

159(85)

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

FHWA REGION	STATE	PROJECT
5	OHIO	FR-48(7)

STA-21-10.24

FR-48(7)

STA-21-10.24

CITY OF MASSILLON
PERRY TOWNSHIP
STARK COUNTY

1983 SPECIFICATIONS

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

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

CENTERLINE	690	841
TOWNSHIP LINE		
CORPORATION LINE		
FENCE LINE		
RIGHT OF WAY	R/W	R/W
EXISTING RIGHT OF WAY	EXIST. R/W	EXIST. R/W

EXISTING UTILITIES	WATER LINE	N	N
	GAS LINES	G	G
	SANITARY LINE	San.	San.
	WATER OR GAS VALVE	8	

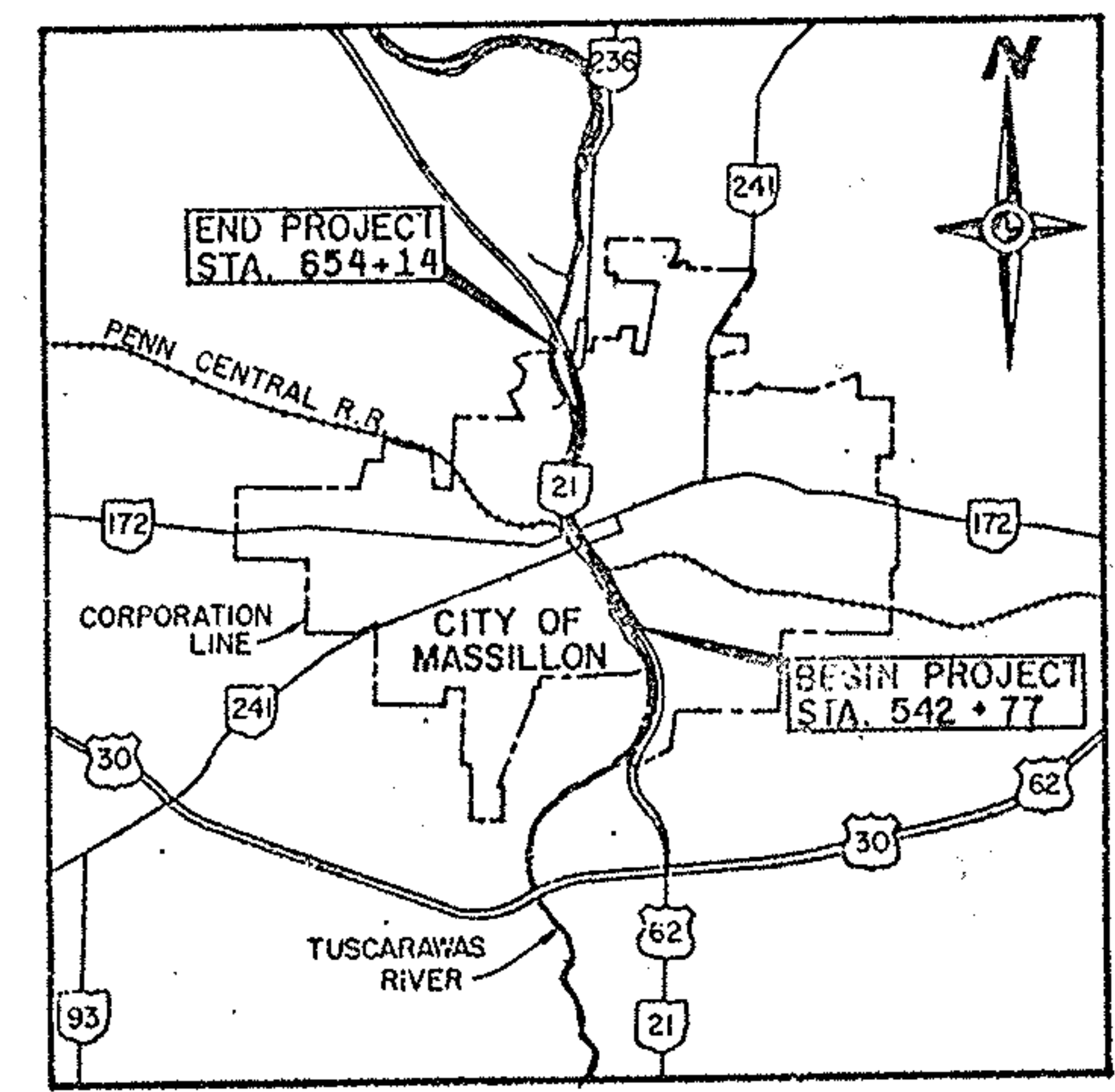
WARD RAIL	PROPOSED	EXISTING
CULVERTS	PROPOSED	EXISTING
MANHOLES	PROPOSED	EXISTING
CATCH BASINS	PROPOSED	EXISTING
HYDRANT	PROPOSED	EXISTING
FEATHERED AREA		PAVEMENT REPLACEMENT
EXISTING SIGN		CONCRETE MEDIAN BETWEEN BARRIERS
EXISTING GUARD RAIL TO BE REPLACED		

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LINE DATA

BEGIN PROJECT STA. 542+77.00
END PROJECT 1 WORK STA. 654+14.00
DEDUCTION FOR STATION EQUATIONS (SHOWN ON SH. 2) - 27.97 L.F.
LENGTH OF PROJECT 11,109.03 L.F. OR 2.104 MI.
BEGIN WORK STA. 540+24.00
ADD FC WORK STA. 540+24.00
STA. 540+24.00 TO STA. 542+77.00 253.00 L.F.
LENGTH OF WORK 11,362.03 L.F. OR 2.152 MI.



LOCATION MAP
SCALE IN MILES

PORTION TO BE IMPROVED
U.S. ROUTE
STATE ROADS



PLAN



STANDARD DRAWINGS					
BP-1	7-16-81	HC-1	6-13-89	HC-4	7-26-78
BP-2	12-6-76	HC-2	2-3-82	HC-5	7-30-81
BP-3	7-16-81	HC-3	2-3-82	HC-6	7-30-81
BP-4	12-6-76	HC-4	2-3-82	HC-7	7-30-81
BP-5	12-6-76	HC-5	2-3-82	HC-8	7-30-81
BP-6	12-6-76	HC-6	2-3-82	HC-9	7-30-81
BP-7	12-6-76	HC-7	2-3-82	HC-10	7-30-81
BP-8	12-6-76	HC-8	2-3-82	HC-11	7-30-81
BP-9	12-6-76	HC-9	2-3-82	HC-12	7-30-81
BP-10	12-6-76	HC-10	2-3-82	HC-13	7-30-81
BP-11	12-6-76	HC-11	2-3-82	HC-14	7-30-81
BP-12	12-6-76	HC-12	2-3-82	HC-15	7-30-81
BP-13	12-6-76	HC-13	2-3-82	HC-16	7-30-81
BP-14	12-6-76	HC-14	2-3-82	HC-17	7-30-81
BP-15	12-6-76	HC-15	2-3-82	HC-18	7-30-81
BP-16	12-6-76	HC-16	2-3-82	HC-19	7-30-81
BP-17	12-6-76	HC-17	2-3-82	HC-20	7-30-81
BP-18	12-6-76	HC-18	2-3-82	HC-21	7-30-81
BP-19	12-6-76	HC-19	2-3-82	HC-22	7-30-81
BP-20	12-6-76	HC-20	2-3-82	HC-23	7-30-81
BP-21	12-6-76	HC-21	2-3-82	HC-24	7-30-81
BP-22	12-6-76	HC-22	2-3-82	HC-25	7-30-81
BP-23	12-6-76	HC-23	2-3-82	HC-26	7-30-81
BP-24	12-6-76	HC-24	2-3-82	HC-27	7-30-81
BP-25	12-6-76	HC-25	2-3-82	HC-28	7-30-81
BP-26	12-6-76	HC-26	2-3-82	HC-29	7-30-81
BP-27	12-6-76	HC-27	2-3-82	HC-30	7-30-81
BP-28	12-6-76	HC-28	2-3-82	HC-31	7-30-81
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BP-144	12-6-76	HC-144	2-3-82	HC-147	7-30-81
BP-145	12-6-76	HC-145	2-3-82	HC-148	7-30-81
BP-146	12-6-76	HC-146	2-3-82	HC-149	7-30-81
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BP-151	12-6-76	HC-151	2-3-82	HC-154	7-30-81
BP-152	12-6-76	HC-152	2-3-82	HC-155	7-30-81
BP-153	12-6-76	HC-153	2-3-82	HC-156	7-30-81
BP-					

SCHEMATIC PLAN

STA-21-10.24

OHIO
FHWA
REGION 5

2
69

BEGIN WORK
STA. 540+24

BEGIN PROJECT
STA. 542+77
S.L.M. 10.24

FR-48(7)

CURVE DATA
P.I. = Sta 562+13.52
Δ = 7°13'00" Lt.
D = 0°23'00"
R = 12,277.70'
T = 774.24'
E_x = 24.39'
L = 1546.43'

CURVE DATA
P.I. = 543+97.71
Δ = 20°30'00" Rt.
D = 1°28'00"
R = 3906.53'
T = 706.42'
L = 1397.73'
E_x = 63.36'

0 200 400
Scale in Feet

CURVE DATA
Δ = 54°25'22" Lt. T_s = 1564.79'
D_c = 2°05' E_s = 343.79'
R = 2750.20' L_c = 2312.30'
L_s = 300.00' Δ_c = 43°10'22"
θ = 3°07'30" Y_c = 5.45'
P = 1.36' T_s = 612+99.78
K = 149.99' S_c = 615+99.78
S_T = 100.03' C_s = 639+120.8
L_T = 200.03' S_T = 642+42.08
X_c = 299.91'

CURVE DATA

P.I. = Sta 597+73.67 L.T. = 200.03'
Δ = 60°40'16" Rt. S_T = 100.03'
D = 2°07'30" L_c = 2555.11'
L_s = 300.00' T_s = 1723.62'
R = 2696.27' E_s = 429.34'
θ_s = 3°11'15" X_c = 299.911'
P = 1.39' Y_c = 5.57'11"
K = 149.99' X = 5.77'

DESIGN DESIGNATION

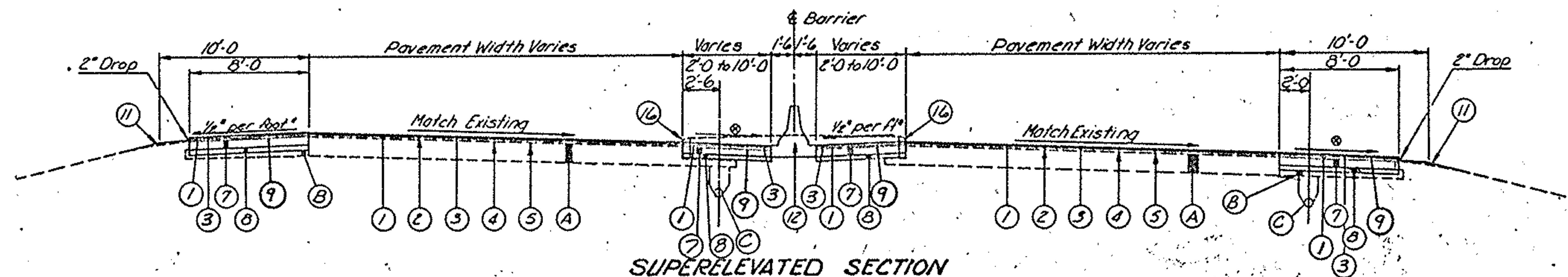
CURRENT ADT (1983) = 14,380
D.H.V. = 1,425
D = 55%
T = 10%
V = 50 MPH
DESIGN YEAR ADT (2003) = 22,000

TYPICAL SECTION TYPE 848

STA.-21-10.24

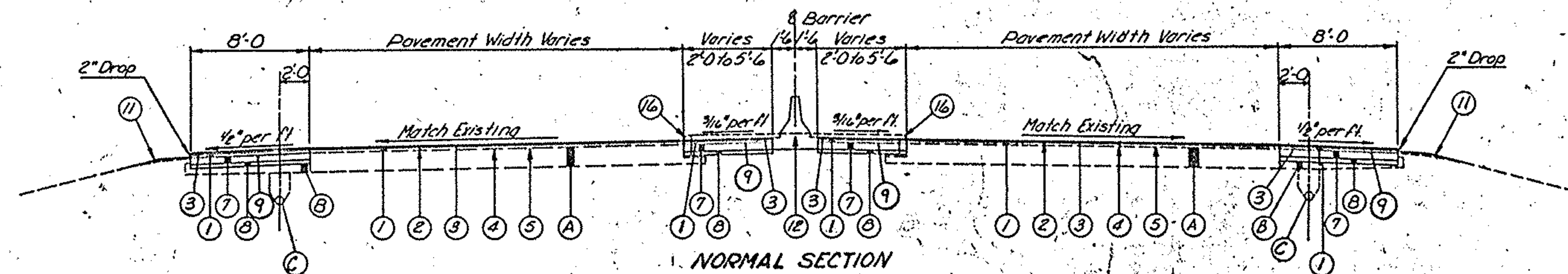
OHIO
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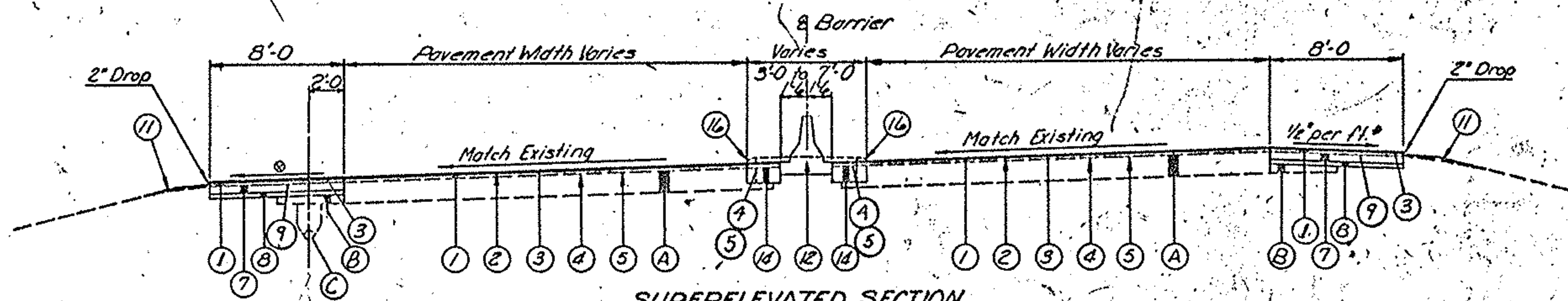
SUPERELEVATED SECTION

- * STA. 542+77 to STA. 548+82
- * STA. 591+67 to STA. 597+06
- * STA. 605+57 to STA. 609+81
- * STA. 637+50 to STA. 639+12
- * STA. 639+12 to STA. 642+12



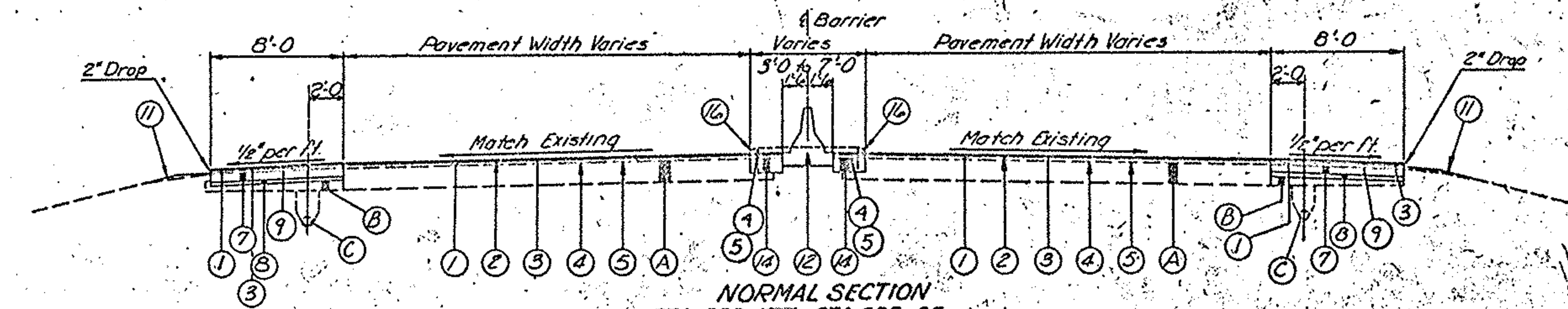
NORMAL SECTION

- STA. 555+35 to STA. 573+78 Lt.
- STA. 555+35 to STA. 575+59 Rt.
- STA. 642+12 to STA. 647+00



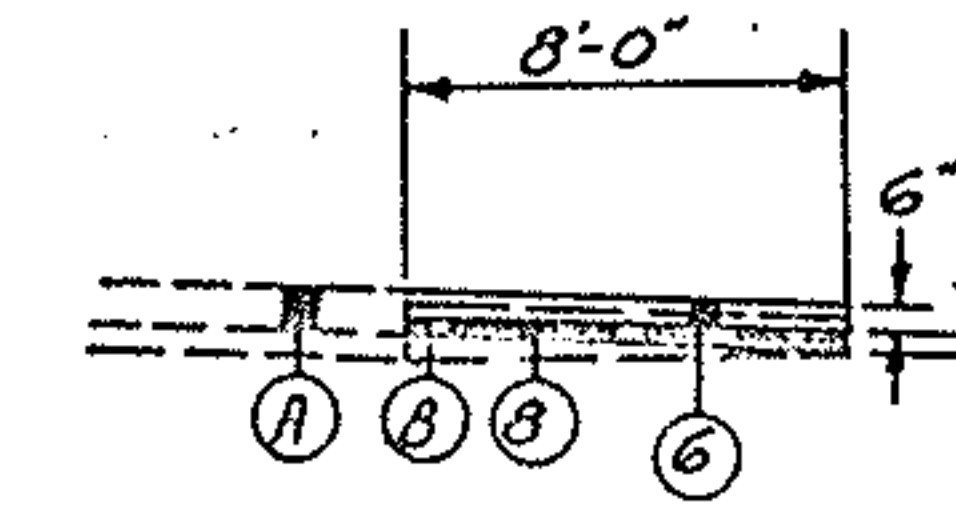
SUPERELEVATED SECTION

- * STA. 548+82 to STA. 552+18
- * STA. 588+27 to STA. 591+67 Lt.
- * STA. 588+27 to STA. 591+67 Rt.
- * STA. 597+06 to STA. 605+57
- * STA. 609+81 to STA. 616+00
- * STA. 616+00 to STA. 637+50



NORMAL SECTION

- STA. 552+18 to STA. 555+35



* NOTE: Shoulders used for traffic surface will be as shown in this detail. An additional course of Item 848, 3" Asphalt Concrete will be applied with final paving as per shoulder detail on U.S. 21.

OUTSIDE SHOULDER TREATMENT FOR MAINTENANCE OF TRAFFIC

- STA. 547+00 to 551+51 Rt.
- STA. 601+00 to 607+00 Lt.
- STA. 612+00 to 616+43 Rt.
- STA. 647+91 to 651+58 Lt.

NOTE: For guard rail placement and shoulder treatment, see sheet no. 4

For concrete barrier details, see sheet no. 5

① 1/2" per foot or pavement slope if greater.
* 1/4" per foot within noted station limits.

LEGEND

- ① Item - 848 - 1 1/2" Asphalt Concrete Intermediate Course, Type 2, AC-20
- ② Item - 848 - Asphalt Concrete Intermediate Course, Type 1, AC-20*
- ③ Item - 848 - 1/4" Asphalt Concrete Surface Course, Type 1, AC-20
- ④ Item - 407 - Tack Coat
- ⑤ Item - 407 - Cover Aggregate
- ⑥ Item - 301 - 6" Bituminous Aggregate Base: AC-20, RT-11 or RT-12
- ⑦ Item - 304 - 6" Aggregate Base
- ⑧ Item - 310 - 3" Subbase, Type II
- ⑨ Item - 408 - Bituminous Prime Coat

- ⑪ Item - 203 - Linear Grading (See General Notes, Sheet No. 11)
- ⑫ Item - 622 - Concrete Barrier (For Type, See Plan)
- ⑬ Item - 606 - Guardrail, Type 5
- ⑭ Item - 452 - 9" Plain Portland Cement Concrete Pavement
- ⑮ Item - 612 - 4" Concrete Median, as per plan
- ⑯ Item - 202 - Curb removed

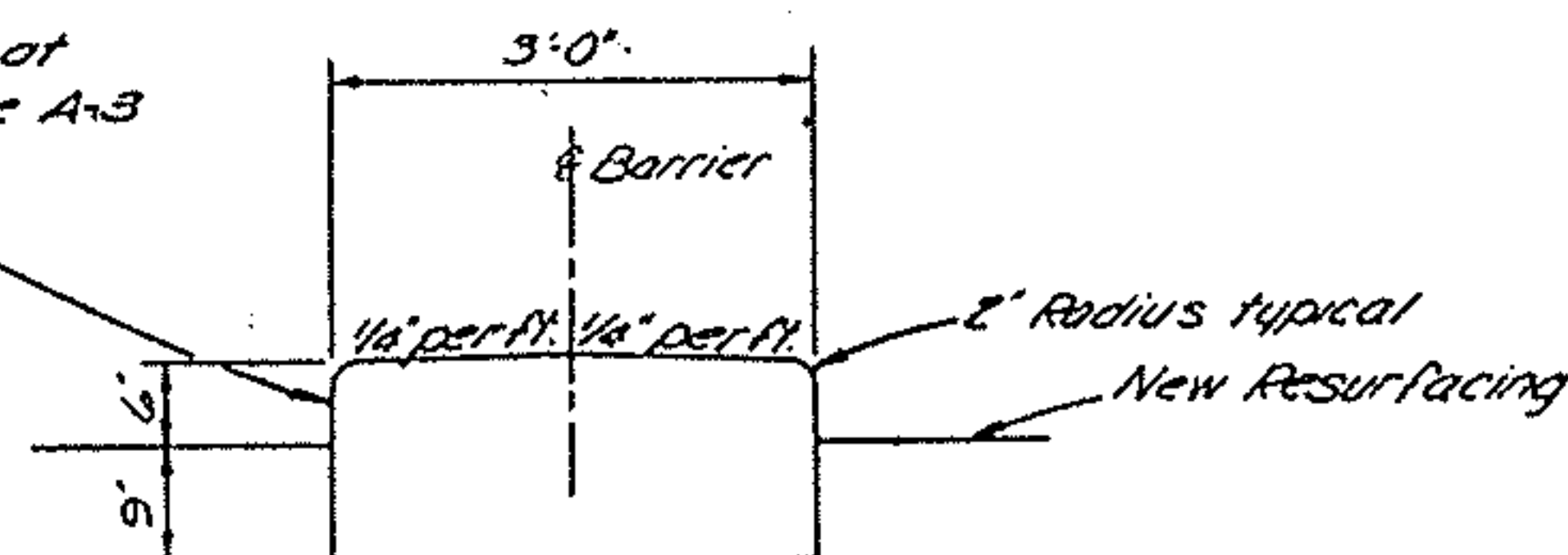
- Ⓐ Existing 9" Reinforced Portland Cement Concrete Pavement on existing 6" Subbase.
- Ⓑ Existing 6" Stabilized Crushed Aggregate Shoulders
- Ⓒ Existing 6" Underdrain

* 0" Min. Thickness

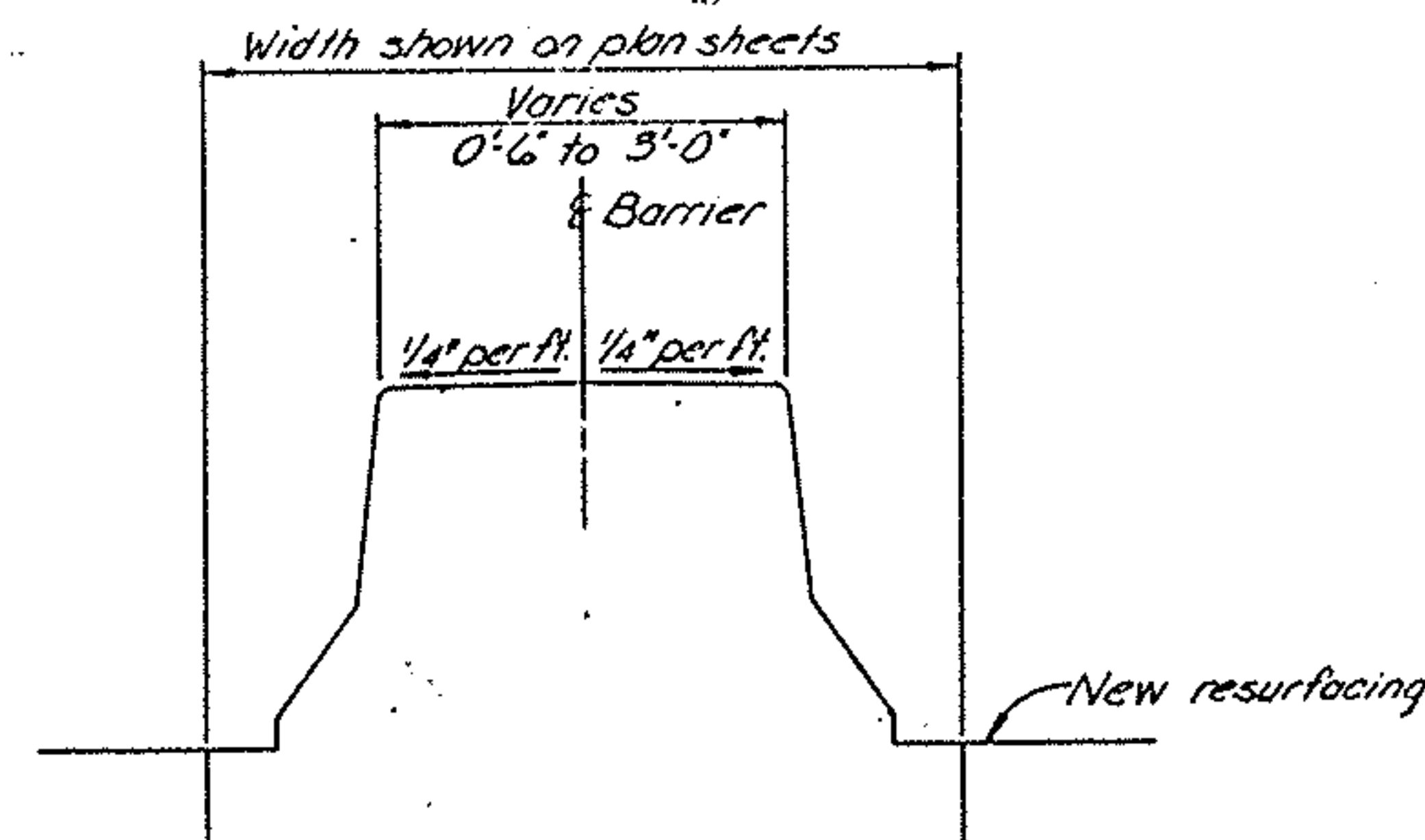
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69



Note: Taper Curb from 3" at Type A to 6" at Type A-3 in first 10 ft.

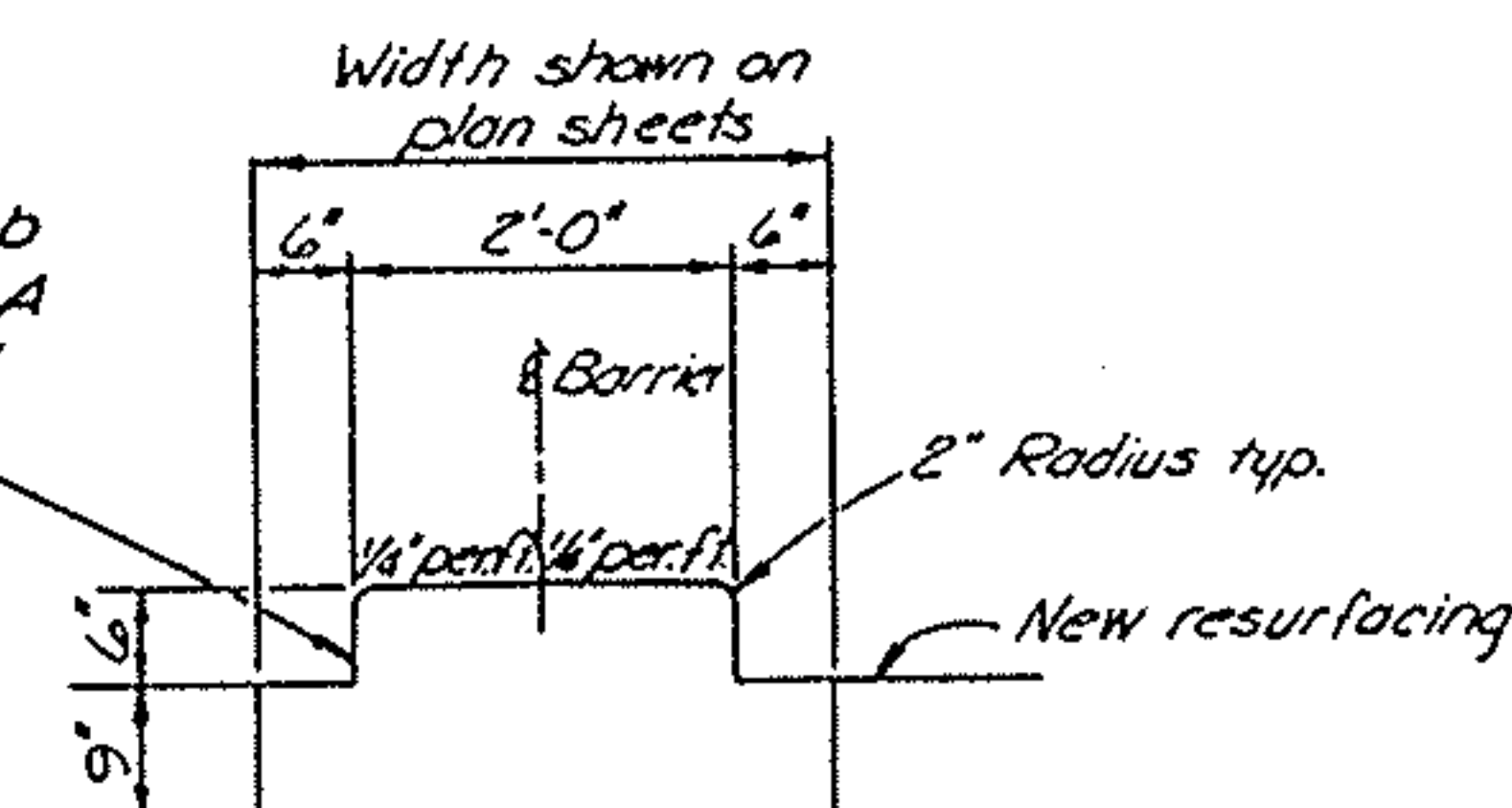


**CONCRETE BARRIER TYPE A-3
MODIFIED AS PER PLAN**
Sta. 598+98 to Sta. 599+97
Sta. 601+67 to Sta. 602+67
Sta. 645+45 to Sta. 646+57

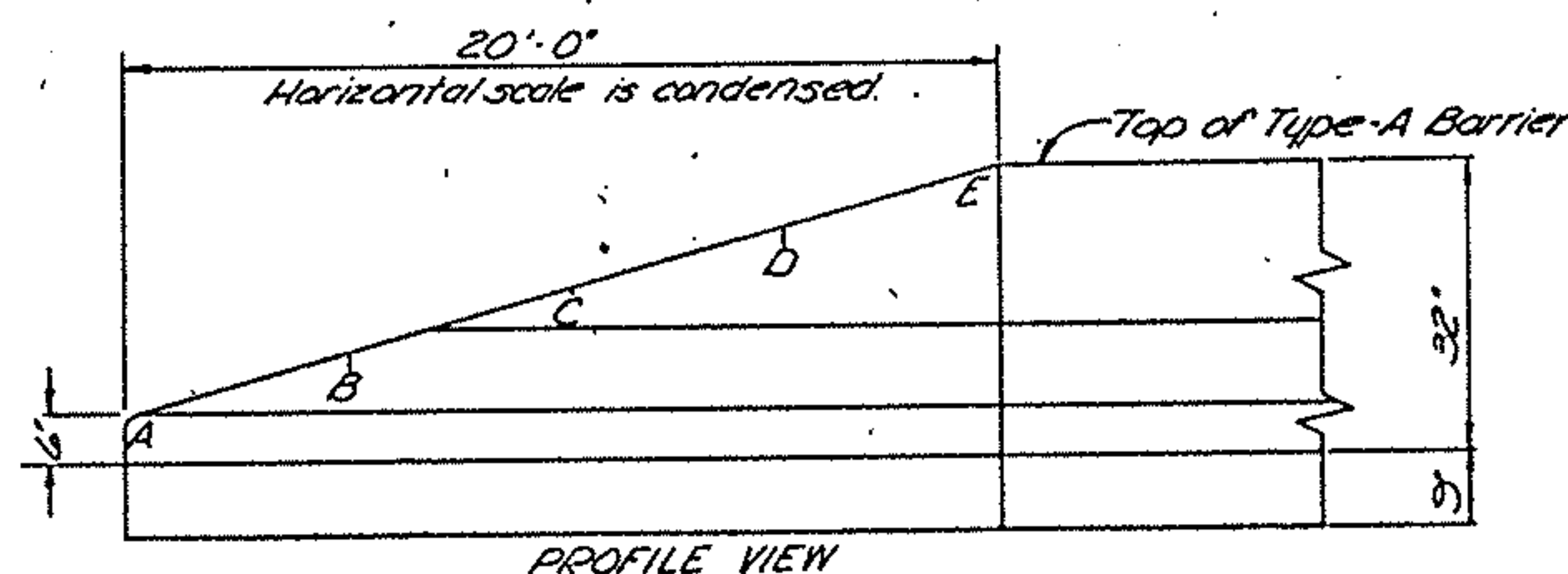
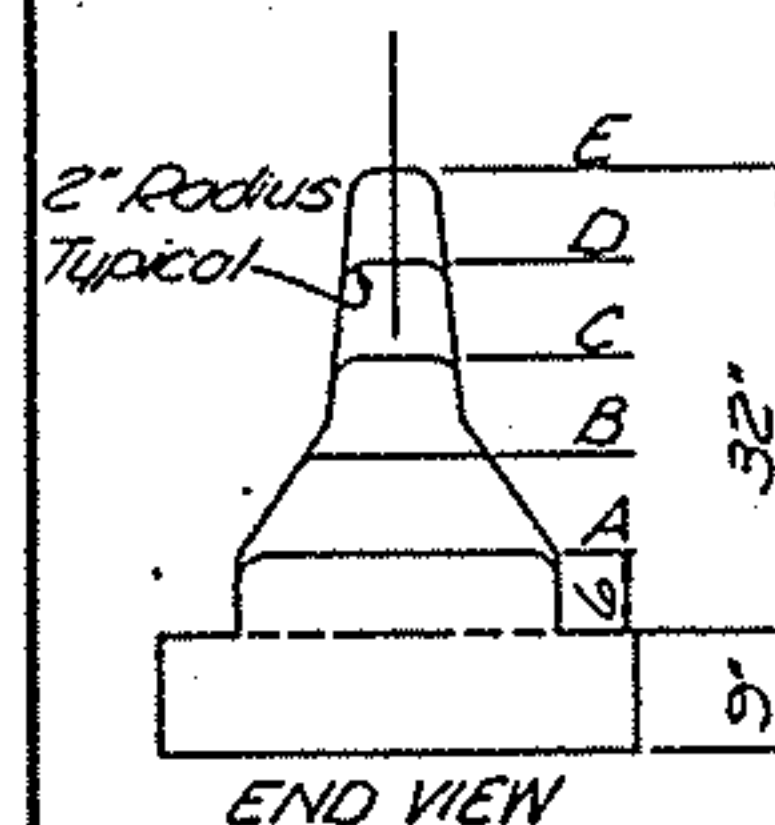


**CONCRETE BARRIER TYPE A-2
MODIFIED AS PER PLAN**
Sta. 562+48 to Sta. 563+18
Sta. 566+54 to Sta. 567+24
Sta. 574+16 to Sta. 574+86
Sta. 576+93 to Sta. 577+63

Note: Taper curb from 3" at Type A to 6" at Type A-1 in first 10 ft.

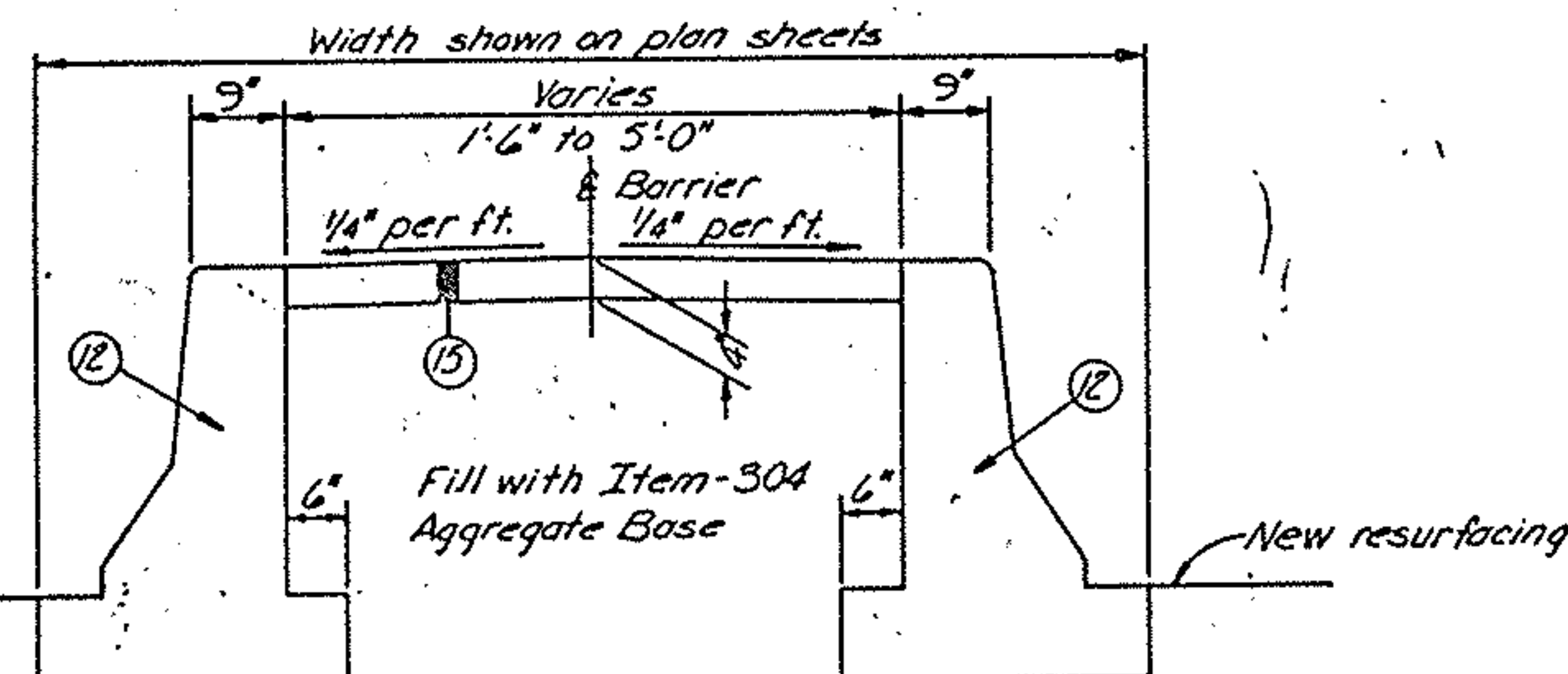


**CONCRETE BARRIER TYPE A-1
MODIFIED AS PER PLAN**
Sta. 550+43 to Sta. 551+62
Sta. 552+62 to Sta. 555+90
Sta. 578+96 to Sta. 579+95**

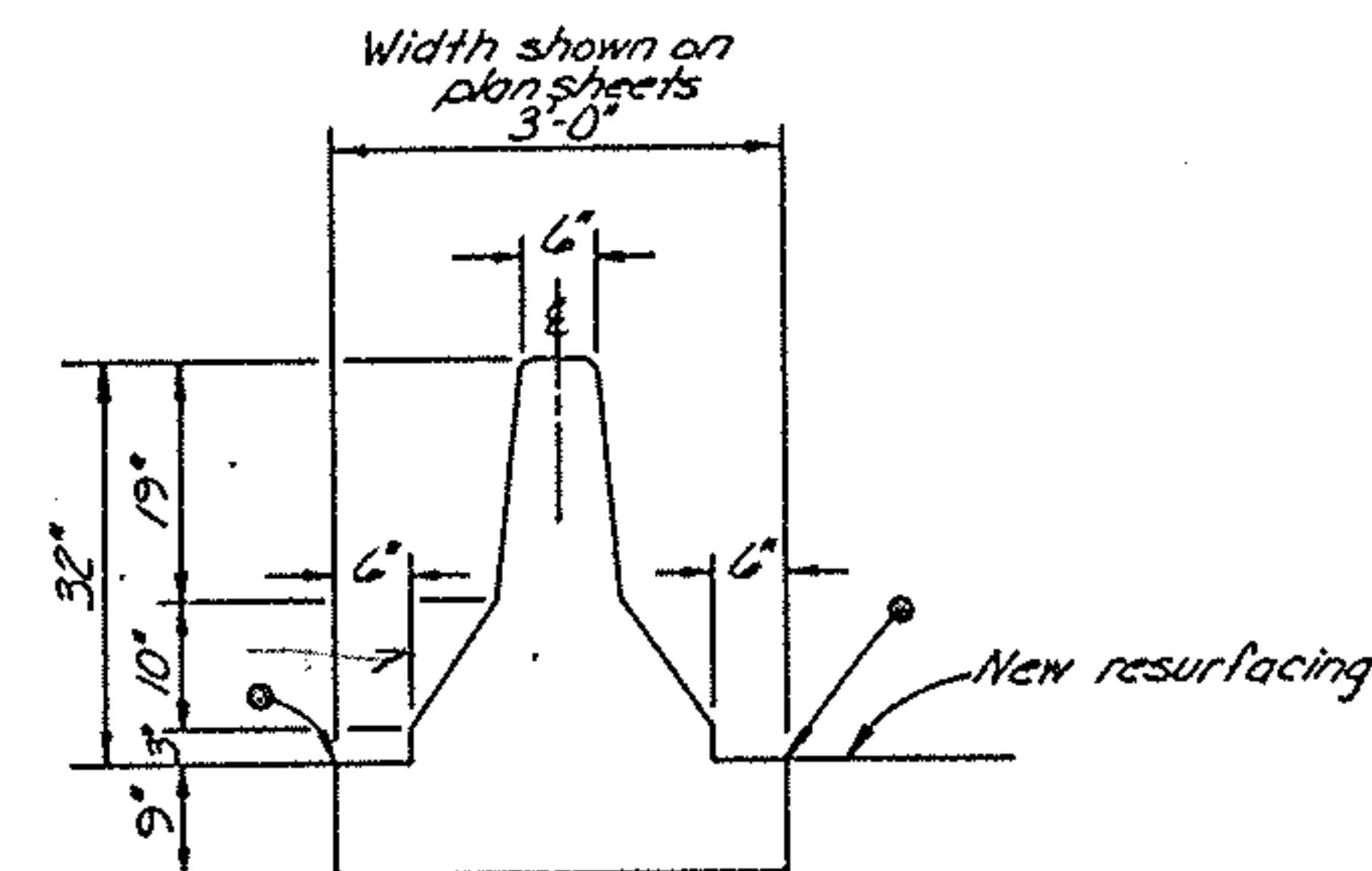


END TERMINAL DETAIL
*Sta. 550+23 to Sta. 550+43 *Sta. 579+95 to Sta. 580+15
*Sta. 555+30 to Sta. 556+10 *Sta. 598+78 to Sta. 598+98
*Sta. 577+98 to Sta. 578+18 *Sta. 602+67 to Sta. 602+87
*Sta. 645+25 to Sta. 645+45

*The Cost of the End Terminal is Included for Payment with the Cost of Item 622- Concrete Barrier, Standard Type A.



CONCRETE BARRIER TYPE-D
Sta. 563+18 to Sta. 566+54
Sta. 574+86 to Sta. 576+93



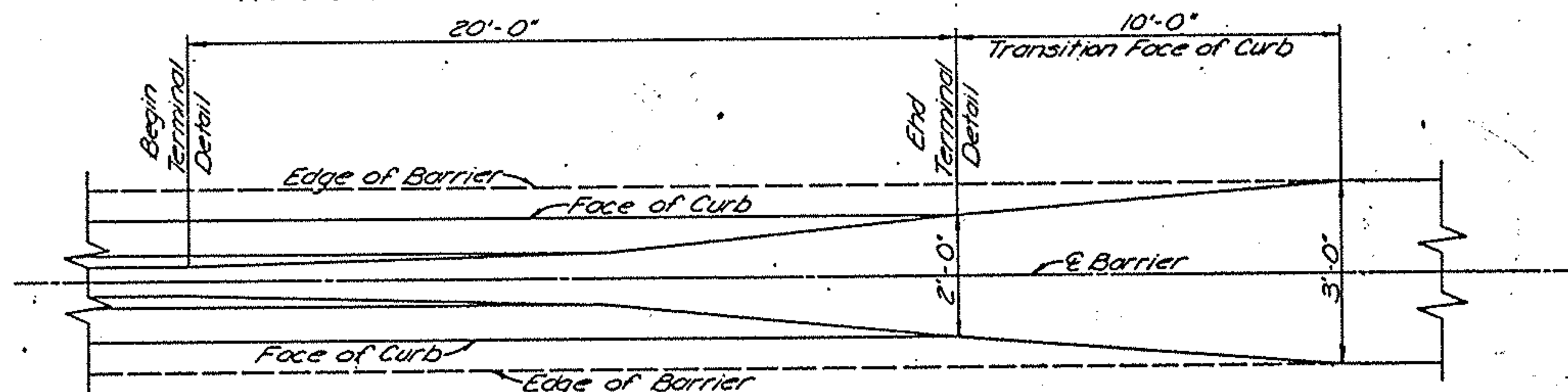
CONCRETE BARRIER TYPE-A
**Sta. 544+00 to Sta. 550+25
Sta. 556+10 to Sta. 562+68
Sta. 567+24 to Sta. 574+16
**Sta. 577+63 to Sta. 577+98
**Sta. 580+15 to Sta. 598+78
**Sta. 602+87 to Sta. 645+25 (minus 27.97' for station equations)

**See End Terminal Detail

Notes:

- Centerline of new concrete barrier shall be located on the centerline of existing curbed median to be removed, unless otherwise shown on plans.
- All barrier dimensions not shown shall be in accordance with Standard Drawing MC-9.

