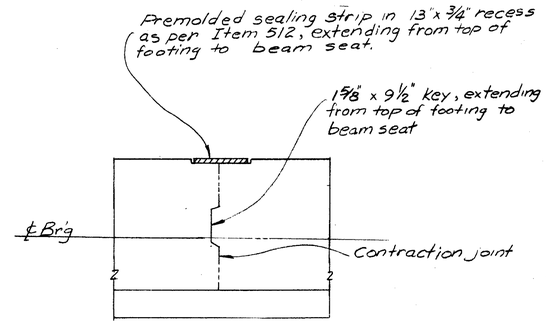
CUYAHOGA COUNTY
CUY-480-1.90



PLAN



ELEVATION



ABUTMENT CONTRACTION JOINT DETAIL

For notes see sheet 5/16

8/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

EAST ABUTMENT DETAILS

BRIDGE Nº CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	BA		B.I.P.	G.W.H.	7/1/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

336
427

CUYAHOGA COUNTY
CUY-480-1.90

N

C

D

34'-0

34'-0

20'-0½"

13'-11¾"

13'-4

20'-8

4'-0

2 spa. @ 14'-0 c/c 6"ϕ Helical C.S.P. outlets = 28'-0

2'-0

2'-0

2 Spa. @ 14'-0 c/c 6"ϕ Helical C.S.P. Outlets = 28'-0

4'-0

Match line See Sht. 8/16

Match line See Sht 10/16

Reference chord

17°-16'-39" Skew

Premolded Sealing Strip in 13"x¾" Recess.

Expansion Joint

17°-16'-39" (Typ)

contr. Jt

contr. Jt

ϕ 6"ϕ Helical perf C.S.P.

ϕ Brg

ϕ Beams

4'-2¼"

3'-5¼"

5'-8 11/16"

3 Spa. @ 8'-7 11/16 c/c Beams = 25'-11 1/16"

2'-4½"

2'-4½"

3 Spa. @ 8'-7 11/16" c/c Beams = 25'-11 1/16"

5'-8 11/16"

6'-11¼"

8 Spa @ 7'-7½" c/c Piles = 61'-0

0'-0¾"

75'-6"

74'-9"

150'-3"

PLAN

For notes see sheet 5/16

23F-5009, 22 Spa @ 1'-6 = 33'-0

23-F5011, 22 spa. @ 1'-6 = 33'-0

1" Preformed Expansion Joint Filler (TYP.)

A4/10

2-SE5014 to lap A6001

SE5015 & S5016 to lap A6001

SE5015 & S5016 to lap A6001

2- SE5014 to lap A6001

const. Joint

EL. 796.59

EL. 796.59

EL. 795.82

Approach Slab Seat

Approach Slab Seat

EL. 795.80

3-S8001

3-S8001

2-S8001

2-S8001

EL. 793.43

4-S8001

EL 793.64

EL. 793.84

EL 793.35

EL. 793.35

EL. 793.74

EL 793.94

EL. 794.14

contr. Joint

4-A10004

4-A10003

A6001

4-S8001)

4 A10002

8-A6001

7 Spa. @ 11" = 6'-5

1-1/8"

1-1/8"

Typ. btwn beams.

Top of Slope

2-A5002

2-A5002

2-A5002

const. Joint

const. Joint

2-F5002

2-F5034

2-F5002

4-F8001

4-F8001

4-F8005

2-F5001 3 eq. sp

2-F5025

4-F8003

2-F5001 4 eq. sp

45°

2-F4001 (Typ. @ piles)

8" 2-F5001, 5 eqa. spa. @ (Typ btwn. piles)

3'-0

3'-0

EL. 785.85

EL. 786.8

5'-0"

A4/10

C

D

ELEVATION

9/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

EAST ABUTMENT DETAILS

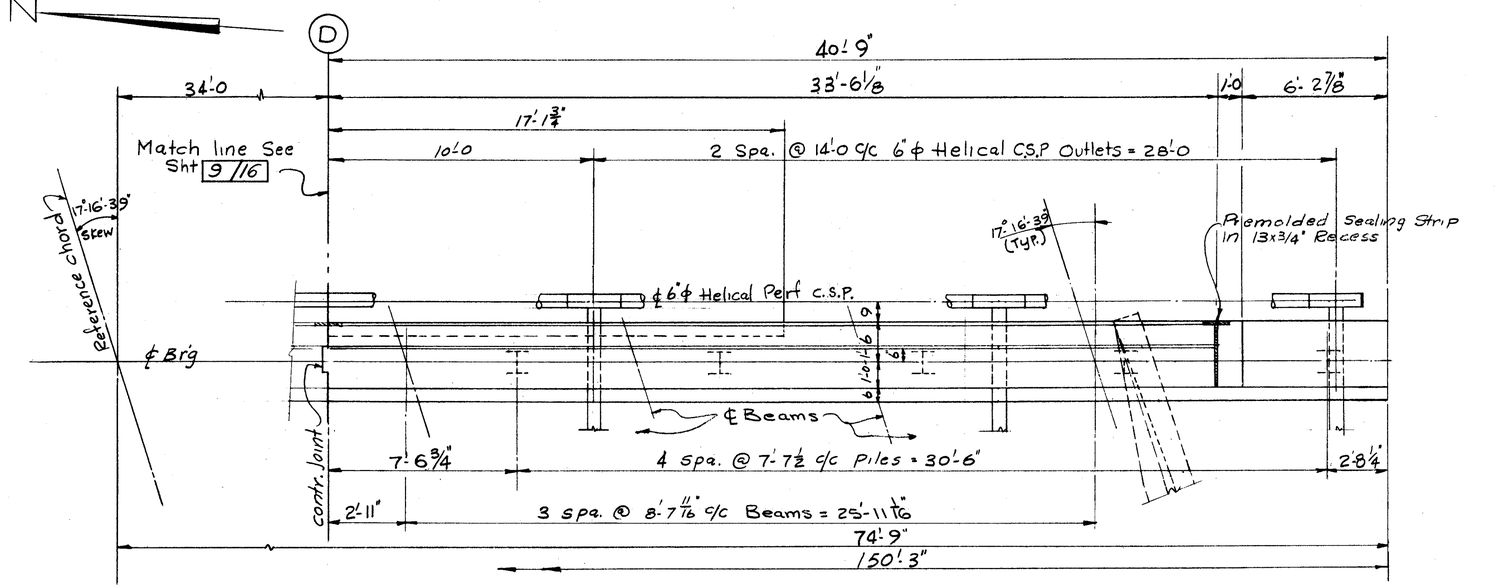
BRIDGE Nº CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	BA		B.T.P.	G.W.U.	7/7/69	

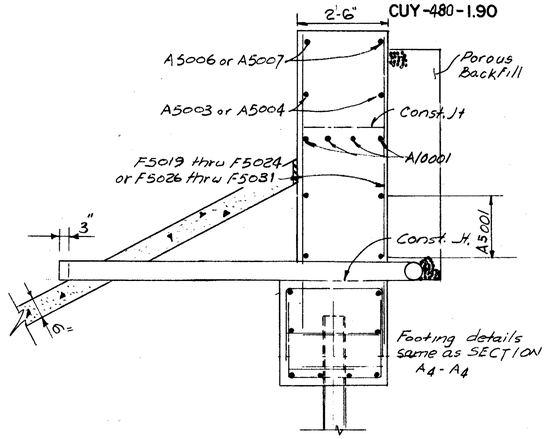
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

337
427

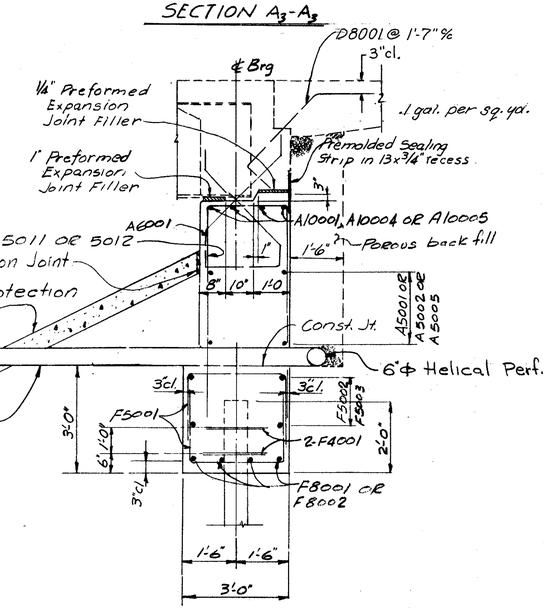
CUYAHOGA COUNTY
CUY-480-1.90



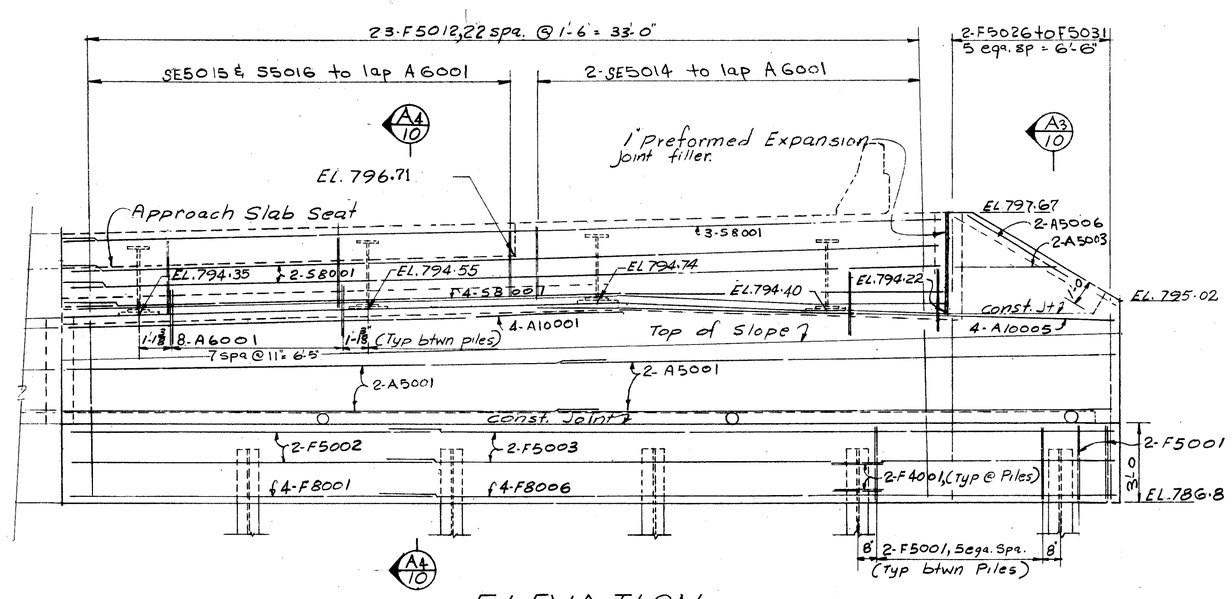
PLAN



SECTION A_3-A_3



SECTION A4-A4



ELEVATION

For notes see sht. 5/16

10/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

EAST ABUTMENT DETAILS

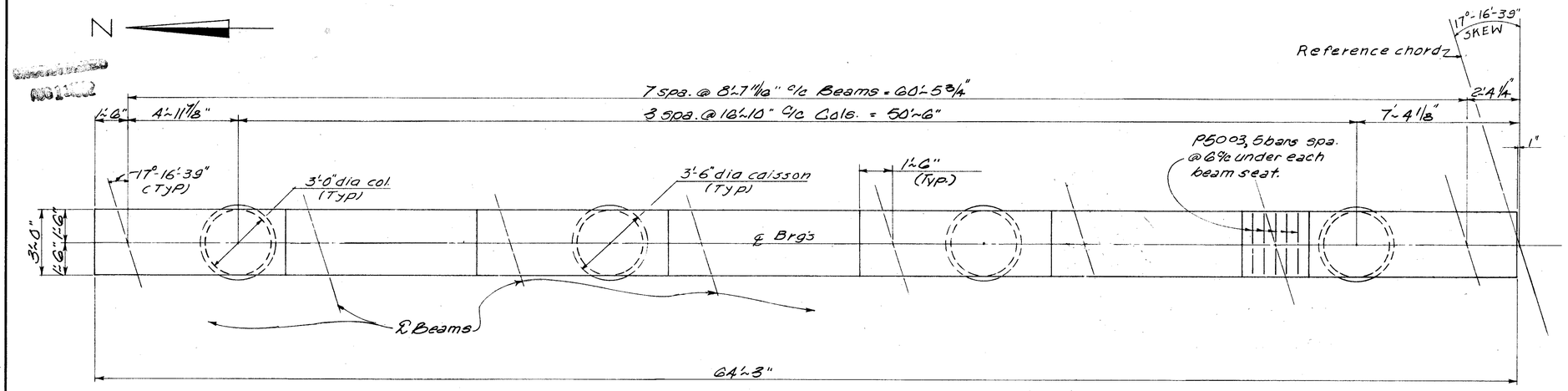
BRIDGE № CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	B.D		B.I.P. B.D	G.W.M.	7/1/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

338
427

CUYAHOGA COUNTY
CUY-480-1.90



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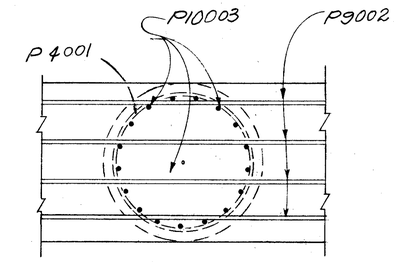
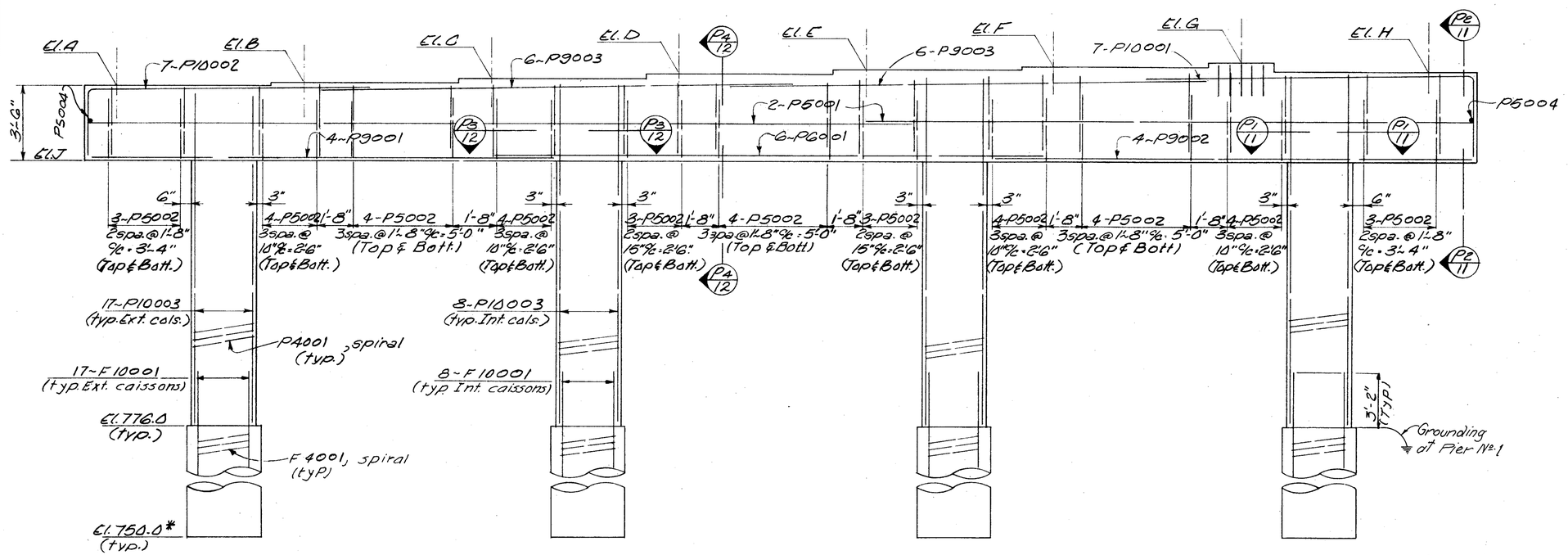
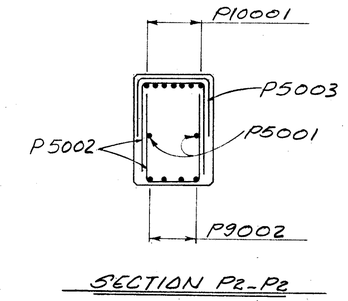


SECTION P1-P1



*See Caisson Notes Sht. 3/16

ELEVATION



SECTION P2-P2

For Grounding details at Pier No 1.
See Standard Drawing HL-7.

TABLE OF ELEVATIONS									
Location	A	B	C	D	E	F	G	H	J
Pier # 1	792.62	792.82	793.02	793.22	793.42	793.61	793.81	793.34	789.12
Pier # 2	792.56	792.76	792.96	793.17	793.37	793.57	793.77	793.30	789.06

NOTES:
Special care shall be taken in placing reinforcing steel in the top of the cap so as to avoid interference with the drilling of anchor bar holes for the bearing units or the presetting of bearing anchors.

BEARING ANCHORS: At the option of the Contractor bearing anphors (or formed holes) located and supported by templates, may be cast in place.

11/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

W.B. PIER DETAILS

BRIDGE Nº CUY-480-0203

I-480 OVER MACKENZIE ROAD

CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

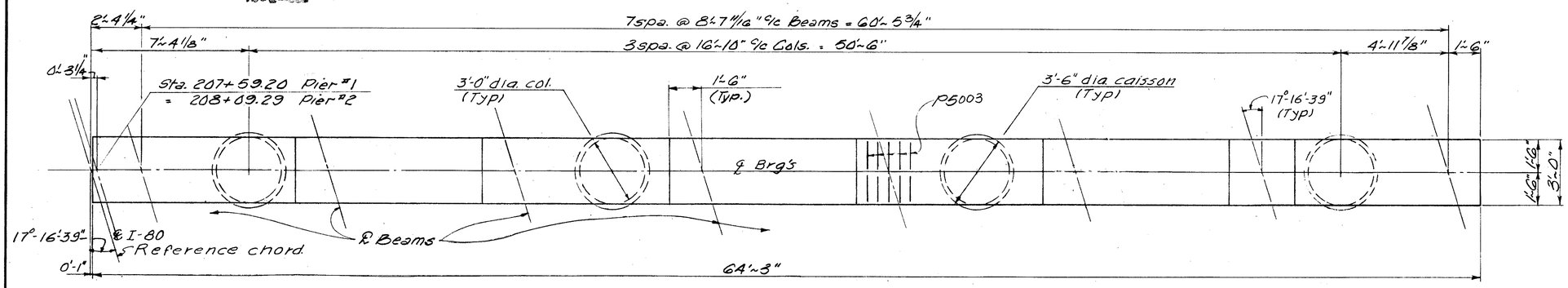
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	MB		B.D.	G.W.M.	7/1/69	

K. & E. - Cleveland 107155

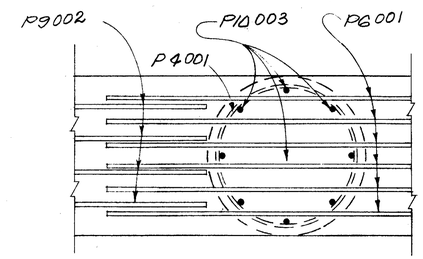
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

339
427

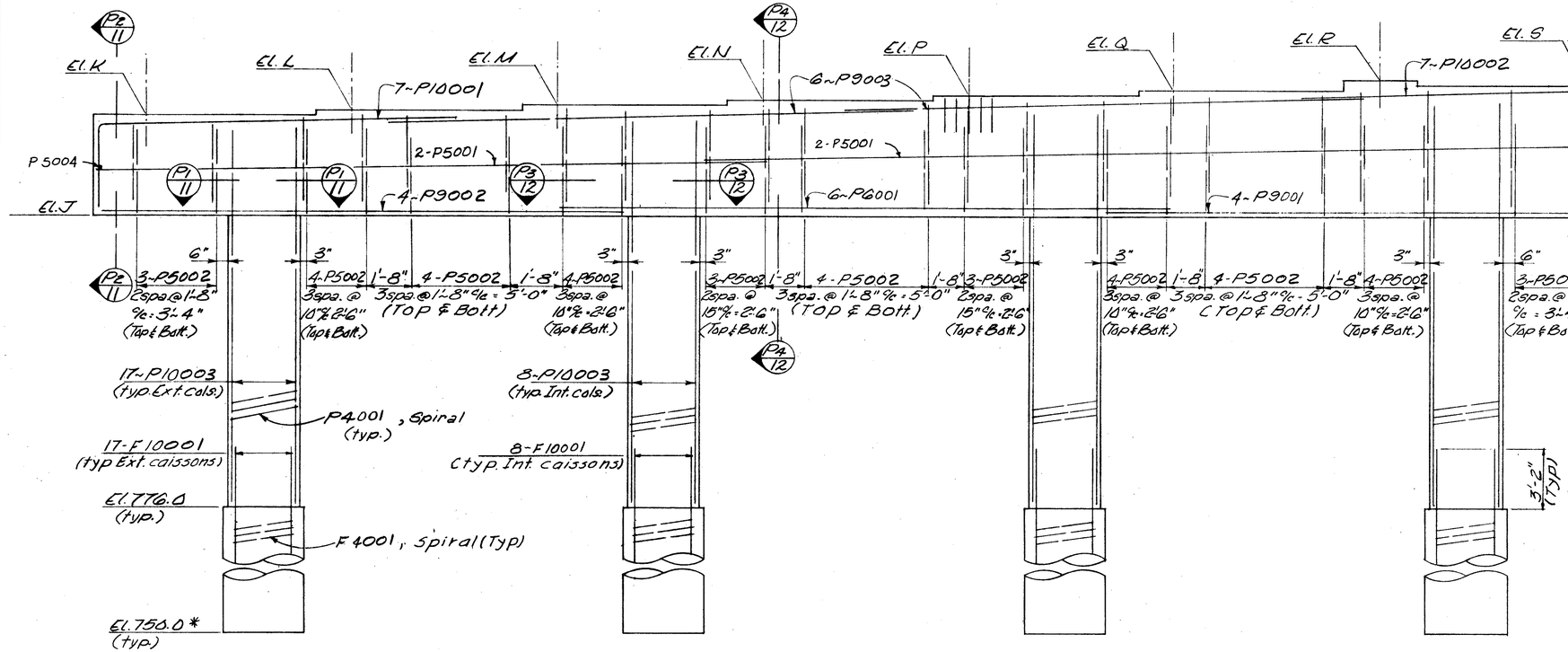
CUYAHOGA COUNTY
CUY-480-1.90



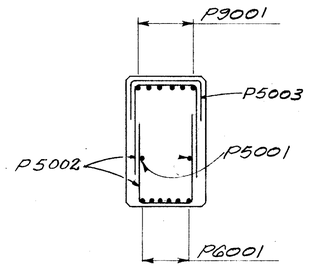
PLAN



SECTION P3-P3



ELEVATION



SECTION P4-P4

*See Caisson Notes Sht. 3/16

TABLE OF ELEVATIONS

Location	K.	L	M	N	P	Q	R	S	J
Pier #1	793.30	793.69	793.89	794.09	794.29	794.49	794.68	794.33	789.12
Pier #2	793.28	793.65	793.86	794.06	794.26	794.46	794.6	794.32	789.06

NOTES:
Special care shall be taken in placing reinforcing steel in the top of the cap so as to avoid interference with the drilling of anchor bar holes for the bearing units or the pre-setting of bearing anchors.
BEARING ANCHORS: At the option of the Contractor, bearing anchors (or formed holes), located and supported by templates, may be cast-in-place.

12/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

E.B. PIER DETAILS

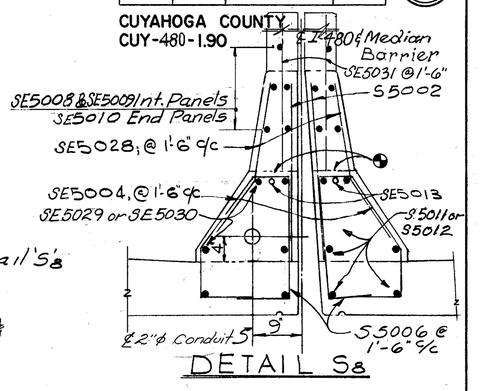
BRIDGE Nº CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	MB		B.D.	G.W.M.	7/1/69	

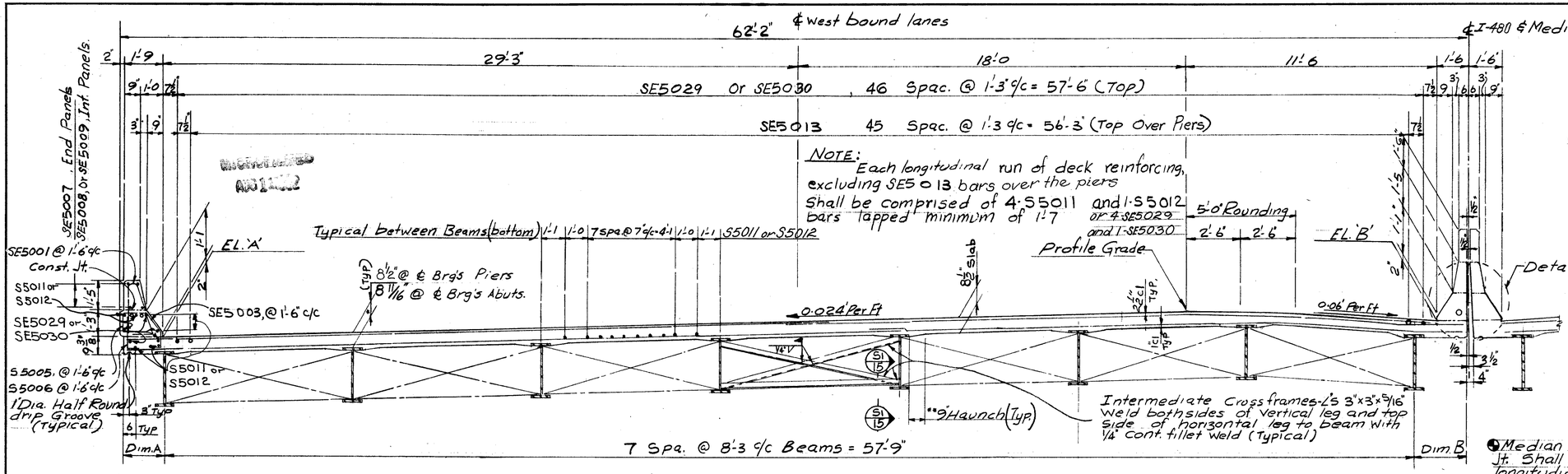
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

340
427

CUYAHOGA COUNTY
CUY-480-1.90



DETAIL S8



TRANSVERSE SECTION-WEST BOUND LANES

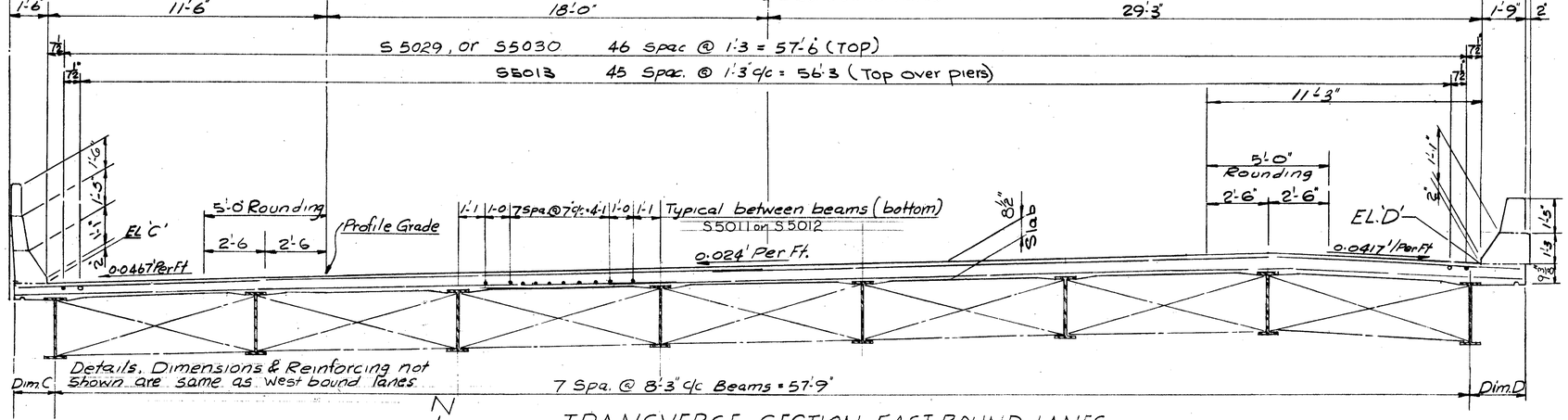
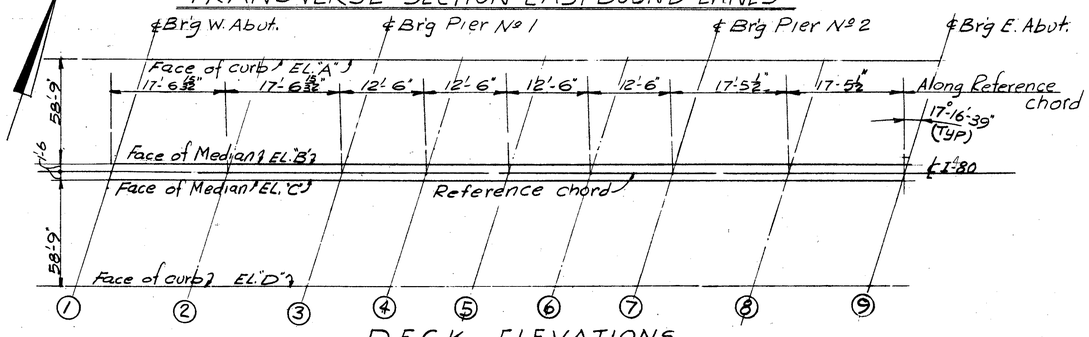


TABLE OF SLAB CANTILEVERS

LOCATION	DIM. A	DIM. B	DIM. C	DIM. D
℄ Bearing W. Abutment	1'-10"	2'-2 5/16"	1'-11 5/8"	1'-9 3/8"
½ Point Span 1	1'-8 3/8"	2'-4 ½"	1'-9 5/8"	1'-11 7/8"
℄ Bearing Pier No. 1	1'-8 1/4"	2'-5 5/8"	1'-8 3/8"	2'-1 3/4
¼ Point Span 2	1'-8 1/4"	2'-6 1/8"	1'-7 7/8"	2'-2 3/4"
½ Point Span 2	1'-8 3/8"	2'-6 1/4"	1'-7 3/4"	2'-3 3/8"
¾ Point Span 2	1'-9 1/4"	2'-6 1/8"	1'-7 7/8"	2'-3 3/4"
℄ Bearing Pier No. 2	1'-10 1/4"	2'-5 5/16"	1'-8 3/16"	2'-3 3/4"
½ Point Span 3	2'-0 1/4"	2'-4 1/4"	1'-9 5/16"	2'-3 1/8"
℄ Bearing E. Abutment	2'-2 3/4"	2'-2 3/8"	1'-11 7/8"	2'-2"

TRANSVERSE SECTION-EAST BOUND LANES



DECK ELEVATIONS

DECK ELEVATIONS

Point	Elev 'A'	Elev 'B'	Elev 'C'	Elev 'D'
1	796.04	796.68	796.68	797.70
2	796.05	796.70	796.70	797.73
3	796.04	796.70	796.70	797.74
4	796.04	796.70	796.70	797.75
5	796.03	796.70	796.70	797.76
6	796.00	796.68	796.68	797.74
7	795.97	796.66	796.66	797.72
8	795.93	796.63	796.64	797.71
9	795.88	796.59	796.59	797.68

● Median longitudinal reinforcement below this const. Jt. Shall be the same type bars as for the deck longitudinal Reinforcement.

NOTES

* This is the design dimension. The quantity of deck concrete to be paid for shall be based on this dimension eventhough 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 plate as Per Item 511.18

** A typical Haunch width of 9" shall be used for all beams in computing quantity of concrete, however, the haunch width may very between 6" to 12" provided that the slope shall not be more than 1:4, for a haunch less than 9" in Width

Field bend transverse bars to fit crown. Field bending to be included in Item 509 for Payment.

For transverse slab reinforcing see Sht. 14/16

The deck elevations shown are those which are required prior to placing of the concrete deck. Proper allowance has been made for the dead load deflection caused by the weight of the concrete.

Concrete and reinforcing steel for parapets and median barrier shall be included for payment with their respective Items, superstructure concrete and reinforcing steel.

13/16

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

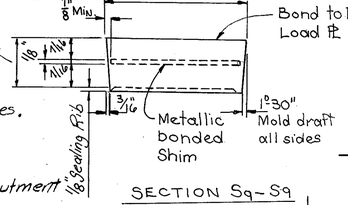
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	B.D		B.I.P.	G.W.M.	7/1/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

341
427

CUYAHOGA COUNTY
CUY-480-1.90

While attachment is being made to the structure 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.



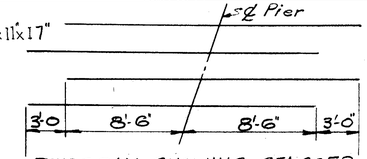
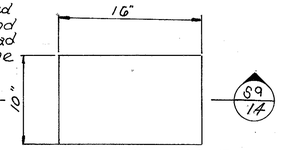


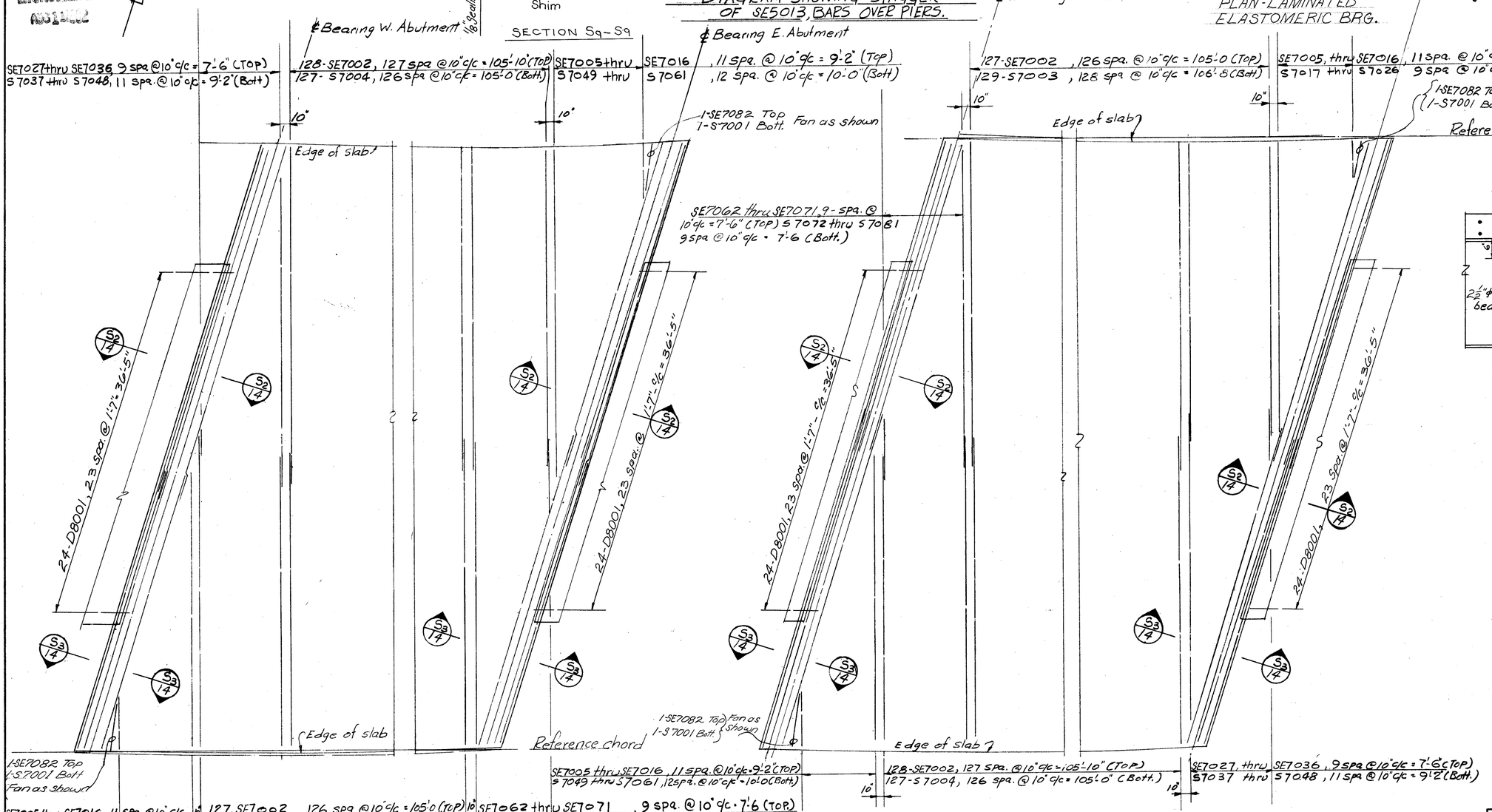
DIAGRAM SHOWING STAGGER OF SE5013, BARS OVER PIERS.

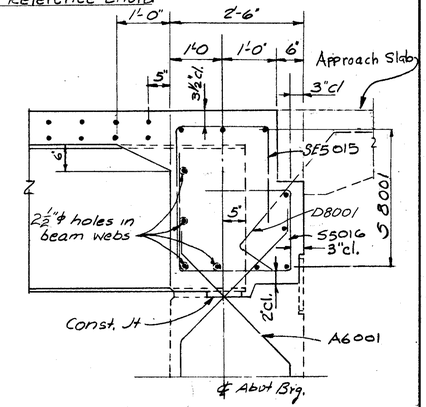
The neoprene for the steel laminated bearings shall be 50 durometer and shall be vulcanized bonded to the load plate during the molding process. The load plate shall be included with Item 516 Laminated Elastomeric Bearings.



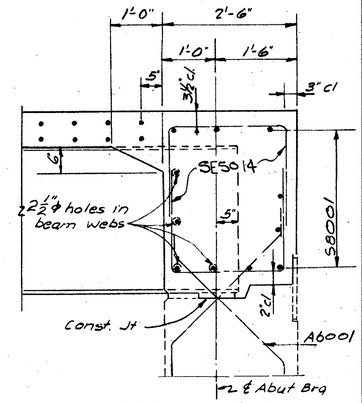
PLAN-LAMINATED ELASTOMERIC BRG.

SECTION S9-S9





SECTION S2-S2



SECTION S3-S3 14/16

NOTE
Transverse slab Reinforcing bars shall be placed normal to reference chord except at abutment and acute corners of slab.

West bound lanes

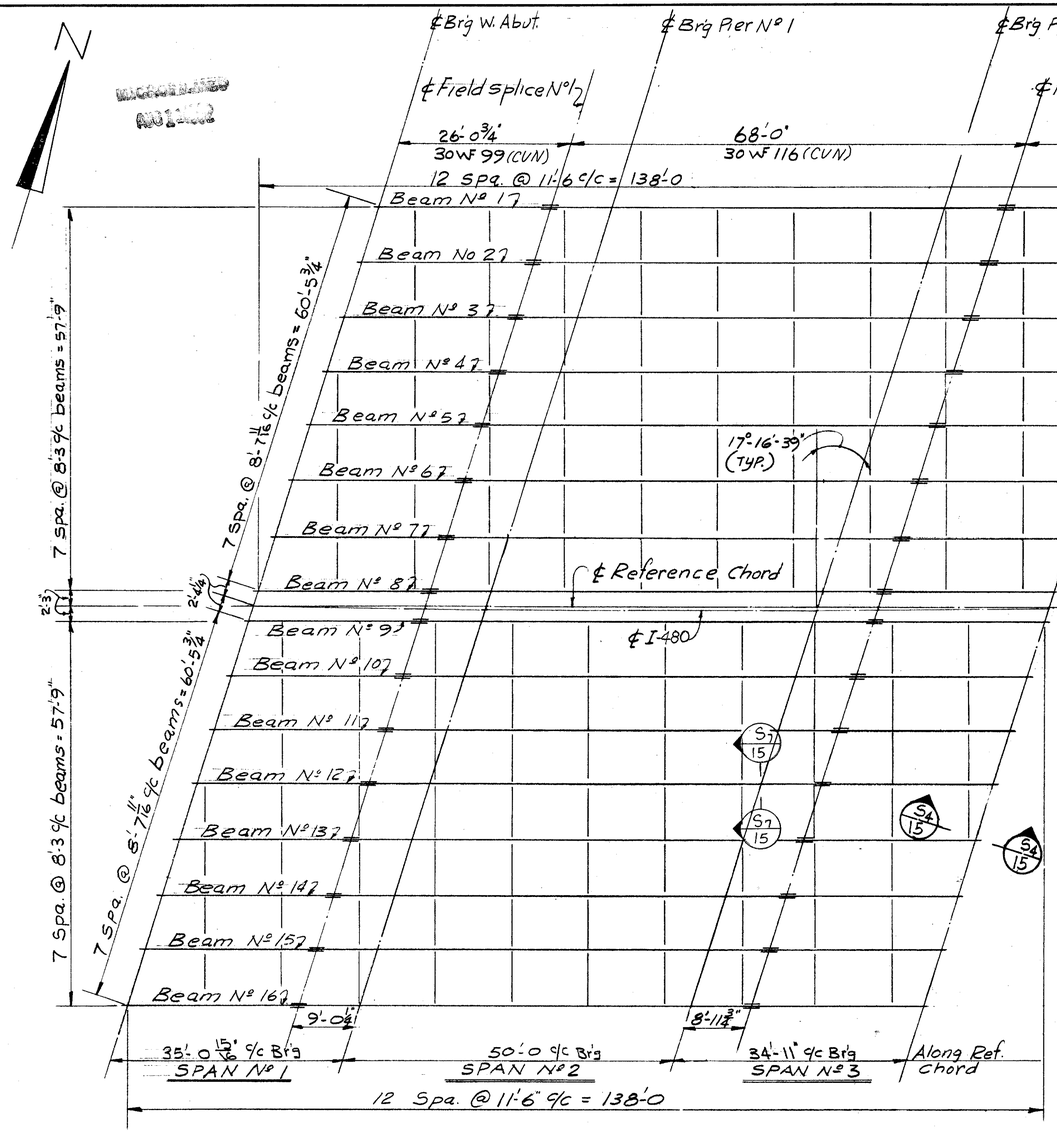
East bound lanes

TRANSVERSE SLAB REINFORCING

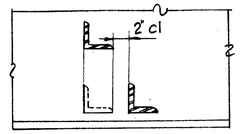
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE № CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

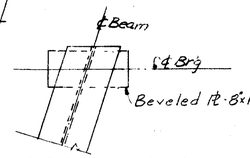
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.D.	B.D.		B.I.P.	G.W.U.	7/8/69	



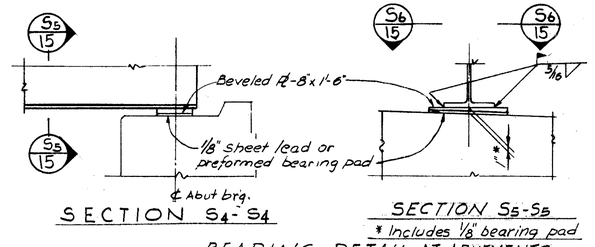
FRAMING PLAN



SECTIONS S1-S1

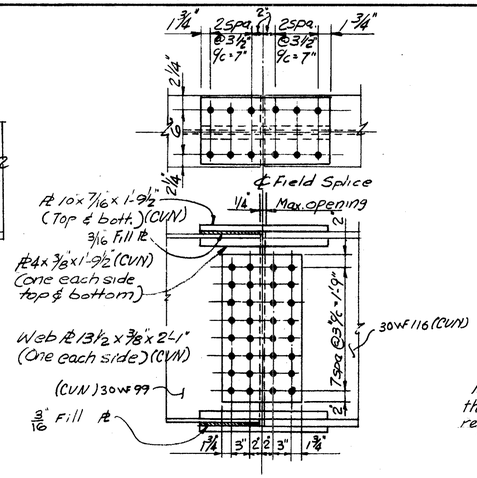


SECTION S6-S6

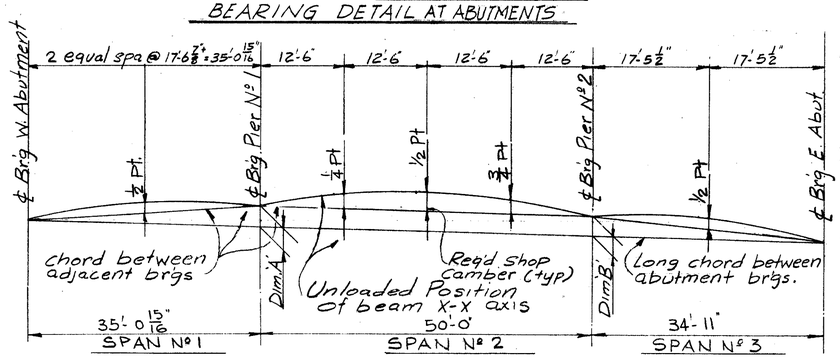


SECTION S4-S4

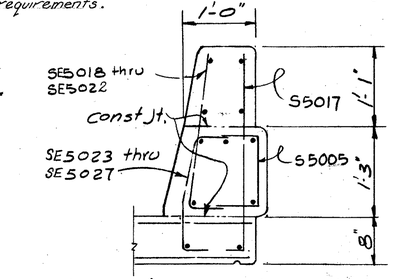
SECTION S5-S5
* Includes 1/8" bearing pad



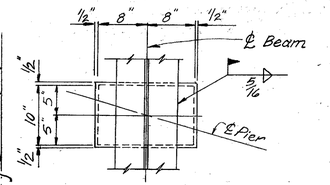
FIELD SPLICE Nº 1 & Nº 2 DETAILS



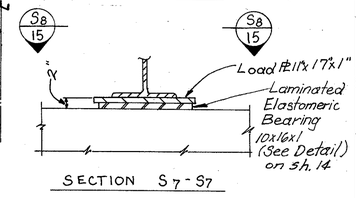
CAMBER AND BLOCKING DIAGRAM.



Typical Reinforcement @ 6'-0" Transition sections of parapet.



SECTION S8-S8



SECTION S7-S7

DEFLECTION AND CAMBER

	SPAN Nº 1	SPAN Nº 2							SPAN Nº 3	
Location	1/2 Pt	1/4 Pt	1/2 Pt						3/4 Pt	1/2 Pt
Beam Nº	ALL BEAMS	ALL BEAMS	1 & 16	2 to 7	8	9	10	11 to 15	ALL BEAMS	ALL BEAMS
Deflection due to Steel Weight	0	0	1/16	1/16	1/16	1/16	1/16	1/16	0	0
Deflection due to Remaining D.L.	1/16	1/8	3/16	1/4	3/16	3/16	1/4	1/4	1/8	1/16
Adjustment for Vertical Curve	1/16	1/16	1/8	1/8	3/16	1/16	1/16	1/8	1/16	1/16
Required Shop Camber	1/8	3/16	3/8	7/16	7/16	5/16	3/8	7/16	3/16	1/8

Blocking Dimensions

Beam Nº	1 To 7	8	9 & 10	11 to 14	15 & 16
Dim. "A"	7" 16	11" 16	3 8	7" 16	5" 8
Dim. "B"	7" 16	11" 16	3 8	7" 16	5" 8

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

342 / 427

CUYAHOGA COUNTY
CUY-480-1.90

Notes

1" ℄ High Strength bolts shall be used at the field splices. Bolt heads shall placed on fascia side of exterior beam webs and bottom side of bottom flange. Holes shall be 1 1/16" ℄. Bolts shall confirm to A-325 steel.

For details and notes not shown see Std. dwg. SD-1-69, Sheet Nº 4.

Cross frames may be shifted, if necessary, to avoid field splice.

Place all intermediate crossframes normal to beam.

Note: Where a shape or plate is designated (CVN) the material shall meet specified min. notch toughness requirements.

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ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY-480-0203
I-480 OVER MACKENZIE ROAD
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

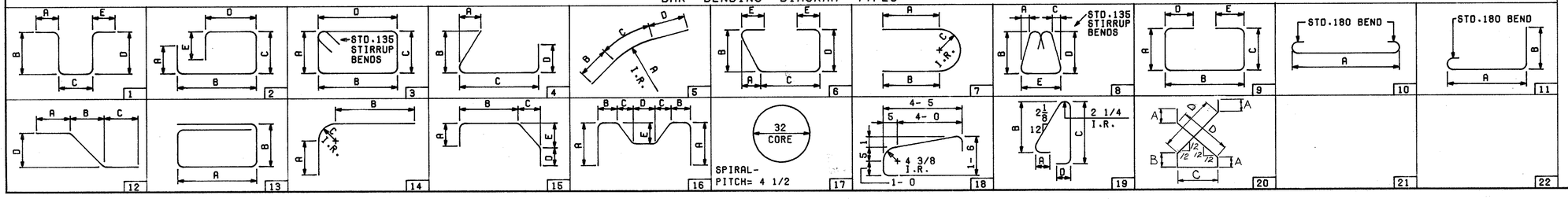
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	B.D.		B.I.P.	G.W.M.	7/8/69	

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				ABUTMENTS						
A 5001	24	21- 0	526	ST						
A 5002	16	33- 6	559	ST						
A 5003	4	3- 9	16	ST						
A 5004	4	4- 0	17	ST						
A 5005	8	21- 4	178	ST						
A 5006	4	7- 1	30	12	0- 8	5-10		2- 9		
A 5007	4	7- 8	32	12	0- 8	6- 3		3- 3		
A 6001	249	10-0	3740	20	0- 6	1- 0	2-0	2-10		
A10001	24	22- 0	2272	ST						
A10002	8	33- 6	1153	ST						3
A10003	8	13- 2	453	12	3- 2	10- 0		0- 6		
A10004	8	23-10	820	ST						
A10005	8	24- 2	832	12	3- 2	21- 0		0- 8		
F 4001	160	5- 4	570	1		1-11	1- 9	1-11		
F 5001	460	6- 5	3079	1		2- 1	2- 6	2- 1		
F 5002	32	30- 0	1001	ST						
F 5003	8	18- 6	154	ST						
F 5004	2	7- 0		ST						1
THRU			87		VARY	LENGTH	BY	0- 8	1/ 4	
F 5008	2	9- 9		ST						1
F 5009	69	14-11	1074	2	6- 6	2- 2	6- 6			
F 5010	69	13- 5	966	2	5- 9	2- 2	5- 9			
F 5011	23	12-11	310	2	5- 6	2- 2	5- 6			
F 5012	23	14- 5	346	2	6- 3	2- 2	6- 3			
F 5013	2	8- 6		ST						1
THRU			87		VARY	LENGTH	BY	0- 7	5/ 8	
F 5018	2	5- 4		ST						1
F 5019	2	5- 4		ST						1
THRU			86		VARY	LENGTH	BY	0- 7	1/ 4	
F 5024	2	8- 4		ST						1
F 5025	8	10- 1	84	9	3-11	2- 6	3-11			
F 5026	2	9- 4		ST						1
THRU			100		VARY	LENGTH	BY	0- 6	3/ 8	
F 5031	2	6- 8		ST						1
F 5032	10	9- 3	96	9	3- 6	2- 6	3- 6			
F 5033	4	19- 1	80	ST						
F 5034	4	20- 0	83	ST						
F 8001	32	30- 0	2563	ST						
F 8002	4	19- 0	203	ST						
F 8003	8	14- 7	311	12	10- 0	3- 3		3- 3		
F 8004	4	24- 3	259	ST						
F 8005	4	25- 0	267	ST						
F 8006	4	19- 9	211	ST						
				PIERS						
P 4001	16	12-10	3941	17	NO. TURNS= 35			NO. SPACERS= 64		6
P 5001	16	32- 9	547	ST						
P 5002	320	8- 9	2920	2	3- 2	2- 8	3- 2			
P 5003	160	5- 7	932	2	1- 7	2- 8	1- 7			
P 5004	8	2- 8	22	ST						
P 6001	24	25- 6	919	ST						
P 9001	16	21- 8	1179	ST						
P 9002	16	22- 6	1224	ST						
P 9003	48	19-10	3237	ST						
P10001	28	20- 0	2410	2	17- 2	3- 2				
P10002	28	19- 2	2309	2	16- 4	3- 2				

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				PIERS				(CONTINUED)		
P10003	200	16-0	13 770	ST						
F 4001	16	13- 0	4019	17	NO. TURNS= 38			NO. SPACERS= 64		6
F10001	200	16- 2	13913	ST						
				SUPERSTRUCTURE						
S 5002	164	2- 6	357	ST						
S 5005	164	1- 9	299	1		0- 6	1- 0	0- 6		
S 5006	312	2- 2	705	1		1- 7	0- 9			
S 5011	632	30- 0	19 775	ST						
S 5012	158	9- 0	1 483	ST						
S 5016	143	6-10	1019	9	2- 2	2- 0	1- 6	1- 7		
S 5017	20	3- 3	68	1	2- 8	0- 9				
S 7001	4	5- 0	41	ST						
S 7003	258	27-11	14722	ST						
S 7004	254	35-11	18647	ST						
S 7017	2	5- 0		ST						1
THRU			697		VARY	LENGTH	BY	2- 8	1/ 8	
S 7026	2	29- 1		ST						1
				ST						
S 7037	2	6- 0		ST						1
THRU			1014		VARY	LENGTH	BY	2- 8		
S 7048	2	35- 4		ST						1
S 7049	2	5- 0		ST						1
THRU			1118		VARY	LENGTH	BY	2- 8	1/ 8	
S 7061	2	37- 1		ST						1
S 7072	2	6- 0		ST						1
THRU			693		VARY	LENGTH	BY	2- 5	1/ 4	
S 7081	2	27-11		ST						1
S 8001	88	35- 0	8224	ST						3
D8001	96	5- 1	1303	15	1- 1	2- 8	1- 1		1- 1	

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
		EPOXY	COATED	REINFORCING	STEEL					
MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
SE5001	148	5-4	823	19	0-8	2-5	2-2			
SE5003	148	3-3	502	15	0-9	0-8	1-0	0-9	0-9	
SE5004	164	3-0	513	15	0-9	0-8	1-0	0-6	0-9	
SE5007	16	11-3	188	ST						
SE5008	72	12-3	920	ST						
SE5009	144	6-0	901	ST						
SE5010	20	11-8	243	ST						
SE5013	196	20-0	4089	ST						
SE5014	212	6-1	1345	9	2-2	2-0	2-2			
SE5015	143	5-9	858	9	2-2	1-8	2-2			
SE5018	4	2-10		4	0-6	2-4	0-8			1
					VARY	LENGTH	BY	0-1		
THRU			56		VARY	DIM. A	BY	0-1 1/2		
					VARY	DIM. B	BY	0-1		
SE5022	4	2-6		4		2-0	0-8			1
SE5023	4	3-3		15	0-9	0-8	1-0	0-9	0-9	1
THRU			65		VARY	LENGTH	BY	0-0 3/4		
					VARY	DIM. E	BY	0-2 1/4		
SE5027	4	3-0		15	0-9	0-8	1-0	0-9	0-9	1
SE5028	164	2-6	428	12	1-5	0-11	0-0	0-6		
SE5029	424	30-0	13267	ST						
SE5030	106	9-0	995	ST						
SE5031	164	2-9	470	ST						
SE7002	510	31-11	33271	ST						
SE7005	4	5-0		ST						1
THRU			1934		VARY	LENGTH	BY 2-8 1/8			
SE7016	4	34-5		ST						1
SE7027	2	7-4		ST						1
THRU			790		VARY	LENGTH	BY 2-8			
SE7036	2	31-4		ST						1
SE7062	2	7-4		ST						1
THRU			802		VARY	LENGTH	BY 2-8			
SE7071	2	31-11		ST						1
SE7082	4	5-0	41	ST						

BAR BENDING DIAGRAM TYPES



FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

343
427

CUYAHOGA COUNTY
CUY-480 -1.90

REVISED
AUG 1972

NOTES

1. INDICATES SERIES BAR. EACH BAR VARIES FROM ADJACENT BAR(S) BY TABULATED AMOUNT(S), CALCULATED TO NEAREST 1/8 INCH. WEIGHT SHOWN IS FOR ENTIRE SERIES UTILIZING AVERAGE LENGTH.
2. BARS INCLUDED WITH ITEM 517, RAILING, FOR PAYMENT.
3. COST OF FIELD BENDING SHALL BE INCLUDED WITH ITEM 509.
4. LIGHT POLE SUPPORT BARS INCLUDED WITH ITEM 509 FOR PAYMENT.
5. END PREPARATION AND FIELD WELDING INCLUDED WITH ITEM 509.
6. 'LENGTH' SHOWN FOR SPIRAL BARS IS DISTANCE FROM TOP OF FOOTING TO BOTTOM OF PIER CAP.
'NO. TURNS' SHOWN IS 'LENGTH' DIVIDED BY PITCH, PLUS 3 TURNS (NUMBER OF CLOSED COILS), EXPRESSED AS NEAREST WHOLE NUMBER.

