R-B

C Y

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
CUY-2-22.97
CUYAHOGA COUNTY
CITY OF CLEVELAND
VILLAGE OF BRATENAHL

SEP5 1963 GROUND PHOTOLAB

FED. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	ACI-90-1(15)10	1958

1/149

I-329(12) OLD
ACI-90-1(15)10 CUYAHOGA COUNTY
CUY 2-22.97
CUY-90-23.50

NOTE: FEDERAL PROJECT NUMBER I-329(12) APPEARING THROUGHOUT THIS PLAN SHALL BE CONSIDERED TO READ ACI-90-1(15)10

SEP5 1963 GROUND PHOTOLAB

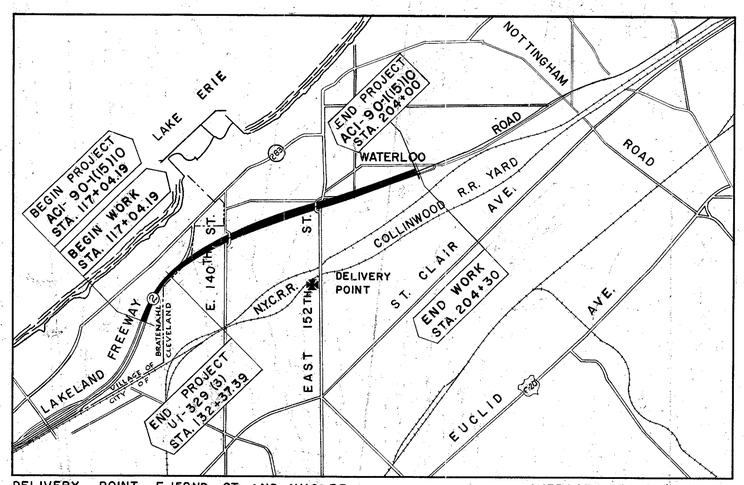
THIS IMPROVEMENT HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 REVISED CODE OF OHIO, AND IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC.

* SEE E FILE DRAWER

INDEX OF SHEETS

CONVENTIONAL SIGNS

CENTER LINE	
CORPORATION LINE	
FENCE LINE, EXISTING	
GUARD RAIL (SINGLE / DOUBLE)	
RAILROAD	
POLE LINES	
MUNICIPAL LIGHT & POWER	O M
CLEVELAND ELEC. ILLUMINATING	O CEI
OHIO BELL TELEPHONE	O OBT



DELIVERY POINT E.152ND ST. AND N.Y.C. RR. AVERAGE HAUL 1/2 MILE

LOCATION MAP

SCALE IN FEET
0 1000 2000 4000 6000 8000

STATE HIGHWAYS
OTHER HIGHWAYS
PORTION TO BE IMPROVED
DETOUR

SCALES

PLAN 1" = 50'
PROFILE - HORIZONTAL 1" = 50'
PROFILE - VERTICAL 1" = 10'
CROSS SECTIONS 1" = 20'

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

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

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

APPROVED Wm B. Henry
DATE 5-20-59 DIVISION DEPUTY DIRECTOR

APPROVED Warren K. Neumeam
DATE 10-2-59 ENGINEER OF LOCATION & DESIGN

APPROVED D.F. Overman A.P.S.
DATE 5-29-59 ENGINEER OF BRIDGES

APPROVED Guy E. Neeper
DATE 10-30-59 DEPUTY DIRECTOR, PLANNING & PROGRAMMING

APPROVED C.W. McCaughey
DATE 10-5-59 DEPUTY DIRECTOR DESIGN & CONSTRUCTION

APPROVED P.A. Berry
DATE 10-30-59 FIRST ASSISTANT DIRECTOR

APPROVED R.H. Gunton
DATE 10-30-59 DIRECTOR OF HIGHWAYS

APPROVED Louis L. Drasler
DATE 5/20/59 DIRECTOR OF PUBLIC SERVICE CITY OF CLEVELAND

LINE DATA	WORK	PROJECT
BEGIN	117+04.19	117+04.19
END	204+30	204+00.00
GROSS LENGTH	8,725.81 LIN. FT.	8695.81 LIN. FT.
ADDITIONS-APPROACHES	1,675.57 LIN. FT.	
NET LENGTH	10,401.38 LIN. FT	8695.81 LIN. FT.
	OR 1.969 MILES	OR 1.646 MILES

Sheet 148 Revised 4-15-60 Moved R/W line R.E.C.

SEP5 1963 GROUND PHOTOLAB

STATE OF OHIO
W. R. HARGETT 3029
A. D. YANDA 2071
C. M. BARBER 223
REGISTERED PROFESSIONAL ENGINEERS

PLANS PREPARED BY
HARGETT, YANDA & BARBER
CONSULTING ENGINEERS
CLEVELAND, OHIO

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED:
DIVISION ENGINEER DATE

SUPPLEMENTAL SPECIFICATIONS		STANDARD CONSTRUCTION DRAWINGS							
NUMBER	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRG. NO.	DATE
NO. 18- REVISED	6-15-59	AS-1-54	12-1-54	I-8 C.B. 5	7-1-58	I-15 NO.1	5-21-59	L-1	4-1-50
M-206.14	7-15-49	B-T-50-70-71-E-NO.1	10-1-47	I-8 C.B. 6	1-26-59	I-15 NO.2-A	5-21-59		
M-110.36	10-6-59	B-T-71R	3-2-53	I-8 C.B. 4	7-1-58			RI-1	7-15-58
M-210.36	10-9-59	F-1	9-1-59	I-8 I. NO.2	4-23-59	I-15 NO. 6	7-1-59	T-35	1-2-56
		F-3	9-1-59	I-8 M.H. NO.1	1-26-59	I-21-23	8-1-56	F-2	10-1-58
		I.H.S. NO.1	11-3-58	I-8 M.H. NO.1-A	1-26-59	L-3	4-1-50	RB-1-55	2-2-59
		G-7,07	6-1-56	I-8 M.H. NO.2	1-26-59	L-3-A	4-1-50	AR-1-57	2-2-59
		I-1, 2, 3, 4, & 5	4-24-58	I-12	7-1-54	L.J. NO.1	7-1-55		
		I-8 C.B. 2-2 A&B	3-2-59	I-14-G	1-22-52	T.J.	5-1-56		

00150R1

FILE NO.	CUY-2-22.97
	DATE OF LETTING
	CONTRACT NO.

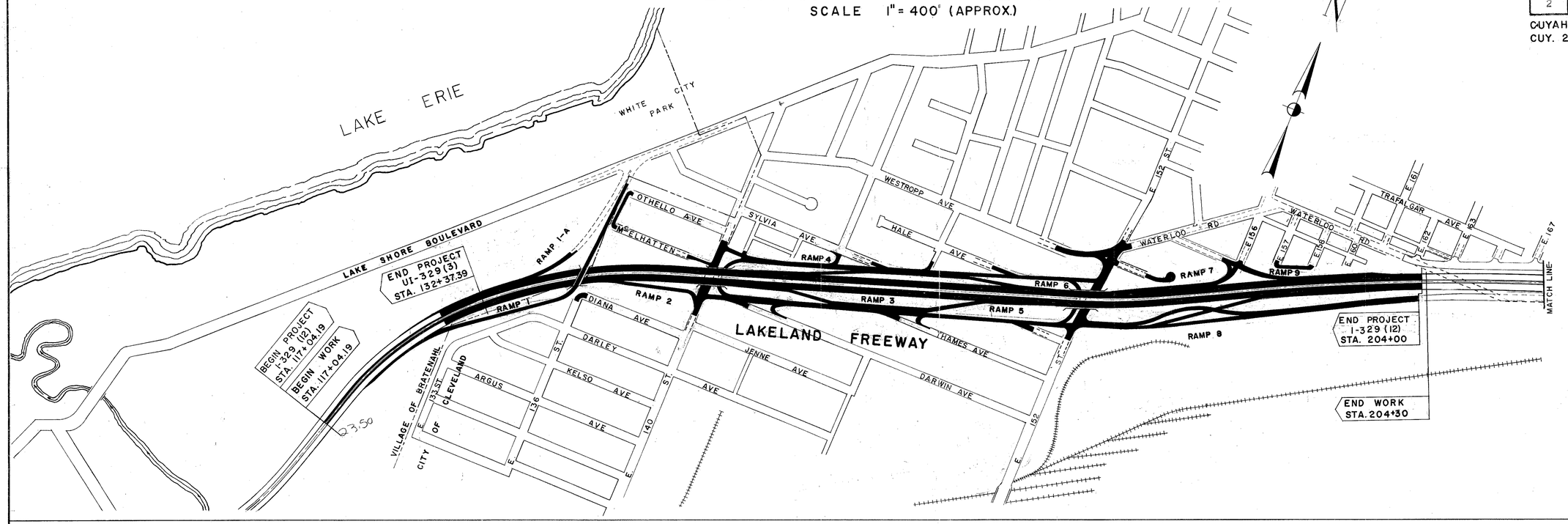
LOCATION PLAN

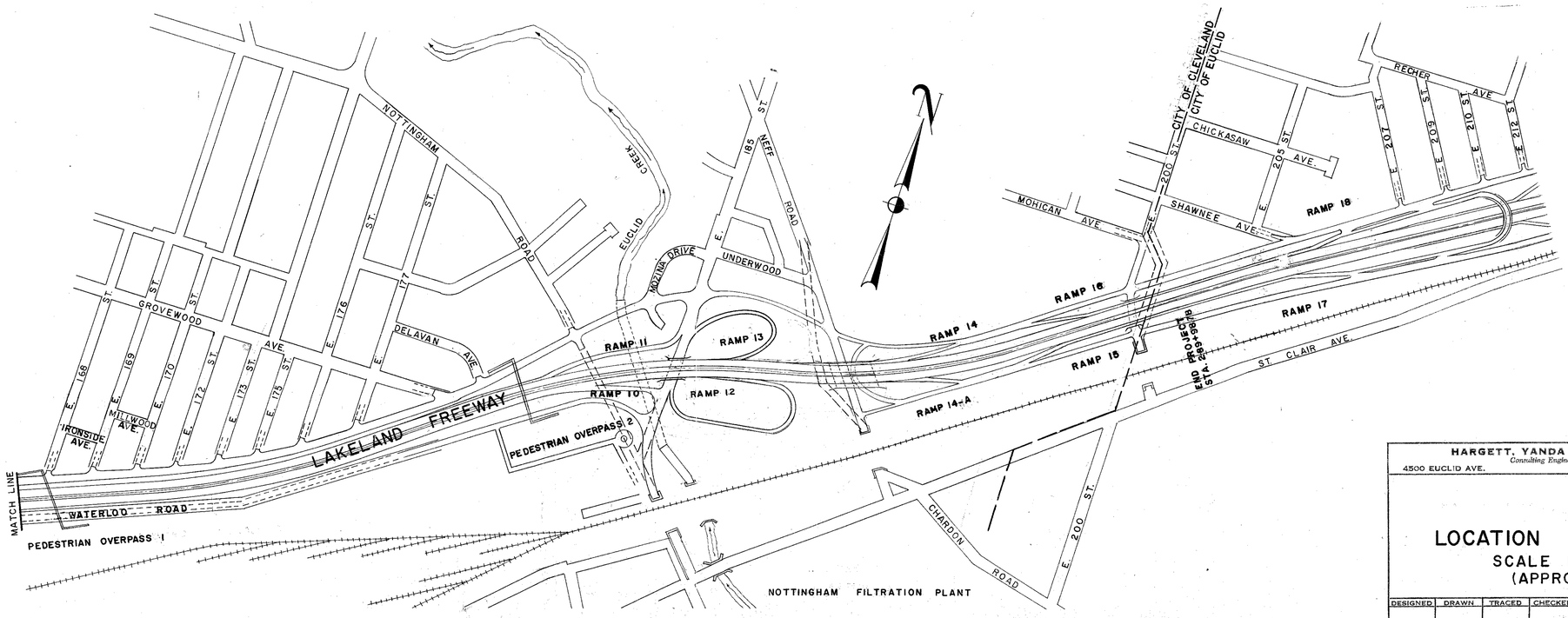
SCALE 1" = 400' (APPROX.)

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

2/149

CUYAHOGA COUNTY
CUY. 2-22.97





HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

LOCATION PLAN

SCALE 1" = 400'
(APPROX)

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

Cuy-90-23.50

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

3 / 149

CUYAHOGA COUNTY
CUY-2-22.97
(FOR REAL ESTATE CALCULATIONS ONLY)

BEGIN PROJECT I-329(12)
STA. 117+04.19
BEGIN WORK
STA 117+04.19

END PROJECT UI-329(3)
STA 132+37.39

Note:
The Centerline Of Construction As Here Indicated Is Based Upon The Legally Described Centerline Of The Improvement As Published In The City Record Of Dec. 31, 1947, Headed Ord. No. 1340-47, And The Supporting Survey And Calculation Figures As Furnished By The State Of Ohio Highway Department, Now Described In Ordinance No. 2111-58 Published In The City Record of 19 November 1958.

Legend:
- ■ New Monument to be Set
- ◉ Existing Monument to be Re-Set
- □ Existing Reference Point

Note:
All Distances Are In Reference To Tangent Lines
All Stations Are In Reference To Freeway Or Marginal Road Center Lines.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

CONSTRUCTION CENTERLINE
LAKELAND FREEWAY
&
MARGINAL ROADS

SCALE; 1-100

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

CUY-90-23.50

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I-329 (12)	1958	4 / 149

CUYAHOGA COUNTY
CUY.-2-22.97

FWY. Curve No. 4 - ¢ Data
D = 0°-28'-00"
Δ = 06°-58'-18" L
R = 12277.58'
T = 747.88'
L = 1493.93'
LC = 1493.00'
E = 22.76'
MATCH LINE See Sheet No. 3
N.M.R. Curve No. 2 - ¢ Data
D = 5°-45'-00"
Δ = 21°-37'-51"
R = 996.45'
T = 190.36'
L = 376.19'
LC = 373.96'
E = 18.02'
¢ WATERLOO ROAD
N-52°-30'-14" E
744.52'
OLD ¢ WATERLOO
¢ CALCUTTA AVE
598.17'
WESTROPP AVE.
N-89°-47'-20" E
¢ DANIEL AVE
681.10' (to Tan)
930.91'
N-89°-32'-26" E
TRAFALGAR AVE.
¢ BURBANK CT.
N-89°-44'-58" E
Ramp No. 7 - ¢ Data
R = 5896.72 Δ = 4°23'57" T = 226.49 L = 452.74 Lc = 452.64
R = 298.51 Δ = 18°43'48 T = 49.23 L = 97.58 Lc = 97.15
R = 264.78 Δ = 42°56'15" T = 104.13 L = 198.43 Lc = 193.82
Ramp No. 9 - ¢ Data
CONNECTOR RD.
N68°44'14" E
FWY. Curve No. 5 - ¢ Data
D = 0°-28'-00"
Δ = 05°-39'-15" R
R = 12277.58'
T = 606.29'
L = 1211.61'
LC = 1211.11'
E = 14.97'
RAMP No. 7
RAMP No. 9
¢ LAKELAND FWY
N62°47'17" E
P.I. to P.I. 2193.57
END PROJECT I-329 (12) STA. 204+00
END WORK STA. 204+30
SMR W.B. Lane - ¢ Data
R = 512.00
Δ = 25°47'31"
T = 117.23
L = 230.48
Lc = 228.54
SMR WEST BOUND LANE
RAMP No. 8
N 48°22'18" E
Ramp No. 8 - ¢ Data
R = 1408.00
Δ = 14°24'59"
T = 178.08
L = 354.27
Lc = 353.34
¢ HALE AVE.
N-89°-30'-12" E
391.05'
N-69°-45'-35" E
592.00'
N-62°-47'-17" E
773.97'
N-59°-43'-03" E
¢ SOUTH MARGINAL ROAD
421.46'
N-68°-26'-32" E
S.M.R. Curve No. 3 - ¢ Data
D = 2°-00'-00"
Δ = 8°-43'-29"
R = 2864.79'
T = 218.54'
L = 436.24'
LC = 435.81'
E = 8.32'
S.M.R. Curve No. 1 - ¢ Data
D = 2°-00'-00"
Δ = 6°-58'-18"
R = 2864.79'
T = 174.51'
L = 348.58'
LC = 348.37'
E = 5.31'
Ramp No. 8 - ¢ Data
R: 430.31
Δ = 15°27'05"
T: 58.38
L = 116.05
Lc: 115.71
SMR W.B. Lane - ¢ Data
R = 514.00 Δ = 41°13'28" T = 193.33 L = 369.82 Lc = 361.90
R = 1012.00 Δ = 20°33'04" T = 183.47 L = 362.99 Lc = 361.05
S.M.R. Curve No. 2 - ¢ Data
D = 1°-00'-00"
Δ = 3°-04'-14"
R = 5729.58'
T = 153.56'
L = 307.06'
LC = 307.02'
E = 2.06'
¢ LEEDS AVE.
¢ GROVEWOOD AVE.
MATCH LINE
N.M.R. Curve No. 3 - ¢ Data
D = 1°-26'-00"
Δ = 14°-07'-04"
R = 3997.39'
T = 494.99'
L = 984.96'
LC = 982.47'
E = 30.50'
Survey Center Line
Construction Center Line
¢ TRAFALGAR AVE.
MATCH LINE
¢ NORTH MARGINAL ROAD
N-68°-26'-32" E
N-54°-19'-28" E
315.10'
N-55°-19'-28" E
¢ LAKELAND FWY.
P.I. to P.I. = 2496.74'
N-68°-26'-32" E
¢ WATERLOO ROAD
N-68°-26'-32" E
385.00'
N-55°-19'-28" E
FWY. Curve No. 6 - ¢ Data
D = 1°-20'-00"
Δ = 13°-07'-04" L
R = 4297.20'
T = 494.08'
L = 983.83'
LC = 981.69'
E = 28.31'

Note:
All Distances Are In Reference To Tangent Lines.
All Stations Are In Reference To Freeway Or Marginal Road Center Lines.

Note:
The Centerline Of Construction As Here Indicated Is Based Upon The Legally Described Centerline Of The Improvement As Published In The City Record Of Dec. 31, 1947, Headed Ord. No. 1340-47, And The Supporting Survey And Calculation Figures As Furnished By The State Of Ohio Highway Department, Now Described In Ordinance No. 2111-58 Published In The City Record of 19 November 1958.

Legend:
- ■ New Monument to be Set
- ▣ Existing Monument to be Re-Set
- □ Existing Reference Point

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

CONSTRUCTION CENTERLINE
LAKELAND FREEWAY
&
MARGINAL ROADS

SCALE: 1-100

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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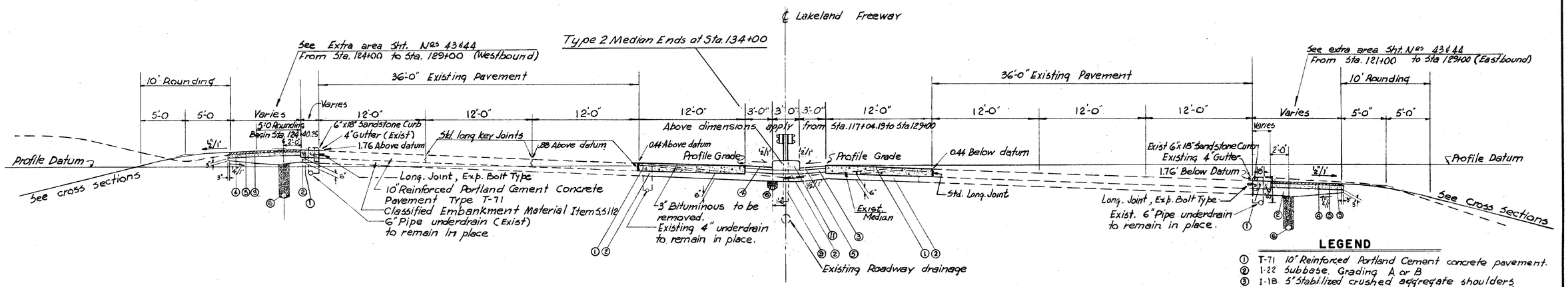
149

CUYAHOGA COUNTY
CUY 2-22.97

TYPICAL SECTIONS

TYPE T-71 REINFORCED CONCRETE PAVEMENT

SCALE 3/16" = 1'-0"

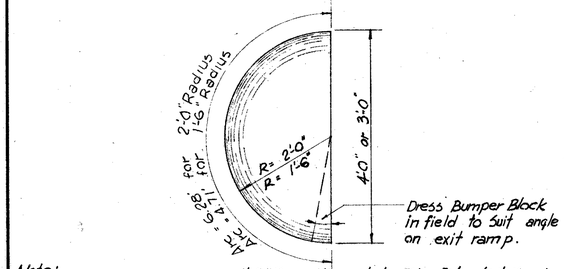


WESTBOUND
Sta. 117+04.19 to Sta. 129+00

EASTBOUND
Sta. 117+04.19 to Sta. 129+00

LEGEND

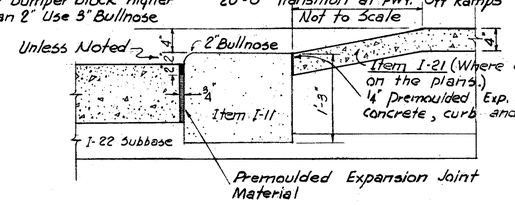
① T-71 10" Reinforced Portland Cement concrete pavement.
② I-22 Subbase. Grading A or B
③ I-18 5' Stabilized crushed aggregate shoulders
④ T-31 Bituminous Surface Treatment consisting of one application as follows: 0.008 cubic yards No. 6 Aggregate and 0.25 gallon Bituminous Material per square yard. (see note in proposal)
⑤ B-2193 Waterproofed Aggregate Base Course.
⑥ I-4 6" Underdrains. As per plan.
⑦ I-11 6"x18" Sandstone Curb. As per plan
⑧ I-21 Standard Type I. Portland cement concrete median Pavement.
⑨ I-15 Guard Rail
⑩ T-71 9" Reinforced Portland Cement Concrete Pavement
⑪ I-21 Standard Type 2 Portland Cement Concrete Median.



Note:
Any Bumper Block higher than 2" Use 3" Bullnose

3'-0" Transition at traffic Islands & Marginal Roads
20'-0" Transition at FWY. Off Ramps

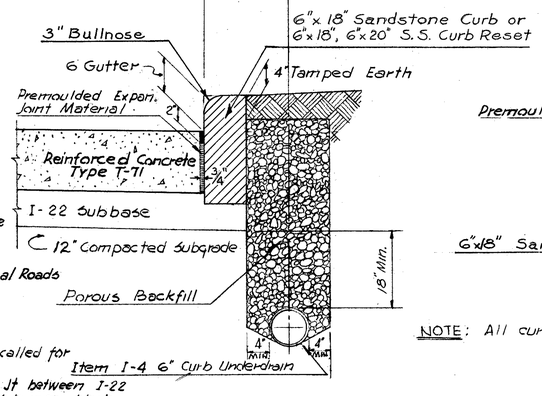
Not to Scale



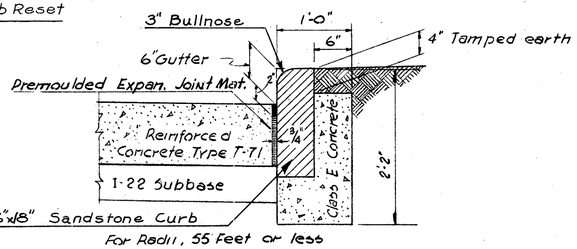
BUMPER BLOCK DETAIL
SCALE - 1" = 1'-0"

NOTE:
Bumper block sandstone shall meet the requirement of Sec I-11.02 of the Construction and Material Specifications.

NOTE: The 4" premoulded expansion joint material shall meet the requirements of Section M-10.02 or M-10.03 of the specifications. The cost of pavement for traffic islands and between curbs at ramp exit noses shall include the premoulded expansion joint material and will be paid for at the contract unit price per square yard bid for Item I-21 Portland Cement Concrete Traffic Island Pavement.



DETAIL SHOWING STRAIGHT CURB & 6" CURB UNDERDRAINS.
SCALE 1" = 1'-0"



For Radii, 55 Feet or less

RADIAL CURB DETAIL
SCALE 1" = 1'-0"

NOTE: All curbs shall be 6"x 18" sandstone curb unless otherwise noted.

NOTE:
The three quarter (¾) inch Premoulded Joint Material shall meet the requirements of section M-10.02 of the Standard Specifications. It shall be placed in front of the Radial Curb and Bumper blocks to within two(2") inches of the surface. The remaining space shall be filled with Bituminous Filler* meeting the requirements of Sec. M-5.6 F2 of the Standard Specifications. The cost of the Joint & the cost of Class "E" concrete to be included in price bid per lineal foot of curb.

NOTE:
If pavement is built before the curb is placed, it shall be built full width and any opening between curb and pavement shall be filled with dry sand to within (2") two inches of the surface; the remaining space shall be filled with Bituminous filler* meeting the requirements of Sec. M-5.6 F2 of the Standard Specifications. Sand to meet the requirements of Sec. M-2.1. The cost of Joint to be included in the price bid per lineal foot of curb.

* Where pavement consists of asphaltic concrete the bituminous filler may be omitted.

For Details of I-4 6" Underdrains (Deep and Shallow) See Sht. No 9
For Detail of I-4 6" Underdrain at median strip. See Sht. No 6

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

TYPICAL SECTION

ALTERATION TO EXISTING FREEWAY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	W.H.B.		J.R.B.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

6
149

CUYAHOGA COUNTY
CUY- 2-22.97

TYPICAL SECTIONS

2-48'-0" PAVEMENTS

TYPE T-71 REINFORCED CONCRETE PAVEMENT

SCALE 1/8" = 1'-0"

Portland cement concrete median pavement
Standard Type 1. Starts at Sta. 134+0

Shoulder constant from Sta. 142+75 to Sta. 149+18.06
Shoulder Variable from Sta. 137+75 to Sta 142+75
See extra area Sht Nos 44, 45, 46 & 48

Median Strip constant from Sta. 137+75 to Sta 149+18.06
Variable between Sta 129+00 & Sta 137+75 See extra area Sht. No 44

Note:
Superelevation to be in accordance with The Ohio State Department of Highways standards for 60 M.P.H. (Maximum S=.06/Ft.)

Slopes on cross sections shall govern.
Profile Datum
Flat as possible Max Slope 2:1
Rounding
18" Min.
Guard Rail used on fills 5'-0" & over if slope steeper than 4:1. Guard rail used on all fills 10'-0" over
Pav't slope if greater
℄ FREEWAY
6" Gutter
Rounding begins Sta 140+25
Profile Grade
.036" / Ft.
Guard Rail used on fills 5'-6" over if slope steeper than 4:1
Guard Rails used on all fills 10'-0" and over.
Standard longitudinal Joint
Standard longitudinal Key Joint without tiebars

WESTBOUND SUPERELEVATION
Sta. 129+00 to Sta. 143+50
WESTBOUND TRANSITION
Sta. 143+50 to Sta. 149+00

See extra area Sht. Nos 44 & 45 From Sta. 129+00 to Sta. 136+48 (Westbound)
See extra area Sht. No 44 From Sta. 129+00 to Sta. 129+92.58 (East bound)
See extra area Sht. No 48 From Sta. 139+25 to Sta. 143+75 (Eastbound)

EASTBOUND SUPERELEVATION
Sta. 129+00 to Sta. 143+50
EASTBOUND TRANSITION
Sta. 143+50 to Sta 149+00

LEGEND
For interpretation of key numbers see Sht. No 5

SUPERELEVATED SECTION

For Superelevation Tables See Sht. No. 68

DETAIL SHOWING THICKENED SUBBASE & I-4 6" UNDERDRAIN
Sta. 162+00 to Sta 167+00

Slopes on cross sections shall govern.
Profile Datum
Flat as possible Max Slope 2:1
Rounding
18" Min.
Guard Rail used on fills 5'-0" & over if slope steeper than 4:1 Guard Rail used on all fills 10'-0" & over.
Profile Grade
Standard longitudinal Joint
Standard longitudinal Key Joint without tiebars
I-22 Subbase, T= 18" thick from Sta. 162+00 to Sta 167+00 Balance of length this section T=6" Thick for I-22
See Note on other Side Sec.

WESTBOUND
Sta. 149+00 to Sta. 149+18.06
Sta. 152+15.84 to Sta. 176+96.48
Sta 180+11.60 to Sta. 204+00

See extra area Sht. No 52 From Sta. 152+35 to Sta 157+53.06 (Eastbound)
See extra area Sht. No 53 From Sta. 152+50 to Sta. 153+03.5 (Westbound)
See extra area Sht. No 57 From Sta 169+39 to Sta 176+50 (Eastbound)
See extra area Sht No 58 From Sta. 176+82.94 to Sta. 177+00 (Westbound)
See extra area Sht No 62 From Sta. 180+50 to Sta. 189+13.50 (Westbound)
See extra area Sht. No 64 From Sta. 190+03.50 to Sta. 192+69.03 (Eastbound)
See extra area Sht. No 65 From Sta. 192+64.49 to Sta. 201+50 (Westbound)
See extra area Sht. No 64 From Sta. 198+00 to Sta 201+50 (Eastbound)

EASTBOUND
Sta. 149+00 to Sta. 149+18.06
Sta. 152+15.84 to Sta 176+96.48
Sta. 180+11.60 to Sta 204+00

EASTBOUND
Sta. 192+69.03 to Sta. 198+00

NORMAL SECTION

3'-6" to 5'-0"
℄ Drain
6"x8" Square Sawed pressure treated posts. Std. Const. Dwg. * I-15-2A Barrier Type
6" x 18" Sandstone Curb
Std. Type I Portland Cement Conc. Medians Pavement per Std. Const. Dwg. I-21-25
Slope 1/2"/Foot
3" Bullnose
Elev. at edge of pavement
I-22 Subbase
Datum
18" Min. 60" Max. For Shallow
51" Min. 60" Max. For Deep
Porous Backfill Sec. I-4.06
I-4 6" Underdrain
1/4" EXPANSION JOINT MATERIAL AROUND POSTS INCLUDED IN ITEM I-21 FOR PAYMENT.
JOINT DETAIL AT GUARD RAIL POSTS IN CONCRETE MEDIAN.
NOTE: BACKFILL AROUND POSTS IN MEDIAN SHALL BE GRANULAR MATERIAL.
EXP. J.T.
CONTRACTION JOINT
T-71 Rein. Concrete
Pavement Slope
I-4 6" Underdrain See Details Sht. No 9
Porous Backfill Sec. I-4.06

NORMAL SECTION MEDIAN STRIP AND UNDERDRAIN DETAIL
SCALE 1"=1'-0"

SUPERELEVATED SECTION HIGH OUTSIDE SHOULDER DETAIL
SCALE 3/8" = 1'-0"

Balance of section same as normal section
58'-0" to ℄ Freeway

For Details of I-4 6" Underdrains (deep & shallow) See Sht. No 9

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

TYPICAL SECTION

FREEWAY SUPERELEVATED & FREEWAY NORMAL

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	ala		SR			

TYPICAL SECTIONS

RAMP NO. 1 & RAMP NO. 1A

TYPE T-71 REINFORCED CONCRETE PAVEMENT

SCALE = 3/16" = 1'-0"

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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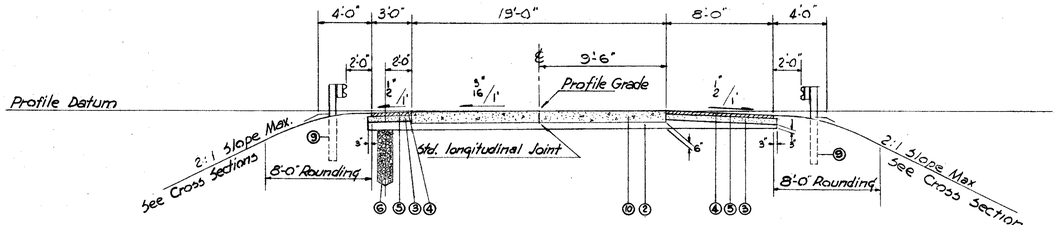
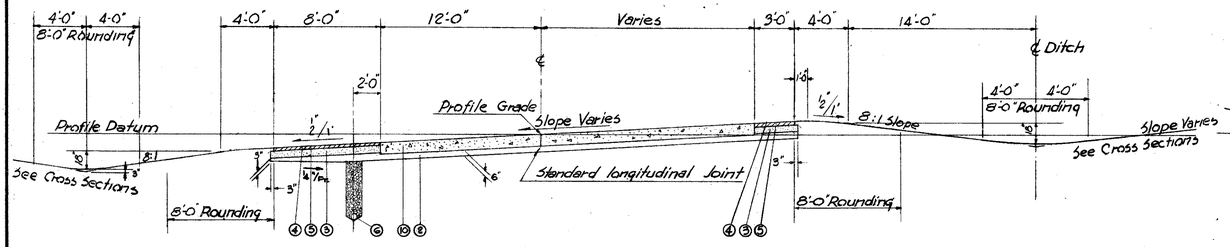
CUYAHOGA COUNTY
CUY 2-22.91



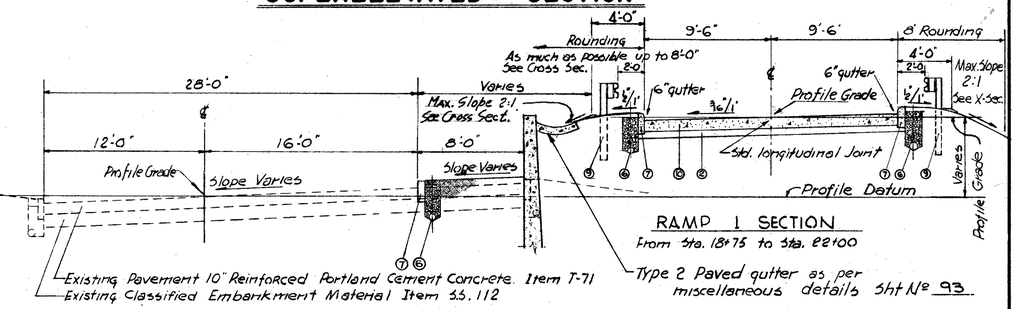
RAMP 1 SECTION
Sta 14+94.51 to Curb Sta. 18+25.0
See extra area Sht. Nº 46 From Curb Sta. 18+25.0 to Sta. 18+75

NORMAL SECTION



RAMP 1A SECTION
From Sta. 5+25 to Sta 7+42.53
See extra area Sht. Nºs 45 & 46 from Sta. 0+00 to Sta. 9+00

SUPERELEVATED SECTION

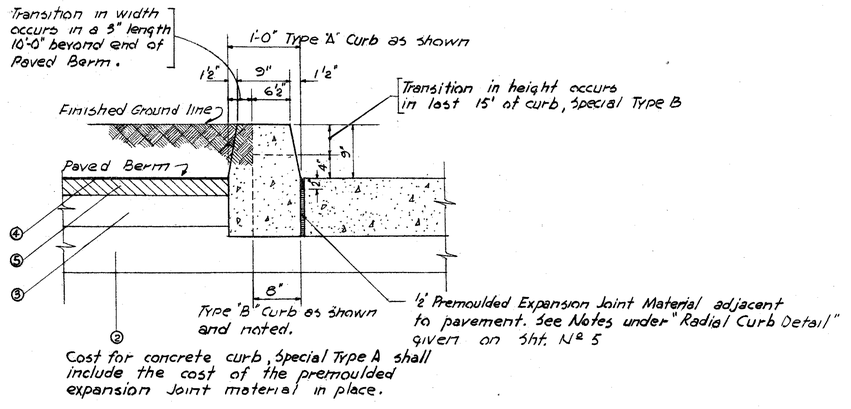


RAMP 1 SECTION
From Sta. 18+75 to Sta. 22+00

RAMP 1A SECTION
From Sta 9+59.58 to Sta. 14+86.56
See extra area Sht Nº 47 Sta. 14+86.56 to Sta. 17+31.54

SUPERELEVATED SECTION

28' PAVEMENT WIDTH COMBINED SECTION



DETAILS OF CONCRETE CURB, SPECIAL TYPE A & B
SCALE 1"=1'-0"

LEGEND

For Interpretation of key numbers
See Sht. Nº 5

For Details of 1-4 6" Underdrains (Deep & Shallow)
See Sht Nº 9
For Details of 1-4 6" Curb Underdrains
See Sht. Nº 5

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Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

TYPICAL SECTIONS

RAMP Nº 1 &
RAMP Nº 1A

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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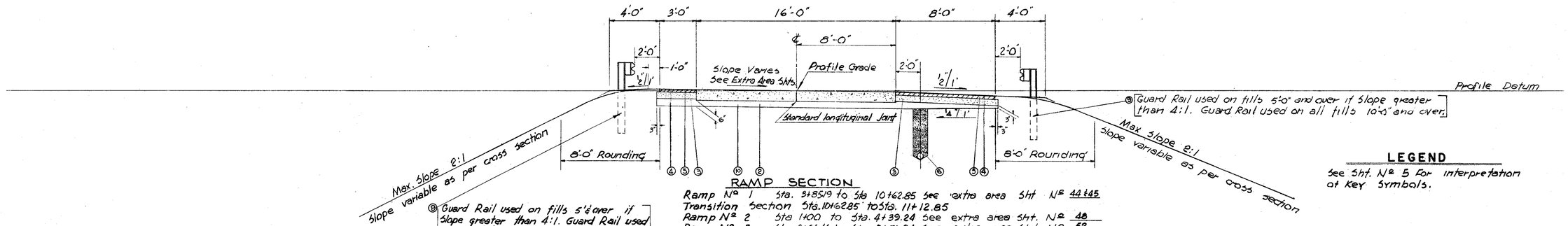
CUYAHOGA COUNTY
CUY. 2-22.97

TYPICAL SECTIONS

(2) 16' PAVEMENTS

TYPE T-71 REINFORCED CONCRETE PAVEMENT

SCALE = 1/4" = 1'-0"



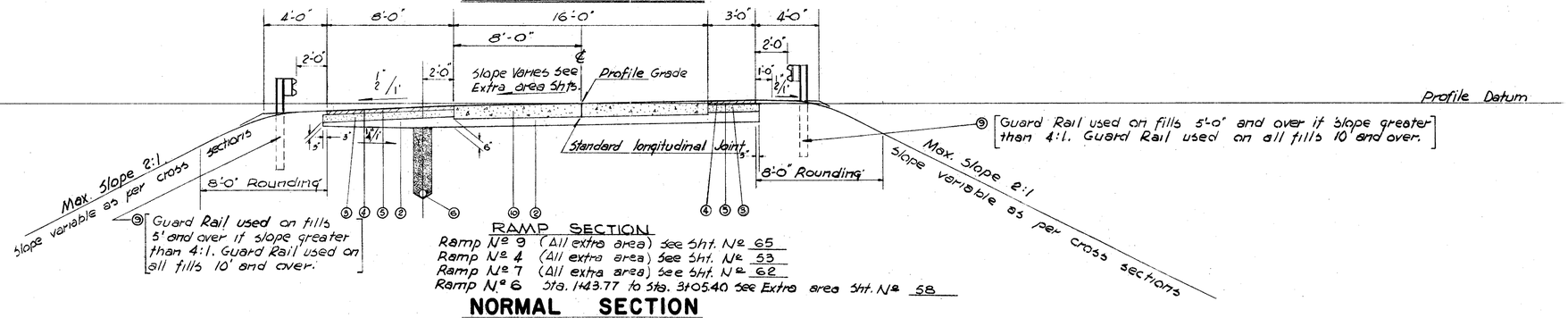
RAMP SECTION

Ramp Nº 1 Sta. 9+85.19 to Sta 10+62.85 See extra area Sht Nº 44 & 45
Transition Section Sta. 10+62.85 to Sta. 11+12.85
Ramp Nº 2 Sta 1+00 to Sta. 4+39.24 See extra area Sht. Nº 48
Ramp Nº 3 Sta. 3+66.44 to Sta. 5+51.24 See extra area Sht. Nº 52
Ramp Nº 5 (All extra area) See extra area Sht. Nº 57
Ramp Nº 8 (All extra area) See extra area Sht. Nº 63 & 64

LEGEND

See Sht. Nº 5 For interpretation of Key Symbols.

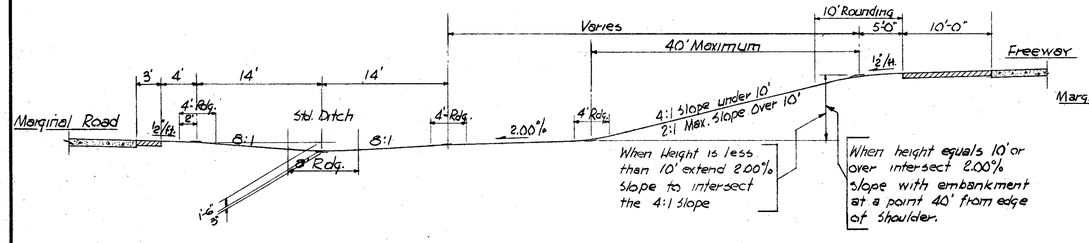
NORMAL SECTION



RAMP SECTION

Ramp Nº 9 (All extra area) See Sht. Nº 65
Ramp Nº 4 (All extra area) See Sht. Nº 53
Ramp Nº 7 (All extra area) See Sht. Nº 62
Ramp Nº 6 Sta. 1+43.77 to Sta. 3+05.40 See Extra area Sht. Nº 58

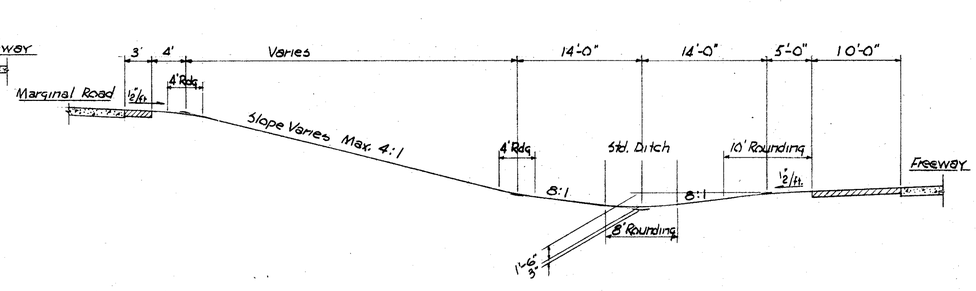
NORMAL SECTION



FREEWAY ABOVE MARGINAL ROAD
DITCH FOLLOWS MARGINAL RD.

STANDARD DITCH DETAIL

SCALE = 1/8" = 1'-0"



MARGINAL ROAD ABOVE FREEWAY
DITCH FOLLOWS FREEWAY

For Details of 1-4 6" Underdrains (Deep & Shallow) see Sht Nº 9

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4500 EUCLID AVE. CLEVELAND 3, OHIO

TYPICAL SECTIONS

16 FOOT RAMPS
&
STANDARD DITCH

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
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FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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CUYAHOGA COUNTY
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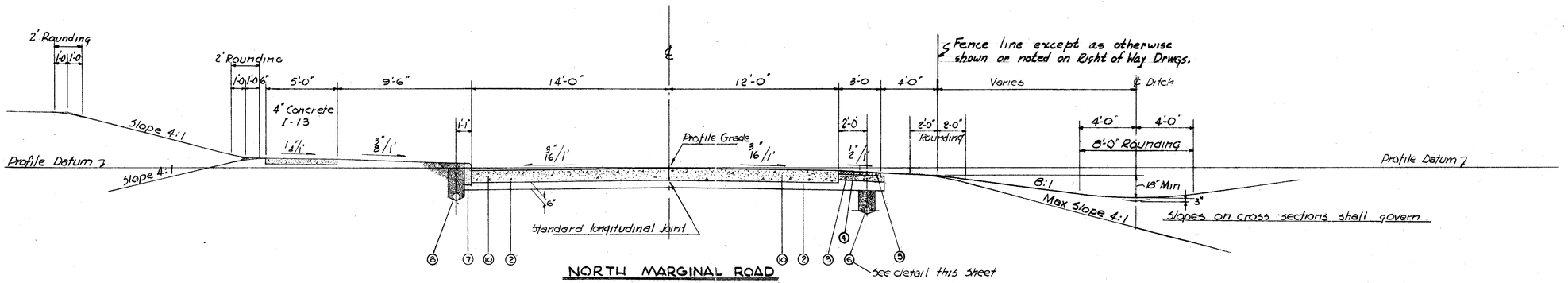
TYPICAL SECTIONS

(1) 26' PAVEMENT & (1) 38' PAVEMENT

TYPE T-71 REINFORCED CONCRETE PAVEMENTS

SCALE 1/4" = 1'-0"



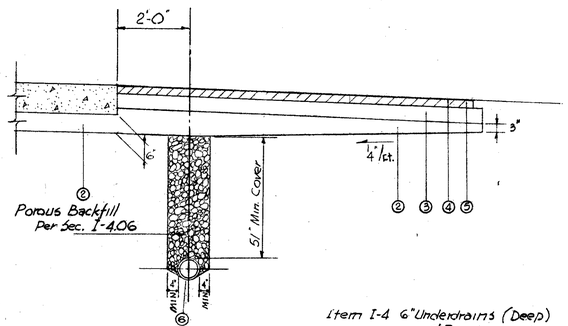
NORTH MARGINAL ROAD
Sta 153+92.09 to Sta. 162+86.04
Sta 167+92.63 to Sta. 176+85.91

See extra area Sht. Nº 50 From Sta. 151+09.34 to Sta 153+32.09
See extra area Sht. Nº 54 From Sta. 153+62.67 to Sta. 162+80.07 (North Side)
See extra area Sht. Nº 53 From Sta 161+50.0 to Sta. 162+86.04 (South Side)
See extra area Sht. Nº 56 From Sta 170+53.92 to Sta 172+21.89 (North Side)
See extra area Sht. Nº 58 From Sta 167+32.63 to Sta 169+25. (South Side)
See extra area Sht. Nº 60&61 From Sta. 176+85.91 to Sta. 179+85.93 (North Side)

LEGEND

For interpretation of key numbers see Sht Nº 5

NORMAL SECTION



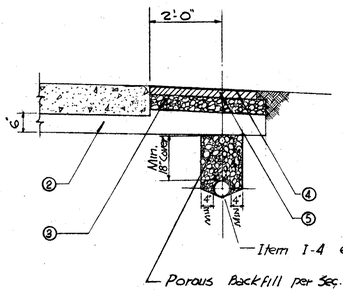
DETAIL OF I-4
6" UNDERDRAINS (DEEP)
SCALE: 1/2" = 1'-0"

1'-0" 1'-0" 6" 5'-0" 9'-6" 14'-0" 24'-0" 3'-0" 4'-0"

NORTH MARGINAL ROAD
Sta. 162+86.04 to Sta. 167+92.63

See extra area Sht. Nº 56 From Sta. 166+19.55 to Sta. 166+86.44 (North Side)

NORMAL SECTION



DETAIL OF I-4
6" UNDERDRAIN (SHALLOW)
SCALE: 1/2" = 1'-0"

For Details of I-4 6" Curb Underdrain See Sht. Nº 5

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4800 EUCLID AVE. CLEVELAND 3, OHIO

TYPICAL SECTIONS

NORTH MARGINAL ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
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FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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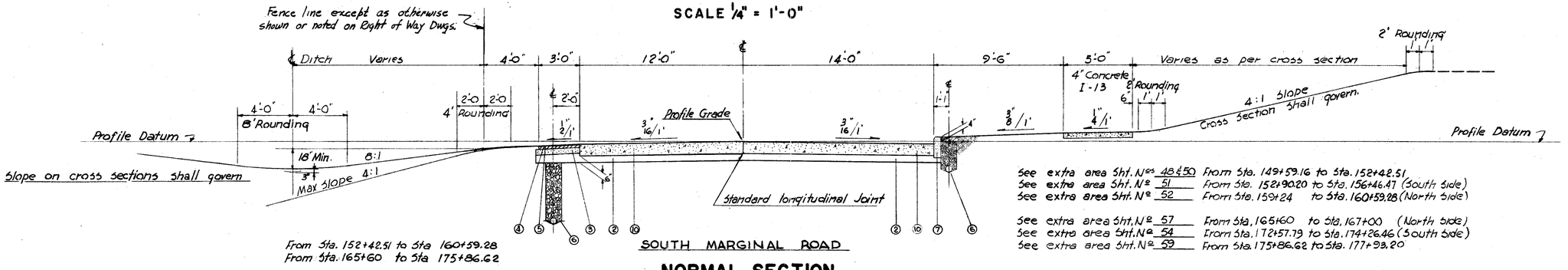
CUYAHOGA COUNTY
CUY. 2-22.97

TYPICAL SECTIONS

(I) 26' PAVEMENT (I) 38' PAVEMENT (I) 40' PAVEMENT

TYPE T-71 REINFORCED CONCRETE PAVEMENTS

SCALE 1/4" = 1'-0"



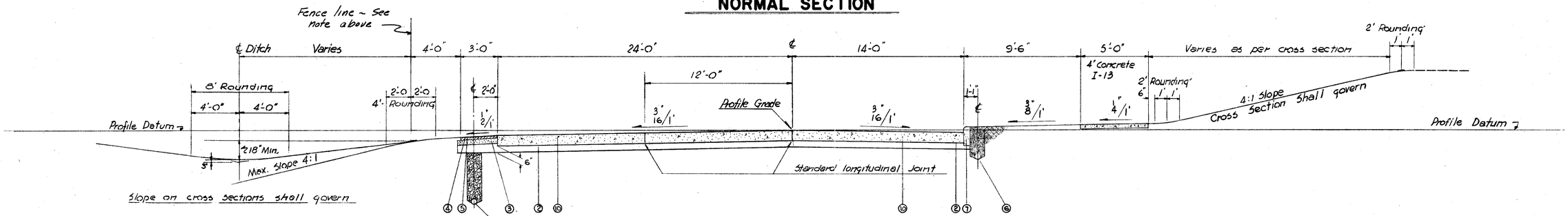
From Sta. 152+42.51 to Sta 160+59.28
From Sta. 165+60 to Sta 175+86.62

SOUTH MARGINAL ROAD

NORMAL SECTION

See extra area Sht. Nos 48 & 50 From Sta. 149+59.16 to Sta. 152+42.51
See extra area Sht. No 51 From Sta. 152+90.20 to Sta. 156+46.47 (South Side)
See extra area Sht. No 52 From Sta. 159+24 to Sta. 160+59.28 (North Side)

See extra area Sht. No 57 From Sta. 165+60 to Sta. 167+00 (North Side)
See extra area Sht. No 54 From Sta. 172+57.79 to Sta. 174+26.46 (South Side)
See extra area Sht. No 59 From Sta. 175+86.62 to Sta. 177+93.20

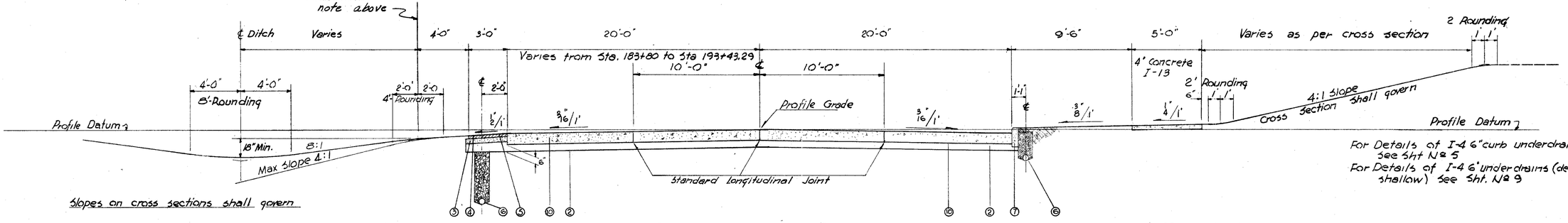


From Sta. 160+59.28 to Sta 165+60

SOUTH MARGINAL ROAD

NORMAL SECTION

See extra area Sht No 55 From Sta 162+66.07 to Sta 166+22.50 (South Side)



From Sta. 179+69.11 to Sta. 183+80
From Sta. 193+25 to Sta. 204+00

SOUTH MARGINAL ROAD

NORMAL SECTION

For Details of I-4 6" curb underdrains See Sht No 5
For Details of I-4 6" underdrains (deep & shallow) See Sht. No 9

See extra area Sht. No 59 From Sta. 177+93.28 to Sta. 179+69.11
See extra area Sht. Nos 63 & 64 From Sta. 183+80 to Sta. 193+43.29 (North Side)

LEGEND

For Interpretation of key numbers See Sht. No 5

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

TYPICAL SECTIONS

SOUTH MARGINAL ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	JPA		JRE			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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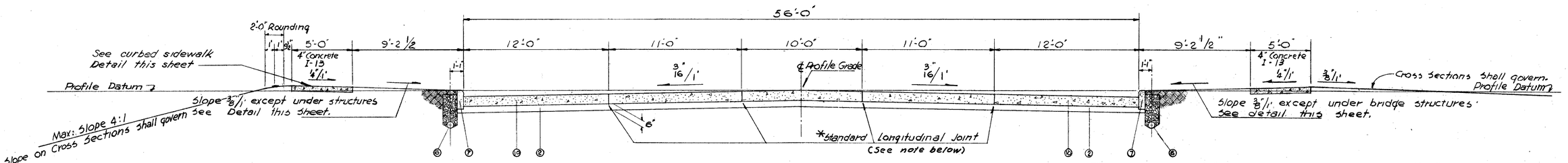
CUYAHOGA COUNTY
CUY-2-22.97

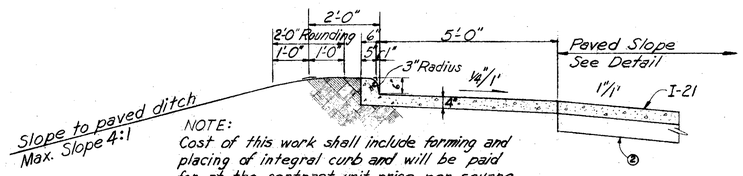
TYPICAL SECTIONS

EAST 136, EAST 140 & EAST 152 CROSS STREETS & MARGINAL ROAD CONNECTORS

TYPE T-71 REINFORCED CONCRETE

SCALE 1/4" = 1'-0"





NOTE:
Cost of this work shall include forming and placing of integral curb and will be paid for at the contract unit price per square foot bid for Item I-13 Sidewalk with curb.

DETAIL OF CURBED SIDEWALK UNDER BRIDGES

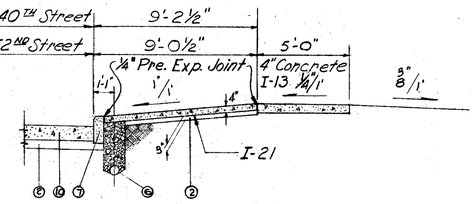
Scale: ½"=1'-0"

Used on West side of E.140TH Street from Sta. 0+94 S to Sta. 0+64 N
Used on East side of E.152ND Street from Sta. 0+61 S to Sta. 1+07 N

EAST 140 STREET

All extra area - see Sht. Nos. 48 & 50 From Sta. 3+02.27 S. to Sta. 3+00 N

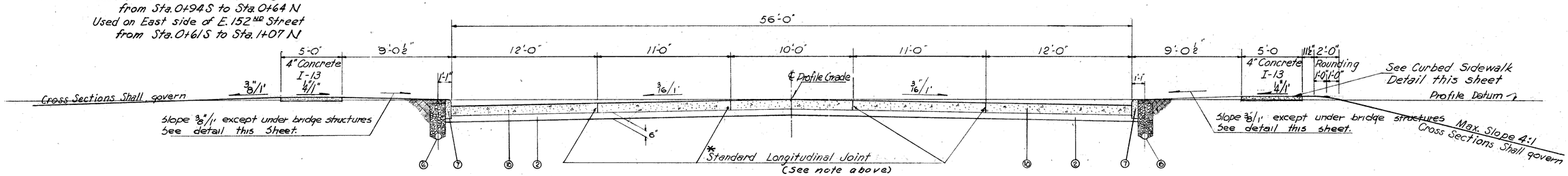
* NOTE :- Either the longitudinal joint indicated 5 ft. left of ℄ or the one indicated 5 ft. right of ℄ shall be a standard key joint without tie bars.



DETAIL OF PAVED SLOPE USED UNDER BRIDGE STRUCTURES

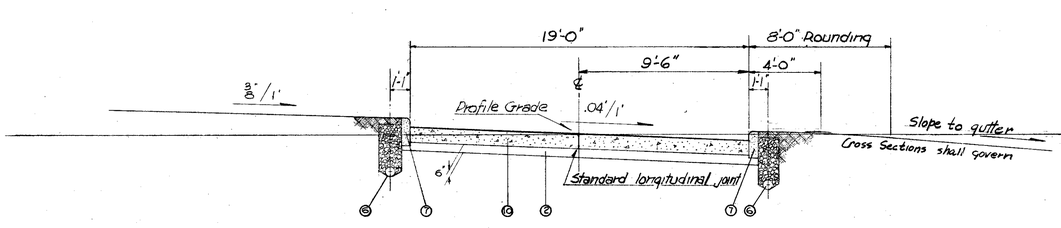
Scale 1/4" = 1'-0"

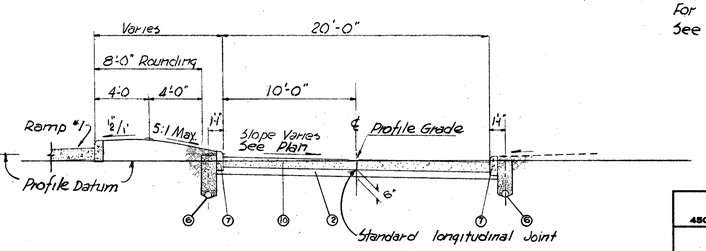
NOTE: Expansion joint material shall meet the requirements of section M-10.02 or M-10.03. The cost of paved slope in place, including premolded expansion joint material shall be included in the contract unit price per square yard bid for Item I-21. Portland Cement Concrete Traffic Island Pavement.



EAST 152 STREET

All extra area - See Sht Nos. 59, 60 & 61 From Sta. 3+52.50 S to Sta. 5+20.80 N





E. 140 & E. 152 MARGINAL ROAD CONNECTORS

East 140th Normal Section From Sta. 2+02.67 S to Sta. 2+14.59 N
East 152nd Normal Section From Sta. 1+96.64 N to Sta. 2+09.88 S

E. 136 STREET

SCALE 3/16" = 1'-0"

All extra area - See Sht. No. 47

LEGEND

For interpretation of key numbers See Sht. No. 5

For Details of I-4 6" Curb Underdrain See Sht No. 5

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

TYPICAL SECTIONS

E. 140TH ST. - E. 152ND ST. - E. 136TH ST.
AND
19' MARGINAL ROAD CONNECTOR

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	RL		JOZ			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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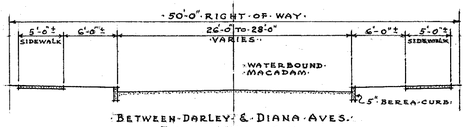
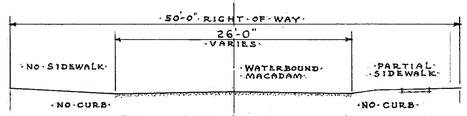
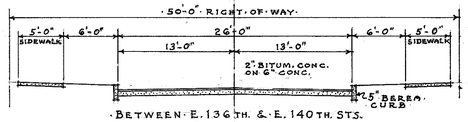
CUY. 2 - 22.97



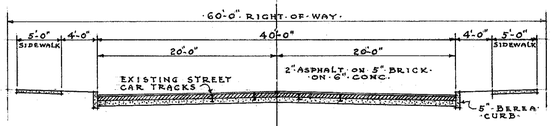
BETWEEN DARLEY & DIANA AVES.
EAST 136TH ST.



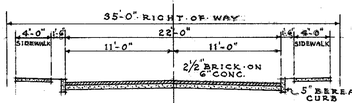
BETWEEN DIANA & McELHATTEN AVES.
EAST 136TH ST.



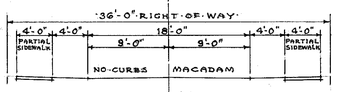
BETWEEN E. 136TH. & E. 140TH. STS.
DIANA AVE.



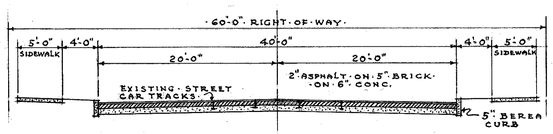
BETWEEN DIANA & THAMES
EAST 140TH ST.



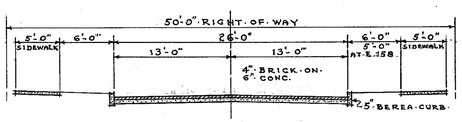
BETWEEN THAMES & SYLVIA
EAST 146TH ST.



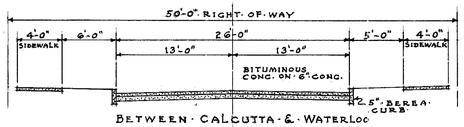
BETWEEN SYLVIA & HALE
EAST 147TH ST.



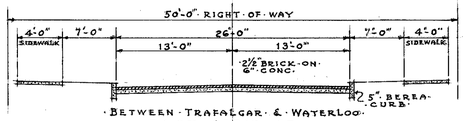
BETWEEN SYLVIA & WATERLOO
EAST 152ND ST.



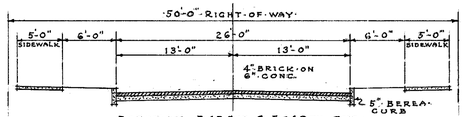
BETWEEN DANIEL & WATERLOO
EAST 156TH ST.
BETWEEN CALCUTTA & WATERLOO
EAST 157TH ST. 4'-0" W. SIDEWALKS & 7'-0" TREE LAWNS
BETWEEN CALCUTTA & WATERLOO
EAST 158TH ST.
LOOKING NORTH



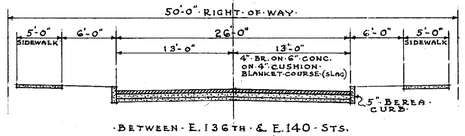
BETWEEN CALCUTTA & WATERLOO
EAST 160TH ST.
LOOKING NORTH



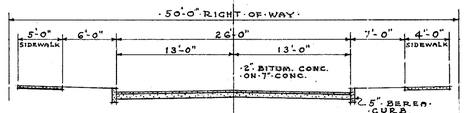
BETWEEN TRAFALGAR & WATERLOO
EAST 162ND ST.
BET. E.156TH. ST. & 264' WESTERLY
DANIEL AVE.



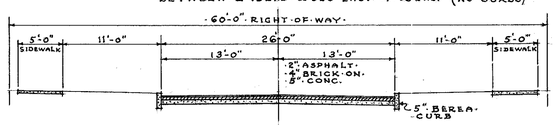
BETWEEN E.136TH & E.140TH STS.
CHAUTAUQUA AVE.
BETWEEN E.136TH & E.140TH STS.
McELHATTEN AVE. 5'-0" W. SIDEWALKS, 7'-0" TREE LAWNS.
BETWEEN E.140TH & E.152ND STS.
DARWIN AVE.
BETWEEN E.140TH & E.152ND STS.
THAMES AVE.
BETWEEN E.140TH & E.152ND STS.
SYLVIA AVE. 4'-0" W. SIDEWALKS, 7'-0" TREE LAWNS
BET. E.152 ST. & 264' WEST OF E.156TH ST.
DANIEL AVE.



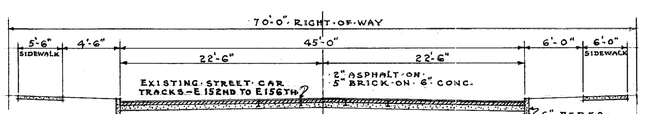
BETWEEN E.136TH & E.140 STS.
OTHELLO AVE.



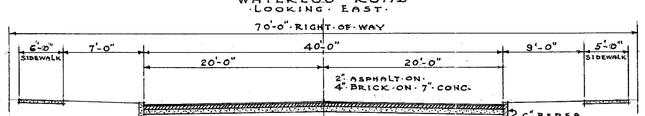
BETWEEN E.147TH & E.152ND STS.
HALE AVE.
BETWEEN E.152ND & 520' EAST OF 152ND. (NO CURBS)



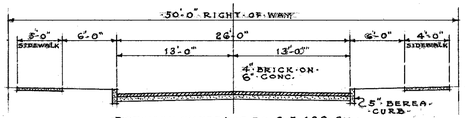
BETWEEN E.142ND & E.152ND STS.
WESTROPP AVE.



BETWEEN 152ND. & ANGLE E. OF E.165TH. (RESURFACED BET. 152ND. & 156TH.)
WATERLOO ROAD
LOOKING EAST

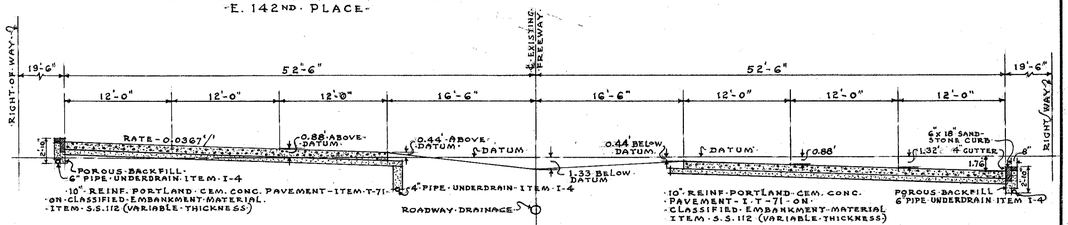


BETWEEN ANGLE E. OF E.165TH ST. & NOTTINGHAM RD.
WATERLOO ROAD
LOOKING EAST

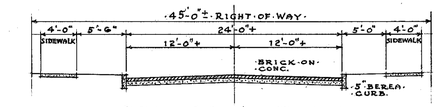


BETWEEN WATERLOO RD. & E.160 ST.
CALCUTTA AVE.
LOOKING EAST

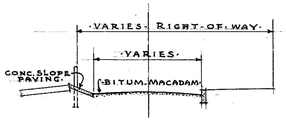
BETWEEN THAMES AVE. & RONDEAU CT.
E. 140 ST. PLACE.
BETWEEN THAMES & SYLVIA AVES.
E. 142ND PLACE.



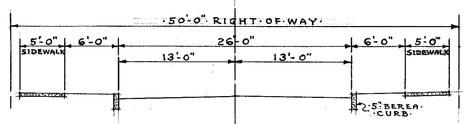
SECTION THRU LAKELAND FREEWAY BETWEEN STA. 117+04.19 AND STA. 132+37.39.



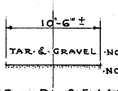
BETWEEN SYLVIA AND WESTROPP
EAST 143RD STREET
LOOKING NORTH



BETWEEN McELHATTEN & OTHELLO AVES.
EAST 136TH STREET
LOOKING NORTH

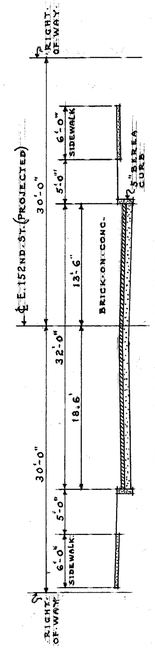


BETWEEN ARGUS AVE. & E.136TH. ST.
DARLEY AVE.
LOOKING EAST



BET. E.140TH PL. & E.142ND. PL.
RONDEAU CT.

BET. E. 161 ST. ST. & 140' E. OF ℄ OF E.165TH. ST.
BURBANK CT.



HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXISTING STREET SECTIONS

NO SCALE

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

13
149

CUYAHOGA COUNTY
CUY-2-22.97

GENERAL NOTES

1. **DESIGN SPEED:**
THE GEOMETRICS FOR THIS PROJECT HAVE BEEN PLANNED FOR A DESIGN SPEED OF 60 MILES PER HOUR.

2.

3. **ELEVATION DATUM:**
ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

4. **R/W MONUMENTS, FEDERAL PROJECT MARKERS & SECTION MARKERS:**
EXISTING R/W MONUMENTS, BENCH MARKS, FEDERAL PROJECT MARKERS AND SECTION MARKERS THAT WILL BE REMOVED BY CONSTRUCTION, SHALL BE PROTECTED BY THE CONTRACTOR AS PER SECTION G-7.09 UNTIL THEY CAN BE WITNESSED, REFERENCED AND RESET BY THE ENGINEER.

5. **CONSTRUCTION LAYOUT STAKES:**
THIS WORK SHALL BE PERFORMED AS SET FORTH IN THE PROPOSAL AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LUMP SUM BID FOR CONSTRUCTION LAYOUT STAKES.

6. **WARNING SIGNS ON LOCAL ROADS CLOSED FOR CONSTRUCTION:**
THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN LIGHTS, SIGNS AND DANGER SIGNALS ON EACH LOCAL ROAD AT ITS NEAREST INTERSECTION IN EACH DIRECTION FROM THE INTERSTATE PROJECT DURING THE PERIOD THE LOCAL ROAD IS CLOSED FOR RECONSTRUCTION OR RELOCATION. STANDARD ROAD CLOSED SIGNS SHALL BE 40" x 24" SIZE AND EACH SHALL BE MOUNTED ON A MOVABLE GATE AS DETAILED ON STANDARD CONSTRUCTION DRAWING NO. G-7.07. LIGHTS SHALL MEET THE REQUIREMENTS SET FORTH IN SECTION G-7.07 OF THE SPECIFICATIONS. COST OF FURNISHING, ERECTING, MAINTAINING AND REMOVING LIGHTS, SIGNS AND GATES SHALL BE INCLUDED IN THE CONTRACT LUMP SUM BID FOR MAINTAINING TRAFFIC.

7. **ROAD NAME SIGNS:**
ALL COUNTY, TOWNSHIP, CITY OR VILLAGE ROAD OR STREET NAME SIGNS THAT WILL BE DISTURBED BY THE CONSTRUCTION SHALL BE CAREFULLY REMOVED AND STORED BY THE CONTRACTOR FOR DISPOSAL BY THEIR RESPECTIVE OWNERS. PAYMENT FOR THIS OPERATION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION.

8. **FIELD OFFICE:**
THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE FOR THE EXCLUSIVE USE OF THE STATE EMPLOYEES, IN ACCORDANCE WITH SECTION S-0.01(b), HAVING A MINIMUM OF 500 SQUARE FEET OF FLOOR SPACE. THE CONTRACTOR SHALL HAVE A TELEPHONE INSTALLED AND MAINTAINED IN THE FIELD OFFICE DURING THE CONSTRUCTION OF THIS PROJECT. CONTRACTOR SHALL ALSO INSTALL WIRING AND OUTLETS SUITABLE FOR CONNECTING TO OFFICE EQUIPMENT, AND PROVIDE 110 VOLT ALTERNATING CURRENT DURING THE CONSTRUCTION OF THIS PROJECT.

9. **UTILITIES:**
THE CONTRACTOR SHALL NOTIFY AT LEAST 48 HOURS BEFORE BREAKING GROUND ALL PUBLIC SERVICE CORPORATIONS HAVING WIRE, POLES, PIPE, CONDUITS, MANHOLES, OR OTHER STRUCTURES THAT MAY BE AFFECTED BY THIS OPERATION, INCLUDING ALL STRUCTURES WHICH ARE AFFECTED AND SHOWN ON THESE PLANS. THE PUBLIC SERVICE CORPORATIONS WORK MAY HAVE TO BE PERFORMED IN SEVERAL OPERATIONS, IF SO REQUIRED BY THE PHASING OF THE CONTRACTOR'S SCHEDULE. ANY AND ALL WORK REQUIRED FOR PUBLIC OR PRIVATE UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THEIR RESPECTIVE OWNERS, UNLESS OTHERWISE NOTED ON THESE PLANS.

10. **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 MAKES NO GUARANTEES AS TO THEIR ACCURACY OR COMPLETENESS.

11. **WORK INVOLVING RAILROADS:**
ALL WORK ADJACENT TO OR WITHIN ANY RAILROAD RIGHT-OF-WAY SHALL BE SUBJECT TO THE APPROVAL OF THE RAILROAD COMPANY AND TO INSPECTION AT ALL TIMES BY ITS PROPERLY DESIGNATED REPRESENTATIVE. SAFETY AND CONTINUITY OF OPERATIONS OF THE RAILROAD TRAFFIC SHALL BE OF THE FIRST IMPORTANCE AND SHALL AT ALL TIMES BE PROTECTED AND SAFEGUARDED. THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO THE CHIEF ENGINEER OF THE RAILROAD, OR HIS DULY AUTHORIZED REPRESENTATIVE, AT LEAST 24 HOURS IN ADVANCE OF THE TIME THE CONTRACTOR INTENDS TO COMMENCE ANY WORK ON THE RAILROAD RIGHT-OF-WAY. WHENEVER SUCH WORK, IN THE OPINION OF THE ENGINEER, MAY AFFECT THE SAFETY OF THE TRAINS, OR INVOLVES EXCAVATION ADJACENT TO THE RAILROAD, THE METHOD OF DOING SUCH WORK SHALL BE SUBMITTED TO THE STATE AND TO THE CHIEF ENGINEER OF THE RAILROAD, OR HIS DULY AUTHORIZED REPRESENTATIVE, FOR APPROVAL. NO SUCH WORK SHALL BE COMMENCED OR PROSECUTED WITHOUT PRIOR APPROVAL OF BOTH AGENCIES. APPROVAL OF SUCH WORK SHALL NOT BE CONSTRUED AS A RELEASE FROM RESPONSIBILITY OR LIABILITY FOR ANY DAMAGE WHICH THE RAILROAD MAY SUFFER OR FOR WHICH IT MAY BE HELD LIABLE BY THE ACTS OF THE CONTRACTOR OR THOSE OF HIS SUBCONTRACTORS OR HIS OR THEIR EMPLOYEES.

12. **HEAVY EQUIPMENT:**
THE CONTRACTOR SHALL EXERCISE CARE IN THE USE OF HEAVY EQUIPMENT OVER FINISHED WORK AND WILL BE REQUIRED TO REMOVE AND REPLACE ANY COMPLETED WORK DESTROYED THEREBY. CULVERTS SHALL BE BACKFILLED TO A HEIGHT OF FOUR FEET BEFORE LOADED EARTH-MOVING EQUIPMENT IS PERMITTED TO CROSS THE TRENCH. HEAVY EQUIPMENT SHALL NOT BE OPERATED OVER ANY COMPLETED LAYER OF EMBANKMENT, COMPACTED SUBGRADE OR SUBBASE IF SUCH OPERATIONS TENDS TO DESTROY THE SOIL STRUCTURE OR PIPE UNDERDRAINS, HOWEVER, IF SUCH OPERATIONS CANNOT BE AVOIDED, THE CONTRACTOR WILL BE REQUIRED TO REDUCE THE SIZE OF LOADS TO AN EXTENT THAT DAMAGE DOES NOT OCCUR.

13. **REPLACEMENTS:**
THE CONTRACTOR SHALL REPLACE AT HIS OWN EXPENSE ANY ITEM NOT SPECIFICALLY LISTED FOR REMOVAL THAT IS DAMAGED OR DESTROYED BY HIS OPERATIONS.

14. **SPECIAL DITCHES:**
FOR SPECIAL DITCH GRADES, SEE CROSS SECTIONS.

15. **ROUNDING OF CORNERS ON CROSS SECTIONS:**
THE ROUNDED CORNERS, AS SHOWN ON STANDARD DRAWING RI-1, APPLY TO ALL CROSS SECTIONS UNLESS OTHERWISE SHOWN ON THE TYPICAL SECTIONS.

16. **REMOVAL OF BUILDINGS:**
WHERE THE PLAN NOTES A STRUCTURE TO BE REMOVED UNDER ITEM S-24 THE ENTIRE BUILDING, WITHIN AND WITHOUT THE RIGHT-OF-WAY, SHALL BE REMOVED TO GROUND LEVEL AND THE BASEMENT FILLED AS PER SECTION E-1.

17. **EXISTING WATER WELLS:**
DUG WELLS AND CISTERNS ENCOUNTERED WITHIN THE WORK LIMITS SHALL BE FILLED WITH ROCK OR GRANULAR MATERIAL. DRILLED WELL CASING SHALL BE REMOVED TO AN ELEVATION APPROXIMATELY THREE FEET BELOW FINISHED GRADE AND COVERED WITH A PRECAST CONCRETE SLAB OR A LARGE ROCK. PRIOR TO CONSTRUCTION OF EMBANKMENT CONTRACTOR SHALL REMOVE ANY MASONRY, SURROUNDING A WELL, WITHIN THREE FEET OF FINISHED GRADE. PUMPS AND OTHER APPURTENANCES SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY HIM. THE COST OF FILLING OR CAPPING OF WELLS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER CUBIC YARD OF ROADWAY EXCAVATION.

18. **LOCATION AND SIZE OF PIPE:**
THE LOCATION, TYPE, DEPTH AND SIZE OF ALL EXISTING PIPES ARE SHOWN AS NEAR EXACT AS THE AVAILABLE INFORMATION WILL PERMIT. THE STATE WILL NOT BE RESPONSIBLE FOR ANY VARIATIONS FOUND DURING CONSTRUCTION.

19. **PLUGGING PIPE ENDS:**
THE UPSTREAM ENDS OF PIPE LINES OR TILE LINES INTERCEPTED BY EARTHWORK OPERATIONS SHALL BE EFFECTIVELY BLOCKED AND COVERED. BROKEN PIECES AND PORTIONS OF PIPE OR TILE SHALL BE REMOVED UNTIL A WHOLE LENGTH IS ENCOUNTERED, WHICH SHALL BE BLOCKED WITH CONCRETE, FLAT STONE OR BRICK LAID IN MORTAR, OR A PRECAST CLAY OR CONCRETE STOPPER. PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION.

20. **EXISTING DRAINAGE:**
IT IS ANTICIPATED THAT SOME EXISTING PIPE DRAINS OTHER THAN THOSE CARRYING DOMESTIC WASTE WILL BE INTERCEPTED AND SEVERED BY THE PROPOSED ROADWAY AND CHANNEL EXCAVATIONS. IN ANY SUCH CASE A SECTION OF THE PIPE SO SEVERED SHALL BE REMOVED TO MAKE WAY FOR THE NECESSARY EXCAVATION. IF THE REMAINING PIPE FLOWS AWAY FROM THE EXCAVATION AND THE PLANS DO NOT INDICATE THAT IT IS TO BE USED AS AN OUTLET, IT SHALL BE BLOCKED EFFECTIVELY AT ITS UPPER END. IF THE PIPE FLOWS TOWARD THE DITCH EXCAVATION THE TILE SHALL BE PRESERVED AND A PROPER NEW OUTLET PROVIDED. EXISTING PIPES WHICH CROSS THE ROADWAY BENEATH THE SIDE DITCHES AND MEDIAN SWALE MAY BE REPLACED IN THEIR ENTIRETY IF DIRECTED BY THE ENGINEER. THE FOLLOWING AMOUNTS HAVE BEEN PROVIDED FOR THE ABOVE PURPOSE AND FINAL PAYMENT WILL BE MADE ON THE BASIS OF THE FINAL ESTIMATE AND FINAL MEASUREMENT.

600 LIN. FT. EACH OF I-2, 8", 10" and 12" STORM SEWER UNDER PAVEMENT, SECTION M-6.5(b) or M-6.8(b).

21. **ABANDONED SEWERS AND DRAINS:**
THE CONTRACTOR SHALL PLUG ALL EXISTING SEWERS AND DRAINS WHICH WERE OR ARE TO BE ABANDONED. SATISFACTORY SEALING SHALL CONSIST OF CONSTRUCTING AN 8" THICK BRICK MASONRY BULKHEAD OR EQUIVALENT INSIDE THE PIPE, OR IN ANY MANNER SATISFACTORY TO THE ENGINEER. THE COST OF THIS WORK SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE IN A MANNER SATISFACTORY TO THE ENGINEER AND WILL BE INCLUDED FOR PAYMENT WITH THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION.

22. **EXISTING HOUSE DRAINS:**
THE REMOVAL OF ALL EXISTING HOUSE CONNECTIONS, WHICH INCLUDES SANITARY, YARD, ROOF, BASEMENT, OR OTHER SIMILAR PIPE DRAINS, WITHIN THE ROADWAY CONSTRUCTION LIMITS WILL BE CLASSIFIED AND PAID FOR AS ROADWAY EXCAVATION, UNLESS OTHERWISE ITEMIZED FOR PAYMENT IN THE PLANS. PAYMENT FOR PLUGGING OF PIPES WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION.

23. **PIPE:**
WHEN BELL AND SPIGOT PIPE IS USED, ANY NECESSARY PIPE CUT-OFFS SHALL 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 COLLAR 12" LARGER THAN THE OUTSIDE DIAMETER AND 12" IN LENGTH. THE COST OF THE JOINT AND COLLAR SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR PERTINENT PIPE ITEM.

24. **PIPE JOINTING MATERIAL:**
THE CONTRACTOR WILL BE PERMITTED TO USE, AS AN ALTERNATE TO THOSE JOINT MATERIALS OUTLINED IN THE SPECIFICATIONS, SUCH TRADE NAME JOINTS AS "WEDGE-LOCK", "TYLOX", OR "SLIP-SEAL" OR EQUAL AS APPROVED BY THE ENGINEER.

25. **PIPE CONNECTIONS:**
LONGITUDINAL PIPE LINE WHEN CONNECTED TO PIPE CULVERTS SHALL BE JOINTED WITH CULVERT PIPE SPECIALS, ITEM I-5. THE PIPE SPECIAL SPUR AND THE INITIAL EIGHT FOOT LENGTH OF LONGITUDINAL PIPE SHALL BE OF THE SAME KIND AND CLASS OF PIPE AS USED IN THE PIPE CULVERT AND SHALL BE JOINTED BY MEANS OF A CONCRETE COLLAR, 6" THICK BY 12" LONG, OR METAL BAND. THE INITIAL EIGHT FEET OF LONGITUDINAL PIPE SHALL BE MANUFACTURED AS A SINGLE UNIT, WITH THE EXCEPTION OF RIGID PIPES 18 INCHES IN DIAMETER AND SMALLER, IN WHICH CASE TWO 4 FOOT LENGTHS MAY BE SHOP JOINTED BY MEANS OF REINFORCED CONCRETE COLLAR STRONG ENOUGH TO RESIST SEPARATION OF THE JOINT BECAUSE OF BACKFILL LOADING. ALL ADDITIONAL COST OF PROVIDING THE CULVERT PIPE AND COLLARS IN THE INITIAL SECTION OF THE LONGITUDINAL PIPE SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR PIPE SPECIALS.

26. **PIPE FOR SUBGRADE DRAINAGE:**
10 LIN. FT. OF 8" PLAIN CORRUGATED METAL PIPE, SEC. M-6.4(a), SHALL BE FURNISHED AND PLACED BY THE CONTRACTOR IN MANHOLES, CATCH BASINS, OUTLETS AND INLETS FOR EACH SUBGRADE DRAIN, WHERE AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR EACH WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER LINEAL FOOT FOR ITEM I-4 PIPE OUTLETS FOR UNDERDRAINS.

GENERAL NOTES

27. LONGITUDINAL UNDERDRAINS:
IT IS INTENDED THAT DEEP LONGITUDINAL UNDERDRAINS BE PROVIDED UNDER EACH OUTSIDE SHOULDER FOR ITS ENTIRE LENGTH THROUGH EACH SOIL CUT. AT EACH END OF EACH SOIL CUT, A TRANSVERSE DRAIN IS LOCATED AT THE POINT WHERE SUBGRADE CHANGES FROM CUT TO FILL, AND SHALL DISCHARGE INTO THE DEEP UNDERDRAIN. IT IS ALSO INTENDED THAT SHALLOW LONGITUDINAL UNDERDRAINS, SEC. M-6.4(h) BE PROVIDED UNDER EACH OUTSIDE SHOULDER FOR ITS ENTIRE LENGTH THROUGH EACH ROCK CUT. THE ENGINEER WILL MAKE WHATEVER ADJUSTMENTS IN THE LENGTHS OF UNDERDRAINS OR LOCATIONS OF TRANSVERSE UNDERDRAINS THAT ARE NECESSARY TO ACCOMPLISH THE ABOVE.

28. EXISTING FLEXIBLE PAVEMENT:
WITHIN THE LIMITS OF CONSTRUCTION, WHERE THE EXISTING FLEXIBLE PAVEMENT WILL HAVE LESS THAN SIX (6") INCHES OF FILL PLACED UPON IT, THE PAVEMENT SHALL BE THOROUGHLY SCARIFIED FOR ITS FULL DEPTH, MIXED WITH SUFFICIENT SOIL, AND PROPERLY RECOMPACTED TO INSURE THE ELIMINATION OF ANY PLANE OF SEPARATION BETWEEN IT AND THE EMBANKMENT PLACED THEREON. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION. WHERE FLEXIBLE PAVEMENT IS NOTED TO BE REMOVED, THE COST OF SO DOING SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION.

29. PAVEMENT REMOVAL:
ALL RIGID TYPE PAVEMENT LOCATED WITHIN THE LIMITS OF THE RIGHT-OF-WAY SHALL BE REMOVED AS PER PLAN. ALL EXISTING STREET CAR TRACKS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. PAVEMENT LOCATED BEYOND THE LIMITS OF OTHER CONSTRUCTION AND LISTED FOR REMOVAL SHALL BE REMOVED IN ITS ENTIRETY, THE ROADWAY SHALL THEN BE PLOWED, HARROWED AND DRAGGED TO A SMOOTH GRADE, THE OLD DITCHES FILLED, AND THE ENTIRE AREA SHAPED TO BLEND WITH THE SURROUNDING TERRAIN. COST OF ALL THE ABOVE SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM E-8, REMOVAL AND DISPOSAL OF EXISTING PAVEMENT AND REMOVAL AND DISPOSAL OF EXISTING BASE. THE ENTIRE AREA SHALL THEN BE SEEDED AND MULCHED AS CALLED FOR ELSEWHERE IN THESE GENERAL NOTES.

30. DRIVEWAY AND SIDEWALK REMOVAL:
THIS ITEM SHALL CONSIST OF THE REMOVAL, AND DISPOSAL IN ACCORDANCE WITH SECTION E-1.06(a) OF THE SPECIFICATIONS, OF ALL DRIVEWAYS, SIDEWALKS, AND MISCELLANEOUS SLABS WITHIN THE LIMITS OF THE RIGHT-OF-WAY. THE COST OF THIS WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER CUBIC YARD BID FOR ITEM E-1 ROADWAY EXCAVATION.

31. GUARD RAIL REMOVAL:
THE REMOVAL OF ANY GUARD RAIL OR GUARD RAIL POSTS LYING WITHIN THE LIMITS OF ROADWAY EXCAVATION OR EMBANKMENT (AND NOT SPECIFICALLY PAID FOR UNDER A SEPARATE ITEM) IS INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION. ALL RESULTING MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY HIM AT NO EXTRA COST TO THE STATE, EXCEPT THAT THE STEEL RAIL ON ALL EXISTING STEEL BEAM TYPE AND STEEL CABLE ON STEEL CABLE TYPE GUARD RAILS SHALL BE STORED ON THE RIGHT-OF-WAY FOR DISPOSAL AT THE DIRECTION OF THE ENGINEER.

32. GUARD RAIL POSTS: 6"X8" SQUARE SAWED PRESSURE TREATED WOOD POSTS SHALL BE USED FOR BARRIER TYPE RAIL. — FOR STANDARD TYPE GUARD RAIL, ROUND WOOD POSTS MAY BE USED.
FOR DETAILS OF POSTS SEE STANDARD DRAWING I-15 No. 1

33. GUARD RAIL PARAPET:
COST OF PROVIDING AND INSTALLING ANCHOR FOR CONNECTING DEEP STEEL BEAM GUARD RAIL TO BRIDGE PARAPET IS INCLUDED IN THE BRIDGE QUANTITIES FOR PAYMENT. CONTRACTOR SHALL PROVIDE ONE ADDITIONAL GUARD RAIL POST IN THE CENTER OF THE FIRST PANEL OF DEEP STEEL BEAM GUARD RAIL WHERE ANCHORED TO THE PARAPET, COST OF WHICH SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER LINEAL FOOT FOR GUARD RAILS.

34. GUARD RAIL POST ANCHOR:
AT LOCATIONS WHERE PIER FOOTINGS INTERFERE WITH INSTALLATION OF FULL LENGTH GUARD RAIL POSTS, SHORT POSTS SHALL BE PROVIDED AND SHALL BE ANCHORED IN ACCORDANCE WITH THE DETAIL SHOWN ELSEWHERE ON THE PLANS. COST OF PROVIDING AND INSTALLING NECESSARY ANCHORS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER LINEAL FOOT FOR GUARD RAILS.

35. FLARING GUARD RAIL AT BRIDGES:
GUARD RAIL ON CROSS ROADS SHALL BE FLARED TO MEET THE BRIDGE RAILING IN SUCH A MANNER THAT THE CHANGE IN ALIGNMENT OF THE GUARD RAIL SHALL NOT EXCEED 1 IN 20.

36. EROSION CONTROL:
SODDED CHANNELS SHALL BE PROVIDED AT ENDS OF BRIDGES WHERE REQUIRED BY THE PLANS. COST OF ALL WORK NECESSARY TO COMPLETE THE ITEM SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD BID FOR ITEM L-10, SODDING FOR SPECIAL BERM AND SLOPE PROTECTION.
AN 18 INCH WIDE STRIP OF SOD SHALL BE USED ON EACH SIDE OF TYPE 1 OR 2 PAVED GUTTER FOR ITS ENTIRE LENGTH. SODDING WILL BE PAID FOR UNDER L-10 SODDING. THE TOTAL QUANTITY OF L-10 SODDING USED FOR THIS PURPOSE IS 163 SQUARE YARDS. THE ENGINEER WILL CHECK LOCATIONS AND QUANTITIES OF THE SODDING AND PAVED GUTTER PROVIDED FOR EROSION CONTROL AND MAKE NECESSARY ADJUSTMENTS, WHERE REQUIRED, DUE TO FIELD CONDITIONS.

37. MANHOLE CASTINGS:
MANHOLE CASTINGS LOCATED IN SLOPES SHALL BE SET SO THAT THE COVER WILL CONFORM WITH THE PLAN OF THE SLOPED SURFACES.

38. MANHOLES, CATCH BASINS, CURB INLETS AND CASTINGS:
ALL MANHOLES, CATCH BASINS, AND CURB INLETS CONSTRUCTED, AND CASTINGS FURNISHED FOR SAME, FOR MARGINAL ROADS AND CROSS STREETS SHALL BE SPECIAL AND IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE CITY OF CLEVELAND AND SHALL CONFORM TO THE DETAILS SHOWN ON THESE PLANS. ALL OTHER DRAINAGE STRUCTURES AND CASTINGS FOR SAME SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STATE'S STANDARD CONSTRUCTION DRAWINGS.

39. MANHOLES REBUILT:
IN THOSE INSTANCES WHERE THE CASTING GRADE IS TO BE RAISED, ALL OF THE CORBELLED PORTION OF THE MANHOLE SHALL BE REMOVED AND THE MANHOLE RECONSTRUCTED TO THE PROPER GRADE. IN THOSE INSTANCES WHERE THE CASTING GRADE IS TO BE LOWERED THE MANHOLE SHALL BE REMOVED TO A POINT 4'-0" BELOW THE BOTTOM OF THE CASTING AT ITS NEW GRADE AND THEN REBUILT TO THE PROPER GRADE. MANHOLE STEPS WILL BE REQUIRED WITHIN THE LIMITS OF THE REBUILT PORTIONS AND SHALL CONFORM TO THE DETAILS AND NOTES AS SHOWN ON STANDARD CONSTRUCTION DRAWING #I-8 No. 1. THE EXISTING CASTINGS SHALL BE CAREFULLY SALVAGED AND RESET ON THE REBUILT STRUCTURE. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF SECTION I-8 OF SPECIFICATIONS.

40. SALVAGED CASTINGS:
ALL EXISTING SEWER CASTINGS SALVAGED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND WILL BE DISPOSED OF BY HIM. BACKFILLING MATERIAL USED TO FILL ABANDONED MANHOLES, CATCH BASINS, AND INLETS SHALL BE SAND. THE COST OF PERFORMING THE ABOVE WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM I-16.

41. STORM SEWERS:
THE CONTRACTOR WILL BE REQUIRED TO CONNECT SOME OF THE PROPOSED STORM SEWERS INTO EXISTING MANHOLES AND CATCH BASINS. ALL COST OF PERFORMING THE ABOVE WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER LINEAL FOOT BID FOR THE PERTINENT STORM SEWER ITEM.

42. I-22 UNDER APPROACH SLABS:
THE AREA BETWEEN THE BOTTOM SURFACE OF THE APPROACH SLAB AND THE SUBGRADE SHALL BE FILLED WITH ITEM I-22 SUBBASE, GRADING A OR B. THE MINIMUM DEPTH OF SUBBASE SHALL BE SIX (6") INCHES.

43. I-22 SUBBASE GRADING A OR B
MATERIAL FOR THIS ITEM SHALL MEET THE REQUIREMENTS FOR ITEM I-22, GRADING A OR B, EXCEPT THAT FOR BOTH GRADINGS THE PERCENT PASSING THE NO. 200 SIEVE SHALL NOT EXCEED TEN.

44.

45. SALVAGED CURB:
SANDSTONE CURB TO BE SALVAGED FOR RE-USE AT SUCH LOCATIONS AS DESIGNATED ON THE PLANS, SHALL BE NEATLY STOCKPILED, WHERE AND AS DIRECTED BY THE ENGINEER. SALVAGED CURB SHALL BE PLACED IN A CONTINUOUS LINE NOT INTERSPERSED WITH NEW CURB.

46. CONCRETE CURBS, TYPE 6, A AND B:
THIS ITEM SHALL CONSIST OF PORTLAND CEMENT CONCRETE CURBS, AS SHOWN IN THE DETAILS AND AT SUCH LOCATIONS AS DESIGNATED ON THE PLANS. THE COST OF CONCRETE CURB, TYPE A SHALL INCLUDE THE TRANSITION IN WIDTH FROM TYPE A TO B. THE COST OF CONCRETE CURBS, TYPE B & 6 SHALL INCLUDE THE TRANSITION IN ELEVATION AT THE END OF THIS CURB AS SHOWN IN THE DETAILS ON THE PLANS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF SECTION I-12 OF THE SPECIFICATIONS AND PAYMENT FOR THESE ITEMS WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT BID FOR ITEM I-12 CONCRETE CURB, SPECIAL TYPE A, CONCRETE CURB, STANDARD TYPE 6, AND CONCRETE CURB, SPECIAL TYPE B.

47. CONCRETE MEDIAN:
THIS ITEM SHALL CONSIST OF PORTLAND CEMENT CONCRETE MEDIAN CONSTRUCTED AS SHOWN IN THE DETAILS ON THESE PLANS AND ON STANDARD CONSTRUCTION DRAWINGS I-21-23, TYPE 1 OR 2 IN ACCORDANCE WITH THE PROVISIONS OF SECTION I-21 OF THE SPECIFICATIONS. PAYMENT FOR THIS ITEM WILL BE MADE AT THE CONTRACT UNIT PRICE PER SQUARE YARD BID FOR ITEM I-21 STANDARD TYPE 1 OR TYPE 2 PORTLAND CEMENT CONCRETE MEDIAN PAVEMENT.

48. SIDEWALKS:
THIS ITEM SHALL CONSIST OF CEMENT CONCRETE SIDEWALK CONSTRUCTED OVER A ONE-HALF (1/2) INCH SUBBASE OF SAND AND IN ACCORDANCE WITH THE PROVISIONS OF SECTION I-13 OF THE SPECIFICATIONS.

49. BUMPER BLOCKS:
THIS ITEM SHALL CONSIST OF A SANDSTONE BUMPER BLOCK, AS SHOWN IN THE DETAILS AND AT SUCH LOCATIONS AS DESIGNATED ON THE PLANS. THE COST OF THIS ITEM SHALL INCLUDE THE NECESSARY DRESSING, OF THE FIRST LENGTH OF STANDARD CURB EACH WAY FROM THE BUMPER BLOCK, REQUIRED TO ACCOMPLISH THE DESIRED TRANSITION SHOWN ON THE DETAILS, AS WELL AS THE NECESSARY LABOR AND MATERIAL REQUIRED TO EXCAVATE, BACKFILL, FURNISH AND INSTALL JOINT MATERIAL, AND COMPLETE THIS ITEM. PAYMENT FOR THIS ITEM WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH BID FOR ITEM I-11 BUMPER BLOCK.

50. REMOVAL OF TREES AND STUMPS:
THE SIZE AND NUMBER OF TREES AND STUMPS SHOWN BELOW FOR REMOVAL, UNDER THE CONSTRUCTION AS DETAILED ON THESE PLANS, ARE AS NEARLY CORRECT AS AVAILABLE INFORMATION PERMITS. THE STATE OF OHIO WILL NOT BE RESPONSIBLE FOR ANY VARIATIONS FOUND DURING CONSTRUCTION. ALL TREES AND STUMPS WITHIN THE LIMITS OF THE RIGHT-OF-WAY ON THE MAIN FACILITY AND THE WORK LIMITS ON THE CROSSROADS AND CHANNEL IMPROVEMENTS WILL BE REMOVED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. TREES TO BE PRESERVED WILL BE CONSPICUOUSLY MARKED BY THE ENGINEER. NO TREES SHALL BE REMOVED UNTIL SPECIFICALLY MARKED FOR REMOVAL BY THE ENGINEER. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF ROADWAY EXCAVATION. THE FOLLOWING APPROX. AMOUNTS HAVE BEEN PROVIDED FOR ESTIMATING:

SIZE	12" to 18"	18" to 24"	24" to 30"	30" to 36"	36" to 42"	42" to 48"
TREES	271	109	33	3	1	1
STUMPS	1	1	-	-	-	-

51. L-9 COMMERCIAL FERTILIZER:
ALL AREAS TO BE SEEDED UNDER ITEM L-9 OR SODDED UNDER ITEM L-10 SHALL HAVE COMMERCIAL FERTILIZER, 12-12-12, APPLIED AT THE RATE SPECIFIED IN SECTION L-9.10 OF THE SPECIFICATIONS.

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52. SEEDING AND PROTECTING:
QUANTITIES PROVIDED FOR SEEDING THE MAIN FACILITY ARE CALCULATED FOR ALL SOIL AREAS BETWEEN RIGHT-OF-WAY LINES. ON CROSS ROADS OR OTHER UNFENCED AREAS, SEEDING HAS BEEN CALCULATED FOR ALL SOIL AREAS LOCATED BETWEEN THE WORK LIMITS, INCLUDING RUNAROUNDS. SEED SHALL BE SOWN AT THE RATE SPECIFIED IN L-9.11 OF THE SPECIFICATIONS. SEEDING FORMULA FOR ALL SEEDED AREAS SHALL BE IN ACCORDANCE WITH THE FOLLOWING: 70% - KENTUCKY 31 FESCUE, 20% - KENTUCKY BLUE GRASS, 5% - REDTOP, 5% - ALSIKE CLOVER, EXCEPT IN AREAS DESCRIBED IN NOTE Nº 57 BELOW.

53.

54. FENCE, TYPE C:
THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING FENCE AND GATES AS SHOWN ON STANDARD CONSTRUCTION DRAWINGS F-1, F-2 & F-3 AND IN THE SPECIAL DETAILS. POSTS AND GATES SHALL BE SET TO THE DIMENSIONS CALLED FOR ON THE PLANS. THE FABRIC SHALL BE FASTENED TO THE SIDE OF THE POST AWAY FROM THE LIMITED ACCESS FREEWAY. ALL THE WORK NECESSARY TO COMPLETE THESE ITEMS SHALL BE DONE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION NO. 18. PAYMENT FOR THE ABOVE ITEMS WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT BID FOR S.S. 18 FENCE TYPE C AND PER EACH BID FOR S.S. 18 FENCE GATES, TYPE C.

55.

56. COOPERATION:
IT IS THE INTENT OF THE DEPARTMENT TO AWARD ANOTHER CONTRACT, DESIGNATED AS SECTION CUY 2-24.33, LYING IMMEDIATELY EAST OF THE EASTERN LIMITS OF THIS SECTION. IT SHOULD ALSO BE UNDERSTOOD BY THE CONTRACTOR FOR THIS SECTION THAT CONTRACTORS FOR THE VARIOUS PUBLIC SERVICE CORPORATIONS, OR THEIR WORK FORCES, WILL BE WORKING IN THIS AREA. THERE WILL BE NO ALLOWANCE MADE BY THE DEPARTMENT FOR ANY DELAY OR INCONVENIENCE DUE TO LACK OF COOPERATION BETWEEN THE CONTRACTOR FOR THIS SECTION AND THE VARIOUS OTHER CONTRACTORS OR WORK FORCES.

57. SEEDING AND PROTECTING (Continued):
In areas between curb and sidewalk and areas in front of residences at locations tabulated below, the following seeding formula shall be used: Illahee fescue 60%, Kentucky blue grass 30%, White Dutch clover 10%.

LOCATION	SIDE	FROM STATION	TO STATION
E. 136 St.	L.&R.	0+15	3+28
E. 136 St.& Diana	R.	2+46.97(E.136)	0+42.92 (Diana)
Ramp Nº 2	R.	5+00	7+07.64
Mc Elhatten Ave.	L.&R.	6+75	8+57.05
E. 140 St.	L.&R.	3+02.27(S.)	3+00 (N.)
North Marginal Rd.	L.	151+37.34	179+54.60
South Marginal Rd.	R.	149+88.95	177+61.87
South Marginal Rd.	R.	178+30.56	204+00
Westropp Ave. Relocation	L.&R.	1+43.92	5+41.97
E. 152 St.	L.&R.	3+52.50 (S.)	5+20.80 (N.)
Daniel Ave. Cul de Sac	L.	0+00	1+91.21
Calcutta Ave.	L.	4+77.99	6+23.01
E. 157 to E.158 Connection	L.&R.	0+00	3+05.30

58. GRADING TOLERANCES:
For areas in front of residences and areas between curb and sidewalk at locations listed in note 57 above, the seed bed shall be prepared to provide a smooth surface. All stones larger than one inch in diameter shall be removed from the surface of the seed bed. Hand raking will be required in areas inaccessible to machines and hand raking may be required, if directed by the Engineer, in all the aforementioned areas if machines used do not provide results equivalent to those obtained by hand raking. Cost of this additional work shall be included in the unit price bid for Item E-1, Roadway Excavation.

CONSTRUCTION PROCEDURE AND TRAFFIC MAINTENANCE
(SEE SHEET Nº 15-A)

TWO WAY TRAFFIC SHALL BE MAINTAINED ON EXISTING LAKELAND FREEWAY, DURING ALL CONSTRUCTION EAST OF STATION 139+00 WITH THE EXCEPTION OF RAMP No. 1 FROM STATION 15+00 NORTH TO LAKE SHORE BOULEVARD.

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON E. 140th STREET AND E. 152nd STREET OR THEIR RESPECTIVE TEMPORARY RUNAROUND ROADS. CONTRACTOR SHALL BE RESPONSIBLE FOR PHASING THE CONSTRUCTION PROCEDURE SUBJECT TO THE APPROVAL OF THE ENGINEER. OVERHEAD CONSTRUCTION OPERATIONS WILL NOT BE PERMITTED OVER TRAFFIC UNLESS PROTECTION OF TRAFIC IS PROVIDED AS INDICATED ON SHEETS No. 117 AND 126

DURING THE CONSTRUCTION AT E. 140th STREET, McELHATTEN SHALL BE CLOSED TO TRAFFIC EAST OF STATION 7+50.

RAMPS Nos. 5, 8 and 9 SHALL BE CLOSED TO TRAFFIC AT ALL TIMES.

ALL CONSTRUCTION, EXCEPT WHERE THE TEMPORARY MEDIAN PAVEMENT REPLACES THE PROPOSED MEDIAN, SHALL BE COMPLETED EAST OF STATION 139+00 BEFORE THE EXISTING FREEWAY TRAFFIC IS DISTURBED.

CONSTRUCT TEMPORARY MEDIAN CROSS-OVER (FOR MAINTAINING TRAFFIC DURING CONSTRUCTION OF FREEWAY WEST OF STATION 139+00) AT THE WEST END OF FREEWAY CONSTRUCTION AS SHOWN ON EXTRA AREA SHEET NO. 66 OR AS DIRECTED BY THE ENGINEER.

DURING THE CONSTRUCTION OF THE EASTBOUND FREEWAY FROM STATION 117+04.19 TO STATION 139+00 AND RAMP NO. 1, TWO LANES OF TRAFFIC SHALL BE MAINTAINED ON THE WESTBOUND LANE OF EXISTING LAKELAND FREEWAY. EASTBOUND FREEWAY SHALL BE CLOSED TO TRAFFIC AT EDDY ROAD EASTBOUND OFF RAMP DURING THE HOURS FROM 7:00 P.M. TO 4:00 P.M. THIS EASTBOUND TRAFFIC SHALL USE LAKE SHORE BOULEVARD. FROM 4:00 P.M. TO 7:00 P.M. THE EASTBOUND TRAFFIC SHALL USE THE EXISTING WESTBOUND FACILITY VIA THE TEMPORARY MEDIAN STRIP PAVEMENT TO EXISTING LAKE SHORE BOULEVARD, AND THE WESTBOUND TRAFFIC SHALL BE DIVERTED WEST ON EXISTING LAKE SHORE BOULEVARD TO THE EDDY ROAD INTERCHANGE FROM 3;45 P.M. TO 7:15 P.M.

E. 136th STREET SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH RAMP No. 1 AND DURING THAT TIME, MC ELHATTEN AND OTHELLO SHALL BE CLOSED TO TRAFFIC ONLY AT THE WEST END, IN THE CONSTRUCTION AREA, WITH ENTRANCE PERMITTED AT E. 140th STREET.

BEFORE CONSTRUCTION BEGINS ON THE WESTBOUND FREEWAY FROM STATION 139+00 BACK TO 117+04.19 AND RAMP 1-A THE CONSTRUCTION OF EASTBOUND FREEWAY AND RAMP No. 1 SHALL BE COMPLETED.

DURING THE CONSTRUCTION OF THE WESTBOUND FREEWAY FROM STATION 139+00 BACK TO 117+04.19 AND RAMP 1-A THE COMPLETED EASTBOUND FACILITY SHALL BE USED FOR EASTBOUND TRAFFIC FROM THE HOURS OF 10:15 A.M. TO 5:45 A.M., OPENING RAMP NOS. 1, 2 & 3, AND CLOSING EASTBOUND FREEWAY LANES EAST OF RAMP NO. 3 AT STATION 156+53. ALL OTHER RAMPS SHALL BE CLOSED AT THIS TIME. WESTBOUND TRAFFIC DURING THESE HOURS SHALL BE DETOURED VIA LAKE SHORE BOULEVARD TO THE EDDY ROAD INTERCHANGE ON THE EXISTING FREEWAY. FROM 6:00 A.M. TO 10:00 A.M. EASTBOUND THRU FREEWAY TRAFFIC SHALL BE CLOSED AT THE EDDY ROAD EASTBOUND OFF RAMP AND WESTBOUND FREEWAY LANES AND RAMP NOS. 7 & 4 SHALL BE OPENED FOR TRAFFIC. A TEMPORARY MEDIAN PAVEMENT AS SHOWN ON EXTRA AREA SHEET NO. 66, OR AS OTHERWISE DIRECTED BY THE ENGINEER, SHALL BE USED TO DIVERT WESTBOUND TRAFFIC ON TO THE EASTBOUND FREEWAY LANES. THE TEMPORARY MEDIAN CROSS-OVER AT THE WEST END OF CONSTRUCTION SHALL BE USED TO DIVERT WESTBOUND TRAFFIC BACK ON TO THE EXISTING WESTBOUND FREEWAY LANES.

CONTRACTOR SHALL BE RESPONSIBLE FOR OPENING AND CLOSING ALL RAMPS AND FREEWAY LANES AT THE DESIGNATED TIMES AND ERECTING BARRICADES TO INSURE PROPER DIRECTION OF TRAFFIC FLOW.

THE CONTRACTOR SHALL COOPERATE WITH THE CITY OF CLEVELAND AND THE VILLAGE OF BRATENAHL TRAFFIC ENGINEERING DEPARTMENTS IN THE PERFORMANCE OF HIS WORK, IN ORDER TO CONFORM TO THE ABOVE MENTIONED REQUIREMENTS.

59. ITEM T-70 FOR TEMPORARY TRAFFIC LANES:
Temporary traffic lanes shall be provided as outlined on sheet 15-A for maintaining traffic. The temporary lanes or crossovers shall be paved with 9" T-70 Portland Cement Concrete Pavement. The modification for materials, mixing, placing etc. as stated in the last three paragraphs of Section S-15.06 shall apply to this item. Removal of this T-70 temporary pavement when no longer needed for traffic maintenance shall be measured and paid for as Item E-8, Removal and disposal of existing pavement ; See sheet Nº 66 for details and estimated quantities.

60. CHANGE OF TYPICAL SECTION:
Subsequent to the completion of these plans, the Typical Median shown on sheet 5 was changed from Standard Type 1 without shoulders to Standard Type 2 with 3 ft. paved shoulders. Also the shoulder pavement throughout these plans was changed from B-33 Bituminous Macadam base course with a double seal to B-219 Waterproofed Aggregate base course with a single seal. Consequently any reference to B-33 Base Course appearing in these plans shall be considered to read B-219 Base Course. In the extra area tables sheets 17 and 43 to 65, disregard quantities of Nº 46 aggregate and extra amount of bituminous material shown for double seal. The corrected quantities appear on the calculation sheets and general summary.

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MAINTAINING TRAFFIC :

ALL CONSTRUCTION EAST OF STATION 137+50± (EASTBOUND ROADWAY) AND STATION 139+00± (WESTBOUND ROADWAY) MAY PROCEED TO THE BEST ADVANTAGE POSSIBLE TO THE PROJECT. DURING THIS TIME THE CONTRACTOR, BY BUILDING ONLY ONE STRIP AT A TIME, WILL CONSTRUCT THE FINISHED PAVEMENT AND ROADWAY SECTION BETWEEN STATION 117+04.19 AND STATION 129+00, TEMPORARY MEDIAN CROSS-OVER PAVEMENTS BETWEEN STATIONS 125+00 AND 128+00 AND BETWEEN STATIONS 143+50 AND 146+44 (FREEWAY) AND BETWEEN STATIONS 10+00 AND 12+00 (RAMP NO. 1-A), THE CONCRETE WALL AT THE CURVE WHERE EAST 133RD STREET BECOMES DARLEY AVENUE AND ANY OTHER PORTIONS OF WORK WHICH WILL NOT ENDANGER THE TRAFFIC WHICH WILL BE MAINTAINED IN ITS PRESENT PATH UNTIL THE AFOREDESCRIBED WORK IS COMPLETED OR DEEMED SAFE BY THE ENGINEER TO PROCEED WITH THE NEXT PHASE OF CONSTRUCTION.

UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL PROCEED TO CONSTRUCT THE SOUTH ROADWAY AND EASTBOUND PAVEMENT BETWEEN STATIONS 129+00 AND 137+50±. THE CONTRACTOR SHALL USE HIGH-EARLY STRENGTH CEMENT FOR HIS CONCRETE MIX WITHIN THESE LIMITS, AND THIS CEMENT SHALL MEET THE REQUIREMENTS OF SEC. M-1.2 OR SEC. M-1.4.* THE COST OF FURNISHING THE HIGH-EARLY STRENGTH CONCRETE SHALL BE INCLUDED IN THE PRICE BID FOR ITEM T-71. DURING THIS PHASE OF THE CONTRACT, THE 36' WIDE EXISTING WESTBOUND FREEWAY PAVEMENT WOULD BE USED FOR TWO-WAY TRAFFIC, TWO LANES IN EACH DIRECTION BETWEEN STATION 127+00 (FREEWAY) AND STATION 12+00 (RAMP NO. 1-A). ONLY TWO LANES OF TRAFFIC WILL BE ALLOWED TO ENTER THE EXISTING WESTBOUND PAVEMENT FROM LAKE SHORE BOULEVARD, THE THIRD LANE TO BE SUITABLY BARRICADED UP TO STATION 12+00 (RAMP 1-A).

UPON APPROVAL OF THE ENGINEER, AS THE LAST PHASE, THE CONTRACTOR WILL CONSTRUCT ALL OF THE REMAINING WORK NORTH OF THE FREEWAY SOUTH ROADWAY.

DURING THIS FINAL PHASE OF THE CONSTRUCTION, EASTBOUND TRAFFIC WILL USE THE SOUTHERLY TWO LANES OF THE NEW EASTBOUND FREEWAY, BETWEEN STATIONS 126+50 AND 145+00 AND THE WESTBOUND TRAFFIC WILL USE THE NORTHERLY TWO LANES BETWEEN THE SAME LIMITS, NORMAL USE OF BOTH THE NEW AND OLD FACILITIES BEING MAINTAINED OUTSIDE OF THOSE LIMITS. RAMPS 2 AND 3 WILL HANDLE OFF TRAFFIC AND RAMPS 4 AND 7 WILL ACCOMODATE ON TRAFFIC. A TEMPORARY TURN-OUT SHALL BE CONSTRUCTED AT RAMP 2 AND EAST 140TH STREET INTERSECTION TO PERMIT A LEFT TURN MOVEMENT FROM RAMP 2 ON TO EAST 140TH STREET.

LAKE SHORE BOULEVARD TRAFFIC MUST BE SIGNED TO USE EAST 156TH AND EAST 152ND STREETS AS APPROACHES TO THE FREEWAY DURING THIS FINAL PHASE OF CONSTRUCTION. SIGNING WILL BE DONE BY CITY OF CLEVELAND & THE STATE.

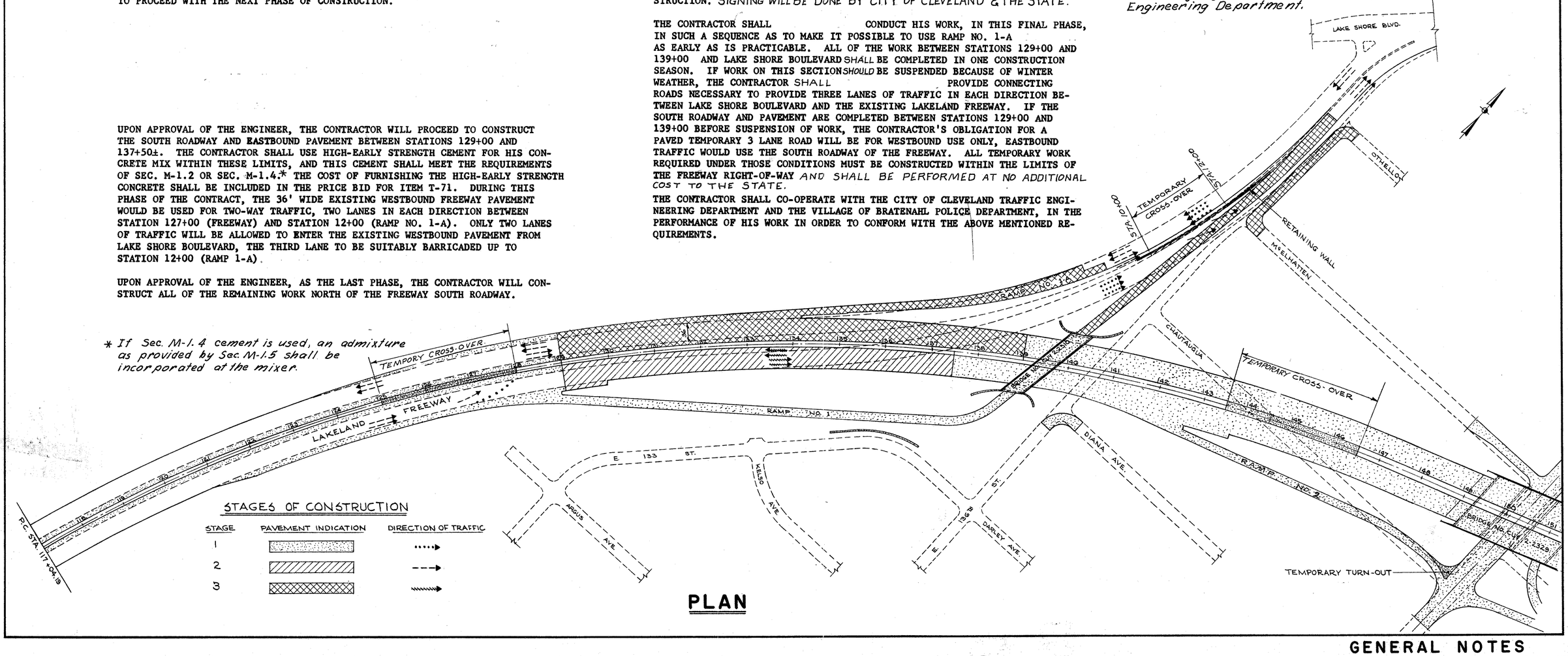
THE CONTRACTOR SHALL CONDUCT HIS WORK, IN THIS FINAL PHASE, IN SUCH A SEQUENCE AS TO MAKE IT POSSIBLE TO USE RAMP NO. 1-A AS EARLY AS IS PRACTICABLE. ALL OF THE WORK BETWEEN STATIONS 129+00 AND 139+00 AND LAKE SHORE BOULEVARD SHALL BE COMPLETED IN ONE CONSTRUCTION SEASON. IF WORK ON THIS SECTION SHOULD BE SUSPENDED BECAUSE OF WINTER WEATHER, THE CONTRACTOR SHALL PROVIDE CONNECTING ROADS NECESSARY TO PROVIDE THREE LANES OF TRAFFIC IN EACH DIRECTION BETWEEN LAKE SHORE BOULEVARD AND THE EXISTING LAKELAND FREEWAY. IF THE SOUTH ROADWAY AND PAVEMENT ARE COMPLETED BETWEEN STATIONS 129+00 AND 139+00 BEFORE SUSPENSION OF WORK, THE CONTRACTOR'S OBLIGATION FOR A PAVED TEMPORARY 3 LANE ROAD WILL BE FOR WESTBOUND USE ONLY, EASTBOUND TRAFFIC WOULD USE THE SOUTH ROADWAY OF THE FREEWAY. ALL TEMPORARY WORK REQUIRED UNDER THOSE CONDITIONS MUST BE CONSTRUCTED WITHIN THE LIMITS OF THE FREEWAY RIGHT-OF-WAY AND SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE STATE.

THE CONTRACTOR SHALL CO-OPERATE WITH THE CITY OF CLEVELAND TRAFFIC ENGINEERING DEPARTMENT AND THE VILLAGE OF BRATENAHL POLICE DEPARTMENT, IN THE PERFORMANCE OF HIS WORK IN ORDER TO CONFORM WITH THE ABOVE MENTIONED REQUIREMENTS.

The Contractor shall be responsible for furnishing, erecting and maintaining barricades to insure the proper direction of traffic flow during the various designated stages of construction.

ALTERNATE METHODS :
If the contractor so elects, he may submit alternate methods for the maintenance of traffic provided the intent of the foregoing provisions is followed and no additional inconvenience to the traveling public results therefrom. No alternate plan shall be placed into effect until approval has been granted, in writing, by the Director and City of Cleveland Traffic Engineering Department.

* *If Sec. M-1.4 cement is used, an admixture as provided by Sec. M-1.5 shall be incorporated at the mixer.*



PLAN

SUMMARY OF TABLES

CUYAHOCA COUNTY
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STORM SEWERS

I-2 LIN. FT.

SHEET Nº	CLASS A M-6.4(c) 12"	8"	UNDER PAVEMENT M-6.8(b) M-6.5(b) 8"	12"	CLASS B M-6.6(b) M-6.8(b) 12"	15"	18"	21"	24"	UNDER PAVEMENT 12"	15"	18"	24"	M-6.6(b) or 6.8(b) 27"	30"	36"	6.6(a) 6.8(a) 33"	6.6(b) 42"	6.6(b) M-6.6(b) M-6.8(b) UNDER PAVEMENT 54"	SANI. M-6.6(b) 8"	12"	M-6.6 (b) 36"	48"	M-6.6(b) 6.8(b) UNDER PAVEMENT 54"	48"	M-6.6 (c) 15"	36"	48"	54"	UNDER PAVEMENT 36"	42"	48"	54"	SANI. 36"	M-6.6(b) 6.8(b) 6"
25				123				392			76			260	80																			
26				15			30	94	17				100				16																		
39				30				58																											
38			70					22																											
SUB-TOTAL VILLAGE OF BRATENAHL			70	168			30	174	82			392		100	76			260	80		16														
25																	110																		
26			34	70		15			109				107				10	350	178			146	179						102				292		
27	129	33	37						334	98			206										122		248				221			238			
28				119					30	128		154	391								319					392							172		
29	60			86					18				344												168		334			642			140		
30	44			72			37	130	236				313	55						173					360			226			258	288			
31				16	22			107	24	23	24		126	194	193	107	113	162			145			38° 36°				394						172	238
32							267	106	32					499																					
33			110				112	35	272					495																					
34					118				110		164			422	57	44																			
35																																			
36				20										116	30																				
37			65	18			25							14	44	36																			
38							16	50						38																					
39							40	77						122																					
40		48		28			100	22						112																					
41							76	40	82																										
42							116																												
SUB-TOTAL CITY OF CLEVELAND	233	81	212	34	429	140	15	789	567	1247	249	188	154	126	3373	379	187	113	162	120	350	178	318	319	146	301	38⅔ 36⅔	248	528	392	334	394	221	226	642	340	258	288	312	292	172	238
GRAND TOTAL	233	81	212	104	597	140	15	819	741	1329	249	188	546	126	3473	455	187	113		200	350	194	318	319	146	301	38⅔ 36⅔	248	528	392	334	394	221	226	642	340	258	288	312	292	172	238

I-5 PIPE SPECIALS EACH

SHEET Nº	CLASS A 8"x6" INCREASER	8"x6" REDUCER	UNDER PAVEMENT M-6.5(b) OR 6.8(b) 8"x10° BEND	8"x27° BEND	8"x30° BEND	10"x8° BEND	8"x45° BEND	10"x30° BEND	M-6.4 (c) 8"x6" INC.	8"x6" RED.	8"x6" TEE	8"x8" TEE	8"x90° ELBOW	12"x8" TEE	CLASS B UNDER PAVEMENT 8"x18° BEND	8"x30° BEND	8"x15° BEND	8"x27° BEND	12"x15° BEND	18"x28° BEND	12"x64° BEND	12"x6" TEE	15"x6" TEE	54"x18" M-6.6(b) TEE	54"x12" M-6.6(b) TEE	M-6.6(b) TEE
25						1		1																	
26									1					1								1			
39																									
38						1		1																	
SUB-TOTAL VILLAGE OF BRATENAHL						1		1	1					1								1			
25																									
26									1																
27																	1	1	3			3			
28																						1	1	1	2
29																									2
30												1	1						2						2
31	2	2																							9
32									6	2	1	1										1			2
33				2	2		1		3																
34																					1	1			
35																									
36																									4
37				3					1																2
38									1	1															
39	2								1				2												2
40	1	1										1							2						
41	3	1			1							2													
42	6	1										2				1	1								
SUB-TOTAL CITY OF CLEVELAND	14	5	2	5	1		1	1	12	3	1	7	3		1	1	1	3	5	1	1	6	1	1	1
GRAND TOTAL	14	5	2	5	1	1	1	2	13	3	1	7	3	1	1	1	1	3	5	1	1	7	1	1	1

I-16 EACH ABANDONED

SHEET Nº	MANHOLE	CURB INLET	CATCH BASIN
25	1	4	7
26		2	7
39	1		3
38	1		3
SUB-TOTAL VILLAGE OF BRATENAHL	3	6	20
25			
26			4
27	1		6
28	2		7
29	2		3
30	2		7
31	9		8
32	2		9
33			6
34	1		2
35			
36			4
37	2		6
38			
39			2
40			
41			
42	1		4
SUB-TOTAL CITY OF CLEVELAND	22		62
GRAND TOTAL	25	6	82

E-12 LIN. FT. REMOVAL OF PIPE

SHEET Nº	15" & UNDER	OVER 15"
25		
26		
39	3	5
38		
SUB-TOTAL VILLAGE OF BRATENAHL	5	
25		
26		
27		
28		449
29		
30	120	55
31	1173	266
32		
33		
34		
35		
36		
37		182
38		
39		
40		
41		
42		
SUB-TOTAL CITY OF CLEVELAND	1293	55
GRAND TOTAL	1298	55

I-2 Class B Under Pvt.

SHEET Nº	M-6.5(a) M-6.8(b) 15"	18"	21"
25			
26			
39			
38			
SUB-TOTAL VILLAGE OF BRATENAHL			
25			
26			
27			
28	449		
29			
30			
31			266
32			
33			
34			
35			
36			
37	182		
38			
39			
40			
41			
42			
SUB-TOTAL CITY OF CLEVELAND	449	182	266
GRAND TOTAL	449	182	266

* NEW M.H. FRAME & COVER SHALL BE PROVIDED - SEE STD. DWG Nº I-8 M.H. Nº 1

a) PIPE ENCASED WITH CONCRETE.

STORM SEWERS — I-8 EACH

SHEET Nº	EXISTING ADJ. TO GRADE MANHOLE	CATCH BASIN	MANHOLE STD Nº 1	STD Nº 2 NO DROP	TYPE A	JUNCTION CHAMBER Nº 2	JUNCTION CHAMBER Nº 3	JUNCTION CHAMBER Nº 3	CURB INLET Nº 2-6	Nº 2-6 MOD.	Nº 2-10	Nº 2-10 MOD.	SPEC Nº 4	CATCH BASIN Nº 2-2A	SPEC Nº 4	Nº 5	Nº 6 MOD.	Nº 5 MOD.	SPEC Nº 2-2A	SPEC Nº 2-2A MOD.
25	6*		4							6								5		
26	2*/1			1						3		1						3		
39	1*/1		1															3		
38															1			1		
SUB-TOTAL VILLAGE OF BRATENAHL	9*/2		5	1						9		1			1			12		
25																				
26	4		1	5		1				1	1		1		1			4		
27			1	4					4	2						1	1			
28	3		2	5			1	2	5	3	2					5				
29	1			5					3	3						4				
30	3			7	1				4	4						4	2	1		1
31	1		9	1/2[b]	1				6	2				1		5				
32	4		2										3		6	1				
33	3	2											6		8	1				
34	1		1										5		5				1	
35																				
36	3		1		1		1						1	1	2					
37	5		1		2									1	2					
38	2				1											1				
39	3														4	1				
40	2				1									1	2	1				
41	1	2	1										1	1	1					
42	1															1				
SUB-TOTAL CITY OF CLEVELAND	37	4	19	27/2[b]	7	1	1	1	22	15	3	1	17	5	31	4	3	27	1	1
GRAND TOTAL	9*/39	4	24	28/2[b]	7	1	1	1	22	24	3	1	17	5	32	4	3	39	1	1

UNDERDRAINS — I-4 LIN. FT.

SHEET Nº	6" UNDERDRAINS DEEP	6" UNDERDRAINS SHALLOW	6" CURB UNDERDRAINS DEEP	6" CURB UNDERDRAINS SHALLOW	8" PIPE OUTLET M-6.4(a)
25	840	1145			80
26	2739	452			52
39		490			30
38	248	392		911	40
SUB-TOTAL VILLAGE OF BRATENAHL	3,827	2,479		911	202
25					
26	445	311			18
27		2939			30
28	2493	1638		100	100
29		2602		90	30
30	2132	1818	245	405	60
31	3075			2876	90
32		2200			150
33		2154		2911	200
34		1356		3040	130
35		200		200	
36		36		795	50
37				820	40
38	494	555		400	50
39	262	450	220	641	64
40		706		1337	40
41		1385		1844	50
42		1344		1644	40
SUB-TOTAL CITY OF CLEVELAND	8,901	19,694	465	17,103	1,142
GRAND TOTAL	12,728	22,173	465	18,014	1,344

UNDERDRAINS — I-5 PIPE SPECIALS EACH

SHEET Nº	6"x60° BEND	6"x45° BEND	6"x80° BEND	6"x90° ELBOW	6"x60° WYE	6"x6" TEE	6"x30° BEND	6"x73° BEND	6"x12° BEND	6"x11° BEND
25	4			3	5	1	3			2
26										
39	2									
38										
SUB-TOTAL VILLAGE OF BRATENAHL	4			3	5	1	3			2
25										
26										
27										
28	1	2		1	7	1	1			
29				2						
30				5	2	1	1			
31					3					
32				1	2	2				
33				2		2	1			
34				1	1	1				
35										
36				2		1	1			
37										
38				1	1	1	2			
39				2	1	2				
40		1			1			1		
41				2	2	1	1			
42				2						
SUB-TOTAL CITY OF CLEVELAND	14	3		21	21	12	7	1	1	
GRAND TOTAL	18	5	1	24	26	13	10	1	1	2

I-8 EACH — MONUMENT ASSEMBLIES

SHEET Nº	TYPE B	RESET
25	1	1
26		1
39		
38		
SUB-TOTAL VILLAGE OF BRATENAHL	1	2
25		
26		
27	2	
28		
29	1	
30	1	
31	1	
32		
33		
34		
35	13	
36	1	2
37	4	4
38		1
39		2
40		
41		
42	3	
SUB-TOTAL CITY OF CLEVELAND	26	9
GRAND TOTAL	27	11

I-14 LIN. FT. PAVED GUTTER

SHEET Nº	STD. TYPE 2	MOD. TYPE 2
25		
26		
39		
38	362	
SUB-TOTAL VILLAGE OF BRATENAHL	362	
25		
26	176	150
27		
28		
29		
30		
31		
32		
33		
34		
35		
36	55	
37		
38	219	
39		
40		
41		
42		
SUB-TOTAL CITY OF CLEVELAND	450	150
GRAND TOTAL	812	150

I-15 LIN. FT. STEEL BEAM TYPE (DEEP)

SHEET Nº	GUARD RAIL STD I-15 Nº 2-A	BARRIER RAIL STD-I-15 Nº 2-A	TEMPORARY BAR. R.E.L. AS PER PLAN
25		1195.	
26	366.30	959.50	
39			
38	756.47		
SUB-TOTAL VILLAGE OF BRATENAHL	1122.77	2154.50	
25			
26	358.70	153.00	
27	1745.94	1052.22	
28	41.56	1300.	37.5
29	936.96	1034.88	
30	750.54	1300.	50.0
31	25.00	988.40	
32	37.50		
33			
34			
35			
36			
37			
38	1843.53		
39			
40			
41			
42	290.00		
SUB-TOTAL CITY OF CLEVELAND	6,029.73	5828.50	87.5
GRAND TOTAL	7,152.50	7983	87.5

L-10 SQ. YDS

SHEET Nº	SODDING	SODDING FOR SPEC. BERM AND SLOPE PROTECTION
25	460	104
26	2739	452
39	181	
38	60	
SUB-TOTAL VILLAGE OF BRATENAHL	701	104
25	955	179
26	58	
27	339	169
28	551	
29	505	191
30	712	
31	384	
32		
33		
34		
35	303	
36	9	
37	60	
38	83	
39	53	
40	477	
41		
42		
SUB-TOTAL CITY OF CLEVELAND	4,489	539
GRAND TOTAL	5,190	643

I-13 SQ.FT. SIDEWALKS

SHEET Nº	4"
25	
26	
39	
38	
SUB-TOTAL VILLAGE OF BRATENAHL	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	27925
36	
37	
38	
39	
40	
41	
42	
SUB-TOTAL CITY OF CLEVELAND	27,925
GRAND TOTAL	27,925

I-71 SQ.YDS 6" REINF. P.C. PAVEMENT

SHEET Nº	6" REINF. P.C. PAVEMENT
25	
26	
39	
38	
SUB-TOTAL VILLAGE OF BRATENAHL	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	320.65
35	
36	
37	
38	
39	
40	
41	
42	
SUB-TOTAL CITY OF CLEVELAND	320.65
GRAND TOTAL	320.65

I-22 C.Y. SUBBASE GRADING A OR B

SHEET Nº	SUBBASE GRADING A OR B
25	
26	
39	
38	
SUB-TOTAL VILLAGE OF BRATENAHL	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	35.61
36	
37	
38	
39	
40	
41	
42	
SUB-TOTAL CITY OF CLEVELAND	35.61
GRAND TOTAL	35.61

E-1 METHOD B CU. YDS.

SHEET Nº	ROADWAY EXCAVATION	EMBANKMENT	EMBANKMENT +22%
25	9475.	48	59
26	19986.	3414	4165
39			
38	356.	10496	12805
SUB-TOTAL VILLAGE OF BRATENAHL	29,817	13,958	17,029
25	3109		
26	11813	18777	22908
27	3429	44537	54335
28	54513	38441	46898
29	17418	47233	57624
30	20387	44203	53928
31	114454	13	15
32			
33			
34			
35			
36	15293	8592	10482
37	18229	3015	3678
38	577	1978	2413
39			
40			
41			
42			
SUB-TOTAL CITY OF CLEVELAND	259,222	206,789	252,281
GRAND TOTAL	289,039	220,747	269,310

S-24 EACH REMOVE MANHOLE

SHEET Nº	REMOVE MANHOLE
25	
26	
39	
38	
SUB-TOTAL VILLAGE OF BRATENAHL	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	1
37	
38	
39	
40	
41	
42	
SUB-TOTAL CITY OF CLEVELAND	1
GRAND TOTAL	1

SPEC. INTER STATE AND DEFENCE HIGHWAY SIGN

SHEET Nº	INTER STATE AND DEFENCE HIGHWAY SIGN
25	
26	
39	
38	1
SUB-TOTAL VILLAGE OF BRATENAHL	
25	
26	
27	
28	
29	
30	
31	2
32	
33	
34	
35	
36	
37	2
38	
39	
40	
41	
42	
SUB-TOTAL CITY OF CLEVELAND	4
GRAND TOTAL	5

b) MANHOLE Nº 2 WITH DROP.

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

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CUYAHOGA COUNTY
CUY-2-22.97

SUMMARY OF TABLES

EXTRA AREA QUANTITIES

SHEET NO.	E-8			I-11			I-12		I-13		I-18	I-21		I-22	B-33	T-31			T-71			TEMPORARY T-70	TEMPORARY I-12
	REMOVAL FOR RE-USE OF EXIST. CURB	REMOVAL AND DISPOSAL		SANDSTONE STRAIGHT CURB	SANDSTONE RADIAL CURB	BUMPER BLOCK	CONCRETE CURB		CONCRETE SIDEWALK		5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	STD. TYPE I PORT. CEM. CONCRETE MEDIAN PAVEMENT	PORT. CEM. CONCRETE TRAFFIC ISLAND PAVEMENT	SUBBASE GRADING A OR B	3" BITUMINOUS MACADAM BASE COURSE	BITUMINOUS SURFACE TREATMENT			REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT			PORTLAND CEMENT CONC. PAVT.	CONC. CURB TYPE
							SPEC. TYPE A	SPEC. TYPE B	4" CURBED	4"						#46 AGGR.	#6 AGGR.	BIT. MATERIAL AS PER PLANS	6"	9"	10"	9"	2-A
	LIN. FT.	LIN. FT.	SQ. YDS.	LIN. FT.	LIN. FT.	EACH	LIN. FT.		SQ. FT.		CU. YDS.	SQ. YDS.		CU. YDS.	SQ. YDS.	CU. YDS.		GALS.	SQ. YDS.			SQ. YD.	L.F.
61														126.84						761.06			
SUB-TOTAL FEDERAL NON-PARTIC.														126.84						761.06			
43				250.56							75.12			590.90	529.83	4.24	4.24	264.92			2933.16		
44				163.00		1					146.64	11	24.00	669.47	1030.34	8.24	8.24	515.16		9.25	2397.62		
45							201.50	50.00			144.09			372.09	1023.14	8.19	8.19	511.57		430.40	556.43		
46				100.68				13.50			69.20			209.48	480.23	3.85	3.85	240.11		717.06			
47			26.29										199.03										
48											10.87			17.39	78.29	0.62	0.62	39.14					
66			412.00																			4/2	
SUB-TOTAL VILLAGE OF BRATENAHL			438.29	514.24		1	201.50	63.50			445.92	11	223.03	1859.33	3141.83	25.14	25.14	1570.90		1156.71	5887.21	4/2	
44				35.00							21.63			62.12	152.05	1.22	1.22	76.03		175.82	32.89		
45										1236.00	30.69			94.09	211.50	1.69	1.69	105.74		346.35			
46				50.64							12.98			21.29	91.97	0.74	0.74	45.98		26.71			
47		420.57	187.22	603.73	131.77									142.45					22.22	819.58			
48				725.57	117.20	2				1662.75	127.36		33.78	588.16	900.10	7.21	7.21	450.05		1639.11	704.45		
49		91.50	108.00	736.03	323.20					4183.50				254.64					69.11	1452.57			
50				1429.15	128.01	2			869.00	4110.79	1.22		322.86	673.75	8.55	0.07	0.07	4.27	24.22	3811.79			
51		75.15	16.70	486.63	61.10	3				2225.45				87.10					44.22	479.11			
52				200.00		1					98.39		20.44	325.95	690.36	5.53	5.53	345.19		408.45	715.33		
53							120.50	81.00			181.27			483.27	1271.11	10.17	10.17	635.56		868.06	586.17		
54		55.20	12.27	562.73	84.00	4				2177.25				113.08					80.67	607.77			
55		75.15	16.70	487.38	61.10	3				2134.00				84.12					21.44	476.45			
56				347.92	9.85	1				1429.25				74.38					67.56	391.33			
57							124.00	78.00			190.49			506.85	1337.28	10.70	10.70	668.65		868.06	658.12		
58				200.00		1					115.31		16.13	365.24	809.31	6.48	6.48	405.16		421.90	818.38		
59				894.97	146.20	4				3222.80	.81		45.86	533.78	5.83	0.05	0.05	2.91		3106.47			
60				817.26		1			924.00	2443.50	.20		298.90	327.99	1.42	0.01	0.01	0.71		1794.25			
61				1360.53	228.15	3				6803.25			90.00	781.33					63.56	4346.42			
62				495.93	83.71	2	100.03				155.40		58.89	605.14	1094.03	8.75	8.75	547.00	23.56	1225.89	974.62		
63				768.04		2					19.02			273.94	126.29	1.01	1.01	63.15		1462.87			
64				999.51	4.07	2	116.00	117.50			160.09			694.17	1118.55	8.94	8.94	559.30		2332.13	499.80		
65		78	784.00	657.00	226.19	1				1223.50	175.67		23.11	699.32	1230.68	9.85	9.85	615.34	123.99	1454.89	1219.83		
66																						784	78
SUB-TOTAL CITY OF CLEVELAND		795.57	1124.89	11,858.02	1604.55	32	460.53	276.50	1793.00	32852.04	1290.53		909.97	7792.16	9049.03	72.42	72.42	4525.04	540.55	28515.98	6209.59	784	78
GRAND TOTAL		795.57	1563.13	12,372.26	1604.55	33	662.03	340.00	1793.00	32852.04	1736.45	11	1133.00	9778.33	12190.86	97.56	97.56	6095.94	540.55	30433.75	12096.80	1196 *	78 *

* TO GENERAL SUMMARY.