INTERSECTION LIMITS
Sta. 551+62 to Sta. 552+62
Sta. 578+18 to Sta. 578+96
Sta. 599+97 to Sta. 601+67



**BARRIER CURB TRANSITION DETAIL
FROM 2" TO 3"**
Sta. 598+78 to Sta. 599+08
Sta. 602+57 to Sta. 602+87
Sta. 645+25 to Sta. 645+55

PAVEMENT CALCULATIONS

Calc. by F.S. 1-20-84
Chkd by R.C.S. 1-23-84

STA. 21-10.24

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S.R. 21 PAVEMENT AREAS

$$\begin{aligned} & [(Sta. 547+64 - Sta. 543+52)(25.0)(2)] \div 9 = 2,288.89 \text{ S.Y.} \\ & [(Sta. 548+79 - Sta. 543+52 Rt.) \left(\frac{19+0}{2}\right)] \times \left(\frac{3871.53}{3906.53}\right) \div 9 = 551.29 \text{ S.Y.} \\ & [(Sta. 550+89.02 - Sta. 547+64 Lt.) (25) \left(\frac{3928.03}{3906.53}\right)] \div 9 = 907.80 \text{ S.Y.} \\ & [(Sta. 549+34 - Sta. 547+64 Rt.) \left(\frac{25.0+35.5}{2}\right)] \times \left(\frac{3891.78}{3906.53}\right) \div 9 = 569.23 \text{ S.Y.} \\ & [(Sta. 551+47.5 - Sta. 550+89.02 Lt.) (25)] \div 9 = 162.44 \text{ S.Y.} \\ & [(Sta. 550+89.02 - Sta. 549+34 Rt.) (35) \left(\frac{3894.03}{3906.53}\right)] \div 9 = 843.90 \text{ S.Y.} \\ & [(Sta. 551+51.50 - Sta. 550+89.02 Rt.) (35)] \div 9 = 964.89 \text{ S.Y.} \\ & [(Walnut Intersection 21.71 in.²)(20²)] \div 9 = 964.89 \text{ S.Y.} \\ & [(Sta. 554+39.28 - Sta. 552+79 Lt.) (48.0) + (Sta. 554+50 - Sta. 554+39.28 Lt.) (48.0) \left(\frac{12,255.20}{12,277.70}\right)] \div 9 = 911.90 \text{ S.Y.} \\ & \left\{ [(Sta. 554+39.28 - Sta. 552+79 Rt.) + (Sta. 557+04 - Sta. 554+39.28 Rt.) \left(\frac{12,224.20}{12,277.70}\right)] (25) \right\} \div 9 = 1181.57 \text{ S.Y.} \\ & [(Sta. 557+04 - Sta. 554+50 Lt.) \left(\frac{48+25}{2}\right) \left(\frac{12,255.20}{12,277.70}\right)] \div 9 = 1028.27 \text{ S.Y.} \\ & [(Sta. 575+53 - Sta. 557+04) (50)] \div 9 = 10,272.22 \text{ S.Y.} \\ & [(Sta. 577+85 - Sta. 575+53 Lt.) (25)] \div 9 = 644.44 \text{ S.Y.} \\ & [(Sta. 577+32.5 - Sta. 575+53 Rt.) (35)] \div 9 = 698.06 \text{ S.Y.} \\ & [(Charles Ave. 27.60 in.²)(20²)] \div 9 = 1,226.67 \text{ S.Y.} \\ & [(Sta. 580+45.05 - Sta. 579+20.5) (34.0+25.0)] \div 9 = 816.49 \text{ S.Y.} \\ & \left\{ [(Sta. 583+45.05 - Sta. 580+45.05 Rt.) - (0.017453) \times (14.5)(3.1875)] (25) \right\} \div 9 = 831.09 \text{ S.Y.} \\ & \left\{ [(Sta. 581+34 - Sta. 580+45.05 Lt.) + (0.017453) \times \left(\frac{34.0}{2} + 1\right)(3.1875) \left(\frac{88.95}{300}\right)] (34.0) \right\} \div 9 = 337.15 \text{ S.Y.} \\ & \left\{ [(Sta. 582+00 - Sta. 581+34 Lt.) + (0.017453) \left(\frac{17+19.5}{2}\right) \times (3.1875) \left(\frac{154.92}{300}\right) - 0.30] \left(\frac{34.0+25.0}{2}\right) \right\} \div 9 = 217.07 \text{ S.Y.} \\ & \left\{ [(Sta. 583+45.05 - Sta. 582+00 Lt.) + (0.017453) \times \left(\frac{19.5+13.5}{2}\right)(3.1875) \left(\frac{300}{300}\right) - 0.52] (25.0) \right\} \div 9 = 404.18 \text{ S.Y.} \\ & [(Sta. 595+96 - Sta. 583+45.05) (25)(2)] \div 9 = 6,949.72 \text{ S.Y.} \\ & [(Sta. 599+94 - Sta. 595+96 Lt.) (25) \left(\frac{2710.27}{2696.27}\right)] \div 9 = 1,111.30 \text{ S.Y.} \\ & [(Sta. 597+40 - Sta. 595+96 Rt.) \left(\frac{25+43}{2}\right) \left(\frac{2672.27}{2696.27}\right)] \div 9 = 539.16 \text{ S.Y.} \\ & [(Sta. 599+94 - Sta. 597+40 Rt.) (43) \left(\frac{2672.27}{2696.27}\right)] \div 9 = 1,202.75 \text{ S.Y.} \\ & [(Cherry Ave. Intersection 28.46 in.²)(20²)] \div 9 = 1,264.89 \text{ S.Y.} \\ & [(Sta. 604+76 - Sta. 601+67 Lt.) (34) \left(\frac{2705.77}{2696.27}\right)] \div 9 = 1,171.45 \text{ S.Y.} \\ & [(Sta. 609+00.16 - Sta. 601+67 Rt.) (25) \left(\frac{2674.52}{2696.27}\right)] \div 9 = 2,020.13 \text{ S.Y.} \\ & [(Sta. 606+76 - Sta. 604+76 Lt.) \left(\frac{2711.02}{2696.27}\right) \left(\frac{34+25}{2}\right)] \div 9 = 659.14 \text{ S.Y.} \\ & [(Sta. 609+00.16 - Sta. 606+76 Lt.) \left(\frac{2714.77}{2696.27}\right) (25)] \div 9 = 626.94 \text{ S.Y.} \end{aligned}$$

S.R. 21 PAVEMENT AREAS

$$\begin{aligned} & [(Sta. 644+00 - Sta. 609+00.16) (24.5)(2)] \div 9 = 19,054.68 \text{ S.Y.} \\ & [(Sta. 646+57 - Sta. 644+00 Lt.) (24.5)] \div 9 = 699.61 \text{ S.Y.} \\ & [(Sta. 646+57 - Sta. 644+00 Rt.) \left(\frac{24.5+38.5}{2}\right)] \div 9 = 899.50 \text{ S.Y.} \\ & [(Lake Ave. Intersection 16.00 in.²)(20²)] \div 9 = 711.11 \text{ S.Y.} \\ & [(Sta. 653+39 - Sta. 647+50 Rt.) (24)] \div 9 = 1,570.67 \text{ S.Y.} \\ & [(Sta. 649+58 - Sta. 647+50 Lt.) (36.5)] \div 9 = 843.56 \text{ S.Y.} \\ & [(Sta. 651+88 - Sta. 649+58 Lt.) \left(\frac{36.5+25.5}{2}\right)] \div 9 = 792.22 \text{ S.Y.} \\ & [(Sta. 653+39 - Sta. 651+88 Lt.) (24.0)] \div 9 = 402.67 \text{ S.Y.} \\ & \text{TOTAL S.R. 21 PAVEMENT AREA} = 65,377.05 \text{ S.Y.} \end{aligned}$$

FEATHERED AREAS

$$\begin{aligned} & \text{S.R. 21} \\ & \text{Sta. 542+77 To Sta. 543+52 (Rt. \& Lt.)} \\ & (75.0) [2(25.0)] = 3,750.00 \text{ Sq. Ft.} \\ & \text{Sta. 653+39 To Sta. 654+14 (Rt. \& Lt.)} \\ & (75.0) [2(24.0)] = 3,600.00 \text{ Sq. Ft.} \\ & \text{Romp D} \\ & (75.0) (19.0) = 1,425.00 \text{ Sq. Ft.} \\ & \text{Walnut Rd.} \\ & * (11.51 in.²) (20²) = 4,604.00 \text{ Sq. Ft.} \\ & \text{Cherry Rd.} \\ & * (16.83 in.²) (20²) = 6,732.00 \text{ Sq. Ft.} \\ & \text{Charles Ave.} \\ & * (6.03 in.²) (20²) = 2,412.00 \text{ Sq. Ft.} \\ & \text{Lake Ave.} \\ & * (2.13 in.²) (20²) = 4,852.00 \text{ Sq. Ft.} \\ & \text{Total} = 27,375.00 \text{ Sq. Ft.} \\ & \text{TOTAL FEATHERED AREAS} \\ & (27,375.0 \text{ Sq. Ft.}) \div 9 = 3,041.67 \text{ S.Y.} \end{aligned}$$

INSIDE SHOULDER PAVEMENT AREAS (Shoulder Width From 0' To 2')

$$\begin{aligned} & [(Sta. 543+52 - Sta. 542+94 Lt. \& Rt.) (2.0)] \div 9 = 12.89 \text{ S.Y.} \\ & [(Sta. 549+15.5 - Sta. 548+63.5) (2.0)] \div 9 = 11.56 \text{ S.Y.} \\ & [(Sta. 555+53 - Sta. 555+00) (2.0)] \div 9 = 11.78 \text{ S.Y.} \\ & [(Sta. 581+50.5 To Sta. 583+16 Lt.) \left(\frac{0.75 in.²}{20}\right) (20²)] \div 9 = 33.33 \text{ S.Y.} \end{aligned}$$

INSIDE SHOULDER PAVEMENT AREAS (Shoulder Width From 0' To 2')

$$\begin{aligned} & (Sta. 581+56 To Sta. 583+76 Rt.) \left[\left(\frac{0.75 in.²}{20}\right) (20²)\right] \div 9 = 34.67 \text{ S.Y.} \\ & (Sta. 591+70 - Sta. 590+37) [0.5 (4.0)] \div 9 = 29.56 \text{ S.Y.} \\ & (Sta. 597+40 - Sta. 597+06 Lt.) [0.5 (2.0)] \div 9 = 3.78 \text{ S.Y.} \\ & (Sta. 597+50 - Sta. 597+06 Rt.) [0.5 (2.0)] \div 9 = 4.89 \text{ S.Y.} \\ & (Sta. 605+57 - Sta. 604+97 Lt. \& Rt.) [0.5 (4.0)] \div 9 = 13.33 \text{ S.Y.} \\ & (Sta. 612+00 - Sta. 609+84) (4.0) \div 9 = 96.00 \text{ S.Y.} \\ & (Sta. 637+50 - Sta. 636+00) (2.0) \div 9 = 33.33 \text{ S.Y.} \\ & \text{TOTAL INSIDE SHOULDERS} = 285.12 \text{ S.Y.} \end{aligned}$$

$$\begin{aligned} & \text{MAINLINE AREA (65,377.05 + 285.12)} = 65,662.17 \text{ S.Y.} \\ & \text{FEATHERED AREA} = 3,041.67 \text{ S.Y.} \\ & \text{SUB-TOTAL PAVEMENT AREA TO BE USED FOR CALCULATIONS} = 68,703.84 \text{ S.Y.} \\ & \text{① TOTAL SHOULDER PAVEMENT AREA} = 21,526.79 \text{ S.Y.} \\ & \text{TOTAL PAVEMENT AREA FOR ITEM 848} = 90,230.63 \text{ S.Y.} \end{aligned}$$

$$\begin{aligned} & \text{ITEM 848} \sim 1\frac{3}{4}'' \text{ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2} \\ & (0.04861 \text{ Yd.})(90,230.63 \text{ Sq. Yd.}) = 4,386.11 \text{ Cu. Yd.} \\ & \text{ITEM 848} \sim 1\frac{1}{4}'' \text{ ASPHALT CONCRETE SURFACE COURSE, TYPE 1} \\ & (0.03472 \text{ Yd.})(90,230.63 \text{ Sq. Yd.}) = 3,132.81 \text{ Cu. Yd.} \\ & \text{ITEM 407} \sim \text{TACK COAT} \\ & (0.10 \text{ gal./Sq. Yd.})(68,703.84 \text{ Sq. Yd.}) = 6,870.38 \text{ gals.} \\ & \text{ITEM 407} \sim \text{COVER AGGREGATE} \\ & [(7 \text{ lbs./Sq. Yd.})(68,703.84 \text{ Sq. Yd.})] \div 2,000 \text{ lbs.} = 240.46 \text{ Tons} \\ & \text{ITEM 848} \sim \text{ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1} = 626.56 \text{ Cu. Yd.} \\ & \text{ITEM 452} \sim 9'' \text{ PLAIN PORTLAND CEMENT CONCRETE PAVEMENT} \\ & (\text{From Inside Shoulder Calculation}) = 285.12 \text{ Sq. Yd.} \end{aligned}$$

① FROM SHEET NO. 7

* PLANIMETERED AREA

Quantities Carried to General Summary

PAVEMENT CALCULATIONS

Calc. by F.S. 1-20-84
Chk'd by R.C.S. 1-23-84

STA.-21-10.24

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INSIDE SHOULDER PAVEMENT AREAS (Shoulder Width From 2' To 10')

(Sta. 544+00 - Sta. 543+52) $[0.5(5.5+9.0)] \div 9$	= 38.67 S.Y.
(Sta. 545+00 - Sta. 544+00) $[0.5(9.0+11.0)] \div 9$	= 111.11 S.Y.
(Sta. 547+72 - Sta. 545+00) $[0.5(11+0+10.5)] \div 9$	= 324.89 S.Y.
(Sta. 548+63.5 - Sta. 547+72) $[0.5(10.5+6.0)] \div 9$	= 83.88 S.Y.
(Sta. 556+10 - Sta. 555+53) $(\frac{5.0+10.0}{2}) \div 9$	= 47.50 S.Y.
(Sta. 558+00 - Sta. 556+10) $(\frac{10.0+11.0}{2}) \div 9$	= 221.67 S.Y.
(Sta. 562+68 - Sta. 558+00) $(\frac{11.0+10.5}{2}) \div 9$	= 559.00 S.Y.
(Sta. 563+88 - Sta. 562+68) $(\frac{10.5+4.5}{2}) \div 9$	= 100.00 S.Y.
(Sta. 564+37 - Sta. 563+88) $(4.5) \div 9$	= 24.50 S.Y.
(Sta. 564+77 - Sta. 564+37) $(\frac{4.5+6.5}{2}) \div 9$	= 24.44 S.Y.
(Sta. 566+24 - Sta. 564+77) $(6.5) \div 9$	= 106.17 S.Y.
(Sta. 567+04 - Sta. 566+24) $(\frac{6.5+11.0}{2}) \div 9$	= 77.78 S.Y.
(Sta. 574+36 - Sta. 567+04) $(11.0) \div 9$	= 894.67 S.Y.
(Sta. 575+56 - Sta. 574+36) $(\frac{11.0+5.0}{2}) \div 9$	= 106.67 S.Y.
(Sta. 576+07 - Sta. 575+56) $(5.0) \div 9$	= 28.33 S.Y.
(Sta. 577+27 - Sta. 576+07) $(\frac{5.0+11.0}{2}) \div 9$	= 106.67 S.Y.
(Sta. 577+85.5 - Sta. 577+27) $(11.0) \div 9$	= 71.50 S.Y.
(Sta. 577+85.5 To Sta. 578+33.5) $[(0.95 \text{ in.}^2)(20)^2] \div 9$	= 42.22 S.Y.
(Sta. 595+00 - Sta. 592+70) $(\frac{4.0+10.0}{2}) \div 9$	= 178.89 S.Y.
(Sta. 596+00 - Sta. 595+00) $(10.0) \div 9$	= 111.11 S.Y.
(Sta. 596+45 - Sta. 596+00) $(\frac{10.0+9.0}{2}) \div 9$	= 47.50 S.Y.
(Sta. 597+06 - Sta. 596+45) $(\frac{9.0+4.0}{2}) \div 9$	= 44.06 S.Y.
(Sta. 606+50 - Sta. 605+57) $(\frac{4.0+11.0}{2}) \div 9$	= 77.50 S.Y.
(Sta. 607+00 - Sta. 606+50) $(\frac{10.0+11.0}{2}) \div 9$	= 58.33 S.Y.
(Sta. 608+00 - Sta. 607+00) $(\frac{10.0+7.0}{2}) \div 9$	= 94.44 S.Y.
(Sta. 609+84 - Sta. 608+00) $(\frac{7.0+4.0}{2}) \div 9$	= 112.44 S.Y.
(Sta. 639+00 - Sta. 637+50) $(\frac{4.0+10.0}{2}) \div 9$	= 116.67 S.Y.
(Sta. 640+00 - Sta. 639+00) $(\frac{10.0+16.5}{2}) \div 9$	= 147.22 S.Y.
(Sta. 641+00 - Sta. 640+00) $(\frac{16.5+19.0}{2}) \div 9$	= 197.22 S.Y.
(Sta. 642+12.08 - Sta. 641+00) $(\frac{19.0+20.0}{2}) \div 9$	= 242.84 S.Y.
(Sta. 644+00 - Sta. 642+12.08) $(20.0) \div 9$	= 417.60 S.Y.
(Sta. 646+17.5 - Sta. 644+00) $(\frac{20.0+9.0}{2}) \div 9$	= 350.42 S.Y.
(Sta. 646+17.5 To Sta. 646+58.5) $[(0.70 \text{ in.}^2)(20)^2] \div 9$	= 31.11 S.Y.
TOTAL INSIDE SHOULDERS	= 5,197.02 S.Y.

OUTSIDE SHOULDER PAVEMENT AREAS

(Sta. 551+41 - Sta. 542+77 Lt.) $(8.0) \div 9$	= 768.00 S.Y.
(Sta. 551+51.5 - Sta. 542+77 Rt.) $(8.0) \div 9$	= 777.33 S.Y.
(Sta. 573+72 - Sta. 552+72.5 Lt.) $(8.0) \div 9$	= 1866.22 S.Y.
(Sta. 575+53 - Sta. 552+87 Rt.) $(8.0) \div 9$	= 2,014.22 S.Y.
(Sta. 599+51 - Sta. 588+78 Lt.) $(8.0) \div 9$	= 953.78 S.Y.
(Sta. 599+51 - Sta. 588+78 Rt.) $(8.0) \div 9$	= 953.78 S.Y.
(Sta. 646+17.5 - Sta. 601+40 Lt.) $(8.0) \div 9$	= 3,980.00 S.Y.
(Sta. 646+17.5 - Sta. 602+50 Rt.) $(8.0) \div 9$	= 3,882.22 S.Y.
(Sta. 654+14 - Sta. 647+82 Lt.) $(8.0) \div 9$	= 561.78 S.Y.
(Sta. 654+14 - Sta. 647+70 Rt.) $(8.0) \div 9$	= 572.44 S.Y.
TOTAL OUTSIDE SHOULDERS	= 16,329.77 S.Y.

SHOULDER PAVEMENT AREA UNDER GUARDRAIL

Length of guardrail plus anchor assemblies = 7925.00 L.F.
7925.00 L.F. $\times 4.0 \div 9$ = 3522.22 S.Y.

TOTAL SHOULDER PAVEMENT AREA

Outside Shoulder = 16,329.77 S.Y.
Inside Shoulder (over 2' in Width) = 5,197.02 S.Y.
TOTAL = 21,526.79 S.Y.

SHOULDER AREA (NOT REQ'D. FOR MAINTAINING TRAFFIC)

Total Shoulder Area = 21,526.79 S.Y.
① Area Deducted for Maintenance of Traffic = 1,351.19 S.Y.
TOTAL = 20,175.60 S.Y.

* PLANIMETERED AREA

① SEE SHEET NO. 8 FOR CALCULATION

ITEM 848 ~ 3" ASPHALT CONCRETE, SURFACE COURSE,
TYPE I, AC-2.0
(0.08333 Yd.)(3,522.22 Sq. Yd.) = 293.51 Cu. Yd.

ITEM 304 ~ 6" AGGREGATE BASE
(0.16667 Yd.)(20,175.60 Sq. Yd.) = 3,362.61 Cu. Yd.

ITEM 310 ~ 3" SUBBASE, TYPE II
(0.08333 Yd.)(20,175.60 Sq. Yd.) = 1,681.29 Cu. Yd.

ITEM 408 ~ BITUMINOUS PRIME COAT
(0.40 GAL/YD²)(20,175.60 YD²) = 8,070.24 GALS.

LINEAR GRADING AREA

Sta. 542+77 To Sta. 551+41 (Lt.)	= 864.00 Ft.
Sta. 542+77 To Sta. 551+51.5 (Rt.)	= 874.50 Ft.
Sta. 552+72.5 To Sta. 573+72 (Lt.)	= 2,099.50 Ft.
Sta. 552+87 To Sta. 575+53 (Rt.)	= 2,266.00 Ft.
Sta. 588+78 To Sta. 599+51 (Lt.)	= 1,073.00 Ft.
Sta. 588+78 To Sta. 599+51 (Rt.)	= 1,073.00 Ft.
Sta. 601+40 To Sta. 646+17.5 (Lt.)	= 4,477.50 Ft.
Sta. 602+50 To Sta. 646+17.5 (Rt.)	= 4,367.50 Ft.
Sta. 647+82 To Sta. 654+14 (Lt.)	= 632.00 Ft.
Sta. 647+70 To Sta. 654+14 (Rt.)	= 644.00 Ft.
TOTAL LINEAR GRADING	= 18,371.00 Ft.

ITEM 203 ~ LINEAR GRADING
(18,371.00 Ft. $\div$ 5,280 Ft./Mi.) = 3.48 Miles

Quantities Carried to General Summary

PAVEMENT CALCULATIONS

PAVEMENT CALCULATIONS

Calc. By: JBH 7/17/84
Chkd. By: RAM 7/18/84

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OUTSIDE SHOULDER FOR MAINTENANCE OF TRAFFIC

$$\begin{aligned} & (\text{Sta. } 548+82 - \text{Sta. } 547+00) \left(\frac{3906.53 - 36.5}{3906.53} \right) \left(\frac{0+8}{2} \right) \div 9 = 80.13 \text{ S.Y.} \\ & (\text{Sta. } 550+89.02 - \text{Sta. } 548+82) \left(\frac{3906.53 - 35}{3906.53} \right) (8) \div 9 = 182.37 \text{ S.Y.} \\ & (\text{Sta. } 551+52 - \text{Sta. } 550+89.02) (8) \div 9 = 55.98 \text{ S.Y.} \\ & (\text{Sta. } 605+00 - \text{Sta. } 601+31) \left(\frac{2696.27 + 31}{2696.27} \right) (8) \div 9 = 331.79 \text{ S.Y.} \\ & (\text{Sta. } 607+00 - \text{Sta. } 605+00) \left(\frac{2696.27 + 31}{2696.27} \right) (8) \div 9 = 179.82 \text{ S.Y.} \\ & (\text{Sta. } 644+00 - \text{Sta. } 642+00) \left(\frac{8+0}{2} \right) \div 9 = 88.89 \text{ S.Y.} \\ & (\text{Sta. } 646+15 - \text{Sta. } 644+00) (8) \div 9 = 191.11 \text{ S.Y.} \\ & (\text{Sta. } 646+43 - \text{Sta. } 646+15) \left(\frac{0+8}{2} \right) \div 9 = 12.44 \text{ S.Y.} \\ & (\text{Sta. } 648+17 - \text{Sta. } 647+91) \left(\frac{2+8}{2} \right) \div 9 = 14.44 \text{ S.Y.} \\ & (\text{Sta. } 649+58 - \text{Sta. } 648+17) (8) \div 9 = 125.33 \text{ S.Y.} \\ & (\text{Sta. } 651+58 - \text{Sta. } 649+58) \left(\frac{0+8}{2} \right) \div 9 = 88.89 \text{ S.Y.} \\ & \text{TOTAL OUTSIDE SHOULDERS} = 1,351.19 \text{ S.Y.} \end{aligned}$$

ITEM 301 - 6" BITUMINOUS AGGREGATE BASE :
AC-20; OR RT-11 OR RT-12
(1,351.19 Sq. Yd.) (0.16667 Yd.) = 225.20 Cu. Yd.

ITEM 310 - 3" SUBBASE, TYPE II
(1,351.19 Sq. Yd.) (0.08333 Yd.) = 112.60 Cu. Yd.

Quantities Carried to General Summary

GENERAL NOTES

MAINTAINING TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIFICATION 614. BETWEEN INTERSECTIONS, ONE LANE OF TRAFFIC SHALL BE MAINTAINED IN EACH DIRECTION AT ALL TIMES. THE LENGTH OF ONE LANE RESTRICTION SHALL BE HELD TO A MINIMUM AND IN NO CASE SHALL IT EXCEED 2500 FEET. AT LEAST 4000 FEET OF UNRESTRICTED TWO LANE OPERATION SHALL BE AVAILABLE TO TRAFFIC BEFORE THE TAPER TO ANOTHER LANE RESTRICTION IS ENCOUNTERED. NO MORE THAN TWO LANE RESTRICTIONS PER DIRECTION SHALL BE PERMITTED AT ANY ONE PERIOD OF TIME. THE CONTRACTOR IS ENCOURAGED TO SCHEDULE THE VARIOUS WORK ITEMS, WHICH INVOLVE LANE RESTRICTIONS, IN A PRACTICAL MANNER THAT WILL ADD TO THE EFFICIENCY, ECONOMY, AND SAFETY OF OPERATIONS AND THE LEAST POSSIBLE DISRUPTION TO THROUGH TRAFFIC. TO THE EXTENT THAT IS PRACTICAL, LANE RESTRICTIONS SHOULD BE LIMITED TO THE AREA OF THAT PARTICULAR DAYS WORK.

A SECOND LANE SHALL BE MAINTAINED AT ALL INTERSECTIONS, AS INDICATED IN THE PLAN, TO FACILITATE LEFT TURN MOVEMENTS. WHERE THE SHOULDER AREA WILL BE USED AS A TRAFFIC LANE IN MAINTAINING TRAFFIC THRU AN INTERSECTION, THE SHOULDER COMPOSITION WILL BE UPGRADED TO SUPPORT TRAFFIC LOADS AS INDICATED IN THE TYPICAL SECTION ON SHEET NO. 3

THE FIRST PHASE OF MAINTAINING TRAFFIC WILL INVOLVE CLOSING THE OUTSIDE LANE AND ROUTING TRAFFIC ALONG THE INSIDE LANE. DURING THE FIRST PHASE CONSTRUCTION THE OUTSIDE LANE AND SHOULDER WILL BE REPAIRED AS INDICATED IN THE PLAN.

THE SECOND PHASE OF CONSTRUCTION WILL ROUTE TRAFFIC TO THE OUTSIDE LANE FOR CONSTRUCTION OF THE BARRIER MEDIAN AND REPAIR OF THE INSIDE LANE.

AT CHARLES AVENUE, DURING THE SECOND PHASE OF CONSTRUCTION, THE THRU AND LEFT TURN MOVEMENTS WILL HAVE TO BE MAINTAINED FROM A SINGLE LANE. AN OFF-DUTY POLICE OFFICER SHALL BE USED TO MAINTAIN TRAFFIC AT THE INTERSECTION WHILE THE RESTRICTION IS IN EFFECT. DURING NON-WORKING HOURS, THE WORK AREA SHALL BE RE-OPENED TO PROVIDE A SEPERATE LEFT TURN LANE.

PROPOSED TEMPORARY SIGNING AND PAYEMENT MARKING SHALL BE MAINTAINED AS INDICATED IN THE PLAN. ALL SIGNING AND MARKINGS SHALL BE SHIFTED AS NECESSARY TO CONFORM TO THE WORK AREA.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL FLAGS, BARRICADES, SIGNS, FLAGMEN, WATCHMEN, AND INCIDENTALS RELATED THERETO AND SHALL UTILIZE THEM IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.

IT IS THE INTENT OF THIS PLAN TO USE THE EXISTING SIGNALS TO MAINTAIN TRAFFIC.

AT LAKE AVENUE AND SR-21, THERE IS AN EXISTING STRAIN POLE AND LEFT TURN SENSOR POLE THAT WILL HAVE TO BE RELOCATED TO THE NEW MEDIAN. THE SIGNAL WORK SHALL BE PERFORMED SO THAT THE SIGNAL OPERATION IS NOT INTERRUPTED. THE LEFT TURN SIGNAL WILL BE SHUT DOWN FOR RELOCATION OF THE SENSOR POLE AND RECONNECTION OF THE MESSENGER CABLES. DURING THE DISCONNECTION OF THE SONIC DETECTOR THE SOUTH APPROACH LEFT TURN WILL HAVE TO BE MADE DURING THE THRU CYCLE. THIS WORK SHALL BE DONE DURING OFF PEAK TRAFFIC HOURS TO REDUCE ANY HAZARD. AN OFF-DUTY POLICE OFFICER SHALL BE ON DUTY DURING THE INTERRUPTED SERVICE TO MAINTAIN SAFE TRAFFIC MOVEMENT.

MAINTAINING TRAFFIC (CONTINUED)

THE CONTRACTOR SHALL NOTIFY THE MASSILLON CITY ENGINEER 24 HOURS IN ADVANCE OF ANY WORK WITHIN A SIGNALIZED INTERSECTION THAT WILL DISRUPT THE OPERATION OF THAT TRAFFIC SIGNAL.

IN ADDITION TO THE ABOVE MENTIONED REQUIREMENTS REGARDING AN OFF-DUTY POLICE OFFICER, SAID OFFICER SHALL BE REQUIRED, AS DIRECTED BY THE ENGINEER, AT THE FOLLOWING TIMES:

- DURING TIMES TRAFFIC SIGNALS ARE OUT OF SERVICE
- DURING THE INSTALLATION, ADJUSTMENT AND REMOVAL OF TEMPORARY CONCRETE BARRIER.
- DURING THE ERECTION AND REMOVAL OF LANE CLOSURE TRAFFIC ZONES.

TYPE II BARRICADES SHALL NOT BE USED FOR LANE CLOSURES THAT EXCEED DAYLIGHT HOURS. ANY CLOSURE THAT EXTENDS BEYOND THE DAYLIGHT HOURS SHALL UTILIZE TEMPORARY DRUMS WITH TYPE C STEADY BURNING BARRICADE WARNING LIGHTS. THE TYPE C LIGHTS WILL BE USED ON EVERY DRUM IN A TAPER AREA AND ON EVERY OTHER DRUM IN A CONSTANT WIDTH LANE CLOSURE SECTION.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK DESCRIBED ABOVE:
ITEM SPECIAL, LAW ENFORCEMENT OFFICER WITH PATROL CAR 200 HOURS
ITEM 614, MAINTAINING TRAFFIC-----LUMP SUM
ITEM 622 TEMPORARY CONCRETE BARRIER 140 LIN. FT.
ITEM 310, SEE PAVEMENT CALCULATIONS SHEET NO. 3 (SHT. 53)
ITEM 301, SEE PAVEMENT CALCULATIONS SHEET NO. 3

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 400 SQUARE FEET OF FLOOR SPACE. PAYMENT SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 618, FIELD OFFICE.

PROFILE

THE PROFILE ALONG THE TOP OF ITEM 622 CONCRETE BARRIER TYPE A SHALL BE SET THIRTY-TWO INCHES ABOVE THE PAVED BERM ELEVATION ADJACENT TO THE CONCRETE BARRIER.

THE PAVED BERM SHALL BE CONSTRUCTED AS SHOWN IN THE TYPICAL SECTIONS. WHERE THERE IS NO INSIDE BERM, THE CONCRETE BARRIER SHALL BE SET THIRTY-TWO INCHES ABOVE THE INSIDE PAVEMENT EDGE.

THE PROFILE ALONG THE TOP OF ITEM 622 CONCRETE BARRIER TYPE A-1 AND A-3 WILL BE SET IDENTICAL TO THAT FOR CONCRETE BARRIER TYPE A EXCEPT THE HEIGHT WILL BE 6" ABOVE ITS REFERENCED EDGE.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED ON THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

UNDERDRAIN REPLACEMENT

WHERE EXISTING UNDERDRAINS ARE DISTURBED OR DAMAGED BY CONSTRUCTION, THEY WILL BE REMOVED AND REPLACED BACK TO A POINT BEYOND THE DISTURBED OR DAMAGED AREA AS DIRECTED BY THE ENGINEER. THE UNDERDRAIN SHALL BE PROPERLY OUTLETED INTO AN EXISTING, PROPOSED OR MODIFIED BASIN OR MANHOLE AS NECESSARY.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK DESCRIBED ABOVE.

ITEM 603 8" TYPE F CONDUIT 400 LIN. FT.
ITEM 603 8" TYPE F CONDUIT 400 LIN. FT.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR ALONG WITH LOCAL REPRESENTATIVES SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

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

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

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

PROFILE AND ALIGNMENT

THE PROPOSED PAVEMENT RESURFACING COURSE SHALL FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. PREVIOUS CONSTRUCTION PLANS SHOWING THE ORIGINAL ALIGNMENT AND PROFILE ARE ON FILE FOR INSPECTION IF NECESSARY AT THE ODOT DISTRICT 4 OFFICE AS PROJECTS NUMBER STA-21-8.40, STA-21-10.23, AND STA-21-11.49. THE PROPOSED ASPHALT CONCRETE OVERLAY SHALL BE AS INDICATED ON THE TYPICAL SECTIONS.

CONSTRUCTION OF THE INSIDE SHOULDERS AND BARRIER WILL ALSO BE AS INDICATED ON THE TYPICAL SECTIONS.

STATION OVERLAP

TWO STATION OVERLAPS OCCUR WITHIN THE WORK LIMITS OF THIS PROJECT. USE OF DETAIL SHEETS SHOULD BE CO-ORDINATED WITH PLAN SHEETS TO INSURE CORRECT PLAN INTERPRETATION. STATION EQUATIONS HAVE CREATED THESE OVERLAPS AT THE FOLLOWING LOCATIONS.

STA. 612 + 00.16 TO STA. 612 + 25.69
STA. 627 + 97.56 TO STA. 628 + 00.00

FLUSHING AND REPAIR OF UNDERDRAINS:

ALL EXISTING UNDERDRAINS SHALL BE FLUSHED WITH WATER TO DETERMINE IF THEY ARE FUNCTIONING PROPERLY AND IF NOT THE OBSTRUCTIONS ARE TO BE LOCATED AND REPAIRED. A COPY OF THE ORIGINAL CONSTRUCTION PLANS SHOWING THE LOCATION OF THE UNDERDRAINS AND OUTLETS WILL BE ON FILE IN THE PROJECT OFFICE. THE FOLLOWING PROCEDURES AND METHODS OF PAYMENT ARE PROVIDED FOR THIS PURPOSE:

- ITEM SPECIAL, UNDERDRAIN OPENING EACH. THIS ITEM SHALL CONSIST OF EXPOSING THE FIRST TILE AT THE UPPER END OF AN UNDERDRAIN LINE OR A SUBSEQUENT INTERMEDIATE UNDERDRAIN OPENING AS PROVIDED HEREIN. PAYMENT FOR EACH OPENING SHALL INCLUDE THE TRENCH EXCAVATION LENGTHWISE OVER THE EXISTING TILE, REPLACING THE 6 INCH TILE BROKEN IN MAKING THE OPENING, AND THE FULL DEPTH BACKFILL WITH NO. 8 AGGREGATE, ALL IN ACCORDANCE WITH ITEM 605. PAYMENT FOR THE OPERATIONS DESCRIBED ABOVE SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS INCIDENTAL TO COMPLETING THE ITEM, INCLUDING A MAXIMUM OF 6 LINEAL FEET OF 6 INCH TILE AND SHALL BE PAID FOR BY ITEM SPECIAL, UNDERDRAIN OPENING, EACH.

- ITEM SPECIAL, WATER, M. GALS. AFTER THE UNDERDRAIN OPENING HAS BEEN MADE AND THE EXPOSED TILE REMOVED, THE LINE SHALL BE FLUSHED WITH WATER USING A MINIMUM SIZE HOSE OF 2 INCHES AND A MAXIMUM VOLUME OF WATER CALCULATED AT 1-1/2 GALLONS PER LIN. FT. OF UNDERDRAIN LINE. THE FLUSHING OPERATION MAY BE STOPPED AT ANY TIME BY THE ENGINEER IF FIELD OBSERVATIONS SHOW THE LINE TO BE EITHER PLUGGED OR OPERATING EFFICIENTLY.

IN THE EVENT THE LINE IS FOUND TO BE PLUGGED OR FLOW RESTRICTED, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE RESTRICTION BY RODDING OR OTHER SIMILAR METHODS APPROVED BY THE ENGINEER. AN INTERMEDIATE UNDERDRAIN OPENING WILL BE PERMITTED AND PAID FOR, PROVIDING IT IS NO CLOSER THAN 500 FEET TO THE INITIAL OPENING, OR AT THE MID POINT OF THE LINE. THE COST OF RODDING THE LINE IS TO BE INCLUDED IN THE UNIT BID PRICE FOR WATER.

THE METHOD OF MEASUREMENT FOR THE ITEM SPECIAL, WATER, WILL BE IN ACCORDANCE WITH 816.03 AND PAYMENT WILL BE PER THOUSAND GALLONS (M. GAL.) USED.

- WHERE A SECTION OF TILE IS FOUND TO BE PLUGGED OR BROKEN, IT IS TO BE ISOLATED AS NOTED ABOVE BY RODDING. THIS SECTION SHALL BE REPLACED, AT APPROXIMATELY THE LINE GRADE, IN ITS ENTIRETY WITH 6 INCH TILE IN ACCORDANCE WITH 605.03. THE COST OF REMOVAL OF THE EXISTING TILE IS CONSIDERED TO BE INCIDENTAL TO THIS WORK AND EXTREME CARE IS TO BE EXERCISED IN NOT DAMAGING OR REMOVING ANY MORE TILE THAN IS NECESSARY. MEASUREMENT AND PAYMENT FOR THIS WORK WILL BE AS PER 605.03 AND 605.07 RESPECTIVELY.
- AFTER ALL REPAIRS HAVE BEEN MADE TO A LINE, A FINAL FLUSHING WILL BE PERFORMED TO ASCERTAIN IF THE LINE IS FUNCTIONING PROPERLY, AFTER WHICH THE CLOSING OF THE INITIAL OPENING WILL BE PERMITTED.

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED IN THE SUMMARY FOR THIS WORK ON THE PARTS OF THIS PROJECT.

ITEM SPECIAL	UNDERDRAIN OPENING	40 EACH
ITEM SPECIAL	WATER	24 M. GALS.
ITEM 605	8" UNCLASSIFIED PIPE UNDERDRAINS	320 LIN. FT.
ITEM 603	8" CONDUIT TYPE F	100 LIN. FT.

GENERAL NOTES

ITEM SPECIAL CRACK SEALING, HOT APPLIED

THIS WORK SHALL CONSIST OF THE PREPARATION AND SEALING OF PAVEMENT JOINTS AND/OR CRACKS REMAINING AFTER PLANING WITH A HOT-POURED ASPHALT SEALANT MATERIAL IN ACCORDANCE WITH THESE SPECIFICATIONS. ALL WORK WILL BE AT THE DIRECTION OF THE ENGINEER.

CRACKS AND JOINTS WITH A WIDTH OF 1/4 TO 3/4 INCH SHALL BE CLEANED AND FILLED, AND THIS MAY INCLUDE CENTERLINE AND PAVEMENT WIDENING CRACKS. IT IS INTENDED THAT THE CRACKS WITHIN THIS WIDTH RANGE BE DETERMINED BY THE CLEANING OPERATOR BY VISUAL OBSERVATION, SUBJECT TO CONFIRMATION BY THE ENGINEER AS THE WORK PROGRESSES.

THE SEALANT SHALL BE EITHER HOT-POURED ELASTIC TYPE MATERIAL OR A MIXTURE OF GROUND TIRE RUBBER AND ASPHALT. MATERIAL SHALL MEET THE REQUIREMENT OF 705.01 AND THE ASPHALT-COMPATIBILITY REQUIREMENTS OF ATH D 3405.

EQUIPMENT USED IN THE PERFORMANCE OF THE WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND TO THE REQUIREMENTS OF 108.05.

THE SEALANT SHALL BE HEATED IN A KETTLE OR MELTER CONSTRUCTED AS A DOUBLE BOILER, WITH THE SPACE BETWEEN THE INNER AND OUTER SHELLS FILLED WITH OIL OR OTHER HEAT TRANSFER FLUID. POSITIVE TEMPERATURE CONTROL, MECHANICAL AGITATION, AND RECIRCULATING PUMPS SHALL BE PROVIDED. DIRECT HEATING SHALL NOT BE USED.

THE SEALANT SHALL BE APPLIED WITH A MECHANICAL APPLICATOR CAPABLE OF CONTINUOUSLY FEEDING THE SEALANT THROUGH NOZZLES SHAPED TO PENETRATE THE JOINT OR CRACK.

AIR COMPRESSORS SHALL BE PORTABLE AND CAPABLE OF FURNISHING NOT LESS THAN 100 PSI AIR PRESSURE AT THE NOZZLE. THE COMPRESSOR SHALL BE EQUIPPED WITH TRAPS THAT WILL MAINTAIN THE COMPRESSED AIR FREE OF OIL AND WATER.

THE ENGINEER SHALL DESIGNATE THE LOCATION OF THE JOINTS AND/OR CRACKS TO BE SEALED. PRIOR TO THE APPLICATION OF THE HOT ASPHALT SEALANT, JOINTS AND CRACKS SHALL BE THOROUGHLY CLEANED BY AN APPROVED METHOD OR METHODS TO REMOVE DUST, DIRT, MOISTURE AND FOREIGN MATERIAL THAT WILL PREVENT BONDING OF THE SEALANT. THESE AREAS SHALL BE KEPT CLEAN UNTIL ALL SEALANT OPERATIONS ARE COMPLETED.

THE TEMPERATURE OF THE SEALANT IN THE FIELD APPLICATION SHALL NOT EXCEED THE SAFE HEATING TEMPERATURE RECOMMENDED BY THE MANUFACTURER OR TEMPERATURES LISTED IN 702.00, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

NO SEALANT SHALL BE APPLIED WHERE FROST, SNOW, ICE OR FREE WATER IS PRESENT.

SEALANT ON THE ROADWAY SURFACE IN EXCESS OF 2 INCHES ON EACH SIDE OF THE CRACK WILL NOT BE ACCEPTABLE. A NARROW "V" SHAPED SQUEEGEE OR APPROVED HAND TOOL SHALL BE USED TO PREVENT EXCESSIVE USE OF SEALANT.

JOINTS AND CRACKS SHALL BE FILLED WITH SEALANT FROM THE BOTTOM UP TO APPROXIMATELY FLUSH WITH THE PAVEMENT SURFACE (1/8 IN.). THIS MAY REQUIRE MORE THAN ONE APPLICATION. TRAFFIC SHALL NOT BE ALLOWED ON THE SEALANT UNTIL IT HAS CURED OR A METHOD WHICH HAS BEEN APPROVED BY THE ENGINEER IS USED TO PREVENT TRACKING.

THE QUANTITIES WILL BE THE NUMBER OF POUNDS OF ASPHALT SEALANT IN PLACE, COMPLETED AND ACCEPTED. QUANTITIES FOR BLENDED RUBBER-ASPHALT MIXTURES SHALL BE THE COMBINED WEIGHTS OF THE ASPHALT CEMENT (OR RESIDUAL ASPHALT) AND THE GROUND TIRE RUBBER.

PAYMENT FOR THIS WORK WILL BE MADE AT THE CONTRACT UNIT PRICE PER POUND FOR CRACK SEALING, HOT APPLIED, WHICH PRICE SHALL INCLUDE PREPARATION AND SEALING OF JOINTS AND/OR CRACKS IN THE EXISTING PAVEMENT, COMPLETE IN PLACE, AND ALL MATERIALS, EQUIPMENT, TOOLS AND LABOR INCIDENTAL THERETO.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:
ITEM SPECIAL- CRACK SEALING, HOT APPLIED ----- 6861 POUND

ITEM SPECIAL - SAWING AND SEALING TRANSVERSE JOINTS

THIS WORK SHALL CONSIST OF MAKING A SAW CUT TRANSVERSELY ACROSS THE FINISHED SURFACE OF THE 848 ASPHALT CONCRETE AND SEALING THIS TRANSVERSE JOINT. THE INTENT OF THIS WORK IS TO ESTABLISH A WEAKENED PLAN JOINT TO CONTROL REFLECTIVE CRACKING IN THE NEWLY INSTALLED 848 ASPHALT CONCRETE.