1 1/2 CLOSED COILS SHALL BE PROVIDED AT ENDS OF EACH SPIRAL UNIT. FOUR STEEL CHANNEL, TEE OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.80 LB. PER LIN. FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG PERIPHERY OF COIL. WEIGHT OF SPACERS, AT 0.80 LB. PER LIN. FT. WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN TABULATED WEIGHT.

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

BAR SIZE DESIGNATION

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE FOUR DIGITS ARE USED, AND FIRST TWO DIGITS WHERE FIVE DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A7001 IS A NO. 7 SIZE BAR AND A10140 IS A NO. 10 SIZE.

16 116

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

REINFORCING STEEL LIST

BRIDGE NO CUY-480-0203
I-480 OVER MACKENZIE ROAD

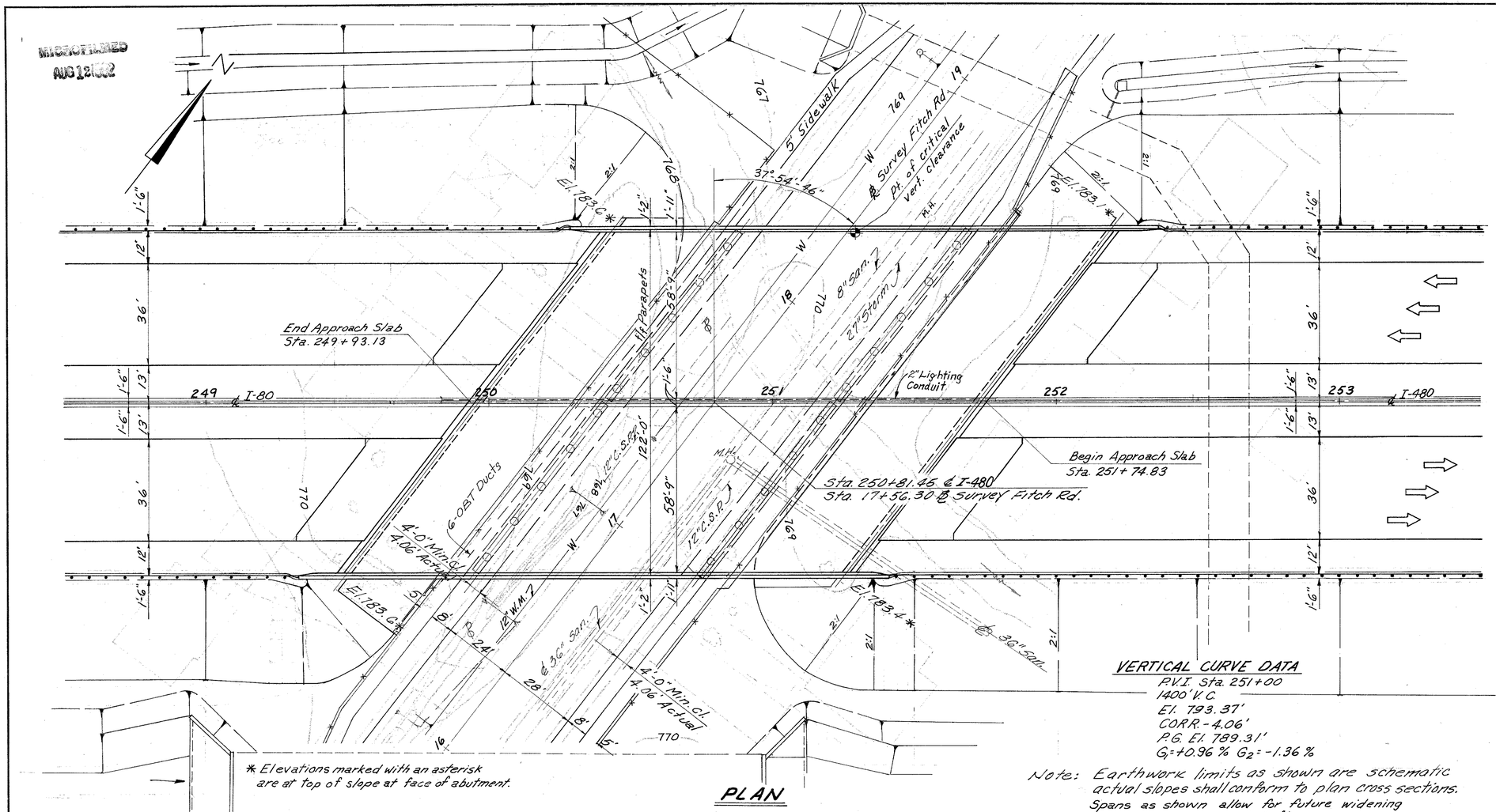
CUYAHOGA COUNTY STA. 207 + 23.25
STA. 208 + 45.34

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.S.D.			B.I.P.	G.W.M.	7/8/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

344
427

CUYAHOGA COUNTY
CUY-480 - 1.90



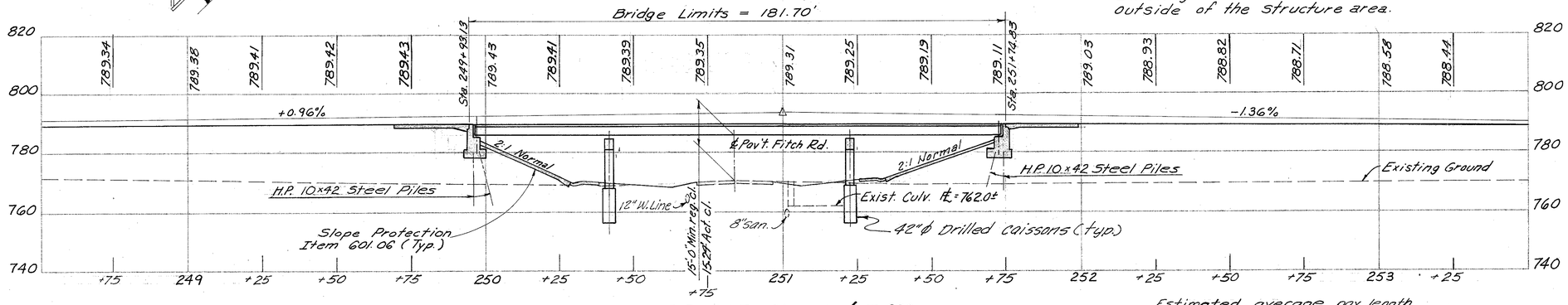
PLAN

VERTICAL CURVE DATA

P.V.I. Sta. 251+00
1400' V.C.
El. 793.37'
CORR. -4.06'
P.G. El. 789.31'
G_1 = +0.96 % G_2 = -1.36 %

Note: Earthwork limits as shown are schematic actual slopes shall conform to plan cross sections. Spans as shown allow for future widening of Fitch Road to 52'-0" f/f curbs.

Existing culvert shall be relocated outside of the structure area.



PROFILE ALONG ℄ I-480

Estimated average pay length for abutment piles is 20 ft.

PROPOSED STRUCTURE

TYPE: Continuous steel beam with reinforced concrete deck and reinforced concrete substructure
SPANS: 48'-0", 80'-0", 48'-0" ℄ brgs.
ROADWAY: 122'-0" f/f concrete parapets, with concrete median barrier
LOADING: HS 20-44 and the Alternate Military Loading.
WEARING SURFACE: Monolithic concrete
SKEW: 37° 54' 46"
ALIGNMENT: Tangent
APPROACH SLABS: AS-1-72 (25' long) (Modified)

TRAFFIC ESTIMATE

Design Year - 1987
Total A.D.T. - 7,842

Modify AS-1-72 by providing 3" cover over the top rebars instead of the 2" shown, by changing from full width to the width of the approach pavement and by omitting the jacking holes.

1 / 17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SITE PLAN

BRIDGE Nº CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.W.M.	G.W.M.	M.D.		G.W.M.	7/8/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

345
427

CUYAHOGA COUNTY
CUY-480-1.90

SUPPLEMENTAL SPECIFICATION REFERENCES (CONTINUED)

DESCRIPTION	NO.	DATE
PAINTING FOR NEW STRUCTURAL STEEL	846	4-25-77
INORGANIC ZINC SILICATE PAINT	950	4-25-77
BLUE-GREEN VINYL PAINT	951	4-25-77

BRIDGE DECK FINISH

IN LIEU OF BEING FINISHED AS SPECIFIED IN 516.11 THE BRIDGE DECK SHALL BE TEXTURED TRANSVERSELY TO PROVIDE A RELATIVELY UNIFORM PATTERN OF GROOVES SPACED ON APPROXIMATELY ¾ INCH CENTERS. GROOVES SHALL BE APPROXIMATELY 0.15 INCHES DEEP AND 0.10 INCHES WIDE. A STRIP OF SURFACE 9 TO 12 INCHES WIDE ADJACENT TO CURBS AND BARRIERS SHALL NOT BE TEXTURED.

MICROFILMED
AUG 12 1982

DESIGN DATA (CONTINUED)

MONOLITHIC WEARING SURFACE THICKNESS IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1".

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, TOP MAT ONLY.

ATTACHMENT OF GUARDRAIL TO CONCRETE PARAPETS

CONCRETE INSERT ANCHOR ASSEMBLIES PER STANDARD CONSTRUCTION DRAWINGS GR-3 AND GR-1 SHALL BE PLACED DURING PARAPET CONSTRUCTION.

PREFORMED BEARING PADS

IN LIEU OF THE HARDNESS REQUIREMENTS OF 711.21, PREFORMED BEARING PADS SHALL HAVE A SHORE A DUROMETER OF 80 ± 10.

MINIMUM BAR LAP SHALL BE 30 DIAMETERS.

STANDARD DRAWING REFERENCES

DESCRIPTION	DWG. NO.	SHT.	DATE
END DAM AND END CROSSFRAME	SD-1-69	1-2	6-12-69
CURB PLATES	SD-1-69	2	6-12-69
SCUPPERS	SD-1-69	3	6-12-69
BOLTED SPLICES	SD-1-69	4	6-12-69
BRIDGE ROADWAY RAILING	BR-1-67	1	10-15-71 R
ROCKERS AND BOLSTERS	RB-1-55		2- 2-59 R
APPROACH SLABS	AS-1-72		6-30-72
STRUCTURE GROUNDING	HL-7		1-21-76R

(R INDICATES REVISED DATE)

SUPPLEMENTAL SPECIFICATION REFERENCES

DESCRIPTION	NO.	DATE
CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D	808	1-1-71
CONCRETE CURING AND PROTECTIVE MEMBRANE	836	3-12-75

COMMON DETAIL REFERENCES

CONTRACTION JOINTS	SHEET 401
EXPANSION JOINTS	SHEET 401

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE '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 - H520-44 AND THE ALTERNATE MILITARY LOADING

CONCRETE CLASS C - UNIT STRESS 1200 PSI FOR SUPERSTRUCTURE
UNIT STRESS 1333 PSI FOR SUBSTRUCTURE

STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20000 PSI

REINFORCING STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20000 PSI. SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82 OR A615.

EMBANKMENT CONSTRUCTION

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENTS.

PILES

PILES SHALL BE DRIVEN TO BEDROCK. THE BEARING CAPACITY SHALL BE CONSIDERED OBTAINED BY REFUSAL ON HARD BEDROCK OR BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH. THE DESIGN LOAD IS 35 TONS PER PILE FOR THE ABUTMENTS AND WINGWALLS.

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 WOULD BE HELD TO A MINIMUM.

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GENERAL
503	756	C.Y.	UNCLASSIFIED EXCAVATION	707	49		
505	LUMP	SUM	TEST PILE				LUMP
507	1480	L.F.	STEEL PILES, HP10X42	1480			
507	115	L.F.	PREBORED HOLES	115			
509	187659	LB	REINFORCING STEEL	35299	61387	90,973	
511	668	C.Y.	CLASS C CONCRETE, SUPERSTRUCTURE (SEE PROPOSAL NOTE)			668	
511	199	C.Y.	CLASS C CONCRETE , PIERS ABOVE CAISSONS		199		
511	294	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	294			
511	254	C.Y.	CLASS C CONCRETE, FOOTINGS	238	16		
512	46	L.F.	PREMOLDED SEALING STRIP	46			
513	575000	LB	STRUCTURAL STEEL, PRIMER PER 846 (SEE PROPOSAL NOTE)			575000	
846	575000	LB	FIELD PAINTING OF STRUCTURAL STEEL			575000	
516	47	S.F.	1 INCH PREFORMED EXPANSION JOINT FILLER	47			
516	171	S.F.	1/2 INCH PREFORMED EXPANSION JOINT FILLER	171			
518	126	C.Y.	POROUS BACKFILL	126			
518	10	EA	SCUPPERS INCLUDING SUPPORTS			10	
518	6	EACH	SCUPPERS INCLUDING SUPPORTS , AS PER PLAN			6	
518	280	L.F.	6 INCH PERFORATED, HELICAL CSP, 707.01	280			
518	230	L.F.	6 INCH NON-PERFORATED, HELICAL CSP, INCLUDING SPECIALS, 707.01	230			
601	1300	S.Y.	CONCRETE SLOPE PROTECTION				1300
808	668	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D			668	
SPEC	265	L.F.	42 INCH DIA. DRILLED CAISSONS		265		
SPEC	89523	LB.	EPOXY COATED REINFORCING STEEL (SEE PROPOSAL NOTE)	862		88661	

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ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE No. CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13 STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.			A.S.S.	G.W.M.	7/5/69	4/5/78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

346
427

Caissons. This item shall consist of furnishing and installing caissons of the kind and size called for on the Plans and in the following Specifications. It shall be the Contractor's responsibility to furnish all labor, materials, tests and appurtenances required to complete the work as specified. In no way will the Contractor's responsibility be affected if the estimated pay length of the caissons shown on the Plans is different from that found at the site.

The Contractor shall locate the center of each caisson within a one-inch radius of the position shown on the plan. Caissons not located properly shall be re-installed at the contractor's expense.

The top elevation of each caisson shall be as established by the contract drawings. Upon the completion of a caisson, the Engineer shall record its location, size, depth of penetration, method of installation, and behavior during installation. For each caisson, a record of the location, size, depth of penetration, method of installation and behavior of each caisson during installation shall be kept. This data shall be recorded by the Engineer upon completion of the installation of a caisson. During the installation of a caisson, no jetting to aid in the penetration of the caisson shall be permitted without the approval of the Director.

The caissons shall be installed plumb or at the specified batter and shall not deviate more than one-sixteenth of an inch per foot from the specified axis. If the caisson axis varies more than this, the alignment of the caisson shall be corrected or if necessary, additional caissons shall be installed at no additional cost to the State. Where obstacles such as large boulders are encountered, they shall be removed. If water is encountered during the installation of any caisson, or if the nature of the excavation is such that there is danger of foreign substances, earth, or other debris contaminating or falling into the concrete mix during the placing operations, then the Contractor shall use steel shells for the placing of the caisson concrete. These steel shells may be left in place, or withdrawn, as the concrete is placed provided the concrete completely fills the excavated space to the top of the caissons. The concrete for the caissons is intended to be placed against the existing subsoils without the use of permanent forms, provided the following conditions are met: The earth excavation is clean, there is no excessive loss of concrete, and the diameter of the excavation is maintained at all times. If an artesian water condition is encountered during the installation of any caisson, the Contractor shall be responsible for any special procedures necessary to accomplish the installation, to the satisfaction of the Director.

If two caissons are spaced relatively close together, one of the holes shall be drilled, poured, and the concrete permitted to set, prior to drilling the other hole.

Depth of Caissons. The bottom of caisson elevation shown on the plans is approximate. The actual bottom of caisson elevation shall be determined by a minimum penetration of 24 inches into sound sandstone. This depth shall be confirmed by the Engineer after inspection of each hole.

Prior to drilling caissons for the central column of Eastbound pier #2, the Contractor shall, by probing or other accepted means, locate the existing 36 inch sanitary sewer to the satisfaction of the Engineer.

If field location indicates a necessity for relocation or redesign, a request for such shall be submitted to the Director for approval.

Examination of Caissons. Before the placing of the caisson concrete, the caisson excavation shall be clean and free from all foreign matter. In all cases, the excavation shall be inspected and approved by the Engineer. Upon his approval, the reinforcement may then be installed and the concrete placed. There shall be no water in the hole when the concrete is placed, except under certain conditions when artesian water is encountered.

Materials. Concrete for all caissons shall be Class "C" concrete and shall be controlled and placed according to the requirements of Item 511 for structures over 20 feet. Reinforcing steel shall meet the requirements of Item 509 and the vertical bars shall be deformed. Metal shells shall be water-tight and shall be of sufficient strength to withstand the earth pressures during the installation procedures.

Method of Measurement. The length of each caisson to be paid for shall be the completed and accepted length, measured along the axis of the caisson from the bottom of the drilled hole to the elevation of the top of the caisson.

Basis of Payment. The quantity of drilled caissons, measured as described above, shall be paid for at the contract unit price per liniar foot bid under "Special Items - Drilled Caissons," complete in place. This unit price and payment thereof shall constitute full compensation for furnishing all materials, except reinforcing steel, for all labor, the use of tools and equipment, and all incidentals necessary to complete this item.

Reinforcing Steel. The reinforcing steel shall not be included in the unit price bid per linear foot of caissons, but shall be paid for under Item 509.

3/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

CAISSON NOTES
BRIDGE No. CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249+93.13
STA. 251+74.83

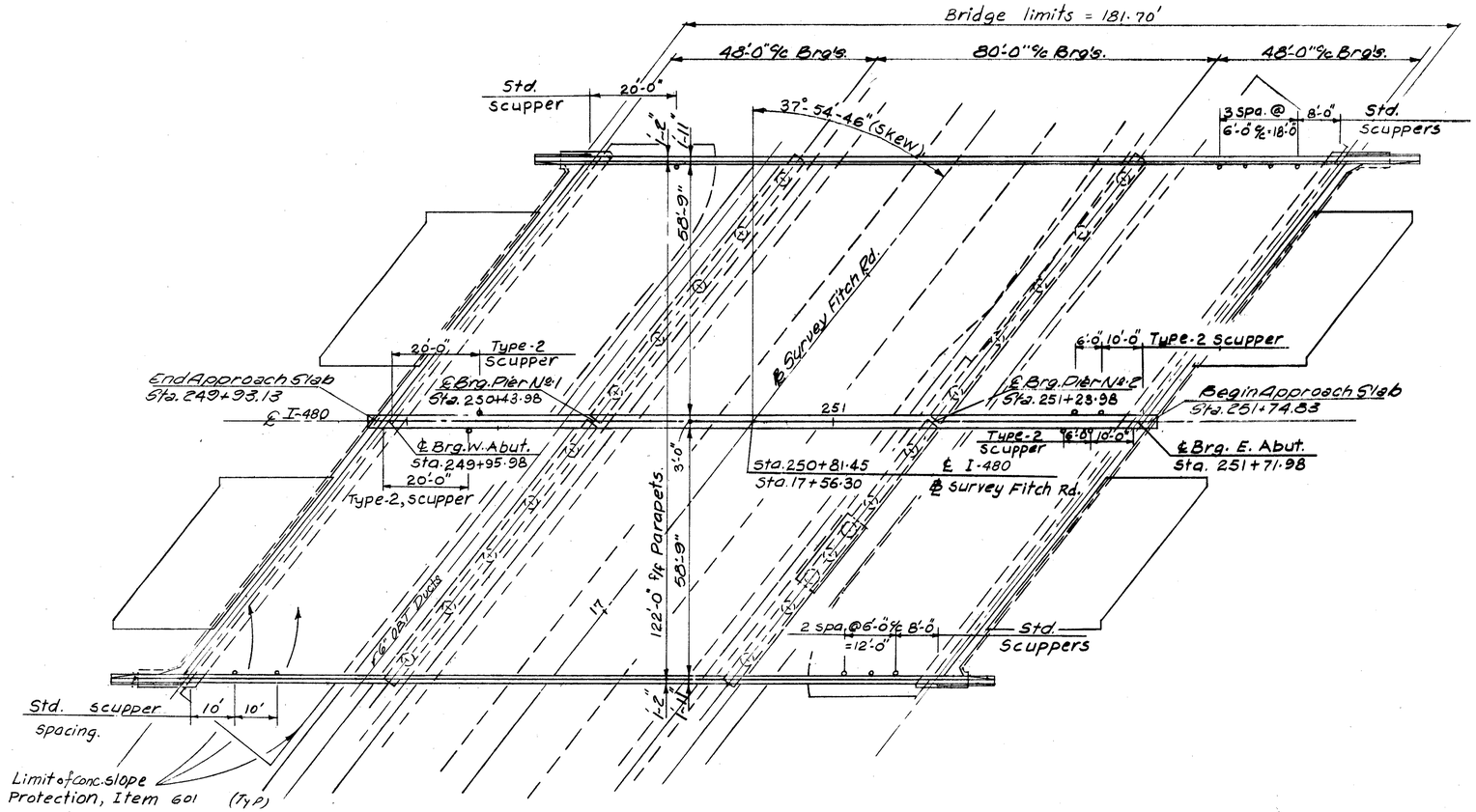
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
				G.W.M.	7/8/69	

RECEIVED
AUG 12 1968

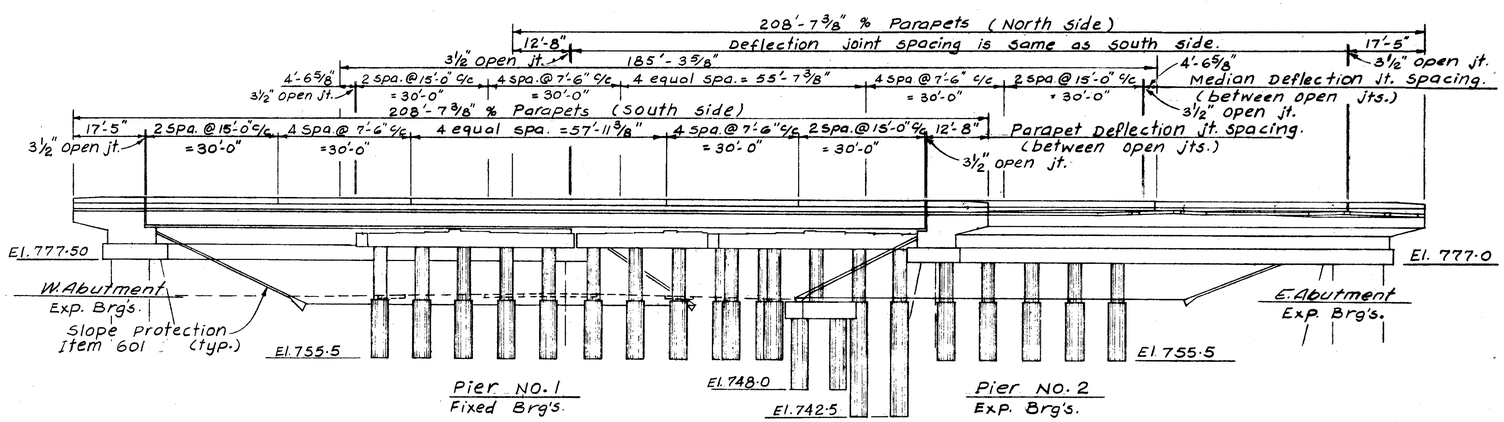
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

347
427

CUYAHOGA COUNTY
CUY-480-1.90



GENERAL PLAN



ELEVATION

Notes:
For details of type 2 scuppers see Sht. 16/17

Scupper spacing shall be adjusted to clear intermediate crossframes by a minimum of six inches.

Scupper spacing is along face of curb or median.

4/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL PLAN & ELEVATION

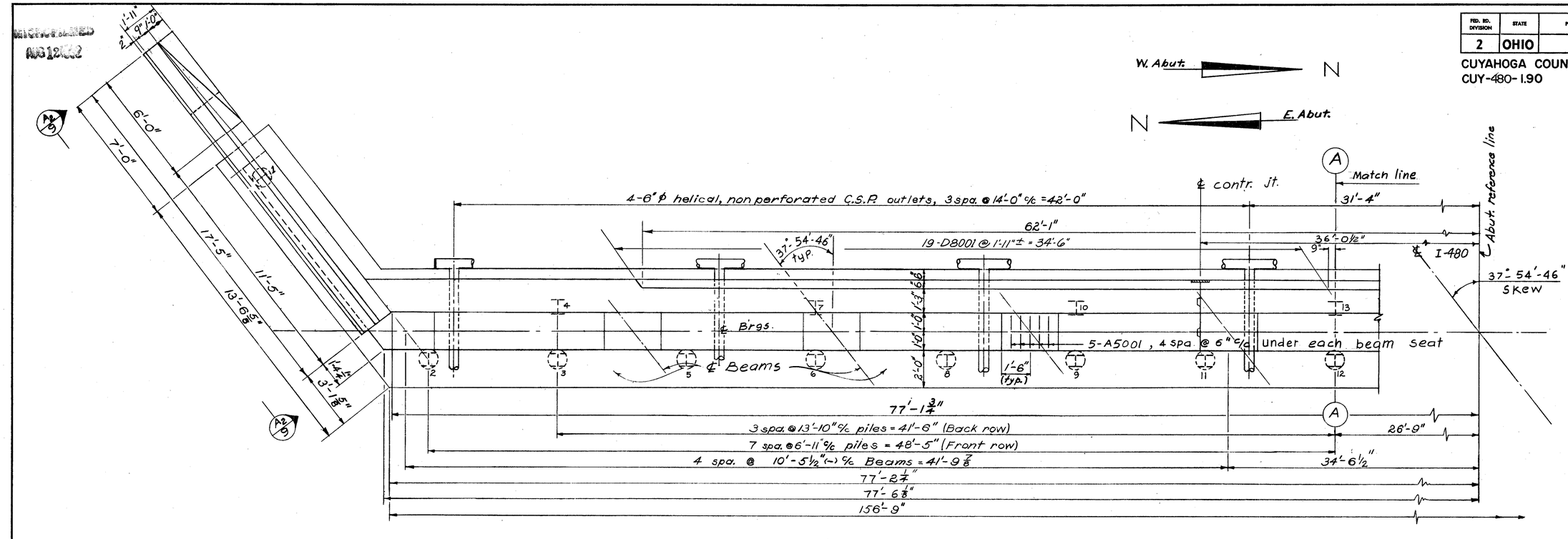
BRIDGE Nº CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P	M.B.		R.S.S.	G.W.M.	7/8/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

348
427

CUYAHOGA COUNTY
CUY-480-1.90

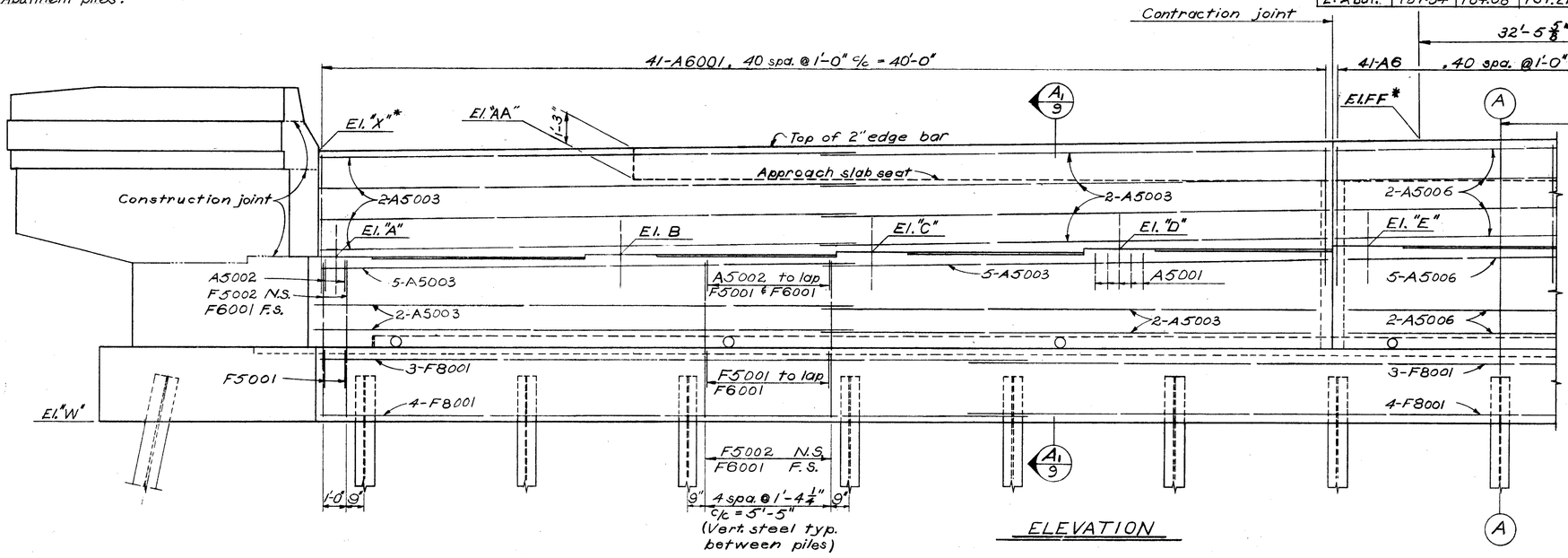


PART PLAN

Note: When recording pile numbers, suffix the number shown with the letter W for West Abutment piles or E for East Abutment piles.

TABLE OF ELEVATIONS

Location	AA	A	B	C	D	E	X*	W	FF*
W. Abut.	787.98	784.53	784.66	784.80	784.94	785.06	789.06	777.50	789.43
E. Abut.	787.54	784.08	784.22	784.38	784.54	784.70	788.59	777.00	789.06



ELEVATION

NOTES:
* Elevations marked with an asterisk are roadway elevations at face of backwall and face of curb or at high point and face of backwall.

All piles are HP. 10 x 42 piles.

(I) indicates piles battered 1:4

I indicates vertical piles

In reinforcing steel callouts:
N.S. indicates Near Side,
F.S. indicates Far Side.

For additional notes see sheet 9/17

5/17

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ABUTMENT DETAILS

BRIDGE Nº CUY-480-0286

I-480 OVER FITCH ROAD

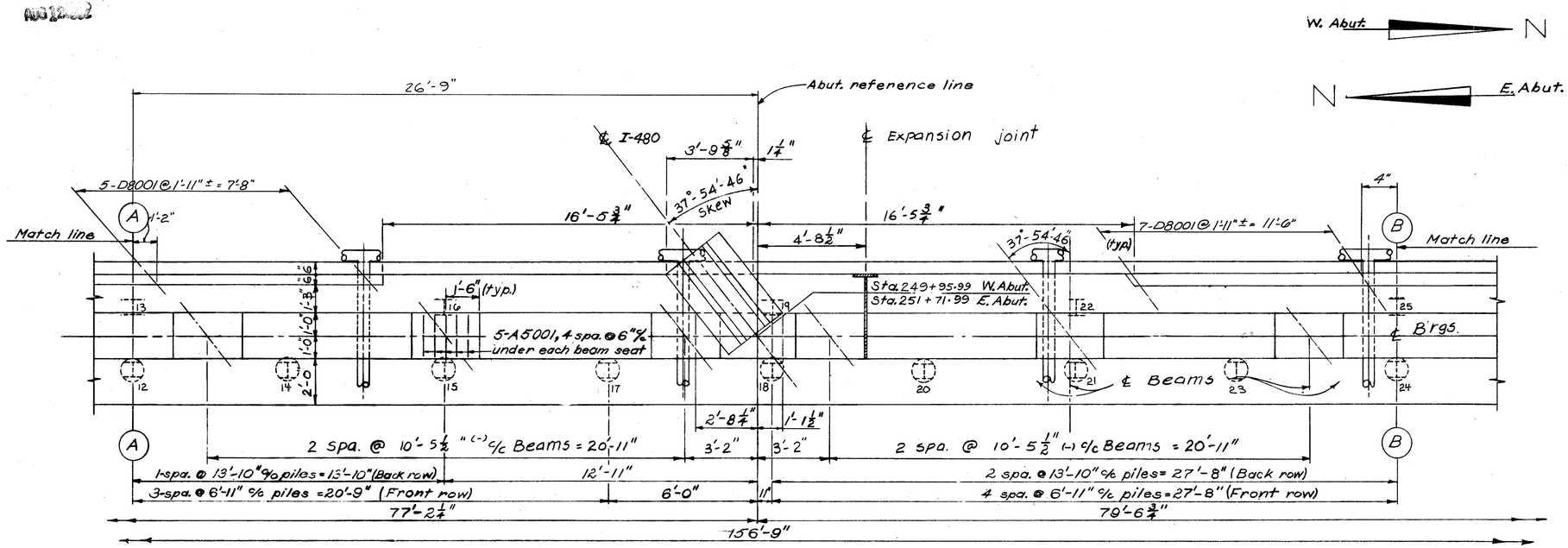
CUYAHOGA COUNTY STA. 249 +93.13
STA. 251 +74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P. J.J.P.		R.S.S.	G.W.M.	7/8/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

349
427

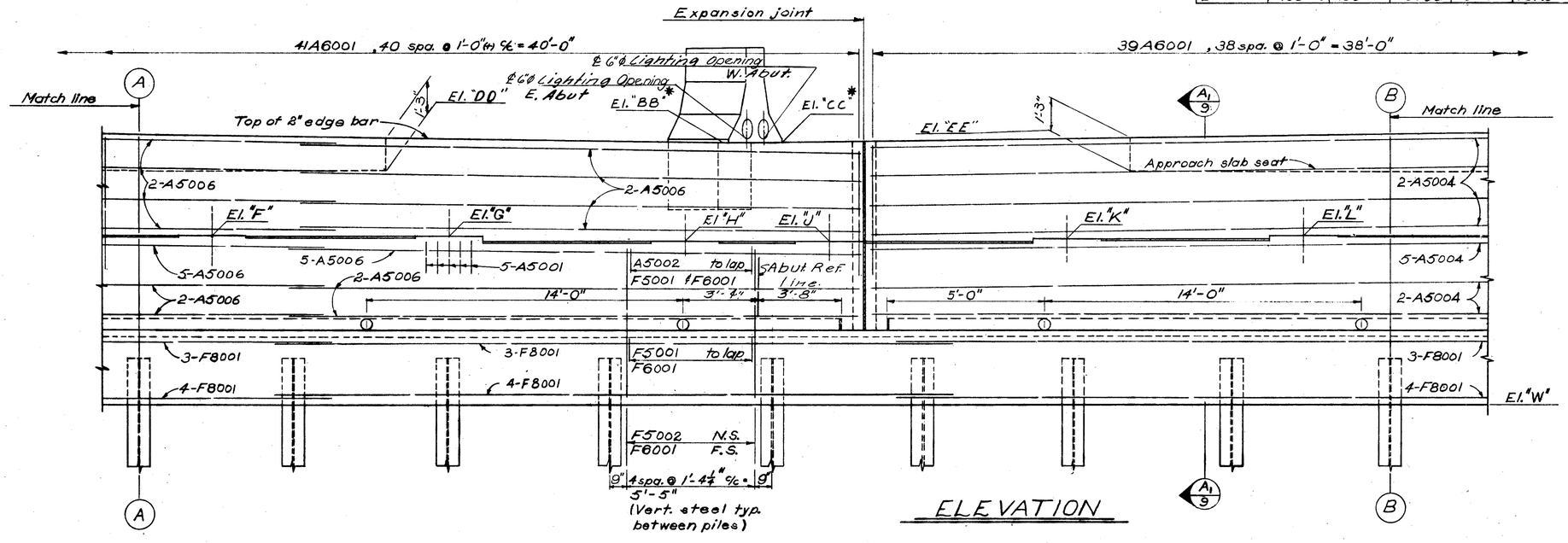
CUYAHOGA COUNTY
CUY-480-1.90



Note: When recording pile numbers, suffix the numbers, shown with the letter W for West Abutment piles and E for East Abutment piles.

PART PLAN

TABLE OF ELEVATIONS										
Location	BB	CC	DD	EE	F	G	H	J	K	L	W
W. Abut.	789.25	789.25	788.18	788.17	785.00	784.87	784.74	784.74	784.87	784.99	777.50
E. Abut.	788.93	788.96	787.93	787.89	784.64	784.55	784.43	784.45	784.60	784.75	777.00



ELEVATION

NOTES:

The shape of the median on abutment shall match the shape of median on superstructure.

*Elevations marked with an asterisk are roadway elevations at face of back wall, at face of curb.

All piles are H.P. 10 x 42 piles.

(T) indicates piles battered 1:4

I indicates vertical piles.

In reinforcing steel callouts:
N.S. indicates near side;
F.S. indicates far side.

For additional notes see sht. 9/17

For median details see sht 7/17

6/17

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ABUTMENT DETAILS

BRIDGE Nº CUY-480-0286

I-480 OVER FITCH ROAD

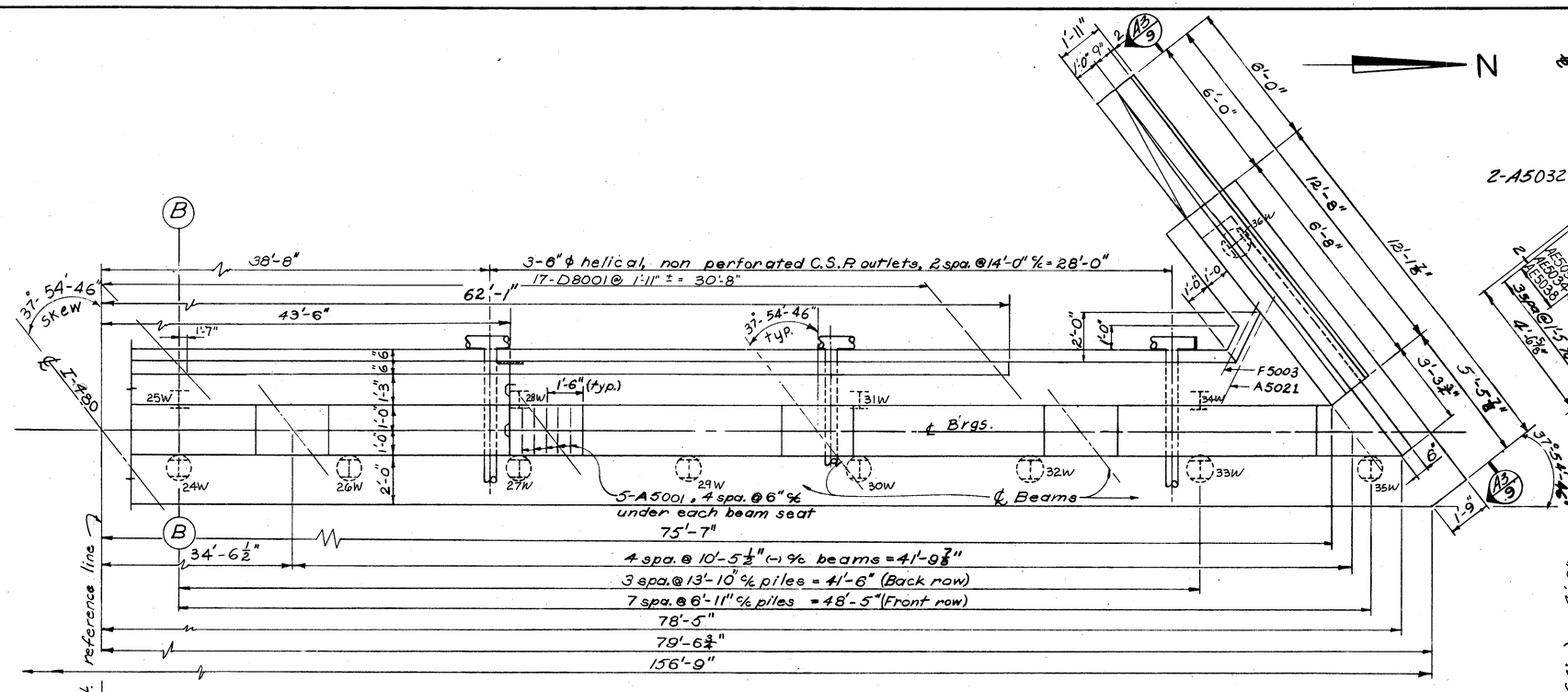
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P. J.J.P.		R.S.S.	G.W.M.	7/8/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

350
427



7/17

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CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

WEST ABUTMENT DETAILS
BRIDGE Nº CUY-480-0286

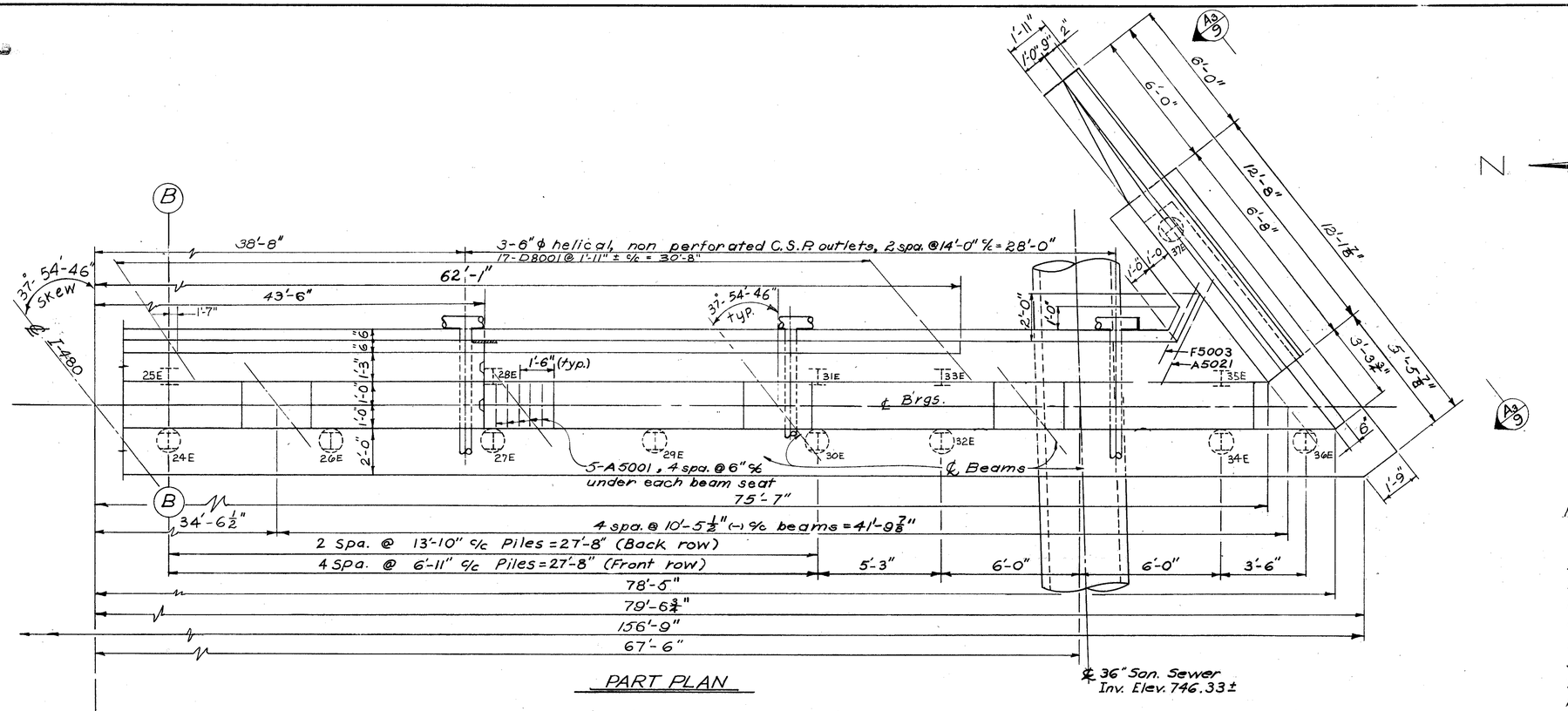
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P. J.V.P.		R.S.S.	G.W.M.	11/6/79	

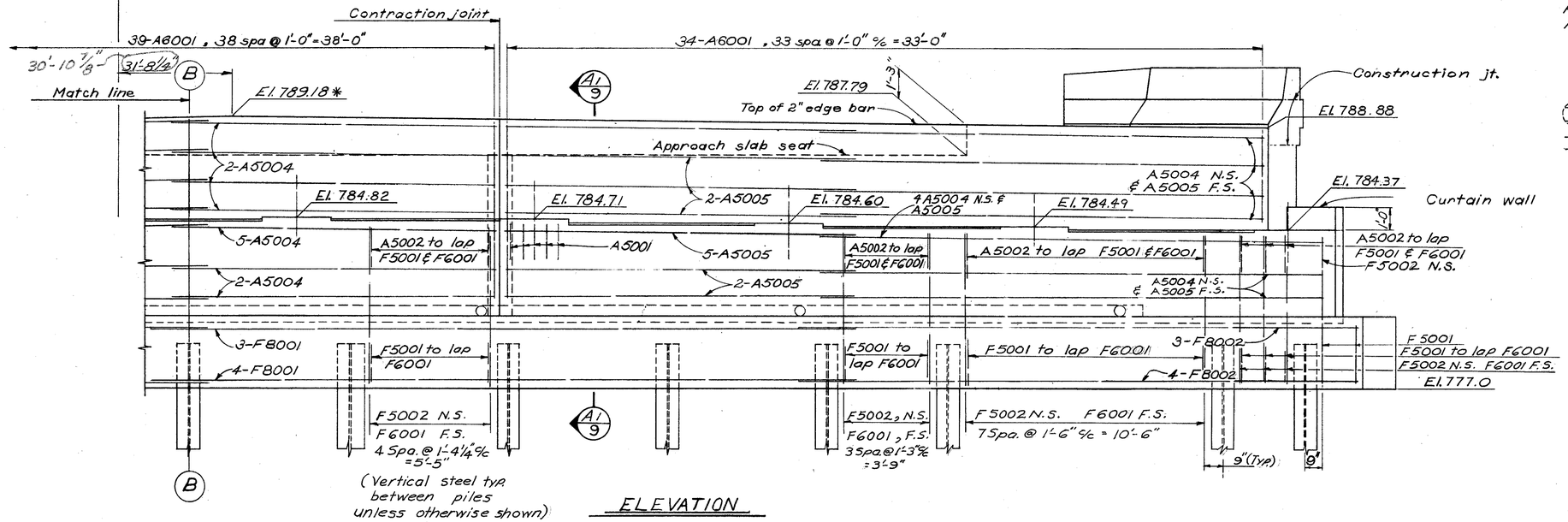
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

351
427

CUYAHOGA COUNTY
CUY-480- 1.90



PART PLAN



(Vertical steel typ. between piles unless otherwise shown)

ELEVATION

N

NOTES:

The five piles (32E, 33E, 34E, 35E & 37E) adjacent to the Exist. 36" ϕ Sanitary sewer shall be driven in holes prebored to Elev. 754.0 ±. Upon completion of driving, the voids between the pile and prebored moterial shall be backfilled with concrete to El. 763.0 ± and with granular backfill to the top of the hole the concrete and granular backfill shall be included for payment with Item 507, Prebored holes.

(T) indicates pile battered 1:4.

II indicates vertical pile.

In reinforcing steel callouts: N.S. indicates Near Side; F.S indicates Far Side.

For additional notes see sheet 9/17

All Piles are HP, 10 x 42 Piles.

8/17

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CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

EAST ABUTMENT DETAILS

BRIDGE Nº CUY-480-0286

I-480 OVER FITCH ROAD

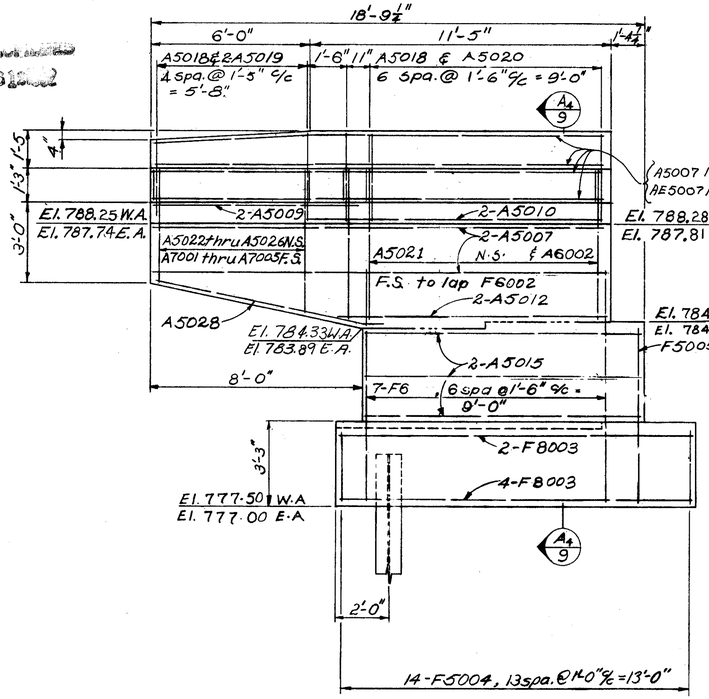
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P. J.J.P.		R.S.S.	G.W.M.	7/31/69	10-24-79

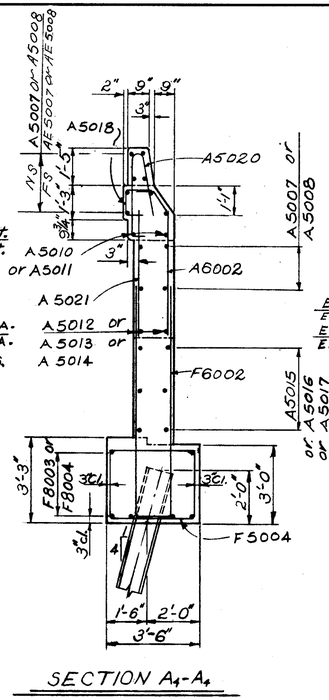
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

352
427

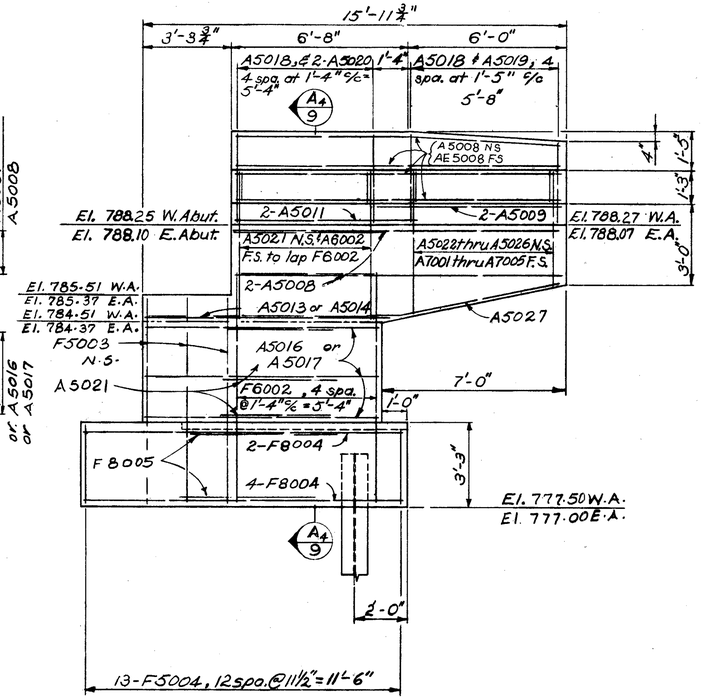
CUYAHOGA COUNTY
CUY-480-1.90



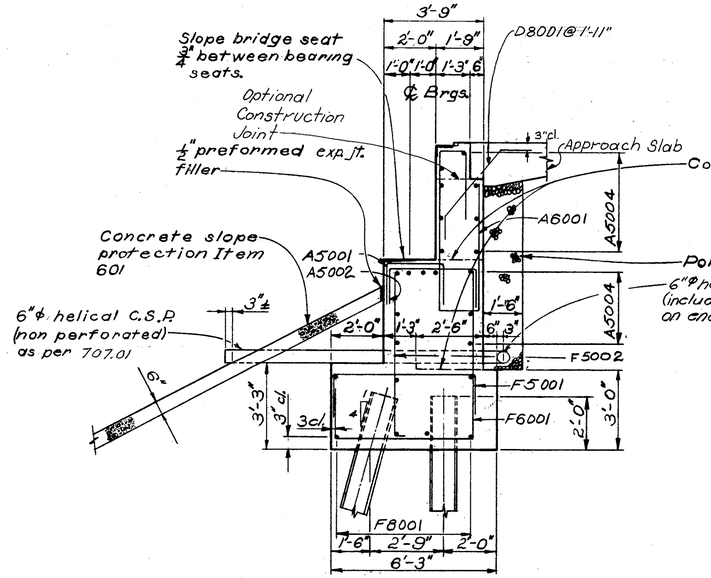
VIEW A_2-A_2 5/17



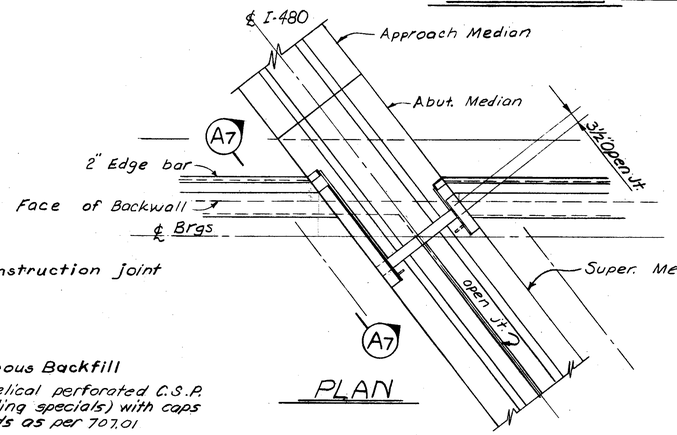
SECTION A_4-A_4



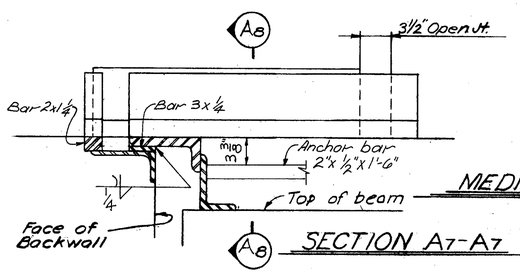
VIEW A_3-A_3 7,8/17



SECTION A_1-A_1 5,6,7&7/17



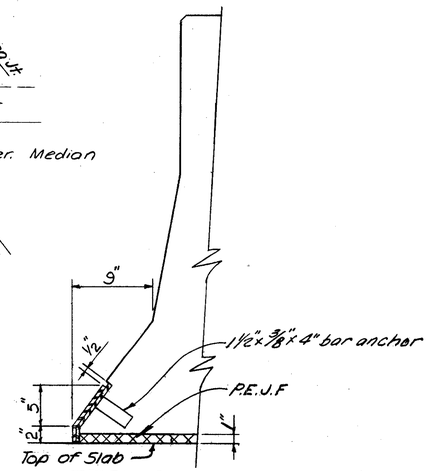
PLAN



SECTION A_7-A_7

MEDIAN CURB PLATE DETAILS

For Details not shown see Std. DWG. SD-1-69, SHT. 2



SECTION A_8-A_8

NOTES:

All piles shall be HP, 10 x 42 piles.

I indicates vertical pile.

indicates battened piles 1:4

Porous backfill 1'-6" thick, shall extend up to the plane of the subgrade and laterally to the ends of the wing walls.

PARAPET TRANSITIONS AND WINGWALL ENDS shall be as shown on Std. Drwg. BR-1-67 revised 10-15-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

A joint shall be provided in the abutment portion of the end dam at contraction and expansion joint.

6" ϕ helical perforated C.S.P. shall have all ends capped.

In reinforcing steel callouts:
N.S. indicates near side;
F.S. indicates far side.

Concrete and reinforcing steel for parapets and barrier medians are included for payment with item 511 Concrete and 509 Reinforcing Steel.

For wingwall details not shown, see std. dwg. BR-1-67 Sht. No. 1

For details of expansion & contraction joint, see common details sheet number 401.