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY-2-22.97

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ESTIMATED QUANTITIES OF FENCE

ITEM SS18 FENCE TYPE "C"

① FENCE LEFT

STATIONS		DISTANCE OUT	END POST	DEFLECTION POINT: CORNER POST	DEFLECTION POINT: LINE POST	TYPE C FENCE LIN. FT.: VILLAGE OF BRATENAHL	TYPE C FENCE LIN. FT.: CITY OF CLEVELAND
121+46.78		72	1				
123+00		91		1			
121+46.78	123+00					158	
126+00		117		1			
123+00	126+00					311	
129+00		106.30			1		
126+00	129+00					310	
131+00		115		1			
129+00	131+00					207	
134+00		125			1		
131+00	134+00					311	
137+00		152		1			
134+00	137+00					314	
138+72.35		207.72		1			
137+00	138+72.35					190	
139+43.30= R-1A-7+91.59		203.74 22		1			
138+72.35	139+43.30					75	
R-1A-14+82.82		22			1		
R-1A-7+91.59	R-1A-14+82.82			R = 1,410.40'		681 ARC	
R-1A-15+93.01		22	1				
R-1A-14+82.82	R-1A-15+93.01					110	
R-1-22+41.59		28.39	1				
R-1-21+99.26		14.0		1			
R-1-21+99.26	R-1-22+41.59						45
R-1-21+74.75		14			1		
R-1-21+74.75	R-1-21+99.26						25
R-1-19+39.71		14			1		
R-1-19+39.71	R-1-21+74.75					R=1,614.	237 ARC
R-1-18+75.74		14		1			
R-1-18+75.74	R-1-19+39.71						64
R-1-18+38.71		22		1			
R-1-18+38.71	R-1-18+75.74						38
R-1-18+26.80		22		1			
R-1-18+38.71	R-1-18+26.80						12
R-1-17+38.17+ FWK 142+09.95		32.15 281.35		1			
R-1-18+26.80	R-1-17+38.17						69
142+32.49		268.18		1			
142+09.95	142+32.49						28
141+98.59		152.67		1			
142+32.49	141+98.59						121
143+82.62		141.06		1			
141+98.59	143+82.62						193
144+66.37		149.36		1			
143+82.62	144+66.37						88
145+04.27		143.16		1			
144+66.37	145+04.27						39
147+12.74		144.77		1			
145+04.27	147+12.74						215
147+22.22		170.99		1			
147+12.74	147+22.22						28
148+50.46		123.79		1			
147+22.22	148+50.46						124
148+99.51		112.38			1		
148+50.46	148+99.51						50
149+24.04		105.08			1		
148+99.51	149+24.04						26
149+75.27		86.49		1			
149+24.04	149+75.27						55
149+71.80		71.67	1				
149+75.27	149+71.80						15
152+13.99		71.67	1				
152+95.81		149.00		1			
152+13.99	152+95.81						113
152+95.81		173		1			
152+95.81	152+95.81						24
161+30		173	1				
152+95.81	161+30						834
160+80		120.50	1				
162+41.59		161		1			
160+80	162+41.59				R=1421' & 495'		167 ARC
168+37.08		161		1			
162+41.59	168+37.08						581
169+30.86		143.31		1			
168+37.08	169+30.86					R=495'	96 ARC
169+98.00		123.78	1				
SUB-TOTAL			8	25	7	2,667	3,287

② FENCE LEFT

STATIONS		DISTANCE OUT	END POST	DEFLECTION POINT: CORNER POST	DEFLECTION POINT: LINE POST	TYPE C FENCE LIN. FT.: VILLAGE OF BRATENAHL	TYPE C FENCE LIN. FT.: CITY OF CLEVELAND
169+30.86	169+98.00						70
169+48		173	1				
174+24.68		173			1		
169+48	174+24.68						463
177+15.45		169.14		1			
174+24.68	177+15.45						287
177+14.89		145.61		1			
177+15.45	177+14.89						24
177+63.45		71.67	1				
177+14.89	177+63.45						82
180+24.59		71.67	1				
180+60		112		1			
180+24.59	180+60						53
180+60		142		1			
180+60	180+60						30
183+05.02		139.50		1			
180+60	183+05.02						242
183+64.55		121.62		1			
183+05.02	183+64.55						61
185+07.53		116.93		1			
183+64.55	185+07.53						142
185+64.07		126.28		1			
185+07.53	185+64.07						43
188+68		119.15		1			
185+64.07	188+68						301
189+27.32		146.49		1			
188+68	189+27.32						65
189+59.71		210.17		1			
189+27.32	189+59.71						71
189+40.71		230.43	1				
189+59.71	189+40.71						27
189+54.56		88.78	1				
190+55.32		175.56		1			
189+54.56	190+55.32					R=279.78'	134 ARC
190+71.79		179.60		1			
190+55.32	190+71.79						3
191+41.67		144.06	1				
190+71.79	191+41.67						78
190+90.50		207.34	1				
191+37.74		183.31		1			
190+90.50	191+37.74						53
192+62.88		171.28		1			
191+37.74	192+62.88						126
193+11.88		146.12		1			
192+62.88	193+11.88						55
193+51.16		148.49		1			
193+11.88	193+51.16						39
195+90.89		123.50		1			
193+51.16	195+90.89						241
196+79.86		137.58		1			
195+90.89	196+79.86						90
198+49.80		138.88		1			
196+79.86	198+49.80						171
198+94.12		116.64		1			
198+49.80	198+94.12						50
199+05.62		138.05		1			
198+94.12	199+05.62						25
200+21.05		139.96		1			
199+05.62	200+21.05						117
202+51.52		120.24			1		
200+21.05	202+51.52						234
203+65.96		117.49	1				
202+51.52	203+65.96						116
SUB-TOTAL			8	23	2		3,493

③ FENCE RIGHT

STATIONS		DISTANCE OUT	END POST	DEFLECTION POINT: CORNER POST	DEFLECTION POINT: LINE POST	TYPE C FENCE LIN. FT.: VILLAGE OF BRATENAHL	TYPE C FENCE LIN. FT.: CITY OF CLEVELAND
119+87		72	1				
121+25		109		1			
119+87	121+25					139	
125+00		118			1		
121+25	125+00					362	
127+00		122		1			
125+00	127+00					193	
128+00		138		1			
127+00	128+00					82	15
126+97.33		160.78		1			
128+00	128+97.33						96
129+84.83		195.83		1			
128+97.33	129+84.83						90
135+46.23		183.17		1			
129+84.83	135+46.23						514
137+19.07		227.81		1			
135+46.23	137+19.07					R=213.81'	173 ARC
137+74.18		230.75		1			
137+19.07	137+74.18						51
138+95.06		199.14		1			
137+74.18	138+95.06						117
139+52.96		116.02		1			
138+95.06	139+52.96						100
139+90.81		93.77		1			
139+52.96	139+90.81						42
140+23.41		90.63		1			
139+90.81	140+23.41						33
141+59.75		113.57			1		
140+23.41	141+59.75						120
144+55.15		158.92			1		
141+59.75	144+55.15						285
145+44.03		163.18			1		
144+55.15	145+44.03						85
147+56.86		186.40		1			
145+44.03	147+56.86						206
147+70.72		148.37		1			
147+56.86	147+70.72						40
148+20.54		152.62	1				
147+70.72	148+20.54						50
147+59.11		113.65	1				
148+85.58		142.19		1			
147+59.11	148+85.58					R=515'	130 ARC
149+20.18		71.67	1				
148+85.58	149+20.18						79
151+62.37		71.67	1				
152+17		149		1			
151+62.37	152+17						95
152+17		173		1			
152+17	152+17						24
159+02		173	1				
152+17	159+02						685
158+52		124.47	1				
159+28.57		145.43		1			
158+52	159+28.57						79
160+14.83		161		1			
159+28.57	160+14.83					R=495'	88 ARC
166+04.45		161		1			
160+14.83	166+04.45						576
167+64		117	1				
166+04.45	167+64					R=495' & 1421'	167 ARC
167+14		173	1				
174+24.68		173			1		
167+14	174+24.68						697
176+13.79		174.48		1			
174+24.68	176+13.79						192
176+14.16		150.48		1			
176+13.79	176+14.16						24
176+87.45		71.67	1				
176+14.16	176+87.45						108
179+40.59		71.67	1				
179+40.59		163.98		1			
SMR-179+47.38		27					
179+40.59	179+40.59						92
SMR-181+90.28		27		1			
SMR-179+47.38	SMR-181+90.28						243
SUB-TOTAL			11	24	5	776	5,296

④ FENCE RIGHT

STATIONS		DISTANCE OUT	END POST	DEFLECTION POINT: CORNER POST	DEFLECTION POINT: LINE POST	TYPE C FENCE LIN. FT.: VILLAGE OF BRATENAHL	TYPE C FENCE LIN. FT.: CITY OF CLEVELAND
SMR-183+80		27		1			
SMR-181+90.28	SMR-183+80					R= 2,837.79'	174 ARC
SMR-185+98.59		68.51		1			
SMR-183+80	SMR-185+98.59					R= 493'	222 ARC
SMR-189+00.84		100.54	1				
SMR-185+98.59	SMR-189+00.84					R= 533'	308 ARC
SMR-189+73.52		81.62	1				
SMR-193+25		27		1			
SMR-189+73.52	SMR-193+25					R= 993'	356 ARC
SMR-194+37.92		27			1		
SMR-193+25	SMR-194+37.92					R= 5,702.58'	112 ARC
SMR-202+11.89		27			1		
SMR-194+37.92	SMR-202+11.89						774
SMR-204+00		27	1				
SMR-202+11.89	SMR-204+00					R= 2,891.47'	190 ARC
SUB-TOTAL			3	3	2		2,136

COLUMN NO. 1		8	25	7	2667	3287
COLUMN NO. 2		8	23	2	—	3493
COLUMN NO. 3		11	24	5	776	5296
COLUMN NO. 4		3	3	2	—	2136
ITEM SS18 FENCE TYPE "C" TOTAL		30	75	16	3443	14,212

ITEM SS-18 FENCE GATES TYPE "C"

LOCATION ℄ OF GATE STATION	LOCATION ℄ OF GATE OFFSET	SIDE RIGHT OR LEFT	WIDTH	REMARKS
133+14.86	200.12'	RIGHT	14'	
141+29.06	108.92	RIGHT	14'	
147+86.58	147.96	LEFT	14'	
163+93.94	161.	RIGHT	14'	
166+50.18	161.	LEFT	14'	
173+32.68	173.	RIGHT	14'	
173+73.68	173.	LEFT	14'	
SMR-183+24.48	27.	RIGHT	14'	
185+44.14	123.02	LEFT	14'	
190+63.55	177.58	LEFT	14'	

TOTAL No. OF GATES 10

NOTES –

1 – FENCE TO BE LOCATED IN ACCORDANCE WITH STATIONS AND OFFSETS LISTED, WHICH EXCEPT AS NOTED, ARE BASED ON THE FREEWAY CENTERLINE.
2 – SEE RIGHT OF WAY PLANS SHEETS 144 THRU 149 FOR LAYOUT OF FENCE AND LOCATION OF DITCH CROSSINGS.
3 – FOR DITCH CROSSING DETAIL SEE SHEET Nº 93. SEE STANDARD CONSTRUCTION DRAWINGS Nº F-1 & F-3 FOR FENCE DETAILS.
4 – THE FABRIC SHALL BE HUNG ON THE OUTSIDES OF THE POSTS. (SIDE AWAY FROM THE FREEWAY.)

SUMMARY OF TABLES ··· FENCE QUANTITIES

CALCULATIONS

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

19/149

LINE Nº	DESCRIPTION		QUANTITY	UNIT
	E-8 REMOVAL AND DISPOSAL OF EXISTING PAVEMENT			
	VILLAGE OF BRATENAHL			
1	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	438.29 SQ. YD.		
2	FWY. EAST BOUND EXISTING STA. 14+92.51 TO STA. 0+00	4875.04		
3	FWY. EAST BOUND EXISTING STA. 132+37.39 TO STA. 129+00	1335.32		
4	FWY. WEST BOUND EXISTING STA. 14+50.33 TO STA. 9+23.35	474.97		
5	STA. 9+23.35 TO STA. 7+98.35	133.29		
6	STA. 7+98.35 TO STA. 7+56.30	11.31		
7	STA. 132+37.39 TO STA. 129+00	1363.76		
8	STA. 7+56.30 TO STA. 0+00	3032.20		
9	FWY. EAST BOUND EXISTING STA. 11+75 TO STA. 14+92.51 SEE SHEET Nº 44 MEDIAN PAV'T.	70.00		
10	FWY. SEE SHEET Nº 44 SLOPE PAVEMENT	157.50		
11	(SUM OF LINES 1 THRU 10) TOTAL (REMOVAL & DISPOSAL OF EXIST. PAV'T.) VILLAGE OF BRATENAHL		11,891.68	SQ. YD.
	CITY OF CLEVELAND			
12	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	1124.89 SQ. YD.		
13	FWY. EAST BOUND EXISTING STA. 10+70 TO STA. 14+92.51	1095.00		
14	CHAUTAUQUA AVE. STA. 0+10 TO STA. 8+65.43	2493.00		
15	McELHATTEN AVE. STA. 6+75 TO STA. 8+65.05	568.00		
16	THAMES AVE. STA. 0+20 TO STA. 13+90	3977.00		
17	DARWIN AVE. STA. 0+20 TO STA. 4+75	1325.00		
18	E.140th ST. STA. 3+02.27-S TO STA. 3+00-N	2677.00		
19	E.140th PL. STA. 0+13 TO STA. 0+26	28.00		
20	E.142ND PL. STA. 0+13 TO STA. 0+25	23.00		
21				
22	E.146Th ST. STA. 0+13 TO STA. 3+19.28	758.00		
23	E.147Th ST. STA. 0+13 TO STA. 0+28	41.00		
24	SYLVIA AVE. STA. 9+57 TO STA. 23+15.44	3924.00		
25	HALE AVE. (WEST OF E.152ND ST.) STA. 3+35 TO STA. 11+81.78	2457.00		
26	HALE AVE. (EAST OF E.152ND ST.) STA. 0+20 TO STA. 5+58	1573.00		
27	WESTROPP AVE. STA. 1+43.92 TO STA. 4+88.74	1015.00		
28	WATERLOO RD. STA. 0+27.76 TO STA. 0+90.98	330.00		
29	E.152ND ST. STA. 3+52.50-S TO STA. 5+20.80-N	3867.00		
30	DANIEL AVE. STA. 0+20.14 TO STA. 0+52.33	104.00		
31	DANIEL AVE. STA. 2+87.20 TO STA. 9+43.91	1892.00		
32	E.156TH ST. STA. 0+13 TO STA. 3+34.16	944.00		
33	E.156TH ST. STA. 3+60.16 TO STA. 3+72.36	46.00		
34	CALCUTTA AVE. STA. 4+77.99 TO STA. 13+70.93	2574.00		
35	E.157TH ST. STA. 0+13 TO STA. 1+50.16	407.00		
36	E.158TH ST. STA. 0+13 TO STA. 2+18.50	604.00		
37	E.160TH ST. STA. 0+13 TO STA. 3+07	855.00		
38	(SUM OF LINES 12 THRU 37) TOTAL (REMOVAL AND DISPOSAL OF EXISTING PAV'T.) CITY OF CLEVELAND		34,701.89	SQ. YD.
	E-8 REMOVAL FOR REUSE OF EXISTING CURB			
	VILLAGE OF BRATENAHL			
51	FWY. WESTBOUND EXISTING STA. 124+00 TO STA. 132+37.39 (LEFT SIDE)	850.82 LIN. FT.		
52	STA. 0+00 TO STA. 7+56.30 (LEFT SIDE)	752.86		
53	STA. 5+85 TO STA. 14+50.33 (RIGHT SIDE)	880.37		
54	FWY. EASTBOUND EXISTING STA. 6+00 TO STA. 14+92.51 (LEFT SIDE)	882.38		
55	STA. 0+00 TO STA. 14+92.51 (RIGHT SIDE)	1069.09		
56	STA. 129+00 TO STA. 132+37.39 (RIGHT SIDE)	331.98		
57	STA. 121+00 TO STA. 129+00 (RIGHT SIDE)	787.17		
58	(SUM OF LINES 51 THRU 57) TOTAL (REMOVAL FOR RE-USE OF EXISTING CURB) VILLAGE OF BRATENAHL		5,554.67	LIN. FT.
	CITY OF CLEVELAND			
59	FWY. EASTBOUND EXISTING STA. 10+70 TO STA. 14+92.51 (RIGHT SIDE)	437.38 LIN. FT.		
60	WATERLOO RD. STA. 0+14.98 TO STA. 0+90.98	76.00		
61	(SUM OF LINES 59 THRU 60) TOTAL (REMOVAL FOR RE-USE OF EXISTING CURB) CITY OF CLEVELAND		513.38	LIN. FT.
	E-8 REMOVAL AND DISPOSAL OF EXISTING CURB			
	CITY OF CLEVELAND			
62	CHAUTAUQUA AVE. STA. 0+10 TO STA. 8+65.43	1745.10 LIN. FT.		
63	McELHATTEN AVE. STA. 6+75 TO STA. 8+65.05	402.92		
64	THAMES AVE. STA. 0+20 TO STA. 13+90	2654.82		
65	DARWIN AVE. STA. 0+20 TO STA. 4+75	927.12		

LINE Nº	DESCRIPTION		QUANTITY	UNIT
66	E.140TH ST. STA. 3+02.27-S TO STA. 3+00-N	940.54 LIN. FT.		
67	E.140TH PL. STA. 0+13 TO STA. 0+26	27.70		
68	E.142ND PL. STA. 0+13 TO STA. 0+25	27.70		
69	FROM SHEET 17	795.57		
70	E.146TH ST. STA. 0+13 TO STA. 3+19.28	635.40		
71	E.147TH ST. STA. 0+13 TO STA. 0+28	47.12		
72	SYLVIA AVE. STA. 9+57 TO STA. 23+15.44	2622.88		
73	HALE AVE. (WEST OF E.152ND ST.) STA. 3+35 TO STA. 11+81.78	1710.68		
74	HALE AVE. (EAST OF E.152ND ST.) STA. 0+20 TO STA. 5+58	22.82		
75	WESTROPP AVE. STA. 1+43.92 TO STA. 4+88.74	712.46		
76	WATERLOO RD. STA. 0+27.76 TO STA. 0+90.98	61.00		
77	E.152ND ST. STA. 3+52.50-S TO STA. 5+20.80-N	1422.60		
78	DANIEL AVE. STA. 0+20.14 TO STA. 0+52.33	81.50		
79	DANIEL AVE. STA. 2+87.20 TO STA. 9+43.91	1291.97		
80	E.156TH ST. STA. 0+13 TO STA. 3+34.16 (SOUTH OF CALCUTTA)	667.97		
81	E.156TH ST. STA. 3+60.16 TO STA. 3+72.36 (NORTH OF CALCUTTA)	37.70		
82	CALCUTTA AVE. STA. 4+77.99 TO STA. 13+70.93	1546.43		
83	E.157TH ST. STA. 0+13 TO STA. 1+50.16	291.42		
84	E.158TH ST. STA. 0+13 TO STA. 2+18.50	428.10		
85	E.160TH ST. STA. 0+13 TO STA. 3+07	596.55		
86	(SUM OF LINES 62 THRU 85) TOTAL (REMOVAL AND DISPOSAL OF EXIST. CURB) CITY OF CLEVELAND		19,698.07	LIN. FT.
	E-1 ROADWAY EXCAVATION - METHOD B			
	VILLAGE OF BRATENAHL			
101	FROM SHEET Nº 16	29,817.00 CU. YD.		
102	FROM LINE Nº 101 DEDUCT LUMP SUM FOR PAV'T. REMOVAL	-1,751.00		
103	SUM OF LINES 101 & 102 TOTAL EXCAVATION VILLAGE OF BRATENAHL		28,066.00	CU. YD.
104	FROM SHEET Nº 16 EMBANKMENT + 22 %	17029.00		
105	TO LINE Nº 104 ADD LUMP SUM FOR PAVEMENT REMOVAL	1753.00		
106	SUM OF LINES 104 & 105 TOTAL EMBANKMENT + 22 %	18782.00		
107	FROM LINE 103 DEDUCT LINE 106, SURPLUS EXCAV. VILLAGE OF BRATENAHL	9284.00		
	CITY OF CLEVELAND			
108	FROM SHEET Nº 16	259,222.00 CU. YD.		
109	FROM LINE Nº 108 DEDUCT LUMP SUM FOR PAV'T. REMOVAL	-6171.00		
110	FROM LINE Nº 108 DEDUCT LINE 109 TOTAL EXCAVATION CLEVELAND		253,051.00	CU. YD.
111	FROM SHEET Nº 16 EMBANKMENT + 22 %	252,281.00		
112	TO LINE Nº 111, ADD LUMP SUM FOR PAVEMENT REMOVAL	4081.00		
113	SUM OF LINES 111 & 112, TOTAL EMBANKMENT + 22 %	256,362.00		
114	FROM LINE Nº 113, DEDUCT LINE Nº 110 BORROW CLEVELAND	3311.00		
115	FROM LINE Nº 107, DEDUCT LINE Nº 114 NET SURPLUS OF PROJECT	5,973		
116	ESTIMATED EMBANKMENT REQUIRED TO FILL BASEMENTS, LOCAL DEPRESSIONS AND REPLACE UNSUITABLE MATERIAL NOT INDICATED ON CROSS SECTIONS	20,000		
117	FROM LINE 116 DEDUCT LINE 115, BORROW	14,027		
118	NET ESTIMATED BORROW - CLEVELAND. ITEM E-4. USE		14.000	CU.YD.
	E-11 WATER			
	VILLAGE OF BRATENAHL			
126	FROM SHEET Nº 16	17,029.00 CU. YD.		
127	ADD LUMP SUM FROM PAVEMENT REMOVAL	1751.00		
128	(SUM OF LINES 126 & 127) 18,780 X 5 ÷ 1000 = TOTAL VILLAGE OF BRATENAHL		93.90	M. GAL.
	CITY OF CLEVELAND			
129	FROM SHEET Nº 16	252,281.00 CU. YD.		
130	ADD LUMP SUM FOR PAVEMENT REMOVAL	4081.00		
131	(SUM OF LINES 129 & 130) 256,362 X 5 ÷ 1000 = TOTAL CITY OF CLEVELAND		1281.81	M. GAL.
	I-11 6"X8" SANDSTONE CURB RESET			
	VILLAGE OF BRATENAHL			
141	RE-USE OF EXISTING CURB FROM LINE No. 58 = 5555' - 10% BREAKAGE	5,000 LIN. FT.		
142	EXTR CURB AVALIABLE FOR USE ELSEWHERE	-1243.		
143	(SUM OF LINES 141 & 142) CURB AVAILABLE FOR RE-USE - TOTAL (SANDSTONE CURB RESET) VILLAGE OF BRATENAHL		3757	LIN. FT.
	CITY OF CLEVELAND			
144	RE-USE OF EXISTING CURB FROM LINE No. 61 + LINE 142 =	1756 LIN. FT.		
145	DEDUCTION OF 10% FOR BREAKAGE OF AMOUNT IN LINE 61	-51		
146	(SUM OF LINE 144 & 145) CURB AVAILABLE FOR RE-USE - TOTAL (SANDSTONE CURB RESET) CITY OF CLEVELAND		1705	LIN. FT.

CALCULATIONS

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

20/149

I-18 5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES

VILLAGE OF BRATENAHL

LINE Nº	DESCRIPTION			QUANTITY	UNIT
151	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS		445.92 CU. YD.		
152	FWY. EAST BOUND 10' PAVED BERM STA. 129+92.54	TO STA. 136+21	97.62		
153	FWY. WEST BOUND 10' PAVED BERM STA. 136+42	TO STA. 140+67	68.50		
154	RAMP Nº 1 3' PAVED BERM STA. 15+01.15	TO STA. 18+50	17.51		
155	RAMP Nº 1 8' PAVED BERM STA. 15+01.15	TO STA. 17+41	30.53		
156	FWY. 3' PAVED BERMS (2 EA.) STA. 117+04.19	TO STA. 134+00	252.50		
157	(SUM OF LINES 151 THRU 156)	TOTAL VILLAGE OF BRATENAHL		912.58	CU. YD.

CITY OF CLEVELAND

LINE Nº	DESCRIPTION			QUANTITY	UNIT
158	FWY. EAST BOUND 10' PAVED BERM STA. 136+21	TO STA. 139+25	47.18		
159	STA. 143+75	TO STA. 144+91	18.00		
160	STA. 144+91	TO STA. 152+35 = 744'			
161	FROM LINE 160 DEDUCT 248.84' FOR STRUCTURE		78.33		
162	FWY. EAST BOUND 10' PAVED BERM STA. 157+53.06	TO STA. 169+39	187.62		
163	STA. 176+50	TO STA. 189+18.61			
164	FROM LINE 163 DEDUCT 266.26' FOR STRUCTURE		159.39		
165	FWY. EAST BOUND 10' PAVED BERM STA. 189+18.61	TO STA. 190+03.50	13.43		
166	STA. 192+69.03	TO STA. 198+00	84.00		
167	STA. 201+50	TO STA. 204+00	39.35		
168	FWY. WEST BOUND 10' PAVED BERM STA. 140+67	TO STA. 144+91	68.37		
169	STA. 144+91	TO STA. 152+50			
170	FROM LINE 169 DEDUCT 248.84' FOR STRUCTURE		80.71		
171	FWY. WEST BOUND 10' PAVED BERM STA. 159+03.50	TO STA. 170+82.94	186.59		
172	STA. 177+00	TO STA. 180+50			
173	FROM LINE 172 DEDUCT 266.86' FOR STRUCTURE		13.18		
174	FWY. WEST BOUND 10' PAVED BERM STA. 189+13.50	TO STA. 192+64.49	55.53		
175	STA. 201+50	TO STA. 204+00	39.75		
176	FWY. 5' PAVED BERM STA. 142+75	TO STA. 204+00 X 2 = 12250'			
177	FROM LINE 176 DEDUCT 1030.20' FOR STRUCTURES & 2.37 CU. YD. FOR INLETS		863.80		
178	RAMP Nº 1 8' PAVED BERM STA. 3+85.19	TO STA. 10+62.85	86.27		
179	RAMP Nº 1 3' PAVED BERM STA. 3+85.19	TO STA. 10+62.85	34.02		
180	RAMP Nº 1 8' PAVED BERM STA. 17+41	TO STA. 18+25	10.69		
181	RAMP Nº 2 8' PAVED BERM STA. 1+00	TO STA. 4+39.24	43.19		
182	RAMP Nº 2 3' PAVED BERM STA. 1+00	TO STA. 4+39.24	17.03		
183	RAMP Nº 3 8' PAVED BERM STA. 3+66.44	TO STA. 5+51.24	23.53		
184	RAMP Nº 3 3' PAVED BERM STA. 3+66.44	TO STA. 5+51.24	9.28		
185	RAMP Nº 6 8' PAVED BERM STA. 1+43.77	TO STA. 3+05.40	20.57		
186	RAMP Nº 6 3' PAVED BERM STA. 1+43.77	TO STA. 3+05.40	8.11		
187	SOUTH MARGINAL ROAD STA. 152+42.51	TO STA. 159+24	34.21		
188	STA. 160+59.28	TO STA. 165+60	25.14		
189	STA. 167+00	TO STA. 175+86.62	44.51		
190	STA. 179+69.11	TO STA. 181+90.28	11.10		
191	STA. 181+90.28	TO STA. 183+80	9.45		
192	STA. 193+25	TO STA. 194+37.92	5.65		
193	STA. 194+37.92	TO STA. 202+11.89	38.85		
194	STA. 202+11.89	TO STA. 204+00	9.51		
195	NORTH MARGINAL ROAD STA. 153+32.09	TO STA. 161+50	41.06		
196	STA. 162+86.04	TO STA. 167+92.63	25.43		
197	STA. 169+25	TO STA. 176+85.91	38.20		
198	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS		1290.53		
199	(SUM OF LINES 158 THRU 198)	TOTAL CITY OF CLEVELAND		3,761.56	CU. YD.

B-219-3" WATERPROOFED AGGREGATE BASE COURSE

VILLAGE OF BRATENAHL

LINE Nº	DESCRIPTION			QUANTITY	UNIT
201	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS		3141.83 SQ. YD.		
202	FWY. EAST BOUND 10' PAVED BERM STA. 129+92.54	TO STA. 136+21	685.65		
203	FWY. WEST BOUND 10' PAVED BERM STA. 136+42	TO STA. 140+67	463.67		
204	RAMP Nº 1 3' PAVED BERM STA. 15+01.15	TO STA. 18+50	116.27		
205	RAMP Nº 1 8' PAVED BERM STA. 15+01.15	TO STA. 17+41	213.20		
206	FWY. 3' PAVED BERMS (2 EA.) STA. 117+04.19	TO STA. 134+00	399.70		
207	(SUM OF LINES 201 THRU 206)	TOTAL VILLAGE OF BRATENAHL		5,020.32 or 419	SQ. YD. CU. YD.

CITY OF CLEVELAND

LINE Nº	DESCRIPTION			QUANTITY	UNIT
208	FWY. EAST BOUND 10' PAVED BERM STA. 136+21	TO STA. 139+25	331.39		
209	STA. 143+75	TO STA. 144+91	126.40		
210	STA. 144+91	TO STA. 152+35			
211	FROM LINE 210 DEDUCT 248.84' FOR STRUCTURE		550.17		
212	FWY. EAST BOUND 10' PAVED BERM STA. 157+53.06	TO STA. 169+39	1317.58		
213	STA. 176+50	TO STA. 189+18.61			
214	FROM LINE 213 DEDUCT 266.26' FOR STRUCTURE		1119.32		
215	FWY. EAST BOUND 10' PAVED BERM STA. 189+18.61	TO STA. 190+03.50	94.32		
216	STA. 192+69.03	TO STA. 198+00	589.96		
217	STA. 201+50	TO STA. 204+00	276.35		
218	FWY. WEST BOUND 10' PAVED BERM STA. 140+67	TO STA. 144+91	480.21		
219	STA. 144+91	TO STA. 152+50			
220	FROM LINE 219 DEDUCT 248.84' FOR STRUCTURE		566.84		
221	FWY. WEST BOUND 10' PAVED BERM STA. 159+03.50	TO STA. 170+82.94	1310.48		
222	STA. 177+00	TO STA. 180+50			
223	FROM LINE 222 DEDUCT 266.26' FOR STRUCTURE		92.57		
224	FWY. WEST BOUND 10' PAVED BERM STA. 189+13.50	TO STA. 192+64.49	389.98		
225	STA. 201+50	TO STA. 204+00	279.20		
226	FWY. 5' PAVED BERM STA. 142+75	TO STA. 204+00 = 6125' X 2 = 12250'			
227	FROM LINE 226 DEDUCT 1030.20' FOR STRUCTURES & 17.06 SQ. YD. FOR INLETS		6216.16		
228	RAMP Nº 1 8' PAVED BERM STA. 3+85.19	TO STA. 10+62.85	602.37		
229	RAMP Nº 1 3' PAVED BERM STA. 3+85.19	TO STA. 10+62.85	225.86		
230	RAMP Nº 1 8' PAVED BERM STA. 17+41	TO STA. 18+25	74.67		
231	RAMP Nº 2 8' PAVED BERM STA. 1+00	TO STA. 4+39.24	301.55		
232	RAMP Nº 2 3' PAVED BERM STA. 1+00	TO STA. 4+39.24	113.07		
233	RAMP Nº 3 8' PAVED BERM STA. 3+66.44	TO STA. 5+51.24	164.27		
234	RAMP Nº 3 3' PAVED BERM STA. 3+66.44	TO STA. 5+51.24	61.59		
235	RAMP Nº 6 8' PAVED BERM STA. 1+43.77	TO STA. 3+05.40	143.67		
236	RAMP Nº 6 3' PAVED BERM STA. 1+43.77	TO STA. 3+05.40	53.87		
237	NORTH MARGINAL ROAD STA. 153+32.09	TO STA. 161+50	272.61		
238	STA. 162+86.04	TO STA. 167+92.63	168.85		
239	STA. 169+25	TO STA. 176+85.91	253.61		
240	SOUTH MARGINAL ROAD STA. 152+42.51	TO STA. 159+24	227.14		
241	STA. 160+59.28	TO STA. 165+60	166.89		
242	STA. 167+00	TO STA. 175+86.62	295.51		
243	STA. 179+69.11	TO STA. 181+90.28	73.72		
244	STA. 181+90.28	TO STA. 183+80	62.71		
245	STA. 193+25	TO STA. 194+37.92	37.50		
246	STA. 194+37.92	TO STA. 202+11.89	257.96		
247	STA. 202+11.89	TO STA. 204+00	63.17		
248	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS		9,049.03		
249	(SUM OF LINES 208 THRU 248)	TOTAL CITY OF CLEVELAND		26,410.55 or 2201	SQ. YD. CU. YD.

CALCULATIONS

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

21/149

LINE Nº	DESCRIPTION		QUANTITY	UNIT
	T-71 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT			
	VILLAGE OF BRATENAHL			
251	RAMP Nº 1 STA. 15+01.15 TO STA. 17+66	559.13 SQ.YD.		
252	RAMP Nº 1 STA. 17+66 TO STA. 22+00	409.66		
253	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	1156.71		
254	(SUM OF LINES 251 THRU 253)	TOTAL VILLAGE OF BRATENAHL	2125.50	SQ.YD.
	CITY OF CLEVELAND			
255	RAMP Nº 1 STA. 3+85.19 TO STA. 10+62.85	1204.73 SQ.YD.		
256	RAMP Nº 1 STA. 17+66 TO STA. 22+00	506.56		
257	RAMP Nº 2 STA. 1+00 TO STA. 4+39.24	603.09		
258	MARGINAL CONNECTOR E.140TH ST. 2+02.67 S TO STA. 2+14.59 N	880.88		
259	RAMP Nº 3 STA. 3+66.44 TO STA. 5+51.24	328.53		
260	RAMP Nº 6 STA. 1+43.77 TO STA. 3+05.40	287.34		
261	MARGINAL CONNECTOR AT E.152 ND ST. STA. 2+09.88 S TO STA. 1+96.64 N	858.21		
262	SOUTH MARGINAL ROAD STA. 152+42.51 TO STA. 175+86.62	6771.87		
263	STA. 160+59.28 TO STA. 165+60.00	667.63		
264	STA. 179+69.11 TO STA. 183+80	1826.18		
265	STA. 183+80 TO STA. 193+25 (ADD 0.89' FOR CURVES)	2101.98		
266	STA. 193+25 TO STA. 204+00	4777.78		
267	NORTH MARGINAL ROAD STA. 153+32.09 TO STA. 176+85.91	6799.92		
268	STA. 162+86.04 TO STA. 167+92.63	675.45		
269	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	28,515.98		
270	(SUM OF LINES 255 THRU 269)	TOTAL CITY OF CLEVELAND	56,806.13	SQ.YD.
271	SUB TOTAL T-71 9" FEDERAL NON-PARTICIPATING FROM SHEET Nº 17		761.06	SQ.YD.
	T-71 10" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT			
	VILLAGE OF BRATENAHL			
272	FWY. EAST BOUND STA. 129+00 TO STA. 138+09	4748.00 SQ.YD.		
273	FWY. WEST BOUND STA. 129+00 TO STA. 140+50	6135.75		
274	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	5887.25		
275	(SUM OF LINES 272 THRU 274)	TOTAL VILLAGE OF BRATENAHL	16,771.00	SQ.YD.
	CITY OF CLEVELAND			
276	FWY. EAST BOUND STA. 138+09 TO STA. 144+91	3600.48 SQ.YD.		
277	STA. 144+91 TO STA. 204+00			
278	FROM LINE 277 DEDUCT 610.54' FOR STRUCTURES, APPROACH SLABS & CURVES	28258.45		
279	FWY. EAST BOUND STA. 192+69.03 TO STA. 198+00	707.96		
280	FWY. WEST BOUND STA. 140+50 TO STA. 144+91	2376.21		
281	STA. 144+91 TO STA. 204+00			
282	FROM LINE 281 DEDUCT 615.26' FOR STRUCTURES, APPROACH SLABS & CURVES	28233.28		
283	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	6209.59		
284	(SUM OF LINES 276 THRU 283)	TOTAL CITY OF CLEVELAND	69385.97	SQ.YD.
	I-7 REINFORCED CONCRETE APPROACH SLABS (T=13")			
	VILLAGE OF BRATENAHL			
301	APPROACH SLAB STRUCTURE Nº CUY-2-2310 1 X 25 X 19 ÷ 9 =	52.78 SQ.YD.		
302		TOTAL VILLAGE OF BRATENAHL	52.78	SQ.YD.
	CITY OF CLEVELAND			
303	APPROACH SLAB STRUCTURE Nº CUY-2-2310 1 X 25 X 19 ÷ 9 =	52.78 SQ.YD.		
304	Nº CUY-2-2329 4 X 25 X 48 ÷ 9 =	533.33		
305	Nº CUY-2-2382 4 X 25 X 48 ÷ 9 =	533.33		
306	(SUM OF LINES 303, 304 & 305)	TOTAL CITY OF CLEVELAND	1119.44	SQ.YD.
	I-21 STANDARD TYPE 2 PORTLAND CEMENT CONC. MEDIAN.			
	VILLAGE OF BRATENAHL			
325	FWY. STA. 117+04.19 TO STA. 134+00	677		
326	DEDUCT FOR INLETS (8 # 2-6)	- 20		
327		TOTAL VILLAGE OF BRATENAHL	657	SQ.YD.
328				
329				

LINE Nº	DESCRIPTION		QUANTITY	UNIT
	T-31 BITUMINOUS SURFACE TREATMENT-BITUMINOUS MATERIAL-AS PER PLAN			
	VILLAGE OF BRATENAHL			
351	FROM LINE Nº 207 5020 X.25 = 1255			
352		TOTAL VILLAGE OF BRATENAHL	1255	GAL.
	CITY OF CLEVELAND			
353	FROM LINE Nº 249 26410.55X.25 = 6603			
354		TOTAL CITY OF CLEVELAND	6603	GAL.
	T-31 BITUMINOUS SURFACE TREATMENT, Nº 6 AGGREGATE			
	VILLAGE OF BRATENAHL			
355	FROM LINE Nº 207 5020 X.008 = 40			
356		TOTAL VILLAGE OF BRATENAHL	40	CU.YD.
	CITY OF CLEVELAND			
357	FROM LINE Nº 249 26410.55 X.008 = 211.28			
358		TOTAL CITY OF CLEVELAND	211.28	CU.YD.
	I-11 6"X18" SANDSTONE CURB			
	VILLAGE OF BRATENAHL			
376	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS - STRAIGHT CURB	514.24 LIN.FT.		
377	RAMP Nº 1 LEFT SIDE STA. 18+75 TO STA. 22+00	323.61		
378	RAMP Nº 1 RIGHT SIDE STA. 19+25 TO STA. 19+41	16.00		
379	RAMP Nº 1-A STA. 9+00 TO STA. 14+86.56	592.41		
380	MEDIAN CURB STA. 134+00 TO STA. 139+96.60 2 X 596.6. =	1193.20		
381	DEDUCTS FOR INLETS	- 18.46		
382	DEDUCT CURB AVAILABLE FOR RE-USE	-2621.00		
383	(SUM OF LINES 376 THRU 382)	TOTAL VILLAGE OF BRATENAHL	0	LIN.FT.
	CITY OF CLEVELAND			
384	FWY. EAST BOUND MEDIAN CURB STA. 139+96.60 TO STA. 204+00			
385	FROM LINE 383 DEDUCT 515.10' FOR STRUCTURES	5888.30 LIN.FT.		
386	FWY. WEST BOUND MEDIAN CURB STA. 139+96.60 TO STA. 204+00			
387	FROM LINE 385 DEDUCT 515.10' FOR STRUCTURES & DEDUCT FOR E.B. & W.B. INLETS 305.20'	5583.10		
388	RAMP Nº 1 RIGHT SIDE STA. 18.75 TO STA. 19+25 & 19+41 TO 22+00	310.42		
389	MARGINAL CONNECTOR AT E.140TH STA. 2+02.67-S TO STA. 2+14.59-N	438.33		
390	AT E.140TH STA. 2+02.67-S TO STA. 2+14.59-N	396.19		
391	AT E.152ND STA. 2+09.88-S TO STA. 1+96.64-N	426.57		
392	AT E.152ND STA. 2+09.88-S TO STA. 1+96.64-N	386.47		
393	NORTH MARGINAL ROAD STA. 153+32.09 TO STA. 159+62.67	630.58		
394	STA. 162+80.07 TO STA. 166+19.55	339.48		
395	STA. 166+86.44 TO STA. 170+53.92	367.48		
396	STA. 172+21.89 TO STA. 176+85.91	464.02		
397	SOUTH MARGINAL ROAD STA. 152+42.51 TO STA. 152+90.20	47.69		
398	STA. 156+46.47 TO STA. 162+66.07	619.60		
399	STA. 166+22.50 TO STA. 172+57.79	635.29		
400	STA. 174+26.46 TO STA. 175+86.62	160.16		
401	STA. 179+69.11 TO STA. 181+90.28	221.17		
402	STA. 181+90.28 TO STA. 185+38.86	351.02		
403	STA. 185+38.86 TO STA. 191+30.86	592.00		
404	STA. 191+30.86 TO STA. 194+37.92	308.13		
405	STA. 194+37.92 TO STA. 202+11.89	773.97		
406	STA. 202+11.89 TO STA. 204+00	186.79		
407	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS - 11,858.02' STRAIGHT CURB + 1604.55' RADIAL CURB	13,462.57		
408	DEDUCT CURB AVAILABLE FOR RE-USE	- 1,705		
409	(SUM OF LINES 384 THRU 408)	TOTAL CITY OF CLEVELAND	30,885	LIN.FT.
	I-21 STANDARD TYPE 1 PORTLAND CEMENT CONC. MEDIAN PAV'T.			
	VILLAGE OF BRATENAHL			
426	FWY. MEDIAN STA. 134+00 TO STA. 139+96.60	558.5 SQ.YD.		
427	DEDUCT 3.95 SQ.YD. FOR RAMP #1 PIERS	- 4		
428				
429				
430	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	11		
431	(SUM OF LINES 426 THRU 430)	TOTAL VILLAGE OF BRATENAHL	565.5	SQ.YD.
	CITY OF CLEVELAND			
432	FWY. MEDIAN STA. 139+96.60 TO STA. 204+00			
433	FROM LINE 432 DEDUCT 515.10' FOR STRUCTURES	5888.30 SQ.YD.		
434	DEDUCT FOR INLETS (37 # 2-6 & 3 # 2-10)	-76.30		
435	(SUM OF LINES 432 THRU 434)	TOTAL CITY OF CLEVELAND	5812.00	SQ.YD.

CALCULATIONS

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

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LINE Nº	DESCRIPTION		QUANTITY	UNIT
	I-22 SUBBASE GRADING A OR B			
	VILLAGE OF BRATENAHL			
451	FROM LINE 254, 2125.50 S.Y. - LINE 253, 1156.71 S.Y. = 968.79 S.Y. ÷ 6 =	161.47 CU.YD.		
452	FROM LINE 275, 16,881.87 S.Y. - LINE 274, 5887.21 S.Y. = 10,994.66 S.Y. ÷ 6 =	1832.44		
453	FWY. EAST BOUND 10' PAVED BERM STA. 129+92.54 TO STA. 136+21	125.88		
454	FWY. WEST BOUND 10' PAVED BERM STA. 136+42 TO STA. 140+67	90.50		
455	RAMP Nº 1 3' PAVED BERM STA. 15+01.15 TO STA. 18+50	24.49		
456	RAMP Nº 1 8' PAVED BERM STA. 15+01.15 TO STA. 17+41	30.53		
457	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	1859.33		
458	FWY. MEDIAN STA. 117+04.19 TO STA. 129+00	246.88		
459	STA. 130+25 TO STA. 139+96.60			
460	DEDUCT FROM LINE 459 FOR RAMP Nº 1 PIERS 3.95 S.Y. = 234 CU.YD. (517.18 - 234 = 514.84)			
461	DEDUCT FROM LINE 460 FOR INLETS 10.06 CU.YD. AND FOR MEDIAN DESIGN CHANGE = 145)	359.78		
462	APPROACH SLAB (52.77 x .64) ÷ 3	11.26		
463	(SUM OF LINES 451 THRU 462) TOTAL VILLAGE OF BRATENAHL		4742.56	CU.YD.
	CITY OF CLEVELAND			
464	FROM LINE 270 ; 56,806.13 S.Y. - LINE 269 ; 28,515.98 S.Y. = 28,290.15 S.Y. ÷ 6 =	4715.03 CU.YD.		
465	FROM LINE 284 ; 69,385.97 S.Y. - LINE 283 ; 6,209.59 S.Y. = 63,176.38 S.Y. ÷ 6 =	10529.40		
466	FREEWAY EASTBOUND (ADDITIONAL 1'-0" I-22) STA. 162+00 TO STA. 167+00	888.89		
467	FREEWAY WESTBOUND (ADDITIONAL 1'-0" I-22) STA. 162+00 TO STA. 167+00	888.89		
468	APPROACH SLABS SUBBASE (533.33 x 2 x .66) ÷ 3 + (52.77 x .64) ÷ 3 =	245.93		
469	MEDIAN STA. 139+96.60 TO STA. 144+91	263.17		
470	MEDIAN STA. 144+91 TO STA. 204+00			
471	DEDUCT FROM LINE 470; 515.10' FOR STRUCTURES = 5393.90' x .5743 = 3097.72 CU.YD.			
472	DEDUCT FROM LINE 471: FOR CURB INLETS 39.75 CU.YD. 3097.72 - 39.75 =	3057.97		
473	MEDIAN - ADDITIONAL 1'-0" I-22 - STA. 162+00 TO STA. 167+00	185.19		
474	FWY. EAST BOUND 10' PAVED BERM STA. 136+21 TO STA. 139+25	60.82		
475	FWY. EAST BOUND 10' PAVED BERM STA. 143+75 TO STA. 144+91	23.21		
476	FWY. EAST BOUND 10' PAVED BERM STA. 144+91 TO STA. 152+35			
477	DEDUCT FROM LINE 476, 248.84' FOR STRUCTURE	101.01		
478	FWY. EAST BOUND 10' PAVED BERM STA. 157+53.06 TO STA. 169+39	241.93		
479	ADDITIONAL I-22 - 10' PAVED BERM STA. 162+00 TO STA. 167+00	37.04		
480	FWY. EAST BOUND 10' PAVED BERM STA. 176+50 TO STA. 189+18.61			
481	DEDUCT FROM LINE 480, 266.26' FOR STRUCTURE	210.57		
482	FWY. EAST BOUND 10' PAVED BERM STA. 189+18.61 TO STA. 190+03.50	17.32		
483	FWY. EAST BOUND 10' PAVED BERM STA. 192+69.03 TO STA. 198+00	108.32		
484	FWY. EAST BOUND 10' PAVED BERM STA. 201+50 TO STA. 204+00	50.74		
485	FWY. WEST BOUND 10' PAVED BERM STA. 140+67 TO STA. 144+91	90.33		
486	FWY. WEST BOUND 10' PAVED BERM STA. 144+91 TO STA. 152+50			
487	DEDUCT FROM LINE 486, 248.84' FOR STRUCTURE	104.07		
488	FWY. WEST BOUND 10' PAVED BERM STA. 153+03.50 TO STA. 170+82.94	240.61		
489	ADDITIONAL I-22-10' PAVED BERM STA. 162+00 TO STA. 167+00	37.04		
490	FWY. WEST BOUND 10' PAVED BERM STA. 177+00 TO STA. 180+50			
491	DEDUCT FROM LINE 490, 266.26' FOR STRUCTURE	17.00		
492	FWY. WEST BOUND 10' PAVED BERM STA. 189+13.50 TO STA. 192+64.49	71.60		
493	FWY. WEST BOUND 10' PAVED BERM STA. 201+50 TO STA. 204+00	52.52		
494	FWY. EAST BOUND 5' PAVED BERM STA. 142+75 TO STA. 204+00			
495	DEDUCT FROM LINE 494, 515.10' FOR STRUCTURE 692.82 CU.YD.			
496	ADDITIONAL I-22 - 5' PAVED BERM STA. 162+00 TO STA. 167+00 92.59			
497	FWY. WEST BOUND 5' PAVED BERM STA. 142+75 TO STA. 204+00			
498	DEDUCT FROM LINE 497, 515.10' FOR STRUCTURE 692.82			
499	ADDITIONAL I-22 - 5' PAVED BERM STA. 162+00 TO STA. 167+00 92.59			
500	DEDUCTION FOR CURB INLETS IN FWY. 5' PAVED BERMS = 3.79 CU.YD. : 1570.82 - 3.79	1567.03		
501	RAMP Nº 1 8' PAVED BERM STA. 3+85.19 TO STA. 10+62.85	86.27		
502	RAMP Nº 1 8' PAVED BERM STA. 17+41 TO STA. 18+25	10.69		
503	RAMP Nº 1 3' PAVED BERM STA. 3+85.19 TO STA. 10+62.85	47.57		
504	RAMP Nº 2 8' PAVED BERM STA. 1+00 TO STA. 4+39.24	43.19		
505	RAMP Nº 2 3' PAVED BERM STA. 1+00 TO STA. 4+39.24	23.81		
506	RAMP Nº 3 8' PAVED BERM STA. 3+66.44 TO STA. 5+51.24	23.53		
507	RAMP Nº 3 3' PAVED BERM STA. 3+66.44 TO STA. 5+51.24	12.97		
508	RAMP Nº 6 8' PAVED BERM STA. 1+43.77 TO STA. 3+05.40	20.58		
509	RAMP Nº 6 3' PAVED BERM STA. 1+43.77 TO STA. 3+05.40	11.35		
510	NORTH MARGINAL RD. 3' PAVED BERM STA. 153+32.09 TO STA. 161+50	57.42		
511	NORTH MARGINAL RD. 3' PAVED BERM STA. 162+86.04 TO STA. 167+92.63	35.56		
512	NORTH MARGINAL RD. 3' PAVED BERM STA. 169+25 TO STA. 176+85.91	53.42		

LINE Nº	DESCRIPTION		QUANTITY	UNIT
513	SOUTH MARGINAL RD. 3' PAVED BERM STA. 152+42.51 TO STA. 159+24	47.70 CU.YD.		
514	SOUTH MARGINAL RD. 3' PAVED BERM STA. 160+59.28 TO STA. 165+60	35.15		
515	SOUTH MARGINAL RD. 3' PAVED BERM STA. 167+00 TO STA. 175+86.62	60.84		
516	SOUTH MARGINAL RD. 3' PAVED BERM STA. 179+69.11 TO STA. 181+90.28	15.53		
517	SOUTH MARGINAL RD. 3' PAVED BERM STA. 181+90.28 TO STA. 183+80	13.22		
518	SOUTH MARGINAL RD. 3' PAVED BERM STA. 193+25 TO STA. 194+37.92	7.90		
519	SOUTH MARGINAL RD. 3' PAVED BERM STA. 194+37.92 TO STA. 202+11.89	54.33		
520	SOUTH MARGINAL RD. 3' PAVED BERM STA. 202+11.89 TO STA. 204+00	13.30		
521	FROM SHEET Nº 16 SUMMARY OF TABLES	35.61		
522	FROM SHEET Nº 17 SUMMARY OF EXTRA AREAS	7792.16		
523	(SUM OF LINES 464 THRU 522) TOTAL CITY OF CLEVELAND		32,307.73	CU.YD.
524	TOTAL FEDERAL NON-PARTICIPATING FROM SHEET Nº 17		126.84	CU.YD.
	ADDITIONS FOR LOCAL ROADS			
551	EAST 140TH ST. STA. 3+02.27-S TO STA. 3+00-N	602.27 FT.		
552	EAST 152ND ST. STA. 3+52.50-S TO STA. 5+20.80-N	873.30		
553	TEMPORARY CROSSOVER STA. 114+50	200.		
554				
555				
556	(SUM OF LINES 551 THRU 555) TOTAL LENGTH OF APPR. 1675.57 FT ÷ 5280		0.317	MI.
	L-9 SEEDING AND PROTECTING			
	VILLAGE OF BRATENAHL			
576	FROM CROSS SECTIONS SHT. Nº 73 TOTAL AREA	18,169.00 SQ.YD.		
577	FROM SHEET Nº 16 DEDUCT FOR SODDING	-805.00 SQ.YD.		
578	DEDUCT LINE 577 FROM 576 TOTAL VILLAGE OF BRATENAHL		17,364	SQ.YD.
	L-9 COMMERCIAL FERTILIZER			
579	FROM LINE Nº 576 18,169 SQ.YD. 18,169 X 9 X 20 / 1000 ÷ 2000 = 1.635 TONS TOTAL		1.635	TONS
	CITY OF CLEVELAND			
580	FROM CROSS SECTIONS SHEET Nº 84	163,042.00 SQ.YD.		
581	FROM SHEET Nº 74 DEDUCT FOR CONCRETE SLOPE PROTECTION	-1240.00		
582	FROM SHEET Nº 79 DEDUCT FOR CONCRETE SLOPE PROTECTION	-1532.00		
583	SUM OF LINE Nº 580 THRU LINE Nº 582	160,270.00		
584	FROM SHEET Nº 16 DEDUCT FOR SODDING	-5028.00		
585	DEDUCT LINE 584 FROM LINE 583 TOTAL CITY OF CLEVELAND		155,242	SQ.YD.
	L-9 COMMERCIAL FERTILIZER			
586	FROM LINE Nº 583 160,270 X 9 X 20 / 1000 ÷ 2000 =	14.424 TONS	14.424	TONS
	E-1 COMPACTED SUBGRADE			
	VILLAGE OF BRATENAHL			
601	FROM LINE 254 T-71, 9" CONCRETE PAVEMENT	2126 SQ.YD.		
602	FROM LINE 275 T-71, 10" CONCRETE PAVEMENT	16882 SQ.YD.		
603	FROM LINE 302 I-7, CONCRETE APPROACH SLABS	53 SQ.YD.		
604	FROM LINE 207 B-219, BASE COURSE	5020 SQ.YD.		
605	FROM LINE 143 I-11, CURB RESET 3757 LF. x .5 ÷ 9 =	209 SQ.YD.		
606				
607	TOTAL VILLAGE OF BRATENAHL		24290	SQ.YD.
	CITY OF CLEVELAND			
608	FROM LINE 270 T-71, 9" CONCRETE PAVEMENT	56806 SQ.YD.		
609	FROM LINE 284 T-71, 10" CONCRETE PAVEMENT	69386 SQ.YD.		
610	FROM LINE 306 I-7, CONCRETE APPROACH SLABS	1119 SQ.YD.		
611	FROM LINE 249 B-219, BASE COURSE	26411 SQ.YD.		
612	FROM LINE 146 I-11, CURB RESET 1705 LF. x .5 ÷ 9 =	95 SQ.YD.		
613	FROM LINE 409 I-11, SANDSTONE CURB 30885 L.F. x .5 ÷ 9 =	1716 SQ.YD.		
614	TOTAL CITY OF CLEVELAND		155533	SQ.YD.
	FEDERAL NON PARTICIPATING			
615	FROM LINE 271 T-71, 9" CONCRETE PAVEMENT		761	SQ.YD.

GENERAL SUMMARY

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

ITEM	QUANTITIES: VILLAGE OF BRATENAHL	QUANTITIES: CITY OF CLEVELAND	QUANTITIES: FEDERAL NON-PARTICIPATE	QUANTITIES: TOTAL	UNIT	DESCRIPTION	SHEET	LINE
						ROADWAY — CODE 7221		
E-1	28066.	253051		281117	CU.YDS.	ROADWAY EXCAVATION METHOD B	19	B-103 C-116
E-1	24290	155,533	761	180,584	SQ.YDS.	COMPACTED SUBGRADE	22	
E-4		14,000		14,000	CU.YD.	BORROW	19	C-118
E-8	11892.	34594	108	46594	SQ.YDS.	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT	19	B-11 C-38
E-8		19,606	92	19,698	LIN.FT.	REMOVAL AND DISPOSAL OF EXISTING CURB	19	C-86
E-8	5555.	514.		6069.	LIN.FT.	REMOVAL FOR RE-USE OF EXISTING CURB	19	B-29 C-61
E-11	94.	1282.		1376.	M GAL.	WATER	19	B-138 C-131
I-8	1.	26.		27.	EACH	MONUMENT ASSEMBLIES - TYPE B	16	
I-8	2.	9.		11.	EACH	MONUMENT ASSEMBLIES - RE-SET	16	
I-13		60477.	300	60777.	SQ.FT.	SIDEWALKS-4", AS PER PLAN	16,17	
I-13		1793.		1793.	SQ.FT.	SIDEWALKS-4" CURBED, AS PER PLAN	17	
I-15	1122.77	6029.73		7152.50	LIN.FT.	GUARD RAIL, STEEL BEAM STD. TYPE (DEEP)	16	
I-15	2154.5	5828.5		7983	LIN.FT.	GUARD RAIL, STEEL BEAM BARRIER TYPE (DEEP), USING 6"x8" SQUARE SAWED PRESSURE TREATED WOOD POSTS, AS PER PLAN.	16	
I-15		87.5		87.5	LIN.FT.	TEMPORARY GUARDRAIL, AS PER PLAN.	16	
L-9	17364.	155242.		172606	SQ.YD.	SEEDING AND PROTECTING	22	B-378 C-586
L-9	1.64	14.42		16.06	TONS	COMMERCIAL FERTILIZER (12-12-12)	22	B-378 C-586
L-10	701.	4489.		5190.	SQ.YD.	SODDING	16	
L-10	104.	539.		643.	SQ.YD.	SODDING FOR SPECIAL BERM AND SLOPE PROTECTION	16	
S-15		LUMP		LUMP	SUM	TEMPORARY RUNAROUND AT E.140TH STREET CLASS A	67	
S-15		LUMP		LUMP	SUM	TEMPORARY RUNAROUND AT E.152ND STREET CLASS A	67	
SS-18	3,443	14,212		17,655	LIN.FT.	FENCE, GALVANIZED STEEL, TYPE C	18	
SS-18		10		10	EACH	FENCE GATES, GALVANIZED STEEL, TYPE C	18	
SPEC	1	4		5	EACH	INTERSTATE AND DEFENSE HIGHWAY SIGNS FUR & ERECT	16	
S-24		LUMP		LUMP	LUMP	REMOVAL OF EXISTING STRUCTURES - MANHOLES	16	
						ALTERNATES		
I-15	1122.77	6029.73		7152.50	LIN.FT.	GUARD RAIL, ALUMINUM BEAM STANDARD TYPE (DEEP)	16	
I-15	2154.50	5828.50		7983	LIN.FT.	GUARD RAIL, ALUMINUM BEAM BARRIER TYPE (DEEP) USING 6"x8" SQUARE SAWED PRESSURE TREATED WOOD POSTS, AS PER PLAN	16	
I-15	1122.77	6029.73		7152.50	LIN.FT.	GUARD RAIL, GALVANIZED STEEL BEAM STD. TYPE (DEEP)		
I-15	2154.50	5828.50		7983	LIN.FT.	GUARD RAIL, GALVANIZED STEEL BEAM BARRIER TYPE (DEEP) USING 6"x8" SQUARE SAWED PRESSURE TREATED WOOD POSTS, AS PER PLAN.		
SS-18	3,443	14,212		17,655	LIN.FT.	FENCE, ALUMINUM, TYPE C.	18	
SS-18		10		10	EACH	FENCE GATES, ALUMINUM, TYPE C.	18	
						DRAINAGE — CODE 7221		
I-2		81.		81.	LIN.FT.	8" CLASS A STORM SEWER SEC. M-6.4 (c)	16	
I-2		233.		233.	LIN.FT.	12" CLASS A STORM SEWER SEC. M-6.4 (c)	16	
I-2		212.		212.	LIN.FT.	8" CLASS A STORM SEWER	16	
I-2	70.	34.		104.	LIN.FT.	10" CLASS A STORM SEWER	16	
I-2	168.	429.		597.	LIN.FT.	12" CLASS A STORM SEWER	16	
I-2		140.		140.	LIN.FT.	15" CLASS A STORM SEWER	16	
I-2		15.		15.	LIN.FT.	18" CLASS A STORM SEWER	16	
I-2	30.	1389.		1419.	LIN.FT.	8" CLASS A STORM SEWER UNDER PAVEMENT. SEC. M-6.5(b) OR 6.8(b)	16	
I-2	174.	1167		1341	LIN.FT.	12" CLASS A STORM SEWER UNDER PAVEMENT. SEC. M-6.5(b) OR 6.8(b)	16	
I-2	82.	1247.		1329.	LIN.FT.	12" CLASS B STORM SEWER	16	
I-2		249.		249.	LIN.FT.	15" CLASS B STORM SEWER	16	
I-2		188.		188.	LIN.FT.	18" CLASS B STORM SEWER	16	
I-2		266		266	LIN.FT.	21" CLASS B STORM SEWER	16	
I-2		126.		126.	LIN.FT.	24" CLASS B STORM SEWER	16	
I-2		600.		600.	LIN.FT.	10" CLASS A STORM SEWER UNDER PAVEMENT. SEC. M-6.5(b) OR 6.8(b)	13	

ITEM	QUANTITIES: VILLAGE OF BRATENAHL	QUANTITIES: CITY OF CLEVELAND	QUANTITIES: FEDERAL NON-PARTICIPATE	QUANTITIES: TOTAL	UNIT	DESCRIPTION	SHEET	LINE
I-2	100	3373		3473	LIN.FT.	12" CLASS B STORM SEWER UNDER PAVEMENT	16	
I-2	76	379		455	LIN.FT.	15" CLASS B STORM SEWER UNDER PAVEMENT	16	
I-2		187		187	LIN.FT.	18" CLASS B STORM SEWER UNDER PAVEMENT	16	
I-2		113		113	LIN.FT.	24" CLASS B STORM SEWER UNDER PAVEMENT	16	
I-2	392	154		546	LIN.FT.	21" CLASS B STORM SEWER SEC. M-6.6 (b) or M-6.8(b)	16	
I-2	260			260	LIN.FT.	27" CLASS B STORM SEWER SEC. M-6.6 (b) or M-6.8 (b)	16	
I-2		162		162	LIN.FT.	27" CLASS B STORM SEWER SEC. M-6.6(a) or M-6.8(a)	16	
I-2	80	120		200	LIN.FT.	30" CLASS B STORM SEWER SEC. M-6.6(b) or M-6.8(b)	16	
I-2	16	178		194	LIN.FT.	33" CLASS B STORM SEWER SEC. M-6.6(a) or M-6.8(a)	16	
I-2		350		350	LIN.FT.	36" CLASS B STORM SEWER SEC. M-6.6(b) or M-6.8(b)	16	
I-2		318		318	LIN.FT.	42" CLASS B STORM SEWER SEC. M-6.6(a)	16	
I-2		319		319	LIN.FT.	54" CLASS B STORM SEWER SEC. M-6.6(b)	16	
I-2		146		146	LIN.FT.	30" CLASS B.S.S. UNDER PVMT. or APP. SEC. M-6.6(b) or M-6.8(b)	16	
I-2		301		301	LIN.FT.	36" CLASS B S.S. UNDER PVMT. or APP. SEC. M-6.6(b) or M-6.8(b)	16	
I-2		248		248	LIN.FT.	36" CLASS B STORM SEWER SEC. M-6.6(b)	16	
I-2		528		528	LIN.FT.	48" CLASS B STORM SEWER SEC. M-6.6(b)	16	
I-2		394		394	LIN.FT.	15" CLASS B S.S. UNDER PVMT. or APP. SEC. M-6.6(b) or M-6.8(b)	16	
I-2		334		334	LIN.FT.	48" CLASS B STORM SEWER UNDER PVMT. or APP. SEC. M-6.6(b)	16	
I-2		392		392	LIN.FT.	54" CLASS B STORM SEWER UNDER PVMT. or APP. SEC. M-6.6(b)	16	
I-2		449		449	LIN.FT.	15" CLASS B S.S. UNDER PVMT. or APP. SEC. M-6.5(b) or M-6.8(b)	16	
I-2		182		182	LIN.FT.	18" CLASS B S.S. UNDER PVMT or APP. SEC. M-6.5(b) or M-6.8(b)	16	
I-2		221		221	LIN.FT.	36" CLASS B STORM SEWER SEC. M-6.6(c)	16	
I-2		226		226	LIN.FT.	48" CLASS B STORM SEWER SEC. M-6.6(c)	16	
I-2		642		642	LIN.FT.	54" CLASS B STORM SEWER SEC. M-6.6(c)	16	
I-2		292		292	LIN.FT.	36" CLASS B STORM SEWER UNDER PAVEMENT SEC. M-6.6(d)	16	
I-2		340		340	LIN.FT.	36" CLASS B STORM SEWER UNDER PAVEMENT SEC. M-6.6(c)	16	
I-2		258		258	LIN.FT.	42" CLASS B STORM SEWER UNDER PAVEMENT SEC. M-6.6(c)	16	
I-2		288		288	LIN.FT.	48" CLASS B STORM SEWER UNDER PAVEMENT SEC. M-6.6(c)	16	
I-2		312		312	LIN.FT.	54" CLASS B STORM SEWER UNDER PAVEMENT SEC. M-6.6(c)	16	
I-2		172		172	LIN.FT.	6" CLASS B STORM SEWER SEC. M-6.8(a) (SANITARY)	16	
I-2		298		298	LIN. FT.	8" CLASS B STORM SEWER SEC. M-6.8(b) (SANITARY)	16	
I-2		386		386	LIN.FT.	8" CLASS B STORM SEWER UNDER PVT. (SAN) SEC. M-6.8(b) ENCASED	16	
I-2		366		366	LIN. FT.	12" CLASS B STORM SEWER UNDER PVT. (SAN) SEC. M-6.8(b) ENCASED	16	
I-4	6306	28595		34901	LIN. FT.	6" UNDERDRAINS	16	
I-4	911	17568		18479	LIN.FT.	6 CURB UNDERDRAINS	16	
I-4	202	1142		1344	LIN.FT.	8" PIPE OUTLET FOR UNDERDRAINS SEC. M-6.4 (a)	16	
I-5	18	83		101	EACH	6" PIPE SPECIALS FOR UNDERDRAINS	16	
I-5		28		28	EACH	8" PIPE SPECIAL FOR CLASS A STORM SEWER	16	
I-5	2	1		3	EACH	10" PIPE SPECIAL FOR CLASS A STORM SEWER	16	
I-5	1	28		29	EACH	8" PIPE SPECIAL FOR CLASS A STORM SEWER UNDER PAVEMENT SEC. M-6.5 (b) OR 6.8 (b)	16	
I-5	1			1	EACH	12" PIPE SPECIAL FOR CLASS A STORM SEWER UNDER PAVEMENT SEC. M-6.5 (b) OR 6.8 (b)	16	
I-5		4		4	EACH	8" PIPE SPECIAL FOR CLASS A STORM SEWER SEC. M-6.4(c)	16	
I-5		5		5	EACH	12" PIPE SPECIAL FOR CLASS A STORM SEWER SEC. M-6.4(c)	16	

GENERAL SUMMARY

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

ITEM	QUANTITIES: VILLAGE OF BRATENAHL	QUANTITIES: CITY OF CLEVELAND	QUANTITIES: FEDERAL NON-PARTICIPATE	QUANTITIES: TOTAL	UNIT	DESCRIPTION	SHEET	LINE
I-5		1		1	EACH	12" PIPE SPECIAL FOR CLASS "B" STORM SEWER	16	
I-5		1		1	EACH	18" PIPE SPECIAL FOR CLASS "B" STORM SEWER	16	
I-5	1	6		7	EACH	12" PIPE SPECIAL FOR CLASS "B" STORM SEWER UNDER PAVEMENT	16	
I-5		1		1	EACH	15" PIPE SPECIAL FOR CLASS "B" STORM SEWER UNDER PAVEMENT	16	
I-5		1		1	EACH	54" PIPE SPECIAL FOR CLASS "B" STORM SEWER UNDER PAVEMENT SEC. M-6.6 (c)	16	
I-5		1		1	EACH	54" PIPE SPECIAL FOR CLASS "B" STORM SEWER UNDER PAVEMENT SEC. M-6.6 (b)	16	
I-8	9			9	EACH	EXISTING MANHOLE ADJUSTED TO GRADE. PROVIDE NEW M.H. COVER & FRAMES PER STD. DWG. #I-8 M.H. Nº 1	16	
I-8	2	36	1	39	EACH	EXISTING MANHOLE ADJUSTED TO GRADE	16	
I-8		4		4	EACH	EXISTING CATCH BASIN ADJUSTED TO GRADE	16	
I-8	5	19		24	EACH	STANDARD Nº 1 MANHOLE	16	
I-8	1	27		28	EACH	STANDARD Nº 2 MANHOLE (WITHOUT DROP PIPE)	16	
I-8		2		2	EACH	STANDARD Nº 2 MANHOLE (WITH DROP PIPE)	16	
I-8		7		7	EACH	TYPE "A" MANHOLE	16	
I-8		1		1	EACH	JUNCTION CHAMBER Nº 1	16	
I-8		1		1	EACH	JUNCTION CHAMBER Nº 2	16	
I-8		1		1	EACH	JUNCTION CHAMBER Nº 3	16	
I-8		22		22	EACH	STANDARD Nº 2-6, CURB INLET	16	
I-8	9	15		24	EACH	STANDARD Nº 2-6, CURB INLET MODIFIED AS PER PLAN	16	
I-8		3		3	EACH	STANDARD Nº 2-10, CURB INLET	16	
I-8	1			1	EACH	STANDARD Nº 2-10, CURB INLET MODIFIED AS PER PLAN	16	
I-8		16	1	17	EACH	SPECIAL Nº 4 CURB INLET	16	
I-8		5		5	EACH	STANDARD Nº 2-2A CATCH BASIN	16	
I-8		1		1	EACH	SPECIAL Nº 2-2A CATCH BASIN	16	
I-8		1		1	EACH	SPECIAL Nº 2-2A CATCH BASIN MODIFIED AS PER PLAN	16	
I-8	1	30	1	32	EACH	SPECIAL Nº 4 CATCH BASIN	16	
I-8		4		4	EACH	STANDARD Nº 5 CATCH BASIN	16	
I-8	12	27		39	EACH	STANDARD Nº 5 CATCH BASIN MODIFIED AS PER PLAN	16	
I-8		3		3	EACH	STANDARD Nº 6 CATCH BASIN MODIFIED AS PER PLAN	16	
I-14	362	450		812	LIN.FT.	PAVED GUTTER STANDARD TYPE 2	16	
I-14		150		150	LIN.FT.	PAVED GUTTER, STR TYPE 2 MODIFIED AS PER PLAN.	16	
I-16	3	22		25	EACH	MANHOLE ABANDONED	16	
I-16	6			6	EACH	CURB INLET ABANDONED	16	
I-16	20	60	2	82	EACH	CATCH BASIN ABANDONED	16	
S-1		33		33	CU.YDS.	CONCRETE FOR STRUCTURES, CLASS "E", AS PER PLAN	26	
E-12	5	1293		1298	LIN.FT.	PIPE REMOVED, 15" AND UNDER	16	
E-12		55		55	LIN.FT.	PIPE REMOVED, OVER 15"	16	
						PAVEMENT — CODE 7221		
B-219	419	2201		2620	CU.YD.	WATERPROOFED AGGREGATE BASE COURSE,	20	B 207 C 249
T-31	1255	6603		7858	GALS.	BITUMINOUS SURFACE TREATMENT, BITUMINOUS MATERIAL, AS PER PLAN	21	B 382 C 389
T-31	40	211		251	CU.YD.	BITUMINOUS SURFACE TREATMENT Nº 6 AGGREGATE	21	B 356 C 368
T-71		861		861	SQ.YD.	6" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	16,17	(B 255 (C 270 (F 271
T-71	2126	56611	956	59693	SQ.YD.	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	21	
T-71	16771	69386		86157	SQ.YD.	10" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	21	B 375 C 384
T-70	412	784		1196	SQ.YD.	9" PORTLAND CEMENT CONCRETE PAVEMENT FOR TEMPORARY TRAFFIC LANES, AS PER PLAN.	17	
I-7	53	1119		1172	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (T=13")	21	B 302 C 306
I-11	1	32		33	EACH	BUMPER BLOCK	17	
I-11		30,750	135	30,885	LIN.FT.	6"X 18" SANDSTONE CURB AS PER PLAN	21	B 383 C 403
I-11	3757	1705		5462	LIN.FT.	SANDSTONE CURB RESET AS PER PLAN	19	B 743 C 748
I-12		78		78	LIN.FT.	STANDARD TYPE 2-A CONCRETE CURB AS PER PLAN.	17	
I-12	202	461		663	LIN.FT.	CONCRETE CURB, SPECIAL TYPE A	17	
I-12	64	277		341	LIN.FT.	CONCRETE CURB, SPECIAL TYPE B	17	
I-18	660	3762		4422	CU.YD.	STABILIZED CRUSHED AGGREGATE SHOULDERS AND APPROACHES	20	B 737 C 799
I-21	223	910		1133	SQ.YD.	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	17	
I-21	566	5812		6378	SQ.YD.	STANDARD TYPE 1 PORTLAND CEMENT CONCRETE MEDIAN PAVEMENT	21	B 431 C 435
I-21	657	—		657	SQ.YD.	STD. TYPE 2 PORTLAND CEMENT CONCRETE MEDIAN PAVEMENT	21	B 327 B 763
I-22	4743	32275	160	37178	CU.YD.	SUBBASE GRADING A OR B AS PER PLAN	22	C 523 F 324
						STRUCTURES OVER 20' SPAN		
						BRIDGE - CUY-2-2310 ESTIMATED QUANTITIES ON SHEET Nº 114		
						BRIDGE - CUY-2-2329 ESTIMATED QUANTITIES ON SHEET Nº 124		
						BRIDGE - CUY-2-2382 ESTIMATED QUANTITIES ON SHEET Nº 134		
						RETAINING WALLS		
						ESTIMATED QUANTITIES ON SHEET Nº 141		
						LIGHTING		
						ESTIMATED QUANTITIES ON SHEET Nº 103		
SPEC.	LUMP	LUMP		LUMP	SUM	CONSTRUCTION LAYOUT STAKES		

GENERAL SUMMARY

ITEM NO.	QUANTITY (Cleveland)	UNIT	DESCRIPTION
			BUILDING REMOVAL
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1-Car Garage, Parcel No 3 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Story, 1½ Car, Frame Garage, Parcel No 8 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 16 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 17 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Brick Apartment Building, Parcel No 28 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Brick Apartment Building and One 3 Car Frame Garage, Parcel No 33 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 1½ Story Frame Residence, Parcel No 24 LA~~
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 27 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 28 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 30 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 112 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 113 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Frame Residence and One 1½ Car Frame Garage, Parcel No 114 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1 Car Frame Garage, Parcel No 122 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1 Story Frame Garage, Parcel No 124 LA
S-24	Lump	Lump	Removal of One Frame Garage, Parcel No 126 LA
S-24	Lump	Lump	Removal of One Frame Garage, Parcel No 127 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 154 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1 Car Garage, Parcel No 155 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 156 LA
S-24	Lump	Lump	Removal of One 2½ Story Residence and One 2 Car Frame Garage, Parcel No 163 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 167 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One Brick Apartment Building, Parcel No 168 LA~~
S-24	Lump	Lump	Removal of One 2 Story Brick Apartment Building and One 3-Car Frame Garage, Parcel No 170 LA
S-24	Lump	Lump	Removal of One Brick Apartment Building and One 4 Car Garage, Parcel No 171 LA
S-24	Lump	Lump	Removal of One 2 Story Brick Store and Apartment Building and One 3 Car Brick Garage, Parcel No 172 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence and One 3 Car Brick Garage, Parcel No 173 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 8-Suite Brick Apartment, Parcel No 174 LA~~
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 175 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 1½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 181 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 1½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 188 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Car Frame Garage, Parcel No 183 LA~~
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 184 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Car Frame Garage, Parcel No 194 LA~~
S-24	Lump	Lump	Removal of One 1 Story Brick Store Building and One Frame Residence, Parcel No 201 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One Store and Attached Residence and One 2 Car Garage, Parcel No 203 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 4 Car Frame Garage, Parcel No 207 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Brick 4 Suite Apartment Building and One 4 Car Garage, Parcel No 214 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Brick Residence and One 2 Car Frame Garage, Parcel No 217 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 219 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence, One 2 Car Frame Garage and One Frame Shed, Parcel No 223 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Residence and One 2 Car Tile and Brick Garage, Parcel No 224 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One Frame Residence and One 2 Car Garage, Parcel No 232 LA~~
S-24	Lump	Lump	Removal of One 1 Story Brick Store Building and One 1 Story Brick Storage Building, Parcel No 241
S-24	Lump	Lump	Removal of One 1 Story Store Building, Parcel No 242
S-24	Lump	Lump	Removal of One 2½ Story Brick Residence, Parcel No 243
S-24	Lump	Lump	Removal of One 2½ Story Brick Residence, Parcel No 244
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence, Parcel No 245
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Frame Residence and One 2 Car Garage, Parcel No 246 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 249 LA~~
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 251 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 1 Car Frame Garage, Parcel No 252 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 1 Car Frame Garage, Parcel No 253 LA
S-24	Lump	Lump	Removal of One 1 Car Frame Garage, Parcel No 255 LA
S-24	Lump	Lump	Removal of One 1 Car Frame Garage, Parcel No 256 LA
S-24	Lump	Lump	Removal of One 1 Car Frame Garage, Parcel No 257 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 260 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Frame Residence, Parcel No 261 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence, Parcel No 262 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 263 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 264 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 265 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 266 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 302 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Brick Garage, Smokehouse and Storage Building, Parcel No 305 LA~~
S-24	Lump	Lump	Removal of One 2 Story Frame Store and Apartment Building and One 4 Car Frame Garage, Parcel No 314 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1 Car Frame Garage, Parcel No 315 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 327 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 329 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Frame Shed With Insulated Brick Siding, Parcel 330 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 332 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One 2 Car Frame Garage and One Frame Shed, Parcel No 333 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 335 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 336 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 337 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Brick Garage, Parcel No 339 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Garage, Parcel No 340 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 348 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 343 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 344 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2 Car Frame Garage, Parcel No 345 LA~~
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 346 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 347 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 351 LA
S-24	Lump	Lump	Removal of One 2½ Story Residence, Parcel No 353 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence, Parcel No 403 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One Brick Garage and One Frame Shed, Parcel No 404 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One 1 Story Frame Residence and One 2 Car Garage, Parcel No 405 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One Frame Shed, Parcel No 406 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence, One 2 Car Frame Garage and One Frame Shed, Parcel No 407 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One Frame Shed, Parcel No 408 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 1½ Story Frame Residence and One Frame Garage, Parcel No 410 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 1 Story Frame Residence and One Frame Garage, Parcel No 412 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 1½ Story Frame Residence and One 1 Car Frame Garage, Parcel No 413 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One Frame Residence and One 2 Car Frame Garage, Parcel No 414 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1 Car Garage, Parcel No 415 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 1 Car Frame Garage, Parcel No 416 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Block Garage, Parcel No 417 LA~~
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Garage, Parcel No 420 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 421 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 422 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 423 LA~~
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 424 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 425 LA
S-24	Lump	Lump	Removal of One 2 Story Brick Apartment Buildings, Parcel No 426 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One Pavilion, Parcel No 427 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 430 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 431 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 432 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 433 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 434 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 435 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 436 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Brick Residence and One 2 Car Brick Garage, Parcel No 452 LA~~
S-24	Lump	Lump	Removal of One 2 Story Brick Store and Apartment Building and One Brick Garage, Parcel No 453 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Story Frame Residence, Parcel No 455 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 456 LA~~
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 457 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 459 LA
~~S-24~~	~~Lump~~	~~Lump~~	~~Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 461 LA~~

GENERAL SUMMARY

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

24A

GENERAL SUMMARY

ITEM NO.	QUANTITY (Cleveland)	UNIT	DESCRIPTION
			BUILDING REMOVAL (CONTINUED)
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One 2 Car Concrete Block Garage and One Frame Shed, Parcel No 466 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence and One Shed, Parcel No 469 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 471 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 473 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 475 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence and one 3 Car Frame Garage, Parcel No 477 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and one 2 Car Frame Garage, Parcel No 479 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 1 Story Brick Store Front Attached, Parcel No 480 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence With One 1 Story Brick Store Front Attached, Parcel No 480 LA
S-24	Lump	Lump	Removal of One 1 Story Brick Commercial Building, Parcel No 483 LA
S-24	Lump	Lump	Removal of One 1½ Story Brick Residence, Parcel No 485 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 486 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 487 LA
S-24	Lump	Lump	Removal of One 1½ Story Brick Residence, Parcel No 488 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence, Parcel No 489 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 504 LA
S-24	Lump	Lump	Removal of One 1 Story Brick Commercial Building, Parcel No 513 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Commercial Building, One 1 Story Apartment Building and One 2 Car Garage, Parcel No 520 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Store Room, Parcel No 522 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence, One 1 Car Frame Garage and One Brick Smokehouse, Parcel No 525 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence and One 1 Car Frame Garage with Attached Storage Shed, Parcel No 529 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence and One Frame Garage, Parcel No 533 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 534 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Stucco Frame Garage, Parcel No 536 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 536 LA
S-24	Lump	Lump	Removal of One 2½ Story Brick on Tile Residence and One 2 Car Frame Garage, Parcel No 537 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 538 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 539 LA
S-24	Lump	Lump	Removal of One 1½ Story Brick Residence and one 2 Car Concrete Block Garage, Parcel No 540 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 541 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Frame Shed, Parcel No 542 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Frame Shed, Parcel No 542 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 543 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 544 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 545 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 546 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Business Building, Parcel No 548 LA
S-24	Lump	Lump	Removal of One Concrete Block Service Station and One 1 Story Frame Garage, Parcel No 549 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 551 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 555 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Residence, Parcel No 556 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 557 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 558 LA
S-24	Lump	Lump	Removal of One 2 Story Brick and Tile Store and Apartment Building and One 6 Car Brick Garage, Parcel No 558 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Funeral Home and One 5 Car Brick Garage, Parcel No 559 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Store and Apartment Building, Parcel No 560 LA
S-24	Lump	Lump	Removal of One 1 Story Brick Commercial Building, Parcel No 601 LA
S-24	Lump	Lump	Removal of One 1 Story Stucco and Tile Residence and One 3 Car Frame Garage, Parcel No 608 LA
S-24	Lump	Lump	Removal of One 1 Story Stucco and Tile Residence and One 3 Car Frame Garage, Parcel No 608 LA
S-24	Lump	Lump	Removal of One 2 Story Commercial Building and One Frame Residence, Parcel No 603 LA
S-24	Lump	Lump	Removal of Two 1 Story Frame Store and Residence Buildings, One 2 Story Brick Apartment and Bar & One 4 Car Brick Garage, Parcel No 607 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Frame Garage, Parcel No 608 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Frame Garage, Parcel No 608 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence, One 1½ Story Garage and One Frame Garage, Parcel No 608 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence, One 1½ Story Garage and One Frame Garage, Parcel No 610 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Frame Garage, Parcel No 611 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, One 2 Car Frame Garage and One Frame Shed, Parcel No 612 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One 1 Story Frame Residence, One Frame Garage and Two Frame Sheds, Parcel No 617 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One 1 Story Frame Residence, One Frame Garage and Two Frame Sheds, Parcel No 617 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 3 Car Frame Garage, Parcel No 619 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 3 Car Frame Garage, Parcel No 619 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Frame Garage, Parcel No 620 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One Brick Shed and One 4 Car Brick Garage, Parcel No 624 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, One Brick Shed and One 4 Car Brick Garage, Parcel No 624 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 631 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 631 LA
S-24	Lump	Lump	Removal of One 1 Story Brick Shed, Parcel No 632 LA
S-24	Lump	Lump	Removal of One 1½ Story Frame Residence, Parcel No 651 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 652 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 653 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 654 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Residence, Parcel No 655 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Residence, Parcel No 656 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Residence, Parcel No 659 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Residence, Parcel No 659 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Store and Apartment Building, and one 6 car frame Garage, Parcel No. 660 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 666 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 667 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 667 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 668 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Brick Garage, Parcel No 669 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Brick Garage, Parcel No 669 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 670 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Shed, Parcel No 672 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Shed, Parcel No 672 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, One 1 Car Frame Garage and One Frame Shed, Parcel No 673 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Shed, Parcel No 675 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 677 LA
S-24	Lump	Lump	Removal of One 1 Story Frame Residence, Parcel No 679 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 679 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2½ Car Garage, Parcel No 680 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2½ Car Garage, Parcel No 680 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Metal Garage, Parcel No 681 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 686 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One Frame Garage, Parcel No 687 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 688 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 688 LA
S-24	Lump	Lump	Removal of One 2 Story Brick and Frame Apartment Building and One 3 Car Brick and Frame Garage, Parcel No 701 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 4 Car Garage, Parcel No 702 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 710 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 710 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 711 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 2 Car Frame Garage, Parcel No 712 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 714 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 714 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 716 LA
S-24	Lump	Lump	Removal of One 2½ Story Residence and One 2 Car Garage, Parcel No 717 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1 Car Frame Garage, Parcel No 720 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One 1 Car Frame Garage, Parcel No 720 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, One 2 Car Frame Garage and One Brick Shed, Parcel No 722 LA
S-24	Lump	Lump	Removal of One 2 Story Residence and One 2 Car Frame Garage, Parcel No 723 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 724 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Brick Garage, Parcel No 725 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Brick Garage, Parcel No 725 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 726 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 728 LA
S-24	Lump	Lump	Removal of One 2 Car Frame Garage, Parcel No 731 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 734 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence, Parcel No 736 LA
S-24	Lump	Lump	Removal of One 2½ Story Residence, Parcel No 736 LA
S-24	Lump	Lump	Removal of One 2 Story Frame Residence and One 2 Car Frame Garage, Parcel No 741 LA
S-24	Lump	Lump	Removal of One Frame, Steel and Block Factory Building, Two 1 Story Metal Storage Buildings and Two Frame Sheds, Parcel No 751 LA
S-24	Lump	Lump	Removal of Four 1 Story Metal Storage Buildings, One 2 Story Metal Office Building, Two 1 Story Metal Office Buildings, One 1 Story Metal Shop Building and One Metal Gate House, Parcel No 752 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 429 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence, Parcel No 429 LA
S-24	Lump	Lump	Removal of One 2 car Frame Garage, Parcel No 128 LA
S-24	Lump	Lump	Removal of One 2½ Story Frame Residence and One Double Frame Garage, Parcel No. 160 LA
S-24	Lump	Lump	Removal of One 1 Story Brick Store and Frame Garage, Parcel No 206

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	CUY-2-22.97	COUNTY

R-13

01-Y

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

24C 149

CUYAHOGA COUNTY
CUY.-2-22.97

CUY-90-23.50

EXIST. CURVE DATA ℄
D = 1°-45-00"
Δ = 40°-06-14"
R = 3274.05'
T = 1195.02'
L = 2291.65'
LC = 2245.16'
E = 211.27'

2 Story Brick

℄ CULVERT & NINE MILE CREEK

BEGIN SHEET STA. 101+00

EXISTING LAKELAND FREEWAY

Paved Gutter

15" sewer

PT STA. 113+44.53

END SHEET STA. 116+00

12" sewer

15" sewer

EXIST. MONUMENT

13'-6" Sanitary Interceptor

Bench Mark: Nail in east root of 40" Elm
60 feet north of Sta. 104+35
Elevation 607.160

Bench Mark: Nail in east root of 40" Elm
160 feet north of Sta. 112+40
Elevation 607.062

101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116

610
600
590
580
570

400' V.C.

EXISTING FREEWAY PROFILE DATUM

Gr. = -0.40%

12" 601.90
12" 590.00
12" 590.00
15" 582.40
12" 601.00
15" 583.00
15" 591.00
12" 594.21
15" 594.54
15" 597.67
12" 597.92
12" 598.06
12" 598.92

609.01 609.20 609.15 608.87 608.47 608.07 607.67 607.27 606.87 606.47 606.07 605.67 605.27 604.87 604.47 604.07

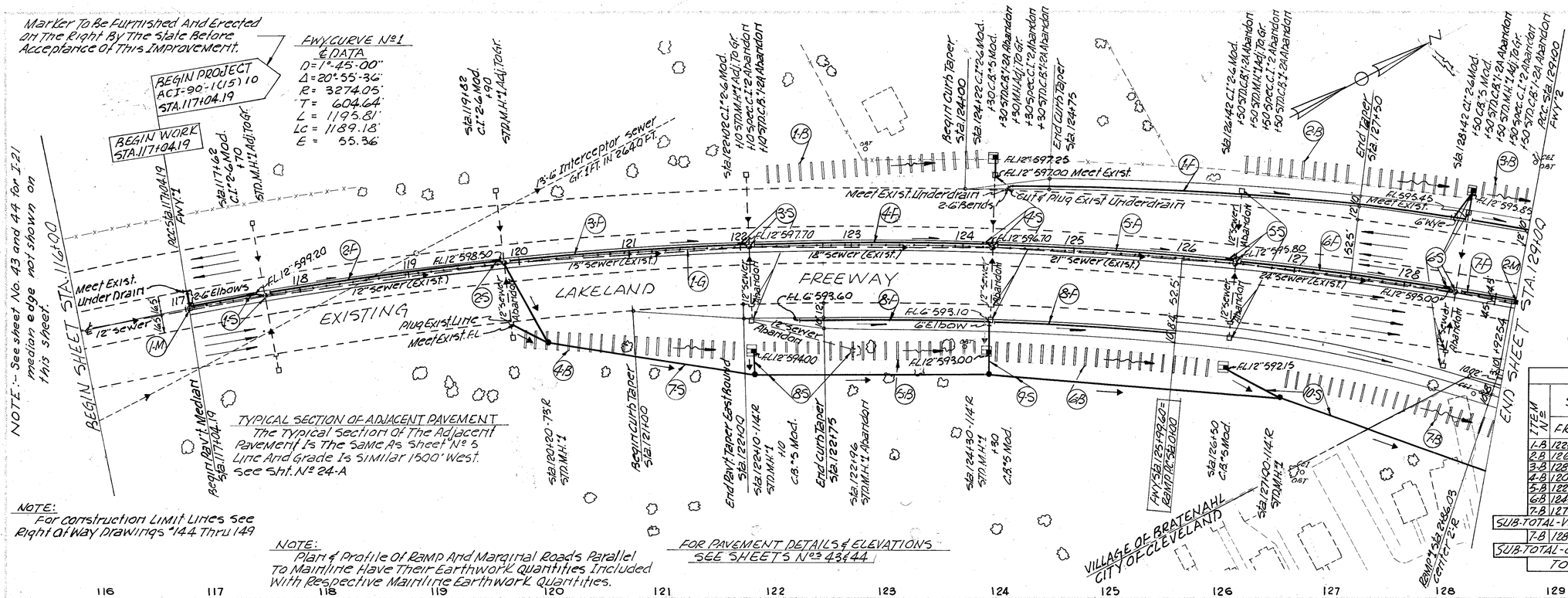
PLAN & PROFILE - EXISTING LAKELAND FWY. STA. 101+00 TO STA. 116+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	1-329 (12)	1958

25
149

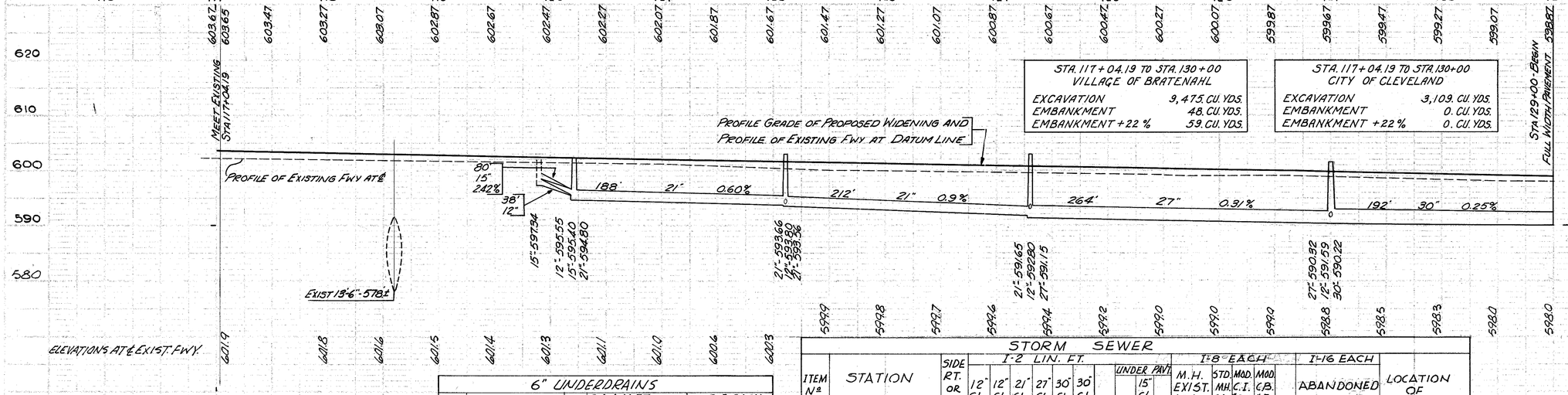
CUYAHOGA COUNTY
CUY - 2 - 22.97

I-8 MONUMENT ASSEMBLY			
ITEM No.	STATION	RESET EACH	TYPE B EACH
1-M	117+04.19	1	
2-M	129+00		1
TOTAL-VILL. of BRATENAHL		1	1



L-10 Sq. Yds. (SHEET No 25)						
ITEM No	STATION FROM	STATION TO	SIDE Rt or L	LENGTH × WIDTH	SODDING	SODDING FOR SPECIAL BERM & SLOPE PROTECTION
1-B	122+23	124+13	L	16'x1.5'	53.	
2-B	126+43	128+33	L	16'x1.5'	53.	
3-B	128+53	129+00	L	16'x1.5'	13.	
4-B	120+03	121+93	R	16'x1.5'	53.	
5-B	122+23	124+13	R	16'x1.5'	53.	
6-B	124+43	126+33	R	16'x1.5'	53.	
7-B	127+00	128+25	R	16'x1.5'	33.	
SUB-TOTAL-VILLAGE OF BRATENAHL					311.	
7-B	128+25	129+00	R	16'x1.5'	20.	
SUB-TOTAL-CITY OF CLEVELAND					20.	
TOTAL SHEET No 25					331.	

L-10 Sq. Yds. (SHEET No 26)						
ITEM No	STATION FROM	STATION TO	SIDE Rt or L	LENGTH × WIDTH	SODDING	SODDING FOR SPECIAL BERM & SLOPE PROTECTION
1-B	129+00	130+33	L	16'x1.5'	37.	
2-B	132+28	134+18	L	16'x1.5'	53.	
3-B	130+43	132+33	R	16'x1.5'	37.	
4-B	132+53	134+33	R	16'x1.5'	22.	
10-B	STRUCTURE @ 139+50 W. ABUT.			VARIES		60.
11-B	STRUCTURE @ 139+50 NE. ABUT.			VARIES		44.
SUB-TOTAL VILLAGE OF BRATENAHL					149.	104.
3-B	139+43	132+33	R	16'x1.5'	16.	
4-B	132+53	134+33	R	16'x1.5'	29.	
5-B	134+67	136+57	R	16'x1.5'	53.	
6-B	136+10	139+75	R	16'x1.5'	53.	
7-B	141+45	142+00	L	16'x1.5'	32.	
8-B	141+45	142+00	L	16'x1.5'	13.	
9-B	139+82	141+82	R	200'x12'	267.	
11-B	STRUCTURE @ 139+50 N.E. ABUT.			VARIES		101.
12-B	STRUCTURE @ 139+50 SW. ABUT.			VARIES		18.
13-B	STRUCTURE @ 139+50 SE. ABUT.			VARIES		60.
14-B	125+15	132+75	R	12'	472.	
SUB-TOTAL CITY OF CLEVELAND					935.	179.
TOTAL SHEET No 26					1084.	283.
TOTAL VILLAGE OF BRATENAHL					460.	104.
TOTAL CITY OF CLEVELAND					955.	179.
TOTAL SHT. 25 & SHT. 26					1415.	283.



GUARD RAIL				
ITEM No	STATION FROM	STATION TO	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A BARRIER DESIGN
1-G	117+05	129+00	℄	1195
TOTAL VILLAGE OF BRATENAHL				1195

6" UNDERDRAINS									
ITEM No	STATION FROM	STATION TO	SIDE R OR L	I-4 LIN. FT. C/PIPE UNDER-DRAIN SHALLOW	C/PIPE UNDER-DRAIN DEEP	8" PIPE OUTLET	I-5 EACH 6" 90° ELBOW	6" 60° WYE	6" 60° BEND
1-F	124+40	129+00	L		490	10		1	2
2-F	117+04	119+81	L	257		20	2		
3-F	119+84	122+01	L	207		10			
4-F	122+03	124+21	L	208		10			
5-F	124+23	126+41	L	208		10			
6-F	126+43	128+41	L	208		10			
7-F	128+43	129+00	L	57					
8-F	122+50	125+99	R		350	10	1		
TOTALS				1145	840	80	3	1	2

STORM SEWER																				
ITEM No	STATION FROM	STATION TO	SIDE RT. OR LT.	I-2 LIN. FT. 12" CL A	12" CL B	21" CL B	27" CL B	30" CL B	30" CL B	UNDER PAVT. 15" CL B	I-8 EACH M.H. EXIST. ADJ. TO GRADE	STD M.H. #1	MOD. C.I. #2-6	MOD C.B. #5	I-16 EACH ABANDONED M.H.	C.I.	C.B.	LOCATION OF STRUCTURE
					M-6.6 (b) or M-6.8 (b)													
1-S	117+62	117+70	L & ℄		5						1 *		1					117+62; +70
2-S	119+82	119+90	L		5						1 *		1					119+82; +90
3-S	122+02	122+10	L & R		5						1 *		1			1	1	122+02; +10
4-S	124+22	124+30	L & R	18	5						1 *		1	1		1	2	124+22; +30
5-S	126+42	126+50	L & R		5						1 *		1			1	2	126+42; +30
6-S	128+42	128+50	L & R	18	5						1 *		1	1		1	2	128+42; +50
7-S	119+90	122+10	R		35	184				76		1						120+80
8-S	122+10	124+30	R	17		208						1		1	1			122+10; 122+96
9-S	124+30	127+00	R	17			260					1		1				124+30
10-S	126+50	129+00	R	53				80	110 C			1		1				126+50; 127+00
TOTALS				123	65	392	260	80	110 C	76	6 *	4	6	5	1	4	7	

C - CITY OF CLEVELAND
* NEW FRAME AND COVER TO BE PROVIDED FOR M.H. LISTED HERE SEE DWG. I-8, M.H. No 1

CUYAHOGA COUNTY
CUY - 2 - 22.97

NOTE: QUANTITIES OF SODDING ARE SHOWN ON SHT. No 25

NOTE:- See sheets 44 & 45 for I-21 Median edge not shown on this sheet

FOR PAVEMENT DETAILS & ELEVATION SEE SHEET Nos 44,45,46,&48

Cost of extra excavation & precast blocking included in unit price bid for Item S-1 Conc. for Struct. Class "E".

I-8 MONUMENT ASSEMBLY		
ITEM No.	STATION	RESET EACH
I-M	132 + 37.39	1
TOTAL VILL. of BRATENAHL		1

STA. 130+00 TO STA. 140+00 VILLAGE OF BRATENAHL	
EXCAVATION	19,986. CU. YDS.
EMBANKMENT	3,414. CU. YDS.
EMBANKMENT + 22 %	4,165. CU. YDS.

STA. 130+00 TO STA. 140+00 CITY OF CLEVELAND	
EXCAVATION	11,813. CU. YDS.
EMBANKMENT	18,777. CU. YDS.
EMBANKMENT + 22 %	22,908. CU. YDS.

GUARD RAIL					
ITEM No	STATION		SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A	
	FROM	TO		BARRIER DESIGN	STANDARD DESIGN
1-G	129 + 00	138 + 59.50	℄	959.50	
3-G	138 + 59.50	139 + 96.90	℄		274.80
5-G	139 + 79.50	140 + 71	L		91.50
TOTAL	VILLAGE OF BRATENAHL			959.50	366.30
4-G	139 + 96.90	140 + 47	℄		100.20
2-G	140 + 47	142 + 00	℄	153.00 ✓	
6-G	140 + 71	141 + 29.50-	L		58.50 ✓
7-G	137 + 52	139 + 52 +	R		200.00 ✓
TOTAL	CITY OF CLEVELAND			153.00	358.70

I-14 LIN. FT. PAVED GUTTER						L-10 Sq. Yds.
ITEM No.	STATION		SIDE	STD. TYPE 2	MOD. TYPE 2	SODDING
	FROM	TO				
1-A	138+02	139+50	R		150	18
2-A	137+15	138+02	R	176		40
TOTAL-CITY OF CLEVELAND				176	150	58

6" UNDERDRAINS												
ITEM No	STATION		SIDE R or L	I-4 LIN. FT.					I-5 EACH			
	FROM	TO		6" UNDER-DRAIN	SHALLOW	6" U.D DEEP	8" PIPE OUTLET		6"-60° WYE	6"-11° BEND	6"x6" TEE	
1-F	129+00	134+53	L	20		630	10		2			
2-F	134+65	137+25	L			270				1		
3-F	137+27	142+00	L	100	138ᶜ	312			1	1		
4-F	129+00	130+41	L	131			10					
5-F	130+44	132+41	L	187			10					
6-F	132+44	134+46	L			192	10					
7-F	134+50	140+38	L	14	24ᶜ	540	10					
8-F	140+41	142+00	L		149ᶜ		10ᶜ					
9-F	129+00	140+12	R			789	2		1		1	
						445ᶜ	8ᶜ		1ᶜ			
TOTALS	CLEVELANDᶜ				311ᶜ	445ᶜ	18ᶜ		1ᶜ			
	BRATENAHL			452		2739	52		4	2	1	

* NEW FRAME & COVER TO BE PROVIDED, SEE DWG #1-8 M.H. #1 — STORM SEWERS ‡100% Cleveland Participation — C = CITY OF CLEVELAND

ITEM No	STATION		SIDE L or R	I-2 LIN. FT. 10" CL A	12" CL A	12" CL B	18" CL A	33" CL B (6.6a or 6.8a)	33" CL B (6.6a or 6.8a)	36" CL B (6.6b or 6.8b)	30" CL B (6.6b or 6.8b)		UNDER PAVEMENT 8" CL A (6.5b or 6.8b)	12" CL A (6.5b or 6.8b)	12" CL B	30" CL B 6.8b 6.6b	36" CL B 6.6d	36" CL B 6.8b 6.6b	36" CL B 6.6c		I-8 EACH M.H. ADJ. TO GRADE	STD. M.H. No 1	STD. M.H. No 2 W/O DROP	C.I. No 2-6 MOD.	CI No 2-10 MOD.	C.B. No 5 MOD.	C.I. No 2-10	SPEC. C.B. No 4	SPEC. C I No 4	JUNCTION CHAMBER No 1	S-1 Concrete Cradle Cl. E	I-16 EACH ABANDONED M.H.	C.I.	C.B.		I-5 EACH UND. PAV'T. 12"x8" TEE CL.A (6.5b OR 6.8b)	6x8" INCR. CL.A (6.5b OR 6.8b)	12x6" TEE CL.B		10"x30° BEND CL.A		LOCATION OF STRUCTURE
	FROM	TO																																								
1-S	130+42	130+50	L&R		15	5															1*			1		1							1	2								130+42;50
2-S	132+42	132+50	L&R			5															1*			1									1	2								132+42;+50
3-6	134+50	134+58	L			7								94							1			1		1										1						134+25;+48;+58
4-S	134+35	134+65	L										30																								1					
5-S	137+17	137+40	L												100										1													1				137+40
6-S	135+84	138+88	L																															3								135+84; 137+68; 138+88
7-S	139+75	140+40	L&R		26ᶜ	6ᶜ									87ᶜ						1ᶜ			1ᶜ		1ᶜ	1ᶜ															139+75; 140+07; 140+40
8-S	141+42	142+00	L			84ᶜ															2ᶜ					1ᶜ								2ᶜ								141+42;+45;+68;+80;+85
9-S	129+00	130+50	R		29ᶜ						10ᶜ					146ᶜ						1ᶜ				1ᶜ																129+08;+13
10-S	130+50	132+50	R					16	178ᶜ														1																			130+50
11-S	132+50	134+50	R		15ᶜ					192ᶜ													1ᶜ			1																132+50
12-S	134+50	136+16	R				15ᶜ			158ᶜ													1ᶜ			1ᶜ																134+50
13-S	136+16	139+05	R														292ᶜ						1ᶜ								33ᶜ											136+16
14-S	139+05	139+88	R															75ᶜ					1ᶜ																			139+05
15-S	139+86	140+95	R	34ᶜ		19ᶜ									20ᶜ			104ᶜ										1ᶜ‡	1ᶜ‡	1ᶜ										1ᶜ		L.P. DIANA & E.136 ST. 139+88
16-S	140+20	142+00	R																102ᶜ		1ᶜ‡		1ᶜ											2ᶜ‡								140+20;+31;+39;+95
TOTALS	CLEVELAND			34ᶜ	70ᶜ	109ᶜ	15ᶜ		178ᶜ	350ᶜ	10ᶜ				107ᶜ	146ᶜ	292ᶜ	179ᶜ	102ᶜ		4ᶜ	1ᶜ	5ᶜ	1ᶜ		4ᶜ	1ᶜ	1ᶜ	1ᶜ	1ᶜ	33ᶜ			4ᶜ						1ᶜ		
	BRATENAHL				15	17		16					30	94	100						1/2*		1	3	1	3							2	7		1	1	1				

PLAN & PROFILE ··· MAIN LINE STA. 129+00 TO STA. 142+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

27/149

CUYAHOGA COUNTY
CUY - 2 - 22.97

FWY. CURVE Nº 2
℄ DATA
Δ = 1°-45'-27"
Δ = 27°-57'-39" R
R = 3260.18'
T = 811.67'
L = 1591.00'
Lc = 1575.26'
E = 99.52'

SPIRAL DATA
Δ = 31°-28'-33"
Δc = 27°-57'-39"
Ls = 400.00'
θs = 3°-30'-54"
Dc = 1°-45'-27"
Ts = 1119.267'
Es = 129.071'
P = 2.040'

L-10 SQ. YDS.						
ITEM Nº	STATION FROM	STATION TO	SIDE R or L	LENGTH x WIDTH	SODDING	SODDING FOR SPECIAL BERM & SLOPE PROTECTION
1-B	142+00	145+57	L	16' x 1.5'	93.	
2-B	146+70	148+45	L	16' x 1.5'	53.	
3-B	143+48		L	36' x 10'	40.	
4-B	146+85		R	37' x 10'	41.	
5-B	149+18		R	48' x 10'	53.	
6-B	154+00		R	53' x 10'	59.	
STRUCTURE OVER E. 140TH ST.						
7-B	N.W. ABUTMENT			VARIES		25.
8-B	N.E. ABUTMENT			VARIES		48.
9-B	S.W. ABUTMENT			VARIES		48.
10-B	S.E. ABUTMENT			VARIES		48.
TOTAL THIS SHEET					339.	169.

STA. 140+00 TO STA. 150+00	
EXCAVATION	3,429. CU. YDS.
EMBANKMENT	44,537. CU. YDS.
EMBANKMENT + 22%	54,335. CU. YDS.

GUARD RAIL					
ITEM Nº	STATION FROM	STATION TO	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A BARRIER DESIGN	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A STANDARD DESIGN
1-G	142+00	149+34.5	℄	734.50	
2-G	149+34.5 7.45	149+43.06 POST SPACE	℄	8.56	
3-G	151+90.84 6.25 POST	151+98.20 SPACE	℄	7.36	
4-G	151+98.20	155+00	℄	301.80	
5-G	142+05.74+	149+55.74	L		750.00
6-G	144+54.84-	149+04.84	R		450.00
7-G	151+78.16	154+53.16	R		275.00
8-G	152+29.06	155+00	L		270.94
TOTALS				1052.22	1745.94

I-8 MONUMENT ASSEMBLY			
ITEM No.	STATION	SIDE R. or L.	TYPE "B" EACH
1-M	144+91.00	℄	1
2-M	148+91.00	℄	1
TOTAL			2

6" UNDERDRAINS					
ITEM Nº	STATION FROM	STATION TO	RIGHT or LEFT	I-4 LIN. FT. 6" U.D.'S SHALLOW	I-4 LIN. FT. 8" PIPE OUT-LET FOR UD'S
1-F	142+00	143+43	L	143	
2-F	143+46	146+48	L	292	10
3-F	146+51	149+42	L	281	10
4-F	151+92	153+99	L	197	10
5-F	154+02	155+00	L	98	
6-F	142+00	149+63	L	768	
7-F	152+14	155+00	L	286	
8-F	143+75	146+63	R	288	
9-F	146+64	149+18	R	254	
10-F	151+67	154+00	R	233	
11-F	154+01	155+00	R	99	
TOTALS				2939	30

STORM SEWER

*M 6.4(c)

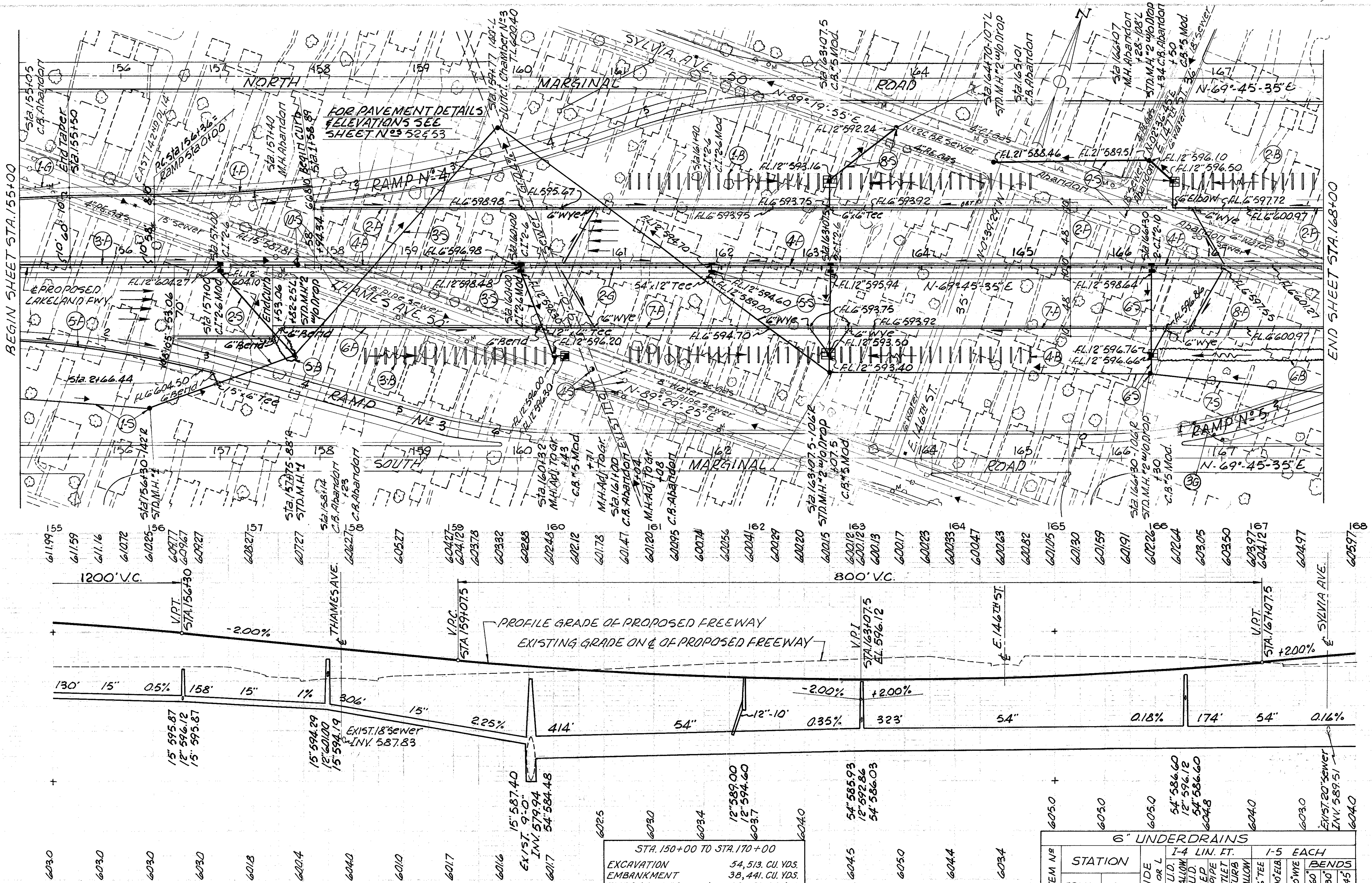
ITEM Nº	STATION FROM	STATION TO	SIDE R or L	I-2 LIN. FT. 12" CL B	I-2 12" CL B	I-2 15" CL B	I-2 36" CL B 6.6.b	I-2 36" CL B 6.6(c)	I-2 8" CL A	I-2 8" CL A		I-2 UNDER PAV'T 12" CL B	I-2 UNDER PAV'T 36" CL B 6.8(b) 6.6(b)	I-2 UNDER PAV'T 36" CL B 6.6(c)		I-8 EACH STD. M.H. Nº1	I-8 STD. M.H. Nº2 W/O DROP	I-8 C.I. Nº 2-6	I-8 C.B Nº 5	I-8 C.B Nº 6 MOD.	I-8 C.I. Nº 2-6 MOD.	I-5 SPEC. UNDER PAV'T 12"x6" CL. B TEE	I-5 BENDS 6.4(c) 8" 27°	I-5 BENDS 8" 15°	I-5 BENDS 12" 15°	I-16 ABONDONED M.H.	LOCATION OF STRUCTURE
1-S	142+00	144+50	R	164										238			1			1			CLASS A				144+50; 142+78
2-S	144+50	146+75	L&R	6	35*			221				66					1	1			1	1			1		146+50; +75
3-S	146+75	149+25	R				248		37	33*							1						1	1			149+25
4-S	149+25	150+00	R										122														
5-S	154+00	155+00	L&R	6	44*	98						75				1		1			1	1			1		154+00
6-S	142+00	143+50	L&R	158	50*							65						2	1			1			1		143+45; +50
7-S	144+30	144+42	L														1									1	144+30; +42
TOTALS				334	129*	98	248	221	37	33*		206	122	238		1	4	4	1	1	2	3	1	1	3	1	

PLAN & PROFILE --- MAIN LINE STA. 142+00 TO STA. 155+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

28/149

CUYAHOGA COUNTY
CUY - 2 - 22.97



STA. 150+00 TO STA. 170+00	
EXCAVATION	54,513. CU. YDS.
EMBANKMENT	38,441. CU. YDS.
EMBANKMENT + 22 %	46,898. CU. YDS.

L-10 SQ. YDS.					
ITEM No	STATION FROM	STATION TO	SIDE	LENGTH WIDTH	SODDING
1-B	161+00	165+15	L	16'±1.5'	107.
2-B	166+67	168+00	L	16'±1.5'	37.
3-B	158+36	160+26	R	16'±1.5'	53.
4-B	161+00	165+15	R	16'±1.5'	107.
5-B	157+52	157+63	R	27'±10'	30.
6-B	166+37	168+00	R	163'±12'	217.
TOTAL THIS SHEET					551

GUARD RAIL					
ITEM No	STATION FROM	STATION TO	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A BARRIER DESIGN	STANDARD DESIGN
1-G	155+00	155+41.56	L		41.56
2-G	155+00	168+00	℄	1300.00	
TOTALS				1300.00	41.56

GUARD RAIL - TEMPORARY		
ITEM No.	LOCATION	
3 G	RAMP 5 STA 1+25 ±	37.5'

6" UNDERDRAINS													
				I-4 LIN. FT.				I-5 EACH					
ITEM No	STATION FROM	STATION TO	SIDE R OR L	6" U.D. SHALLOW	6" U.D. DEEP	8" PIPE OUTLET	6" CURB SHALLOW	6"x6" TEE	6"x90° ELB.	6x60° WYE	BENDS 6"x60°	BENDS 6"x30°	BENDS 6"x45°
1-F	155+00	157+94	L	294									
2-F	158+00	168+00	L	277	881	20		1	1	2			
3-F	155+00	157+80	L	259		20							
4-F	157+85	168+00	L	254	730	30							
5-F	155+00	156+96	R	205							1		
6-F	156+54	160+21	R	274			100					1	2
7-F	160+22	166+29	R		703	20				3			
8-F	166+30	168+00	R	75	179	10				2			
TOTALS				1638	2493	100	100	1	1	7	1	1	2

STORM SEWERS																										
				I-2 LIN. FT.					UNDER PAV'T.				I-8 EACH								I-5 EACH UNDER PAV'T CLASS B			I-16 EACH ABANDON		
ITEM No	STATION FROM	STATION TO	SIDE L OR R	12" CL A	12" CL B	15" CL B	21" CL B 6.6b 6.8b	54" CL B 6.6b	12" CL B	15" CL B 6.5b 6.8b	54" CL B 6.6b	54" CL B 6.6c	JUNCTION CHAMBER #3	M.H. ADJ. TO GRADE	STD. M.H. #1	STD. M.H. #2 W/OUT DROP	CI 2-6	CI 2-10	CI 2-6 MOD.	CB 5 MOD.	12" x 6" TEE	15" x 6" TEE	54" x 12" TEE 6.6b	MH	CB	LOCATION OF STRUCTURE
1-S	155+00	156+30	R			128									1										1	155+05 ; 156+30
2-S	156+30	157+75	L&R		6				109	150					1		1		1			1				157+00 ; +75
3-S	157+75	160+43	L&R	10	6				82	299			1	1			1		1	1	1					159+77 ; 160+00 ; +32 ; +43
4-S	160+71	161+08	R											2											2	160+71 ; 161+00 ; +04 ; +08
5-S	159+77	163+07	L&R		12				107		392					1	3		1	1			1			161+90 ; 163+07.5
6-S	163+07	166+30	℄-R		6			319	93							1		2		1						166+30
7-S	166+30	168+00	R									172														
8-S	163+07	163+75	L	82																1						163+07
9-S	164+70	166+50	L	27			154									2				1				1	2	164+70 ; 165+01 166+28 ; +34 ; +50 ; +07
10-S	157+40	158+23	℄&L													1								1	2	157+40 ; +82 ; 158+14 ; +23
TOTALS				119	30	128	154	319	391	449	392	172	1	3	2	5	5	2	3	5	1	1	1			

PLAN & PROFILE ··· MAIN LINE STA. 155+00 TO STA. 168+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY - 2 - 22.97

FWY. CURVE Nº4
℄ DATA
D = 0°-28'-00"
Δ = 06°-58'-18"-L
R = 12,277.58'
T = 747.88'
L = 1493.93'
LC = 1493.00'
E = 22.76'

I-8 MONUMENT ASSEMBLY			
ITEM No.	STATION	SIDE R or L	TYPE "B" EACH
1-M	174+24.68	℄	1
TOTAL			1

L-10 SQ. YDS.

ITEM No.	STATION FROM	STATION TO	SIDE	LENGTH × WIDTH	SODDING	SODDING FOR SPECIAL BERM & SLOPE PROTECTION
1-B	168+00	168+57	L	16'×1.5'	16.	
2-B	170+78		L	18'×10'	20.	
3-B	168+00	168+68	R	68'×12'	91.	
4-B	168+27	169+87	R	16'×1.5'	45.	
5-B	170+68	172+58	R	16'×1.5'	53.	
6-B	172+65		R	45'×10'	50.	
7-B	174+08	176+72	R	16'×1.5'	66.	
8-B	176+00		R	50'×10'	56.	
9-B	179+57	181+00	R	16'×1.5'	40.	
10-B	178+91	179+33	R	51'×12'	68.	
	STRUCTURE OVER E. 152ND ST.					
11-B	N.W. ABUTMENT			VARIES		48.
12-B	N.E. ABUTMENT			VARIES		47.
13-B	S.W. ABUTMENT			VARIES		48.
14-B	S.E. ABUTMENT			VARIES		48
TOTAL THIS SHEET					505	191

6" UNDERDRAIN

ITEM Nº	STATION FROM	STATION TO	SIDE R or L	I-4 LIN. FT. 6" U.D. SHALL.	I-4 LIN. FT. 8" PIPE OUTLET	I-4 LIN. FT. 6" CURB U.D. SHALL.	I-5 EA. 6"×90° ELBOW
1-F	168+00	171+83	L	287		90	2
2-F	173+89	177+54	L	366			
3-F	180+23	181+00	L	77			
4-F	168+00	169+43	L	143			
5-F	169+46	172+63	L	307	10		
6-F	172+66	175+98	L	322	10		
7-F	176+01	177+25	L	114	10		
8-F	179+90	181+00	L	110			
9-F	168+00	170+52	R	252			
10-F	172+11	176+90	R	479			
11-F	179+55	181+00	R	145			
TOTALS				2602	30	90	2

GUARD RAIL

ITEM Nº	STATION FROM	STATION TO	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2-A BARRIER DESIGN	STANDARD DESIGN
1-G	168+00	177+10.70	℄	910.70	
2-G	177+10.70 5.45	177+21.48 POST SPACE	℄	10.78	
3-G	179+86.60 9.75 POST SPACE	180+00.90	℄	14.30	
4-G	180+00.90	181+00	℄	99.10	
5-G	173+19.54±	176+69.54	R		350.00
6-G	179+62.02±	181+00	R		137.98
7-G	173+58.54±	177+46.04	L		387.50
8-G	180+38.52	181+00	L		61.48
TOTAL THIS SHEET				1034.88	936.96

STA. 170+00 TO STA. 180+00

EXCAVATION	17,418. CU. YDS.
EMBANKMENT	47,233. CU. YDS.
EMBANKMENT + 22%	57,624. CU. YDS.

*M.6.4(c)

STORM SEWER

ITEM Nº	STATION FROM	STATION TO	SIDE R or L	I-2 LIN. FT. 12" CL A	I-2 LIN. FT. 12" CL B	I-2 LIN. FT. 12" CL B	I-2 LIN. FT. 48" CL B 6.6b	I-2 LIN. FT. 54" CL B 6.6c	I-2 LIN. FT.	I-2 LIN. FT. UNDER PAV'T. 12" CL B	I-2 LIN. FT. UNDER PAV'T. 48" CL B 6.6b	I-2 LIN. FT. UNDER PAV'T. 54" CL B 6.6c		I-5 54"×12" TEE CL. B 6.6c		I-8 EACH C.I. Nº 2-6	I-8 EACH C.I. Nº 2-6 MOD.	I-8 EACH C.B. Nº 5 MOD.	I-8 EACH STD. M.H. Nº 2 W/O DROP	I-8 EACH M.H. ADJ. TO GR.		I-16 EA. ABAND. M.H.	I-16 EA. ABAND. C.B.	LOCATION OF STRUCTURE
1-S	168+00	169+55	R	30	6					134		140		1		1	1	1	1			1	1	168+10; 169+35; +45; +55
2-S	169+45	171+57	R					208											1					171+57
3-S	171+57	172+75	R	20	6			104		134						1	1	1	1	1			1	172+55; +65; +73; +75
4-S	172+65	176+15	R	20	6	60*		330		76						1	1	1	1			1	1	175+04; +33; 176+00; +15
5-S	176+00	179+40	R	16							334							1	1					179+40
6-S	179+40	181+00	R				168																	
TOTALS				86	18	60*	168	642		344	334	140		1		3	3	4	5	1		2	3	

PLAN & PROFILE ··· MAIN LINE STA. 168+00 TO STA. 181+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

30/149

CUYAHOGA COUNTY
CUY - 2 - 22.97

STA. 180+00 TO STA. 190+00	
EXCAVATION	20,387. CU. YDS.
EMBANKMENT	44,203. CU. YDS.
EMBANKMENT + 22 %	53,928. CU. YDS.

L-10 SQ. YDS.

ITEM Nº	STATION FROM	STATION TO	SIDE	LENGTH x WIDTH	SODDING
1-B	181+54	194+00	L	16'x1.5'	131.
2-B	181+00	194+00	R	16'x1.5'	131.
3-B	188+84	192+02	R	295'x12'	393.
4-B	182+50		R	51'x10'	57.
TOTAL THIS SHEET					712.

GUARD RAIL - TEMPORARY

ITEM No.	LOCATION	
4 G	RAMP 8. STA. 4+74±	37.5'
5 G	RAMP 9. STA. 0+25±	12.5'
TOTAL		50.0'

GUARD RAIL

ITEM Nº	STATION FROM	STATION TO	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A BARRIER DESIGN	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A STANDARD DESIGN
1-G	181+00	194+00	℄	1300.00	
2-G	181+00	183+99.52+	R		299.52
3-G	181+00	185+51.02-	L		451.02
TOTALS				1300.00	750.54

I-8 MONUMENT ASSEMBLY

ITEM No.	STATION	SIDE R. or L.	TYPE "B" EACH
I-M	189+18.61	℄	1
TOTAL			1

6" UNDERDRAINS

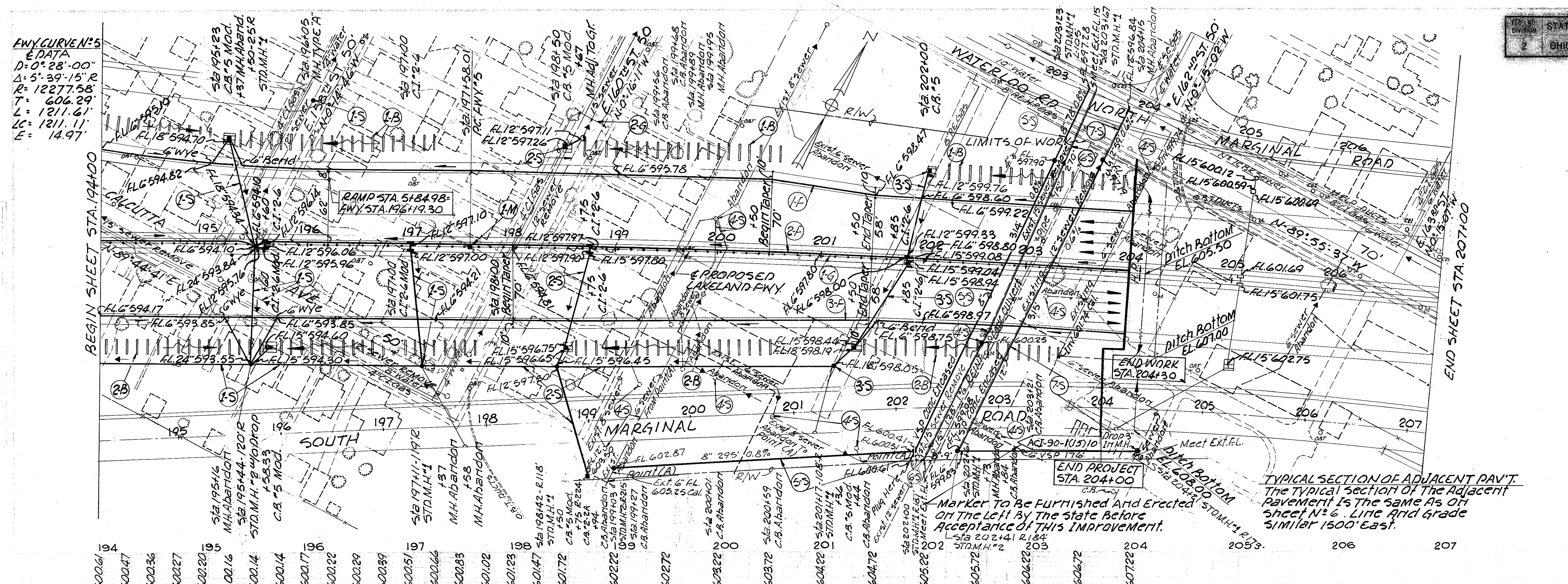
ITEM No.	STATION FROM	STATION TO	SIDE R. or L.	I-4 LIN. FT. 6" U.D. SHALLOW	6" U.D. DEEP	6" CURB U.D. SHALLOW	6" CURB U.D. DEEP	8" PIPE OUTLET		I-5 EACH 6"x60° WYE	6"x6" TEE	6"x90° ELBOW	6"x30° BEND	
1-F	FWY STA. 181+00	CALCUTTA AVE. STA. 4+78	L	630	312	405	160	20		1	1	2	1	
2-F	181+00	194+00	L	598	1108		85	30				3		
3-F	181+00	194+00	R	590	712			10		1				
TOTAL THIS SHT.				1818	2132	405	245	60		2	1	5	1	

STORM SEWER

ITEM Nº	STATION FROM	STATION TO	SIDE R or L	I-2 LIN. FT. 12" 6.4c	12" CL A	12" CL B	42" CL B 6.6a	48" CL B 6.6b	48" CL B 6.6c	UNDER PAV'T. 8" CL A 6.5b or 6.8b	UNDER PAV'T. 12" CL A 6.5b or 6.8b	UNDER PAV'T. 12" CL B	UNDER PAV'T. 15" CL B	UNDER PAV'T. 48" CL B 6.6c	UNDER PAV'T. 42" CL B 6.6c	I-8 EACH M.H. ADJ. TO GR.	M.H. #2 W/O DROP	STD. M.H. TYPE A	C.I. #2-6 MOD.	C.I. #2-6	C.B. #2-2A SPEC. MODIF.	C.B. #5 MOD.	C.B. #6 MOD.	I-5 SPECIALS UND. PAV'T. 12"x6" TEE CL. B	8"x8" TEE 6.5b or 6.8b CLASS A	6"x8" INCR. CLASS A	8"x6" RED. CLASS A	12"x15" BEND 6.4c CLASS A	8"x90° ELBOW CLASS A	I-16 ABAND. M.H.	I-16 ABAND. C.B.	E-12 15"φ REMOVED	E-12 18"φ REMOVED	LOCATION OF STRUCTURE
1-S	181+00	184+57	L&R	44	47	6		360				64					1		1	1		1		1				2						182+37; +47
2-S	184+57	189+95	R						226					288			2					1												184+57; +60; 187+65
3-S	189+95	194+00	L&R			6	173					249			258		2		1	1			1											189+95; 192+24; +47; 191+00
4-S	183+50	183+65	L							13						1					1				1	1	1				2			183+50; +56; +60; +65
5-S	185+80	186+83	L&R			107							55				1		1	1										1	2		55	185+80; 186+30; +32; +43; +83
6-S	189+10	189+59	L&R			47											1		1	1														189+10; +59
7-S	189+43	190+60	L								130					1						1									2			189+43; 190+39; +58; +60
8-S	192+60	193+60	L		25	70				24						1		1				1	1	1	1	1	1		1	1	1	120		192+90; 193+10; +22; +38
TOTAL THIS SHEET				44	72	236	173	360	226	37	130	313	55	288	258	3	7	1	4	4	1	4	2	1	1	2	2	2	1	2	7	120	55	

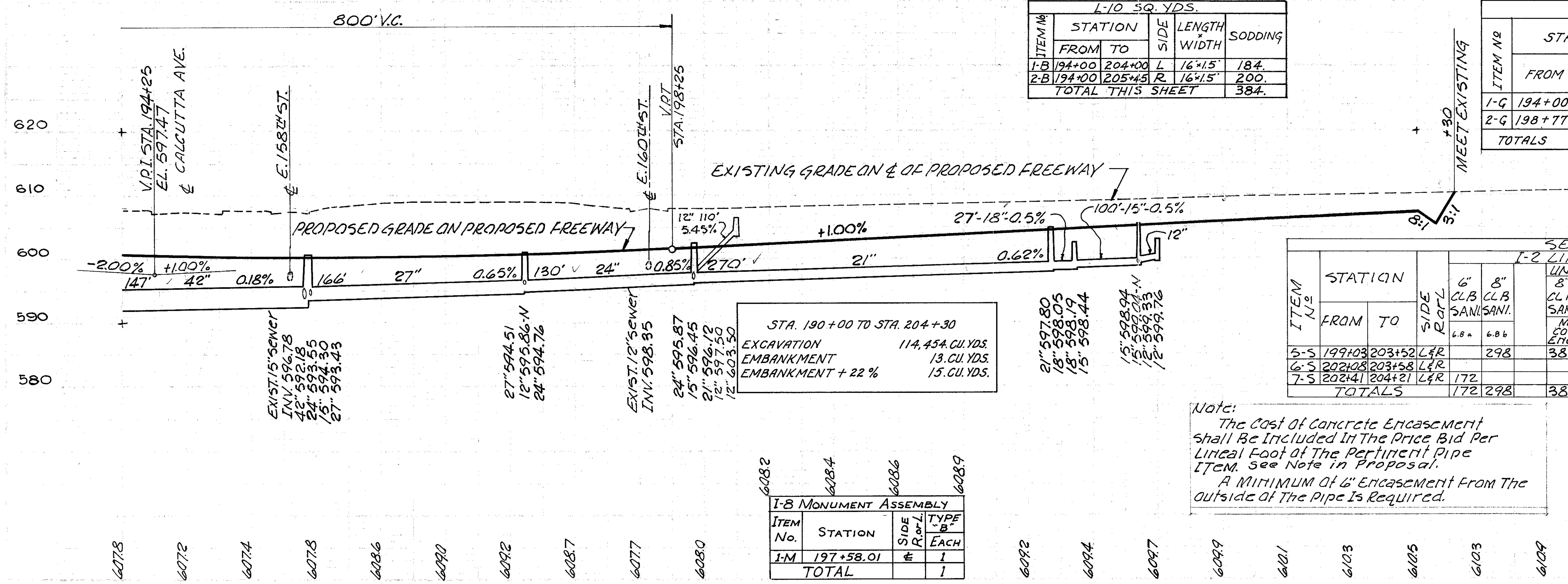
PLAN & PROFILE ··· MAIN LINE STA. 181+00 TO STA. 194+00

FWY. CURVE № 5
℄ DATA
D = 0°-28'-00"
Δ = 5°-39'-15" R
R = 12277.58'
T = 606.29'
L = 1211.61'
LC = 1211.11'
E = 14.97'



TYPICAL SECTION OF ADJACENT PAV'T.
The Typical Section Of The Adjacent Pavement Is The Same As On Sheet № 6. Line And Grade Similar 1500' East.

Marker To Be Furnished And Erected On The Left By The State Before Acceptance Of This Improvement.



ITEM №	STATION FROM	STATION TO	SIDE	LENGTH x WIDTH	SODDING
L-10 SQ. YDS.					
1-B	194+00	204+00	L	16'x1.5'	184.
2-B	194+00	205+45	R.	16'x1.5'	200.
TOTAL THIS SHEET					384.

GUARD RAIL

ITEM №	STATION FROM	STATION TO	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A BARRIER DESIGN	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A STANDARD DESIGN
1-G	194+00	203+88.4	℄	988.40	
2-G	198+77		129'-L		25.00
TOTALS				988.40	25.00

STA. 190+00 TO STA. 204+30

EXCAVATION	114,454. CU. YDS.
EMBANKMENT	13. CU. YDS.
EMBANKMENT + 22%	15. CU. YDS.

SEWERS

ITEM №	STATION FROM	STATION TO	SIDE R or L	I-2 LIN. FT. 6" CL B SANI. 6.8a	I-2 LIN. FT. 8" CL B SANI. 6.8b	I-2 LIN. FT.	I-2 UNDER PAV'T. 8" CL B SANI. M6.8b CONC. ENCASED	I-2 UNDER PAV'T. 12" CL B SANI. M6.8b CONC. ENCASED	I-2 UNDER PAV'T. 15" CL B M6.6b or M6.8b	I-2	I-8 EACH STD. M.H. #1	I-8 EACH STD. M.H. #2	I-8 EACH	E-12 PIPE REMOVAL 15" DIA. & UNDER	LOCATION OF STRUCTURE
5-S	199+03	203+52	L&R		298		386				2	1			199+03; 202+00; 203+23
6-S	202+08	203+58	L&R						394					394	
7-S	202+41	204+21	L&R	172				366			2	1		366	202+41; 203+67; 204+21
TOTALS				172	298		386	366	394		4	2		760	

Note:
The Cost Of Concrete Encasement Shall Be Included In The Price Bid Per Lineal Foot Of The Pertinent Pipe Item. See Note in Proposal.
A Minimum Of 6" Encasement From The Outside Of The Pipe Is Required.

6" UNDERDRAINS

ITEM No.	STATION FROM	STATION TO	SIDE R. or L.	I-4 LIN. FT. 6" U.D. SHALLOW	I-4 LIN. FT. 6" U.D. DEEP	I-4 LIN. FT. 8" PIPE OUTLET	I-4 LIN. FT.	I-5 EACH 6"x60° BEND	I-5 EACH 6"x60° WYE	I-5 EACH
1-F	194+00	204+00	L		1030	20		1	1	
2-F	194+00	204+00	L&R		960	40				
3-F	194+00	204+00	R		1085	30		1	2	
TOTAL THIS SHEET					3075	90		2	3	

I-8 MONUMENT ASSEMBLY

ITEM No.	STATION	SIDE R or L	TYPE "B" EACH
1-M	197+58.01	℄	1
TOTAL			1

STORM SEWER

ITEM №	STATION FROM	STATION TO	SIDE R or L.	I-2 LIN. FT. 12" CL A	12" CL B	15" CL A	15" CL B	18" CL B	21" CL B	24" CL B	27" CL B 6.6a 6.8a	42" CL B 6.6a	UNDER PAV'T. 12" CL A 6.5b or 6.8b	UNDER PAV'T. 12" CL B	UNDER PAV'T. 15" CL B	UNDER PAV'T. 18" CL B	UNDER PAV'T. 24" CL B	I-8 EACH M.H. ADJ. TO GRADE	M.H. TYPE "A"	M.H. № 1	M.H. № 2 WITH-OUT DROP	C.I. № 2-6	MOD. C.I. № 2-6	C.B. № 5	MOD. C.B. № 5	C.B. № 2-2A	E-12 PIPE REMOVAL 15" DIA. & UNDER	I-16 M.H. ABAND.	I-16 C.B. ABANDON	LOCATION OF STRUCTURE
1-S	194+00	197+11	L&R	16	18	22					162	145		112		107	113		1	2	1	2	2		2		233	2		195+16, +23, +37, +44, +50, +58.33, +60, 196+05, 197+00, +11
2-S	197+11	201+17	L&R		6		17		266	126			107		95			1		1		2			2	1	180	2		197+37, +58, 198+42, +50, +67, +75
3-S	201+17	204+00	L&R				6	24						82	98					1		2		1	1					201+17, +36, +85, 202+00
4-S	198+94	204+15	L&R																	1								5	8	198+94, 199+27, +56, +68, +89, +95, 200+01, +59, 201+44 (ITEM 5-4 CON'T.) 202+61, +73, +84, 203+21, 204+16
TOTALS				16	24	22	23	24	266	126	162	145	107	194	193	107	113	1	1	5	1	6	2	1	5	1	413	9	8	

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	1-329 (12)	1958

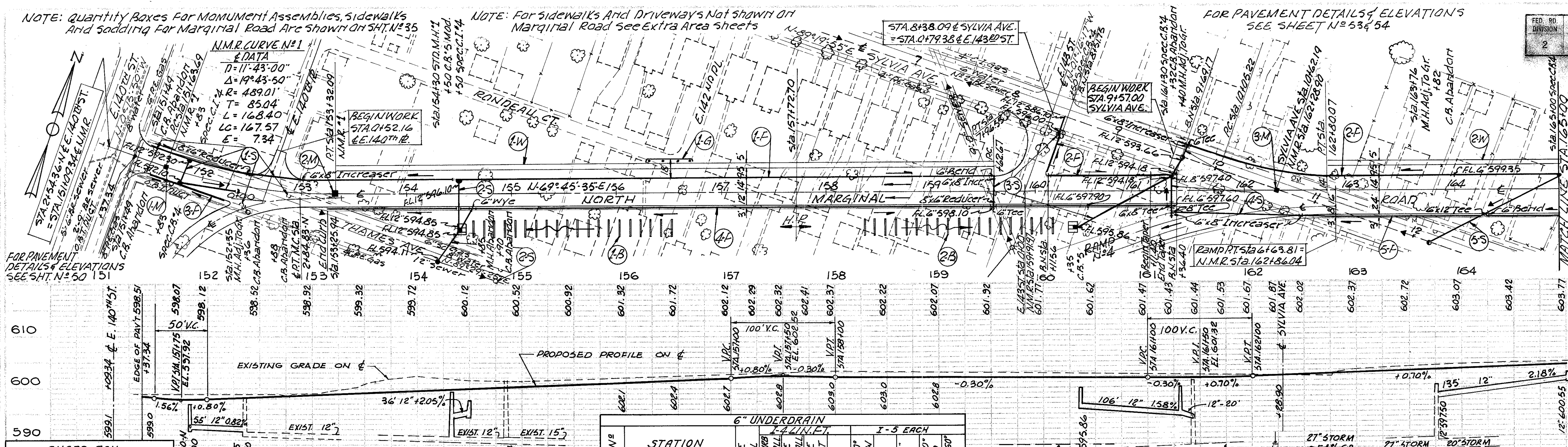
32/149

CUYAHOGA COUNTY
CUY - 2 - 22.97

NOTE: Quantity Boxes For Monument Assemblies, Sidewalks And Sodding For Marginal Road Are Shown On SHT. Nº 35

NOTE: For Sidewalks And Driveways Not Shown On Marginal Road See Extra Area Sheets

FOR PAVEMENT DETAILS & ELEVATIONS SEE SHEET Nº 53 & 54



ITEM Nº	STATION	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STD. DESIGN STD. DWG. Nº 2A
1-G	156+35	31'-L	37.5'
TOTAL			37.5'

GUARD RAIL

6" UNDERDRAIN

ITEM Nº	STATION FROM	STATION TO	SIDE R OR L	I-4 LIN. FT. 6" PIPE CURB U.D. SHALL.	I-4 LIN. FT. 6" PIPE U.D. SHALL.	I-4 LIN. FT. 8" PIPE OUTLET		I-5 EACH 6"x90° ELBOW		I-5 EACH 6"x6" TEE	I-5 EACH 6"x60° BEND	I-5 EACH 6"x6"x60° WYE
1-F	151+43	159+61	L	732		30		1				
2-F	160+10	165+00	L	507		20				1		
3-F	151+50	152+26	R	60		20						
4-F	153+26	161+30	R		820	10				1		1
5-F	162+60	165+00	R		240						1	
SUB-TOTAL				1299	1060	80		1		2	1	1

STA 3+18.81 ℄ E.147TH ST = STA 0+00 ℄ HALE AVE.