THE SAW CUT SHALL BE MADE DIRECTLY OVER THE EXISTING TRANSVERSE JOINT IN THE UNDER-LYING CONCRETE PAVEMENT. THE EXISTING JOINT SHALL BE PROPERLY MARKED BY THE CONTRACTOR SO THE SAWED JOINT MAY BE PERFORMED AT THE SAME LOCATION. THE 848 ASPHALT CONCRETE SHALL HAVE AGED SUFFICIENTLY TO ALLOW A CLEAN CUT TO BE MADE AND TO WITHSTAND THE ERODING EFFECTS OF THE SAW OR OTHER CUTTING DEVICE.

THE SAW CUT SHALL BE MADE WITH AN APPROVED POWER DRIVEN SAW. THE SAW CUT SHALL BE 1/4"x1/16" WIDE BY 1 1/2" DEEP. THE SAW CUT SHALL BE MADE WITH AN ABRASIVE BLADE AND SAWN DRY OR WITH A DIAMOND BLADE AND SAWN WET.

THE COMPLETED CUT SHALL EXTEND IN A STRAIGHT LINE TRANSVERSELY ACROSS THE PAVEMENT TO A POINT TWO FEET BEYOND THE EDGE OF THE UNDERLYING CONCRETE PAVEMENT.

UPON THE SATISFACTORY COMPLETION OF EACH CUT, IT SHALL BE SEALED WITH HOT RUBBER ASPHALT JOINT SEALER.

THE SAWED JOINTS SHALL BE SEALED IMMEDIATELY AFTER THE CUT HAS BEEN MADE. TRAFFIC SHALL NOT BE ALLOWED TO KNEAD TOGETHER OR DAMAGE THE SAWED JOINT. EACH JOINT SHALL BE THOROUGHLY CLEAN AND DRY PRIOR TO PLACEMENT OF THE SEALING COMPOUND. CLEANING SHALL BE PERFORMED BY BLOWING OUT ALL DIRT, DUST OR DELETERIOUS MATTER THAT MAY HAVE ACCUMULATED IN THE SAW JOINTS. SUFFICIENT AIR PRESSURE SHALL BE PROVIDED TO INSURE THOROUGH CLEANING. POURED JOINT MATERIAL SHALL BE HOT APPLIED CONFORMING TO AASHTO SPECIFICATION 173.

THE JOINT SEAL SHALL BE APPLIED WITH A MOBILE CARRIAGE AND RUBBER SHOE AND HAVE A CONTROL VALVE WHICH ALLOWS ALL CRACKS TO BE FILLED TO REFUSAL, SO AS TO ELIMINATE ALL VOIDS OR ENTRAPPED AIR, AND NOT LEAVE UNNECESSARY CRACK SEALER ON THE PAVEMENT SURFACE. THE HOT SEAL SHALL COMPLETELY FILL THE JOINT, SUCH THAT AFTER COOLING, THE LEVEL OF THE SEALER WILL NOT BE GREATER THAN 1/8" BELOW THE PAVEMENT SURFACE. ANY DEPRESSION IN THE SEAL GREATER THAN 3/16" SHALL BE BROUGHT UP TO THE SPECIFIED LIMIT BY FURTHER ADDITION OF HOT SEAL.

OVERFILLING OF THE JOINTS WILL NOT BE ALLOWED AND SPILLAGE OF THE SEALER SHALL BE AVOIDED.

THIS WORK SHALL BE MEASURED FOR PAYMENT BY THE ACTUAL NUMBER OF LINEAR FEET OF JOINT SAWED AND SEALED IN THE 848 ASPHALT CONCRETE, MEASURED IN PLACE AND ACCEPTED.

PAYMENT FOR THIS WORK WILL BE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR SAWING AND SEALING TRANSVERSE JOINTS, COMPLETE IN PLACE, WHICH PRICE SHALL INCLUDE ALL MATERIALS, EQUIPMENT, TOOLS AND LABOR INCIDENTAL TO THIS WORK.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS WORK:

ITEM SPECIAL - SAWING AND SEALING TRANSVERSE JOINTS
----- 9651 LIN. FT.

ROCK CHANNEL PROTECTION WITH FILTER

WHERE THIS ITEM IS CALLED FOR ON THE PLANS, THE QUANTITIES SHOWN ARE BASED ON THE DIMENSIONS OF THE ROCK ONLY AND DO NOT INCLUDE THE VOLUME OF A 6" STONE FILTER BED. THE COST OF THE FILTER (EITHER FABRIC OR STONE) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 801 ROCK CHANNEL PROTECTION WITH FILTER. WHERE THE FABRIC FILTER OPTION IS USED THE FABRIC SHALL MEET THE REQUIREMENTS OF SPECIFICATION 939 TYPE B. THE SURFACE TO RECEIVE THE FABRIC SHALL BE PREPARED TO A RELATIVELY SMOOTH SURFACE FREE OF OBSTRUCTION AND DEBRIS. THE FABRIC SHALL BE PLACED WITH THE LONG DIMENSION PARALLEL TO THE DIRECTION OF FLOW AND SHALL BE LAID LOOSELY BUT WITHOUT WRINKLES AND CREASES. WHERE JOINTS ARE NECESSARY, STRIPS SHALL BE PLACED TO PROVIDE A 12" MINIMUM OVERLAP WITH THE UPSTREAM STRIP OVERLAPPING THE DOWNSTREAM STRIP. SECURING PINS WITH WASHERS SHALL BE PLACED AT 2' MINIMUM INTERVALS ALONG JOINTS AND AT (2', 3', OR 5')** INTERVALS ELSEWHERE TO PREVENT SLIPPAGE OF THE FABRIC. THE SECURING PINS SHALL BE 3/16" DIAMETER OF STEEL POINTED AT ONE END AND FABRICATED WITH A HEAD TO RETAIN A STEEL WASHER HAVING AN OUTSIDE DIAMETER NOT LESS THAN 1 1/2". PIN LENGTHS SHALL BE GREATER THAN OR EQUAL TO 18".

**2' FOR FLOW DIRECTION SLOPES STEEPER THAN 3:1, 3' FOR SLOPES 3:1 TO 4:1, AND 5' FOR SLOPES LESS STEEP THAN 4:1.

ITEM 803 JACKING PIPE

AS A PART OF THIS CONTRACT, IT WILL BE NECESSARY TO INSTALL A 48" CONDUIT UNDER THE EXISTING PAVEMENT AT STATION 819+95.5 BY THE METHOD OF BORING AND JACKING.

NO TRENCH EXCAVATION OR EQUIPMENT SHALL BE CLOSER THAN 8 FEET TO THE EDGE OF PAVEMENT. TEMPORARY CONCRETE BARRIER SHALL BE PLACED BETWEEN THE BORING PIT AND THE EDGE OF ROADWAY. IF POSSIBLE, THIS WORK SHOULD BE ACCOMPLISHED DURING THE FIRST PHASE OF MAINTAINING TRAFFIC. TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SPECIFICATION REQUIREMENT FOR CLASS B BEDDING SHALL BE DISREGARDED. ALL LABOR AND MATERIAL CONNECTED WITH THE INSTALLATION OF THE 48" CONDUIT SHALL BE 100% CITY FUNDING.

CONDUIT END TREATMENT

IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS REQUIRED BY THE PLANS AT BOTH THE OUTLET AND INLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE RIPRAP, ROCK CHANNEL PROTECTION, SODDING, ETC.

ITEM SPECIAL, PIPE CLEANOUT

THIS WORK SHALL CONSIST OF REMOVAL OF ALL FOREIGN MATERIAL FROM THE INSIDE OF THE EXISTING STORM SEWERS. CONDUIT TO BE CLEANED SHALL BE DETERMINED BY THE ENGINEER BY INSPECTION WITH THE CONTRACTOR. THE MATERIAL REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 203.05.

THE FOOTAGE TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAR FEET OF EXISTING PIPE CLEANED AS DIRECTED BY THE ENGINEER.

THE FOOTAGE MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR "ITEM SPECIAL, PIPE CLEANOUT", WHICH PRICE SHALL CONSTITUTE FULL COMPENSATION FOR REMOVAL AND DISPOSAL OF ALL MATERIAL FOUND IN THE PIPE AND THE FURNISHING OF ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM. THE FOLLOWING ESTIMATED QUANTITY FOR THE ABOVE DESCRIBED WORK HAS BEEN CARRIED TO THE GENERAL SUMMARY:

100% CITY FUNDS

ITEM SPECIAL, EXISTING PIPE CLEANOUT ----- 10,000 LIN. FT.

PROPOSED CONCRETE BARRIER CONSTRUCTION

THE EXISTING CONCRETE MEDIAN SHALL BE REMOVED AND DISPOSED OF. THE EXISTING CONCRETE CURB (WHERE APPLICABLE) SHALL BE CAREFULLY REMOVED OR GROUND OFF AND ALL DEBRIS DISPOSED OF PROPERLY.

THE CONTRACTOR SHALL CAREFULLY EXCAVATE THE EXISTING MATERIAL TO THE EDGE OF THE PAVEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SUBBASE DAMAGE DURING THIS OPERATION AS EXCAVATED MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER ITEM 622 AND SHALL BE IN ACCORDANCE WITH ITEM 203.

SUBGRADE UNDER THE PROPOSED MEDIAN SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 203.13 OF THE SPECIFICATIONS.

THE PROPOSED CONCRETE BARRIER SHALL BE PLACED AND PAID FOR AS DESCRIBED IN ITEM 622, CONCRETE BARRIER.

ITEM 612 CONCRETE MEDIAN, AS PER PLAN

PLACEMENT OF CONCRETE MEDIAN SHALL BE MADE BETWEEN CONCRETE BARRIERS IN ACCORDANCE WITH TYPICAL SECTIONS AND WITH LINES AND GRADES ESTABLISHED BY BARRIER CONSTRUCTION. WHERE ELEVATION ON A BARRIER TOP ARE EQUAL TO (OR NEARLY SO) THOSE ON THE ADJACENT BARRIER, THE CONCRETE MEDIAN SHALL BE CROWNED ALONG ITS CENTERLINE WITH SLOPES OF 1/4 INCH PER FOOT.

GUARDRAIL REPLACEMENT

GUARDRAIL SHALL NOT BE REMOVED FOR REPLACEMENT UNLESS THE ADJOINING LANE HAS BEEN CLOSED. THE LANE CLOSURE SHALL NOT BE REMOVED (IE. THE LANE REOPENED) WITHOUT PERMANENT GUARDRAIL PROTECTION IN PLACE. TYPE 6 TEMPORARY BEAM RAIL SHALL NOT BE CONSIDERED TO PROVIDE PERMANENT GUARDRAIL PROTECTION.

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GENERAL NOTES

UNDERGROUND UTILITIES AND NOTIFICATION

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 193.84 O.R.C.

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA WHICH MAY INVOLVE UNDERGROUND UTILITY FACILITIES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE UTILITY PROTECTION SERVICE, AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY SHOWN IN THE PLANS.

THE OWNER OF THE UNDERGROUND UTILITY FACILITY SHALL, WITHIN FORTY-EIGHT HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, AFTER NOTICE IS RECEIVED, STAKE, MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION.

ITEM 203 LINEAR GRADING

THIS WORK SHALL CONSIST OF ALL EXCAVATION AND EMBANKMENT REQUIRED FOR REMOVAL OF ACCUMULATED SOD, EARTH AND DEBRIS AND SHOULDER GRADING OUTSIDE THE LIMITS OF PAVED BERM. AREAS WHICH REQUIRE LINEAR GRADING ARE LISTED IN THE PAVEMENT CALCULATIONS AND ARE IN ACCORDANCE WITH THE TYPICAL SECTIONS AND PLANS.

THE EXCESS OF MATERIALS RESULTING FROM THIS WORK SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 203, AND AT THE DIRECTION OF THE ENGINEER.

THE MEASUREMENTS WILL BE MADE PER MILE ALONG EACH EDGE OF PAVEMENT WHICH REQUIRES LINEAR GRADING.

TRENCH FOR SHOULDER REPLACEMENT

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

CONNECTIONS TO EXISTING PIPE

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

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 803 CONDUIT ITEMS.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY STATE FORCES. PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 202 ITEM.

MAINTENANCE OF EXISTING SUBBASE DRAINAGE

FLOW FROM EXISTING PIPE UNDERDRAINS WHICH CONNECT WITH CATCH BASINS SCHEDULED FOR REPLACEMENT, SHALL BE MAINTAINED. REPLACEMENT CONDUIT FOR THIS WORK HAS BEEN INCLUDED IN THE PLANS.

DRAINAGE TO OTHER PIPE UNDERDRAINS OR AGGREGATE DRAINS SHALL BE REPAIRED IN ACCORDANCE WITH ITEM 605 AND TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE, IF DAMAGED BY THE CONTRACTOR.

EXISTING TURN LANE SENSORS

THE EXISTING CONCRETE MEDIAN BETWEEN STA. 550+00 AND STA. 554+00 SHALL BE CAREFULLY REMOVED SO AS NOT TO DISTURB THE EXISTING TURN LANE SENSORS.

THE PROPOSED CONCRETE BARRIER TYPE A-1, SHALL BE PLACED AROUND THE EXISTING TURN LANE SENSORS. NO SEPERATE PAY ITEM HAS BEEN INCLUDED IN THE PLAN FOR THIS WORK OTHER THAN ITEM 202, MEDIAN REMOVED.

ITEM 848 ASPHALT CONCRETE

ON THIS PROJECT, SUPPLEMENTAL SPECIFICATION 848, TABLE 2-2, PROPERTIES OF MIXTURES FOR HEAVY TRAFFIC VOLUMES SHALL APPLY.

407 TACK COAT

THE TACK COAT AND COVER AGGREGATE OPERATION SHALL BE DETERMINED AS PER SPEC. 407.05. PLAN QUANTITIES INDICATE AVERAGE RATES OF 0.10 GALLONS PER SQUARE YARD OF TACK COAT AND 7 POUNDS PER SQUARE YARD OF COVER AGGREGATE FOR ESTIMATING PURPOSES ONLY.

UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT.

SANITARY SEWER: CITY OF MASSILLON
100 CITY HALL, S.E.
MASSILLON, OHIO 44646
1-216-833-1058

TELEPHONE: OHIO BELL
832 HIXINLEY AVENUE, N.W.
CANTON, OHIO 44703
1-216-489-2632

WATER: OHIO WATER SERVICE
MASSILLON DIVISION
123 THIRD STREET, S.E.
MASSILLON, OHIO 44646
1-216-833-4156

GAS: EAST OHIO GAS COMPANY
332 SECOND STREET, N.W.
CANTON, OHIO 44702
1-216-438-6131

REPLACEMENT CENTERLINE REFERENCE MONUMENTS

STATION	EACH	OFFSET LEFT	OFFSET RIGHT
550+89.02	2	47'	43'
554+39.28	2	59'	42'
562+12.50	2	45'	40'
569+85.71	2	44'	43'
578+82.48	1	40'	-
580+45.05	2	39'	33'
583+45.05	2	35'	33'
596+22.60	2	37'	49'
609+00.18	2	40'	42'
612+00.18	2	36'	36'
612+99.78	2	36'	36'
615+99.78	2	37'	36'
627+55.83	2	38'	36'
639+12.08	2	42'	43'
642+12.08	2	49'	48'
TOTAL ITEM 604	29		

RE-ESTABLISHMENT OF EXISTING CONTROL MONUMENTS

EXISTING RIGHT OF WAY CONTROL MONUMENTS SHALL BE REPLACED AT THE STATIONS SHOWN ON THIS TABLE.

THE CONTRACTORS SHALL ESTABLISH APPROPRIATE SURVEY CONTROL AT LOCATIONS THAT WILL REMAIN UNDISTURBED DURING CONSTRUCTION OF THIS PROJECT. SURVEY CONTROL SHALL BE SET PRIOR TO ANY WORK ON THE EXISTING MEDIAN. UPON COMPLETION OF ALL OTHER PLAN WORK, THE SURVEY CONTROL SHALL BE USED TO SET THE REFERENCE MONUMENTS. THE SETTING OF MONUMENTS SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF A REGISTERED PROFESSIONAL SURVEYOR. ALL MONUMENTS WHICH ARE SET, WHICH DIFFER FROM THOSE LISTED ON THE TABLE, SHALL BE RECORDED BY FILING AN AFFIDAVIT WITH THE DISTRICT DEPUTY DIRECTOR, ODOT, DISTRICT 4, RAVENNA, OHIO, LISTING THE CHANGES. ALL MONUMENTS SHALL BE SET AT THE OFFSETS SHOWN ON THIS TABLE PERPENDICULAR TO THE LINES SHOWN ON THE CENTERLINE SURVEY PLATS OF THE ORIGINAL CONSTRUCTION PLANS. COPIES OF THE CENTERLINE SURVEY PLATS LISTED ABOVE MAY BE OBTAINED FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 4, RAVENNA, OHIO.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK DESCRIBED ABOVE:

ITEM 604 REFERENCE MONUMENT, STANDARD ----- 29 EACH

LOCATIONS OF GUARDRAIL

THE LOCATION OF GUARDRAIL RUNS, AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

GUARDRAIL REPLACEMENT (Cont)

NO HAZARD SHALL BE LEFT UNPROTECTED EXCEPT FOR THE ACTUAL TIME NECESSARY TO REMOVE, GRADE AND REINSTALL GUARDRAIL IN A CONTINUOUS OPERATION. THE REMOVAL OF ALL GUARDRAIL SHALL AT ALL TIMES BE AS DIRECTED BY THE ENGINEER. NO GUARDRAIL SHALL BE REMOVED UNTIL THE REPLACEMENT MATERIAL IS ON THE SITE / READY FOR INSTALLATION. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE DEEMED SUFFICIENT CAUSE TO ORDER WORK SUSPENDED ON THIS PROJECT UNTIL SUCH TIME THAT THE ENGINEER IS ASSURED OF SAID COMPLIANCE.

GUARDRAIL REMOVED FOR STORAGE

ON THIS PROJECT THE EXISTING GUARDRAIL IS BEING REMOVED BY THE CONTRACTOR FOR SALVAGE BY STATE FORCE.

THE REMOVAL OF EXISTING ANCHOR ASSEMBLIES AND REMOVAL OF THE FOUNDATIONS FOR ANCHOR ASSEMBLIES TO A DEPTH OF ONE FOOT BELOW GRADE SHALL BE INCLUDED FOR PAYMENT WITH THIS ITEM.

THE QUANTITY MEASUREMENT LISTED IN THESE PLANS INCLUDES THE LENGTH OF THE ATTACHED ANCHOR ASSEMBLY. THE SALVAGED RAIL ELEMENTS SHALL BE STOCKPILED IN A NEAT MANNER AT A LOCATION ON THE PROJECT APPROVED BY THE ENGINEER WHICH PRESENTS NO SAFETY HAZARD TO THE TRAVELING PUBLIC.

ALL POSTS, BOLTS AND INCIDENTAL HARDWARE SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

ITEM 859 SEEDING AND MULCHING

THE WORK FOR THIS ITEM SHALL BE LIMITED TO THE AREA THAT IS TO BE DISTURBED BY ITEM 203 LINEAR GRADING. SEEDING AND MULCHING SHALL BE DONE IN ACCORDANCE WITH ITEM 859.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS WORK:

ITEM 859 SEEDING AND MULCHING ----- 12,247 SQ. YD.

ITEM 859 COMMERCIAL FERTILIZER --- 1.10 TON

ITEM 859 AGRICULTURAL LIMING ----- 5.51 TON

ITEM 203 EXCAVATION

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ITEM 203 EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION, FOR THE REMOVAL OF THE EXISTING OUTSIDE SHOULDERS AS SHOWN ON THE TYPICAL SECTIONS AND LISTED IN THE PAVEMENT CALCULATIONS.

ITEM 203 - EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION ----- 3,629 CU. YD.

GENERAL NOTES

FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT

ALL REPAIR AREAS WILL BE LOCATED BY THE ENGINEER AND MARKED WITH PAINT PRIOR TO THE START OF WORK.

THE CONTRACTOR IS REFERED TO THE PROPOSAL FOR A COMPLETE DESCRIPTION OF THE WORK TO BE PERFORMED.

THE QUANTITY OF FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT, TO BE PAID FOR SHALL BE THE NUMBER OF SQUARE YARDS OF RIGID PAVEMENT REMOVED TO THE LIMITS ESTABLISHED BY THE ENGINEER. ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE, PER SQUARE YARD WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL PAVEMENT REMOVAL, SUBBASE CORRECTION, FLEXIBLE PAVEMENT REPLACEMENT, SEALING, SAWING TIE BARS, AND RESTORATION OF BERMS.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK DESCRIBED IN THE PROPOSAL NOTE:

ITEM SPECIAL FULL DEPTH RIGID PAVEMENT
REMOVAL AND FLEXIBLE
REPLACEMENT ----- 885 SQ. YD.
(SEE NOTE "ITEM SPECIAL, PAVEMENT SAWING"
BELOW FOR MORE INFORMATION)

PARTIAL DEPTH PAVEMENT JOINT REPAIR

THIS ITEM OF WORK SHALL CONSIST OF PARTIAL DEPTH PAVEMENT REPAIR AS DESIGNATED BY THE ENGINEER.

THE CONTRACTOR IS REFERED TO THE PROPOSAL FOR A COMPLETE DESCRIPTION OF THE WORK TO BE PERFORMED.

THE NUMBER OF SQUARE YARDS TO BE PAID FOR SHALL BE CALCULATED USING THE DIMENSIONS ESTABLISHED BY THE ENGINEER. PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE WORK, INCLUDING TACK COAT, ASPHALT CONCRETE AND SEAL COAT.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK DESCRIBED IN THE PROPOSAL NOTE:

ITEM SPECIAL PARTIAL DEPTH PAVEMENT
JOINT REPAIR ----- 5,581 SQ. YD.

ITEM SPECIAL, PAVEMENT SAWING

ALL CONCRETE BASE REPAIRS AREAS WILL BE LOCATED BY THE ENGINEER AND MARKED WITH PAINT PRIOR TO THE START OF PAVEMENT SAWING OPERATIONS. THE EXISTING CONCRETE BASE SHALL BE SAWED FULL DEPTH AT THE LIMITS OF THE DESIGNATED AREAS. THE CONTRACTOR MAY ELECT TO MAKE ADDITIONAL CUTS TO FACILITATE THE REMOVAL OF THE CONCRETE BASE. HOWEVER, ONLY THE CUTS DESIGNATED BY THE ENGINEER WILL BE MEASURED FOR PAYMENT. CONCRETE BASE IN THE REPAIR AREA SHALL THEN BE REMOVED COMPLETELY IN ACCORDANCE WITH 202 AND IN A MANNER THAT WILL NOT DAMAGE OR UNDERMINE THE CONCRETE BASE THAT IS TO REMAIN IN PLACE. AN ESTIMATED QUANTITY OF 1478 LINEAL FEET HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
SPECIAL	LIN. FT.	PAVEMENT SAWING

CONCRETE PAVEMENT CHIPPED

(EXISTING INLETS AND CATCH BASINS)

UNLESS SPECIFICALLY INDICATED IN THE PLAN, EXISTING CATCH BASINS AND INLETS LOCATED ALONG THE OUTSIDE EDGE OF PAVEMENT, WILL NOT BE ADJUSTED TO GRADE. THE CONTRACTOR SHALL PERFORM PAVING OPERATIONS AROUND EXISTING STRUCTURES AS INDICATED IN THE TYPICAL SECTIONS ON SHEET NO. 4 TO PROVIDE A SMOOTH TRANSITION FROM THE FULL DEPTH THICKNESS TO $\frac{1}{2}$ " ABOVE THE EDGE OF THE DRAINAGE STRUCTURE.

THE CONTRACTOR SHALL REMOVE A 1" DEEP SECTION OF EXISTING PAVEMENT 2 FEET EACH DIRECTION AROUND ALL EXISTING CATCH-BASINS AND INLETS TO ACCOMMODATE THE RESURFACING OPERATION. IT IS THE INTENT OF THE PLAN TO PREVENT A SAFETY HAZARD AROUND EXISTING BASINS BY FEATHERING THE FULL DEPTH PAVEMENT TO $\frac{1}{2}$ " ABOVE THE EDGE OF THE DRAINAGE STRUCTURE. ITEM 407 TACK COAT SHALL BE APPLIED OVER CHIPPED PAVEMENT BEFORE FEATHERING. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK DESCRIBED:

ITEM 202 - Concrete Pavement Chipped ----- 24 SQ. YD.

ALTERNATE MANHOLE STEPS

REINFORCED POLYPROPYLENE PLASTIC MANHOLE STEPS CONFORMING WITH 711.31 BUT MANUFACTURED USING ASTM D2146, TYPE II, GRADE 43758 PLASTIC MAY BE USED ON THIS PROJECT.

UNDERGROUND UTILITIES

48 HOURS
BEFORE YOU DIG
Call 800 362 2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
Non Members
Must be called directly

ALTERNATE MANHOLE TOPS

ECCENTRIC CONE TOPS USED IN CONSTRUCTION OF PRECAST MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF STANDARD CONSTRUCTION DRAWING MH-3 EXCEPT THEY MAY HAVE A MINIMUM HEIGHT OF 24 INCHES.

GENERAL SUMMARY

*100% CITY FUNDS

Calc. by WCR 6-21-84
Chkd. by RAM 6-21-84

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FROM SHEET NO.																		100% CITY	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
6	7	8	9	10	11	12	17	18	19	20	21	22	23	24	25	26	27	28				
							1450	1812	2000	1883	2004	1998	1709	1953		2000	2006	1318	20,133	LIN.FT.	202	CURB REMOVED
							198	114		28	300	130	532	261		222	196		160	SQ.FT.	202	WALK REMOVED
						24													1,981	SQ.YD.	202	CONCRETE MEDIAN REMOVED
							1718	1874	562	1225	748			62		850	382	817	24	SQ.YD.	202	CONCRETE PAVEMENT CHIPPED
							535												0,238	LIN.FT.	202	GUARDRAIL REMOVED FOR STORAGE
															* 1				535	LIN.FT.	202	GUARDRAIL, BARRIER DESIGN, REMOVED FOR STORAGE
															* 23				* 1	EACH	202	MANHOLE REMOVED
																			* 23	LIN.FT.	202	PIPE REMOVED, 24" AND UNDER
							1					1	1				1		4	EACH	202	INLET ABANDONED
						3629													3,629	CU.YD.	203	EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION
																			3,5	MILE	203	LINEAR GRADING
																			29	EACH	604	REFERENCE MONUMENT, STANDARD
							1692.95	1824.09	405.61	834.85	712.50			49.84		825.16	356.53	768.47	7550.00	LIN.FT.	606	GUARDRAIL, TYPE 5
							125.00												125.00	LIN.FT.	606	GUARDRAIL, BARRIER DESIGN, TYPE 5
							1	3	2	1	1					1	1	1	11	EACH	606	ANCHOR ASSEMBLY, STANDARD TYPE A
								1	1	2	1			1				2	8	EACH	606	ANCHOR ASSEMBLY, STANDARD TYPE T
													180						180	SQ.FT.	608	4" CONCRETE WALK
													145						145	SQ.FT.	608	4" AGGREGATE WALK
															* 14			* 14	* 14	CU.YD.	601	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
							1												1	CU.YD.	601	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
							12247												12,247	SQ.YD.	659	SEEDING AND MULCHING
							1.10												1.10	TON	659	COMMERCIAL FERTILIZER
							5.51												5.51	TON	659	AGRICULTURAL LIMING
							985												985	SQ.YD.	SPECIAL	FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT
							5581												5581	SQ.YD.	SPECIAL	PARTIAL DEPTH PAVEMENT JOINT REPAIR
																			9851	LIN.FT.	SPECIAL	SAWING AND SEALING TRANSVERSE JOINTS
																			229	CU.YD.	301	BITUMINOUS AGGREGATE BASE, AC-20, RT-11 OR RT-12
																			3524	CU.YD.	304	AGGREGATE BASE
																			1,807	CU.YD.	310	SUBBASE, TYPE II
																			86	SQ.YD.	305	9" PORTLAND CEMENT CONCRETE BASE
																			4387	CU.YD.	848	ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, AC-20
																			627	CU.YD.	848	ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, AC-20
																			3428	CU.YD.	848	ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, AC-20
																			8070	GAL.	108	BITUMINOUS PRIME COAT
																			6,870	GAL.	407	TACK COAT
																			241	TON	407	COVER AGGREGATE
																			6961	POUND	SPECIAL	CRACK SEALING, HOT APPLIED
							1478												1478	LIN.FT.	SPECIAL	PAVEMENT SAWING
																			285	SQ.YD.	452	9" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT
							235						44						44	LIN.FT.	609	ASPHALT CONCRETE CURB, AC-20, STANDARD TYPE 1
													37						272	LIN.FT.	609	CURB, STANDARD TYPE 6
							65			83	83								166	SQ.YD.	612	4" CONCRETE MEDIAN, AS PER PLAN
																			65	SQ.YD.	612	4" CONCRETE MEDIAN, STANDARD
							581	453	524	473	825	878	732	874		978	940	545	7903	LIN.FT.	622	CONCRETE BARRIER, STANDARD TYPE A
								450											571	LIN.FT.	622	CONCRETE BARRIER, STANDARD TYPE A-1, MODIFIED AS PER PLAN
									140	140									280	LIN.FT.	622	CONCRETE BARRIER, STANDARD TYPE A-2, MODIFIED AS PER PLAN
												91	80						295	LIN.FT.	622	CONCRETE BARRIER, STANDARD TYPE A-3, MODIFIED AS PER PLAN
									672	414									1086	LIN.FT.	622	CONCRETE BARRIER, STANDARD TYPE D
																			140	LIN.FT.	622	TEMPORARY CONCRETE BARRIER

GENERAL SUMMARY

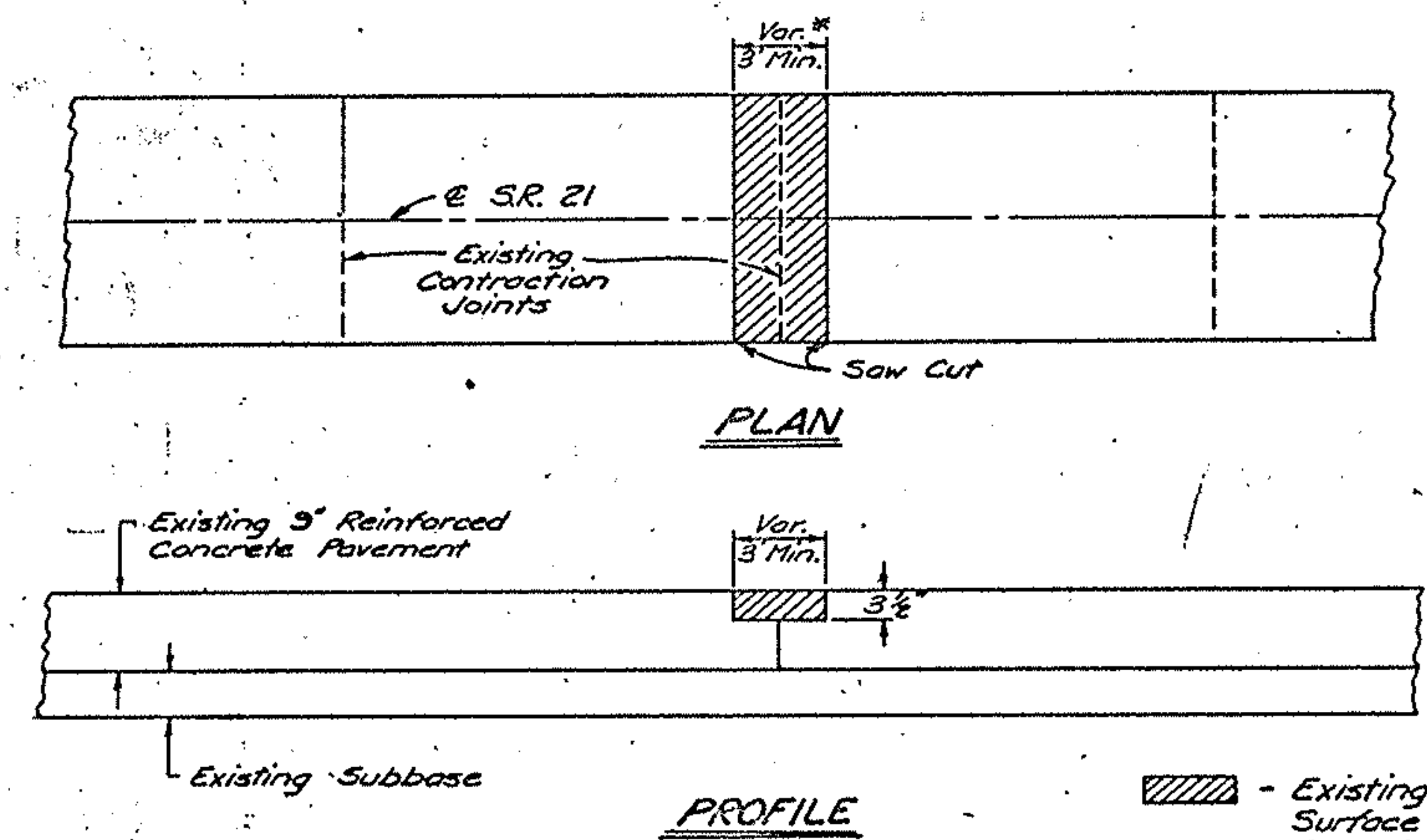
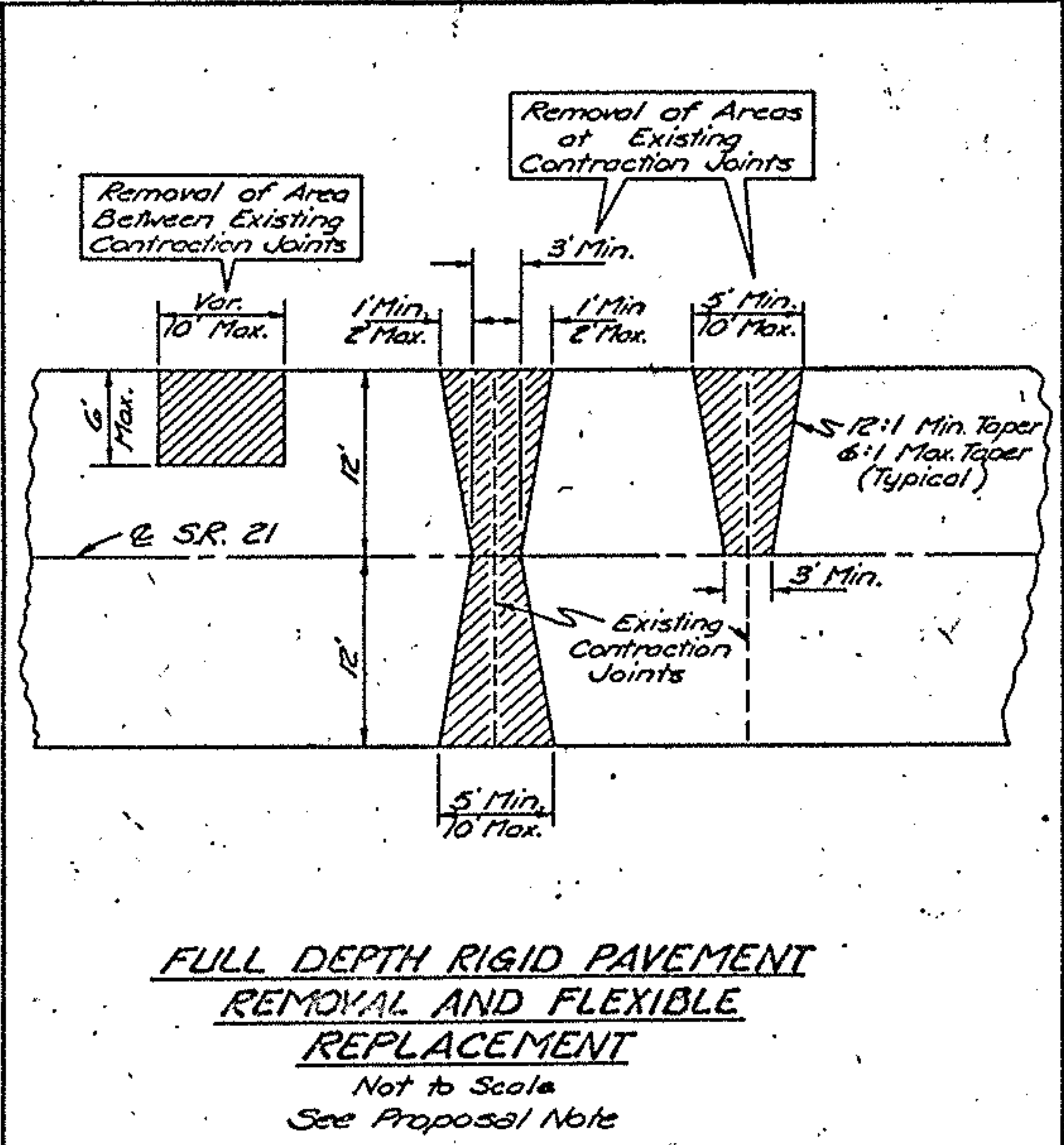
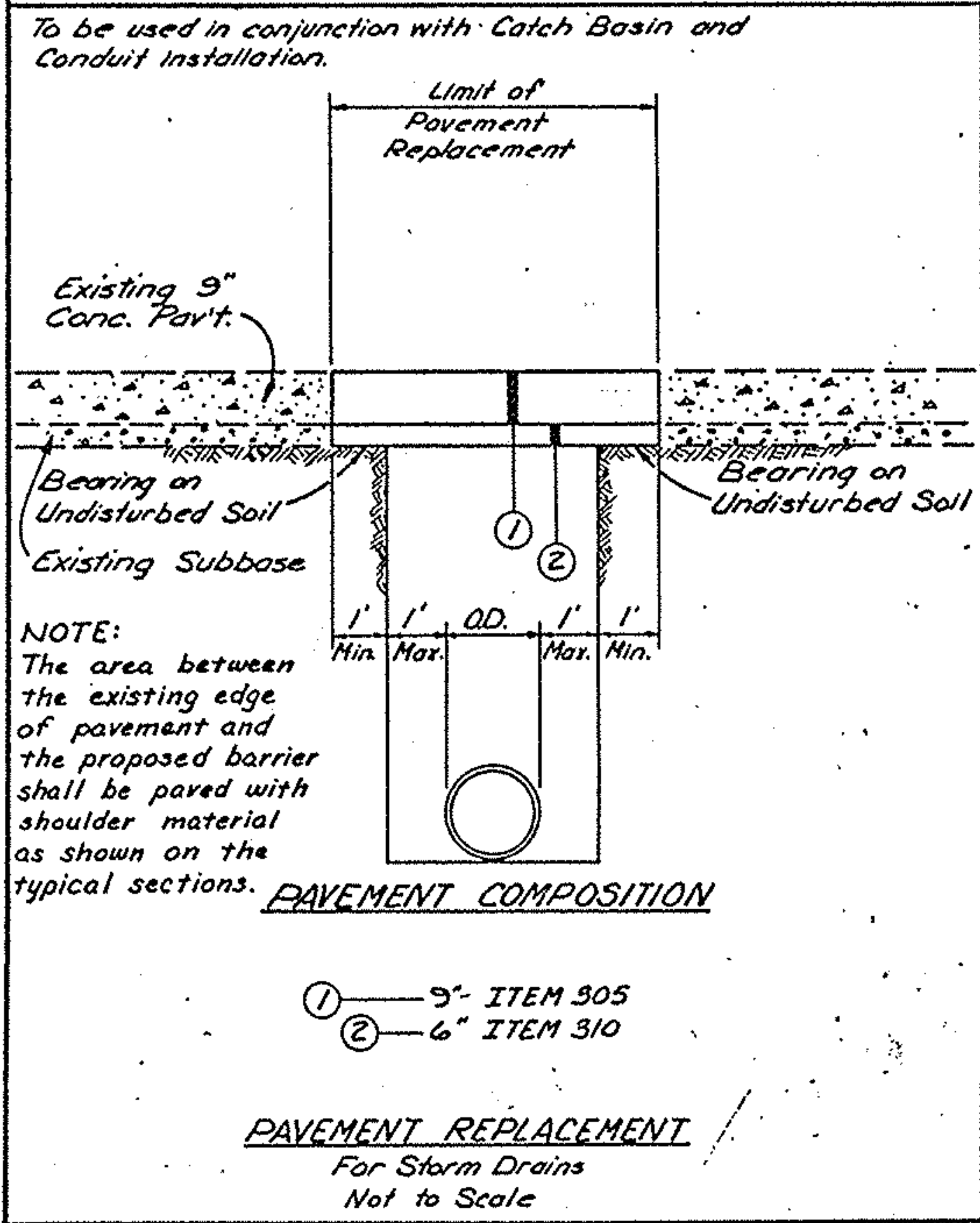
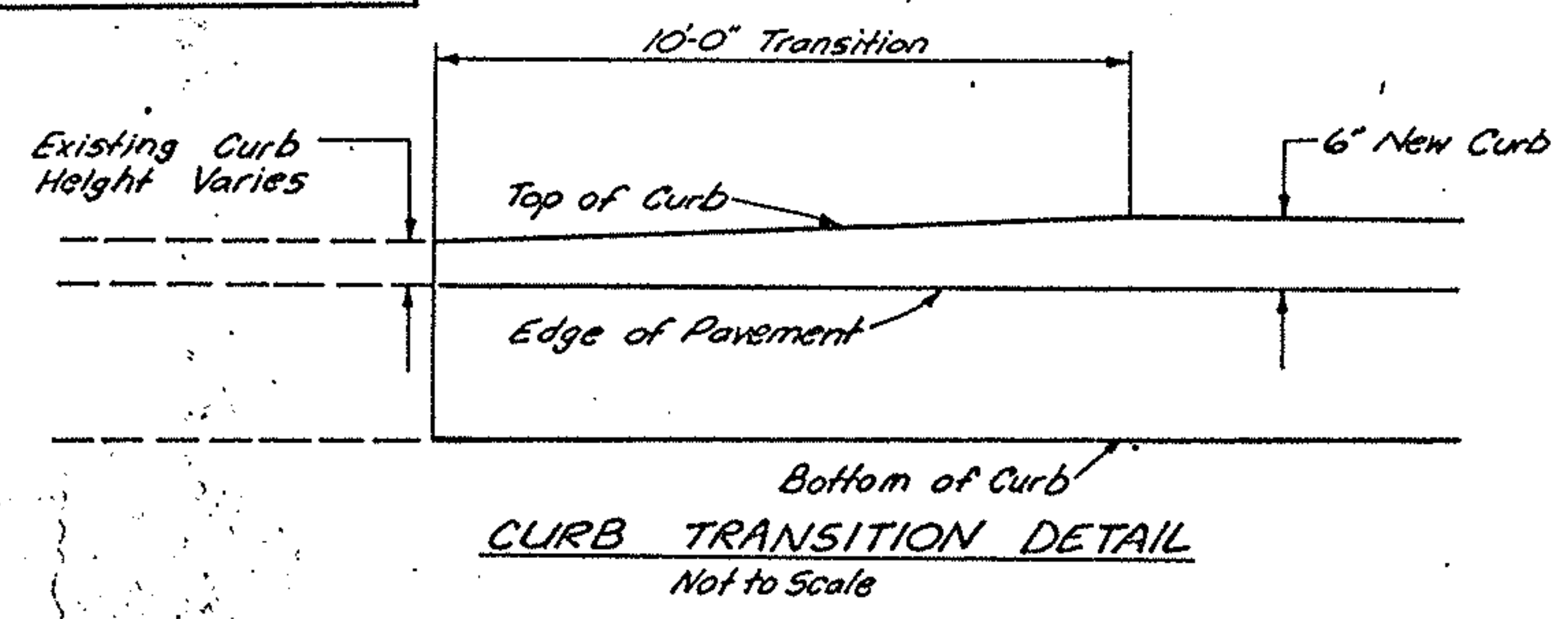
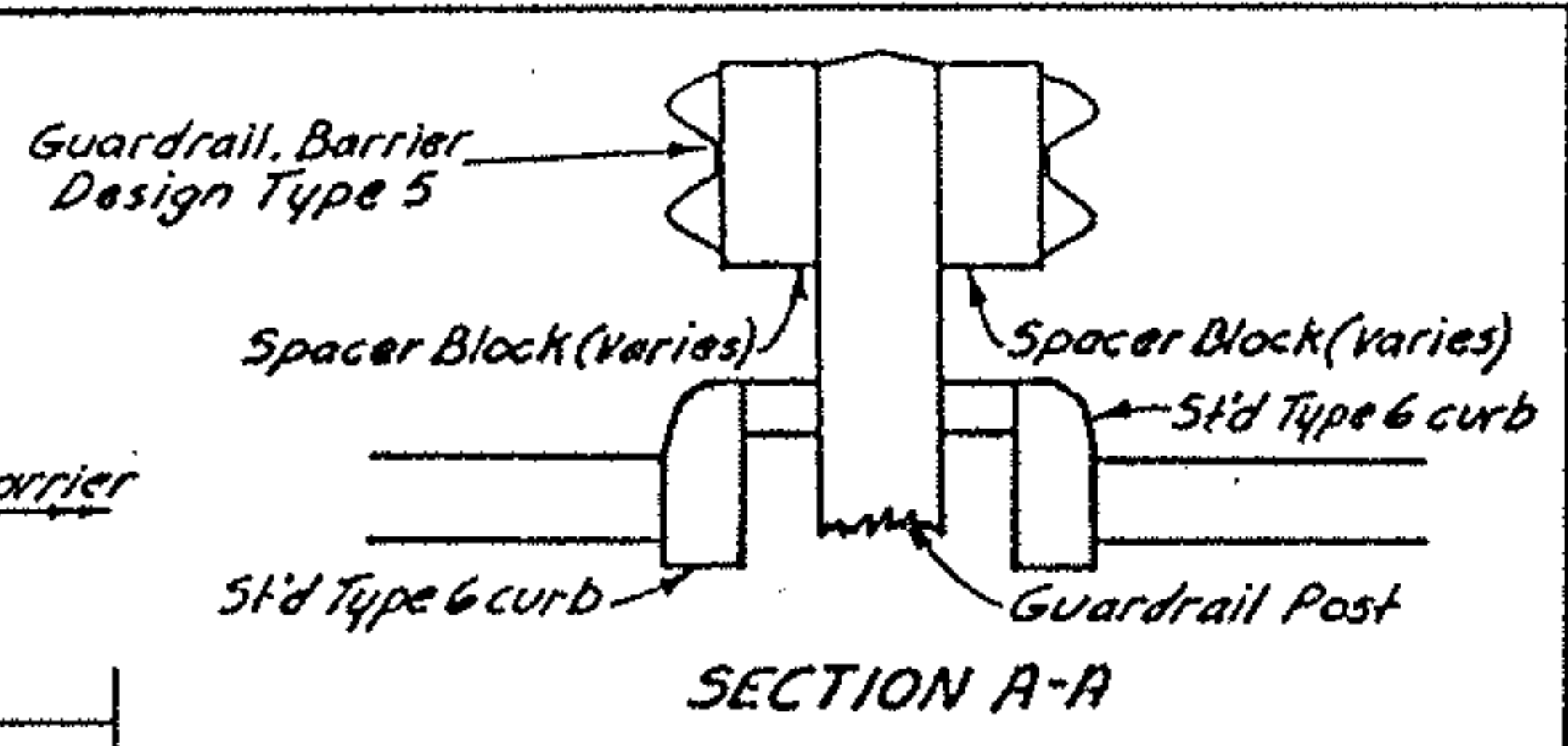
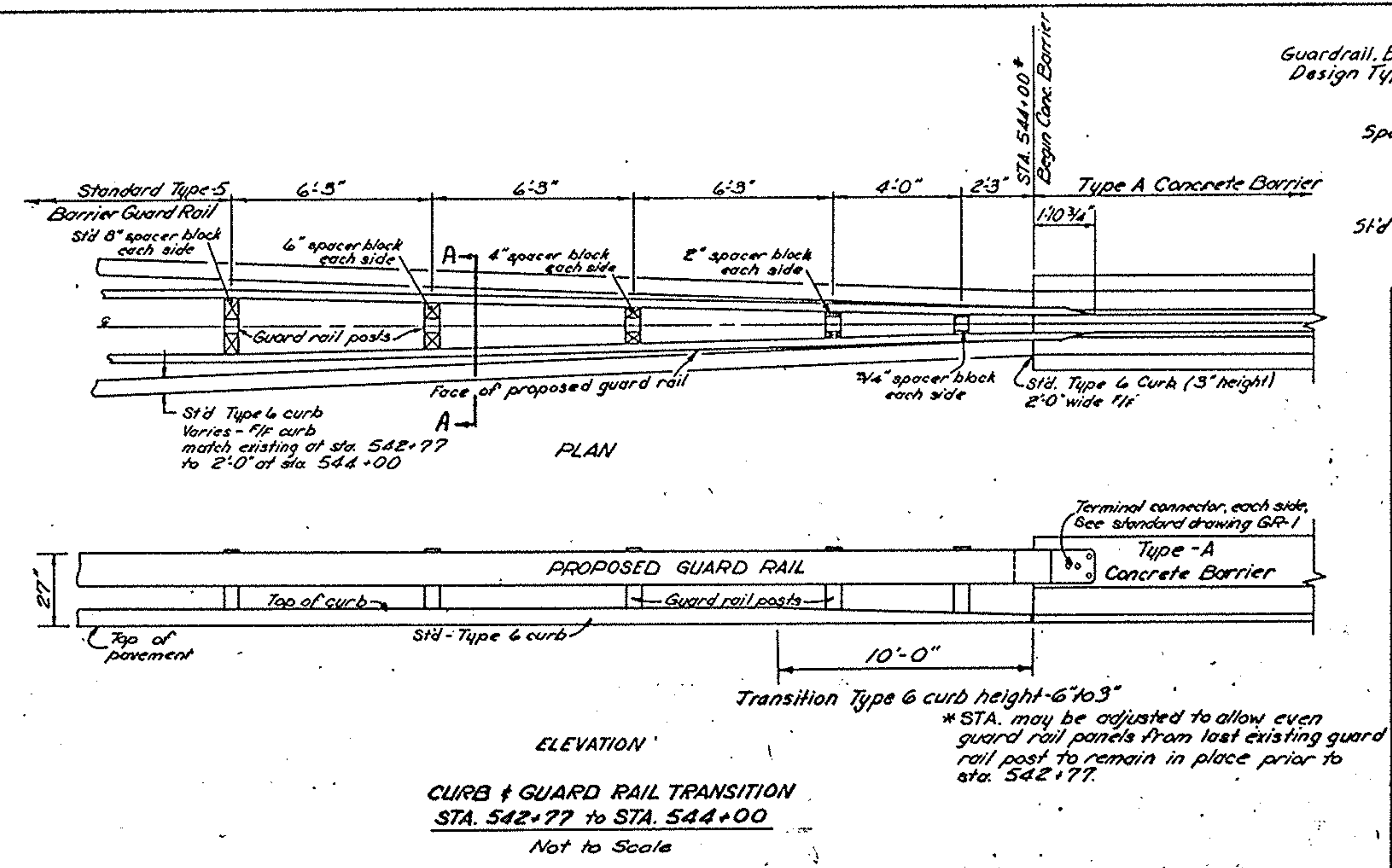
Calc. by GW 6-21-88
Chkd. by WCR 6-21-88