Backwall Concrete: In addition to the provisions of 511.08, backwall concrete or backwall concrete above the optional construction joint at the approach slab seat shall not be placed until after the deck concrete in the span adjacent to the backwall has been placed. 9/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

ABUTMENT DETAILS
BRIDGE Nº CUY-480-0286

I-480 OVER FITCH ROAD

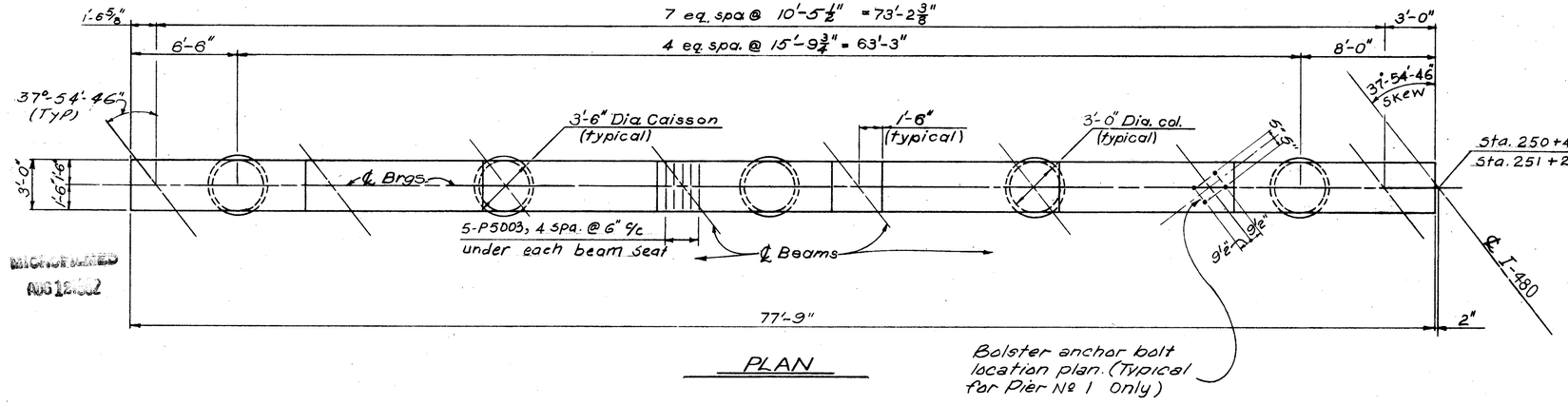
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.F.	J.P.		R.S.S.	G.W.M.	7/8/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

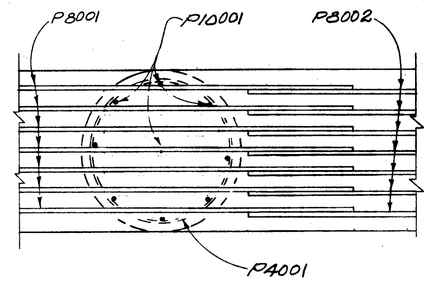
353
427

CUYAHOGA COUNTY
CUY-480-1.90

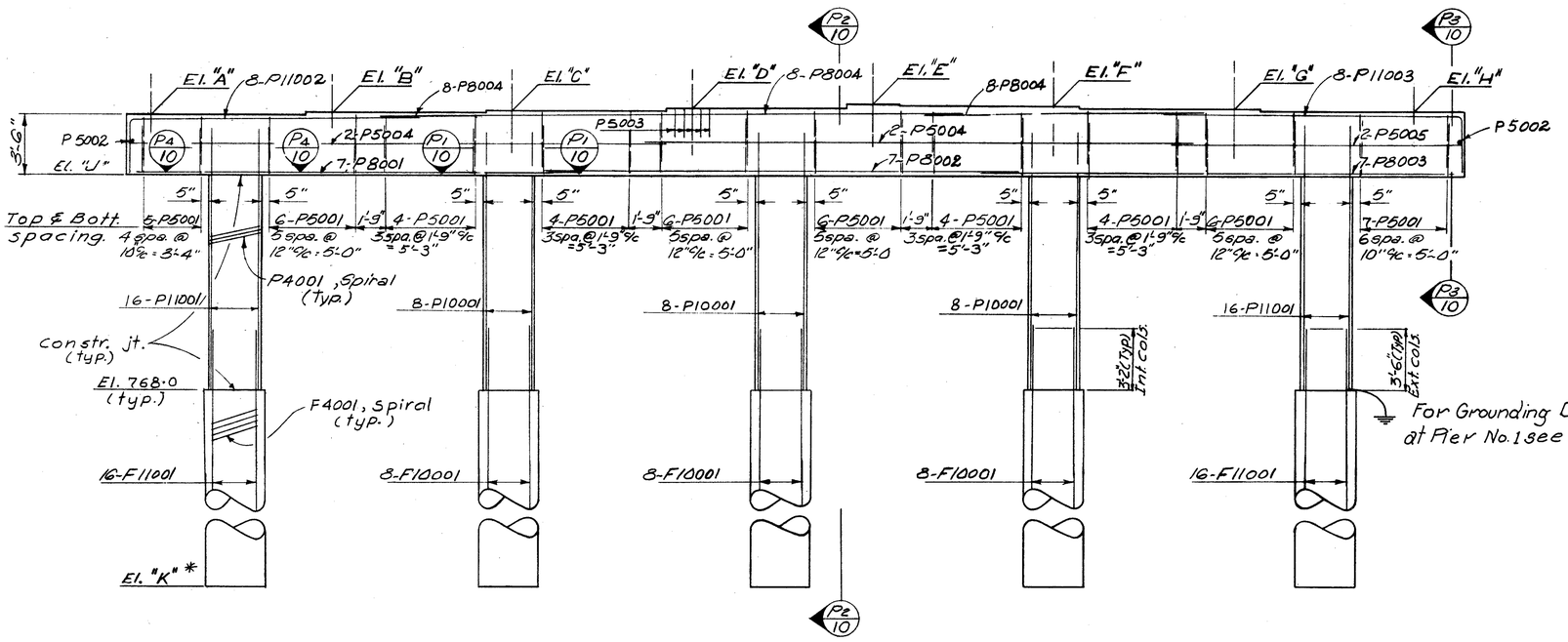


PLAN

Bolster anchor bolt location plan. (Typical for Pier No 1 Only)



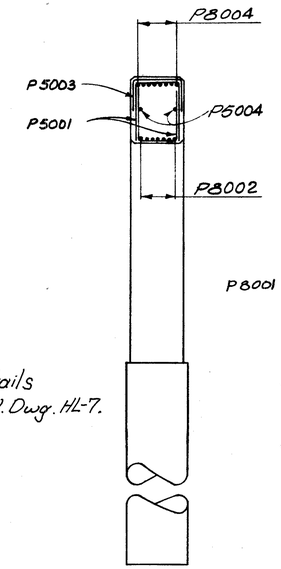
SECTION P1-P1



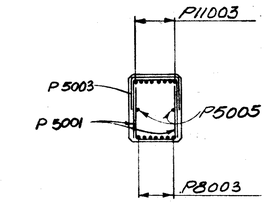
ELEVATION

TABLE OF ELEVATIONS

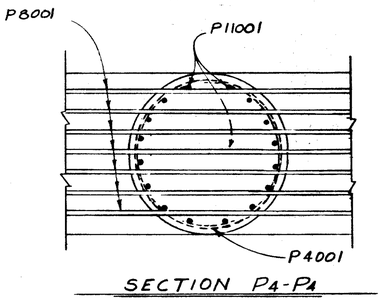
Location	A	B	C	D	E	F	G	H	J	K *
Pier # 1	783.91	784.05	784.19	784.33	784.48	784.41	784.30	784.17	780.41	758.0±
Pier #2	783.71	783.86	784.01	784.15	784.31	784.25	784.15	784.04	780.21	757.0±



SECTION P2-P2



SECTION P3-P3



SECTION P4-P4

NOTE:
Special care shall be taken at pier No.1 in placing reinforcing steel in the top of the cap so as to avoid interference with the drilling of bearing anchor holes or the presetting of bearing anchors.

BEARING ANCHORS: At the option of the Contractor, bearing anchors (or formed holes), located and supported by templates, may be cast-in-place.

* See Caisson Notes - Sheet 3/17

10/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

W.B. PIER Nº 1 & Nº 2 DETAILS

BRIDGE Nº CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

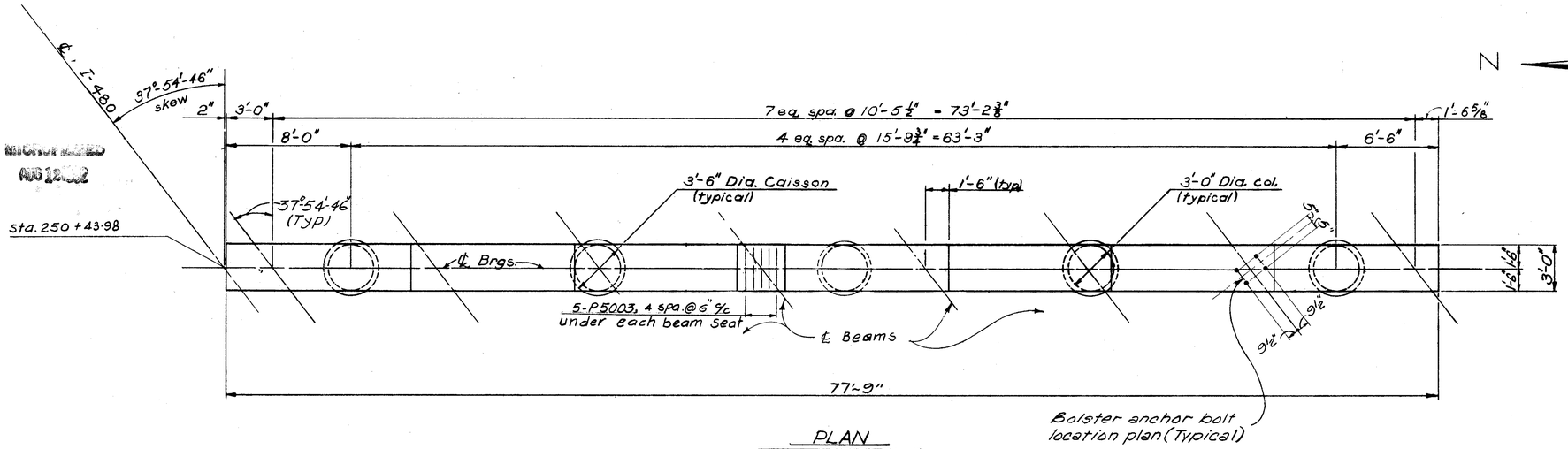
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	JP MB		B.I.P. R.S.S.	G.W.M.	7/8/69	

K. & E. - Cleveland 107155

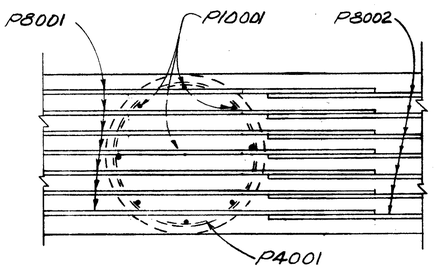
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

354
427

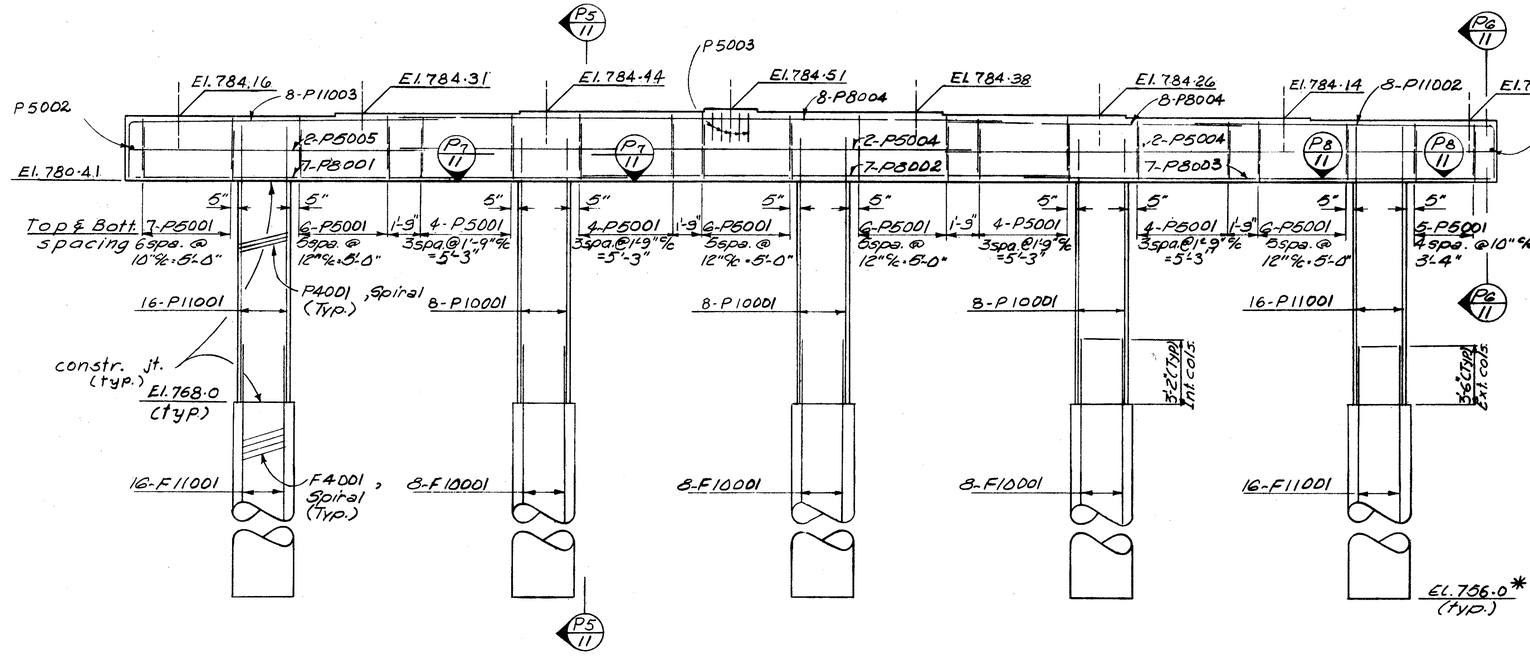
CUYAHOGA COUNTY
CUY-480-1.90



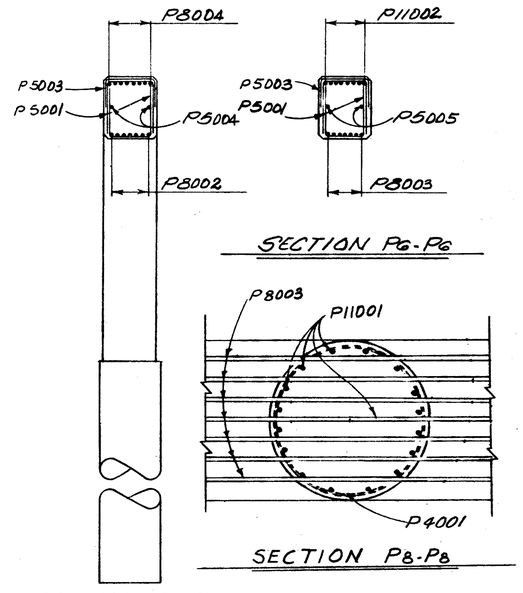
PLAN



SECTION P7-P7



ELEVATION



SECTION P6-P6

SECTION P8-P8

SECTION P5-P5

11/17

Bearing Anchors: At the option of the Contractor, bearing anchors (or formed holes), located and supported by templates, may be cast-in-place.

NOTES:
Special care shall be taken at pier No. 1 in placing reinforcing steel in top of the cap so as to avoid interference with the drilling of bearing anchor holes or the presetting of bearing anchors.

*See Caisson Notes — Sheet 3/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

E.B. PIER Nº 1 DETAILS

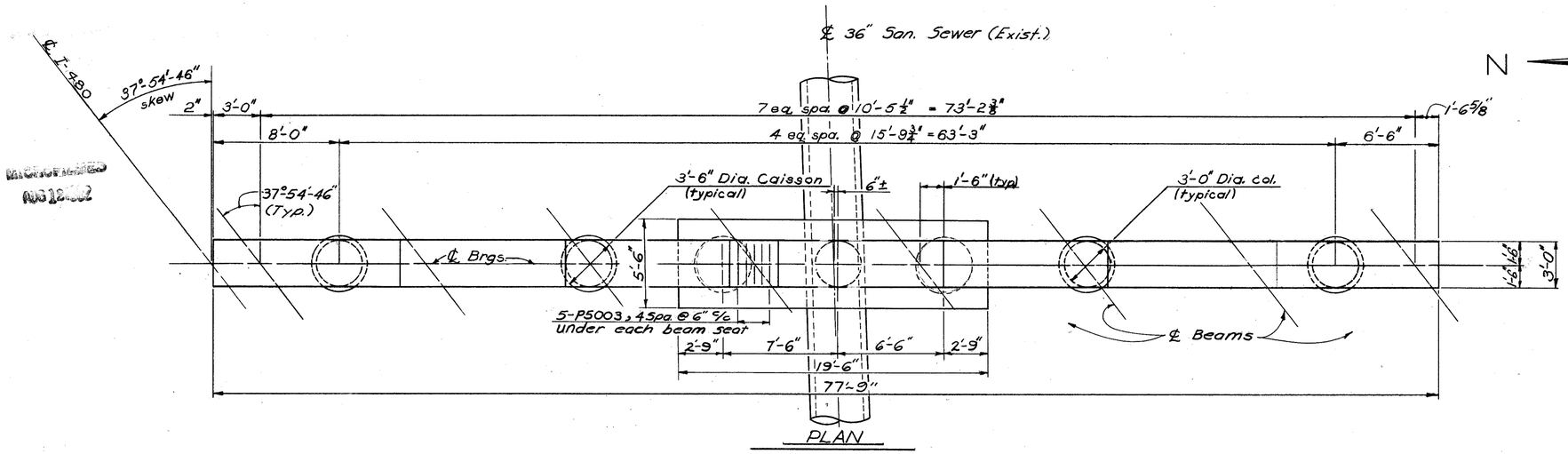
BRIDGE Nº CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	J.P. M.B.		B.I.P. R.S.S.	G.W.M.	7/8/69	

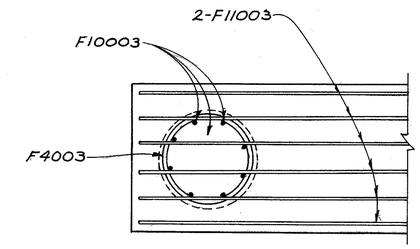
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

355
427

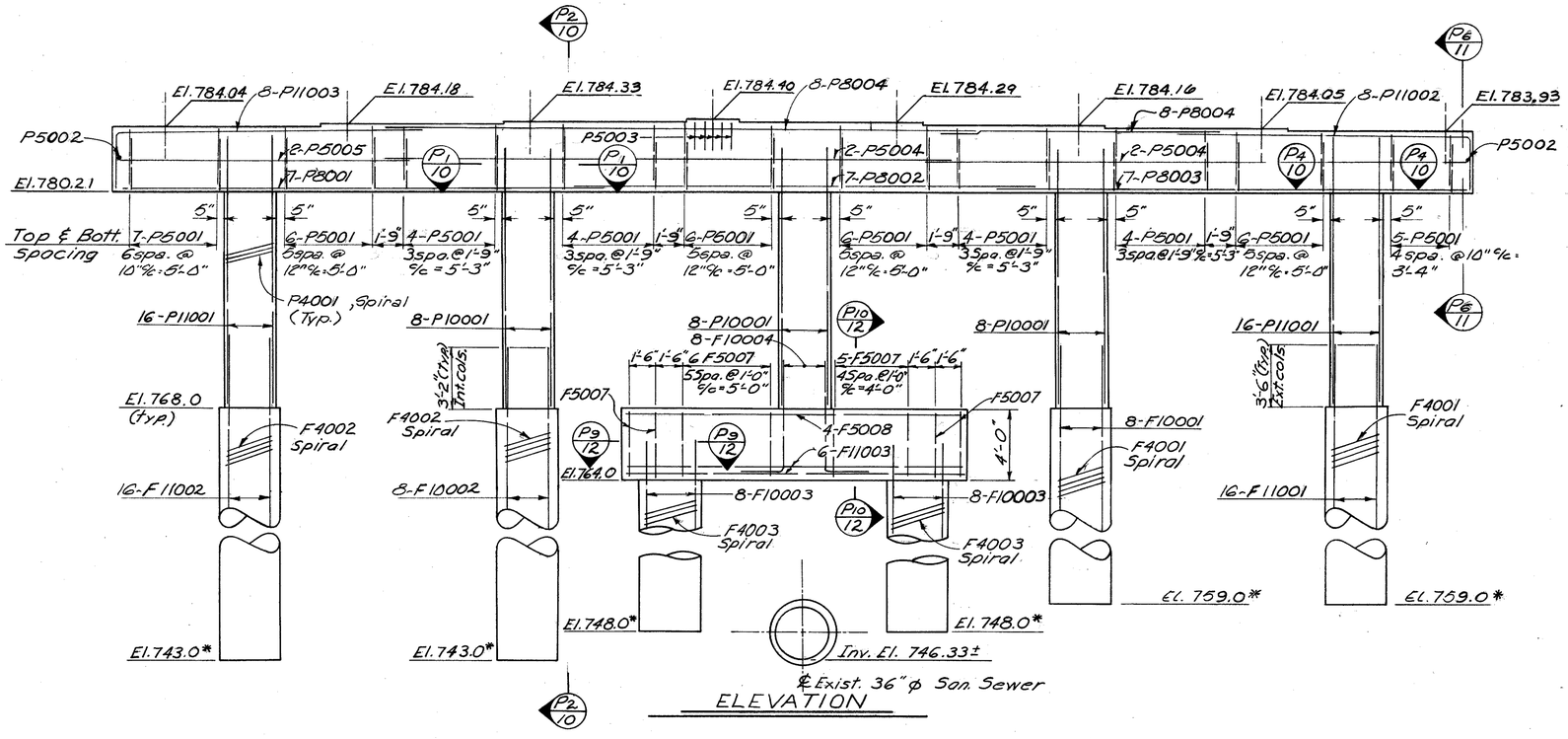
CUYAHOGA COUNTY
CUY480-1.90



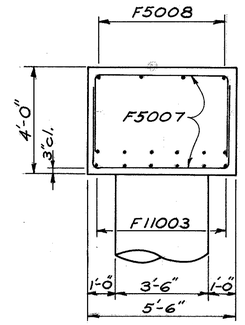
PLAN



SECTION P9-P9



ELEVATION



SECTION P10-P10

* See Caisson notes sht. 3/17

12/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

E.B. PIER Nº 2 DETAILS

BRIDGE Nº CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

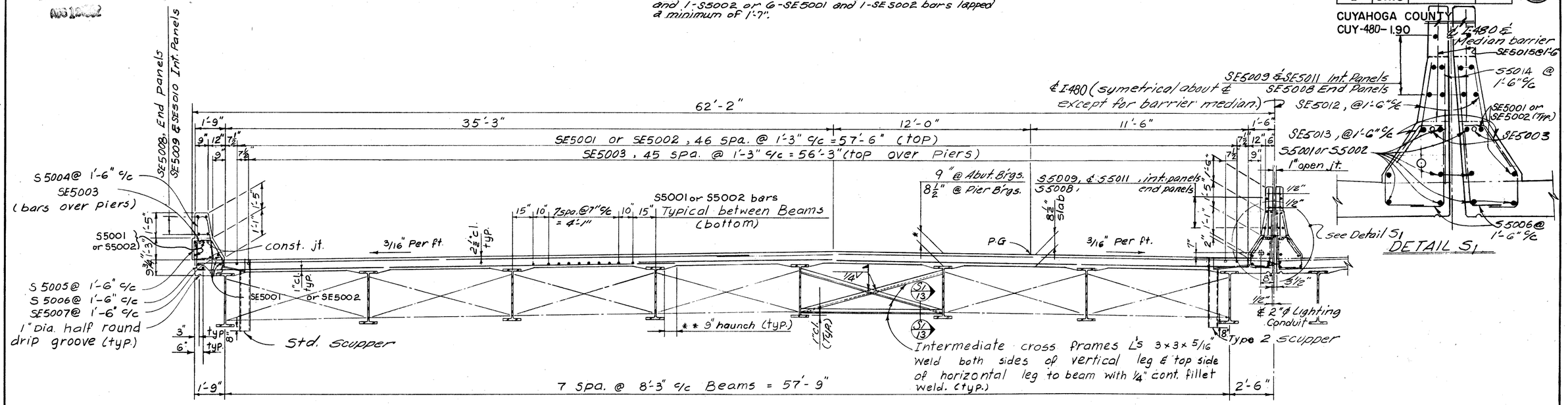
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	JP MB.		R.S.S.	G.W.M.	7/21/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

356
427

CUYAHOGA COUNTY
CUY-480-1.90

Note:
Each longitudinal run of deck reinforcing, excluding SE5003 over Piers shall be comprised of 6-S5001 and 1-S5002 or 6-SE5001 and 1-SE5002 bars lapped a minimum of 1'-7".



HALF TRANSVERSE SECTION

DETAIL S1

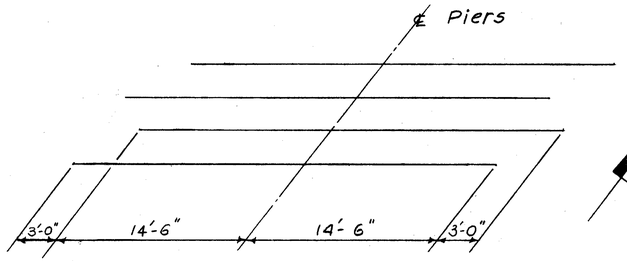
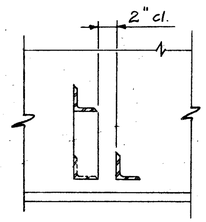
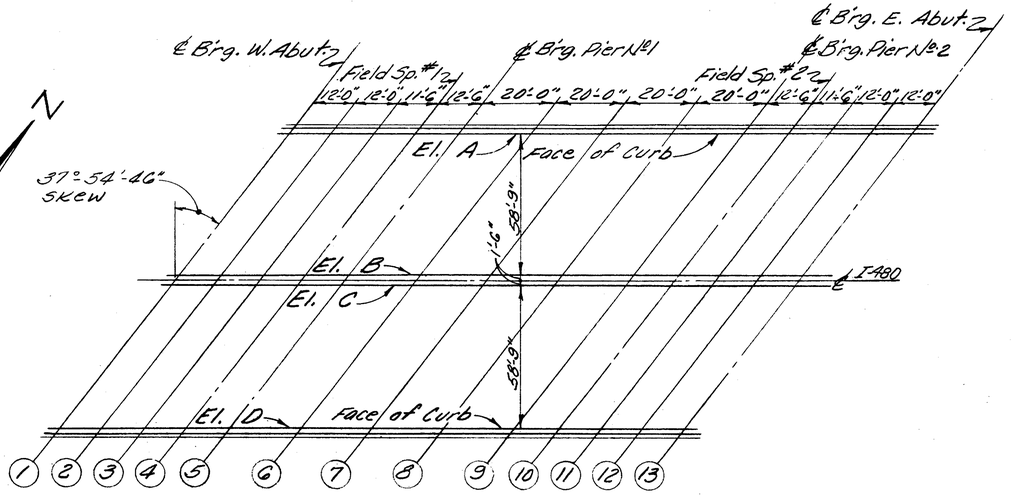


DIAGRAM SHOWING STAGGER OF SE5003, BARS OVER PIERS



SECTION S1-S1



DECK ELEVATIONS

NOTE: The deck elevations shown are those which are required prior to placing of the concrete deck. Proper allowance has been made for the dead load deflection caused by the weight of the concrete.

TABLE OF DECK ELEVATIONS

LINE	1	2	3	4	5	6	7	8	9	10	11	12	13
ELEV. A	789.03	789.02	789.00	788.99	788.96	788.97	788.93	788.86	788.76	788.73	788.69	788.64	788.59
ELEV. B	789.25	789.26	789.23	789.23	789.21	789.22	789.20	789.16	789.08	789.05	789.01	788.98	788.93
ELEV. C	789.25	789.25	789.25	789.23	789.22	789.22	789.21	789.16	789.08	789.06	789.03	789.00	788.96
ELEV. D	789.06	789.06	789.07	789.07	789.07	789.08	789.09	789.05	788.98	788.96	788.93	788.92	788.89

NOTES:

* 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 confirmation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per Item 511.18.

** A typical haunch width of 9" shall be used for all beams in 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.

For transverse slab reinforcing see Sht. 14/17

Concrete and reinforcing steel for parapets and median barrier shall be included for payment with their respective items, Item 511 Superstructure concrete and Item 509 reinforcing steel.

For Scupper Details see Sht. 16/17

13/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY-480-0286

I-480 OVER FITCH ROAD

CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T. B.I.P.		R.S.S.	G.W.M.	7/6/69	

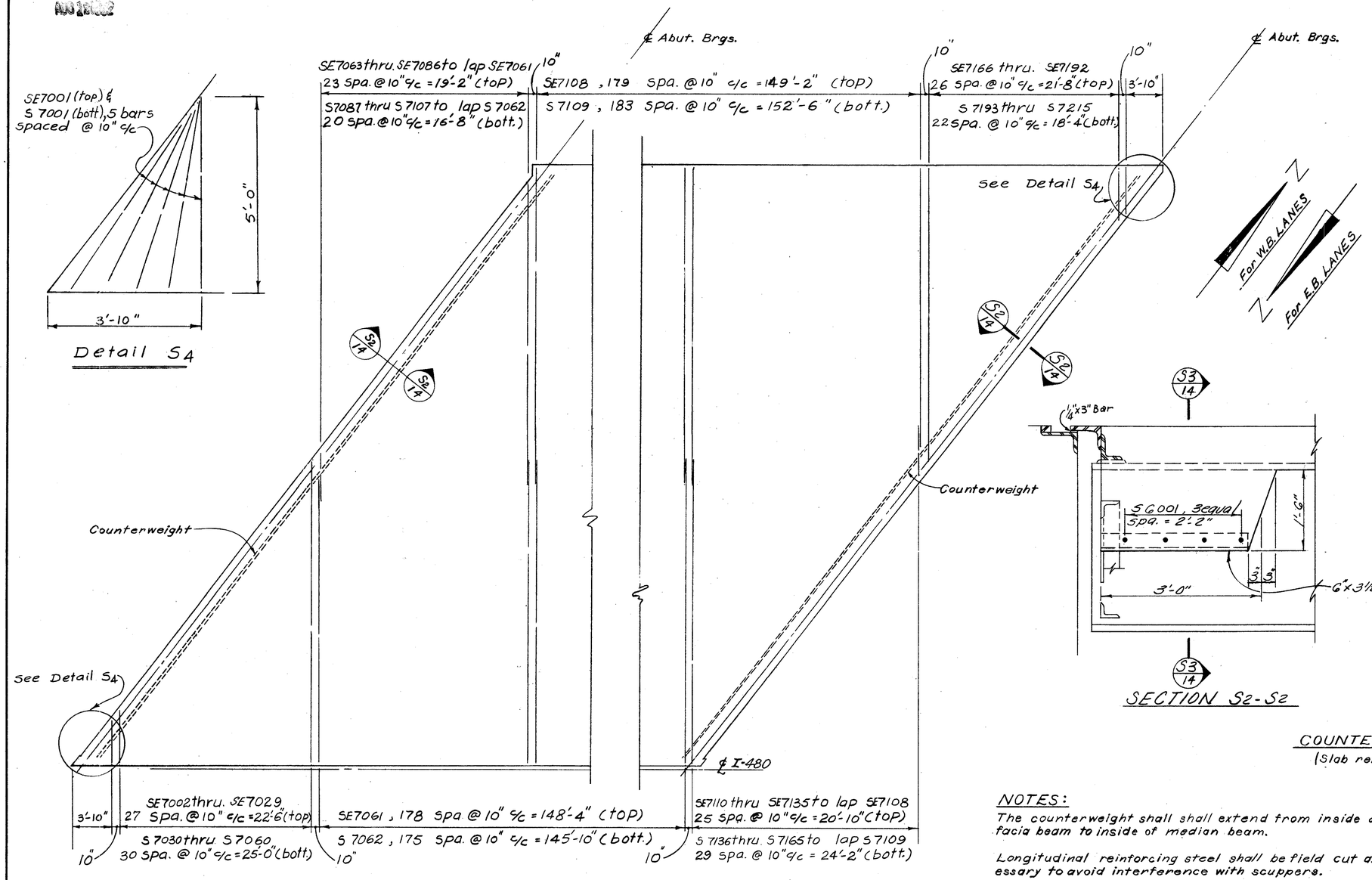
E. & E. - Cleveland 107100

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

357
427

CUYAHOGA COUNTY
CUY-480-1.90

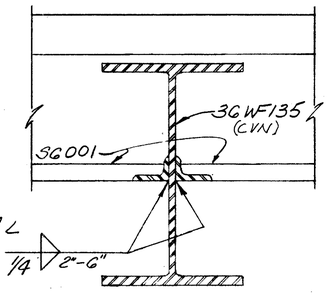
Detail S4



TRANSVERSE SLAB REINFORCING

Note:- Transeverse slab reinforcing bars shall be placed normal to ℄ of I-80 except at acute corners of slab.

SECTION S2-S2



SECTION S3-S3

COUNTERWEIGHT DETAILS

(Slab reinforcing not shown)

NOTES:

The counterweight shall shall extend from inside of facia beam to inside of median beam.

Longitudinal reinforcing steel shall be field cut as necessary to avoid interference with scuppers.

For additional notes see Sht. 13/17

14/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY-480-0286

I-480 OVER FITCH ROAD

CUYAHOGA COUNTY STA 249 + 93.13
STA 251 + 74.83

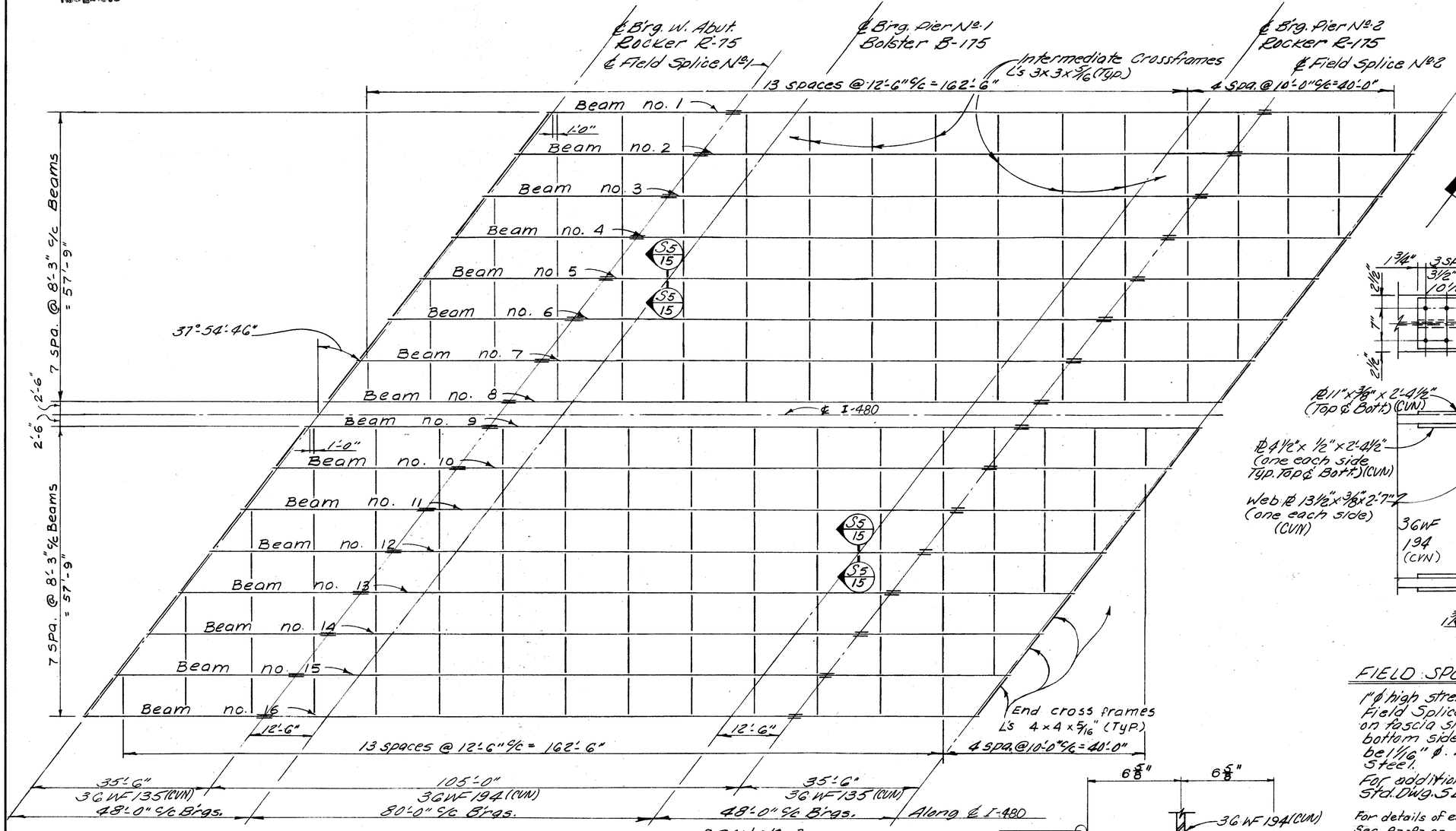
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P		R.S.S.	C.W.U.	7/9/69	

E. & E. - Cleveland 107155

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

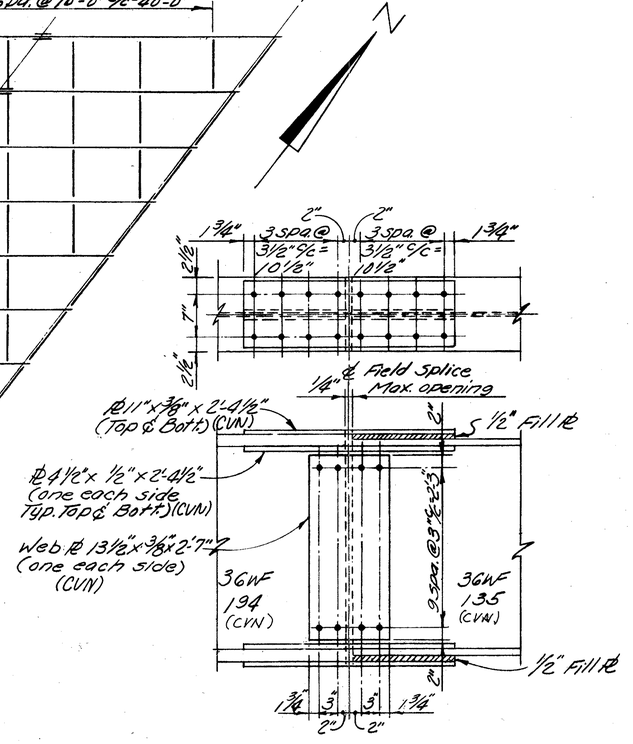
358
427

CUYAHOGA COUNTY
CUY-480-1.90



FRAMING PLAN

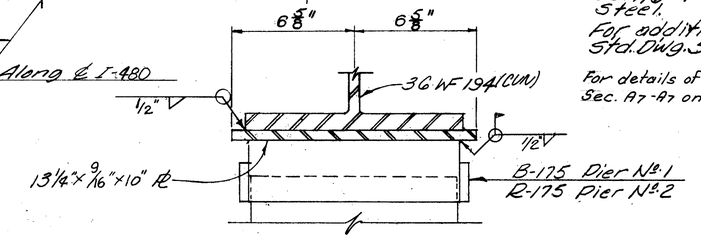
NOTES:
Crossframes may be shifted if necessary to avoid field splice.
Place intermediate crossframes normal to beam.
Where a shape or plate is designated (CVN) the material shall meet Specified minimum notch toughness requirements.



FIELD SPLICE Nº.1 & Nº. 2 DETAILS

1" ℄ high strength bolts shall be used at the Field Splices. Bolt heads shall be placed on fascia side of exterior beam web and bottom side of bottom flange. Holes shall be 1 1/16" ℄. Bolts shall conform to A-325 Steel.
For additional Details of Field Splices see Std. Dwg. SD-1-69 Sht. Nº. 4.

For details of end dams see Std. Drwg. SD-1-69 and Sec. A7-A7 on Sh. 9/17.



SECTION S5-S5

The 9/16" plate shall be centered on the brg. ℄. Typical at each pier bearing unit.

15/17

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CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY-480-0286
I-480 OVER FITCH ROAD
CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

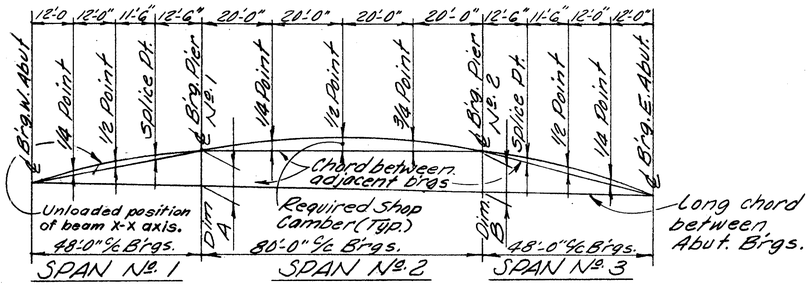
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P.		R.S.S.	G.W.M.	7/9/69	

K. & E. - Cleveland 107153

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

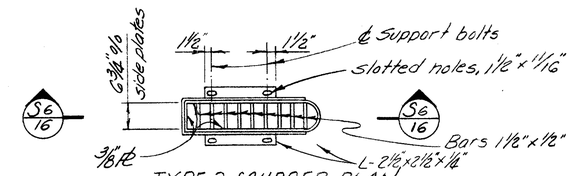
359
427

CUYAHOGA COUNTY
CUY-480-1.90



CAMBER & BLOCKING DIAGRAM

TABLE OF BLOCKING DIMENSIONS																
BEAM No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Dim. "A"	5/8"	11/16"	9/16"	5/8"	5/8"	5/8"	9/16"	5/8"	9/16"	11/16"	9/16"	9/16"	5/8"	5/8"	11/16"	11/16"
Dim B	5/8"	3/4"	5/8"	1/2"	5/8"	5/8"	3/4"	5/8"	9/16"	9/16"	9/16"	5/8"	11/16"	1/2"	5/8"	5/8"

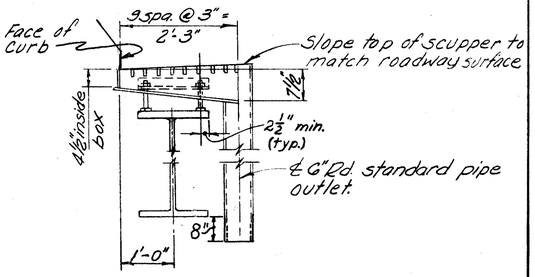


TYPE 2 SCUPPER PLAN

DEFLECTION AND CAMBER

Location	SPAN No. 1											SPAN No. 2													
	1/4 Pt.			1/2 Pt.			Splice Point					1/4 Point							1/2 Point						
Beam No.	1 thru 5	6 thru 8	9 thru 16	1 thru 6	7 & 8	9 thru 16	1	2 thru 6	7 thru 10	11 thru 15	16	1, 8 & 9	2 thru 7	10	11	12 thru 14	15	16	1, 8 & 9	2 thru 5	6	7	10 thru 12	13 thru 15	16
Deflection due to weight of steel	0	0	0	0	0	0	0	0	0	0	0	1/8	1/8	1/8	1/8	1/8	1/8	1/8	3/16	3/16	3/16	3/16	3/16	3/16	3/16
Deflection due to remaining dead load	1/16	1/16	1/16	0	0	0	0	-1/16	-1/16	-1/16	0	3/8	1/2	1/2	1/2	1/2	1/2	3/8	5/8	3/4	3/4	3/4	3/4	3/4	5/8
Adjust. Req. for Vertical Curve	1/16	0	1/16	1/16	0	1/16	1/16	1/16	0	1/16	1/16	1/8	1/8	1/8	3/16	1/8	1/16	1/16	1/8	1/8	3/16	1/16	1/8	3/16	1/8
Required Shop Camber	1/8	1/16	1/8	1/16	0	1/16	1/16	0	-1/16	0	1/16	5/8	3/4	3/4	13/16	3/4	11/16	9/16	15/16	1 1/16	1 1/8	1	1 1/16	1 1/8	15/16

Location	SPAN No. 2									SPAN No. 3															
	3/4 Point									Splice Point					1/2 Point					3/4 Point					
Beam No.	1	2 thru 4	5 & 7	6	8 & 9	10 & 11	12 & 13	14 & 15	16	1	2 thru 13	14	15	16	1 thru 8	9	10 & 11	12 & 13	14 thru 16	1 thru 3	4 thru 7	8 thru 11	12 & 13	14 & 15	16
Deflection due to weight of steel	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deflection due to remaining dead load	3/8	1/2	1/2	1/2	3/8	1/2	1/2	1/2	3/8	0	-1/16	-1/16	-1/16	0	0	0	0	0	0	1/16	1/16	1/16	1/16	1/16	1/16
Adjust. Req. for Vertical Curve	1/8	1/8	1/16	1/8	1/8	1/8	1/16	1/8	1/8	1/16	1/16	1/8	1/16	1/16	1/16	1/8	1/16	0	1/16	1/16	0	1/16	0	1/16	0
Required Shop Camber	5/8	3/4	11/16	3/4	5/8	3/4	11/16	3/4	5/8	1/16	0	1/16	0	1/16	1/16	1/8	1/16	0	1/16	1/8	1/16	1/8	1/16	1/8	1/16



SECTION S6-S6

Notes: For additional scupper details see Std. Drg. SD-1-69

For Std. scupper Details see Std. Drg. SD-1-69

Extend scuppers 8" below the bottom of the beam instead of the 2" shown on the Std. Drwg.

For spacing, see General Plan shown on Sht. 4/17.

16/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE No. CUY-480-0286

I480 OVER FITCH ROAD

CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

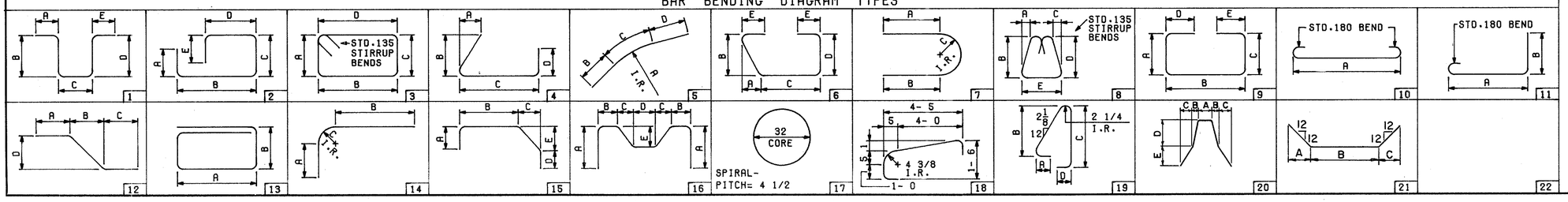
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T.		R.S.S.	G.W.M.	7/9/69	

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				ABUTMENTS						
A 5001	80	4-11	410	2	1- 6	2- 2	1- 6			
A 5002	224	7-10	1830	2	2- 4	3- 5	2- 4			
A 5003	68	21- 6	1525	ST						
A 5004	88	20- 1	1843	ST						
A 5005	48	16- 3	814	ST						
A 5006	68	21- 0	1489	ST						
A 5007	16	17- 1	285	ST						
A 5008	16	12- 4	206	ST						
A 5009	8	7- 3	60	ST						
A 5010	4	11- 3	47	ST						
A 5011	4	6- 4	26	ST						
A 5012	4	10- 0	42	ST						
A 5013	2	9- 0	19	ST						
A 5014	2	6- 0	13	ST						
A 5015	12	10- 5	130	ST						
A 5016	6	8- 8	54	ST						
A 5017	6	8- 0	50	ST						
A 5018	46	1- 9	84	2	0- 6	1- 0	0- 6			
A 5019	40	2- 9	115	ST						
A 5021	36	4- 7	172	ST						
A 5022	4	3-11		ST						1
THRU			96		VARY	LENGTH	BY	0- 4		
A 5026	4	5- 3		ST						1
A 5027	4	7-10	33	12	7- 0	0-10		0- 3		
A 5028	4	8-10	37	12	8- 0	0-10		0- 3		
A 5030	4	4- 0	17	ST						
A 5031	2	2- 0	4	ST						
A 5032	8	3- 2	26	12	1- 7	1- 4		0-10		
A 5036	4	3- 3	14	10	2- 1					
A 5037	4	7- 9	32	2		2- 9	2- 6	2- 9		
A 6001	310	15- 2	7062	2	4- 5	1- 5	6- 0	0-11	3- 1	
A 7001	4	3-11	32	ST						
A 7002	2	4- 8		15		0- 9	0- 2	3- 0	1- 0	1
THRU			87		VARY	LENGTH	BY	0- 5	3/ 8	
					VARY	DIM. C	BY	0- 2	3/ 8	
					VARY	DIM. D	BY	0- 4	5/ 8	
A 7005	2	6- 0		15		0- 9	0- 9	4- 2	1- 0	1
F 5001	228	8- 7	2041	2	1- 7	5- 8	1- 7			
F 5002	226	7- 3	1709	2	6- 9	0- 8				
F 5003	4	4- 3	18	ST						
F 5004	54	12- 1	681	3	2- 7	3- 2	2- 7	3- 2		
F 5005	2	6- 9	14	ST						
F 5006	6	7- 9	48	ST						
F 6001	224	14- 5	4850	1		6- 9	5- 5	2- 7		
F 6002	24	17- 8	637	2	8- 5	1- 2	8- 5			
F 8001	70	30- 0	5607	ST						
F 8002	14	19- 3	720	ST						
F 8003	12	13- 0	417	ST						
F 8004	12	10- 9	344	ST						
D8001	96	6- 1	1559	21	1- 1	3-11	0-6			

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				PIERS						
P 4001	20	12- 2	4639	17	NO. TURNS= 35		NO. SPACERS= 80			6
P 5001	448	8- 9	4089	2	3- 2	2- 8	3- 2			
P 5002	8	2- 8	22	ST						
P 5003	160	5- 5	904	2	1- 6	2- 8	1- 6			
P 5004	16	30- 0	501	ST						
P 5005	8	20- 8	172	ST						
P 8001	28	26- 2	1956	ST						
P 8002	28	28- 8	2143	ST						
P 8003	28	27- 8	2068	ST						
P 8004	96	18- 1	4635	ST						
P10001	96	15- 7	6437	ST						
P11001	128	15- 4	10428	ST						
P11002	32	18- 7	3159	2	15- 9	3- 2				
P11003	32	20- 1	3414	2	17- 3	3- 2				
F 4001	17	6- 3	2215	17	NO. TURNS= 20		NO. SPACERS= 68			6
F 4002	2	12- 3	475	17	NO. TURNS= 36		NO. SPACERS= 8			6
F 4003	2	8- 0	316	17	NO. TURNS= 24		NO. SPACERS= 8			6
F 5007	30	12- 3	383	2	3- 8	5- 2	3- 8			
F 5008	4	19- 0	79	ST						
F10001	80	9- 5	3242	ST						
F10002	8	15- 5	531	ST						
F10003	16	10- 1	694	ST						
F10004	8	8- 0	275	2	6-11	1- 5				
F11001	112	9-10	5851	ST						
F11002	16	15-10	1346	ST						
F11003	12	22- 2	1413	10	19- 0					
				SUPERSTRUCTURE						
S 5001	948	30- 0	29663	ST						
S 5002	158	6- 9	1112	ST						
S 5004	240	5- 4	1335	19	0- 8	2- 5	2- 2			
S 5005	240	1- 9	438	2	0- 6	1- 0	0- 6			
S 5006	476	2- 0	993	2	1- 8	0- 6				
S 5014	236	2- 6	615	ST						
S 6001	112	8- 0	1346	ST						
S 7001	20	5- 0	204	ST						
S 7030	2	6- 0		ST						1
THRU			2799		VARY	LENGTH	BY	1- 0	7/ 8	
S 7060	2	38- 2		ST						1
S 7062	352	36- 5	26201	ST						

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				SUPERSTRUCTURE					(CONTINUED)	
S 7087	2	5- 0		ST						1
THRU			1349		VARY	LENGTH	BY	1- 0	7/ 8	
S 7107	2	26- 5		ST						1
S 7109	368	27- 6	20685	ST						
S 7136	2	5- 4		ST						1
THRU			2560		VARY	LENGTH	BY	1- 0	7/ 8	
S 7165	2	36- 5		ST						1
S 7193	2	6- 0		ST						1
THRU			1673		VARY	LENGTH	BY	1- 0	7/ 8	
S 7215	2	29- 7		ST						1
EPOXY COATED REINFORCING STEEL-ABUTMENTS										
AE5007	8	17- 1	143	ST						
AE5008	8	12- 4	103	ST						
AE5020	24	6- 3	156	19		2-5	3- 1	0-8		
AE5029	24	4- 3	106	ST						
AE5033	8	5- 0	42	20	0-8	0-3	0-7	1-3	0-11	
AE5034	4	3-11	33	15	1-6	0-8	0-11	0-9	0-9	
AE5035	4	3-6	15	16			0-9	1-2	0-11	
AE5038	8	3-11	33	9	1-9	0-8	1-9	0	0	
AE6002	24	6-5	231	15		0-9	0-9	4-6	1-0	
SUPERSTRUCTURE										
SE5001	636	30-0	19 900	ST						
SE5002	106	6-9	746	ST						
SE5003	196	32-0	6542	ST						
SE5007	240	3-2	793	15	0-8	0-8	1-0	0-9	0-9	
SE5008	72	14-8	1101	ST						
SE5009	144	7-2	1076	ST						
SE5010	32	14-2	473	ST						
SE5011	40	13-7	567	ST						
SE5012	236	2-5	595	12	1-5	0-11		0-6		
SE5013	236	3-1	759	15	0-10	0-8	1-0	0-6	0-9	
SE5015	236	2-9	677	ST						
SE7001	20	5-0	204	ST						
SE7002	2	6-0		ST						1
THRU			2337		VARY	LENGTH	BY	1-0 7/8		
SE7029	2	34-10		ST						1
SE7061	358	32-4	23660	ST						
SE7063	2	5-10		ST						1
THRU			1782		VARY	LENGTH	BY 1-0 7/8"			
SE7086	2	30-6		ST						1
SE7108	360	31-7	23240	ST						
SE7110	2	5-6		ST						1
THRU			2011		VARY	LENGTH	BY	1-0 7/8		
SE7135	2	32-4		ST						1
SE7166	2	6-0		ST						1
THRU			2198		VARY	LENGTH	BY	1-0 7/8		
SE7192	2	33-10		ST						1

BAR BENDING DIAGRAM TYPES



FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

360
427

CUYAHOGA COUNTY
CUY-480-1.90

NOTES

1. INDICATES SERIES BAR. EACH BAR VARIES FROM ADJACENT BAR(S) BY TABULATED AMOUNT(S), CALCULATED TO NEAREST 1/8 INCH. WEIGHT SHOWN IS FOR ENTIRE SERIES UTILIZING AVERAGE LENGTH.
2. BARS INCLUDED WITH ITEM 517, RAILING, FOR PAYMENT.
3. COST OF FIELD BENDING SHALL BE INCLUDED WITH ITEM 509.
4. LIGHT POLE SUPPORT BARS INCLUDED WITH ITEM 509 FOR PAYMENT.
5. END PREPARATION AND FIELD WELDING INCLUDED WITH ITEM 509.
6. 'LENGTH' SHOWN FOR SPIRAL BARS IS DISTANCE FROM TOP OF FOOTING TO BOTTOM OF PIER CAP.
'NO. TURNS' SHOWN IS 'LENGTH' DIVIDED BY PITCH, PLUS 3 TURNS (NUMBER OF CLOSED COILS), EXPRESSED AS NEAREST WHOLE NUMBER.

1 1/2 CLOSED COILS SHALL BE PROVIDED AT ENDS OF EACH SPIRAL UNIT. FOUR STEEL CHANNEL, TEE OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.80 LB. PER LIN. FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG PERIPHERY OF COIL. WEIGHT OF SPACERS, AT 0.80 LB. PER LIN. FT. WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN TABULATED WEIGHT.

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

BAR SIZE DESIGNATION

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE FOUR DIGITS ARE USED, AND FIRST TWO DIGITS WHERE FIVE DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A7001 IS A NO. 7 SIZE BAR AND A10140 IS A NO. 10 SIZE.