FOR PAVEMENT DETAILS & ELEVATIONS SEE SHEET Nºs 56 & 58

FOR PAVEMENT DETAILS & ELEVATIONS SEE SHEET Nºs 60 & 61

6" UNDERDRAIN

ITEM Nº	STATION FROM	STATION TO	SIDE R OR L	I-4 LIN. FT. 6" PIPE CURB U.D. SHALL.	I-4 LIN. FT. 6" PIPE U.D. SHALL.	I-4 LIN. FT. 8" PIPE OUTLET	I-5 EACH 6"x90° ELBOW	I-5 EACH 6"x60° BEND	I-5 EACH 6"x6"x60° WYE	I-5 EACH 6"x6" TEE
6-F	165+00	170+75	L	578		10				
7-F	170+87	E.152 ST. STA. 2+54N.	L	895		20				
8-F	165+00	167+92	R		292					
9-F	168+79	177+11	R		848	20		1	1	
10-F	177+72	178+96	R	104		20				
SUB-TOTAL				1577	1140	70		1	1	
TOTAL THIS SHEET				2876	2200	150	1	2	2	2

STORM SEWER

ITEM Nº	STATION FROM	STATION TO	SIDE R OR L	I-2 LIN. FT. 12" CL B	I-2 LIN. FT. UNDER PAV. 12" CL B	I-2 LIN. FT. UNDER PAV. 8" CL A 6.5b OR 6.8b	I-2 LIN. FT. UNDER PAV. 12" CL A 6.5b OR 6.8b	I-8 EACH M.H. ADJ. TO GR.	I-8 EACH SPEC. C.B. #4	I-8 EACH SPEC. C.I. #4	I-8 EACH C.B. #5 MOD.	I-8 EACH C.B. #5	I-8 EACH STD. M.H. #1	I-5 SPEC. UNDER PAVT. 6.5b OR 6.8b CLASS A 8"x6" REDUC.	6"x8" INCR.	8"x6" TEE	8"x8" TEE	CLB 12"x6" TEE	I-16 ABAND. M.H.	I-16 ABAND. C.B.	LOCATION OF STRUCTURE
1-S	151+49	153+00	L&R		74	50		1	1	1				1	1					4	151+49; +83; 152+35; +36; +88
2-S	154+30	154+90	L&R	32	45					1	1		1						1	1	154+30; +50; +85; +90
3-S	159+61	160+54	L&R		14	23	106		1			1		1	1						160+35; 8+50 SYLVIA AVE.
4-S	161+30	162+60	L&R		16	170		1	1						3	1	1			1	161+30; +32; +40
5-S	163+76	165+00	L&R		134			1	1									1		1	163+76; +82; 165+00
6-S	170+75	171+00	L&R		68	12			1			1	1		1						170+75; +80; 171+00
7-S	172+43	172+80	R																1	2	172+43; +70; +80
8-S	178+48	179+77	L&R		148			1	1	1											178+48.05; 179+77
TOTAL THIS SHEET				32	499	267	106	4	6	3	1	2	2	2	6	1	1	1	2	9	

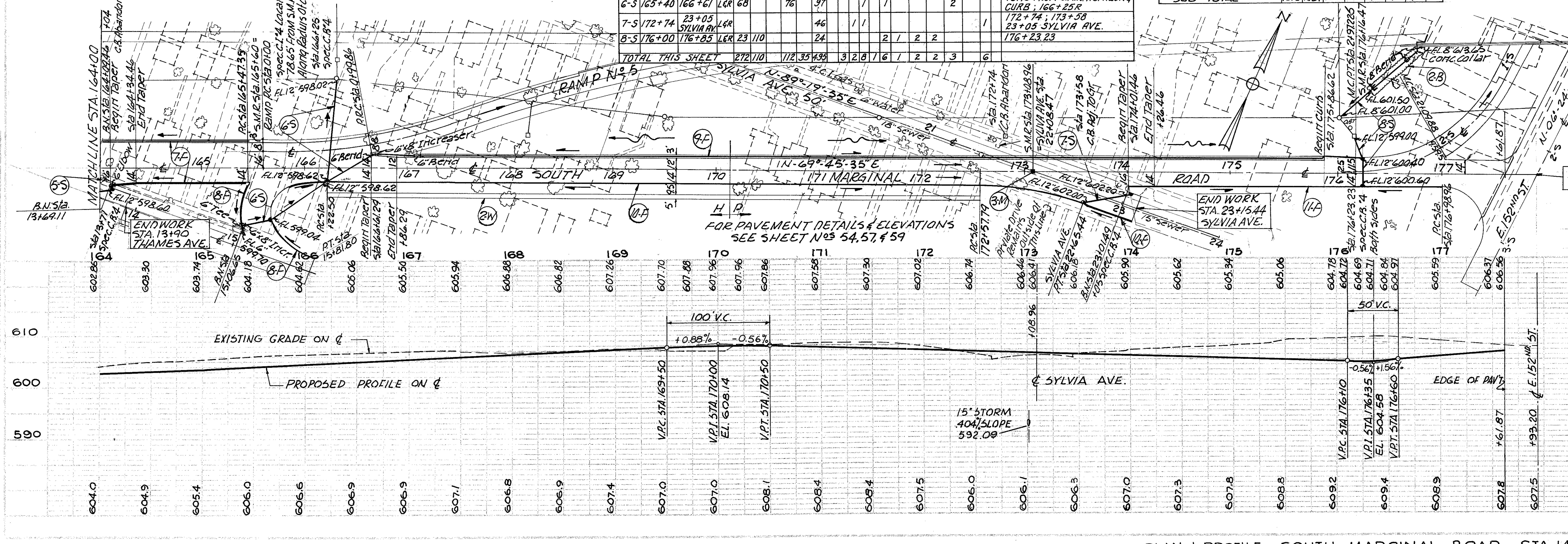
PLAN & PROFILE ··· NORTH MARGINAL ROAD STA. 151+37.34 TO STA. 179+54.60

ITEM No	STATION FROM	STATION TO	SIDE R OR L	I-2 LIN. FT. 12" CL B	I-2 LIN. FT. 8" CL A		I-2 UNDER PAV'T. 8" CL A (6.5 b OR 6.8 b)	I-2 UNDER PAV'T. 12" CL A (6.5 b OR 6.8 b)	I-2 UNDER PAV'T. 12" CL B	I-8 EACH	M.H. ADJ. TO GR.	C.B. ADJ. TO GR.	SPEC. C.B. #4	C.B. #5 MOD.	C.I. #4 SPEC.	I-5 SPEC. CLASS A 8" X 45° BEND	8" X 10° BEND	8" X 27° BEND	UNDER P. 6"X8" INCR. 6.5b OR 6.8b		I-16 ABAND C.B.		LOCATION OF STRUCTURE
1-S	150+39	150+66	L&R	103					16		1		1		1						2		150+39; +41; +50; + 65.70
2-S	153+23	154+50	L&R	12				35	114		1		2	1	1						2		153+23; +25; +29; + 40; 154+37; 4+70 DARWIN AVE.
3-S	155+89	156+50	L&R	66					69				1		1								155+89; 156+50
4-S	162+52	13+71 THAMES AVE.	L&R				36		129		1	1	2						1				162+51.65; 163+90; 13+71 THAMES AVE.
5-S	164+04	164+04	R																		1		164+04
6-S	165+40	166+61	L&R	68			76		97				1		1				2				78.75 FROM S.M.R. P.C. ALONG CURB; 166+25R
7-S	172+74	23+05 SYLVIA AV.	L&R						46			1	1								1		172+74; 173+58 23+05 SYLVIA AVE.
8-S	176+00	176+85	L&R	23	110				24						2	1	2	2					176+23.23
TOTAL THIS SHEET				272	110		112	35	495		3	2	8	1	6	1	2	2	3		6		

Table title: STORM SEWER

6" UNDERDRAIN

ITEM No	STATION FROM	STATION TO	SIDE R OR L	I-4 LIN. FT. 6" PIPE CURB U.D. SHALL.	6" PIPE U.D. SHALL	8" PIPE OUTLET	I-5 SPEC. 6"X90° ELBOW	6"X60° BEND	6"X6" TEE	6"X30° BEND	
1-F	150+18	151+56	L	118		20					
2-F	152+17	159+24	L		716	10		1			
3-F	160+59	164+00	L&R		341				1		
4-F	3+00 S E.140 ST.	153+24	R	400		20					
5-F	DARWIN. AVE. STA. 3+45	6+64	L&R	164		20					
6-F	154+37	13+90 THAMES	R	930		50	1			1	
STA. 150+18 TO STA. 164+00 SUB-TOTAL				1612	1057	120	1	1	1	1	

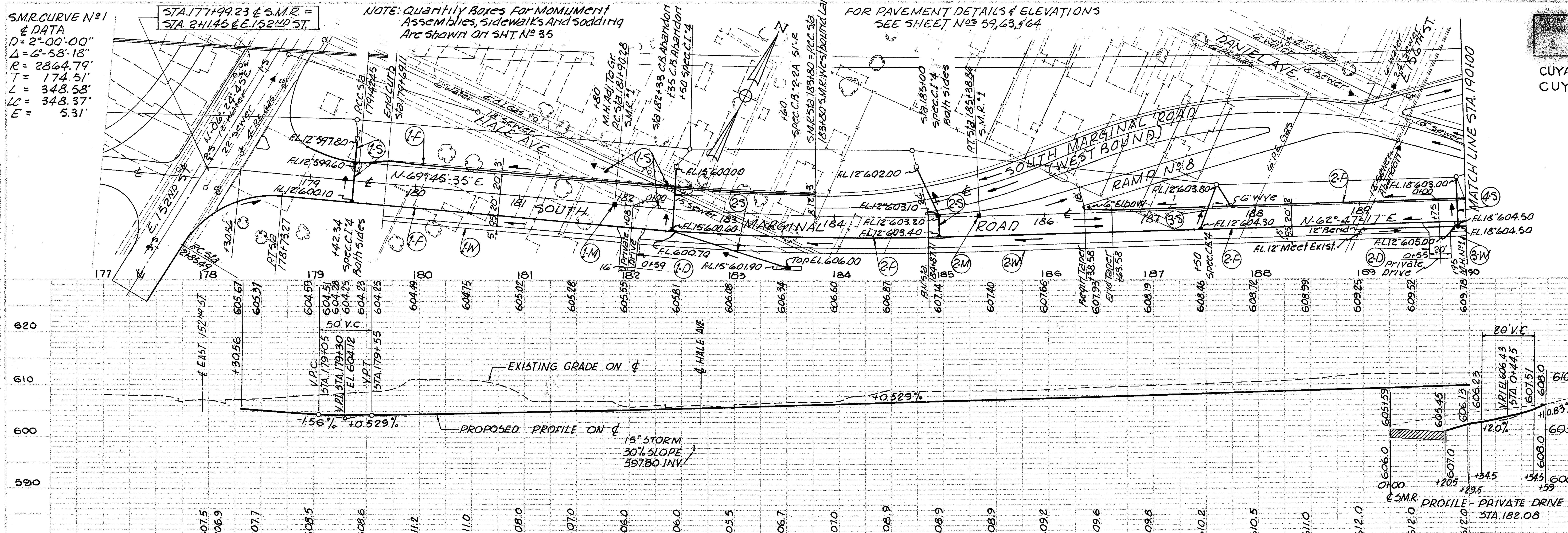


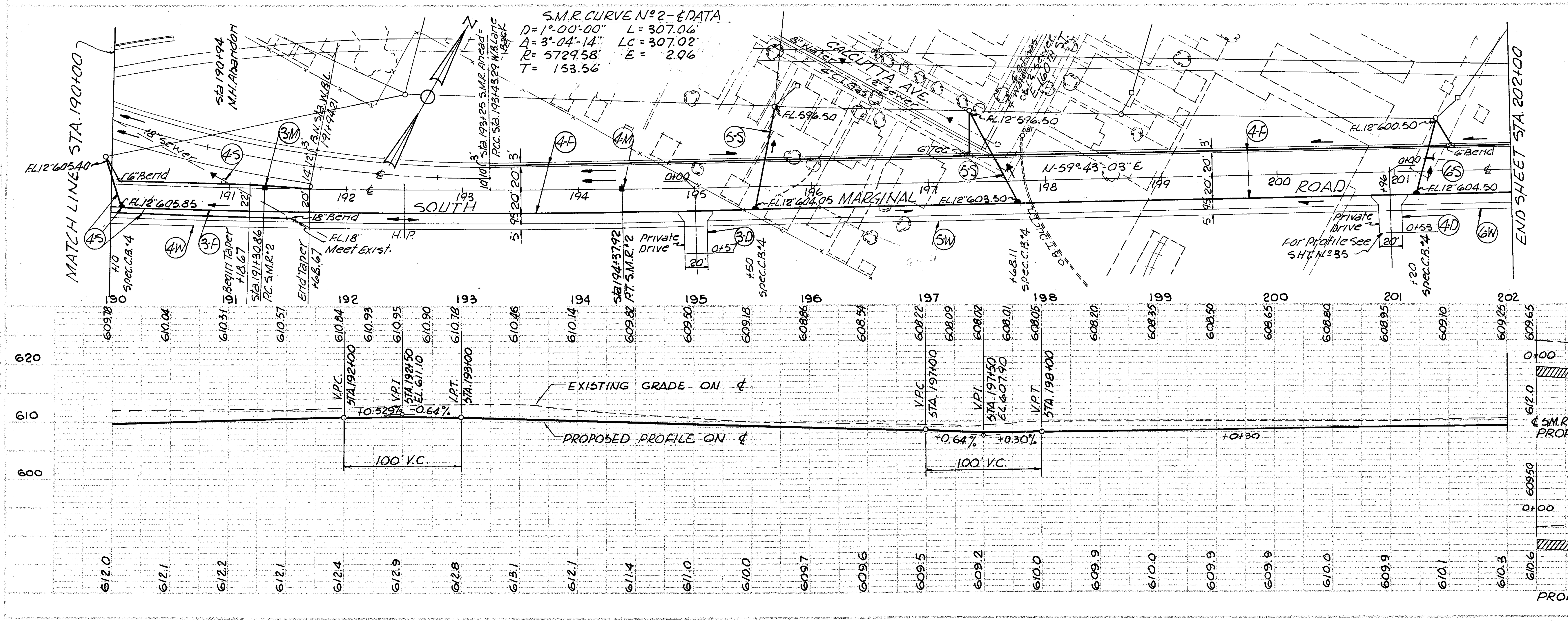
6" UNDERDRAINS

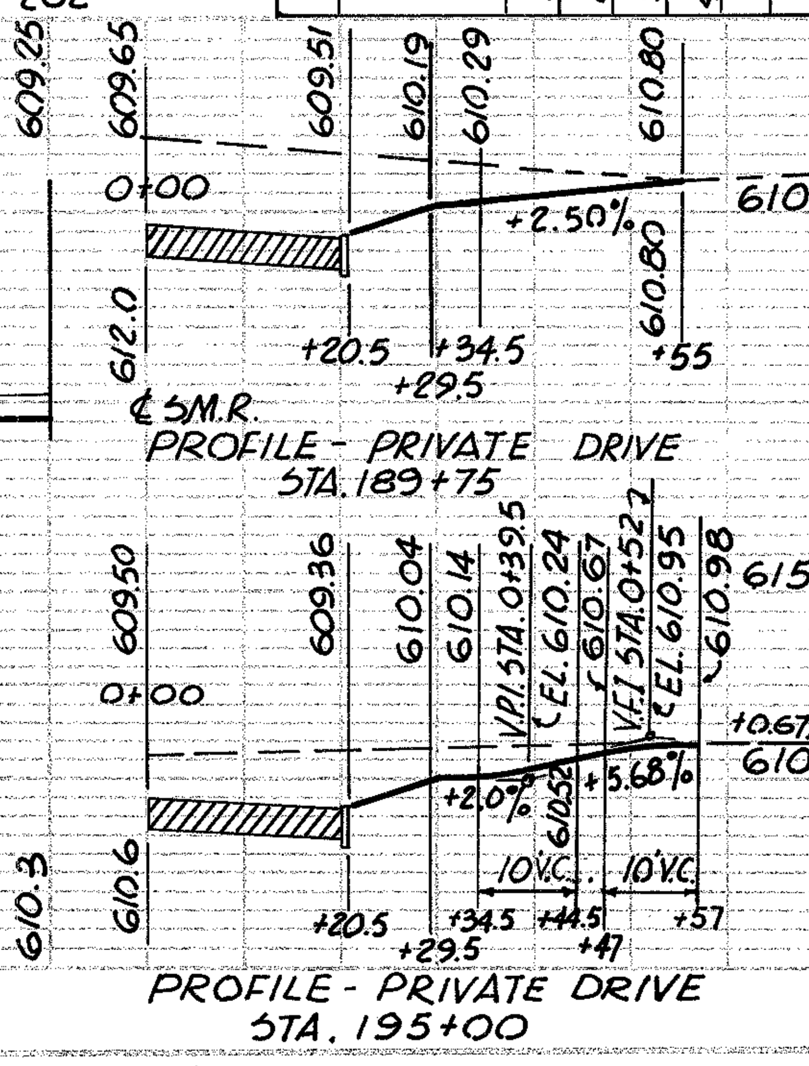
ITEM No	STATION FROM	STATION TO	SIDE R OR L	I-4 LIN. FT. 6" PIPE CURB U.D. SHALL.	6" PIPE U.D. SHALL.	8" PIPE OUTLET		I-5 SPEC. 6"X6" TEE	6"X60° BEND	6"X90° ELBOW	6"X30° BEND
7-F	164+00	165+46	L&R	183	146			1		1	
8-F	THAMES AVE. STA. 15+29	15+82	L	58		10					
9-F	166+61	176+22	L		451	10					
10-F	165+86	SYLV. AVE 23+15	R	780		40					
11-F	174+01	176+99	R	278		20					
STA. 164+00 TO STA. 176+99 SUB-TOTAL				1299	1097	80		1	1	1	
TOTAL THIS SHEET				2911	2154	200		2	1	2	1

PLAN & PROFILE ... SOUTH MARGINAL ROAD STA. 149+88.95 TO STA. 177+61.87

CUYAHOGA COUNTY
CUY - 2 - 22.97







ITEM Nº	STATION FROM	STATION TO	SIDE R or L	6" UNDERDRAIN I-4 LIN. FT. 6" PIPE U.D. SHALL.	6" PIPE CURB U.D. SHALL.	8" PIPE OUTLET	I-5 EACH 6"x60° WYE	6"x90° ELBOW	6"x6" TEE	6"x60° BEND
1-F	E.152 STA 3+50-S	SMR. STA 183+80	L&R	410	716	50				
2-F	183+80	190+00	L&R	14	977	20	1	1		
3-F	190+00	193+25	L&R	10	497	10				1
4-F	193+25	202+00	L&R	922	850	50			1	1
TOTAL THIS SHT.				1356	3040	130	1	1	1	2

DRIVEWAY QUANTITIES

ITEM Nº	STATION	SIDE	T-71 SQ.YD. 6" REINFORCED PORTLAND CEM. CONCRETE PAV'T	I-22 CU.YD. SUBBASE GRADING A or B
1-D	182+08	RT.	74.00	8.22
2-D	189+75	RT.	82.22	9.13
3-D	195+00	RT.	86.66	9.62
4-D	200+96	RT.	77.77	8.64
TOTALS			320.65	35.61

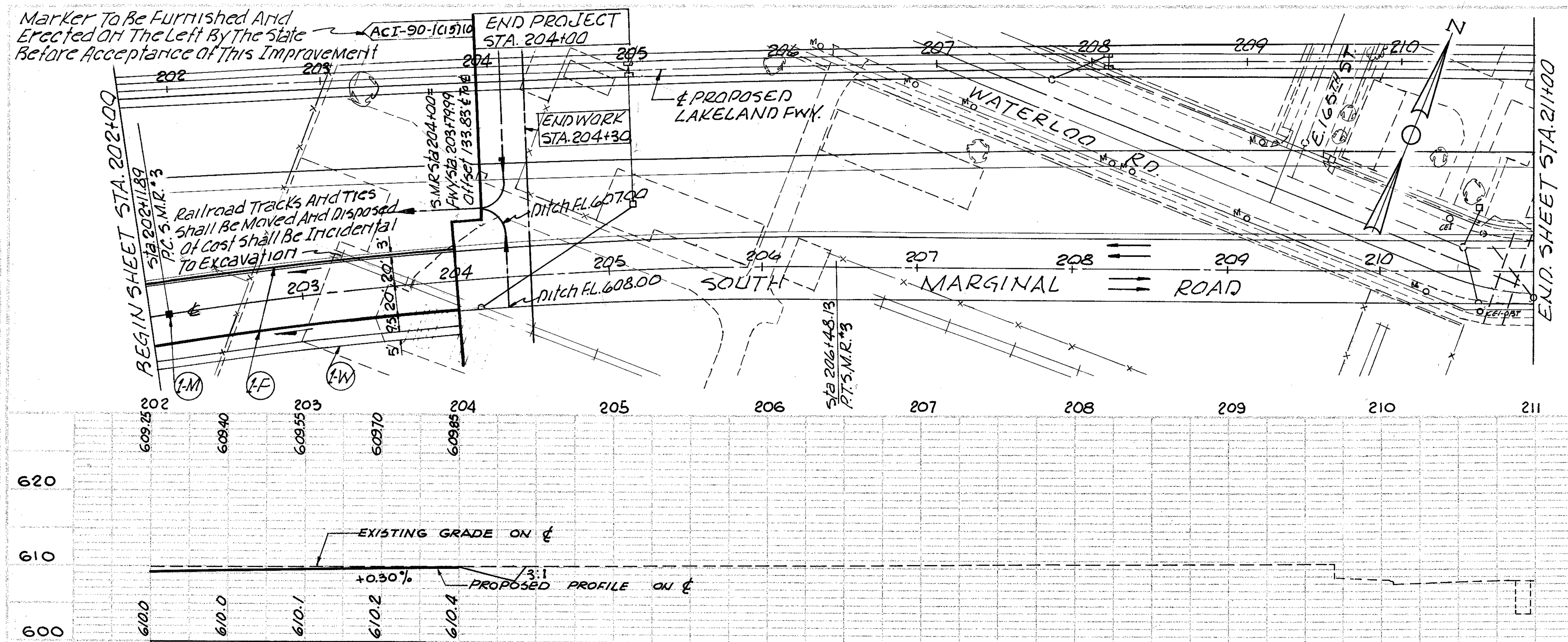
STORM SEWER

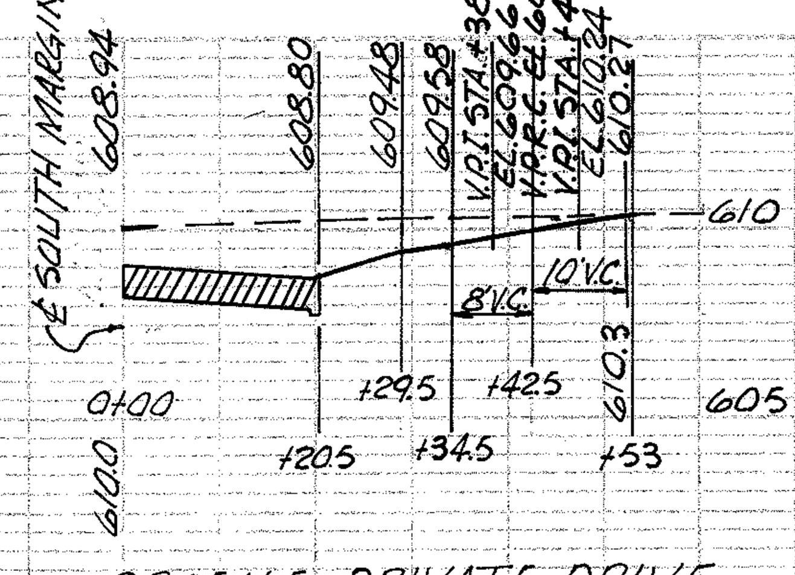
ITEM Nº	STATION FROM	STATION TO	SIDE R or L	I-2 LIN. FT. 12" CL B	15" CL A	18" CL B	UNDER PAV. 12" CL B	UNDER PAV. 15" CL B	UNDER PAV. 18" CL B	I-8 EACH M.H. ADJ. TO GR.	STD. M.H. Nº 1	SPEC. C.B. Nº 2-2A	SPEC. C.B. Nº 4	SPEC. C.I. Nº 4	I-5 EACH CL B 12"x64° BEND	18"x28° BEND	I-16 ABAND. C.B.	M.H.	LOCATION OF STRUCTURE
1-S	179+42	182+35	L&R	20			38			1				2			2		179+42.34; 181+80; 182+33; +35
2-S	182+50	185+00	L&R		118		68	57				1		3					182+50; 183+60; 185+00
3-S	187+50	187+65	L&R				41						1						187+50
4-S	189+00	191+55		90		164	41		44		1		1		1	1		1	189+95; 190+10; +94
5-S	195+50	197+78					172						2						195+50; 197+68.1
6-S	201+20	201+36					62						1						201+20
TOTALS				110	118	164	422	57	44	1	1	1	5	5	1	1	2	1	

PLAN & PROFILE ... SOUTH MARGINAL ROAD STA. 178+30.56 TO STA. 202+00

CUYAHOGA COUNTY
CUY - 2 - 22.97

S.M.R. CURVE Nº 3 - ℄ DATA
D = 2°-00'-00"
Δ = 8°-43'-29"
R = 2864.79'
T = 218.54'
L = 436.24'
LC = 435.81'
E = 8.32'





PROFILE - PRIVATE DRIVE
STA. 200+96
(SEE SHEET Nº 34)

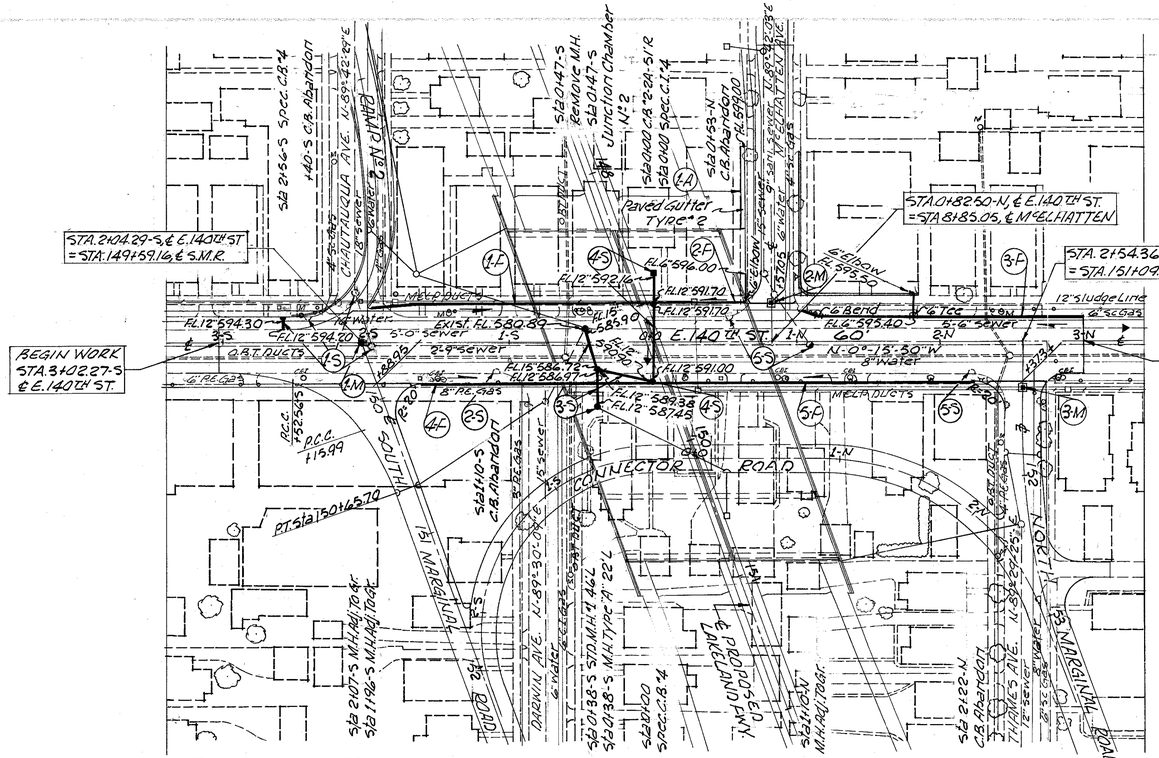
6" UNDERDRAINS					
				I-4 LIN. FT.	
ITEM No.	STATION FROM	STATION TO	SIDE R. or L.	6" U.D. SHALLOW	6" CURB U.D. SHALL.
I-F	202+00	204+00	L & R	200	200
TOTAL THIS SHEET				200	200

MONUMENT ASSEMBLIES I-8 EACH		
ITEM Nº	STATION	TYPE "B"
1-M	151 + 63.69	1
2-M	153 + 32.09	1
3-M	162 + 28.90	1
4-M	166 + 63.24	1
5-M	171 + 69.56	1
SUB TOTAL SHEET Nº 32		5
1-M	153 + 41.87	1
2-M	163 + 17.72	1
3-M	173 + 08.96	1
SUB TOTAL SHEET Nº 33		3
1-M	181 + 90.28	1
2-M	185 + 38.86	1
3-M	191 + 30.86	1
4-M	194 + 37.92	1
SUB TOTAL SHEET Nº 34		4
1-M	202 + 11.89	1
SUB TOTAL SHEET Nº 35		1
TOTALS =		13

SIDEWALKS I-13 SQ. FT.				
ITEM Nº	STATION FROM	STATION TO	SIDE	4" CONCRETE
1-W	153 + 32.09	159 + 62.67	L	3152.90
2-W	162 + 80.07	165 + 00	L	1099.65
3-W	165 + 00	166 + 19.55	L	597.75
4-W	166 + 83.33	170 + 15.50	L	1655.85
5-W	172 + 21.89	178 + 95.86	L	3369.85
SUB TOTAL SHEET Nº 32				9876.00
1-W	156 + 46.47	162 + 66.07	R	3098.00
2-W	166 + 22.50	172 + 57.79	R	3176.45
SUB TOTAL SHEET Nº 33				6274.45
1-W	179 + 69.11	182 + 00	R	1154.45
2-W	182 + 16	189 + 65	R	3745.00
3-W	189 + 85	190 + 00	R	75.00
4-W	190 + 00	194 + 90	R	2450.00
5-W	195 + 10	200 + 86	R	2880.00
6-W	201 + 06	202 + 00	R	470.00
SUB TOTAL SHEET Nº 34				10,774.45
1-W	202 + 00	204 + 00	R	1000.00
SUB TOTAL SHEET Nº 35				1,000.00
TOTALS =				27,924.90

L-10 SQ. YDS.					
ITEM Nº	STATION FROM	STATION TO	SIDE	LENGTH x WIDTH	SODDING
1-B	154 + 67	156 + 57	R	16' x 1.5'	53.
2-B	158 + 28	160 + 18	R	16' x 1.5'	53.
3-B	170 + 53	173 + 07	R	16' x 1.5'	64.
SUB TOTAL SHEET Nº 32 =					170.
1-B	153 + 42	155 + 32	L	16' x 1.5'	53.
2-B	176 + 30	176 + 85	L	72' x 10'	80.
SUB TOTAL SHEET Nº 33 =					133.
TOTALS =					303.

PLAN & PROFILE SOUTH MARGINAL ROAD STA. 202+00 TO STA. 204+00



FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

36/149

CUYAHOGA COUNTY
CUY - 2 - 22.97

STA. 3+02.27-S TO STA. 3+00-N

EXCAVATION	15,293. CU. YDS.
EMBANKMENT	8,592. CU. YDS.
EMBANKMENT + 22%	10,482. CU. YDS.

FOR PAVEMENT DETAILS & ELEVATIONS
SEE SHEET NOS 48, 49, & 50

FOR TEMPORARY RUNAROUND
SEE SHEET No 67

2-INTERSTATE AND DEFENSE HIGHWAY SIGNS,
FURNISHED AND ERECTED - 1 @ EACH END OF THE WORK

B.M.-U.S.C.&G.S. L-9 - Along The Cleveland Terminal Electric Pass Tracks On N. Face Of Q.D. Switch Tower 4 Ft. Above Ground And 8 Inches W. Of N.E. Corner Directly N. Of Lindsey Wire Weaving Co. Standard U.S.C.&G.S. Disc Stamped L-9, 1934 Set Vertically. Elev. 616.048'

B.M.-O.M. 543 Approx. 9 Ft. W. Of ℄ E.140TH St. Produced N. And 34 Ft. N.W. Of ℄ Of Lake Shore Blvd. 29.58 Ft. Of N.&V. In MELP Pole #2-55 On N. Side Of Blvd. 12.90 Ft. S.E. Of Cross On E. Pillar Of Drive To Sewage Disposal Plant. Elev. 593.550'

I-8 MONUMENT ASSEMBLY

ITEM No.	STATION	SIDE R or L	RESET EACH	TYPE "B" EACH
1-M	2+04.29-S	℄		1
2-M	0+82.50-N	LT.	1	
3-M	2+54.36-N	RT.	1	
TOTALS			2	1

I-14 LIN. FT. PAVED GUTTER				L-10 SQ. YDS
ITEM NO.	STATION	SIDE	STD. TYPE 2	SODDING
1-A	0+63-N	L	55.	9.
TOTALS =			55.	9.

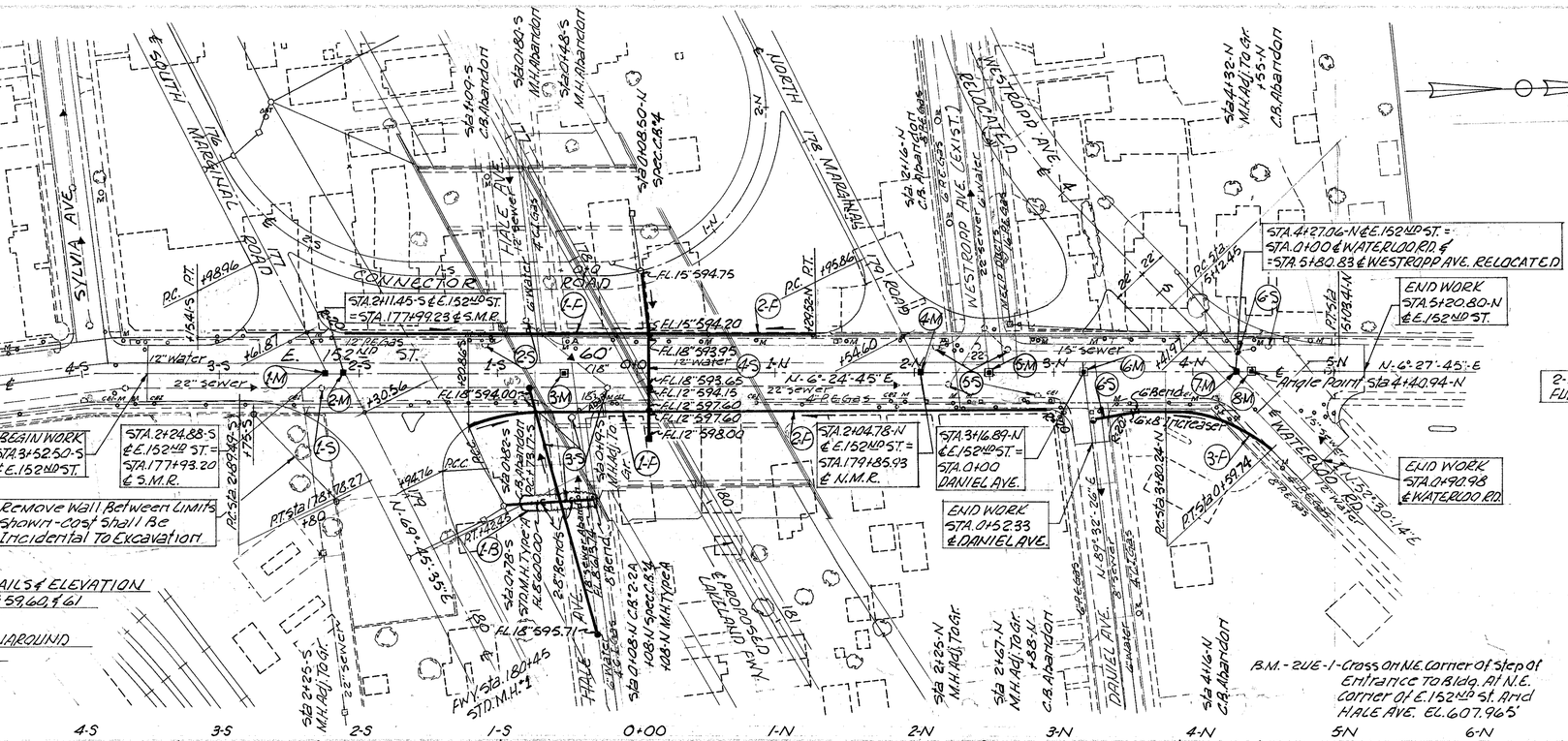
6" UNDERDRAIN

ITEM No	STATION		SIDE R OR L	I-4 LIN. FT.			I-5 SPEC.		
	FROM	TO		6" PIPE CURB U.D. SHALL.	6" PIPE U.D. SHALL.	8" PIPE OUTLET	6"X30° BEND	6"X90° ELBOW	6"X6" TEE
1-F	0+00	2+00-S	R	190		10			
2-F	0+00	0+60-N	L	50	20	10		1	
3-F	1+00-N	3+00-N	L	190	16	10	1	1	1
4-F	0+00	1+60-S	L	150		10			
5-F	0+00	2+25-N	R	215		10			
TOTAL THIS SHEET				795	36	50	1	2	1

STORM SEWER

ITEM No	STATION		SIDE R or L.	I-2 LIN. FT.					I-8 EACH									S-24 REMOVE M.H.	I-16 ABAND.		LOCATION OF STRUCTURE
						UNDER PAV'T.				SPEC.											
	FROM	TO		12" CL A		12" CL B	15" CL B		M.H. ADJ. TO GR.	C.B. No 4	C.I. No 4	C.B. No 2-2A	STD. M.H. TYPE A	JUNCTION CHAMBER No 2	STD. M.H. No 1				C.B.	M.H.	
1-S	1+96-S	2+56-S	L&R			6			2	1									1		1+96-S; 2+40-S; +07-S; 2+56-S
2-S	1+10-S		L																1		1+10-S
3-S	0+00	0+47-S	L&R			56	30						1	1	1			1			0+38-S (22'L, 46'L) 0+47-S
4-S	0+00	0+00	L&R	20		54				1	1	1									0+00
5-S	0+53-N	2+22-N	L ℄						1										2		0+53-N; 1+10-N; 2+22-N
TOTALS				20		116	30		3	2	1	1	1	1	1			1	4		

PLAN & PROFILE ··· EAST 140TH STREET



FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

37/149

CUYAHOGA COUNTY
CUY - 2 - 22.97

BEGIN WORK
STA.3+52.50-S
¢ E.152ND ST.

STA.2+24.88-S ¢ E.152ND ST. = STA.177+93.20 ¢ S.M.R.

STA.2+11.45-S ¢ E.152ND ST. = STA.177+99.23 ¢ S.M.R.

STA.2+04.78-N ¢ E.152ND ST. = STA.179+85.93 ¢ N.M.R.

STA.3+16.89-N ¢ E.152ND ST. = STA.0+00 DANIEL AVE.

STA.4+27.06-N ¢ E.152ND ST. = STA.0+00 ¢ WATERLOO RD. & = STA.5+80.83 ¢ WESTROPP AVE. RELOCATED

END WORK STA.0+52.33 ¢ DANIEL AVE.

END WORK STA.5+20.80-N ¢ E.152ND ST.

END WORK STA.0+90.98 ¢ WATERLOO RD.

Remove Wall Between Limits Shown - Cost Shall Be Incidental To Excavation

FOR PAVEMENT DETAILS & ELEVATION SEE SHEET NOS 59, 60, & 61

FOR TEMPORARY RUNAROUND SEE SHEET NO 67

B.M. - 2UE - 1 - Cross on N.E. Corner of Step of Entrance To Bldg. At N.E. Corner of E.152ND St. And HALE AVE. EL. 607.965

2-INTERSTATE AND DEFENSE HIGHWAY SIGNS, FURNISHED AND ERECTED - 1 @ EACH END OF WORK

I-8 MONUMENT ASSEMBLY				
ITEM No.	STATION	SIDE R. or L.	RESET EACH	TYPE "B" EACH
1-M	2+24.88-S	¢		1
2-M	2+11.45-S	¢		1
3-M	0+53.04-S	¢	1	
4-M	2+04.78-N	¢		1
5-M	2+49.96-N	¢	1	
6-M	3+16.89-N	¢	1	
7-M	4+27.06-N	¢		1
8-M	4+40.94-N	¢	1	
TOTALS			4	4

STA. 3+52.50-S TO STA. 5+20.80-N	
EXCAVATION	18,229. CU. YDS.
EMBANKMENT	3,015. CU. YDS.
EMBANKMENT + 22%	3,678. CU. YDS.

L-10 SQ. YDS.					
ITEM No	STATION		SIDE	LENGTH X WIDTH	SODDING
	FROM	TO			
1-B	0+86-5	0+32-5	R	54'X10'	60
TOTAL =					60

6" UNDERDRAIN								
ITEM No	STATION		SIDE R OR L	I-4 LIN. FT.			I-5 EACH	
	FROM	TO		6" PIPE CURB U.D. SHALL.	8" PIPE OUTLET		6" X 12° BEND	
1-F	0+00	2+10-S	R & L	330				
2-F	0+00	2+94-N	R & L	382	40			
3-F	3+55-N	4+57-N	R	108			1	
TOTAL THIS SHEET				820	40		1	

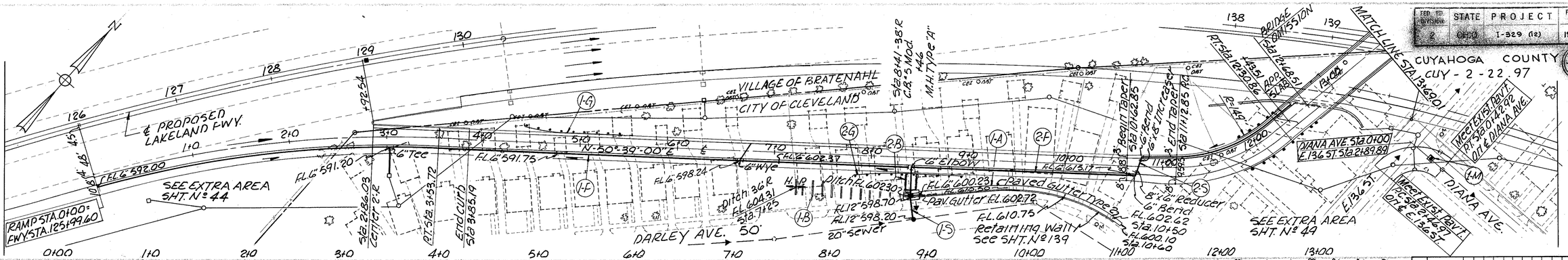
STORM SEWER																				
ITEM No	STATION		SIDE R OR L	I-2 LIN. FT.						I-8 EACH					I-2	I-5 SPEC.		I-16 ABAND.		LOCATION OF STRUCTURE
					UNDER PAV'T.												U.P.			
	FROM	TO		8" CL A	8" CL A 6.5b OR 6.8b	18" CL B	12" CL B	15" CL B	12" CL A	M.H. ADJ. TO GR.	M.H. TYPE A	STD. M.H. #1	SPEC. C.B. #4	C.B. #2-2A	Und. Pav. 18" Cl. B 6.5b or 6.8b	8" x 27° BEND CL A	6"x8" CL A INCR. 6.5b OR 6.8b	M.H.	C.B.	
1-S	2+25-S	2+25-S	L							1										2+25-S
2-S	0+80-S	1+09-S	R															1	1	0+80-S; 1+09-S
3-S	0+19-S	0+82-S	L	65						1	1	1			182	3		1	1	0+19-S; 0+48-S; 0+82-S; 0+78-S; FWY. STA. 180+45
4-S	0+08-N	0+08.5-N	L & R			36	14	44	18		1		2							0+08-N & 0+08.5-N
5-S	2+16-N	2+88-N	L & R							2				1					2	2+16-N; 2+25-N; 2+67-N; 2+88;
6-S	3+29-N	4+55-N	R		25					1							1		2	4+16-N; +32; +55
TOTAL THIS SHEET				65	25	36	14	44	18	5	2	1	2	1	182	3	1	2	6	

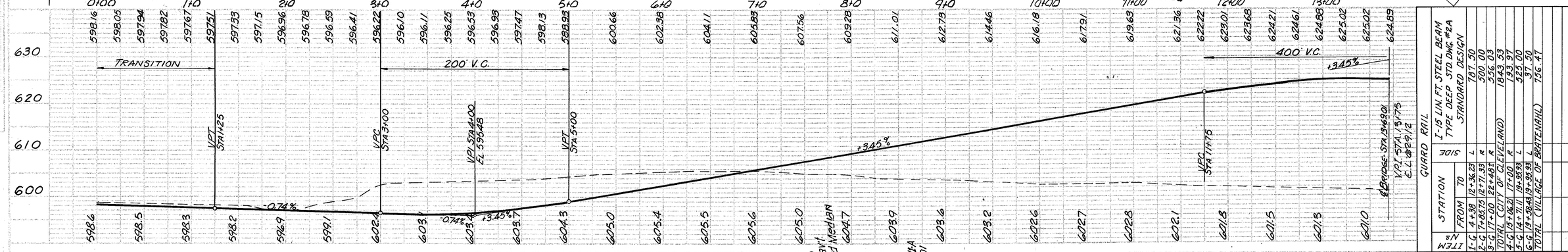
PLAN & PROFILE ··· EAST 152ND STREET

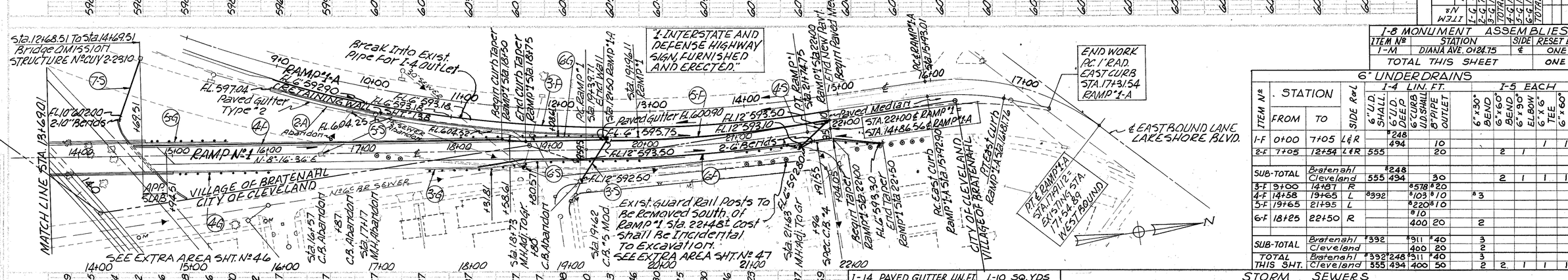
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY (38/149)

CUY - 2 - 22.97







GUARD RAIL — I-15 LIN. FT. STEEL BEAM TYPE DEEP STD. DWG. #2A STANDARD DESIGN

ITEM N°	STATION FROM	STATION TO	SIDE	
3015				781.30
				500.00
				536.03
TOTAL (CITY OF CLEVELAND)				1843.53
4-G	15+96.21	17+00	R	133.97
5-G	14+71.11	19+95.93	L	525.00
6-G	19+58.43	19+95.93	L	37.50
TOTAL (VILLAGE OF BRATENAHL)				736.47
1-G	4+38	12+36.23	L & R	
2-G	7+85.75	12+71.33	L & R	
3-G	17+00	22+48±	L & R	

I-8 MONUMENT ASSEMBLIES

ITEM N°	STATION	SIDE	RESET EACH
I-M	DIANA AVE. 0+24.75	℄	ONE
TOTAL THIS SHEET			ONE

6" UNDERDRAINS

ITEM N°	STATION FROM	STATION TO	SIDE R or L	I-4 LIN. FT. 6" U.D. SHALL.	6" L.D. DEEP	6' CURB U.D. SHALL.	8" PIPE OUTLET	I-5 EACH 6"x30° BEND	6"x60° BEND	6"x90° ELBOW	6"x6" TEE	6"x60° WYE
1-F	0+00	7+05	L & R		494		10				1	1
2-F	7+05	12+54	L & R	555			20		2	1		
SUB-TOTAL	Bratenahl			555	494		30		2	1	1	1
3-F	9+00	14+87	R									
4-F	14+58	19+65	L									
5-F	19+65	21+95	L									
6-F	18+25	22+50	R									
SUB-TOTAL	Bratenahl											
	Cleveland											
TOTAL THIS SHT.	Bratenahl											
	Cleveland											

I-14 PAVED GUTTER LIN. FT. — I-10 SQ. YDS SODDING

ITEM N°	STATION FROM	STATION TO	SIDE	STD. TYPE	SODDING LENGTH	SODDING WIDTH	SODDING SQ. YDS.
			Card	2			
1-A	RAMP # 1 8+47	12+60	R	219			36
2-A	RAMP # 1A 9+00	12+52	R	362			60
1-B	RAMP # 1 7+25	8+24	R			16' x 1.5'	27
2-B	RAMP # 1 8+41	—				18' x 10'	20
TOTAL THIS SHT.	Bratenahl			362			60
	Cleveland			219			83

STORM SEWERS

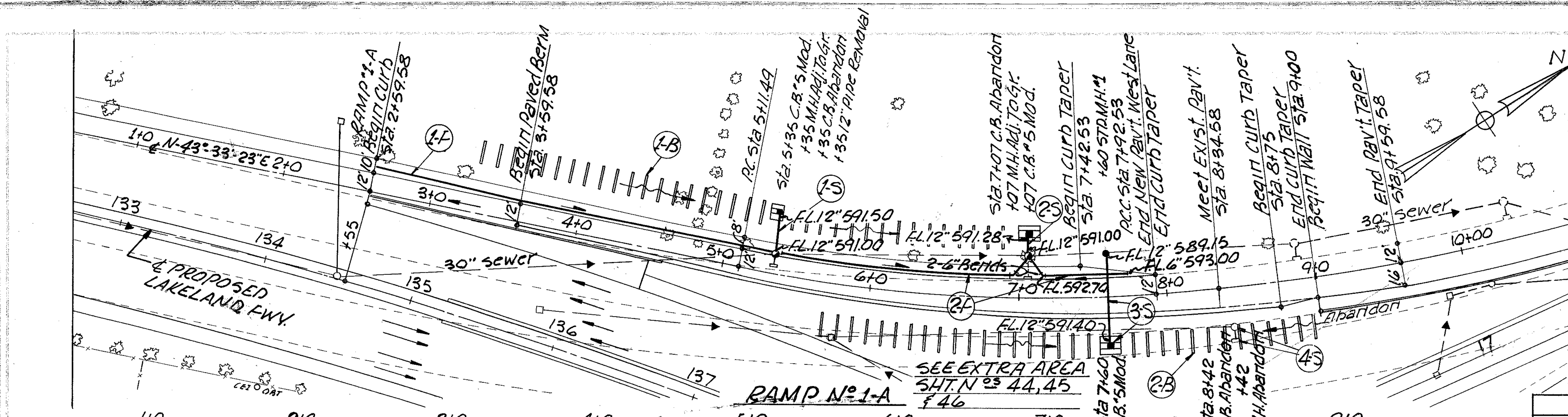
ITEM N°	STATION FROM	STATION TO	SIDE R or L	I-2 LIN. FT. 10" CL A	8" CL A	12" CL A	12" CL B	I-8 EACH M.H. ADJ. TO GRADE	M.H. TYPE A	CB. SPEC 5 MOD.	CB. SPEC 4	I-5 EACH 10"x8° BEND CL. A.	10"x30° BEND	6"x6° INCL. UND. PAV'T 6.5 b 6.8 b	8"x6" REDUC	I-16 EACH ABANDON MH.	CB.	LOCATION OF STRUCTURE
					6.5 b OR 6.8 b													
1-S	8+41	8+46	R			22		1		1								8+41 ; 8+46
2-S	10+70	10+80	L & R		16									1	1			
SUB-TOTAL	Bratenahl																	
	Cleveland				16	22		1		1				1	1			
3-S	19+33	19+65	L & R			28	22				1							19+62
4-S	21+63	21+96	L & R				38		1		1							21+63 ; +96
5-S	16+57	17+17	L						1							1	2	16+57;87;17+17
6-S	18+73	18+80	L & R						1							1	1	18+73 ; +80
7-S	14+48	15+33	L	70								1	1					
SUB-TOTAL	Bratenahl			70		22					1	1	1			1	3	
	Cleveland				28		38		2									
TOTAL THIS SHT.	Bratenahl			70		22					1	1	1			1	3	
	Cleveland				16	50	38		2	1				1	1			

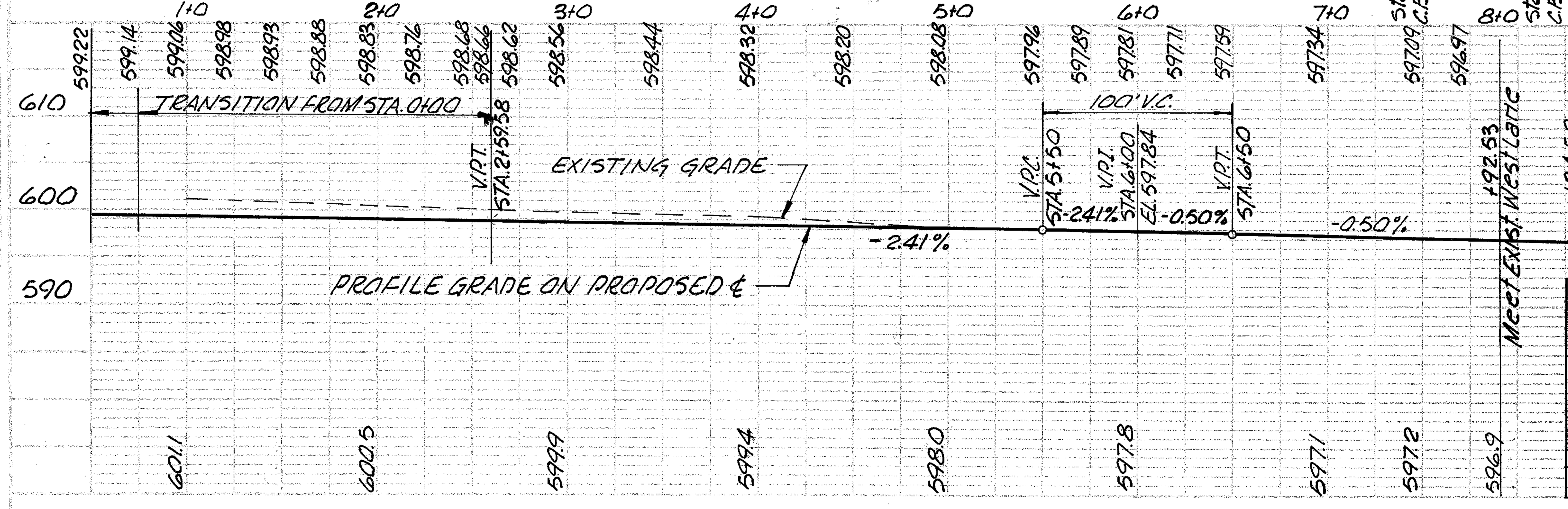
PLAN & PROFILE ··· RAMP NO. 1

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY - 2 - 22.97
39/149

B - VILLAGE OF BRATENAHL
* - NEW HEAVY M.H. FRAME & COVER SHALL BE PROVIDED - SEE STD. DWG. # I-8 M.H. Nº 1





6" UNDERDRAINS

ITEM Nº	STATION FROM	STATION TO	SIDE R or L	I-4 LIN. FT. 6" U.D. SHALLOW	6" U.D. DEEP	6" CURB U.D. SHALL	6" CURB U.D. DEEP	8" PIPE OUTLET		I-5 EACH 6"x60° BEND	6"x6" TEE	6"x90° ELBOW	6"x60° WYE	SECTION
1-F	2+59	5+53	L	264				10						RAMP #1A
2-F	5+38	7+75	L	226				20		2				
TOTAL BRATENAHL				490				30		2				
3-F	0+00	-2+50	L	250										RAMP #2
4-F	0+00	6+55	L&R	200	262	92	220	20				2	1	
CLEVELAND SUB-TOTAL				450	262	92	220	20				2	1	
5-F	0+35	3+00	L			270		4			2			E. 136 ST.
6-F	0+51	3+30	R			250		20		1				
7-F	-0+15	0+00	R			15								
8F	-0+15	0+22	L			14		20						
CLEVELAND SUB-TOTAL						549		44		1	2			
TOTAL CLEVELAND				450	262	641	222	64		1	2	2	1	

I-8 MONUMENT ASSEMBLIES EACH

ITEM Nº	STATION	SIDE	RESET
1-M	OTHELLO 47.01 EAST OF CORP. LINE.	℄	1
2-M	E. 136 ST. STA. 0+08.05	℄	1
TOTAL THIS SHEET			2

STORM SEWERS

ITEM Nº	STATION FROM	STATION TO	SIDE R or L	I-2 LIN. FT. 12" CL. A		UNDER PAVEMENT 8" CL A (6.5b or 6.8b)	12" CL A (6.5b or 6.8b)			12" CL B	I-8 EACH STD. M.H. Nº 1	M.H. ADJ. TO GRADE	MOD. C.B. Nº 5	SPEC. C.B. Nº 4		I-5 EACH 6"x8" CL. A INCREASER		UND. PAV'T CL. A 6.5b or 6.8b 8"x90° ELBOW	6"x8" INCR.	I-16 EACH ABANDONED C.B.	M.H.		E-12 LIN. FT. PIPE REMOVAL 15" DIA. & UNDER		LOCATION OF STRUCTURE	SECTION
1-S	5+35	5+35	L	21								1*	1							1			5		5+35(5-L;12L;38L)	RAMP #1A
2-S	7+07	7+07	L	9								1	1							1					7+07(12-L;27-L;38L)	
3-S	8+25	8+25	L&R				58				1		1												8+25	
4-S	8+42	8+42	R																	1	1				8+42(26R;35R)	
TOTAL BRATENAHL				30			58				1	1/1*	3							3	1		5			
5-S	3+88	4+50	L&R				77						1												4+50	RAMP #2
6-S	5+92	6+30	L&R			17				52				1		1		1							5+92.43	
CLEVELAND SUB-TOTAL						17	77			52			1	1		1		1								
7-S	0+00	0+56	L&R			13				58		2		2					1	1					0+00;+48;+25;+56	E. 136 ST.
8-S	3+16	3+25	L							12		1		1						1					3+16;+17;+24.87	
9-S	0+00	0+15	R			10										1		1								
CLEVELAND SUB-TOTAL						23				70		3		3		1		1	1	2						
TOTAL CLEVELAND						40	77			122		3	1	4		2		2	1	2						

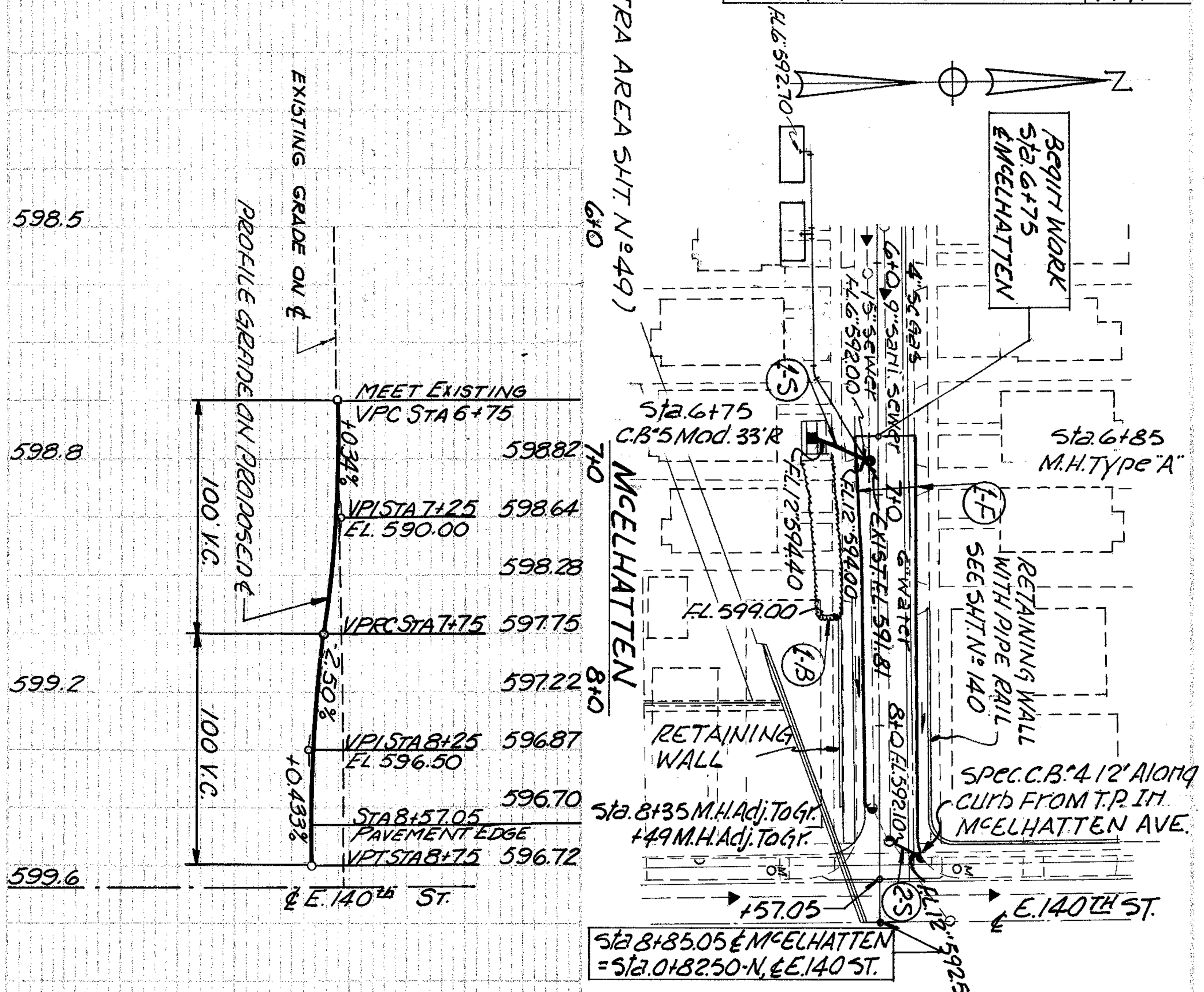
L-10 SQ. YDS.

ITEM Nº	STATION FROM	STATION TO	SIDE R or L	LENGTH x WIDTH	SODDING
1-B	RAMP #1A 3+28	6+90	L	16'x1.5'	8 93
2-B	RAMP #1A 6+18	9+02	R	16'x1.5'	8 88.
3-B	RAMP # 2 2+43	4+33	R	16'x1.5'	53.
TOTAL THIS SHEET					8 181 / 53

PLAN & PROFILE ··· RAMP NO. 1A, RAMP NO. 2 AND EAST 136 ST.

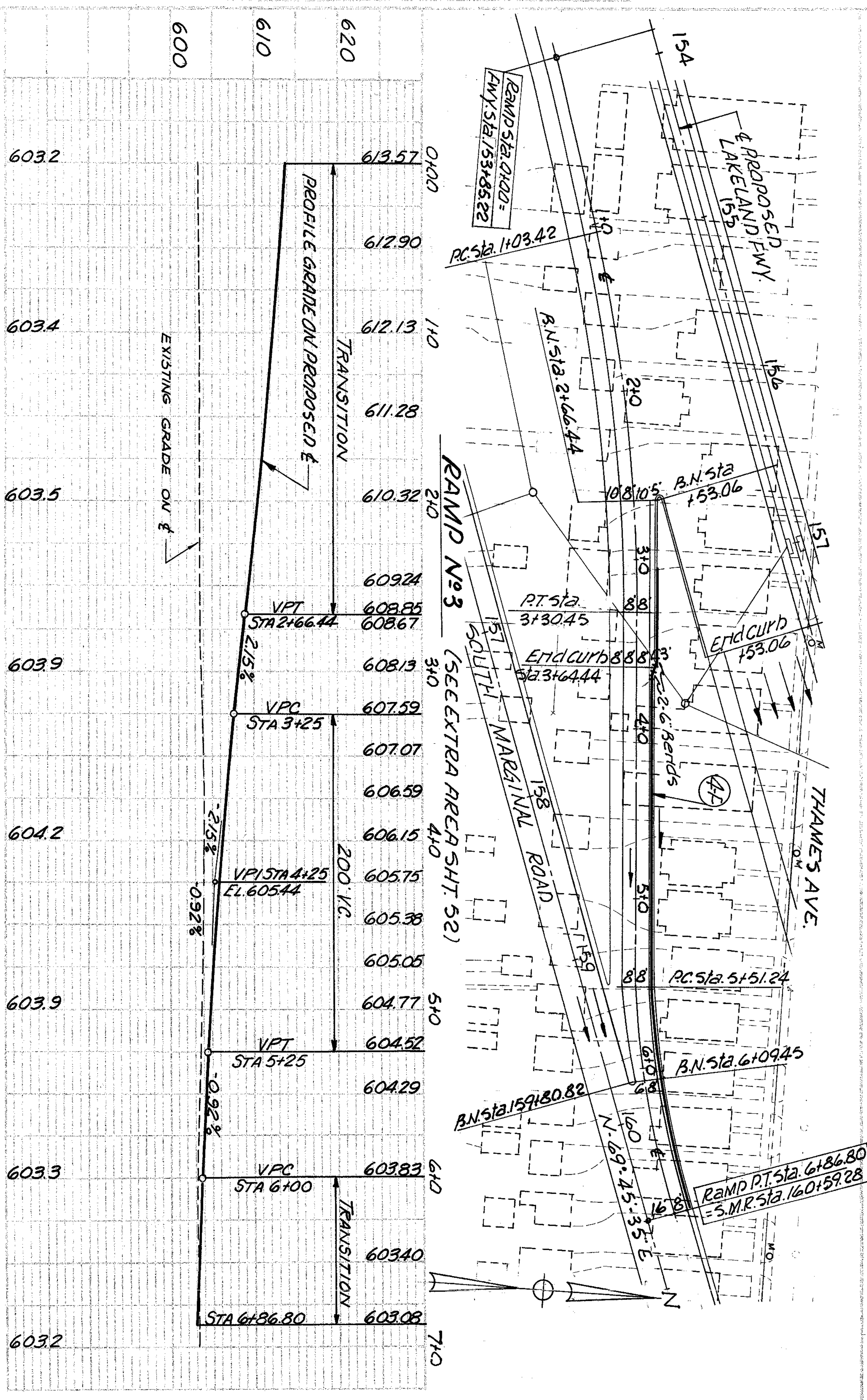
L-10 SQ. YDS.

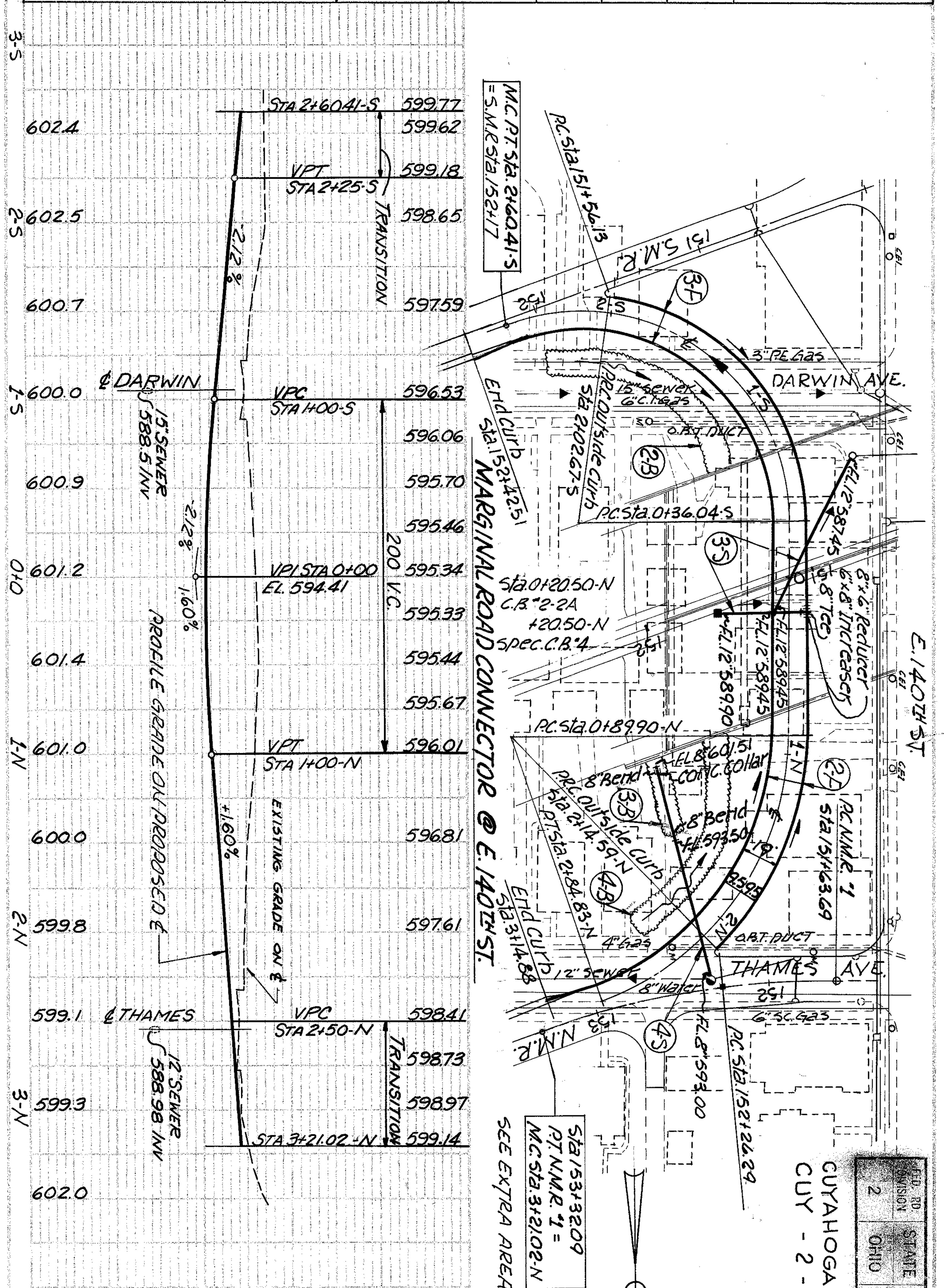
ITEM No	STATION FROM	STATION TO	SIDE	LENGTH x WIDTH	SODDING
1-B	6+82	7+53	R	71'x12'	95.
2-B	2+38-S	0+73-S	R	126'x12'	168.
3-B	1+03-N	1+70-N	R	45'x10'	50
4-B	0+92-N	2+43-N	R	123'x12'	164.
TOTAL THIS SHEET					477.

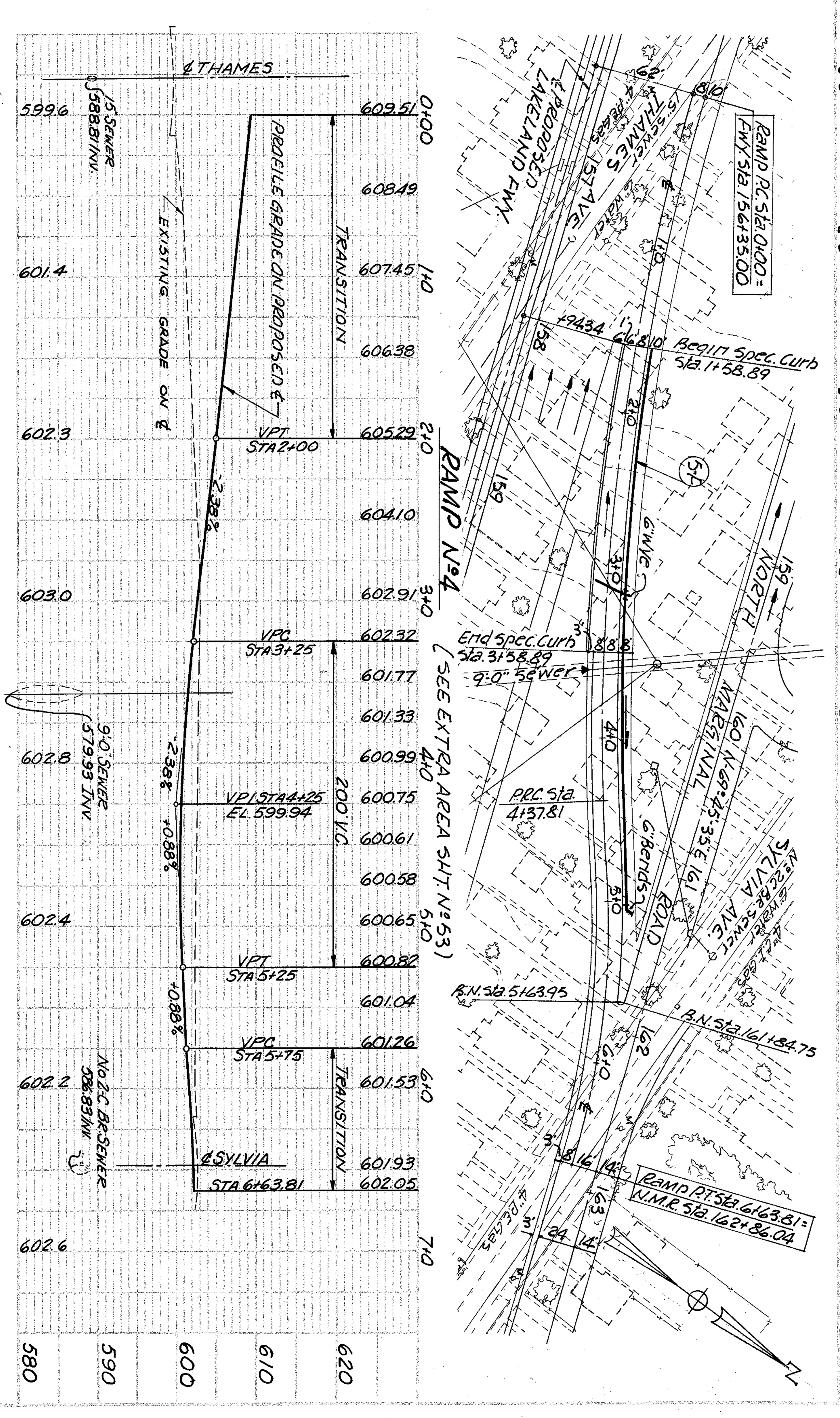


* 6.4c	STORM SEWERS																		
				I-2 LIN. FT.				I-8 EACH					I-5 SPEC.				I-16 ABAND.		
					UNDER PAV'T								CLASS A						
ITEM No	STATION FROM	STATION TO	SIDE R or L	12" CL A	8" CL A (6.5b or 6.8b)	12" CL A (6.5b or 6.8b)	12" CL B	MANHOLE ADJ. TO GRADE	MANHOLE TYPE A	C.B. No 5 MOD.	SPECIAL C.B. No 4	C.B. No 2-2A.	8"x6" REDUCER	6"x8" INCREASER	U.P. 8"x8" TEE (6.5b or 6.8b)	8"x27° BEND (6.4c)	C.B.	M.H.	LOCATION OF STRUCTURE
1-S	6+75	6+85	R			22			1	1									STA.6+85 ¢ STA.6+75 R-33'
2-S	8+35	8+56	L&R				14	2			1								STA.8+35; +49; +56
3-S	0+58.5	0+20.5-N	L&R	28	18		98				1	1	1	1	1				0+13.98-N
4-S	1+00-N	2+27-N	L&R		48* 82											2			
TOTAL THIS SHEET				28	48* 100	22	112	2	1	1	2	1	1	1	1	2			

6" UNDERDRAIN										
				I-4 LIN. FT.			I-5 EACH			
ITEM No	STATION FROM	STATION TO	SIDE R or L	6" PIPE CURB UNDERDRAIN (SHALLOW)	6" PIPE UNDERDRAIN (SHALLOW)	8" PIPE OUTLET	6"x45° BEND	6"x73° BEND	6"x60° WYE	
1-F	6+75	8+56	L&R	320		20				McELHATTEN AVE.
2-F	0+00	3+15-N	L&R	500		20				MARGINAL ROAD CONN.
3-F	0+00	2+60-S	L&R	452						
4-F	3+00	6+87	L	65	324		2			RAMP No 3
5-F	1+50	5+08	L&R		382			1	1	RAMP No 4
TOTAL THIS SHEET				1337	706	40	2	1	1	



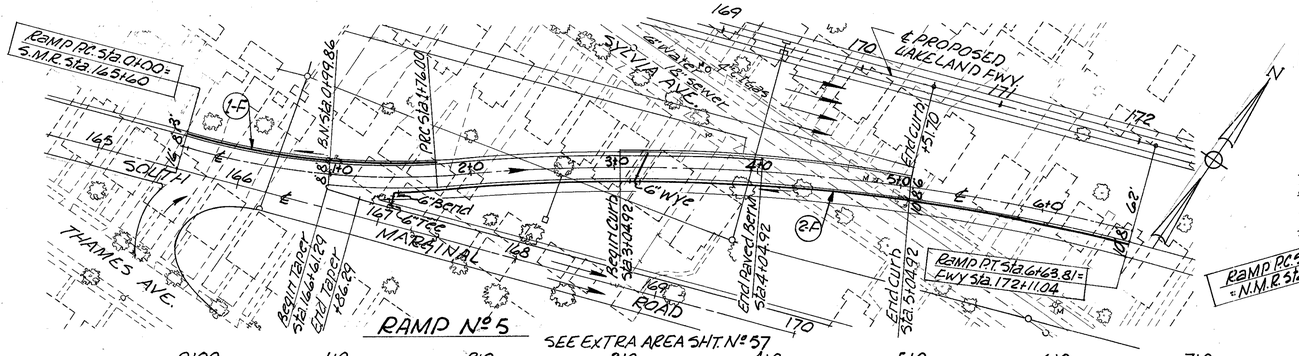


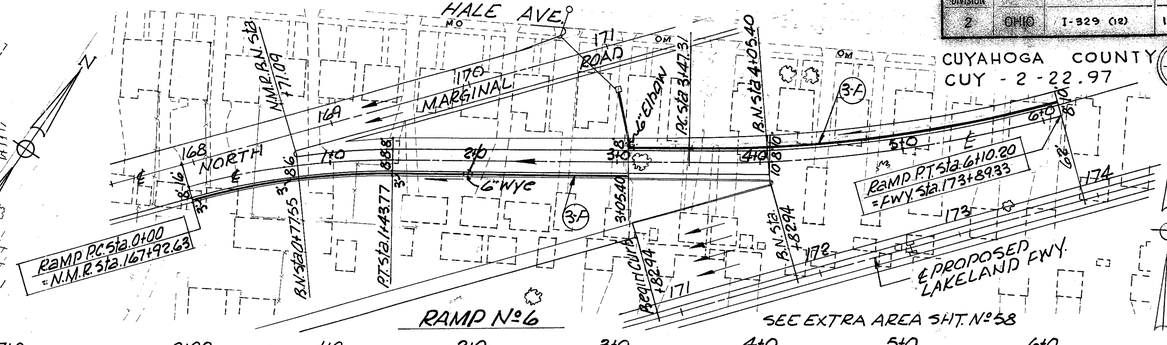


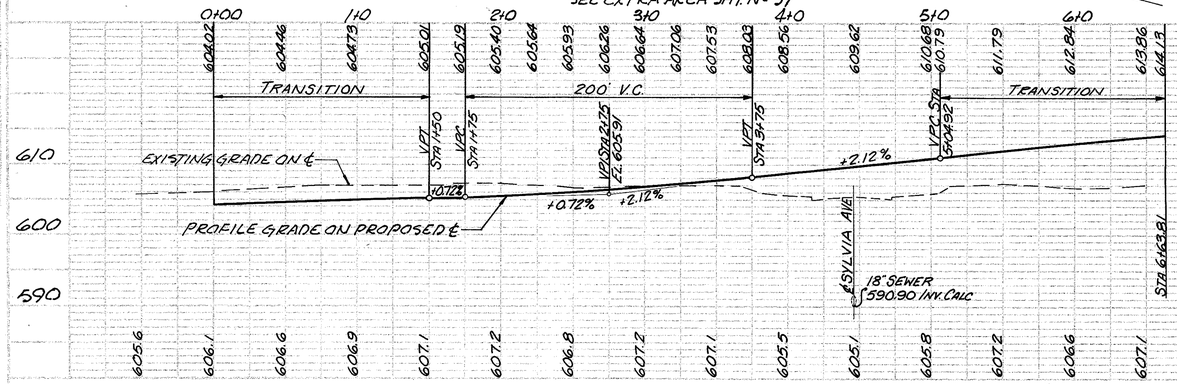
PLAN & PROFILE ··· Mc ELHATTEN , M.R. CONNECTOR EAST 140 ST., RAMP NO. 3 & RAMP NO. 4

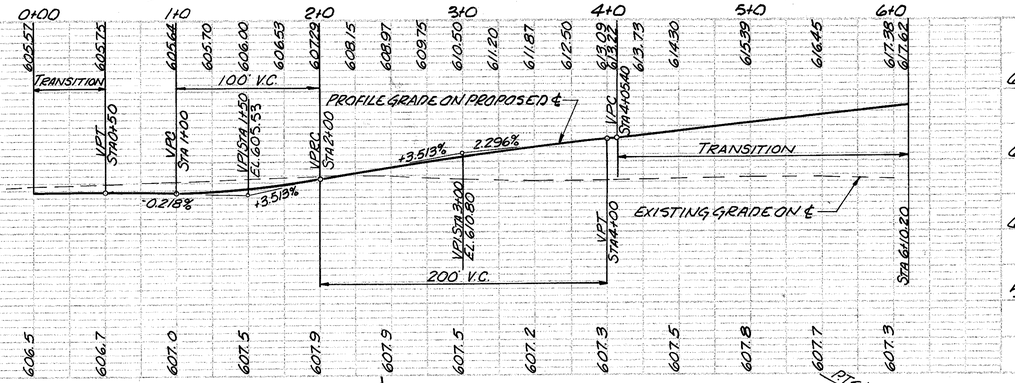
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

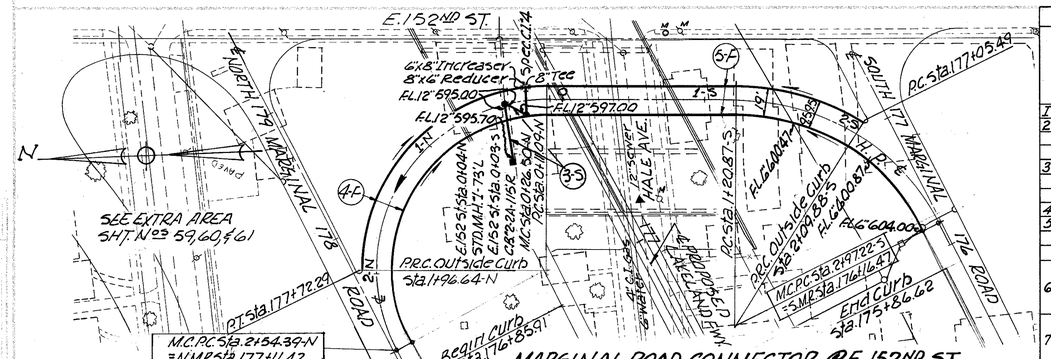
CUYAHOGA COUNTY (41/149)
CUY - 2 - 22.97



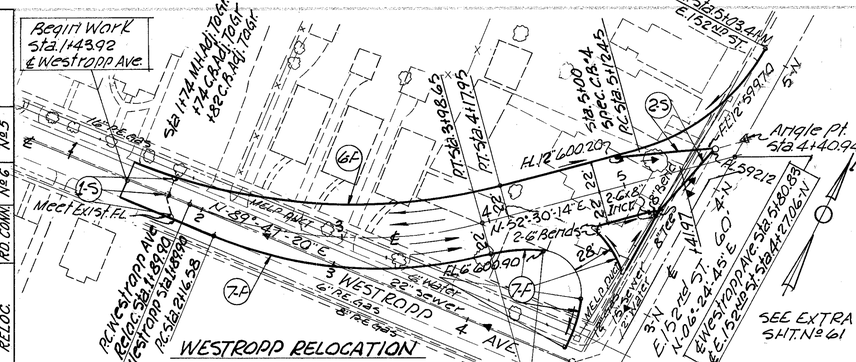


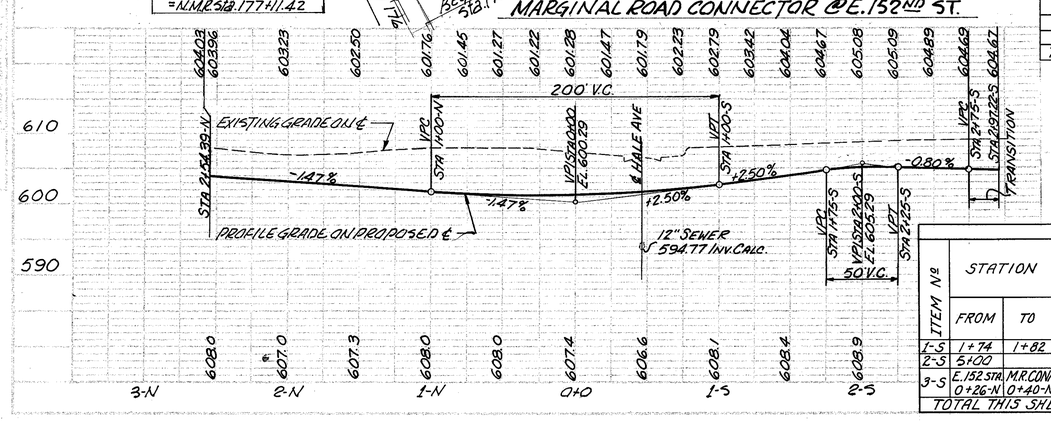






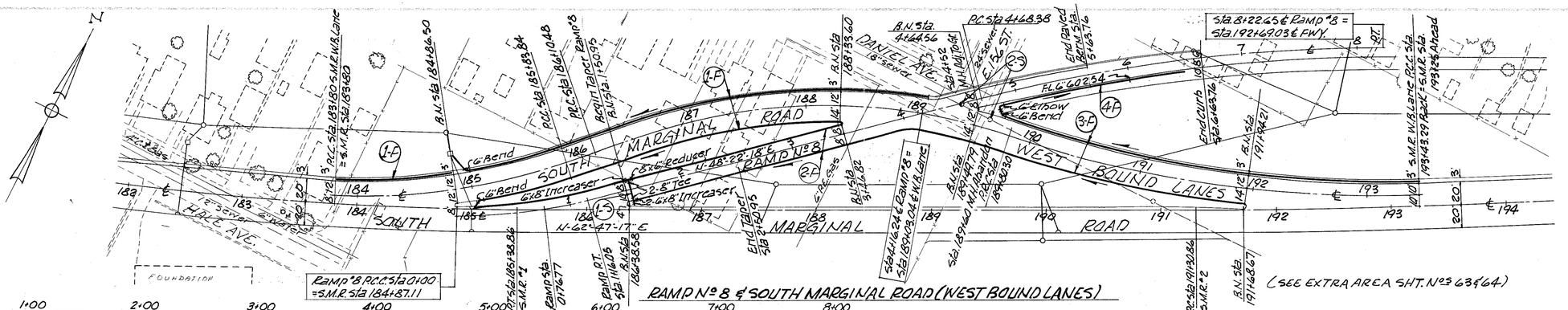
6" UNDERDRAIN													
ITEM No	STATION FROM	STATION TO	SIDE R OR L	I-4 LIN. FT. 6" PIPE COND	I-4 LIN. FT. U.D. SHALL	I-4 LIN. FT. 6" PIPE U.D. SHALL	I-4 LIN. FT. 8" PIPE OUTLET	I-5 EACH 6"x60° WYE	I-5 EACH 6"x60° BEND	I-5 EACH 6"x6" TEE	I-5 EACH 6"x90° ELBOW	I-5 EACH 6"x30° BEND	
1-F	0+00	1+76	L			176							RAMP No 5
2-F	1+43	6+64	LER			548		1	1	1			
SUB-TOTAL						724		1	1	1			
3-F	0+00	6+10	LER			661	10	1			1		
SUB-TOTAL						661	10	1			1		
4-F	0+00	2+54-N	LER	423			20						MARG. RAMP RD CONN. No 6
5-F	0+00	2+97-S	LER	495									
SUB-TOTAL						918	20						
6-F	WESTROPP AVE. STA. 1+44	E. 152 ST. STA. 5+05-N	L	457			20				1	1	WESTROPP RELOC.
7-F	WESTROPP AVE. STA. 1+44	E. 152 ST. STA. 3+66-N	R	469							1	1	
SUB-TOTAL				926			20				1	1	
TOTAL THIS SHEET				1844	1385	50	2	1	1	2	1		

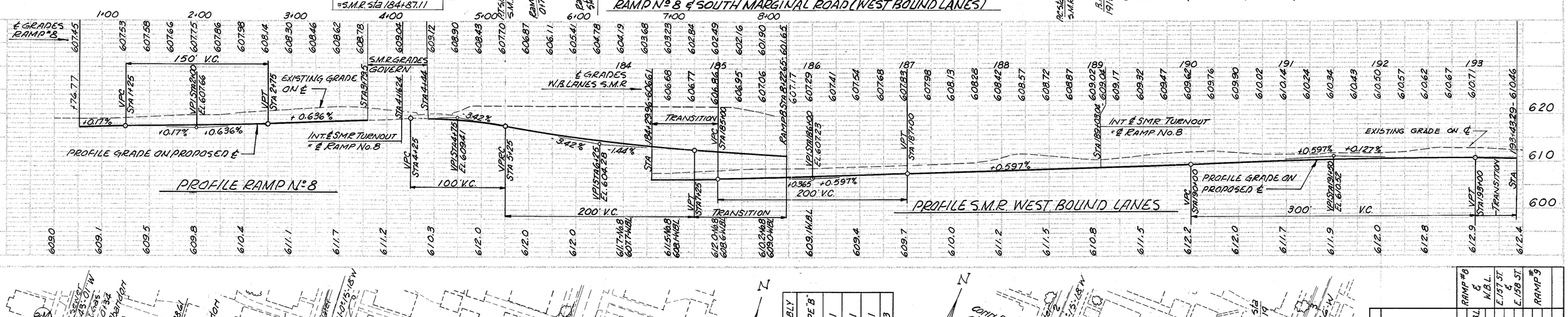


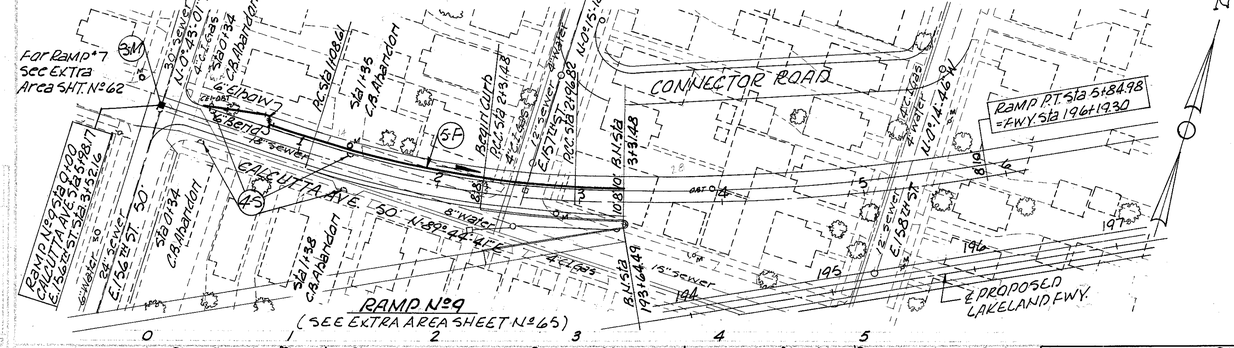


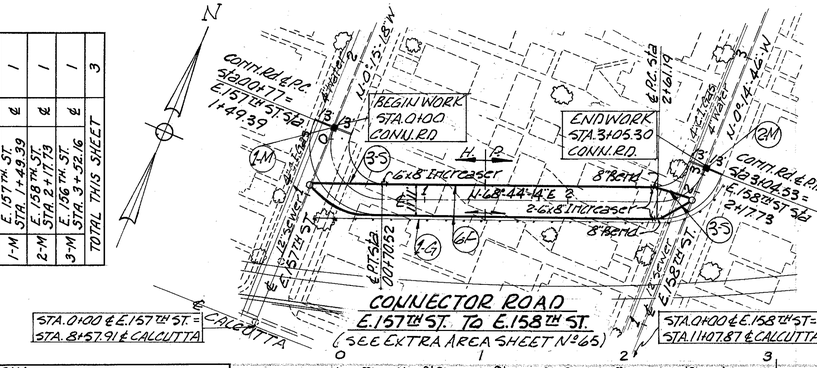
STORM SEWER : MARG. RD. CONN. ; WESTROPP AVE.																			
ITEM No	STATION FROM	STATION TO	SIDE R OR L	I-2 LIN. FT. UNDER PAVT. 12" CL A 6.8b OR 6.5b	12" CL B	8" CL A 6.8b OR 6.5b	I-8 EACH M.H. ADJ. TO GR.	C.B. ADJ. TO GR.	SPEC. C.I. #4	SPEC. C.B. #4	C.B. #2-2A	STD. M.H. #1	I-5 SPEC. U.P. 8"x8" TEE CL A 6.5b OR 6.8b	I-5 SPEC. 6"x8" INCR. CL A	I-5 SPEC. 8"x6" RED. CL A	I-5 SPEC. 8" x 30° BEND CL A	LOCATION OF STRUCTURE
1-S	1+74	1+82	L&R				1	2									1+74 ; +82
2-S	5+00		L&R		64	56			1				1	2		1	WESTROPP AVE. STA. 5+00
3-S	E. 152 STA. 0+26-N	M.R. CONN. 0+40-N	L&R	40	18	20			1		1	1	1	1	1		MARG. RD. CONN. STA. 0+26.5-N E. 152 ST. STA. 0+04-N ; 0+03-5
TOTAL THIS SHEET				40	82	76	1	2	1	1	1	1	2	3	1	1	

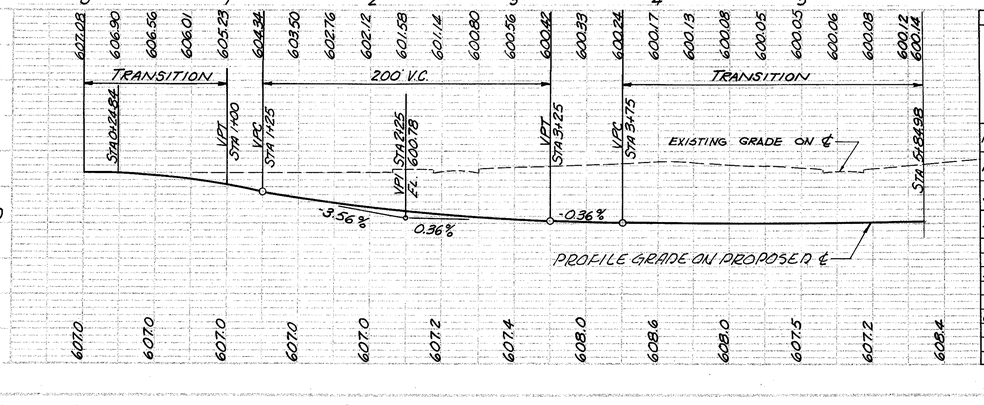
PLAN & PROFILE ---- WESTROPP RELOC., RAMP NO. 5, RAMP NO. 6 AND M.R. CONNECTOR EAST 152 ST.

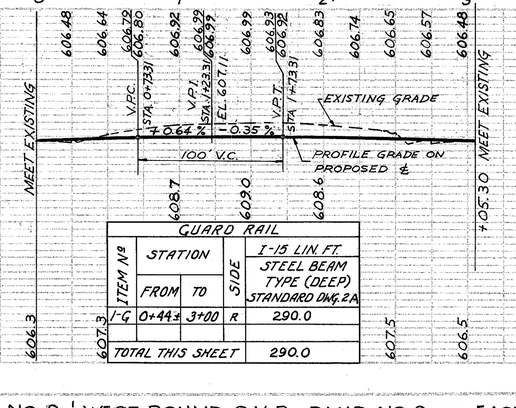












FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	1-329 (12)	1958

CUYAHOGA COUNTY
CUY - 2 - 22.97

I-8 MONUMENT ASSEMBLY			
ITEM Nº	STATION	SIDE	TYPE "B"
1-M	E. 157 TH. ST. STA. 1+49.39	℄	1
2-M	E. 158 TH. ST. STA. 2+17.73	℄	1
3-M	E. 156 TH. ST. STA. 3+52.16	℄	1
TOTAL THIS SHEET			3

STA. 0+00 ℄ E. 157 TH ST. = STA. 8+57.91 ℄ CALCUTTA

STA. 0+00 ℄ E. 158 TH ST. = STA. 11+07.87 ℄ CALCUTTA

6" UNDERDRAIN													
ITEM Nº	STATION FROM	STATION TO	SIDE R OR L	I-4 LIN. FT. 6" PIPE U.D. SHALL.	I-4 LIN. FT. 6" PIPE CURB U.D. SHALL.	I-4 LIN. FT. 8" PIPE OUTLET		I-5 EACH 6" X 60° BEND	I-5 EACH 6" X 90° ELBOW		I-5 EACH 6" X 45° BEND	I-5 EACH 6" X 80° BEND	
1-F	S.M.R. STA. 183+83	W.B.L. STA. 189+07	L&R	527	320	20		1			1		RAMP #8 & S.M.R. WEST BND LANE
2-F	RAMP #8 STA. 0+15	RAMP #8 STA. 4+08	L&R		580	10							
3-F	W.B.L. STA. 189+00	W.B.L. STA. 193+43	L&R	370	294			1					
4-F	RAMP #8 STA. 4+83	RAMP #8 STA. 6+47	R	164					1				
SUB-TOTAL				1061	1194	30		2	1		1		
5-F	0+24	3+31	L	256	50				1			1	RAMP #9
SUB-TOTAL				256	50				1			1	
6-F	0+22	2+83	L&R	27	400	10							E. 157 ST. & E. 158 ST. CONN.
SUB-TOTAL				27	400	10							
TOTAL THIS SHEET				1344	1644	40		2	2		1	1	

GUARD RAIL				
ITEM Nº	STATION FROM	STATION TO	SIDE	I-15 LIN. FT. STEEL BEAM TYPE (DEEP) STANDARD DWG. 2A
1-G	0+44±	3+00	R	290.0
TOTAL THIS SHEET				290.0

STORM SEWER														
ITEM Nº	STATION FROM	STATION TO	SIDE	I-2 LIN. FT. U.D. PAV. 8" CL A 6.5b	I-8 EA. M.H. ADJ. TO GR.	I-5 SPEC. UNDER PAV'T. 8" X 8" TEE	I-5 SPEC. UNDER PAV'T. 8" X 8" 18° BEND 6.5b OR 6.8b CLASS A	I-5 SPEC. UNDER PAV'T. 8" X 8" 30° BEND 6.5b OR 6.8b CLASS A	I-5 SPEC. 6" X 8" INCR.	I-5 SPEC. 8" X 6" RED.	I-16 ABAND. C.B.	I-16 ABAND. M.H.	LOCATION OF STRUCTURE	
1-S	1+49	1+49	L&R	16		2			3	1				RAMP #8 & W.B.L.
2-S	RAMP 8 4+52	W.B.L. 189+60	℄&R		1							1	4+52-RAMP #8; 189+60 W.B.L.	
SUB-TOTAL				16	1	2			3	1		1		
3-S	0+23	2+83	L&R	100			1	1	3					E. 157 ST. & E. 158 ST.
SUB-TOTAL				100			1	1	3					
4-S	0+34	1+38	L&R								4		0+34; 1+35; +38	RAMP #9
SUB-TOTAL											4			
TOTAL THIS SHEET				116	1	2	1	1	6	1	4	1		

PLAN & PROFILE ··· RAMP NO. 8 & WEST BOUND S.M.R., RAMP NO. 9 AND EAST 157 ST. - 158 ST. CONNECTOR

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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CUYAHOGA COUNTY
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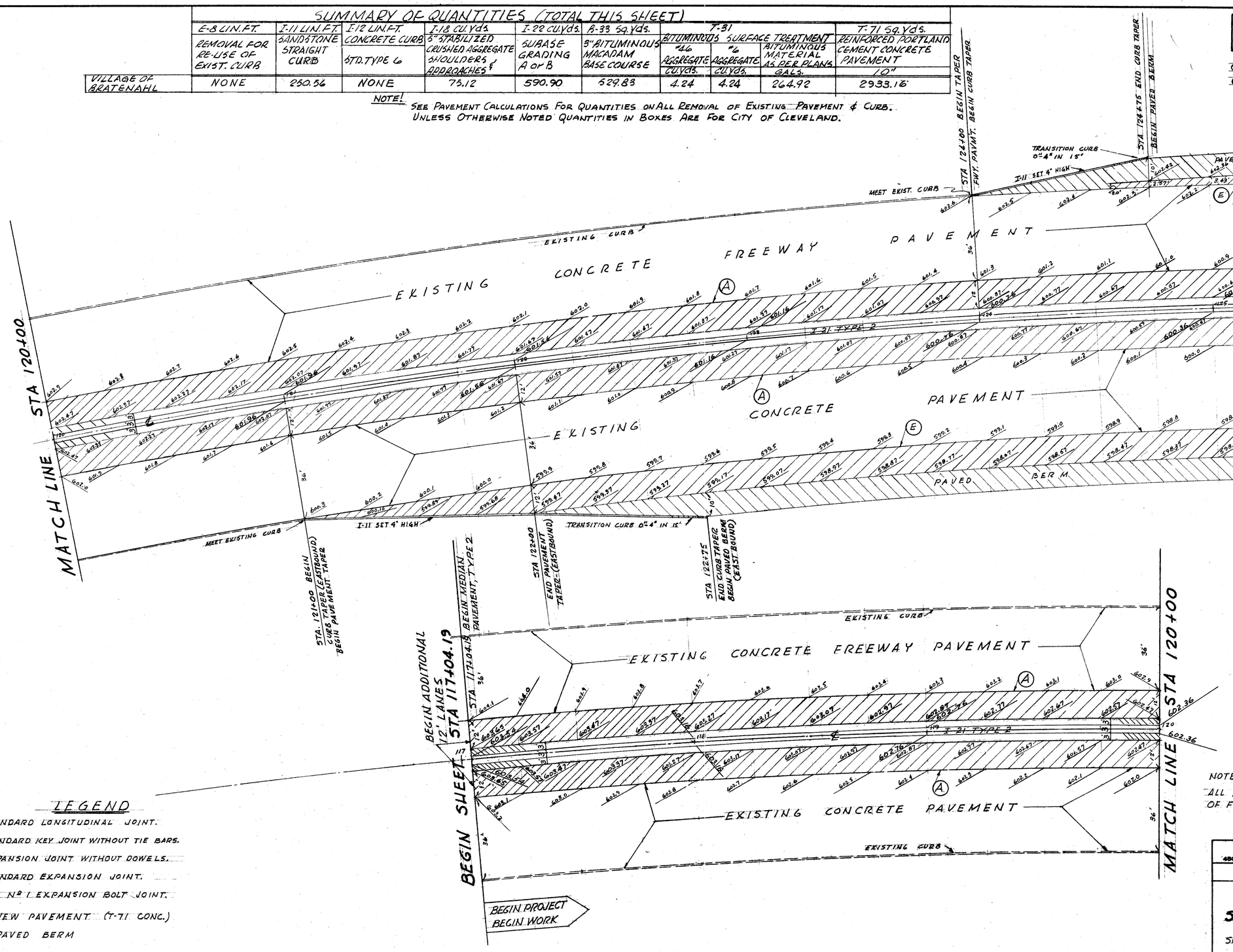
SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

	E-8 LIN. FT.	I-11 LIN. FT.	I-12 LIN. FT.	I-18 CU. YDS.	I-22 CU. YDS.	B-33 SQ. YDS.	T-31 BITUMINOUS SURFACE TREATMENT			T-71 SQ. YDS.
	REMOVAL FOR RE-USE OF EXIST. CURB	SANDSTONE STRAIGHT CURB	CONCRETE CURB STD. TYPE 6	3" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	SUBASE GRADING A or B	3" BITUMINOUS MACADAM BASE COURSE	#6 AGGREGATE CU. YDS.	#6 AGGREGATE CU. YDS.	BITUMINOUS MATERIAL AS PER PLANS GALS.	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 10"
VILLAGE OF BRATENAHL	NONE	250.56	NONE	75.12	590.90	529.83	4.24	4.24	264.92	2933.16

NOTE! SEE PAVEMENT CALCULATIONS FOR QUANTITIES ON ALL REMOVAL OF EXISTING PAVEMENT & CURB. UNLESS OTHERWISE NOTED QUANTITIES IN BOXES ARE FOR CITY OF CLEVELAND.



LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS.
- (C) EXPANSION JOINT WITHOUT DOWELS.
- (D) STANDARD EXPANSION JOINT.
- (E) L-J Nº 1 EXPANSION BOLT JOINT.
- NEW PAVEMENT (T-71 CONC.)
- PAVED BERM

NOTE:
ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA AREA DETAILS

MAIN LINE
STA. 117+04.19 TO STA. 125+75

SCALE 1" = 20.0'

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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CUYAHOGA COUNTY
CUY - 2 - 22.97

PAVEMENT REMOVAL DIAGRAM
OF EXISTING FREEWAY CONNECTION TO LAKESHORE BOULEVARD

INDICATES EXISTING PAVEMENT IN DIAGRAM WHICH IS TO BE REMOVED

SEE PAVEMENT CALCULATIONS FOR QUANTITIES

CURVE DATA

	①	②	③
R =	1150.00'	1142.00'	2.00'
Δ =	17° 37'-23"	17° 37'-23"	167° 30'-12"
T =	178.27'	177.03'	18.27'
L =	353.72'	351.25'	5.85'
L Ch =	352.32'	349.87'	3.98'

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT.
- Ⓑ STANDARD KEY JOINT WITHOUT TIE BARS
- Ⓒ EXPANSION JOINT WITHOUT DOWELS.
- Ⓓ STANDARD EXPANSION JOINT.
- Ⓔ L-J Nº 1 EXPANSION BOLT JOINT.
- NEW PAVEMENT (T-71 CONC)
- PAVED BERM
- I-21 CONCRETE

NOTES:

ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.

SUMMARY OF QUANTITIES (TOTALS THIS SHEET)

DESCRIPTION	I-11 EACH	I-11 LIN FT	I-18 CU. YDS	I-21 SQ YDS	I-22 CU. YDS	B-33 SQ YDS	T-31			T-71 SQ YDS		I-21 SQ. YDS.
	BUMPER BLOCK	SANDSTONE STRAIGHT CURB	5" STABILIZED CRUSHED AGGREGATE APPROACHES & SHOULDERS	STD TYPE I PORTLAND CEMENT CONCRETE MEDIAN PAVEMENT	SUBBASE GRADING A OR B	3" BITUMINOUS MACADAM BASE COURSE	BITUMINOUS SURFACE TREATMENT #46 AGGREGATE CU. YDS	#6 AGGREGATE CU. YDS	BITUMINOUS MATERIAL AS PER PLANS GALS	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 9"	10"	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT
BRATENAHL	1	163.00	146.64	11	669.47	1,030.34	8.24	8.24	515.16	9.25	2397.62	24.00
CLEVELAND	—	35.	21.63	—	62.12	152.05	1.22	1.22	76.03	175.82	32.89	—

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA AREA DETAILS

MAIN LINE
STA. 125+75 TO STA. 132+00
RAMP NO. 1 STA. 0+00 TO STA 6+00

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY - 2 - 22.97

SEE SHEET NO. 46 FOR EXTRA AREA RAMP # 1-A, FREEWAY, & RAMP # 1.

SECTION 'A'-'A'

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

	T-71 Sq.Yds. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 9"	T-71 10"	I-13 Sq.FT. SIDEWALK CONCRETE 4"
VILLAGE OF BRATENAHL	430.40	556.43	—
CITY OF CLEVELAND	346.35		1236.

	I-12 LIN.FT. CONCRETE CURB SPEC TYPE A	I-12 SPEC. TYPE B	I-18 CU.Yds 5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	I-22 CU.Yds SUBASE GRADING A or B	B-33 Sq.Yds. 3" BITUMINOUS MACADAM BASE COURSE	T-31 BITUMINOUS SURFACE TREATMENT #46 AGGREGATE CU.Yds.	T-31 #6 AGGREGATE CU.Yds.	T-31 BITUMINOS MATERIAL AS PER PLAN GALS.
VILLAGE OF BRATENAHL	201.5	50.0	144.09	372.09	1023.14	8.19	8.19	511.57
CITY OF CLEVELAND			30.69	94.09	211.50	1.69	1.69	105.74

LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS.
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC.)
- PAVED BERM
- 4" CONCRETE I-13 SIDEWALK

NOTE: SET GRADE OF PROPOSED SIDEWALK @ UNIFORM SLOPE FROM MEETING EXISTING GRADES @ NORTH & SOUTH ENDS

CURVE DATA

	(1)	(2)	(3)
R	150.00'	159.50'	169.00'
Δ	42°-23'-25"	42°-23'-24"	42°-23'-25"
T	58.17'	61.85'	65.53'
L	110.98'	118.01'	125.03'
LC	108.46'	115.33'	122.20'

NOTE: ALL ELEVATIONS SHOWN ARE TO THE TOP OF FINISHED PAVEMENT.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

MAIN LINE STA. 132+00 TO 138+25
RAMP NO. 1 STA. 6+00 TO 12+30.86
RAMP NO. 1-A STA. 0+00 TO 5+11.49

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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CUYAHOGA COUNTY
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CURVE DATA

	①	②	③	④	⑤
R	1000.00'	988.00'	1432.40'	1420.40'	1448.40'
Δ	16°-06'-07"	16°-06'-07"	27°-36'-42"	27°-36'-42"	20°-55'-47"
T	141.45'	139.75'	351.99'	349.04'	267.53'
L	281.04'	277.66'	690.29'	684.49'	529.09'
LCh.	280.11	276.75	683.63'	677.91'	526.15'

NOTE: ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

	E-8 LIN.FT.	F-11 LIN.FT.	I-12 LIN.FT.	I-18 CU.YDS.	I-22 CU.YDS.	B-33 SQ.YDS.
	REMOVAL FOR RE-USE OF EXIST. CURB	SANDSTONE CURB STRAIGHT	CONCRETE CURB SPECIAL TYPE B	5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	SUBBASE GRADING A or B	3" BITUMINOUS MACADAM BASE COURSE
VILLAGE OF BRATENAHL	—	100.68	13.50	69.20	209.48	480.23
CITY OF CLEVELAND	—	50.64	—	12.98	21.29	91.97

	T-31 BITUMINOUS SURFACE TREATMENT #46 AGGREGATE CU.YDS.	T-31 #6 AGGREGATE CU.YDS.	T-31 BITUMINOUS MATERIAL AS PER PLAN GALS.	T-71 SQ.YDS. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 9"
VILLAGE OF BRATENAHL	3.85	3.85	240.11	717.06
CITY OF CLEVELAND	0.74	0.74	45.98	26.71

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT.
- Ⓑ STANDARD KEY JOINT WITHOUT TIE BARS.
- Ⓒ EXPANSION JOINT WITHOUT DOWELS
- Ⓓ STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71- CONC)
- PAVED BERM

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

MAIN LINE STA. 138+25 TO 139+00
RAMP NO. 1 STA. 12+30.86 TO 18+75
RAMP NO. 1-A STA 5+11.49 TO 11+75

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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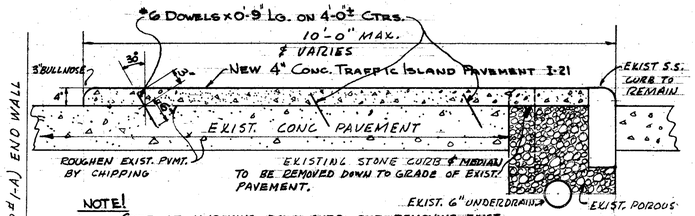
CUYAHOGA COUNTY
COY - 2 - 22.97

SUMMARY OF QUANTITIES (TOTALS THIS SHEET)

DESCRIPTION	E-8 REMOVAL & DISPOSAL CURB LIN FT	E-8 REMOVAL & DISPOSAL PAVEMENT SQ YDS		I-21 SQ YDS PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	I-22 CU. YDS SUBBASE GRADING AGGB	T-71 SQ YDS REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 6"	T-71 SQ YDS REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 9"	I-11 LIN. FT. SANDSTONE CURB STRAIGHT	I-11 LIN. FT. SANDSTONE CURB RADIAL
CLEVELAND	420.57	187.22	—	-	142.45	22.22	819.58	603.73	131.77
BRATENAHL	—	26.29	—	199.03	-	-	-	—	—



NOTE!
COST OF KNOCKING DOWN CURB AND REMOVING EXIST. MEDIAN SHALL BE INCLUDED WITH E-8 PAVEMENT REMOVAL. COST OF FURNISHING AND PLACING DOWELS SHALL BE INCLUDED IN COST OF I-21, 4" CONC. TRAFFIC ISLAND PAVEMENT.

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

RAMP NO. 1-A

SEE SHEET NO 46 FOR EXTRA-AREA RAMP #1-A
BEGIN SHEET STA. 11+75 (RAMP #1-A)

P.C. STA. 19+39.71 (RAMP #1) — N - 8° 44' 24" W.

STA. 12+50 (RAMP #1-A) END WALL

EXISTING CURB — EXISTING PAVEMENT

P.T. STA. 21+74.75 (RAMP #1) — N. 89° 50' 34" E

STA. 14+46.53 EXISTING WEST BOUND = STA. 14+82.82 (RAMP #1-A) — N-89°-50'-34"E

PT STA. 14+82.82 (RAMP #1-A) = STA. 22+00 = STA. 14+82.82 (RAMP #1) END NEW PAVEMENT BEGIN PAVED MEDIAN

P.C. STA. 15+92.01 (RAMP #1-A) N-89°-50'-34"E STA. 15+56.78 EXISTING WEST BOUND

EASTBOUND LANE LAKESHORE BLVD.

STA 17+91.54 P.C. 1° EAST CURB — N-58°-26'-37"W

MEET EXISTING BUMPER BLOCK

MONUMENT BOX

N-45°-11'-42"E LEDGE OF EXISTING THRU LANE

N. - 0° - 09' - 26" W.

TRANSITION CURB 6" TO 4" IN 10'

TRAFFIC ISLAND - SEE SECTION A-A

A 96.09' CENTERLINE EXTENDED

N-18°-54'-54"E 47.62'

MEET EXISTING CURB

N. - 0° - 09' - 26" W.

EXISTING CENTERLINE

52.81' N-18°-37'-18"E

MEET EXISTING CURB TRANSITION 6" TO 4" IN 10'

RAMP #1

EXISTING FLEXIBLE PAVEMENT

STA 0400 McELHATTEN
STA 8+69.73 E. 136TH ST. EXISTING.

E. 136TH ST.

E-8

EXISTING WALKS ON BOTH SIDES SHALL REMAIN

PROPERTY LINE

EAST 136TH ST.

N-02°-13'-38"E.

NOTE:
PRIVATE DRIVE APRONS SHALL MEET GRADE OF EXISTING DRIVES AT PROPERTY LINE & SLOPE UNIFORMLY TO STREET

PRIVATE DRIVE STA 14+55

PRIVATE DRIVE STA 14+85

STA 21+74.30 RAMP #1 = STA 21+91.21 E. 136TH ST.

N-89°-50'-34"E

STATIONING - OTHELLO - E. 136TH ST.

STA 21+91.21	PC CENTERLINE
STA 21+92.59	PC NORTH & WEST CURB
STA 3+24.79	PT CENTER LINE
STA 3+24.87	PT NORTH & WEST CURB
STA 21+88.21	PC NORTH & EAST CURB
STA. 3+24.45	PT NORTH & EAST CURB

PT STA 3+24.87

MEET EXISTING PAVEMENT STA 3+28

MEET EXIST. PAVEMENT & CURB

EXISTING BRICK PAVEMENT

BEGIN TAPER STA 22+00 (RAMP #1) — STA. 14+95.51 EXISTING EAST BOUND — STA. 14+50.33 EXISTING WEST BOUND

END TAPER STA 22+50 (RAMP #1)

STA 15+92.90 EAST CURB RAMP #1-A P.C. — N-89°-50'-34"E

CITY OF CLEVELAND — VILLAGE OF BRATENAHL

STA 16+81.26 EAST CURB RAMP #1-A PT — N-89°-50'-20"W

STA 17+91.12 RAMP #1-A & PT — EXISTING STA. 17+56.89 WESTBOUND N-14°-48'-18"W

BEGIN SHEET STA. 18+75 (RAMP #1)

STA. 0+73.23 McELHATTEN

EXISTING BRICK PAVEMENT

MEET EXIST. CURB

MEET EXIST. PAVEMENT

BEGIN NEW PAVEMENT STA 0+15

PC. CURB STA 0+00

McELHATTEN AVE. N-89°-42'-03"E.

EXISTING BRICK PAVEMENT

MEET EXIST. CURB

MEET EXIST. PAVEMENT

STATIONING - McELHATTEN - E 136TH ST

STA. 0+00	PC CURB - NORTH SIDE McELHATTEN
STA 0+10.58	PC. CENTERLINE
STA 0+16.79	P.C. CURB - SOUTH SIDE McELHATTEN.
STA. 0+34.45	PT. CURB - SOUTH SIDE McELHATTEN
STA. 0+42.88	PT. CENTERLINE
STA 0+56.33	PT. CURB - NORTH SIDE McELHATTEN

EXISTING WALKS ON BOTH SIDES SHALL REMAIN IN PLACE

OTHELLO AVE. N-89°-41'-33"E.

EXISTING BRICK PAVEMENT

CURVE DATA - E. 136TH ST.

(10)	(11)	(12)
R = 20.00'	R = 20.00'	R = 20.00'
Δ = 92°-31'-35"	Δ = 92°-31'-35"	Δ = 92°-31'-35"
T = 20.90'	T = 20.90'	T = 20.90'
L = 32.30'	L = 32.30'	L = 32.30'
LCh = 28.90'	LCh = 28.90'	LCh = 28.90'

(13)	(14)	(15)
R = 22.00'	R = 32.00'	R = 12.00'
Δ = 87°-27'-55"	Δ = 87°-27'-55"	Δ = 87°-27'-55"
T = 21.05'	T = 30.61'	T = 11.48'
L = 33.58'	L = 48.85'	L = 18.32'
LCh = 30.42'	LCh = 44.24'	LCh = 16.59'

CURVE DATA

(1)	(2)	(3)
R = 1600.00'	R = 1590.50	R = 1609.50'
Δ = 8°-25'-02"	Δ = 8°-25'-02"	Δ = 8°-25'-02"
T = 117.74'	T = 117.04'	T = 118.44'
L = 235.04'	L = 233.66'	L = 236.46'
LCh = 234.84'	LCh = 233.45'	LCh = 236.24'

(4)	(5)	(6)
R = 1432.40'	R = 1420.40'	R = 1448.40'
Δ = 27°-36'-42"	Δ = 27°-36'-42"	Δ = 20°-55'-47"
T = 351.99'	T = 349.04'	T = 267.58'
L = 690.29'	L = 684.49'	L = 529.09'
LCh = 683.63'	LCh = 677.91'	LCh = 526.15'

(7)	(8)
R = 250.25'	R = 250.28'
Δ = 19°-04'-20"	Δ = 45°-21'-08"
T = 42.04'	T = 104.57'
L = 83.30'	L = 198.11'
LCh = 82.92'	LCh 192.98'

LEGEND

- NEW PAVEMENT (T-71 CONC)
- EXISTING PAVEMENT REMOVED
- EXISTING PAVEMENT REMOVED AND REPLACED WITH NEW PAVEMENT
- PAVED MEDIAN
- (A) STANDARD LONGITUDINAL JOINT.
- (D) STANDARD EXPANSION JOINT.

NOTE:
ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

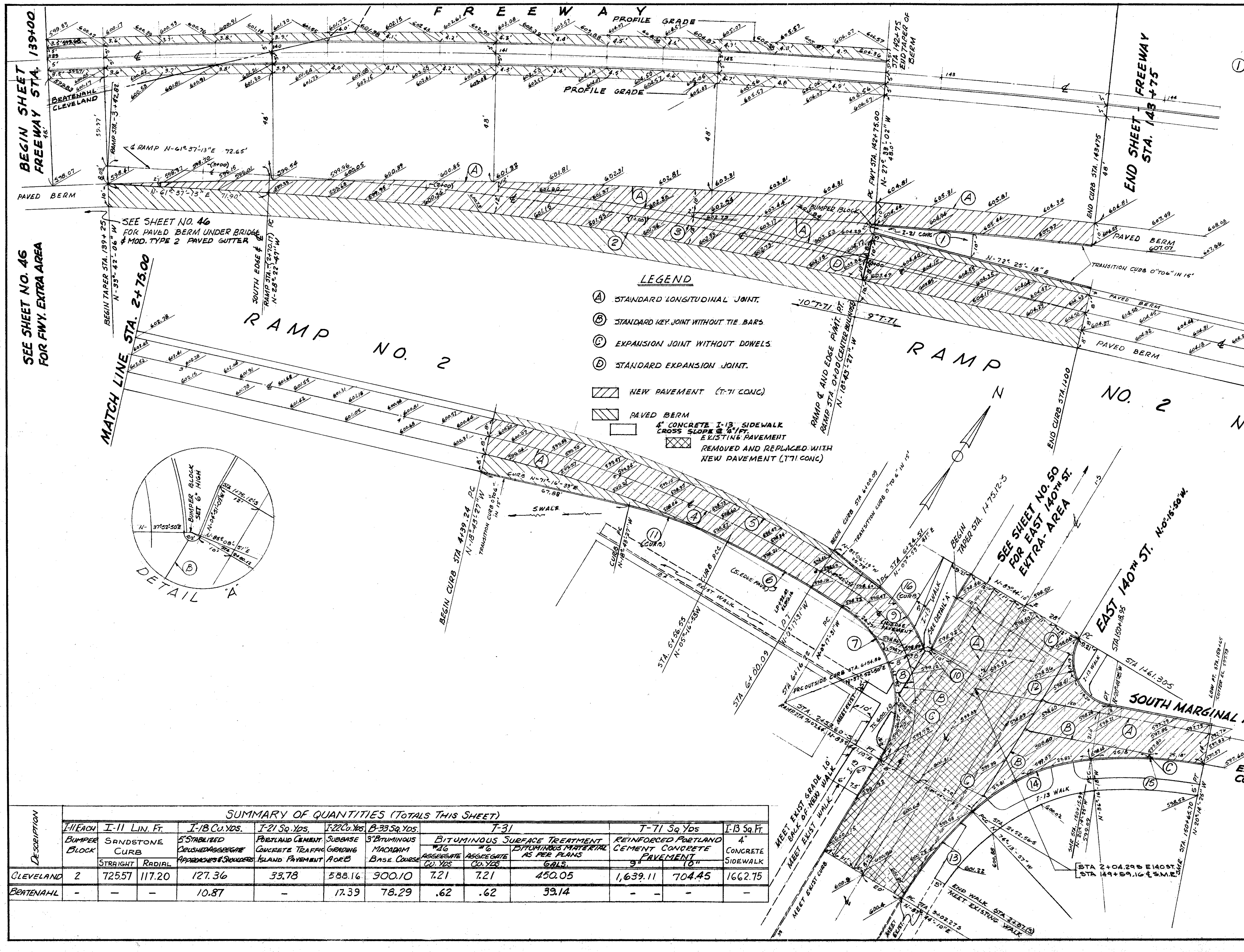
MAIN LINE - RAMP NO. 1 STA. 18+75 TO STA. 22+50 - RAMP NO. 1-A STA. 11+75 TO STA. 17+91.12 - EAST 136TH ST. McELHATTEN TO OTHELLO AVENUE.

SCALE 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I - 329-(12)	1958	48/149

CUYAHOGA COUNTY CUY- 2 - 22.97



① R= 2.00' Δ= 170°01'-40" L= 5.93'	② R= 1595.18' Δ= 9°-39'-20" T= 134.73' L= 268.81' LCh= 268.50'	③ R= 1603.18' Δ= 9°-39'-20" T= 135.41' L= 270.17' LCh= 269.85'
④ R= 500.00' Δ= 18°-25'-56" T= 81.13' L= 160.85' LCh= 160.16	⑤ R= 508.00' Δ= 18°-25'-56" T= 82.42' L= 163.43' LCh= 162.72'	⑥ R= 492.00' Δ= 18°-25'-56" T= 79.83' L= 158.28' LCh= 157.60'
⑦ R= 50.00' Δ= 90°-01'-41' T= 50.02' L= 78.81' LCh= 70.73'	⑧ R= 58.00' Δ= 90°-01'-41" T= 58.03' L= 91.42' LCh= 82.04'	⑨ R= 66.00' Δ= 38°-10'-21" T= 22.84' L= 43.97' LCh= 43.16'
⑩ R= 2.00' Δ= 132°-43'-59" L= 4.63'	⑪ R= 200.00' Δ= 13°-26'-34" T= 23.57' L= 46.92' LCh= 46.82'	⑫ R= 20.00' Δ= 109°-58'-35" T= 28.55' L= 38.39' LCh= 32.76'

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT.
- Ⓑ STANDARD KEY JOINT WITHOUT TIE BARS
- Ⓒ EXPANSION JOINT WITHOUT DOWELS
- Ⓓ STANDARD EXPANSION JOINT.
- NEW PAVEMENT (T-71 CONC)
- PAVED BERM
- 4" CONCRETE I-13 SIDEWALK CROSS SLOPE @ ¼"/FT.
- EXISTING PAVEMENT REMOVED AND REPLACED WITH NEW PAVEMENT (T71 CONC)

CURVE DATA

⑬ R= 180.00' Δ= 16°01'-53" T= 25.35' L= 50.36' LCh= 50.20'	⑭ R= 90.00' Δ= 37°-57'-39" T= 30.96' L= 59.63' LCh= 58.54'
⑮ R= 180.00 Δ= 16°01'-53" T= 25.35' L= 50.36' LCh= 50.20'	⑯ R= 66.00' Δ= 29°-59'-09" T= 17.68' L= 34.54' LCh= 34.15'

NOTE
ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.

SEE SHEET NO. 50 FOR EXTRA AREA AT MARGINAL CONNECTOR

SUMMARY OF QUANTITIES (TOTALS THIS SHEET)

DESCRIPTION	I-11 EACH	I-11 LIN. FT.		I-18 CU. YDS.	I-21 SQ. YDS.	I-22 CU. YDS.	B-33 SQ. YDS.	T-31			T-71 SQ YDS		I-13 SQ. FT.
	BUMPER BLOCK	SANDSTONE CURB		5" STABILIZED CRUSHED AGGREGATE APPROACHES & SHOULDERS	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	SUBBASE GRADING A OR B	3" BITUMINOUS MACADAM BASE COURSE	BITUMINOUS SURFACE TREATMENT			REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT		4" CONCRETE SIDEWALK
		STRAIGHT	RADIAL					#26 AGGREGATE CU. YDS.	#6 AGGREGATE CU. YDS.	BITUMINOUS MATERIAL AS PER PLANS GALS.	9"	10"	
CLEVELAND	2	725.57	117.20	127.36	33.78	588.16	900.10	7.21	7.21	450.05	1,639.11	704.45	1662.75
BRATENAHL	-	—	—	10.87	—	17.39	78.29	.62	.62	39.14	- -	-	—

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

MAIN LINE STA. 139+00 TO 142+75
RAMP NO. 2
INTERSECTION E-140TH & S.M. RD.

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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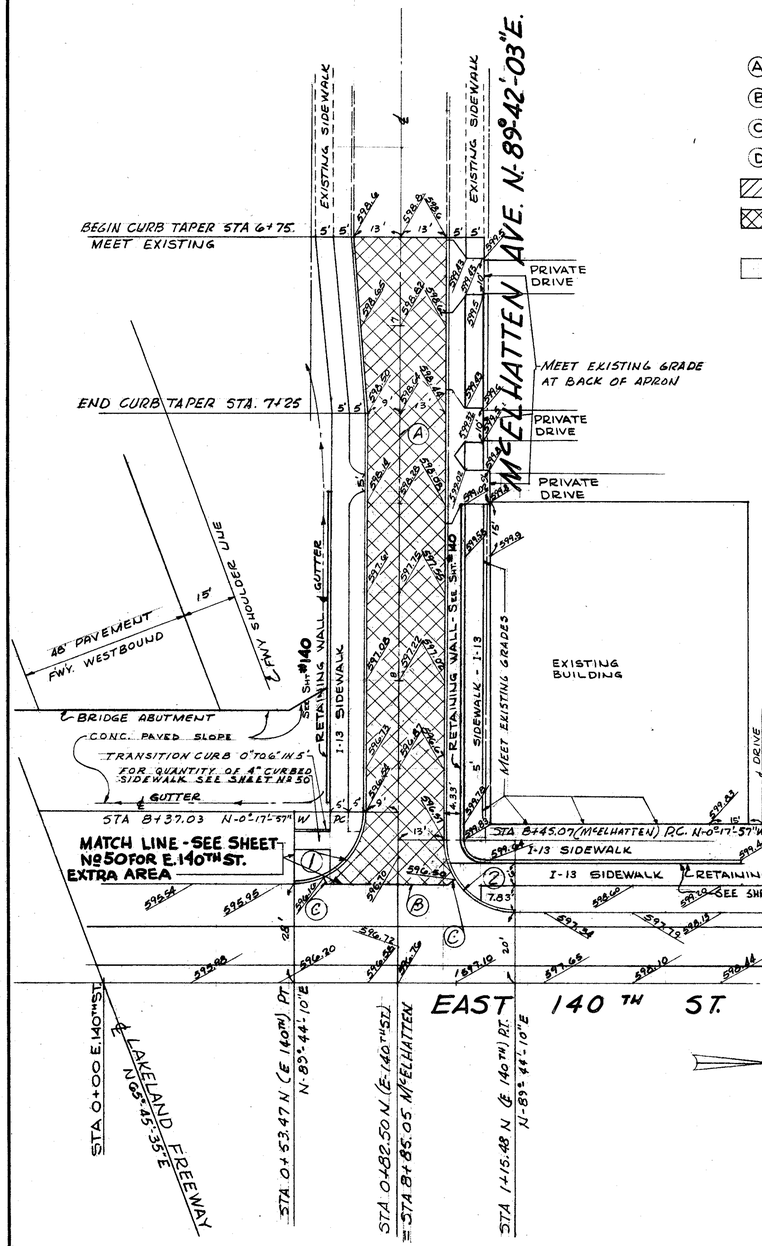
CUYAHOGA COUNTY
CUY. 2- 22.97

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC.)
- EXISTING PAVEMENT TO BE REMOVED AND REPLACED WITH NEW PAVEMENT.
- 4" CONCRETE I-13 SIDEWALK CROSS SLOPE @ 1/4"/FT

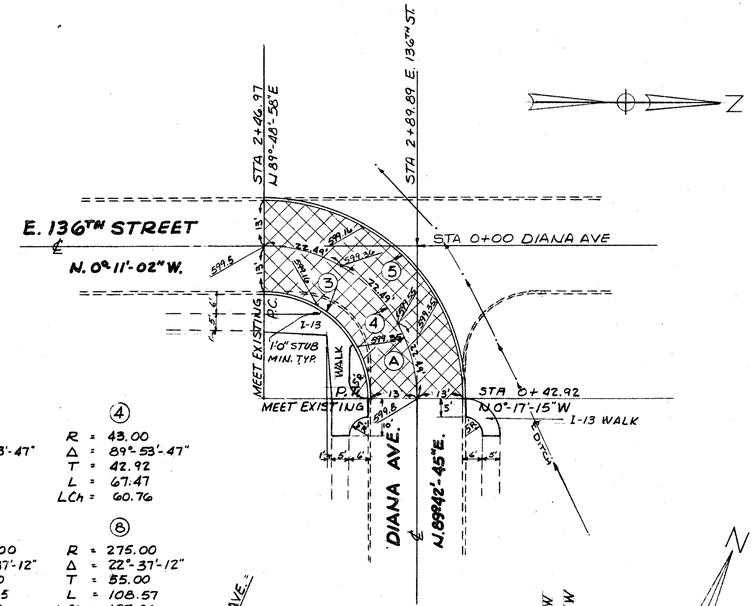


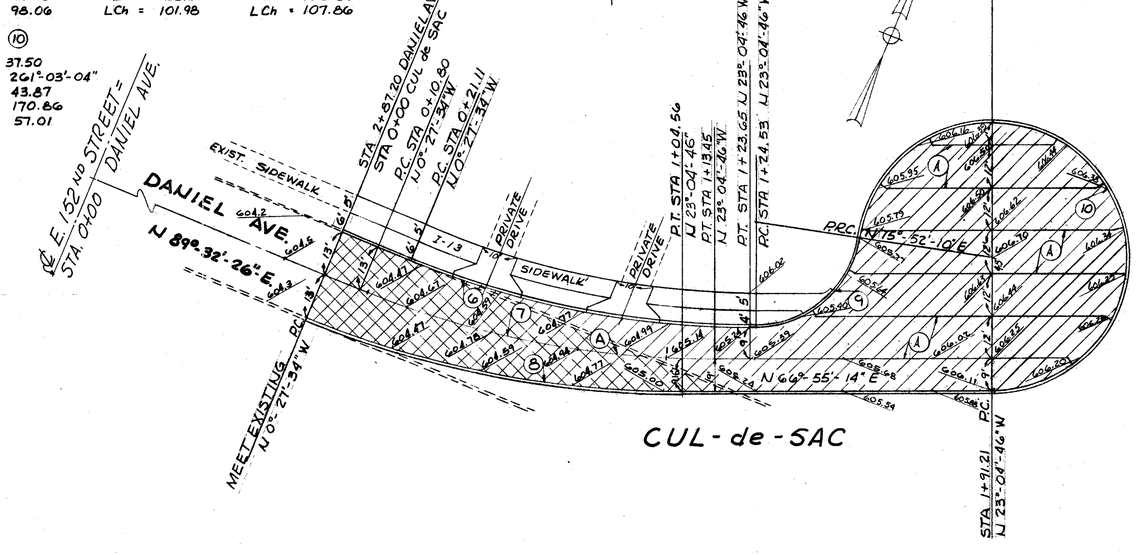
CURVE DATA

	①	②	③	④
R =	20.00	20.00	30.00	43.00
Δ =	90°-02'-07"	89°-57'-53"	89°-53'-47"	89°-53'-47"
T =	20.01'	19.99	29.95	42.92
L =	31.43	31.40	47.07	67.47
LCh =	28.29	28.28	42.39	60.76

	⑤	⑥	⑦	⑧
R =	56.00	250.00	260.00	275.00
Δ =	89°-53'-47"	22°-37'-12"	22°-37'-12"	22°-37'-12"
T =	55.90	50.00	52.00	55.00
L =	87.86	98.70	102.65	108.57
LCh =	79.12	98.06	101.98	107.86

	⑨	⑩
R =	30.00	37.50
Δ =	81°-03'-04"	261°-03'-04"
T =	25.65	43.87
L =	42.44	170.86
LCh =	38.99	57.01





SUMMARY OF QUANTITIES

DESCRIPTION	E-8 REMOVAL & DISPOSAL CURB Lin. Ft.	E-8 REMOVAL & DISPOSAL PAVEMENT Sq. Yds.		I-13 Sq. Ft. 4" Concrete Sidewalk	I-22 Cu. Yds. Subbase Grading Aoe B	T-71 Sq. Yds. Reinforced Portland Cement Concrete Pavement 6"	T-71 Sq. Yds. Reinforced Portland Cement Concrete Pavement 9"	I-11 Lin. Ft. Sandstone Curb Straight	I-11 Lin. Ft. Sandstone Curb Radial
Mc Elhatten	—	—		3,308.50	84.31	42.00	466.96	332.26	62.83
Daniel	—	—		575.00	137.22	27.11	790.70	315.91	213.30
Diana*	91.50	108.00		300.00	33.11	—	194.91	87.86	41.07
TOTALS	91.50	108.00		4,183.50	254.64	69.11	1,452.57	736.03	323.20

* 100% Cleveland participation, Diana Ave.

NOTES:

ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT.

NEW DRIVEWAY APRONS SHALL MEET GRADE OF EXISTING DRIVEWAYS AT BACK OF APRONS.

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

Mc ELHATTEN AVE. - E. 140TH ST.
DIANA AVE. - E. 136TH ST.
CUL de SAC - DANIEL AVE.

SCALE: 1"=20.0'

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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SEE SHEET NO. 48 FOR EXTRA-AREA E-140TH & SOUTH MARGINAL RD.

MATCH LINE
SEE SHEET NO 49 FOR EXTRA-AREA McELHATTEN-E-140 TH ST.

SEE DETAIL OF CURBED WALK ON SHEET NO. 11.

I-13 WALK
I-13 CURBED SIDEWALK
I-21 CONC.
I-13 CONC SIDEWALK
I-21 CONC

EXISTING WALK TO REMAIN IN PLACE

MEET EXISTING PAVEMENT, CURBS & WALKS - STA. 3+00 N

MEET EXISTING GRADE AT BACK EDGE OF SIDEWALK

NOTE: NEW DRIVEWAY APRON SHALL MEET GRADE OF EXIST. DRIVE @ BACK OF APRON

EAST 140TH STREET
N. 0°-15'-50" W.

GRADE IN FIELD

E. 140TH ST. STA. 141+30.5 - PC
N 89°-44'-10" E

E. 140TH ST. STA. 0+00 = FW STA 150+28.95

NMR STA 151+87.19 PT
N 0°-30'-95" W

NMR STA 151+49.49 PT
N 0°-30'-85" W

NMR STA. 151+63.69 PC CURB & ℄
N 0°-30'-85" W

SMR STA 150+66.70
N. 20°-14'-25" W.

RIDGE LINE

BUMPER BLOCK SET 6" HIGH

MARGINAL CONNECTOR

N-0°-15'-50" W.

MC STA. 0+91.04-S
N-89°-44'-10" E

MC STA. 0+00 = FW STA. 151+15.29

MC STA. 0+89.90-W PC
N-89°-44'-10" E

FREEWAY

CURB N-89°-29'-25" E

NMR STA 152+26.29 CENTER 2' RADIUS
N 7°-50'-41" W
℄ PRIVATE DRIVE STA. 152+33
P.C. 2' RADIUS - N 0°-30'-85" W

NMR STA 152+47.74 PCC
N 10°-21'-26" W

PRIVATE DRIVE

E. 140TH ST. STA 0+22.10 PC
N 89°-44'-10" E

NMR STA 152+39.86 PT

EAST 140TH PL. N-0°-15'-50" W.

MEET EXIST. GRADES
TRANSITION CURBS 0"-2" IN 10'

MC STA 2+14.59-N. PRC
N-45°-28'-16" W

MC STA 2+84.83-N. PT ℄ PCC CURB
N-20°-14'-25" W

TRANSITION CURB 0"-6" IN 15'

N. 8°-45'-43" W
END CURB

N.M.R. STA. 153+25.94 - N-19°-31'-11" W
MC STA. 3+14.88-N
BEGIN 3' PAVED BERM
N 20°-14'-25" W

℄ EXISTING THAMES AVE.

NMR STA 153+03.13 PCC
N-16°-50'-52" W

NMR STA. 153+26.18 PT 458.99' RADIUS
N 19°-32'-53" W
NMR STA 153+32.09 PT 489.01' RADIUS (℄)
MC STA. 9+21.02-N - N. 20°-14'-25" W

NORTH MARGINAL ROAD
N. 69°-45'-35" E.

SOUTH MARGINAL ROAD
N-69°-45'-35" E.

1-13 CONC

5' SIDEWALK

SMR STA 151+56.13 PC 2' RADIUS
N 20°-14'-25" W.

MC STA 2+02.67-S PRC 129' TO 2' RADIUS

SMR STA 152+08.88
PT 92.53' RADIUS N-20°-14'-25" W. = MC STA. 2+60.41-S
PT 119.5 RADIUS N 20°-14'-25" W

TRANSITION CURB 0"-6" IN 15', TAPER IN 25'

SMR STA 152+42.51 END CURB BEGIN PAVED BERM
N-20°-14'-25" W

SUMMARY OF QUANTITES (TOTAL THIS SHEET)

I-11 EACH	I-11 LIN. FT. SANDSTONE CURB		I-13 Sq. FT. SIDEWALK CONCRETE		I-18 CU.YDS. 5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	I-21 Sq. YDS. PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	I-22 CU.YDS. SUBASE GRADING A or B
BUMPER BLOCK	STRAIGHT	RADIAL	4" CURBED	4"			
2	1429.15	128.01	869.00	4,110.79	1.22	322.86	673.21

B-33 Sq. YDS.	T-31			T-71 Sq. YDS.	
	BITUMINOUS SURFACE TREATMENT			REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	
5" BITUMINOUS MACADAM BASE COURSE	#16 AGGREGATE	#6 AGGREGATE	BITUMINOUS MATERIAL AS PER PLANS	6"	9"
	CU.YDS.	CU.YDS.	GALS.		
8.55	0.07	0.07	427	24.22	3811.79

CURVE DATA

(1)	(2)	(3)	(4)
R = 2.00'	R = 92.53'	R = 110.00'	R = 119.50'
Δ = 152°-18'-46"	Δ = 27°-41'-14"	Δ = 82° 17' 21	Δ = 109°-58'-35"
T = 8.12'	T = 22.80'	T = 96.11'	T = 170.59'
L = 5.32'	L = 44.71'	L = 157.98'	L = 229.37'
LCh = 3.88'	LCh = 44.28'	LCh = 144.75'	LCh = 195.75'

(5)	(6)	(7)	(8)
R = 129.00'	R = 150.00'	R = 159.50'	R = 169.00'
Δ = 82°-17'-21"	Δ = 70°-01'-25"	Δ = 70°-01'-25"	Δ = 44°-47'-34"
T = 112.71'	T = 105.08'	T = 111.73'	T = 69.64'
L = 185.27'	L = 183.32'	L = 194.93'	L = 132.12'
LCh = 169.75'	LCh = 172.12'	LCh = 183.02'	LCh = 128.78'

(9)	(10)	(11)	(12)
R = 2.00'	R = 150.00'	R = 20.00'	R = 20.00'
Δ = 135°-02'-19"	Δ = 11°-28'-42"	Δ = 107°-10'-51"	Δ = 79°-32'-34"
T = 4.83'	T = 15.08'	T = 27.12'	T = 16.65'
L = 4.71'	L = 30.05'	L = 37.41'	L = 27.77'
LCh = 3.70'	LCh = 30.00'	LCh = 32.19'	LCh = 25.59'

(13)	(14)	(15)	(16)	(17)
R = 458.99'	R = 458.99'	R = 489.01'	R = 20.00'	R = 20.00'
Δ = 2°-47'-44"	Δ = 10°-12'-41"	Δ = 19°-43'-50"	Δ = 90°-14'-45"	Δ = 89°-45'-15"
T = 11.20'	T = 41.01'	T = 85.04'	T = 20.09'	T = 19.91'
L = 22.39'	L = 81.80'	L = 168.40'	L = 31.50'	L = 31.33'
LCh = 22.39'	LCh = 81.69'	LCh = 167.57'	LCh = 28.34'	LCh = 28.22'

NOTE:
ALL ELEVATIONS SHOWN ARE TO TOP OF FINISHED PAVEMENT

LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS.
- (C) EXPANSION JOINT WITHOUT DOWELS.
- (D) STANDARD EXPANSION JOINT.
- NEW PAVEMENT (T-71 CONC.)
- EXISTING PAVEMENT REMOVED & REPLACED WITH NEW PAV'T.
- PAVED BERM
- 4" CONCRETE I-13 SIDEWALK CROSS SLOPE @ ¼"/FT.

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

EAST 140TH STREET, MARGINAL CONNECTOR, AND INTERSECTION N.M. ROAD & EAST 140TH STREET

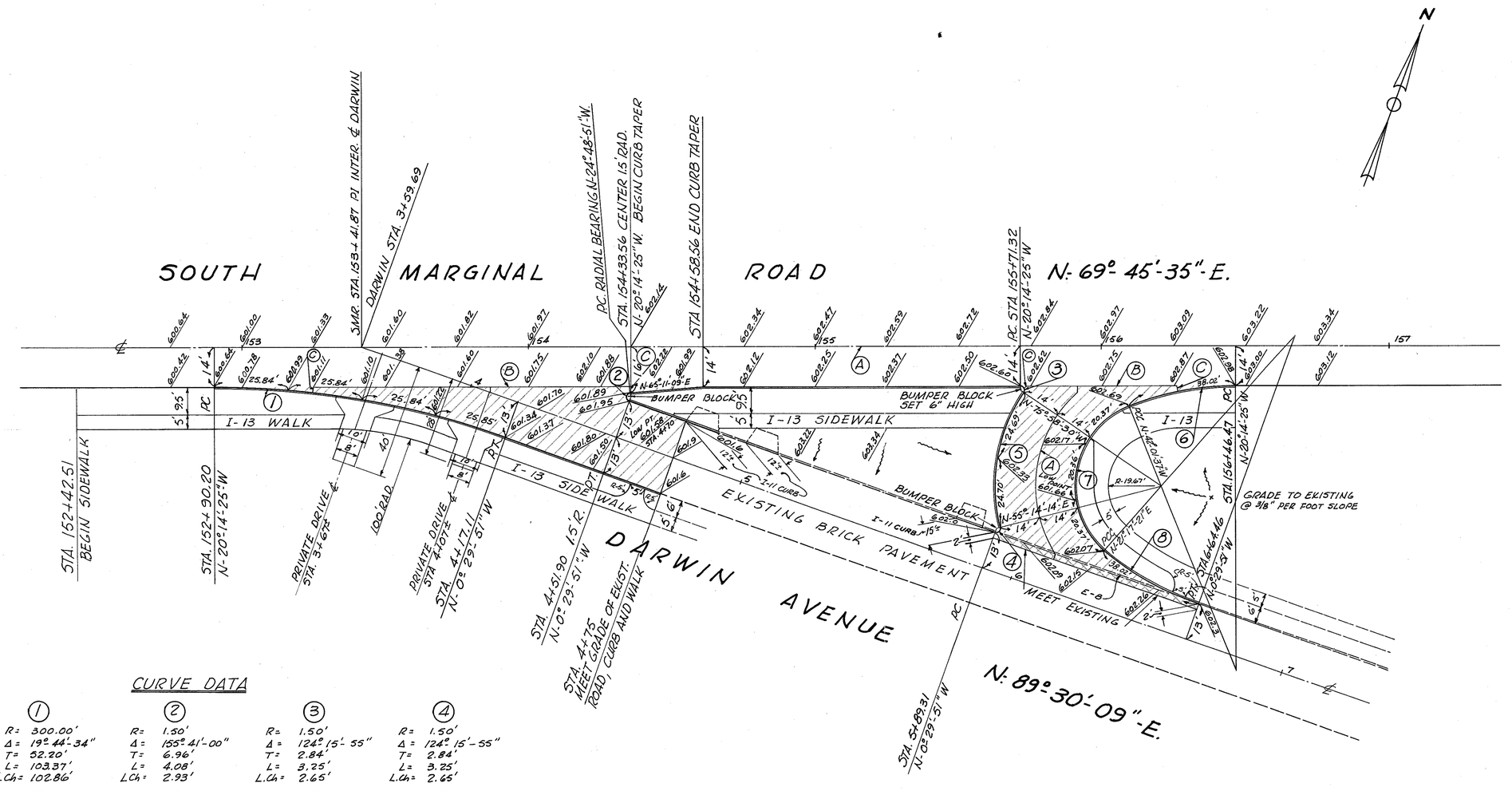
SCALE 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

51/149

CUYAHOGA COUNTY
CUY. - 2 - 22.97



CURVE DATA

①	②	③	④
R= 300.00'	R= 1.50'	R= 1.50'	R= 1.50'
Δ= 19° 44' 34"	Δ= 155° 41' 00"	Δ= 124° 15' 55"	Δ= 124° 15' 55"
T= 52.20'	T= 6.96'	T= 2.84'	T= 2.84'
L= 103.37'	L= 4.08'	L= 3.25'	L= 3.25'
L.Ch= 102.86'	L.Ch= 2.93'	L.Ch= 2.65'	L.Ch= 2.65'

⑤	⑥	⑦	⑧
R= 58.00'	R= 100.00'	R= 30.00'	R= 100.00'
Δ= 48° 47' 16"	Δ= 21° 47' 12"	Δ= 116° 41' 02"	Δ= 21° 47' 12"
T= 26.30'	T= 19.47'	T= 48.65'	T= 19.47'
L= 49.39'	L= 38.02'	L= 61.10'	L= 38.02'
L.Ch= 47.91'	L.Ch= 37.80'	L.Ch= 51.07'	L.Ch= 37.80'

LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS.
- (C) EXPANSION JOINT WITHOUT DOWELS.
- (D) STANDARD EXPANSION JOINT.
- NEW PAVEMENT
- EXISTING PAVEMENT TO BE REMOVED AND REPLACED WITH NEW PAVEMENT
- 4" CONCRETE I-13 SIDEWALK CROSS SLOPE @ 1/4"/FT.

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-11 LIN. FT.		I-11 EACH	I-13 SQ.FT.	I-22 CU.YDS.	T-71 SQ.YDS.		E-8 LIN. FT.		E-8 SQ.YDS.
SANDSTONE CURB STRAIGHT	SANDSTONE CURB RADIAL	BUMPER BLOCK	SIDEWALK CONCRETE 4"	SUBASE GRADING A OR B	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 6"	9"	REMOVAL FOR REUSE OF EXISTING CURB	CURB REMOVAL AND DISPOSAL	PAVEMENT REMOVAL AND DISPOSAL
486.63	61.10	3	2,225.45	87.10	44.22	479.11		75.15	16.70

NOTES:

EXISTING DRIVEWAYS, SIDEWALKS, AND MISCELLANEOUS SLABS SHALL BE REMOVED WITHIN THE CURB LIMITS OF ISLAND AND SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM E-1.

ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

INTERSECTION SOUTH MARGINAL ROAD & DARWIN AVE.

SCALE 1"= 20.0'

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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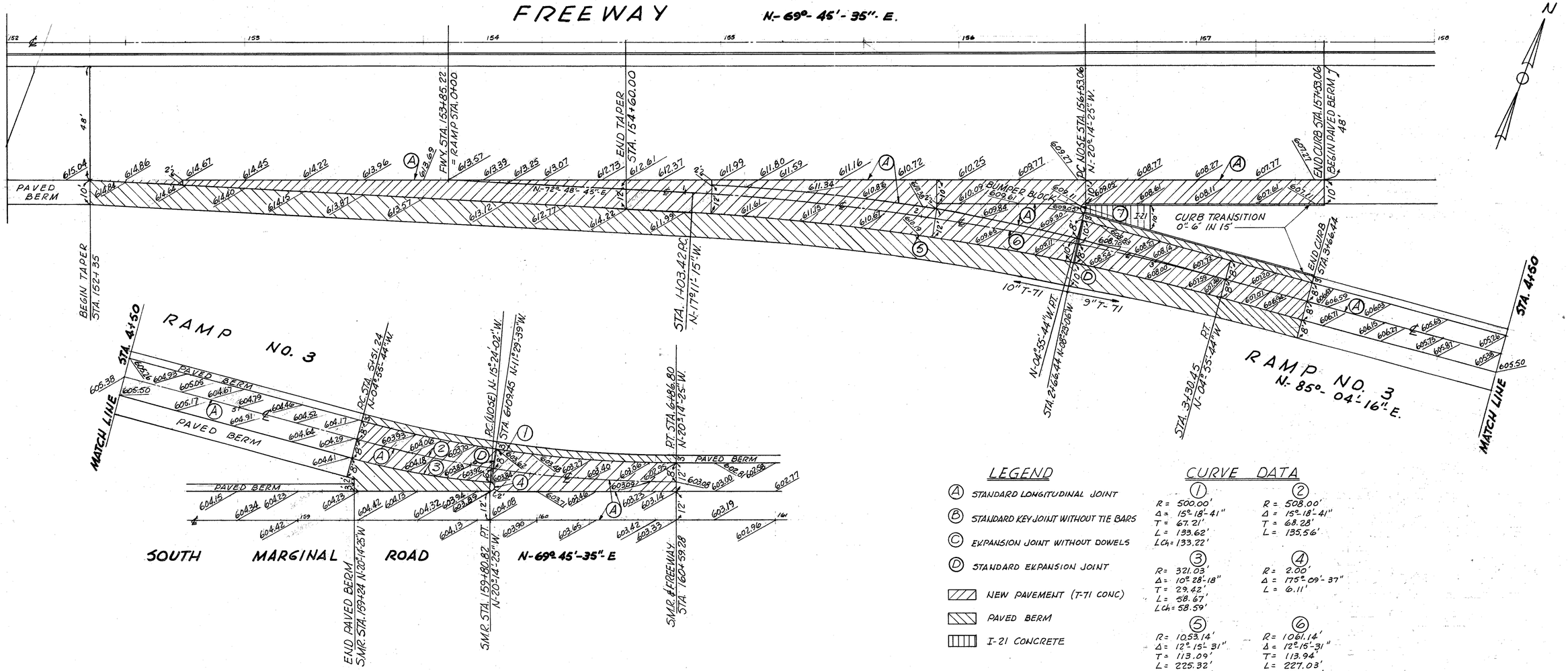
CUYAHOGA COUNTY
CUY - 2 - 22.97



LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC)
- PAVED BERM
- I-21 CONCRETE

NOTE:
ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.

CURVE DATA

	①	②	③	④	⑤	⑥	⑦
R =	500.00'	508.00'	321.03'	2.00'	1053.14'	1061.14'	2.00'
Δ =	15°18'-41"	15°18'-41"	10°28'-18"	175°09'-37"	12°15'-31"	12°15'-31"	164°41'-19"
T =	67.21'	68.28'	29.42'	6.11'	113.09'	113.94'	5.75'
L =	133.62'	135.56'	58.67'		225.32'	227.03'	
LCh =	133.22'		58.59'		224.89'	226.60'	

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-11 EA H	I-11 LIN. FT.	I-18 CU. YDS	I-21 SQ. YDS.	I-22 CU. YDS	B-33 SQ. YDS.	T-31			T-71 SQ. YDS.	
						BITUMINOUS SURFACE TREATMENT			REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	
BUMPER BLOCK	SANDSTONE CURB STRAIGHT	3" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	SUB BASE GRADING A OR B	3" BITUMINOUS MACADAM BASE COURSE	#46 AGGREGATE CU. YDS.	#6 AGGREGATE CU. YDS	BITUMINOUS MATERIAL AS PER PLANS GALS.	9"	10"
1	200.00	98.39	20.44	325.95	690.36	5.53	5.53	345.19	408.45	715.33

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EXTRA-AREA DETAILS

RAMP NO. 3

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY -2-22.97

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-12 LIN.FT. CONCRETE CURB		I-18 CU.yds.	I-22 CU.yds.	B-33 Sq.yds.	T-31 BITUMINOUS SURFACE TREATMENT			T-71 REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	
SPEC. TYPE A	SPEC. TYPE B	5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	SUBASE GRADING A or B	3" BITUMINOUS MACADAM BASE COURSE	#46 AGGREGATE CU.yds.	#6 AGGREGATE CU.yds.	BITUMINOUS MATERIAL AS PER PLANS GALS.	9"	10"
120.5	81.00	181.27	483.27	1271.11	10.17	10.17	635.56	868.06	586.17

LEGEND

(A) STANDARD LONGITUDINAL JOINT.

(B) STANDARD KEY JOINT WITHOUT TIE BARS

(C) EXPANSION JOINT WITHOUT DOWELS

(D) STANDARD EXPANSION JOINT.

NEW PAVEMENT (T-71 CONC.)

PAVED BERM

NOTE:

ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT.

CURVE DATA

(1)
R = 1408.00'
Δ = 19°-51'-51"
T = 246.55'
L = 487.81'
L Ch = 485.71'

(2)
R = 508.00
Δ = 19°-51'-51"
T = 88.95'
L = 176.00'
L Ch = 175.24'

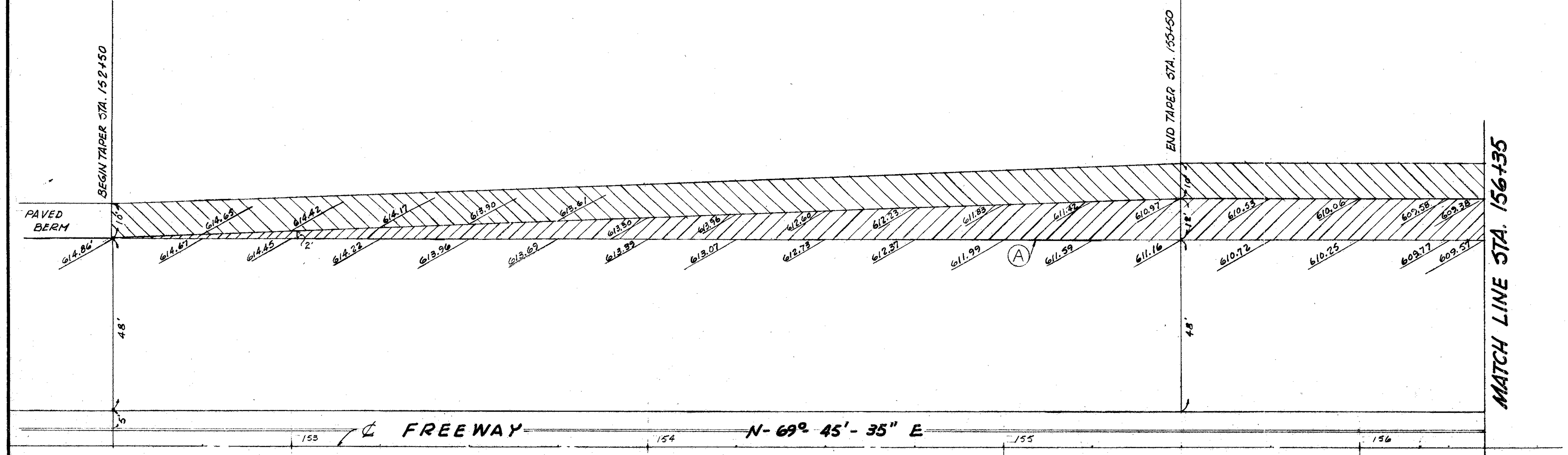
(3)
R = 500.00'
Δ = 19°-51'-51"
T = 87.55'
L = 173.22'
L Ch = 172.48'

(4)
R = 516.00'
Δ = 8°-35'-16"
T = 38.74'
L = 77.34'
L Ch. 77.27'

(5)
R = 2.00'
Δ = 164°-08'-59"
T = 14.37'
L = 5.73'
L Ch = 3.96'

(6)
R = 1400.00'
Δ = 19°-51'-51"
T = 245.15'
L = 485.03'
L Ch. = 482.95'

(7)
R = 1416.00'
Δ = 5°-15'-37"
T = 65.05'
L = 130.00'
L Ch = 129.96'



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Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

RAMP NO. 4

SCALE 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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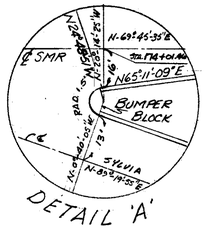
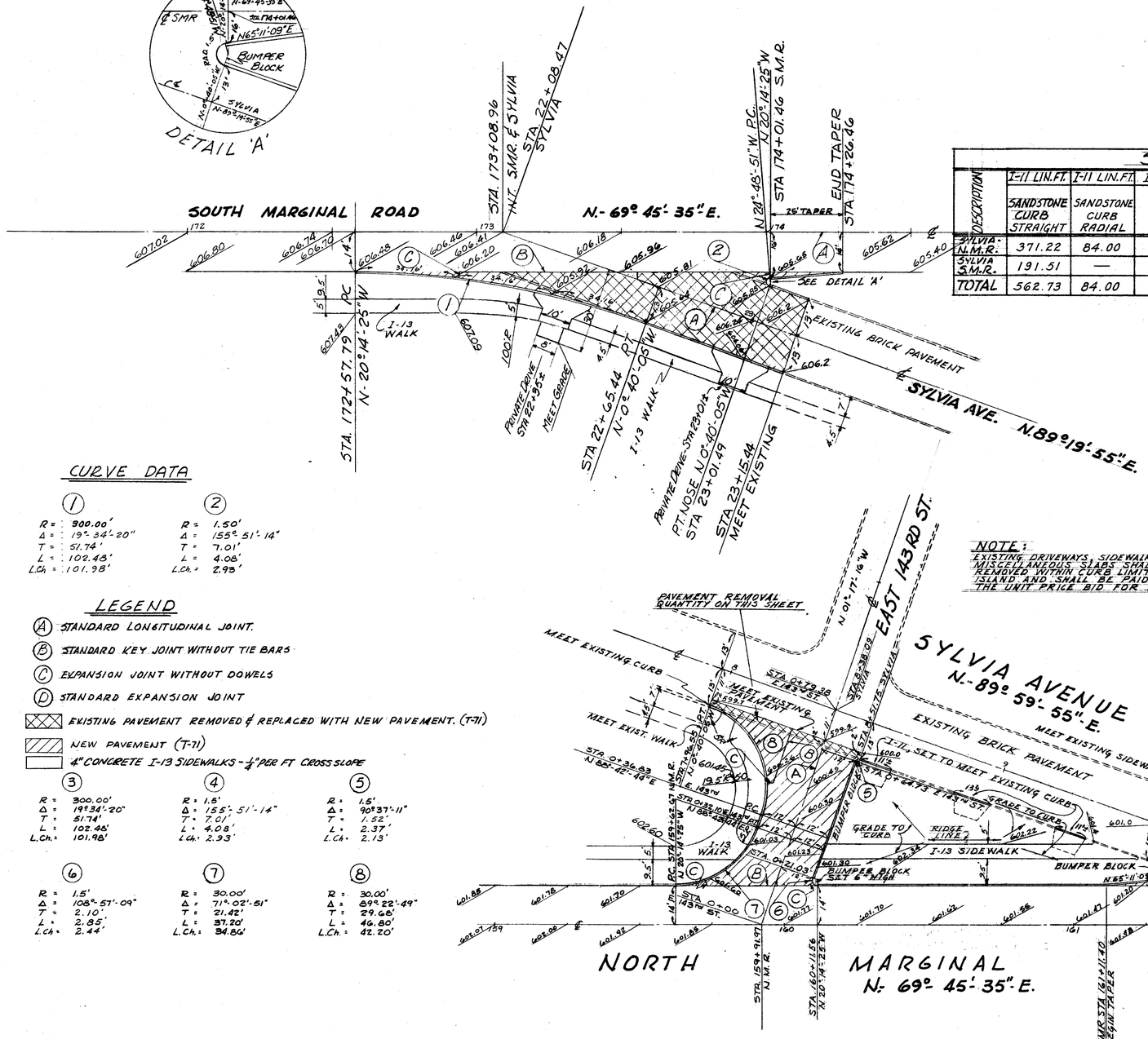
CUYAHOGA COUNTY
CUY-2-22.97





SUMMARY OF QUANTITIES

DESCRIPTION	I-11 LIN.FT. SANDSTONE CURB STRAIGHT	I-11 LIN.FT. SANDSTONE CURB RADIAL	I-11 EACH BUMPER BLOCK	I-13 SQ.FT. SIDEWALK CONCRETE 4"	I-22 CU.YDS. SUBASE GRADING A OR B	T-71 SQ.YDS. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 6"	T-71 SQ.YDS. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 9"	E-8 LIN. FT. REMOVAL FOR REUSE OF EXISTING CURB	E-8 LIN. FT. CURB REMOVAL AND DISPOSAL	E-8 SQ.YDS. PAVEMENT REMOVAL AND DISPOSAL
SYLVIA-N.M.R.	371.22	84.00	3	1,555.50	71.92	44.17	390.44	–	55.20	12.27
SYLVIA S.M.R.	191.51	—	1	618.75	41.16	36.50	217.33	–	–	–
TOTAL	562.73	84.00	4	2,177.25	113.08	80.67	607.77	–	55.20	12.27

NOTES:
ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT.
UNLESS NOTED, NEW DRIVEWAY APRONS SHALL MEET GRADE OF EXISTING DRIVES AT BACK OF APRON

NOTE:
EXISTING DRIVEWAYS, SIDEWALKS, AND MISCELLANEOUS SLABS SHALL BE REMOVED WITHIN CURB LIMITS OF ISLAND AND SHALL BE PAID FOR IN THE UNIT PRICE BID FOR ITEM E-1

CURVE DATA

(1)		(2)	
R =	300.00'	R =	1.50'
Δ =	19°-34'-20"	Δ =	155°-51'-14"
T =	51.74'	T =	7.01'
L =	102.48'	L =	4.08'
L.Ch. =	101.98'	L.Ch. =	2.93'

(3)		(4)		(5)	
R =	300.00'	R =	1.5'	R =	1.5'
Δ =	19°34'-20"	Δ =	155°-51'-14"	Δ =	90°37'-11"
T =	51.74'	T =	7.01'	T =	1.52'
L =	102.48'	L =	4.08'	L =	2.37'
L.Ch. =	101.98'	L.Ch. =	2.93'	L.Ch. =	2.13'

(6)		(7)		(8)	
R =	1.5'	R =	30.00'	R =	30.00'
Δ =	108°-57'-09"	Δ =	71°-02'-51"	Δ =	89°22'-49"
T =	2.10'	T =	21.42'	T =	29.68'
L =	2.85'	L =	37.20'	L =	46.80'
L.Ch. =	2.44'	L.Ch. =	34.86'	L.Ch. =	42.20'

LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- EXISTING PAVEMENT REMOVED & REPLACED WITH NEW PAVEMENT. (T-71)
- NEW PAVEMENT (T-71)
- 4" CONCRETE I-13 SIDEWALKS - ¼" PER FT. CROSS SLOPE

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

INTERSECTION S.M. ROAD & SYLVIA AVE. AND N.M. ROAD & SYLVIA AVENUE

SCALE: 1"=20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

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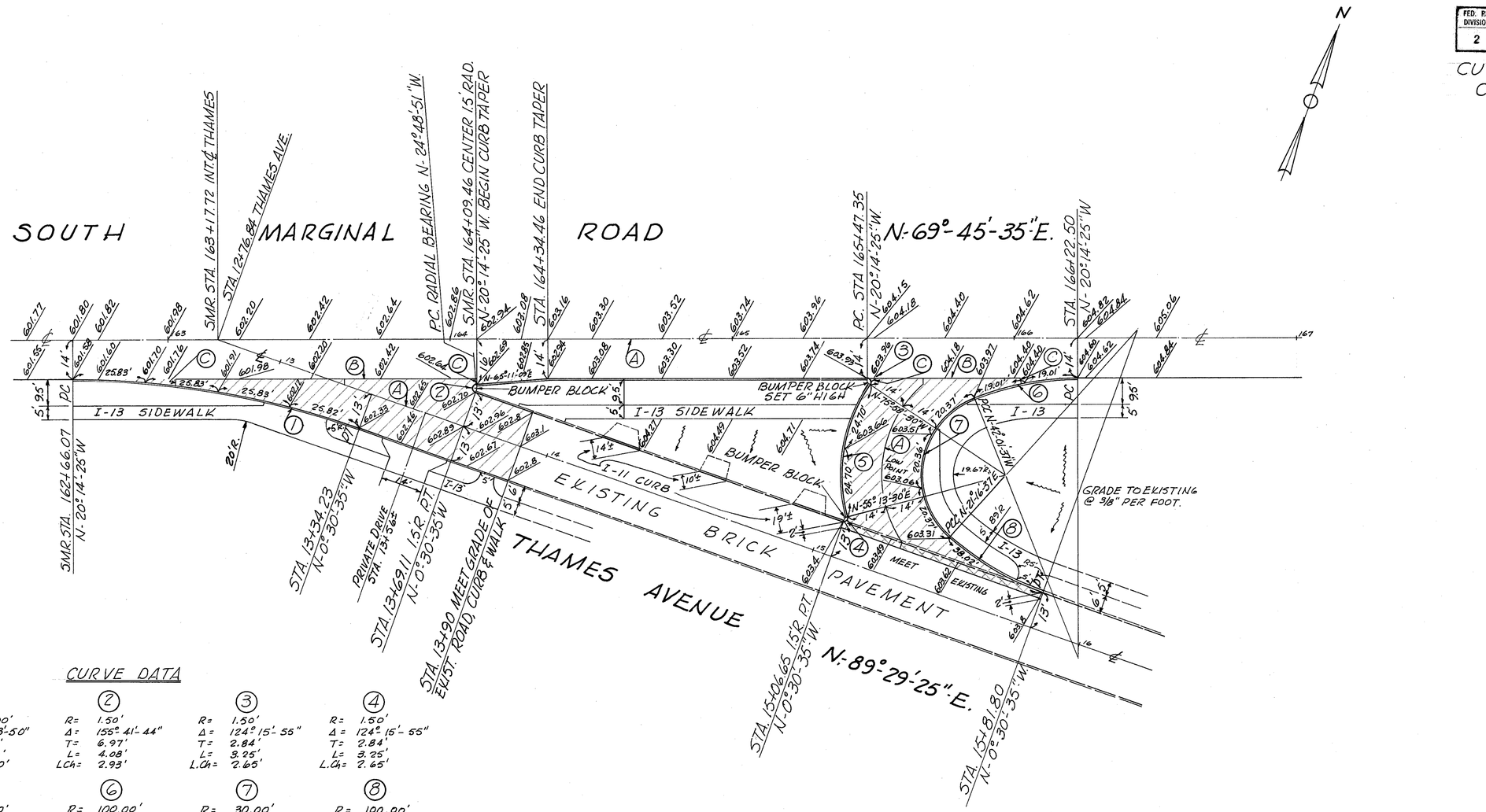
CUYAHOGA COUNTY
CUY-2-22.97



CURVE DATA

①	②	③	④
R= 300.00'	R= 1.50'	R= 1.50'	R= 1.50'
Δ= 19° 43'-50"	Δ= 155° 41'-44"	Δ= 124° 15'-55"	Δ= 124° 15'-55"
T= 52.17'	T= 6.97'	T= 2.84'	T= 2.84'
L= 103.31'	L= 4.08'	L= 3.25'	L= 3.25'
LCh= 102.80'	LCh= 2.93'	L.Ch= 2.65'	L.Ch= 2.65'

⑤	⑥	⑦	⑧
R= 58.00'	R= 100.00'	R= 30.00'	R= 100.00'
Δ= 48° 48'-00"	Δ= 21° 47'-12"	Δ= 116° 41'-46"	Δ= 21° 47'-12"
T= 26.31'	T= 19.47'	T= 48.67'	T= 19.47'
L= 49.40'	L= 38.02'	L= 61.10'	L= 38.02'
L.Ch= 47.92'	LCh= 37.80'	L.Ch= 51.08'	L.Ch= 37.80'

LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS.
- (C) EXPANSION JOINT WITHOUT DOWELS.
- (D) STANDARD EXPANSION JOINT.
- NEW PAVEMENT.
- EXISTING PAVEMENT TO BE REMOVED AND REPLACED WITH NEW PAVEMENT.
- 4" CONCRETE I-13 SIDEWALK CROSS SLOPE @ 1/4"/FT.

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-11 LIN. FT.		I-11 EACH	I-13 SQ.FT.	I-22 CU.YDS.	T-71 SQ.YDS.		E-8 LIN. FT.		E-8 SQ.YDS.
SANDSTONE CURB STRAIGHT	SANDSTONE CURB RADIAL	BUMPER BLOCK	SIDEWALK CONCRETE 4"	SUBBASE GRADING A OR B	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 6"	9"	REMOVAL FOR REUSE OF EXISTING CURB	CURB REMOVAL AND DISPOSAL	PAVEMENT REMOVAL AND DISPOSAL
487.38	61.10	3	2,134.00	84.12	21.44	476.45	——	75.15	16.70

NOTES:

EXISTING DRIVEWAYS, SIDEWALKS, AND MISCELLANEOUS SLABS SHALL BE REMOVED WITHIN THE CURB LIMITS OF ISLAND AND SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM E-1.

ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.

NEW DRIVES SHALL MEET GRADE OF EXISTING DRIVES AT BACK OF APRON.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

INTERSECTION SOUTH MARGINAL ROAD & THAMES AVE.

SCALE 1" = 20.0'

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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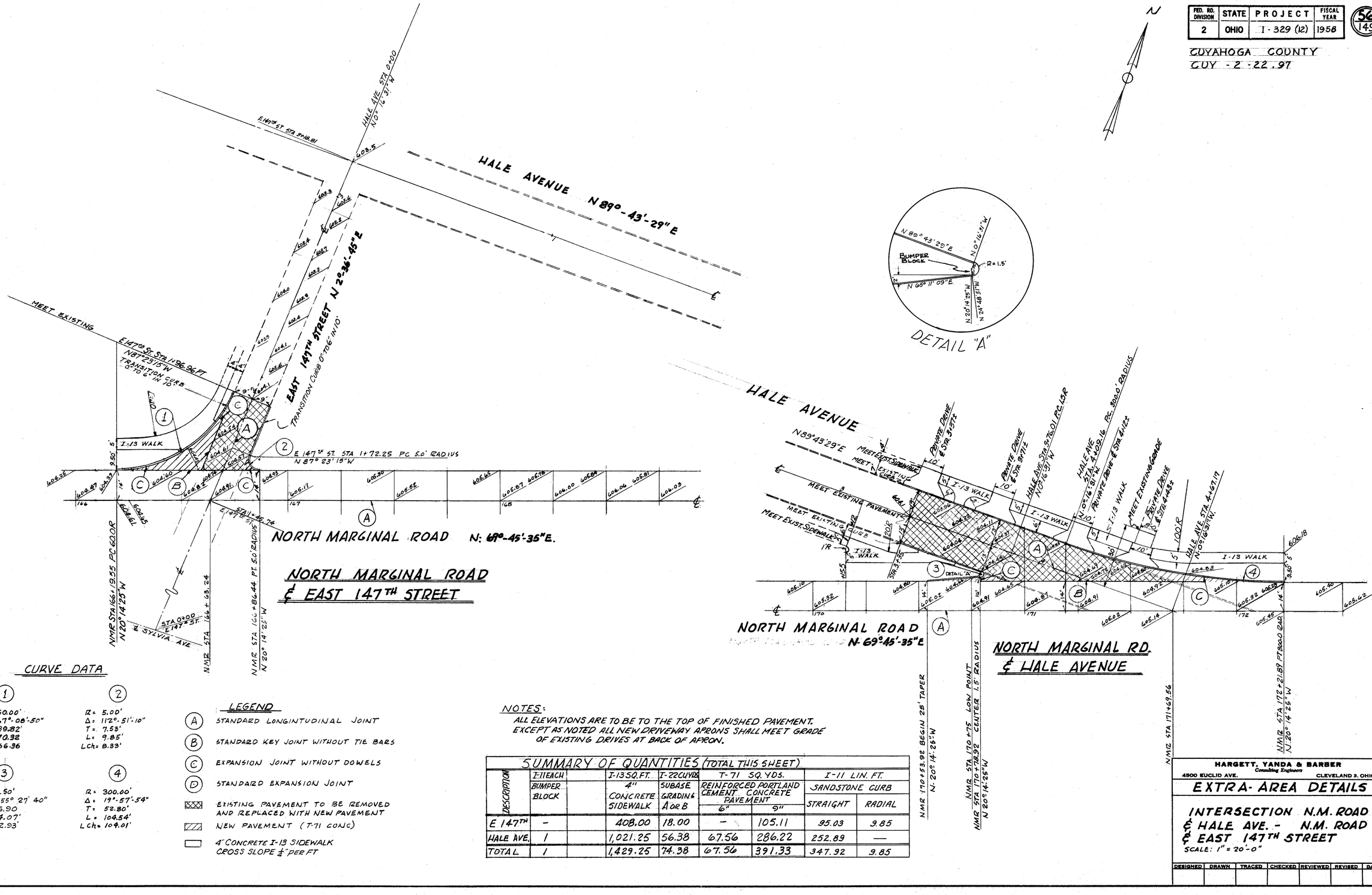
CUYAHOGA COUNTY
CUY-2-22.97



CURVE DATA

(1) R = 60.00' Δ = 67°-08'-50" T = 39.82' L = 70.32 LCh = 66.36

(2) R = 5.00' Δ = 112°-51'-10" T = 7.53' L = 9.85' LCh = 8.33'

(3) R = 1.50' Δ = 155° 27' 40" T = 6.90 L = 4.07' LCh = 2.93'

(4) R = 300.00' Δ = 19°-57'-54" T = 52.80' L = 104.54' LCh = 104.01'

LEGEND

- (A) STANDARD LONGINTUDINAL JOINT
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- EXISTING PAVEMENT TO BE REMOVED AND REPLACED WITH NEW PAVEMENT
- NEW PAVEMENT (T-71 CONC)
- 4" CONCRETE I-13 SIDEWALK CROSS SLOPE ¼" PER FT

NOTES:
ALL ELEVATIONS ARE TO BE TO THE TOP OF FINISHED PAVEMENT. EXCEPT AS NOTED ALL NEW DRIVEWAY APRONS SHALL MEET GRADE OF EXISTING DRIVES AT BACK OF APRON.

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

DESCRIPTION	EACH		I-13 50. FT. 4" CONCRETE SIDEWALK	I-22 CU YDS. SUBASE GRADING A OR B	T-71 SQ. YDS. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 6"	9"	I-11 LIN. FT. SANDSTONE CURB STRAIGHT	RADIAL
E 147TH	-		408.00	18.00	-	105.11	95.03	9.85
HALE AVE.	1		1,021.25	56.38	67.56	286.22	252.89	—
TOTAL	1		1,429.25	74.38	67.56	391.33	347.92	9.85

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

INTERSECTION N.M. ROAD ℄ HALE AVE. - N.M. ROAD ℄ EAST 147TH STREET

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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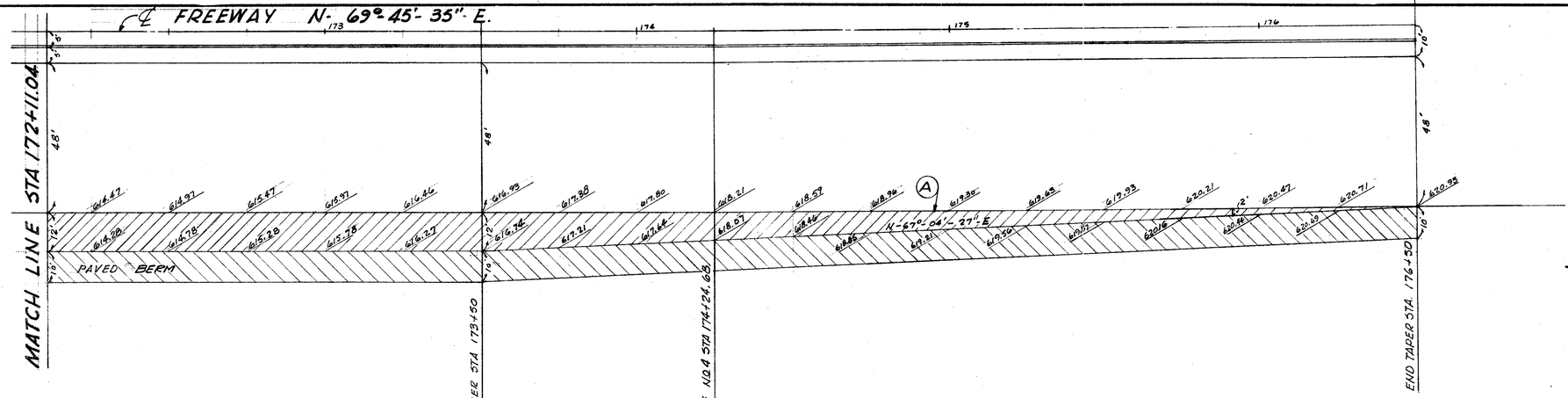
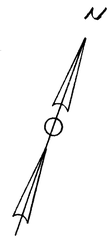
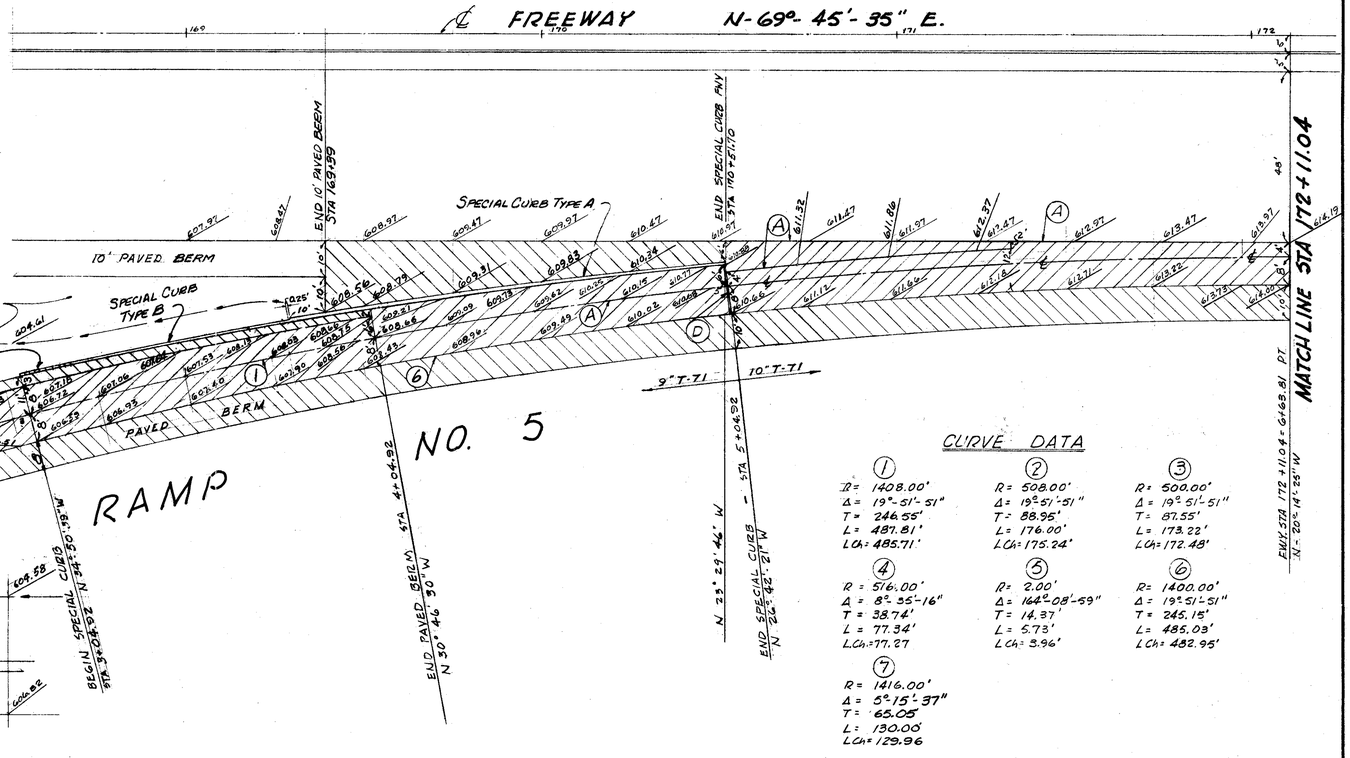
CUYAHOGA COUNTY
CUY - 2 - 22.97





NOTES:
ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT



CURVE DATA

①	②	③
R= 1408.00'	R= 508.00'	R= 500.00'
Δ= 19°-51'-51"	Δ= 19° 51'-51"	Δ= 19° 51'-51"
T= 246.55'	T= 88.96'	T= 87.55'
L= 487.81'	L= 176.00'	L= 173.22'
LCh= 485.71'	LCh= 175.24'	LCh= 172.48'

④	⑤	⑥
R= 516.00'	R= 2.00'	R= 1400.00'
Δ= 8° 55'-16"	Δ= 164° 08'-59"	Δ= 19° 51'-51"
T= 38.74'	T= 14.37'	T= 245.15'
L= 77.34'	L= 5.73'	L= 485.03'
LCh= 77.27	LCh= 3.96'	LCh= 482.95'

⑦
R= 1416.00'
Δ= 5° 15'-37"
T= 65.05
L= 130.00
LCh= 129.96

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-12 LIN. FT. CONCRETE CURB		I-18 CU.YDS.	I-21 SQ.YDS.	I-22 CU.YDS.	B-33 SQ.YDS.
SPEC. TYPE A	SPEC. TYPE B	5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	SUBBASE GRADING A or B	3" BITUMINOUS MACADAM BASE COURSE
124.00	78.00	190.49		506.85	1337.28

T-31 BITUMINOUS SURFACE TREATMENT			T-71 SQ.YDS. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	
#46 AGGREGATE CU.YDS.	#8 AGGREGATE CU.YDS.	BITUMINOUS MATERIAL AS PER PLANS GALS.	9"	10"
10.70	10.70	668.65	868.06	658.12

LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS.
- (D) STANDARD EXPANSION JOINT.
- NEW PAVEMENT (T-71 CONC.)
- PAVED BERM

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

RAMP NO. 5

SCALE: 1" = 20'- 0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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CUYAHOGA COUNTY
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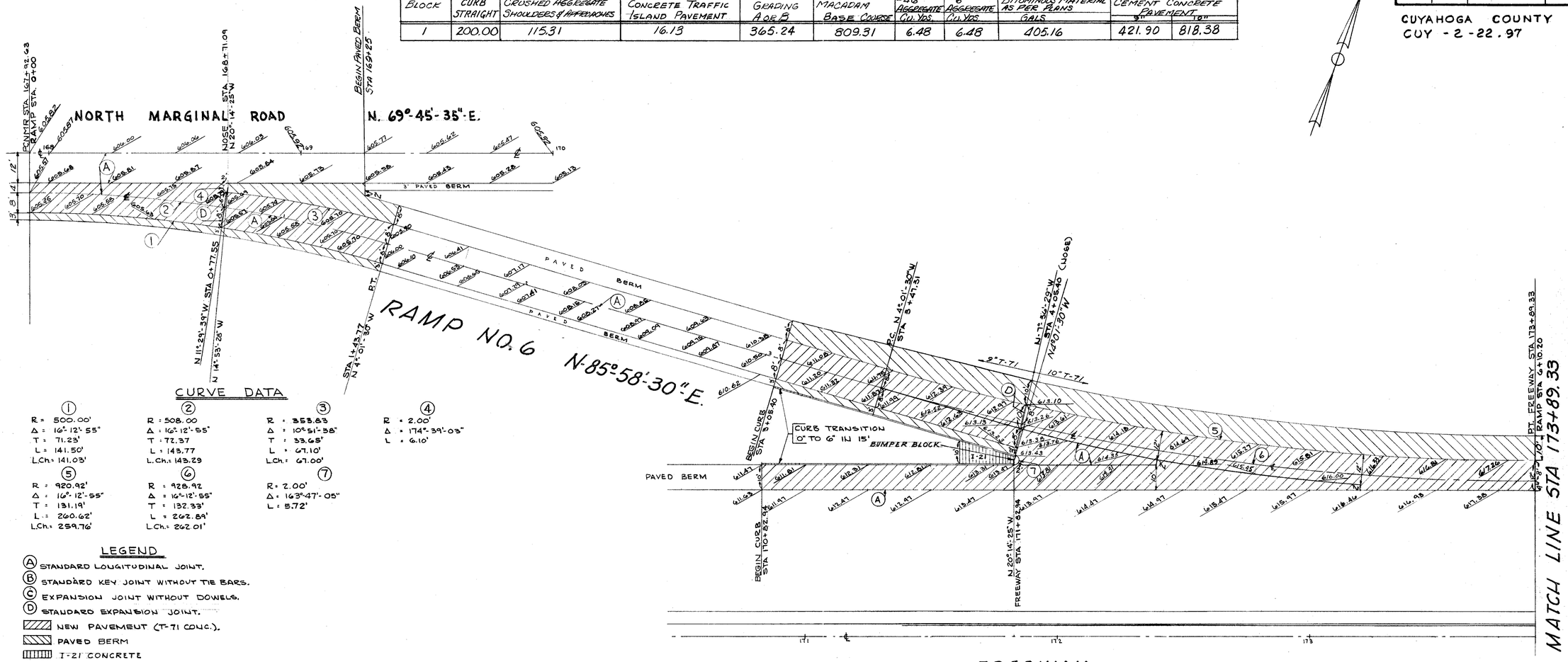
SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-11 EACH BUMPER BLOCK	I-11 LIN.FT SANDSTONE CURB STRAIGHT	I-18 CU.YDS. 5" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	I-21 SQ.YDS. PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	I-22 CU.YDS. SUBBASE GRADING A OR B	B-33 SQ.YDS. 5" BITUMINOUS MACADAM BASE COURSE	T-31 BITUMINOUS SURFACE TREATMENT #16 AGGREGATE CU.YDS.	T-31 #6 AGGREGATE CU.YDS.	T-31 BITUMINOUS MATERIAL AS PER PLANS GALS.	T-71 SQ.YDS. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 9"	T-71 SQ.YDS. REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 10"
1	200.00	115.31	16.13	365.24	809.31	6.48	6.48	405.16	421.90	818.38



CURVE DATA

① R = 500.00' Δ = 16°-12'-55" T = 71.23' L = 141.50' L.Ch. = 141.03'

② R = 508.00 Δ = 16°-12'-55" T = 72.37 L = 143.77 L.Ch. = 143.29

③ R = 353.83 Δ = 10°-51'-38" T = 33.65' L = 67.10' L.Ch. = 67.00'

④ R = 2.00' Δ = 174°-39'-03" L = 6.10'

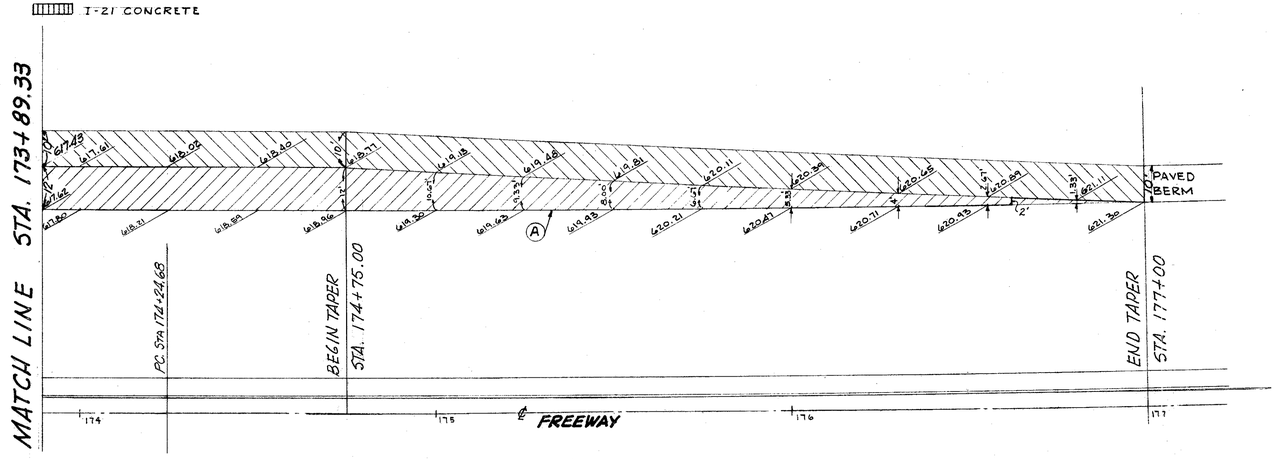
⑤ R = 920.92' Δ = 16°-12'-55" T = 131.19' L = 260.62' L.Ch. = 259.76'

⑥ R = 928.92 Δ = 16°-12'-55" T = 132.33' L = 262.84' L.Ch. = 262.01'

⑦ R = 2.00' Δ = 163°-47'-05" L = 5.72'

LEGEND

Ⓐ STANDARD LONGITUDINAL JOINT.
Ⓑ STANDARD KEY JOINT WITHOUT TIE BARS.
Ⓒ EXPANSION JOINT WITHOUT DOWELS.
Ⓓ STANDARD EXPANSION JOINT.
NEW PAVEMENT (T-71 CONC.).
PAVED BERM
I-21 CONCRETE



NOTES:
ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT.

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EXTRA-AREA DETAILS

RAMP NO. 6

SCALE 1"=20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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CUYAHOGA COUNTY
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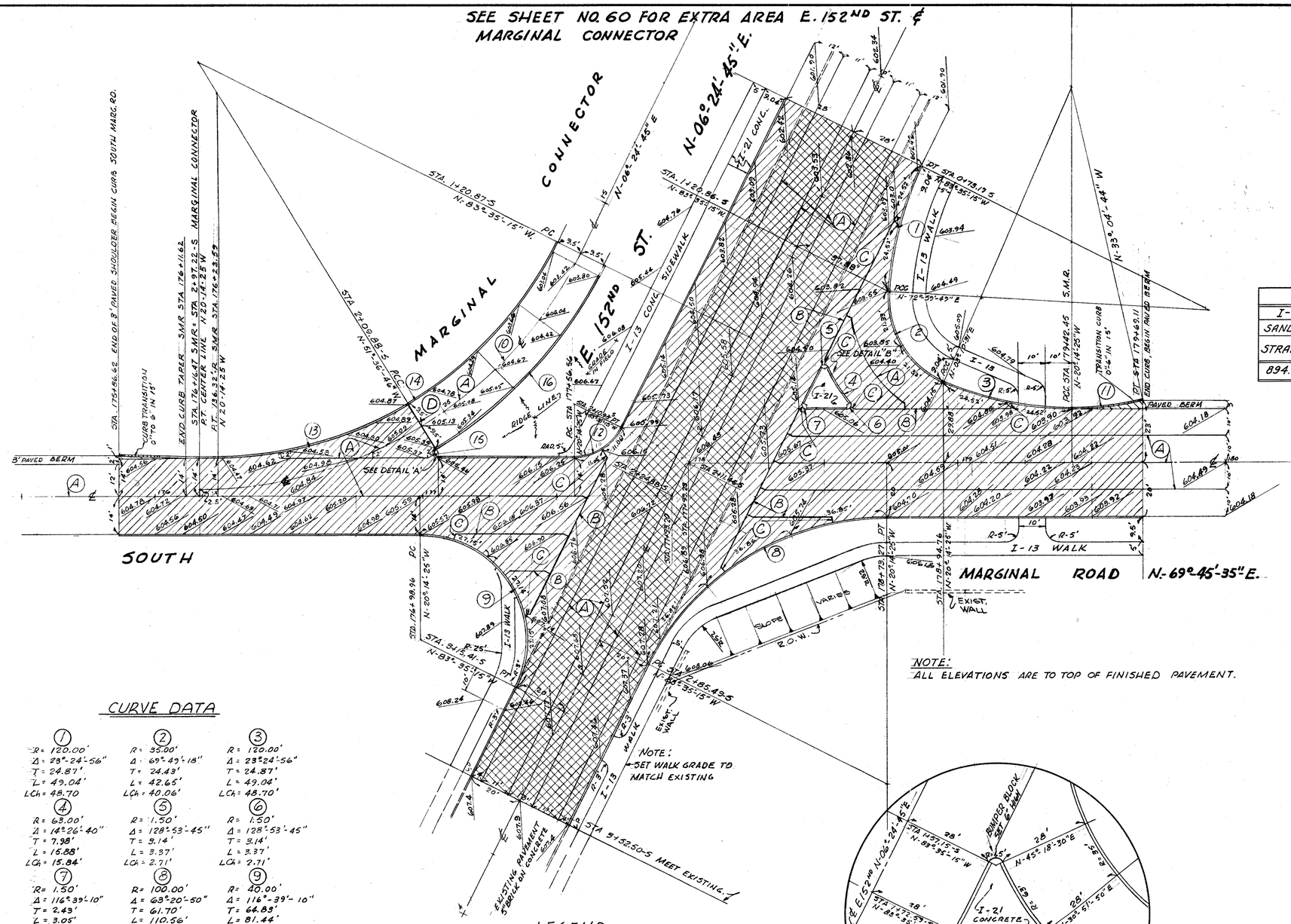
SEE SHEET NO. 60 FOR EXTRA AREA E. 152ND ST. & MARGINAL CONNECTOR



NOTE:
ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-11 LIN. FT.		I-11 EACH	I-19 SQ. FT.	I-18 CU. YDS.	I-21 SQ YDS.	I-22 CU. YDS.	B-33 SQ YDS.
SANDSTONE CURB		BUMPER BLOCK	4" CONCRETE SIDEWALK	5" STABILIZED CRUSHED AGGREGATE APPROACHES & SHOULDERS	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	SUBBASE GRADING AOR B	3" BITUMINOUS MACADAM BASE COURSE
STRAIGHT	RADIAL						
894.97	146.20	4	9,222.80	0.81	45.86	533.78	5.83

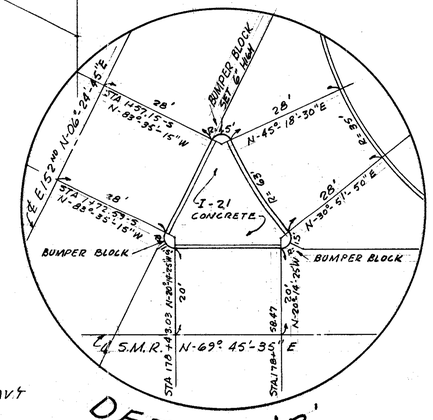
T-31			T-71 SQ YDS
BITUMINOUS SURFACE TREATMENT			REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 5"
#16 #6 AGGREGATE	#6 AGGREGATE	BITUMINOUS MATERIAL AS PER PLANS	
CU. YDS.	CU. YDS.	GALS.	
.05	.05	2.91	3,106.47

CURVE DATA

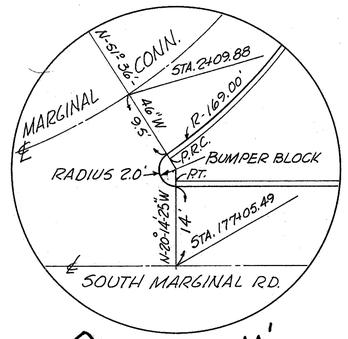
①	②	③
R = 120.00'	R = 35.00'	R = 120.00'
Δ = 23°-24'-56"	Δ = 69°-49'-18"	Δ = 23°-24'-56"
T = 24.87'	T = 24.43'	T = 24.87'
L = 49.04'	L = 42.65'	L = 49.04'
LCh = 48.70	LCh = 40.06'	LCh = 48.70'
④	⑤	⑥
R = 63.00'	R = 1.50'	R = 1.50'
Δ = 14°-26'-40"	Δ = 128°-53'-45"	Δ = 128°-53'-45"
T = 7.98'	T = 3.14'	T = 3.14'
L = 15.88'	L = 3.37'	L = 3.37'
LCh = 15.84'	LCh = 2.71'	LCh = 2.71'
⑦	⑧	⑨
R = 1.50'	R = 100.00'	R = 40.00'
Δ = 116°-39'-10"	Δ = 63°-20'-50"	Δ = 116°-39'-10"
T = 2.49'	T = 61.70'	T = 66.83'
L = 3.05'	L = 110.56'	L = 81.44'
LCh = 2.55'	LCh = 105.02'	LCh = 68.08'
⑩	⑪	⑫
R = 159.50'	R = 120.00'	R = 20.00'
Δ = 63°-20'-50"	Δ = 13°-50'-19"	Δ = 63°-20'-50"
T = 98.41'	T = 13.50'	T = 12.54'
L = 176.35'	L = 26.89'	L = 22.11'
LCh = 167.50'	LCh = 26.83'	LCh = 21.00'
⑬	⑭	⑮	⑯
R = 136.32'	R = 150.00'	R = 2.00'	R = 169.00'
Δ = 31°-22'-21"	Δ = 31°-58'-29"	Δ = 148°-37'-39"	Δ = 31°-58'-29"
T = 38.28'	T = 42.98'	T = 7.12'	T = 48.42'
L = 74.64'	L = 83.71'	L = 5.19'	L = 94.31'
LCh = 73.71'	LCh = 82.63'	LCh = 3.85'	LCh = 93.09'

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC.)
- EXISTING PAVEMENT REMOVED & REPLACED WITH NEW PAVT
- PAVED BERM
- 4" CONCRETE I-13 SIDEWALKS CROSS SLOPE @ ¼"/FT.



DETAIL 'B'



DETAIL 'A'

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Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

SOUTH MARGINAL ROAD AT E. 152ND ST. AND MARGINAL CONNECTOR

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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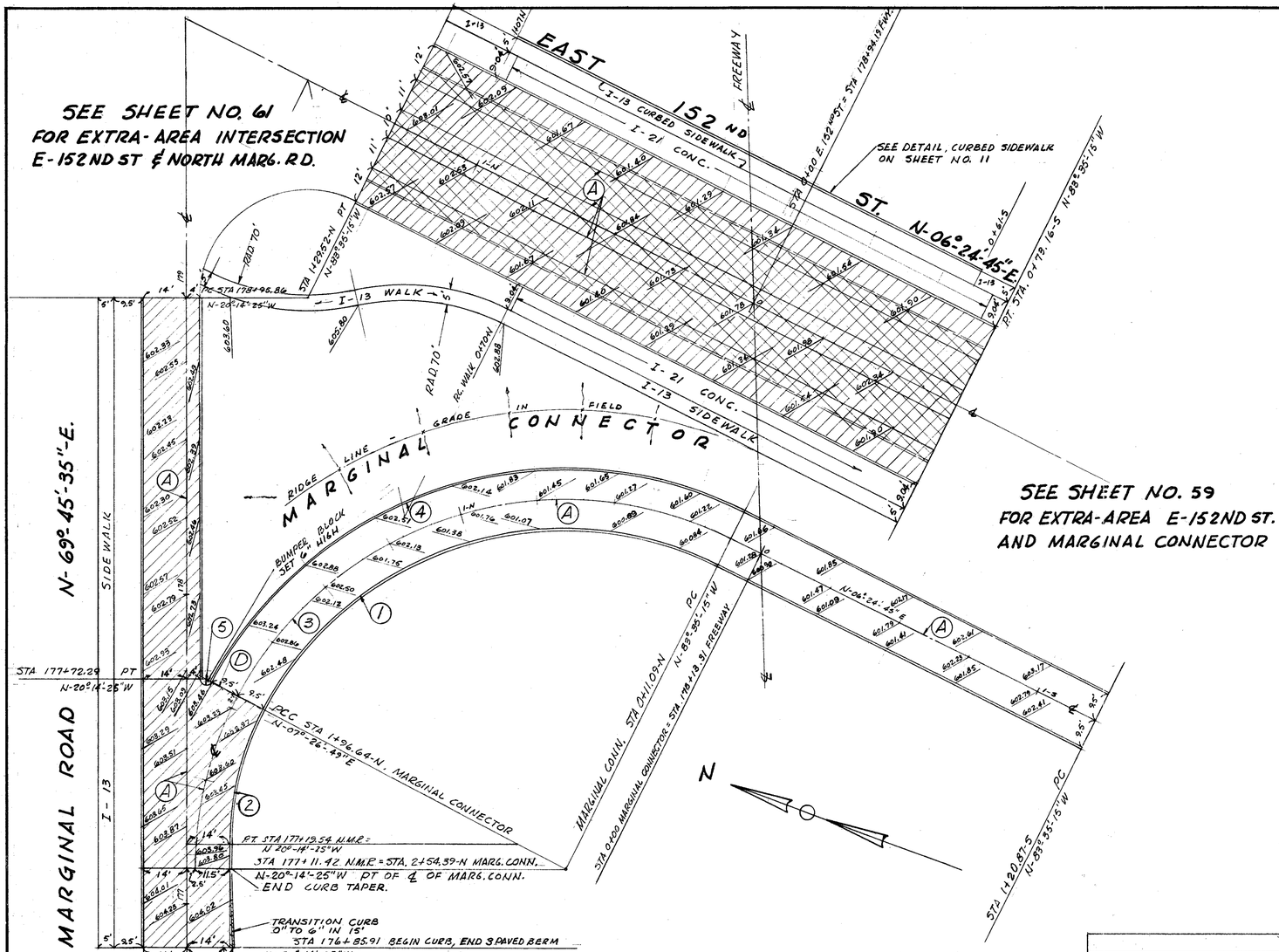

CURVE DATA

①	②	③
R = 110.00'	R = 92.53'	R = 119.50'
Δ = 88°-57'-56"	Δ = 27°-41'-14"	Δ = 116°-39'-10"
T = 108.03'	T = 22.80'	T = 193.69'
L = 170.80'	L = 44.71'	L = 243.30'
Lch = 154.15'	Lch = 44.28'	Lch = 203.40'

④	⑤
R = 129.00'	R = 2.00'
Δ = 88°-57'-56"	Δ = 152°-18'-46"
T = 126.69'	T = 8.12'
L = 200.30'	L = 5.32'
Lch = 180.78'	Lch = 3.88'

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT
- Ⓑ STANDARD KEY JOINT WITHOUT TIE BARS
- Ⓒ EXPANSION JOINT WITHOUT DOWELS
- Ⓓ STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC.)
- EXISTING PAVEMENT REMOVED & REPLACED WITH NEW PAV'T.
- PAVED BERM
- 4" CONCRETE I-13 SIDEWALKS CROSS SLOPE @ ¼"/Ft.

NOTE:
ALL ELEVATIONS SHOWN ARE TO TOP OF FINISHED PAVEMENT

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-1 EACH	I-11 LIN.Ft.	I-13 Sq.Ft.		I-18 Cu.Yds.	I-21 Sq.Yds.	I-22 Cu.Yds.	B-33 Sq.Yds.	T-31			T-71 Sq.Yds.
		Concrete Sidewalk						Bituminous Surface Treatment			
Bumper Block	Sandstone Curb	4" Curb	4"	5" Stabilized Crushed Aggregate Approaches & Shoulders	Portland Cement Concrete Traffic Island Pavement	Subbase Grading A or B	3" Bituminous Macadam Base Course	#16 Aggregate Cu. Yds.	#6 Aggregate Cu. Yds.	Bituminous Material as Per Plans Gals.	Reinforced Portland Cement Concrete Pavement 9"
Straight											
1	817.26	924.00	2443.50	.20	298.90	327.99	1.42	.01	.01	.71	1,794.25

HARGETT, YANDA & BARBER
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4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

NORTH MARGINAL ROAD & MARGINAL CONNECTOR AT EAST 152ND STREET, AND EAST 152ND STREET.

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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CUY. 2-22.97

CURVE DATA

	①	②	③	④	⑤
R	320.78	400.00	298.76	100.00	30.00
Δ	37°-17'-06"	37°-17'-06"	37°-17'-06"	21°-47'-12"	90°-20'-07"
T	108.22	134.95	100.79	19.24	30.18
L	208.75	260.30	194.41	38.02	47.30
LCh	205.08	255.73	191.00	37.80	42.55

	⑥	⑦	⑧	⑨	⑩
R	150.00	58.00	1.50	1.50	1.50
Δ	46°-02'-29"	35°-09'-07"	124°-15'-55"	133°-54'-31"	136°-58'-41"
T	63.74	18.37	3.25	3.51	3.59
L	120.54	35.58			
LCh	117.32	35.03			

	⑪	⑫	⑬	⑭	⑮
R	81.56	35.00	20.00	20.00	100.00
Δ	63°-20'-50"	116°-39'-10"	83°-07'-41"	96°-52'-19"	46°-05'-29"
T	50.32	56.73	17.73	22.56	42.54
L	90.17	71.26	29.02	33.81	80.44
LCh	85.65	59.57	26.54	30.39	78.29

	⑯	⑰ CURVE FOR LIMIT OF FEDERAL PARTICIPATION
R	20.00	272.76
Δ	133°-57'-31"	37°-17'-06"
T	47.07	92.02
L	46.76	177.50
LCh	36.81	174.38

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

T-11 EACH	I-11 LIN. FT.		I-13 Sq.FT.	I-21 Sq.Yds.
BUMPER BLOCK	SANDSTONE CURB		SIDEWALK CONCRETE	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT
	STRAIGHT	RADIAL	4"	
3	1360.53	228.15	6803.25	90.00

I-22 CU.YDS.	I-71 Sq.Yds.		
SUBASE GRADING A or B	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT		
	6"	9"	
FEDERAL NON-PARTICIPATING 126.84	—	761.06	
781.33	63.56	4346.42	

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC.)
- EXISTING PAVEMENT REMOVED & REPLACED WITH NEW PAVEMENT.
- 4" CONCRETE I-13 SIDEWALKS CROSS SLOPE AT 14"/FT
- I-21 CONCRETE

NOTE:
ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT.
NEW DRIVEWAY APRONS SHALL MEET GRADE OF EXISTING DRIVEWAYS AT BACK OF WALK UNLESS NOTED.

HARGETT, YANDA & BARBER
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EXTRA-AREA DETAILS

WESTROPP AVENUE RELOCATED EAST 152ND STREET

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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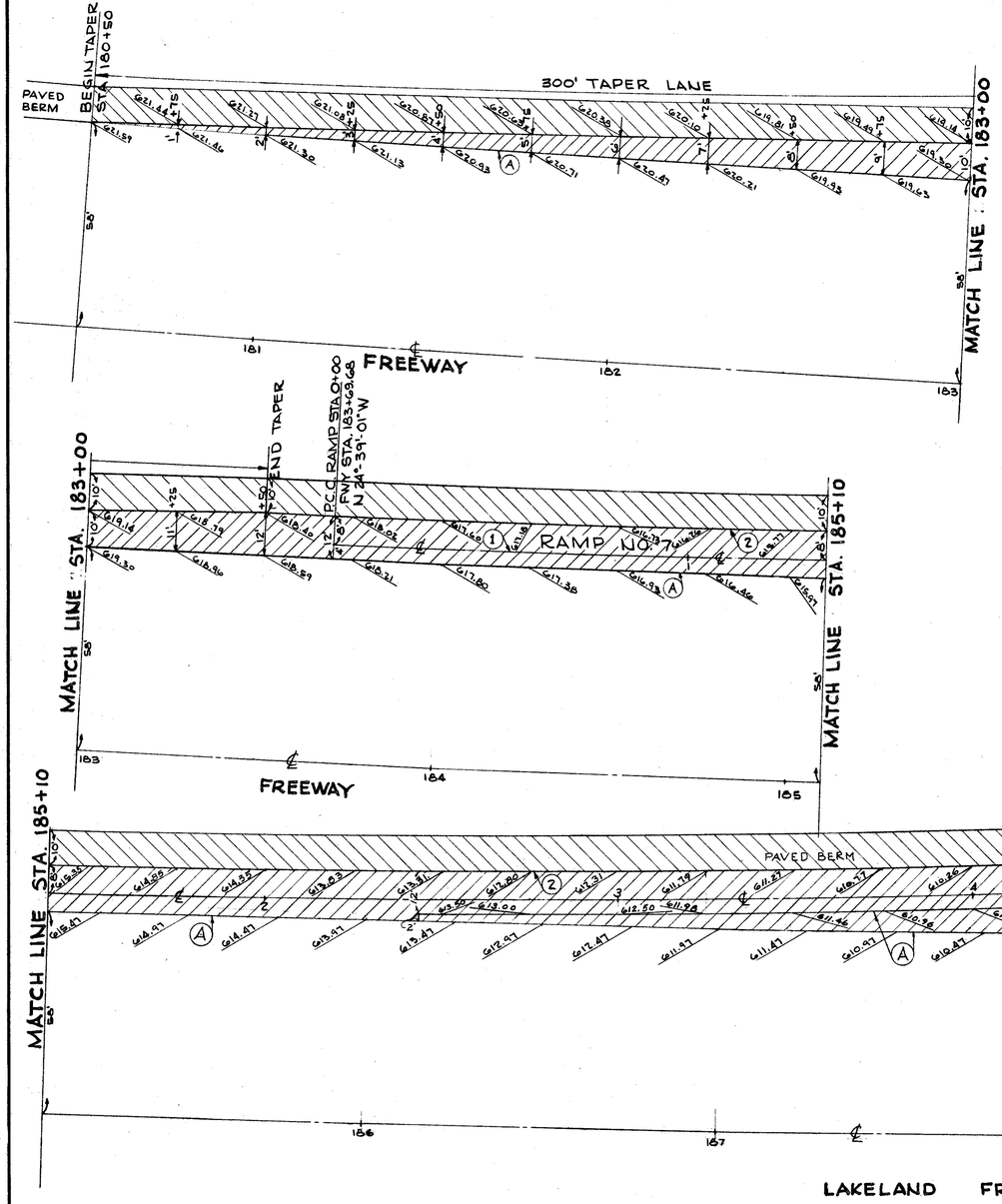
CUYAHOGA COUNTY
CUY. 2-22.97

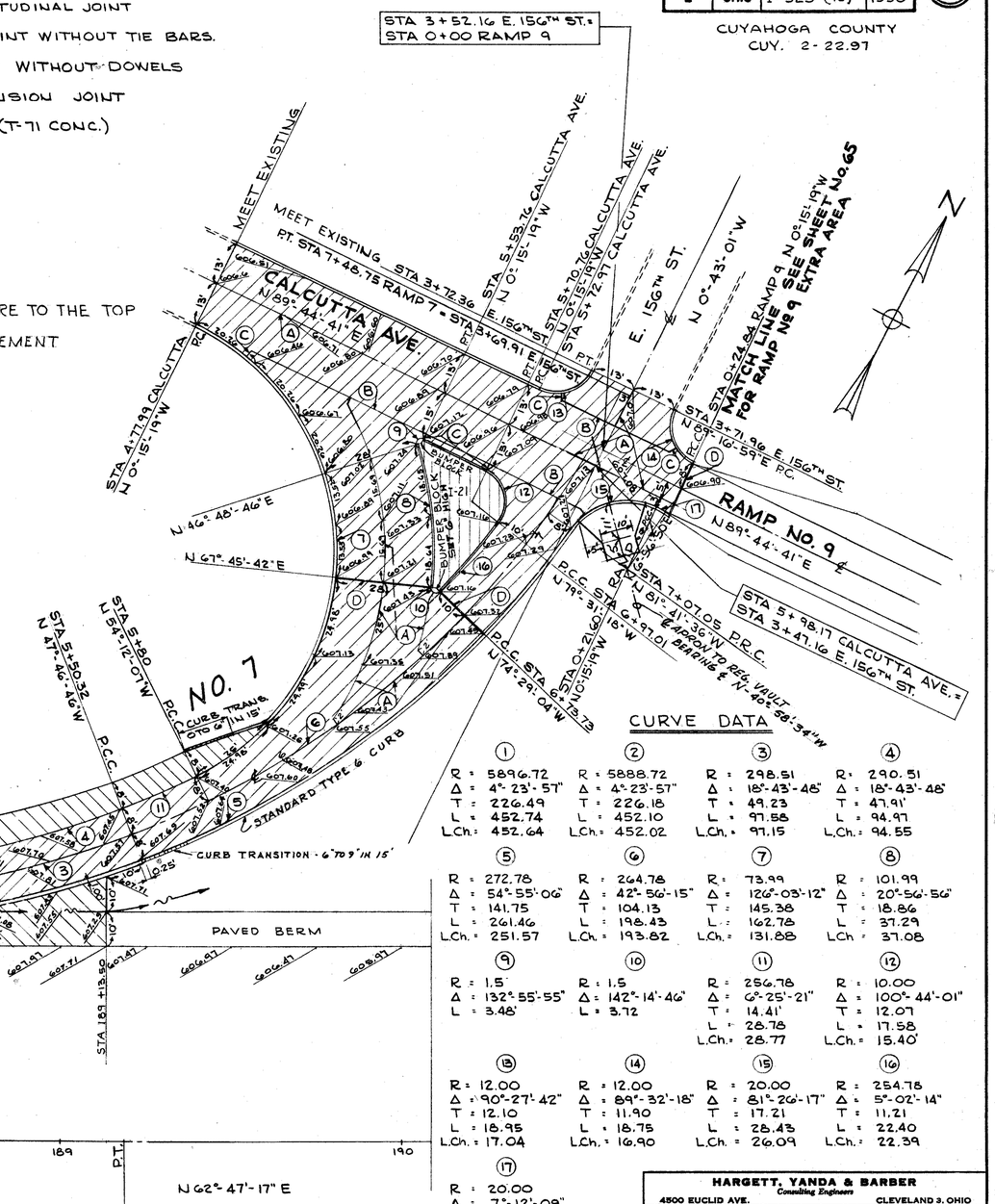
LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD KEY JOINT WITHOUT TIE BARS.
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC.)
- PAVED BERM
- I-21 CONCRETE

NOTE:

ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT





CURVE DATA

①	②	③	④
R = 5896.72	R = 5888.72	R = 298.51	R = 290.51
Δ = 4°-23'-57"	Δ = 4°-23'-57"	Δ = 18°-43'-46"	Δ = 18°-43'-46"
T = 226.49	T = 226.18	T = 49.23	T = 47.91'
L = 452.74	L = 452.10	L = 97.58	L = 94.97
L.Ch. = 452.64	L.Ch. = 452.02	L.Ch. = 97.15	L.Ch. = 94.55
⑤	⑥	⑦	⑧
R = 272.78	R = 264.78	R = 73.99	R = 101.99
Δ = 54°-55'-06"	Δ = 42°-56'-15"	Δ = 126°-03'-12"	Δ = 20°-56'-56"
T = 141.75	T = 104.13	T = 145.38	T = 18.86
L = 261.46	L = 198.43	L = 162.78	L = 37.29
L.Ch. = 251.57	L.Ch. = 193.82	L.Ch. = 131.88	L.Ch. = 37.08
⑨	⑩	⑪	⑫
R = 1.5	R = 1.5	R = 256.78	R = 10.00
Δ = 132°-55'-55"	Δ = 142°-14'-46"	Δ = 6°-25'-21"	Δ = 100°-44'-01"
L = 3.48'	L = 3.72	T = 14.41'	T = 12.07
		L = 28.78	L = 17.58
		L.Ch. = 28.77	L.Ch. = 15.40'
⑬	⑭	⑮	⑯
R = 12.00	R = 12.00	R = 20.00	R = 254.78
Δ = 90°-27'-42"	Δ = 89°-32'-18"	Δ = 81°-26'-17"	Δ = 5°-02'-14"
T = 12.10	T = 11.90	T = 17.21	T = 11.21
L = 18.95	L = 18.75	L = 28.43	L = 22.40
L.Ch. = 17.04	L.Ch. = 16.90	L.Ch. = 26.09	L.Ch. = 22.39
⑰			
R = 20.00			
Δ = 7°-12'-09"			
T = 1.26			
L = 2.51			
L.Ch. = 2.51			

SUMMARY OF QUANTITIES (TOTAL THIS SHEET)

I-11 EACH	I-12 LIN. FT. CONCRETE CURB		I-18 CU. YDS.	I-21 SQ. YDS.	I-22 CU. YDS.	I-33 SQ. YDS	T-31			T-71 SQ. YDS.			I-11 LIN. FT.	
							BITUMINOUS SURFACE TREATMENT			REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT			SANDSTONE CURB	
BUMPER BLOCK		SPEC. TYPE A	8" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	PORTLAND CEMENT CONCRETE TRAFFIC ISLAND PAVEMENT	SUBBASE GRADING A or B	3" BITUMINOUS MACADAM BASE COURSE	#6 AGGREGATE cu. yds.	#6 AGGREGATE cu. yds.	BITUMINOUS MATERIAL AS PER PLANS GALS.	6"	9"	10"	STRAIGHT	RADIAL
2		100.03	155.40	58.89	605.14	1094.03	8.75	8.75	547.00	23.56	1,225.89	974.62	495.93	83.71

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

RAMP NO. 7

SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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CUYAHOGA COUNTY
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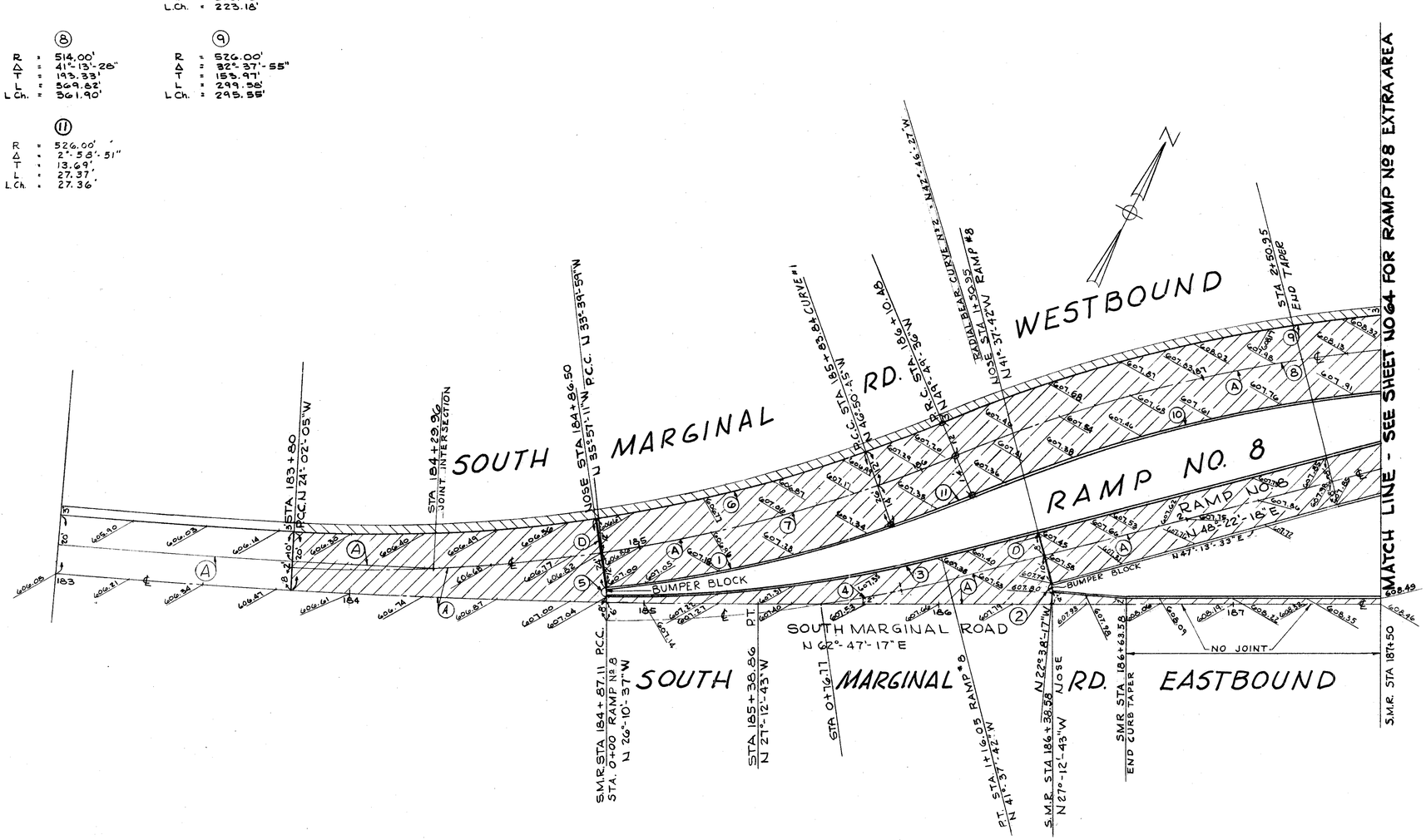
CURVE DATA

①		②		③	
R	= 434.09'	R	= 1.5'	R	= 422.31'
Δ	= 13°-10'-46"	Δ	= 159°-51'-50"	Δ	= 15°-27'-05"
T	= 50.15'	L	= 4.19'	T	= 57.30'
L	= 99.85'			L	= 113.90'
L.Ch.	= 99.63'			L.Ch.	= 113.55'

④		⑤		⑥	
R	= 430.31'	R	= 1.5'	R	= 500.00'
Δ	= 15°-27'-05"	Δ	= 172°-30'-38"	Δ	= 25°-47'-31"
T	= 58.38'	L	= 4.52'	T	= 114.48'
L	= 116.05'			L	= 225.08'
L.Ch.	= 115.71'			L.Ch.	= 223.18'

⑦		⑧		⑨	
R	= 512.00'	R	= 514.00'	R	= 526.00'
Δ	= 25°-47'-31"	Δ	= 41°-13'-26"	Δ	= 32°-37'-55"
T	= 117.23'	T	= 193.33'	T	= 153.97'
L	= 230.46'	L	= 369.82'	L	= 299.58'
L.Ch.	= 228.54'	L.Ch.	= 361.90'	L.Ch.	= 295.55'

⑩		⑪	
R	= 500.00'	R	= 526.00'
Δ	= 24°-52'-15"	Δ	= 2°-58'-51"
T	= 110.26'	T	= 13.69'
L	= 217.04'	L	= 27.37'
L.Ch.	= 215.34'	L.Ch.	= 27.36'



LEGEND

- (A) STANDARD LONGITUDINAL JOINT.
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS
- (D) STANDARD EXPANSION JOINT.
- NEW PAVEMENT. (T-71 CONC.)
- PAVED BERM

NOTE:

ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT.

SUMMARY OF QUANTITIES (TOTALS THIS SHEET)

I.11 EACH	I.11 LIN. FT.	I.18 CU. YDS.	I.22 CU. YDS.	B-33 SQ. YDS.	T-31 BITUMINOUS SURFACE TREATMENT			T-71 SQ. YDS.
BUMPER BLOCK	SANDSTONE CURB STRAIGHT	5" STABILIZED CRUSHED AGGREGATE SHOULDER & APPROACHES	SUBASE GRADING A or B	3" BITUMINOUS MACADAM BASE COURSE	#6 AGGREGATE CU. YDS.	#6 AGGREGATE CU. YDS.	BITUMINOUS MATERIAL AS PER PLANS GALS.	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT 9"
2	768.04	19.02	273.94	126.29	1.01	1.01	63.15	1,462.87

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

RAMP NO. 8

SCALE 1"=20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

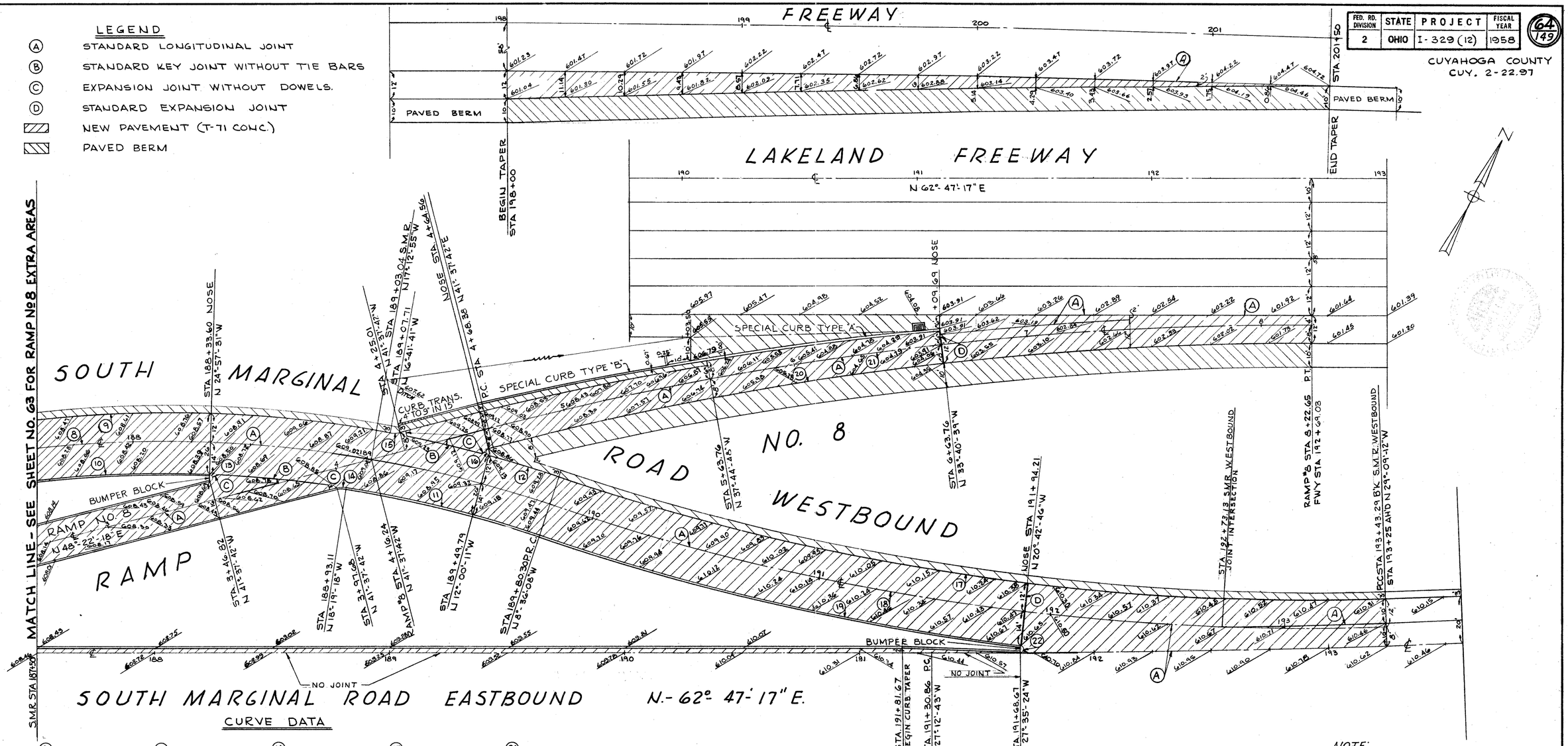
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

64/149

CUYAHOGA COUNTY
CUY. 2-22.97

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD KEY JOINT WITHOUT TIE BARS
- (C) EXPANSION JOINT WITHOUT DOWELS.
- (D) STANDARD EXPANSION JOINT
- NEW PAVEMENT (T-71 CONC.)
- PAVED BERM



CURVE DATA

(8)	(11)	(14)	(17)	(20)
R = 514.00'	R = 500.00'	R = 10.00'	R = 1000.00'	R = 1400.00'
Δ = 41°-13'-28"	Δ = 9°-45'-10"	Δ = 23°-18'-24"	Δ = 20°-33'-04"	Δ = 14°-24'-59"
T = 193.33'	T = 42.51'	T = 2.06'	T = 181.29'	T = 177.07'
L = 369.82'	L = 84.82'	L = 4.07'	L = 358.68'	L = 352.26'
L Ch. = 361.90'	L Ch. = 84.72'	L Ch. = 4.04'	L Ch. = 356.77'	L Ch. = 351.34'
(9)	(12)	(15)	(18)	(21)
R = 526.00'	R = 526.00'	R = 10.00'	R = 1012.00'	R = 1408.00'
Δ = 33°-01'-55"	Δ = 3°-24'-03"	Δ = 24°-26'-01"	Δ = 20°-33'-04"	Δ = 14°-24'-59"
T = 156.47'	T = 15.62'	T = 2.17'	T = 183.47'	T = 178.08'
L = 304.17'	L = 31.22'	L = 4.26'	L = 362.99'	L = 354.27'
L Ch. = 299.95'	L Ch. = 31.22'	L Ch. = 4.23	L Ch. = 361.08'	L Ch. = 355.34'
(10)	(13)	(16)	(19)	(22)
R = 500.00'	R = 1.5'	R = 1.5'	R = 1026.00'	R = 1.5'
Δ = 24°-52'-15"	Δ = 103°-19'-49"	Δ = 150°-23'-29"	Δ = 12°-09'-38"	Δ = 173°-07'-22"
T = 110.26'	L = 4.28'	L = 5.94'	T = 108.84'	L = 4.53'
L = 217.04'			L = 216.86'	
L Ch. = 215.34'			L Ch. = 216.46'	

SUMMARY OF QUANTITIES (TOTALS THIS SHEET)

I-11 EACH	I-11 LIN. FT.		I-12 LIN. FT.		I-18 cu.yds.	I-22 cu.yds.	B-33 sq.yds.	T-31			T-71 sq.yds.	
	SANDSTONE CURB		CONCRETE CURB		8" STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES	SUBBASE GRADING A or B	9" BITUMINOUS MACADAM BASE COURSE	BITUMINOUS SURFACE TREATMENT			REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	
BUMPER BLOCK	STRAIGHT	RADIAL	SPEC. TYPE-A	SPEC. TYPE-B				#66 AGGREGATE cu.yds.	#6 AGGREGATE cu.yds.	BITUMINOUS MATERIAL AS PER PLANS. gals.	9"	10"
2	999.51	4.07	116.0	117.5	160.09	694.17	1118.55	8.94	8.94	559.30	2,332.13	499.80

NOTE:
ALL ELEVATIONS ARE TO THE TOP OF FINISHED PAVEMENT

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS

RAMP NO. 8

SCALE 1"=20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

65/149

CUYAHOGA COUNTY
CUY-2-22.97

SEE EXTRA-AREA SHEET NO. 62

MATCH LINE

STA. 3+52.16 E. 156TH ST. = STA. 0+00 RAMP #9

EAST 156TH ST.

STA. 3+47.16 E. 156TH ST. = STA. 5+98.11 CALCUTTA AVE.

SEE CURVE DATA RAMP #9 SHEET 62A

STA. 0+21.60 RAMP #9 PCC BEGIN CURB TAPER

TRANSITION CURB 0"TO 6" IN 15'

STA. 0+46.60 END CURB TAPER BEGIN 3' PAVED BERM

RAMP #9 N-89°-44'-41"E.

PAVED BERM

STA. 0+24.64 N-0°-15'-19"W

TRANSITION CURB 0"TO 6" IN 15'

STA. 0+74.84 END CURB TAPER BEGIN 3' PAVED BERM

PC STA. 1+08.61 N-0°-15'-19"W.

R.O.W.

RAMP

STA. 1+50.16 E. 157TH ST. 0+00 CONNECTOR ROAD

PRIVATE DRIVE

STA. 0+97 E. 157TH ST.

EXISTING WALK TO REMAIN IN PLACE

PRIVATE DRIVE

SOUTH EDGE OF PAVEMENT PC STA. 21+31.48 N-10°-11'-54"W.

PCC STA. 24+96.82 N-15°-29'-10"W.

STA. 3+31.48 CTR. NOSE OF N-16°-55'-48"W. NOSE N-15°-32'-26"W.

9"T-71

10"T-71

SPECIAL DITCH NO. 9

L.P. 597.80

STA. 0400 E. 157TH ST. = STA. 8+57.91 CALCUTTA

BEGIN CURB

TRANSITION CURB 0"TO 6" IN 15'

I-21 CONC

PAVED BERM

STA. 192+64.49 BEGIN CURB

STA. 193+64.49 NOSE

CALCUTTA AVE. N-89°-44'-41"E.

STA. 194+46.95 FREEWAY = STA. 10+35.60 CALCUTTA

FREEWAY N-62°-47'-17"E.

STA. 0+00 EAST 158TH. ST. = STA. 11+07.87 CALCUTTA AVE.

¢ STATIONS FOR E. 157TH ST. CURBS

NORTH & EAST CURB
STA. 0+00 CONN. ROAD P.C. 25' RADIUS
STA. 0+72.66 CONN. RD. P.T. 25' RADIUS

SOUTH & WEST CURB
STA. 0+01.54 CONN. RD. P.C. 47' RADIUS
STA. 0+68.38 CONN. RD. P.T. 47' RADIUS

¢ STATIONS FOR E. 158TH ST. CURBS

NORTH & WEST CURB
STA. 2+59.04 CONN. RD. P.C. 25' RADIUS
STA. 3+03.34 CONN. RD. P.T. 25' RADIUS

SOUTH & EAST CURB
STA. 2+62.83 CONN. RD. P.C. 47' RADIUS
STA. 3+05.30 CONN. RD. P.T. 47' RADIUS

STA. 0+01.54 CONN. RD. P.C. N-21°-15'-46"W.

STA. 0+00.77 CONN. RD. N-89°-44'-42"E.

I-13 SIDEWALK

R.O.W.

STA. 3+04.53 CONN. RD. N-89°-45'-14"E.

STA. 2+46.19 N-21°-15'-46"W. P.T.

MEET GRADE OF EXIST. DRIVE AT R.O.W. LINE

PRIVATE DRIVE

EAST 158TH STREET N:0°-14'-46":W.

E. 157TH ST. TO E. 158TH ST. CONNECTOR RD. N:68°-44'-14"E.

GUARD RAIL FENCE LINE

MEET EXISTING STA. 3+05.30 = STA. 2+18.50 E. 158TH ST.

P.T. STA. 196+19.30 FREEWAY STA. 5+84.98 RAMP #9 N-27°-12'-48":W.

MATCH LINE STA. 196+50

MATCH LINE STA. 196+50

PAVED BERM

FREEWAY N-62°-47'-17"E.

PC STA. 197+58.01

STA. 200+50 BEGIN TAPER

STA. 201+50 END TAPER

PAVED BERM

N-62°-47'-17"E

FREEWAY

CURVE DATA

	R	Δ	T	L	L Ch
①	700.00'	15°13'-51"	93.59'	186.08'	185.53'
②	708.00'	15°13'-51"	94.66'	188.21'	187.65'
③	716.00'	9°56'-35"	62.28'	124.25'	124.10'
④	1084.86'	5°20'-32"	50.61'	101.15'	101.11'
⑤	2.00'	168°19'-43"	5.88'		
⑥	1400.00'	11°43'-33"	143.76'	286.52'	286.02'
⑦	1408.00'	11°43'-33"	144.58'	288.16'	287.65'
⑧	25.00'	111°00'-28"	36.38'	48.44'	41.21'
⑨	36.00'	111°00'-28"	52.39'	69.75'	59.34'
⑩	47.00'	111°00'-28"	68.40'	91.06'	77.47'
⑪	25.00'	68°59'-00"	17.18'	30.10'	28.31'
⑫	36.00'	68°59'-00"	24.73'	43.34'	40.77'
⑬	47.00'	68°59'-00"	32.29'	56.59'	53.23'
⑭	12.00'	9°16'-03"	0.97'	1.94'	1.94'

SUMMARY OF QUANTITIES

DESCRIPTION	I-11 EA	I-11 LIN. FT.		I-13 SQ. FT.	I-18 CU. YDS.	I-21 SQ. YDS.	I-22 CU. YDS.	B-33 SQ. YDS.	T-31 BITUMINOUS SURFACE TREAT.			T-71 SQ. YDS. REINF. PORT. CEMENT CONCRETE PAVEMENT		
		SANDSTONE CURB												
	BUMPER BLOCK	STRAIGHT	RADIAL	4" CONC. SIDEWALK	5" STAB. CRUSH. AGG. SHOULD. & APPROACH.	PORTLAND CEMENT CONC. TRAFFIC ISLAND PAVEMENT	SUBBASE GRADING A OR B	3" BITUM. MACADAM BASE COURSE	#46 AGG. CU. YDS	#6 AGG. CU. YDS	BIT. MAT'L. AS PER PLANS GALS.	6"	9"	10"
RAMP #9	1	273.13	–	–	175.67	23.11	551.50	1,230.68	9.85	9.85	615.34	–	667.51	1,219.83
CONN. RD.	–	383.87	226.19	1,223.50	–	–	147.82	–	–	–	–	123.99	787.38	–
TOTAL	1	657.00	226.19	1,223.50	175.67	23.11	699.32	1,230.68	9.85	9.85	615.34	123.99	1,454.89	1,219.83

LEGEND

(A) STANDARD LONGITUDINAL JOINT.
(B) STANDARD KEY JOINT WITHOUT TIE BARS.
(C) EXPANSION JOINT WITHOUT DOWELS.
(D) STANDARD EXPANSION JOINT.

NEW PAVEMENT (T-71 CONC.)
PAVED BERM
I-21 CONCRETE
4" CONCRETE I-13 SIDEWALKS CROSS SLOPE @ 1/4" PER FT.

NOTES:
ALL ELEVATIONS ARE TO TOP OF FINISHED PAVEMENT.
NEW DRIVEWAY APRONS SHALL MEET GRADE OF EXISTING DRIVEWAYS AT BACK OF WALK UNLESS OTHERWISE NOTED.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

EXTRA-AREA DETAILS
RAMP NO. 9
EAST 157TH ST. TO EAST 158TH ST. CONNECTOR ROAD

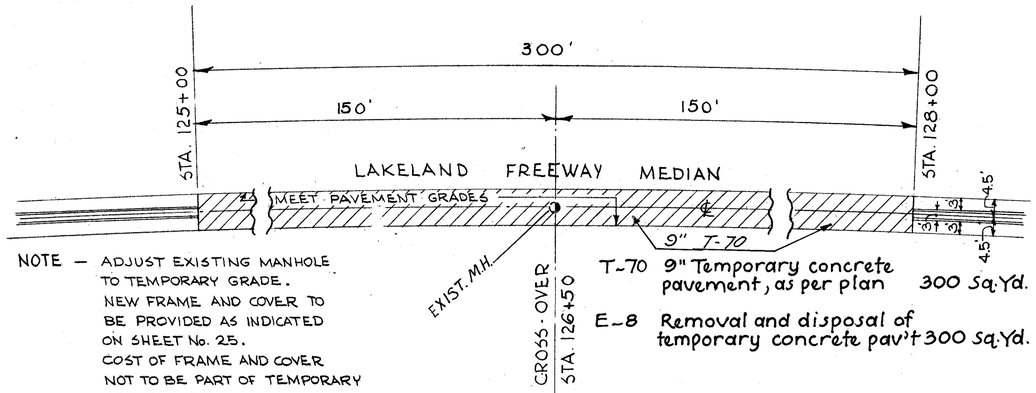
SCALE: 1" = 20'-0"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	

66
149

CUYAHOGA COUNTY
CUY. 2-22.97



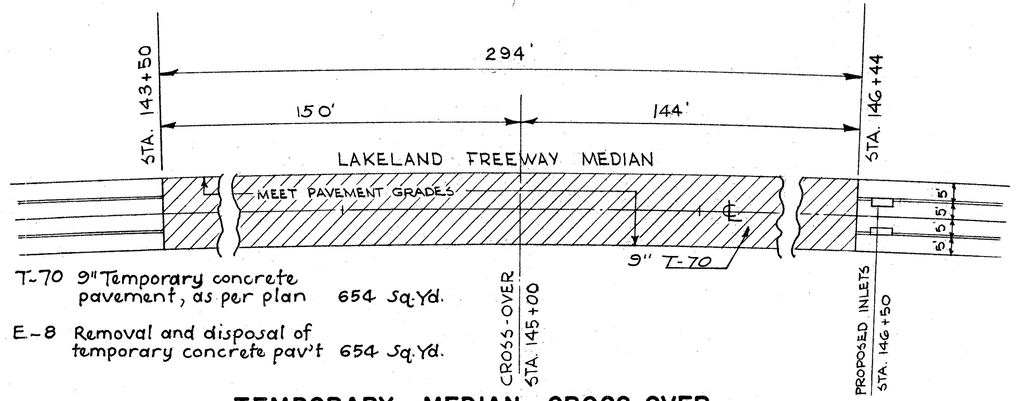
NOTE — ADJUST EXISTING MANHOLE TO TEMPORARY GRADE. NEW FRAME AND COVER TO BE PROVIDED AS INDICATED ON SHEET No. 25. COST OF FRAME AND COVER NOT TO BE PART OF TEMPORARY CROSS-OVER.

T-70 9" Temporary concrete pavement, as per plan 300 Sq.Yd.

E-8 Removal and disposal of temporary concrete pav't 300 Sq.Yd.

TEMPORARY MEDIAN CROSS-OVER

STA. 125+00 TO STA. 128+00 (FREEWAY)

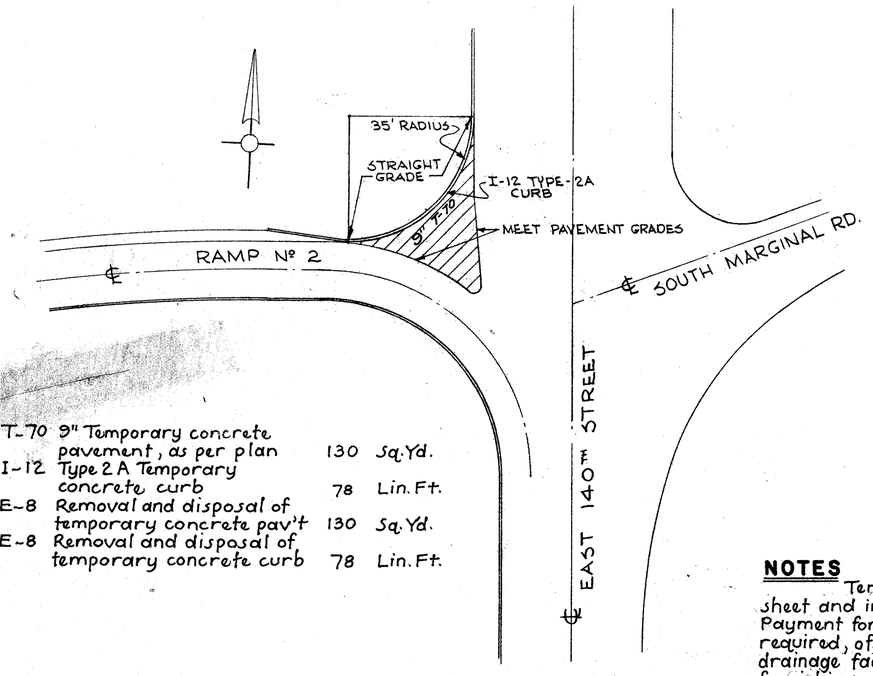


T-70 9" Temporary concrete pavement, as per plan 654 Sq.Yd.

E-8 Removal and disposal of temporary concrete pav't 654 Sq.Yd.

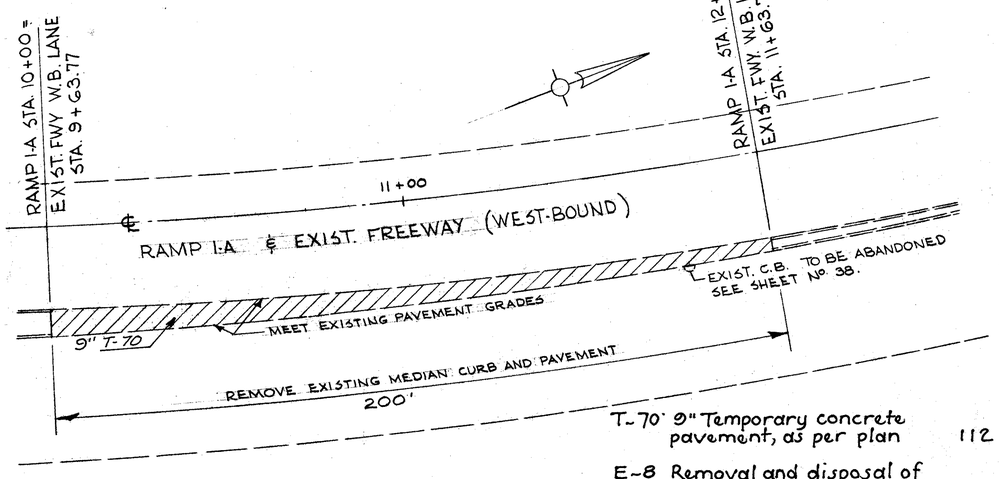
TEMPORARY MEDIAN CROSS-OVER

STA. 143+50 TO STA. 146+44 (FREEWAY)



T-70	9" Temporary concrete pavement, as per plan	130	Sq.Yd.
I-12	Type 2 A Temporary concrete curb	78	Lin.Ft.
E-8	Removal and disposal of temporary concrete pav't	130	Sq.Yd.
E-8	Removal and disposal of temporary concrete curb	78	Lin.Ft.

TEMPORARY TURN-OUT



T-70 9" Temporary concrete pavement, as per plan 112 Sq.Yd.

E-8 Removal and disposal of temporary concrete pav't 112 Sq.Yd.

TEMPORARY MEDIAN CROSS-OVER

STA. 10+00 TO STA. 12+00 (RAMP 1-A)

NOTES

Temporary pavements shall be constructed as shown on this sheet and in the sequence described in General Notes on sheet 15-A. Payment for construction, maintenance and subsequent removal, where required, of temporary roadways, median crossovers and affected drainage facilities not separately itemized under Item S-15, except furnishing, placing and subsequent removal of Item T-70, 9" temporary pavement and Item I-12, temporary Type 2-A Curb shall be included in the lump sum price bid for "Maintaining Traffic."

HARGETT, YANDA & BARBER
Consulting Engineers
4500 Euclid Ave. Cleveland 8, Ohio

TEMPORARY PAVEMENT

SCALE 1" = 20'

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

DETOUR ROADS

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

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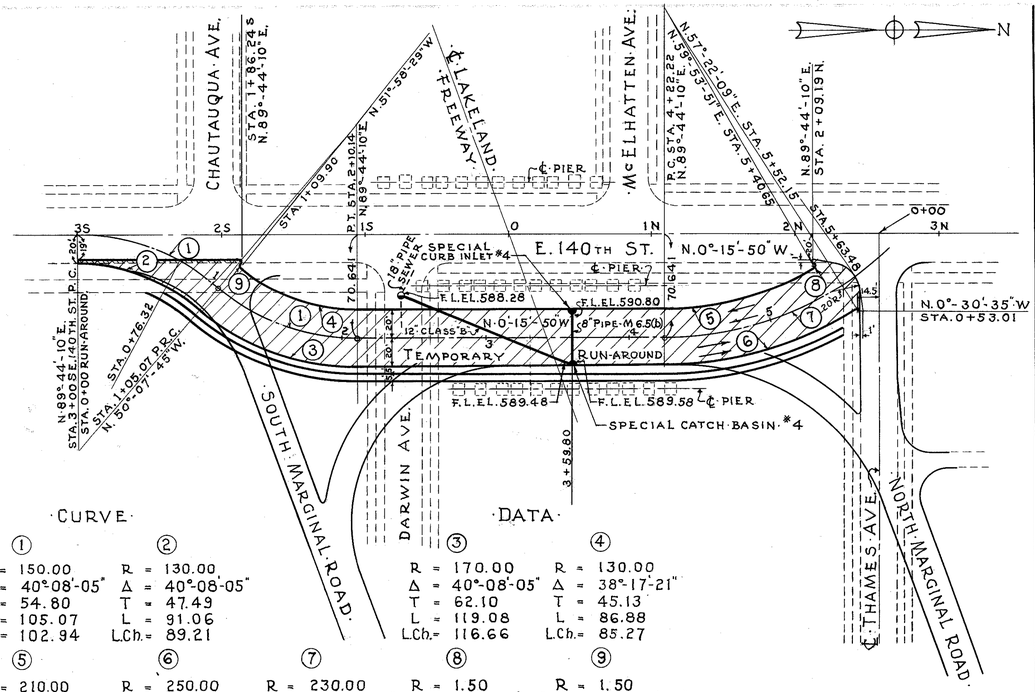
149

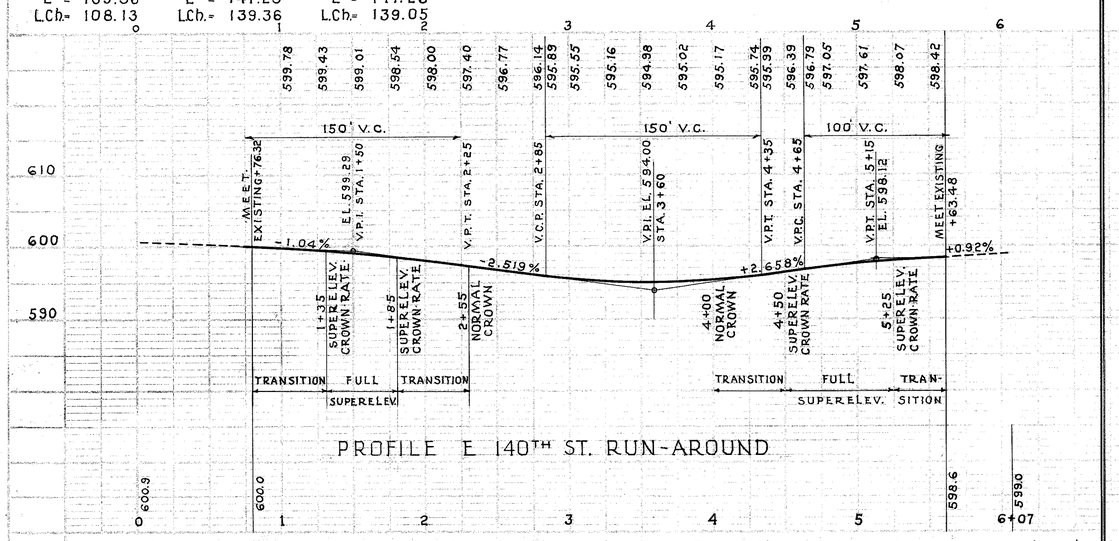
CUYAHOGA COUNTY
CUY 2-22.97



CURVE DATA

①	②	③	④
R = 150.00	R = 130.00	R = 170.00	R = 130.00
Δ = 40°-08'-05"	Δ = 40°-08'-05"	Δ = 40°-08'-05"	Δ = 38°-17'-21"
T = 54.80	T = 47.49	T = 62.10	T = 45.13
L = 105.07	L = 91.06	L = 119.08	L = 86.88
L.Ch.= 102.94	L.Ch.= 89.21	L.Ch.= 116.66	L.Ch.= 85.27

⑤	⑥	⑦	⑧	⑨
R = 210.00	R = 250.00	R = 230.00	R = 1.50	R = 1.50
Δ = 29°-50'-19"	Δ = 32°-22'-01"	Δ = 35°-11'-23"	Δ = 150°-09'-41"	Δ = 141°-42'-39"
T = 55.95	T = 72.55	T = 72.94	L = 3.93	L = 3.71
L = 109.36	L = 141.23	L = 141.26		
L.Ch.= 108.13	L.Ch.= 139.36	L.Ch.= 139.05		

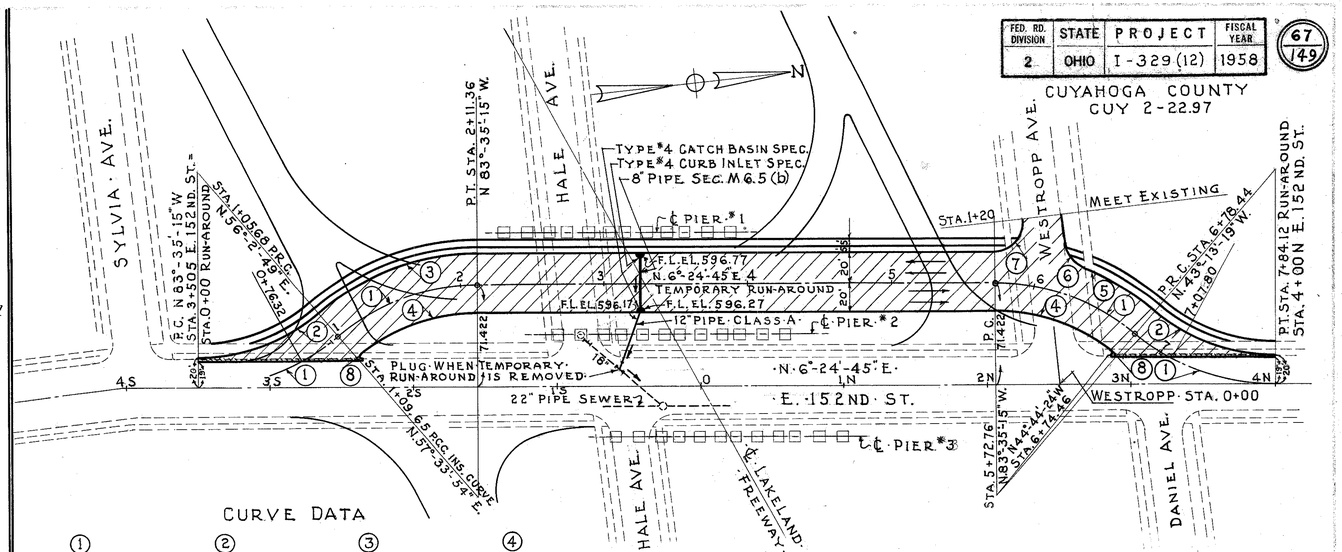


PROFILE E 140TH ST. RUN-AROUND

NOTE: *All sewer work shall be done in accordance with Item I-2 of the Specifications and as shown or called for on the details in these plans.*

The Special Curb Inlet #4 and 8" underground pipe sewer shall be removed when this Temporary Run-around is no longer required. The 12" underground pipe sewer shall be cut and plugged a sufficient distance from the Special Catch Basin #4, to allow installation of its permanent outlet as shown on Plan and Profile Sheet #40 (M.R. Connector E. 140th Street). The Special Catch Basin #4 shall not be removed but adjusted to grade as it is to remain as shown on M.R. Connector E. 140th St. and only the cost of adjusting it to grade will be paid for under this work as its initial cost is included elsewhere in these plans.

The cost of this run-around shall include all of the labor and materials necessary to construct and maintain, as shown in these details, including the provisions noted above as well as those pertinent items in the General Notes and the removal and disposal of all materials when no longer required and payment will be made at the contract lump sum per each bid for Item S-15 Temporary Run-around at East 140th Street.



CURVE DATA

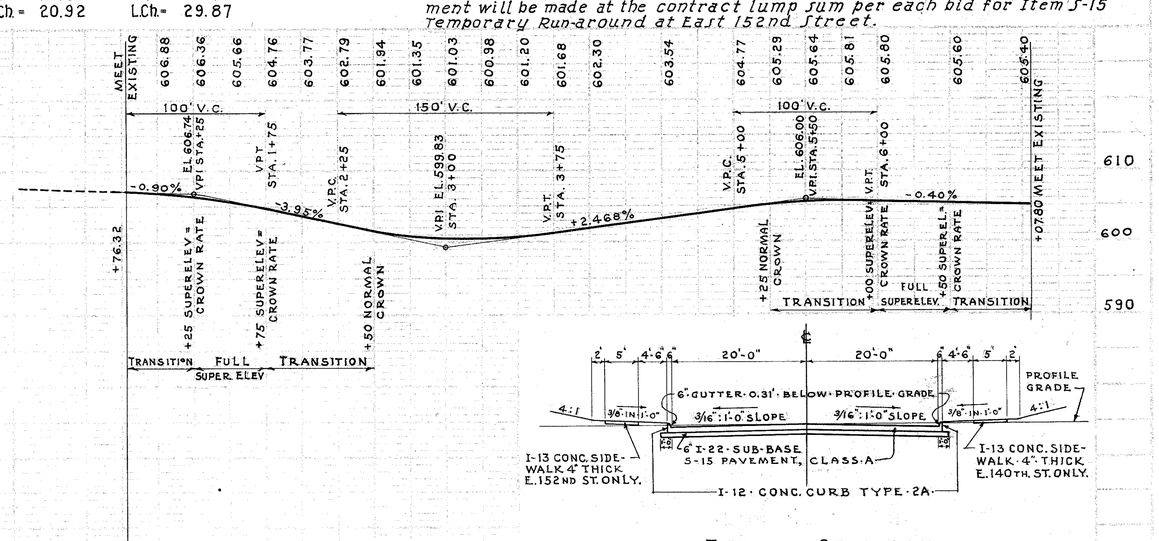
①	②	③	④
R = 150.00	R = 130.00	R = 170.00	R = 130.00
Δ = 40°-21'-56"	Δ = 40°-21'-56"	Δ = 40°-21'-56"	Δ = 38°-50'-51"
T = 55.14	T = 47.79	T = 62.49	T = 45.84
L = 105.68	L = 91.59	L = 119.77	L = 88.14
L.Ch.= 103.51	L.Ch.= 89.70	L.Ch.= 117.31	L.Ch.= 86.46

⑤	⑥	⑦	⑧
R = 170.00	R = 20.00	R = 20.00	R = 1.50
Δ = 20°-04'-02"	Δ = 63°-04'-41"	Δ = 96°-37'-25"	Δ = 141°-09'-09"
T = 30.08	T = 12.27	T = 22.46	L = 3.70
L = 59.54	L = 22.02	L = 33.73	
L.Ch.= 59.24	L.Ch.= 20.92	L.Ch.= 29.87	

NOTE: *All sewer work shall be done in accordance with Item I-2 of the Specifications and as shown or called for on the details in these plans.*

The Special Curb Inlet #4, 8" underground pipe sewer, Special Catch Basin #4, and that portion of the 12" pipe sewer as noted shall be removed when this Temporary Run-around is no longer required. The 12" underground pipe sewer shall be plugged where noted, the balance being abandoned.

The cost of this Run-around shall include all the labor and materials necessary to construct and maintain, as shown in these details, including the provisions noted above as well as those pertinent items in the General Notes, and payment will be made at the contract lump sum per each bid for Item S-15 Temporary Run-around at East 152nd Street.



PROFILE E 152ND ST. RUN-AROUND

·TYPICAL SECTION·
·E.140TH & E.152ND STREET RUN-AROUND·
·NO SCALE·

DETOUR ROAD ··· E. 140TH ST. RUN-AROUND & E. 152ND. ST. RUN-AROUND.

SUPERELEVATION TABLE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY- 2-22.97

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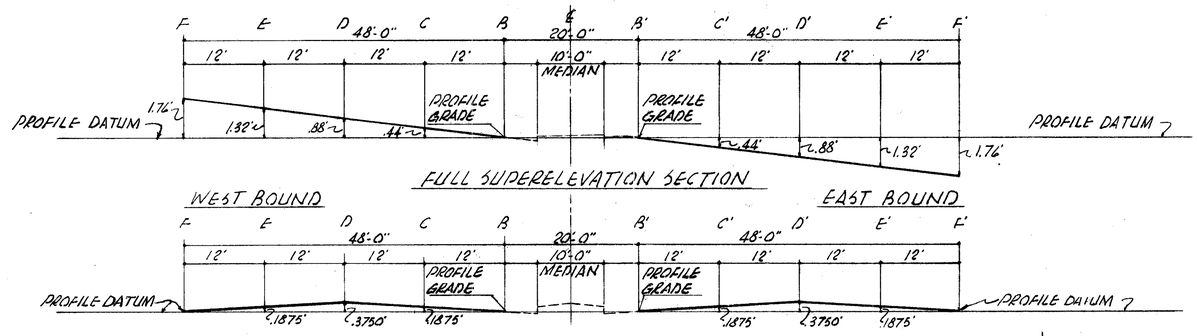


1°45'27" CURVE N°2: 400 SPIRAL - C.S. STA. 144+91.00 - S.T. STA. 148+91.00 DESIGN SPEED 60 M.P.H.

F	E	D	C	B	STATIONS	B'	C'	D'	E'	F'
608.83	608.39	607.95	607.51	607.07	143+00	607.07	606.63	606.19	605.75	605.31
609.33	608.89	608.45	608.01	607.57	+25	607.57	607.13	606.69	606.25	605.81
609.80	609.37	608.94	608.50	608.07	+50	608.07	607.63	607.19	606.77	606.34
610.24	609.82	609.40	608.98	608.57	+75	608.57	608.15	607.73	607.32	606.90
610.65	610.26	609.86	609.46	609.07	144+00	609.07	608.68	608.28	607.89	607.49
611.06	610.69	610.31	609.94	609.57	+25	609.57	609.20	608.83	608.45	608.08
611.46	611.11	610.76	610.41	610.06	+50	610.06	609.71	609.36	609.01	608.66
611.85	611.52	611.19	610.86	610.54	+75	610.54	610.21	609.88	609.56	609.23
					C.S. +91					
612.21	611.90	611.60	611.29	610.99	145+00	610.99	610.69	610.38	610.08	609.77
612.55	612.26	611.98	611.70	611.42	+25	611.42	611.14	610.86	610.58	610.29
612.86	612.61	612.35	612.09	611.83	+50	611.83	611.57	611.31	611.05	610.79
613.16	612.93	612.69	612.46	612.22	+75	612.22	611.98	611.75	611.51	611.28
613.44	613.23	613.02	612.80	612.59	146+00	612.59	612.38	612.16	611.95	611.74
613.70	613.51	613.34	613.13	612.94	+25	612.94	612.75	612.56	612.37	612.17
613.94	613.79	613.64	613.45	613.26	+50	613.26	613.11	612.95	612.77	612.58
614.17	614.05	613.95	613.76	613.57	+75	613.57	613.45	613.34	613.15	612.96
614.38	614.30	614.23	614.04	613.85	147+00	613.85	613.77	613.70	613.51	613.33
614.57	614.53	614.50	614.31	614.12	+25	614.12	614.08	614.04	613.85	613.67
614.74	614.74	614.74	614.55	614.36	+50	614.36	614.36	614.36	614.17	613.99
614.90	614.93	614.97	614.78	614.59	+75	614.59	614.62	614.65	614.46	614.28
615.04	615.10	615.17	614.98	614.79	148+00	614.79	614.85	614.92	614.73	614.54
615.16	615.25	615.35	615.16	614.97	+25	614.97	615.06	615.18	614.99	614.80
615.26	615.38	615.51	615.32	615.13	+50	615.13	615.26	615.42	615.23	615.04
615.34	615.49	615.65	615.46	615.27	+75	615.27	615.44	615.62	615.43	615.24
					S.T. +91					
615.42	615.59	615.77	615.58	615.39	149+00	615.39	615.58	615.77	615.58	615.39
615.49	615.68	615.87	615.68	615.49	+25	615.49	615.68	615.87	615.68	615.49
615.56	615.75	615.94	615.75	615.56	+50	615.56	615.75	615.94	615.75	615.56
615.62	615.81	616.00	615.81	615.62	+75	615.62	615.81	616.00	615.81	615.62
615.65	615.84	616.03	615.84	615.65	150+00	615.65	615.84	616.03	615.84	615.65
615.67	615.86	616.05	615.86	615.67	+25	615.67	615.86	616.05	615.86	615.67
615.66	615.85	616.04	615.85	615.66	+50	615.66	615.85	616.04	615.85	615.66
615.64	615.83	616.02	615.83	615.64	+75	615.64	615.83	616.02	615.83	615.64
615.59	615.78	615.97	615.78	615.59	151+00	615.59	615.78	615.97	615.78	615.59
615.52	615.71	615.90	615.71	615.52	+25	615.52	615.71	615.90	615.71	615.52
615.43	615.62	615.81	615.62	615.43	+50	615.43	615.62	615.81	615.62	615.43
615.32	615.51	615.70	615.51	615.32	+75	615.32	615.51	615.70	615.51	615.32
615.19	615.38	615.57	615.38	615.19	152+00	615.19	615.38	615.57	615.38	615.19
615.04	615.23	615.42	615.23	615.04	+25	615.04	615.23	615.42	615.23	615.04
614.86	615.05	615.24	615.05	614.86	+50	614.86	615.05	615.24	615.05	614.86
614.67	614.86	615.05	614.86	614.67	+75	614.67	614.86	615.05	614.86	614.67
614.45	614.64	614.83	614.64	614.45	153+00	614.45	614.64	614.83	614.64	614.45

FULL SUPER
TRANSITION
RUN-OFF
NORMAL SECTION

FULL SUPER
TRANSITION
RUN-OFF
NORMAL SECTION

R-14

SEEDING & SODDING WIDTH LIN. FT.	SEEDING & SODDING AREA SQ. YDS.	SEEDING & SODDING WIDTH LIN. FT.	SEEDING & SODDING AREA SQ. YDS.	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
CLEVELAND		BRATENAHL		BRATENAHL			
		97		296	0		
			1000			1115	0
		83		306	0		
			922			1050	0
		83		261	0		
			928			894	0
		84		222	0		
			861			726	0
		71		170	0		
			628			526	0
		42		114	0		
			233			285	0
		0		40	0		
						141	0
				44	0		
						167	0
				46	0		
						152	0
				40	0		

EXCAVATION	9475 CU YDS
EMBANKMENT	48 CU YDS
EMBANKMENT + 22%	59 CU YDS

EXCAVATION	3709 CU YDS
EMBANKMENT	00 CU YDS
EMBANKMENT + 22%	CU YDS

CUY-90-23.50

SHEET	SHEETS	PROJECT	YEAR
2	GRAPH	I-329-(12)	1958

69
149

CUYAHOGA COUNTY

CUY-2-22.97

NORTH 220 200 180 160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180 200 220 SOUTH

STA. 126+00 — 600.07 — C-96, C-32, C-168
STA. 125+00 — 600.47 — F.L. EL. 600.70 — C-58, C-42, C-206; C-22, C-31, C-208
STA. 124+00 — 600.87 — F.L. EL. 601.03 — C-16, C-42, C-164
STA. 123+00 — 601.27 — C-38, C-132
STA. 122+00 — 601.67 — C-46, C-68; F.L. EL. = 598.14
STA. 121+00 — 602.07 — C-40
STA. 120+00 — 602.47 — C-44
STA. 119+00 — 602.87 — C-46
STA. 118+00 — 603.27 — C-40

DITCH F.L. EL. STA 122+10 = 597.30

NOTE:
THE BRATENAHL EARTHWORK TABLE IS ON LEFT SIDE OF SHEET

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

BEGIN WORK STA. 117+04.19

603.65 ℄

X-SECTIONS STA. 117+04.19 TO STA. 126+00

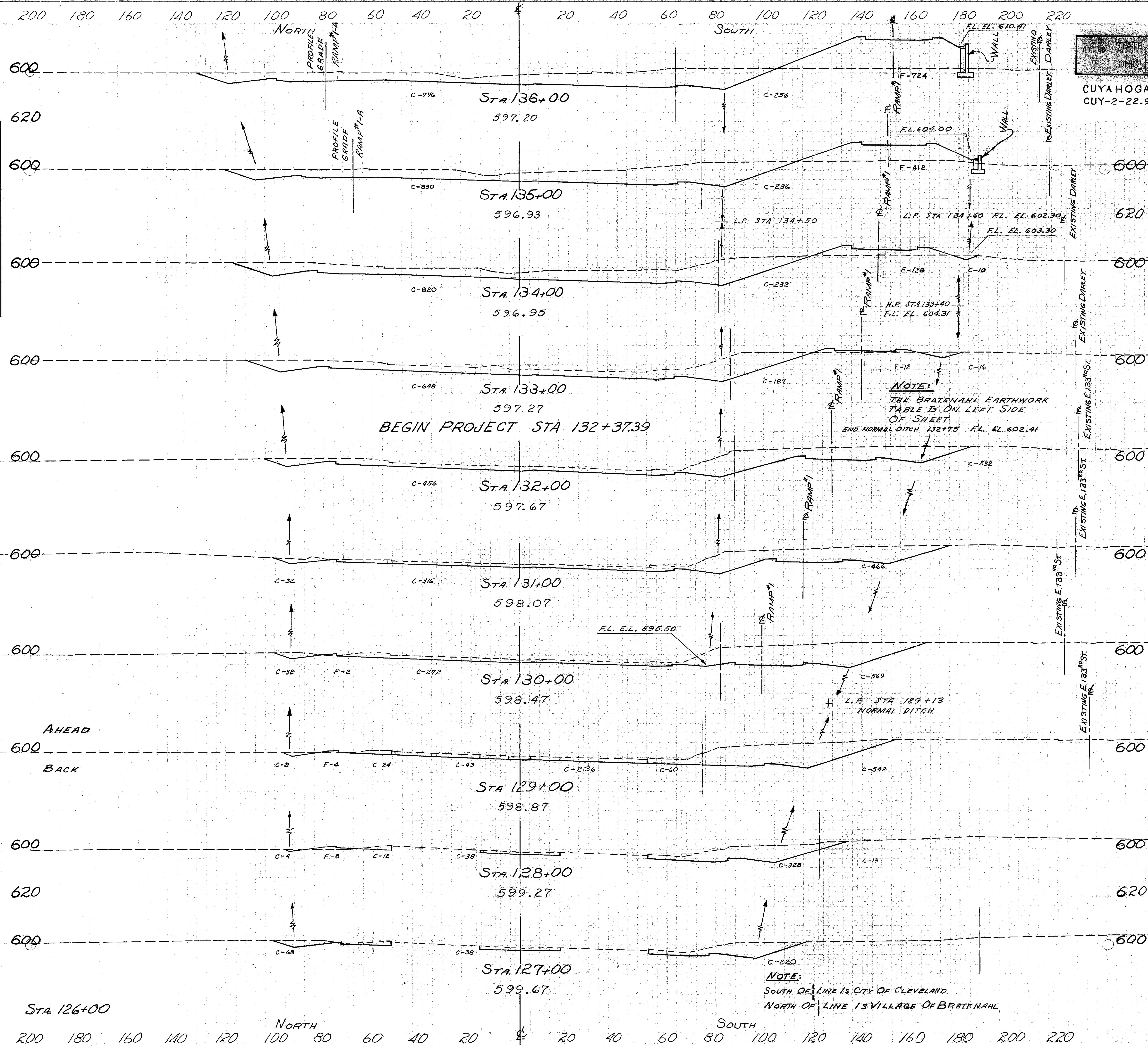
STATE	PROJECT	FISCAL YEAR	SHEET
OHIO	I-329-(12)	1958	70 / 149

CUYAHOGA COUNTY
CUY-2-22.97

Bratenahl

Station	Seeding & Sodding (Cleveland) Width Lin. Ft.	Seeding & Sodding (Cleveland) Area Sq. Yds.	Seeding & Sodding (Bratenahl) Width Lin. Ft.	Seeding & Sodding (Bratenahl) Area Sq. Yds.	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
136+00	94		42		796	0		
		1017		528			3011	0
135+00	89		53		830	0		
		989		639			3056	0
134+00	89		62		820	0		
		989		706			2719	0
133+00	89		65		648	0		
		972		739			2044	0
132+00	86		68		456	0		
		972		739			1489	0
131+00	89		65		348	0		
		983		672			1207	4
130+00	88		56		304	2		
		894		500			1015	11
129+00 Ahead	73		34		244	4		
129+00 Back	73		43		126	4		
		506		639			941	22
128+00	18		72		382	8		
		100		878			1311	15
127+00	0		86		326	0		
				1017			1152	0
126+00			97		296	0		

Excavation 19986 CU. YDS.
Embankment 3414 CU. YDS.
Embankment +22% 4165 CU. YDS.



Cleveland

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
256	724		
		911	2104
236	412		
		885	1000
242	128		
		824	259
203	12		
		1361	22
532	0		
		1848	0
466	0		
		1917	0
569	0		
		2057	0
542	0		
		1028	0
13	0		
		24	0
0	0		

Excavation 11813 CU. YDS.
Embankment 18777 CU. YDS.
Embankment +22% 22908 CU. YDS.

X-SECTIONS STA. 127+00 TO STA. 136+00

SEEDING & SODDING	
WIDTH	AREA
LIN. FT.	SQ. YDS.
CLEVELAND	
119	
	1211
99	
	1083
96	
	717
33	
	872
124	
	1411
130	
	1433
128	
	1233
94	

SEEDING & SODDING		END AREA		CU. YDS.	
WIDTH	AREA	CUT	FILL	CUT	FILL
LIN. FT.	SQ. YDS.				
BRATENAHL		BRATENAHL			
4		0	40		
	250			15	1533
41		8	788		
	839			639	1607
110		337	80		
	1100			1465	207
88		454	32		
	817			1854	61
59		547	1		
	561			2487	2
42		796	0		

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
CLEVELAND			
66	881		
		237	2365
62	396		
		233	1804
64	578		
		474	1070
192	0		
		767	1985
222	1072		
		974	5033
304	1646		
		1207	5041
348	1076		
		1119	3333
256	724		

FED. AID PROJ. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329-(12)	1958

71
149

CUYAHOGA COUNTY
CUY-2-22.97

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180 200 220
NORTH — SOUTH

620
600
F.L. EL. 597.36
C-50
F-880
EXISTING CHAUTAUQUA AVE.
RAMP #2
H.P. STA 143+70
NORMAL DITCH
EXISTING DIANA AVE.
STA. 143+00
607.07

SEE SHEET Nº 72 MATCH LINE PT.
F.L. EL. 596.84
EXISTING CHAUTAUQUA AVE.
C-20
F-396
C-26
C-16
STA. 142+00
605.07

L.P. STA. 141+45
F.L. EL. 596.55
MATCH LINE PT.
CORP. LINE
EXISTING E. 138TH ST.
F.L. EL. 599.18
F-40
F-252
F-326
C-64
STA. 141+00
603.08

SEE SHEET Nº 72 MATCH LINE PT.
WALL
CORP. LINE
F.L. EL. 597.41
F-738
F-50
C-8
C-192
L.P. STA 139+75
F.L. EL. 596.87
STA 140+00
CORPORATION LINE AT STA. 139+96.60
601.30

NOTE:
BRATENAHL EARTHWORK TABLE
IS ON THE LEFT SIDE OF SHEET

H.P. STA. 139+50
F.L. EL. 597.78
WALL
F-1072
F.L. EL. 599.15
C-16
F.L. EL. 595.28
C-160
F-80
C-157
C-206
MATCH LINE PT.
STA. 139+00
599.83

L.P. STA. 138+65
F.L. EL. 594.83
RAMP "A" PROFILE GRADE
RAMP #1
F.L. EL. 599.60
C-32
F.L. EL. 595.76
WALL
F-1646
C-209
F-32
C-250
C-272
STA. 138+00
598.65

RAMP "A" PROFILE GRADE
RAMP #1
F.L. EL. 600.10
C-16
C-184
F-1
C-343
C-332
F-1076
STA. 137+00
597.78

NOTE:
SOUTH OF ℄ LINE IS CITY OF CLEVELAND
NORTH OF ℄ LINE IS VILLAGE OF BRATENAHL

STA. 136+00 — STA. 136+00

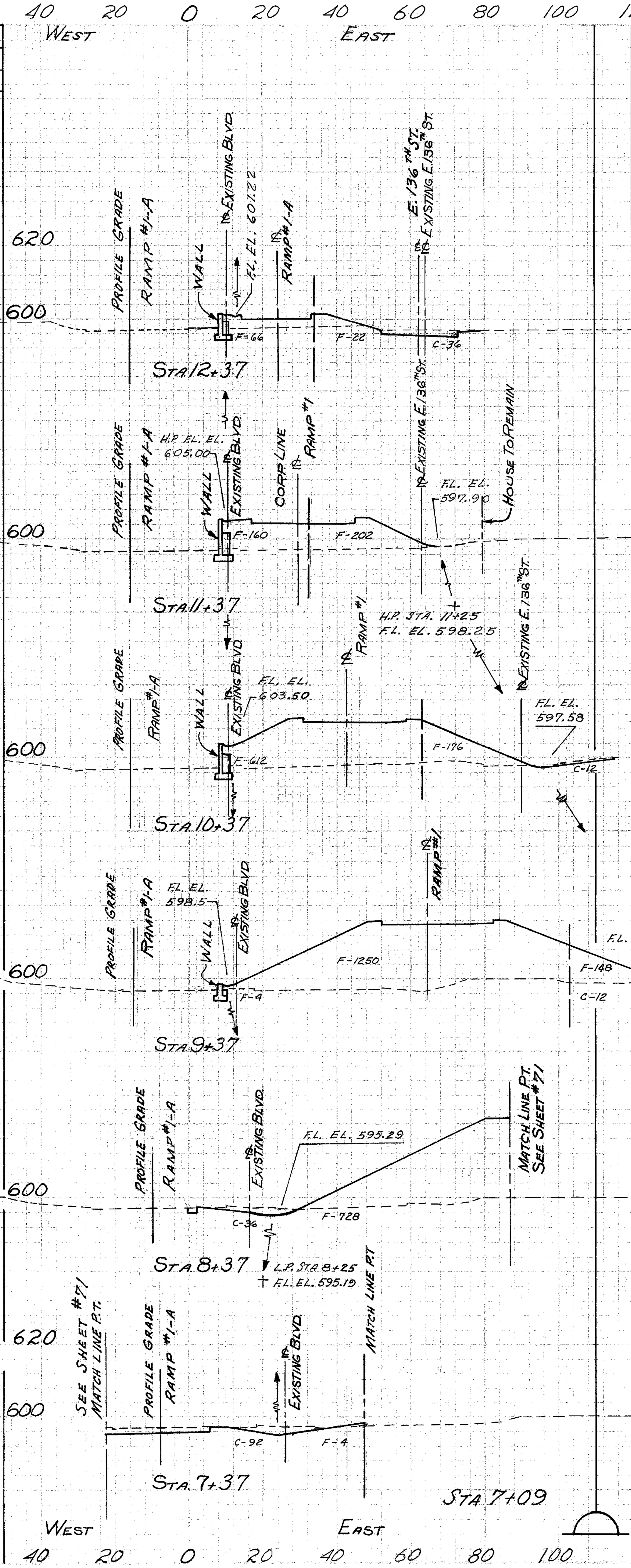
300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180 200 220
NORTH — SOUTH

X-SECTIONS STA 137+00 TO STA 143+00

CUYAHOGA COUNTY
CUY-2-22.97

Station	Cleveland Seeding & Sodding Width Lin. Ft.	Cleveland Seeding & Sodding Area Sq. Yds.	Bratenahl Seeding & Sodding Width Lin. Ft.	Bratenahl Seeding & Sodding Area Sq. Yds.	Bratenahl End Area Cut	Bratenahl End Area Fill	Bratenahl Cu. Yds. Cut	Bratenahl Cu. Yds. Fill	Cleveland End Area Cut	Cleveland End Area Fill	Cleveland Cu. Yds. Cut	Cleveland Cu. Yds. Fill
Sta. 12+37	27		13		0	66			36	22		
		344		161			0	430			67	389
Sta. 11+37	35		16		0	166			0	188		
		500		278			0	1441			22	674
Sta. 10+37	55		34		0	612			12	176		
		550		589			0	3448			44	600
Sta. 9+37	44		72		0	1250			12	148		
		244		872			67	3663			22	274
Sta. 8+37	0		85		36	728			0	0		
				678			237	1356				
Sta. 7+37			37		92	4						
							48	2				
Sta. 7+09					0	0						

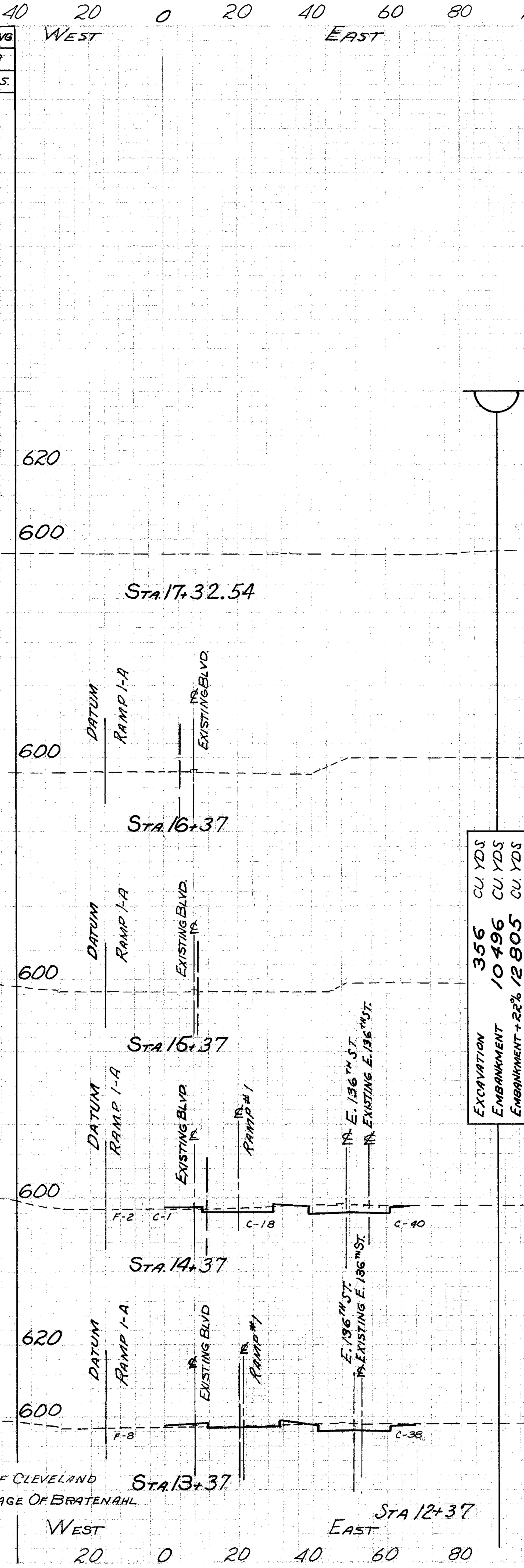
TOTAL SEEDING BRATENAHL 18,169 Sq. Yds.



Station	Cleveland Seeding & Sodding Width Lin. Ft.	Cleveland Seeding & Sodding Area Sq. Yds.	Bratenahl Seeding & Sodding Width Lin. Ft.	Bratenahl Seeding & Sodding Area Sq. Yds.	Bratenahl End Area Cut	Bratenahl End Area Fill	Bratenahl Cu. Yds. Cut	Bratenahl Cu. Yds. Fill	Cleveland End Area Cut	Cleveland End Area Fill	Cleveland Cu. Yds. Cut	Cleveland Cu. Yds. Fill
Sta. 17+32.54					0	0			0	0		
							0	0			0	0
Sta. 16+37					0	0			0	0		
							0	0			0	0
Sta. 15+37	0		0		0	0			0	0		
		50		78			2	4			107	0
Sta. 14+37	9		14		1	2			58	0		
		111		161			2	19			178	0
Sta. 13+37	11		15		0	8			38	0		
							0	133			137	41
Sta. 12+37	27	211	13	156	0	64			36	22		

Bratenahl: Excavation 356 Cu. Yds.; Embankment 10496 Cu. Yds.; Embankment + 22% 12805 Cu. Yds.

Cleveland: Excavation 577 Cu. Yds.; Embankment 1978 Cu. Yds.; Embankment + 22% 2413 Cu. Yds.



NOTE:
East of Line is City of Cleveland
West of Line is Village of Bratenahl

RAMP #1-A X-SECTIONS STA. 7+37 TO STA. 17+32.54

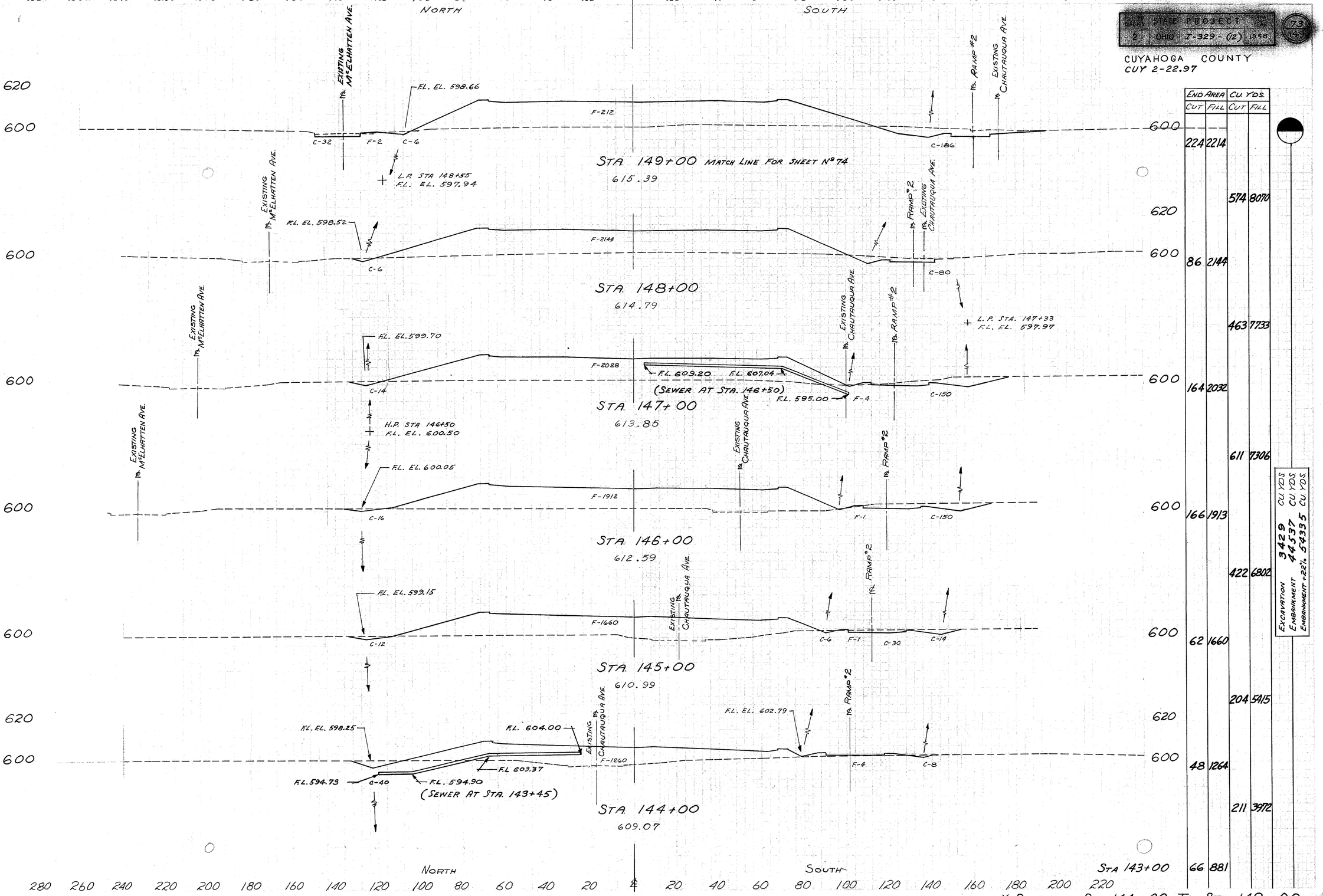
SEEDING & SODDING	
WIDTH	AREA
LIN. FT.	SQ. YDS.
175	1800
149	1639
146	1661
153	1761
164	1872
173	1622
119	

SHEET NO.	STATE	PROJECT	TOTAL SHEETS
2	OHIO	I-329-(12)	1958

CUYAHOGA COUNTY
CUY 2-22.97

END AREA		CU YDS.	
CUT	FILL	CUT	FILL
224	2214		
		574	8070
86	2144		
		463	7733
164	2032		
		611	7306
166	1913		
		422	6802
62	1660		
		204	5415
48	1264		
		211	3972
66	881		

EXCAVATION	34291	CU. YDS.
EMBANKMENT	44537	CU. YDS.
EMBANKMENT +22%	54335	CU. YDS.



X-SECTIONS STA 144+00 TO STA 149+00

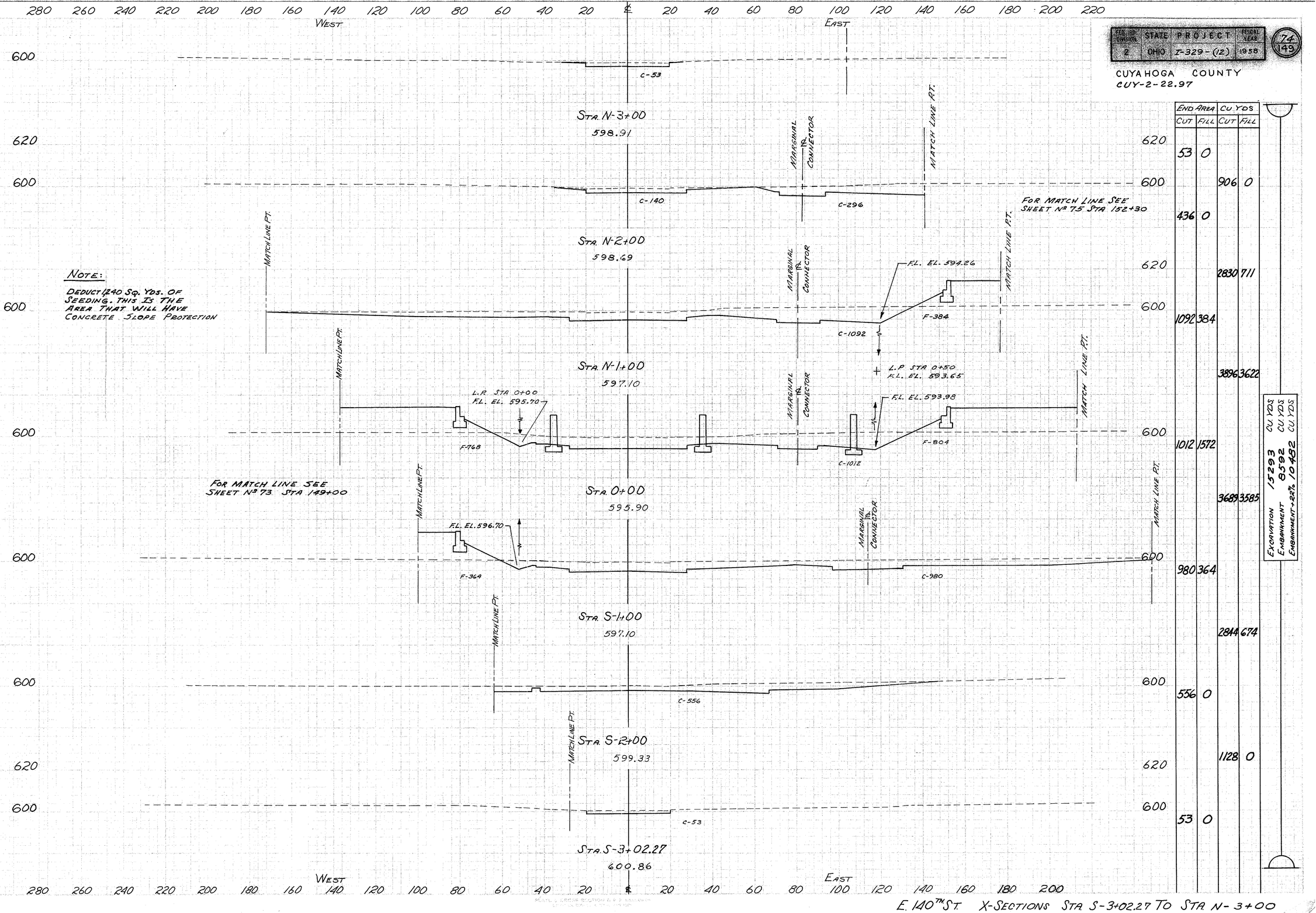
FED. ROAD DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329-(12)	1958

74
149

CUYAHOGA COUNTY
CUY-2-22.97

SEEDING & SODDING	
WIDTH LIN. FT.	AREA SQ. YDS
20	
	639
95	
	1122
107	
	1383
142	
	2028
223	
	1711
85	
	540
10	

NOTE:
DEDUCT 1240 SQ. YDS. OF SEEDING. THIS IS THE AREA THAT WILL HAVE CONCRETE SLOPE PROTECTION



END AREA CUT	END AREA FILL	CU YDS CUT	CU YDS FILL
53	0		
		906	0
436	0		
		2830	711
1092	384		
		3896	3622
1012	1572		
		3689	3585
980	364		
		2844	674
556	0		
		1128	0
53	0		

EXCAVATION	15293 CU YDS
EMBANKMENT	8592 CU YDS
EMBANKMENT-22%	10482 CU YDS

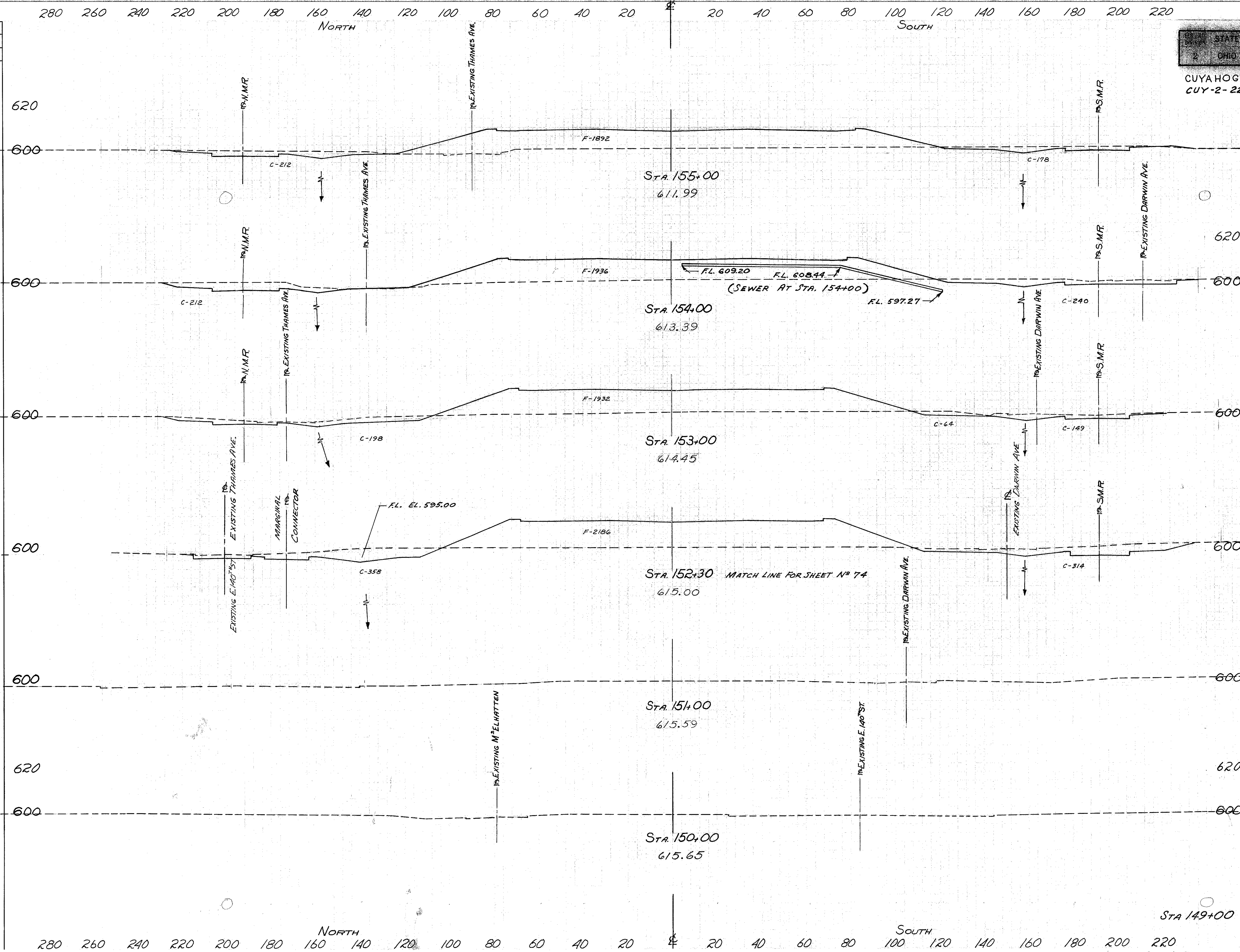
E. 140TH ST. X-SECTIONS STA S-3+02.27 TO STA N-3+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329-(12)	1958

75/149

CUYAHOGA COUNTY
CUY-2-22.97

Seeding & Sodding Width Lin. Ft.	Area Sq. Yds.
237	
	2578
227	
	2794
276	
	2049
251	



North
South
Sta. 155+00
611.99
F-1892
C-212
C-178
Sta. 154+00
613.39
F-1936
C-212
C-240
F.L. 609.20
F.L. 608.44
F.L. 597.27
(Sewer at Sta. 154+00)
Sta. 153+00
614.45
F-1932
C-198
C-64
C-149
Sta. 152+30
615.00
Match Line for Sheet Nº 74
F-2186
C-358
C-314
F.L. El. 595.00
Sta. 151+00
615.59
Sta. 150+00
615.65
N.M.R.
S.M.R.
Existing Thames Ave.
Existing Darwin Ave.
Existing E.140th St.
Marginal Connector
Existing McElhatten

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
390	1892		
842		1559	7089
452	1936		
		1598	7163
411	1932		
		1406	5338
672	2186		
230	2202		

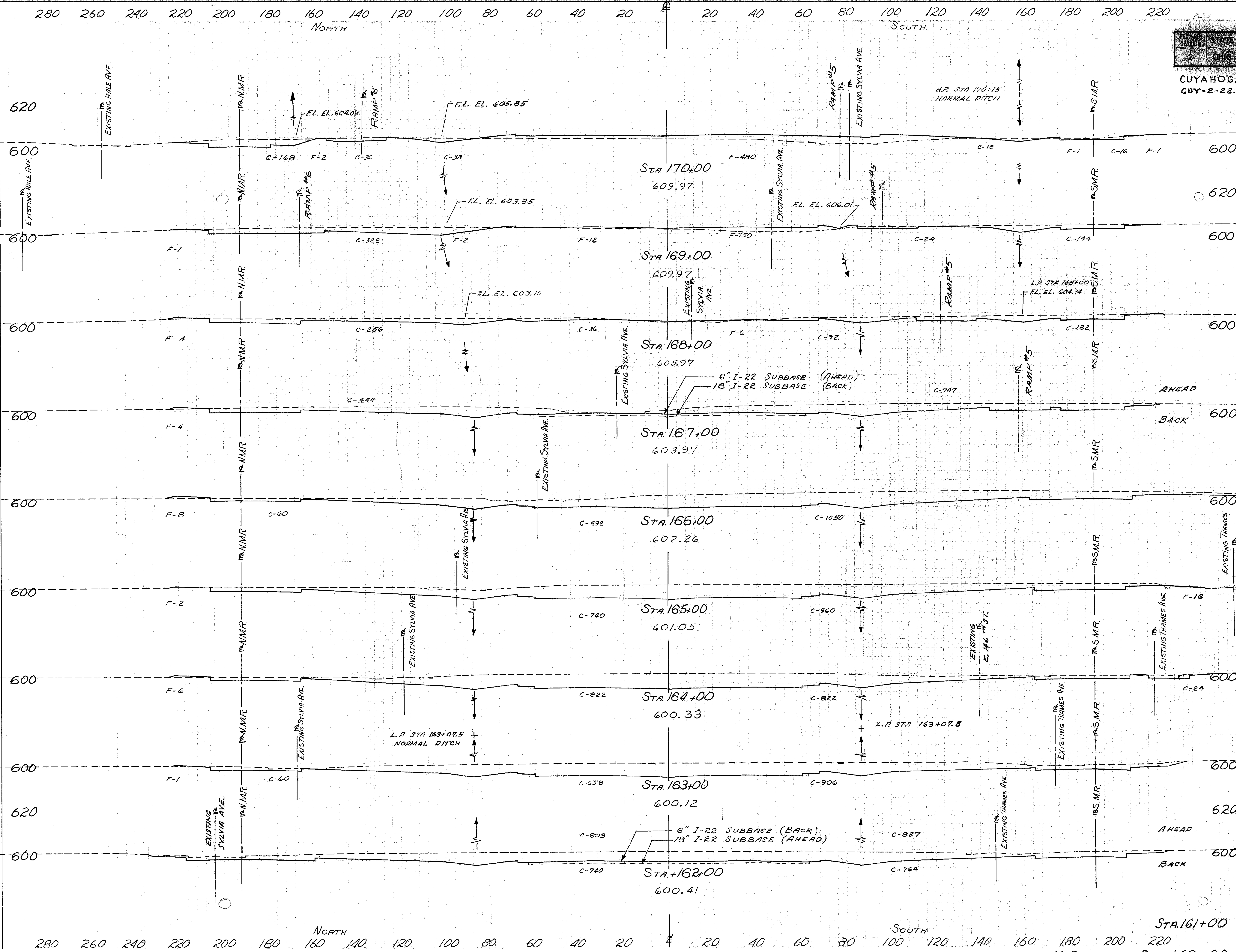
Sta 149+00

X-Sections Sta. 150+00 To Sta. 155+00

STATE OHIO
PROJECT I-329-(12)
1958
76
149
CUYAHOGA COUNTY
CUY-2-22.97
SEEDING & SODDING
WIDTH LIN. FT.
AREA SQ. YDS.
END AREA
CUT FILL
CU. YDS
CUT FILL
NORTH
SOUTH
STA. 161+00
601.20
STA. 160+00
602.48
STA. 159+00
604.27
STA. 158+00
606.27
STA. 157+00
608.27
STA. 156+00
610.25
STA. 155+00
EXISTING SYLVIA AVE.
EXISTING THAMES AVE.
N.M.R.
S.M.R.
RAMP #4
RAMP #3
F.L. EL. 600.40
L.R. STA 160+35
F.L. EL. 599.38
CIRCULAR 9'-0" BRICK SEWER
F.L. EL. 603.58
H.R. STA 157+72.7
NORMAL DITCH
F.L. EL 607.36
232
2544
226
2439
213
2428
224
2500
226
2589
240
2650
237
996 4
2726 48
476 12
1337 585
246 304
896 1685
238 606
896 3370
246 1214
1326 5100
470 1540
1593 6356
390 1892
EXCAVATION 10611 CU. YDS.
EMBANKMENT 36686 CU. YDS.
EMBANKMENT +22% 44757 CU. YDS.
X-SECTIONS STA. 156+00 TO STA. 161+00

CUYAHOGA COUNTY
CUY-2-22.97

Seeding & Sodding Width Lin. Ft.	Area Sq. Yds.
206	
	2489
242	
	2611
228	
	2528
227	
	2800
277	
	2894
244	
	2628
229	
	2589
237	
	2556
223	
	2528
232	



NORTH
SOUTH
STA. 170+00
609.97
STA. 169+00
609.97
STA. 168+00
605.97
STA. 167+00
603.97
STA. 166+00
602.26
STA. 165+00
601.05
STA. 164+00
600.33
STA. 163+00
600.12
STA. 162+00
600.41
STA. 161+00
F.L. EL. 604.09
F.L. EL. 605.85
F.L. EL. 603.85
F.L. EL. 606.01
F.L. EL. 603.10
L.P. STA 168+00
F.L. EL. 604.14
H.P. STA 170+15
NORMAL DITCH
L.P. STA 163+07.5
NORMAL DITCH
6" I-22 SUBBASE (AHEAD)
18" I-22 SUBBASE (BACK)
6" I-22 SUBBASE (BACK)
18" I-22 SUBBASE (AHEAD)
AHEAD
BACK
EXISTING HALE AVE.
EXISTING SYLVIA AVE.
EXISTING THAMES AVE.
EXISTING E. 146TH ST.
RAMP #5
RAMP #6
N.M.R.
S.M.R.

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill	Faint notes
276	484			
		1419	1202	
490	165			
		1956	324	
566	10			
		3254	26	
1191	4			
1317	4			
		5406	22	
1602	8			
		6115	48	3302 26
1700	18			
		6237	44	3368 24
1668	6			
		6096	13	
1624	1			
		6026	2	
1630	0			
1504	0			
		4667	26	
1016	14			

Excavation 43,902 Cu. Yds.
Embankment 1755 Cu. Yds.
Embankment +22% 2141 Cu. Yds.

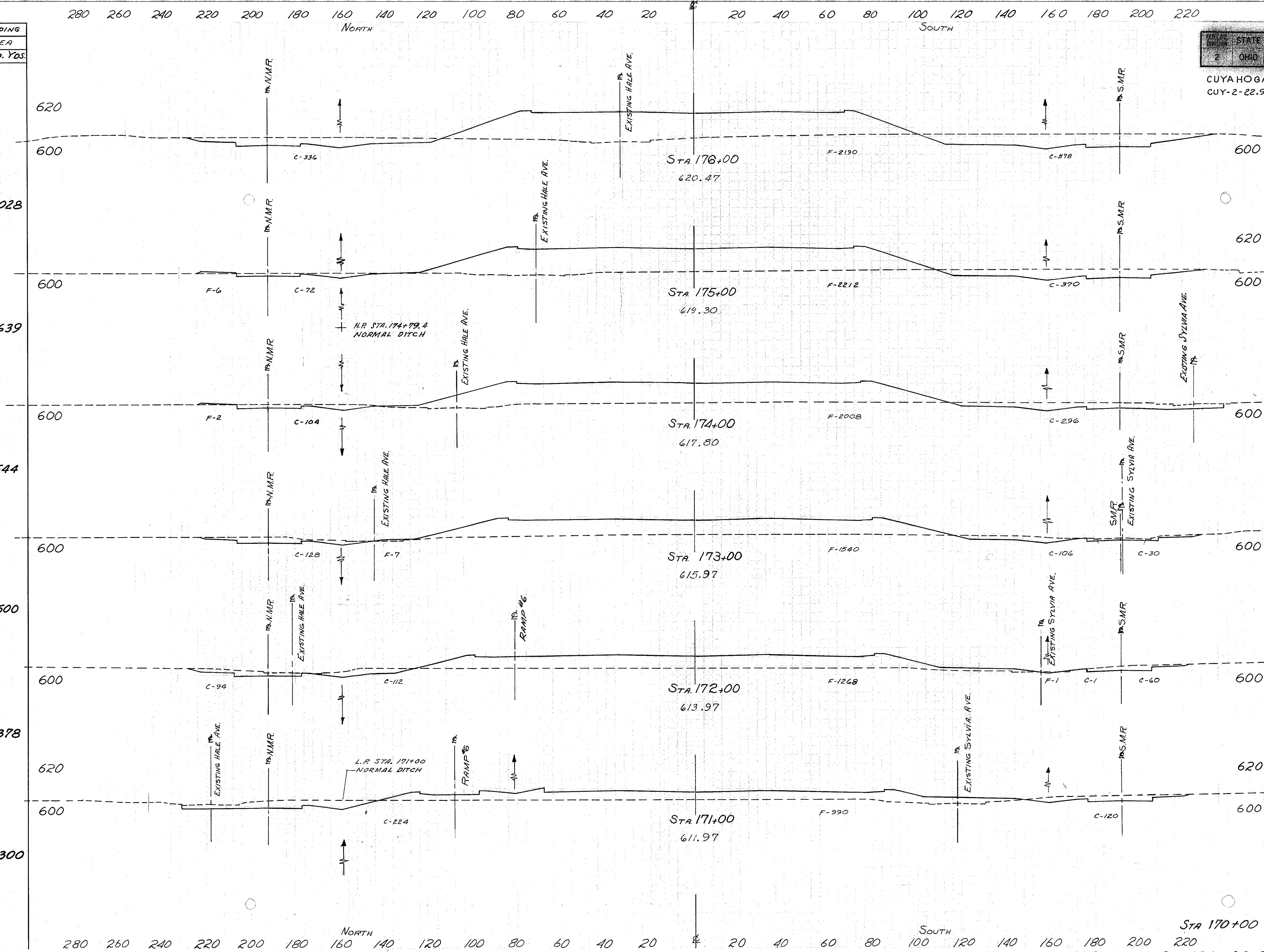
X-SECTIONS STA. 162+00 TO STA. 170+00

Fed. Rd. Division	State	Project	Fiscal Year	Sheet
2	Ohio	I-329-(12)	1958	78 / 149

CUYAHOGA COUNTY
CUY-2-22.97

Seeding & Sodding

Width Lin. Ft.	Area Sq. Yds.
298	
	3028
247	
	2639
228	
	2544
230	
	2500
220	
	2378
208	
	2300
206	



Earthwork

Station	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Sta. 176+00	914	2190		
			2511	8163
Sta. 175+00	442	2218		
			1559	7859
Sta. 174+00	400	2010		
			1230	6587
Sta. 173+00	264	1547		
			983	5215
Sta. 172+00	267	1269		
			1131	4183
Sta. 171+00	344	990		
			1148	2730
Sta. 170+00	276	484		

Excavation	17418	Cu. Yds.
Embankment	47233	Cu. Yds.
Embankment + 22%	57624	Cu. Yds.

X-Sections Sta. 171+00 to Sta. 176+00

SEED. NO. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	F-329-(12)	1958

79
49

CUYAHOGA COUNTY
CUY-2-22.97

SEEDING & SODDING	
WIDTH LIN. FT.	AREA SQ. YDS.
10	23
10	400
62	922
104	1444
156	1778
164	1694
141	1672
160	1578
124	1228
97	312
10	

NOTE:
Deduct 1532 Sq. Yds. Of Seeding. This Is The Area That Will Have Concrete Slope Protection

FOR MATCH LINE SEE SHEET Nº 80

FOR MATCH LINE SEE SHEET Nº 80

	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
620	43	0	36	0
	51	0	409	0
600	170	0		
			830	0
600	278	0		
			1463	0
600	512	0		
			2489	467
600	832	252		
			3541	1237
600	1080	416		
			3756	900
600	948	70		
			3170	270
600	764	76		
620			2111	141
600	376	0		
620			424	0
600	60	0		

EXCAVATION 18229 CU.YDS.
EMBANKMENT 3015 CU.YDS.
EMBANKMENT+22% 3678 CU.YDS.

E. 152ND ST. X-SECTIONS STA S-3+52.50 TO STA N-5+20.80

SEEDING & SODDING	
WIDTH	AREA
LIN. FT.	SQ. YDS.
263	3183
310	2561
151	1011
31	944
139	1622
153	2506
298	

FED. AID. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329-(12)	1958

80
149

CUYAHOGA COUNTY
CUY-2-22.97

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
136	2528		
		822	8852
308	2252		
		2030	6048
788	1014		
		2456	2011
538	72		
		1881	141
478	4		
		1856	3148
524	1696		
		2663	7196
914	2190		

NORTH — SOUTH

280 260 240 220 200 180 160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180 200 220

620 / 600

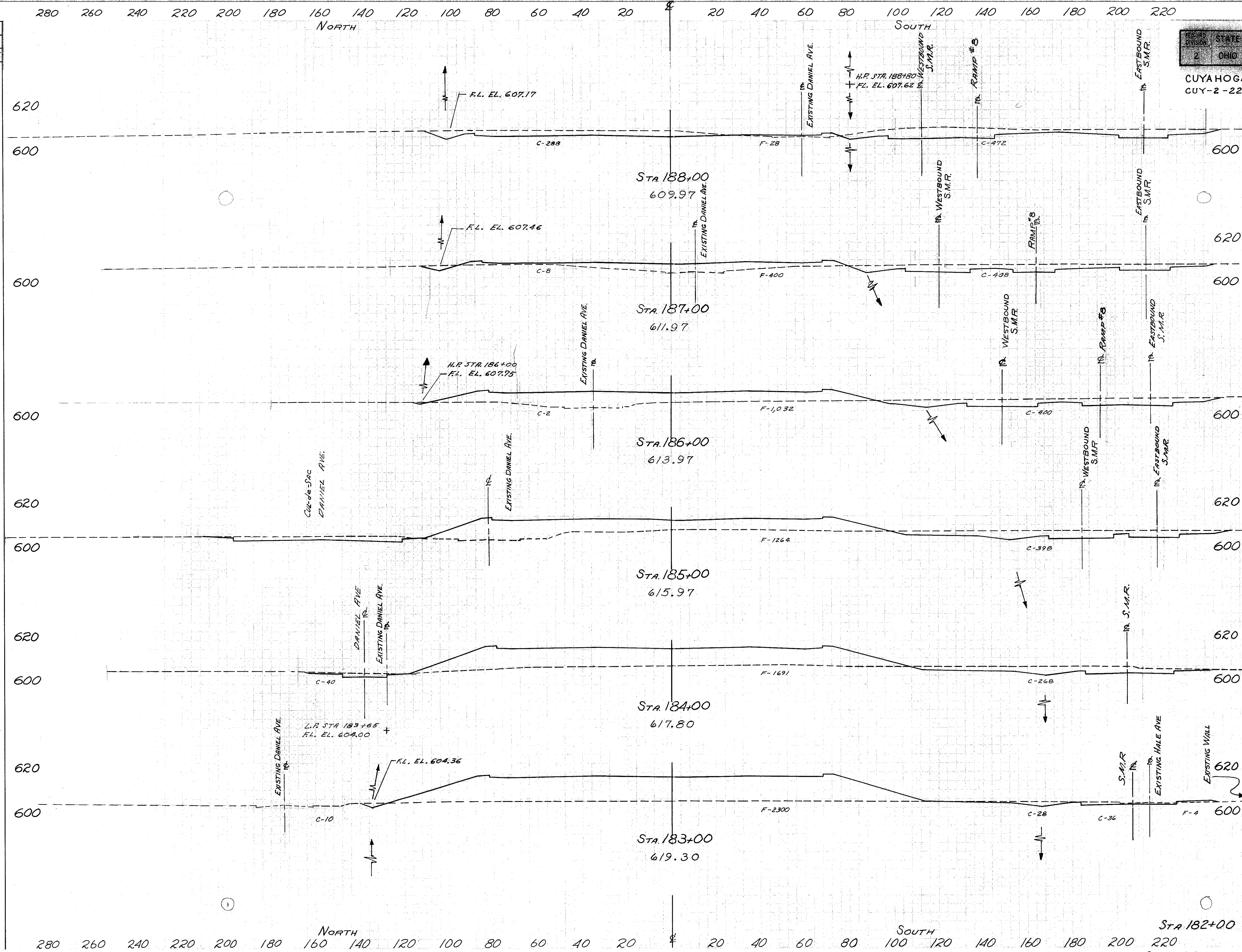
EXISTING DANIEL AVE.
F.L. EL. 604.93
C-8
F-2328
STA 182+00
620.47
EXISTING HALE AVE.
S.M.R.
C-128
H.P. STA 181+50
F.L. EL. 605.18
F.L. EL. 604.10
C-20
F-2252
STA. 181+00
621.30
C-12
C-276
EXISTING E. 152ND ST.
WESTROPP AVE
C-360
EXISTING WESTROPP
F-72
C
MATCH LINE PT.
F-1014
STA. 180+00
621.80
C-788
L.P. STA. 179+40
F.L. EL. 602.11
STA. 179+00
621.97
C-178
FOR MATCH LINE SEE SHEET No. 79
B
C-384
N.M.R.
C-84
F-4
C-10
STA. 178+00
621.80
EXISTING HALE AVE.
A
F-1696
C-464
STA. 177+00
621.30
C-10
C-50
EXISTING
STA. 176+00

X-SECTIONS STA. 177+00 TO STA. 182+00

DIVISION	STATE	PROJECT	SHEET
2	OHIO	I-329-(12)	81/149

CUYAHOGA COUNTY
CUY-2-22.97

Seeding & Sodding Width Lin. Ft.	Seeding & Sodding Area Sq. Yds.
151	
	1717
158	
	1772
161	
	1900
181	
	2161
208	
	2328
211	
	2633
263	



North
South
F.L. EL. 607.17
H.P. STA. 188+80
F.L. EL. 607.62
Existing Daniel Ave.
Westbound S.M.R.
Ramp #8
Eastbound S.M.R.
C-288
F-28
C-472
Sta. 188+00
609.97
F.L. EL. 607.46
C-8
F-400
C-408
Sta. 187+00
611.97
H.P. STA. 186+00
F.L. EL. 607.75
C-2
F-1,032
C-400
Sta. 186+00
613.97
Cul-de-Sac Daniel Ave.
F-1264
C-398
Sta. 185+00
615.97
Daniel Ave.
S.M.R.
C-40
F-1691
C-268
Sta. 184+00
617.80
L.P. STA. 183+65
F.L. EL. 604.00
F.L. EL. 604.36
Existing Hale Ave.
Existing Wall
C-10
F-2300
C-28
C-36
F-4
Sta. 183+00
619.30
Sta. 182+00

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
760	28		
		2178	793
416	400		
		1515	2652
402	1032		
		1793	4119
566	1192		
		1619	5339
308	1691		
		707	7398
74	2304		
		389	8948
136	2528		

Excavation 20387 Cu. Yds.
Embankment 44203 Cu. Yds.
Embankment + 22% 53928 Cu. Yds.

X-Sections Sta. 183+00 To Sta. 188+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329-(12)	1958

82
149

CUYAHOGA COUNTY
CUY-2-22.97

SEEDING & SODDING	
WIDTH LIN. FT.	AREA SQ. YDS.
195	2172
196	2217
203	2389
227	2238
176	1861
159	1722
151	

280 260 240 220 200 180 160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180 200 220

NORTH — SOUTH

620 / 600

INTERCONNECTING R.D. BETWEEN E.151st & E.156th ST.

F.L. EL. 598.13

EXISTING CALCUTTA AVE.

℄ S.M.R.

C-1216 C-1580

STA. 194+00
600.61

F.L. EL. 599.50

RAMP #9

EXISTING CALCUTTA AVE.

℄ S.M.R.

C-1036 C-1548

STA. 193+00
601.39

L.R. STA 192+60
F.L. EL. 599.89

F.L. EL. 602.04

RAMP #9

EXISTING CALCUTTA AVE.

℄ S.M.R.

C-1072 C-1700

STA. 192+00
602.54

RAMP #9

EXISTING CALCUTTA AVE.

℄ WESTBOUND S.M.R.

℄ EASTBOUND S.M.R.

C-1044 C-1492

STA. 191+00
604.08

EXISTING CALCUTTA AVE.

EXISTING E. 156th ST.

F.L. EL. 605.40

RAMP #8

℄ WESTBOUND S.M.R.

℄ EASTBOUND S.M.R.

C-812 C-1096

STA. 190+00
605.97

L.R. STA 189+43
F.L. EL. 605.13

EXISTING CALCUTTA AVE.

RAMP #7

F.L. EL. 607.19

EXISTING E. 156th ST.

RAMP #8

℄ WESTBOUND S.M.R.

℄ EASTBOUND S.M.R.

C-816 C-348

STA. 189+00
607.97

STA 188+00

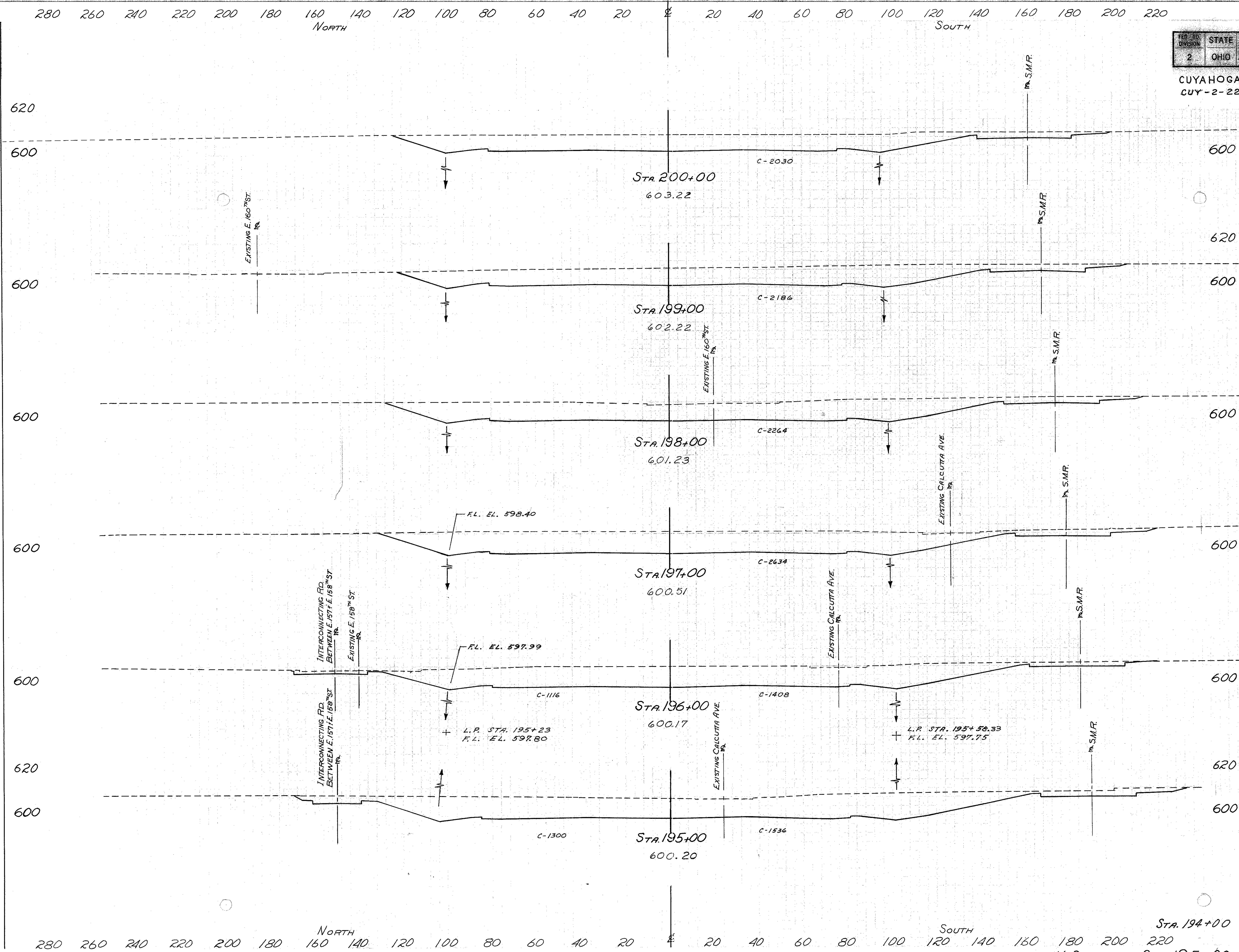
END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
2796	0		
		9963	0
2584	0		
		9919	0
2772	0		
		9830	0
2536	0		
		8230	2
1908	1		
		5730	2
1186	0		
		3604	52
760	28		

X-SECTIONS STA 189+00 TO STA 194+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I-329-(12)	1958	83/149

CUYAHOGA COUNTY
CUY-2-22.97

Seeding & Sodding Width Lin. Ft.	Area Sq. Yds.
154	
	1883
185	
	1956
167	
	1889
173	
	2017
190	
	2028
175	
	2056
195	



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
2030	0		
		7807	0
2186	0		
		8241	0
2264	0		
		9070	0
2634	0		
		9552	0
2524	0		
		9926	0
2836	0		
		10430	0
2796	0		

Excavation 92968 Cu. Yds.
Embankment 2 Cu. Yds.
Embankment + 22% 2 Cu. Yds.

X-Sections Sta. 195+00 To Sta. 200+00

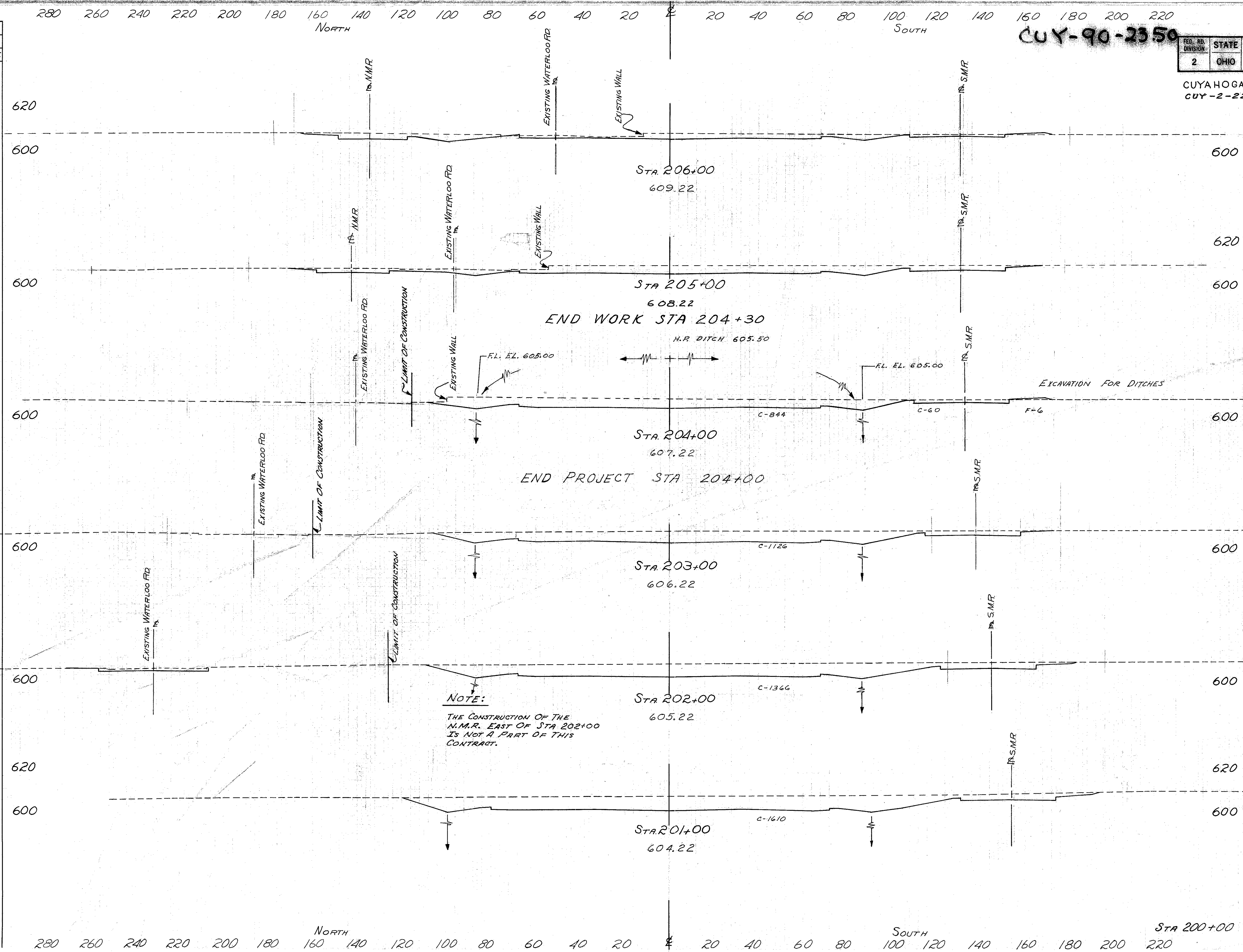
01-Y R-14

CUY-90-2350

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I-329-(12)	1958	84/149

CUYAHOGA COUNTY
CUY-2-22.97

Seeding & Sodding Width Lin. Ft.	Area Sq. Yds.
	Total Seeding - Cleveland 163,042 Sq. Yds.
115	
	1561
166	
	1694
139	
	1567
143	
	1650
154	



North
South
N.M.R.
S.M.R.
Existing Waterloo Rd.
Existing Wall
Limit of Construction
Sta. 206+00
609.22
Sta 205+00
608.22
END WORK STA 204+30
H.P. DITCH 605.50
F.L. EL. 605.00
Excavation For Ditches
C-844
C-60
F-6
Sta. 204+00
607.22
END PROJECT STA 204+00
C-1126
Sta. 203+00
606.22
C-1366
Sta. 202+00
605.22
NOTE:
The Construction Of The N.M.R. East Of Sta 202+00 Is Not A Part Of This Contract.
C-1610
Sta. 201+00
604.22
Sta 200+00

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
		860	0
904	6		
		3759	11
1126	0		
		4615	0
1366	0		
		5511	0
1610	0		
		6741	0
2030	0		

Excavation 21486 Cu. Yds.
Embankment 11 Cu. Yds.
Embankment +22% 13 Cu. Yds.

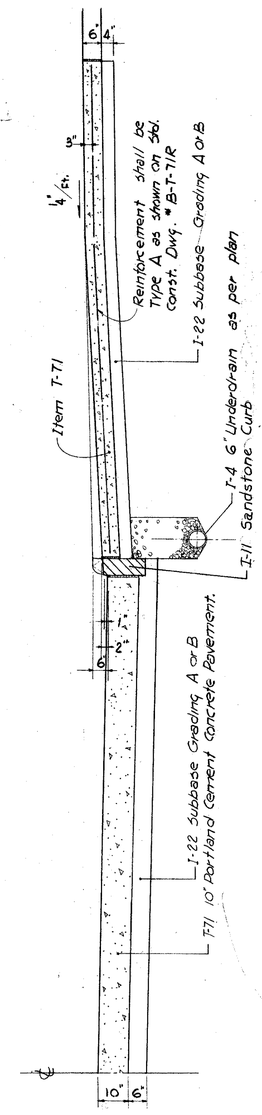
X-Sections Sta. 201+00 To Sta. 204+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-389 (12)	1958

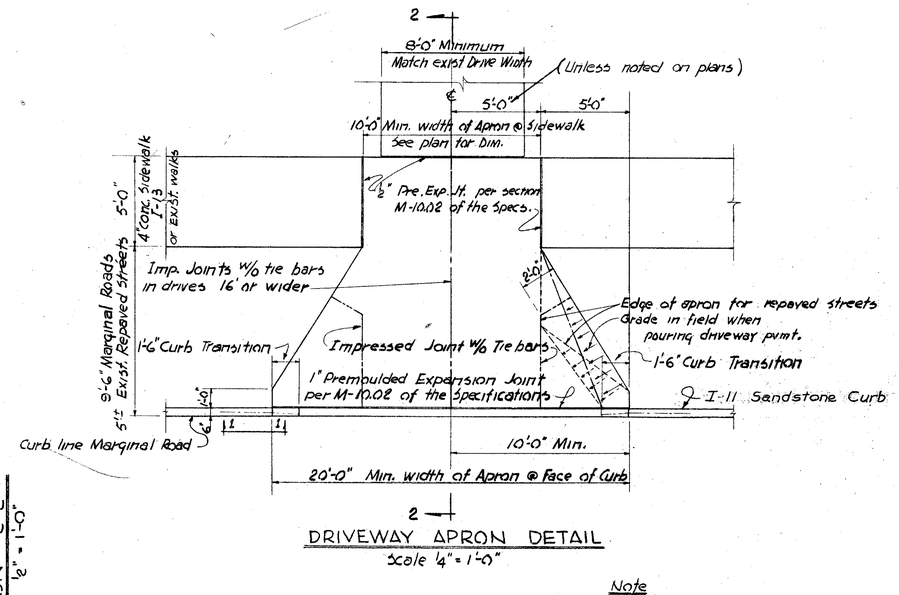
85
149

CUYAHOGA COUNTY
CUY. 2-22.97

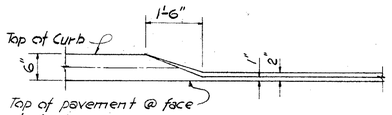
SIDEWALK & DRIVEWAY APRON DETAIL



SECTION 2-2
SCALE 2" = 1'-0"



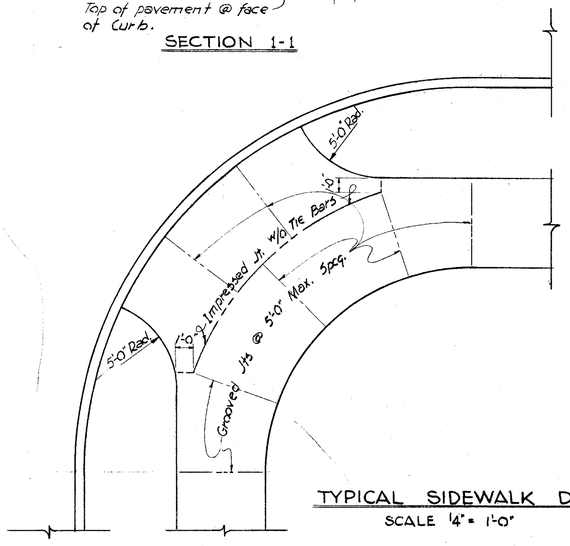
DRIVEWAY APRON DETAIL
Scale ¼" = 1'-0"



SECTION 1-1

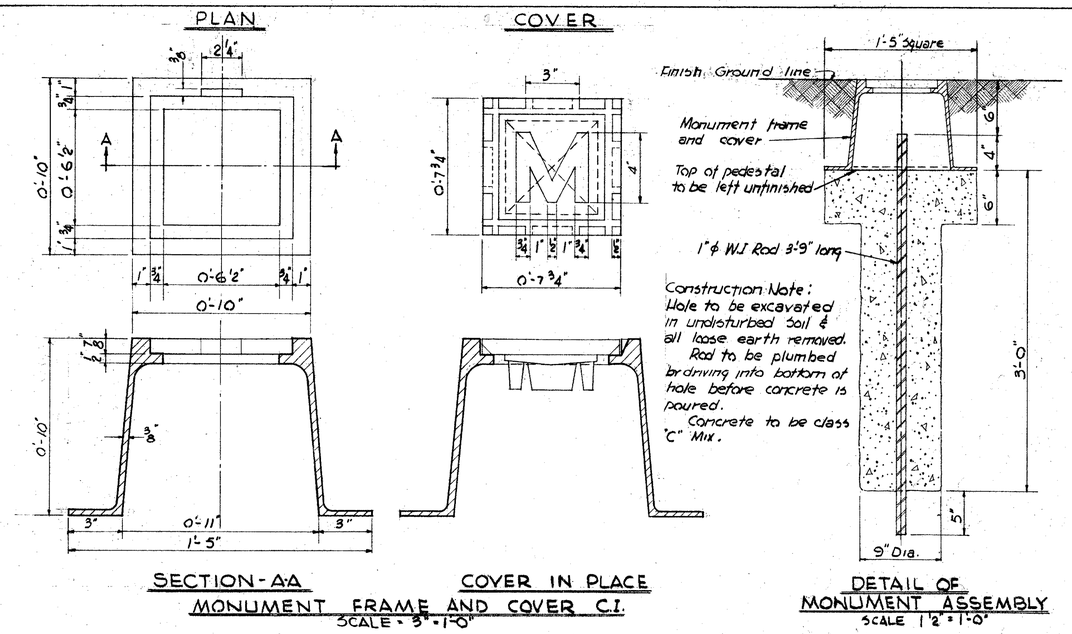
Note
This work including reinforcement & Pre. Exp. Joint, will be paid for at the contract unit price bid per square yard for Item T-71 6" Reinforced Portland Cement Concrete Pavement.

All minimum dimensions of this detail shall apply unless otherwise indicated on the plans



TYPICAL SIDEWALK DETAIL
SCALE ¼" = 1'-0"

MONUMENT BOX TYPE A FOR UNPAVED AREAS

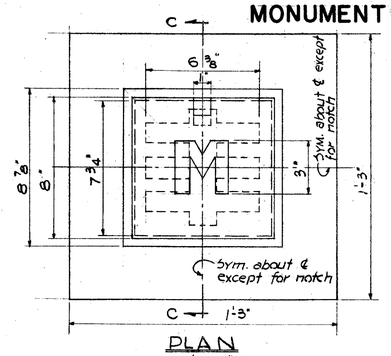


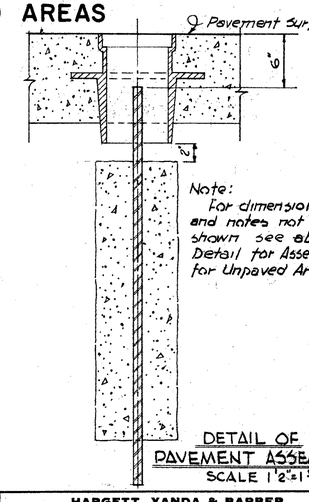
SECTION - A-A
MONUMENT FRAME AND COVER C.I.
SCALE - 3" - 1'-0"

COVER IN PLACE

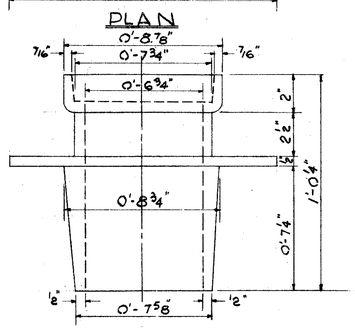
DETAIL OF MONUMENT ASSEMBLY
SCALE 1½" = 1'-0"

MONUMENT BOX TYPE B FOR PAVED AREAS

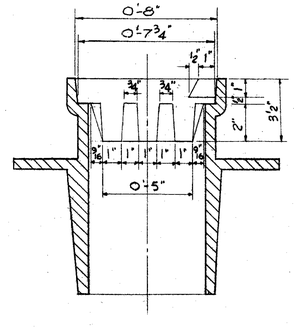




DETAIL OF PAVEMENT ASSEMBLY
SCALE 1½"=1'-0"



ELEVATION SCALE 3"=1'-0"



SECTION C-C

MONUMENT FRAME AND COVER C.I.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

SIDEWALK & DRIVEWAY APRON DETAILS

MONUMENT ASSEMBLIES

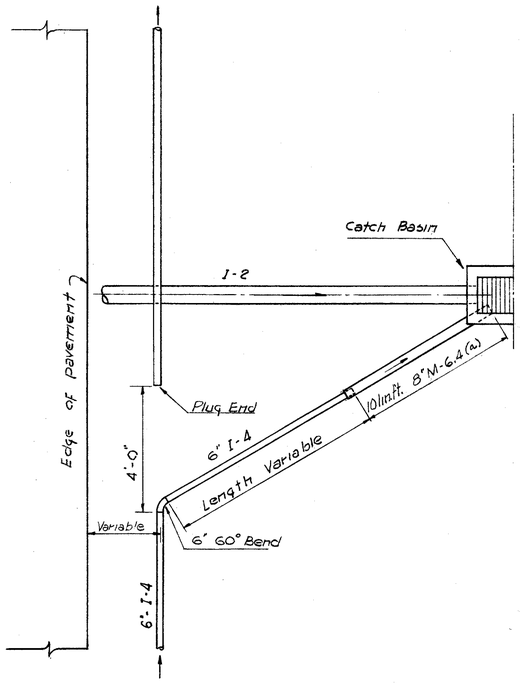
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	Rea					

TYPICAL DETAILS I-4 & I-2

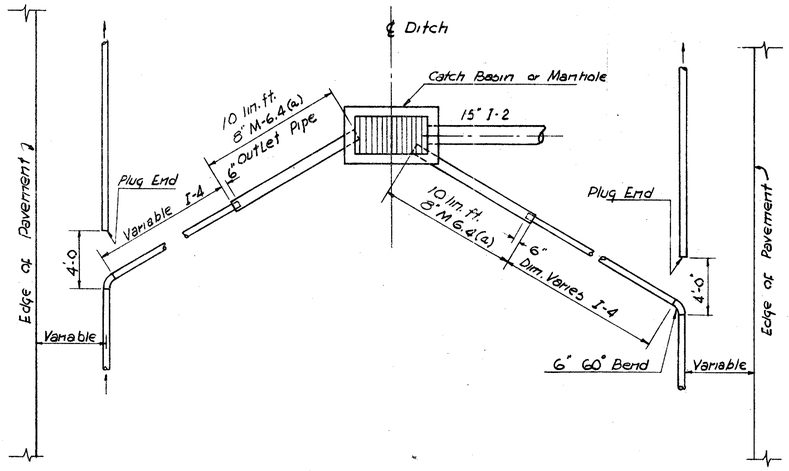
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

86
149

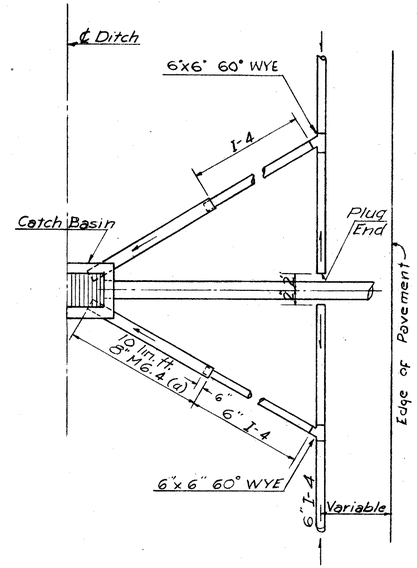
CUYAHOGA COUNTY
CUY 2-22.97



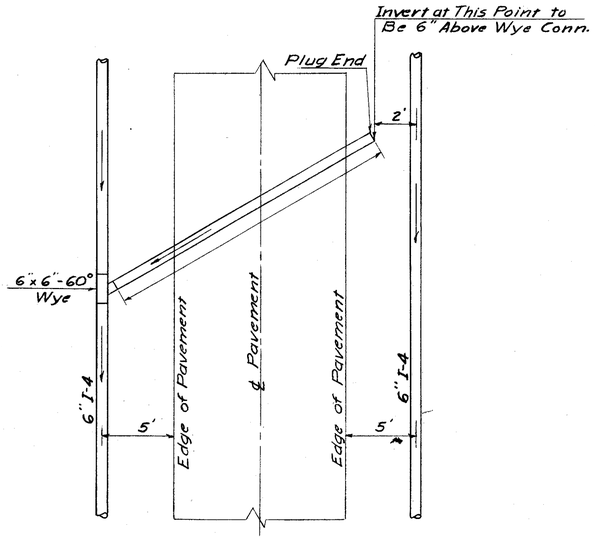
UNDERDRAIN OUTLET DETAIL A



UNDERDRAIN OUTLET DETAIL B



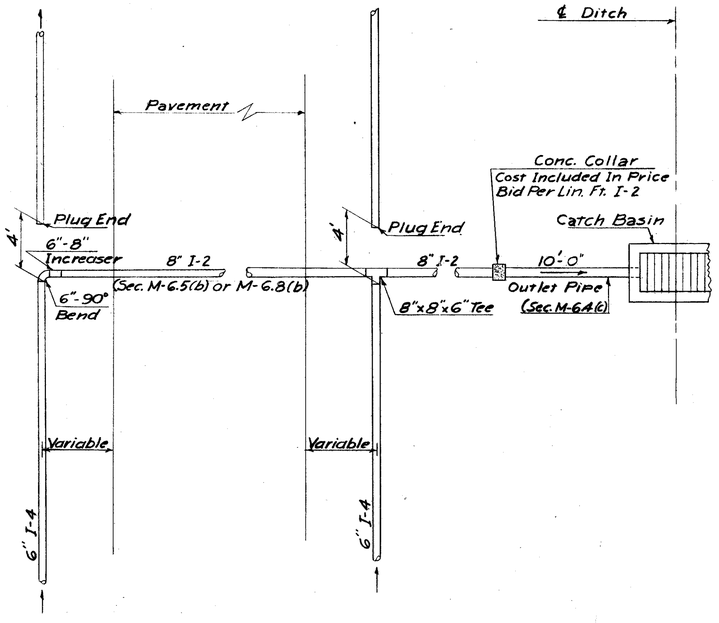
UNDERDRAIN OUTLET DETAIL C



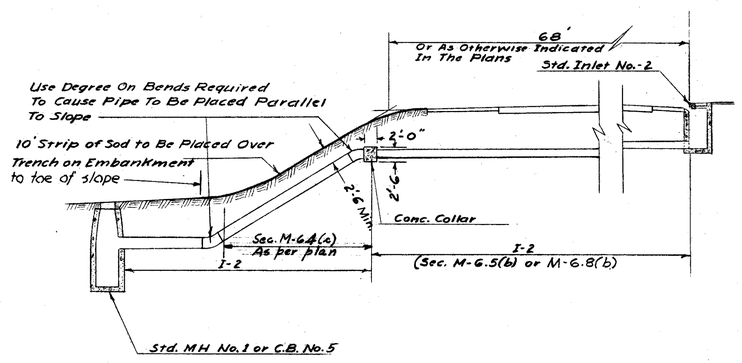
NOTE: Location to Be Adjusted In Field And to Be Placed In Cut Section

DETAIL I-4 CROSSOVER

CUT TO FILL SECTION



UNDERDRAIN OUTLET DETAIL E



NOTE: Concret Collar to Be Included In Bid Price for I-2 Pipe

MEDIAN OUTLET DETAIL IN HIGH FILL

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

DRAINAGE DETAILS

TYPICAL DETAILS I-4 & I-2

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

DRAINAGE DETAILS

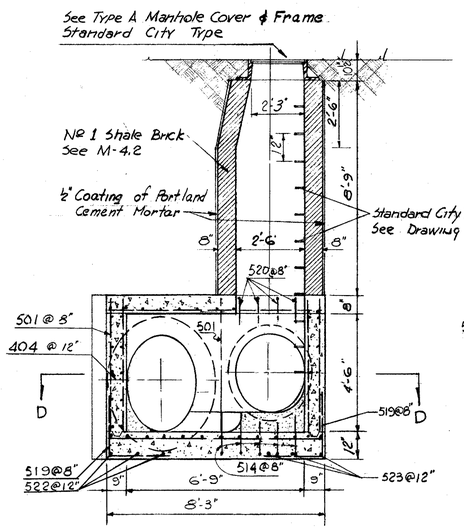
NO. 1 & 2 JUNCTION CHAMBER DETAILS

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

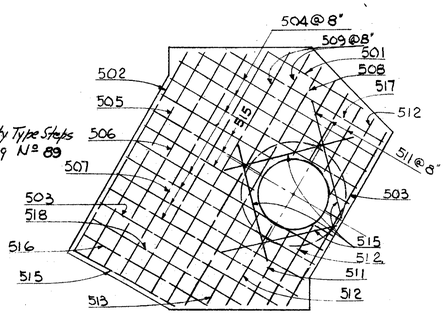
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

87/149

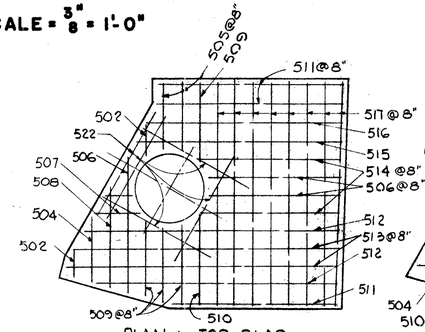
CUYAHOGA COUNTY
CUY. - 2-22.97



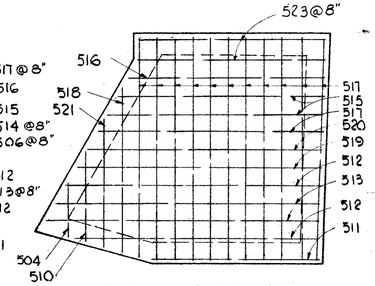
SECTION B-B



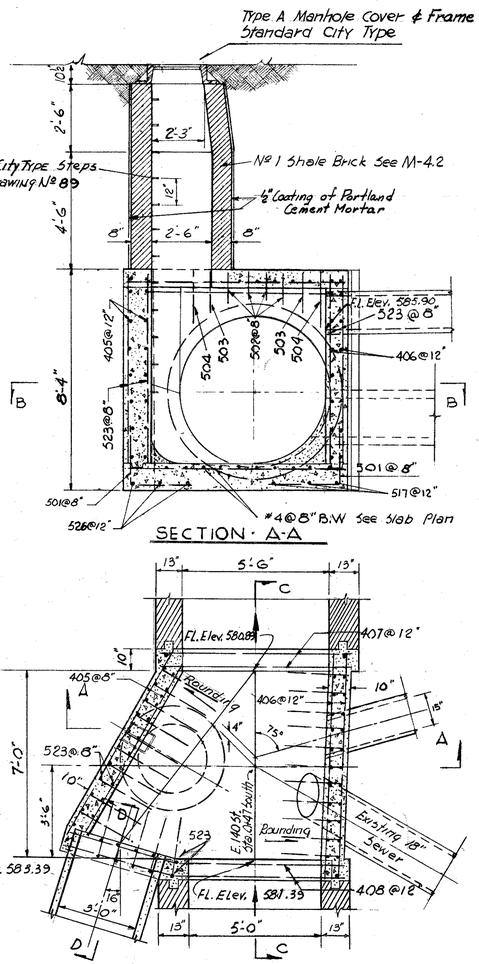
PLAN : TOP SLAB
JUNCTION CHAMBER NO. 1



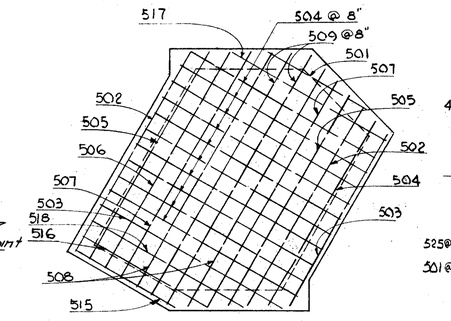
PLAN : TOP SLAB
JUNCTION CHAMBER NO. 2



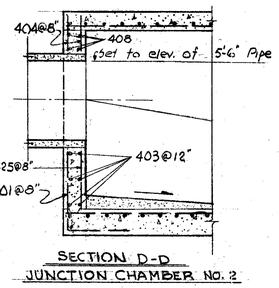
PLAN : BASE SLAB
JUNCTION CHAMBER NO. 2



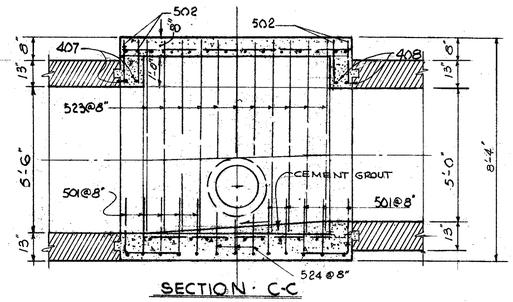
SECTION A-A



PLAN: BASE SLAB
JUNCTION CHAMBER NO. 1



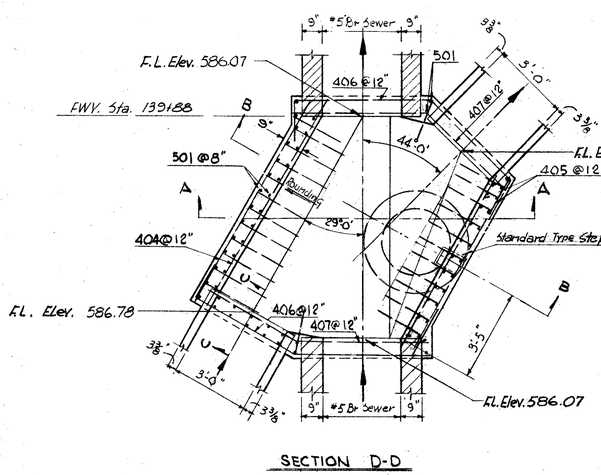
SECTION D-D
JUNCTION CHAMBER NO. 2



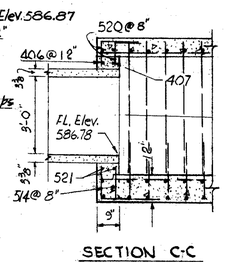
SECTION C-C

JUNCTION CHAMBER NO. 1
SCALE 3/8" = 1'-0"

JUNCTION CHAMBER NO. 2
SCALE 3/8" = 1'-0"



SECTION D-D

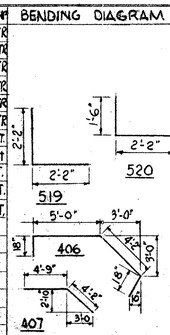


SECTION C-C

JUNCTION CHAMBER NO. 1

STEEL LIST

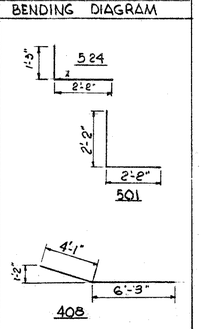
MARK	No	LENGTH		MARK	No	LENGTH		BENDING DIAGRAM
				513	1	4'-0"	STR	
				514	28	1'-0"	STR	
				515	6	4'-6"	STR	
				516	2	5'-6"	STR	
404	10	8'-6"	STR	517	2	6'-0"	STR	
405	10	7'-3"	STR	518	2	6'-6"	STR	
406	2	12'-2"	BT	519	25	4'-4"	BT	
407	2	8'-11"	BT	520	16	3'-8"	BT	
501	58	5'-0"	STR	521	4	4'-3"	ST.	
502	3	8'-6"	STR	522	3	8'-5"	ST.	
503	4	7'-6"	STR	523	3	7'-3"	ST.	
504	18	8'-1"	STR					
505	3	9'-0"	STR					
506	2	9'-3"	STR					
507	3	9'-6"	STR					
508	3	10'-3"	STR					
509	4	10'-6"	STR					
510	1	10'-0"	STR					
511	4	3'-0"	STR					
512	3	3'-6"	STR					



JUNCTION CHAMBER NO. 2

STEEL LIST

MARK	No	LENGTH		MARK	No	LENGTH	SHP.	BENDING DIAGRAM
				513	4	9'-10"	Str	
				514	2	5'-6"	Str	
				515	3	7'-9"	Str	
403	6	3'-9	ST.	516	2	7'-3"	Str	
405	14	7'-9	Str	517	23	8'-3"	Str	
406	14	8'-4	Str	518	1	6'-0"	Str	
407	2	7'-3"	Str	519	1	9'-3"	Str	
408	2	10'-4"	Bt.	520	1	8'-7"	Str	
501	26	4'-4"	Bt.	521	1	4'-9"	Str	
502	18	1'-6"	Str	522	5	4'-6"	Str	
503	8	1'-6"	Str	523	51	7'-0"	Str.	
504	10	2'-0"	Str.	404	8	1'-4"	Str.	
505	4	2'-6"	Str	524	3	3'-5	Bt.	
506	3	5'-0"	Str	525	4	2'-1"	Str	
507	1	1'-9"	Str	526	3	8'-4"	Str.	
508	1	3'-9"	Str					
509	4	3'-0"	Str					
510	2	3'-3"	Str					
511	4	6'-9"	Str.					
512	4	9'-6"	Str					



Note: Reinforcing steel shall be in accordance with steel details shown hereon and conforming to Item S-4 of the Construction Materials Specification. Cost of furnishing and placing reinforcing steel shall be included in Item I-8 Junction Chamber No 1 & No 2 for Payment.
Concrete shall be Class "C"

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

DRAINAGE DETAILS

No 1 & No 2 JUNCTION CHAMBERS

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	gea					

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-529 (12)	1958

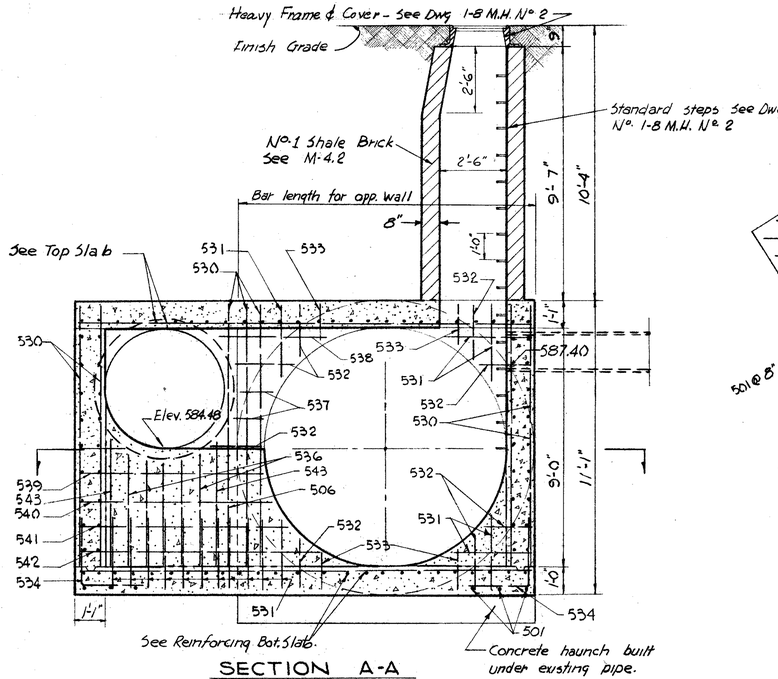
88/149

CUYAHOGA COUNTY
CUY-2-22.97

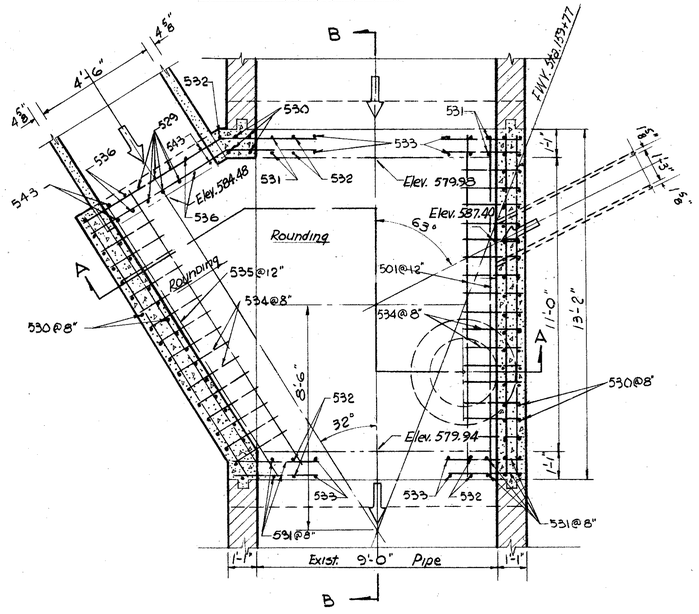
DRAINAGE DETAILS

NO.3 JUNCTION CHAMBER DETAIL

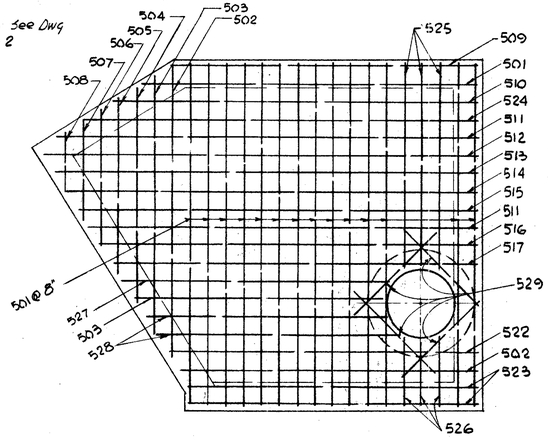
SCALE 3/8" = 1'-0"



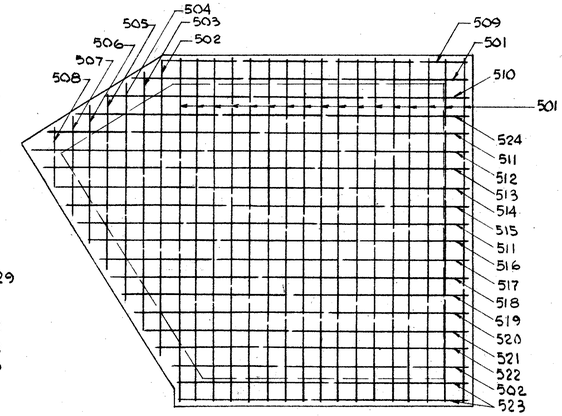
SECTION A-A



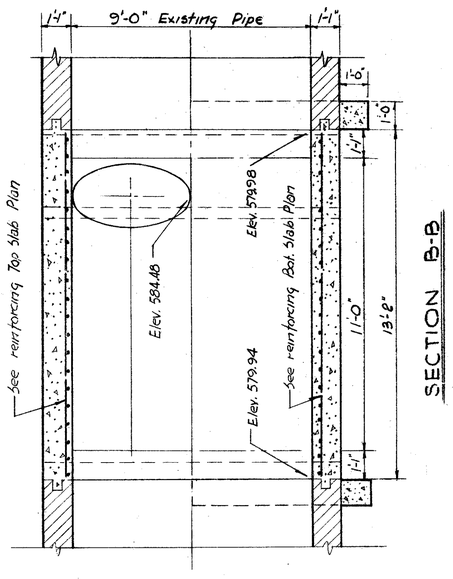
SECTION C-C



PLAN OF TOP SLAB



PLAN OF BASE SLAB

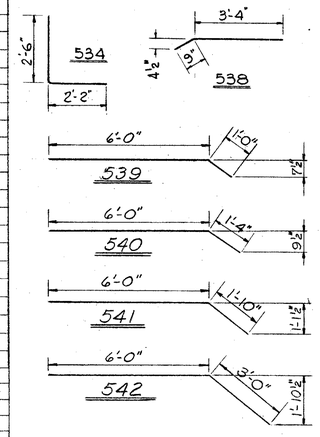


SECTION B-B

STEEL LIST

MARK	No.	LENGTH	SHP.
501	36	12'-10"	St.
502	4	11'-0"	St.
503	3	9'-6"	St.
504	2	8'-0"	St.
505	2	6'-7"	St.
506	4	5'-0"	St.
507	2	3'-9"	St.
508	2	2'-0"	St.
509	2	11'-6"	St.
510	2	13'-8"	St.
511	4	15'-9"	St.
512	2	16'-5"	St.
513	2	16'-0"	St.
514	2	15'-6"	St.
515	2	15'-0"	St.
516	2	14'-3"	St.
517	2	13'-10"	St.
518	1	13'-5"	St.
519	1	13'-0"	St.
520	1	12'-6"	St.
521	1	12'-3"	St.
522	2	11'-9"	St.
523	4	10'-2"	St.
524	2	14'-9"	St.
525	3	7'-6"	St.
526	3	2'-4"	St.
527	1	10'-0"	St.
528	1	9'-0"	St
529	10	4'-0"	St.
530	77	9'-9"	St.
531	44	2'-10"	St.
532	30	2'-10"	St
533	16	1'-6"	St.
534	35	4'-8"	Bt.
535	3	12'-0"	St.
536	4	4'-3"	St.
537	4	1'-2"	St.
538	2	4'-1"	Bt.
539	2	7'-0"	Bt.
540	2	7'-4"	Bt.
541	2	7'-10"	Bt.
542	2	9'-0"	Bt.

BENDING DIAGRAM



MARK	No	LENGTH	SHP
543	4	4'-8"	St.

Note:
Reinforcing steel shall be in accordance with steel details shown hereon and conforming to Item S-4 of the Construction Materials Specifications. Cost of furnishing and placing reinforcing steel shall be included in Item I-8 Junction Chamber No. 3 for payment.
Concrete shall be Class "C"

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

DRAINAGE DETAILS

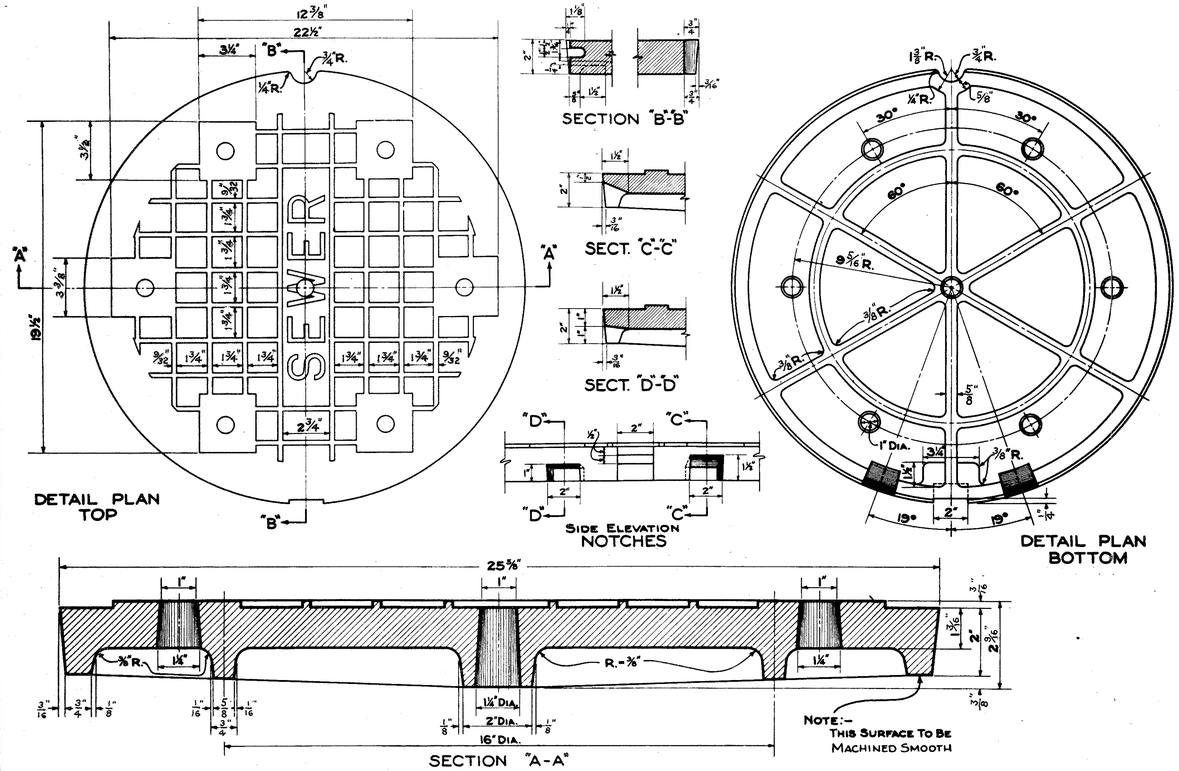
NO.3 JUNCTION CHAMBER

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	GRA					

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

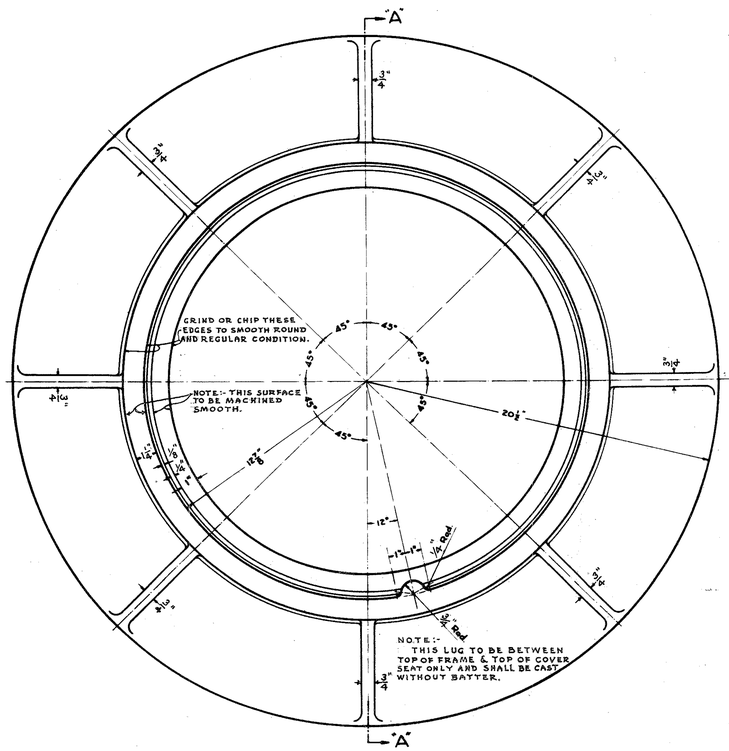
89
149

CUYAHOGA COUNTY
CUY 2-22.97

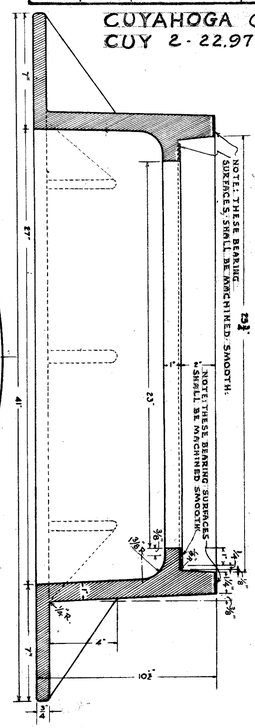


TYPE "A" MANHOLE COVER - CAST IRON
STANDARD CITY TYPE
NO SCALE

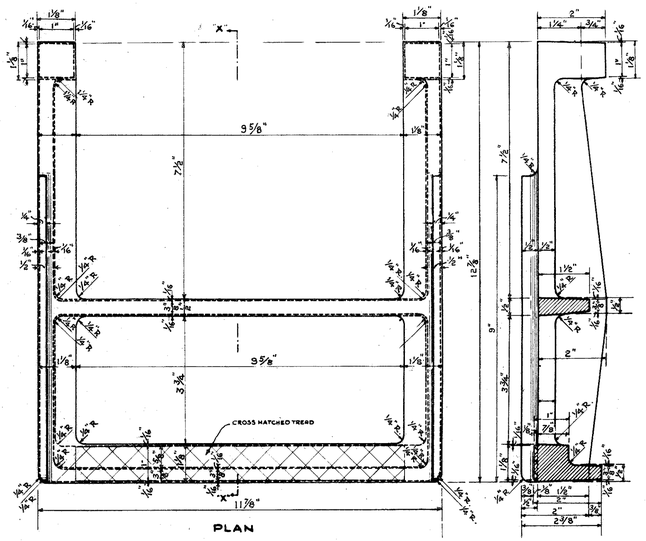
WEIGHT OF COVER 195 LBS.

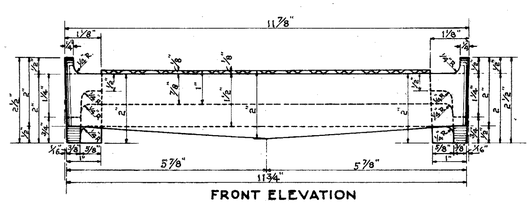


TYPE "A" MANHOLE FRAME - CAST IRON
STANDARD CITY TYPE
NO SCALE



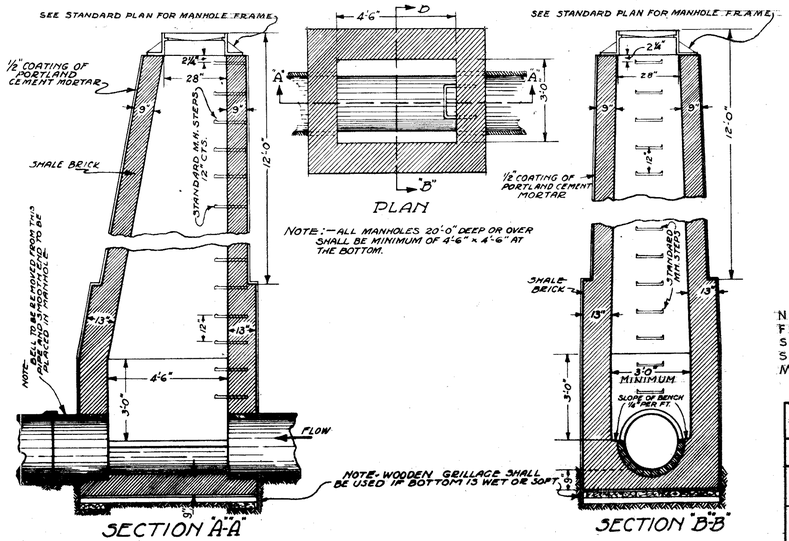
WEIGHT OF FRAME 355 LBS.





SECTION "X"-"X"

CAST IRON MANHOLE STEP
STANDARD CITY TYPE
NO SCALE



TYPE "A" MANHOLE
STANDARD CITY TYPE
NO SCALE

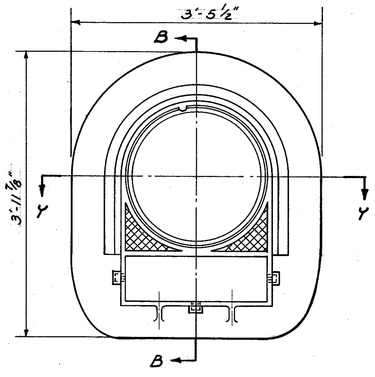
NOTE:- COVERS AND FRAMES SHALL BE FITTED AND SHIPPED IN PAIRS TO INSURE A PERFECT FIT. ALL CASTINGS SHALL BE IN ACCORDANCE WITH SECTION M-7.8 OF THE SPECIFICATIONS.

HARGETT, YANDA & BARBER
Consulting Engineers
4800 EUCLID AVE. CLEVELAND 3, OHIO

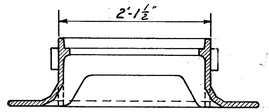
DRAINAGE DETAILS
TYPE "A" MANHOLE
STANDARD CITY MANHOLE, FRAME, COVER & STEP.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

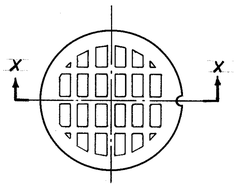
SPECIAL CATCH BASIN Nº 4



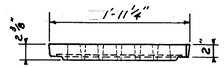
PLAN of CASTING - C.I.



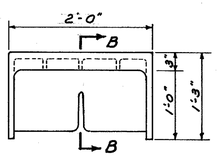
SECTION Y-Y



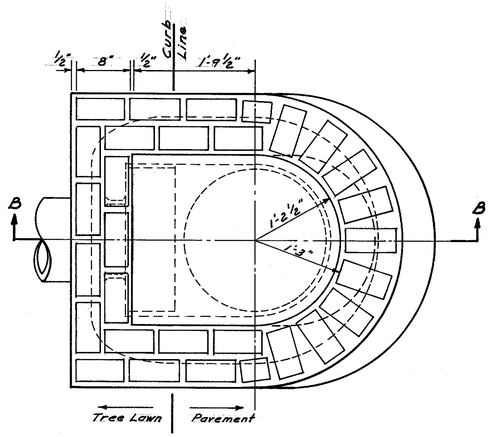
PLAN of COVER - C.I.



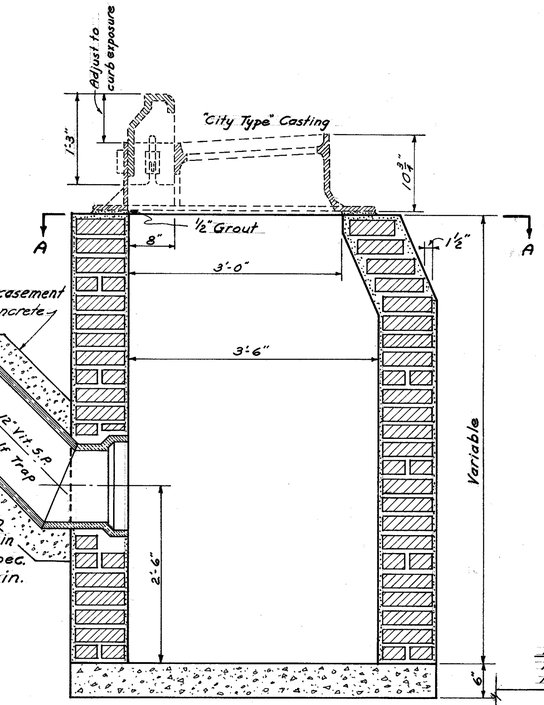
SECTION X-X



ELEVATION
CURB BOX - C.I.



PLAN SECTION A-A



SECTION B-B

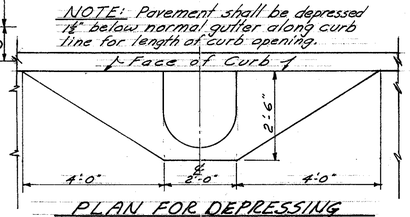
NOTES:

BRICK WALLS~
Brick walls shall be 8" thick & plastered on the inside & the outside with 1:2 cement mortar ½" thick.
Concrete side walls, where used in place of brick, shall be made 8" thick of Class "C" concrete.

OUTLET~
The outlet shall be of the size shown on the Plans and may be constructed in any side.

BOTTOM~
The bottom shall be built as per the Plans, of Class "C" concrete, or of two (2) courses of brick, (set in mortar).

CASTINGS~
Casting shall be "City Type" and in accordance with Section M-7.8 of the specifications



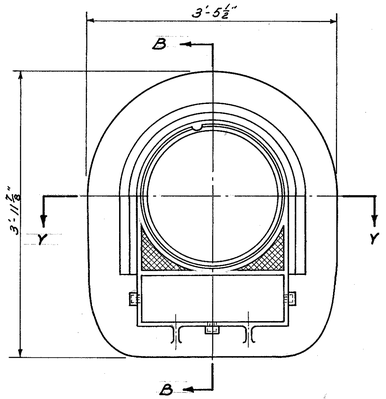
PLAN FOR DEPRESSING
PAVEMENT FOR ABOVE STRUCTURES

SPECIAL CURB INLET Nº 4

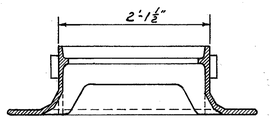
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

90
149

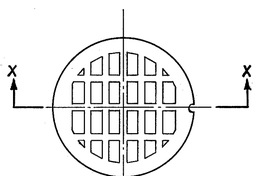
CUYAHOGA COUNTY
CUY - 2 - 22.97



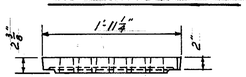
PLAN OF CASTING - C.I.



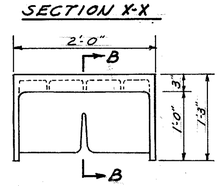
SECTION Y-Y



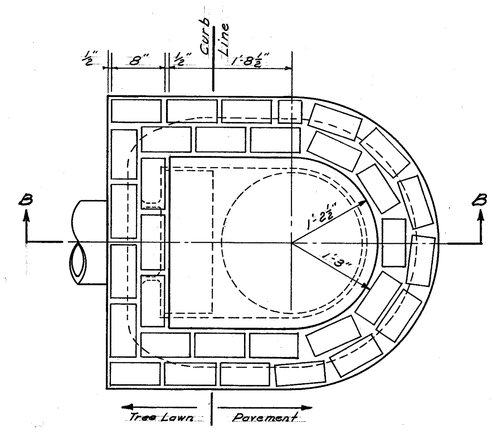
PLAN OF COVER - C.I.



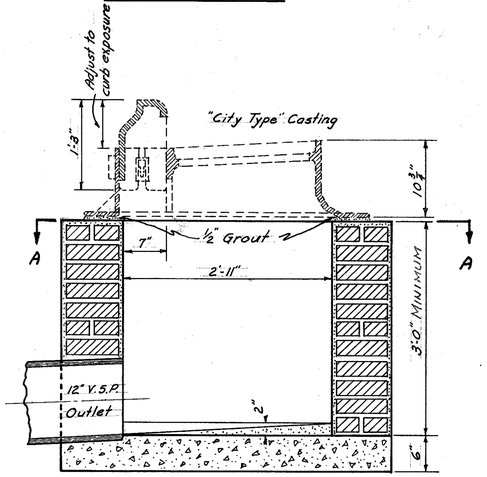
SECTION X-X



ELEVATION
CURB BOX - C.I.



PLAN SECTION A-A



SECTION B-B

NOTE: Cover seat & Cover surfaces shall be chilled & ground smooth and straight and shipped in pairs to insure a perfect fit.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

DRAINAGE DETAILS

SPECIAL CATCH BASIN Nº 4
AND
SPECIAL CURB INLET Nº 4

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

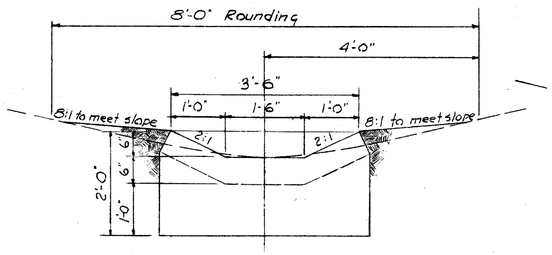
DRAINAGE DETAILS

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I 329(12)	1958

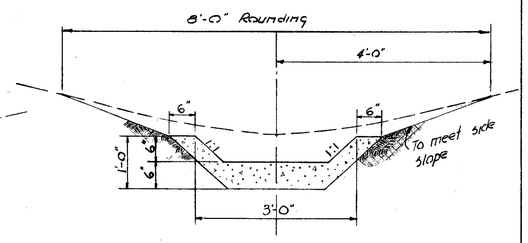
91/149

CUYAHOGA COUNTY
CUY 2-22.97

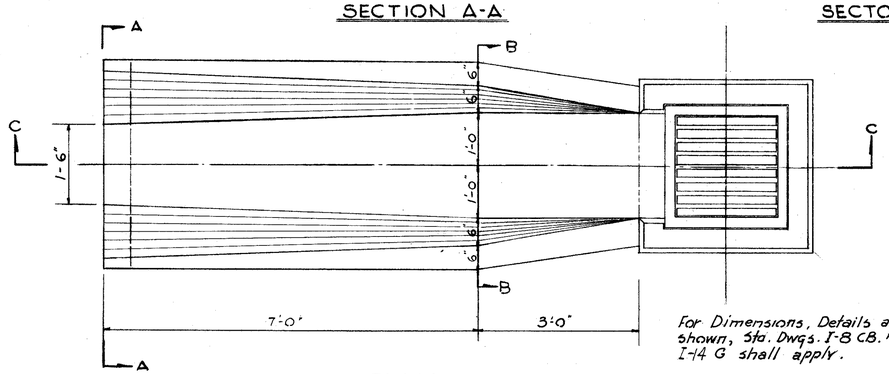
SPECIAL NO. 2-2A CATCH BASIN
SCALE 3/4" = 1'-0"



SECTION A-A



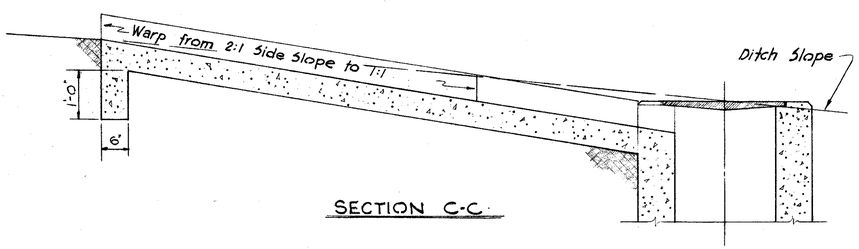
SECTON B-B



When a Catch Basin is located in a sag, 2 (two) Paved Gutters (one on each side) shall be built.

For Dimensions, Details and Notes not shown, Sta. Dwgs. I-8 C.B. #2-2-A & B and I-14 G shall appl'y.

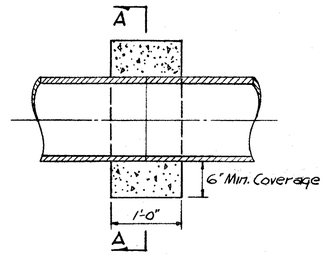
PLAN

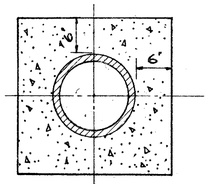


SECTION C-C

Paved Gutters in place shall be paid for in the Unit Price Bid for Item I-8 Spec. C.B. # 2-2A.

SPECIAL No. 2-2A CATCH BASIN





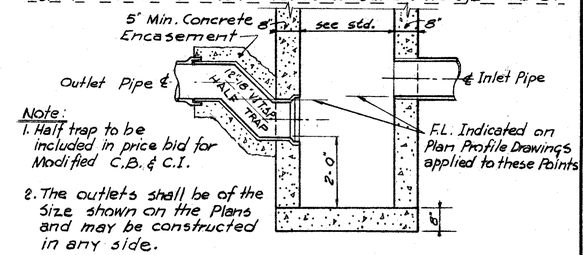
SECTION A-A
SCALE 1"=1'-0"

CONCRETE COLLAR DETAIL

NOTE:
Concrete Collar to be included in price bid for 1-2 pipe.

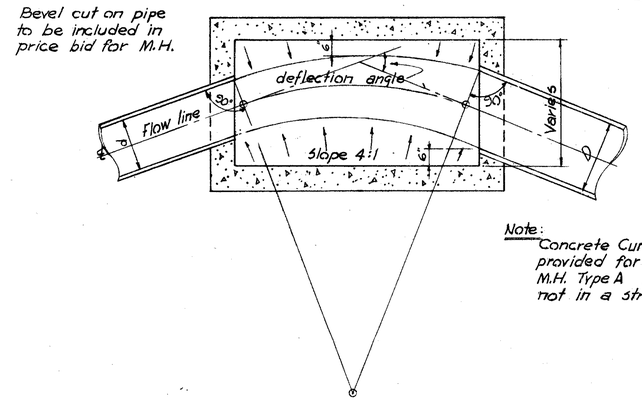
MODIFIED CATCH BASINS & CURB INLETS
SCALE 3/4" = 1'-0"

Note:
By Modified Catch Basin or Curb Inlet we mean the Contractor to add the trapped outlet, as shown in this detail, to the Standard Catch Basin or Curb Inlet as shown on the applicable Standard Construction Drawings.
Curb Inlets used with Type 2 concrete median shall be provided with a 3" x 24" window in the manhole portion of the back wall at the proper elevation to drain the right inside shoulder. Two extra No. 5 x 4' straight reinforcing bars shall be placed above the window and located similiar to S-5-d bars located in the front wall.
The cost of modification shall be included in unit price bid for Modified catch basins or curb inlets, Item I-8.



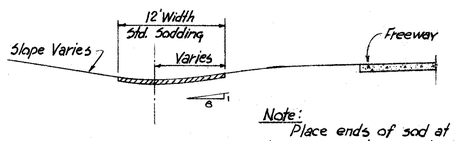
Note:
1. Half trap to be included in price bid for Modified C.B. & C.I.
2. The outlets shall be of the size shown on the Plans and may be constructed in any side.

TRAP DETAIL
MODIFIED CATCH BASINS & CURB INLETS
SCALE 1/2" = 1'-0"



Note:
Concrete Curved channel to be provided for Std. M.H. # 2 and M.H. Type A if Manhole constructed not in a straight pipe line.

DETAIL OF CHANNEL THROUGH M.H.
SCALE 1/2" = 1'-0"



Note:
Place ends of sod at same level so as to provide Maximum depth of flow in protected channel.

SOD DITCH DETAIL
SCALE 1/8" = 1'-0"

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DRAINAGE DETAILS

SOD DITCH DETAIL
TRAP DETAIL
SPECIAL Nº 2-2-A CATCH BASIN
CONCRETE COLLAR DETAIL
CHANNEL THROUGH M.H.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	ARA					

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

92
149

CUYAHOGA COUNTY
CUY - 2 - 22.97

SPECIAL BERM & SLOPE PROTECTION

Prior to placement of sod in the berm and slope, galvanized poultry fence shall be placed on the finished grade in strands which shall be at right angles to the direction of flow. Each strand shall be staked securely on top and bottom with stakes spaced at four foot intervals and alternated in rows four feet apart.

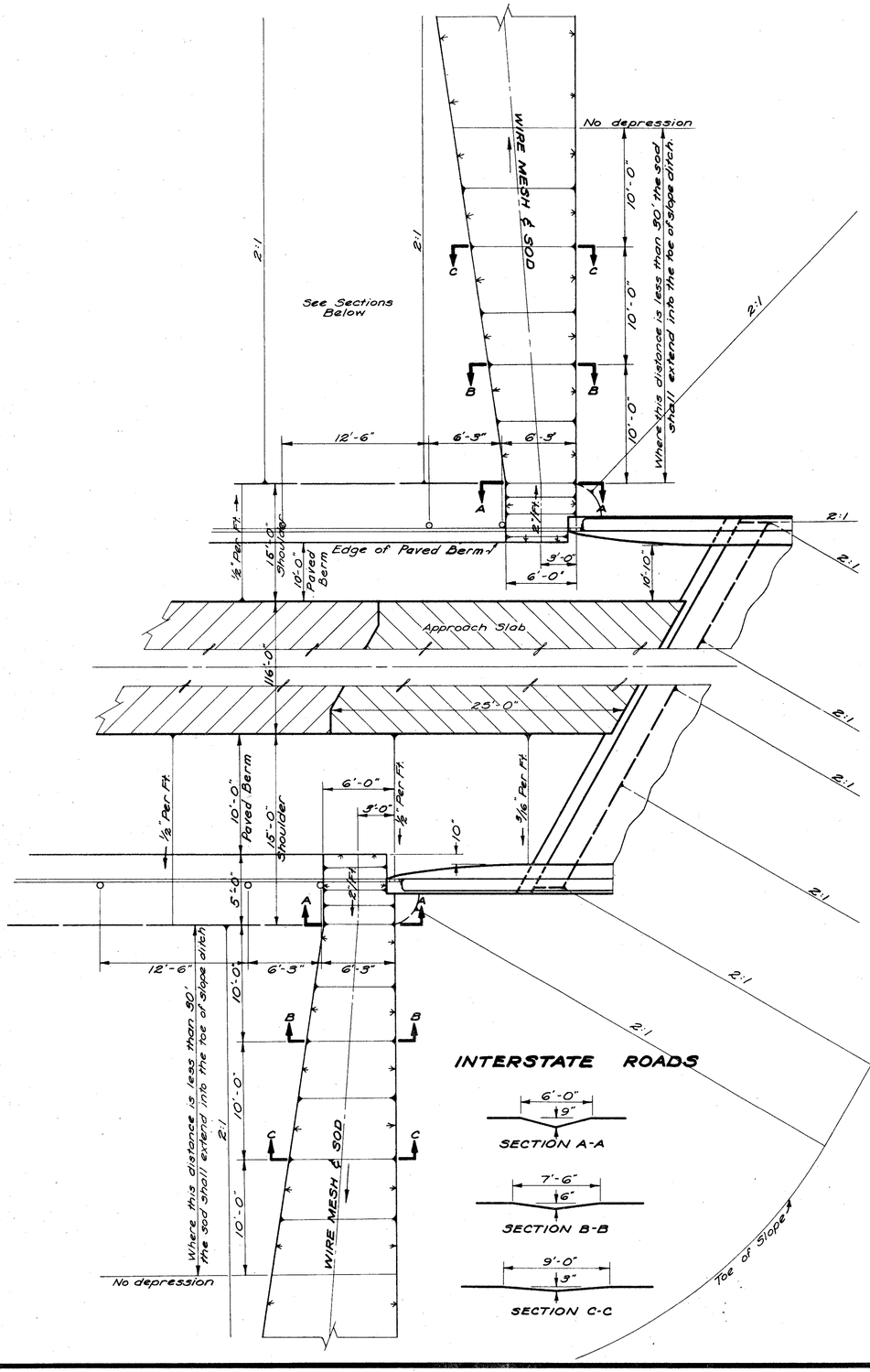
Stakes shall be 1"x1"x8" wood stakes and shall be perpendicular to the ground and flush with the finished grade.

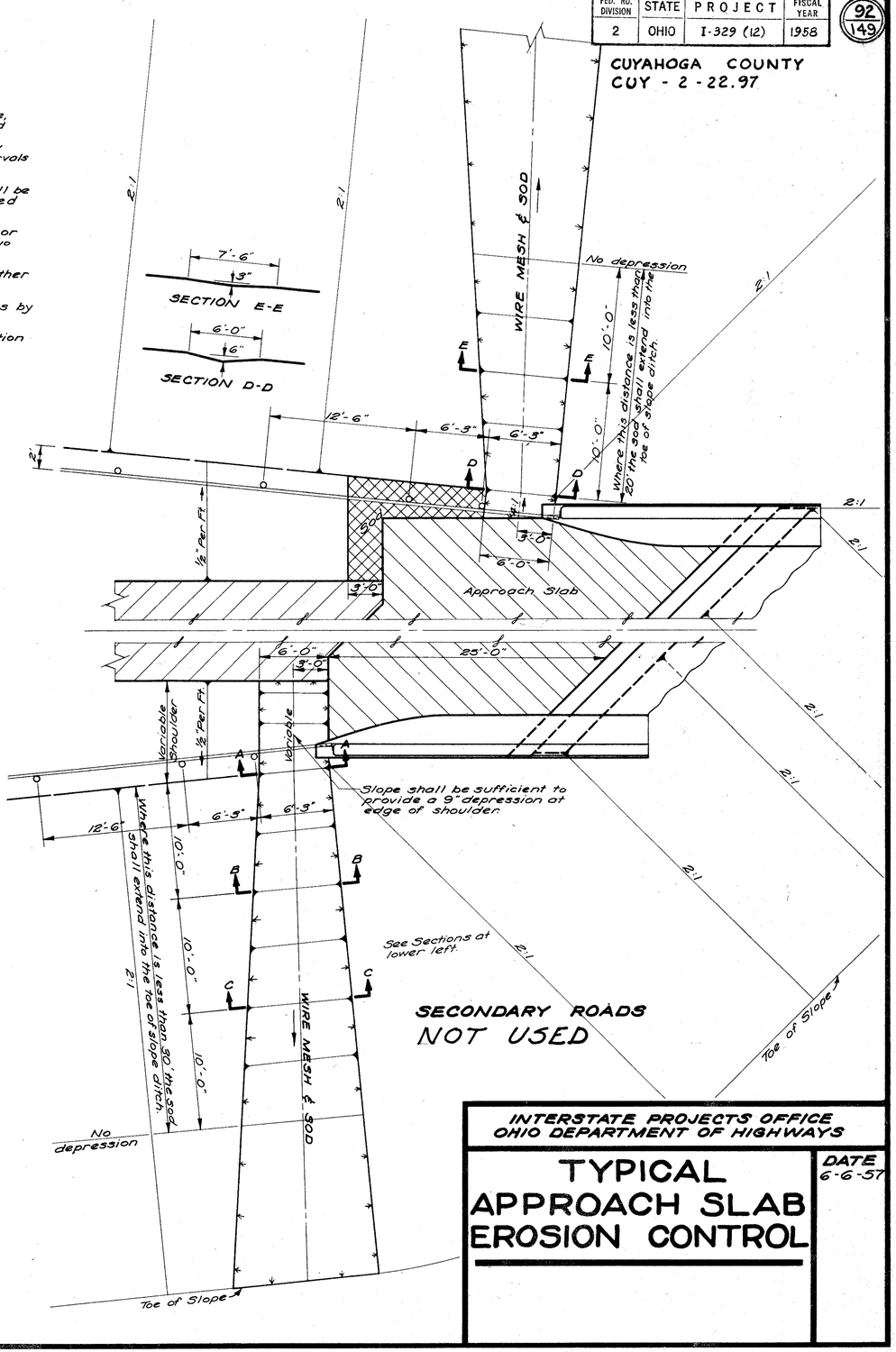
The fence shall be Straight Line Poultry Fence or equivalent with strand width of four feet, having a two inch mesh and all wires No. 20 Gauge.

Each strand of fencing shall be fastened together at twelve inch intervals by means of hog rings.

The fence shall be secured to the wood stakes by metal staples.

Sod shall be laid in accordance with Construction and Materials Specifications Section L-10.07.





INTERSTATE PROJECTS OFFICE
OHIO DEPARTMENT OF HIGHWAYS

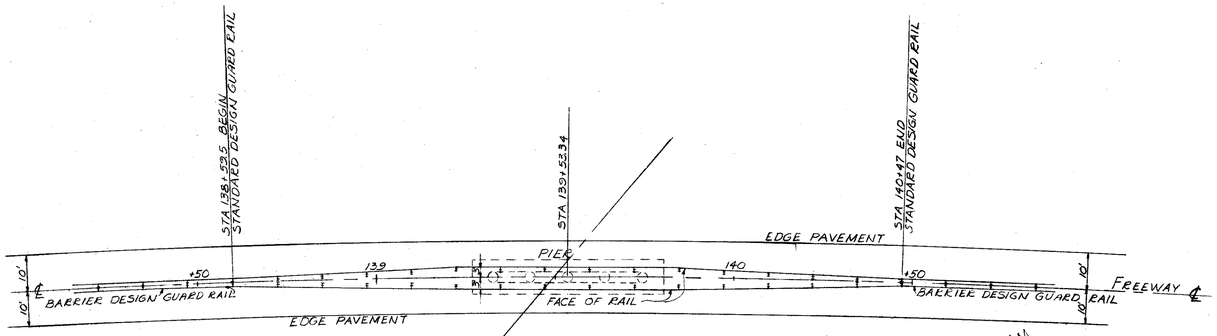
TYPICAL APPROACH SLAB EROSION CONTROL

DATE 6-6-57

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

93
149

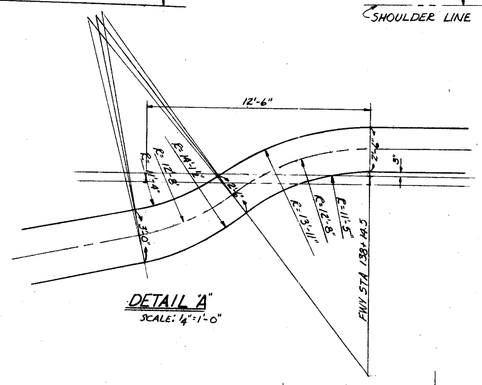
CUYAHOGA COUNTY
CUY 2-22.97



NOTE:
TOP OF RAIL SHALL BE 2'-3" ABOVE MEDIAN PAVEMENT MEASURED AT CENTERLINE OF MEDIAN.

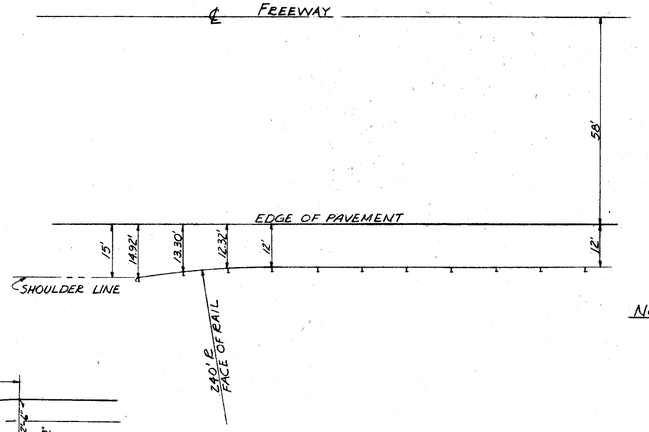
GUARD RAIL & PAVED GUTTER AT PIER & ABUTMENT FOR RAMP N°1

SCALE: 1"=20'



DETAIL 'A'

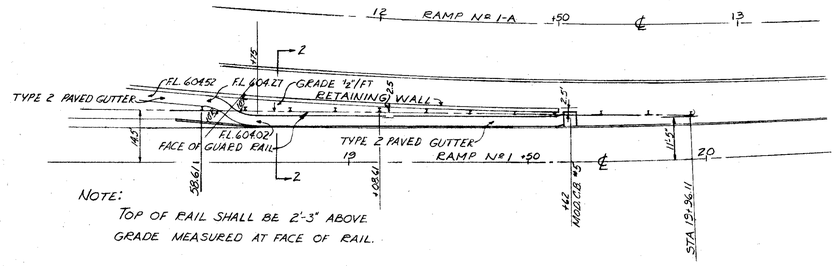
SCALE: 4"=1'-0"



NOTE:
THE THREE INITIAL PANELS SHALL BE CURVED, AS SHOWN, FROM THE 14.92' OFFSET AT THE END POST TO NORMAL 12' OFFSET.
TOP OF RAIL SHALL BE 2'-3" ABOVE GRADE AT FACE OF RAIL.

STANDARD FLARE DETAIL

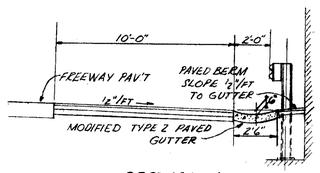
SCALE 1"=20'



NOTE:
TOP OF RAIL SHALL BE 2'-3" ABOVE GRADE MEASURED AT FACE OF RAIL.

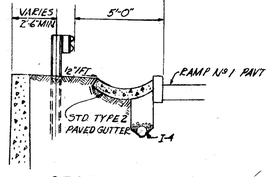
GUARD RAIL & PAVED GUTTER LOCATION AT RETAINING WALL BETWEEN RAMPS N°1 & N°1A

SCALE: 1"=20'



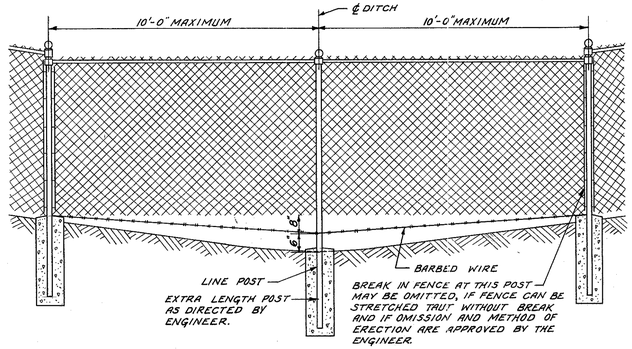
SECTION 1

SCALE: 1/4"=1'-0"



SECTION 2

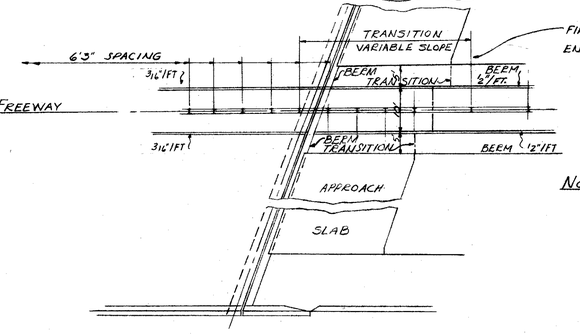
SCALE: 1/4"=1'-0"



NOTE:
FOR DIMENSIONS, NOTES AND DETAILS NOT SHOWN SEE STANDARD DRAWING F-1

TYPE "C" FENCE-DITCH CROSSING

SCALE 3/8"= 1'-0"



BERM AND GUARD RAIL TRANSITIONS AT BRIDGE APPROACHES

NOT TO SCALE

NOTE:
TRANSITION BEEM, IN AREA SHOWN, FROM 1/2"/FT. SLOPE TO 3/16"/FT SLOPE. TRANSITION GUARD RAIL IN A STRAIGHT LINE FROM FIRST POST BEYOND END OF APPROACH SLAB TO FIRST POST ON BRIDGE. MAINTAIN TOP OF MEDIAN CURB AT 6" ABOVE BERM MEASURED AT FACE OF CURB.

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MISCELLANEOUS DETAILS

MISCELLANEOUS GUARD RAIL PAVED GUTTER

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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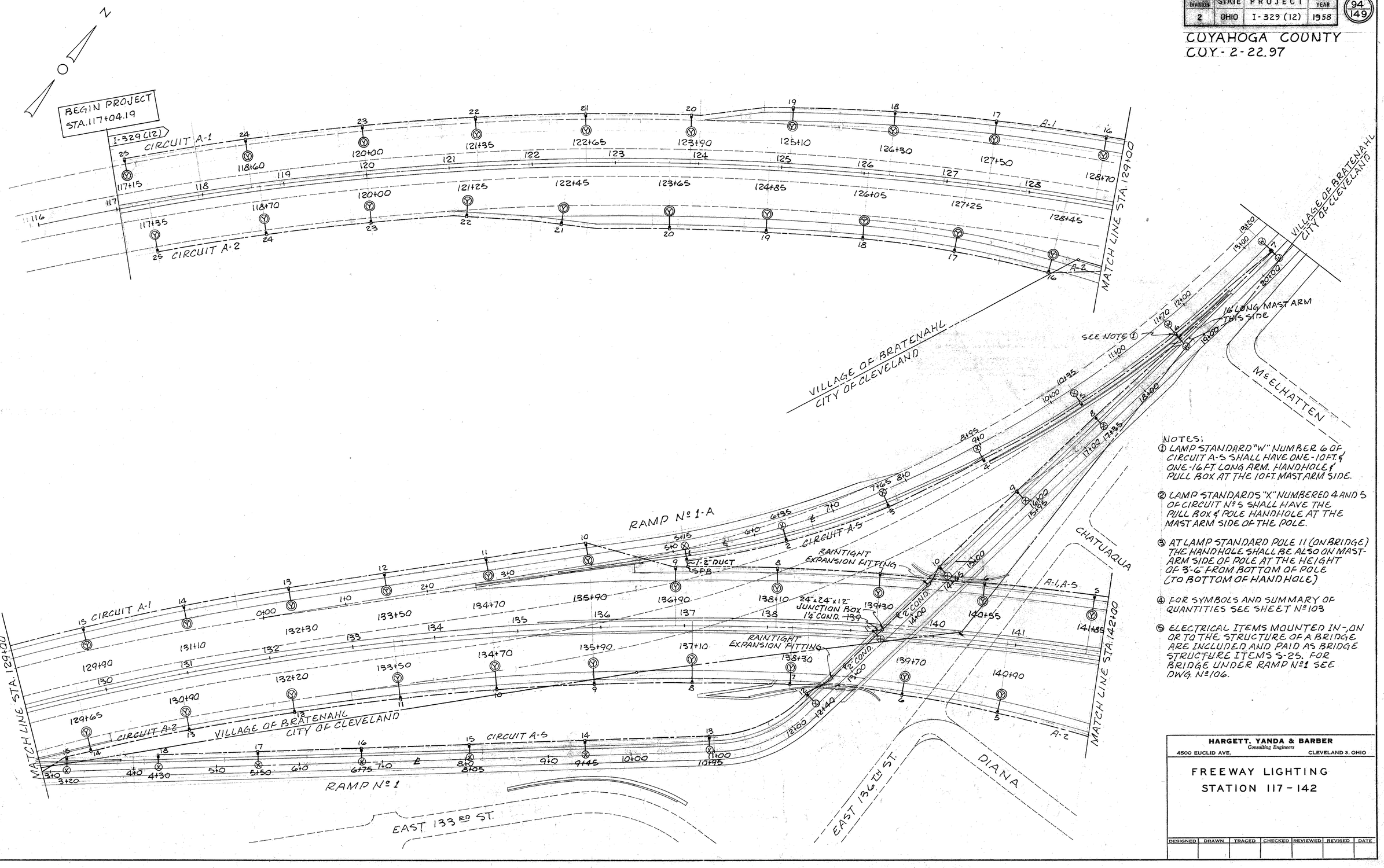
COYAHOGA COUNTY
COY-2-22.97



NOTES;

① LAMP STANDARD "W" NUMBER 6 OF CIRCUIT A-5 SHALL HAVE ONE-10FT.& ONE-16 FT. LONG ARM. HANDHOLE & PULL BOX AT THE 10FT. MAST ARM SIDE.

② LAMP STANDARDS "X" NUMBERED 4 AND 5 OF CIRCUIT Nº 5 SHALL HAVE THE PULL BOX & POLE HANDHOLE AT THE MAST ARM SIDE OF THE POLE.

③ AT LAMP STANDARD POLE 11 (ON BRIDGE) THE HAND HOLE SHALL BE ALSO ON MAST-ARM SIDE OF POLE AT THE HEIGHT OF 3'-6" FROM BOTTOM OF POLE (TO BOTTOM OF HAND HOLE)

④ FOR SYMBOLS AND SUMMARY OF QUANTITIES SEE SHEET Nº 103

⑤ ELECTRICAL ITEMS MOUNTED IN-, ON OR TO THE STRUCTURE OF A BRIDGE ARE INCLUDED AND PAID AS BRIDGE STRUCTURE ITEMS S-25. FOR BRIDGE UNDER RAMP Nº 1 SEE DWG. Nº 106.

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FREEWAY LIGHTING
STATION 117 - 142

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

95/149

CUYAHOGA COUNTY
CUY-2-22.97

SUMMARY OF LIGHTING LOAD
WITH RECOMMENDED CIRCUITING FOR AREA "A"
FROM STATION 117+00 TO STA 177+00

VAULT	REGULATOR CAPACITY	CIRCUIT NUMBER	NUMBER OF LUMINAIRES 15,000 L	10,000 L	FLOURESCENT	TOTAL LOAD KW
A/a	25 KW	A-1	25			25
	25 KW	A-2	24	1		24.74
	15 KW	A-5		20		14.94
A/b	25 KW	A-3	25			25.
	25 KW	A-4	25			25.
	30 KW	A-6		37		27.50
	25 KW	A-7		34		25.10
		A-8			60	7.
TOTAL	170 KW		99	92	60	174.28

NOTES:

1. REGULATORS, TRANSFORMERS, & LUMINAIRES WILL BE FURNISHED & INSTALLED BY POWER COMPANY.
2. RECOMMENDED:
   1-10 KVA, 1 Φ TRANSFORMER WITH 120/240 V SECONDARY IN UNDERGROUND VAULT FOR UNDERPASS FLOURESCENT LIGHTING
3. LAMP STANDARDS IN CIRCUIT A-3, NUMBERED 3, 4, 5 AND IN CIRCUIT A-4 NUMBERED 3, 4, 5 SHALL HAVE THE 4" X 6½" HAND-HOLE ON THE MAST ARM SIDE AT THE HEIGHT OF 3'-6" FROM BOTTOM OF POLE TO BOTTOM OF HANDHOLE.
4. NUMBERS AT LAMP LOCATIONS ARE CENTERLINE STATIONS OF ROADWAY ADJACENT TO LAMPS.
5. FOR DETAILS OF BRIDGE LIGHTING SEE DRAWING NO. 101

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FREEWAY LIGHTING
STATION 142-168

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I-329 (12)	1958	96/149

CUYAHOGA COUNTY
CUY-2-22.97

SUMMARY OF LIGHTING LOAD, REGULATORS & LUMINAIRES WITH RECOMMENDED CIRCUITING FOR AREA "B" FROM STA. 177 TO STA. 204

VAULT	REGULATOR CAPACITY	CIRCUIT NUMBER	NUMBER OF LUMINAIRES 15,000L	10,000L	FLUO-RESCENT	TOTAL LOAD KW
"B"	25KW	B-1	23	2		24.50
	25KW	B-2		32		24.00
	25KW ③	B-3	12	3		14.30
	25KW ③	B-4	11			11.00
	15KW ③	B-5		13		9.65
		B-6			56 ①	7.20
TOTAL	115 KW		46	50	56	90.65

NOTE:
① RECOMMENDED 1-10 KVA TRANFORMER, 1φ, 120/240V, 60 CY. SECONDARY, IN UNDERGROUND VAULT FOR LTG. LOAD (TRANSFORMER BY POWER CO.)

NOTE:
② LAMP STANDARDS NUMBERED 11,12,13,15,16,17 IN CIRCUIT B-1 SHALL HAVE THE 4"x6½" HANDHOLE ON THE MAST ARM SIDE OF THE POLE AT THE HEIGHT OF 3'-6" FROM THE BOTTOM OF POLE TO THE BOTTOM OF MANHOLE.

③ ADDITIONAL LOAD UP TO THE REGULATOR CAPACITY WILL BE PROVIDED BY PART II OF THE PROJECT.

④ THE 4-ROWS WITH 12-LUM. @ APPROX. 13'-6" c/c SYMETRICAL ABOUT € OF PIER, CONNECTED BY ¾" CONDUIT
THE 1-ROW WITH 8-LUM. SHALL BE MOUNTED BETWEEN BEAMS AS SHOWN ON DWGS. 101 & 132

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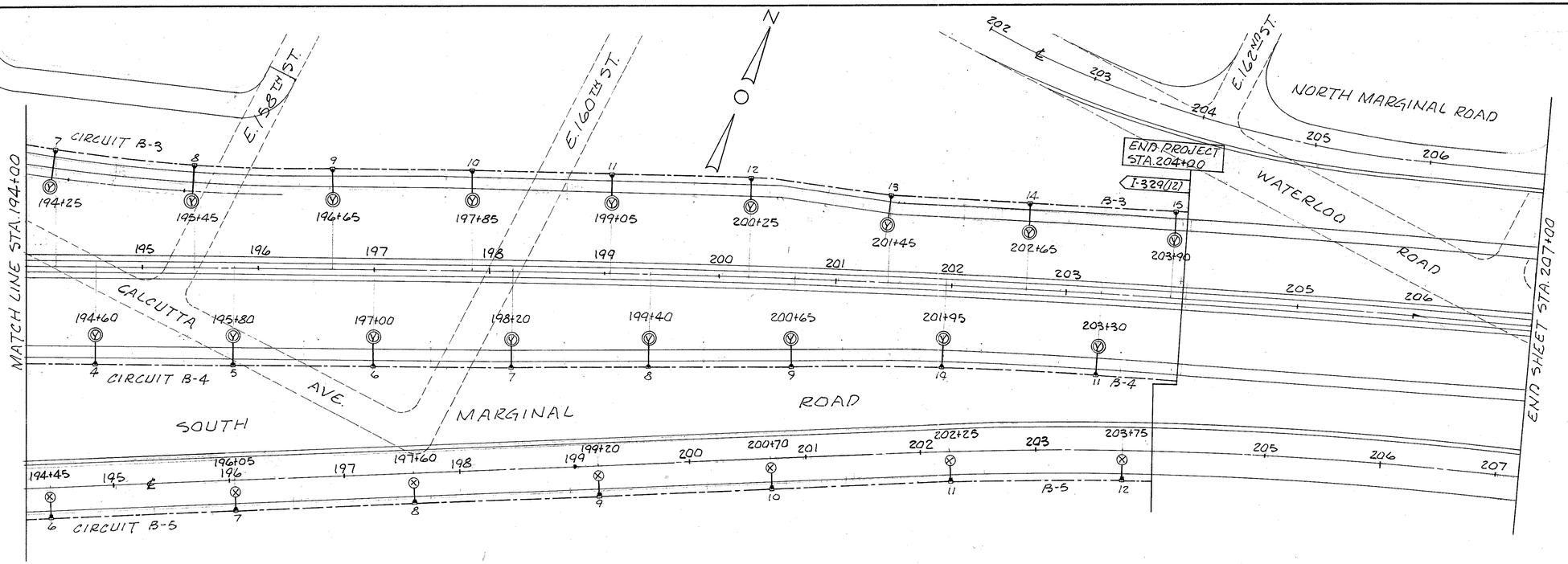
FREEWAY LIGHTING
STATION 168 - 194

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

97
149

CUYAHOGA COUNTY
CUY-2-22.97



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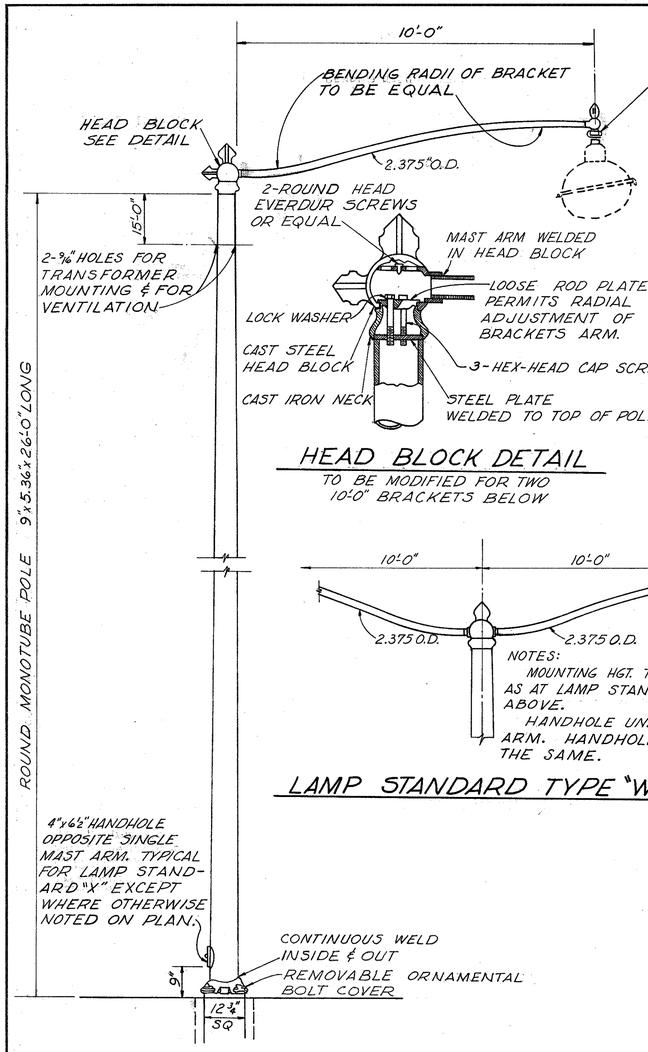
FREEWAY LIGHTING
STATION 194-204

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. ROAD DIV. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

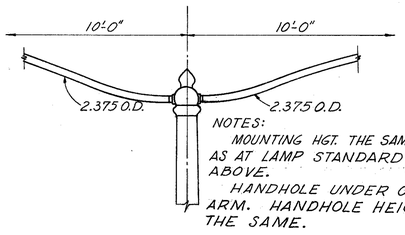
98
149

CUYAHOGA COUNTY
CUY-2-22.97



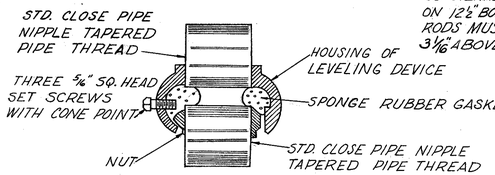
HEAD BLOCK DETAIL

TO BE MODIFIED FOR TWO 10'-0" BRACKETS BELOW

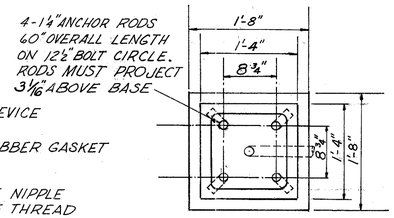


NOTES:
MOUNTING HGT. THE SAME AS AT LAMP STANDARD "X" ABOVE.
HANDHOLE UNDER ONE ARM. HANDHOLE HEIGHT THE SAME.

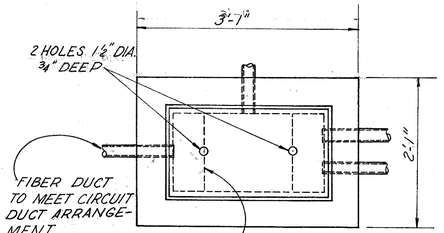
LAMP STANDARD TYPE "W"



LEVELING DEVICE DETAIL

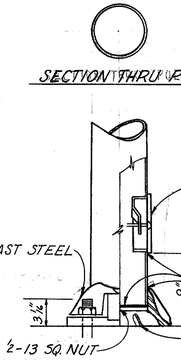


PLAN

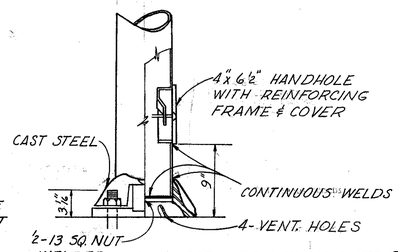


PLAN

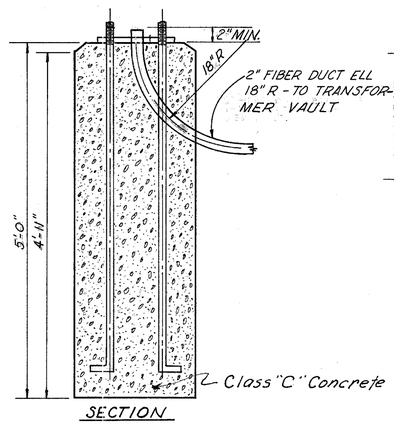
NOTE:
DIMENSIONS SHOWN ARE FOR TOP OPENING COVER TO BE APPROX. ½" LESS



SECTION THRU POLE



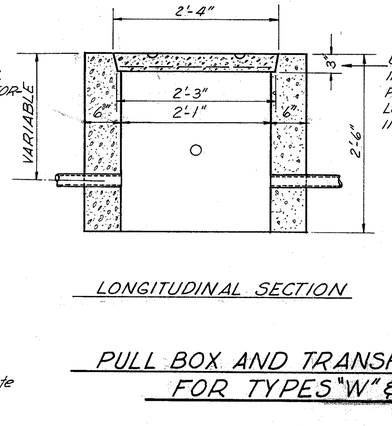
BOLT COVER & HAND HOLE DETAIL



SECTION

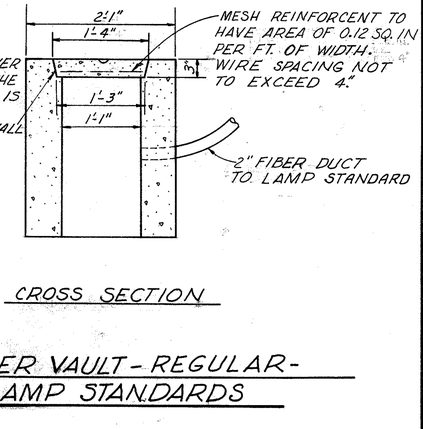
LAMP STANDARD FOUNDATION -REGULAR- TO BE CAST IN PLACE FOR TYPES "W" & "X" LAMP STANDARD

EXCEPT WHERE OTHERWISE SPECIFIED ON PLANS



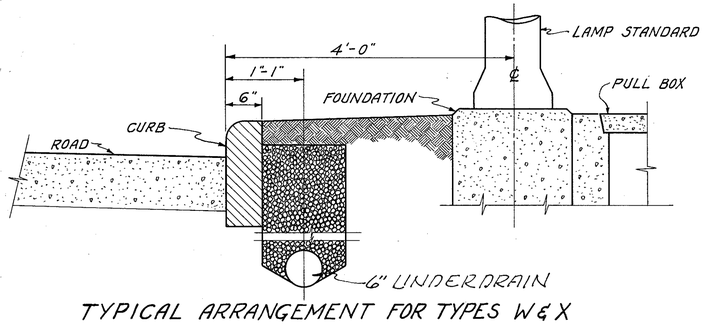
LONGITUDINAL SECTION

USE 6" COVER IN CASE THE PULL BOX IS LOCATED INSIDE WALL

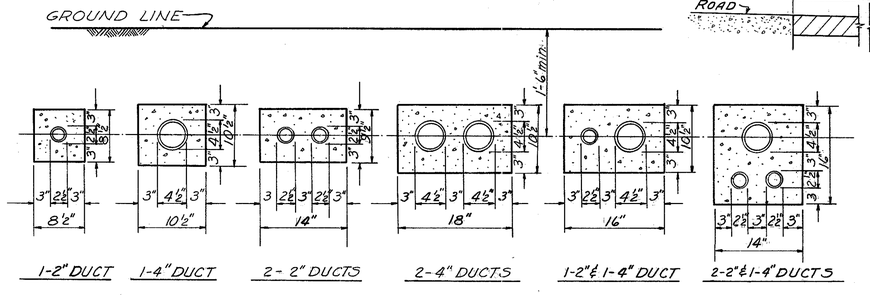


CROSS SECTION

PULL BOX AND TRANSFORMER VAULT - REGULAR - FOR TYPES "W" & "X" LAMP STANDARDS



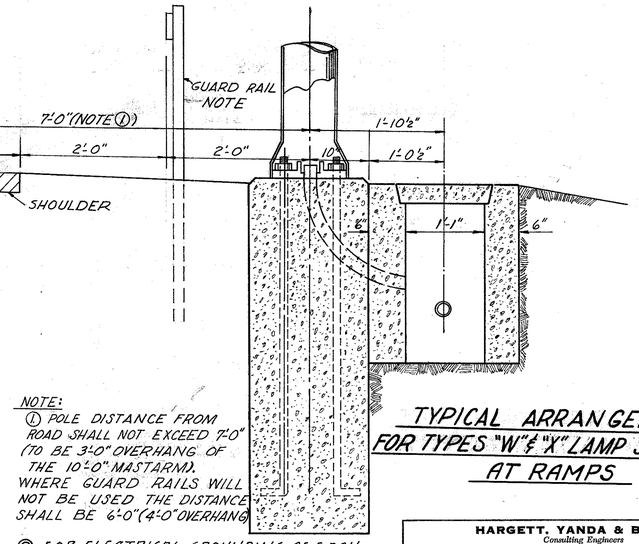
TYPICAL ARRANGEMENT FOR TYPES W & X LAMP STANDARDS AT MARGINAL ROADS E.140, 152 STREETS & MARGINAL ROAD CONNECTORS



1-2" DUCT | 1-4" DUCT | 2-2" DUCTS | 2-4" DUCTS | 1-2" & 1-4" DUCT | 2-2" & 1-4" DUCTS

TYPICAL DUCT SECTIONS

FOR DEPTH OF PAVEMENT CROSSOVERS SEE OTHER SHEET - DIMENSIONS OF FIBERDUCTS REFER TO ORANGEBURG CONDUIT FITTINGS



NOTE:
① POLE DISTANCE FROM ROAD SHALL NOT EXCEED 7'-0" (TO BE 3'-0" OVERHANG OF THE 10'-0" MASTARM). WHERE GUARD RAILS WILL NOT BE USED THE DISTANCE SHALL BE 6'-0" (4'-0" OVERHANG)

② FOR ELECTRICAL GROUNDING OF EACH STANDARDS PROVIDE A ⅝" MIN. DIA. 8'-0" LONG COPPER GROUND ROD WITH CONNECTOR AND WITH N°6 AWG. TINNED COPPER WIRE CONNECTION TO THE STANDARD GROUND LUG. THE RESISTANCE OF GROUND NOT TO EXCEED 15 OHMS.

TYPICAL ARRANGEMENT FOR TYPES "W" & "X" LAMP STANDARDS AT RAMPS

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LIGHTING DETAILS
LAMP STANDARDS
TYPE "W" & "X"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

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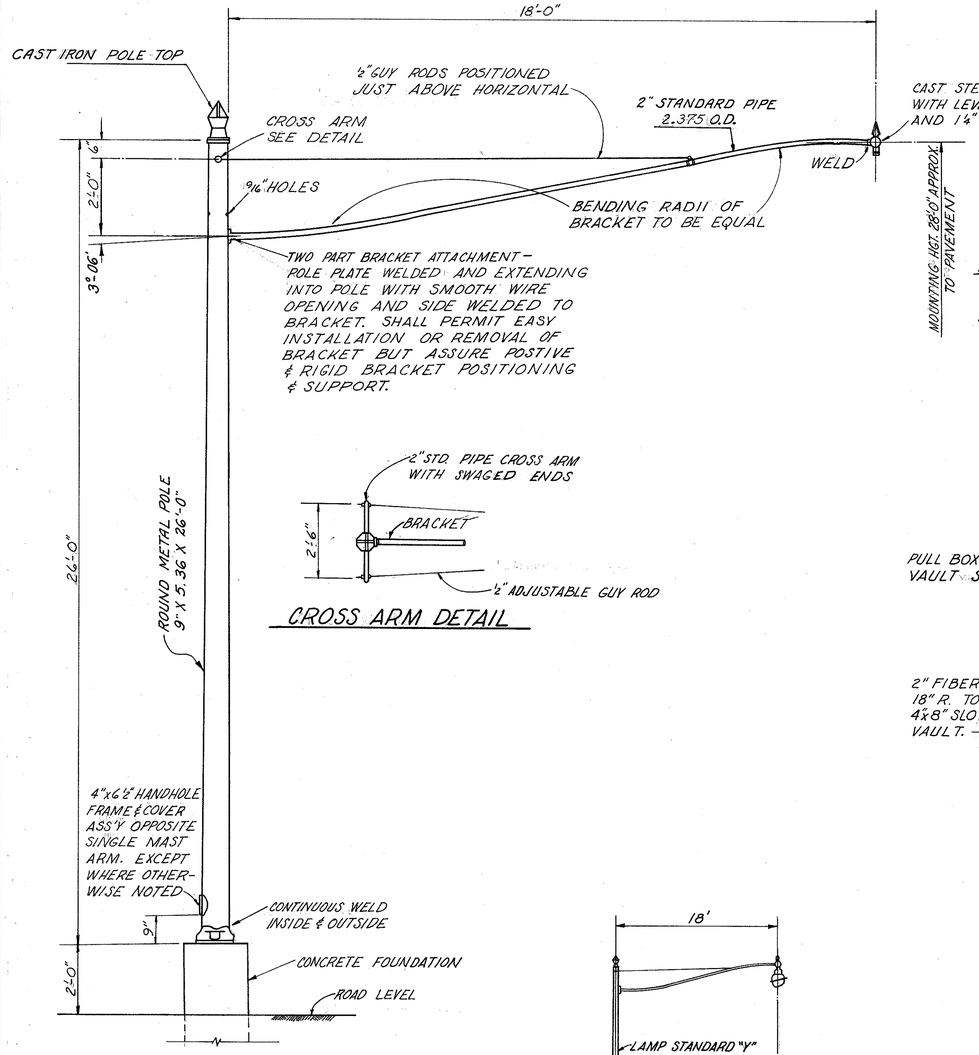
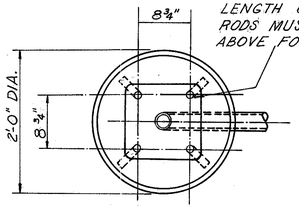
COYAHOGA COUNTY
COY-2-22.97



TYPICAL POLE MODIFICATION
LAMP STANDARD TYPE "Y"

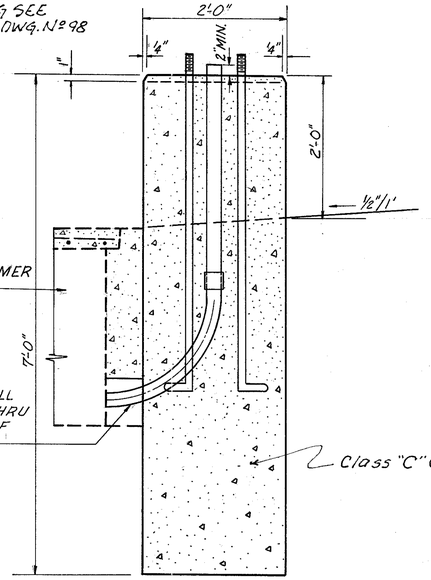
CROSS ARM DETAIL



4-1¼" ANCHOR BOLTS 60" OVERALL LENGTH ON 12½" BOLT CIRCLE. RODS MUST PROJECT 3½" ABOVE FOUNDATION

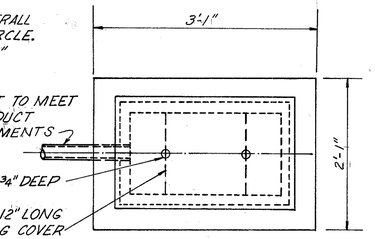
PLAN

NOTE: FOR ELECTRICAL GROUNDING SEE NOTE ② ON DWG. Nº 98



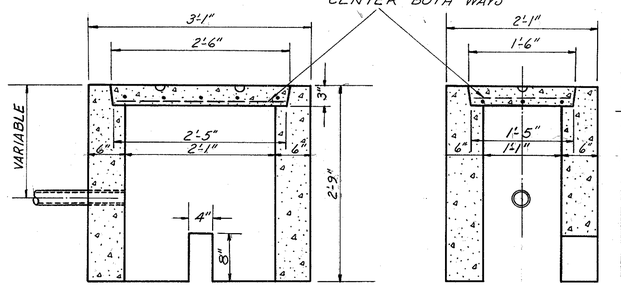
SECTION

LAMP STANDARD FOUNDATION SPECIAL
FOR TYPE "Y" LAMP STANDARDS
TO BE CAST IN PLACE



PLAN

½" REINFORCING RODS ON 6" CENTER TO CENTER BOTH WAYS

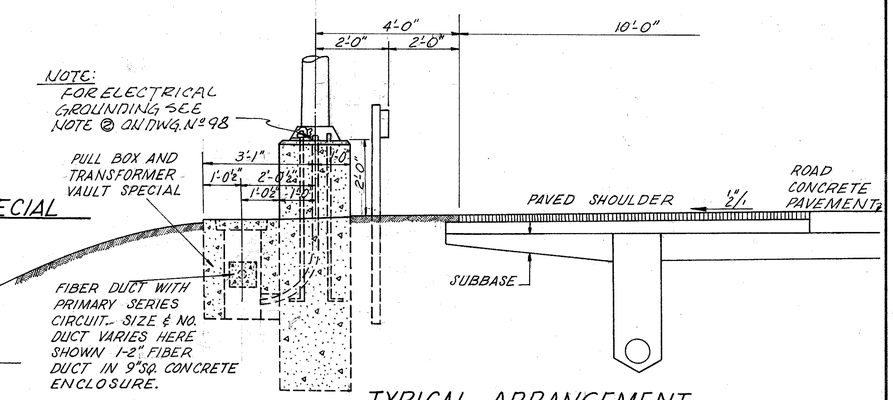


LONGITUDINAL SECTION

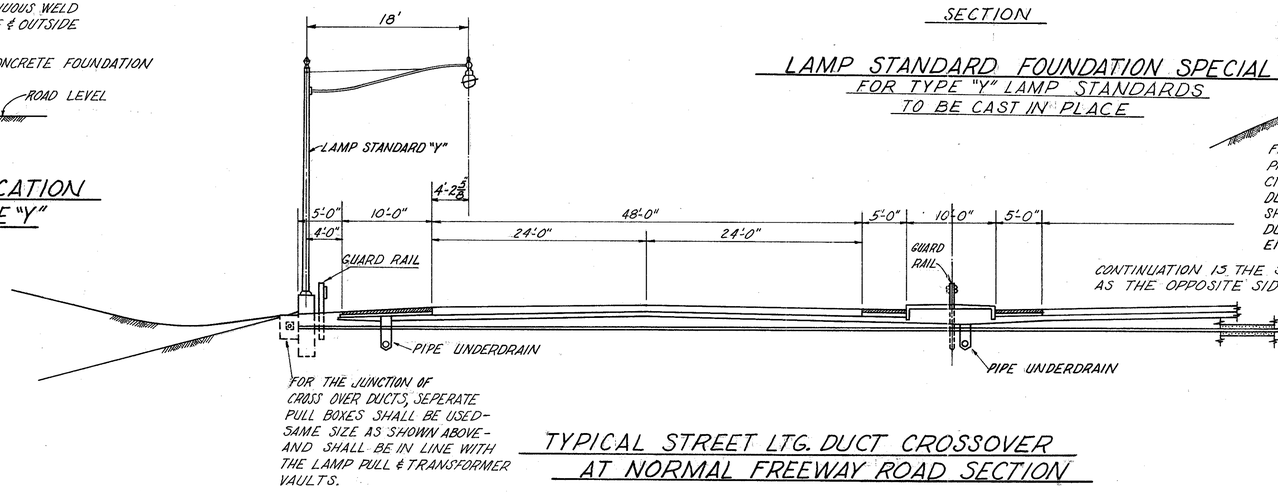
CROSS SECTION

NOTES:
4"X8" SLOT TO BE OMITTED WHEN USED AS A PULL BOX ONLY. THIS PULL BOX WILL BE DESIGNATED ON PLANS BY ▭ SPB (SPECIAL PULL BOX).

PULL BOX & TRANSFORMER VAULT SPECIAL
FOR LAMP STANDARDS TYPE "Y"



TYPICAL ARRANGEMENT
LAMP STANDARD "Y"



TYPICAL STREET LTG. DUCT CROSSOVER
AT NORMAL FREEWAY ROAD SECTION

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

LIGHTING DETAILS
LAMP STANDARDS
TYPE "Y"

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
E. GODANY	E. GODANY					

FED. AID DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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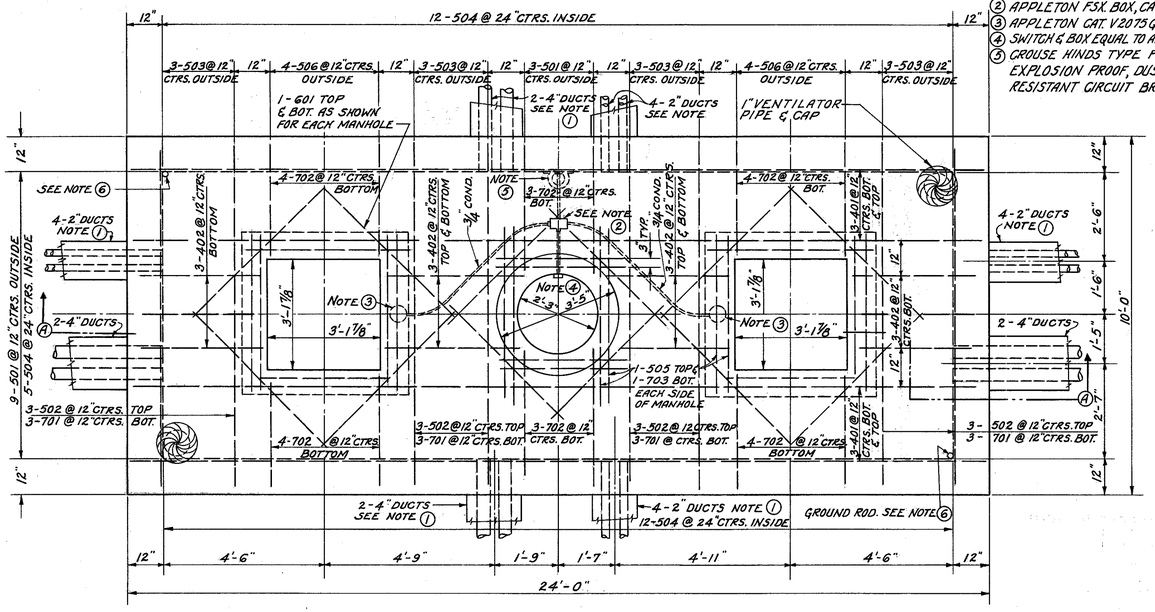
149

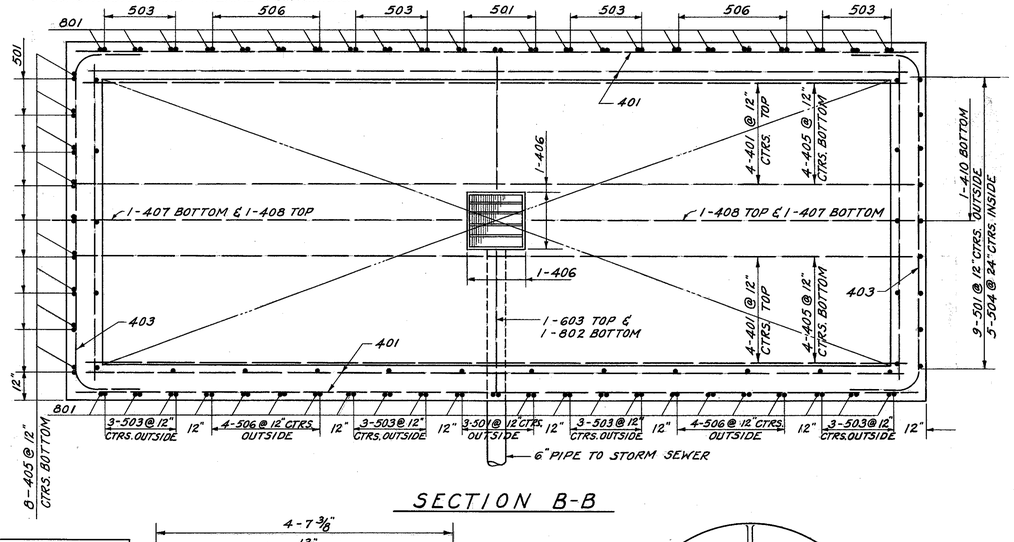
CUYAHOGA COUNTY
CUY-2-22.97

NOTES- ① WHERE INITIAL USE OF INDICATED DUCT BANKS IS NOT REQUIRED-SEE PLANS- EXTEND THE DUCTS THRU THE WALLS 18" MIN. & CAP ON THE OUTSIDE ENDS FOR FUTURE USE.
② APPLETON FSX. BOX, CAT. 7904,-GASKETED COVER.
③ APPLETON CAT. V2075 & VAPORTIGHT LIGHT FIXTURE.
④ SWITCH & BOX EQUAL TO APPLETON #CF-DEA-10, TYPE "E".
⑤ CROUSE HINDS TYPE FLB 171-DT-15-1, 15 A., 1-P. EXPLOSION PROOF, DUST-TIGHT AND WEATHER RESISTANT CIRCUIT BREAKER CONDULETS.
⑥ FOR GROUNDING 2 -1" DIA. x 10'-0" GROUND ROD SHALL BE PLACED IN DIAGONAL CORNERS OF THE VAULT WITH 6" OF THE ROD EXTENDING ABOVE THE FLOOR. ADDITIONAL GROUND RODS SHALL BE DRIVEN IF REQUIRED TO INSURE NOT OVER 5 OHM GROUNDS.
Ⓣ THE TOP AND SIDES OF TRANSFORMER VAULT SHALL BE PROVIDED WITH TYPE "B" WATER-PROOFING, ACCORDING TO OHIO STANDARD CONSTRUCTION AND MATERIAL SPECIFICATIONS.

FOR THE FLOOR VAPOR BARRIER A 0.004 POLYETHYLENE FILM SHALL BE APPLIED OVER THE SUB-GRADE. THE FILM SHALL BE LAPPED NOT LESS THAN 6" WITH THE TOP LAP PLACED IN THE DIRECTION OF THE SPREADING OF THE CONCRETE.



PLAN

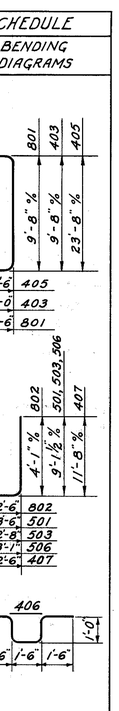


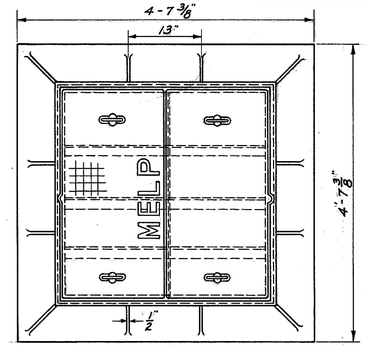
SECTION B-B

SECTION A-A

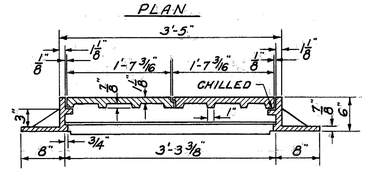
REINFORCING BAR SCHEDULE

MARK	SIZE	NO. REQ'D	LGTH.	TYPE	WGHT.	BENDING DIAGRAMS
401	4	56	23'-8	STR.	885	
402	4	18	3'-9	STR.	45	
403	4	18	13'-5	B	161	
404	4	14	9'-8	STR.	90	
405	4	8	28'-5	B	152	
406	4	4	6'-0	B	16	
407	4	2	14'-0	B	19	
408	4	2	11'-2	STR.	15	
501	5	24	12'-6	B	313	
502	5	12	9'-8	STR.	121	
503	5	24	11'-8	B	292	
504	5	34	9'-0	STR.	319	
505	5	24	5'-6	STR.	138	
506	5	16	12'-1	B	202	
601	6	24	5'-0	STR.	180	
602	6	22	9'-8	STR.	319	
603	6	2	4'-0	STR.	12	
701	7	12	9'-8	STR.	237	
702	7	22	3'-0	STR.	135	
703	7	24	5'-6	STR.	270	
801	8	22	14'-4	B	842	
802	8	2	6'-5	B	34	
			TOTAL		4,797	



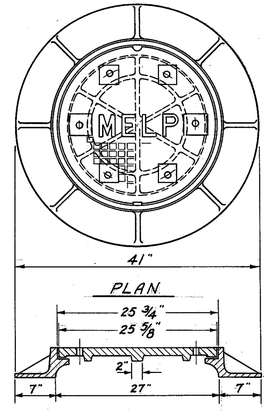


PLAN



CROSS SECTION

STANDARD SQUARE MANHOLE
SIDEWALK TYPE COVER AND FRAME
(BY THE MADISON FOUNDRY CO., DESIGN Nº 2346)



CROSS SECTION

STANDARD CI MANHOLE DETAILS
SIDEWALK TYPE RING & COVER
(BY THE MADISON FOUNDRY CO., DESIGN Nº 2371)

STRUCTURAL DETAIL NOTES

1-CONCRETE SHALL BE CLASS "E" OR CLASS "C" AT THE OPTION OF THE CONTRACTOR.
2-REINFORCING STEEL SHALL BE "2" CLEAR FROM FACE OF CONCRETE UNLESS NOTED OTHERWISE.
3-REINFORCING BAR SIZE IS INDICATED IN THE BAR MARK, THE FIRST DIGIT BEING THE BAR SIZE NUMBER. FOR EXAMPLE, A 602 BAR IS A NUMBER 6 SIZE BAR.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

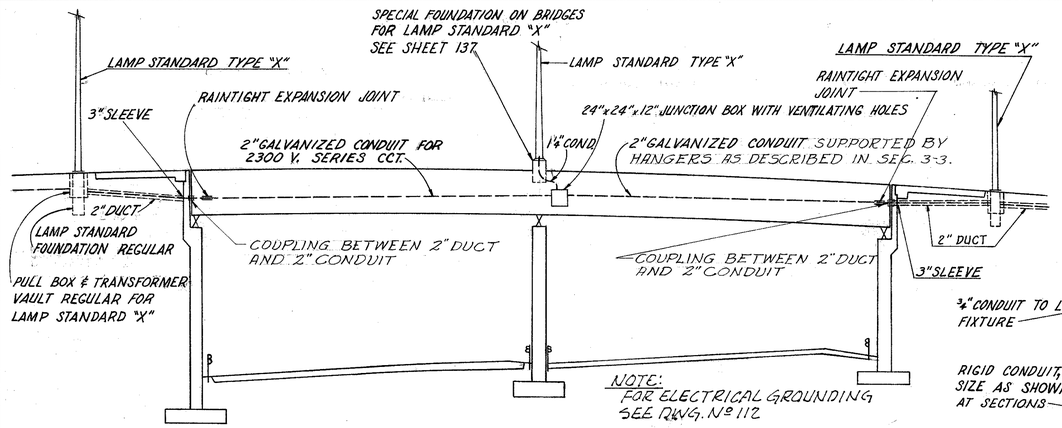
REGULATOR VAULT DETAILS

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

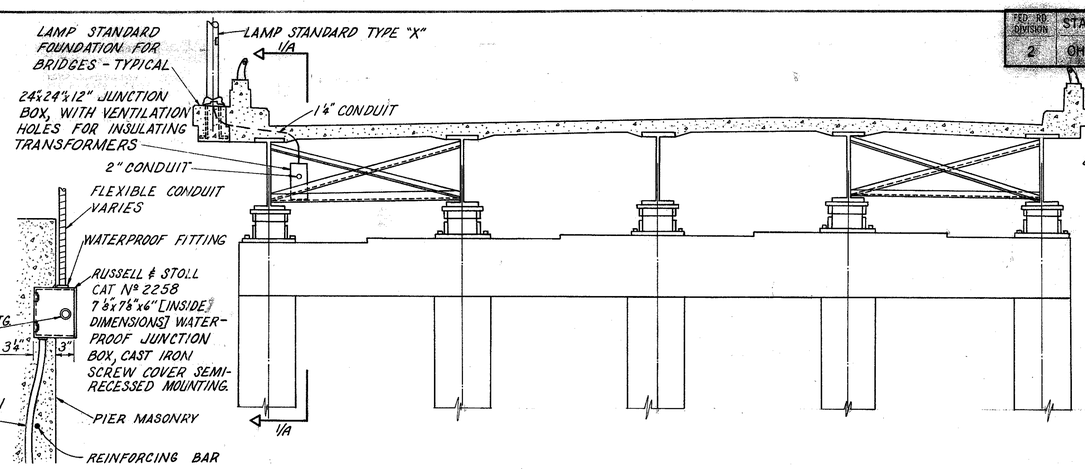
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

101/149

CUYAHOGA COUNTY CUY-2-22.97



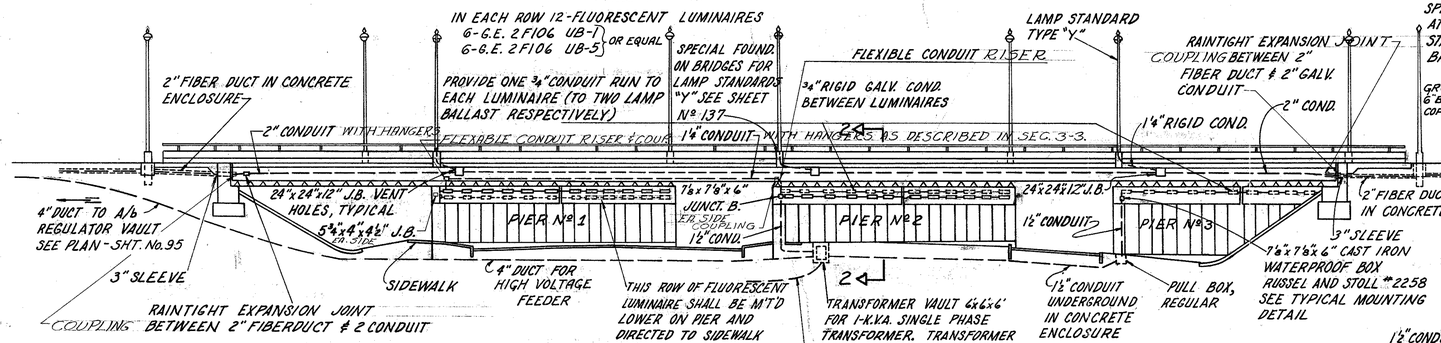
ELEVATION - BRIDGE OVER FREEWAY - RAMP Nº 1
BRIDGE Nº CUY-2-2310, STATION 139+50



TYPICAL MOUNTING DETAIL OF JUNCTION BOX ON PIER MASONRY FOR UNDERPASS FLUORESCENT LIGHTING

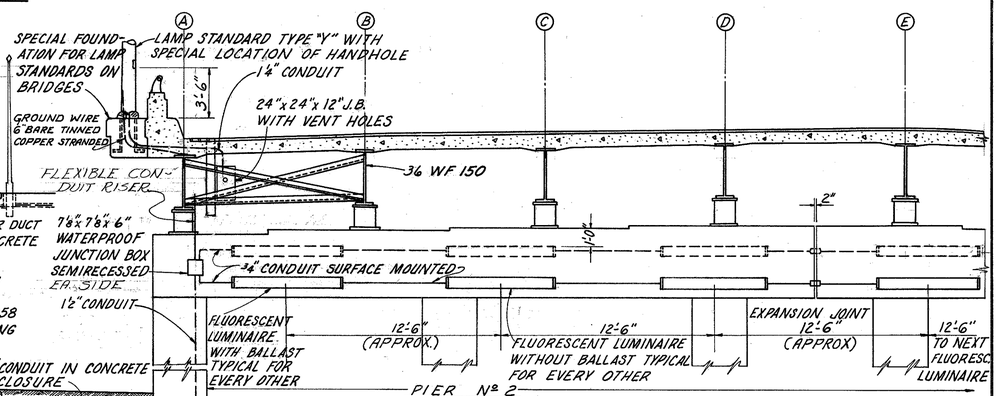
SECTION 1-1 - BRIDGE OVER FREEWAY RAMP Nº 1

SECTION 1/A - 1/A

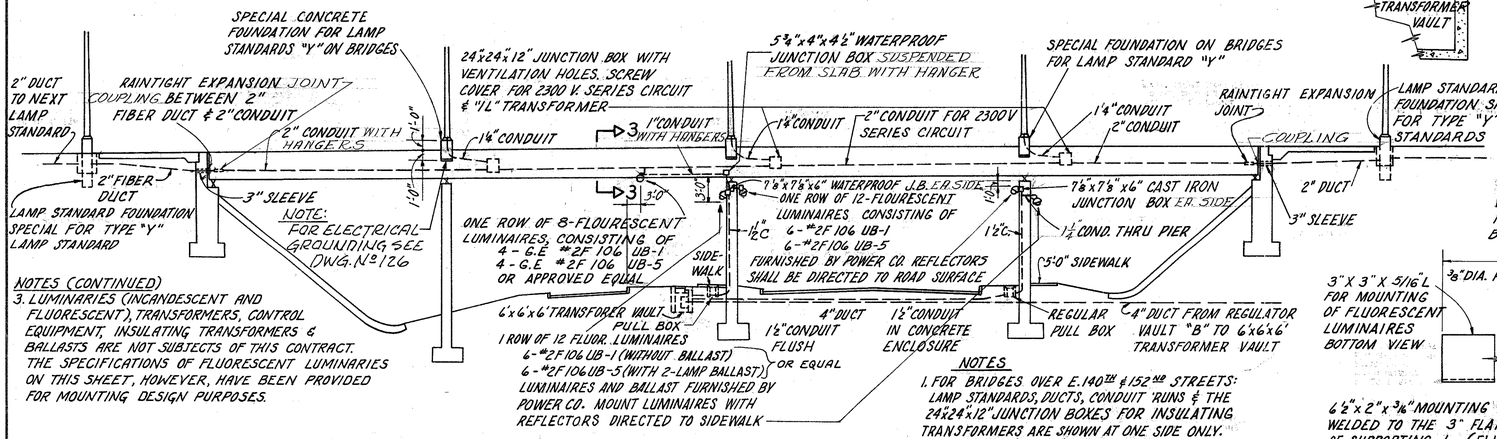


ELEVATION - BRIDGE OVER E. 140TH STREET
BRIDGE Nº CUY-2-2329 STATION 149+43.06

NOTE: FOR ELECTRICAL GROUNDING SEE DWG. Nº 117



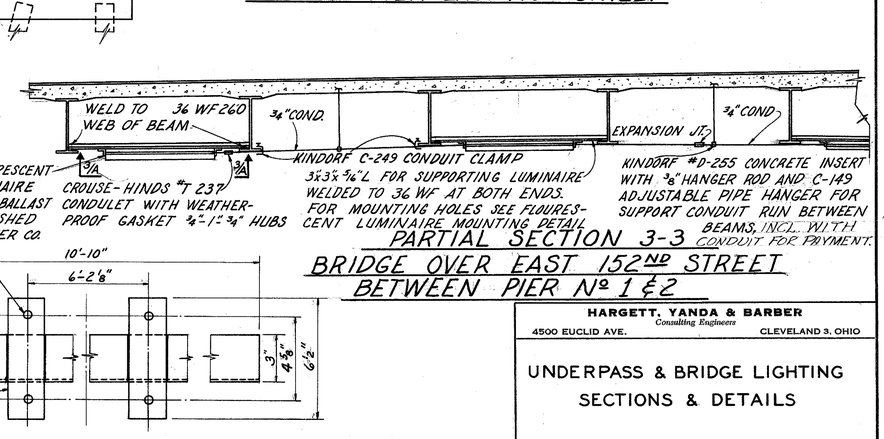
PARTIAL SECTION 2-2
BRIDGE OVER EAST 140TH STREET



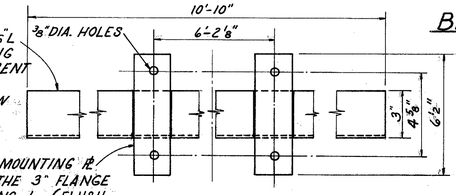
NOTES (CONTINUED)
3. LUMINARIES (INCANDESCENT AND FLUORESCENT), TRANSFORMERS, CONTROL EQUIPMENT, INSULATING TRANSFORMERS & BALLASTS ARE NOT SUBJECTS OF THIS CONTRACT. THE SPECIFICATIONS OF FLUORESCENT LUMINARIES ON THIS SHEET, HOWEVER, HAVE BEEN PROVIDED FOR MOUNTING DESIGN PURPOSES.

ELEVATION - BRIDGE OVER E. 152ND STREET
BRIDGE Nº CUY-2-2382, STATION 177+21.48

NOTES
1. FOR BRIDGES OVER E. 140TH & 152ND STREETS: LAMP STANDARDS, DUCTS, CONDUIT RUNS & THE 24"x24"x12" JUNCTION BOXES FOR INSULATING TRANSFORMERS ARE SHOWN AT ONE SIDE ONLY. THE ARRANGEMENT FOR THE OTHER SIDE OF THE BRIDGE IS THE SAME AS SHOWN.
2. ELECTRICAL ITEMS MOUNTED IN, -ON; -OR TO THE BRIDGE STRUCTURE, ARE INCLUDED AND PAID AS BRIDGE STRUCTURE ITEM S-25.



PARTIAL SECTION 3-3
BRIDGE OVER EAST 152ND STREET BETWEEN PIER Nº 1 & 2



SECTION 3/A - 3/A

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

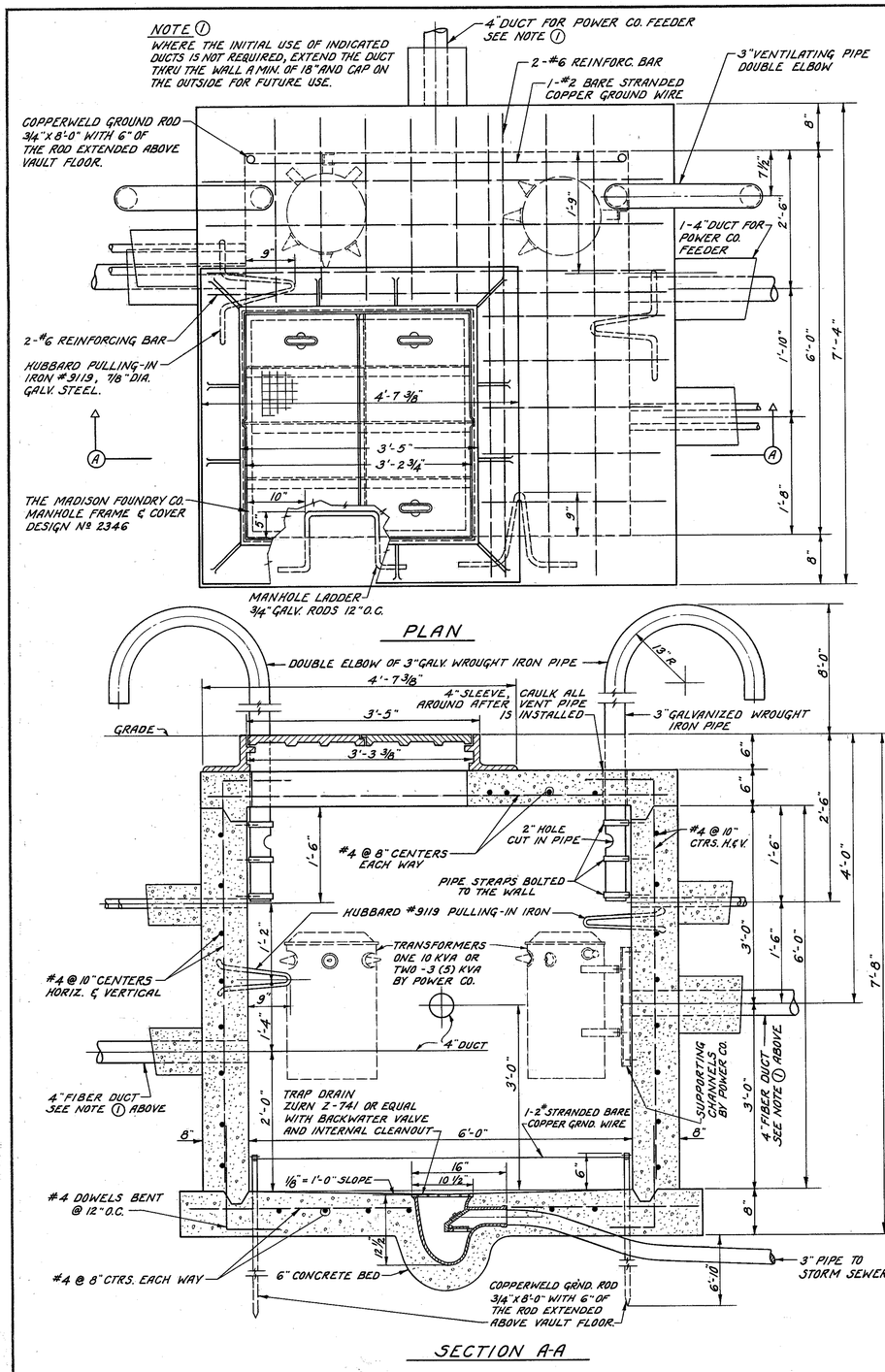
UNDERPASS & BRIDGE LIGHTING SECTIONS & DETAILS

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

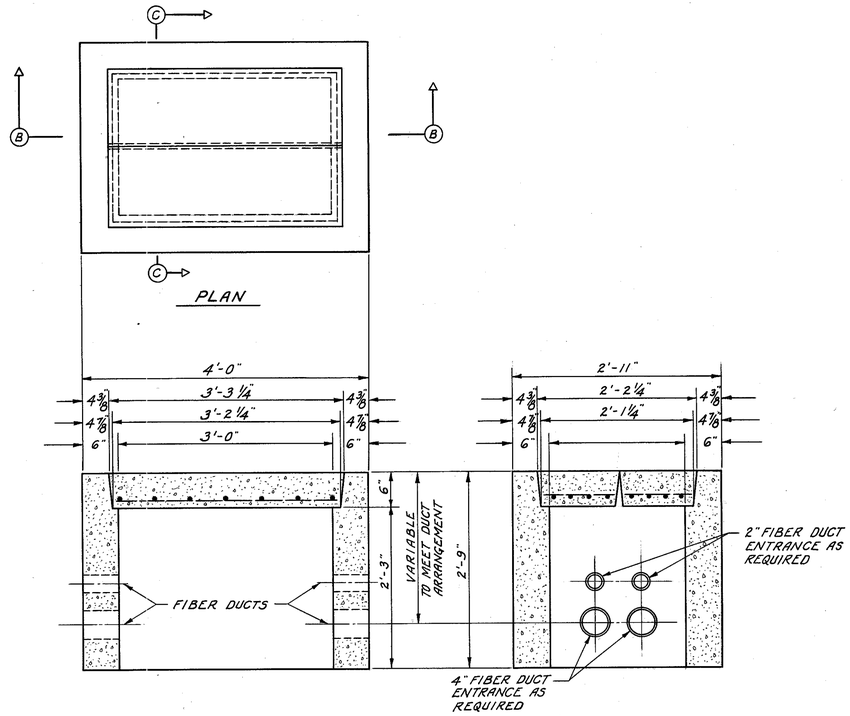
102
149

CUYAHOGA COUNTY
CUY-2-22.97



TRANSFORMER VAULT DETAILS FOR FLUORESCENT UNDERPASS LIGHTING

CONCRETE SHALL BE CLASS "E" OR CLASS "C".



TYPICAL DOUBLE PULL BOX DETAILS

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

UNDERPASS & BRIDGE LIGHTING
TRANSFORMER VAULT DETAILS
TYPICAL DOUBLE PULL BOX

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
		G.J.				

R-14

01-Y

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

103
149

CUYAHOGA COUNTY
CUY - 2 - 22.97

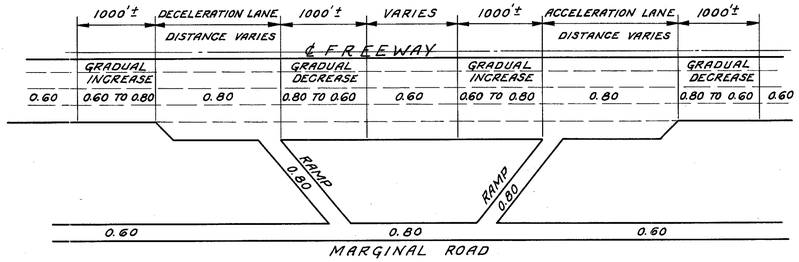
CUY-90-23.50

LAMP STANDARD ASSEMBLY

TYPE	POLE	MAST ARM	FOUNDATION	PULL BOX	NOTE
W	TYPICAL-MODIFIED	2 - 10 FOOT X)	REGULAR	REGULAR	X) EXCEPT WHERE OTHERWISE NOTED. SEE DRAWING 94, NOTE ①
X	TYPICAL	1 - 10 FOOT	REGULAR	REGULAR	
Y	TYPICAL-MODIFIED	1 - 18 FOOT	SPECIAL	SPECIAL	

GENERAL ILLUMINATION DATA

ROADWAY	LAMP SIZE	SPACING IN FT. GENERAL	SPACING IN FT. INTERSECTIONS	OVER-HANG	FOOTCANDLES GENERAL	FOOTCANDLES INTERSECTION	NOTE
FREEWAY	15,000 LUMENS	160	120	4'	.6	.8	CALCULATED WITH IES TYPE IV DISTRIBUTION LAMPS
MARGINAL ROADS	10,000 LUMENS	160	120	4'	.6	.8	CALCULATED WITH IES TYPE III DISTRIBUTION LAMPS
RAMPS	10,000 LUMENS	150	110	3-FT. WHERE GUARD RAILS USED 4-FT. WHERE GUARD RAILS WILL NOT BE USED	.6	.8	CALCULATED WITH IES TYPE III DISTRIBUTION LAMPS
CROSS STREETS (E.140TH & E.152ND ST.)	10,000 LUMENS		100	4'		.8	CALCULATED WITH IES TYP III DISTRIBUTION LAMPS



SCHEMATIC DIAGRAM OF FOOTCANDLES MAXIMUM CRITERIA

* 100% Cleveland participation items are for lighting the North and South Marginal Roads from East 140 St. to East 152 St.

TABLE 1

SYMBOLS AND SUMMARY OF QUANTITIES EXCEPT ITEMS OF BRIDGES - SEE NOTE ①

ITEM	DESCRIPTION	SYMBOLS	IN AREA OF NORMAL PART. CLEVELAND SHEET No. 94	95	96	97	TOTAL	IN AREA OF BRATENAHL SHEET NO. 94	100% CLEVELAND PART. SHEET No. 95	96	TOTAL *	GRAND TOTAL	NOTES
S-25	1-2" DUCT	—•—•—•—	1560	7515	8420	3400	20,895	5325	2715	2000	4715	30,935	FEET
S-25	1-4" DUCT	—o—o—		340	340		680					680	FEET
S-25	2-2" DUCT	—••—•••—	135	870	320		1,325	400				1,725	FEET
S-25	2-4" DUCT	—oo—oo—											
S-25	1-2" & 1-4" DUCT	—•o—•o—		150	880		1,030					1,030	FEET
S-25	2-2" & 1-4" DUCT	—••o—••o—		150			150					150	FEET
S-25	1-2" & 2-4" DUCT	—•oo—•oo—		190	215		405					405	FEET
S-25	2-2" & 2-4" DUCT	—••oo—••oo—			70		70					70	FEET
S-25	1-1" CONDUIT IN 3" CONCRETE ENCASED UNDERGROUND	CONDUIT SIZE NOTED ON PLANS											FEET
S-25	1-1¼" CONDUIT IN 3" CONCRETE ENCASED UNDERGROUND												FEET
S-25	1-1½" CONDUIT IN 3" CONCRETE ENCASED UNDERGROUND			220	125		345					345	FEET
S-25	1-2" CONDUIT IN 3" CONCRETE ENCASED UNDERGROUND												FEET
S-25	#6 GROUND WIRE ⑧		116	796	834	296	2972	438				3410	FEET
S-25	REGULAR PULL BOX	▫	7	54	60	7	126	11				137	EACH
S-25	SPECIAL PULL BOX SEE NOTE ③	▫	7	46	52	17	122	36				158	EACH
S-25	DOUBLE PULL BOX	▭		5	6		11					11	EACH
S-25	REGULAR FOUNDATION	▫	7	52	58	7	126	11				137	EACH
S-25	SPECIAL FOUNDATION	•	6	38	37	17	98	35				133	EACH
S-25	5/8"X 8'-0" COPPER GROUND ROD WITH CONNECTOR		13	90	95	24	222	46				268	EACH
S-25	LAMP STANDARD, TYPE W	—Ⓦ—o—Ⓦ—			3		3	⑦2	1		1	6	EACH
S-25	LAMP STANDARD, TYPE X	—⊗—	7	22	37	7	73	④9	29	18	47	129	EACH
S-25	LAMP STANDARD, TYPE Y	—Ⓨ—	6	38	37	17	98	35				133	EACH
S-25	10,000 LUMEN LAMP ⑥	—○—											
S-25	15,000 LUMEN LAMP ⑥	—◎—											
S-25	REGULATOR VAULT 22'X8'X8' COMPLETE AS SHOWN ON DETAIL SH.100	▭		2	1		3					3	COMPLETE VAULT AS SHOWN ON SHEET 100
S-25	TRANSFORMER VAULT FOR FLUORESCENT LTG. TRANSFORMER	▫		1	1		2					2	COMPLETE VAULT AS SHOWN ON SHEET 102
I-2	6" CLASS 'B' STORM SEWER	UNDER PAVT.		145	60		205					205	LIN FEET
I-2	3' CLASS 'B' STORM SEWER	UNDER PAVT.		50	70		120					120	LIN FEET

TABLE 2

SYMBOLS AND SUMMARY OF ELECTRICAL ITEMS OF BRIDGES - SEE NOTE ②

ITEM	DESCRIPTION	SYMBOLS	BRIDGE OVER FREEWAY AT RAMP NO. 1 IN AREA OF CITY OF CLEVELAND	IN AREA OF VILLAGE OF BRATENAHL	TOTAL	BRIDGE OVER E.140TH STREET CITY OF CLEVELAND	BRIDGE OVER E.152ND STREET	ALL TOGETHER FOR CITY OF CLEVELAND	GRAND TOTAL	NOTES
S-25	3/4" GALVANIZED RIGID CONDUIT WITH WATERPROOF FITTINGS	CONDUIT SIZE SHOWN ON PLANS				480	430	910	910	FEET
S-25	1" GALVANIZED RIGID CONDUIT WITH WATERPROOF FITTINGS						40	40	40	FEET
S-25	1¼" GALVANIZED RIGID CONDUIT WITH WATERPROOF FITTINGS			10	10	130	60	190	200	FEET
S-25	1½" GALVANIZED RIGID CONDUIT WITH WATERPROOF FITTINGS					60	55	115	115	FEET
S-25	2" GALVANIZED RIGID CONDUIT WITH WATERPROOF FITTINGS		80	120	200	500	530	1110	1230	FEET
S-25	#6 BARE STRANDED TINNED COPPER GROUND WIRE FOR ELEC. GROUNDING	---------		6	6	36	36	72	78	FEET
S-25	WEATHER RESISTANT EXPANSION JOINT 2" SIZE	—▭—	1	1	2	4	4	9	10	EACH
S-25	WEATHER RESISTANT EXPANSION JOINT 3/4" SIZE					5	7	12	12	EACH
S-25	24"X 24"X 12" JUNCTION BOX, STD COLUMBIA WITH HINGED COVER GALVANIZED	□		1	1	6	6	12	13	EACH
S-25	7⅛" X 7⅛" X 6" CAST IRON JUNCTION BOX WITH GASKET	□				3	4	7	7	EACH
S-25	5¾" X 4" X 4½" CAST IRON JUNCTION BOX WITH GASKET	□				1	1	2	2	EACH
S-25	SPECIAL CONCRETE FOUNDATION FOR LAMP STANDARDS ON BRIDGE STRUCTURE	▾		1	1	6	6	12	13	EACH
S-25	LAMP STANDARD TYPE "Y" ⑤	—Ⓨ—				6	6	12	1	EACH
S-25	#0 BARE STRANDED TINNED COPPER GROUND WIRE	---------		60	60	60	60	120	180	FEET
S-25	HIGH OUTPUT SINGLE LAMP FLUORESCENT LUMINAIRE ⑥	▭▭				60	56	116	116	EACH
S-25	LAMP STANDARD TYPE "X" ⑤			1	1				1	EACH

NOTES:

① - ELECTRICAL ITEMS MOUNTED IN-, ON- OR TO THE STRUCTURE OF A BRIDGE (UNDERPASS) ARE NOT INCLUDED IN TABLE 1.

② - ELECTRICAL ITEMS MOUNTED IN-, ON- OR TO THE STRUCTURE OF A BRIDGE (SHOWN TABLE 2) ARE INCLUDED AND PAID FOR AS BRIDGE STRUCTURE ITEM S-25.
THESE ELECTRICAL ITEMS ARE INDICATED ON THE FOLLOWING STRUCTURAL DRAWINGS:
BRIDGE OVER FREEWAY AT RAMP No. 1 - SEE DRAWING No. 114, FOR GROUNDING DWG.#112
BRIDGE OVER E.140TH STREET - SEE DRAWING No. 124, FOR GROUNDING DWG.#117
BRIDGE OVER E.152ND STREET - SEE DRAWING No. 134, FOR GROUNDING DWG.#126

③ - ALL PULL BOXES AT LAMP STANDARDS "Y" WITHOUT MARKS SHALL BE SPECIAL PULL BOXES. WHEN PULL BOX USED SEPARATELY FROM STANDARD, MARK "SPB" IS SHOWN IN CASE SPECIAL PULL BOX IS SPECIFIED.

④ - OUT OF THE INDICATED NUMBER OF LAMP STANDARDS AT RAMP 1 & 1A, 3-POLES SHALL HAVE THE 4"X 6½" HANDHOLE ON THE MAST ARM SIDE OF POLE.

⑤ - LAMP STANDARDS ON BRIDGES SHALL HAVE THE 4"X 6½" HANDHOLE AT THE MAST ARM SIDE OF THE POLE AND THE BOTTOM OF THE HANDHOLE SHALL BE 3'-6" FROM THE BOTTOM END OF THE POLE.

⑥ - LUMINAIRES ARE NOT SUBJECTS OF THIS CONTRACT.

⑦ - 1-LAMP STANDARD HAS ONE 10'-0" AND ONE 16'-0" MAST ARMS. HANDHOLE AT THE 10' SIDE.

NOTES (CONTINUED)

⑧ #6 AWG BARE STRANDED, TINNED COPPER GROUND WIRE FOR ELECTRICAL GROUNDING. 8'-0" FOR EACH TYPE "X" & "W" STANDARD, 10'-0" FOR EACH TYPE "Y" STANDARD.

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GENERAL ILLUMINATION DATA, SYMBOLS AND SUMMARY OF QUANTITIES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	1-329(12)	1958

CUYAHOGA COUNTY
CUY-2-22.97

RADIOGRAPHIC EXAMINATION OF WELDS

THIS WORK SHALL CONSIST OF THE PERFORMANCE AND INTERPRETATION OF A RADIOGRAPHIC EXAMINATION OF BUTT WELDS AS REQUIRED BY THESE SPECIFICATIONS. IT SHALL INCLUDE THE PREPARATION AND POSITIONING OF WELDS FOR EXAMINATION, THE RADIOGRAPHING OF WELDS, THE PROCESSING AND EXAMINATION OF RADIOGRAPHS, THE INTERPRETATION OF RADIOGRAPHS FOR COMPLIANCE WITH THESE SPECIFICATIONS, AND THE PERFORMANCE AND INTERPRETATION OF ANY RETAKES OF RADIOGRAPHS REQUIRED FOR WELDS MADE TO REPLACE UNSATISFACTORY WELDS.

A. APPROVAL OF DIRECTOR

THE CONTRACTOR SHALL FURNISH EVIDENCE, ACCEPTABLE TO THE DIRECTOR, OF THE ADEQUACY OF THE EQUIPMENT TO BE USED AND THE COMPETENCE OF THE PERSONNEL.

THE INTERPRETATION OF RADIOGRAPHS AND THE CORRECTION OF DEFECTIVE WELDS SHALL BE SUBJECT TO THE APPROVAL OF THE DIRECTOR.

B. SCOPE OF EXAMINATION

BY MEANS OF RADIOGRAPHIC EXAMINATION, THE CONTRACTOR SHALL FURNISH EVIDENCE OF THE ACCEPTABLE QUALITY OF THE BUTT WELDS OF ALL GIRDERS. THE PARTS OF THESE MEMBERS TO BE RADIOGRAPHED ARE AS FOLLOWS:

(1). THE COMPLETE BUTT WELDS IN THE FLANGES OF EACH GIRDER EXCEPT THE BOTTOM FLANGE OVER THE BEARING DEVICES.

(2). ONE FOOT AT EACH END OF EACH OF THE WEB SPLICE WELDS.

THE SHOP EXAMINATION OF THE BUTT WELDS OF THE FLANGE PLATES AND OF THE WEB PLATES SHALL BE DETERMINED TO BE ACCEPTABLE BEFORE THESE FLANGE AND WEB PLATES ARE ASSEMBLED AND WELDED TO FORM THE GIRDERS. THE EXAMINATION OF FIELD WELDS SHALL BE MADE AS SOON AS PRACTICABLE AFTER WELDING AT EACH FIELD SPLICE IS COMPLETED.

RADIOGRAPHIC INSPECTION OF WELDS OF ROLLED BEAMS WILL NOT BE REQUIRED.

C. WELD CONDITION

ALL WELDED JOINTS WHICH ARE TO BE RADIOGRAPHED SHALL BE FREE OF PAINT, SCALE AND GREASE AND SHALL BE GROUND FREE OF ALL WELD RIPPLES AND SURFACE IRREGULARITIES ON BOTH SIDES. THE DIRECTION OF GRINDING SHALL BE PERPENDICULAR TO THE LENGTH OF THE WELD. THE WELDS SHALL BE GROUND TO SUCH A DEGREE THAT THE RESULTING RADIOGRAPHIC CONTRAST, DUE TO REMAINING IRREGULARITIES, CANNOT MASK OR BE CONFUSED WITH THAT OF ANY OBJECTIONABLE DEFECT AND THAT THE WELD SURFACE WILL MERGE SMOOTHLY INTO THE PLATE SURFACE. UNLESS SPECIFIED TO BE GROUND FLUSH, THE FINISHED SURFACE OF THE REINFORCEMENT MAY HAVE A CROWN EQUAL TO ONE-EIGHTH THE THICKNESS OF THE METAL BUT NOT MORE THAN 1/8 INCH.

D. RADIOGRAPHIC TECHNIQUE

THE WELD SHALL BE RADIOGRAPHED WITH A TECHNIQUE WHICH WILL DETERMINE QUANTITATIVELY THE SIZE THE DEFECTS WITH THICKNESSES EQUAL TO OR GREATER THAN 2 PER CENT OF THE THICKNESS OF THE BASE METAL. IN THE CASE OF A WELD JOINING PLATES OF UNEQUAL THICKNESS, BOTH PLATES MUST BE RADIOGRAPHED AT 2 PER CENT SENSITIVITY TOGETHER OR SINGLY, WITH THE WELD JUNCTION EVIDENT IN BOTH VIEWS.

TO DETERMINE WHETHER THE RADIOGRAPHIC TECHNIQUE EMPLOYED IS DETECTING DEFECTS OF A THICKNESS EQUAL TO OR GREATER THAN 2 PER CENT OF THE THICKNESS OF THE BASE MATERIAL, THICKNESS GAGES OR PENETRAMETERS OF THE TYPE HEREINAFTER SPECIFIED SHALL BE PLACED ON THE SIDE OF THE WELDED PLATE NEAREST THE SOURCE OF RADIATION AT AN EXTREME EDGE OF THE RADIOGRAPHIC PLATE OR FILM.

THE MATERIAL OF THE PENETRAMETER SHALL BE SUBSTANTIALLY THE SAME AS THAT OF THE WELDED PLATE.

THE THICKNESS OF THE PENETRAMETER SHALL BE NOT MORE THAN 2 PER CENT OF THE THICKNESS OF THE PLATE EXCLUSIVE OF ANY WELD REINFORCEMENT. PENETRAMETERS DESIGNED FOR INCREMENTS OF 1/8" OF PLATE THICKNESS ARE ACCEPTABLE.

IN EACH PENETRAMETER THERE SHALL BE THREE HOLES WITH DIAMETERS EQUAL RESPECTIVELY TO TWO, THREE, AND FOUR TIMES THE PENETRAMETER THICKNESS, BUT IN NO CASE SHALL LESS THAN 1/16" DIAMETER BE USED.

EACH PENETRAMETER SHALL CARRY AN IDENTIFYING NUMBER REPRESENTING IN TWO SIGNIFICANT FIGURES THE MINIMUM THICKNESS IN INCHES OF THE PLATE FOR WHICH IT MAY BE USED. PENETRAMETERS MAY BE ESTABLISHED FOR DIFFERENCES IN THICKNESS NOT TO EXCEED 1/8" SO THAT A SET OF PENETRAMETERS VARYING FOR INCREMENTS OF PLATE THICKNESS OF 1/8" WILL BE ADEQUATE TO SERVE PLATES HAVING THICKNESSES BETWEEN THESE 1/8" DIMENSIONS.

THE IMAGES OF IDENTIFYING NUMBERS AND THE HOLES OF EACH PENETRAMETER MUST APPEAR CLEARLY ON THE RADIOGRAPH TO ESTABLISH THE 2 PER CENT SENSITIVITY.

FOR PLATES UP TO AND INCLUDING 2-1/2" IN THICKNESS, EACH PENETRAMETER SHALL BE 1-1/2" LONG AND 1/2" WIDE. FOR PLATES THICKER THAN 2-1/2", EACH PENETRAMETER SHALL BE 2-1/4" LONG AND 1" WIDE.

THE FILM DURING EXPOSURE SHALL BE AS CLOSE TO THE WELD AS PRACTICABLE. IF POSSIBLE, THIS DISTANCE SHALL BE NOT GREATER THAN 1 INCH. IN ANY EVENT, THE RATIO

$$\frac{\text{DISTANCE FROM SOURCE OF RADIATION TO WELD SURFACE TOWARD RADIATION}}{\text{DISTANCE FROM WELD SURFACE TOWARD RADIATION TO FILM}}$$

SHALL BE AT LEAST 7 TO 1.

ALL RADIOGRAPHS SHALL BE FREE FROM EXCESSIVE MECHANICAL PROCESSING DEFECTS WHICH WOULD INTERFERE WITH PROPER INTERPRETATION OF THE RADIOGRAPH.

INDENTIFICATION MARKERS, THE IMAGES OF WHICH WILL APPEAR ON THE FILM, SHALL BE PLACED ADJACENT TO THE WELD, AND THEIR LOCATIONS SHALL BE ACCURATELY AND PERMANENTLY MARKED ON THE OUTSIDE SURFACE NEAR THE WELD SO THAT A DEFECT APPEARING ON THE RADIOGRAPH MAY BE ACCURATELY LOCATED.

THE SIZE OF FILM TO BE USED SHALL BE 4" WIDE X 15" LONG UNLESS PERMISSION TO USE A DIFFERENT SIZE IS OBTAINED IN WRITING FROM THE DIRECTOR.

E. STANDARDS OF ACCEPTABILITY

THE ACCEPTABILITY OF THE WELDS EXAMINED BY RADIOGRAPHY SHALL BE JUDGED BY THE FOLLOWING STANDARDS:

(1) CRACKS:

DEFINITION - A DISCONTINUITY RESULTING FROM A VERY NARROW SEPARATION OF METAL.

STANDARD - NO WELD CONTAINING CRACKS, REGARDLESS OF LENGTH, SIZE, OR LOCATION, SHALL BE CONSIDERED ACCEPTABLE.

(2) GAS POROSITY:

DEFINITION - GAS POCKETS OR VOIDS IN METAL.

STANDARD - THE MAXIMUM DIMENSION OF ANY INDIVIDUAL GAS POCKET SHALL NOT EXCEED 1/8 INCH. THE MAXIMUM ACCUMULATION OF GAS POCKETS SHALL NOT EXCEED THAT SHOWN IN THE "POROSITY STANDARDS" OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

(3) SLAG INCLUSIONS:

DEFINITION - NONMETALLIC, SOLID MATERIAL ENTRAPPED IN WELD METAL OR BETWEEN WELD METAL AND BASE METAL.

STANDARD A - ELONGATED SLAG INCLUSIONS: NO ELONGATED SLAG INCLUSION SHALL EXCEED TWO-THIRDS OF THE THICKNESS OF THE THINNER PLATE OF THE JOINT IN LENGTH AND 1/16" IN WIDTH, EXCEPT THAT REGARDLESS OF THE PLATE THICKNESS, NO SUCH INCLUSION SHALL BE LONGER THAN 3/4" AND EXCEPT THAT NO SUCH INCLUSION WHICH IS SHORTER THAN 1/4" SHALL BE CAUSE FOR REJECTION.

B - ISOLATED SLAG INCLUSIONS: IN ANY 12 INCH LENGTH OF WELD, THE MAXIMUM WIDTH OF ANY ISOLATED SLAG INCLUSION SHALL NOT EXCEED 1/8 INCH, THE SUMMATION OF LENGTHS OF ISOLATED SLAG INCLUSIONS SHALL NOT EXCEED 1 INCH, AND THERE SHALL BE NO MORE THAN FOUR ISOLATED SLAG INCLUSIONS OF THE MAXIMUM WIDTH OF 1/8 INCH. ANY TWO SUCH INCLUSIONS SHALL BE SEPARATED BY AT LEAST 2 INCHES OF SOUND WELD METAL.

(4) INCOMPLETE FUSION:

DEFINITION - FAILURE OF THE WELD METAL TO FUSE COMPLETELY WITH THE BASE METAL OR PRECEDING BEADS.

STANDARD - NO INDIVIDUAL LACK OF FUSION SHALL EXCEED 1/2 INCH IN LENGTH. IN ANY 12 INCH LENGTH OF WELD, THE SUMMATION OF LENGTHS OF LACK OF FUSION SHALL NOT EXCEED 3/4 INCH AND INDIVIDUAL DEFECTS SHALL BE SEPARATED BY AT LEAST 6 INCHES OF SOUND METAL.

(5) INCOMPLETE PENETRATION:

DEFINITION - ROOT PENETRATION WHICH IS LESS THAN COMPLETE OR FAILURE OF A ROOT PASS AND A BACKING PASS TO FUSE WITH EACH OTHER.

STANDARD - NO INDIVIDUAL LACK OF PENETRATION SHALL EXCEED 1/2 INCH IN LENGTH. IN ANY 12 INCH LENGTH OF WELD, THE SUMMATION OF LENGTHS OF LACK OF PENETRATION SHALL NOT EXCEED 3/4 INCH AND INDIVIDUAL DEFECTS SHALL BE SEPARATED BY AT LEAST 6 INCHES OF SOUND METAL.

F. REPAIR OF DEFECTIVE WELDS

DEFECTIVE WELDS SHALL BE REPAIRED BY CHIPPING OR MELTING OUT SUCH DEFECTS FROM ONE OR BOTH SIDES OF THE JOINT AS REQUIRED, REMOVING ONLY SUFFICIENT WELD METAL TO CORRECT THE DEFECT. THE JOINT SHALL THEN BE REWELDED AND AGAIN RADIOGRAPHED.

G. ADDITIONAL RADIOGRAPHS

WHEREVER AN UNACCEPTABLE WELD OCCURS, A RADIOGRAPH SHALL BE MADE OF THE ADJOINING 12-INCH LENGTHS OF WELD TO DETERMINE IF THE FLAWS EXTEND BEYOND THE LIMITS OF THE ORIGINAL RADIOGRAPH. IF UNACCEPTABLE FLAWS OCCUR IN THESE ADJOINING LENGTHS OF WELD, THESE DEFECTIVE WELDS SHALL BE REPAIRED, AND THIS PROCEDURE REPEATED FOR THE NEXT ADJOINTING 12 INCH LENGTH OF WELD.

H. CUSTODY OF RADIOGRAPHS

AS SOON AS THE RADIOGRAPHING OF THE WELDMENTS ON THE FULL LENGTH OF EACH FLANGE OR WEB PLATE BETWEEN FIELD SPLICES HAS BEEN COMPLETED, THE CONTRACTOR SHALL SEND TO THE STATE THE PROCESSED CONT ACT FILM (THAT FILM CLOSEST TO THE SOURCE OF RADIATION) OF ALL ORIGINAL AND RETAKE RADIOGRAPHS. THESE RADIOGRAPHS SHALL BE ACCOMPANIED BY A CERTIFICATION FROM THE CONTRACTOR THAT THE RADIOGRAPHIC EXAMINATION WAS PERFORMED IN CONFORMANCE WITH THESE SPECIFICATIONS. THE RADIOGRAPHS SHALL BECOME THE PROPERTY OF THE STATE. EACH RADIOGRAPH SHALL BE CLEARLY IDENTIFIED TO SHOW THE LOCATION ON THE STRUCTURE AT WHICH IT WAS TAKEN. UNACCEPTIABLE DEFECTS SHALL BE IDENTIFIED IN EACH RADIOGRAPH IN WHICH THEY OCCUR, AND THE REPAIR OR REPLACEMENT OF EACH UNACCEPTABLE WELD DEFECT SHALL BE NOTED AND IDENTIFIED.

I. REPORT OF COST

AFTER THE COMPLETION OF THE RADIOGRAPHIC INSPECTION OF WELDS, THE CONTRACTOR SHALL FURNISH THE STATE A COMPLETE REPORT OF THE COST OF PERFORMING THIS WORK, SEPARATED INTO THE ITEMS MENTIONED IN THE FOLLOWING PARAGRAPH.

J. BASIS OF PAYMENT

PAYMENT FOR THIS WORK, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR S-7, "STRUCTURAL STEEL".

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RADIOGRAPHIC INSPECTION OF WELDS
BRIDGE Nº CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1
CUYAHOGA COUNTY STA. 139+50
SEG. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
W.A.B.	W.A.B.	J.L.	W.A.B.			

FED. RD. DIVISION 2 | STATE OHIO | PROJECT I-329(12) | FISCAL YEAR
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CUYAHOGA COUNTY
CUY-2-22.97
Freeway Horizontal Curve Data
D = 1°-45'-27" R
Δ = 27°-57'-39"
R = 3260.18'
T = 811.67'
L = 1591.00'
L.C. = 1575.26'
E = 99.52'
P.C.C. = Sta. 129+00
C.S. = Sta. 144+91
℄ Ramp No 1-A
℄ Ramp No 1
℄ Freeway
Sta. 138+59.59
8' Ditch
Begin Guard Rail Sta. 137+52
Begin Guard Rail Sta. 139+79.5
Sta. 10+62.85 Begin Taper
P.C. Sta. 11+12.85 End Taper
Variable Slope
Bridge Limits 201.00'
4'-2¾" Min. Clearance
Sta. 13+69.01 Ramp No 1.
Sta. 139+50 Freeway
Skew Angle 41°31'23"
P.T. Sta. 12+30.86
End Approach Slab Sta. 12+68.51
Begin Approach Slab Sta. 14+69.51
Profile Grade N-8°-15'-36"
Point "A"
R = 100'
R = 30'
Varies 48'-0"
Sta. 140+47.09
48" Storm Sewer
44" Storm Sewer
6" Water
12" Water
℄ East 136th St.
℄ Diana
℄ Chautauqua
Ramp No 1. Horizontal Curve Data
Datum Reference = ℄ Approach Pavement
R = 159.50'
D = 35°-55'-20"
Δ = 42°-23'-24"
L = 118.01'
P.T. = Sta. 12+30.86
T = 61.85'
CH. = 115.33'
E. = 11.57'
M = 10.79'
P.C. = Sta. 11+12.85
Legend
Fire Hydrant
General Pole
Telephone Pole
Exist. Manhole
Exist. Catch B.
Water Meter
Valve
C.E.I. Power Line
400' Vertical Curve
+3.45%
-5.0%
P.C.
P.I. 629.12
P.T.
Profile Grade
.0367% Super
.0367% Superelevation
15'-1⅜" Min. Clear @ Point "A"
10" Reinforced Conc. Pavement
6" Subbase
593.0
596.0
598.50
FOUNDATION SOUNDINGS
Foundation design and foundation quantities are based on a study of rod soundings and soil sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges, in Columbus, or in the Division office, but the State does not guarantee the accuracy there of.
12" ⌀ cast-in-place reinforced concrete piles at all piers and abutments. Estimated average pay lengths = 80'; End wall = 100'.
PROPOSED STRUCTURE
TYPE CONTINUOUS ℄ GIRDER WITH REINFORCED CONCRETE DECK, PIERS AND ABUTMENTS
SPANS 97'-6" 97'-6" ℄ BEARINGS
ROADWAY 34'-0" F/F PARAPETS
LOADING CF-2000-57 (ADEQUATE FOR AASHO ALTERNATE LOADING)
SKEW 41° 31' 23" R.F.
WEARING SURFACE 1" MONOLITHIC CONCRETE
APPROACH SLAB AS-1-54 (25'-0" LONG)
ALIGNMENT TANGENT
HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO
SITE PLAN
BRIDGE NO. CUY-2-2310
LAKELAND FREEWAY UNDER RAMP NO. 1
STATION 139+50
SR-2 & USR-20 SEC CUY-2-22.97
SCALE 1"=20'-0" I-329 (12) CUYAHOGA COUNTY
SITE PLAN RAMP NO. 1

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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CUYAHOGA COUNTY
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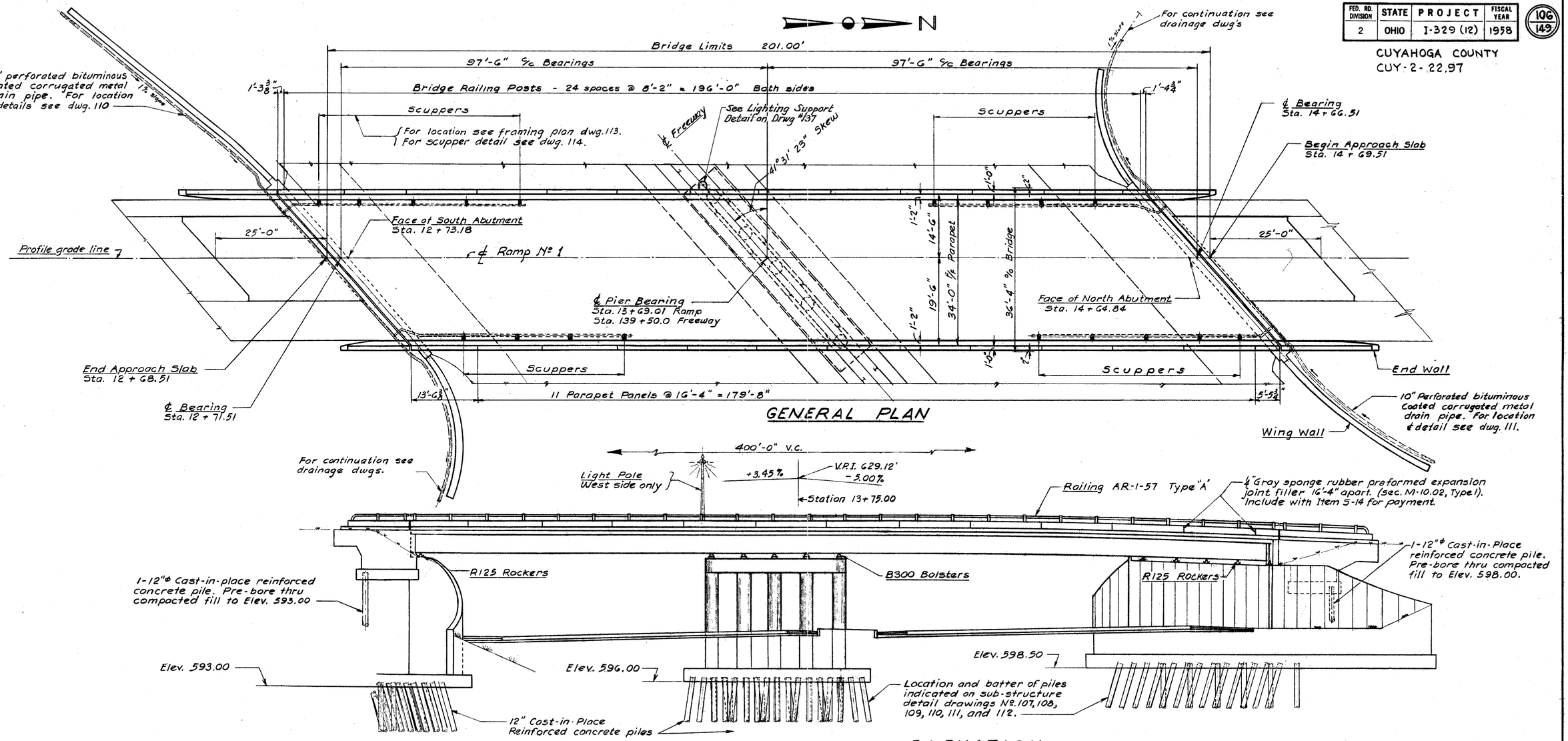

GENERAL NOTES

REFERENCE shall be made to standard drawings RB-1-55 revised 2-2-59; AR-1-57 revised 2-2-59.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57 together with revisions dated Feb. 21, 1958.

GALVANIZING of all members which are specified to be galvanized shall be as called for in Sec. M-7.4 (d).

EXCAVATION QUANTITY for the End Walls includes the removal of fill material required for construction of the end walls.

WELDING of structural steel shall be class "A" unless otherwise noted. Any welds shown as field welds may, at the option of the contractor, be made in the shop. Class "B" weld shown thus B>

DETAILS: For details of end crossframes, end dams, aluminum railing posts, beam cut-off at backwall, and welded butt joint in super-structure end dam at crown see drawings 135, 136 & 137.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the centerline of bridge and are located near the center of the span.

SURFACE FINISH OF CONCRETE: Abutments and Wing Walls shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item 511.

PILES shall be driven to a minimum bearing capacity of 40 tons per pile for the abutments, 30 ton per pile for the wing walls, and 30 tons per pile for the pier.

FIRST PILE TEST LOAD and any subsequent pile test loads shall be applied only if directed by the engineer. All test loads shall be applied where the engineer shall direct.

PRE-BORED HOLES, for end wall piles, shall be included for payment in the price bid for Item 518, 12" cast-in-place reinforced concrete piles, as per plan.

For Radiographic Inspection of Welds see Sheet No. 104.

SHOP DRAWINGS for the girders shall include an overall layout with dimensions showing the relative unloaded vertical position of each girder or girder segment with respect to the others in the same girder line and with respect to a full length base or work line taking into account the profile of the highway.

SHOP ASSEMBLY. At least three adjacent girder segments shall be assembled in the shop in their correct unloaded positions as shown on the shop drawing layout required in the above note so that the faced joints for welding the segments together may be checked for proper fit-up.

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GENERAL PLAN, ELEVATION & GENERAL NOTES
BRIDGE No. CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1
CUYAHOGA COUNTY STA. 139+50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
JBS	K.J.W.	J.W.P.	[illegible]		9-17-57	

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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CUYAHOGA COUNTY
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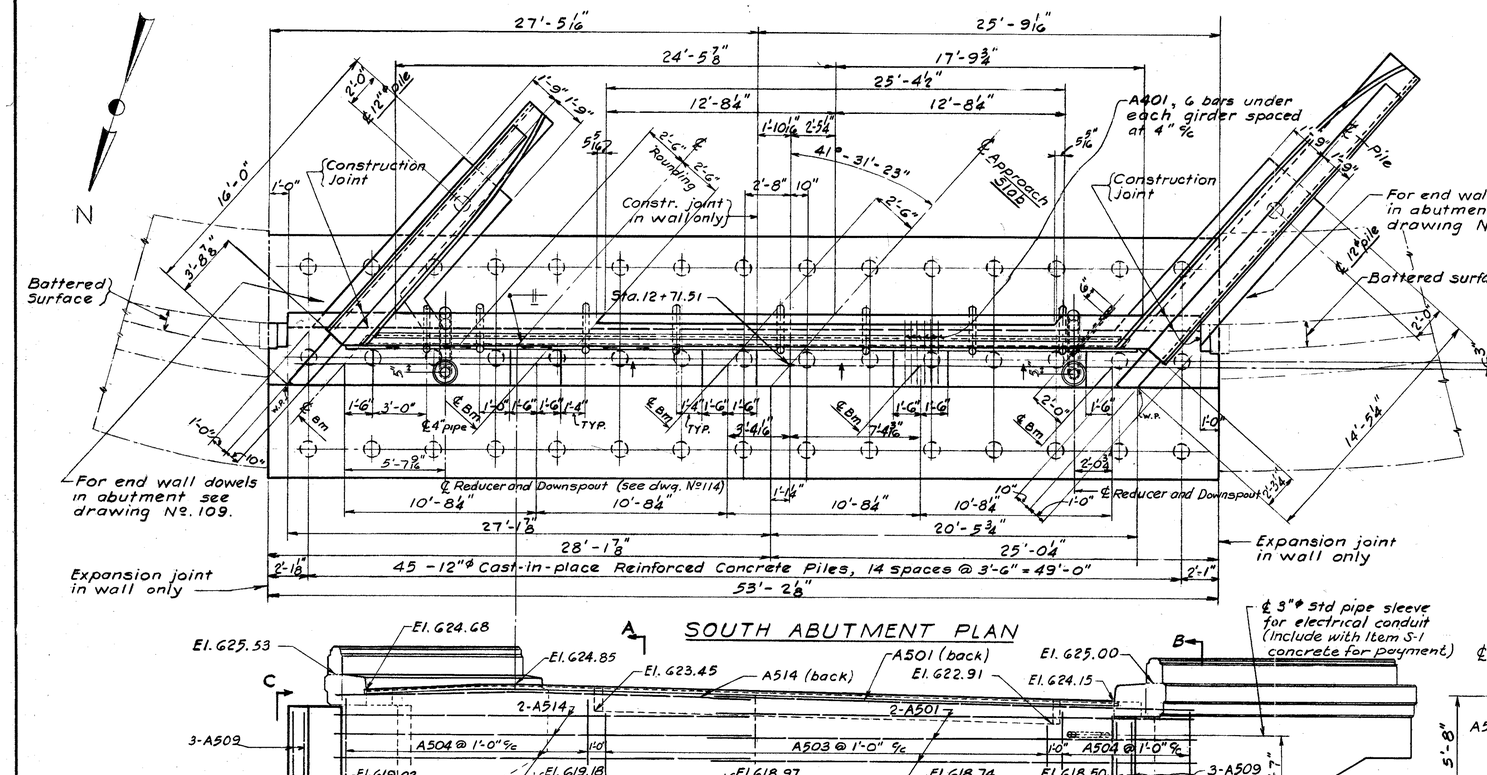
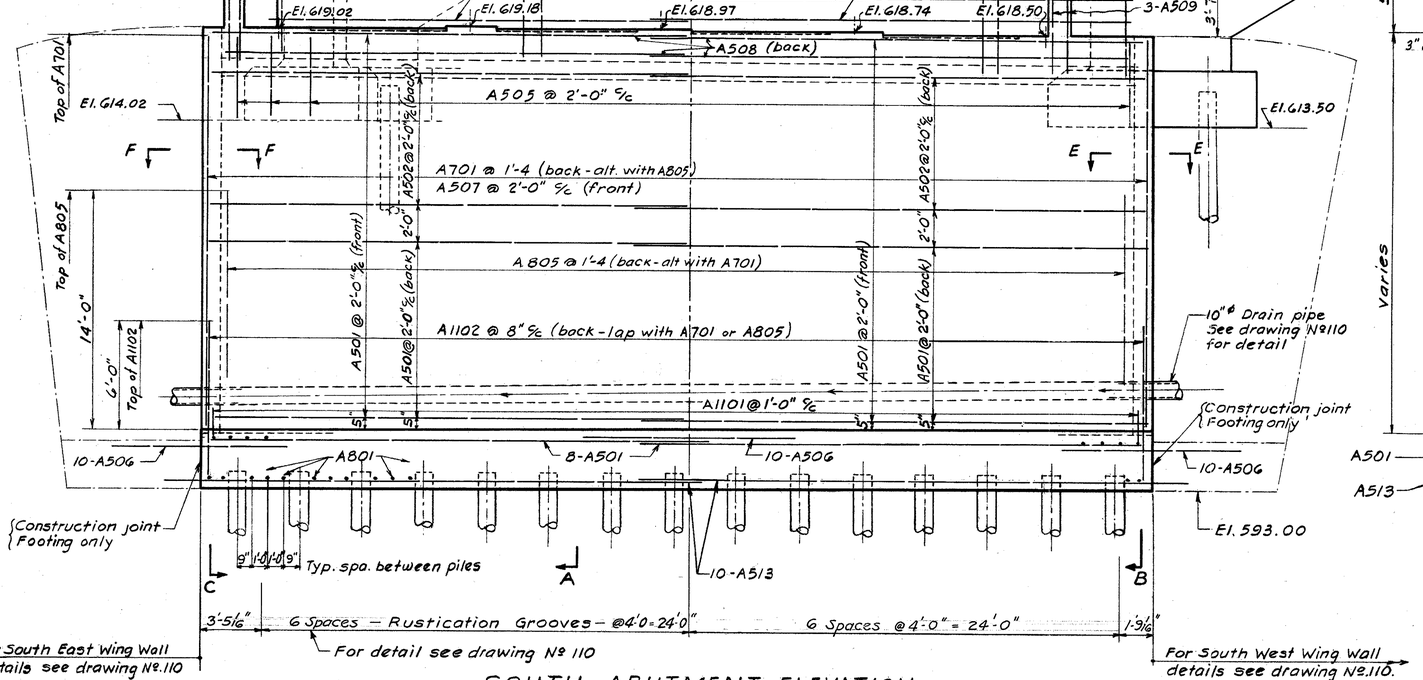
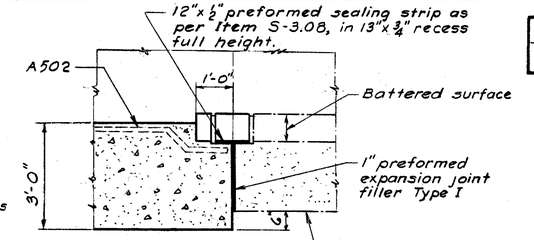


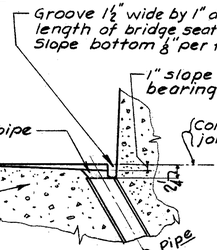
SOUTH ABUTMENT PLAN



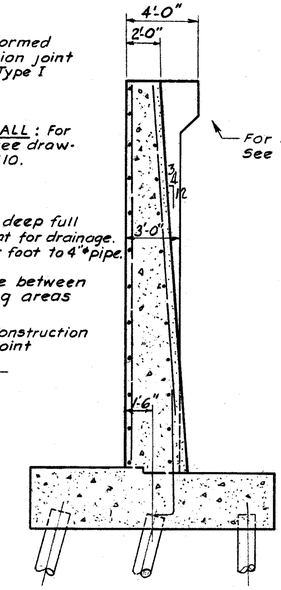
SOUTH ABUTMENT ELEVATION
(VIEW LOOKING SOUTH)



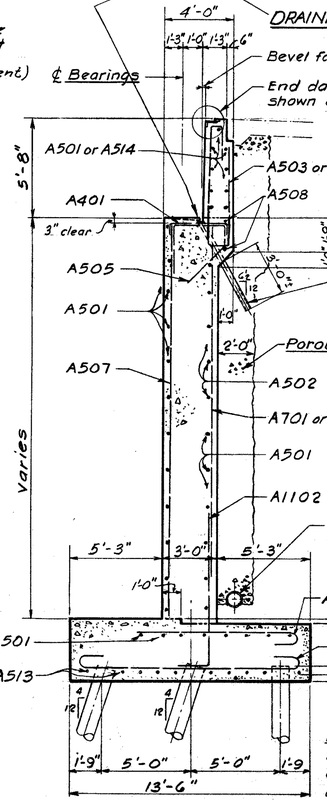
SECTION E-E (shown)
SECTION F-F (opp. hand)



DRAINAGE GROOVE DETAIL



SECTION B-B
SECTION C-C (opposite hand)
(Detail at end of abutment)



SECTION A-A

NOTES

PROCEDURE: The retaining walls and abutments shall be placed up to the level of the beam seats. The embankment shall be placed and compacted up to the level of the subgrade, with a 1:1 slope from the bridge seat to the subgrade, for a distance of 200 feet back of the abutment, after which excavation shall be made for the End Walls. Material for the backfill in the end wall excavation and in that portion of the embankment above the bridge seat and above the 1:1 slope line shall meet the requirements of Sec. I-22 and shall be compacted in accordance with requirements for embankment compaction. Payment for this backfill shall be included with Item E-2, unclassified excavation.

REINFORCING STEEL shall be 2" clear from exposed surface unless otherwise noted.

BACKWALL CONCRETE shall be placed after all structural steel and pipe sleeves are in place.

PILES: 47 piles required for South Abutment and End Walls. See pile notes on drawing No 106.

POROUS BACKFILL 2 feet thick, full length of abutments and wings shall extend up to the underside of the approach slab or the finished ground surface.

CONCRETE in the abutments and footings shall be class "E".

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SOUTH ABUTMENT DETAILS
BRIDGE No CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1

CUYAHOGA COUNTY STA. 139+50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
W.M.C.	D.P.	J.W.P.	W.M.C.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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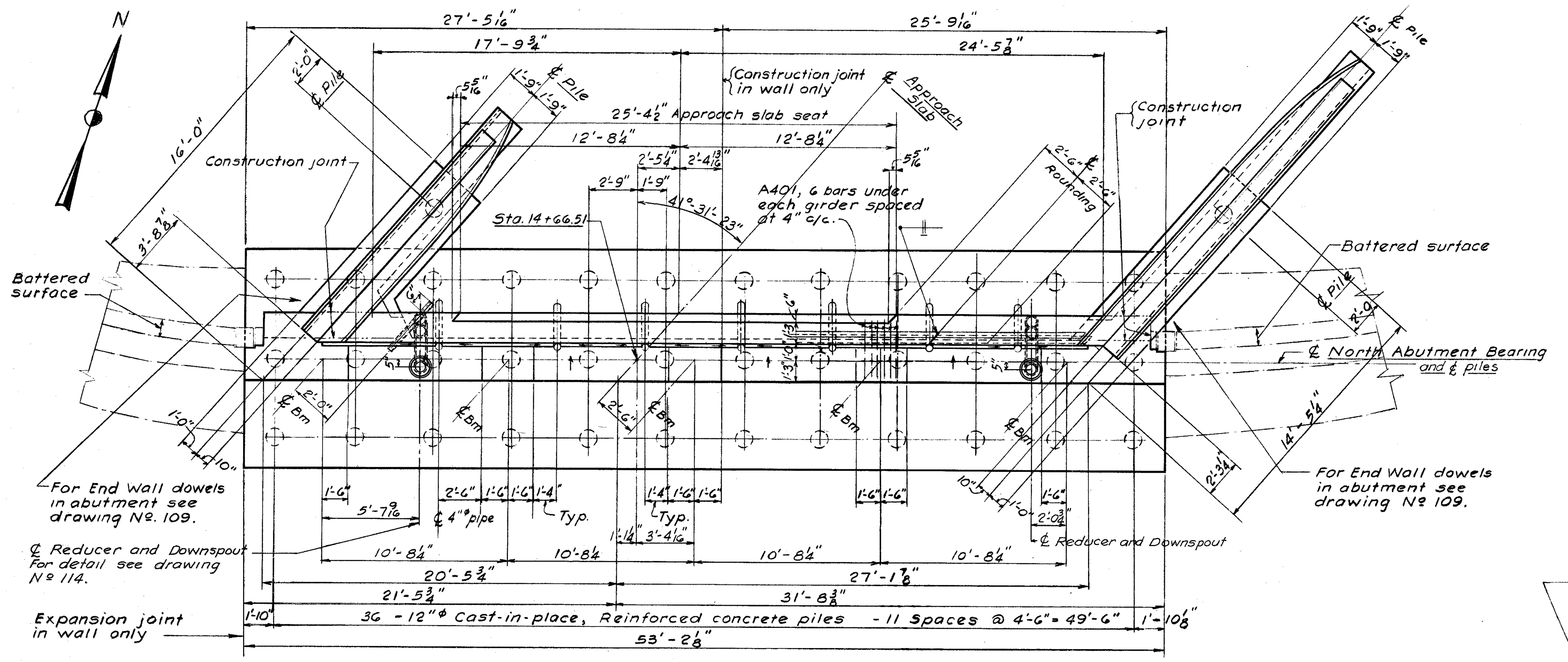
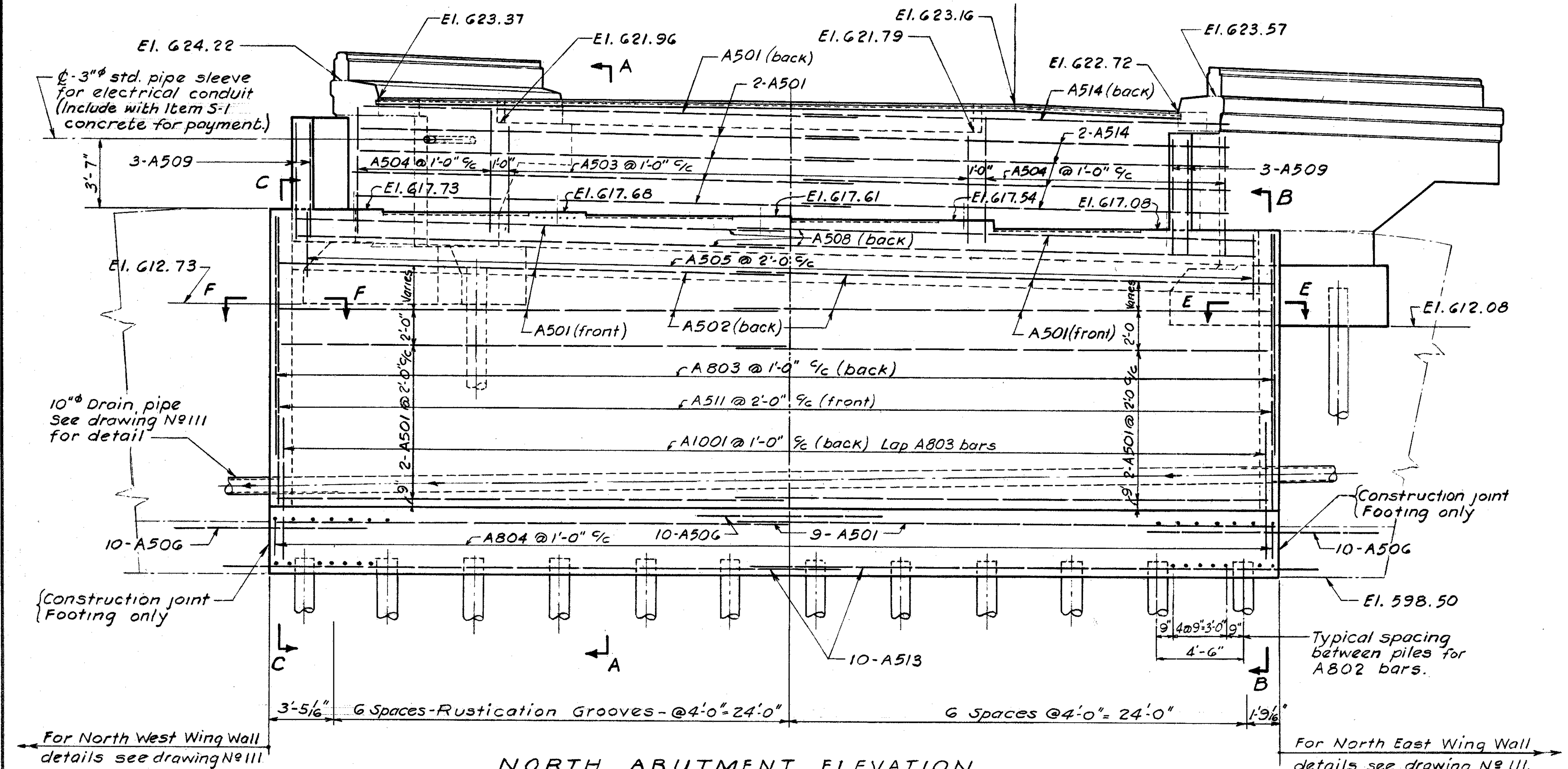
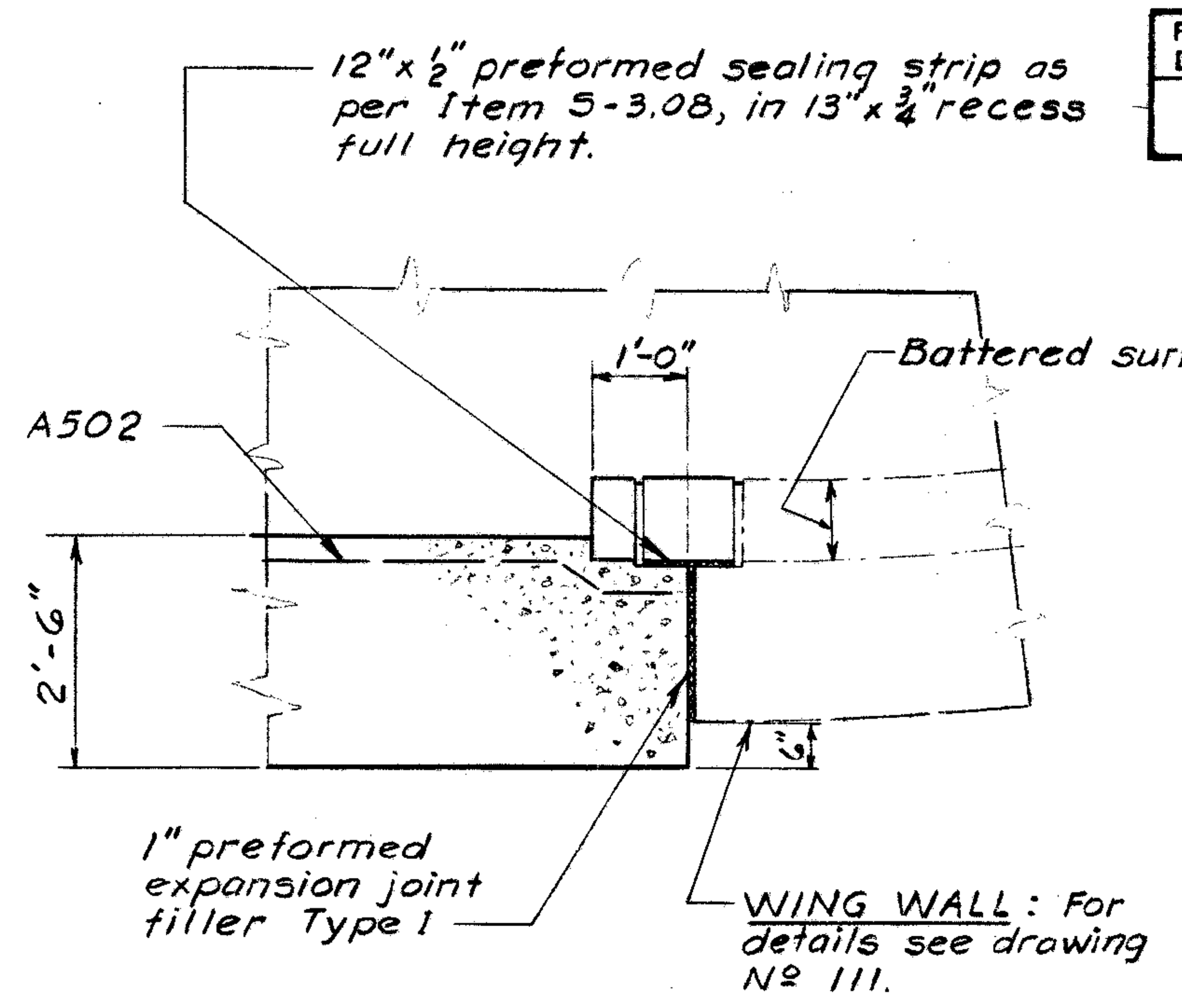
CUYAHOGA COUNTY
CUY-2-22.97



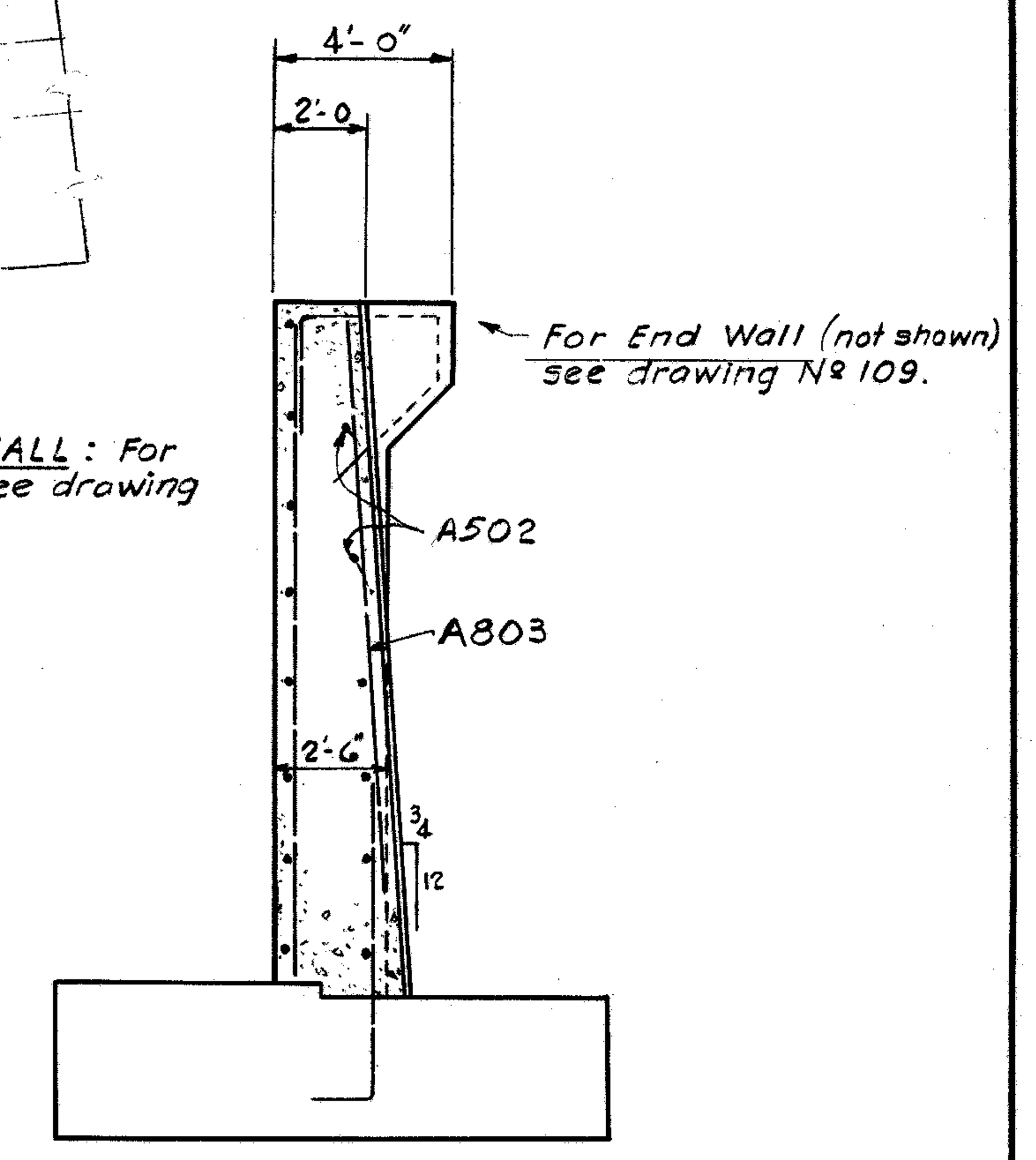
NORTH ABUTMENT PLAN



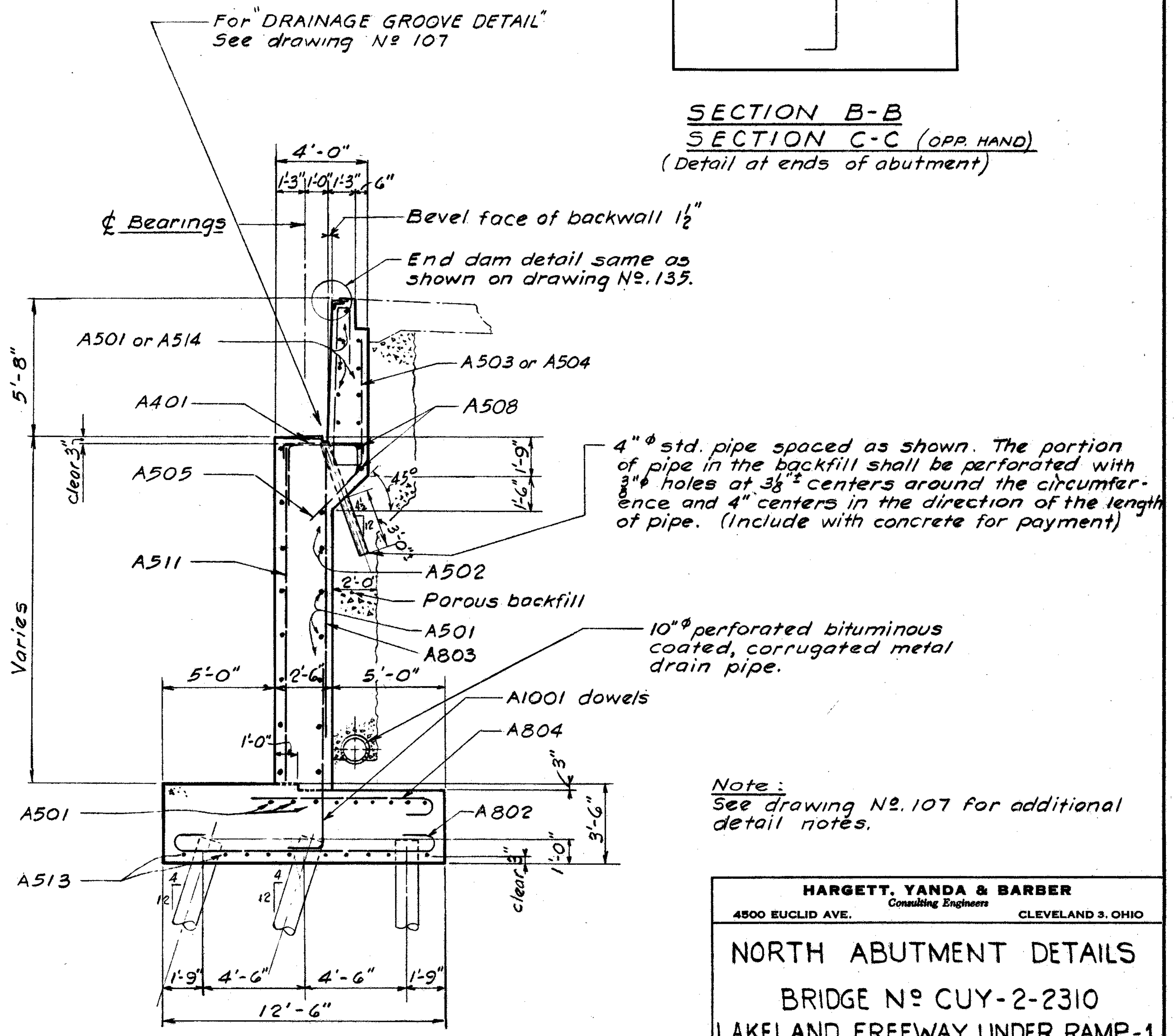
NORTH ABUTMENT ELEVATION
(VIEW LOOKING NORTH)



SECTION E-E (shown)
SECTION F-F (opp. hand)



SECTION B-B
SECTION C-C (OPP. HAND)
(Detail at ends of abutment)



SECTION A-A

Note:
See drawing Nº 107 for additional detail notes.

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NORTH ABUTMENT DETAILS
BRIDGE Nº CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1

CUYAHOGA COUNTY STA. 139+50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
J.B.S. B. McW.	D.P.	J.W.P.				

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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CUYAHOGA COUNTY
CUY-2-22.97

HARGETT, YANDA & BARBER
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ABUTMENT DETAILS
BRIDGE Nº CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1

CUYAHOGA COUNTY STA. 139 + 50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
G.H.S.	J.W.P.	J.W.P.	WAS / G.J.C.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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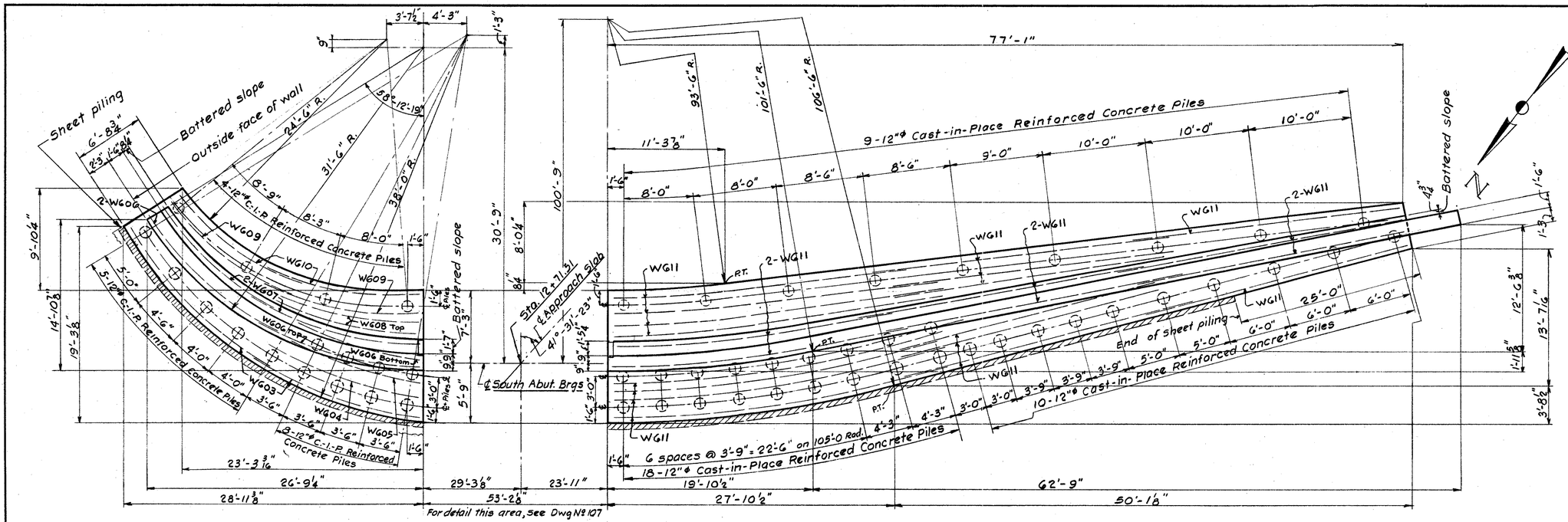
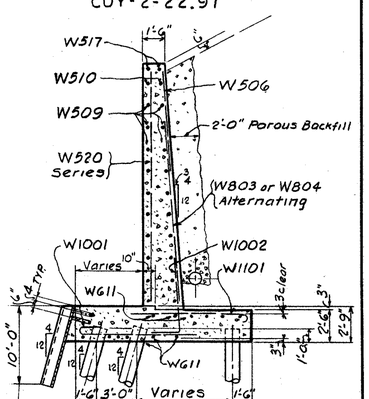
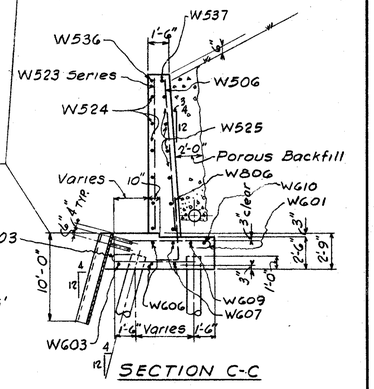
CUYAHOGA COUNTY
CUY-2-22.97



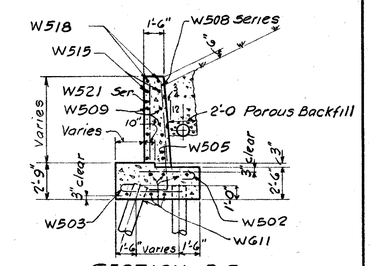
PLAN - SOUTH WING WALLS



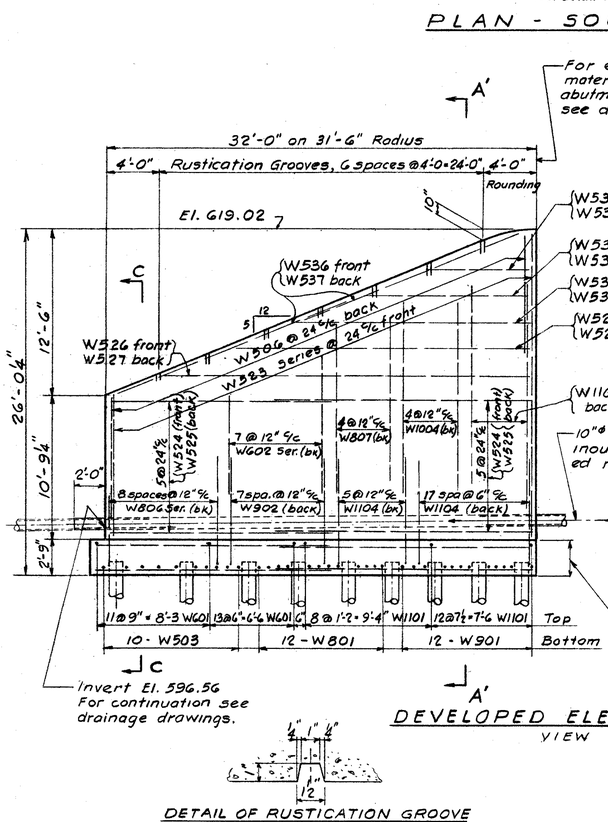
SECTION A-A - Shown & Noted
SECTION A'-A' - Similar
(For Sec A-A' marks, see plan and elev.)



SECTION C-C

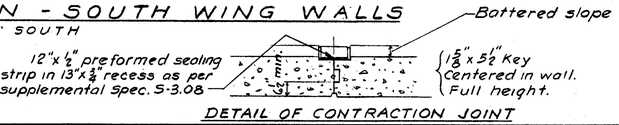


SECTION B-B

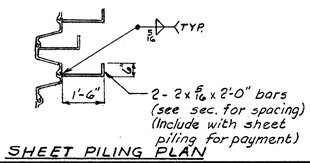


DEVELOPED ELEVATION - SOUTH WING WALLS
VIEW LOOKING SOUTH

DETAIL OF RUSTICATION GROOVE



DETAIL OF CONTRACTION JOINT



SHEET PILING PLAN

Steel sheet piling (minimum section modulus of 38.3 in³ per foot of wall) Used sheeting in good condition may be used. For anchordetail see "SHEET PILING PLAN" this drawing

NOTES
Horizontal spacing of reinforcing steel bars is measured along the face of the wall.
Procedure, porous backfill and reinforcing steel notes same as on drawing Nº 107.
Concrete in walls and footings shall be Class E
Piles: 54 piles required for South wing walls.
Battered sheet piling shall be interlocked along the straight portion, but need not be along the curved portions.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 Euclid Ave. Cleveland 3, Ohio

SOUTH WINGWALL DETAILS
BRIDGE Nº CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1

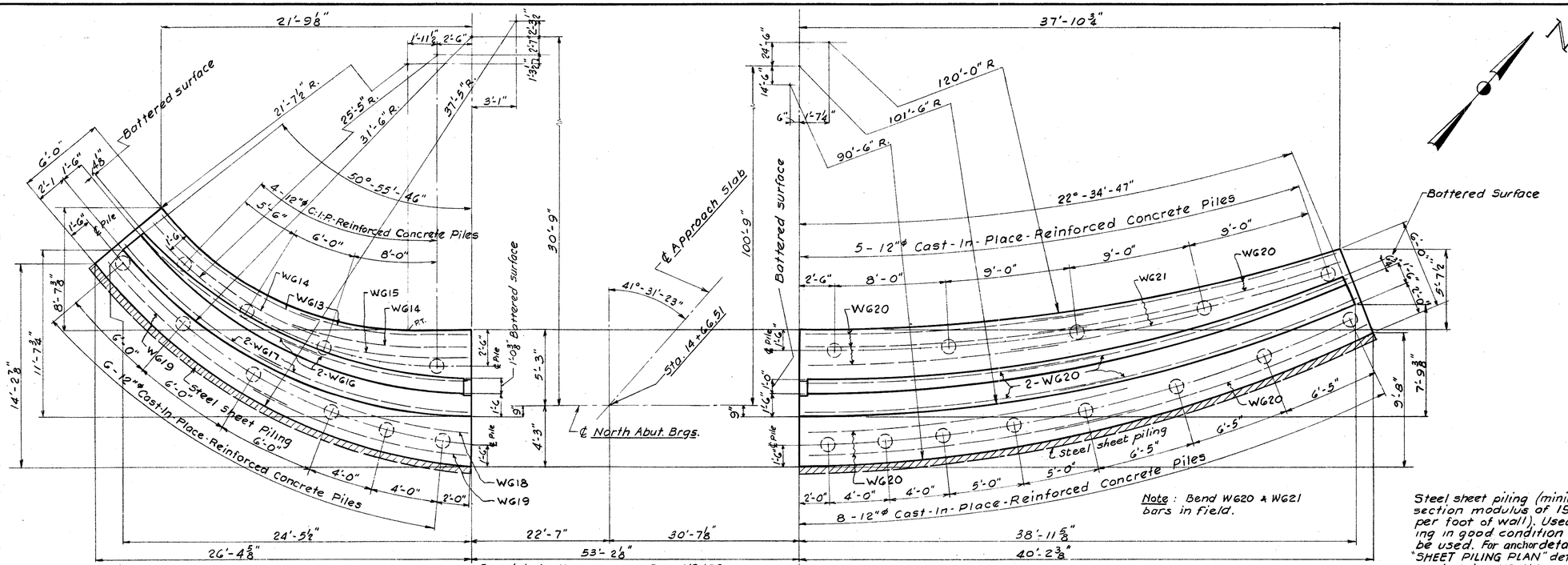
CUYAHOGA COUNTY STA. 139 + 50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
E.W.C.	D.P. J.W.P.	J.W.P.	W.F.B.			

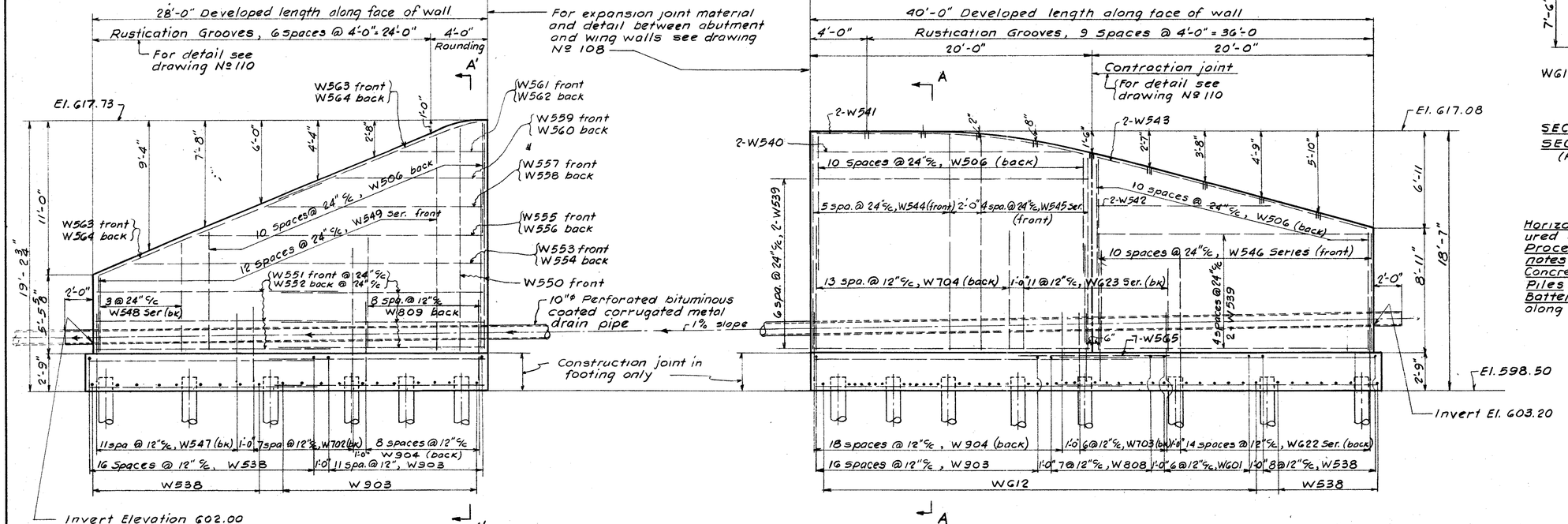
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

111
149

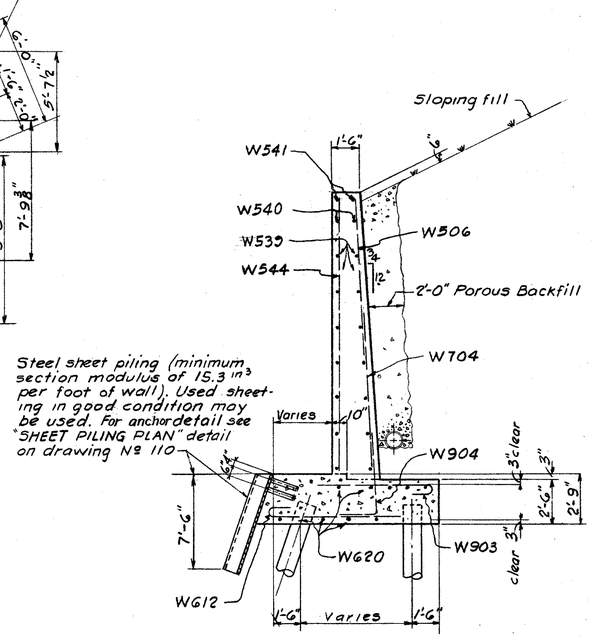
CUYAHOGA COUNTY
CUY-2-22.97



PLAN - NORTH WING WALLS



DEVELOPED ELEVATION - NORTH WING WALLS
VIEW LOOKING NORTH



Steel sheet piling (minimum section modulus of 15.3 in³ per foot of wall). Used sheeting in good condition may be used. For anchor detail see "SHEET PILING PLAN" detail on drawing Nº 110

SECTION A-A Shown and noted
SECTION A'-A' Similar
(For Sec. A'-A' marks, see plan and elev.)

NOTES

Horizontal spacing of reinforcing steel bars is measured along the face of the wall
Procedure, porous backfill and reinforcing steel notes same as on drawing Nº 107.
Concrete in walls and footings shall be class "E."
Piles: 23 piles required for south wing walls.
Battered sheet piling shall be interlocked in pairs along the curved portion of footing.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 Euclid Ave. Cleveland 3, Ohio

NORTH WINGWALL DETAILS
BRIDGE Nº CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1

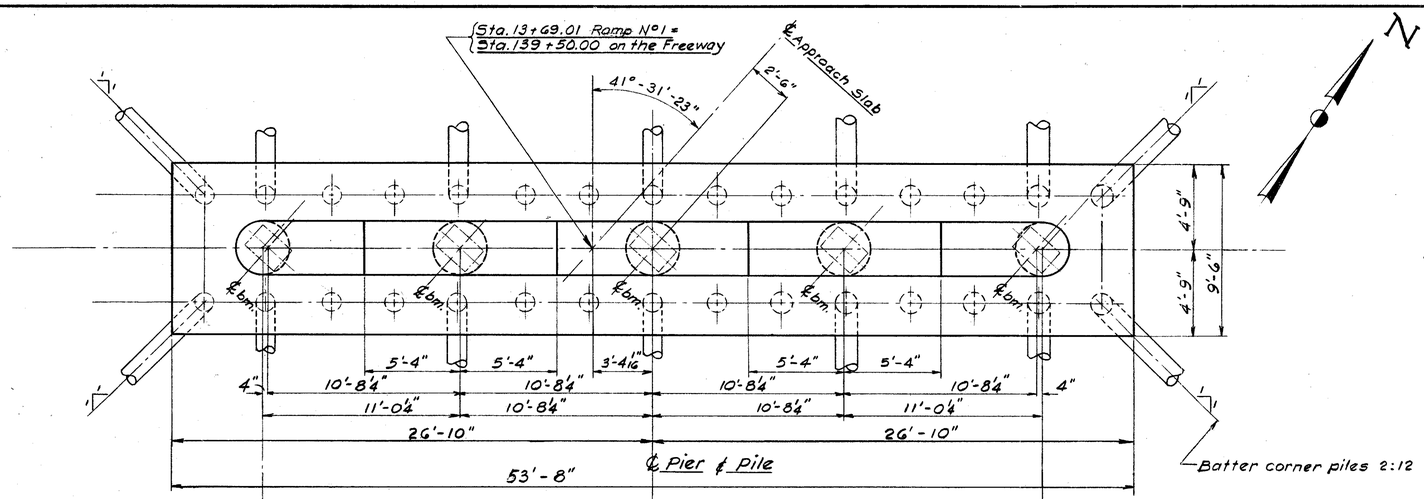
CUYAHOGA COUNTY STA. 139+50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
	J.W.P	J.W.P	a.j.c. 10/27/58			

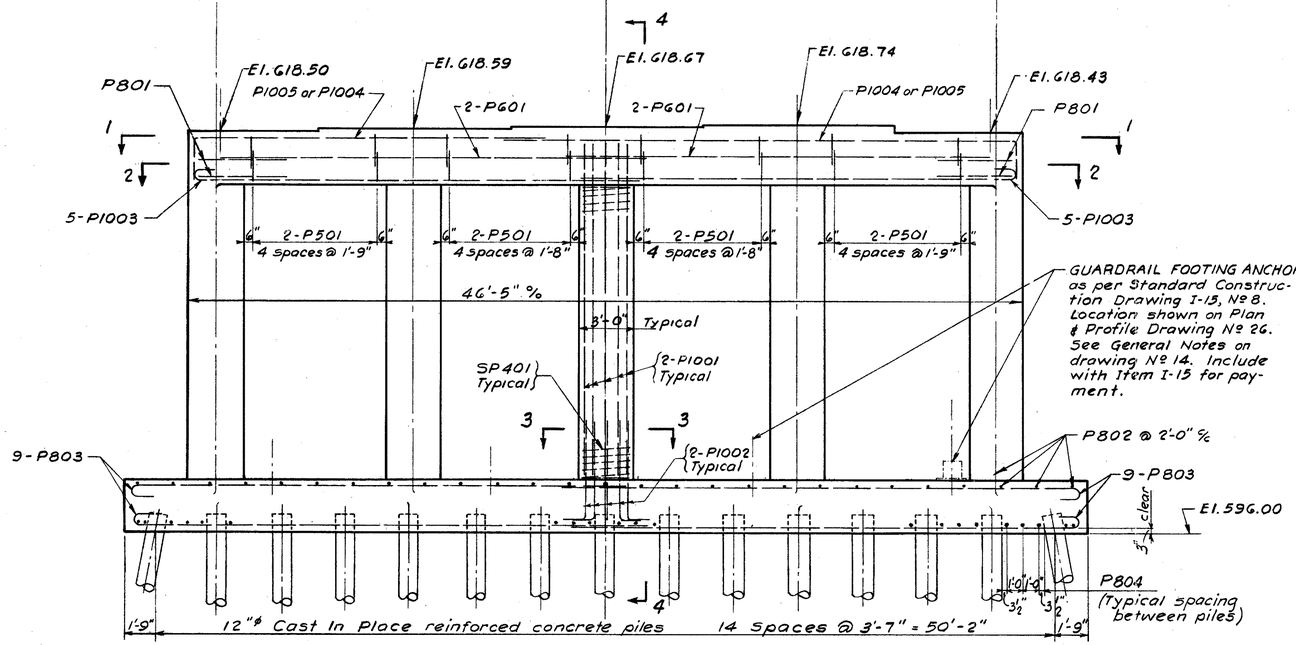
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

112
149

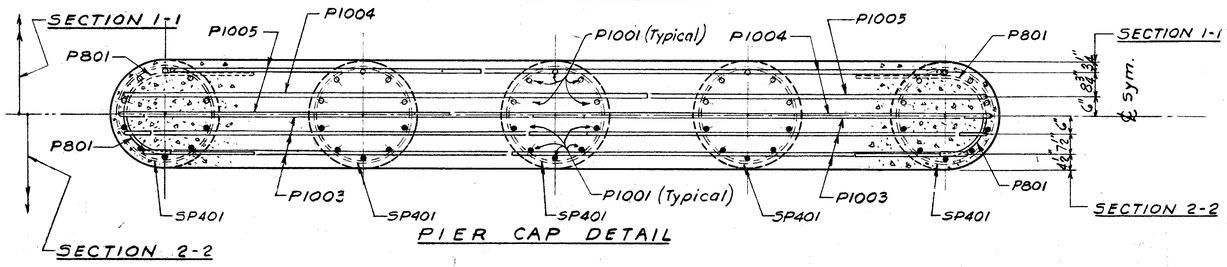
CUYAHOGA COUNTY
CUY-2-22.97



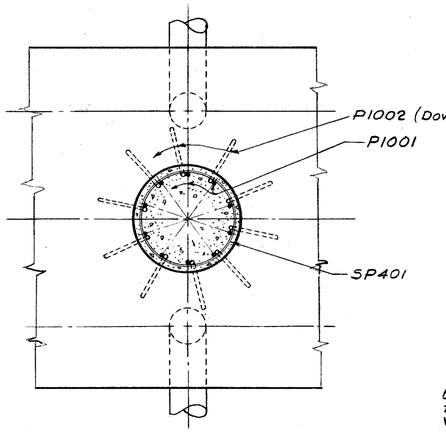
PIER PLAN



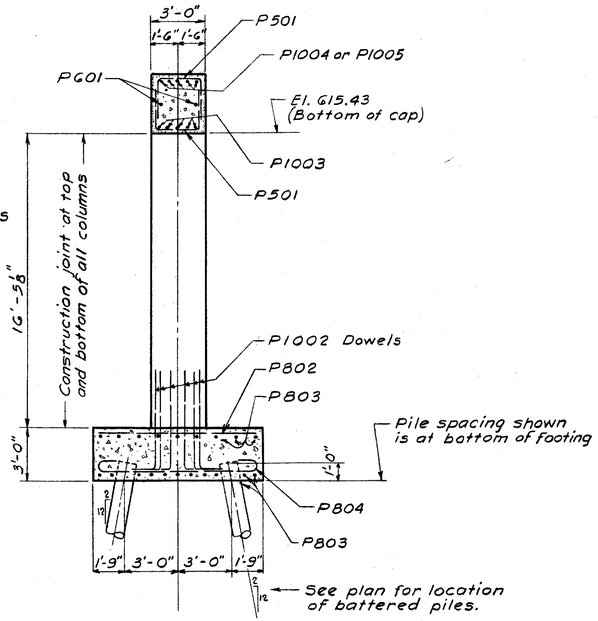
PIER ELEVATION



PIER CAP DETAIL



SECTION 3-3
(Typical all columns)



SECTION 4-4

NOTES

REINFORCING STEEL shall be 2" clear from face of concrete unless otherwise noted.

REINFORCING STEEL in cap shall be placed to clear bolster anchor bolts.

CONCRETE: Concrete shall be class "C" in pier cap and columns and class "E" in pier footing.

ELECTRICAL GROUND: A solid N° 0 gage bare copper wire electrical ground shall be embedded in the outside column on west side of the structure at the pier. The lower ends of the wires shall be brazed to the steel shell of one of the cast-in-place reinforced concrete piles, and the upper ends shall extend sufficiently above the top of the concrete to provide for a suitable splice and extension for connection to the superstructure. The connection to the superstructure shall be a N° 6 gage, bare, stranded, tinned, copper wire brazed or bolted to a girder flange and to the solid copper wire in the pier shaft. At the base of the lamp standards there shall be a tinned N° 6 gage copper wire brazed to one anchor bolt and the other end brazed or bolted to the outside girder flange. Payment for electrical grounds is included in the lump sum bid for Item S-25 with bridges "Electrical Lighting System."

30 PILES required for pier footing.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 Euclid Ave. Cleveland 3, Ohio

PIER DETAILS

BRIDGE N° CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1

CUYAHOGA COUNTY STA. 139+50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
J.B.S.	K.J.W.	J.W.P.	A.L.C. 1958			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I-329 (12)	1958	113 / 149

CUYAHOGA COUNTY
CUY - 2 - 22.97

NOTES

STIFFENERS: The bearing stiffeners over the pier and abutments shall be milled, grooved and fully butt welded to the lower flange only. The top flange shall be fitted in close enough contact, without welding, so that when the shop paint is applied it will fill and close the openings.

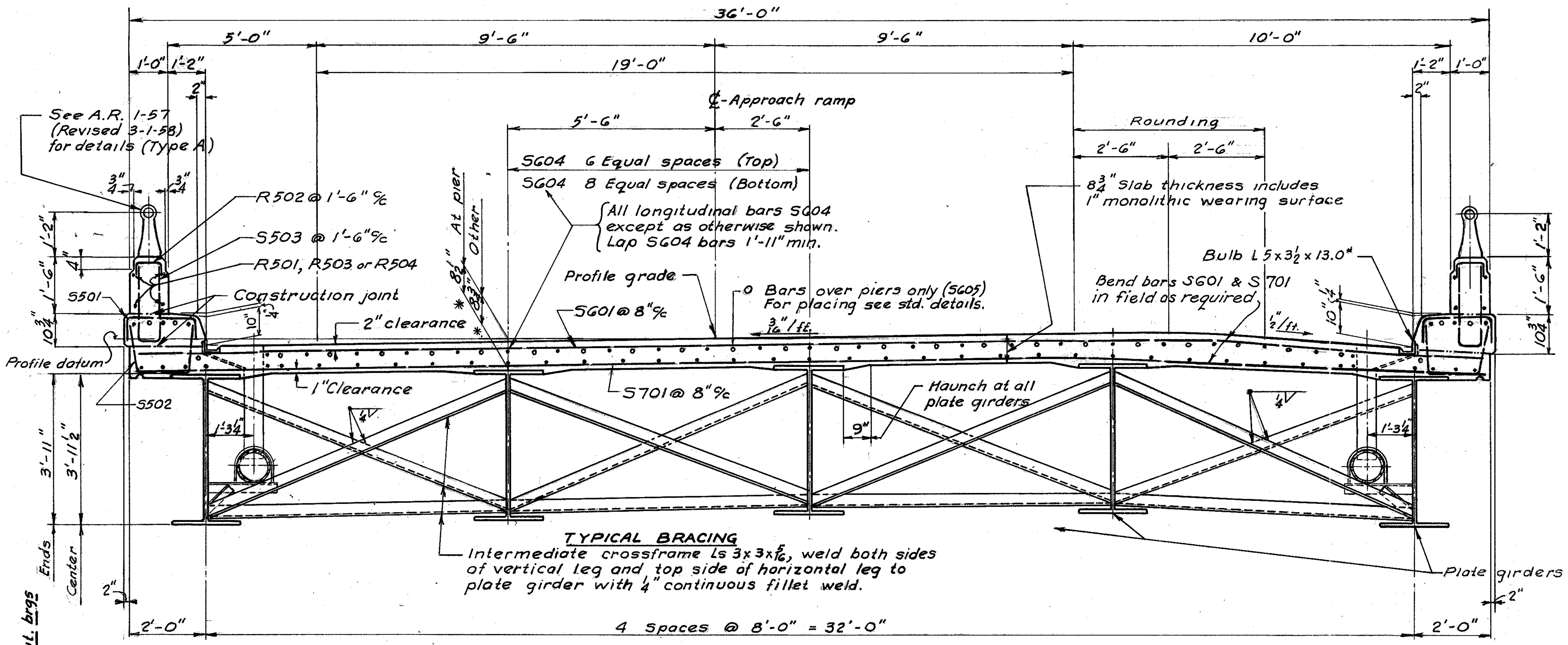
GIRDER SPLICE PROCEDURE: Make girder splice at the pier using the following procedure:
1. Raise end of girder at one abutment 4".
2. Butt weld girder flanges and web at pier using the following sequence: make two passes on each flange then two on the web, repeat, using one pass at each location until welds are completed.
3. Lower end of beam at the abutment.

* THESE ARE NOMINAL DIMENSIONS. The quantity of deck concrete to be paid for shall be based on these dimensions, 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.

97'-6"
℄ Abutment Brgs. Symmetrical about ℄ Pier

DEFLECTION CAMBER (INCHES)											
Position in span (0.1 = 9.75')	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
Deflection due to weight of steel	0	1/8	3/16	1/4	1/4	1/4	3/16	3/16	1/16	0	0
Deflection due to remaining dead load	0	1/4	9/16	11/16	13/16	3/4	11/16	7/16	1/4	1/8	0
Convexity req. for vertical curve	0	1 1/8	1 15/16	2 9/16	2 7/8	3	2 7/8	2 1/2	1 15/16	1 1/16	0
Sum of deflection & convexity = Camber	0	1 1/2	2 11/16	3 1/2	3 15/16	4	3 3/4	3 1/8	2 1/4	1 3/16	0

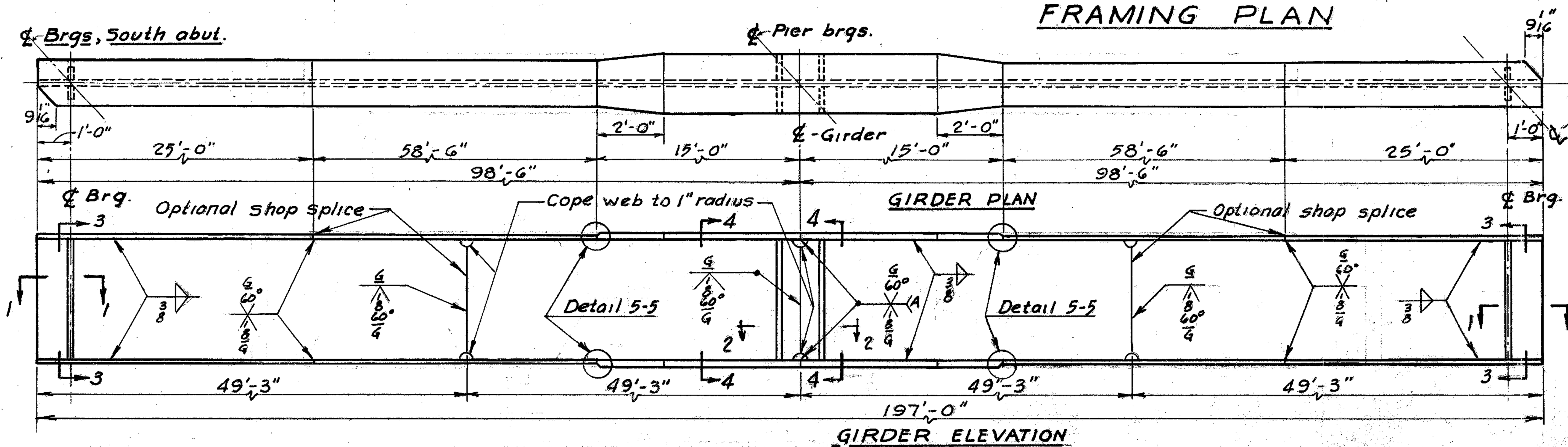
For Radiographic Inspection of Welds see Sh. No. 104.

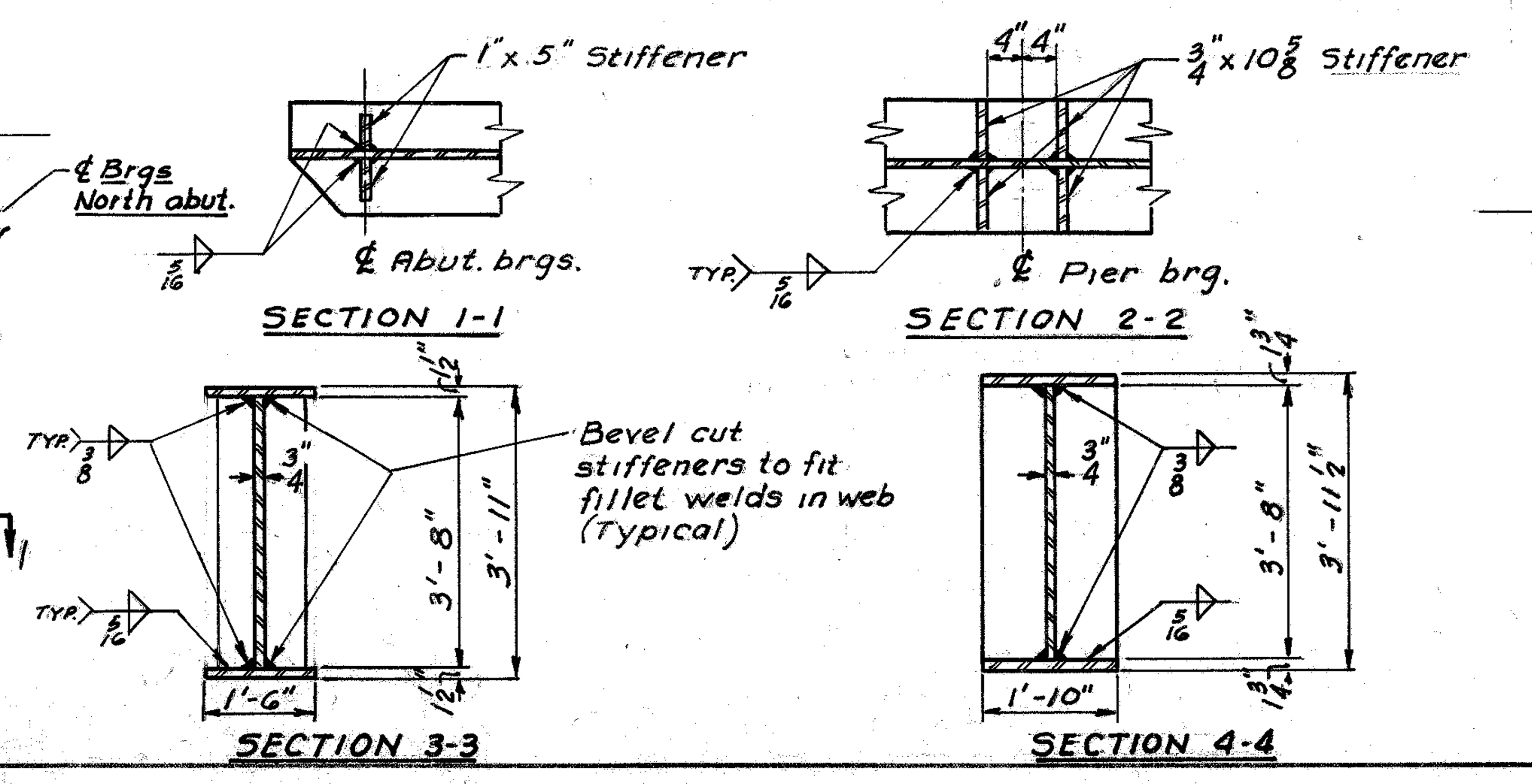


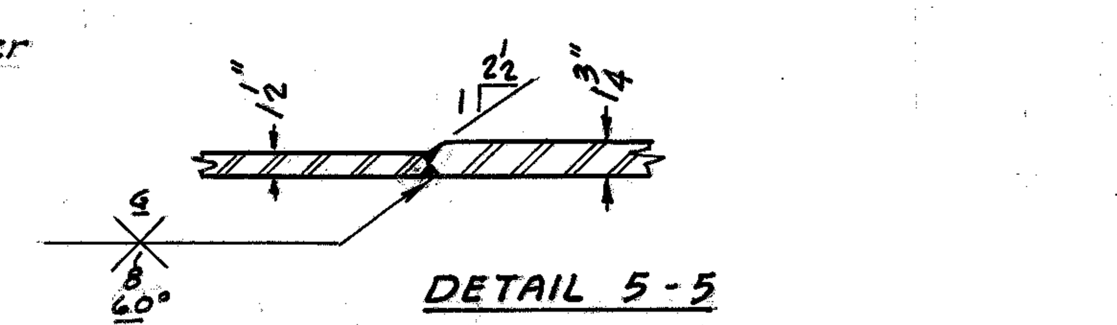
RAMP 1 TRANSVERSE SECTION

(SECTION LOOKING NORTH)

FRAMING PLAN







HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

TRANSVERSE SECTION, FRAMING PLAN & PLATE GIRDER DETAILS
BRIDGE No CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1

CUYAHOGA COUNTY STA. 139+50
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
JBS	KJW	J.W.P.	W.R.T. / [signature]			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I 329(12)	1958	114 / 149

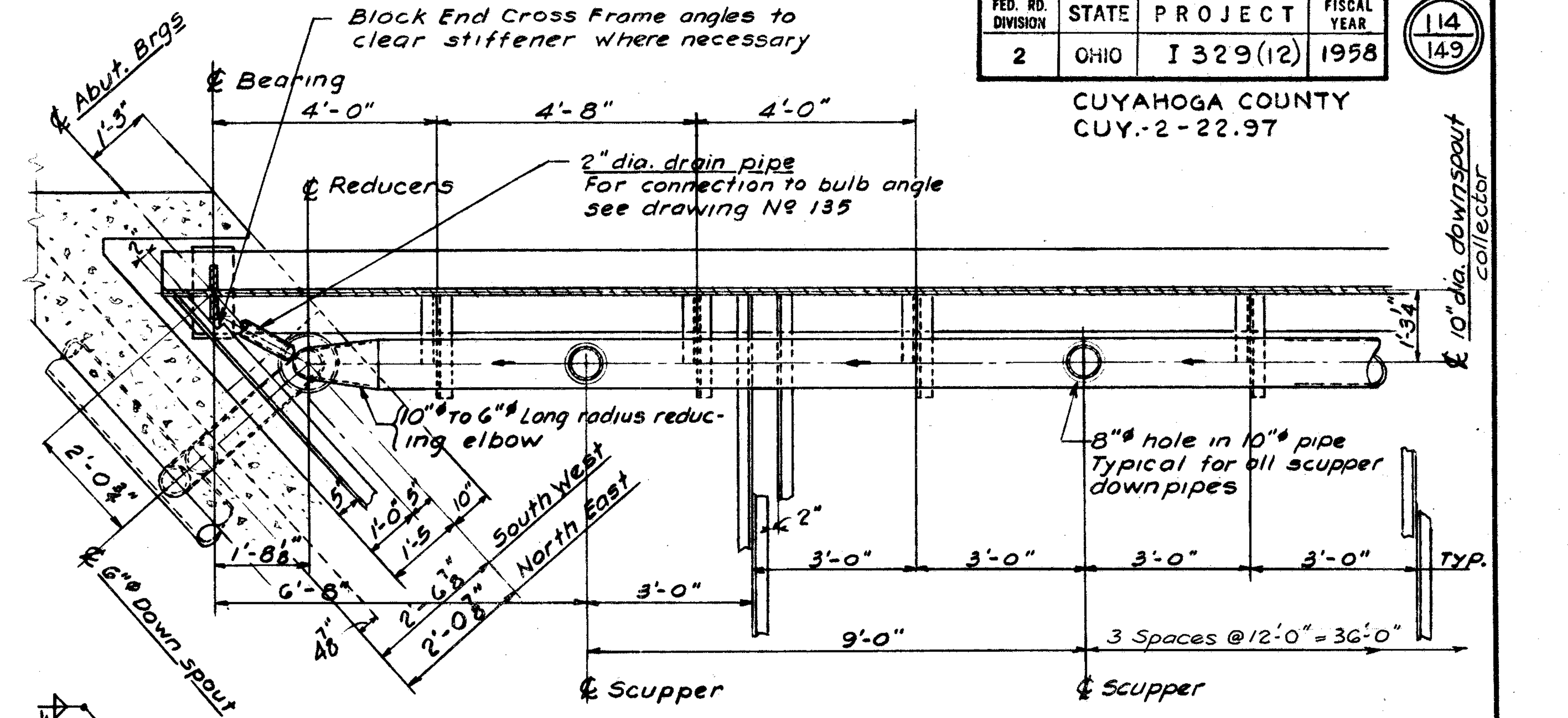
CUYAHOGA COUNTY
CUY.-2-22.97

ESTIMATED QUANTITIES

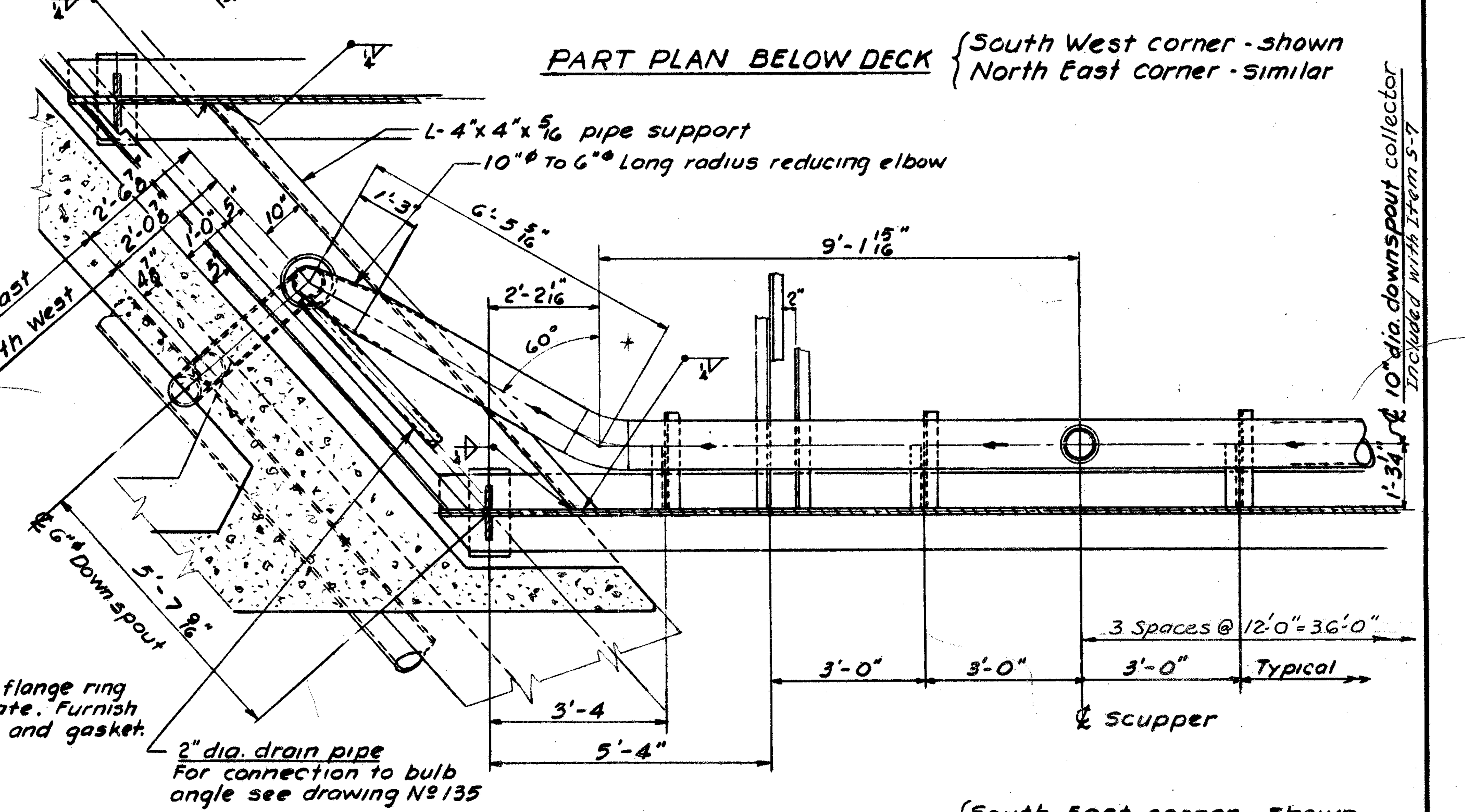
ITEM	TOTAL	UNIT	DESCRIPTION	CITY OF CLEVELAND TOTAL-CLEV.	SUPERS	PIERS	ABUTS.	WING WALLS	GENERAL	VILLAGE OF BRATENAHL TOTAL-BRAT.	SUPERS	PIERS	ABUTS.	WING WALLS	GENERAL
E-2	1,621	S.F.	STEEL SHEET PILING LEFT IN PLACE, as per plan	1,044				1,044		577				577	
E-2	915	C.Y.	UNCLASSIFIED EXCAVATION	688			270	418		227		116	70	41	
S-1	222	C.Y.	CLASS "C" CONCRETE, SUPERSTRUCTURE	82	82					140	140				
S-1	38	C.Y.	CLASS "C" CONCRETE, PIER CAP & COLUMNS							38		38			
S-1	490	C.Y.	CLASS "E" CONCRETE, ABUTMENTS & WALLS ABOVE FOOTINGS	314			173	141		176			118	58	
S-1	412	C.Y.	CLASS "E" CONCRETE, FOOTINGS	206			100	106		206		57	93	56	
S-3	131	L.F.	WATERPROOFING, PREMOLDED SEALING STRIP	83			47	36		48			33	15	
S-4	137,876	LBS.	REINFORCING STEEL	63,045	23,218		19,048	20,779		74,831	39,704	14,807	14,083	6237	
S-7	349,600	LBS.	STRUCTURAL STEEL	129,000	129,000					220,600	220,600				
S-8	349,600	LBS.	FIELD PAINTING OF STRUCTURAL STEEL	129,000	129,000					220,600	220,600				
S-9	171	S.F.	1" PREFORMED EXPANSION JOINT FILLER, TYPE 1-GRAY SPONGE RUBBER	103					103	68					68
S-14	470	L.F.	RAILING, ALUMINUM RAIL & SUPPORTS, CONC. PARAPET	206	170				36	264	228				36
S-16	LUMP	SUM	FIRST TEST PILE	LUMP SUM					L.S.						
S-17	LUMP	SUM	FIRST PILE TEST LOAD	LUMP SUM					L.S.						
S-17	1	EACH	SUBSEQUENT PILE TEST LOAD	1 EACH											
S-18	15,440	L.F.	12" ⌀ CAST-IN-PLACE REINFORCED CONCRETE PILES, as per plan	8120			3800	4320		7,320		2400	3080	1840	
S-25	LUMP	SUM	ELECTRICAL LIGHTING SYSTEM							Lump Sum					L.S.
S-25	200	L.F.	2" ELECTRIC CONDUIT (METAL)	80					80	120					120
S-25	10	L.F.	1¼" ELECTRIC CONDUIT (METAL)							10					10
S-29	365	C.Y.	POROUS BACKFILL	228			103	125		137			76	61	
S-29	290	L.F.	10 Bituminous coated perforated corr. metal pipe, incl. spec.	169			53	116		121			53	68	
S-29	90	L.F.	6" dia. downspouts, wrought iron or hot-dipped galvanized steel pipe, including brackets and specials.	51			51			39			39		

The price bid per lin. ft. of metal conduit shall include all fittings, hangers, and concrete inserts required for proper installation of the conduit.

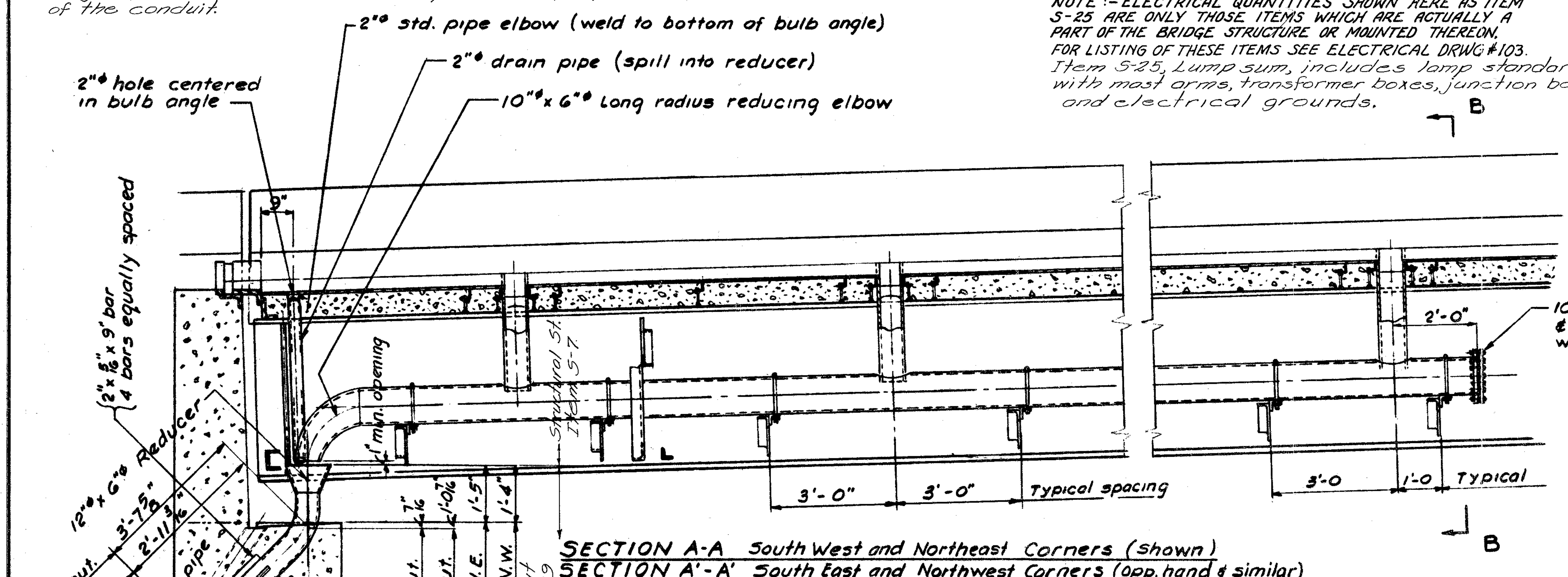
NOTE:- ELECTRICAL QUANTITIES SHOWN HERE AS ITEM S-25 ARE ONLY THOSE ITEMS WHICH ARE ACTUALLY A PART OF THE BRIDGE STRUCTURE OR MOUNTED THEREON. FOR LISTING OF THESE ITEMS SEE ELECTRICAL DRWG #103.
Item S-25, Lump sum, includes lamp standards with mast arms, transformer boxes, junction boxes, and electrical grounds.

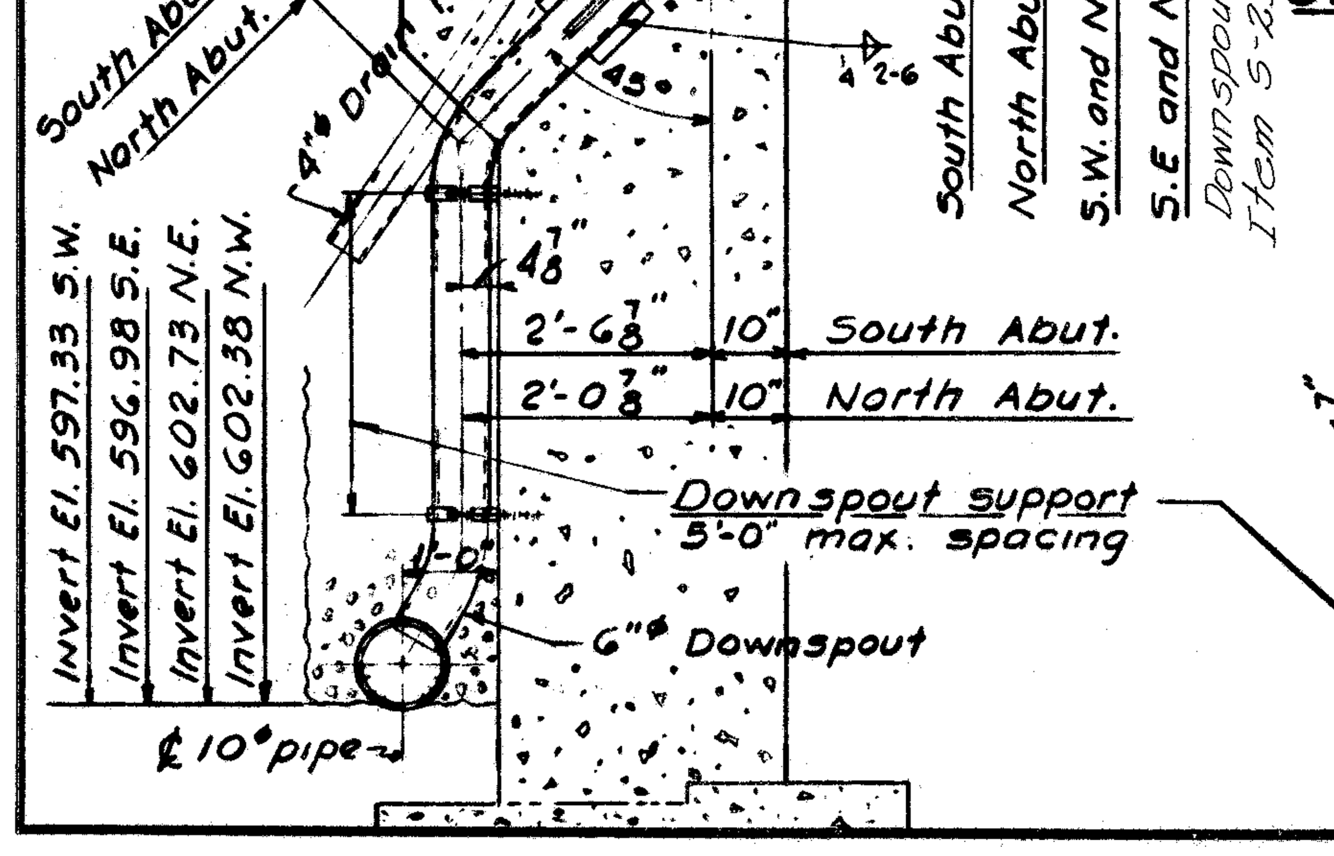


PART PLAN BELOW DECK {South West corner - shown / North East corner - similar}

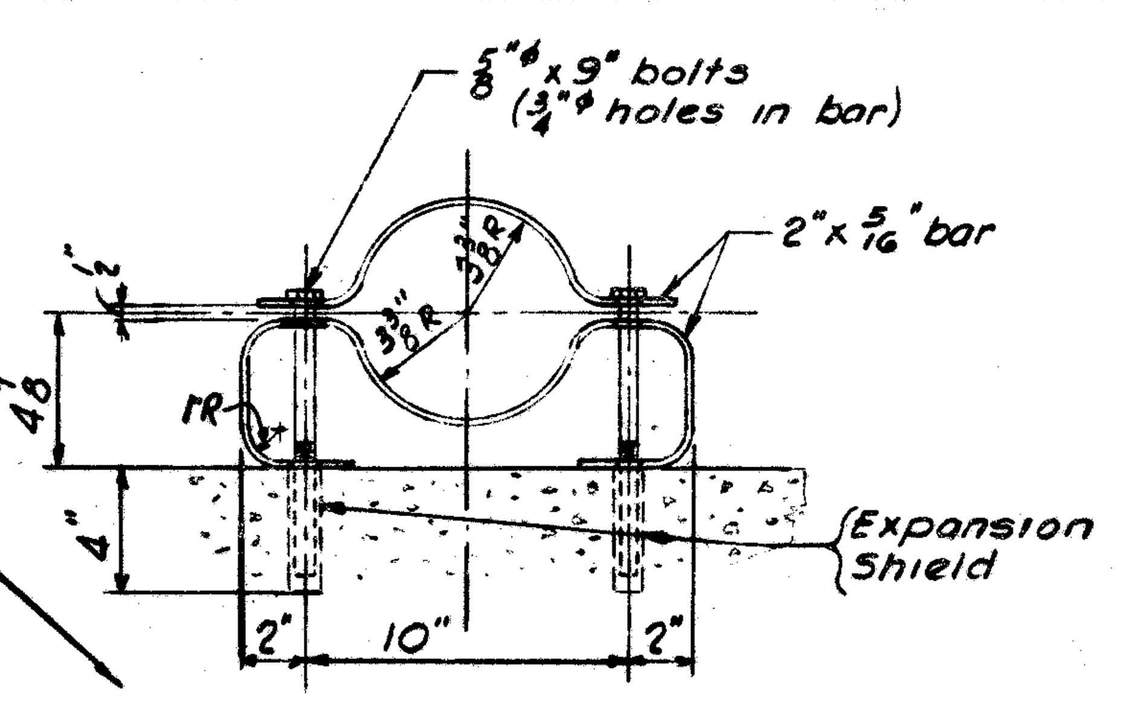


PART PLAN BELOW DECK {South East corner - shown / North West corner - similar}

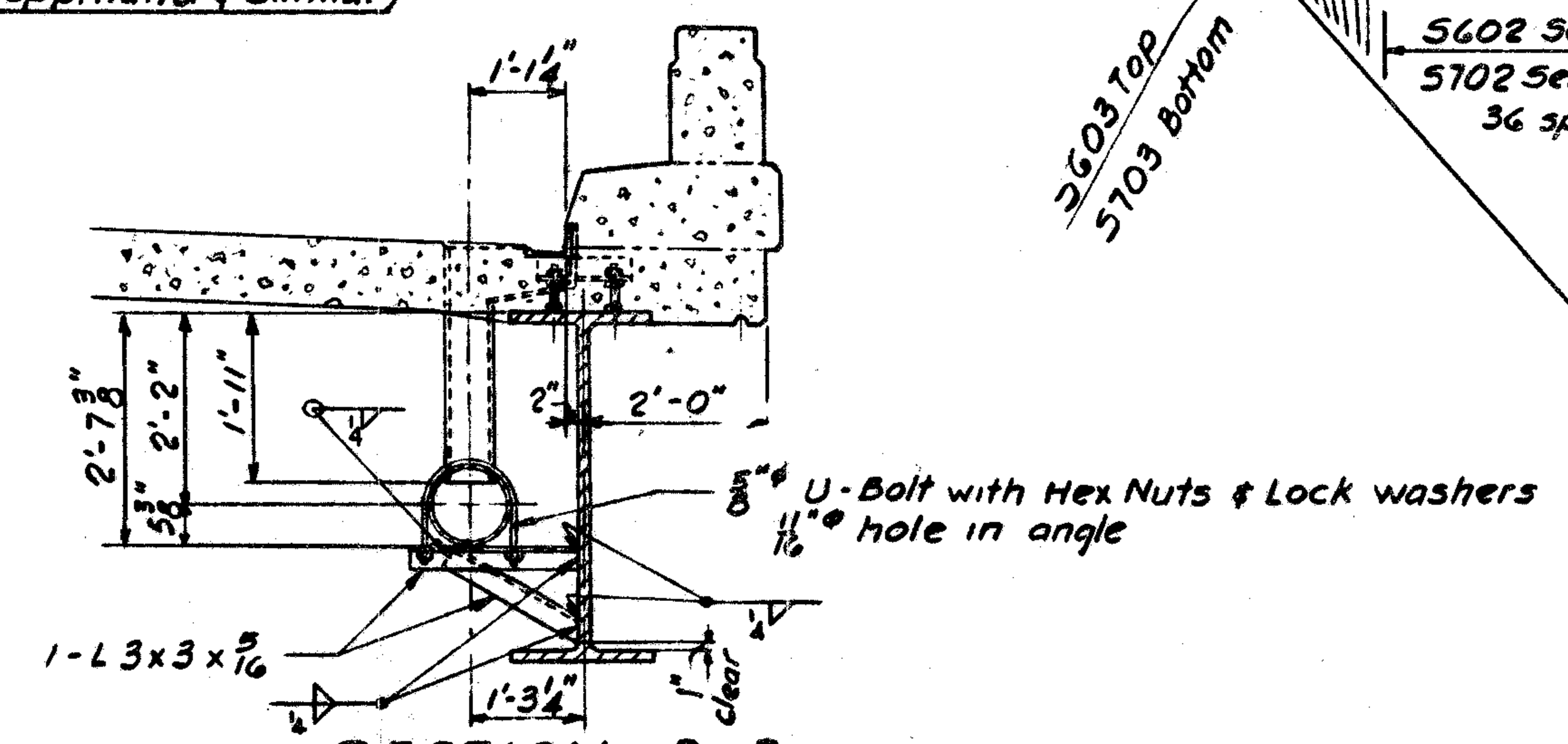




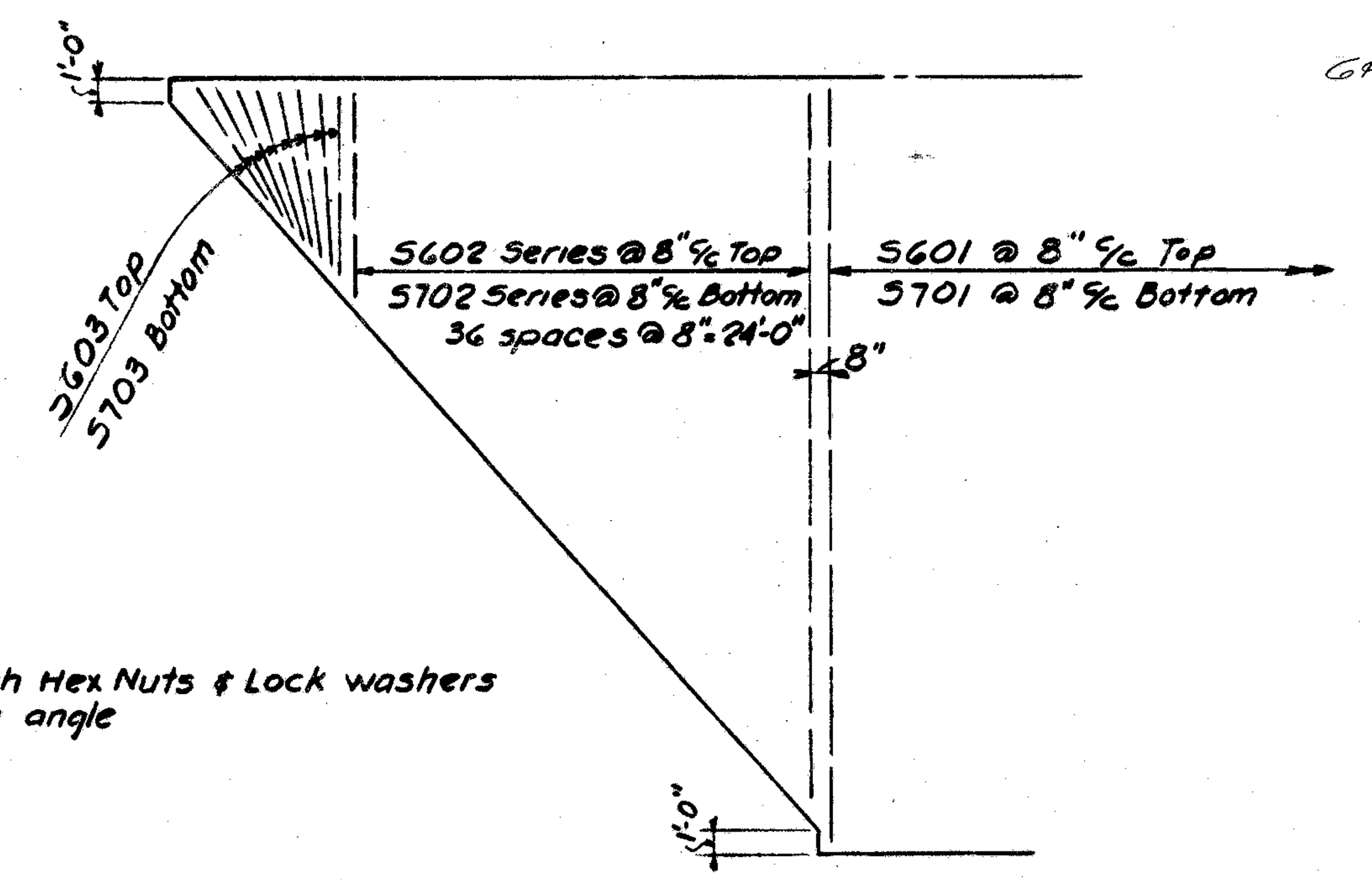
SECTION A-A South West and Northeast Corners (Shown)
SECTION A'-A' South East and Northwest Corners (opp. hand & similar)



DOWNSPOUT SUPPORT DETAIL
(Pipe Special)



SECTION B-B



PART PLAN OF DECK

NOTE:
6" ⌀ downspouts and 10" ⌀ collector pipe shall be standard wrought iron pipe or hot-dipped galvanized steel pipe. Joints shall be made by welding or by use of a clamp-type coupling with a ring gasket. All welding shall be done before galvanizing. Supports, straps or clamps for attaching 6" ⌀ downspouts shall be wrought iron or hot-dipped galvanized steel. On bolts galvanizing as called for in Sec. M-10.30 will be considered sufficient.

HARGETT, YANDA & BARBER
Consulting Engineers
4601 Euclid Ave. Cleveland 3, Ohio

PART DECK PLAN, SCUPPER & DOWNSPOUT DETAILS & ESTIMATED QUANTITIES
BRIDGE Nº CUY-2-2310
LAKELAND FREEWAY UNDER RAMP-1
CUYAHOGA COUNTY
SEC. CUY-2-22.97
STA. 139+30

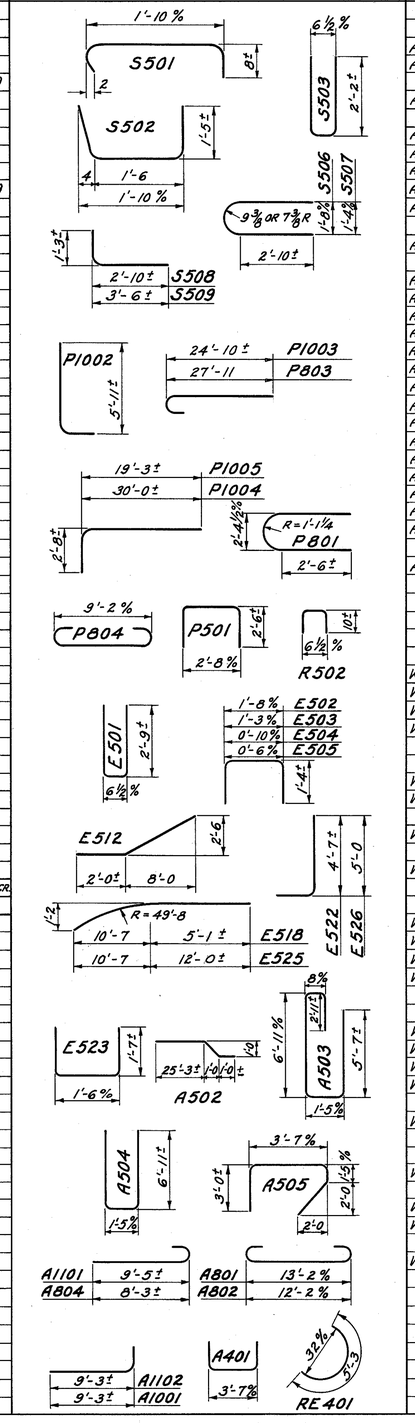
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
BM	J.W.P.	J.W.B.	JJC			

REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHP	INCR
SUPERSTRUCTURE					
S701	250	35'-8"	18,226	S	
	2	7'-2			
S702	SERIES OF	TO	3,126	S	0'-9
	37	34'-2			
S703	16	6'-5	210	S	
S601	250	35'-8	13,393	S	
	2	7'-2			
S602	SERIES OF	TO	2,297	S	0'-9
	37	34'-2			
S603	16	6'-5	154	S	
S604	335	40'-10	20,544	S	
S605	28	39'-0	1,640	S	
S501	264	2'-11	803	B	
S502	264	4'-2	1,147	B	
S503	264	4'-9	1,308	B	
S506	2	8'-3	17	B	
S507	2	7'-9	16	B	
S508	2	4'-0	12	B	
S509	1	4'-8	5	B	
S510	8	2'-10	24	S	
PIERS					
P1001	50	19'-0	4,088	S	
P1002	50	7'-0	1,506	B	
P1003	10	26'-3	1,130	B	
P1004	5	32'-5	697	B	
P1005	5	21'-8	466	B	
P801	4	8'-6	91	B	
P802	28	9'-2	685	S	
P803	36	29'-0	2,787	B	
P804	46	11'-4	1,392	B	
P601	4	22'-8	136	S	
P501	40	7'-5	309	B	
RAILING					
R501	80	16'-0	INCLUDE WITH ITEM 514 FOR PAYMENT	S	
R502	344	2'-1		B	
R503	8	5'-1		S	
R504	8	13'-2		S	
R505	8	20'-2		S	
R506	8	15'-2		S	

MARK	NO. N	NO. S	LENGTH	WEIGHT NORTH	WEIGHT SOUTH	SHP	INCR
END WALLS							
E501	26	26	5'-10	159	159	B	
E502	16	16	4'-1	69	69	B	
E503	4	4	3'-8	15	15	B	
E504	4	4	3'-3	14	14	B	
E505	4	4	2'-11	12	12	B	
E506	25	25	7'-3	190	190	S	
E507	6	6	4'-6	28	28	S	
E508	18	18	3'-6	66	66	S	
E509	3	3	21'-8	68	68	S	
E510	6	6	18'-6	116	116	S	
E511	2	2	10'-6	22	22	S	
E512	2	2	10'-3	22	22	B	
E513	9	9	7'-10	74	74	S	
E514	5	5	8'-10	46	46	S	
E515	2	2	10'-0	21	21	S	
E516	2	2	12'-6	26	26	S	
E517	3	3	16'-8	52	52	S	
E518	3	3	15'-9"	50	50	B	
E519	6	6	13'-0	82	82	S	
E520	2	2	11'-7	24	24	S	
E521	2	2	9'-7	20	20	S	
E522	24	24	5'-1	128	128	B	
E523	4	4	4'-5	19	19	B	
E524	20	20	6'-0	126	126	S	
E525	3	3	22'-8"	71	71	B	
E526	16	16	5'-6	92	92	B	

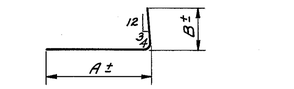
BENDING DIAGRAMS



MARK	NO. N	NO. S	LENGTH	WEIGHT NORTH	WEIGHT SOUTH	SHP	INCR
ABUTMENTS							
A1101		54	11'-0		3156	B	
A1102		80	10'-5		4463	B	
A1001	54		10'-4	2401		B	
A801		46	15'-4		1883	B	
A802	59		14'-4	2258		B	
A803	54		12'-4	1778		S	
A804	54		9'-4	1345		B	
A805		40	10'-6		1121	S	
A701		40	18'-9		1533	S	
A501	53	61	27'-3	1506	1734	S	
A502	4	10	27'-6	115	287	B	
A503	26	26	17'-0	461	461	B	
A504	23	23	15'-0	360	360	B	
A505	27	27	10'-6	296	296	B	
A506	30	30	10'-0	313	313	S	
A507		27	21'-9		613	S	
A508	4	4	26'-2	109	109	S	
A509	12	12	6'-0	75	75	S	
A510	12	12	4'-0	50	50	S	
A511	27		15'-0	422		S	
A512	4	4	5'-6	23	23	S	
A513	20	20	29'-0	605	605	S	
A514	9	9	22'-6	211	211	S	
A515	7	7	7'-3	53	53	S	
A401	30	30	4'-5	90	90	B	
WING WALLS							
W1101		66	9'-11"		3477	B	
W1102		15	9'-2		779	B	
W1103		5	16'-9		445	S	
W1104		24	9'-0		1148	B	
W1001		25	10'-3		1103	B	
W1002		78	7'-8		2573	B	
W1003		SERIES OF	12'-4 TO		583	S	3¼
		10	14'-9¼				
W1004		5	15'-0		323	S	
W901		26	9'-8		855	B	
W902		8	9'-5		256	B	
W903	40		7'-4	997		B	
W904	28		6'-9	643		B	
W801		24	8'-5		539	B	
W802		6	12'-3		196	B	
W803		22	7'-11		465	S	
W804		23	15'-10		972	S	
		SERIES	8'-9				
W805		OF	TO		266	S	3¼
		10	11'-2¼				
		SERIES	7'-6				
W806		OF	TO		220	B	5
		9	10'-10				
W807		5	13'-0		174	S	
W808	8		6'-10	146		B	
	SERIES		6'-11				
W809	OF		TO	206		S	5
	9		10'-3				

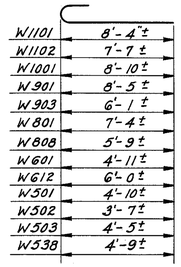
MARK	NO. N	NO. S	LENGTH	WEIGHT NORTH	WEIGHT SOUTH	SHP	INCR
WING WALLS							
		SERIES	7'-10"				
W701		OF	TO		164	B	3¼
		9	10'-0				
	SERIES		7'-2				
W702	OF		TO	141		B	5
	8		10'-1				
W703	7		5'-6	79		B	
W704	14		8'-9	250		S	
W601	7	25	5'-7	59	210	B	
		SERIES	7'-7				
W602		OF	TO		109	S	5
		8	10'-6				
W603		2	19'-0		57	B	
W604		1	17'-6		26	B	
W605		1	17'-3		26	B	
W606		4	17'-0		102	B	
W607		4	15'-6		93	B	
W608		2	15'-0		45	B	
W609		2	14'-9		44	B	
W610		2	14'-0		42	B	
W611		29	28'-6		1241	S	
W612	38		6'-8	380		B	
W613	2		14'-0	42		B	
W614	2		14'-8	44		B	
W615	1		15'-3	23		B	
W616	4		14'-4	86		B	
W617	4		15'-0	90		B	
W618	1		15'-0	23		B	
W619	2		16'-0	48		B	
W620	16		21'-6	517		S	
W621	1		12'-0	18		S	
	SERIES		5'-1				
W622	OF		TO	151		B	3¼
	15		8'-10½				
	SERIES		6'-1				
W623	OF		TO	136		S	3¼
	12		9'-0¾				
W501		33	5'-5		186	B	
W502		7	4'-2		30	B	
W503		32	5'-0		167	B	
W504		9	7'-3		69	B	
W505		11	5'-7		64	B	
W506	33	52	8'-7	295	466	S	
		SERIES	8'-0				
W507		OF	TO		27	S	6
		3	9'-0				
		SERIES	5'-10				
W508		OF	TO		49	S	3¾
		7	7'-8½				
W509		38	27'-6		1090	S	
W510		4	25'-6		106	S	
W511		2	14'-6		30	S	
W512		2	19'-6		41	S	
W513		2	12'-0		25	S	
W514		4	4'-6		19	S	
W515		2	23'-0		48	S	
W516		2	13'-6		28	S	
W517		2	15'-0		31	S	
W518		4	28'-6		119	S	
W519		6	22'-6		141	S	
		SERIES	21'-4				
W520		OF	TO		114	S	3
		5	22'-4				
		SERIES	7'-9				
W521		OF	TO		380	S	6¼
		26	20'-9½				
		SERIES	5'-9				
W522		OF	TO		33	S	4
		5	7'-1				

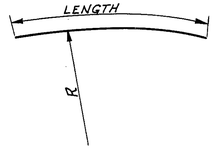
BENDING DIAGRAMS



MARK	A	B
W1104	6'-10	2'-6
W1002	5'-9	2'-3
W902	7'-9	1'-11
W904	5'-1	1'-11
W802	10'-9	1'-8
W806	6'-0 TO 9'-4	1'-8
W701	6'-6 TO 8'-9	1'-6

MARK	A	B
W702	5'-10 TO 8'-8	1'-6
W703	4'-2	1'-6
W622	4'-0 TO 7'-10	1'-3
W504	6'-3	1'-1
W505	4'-7	1'-1
W547	5'-6	1'-1





MARK	R
W603	37'-6"
W604	35'-6
W605	34'-6
W606	33'-6
W607	30'-0
W608	29'-0
W609	25'-6
W610	24'-6
W613	22'-0
W614	23'-0
W615	24'-0
W616	30'-0
W617	31'-6
W618	34'-6
W619	36'-6
W524	31'-6
W525	30'-0
W526	31'-6
W527	30'-0
W528	31'-6
W529	30'-0
W530	31'-6

MARK	R
W531	30'-0
W532	31'-6
W533	30'-0
W534	31'-6
W535	30'-0
W536	31'-6
W537	30'-0
W551	31'-6
W552	30'-0
W553	31'-6
W554	30'-0
W555	31'-6
W556	30'-10
W557	31'-6
W558	30'-0
W559	31'-6
W560	30'-0
W561	31'-6
W562	30'-0
W563	31'-6
W564	30'-0

MARK	NO. N	NO. S	LENGTH	WEIGHT NORTH	WEIGHT SOUTH	SHP	INCR
WING WALLS							
		SERIES	10'-7"				
W523		OF	TO		306	S	10"
		17	23'-11				
W524		12	16'-10		211	B	
W525		12	15'-6		194	B	
W526		1	28'-0		29	B	
W527		1	27'-0		28	B	
W528		1	22'-0		23	B	
W529		1	21'-4		22	B	
W530		1	17'-0		18	B	
W531		1	16'-0		17	B	
W532		1	12'-0		13	B	
W533		1	12'-0		13	B	
W534		1	7'-6		8	B	
W535		1	7'-6		8	B	
W536		2	18'-0		38	B	
W537		2	18'-0		38	B	
W538	42		5'-4	234		B	
W539	24		19'-6	488		S	
W540	2		18'-0	38		S	
W541	2		19'-6	41		S	
W542	2		12'-6	26		S	
W543	2		20'-0	42		S	
W544	6		15'-6	97		S	
	SERIES		14'-2				
W545	OF		TO	78		S	4"
	5		15'-10				
	SERIES		8'-9				
W546	OF		TO	130		S	6½
	11		14'-2				
W547	12		6'-6	81		B	
	SERIES		5'-6				
W548	OF		TO	28		S	10"
	4		8'-0				
	SERIES		5'-3				
W549	OF		TO	139		S	10"
	13		15'-3				
W550	2		16'-0	33		S	
W551	6		14'-7	91		B	
W552	6		13'-8	86		B	
W553	1		25'-4	26		B	
W554	1		23'-10	25		B	
W555	1		20'-5	21		B	
W556	1		19'-3	20		B	
W557	1		15'-6	16		B	
W558	1		14'-8	15		B	
W559	1		11'-0	11		B	
W560	1		10'-7	11		B	
W561	1		6'-4	7		B	
W562	1		6'-0	6		B	
W563	2		15'-9	33		B	
W564	2		15'-9	33		B	
W565	7	17	10'-0	7	17	S	

MARK	No.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT
PIERS (CONTINUED)						
SP401	5	32"	16'-5	4½	46	1520

MARK	No.	LENGTH	WEIGHT		SHP	INCR
REPLACEMENT BARS						
RE1100	1	7'-6	—		S	
RE1000	1	7'-2	—		S	
RE900	1	6'-10	—		S	
RE800	1	6'-6	—		S	
RE700	2	6'-2	—		S	
RE600	3	5'-11	—		S	
RE500	2	5'-7	—		S	
RE400	1	5'-3	—		S	
RE401	1	5'-3	—		B	

FED RD DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	1-329 (12)	1958

115
149

CUYAHOGA COUNTY
CUY-2-22.97

BAR SIZE: BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR DIGETS ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A701 IS A No.7 BAR AND A1014 IS A No.10 SIZE BAR.

REPLACEMENT BARS: IF REINFORCING BARS ARE FABRICATED FROM STOCK WHICH HAS PREVIOUSLY BEEN TESTED AND APPROVED BY THE OHIO TESTING LABORATORY, TEST SAMPLES AS PROVIDED IN SEC. S-402 NEED NOT BE FURNISHED AND REPLACEMENT BARS WILL NOT BE REQUIRED.

SPIRAL REINFORCING BARS: THE LENGTH SHOWN IN THE STEEL LIST FOR SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE BOTTOM OF THE PIER CAP. THE No. OF TURNS SHOWN IS THE "LENGTH" DIVIDED BY THE PITCH, PLUS 3 TURNS (TOTAL NUMBER OF CLOSED COILS), EXPRESSED AS THE NEAREST WHOLE NUMBER. SPIRAL REINFORCING BARS SHALL NOT HAVE DEFORMATION BUT SHALL IN OTHER RESPECTS CONFORM TO ITEM S-4. 1½ CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT.

FOUR STEEL CHANNEL, TEE, OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.68 LBS. PER LIN. FT. OF SPACER, SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF THE COIL. THE NUMBER OF POUNDS OF THESE SPACERS, BASED ON 0.68 LBS. PER LIN. FT., WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED QUANTITY OF SPIRAL BARS.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

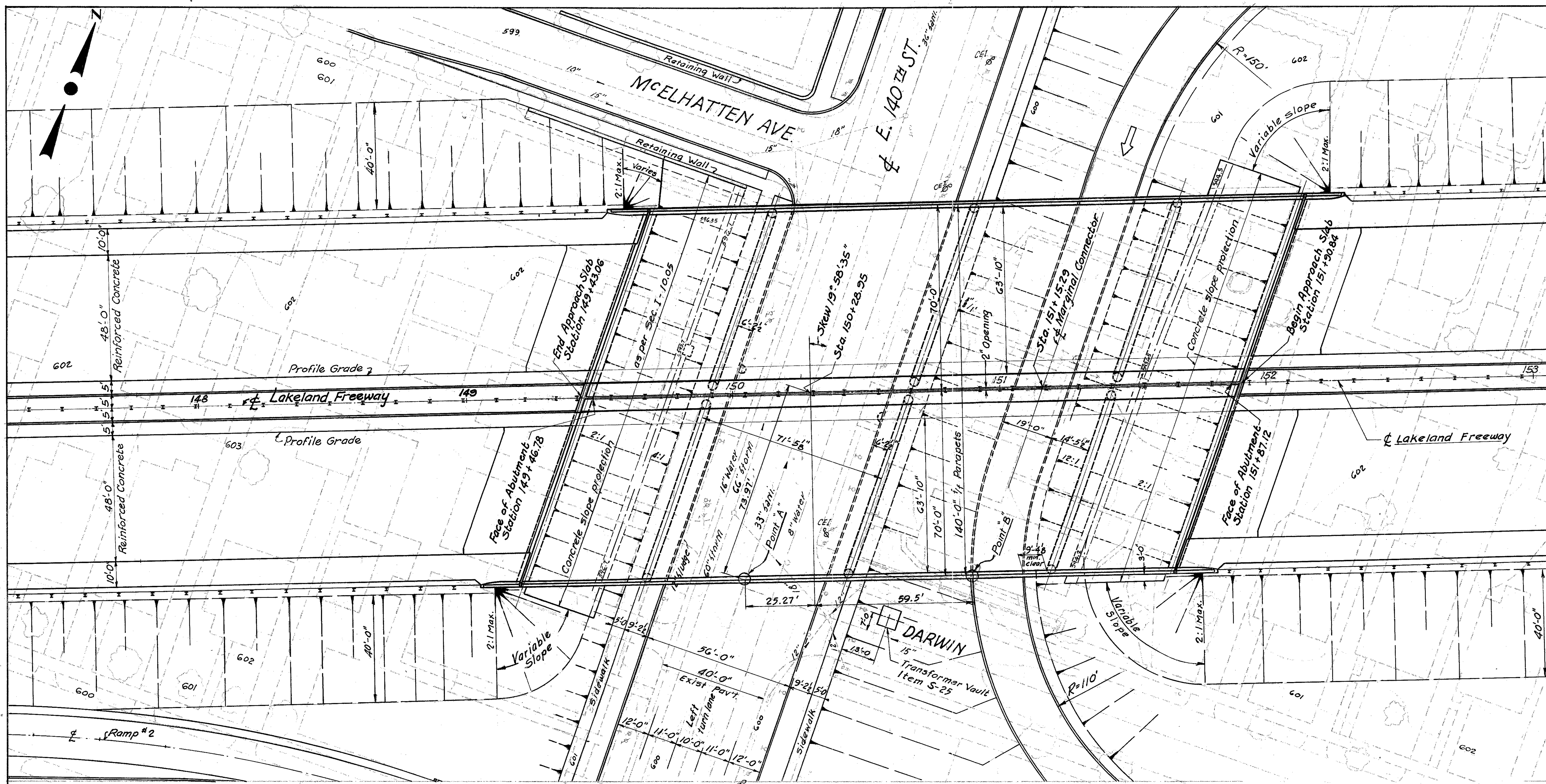
REINFORCING STEEL LIST AND NOTES
BRIDGE No CUY-2-2310
LAKELAND FREEWAY UNDER RAMP I

CUYAHOGA COUNTY STA. 139+50
SEC. CUY 2 22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
[illegible]	J.W.P.	G.J.	[illegible]			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I-329(12)		116/149

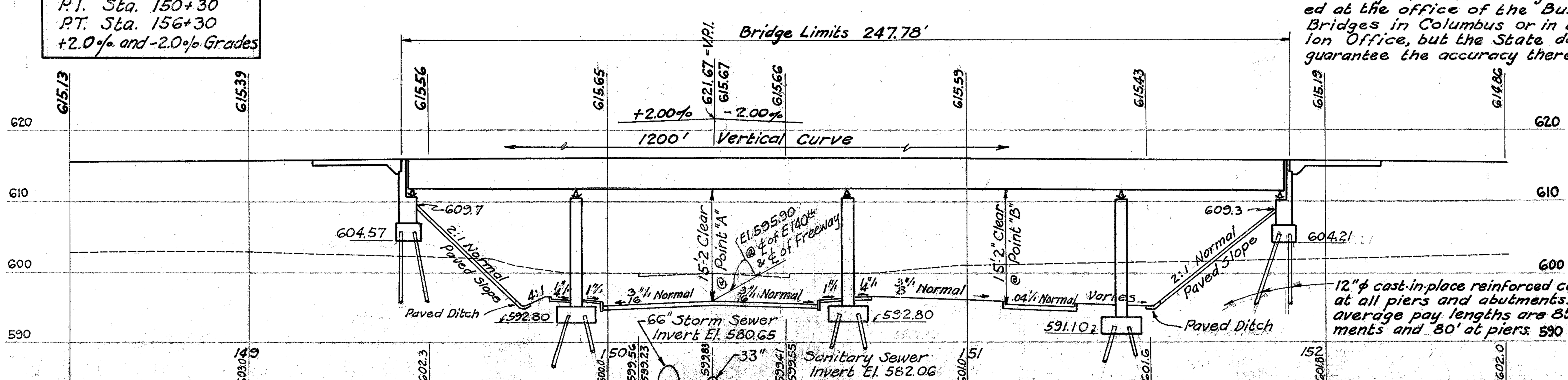
CUYAHOGA COUNTY
CUY-2-22.97



Legend
- Fire Hydrant
- General Pole
- Telephone Pole
- Exist. Manhole
- Exist. Catch Basin
- Valve
- C.E.I. Power Line

Vertical Curve Data
P.C. Sta. 144+30
P.I. Sta. 150+30
P.T. Sta. 156+30
+2.0% and -2.0% Grades

For Temporary Run-around Road see sheet No. 67



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

12"φ cast-in-place reinforced concrete piles at all piers and abutments. Estimated average pay lengths are 85' at abutments and 80' at piers.

PROPOSED STRUCTURE

TYPE CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK, PIER AND ABUTMENTS
SPANS 45'-6" 76'-0" 76'-0" 45'-6"
ROADWAY 140'-0" F/F PARAPETS

LOADING CF-2000-57 (ADEQUATE FOR AASHO ALTERNATE LOADING)
SKEW 19°-58'-35" L. F.
WEARING SURFACE 1" MONOLITHIC CONCRETE
APPROACH SLAB AS-1-54 (25'-0" LONG)
ALIGNMENT TANGENT

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

SITE PLAN
BRIDGE NO. CUY-2-2329

LAKELAND FREEWAY OVER EAST 140TH ST.
STATION 149+43.06 TO STATION 151+90.84
SR-2 & USR-20 SEC. CUY-2-22.97
SCALE: 1"= 20'-0" I-329 (12) CUYAHOGA COUNTY

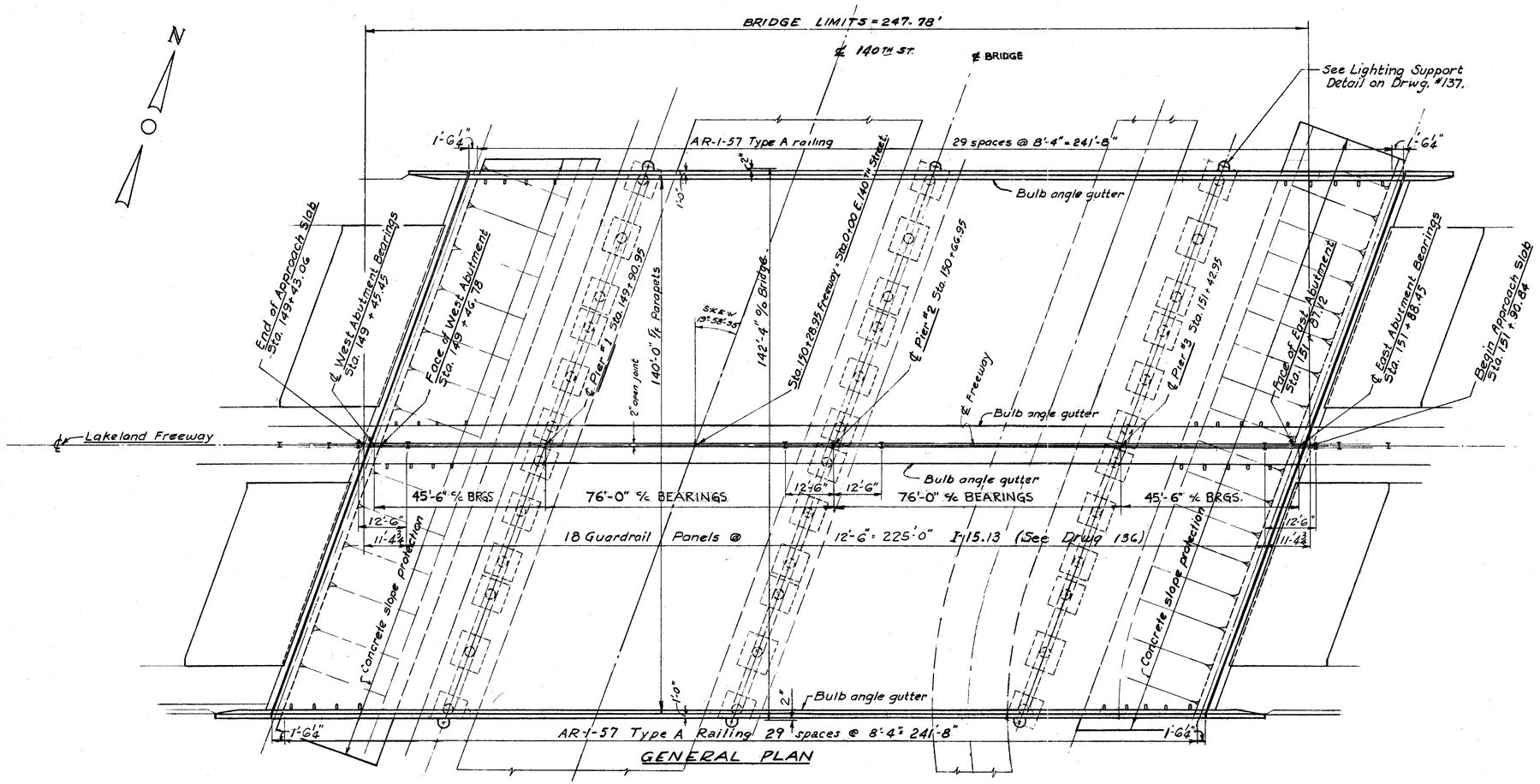
TOPOGRAPHY		PROPOSED WORK				
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
	T.L.P.	A.J.C.	A.J.C.	W.G.B.		

SITE PLAN EAST 140TH ST.

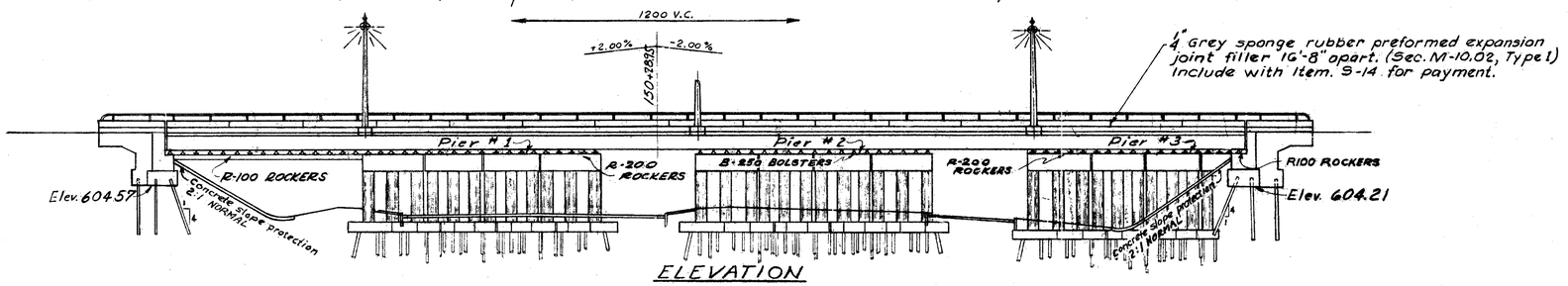
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

117
149

CUYAHOGA COUNTY
CUY-2-22.97



GENERAL PLAN



ELEVATION

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

FIRST PILE TEST load and any subsequent pile test loads shall be applied only if directed by the engineer. All pile test loads shall be applied where the engineer shall direct.

GENERAL NOTES

REFERENCE shall be made to standard drawings RB1-55 revised 2-2-59; AR1-57 revised 2-2-59.

DESIGN SPECIFICATIONS: These structures conform to the requirements of design specifications for Highway Structures of the State of Ohio, Department of Highways, dated 9-1-57, together with revisions dated Feb. 21, 1958.

GALVANIZING of all members which are specified to be galvanized shall be as called for in Sec. M 7.4 (d).

EXCAVATION QUANTITY for the abutments includes the fill material from the top of the spill-thru slope to the bottom of the abutment footing.

WELDING of structural steel shall be class "A" unless otherwise noted. Any welds shown as field welds may at the option of the contractor be made in the shop. Class "B" shown thus ⊕

DETAILS: For details of end crossframes, end dam, aluminum railing, posts, beam cut-off at backwall, center opening & median guard rail details & welded butt joint in superstructure end dam at crown see drawings 135, 136 & 137.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the centerline of bridge and are located near the center of any span.

ELECTRICAL GROUNDS: A solid No 0 gage bare copper wire electrical ground shall be embedded in the outside column on each side of the structure at pier No 2. The lower ends of the wires shall be brazed to the steel shell of one of the cast-in-place reinforced concrete piles and the upper ends shall extend sufficiently above the top of the concrete to provide for a suitable splice and extension for connection to the superstructure. The connection to the superstructure shall be a No 6 gage, bare, stranded, tinned copper wire brazed or bolted to a beam flange and to the solid copper wire in the pier shaft. At the base of the lamp standards there shall be a tinned No 6 gage copper wire brazed to one anchor bolt and the other end brazed or bolted to the outside beam flange. Payment for electrical grounds is included in the lump sum bid for Item 5-25, "Electrical Lighting System."

BACKFILL behind abutments shall be made with material meeting the requirements of Sec. I-22 and shall be compacted in accordance with requirements for embankment compaction. Payment for backfill shall be included with Item E-2, "Unclassified Excavation."

MAINTENANCE and PROTECTION of TRAFFIC

Four lanes of traffic and a sidewalk with a combined horizontal width of 52' shall be maintained on East 140TH Street (or the run-around) at all times.

Construction operations over traveled lanes will not be permitted unless platforms, nets or other suitable protection is provided by the Contractor to safeguard the travelling public. A vertical clearance of not less than 12'-9" shall be provided at all times. The cost of such protection shall be included in the lump sum bid for Maintaining Traffic.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

GENERAL PLAN & ELEVATION GENERAL NOTES BRIDGE No CUY2-2329 LAKELAND FREEWAY OVER E.140TH ST.

CUYAHOGA COUNTY STA. 149+43.06
SEC. CUY 2-22.97 TO STA. 151+90.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C	I	J.W.P	G.W.B.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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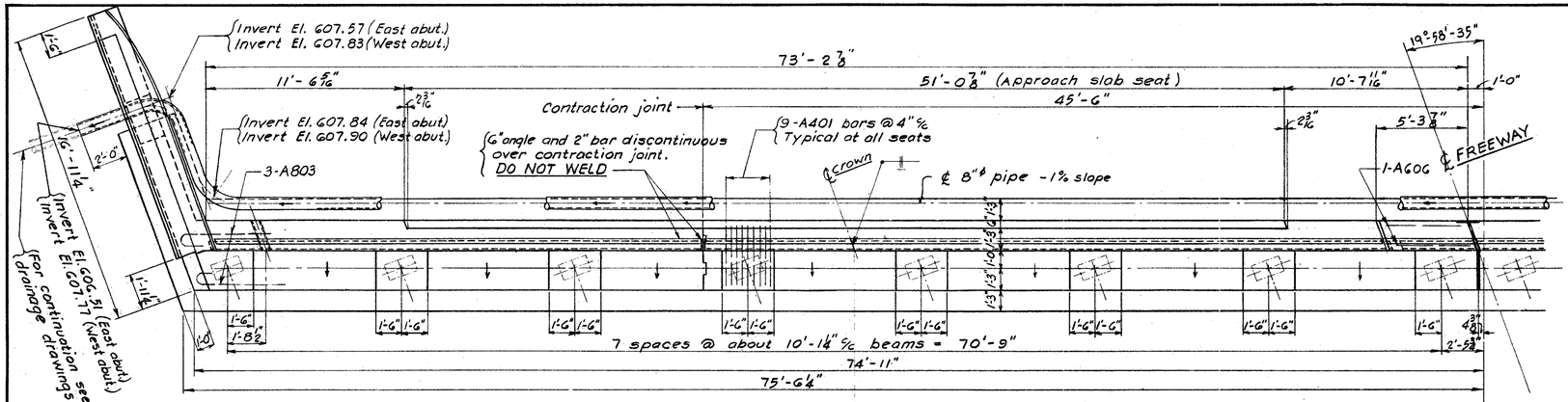
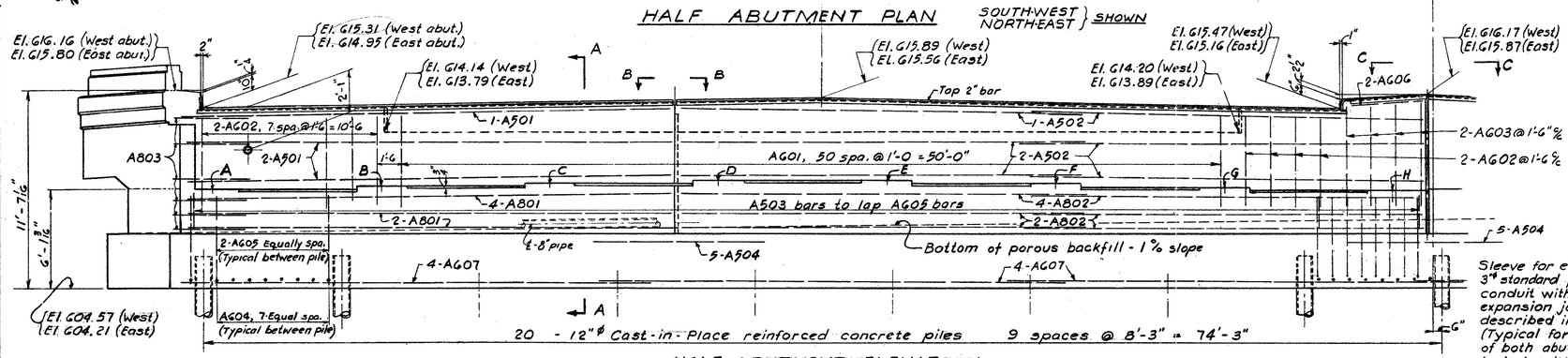
149

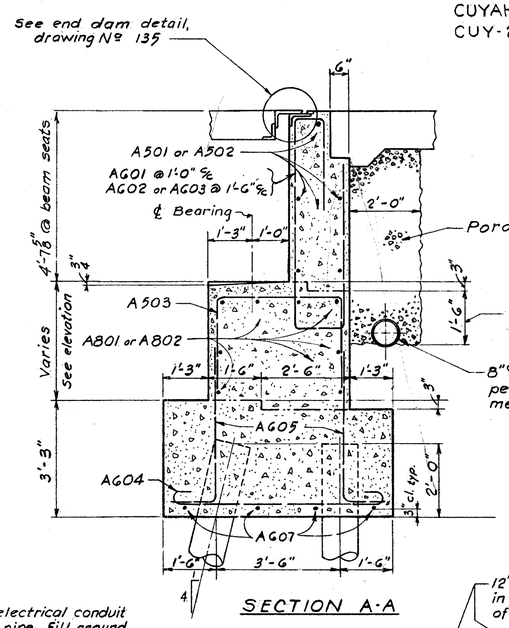
CUYAHOGA COUNTY
CUY-2-22.97



HALF ABUTMENT PLAN SOUTH-WEST / NORTH-EAST SHOWN

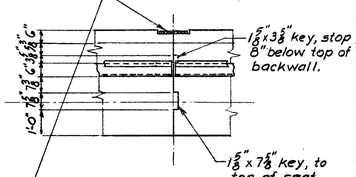


HALF ABUTMENT ELEVATION

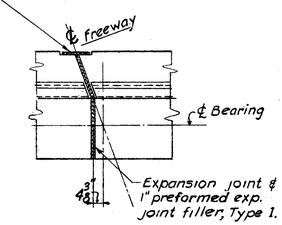


SECTION A-A

Sleeve for electrical conduit 3"ϕ standard pipe. Fill around conduit with 1" preformed expansion joint filler described in Sec. 5-902. (Typical for each end of both abutments.) Include with Item S-1 concrete for payment.

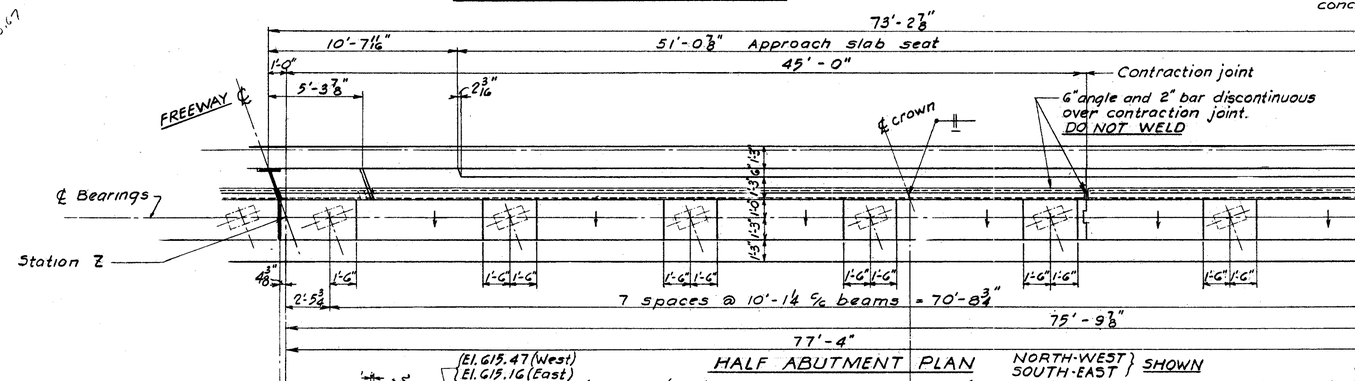


SECTION B-B

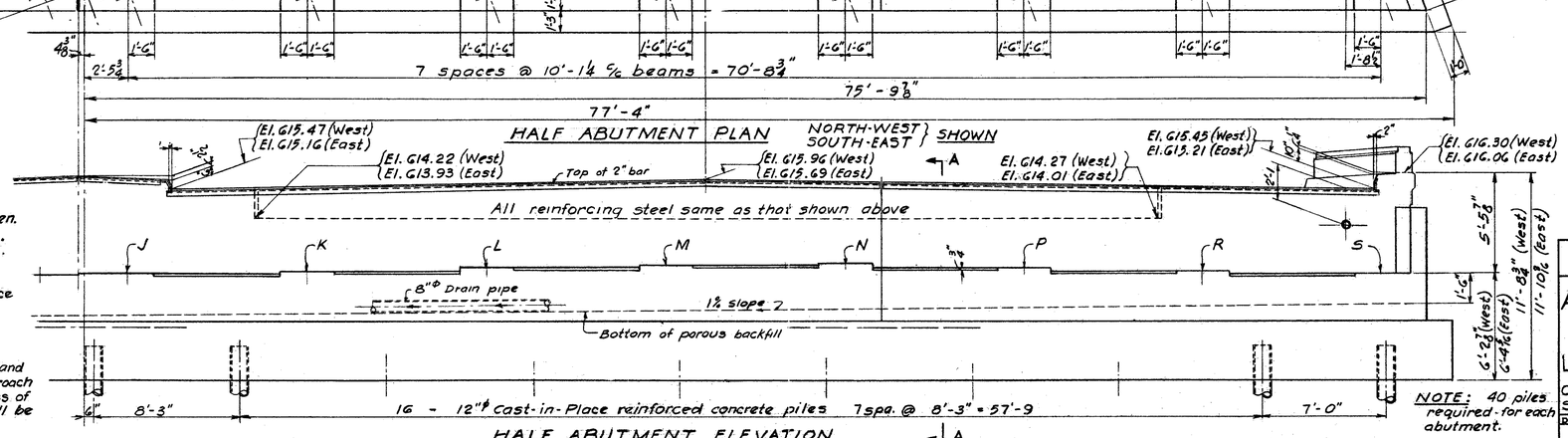


SECTION C-C

ELEVATIONS		
Point	West Abut.	East Abut.
Sta. Z	149+43.49	151+88.45
A	610.67	610.31
B	610.83	610.48
C	610.99	610.64
D	611.15	610.81
E	611.21	610.88
F	611.07	610.75
G	610.93	610.62
H	610.79	610.49
J	610.80	610.50
K	610.96	610.67
L	611.12	610.84
M	611.27	611.00
N	611.23	610.97
P	611.09	610.84
R	610.95	610.70
S	610.81	610.57



HALF ABUTMENT PLAN NORTH-WEST / SOUTH-EAST SHOWN



HALF ABUTMENT ELEVATION

NOTE: 40 piles required for each abutment.

NOTES

PROCEDURE: The embankment shall be placed and compacted up to the finished spill thru slope and to the level of the subgrade after which excavation shall be made for the abutments and end walls and piles driven.

CONCRETE in abutments and footings shall be class "E".

REINFORCING steel shall be 2" clear from exposed surface unless noted otherwise.

BACKWALL concrete shall be placed after all structural steel and pipe sleeves are in place.

POROUS BACKFILL; 2 ft. thick, full length of abutment and end walls shall extend upward to the bottom of the approach slab and paved shoulder. Excavation therefor in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

ABUTMENT PLAN & ELEVATION
BRIDGE Nº CUY-2-2329
LAKELAND FREEWAY OVER E 140TH ST.

CUYAHOGA COUNTY STA. 149+43.06
SEC. CUY 2-22.97 TO STA. 151+90.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C.	K.J.W	J.W.P.	G.M. W.A.B.			

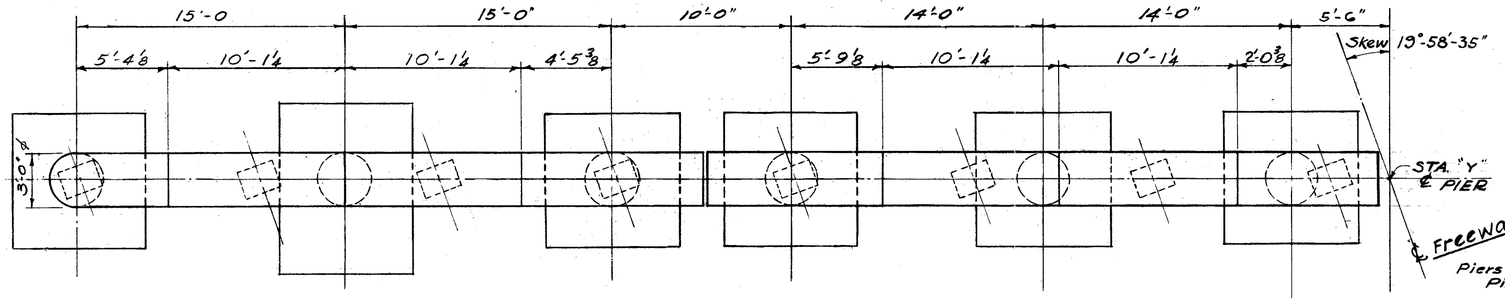
FED. RD. DIVISION 2
STATE OHIO
PROJECT I-329 (12)
FISCAL YEAR 1958
119
149
CUYAHOGA COUNTY
CUY-2-22.97
℄ Freeway
8"ϕ Bituminous Coated Perforated Corrugated Metal Pipe @ 1% Slope
℄ Beam
℄ Bearing
For abutment details see drawing № 118
6-W520 5 spa. @ 12"
2-W520 in footing
8"ϕ pipe 1% slope
PLAN
7'-0"
6'-4½"
5'-10¾"
3'-6"
1'-6"
1'-0"
5'-11"
9'-3"
15'-0"
4'-3"
1'-11¼"
2'-9"
R=50'
S601 356 Spaces @ 8" = 237'-4"
S603 353 Spa. @ 8" c/c 235'-4"
S602 354 Spaces @ 8" = 236'-0"
S702 349 Spaces @ 8" = 232'-8"
S701 354 Spa. @ 8" = 236'-0"
S605 Ser.
S604 Ser.
S606 Ser.
S607 Series
S608 Ser.
S703 Series
S704 Series
S705 Series 14 Spa. @ 8" = 9'-4"
S706 Series 12 Spa. @ 8" = 8'-0"
Fan 4-S609
Fan 4-S707
Longitudinal Construction Joint
Symmetrical by rotation.
6'-8"
8'-2"
34'-0"
TOP STEEL
BOTTOM STEEL
PART PLAN OF DECK
R502 @ 1'-6" c/c
R503
W501
W502
W506
W507 @ 1'-6" c/c
W509
W512
W519
Bituminous Shoulder
SECTION B-B
See AR-1-57 (Revised 3-1-58) for details (Type A)
For Aluminum ℞. at end of railing on each Wing Wall see Dwg. 136.
2-R503
R502
W519
W503
W504
W505
W506
2-W501 & 1-W502
1-W501 & 1-W502
2-W507
2-W510
2-W511
2-W514
2-W516
2-W517
4-W518
2:1 Nominal Slope
4' Rounding
Construction joint
1-W509 front
1-W512 back
1-W508 (front)
1-W512 (back)
1-W515 (back)
1-W514 front
1-W513 back
1-W521 front & 1-W513 back
1-W514 back
1-W521 front
2-W522 front
2-W518 back
SW 612.2
NE 611.8
El. 609.7 (S.W.)
El. 609.3 (N.E.)
El. 609.3 (S.E.)
El. 609.7 (N.W.)
N.W. Elev. 612.4
S.E. Elev. 612.1
607.82
607.46
El. 604.57
El. 604.21
South west outlet invert El. 607.77
North east outlet invert El. 606.51
For details see drawing № 118.
1-12"ϕ cast in place reinforced concrete pile
ELEVATION
W508 or W509
W515
W511 @ 1'-6" c/c
W514
10"
SECTION D-D
W503, W504, W505 @ 1'-6" c/c
W510 @ 1'-6" c/c
W513
W514 or W521
W517 @ 1'-6" c/c
W518
SECTION C-C
HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO
ABUTMENT DETAILS
BRIDGE № CUY-2-2329
LAKELAND FREEWAY OVER E140TH ST.
CUYAHOGA COUNTY
SEC. CUY-2-22.97
STA. 149+43.06
TO STA 151+90.84
DESIGNED agc
DRAWN agc
TRACED W.B.
CHECKED
REVIEWED
REVISED
DATE

CUYAHOGA COUNTY
CUY-2-22.97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

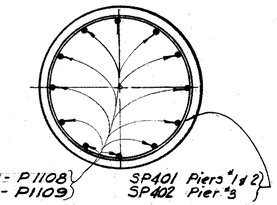
120
149

N



PIER PLAN

See drawing Nº 121 for footing size, pile layout and dowel arrangement

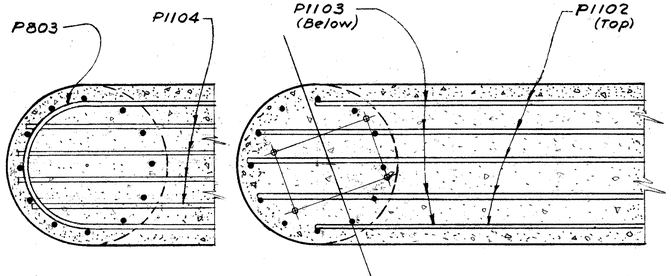


SECTION 1-1

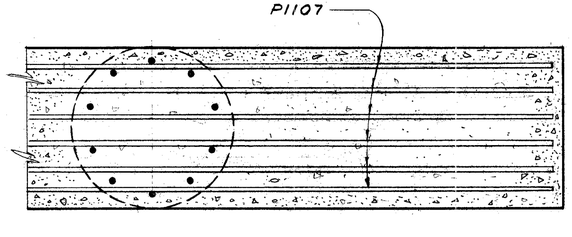
Sta	Pier #1	Pier #2	Pier #3
Y	149+90.95	150+66.95	151+42.95
A	610.33	610.18	610.01
B	610.47	610.33	610.18
C	610.62	610.49	610.34
D	610.76	610.64	610.50
E	610.81	610.70	610.57
F	610.66	610.55	610.43
G	610.51	610.41	610.30
H	610.35	610.27	610.16
J	610.35	610.27	610.17
K	610.50	610.42	610.33
L	610.64	610.57	610.49
M	610.78	610.72	610.65
N	610.73	610.68	610.61
P	610.57	610.53	610.48
R	610.42	610.38	610.34
S	610.26	610.24	610.20

Elev. Bottom of Pier Cap (Below)

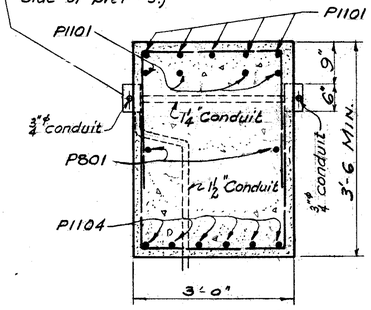
Pier	EASTBOUND OUTSIDE	EASTBOUND INSIDE	WESTBOUND OUTSIDE	WESTBOUND INSIDE
#1	606.76	606.85	606.83	606.85
#2	606.74	606.77	606.68	606.77
#3	606.70	606.67	606.51	606.66



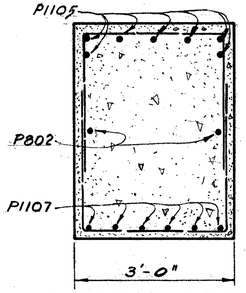
SECTION-2-2



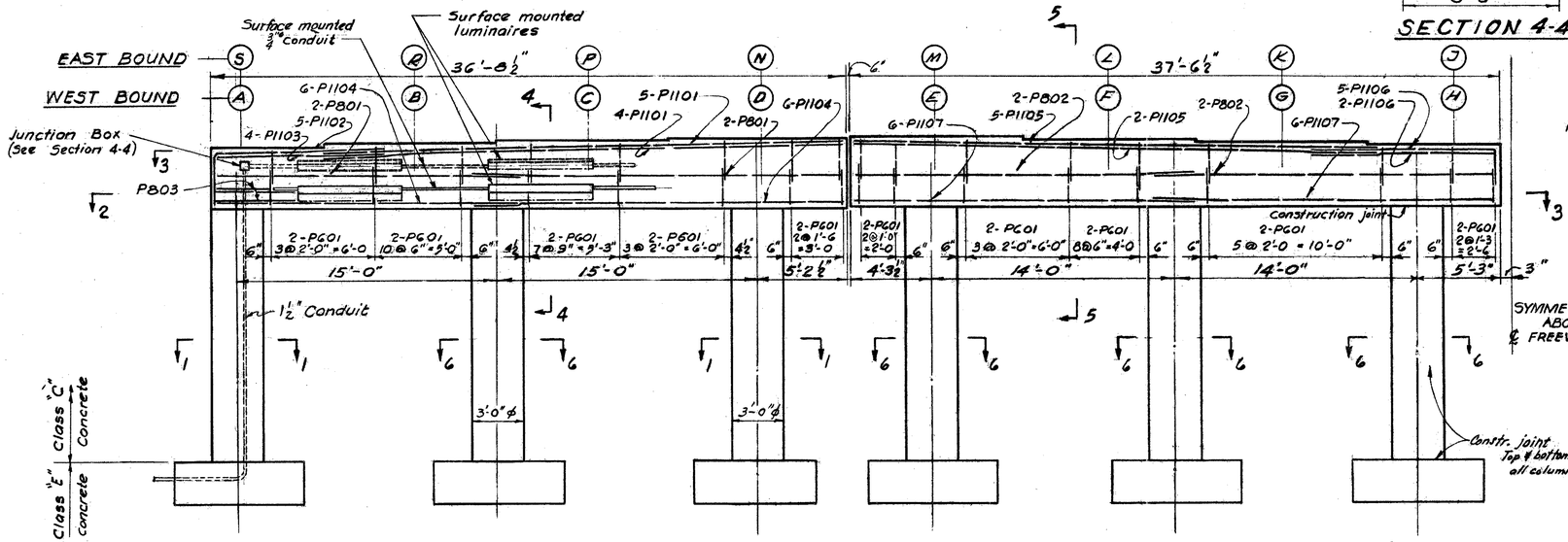
SECTION 3-3



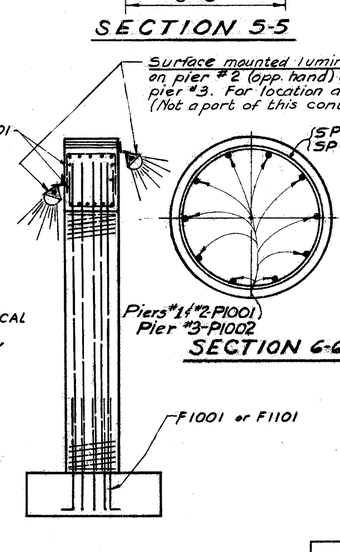
SECTION 4-4



SECTION 5-5



WEST ELEVATION



SECTION 6-6

Notes:

Reinforcing steel shall be 2" clear from face of concrete unless otherwise noted.

Reinforcing steel shall be placed at pier #2 to clear bolster anchor bolts.

Concrete shall be Class "C" in Pier Cap and Columns and Class "E" in Pier Footings.

Spiral Reinforcing see note on Dwg. 124

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

PIER DETAILS

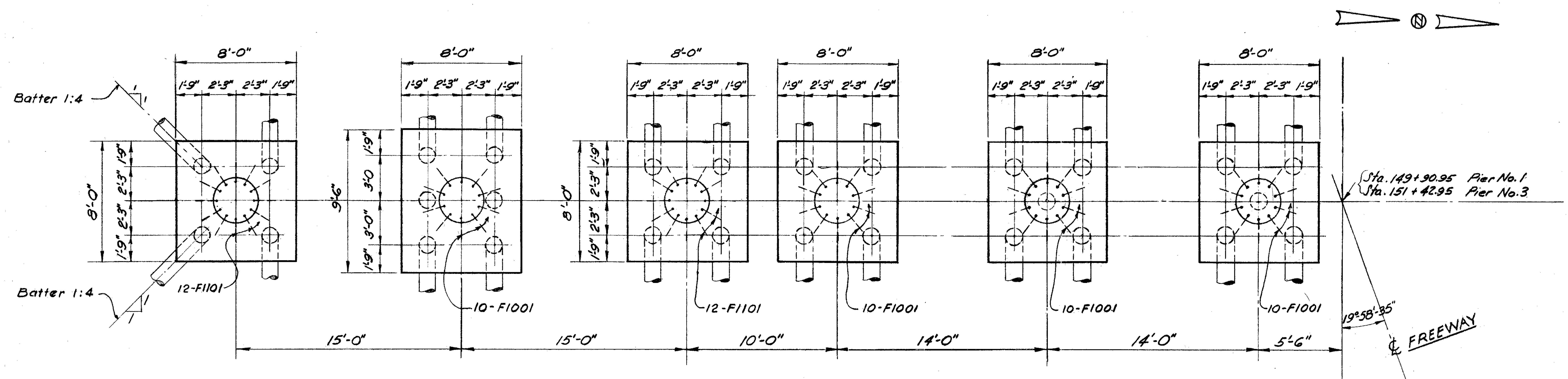
BRIDGE Nº CUY-2-2329
LAKELAND FREEWAY OVER E140TH ST.
CUYAHOGA COUNTY STA. 149+43.06
SEC. CUY-2-22.97 TO STA. 151+90.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
J.C.	V	J.W.P.	W.A.B.			

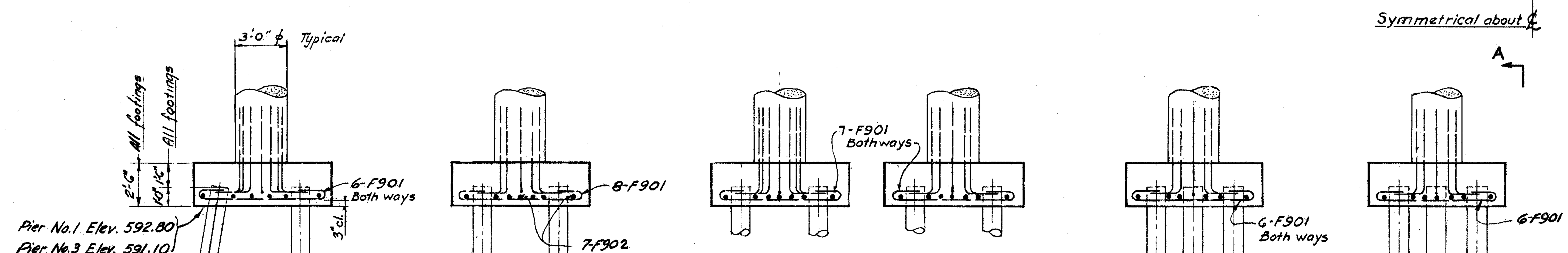
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

121
149

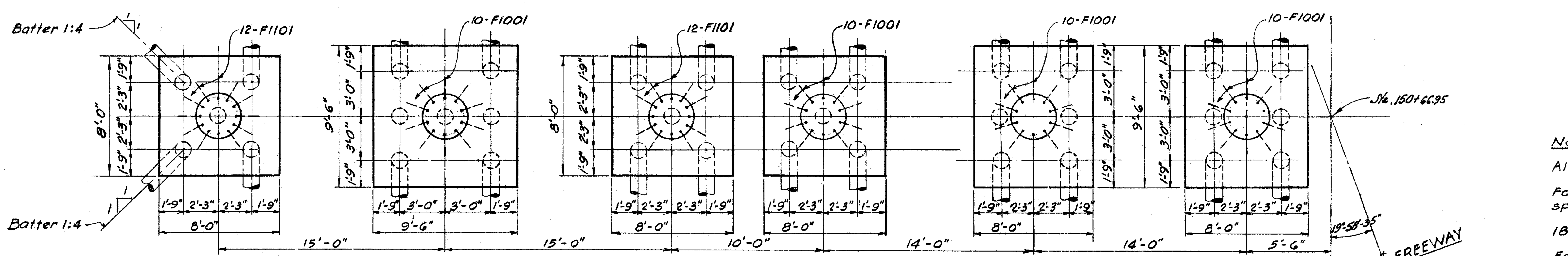
CUYAHOGA COUNTY
CUY-2-22.97



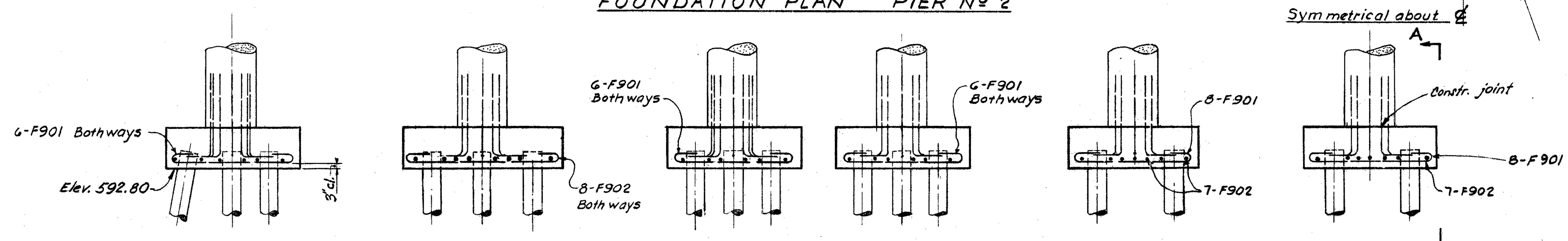
FOUNDATION PLAN PIERS Nº 1 AND Nº 3



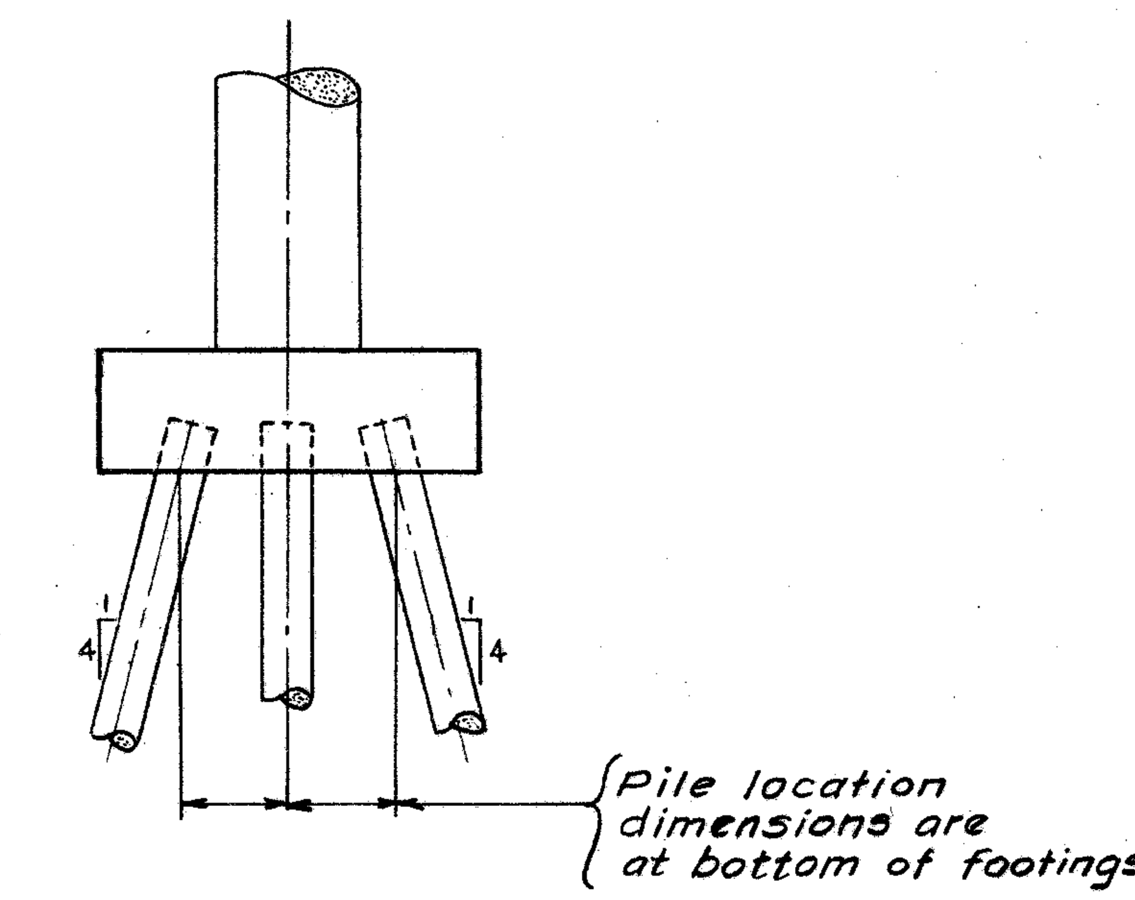
ELEVATION - PIERS Nº 1 AND Nº 3



FOUNDATION PLAN PIER Nº 2



ELEVATION - PIERS Nº 2



SECTION A-A

Note:

All piles 12" Cast-in-place reinforced concrete.

Footing dowels to match vertical column reinforcement. For spacing see pier drawing Nº 120.

180 piles required for "Pier Footings."

For additional notes see drawing Nº 120.

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4800 EUCLID AVE. CLEVELAND 3, OHIO

PIER FOOTING DETAILS

BRIDGE Nº CUY-2-2329
LAKELAND FREEWAY OVER E140TH ST.

CUYAHOGA COUNTY STA. 149+43.06
SEC. CUY-2-22.97 TO STA. 151+90.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
AJC	AJC	J.W.P.	WMc / WAB			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

122
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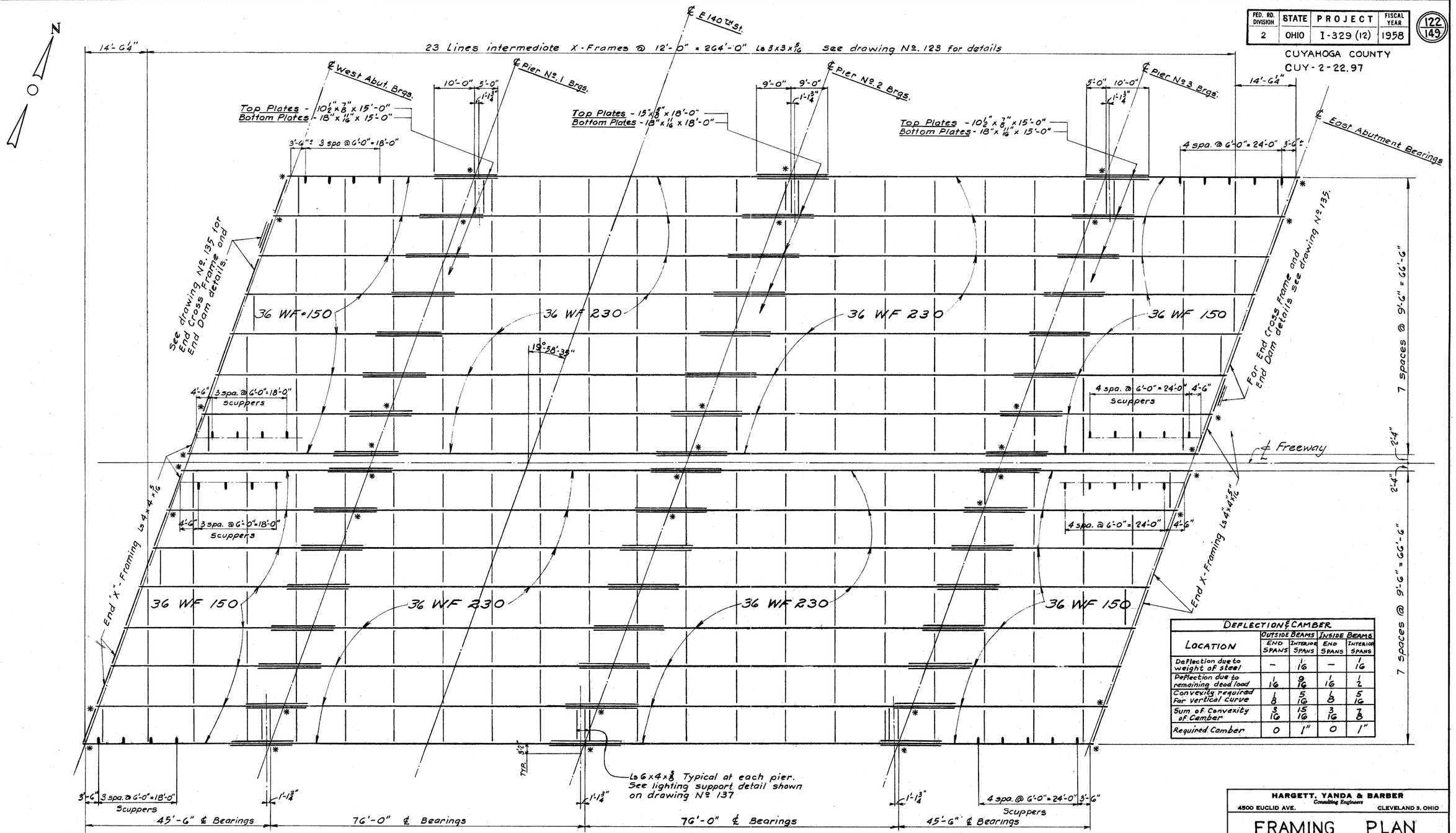
CUYAHOGA COUNTY
CUY-2-22.97



DEFLECTION & CAMBER

LOCATION	OUTSIDE BEAMS		INSIDE BEAMS	
	END SPANS	INTERIOR SPANS	END SPANS	INTERIOR SPANS
Deflection due to weight of steel	–	1/16	–	1/16
Deflection due to remaining dead load	1/16	9/16	1/16	1/2
Convexity required for vertical curve	1/8	5/16	1/8	5/16
Sum of Convexity of Camber	3/16	15/16	3/16	7/8
Required Camber	0	1"	0	1"

FRAMING PLAN

Spans 45'-6", 76'-0", 45'-6" ℄ Bearings

Note "A"
Remove "Keeper Plates from rocker and bolster cap at the abutment and pier locations shown thus * on the framing plan to provide for lateral expansion of the bridge deck.

NOTES:
Scuppers shall be spaced as shown. Crossframes shall be spaced as shown except as required to meet clearance requirements. Cross-frames must clear scuppers by at least 6". For scupper details see drawing No. 135.
For beam splice details and welding procedure see drawing No. 123

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Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

FRAMING PLAN
BRIDGE No. CUY-2-2329
LAKELAND FREEWAY OVER E. 140 TH ST.

CUYAHOGA COUNTY STA. 149 + 43.06
SEC. CUY-2-22.97 To STA. 151 + 90.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C.	K.J.W.	J.W.P.	W.M.S. W.D.B.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

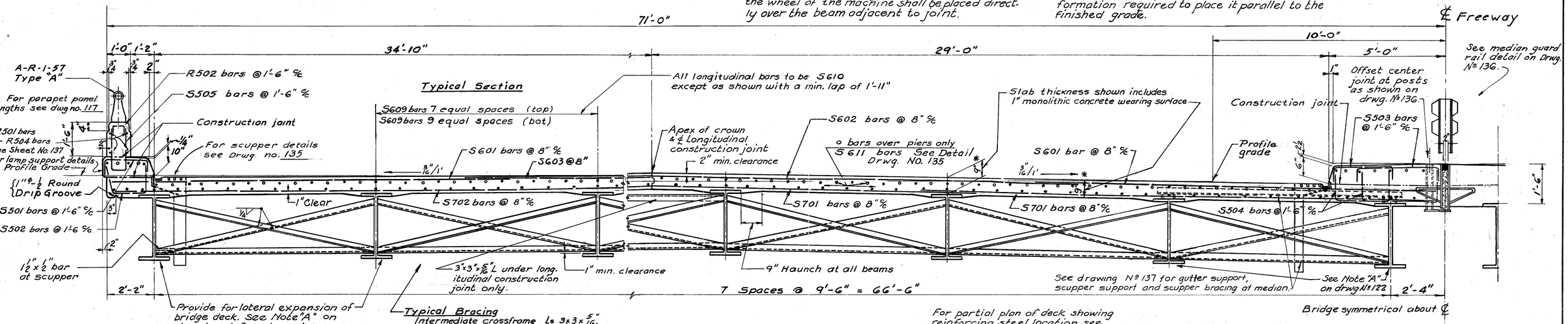
123/149

CUYAHOGA COUNTY
CUY-2-22.97

Note: Transverse Bars S701 shall be bent in the field as required to clear finishing machine rail. Bars shall be straightened before second pour.

MACHINE FINISHING of the bridge decks will be required in accordance with the Special Provisions of this contract except that longitudinal joints, as shown on the plans, will be permitted. When the finishing machine is supported on the concrete the wheel of the machine shall be placed directly over the beam adjacent to joint.

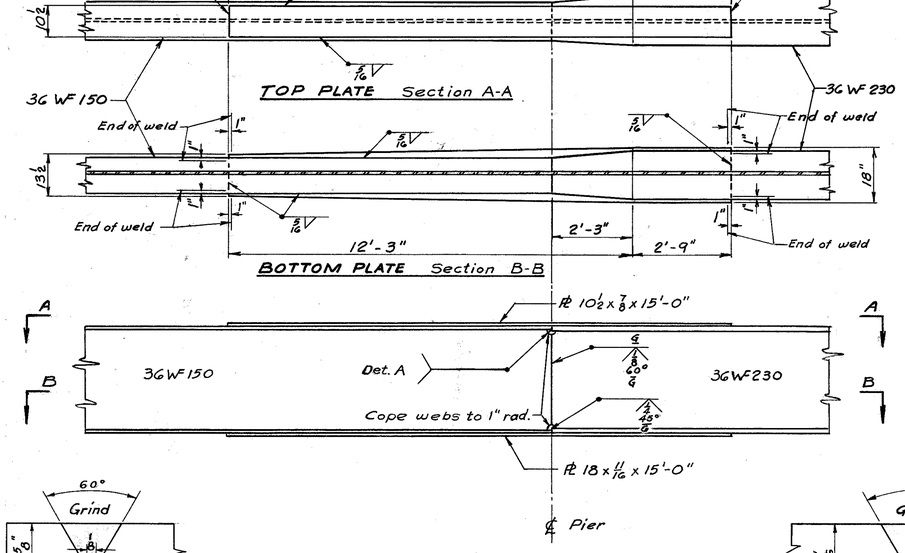
Note: * This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.



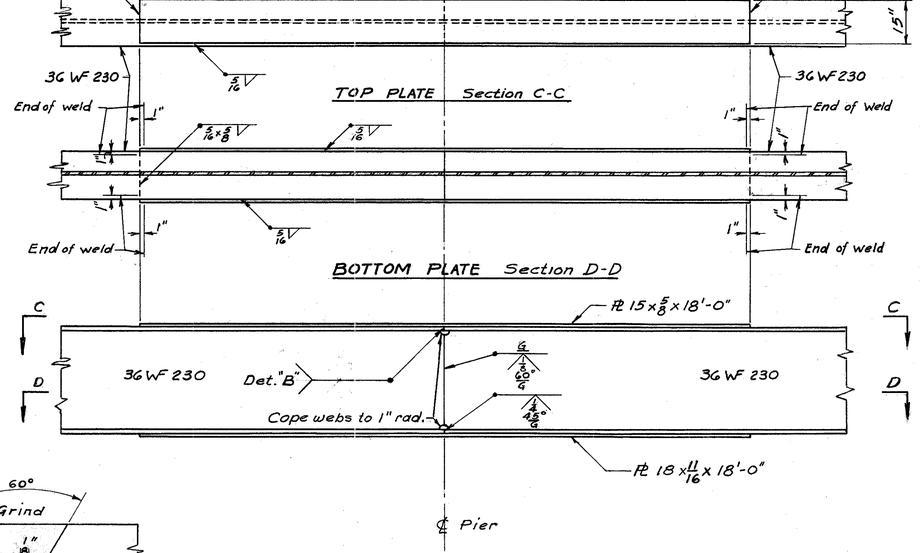
For partial plan of deck showing reinforcing steel location see drwg No 119.

HALF TRANSVERSE SECTION

Westbound shown



MOMENT PLATES at EAST and WEST PIERS



MOMENT PLATES at CENTER PIER

NOTES:

CAMBERING: For cambering of beams see table of deflection and camber on drawing No. 122.

BEAM SPLICE WELDING PROCEDURE

(1) Raise end of beam at pier No 2, ½".
(2) Butt weld beam flanges and web at pier No. 1 using the following sequence: make two passes on each flange, then two on the web; repeat, using one pass at each location until welds are completed.
(3) Weld top and bottom flange moment plates at pier No 1.
(4) Lower end of beam at pier No 2.
(5) Make splices at piers No 2 and No 3 in the same manner raising the ends of the beams 2½" at pier No 3 and ⅝" at east abutment.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

TRANSVERSE SECTION & BEAM SPLICE DETAILS

BRIDGE No CUY-2-2329

LAKELAND FREEWAY OVER E 140TH ST.

CUYAHOGA COUNTY STA. 149+43.06
SEC. CUY-2-22.97 TO STA. 151+90.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C.	K.J.W.	J.W.P.	BMcWAB.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY-2-22.97

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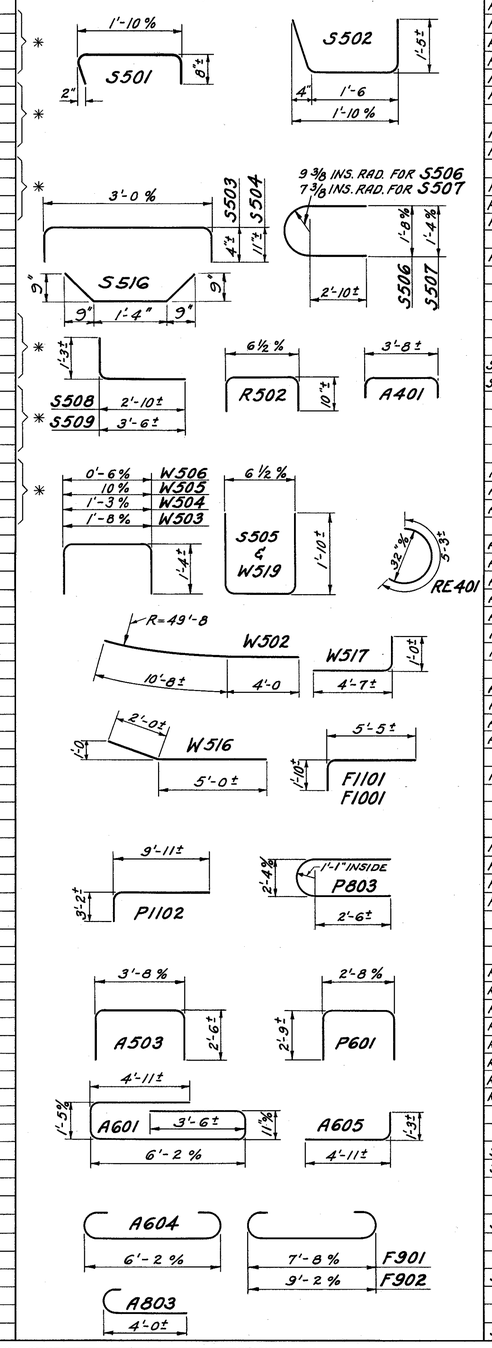
REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHAPE
SUPERSTRUCTURE				
S701	1420	22'-2"	64,338	S
S702	700	30'-6	43,639	S
S703	6	4'-3	1,533	S
	SERIES OF 10	To 20'-9		
S704	2	7'-9	463	S
	SERIES OF 8	To 20'-7		
S705	2	4'-4	1,052	S
	SERIES OF 15	To 30'-0		
S707	16	6'-0	196	S
S601	1428	17'-3	36,999	S
S602	710	20'-5	21,776	S
SG03	708	21-5	22,778	S
S604	4	3'-5	473	S
	SERIES OF 8	To 16'-3		
S605	4	7'-4	430	S
	SERIES OF 6	To 16'-6		
SG06	2	3'-0	338	S
	SERIES OF 10	To 19'-6		
S609	16	6'-0	144	S
S610	2214	28'-10	95,883	S
S611	312	30'-0	14,059	S
S501	328	2'-11	999	B
S502	328	4'-1	1,396	B
S503	656	3'-5	2,340	B
S504	656	4'-7	3,133	B
S505	328	4'-0	1,367	B
S506	12	8'-3	103	B
S507	12	7'-9	97	B
S508	12	4'-0	50	B
S509	6	4'-8	29	B
S510	48	3'-4	167	S
(continued)				
RAILING				
R501	208	16'-3	SEE	S
R502	368	2'-0	NOTE	B
R503	16	13'-2	ABOVE	S
R504	16	13'-5		S
WING WALLS				
W501	16	14'-8	245	S
W502	12	14'-8	184	B
W503	20	4'-1	89	B
W504	8	3'-8	32	B
W505	8	3'-3	28	B
W506	8	2'-11	24	B
W507	48	3'-6	175	S
W508	4	17'-3	72	S
W509	4	16'-7	69	S
W510	44	8'-2	374	S
W511	16	6'-3	104	S
W512	8	14'-5	120	S
W513	4	6'-4	26	S
W514	14	8'-7	125	S
W515	12	4'-4	54	S
W516	8	7'-0	58	B
W517	60	5'-6	344	B
W518	12	10'-4	129	S
W519	40	4'-0	167	B
W520	28	4'-0	117	S
W521	6	9'-3	58	S
W522	4	11'-4	47	S

BENDING DIAGRAMS

* VARY BY 1'-10 INCREMENTS

NOTE – R501, R502, R503 & R504 ARE TO BE INCLUDED WITH RAILING FOR PAYMENT



MARK	No.	LENGTH	WEIGHT	SHAPE
PIERS				
P1101	96	30'-0"	15,301	S
P1102	30	12'-9	2,035	B
P1103	24	9'-11	1,264	S
P1104	72	19'-11	7,619	S
P1105	48	16'-0	4,080	S
P1106	42	10'-8	2,380	S
P1107	72	20'-4	7,778	S
P1108	96	14'-6	7,396	S
P1001	160	14'-6	9,983	S
P1002	80	16'-0	5,508	S
P801	24	19'-5	1,244	S
P802	24	19'-10	1,271	S
P803	12	8'-6	272	B
P601	624	7'-10	7,339	B
		PITCH		CORE DIA. OF SPIRAL / No. OF TURNS
SP401	24	11'-6±	4½	5,175	32" / 34
SP402	12	13'-1±	4½	2,900	32" / 38
ABUTMENTS				
A801	32	29'-0	2,478	S
A802	64	23'-10	4,072	S
A803	36	5'-1	489	B
A601	204	16'-3	4,979	B
A602	88	6'-2	816	S
A603	32	6'-8	320	S
A604	292	7'-6	3,289	B
A605	584	6'-0	5,263	B
A606	8	4'-10	58	S
A607	48	26'-4	1,895	S
A501	20	29'-5	613	S
A502	40	23'-5	977	S
A503	244	8'-4	2,120	B
A504	30	10'-0	313	S
A401	288	4'-6	866	B
PIER FOOTING				
F1101	144	6'-11	5,292	B
F1001	240	6'-11	7,147	B
F901	392	10'-2	13,556	B
F902	88	11'-8	3,491	B
REPLACEMENT BARS				
RE1101	2	7'-6	—	S
RE1001	2	7'-2	—	S
RE 901	1	6'-10	—	S
RE 801	1	6'-6	—	S
RE 701	6	6'-2	—	S
RE 601	11	5'-11	—	S
RE 501	1	5'-7	—	S
RE 401	1	5'-3	—	SP
SUPERSTRUCTURE - CONT'ED				
S515	19	3'-0	59	S
SG06	2	6'-10	948	S
	SERIES OF 13	To 28'-10		
SG07	4	2-10	793	S
	SERIES OF 11	To 21'-2		
SG08	2	3-5	350	S
	SERIES OF 10	To 19'-11		
S516	19	3'-6"	69	B

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIERS	GEN'L.	WING WALLS
E-2	1072	C.Y.	UNCLASSIFIED EXCAVATION		511	561		
S-1	1063	C.Y.	CLASS "C" CONCRETE, SUPERSTRUCTURE	1063				
S-1	323	C.Y.	CLASS "C" CONCRETE, PIER CAPS & COLUMNS			323		
S-1	244	C.Y.	CLASS "E" CONCRETE, ABUTMENTS & WING WALLS ABOVE FOOTINGS		222			22
S-1	467	C.Y.	CLASS "E" CONCRETE, FOOTINGS		222	227		18
S-3	44	L.F.	WATERPROOFING, PRE-MOLDED SEALING STRIP		44			
S-4	458,221	LBS.	REINFORCING STEEL	316,001	28,548	111,031		2641
S-7	1,004,000	LBS.	STRUCTURAL STEEL	1,004,000				
S-8	1,004,000	LBS.	FIELD PAINTING OF STRUCTURAL STEEL	1,004,000				
S-9	83	S.F.	1" PREFORMED EXPANSION JOINT FILLER, TYPE I (GRAY SPONGE RUBBER		83			
S-14	544	L.F.	RAILING, ALUMINUM RAIL & SUPPORTS, CONCRETE PARAPET	490			54	
S-14	247.78	L.F.	RAILING (I-15.13 DOUBLE-FACED WITH GALVANIZED STEEL POSTS & BOLTS)	247.78				
S-16	LUMP	SUM	FIRST TEST PILE				LUMP	
S-17	LUMP	SUM	FIRST PILE TEST LOAD				LUMP	
S-17	1	EACH	SUBSEQUENT PILE TEST LOAD				1	
S-18	21,200	L.F.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES		6,800	14,400		
S-25	LUMP	SUM	ELECTRICAL LIGHTING SYSTEM				LUMP	
S-25	500	L.F.	2" ELECTRIC CONDUIT (METAL)				500	
S-25	60	L.F.	1½" ELECTRIC CONDUIT (METAL)				60	
S-25	130	L.F.	1¼" ELECTRIC CONDUIT (METAL)				130	
S-25	480	L.F.	¾" ELECTRIC CONDUIT (METAL)				480	
S-29	120	C.Y.	POROUS BACKFILL		120			
S-29	320	L.F.	8" BITUMINOUS COATED PERFORATED CORRUGATED METAL PIPE, INCLUDING SPECIALS		320			
I-10	1240	S.Y.	CONCRETE SLOPE PROTECTION				1240	
S-9	255.4	L.F.	STRUCTURAL EXPANSION AND CONTRACTION JOINT, AS PER PLAN	255.4				

NOTE:

ELECTRICAL QUANTITIES SHOWN ABOVE AS ITEM S-25 ARE ONLY THOSE ITEMS WHICH ARE ACTUALLY A PART OF THE BRIDGE STRUCTURE OR MOUNTED THEREON. FOR LISTING OF THESE ITEMS ALSO SEE ELECTRICAL DRWG. № 103.

Item S-25, Lump Sum, includes lamp standards with mast arms, transformer boxes, junction boxes and electrical grounds.

The price bid per lin. ft. of metal conduit shall include all fittings, hangers, and concrete inserts required for proper installation of the conduit.

REPLACEMENT BARS: IF REINFORCING BARS ARE FABRICATED FROM STOCK WHICH HAS PREVIOUSLY BEEN TESTED AND APPROVED BY THE OHIO HIGHWAY TESTING LABORATORY, TEST SAMPLES AS PROVIDED IN SEC. S-402 NEED NOT BE FURNISHED AND REPLACEMENT BARS WILL NOT BE REQUIRED.

SPIRAL REINFORCING BARS: THE "LENGTH" SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE BOTTOM OF THE PIER CAP. THE "No. OF TURNS" SHOWN IS THE "LENGTH" DIVIDED BY THE PITCH, PLUS 3 TURNS (TOTAL NUMBER OF CLOSED COILS) EXPRESSED AS THE NEAREST WHOLE NUMBER. SPIRAL REINFORCING BARS SHALL NOT HAVE DEFORMATIONS BUT SHALL IN OTHER RESPECTS CONFORM TO ITEM S-4. 1½ CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT.

FOUR STEEL CHANNEL, TEE, OR ANGLE SPACERS WEIGHING APPROXIMATELY 0.68 LB. PER LIN. FT. OF SPACER SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF THE COIL. THE NUMBER OF POUNDS OF THESE SPACERS, BASED ON 0.68 LB. PER LIN. FT., WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED QUANTITY OF SPIRAL BARS.

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, S702 IS A No. 7 SIZE BAR AND P1002 IS A No. 10 SIZE.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

REINFORCING STEEL LIST
ESTIMATED QUANTITIES
BRIDGE № CUY-2-2329
LAKELAND FREEWAY OVER E. 140TH. STREET

CUYAHOGA COUNTY STA. 149+43.06
SEC. CUY-2-22.97 TO STA. 151+90.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C.	D.P.	G.J.	W.H.B.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	1958

125/149

CUYAHOGA COUNTY
CUY · 2 - 22.97

Freeway Horizontal Curve Data

D = 0°-28' L.C.	Ch. = 1493.00'
Δ = 6°-58'-18"	E. = 22.71'
L = 1493.93'	M.O. = 22.76'
R = 12,277.58'	P.C. Sta. 174+24.68
T = 747.88'	P.T. Sta. 189+18.61

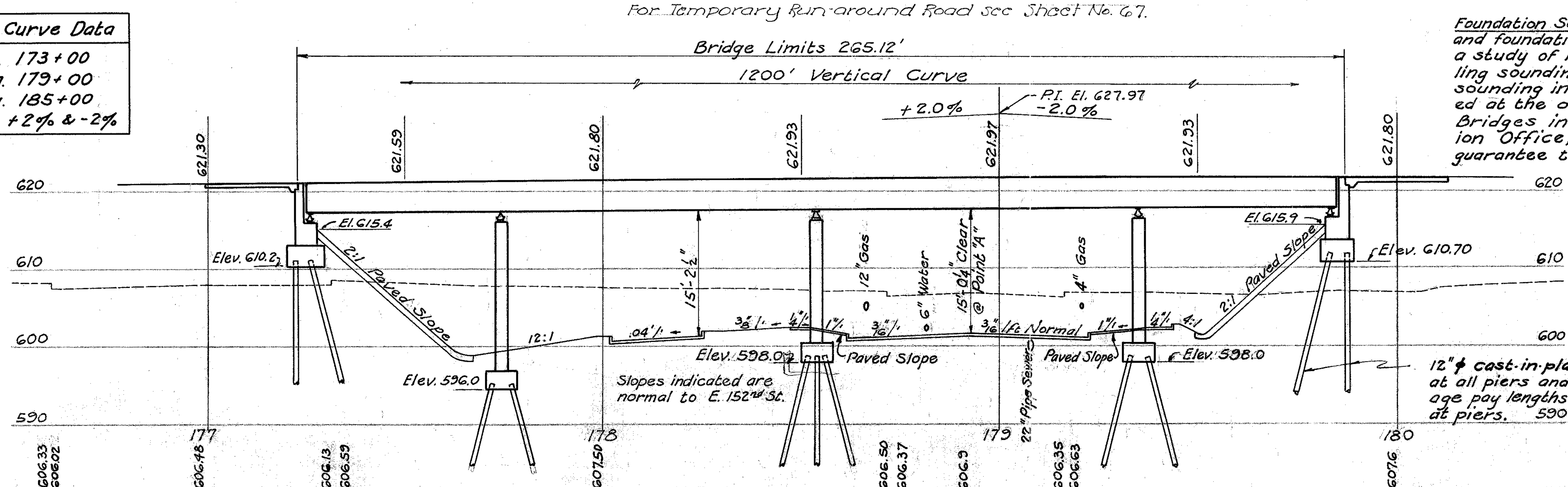
Legend

- Fire Hydrant
- General Pole
- Telephone Pole
- Existing Manhole
- Existing Catch Basin
- Valve
- C.E.I. Power Line

Vertical Curve Data

P.C.	Sta. 173+00
P.I.	Sta. 179+00
P.T.	Sta. 185+00
Grades	+2% & -2%

For Temporary Run-around Road see Sheet No. 67.



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

12"⌀ cast-in-place reinforced concrete piles at all piers and abutments. Estimated average pay lengths are 60' at abutments and 50' at piers.

PROPOSED STRUCTURE

TYPE CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK, PIERS AND ABUTMENTS
SPANS 49'-81'-81'-49' ℄ BEARING ALONG REF. CHORD
ROADWAY 140'-0" F/F PARAPETS
LOADING CF-2000-57 (ADEQUATE FOR AASHO ALTERNATE LOADING)
SKEW REF. CHORD TO ℄ E.152 ST. 28°39'23"
WEARING SURFACE 1" MONOLITHIC CONCRETE
APPROACH SLAB AS-1-54 (25'-0" LONG)
ALIGNMENT 0°-28'-00" L.C.

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Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

SITE PLAN
BRIDGE NO. CUY-2-2382
LAKELAND FREEWAY OVER EAST 152ND ST.
STATION 177+21.48 TO STATION 179+86.60
SR-2 & USR-20 SEC. CUY-2-22.97
SCALE: 1"= 20'-0" I-329(12) CUYAHOGA COUNTY

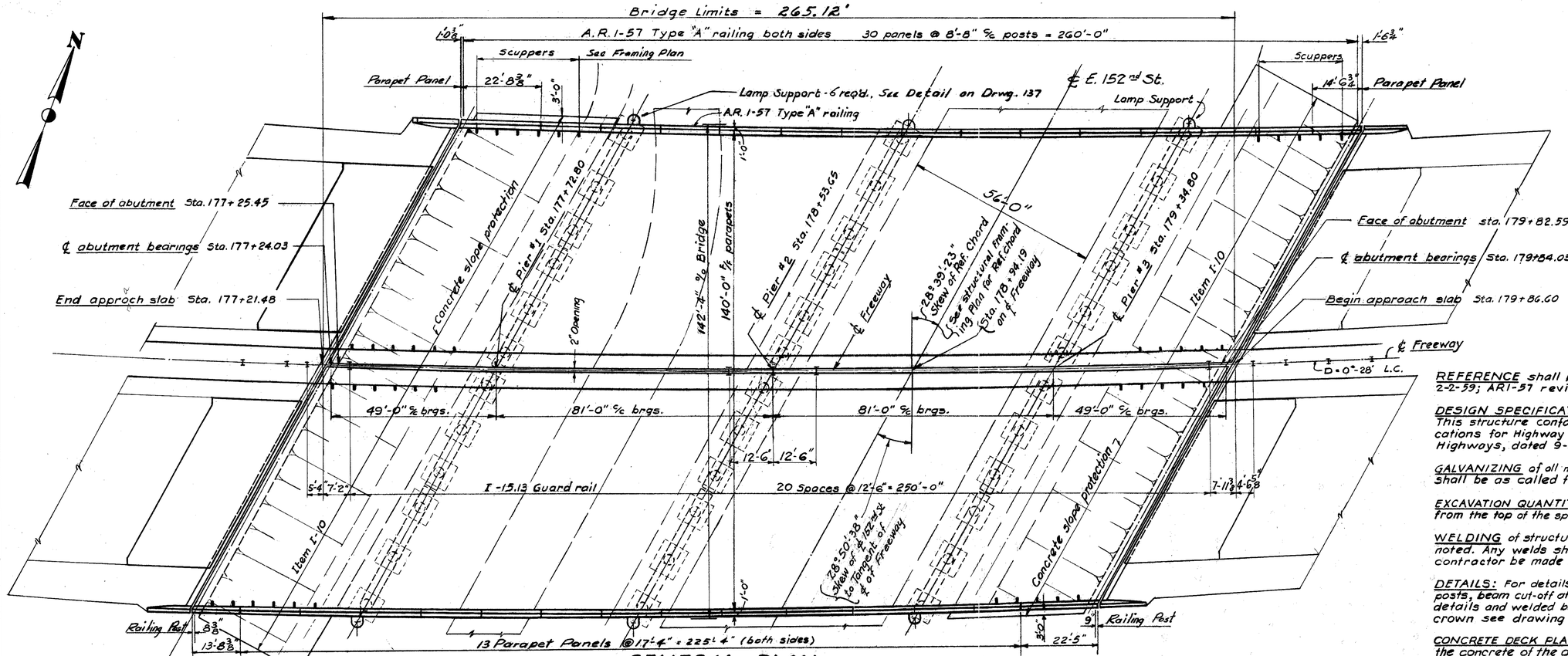
TOPOGRAPHY		PROPOSED WORK				
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
Aerial Surveys	T.L.P.	R.J.M.	J.W.P.			

SITE PLAN EAST 152ND ST.

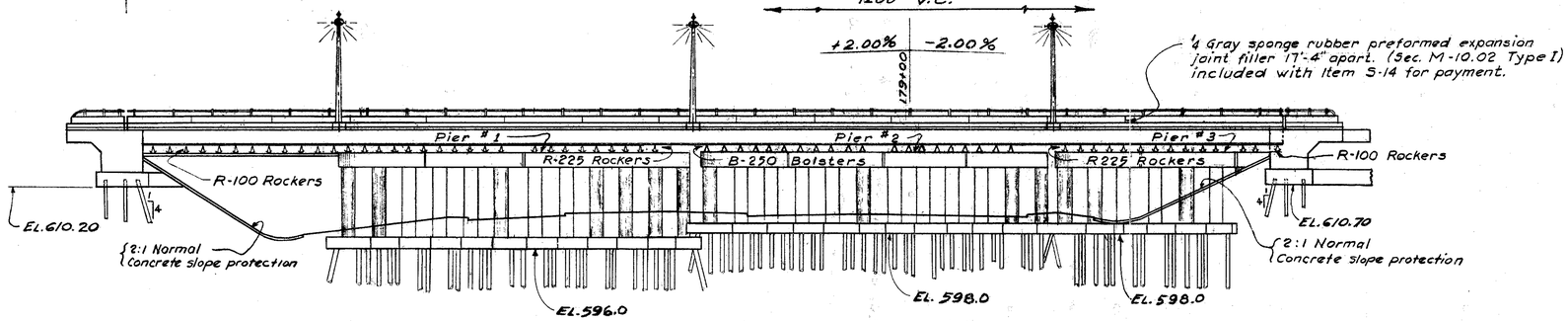
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

126
149

CUYAHOGA COUNTY
CUY-2-22.97



GENERAL PLAN



ELEVATION

GENERAL NOTES

REFERENCE shall be made to standard drawings RB1-55 revised 2-2-59; AR1-57 revised 2-2-59.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of design specifications for Highway Structures of the State of Ohio, Department of Highways, dated 9-1-57 together with revisions dated Feb. 21, 1958.

GALVANIZING of all members which are specified to be galvanized shall be as called for in Sec. M-7.4 (d).

EXCAVATION QUANTITY for the abutments includes the fill material from the top of the spill-thru slope to the bottom of the abutment footing.

WELDING of structural steel shall be class "A" unless otherwise noted. Any welds shown as field welds may at the option of the contractor be made in the shop. Class "B" shown thus B).

DETAILS: For details of end crossframes, end dams, aluminum railing posts, beam cut-off at back wall, center opening & median guard rail details and welded butt joint in superstructure end dam angles at crown see drawing Nº. 135, 136 and 137.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the center-line of bridge and are located near the center of any span.

ELECTRICAL GROUNDS: A solid Nº. 0 gage bare copper wire electrical ground shall be embedded in the outside column on each side of the structure at pier Nº. 2. The lower ends of the wires shall be brazed to the steel shell of one of the cast-in-place reinforced concrete piles and the upper ends shall extend sufficiently above the top of the concrete to provide for a suitable splice and extension for connection to the superstructure. The connection to the superstructure shall be a Nº. 6 gage, bare, stranded, tinned copper wire brazed or bolted to a beam flange and to the solid copper wire in the pier shaft. At the base of the lamp standards there shall be a tinned Nº. 6 gage copper wire brazed to one anchor bolt and the other end brazed or bolted to the outside beam flange. Payment for electrical grounds is included in the lump sum bid for Item 5-25, "Electrical Lighting System".

The REFERENCE CHORD is a line between ℄ of abutment bearings at ℄ of Freeway (See structural framing plan drawing Nº. 132)

NOTE: The Contractors' attention is directed to Sht 131A for additional notes regarding the piles to be driven for this structure.

PILES shall be driven to a minimum bearing capacity of 40 tons per pile for the abutment and 40 tons per pile for the piers.

FIRST PILE TEST LOAD and any subsequent pile test loads shall be applied only if directed by the engineer. All test loads shall be applied where the engineer shall direct.

MAINTENANCE AND PROTECTION OF TRAFFIC: Four lanes of traffic and a sidewalk with combined horizontal width of 52', shall be maintained on East 152nd Street (or the run-around) at all times.

Construction operations over traveled lanes will not be permitted unless platforms, nets, or other suitable protection is provided by the Contractor to safeguard the traveling public. A vertical clearance of not less than 12'9" shall be provided at all times. The cost of such protection shall be included in the lump sum bid Maintaining Traffic.

BACKFILL behind abutments shall be made with material meeting the requirements of Sec. I-22 and shall be compacted in accordance with requirements for embankment compaction. Payment for backfill shall be included with Item E-2, "Unclassified Excavation."

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4500 EUCLID AVE. CLEVELAND 3, OHIO

GENERAL PLAN & ELEVATION GENERAL NOTES BRIDGE Nº. CUY-2-2382 LAKELAND FREEWAY OVER E. 152nd ST.

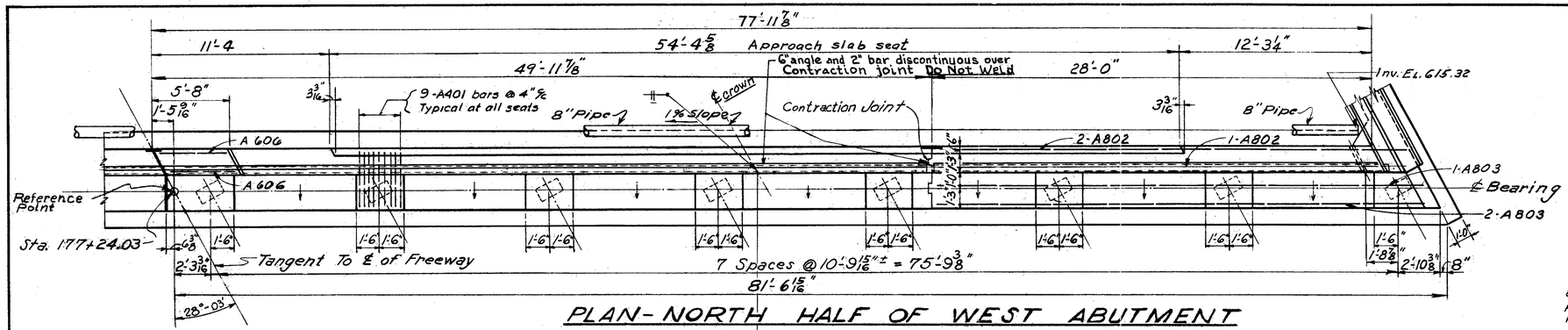
CUYAHOGA COUNTY STA. 177+21.48
SEC. CUY 2-22.97 TO STA. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	K.J.W.	J.W.P.	W.B.B.		9-21-59	

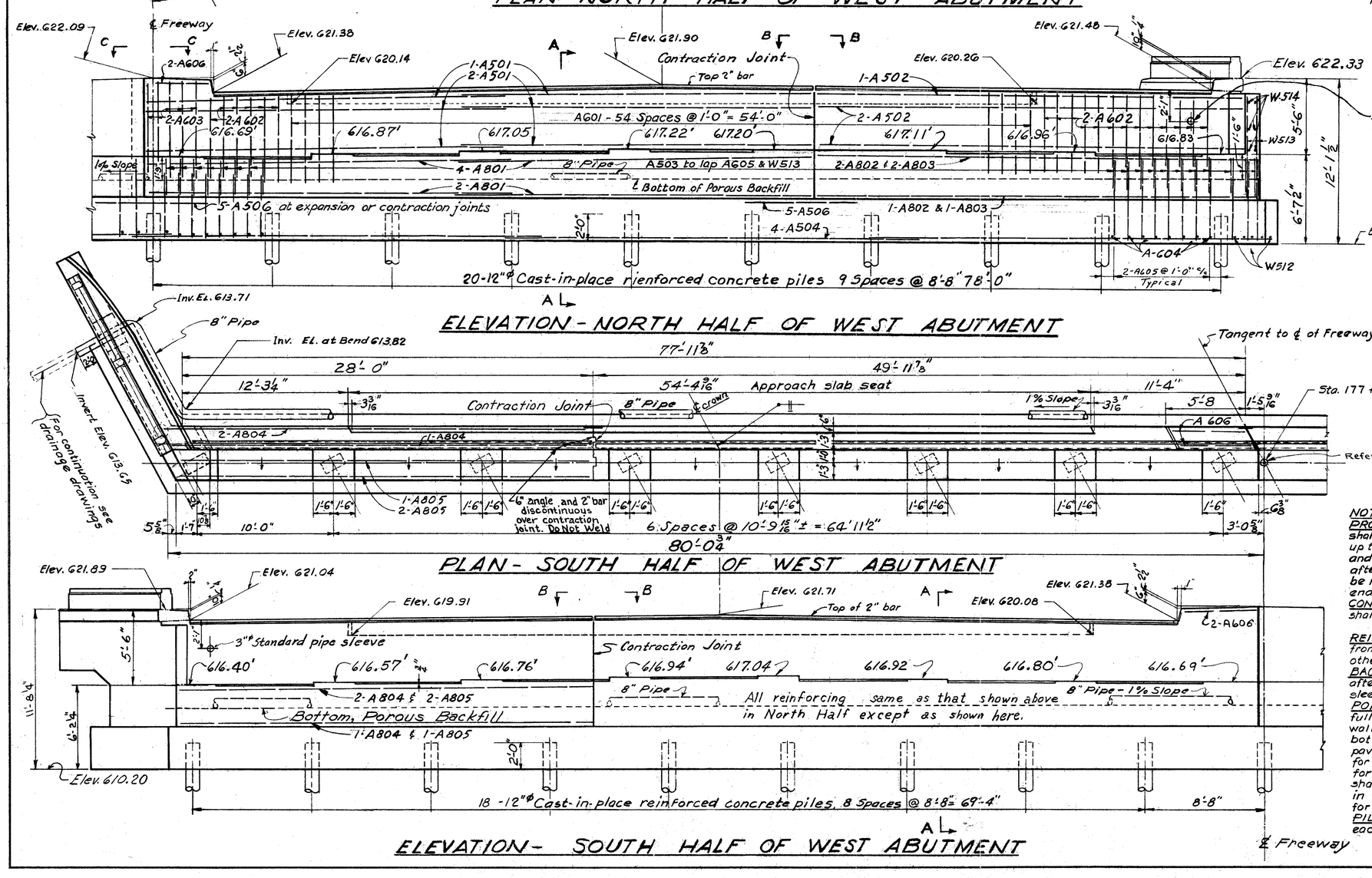
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

127
149

CUYAHOGA COUNTY
CUY-2-22.97



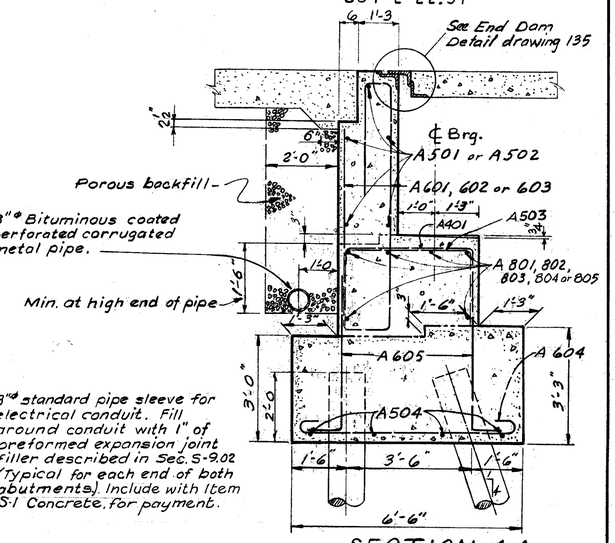
PLAN - NORTH HALF OF WEST ABUTMENT



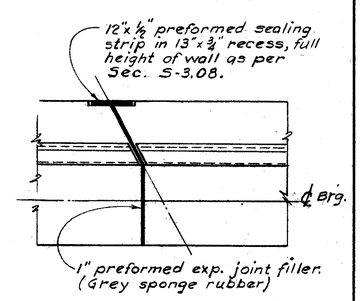
ELEVATION - NORTH HALF OF WEST ABUTMENT

PLAN - SOUTH HALF OF WEST ABUTMENT

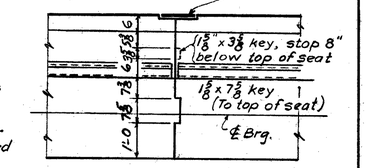
ELEVATION - SOUTH HALF OF WEST ABUTMENT



SECTION A-A



SECTION C-C



SECTION B-B

NOTES:
PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade after which excavation shall be made for the abutments and end walls and piles driven.
CONCRETE in abutments and footings shall be class 'E'.

REINFORCING steel shall be 2" clear from exposed surfaces unless noted otherwise.
BACKWALL concrete shall be placed after all structural steel and pipe sleeves are in place.
POROUS BACKFILL; 2 ft. thick, full length of abutment and end walls shall extend upward to the bottom of the approach slab and paved shoulder. Excavation therefor in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.
PILES: 40 piles required for each abutment.

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WEST ABUTMENT DETAILS
BRIDGE Nº CUY-2-2382
LAKELAND FREEWAY OVER E.152ND ST.

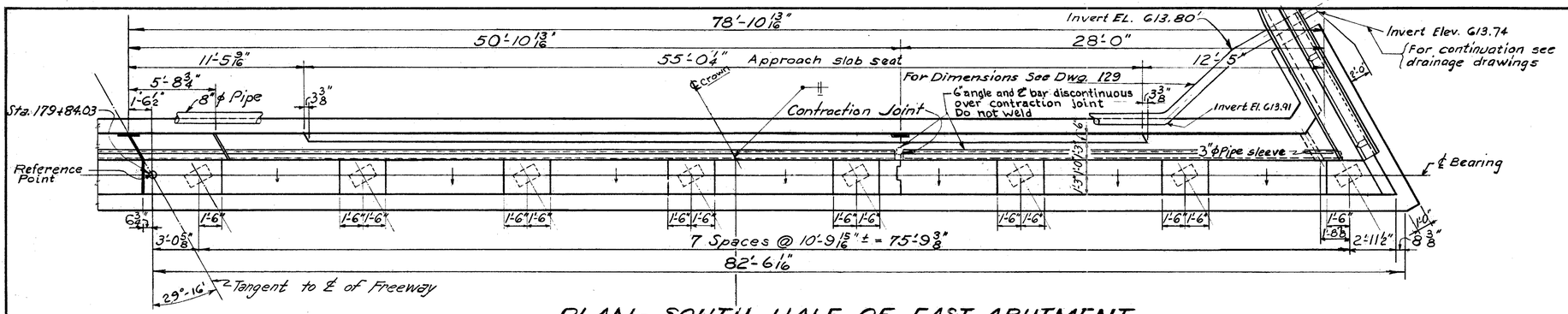
CUYAHOGA COUNTY STA. 177+21.48
SEC. CUY-2-22.97 TO STA. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	K.J.W.	W.B.	A.J.S.			

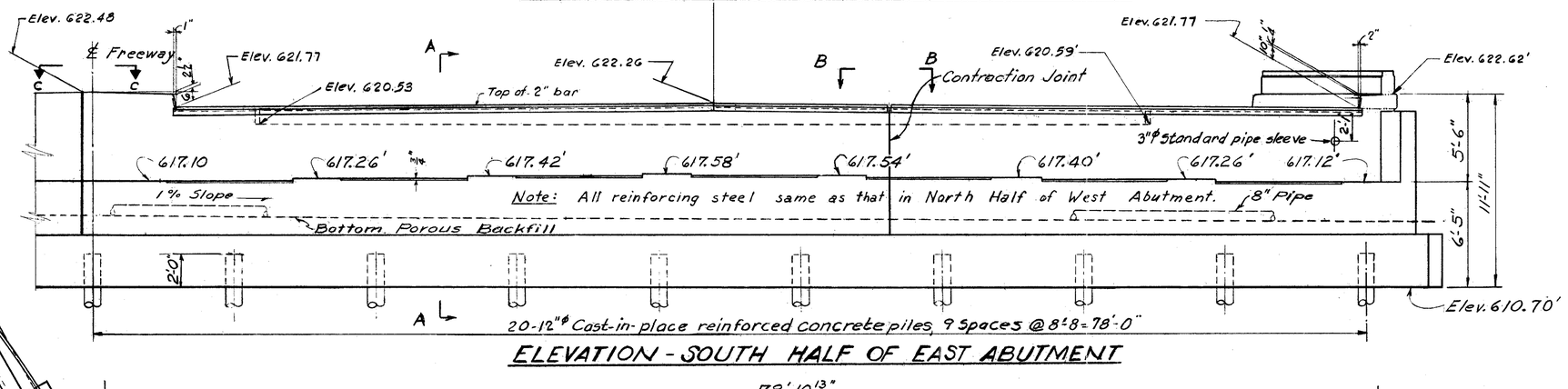
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

128
149

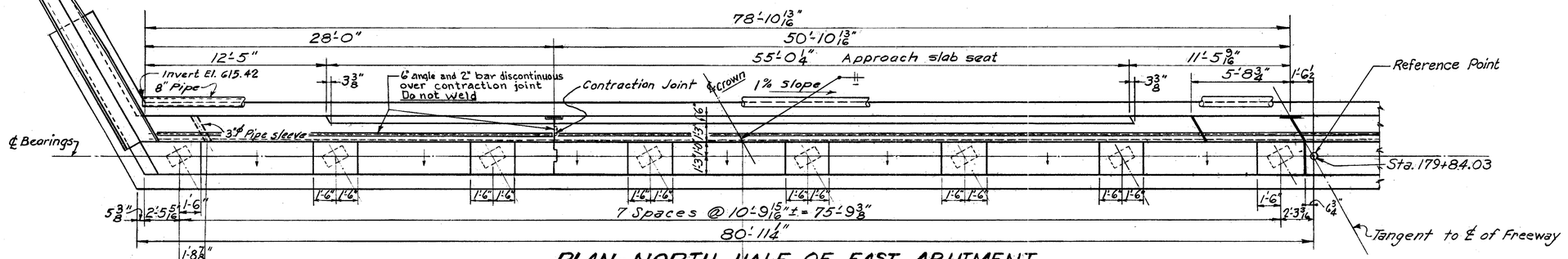
CUYAHOGA COUNTY
CUY-2-22.97



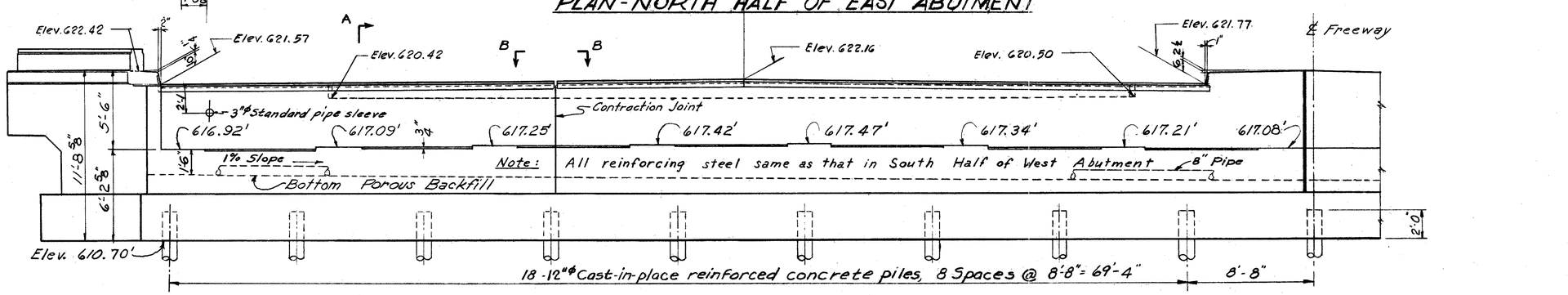
PLAN - SOUTH HALF OF EAST ABUTMENT



ELEVATION - SOUTH HALF OF EAST ABUTMENT



PLAN - NORTH HALF OF EAST ABUTMENT



ELEVATION - NORTH HALF OF EAST ABUTMENT

FOR NOTES AND SECTIONS SEE DRAWING Nº 127.

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4500 EUCLID AVE. CLEVELAND 3, OHIO

EAST ABUTMENT DETAILS

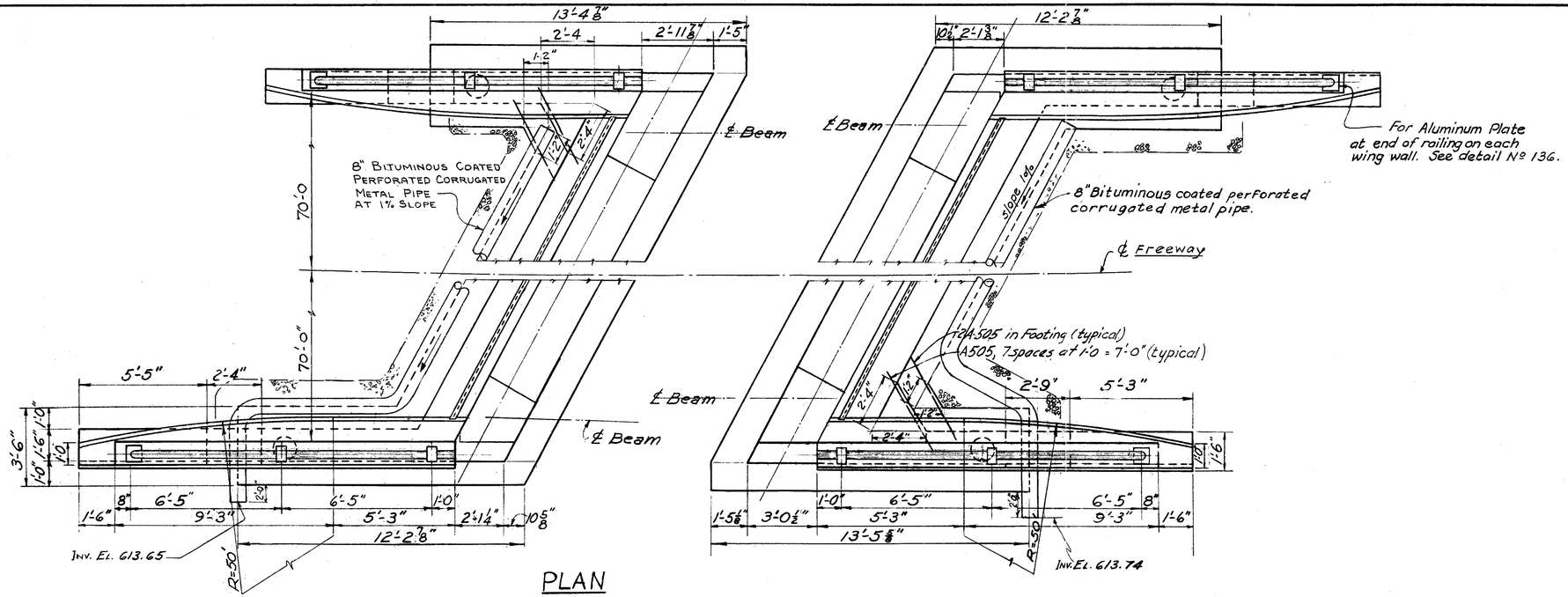
BRIDGE Nº CUY-2-2382
LAKELAND FREEWAY OVER E.152ND ST.
CUYAHOGA COUNTY STA. 177 + 21.48
SEC. CUY-2-22.97 TO STA. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	K.J.W.	W.B.	W.A.B. J.R.B.			

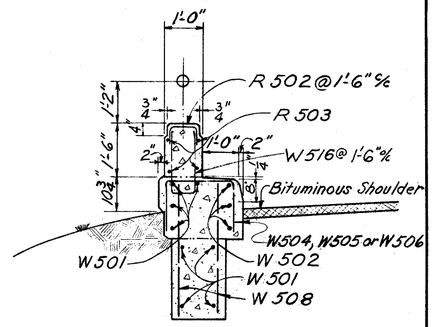
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

129
149

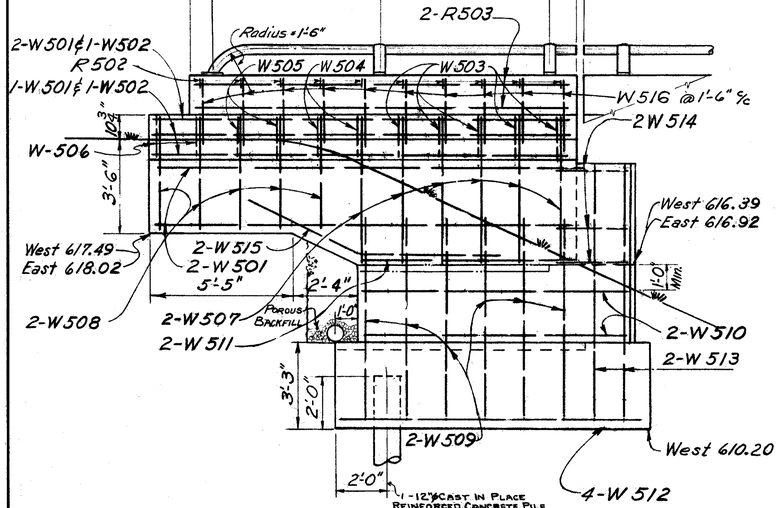
CUYAHOGA COUNTY
CUY-2-22.97



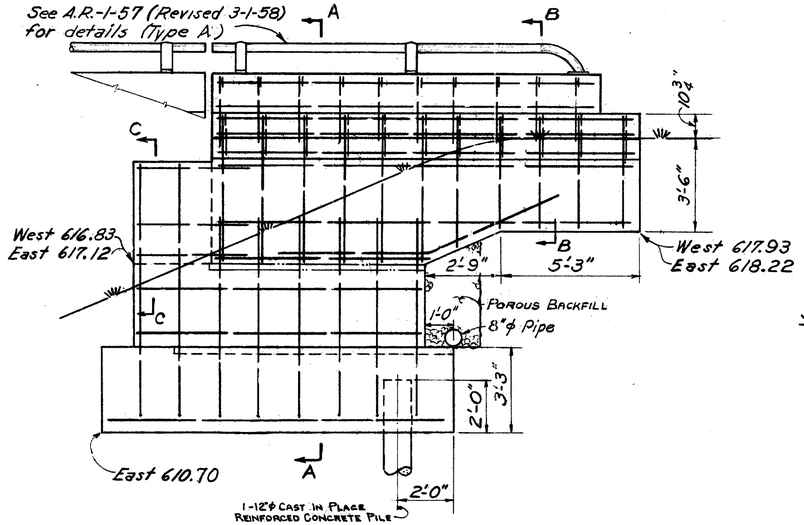
PLAN



SECTION B-B

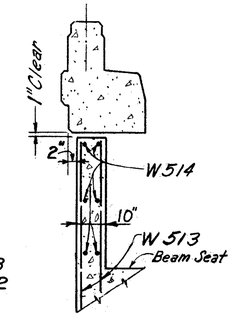


OBTUSE ANGLE



ACUTE ANGLE

ELEVATION



SECTION C-C

SECTION A-A

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ABUTMENT DETAILS

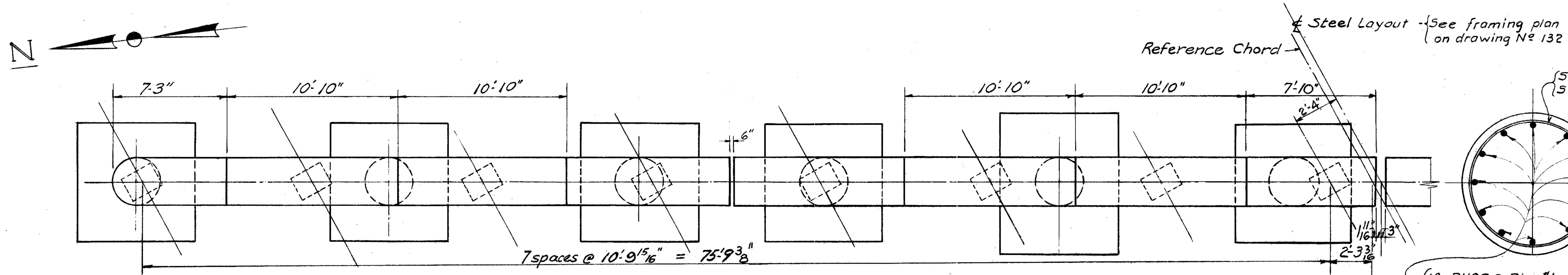
BRIDGE No CUY-2-2382
LAKELAND FREEWAY OVER E.152ND ST.

CUYAHOGA COUNTY STA 177+21.48
SEC. CUY-2-22.97 TO STA. 179+86.60

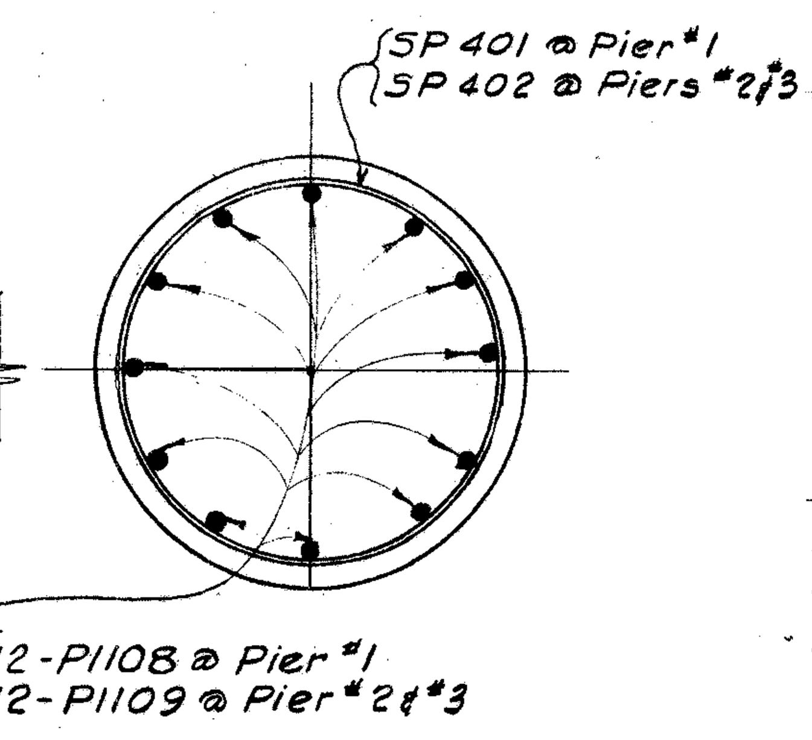
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
RJM	KJW	WB	EAB WBB			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY-2-22.97

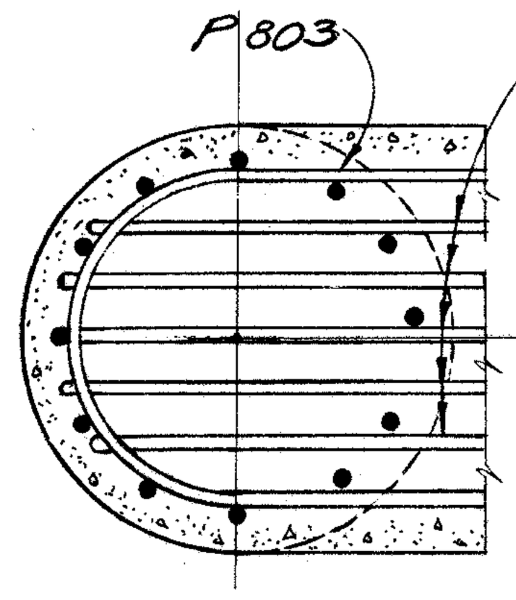


PIER PLAN
(North Half Shown)

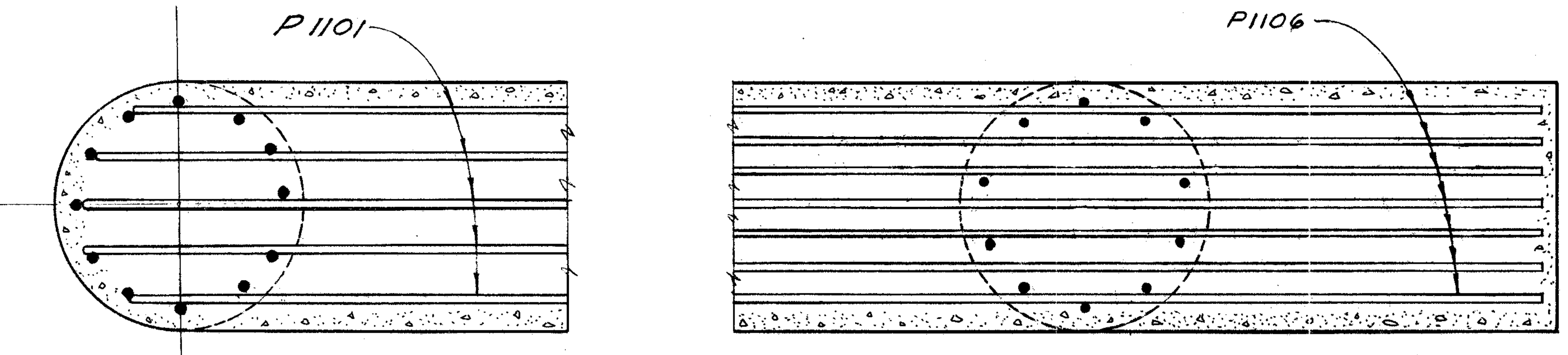


SECTION 1-1

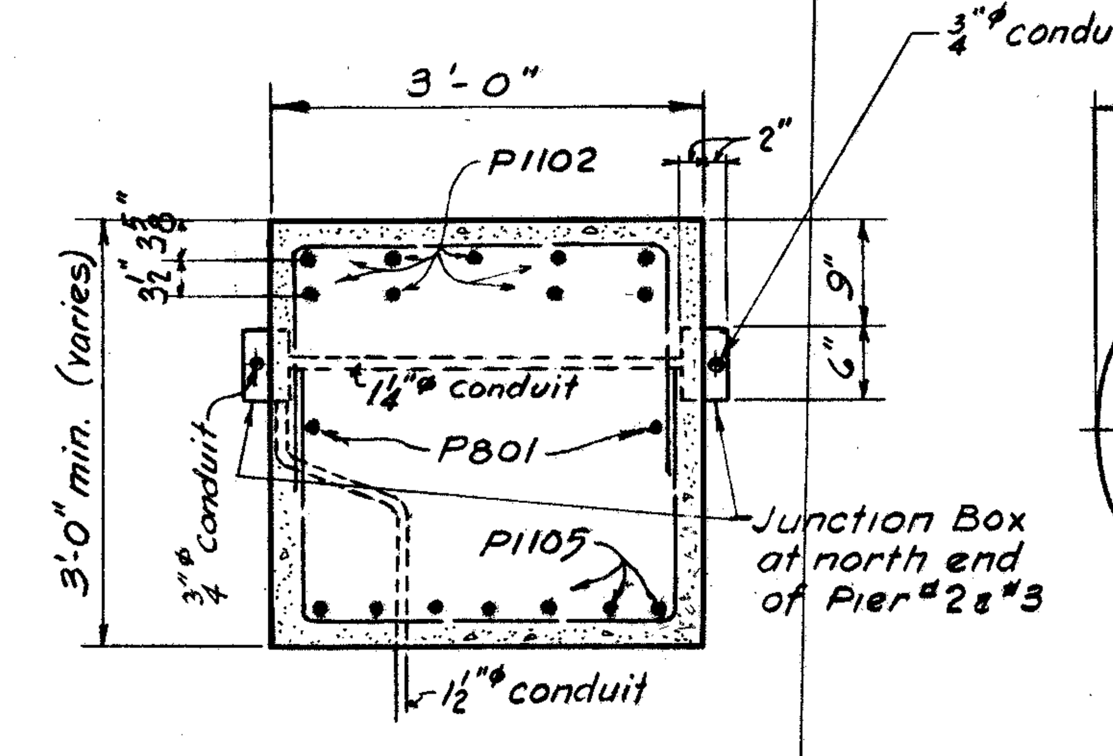
Sta.	Pier #1	Pier #2	Pier #3
Z	177+72.80	178+53.65	179+34.80
A	616.40	616.49	616.46
B	616.54	616.64	616.62
C	616.67	616.78	616.77
D	616.80	616.93	616.88
E	616.84	616.99	616.99
F	616.67	616.83	616.85
G	616.50	616.68	616.71
H	616.33	616.52	616.57
J	616.31	616.51	616.57
K	616.44	616.65	616.72
L	616.57	616.78	616.88
M	616.69	616.92	617.03
N	616.62	616.87	616.99
P	616.44	616.71	616.84
R	616.26	616.55	616.71
S	616.09	616.39	616.55



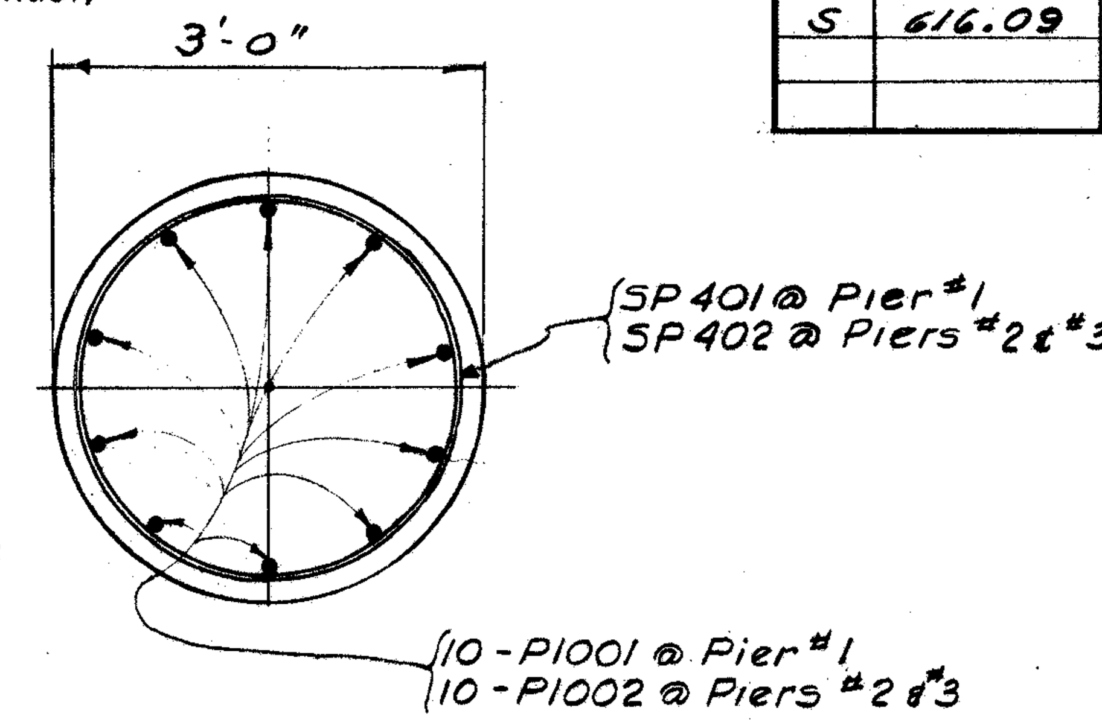
SECTION 4-4



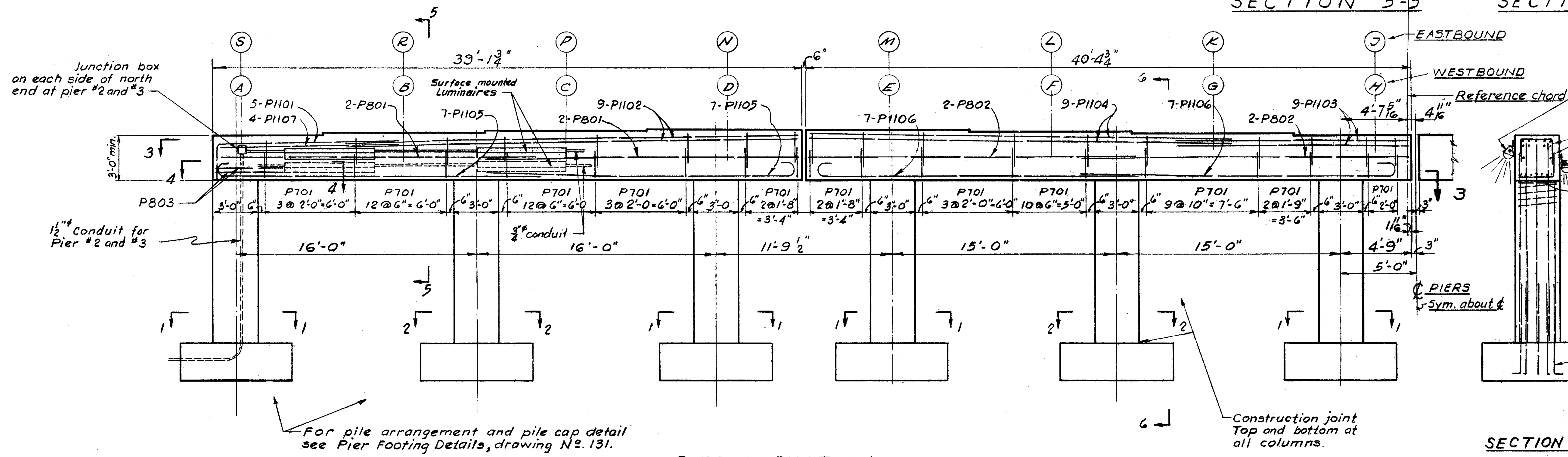
SECTION 3-3



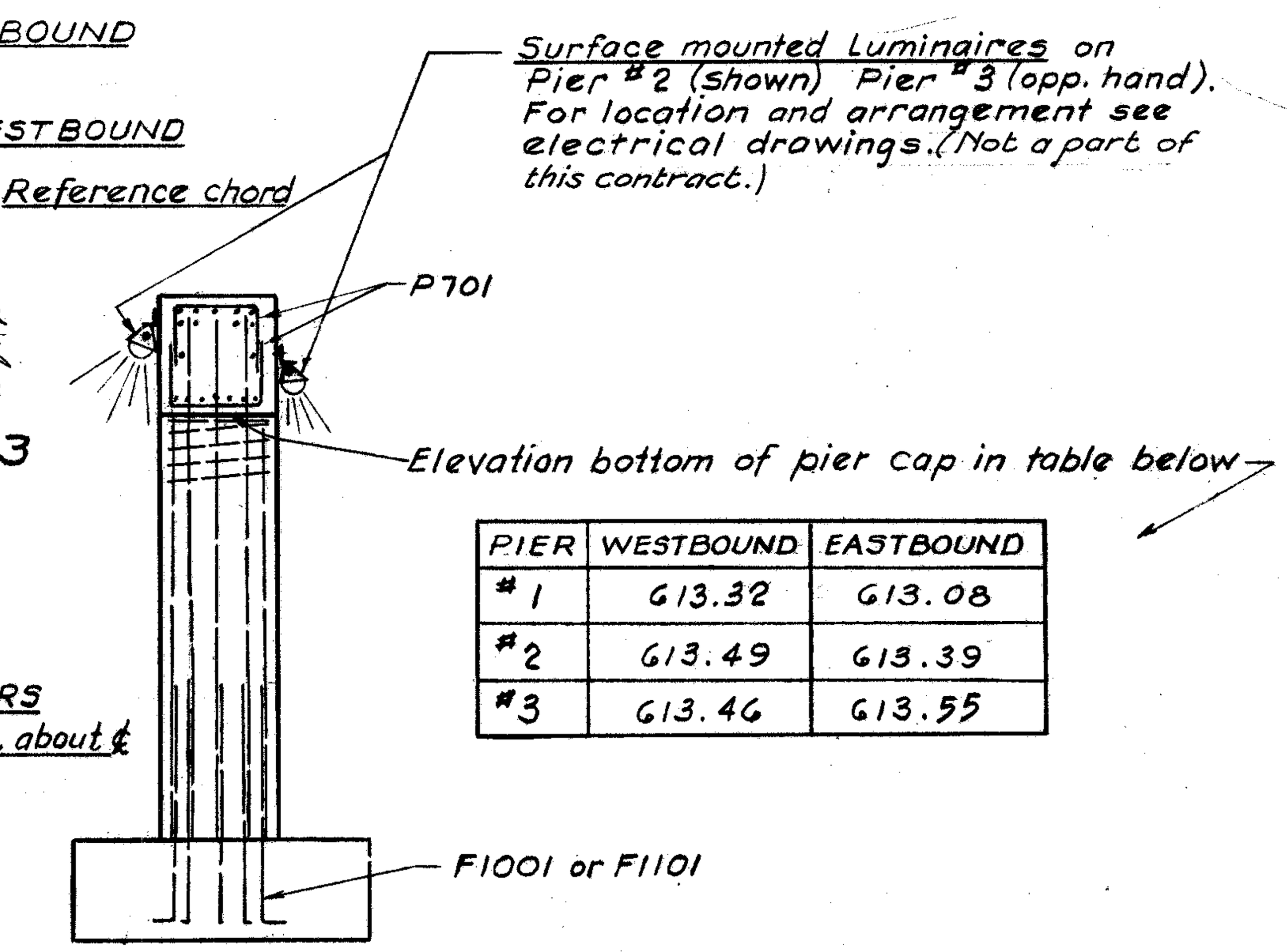
SECTION 5-5



SECTION 2-2



PIER ELEVATION



SECTION 6-6

PIER	WESTBOUND	EASTBOUND
#1	613.32	613.08
#2	613.49	613.39
#3	613.46	613.55

Notes:

CONCRETE shall be class "C" in Pier Cap and Columns and class "E" in pier footings.

REINFORCING STEEL shall be 2" clear from face of concrete unless otherwise noted.

REINFORCING STEEL shall be placed at pier #2 to clear bolster anchor bolts.

SPIRAL REINFORCING, see note on drawing Nº. 134.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

PIER DETAILS
BRIDGE Nº CUY-2-2382
LAKELAND FREEWAY OVER E.152ND ST.

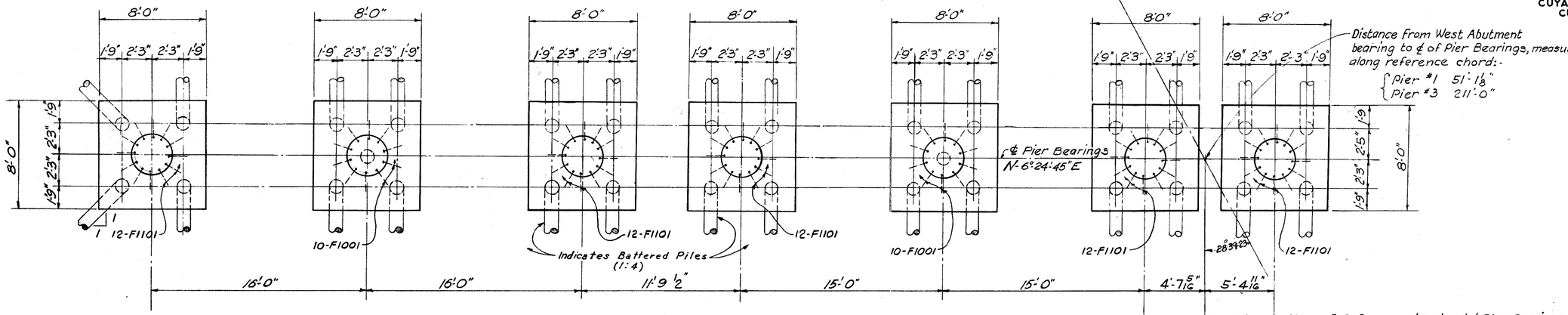
CUYAHOGA COUNTY — STA. 177+21.48
SEC. CUY-2-22.97 — TO STA. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
RJM	[illegible]	J.W.P.	W.A.B. G.H.G.			

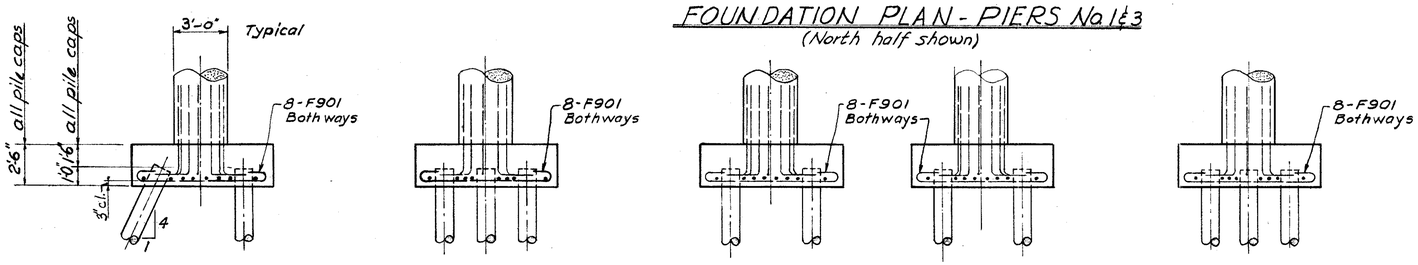
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

131
149

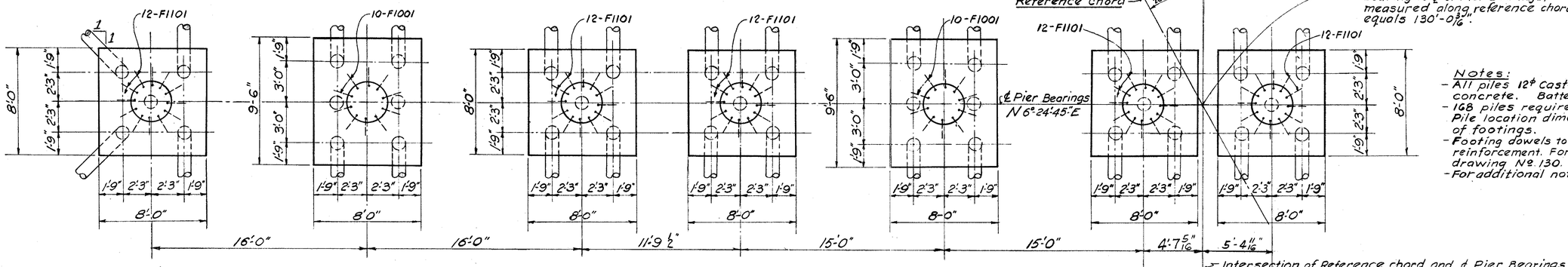
CUYAHOGA COUNTY
CUY-2-22.97



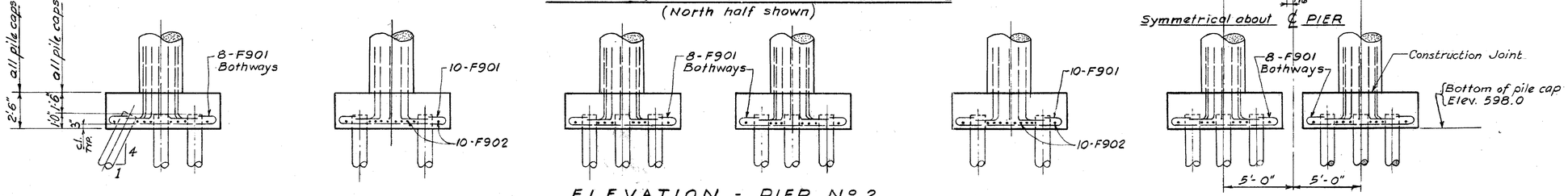
FOUNDATION PLAN - PIERS No 1 & 3
(North half shown)



ELEVATION - PIERS No.1 and No.3



FOUNDATION PLAN - PIER No. 2
(North half shown)



ELEVATION - PIER No 2

Notes:
- All piles 12" cast-in-place reinforced concrete. Batter = 1:4 in direction shown.
- 168 piles required for pier footings. Pile location dimensions are at bottom of footings.
- Footing dowels to match vertical column reinforcement. For spacing see pier drawing No. 130.
- For additional notes see drawing No 130.

HARGETT, YANDA & BARBER
4500 EUCLID AVE. Consulting Engineers CLEVELAND 3, OHIO

PIER FOOTING DETAILS
BRIDGE No CUY-2-2382
LAKELAND FREEWAY OVER E 152ND ST.

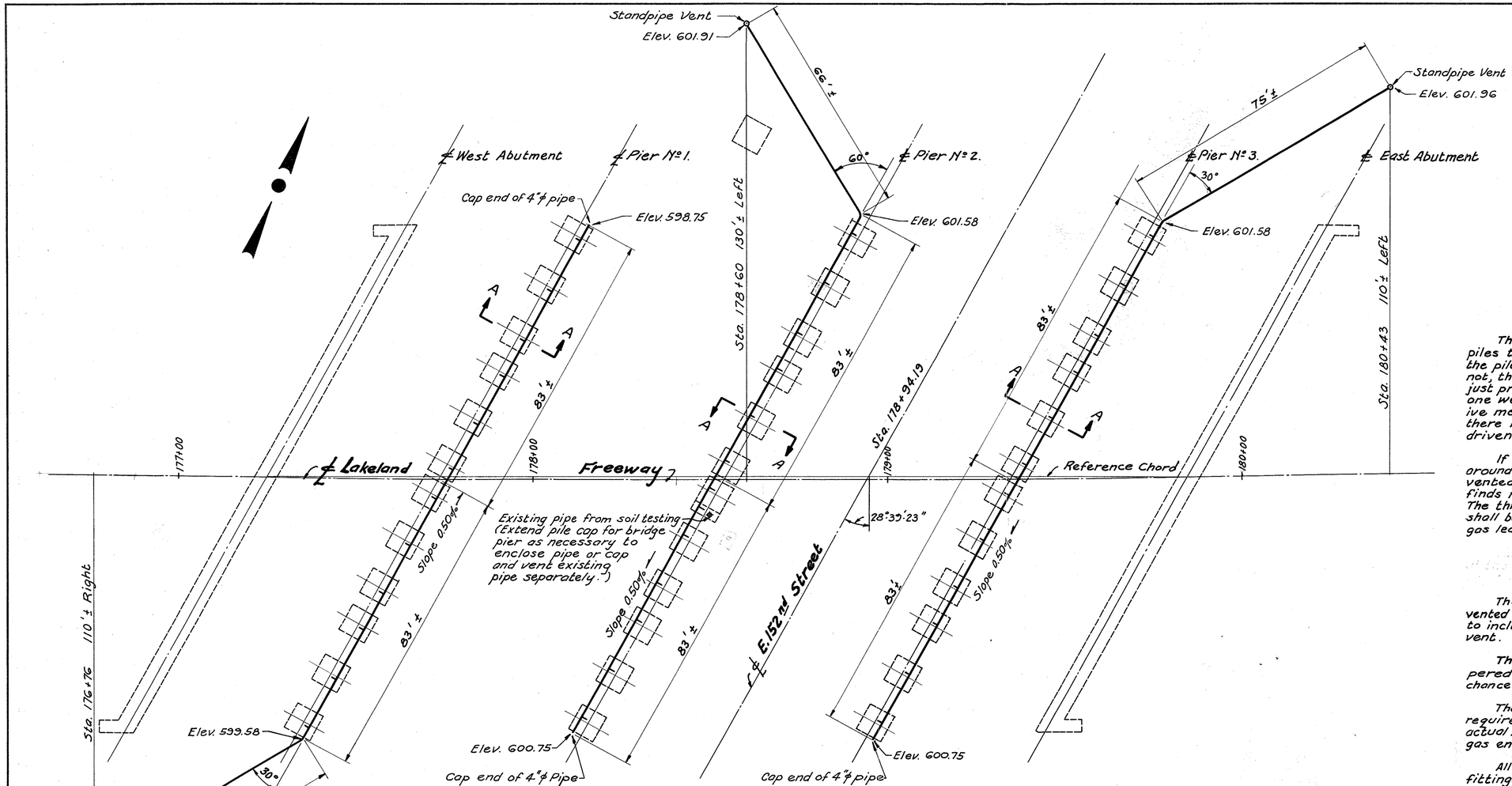
CUYAHOGA COUNTY SEC. CUY-2-22.97
STA. 177+21.48 TO STA. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	R.J.M.	J.W.P.	H.Y.B. B.B.B.			

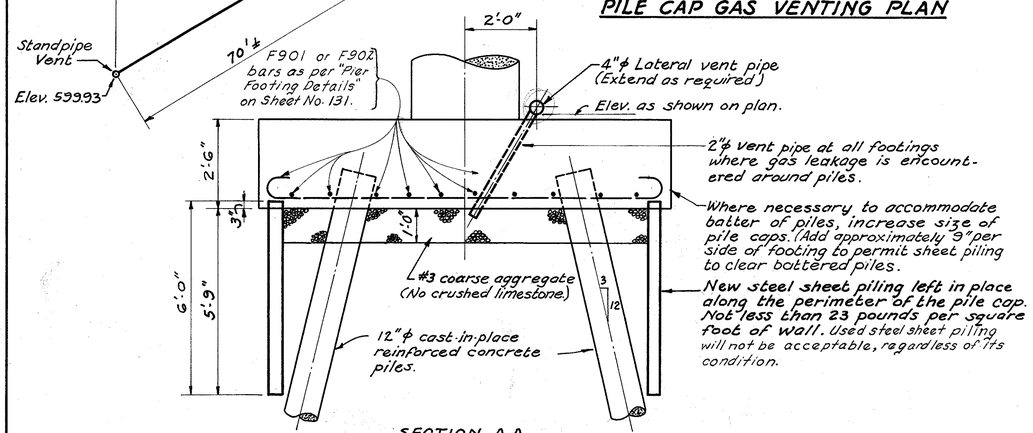
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329(12)	

131-A
149

CUYAHOGA COUNTY
CUY-2-22.97

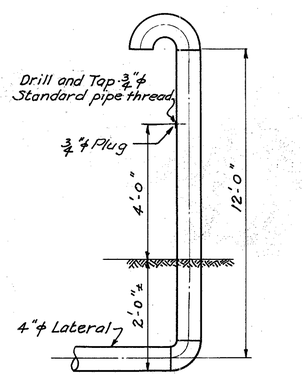


PILE CAP GAS VENTING PLAN



SECTION A-A

PILE CAP GAS VENTING DETAIL



STANDPIPE VENT DETAIL

NOTES

The contractor shall drive the 12" cast-in-place concrete piles to the required bearing capacity. Whether the tips of the piles penetrate to the natural gas deposit (Elev. 557±) or not, the Cleveland Fire Prevention Bureau shall be notified just prior to pouring the pile cap concrete, but not less than one week after driving the piles. By means of an explosive meter, the Fire Prevention Bureau will determine if there is leakage of gas between the existing soil and each driven pile.

If at any footing pad there is found to be gas leakage around any pile, then that particular footing pad will be vented as shown. In the event the Fire Prevention Bureau finds no gas leakage the footing pad need not be vented. The three footing pads nearest the existing steel casing shall be vented, whether the Fire Prevention Bureau detects gas leakage around the pile perimeters or not.

The drillers casing located at Station 178+50 shall be vented by extending the adjacent pile cap and sheet piling to include it as shown, or by separate cap, sheet piling and vent.

The cast-in-place concrete piles shall be uniformly tapered at the lower portion of the pile to lessen the chance of gas escaping around the perimeter of the pile.

The lengths of 4"ϕ Laterals shown are the maximum lengths required if gas is encountered at the remote pile caps. The actual lengths installed will depend upon the extent of the gas encountered when driving the piles.

All pipe shall be Schedule 40 steel pipe with welded fittings.

See drwg. Nº 131 for pier footing details.

See drwg. Nº 134 for Estimated Quantities.

NOTE: Soil borings did not indicate the presence of continually free-flowing gas at the abutments.

QUANTITIES FOR VENTING GAS DEPOSITS

Estimated Quantities, carried to table on sheet 134, include the following:

E-2, 230, cu.yds. unclassified excavation
E-2, 1300, sq.ft. new steel sheet piling left in place
S-1, 47, cu.yds. Class "E" concrete, footings
S-29, 100, cu.yds. porous backfill, #3 coarse aggregate
S-29, 130, lin.ft. 2"ϕ steel pipe and fittings
S-29 150, lin.ft. 4"ϕ steel pipe and fittings

These quantities are the maximum required if gas leakage is encountered at all pier footings. However, if gas leakage is not encountered, payment will be made only for the actual quantities installed as per plan.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

PIER PILE CAP DETAILS FOR VENTING OF NATURAL GAS BRIDGE Nº CUY-2-2382

LAKELAND FREEWAY OVER E. 152nd ST.

Cuyahoga County Sec. CUY-2-22.97
Sta. 177+21.48 to Sta. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C.	A.J.C.	W.B.	W.B. G.M.G.			3-21-59

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I 329 (12)	1958

132
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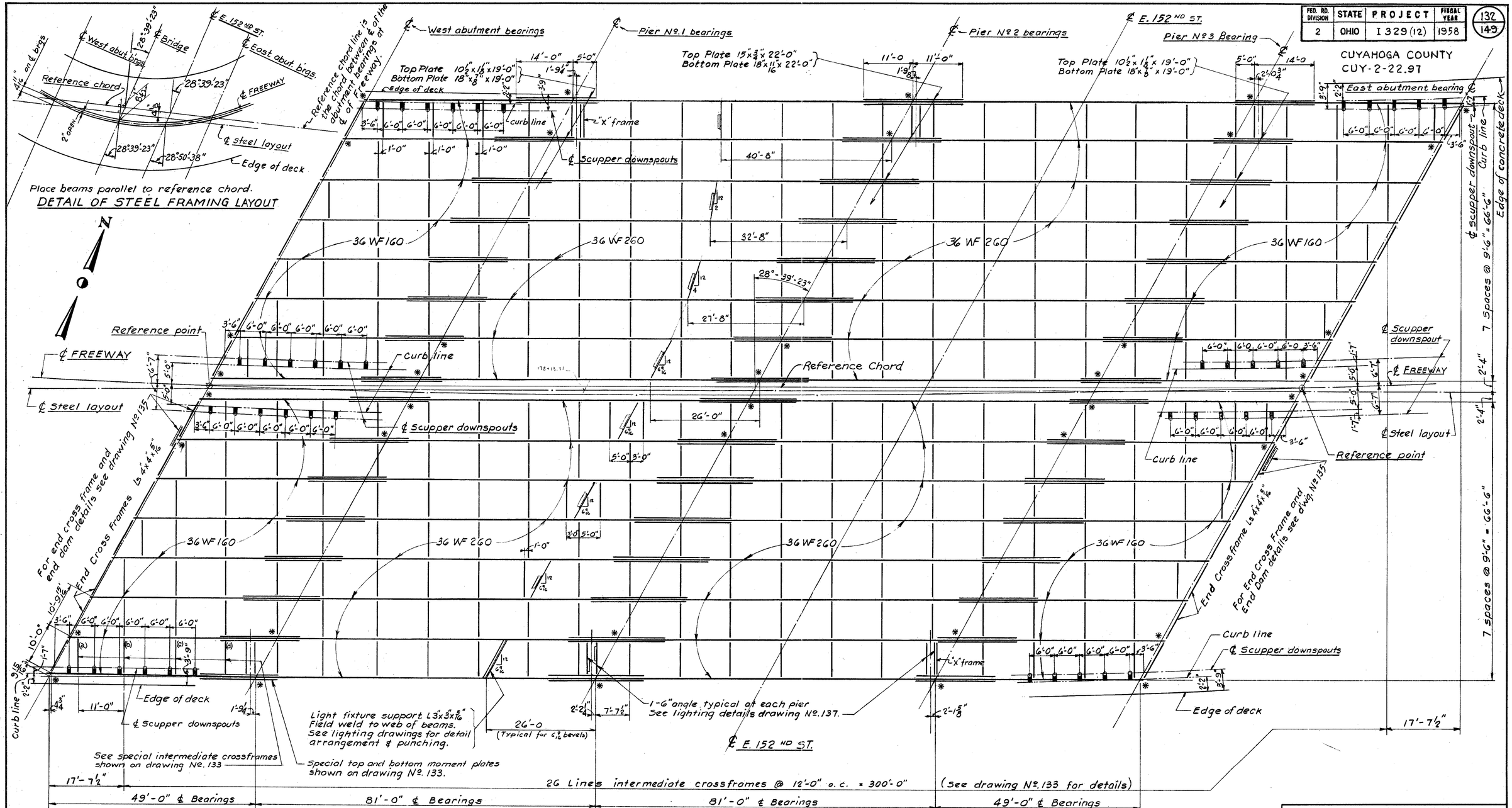
CUYAHOGA COUNTY
CUY-2-22.97

Place beams parallel to reference chord.

DETAIL OF STEEL FRAMING LAYOUT



FRAMING PLAN

Spans 49'-0", 81'-0", 81'-0", 49'-0" ℄ Bearings measured along the Reference Chord.

DEFLECTION AND CAMBER				
LOCATION	Outside Beams		Inside Beams	
	End Spans	Interior Spans	End Spans	Interior Spans
Deflection due to weight of steel	—	⅜"	—	⅜"
Deflection due to remaining dead load	1/16"	1/16"	1/16"	9/16"
Convexity required for vertical curve	½"	5/16"	⅛"	5/16"
Sum of convexity and camber	3/16"	7/16"	3/16"	1"
Required camber	0"	1"	0"	1"

Note "A"
Remove "Keeper Plates" from rocker and bolster cap at the abutment and pier locations shown thus * on framing plan to provide for lateral expansion of bridge deck.

Notes:-
Beam splice and beam splice welding procedure details shown on drawing No. 133.
Crossframes shall be spaced as shown except as required to meet clearance requirements.
Crossframes must clear scuppers by at least 6".
Scupper downspouts to be located in deck as shown. For scupper detail see dwg. 137.
2"ø bulb angle drain pipe shown on drawing No. 136.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

FRAMING PLAN

BRIDGE No. CUY-2-2382
LAKELAND FREEWAY OVER E 152ND ST.

CUYAHOGA COUNTY STA. 177+21.48
SEC. CUY-2-22.97 TO STA. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.T.M.	K.J.W.	J.W.P.	W.A.B. S.H.B.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

133
149

CUYAHOGA COUNTY
CUY-2-22.97

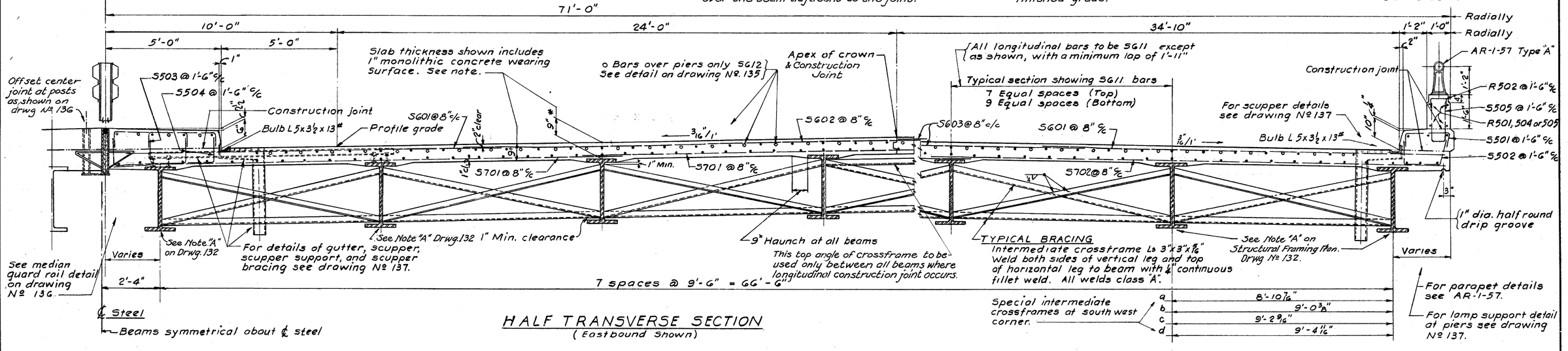
Decks Symmetrical about ℄ Freeway except as shown.

℄ FREEWAY

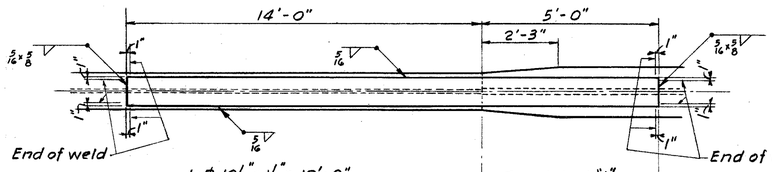
Note: Transverse Bars S701 shall be bent in the field as required to clear finishing machine rail. Bars shall be straightened before second pour.

MACHINE FINISHING of the bridge decks will be required in accordance with the Special Provisions of this contract except that longitudinal joints, as shown on the plans, will be permitted. When the finishing machine is supported on the concrete the wheel of the machine shall be placed directly over the beam adjacent to the joint.

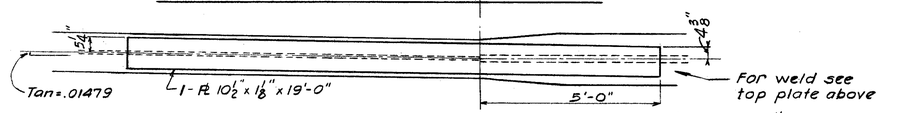
Note: * This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.



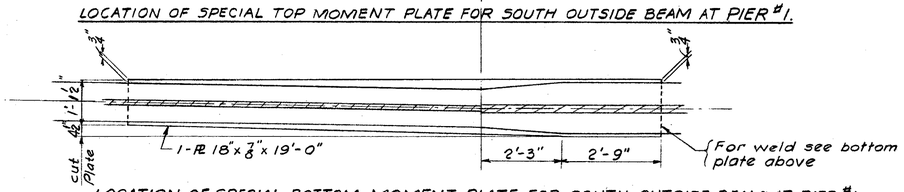
HALF TRANSVERSE SECTION
(Eastbound Shown)



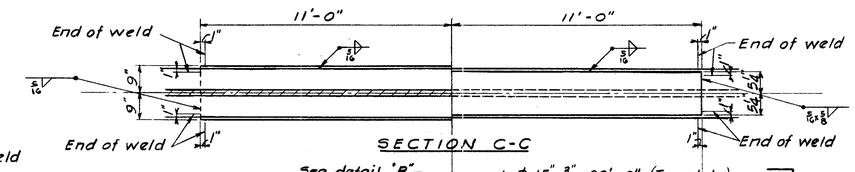
MOMENT PLATES AT PIER #1 AND PIER #3

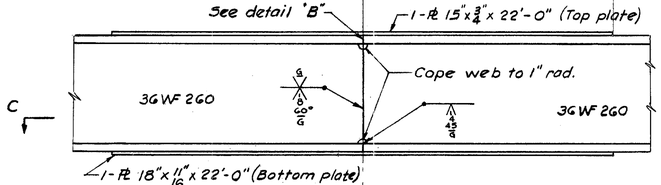


LOCATION OF SPECIAL TOP MOMENT PLATE FOR SOUTH OUTSIDE BEAM AT PIER #1.



LOCATION OF SPECIAL BOTTOM MOMENT PLATE FOR SOUTH OUTSIDE BEAM AT PIER #1

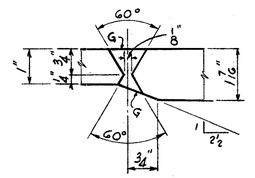




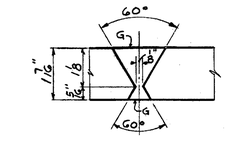
MOMENT PLATES AT PIER #2

BEAM SPLICE WELDING PROCEDURE

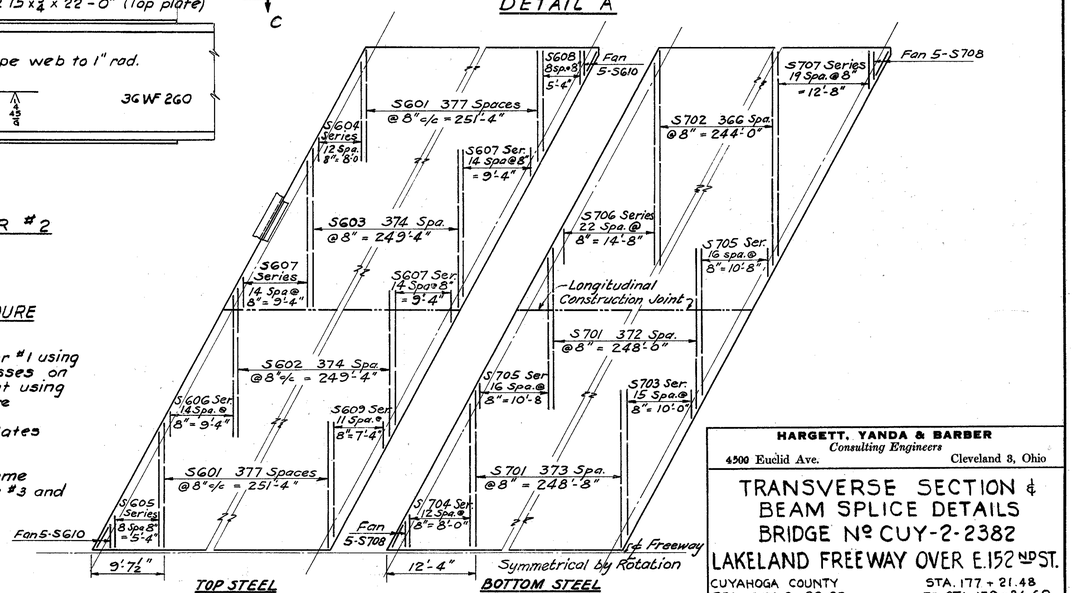
1. Raise end of beam 2" at Pier #2.
2. Butt weld beam flanges and web at Pier #1 using the following sequence: make two passes on each flange, then two on the web; repeat using one pass at each location until welds are completed.
3. Weld top and bottom flange moment plates at Pier #1.
4. Lower end of beam at Pier #2.
5. Make splice at Piers #2 and #3 in the same manner raising the beams 2⅝" at Pier #3 and ¾" at East abutment.



DETAIL A



DETAIL B



TOP STEEL

BOTTOM STEEL

PART PLAN OF DECK

HARGETT, YANDA & BARBER
Consulting Engineers
4500 Euclid Ave. Cleveland 3, Ohio

TRANSVERSE SECTION & BEAM SPLICE DETAILS BRIDGE Nº CUY-2-2382 LAKELAND FREEWAY OVER E.152 ND ST.

CUYAHOGA COUNTY STA. 177 + 21.48
SEC. CUY-2-22.97 TO STA. 179 + 86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M	K.J.W.	J.W.P.	RAB			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	1-329 (12)	1958

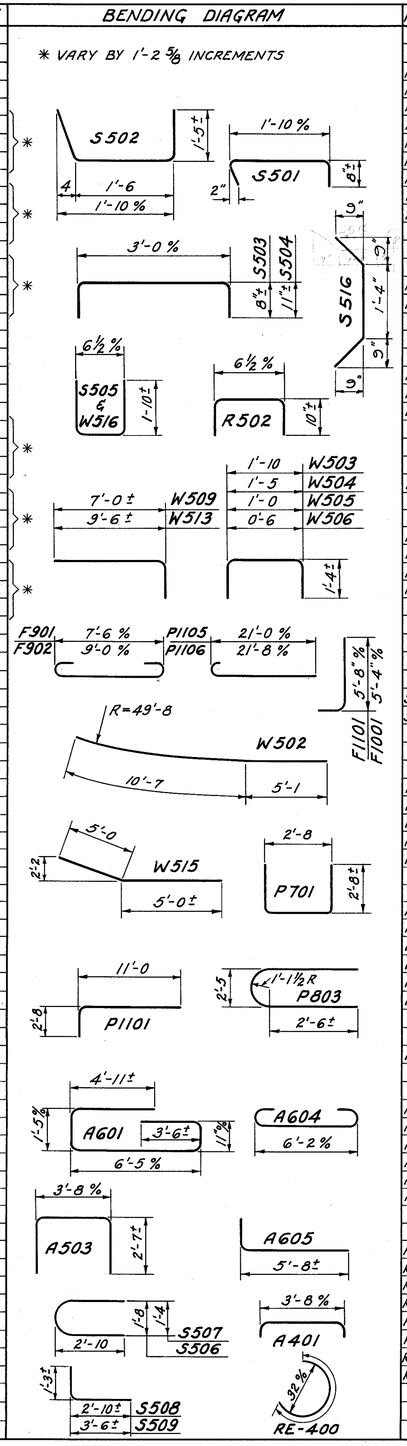
(134 / 149)

CUYAHOGA COUNTY
CUY-2-22.97

REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHAPE
		SUPERSTRUCTURE		
S-701	1492	22'-2"	67,600	S
S-702	734	30'-6"	45,760	S
S-703	2	3'-0"	796	S
	SERIES OF	TO		
	16	21'-4"		
S-704	2	6'-8"	744	S
	SERIES OF	TO		
	13	21'-4"		
S-705	4	2'-6"	1,709	S
	SERIES OF	TO		
	17	22'-1"		
S 708	20	6'-0	245	S
S-601	1512	17'-3	39,175	S
S-602	750	20'-5	23,000	S
S-603	750	21'-5	24,126	S
S-604	2	2'-4	378	S
	SERIES OF	TO		
	13	17'-0		
S-605	2	6'-8	312	S
	SERIES OF	TO		
	9	16'-5		
S-606	2	2'-4	490	S
	SERIES OF	TO		
	15	19'-5		
S-610	20	6'-0	180	S
S-611	2440	27'-10	102,006	S
S-612	300	33'-0	14,870	S
S-501	350	2'-11	1,065	B
S-502	350	4'-2	1,521	B
S-503	700	4'-1	2,981	B
S-504	700	4'-7	3,346	B
S-505	350	4'-0	1,460	B
S-506	12	8'-3	103	B
S-507	12	7'-9	97	B
S-508	12	4'-0	50	B
S-509	6	4'-8	29	B
S-510	48	2'-10	142	S
	(Continued)			
	RAILING			
R-501	104	17'-0	INCLUDE WITH ITEM 5-14 FOR PAYMENT	S
R-502	390	1'-11½		B
R-503	16	14'-0		S
R-504	8	13'-6		S
R-505	8	22'-3		S
		WING WALLS		
W-501	32	15'-8	523	S
W-502	12	15'-8	196	B
W-503	20	4'-3	89	B
W-504	8	3'-10	32	B
W-505	8	3'-5	29	B
W-506	8	2'-11	24	B
W-507	48	5'-3	263	S
W-508	40	3'-10	160	S
W-509	48	7'-6	375	B
W-510	16	10'-0	167	S
W-511	8	7'-8	64	S
W-512	16	11'-6	192	S
W-513	16	10'-0	167	B
W-514	24	3'-6	88	S
W-515	8	10'-0	83	B
W-516	36	4'-0	150	B

BENDING DIAGRAM



MARK	No.	LENGTH	WEIGHT	SHAPE	CORE DIA. & SPIRAL	No. OF TURNS
		PIERS				
P1101	30	13'-4"	2,125	B		
P1102	54	3'-6	9,037	S		
P1103	54	13'-9	3,945	S		
P1104	54	29'-8	8,511	S		
P1105	84	22'-7	10,079	B		
P1106	84	23'-3	10,376	B		
P1107	24	11'-0	1,403	S		
P1108	96	16'-11	8,628	S		
P1109	192	15'-2	15,471	S		
P1001	40	16'-11	2,912	ST.		
P1002	80	15'-2	5,221	ST.		
P801	12	20'-7	659	S		
P802	12	21'-2	678	S		
P803	18	8'-6	409	B		
P701	426	7'-8	6,676	B		
F1101	288	6'-10	10,456	B		
F1001	120	6'-5	3,313	B		
F901	552	9'-3	17,360	B		
F902	40	10'-9	1,462	B		
		PITCH				
SP401	12	13'-0	4½	2,936	32"	38
SP402	24	14'-10	4½	6,653	32"	43
		ABUTMENTS				
A801	48	26'-3	3,364	S		
A802	6	29'-9	477	S		
A803	6	30'-6	489	S		
A804	6	28'-11	463	S		
A805	6	27'-6	441	S		
A601	220	16'-6	5,452	B		
A602	152	6'-5	1,465	S		
A603	40	6'-8	400	S		
A604	288	7'-6	3,244	B		
A605	580	6'-4	5,517	B		
A606	8	5'-4	64	S		
A401	288	4'-6	865	B		
A501	40	26'-7	1,109	S		
A502	20	28'-9	600	S		
A503	242	8'-7	2,166	B		
A504	48	28'-7	1,431	S		
A505	20	5'-0	104	S		
A506	30	10'-0	313	S		
RE400	1	5'-3	—	B		
RE500	2	5'-7	—	S		
RE600	12	5'-11	—	S		
RE700	7	6'-2	—	S		
RE800	1	6'-6	—	S		
RE900	1	6'-10	—	S		
RE1000	1	7'-2	—	S		
RE1100	4	7'-6	—	S		

MARK	No.	LENGTH	WEIGHT	SHAPE
		SUPERSTRUCTURE (CONT'D)		
S706	2	3'-2	1,559	S
	SERIES OF	TO		
	23	30'-0		
S707	2	6'-3	1,458	S
	SERIES OF	TO		
	20	29'-5		
S607	6	3'-4	1,605	S
	SERIES OF	TO		
	15	20-5		
S608	2	6'-3	301	S
	SERIES OF	TO		
	9	16'-0		
S609	2	3'-0	350	S
	SERIES OF	TO		
	12	16'-5		
S515	21	3'-0	66	S
S516	21	3'-6	77	B

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUT.	PIERS	GEN'L.
E-2	1456	C.Y.	UNCLASSIFIED EXCAVATION		583	873	
E-2	7300	S.F.	NEW STEEL SHEET PILING LEFT IN PLACE			7300	
S-1	1150	C.Y.	CLASS "C" CONCRETE, SUPERSTRUCTURE	1150			
S-1	303	C.Y.	CLASS "C" CONCRETE, PIER CAPS & COLUMNS			303	
S-1	270	C.Y.	CLASS "E" CONCRETE, ABUTMENTS, ABOVE FOOTINGS		270		
S-1	517	C.Y.	CLASS "E" CONCRETE, FOOTINGS		264	253	
S-3	36	L.F.	WATERPROOFING, PREMOLDED SEALING STRIP		36		
S-4	504,094	LBS.	REINFORCING STEEL	337,601	30,366	128,310	
S-7	1,178,700	LBS.	STRUCTURAL STEEL	1,178,700			
S-8	1,178,700	LBS.	FIELD PAINTING OF STRUCTURAL STEEL	1,178,700			
S-9	43	S.F.	1" PREFORMED EXPANSION JOINT FILLER (GRAY SPONGE RUBBER)		43		
S-14	575	L.F.	RAILING, ALUMINUM RAIL & SUPPORTS, CONCRETE PARAPET)	520			55
S-14	265.12	L.F.	RAILING (1-15.13 double faced with galvanized steel posts: bolts	265.12			
S-16	LUMP	SUM	FIRST TEST PILE				LUMP
S-17	LUMP	SUM	FIRST PILE TEST LOAD				LUMP
S-17	1	EACH	SUBSEQUENT PILE TEST load				1
S-18	15,840	L.F.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES		7,440	8,400	
S-25	LUMP	SUM	ELECTRICAL LIGHTING SYSTEM				LUMP
S-25	530	L.F.	2" ELECTRIC CONDUIT (METAL)				530
S-25	55	L.F.	1½" ELECTRIC CONDUIT (METAL)				55
S-25	60	L.F.	1¼" ELECTRIC CONDUIT (METAL)				60
S-25	430	L.F.	¾" ELECTRIC CONDUIT (METAL)				430
S-25	40	L.F	1" ELECTRIC CONDUIT (METAL)				40
S-29	155	C.Y.	POROUS BACKFILL		155		
S-29	348	L.F.	8" BITUMINOUS COATED PERFORATED CORRUGATED METAL PIPE, including specials		348		
I-10	1532	S.Y.	CONCRETE SLOPE PROTECTION			1,532	
S-9	273.6	LIN.FT.	Structural expansion and contraction joint, as per plan.	273.6			
S-29	100	C.Y.	POROUS BACKFILL #3 COARSE AGGREGATE			100	
S-29	130	L.F.	2" #5 STEEL PIPE & FITTINGS			130	
S-29	750	L.F.	4" #5 STEEL PIPE & FITTINGS			750	

REPLACEMENT BARS: IF REINFORCING BARS ARE FABRICATED FROM STOCK WHICH HAS PREVIOUSLY BEEN TESTED AND APPROVED BY THE OHIO HIGHWAY TESTING LABORATORY, TEST SAMPLES AS PROVIDED IN SEC. S-402 NEED NOT BE FURNISHED AND REPLACEMENT BARS WILL NOT BE REQUIRED.

SPIRAL REINFORCING BARS: THE "LENGTH" SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE BOTTOM OF THE PIER CAP. THE "No. OF TURNS" SHOWN IS THE "LENGTH" DIVIDED BY THE PITCH, PLUS 3 TURNS (TOTAL NUMBER OF CLOSED COILS), EXPRESSED AS THE NEAREST WHOLE NUMBER. SPIRAL REINFORCING BARS SHALL NOT HAVE DEFORMATIONS BUT SHALL IN OTHER RESPECTS CONFORM TO ITEM S-4. 1½ CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT.

FOUR STEEL CHANNELS, TEES OR ANGLE SPACERS WEIGHING APPROXIMATELY 0.68 LB. PER LIN. FT. OF SPACER, SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF THE COIL. THE NUMBER OF POUNDS OF THESE SPACERS, BASED ON 0.68 LB. PER LIN. FT, WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED QUANTITY OF SPIRAL BARS.

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, S 702 IS A No. 7 SIZE BAR AND P1002 IS A No. 10 SIZE.

NOTE

ELECTRICAL QUANTITIES SHOWN ABOVE AS ITEM S-25 ARE ONLY THOSE ITEMS WHICH ARE ACTUALLY A PART OF THE BRIDGE STRUCTURE OR MOUNTED THEREON. FOR LISTING OF THESE ITEMS SEE ALSO ELECTRICAL DRWG. No. 103.

Item S-25, Lump Sum, includes lamp standards with mast arms, transformer boxes; junction boxes and electrical grounds.

The price bid per lin. ft. of metal conduit shall include all fittings, hangers, and concrete inserts required for proper installation of the conduit.

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REINFORCING STEEL LIST ESTIMATED QUANTITIES BRIDGE No CUY-2-2382

LAKELAND FREEWAY OVER E. 152 ND. STREET

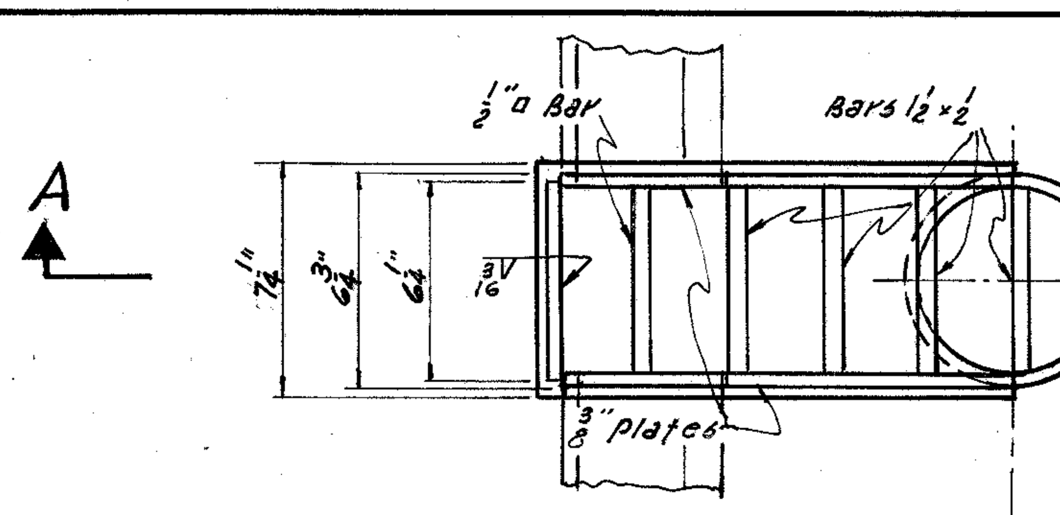
CUYAHOGA COUNTY
SEC. CUY-2-22.97

STA. 177+21.48
TO STA. 179+86.60

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	D.P.	G.J.			5-27-59	

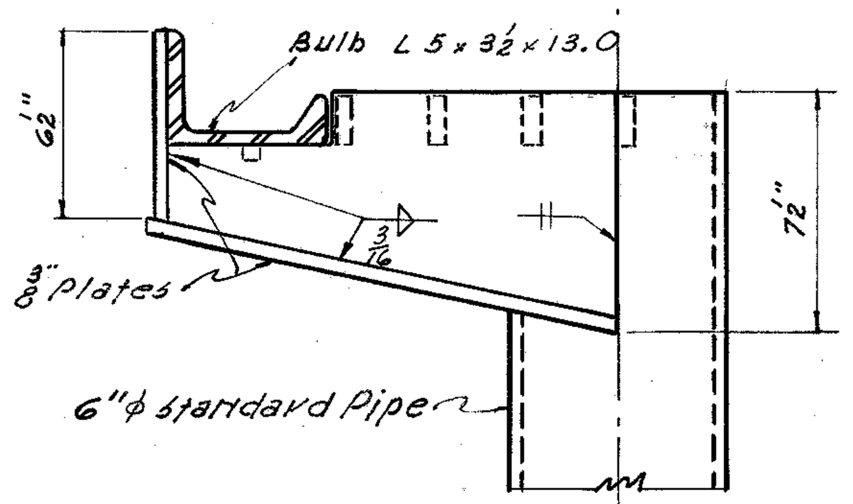
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY CUY-2-22.97

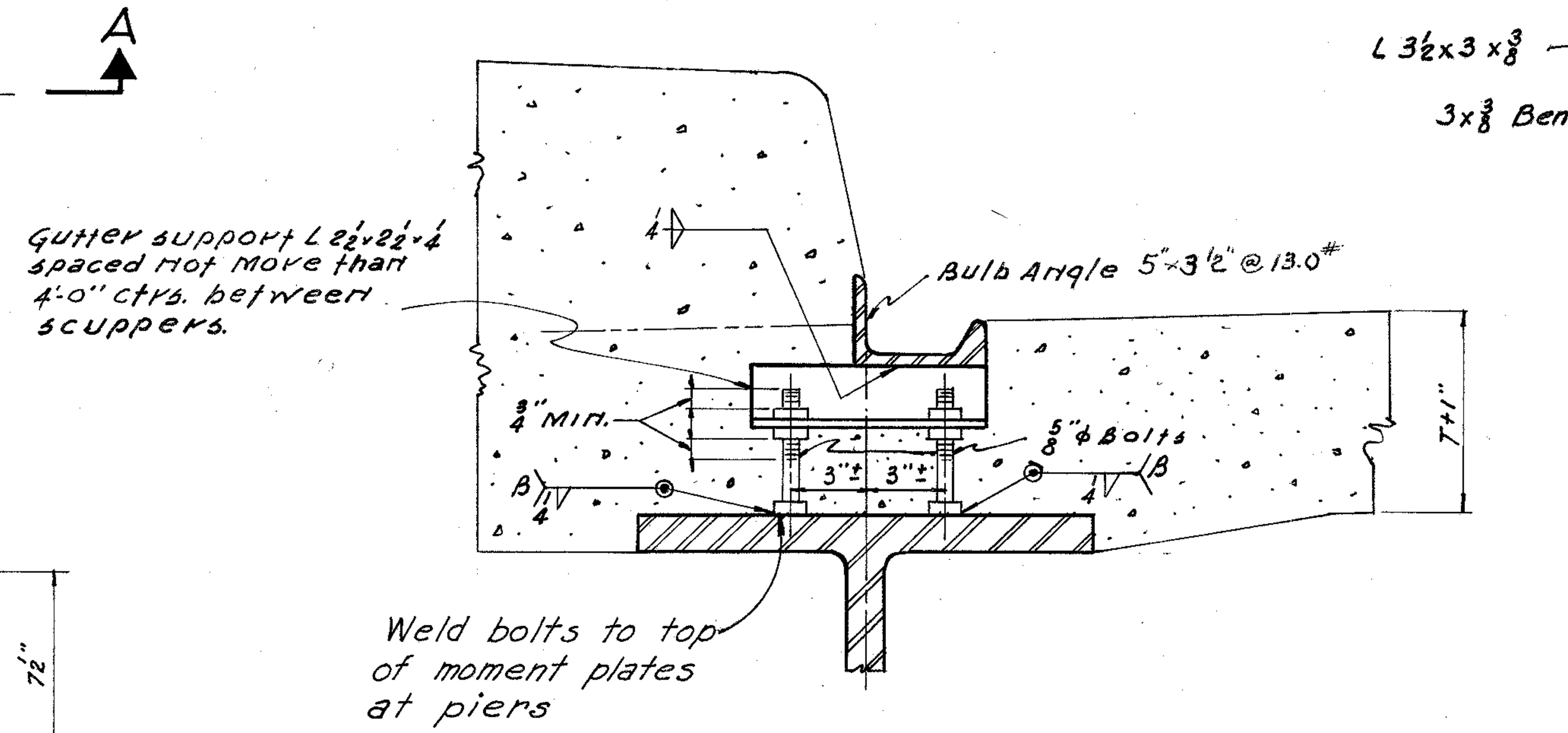


SCUPPER PLAN

BRIDGE ON TANGENT ONLY



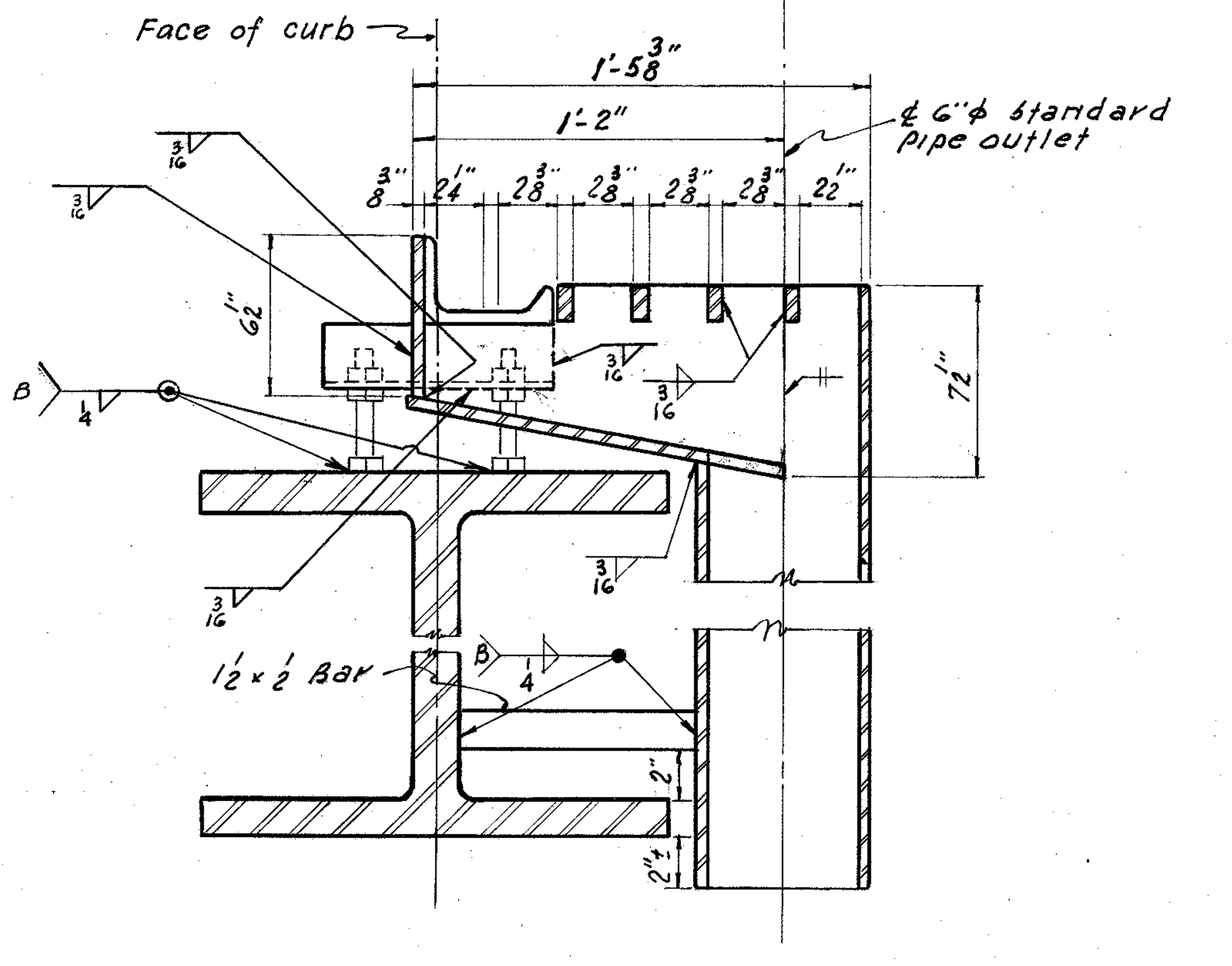
SCUPPER ELEVATION



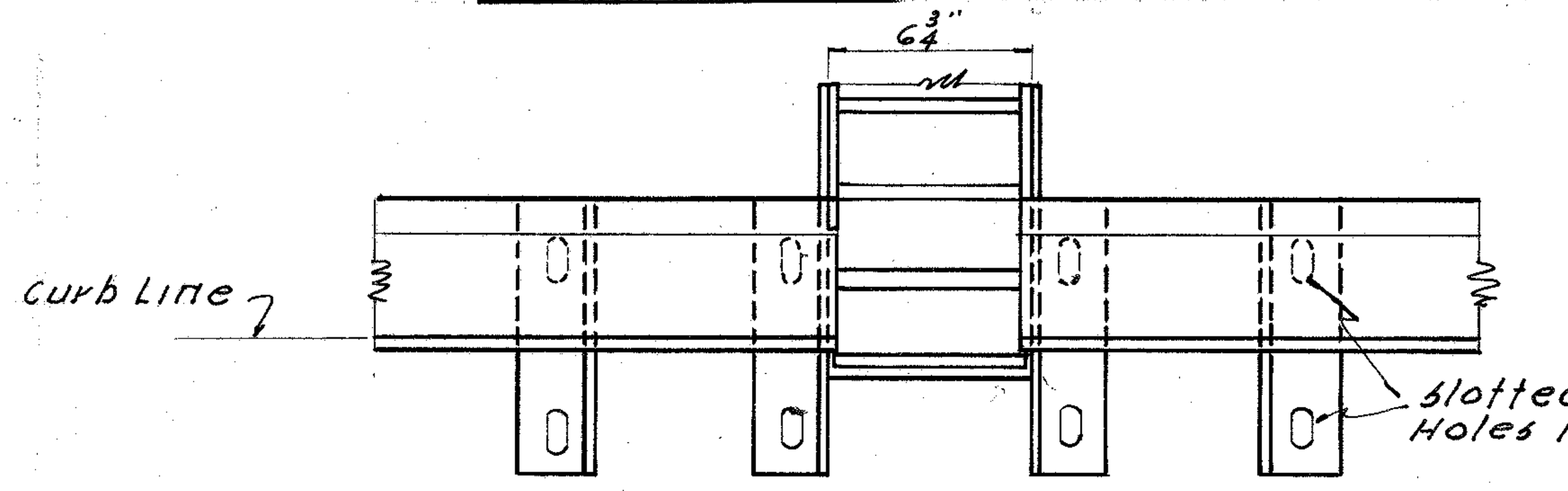
GUTTER SUPPORT

Scuppers shall be located as shown on Framing Plan.

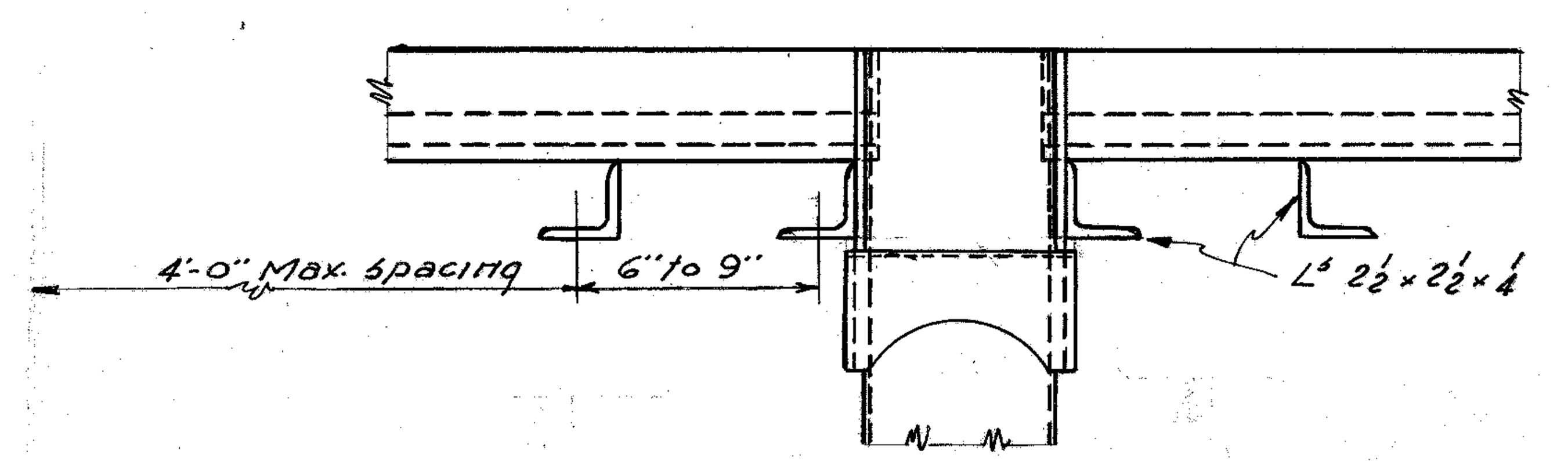
Gutters shall be accurately adjusted for alignment and grade, with allowance for dead load deflection, before concrete is placed.



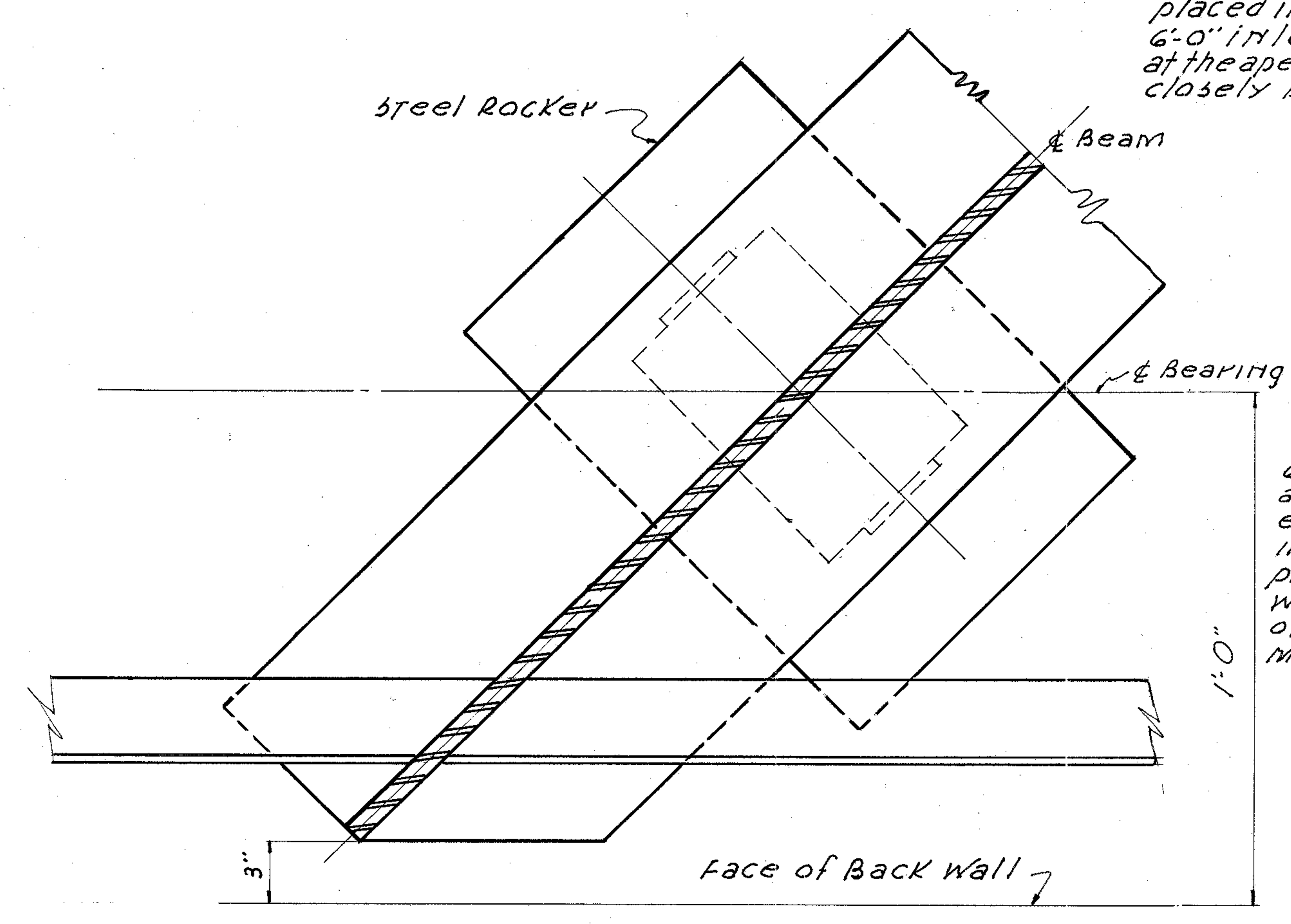
SECTION A-A



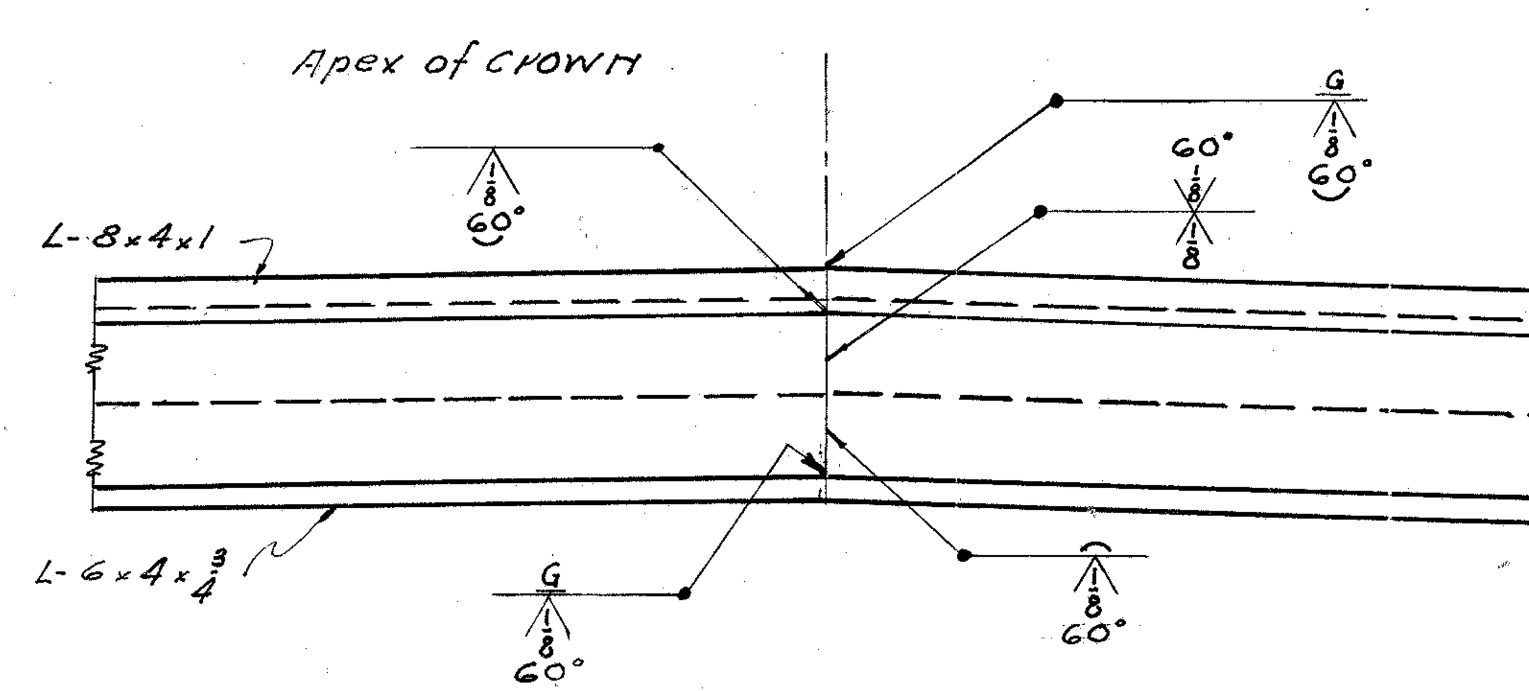
PART PLAN AT OUTSIDE CURB



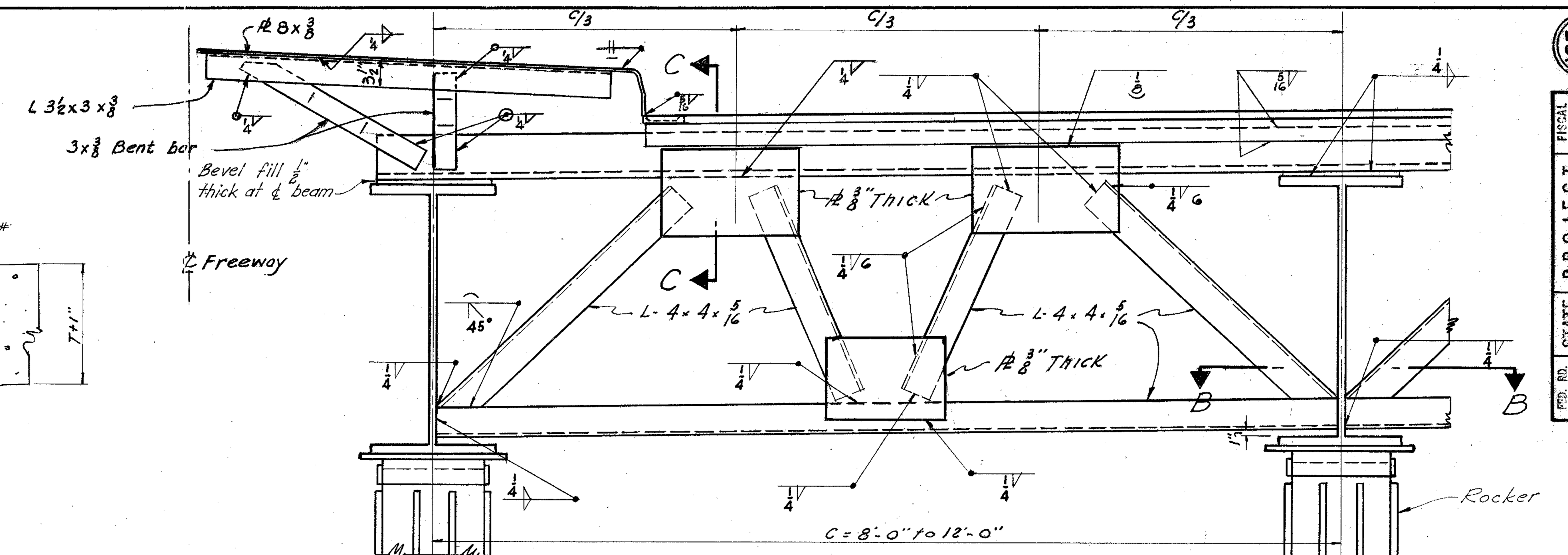
ELEVATION



SECTION B-B (For Skewed Bridges)



WELDED BUTT JOINT IN SUPERSTRUCTURE END DAM ANGLES AT APEX OF CROWN



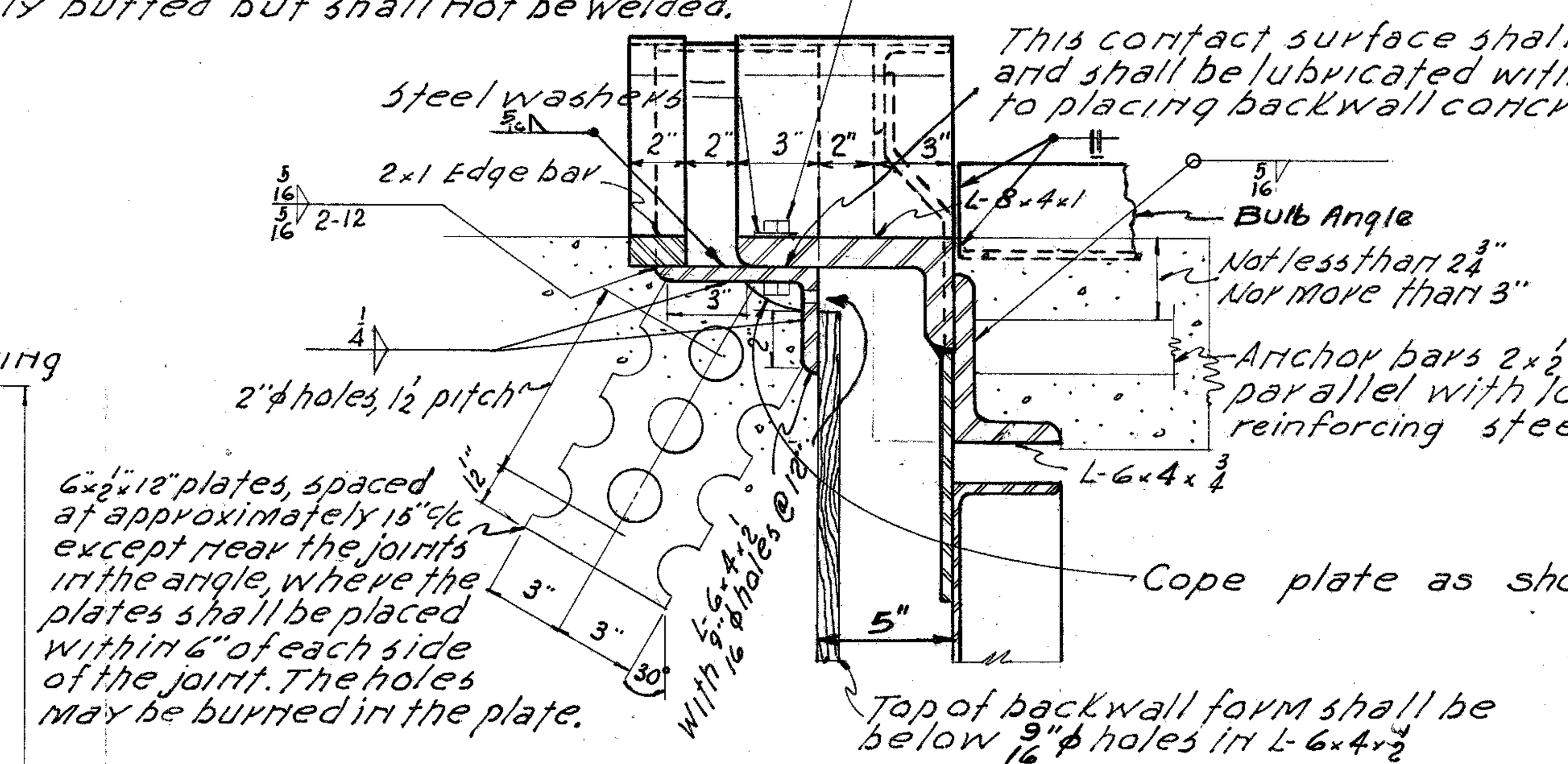
TYPICAL END CROSS FRAME DETAIL

A welded butt joint in the end dam along the apex of the crown will be required for that portion of the end dam attached to the superstructure. The portion attached to the backwall shall be placed in segments not less than 6'-0" in length, with one of the joints at the apex of the crown. These shall be closely butted but shall not be welded.

5/8" x 2" bolts at not more than 2'-0" c/c with nuts tack welded to under side of lower angle. 1 1/16" holes in upper angle. Center 5/8" bolts in 1 1/16" holes. Apply flake graphite between washers and angle. Turn bolt tight and release one-half turn. Remove bolts as soon as concrete has set, preferably within two hours after placing, to avoid damage due to temperature expansion or contraction of superstructure. Fill holes with bituminous material.

This contact surface shall not be painted and shall be lubricated with flake graphite prior to placing backwall concrete.

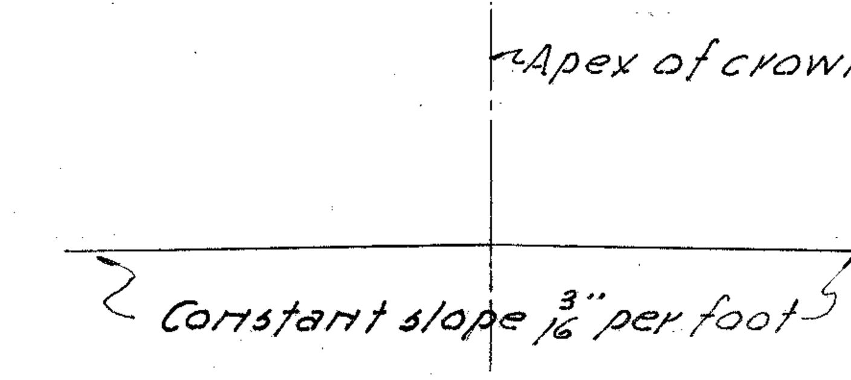
Paint. Omit shop coat on all portions of end dam. Portions in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the "3" field coats.



SECTION C-C

SHOWING ROADWAY END DAM

FOR MEDIAN FINISH SEE DWG. #137



BRIDGE ROADWAY CROWN

(FOR NON-SUPERELEVATED SECTIONS ONLY)

NOTE: Scupper details shown are for bridge on tangent only. For details of scuppers on curved bridges see drawing #137

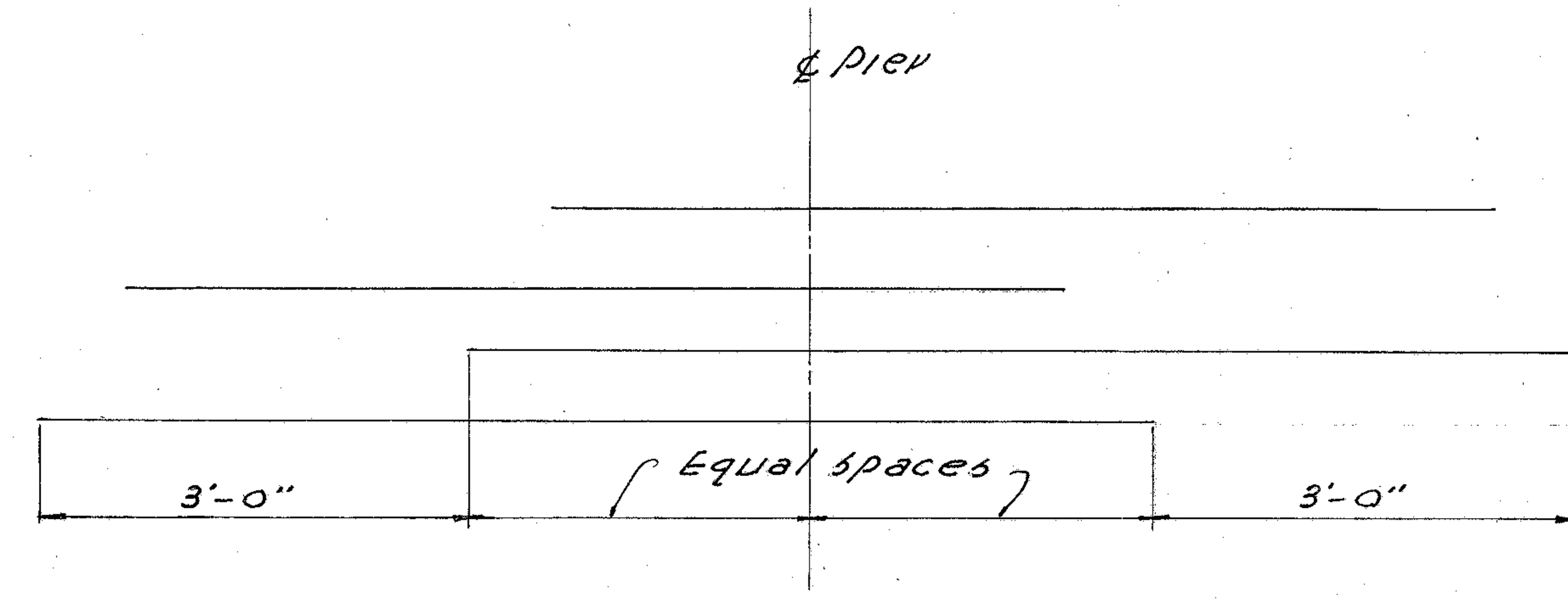


DIAGRAM SHOWING STAGGER OF "O" BARS OVER PIERS

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Consulting Engineers
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BRIDGE DETAILS

BRIDGE, CUY-2-2310, CUY-2-2329, CUY-2-2382

LAKELAND FREEWAY

CUYAHOGA COUNTY
SEC. 2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.V.C.	T.P.	J.W.P.	W.H.S. / D.H.A.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

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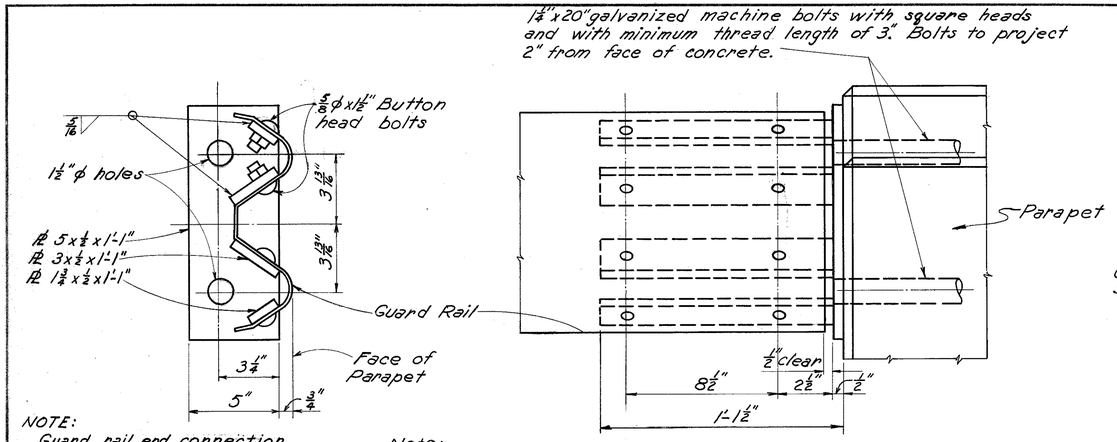
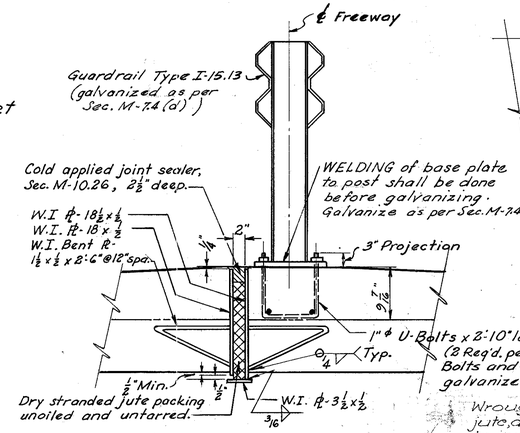
CUYAHOGA COUNTY
CUY-2-22.97

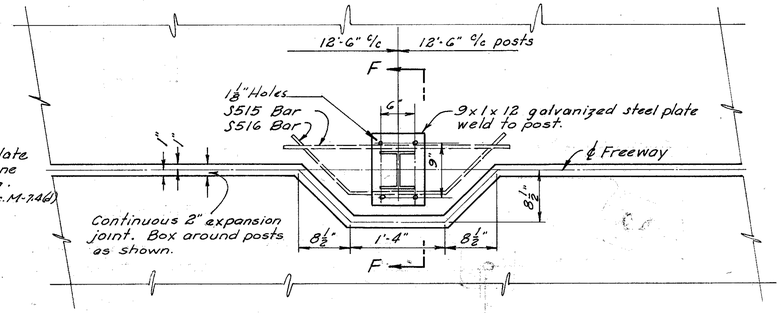


GUARD RAIL END CONNECTION DETAIL

(As seen from pavement side)



SECTION F-F



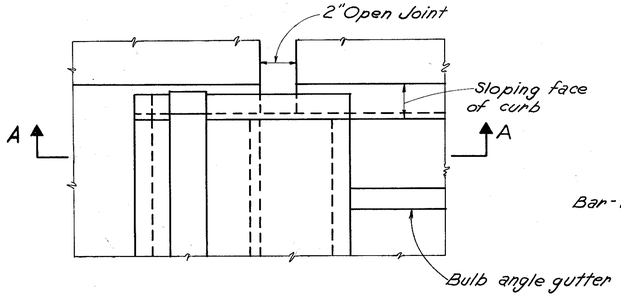
PLAN AT GUARDRAIL POST

Wrought iron plates, anchors, jute, and joint sealer are included in price per lin. ft. of Item S-9, Structural Expansion and Contraction Joint, as per plan.

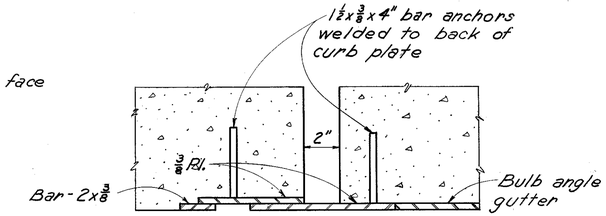
BUTT-JOINTS: Longitudinal segments of the structural expansion and contraction joint shall be closely butted and the joint formed thereby need not be welded.

CENTERLINE EXPANSION JOINT

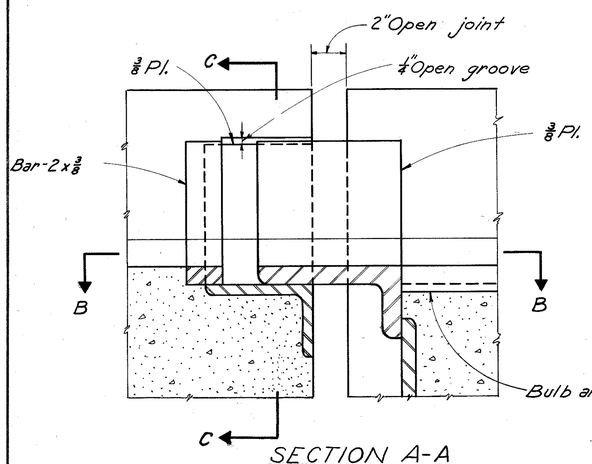
Including wrought iron plates, jute and joint sealer, to extend the full length of bridge between end dam angles.



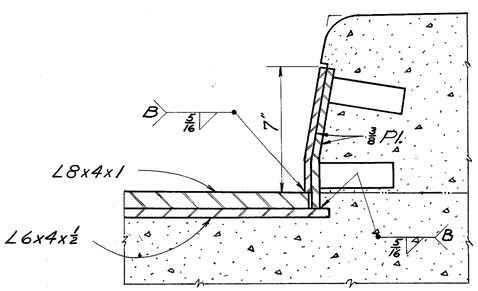
PART PLAN



SECTION B-B



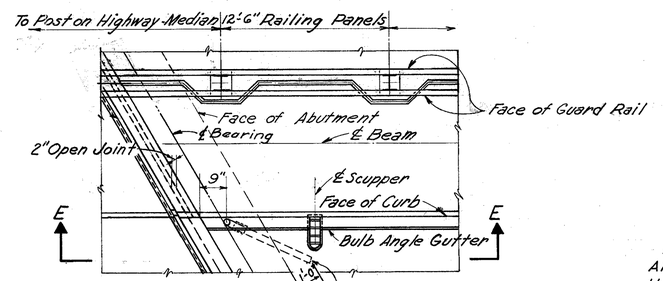
SECTION A-A



SECTION C-C

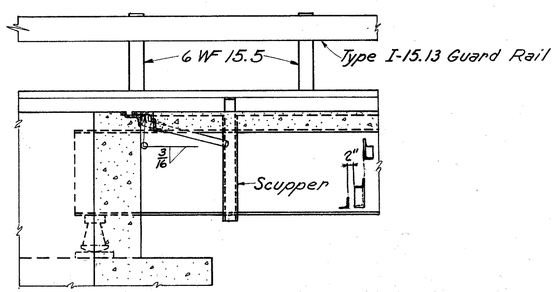
CURB PLATE DETAILS

MEDIAN GUARD RAIL DETAIL

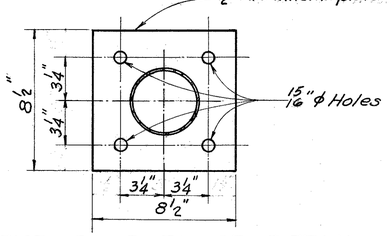


2"Dia. standard pipe drain at end of bulb angle gutter where grade slopes down to end dam. Use standard elbow and coupling. A welded bend may be used where space does not permit use of standard elbow.

PART PLAN AT ABUTMENT

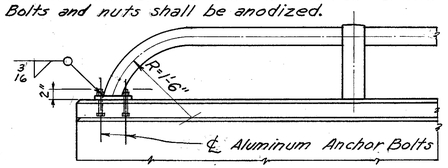


SECTION E-E



RAILING END BASE PLATE DETAIL

ANCHOR BOLTS shall be aluminum with a head or nut at the lower end. They shall be 1'-0" long and shall have a minimum diameter of 0.62" at the root of the thread. Bolts and nuts shall be anodized.



RAILING END DETAIL

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BRIDGE DETAILS

BRIDGE, CUY-2-2310, CUY-2-2329, CUY-2-2382
LAKELAND FREEWAY
CUYAHOGA COUNTY
SEC-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C.	K.J.W.	K.J.W.	8/6 M.A.B.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY-2-22.97

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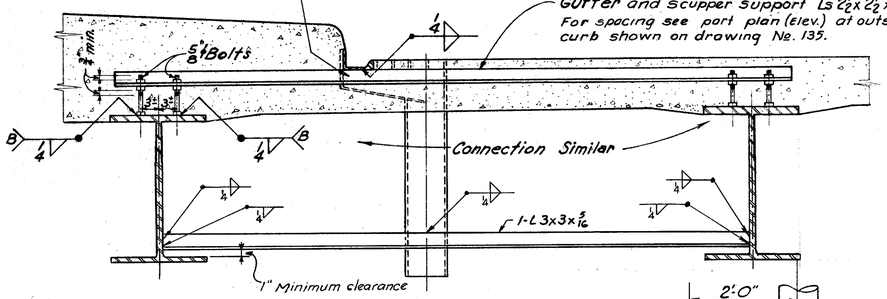
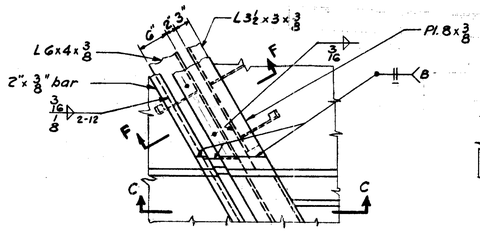
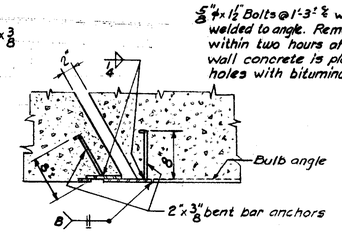
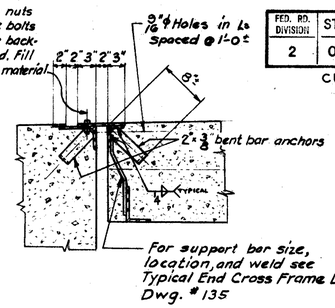
149

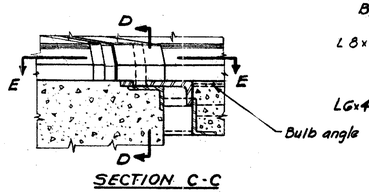
NOTE:
Adjust scupper for alignment and grade and weld to support in field.

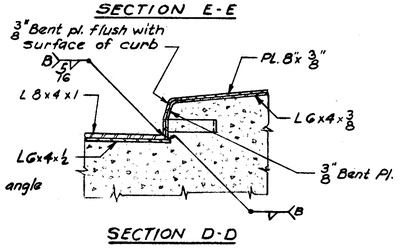




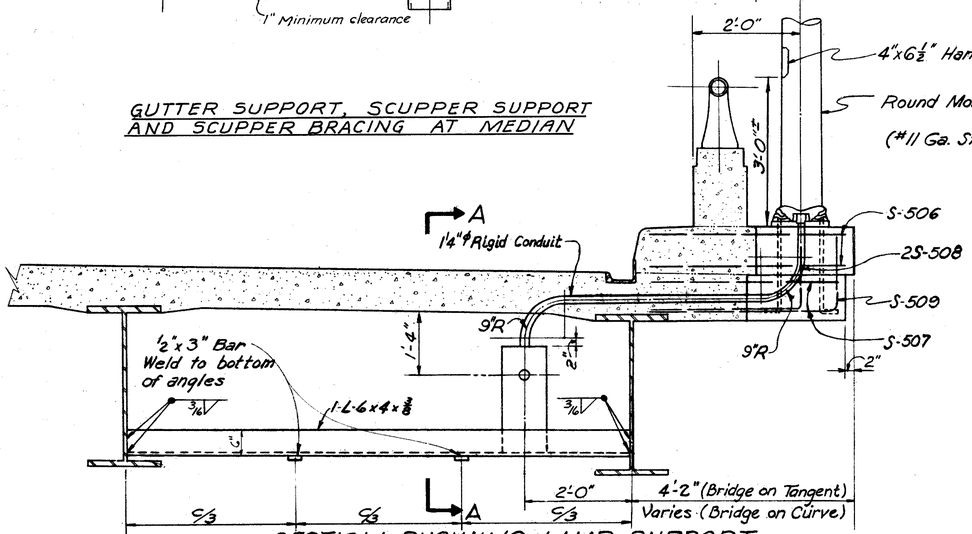


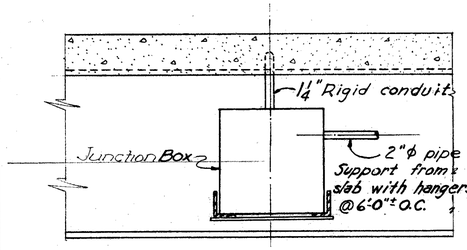


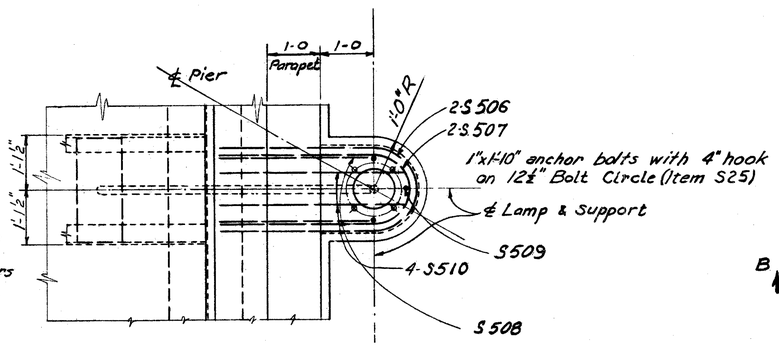




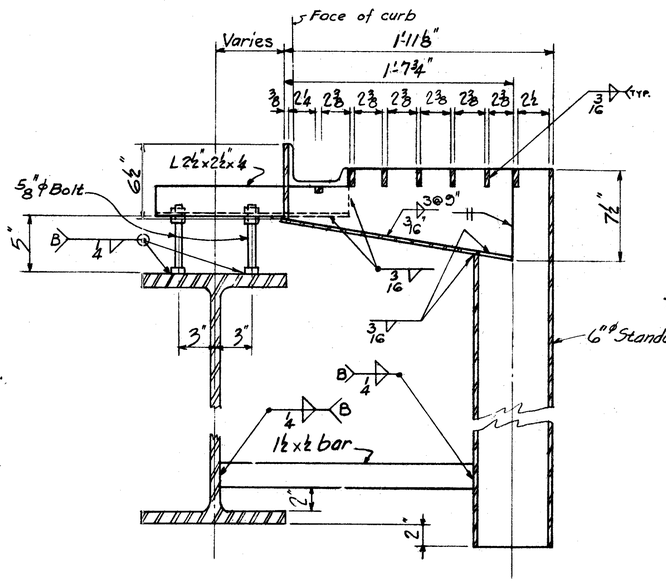
GUTTER SUPPORT, SCUPPER SUPPORT AND SCUPPER BRACING AT MEDIAN

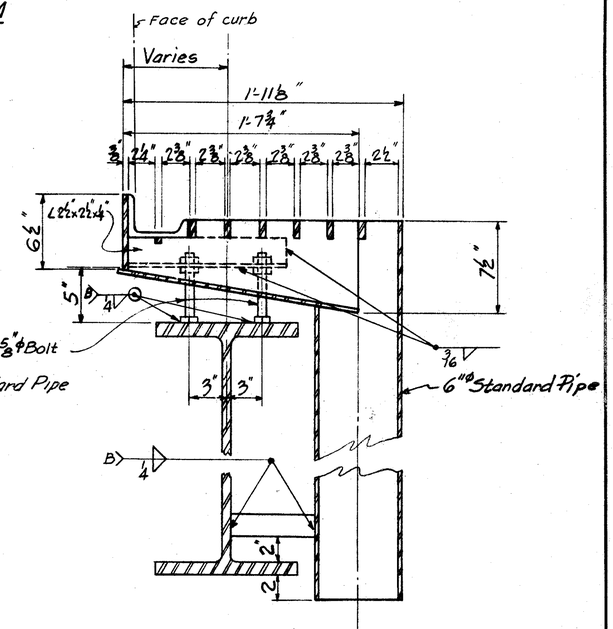


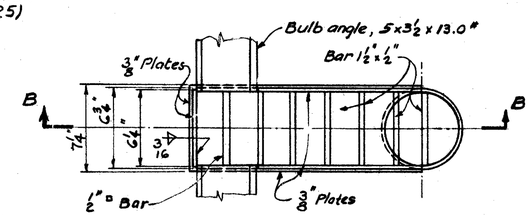




MEDIAN CURB DETAILS AT END DAM







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BRIDGE DETAILS

BRIDGE, CUY-2-2310, CUY-2-2329, CUY-2-2382
LAKELAND FREEWAY
CUYAHOGA COUNTY
SEC.- 2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
A.J.C.	K.J.W.	J.W.P.	W.A.B.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	I-329 (12)	1958	138 / 149

CUYAHOGA COUNTY
CUY-2-22.97

R509 SERIES (FRONT) 43 SPACES @ 3'-0" = 129'-0"
R508 SERIES (BACK) 86 SPACES @ 1'-6" = 129'-0"
4'-0" Rounding
Rustication Grooves as per typical panel.
EXPANS. JOINT
CONTRACTION JOINT
EXPANSION JOINT
2-R502
2-R504
2-MK R503
6" PIPE
R501 (BACK) 24 SPACES @ 12" = 24'-0"
R501 (BACK) 103 SPACES @ 12" = 103'-0"
130'-2 7/8"
(SOUTH HALF) RETAINING WALL - ELEVATION
3-R511 @ Each Expansion or Contraction Joint (typical)
MATCH LINE
1-R408 & 1-R409
1-R403 BOTT. & 1-R401 TOP 17 SPACES @ 2'-0" = 34'-0"
R408 TOP & BOTT 35 SPACES @ 2'-0" = 70'-0
R406
R408 TOP & BOTTOM
R414
R415 TOP & BOTTOM
3" CLEAR
STA. 9+00 RAMP Nº 1A
(SOUTH HALF) RETAINING WALL - PLAN
R506 SERIES (FRONT) 38 SPACES @ 3'-0" = 114'-0"
R505 SERIES (BACK) 76 SPACES @ 1'-6" = 114'-0"
114'-10 3/4"
R507 (FRONT) 36 SPACES @ 3'-0" = 108'-0"
R507 (BACK) 72 SPACES @ 1'-6" = 108'-0
Rustication Grooves 6 spa. @ 4'-0" = 24'-0
5 Spaces @ 4'-0" = 20'-0
Rustication Grooves - Typical Panel. See Detail on Drwg. # 139.
EL 605.5
EL 601.90'
INV. EL 595.15'
EL 594.00'
6" PIPE CONTINUOUS
R407 (BACK) 60 SPACES @ 12" = 60'-0"
R501 (BACK) 110 SPACES @ 1'-6" = 165'-0"
R510
R510 CONTINUOUS
(NORTH HALF) RETAINING WALL - ELEVATION
RAMP Nº 1-A STA. 12+50
1-R401 BOTTOM & 1-R403 TOP 31 SPACES @ 2-0 = 62'-0"
R408 BOTTOM R402 TOP 92 SPACES @ 2'-0" = 184'-0
R405
R408 TOP & BOTTOM
2 R404 - TYPICAL LONGITUDINAL FOOTING REINFORCING
162'-0"
63'-8 3/4"
24'-0 to ℄ Ramp Nº 1-A
(NORTH HALF) RETAINING WALL - PLAN
STANDARD PAVED GUTTER SEE PLAN PROFILE DRWGS. TYPICAL FOR ALL WALL SECTIONS
R=1456.40'
CURVATURE CONTINUOUS FROM END TO END OF WALL
12" x 1/2" PREFORMED SEALING STRIP IN 13" x 3/4" RECESS AS PER SEC. S-3.08. END AT TOP OF GUTTER OR GROUND LINE.
1 5/8" x 5 1/2" KEY CENTERED IN WALL FULL HEIGHT
EXPOSED FACE
1" THICKNESS OF PREFORMED EXPANSION JOINT FILLER
CONTRACTION JOINT
EXPANSION JOINT
R508 SERIES @ 1'-6" c/c
R509 SERIES @ 3'-0" c/c
R502 @ 2'-0" c/c
CONSTRUCTION JOINT
DOWELS: R501 @ 1'-6" c/c
6" BITUMINOUS COATED PIPE
R401 @ 2'-0" c/c
R404
R510
EL 594.00'
SECTION A-A
R507 SERIES @ 1'-6" c/c
R507 SERIES @ 3'-0" c/c
R402 @ 2'-0" c/c
R511
R406
6" BITUMINOUS COATED PERFORATED CORRUGATED PIPE
SECTION B-B
R505 or R508 SERIES @ 1'-6" c/c
R506 or R509 SERIES @ 3'-0" c/c
R403 @ 2'-0" c/c
R405
R407
SECTION C-C

Note: Maximum soil pressure is 3500#/sq. ft.
For additional notes see drwg. 141.

HARGETT, YANDA & BARBER
Consulting Engineers
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RETAINING WALL DETAILS
BETWEEN RAMP Nº 1 & RAMP Nº 1A
LAKELAND FREEWAY

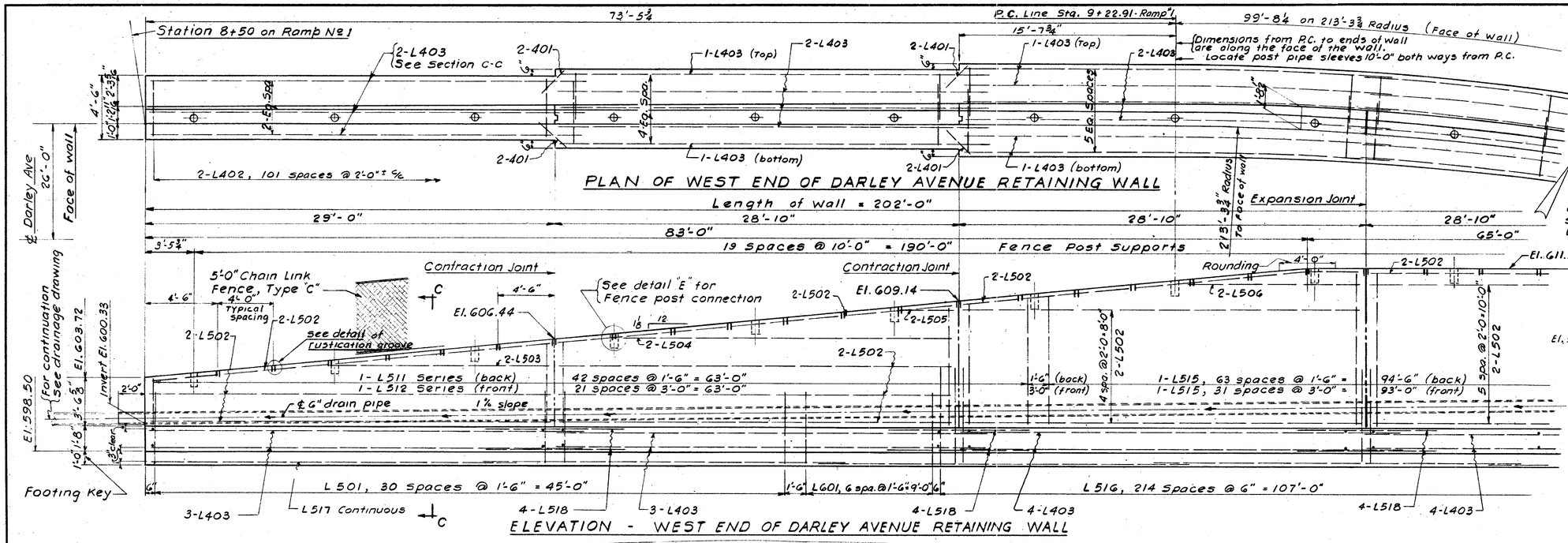
CUYAHOGA COUNTY
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	W. EELFORD	J.G.P.	G.G.G.			

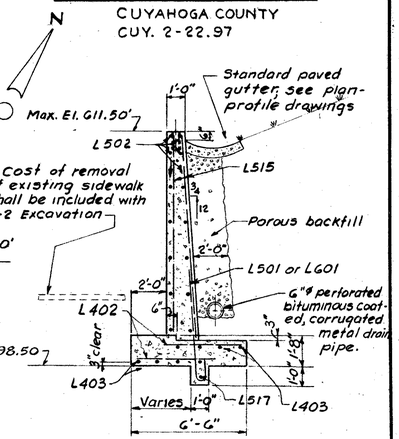
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	Ohio	I-329 (12)	1958

(139) (149)

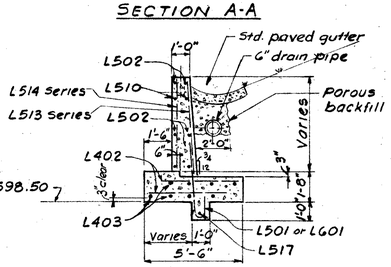
CUYAHOGA COUNTY
CUY. 2-22.97



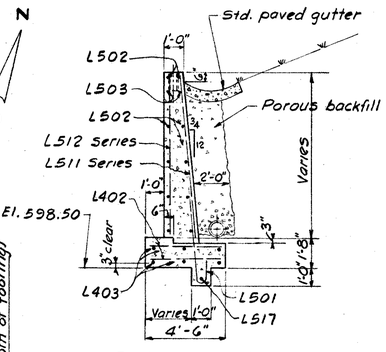
ELEVATION - WEST END OF DARLEY AVENUE RETAINING WALL



SECTION A-A



SECTION B-B



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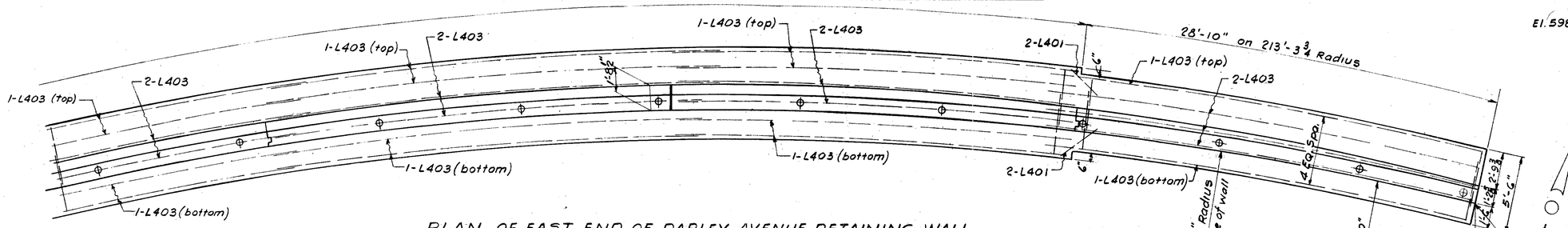
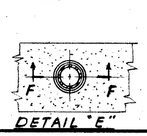
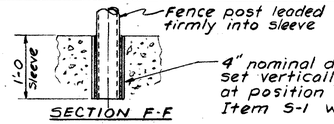


ELEVATION - EAST END OF DARLEY AVENUE WALL

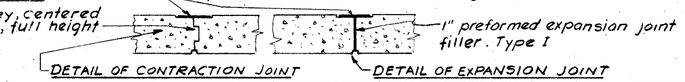


DETAIL "E"



SECTION F-F

DETAIL OF RUSTICATION GROOVE



DETAIL OF CONTRACTION JOINT

DETAIL OF EXPANSION JOINT

Notes

Maximum soil pressure is 2500# per sq ft.
Horizontal spacing of reinforcing steel bars is measured along face of wall.
For additional notes, see dwg No 141.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 Euclid Ave. Cleveland 8, Ohio

RETAINING WALL DETAILS BETWEEN RAMP No 1 & DARLEY AVE. LAKELAND FREEWAY

CUYAHOGA COUNTY
SEC. CUY 2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
RM	DP JWP	J.W.P				

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

140
149

CUYAHOGA COUNTY
CUY. 2-22.97

Developed Elevation of North Retaining Wall

Plan North Retaining Wall

Contraction Joint
South Wall

Contraction Joint
North Wall

Expansion Joint
North wall

Detail "A"

Section B-B

Section A-A
Section C-C

ALUMINUM HAND RAILING

BASE PLATE

Partial Plan E.140th St. & McElhatten Ave. Intersection

For Sidewalk Grades at retaining wall, see Extra Area Details Sheet No.49.

Elevation of South Retaining Wall

Plan of South Retaining Wall

Section Wall #4

Section Wall #3

Section Wall #2

Section Wall #1

Note: Maximum soil pressure is 3500# per sq.ft.
For additional notes see drwg. #141

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

RETAINING WALL DETAILS E.140th ST. & McELHATTEN AVE.

LAKELAND FREEWAY

CUYAHOGA COUNTY
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	W.F.ELFORD	W.B.	W.A.B. S.A.S.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	I-329 (12)	1958

CUYAHOGA COUNTY
CUY-2-22.97

(141)
(145)

REINFORCING STEEL LIST

NORTH RETAINING WALL E. 140TH ST. & McELHATTEN AVE.

MARK	Nº	LENGTH	WEIGHT	SHAPE	REMARKS
N501	4	29'-8"	124	S	
N502	2	28'-8	60	S	
N503	1	23'-2	24	B	
N504	1	22'-10	24	B	
N505	4	32'-8	136	S	
N506	60	6'-10	391	B	
N507	60	4'-4	271	S	
N508	30	10'-0	313	S	
N509	1	10'-0	10	B	
N510	4	25'-8	112	S	
N511	3	26'-1	82	S	
N401	218	3'-0	437	S	
	4	3'-6			VARY BY 1'-6" INCREMENT
N402	SERIES OF 3	To 6'-6	40	S	
N403	12	4'-0	32	S	
	2	8'-0			VARY BY 2'-0" INCR.
N404	SERIES OF 3	To 4'-0	24	S	
N405	42	25'-6	715	S	
N406	2	10'-4	14	B	
N407	2	13'-4	18	B	

SOUTH RETAINING WALL E. 140TH ST. & McELHATTEN AVE.

MARK	Nº	LENGTH	WEIGHT	SHAPE	REMARKS
M601	31	8'-2	380	S	
M501	15	10'-0	156	S	
M502	26	7'-4	199	B	
M503	20	4'-5	94	B	
	2	3'-0			VARY BY 9" INCR.
M504	SERIES OF 11	To 10'-6	155	S	
	1	10'-6			VARY BY 7½" INCR.
M505	SERIES OF 5	To 13'-0	61	S	
	1	12'-10			VARY BY 4" INCR.
M506	SERIES OF 6	To 11'-2	75	S	
	2	10'-8			VARY BY 4½" INCR.
M507	SERIES OF 21	To 3'-2	303	S	
M508	28	6'-0	175	S	
M509	28	4'-6	131	S	
M510	2	6'-0	13	S	
M511	12	20'-10	261	S	
	2	2'-0			VARY BY 5'-4" INCR.
M512	SERIES OF 4	To 18'-0	83	S	
M513	6	23'-4	146	S	
M514	4	10'-4	43	S	
M515	16	20'-9	346	S	
M516	2	12'-6	26	S	
M517	2	8'-6	18	S	
M518	22	10'-0	229	S	
M519	3	30'-0	94	S	
M401	28	4'-6	84	S	
M402	30	4'-0	80	S	
M403	10	2'-8	18	S	

(CONTINUED NEXT COLUMN)

RETAINING WALL BETWEEN DARLEY AVE. & RAMP Nº1

MARK	Nº	LENGTH	WEIGHT	SHAPE	REMARKS
L601	12	5'-3"	96	B	
L501	52	4'-7	248	B	
L502	70	28'-6	2082	S	
L503	2	16'-10	35	S	
L504	2	26'-0	54	S	
L505	2	4'-8	10	S	
L506	2	11'-9	25	S	
L507	2	8'-5	18	S	
L508	2	22'-2	46	S	
L509	2	8'-9	18	S	
L510	2	22'-6	47	S	
	1	3'-4			VARY BY 1 11/16" INCR.
L511	SERIES OF 43	To 9'-2 7/8	282	S	
	1	3'-4			VARY BY 3 3/8" INCR.
L512	SERIES OF 22	To 9'-2 7/8	144	S	
	1	3'-4			VARY BY 2 5/8" INCR.
L513	SERIES OF 28	To 9'-2 7/8	184	S	
	1	3'-4			VARY BY 5 1/4" INCR.
L514	SERIES OF 14	To 9'-0 1/4	90	S	
L515	96	9'-3	926	S	
L516	215	6'-4	1486	B	
L517	8	26'-6	221	S	
L518	48	10'-0	501	S	
L401	12	3'-0	24	S	
L402	202	4'-0	540	S	
L403		30'-0	1082	S	

SOUTH RETAINING WALL-(CONTINUED)

MARK	Nº	LENGTH	WEIGHT	SHAPE
M404	11	20'-10	153	S
M405	9	12'-0	72	S
M406	8	14'-6	77	S
M407	17	17'-9	202	S
M408	6	10'-3	41	S

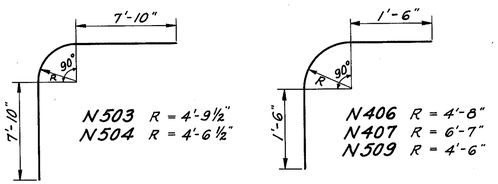
RETAINING WALL BETWEEN RAMP Nº1 & RAMP Nº1A

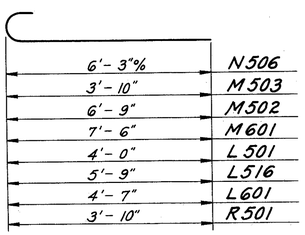
MARK	Nº	LENGTH	WEIGHT	SHAPE	REMARKS
R501	237	4'-7"	1133	B	
R502	130	27'-0	3661	S	
R503	4	16'-0	67	S	
R504	2	8'-0	17	S	
	1	6'-2			VARY BY 9/16" INCR.
R505	SERIES OF 77	To 9'-8 3/4	638	S	
	1	6'-2			VARY BY 1 1/8" INCR.
R506	SERIES OF 39	To 9'-8 3/4	323	S	
R507	110	9'-9	1119	S	
	1	2'-4			VARY BY 1" INCR.
R508	SERIES OF 87	To 9'-6	537	S	
	1	2'-4			VARY BY 2 1/16" INCR.
R509	SERIES OF 44	To 9'-8 11/16	277	S	
R510	13	28'-10	391	S	
R511	72	10'-0	751	S	
R401	215	3'-0	431	S	
R402	93	4'-6	280	S	
R403	50	4'-0	134	S	
R404	78	28'-6	1485	S	
R405	3	22'-6	45	S	
R406	7	27'-6	129	S	
R407	2	18'-8	25	S	
R408	6	3'-0	12	S	

REPLACEMENT BARS

RE600	1	5'-11"	—	S
RE500	1	5'-7	—	S
RE400	1	5'-3	—	S

BENDING DIAGRAMS





ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	WALL	FOOTING	GENERAL
			NORTH RETAINING WALL - E. 140TH ST. & McELHATTEN AVE. (Cleveland)			
E-2	206	C.Y.	UNCLASSIFIED EXCAVATION			206
S-1	22	C.Y.	CLASS "E" CONCRETE, WALLS	22		
S-1	33	C.Y.	CLASS "E" CONCRETE, FOOTINGS		33	
S-3	25	L.F.	12"x½" PREFORMED SEALING STRIP	25		
S-4	2827	LB.	REINFORCING STEEL	1030	1797	
S-9	7	S.F.	1" PREFORMED EXPANSION JOINT FILLER, TYPE I	7		
S-14	177	L.F.	3'-4" ALUMINUM PIPE RAILING, FITTINGS, CONNECTIONS & ANCHORAGE			177
S-29	28	C.Y.	POROUS BACKFILL			28
S-29	179	L.F.	6" PERFORATED, BITUMINOUS COATED, CORRUGATED, METAL PIPE			179
			SOUTH RETAINING WALL - E. 140TH ST. & McELHATTEN AVE. (Cleveland)			
E-2	118	C.Y.	UNCLASSIFIED EXCAVATION			118
S-1	36	C.Y.	CLASS "E" CONCRETE, WALLS	36		
S-1	35	C.Y.	CLASS "E" CONCRETE, FOOTINGS		35	
S-3	22	L.F.	12"x½" PREFORMED SEALING STRIP	22		
S-4	3715	LB.	REINFORCING STEEL	2009	1706	
S-29	32	C.Y.	POROUS BACKFILL			32
S-29	87	L.F.	6" PERFORATED, BITUMINOUS COATED, CORRUGATED, METAL PIPE			87
			RETAINING WALL - BETWEEN DARLEY AVE. & RAMP Nº1 (Cleveland)			
E-2	246	C.Y.	UNCLASSIFIED EXCAVATION			246
S-1	86	C.Y.	CLASS "E" CONCRETE, WALLS	86		
S-1	75	C.Y.	CLASS "E" CONCRETE, FOOTINGS		75	
S-3	57	L.F.	12"x½ PREFORMED SEALING STRIP	57		
S-4	8093	LB.	REINFORCING STEEL	3961	4132	
S-9	25	S.F.	1" PREFORMED EXPANSION JOINT FILLER, TYPE I	25		
S-29	111	C.Y.	POROUS BACKFILL			111
S-29	202	L.F.	6" PERFORATED, BITUMINOUS COATED, CORRUGATED, METAL PIPE			202
			RETAINING WALL - BETWEEN RAMP Nº1 & RAMP Nº1A (Bratenahl)			
E-2	273	C.Y.	UNCLASSIFIED EXCAVATION			273
S-1	136	C.Y.	CLASS "E" CONCRETE, WALLS	136		
S-1	93	C.Y.	CLASS "E" CONCRETE, FOOTINGS		93	
S-3	101	L.F.	12"x½" PREFORMED SEALING STRIP	101		
S-4	11,455	LB.	REINFORCING STEEL	6639	4816	
S-9	36	S.F.	1" PREFORMED EXPANSION JOINT FILLER, TYPE I	36		
S-29	153	C.Y.	POROUS BACKFILL			153
S-29	356	L.F.	6" PERFORATED, BITUMINOUS COATED, CORRUGATED, METAL PIPE			356

TOTAL FOR ALL RETAINING WALLS ABOVE

ITEM	TOTAL	UNIT	DESCRIPTION	BRATENAHL	CLEVELAND
E-2	843	C.Y.	UNCLASSIFIED EXCAVATION	273	570
S-1	280	C.Y.	CLASS "E" CONCRETE, WALLS	136	144
S-1	236	C.Y.	CLASS "E" CONCRETE, FOOTINGS	93	143
S-3	205	L.F.	12"x½" PREFORMED SEALING STRIP	101	104
S-4	26,090	LB.	REINFORCING STEEL	11,455	14,635
S-9	68	S.F.	1" PREFORMED EXPANSION JOINT FILLER, TYPE I	36	32
S-14	177	L.F.	3'-4" ALUMINUM PIPE RAILING, FITTINGS, CONNECTIONS & ANCHORAGE		177
S-29	324	C.Y.	POROUS BACKFILL	153	171
S-29	824	L.F.	6" PERFORATED, BITUMINOUS COATED, CORRUGATED, METAL PIPE	356	468

NOTES

CONCRETE SHALL BE CLASS "E", OR CLASS "C" AT THE OPTION OF THE CONTRACTOR, IN ALL RETAINING WALLS AND FOOTINGS.

REINFORCING STEEL SHALL BE 2" CLEAR FROM FACE OF CONCRETE UNLESS NOTED OTHERWISE.

SURFACE FINISH OF CONCRETE: ALL EXPOSED FACES OF CONCRETE SHALL BE GIVEN A RUBBED FINISH. ALL OTHERS SHALL BE GOVERNED BY SEC. S-1.

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, M508 IS A Nº 5 SIZE BAR.

REPLACEMENT BARS: IF REINFORCING BARS ARE FABRICATED FROM STOCK WHICH HAS PREVIOUSLY BEEN TESTED AND APPROVED BY THE OHIO HIGHWAY TESTING LABORATORY, TEST SAMPLES AS PROVIDED IN SEC. S-402 NEED NOT BE FURNISHED AND REPLACEMENT BARS WILL NOT BE REQUIRED.

HARGETT, YANDA & BARBER
Consulting Engineers
4500 EUCLID AVE. CLEVELAND 3, OHIO

REINFORCING STEEL LIST
ESTIMATED QUANTITIES
RETAINING WALLS
LAKELAND FREEWAY

CUYAHOGA COUNTY
SEC. CUY-2-22.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED	DATE
R.J.M.	D.P.	G.J.	R.J.M.			