FHWA REGION	STATE	PROJECT
5	OHIO	

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STA.-21-10.24

FROM SHEET NO.													GRAND TOTAL	UNIT	ITEM	DESCRIPTION
		9		32	36	38	39	43	69							TRAFFIC CONTROL
					5	20	5	11					41	SQ.FT.	630	SIGNS, FLAT SHEET
						1							1	EACH	630	BREAKAWAY BEAM CONNECTION
					12	12	12	25					61	LIN.FT.	630	GROUND MOUNTED SUPPORT, NO. 3 POST
						17							17	LIN.FT.	630	GROUND MOUNTED SUPPORT, 54 X 7.7 BEAM
					1	2	1	2					6	EACH	630	REMOVAL OF GROUND MOUNTED POST SUPPORT
					1	2	1	2					6	EACH	630	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE
						0.27							0.27	CU.YD.	630	CONCRETE FOR ANCHOR BASE FOUNDATION
					4.03								4.03	MILE	621	4" LANE LINES
					8.00								8.00	MILE	621	EDGE LINES
					2380								2380	LIN.FT.	621	CHANNELIZING LINE
					17								17	EACH	621	LANE ARROWS
					548								548	LIN.FT.	621	STOP LINES
					101								101	LIN.FT.	621	TRANSVERSE LINES
					9								9	EACH	621	WORD ON PAVEMENT, "ONLY" 72 INCH
					482								482	LIN.FT.	621	CROSSWALK LINES
					315								315	Sq.Ft.	621	Island Marking
					0.0213								0.02	ML	621	Center Lines
									8.14				8.14	MILE	614	TEMPORARY LANE LINES, CLASS I, PAINT
									16.00				16.00	MILE	614	TEMPORARY EDGE LINES, CLASS I, PAINT
									4004				4004	LIN.FT.	614	TEMPORARY CHANNELIZING LINES, CLASS I, PAINT
									2711				2711	LIN.FT.	614	TEMPORARY CHANNELIZING LINES, TYPE "C" TAPE
									592				592	LIN.FT.	614	TEMPORARY STOP LINES, CLASS I, PAINT
									984				984	LIN.FT.	614	TEMPORARY CROSSWALK LINES, CLASS I, PAINT
									34				34	EACH	614	TEMPORARY LANE ARROWS, CLASS I, PAINT
									16				16	EACH	614	TEMPORARY WORD "ONLY" ON PAVEMENT, 72 INCH, CLASS I, PAINT
									122				122	LIN.FT.	614	TEMPORARY TRANSVERSE LINES, CLASS I, PAINT
					2.00								2.00	HOURS	SPECIAL	LAW ENFORCEMENT OFFICER WITH PATROL CAR
					LUMP								LUMP		614	MAINTAINING TRAFFIC
													LUMP		623	CONSTRUCTION LAYOUT STAKES
													LUMP		624	MOBILIZATION
					LUMP								LUMP		619	FIELD OFFICE



* Exact Dimension for Repair shall be Established in the Field by the Engineer. For Estimating Purposes, an Average Width of (6) Feet was Used in Quantity Calculations.

Existing Concrete Removed, Surface Cleaned of Debris, Tack Coat Applied and Asphalt Compacted in Opening. See Proposal Note

PARTIAL DEPTH PAVEMENT JOINT REPAIR

Not to Scale



Calc. by F.S. 1-18-84
CHK'd by G.W. 1-18-84

FHWA REGION	STATE	PROJECT
5	OHIO	

STA - 21 - 10.24

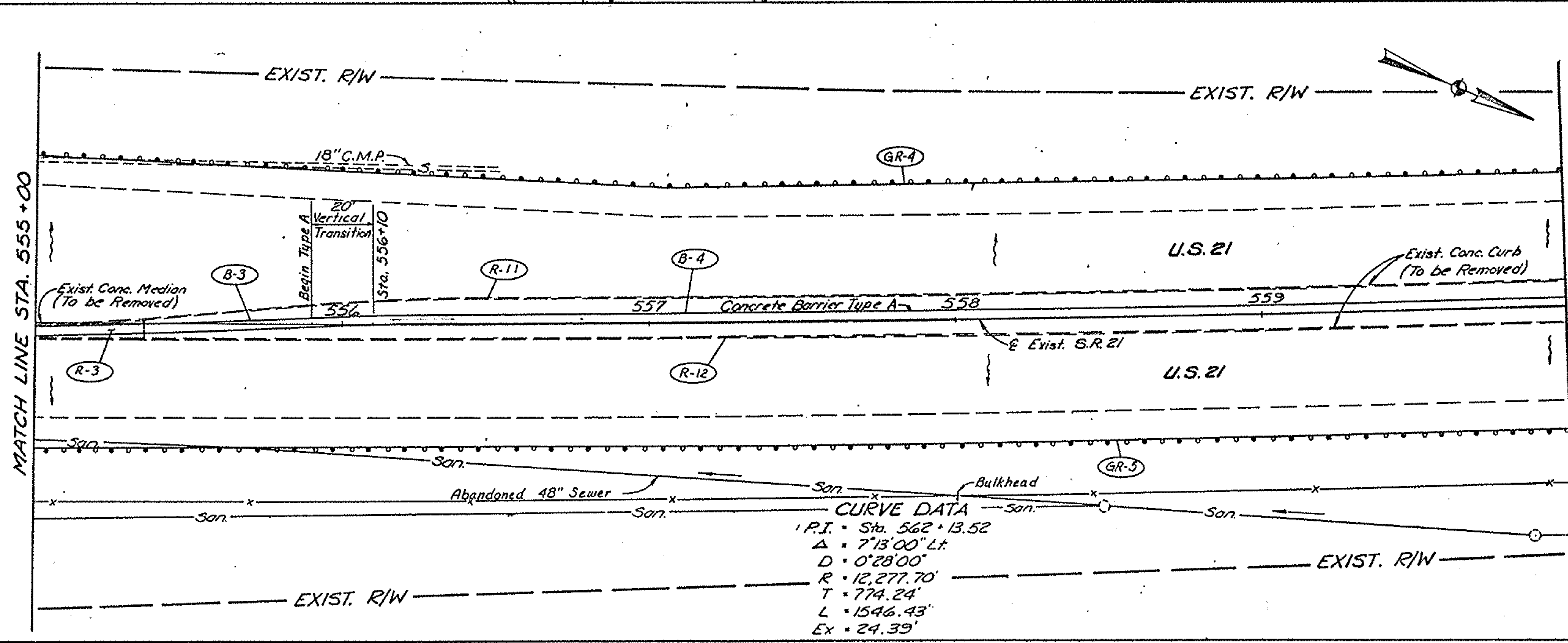
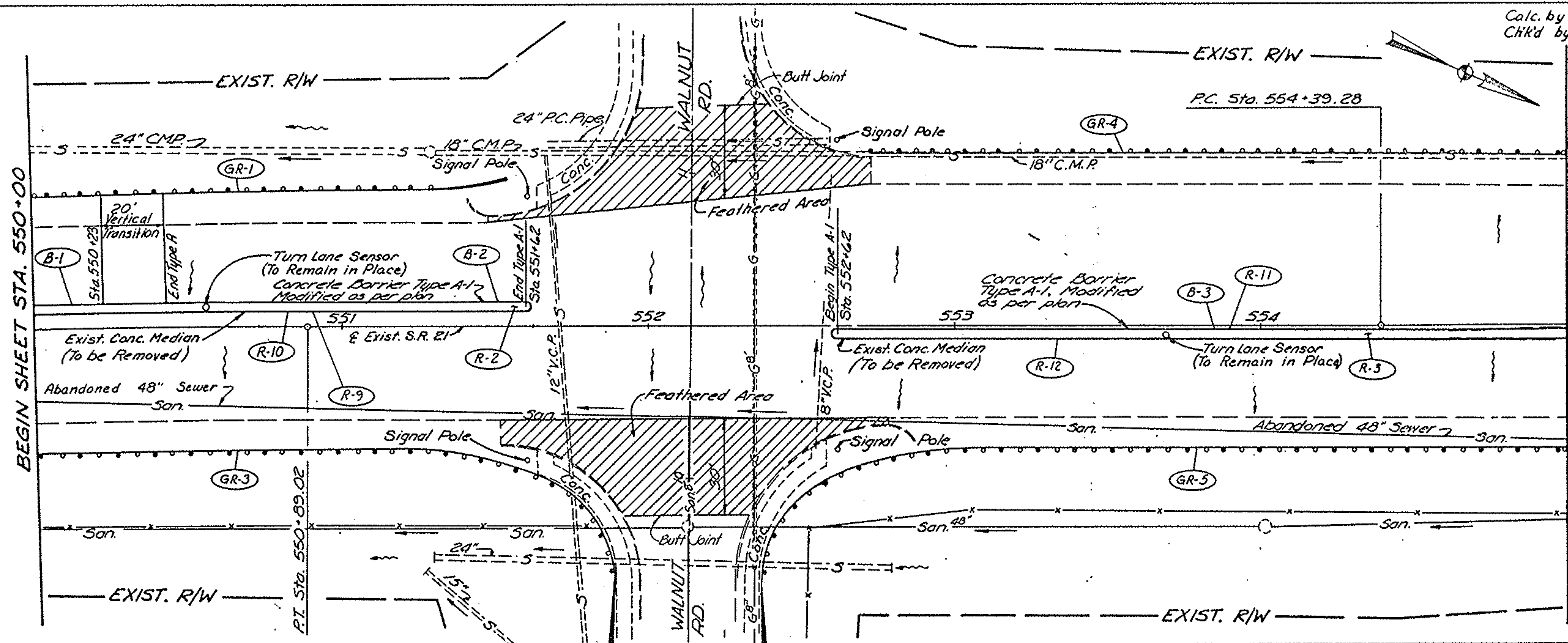
18
29

BEGIN SHEET STA. 550+00

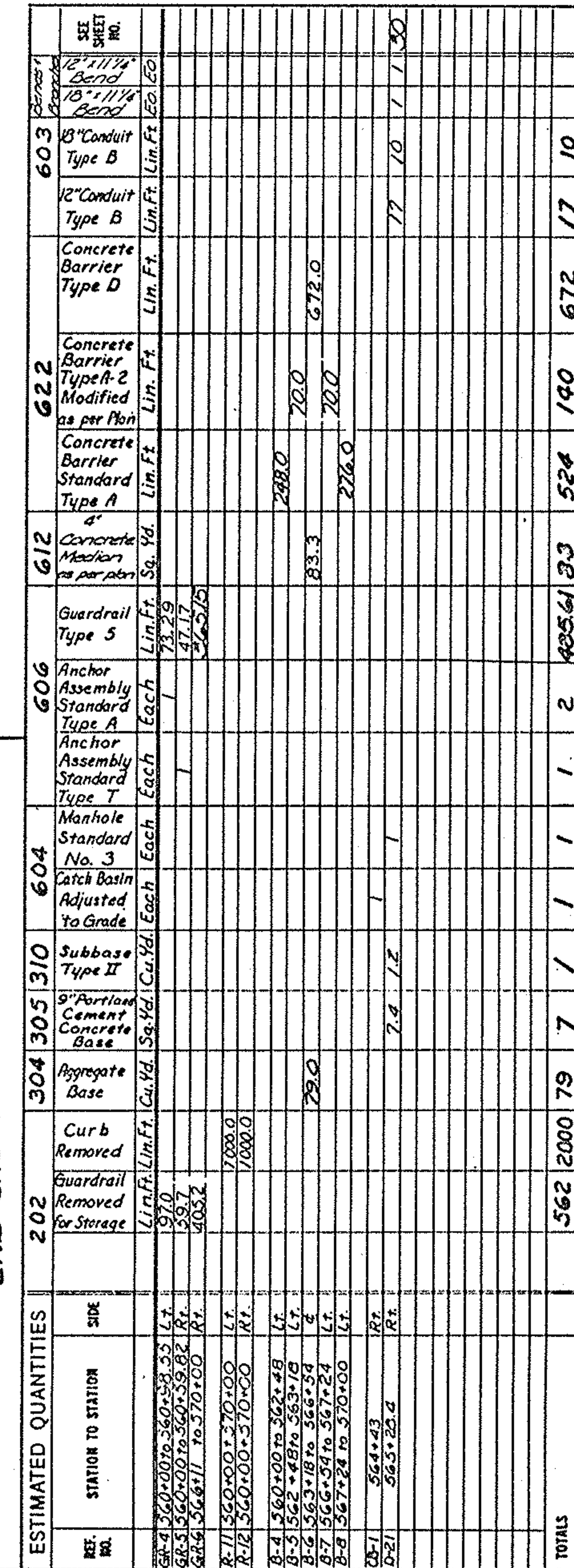
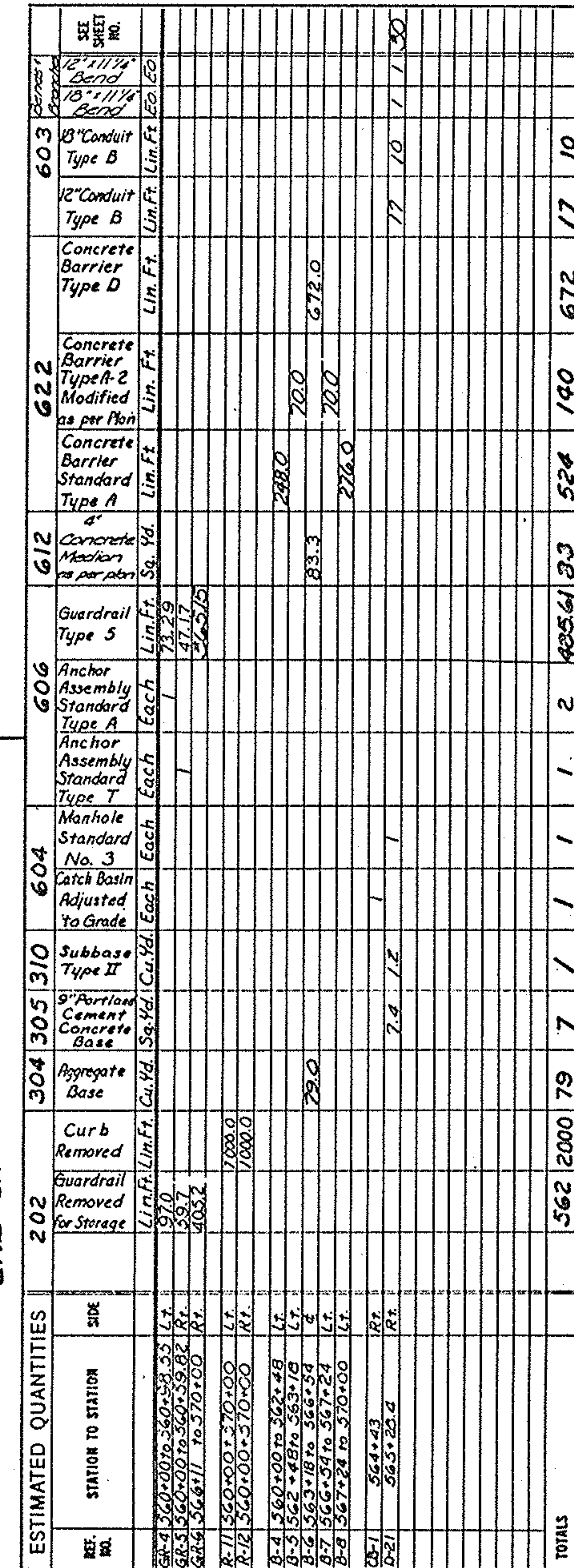
MATCH LINE STA. 555+00

MATCH LINE STA. 555+00

END SHEET STA. 560+00



ESTIMATED QUANTITIES				202				606				622				SEE SHEET NO.			
REF. NO.	STATION TO STATION	SIDE		Concrete Median Removed	Guardrail Removed for Storage	Curb Removed		Anchor Assembly Standard Type T	Anchor Assembly Standard Type A	Guardrail Type 5	Concrete Barrier Standard Type A	Concrete Barrier Type A-1 Modified as per Plan							
				Sq. Yd.	Lin. Ft.	Lin. Ft.		Each	Each	Lin. Ft.	Lin. Ft.	Lin. Ft.							
	550+00 to 551+35	Lt.			131.4			1		131.36									
GR-3	550+00 to 551+35	Rt.			913.2					200.69									
GR-4	552+71 to 560+00	Lt.			726.7					714.21									
GR-3	552+37 to 560+00	Rt.			802.8			1		772.89									
R-2	550+00 to 551+64	Lt.		36.5															
R-3	552+60 to 555+35	Rt.		77.6															
R-9	550+00 to 551+64	Lt.				164.0													
R-10	550+00 to 551+64	Lt.				164.0													
R-11	552+60 to 560+00	Lt.				782.0													
R-12	552+60 to 560+00	Rt.																	
B-1	550+00 to 550+43	Lt.																	
B-2	550+43 to 551+63.5	Lt.									43.0	120.5							
B-3	552+60.5 to 555+90	Rt.									410.0	329.5							
B-4	553+90 to 560+00	Lt.																	
TOTALS				114	1874	1812		1	3	1824.89	453	450							



Calc. by F.S. 1-13-84
Chkd by R.C.S. 1-24-84

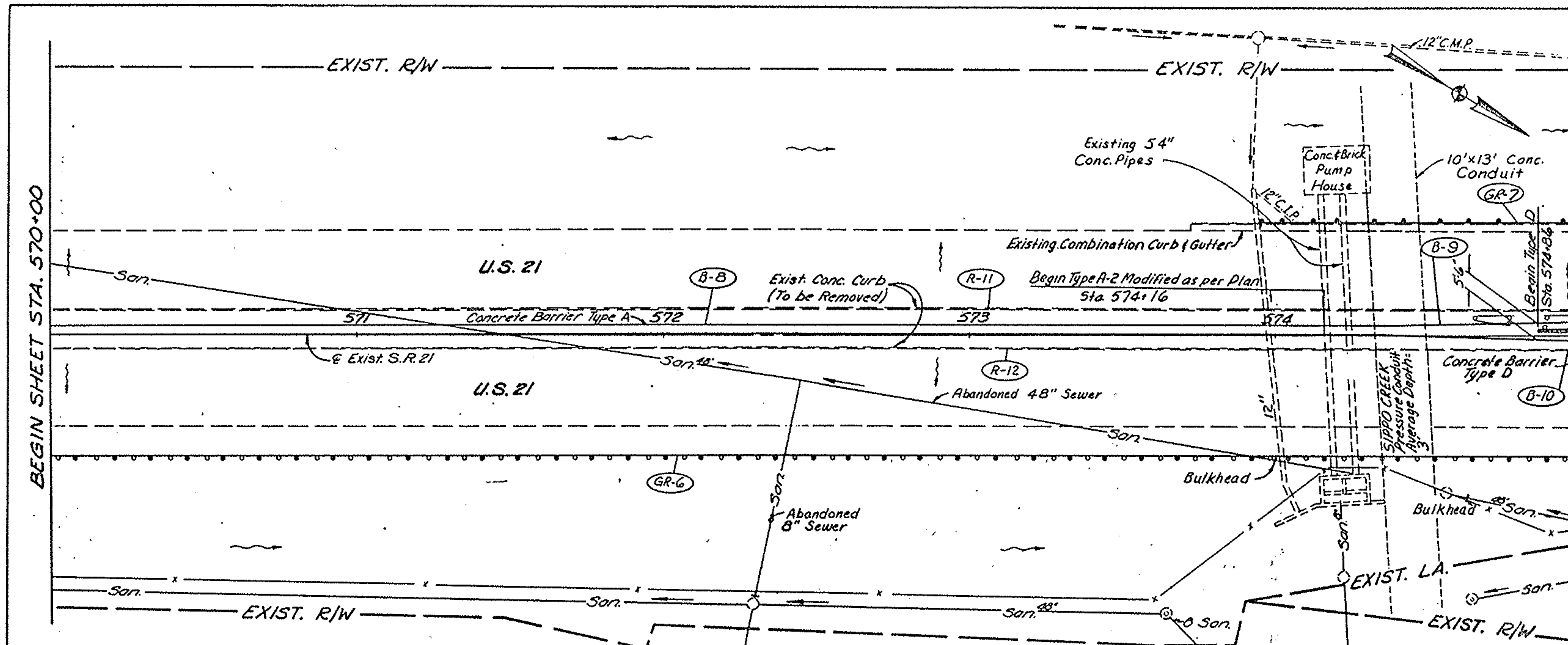
TOTAL	STATE	PROJECT
5	OHIO	

20
29

STA - 21-10.24

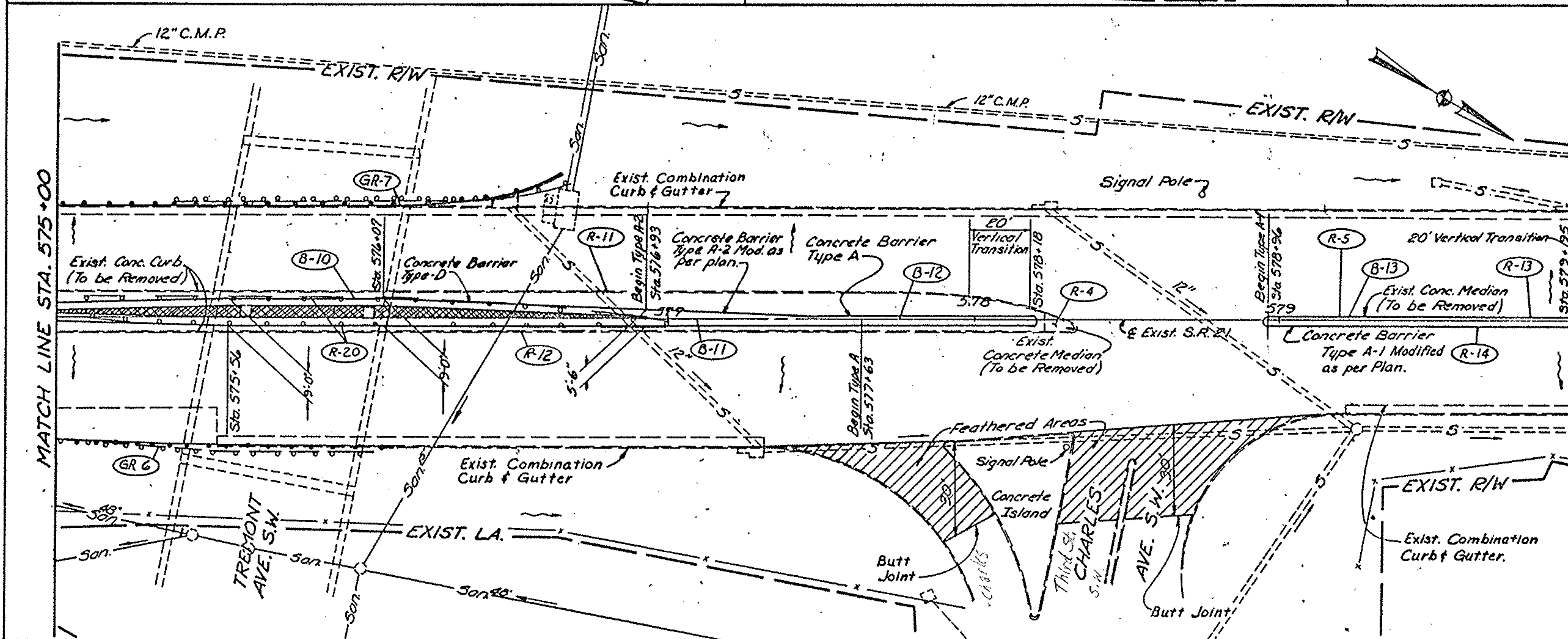
BEGIN SHEET STA. 570+00

MATCH LINE STA. 575+00



MATCH LINE STA. 575+00

END SHEET STA. 580+00



ESTIMATED QUANTITIES	STATION TO STATION	SIDE	REF. NO.	ESTIMATED QUANTITIES	STATION TO STATION	SIDE	REF. NO.
Concrete Barrier Type D	570+00 to 571+00	Rt.	B-8	Concrete Barrier Type D	575+00 to 576+00	Rt.	B-10
Concrete Barrier Type A-2 Modified as per Plan	571+00 to 572+00	Rt.	R-11	Concrete Barrier Type A-2 Modified as per Plan	576+00 to 577+00	Rt.	R-12
Concrete Barrier Type A-1 Modified as per Plan	572+00 to 573+00	Rt.	R-12	Concrete Barrier Type A-1 Modified as per Plan	577+00 to 578+00	Rt.	B-11
Concrete Barrier Standard Type A	573+00 to 574+00	Rt.	GR-6	Concrete Barrier Standard Type A	578+00 to 579+00	Rt.	B-12
Guardrail Type 5	574+00 to 575+00	Rt.	GR-7	Guardrail Type 5	579+00 to 580+00	Rt.	R-4
Anchor Assembly Standard Type A	575+00 to 576+00	Rt.	B-9	Anchor Assembly Standard Type A	580+00 to 581+00	Rt.	R-5
Anchor Assembly Standard Type T	576+00 to 577+00	Rt.	B-10	Anchor Assembly Standard Type T	581+00 to 582+00	Rt.	B-13
4" Concrete Median as per Plan	577+00 to 578+00	Rt.	R-11	4" Concrete Median as per Plan	582+00 to 583+00	Rt.	R-14
Aggregate Base	578+00 to 579+00	Rt.	R-12	Aggregate Base	583+00 to 584+00	Rt.	R-20
Curb Removed	579+00 to 580+00	Rt.	B-11	Curb Removed	584+00 to 585+00	Rt.	B-12
Guardrail Removed for Storage	580+00 to 581+00	Rt.	R-4	Guardrail Removed for Storage	585+00 to 586+00	Rt.	R-5
Concrete Median Removed	581+00 to 582+00	Rt.	B-13	Concrete Median Removed	586+00 to 587+00	Rt.	B-14
TOTALS				TOTALS			

ESTIMATED QUANTITIES													
REF. NO.	STATION TO STATION	SIDE	202		603	604		606		622	305	310	SEE SHEET NO.
			Guardrail Removed for Storage	Curb Removed	12" Conduit Type B	Manhole Adjusted to Grade	Inlet Standard No. I-3C	Anchor Assembly Standard Type T	Anchor Assembly Standard Type A				
			Sq. Yd.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	Lin. Ft.			
R-3	381+19 to 382+73	Rt.		748.2									
R-3	380+00 to 390+00	L.	300.1										
R-13	380+00 to 390+00	L.		1002.3									
R-14	380+00 to 390+00	R.		1001.0									
D-3	582+23	L.			6								
D-4	583+78	L.			6								
D-5	588+62	L.			12								
R-13	380+15 to 390+00	L.											
R-13	582+40	R.											
TOTALS			300	748	2004	24	1	3	1	1	712.50	925	14

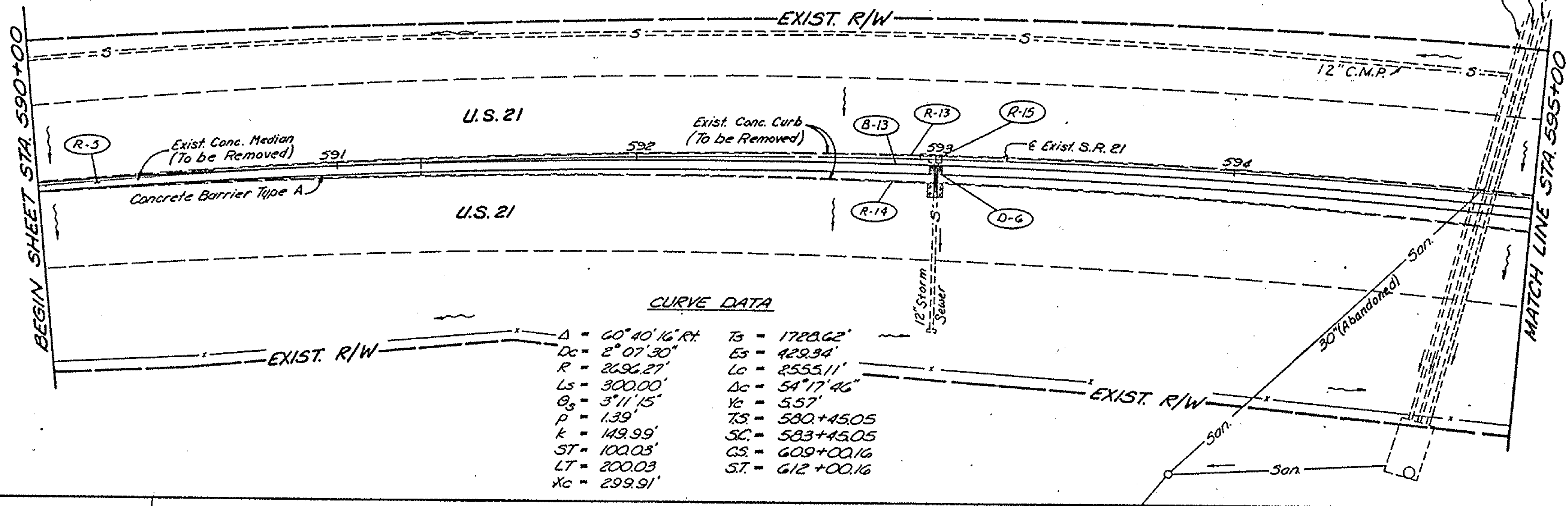
CURVE DATA

Δ = 60°40'16" RT.	Ts = 1728.62'
Dc = 2°07'30"	Es = 429.34'
R = 2636.27'	Lc = 2555.11'
Ls = 300.00'	Ac = 54°17'46"
Qs = 3°11'15"	Yc = 5.57'
P = 1.39'	T.S. = 580+45.05
K = 149.99'	S.C. = 583+45.05
ST = 100.03'	C.S. = 609+00.16
LT = 200.03'	S.T. = 612+00.16
Xc = 299.91'	

Calc. by F.S. 1-13-84
Chkd by R.C.S. 1-24-84

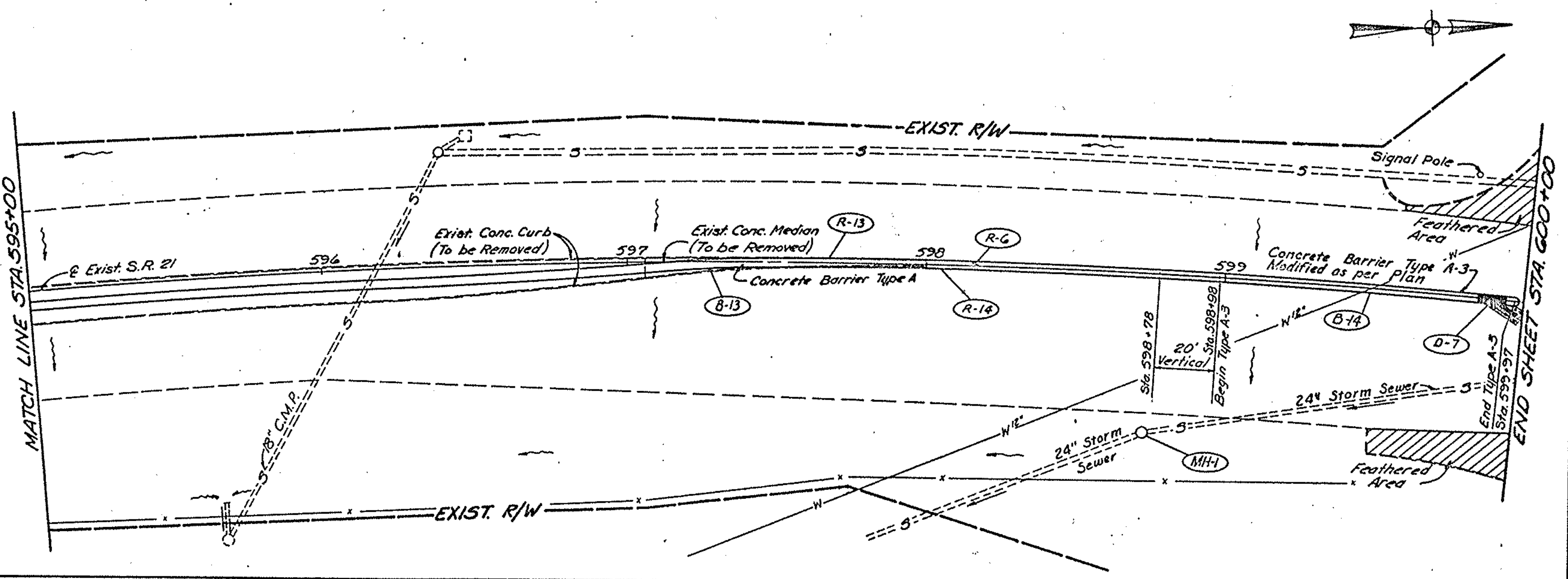
AREA	STATE	PROJECT	SHEET NO.
5	OHIO		22

STA.-21-10.24



CURVE DATA

$\Delta = 60^\circ 40' 16''$	$T_3 = 1788.62'$
$D_c = 2^\circ 07' 30''$	$E_s = 429.94'$
$R = 2696.27'$	$L_c = 2555.11'$
$L_s = 300.00'$	$\Delta_c = 54^\circ 17' 46''$
$\theta_s = 3^\circ 11' 15''$	$Y_c = 5.57'$
$P = 1.39'$	$T.S. = 580+45.05$
$k = 149.99'$	$S.C. = 583+45.05$
$ST = 100.03'$	$G.S. = 609+00.16$
$LT = 200.03'$	$ST = 612+00.16$
$X_c = 299.91'$	



ESTIMATED QUANTITIES			202			603		604			622				305		310		SEE SHEET NO.
REF. NO.	STATION TO STATION	SIDE	Concrete Median Removed	Curb Removed	Inlet Abandoned	1/2" Conduit Type B	Inlet Standard No. I-3C	Inlet Standard No. I-2-B	Manhole Adjusted to Grade	Concrete Barrier Standard Type A	Concrete Barrier Type A-3 Modified as per Plan	Sq. Yd.	Cu. Yd.	9" Portland Cement Concrete Base	Subbase Type II				
R-3	590+00 to 591+28	E	34.2																
R-4	591+00 to 599+99	E	76.2																
R-13	590+00 to 599+99	L		1000.0															
R-14	590+00 to 599+99	R		597.5															
B-13	590+00 to 598+98	R																	
B-14	598+98 to 599+98.5	L								878.0	91.2								
D-6	593+00	R				6													30
D-7	599+92	L				6		1						2.4	0.4				30
R-15	593+00	L			1									4.7	0.8				
MH-1	598+75	R							1										
TOTALS			130	1998	1	12	1	1	1	878	91			7	1				

FWA REGION	STATE	PROJECT	
5	OHIO		

$$\frac{23}{69}$$

MATCH LINE STA. 605+00
 EXIST. LA R/W
 24" Storm
 San.
 R-21
 Plug
 606
 Concrete Barrier Type A
 R-16
 607
 R-17
 R-7
 San.
 608
 Exist. Conc. Curb (To be Removed)
 R-16
 E. Exist. S.R. 21
 MH-5
 W 12°
 San. 20°
 W 12°
 San. 10°
 EXIST. LA R/W
 C.S. Sta. 609+00.16
 END SHEET STA. 610+00

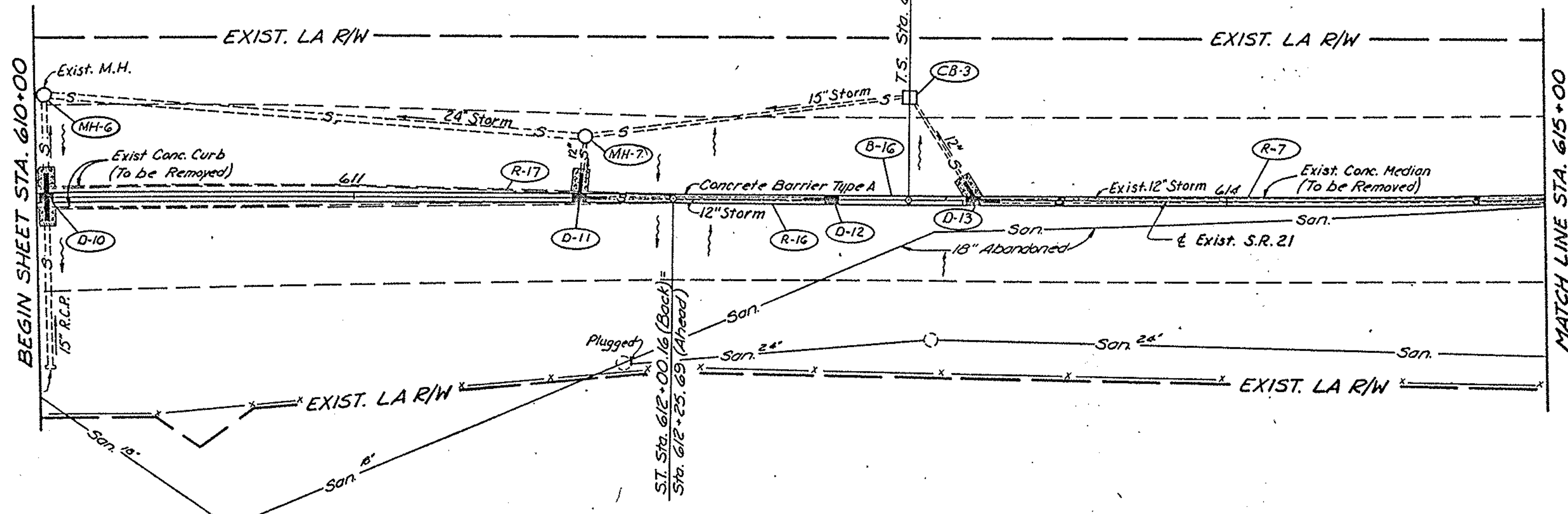
ESTIMATED QUANTITIES			202		603		604		622		604		202		305 310		608		609	
REF. P.L.	STATION TO STATION	SIDE	Concrete Median Removed	Curb Removed	Inlet Abandoned	12" Conduit Type B	Catch Basin Adjusted to Grade	Inlet Standard No. 1-2-10	Manhole Adjusted to Grade	Concrete Barrier Standard Type A	Concrete Barrier Type A-3 Modified as per Plan	Sanitary Manhole Adjusted To Grade	Walk Removed		9" Portland Cement Concrete Base	Subbase Type II	4" Concrete Walk	4" Aggregate Walk	Curb, Standard Type 6	Asphalt Concrete Curb
			Sq. Yd.	Lin. Ft.	Each	Lin. Ft.	Each	Each	Each	Lin. Ft.	Lin. Ft.	Each	Sq. Ft.	Sq. Ft.	Sq. Yd.	Cu. Yd.	Sq. Ft.	Sq. Ft.	Lin. Ft.	Lin. Ft.
R-7	601+6.3 to 610+00	Rt.	532.2																	
R-7	601+6.3 to 610+00	Rt.		835.0																
R-7	601+6.3 to 610+00	Rt.		836.5																
R-21	608+35	Lt.			1															
R-15	601+6.3 to 602+67	Rt.								731.9	89.8									
R-16	602+67 to 610+00	Rt.																		
O-8	601+90	Rt.				12	1								7.7	7.3				30
WH-2	600+30	Rt.							1											
WH-3	600+02	Rt.							1											
WH-4	601+60	Lt.							1											
CH-2	609+02	Lt.					1													
WH-5	609+02	Lt.																		
1-54	601+06 to 601+47	Lt.											160.0	143.0						
1-6	601+08 to 601+39	Lt.		370															370	44.0
TOTALS			532	1709	1	12	1	1	3	732	90	1	160		8	1	160	143	37	44

Calc. by F.S. 1-4-84
Ch'kd by G.W. 1-19-84

ROW	STATE	PROJECT
5	OHIO	

STA. - 21-10.24

24
29

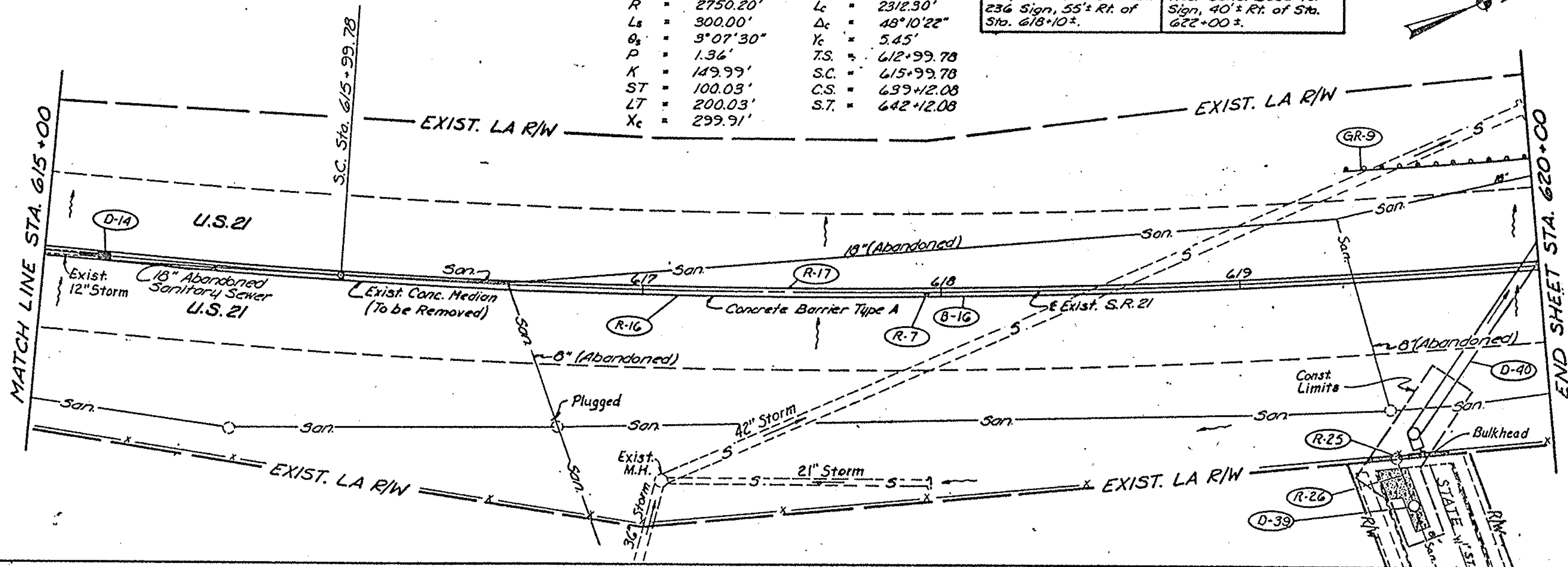


For Additional Quantities, See Sheet No. 25

CURVE DATA

Δ	$54^{\circ}25'22''$ Lt.	T_s	$1564.75'$
D_c	$2^{\circ}05'$	E_s	$343.79'$
R	$2750.20'$	L_c	$2312.30'$
L_s	$300.00'$	Δ_c	$48^{\circ}10'22''$
θ_s	$3^{\circ}07'30''$	Y_c	$5.45'$
P	$1.36'$	$T.S.$	$612+99.78$
K	$149.99'$	$S.C.$	$615+99.78$
ST	$100.03'$	$C.S.$	$619+12.08$
LT	$200.03'$	$S.T.$	$642+12.08$
X_c	$299.91'$		

BM #16 - ELEV. 937.91 S.R. 21 - Chiseled Sq. on N.W. Corner of Conc. End wall, 400' S. of Jct. S.R. 236 Sign, 55' Rt. of Sta. 618+10.	BM #17 - ELEV. 944.39 S.R. 21 of Jct. S.R. 236 Sign, Chiseled Sq. on West Corp. Base for Sign, 40' Rt. of Sta. 622+00.
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ESTIMATED QUANTITIES

STATION TO STATION

SIDE

REF. NO.