17/17

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

REINFORCING STEEL LIST

BRIDGE NO. CUY-480-0286
I-480 OVER FITCH ROAD

CUYAHOGA COUNTY STA. 249 + 93.13
STA. 251 + 74.83

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.			R.S.S.	G.W.M.	7/8/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CUY.-480-1.90

361/427

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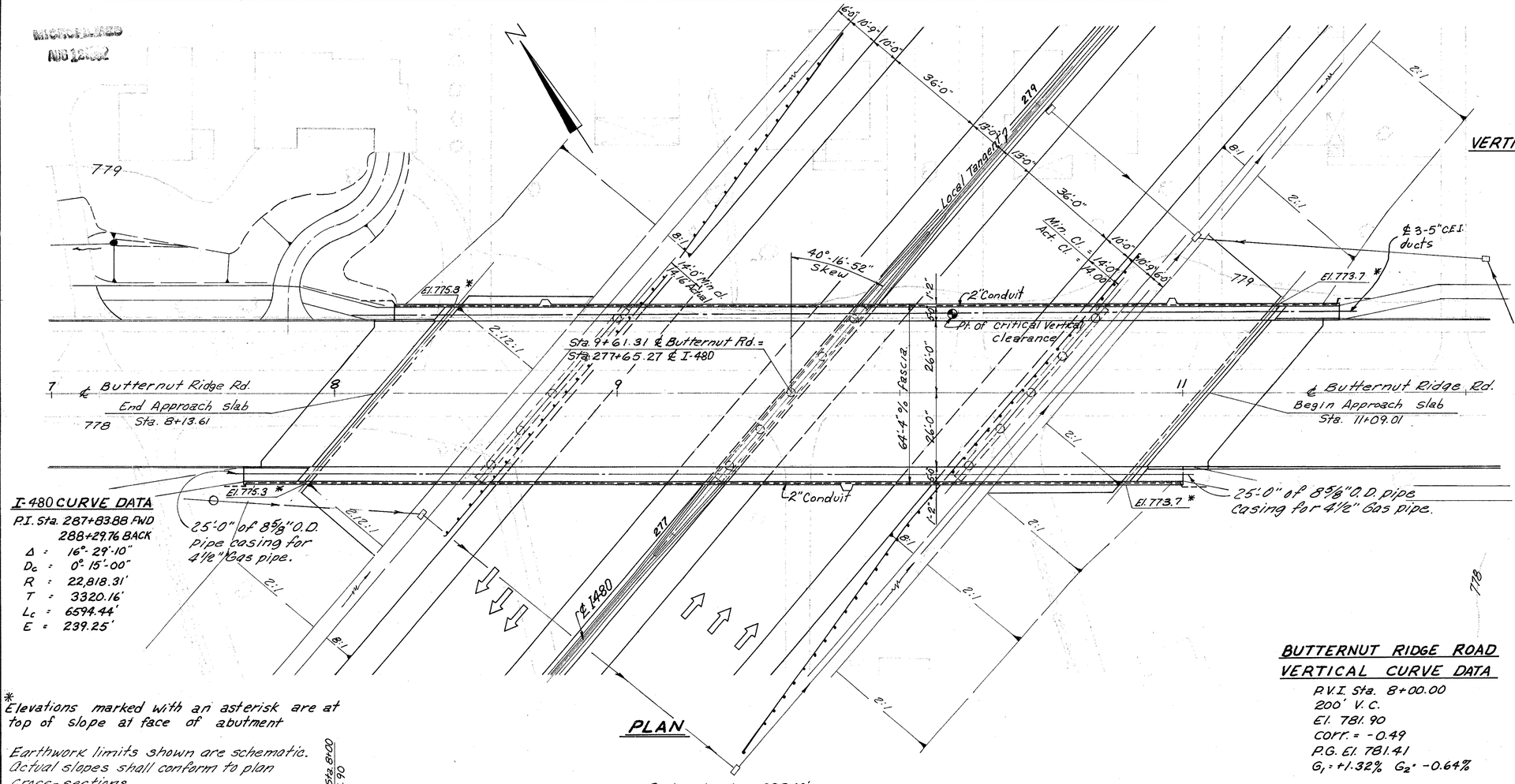


I-480 CURVE DATA

P.I. Sta. 287+83.88 AHD
288+29.76 BACK
Δ = 16°-29'-10"
D_c = 0°-15'-00"
R = 22,818.31'
T = 3320.16'
L_c = 6594.44'
E = 239.25'

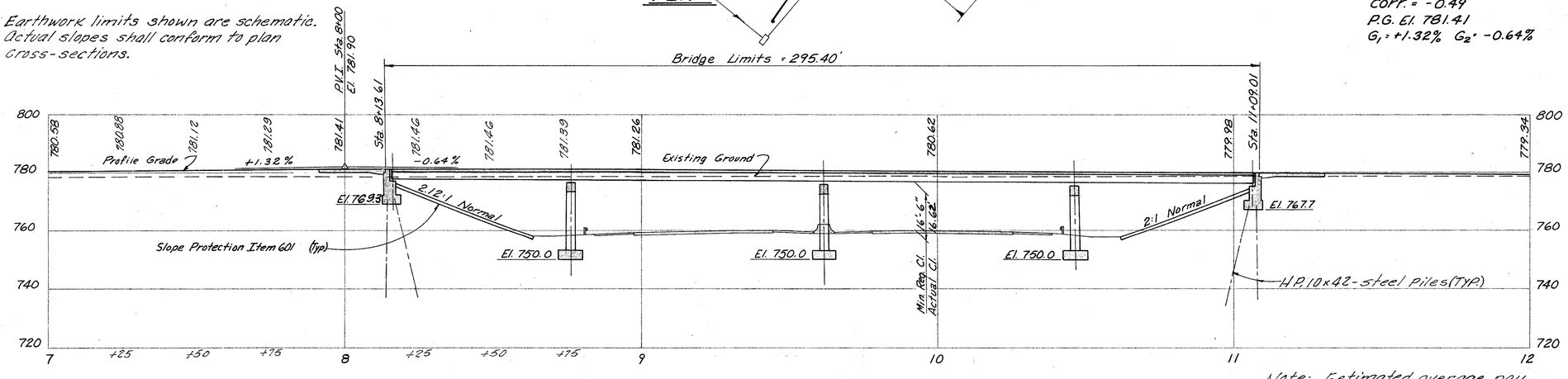
VERTICAL CURVE DATA ℄ I-480

P.V.I. Sta. 277+00
600' V.C.
El. 758.01
Corr. = +1.56
P.G. El. 759.57
G_1 = -1.36%, G_2 = +0.72%

* Elevations marked with an asterisk are at top of slope at face of abutment

PLAN

Earthwork limits shown are schematic. Actual slopes shall conform to plan cross-sections.



PROFILE ALONG ℄ BUTTERNUT RIDGE ROAD

BUTTERNUT RIDGE ROAD VERTICAL CURVE DATA

P.V.I. Sta. 8+00.00
200' V. C.
El. 781.90
corr. = -0.49
P.G. El. 781.41
G_1 = +1.32% G_2 = -0.64%

Note: Estimated average pay length for Abutment piles is 25'

PROPOSED STRUCTURE

TYPE: Continuous steel beam with reinforced concrete deck and reinforced concrete substructure
SPANS: 60'-0", 84'-9", 84'-9", 60'-0" ℄ Brgs.
ROADWAY: 52'-0" ℄ curbs with 5'-0" sidewalks, concrete parapets and chain-link fence
LOADING: HS-20-44 & Alternate Military Loading
WEARING SURFACE: Monolithic Concrete
SKEW: 40°-16'-52" Lt. Forward
ALIGNMENT: Tangent
APPROACH SLABS: AS-1-72 (20' long) (Modified)

TRAFFIC ESTIMATE

Design Year - 1987
Total A.D.T. - 8,484

Modify AS-1-72 by providing 3" cover over the top rebars instead of the 2" shown and by omitting the jacking holes.

1/11

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SITE PLAN
BRIDGE Nº CUY-480-0336
BUTTERNUT RIDGE ROAD
OVER I-480
CUYAHOGA COUNTY STA. 8 + 13.61
STA. 11 + 09.01

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	R.S.S.	M.D.	G.W.M.	G.W.M.	7/9/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

362
427

CUYAHOGA COUNTY
CUY.-480-1.90

STANDARD DRAWING REFERENCES

DESCRIPTION	DWG. NO.	DATE
HIGHWAY LIGHTING	HL-3	7-27-73 R
do	HL-4	1-21-76R
do	HL-5	9-6-73R
do	HL-7	1-21-76R

SUPPLEMENTAL SPECIFICATION REFERENCES

DESCRIPTION	NO.	DATE
PAINTING FOR NEW STRUCTURAL STEEL	846	4-25-77
INORGANIC ZINC SILICATE PAINT	950	4-25-77
BLUE-GREEN VINYL PAINT	951	4-25-77

MONOLITHIC WEARING SURFACE THICKNESS IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1".

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL TOP MAT ONLY.

MINIMUM BAR LAP SHALL BE 30 DIAMETERS.

PREFORMED BEARING PADS: IN LIEU OF THE HARDNESS REQUIREMENT OF 711.21, PREFORMED BEARING PADS SHALL HAVE A SHORE A DUROMETER OF 80± 10.

STANDARD DRAWING REFERENCES

DESCRIPTION	DWG. NO.	SHT.	DATE
END DAM AND END CROSSFRAME	SD-1-69	1-2	6-12-69
CURB PLATES	SD-1-69	2	6-12-69
SCUPPERS	SD-1-69	3	6-12-69
MOMENT PLATES	SD-1-69	3	6-12-69
BOLTED SPLICES	SD-1-69	4	6-12-69
ROCKERS AND BOLSTERS	RB-1-55		2- 2-59 R
APPROACH SLABS	AS-1-72		6-30-72

(R INDICATES REVISED DATE)

SUPPLEMENTAL SPECIFICATION REFERENCES

DESCRIPTION	NO.	DATE
CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D	808	1-1-71
CONCRETE CURING AND PROTECTIVE MEMBRANE	836	3-12-75
SPECIAL PILE TESTS	838	1-13-77

COMMON DETAIL REFERENCES

CONTRACTION JOINTS	SHEET 401
EXPANSION JOINTS	SHEET 401
LIGHTING	SHEET 400
FENCE	SHEET 401A

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE '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 - HS20-44&ALTERNATE MILITARY LOADING
CONCRETE CLASS C - UNIT STRESS 1200 PSI FOR SUPERSTRUCTURE
UNIT STRESS 1333 PSI FOR SUBSTRUCTURE
STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20000 PSI
REINFORCING STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20000 PSI.
SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82 OR A615.

PILES

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF-
35 TONS PER PILE FOR THE ABUTMENTS

FOUNDATION BEARING PRESSURE

PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 3.0 TONS PER SQ. FT.

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 WOULD BE HELD TO A MINIMUM.

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GENERAL
503	1052	C.Y.	UNCLASSIFIED EXCAVATION	442	610		
503	LUMP	SUM	COFFERDAMS, CRIBS AND SHEETING				LUMP
505	LUMP	SUM	TEST PILE				LUMP
507	1150	L.F.	STEEL PILES, HP10X42	1150			
509	168644	LB	REINFORCING STEEL	21938	66047	80659	
511	619	C.Y.	CLASS C CONCRETE, SUPERSTRUCTURE(SEE PROPOSAL NOTE)			619	
511	177	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	177			
511	178	C.Y.	CLASS C CONCRETE, PIER CAPS AND COLUMNS		178		
511	280	C.Y.	CLASS C CONCRETE, FOOTINGS	137	143		
512	15	L.F.	PREMOLDED SEALING STRIP	15			
513	538900	LB	STRUCTURAL STEEL PRIMER PER 846*(SEE PROPOSAL NOTE)			538900	
846	538900	LB	FIELD PAINTING OF STRUCTURAL STEEL *			538900	
517	655.41	L.F.	BRIDGE RAILING (CONCRETE PARAPET WITH 4'-0" CHAIN-LINK FENCE AS PER PLAN)	72.33		583.08	
518	68	C.Y.	POROUS BACKFILL	68			
518	16	EA	SCUPPERS INCLUDING SUPPORTS			16	
518	144	L.F.	6 INCH PERFORATED, HELICAL CSP, 707.01	144			
518	108	L.F.	6 INCH NON-PERFORATED, HELICAL CSP, INCLUDING SPECIALS, 707.01	108			
601	837	S.Y.	CRUSHED AGGREGATE SLOPE PROTECTION				837
S625			SEE SHEET 291 FOR LIGHTING SUMMARY				
808	619	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D			619	
SPEC	50	L.F.	8 5/8 INCH O.D. PIPE CASING 0.322 INCH WALL THICKNESS * *				50
SPEC	77218	LBS.	EPOXY COATED REINFORCING STEEL (SEE PROPOSAL NOTE)			77218	
		*	500 LBS. TO BE PAID FOR BY THE EAST OHIO GAS CO.				
		**	TO BE PAID FOR BY THE EAST OHIO GAS CO.				
838	3	HR	SPECIAL PILE TESTS				3

2111

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE No. CUY-480-0336
BUTTERNUT RIDGE ROAD OVER I-480

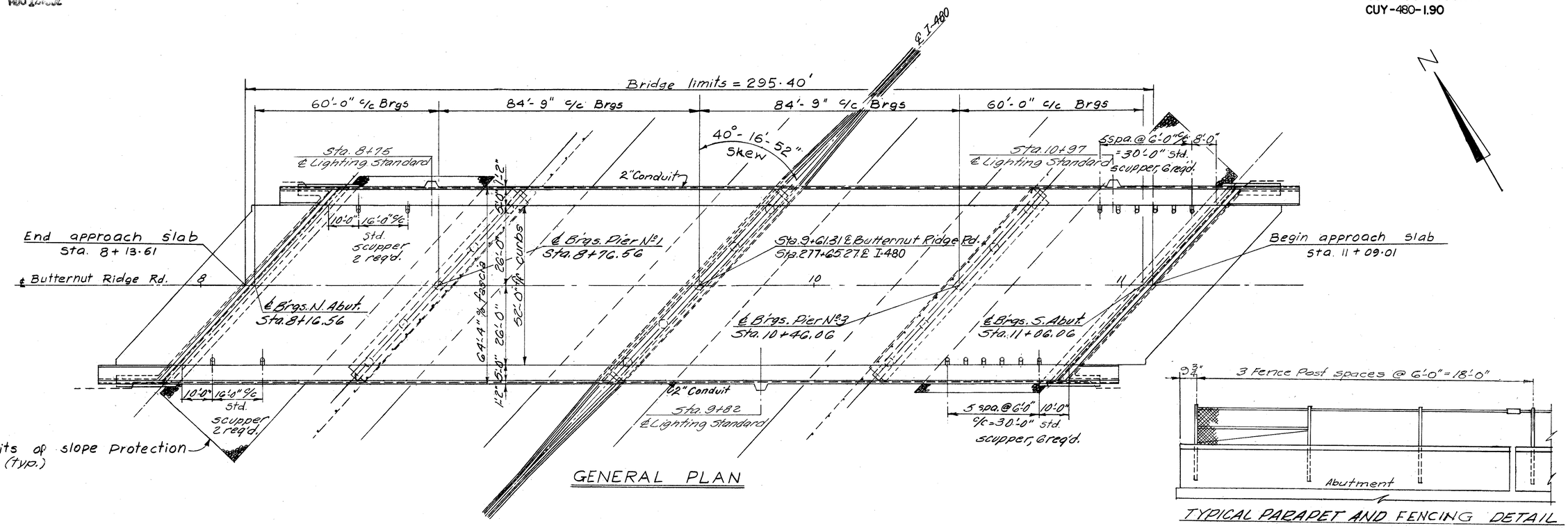
CUYAHOGA COUNTY STA. 8+13.61
STA. 11+09.01

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.			B.I.P.	G.W.M.	7/9/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

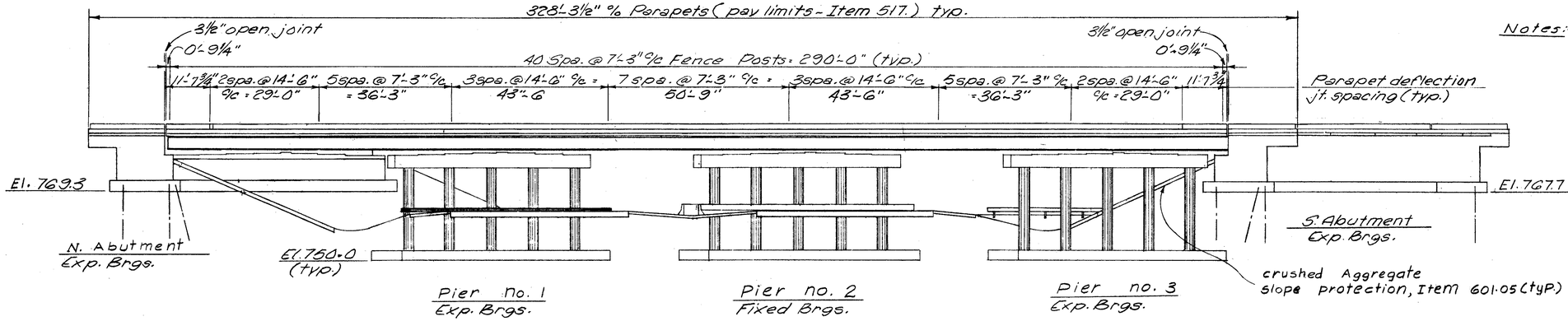
363
427

CUYAHOGA COUNTY
CUY-480-1.90



GENERAL PLAN

TYPICAL PARAPET AND FENCING DETAIL



ELEVATION

Notes:- Scupper spacing is along face of curb.

For chain-link fence and additional parapet details see sheet 401A.

3/11

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL PLAN
BRIDGE Nº CUY-480-0336

BUTTERNUT RIDGE ROAD
OVER I-480

CUYAHOGA COUNTY STA. 8 + 13.61
STA. 11 + 09.01

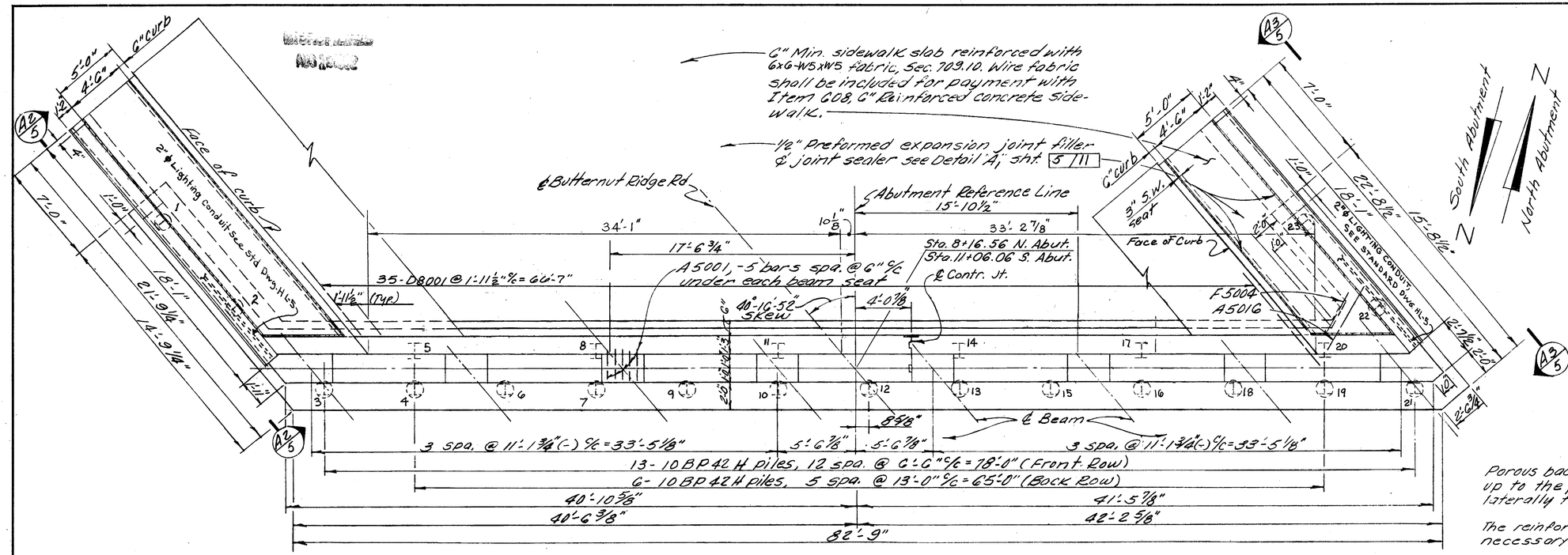
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P.		R.S.S.	G.W.M.	7/9/69	4-5-78

K. & E. - Cleveland 107153

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

364
427

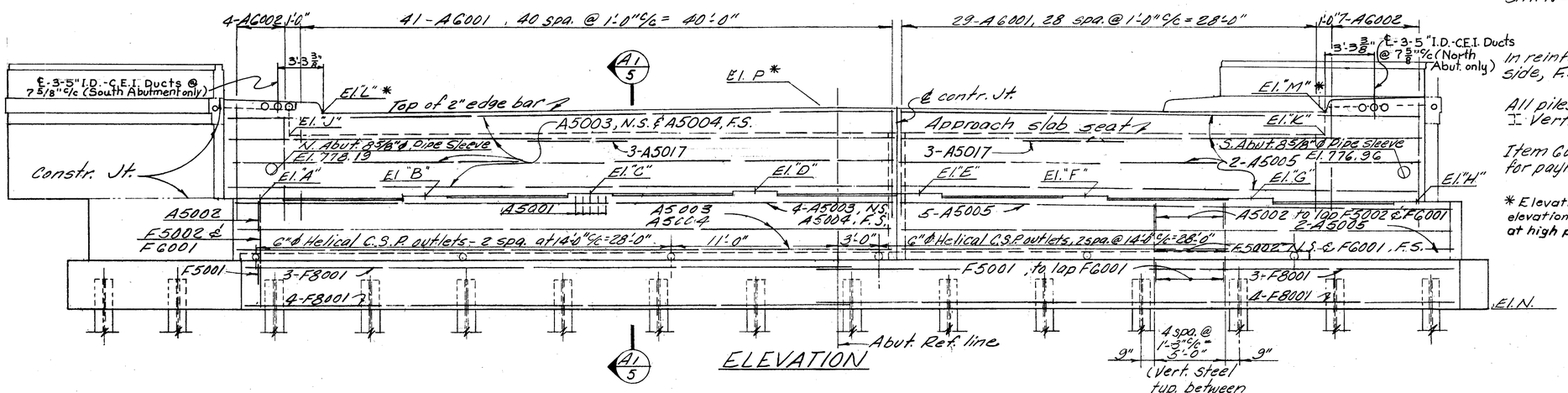
CUYAHOGA COUNTY
CUY-480-1.90



For Expansion Fittings & Couplings refer to Standard Drawing HL-5.

PLAN

NOTE: When recording the pile numbers, suffix the number shown with the letter 'S' for the South Abut. piles and the letter 'N' for the North Abut.



ELEVATION

TABLE OF ELEVATIONS													
ELEV.	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"
N. Abut.	776.29	776.46	776.61	776.76	776.78	776.65	776.52	776.39	779.80	779.89	780.97	781.06	769.3	781.45
S. Abut.	774.69	774.87	775.06	775.25	775.30	775.20	775.11	775.07	778.21	778.49	779.38	779.66	767.7	779.93

NOTES:

Porous backfill, 1.5' thick shall extend up to the plane of the subgrade and laterally to the ends of the wing wall.

The reinforcing bars shall be field cut as necessary to clear C.E.I. Duct.

A joint shall be provided in the abutment portion of the end dam at the contraction joint.

6" ϕ Helical perf. C.S.P. shall have ends capped.

6" ϕ Helical non-perf. C.S.P. shall extend into crushed aggregate.

For details of contraction joint see Common Details sht. No. 401

In reinforcing steel callouts: N.S. indicates near side, F.S. indicates far side.

All piles shall be HP, 10 x 42
I Vertical piles (B) Batter piles 1:4

Item 608, 6" concrete sidewalk shall be included, for payment, with Roadway Items.

* Elevations marked with an asterisk are roadway elevations at face of backwall and face of curb or at high point and face of backwall

4/11

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

ABUTMENT DETAILS
BRIDGE No CUY-480-0336
BUTTERNUT RIDGE ROAD
OVER I-480
CUYAHOGA COUNTY STA. 8 + 13.61
STA. 11 + 09.01

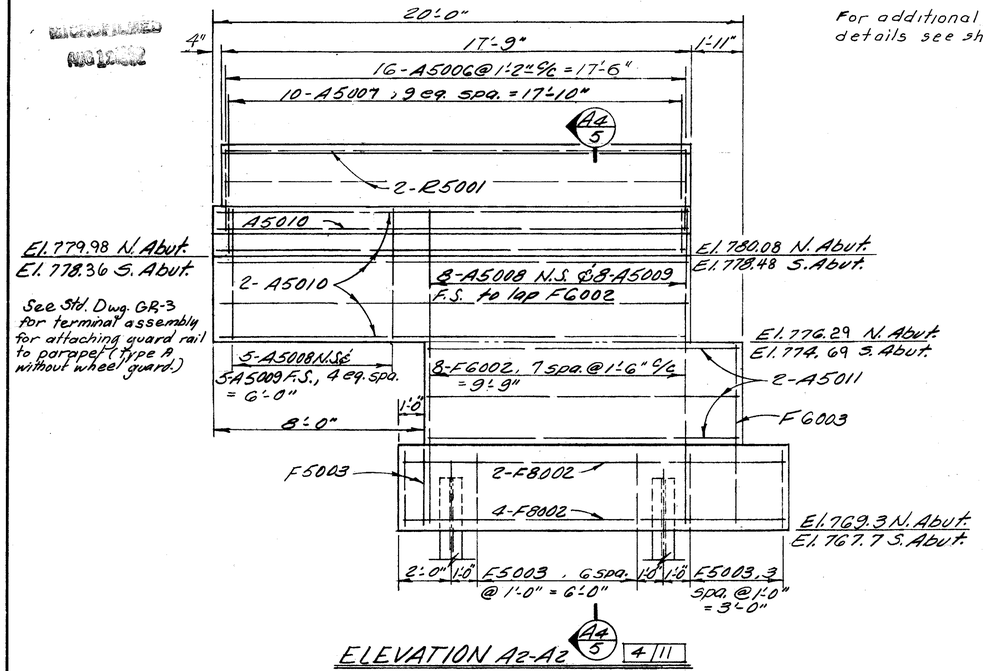
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	R.T.		B.I.P.	G.W.M.	7/10/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

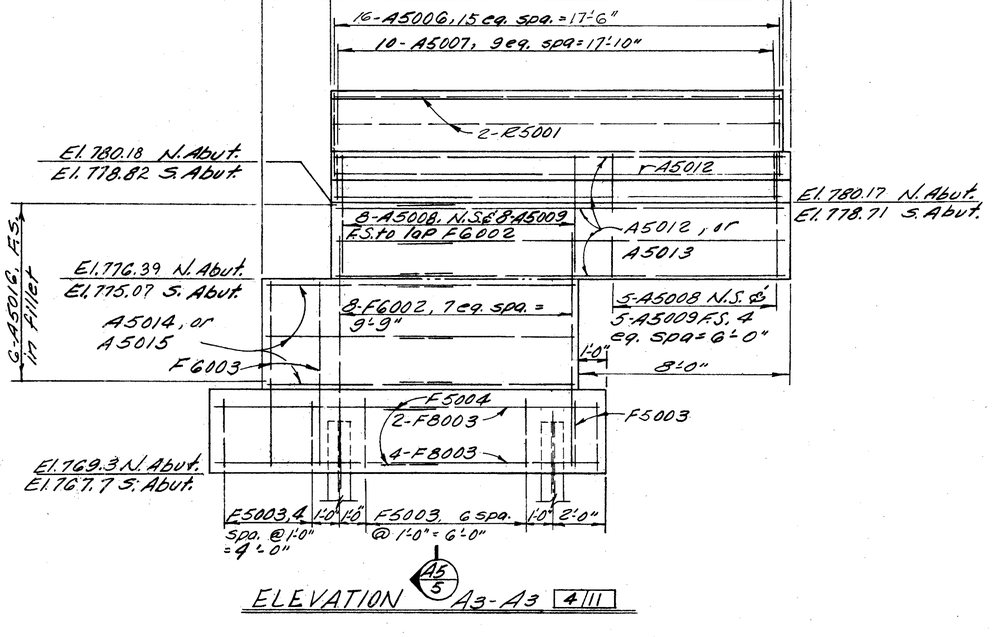
365
427

CUYAHOGA COUNTY
CUY -480- 1.90

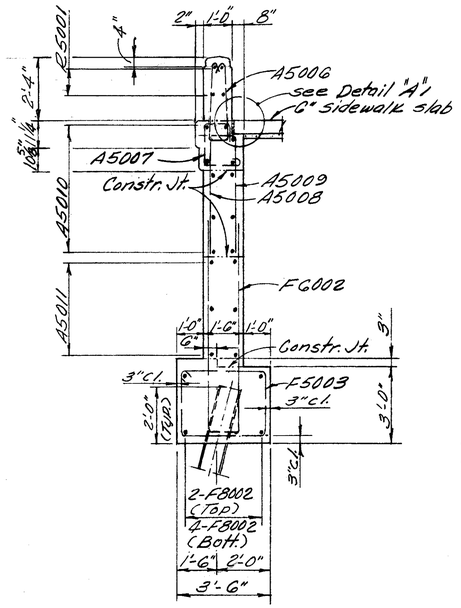
For additional parapet details see sheet 3/11



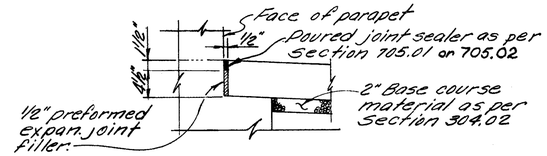
ELEVATION A2-A2 A4/5 4/11



ELEVATION A3-A3 A5/5 4/11



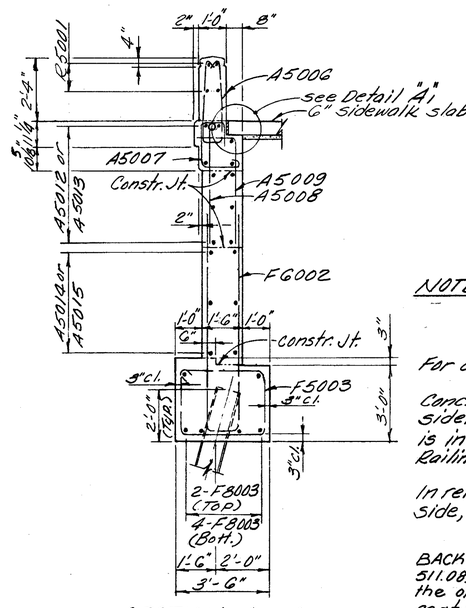
SECTION A4-A4



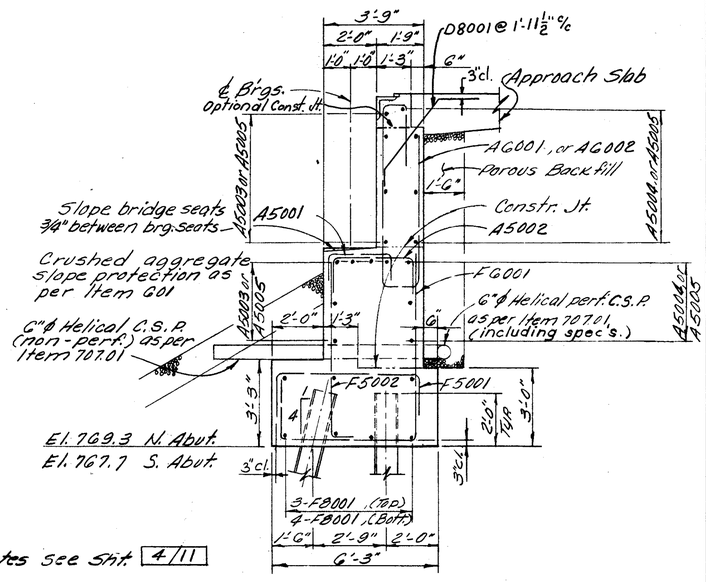
DETAIL "A"

1/2" Preformed expan. joint filler, poured joint sealer and base course material included with Item 608-6" reinforced concrete sidewalk for payment.

For Additional Conduit Details in Wingwalls Refer to Std. Dwg. HL-5.



SECTION A5-A5



SECTION A1-A1 4/11

NOTES:

For additional notes see Sht. 4/11

Concrete & reinforcing steel above sidewalk surface construction joint is included with Item 511 Bridge Railing for payment.

In reinforcing steel callouts: N.S. indicates near side, F.S. indicates far side.

BACKWALL CONCRETE: In addition to the provisions of 511.08, backwall concrete or backwall concrete above the optional construction joint at the approach slab seat shall not be placed until after the deck concrete in the span adjacent to the backwall has been placed.

5/11

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CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

ABUTMENT DETAILS
BRIDGE Nº CUY-480-0336

BUTTERNUT RIDGE ROAD
OVER I-480

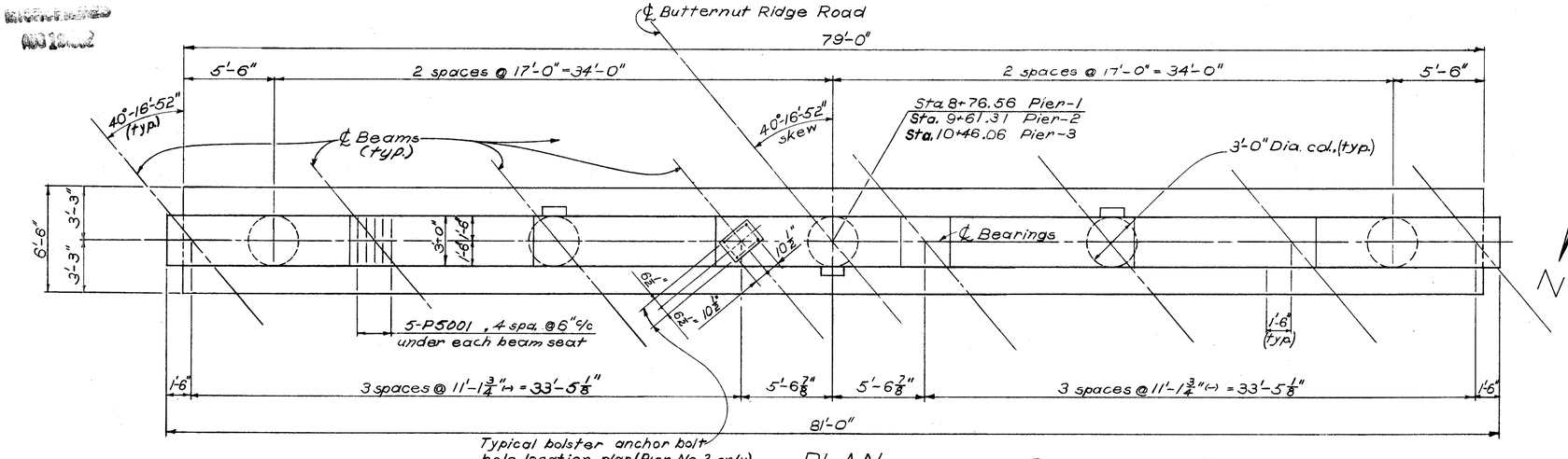
CUYAHOGA COUNTY STA. 8 + 13.61
STA. 11 + 09.01

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	RE-SED
P.S.S.	R.T.		B.I.P.	G.W.M.	7/10/69	4-5-78

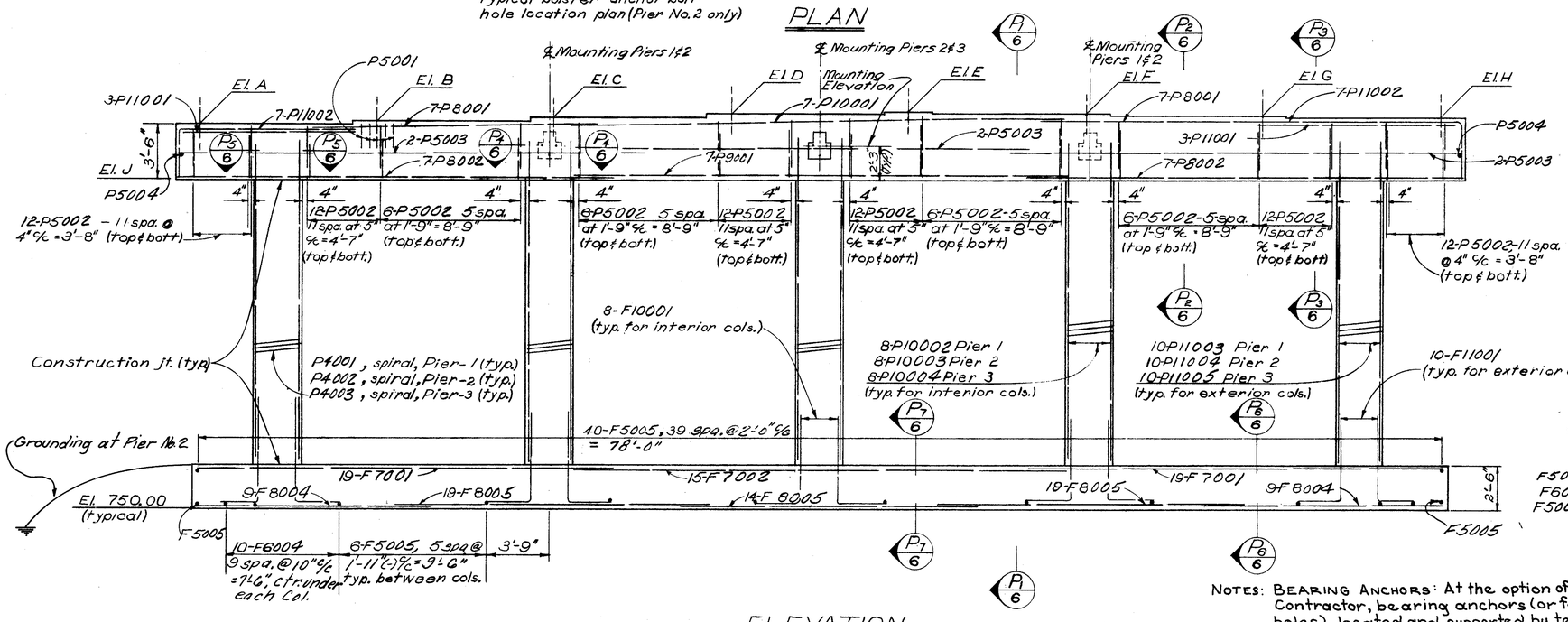
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

366 / 427

CUYAHOGA COUNTY
CUY-480-1.90



PLAN



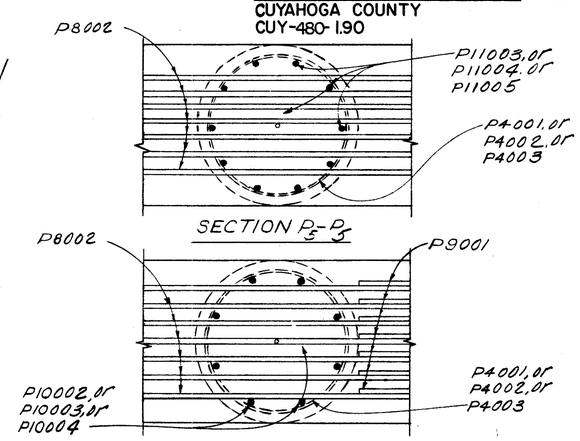
ELEVATION

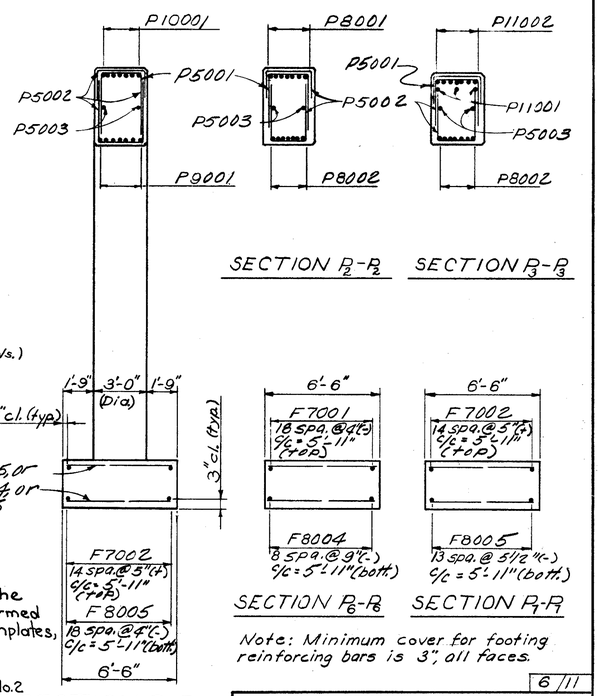
GROUND PIER No. 2. For Grounding Details refer to Standard Drawing HL-7.

ELEVATION TABLE									
Location	A	B	C	D	E	F	G	H	J
Pier #1	775.63	775.80	775.98	776.14	776.19	776.06	775.95	775.84	772.13
Pier #2	775.05	775.23	775.41	775.59	775.63	775.55	775.46	775.37	771.56
Pier #3	774.54	774.71	774.89	775.07	775.12	775.03	774.93	774.83	771.04

NOTES: BEARING ANCHORS: At the option of the Contractor, bearing anchors (or formed holes), located and supported by templates, may be cast in place.

Special care shall be taken at pier No. 2 in placing reinforcing steel in the top of the cap. so as to avoid interference with the drilling of bearing anchorholes or the presetting of bearing anchors.





Note: Minimum cover for footing reinforcing bars is 3", all faces.

6/11

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CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

PIER DETAILS
BRIDGE № CUY-480-0336

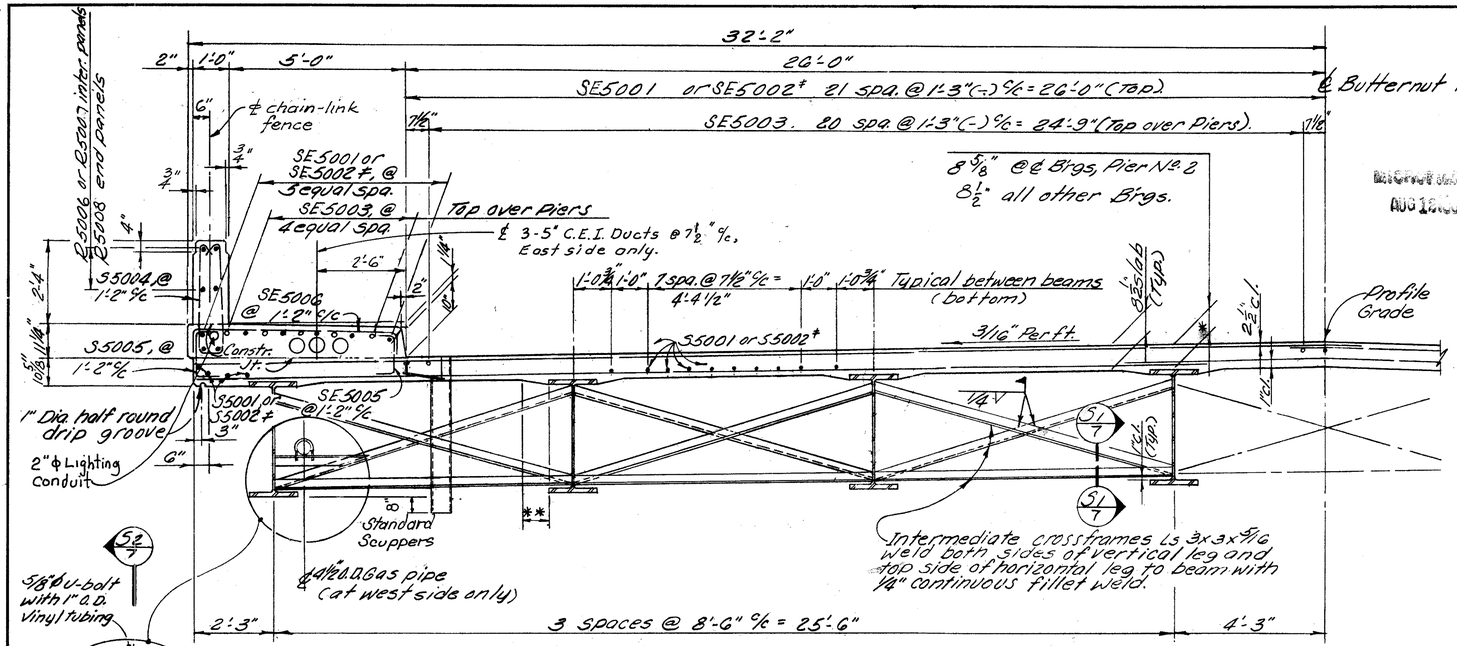
BUTTERNUT RIDGE ROAD
OVER I-480
CUYAHOGA COUNTY STA. 8 + 13.61
STA. 11 + 09.01

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	J.P.		B.I.P.	G.W.M.	7/10/69	

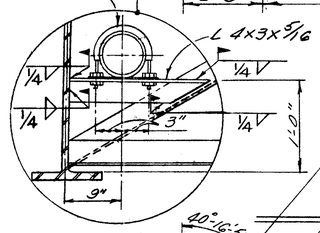
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

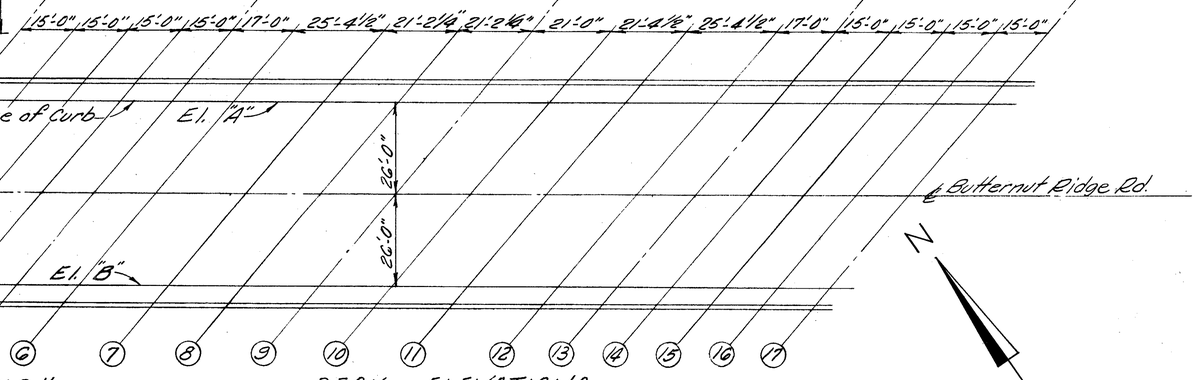
CUYAHOGA COUNTY
CUY-480-1.90

367
427

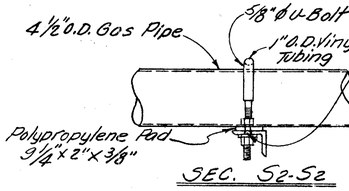


HALF TRANSVERSE SECTION





DECK ELEVATIONS



SEC. S2-S2

Note: 4 1/2" O.D. Gas Pipe, 5/8" ℄ U-Bolt, washers, nuts, Vinyl tubing and polypropylene pad to be furnished and installed by the East Ohio Gas Company.

NOTE: The deck elevations shown are those which are required prior to placing of the concrete deck. Proper allowance has been made for the dead load deflection caused by the weight of the concrete.

TABLE OF DECK ELEVATIONS

LINE	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰
ELEV. "A"	781.06	781.06	781.03	780.95	780.85	780.77	780.63	780.47	780.22	780.20	780.08	779.90	779.78	779.69	779.60	779.51	779.43
ELEV. "B"	780.99	781.05	781.07	781.07	781.04	781.01	780.91	780.75	780.60	780.48	780.36	780.18	780.06	779.97	779.89	779.79	779.68

NOTES:

* Each longitudinal run of deck reinforcing, excluding SE5003 Bars over the piers, shall be comprised of 10-S5001 and 1-S5002 or 10-SE5001 and 1-SE5002 Bars lapped a minimum of 1'-7".

* Deck slab depth: The distance shown from top of deck slab to top of steel beam is the design dimension. The quantity of 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 confirmation required to place it parallel to the finished grade.

** A typical haunch width of 9" shall be used for all beams in computing quantity of concrete. However the haunch width may vary between 8" and 12" provided that the slope shall be not more than 1:4 for a haunch less then 9" in width.

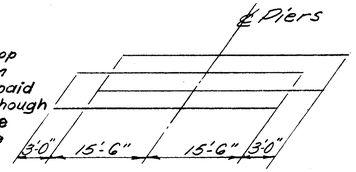
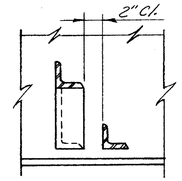


DIAGRAM SHOWING STAGGER OF SE5003, BARS OVER PIERS

Longitudinal reinforcing steel shall be field cut as necessary to avoid interference with scuppers.

For transverse slab reinforcing see Sht. 8/11



SECTION S1-S1

Field bend transverse bars to fit crown. Field bending to be included in Item 509 for payment.

For Fence post spacing see general plan sht No. 3/11

Concrete parapets are included for payment with Item 517, Railing.

BRIDGE DECK FINISH: In lieu of being finished as specified in 516.11, the bridge deck shall be textured transversely to provide a relatively uniform pattern of grooves spaced on approximately 3/4" centers. Grooves shall be approximately 0.15 inches deep and 0.10 inches wide. A strip of surface 9 to 12 inches wide adjacent to curbs shall not be textured.

For bridge sidewalk fence details, see sh. No. 401A

Note: Transite ducts and couplings to be furnished and installed by the Cleveland Electric Illuminating Company.

7/11

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS
BRIDGE Nº CUY-480-0336

BUTTERNUT RIDGE ROAD OVER I-480

CUYAHOGA COUNTY STA. 8 + 13.61 STA. 11 + 00.01

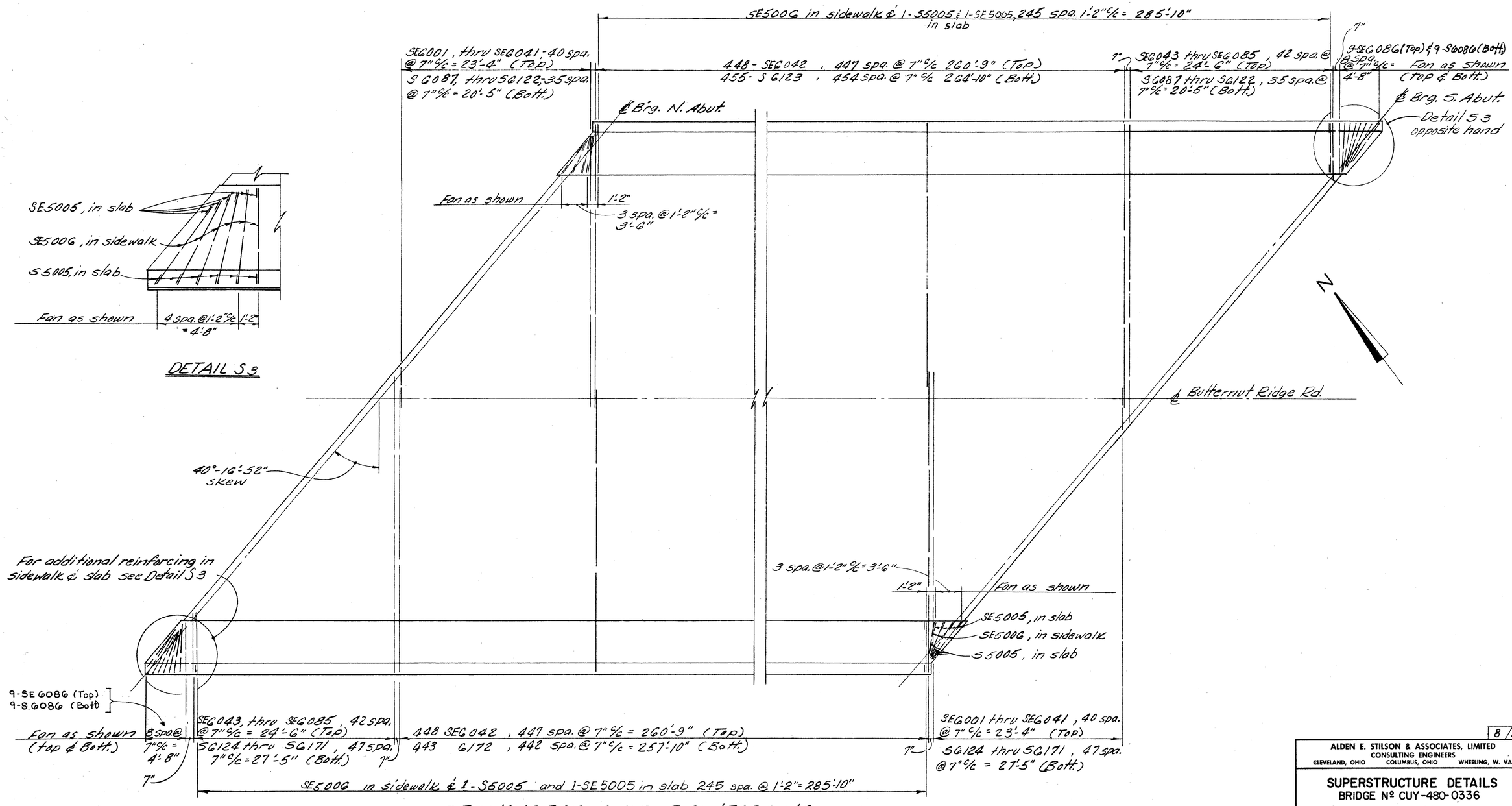
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	R.T.		B.I.P.	G.W.M.	7/10/63	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

368
427

CUYAHOGA COUNTY
CUY-480-1.90

DETAIL S3



TRANSVERSE SLAB REINFORCING

NOTE: Transverse Reinforcing steel shall be placed normal to ℄ of Buttermut Ridge Rd. except at acute corners of slab.

8/11

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CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS
BRIDGE Nº CUY-480-0336
BUTTERNUT RIDGE ROAD
OVER I-480

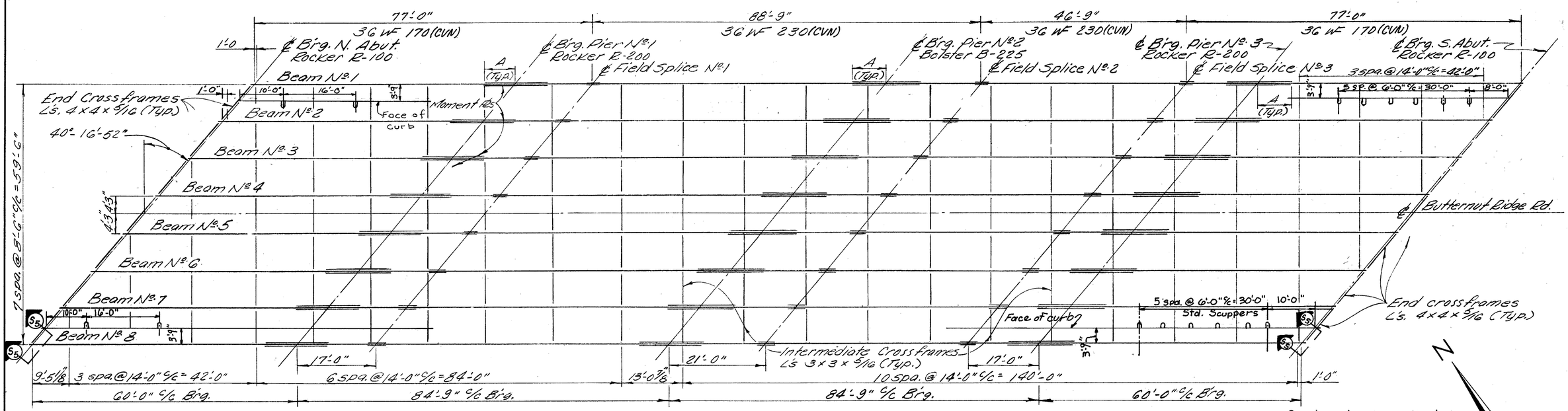
CUYAHOGA COUNTY STA. 8 + 13.61
STA. 11 + 09.01

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	R.T.		B.I.F.	G.W.M.	11/10/69	

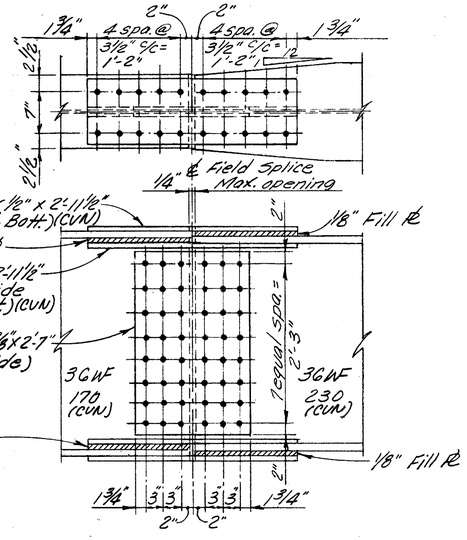
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

369
427

CUYAHOGA COUNTY
CUY-480-1.90



Scupper Spacing shall be adjusted if necessary to clear intermediate crossframes by a min. of 6".



FIELD SPLICE No. 1 & No. 3 DETAILS

For details of field splice No. 2 see STD. DWG. SD-1-69 sht. 4. All splice material for splice No. 2 shall meet specified minimum notch toughness requirements.

FRAMING PLAN

Notes:

1" ϕ high strength bolts shall be used at the Field Splices. Bolt heads shall be placed on fascia side of exterior beam web and bottom side of bottom flange. Holes shall be 1 1/16" ϕ. Bolts shall conform to A-325 steel.

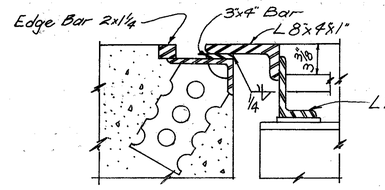
Crossframes may be shifted if necessary to avoid field splice.

Place intermediate crossframes normal to beam.

The material in shapes or plates designated (CVN) shall meet specified minimum notch toughness requirements.

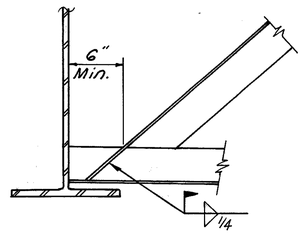
TABLE OF MOMENT PL SIZES				
Location	Top PL *	Bott. PL	Length	A
Pier No. 1	10½"x⅞"	13½"x¾"	17'-0"	8'-6"
Pier No. 2	15"x1 1/16"	18"x1 3/16"	17'-0"	8'-6"
Pier No. 3	10½"x⅞"	13½"x¾"	17'-0"	8'-6"

*CVN



TYPICAL ROADWAY END DAM DETAIL

For additional details see std. Dwg. SD-1-69, Sh. 1 of 4



SECTION S5 - S'5

Special end crossframe details
(For details not shown see std. dwg. SD-1-69 sht. #1.)

9/11

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CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS

BRIDGE No CUY-480-0336
BUTTERNUT RIDGE ROAD
OVER I-480
CUYAHOGA COUNTY STA. 8 + 13.61
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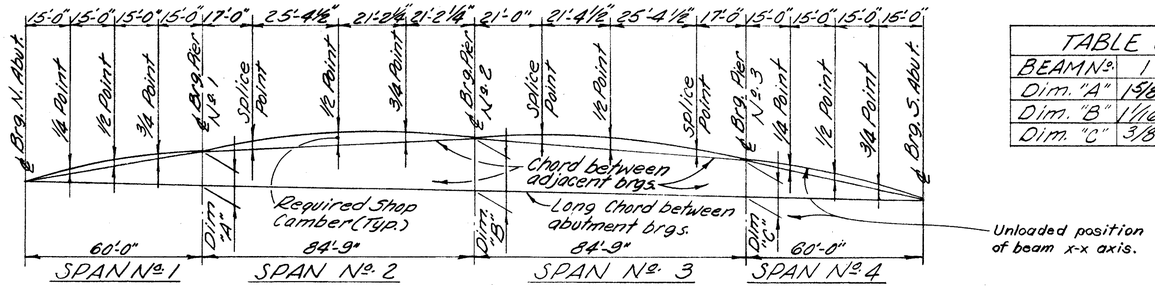
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	R.T.		B.I.P.	G.W.W.	7/10/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

370
427

CUYAHOGA COUNTY
CUY-480-1.90



CAMBER & BLOCKING DIAGRAM

TABLE OF BLOCKING DIMENSIONS

BEAM No.	1	2	3	4	5	6	7	8
Dim. "A"	1 5/8"	1 15/16"	2 3/8"	2 11/16"	3 1/4"	3 3/8"	3 13/16"	4 1/16"
Dim. "B"	1 1/16"	1 5/16"	1 9/16"	1 13/16"	2 3/16"	2 1/16"	2 15/16"	3 1/8"
Dim. "C"	3/8"	1/2"	9/16"	9/16"	7/8"	15/16"	1 1/4	7/8"

DEFLECTION AND CAMBER

Location	SPAN No. 1										SPAN No. 2																
	1/4 Pt.				1/2 Pt.			3/4 Pt.				Splice Pt.							1/2 Pt.							3/4 Pt.			
Beam No.	1	2, & 7	3 thru 6	8	1,3,6,7 & 8	2, & 4	5	1,2,7 & 8	3	4, & 5	6	1	2	3	4, & 5	6	7	8	1	2	3	4, & 5	6	7	8	1, 2 & 3	4, & 5	6	7	8
Deflection due to weight of steel	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0	0	0	0	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/16	1/16	1/16	1/16	1/16
Deflection due to remaining dead load	3/16	1/4	1/4	3/16	1/4	1/4	1/4	1/16	1/16	1/16	1/16	3/16	1/4	1/4	1/4	1/4	1/4	3/16	7/16	1/2	1/2	1/2	1/2	1/2	7/16	3/16	3/16	3/16	3/16	3/16
Adjust. Req. for Vertical Curve	5/16	7/16	3/8	3/8	1/2	9/16	7/16	3/8	1/2	5/16	7/16	0	0	1/16	3/16	3/8	7/16	9/16	0	0	3/8	1/8	5/16	9/16	11/16	0	1/16	3/16	1/4	7/16
Required Shop Camber	9/16	3/4	11/16	5/8	13/16	7/8	3/4	7/16	9/16	3/8	1/2	1/4	5/16	3/8	1/2	11/16	3/4	13/16	9/16	5/8	1	3/4	15/16	1 3/16	1 1/4	1/4	5/16	7/16	1/2	11/16

Location	SPAN No. 3							SPAN No. 4				
	Sp. Pt.	1/2 Pt.			Splice Pt.			1/4 Pt.	1/2 Pt.	3/4 Pt.		
Beam No.	1 thru 8	1	2 thru 7	8	1	2 thru 7	8	1 thru 8	1 thru 8	1	2 thru 7	8
Deflection due to weight of steel	1/16	1/8	1/8	1/8	1/16	1/16	1/16	0	1/16	1/16	1/16	1/16
Deflection due to remaining dead load	3/16	7/16	1/2	7/16	3/16	1/4	3/16	1/16	1/4	3/16	1/4	3/16
Adjust. Req. for Vertical Curve	0	0	0	0	0	0	0	0	0	0	0	0
Required Shop Camber	1/4	3/16	3/8	3/16	1/4	5/16	1/4	1/16	5/16	1/4	5/16	1/4

10/11

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SUPERSTRUCTURE DETAILS

BRIDGE No. CUY-480-0336
BUTTERNUT RIDGE ROAD
OVER I-480
CUYAHOGA COUNTY STA. 8+13.61
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DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.	R.T.		B.I.P.	G.W.M.	7/10/69	

E. & E. - Cleveland 107188

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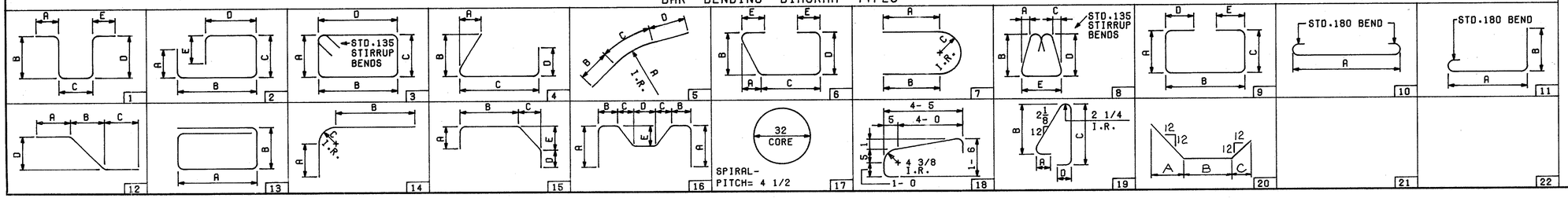
AUG 12 1992

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				ABUTMENT						
A 5001	80	4-11	410	2	1- 6	2- 2	1- 6			
A 5002	122	7- 8	976	2	2- 3	3- 5	2- 3			
A 5003	20	44- 6	928	ST						
A 5004	14	45- 0	657	ST						
A 5005	34	35- 1	1244	ST						
A 5006	64	7- 5	495	8	0-0¾	3-0	0-0¾	3-0	0- 8	
A 5007	40	4- 8	195	2	0-11	1- 5	1- 6	0- 8	0- 8	
A 5008	52	5- 2	280	ST						
A 5009	52	6- 0	325	1	1- 6	4- 8				
A 5010	22	17- 9	407	ST						
A 5011	12	11- 8	146	ST						
A 5012	12	20- 3	253	ST						
A 5013	10	19- 4	202	ST						
A 5014	6	12- 4	77	ST						
A 5015	6	11- 4	71	ST						
A 5016	14	5- 0	73	ST						
A 5017	6	6- 6	41	ST						
A 6001	140	15- 4	3224	2	4- 8	1- 5	6- 0	0-11	3- 0	
A 6002	22	15- 4	507	2	5- 6	1- 5	6- 0	0-11	2- 2	
F 5001	122	8- 4	1060	2	1- 7	5- 5	1- 7			
F 5002	122	6-10	870	2	6- 6	0- 6				
F 5003	54	12- 1	681	3	2- 7	3- 2	2- 7	3- 2		
F 5004	4	3- 0	13	ST						
F 6001	122	14- 2	2596	2	6- 6	5- 5	2- 7			
F 6002	32	18- 4	881	2	8- 9	1- 2	8- 9			
F 6003	6	6- 9	61	2	6- 5	0- 6				
F 8001	28	42- 8	3190	ST						
F 8002	12	14- 3	457	ST						
F 8003	12	15- 0	481	ST						
D 8001	70	6- 1	1137	20	1-1	3-11	6			
				PIERS						
P 4001	5	19- 4	1826	17	NO. TURNS= 55			NO. SPACERS= 20		6
P 4002	5	18- 9	1761	17	NO. TURNS= 53			NO. SPACERS= 20		6
P 4003	5	18- 3	1726	17	NO. TURNS= 52			NO. SPACERS= 20		6
P 5001	120	5- 5	678	2	1- 6	2- 8	1- 6			
P 5002	576	8- 9	5257	2	3- 2	2- 8	3- 2			
P 5003	18	28- 1	527	ST						
P 5004	6	2- 8	17	ST						
P 8001	42	19- 6	2187	ST						
P 8002	42	27- 3	3056	ST						
P 9001	21	31- 0	2213	ST						
P10001	21	31- 0	2801	ST						
P10002	24	22- 6	2324	ST						
P10003	24	22- 0	2272	ST						
P10004	24	21- 5	2212	ST						
P11001	18	10-11	1044	ST						
P11002	42	13- 7	3031	2	3- 0	10-11				
P11003	20	22- 6	2391	ST						
P11004	20	22- 0	2338	ST						
P11005	20	21- 5	2276	ST						
F 5005	198	6- 0	1239	ST						
F 6004	150	6- 0	1352	ST						
F 7001	114	26- 0	6058	ST						
F 7002	45	31- 0	2851	ST						

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				PIERS				(CONTINUED)		
F 8004	54	15- 0	2163	ST						
F 8005	156	19- 6	8122	ST						
F10001	72	6-7	2040	2	1- 5	5- 6				
F11001	60	7- 2	2285	2	1- 8	5-10				
				SUPERSTRUCTURE						
S 5001	820	30- 0	25658	ST						
S 5002	82	8- 0	684	ST						
S 5004	502	7-5	3883	8	0-0¾	3-0	0-0¾	3-0	0-8	
S 5005	510	2- 4	1241	2	0- 8	1- 3	0- 8			
S 6086	18	5- 0	135	ST						
S 6087	2	4- 2		ST						1
THRU			1712		VARY LENGTH BY 0- 8					
S 6122	2	27- 6		ST						1
S 6123	455	28- 7	19534	ST						
S 6124	2	5- 8		ST						1
THRU			3124		VARY LENGTH BY 0- 8 1/ 8					
S 6171	2	37- 8		ST						1
S 6172	443	37- 1	24675	ST						
				RAILING						
R 5001	16	17- 5		ST						2
R 5006	136	6-11		ST						2
R 5007	80	14- 2		ST						2
R 5008	16	11- 3		ST						2
			EPOXY COATED REINFORCING STEEL							
SE5001	550	30-0	1721 0	ST						
SE5002	55	8-0	459	ST						
SE5003	156	34-0	5532	ST						
SE5005	510	2-4	1241	2	0-8	1-3	0-8			
SE5006	510	6-9	3591	2	0-8	5-8	0-8			
SE6001	2	4-6		ST						1
THRU			2258		VARY LENGTH BY 0-8 1/4					
SE6041	2	32-2		ST						1
SE6042	896	32-10	44187	ST						
SE6043	2	34-8		ST						1
THRU			2605		VARY LENGTH BY 0-8 1/4					
SE6085	2	5-8		ST						1
SE6086	18	5-0	135	ST						
				LIGHT POLE SUPPORT						
L 5001	24	3-11	99	6	0- 8	0- 9	3- 0			
L 5002	6	4-3	27	1	2- 3	2-2				
L 5003	9	6-6	61	1	3- 0	3-8				
L 5004	9	3- 6	33	1	3- 0	0- 8				

BAR BENDING DIAGRAM TYPES



FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

371
427

CUYAHOGA COUNTY
CUY-480-1.90

NOTES

1. INDICATES SERIES BAR. EACH BAR VARIES FROM ADJACENT BAR(S) BY TABULATED AMOUNT(S), CALCULATED TO NEAREST 1/8 INCH. WEIGHT SHOWN IS FOR ENTIRE SERIES UTILIZING AVERAGE LENGTH.

2. BARS INCLUDED WITH ITEM 517, RAILING, FOR PAYMENT.

3. COST OF FIELD BENDING SHALL BE INCLUDED WITH ITEM 509.

4. LIGHT POLE SUPPORT BARS INCLUDED WITH ITEM 509 FOR PAYMENT.

5. END PREPARATION AND FIELD WELDING INCLUDED WITH ITEM 509.

6. 'LENGTH' SHOWN FOR SPIRAL BARS IS DISTANCE FROM TOP OF FOOTING TO BOTTOM OF PIER CAP.
'NO. TURNS' SHOWN IS 'LENGTH' DIVIDED BY PITCH, PLUS 3 TURNS (NUMBER OF CLOSED COILS), EXPRESSED AS NEAREST WHOLE NUMBER.

1 1/2 CLOSED COILS SHALL BE PROVIDED AT ENDS OF EACH SPIRAL UNIT. FOUR STEEL CHANNEL, TEE OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.80 LB. PER LIN. FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG PERIPHERY OF COIL. WEIGHT OF SPACERS, AT 0.80 LB. PER LIN. FT. WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN TABULATED WEIGHT.

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

BAR SIZE DESIGNATION

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE FOUR DIGITS ARE USED, AND FIRST TWO DIGITS WHERE FIVE DIGITS ARE USED. INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A7001 IS A NO. 7 SIZE BAR AND A10140 IS A NO. 10 SIZE.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

REINFORCING STEEL LIST

BRIDGE NO. CUY-480-0336

BUTTERNUT RIDGE ROAD OVER I-480

CUYAHOGA COUNTY STA. 8+13.61
STA. 11+09.01

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.S.S.			B.I.P.	G.W.M.	7/10/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

372
427

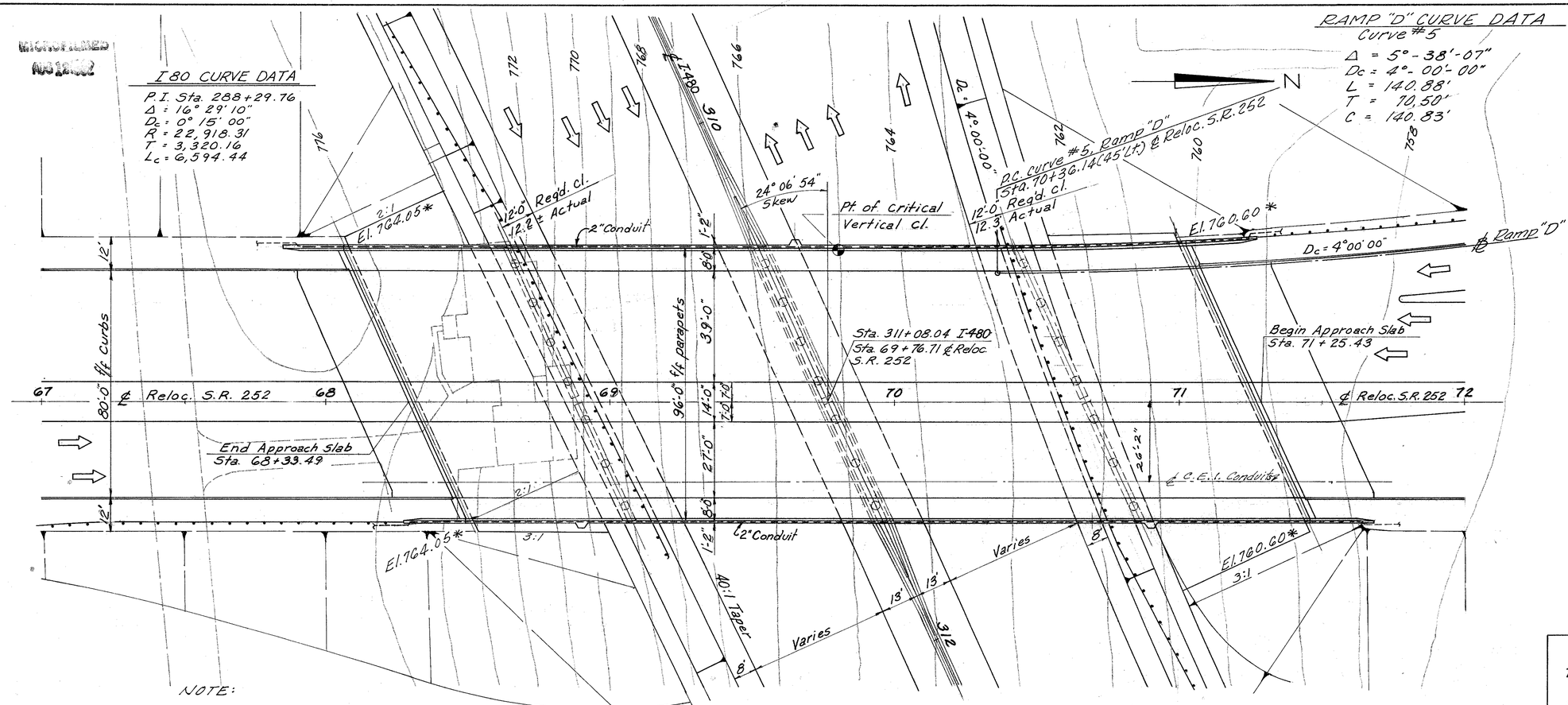
CUYAHOGA COUNTY
CUY-480-1.90

I 80 CURVE DATA

P.I. Sta. 288+29.76
$\Delta = 16° 29' 10"$
$D_c = 0° 15' 00"$
$R = 22,918.31$
$T = 3,320.16$
$L_c = 6,594.44$

RAMP "D" CURVE DATA

Curve #5
$\Delta = 5° - 38' - 07"$
$D_c = 4° - 00' - 00"$
$L = 140.88'$
$T = 70.50'$
$C = 140.83'$



NOTE:

Earthwork limits as shown are schematic. actual slopes shall conform to plan cross sections.

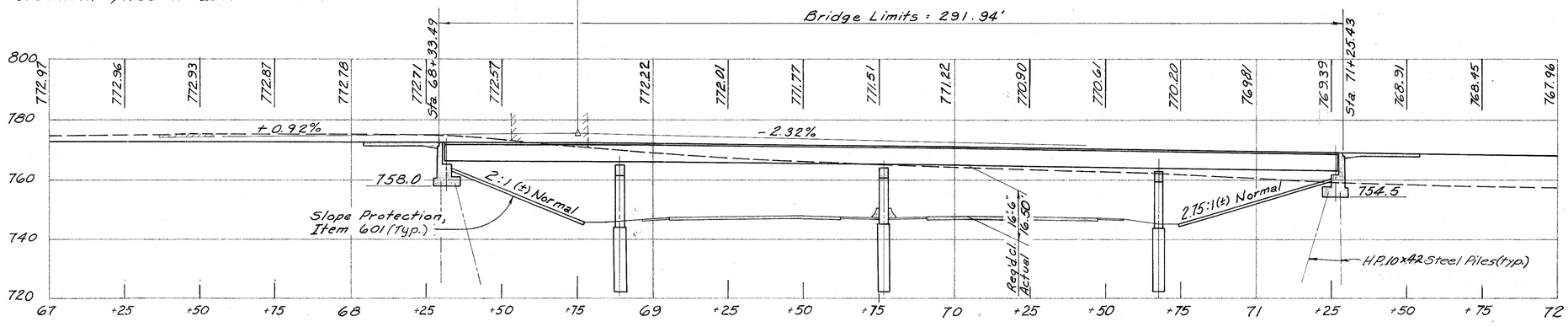
* Elevations shown thus are top of slope at face of abutment.

Estimated average pay length for abutment piles is 25 ft.

The Vertical Curve Data does not apply to elevations on the bridge or in transition areas. Bridge elevations are ½ inch above the elevations obtained from the Vertical Curve Data. A uniform transition shall be provided between the end of the bridge and the end of the Approach Slab.

PLAN

PROFILE ALONG ℄ RELOCATED S.R. 252



PROPOSED STRUCTURE

TYPE: Continuous steel girder with reinforced concrete deck and substructure.
SPANS: 53'-0", 87'-9", 91'-3", 55'-0"
ROADWAY: 96'-0" f/f Parapets, 14'-0" Wide Raised Median, 8'-0" Raised Shoulders, BR-1-67 Railing and chain-link fence.
LOADING: HS 20-44
WEARING SURFACE: monolithic concrete
SKEW: 24°06'54" Rt. forward
ALIGNMENT: Tangent
APPROACH SLABS: AS-1-72, 25' lg. fwd. 20' lg. rear (Modified)
SUPERELEVATION: None

Modify AS-1-72 by providing 3" cover over the top rebars instead of the 2" shown.

TRAFFIC ESTIMATE

Design Year - 1987
Total A.D.T. - 35,600

1/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SITE PLAN

BRIDGE № CUY-480-0398

RELOCATED S.R. 252 OVER I-480

CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.W.M.	G.W.M.	M.D.		G.W.M.	1/10/69	4-9-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

373
427

CUYAHOGA COUNTY
CUY-480-1.90

STANDARD DRAWING REFERENCES (CONTINUED)

DESCRIPTION	DWG. NO.	DATE
HIGHWAY LIGHTING	HL-3	7-27-73 R
HIGHWAY LIGHTING	HL-5	9-6-73R
HIGHWAY LIGHTING	HL-7	1-21-76R

SUPPLEMENTAL SPECIFICATION REFS. (CONT)

DESCRIPTION	NO.	DATE
PAINTING FOR NEW STRUCTURAL STEEL	846	4-25-77
INORGANIC ZINC SILICATE PAINT	950	4-25-77
BLUE-GREEN VINYL PAINT	951	4-25-77

DESIGN DATA (CONT.)

MONOLITHIC WEARING SURFACE THICKNESS IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1".

DECK PROTECTION METHOD- EPOXY COATED REINFORCING STEEL, TOP MAT ONLY.

ATTACHMENT OF GUARDRAIL TO CONCRETE PARAPETS

CONCRETE INSERT ANCHOR ASSEMBLIES PER STANDARD CONSTRUCTION DRAWING GR-3 AND GR-1 SHALL BE PLACED DURING PARAPET CONTRUCTION.

PREFORMED BEARING PADS

IN LIEU OF THE HARDNESS REQUIREMENT OF 711.21, PREFORMED BEARING PADS SHALL HAVE A SHORE A DUROMETER OF 80± 10.

MINIMUM BAR LAP SHALL BE 30 DIAMETERS.

STANDARD DRAWING REFERENCES

DESCRIPTION	DWG. NO.	SHT.	DATE
END DAM AND END CROSSFRAME	SD-1-69	1-2	6-12-69
CURB PLATES	SD-1-69	2	6-12-69
SCUPPERS	SD-1-69	3	6-12-69
BRIDGE ROADWAY RAILING	BR-1-67	1	10-15-71 R
ROCKERS AND BOLSTERS	RB-1-55		2- 2-59 R
APPROACH SLABS	AS-1-72		6-30-72
HIGHWAY LIGHTING	HL-4		1-21-76 R

(R INDICATES REVISED DATE)

SUPPLEMENTAL SPECIFICATION REFERENCES

DESCRIPTION	NO.	DATE
CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D	808	1-1-71
CONCRETE CURING AND PROTECTIVE MEMBRANE	836	3-12-75
SPECIAL PILE TESTS	838	1-13-77

COMMON DETAIL REFERENCES

CONTRACTION JOINTS	SHEET 401
EXPANSION JOINTS	SHEET 401
LIGHTING	SHEET 400
FENCE	SHEET 401A

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE '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 - HS20-44
CONCRETE CLASS C - UNIT STRESS 1200 PSI FOR SUPERSTRUCTURE
UNIT STRESS 1333 PSI FOR SUBSTRUCTURE
STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20000 PSI
REINFORCING STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20000 PSI.
SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82 OR A615.

EMBANKMENT CONSTRUCTION

THE EMBANKMENT SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE NORTH ABUTMENT. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENT.

PILES

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF-
45 TONS PER PILE FOR THE ABUTMENTS

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 WOULD BE HELD TO A MINIMUM.

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GENERAL
503	606	C.Y.	UNCLASSIFIED EXCAVATION	606			
505	LUMP	SUM	TEST PILE				LUMP
506	1	EA.	SUBSEQUENT PILE TEST LOAD				1
506	LUMP	SUM	PILE TEST LOAD				LUMP
507	1500	L.F.	STEEL PILES, HP10x42	1500			
509	234380	LB	REINFORCING STEEL	27812	73464	133 104	
511	1044	C.Y.	CLASS C CONCRETE, SUPERSTRUCTURE (SEE PROPOSAL NOTE)			1044	
511	228	C.Y.	CLASS C CONCRETE, PIERS ABOVE CAISSONS		228		
511	305	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	305			
511	184	C.Y.	CLASS C CONCRETE, FOOTINGS	184			
512	45	L.F.	PREMOLDED SEALING STRIP	45			
513	681,385	LB	STRUCTURAL STEEL, PRIMER PER 846* (SEE PROPOSAL NOTES)			681,385	
846	681,385	LB	FIELD PAINTING OF STRUCTURAL STEEL*			681,385	
516	60	S.F.	1 INCH PREFORMED EXPANSION JOINT FILLER	60			
518	122	C.Y.	POROUS BACKFILL	122			
518	23	EA	SCUPPERS INCLUDING SUPPORTS			23	
518	195	L.F.	6 INCH PERFORATED, HELICAL CSP, 707.01	195			
518	162	L.F.	6 INCH NON-PERFORATED, HELICAL CSP, INCLUDING SPECIALS, 707.01	162			
601	1235	S.Y.	CRUSHED AGGREGATE SLOPE PROTECTION				1235
607	648.00	L.F.	FENCE AS PER PLAN			648.00	
S625			SEE SHEET 291 FOR LIGHTING SUMMARY				
808	1044	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D			1044	
838	3	HOURS	SPECIAL PILE TESTS				3
SPEC	462	L.F.	42 INCH DIA. DRILLED CAISSONS		462		
SPEC	142,923	LB	EPOXY COATED REINFORCING STEEL (SEE PROPOSAL NOTE)	2252		140,671	
		*	3330 LBS. TO BE PAID FOR BY THE CLEVELAND ELECTRIC ILLUMINATING CO.				

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2 118

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL NOTES AND ESTIMATED QUANTITIES

BRIDGE NO. CUY-480-0398
RELOCATED S.R.252 OVER I-480
CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.			B.S.O.	G.W.M.	7/10/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

374
427

CUYAHOGA COUNTY
CUY-480 – 1.90

Caissons. This item shall consist of furnishing and installing caissons of the kind and size called for on the Plans and in the following Specifications. It shall be the Contractor's responsibility to furnish all labor, materials, tests and appurtenances required to complete the work as specified. In no way will the Contractor's responsibility be affected if the estimated pay length of the caissons shown on the Plans is different from that found at the site.

The Contractor shall locate the center of each caisson within a one-inch radius of the position shown on the plan. Caissons not located properly shall be re-installed at the contractor's expense.

The top elevation of each caisson shall be as established by the contract drawings. Upon the completion of a caisson, the Engineer shall record its location, size, depth of penetration, method of installation, and behavior during installation. For each caisson, a record of the location, size, depth of penetration, method of installation and behavior of each caisson during installation shall be kept. This data shall be recorded by the Engineer upon completion of the installation of a caisson. During the installation of a caisson, no jetting to aid in the penetration of the caisson shall be permitted without the approval of the Director.

The caissons shall be installed plumb or at the specified batter and shall not deviate more than one-sixteenth of an inch per foot from the specified axis. If the caisson axis varies more than this, the alignment of the caisson shall be corrected or if necessary, additional caissons shall be installed at no additional cost to the State. Where obstacles such as large boulders are encountered, they shall be removed. If water is encountered during the installation of any caisson, or if the nature of the excavation is such that there is danger of foreign substances, earth, or other debris contaminating or falling into the concrete mix during the placing operations, then the Contractor shall use steel shells for the placing of the caisson concrete. These steel shells may be left in place, or withdrawn, as the concrete is placed provided the concrete completely fills the excavated space to the top of the caissons. The concrete for the caissons is intended to be placed against the existing subsoils without the use of permanent forms, provided the following conditions are met: The earth excavation is clean, there is no excessive loss of concrete, and the diameter of the excavation is maintained at all times. If an artesian water condition is encountered during the installation of any caisson, the Contractor shall be responsible for any special procedures necessary to accomplish the installation, to the satisfaction of the Director.

If two caissons are spaced relatively close together, one of the holes shall be drilled, poured, and the concrete permitted to set, prior to drilling the other hole.

Depth of Caissons. The bottom of caisson elevation shown on the plans is approximate. The actual bottom of caisson elevation shall be determined by a minimum penetration of 36 inches into sound shale. This depth shall be confirmed by the Engineer after inspection of each hole.

Examination of Caissons. Before the placing of the ciasson concrete, the caisson excavation shall be clean and free from all foreign matter. In all cases, the excavation shall be inspected and approved by the Engineer. Upon his approval, the reinforcement may then be installed and the concrete placed. There shall be no water in the hole when the concrete is placed, except under certain conditions when artesian water is encountered.

Materials. Concrete for all caissons shall be Class "C" concrete and shall be controlled and placed according to the requirements of Item 511 for structures over 20 feet. Reinforcing steel shall meet the requirements of Item 509 and the vertical bars shall be deformed. Metal shells shall be water-tight and shall be of sufficient strength to withstand the earth pressures during the installation procedures.

Method of Measurement. The length of each caisson to be paid for shall be the completed and accepted length, measured along the axis of the caisson from the bottom of the drilled hole to the elevation of the top of the caisson.

Basis of Payment. The quantity of drilled caissons, measured as described above, shall be paid for at the contract unit price per liniar foot bid under "Special Items - Drilled Caissons," complete in place. This unit price and payment thereof shall constitute full compensation for furnishing all materials, except reinforcing steel, for all labor, the use of tools and equipment, and all incidentals necessary to complete this item.

Reinforcing Steel. The reinforcing steel shall not be included in the unit price bid per linear foot of caissons, but shall be paid for under Item 509.

3/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

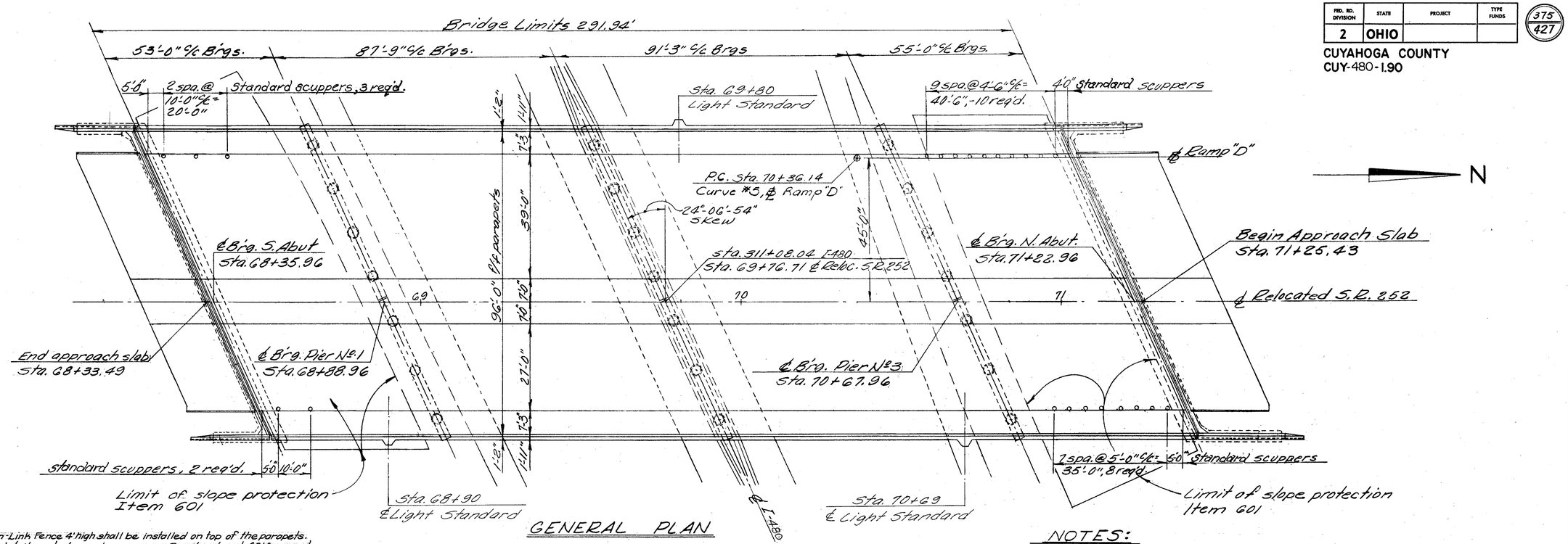
CAISSON NOTES
BRIDGE No. CUY-480-0398
RELOCATED S.R. 252 OVER I-480
CUYAHOGA COUNTY STA. 68+33.49
STA. 71+25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
				G.W.M.	7/10/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

375
427

CUYAHOGA COUNTY
CUY-480-1.90



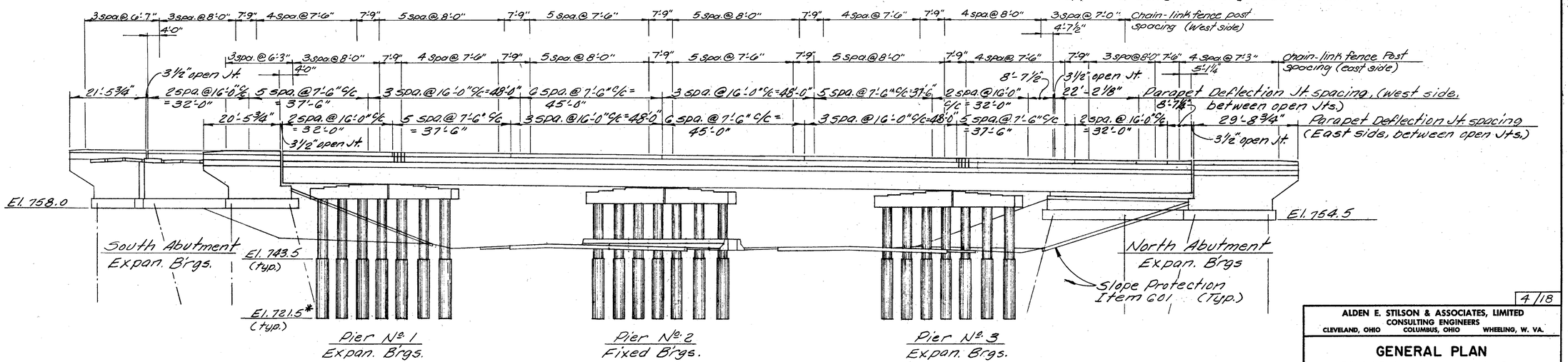
GENERAL PLAN

Chain-Link Fence 4' high shall be installed on top of the parapets. For details not shown hereon, refer to sheet 401A, except that the embedment of the posts and sleeves into concrete shall be 1'-5".

NOTES:

Scupper spacing shall be adjusted to clear intermediate cross frames by a minimum of six inches.

Scupper spacing is along face of curb.



* See Caisson notes, Sht. 3/18

EAST ELEVATION

4/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

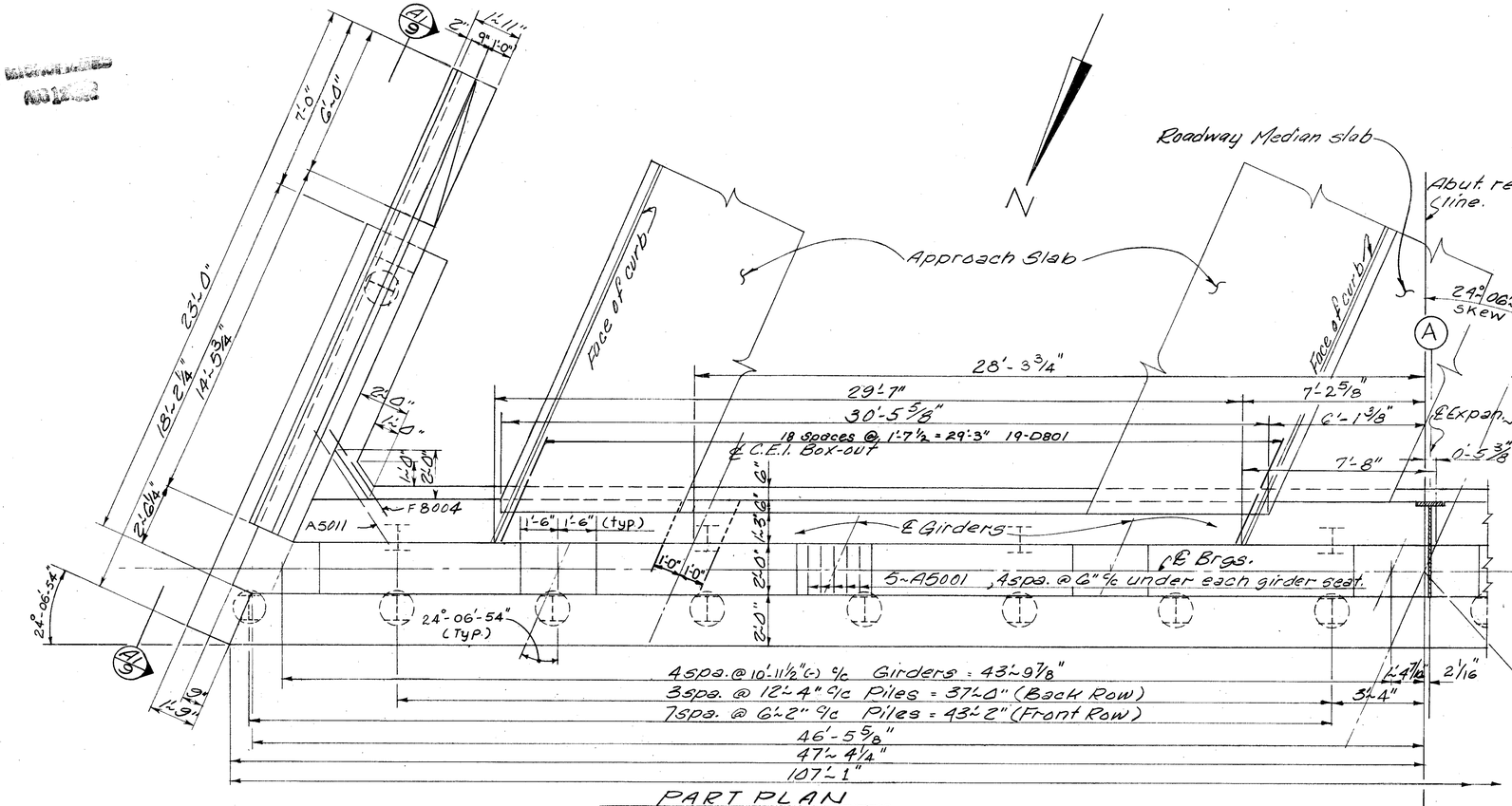
GENERAL PLAN
BRIDGE Nº CUY-480-0398
RELOCATED S.R. 252 OVER I-480
CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

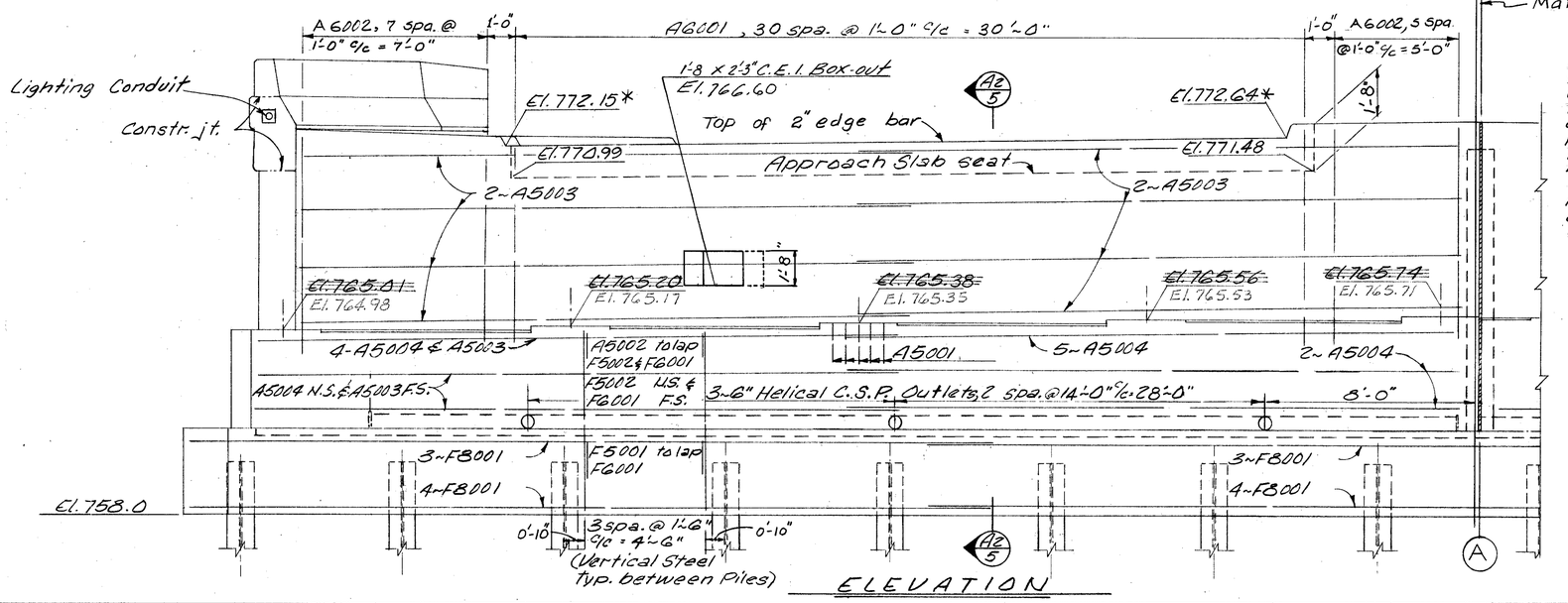
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	D.T.		R.S.S.	G.W.M.	11/10/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

376/427

CUYAHOGA COUNTY
CUY-480-1.90





BACKWALL CONCRETE: In addition to the provisions of 511.08, backwall concrete or backwall concrete above the optional construction joint at the approach slab seat shall not be placed until after the deck concrete in the span adjacent to the abutment has been placed.

For details of electrical expansion fittings and couplings in abutment, See Std. Drawing HL-5.

NOTES:

All piles are HP 10 x 42 ~ Piles.

Indicates Vertical Piles.

Indicates Piles battered 1:4

In reinforcing bar Call outs. N.S. indicates near side F.S. indicates far side.

* Elevations marked with an asterisk are roadway elevations at face of backwall and face of curb and at high point.

For additional notes see sht. 9/18.

5/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SOUTH ABUTMENT DETAILS
BRIDGE Nº CUY-480-0398

RELOCATED S.R. 252 OVER I480

CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	MB		R.S.S.	G.W.M.	7/19/79	

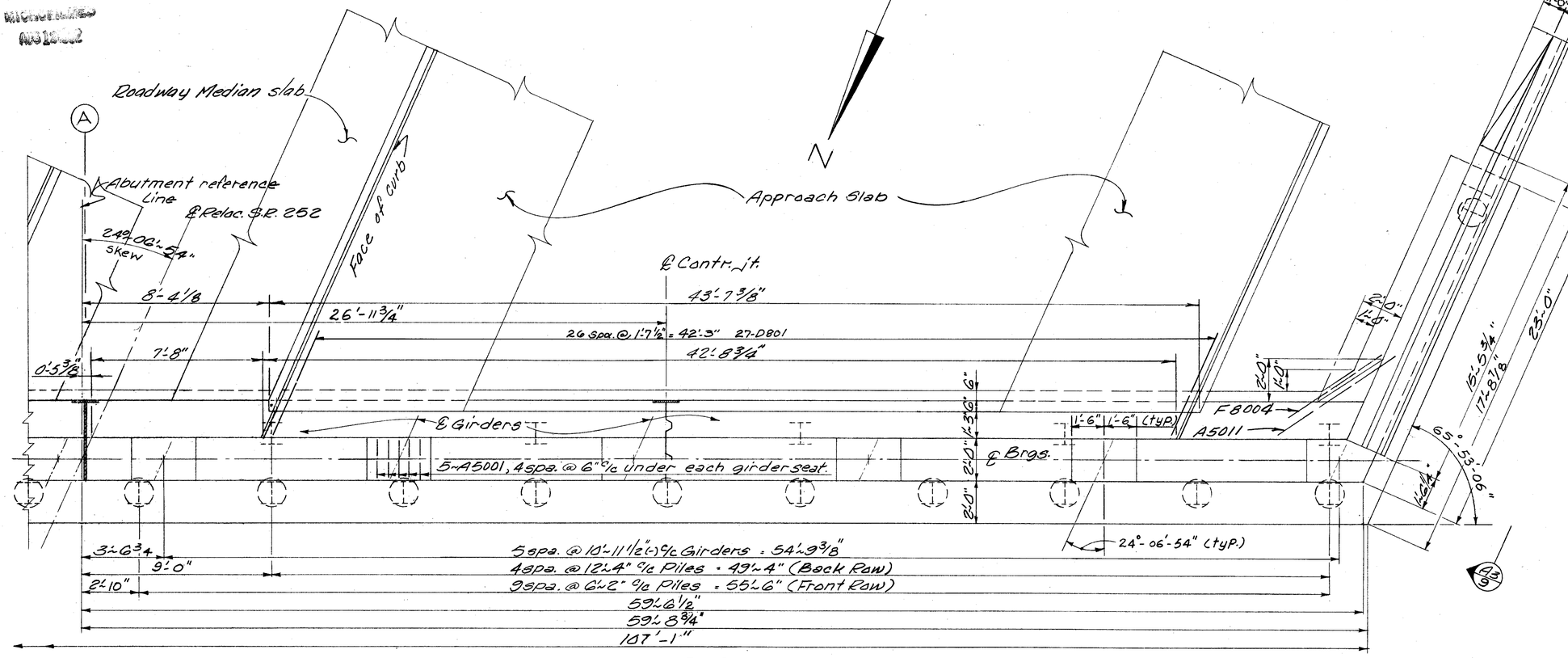
REV 4-11-79

K. & E. - Cleveland 107155

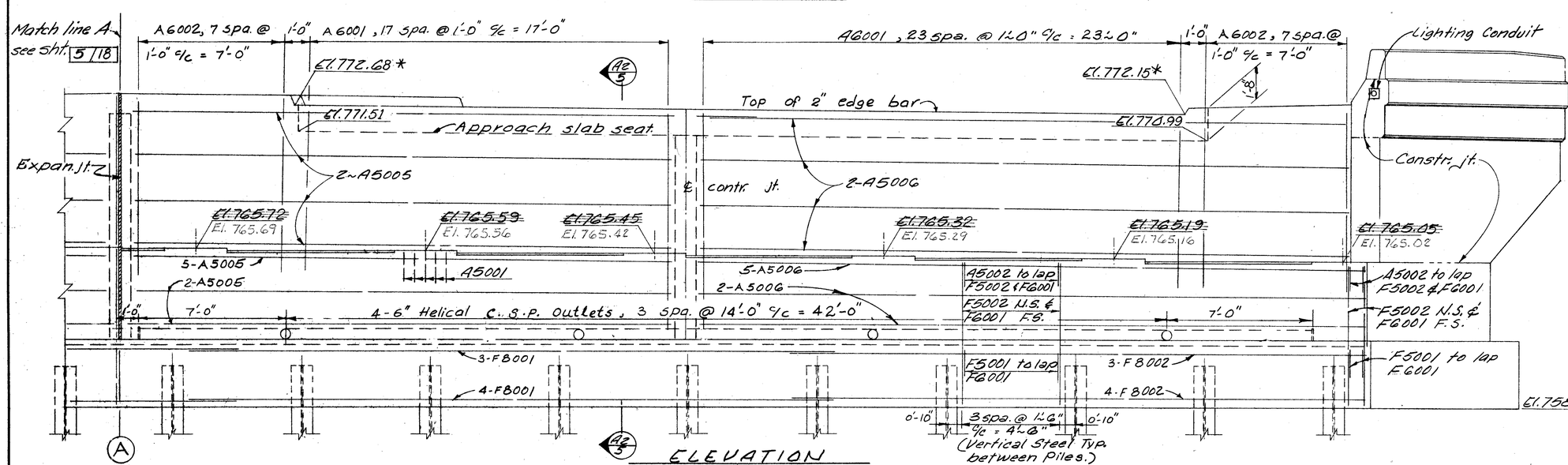
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

377 / 427

CUYAHOGA COUNTY
CUY-480-1.90



PART PLAN



ELEVATION

NOTES:

All piles are HP, 10 x 42 - Piles

T Indicates vertical piles.

T Indicates piles battered 1:4

In reinforcing bar Callouts:
N.S. indicates near side
F.S. indicates Far Side

* Elevations marked with an asterisk are roadway elevations at face of backwall and face of curb and at high point.

For additional notes see sht. 9/18

For details of electrical expansion fittings and couplings in abutment, see Standard Drawing HL-5.

6/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SOUTH ABUTMENT DETAILS
BRIDGE Nº CUY-480-0398

RELOCATED S.R. 252 OVER I480

CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

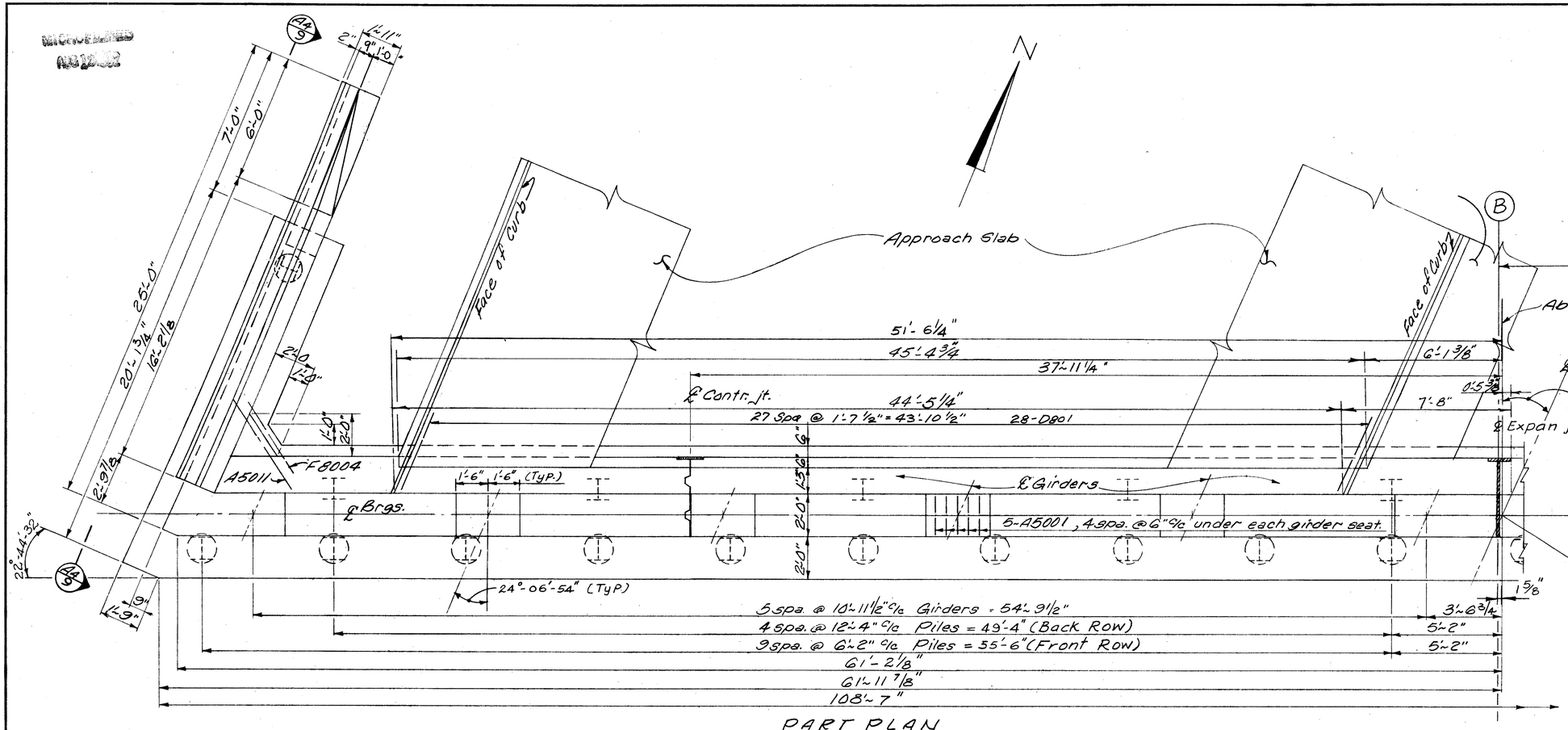
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	MB		R.S.S.	G.W.U.	7/1/69	

REV. 4-11-79

E. & E. - Cleveland 107185

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	378 / 427
2	OHIO			

CUYAHOGA COUNTY
CUY480-1.90



NOTES:

All piles are HP 10x42 Piles.

Indicates Vertical Piles.

Indicates Piles battered 1:4

In reinforcing bar callouts:
N.S. indicates near side.
F.S. indicates far side.

* Elevations marked with an asterisk are roadway elevations at face of backwall and face of curb and at high point.

For additional notes see sht. 9/18

For details of expansion fitting and coupling in abutment, see Standard Drawing HL-5.