STATION TO STATION

SIDE

REF. NO.

STATION TO STATION

SIDE

REF. NO.

STATION TO STATION

SIDE

REF. NO.

STATION TO STATION

SIDE

REF. NO.

STATION TO STATION

SIDE

202

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

202

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

202

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

202

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

202

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

202

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

202

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

Concrete Barrier Type A

Guardrail Type 5

Anchor Assembly Standard Type T

Catch Basin Adjusted to Grade

Manhole Adjusted to Grade

Curb Removed

Guardrail Removed for Storage

Concrete Median Removed

ESTIMATED QUANTITIES

Calc. by B.L. 3-14-84
Chkd by W.C.R. 3-15-84

FHWA REGION	STATE	PROJECT
5	OHIO	

25
69

STA-21-10.24

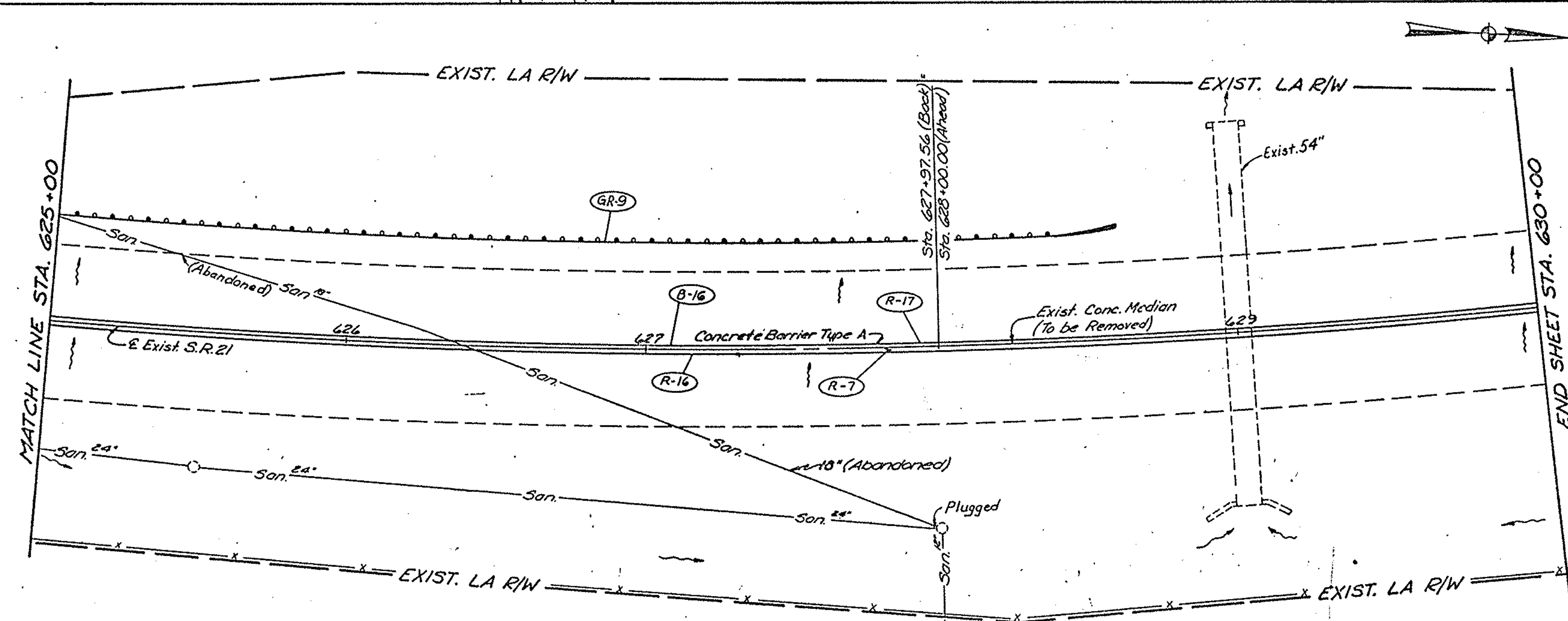
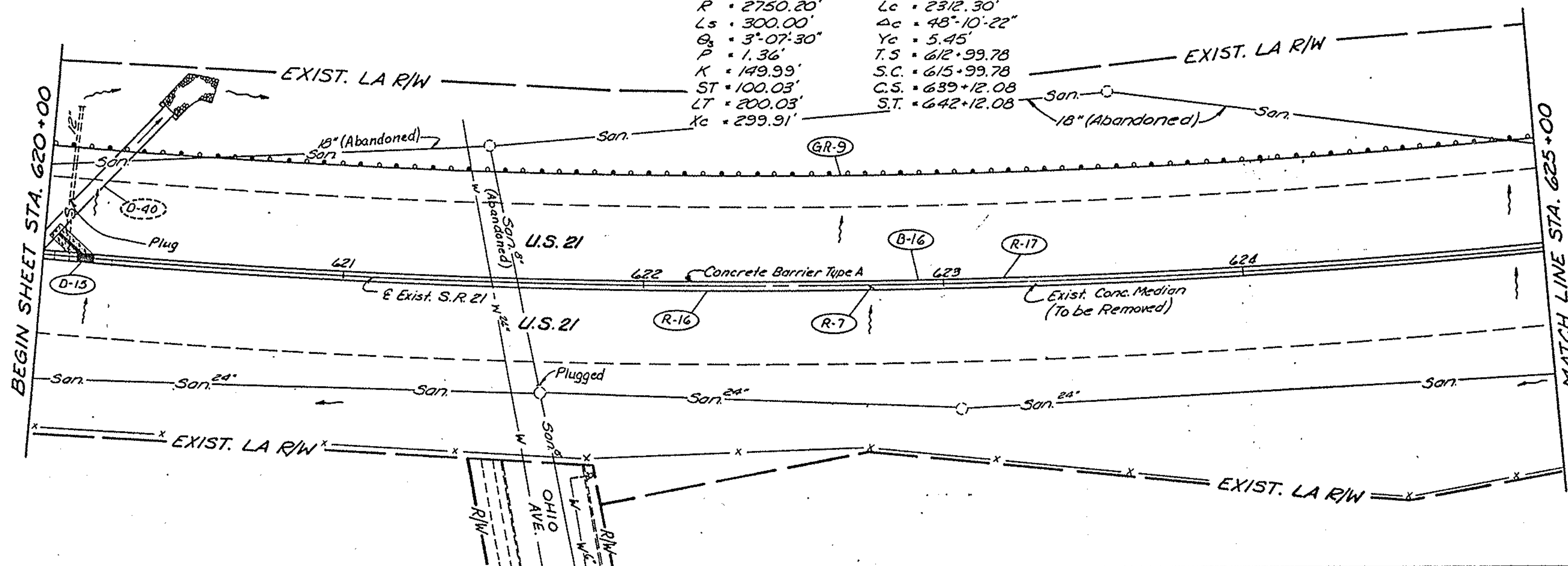
* 100% CITY FUNDS

* 100% CITY FUNDS																				STA-21-10.24				
REF. NO.	STATION TO STATION	SIDE	202			301	848	848	305	310	601	602	603				604			603		604	SEE SHEET NO.	
			* Pipe Removed 24" and Under Lin. Ft.	* Sanitary Manhole Removed Each		* Bituminous Aggregate Base, AC-20 or RT-11 or RT-12 Cu. Yd.	* Asphalt Concrete Intermediate Course, Type 2 Cu. Yd.	* Asphalt Concrete Intermediate Course, Type 1 Cu. Yd.	9" Portland Cement Concrete Base Sq. Yd.	Subbase, Type II Cu. Yd.	* Rock Channel/ Protection, Type B, With Filter Cu. Yd.	* Concrete Masonry Cu. Yd.	12" Conduit, Type B Lin. Ft.	15" Conduit, Type B Lin. Ft.	* 48" Conduit, Type B, 206.02, 3250 D-Load Lin. Ft.	* 48" Conduit Type B, 206.02 3250 D-Load As Per Plan Lin. Ft.	* Manhole Standard No. 5 Each	Inlet Standard No. I-3C Each		* 8" Conduit, Type B, 206.01 206.02 or 206.03 With Joints As Per 206.11 or 206.12 Lin. Ft.		* Manhole Standard No. 3 With Joints, As Per 206.11 Each		
D-10	610+03	E							6.3	1.0														
D-11	611+71	E							4.2	0.7			12	12				1					30	
D-12	612+75.8	E											6					1					30	
D-13	613+20	E							4.2	0.7			12					1					30	
D-14	615+20	E											6					1					30	
D-39	10+20 State Street	E				4.0	0.6	0.7											6		1		31	
D-40	619+95.5	E									14.1	1.09			20	114	1						31	
R-25	10+00 State Street	E		1																				
R-26	10+00 to 10+20 State Street	E	23																					
TOTAL			23	1		4	1	1	15	2	14	1.09	36	12	20	114	1	5		6		1		
H. E. QUICKBALL AND ASSOCIATES INC., CONSULTING ENGINEERS AND ARCHITECTS																								

STA - 21 - 10.24

Calc. by F.S. 1-4-84
Ch'k'd by G.W. 1-19-84

$\Delta = 54^{\circ} 25' 22'' \text{ L.T.}$	$T_s = 1564.79'$
$D_c = 2^{\circ} 05'$	$E_s = 543.79'$
$R = 2750.20'$	$L_c = 2312.30'$
$L_s = 300.00'$	$\Delta_c = 48^{\circ} 10' 22''$
$\theta_s = 3^{\circ} 07' 30''$	$Y_c = 5.45'$
$P = 1.36'$	$T.S = 612.99.78$
$K = 149.99'$	$S.C = 615.99.78$
$ST = 100.03'$	$C.S = 639+12.08$
$LT = 200.03'$	$S.T = 642+12.08$
$X_c = 299.91'$	



ESTIMATED QUANTITIES			202		603	604	305		310	606		622	Bends & Branches					SEE SHEET NO.
REF. NO.	STATION TO STATION	SIDE	Curb Removed	Guardrail Removed for Storage	Concrete Median Removed	12" Conduit Type B	Inlet Standard No. I-3C		9" Portland Cement Concrete Base	Subbase Type II	Anchor Assembly Standard Type A	Guardrail Type 5	Concrete Barrier Standard Type A	12"x 48" Field Tee				
			Lin. Ft.	Lin. Ft.	Sq. Yd.	Lin. Ft.	Each		Sq. Yd.	Cu. Yd.	Each	Lin. Ft.	Lin. Ft.	Each				
6R-9	620+00 to 628+63.54	Lt.		850.2							1	825.16						
R-7	620+00 to 630+00	¢	222.2															
R-16	620+00 to 630+00	Rt.	1000.0															
R-17	620+00 to 630+00	Lt.	1000.0															
B-16	620+00 to 630+00	¢											977.6					
D-15	620+14	¢				12	1		7.1	1.3				1				30
TOTALS			222	850	2000	12	1		7	1	1	825.16	978					

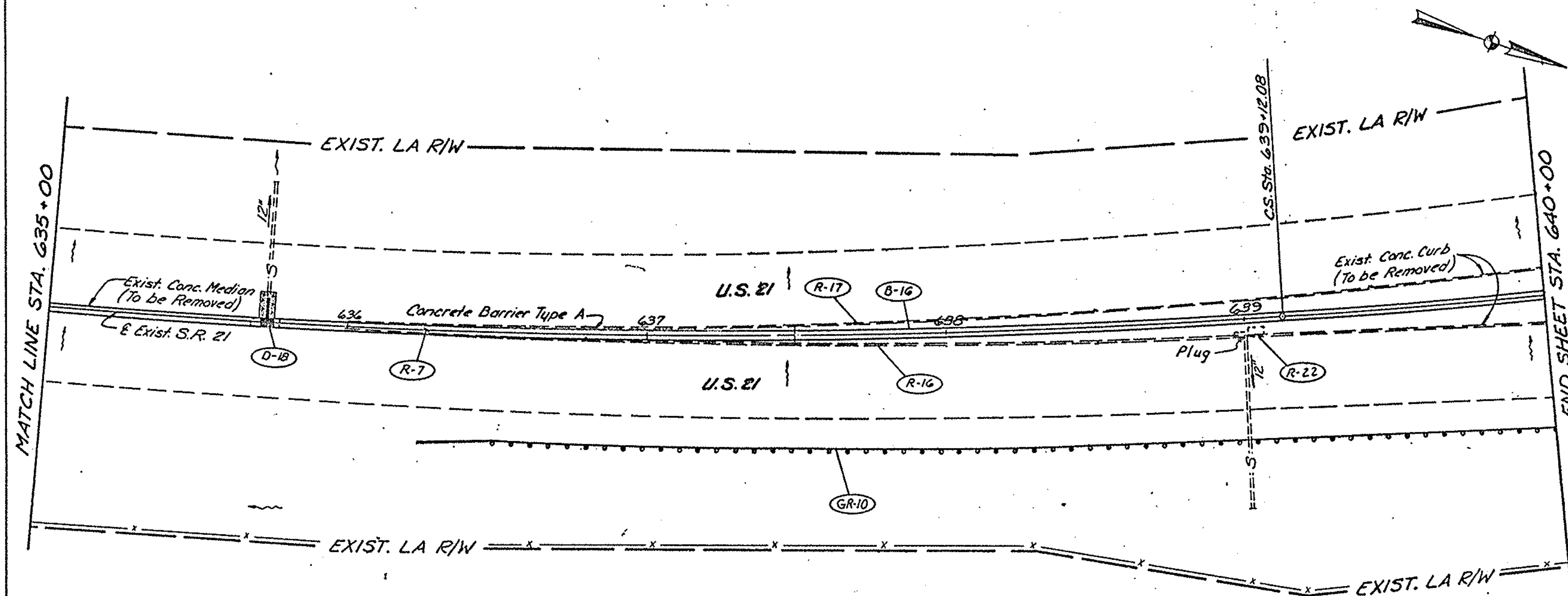
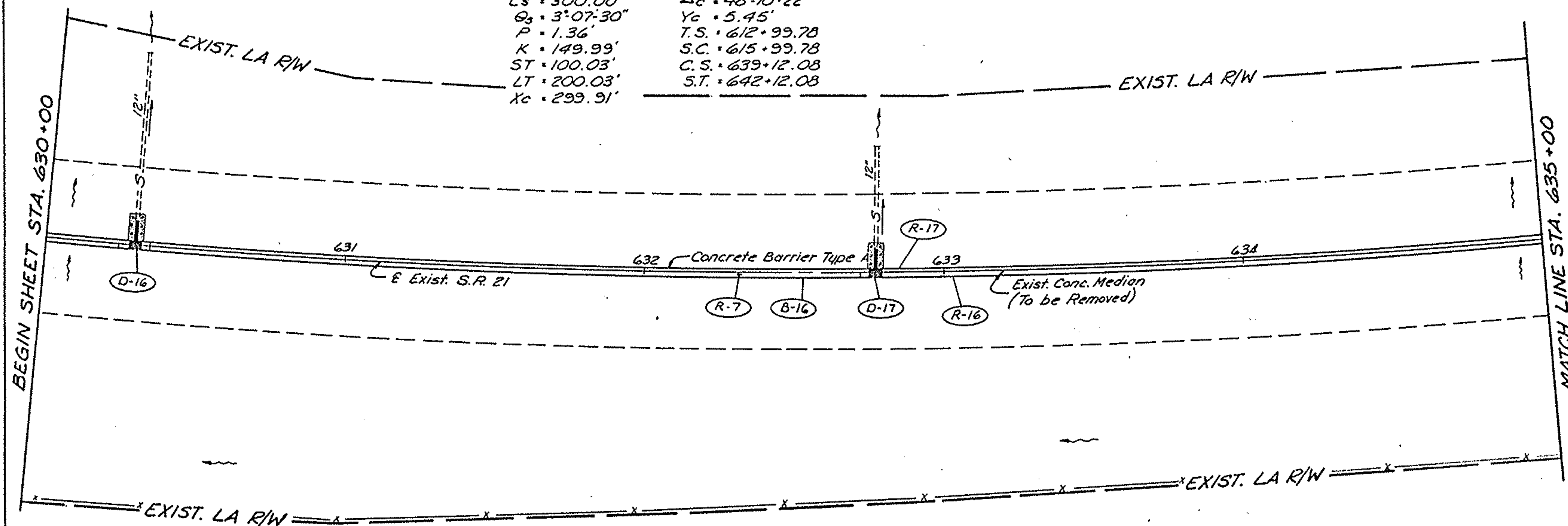
$\Delta = 54^{\circ} 25' 22'' \text{ Lt.}$	$T_s = 1564.79'$
$D_c = 2^{\circ} 05'$	$E_s = 343.79'$
$R = 2750.20'$	$L_c = 2312.30'$
$L_s = 300.00'$	$\Delta_c = 48^{\circ} 10' 22''$
$Q_s = 3^{\circ} 07' 30''$	$Y_c = 5.45'$
$P = 1.36'$	$T.S. = 612 + 99.78$
$K = 149.99'$	$S.C. = 615 + 99.78$
$ST = 100.03'$	$C.S. = 639 + 12.08$
$LT = 200.03'$	$S.T. = 642 + 12.08$
$X_c = 299.91'$	

Calc. by F.S. 1-4-84
Ch'k'd by G.W. 1-19-84

FWA REGION	STATE	PROJECT	
5	OHIO		

STA-21-10.24

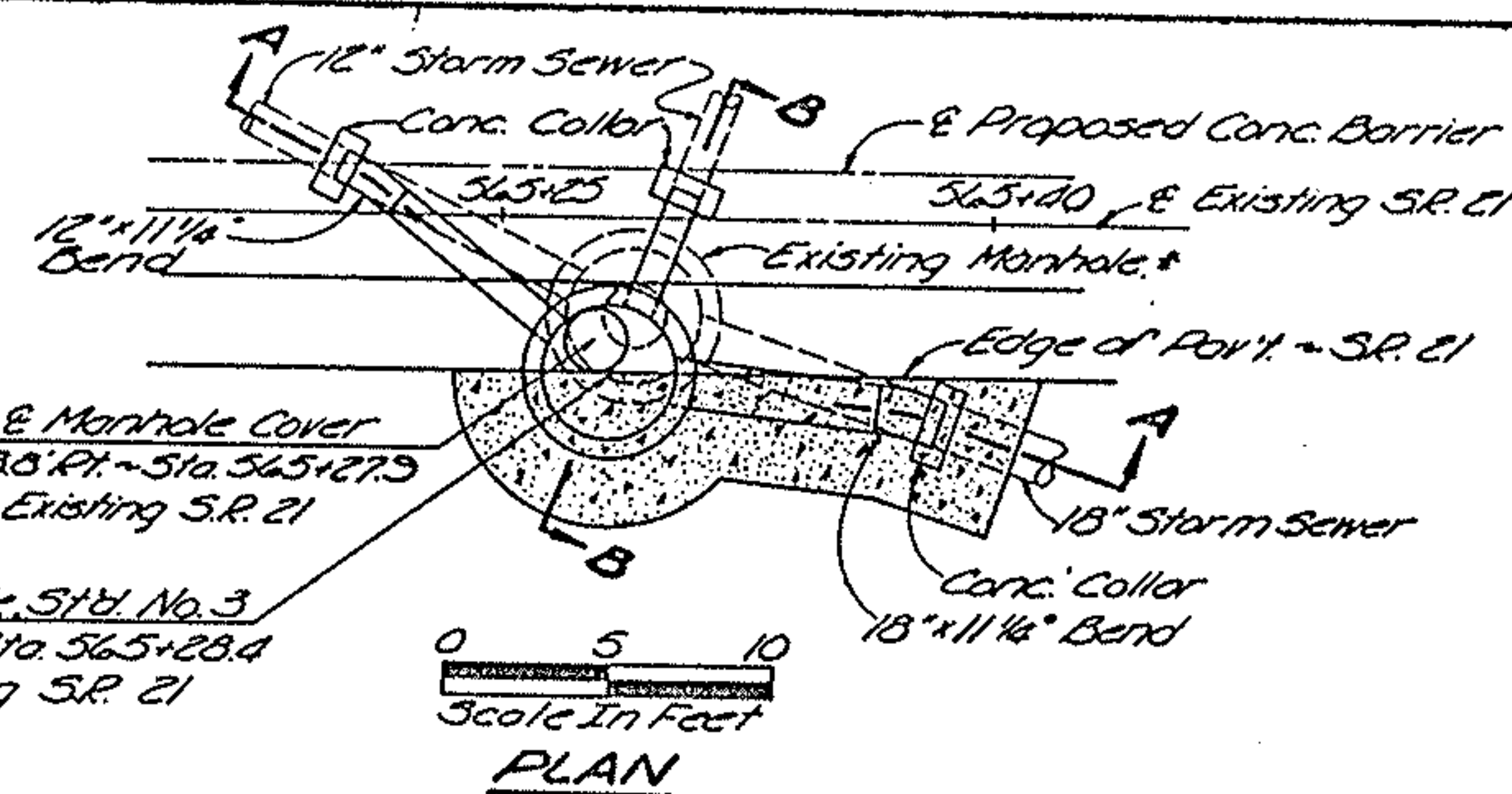
27
69



ESTIMATED QUANTITIES																											
REF. NO.	STATION TO STATION	SIDE	202			603	604	202	305	310	606		622					SEE SHEET NO.									
			Sq. Yd.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Sq. Yd.	Cu. Yd.	Each	Lin. Ft.	Lin. Ft.														
R-10	636+24.5 to 640+00	Rt.	381.6								1	356.53															
R-7	630+00 to 637+50	L	195.8																								
R-16	630+00 to 640+00	Rt.		1003.5																							
R-17	630+00 to 640+00	Lt.		1002.5																							
R-16	630+00 to 640+00	L												940.0													
D-16	630+31	L				1			4.2	0.7							30										
D-17	632+78	L				1			4.2	0.7							30										
D-18	635+73	L				1			4.2	0.7							30										
R-22	639+00	Rt.					1																				
TOTALS			196	382	2006	3	1		13	2		1	356.53	940													

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 630+00 TO STA. 640+00



(D-2) ESTIMATED QUANTITIES

Item 604	Manhole, Standard No. 3	1 Each
Item 603	12" Conduit, Type B	17 Lin. Ft.
Item 605	18" Conduit, Type B	10 Lin. Ft.
Item 305	9" Portland Cement Concrete Base	7.4 Sq. Yd.
Item 310	Subbase, Type II	12 Cu. Yd.

Quantities Carried to Sheet No. 19

*Note:
Existing Manhole and adjoining Conduit to be Removed with Excavation for Item 604.

Bends & Branches
12" x 1 1/4" Bend ----- 1 Each
18" x 1 1/4" Bend ----- 1 Each

Calc. by B.L. 3-12-84 Chkd. by R.C.S. 3-13-84

(D-1) ESTIMATED QUANTITIES

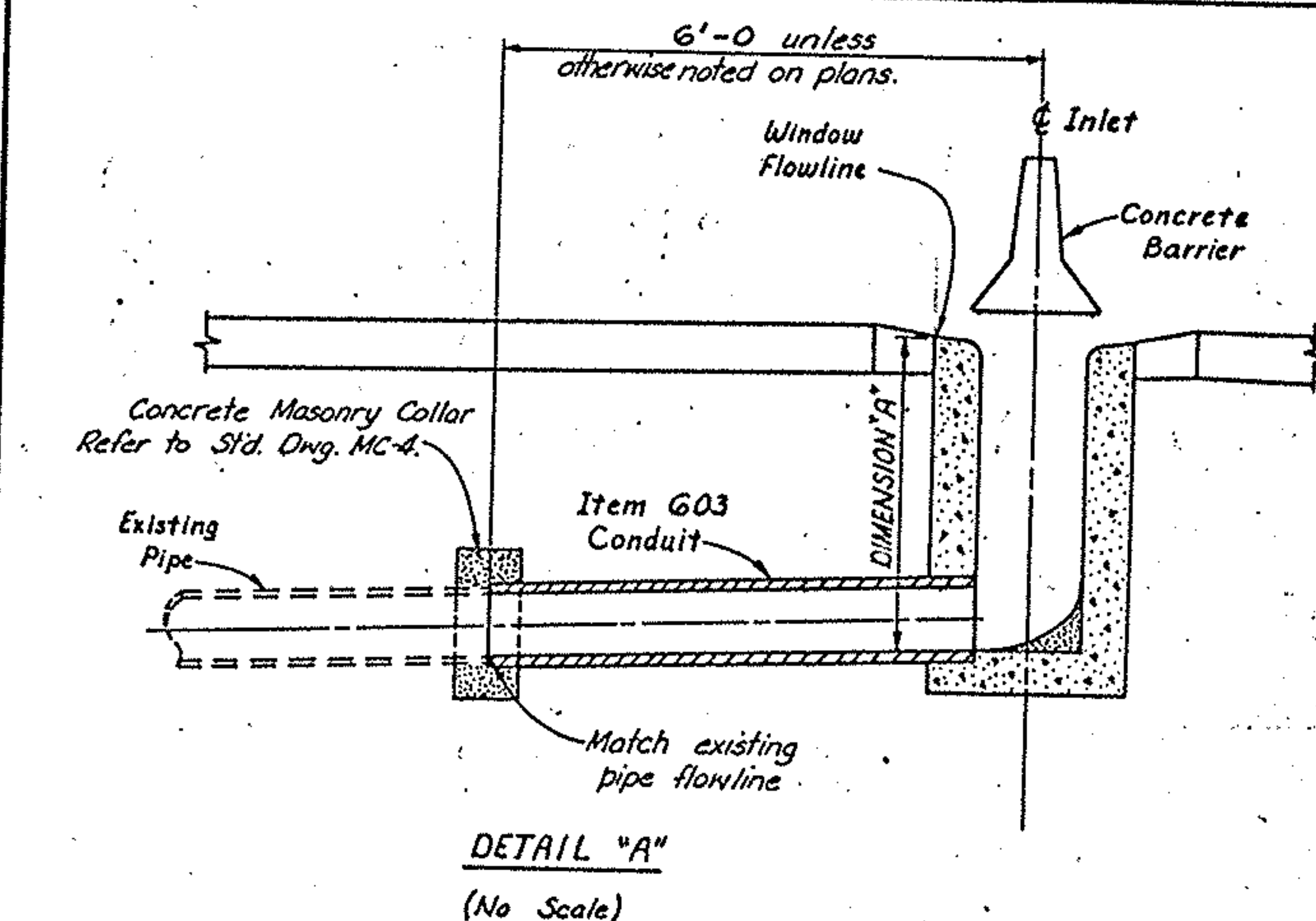
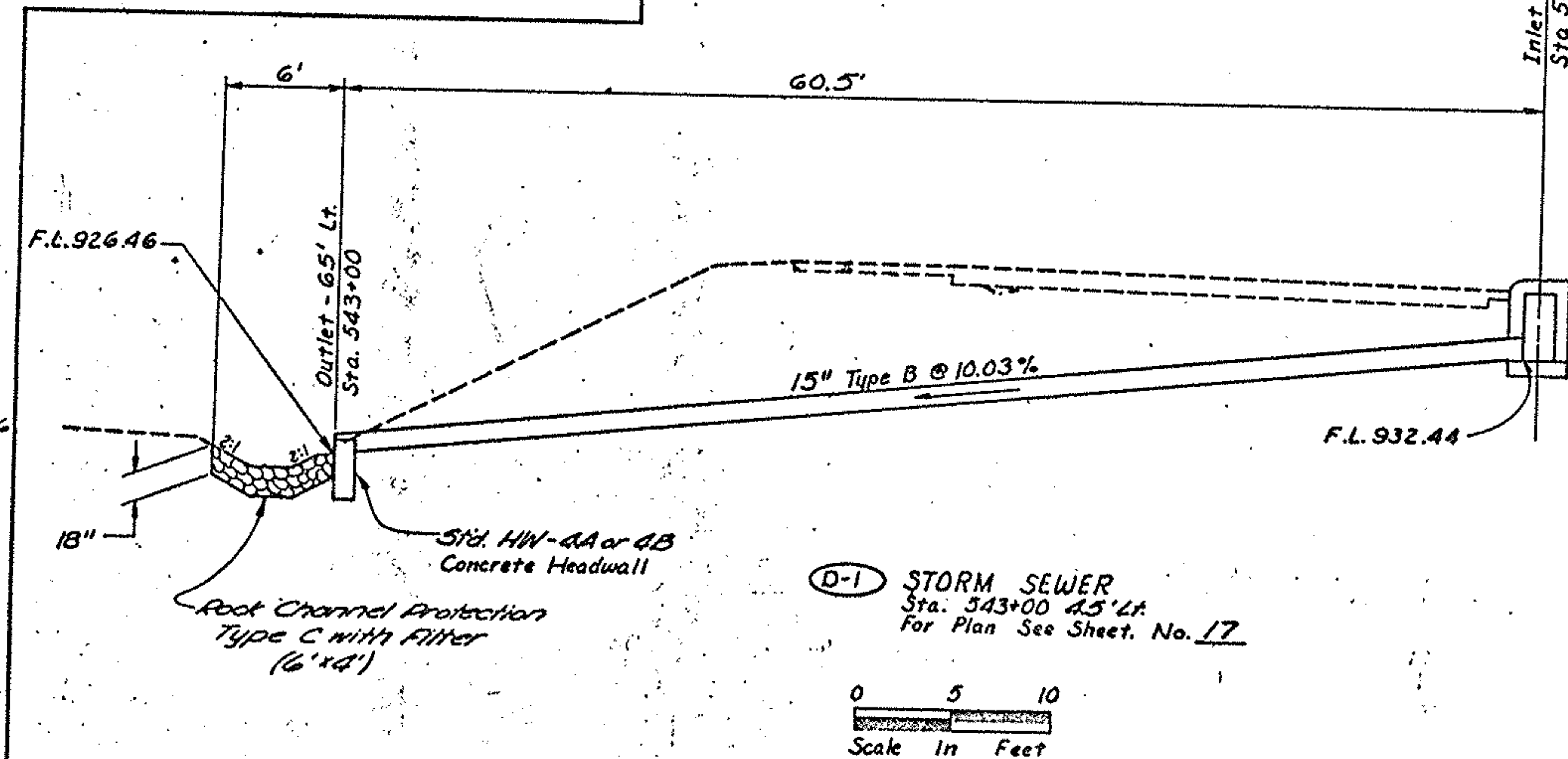
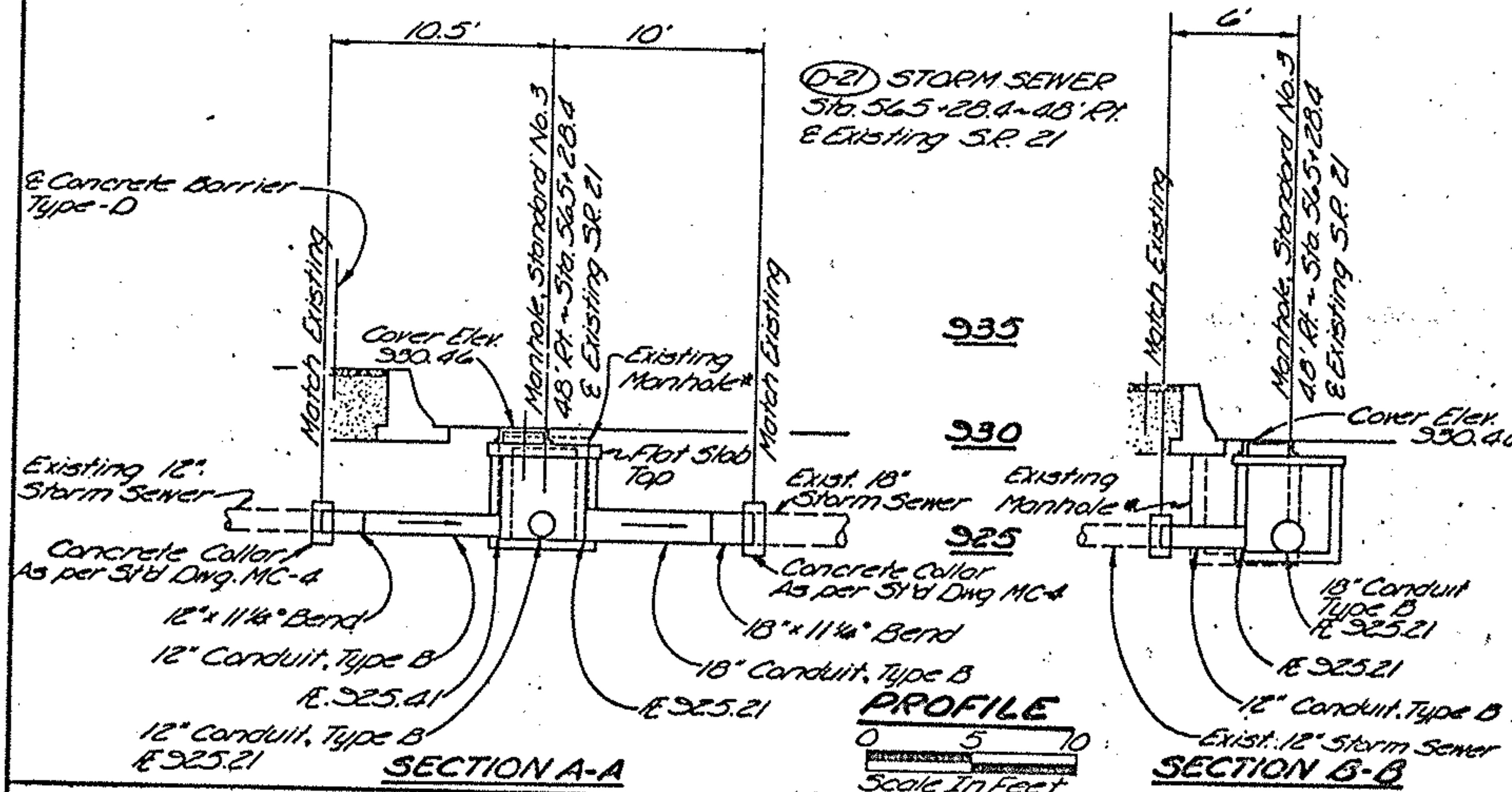
Item 601	Rock Channel Protection Type C w/ Filter	1.3 Cu. Yd.
Item 602	Concrete Masonry	0.27 Cu. Yd.
Item 603	15" Conduit Type B	61 Lin. Ft.
Item 604	Inlet, Std. Type I-2-10	1 Each
Item 305	9" Portland Cement Concrete Base	15.33 Sq. Yd.
Item 310	Subbase, Type II	2.55 Cu. Yd.

Quantities Carried to Sheet No. 17

STA-21-10.24

OHIO
FHWA
REGION 5

30
69



Existing Inlet to be Removed with Excavation for Item 603 and 604.

STORM SEWER DATA

STORM DRAIN NUMBER	STATION	OFFSET	ITEM 603			ITEM 604			APPROX. DEPTH DIMENSION "A"	PROPOSED OUTLET FLOWLINE ELEVATION	PROPOSED INLET FLOWLINE ELEVATION 15" PIPE	PROPOSED INLET FLOWLINE ELEVATION 12" PIPE	PROPOSED INLET FLOWLINE ELEVATION 10" PIPE	PROPOSED INLET FLOWLINE ELEVATION 8" PIPE	PROPOSED INLET FLOWLINE ELEVATION 6" PIPE	Bonds & Branches	FOR PLAN SEE SHEET NO.
			15" CONDUIT TYPE B	12" CONDUIT TYPE B	12" CONDUIT TYPE B	INLET STANDARD NO. I-2-10	INLET STANDARD NO. I-2-B	INLET STANDARD NO. I-3C									
			Lin. ft.	Lin. ft.	Lin. ft.	Each	Each	Each	Lin. ft.							Each	
D-2	346+75	2' Lt.		0					4	933.32							17
D-3	582+25	4' Lt.		0					4	925.50							21
D-4	583+78	1' Lt.		0					4	927.54							21
D-5	588+62	0		12					4	933.59							21
D-6	593+00	3' Rt.		6					3.5	936.23		933.59					22
D-7	599+92	0		6					4	936.45					936.53		22
D-8	601+90	5' Rt.		12					4.5	933.39					934.53		23
D-10	610+03	0	12						9	929.29	929.23		930.23	930.23	934.11		23
D-11	611+71	0		12					6.5	929.99		932.63					23
D-12	612+75.8	0		6					2.6	933.23							23
D-13	613+20	0		12					3.5	932.77		932.77					23
D-14	615+20	0		6					4	934.21							23
D-15	620+14	0			12				7.4	935.73							23
D-16	630+31	0		6					4	933.07							27
D-17	632+78	0		6					3.5	930.16							27
D-18	635+73	0		6					5	932.68							27

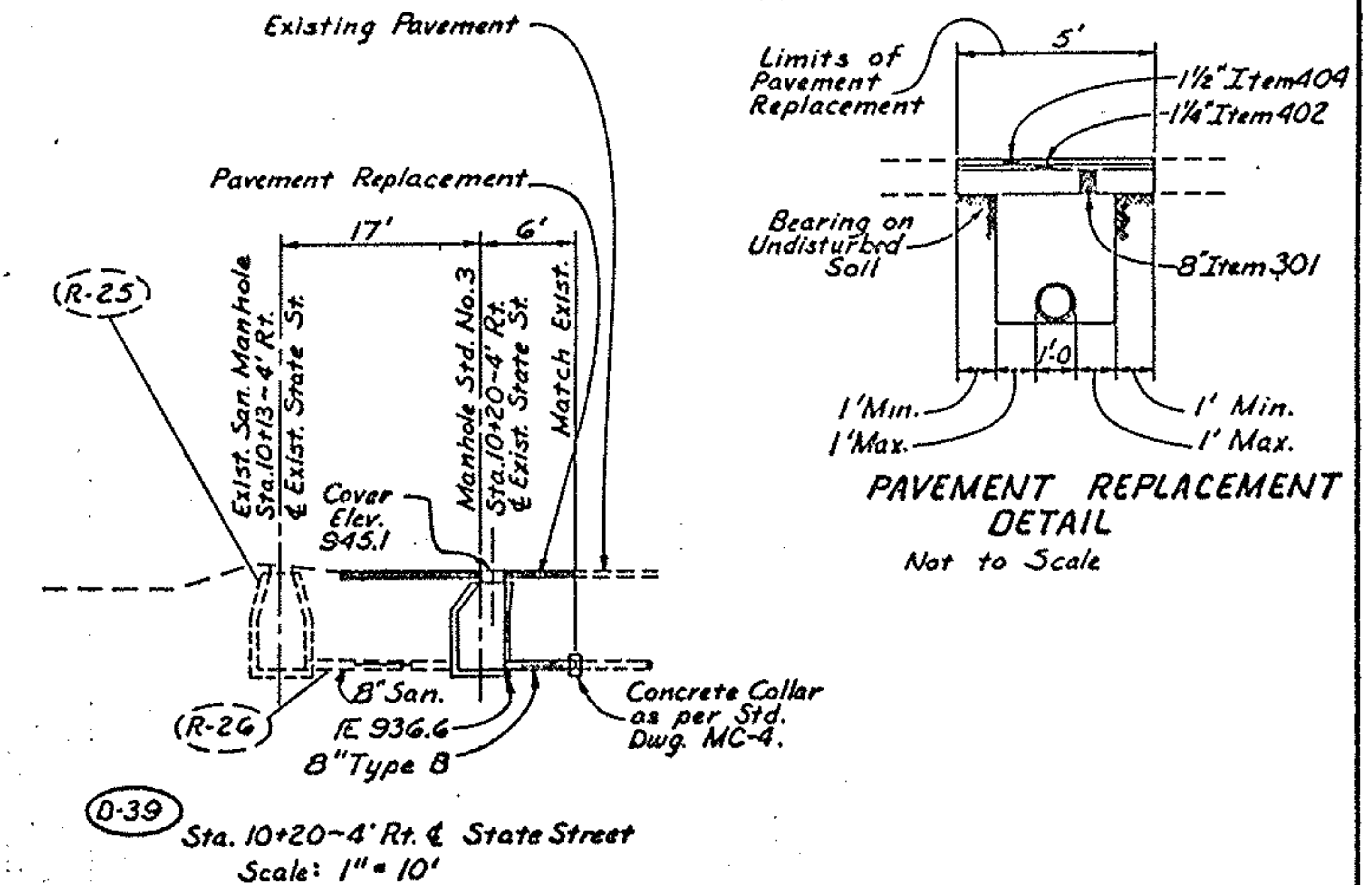
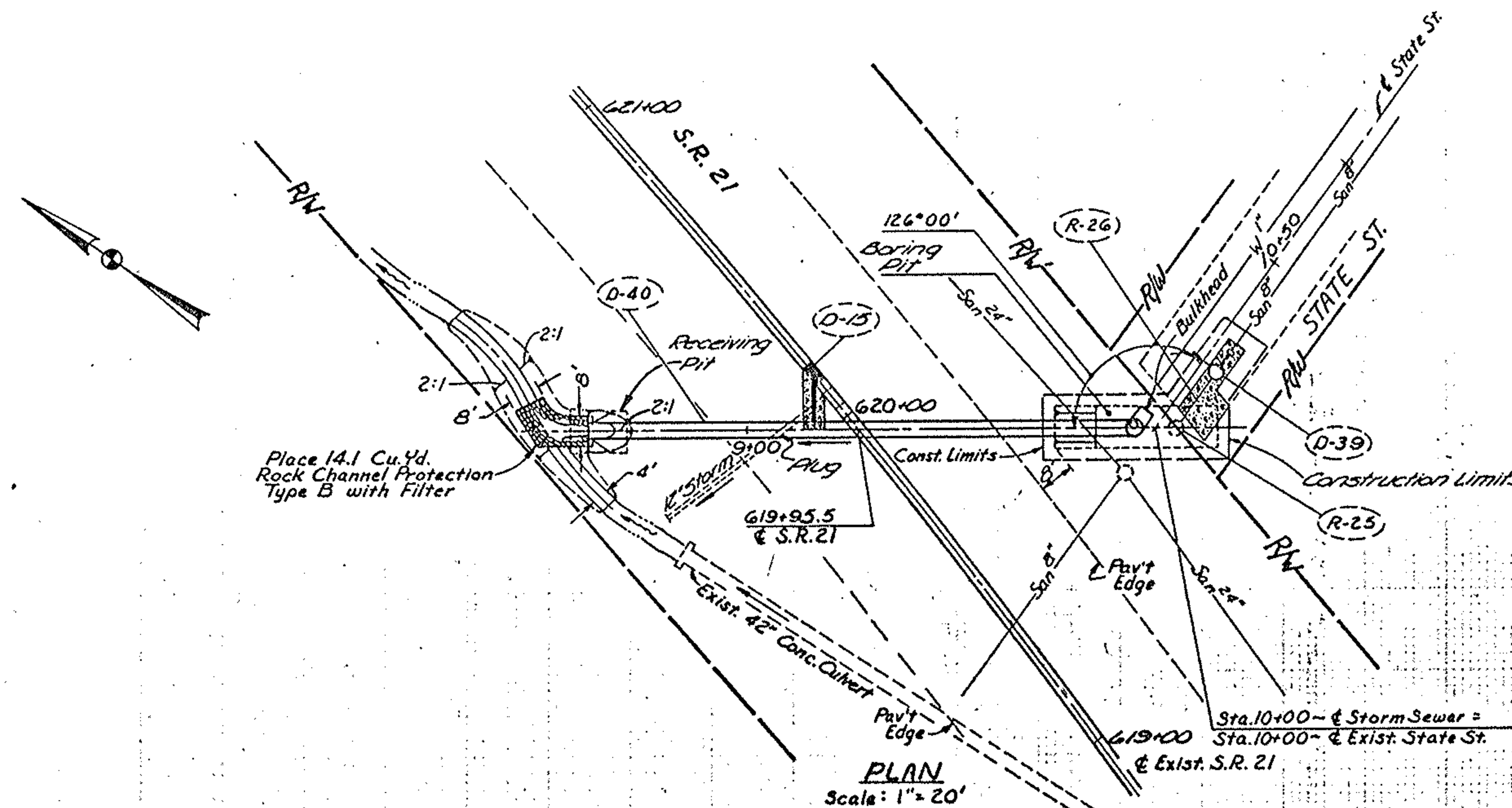
* See Detail "A"

Calc. by B.L. 3-15-84
 Chkd. by RAM 3-16-84

STA-21-10.24

OHIO
 FHWA
 REGION 5

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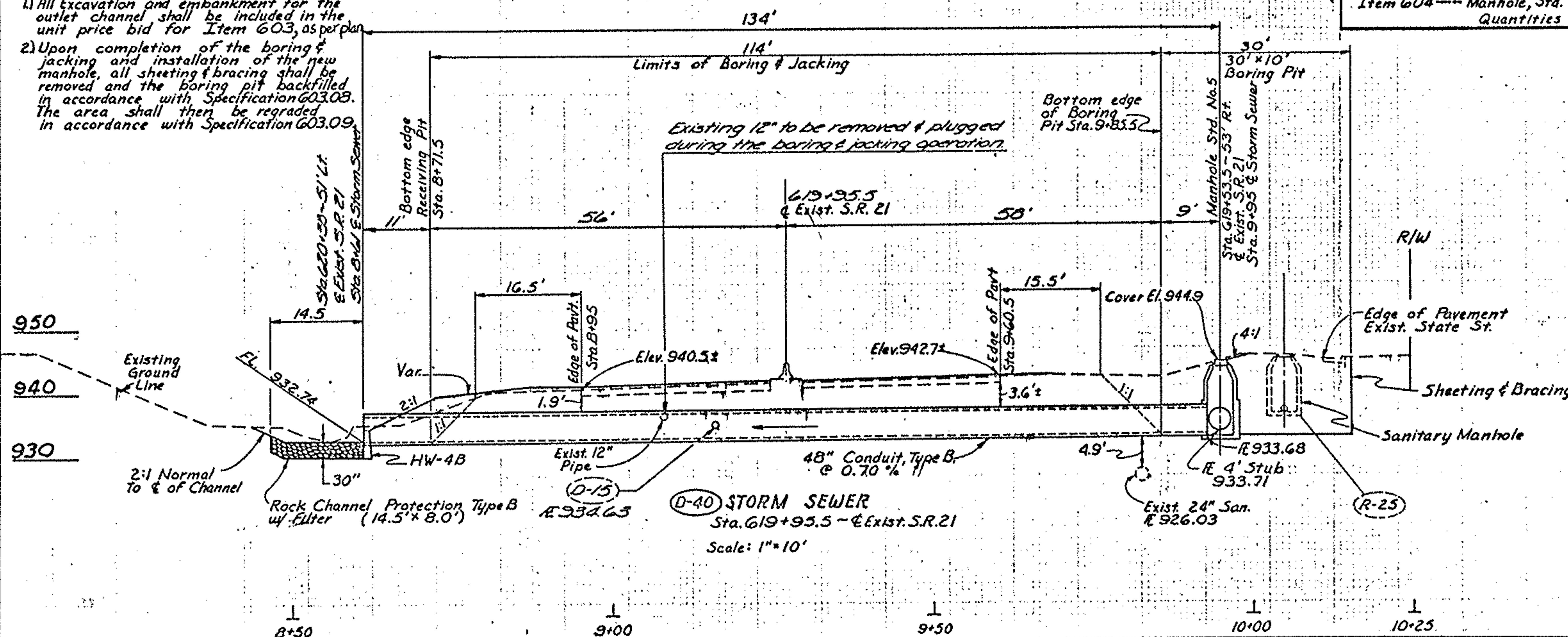


ESTIMATED QUANTITIES

Item 301 --- Bituminous Aggregate Base: AC-20, Rt-11 or Rt-12 ----- 4.0 Cu. Yd.
 Item 348 --- ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20 ----- 0.6 Cu. Yd.
 Item 349 --- ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20 ----- 0.7 Cu. Yd.
 Item 603 --- 8" Conduit, Type B, 706.01, 706.02 or 706.03 with Joints as per 706.11 or 706.12 - 6 Lin. Ft.
 Item 604 --- Manhole, Std. No. 3 with Joints as per 706.11 ----- 1 Each
 Quantities Carried to Sheet No. 25

NOTES:

- 1) All Excavation and embankment for the outlet channel shall be included in the unit price bid for Item 603, as per plan.
- 2) Upon completion of the boring & jacking and installation of the new manhole, all sheeting & bracing shall be removed and the boring pit backfilled in accordance with Specification 603.03. The area shall then be regraded in accordance with Specification 603.09.



ESTIMATED QUANTITIES

Item 601 --- Rock Channel Protection, Type B w/ Filter --- 14.1 Cu. Yd.
 Item 602 --- Concrete Masonry ----- 1.09 Cu. Yd.
 Item 603 --- 48" Conduit, Type B, 706.02 3250 D-Load, as per plan ----- 114 Lin. Ft.
 Item 604 --- Manhole Standard No. 5 ----- 1 Each
 Quantities Carried to Sheet No. 25

35
69

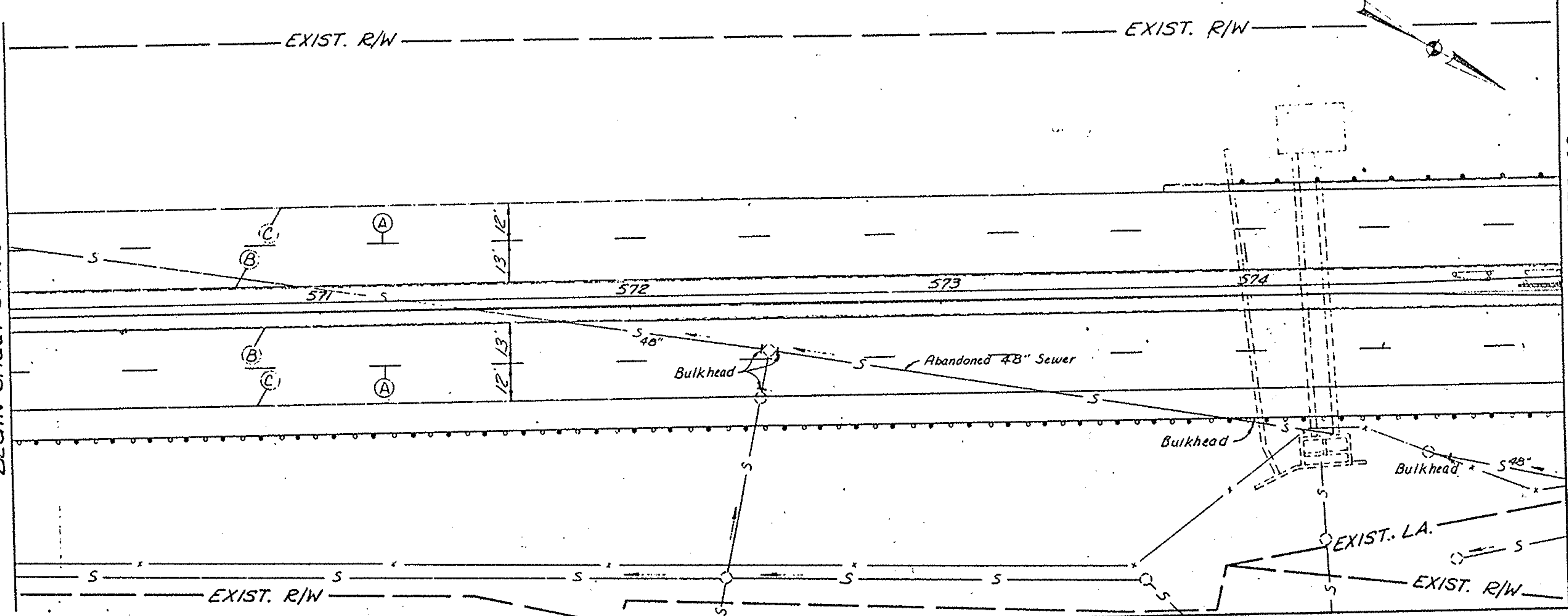
Chk by G.W. 3-14-84
Cndd by W.C.R. 3-14-84

AREA	STATE	PROJECT
5	OHIO	

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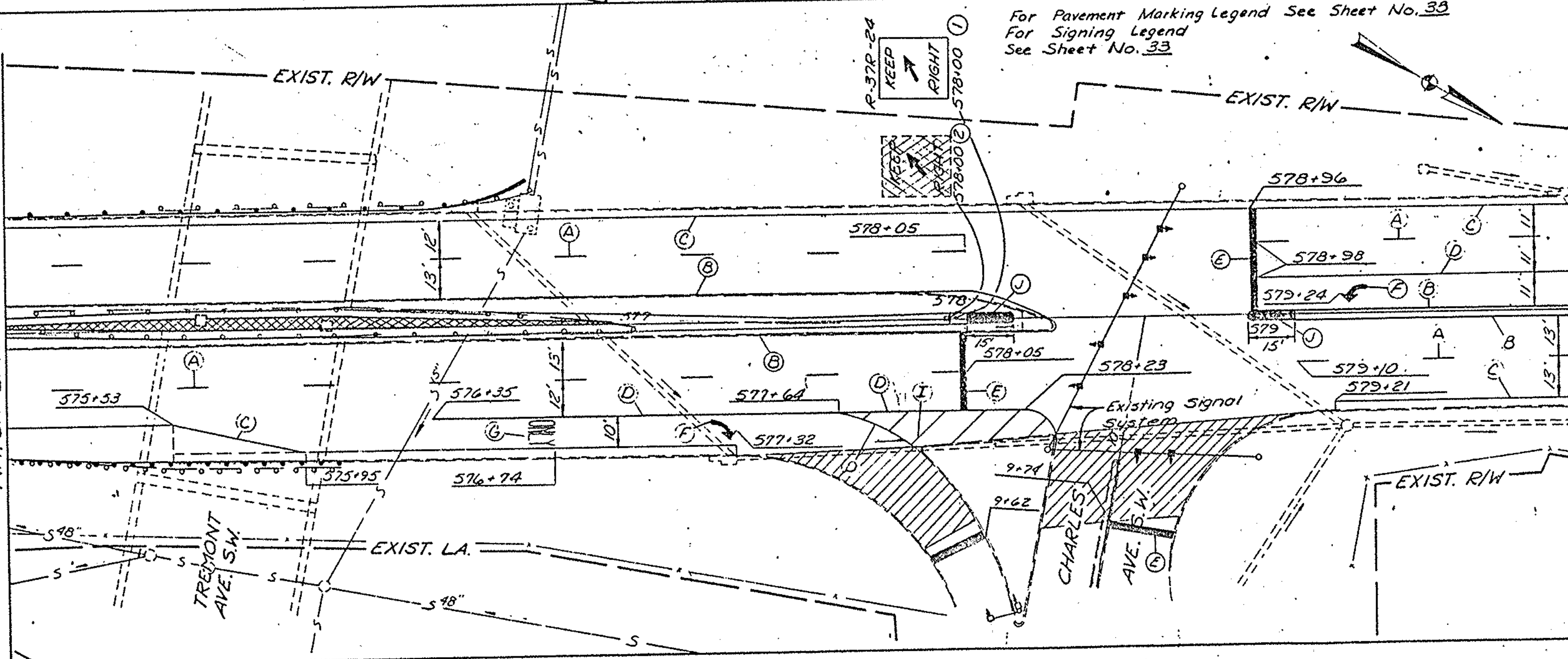
STA. - 21-10.24

BEGIN SHEET STA. 570+00



MATCH LINE STA. 575+00

MATCH LINE STA. 575+00



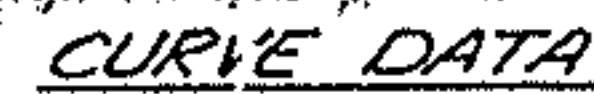
END SHEET STA. 580+00

ESTIMATED QUANTITIES										621 PAVEMENT MARKING										SIGNING - 630									
REF. NO.	STATION TO STATION	SIDE	Lone Arrow	Lone Lines (White)	4" Edge Lines (Yellow)	4" Edge Lines (White)	Stop Lines	24" Channeling Lines (White)	8" Channeling Lines (White)	Word ONLY on Pavement	12" Spacing (White)	24" Transverse Lines	Island Marking	SP. H.	Ref. Station No.	Sign Size	Code	Sign, Flat Sheet	Ground Mounted Support No. 3 Post	Removal of Ground Mounted Post Support	Removal of Ground Mounted Sign and Storage								
			Each	Un Ft.	Un Ft.	Un Ft.	Un Ft.	Un Ft.	Un Ft.	Each	Un Ft.	Un Ft.	SP. H.							Each	Each								
	570+00 to 580+00	Lt.																											
	570+00 to 575+51	Lt.																											
	575+51 to 580+00	Lt.																											
	578+56	Lt.																											
	578+56	Lt.																											
	570+00 to 578+51	Rt.																											
	570+00 to 577+32	Rt.																											
	576+51 to 578+53	Rt.																											
	9402 Charles Ave.	Lt.																											
	576+51	Rt.																											
	577+32	Rt.																											
	577+64 to 577+90	Rt.																											
	577+64 to 577+90	Rt.																											
	578+04 to 578+19	Lt.																											
	578+05	Rt.																											
	578+05	Rt.																											
	579+10 to 580+00	Lt.																											
	579+10 to 580+00	Rt.																											
	579+10 to 580+00	Rt.																											
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INTRA REGION	STATE	FRONT	
5	OHIO		

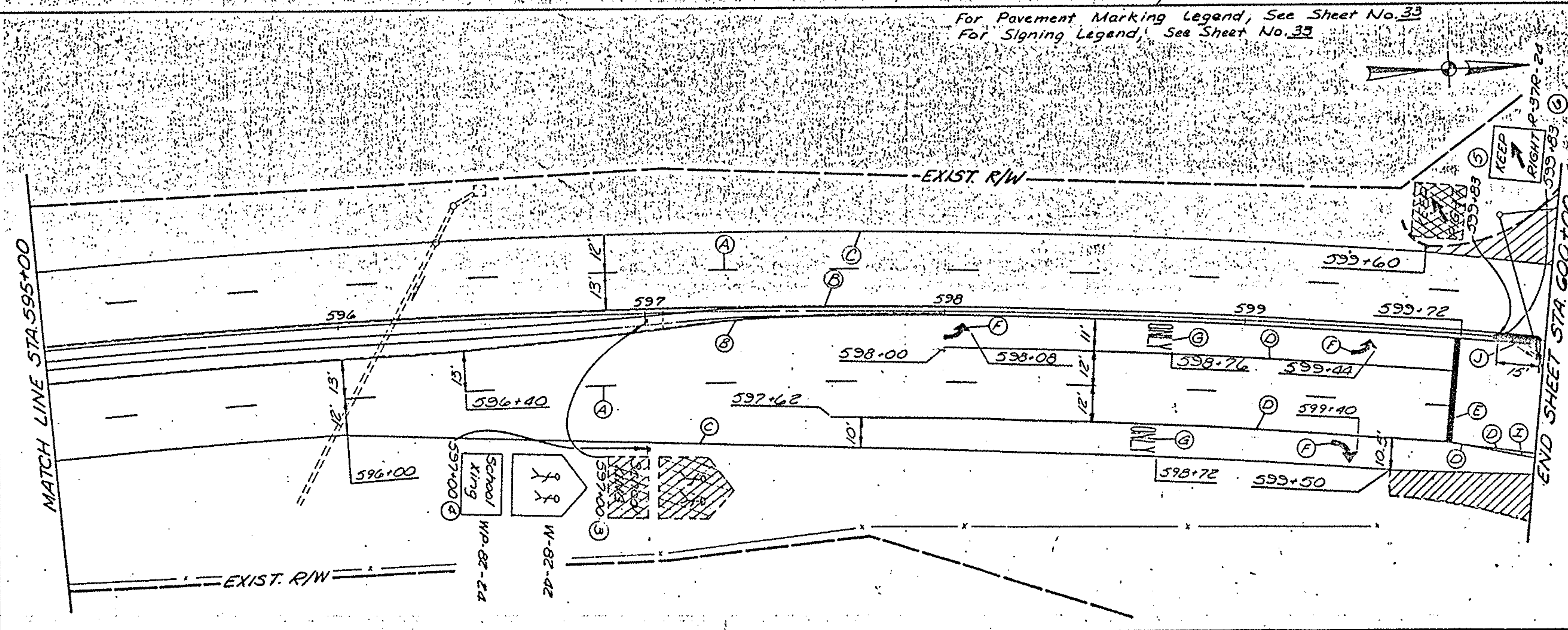
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$\Delta = 60^{\circ} 40' 16''$	$Rs = 1728.62'$
$Dc = 2^{\circ} 07' 30''$	$Es = 429.34'$
$R = 2696.27'$	$Lc = 2555.11'$
$Ls = 300.00'$	$\Delta c = 54^{\circ} 17' 46''$
$Gs = 3^{\circ} 11' 15''$	$Vc = 5.57'$
$P = 1.39'$	$TS = 580+45.05$
$K = 149.99$	$SC = 583+45.05$
$ST = 100.03$	$CS = 609+00.16$
$LT = 200.03$	$ST = 612+00.16$
$Xc = 299.91'$	

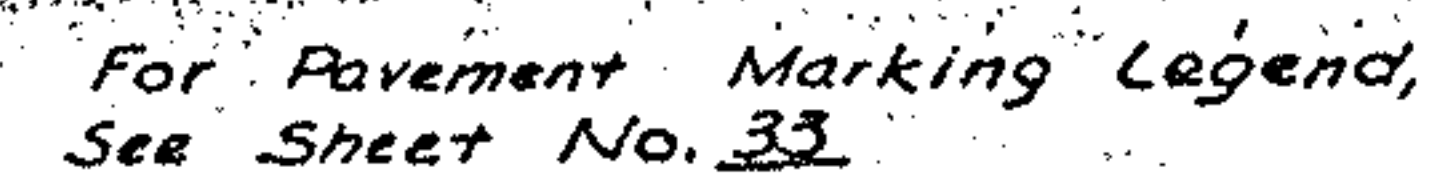
For Pavement Marking Legend, See Sheet No. 33
For Signing Legend, See Sheet No. 35



ESTIMATED QUANTITIES			621 PAVEMENT MARKING												SIGNING - G30											
REF. NO.	STATION TO STATION	SIDE	Lane Arrow	Lane Lines (White)	4" Edge Lines (White)	4" Edge Lines (Yellow)	Lane Lines	Stop Lines	24" Delineating Lines (White)	Word ONLY "on Pavement 72"	Island Marking	Transverse Lines; 12 Spacing (White)	Ref. No.	Station Side	Sign Size	Code	Sign, Flat Sheet	Ground Mounted Support No. 3 Post	54x77 Beam	Ground Mounted Support	Breakaway Beam Connection	Removal of Ground Mounted Sign and Storage	Removal of Ground Mounted Post Support	Concrete for Anchor Base Foundation		
	590+00 to 595+00	R																								
	590+00 to 595+00	L																								
	590+00 to 595+00	R																								
	590+00 to 595+00	L																								
	595+00 to 599+00	R																								
	595+00 to 599+00	L																								
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	595+00 to 599+00	L																								
	599+00 to 600+00	R																								
	599+00 to 600+00	L																								
	599+00 to 600+00	R																								
	599+00 to 600+00	L																								
TOTALS			3	1910	1542		1942	95	444	2	45	2						20	12	17	1	2	2	1027		

STA. 590+00 TO STA. 600+00

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[illegible]

STA. 610+00 TO STA. 620+00

CURVE DATA

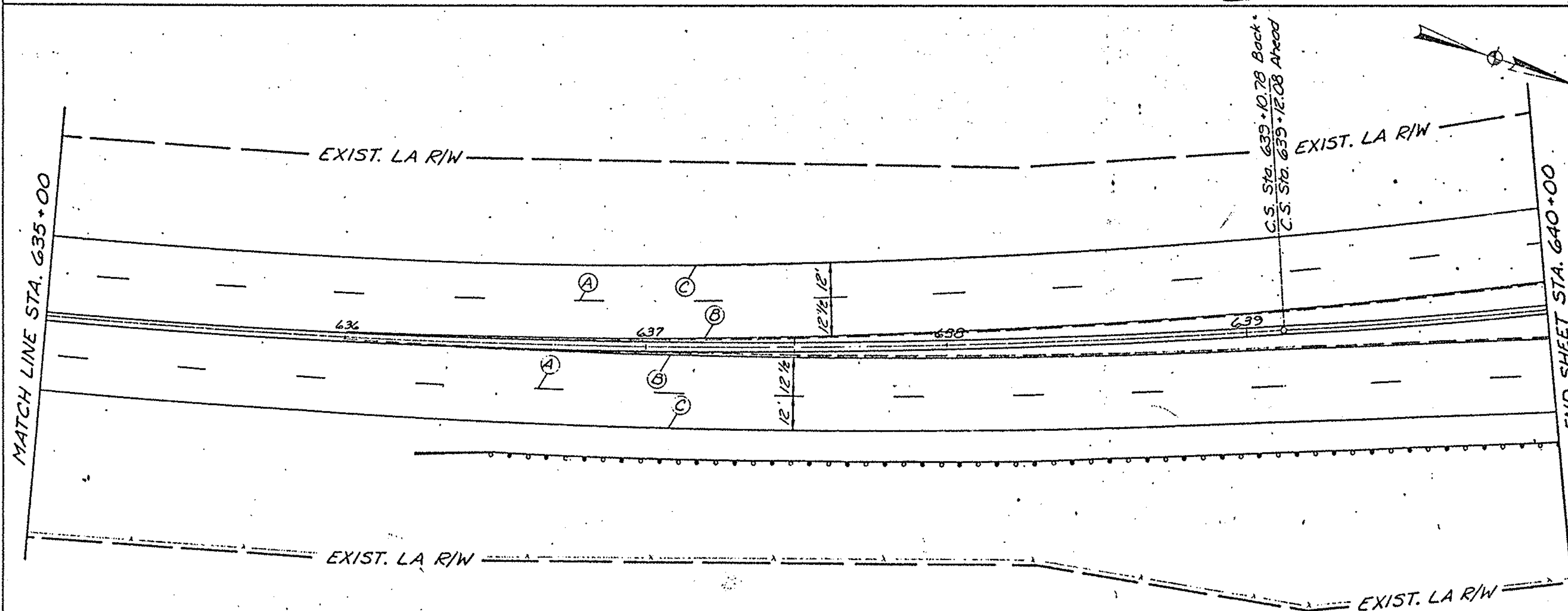
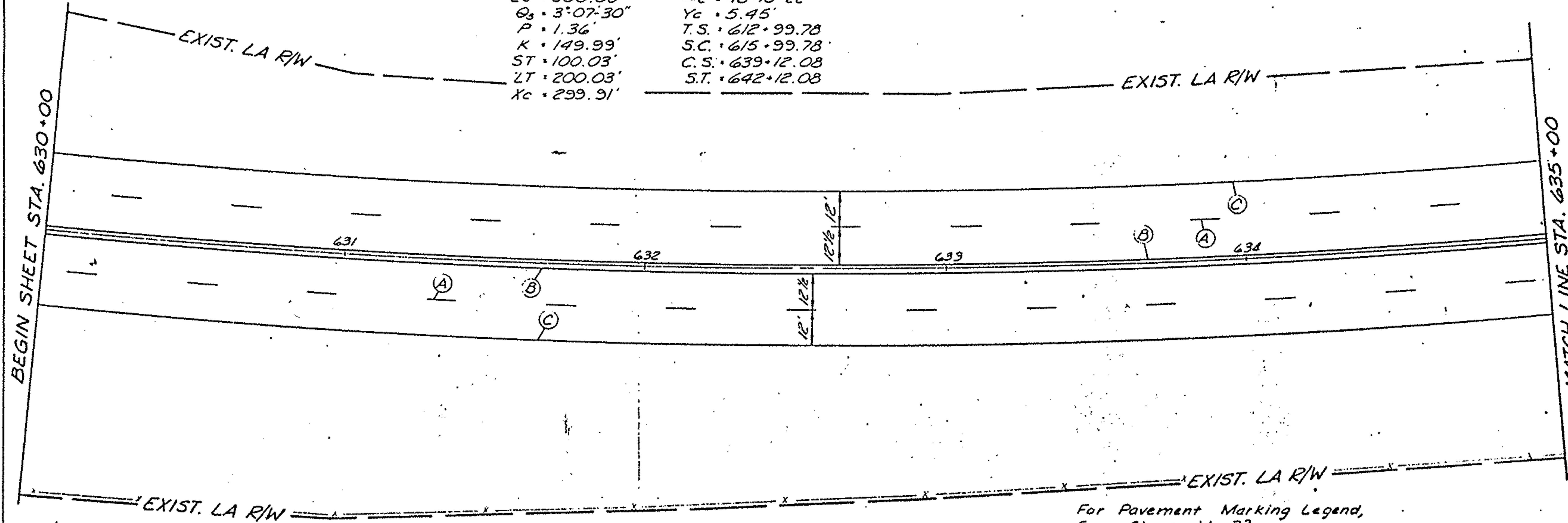
$\Delta = 54^\circ 25' 22''$ L.I. $T_s = 1564.79'$
 $D_c = 2^\circ 05'$ $E_s = 343.79'$
 $R = 2750.20'$ $L_c = 2312.30'$
 $L_s = 300.00'$ $\Delta_c = 48^\circ 10' 22''$
 $Q_s = 3^\circ 07' 30''$ $Y_c = 5.45'$
 $P = 1.36'$ $T.S. = 612+99.78$
 $K = 149.99'$ $S.C. = 615+99.78$
 $ST = 100.03'$ $C.S. = 639+12.08$
 $LT = 200.03'$ $S.T. = 642+12.08$
 $X_c = 299.91'$

Calc. by G.W. 3-15-84
 Chkd. by WCR 3-16-84

FED. AID	STATE	PROJECT
5	OHIO	

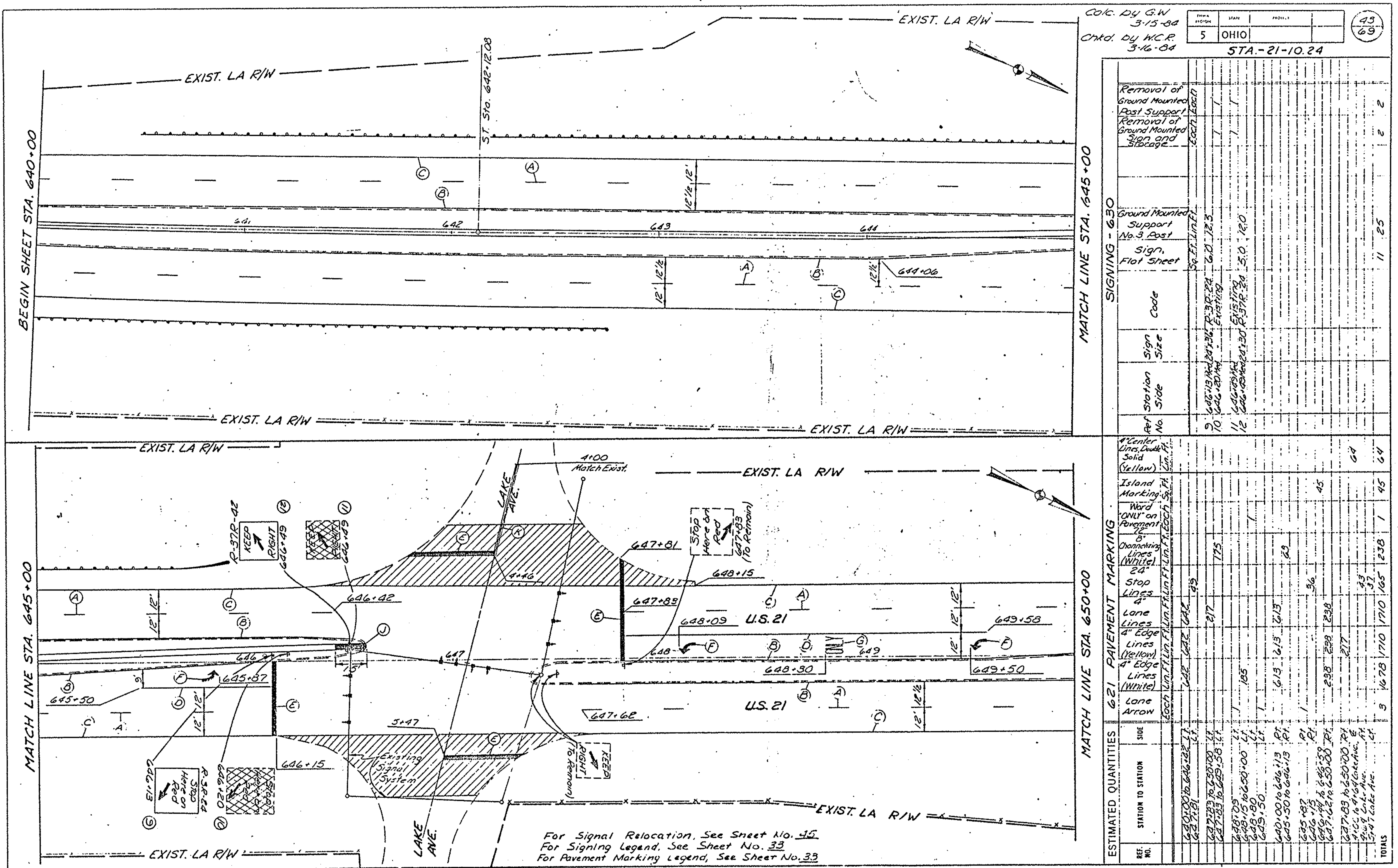
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STA. - 21-10.24



ESTIMATED QUANTITIES 621 PAVEMENT MARKING

REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES	TOTALS
	630+00 to 640+00, L.R.		4" Lane Lines 4" Edge Lines (Yellow) 4" Edge Lines (White)	10000 10000 10000
	630+00 to 640+00, R.L.		4" Lane Lines 4" Edge Lines (Yellow) 4" Edge Lines (White)	10000 10000 10000
				00002 00002 00002
				00002 00002 00002



FR-48(7)

FORMA REGION	STATE	SUBJECT	
5	OHIO		

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- EXIST. LA R/W.

MATCH LINE STA. 650+00

U.S. 21

U.S. 24

~~EXIST. LA R/W~~

END RESURFACING
STA. 654+14

City of Massillon
Corporation, Lin.

[illegible]

STA. 650+00 TO STA 654+14

PROCEDURE

1. ERECT NEW STRAIN POLE AT STA. 646+46 7' LT.;
 INSTALL NEW SONIC SENSOR POLE AT STA. 646+07 6' LT.
2. COVER LEFT TURN SIGNAL, SOUTH APPROACH AND
 DISCONNECT CABLE TO SONIC SENSOR.
3. TRANSFER MESSENGER ATTACHMENTS TO NEW POLE:
 A.) ATTACH TEMPORARY CABLE TO NEW POLE AND
 CLAMP TO EXISTING MESSENGERS, CLEAR OF THE
 SPLICE WORK AREA.
 B.) SPLICE ON MESSENGER EXTENSIONS.
 C.) MAKE PERMANENT ATTACHMENT AND REMOVE
 TEMPORARY CABLE EXTENSIONS.
4. REPLACE MESSENGER BETWEEN NEW POLE AND SONIC
 SENSOR POLE. REINSTALL DETECTOR LEADIN CABLE.
5. REACTIVATE SENSOR AND REMOVE SIGNAL HEAD
 COVER.

ITEM 632-REMOVAL OF TRAFFIC SIGNAL INSTALLATION,
 AS PER PLAN. THIS WORK CONSISTS OF REMOVAL AND
 DISPOSAL OF THE EXISTING COMBINATION STRAIN POLE
 AT STA. 646+51 AND THE EXISTING TRAFFIC SONIC
 SENSOR SUPPORT POLE AT STA. 646+09. THESE POLES
 AND FOUNDATIONS SHALL BE REMOVED ONLY TO APPROX-
 IMATELY SIX (6) INCHES BELOW SUBGRADE OF PROPOSED
 WORK. THE WORK ALSO INCLUDES REMOVAL FOR REUSE OF
 THE EXISTING LUMINAIRE THAT IS ON THE COMBINATION
 POLE.

ITEM 632-REUSE OF LIGHTING LUMINAIRE
 THIS WORK CONSISTS OF CLEANING AND REERECTION OF
 THE LUMINAIRE REMOVED UNDER THE REMOVAL OF TRAFFIC
 SIGNAL INSTALLATION ITEM INCLUDING POWER CABLE
 WORK NECESSARY TO RESTORE THE LIGHTING UNIT TO
 OPERATION ON THE PROPOSED COMBINATION POLE AT STA.
 646+46. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL
 COORDINATION WITH THE LIGHTING POWER SUPPLY AGENCY.

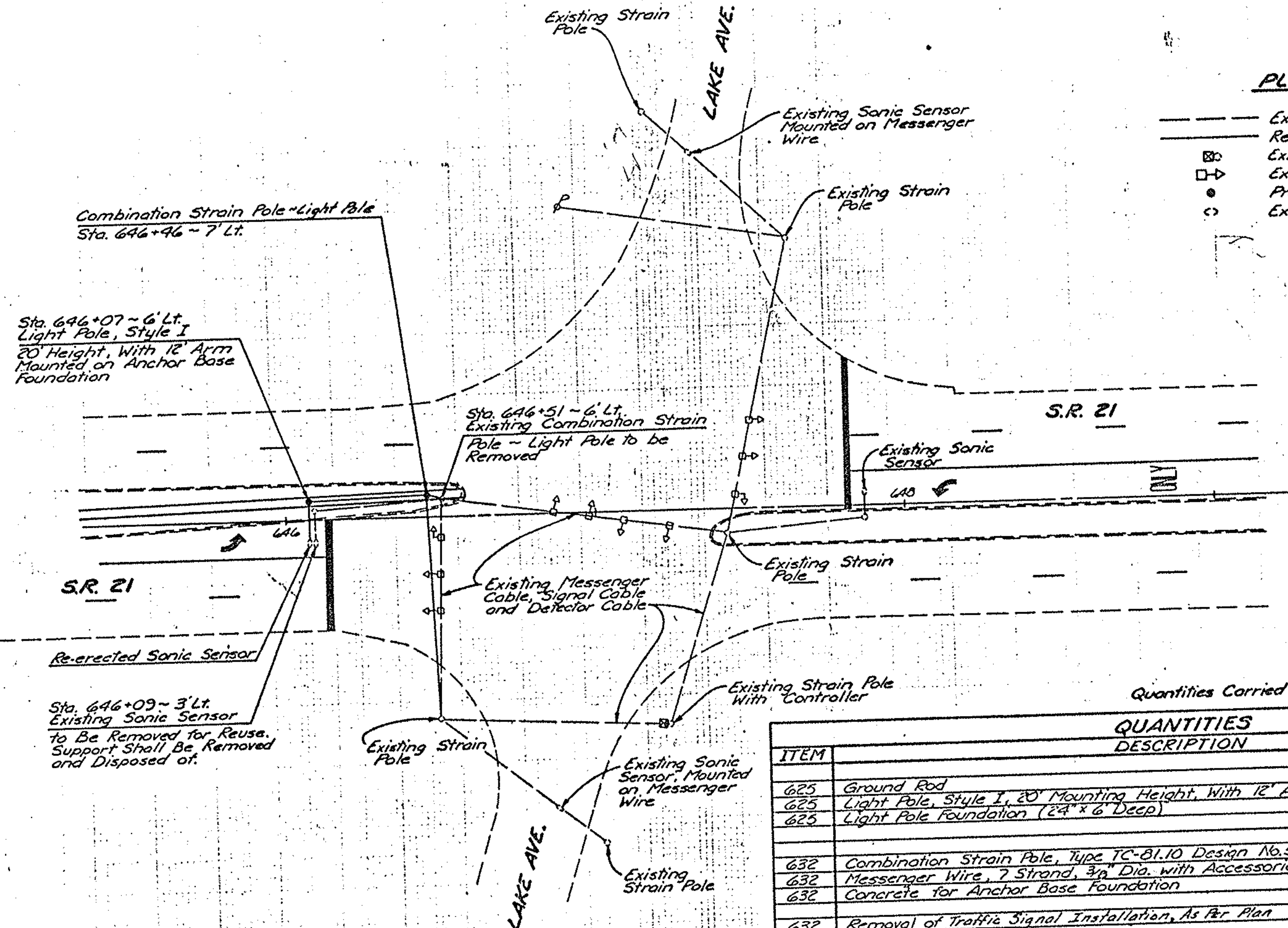
ITEM 632-MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH
 ACCESSORIES AS PER PLAN
 EXISTING MESSENGERS ATTACHED TO THE POLE AT STA.
 646+51 SHALL BE RELOCATED TO ATTACH TO THE PROPOSED
 POLE AT STA. 646+46 LT. THE TWO SPANS THAT BEAR
 SIGNAL HEADS SHALL BE EXTENDED AS NECESSARY WITH 3/8"
 MESSENGER WIRE USING STRAIN INSULATORS AND PREFORMED
 GUY GRIPS AND SHALL BE ATTACHED TO THE PROPOSED POLE
 BOTH IN ACCORDANCE WITH STD. DRWG. TC-84.20. PAY-
 MENT FOR THIS WORK SHALL BE INCLUDED IN THE UNIT
 PRICE BID FOR ITEM 632-MESSENGER WIRE, 7 STRAND 3/8"
 DIAMETER WITH ACCESSORIES AS PER PLAN.

ITEM 632-REUSE OF SONIC SENSOR
 THE EXISTING SONIC SENSOR UNIT SHALL BE REMOVED FROM
 THE POLE AT STA. 646+09 LT. AND REINSTALLED ON THE
 PROPOSED POLE AT STA. 646+07 LT. THE EXISTING LEAD-IN
 CABLE AND ITS MESSENGER SHALL BE CAREFULLY REMOVED
 FROM THE EXISTING POLES AND REERECTION ON THE PRO-
 POSED POLES AND USED TO RECONNECT THE REINSTALLED
 SENSOR TO THE CONTROLLER. PAYMENT FOR THIS WORK
 SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM
 632 REUSE OF SONIC SENSOR.

MAINTENANCE OF EXISTING SIGNAL

THIS WORK CONSISTS OF PROVIDING ALL LABOR AND
 EQUIPMENT NECESSARY TO PERFORM THE WORK
 DESCRIBED IN REVISING THE EXISTING SIGNAL
 SYSTEM AT LAKE AVE. AND S.R. 21 WHILE MAIN-
 TAINING SIGNAL OPERATION.

0 20 40
 Scale in Feet



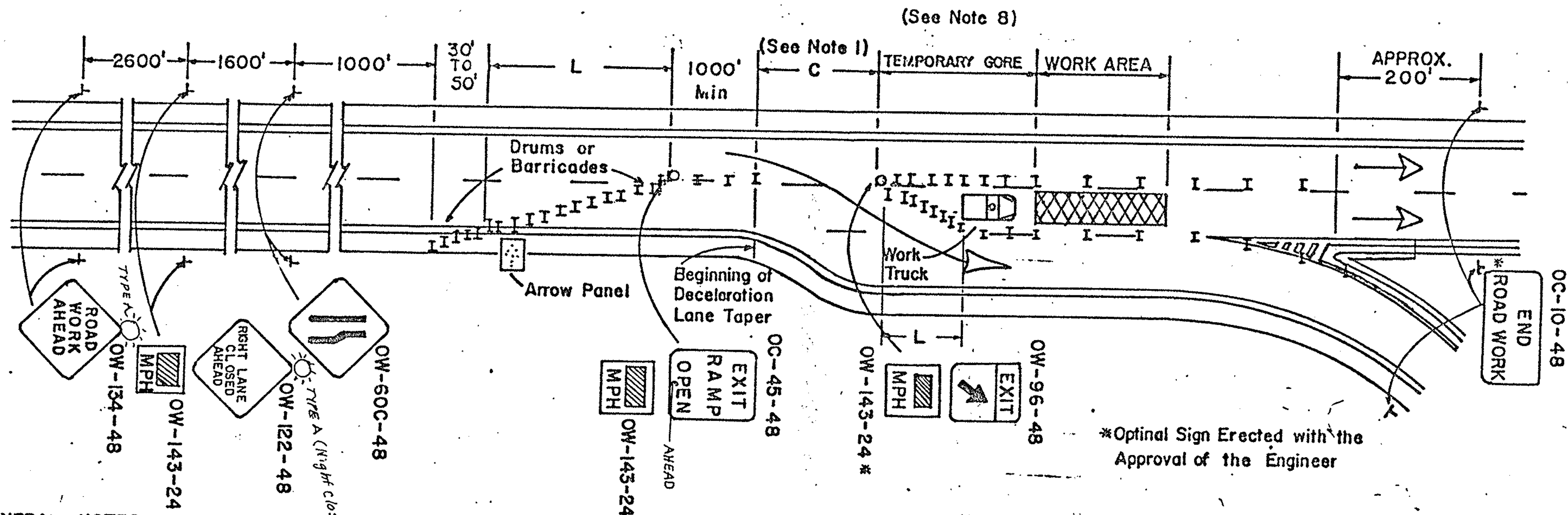
PLAN LEGEND

- Existing Aerial Cable
- Re-erected Aerial Cable
- ⊠ Existing Strain Pole with Controller
- ⊠ Existing Signal Head
- Proposed Pole
- Existing Sonic Sensor

Quantities Carried to General Summary

QUANTITIES		QUANTITY	UNIT
ITEM	DESCRIPTION		
625	Ground Rod	2	Each
625	Light Pole, Style I, 20' Mounting Height, With 12' Arm	1	Each
625	Light Pole Foundation (24" x 6' Deep)	1	Each
632	Combination Strain Pole, Type TC-81.10 Design No. 5, 28' Pole, 4' Arm	1	Each
632	Messenger Wire, 7 Strand, 3/8" Dia. with Accessories, as per Plan	50	Lin. Ft.
632	Concrete for Anchor Base Foundation	2.39	Cu. Yd.
632	Removal of Traffic Signal Installation, As Per Plan	1	Each
632	Reuse of Sonic Sensor	1	Each
632	Covering of Vehicular Signal Head	1	Each
632	Maintenance of Existing Signal	Lump	Lump

SIGNALIZATION PLAN



GENERAL NOTES

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL ONLY BE USED WHEN THE DISTANCE "C" IS 100 FEET OR GREATER. WHEN "C" IS LESS THAN 100 FEET, THE TRAFFIC CONTROL SHOWN ON THE "LANE CLOSURE BEFORE EXIT GORE" DETAIL SHOULD BE USED, OR THE EXIT SHOULD BE CLOSED, OR THE TRAFFIC CONTROL ON THIS DRAWING MAY BE USED WITH APPROVAL OF THE ENGINEER. WHEN THE EXIT IS CLOSED, APPROPRIATE DETOUR SIGNS SHALL BE PROVIDED.
2. WHEN WORK IS BEING PERFORMED IN ONLY THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY, REFER TO THE TYPICAL WORK AREA TRAFFIC CONTROL SHOWN IN FIGURE C-21 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
3. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMEN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED IMPACT ATTENUATOR MAY BE EMPLOYED.
4. THE FLASHING ~~ON-REDUCING~~ ARROW PANEL SHALL BE IN ACCORDANCE WITH OMUTCD, SECTION 7G-8.
5. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. CONES, DRUMS, OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.
6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES. MAXIMUM SPACING SHALL BE 50' CENTER TO CENTER IN ADVANCE OF THE WORK AREA AND 200' CENTER TO CENTER WITHIN THE LIMITS OF THE WORK AREA.
7. TAPER FORMULAE:

$$L = S \times W \text{ FOR SPEEDS OF 45 OR MORE.}$$

$$L = WS^2/60 \text{ FOR SPEEDS OF 40 OR LESS.}$$

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.