7/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

NORTH ABUTMENT DETAILS

BRIDGE Nº CUY-480-0398

RELOCATED S.R. 252 OVER I480

CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	MB		R.S.S.	G.W.L.	7/1/69	

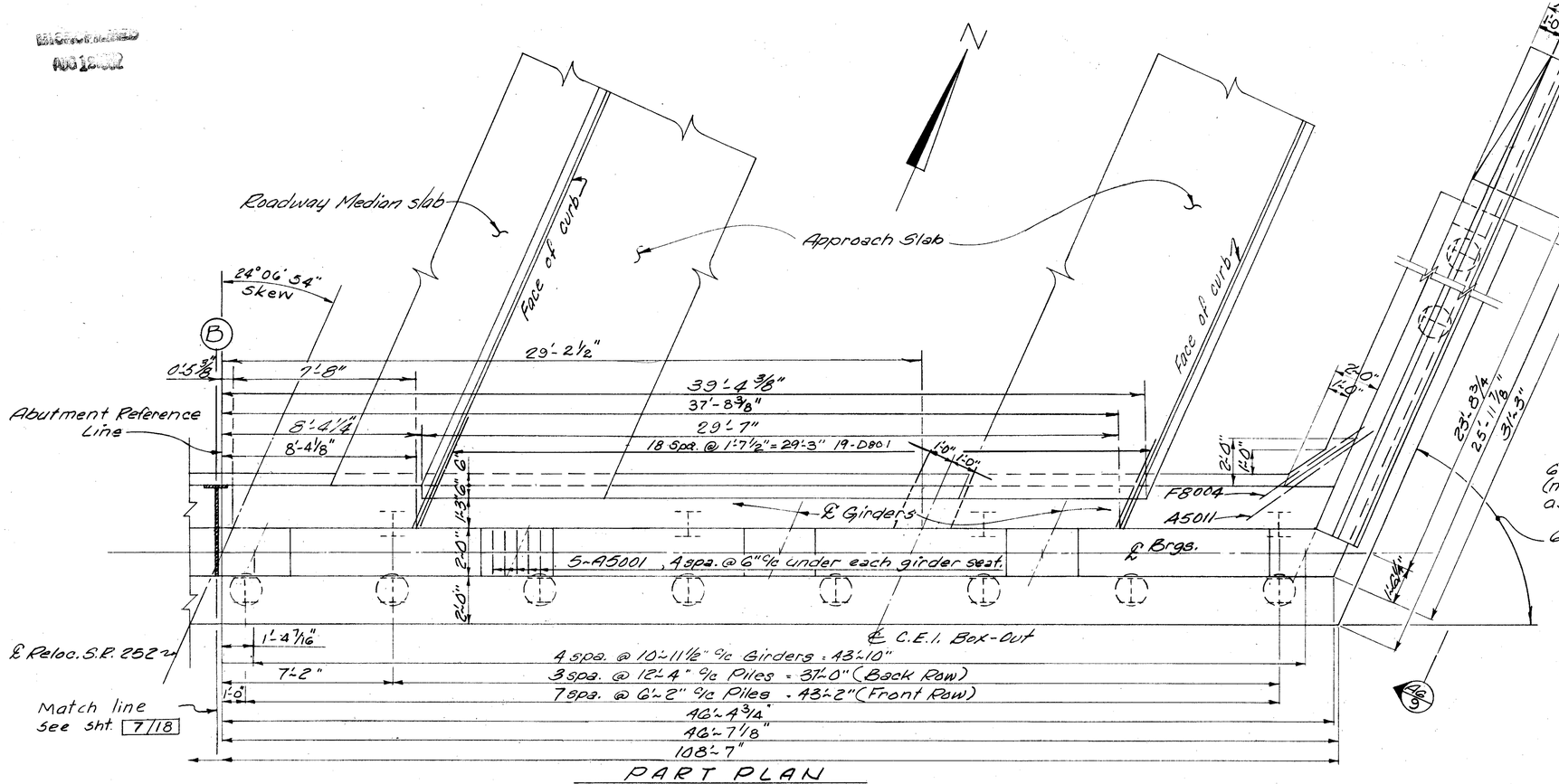
REV. 4-11-79

E. & E. - Cleveland 107185

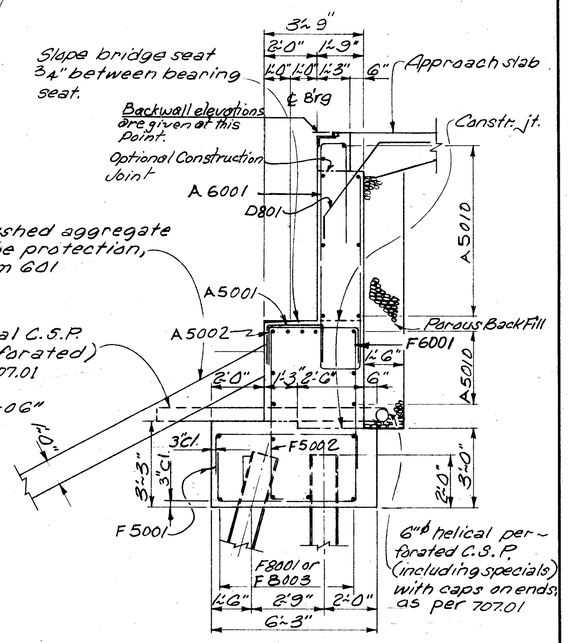
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

379
427

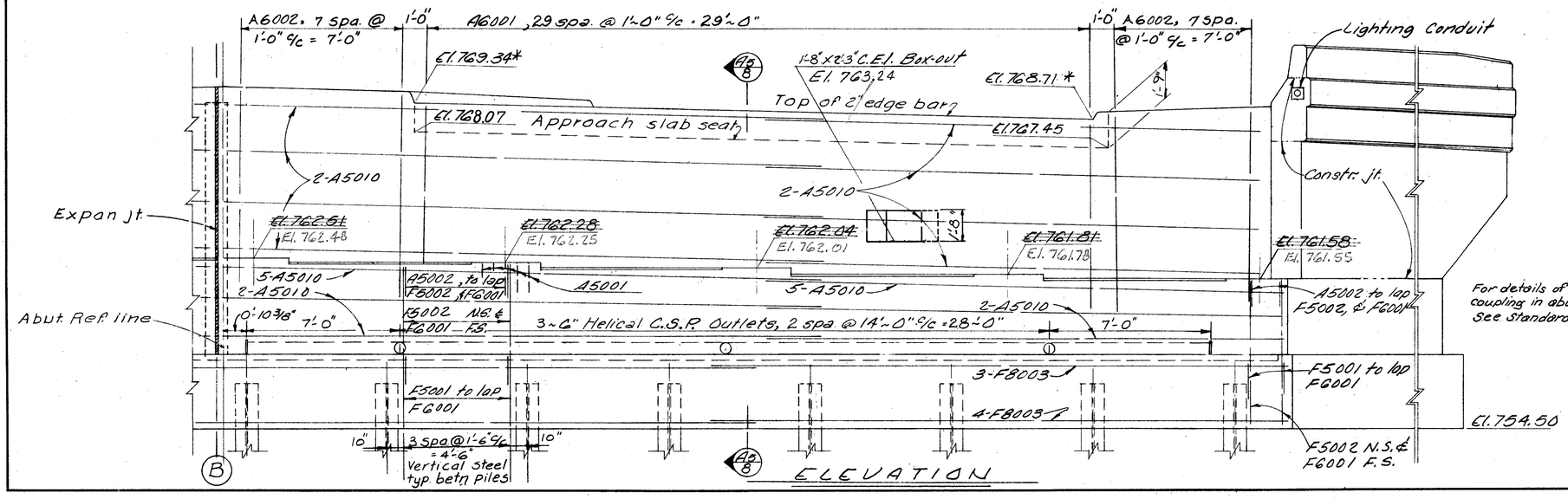
CUYAHOGA COUNTY
CUY-480-1.90



PART PLAN



SECTION A5-A5



ELEVATION

For details of expansion fitting and coupling in abutment. See Standard Drawing HL-5.

NOTES:

All piles are HP 10x42 - Piles.
Indicates Vertical Piles.
Indicates Piles battered 1:4
In reinforcing bar Call outs:
N.S. indicates near side
F.S. indicates far side

* Elevations marked with an asterisk are roadway elevations at face of backwall and face of curb and at high point.

For additional notes see sht. 9/18

8/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

NORTH ABUTMENT DETAILS
BRIDGE Nº CUY-480-0398

RELOCATED S.R. 252 OVER I480

CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	MB		R.S.S.	G.W.M.	7/11/69	

REV. 4-11-79

K. & E. - Cleveland 107155

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

380 / 427

CUYAHOGA COUNTY
CUY-480-1.90

NOTES:
PARAPET TRANSITIONS AND WINGWALL ENDS shall be as shown on Std. Drwg. BR-1-67 revised 10-15-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

Concrete and reinforcing steel for parapets and barrier medians are included for payment with item 511 Concrete and 509 Reinforcing Steel.

For wingwall details, not shown, See std. dwg. BR-1-67, sht. 1

For expansion & contraction jt. details see common details sht. no. 401

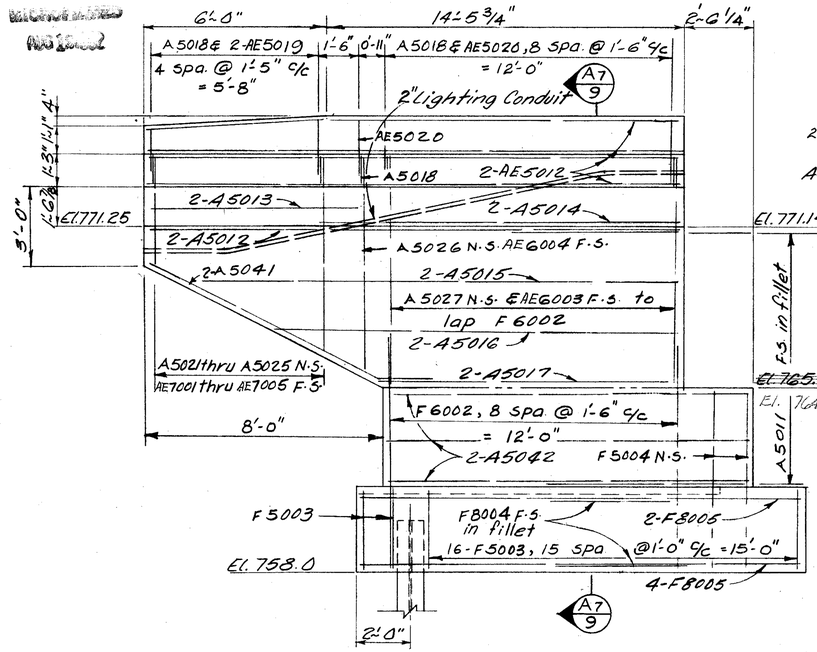
Porous Backfill 1.5Ft. thick shall extend up to the plane of the subgrade and laterally to the ends of the wing walls.

In reinforcing steel callouts:
N.S. indicates near side.
F.S indicates far side.

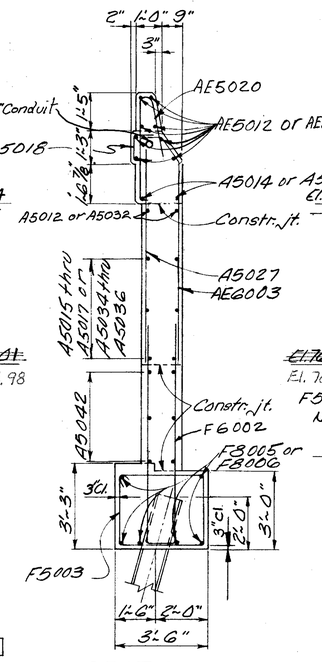
6" ϕ Helical perforated C.S.P. shall have ends capped.

Shape of median on the abutment shall match the shape of the median on the approach roadway.

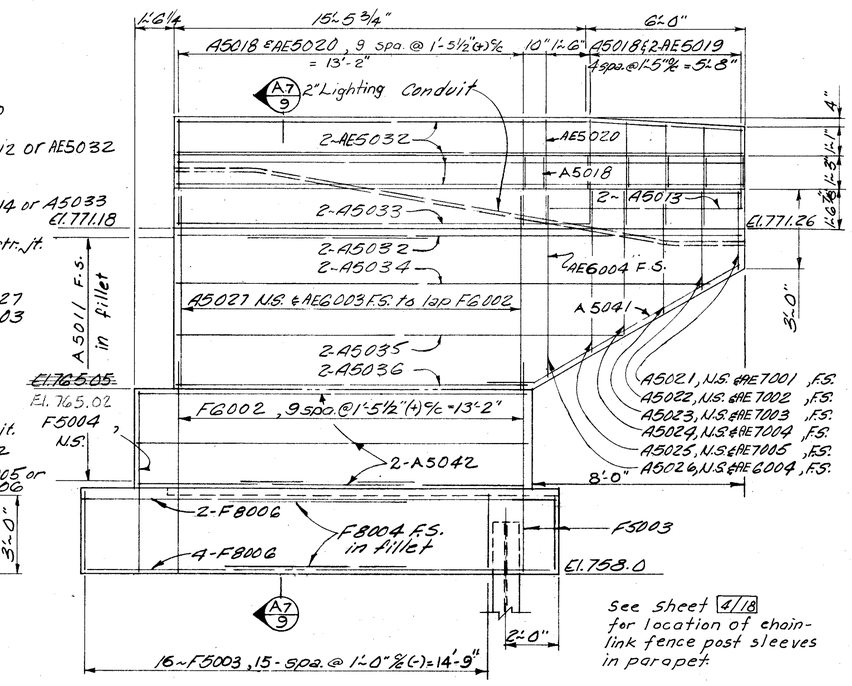
For details of conduit in wingwalls, see Standard Dwg. HL-5.



ELEVATION A1-A1 5/18

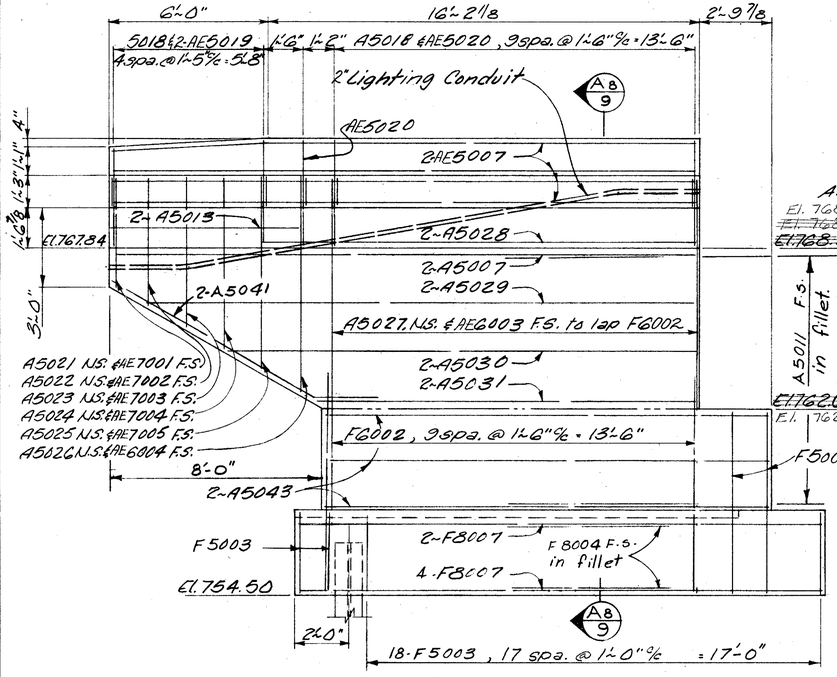


SECTION A7-A7

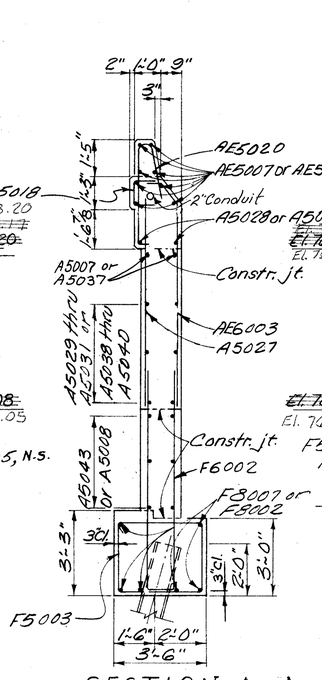


ELEVATION A3-A3 6/18

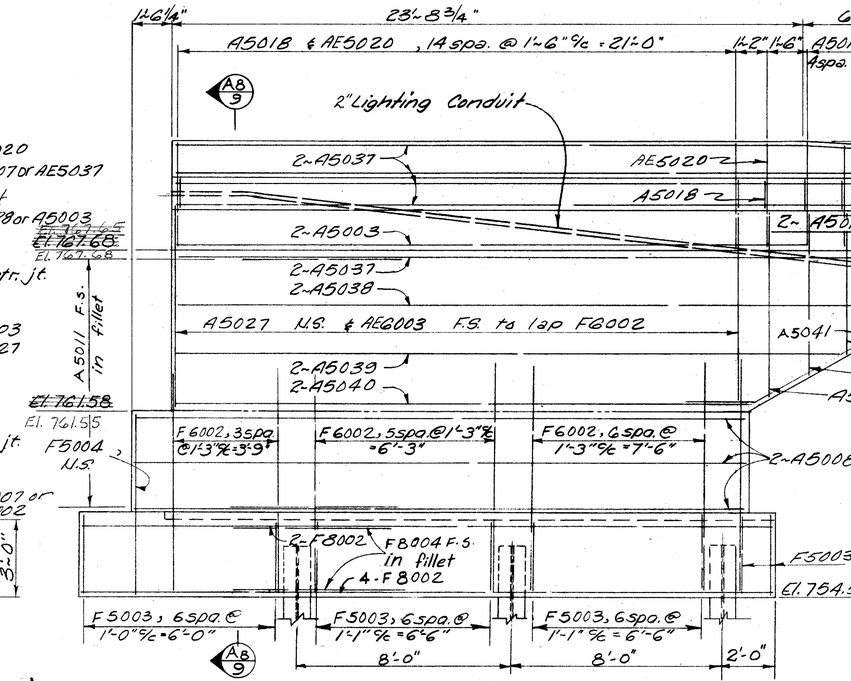
See sheet 4/18 for location of chain-link fence post sleeves in parapet.



ELEVATION A4-A4 7/18



SECTION A8-A8



ELEVATION A6-A6 8/18

9/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

ABUTMENT DETAILS

BRIDGE Nº CUY-480-0398

RELOCATED S.R. 252 OVER I480

CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	MB		R.S.S.	G.W.M.	7/11/69	4-5-78

REV. 4-20-79; REV. 4-11-79

K. & E. - Cleveland 107155

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

381
427

CUYAHOGA COUNTY
CUY-480-1.90

58'-9"
5 Spa @ 10'-11½" c/c Girders = 54'-9⅜"
3 Spa @ 15'-0 c/c Cols = 45'-0"
1'-6" 6'-3" 8'-7⅞" 2'-5⅛" 1'-1⅛"
24°-06'-54" (Typ.)
3'-0" Dia. Cols (Typ.)
℄ Girders (Typ.)
3'-6" Dia. Caissons (typ)
℄ Brg
(Typ) 1'-6"
℄ Pier loc. S.R. 252
3'-0 1'-6" 1'-6"
5-P5001, 4 spa. @ 6" c/c = 2'-0 Under each girder seat.
Bolster anchor bolt hole location Plan (Typ. for Pier N°2 only)

PLAN
Typical for Piers N° 1, ~~2~~ & 3 South bound lanes
Except As Noted

P-10001 or P-10003
P4001 or P4003
P-7001
P-9002
SECTION P-P

EL. B
EL. C
EL. D
EL. E
EL. F
EL. G
EL. A
P5003
9-P11001
P5001
2-P5004
5-P9001
10 P11002
5-P9002
5-P7001
5-P9003
3" TYP
11-P5002 10 Spa @ 4½" c/c = 3'-9" Top & Bott
15-P5002 14 Spa. @ 5½" c/c = 6'-5 Top & Bott
1'-9"
3-P5002 2 Spa @ 1'-8" c/c = 3'-4" (Top & Bott)
2-P5002 1'-6" 4-P5002 1'-6" 2-P5002 3 Spa @ 1'-6" c/c = 4'-6" (Top & Bott)
8 Spa. @ 3" c/c = 2'-0 Top & Bott
4-P5002 3 Spa. 1'-4½" c/c = 4'-1½" Top & Bott.
1'-4½"
17-P5002 16 Spa @ 4½" c/c = 6'-0" Top & Bott.
14-P5002 13 Spa @ 4" c/c = 4'-4" Top & Bott.
Const. Joint (Typ.)
EL. 743.57 (Typ.)
EL. 721.5*7 (Typ.)
P4001, Spiral (Typ) Pier N°1
~~P4002, Spiral (Typ) Pier N°2~~
P4003, Spiral (Typ) Pier N°3
F4001, Spiral (Typ)
8-P10001 (Typ) Pier N°1
~~8-P10002 (Typ) Pier N°2~~
8-P10003 (Typ) Pier N°3
8-F10001 Typ. All Cassions
3:2 (Typ)

ELEVATION
Typical for Piers N° 1 & 3 South bound lanes

P-10002
P4002
P-5006
P-8001
SECTION P2-P2
P-11002
P11001
P11003
P5001
P5004
P5002
P7004
P9002
SECTION P3-P3
SECTION P4-P4
SECTION P5-P5

EL. 763.28
EL. 763.39
EL. 763.50
EL. 763.61
EL. 763.72
EL. 763.82
EL. 759.50
10-P11001
10-P7002
2-P11003
10-P11002
P5003
2-P5004
8-P8001
15-P5002 14 Spa @ 3½" c/c = 4'-1" Top & Bott.
20-P5002 19 Spa @ 4" c/c = 6'-4" Top & Bott.
8'
3-P5002 2 Spa @ 1'-9" c/c = 3'-6" Top & Bott
3 (Typ)
9-P6002
8-P5006 2 Spa @ 1'-8" c/c = 3'-4" Top & Bott 8 Spa @ 3½" c/c = 2'-4" Top & Bott
1'-9"
4-P5002 3 Spa @ 1'-5" c/c = 4'-3" Top & Bott
1'-5"
21-P5002 20 Spa @ 3½" c/c = 5'-10 Top & Bott
8-P7004 19-P5002 18 Spa @ 3" c/c = 4'-6" Top & Bott.

CAP ELEVATION
Pier N° 2 South bound lanes

Note: Cell and Caission Details Same as for Piers 1 & 3

Table of Elevations.							
Location	A	B	C	D	E	F	G
Pier N°1	760.50	764.13	764.26	764.38	764.51	764.63	764.75
Pier N°3	758.35	762.29	762.39	762.48	762.57	762.66	762.75

Notes:
Special care shall be taken at Pier #2 in placing reinforcing steel in the top of the cap so as to avoid interference with the drilling of bearing anchor holes, or the presetting of bearing anchors.
*See caisson notes sheet 3/18

For Grounding Details at ~~Pier No. 2, Southbound Lanes, see Std. Drwg. HL-7.~~
BEARING ANCHORS: At the option of the Contractor, bearing anchors (or formed holes), located and supported by templates, may be Cast in place.

REV 8-10-79

10/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

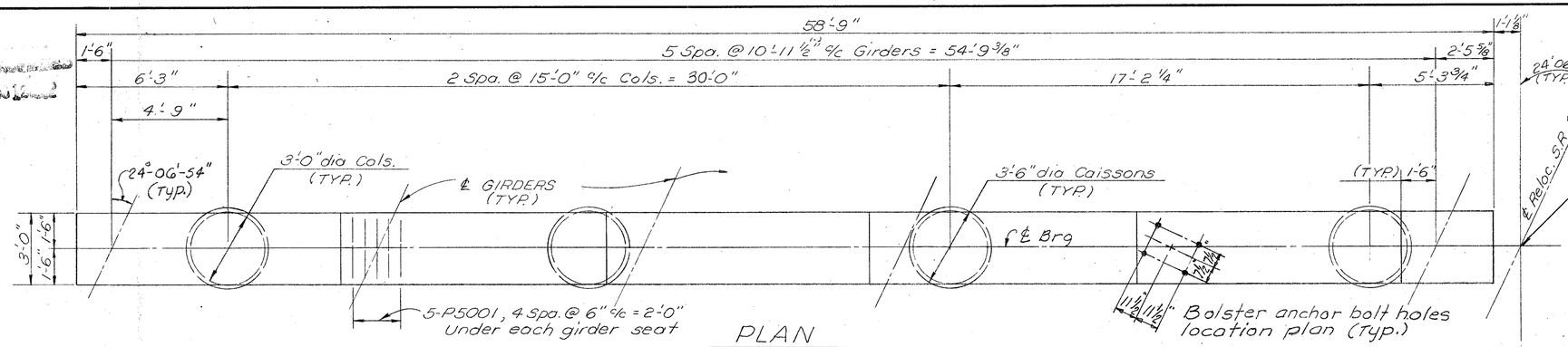
S.B. PIER DETAILS
BRIDGE N° CUY-480-0398
RELOCATED S.R. 252 OVER I480
CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P	BD		R.S.S.	G.W.M.	7/1/69	

FHWA REGION	STATE	PROJECT	
5	OHIO		

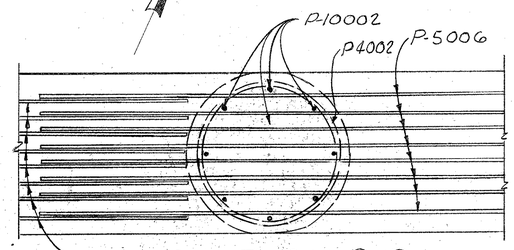
381A 42.7

CUYAHOGA COUNTY
CUY-480-1.90

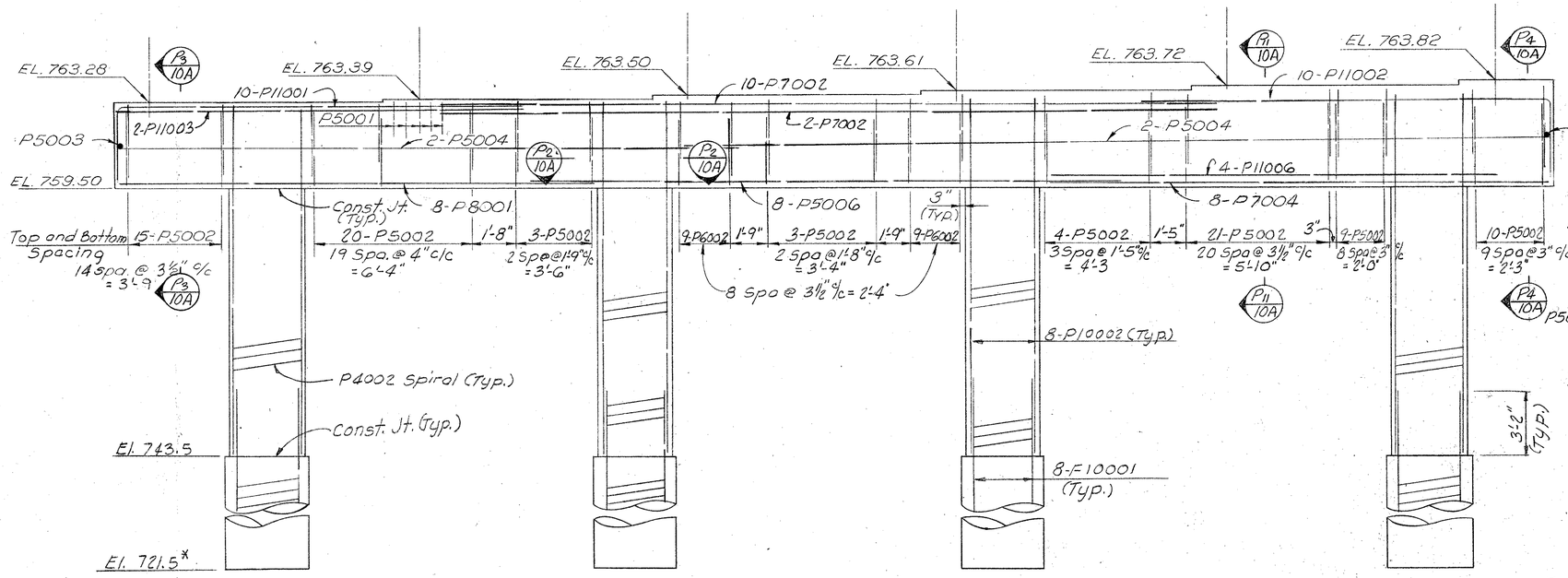


PLAN

Pier No. 2 Southbound Lanes



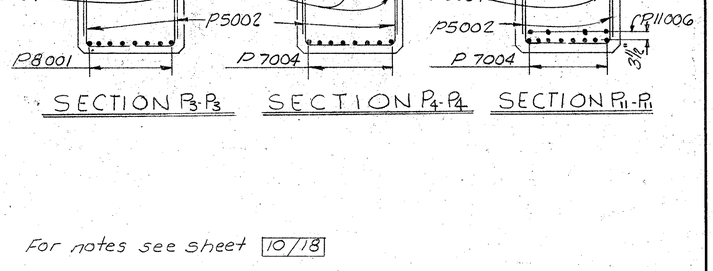
SECTION P_2-P_2



ELEVATION

Pier No. 2 Southbound Lanes

* See Caisson notes on Sheet 3/18



SECTION P_3-P_3 SECTION P_4-P_4 SECTION P_{11}-P_{11}

For notes see sheet 10/18

For Grounding Details at Pier No. 2 Southbound Lanes, see Standard Drawing HL-7.

Note: Col. and caisson details same as for Piers 1 & 3 on sheet 10/18

This sheet added 8-10-79

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

10A/18

S.B. PIER NO 2 DETAILS

BRIDGE NO. CUY-480-0398
RELOCATED S.R. 252 OVER I-480
CUYAHOGA COUNTY
STA. 68+33.49
STA 71+25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTF	TGC WTF			WJJ	8-9-79	

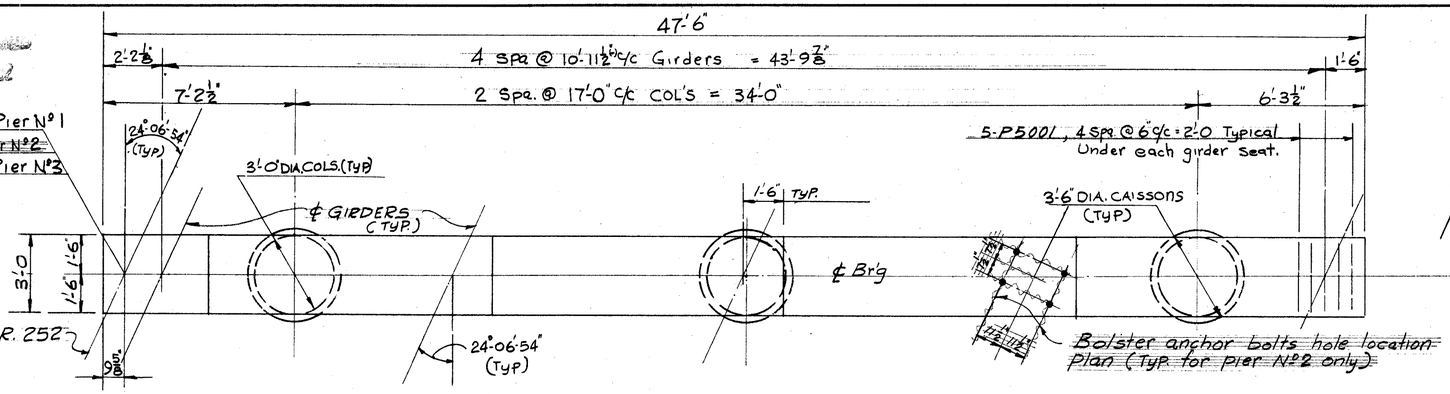
12378(4)

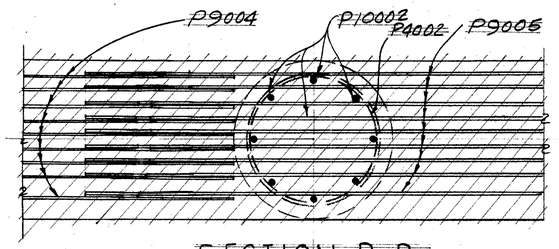
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

382
427

CUYAHOGA COUNTY
CUY-480-1.90

~~Sta. 68+88.96 Pier No. 1~~
~~Sta. 69+76.71 Pier No. 2~~
Sta. 70+67.96 Pier No. 3

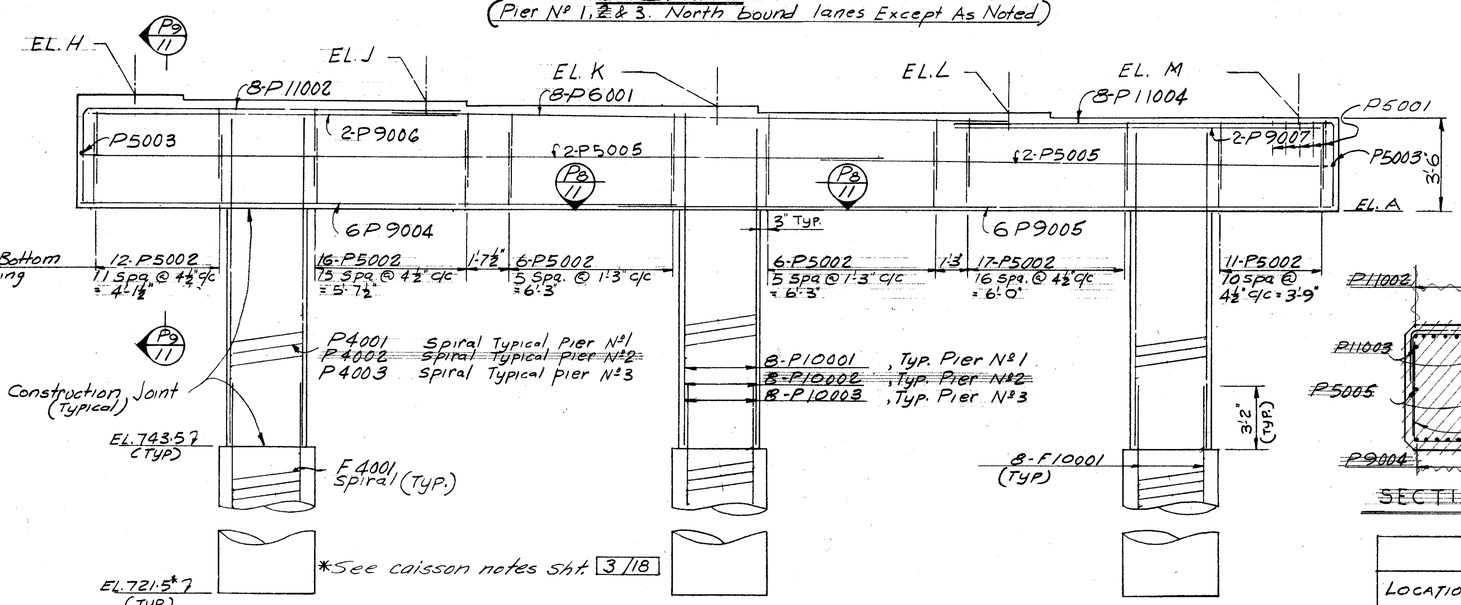


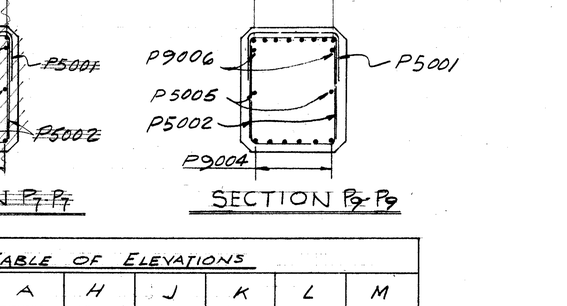


SECTION P6-P6

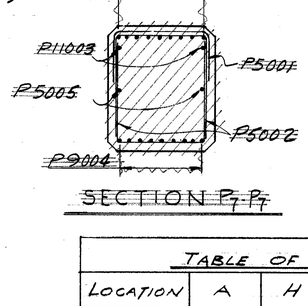
PLAN

(Pier No. 1, ~~2~~ & 3. North bound lanes Except As Noted)





SECTION P8-P8



SECTION P7-P7

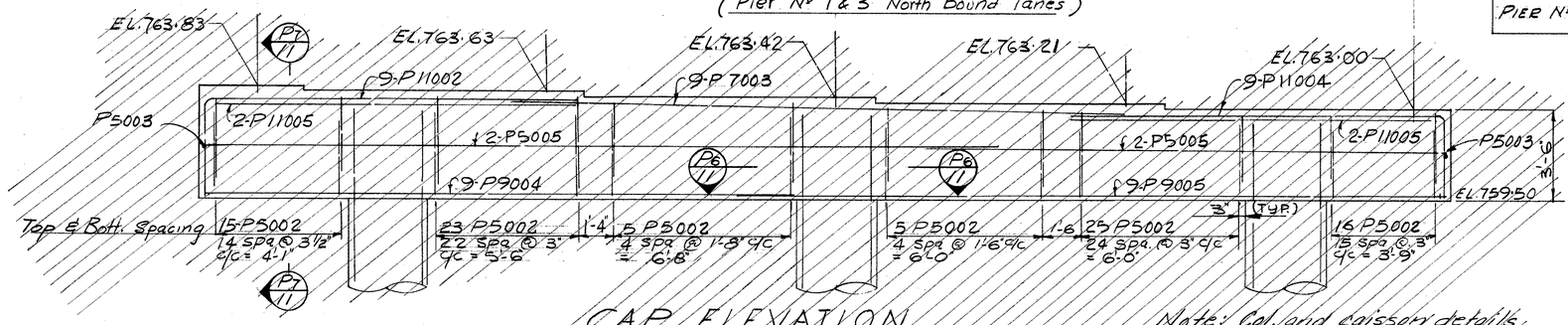
SECTION P9-P9

TABLE OF ELEVATIONS						
LOCATION	A	H	J	K	L	M
PIER No. 1	760.50	764.76	764.58	764.39	764.20	764.00
PIER No. 3	758.36	762.75	762.53	762.31	762.08	761.86

For notes see sheet 10/18

ELEVATION

(Pier No. 1 & 3 North bound lanes)



CAP ELEVATION

(Pier No. 2 North bound lanes)

Note: Col. and caisson details same as for Piers 1 & 3

For details of Pier No. 2 Northbound Lanes see sh. No. 11A/18

~~For Grounding Details at Pier No. 2, Northbound Lanes, See Standard Drawing HL-7.~~

REV. 8-10-79

11/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

N.B. PIER DETAILS
BRIDGE No. CUY-480-0398

RELOCATED S.R. 252 OVER I480

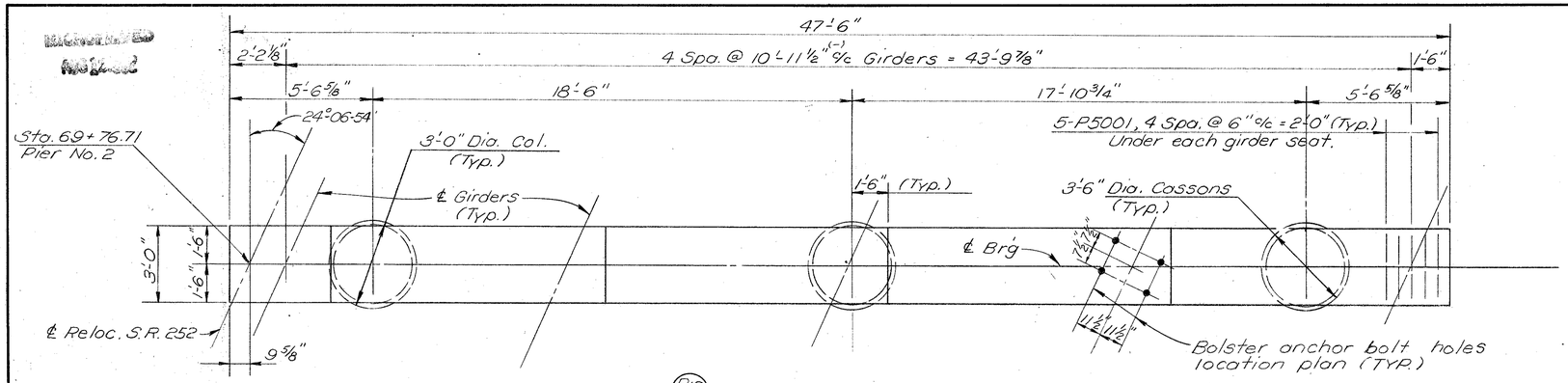
CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.D.		R.S.S.	G.W.M.	7/11/69	

FHWA REGION	STATE	PROJECT	
5	OHIO		

3824 427

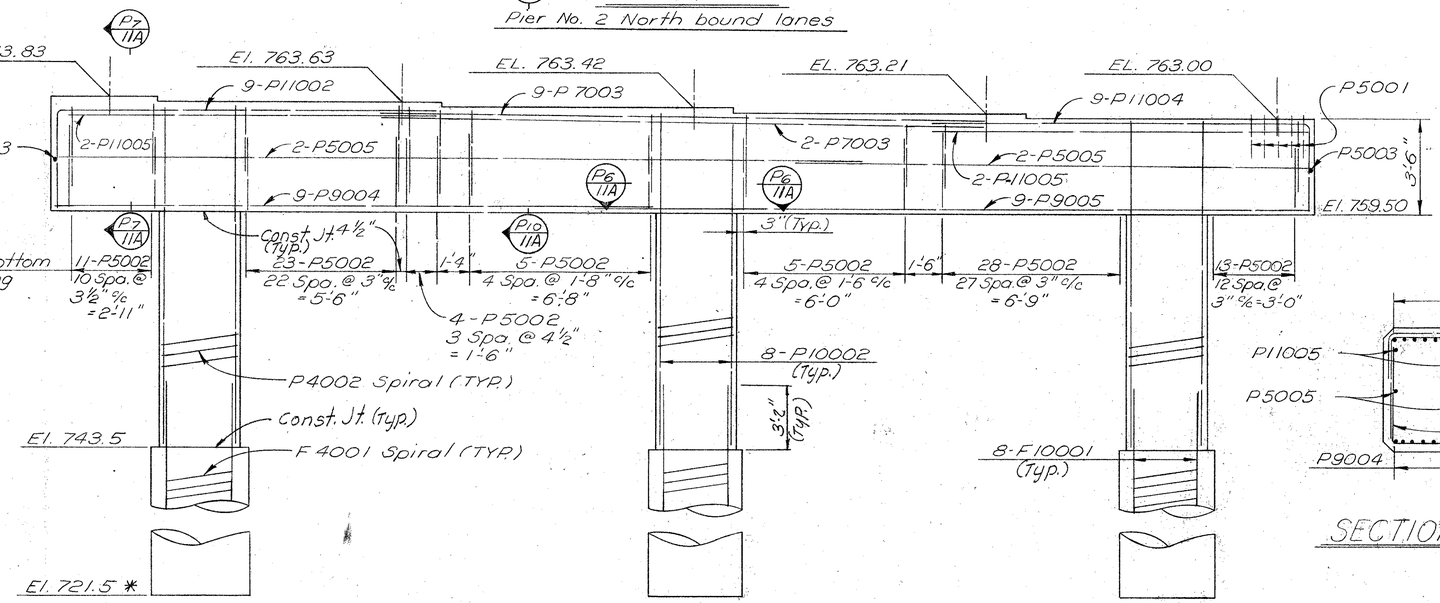
CUYAHOGA COUNTY
CUY-480-1.90



P10 11A

PLAN

Pier No. 2 North bound lanes

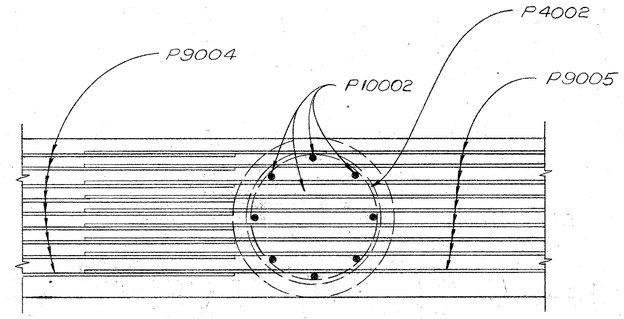


ELEVATION

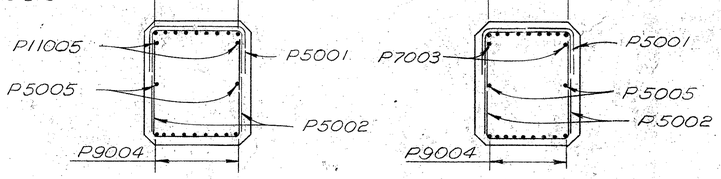
(Pier No. 2 Northbound lanes)

* See Caisson notes on sheet 3/18

Note: Col. and caisson details same as for Piers 1 & 3 on sheet 11/18.



SECTION P6-P6



SECTION P7-P7

SECTION P10-P10

For notes see sheet 10/18

For Grounding Details at Pier No. 2 Northbound Lanes, See Standard Drawing HL-7.

This sheet added 8-10-79

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

11A/18

N.B. PIER NO. 2 DETAILS

BRIDGE NO. CUY-480-0398
RELOCATED S.R. 252 OVER I-480
CUYAHOGA COUNTY
STA. 68+33.49
STA. 71+25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTF	TGC			WJJ	8-9-79	

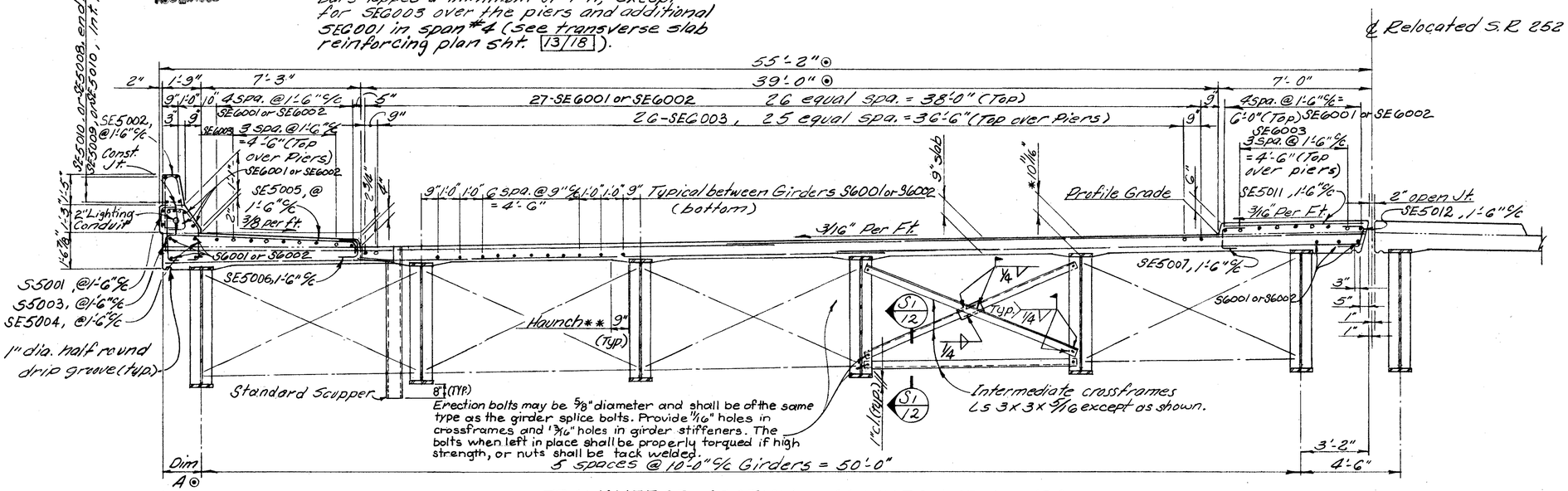
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

383
427

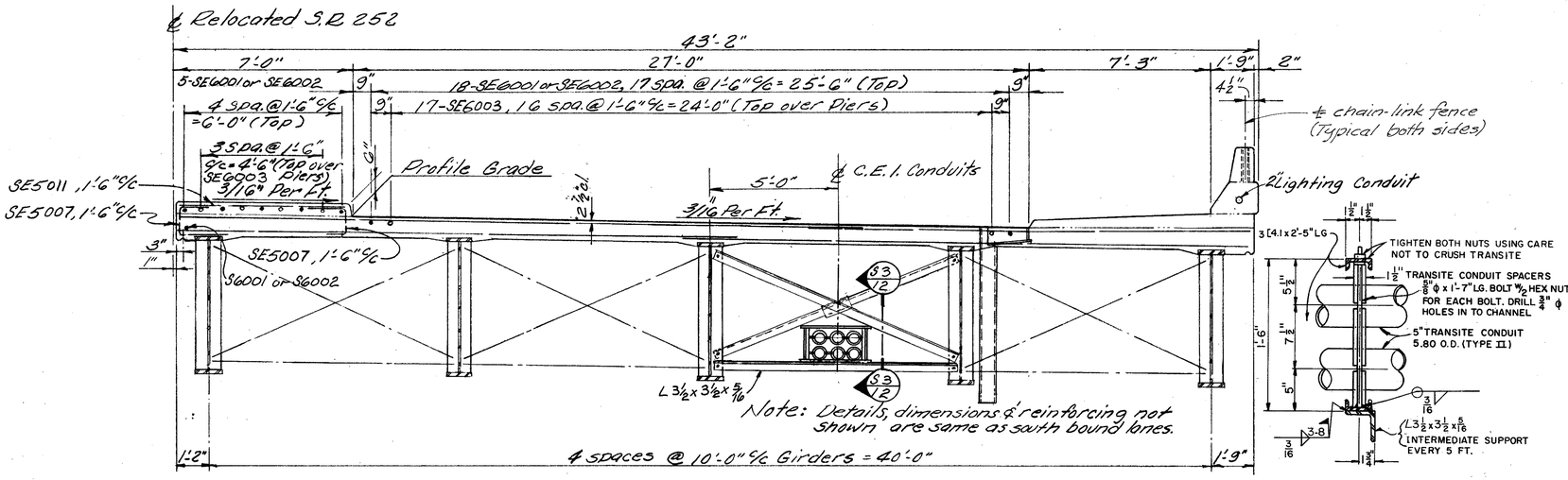
CUYAHOGA COUNTY
CUY-480-1.90

NOTE: Each longitudinal run of deck reinforcing shall be comprised of 9-SE6001 & 1-SE6002 or 9-S6001 & 1-S6002 bars lapped a minimum of 1'-11" except for SE6003 over the piers and additional SE6001 in span #4 (see transverse slab reinforcing plan sht. 13/18).

⊙ From station 70+36.14 (P.C. of curve #5 Ramp "D") forward these dimensions vary.



TRANSVERSE SECTION SOUTHBOUND LANES



TRANSVERSE SECTION NORTHBOUND LANES

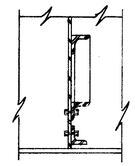
PART SECTION S3-S3

NOTE: Conduit racks and conduits to be furnished and installed by the Cleveland Electric Illuminating Co.

Refer to Sh. No. 401A for fence details. Steel pipe insert sleeves shall be 1'-5" long instead of 2'-0" as shown.

TABLE OF DIMENSION "A"

Locations	To Sta. 70+36.14	Sta. 70+47.35	Sta. 70+61.02	Sta. 70+74.63	Sta. 70+88.18	Sta. 71+01.68
Dim. A	1'-9"	1'-9 1/2"	1'-11 5/8"	2'-3 1/4"	2'-8 1/2"	3'-3 3/8"



SECTION S1-S1

℄ Piers

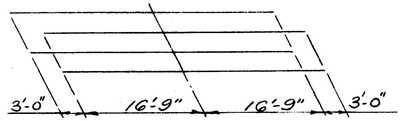


DIAGRAM SHOWING STAGGER OF SEG003 BARS OVER PIERS

NOTES:

* This dimension is from the top of slab to the top of the girder web and is the design 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 girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deductions shall be made for volume of encased steel plates as per section 511.18 of the Construction and material Specifications.

** A typical haunch width of 9" shall be used for all girders in computing quantity of concrete. However the haunch width may vary between 6" and 12" provided that the slope shall be not more then 1:4 for a haunch less then 9" in width.

For transverse slab reinforcing see Sht. 13/18

Concrete and reinforcing steel for parapets, raised median and raised shoulders shall be included for payment with their respective items. Item 511 superstructure concrete & Item 509 Reinforcing steel. Longitudinal reinforcing steel shall be field cut as necessary to avoid interference with scuppers.

BRIDGE DECK FINISH: In lieu of being finished as specified in 516.11 the bridge deck shall be textured transversly to provide a relatively uniform pattern of grooves spaced on approximately 3/4 inch centers. Grooves shall be approximately 0.15 inches deep and 0.10 inches wide. A strip of surface 9 to 12 inches wide adjacent to curbs shall not be textured.

12/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY-480-0398

RELOCATED S.R. 252 OVER I480

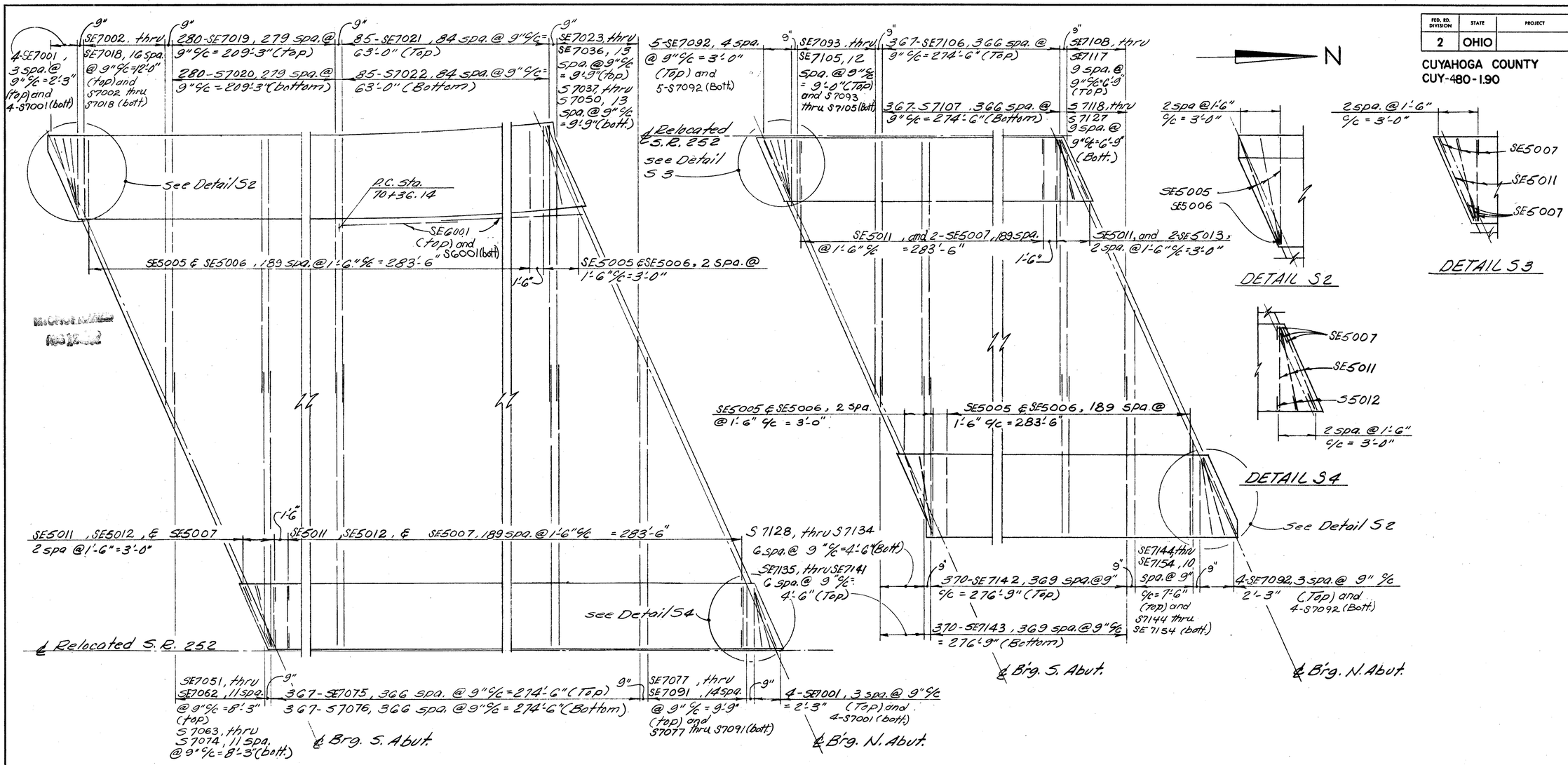
CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T.		R.S.S.	G.W.M.	11/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

384
427

CUYAHOGA COUNTY
CUY-480-1.90



SOUTHBOUND LANES

NORTHBOUND LANES

TRANSVERSE SLAB REINFORCING

NOTE:

Transverse reinforcing steel shall be placed normal to the ℄ of Relocated S.R. 252 except acute corners of slab where the bars shall be fanned as shown.

Light Standard Pilasters are not shown. For details see Std. Dwg. HL-4.

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CONSULTING ENGINEERS
COLUMBUS, OHIO

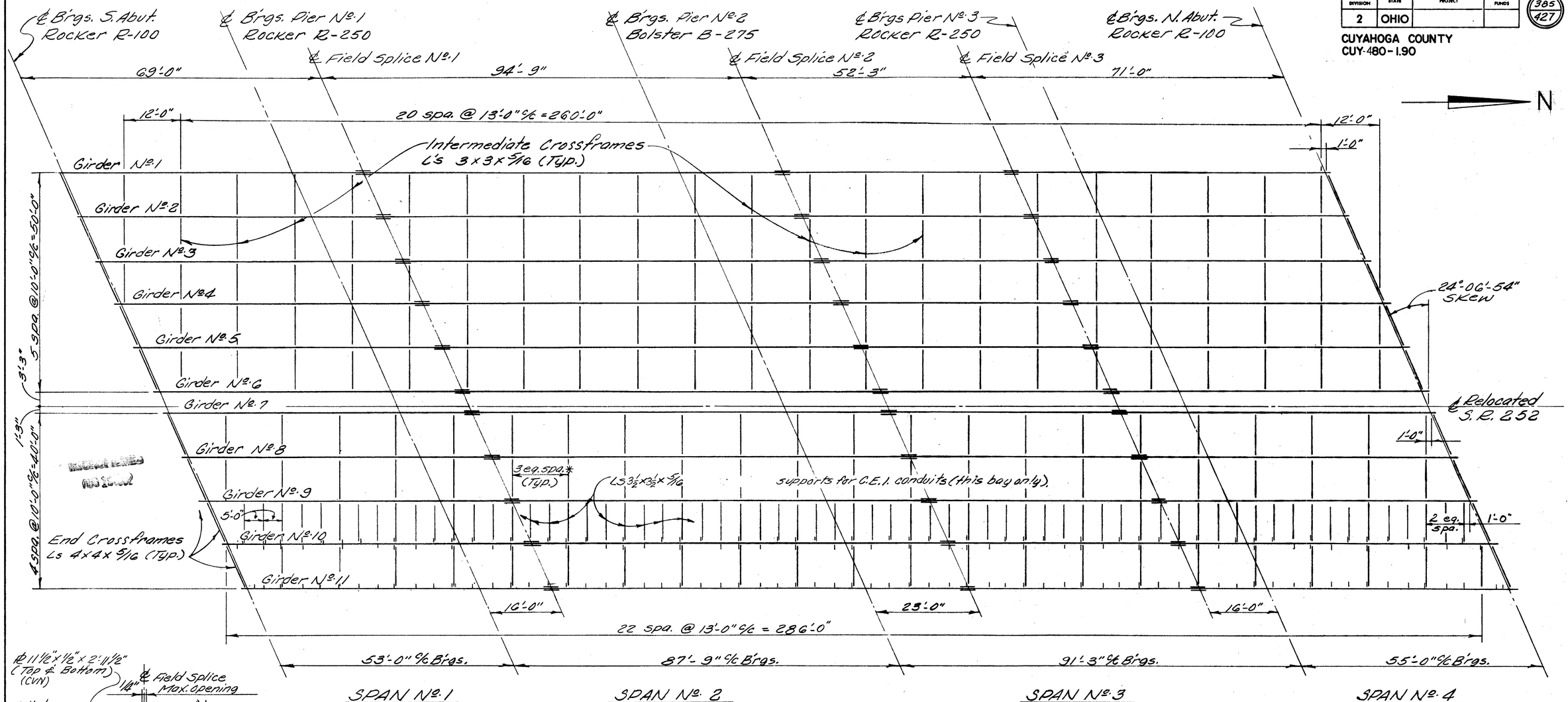
SUPERSTRUCTURE DETAILS
BRIDGE Nº CUY-480-0398
RELOCATED S.R. 252 OVER I-480
CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T.		R.S.S.	G.W.M.	7/11/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

385
427

CUYAHOGA COUNTY
CUY-480-1.90



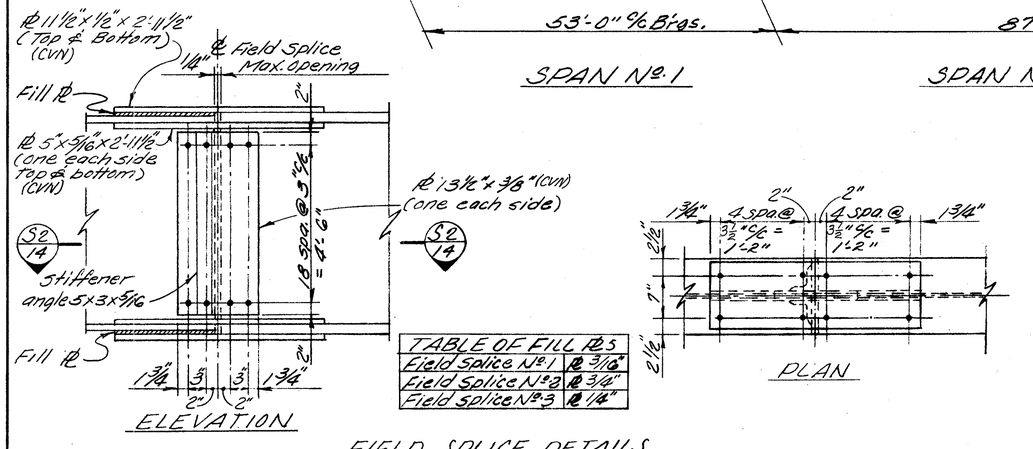


TABLE OF FILL PLS	
Field Splice Nº.1	PL 3/16"
Field Splice Nº.2	PL ¾"
Field Splice Nº.3	PL ¼"

FIELD SPLICE DETAILS

FRAMING PLAN

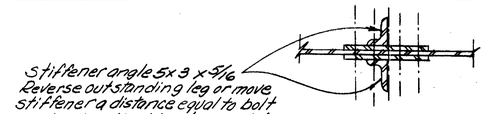
Notes:

1" ϕ high strength bolts shall be used at the Field Splices. Bolt heads shall be placed on fascia side of exterior beam web and bottom side of bottom flange. Holes shall be 1 1/16" ϕ Bolts shall conform to A-325 steel.

Place intermediate crossframes normal to girder.

* Support angles may be shifted if necessary to avoid field splices. Maintain max. spacing of 5'-0".

End Crossframe Alteration: Diagonals in end crossframe bays thru which Cleveland Electric Illuminating Co. Conduits pass shall be as shown on Standard Drawing SD-1-69 for a beam spacing of 8'-0" and bottom angle shall be oriented with outstanding leg at the top.



SECTION S2-S2

Where a shape or plate is designated (CVN) the material shall meet specified minimum notch toughness requirements.

4/118

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COLUMBUS, OHIO

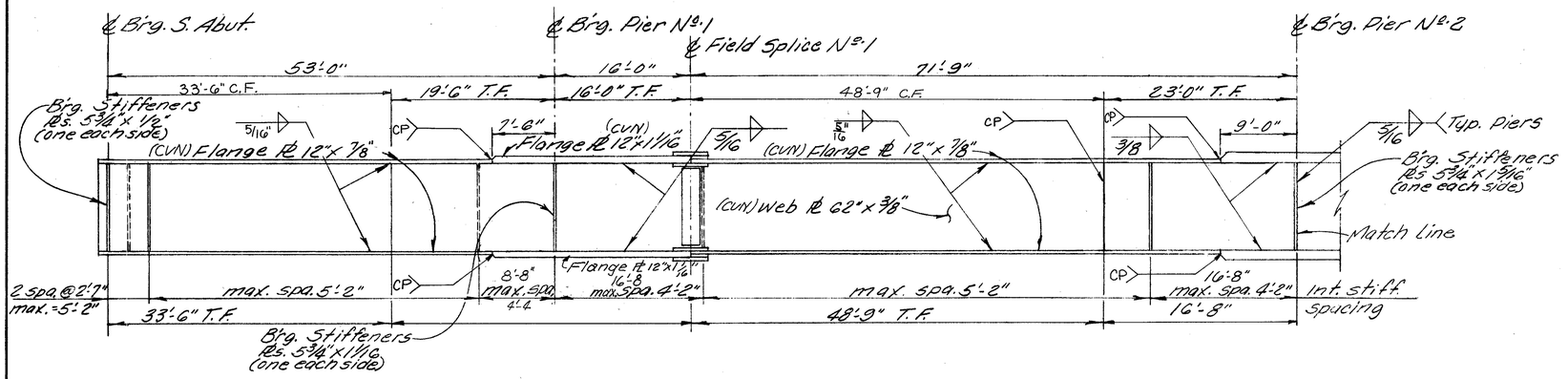
SUPERSTRUCTURE DETAILS
BRIDGE Nº CUY-480-0398
RELOCATED S.R. 252 OVER I480
CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

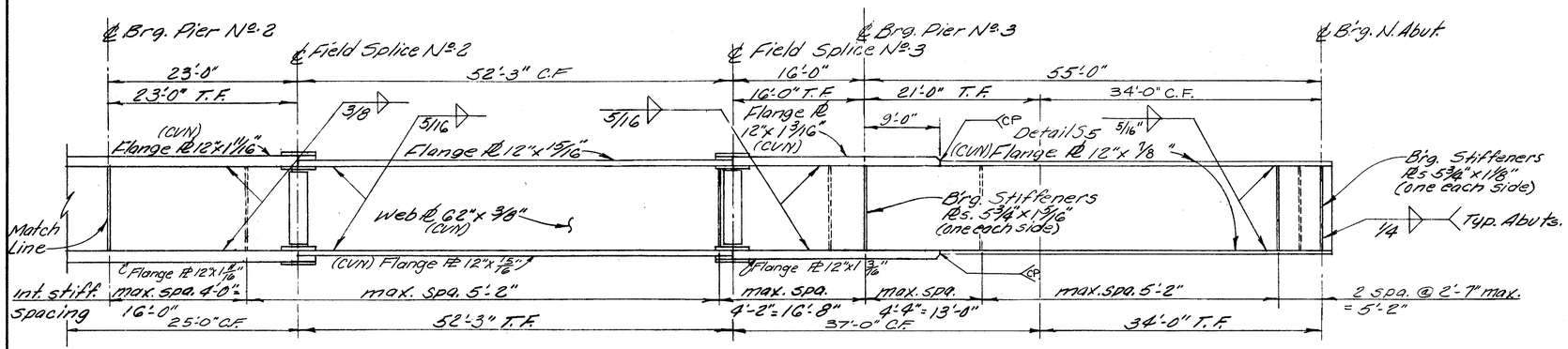
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T.		RSS	G.W.M.	7/IV/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

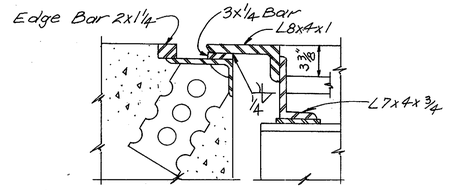
386
427

CUYAHOGA COUNTY
CUY-480-1.90





GIRDER ELEVATION (TYPICAL)



TYPICAL ROADWAY END DAM DETAIL

For additional details, see Std. Dwg SD-1-69, sh. 1 of 4.

Notes:

Locate intermediate stiffeners to serve as attachments for intermediate crossframes.

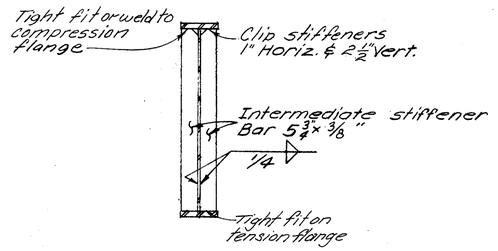
T.F. indicates tension flange.
C.F. indicates Compression flange.
For bolted Field Splice Detail see Sht. 14/18

Butt welds on girder flange plates shall be ground flush in tension areas only. Except for webs of fascia girders, web welds shall be ground flush from the neutral axis of the web to the flange which is in tension. Webs of fascia girders shall be ground flush for their full depth. Grinding shall be done in the direction of stress.

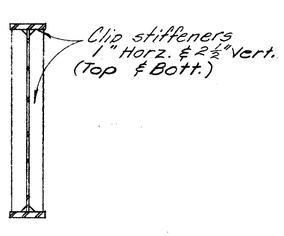
INTERMEDIATE WEB STIFFENERS:

INSTEAD OF THE PAIRS OF TRANSVERSE INTERMEDIATE WEB STIFFENERS AS SHOWN ON THE PLANS, SINGLE 6"x 3/8" TRANSVERSE INTERMEDIATE WEB STIFFENERS SHALL BE USED ON ALTERNATE SIDES OF THE WEB OF INTERIOR GIRDERS AND ON THE INSIDE OF THE WEB OF FACIA GIRDERS AT THE SPACING SHOWN FOR PAIRS OF TRANSVERSE INTERMEDIATE WEB STIFFENERS.

TRANSVERSE WEB STIFFENERS SHALL BE PROVIDED FOR THE ATTACHMENT OF DECK CROSSFRAMES AND SUPPORTS for C.E.I. CONDUITS.



TYPICAL SECTION THRU GIRDER



TYPICAL SECTION THRU GIRDER AT BEARING

Legend: CP ~ Complete penetration weld.

15/18

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CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY-480-0398

RELOCATED S.R. 252 OVER I-480

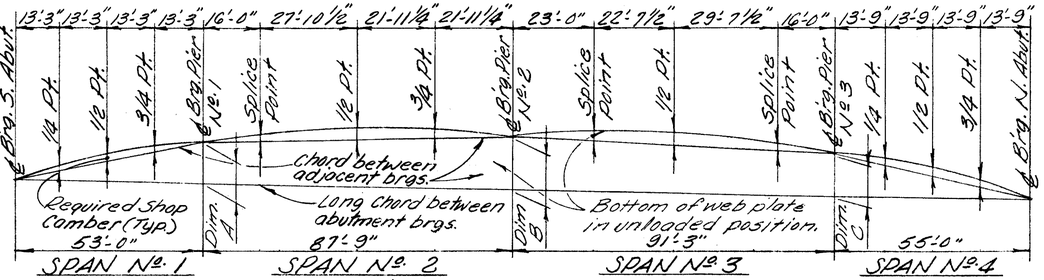
CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T.		R.S.S.	G.W.M.	3/1/69	

FED. RD DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CUY-480-1.90

387
427

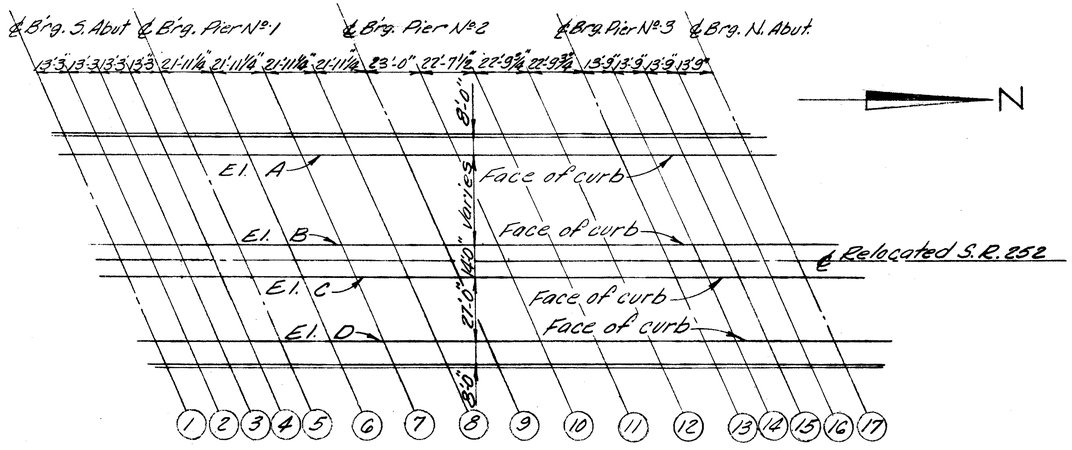


CAMBER & BLOCKING DIAGRAM

BLOCKING DIMENSIONS		
Girder No.	1	2 thru 11
Dim. A	3 1/16"	3"
Dim. B	5 1/8"	5"
Dim C	3 5/16"	3 1/8"

DEFLECTION AND CAMBER

	SPAN No. 1			SPAN No. 2			SPAN No. 3			SPAN No. 4		
	¼ Pt.	½ Pt.	¾ Pt.	Sp. Pt.	½ Pt.	¾ Pt.	Sp. Pt.	½ Pt.	Sp. Pt.	¼ Pt.	½ Pt.	¾ Pt.
Deflection due to weight of steel	0	0	0	0	1/16	0	1/16	1/16	1/16	0	0	0
Deflection due to remaining deadload	1/16	1/16	0	3/16	5/16	3/16	1/4	1/2	1/4	0	1/16	1/16
Adjustment req'd. for vertical curve	1/8	1/8	1/8	3/8	1/2	3/8	3/8	1/2	3/8	1/8	3/16	1/8
Required shop camber	3/16	3/16	1/8	9/16	1/8	9/16	11/16	1 1/16	11/16	1/8	1/4	3/16



DECK ELEVATION LOCATIONS

NOTE: The deck elevations shown are those which are required prior to placing of the concrete deck. Proper allowance has been made for the dead load deflection caused by the weight of the concrete.

TABLE OF DECK ELEVATIONS

Line	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
E. A	772.15	772.09	772.01	771.93	771.84	771.69	771.54	771.32	771.10	770.87	770.62	770.27	769.99	769.79	769.59	769.39	769.15
E. B	772.67	772.60	772.52	772.43	772.33	772.13	772.00	771.77	771.52	771.28	771.02	770.63	770.35	770.15	769.93	769.71	769.48
E. C	772.63	772.56	772.48	772.38	772.30	772.10	771.93	771.70	771.45	771.17	770.92	770.58	770.26	770.05	769.84	769.61	769.37
E. D	772.15	772.07	771.98	771.87	771.77	771.52	771.40	771.16	770.90	770.63	770.34	769.90	769.66	769.44	769.22	768.98	768.76

16/18

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

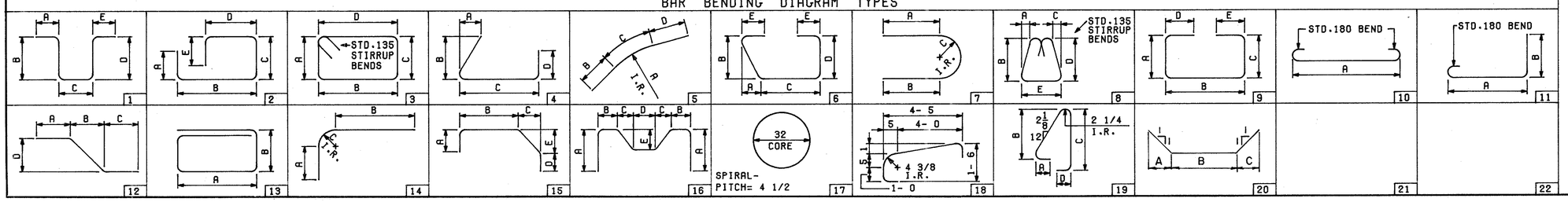
SUPERSTRUCTURE DETAILS
BRIDGE No CUY-480-0398
RELOCATED S.R. 252 OVER I480
CUYAHOGA COUNTY STA. 68 + 33.49
STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T.		R.S.S.	G.W.M.	7/1/69	

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				ABUTMENTS						
A 5001	110	4-11	564	2	1- 6	2- 2	1- 6			
A 5002	141	8- 2	1201	2	2- 6	3- 5	2- 6			
A 5003	21	23- 3	509	ST						
A 5004	15	24- 0	375	ST						
A 5005	17	26- 3	465	ST						
A 5006	17	31-10	564	ST						
A 5007	2	21- 9	45	ST						
A 5008	12	22- 9	285	ST						
A 5009	17	37- 3	660	ST						
A 5010	34	23- 9	842	ST						
A 5011	28	6- 0	175	ST						
A 5012	11	20- 2	231	ST						
A 5013	8	7- 4	61	ST						
A 5014	2	14- 3	30	ST						
A 5015	2	18- 6		ST						1
THRU			96		VARY	LENGTH	BY	3- 2		
A 5017	2	12- 2		ST						1
A 5018	68	1- 9	124	2	0- 6	1- 0	0- 6			
A 5021	4	3- 9		ST						1
THRU			117		VARY	LENGTH	BY	0-11	1/ 4	
A 5025	4	7- 6		ST						1
A 5026	4	8- 0	33	ST						
A 5027	44	8- 5	386	ST						
A 5028	2	15-10	33	ST						
A 5029	1	20- 9		ST						1
THRU			54		VARY	LENGTH	BY	3- 5	1/ 2	
A 5031	1	13-10		ST						1
A 5032	2	21- 2	44	ST						
A 5033	2	15- 2	32	ST						
A 5034	2	19- 6		ST						1
THRU			102		VARY	LENGTH	BY	3- 2		
A 5036	2	13- 2		ST						1
A 5037	2	29- 5	61	ST						
A 5038	2	28- 6		ST						1
THRU			156		VARY	LENGTH	BY	3- 6	1/ 2	
A 5040	2	21- 5		ST						1
A 5041	8	10- 9	90	12	8- 9	1- 9		1- 0		
A 5042	12	14- 8	184	ST						
A 5043	6	16- 8	104	ST						
A 6001	147	18- 1	3993	2	6- 2	1- 5	7- 6	0-11	2- 9	
A 6002	60	16- 7	1494	2	7- 9	1- 5	7- 9			
D801	93	5-6	1366	20	1-1	3-5	0-6			
F 5001	141	8- 4	1226	2	1- 7	5- 5	1- 7			
F 5002	141	7- 1	1042	2	6- 7	0- 8				
F 5003	79	12- 1	996	3	2- 7	3- 2	2- 7	3- 2		
F 5004	4	6- 9	28	ST						
F 5005	2	7- 3	15	ST						
F 6001	141	14- 3	3018	2	6- 7	5- 5	2- 7			
F 6002	46	18- 4	1267	2	8- 9	1- 2	8- 9			
F 8001	42	30- 0	3364	ST						
F 8002	13	25- 6	885	ST						
F 8003	7	27- 0	505	ST						

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				ABUTMENTS					(CONTINUED)	
F 8004	8	5- 0	107	ST						
F 8005	6	17-10	286	ST						
F 8006	6	17- 5	279	ST						
F 8007	6	19-10	318	ST						
				PIERS						
P 4001	7	16- 8	2188	17	NO. TURNS= 47		NO. SPACERS= 28			6
P 4002	7	15- 8	2088	17	NO. TURNS= 45		NO. SPACERS= 28			6
P 4003	7	14- 6	1946	17	NO. TURNS= 42		NO. SPACERS= 28			6
P 5001	165	5- 5	932	2	1- 6	2- 8	1- 6			
P 5002	964	8- 9	8798	2	3- 2	2- 8	3- 2			
P 5003	12	2- 8	33	ST						
P 5004	12	30- 0	375	ST						
P 5005	12	24- 5	306	ST						
P 5006	8	21- 2	177	ST						
P 6001	16	18-11	455	ST						
P 6002	36	8- 8	469	2	3- 2	2- 8	3- 2			
P 7001	10	22- 4	456	ST						
P 7002	10	32- 2	657	ST						
P 7003	9	19- 2	353	ST						
P 7004	8	20-10	341	ST						
P 8001	8	19- 7	418	ST						
P 9001	10	32-10	1116	ST						
P 9002	10	19- 7	666	ST						
P 9003	10	20-10	708	ST						
P 9004	21	22- 6	1606	ST						
P 9005	21	27- 6	1963	ST						
P 9006	2	16- 6	112	ST						
P 9007	2	15- 9	107	ST						
P10001	56	20- 0	4819	ST						
P10002	56	19- 0	4578	ST						
P10003	56	17-10	4297	ST						
P11001	28	17- 6	2603	2	14- 8	3- 2				
P11002	55	19- 4	5649	2	16- 6	3- 2				
P11003	4	16- 6	351	ST						
P11004	25	15- 9	2092	ST						
P11005	2	15- 9	167	ST						
F 4001	21	11- 0	4445	17	NO. TURNS= 32		NO. SPACERS= 84			6
F10001	168	25- 2	18193	ST						
				SUPERSTRUCTURE						
S 5001	386	1- 9	705	2	0- 6	1- 0	0- 6			
S 5003	386	2- 8	1074	2	0- 6	2- 4				
S 5008	8	8- 0	67	ST						
S 5009	128	7- 2	957	ST						
S 5010	80	15- 8	1307	ST						
S 6001	1001	30- 0	45105	ST						
S 6002	111	35- 6	5919	ST						

BAR BENDING DIAGRAM TYPES



FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

388
427

CUYAHOGA COUNTY
CUY-480—1.90

NOTES

1. INDICATES SERIES BAR. EACH BAR VARIES FROM ADJACENT BAR(S) BY TABULATED AMOUNT(S), CALCULATED TO NEAREST 1/8 INCH. WEIGHT SHOWN IS FOR ENTIRE SERIES UTILIZING AVERAGE LENGTH.
2. BARS INCLUDED WITH ITEM 517, RAILING, FOR PAYMENT.
3. COST OF FIELD BENDING SHALL BE INCLUDED WITH ITEM 509.
4. LIGHT POLE SUPPORT BARS INCLUDED WITH ITEM 509 FOR PAYMENT.
5. END PREPARATION AND FIELD WELDING INCLUDED WITH ITEM 509.
6. 'LENGTH' SHOWN FOR SPIRAL BARS IS DISTANCE FROM TOP OF FOOTING TO BOTTOM OF PIER CAP.
'NO. TURNS' SHOWN IS 'LENGTH' DIVIDED BY PITCH, PLUS 3 TURNS (NUMBER OF CLOSED COILS), EXPRESSED AS NEAREST WHOLE NUMBER.

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BAR SIZE DESIGNATION

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE FOUR DIGITS ARE USED, AND FIRST TWO DIGITS WHERE FIVE DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A7001 IS A NO. 7 SIZE BAR AND A10140 IS A NO. 10 SIZE.

17118

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

REINFORCING STEEL LIST

BRIDGE NO. CUY480-0398
RELOCATED S.R. 252 OVER I480
CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.			B.S.D.	G.W.M.	7/11/69	

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
EPOXY COATED REINFORCING STEEL-SUPERSTRUCTURE (CON'T)										
SE5002	386	5-4	2147	19	0-8	2-5	2-2			
SE5004	386	4-0	1610	15	0-8	1-6	1-0	0-9	0-9	
SE5008	8	8-0	67	ST						
SE5009	128	7-2	957	ST						
SE5010	80	15-8	1307	ST						

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
SUPERSTRUCTURE (CONTINUED)										
S 7001	8	5- 6	90	ST						
S 7002	1	7- 4		ST						1
THRU			718		VARY LENGTH BY			1- 8		
S 7018	1	34- 0		ST						1
S 7020	280	32- 9	18743	ST						
				ST						
S 7022	85	34- 4	5965	ST						
S 7037	1	11- 0		ST						1
THRU			625		VARY LENGTH BY			1- 8		
S 7050	1	32- 8		ST						1
S 7063	1	5- 3		ST						1
THRU			355		VARY LENGTH BY			1- 8	1/ 8	
S 7074	1	23- 8		ST						1
S 7076	367	23- 8	17753	ST						
S 7077	1	7- 4		ST						1
THRU			583		VARY LENGTH BY			1- 8		
S 7091	1	30- 8		ST						1
S 7092	9	6- 6	120	ST						
S 7093	1	8- 1		ST						1
THRU			482		VARY LENGTH BY			1- 8	1/ 8	
S 7105	1	28- 2		ST						1
S 7107	367	22- 2	16628	ST						
S 7118	1	6- 1		ST						1
THRU			278		VARY LENGTH BY			1- 8		
S 7127	1	21- 1		ST						1
S 7128	1	10- 0		ST						1
THRU			215		VARY LENGTH BY			1- 8		
S 7134	1	20- 0		ST						1
S 7143	370	22- 9	17205	ST						
S 7144	1	8- 1		ST						
THRU			370							
S 7154	1	24-10		ST						
LIGHT POLE SUPPORT										
L 5001	24	3- 2	78	6	0- 7	0- 7	2- 4			
L 5002	6	2-11	18	1	1-10	1- 3				
L 5003	9	5- 6	51	1	2-10	2-10				
L 5004	9	3- 0	24	1	1- 8	1- 1				

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
EPOXY COATED REINFORCING STEEL-ABUTMENTS										
AE5007	8	21-9	181	ST						
AE5012	8	20-2	168	ST						
AE5019	40	3-6	146	ST						
AE5020	48	7-0	350	19		2-5	3-10	0-8		
AE5032	8	21-2	177	ST						
AE5037	8	29-5	245	ST						
AE6003	47	9-7	677	15		0-9	0-9	7-8	1-0	
AE6004	4	8-11	54	15		0-9	0-9	7-0	1-0	
AE7001	4	4-9		15		0-9	0-9	2-10	1-0	1
					VARY	LENGTH	BY	0-8 3/4		
THRU					VARY	DIM. C	BY	0-2 1/4		
					VARY	DIM. D	BY	0-9 1/2		
AE7005	4	7-8		15		0-9	0-0	6-0	1-0	1
EPOXY COATED REINFORCING STEEL-SUPERSTRUCTURE										
SE5005	392	10-3	4191	6	0-3	8-8	0-8		0-8	
SE5006	392	1-10	750	2	0-8	0-9	0-8			
SE6001	677	30-0	30506	ST						
SE6002	75	35-6	3999	ST						
SE6003	189	36-6	10362	ST						
SE5007	588	2-0	1227	2	0-8	0-11	0-8			
SE7001	8	5-6	90	ST						
SE5011	392	6-6	2658	ST						
SE7002	1	7-4		ST						1
THRU			718		VARY LENGTH BY 1-8					
SE7018	1	34-0		ST						1
SE5012	196	2-6	511	6	0-5	0-11	0-8		0-8	
SE7019	280	27-9	15882	ST						
SE7021	85	29-4	5096	ST						
SE7023	1	5-8		ST						1
THRU			477		VARY LENGTH BY 1-8 1/4					
SE7036	1	27-8		ST						1
SE7051	1	10-3		ST						1
THRU			481		VARY LENGTH BY 1-8 1/2					
SE7062	1	29-0		ST						1
SE7075	367	29-0	21754	ST						
SE7077	1	7-4		ST						1
THRU			583		VARY LENGTH BY 1-8					
SE7091	1	30-8		ST						1
SE7092	9	6-6	120	ST						
SE7093	1	8-1		ST						1
THRU			482		VARY LENGTH BY 1-8 1/8					
SE7105	1	28-2		ST						1
SE7106	367	27-2	20,379	ST						
SE7108	1	11-1		ST						1
THRU			380		VARY LENGTH BY 1-8					
SE7117	1	26-1		ST						1
SE7135	1	5-0		ST						1
THRU			143		VARY LENGTH BY 1-8					
SE7141	1	15-0		ST						1
SE7142	370	17-9	13424	ST						
SE7144	1	8-1		ST						1
THRU			370		VARY LENGTH BY 1-8 1/8					
SE7154	1	24-10		ST						1

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

389
427

CUYAHOGA COUNTY
CUY-480—1.90

NOTES

1. INDICATES SERIES BAR. EACH BAR VARIES FROM ADJACENT BAR(S) BY TABULATED AMOUNT(S), CALCULATED TO NEAREST 1/8 INCH. WEIGHT SHOWN IS FOR ENTIRE SERIES UTILIZING AVERAGE LENGTH.
2. BARS INCLUDED WITH ITEM 517, RAILING, FOR PAYMENT.
3. COST OF FIELD BENDING SHALL BE INCLUDED WITH ITEM 509.
4. LIGHT POLE SUPPORT BARS INCLUDED WITH ITEM 509 FOR PAYMENT.
5. END PREPARATION AND FIELD WELDING INCLUDED WITH ITEM 509.
6. 'LENGTH' SHOWN FOR SPIRAL BARS IS DISTANCE FROM TOP OF FOOTING TO BOTTOM OF PIER CAP.
'NO. TURNS' SHOWN IS 'LENGTH' DIVIDED BY PITCH, PLUS 3 TURNS (NUMBER OF CLOSED COILS), EXPRESSED AS NEAREST WHOLE NUMBER.

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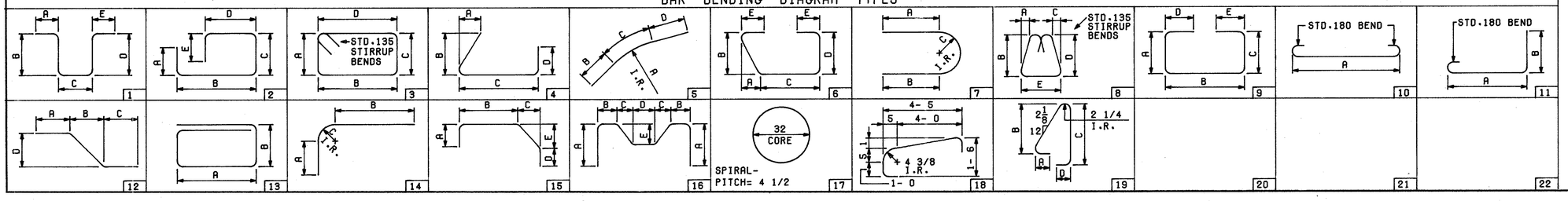
REFER TO SECTIONS 106.03, 700, 709.01 THROUGH 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL IN ACCORDANCE WITH 509.08.

BAR SIZE DESIGNATION

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE FOUR DIGITS ARE USED, AND FIRST TWO DIGITS WHERE FIVE DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A7001 IS A NO. 7 SIZE BAR AND A10140 IS A NO. 10 SIZE.

BAR BENDING DIAGRAM TYPES



18 1/8

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

REINFORCING STEEL LIST

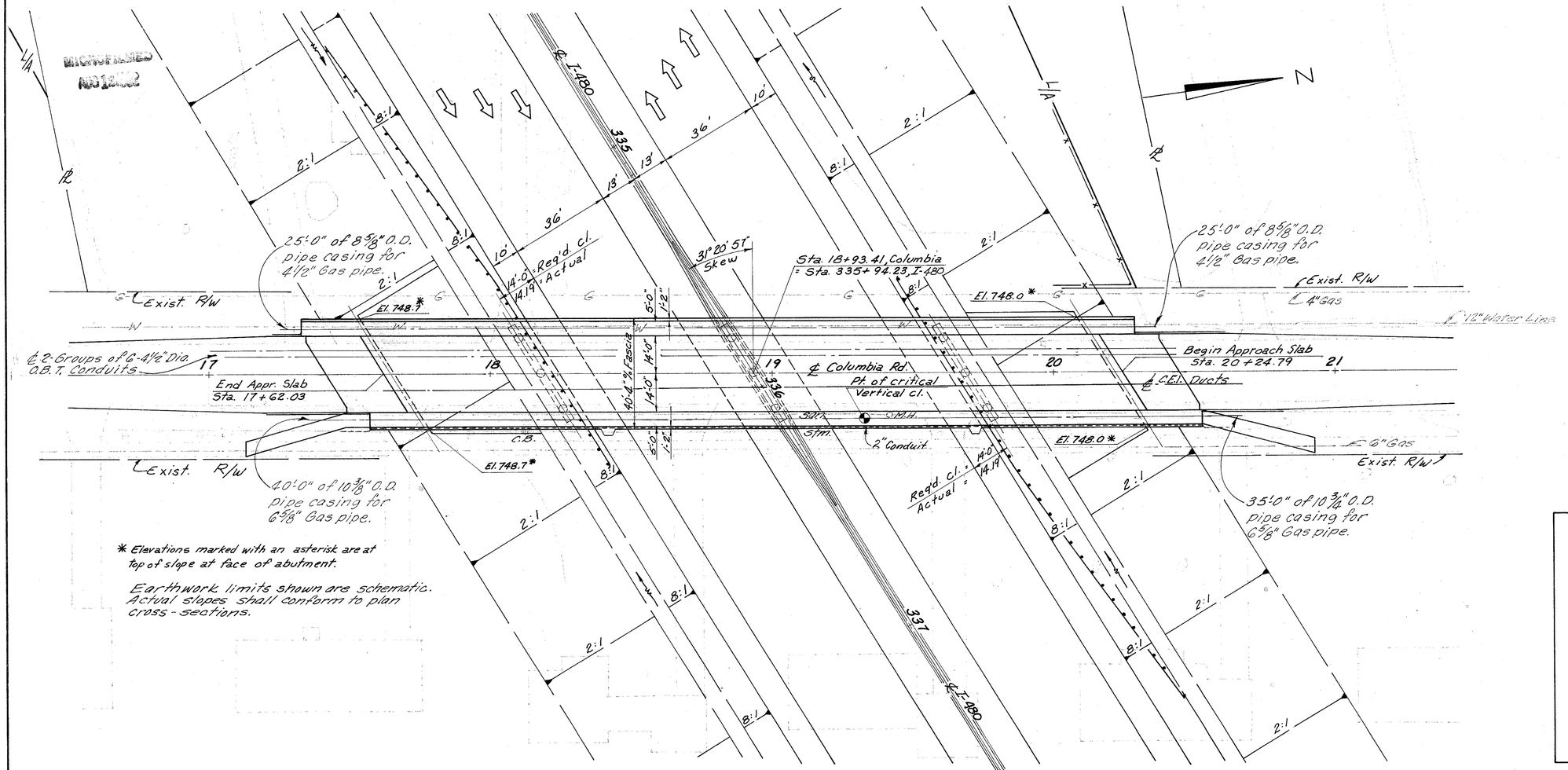
BRIDGE NO. CUY480—0398
RELOCATED S.R.252 OVER I-480
CUYAHOGA COUNTY STA. 68 + 33.49 STA. 71 + 25.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.L.P.			B.S.D.	G.W.M.	7/11/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

390
427

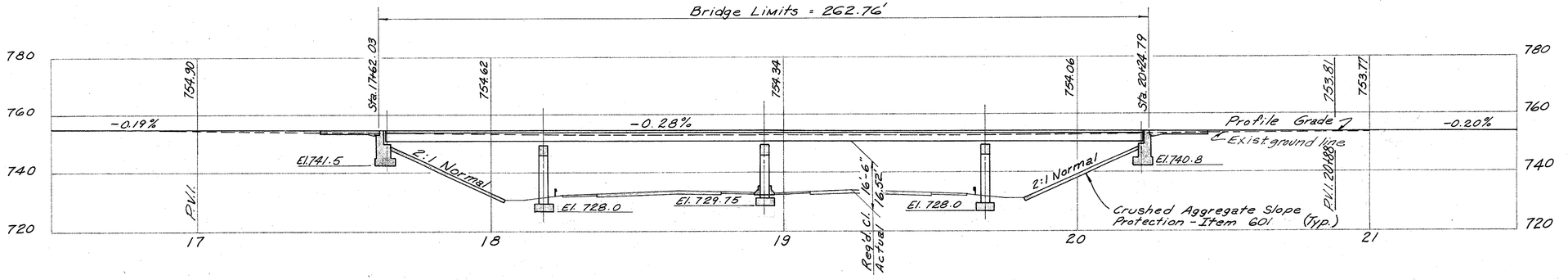
CUYAHOGA COUNTY
CUY-480 - 1.90



* Elevations marked with an asterisk are at top of slope at face of abutment.

Earthwork limits shown are schematic. Actual slopes shall conform to plan cross-sections.

PLAN



PROFILE ALONG ℄ COLUMBIA ROAD

PROPOSED STRUCTURE

TYPE: Continuous steel beam with reinforced concrete deck and sub-structure.

SPANS: 53'-0", 75'-9", 75'-9", 53'-0" % brg's.

ROADWAY: 28'-0" f/f curbs, 5'-0" sidewalks, concrete parapets and chain-link fence.

LOADING: HS 20-44 & Alternate Military Loading.

WEARING SURFACE: monolithic concrete.

SKEW: 31° 20'-57" Rt Forward.

ALIGNMENT: TANGENT

APPROACH SLABS: AS-1-72, 20'-0" long, (Modified)

TRAFFIC ESTIMATE

Design Year - 1987
Total A.D.T. - 1400

1/10

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SITE PLAN

BRIDGE Nº CUY-480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA. 17+62.03
STA. 20+24.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.W.M.	G.W.M.	M.D.	R.J.P.	G.W.M.	7/14/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

391/427

CUYAHOGA COUNTY
CUY-480—1.90

SUPPLEMENTAL SPECIFICATION REFERENCES

DESCRIPTION	NO.	DATE
PAINTING FOR NEW STRUCTURAL STEEL	846	4-25-77
INORGANIC ZINC SILICATE PAINT	950	4-25-77
BLUE GREEN VINYL PAINT	951	4-25-77

STANDARD DRAWING REFERENCES

DESCRIPTION	DWG. NO.	DATE
HIGHWAY LIGHTING	HL-3	7-27-73
HIGHWAY LIGHTING	HL-4	1-21-76R
HIGHWAY LIGHTING	HL-5	9-6-73R
HIGHWAY LIGHTING	HL-7	1-21-76R

DESIGN DATA

MONOLITHIC WEARING SURFACE THICKNESS IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1".

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, TOP MAT ONLY.

MINIMUM BAR LAP SHALL BE 30 DIAMETERS

PREFORMED BEARING PADS: IN LIEU OF THE HARDNESS REQUIREMENTS OF 7.11.21, PREFORMED BEARING PADS SHALL HAVE A SHORE A DUROMETER OF 80±10.

STANDARD DRAWING REFERENCES

DESCRIPTION	DWG. NO.	SHT.	DATE
END DAM AND END CROSSFRAME	SD-1-69	1-2	6-12-69
SCUPPERS	SD-1-69	3	6-12-69
MOMENT PLATES	SD-1-69	3	6-12-69
BOLTED SPLICES	SD-1-69	4	6-12-69
ROCKERS AND BOLSTERS	RB-1-55		2- 2-59 R
APPROACH SLABS	AS-1-72		6-30-72 R

(R INDICATES REVISED DATE)

SUPPLEMENTAL SPECIFICATION REFERENCES

DESCRIPTION	NO.	DATE
CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D	808	1-1-71
CONCRETE CURING AND PROTECTIVE MEMBRANE	836	3-12-75

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE '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 - H520-44 & ALTERNATE MILITARY LOADING
CONCRETE CLASS C - UNIT STRESS 1200 PSI FOR SUPERSTRUCTURE
UNIT STRESS 1333 PSI FOR SUBSTRUCTURE
STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20000 PSI
REINFORCING STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20000 PSI.
SPIRAL REINFORCEMENT MAY BE PLAIN BARS ASTM A82 OR A615.

FOUNDATION BEARING PRESSURE

ABUTMENT FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 2.5 TONS PER SQ. FT.

PIER FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 5.0 TONS PER SQ. FT.

FOOTINGS

PIER FOOTINGS SHALL BE PLACED IN BEDROCK AT THE ELEVATION SHOWN.

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 WOULD BE HELD TO A MINIMUM.

APPROACH SLAB: MODIFY AS-1-72 BY INCREASING THE COVER OVER THE TOP BARS FROM 2" TO 3" AND OMITTING THE JACKING HOLES.

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GENERAL
503	317	C.Y.	UNCLASSIFIED EXCAVATION	317			
503	66	C.Y.	SHALE EXCAVATION		66		
509	78838	LB	REINFORCING STEEL	11362	22608	44868	
SPEC	43829	LB	EPOXY COATED REINFORCING STEEL (SEE PROPOSAL NOTE)			43829	
511	388	C.Y.	CLASS C CONCRETE, SUPERSTRUCTURE (SEE PROPOSAL NOTE)			388	
511	140	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	140			
511	85	C.Y.	CLASS C CONCRETE, PIER CAPS AND COLUMNS		85		
511	98	C.Y.	CLASS C CONCRETE, FOOTINGS	55	43		
513	272800	LB	STRUCTURAL STEEL, PRIMER PER 846* (SEE PROPOSAL NOTE)			272800	
846	272800	LB	FIELD PAINTING OF STRUCTURAL STEEL *			272800	
517	590.83	L.F.	BRIDGE RAILING (CONCRETE PARAPETS WITH 4'-0" CHAIN-LINK FENCE AS PER PLAN)	72.33		518.50	
518	48	C.Y.	POROUS BACKFILL	48			
518	10	EA	SCUPPERS INCLUDING SUPPORTS			10	
518	80	L.F.	6 INCH PERFORATED, HELICAL CSP 707.01	80			
518	100	L.F.	6 INCH NON-PERFORATED, HELICAL CSP, INCLUDING SPECIALS, 707.01	100			
601	589	S.Y.	CRUSHED AGGREGATE SLOPE PROTECTION				589
808	388	UNIT	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B OR D			388	
SPEC	50	L.F.	8 5/8 INCH O.D. PIPE CASING .322 INCH WALL THICKNESS * *				50
SPEC	75	L.F.	10 3/4 INCH O.D. PIPE CASING .279 INCH WALL THICKNESS * *				75
S625			SEE SHEET NO. 291 FOR LIGHTING SUMMARY				

* 925 LB TO BE PAID FOR BY THE EAST OHIO GAS CO.
* 2025 LB TO BE PAID FOR BY THE CLEVELAND ELECTRIC ILLUMINATING CO.
* 1350 LB TO BE PAID FOR BY THE OHIO BELL TELEPHONE CO.
* * TO BE PAID FOR BY THE EAST OHIO GAS CO.

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ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO CUY-480—0447
COLUMBIA ROAD OVER I-480

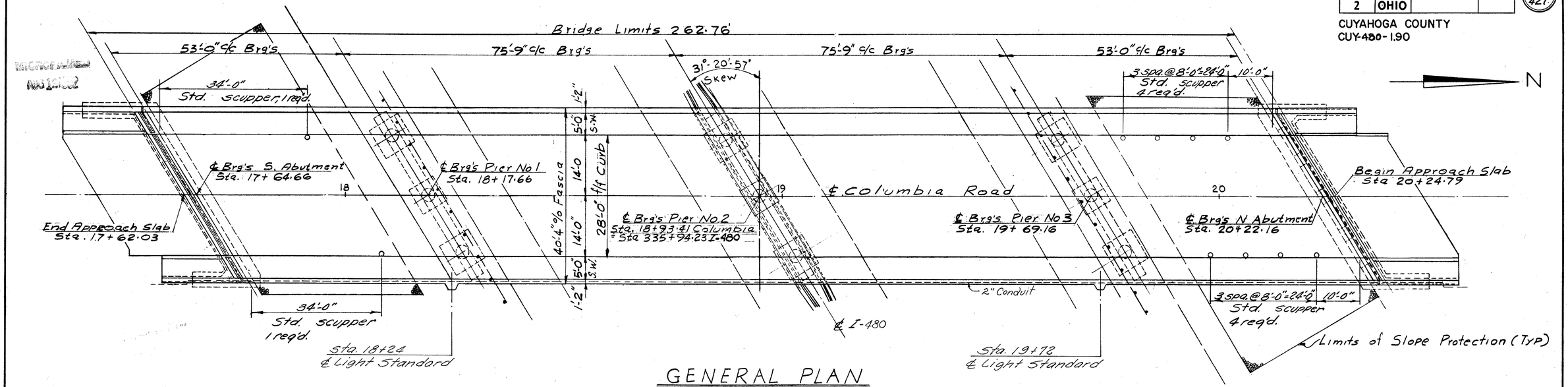
CUYAHOGA COUNTY STA. 17 + 62.03 STA. 20 + 24.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.			R.S.S.	G.W.M.	7/14/69	4-5-78

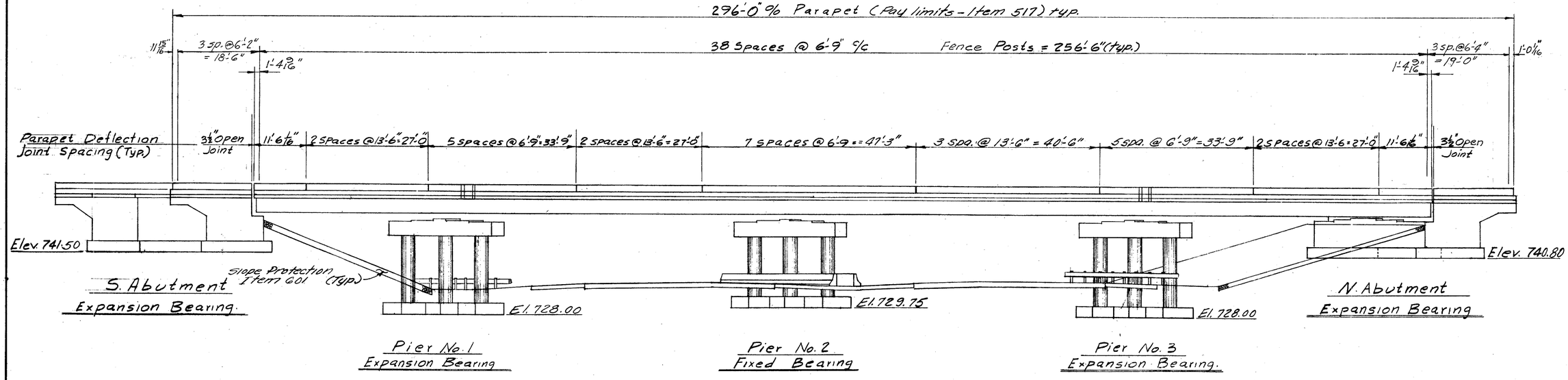
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

392
427

CUYAHOGA COUNTY
CUY-480-1.90



GENERAL PLAN



ELEVATION

Notes:
Scupper spacing is along face of curb.

Scupper spacing shall be adjusted to clear intermediate cross-frames by a minimum of 6 inches.

Parapet deflection joint spacing is measured from % of superstructure parapet.

Refer to Sheet No. 401A for bridge sidewalk fence details.

3/10

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

GENERAL PLAN
BRIDGE Nº CUY-480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA. 17 + 62.03
STA. 20 + 24.79

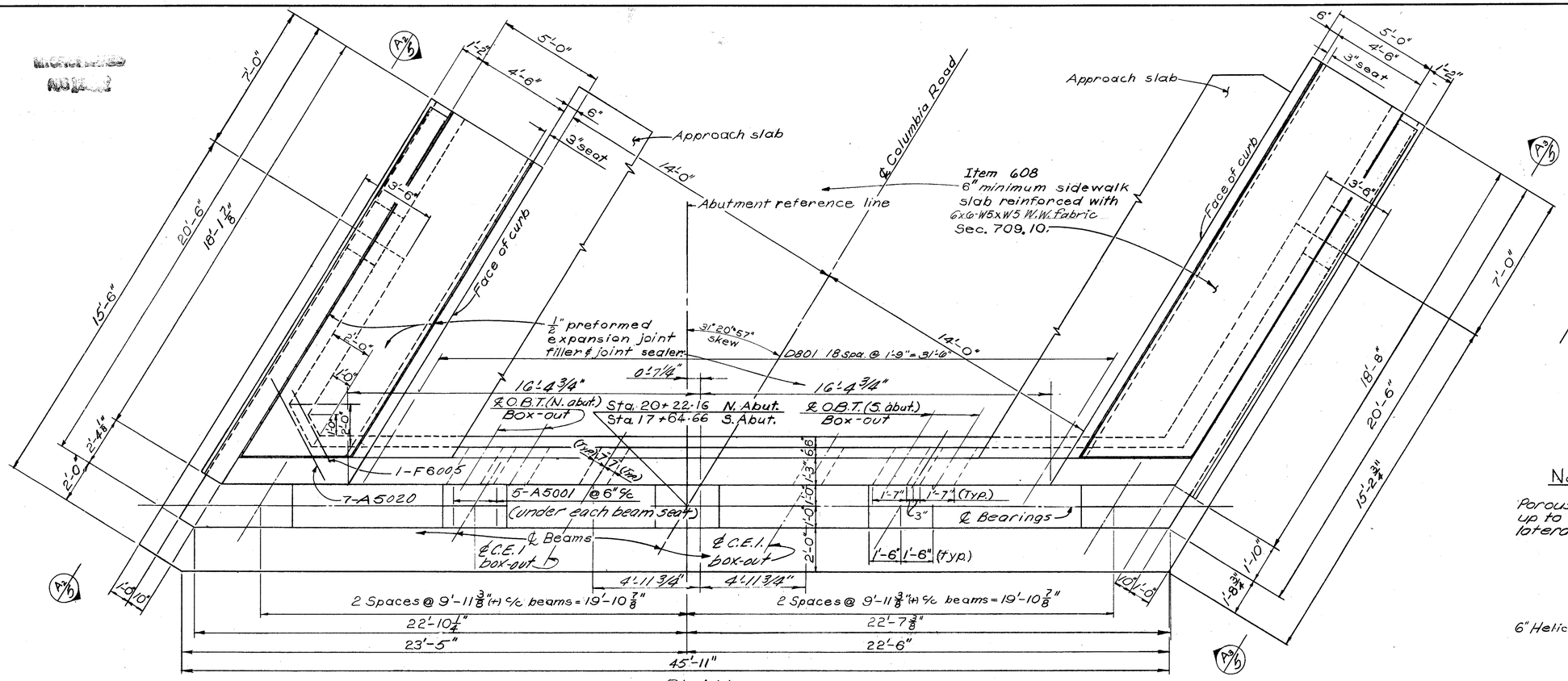
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.D.	B.D.		B.I.P.	G.W.M.	7/14/69	4-5-78

K. & E. - Cleveland 107155

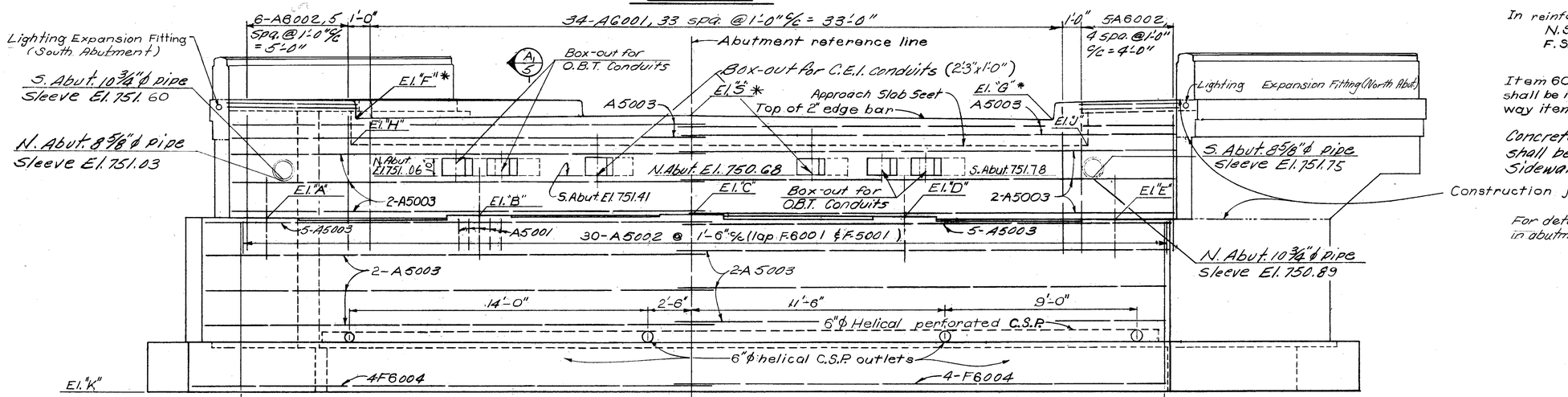
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

393
427

CUYAHOGA COUNTY
CUY-480-1.90

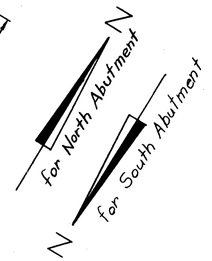


PLAN



ELEVATION

* Elevations marked with an asterisk are roadway elevations at face of backwall and face of curb or high point.



Note:

Porous Backfill 1.5 Ft. thick shall extend up to the plane of the subgrade and laterally to the ends of the wing walls.

6" Helical perf. C.S.P. shall have all ends capped.

In reinforcing steel callouts:
N.S. indicates near side,
F.S. indicates far side

Item 608, reinforced concrete sidewalk, shall be included for payment with roadway items.

Concrete and reinforcing steel for parapets shall be included with Item 517 Bridge Sidewalk Railing for payment.

For details of electrical expansion fittings and couplings in abutments, see standard Drawing HL-5.

TABLE OF ELEVATIONS

Location	A	B	C	D	E	F	G	H	J	K	S
N. Abut.	749.10	749.22	749.34	749.20	749.05	753.80	753.75	752.63	752.58	740.80	754.00
S. Abut.	749.76	749.91	750.05	749.94	749.82	754.49	754.53	753.32	753.36	741.50	754.22

.72

4/10

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

ABUTMENT DETAILS

BRIDGE Nº CUY-480-0447

COLUMBIA ROAD OVER I-480

CUYAHOGA COUNTY STA. 17 + 62.03
STA. 20 + 24.79

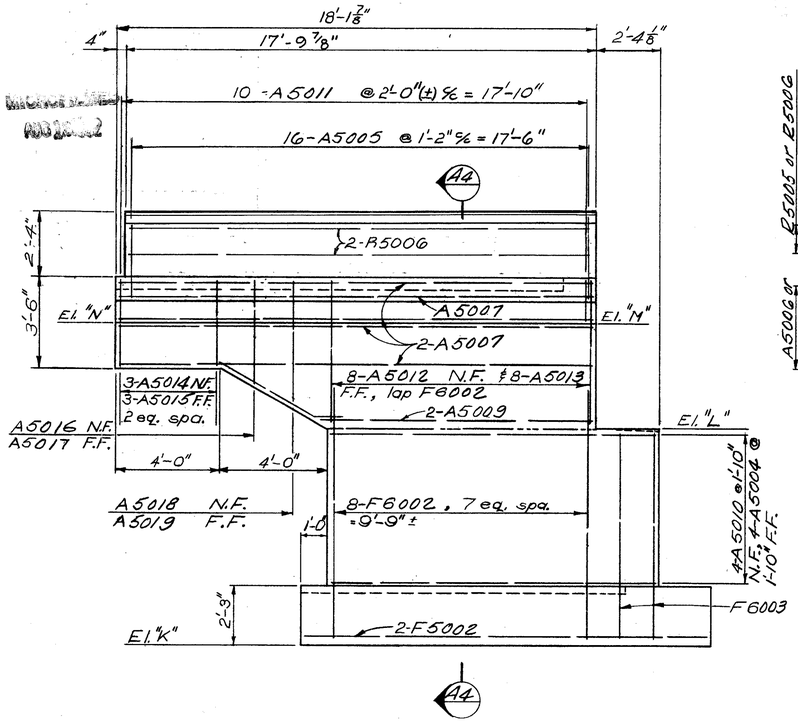
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	J.P.		G.W.M.	G.W.M.	7/11/69	4-3-70 10-24-73

K. & E. - Cleveland 107155

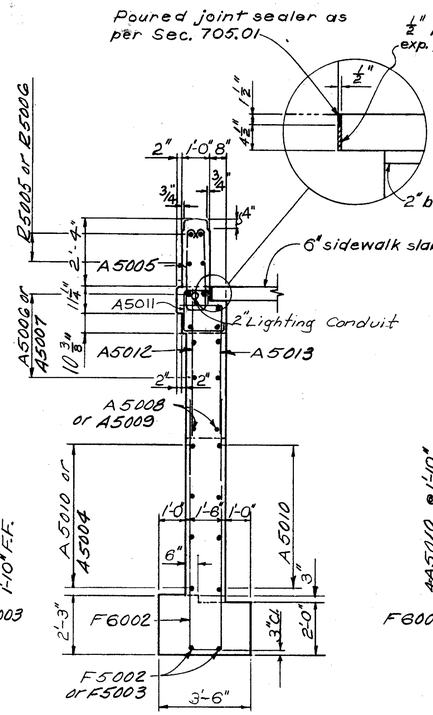
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

394 / 427

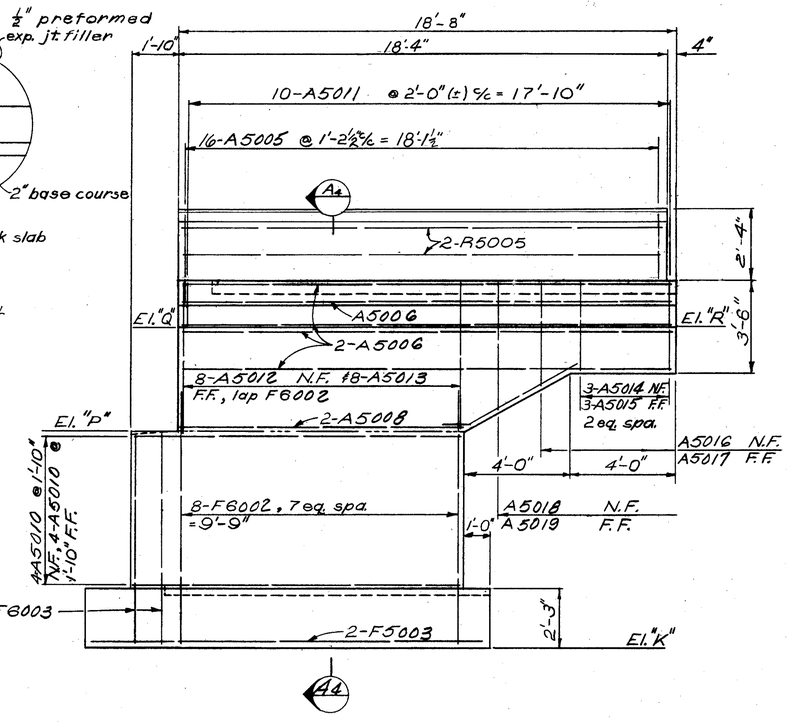
CUYAHOGA COUNTY
CUY-480-1.90



VIEW A_2-A_2 4/10

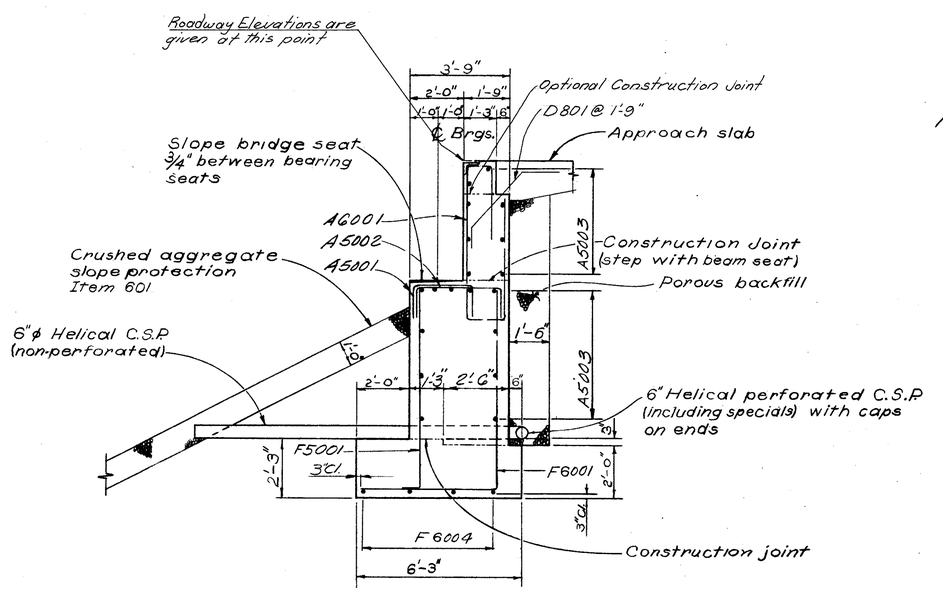


SECTION A4-A4



VIEW A_3-A_3 4/10

For details of conduit in wingwalls, see standard Drawing HL-5.



SECTION A_1-A_1 4/10

TABLE OF ELEVATIONS						
Location	L	M	N	P	Q	R	K
N. Abut.	749.10	752.95	752.90	749.05	752.88	752.83	740.80
S. Abut.	749.76	753.61	753.66	749.82	753.68	753.73	741.50

NOTE: 1/2" Preformed Expan. Jt. Filler, poured joint sealer and base course material included with Item 608-6" reinforced concrete sidewalk for payment.

Backwall Concrete: In addition to the provisions of 511.08, Backwall Concrete, or Backwall Concrete Above the Optional Construction Joint at the Approach Slab Seat Shall not be placed until after the Deck Concrete in the Span adjacent to the Abutment has been placed.

NOTE:

For end post reinforcing and details not shown see STD. DWG. BR-2-67

For additional notes see sheet 4/10

Reinforcing steel in the footing shall have a minimum cover of 3 inches from all faces.

Refer to Sh. No. 3/10 for fence post spacing.

5/10

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

ABUTMENT DETAILS

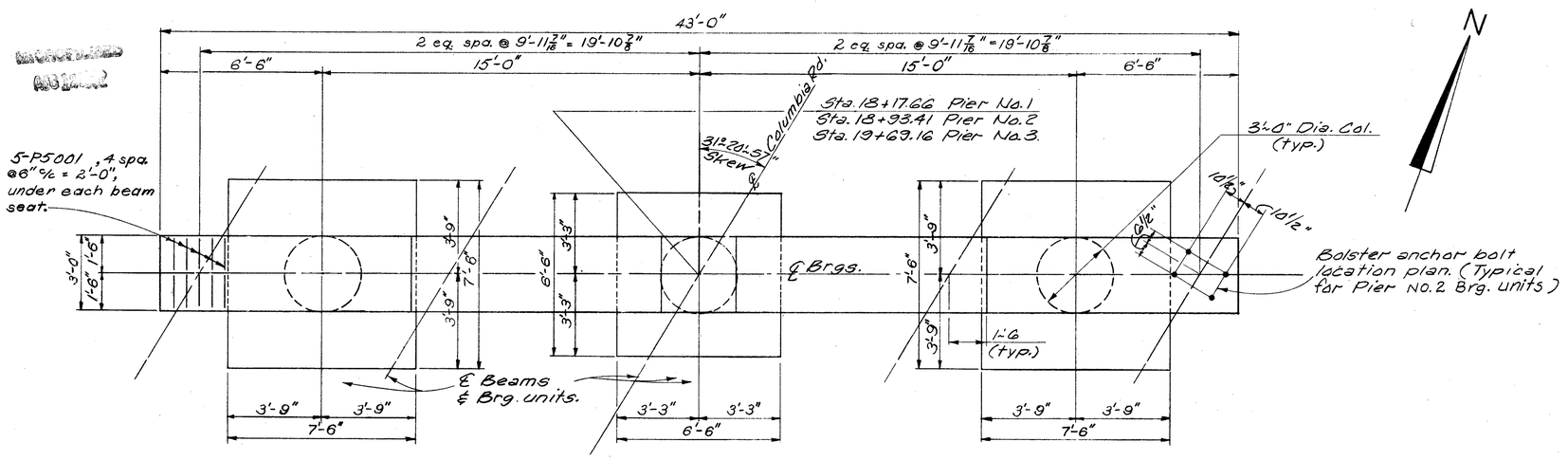
BRIDGE Nº CUY-480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA. 17+62.03 STA. 20+24.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	J.P.		G.W.M.	G.W.M.	7/16/79	4-5-78

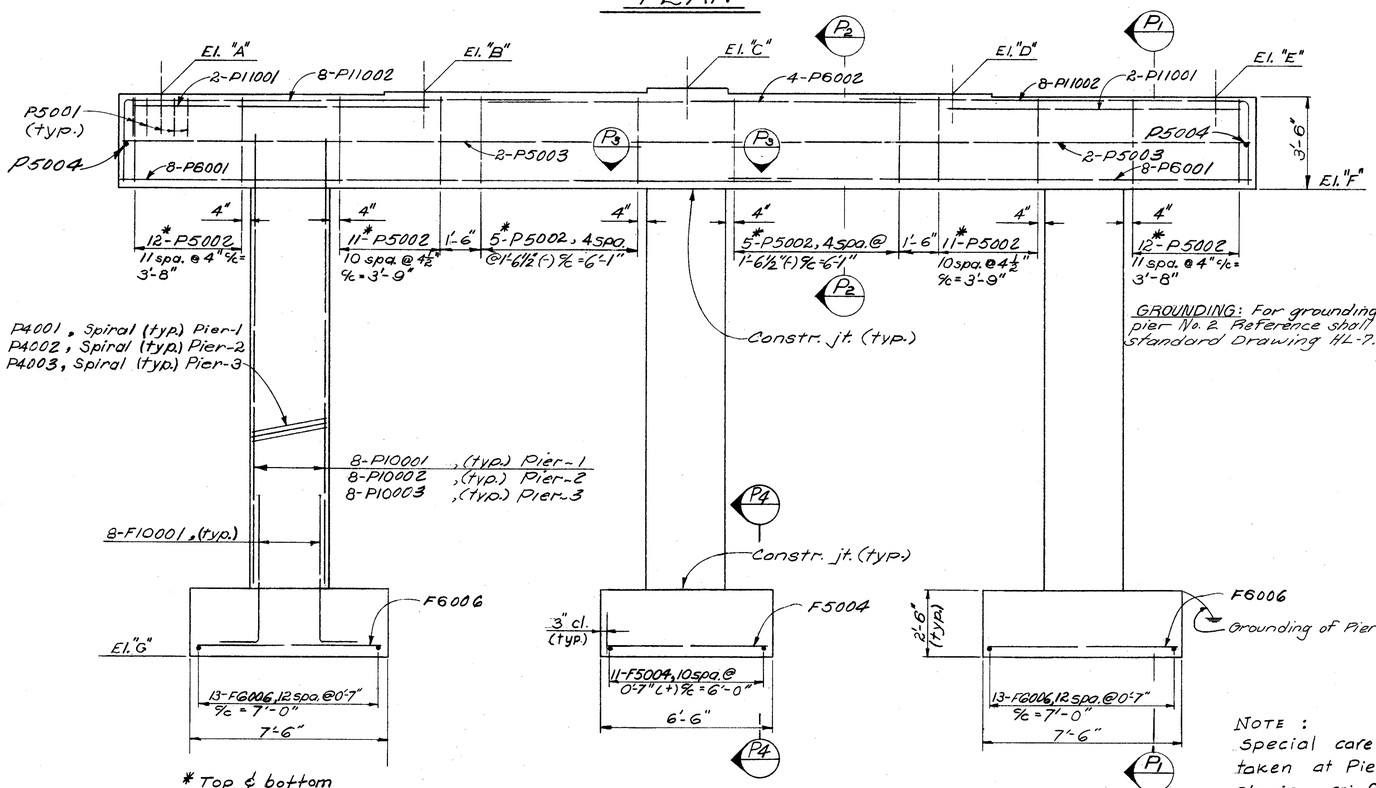
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

395
427

CUYAHOGA COUNTY
CUY-480-1.90



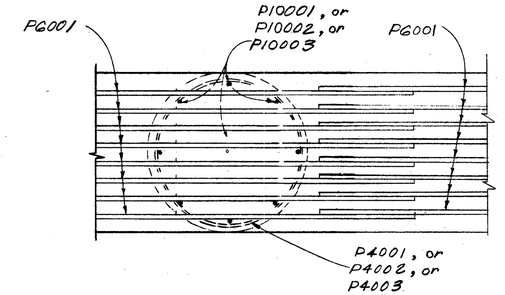
PLAN



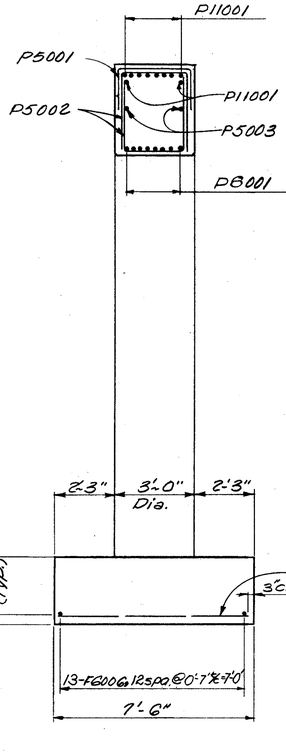
ELEVATION

GROUNDING: For grounding of the Fixed pier No. 2 Reference shall be made to Standard Drawing HL-7.

NOTE :
Special care shall be taken at Pier No. 2 in placing reinforcing steel in the top of the cap so as to avoid interference with the drilling of anchor bar holes or the presetting of bearing anchors.

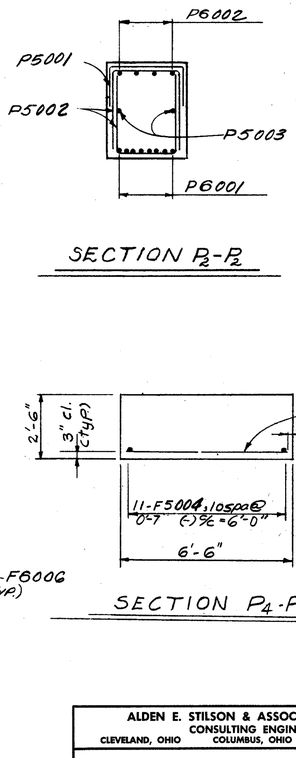


SECTION P3-P3

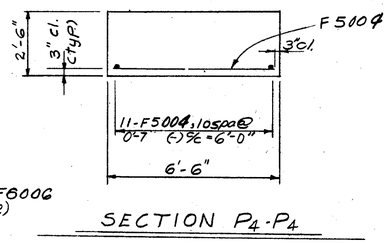


SECTION P1-P1

BEARING ANCHORS: At the option of the Contractor, Bearing Anchors (or formed holes.), Located & Supported by templates, may be cast-in-place.



SECTION P2-P2



SECTION P4-P4

TABLE OF BEAM SEAT ELEVATIONS							
Location	A	B	C	D	E	F	G
Pier #1	749.14	749.26	749.37	749.23	749.08	745.68	728.00
Pier #2	748.85	748.97	749.09	748.94	748.79	745.33	729.76
Pier #3	748.71	748.83	748.96	748.81	748.66	745.20	728.00

6/10

ALDEN E. STILSON & ASSOCIATES, LIMITED
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CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

PIER DETAILS

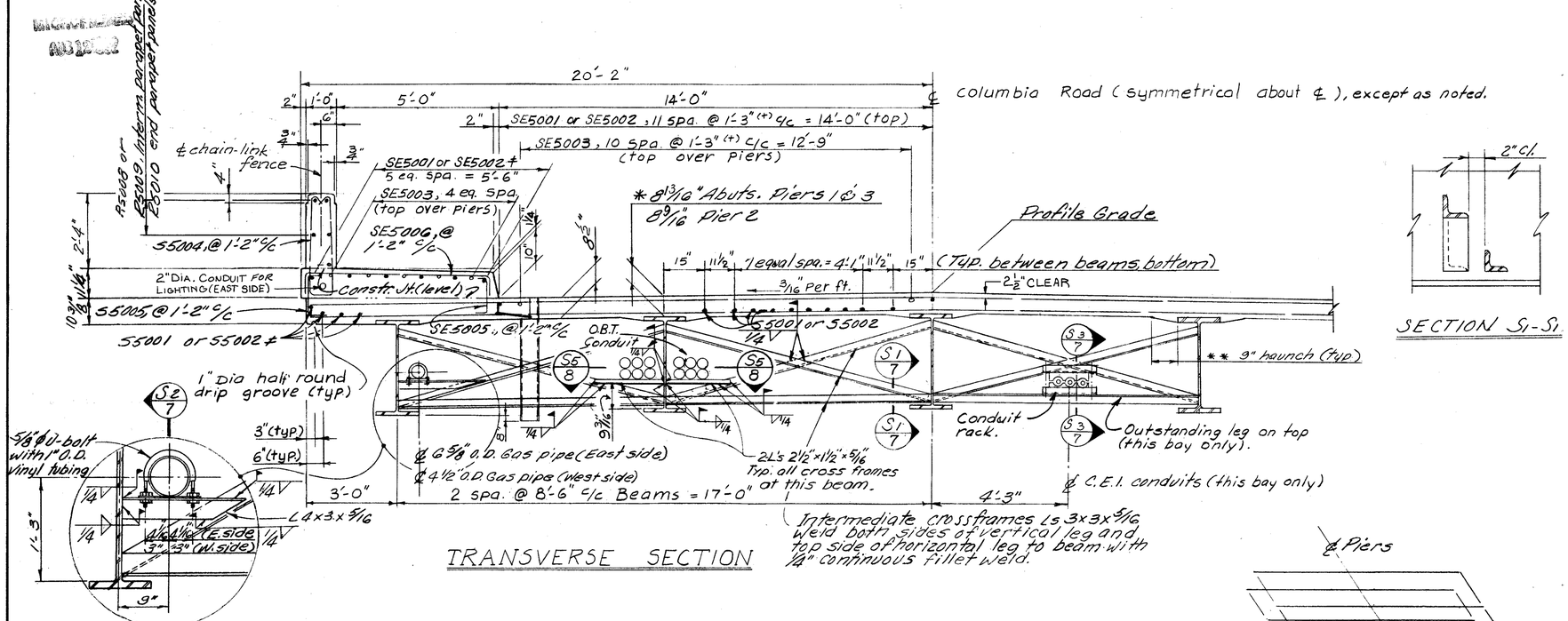
BRIDGE Nº CUY-480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA. 17 + 62.03
STA. 20 + 24.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	J.P.		R.S.S.	G.W.M.	7/14/69	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

396
427

CUYAHOGA COUNTY
CUY-480-1.90



TRANSVERSE SECTION

SECTION S1-S1

NOTES:

\# Each longitudinal run of deck reinforcing, excluding SE503 bars over the piers, shall be comprised of 8-S5001 or 8-SE5001 and 1-S5002 or 1-SE5002 bars, lapped a minimum of 1'-7".

BRIDGE DECK FINISH: In lieu of being finished as specified in 516.11 the bridge deck shall be textured transversely to provide a relatively uniform pattern of grooves spaced on approximately 3/4" centers. Grooves shall be approximately 0.15" deep and 0.10" wide. A strip of deck surface 9" to 12" wide adjacent to curbs shall not be textured.

* The distance shown from top of deck slab to top of steel beam is the design 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.

** A typical haunch width of 9" shall be used for all beams in 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.

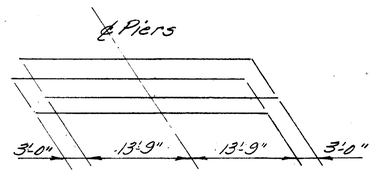


DIAGRAM SHOWING STAGGER OF SE5003, BARS OVER PIERS

Longitudinal reinforcing steel shall be field cut as necessary to avoid interference with scuppers.

For Transverse slab reinforcing steel see Sht. 8/10

Concrete parapet is included, for payment, with item 517, Bridge Railing.

Field bend transverse bars to fit crown. Field bending to be included in Item 509 for payment.

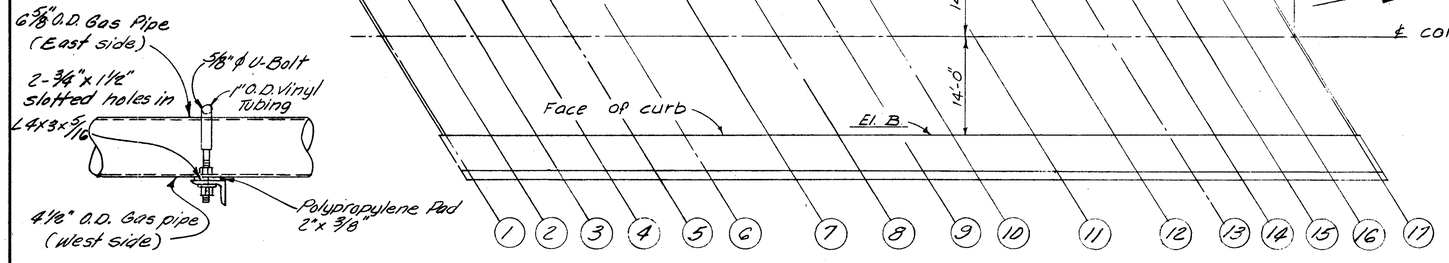
For Railing Post spacing see Sht. 3/10

For Curb Plate Details see Std. Dwg. SD-1-69.

End Crossframe Alteration: Diagonals in end Crossframe bays through which Cleveland Electric Illuminating Co. conduits pass shall be as shown on Standard Drawing SD-1-69 for a beam spacing of 8'-0" and bottom angle shall be oriented with outstanding leg at the top.

Refer to sh. No. 3/10 for fence post spacing.

7/10

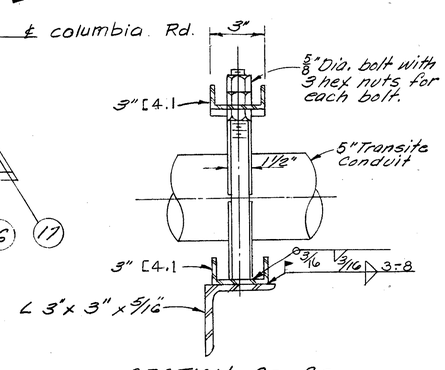


DECK ELEVATIONS

SECT. S2-S2

Note: 6 5/8" O.D. & 4 1/2" O.D. Pipe 5/8" ϕ U-Bolt, washers, nuts, vinyl tubing, and polypropylene pad to be furnished and installed by the East Ohio Gas Company.

NOTE: The deck elevations shown are those which are required prior to placing of the concrete deck. Proper allowance has been made for the dead load deflection caused by the weight of the concrete.



SECTION S3-S3

NOTE: Conduit racks and conduits to be furnished and installed by the Cleveland Electric Illuminating Co.

TABLE OF DECK ELEVATIONS

LINE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
ELEV. A	754.47	754.45	754.42	754.37	754.33	754.30	754.26	754.19	754.11	754.07	754.04	753.96	753.90	753.87	753.84	753.81	753.75
ELEV. B	754.43	754.40	754.37	754.32	754.28	754.25	754.21	754.14	754.07	754.03	754.00	753.91	753.85	753.82	753.80	753.76	753.70

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS

BRIDGE № CUY-480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA. 17+62.03
STA. 20+24.79

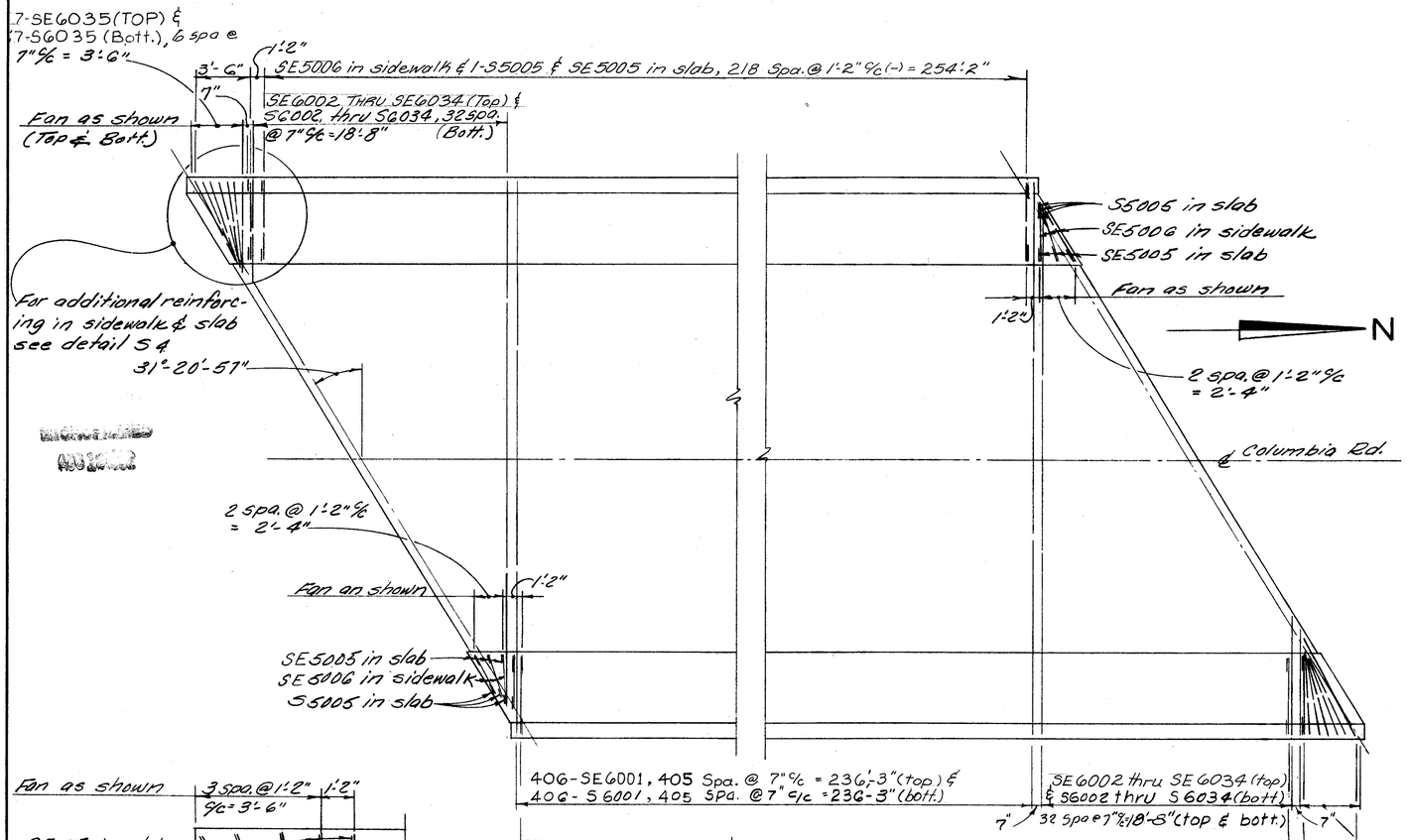
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P.		R.S.S.	G.W.M.	7/14/69	2-5-75

K. & E. - Cleveland 107155

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

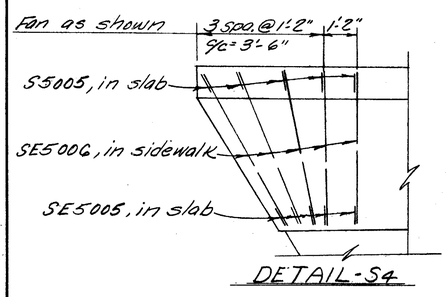
397
427

CUYAHOGA COUNTY
CUY-480-1.90

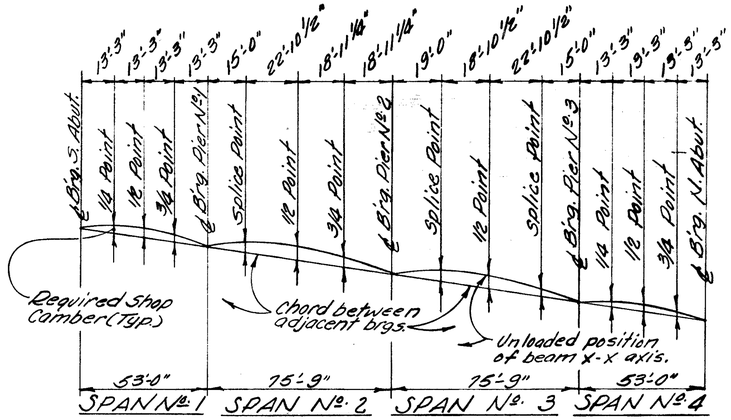


TRANSVERSE SLAB REINFORCING

Transverse Reinforcing steel shall be placed normal to ℄ of Columbia Rd. except at acute corners of slab.



DETAIL-S4

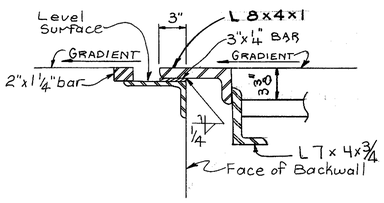


CAMBER & BLOCKING DIAGRAM

Note: All blocking dimensions are 0'-0"

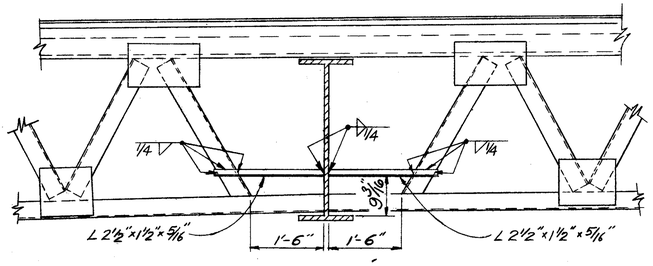
DEFLECTION AND CAMBER

Location	SPAN No. 1			SPAN No. 2			SPAN No. 3			SPAN No. 4		
	1/4 Pt.	1/2 Pt.	3/4 Pt.	Sp. Pt.	1/8 Pt.	3/4 Pt.	Sp. Pt.	1/8 Pt.	1/4 Pt.	1/4 Pt.	1/2 Pt.	3/4 Pt.
Deflection due to weight of steel	0	0	0	1/16	1/16	1/16	1/16	1/16	1/16	0	0	0
Deflection due to remaining dead load	3/16	3/16	1/16	3/16	1/16	1/4	3/16	1/16	3/16	1/16	3/16	3/16
Adjust. Reqd. for Vertical Curve	0	0	0	0	0	0	0	0	0	0	0	0
Required Shop Camber	3/16	3/16	1/16	1/4	1/2	5/16	1/4	1/2	1/4	1/16	3/16	3/16



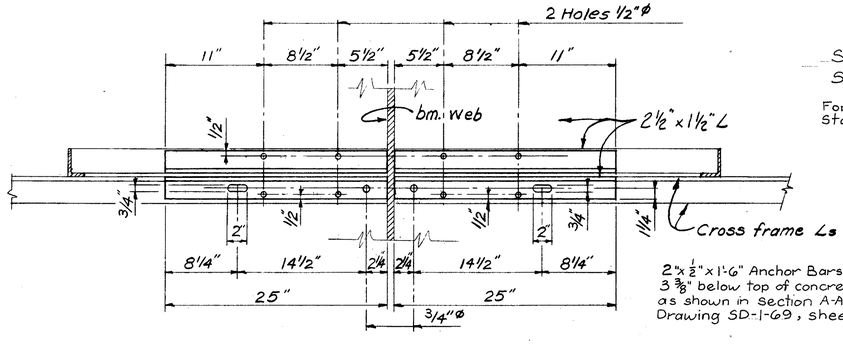
SECTION-END DAM
SHOWING DRIP PLATE

For additional details, see Standard Drawing SD-1-69



SECTION S9-S9

SPECIAL END CROSSFRAME DETAIL
(For details not shown see SD-1-69 Sht. 1)



SECTION S5-S5

2"x 1/2"x 1'-6" Anchor Bars shall be placed 3 3/8" below top of concrete instead of 3" as shown in Section A-A of Standard Drawing SD-1-69, sheet 1 of 4.

8110

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA. 17 + 62.03
STA. 20 + 24.79

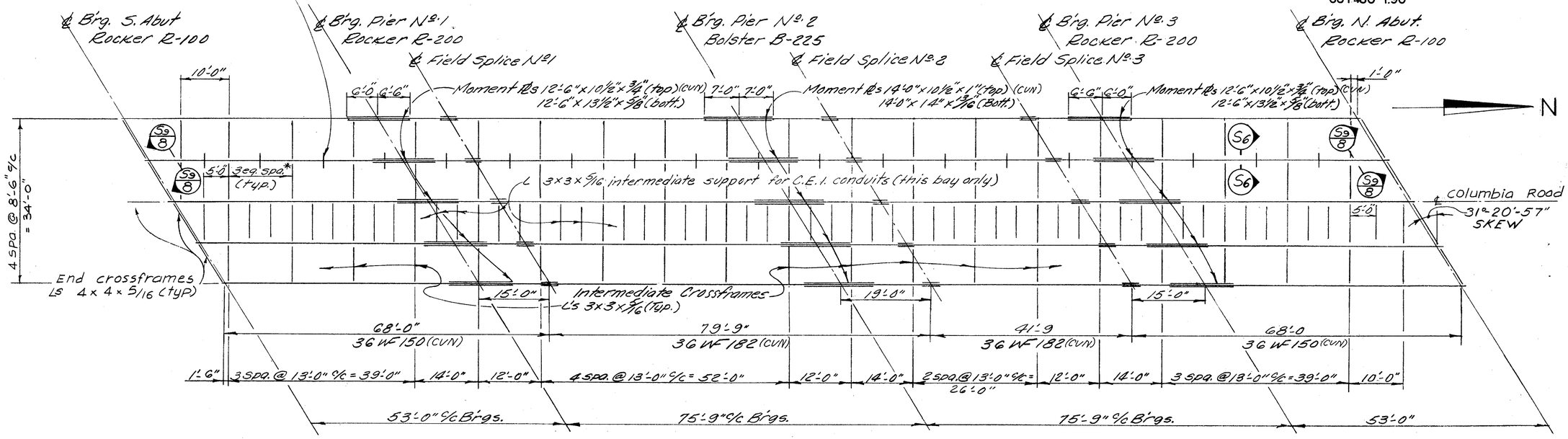
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	B.I.P.		R.S.S.	G.W.M.	7/15/69	

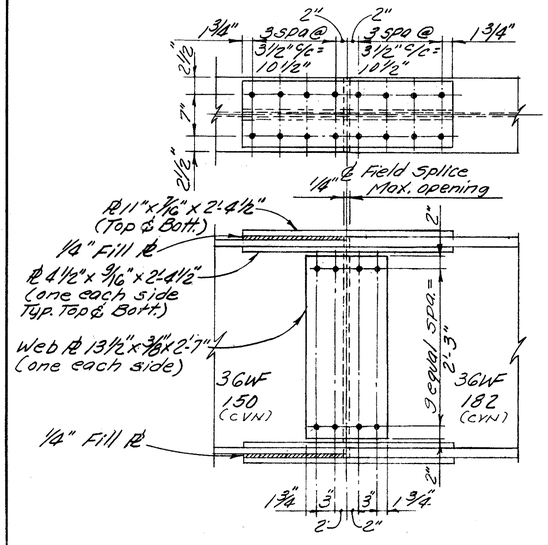
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

398
427

CUYAHOGA COUNTY
CUY-480-1.90

Intermediate Support for O.B.T center between crossframes (Typ) See Section S6-S6.





FIELD SPLICE Nº. 1 & Nº. 3 DETAILS

All Bolted Splice Plates, Except Fills, shall meet the (CVN) Requirements.

Notes:

1" ø high strength bolts shall be used at the Field Splices. Bolt heads shall be placed on fascia side of exterior beam web and bottom side of bottom flange. Holes shall be 1 1/16" ø. Bolts shall conform to A-325 steel.

For Details of Field Splice Nº 2 see Std. Dwg. SD-1-69.

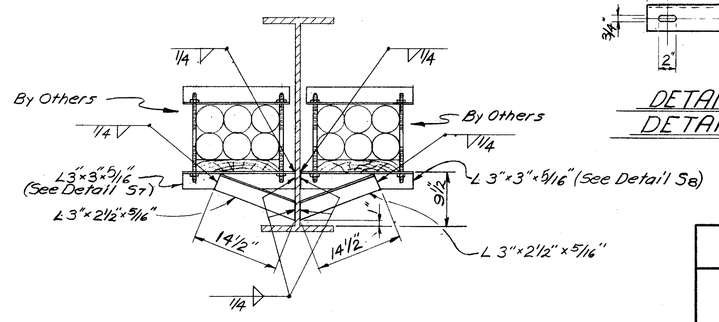
Crossframes may be shifted if necessary to avoid field splice.

Place intermediate crossframes normal to beam.

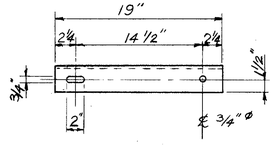
* Support angles may be shifted if necessary to avoid field splices. Maintain max. spacing of 5'-0"

FRAMING PLAN

Where a shape or plate is designated (CVN) the material shall meet specified minimum notch toughness requirements.



SECTION S6-S6



DETAIL S7 (As Shown)
DETAIL S8 (Opp. Hand)

9/10

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

SUPERSTRUCTURE DETAILS

BRIDGE Nº CUY480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA 17+62.03 STA. 20+24.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.	R.T.		R.S.S.	G.W.M.	7/3/69	

NOTE: Refer to CMS sections 106.03, 700, 709.01 thru 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel in accordance with 509.08.

MICROFILMED
NOV 12 '69

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				ABUTMENTS						
A 5001	50	4-11	256	2	1- 6	2- 2	1- 6			
A 5002	60	7- 2	448	2	2- 0	3- 5	2- 0			
A 5003	76	23- 6	1863	ST						
A 5004	8	11- 8	97	ST						
A 5005	64	7- 5	495	8	0-0¾	3- 0	0-0¾	3-0	0- 8	
A 5006	18	18- 4	344	ST						
A 5007	18	17-10	335	ST						
A 5008	4	10- 4	43	ST						
A 5009	4	9-10	41	ST						
A 5010	24	12- 2	305	ST						
A 5011	40	4- 8	195	2	0-11	1- 5	1- 6	0- 8	0- 8	
A 5012	32	5- 6	184	ST						
A 5013	32	6- 4	211	2	1- 6	5- 0				
A 5014	12	3- 2	40	ST						
A 5015	12	4- 0	50	2	1- 6	2- 8				
A 5016	4	4- 0	17	ST						
A 5017	4	4-10	20	2	1- 6	3- 6				
A 5018	4	4- 9	20	ST						
A 5019	4	5- 7	23	2	1- 6	4- 3				
A 5020	14	5- 6	80	ST						
A 6001	68	16- 2	1651	2	5- 0	1- 5	6- 6	0-11	3- 0	
A 6002	22	18- 8	617	2	6- 8	1- 5	7- 4	0-11	3- 0	
F 5001	60	8- 3	516	2	7- 9	0- 8				
F 5002	4	15- 0	63	ST						
F 5003	4	14- 9	62	ST						
F 6001	60	13- 0	1172	2	7- 9	5- 5				
F 6002	32	21- 0	1009	2	10- 1	1- 2	10- 1			
F 6003	4	7- 9	47	ST						
F 6004	16	23- 9	571	ST						
F 6005	2	4- 0	12	ST						
D 8001	38	5-8	575	20	1-1	3-7	6			
				PIERS						
P 4001	3	13- 3	756	17	NO. TURNS= 38		NO. SPACERS= 12			
P 4002	3	14- 9	836	17	NO. TURNS= 42		NO. SPACERS= 12			
P 4003	3	12-10	735	17	NO. TURNS= 37		NO. SPACERS= 12			
P 5001	75	5- 5	424	2	1- 6	2- 8	1- 6			
P 5002	348	8- 9	3176	2	3- 2	2- 8	3- 2			
P 5003	12	22- 2	277	ST						
P 5004	6	2- 8	17	ST						
P 6001	48	22- 4	1610	ST						
P 6002	12	16-11	305	ST						
P10001	24	16- 6	1704	ST						
P10002	24	17- 9	1833	ST						
P10003	24	15-10	1635	ST						
P11001	12	11- 4	723	ST						
P11002	48	17- 7	4484	2	3- 2	14- 9				
F 5004	66	6- 0	413	ST						
F 6006	156	7- 0	1640	ST						
F10001	72	6- 7	2040	2	5- 6	1- 5				
				SUPERSTRUCTURE						
S 5001	384	30- 0	12015	ST						
S 5002	48	31- 3	1565	ST						
S 5004	446	7- 5	3450	8	0-0¾	3-0	0-0¾	3-0	0- 8	

MARK	NUM.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	NOTE
				SUPERSTRUCTURE					(CONTINUED)	
S 5005	452	2- 4	1100	2	0- 8	1- 3	0- 8			
S 6001	406	39- 8	24189	ST						
S 6002	2	7- 6		ST						1
THRU			2264		VARY	LENGTH	BY	0-11	1/ 2	
S 6034	2	38- 2		ST						1
S 6035	14	6- 7	138	ST						
				RAILING						
R 5005	8	18- 0		ST						2
R 5006	8	17- 6		ST						2
										2
R 5008	72	13- 2		ST						2
R 5009	136	6- 5		ST						2
R 5010	16	11- 2		ST						2
				LIGHT POLE SUPPORT						
L 5001	16	3- 11	66	6	0- 8	0- 9	3- 0			4
L 5002	4	4- 3	18	1	2- 3	2- 2				4
L 5003	6	6- 6	41	1	3- 0	3- 8				4
L 5004	6	3- 6	22	1	3- 0	0- 8				4
				EPOXY COATED REINFORCING STEEL						
SE5001	280	30-0	8761	ST						
SE5002	35	31-3	1141	ST						
SE5003	96	30-6	3054	ST						
SE5005	452	2-4	1100	2	0-8	1-3	0-8			
SE5006	452	6-9	3182	2	0-8	5-8	0-8			
SE6001	406	39-8	24189	ST						
SE6002	2	7-6		ST						1
THRU			2264		VARY LENGTH		BY 0-11 1/2			
SE6034	2	38-2		ST						1
SE6035	14	6-7	138	ST						

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

399
427

CUYAHOGA COUNTY
CUY480-1.90

NOTES

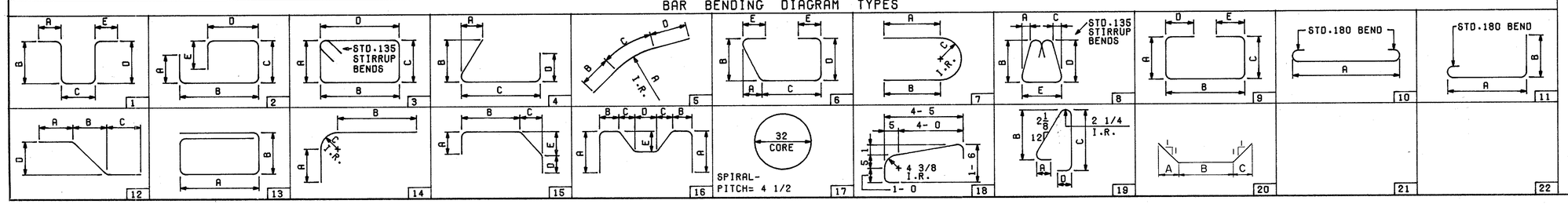
1. INDICATES SERIES BAR. EACH BAR VARIES FROM ADJACENT BAR(S) BY TABULATED AMOUNT(S), CALCULATED TO NEAREST 1/8 INCH. WEIGHT SHOWN IS FOR ENTIRE SERIES UTILIZING AVERAGE LENGTH.
2. BARS INCLUDED WITH ITEM 517, RAILING, FOR PAYMENT.
3. COST OF FIELD BENDING SHALL BE INCLUDED WITH ITEM 509.
4. LIGHT POLE SUPPORT BARS INCLUDED WITH ITEM 509 FOR PAYMENT.
5. END PREPARATION AND FIELD WELDING INCLUDED WITH ITEM 509.
6. 'LENGTH' SHOWN FOR SPIRAL BARS IS DISTANCE FROM TOP OF FOOTING TO BOTTOM OF PIER CAP. 'NO. TURNS' SHOWN IS 'LENGTH' DIVIDED BY PITCH, PLUS 3 TURNS (NUMBER OF CLOSED COILS), EXPRESSED AS NEAREST WHOLE NUMBER.

1 1/2 CLOSED COILS SHALL BE PROVIDED AT ENDS OF EACH SPIRAL UNIT. FOUR STEEL CHANNEL, TEE OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.80 LB. PER LIN. FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG PERIPHERY OF COIL. WEIGHT OF SPACERS, AT 0.80 LB. PER LIN. FT. WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN TABULATED WEIGHT.

BAR SIZE DESIGNATION

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE FOUR DIGITS ARE USED, AND FIRST TWO DIGITS WHERE FIVE DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A7001 IS A NO. 7 SIZE BAR AND A10140 IS A NO. 10 SIZE.

BAR BENDING DIAGRAM TYPES



10 110

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

REINFORCING STEEL LIST

BRIDGE NO. CUY-480-0447
COLUMBIA ROAD OVER I-480
CUYAHOGA COUNTY STA. 17+62.03 STA. 20+24.79

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.I.P.			R.S.S.	G.W.M.	7/14/69	4-5-78

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

400
427

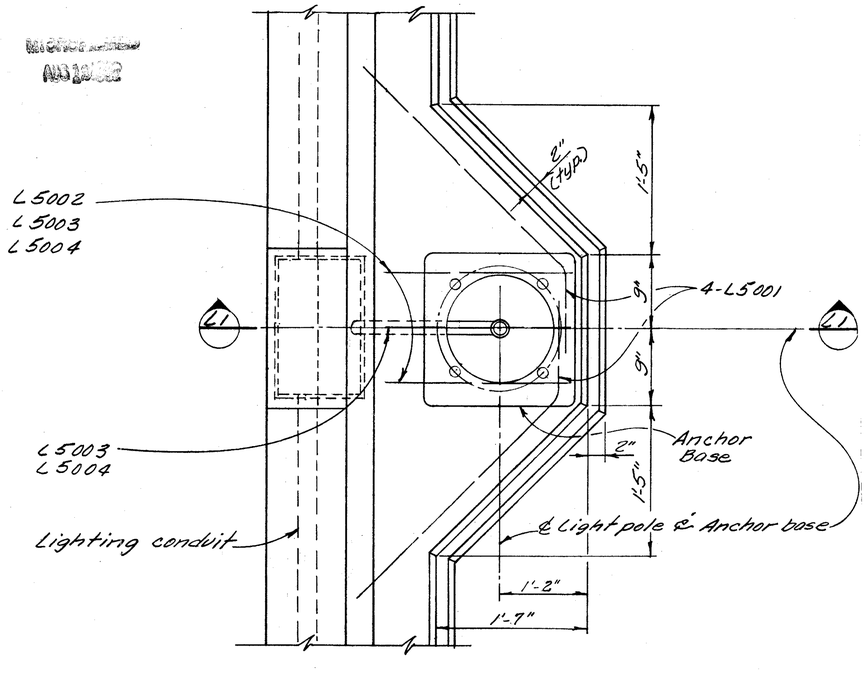
CUYAHOGA COUNTY
CUY-480-1.90

LIGHTING NOTES

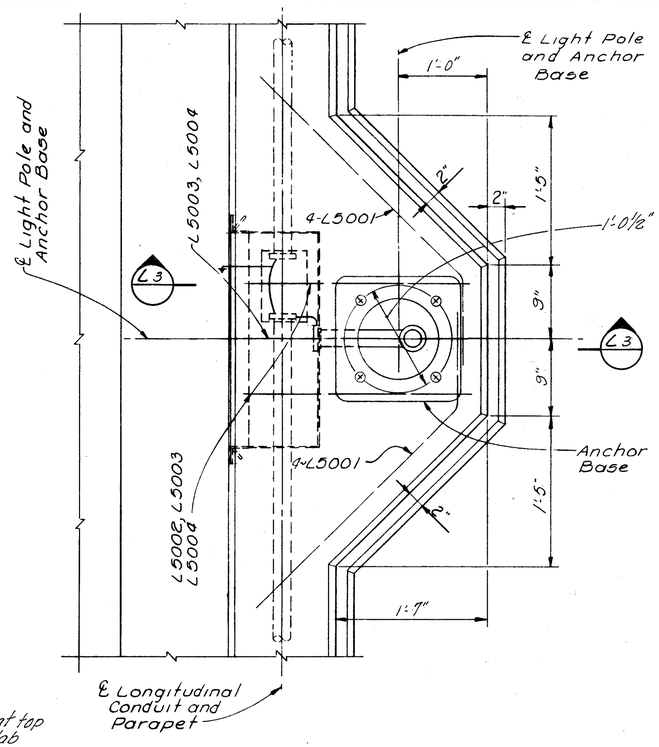
Bridge Lighting - Item SG25 includes the installation of all electrical equipment on the bridge and wingwall to the adjacent Roadway Pull Box. For additional details and notes see Highway Lighting Details and Notes and Standard Construction Drawing HL-4.

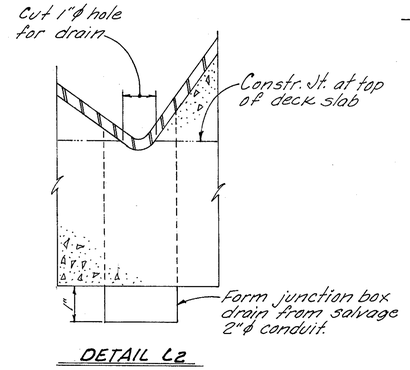
Quantities - The reinforcing steel for each light pole support are included with the bar List and are included with the structure quantities for payment. For detail listing of quantities, see General Lighting Summary, Sheet 291

Conduit - All conduit shall be rigid ferrous metal as per 713.04.

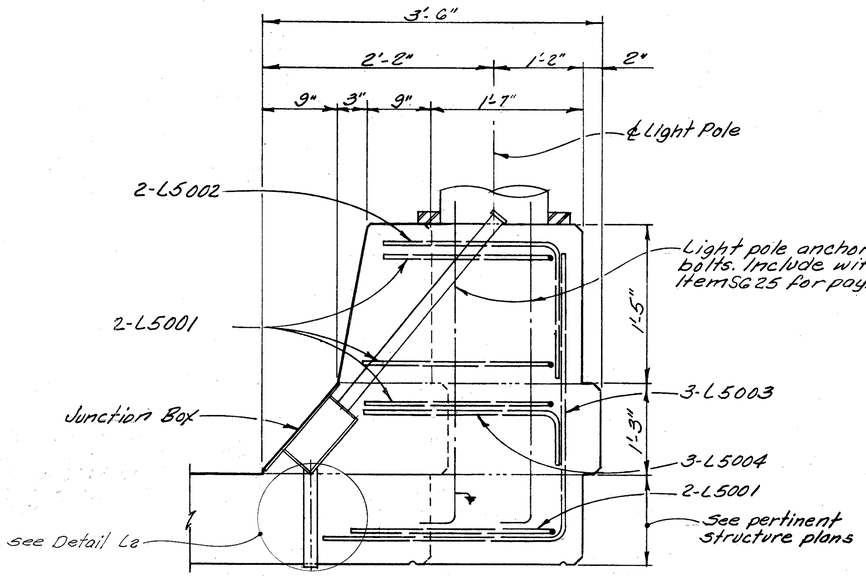


PLAN

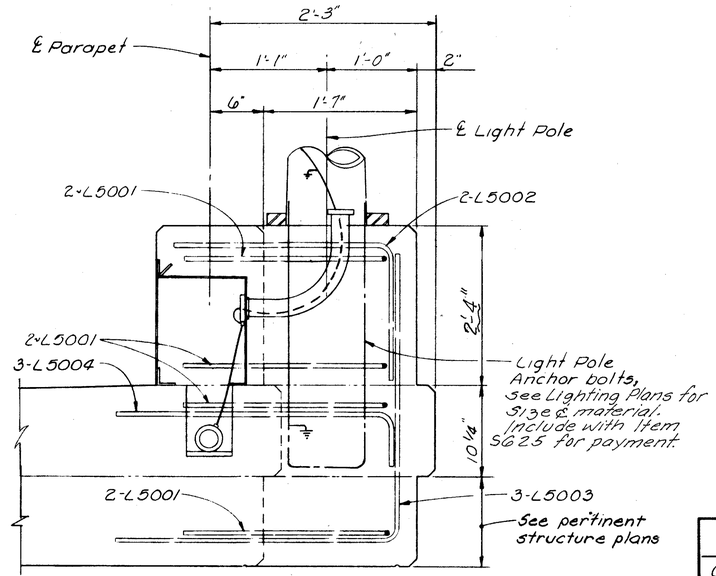




DETAIL L2



SECTION L1-L1



SECTION L3-L3

Note: For additional details see Light Pole Pilaster for Bridge with Sidewalk Railing on Standard Construction Drawing HL-4

BARRIER PARAPET LIGHTING DETAILS

STANDARD PARAPET LIGHTING DETAILS

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

COMMON LIGHTING DETAILS

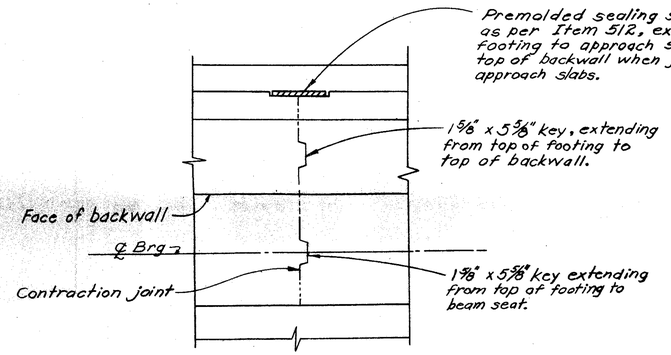
CUYAHOGA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HT	J.E.K.					4-5-78

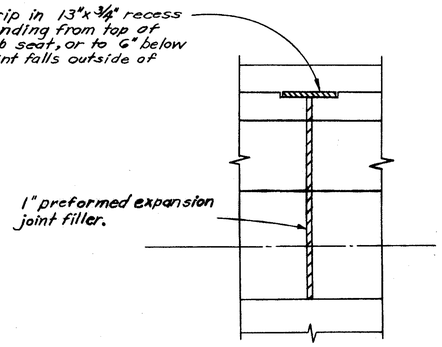
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

401
427

CUYAHOGA COUNTY
CUY-480-1.90



ABUTMENT CONTRACTION JOINT DETAIL



ABUTMENT EXPANSION JOINT DETAIL

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
CLEVELAND, OHIO COLUMBUS, OHIO WHEELING, W. VA.

COMMON DETAILS

(BRIDGE)

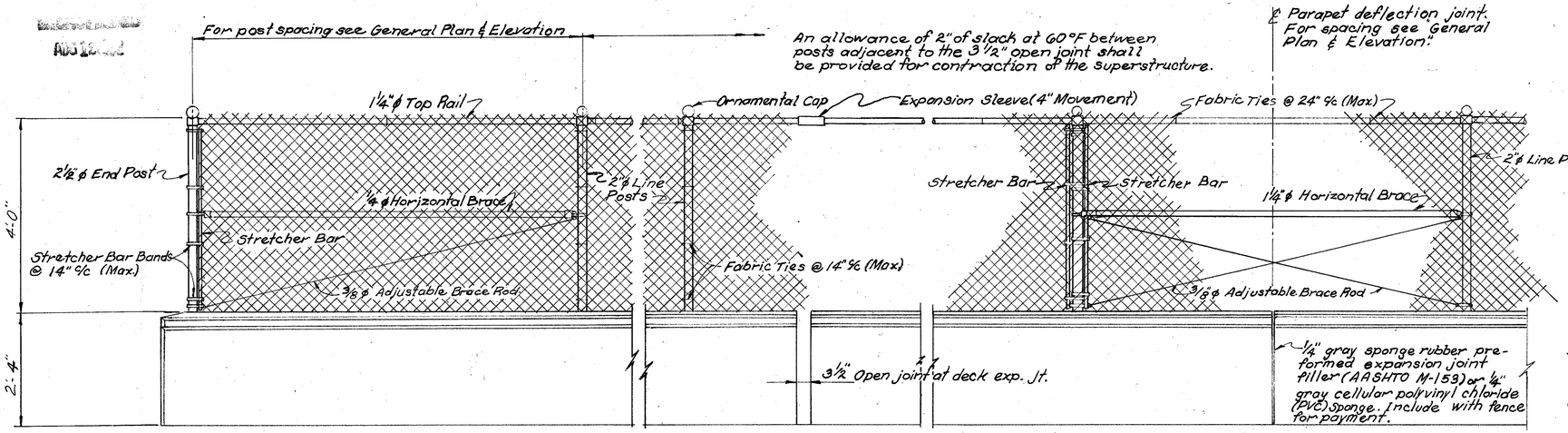
CUYAHOGA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.W.M.	JP		R.S.S.	G.W.M.	7/11/69	

FHWA REGION	STATE	PROJECT	
5	OHIO		

401A
427

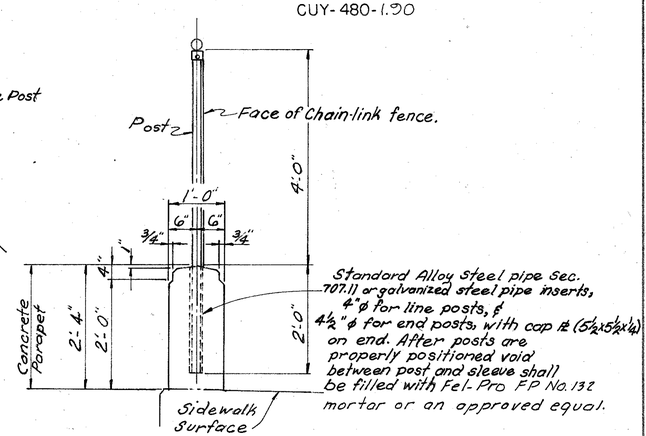
CUYAHOGA COUNTY
CUY-480-1.90



End or Pull Panel

Interior Pull Panel
To be used at the deflection joint adjacent to the 3 1/2" open joint and at Pier 2

ELEVATION



SECTION

NOTE:
Fence shall conform to AASHTO-M181, Type 1 or Type 2 and 710.03, Chain-Link Fence.
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 preformed expansion joint filler. PEJF shall be flush with surface of concrete and exposed edges shall be free of mortar.

SECTION THRU LIGHT POLE PILASTER FOR BRIDGE WITH SIDEWALK RAILING (See Standard Construction Drawing HL-4 for additional details).

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BUREAU OF BRIDGES

COMMON DETAILS FOR CHAIN-LINK FENCE (BRIDGES)

CUYAHOGA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		G.F.J.	D.W.I.			4-5-78