W = WIDTH OF OFFSET.
8. WHEN CREATING A TEMPORARY GORE, CHANNELIZING DEVICES SHOULD BE SPACED 25' CENTER TO CENTER SO AS TO CREATE A "SOLID GORE" EFFECT.
9. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

Work vehicles shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of 1/4 mile

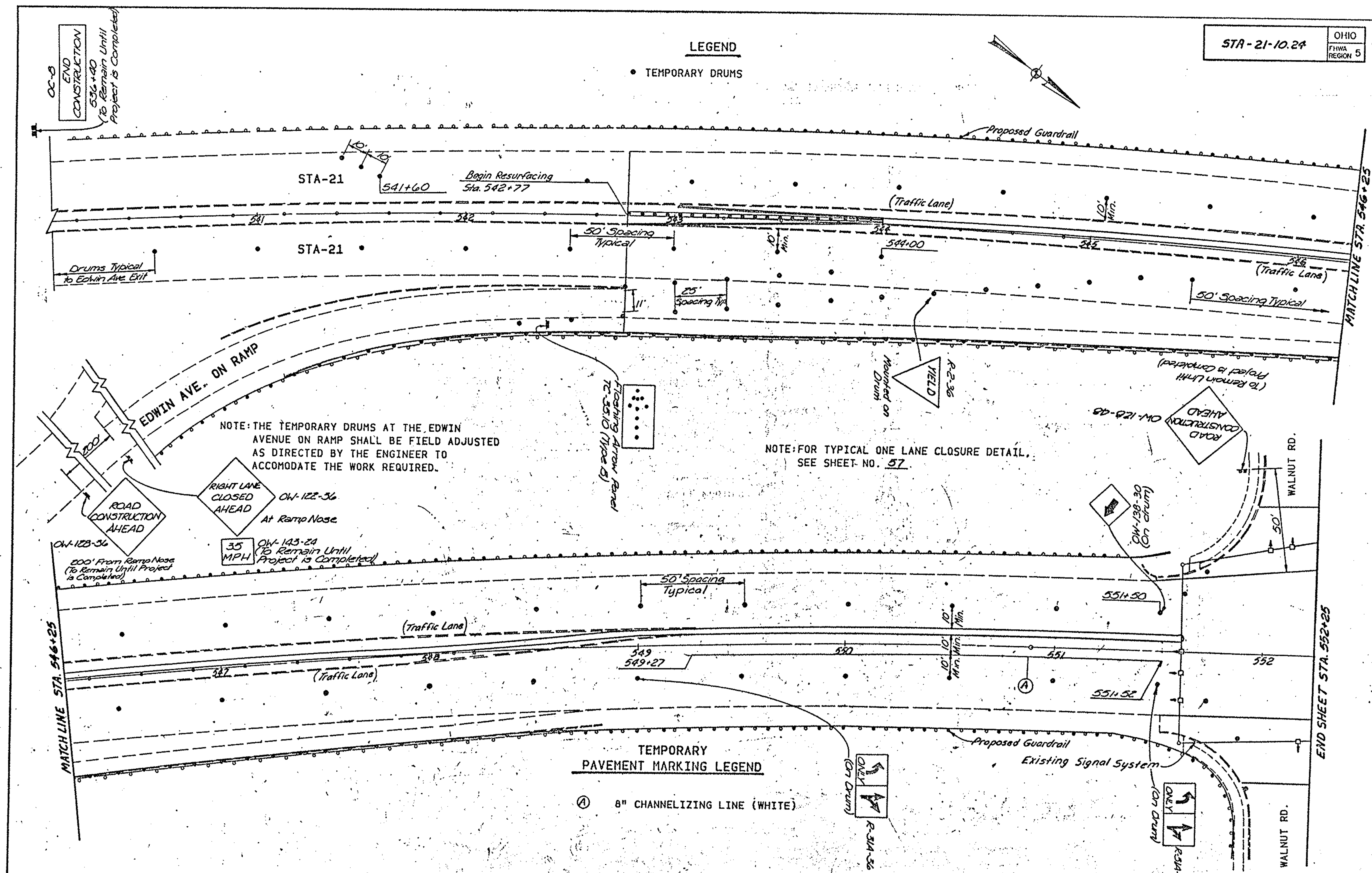
OHIO DEPARTMENT OF TRANSPORTATION	
LANE CLOSURE AT EXIT GORE	DATE 3-3-79

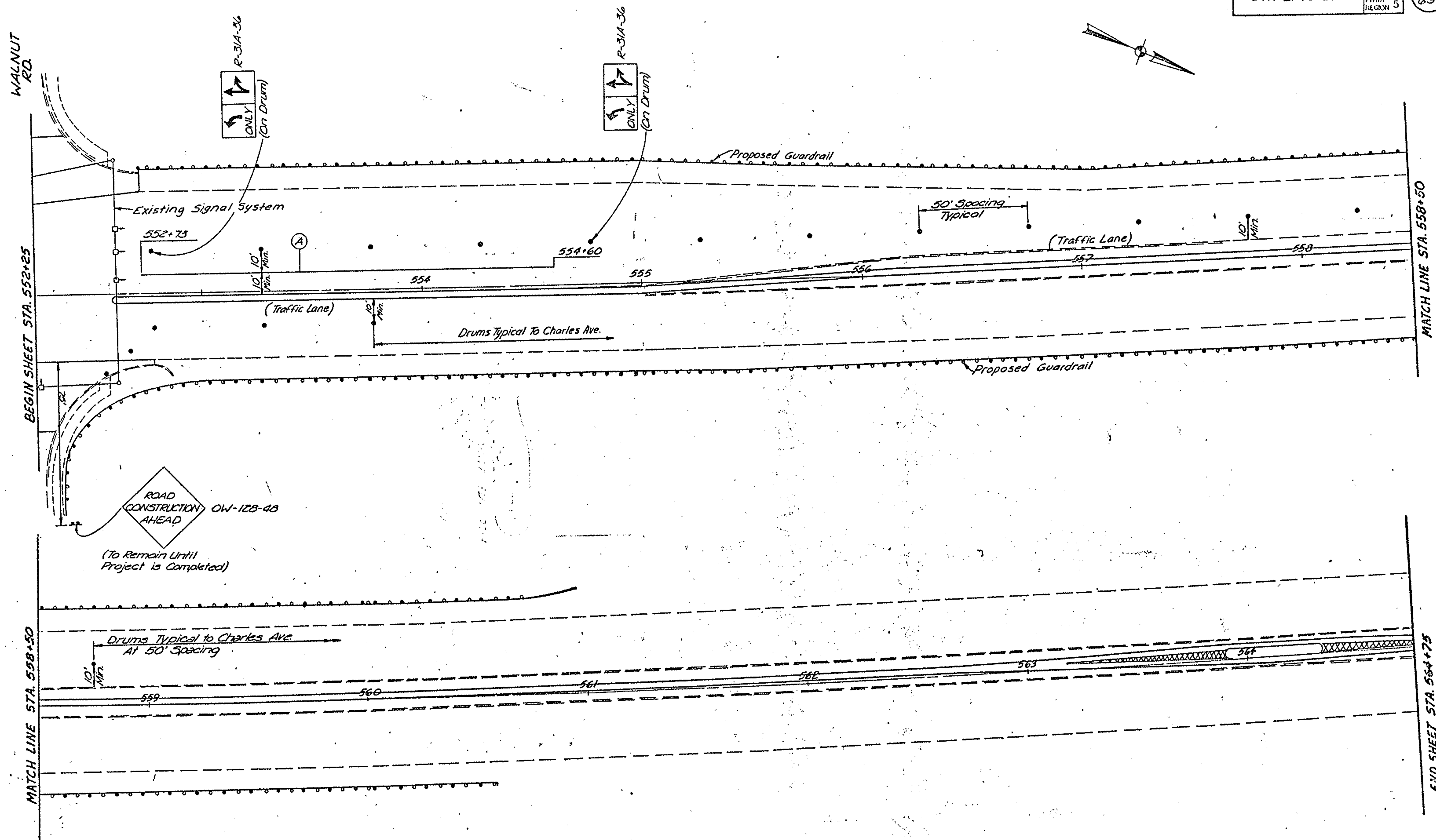
LEGEND

• TEMPORARY DRUMS

TEMPORARY
PAVEMENT MARKING LEGEND

Ⓐ 8" CHANNELIZING LINE (WHITE)

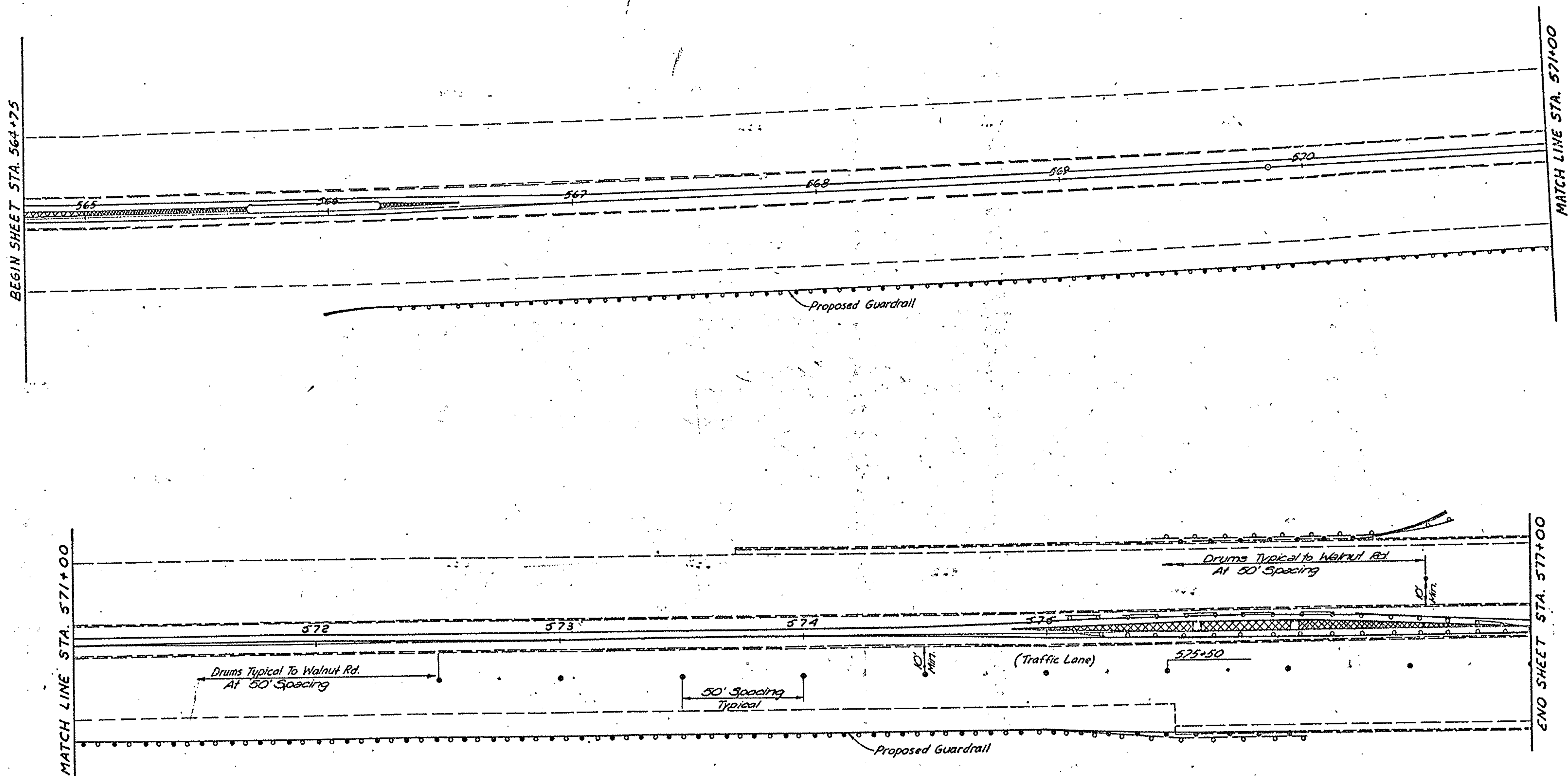




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REGION 5

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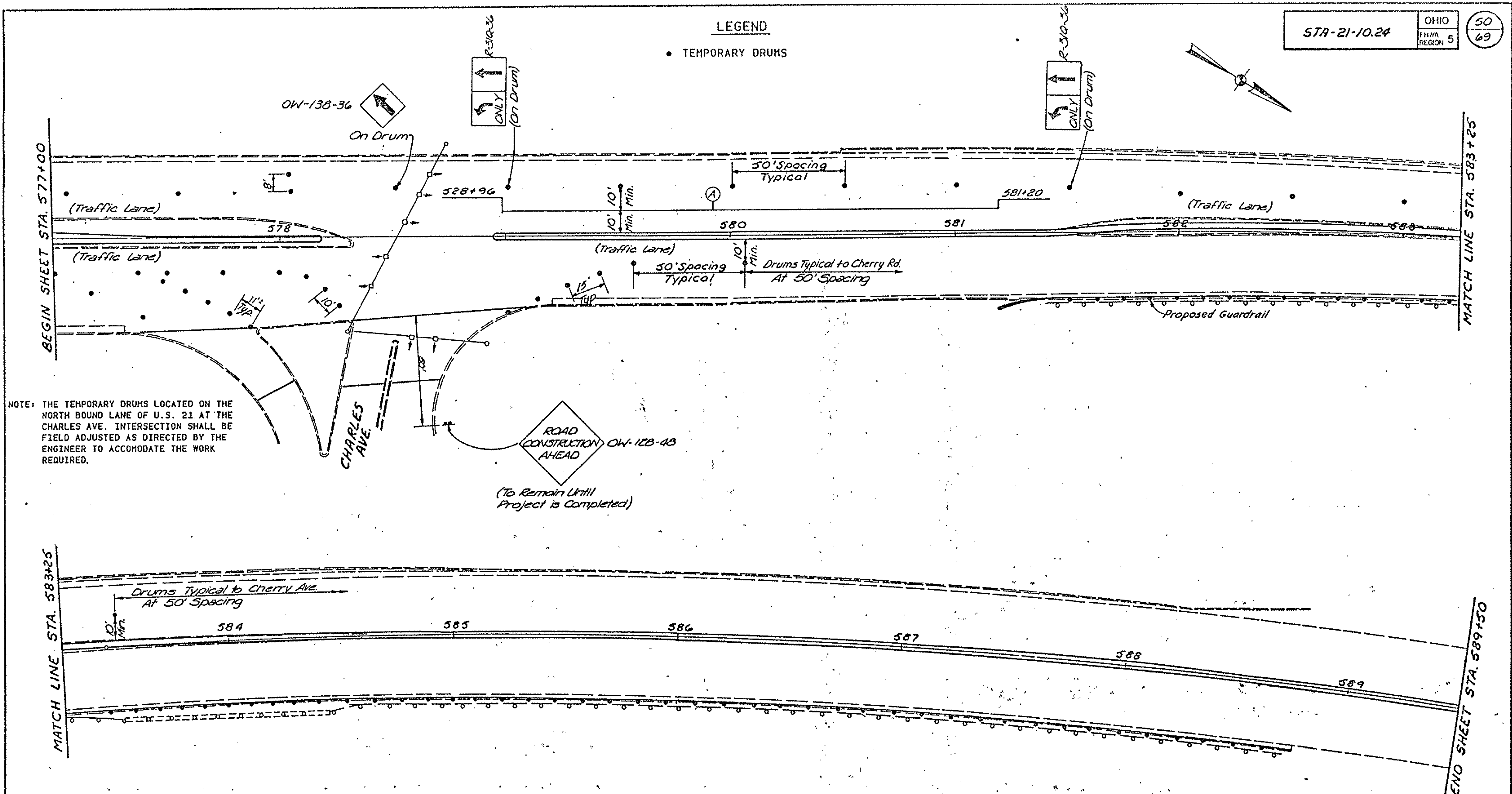
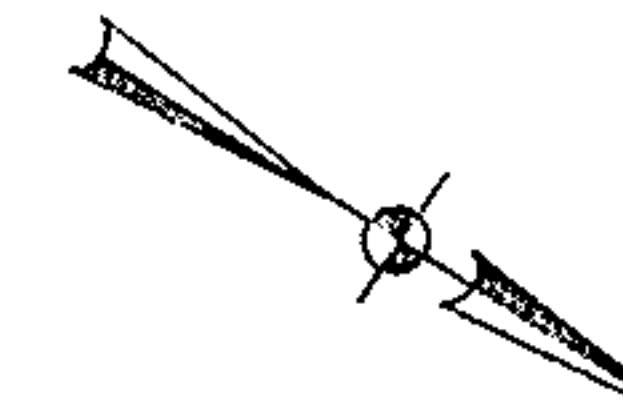
LEGEND

• TEMPORARY DRUMS

STA-21-10.24

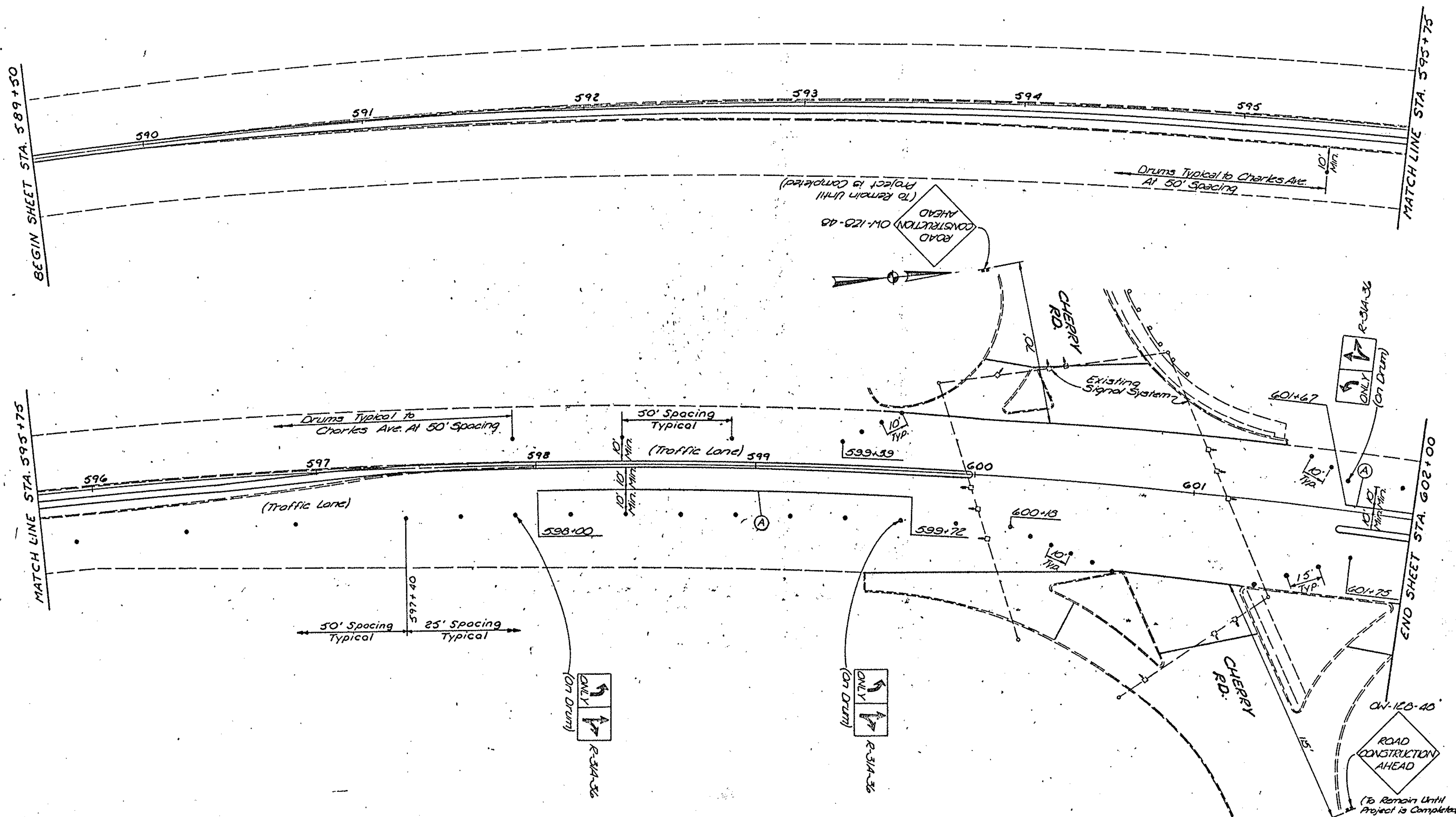
OHIO
FHA
REGION 5

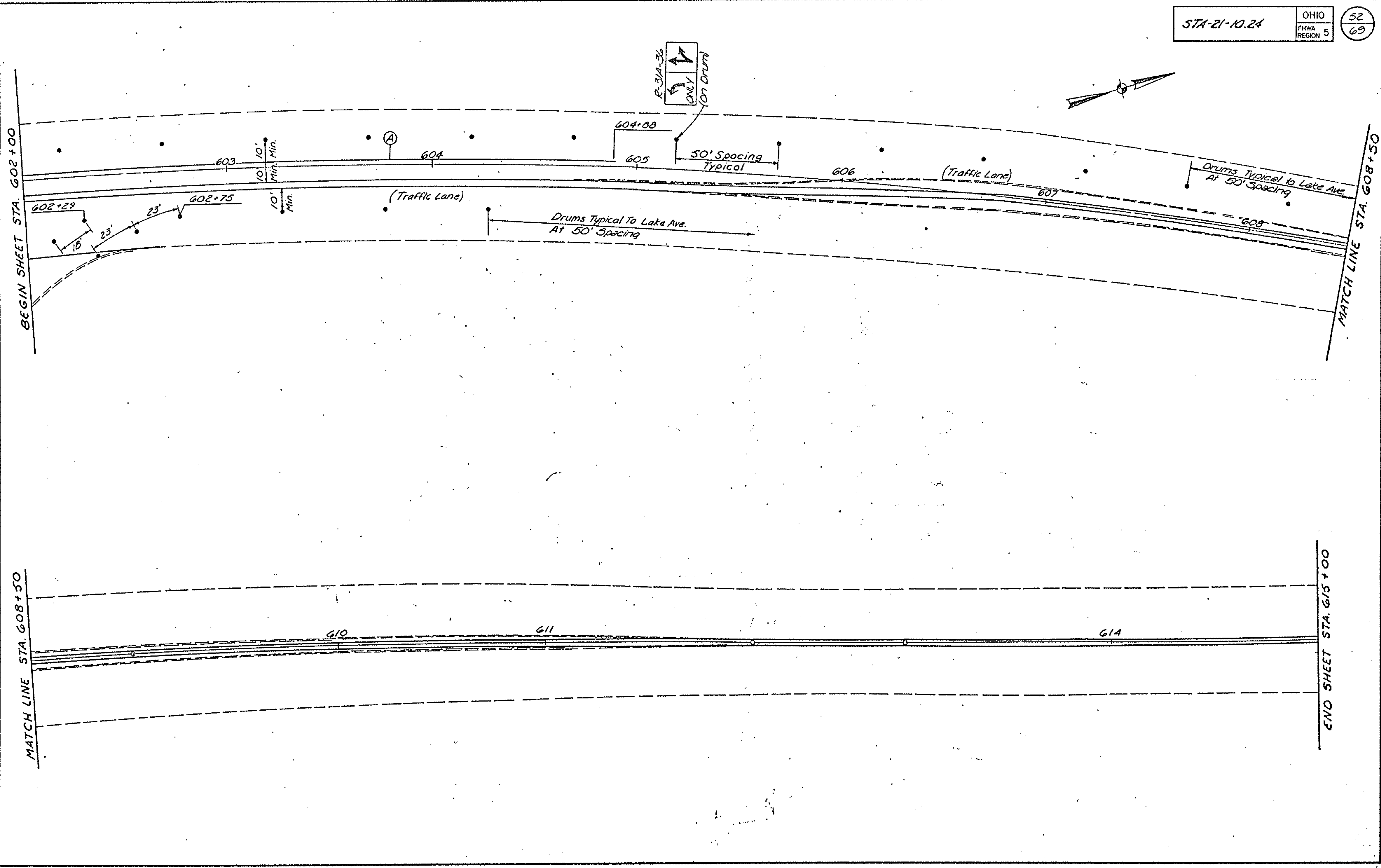
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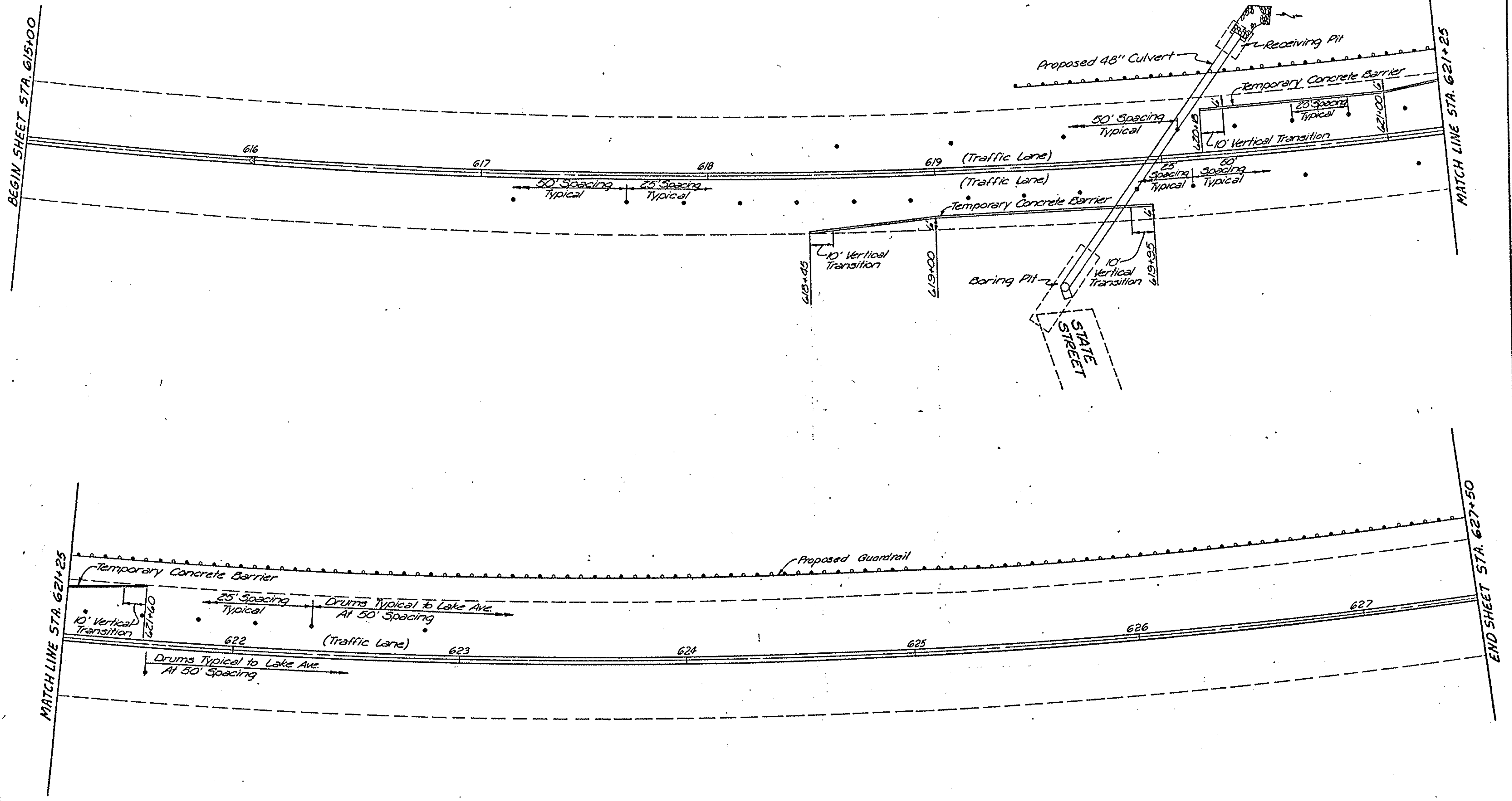


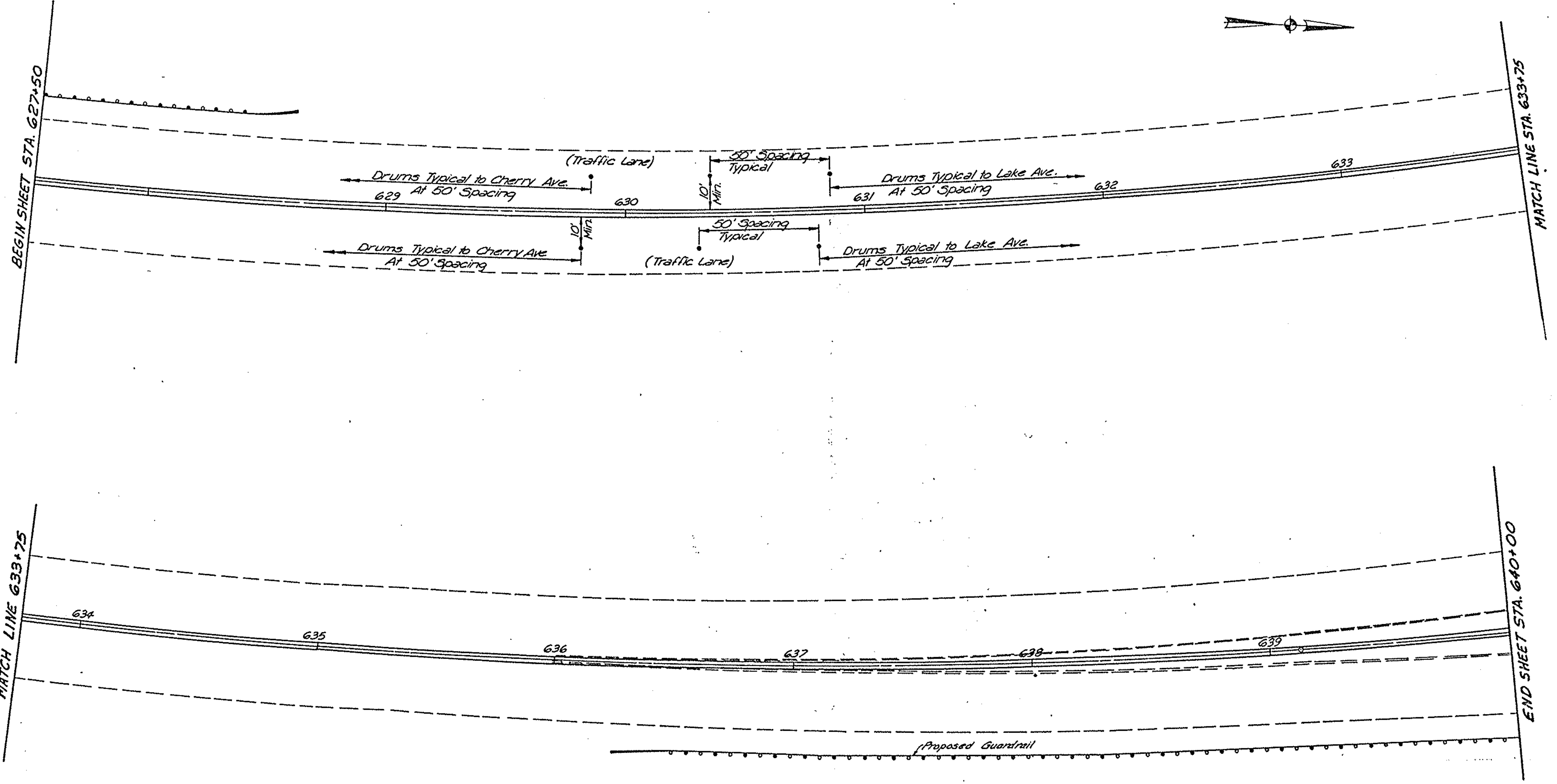
NOTE: THE TEMPORARY DRUMS LOCATED ON THE NORTH BOUND LANE OF U.S. 21 AT THE CHARLES AVE. INTERSECTION SHALL BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER TO ACCOMMODATE THE WORK REQUIRED.

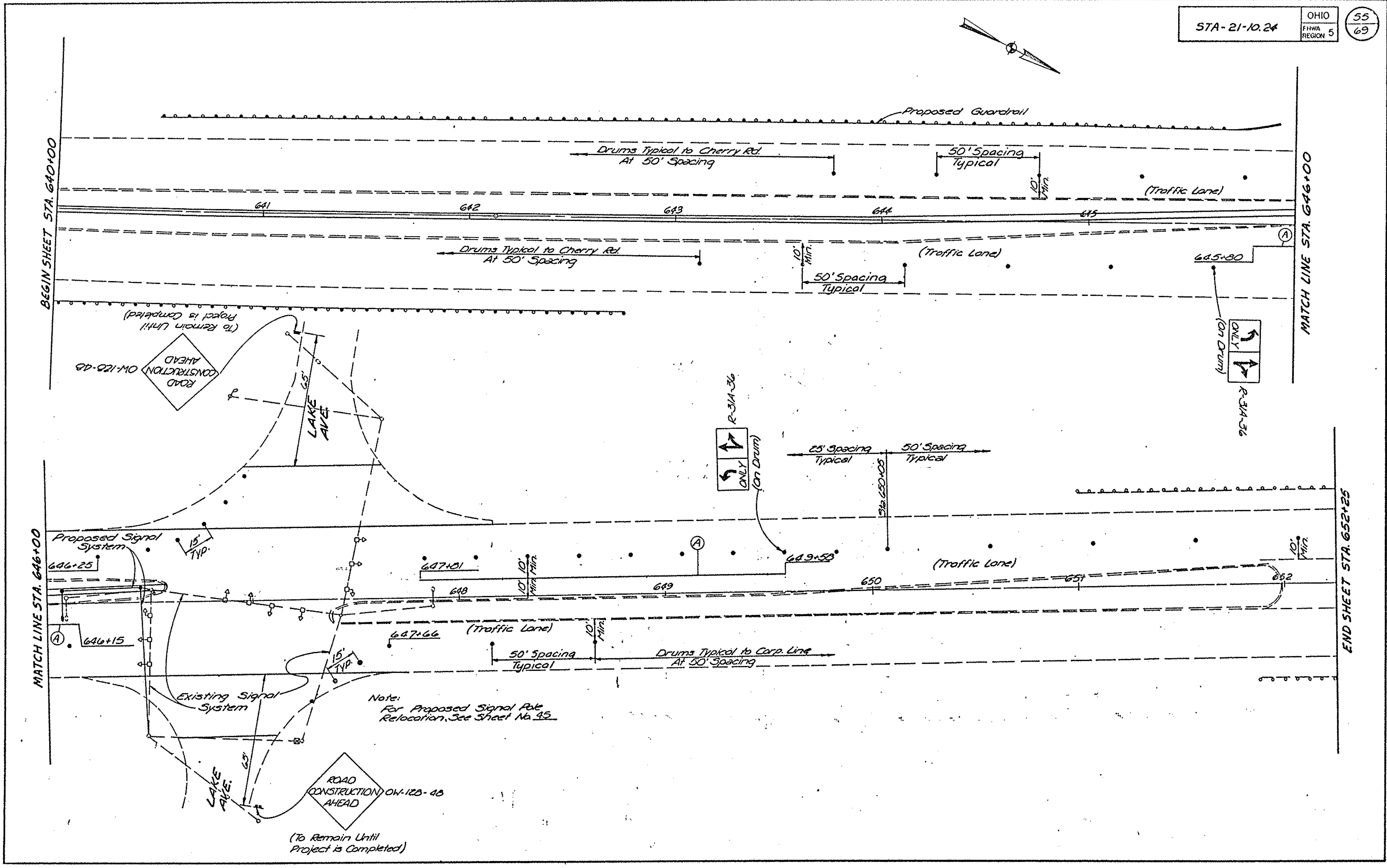
ROAD CONSTRUCTION AHEAD
(To Remain Until Project is Completed)

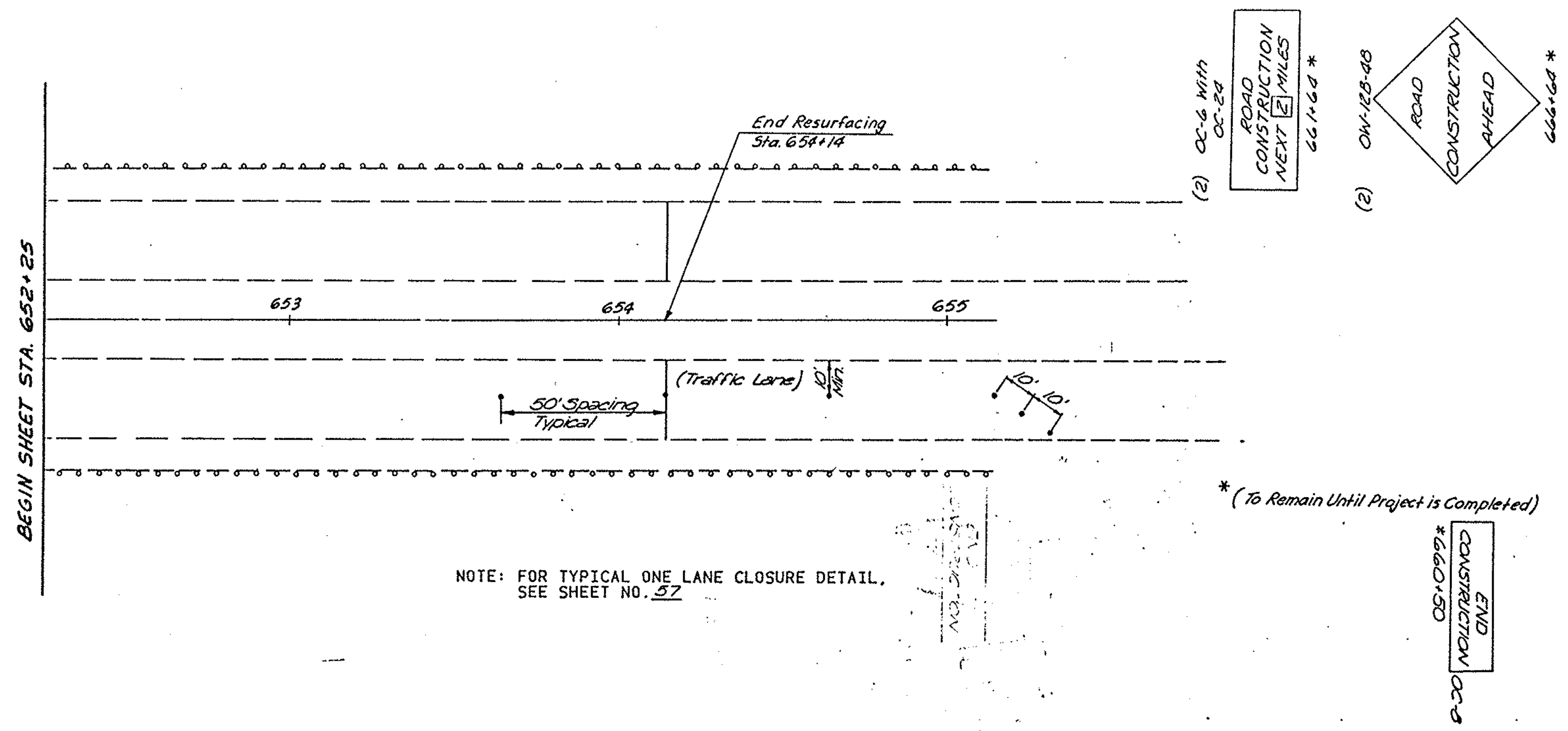




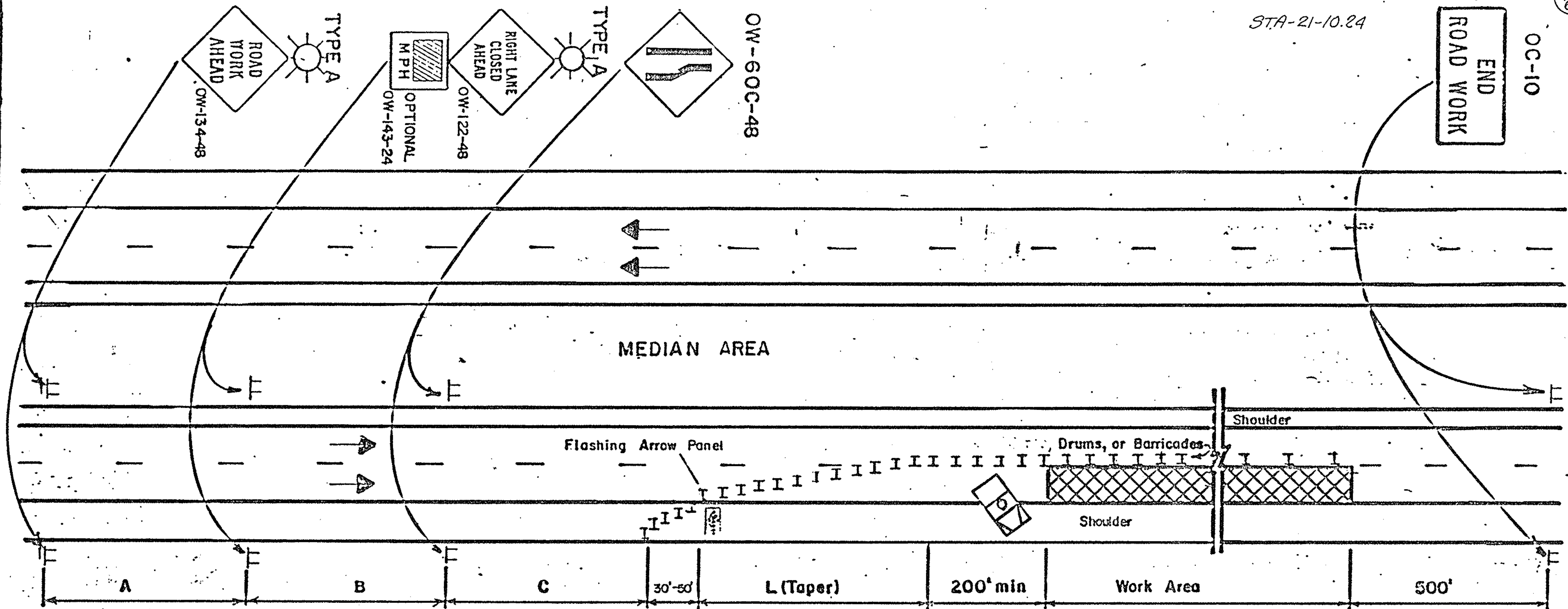








STA-21-10.24



GENERAL NOTES:

1. The taper length (L) shall be in accordance with Section 7F-17 of the ODOTCD. The location of the transition taper and location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment. In order to determine the minimum number of channelizing devices for the transition taper see Table 7-5 ODOTCD. For a 55 MPH prevailing speed and a 12 ft. lane, not less than thirteen (13) cones, drums or barricades shall be used to form the lane transition taper in advance of the work area. Not less than five (5) cones, drums or barricades shall be used to form the taper on the shoulder. Cones, drums or barricades shall be spaced approximately 50' to 60' center to center for the first 1000 feet of the work area and at a maximum of 100 to 120 feet for the balance of the work area. Cones may be substituted for barricades or drums for short term lane closures during daylight hours only.
2. The major standard level warning sign sizes may be used on divided streets or highways that are not classified as freeways or expressways.
3. When work is being performed in the lane adjacent to the median on a divided highway an OW-123-48 sign(s) shall be substituted for the OW-122-48 sign(s) and an OW-60D-48 sign(s) shall be substituted for the OW-60C sign(s).
4. The work vehicle shown at the beginning of the work area shall be in place and unoccupied whenever workers are in the work area. This work vehicle shall be removed from the pavement whenever workers are not in the work area. Other protective devices may be used in lieu of the work vehicle shown when approved by the Engineer. The vehicle shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of a 1/2 mile.
5. The flashing arrow panel shall meet requirements contained in 76-35.10.
6. Type C steady burning barricade warning lights shall be erected on drums or barricades for night lane closures. The maximum spacing shall be identical to the channelizing device spacing requirements described in Note 1.
7. Type A flashing barricade warning lights shown on the "Road Work Ahead" and the "Right Lane Closed Ahead" signs are required whenever a night lane closure is necessary.
8. Some work area locations may require more than just static or conventional signs to enhance communication with the driver. At these locations Portable Changeable Message Signs (PCMS) units are recommended. These devices should be located approximately 2000 to 4000 feet in advance of a lane closure or other point of required action. See Section 76-8.1, ODOTCD for further guidance on use of PCMS units.

MINIMUM DISTANCE	A	B	C
MAJOR STANDARD	500'	500'	500'
URBAN FREEWAY & EXPRESSWAY	500' TO 1000'	500' TO 1000'	500' TO 1000'
RURAL FREEWAY & EXPRESSWAY	2600'	1600'	1000'

OHIO DEPARTMENT OF TRANSPORTATION

CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY

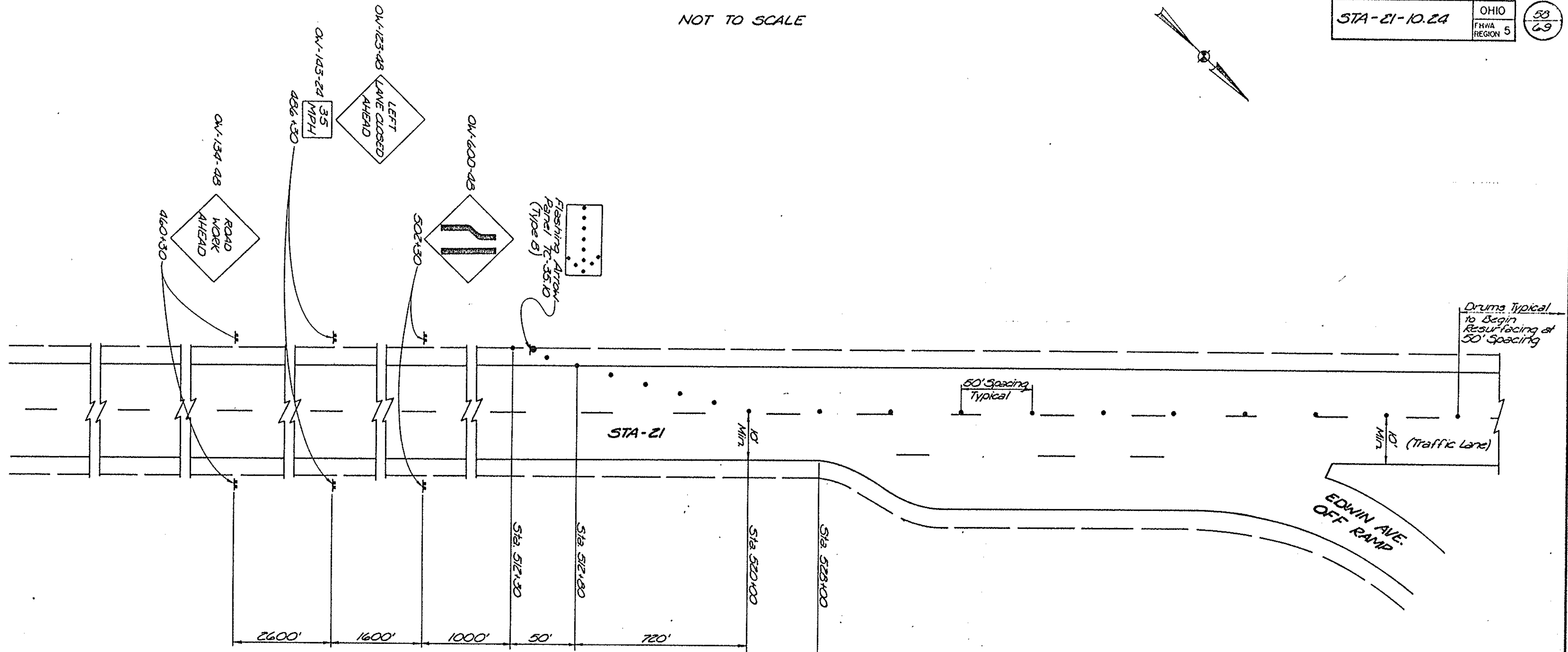
DATE 2/82

NOT TO SCALE

STA-21-10.24

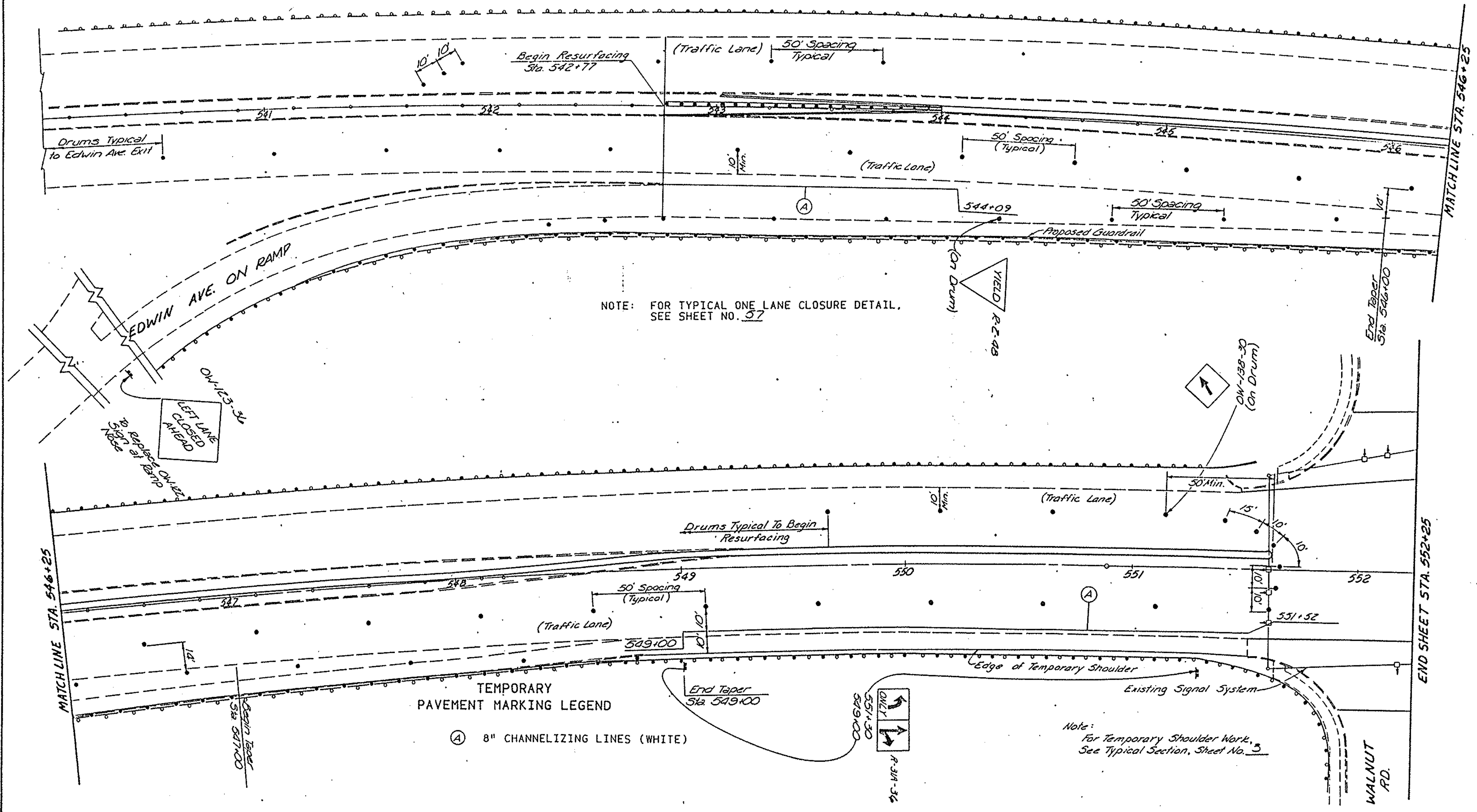
OHIO
FHWA
REGION 5

53
69



NOTE:

THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. CONES, DRUMS, OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS FOR THE FIRST 1000 FEET OF THE WORK AREA AND AT A MAXIMUM OF 100 FEET FOR THE BALANCE OF THE WORK AREA. CONES MAY BE SUBSTITUTED FOR THE BARRICADES OR STEEL DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.

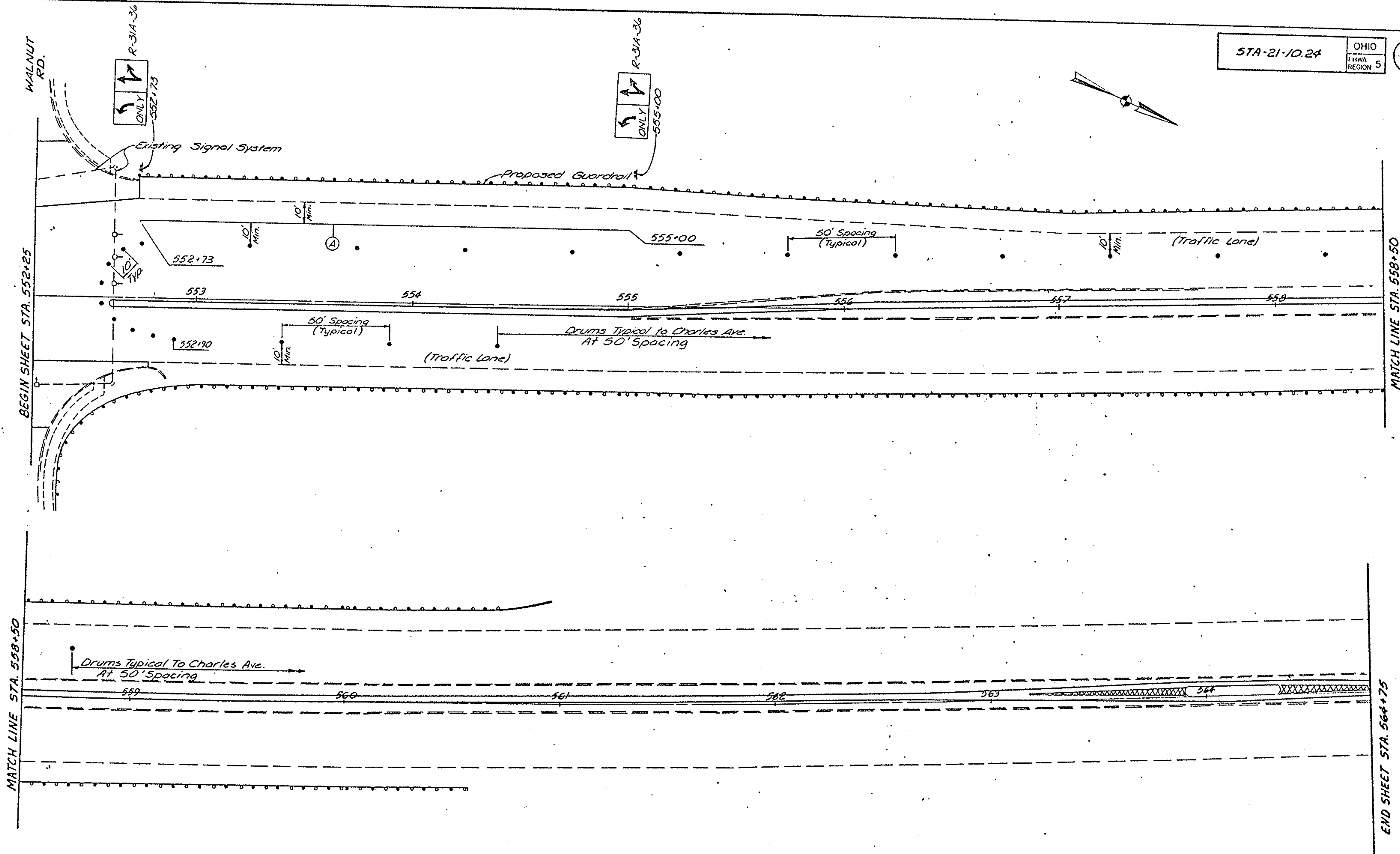


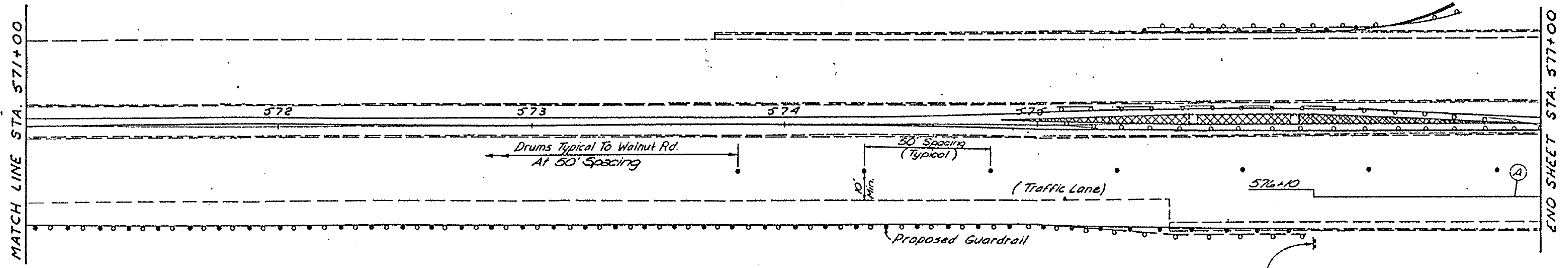
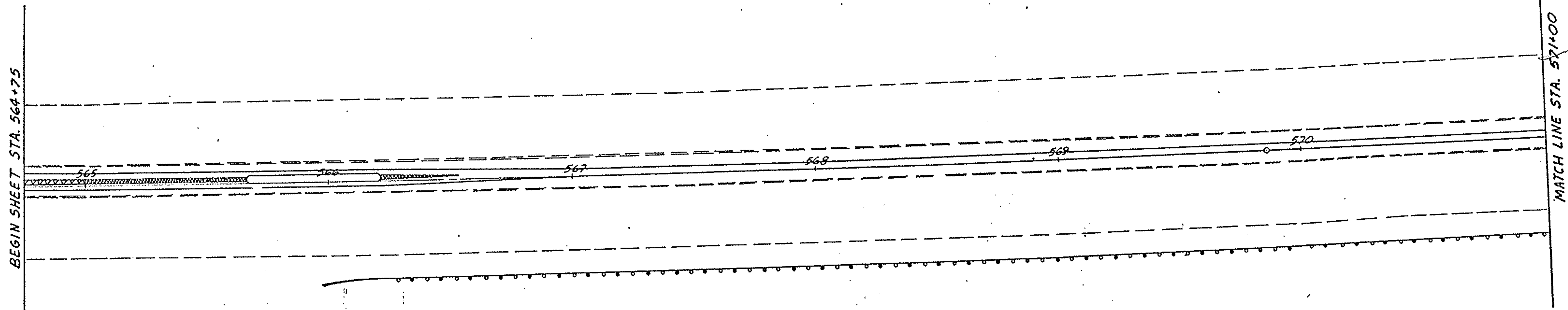
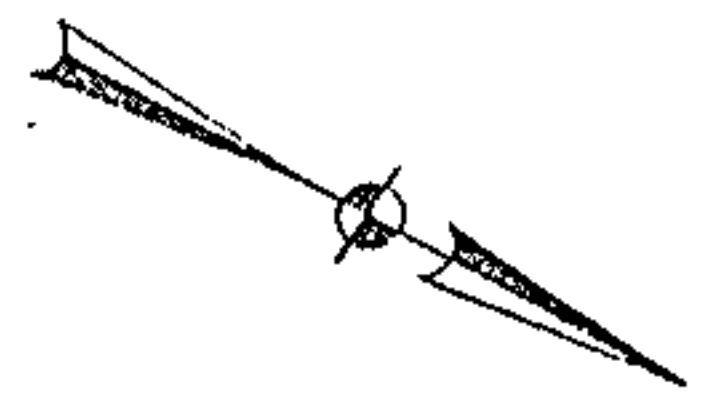
NOTE: FOR TYPICAL ONE LANE CLOSURE DETAIL, SEE SHEET NO. 37

TEMPORARY PAVEMENT MARKING LEGEND

(A) 8" CHANNELIZING LINES (WHITE)

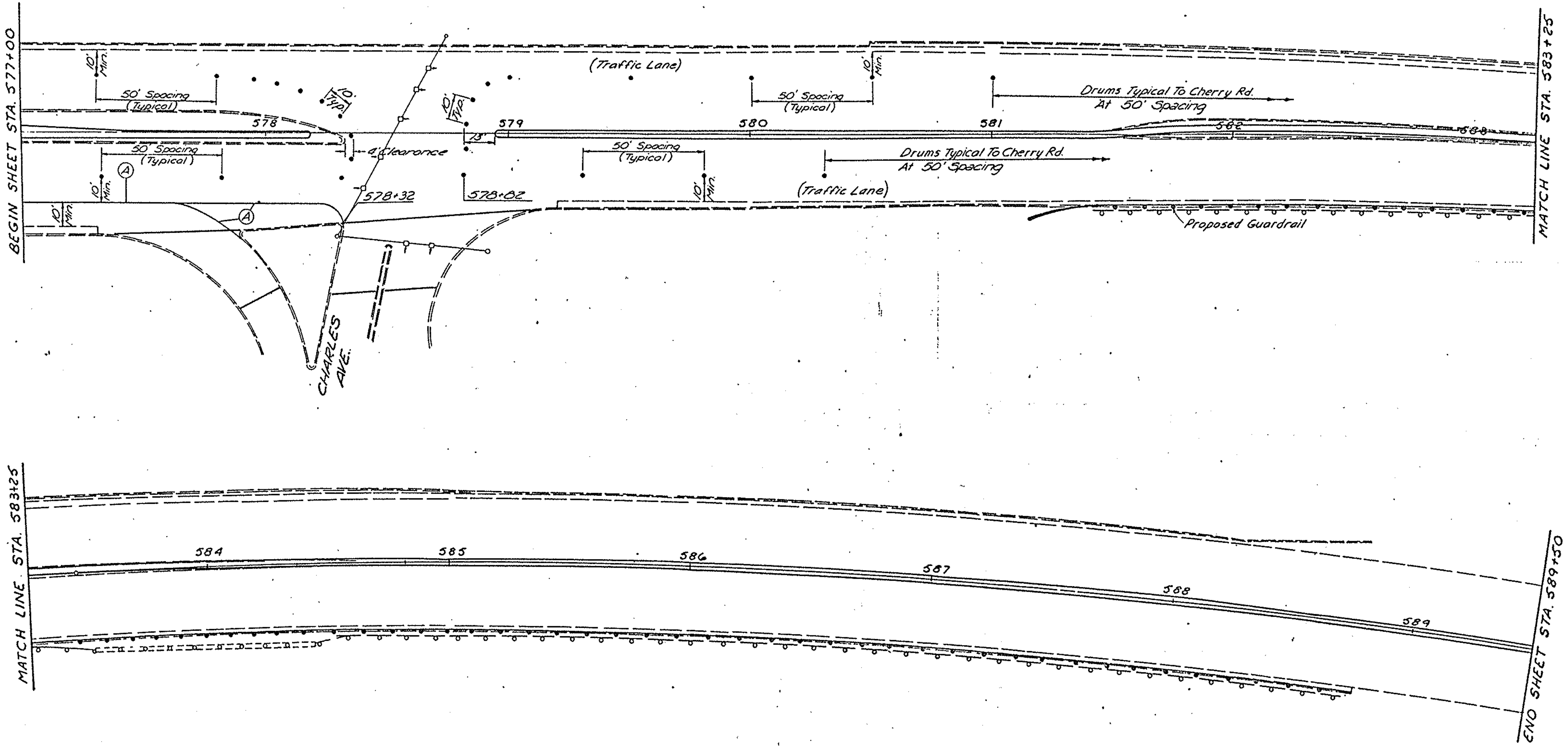
Note: For Temporary Shoulder Work, See Typical Section, Sheet No. 3

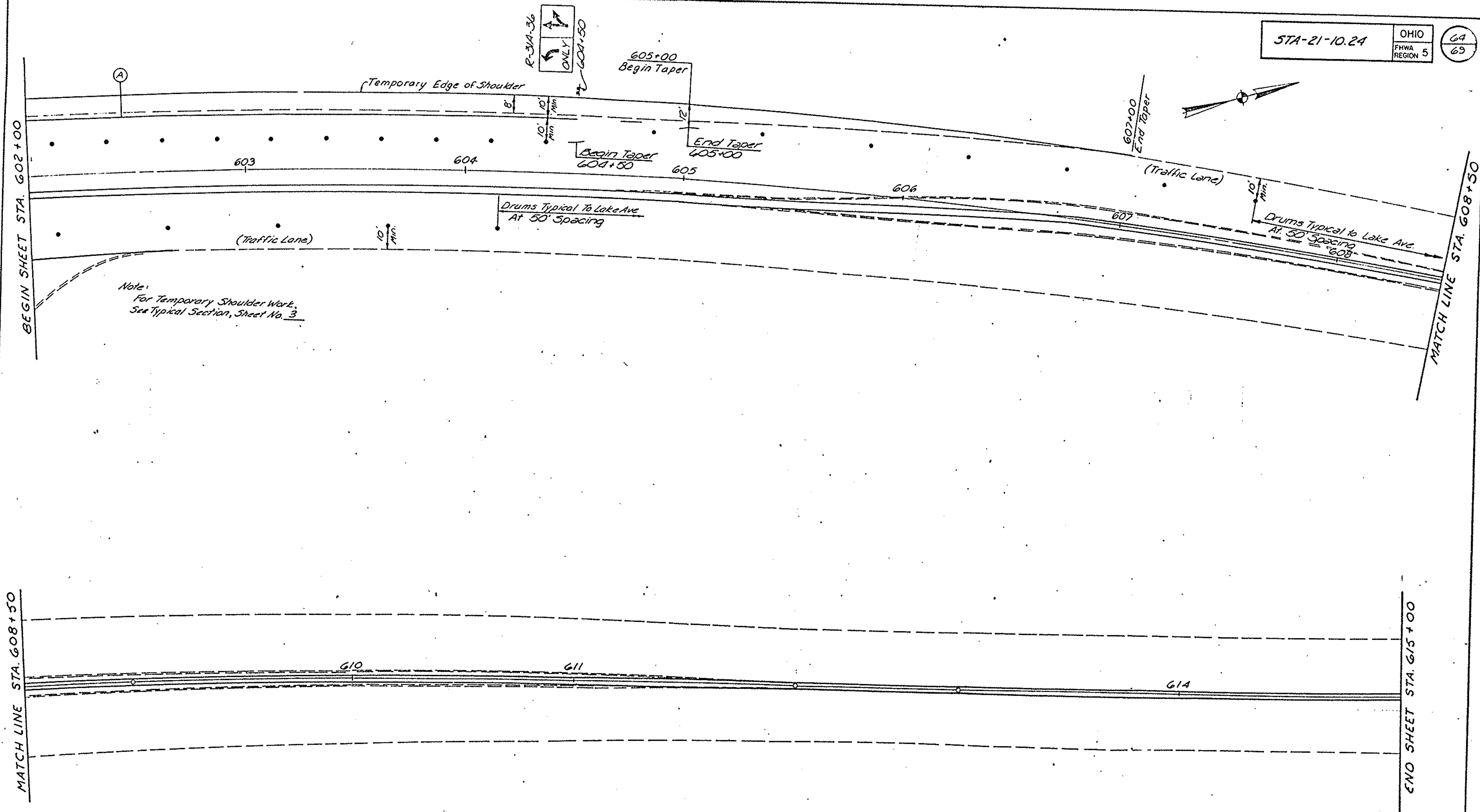




R-32R-30

RIGHT LANE MUST TURN RIGHT

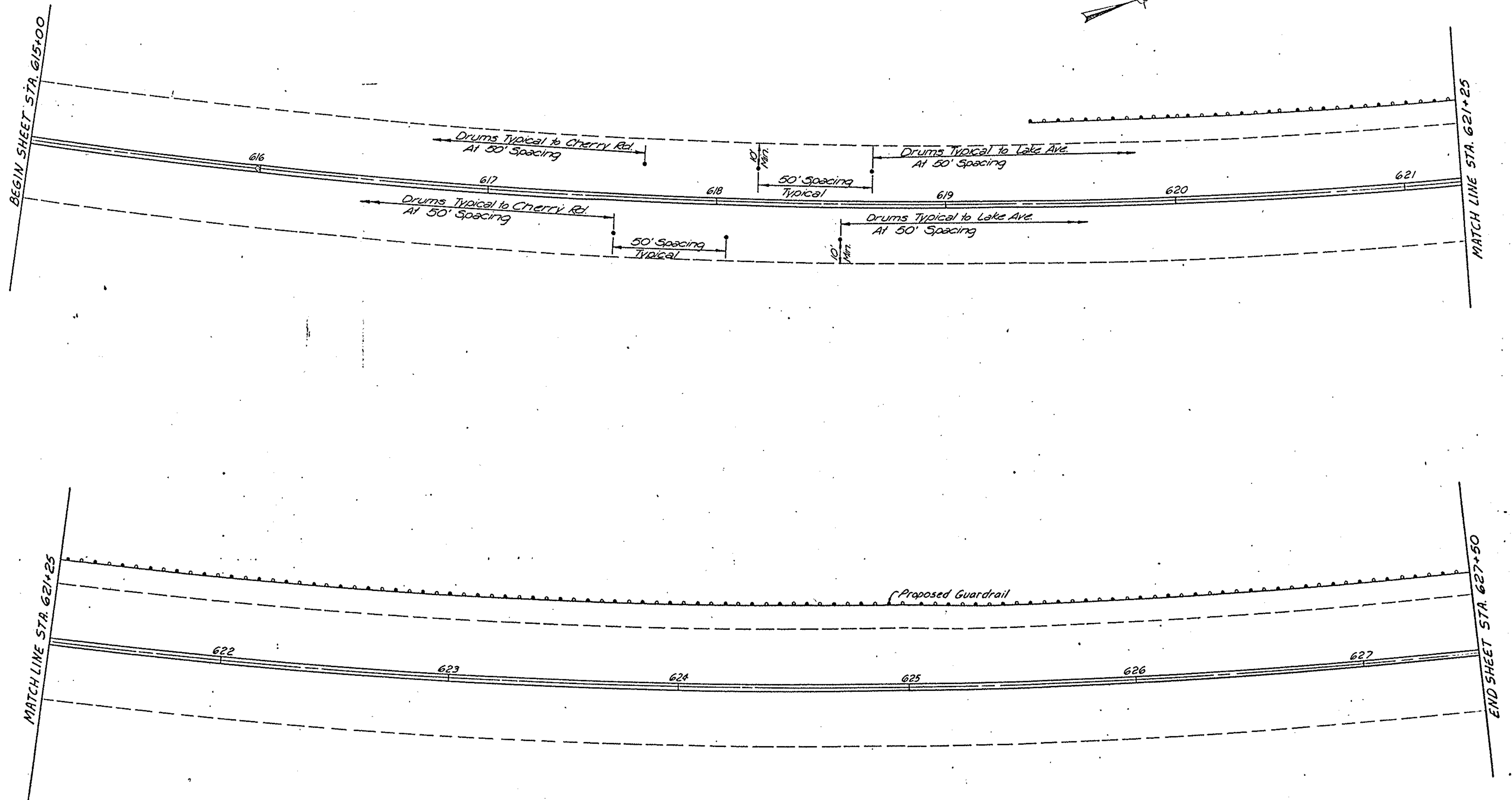




STA-21-10.24

OHIO
FHWA
REGION 5

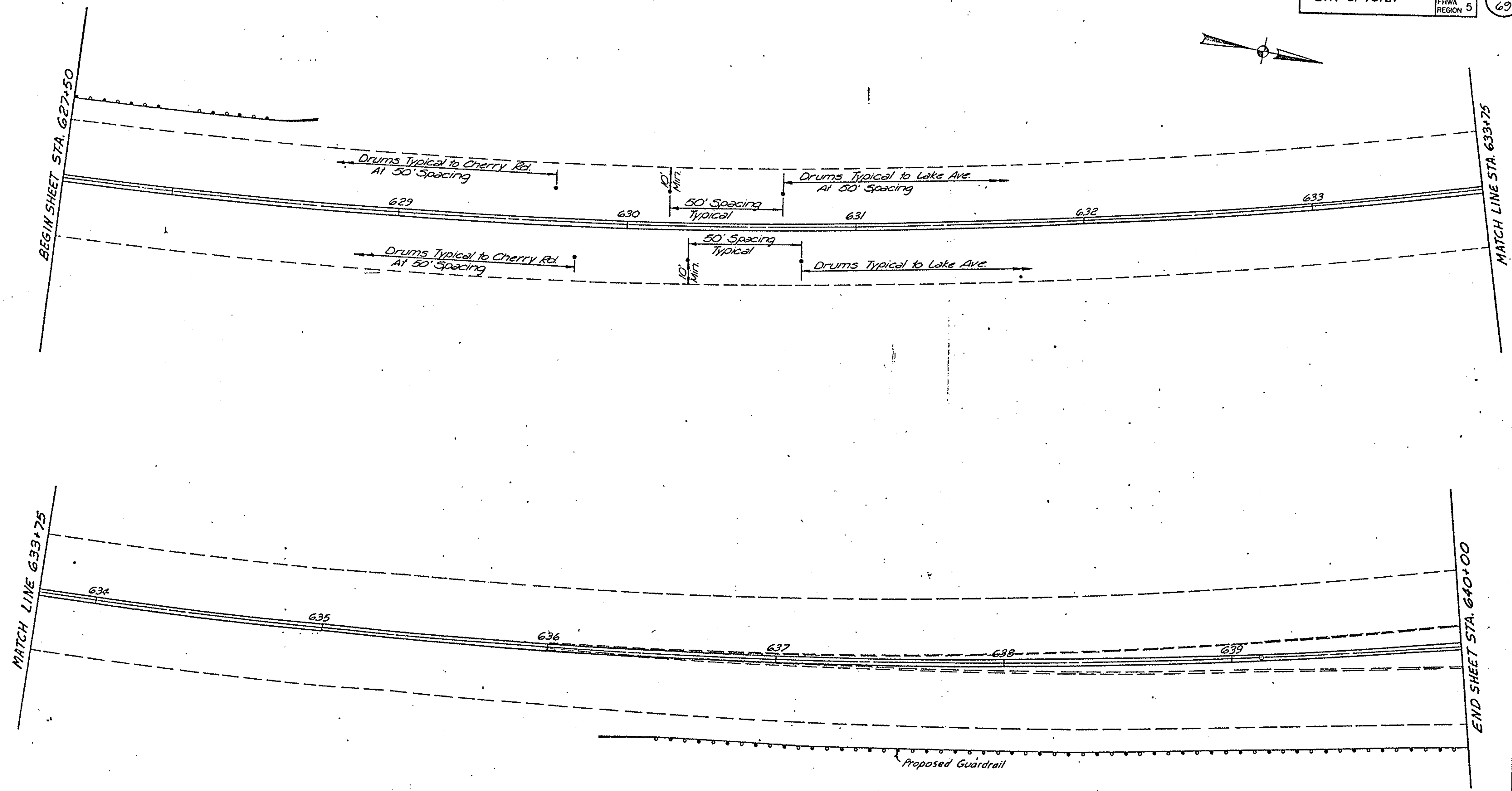
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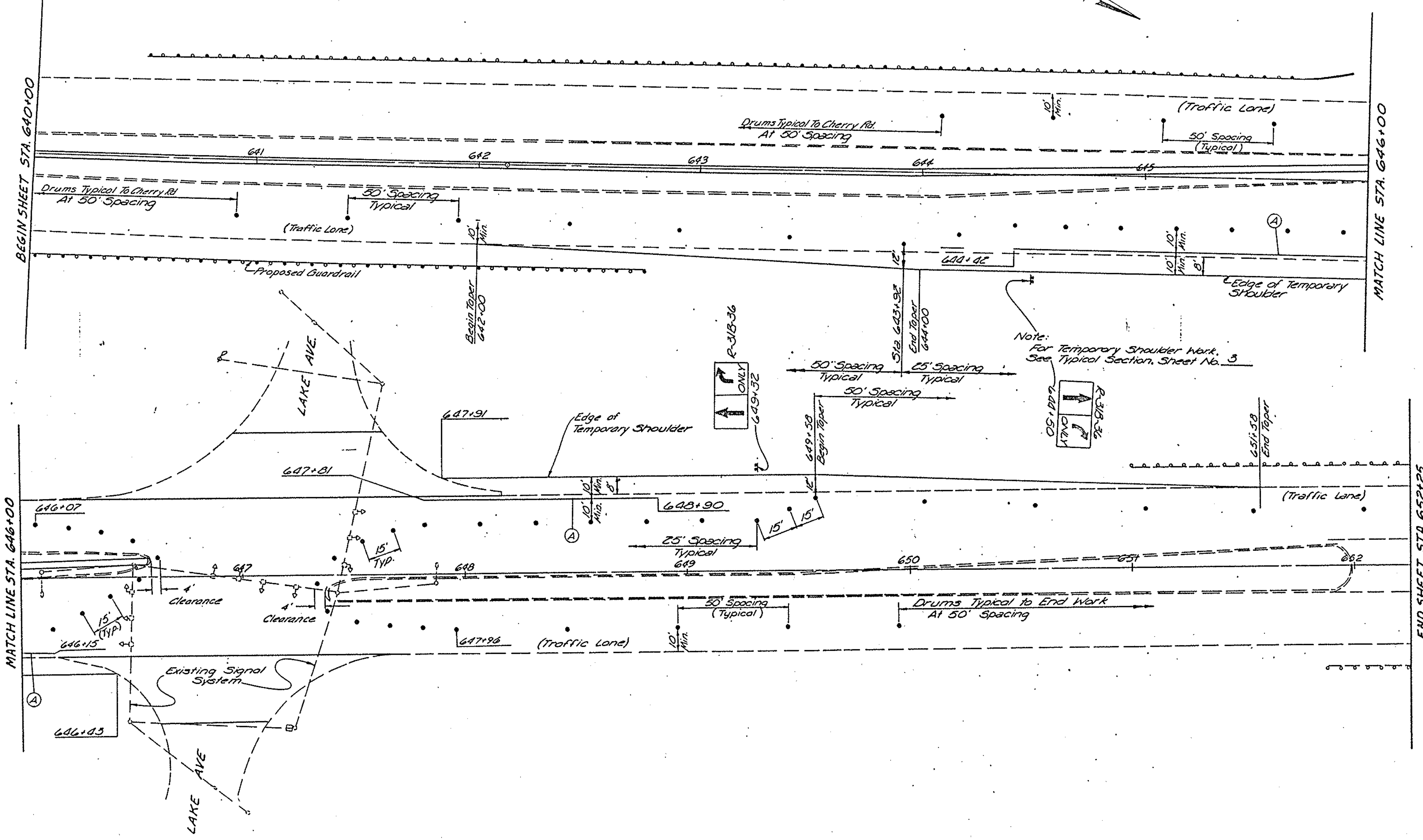


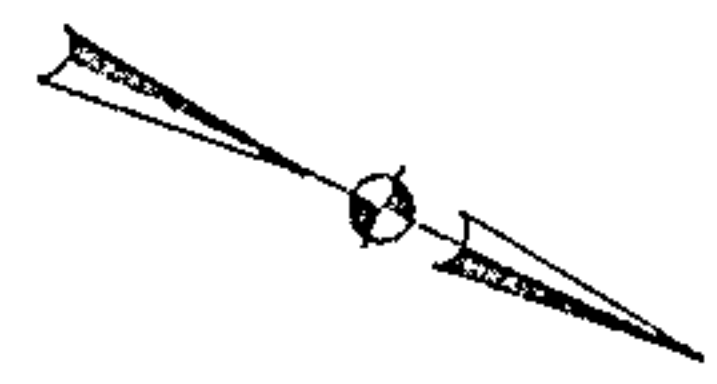
STA-21-10.24

OHIO
FHWA
REGION 5

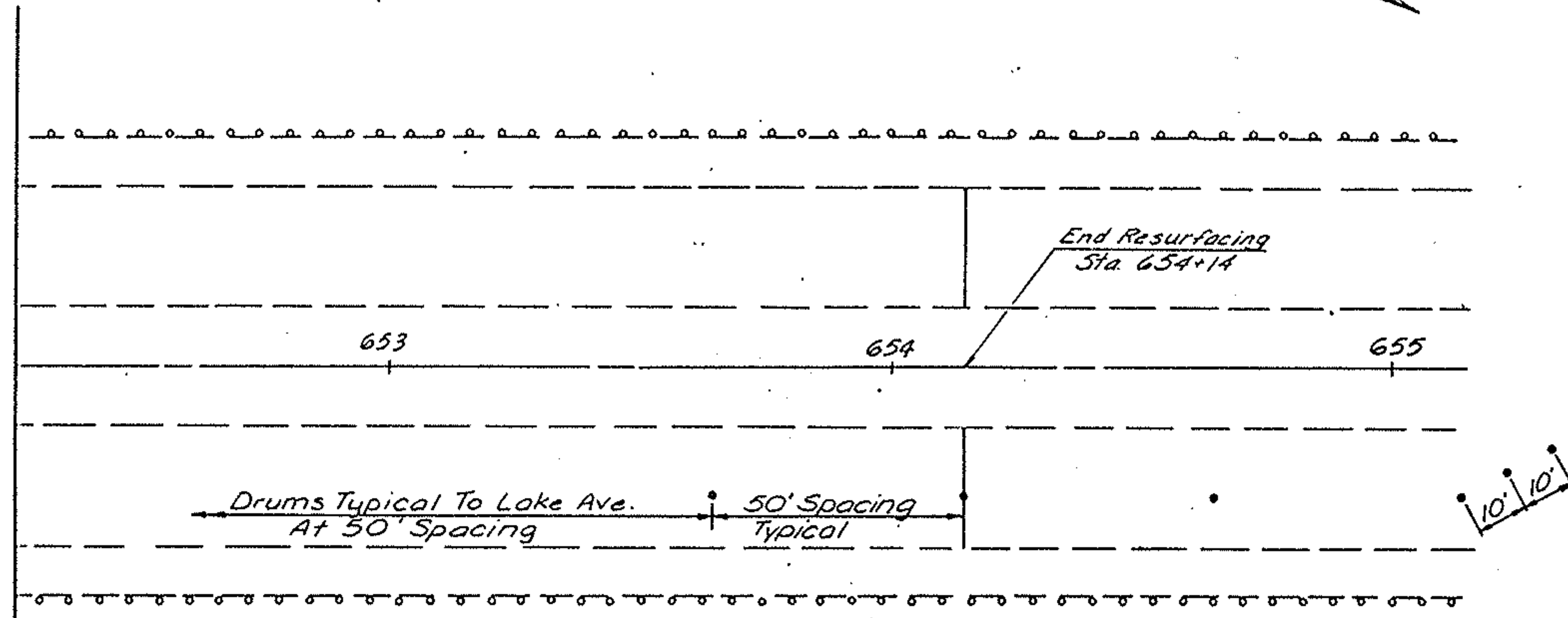
66
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BEGIN SHEET STA. 652+25



FOR TYPICAL ONE LANE CLOSURE DETAIL,
SEE SHEET NO. 57

614 WORK ZONE PAVEMENT MARKINGS

STA-21-10.24

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND WHEN NECESSARY, REMOVE WORK ZONE RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISUAL EFFECTIVENESS AND NIGHT VISIBILITY AT NO ADDITIONAL COST TO THE STATE.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMUTCD FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168) SIGN OR BOTH AS MAY BE APPROPRIATE. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL BE REPEATED EVERY 1 TO 2 MILES AND AT OTHER LOCATIONS AS NECESSARY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY. THE COST FOR FURNISHING AND ERECTING AND SUBSEQUENTLY REMOVING THESE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC, UNLESS SPECIFICALLY ITEMIZED.

TEMPORARY PAVEMENT MARKING MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE EITHER 621.02 PAINT OR 947.03 TYPE B OR C PREFORMED MATERIAL.

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT THE INCREASE OF 25 PERCENT IN THE APPLICATION RATE FOR NEW BITUMINOUS PAVEMENT AND PARAGRAPH 621.14 SHALL NOT APPLY.

TYPE B AND TYPE C PREFORMED MATERIAL

PREFORMED MATERIAL SHALL COMPLY WITH 947.03 EXCEPT THAT NO PREFORMED MATERIAL CONTAINING METAL SHALL BE PLACED ON ANY SURFACE UNLESS IT WILL BE REMOVED LATER BY THE CONTRACTOR. TEMPORARY PAVEMENT MARKINGS OF 947.03 PREFORMED MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF 621 OR 847 SURFACE COURSE MARKINGS AT THAT LOCATION. PREFORMED MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS CONFLICT WITH THE TRAFFIC PATTERN, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134.

TEMPORARY MARKING CLASSES

CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE FULL DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING ADDITIONS OR EXCEPTIONS:

- 1) LANE LINES SHALL BE 4-INCHES IN WIDTH.
- 2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
- 3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
- 4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

CLASS II MARKINGS

CLASS II MARKINGS (ABBREVIATED) SHALL BE DEFINED AS FOLLOWS:

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

GORE MARKINGS SHALL BE TWO CONTINUOUS, WHITE 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 1.6 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 16 GALLONS PER MILE FOR GORE MARKINGS.

CONFLICTING EXISTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL CONFLICTING EXISTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SPECIFICALLY ITEMIZED.

THE CONTRACTOR SHALL ALSO REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER (RPM) WHICH IS IN CONFLICT WITH THE TEMPORARY PAVEMENT MARKINGS. WHEN THE TEMPORARY PAVEMENT MARKINGS ARE REMOVED AND THE RPM IS NO LONGER IN CONFLICT, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR. THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

INTERIM MARKINGS

WITHIN 21 CALENDAR DAYS AFTER OPENING ANY LENGTH OF PAVEMENT TO TRAFFIC, THE 621 OR 847 PAVEMENT MARKINGS CALLED FOR IN THE PLANS OR EQUIVALENT 614 CLASS I, PAINT MARKINGS SHALL BE APPLIED. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I PAINT MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC.

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE PROVISIONS OF 108.07 WILL BE INVOKED, EXCEPT THAT BETWEEN NOVEMBER 15 AND APRIL 15 WEATHER CONDITIONS SHALL NOT BE AN ACCEPTABLE REASON FOR EXTENSION.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED, IN ACCORDANCE WITH 621.15.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF THE MARKINGS.

ITEM	UNIT	DESCRIPTION
614 8.14	MILES	TEMPORARY LANE LINES, CLASS <u>I</u> , <u>Paint</u>
614	MILES	TEMPORARY CENTER LINES, CLASS <u>I</u> , <u>Paint</u>
*614 2711	LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS I, <u>TYPE C TAPE</u>
614 4004	Lin Ft.	Temporary Channelizing Line Class I <u>Paint</u>
614 16	MILES	TEMPORARY EDGE LINES, CLASS I, <u>Paint</u>
614	LIN. FT.	TEMPORARY GORE MARKINGS, CLASS <u>II</u> , <u>Paint</u>
614 592	LIN. FT.	TEMPORARY STOP LINES, CLASS I, <u>Paint</u>
614 984	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, <u>Paint</u>
614 34	EACH	TEMPORARY LANE ARROWS, CLASS I, <u>Paint</u>
614	EACH	TEMPORARY RAILROAD SYMBOL MARKINGS, CLASS <u>I</u> , <u>Paint</u>
614 16	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72-INCH, CLASS I, <u>Paint</u>
614 122	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, <u>Paint</u>
614	LIN. FT.	TEMPORARY DOTTED LINES, CLASS <u>I</u> , <u>Paint</u>
*621 PAINT, 947.03 TYPE B OR 947.03 TYPE C		

fh4

* This Temporary Channelizing Line quantity will be used as indicated in the maintenance of Traffic plan sheets 46 to 68. All other shall be placed as shown on sheets 33 to 44.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

FR-48(7)

STA-21-10.24

CITY OF MASSILLON
PERRY TOWNSHIP
STARK COUNTY

1983 SPECIFICATIONS

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

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

159(83)

CONVENTIONAL SIGNS

CENTERLINE 600 601

TOWNSHIP LINE

CORPORATION LINE

FENCE LINE

RIGHT OF WAY R/W

EXISTING RIGHT OF WAY EXIST. R/W

EXISTING UTILITIES

WATER LINE

GAS LINES

SANITARY LINE

WATER OR GAS VALVE

STORM SEWERS

GUARD RAIL

CULVERTS

MANHOLES

CATCH BASINS

HYDRANT

FEATHERED AREA

EXISTING SIGN

EXISTING GUARD RAIL TO BE REPLACED

INDEX OF SHEETS

TITLE SHEET	1	GENERAL SUMMARY	13-15
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TYPICAL SECTIONS	3-4	PLAN SHEETS	17-29
CONCRETE BARRIER DETAILS	5	DRAINAGE DETAILS	30-31
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GENERAL NOTES	9-12	MAINTENANCE OF TRAFFIC	46-89

LINE DATA

BEGIN PROJECT STA: 542+77.00

END PROJECT 1 WORK STA: 654+14.00

DEDUCTION FOR STATION EQUATIONS (SHOWN ON SH. 2) - 27.97 L.F.

LENGTH OF PROJECT 11,109.03 L.F. OR 2.104 MI.

BEGIN WORK STA: 540+24.00

ADD FOR WORK

STA. 540+24.00 TO STA: 542+77.00 253.00 L.F.

LENGTH OF WORK 11,362.03 L.F. OR 2.152 MI.

PREPARED AND RECOMMENDED BY
W.E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND ARCHITECTS
NEW PHILADELPHIA, OHIO

FILE NO. DATE OF LETTING 19
CONTRACT NO.

STANDARD DRAWINGS											
SP-1	7-16-81	HC-1	6-13-89	HC-4	7-28-78	TC-52.10	4-3-79				
SP-3	12-6-76	HC-2	2-5-82	HC-8	1-30-84	TC-52.20	4-3-79				
BP-5	7-16-81	GR-3	2-5-82	HC-9A	5-1-81	TC-71.10	4-9-79				
BP-7	12-6-76	GR-6	2-5-82	HC-9B	5-1-81	TC-72.20	2-26-82				
		HW-4A	4-1-80	HC-10	6-12-79	TC-81.10	4-10-79				
		HW-4B	4-1-80	HC-11	6-12-79	TC-81.20	4-10-79				
GR-1	2-5-82	HC-12	3-1-78	HC-13	6-12-79	TC-81.30	4-10-79				
GR-2B	2-5-82	HC-14	3-1-78	HC-15	6-12-79	TC-81.40	4-10-79				
GR-4	2-5-82	HC-16	3-1-78	HC-17	6-12-79	TC-81.50	4-10-79				
GR-4A	1-30-81	HC-18	3-1-78	HC-19	6-12-79	TC-81.60	4-10-79				

PORTION TO BE IMPROVED
U.S. ROUTE
STATE ROADS

LOCATION MAP

0 1 2
SCALE IN MILES

PLAN

0 20 40
SCALE IN FEET

UNDERGROUND UTILITIES

48 HOURS
BEFORE YOU DIG

CALL 800-382-2784 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS
MUST BE CALLED DIRECTLY

SUPPLEMENTAL SPECIFICATIONS	
848	2-17-83
803	5-27-83
839	6-28-82

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE