E-13

MICROFILMED MAR 1 1974

MICROFILMED JUL 9 1984

DESIGN DESIGNATION	
CURRENT ADT (1973)	19,040
DESIGN YEAR (1993) ADT	46,240
D.H.V.	5,550
D (DIRECTIONAL DISTRIBUTION)	67%
T (PERCENT B & C TRUCKS)	12%
V (DESIGN SPEED)	60 M.P.H.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

CUY-422-16.33

CUYAHOGA COUNTY
CITY OF SOLON

U-468(9)

FHWA REGION	STATE	PROJECT	FISCAL YEAR
5	OHIO	U-468(9)	

1/258

CUYAHOGA COUNTY
CUY-422-16.33

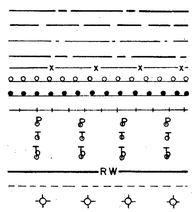
C-18

LIMITED ACCESS

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

CONVENTIONAL SIGNS

COUNTY LINE
SECTION LINE
CENTER LINE
CORPORATION LINE
FENCE LINE
GUARD RAIL (EXISTING)
GUARD RAIL (PROPOSED)
RAILROAD
POWER POLES
TELEPHONE POLES
POWER & TELEPHONE POLES
RIGHT OF WAY
CONSTRUCTION LIMITS
EXISTING STREET LIGHTING



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LINE DATA

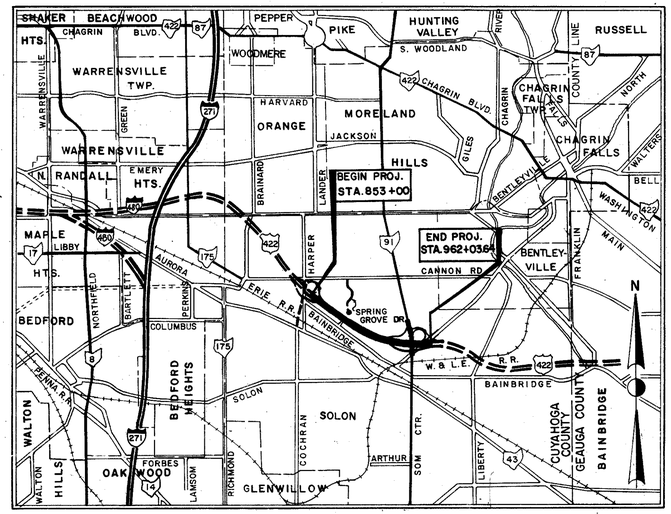
BEGIN WORK - STA. 850 + 89.00
END WORK - STA. 962 + 70.00
LENGTH 11,181.00 FT.

LENGTH ADDITIONS

SOM CENTER ROAD	STA. 25+00 - STA. 52+63.43 (-1.52' EQ.)	2,761.91 FT.
SPRING GROVE DRIVE	STA. 6+57 - STA. 9+00	
	STA. 16+50 - STA. 33+33.50	1,926.50 FT.
TOTAL LENGTH OF WORK		15,869.41 FT. OR 3.005 MILES

BEGIN PROJECT - STA. 853 + 00.00
END PROJECT - STA. 962 + 03.64

10,903.64 FT. OR 2.065 MILES



LOCATION MAP

SCALE OF MILES
0 1 2 3 4

STATE HIGHWAYS
OTHER HIGHWAYS (FREEWAYS)
OTHER ROADS
FUTURE IMPROVEMENTS
PORTION TO BE IMPROVED UNDER CONSTRUCTION

SCALES

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

GRAPHIC
0 20 40 60 80 100
0 5 10 15 20

1973 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.

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

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

APPROVED
DATE 6-22-70 Charles M. Gurick — DIVISION DEPUTY DIRECTOR

APPROVED
DATE 11-3-71 E. J. Schaefer — ENGINEER OF LOCATION & DESIGN

APPROVED
DATE 11-3-71 C. H. Altwater — ENGINEER OF BRIDGES

APPROVED
DATE ____ — DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION

APPROVED
DATE 11/17/71 — DEPUTY DIRECTOR OF RIGHT OF WAY

APPROVED
DATE 11-17-71 William Bumbley — DEPUTY DIRECTOR OF PLANNING & PROGRAMMING

APPROVED
DATE 11-15-71 — FIRST ASSISTANT DIRECTOR

APPROVED
DATE 11/18/71 Phillip Richley — DIRECTOR OF HIGHWAYS
DATE 5/21/73 — DIRECTOR, DEPARTMENT OF TRANSPORTATION

STATE OF OHIO — RICHARD S. H. CHONG 28735 — REGISTERED PROFESSIONAL ENGINEER

STATE OF OHIO — WALLACE M. ADACHE 11990 — REGISTERED PROFESSIONAL ENGINEER

PLANS PREPARED BY
ADACHE ASSOCIATES INC. ENGINEERS
CLEVELAND, OHIO 44142

366R 000141

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ENGINEER — DATE

SUPPLEMENTAL SPECIFICATIONS		STANDARD CONSTRUCTION DRAWINGS									
NUMBER	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE
934	1-1-69	HL-1	4-6-73	BR-1-67	10-15-71	F-3	3-10-69	HL-8	4-6-73	MC-4	6-13-69
		AS-1-67	6-12-69	HL-5	4-6-73	F-5	3-10-69	HL-9	4-6-73	MC-5	6-1-65
		HL-2	4-6-73	CB-2-2-A&B	6-1-65	F-6	10-1-66	HL-10	4-6-73	MC-6	6-1-65
815	9-20-72	BP-1	6-1-65	CB-3	6-1-65	HL-7	4-6-73	HL-11	4-6-73	MC-7	10-1-68
816	9-20-72	BP-2	12-1-68	CB-3A	6-1-65					MC-8	12-1-67
808	1-1-71	BP-3	1-1-71	CB-4	9-1-69					HL-15	4-6-73
1001	9-20-72	BP-4	1-1-71	CB-5	9-1-69	GR-3	11-9-71	HW-1	6-1-65	MH-1	10-1-68
836	1-1-71	BP-5	6-1-72	CB-6	6-1-65	GR-2A	1-1-71	HW-3	6-1-65	MH-1A	10-1-68
839	11-25-70	BP-6	6-1-65	CB-45BA	6-6-68	GR-2B	11-9-71	HW-E	6-1-65	MH-2A	10-1-68
		BP-7	1-1-66	HL-6	4-6-73	GR-5	1-1-71	L-1	6-1-73	RB-1-55	2-2-59
941	11-25-70	HL-3	4-6-73	F-1	6-1-72	GR-6	1-1-71	MC-1	6-13-69	HL-16	4-6-73
		HL-4	4-6-73	F-2	1-1-71	GR-4	11-9-71	MC-3	6-1-73	SD-1-69	6-12-69

FILE NO.	CUYAHOGA COUNTY	CUY-422-16.33
____	DATE OF LETTING	____
	CONTRACT NO.	____

Rev. 11-9-73 Rev. 9-17-73
Rev. 1-14-72 Rev. 8-20-73

MAY 1 1973

MICROFILMED
JUL 9 1984

LOCATION PLAN

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

2/258

CUYAHOGA COUNTY
CUY.-422-16.33

GRAPHIC SCALE
0 200 400 800 1200 1600 2000
SCALE IN FEET

N

CANNON RD.
℄ U.S.R. 422 CURVE DATA
P.I. STA. 896+55.89
Δ = 28° 39' 30"
D = 00° 40' 00"
R = 8594.37'
T = 2195.32'
L = 4298.75'
E = 275.96'
RAMP #1
RAMP #2
RAMP #3
RAMP #4
RAMP #5
RAMP #6
RAMP #7
RAMP #8
RAMP #9
RAMP #10
U-468(9)
HARPER RD.
BEGIN WORK STA. 880+89
BEGIN PROJECT CUY 422-16.39 STA. 853+00
END WORK STA. 837+35
EXTENSION
SPRING GROVE RD.
RESUME WORK STA. 16+50
SUSPEND WORK STA. 9+00
P.T. STA. 867+58.80
SPRING GROVE DR.
℄ U.S.R. 422 STA. 872+01.58
= ℄ SPRING GR. DR. STA. 5+12.96
BEGIN WORK STA. 6+37
GUARD RAIL
BAINBRIDGE RD.
BRIARWOOD LANE
BRIAR-HILL DR.
BRIARDALE LANE
T.S. STA. 908+27.09
S.C. STA. 912+27.09
C.S. STA. 923+43.41
S.T. STA. 927+43.41
℄ S.R. 91 CURVE DATA
P.I. STA. 33+16.16
Δ = 09° 38' 58"
D = 01° 30' 00"
R = 3819.72'
T = 322.41'
L = 643.30'
E = 13.58'
℄ U.S.R. 422 STA. 942+11.15
℄ S.R. 91 STA. 35+90.15
BR.# CUY. 422-1800 L/R
℄ S.R. 91 P.C. STA. 29+98.75
BEGIN WORK STA. 25+00
W & L.E. R.R.
SOM CENTER ROAD S.R. #91
END WORK STA. 52+43.43
MAPLE DR.
END WORK STA. 962+70
END PROJECT CUY. 422-16.33 STA. 962+03.64 BK. STA. 1994+00.00 AH.
℄ U.S.R. 422 STA. 955+49.95
BR.# CUY. 422-1825 L/R
℄ SOLON RD. STA. 10+00
EQ. ℄ S.R. 91 PT STA. 36+37.05 BK.
= STA. 36+38.57 AH.
FAC'I SIGN
ACCESS RD.
T.S. STA. 956+42.90
S.C. STA. 959+42.90
BEGIN WORK STA. 0+08.58
℄ SOLON RD. STA. 8+00
= ℄ ACCESS RD. STA. 0+00
℄ S.R. 91 STA. 25+29.70
= ℄ SOLON RD.
END WORK STA. 7+70.00
SOLON RD.
U-468 (9) F-U-468 (10)
CARRIAGE PARK DR.

℄ U.S.R. 422 CURVE DATA
Ls = 400'
Θs = 5°-00'-00"
P = 2.91'
K = 199.95'
Kc = 399.70'
Ye = 11.63'
L.T. = 266.77'
S.T. = 133.43'
L.C. = 399.86'
Δ = 37°53'17"
Ts = 987.59'
Es = 134.32'
Dc = 2°30'00"
Lc = 27°53'17"
Rc = 2291.83'
Te = 569.02'
L = 1115.52'
C = 1104.54'
E = 69.33'
M = 67.54'

℄ U.S.R. 422 CURVE DATA
P.I. STA. 2000+73.74.
EQ. STA. 962+03.64
BK.=STA. 1994+00.00 AH.
Δ = 42° 30' 55"
Δc = 36° 30' 55"
Dc = 2° 00' 00"
Rc = 2864.79'
Lc = 1825.76'
Ls = 300.00'
Ts = 1269.98'
Es = 210.56'
Ds = 03° 00' 00"
P = 1.31'
K = 149.99'
S.T. = 100.03'
L.T. = 200.03'
L.C. = 299.96'

Rev. 11-9-73
MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

LOCATION PLAN

DESIGNED	DRAWN	CHECKED	REVISED	DATE
M.A.R.	J.A.K.	R.W.H.		

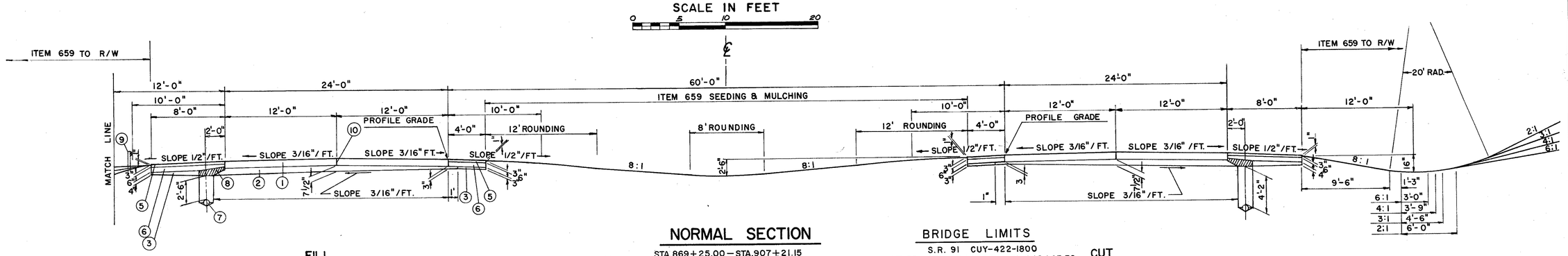
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

3 / 258

CUYAHOGA COUNTY
CUY. 422-16.33

TYPICAL SECTION
TYPE 451

SCALE IN FEET
0 5 10 20



FILL

CUT

NORMAL SECTION

STA.869+25.00 — STA.907+21.15
STA.928+50.15 — STA.955+12.40

BRIDGE LIMITS

S.R. 91 CUY-422-1800
LT. BR. STA.941+16.86 — STA.942+93.38
RT. BR. STA.941+25.86 — STA.942+97.38
SOLON RD. CUY-422-1825
STA.954+23.83 — STA.956+66.04

LEGEND

① 451 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT.
② 310 SUBBASE GRADING "A" AS PER PLAN (SEE GEN. NOTES)
③ 310 SUBBASE

⑤ 301 3" BITUMINOUS AGGREGATE BASE, AS PER PLAN 702.01 (85-100 DR AC) OR 702.09, RT-11 or RT-12. (SEE PROPOSAL NOTE)
⑥ 304 AGGREGATE BASE
⑦ 605 PIPE UNDERDRAIN (See General Note)
⑧ SPECIAL DRAINAGE CONNECTION, USING NO. 9 AGGREGATE (SEE NOTE IN PROPOSAL)
⑨ 606 GUARD RAIL - TYPE 5
⑩ STANDARD LONGITUDINAL JOINT
659 SEEDING AND MULCHING (SEE GENERAL NOTES)

CHANNEL SLOPES MAY BE AS STEEP AS 2:1

TYPICAL UNDERDRAIN DETAIL

SEQUENCE OF OPERATION (1) INSTALL PIPE UNDERDRAIN ON OUTSIDE SHOULDER, (2) PLACE SUBBASE GRADING "A" OUT TO OUTSIDE EDGE OF UNDERDRAIN, *(3) CONSTRUCT 451, (4) REMOVE SUBBASE AND ANY CONTAMINATED BACKFILL OVER DRAIN AND REPLACE WITH NO. 9 AGGREGATE AS SHOWN BY ⑧, (5) COMPLETE SHOULDER CONSTRUCTION.
* PAYMENT SHALL BE MADE FOR ALL SUBBASE PLACED IN THIS OPERATION.

SEE NORMAL FILL SECTION ABOVE FOR SLOPE TREATMENT.

FILL

SEE NORMAL CUT SECTION ABOVE FOR SLOPE TREATMENT.

OMIT UNDERDRAIN ON HIGH SIDE WHEN IN FILL

CUT

SUPERELEVATED SECTION

STA.853+00.00 —	STA.867+50.00	FULL S.E. 0.016⅞ LEFT
STA.867+50.00 —	STA.869+25.00	TRANSITION TO NORMAL
STA.907+21.15 —	STA.912+27.89	TRANSITION TO FULL S.E.
STA.912+27.89 —	STA.923+43.41	FULL S.E. 0.059⅞ LEFT
STA.923+43.41 —	STA.928+50.15	TRANSITION TO NORMAL
STA.955+12.40 —	STA.959+12.40	TRANSITION TO FULL S.E.
STA.959+12.40 —	STA.962+03.64	FULL S.E. 0.064⅛ RIGHT

BRIDGE LIMITS

SOLON RD. CUY-422-1825
STA.954+23.83 — STA.956+66.04

NOTES

1. * UNLESS OTHERWISE SHOWN ON CROSS SECTION
2. CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTIONS IF VARIABLE CONDITIONS ARE ENCOUNTERED.
3. CUT AND FILL SECTIONS SHOWN ARE INTERCHANGEABLE WITH EITHER SIDE OF ROADWAY.

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

TYPICAL SECTIONS

U.S.R. 422

DESIGNED	DRAWN	CHECKED	REVISED	DATE
M.A.R.	J.G.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

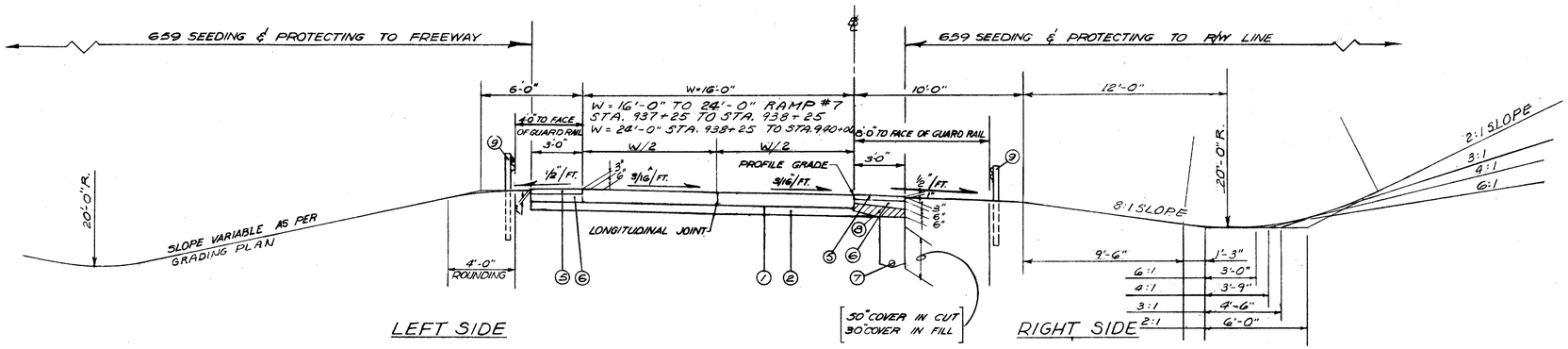
4 / 258

CUYAHOGA COUNTY
CUY – 422 – 16.33

TYPICAL SECTION

SCALE IN FEET (0, 5, 10, 15)

TYPE 451

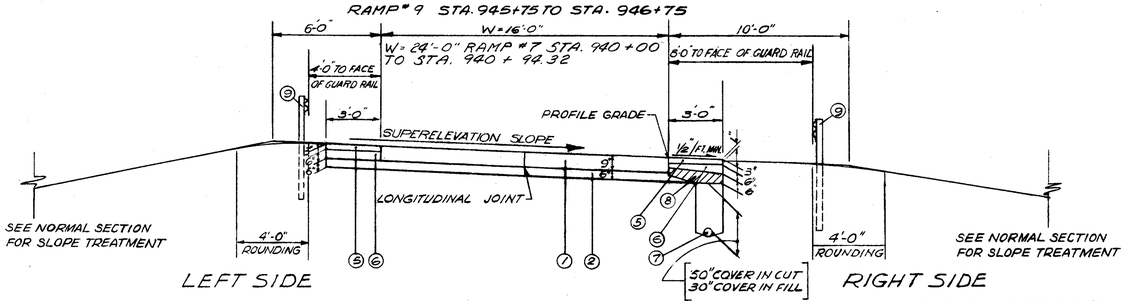


FILL

CUT

NORMAL RAMP SECTION

HARPER RD. INTERCHANGE
RAMP "A" STA. 851+43.29 TO STA. 855+85
S.R. 91 INTERCHANGE
RAMP "7 STA. 935+75 TO STA. 940+00
RAMP "9 STA. 945+75 TO STA. 946+75



LEGEND

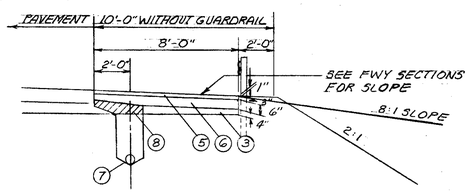
① 451 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
② 310 6" SUBBASE GRADING "A" AS PER PLAN (SEE GEN. NOTE)
③ 310 SUBBASE
④ 301 3" BITUMINOUS AGGREGATE BASE AS PER PLAN
TO2.01(85-100 or AC20)PR TO2.09 RT-11 or RT-12 (See Proposal Note)
⑤ 304 AGGREGATE BASE.
⑥ 605 6" PIPE UNDERDRAIN (See General Note)
⑧ SPECIAL DRAINAGE CONNECTION, USING No. 9 AGGREGATE (SEE NOTE IN PROPOSAL)
⑨ 606 GUARD RAIL TYPE – 5

NOTES

CROSS SECTION SHALL GOVERN OVER TYPICAL SECTIONS WHERE VARIABLE CONDITIONS ARE ENCOUNTERED IN SLOPES.

CUT AND FILL SECTIONS SHOWN ARE INTERCHANGABLE WITH EITHER SIDE OF RAMP PAVEMENT.

LEFT SIDE AND RIGHT SIDE CONFIGURATIONS ARE REFERENCED TO THE DIRECTION OF TRAVEL INSTEAD OF THE DIRECTION OF STATIONING.



SHOULDER DETAIL FOR SPEED CHANGE LANES

SUPERELEVATED RAMP

HARPER RD. INTERCHANGE

RAMP "3 STA. 853+00 TO STA. 854+23.30 FULL S.E. LT. e=0.083'/FT.
STA. 854+23.30 TO STA. 856+53.91 TRANS.
STA. 856+53.91 TO STA. 857+53.91 TRANS

S.R 91 INTERCHANGE

RAMP "6 STA. 935+35 TO STA. 937+25 FULL S.E. LT.
STA. 937+25 TO STA. 938+75 FULL SE. LT. e=0.042'/FT.
STA. 938+75 TO STA. 941+91.96 FULL S.E. LT. e=0.083'/FT.
STA. 941+91.96 TO STA. 942+26.62 TRANS.

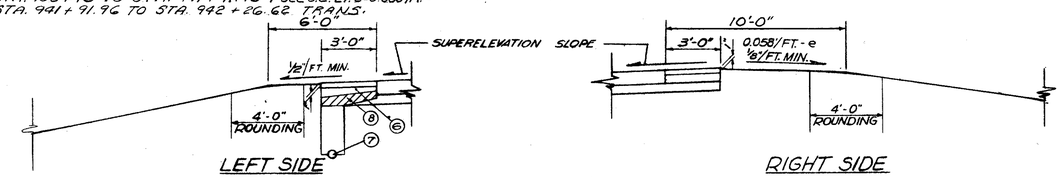
S.R 91 INTERCHANGE

RAMP "7 STA. 934+19.29 TO STA. 934+75 FULL S.E. RT. e=0.042'/FT.
STA. 934+75 TO STA. 935+75 TRANS.
STA. 940+00 TO STA. 940+99.32 TRANS.

S.R. 91 INTERCHANGE

RAMP "8 STA. 947+34.15 TO STA. 948+00 TRANS.
STA. 948+00 TO STA. 951+00 FULL S.E. LT. e = 0.08'/FT.
STA. 951+00 TO STA. 951+30.35 TRANS.

RAMP "9 STA. 943+05.03 TO STA. 943+50 TRANS.
STA. 943+50 TO STA. 944+25 FULL S.E. LT. e=0.042'/FT.
STA. 944+25 TO STA. 945+75 TRANS.
STA. 946+75 TO STA. 949+10 TRANS.
STA. 948+00 TO STA. 949+25 FULL S.E. RT. e=0.06'/FT.



SHOULDER DETAIL - REVERSE SUPER

SEQUENCE OF OPERATION: (1) INSTALL PIPE UNDERDRAIN ON OUTSIDE SHOULDER, (2) PLACE SUBBASE GRADING "A" OUT TO OUTSIDE EDGE OF UNDERDRAIN, *(3) CONSTRUCT 451, (4) REMOVE SUBBASE AND ANY CONTAMINATED BACKFILL OVER DRAIN AND REPLACE WITH NO.9 AGGREGATE AS SHOWN BY ⑧, (5) COMPLETE SHOULDER CONSTRUCTION.
*PAYMENT SHALL BE MADE FOR ALL SUBBASE PLACED IN THIS OPERATION.

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

TYPICAL SECTIONS
RAMPS
NORMAL AND SUPERELEVATED

DESIGNED	DRAWN	CHECKED	REVISED	DATE
M.A.R.	J.D.A.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

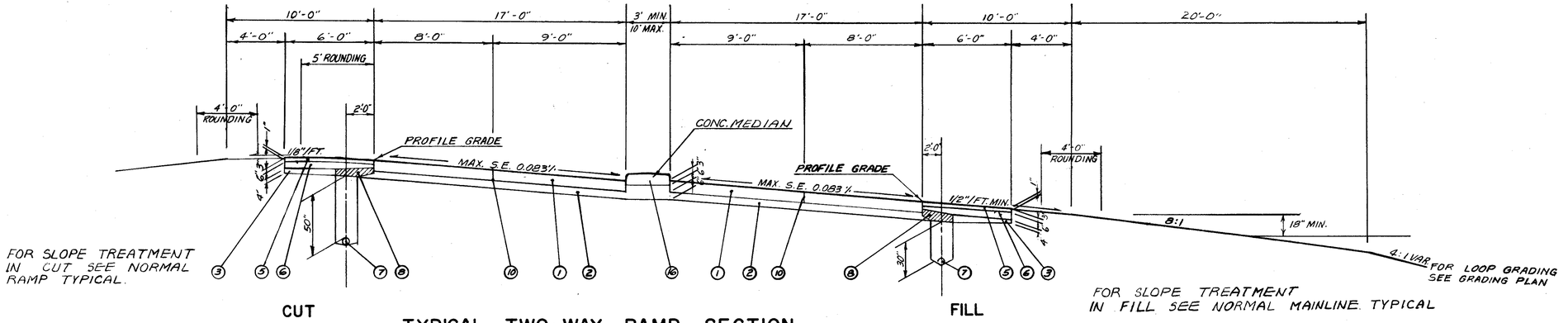
5/258

CUYAHOGA COUNTY
CUY-422-16.33

TYPICAL SECTION

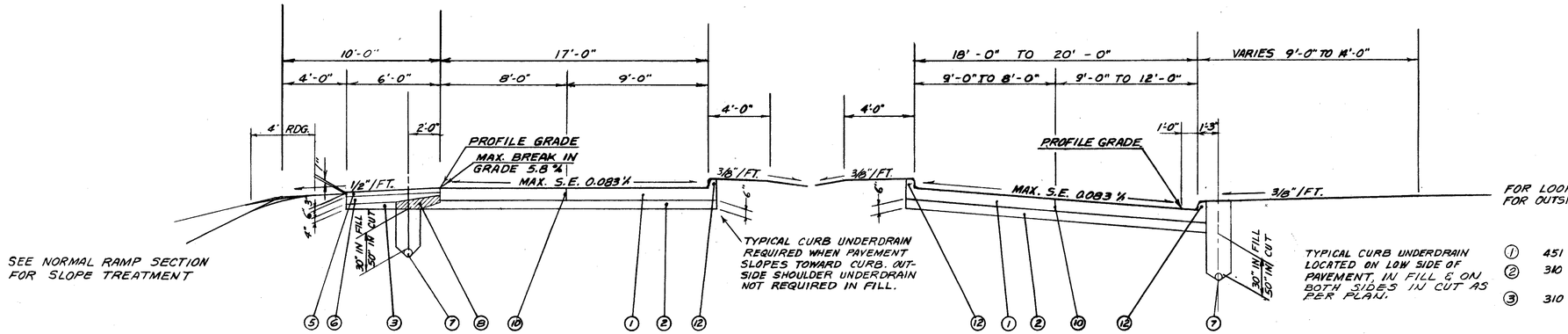
SCALE IN FEET

TYPE 451



TYPICAL TWO-WAY RAMP SECTION

RAMP # 8 STA. 942 + 07.77 TO STA. 946 + 03.97 (SEE PAV'T DETAIL)
RAMP #10 STA. 949 + 33.22 TO STA. 952 + 82.84 (SEE PAV'T DETAIL)



TYPICAL SINGLE CURB RAMP SECTION

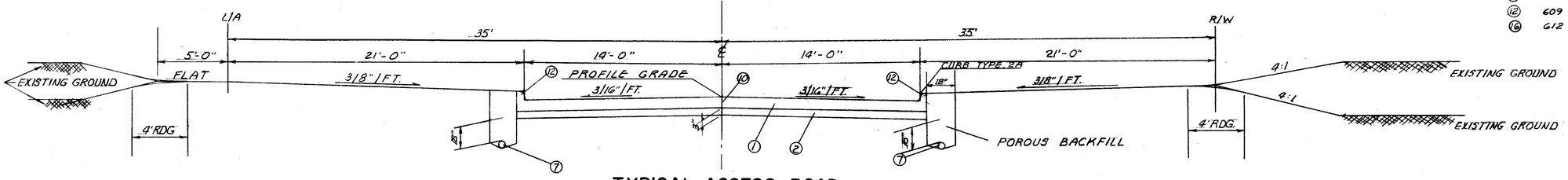
RAMP #8	STA. 940 + 58.00	TO	STA. 942 + 07.77	TRANS.
RAMP #8	STA. 946 + 03.97	TO	STA. 947 + 34.15	(SEE PAV'T. DETAIL)
RAMP #10	STA. 949 + 50.00	TO	STA. 949 + 33.22	(SEE PAV'T. DETAIL)
RAMP #10	STA. 952 + 82.84	TO	STA. 954 + 90.92	FULL S.E. 0.083'/FT. LT.

TYPICAL DOUBLE CURB RAMP SECTION

RAMP #10 STA. 954+90.92 TO STA. 955+90.92 (SEE PAV'T DETAIL)

LEGEND

①	451	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
②	310	SUBBASE GRADING "A" AS PER PLAN (SEE GENERAL NOTES)
③	310	SUBBASE
⑤	301	3" BITUMINOUS AGGREGATE BASE, As Per Plan, 702.01 (BS-10.00 OR BC-20.0)x1.5 or 2.0, 702.02, RT-11 or RT-12, (See Proposal Note)
⑥	304	AGGREGATE BASE
⑦	605	6" PIPE UNDERDRAIN (See General Note)
⑧	SPECIAL	DRAINAGE CONNECTION, USING NO. 9 AGGREGATE (SEE NOTE IN PROPOSAL).
⑩		STANDARD LONGITUDINAL JOINT
⑫	609	CONCRETE CURB, STANDARD TYPE 2A
⑯	612	CONCRETE MEDIAN, STANDARD



TYPICAL ACCESS ROAD

STA. 0+89.24 TO STA. 6+68.38

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TYPICAL SECTIONS
RAMPS
TWO-WAY AND CURBED SECTIONS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H	J.A.S.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	
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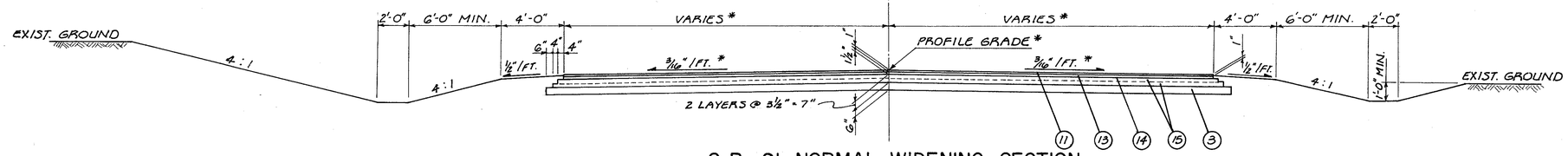
TYPICAL SECTION

TYPE 404

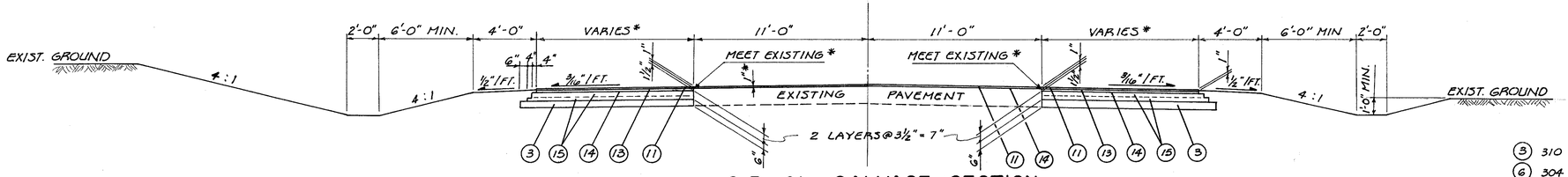
0 5 10 15 20
SCALE IN FEET



FILL — CUT

S.R. 91 NORMAL WIDENING SECTION

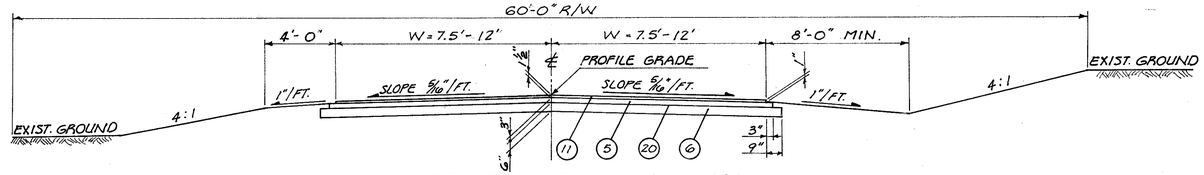
STA. 28+50 TO STA. 29+50
STA. 47+83.43 TO STA. 49+50



FILL — CUT

S.R. 91 SALVAGE SECTION

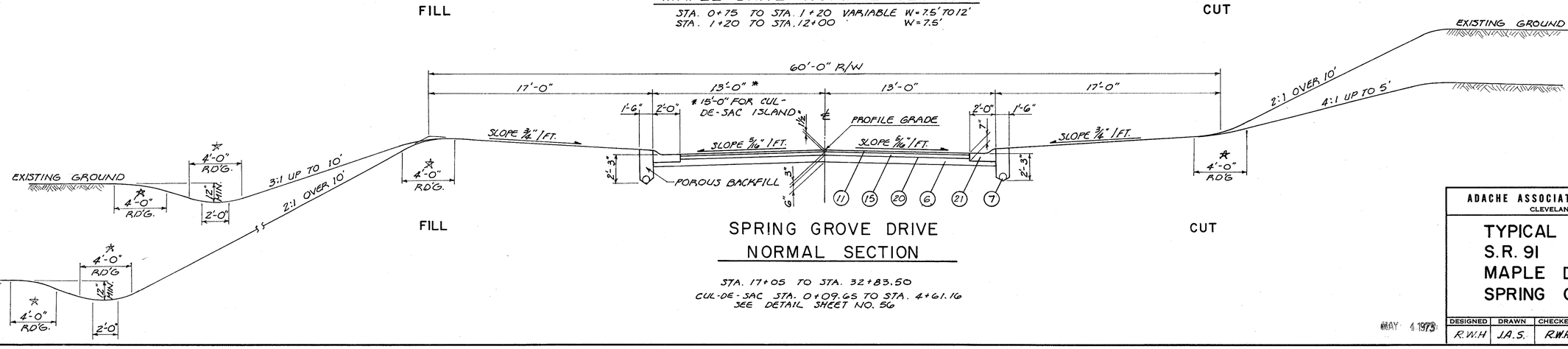
STA. 25+00 TO STA. 28+50
STA. 49+50 TO STA. 52+63.43



FILL — CUT

MAPLE DRIVE NORMAL SECTION

STA. 0+75 TO STA. 1+20 VARIABLE W = 7.5' TO 12'
STA. 1+20 TO STA. 12+00 W = 7.5'



FILL — CUT

SPRING GROVE DRIVE NORMAL SECTION

STA. 17+05 TO STA. 32+83.50
CUL-DE-SAC STA. 0+09.65 TO STA. 4+61.16
SEE DETAIL SHEET NO. 56

LEGEND

(5) 310 SUBBASE
(6) 304 AGGREGATE BASE
(7) 605 6" PIPE UNDERDRAIN (See General Note)
(11) 404 ASPHALT CONCRETE (70-85 OR AC 20)
(13) 403 ASPHALT CONCRETE (70-85 OR AC 20)
(14) 407 TACK COAT: 702.04, MS-2 OR RS-1; OR 702.02, RC-70 OR RC-250. APPLIED RATE 0.10 GAL. PER SQ. YD. and cover aggregate
(15) 301 BITUMINOUS AGGREGATE BASE: 702.01 (85-100 OR AC 20) OR 702.09, RT-11 OR RT 12.
(20) 408 BITUMINOUS PRIME COAT: 702.09 RT-2 OR RT-3. APPLIED RATE 0.40 GAL. PER SQ. YD.
(21) 609 CONCRETE CURB, STANDARD TYPE 3

* SEE PAVEMENT DETAIL
☆ 4'-0" rounding typical for all sections

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TYPICAL SECTIONS
S.R. 91
MAPLE DRIVE
SPRING GROVE DRIVE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H	J.A.S.	R.W.H.			

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TYPICAL SECTION

SCALE IN FEET 0 5 10 15

TYPE 451

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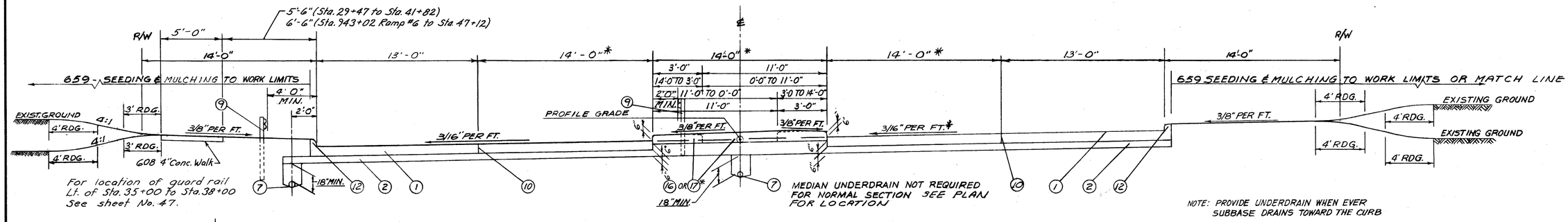
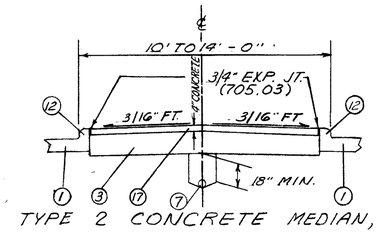
CUY 422-16.33



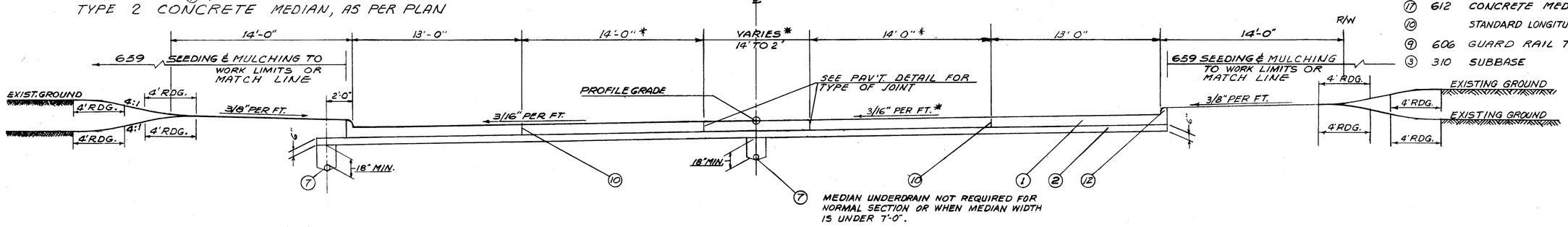


TYPE 2 CONCRETE MEDIAN, AS PER PLAN

REVERSE CROWN SECTION WITH CONCRETE MEDIAN

FOR NORMAL SECTION USE LEFT HALF AS TYPICAL BOTH SIDES

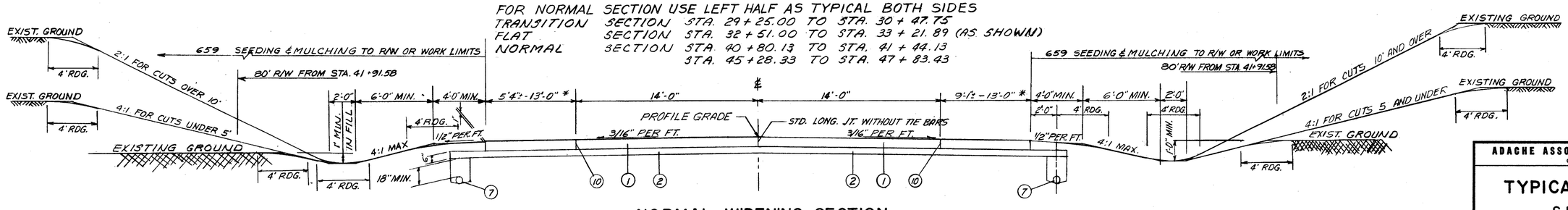
TRANSITION	SECTION	STA. 30+47.75 TO STA. 30+50.00	
FLAT	SECTION	STA. 30+50.00 TO STA. 32+51.00	(AS SHOWN)
		STA. 33+21.89 TO STA. 35+69.00	
TRANSITION	SECTION	STA. 35+69.00 TO STA. 37+82.52	EQ. STA. 36+37.05 BK. = STA. 36+38.57 AH.
NORMAL	SECTION	STA. 37+82.52 TO STA. 40+80.13	
		STA. 41+44.13 TO STA. 45+28.33	



REVERSE CROWN SECTION WITHOUT CONCRETE MEDIAN

FOR NORMAL SECTION USE LEFT HALF AS TYPICAL BOTH SIDES

TRANSITION	SECTION	STA. 29+25.00 TO STA. 30+47.75	
FLAT	SECTION	STA. 32+51.00 TO STA. 33+21.89	(AS SHOWN)
NORMAL	SECTION	STA. 40+80.13 TO STA. 41+44.13	
		STA. 45+28.33 TO STA. 47+83.43	



NORMAL WIDENING SECTION

STA. 47+83.43 TO STA. 49+00.00

LEGEND

①	451	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
②	310	SUBBASE, GRADING "A" (SEE GEN. NOTES)
⑫	609	CONCRETE CURB AS PER PLAN
⑦	605	6" PIPE UNDERDRAIN (See General Note)
⑯	612	CONCRETE MEDIAN STANDARD
⑰	612	CONCRETE MEDIAN AS PER PLAN
⑩		STANDARD LONGITUDINAL JOINT
⑨	606	GUARD RAIL TYPE 5
③	310	SUBBASE

NOTE: CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTIONS WHERE VARIABLE CONDITIONS ARE ENCOUNTERED.

* SEE PAVEMENT DETAILS

MAY 4 1973

Rev. 11-19-71

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

TYPICAL SECTIONS
S.R. - 91

DESIGNED	DRAWN	CHECKED	REVISED	DATE
M.A.R.	J.D.A.	R.W.H.		

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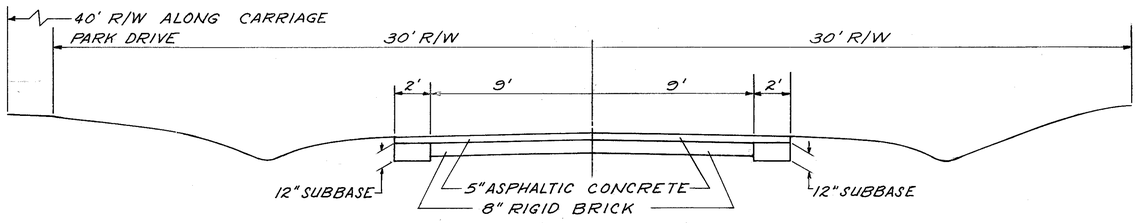
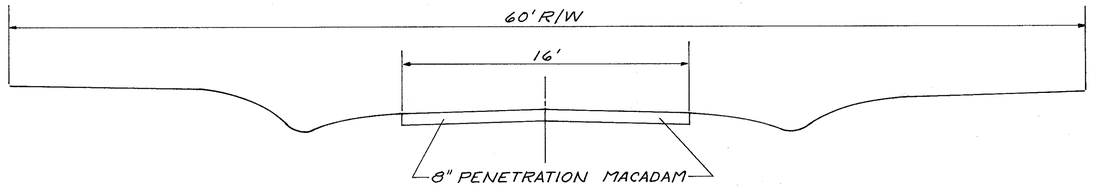
CUY-422-16.33

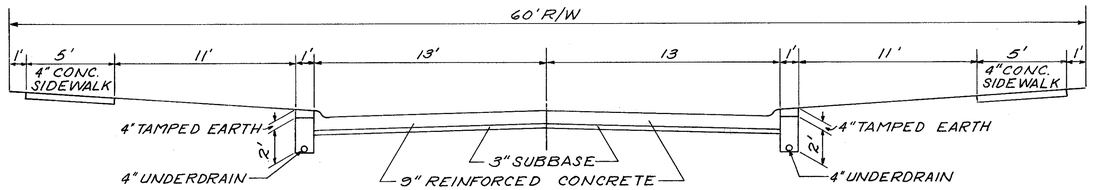
EXISTING TYPICAL SECTIONS



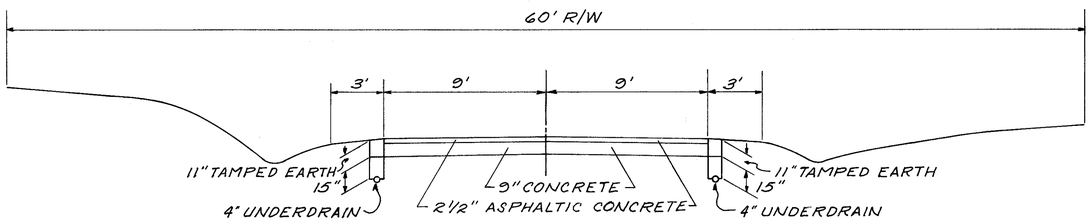
S.R. 91



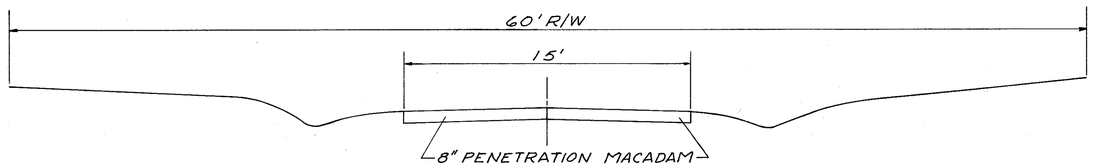
SPRING GROVE DR.



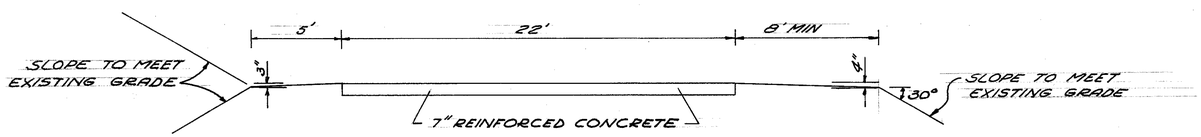
CARRIAGE PARK DRIVE



SOLON RD.



MAPLE DRIVE



ERICO PRODUCTS INC.
ENTRANCE ROAD

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

EXISTING TYPICAL SECTIONS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.A.S.	R.W.H.			

MAY 4 1973

GENERAL NOTES

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TRAFFIC

A. SPRING GROVE DRIVE

THE CONSTRUCTION OF THE SPRING GROVE DRIVE EXTENSION NORTHERLY TO CANNON ROAD SHALL BE COMPLETED PRIOR TO THE CLOSING OF THE EXISTING CONNECTION TO BAINBRIDGE ROAD SOUTHERLY. THE CUL-DE-SAC TO THE NORTH OF PROPOSED U.S. ROUTE 422 CONSTRUCTION SHALL BE COMPLETED IMMEDIATELY AFTER THE CLOSING OF SPRING GROVE DRIVE TO THE SOUTH.

B. S.R. 91 - SOM CENTER ROAD

TWO LANES OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE PROPOSED PAVEMENT & TEMPORARY ROADWAY SURFACED WITH ITEM 404 OR ITEM 410 AGGREGATE AND STABILIZED WITH ITEM 616 CALCIUM CHLORIDE.

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

C. MAPLE DRIVE AND CARRIAGE PARK DRIVE

TWO LANES OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT DURING THE CONSTRUCTION OF THE INTERSECTION, WHEN ONE-WAY TRAFFIC SHALL BE,MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE PROPOSED PAVEMENT & TEMPORARY ROADWAY SURFACED WITH ITEM 410 AGGREGATE AND STABILIZED WITH ITEM 616 CALCIUM CHLORIDE.

D. SOLON ROAD

TWO LANES OF TRAFFIC SHALL BE MAINTAINED.

E. ACCESS ROAD

THE CONSTRUCTION OF THE PROPOSED ACCESS ROAD SHALL BE COMPLETED TO STATION 6+75 ± PRIOR TO CLOSING THE EXISTING ENTRANCE ROAD.

TWO LANES OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT DURING THE CONSTRUCTION OF THE CONNECTION TO THE EXISTING ENTRANCE ROAD, WHEN ONE LANE SHALL BE MAINTAINED BY USE OF THE EXISTING PAVEMENT, THE PROPOSED PAVEMENT & TEMPORARY ROADWAY SURFACED WITH ITEM 410 AGGREGATE AND STABILIZED WITH ITEM 616 CALCIUM CHLORIDE.

ESTIMATED QUANTITIES FOR TRAFFIC MAINTENANCE

ESTIMATED QUANTITIES OF 404, 410 AND 616 HAVE BEEN PROVIDED IN THE GENERAL SUMMARY FOR MAINTENANCE OF TRAFFIC, AND SHALL BE APPLIED AT LOCATIONS WHERE DIRECTED AND IN THE AMOUNTS SPECIFIED BY THE ENGINEER.

ITEM 404	ASPHALT CONCRETE OR AN APPROVED BITUMINOUS PRE MIXED SURFACE COURSE FOR MAINTAINING TRAFFIC.	500 CU. YDS.
ITEM 410	TRAFFIC COMPACTED SURFACE,TYPE A OR B	500 CU. YDS.
ITEM 410	TRAFFIC COMPACTED SURFACE,TYPE C	500 CU. YDS.
ITEM 616	CALCIUM CHLORIDE	25 TONS
ITEM 616	WATER	500 M. GAL.

USE OF TEMPORARY PAVEMENT

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

TRENCH FOR WIDENING

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

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

GENERAL

FIELD OFFICE

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

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

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

UNDERGROUND UTILITIES

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

ESTIMATED QUANTITIES

SPECIFIC LOCATIONS AND USAGE OF ESTIMATED QUANTITIES SET UP ON THIS PLAN TO BE USED "AS DIRECTED BY THE ENGINEER" SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT. *ESTIMATED QUANTITIES OF MATERIALS SHALL NOT BE ORDERED FOR DELIVERY TO THE PROJECT UNLESS AUTHORIZED BY THE ENGINEER.*

SUPERELEVATION

SUPERELEVATED CURVES SHALL BE BUILT WITHOUT CROWN. TRANSITIONS SHALL BE MADE AS PER PLAN. (SEE SUPERELEVATION TABLES.)

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON "U.S.C.G.S." DATUM.

GEODETIC MONUMENT

UNDER"ITEM SPECIAL, EXISTING MONUMENT REMOVED AND STORED", THE CONTRACTOR SHALL CAREFULLY REMOVE AND STORE THE BRONZE PLATE, MARKER AND MONUMENT BOX. THE CONTRACTOR SHALL NOTIFY THE CLEVELAND REGIONAL GEODETIC OFFICE LOCATED AT 1236 STANDARD BUILDING, CLEVELAND, OHIO, AT LEAST ONE WEEK PRIOR TO THE REMOVAL OF THE MONUMENT. MATERIALS REMOVED AND STORED BY THE CONTRACTOR SHALL BE PICKED UP BY A REPRESENTATIVE OF THE CLEVELAND REGIONAL GEODETIC OFFICE.

THE MONUMENT (O.M.83) IS LOCATED 23 FEET LEFT OF STATION 33+95 ON S.R. 91.

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS

THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS AT EACH OF THE FOLLOWING APPROXIMATE LOCATIONS:

1. RIGHT SIDE S.R. 91 AT STATION 30+00.
2. LEFT SIDE S.R. 91 AT STATION 50+25.
3. RIGHT SIDE SOLON ROAD AT STATION 6+75.
4. LEFT SIDE SOLON ROAD AT STATION 12+25.

SIGN DETAILS SHALL BE AS SPECIFIED ON STANDARD DRAWING FACI-1 "CODE N-54(1)-96(2)". THE SIGNS SHALL BE ERECTED IN ACCORDANCE WITH STANDARD DRAWING FACI-2. ADDITIONAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH NOTES IN THE PROPOSAL.

NON-RIGID PAVEMENT REMOVAL

REMOVAL AND DISPOSAL OF EXISTING NON-RIGID PAVEMENT, UNLESS OTHERWISE INDICATED ON THESE PLANS, SHALL BE MEASURED AND PAID FOR AS ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT.

RIGID PAVEMENT REMOVAL

EXISTING RIGID PAVEMENT SHALL BE REMOVED UNDER ITEM 202 WHEN IT IS LOCATED LESS THAN THREE (3) FEET BELOW THE PROPOSED PAVEMENT SUBGRADE IN PROPOSED PAVEMENT AREAS OR LESS THAN THREE (3) FEET BELOW THE PROPOSED FINISHED SURFACE IN AREAS OUTSIDE THE PROPOSED PAVEMENT.

MONUMENTS
Monuments shall be constructed in accordance with details shown on Standard Drawing MC-1. For locations, see Sheet No. 16.

ITEM 605 UNDERDRAINS, AS PER PLAN
Granular filter material for underdrains shall be sand except at least 6" above the top of the pipe shall be No. 8 aggregate.

REMOVAL OF EXISTING PIPE

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

REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS LYING WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED.

SIZES	NO. TREES	NO. STUMPS
12" - 24"	525	10
24" - 36"	125	2
36" - 60"	25	-
OVER 60"	-	-

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

SCARIFICATION OF EXISTING FLEXIBLE PAVEMENT

EXISTING FLEXIBLE PAVEMENT WHEN IT IS LOCATED LESS THAN SIX (6) INCHES BELOW THE PROPOSED PAVEMENT SUBGRADE IN PROPOSED PAVEMENT AREAS OR LESS THAN SIX (6) INCHES BELOW THE PROPOSED FINISHED SURFACE IN AREAS OUTSIDE THE PROPOSED PAVEMENT SHALL BE THOROUGHLY SCARIFIED FOR ITS FULL DEPTH, MIXED WITH SUFFICIENT SOIL AND PROPERLY RECOMPACTED TO INSURE THE ELIMINATION OF ANY PLANES OF SEPARATION BETWEEN IT AND THE EMBANKMENT PLACED THEREON. PAYMENT FOR SCARIFICATION AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203, EXCAVATION.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE RIGHT-OF-WAY FENCE LINES, BETWEEN THE RIGHT-OF-WAY LINES IN UNFENCED AREAS, AND WITHIN THE WORK LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT.

ITEM 203 PROOF ROLLING

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

DRAINAGE

LOCATION AND SIZE OF PIPE

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

ITEM 604, CATCH BASIN AND MANHOLES

THE TOP OF GRATE (T/G) ELEVATION FOR ALL SLANTING GRATES INDICATED ON THESE PLANS SHALL BE THE TOP OF THE FRAME AT ITS LOWEST POINT. THE TOP OF COVER (T/C) ELEVATION INDICATED SHALL BE FOR THE CENTER OF THE LID AT THE GIVEN STATION AND OFFSET. STANDARD NO. 6 CATCH BASINS PROVIDED AT RAMP NOSES SHALL BE MODIFIED TO PROVIDE A 2-INCH GRATE DEPRESSION.

ALL CATCH BASINS DEEPER THAN FOUR (4) FEET SHALL HAVE STEPS MEETING THE REQUIREMENT OF ITEM 604.

PRESERVATION OF PONDS AND LAKES

SEVERAL PONDS AND LAKES ARE LOCATED IN AREAS ADJACENT TO THIS PROJECT. THE CONTRACTOR IS DIRECTED TO 108.04 OF THE SPECIFICATIONS RELATIVE TO HIS RESPONSIBILITY IN THIS REGARD.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL NOTES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 6-12-69	M.P. 4-2-70	R.W.H. 4-3-70			

MAY 4 1973

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GENERAL NOTES

SOD ALONG 6-INCH CONCRETE RIPRAP AND PAVED GUTTER

ALL 6-INCH CONCRETE RIPRAP SHALL HAVE A MINIMUM STRIP OF SOD 1'-6" WIDE WHERE IT IS NOT ADJACENT TO A CUT-OFF WALL, HEADWALL, OR END WALL. ALL PAVED GUTTER SHALL HAVE A MINIMUM STRIP OF SOD 1'-6" WIDE ON EITHER SIDE UNLESS ADJACENT TO RIPRAP PROTECTION.

CUT-OFF WALL

CUT-OFF WALL WHERE CALLED FOR ON THESE PLANS SHALL BE INCLUDED IN THE PRICE BID FOR THE RESPECTIVE ITEM OF WHICH THEY ARE A PART. CUT-OFF WALLS SHALL BE CONSTRUCTED AT THE BEGINNING AND END OF ALL PAVED GUTTER, EXCEPT AT ENDS ADJACENT TO CATCH BASINS, HEADWALL OR END WALLS.

CONNECTIONS TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED PIPE TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXIST. SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

FARM DRAINS

ALL FARM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS AND WHICH CROSS THE ROADWAY SHALL BE REPLACED WITHIN THE RIGHT-OF-WAY LIMITS BY ITEM 603 CONDUIT TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.
* BY 603 TYPE F CONDUIT

EXISTING COLLECTORS AND ISOLATED FARM DRAINS WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF THE ROADWAY DITCHES SHALL BE OUTLETTED INTO THE ROADWAY DITCH* THE OPTIMUM OUTLET ELEVATION SHALL BE, IF POSSIBLE, ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL TILE FIELDS WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY TYPE E PIPE AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

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

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

ITEM 603	6" CONDUIT TYPE B	500 LIN. FT.
ITEM 603	8" CONDUIT TYPE B	500 LIN. FT.
ITEM 603	6" CONDUIT TYPE E	100 LIN. FT.
ITEM 603	8" CONDUIT TYPE E	100 LIN. FT.
ITEM 603	6" CONDUIT TYPE F	100 LIN. FT.
ITEM 603	8" CONDUIT TYPE F	100 LIN. FT.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL REQUESTED BY THE ENGINEER.
Necessary bends or branches shall be included for payment in the pertinent conduit item.

SPRING DRAINS

REFERENCE IS MADE TO STANDARD CONSTRUCTION DRAWING NO. MC-1 SHOWING THE METHOD OF DRAINING ANY SPRING THAT MAY BE SHOWN ON THE PLAN OR ENCOUNTERED DURING CONSTRUCTION AS DETERMINED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 605	6" UNCLASSIFIED PIPE UNDERDRAIN, 707.01 TYPE III OR 707.12, AS PER PLAN	200 LIN. FT.
ITEM 605	AGGREGATE DRAINS FOR SPRINGS, AS PER PLAN	30 LIN. FT.

THE CONTRACTOR SHALL NOT ORDER MATERIALS FOR "SPRING DRAINS" UNTIL AUTHORIZED BY THE ENGINEER AND IN THE EVENT NO SPRINGS ARE ENCOUNTERED, THE ITEM SHALL BE NON-PERFORMED.

MAINTENANCE OF SEWER FLOWS

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO MAINTAIN AT ALL TIMES SEWER FLOWS THROUGH EXISTING FACILITIES TO REMAIN IN PLACE AND THROUGH EXISTING FACILITIES TO BE REPLACED UNTIL NEW FACILITIES ARE COMPLETED AND PLACED INTO USE.

PAYMENT FOR ANY ADDITIONAL COSTS INVOLVED IN MAINTAINING THESE FLOWS BY PUMPING OR BY ANY OTHER MEANS APPROVED BY THE ENGINEER SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RESPECTIVE ITEMS OF 603 CONDUIT.

EROSION CONTROL

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

PIPE ENDS

All culverts, whether terminating in headwalls or endwalls, shall begin and end with pipe ends as normally fabricated by the manufacturer. Ends shall not be cut to fit either skew or slope. If field cutting is found to be necessary to fit an exact length control, the cut end shall be located at an interior joint and cradle, collar or band shall be provided to assure a stable joint. Payment for the joint shall be included in the price bid for the pertinent 603 conduit item.

TREATED SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS OTHER THAN U.S.R. 422

TREATED SANITARY FLOW MAY BE DISCHARGED INTO THE HIGHWAY DRAINAGE SYSTEM PROVIDED THE OWNER HAS SECURED THE APPROVAL OF THE LOCAL HEALTH AUTHORITIES AND HAS ACQUIRED FROM THE STATE HIGHWAY DEPARTMENT, THE OFFICIAL PERMIT TO HAVE THE CONNECTION MADE.

IN EACH CASE WHERE A PERMIT HAS BEEN ISSUED FOR A SANITARY CONNECTION TO BE MADE INTO A HIGHWAY DRAINAGE CONDUIT, IT SHALL BE PROVIDED WITH AN INSPECTION WELL, IN ACCORDANCE WITH THE DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-8.

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

ITEM 603	8" CONDUIT, TYPE C	200 LIN. FT.
	6" CONDUIT, TYPE F	200 LIN. FT.
ITEM 604	INSPECTION WELL, STANDARD	2 EACH

Necessary bends or branches shall be included for payment in the pertinent conduit item.

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

CONTRACTION AND EXPANSION JOINTS

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

ITEM 310, SUBBASE, GRADING A, AS PER PLAN

MATERIAL FOR THIS ITEM SHALL CONTAIN NOT MORE THAN 10% PASSING A NO. 200 SIEVE AFTER ALL OPERATIONS OF PLACING AND COMPACTING HAVE BEEN COMPLETED.

ITEM SPECIAL - 4-INCH SANITARY SEWER FORCE MAIN RELOCATION

1. MINIMUM FINAL DEPTH OF COVER SHALL BE 5'-0". THE MINIMUM DEPTH OF FILL DURING CONSTRUCTION SHALL BE 3 FEET.
2. CONNECTIONS TO THE EXISTING 4-INCH CAST IRON FORCE MAIN SHALL BE MADE SO AS NOT TO INTERRUPT ERICO PRODUCTS DISPOSAL SYSTEM. ERICO PRODUCTS SHALL BE NOTIFIED 24 HOURS IN ADVANCE AS TO THE EXACT TIME THE CONNECTIONS ARE TO BE MADE. THE CONNECTIONS ARE TO BE MADE DURING NON-WORKING HOURS UNLESS WRITTEN APPROVAL IS ACQUIRED BY THE CONTRACTOR FROM THE COMPANY. A 4-INCH WATER SERVICE LINE, A 10-INCH FIRE PROTECTION LINE, AND A 3-INCH GAS LINE ARE CROSSED AND UNLESS ABANDONED PRIOR TO THIS RELOCATION SHALL BE PROTECTED DURING THIS CONSTRUCTION.
3. BEFORE DISCONNECTING AND DRAINING THE FORCE MAIN, ALL RAW SEWAGE SHALL BE FLUSHED THROUGH THE LINE BY MEANS OF FILLING THE SUMP WITH WATER SEVERAL TIMES.
4. THE 4-INCH CAST IRON PIPE AND FITTINGS SHALL BE CL 25 AND CONFORM TO THE AMERICAN STANDARD SPECIFICATIONS A21.6-1952 AND ALL SUBSEQUENT AMENDMENTS THERETO. ALL JOINTS SHALL HAVE BELL AND SPIGOT ENDS FOR CAST LEAD JOINTS.
5. BEFORE CONNECTION IS MADE TO THE EXISTING, THE LINE SHALL BE FLUSHED AND WITHSTAND A HYDROSTATIC TEST OF 100 PSI FOR 24 HOURS.
6. PAYMENT - THE UNIT PRICE STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF ITEM SPECIAL 4-INCH CAST IRON PIPE AND CONNECTIONS SHALL INCLUDE THE FURNISHING, LAYING, TESTING AND CONNECTING OF THE PIPE AS SHOWN OR DIRECTED. IT SHALL INCLUDE THE EXCAVATION, SHEETING AND BRACING INCLUDING THE PROTECTION OF THE WATER HYDRANTS ALONG SOLON ROAD, THE CUTTING INTO, REMOVAL AND DISPOSAL OF EXISTING PIPES AND FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO COMPLETE THE WORK AS SPECIFIED, SHOWN OR ORDERED.

FOR GENERAL NOTES PERTAINING TO BRIDGE STRUCTURES, SEE SHEETS NO. 142 AND 160.

FOR GENERAL NOTES PERTAINING TO TRAFFIC CONTROL, SEE SHEETS NO. 179 AND 180.

FOR GENERAL NOTES PERTAINING TO LIGHTING, SEE SHEET NO. 209.

FOR GENERAL NOTES PERTAINING TO WATER MAIN WORK, SEE SHEETS NO. 219 THROUGH 227.

EXISTING UTILITIES

CLEVELAND ELECTRIC ILLUMINATING COMPANY
55 PUBLIC SQUARE, CLEVELAND, OHIO

EAST OHIO GAS COMPANY
1201 EAST 55 STREET, CLEVELAND, OHIO

OHIO BELL TELEPHONE COMPANY
820 WEST SUPERIOR AVENUE, CLEVELAND, OHIO

CITY OF SOLON
SOLON, OHIO

CITY OF CLEVELAND
1825 LAKESIDE AVENUE, CLEVELAND, OHIO
DEPARTMENT OF PUBLIC UTILITIES
(DIVISION OF WATER AND HEAT)

MATERIAL FOR EMBANKMENT CONSTRUCTION

The Contractor is hereby advised that the City of Solon may in conjunction with this project, construct Retention Basins on the northerly residue of Parcel 708. Suitable material from the Retention Basin may be used for the construction of highway embankment providing the material meets the requirements of Item 203.

The State of Ohio makes no guarantee that the material from the Retention Basin is suitable and will be available for embankment construction. It shall be the Contractor's responsibility to make the arrangements for the construction of the Retention Basins with the City of Solon, and determine if the material is suitable for embankment construction.

All work which results if the Retention Basins are constructed, shall be performed at no additional cost to the State, and shall be performed in accordance with 104.06, 105.151 and Item 203.

WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL

Item	207,	Temporary seeding and mulching	74,960 S.Y.
Item	207,	Water	162 M.Gal.
Item	207,	Temporary slope drains	1,280 L.F.
Item	207,	Temporary benches, dikes, dams and sediment basins	762 C.Y.
Item	659,	Repair seeding and mulching	18,740 S.Y.
Item	659,	Commercial Fertilizer (12-12-12)	4.63 Tons
Item	207,	Mowing	843 M.S.F.

The above estimated quantities are to be used as directed by the Engineer for erosion and siltation control measures.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL NOTES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 6-12-69	M.P. 4-2-70	R.W.H. 4-3-70			

MAY 4 1973
Rev. 8-20-1973

ADACHE ASSOCIATES, INC.
CALC. BY N.C.G DATE 6-13-69
CHKD. BY R.W.H DATE 6-19-69

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

11/258

CUYAHOGA COUNTY
CUY-422-16.33

ITEM	7221	Y-005	Y-060	TOTAL	UNIT	DESCRIPTION	SHT.
						ROADWAY	
201	LUMP			LUMP	LUMP	CLEARING AND GRUBBING	9
202	5,643			5,643	SQ.YD	PAVEMENT REMOVED	14
202	2			2	EACH	SEPTIC TANK REMOVED	16
203	148,468			148,968	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	16
203	761,996			761,996	CU.YD.	EMBANKMENT	16
203	166,333			166,333	SQ.YD.	SUBGRADE COMPACTION	14
203	47			47	HRS.	PROOF ROLLING	14
404	500			500	CU.YD.	ASPHALT CONCRETE OR AN APPROVED BITUMINOUS PRE MIXED SURFACE COURSE FOR MAINTAINING TRAFFIC	9
410	500			500	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B	9
410	500			500	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE C	9
604	17			17	EACH	℄ REFERENCE MONUMENT	16
604	6			6	EACH	MONUMENT ASSEMBLY, STANDARD	16
604	1			1	EACH	MONUMENT ASSEMBLY ADJUSTED TO GRADE	16
SPECIAL	1			1	EACH	EXISTING MONUMENT REMOVED & STORED	16

ITEM	7221	Y-005	100% Solon	TOTAL	UNIT	DESCRIPTION	SHT.
606	5,237.5			5,237.5	LIN.FT.	GUARD RAIL, TYPE 5	16
606	200			200	LIN.FT.	GUARD RAIL, TYPE 5, BARRIER DESIGN	16
606	11			11	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE A	16
606	19			19	EACH	ANCHOR ASSEMBLY	16
606	6			6	EACH	ANCHOR ASSEMBLY, BARRIER DESIGN	16
607	21,656			21,656	LIN. FT.	FENCE, TYPE CL	17
616	25			25	TON	CALCIUM CHLORIDE	9
616	500			500	M.GAL	WATER	9
608			8,905	8,905	Sq. Ft.	4" Concrete Walk	15
						EROSION CONTROL	
601		685		685	CU.YD.	ROCK CHANNEL PROTECTION, TYPE B	16&17
601		275		275	SQ.YD.	RIPRAP, USING 6" REINFORCED CONCRETE SLAB	16
601		61		61	SQ.YD.	RIPRAP, GROUT FILLED	16
601		470		470	LIN.FT.	PAVED GUTTER, STANDARD TYPE 1-2	16
659		374,800		374,800	SQ.YD.	SEEDING AND MULCHING	14
659		39.29		39.29	TONS	COMMERCIAL FERTILIZER (12-12-12)	14
659		173.30		173.30	TONS	AGRICULTURAL LIMING	14
660		149		149	SQ.YD.	SODDING	16
660		398		398	SQ.YD.	SODDING FOR SPECIAL BERM AND SLOPE PROTECTION AS PER PLAN	16
667		9,765		9,765	SQ.YD.	SEEDING AND JUTE MATTING	16
207		74,960		74,960	SQ. YD.	TEMPORARY SEEDING AND MULCHING	10
207		162		162	M.GAL.	WATER	10
207		1,280		1,280	LIN.FT.	TEMPORARY SLOPE DRAINS	10
207		762		762	CU.YD.	TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS	10
659		18,740		18,740	SQ.YD.	REPAIR SEEDING AND MULCHING	10
207		843		843	M.SQ.FT.	MOWING	10
						PAVEMENT	
301	3,519			3,519	CU.YD.	BITUMINOUS AGGREGATE BASE: 702.01 (85-100 OR AC 20) OR 702.09, RT-11 OR RT-12, AS PER PLAN	13
304	6,461			6,461	CU.YD.	AGGREGATE BASE	13
310	18,847			18,847	CU.YD.	SUBBASE, GRADING A, AS PER PLAN	13
310	3,637			3,637	CU.YD.	SUBBASE	14
403	64			64	CU.YD.	ASPHALT CONCRETE (70-85 or AC 20)	15
404	372			372	CU.YD.	ASPHALT CONCRETE (70-85 or AC 20)	13
407	311			311	GAL.	TACK COAT: 702.04, MS-2 OR RS-1; OR 702.02, RC-70 OR RC-250	14&15
							14&15
408	1,710			1,710	GAL.	BITUMINOUS PRIME COAT: 702.09, RT-2 OR RT-3	13
409	138			138	GAL.	SEAL COAT BITUMINOUS MATERIAL: 702.09, RT-9 or RT-10; or 702.02, MC-800 or MC-3000	15
409	3			3	CU.YD.	SEAL COAT COVER AGGREGATE NO. 8	15
451	93,650			93,650	SQ.YD.	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	13
609	6,876			6,876	LIN.FT.	CONCRETE CURB, STANDARD TYPE 2A	15
609	3,804			3,804	LIN.FT.	COMBINATION CURB & GUTTER STD. TYPE 3	14
609	211			211	LIN.FT.	CONCRETE CURB, STANDARD TYPE 6	15
609	581			581	LIN.FT.	CONCRETE CURB, STANDARD TYPE 7	15
609	746			746	LIN.FT.	CONCRETE CURB, STANDARD TYPE 8	15
611	813			813	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (t=13")	14
612	479			479	SQ.YD.	STANDARD CONCRETE MEDIAN	15
612	1,727			1,727	SQ.YD.	CONCRETE MEDIAN, TYPE 2, AS PER PLAN	15
407	10.89			10.89	TONS	Cover Aggregate	14&15
Special	294			294	LIN.Ft.	Pressure Relief Joint	55-A

MAY 4 1973

Rev. 1-14-72
Rev. 11-19-71 Rev. 8-20-73

ADACHE ASSOCIATES, INC.
CALC. BY N.C.G DATE 6-13-69
CHKD. BY R.W.H. DATE 6-19-69

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY-422-16.33

☆ 500 L.F. of each quantity is for farm drain crossings

ITEM	7221	Y-005	Y-060	TOTAL	UNIT	DESCRIPTION	SHT.
						DRAINAGE	
202	539			539	LIN.FT.	PIPE REMOVED, 24" AND UNDER	16
202	LUMP			LUMP	LUMP	STRUCTURE REMOVED	16
202	851			851	LIN.FT.	GUTTER REMOVED	16
202	1			1	EACH	MANHOLE ABANDONED	16
202	10			10	EACH	CATCH BASIN OR INLET ABANDONED	16
602	70			70	CU.YD.	CONCRETE MASONRY	16
603	222			222	LIN.FT.	30" CONDUIT, TYPE A, 706.02	15
603	556			556	LIN.FT.	48" CONDUIT, TYPE A, 706.02	15
603	192			192	LIN.FT.	27" CONDUIT, TYPE A, 706.02 OR 706.08	15
603	188			188	LIN.FT.	36" CONDUIT, TYPE A, 706.02 OR 706.08	15
603	220			220	LIN.FT.	42" CONDUIT, TYPE A, 706.02 OR 707.05	15
603	316			316	LIN.FT.	30" CONDUIT, TYPE A, 706.02 CLASS V	15
603	299			299	LIN.FT.	48" CONDUIT, TYPE A, 706.02 CLASS V	15
603	450			450	LIN.FT.	53" X 34" CONDUIT, TYPE A, 706.04 CLASS H.E. II	15
603	212			212	LIN.FT.	68" X 43" CONDUIT, TYPE A, 706.04 CLASS H.E. II	15
603	709			☆709	LIN.FT.	6" CONDUIT, TYPE B	15
603	500			☆500	LIN.FT.	8" CONDUIT, TYPE B	10
603	1844			1844	LIN.FT.	12" CONDUIT, TYPE B	15
603	614			614	LIN.FT.	15" CONDUIT, TYPE B	15
603	578			578	LIN.FT.	18" CONDUIT, TYPE B	15
603	105			105	LIN.FT.	21" CONDUIT, TYPE B	15
603	177			177	LIN.FT.	24" CONDUIT, TYPE B	15
603	336			336	LIN.FT.	33" CONDUIT, TYPE B	15
603	134			134	LIN.FT.	36" CONDUIT, TYPE B	15
603	115			115	LIN.FT.	33" CONDUIT, TYPE B, 706.02 CLASS III	15
603	169			169	LIN.FT.	15" CONDUIT, TYPE B, 706.02 CLASS IV	15
603	282			282	LIN.FT.	33" CONDUIT, TYPE B, 706.02 CLASS IV	15
603	200			200	LIN.FT.	8" CONDUIT, TYPE C	10
603	310			310	LIN.FT.	12" CONDUIT, TYPE C	15
603	260			260	LIN.FT.	15" CONDUIT, TYPE C	15
603	613			613	LIN.FT.	18" CONDUIT, TYPE C	15
603	89			89	LIN.FT.	24" CONDUIT, TYPE C	15
603	139			139	LIN.FT.	36" CONDUIT, TYPE C	15
603	153			153	LIN.FT.	15" CONDUIT, TYPE C, 706.01 Cl.3., 706.02 OR 706.08 E.S.	15
603	37			37	LIN.FT.	18" CONDUIT, TYPE C, 706.01 Cl.3., 706.08 E.S. OR 707.13	15
603	208			208	LIN.FT.	24" CONDUIT, TYPE C, 706.02, 706.08 E.S. OR 707.13 (0.079")	15
603	43			43	LIN.FT.	27" CONDUIT, TYPE C, 706.02, 706.08 E.S. OR 707.13	15
603	226			226	LIN.FT.	33" CONDUIT, TYPE C, 706.02, 706.08 E.S. OR 707.13	15
603	273			273	LIN.FT.	33" CONDUIT, TYPE C, 706.02 CLASS III OR 707.13	15
603	15			15	LIN.FT.	15" CONDUIT TYPE C, 707.05	15
603	12			12	LIN.FT.	65"x40" CONDUIT, TYPE C, 707.05 (0.109")	15
603	108			108	LIN.FT.	12" CONDUIT, TYPE D	15
603	30			30	LIN.FT.	15" CONDUIT, TYPE D	15
603	34			34	LIN.FT.	42" CONDUIT, TYPE D	15
603	100			100	LIN.FT.	6" CONDUIT, TYPE E	10
603	100			100	LIN.FT.	8" CONDUIT, TYPE E	10
603	1270			1270	LIN.FT.	6" CONDUIT, TYPE F	15
603	100			100	LIN.FT.	8" CONDUIT, TYPE F	10
603	144			144	LIN.FT.	12" CONDUIT, TYPE F	15
603	71			71	LIN.FT.	15" CONDUIT, TYPE F	15

* 100% STATE FUNDS

ITEM	7221	Y-005	Y-060	TOTAL	UNIT	DESCRIPTION	SHT.
604	12			12	EACH	STANDARD NO. 1 MANHOLE	16
604	2			2	EACH	STANDARD NO. 1A MANHOLE	16
604	3			3	EACH	MANHOLE ADJUSTED TO GRADE	16
604	4			4	EACH	STANDARD NO. 2-2B CATCH BASIN	16
604	4			4	EACH	STANDARD NO. 3 CATCH BASIN	16
604	22			22	EACH	STANDARD NO. 3A CATCH BASIN	16
604	9			9	EACH	STANDARD NO. 4 CATCH BASIN	16
604	1			1	EACH	STANDARD NO. 4A CATCH BASIN	16
604	7			7	EACH	STANDARD NO. 5 CATCH BASIN	16
604	3			3	EACH	STANDARD NO. 5A CATCH BASIN	16
604	12			12	EACH	STANDARD NO. 6 CATCH BASIN	16
604	2			2	EACH	STANDARD INSPECTION WELL	10
605	150			150	LIN.FT.	6" UNCLASSIFIED PIPE UNDERDRAIN, AS PER PLAN	16
605	31,770			31,770	LIN.FT.	6" SHALLOW PIPE UNDERDRAIN, AS PER PLAN	16
605	200			200	LIN.FT.	6" SHALLOW PIPE UNDERDRAIN, 707.01 TYPE III OR 707.12 AS PER PLAN	10
605	6,647			6,647	LIN.FT.	6" DEEP PIPE UNDERDRAIN, AS PER PLAN	16
605	30			30	LIN.FT.	AGGREGATE DRAINS FOR SPRINGS, AS PER PLAN	10
SPECIAL	1,487			1,487	CU. YD.	DRAINAGE CONNECTION USING NO. 9 AGGREGATE	14
						SANITARY SEWERS	
202			330	330	LIN.FT.	PIPE REMOVED, 24" AND UNDER	16
202			2	2	EACH	MANHOLE ABANDONED	16
603			330	330	LIN.FT.	8" CONDUIT, TYPE B, 706.08 WITH 706.12 JOINTS	15
603			*270	*270	LIN.FT.	10" CONDUIT, TYPE B, 706.08 WITH 706.12 JOINTS	15
604			2	2	EACH	STANDARD NO. 1A MANHOLE WITH 706.11 JOINTS AND SALVAGE CASTING	16
604			2	2	EACH	MANHOLE RECONSTRUCTED TO GRADE	16
604			9	9	EACH	MANHOLE ADJUSTED TO GRADE	16
SPECIAL			1148	1148	LIN. FT.	4" CAST IRON PIPE AND FITTINGS CLASS 25	16
614	LUMP				LUMP	MAINTAINING TRAFFIC	
619	LUMP				LUMP	FIELD OFFICE	
623	LUMP				LUMP	CONSTRUCTION LAYOUT STAKES	

FOR STRUCTURE CUYAHOGA 422 1800 L/R QUANTITIES SEE SHEET 142
FOR STRUCTURE CUYAHOGA 422 1825 L/R QUANTITIES SEE SHEET 160

FOR WATER LINE WORK QUANTITIES SEE SHEET 219

FOR TRAFFIC CONTROL QUANTITIES SEE SHEET 178

FOR LIGHTING QUANTITIES SEE SHEET 210

MAY 4 1979

ADACHE ASSOCIATES INC.
CALC. BY R.W.H DATE 5-23-69
CHKD. BY N.C.G. DATE 6-6-69

C A L C U L A T I O N S

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY. 422-16.33

LINE Nº	DESCRIPTION		QUANTITY	UNIT
1				
2				
3	ITEM 451 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT			
4				
5	WESTBOUND U.S.R. 422 STA. 853+00.00 TO STA. 940+91.86 =	8,791.86 LIN. FT.		
6	" " " STA. 943+18.38 TO STA. 954+51.87 =	1,133.49 " "		
7	" " " STA. 957+43.54 TO STA. 962+03.64 =	460.10 " "		
8	EASTBOUND U.S.R. 422 STA. 853+00.00 TO STA. 941+00.86 =	8,800.86 " "		
9	" " " STA. 943+22.38 TO STA 953+45.78 =	1,023.40 " "		
10	" " " STA. 956+38.03 TO STA 962+03.64 =	565.61 " "		
11	SUBTOTAL U.S.R. 422 20,775.32 LIN. FT. x FACTOR 24÷9 =	55,400.85		SQ. YD.
12	RAMP #3 STA. 853+00.00 TO STA. 857+53.91 =	453.91 LIN. FT. (+5.07) ADJ. LIN. FT.		
13	RAMP #4 STA. 851+43.29 TO STA. 855+85.00 =	441.71 " " (+1.37)		
14	RAMP #6 STA. 935+35.00 TO STA. 942+26.62 =	691.62 " " (+8.36)		
15	RAMP #7 STA. 934+19.29 TO STA. 937+25.00 =	305.71 " " (+0.55)		
16	RAMP #8 STA. 947+33.48 TO STA. 951+30.35 =	396.87 " " (+4.43)		
17	RAMP #9 STA. 943+05.03 TO STA. 949+10.00 =	604.97 " " (-1.87)		
18	RAMP #10 STA. 945+84.28 TO STA. 948+00.00 =	215.72 " " (+7.50)		
19	SUBTOTAL RAMPS 3,135.92 LIN. FT. x FACTOR 16÷9 =	5,574.97		SQ. YD.
20	RAMP #7 STA. 937+25.00 TO STA. 940+94.32 =	369.32 LIN. FT. (-0.64)		
21	SUBTOTAL RAMPS 368.68 LIN. FT. x FACTOR 24÷9 - 1/2 x 8 x 150÷9 =	916.48		SQ. YD.
22	RAMP #8 STA. 940+58.00 TO STA. 942+07.77 =	149.77 LIN. FT.		
23	RAMP #10 STA. 952+82.84 TO STA. 954+90.92 =	208.08 " " (+7.88)		
24	SUBTOTAL RAMPS 365.73 LIN. FT. x FACTOR 17.5÷9 =	711.14		SQ. YD.
25	ACCESS ROAD STA. 0+89.24 TO STA. 6+68.38 =	579.14 LIN. FT.		
26	SUBTOTAL ACCESS ROAD 579.14 LIN. FT. x FACTOR 29÷9 =	1,866.12		SQ. YD.
27	SUBTOTAL SUMMARY OF TABLES SHEET Nº 15	29,180.58		
28	TOTAL ITEM 451	93,650.19	93,650	SQ. YD.
29				SQ. YD.
30				SQ. YD.
31				
32				
33				
34				
35	ITEM 301 BITUMINOUS AGGREGATE BASE			
36				
37	W.B. OUTSIDE SH. U.S.R. 422 STA. 853+00.00 TO STA 858+50.00 =	550.00 LIN. FT.		
38	" " " " " STA. 866+50.00 TO STA 922+50.00 =	5,600.00 " "		
39	" " " " " STA. 945+15.00 TO STA. 952+29.00 =	714.00 " "		
40	" " " " " STA. 960+29.00 TO STA. 962+03.64 =	174.64 " "		
41	E.B. OUTSIDE SH. U.S.R. 422 STA. 853+00.00 TO STA. 858+47.29 =	547.29 " "		
42	" " " " " STA. 871+50.00 TO STA. 925+00.00 =	5,350.00 " "		
43	" " " " " STA. 933+20.64 TO STA. 941+25.36 =	804.72 " "		
44	" " " " " STA. 942+97.88 TO STA. 950+20.00 =	722.12 " "		
45	" " " " " STA. 961+70.00 TO STA. 962+03.64 =	33.64 " "		
46	SUBTOTAL U.S.R. 422 14,496.41 LIN. FT. x FACTOR 8÷9 = 12,885.10 S.Y. x FACTOR 3÷36 =	1,073.81		CU. YD.
47	MEDIAN SH. U.S.R. 422 LENGTH FROM LINE 11	20,775.32 LIN. FT.		
48	" " " " ALONG APPROACH SLABS 8 x 24.5	196.00 " "		
49	SUBTOTAL U.S.R 422 20,971.32 LIN. FT. x FACTOR 4÷9 = 9,320.59 S.Y. x FACTOR 3÷36 =	776.72		CU. YD.
50	LT. & RT. SH. RAMPS TOTAL ADJ. LENGTHS FROM LINES 19 & 21 = 3,504.60 LIN. FT.			
51	SUBTOTAL RAMPS 3,504.60 LIN. FT. x FACTOR 6÷9 = 2,336.40 S.Y. x FACTOR 3÷36 =	194.70		CU. YD.
52	LT. SH. RAMP #8 STA. 940+58.00 TO STA 942+07.77	149.77 LIN. FT.		
53	" " RAMP #10 STA. 952+82.84 TO STA. 954+90.92	208.08 " " (-2.70) ADJ. LIN. FT.		
54	SUBTOTAL RAMPS 355.15 LIN. FT. x FACTOR 6÷9 = 236.77 S.Y. x FACTOR 3÷36 =	19.73		CU. YD.
55	SPRING GROVE DRIVE STA. 17+05 TO STA. 32+83.50 =	1578.50 LIN. FT.		CU. YD.
56	PLUS MISC. SP. GR. DR. AREAS 1/2 (22+16) 60 ÷ 9 =	126.67 S.Y.		
57	SUBTOTAL SPRING GROVE DRIVE 1578.50 LIN. FT x 22÷9 126.67 = 3985.22 S.Y. x FACT. 3÷36 =	332.10		CU. YD.
58	SUBTOTAL FROM SUMMARY OF TABLES SHEET N= 15	1,121.86		CU. YD.
59	TOTAL ITEM 301	3518.92	3,519	CU. YD.
60				
61	ITEM 304 AGGREGATE BASE			
62				
63	UNDER ITEM 301 TOTAL AREA FROM LINES 46, 49, 51 & 54 = 24,779.46 S.Y.			
64	SUBTOTAL LINE 63 24,779.46 S.Y. x FACTOR 6÷36 =	4,129.91		CU. YD.
65	DEDUCT FOR SPL. DRAINAGE CONNECTION			
66	W.B. OUTSIDE SH. U.S.R. 422 STA. 853+00.00 TO STA. 858+50.00 =	550.00 LIN. FT.		
67	" " " " " STA. 866+50.00 TO STA. 922+50.00 =	5,600.00 " "		
68	" " " " " STA. 945+15.00 TO STA. 952+29.00 =	714.00 " "		
69	E.B. " " " " STA. 871+50.00 TO STA. 908+50.00 =	3,700.00 " "		
70	" " " " " STA. 916+20.00 TO STA. 925+00.00 =	880.00 " "		
71	" " " " " STA. 933+20.00 TO STA. 941+02.00 =	782.00 " "		
72	" " " " " STA. 943+25.00 TO STA. 950+20.00 =	695.00 " "		
73	" " " " " STA. 961+70.00 TO STA. 962+03.64 =	33.64 " "		
74	ALONG RAMPS & LENGTH FROM LINES (12-18, 20, 22 & 23) =	3,837.68 " "		
75	SUBTOTAL LINES (66-74) 16,792.32 LIN. FT. x FACTOR 1/2 x 3 x 0.1667 ÷ 27	- 155.52		CU. YD.
76				

LINE Nº	DESCRIPTION		QUANTITY	UNIT
77				
78	SPRING GROVE DR. STA. 17+05 TO STA. 32+83.5 = 1578.50 LIN. FT.			
79	SUBTOTAL LINE 78 1578.50 LIN. FT. x FACTOR (22 x 0.5 + 4 x 0.292) ÷ 27 =	711.37		CU. YD.
80	PLUS SPRING GROVE DR. MISC. AREAS FROM LINE 56 126.67 S.Y. x FACTOR 6÷36 =	21.11		CU. YD.
81	SUBTOTAL FROM SUMMARY OF TABLES SHEET Nº 15	1753.92		CU. YD.
82	TOTAL ITEM 304	6460.79	6461	CU. YD.
83				
84				
85				
86				
87	ITEM 404 ASPHALT CONCRETE (70-85 or AC-20)			
88				
89	SPRING GROVE DRIVE STA. 17+05 TO STA. 32+83.5 = 1578.50 LIN. FT.			
90	SUBTOTAL LINE 89 1,578.5 LIN. FT. x FACTOR 22÷9 = 3858.56 S.Y. x FACTOR 1.5÷36	160.77		CU. YD.
91	PLUS SPRING GROVE DRIVE MISC. AREA FROM LINE 56 126.67 S.Y. x FACTOR 1.5÷36	5.28		CU. YD.
92	SUBTOTAL FROM SUMMARY OF TABLES SHEET Nº 15	159.89		CU. YD.
93	CUY-422-1800 4/R Item 611 Area 380.33 S.Y. x 1.5/36 =	15.85		CU. YD.
94	CUY-422-1825 4/R Item 611 Area 433.00 S.Y. x 2.5/36 =	30.07		CU. YD.
95	TOTAL ITEM 404	371.86	372	CU. YD.
96				
97				
98	ITEM 408 BITUMINOUS PRIME COAT			
99				
100	SAME AREA AS SUBTOTAL UNDER ITEM 301 FROM LINE 57 = 3985.22 S.Y.			
101	SUBTOTAL LINE 100 3985.22 S.Y. x FACTOR 0.30 GAL./S.Y. =	1195.57		GAL.
102	SUBTOTAL FROM SUMMARY OF TABLES SHEET Nº 15	514.20		GAL.
103	TOTAL ITEM 408	1709.77	1710	GAL.
104				
105				
106				
107				
108	ITEM 310 SUBBASE GRADING A			
109				
110	W.B. S.E. SECT. U.S.R. 422 STA. 853+00.00 TO STA. 869+25.00 =	1,625.00 LIN. FT.		
111	" " " " " STA. 907+21.15 TO STA. 928+50.15 =	2,129.00 " "		
112	E.B. " " " " STA. 956+38.03 TO STA. 962+03.64 =	565.61 " "		
113	SUBTOTAL LINES (110-112) 4,319.61 LIN. FT. x FACTOR 25 x 0.5 ÷ 27 (INCLUDES MEDIAN)	1,999.82		CU. YD.
114	E.B. S.E. SECT. U.S.R. 422 STA. 853+00.00 TO STA. 869+25.00 =	1,625.00 LIN. FT.		
115	" " " " " STA. 907+21.15 TO STA. 928+50.15 =	2,129.00 " "		
116	W.B. " " " " STA. 957+43.54 TO STA. 962+03.64 =	460.10 " "		
117	SUBTOTAL LINES (114-116) 4,214.10 LIN. FT. x FACTOR 28 x 0.5 ÷ 27 (INCLUDES MEDIAN)	2,185.09		CU. YD.
118	W.B. NOR. SECT. U.S.R. 422 STA. 869+25.00 TO STA. 907+21.15 =	3,796.15 LIN. FT.		
119	" " " " " STA. 928+50.15 TO STA. 940+91.86 =	1,241.71 " "		
120	" " " " " STA. 943+18.38 TO STA. 954+51.87 =	1,133.49 " "		
121	E.B. " " " " STA. 869+25.00 TO STA. 907+21.15 =	3,796.15 " "		
122	" " " " " STA. 928+50.15 TO STA. 941+00.86 =	1,250.71 " "		
123	" " " " " STA. 943+22.38 TO STA. 953+45.78 =	1,023.40 " "		
124	SUBTOTAL LINES (118-123) 12,241.61 LIN. FT. x FACTOR (13 x 0.45 + 12 x 0.625) ÷ 27 (INCLUDES MEDIAN)	6,052.80		CU. YD.
125	W.B. OUTSIDE SH. U.S.R. 422 STA. 853+00.00 TO STA. 858+50.00 =	550.00 LIN. FT.		
126	" " " " " STA. 866+50.00 TO STA. 869+25.00 =	275.00 " "		
127	" " " " " STA. 907+21.15 TO STA. 922+50.00 =	1,528.85 " "		
128	E.B. " " " " STA. 907+21.15 TO STA. 908+50.00 =	128.85 " "		
129	" " " " " STA. 916+20.00 TO STA. 925+00.00 =	880.00 " "		
130	" " " " " STA. 961+70.00 TO STA. 962+03.64 =	33.64 " "		
131	SUBTOTAL LINES (125-130) 3,396.34 LIN. FT. x FACTOR 3 x 0.5 ÷ 27	188.69		CU. YD.
132	W.B. OUTSIDE SH. U.S.R. 422 STA. 869+25.00 TO STA 907+21.15 =	3,796.15 LIN. FT.		
133	" " " " " STA. 945+15.00 TO STA. 952+29.00 =	714.00 " "		
134	E.B. " " " " STA. 871+50.00 TO STA. 907+21.15 =	3,571.15 " "		
135	" " " " " STA. 933+20.00 TO STA. 941+00.86 =	780.86 " "		
136	" " " " " STA. 943+22.38 TO STA. 950+20.00 =	697.62 " "		
137	SUBTOTAL LINES (132-136) 9,559.78 LIN. FT. x FACTOR 3 x 0.625 ÷ 27	663.87		CU. YD.
138	E.B. OUTSIDE SH. U.S.R. 422 STA. 853+00.00 TO STA. 858+47.29 =	547.29 LIN. FT.		
139	" " " " " STA. 908+50.00 TO STA. 916+20.00 =	770.00 " "		
140	W.B. " " " " STA. 960+29.00 TO STA. 962+03.64 =	174.64 " "		
141	SUBTOTAL LINES (138-140) 1,491.93 LIN. FT. x FACTOR 1 x 0.5 ÷ 27	27.63		CU. YD.
142	RAMPS UNDER ITEM 451 FROM LINES (19, 21 & 24) AREA =	7,202.59 S.Y.		
143	RAMPS UNDER ITEM 301 FROM LINE (51) AREA =	2,936.40 S.Y.		
144	RAMPS UNDER ITEM 301 FROM LINE (54) LGTH. = 355.15 x 3 ÷ 9 =	118.38 S.Y.		
145	SUBTOTAL LINES (142-144) 9,657.37 S.Y. x FACTOR 6÷36 =	1,609.56		CU. YD.
146	ACCESS ROAD UNDER ITEM 451 FROM LINES (26) AREA 1,866.12 S.Y.			
147	ACCESS ROAD OVER U.D. FROM LINES (25) LGTH. = 579.14 x 4 ÷ 9 = 257.40			
148	SUBTOTAL LINES (146 & 147) 2,123.52 S.Y. x FACTOR 3÷36 =	176.96		CU. YD.
149	SUBTOTAL UNDER ITEM 611 APPROACH SLABS (247+24 x 25÷9 x 2 + 233+200) x FACTOR 6÷36	135.56		CU. YD.
150	SUBTOTAL FROM SUMMARY OF TABLES SHEET Nº 15	5807.30		CU. YD.
151	TOTAL ITEM 310 SUBBASE GRADING A	18,847.28	18,847	CU. YD.
152				

Rev. 11-19-71

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-22-69
CHKD. BY N.C.G. DATE 6-9-69

C A L C U L A T I O N S

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

CUYAHOGA COUNTY
CUY. 422—16.33

14
258

LINE Nº	DESCRIPTION		QUANTITY	UNIT
1	NOTE LINES REFERENCED FROM SHEET 13 ARE INDICATED BY ONE ASTERISK (*)			
2				
3				
4	ITEM 310 SUBBASE			
5				
6	MEDIAN SH. S.E. SECT. SUBTOTAL FROM LINES (110-112)* 4,319.61 LIN.FT. x FACTOR 3×0.375÷27	179.98		CU. YD.
7	MEDIAN SH. NOR.SECT. SUBTOTAL FROM LINES (118-123)* 12,241.61 LIN. FT. x FACTOR 3×0.25÷27	340.04		CU. YD.
8	OUTSIDE SH. WITH U.D. SUBTOTAL FROM LINES (125-130)* 3,396.34 LIN. FT. x FACTOR 5×0.417÷27	262.27		CU. YD.
9	OUTSIDE SH. WITH U.D. SUBTOTAL FROM LINES (132-136)* 3,559.78 LIN. FT. x FACTOR 5×0.45÷27	296.65		CU. YD.
10	OUTSIDE SH. NO U.D. SUBTOTAL FROM LINES (138-140)* 1,491.93 LIN.FT. x FACTOR 7×0.417÷27	161.29		CU. YD.
11	MEDIAN SH. ALONG APPR. SLABS SUBTOTAL 4×24.5×8×0.833÷27	24.19		CU. YD.
12	OUTSIDE SH. ALONG APPR SLABS BR. Nº CUY. 422-1800 SUBTOTAL 8×24.5×2×0.833÷27	12.09		CU. YD.
13	LT. SH. RAMPS 8&10 SUBTOTAL FROM LINES (52-53)* 355.15 LIN.FT. x FACTOR 3×0.417÷27	16.45		CU. YD.
14	SUBTOTAL FROM SUMMARY OF TABLES SHEET NO. 15	1843.73		CU. YD.
15	TOTAL ITEM 310 SUBBASE	3636.69	3,637	CU. YD.
16				
17				
18				
19				
20	ITEM 611 REINFORCED CONCRETE APPROACH SLAB T=13" with (407 and 404			
21	Asphalt Concrete Wearing Surface)			
22	FOR STR. CUY. 422-1800 RT. 24×25×2÷9 (1½" 404)	133.33		SQ. YD.
23	FOR STR. CUY. 422-1800 LT. FROM SHEET NO. 138 (" ")	247.00		SQ. YD.
24	FOR STR. CUY. 422-1825 RT. FROM SHEET NO. 139 (2½" ")	233.00		SQ. YD.
25	FOR STR. CUY. 422-1825 LT. FROM SHEET NO. 140 (2½ ")	200.00		SQ. YD.
26	TOTAL ITEM 611	813.33	813	SQ. YD.
27				
28	TOTAL ITEM 407 TACK COAT 813.33 x 0.1 =	81.33	81	GALS.
29	TOTAL ITEM 407 COVER AGGREGATE 813.33 x 7/2000 =	2.85	2.85	TONS
30				
31	ITEM 203 SUBGRADE COMPACTION			
32				
33	UNDER ITEM 451 SUBTOTAL FROM LINE (30)* AREA	93,650		SQ. YD.
34	UNDER ITEM 301 SUBTOTAL FROM LINES (46,49,51&54)* AREAS (2,886+9,321+2,336+237)	24,780		SQ. YD.
35	UNDER ITEM 611 SUBTOTAL FROM LINE (26) AREA	813		SQ. YD.
36	SPRING GROVE DR. SUBTOTAL FROM LINE (55)* LGTH. 1578.50 LIN.FT. x FACTOR 26÷9	4,560		SQ. YD.
37	SPRING GR. DR. MISC. AREAS SUBTOTAL FROM LINE (56)* AREA	127		SQ. YD.
38	SUBTOTAL FROM SUMMARY OF TABLES SHEET NO. 15	42,803		SQ. YD.
39	TOTAL ITEM 203	166,339	166,339	SQ. YD.
40				
41				
42				
43				
44	ITEM 203 PROOF ROLLING			
45	TOTAL ITEM 203 LINES 33,34 ÷ 35 = 119,243 + 21,280 From Ramps Sht. 15 = 140,523			
46	140,523 S.Y. x FACTOR ÷ 3000 S.Y./HR.	46.84	47	HRS.
47				
48				
49				
50				
51	ITEM 609 CONCRETE CURB TYPE 3			
52				
53	SPRING GROVE DRIVE SUBTOTAL FROM LINE (55)* LGTH. 1578.50 LIN. FT x FACTOR 2	3,157.0		LIN. FT.
54	SUBTOTAL FROM SUMMARY OF TABLES SHEET NO. 15	737		LIN. FT.
55	TOTAL ITEM 609	3,894	3,894	LIN. FT.
56				
57				
58				
59				
60	ITEM SPECIAL DRAINAGE CONNECTION USING Nº 9 AGGREGATE			
61				
62	SUBTOTAL LINES (66-74)* 16,792.32 LIN. FT. x FACTOR 1.583 S.F./FT. ÷27	984.53		CU. YD.
63	SUBTOTAL FROM SUMMARY OF TABLES SHEET NO. 15	502.42		CU. YD.
64	TOTAL ITEM SPECIAL	1486.95	1,487	CU. YD.
65				
66				
67				
68				
69	ITEM 202 PAVEMENT REMOVED			
70	S.R. 91 STA. 28+50 TO STA. 49+00 = 2050 LIN. FT. x 18 ÷ 9 =	4,100.00		SQ. YD.
71	CARRIAGE PARK STA. 0+11 TO STA. 0+75 = 64 LIN. FT. x 24 ÷ 9 =	170.67		SQ. YD.
72	CARRIAGE PARK TURN-OUTS TO S.R. 91 = [30×60 - 3.1416×30²÷2]÷9 =	42.92		SQ. YD.
73	ERICO PRODUCTS DRIVEWAY SOLON RD. TO ACC. RD. STA. 7+70.00 = 535.95 LIN.FT. x 22÷9	1,310.10		SQ. YD.
74	ERICO PRODUCTS DR. TURN-OUTS TO SOLON RD. [20×40 - 3.1416×20²÷2]÷9	19.08		SQ. YD.
75	TOTAL ITEM 202	5,642.77	5,643	SQ. YD.
76				

LINE Nº	DESCRIPTION			QUANTITY	UNIT
77					
78					
79	ITEM 659 SEEDING AND MULCHING				
80					
81	FROM SUMMARY OF TABLES SHEET NO. 16	385,909 SQ. YD.			
82	DEDUCT TOTAL AREA SODDING	- 149 SQ. YD.			
83	DEDUCT TOTAL AREA SODDING SPECIAL BERM & SLOPE PROTECTION	- 398 SQ. YD.			
84	DEDUCT TOTAL AREA SEEDING AND JUTE MATTING	- 9,765 SQ. YD.			
85	DEDUCT TOTAL AREA RIP RAP	- 336 SQ. YD.			
86	DEDUCT TOTAL AREA ROCK CHANNEL PROTECTION = 302 CU.YD. x 5÷6 =	- 252 SQ. YD.			
87	DEDUCT TOTAL AREA PAVED GUTTER TYPE 1-2 = 470 LIN. FT. x 4÷9 =	- 209 SQ. YD.			
88	TOTAL ITEM 659 SEEDING AND MULCHING	374,800		374,800	SQ. YD.
89					
90					
91					
92					
93	ITEM 659 COMMERCIAL FERTILIZER (12-12-12)				
94	TOTAL FROM WATER POLLUTION, SOIL EROSION & SILTATION CONTROL (Sht. No. 10)		4.63		
95	TOTAL AREA ITEM 659 SEEDING AND MULCHING	374,800 SQ. YD.			
96	TOTAL AREA ITEM 660 SODDING	149 SQ. YD.			
97	TOTAL AREA ITEM 660 SODDING SPECIAL BERM & SLOPE PROTECTION	398 SQ. YD.			
98	TOTAL AREA ITEM 667 SEEDING AND JUTE MATTING	9,765 SQ. YD.			
99	SUBTOTAL (LINES 95-98) x FACTOR 9×20÷1000÷2000 = 0.000009 T/S.Y. x 385,112 SQ. YD. =		34.6601		TON
100	TOTAL ITEM 659 COMMERCIAL FERTILIZER		39.2901	39.29	TON
101					
102					
103					
104					
105	ITEM 659 AGRICULTURAL LIME				
106					
107	SAME AREAS AS ITEM 659 COMMERCIAL FERTILIZER				
108	SUBTOTAL (LINES 95-98) x FACTOR 9×100÷1000÷2000 = 0.00045 T/S.Y. x 385,112 SQ. YD. =		173.3004		TON
109	TOTAL ITEM 659 AGRICULTURAL LIME		173.3004	173.30	TON
110					
111					
112					
113					
114					
115					
116					
117					
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MAY 4 1973

SUMMARY OF TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

15 / 258

CUYAHOGA COUNTY
CUY-422-16.33

603

SHEET NO.	LOCATION	TYPE "A" CONDUIT 706.02 30" L.F.	706.02 48" L.F.	706.02 OR 706.08 27" L.F.	706.02 OR 706.08 36" L.F.	706.02 OR 707.05 42" L.F.	706.02 CL. V 30" L.F.	706.02 CL. V 48" L.F.	706.04 CL. H.E. II 53"x34" 68"x43" L.F.	706.04 CL. H.E. II 68"x43" L.F.	TYPE "B" CONDUIT 6" L.F.	12" L.F.	15" L.F.	18" L.F.	21" L.F.	24" L.F.	33" L.F.	36" L.F.	706.02 CL. III 33" L.F.	706.02 CL. IV 15" L.F.	706.02 CL. IV 33" L.F.	Y 060 706.03 706.12 JT. 8" L.F.	Y 060 706.03 706.12 JT. 10" L.F.	TYPE "C" CONDUIT 12" L.F.	15" L.F.	18" L.F.	24" L.F.	36" L.F.	706.01 E.S. 706.08 E.S. 706.02 15" L.F.	706.01 E.S. 706.08 E.S. 706.02 18" L.F.	706.02 706.08 E.S. 707.13 24" L.F.	706.02 706.08 E.S. 707.13 27" L.F.	706.02 CL. III 707.13 G.*14 33" L.F.	706.02 CL. III 707.13 G.*18 33" L.F.	707.05 15" L.F.	707.05 G.*12 G.*10 L.F.	TYPE "D" CONDUIT 12" L.F.	15" L.F.	42" L.F.	TYPE "F" CONDUIT 6" L.F.	12" L.F.	15" L.F.	SHEET NO.
10	GENERAL NOTES										500																																10
18	STA. 845+00 - 855+00																										101															18
19	" 855+00 - 865+00										40		130														83															19
20	" 865+00 - 875+00										56	87			105							*270					200															20
21	" 875+00 - 885+00																																									21
22	" 885+00 - 895+00																					330																				22
23	" 895+00 - 905+00												103																													23
24	" 905+00 - 915+00													93																												24
25	" 915+00 - 925+00												100																													25
26	" 925+00 - 935+00										38	351	107																													26
27	" 935+00 - 945+00																262																									27
28	" 945+00 - 955+00										40	88	98																													28
29	" 955+00 - 1997+00																								38	11																	29
30	" 1997+00 - 2006+00																																									30
31	RAMP "3																																									31
32	RAMP "4																																									32
33	SR. 91 25+00 - 29+50																								100																	33
34	SR. 91 29+50 - 40+00											353		388		177									40			6	139	40	57	208	43		273						160			34
35	SR. 91 40+00 - 52+63.43											287	76												19	217				113												90			35
36	RAMP "6																74																									20			36
37	RAMP "7																											83													10			37
38	RAMP "8											331									169																					50			38
39	RAMP "9										35							134																									20			39
40	RAMP "10																																									10			40
41	SPR. GR. DR. 14+00 - 24+00											46													63																	35	27		41
42	SPR. GR. DR. 24+00.33 - 46.24											46													50																	65	56		42
43	ACC. RD. 0+00 - 7+70											255		97												32	229															130			43
56	SPR. GR. DR. CUL DE SAC																																									40			56
124	S-1																			115		282																						124
125	S-2								212																																			125
126	S-3									182																																	34			126
127	S-4			192																																									127
128	S-5					220																																						128
129	S-6				188																																							129
130	S-7									268																																			130
131	S-8		200																																									131
132	S-9		232																																									132
133	S-10						316																																					133
134	S-11 & 12		124					299																												12								134
135	SPR. GR. DR. 22+97	116																																										135
136	SPR. GR. DR. 26+80	106																																											136
	TOTALS	222	556	192	188	220	316	299	450	212	709	1,844	614	578	105	177	336	134	115	169	282	330	*270	310	260	613	89	139	153	37	208	43	226	273	15	12	108	30	34	1,270	144	71	

* 100 % STATE FUNDS

SUMMARY OF PAVEMENT DETAILS

SHEET NO.	LOCATION	203 SUBGRADE COMPACTION SQ. YD.	301 BITUMINOUS AGGREGATE BASE CU. YD.	304 AGGREGATE BASE CU. YD.	310 SUBBASE GRADING "A" CU. YD.	403 SUBBASE CU. YD.	403 ASPHALT CONCRETE (70-85) CU. YD.	404 ASPHALT CONCRETE (70-85) CU. YD.	407 TACK COAT GALS.	407 COVER AGGREGATE TONS	408 PRIME COAT GALS.	409 SEAL COAT BITUMINOUS MATERIAL GAL'S	409 SEAL COAT COVER USING NO. 8 AGGR. CU.YD	451 REINF. PORTLAND CEMENT CONCRETE PAVEMENT SQ. YD.	609 CONCRETE CURB TYPE-2A LIN. FT.	TYPE-3 LIN. FT.	TYPE-6 LIN. FT.	TYPE-7 LIN. FT.	TYPE-8 LIN. FT.	612 STANDARD CONCRETE MEDIAN SQ. YD.	CONCRETE MEDIAN TYPE-2 As Per Plan SQ. YD.	SPECIAL DRAINAGE CONNECT. USING NO. 9 AGGREGATE CU. YD.	SHEET NO.	608 4" Concrete Walk 100% City of Solon Sq. Ft.
44	RAMP "3	1950.69	66.55	133.11	247.23	64.92								1152.04								52.34	44	
45	RAMP "4	4226.51	147.56	279.84	527.89	162.59								2388.58				260	305			92.07	45	
46	SR. 91, 25+00 - 31+00	2567.62	222.80		226.93	220.51	46.07	30.71	111	3.88				1261.32	415					25.67	45.63		46	765
46	SR. 91, DRIVEWAYS			124.28				31.70				42.60	0.84										46	
47	SR. 91, 31+00 - 37+00	6143.32	5.95	9.91	934.42	397.63								5133.72	2202					142.99	795.25	12.26	47	3030
48	SR. 91, 37+00 - 43+00	5942.45			929.86	349.67								5158.81	2563					84.31	699.33		48	3030
49	SR. 91, 43+00 - 52+63.43	4763.64	107.35	41.91	735.42	173.11	17.63	42.65	119	4.16	32.33			4025.86	1302					70.68	187.13		49	2080
50	RAMP "6	3231.38	110.22	206.31	462.09	109.96								1881.58				129	160			84.31	50	
51	RAMP "7	2308.10	68.45	128.23	328.09	67.37								1485.80								53.90	51	
52	RAMP "8	1667.28	49.28	95.17	210.45	62.02								1076.83								20.65	52	
53	RAMP "9	2361.61	90.30	169.68	303.55	98.67								1253.03				115	150			64.48	53	
54	RAMP "10	2301.80	87.03	163.39	322.48	92.93								1222.52				77	131			63.27	54	
55	RAMP "8 & "10	3232.62	56.30	93.92	511.83	44.35								2401.51			211			155.50		59.14	55	
56	SPR. GR. DR. CUL DE SAC	1074.80	88.73	262.00				44.16			319.43	95.43	1.91			577							56	
57	SPR. GR. DR. & ACCES RD.	1030.70	21.34	46.14	67.06			10.67			102.44			738.98	394	160							57	
	TOTALS	42,802.52	1,121.86	1753.92	5,807.30	1,843.73	63.70	159.89	230	8.04	514.20	138.03	2.75	29,180.58	6876	737	211	581	746	479.15	1,727.34	502.42		8905

Rev. 11-19-71 / 7

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SUMMARY OF TABLES AND SUMMARY OF PAVEMENT DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 6-9-69	J.D.A.	N.C.G. 6-13-69			

MAY 4 1973

SUMMARY OF TABLES

CUYAHOGA COUNTY
CUY-422-16.33

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U - 468(9)	

SHEET NO.	LOCATION	202 PIPE REMOVED 24"⌀ UNDER	202 Y-060 PIPE REMOVED 24"⌀ UNDER	202 EXISTING 3'x3' BOX CULVERT REMOVED	202 30" CONCRETE DITCH REMOVED	202 MANHOLE REMOVED OR ABANDONED	202 Y-060 MANHOLE REMOVED OR ABANDONED	202 CATCH BASINS AND INLETS REMOVED OR ABANDONED	SPECIAL CLEANING & DISPOSING OF SEPTIC TANKS	203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTR.	203 EMBANKMENT	601 PAVED GUTTER TYPE 1-2	601 ROCK CHANNEL PROTECTION TYPE-B	601 RIPRAP USING 6" CONCRETE SLAB	601 RIPRAP GROUT FILLED	602 CONCRETE MASONRY
		LIN.FT.	LIN.FT.	LUMP	LIN.FT.	EA.	EA.	EA.	EA.	CU.YD.	CU.YD.	LIN.FT.	CU.YD.	SQ.YD.	SQ.YD.	CU.YD.
18	STA.845+00-855+00									90	29,660					
19	STA.855+00-865+00									1,824	53,278		1.78			0.26
20	STA.865+00-875+00								1	5,609	8,483		16.63			0.59
21	STA.875+00-885+00									4,383	15,019				30	
22	STA.885+00-895+00		330				1			1,727	27,973					
23	STA.895+00-905+00									17,784	3,175		1.78		31	0.26
24	STA.905+00-915+00									5,339	10,891		1.18			0.30
25	STA.915+00-925+00						1			44,948	3,564		1.18			0.26
26	STA.925+00-935+00									8,831	39,309		5.28			0.49
27	STA.935+00-945+00	68								80	137,607					
28	STA.945+00-955+00								1	621	171,052		6.50			0.49
29	STA.955+00-1997+00									1,226	60,887	300	9.30			0.46
30	STA.1997+00-2006+00															
31	RAMP #3									1,460	11,614					
32	RAMP #4									775	14,275					
33	S.R.91 25+00-29+50									1,382	97					0.46
34	S.R.91 29+50-40+00	163		LUMP	551			1		3,789	2,627	170	5.93			0.77
35	S.R.91 40+00-53+63.43	36			300			6		7,900	1,117					
36	RAMP #6									2,375	12,261					0.55
37	RAMP #7									2,231	23,317					
38	RAMP #8	36								9,250	36,266		3.26			0.26
39	RAMP #9	189				1		2		2,677	37,382		21.00			0.59
40	RAMP #10									16,763	32,187					
41	SP.GR.DR. 14+00-24+00	47								2,492	8,554		3.56	20		0.46
42	SP.GR.DR. 24+00-33+46.24							1		1,558	14,469		3.56			0.46
43	AC.RD. 0+00-7+70									1,132	6,197		1.78			0.30
56	SP.GR. CUL-DE-SAC									172	510					
124	S-1												23.00			0.55
125	S-2									657	100		68.00	42		14.00
126	S-3									506	51		34.00	43		11.00
127	S-4									6			8.00	10		0.94
128	S-5									118	49		14.00	32		14.60
129	S-6									224			11.00	64		13.00
130	S-7									208			36.00	36		1.60
131	S-8									67			50.00			1.72
132	S-9												15.00	19		1.72
133	S-10									236			6.00			1.02
134	S-11 & 12									28	25		18.00			0.86
135	SP.GR.DR. STA. 22+97												16.00	9		1.02
136	SP.GR.DR. STA. 26+80												3.00			1.02
	TOTALS	539	330	LUMP	851	1	2	10	2	148,468	761,996	.470	384.72	275	61	70.01

SHEET NO.	604 STANDARD CATCH BASINS NO. 2-2B	NO. 3	NO. 3A	NO. 4	NO. 4A	NO. 5	NO. 5A	NO. 6	ADJUSTED TO GRADE	STD. MANHOLE NO. 1	STD. MANHOLE NO. 1-A	Y-060 NO. 1-A/706.11 JT. & SALV. CASTING	Y-060 ADJUSTED TO GRADE	Y-060 RECONSTR. TO GRADE	MONUMENT ASSEMBLY	₵ REF. MONUM.	MONUM. ADJUSTED TO GRADE	5PL. EXIST. MONUMENT REMOVED & STORED AS PER PLAN
	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.
18						1												
19				1				1								1		
20				2				1								2		
21																1		
22												1				1		
23				1												1		
24				1												2		
25				1								1				2		
26				1				1								2		
27							1									1		1
28	1			1				1								2		
29	1															2		
30																		
31																		
32																		
33			1										1					
34		4	7			2				6			4		1		1	
35	2		6						3	3			4	2	1			
36										1								
37						1												
38			2			2												
39							1											
40																		
41								4							1			
42								4							3			
43			6			1				1								
56																		
124							1			1								
125																		
126																		
127				1														
128																		
129																		
130																		
131																		
132					1													
133																		
134											2							
135																		
136																		
TOTALS	4	4	22	9	1	7	3	12	3	12	2	2	9	2	6	17	1	1

SHEET NO.	605 PIPE UNDERDRAIN SHALLOW 6"	605 UNCLASSIFIED 6"	605 DEEP 6"	606 GUARD RAIL	606 TYPE-5 STANDARD DESIGN	606 TYPE-5 BARRIER DESIGN	606	606 ANCHOR ASSEMBLY BARRIER DESIGN	606 BRIDGE TERMINAL AS. TYPE A	606 ANCHOR ASSEMBLY	659 SEEDING AND MULCHING	660 SODDING	660 SODDING FOR SPECIAL BERM & SLOPE PROTECT.	667 SEEDING AND JUTE MATTING	5PL. CAST IRON SAN. PIPE & FITTINGS 4"	SHEET NO.
	LIN.FT.	LIN.FT.	LIN.FT.		EA.	EA.		EA.	EA.	EA.	SQ.YD.	SQ.YD.	SQ.YD.	SQ.YD.	LIN.FT.	
18	400				169					1	6807			78		18
19	2,025				131					1	22824			298		19
20	1,568	50	464		100						22216	2		463		20
21	2,028										18839	3		351		21
22	2,006										21005	2		190		22
23	563	50	1,396								17367			223		23
24	1,231		855								21714			487		24
25	1,012		1,868								22208			123		25
26	1,749		715								18605	7		843		26
27	1,481				691.5	100		1	5	1	17618		221	1813		27
28	1,771				642.5	50		2	3	1	19477		94	933		28
29	1,147				787.5	50		1	3	2	17355	26	83	1196		29
30																30
31	554										10127			250		31
32	1,015										8655	4		475		32
33	40										1589					33
34	1,720				1,150			2		4	6736	9				34
35	1,717				100					2	9181					35
36	1,095										14065	1				36
37	904										14461			617		37
38	922		520		375					1	16167	14		510		38
39	1,017				545					1	25483	17		523		39
40	685	50	829		96					1	23428					40
41	1,366				450					4	8568					41
42	1,810										12897			342		42
43	1,419										6962			50	1148	43
56	525										1555					56
124																124
125												8				125
126												13				126
127												3				127
128												6				128
129												16				129
130												9				130
131																131
132												5				132
133																133
134																134
135												4				135
136																136
TOTALS	31,770	150	6647		5,237.5	200		6	11	19	385,909	149	398	9,765	1148	

MAY 4 1973

Rev. 1-14-72

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SUMMARY OF TABLES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 6-10-69	B.H.S.	N.C.G. 6-13-69			

ADACHE ASSOCIATES, INC.
CALC. BY N.C.G DATE 9-29-69
CHKD. BY R.W.H. DATE 11-24-69

ESTIMATED QUANTITIES OF FENCE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

17
258

CUYAHOGA COUNTY
CUY 422 - 16.33

FENCE LEFT

STATION	DISTANCE OUT	END POST	DEFLECTION POINT CORNER POST	DEFLECTION POINT LINE POST	FENCE LIN. FT.
860+80.13	134.35	1			222.45
863+07.18	139.00				111.32
864+20.00	138.87		1		59.32
864+63.00	98.00		1		20.00
864+83.00	98.00		1		54.39
865+20.00	137.86		1		597.46
871+20.73	114.00		1		56.18
871+66.95	145.93		1		60.25
872+27.09	142.28		1		77.11
873+00.60	119.00		1		875.69
881+76.29	119.00				633.73
888+10.00	124.00				265.62
890+75.57	119.00				352.43
894+28.00	119.00		1		41.73
894+57.00	149.00		1		30.00
894+87.00	149.00		1		41.73
895+16.00	119.00		1		1311.89
908+27.89	119.00				388.74
912+27.94	139.00		1		208.51
914+50.00	139.00		1		65.50
914+98.52	95.00	1			
915+03.08	95.56	1			63.94
915+50.00	139.00		1		744.96
923+43.36	139.00		1		387.66
927+43.41	139.00				266.69
930+10.00	146.18		1		48.66
930+46.50	114.00	1			
930+53.50	114.00	1			50.11
930+90.00	148.34		1		210.08
933+00.00	154.00		1		554.51
938+38.84	284.94		1		191.28
939+57.61	434.89		1		271.19
940+61.86 = 685.24			1		
S.R. 91 STA 42+89.79	69.00				91.92
S.R. 91 STA 43+78.78	46.00		1		210.12
S.R. 91 STA 45+88.78	39.00	1			
S.R. 91 STA 42+60.03	47.00				
= 941+80.41	669.31	1			295.06
944+75.00	652.74		1		236.78
947+00.00	579.00		1		431.39
950+00.00	269.00		1		467.00
954+53.08	155.85				174.05
956+19.37	104.47		1		170.20
954+85.00	0.00				
956+00.00	0.00				260.41
958+00.00	166.78		1		426.51
962+03.64	109.14	1			
TOTAL		8	28		11,026.57

FENCE LEFT

STATION	DISTANCE OUT	END POST	DEFLECTION POINT CORNER POST	DEFLECTION POINT LINE POST	FENCE LIN. FT.

FENCE RIGHT

STATION	DISTANCE OUT	END POST	DEFLECTION POINT CORNER POST	DEFLECTION POINT LINE POST	FENCE LIN. FT.
863+10.42	154.77	1			121.01
864+30.00	146.97		1		49.56
864+63.00	110.00		1		20.00
864+83.00	110.00		1		43.24
865+10.00	143.77		1		309.19
868+14.81	129.27				361.16
871+74.71	99.00		1		63.87
872+35.37	119.00		1		597.77
878+33.11	114.00				436.91
882+70.00	119.00				50.00
883+20.00	119.00				580.02
889+00.00	124.00				593.00
894+93.00	124.00				261.34
897+53.80	107.15				699.90
904+53.42	87.47		1		100.58
905+53.20	100.10		1		595.35
911+40.57	129.00		1		91.48
912+27.94	119.00		1		286.33
915+00.00	119.00		1		29.69
915+22.41	99.53	1			
915+26.97	98.97	1			30.52
915+50.00	119.00		1		834.98
923+43.36	119.00		1		413.46
927+43.41	159.00		1		207.13
929+50.00	144.00				60.00
930+10.00	144.00		1		45.40
930+46.50	117.00	1			
930+53.50	117.00	1			45.40
930+90.00	144.00		1		210.00
933+00.00	144.00		1		629.27
938+87.97	368.22		1		115.40
940+03.22	374.18		1		159.86
941+51.32	434.15		1		150.80
941+68.66 = 583.95		1			
S.R. 91 STA. 30+02.44	58.99				
S.R. 91 STA. 29+94.50	59.00				
= 942+86.09	597.92	1			147.26
943+08.59	452.40		1		270.66
945+78.89	466.38		1		62.35
945+82.42	404.13		1		319.03
948+49.87	230.50		1		236.69
950+85.11	204.46		1		136.93
952+21.48	216.87		1		200.44
953+75.00	88.00				140.87
954+85.00	0.00				
956+00.00	0.00				179.91
954+60.00	113.00		1		50.80
954+90.00	154.00		1		528.92
960+32.68	140.58				163.24
962+03.64	129.00	1			
TOTAL		8	28		10,629.72

FENCE RIGHT

STATION	DISTANCE OUT	END POST	DEFLECTION POINT CORNER POST	DEFLECTION POINT LINE POST	FENCE LIN. FT.

ESTIMATED QUANTITIES	
FENCE TOTAL (LEFT)	11,026.57 FT.
FENCE TOTAL (RIGHT)	10,629.72 FT.
GRAND TOTAL	21,656.29 FT.

1. ALL STATIONS AND OFFSETS REFER TO ℄ U.S.R. 422 STATIONS UNLESS OTHERWISE NOTED.

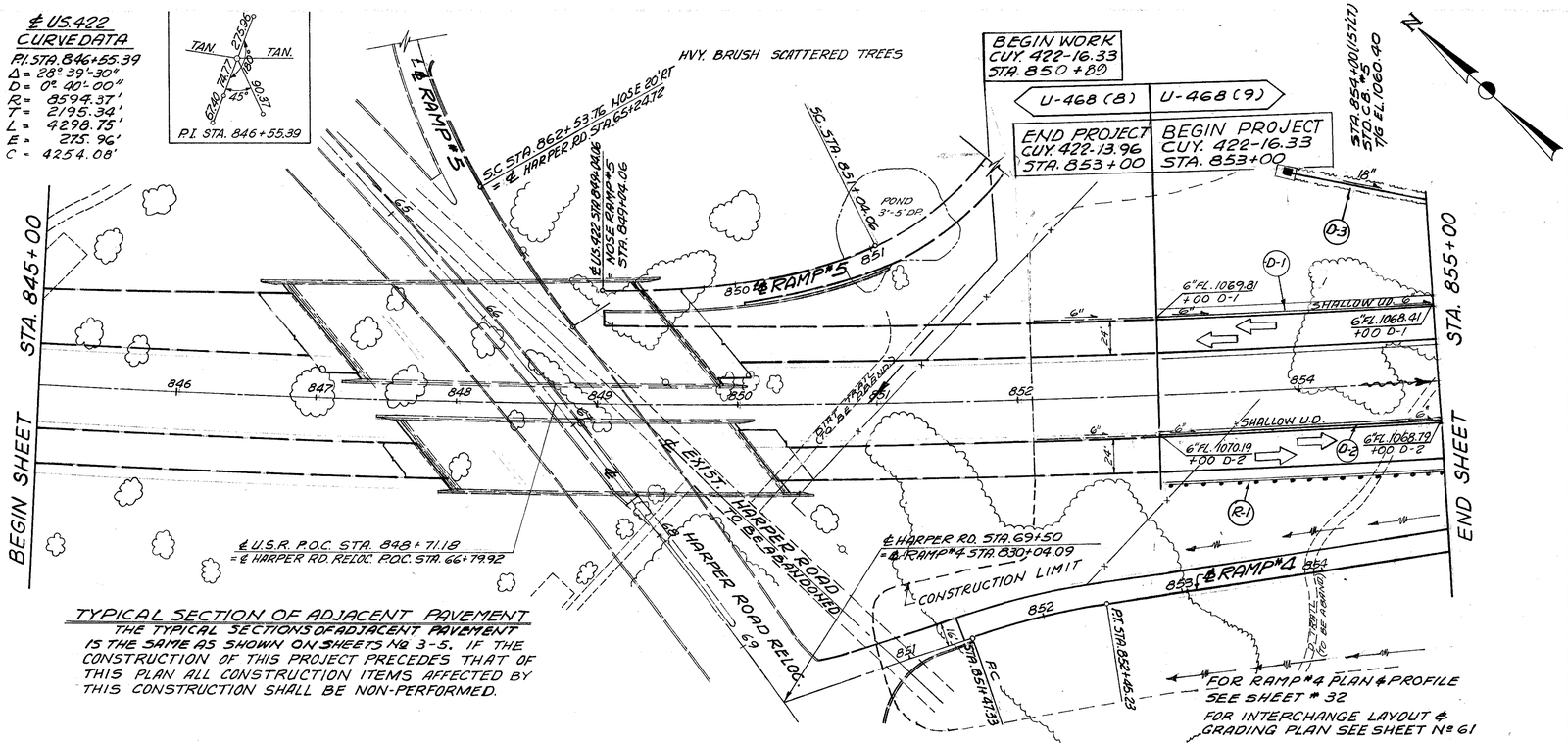
2. ESTIMATED QUANTITY OF ITEM 601 ROCK CHANNEL PROTECTION TYPE B FOR DITCH CROSSINGS. 300 CU. YDS.

MAY 4 1973

SUMMARY OF TABLES ••• FENCE QUANTITIES

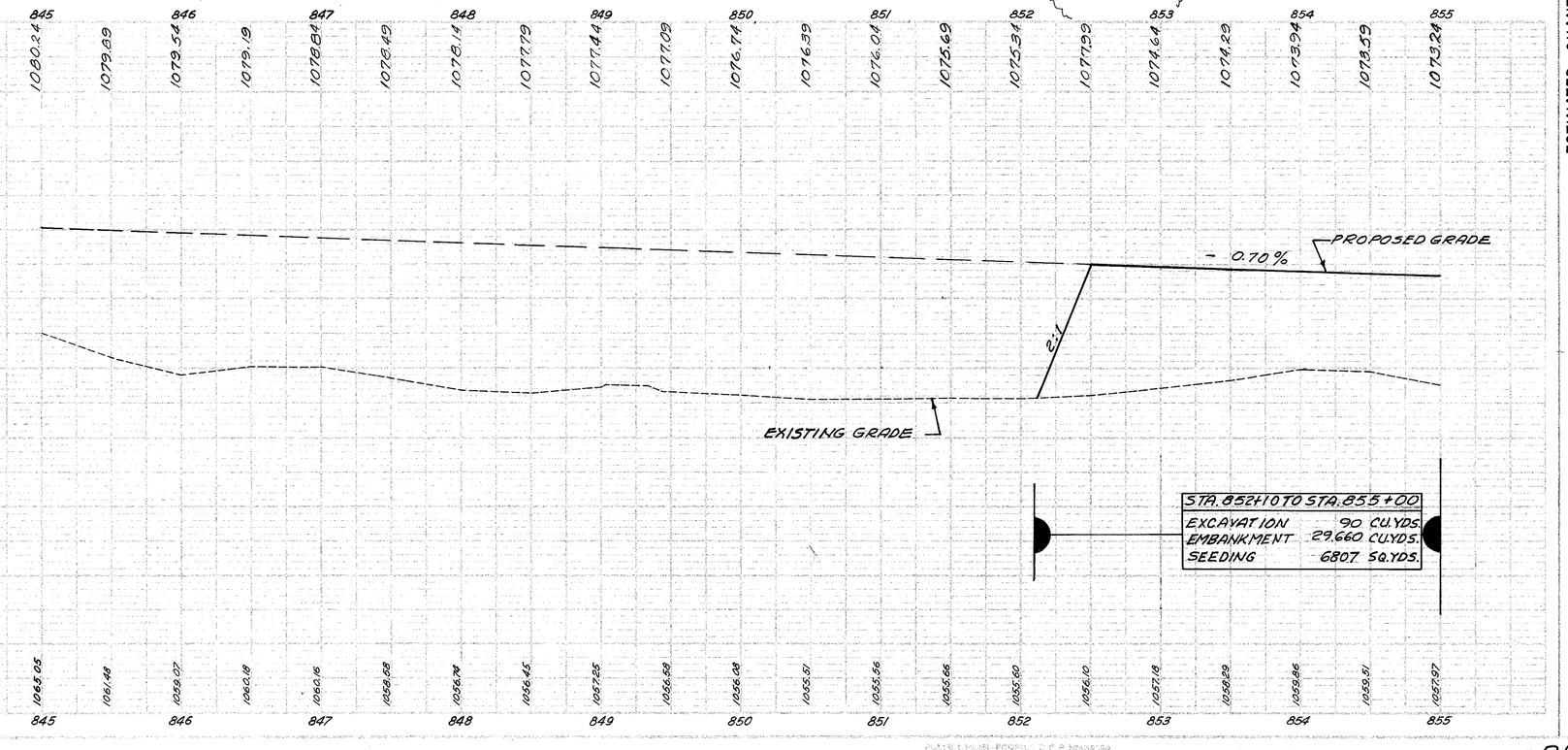
℄ US.422 CURVE DATA

P.I. STA. 846+55.39
Δ = 28° 39'-30"
D = 0° 40'-30"
R = 8594.37'
T = 2195.34'
L = 4298.75'
E = 275.96'
C = 4254.08'



TYPICAL SECTION OF ADJACENT PAVEMENT

THE TYPICAL SECTIONS OF ADJACENT PAVEMENT IS THE SAME AS SHOWN ON SHEETS Nº 3-5. IF THE CONSTRUCTION OF THIS PROJECT PRECEDES THAT OF THIS PLAN ALL CONSTRUCTION ITEMS AFFECTED BY THIS CONSTRUCTION SHALL BE NON-PERFORMED.



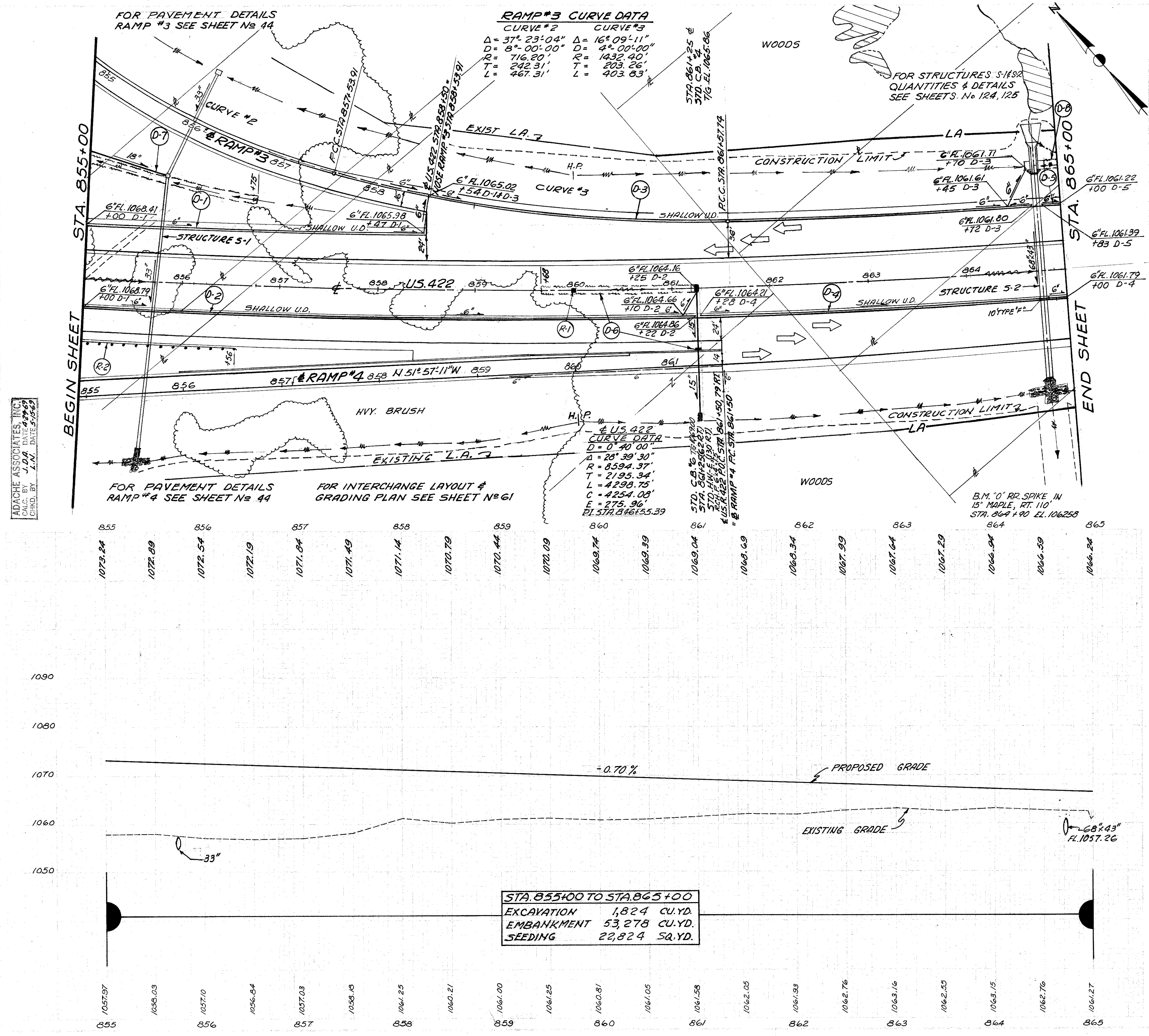
ADAche ASSOCIATES, INC.
DES. BY J.D.A. DATE 4-28-69
CALC. BY
CHKD. BY E.N. DATE 5-9-69

ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	SEE SHEET NO.	606 G.RAIL TYPE 5 STD. RICHTO ASSOC. LTR.	607 SEEDING & JUTE MATTING S.Y.	605 PIPE UNDERDRAIN 6" LF.	604 STD. C.B. #5 EA.	603 TYPE "C" 18" CONDUIT L.F.	TOTALS
D-1	853+00 - 855+00	LT.	122	78	160	200	1	101	
D-2	853+00 - 855+00	RT.				200			400
D-3	854+00 - 855+00	LT.					1		1
R-1	855+06 - 855+00	RT.							101
TOTALS				78	160	400	1	101	

MAY 4 1973

PLAN & PROFILE STA. 845+00 TO STA. 855+00

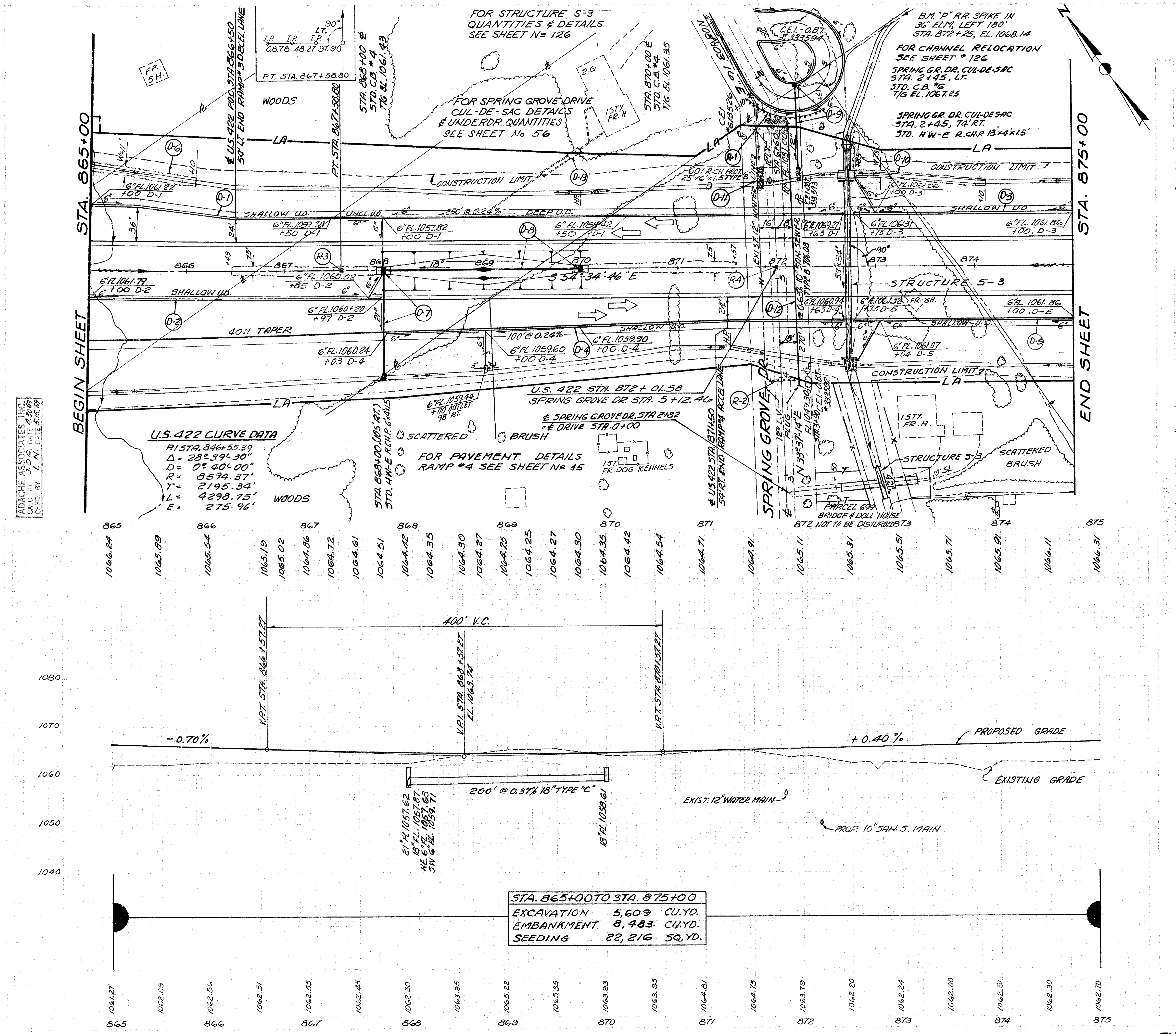


STA. 855+00 TO STA. 865+00		
EXCAVATION	1,824	CU.YD.
EMBANKMENT	53,278	CU.YD.
SEEDING	22,824	SQ.YD.

	601 Rock Channel Prot. C.Y.	602 Conc. Masonry C.Y.	603 Type "B" Conduit 6" L.F.	603 Type "B" Conduit 15" L.F.	603 Type "C" Conduit 18" L.F.	603 Type "F" Conduit 6" L.F.	604 Catch B. Std. #4 EA.	604 Catch B. Std. #6 EA.	604 ℄ Ref. Mon. EA.	605 Pipe Underdrain Shall. 6" L.F.	606 G. Rail Type 5 Std. L.F.	606 Anchor Assem. EA.	667 Seeding & Jute Matting S.Y.	Bends & Branches Bend 90°x6" EA.	Bends & Branches Wye 60°x6" EA.	Bends & Branches Tee 6" EA.	
D-1 855+00 - 858+50 LT.			40							347				1		1	
D-2 855+00 - 861+25 RT.						10				645					1		
D-3 858+50 - 864+72 LT.						10				654					1		
D-4 861+28 - 865+00 RT.						10				362							
D-5 864+83 - 865+00 LT.										17							
D-6 859+68 - 861+25 ℄ & RT.	1.78	0.26		130			1	1					125				66
D-7 855+00 - 855+80 LT.					83								146				122
D-8 864+82 - 865+00 LT.													27				
R-1 860+00 ℄									1								
R-2 855+00 - 856+56 RT.											131	1					
	1.78	0.26	40	130	83	30	1	1	1	2025	131	1	298				

MAY 4 1973

PLAN & PROFILE STA. 855+00 TO STA. 865+00



Location	601 Rock Chann. Prot. C.Y.	602 Conc. Masonry C.Y.	706.08 10" L.F.	603 Type "B" Conduit 6" L.F.	603 Type "B" Conduit 12" L.F.	603 Type "B" Conduit 21" L.F.	603 Type "C" Conduit 18" L.F.	604 Type "E" Conduit 6" L.F.	604 Catch Basin Standard #4 EA.	604 Catch Basin Standard #6 EA.	604 ¢ Ref. Mon. EA.	605 Pipe Underdrain Shallow 6" L.F.	605 Uncl. 6" L.F.	605 Deep 6" L.F.	606 G.Rail Type 5 Std. L.F.	660 Sodding S.Y.	Special Cleaning & Disposing of Septic Tank EA.	667 Seeding & Jute Matting S.Y.	Bends & Branch: Bend 90°×6" EA.	Wye 60°×6" EA.	Cross 12"×6" EA.	Tee 6"×6" EA.	
D-1 865+00 - 872+65 LT.				56								250	50	464								1	
D-2 865+00 - 868+00 RT.								10				315								1			
D-3 872+75 - 875+00 LT.								10				255								1			
D-4 868+03 - 872+65 RT.								10				488				2						1	
D-5 872+75 - 875+00 RT.								10				260						109		1			
D-6 865+00 - 866+10 LT.																							
D-7 866+43 - 868+00 RT.	1.78	0.36				105			1									125					68
D-8 868+00 - 871+57 ¢							200		1									125					
D-9 CUL-DE-SAC. 2+45 LT.&RT.	3.85	0.23			87					1								104			1		123
D-10 872+85 - 874+10 LT.																							
D-11 871+84 - 871+90 LT.	11																						
D-12 SPRING GROVE DR. 3+90 - 6+50 18' RT.			* 270																				
D-13 869+95 LT.																	1						
R-1 SPRING GROVE DR. CUL-DE-SAC 2+10 - 2+61 RT.															75								
R-2 871+95 - 872+20 LT.															25								
R-3 867+58.80 ¢											1												
R-4 872+01.58 ¢											1												
Total	16.63	0.59	*270	56	87	105	200	40	2	1	2	1568	50	464	100	2	1	463					

*(CODE Y-060, 100% STATE) SANITARY SEWER QUANT.

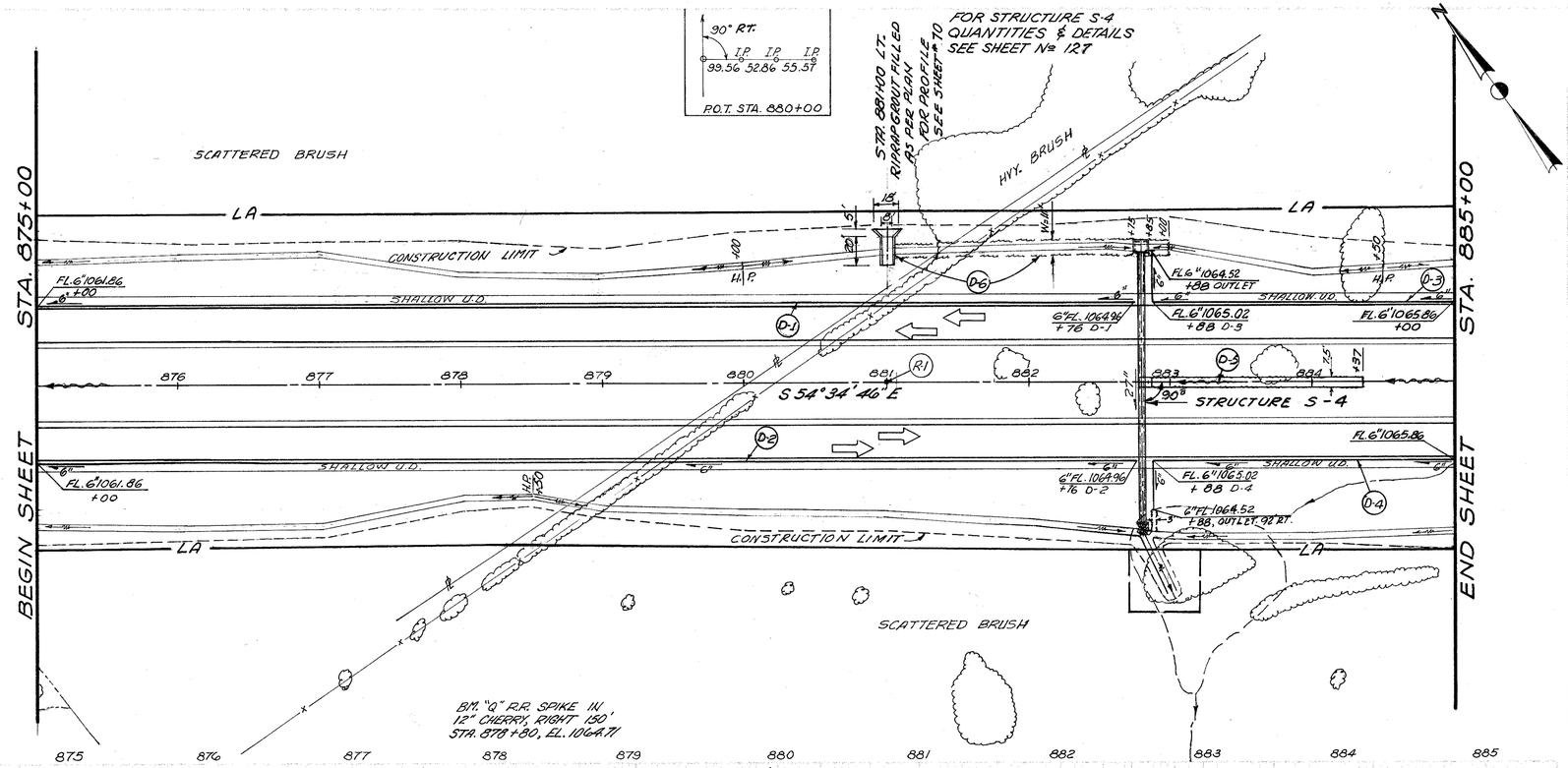
MAY 4 1973

PLAN & PROFILE STA. 865+00 TO STA. 875+00

CUYAHOGA COUNTY
CUY. 422-16.33

U-468 (9)

21
258



ADACHE ASSOCIATES, INC.
DWG. BY JAG DATE 5-68
CHKD. BY LNV. DATE 5-5-69

660.667 BENDS & BRANCH. SEPTIC BEND SODDING MATTING 90"x6"

	S.Y.	EA.
		1
3		1
	125	
	226	

603 TYPE "A" 6" L.F.	604 E. REF. MONUMENT	605 PIPE U/D SMLS. 6" L.F.
	EA.	
		776
		776
		238
		238
10		
10		
	1	
	1	

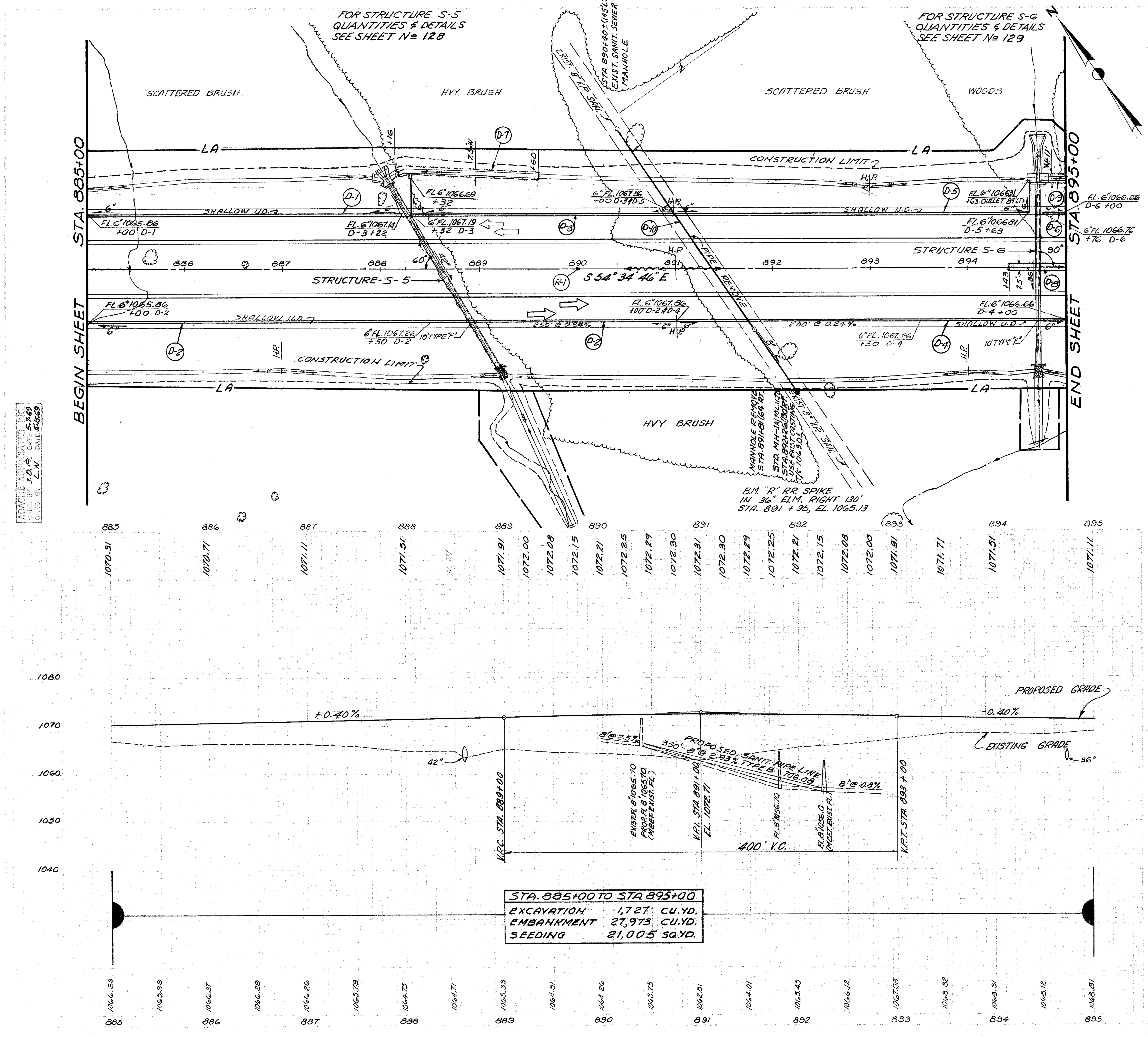
601 RIPRAP GROUT FILLED S.Y.

	30
D-1 875+00 TO 882+76 LT.	
D-2 875+00 TO 882+76 RT.	
D-3 882+88 TO 885+00 LT.	
D-4 882+88 TO 885+00 RT.	
D-5 882+87 TO 884.37 ℄.	
D-6 880+91 TO 883+00 LT.	
R-1 881+00 ℄	

		351
3		3
		2028
1		1
20		20
		1
		30

MAY 4 1973

PLAN & PROFILE STA.875+00 TO STA.885+00



ESTIMATED QUANTITIES

	603 TYPE "B" 706.08 8" L.F.	603 TYPE "F" RJT. CONDUIT 6" L.F.	604 ¢ REF. MON. EA.	604 STD. MH. *1-A/706.11 JT. & SALV. CAST. EA.	605 PIPE UNDERDRAIN SHALLOW 6" L.F.	660 SODDING SQ.YD.	667 SEEDING & JUTE MATTING SQ.YD.	202 MANHOLE REMOVE EA.	202 PIPE REMOVE UNDER 24" L.F.	BENDS & BRANCH. BEND 90° & 6" EA.
D-1 885+00 TO 888+22 LT.					322					
D-2 885+00 TO 891+00 RT.		10			590					
D-3 888+32 TO 891+00 LT.		10			294	2				1
D-4 891+00 TO 895+00 RT.		10			390					
D-5 891+00 TO 894+63 LT.		10			386					1
D-6 894+76 TO 895+00 LT.					24					
D-7 888+16 TO 889+60 LT.							120			
D-8 894+43 TO 895+00 ¢							48			
D-9 894+82 TO 895+00 LT.							22			
D-10 890+40 TO 892+24 LT. & RT.	*330			*1				1*	330*	
R-1 890+00 ¢			1							
	* 330	40	1	*1	2006	2	190	1*	330*	

* CODE (YOGO) SANIT. SEWER QUANTITIES

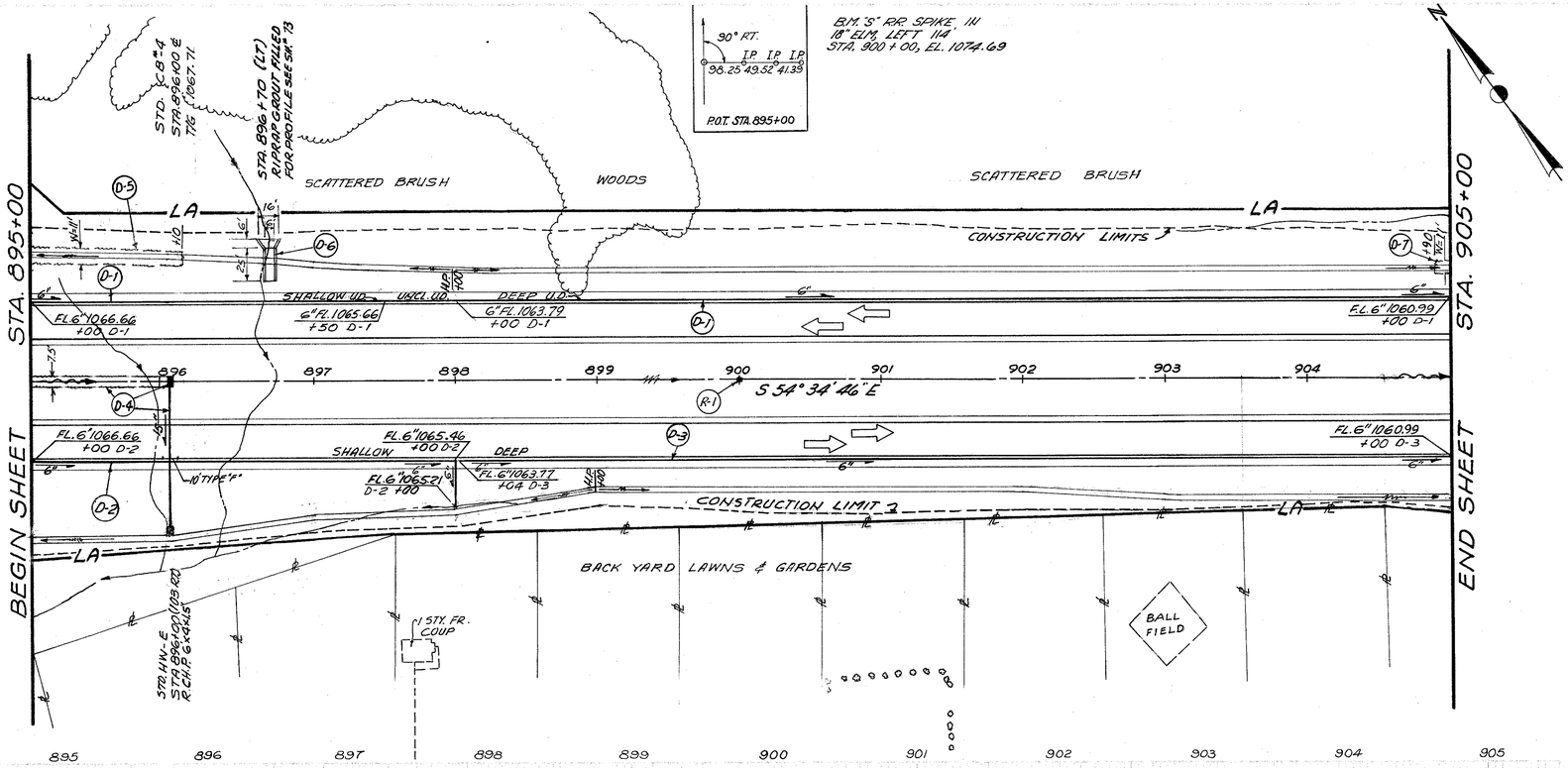
MAY 4 1973

PLAN & PROFILE STA.885+00 TO STA.895+00

CUYAHOGA COUNTY
CUY. 422-16.33

U-468(9)

23
258



STA 895+00 TO STA. 905+00	
EXCAVATION	17,784 CU.YD.
EMBANKMENT	3,175 CU.YD.
SEEDING	17,367 SQ.YD.

ADAC-HE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 5.5.69
CHKD. BY Z.M. DATE 5.15.69

667 BENDS & BRANCH
SEEDING & MULCHING 90#-6"
S.Y. EA.
1 73
77 134
12

605 PIPE UNDERDRAIN			
SIZE	CONC. COATED	6"	
	L.F.	L.F.	L.F.
	250	50	700
	313		696
	1		
	1		

604 TYPE "S" CASINGS & REF. MARK	STD. 4'		
	L.F.	L.F.	EA.
	103	1	

603 TYPE "F"		
24"		
L.F.	L.F.	L.F.
20		

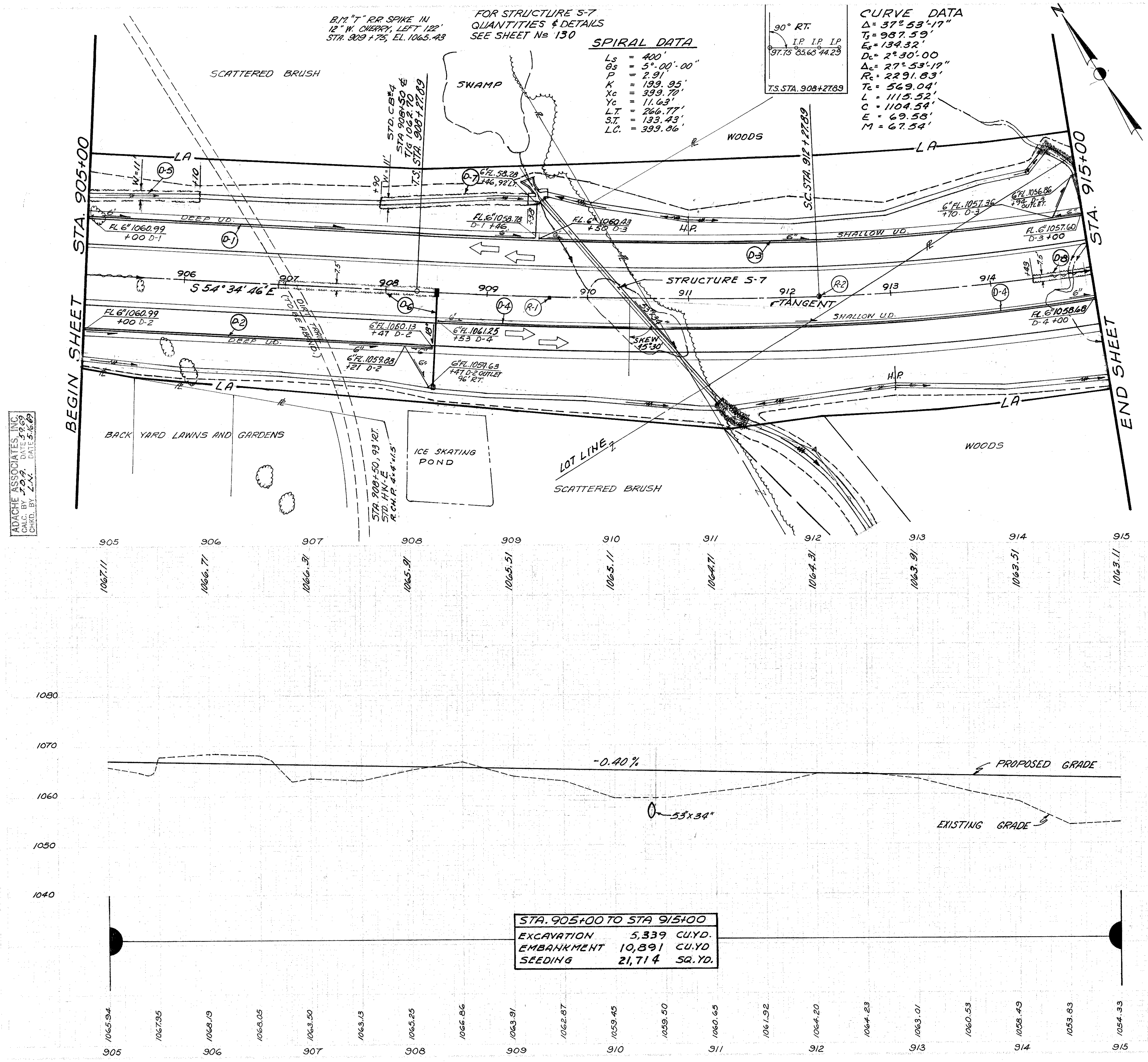
601 ROCK RIPRAP CLASS A GROUT FILLED PROT.	602 CONC. PAVED MEDIAN	
C.Y.	S.Y.	C.Y.
1.78	31	0.26

D-1	895+00 - 905+00	L.T.	20			
D-2	895+00 - 898+00	R.T.				
D-3	898+04 - 905+00	R.T.				
D-4	895+00 - 896+00	℄ MED.	1.78	0.26		
D-5	895+00 - 896+10	L.T.				
D-6	896+63 - 896+79	L.T.		31		
D-7	904+90 - 905+00	L.T.				
R-1	900+00	℄				

223
20
103 1 1 563 50 1396
103 1
20
1.78 31 0.26

MAY 4 1973

PLAN & PROFILE STA. 895+00 TO STA. 905+00



STA. 905+00 TO STA 915+00		
EXCAVATION	5,339	CU.YD.
EMBANKMENT	10,891	CU.YD
SEEDING	21,714	SQ.YD.

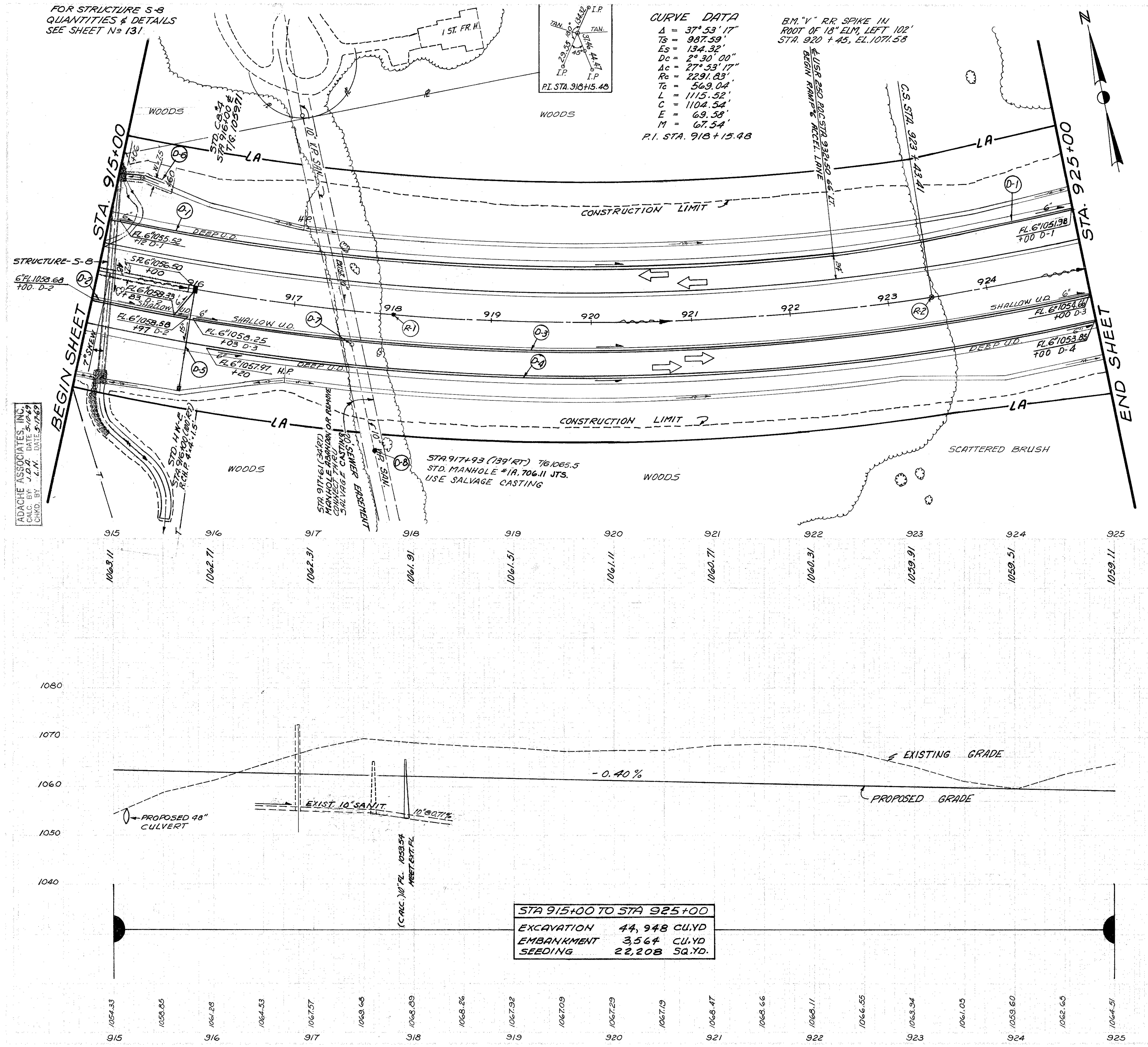
ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 5.9.69
CHKD. BY L.N. DATE 5.16.69

ESTIMATED QUANTITIES

	601 Rock Chann. Prot. C.Y.	602 Conc. Masonry C.Y.	603 Type "B" Conduit 18" L.F.	604 Type "F" 6" L.F.	604 Std. C.B. #4 EA.	604 ℄ Ref. Mon. EA.	605 Pipe Underdrain Shall. 6" L.F.	605 Pipe Underdrain Deep 6" L.F.	667 Seeding & Jute Matting S.Y.	Bends & Branch. Bend 90°×6" EA.	Bends & Branch. Wye 60°×6" EA.	See Sheet No.
D-1 905+00 TO 909+46 LT				10				472		1		
D-2 905+00 TO 908+47 RT.				10				383			1	
D-3 909+50 TO 915+00 LT.				10			584				1	
D-4 908+53 TO 915+00 RT.							647					
D-5 905+00 TO 906+10 LT.									134			
D-6 906+93 TO 908+43 ℄&RT.	1.18	0.30	93		1				125			76
D-7 907+90 TO 909+38 LT									181			
D-8 914+43 TO 915+00 ℄									47			
R-1 R/W P.C. STA. 909+61.23 ℄						1						
R-2 R/W P.C.C. STA. 912+27.94 ℄						1						
	1.18	0.30	93	30	1	2	1231	855	487			

MAY 4 1973

PLAN & PROFILE STA. 905+00 TO STA. 915+00



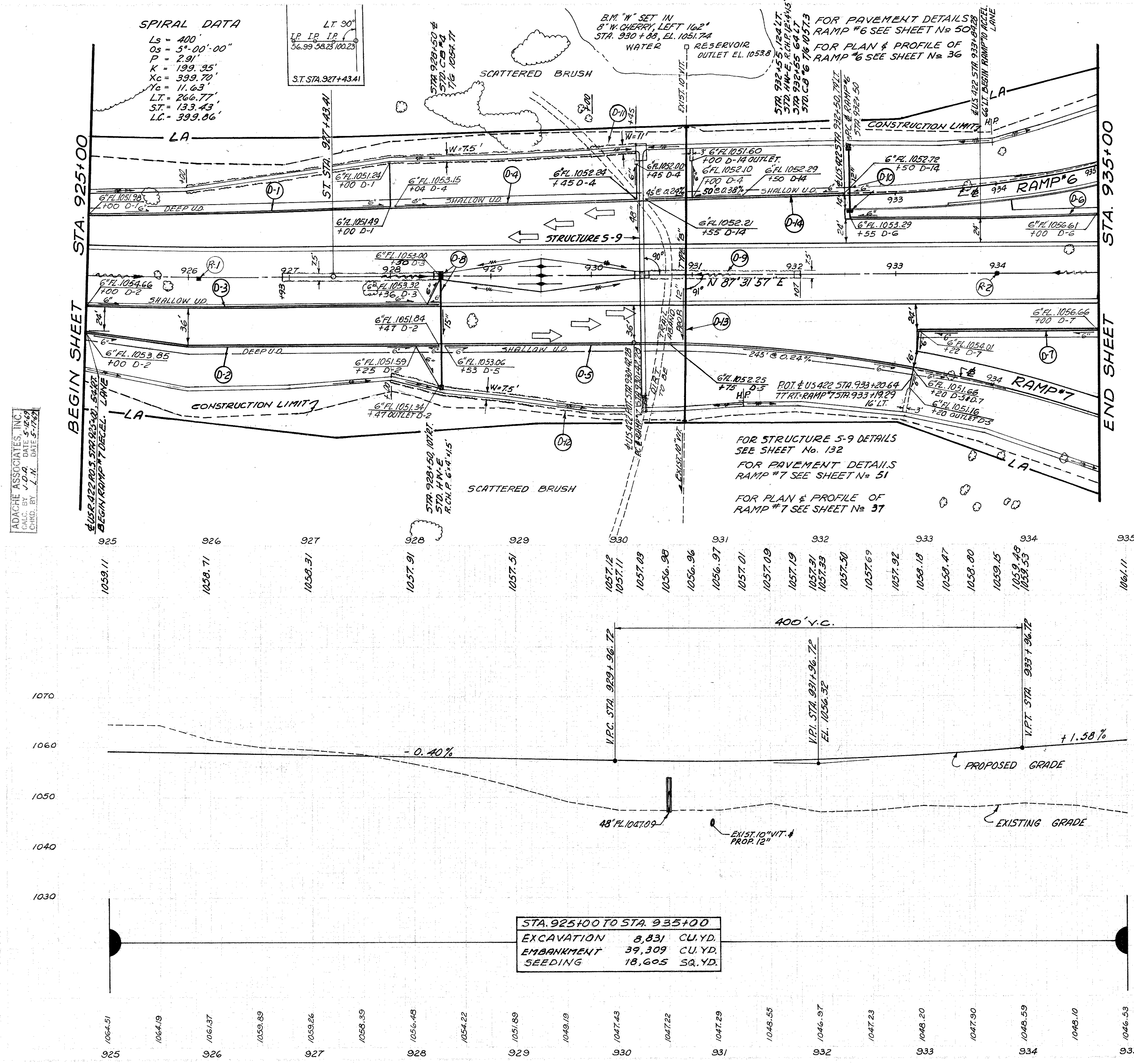
STA 915+00 TO STA 925+00		
EXCAVATION	44,948	CU.YD
EMBANKMENT	3,564	CU.YD
SEEDING	22,208	SQ.YD.

Location	601 Rock Chann. Protect. C.Y.	602 Conc. Masonry C.Y.	603 Type "B" Conduit 15" L.F.	603 Type "F" 6" L.F.	604 Std. C.B. #4 EA	604 Std. M.H. #1A 706.11 JT. & Salv. Cast EA.	604 ℄ Ref. Mon. EA.	605 Pipe Underdrain Shall. 6" L.F.	605 Pipe Underdrain Deep 6" L.F.	667 Seeding & Jute Matting S.Y.	202 Abandon or Remove M.H. & Conn. Thru. EA.	Bends & Branch Wye 60°x6" EA.	
D-1 915+12 - 925+00 LT.									988				
D-2 915+00 - 915+97 RT.				10				115				1	
D-3 916+03 - 925+00 RT.								897					
D-4 916+20 - 925+00 RT.									880				
D-5 915+00 - 916+00 ℄&RT.	1.18	0.26	100		1					78			77
D-6 915+06 - 915+60 LT.										45			
D-7 917+67 (34' RT.) RT.											*1		
D-8 917+93 (139' RT) RT.						*1							
R-1 918+00 ℄							1						
R-2 R/W P.C.C. STA. 923+43.36 ℄							1						
Total	1.18	0.26	100	10	1	*1	2	1012	1868	123	*1		

* (CODE Y060) SANIT. SEWER QUANTITIES

MAY 4 1973

PLAN & PROFILE STA. 915+00 TO STA. 925+00



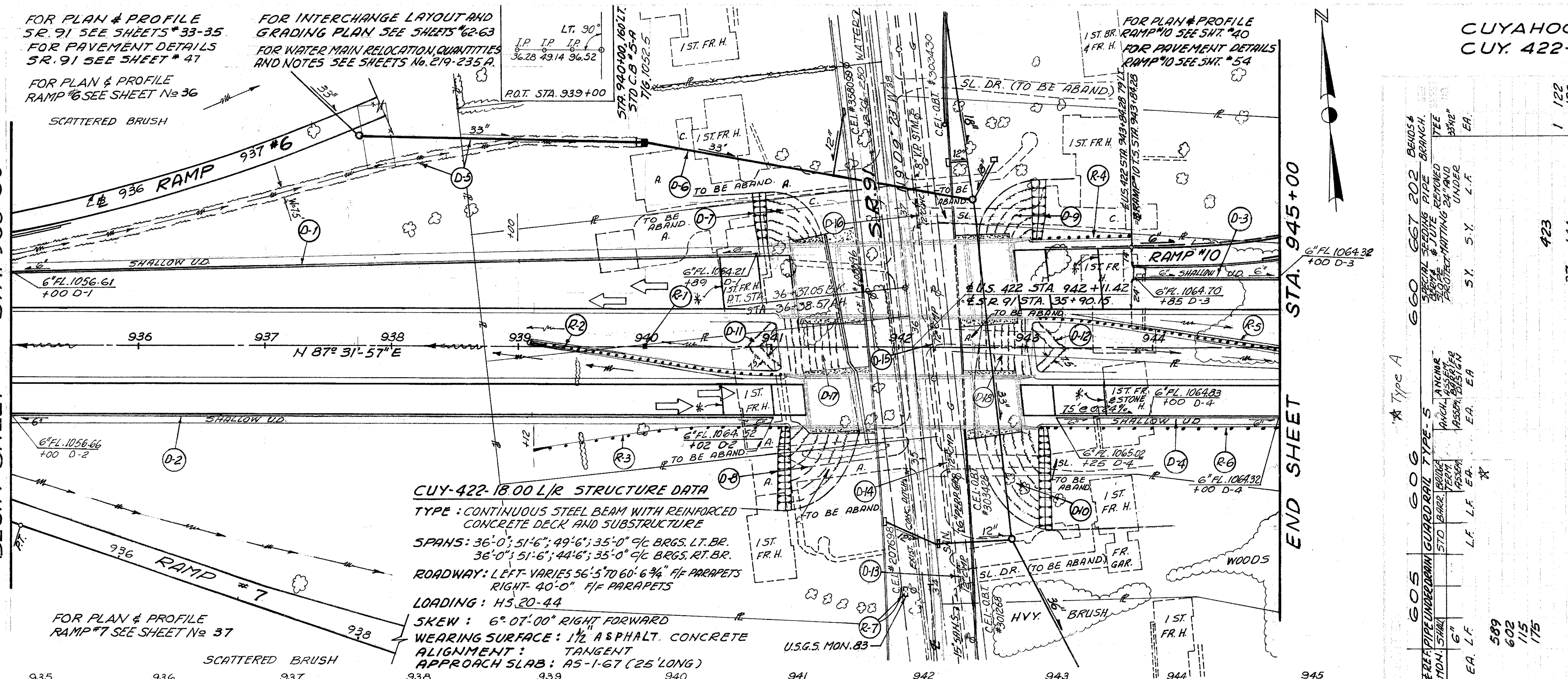
STA. 925+00 TO STA. 935+00		
EXCAVATION	8,831	CU. YD.
EMBANKMENT	39,309	CU. YD.
SEEDING	18,605	SQ. YD.

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 5-12-69
CHKD. BY L.N. DATE 5-17-69

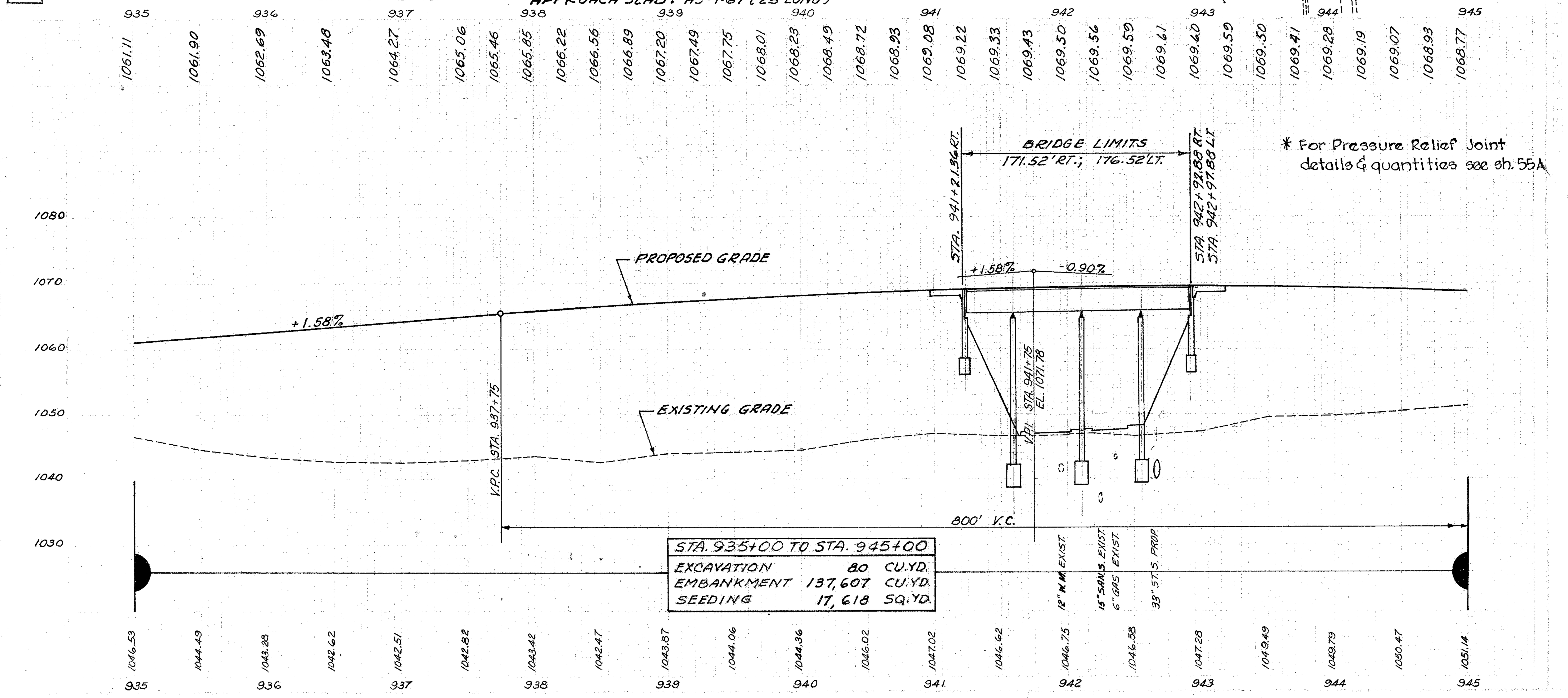
	601 Rock Chann. Prot. C.Y.	602 Conc. Masonry C.Y.	603 Type "B" Conduit 6" L.F.	603 Type "B" Conduit 12" L.F.	603 Type "B" Conduit 15" L.F.	603 Type "F" Conduit 6" L.F.	604 Std. C.B. #4 EA.	604 Std. C.B. #6 EA.	604 ℄ Ref. Mon. EA.	605 Pipe Underdrain Shall. 6" L.F.	605 Pipe Underdrain Deep 6" L.F.	660 Sodding S.Y.	660 Seeding & Jute Matting S.Y.	667 Bends & Branch. Bend 90°x6" EA.	667 Wye 60°x6" EA.	667 Tee 6"x6" EA.	
D-1 925+00 - 928+00 LT.						10					333			1			
D-2 925+00 - 928+47 RT.						10					382				1		
D-3 925+00 - 928+50 RT.						10				367					1		
D-4 928+04 - 930+45 LT.						10				266		2		1			
D-5 928+53 - 933+20 RT.						10				476		5				1	
D-6 932+55 - 935+00 LT.						10				240				1			
D-7 933+23 - 935+00 RT.			38							178				1			
D-8 926+93 - 928+50 ℄&RT.	1.78	0.26			107		1						125				80
D-9 930+57 - 932+07 ℄													125				
D-10 932+55 LT.	3.5	0.23		60				1									81
D-11 926+00 - 930+45 LT.													388				
D-12 928+00 - 930+46 RT.													205				
D-13 930+90 - 930+96 LT.&RT.				291													132
D-14 930+55 - 932+50 LT.						10				222						1	
R-1 R/W PT. STA 926+10.06 ℄									1								
R-2 934+00 ℄									1								
Total	5.28	0.49	38	351	107	70	1	1	2	1749	715	7	843				

MAY 4 1973

PLAN & PROFILE STA. 925+00 TO STA. 935+00



ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 5-13-69
CHKD. BY L.N. DATE 5-19-69



STA. 935+00 TO STA. 945+00		
EXCAVATION	80	CU.YD.
EMBANKMENT	137,607	CU.YD.
SEEDING	17,618	SQ.YD.

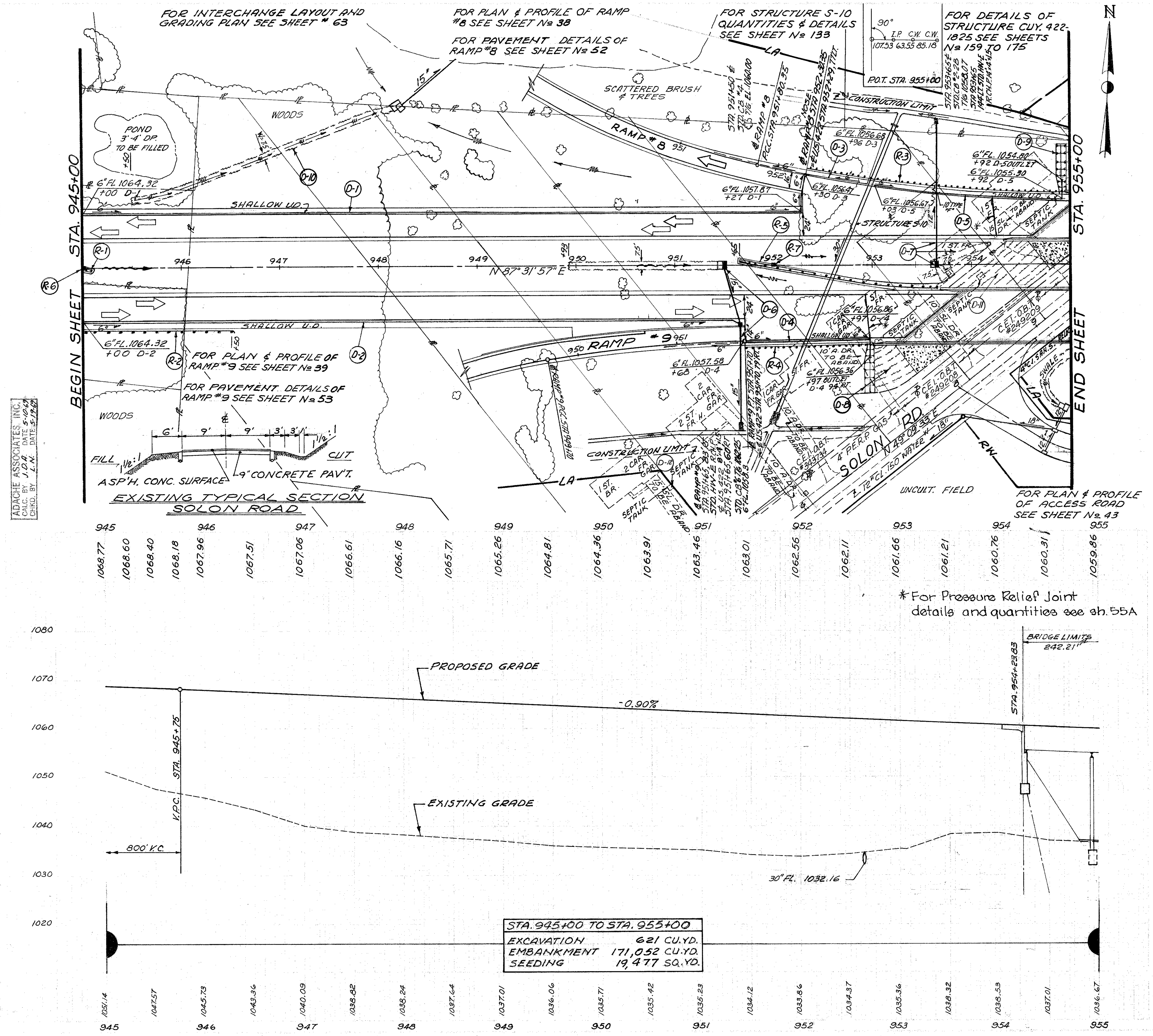
* For Pressure Relief Joint details & quantities see sh. 55A

★ Type A

Ref.	Station	Side	SPECIAL Exist. Mon. Removed & Stored as per plan EA.	603 Type "B" Conduit 33" L.F.	603 Type "C" 706.02 or 706.08 E.S. or 707.13 3/4 Gauge 33" L.F.	604 Std. C.B. #5A EA.	604 ℄ Ref. Mon. EA.	605 Pipe Underdrain Shall. 6" L.F.	606 Guardrail Type-5 Std. L.F.	606 Barr. L.F.	606 Bridge Term. Assem. EA. ★	606 Anch. Assem. EA.	606 Anchor Assem. Barrier Design EA	660 Special Berm & Slope Protect. S.Y.	667 Seeding & Jute Matting S.Y.	202 Pipe Removed 24" and Under L.F.	Bends & Branch. Tee 33"x12" EA.	
D-1	935+00 - 940+89	LT.						589										
D-2	935+00 - 941+02	RT.						602										
D-3	943+85 - 945+00	LT.						115										
D-4	943+25 - 945+00	RT.						175										
D-5	937+74 - 940+00	LT.			226	1									423			
D-6	940+00 - 942+60	LT.		262													1	122
D-7	940+65 - 941+42	LT.												37	144			122
D-8	941+04 - 941+68	RT.												62	284			
D-9	942+65 - 943+17	LT.												43	168			
D-10	942+60 - 943+21	RT.												79	335			
D-11	940+82 - 941+06	LT.&RT.													42			
D-12	943+06 - 943+32	LT.&RT.													42			
D-13	SR. 91 33+97 - 34+14	RT.														17		
D-14	-"- 34+89 - 35+06	RT.														17		
D-15	-"- 35+85 - 36+07	RT.														22		
D-16	-"- 36+83 - 37+05	RT.														22		
D-17	941+10 - 941+60	LT.&RT.													200			
D-18	942+60 - 943+00	LT.&RT.													175			
R-1	940+00 - 941+10	℄ LT.&RT.					1											
R-2	939+10 - 941+12	RT.							125	50	1		1					
R-3	939+12 - 943+84	LT.							175		1	1						
R-4	943+05 - 945+00	LT.&RT.							79		1							
R-5	943+10 - 945+00	RT.							125	50	1							
R-6	943+12.5 - 945+00	RT.							187.5		1							
R-7	SR. 91 33+95 (23')	LT.	1															
Total			1	262	226	1	1	1481	691.5	100	5	1	1	221	1813	68		

MAY 4 1973

PLAN & PROFILE STA. 935+00 TO STA. 945+00



STA. 945+00 TO STA. 955+00		
EXCAVATION	621	CU.YD.
EMBANKMENT	171,052	CU.YD.
SEEDING	19,477	SQ.YD.

* For Pressure Relief Joint details and quantities see sh. 55A

☆ Type A

	601 Rock Chann. Prot. C.Y.	602 Conc. Masonry C.Y.	603 Type "B" Conduit 6" L.F.	603 Type "B" Conduit 12" L.F.	603 Type "B" Conduit 15" L.F.	Type "F" Conduit 6" L.F.	Type "F" Conduit 12" L.F.	Type "F" Conduit 15" L.F.	604 Catch Basins Std. #4 EA.	604 Catch Basins Std. #6 EA.	604 Catch Basins Std. #2-2B EA.	¢ Ref. Mon. EA.	605 Pipe U.D. Shall. 6" L.F.	606 Guard Rail Type-5 Std. L.F.	606 Bridge Barr. L.F.	606 Term. Barr. Assem. EA.	606 Bridge Anchor Ass. Design EA.	606 Anchor Assem. EA.	Special Cleaning & Disposing of Septic Tank EA.	660 Special Berm & Slope Prot. S.Y.	667 Seeding & Jute Matting S.Y.	Bends & Branch. Bend 90°x6" EA.	Bend 25°x12" EA.	25x15 EA.	Tee 6x6" EA.	
D-1 945+00 - 952+27 LT.			40										726			☆						1			1	
D-2 945+00 - 951+65 RT.						10							655													
D-3 952+30 - 952+96 LT.													66													
D-4 951+68 - 952+97 RT.						10							136									1				
D-5 953+03 - 954+92 LT.						20							188									1				
D-6 949+93 - 951+65 ¢&RT.	2.5	0.26			98			71	1	1									1		125			2		111
D-7 953+65 ¢&LT.	4.0	0.23		88			61				1										53		2			123
D-8 952+92 - 953+44 RT.																				47	184					
D-9 954+86 - 955+00 LT.																				47	15					
D-10 945+50 - 948+17 LT.																										
D-11 953+75 - 954+85 LT.&RT.																					236					
D-12 950+90 RT.																					320					
R-1 945+00 - 945+10 ¢														125			1	1								
R-2 945+00 - 946+50 RT.														262.5		1										
R-3 952+29 - 954+91.5 LT.														130		1										
R-4 951+70 - 953+00 RT														125	50	1	1									
R-5 951+65 - 953+65 LT&RT.																										
R-6 945+00 ¢												1														
R-7 952+00 ¢												1														
	6.5	0.49	40	88	98	40	61	71	1	1	1	2	1771	642.5	50	3	2	1	1	94	933					

MAY 4 1973

PLAN & PROFILE STA. 945+00 TO STA. 955+00

CUYAHOGA COUNTY
CUY. 422-16.33

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	U-468(9)

29
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FOR WATER MAIN RELOCATION, QUANTITIES AND NOTES SEE SHEETS No. 219-235-A

B.M. "X" ▫ CUT ON S.E. COR. CONC. STEP HOUSE #34655 STA. 956+30, LEFT 195', EL. 1044.48

STA. 12+20 AHEAD = STA. 12+28.92 BACK (445.00') STA. 10+74.08 AHEAD = STA. 10+35.51 BACK (438.57') STA. 7+36.43 AHEAD = STA. 7+33.43 BACK (303.00') STA. MHIA#2

NEL 5" 1033.50 NEL 5" 1033.43

1 ST. FR. & STONE

1 ST. FR. & STONE

SCE 1-08.1 #359248

SCE 1-08.1 #359248

U.S. 422 STA. 955+44.95

℄ SOLON RD. STA 10+00

SOLON RD. ℄

18" C.M.P.

15" C.M.P.

SWALE

SWALE

LA

LA

D-8

D-13

D-5

D-7

D-9

D-10

D-12

R-1

R-2

R-3

R-4

R-5

D-1

D-2

D-3

D-4

D-6

D-11

STA. 955+00

BEGIN SHEET

N 87° 31' 57" E

956

957

958

959

960

961

962

N 43° 29' 39" E

4" C.I. SAN. SEWER RELOC. 7

12" C.I. WAT. RELOC. 2

4" GAS RELOC.

TELEPHONE RELOC.

6" FL. 1053.96 +08 D-2

6" FL. 1053.30 +34 D-1

6" FL. 1047.41 +04 D-2

6" FL. 1046.91 +04 D-2 WYE

6" FL. 1048.58 +65 D-1

STRUCTURE S-11

STRUCTURE S-12

℄ U.S.R. 422 BAC. STA. 961+70.54 RT. END RAMP #9 ACCEL. LANE

℄ U.S.R. 422 BAC. STA. 960+29.54 LT. END RAMP #8 DECEL. LANE

SKEW 275°-0"

SKEW 126°-30"

FOR STRUCTURES S-11 & S-12 QUANTITIES & DETAILS SEE SHEET No. 134

FOR PLAN & PROFILE OF ACCESS ROAD SEE SHEET No. 43

STA. 958+90, 125' RT. STD. HW-E 12"FL. 1033.00

STA. 959+30, 120' RT. STD. HW-E 12"FL. 1033.00

ACCESS ROAD

CONSTR. LIMIT 958

CONSTR. LIMIT 959

R/W

H.P.

SC

CS

ST

TO BE ABANDONED

ACCESS RD.

INC.

4" C.I. SAN. SEWER RELOC. 7

12"

18"

24"

UNCULTIVATED FIELD

BACK YARD LAWN & GARDEN

CONSTRUCTION LIMIT

H.P.

LA

EXISTING PAVEMENT OF ERICO PRODUCT. INC. ACCESS RD. BETWEEN SOLON RD. AND RELOCATED ACCESS RD. STA. 7+70. REMOVED AND DISPOSED OF.

THE TYPICAL SECTION OF THE ADJACENT PAVEMENT IS THE SAME AS SHOWN ON SHEET No. 3

END SHEET STA. 1997+00

1995

1996

1997

60' PCCK CH. PROT. TYPE 'B' 25'x5'x1.5'

90° RT.

CW 98.30 CW 60.95 CW 59.21

P.O.T. STA. 961+05.76

U-468(9) | F-U-468(10)

END PROJECT CUY. 422-16.33 STA. 962+03.64

BEGIN PROJECT CUY. 422-18.40 STA 1994+00

END WORK CUY. 422-16.33 STA. 962+70

℄ 422 CURVE DATA

P.I. STA. 2000+73.74
Δ = 42°-30'-55"
D = 2°-00'
R = 2864.79'
L_s = 300.00'
L_c = 1825.76'
T_s = 1264.98'
E_s = 210.56'

N

ADACHE ASSOCIATES, INC. CALC. BY J.D.A. DATE 3-69 CHKD. BY J.M. DATE 3-69

955 956 957 958 959 960 961 962 +50 995 996 997

1059.86 1059.41 1058.96 1058.51 1058.06 1057.61 1057.16 1056.71 1056.26 1055.81 1055.36 1054.46 1053.56 1053.52 1055.62 1051.72 1050.82

1070 1060 1050 1040 1030 1020 1010

BRIDGE L/MITS 242.21'

STA. 956+66.04

* For Pressure Relief Joint details and quantities see sh. 55A

PROPOSED GRADE

-0.90%

EXISTING GRADE

TO STA. 962+70 = STA. 1994+00

2:1

48"

3" GAS EXIST.

10" W.M. EXIST.

4" W.M. EXIST.

4" SAN. S. EXIST.

4" GAS EXIST.

12" W.M. EXIST.

4" SAN. S. PROP. RELOC.

1036.67 1037.11 1036.01 1035.94 1035.04 1034.64 1033.89 1033.24 1036.82 1039.46 1043.30 1048.21 1050.28

955 956 957 958 959 960

STA. 955+00 TO STA. 962+70		
EXCAVATION	1,226	CU.YD.
EMBANKMENT	60,887	CU.YD.
SEEDING	17,355	SQ.YD.

* Type A

ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	601 ROCK CHANN. PROTECT. MASONRY C.Y.	602 CONC. MASONRY C.Y.	601 PAVED GUTTER TYPE 1-2 L.F.	603 TYPE 'C' TYPE 'E' TOT. 05 CONDUIT 15" L.F.	603 TYPE 'C' TYPE 'E' TOT. 05 CONDUIT 12" L.F.	603 TYPE 'C' TYPE 'E' TOT. 05 CONDUIT 15" L.F.	603 TYPE 'C' TYPE 'E' TOT. 05 CONDUIT 6" L.F.	604 REF. STD. MON. EA.	604 STD. CB 2-28 L.F.	605 PIPE UD. SWALLOW 6" L.F.	606 GUARD RAIL TYPE STD. APPROACH ER. L.F.	606 GUARD RAIL TYPE DBL. TERM. ASS ER. EA.	606 GUARD RAIL TYPE DBL. TERM. ASS REMOVAL EA.	660 SODDING & SLOPE PROTECT. S.Y.	661 BERM TUTE MATTING SEEDING S.Y.	662 DEVICE BRANCH 90° EA.	SEE SHEET NO.
D-1	957+34 - 962+66	LT.										522				7		1	134
D-2	956+08 - 962+04	RT.										625							134
D-3	958+90 - 959+10	RT.		0.23															
D-4	959+10 - 959+30	LT.		0.23															
D-5	955+00 - 955+70	LT.															304	304	133
D-6	955+13 - 956+03	RT.															387	387	
D-7	957+43 - 957+95	LT.															38	150	
D-8	12+58.5-12+73.5 SOLON RD.	RT. & LT.						15									45		
D-9	956+13 - 957+10	RT. & LT.															300		
D-10	956+65 - 957+35	RT. & LT.															75		
D-11	962+50 - 962+75	℄	9.3													19			133
D-12	9+17-12+17 SOLON RD.	RT.			300														
D-13	12+58.5-12+70 SOLON RD.	RT.						11											
R-1	957+90 - 960+02.5	LT.							10					1		1			
R-2	955+95 - 960+95	RT.							10				1875	1		1			
R-3	957+25 - 959+25	CONST.											475	1		1			
R-4	R/W P.C. STA. 957+12.40	LT.											125	50	1	1			
R-5	R/W P.C.C. STA. 959+12.41	℄																	
	TOTALS		9.3	0.46	300	15	38	11	20	1	2	1	1147	1875	50	3	1	2	26	83	1196

Rev. 1-14-72

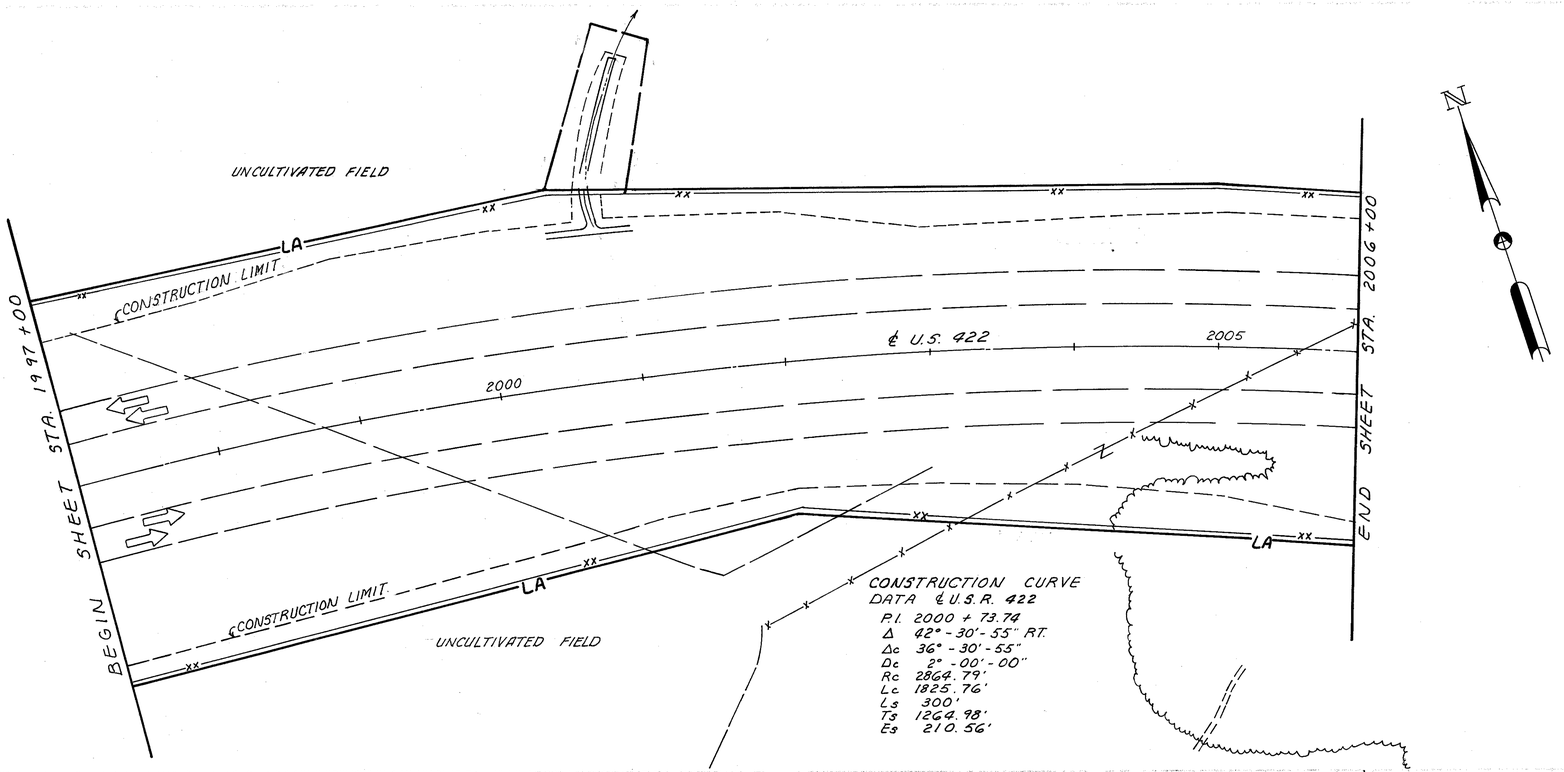
MAY 4 1972

PLAN & PROFILE STA. 955+00 TO STA. 1997+00

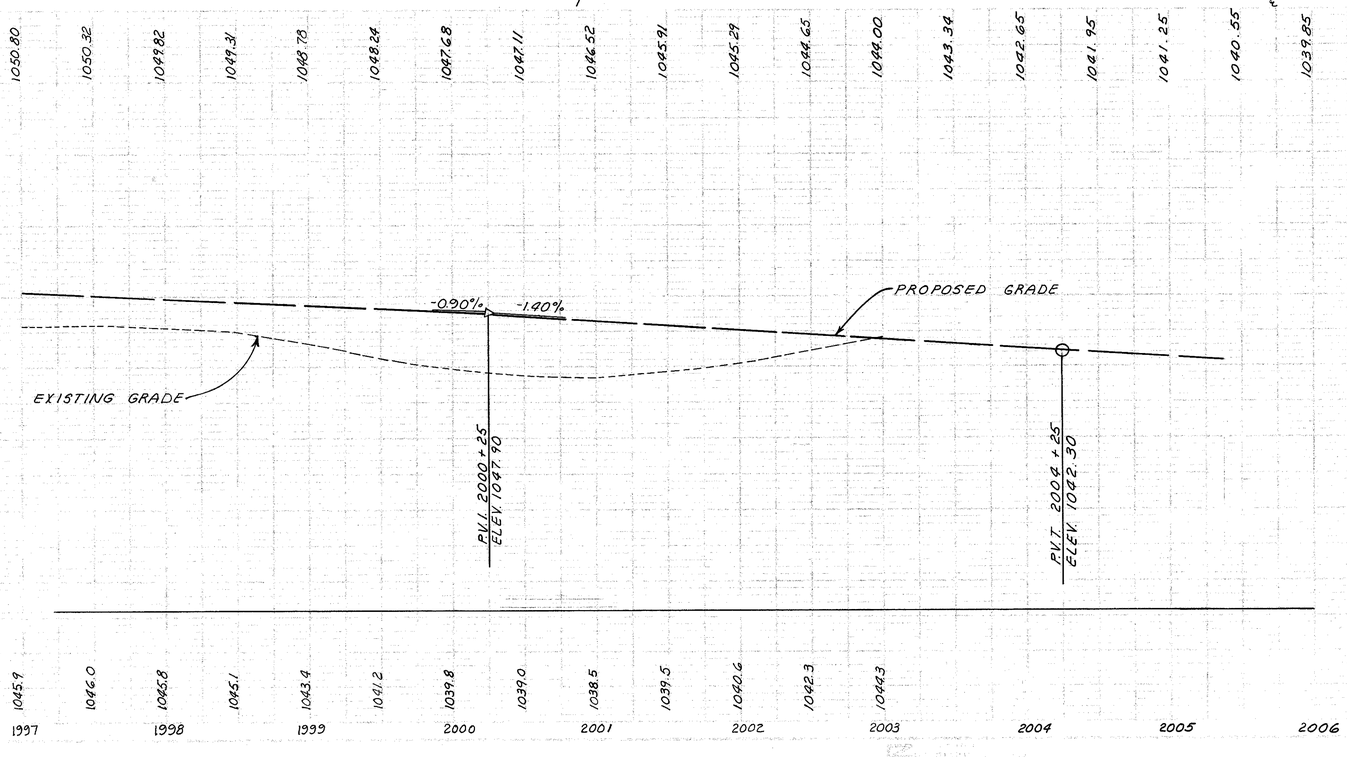
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

30
258

CUYAHOGA COUNTY
CUY. 422 - 16.33



ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-68
CHKD. BY J.K. DATE 3-68



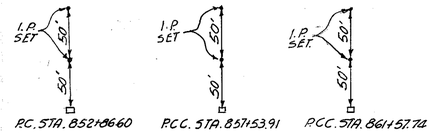
MAY 4 1973

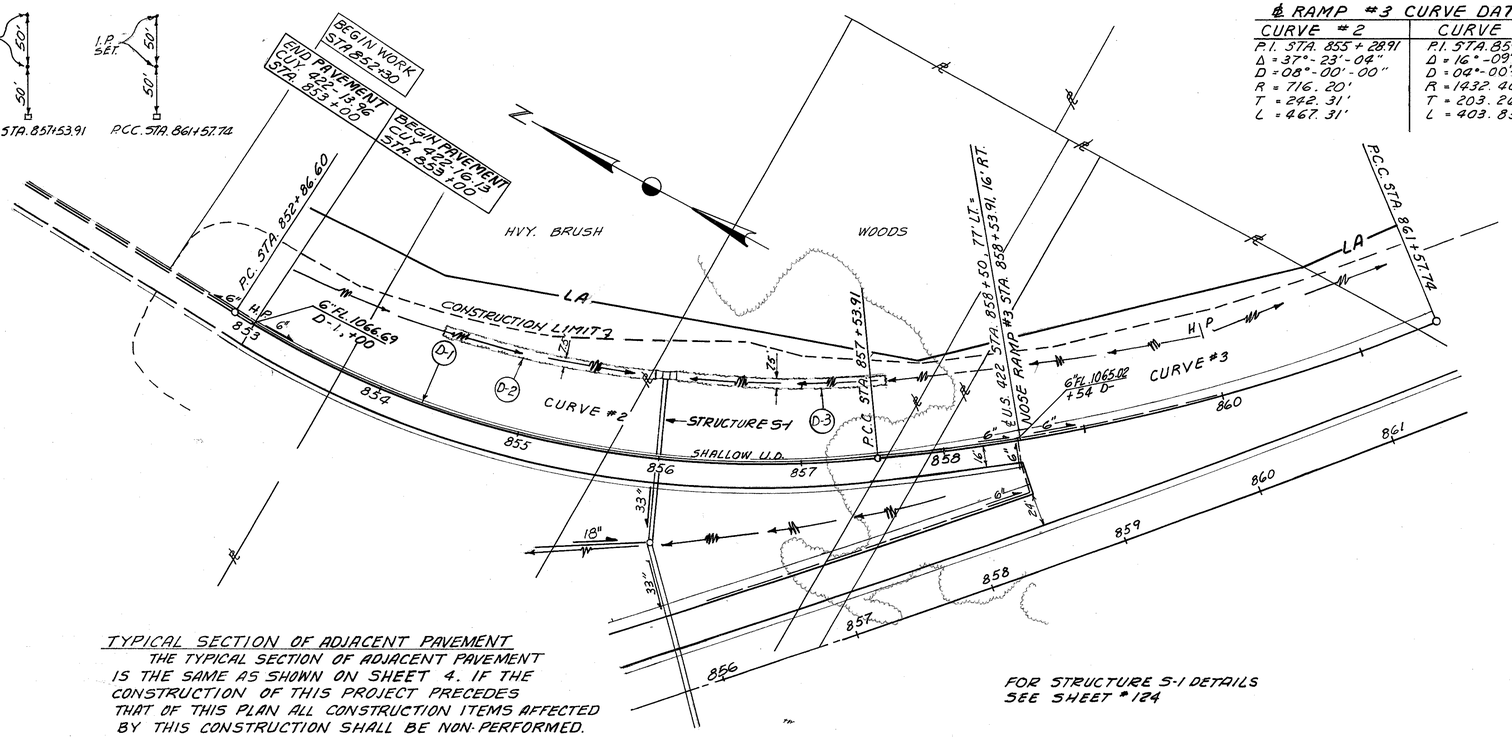
STA. 1997 + 00 TO STA. 2006 + 00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-463(9)	

31
258

CUYAHOGA COUNTY
CUY. 422-16.33





FOR STRUCTURE 5-1 DETAILS SEE SHEET # 124

℄ RAMP #3 CURVE DATA

CURVE #2	CURVE #3
P.I. STA. 855+28.91	P.I. STA. 859+57.11
Δ = 37°-23'-04"	Δ = 16°-09'-11"
D = 08°-00'-00"	D = 04°-00'-00
R = 716.20'	R = 1432.40'
T = 242.31'	T = 203.26'
L = 467.31'	L = 403.83'

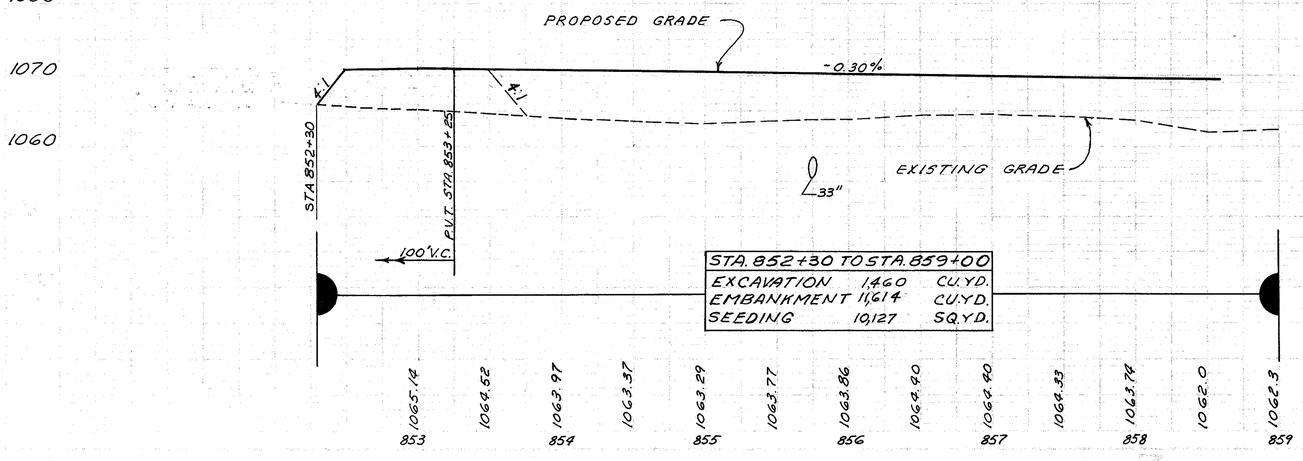
℄ U.S. 422 CURVE DATA

P.I. STA. 846+35.39
Δ = 28°-32'-30"
D = 0°-40'-00"
R = 8594.37'
T = 2195.34'
L = 4298.75'
E = 275.96'

TYPICAL SECTION OF ADJACENT PAVEMENT

THE TYPICAL SECTION OF ADJACENT PAVEMENT IS THE SAME AS SHOWN ON SHEET 4. IF THE CONSTRUCTION OF THIS PROJECT PRECEDES THAT OF THIS PLAN ALL CONSTRUCTION ITEMS AFFECTED BY THIS CONSTRUCTION SHALL BE NON-PERFORMED.

853	854	855	856	857	858	859
1071.01	1070.73	1070.43	1070.13	1069.83	1069.53	1069.22
1070.96	1070.65	1070.35	1069.98	1069.68	1069.38 / 1069.37	
1070.88	1070.58	1070.28				
1070.80	1070.50	1070.20				



ADACHE ASSOCIATES, INC.
CONSULTING ENGINEERS
DWG. BY J.A.C. DATE 2-1463
CHKD. BY L.M. DATE 5-20-63

ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	SEE SHT NO.	605 PIPE U.D. 6" SMALL L.F.	627 SEEDING JUTE MATTING S.Y.	
D-1	853+00 - 858+54	LT.		554		
D-2	854+43 - 855+93	LT.			125	
D-3	856+07 - 857+57	LT.			125	
		TOTAL		554		250

MAY 4 1973

RAMP #3 PLAN & PROFILE STA. 852+30 TO STA. 858+53.91

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

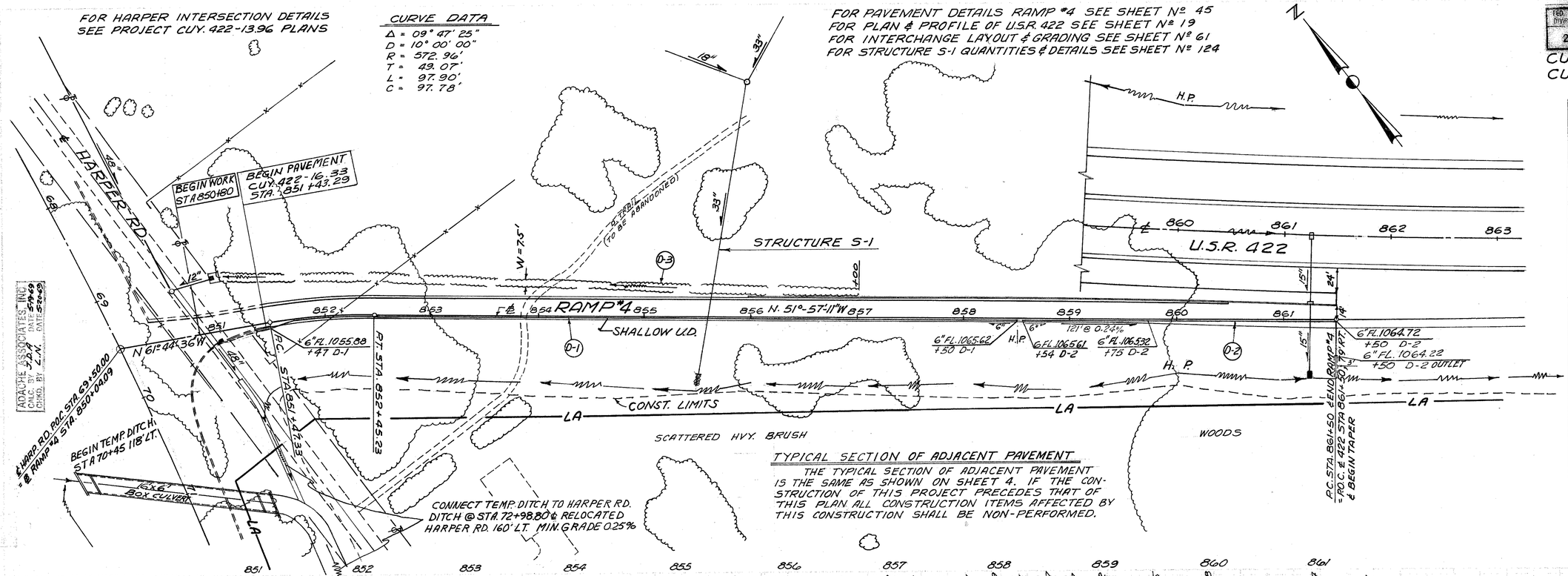
32/258

CUYAHOGA COUNTY
CUY. 422-16.33

FOR HARPER INTERSECTION DETAILS SEE PROJECT CUY. 422-13.96 PLANS

FOR PAVEMENT DETAILS RAMP #4 SEE SHEET Nº 45
FOR PLAN & PROFILE OF U.S.R. 422 SEE SHEET Nº 19
FOR INTERCHANGE LAYOUT & GRADING SEE SHEET Nº 61
FOR STRUCTURE S-1 QUANTITIES & DETAILS SEE SHEET Nº 124

CURVE DATA
Δ = 09° 47' 25"
D = 10° 00' 00"
R = 572.96'
T = 49.07'
L = 97.90'
C = 97.78'



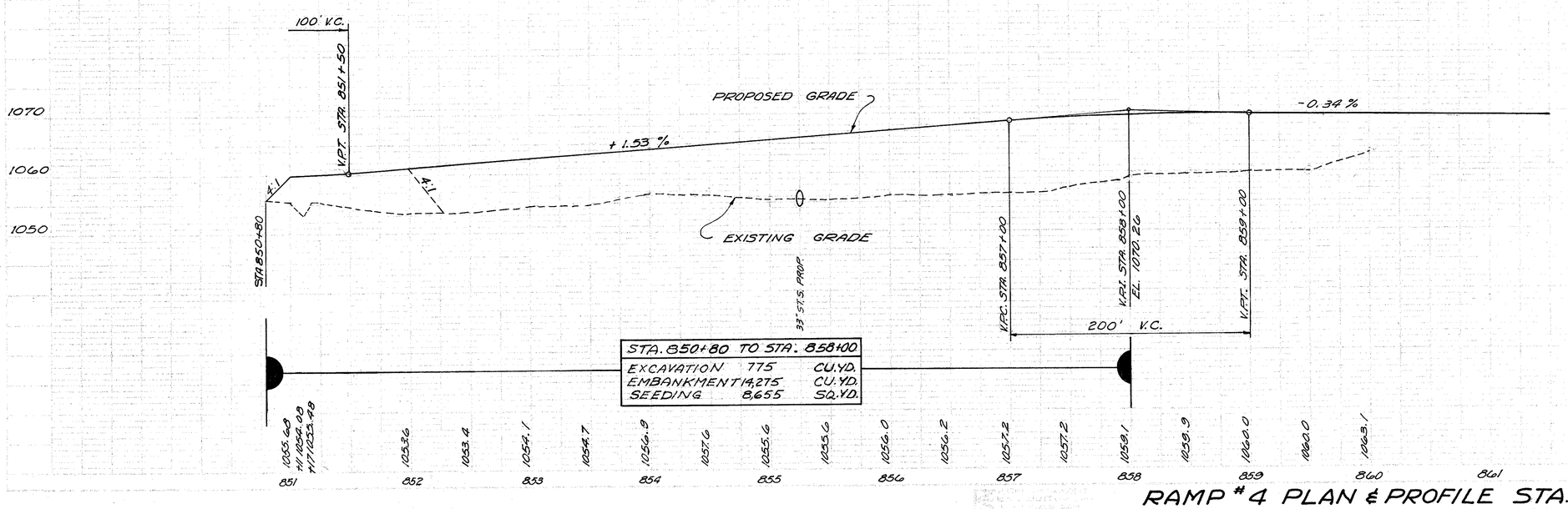
ADACHE ASSOCIATES, INC.
DRAWN BY J.A.K. DATE 5-9-69
CHKD. BY L.N. DATE 5-20-69

TYPICAL SECTION OF ADJACENT PAVEMENT

THE TYPICAL SECTION OF ADJACENT PAVEMENT IS THE SAME AS SHOWN ON SHEET 4. IF THE CONSTRUCTION OF THIS PROJECT PRECEDES THAT OF THIS PLAN. ALL CONSTRUCTION ITEMS AFFECTED BY THIS CONSTRUCTION SHALL BE NON-PERFORMED.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	603 6" CONDUIT SHALLOW L.F.	603 12" PIPE U.D. L.F.	605 6" SUBDRAIN L.F.	660 SODDING SEEDING & MULCH WITH MULCH BLANKET S.Y.	667 BENDS & ANCH. #1 1/2" ROAD S.Y.	TOTAL
D-1	851+47 - 858+50	RT.		10	703	4	1	10
D-2	858+54 - 861+50	RT.		10	320	4	475	1015
D-3	851+47 - 857+00	LT.						475
								4



STA. 850+80 TO STA. 858+00		
EXCAVATION	775	CU.YD.
EMBANKMENT	14,275	CU.YD.
SEEDING	8,655	SQ.YD.

MAY 4 1973

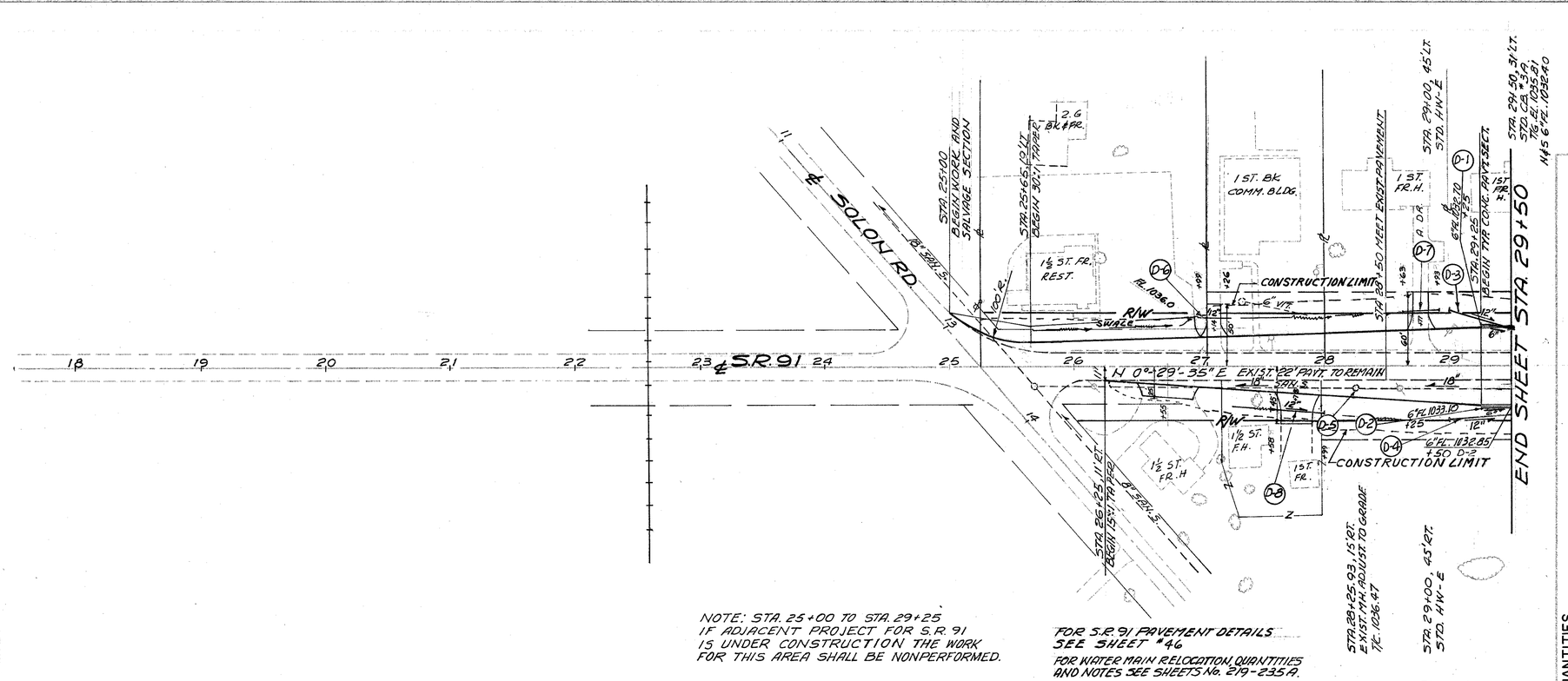
RAMP #4 PLAN & PROFILE STA. 850+80 TO STA. 861+50

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468 (9)	

33
258

CUYAHOGA COUNTY
CUY 422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY S.D.R. DATE 5-14-79
CHKD. BY L.M. DATE 5-21-79



STA. 25+00 TO STA. 29+50	
EXCAVATION	1,382 CU.YD.
EMBANKMENT	97 CU.YD.
SEEDING	1,589 SQ.YD.

ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	602 CO/C MASONRY C.Y.	603 TYPE "C" CONDUIT 12" L.F.	603 TYPE "D" CONDUIT 12" L.F.	603 TYPE "D" CONDUIT 15" L.F.	603 TYPE "F" CONDUIT 6" L.F.	604 M.H. C.B. STD. 3-A EA.	605 PIPE UD SHALLOW 6" L.F.	SEE SHEET NO.
D-1	29+25 - 29+50	LT.					10			123
D-2	29+25 - 29+50	RT.								
D-3	29+00 - 29+50	LT.						1		
D-4	29+00 - 29+50	RT.	0.23	50						
D-5	28+25.93 - 29+50	RT.	0.23	50						
D-6	26+99 - 27+26	LT.			27				15	1*
D-7	28+63 - 28+93	LT.			30				25	1*
D-8	27+58 - 27+99	RT.			41				40	1*
TOTAL			0.46	100	68	30	10	1		

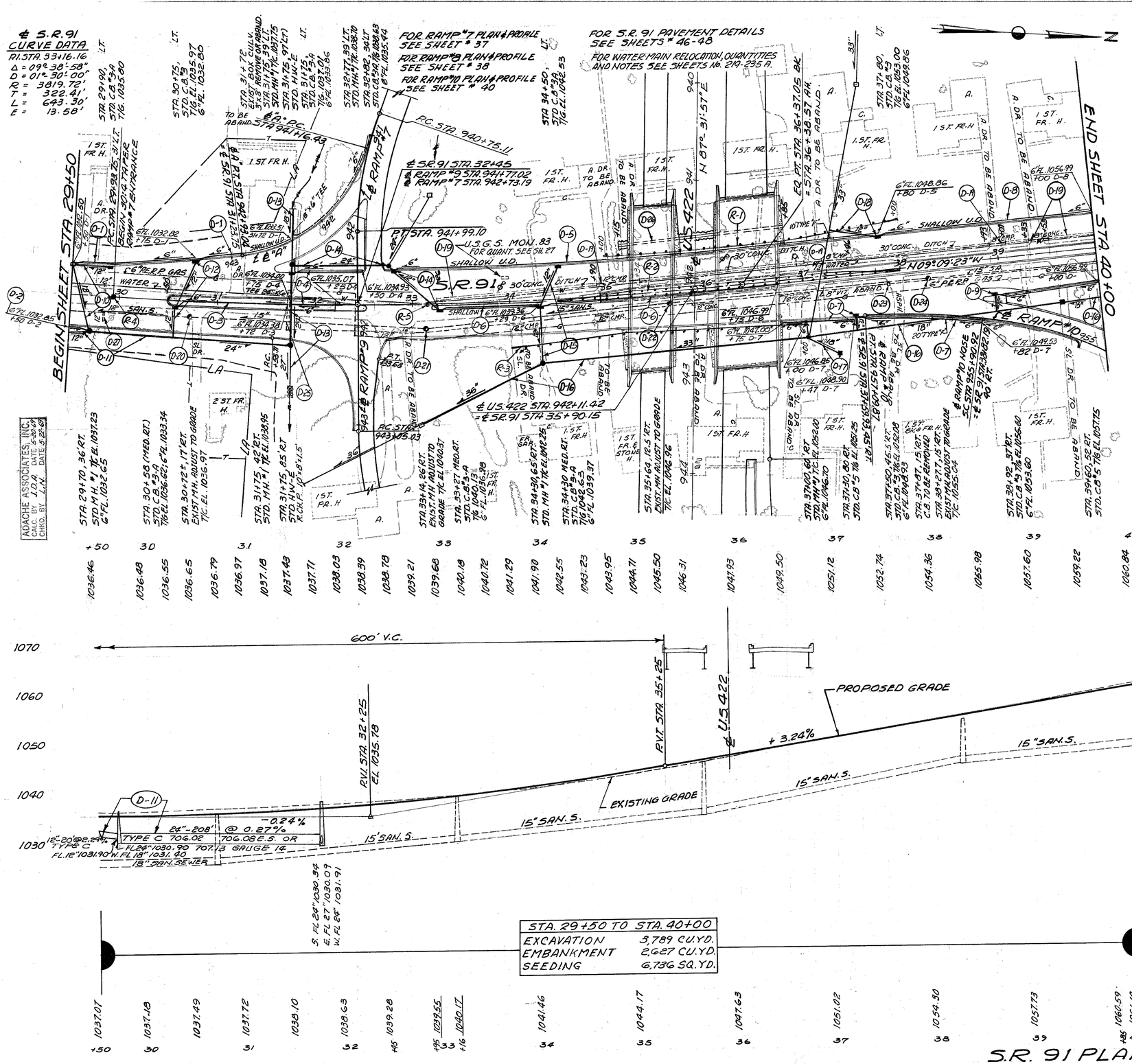
MAY 4 1979

S.R. 91 PLAN & PROFILE STA. 25+00 TO STA. 29+50

CUYAHOGA COUNTY
CUY 422-16.33

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

34
258



ESTIMATED QUANTITIES

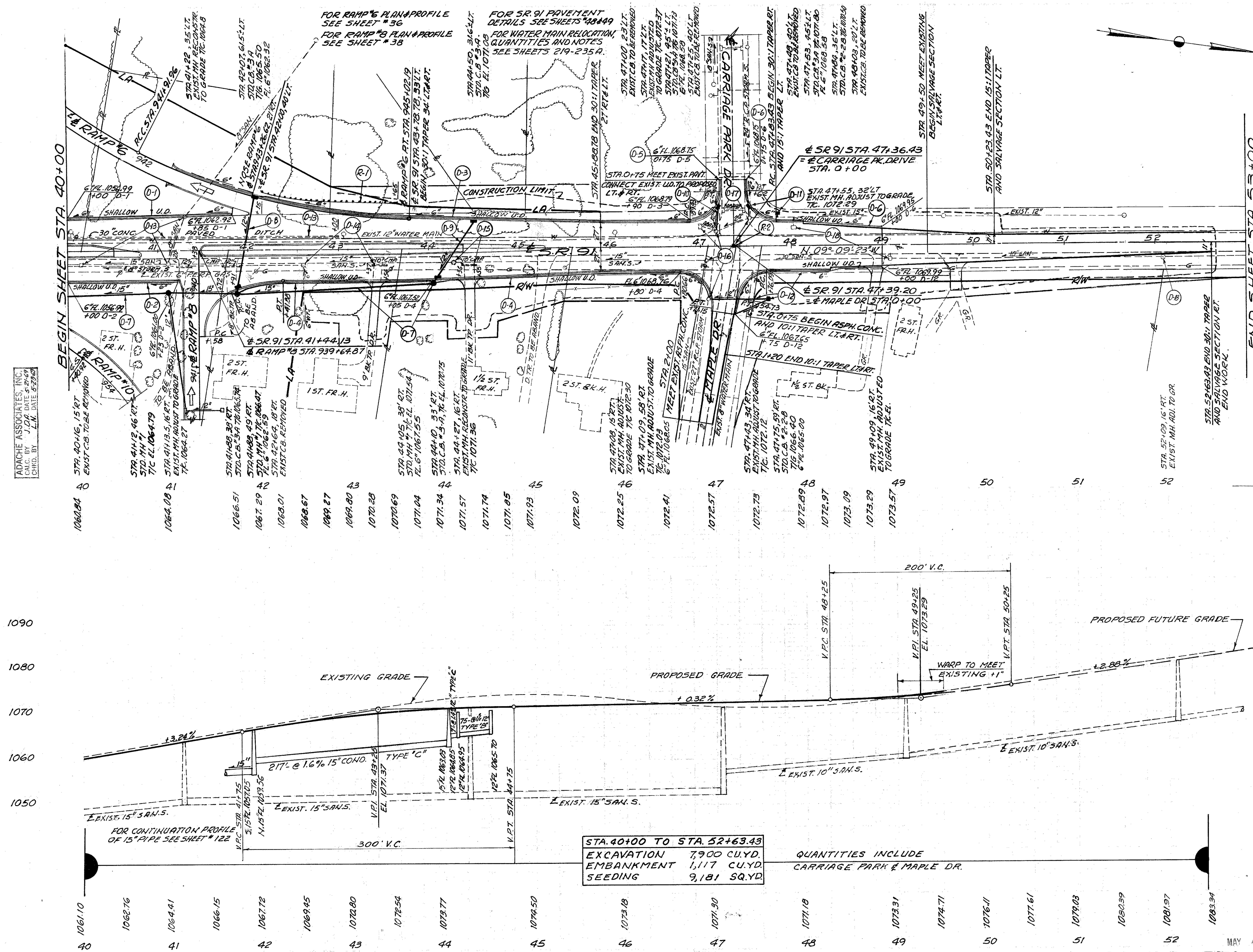
REF NO.	STATION TO STATION	SIDE	601 ROCK FILL CHK. CAPPING PROTYPE 13 (M331) C.Y.	602 CONC. C.Y.	603 TYPE "C" CONDUIT 12" L.F.	18" L.F.	24" L.F.	27" L.F.	30" L.F.	36" L.F.	42" L.F.	48" L.F.	54" L.F.	60" L.F.	72" L.F.	84" L.F.	TYPE "S" 6" L.F.	STD C.B. TYPE "3" # EA.	STD C.B. TYPE "3-A" # EA.	STD C.B. TYPE "5" # EA.	STD M.H. "1" EA.	STD M.H. TO BE REMOVED EA.	STD M.H. TO BE ADJUSTED TO GRADE EA.	STD M.H. "E" EA.	MONOLITHIC CONC. CURB & GUTTER L.F.	CONC. SIDEWALK S.Y.	605 PIPE SHALL. STD. 6" L.F.	606 GRATING 24" DIA. CURB INLET TO BE REMOVED EA.	24" DIA. CURB INLET TO BE ABAND. EA.	24" DIA. CURB INLET EA.	L.F. LUMP EA.	SEE SHEET NO.
D-1	29+50 - 31+72	LT.															20				1												
D-2	29+50 - 29+70	RT.															10																
D-3	30+58 - 31+72	MED.															10																
D-4	31+75 - 32+50	RT.															20				1												
D-5	32+82 - 37+80	LT.															20				1												
D-6	33+27 - 36+75	MED.				13											60	1															
D-7	36+75 - 38+82	RT.															10	1			1												
D-8	37+80 - 40+00	LT.			17																												
D-9	38+92 - 40+00	RT.			40																												
D-10	29+50 - 40+00	LT. & RT.				69											208				1												
D-11	29+50 - 30+75	RT.				20															1												
D-12	30+58 - 31+75	LT.															43				1												
D-13	31+75 - 33+27	LT. & RT.	593			81															2												
D-14	31+75 - 33+27	LT. & RT.				58	75		6												1												
D-15	31+75 - 33+50	LT. & RT.				61	102	7													2												
D-16	RAMP "9 903+00 - 904+00	RT.				104															1												
D-17	37+00 - 37+90	LT.				261																											
D-18	37+00 - 37+80	LT. & RT.															139	40			37												
D-19	37+26 - 40+00	RT.																															
D-20	30+72	RT.				50															1												
D-21	33+14	RT.																															
D-22	35+68	LT. & RT.															273																
D-23	37+87	RT.																															
D-24	33+14	RT.																															
D-25	31+72	LT. & RT.				170																											
D-26	39+15 - 34+85	LT. & RT.																															
D-27	29+85	LT. & RT.																															
	*(CODE YG60) SANIT. SEWER QUANTITIES																																
R-1	35+00 - 38+00	LT.																															
R-2	34+50 - 39+00	℄																															
R-3	34+00 - 37+00	RT.																															
R-4	29+93.75 -	℄																															
R-5	33+16.16																																
			593	170	0.77	353	308	177	40	6	139	40	37	208	43	273	160	4	7	21	6	4	1	9	1	7	20	1	50	4	2	4	163	1	551	LUMP

MAY 4 1973

S.R. 91 PLAN & PROFILE STA. 29+50 TO STA. 40+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

CUYAHOGA COUNTY
CUY 422-16.33



STA. 40+00 TO STA. 52+63.43		
EXCAVATION	7,900	CU.YD.
EMBANKMENT	1,117	CU.YD.
SEEDING	9,181	SQ.YD.

QUANTITIES INCLUDE CARRIAGE PARK & MAPLE DR.

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 5-21-69
CHKD. BY L.N. DATE 5-23-69

ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	603 TYPE "B" CONDUIT 12" L.F.	603 TYPE "B" CONDUIT 15" L.F.	603 TYPE "C" CONDUIT 12" L.F.	603 TYPE "C" CONDUIT 15" L.F.	603 TYPE "C" 706.01 E.S. 706.08 E.S. 706.02 15" L.F.	603 TYPE "F" CONDUIT 6" L.F.	604 C. BASIN STANDARD #2-2B EA.	604 C. BASIN STANDARD #3-A EA.	604 M.H. STD. #1 EA.	604 Y-060 EXIST. M.H. ADJ. TO GR. EA.	604 EXIST. M.H. RE-CONST. GR. EA.	604 EXIST. M.H. ADJUST TO GRADE EA.	604 MON. ASSEM. EA.	605 PIPE U.D. SHALLOW 6" L.F.	606 G.RAIL TYPE-5 STD. L.F.	606 G.RAIL TYPE-5 ANCH. ASSEM. EA.	202 EXIST. C.B. TO BE REMOVED OR ABANDON. EA.	202 EXIST. PIPE TO BE REMOVED 24" & UNDER L.F.	202 EXIST. PAVED GUTTER TO BE REMOVED L.F.	BENDS & BRANCH TEE 6"x15" EA.	BENDS & BRANCH TEE 12"x15" EA.	SEE SHEET NO.
D-1	40+00 - 41+85	LT.														185								
D-2	40+00 - 41+23	RT.														123								
D-3	42+07 - 47+21	LT.						20								497								
D-4	41+88 - 47+09	RT.						30								509								
D-5	CARRIAGE DR. 0+42 - 0+75	LT.						10								23								
D-6	" 0+45 - 49+00	RT&LT						20								163								
D-7	40+00 - 44+05	RT.		76		217	113				3											1		122
D-8	41+88 - 42+07	LT&RT.	104		7					2														123
D-9	44+05 - 44+50	"	75		7					2														
D-10	47+17 - 47+21	LT.	28						1	1														123
D-11	47+53 - 47+84	LT.	13		5			10	1	1													1	123
D-12	47+09 - 49+00	RT	67													217								123
D-13	40+00 - 43+00	LT&RT.										1	1						1		300			
D-14	42+64 - 43+54	RT.																	1	17				
D-15	44+27 - 44+55	RT.											1							19				
D-16	47+00 - 47+55	LT&RT.										1		3					1					
D-17	47+25 - 47+48	LT.																	2					
D-18	48+03, 49+09, 52+09	LT&RT.										2							1					
R-1	42+15 - 43+65	LT															100	2						
R-2	47+36.43	₵													1									
TOTAL			287	76	19	217	113	90	2	6	3	4	2	3	1	1717	100	2	6	36	300			

MAY 4 1973

S.R. 91 PLAN & PROFILE STA. 40+00 TO STA. 52+63.43

ED. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

36
258

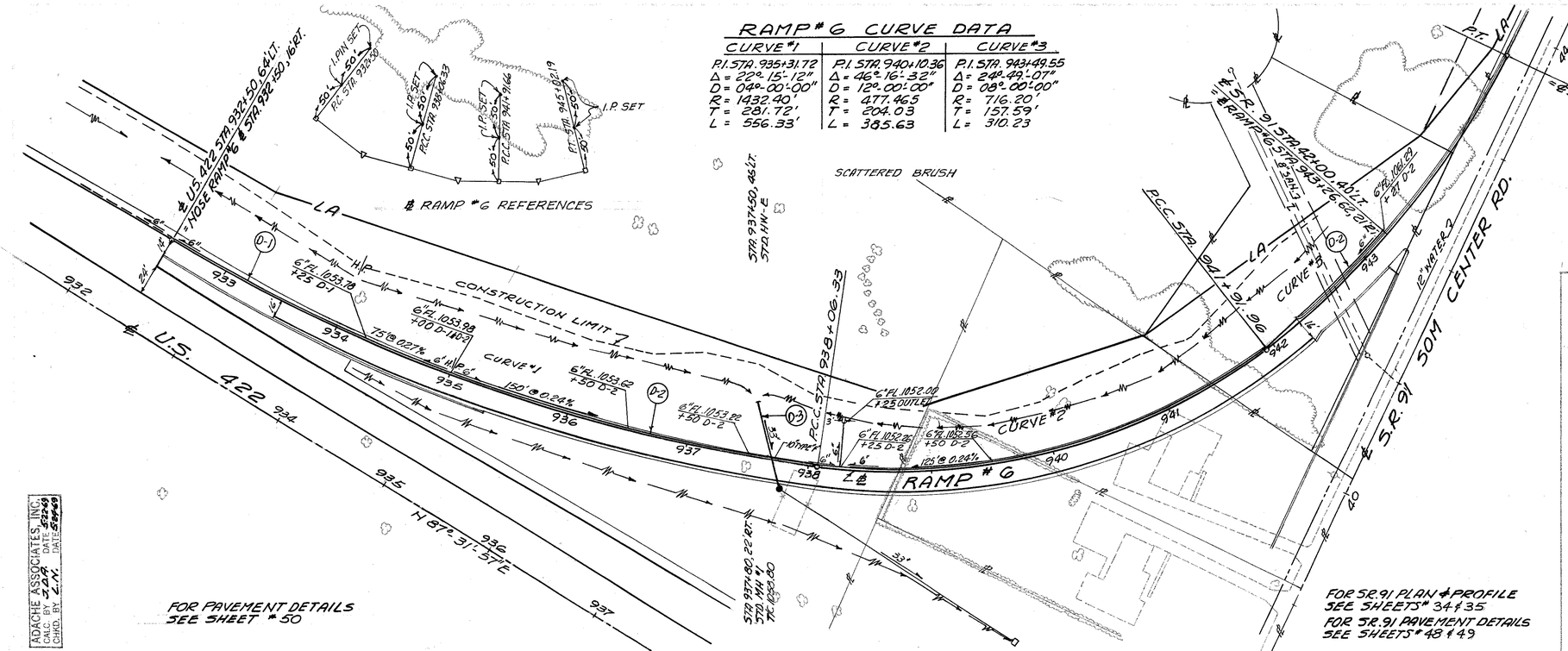
CUYAHOGA COUNTY
CUY 422-16.33

N

RAMP #6 CURVE DATA

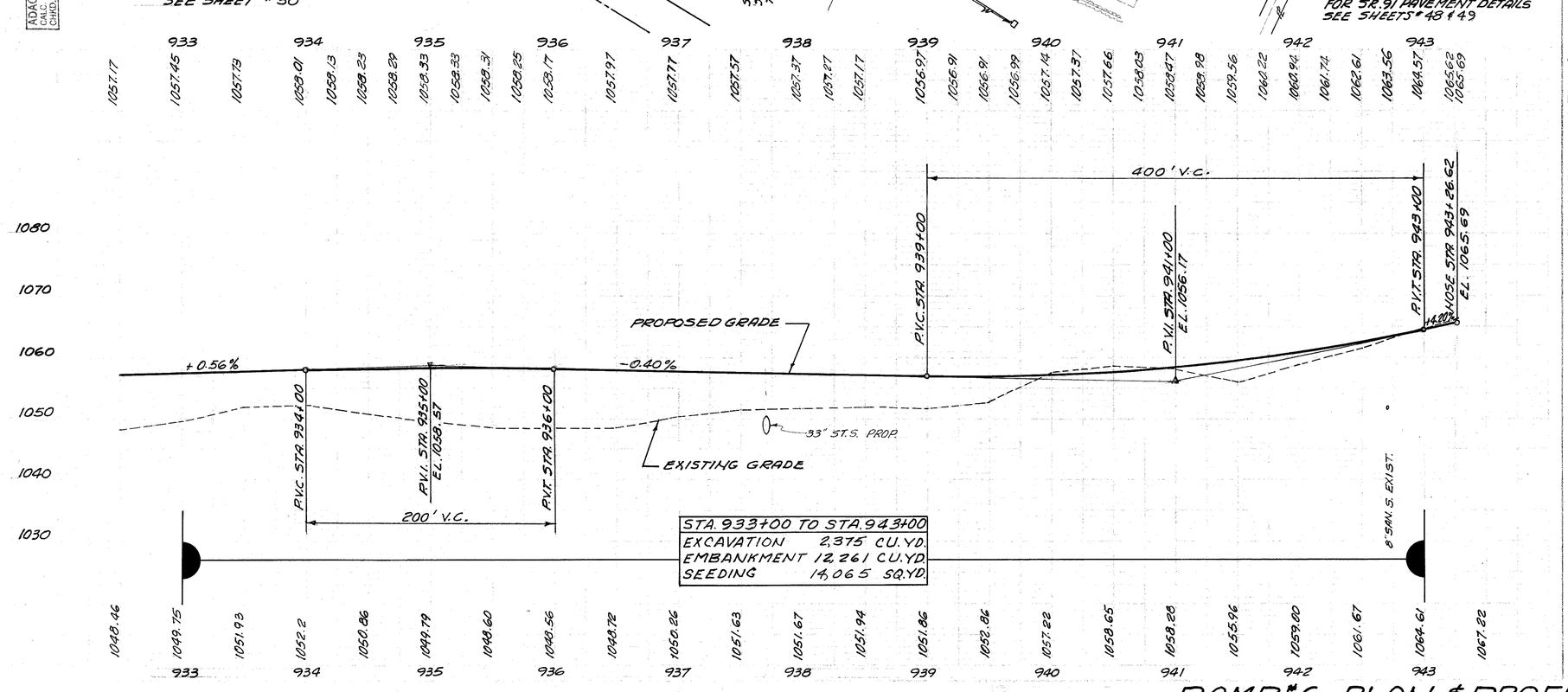
CURVE #1	CURVE #2	CURVE #3
P.I. STA. 935+31.72	P.I. STA. 940+10.36	P.I. STA. 943+49.55
Δ = 22°-15'-12"	Δ = 46°-16'-32"	Δ = 240°-49'-07"
D = 04°-00'-00"	D = 12°-00'-00"	D = 08°-00'-00"
R = 1432.40'	R = 477.465	R = 716.20'
T = 281.72'	T = 204.03	T = 157.59'
L = 556.33'	L = 385.63	L = 310.23

℄ RAMP #6 REFERENCES



FOR PAVEMENT DETAILS
SEE SHEET # 50

FOR SR. 91 PLAN & PROFILE
SEE SHEETS # 34 & 35
FOR SR. 91 PAVEMENT DETAILS
SEE SHEETS # 48 & 49



STA. 933+00 TO STA. 943+00	
EXCAVATION	2,375 CU. YD.
EMBANKMENT	12,261 CU. YD.
SEEDING	14,065 SQ. YD.

ADACHE ASSOCIATES, INC.
CALC. BY J.A.P. DATE 5-2-73
CHKD. BY E.M. DATE 5-8-73

ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	601	602	603		604	605	660	667		
				CONC. MASONRY	TYPE "B" CONDUIT		TYPE "F" CONDUIT	PIPE UD SHALLOW	SODDING	SEEDING & MULCHING		
				C.Y.	33" L.F.		6" L.F.	6" L.F.	S.Y.	S.Y.		
D-1	932+50 - 935+00	LT.					20	250	1			
D-2	935+00 - 943+27	LT.			74			845	1			
D-3	937+50 - 937+80	LT. AND RT.		0.55								
	TOTAL			055	74		20	1095	1			

REF NO.	STATION TO STATION	SIDE	660	667								
			SODDING	SEEDING & MULCHING								
			S.Y.	S.Y.								
D-1	932+50 - 935+00	LT.	1									
D-2	935+00 - 943+27	LT.	1									
D-3	937+50 - 937+80	LT. AND RT.										
	TOTAL		1									

REF NO.	STATION TO STATION	SIDE	PEDESTRIAN CROSSWALK									
			YEE 6"x6"	SEE SHEET NO.								
			EA.									
D-1	932+50 - 935+00	LT.	1	122								
D-2	935+00 - 943+27	LT.										
D-3	937+50 - 937+80	LT. AND RT.										
	TOTAL		1									

MAY 4 1973

RAMP #6 PLAN & PROFILE STA. 932+50 TO STA. 943+26.62

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

37
258

CUYAHOGA COUNTY
CUY. 422 -16.33

CURVE # 1
D = 4° 00' 00"
Δ = 19° 01' 49"
R = 1432.40'
T = 240.09'
L = 475.76'
C = 473.57'
P.I. STA. 932+82.37

S.R. 91 CURVE DATA
Δ = 9°38' 58"
D = 1°30' 00"
R = 3819.72'
T = 322.41'
L = 643.30'
C = 642.54'
E = 13.58'
P.I. = 33+16.16

CURVE # 2
D = 16° 00' 00"
Δ = 19°-50'-18"
R = 358.10'
T = 62.62'
L = 128.99'
C = 123.37'
P.I. STA. 941+97.73

U.S. 422
N 87° 31' 57" E
TO BE ABAND.
A DR.
1 ST. FR. H.
SR. 91 STA 33+20, 110'LT. STA. C.B. No. 5 No 1036.25
S.O.M. CENTER RD.
RAMP # 7
CONSTRUCTION LIMIT
SCATTERED BRUSH
EXISTING 10" PIPE
6"FL.1052.36 +24 D-1
6"FL.1052.23 +75 D-1
6"FL.1034.44 +00 D-1
6"FL.1033.86 8"FL.1032 D-1
51'@ 0.24%
P.C. STA. 941+16.43 @ "A" 0.68' RT. ℄ RAMP #7
P.T. STA. 940+94.32
P.C. STA. 941+73.11
P.T. STA. 941+99.10
℄ "A" P.O.C. STA. 942+63.44 70' LT.
℄ "A" P.T. STA. 942+73.04 = ℄ SR. 91 P.O.C. STA. 31+23.75
STA. 32+45 ℄ S.O.M. CENTER RD. =
STA. 941+77.02 ℄ RAMP #9 =
STA. 942+73.19 ℄ RAMP #7

FOR PAVEMENT DETAILS SEE SHEET No 51
FOR STRUCTURE S-9 DETAILS SEE SHEET # 132
FOR S.R. 91 PLAN & PROFILE SEE SHEET # 34
FOR S.R. 91 PAVEMENT DETAILS SEE SHEET # 47

℄ U.S. 422 P.O.T. STA. 930+42.28 6.9' RT.
℄ RAMP #7 P.C. STA. 930+42.28
℄ U.S. 422 P.O.T. STA. 933+20.64 77' RT.
NOSE RAMP #7 STA. 933+19.63 16' LT.
P.T. STA. 935+18.04

931 932 933 934 935 936 937 938 939 940 941 942

1056.71 1056.71 1056.66 1056.58 1056.46 1056.30 1056.10 1055.86 1055.58 1055.27 1054.91 1054.51 1054.13 1054.08 1053.61 1053.09 1052.54 1051.95 1051.32 1050.65 1049.94 1049.19 1048.41 1047.58 1046.71 1045.91 1045.81 1042.13 1041.21 1040.29 1039.45 1038.79 1038.29 1038.01 1037.95 1037.80 1037.80 1037.98 1038.16

+97.27 +97.24 +97.27 +46 +40

1050
1040
1030

+0.08%
-3.68%
+1.44%
EXISTING GRADE
PROPOSED GRADE
V.P.C. STA. 932+97.27
V.P.I. STA. 935+97.24
V.P.T. STA. 938+97.27
600' V.C.
190' V.C.
V.P.C. STA. 940+50
V.P.I. STA. 941+45
EL. 1036.79
V.P.T. STA. 942+40

1046.5 1046.9 1046.6 1045.5 1046.3 1045.8 1045.3 1043.8 1042.7 1042.1 1041.4 1040.1 1040.8 1040.3 1040.4 1039.0 1038.1 1037.5 1037.1 1036.4 1036.2 +60-1035.5 1035.2 1035.6 +70-1039.17

931 932 933 934 935 936 937 938 939 940 941 942

STA. 933+00 TO STA. 942+10.01		
EXCAVATION	2,231	CU.YD.
EMBANKMENT	23,317	CU.YD.
SEEDING	14,461	SQ.YD.

ESTIMATED QUANTITIES

REF NO	STATION TO STATION	SIDE	667 BENDS & BRANCHES EA.	667 SEEDING & JUTE MATTING S.Y.	603 TYPE C STD. CONDUIT 24" L.F.	604 TYPE STD. C.B. #5 EA.	605 PIPE UD 6" SMOOTH WALL L.F.
D-1	933+24 - 942+40	RT.	1	123			
D-2	934+00 - 941+41	LT.					
D-3	SR.91 32+77 - 33+20	LT.			83	1	904
	TOTAL		1	123	83	1	904

ADACHE ASSOCIATES, INC.
DES. BY JDA DATE 5-22-69
CHKD. BY CWF DATE 5-23-69

MAY 4 1973

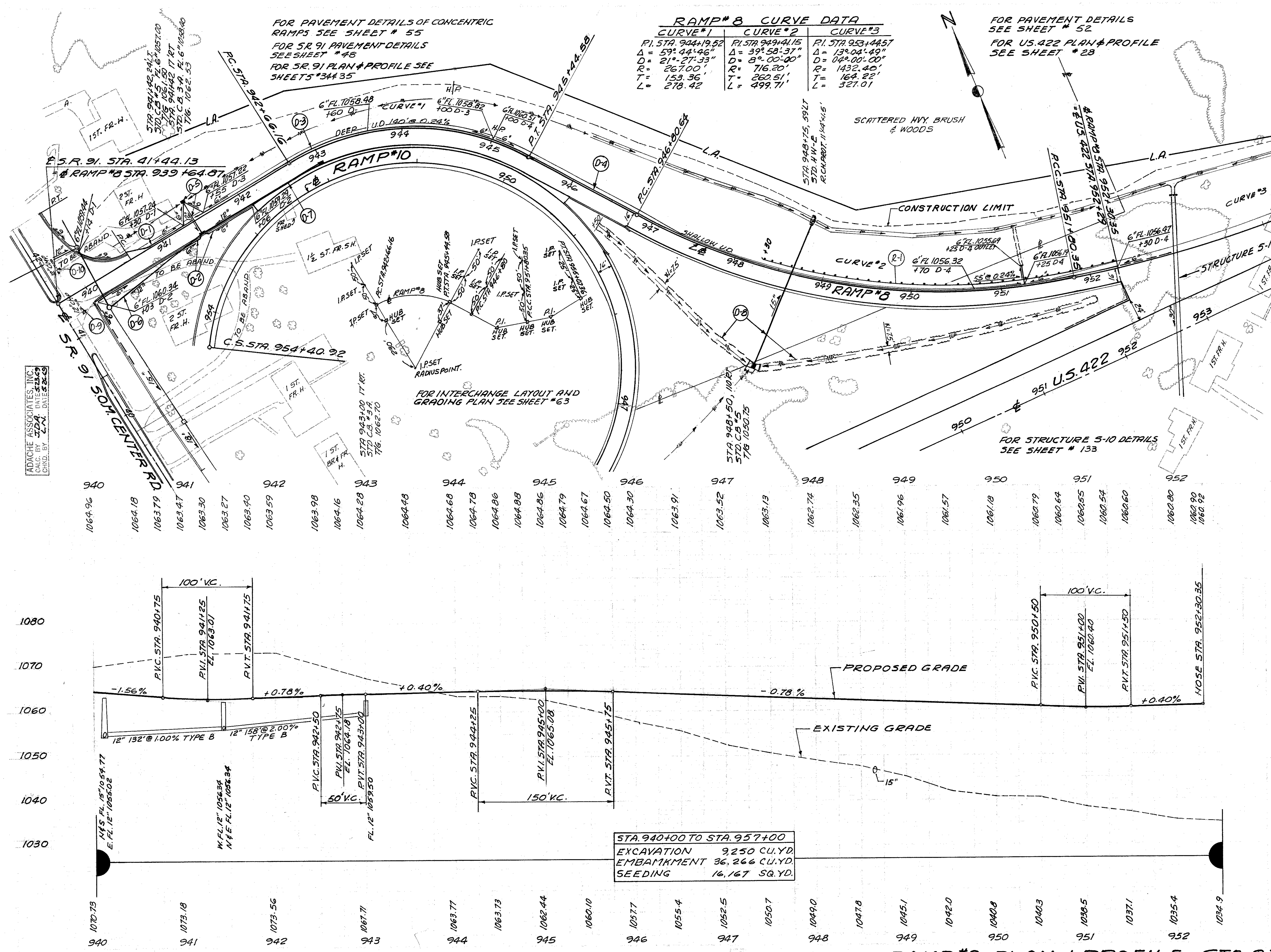
RAMP # 7 PLAN & PROFILE STA. 930+42.28 TO STA. 942+73.19

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

CUYAHOGA COUNTY
CUY 422-16.33

RAMP #8 CURVE DATA

CURVE #1	CURVE #2	CURVE #3
P.I. STA. 944+19.52	P.I. STA. 949+41.15	P.I. STA. 953+44.57
Δ = 59°-44'-46"	Δ = 39°-58'-37"	Δ = 13°-04'-49"
D = 21°-27'-33"	D = 8°-00'-00"	D = 04°-00'-00"
R = 267.00'	R = 716.20'	R = 1432.40'
T = 153.36'	T = 260.51'	T = 164.22'
L = 278.42	L = 499.71'	L = 327.01



ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	601 ROCK CHANN. PROT. TYPE "B" C.Y.	602 CONC MASONRY C.Y.	603 TYPE "B" 706.02 CL.IV 12" L.F.	603 TYPE "B" 706.02 CL.IV 15" L.F.	603	603 TYPE "F" COND. 6" L.F.	604 C.BASIN STANDARD #3-A EA.	604 C.BASIN STANDARD #5 EA.	605 PIPE U.D. SHALL. 6" L.F.	605 PIPE U.D. DEEP 6" L.F.	606 G.RAIL TYPE 5 STD. L.F.	606 ANCHOR ASSEM. EA.	660 SODDING S.Y.	667 SEEDING & JUTE MATTING S.Y.	202 PIPE REMOVED 24" & UNDER L.F.	BENDS & BRANCH TEE 6"x6" EA.	BENDS & BRANCH WYE 6"x6" EA.	SEE SHEET NO.
D-1	940+14 - 941+42	LT.						10				151							1	
D-2	940+03 - 942+06	RT.						20			183									
D-3	941+42 - 945+00	LT.						10				369							1	
D-4	945+00 - 952+30	LT.						10			739				14			1		
D-5	941+42	LT&RT.			41				1	1										104
D-6	940+10 - 941+42	RT.			132															
D-7	941+42 - 943+00	RT.			158				1											
D-8	946+50 - 952+00	RT.	3.26	0.26		169				1						510				123
D-9	SR 91. 41+20 - 41+38	RT.															18			
D-10	-"- 41+73 - 41+91	RT.															18			
R-1	948+30 - 952+30	LT.											375	1						
TOTAL			3.26	0.26	331	169		50	2	2	922	520	375	1	14	510	36	1	2	

MAY 4 1973

RAMP #8 PLAN & PROFILE STA. 934+64.87 TO STA. 952+30.35

CUYAHOGA COUNTY
CUY. 422-16.33

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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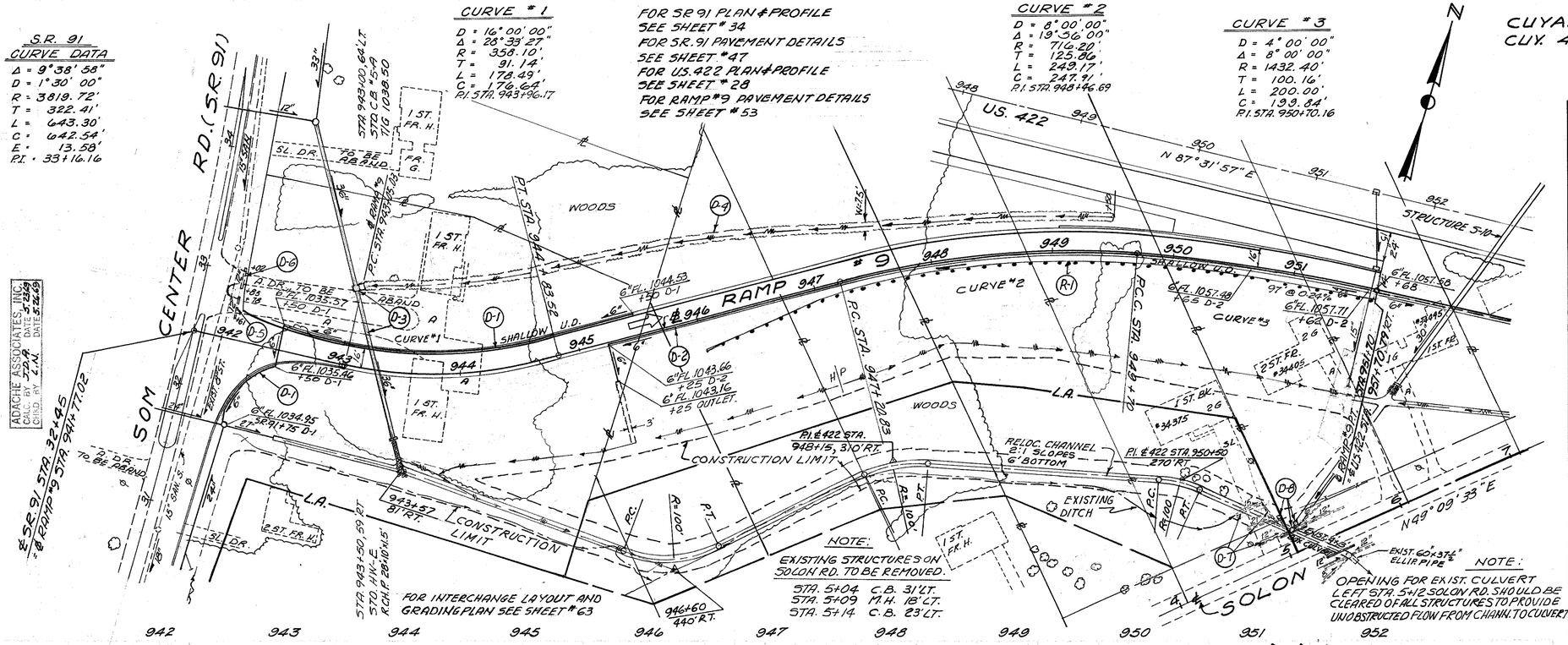
S.R. 91 CURVE DATA
Δ = 9°38' 58"
D = 1°30' 00"
R = 3819.72'
T = 322.41'
L = 643.30'
C = 642.54'
E = 13.58'
P.I. = 33+16.16

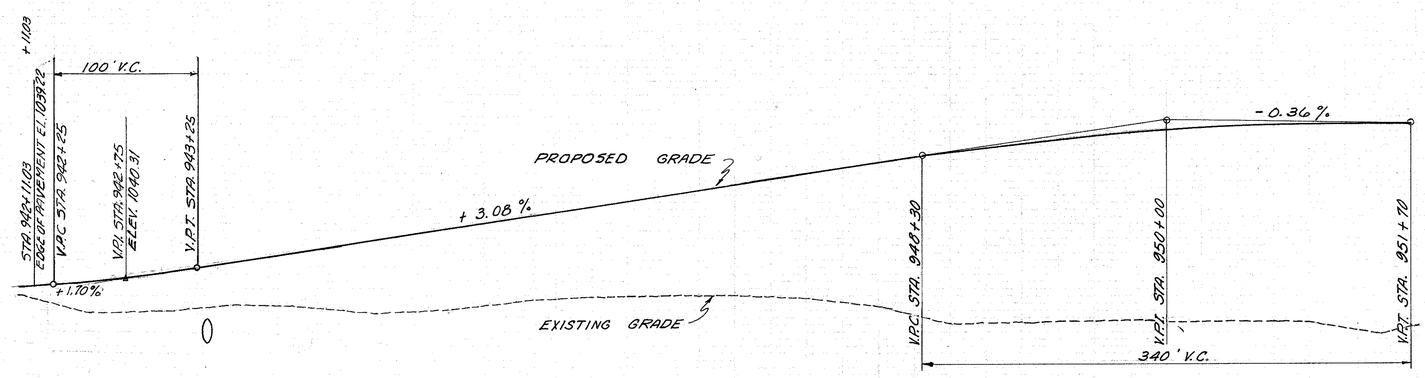
CURVE # 1
D = 16°00' 00"
Δ = 28°33' 27"
R = 358.10'
T = 91.14'
L = 178.49'
C = 176.64'
P.I. STA. 943+96.17

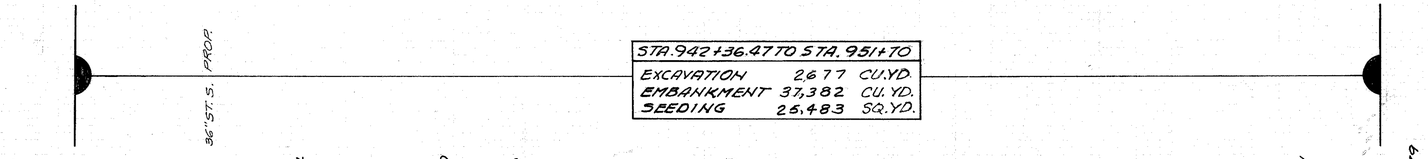
FOR SR 91 PLAN & PROFILE SEE SHEET # 34
FOR SR. 91 PAVEMENT DETAILS SEE SHEET # 47
FOR US. 422 PLAN & PROFILE SEE SHEET # 28
FOR RAMP #9 PAVEMENT DETAILS SEE SHEET # 53

CURVE # 2
D = 8°00' 00"
Δ = 19°36' 00"
R = 716.20'
T = 125.86'
L = 249.17'
C = 247.91'
P.I. STA. 948+46.69

CURVE # 3
D = 4°00' 00"
Δ = 8°00' 00"
R = 1432.40'
T = 100.16'
L = 200.00'
C = 199.84'
P.I. STA. 950+70.16







ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	601 ROCK CHANN. PROT. C.Y.	602 CONC MASONRY C.Y.	603 TYPE "B" CONDUIT 6" L.F.	603 TYPE "B" CONDUIT 36" L.F.	603 TYPE "F" CONDUIT 6" L.F.	604 C.B. STD. 5-4 EA.	605 PIPE U.D. SHALLOW 6" L.F.	606 GRAIL TYPE 5 STD. ANCHOR ASSEM. EA.	606 PIPE CULVERT REMOVED OR RAISED L.F.	202 C.B. MH. REMOVED OR RAISED EA. EA.	660 SEEDING & MULCH MATTING 6046 6046 SQ.YD.	660 BENDS & BRANCHES BEND EA.	SEE SHEET NO.
D-1	SR 91 34+75 - 945+50	RT & LT.		35			10		360				1	1	
D-2	945+25 - 951+62	RT.					10		657				1	1	
D-3	943+00 - 943+50	APPRT.	21	0.59		134		1							122
D-4	943+07 - 949+50	LT.									17		523		
D-5	SR 91, 32+61 - 32+78	RT.									17				
D-6	SR 91, 32+85 - 33+02	RT.									17				
D-7	SOLON RD. 44+73 - 51+30	LT.									155	2			
D-8	--- --- 51+02 - 51+14	LT.										1			
R-1	946+00 - 951+70	RT.								545	1				
TOTAL			21	0.59	35	134	20	1	1017	545	189	2	523	17	1

MAY 4 1973

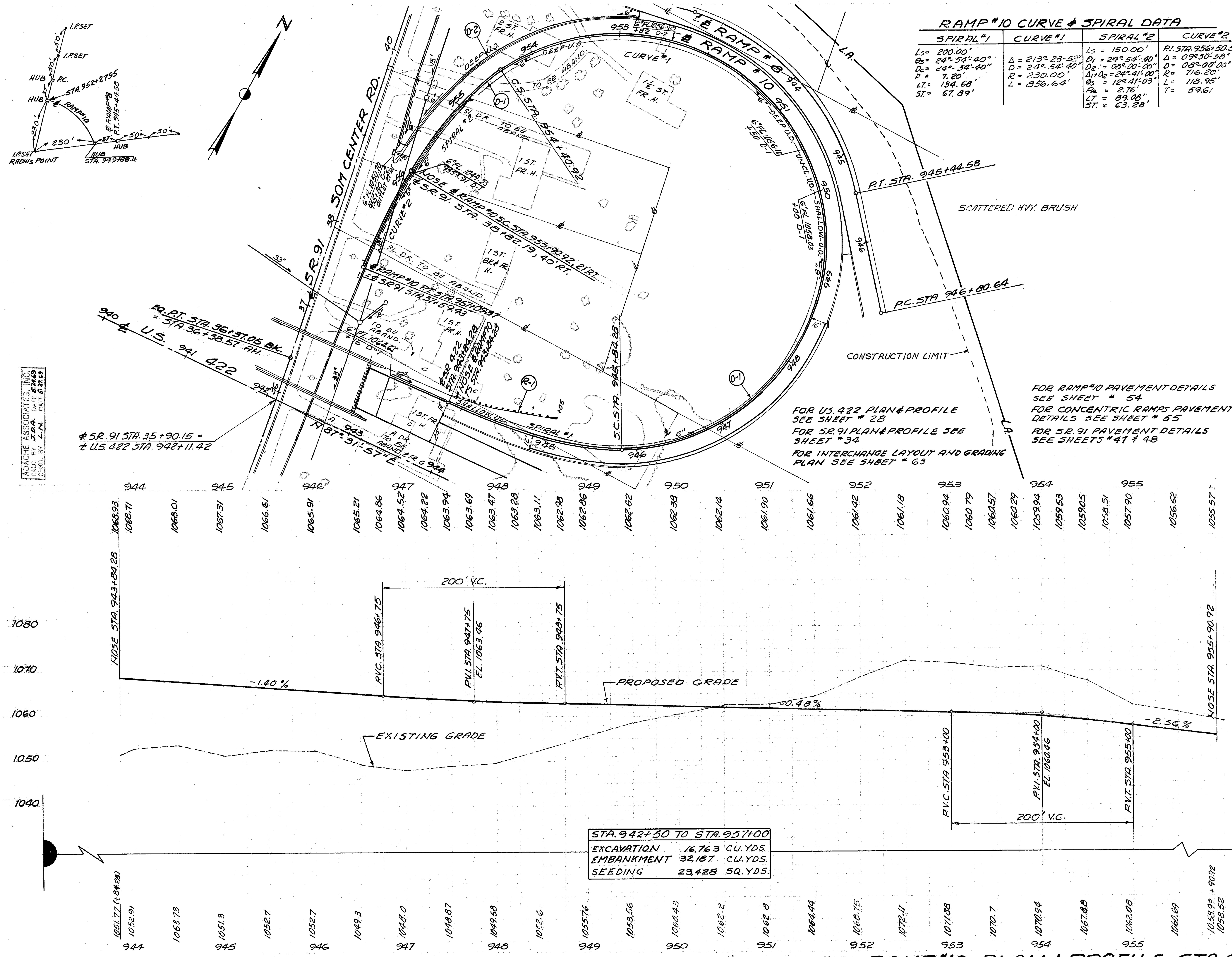
RAMP #9 PLAN & PROFILE STA. 941+77.02 TO STA. 951+70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

CUYAHOGA COUNTY
CUY 422-16.33

RAMP #10 CURVE & SPIRAL DATA

SPIRAL #1	CURVE #1	SPIRAL #2	CURVE #2
Ls = 200.00'	Δ = 213°-23'-52"	Ls = 150.00'	P.I. STA. 956+50.5
θs = 24°-54'-40"	D = 24°-54'-40"	D1 = 24°-54'-40"	Δ = 09°-30'-58"
Dc = 24°-54'-40"	R = 230.00'	D2 = 08°-00'-00"	D = 08°-00'-00"
P = 7.20'	L = 856.64'	Δ1+Δ2 = 24°-41'-00"	R = 716.20'
LT = 134.68'		θs = 12°-41'-03"	L = 118.95'
ST = 67.89'		Pa = 2.76'	T = 59.61
		LT = 89.08'	
		ST = 63.28'	



STA. 942+50 TO STA. 957+00		
EXCAVATION	16,763	CU. YDS.
EMBANKMENT	32,187	CU. YDS.
SEEDING	23,428	SQ. YDS.

FOR US. 422 PLAN & PROFILE SEE SHEET # 28

FOR SR. 91 PLAN & PROFILE SEE SHEET # 34

FOR INTERCHANGE LAYOUT AND GRADING PLAN SEE SHEET # 63

FOR RAMP #10 PAVEMENT DETAILS SEE SHEET # 54

FOR CONCENTRIC RAMPS PAVEMENT DETAILS SEE SHEET # 55

FOR SR. 91 PAVEMENT DETAILS SEE SHEETS # 41 & 48

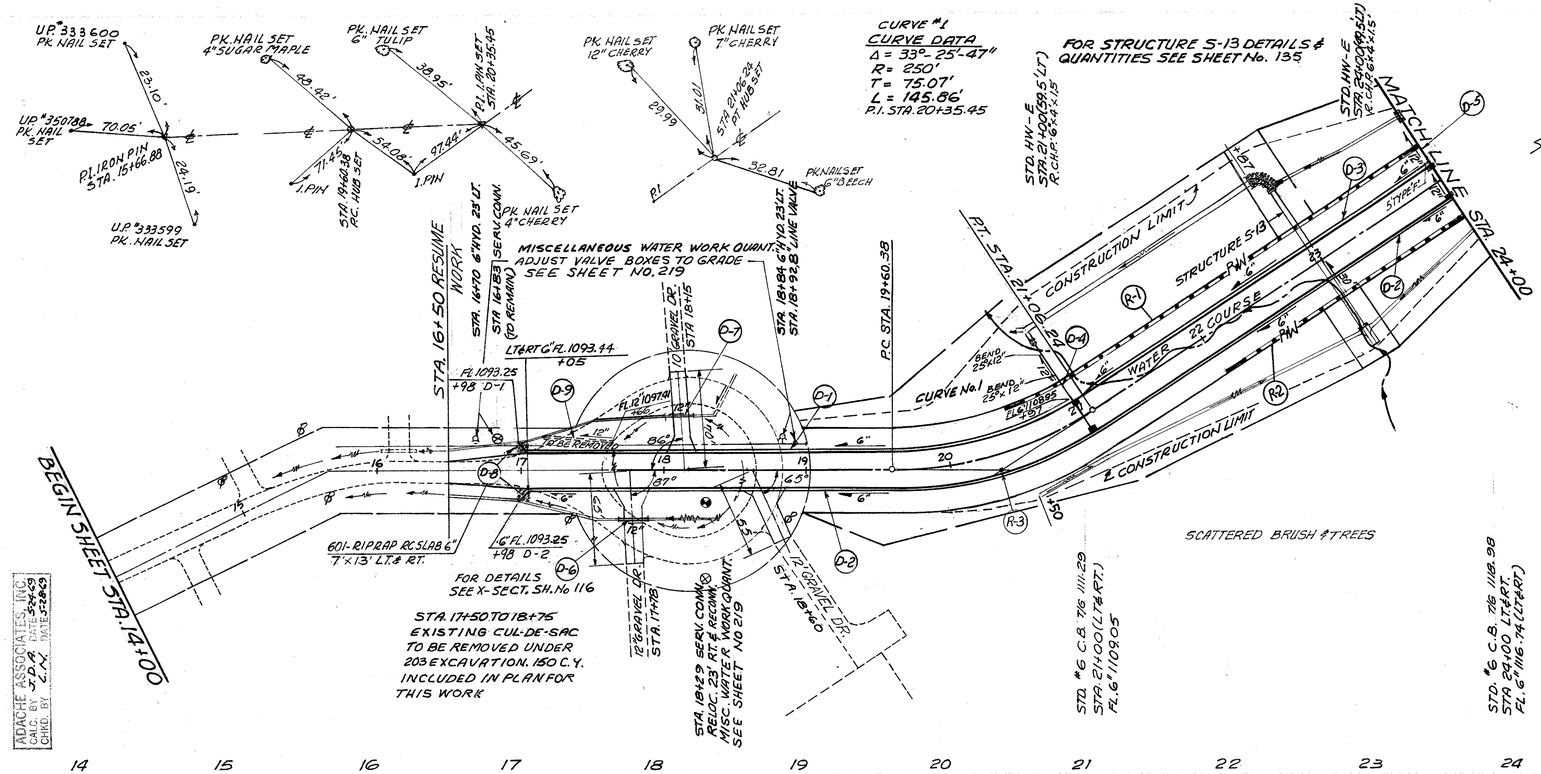
ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 5.24.69
CHKD. BY L.N. DATE 5.27.69

ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	603 TYPE "F" CONDUIT 6" L.F.	605 PIPE UNDERDRAIN SHALL 6" L.F.	605 PIPE UNDERDRAIN UNCL. 6" L.F.	605 PIPE UNDERDRAIN DEEP 6" L.F.	606 G.RAIL TYPE-5 STD L.F.	606 G.RAIL TYPE-5 Anchor Assem. EA.	BENDS & BRANCHES BEND 45°x6" EA	SEE SHEET NO.
D-1	943+15 - 955+91	LT.	10	685	50	541			1	
D-2	952+82 - 955+80	RT.				288				
R-1	943+84 - 945+05	LT.					96	1		
TOTAL			10	685	50	829	96	1		

MAY 4 1973

RAMP #10 PLAN & PROFILE STA. 943+84.28 TO STA. 955+90.92



ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	202 PIPE REMOVED 24" UNDER	601 ROCK RIPRAP CLASS A TYPE 1 C.Y.	602 CONC. RIPRAP 6" REINF. C.Y.	603 TYPE D PIPE CONDUIT 12" L.F.	603 TYPE E PIPE CONDUIT 12" L.F.	603 TYPE F PIPE CONDUIT 12" L.F.	604 MAN. 4' DIA. EA.	605 PIPE UNDERDRAIN 6" L.F.	606 GRAIL TYPE-S STANDARD L.F.	BENDS & ARMORING BEND 25°x12" EA.	BEND 45°x6" EA.	SEE SHEET NO.
D-1	16+98 TO 20+97	LT.								389			1	
D-2	16+98 TO 24+00	RT.								692			1	
D-3	21+00 TO 24+00	LT.								285				
D-4	21+00	LT & RT.		1.78	0.23	23	24					2		118
D-5	24+00	LT & RT.		1.78	0.23	23	39					2		118
D-6	17+69 TO 17+89	RT.						20						
D-7	18+03 TO 18+23	LT.						20						
D-8	16+98 TO 17+05	LT & RT.		20										
D-9	17+19 TO 17+66	LT.	47											
R-1	20+50 TO 24+00	LT.									300			450
R-2	22+00 TO 24+00	RT.									150			
R-3	PI STA. 20+35.45	RT.							1					
	TOTALS		47	3.56	0.46	46	63	40	35	1366	450	4	1	27

MAY 4 1973

SPRING GROVE DRIVE PLAN & PROFILE STA. 14+00 TO STA. 24+00

CUYAHOGA COUNTY
CUY 422-16:33

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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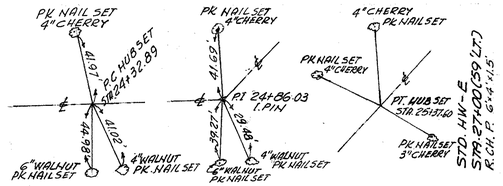
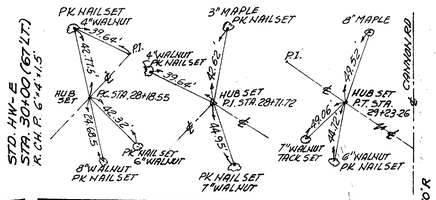
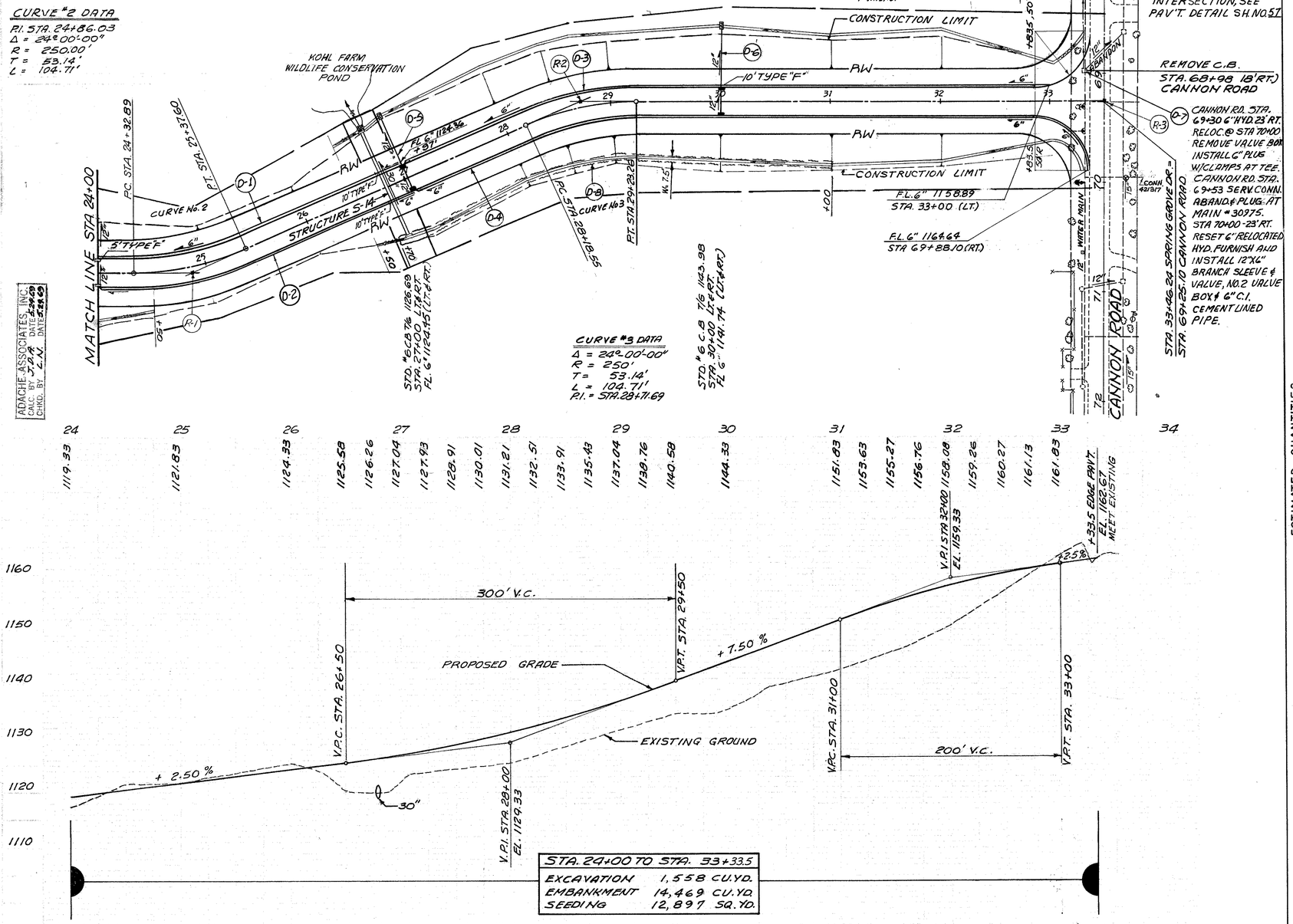
FOR STRUCTURE S-14 DETAILS AND QUANTITIES SEE DWG NO. 136







ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SIDE	202 C.B. REMOVED OR REBUILT EA.	601 ROCK CH. PROT. C.Y.	602 MASONRY C.Y.	603 TYPE 'F' CONDUIT 12" L.F.	603 TYPE 'F' CONDUIT 12" L.F.	604 C.B. STD #6 EA.	604 MON. ASSEM. EA.	605 PIPE CUL SMLCORR 6" L.F.	667 SEEDING & MULCHING S.Y.	BENDS & BRANCH 45°x6" EA.	BEND 25°x18" EA.	SEE SHEET NO.
D-1	24+00 TO 26+97	LT.					15			282				
D-2	24+00 TO 27+00	RT.					20			280		1		
D-3	27+00 TO 33+00	LT.					20			580		1		
D-4	27+00 TO 69+98 CANNON RD.	RT.					10			668		1	2	118
D-5	27+00	LT&RT						2					2	119
D-6	30+00	LT&RT.						2						
D-7	68+98-CANNON RD.	RT.	1											
D-8	26+70 TO 31+00	RT.												
R-1	P.I. STA. 24+86.03	RT.												
R-2	P.I. STA. 28+71.69	LT.												
R-3	℄ STA. 33+46.24	℄												
TOTALS			1	3.56	0.46	46	50	4	65	1810	342	3	4	

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 2-24-69
CHKD. BY E.M. DATE 2-25-69

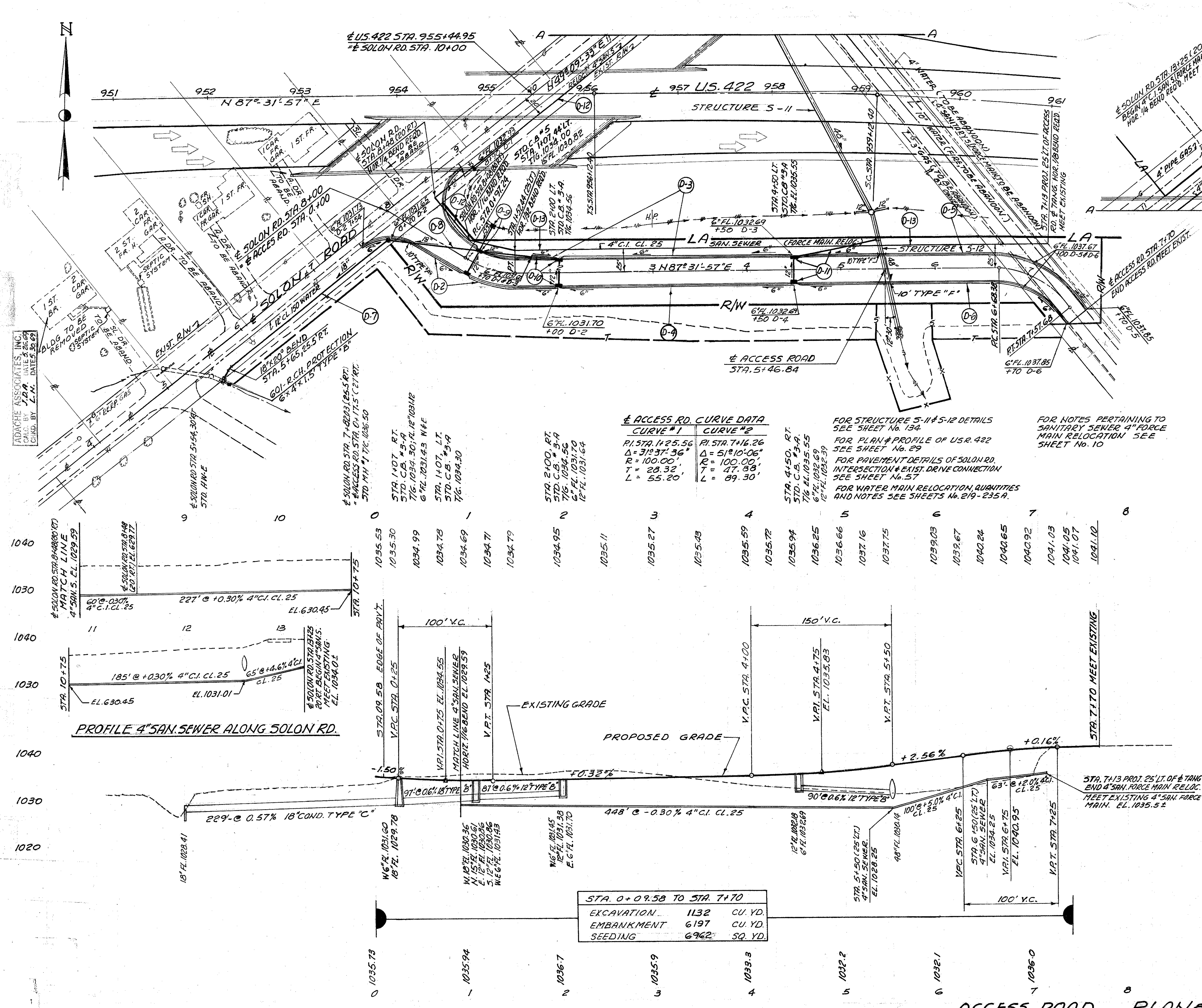
MAY 4 1973

SPRING GROVE DRIVE PLAN & PROFILE STA. 24+00 TO STA. 33+46.24

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468 (9)	

43/258

CUYAHOGA COUNTY
CUY 422 - 16.33



ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	601 ROCK CHAN. PROT. TYPE B C.Y.	602 CONC. MASONRY C.Y.	603 TYPE "B" CONDUIT 12" L.F.	603 TYPE "B" CONDUIT 18" L.F.	603 TYPE "C" CONDUIT 15" L.F.	603 TYPE "C" CONDUIT 18" L.F.	603 TYPE "F" CONDUIT 6" L.F.	604 STD. C.B. #3-A EA.	604 STD. C.B. #5 EA.	604 STD. M.H. #1 EA.	605 PIPE U.D. SHALL. 6" L.F.	SPECIAL CAST IRON SANITARY PIPE & FITTINGS CL. 25 4" L.F.	BENDS 1/4 EA.	BENDS 1/8 EA.	BENDS 1/16 EA.	BENDS 1/32 EA.	667 SEEDING AND JUTE MATTING S.Y.	BENDS & BRANCHES BEND 18"x20° EA.	WYE 12"x6" 60° EA.	SEE SHT. NO.
D-1	SOLON RD 8+90 - ACCESS RD 1+70	RT.&LT.							20				145									
D-2	7+54 - 2+00	RT.							40				174									
D-3	ACCESS RD 1+70 - 4+50	LT.							20				260									
D-4	2+00 - 4+50	RT.							10				240									
D-5	4+50 - 7+70	LT.							20				300									
D-6	4+50 - 7+70	RT.							20				300									
D-7	SOLON RD 5+54 - SOLON RD 7+82.03	RT.	1.78	0.30				229				1								1		
D-8	7+82.03 - ACCESS RD 1+07	RT.&LT.				97																
D-9	ACCESS RD 1+07 - 2+00	RT.&LT.			26		32			2	1								50			
D-10	1+07 - 2+00	RT.&LT.			113					2												
D-11	4+50 - 5+37	RT.&LT.			116					2											1	
D-12	SOLON RD. 8+48 - SOLON RD. 13+25	RT.												611	2							
D-13	ACCESS RD. 0+90 - ACCESS RD. 7+13 (TANG)	LT.												537		1	1	1				
TOTAL			1.78	0.30	255	97	32	229	130	6	1	1	1419	1148					50			

MAY 4 1973

ACCESS ROAD PLAN & PROFILE STA. 0+00 TO STA. 7+70

E-13

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

44
258

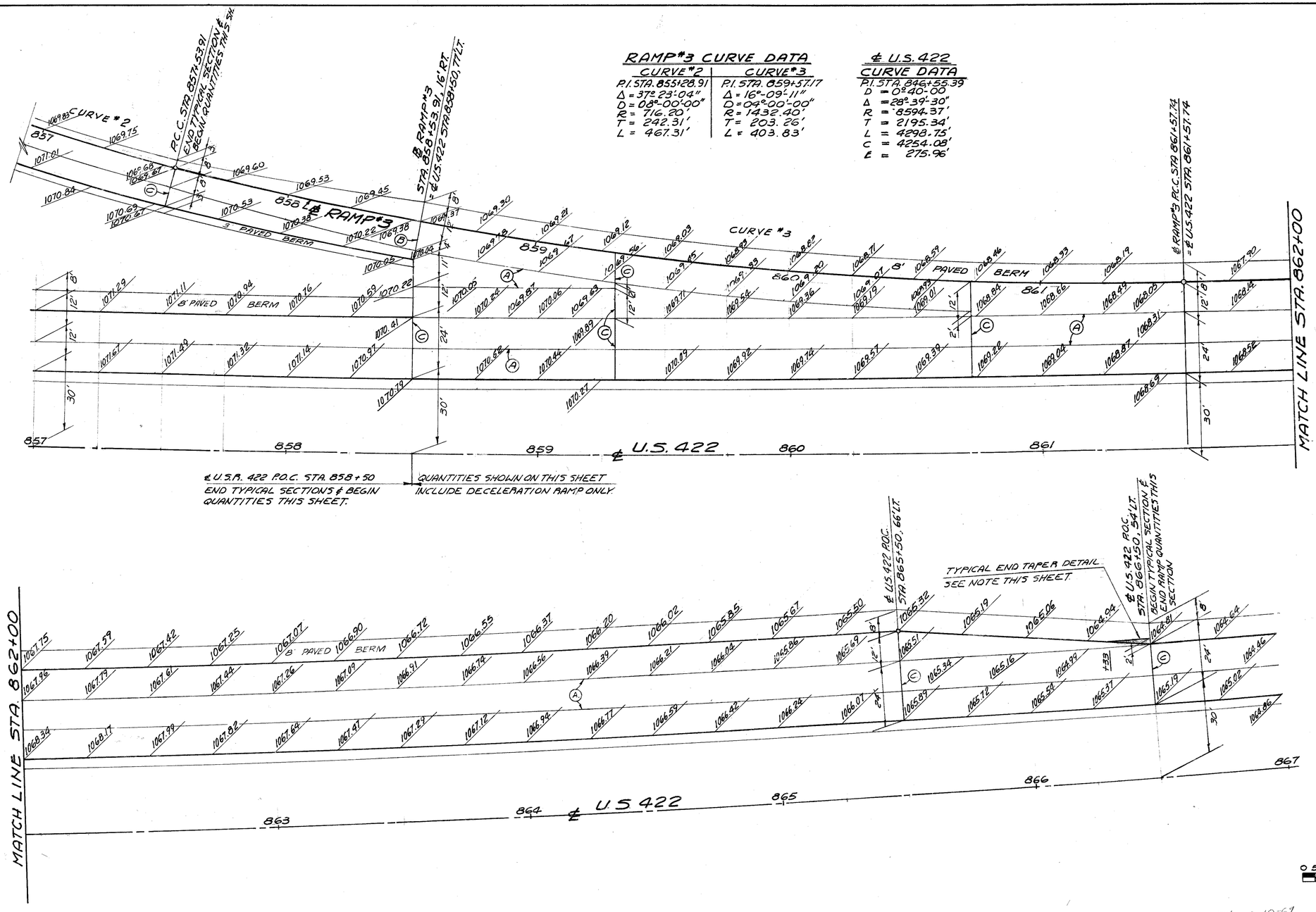
CUYAHOGA COUNTY
CUY 422-16.33

RAMP #3 CURVE DATA

CURVE #2	CURVE #3
P.I. STA. 855+28.91	P.I. STA. 859+57.17
Δ = 37° 23' 04"	Δ = 16° 09' 11"
D = 08° 00' 00"	D = 04° 00' 00"
R = 716.20'	R = 1432.40'
T = 242.31'	T = 203.26'
L = 467.31'	L = 403.83'

℄ U.S. 422 CURVE DATA

P.I. STA. 846+55.39
D = 0° 40' 00"
Δ = 28° 39' 30"
R = 8594.37'
T = 2195.34'
L = 4298.75'
C = 4254.08'
E = 275.96'



LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT

NOTE:
END TAPER DETAILS. THE SHADED AREA SHOWN IN THE END TAPER DETAILS SHALL BE CONSTRUCTED OF CONCRETE PAVEMENT. THE SHADED AREA SHALL BE PAID FOR AS FULL DEPTH CONCRETE PAVEMENT.

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY QUANTITIES

203	451	301	304	310		SPECIAL			
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONCRETE PAV'T.	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING A	SUBBASE	SPECIAL DRAINAGE CONNECTION USING NO. 9 AGGREGATE			
SQ. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.			
1950.69	1152.04	66.55	133.11	247.23	64.92	52.34			

WKW 2-10-69
R.J.Z. 5-14-69

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S.422
PAVEMENT DETAILS
RAMP #3
HARPER RD. INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
W.K.W. 2-10-69	J.D.A.	R.J.Z. 5-14-69		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

45
258

CUYAHOGA COUNTY
CUY. - 422 - 16.33

℄ 422 CURVE DATA

P.I. STA. 846+55.39
D = 0° 40' 00"
Δ = 26° 39' 30"
R = 8594.37'
T = 2195.34'
L = 4298.75'
C = 4254.08'
E = 275.96'

℄ U.S. 422 P.O.C. STA. 858+47.29 END TYPICAL SECTION & BEGIN QUANTITIES THIS SHEET

QUANTITIES SHOWN ON THIS SHEET INCLUDE ACCELERATION RAMP ONLY.

U.S. 422

RAMP 4

S 51° 57' 11" E

S 54° - 28' - 57" E

8' PAVED BERM

3' PAVED BERM

TRANSITION CURB 0"-9" IN 30'

CURB TYPE 7

CURB TYPE 8

LIMIT RAMP QUANTITIES THIS SHEET

STA 855 + 85 BEGIN CURB TYPE 7 AND END TYPICAL SECTION AND BEGIN QUANTITIES THIS SHEET

MATCH LINE STA. 861+50

MATCH LINE STA. 867+50

℄ RAMP 4 STA. 861+50 = ℄ 422 STA. 861+50.79 RT. & ℄ 422 STA. 861+50.79 RT. & BEGIN 40:1 TAPER BASED ON ℄ 422 STATIONING

PT. STA. 867+58.80

℄ 422 STA. 871+50 64 RT. END 40:1 TAPER & END PAVEMENT RAMP QUANTITIES THIS SHEET. RESUME TYPICAL MAINLINE SHOULDER.

TYPICAL END TAPER DETAIL FOR NOTE SEE SHEET No. 44

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT
- Ⓑ STANDARD EXPANSION JOINT
- Ⓒ STANDARD CONTRACTION JOINT
- NEW PAVED BERM
- NEW PAVEMENT (451 CONCRETE)

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY QUANTITIES

203	451	301	304	310		SPECIAL		609	
								CONCRETE CURB	
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONCRETE PAVT.	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING A	SUBBASE	DRAINAGE CONNECTION USING NO. 9 AGGREGATE		TYPE 7	TYPE 8
SQ.YD.	SQ.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.		LIN.FT.	LIN.FT.
4226.51	2388.58	147.56	279.84	527.89	162.59	92.07		260	305

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-18-69
CHK. BY R.J.Z. DATE 5-17-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

U.S. 422

PAVEMENT DETAILS

RAMP # 4
HARPER RD. INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVISED	DATE
R.W.H.	J.A.K.	R.J.Z.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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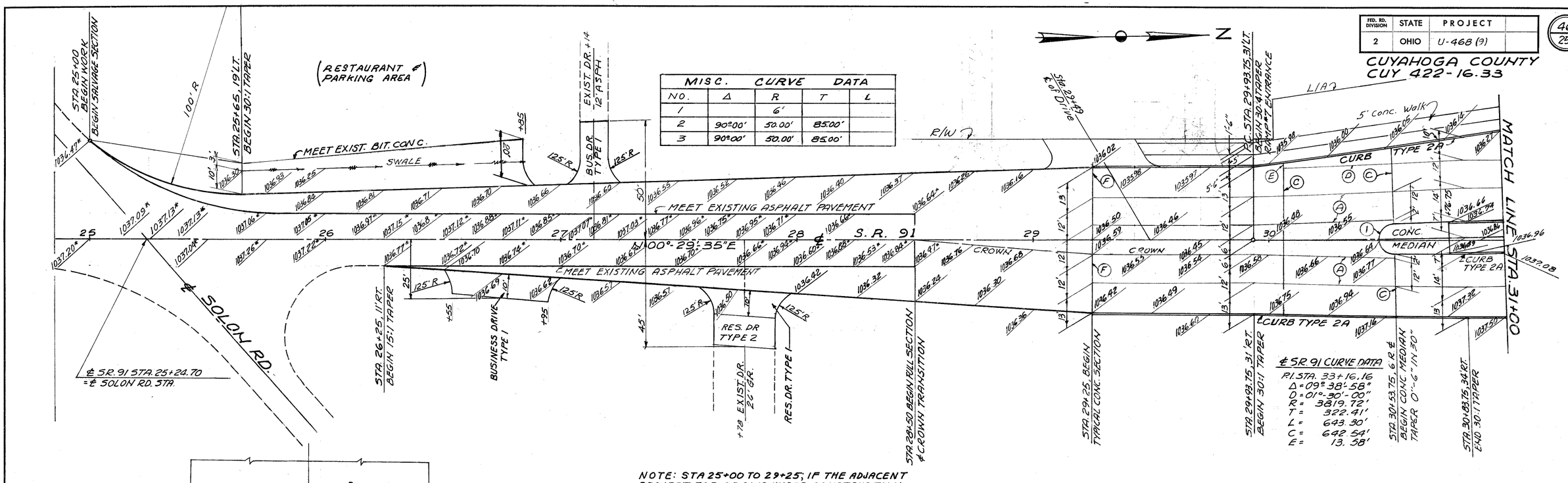
258

CUYAHOGA COUNTY
CUY 422-16.33

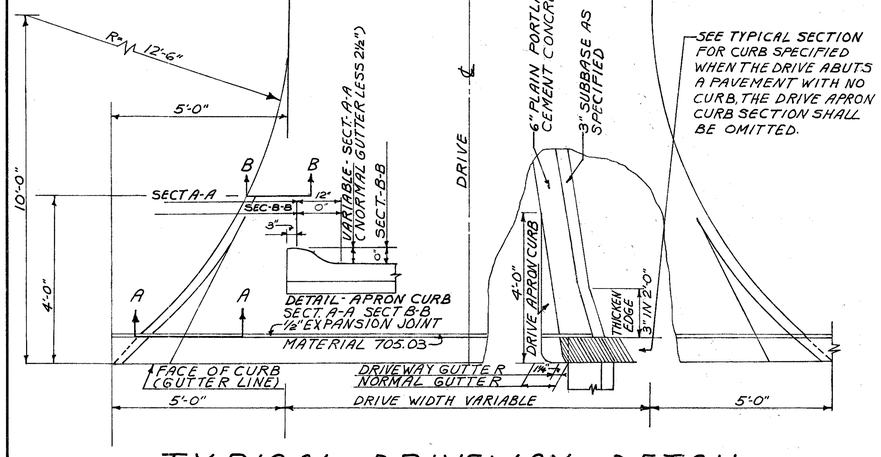


MISC. CURVE DATA				
NO.	Δ	R	T	L
1		6'		
2	90°00'	50.00'	85.00'	
3	90°00'	50.00'	85.00'	

℄ S.R. 91 CURVE DATA

P.I. STA. 33+16.16
Δ = 09° 38'-58"
D = 01°-30'-00"
R = 3819.72'
T = 322.41'
L = 643.30'
C = 642.54'
E = 13.38'

NOTE: STA 25+00 TO 29+25; IF THE ADJACENT PROJECT FOR S.R. 91 IS UNDER CONSTRUCTION THE WORK FOR THIS AREA SHALL BE NON PERFORMED



SEE TYPICAL SECTION FOR CURB SPECIFIED WHEN THE DRIVE ABUTS A PAVEMENT WITH NO CURB, THE DRIVE APRON CURB SECTION SHALL BE OMITTED.

TYPICAL DRIVEWAY DETAIL
NO SCALE

S.R. 91 DRIVEWAY SUMMARY OF QUANTITIES

STATION	TYPE	AREA	304	404	409	
			AGGREGATE BASE	ASPHALT CONC. 1½" COURSES	SEAL COAT BITUMINOUS MATERIAL	SEAL COVER AGGREG. NO. 8
		SQ. YD.	CU. YD.	CU. YD.	GAL.	CU. YD.
25+00 - 26+90	BUS. NO. 1	300.51	58.48	16.70		
26+55 - 26+95	BUS. NO. 1	47.79	9.29	2.65		
27+14	BUS. NO. 1	36.68	7.13	2.04		
27+78	RES. NO. 2	72.67	13.47	1.79	16.18	0.32
43+48	RES. NO. 1	63.84	8.87	3.55		
44+45	RES. NO. 1	55.53	7.71	3.09		
49+00	RES. NO. 2	50.46	9.97	0.83	14.22	0.28
49+82	RES. NO. 2	49.39	9.41	1.05	12.20	0.24
TOTAL		676.92	124.28	31.70	42.60	0.84

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) STANDARD KEY JOINT WITHOUT TIE BARS
- (E) STANDARD EXPANSION JOINT WITHOUT TIE BARS
- (F) STANDARD CONSTRUCTION JOINT

DRIVEWAY CONSTRUCTION

DESCRIPTION	TYPE	404	304	409	
BUSINESS	1	2"	7"		
RESIDENCE	1	2"	5"		
RESIDENCE	2		8"	0.40 GAL. PER S.Y.	0.008 C.Y. PER S.Y.

ALL RESIDENT TYPE 2 DRIVEWAYS TO HAVE THE APRON AREA CONSTRUCTED OF THE SAME MATERIAL AS RESIDENT TYPE 1 DRIVEWAYS

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY OF QUANTITIES

	203	451	301	310		403	404	407	609	G12		608
	SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONC. PAVEMENT	BITUMINOUS AGGREGATE BASE	SUBBASE GRADING A	SUBBASE	ASPHALT CONCRETE (70-85)	ASPHALT CONCRETE (70-85)	TACK COAT	CONCRETE CURB TYPE 2A	STANDARD CONCRETE MEDIAN	CONCRETE MEDIAN TYPE 2 AS PER PLAN	4" Concrete Walk 100% City of Solon
	SQ. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	GAL.	LIN. FT.	SQ. YD.	SQ. YD.	Sq. Ft.
S. R. 91	2567.62	1261.32	222.80	226.93	220.51	46.07	30.71	110.56	415	25.67	45.63	765
TOTAL	2567.62	1261.32	222.80	226.93	220.51	46.07	30.71	110.56	415	25.67	45.63	765

Rev. 11-19-71

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422
PAVEMENT DETAILS
S.R 91
STA. 25+00 TO STA. 31+00

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-8-69
CHKD. BY R.J.E. DATE 5-12-69

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A	R.J.E.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

47 / 258

CUYAHOGA COUNTY
CUY 422 - 16.33

N

℄ 'A' CURVE DATA
P.I. STA. 942+16.58
Δ = 67°-27'-34"
D = 38°-11'-50"
R = 150.00'
T = 100.15'
L = 176.61'
C = 166.58'

℄ RAMP "7 POC. STA. 940+94.32
= ℄ 'A' P.I. STA. 940+94.32, END TYPICAL
BEGIN QUANTITIES THIS SHEET

CURB TRANSITION
0" TO 6" IN 30

℄ 'A' P.C. STA. 941+16.43

℄ 'A' POC. STA. 941+63.07
NOSE, 20' LT.

℄ RAMP "7 P.C. STA. 940+75.11

℄ RAMP "7 POC. STA. 941+69.85
NOSE, 4' LT.
TYPICAL MED. TRANS.

℄ RAMP "7 CURVE DATA
P.I. STA. 941+37.73
Δ = 19°-50'-18"
D = 18°-00'-00"
R = 318.10'
T = 62.62'
L = 123.99'
C = 123.37'

P.T. STA. 941+99.10

℄ SR 91 POC. STA. 31+59.27, 36' LT.
= ℄ 'A' P.T. STA. 942+63.49, 20' LT.

℄ SR 91 POC. STA. 31+23.75
= ℄ 'A' P.T. STA. 942+33.04

℄ SR 91 STA. 32+45 =
℄ RAMP "7 STA. 942+73.19

CURB TRANSITION
0" TO 6" IN 30

P.C.
P.C.C.
P.C.C.
P.C.C.
P.C.C.

℄ SR 91 STA. 32+45 =
℄ RAMP "9 STA. 941+77.02

CURB TRANSITION
0" TO 6" IN 30

℄ RAMP "9 POC. STA. 942+73.68
BEGIN 10:1 TAPER

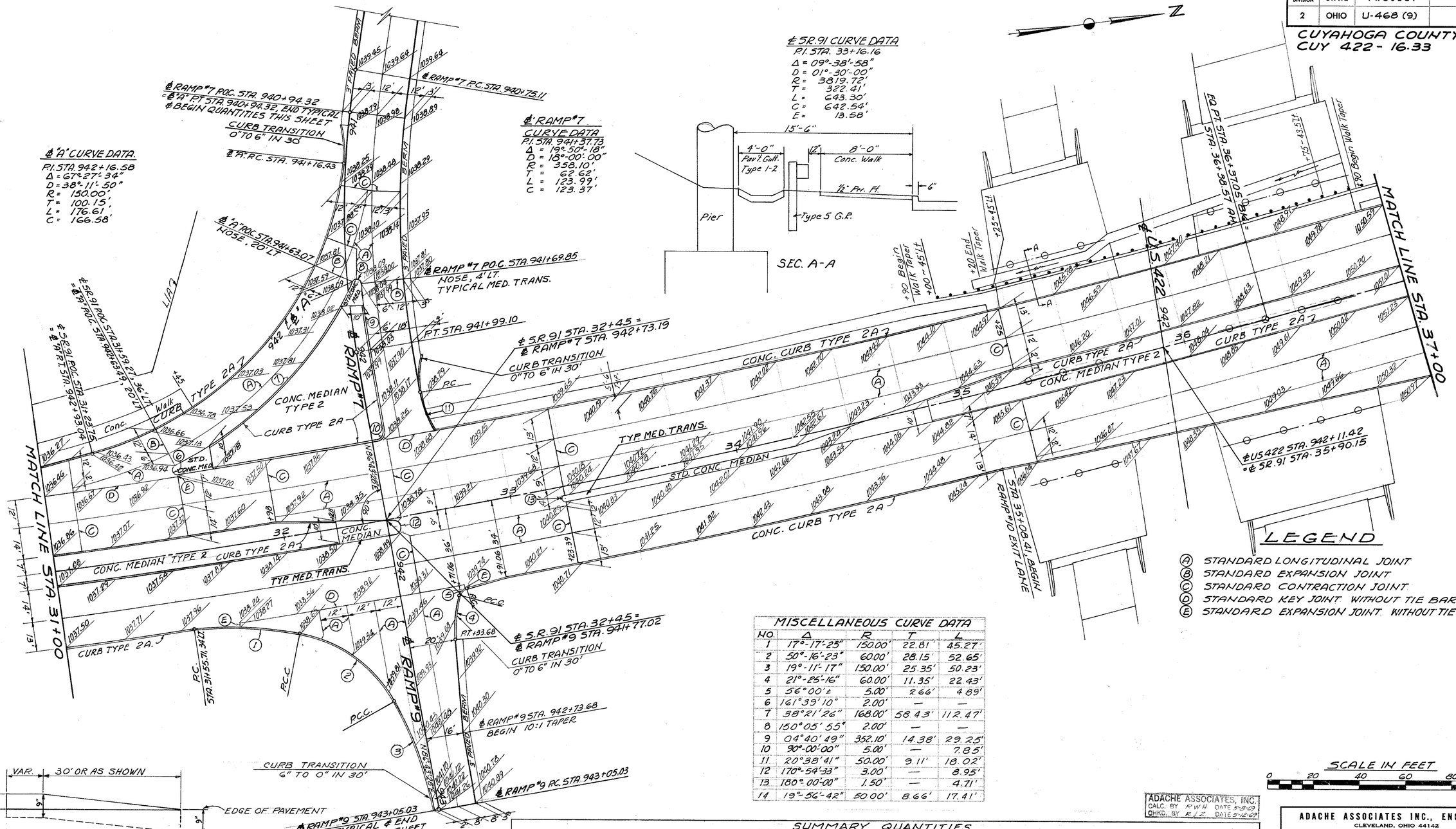
CURB TRANSITION
6" TO 0" IN 30'

℄ RAMP "9 P.C. STA. 943+05.03

℄ RAMP "9 STA. 943+05.03
BEGIN TYPICAL ℄ END
QUANTITIES THIS SHEET

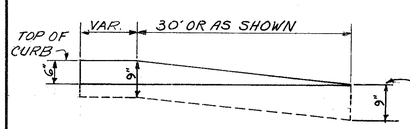
℄ SR 91 CURVE DATA
P.I. STA. 33+16.16
Δ = 09°-38'-58"
D = 01°-30'-00"
R = 3819.72'
T = 322.41'
L = 643.30'
C = 642.54'
E = 13.58'

SEC. A-A



LEGEND

Ⓐ STANDARD LONGITUDINAL JOINT
Ⓑ STANDARD EXPANSION JOINT
Ⓒ STANDARD CONTRACTION JOINT
Ⓓ STANDARD KEY JOINT WITHOUT TIE BARS
Ⓔ STANDARD EXPANSION JOINT WITHOUT TIE BARS



TYPICAL CONCRETE MEDIAN
HEIGHT TRANSITION
NO SCALE

MISCELLANEOUS CURVE DATA

NO.	Δ	R	T	L
1	17°-17'-25"	150.00'	22.81'	45.27'
2	50°-16'-23"	60.00'	28.15'	52.65'
3	19°-11'-17"	150.00'	25.35'	50.23'
4	21°-25'-16"	60.00'	11.35'	22.43'
5	56°00'±	5.00'	2.66'	4.89'
6	161°39'10"	2.00'	—	—
7	38°21'26"	168.00'	58.43'	112.47'
8	150°05'55"	2.00'	—	—
9	04°40'49"	352.10'	14.38'	29.25'
10	90°-00'-00"	5.00'	—	7.85'
11	20°38'41"	50.00'	9.11'	18.02'
12	170°-54'-33"	3.00'	—	8.95'
13	180°-00'-00"	1.50'	—	4.71'
14	19°-56'-42"	50.00'	8.66'	17.41'

SCALE IN FEET
0 20 40 60 80 100

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H DATE 5-A-69
CHKD. BY R.J.Z. DATE 5-16-69

SUMMARY QUANTITIES

608	203	451	301	304	310		609	612		SPECIAL
4" Concrete Wall 100% Cite of Solon	SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONC PAVEMENT	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING A	SUBBASE	CONCRETE CURB TYPE 2A	STANDARD CONCRETE MEDIAN	CONCRETE MEDIAN TYPE 2 AS PER PLAN	DRAINAGE CONNECTION USING No. 9 AGGREGATE
Sq. Ft.	SQ. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	LIN. FT.	SQ. YD.	SQ. YD.	CU. YD.
3030	6143.32	5133.72	5.95	9.91	934.42	397.63	2202.	142.99	795.25	12.26

MAY 4 1973
Rev. 11-22-71

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422
PAVEMENT DETAILS
S.R. 91
STA. 31+00 TO STA. 37+00

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	R.J.Z.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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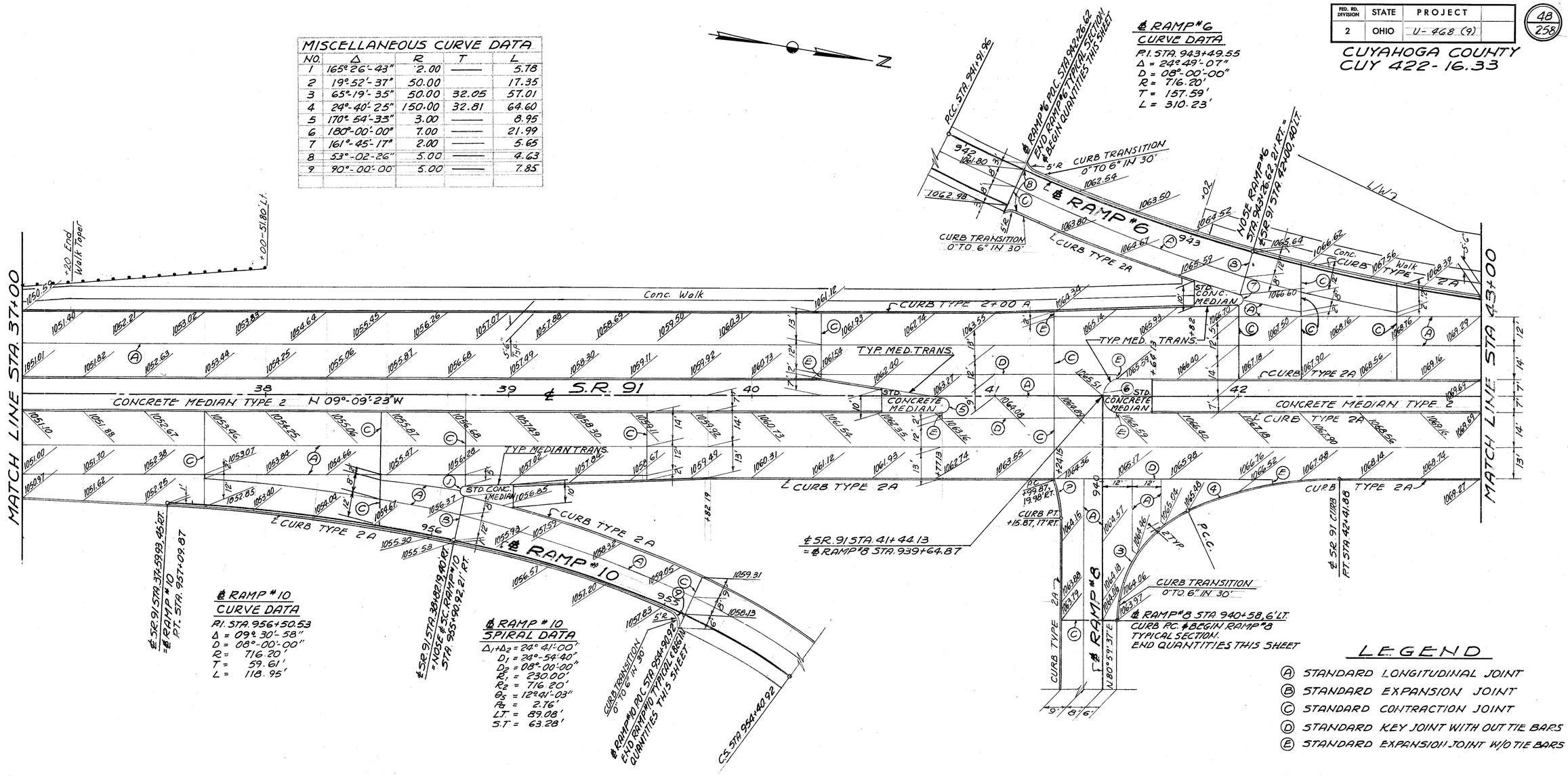
258

CUYAHOGA COUNTY
CUY 422-16.33

MISCELLANEOUS CURVE DATA

NO	Δ	R	T	L
1	165°26'-43"	2.00	——	5.78
2	19°52'-37"	50.00		17.35
3	65°19'-35"	50.00	32.05	57.01
4	24°-40'-25"	150.00	32.81	64.60
5	170°-54'-33"	3.00	——	8.95
6	180°-00'-00"	7.00	——	21.99
7	161°-45'-17"	2.00	——	5.65
8	53°-02'-26"	5.00	——	4.63
9	90°-00'-00"	5.00	——	7.85



℄ RAMP #10 CURVE DATA

P.I. STA. 956+50.53
Δ = 09° 30'-58"
D = 08°-00'-00"
R = 716.20'
T = 59.61'
L = 118.95'

℄ RAMP #10 SPIRAL DATA

$\Delta_1 + \Delta_2$ = 24° 41'-00"
D_1 = 24°-54'-40"
D_2 = 08°-00'-00"
R_1 = 230.00'
R_2 = 716.20'
θ_s = 12°41'-03"
P_s = 2.76'
L.T. = 89.08'
S.T. = 63.28'

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) STANDARD KEY JOINT WITH OUT TIE BARS
- (E) STANDARD EXPANSION JOINT W/O TIE BARS

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY QUANTITIES

203	451	310	310	609	612	612	608	
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONC. PAVEMENT	SUBBASE GRADING A	SUBBASE	CONCRETE CURB 2A	STANDARD CONCRETE MEDIAN	CONCRETE MEDIAN TYPE 2 AS PER PLAN	4" Conc. Walk 100% City of Solon	
SQ. YD.	SQ. YD.	CU. YD.	CU. YD.	LIN. FT.	SQ. YD.	SQ. YD.	Sq. Ft.	
5,942.45	5,158.81	929.86	349.67	2,563	84.31	699.33	3030	

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-9-69
CHKD. BY R.J.Z. DATE 5-12-69

Rev. 11-19-71

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422
PAVEMENT DETAILS
S.R. 91
STA. 37+00 TO STA. 43+00

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	R.J.Z.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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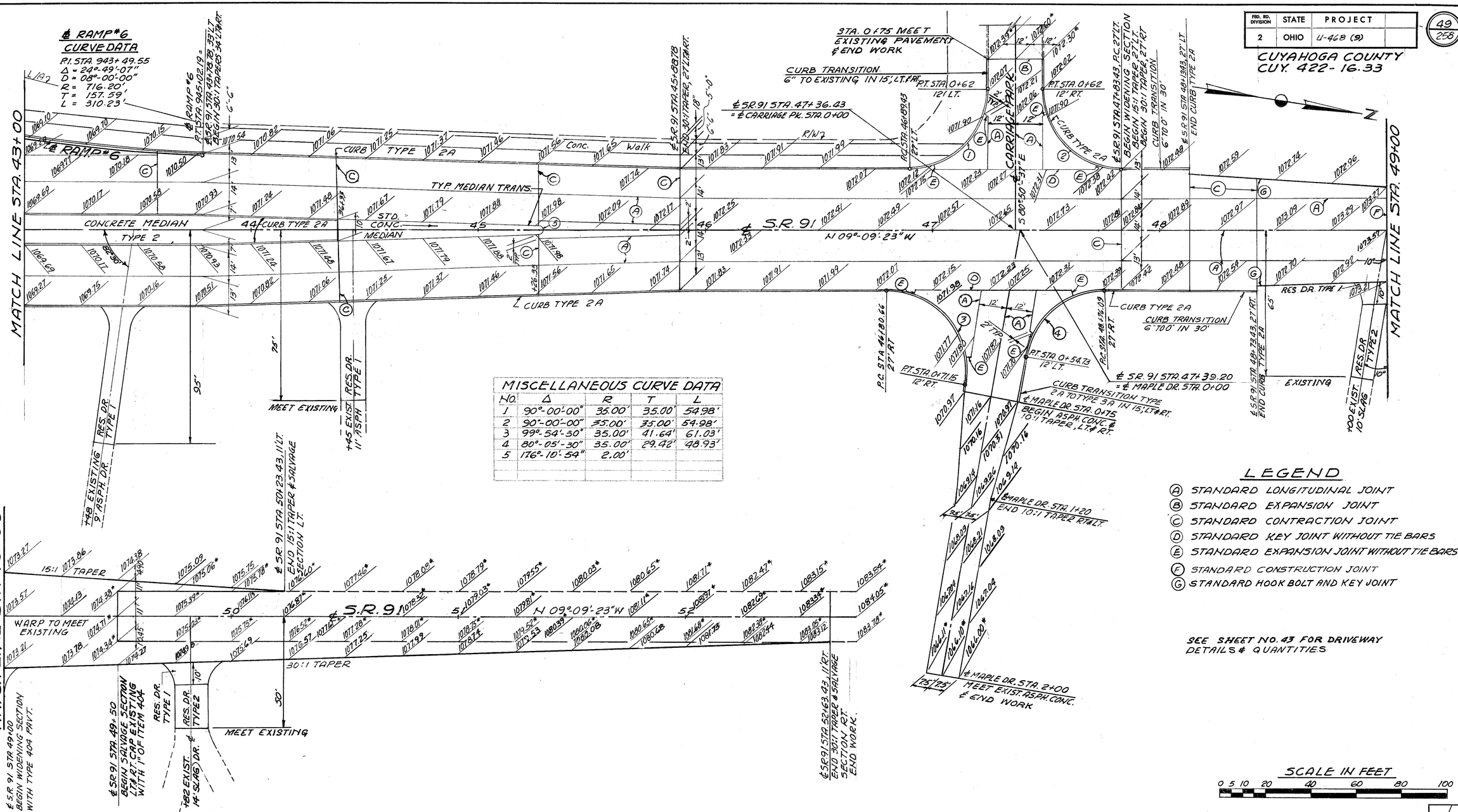
258

CUYAHOGA COUNTY
CUY. 422-16.33



MISCELLANEOUS CURVE DATA

NO.	Δ	R	T	L
1	90°-00'-00"	35.00'	35.00'	54.98'
2	90°-00'-00"	35.00'	35.00'	54.98'
3	99°-54'-30"	35.00'	41.64'	61.03'
4	80°-05'-30"	35.00'	29.42'	48.93'
5	176°-10'-54"	2.00'		

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) STANDARD KEY JOINT WITHOUT TIE BARS
- (E) STANDARD EXPANSION JOINT WITHOUT TIE BARS
- (F) STANDARD CONSTRUCTION JOINT
- (G) STANDARD HOOK BOLT AND KEY JOINT

SEE SHEET NO. 43 FOR DRIVEWAY DETAILS & QUANTITIES

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY OF QUANTITIES

304	203	451	301	310		403	404	407	408	609	612		608
AGGREGATE BASE	SUBBASE COMPACTION	REINFORCED PORTLAND CEMT. CONCRETE PAVEMENT	BITUMINOUS AGGREGATE BASE	SUBBASE GRADING TYPE A	SUBBASE	ASPHALT CONCRETE (70-85)	ASPHALT CONCRETE (70-85)	TACK COAT	BITUMINOUS PRIME COAT	CONCRETE CURB TYPE-2A	CONCRETE MEDIAN	CONCRETE MEDIAN TYPE 2	4" Concrete Walk 100% City of Solon
CU. YD.	SQ. YD.	SQ. YD.	CU. YD.	C.U. YD.	CU. YD.	CU. YD.	CU. YD.	GAL	GAL.	LIN. FT.	SQ. YD.	SQ. YD.	Sq. Ft.
41.94	4763.64	4025.86	107.35	735.42	173.11	17.63	42.65	118.93	92.33	1302	70.68	187.13	2080

Rev. 11-19-71

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-15-68
CHKD. BY R.J.Z. DATE 5-17-68

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

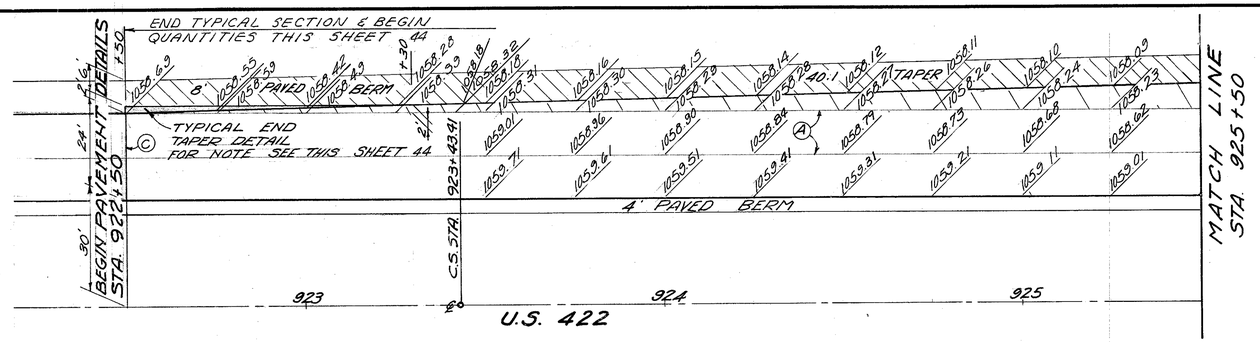
U.S. 422
PAVEMENT DETAILS
S.R. 91
STA. 43+00 TO STA. 52+63.43

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	R.J.Z.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

50
258

CUYAHOGA COUNTY
CUY. 422 - 16.33



℄ U.S. 422 CURVE DATA
P.I. STA. 918 + 15.48
Δ = 37° 53' 17"

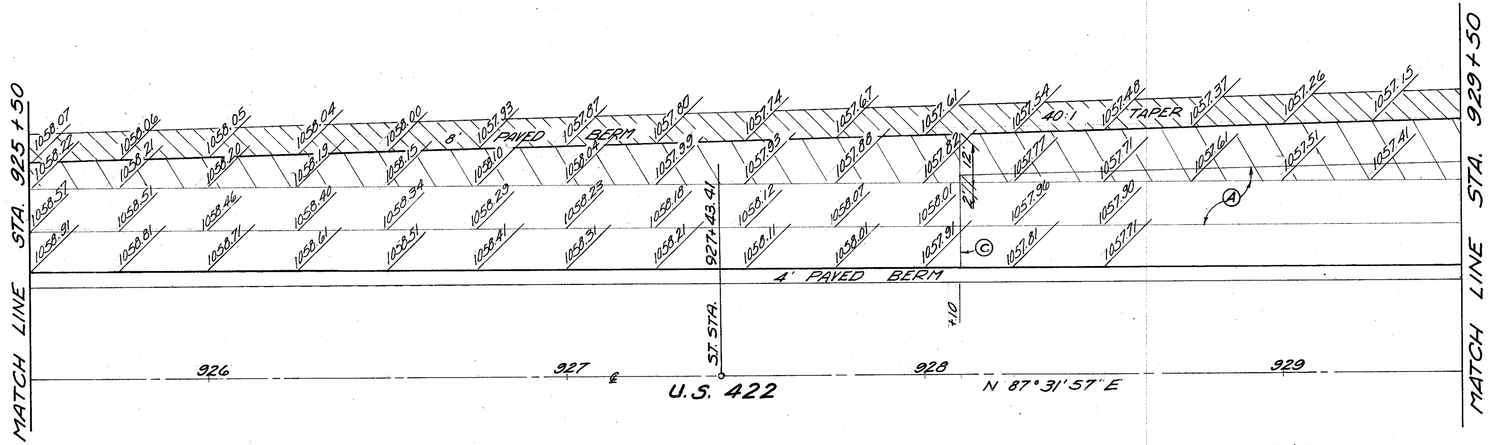
Δc = 27° 53' 17"	Ls = 400.00'
Dc = 2° 30' 00"	Os = 5° 00' 00"
Rc = 2291.83'	Ts = 987.59'
Tc = 569.04'	P = 2.91'
Lc = 1115.52'	S.T. = 133.43'
Cc = 1104.58'	L.T. = 266.77'
Es = 134.32'	L.C. = 399.86'

40:1 TAPER BASED ON ℄ U.S. 422 STATIONING

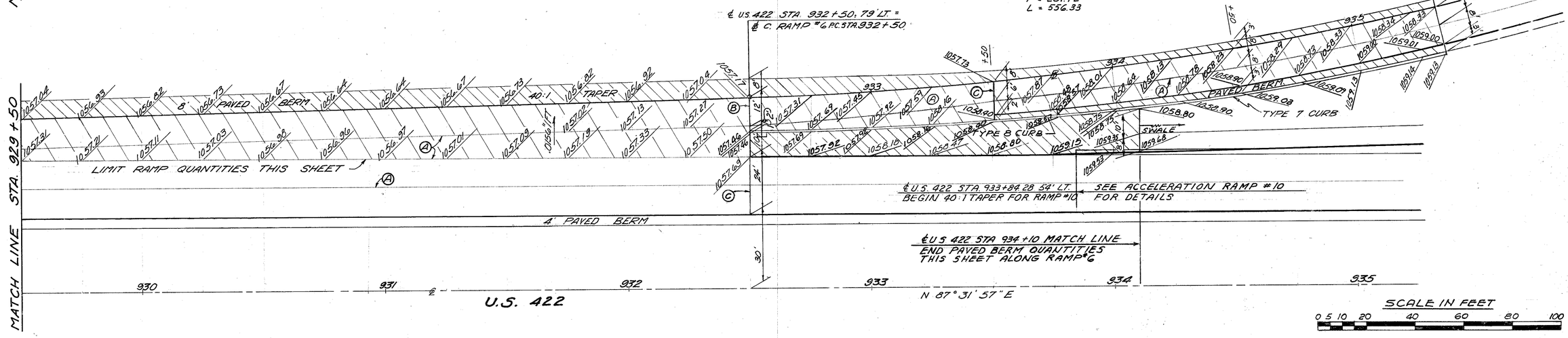
N

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT
- Ⓑ STANDARD EXPANSION JOINT
- Ⓒ STANDARD CONTRACTION JOINT
- NEW PAVED BERM
- NEW PAVEMENT (451 CONCRETE)



CURVE # 1
P.I. STA. 935 + 31.72
D = 4° 00' 00"
Δ = 22° 15' 12"
R = 1432.40'
T = 281.72
L = 556.33



SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY OF QUANTITIS

203	451	301	304	310		SPECIAL		609	
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONCRETE PAV'T	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING "A"	SUBBASE	DRAINAGE CONNECTION USING No.8 AGGREGATE		CONCRETE CURB TYPE 7	CONCRETE CURB TYPE 8
SQ.YD.	SQ.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU. YD.		LIN.FT.	LIN.FT.
3231.38	1881.58	110.22	206.31	462.09	109.96	84.31		129	160

MAY 4 1979

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-14-69
CHKD. BY R.J.Z. DATE 5-17-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

U.S. 422
PAVEMENT DETAILS
RAMP #6
S.R. 91 INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVISED	DATE
R.W.H.	J.A.K.	R.J.Z.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

51
258

CUYAHOGA COUNTY
CUY. 422 - 16.33

℄ U.S. 422 CURVE DATA

P.I. STA. 918+15.48
Δ = 37° 53' 17"

Δ_c = 27° 53' 17"	L_s = 400.00'
D_c = 2° 30' 00	θ_s = 5° 00' 00"
R_c = 2291.83'	T_s = 987.59'
T_c = 569.04'	P = 2.91'
L_c = 1115.52'	S.T. = 133.43'
C_c = 1104.54'	L.T. = 266.77'
E_s = 134.32	L.C. = 399.86'

BEGIN PAVEMENT DETAILS STA. 925+00

S.T. STA. 927+43.41

℄ U.S. 422

N 87° 31' 57" E

BEGIN SHEET STA. 924+50

MATCH LINE STA. 929+50

4' PAVED BERM

8' PAVED BERM

TYPICAL END TAPER DETAIL
FOR NOTE SEE SHEET 44

℄ U.S.R. 422 P.O.S. STA 925+00 54' RT. BEGIN TAPER. END TYPICAL SECTION AND BEGIN QUANTITIES THIS SHEET DECELERATION LANE ONLY

℄ U.S.R. 422 P.O.S. STA 926+00 66' RT. BEGIN 12' DECEL LANE

MATCH LINE STA. 929+50

+17.95

+42.06

℄ U.S. 422

N 87° 31' 57" E

℄ U.S. 422 STA 933+20.64
BEGIN TYPICAL SECTION ℄
END QUANTITIES THIS SHEET

LIMIT RAMP QUANT. THIS SHEET

8' PAVED BERM

℄ U.S.R. 422 STA. 930+42.20, 66' RT. = ℄ RAMP #7 P.C. STA. 930+42.20

CURVE #1
D = 4° 00' 00"
Δ = 13° 01' 48"
R = 1432.40'
T = 240.09'
L = 475.76'
C = 473.57'
E = 19.95
P.I. STA. 932+82.37

P.O.T. ℄ U.S. 422 STA. 933+20.64, 77' RT. = NOSE RAMP #7 STA. 933+19.29, 16' LT.

RAMP #7

3' PAVED BERM

3' PAVED BERM

℄ RAMP #7 P.O.C. STA 934+19.29 END QUANTITIES THIS SHEET ℄ BEGIN TYPICAL SECTION

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT
- Ⓑ STANDARD EXPANSION JOINT
- Ⓒ STANDARD CONTRACTION JOINT
- NEW PAVED BERM
- NEW PAVEMENT (451 CONCRETE)

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY OF QUANTITIES

203	451	301	304	310		SPECIAL
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONCRETE PAV'T	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING "A"	SUBBASE	DRAINAGE CONNECTION USING NO. 9 AGGREGATE
SQ. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.
2308.10	1485.80	68.45	128.23	328.09	67.37	53.90

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-14-73
CHKD. BY R.J.Z. DATE 5-17-73

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

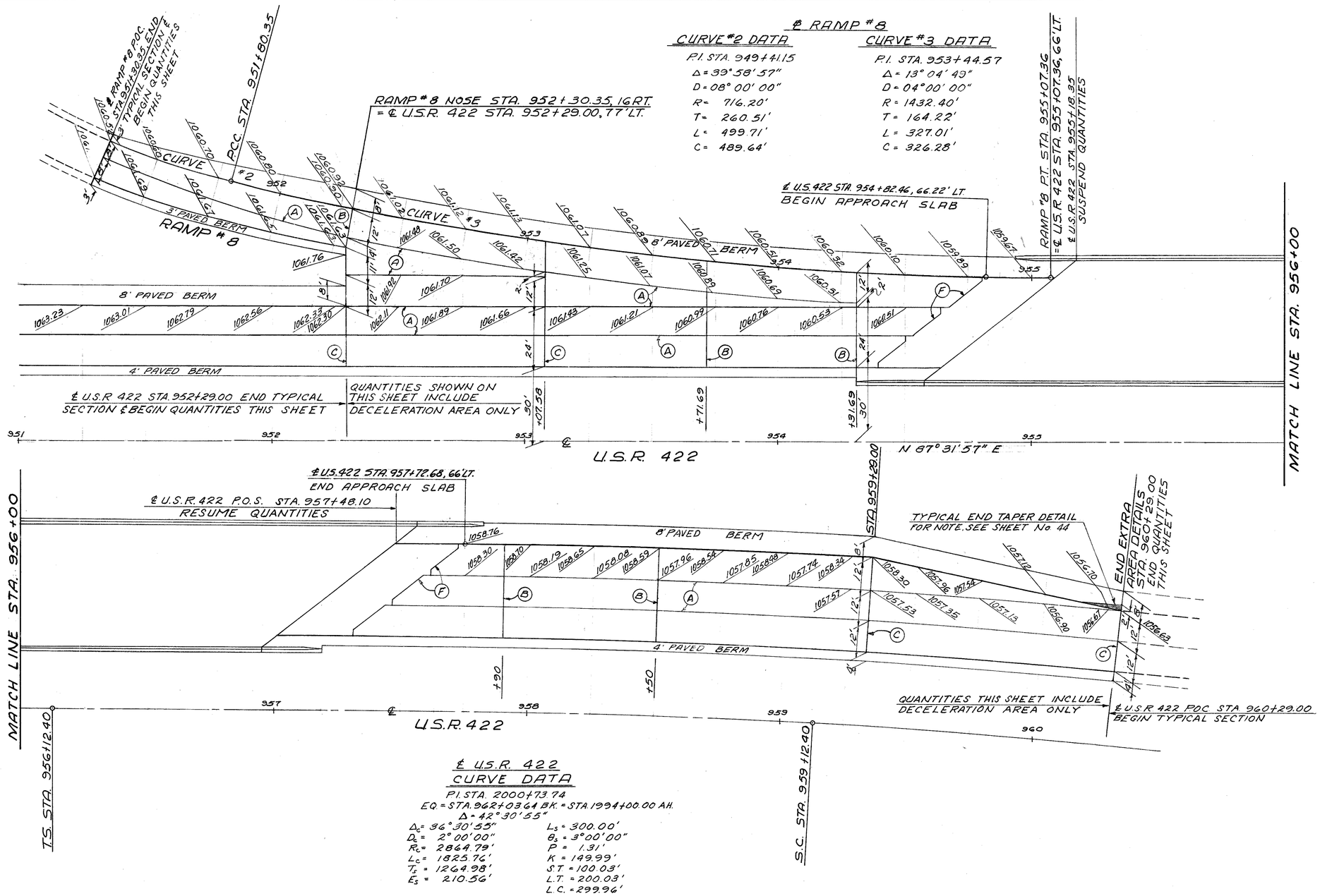
U.S. 422
PAVEMENT DETAILS
RAMP #7
S.R. 91 INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVISED	DATE
R.W.H.	J.A.K.	R.J.Z.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

52
258

CUYAHOGA COUNTY
CUY-422-16.33



℄ U.S.R. 422 CURVE DATA

P.I. STA. 2000+73.74
EQ. = STA. 962+03.61 BK. = STA. 1994+00.00 AH.
Δ = 42°30'55"

Δ_c = 36°30'55"	L_s = 300.00'
D_c = 2°00'00"	θ_s = 3°00'00"
R_c = 2864.79'	P = 1.31'
L_c = 1825.76'	K = 149.99'
T_T = 1264.98'	S.T. = 100.03'
E_s = 210.56'	L.T. = 200.03'
	L.C. = 299.96'

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (F) STANDARD CONSTRUCTION JOINT

FOR APPROACH SLAB DETAILS SEE SHEET 140.

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY QUANTITIES

203	451	301	304	310		SPECIAL	
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONCRETE PAV'T	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING A	SUBBASE	SPECIAL DRAINAGE CONNECTION USING No. 3 AGGREGATE	
SQ. YD.	SQ. YD.	CU. YD.	CU. YD	CU. YD.	CU. YD.	CU. YD.	
1667.28	1076.83	49.28	95.17	210.45	62.02	20.65	

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-16-73
CHK'D. BY R.J.Z. DATE 5-22-73

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

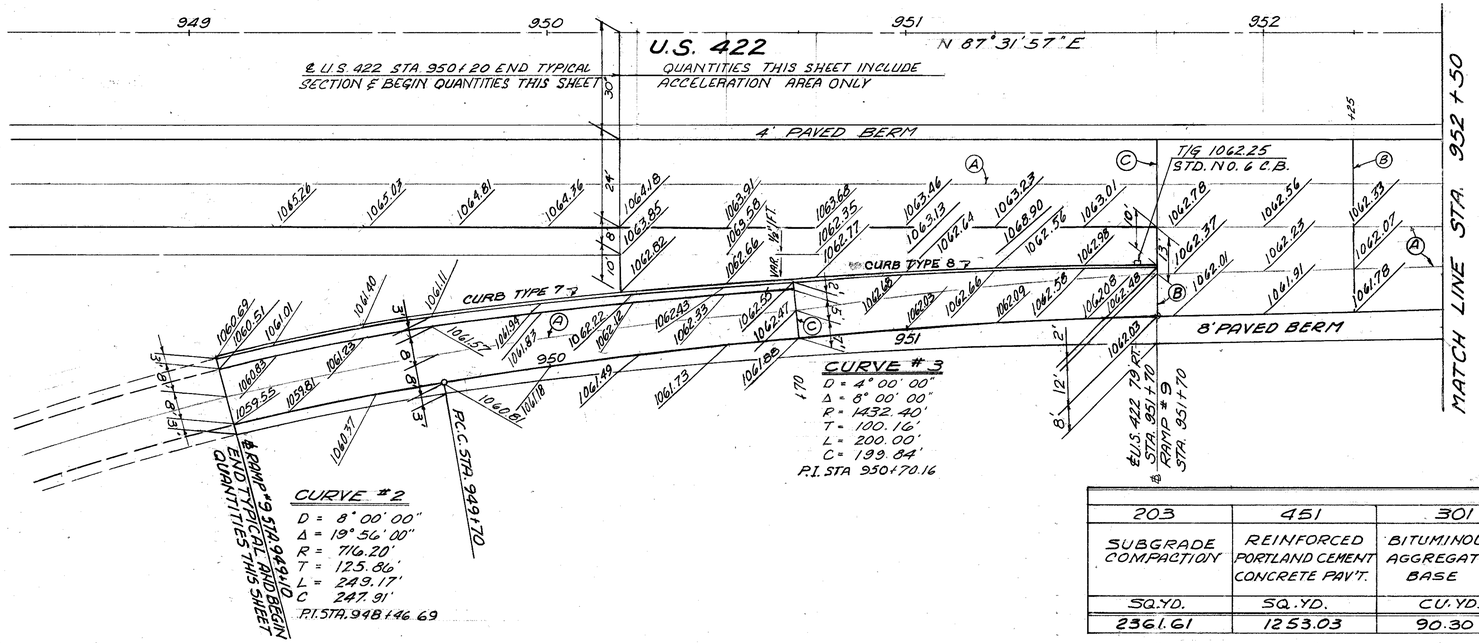
U.S. 422
PAVEMENT DETAILS
RAMP #8
S.R 91 INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H.	W.A.L.	R.J.Z.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

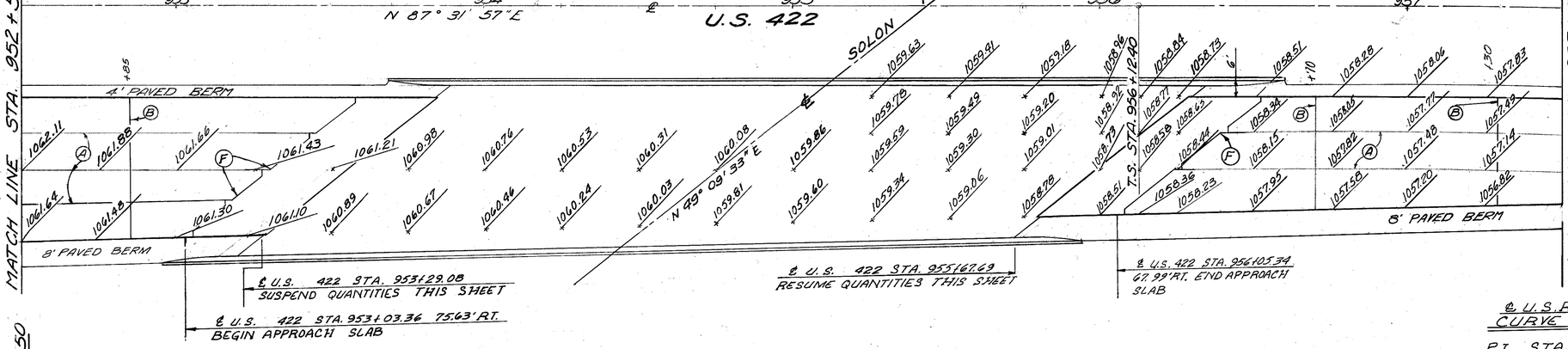
53
258

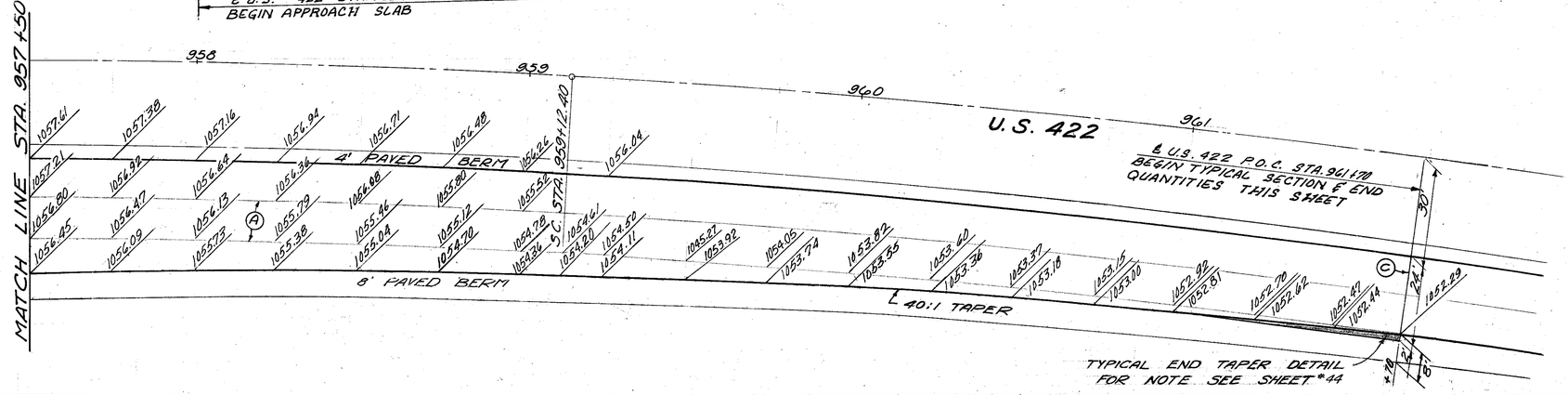
CUYAHOGA COUNTY
CUY. 422-16.33



SUMMARY QUANTITIES

203	451	301	304	310		609		SPECIAL	
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONCRETE PAV'T.	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING "A"	SUBBASE	CONCRETE CURB TYPE NO. 7	CONCRETE CURB TYPE NO. 8	DRAINAGE CONNECTION USING NO. 9 AGGREGATE	
SQ.YD.	SQ.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	LIN.FT.	LIN.FT.	CU.YD.	
2361.61	1253.03	90.30	169.68	303.55	98.67	115	150	64.48	





LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (F) STANDARD CONSTRUCTION JOINT

40:1 TAPER BASED ON ℄ U.S. 422 STATIONING
FOR APPROACH SLAB DETAILS SEE SHEET 139.

℄ U.S.R 422 CURVE DATA

P.I. STA. 2000+73.74
EQ. = STA. 962+03.64 Bk. = STA. 1994+00.00 AH.
Δ = 42°-30'-55"

Δ_c = 36°-30'-55"	L.S. = 300.00'
D_c = 2°-00'-00"	θ_s = 03°-00'-00"
R_c = 2864.79'	P = 1.31'
L_c = 1825.76'	K = 149.99'
T_s = 1269.98'	S.T. = 100.03'
E_s = 210.56'	L.T. = 200.03'

SCALE IN FEET
0 5 10 20 40 60 80 100

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-15-69
CHKD. BY R.J.Z. DATE 5-21-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

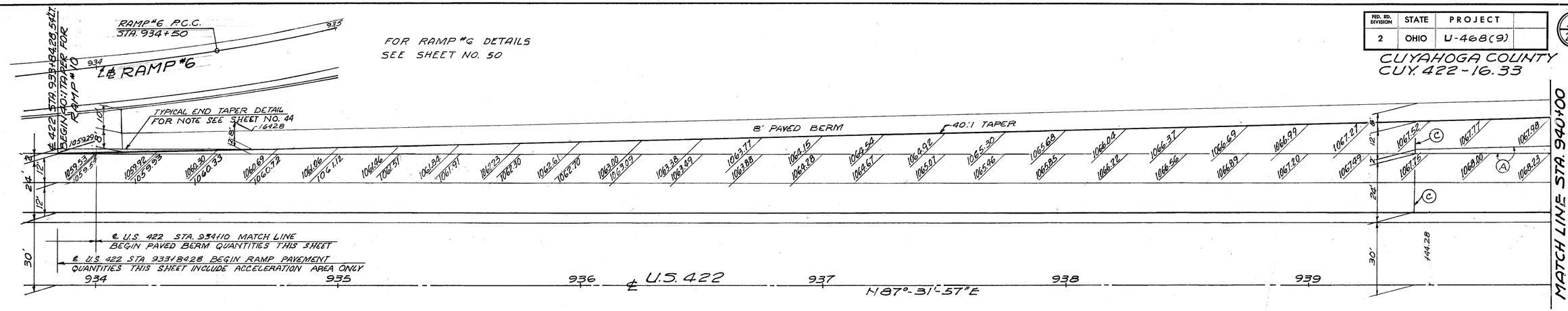
U.S. 422
PAVEMENT DETAILS
RAMP # 9
S.R. 91 INTERCHANGE

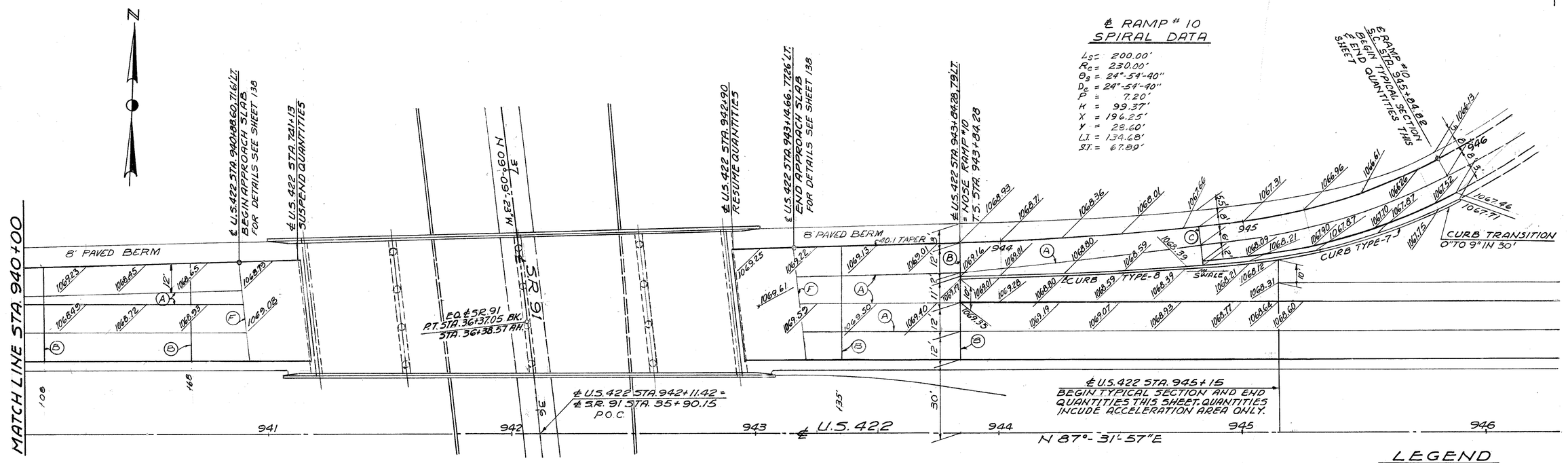
DESIGNED	DRAWN	CHECKED	REVISED	DATE
R.W.H.	J.A.K.	R.J.Z.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

54/258

CUYAHOGA COUNTY
CUY. 422-16.33





℄ RAMP # 10 SPIRAL DATA

L_s =	200.00'
R_c =	230.00'
θ_s =	24°-54'-40"
D_c =	24°-54'-40"
P =	7.20'
K =	99.37'
X =	196.25'
Y =	28.60'
L.T. =	134.68'
S.T. =	67.89'

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (F) STANDARD CONSTRUCTION JOINT

0 5 10 20 40 60 80 100
SCALE IN FEET

SUMMARY OF QUANTITIES

203	451	301	304	310		609		SPECIAL
SUBBASE COMPACTION	REINFORCED PORTLAND CEMENT CONCR. PAVEMET	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING "A"	SUBBASE	CONCRETE CURB TYPE 7	CONCRETE CURB TYPE 8	DRAINAGE CONNECTION USING NO. 9 AGGREGATE
SQ. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	LIN. F.T.	LIN. F.T.	CU. YD.
2301.80	1222.52	87.03	163.39	322.48	92.93	77	131	63.27

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422 PAVEMENT DETAILS RAMP # 10 S.R. 91 INTERCHANGE

MAY ℄ 1973

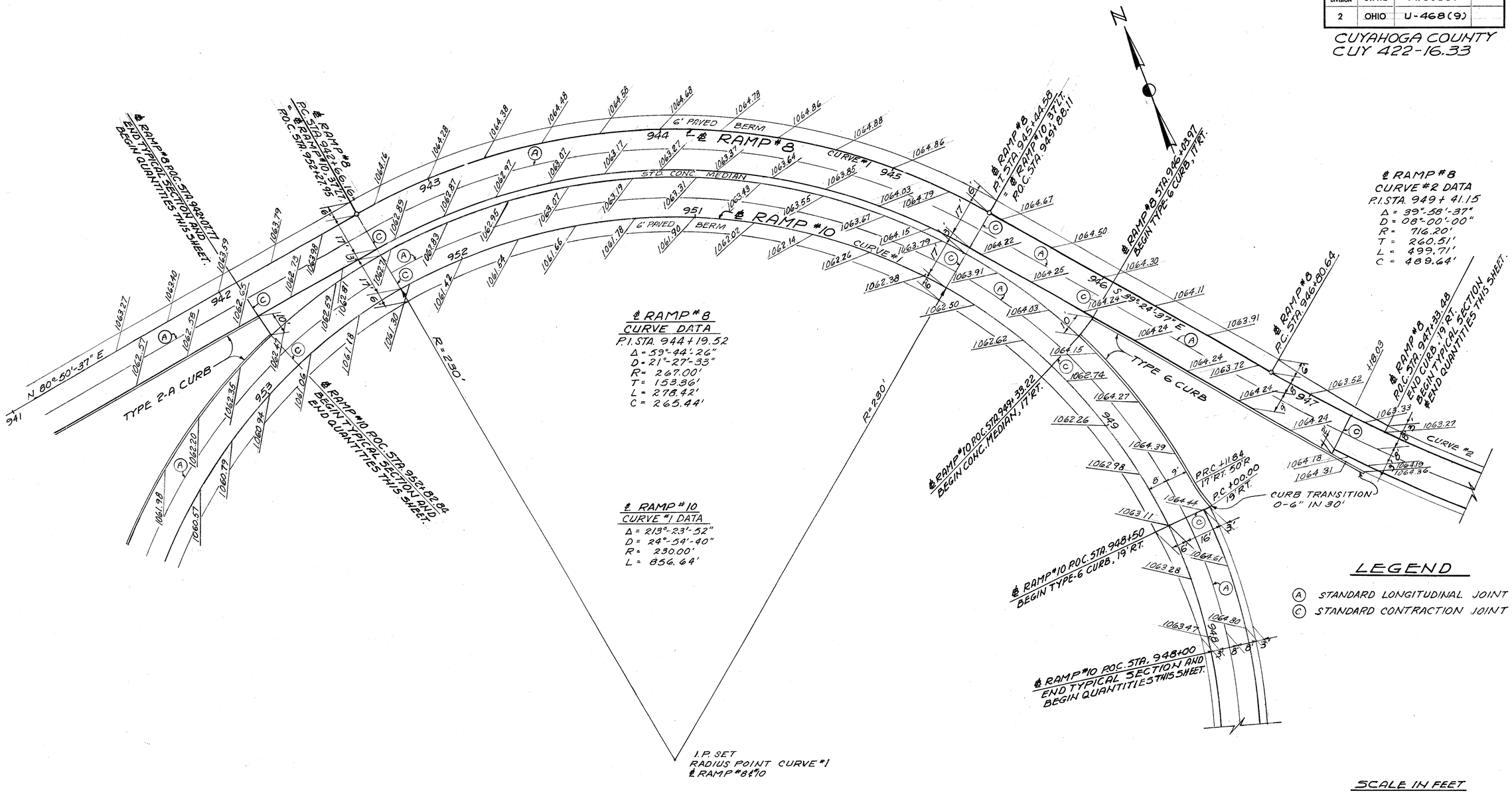
ADACHE ASSOCIATES, INC.
CALC. BY R.W.H DATE 5-15-69
CHKD. BY R.J.Z. DATE 5-21-69

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H	J.D.A.	R.J.Z.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

55/258

CUYAHOGA COUNTY
CUY 422-16.33



LEGEND

(A) STANDARD LONGITUDINAL JOINT
(C) STANDARD CONTRACTION JOINT

SCALE IN FEET
0 5 10 20 40 60 80 100

SUMMARY OF QUANTITIES

203	451	301	304	310			609	612	SPECIAL
SUBGRADE COMPACTION	REINFORCED PORTLAND CEMENT CONC. PAVEMENT	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE GRADING A	SUBBASE		TYPE 6 CONCRETE CURB	STANDARD CONCRETE MEDIAN	DRAINAGE CONNECTION USING No 9 AGGREGATE
SQ. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.		LIN. FT.	SQ. YD.	CU. YD.
3232.62	2401.51	56.30	93.92	511.83	44.35		211	155.50	59.14

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422

PAVEMENT DETAILS

CONCENTRIC RAMPS #8 & #10
S.R. 91 INTERCHANGE

MAY 4 1973

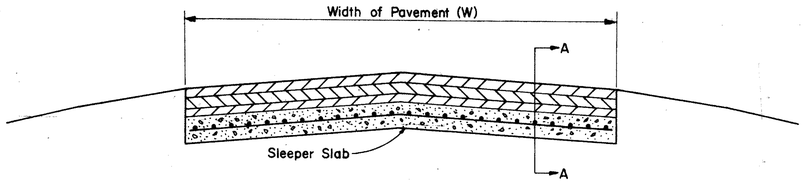
ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-1-69
CHKD. BY R.J.Z. DATE 5-4-69

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	R.J.Z.			

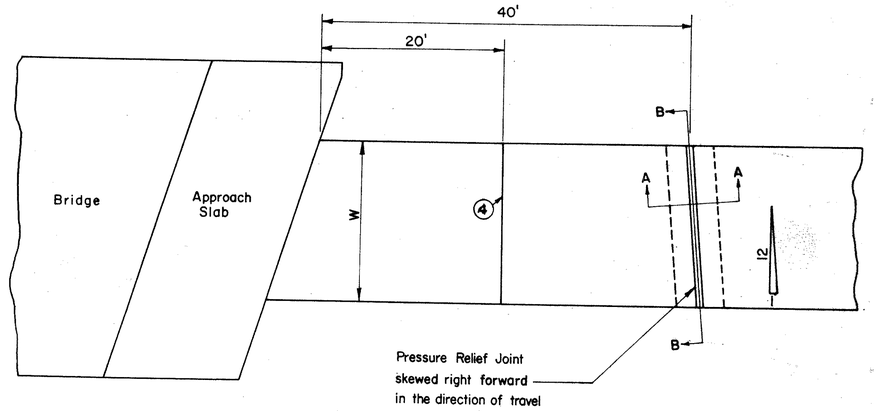
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

55A
258

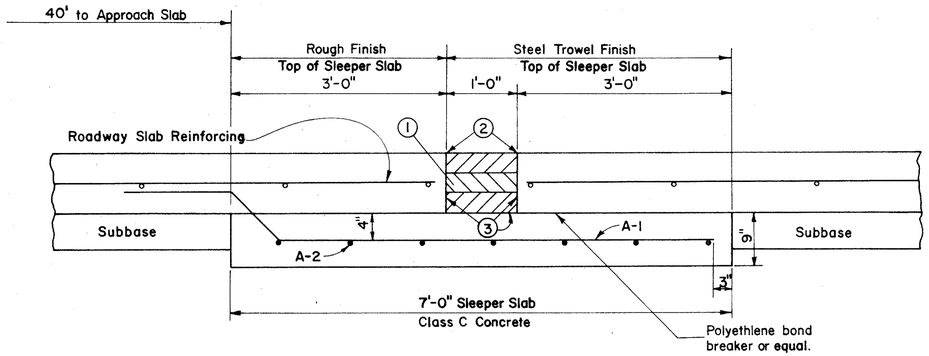
CUYAHOGA COUNTY
CUY-422-16.33



SECTION B – B



PLAN

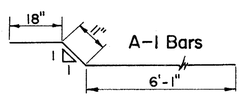


SECTION A – A

LEGEND

① Asphalt Concrete placed in three equal courses shall be in accordance with 404
② The 451 pavement shall have a 1/2" rounding and the joint shall be sealed in accordance with 705.01.
③ Tack Coat: 702.04, MS-2 or RS-1; or 702.02, RC-70 or RC-250 in accordance with 407.
④ Expansion Joint

SCHEDULE OF REINFORCING STEEL					
Mark	Bar Size	Spa c/c	Length	No. Req'd.	Shape
A-1	5	12"	8'-6"	24 for 24' Pvmt.	Bent
A-2	4	12"	W minus 6"	7	Straight



NOTES

Asphalt concrete shall be placed in the joint in three equal courses and compacted with equipment as approved by the Engineer.

The expansion joint approximately 60' from the bridge approach slab, as specified under 451.08 (c) shall be eliminated.

Barricades in accordance with 614, shall be provided during construction until the joint has been filled with asphalt.

Pressure Relief Joints will be measured by the linear foot along the centerline of the joint from edge to edge of pavement.

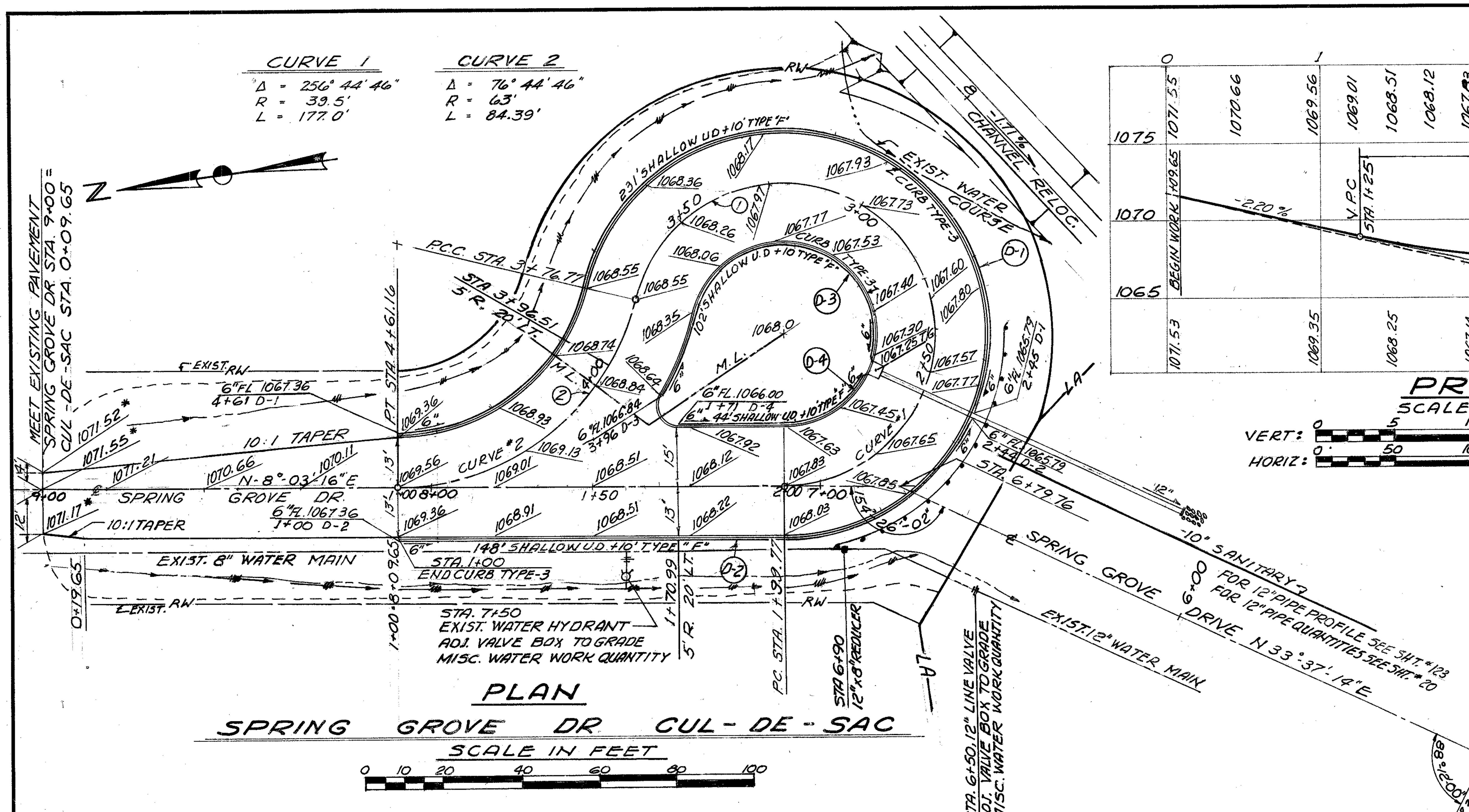
Payment for the work shall be made per linear foot under "Item Special, Pressure Relief Joint", which price and payment shall constitute full compensation for furnishing and placing of all concrete, asphalt, reinforcing steel, tack coat and all other materials, labor, tools and equipment, and incidentals necessary to complete this item.

PRESSURE RELIEF JOINTS (LIN. FT.)		
Bridge No.	Abutment	
	Rear	Fwd.
1800 L	42	48
1800 R	24	24
1825 L	38	36
1825 R	44	38
Sub-total	148	146
Total to Gen. Sum. 294		

PRESSURE RELIEF JOINT

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

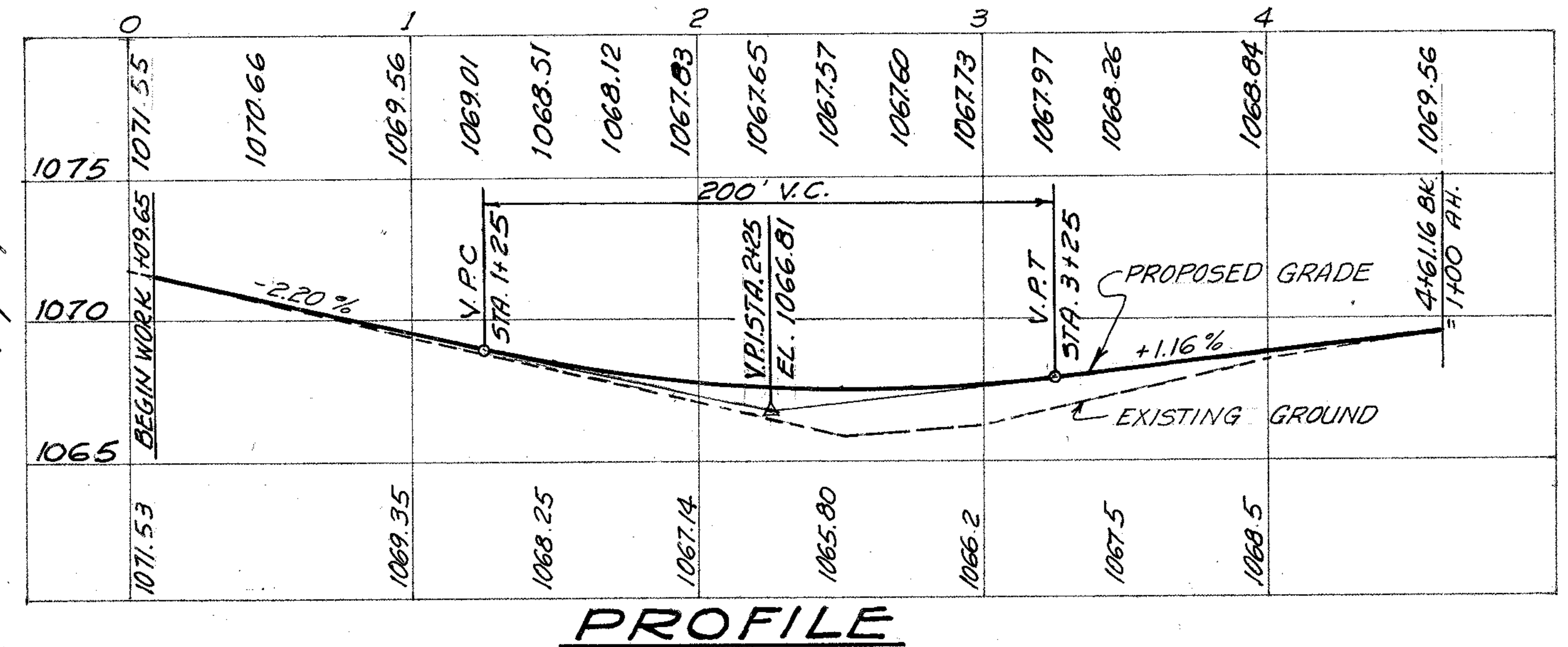
CUYAHOGA COUNTY
CUY. -422-16.33



PLAN

SPRING GROVE DR CUL-DE-SAC

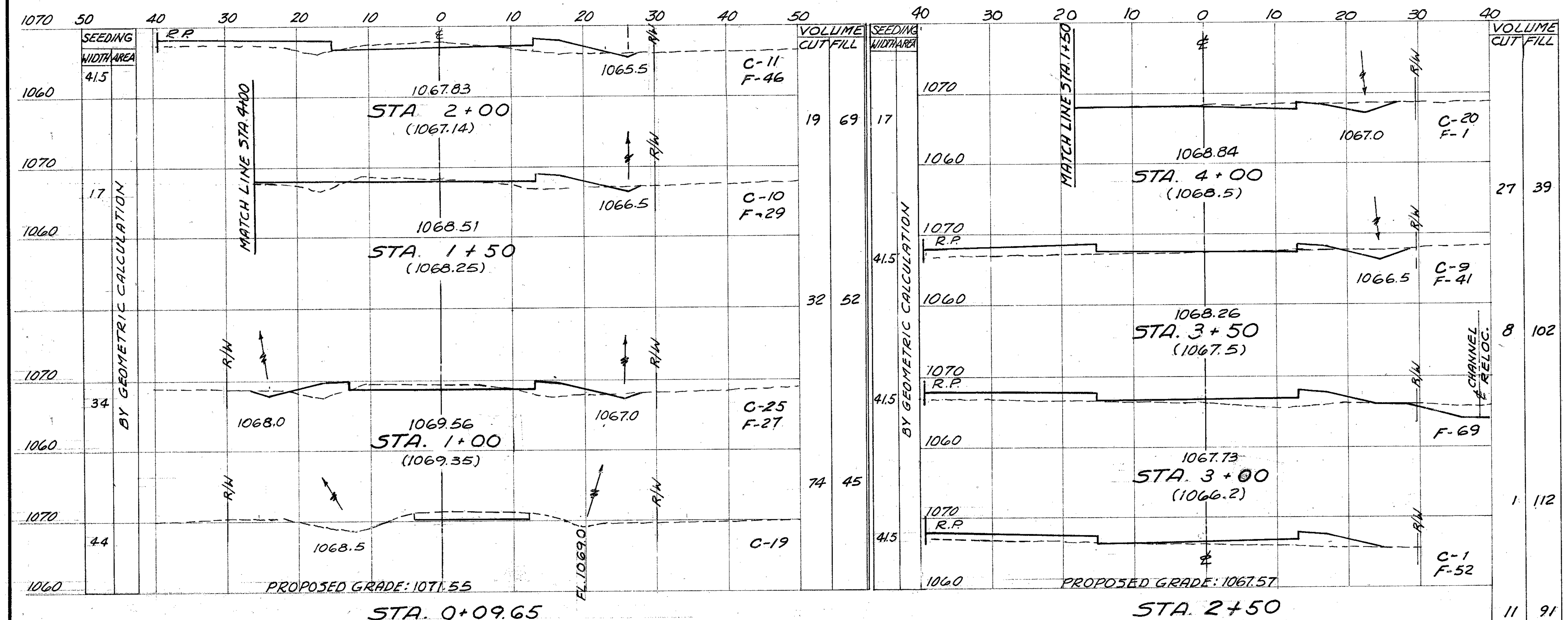
SCALE IN FEET



PROFILE

SCALE IN FEET

VERT: 0 5 10 15 20 25
HORIZ: 0 50 100 150 200 250



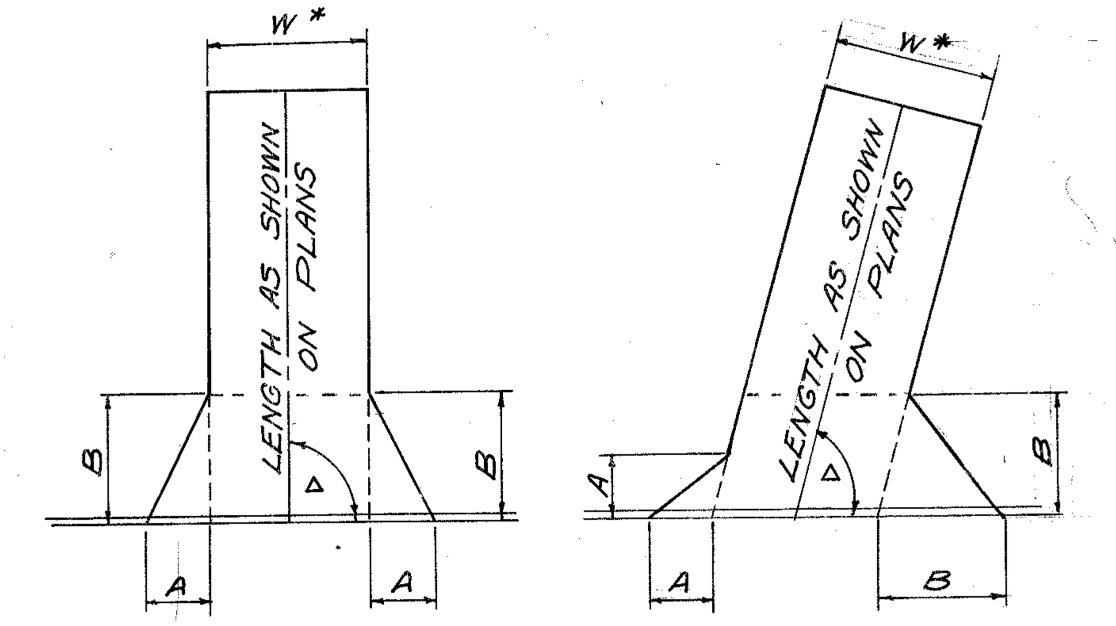
CROSS SECTIONS

SCALE IN FEET

SUMMARY OF QUANTITIES			
203	SUBGRADE COMPACTION	SQ.YD.	1074.80
203	EXCAVATION	CU.YD.	172
203	EMBANKMENT	CU.YD.	510
659	SEEDING & MULCHING	SQ.YD.	1555
301	BITUMINOUS AGGREGATE BASE	CU.YD.	88.73
304	AGGREGATE BASE	CU.YD.	191.60
408	BITUMINOUS PRIME COAT	GAL'S.	319.43
404	ASPHALT CONCRETE 70-85	CU.YD.	44.16
609	CONCRETE CURB TYPE-3	LIN.FT.	577
605	PIPE U.D. SHALLOW 6" D-1,D-2,D-3 & D-4	LIN.FT.	525
603	TYPE "F" CONDUIT 6" D-1,D-2,D-3 & D-4	LIN.FT.	40

FOR MISC. WATER WORK SEE SHEET #219

* WIDTH OF EXISTING



NORMAL DRIVE

SKEWED DRIVE

DRIVE DETAILS

NO SCALE

SKEWED DRIVE DIMENSIONS		
Δ	A	B
65° TO 75°	4'*	12'*
75° TO 85°	4'*	10'*
85° TO 90°	4'*	8'*

* UNLESS OTHERWISE SHOWN ON PLAN

SUMMARY OF QUANTITIES				404	304	409	
STA.	REF. SH.	TYPE SEE SHEET #46	AREA	ASPHALT CONCRETE 70-85	AGGR. BASE	BITUM. MATERIAL	No. 8 AGGREGATE
17+78	41	RES.#2	72.89	0.79	15.01	23.47	0.47
18+15	41	RES.#2	66.89	0.69	13.83	21.78	0.44
18+60	41	RES.#2	63.10	1.47	11.81	14.62	0.29
2+82	126	RES.#2	88.89		19.75	35.56	0.71
			SQ.YD.	CU.YD.	CU.YD.	GAL'S	CU.YD.
TOTAL			291.77	2.95	60.40	95.43	1.91

MAY 4 1970

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-17-69
CHKD. BY R.J.Z. DATE 5-21-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

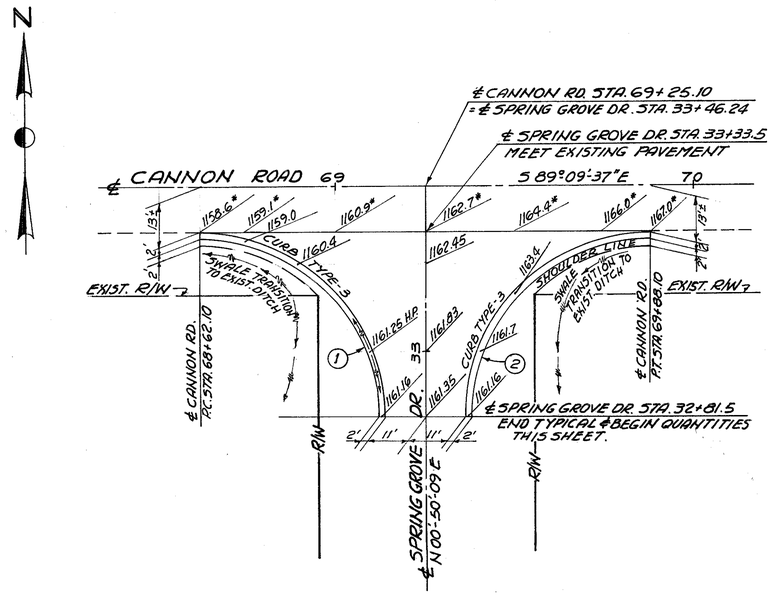
SPRING GROVE DR. CUL-DE-SAC AND DRIVE DETAILS

DESIGNED	DRAWN	CHECKED	REVISED	DATE
R.W.H.	J.A.K.	R.J.Z.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

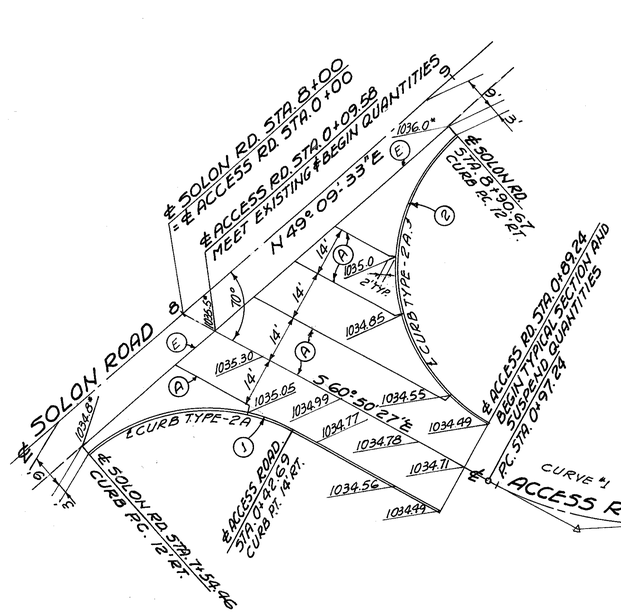
57
258

CUYAHOGA COUNTY
CUY. 422 - 16.33



SPRING GROVE DRIVE

SPRING GROVE DRIVE MISCELLANEOUS CURVE DATA				
NO.	Δ	R	T	L
1	90°-00'-14"	50.00'	50.00'	78.54'
2	89°-59'-46"	50.00'	50.00'	78.54'



ACCESS ROAD

℄ ACCESS ROAD CURVE DATA			
CURVE #1		CURVE #2	
P.I. STA. 1+25.56		P.I. STA. 7+16.26	
Δ =	31°-37'-36"	Δ =	51°-10'-06"
R =	100.00'	R =	100.00'
T =	28.32'	T =	47.88'
L =	55.20'	L =	89.31'

ACCESS ROAD MISCELLANEOUS CURVE DATA				
NO.	Δ	R	T	L
1	70°-00'-00"	50.00'	35.01'	61.09'
2	110°-00'-00"	50.00'	71.41'	95.99'

ACCESS ROAD CURB TRANSITION	
STATION	CURB DIST. LT. & RT.
6+68.38	14.00'
6+75	13.78'
7+00	12.94'
7+25	12.10'
7+50	11.26'
7+52.69	11.00'
7+70	11.00'

LEGEND

- Ⓐ STANDARD LONGITUDINAL JOINT
- Ⓑ STANDARD EXPANSION JOINT
- Ⓔ STANDARD EXPANSION JOINT WITHOUT DOWELS
- * EXISTING PAVEMENT ELEVATIONS

SUMMARY QUANTITIES

LOCATION	203 SUBGRADE COMPACTION	301 BITUMINOUS AGGREGATE BASE	304 AGGREGATE BASE	310 SUBBASE GRADE "A"	404 ASPHALT CONCRETE (70-85)	408 PRIME COAT	451 9" REINFORCED PORTLAND CEMENT CONC. PAVEMENT	609 CONCRETE CURB TYPE-3	609 CONCRETE CURB TYPE-2A
	SQ.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	GAL.	SQ.YD.	LIN.FT.	LIN.FT.
SPRING GROVE DR.	291.72	21.34	46.14		10.67	102.44		160	
ACCESS ROAD	738.98			67.06			738.98		394
TOTAL	1,030.70	21.34	46.14	67.06	10.67	102.44	738.98	160	394

0 5 10 20 40 60 80 100
SCALE IN FEET

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY H.G. DATE 9-26-69
CHKD. BY R.W.H. DATE 9-31-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422

PAVEMENT DETAILS SPRING GROVE DRIVE AND ACCESS ROAD

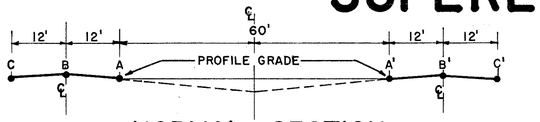
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	J.D.A.	R.W.H			

SUPERELEVATION TABLES

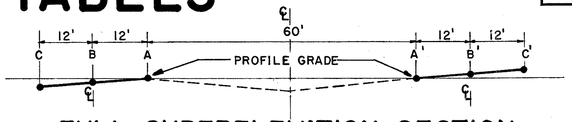
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

58/258

CUYAHOGA COUNTY
CUY.-422-16.33



NORMAL SECTION



FULL SUPERELEVATION SECTION

CURVE No. 3

Dc = 0°-40' LEFT. MAX. SUPERELEVATION FOR 24' = 0.38' e = .016 $^{1}/_{FT.}$

C	B	A	STATIONS	A'	B'	C'
1074.26	1074.45	1074.64	853+00	1074.64	1074.83	1075.02
1074.09	1074.28	1074.47	+25	1074.47	1074.66	1074.85
1073.91	1074.10	1074.29	+50	1074.29	1074.48	1074.67
1073.74	1073.93	1074.12	+75	1074.12	1074.31	1074.50
1073.56	1073.75	1073.94	854+00	1073.94	1074.13	1074.32
1073.39	1073.58	1073.77	+25	1073.77	1073.96	1074.15
1073.21	1073.40	1073.59	+50	1073.59	1073.78	1073.97
1073.04	1073.23	1073.42	+75	1073.42	1073.61	1073.80
1072.86	1073.05	1073.24	855+00	1073.24	1073.43	1073.62
1072.69	1072.88	1073.07	+25	1073.07	1073.26	1073.45
1072.51	1072.70	1072.89	+50	1072.89	1073.08	1073.27
1072.34	1072.53	1072.72	+75	1072.72	1072.91	1073.10
1072.16	1072.35	1072.54	856+00	1072.54	1072.73	1072.92
1071.99	1072.18	1072.37	+25	1072.37	1072.56	1072.75
1071.81	1072.00	1072.19	+50	1072.19	1072.38	1072.57
1071.64	1071.83	1072.02	+75	1072.02	1072.21	1072.40
1071.46	1071.65	1071.84	857+00	1071.84	1072.03	1072.22
1071.29	1071.48	1071.67	+25	1071.67	1071.86	1072.05
1071.11	1071.30	1071.49	+50	1071.49	1071.68	1071.87
1070.94	1071.13	1071.32	+75	1071.32	1071.51	1071.70
1070.76	1070.95	1071.14	858+00	1071.14	1071.33	1071.52
1070.59	1070.78	1070.97	+25	1070.97	1071.16	1071.35
1070.41	1070.60	1070.79	+50	1070.79	1070.98	1071.17
1070.24	1070.43	1070.62	+75	1070.62	1070.81	1071.00
1070.06	1070.25	1070.44	859+00	1070.44	1070.63	1070.82
1069.89	1070.08	1070.27	+25	1070.27	1070.46	1070.65
1069.71	1069.90	1070.09	+50	1070.09	1070.28	1070.47
1069.54	1069.73	1069.92	+75	1069.92	1070.11	1070.30
1069.36	1069.55	1069.74	860+00	1069.74	1069.93	1070.12
1069.19	1069.38	1069.57	+25	1069.57	1069.76	1069.95
1069.01	1069.20	1069.39	+50	1069.39	1069.58	1069.77
1068.84	1069.03	1069.22	+75	1069.22	1069.41	1069.60
1068.66	1068.85	1069.04	861+00	1069.04	1069.23	1069.42
1068.49	1068.68	1068.87	+25	1068.87	1069.06	1069.25
1068.31	1068.50	1068.69	+50	1068.69	1068.88	1069.07
1068.14	1068.33	1068.52	+75	1068.52	1068.71	1068.90
1067.96	1068.15	1068.34	862+00	1068.34	1068.53	1068.72
1067.79	1067.98	1068.17	+25	1068.17	1068.36	1068.55
1067.61	1067.80	1067.99	+50	1067.99	1068.18	1068.37
1067.44	1067.63	1067.82	+75	1067.82	1068.01	1068.20
1067.26	1067.45	1067.64	863+00	1067.64	1067.83	1068.02
1067.09	1067.28	1067.47	+25	1067.47	1067.66	1067.85
1066.91	1067.10	1067.29	+50	1067.29	1067.48	1067.67
1066.74	1066.93	1067.12	+75	1067.12	1067.31	1067.50
1066.56	1066.75	1066.94	864+00	1066.94	1067.13	1067.32
1066.39	1066.58	1066.77	+25	1066.77	1066.96	1067.15
1066.21	1066.40	1066.59	+50	1066.59	1066.78	1066.97
1066.04	1066.23	1066.42	+75	1066.42	1066.61	1066.80
1065.86	1066.05	1066.24	865+00	1066.24	1066.43	1066.62
1065.69	1065.88	1066.07	+25	1066.07	1066.26	1066.45
1065.51	1065.70	1065.89	+50	1065.89	1066.08	1066.27
1065.34	1065.53	1065.72	+75	1065.72	1065.91	1066.10
1065.16	1065.35	1065.54	866+00	1065.54	1065.73	1065.92
1064.99	1065.18	1065.37	+25	1065.37	1065.56	1065.75
1064.81	1065.00	1065.19	+50	1065.19	1065.38	1065.57
1064.64	1064.83	1065.02	+75	1065.02	1065.21	1065.40
1064.46	1064.65	1064.86	867+00	1064.86	1065.03	1065.22
1064.29	1064.48	1064.72	+25	1064.72	1064.86	1065.05
1064.23	1064.42	1064.61	+50	1064.61	1064.80	1064.99
1064.19	1064.38	1064.51	+75	1064.51	1064.70	1064.83
1064.17	1064.36	1064.42	868+00	1064.42	1064.61	1064.67
1064.16	1064.35	1064.35	+25	1064.35	1064.54	1064.54
1064.17	1064.36	1064.30	+50	1064.30	1064.49	1064.43
1064.20	1064.39	1064.27	+75	1064.27	1064.46	1064.33
1064.22	1064.41	1064.25	869+00	1064.25	1064.44	1064.26
1064.24	1064.43	1064.25	+25	1064.25	1064.43	1064.25
1064.27	1064.46	1064.27	869+50			

FULL SUPERELEVATION

TRANSITION

CURVE No. 4

Dc = 2°-30' LEFT. MAX. SUPERELEVATION FOR 24' = 1.42' e = .059 $^{1}/_{FT.}$

C	B	A	STATIONS	A'	B'	C'
1066.23	1066.42	1066.23	907+21.15	1066.23	1066.42	1066.23
1066.21	1066.40	1066.21	+25	1066.21	1066.40	1066.22
1066.06	1066.25	1066.11	+50	1066.11	1066.30	1066.16
1065.92	1066.11	1066.01	+75	1066.01	1066.20	1066.10
1065.77	1065.96	1065.91	908+00	1065.91	1066.10	1066.05
1065.63	1065.82	1065.81	+25	1065.81	1066.00	1065.99
1065.61	1065.80	1065.80	+27.89	1065.80	1065.99	1065.99
1065.48	1065.68	1065.71	+50	1065.71	1065.90	1065.94
1065.34	1065.53	1065.61	+75	1065.61	1065.80	1065.88
1065.20	1065.39	1065.51	909+00	1065.51	1065.70	1065.83
1065.05	1065.24	1065.41	+25	1065.41	1065.60	1065.77
1064.88	1065.10	1065.31	+50	1065.31	1065.53	1065.74
1064.69	1064.95	1065.21	+75	1065.21	1065.47	1065.73
1064.50	1064.81	1065.11	910+00	1065.11	1065.42	1065.72
1064.31	1064.66	1065.01	+25	1065.01	1065.36	1065.71
1064.12	1064.52	1064.91	+50	1064.91	1065.30	1065.70
1063.94	1064.37	1064.81	+75	1064.81	1065.25	1065.69
1063.75	1064.23	1064.71	911+00	1064.71	1065.19	1065.66
1063.56	1064.08	1064.61	+25	1064.61	1065.14	1065.67
1063.37	1063.94	1064.51	+50	1064.51	1065.08	1065.65
1063.18	1063.80	1064.41	+75	1064.41	1065.03	1065.64
1062.99	1063.65	1064.31	912+00	1064.31	1064.97	1065.63
1062.80	1063.51	1064.21	+25	1064.21	1064.92	1065.62
1062.78	1063.49	1064.20	+27.89	1064.20	1064.91	1065.62
1062.69	1063.40	1064.11	+50	1064.11	1064.82	1065.53
1062.59	1063.30	1064.01	+75	1064.01	1064.72	1065.43
1062.49	1063.20	1063.91	913+00	1063.91	1064.62	1065.33
1062.39	1063.10	1063.81	+25	1063.81	1064.52	1065.23
1062.29	1063.00	1063.71	+50	1063.71	1064.42	1065.13
1062.19	1062.90	1063.61	+75	1063.61	1064.32	1065.03
1062.09	1062.80	1063.51	914+00	1063.51	1064.22	1064.93
1061.99	1062.70	1063.41	+25	1063.41	1064.12	1064.83
1061.89	1062.60	1063.31	+50	1063.31	1064.02	1064.73
1061.79	1062.50	1063.21	+75	1063.21	1063.92	1064.63
1061.69	1062.40	1063.11	915+00	1063.11	1063.82	1064.53
1061.59	1062.30	1063.01	+25	1063.01	1063.72	1064.43
1061.49	1062.20	1062.91	+50	1062.91	1063.62	1064.33
1061.39	1062.10	1062.81	+75	1062.81	1063.52	1064.23
1061.29	1062.00	1062.71	916+00	1062.71	1063.42	1064.13
1061.19	1061.90	1062.61	+25	1062.61	1063.32	1064.03
1061.09	1061.80	1062.51	+50	1062.51	1063.22	1063.93
1060.99	1061.70	1062.41	+75	1062.41	1063.12	1063.83
1060.89	1061.60	1062.31	917+00	1062.31	1063.02	1063.73
1060.79	1061.50	1062.21	+25	1062.21	1062.92	1063.63
1060.69	1061.40	1062.11	+50	1062.11	1062.82	1063.53
1060.59	1061.30	1062.01	+75	1062.01	1062.72	1063.43
1060.49	1061.20	1061.91	918+00	1061.91	1062.62	1063.33
1060.39	1061.10	1061.81	+25	1061.81	1062.52	1063.23
1060.29	1061.00	1061.71	+50	1061.71	1062.42	1063.13
1060.19	1060.90	1061.61	918+75	1061.61	1062.32	1063.03

TRANSITION

FULL SUPERELEVATION

CURVE No. 4

Dc = 2°-30' LEFT. MAX. SUPERELEVATION FOR 24' = 1.42' e = .059 $^{1}/_{FT.}$

C	B	A	STATIONS	A'	B'	C'
1060.09	1060.80	1061.51	919+00	1061.51	1062.22	1062.93
1059.99	1060.70	1061.41	+25	1061.41	1062.12	1062.83
1059.89	1060.60	1061.31	+50	1061.31	1062.02	1062.73
1059.79	1060.50	1061.21	+75	1061.21	1061.92	1062.63
1059.69	1060.40	1061.11	920+00	1061.11	1061.82	1062.53
1059.59	1060.30	1061.01	+25	1061.01	1061.72	1062.43
1059.49	1060.20	1060.91	+50	1060.91	1061.62	1062.33
1059.39	1060.10	1060.81	+75	1060.81	1061.52	1062.23
1059.29	1060.00	1060.71	921+00	1060.71	1061.42	1062.13
1059.19	1059.90	1060.61	+25	1060.61	1061.32	1062.03
1059.09	1059.80	1060.51	+50	1060.51	1061.22	1061.93
1058.99	1059.70	1060.41	+75	1060.41	1061.12	1061.83
1058.89	1059.60	1060.31	922+00	1060.31	1061.02	1061.73
1058.79	1059.50	1060.21	+25	1060.21	1060.92	1061.63
1058.69	1059.40	1060.11	+50	1060.11	1060.82	1061.53
1058.59	1059.30	1060.01	+75	1060.01	1060.72	1061.43
1058.49	1059.20	1059.91	923+00	1059.91	1060.62	1061.33
1058.39	1059.10	1059.81	+25	1059.81	1060.52	1061.23
1058.32	1059.03	1059.74	+43.41	1059.74	1060.45	1061.16
1058.31	1059.01	1059.71	+50	1059.71	1060.41	1061.11
1058.30	1058.96	1059.61	+75	1059.61	1060.26	1060.92
1058.29	1058.90	1059.51	924+00	1059.51	1060.12	1060.73
1058.28	1058.84	1059.41	+25	1059.41	1059.97	1060.54
1058.27	1058.79	1059.31	+50	1059.31	1059.83	1060.35
1058.26	1058.73	1059.21	+75	1059.21	1059.68	1060.16
1058.24	1058.68	1059.11	925+00	1059.11	1059.54	1059.97
1058.23	1058.62	1059.01	+25	1059.01	1059.40	1059.78
1058.22	1058.57	1058.91	+50	1058.91	1059.25	1059.60
1058.21	1058.51	1058.81	+75	1058.81	1059.11	1059.41
1058.20	1058.46	1058.71	926+00	1058.71	1058.96	1059.22
1058.19	1058.40	1058.61	+25	1058.61	1058.82	1059.03
1058.15	1058.34	1058.51	+50	1058.51	1058.70	1058.86
1058.10	1058.29	1058.41	+75	1058.41	1058.60	1058.72
1058.04	1058.23	1058.31	927+00	1058.31	1058.50	1058.58
1057.99	1058.18	1058.21	+25	1058.21	1058.40	1058.43
1057.95	1058.14	1058.14	+43.41	1058.14	1058.33	1058.33
1057.93	1058.12	1058.11	+50	1058.11	1058.30	1058.29
1057.88	1058.07	1058.01	+75	1058.01	1058.20	1058.14
1057.82	1058.01	1057.91	928+00	1057.91	1058.10	1058.00
1057.77	1057.96	1057.81	+25	1057.81	1058.00	1057.85
1057.71	1057.90	1057.71	+50	1057.71	1057.90	1057.71
1057.71	1057.90	1057.71	928+50.15	1057.71	1057.90	1057.71

FULL SUPERELEVATION

TRANSITION

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SUPERELEVATION TABLES
CURVE NO.3
AND CURVE NO.4

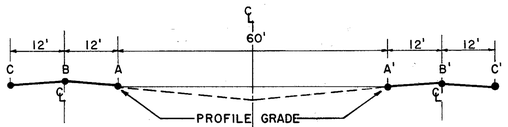
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
M.A.R.	J.A.S.	R.J.Z.		

SUPERELEVATION TABLES

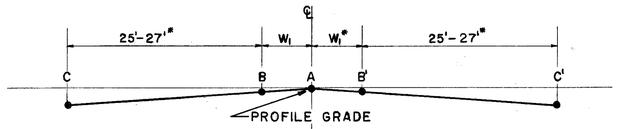
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

59/258

CUYAHOGA COUNTY
CUY. -422-16.33



NORMAL SECTION



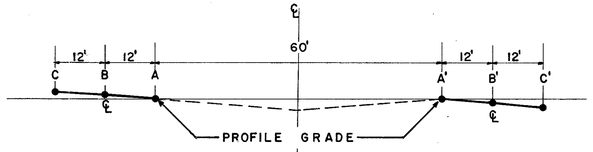
NORMAL SECTION

*SEE CONCRETE DETAILS FOR APPLICATION. NORMAL PAVEMENT WIDTHS WERE USED TO COMPUTE TRANSITIONS.

CURVE No. 5

Dc = 2°-00' RIGHT. MAX. SUPERELEVATION FOR 24' = 1.54' e = .064 /FT.

C	B	A	STATIONS	A'	B'	C'	
1059.75	1059.93	1059.75	955 + 12.40	1059.75	1059.93	1059.75	TRANSITION
1059.67	1059.82	1059.63	+ 25	1059.63	1059.78	1059.59	
1059.51	1059.60	1059.41	+ 50	1059.41	1059.49	1059.30	
1059.35	1059.37	1059.18	+ 75	1059.18	1059.20	1059.01	
1059.19	1059.15	1058.96	956 + 00	1058.96	1058.92	1058.73	
1059.11	1059.03	1058.85	+ 12.40	1058.85	1058.77	1058.58	
1059.03	1058.92	1058.73	+ 25	1058.74	1058.63	1058.44	
1058.88	1058.70	1058.51	+ 50	1058.51	1058.34	1058.15	
1058.85	1058.66	1058.47	+ 53.99	1058.47	1058.29	1058.10	
1058.75	1058.52	1058.28	+ 75	1058.28	1058.05	1057.82	
1058.64	1058.35	1058.06	957 + 00	1058.06	1057.77	1057.48	
1058.53	1058.18	1057.83	+ 25	1057.84	1057.49	1057.14	
1058.42	1058.01	1057.61	+ 50	1057.61	1057.21	1056.80	
1058.30	1057.84	1057.38	+ 75	1057.38	1056.92	1056.47	
1058.19	1057.68	1057.16	958 + 00	1057.16	1056.64	1056.13	
1058.08	1057.51	1056.93	+ 25	1056.93	1056.36	1055.79	
1057.96	1057.34	1056.71	+ 50	1056.71	1056.08	1055.46	
1057.85	1057.17	1056.48	+ 75	1056.48	1055.80	1055.12	
1057.74	1057.00	1056.26	959 + 00	1056.26	1055.52	1054.78	
1057.68	1056.92	1056.15	+ 12.40	1056.15	1055.38	1054.61	FULL SUPERELEVATION
1057.57	1056.80	1056.03	+ 25	1056.03	1055.26	1054.50	
1057.35	1056.58	1055.81	+ 50	1055.81	1055.04	1054.28	
1057.12	1056.35	1055.58	+ 75	1055.58	1054.81	1054.05	
1056.90	1056.13	1055.36	960 + 00	1055.36	1054.59	1053.82	
1056.67	1055.90	1055.13	+ 25	1055.13	1054.36	1053.60	
1056.45	1055.68	1054.91	+ 50	1054.91	1054.14	1053.37	
1056.22	1055.45	1054.68	+ 75	1054.68	1053.91	1053.15	
1056.00	1055.23	1054.46	961 + 00	1054.46	1053.69	1052.92	
1055.77	1055.00	1054.23	+ 25	1054.23	1053.46	1052.70	
1055.55	1054.78	1054.01	+ 50	1054.01	1053.24	1052.47	
1055.32	1054.55	1053.78	+ 75	1053.78	1053.01	1052.25	
1055.10	1054.33	1053.56	962 + 00	1053.56	1052.79	1052.02	
1055.06	1054.29	1053.52	+ 03.64	1053.52	1052.75	1051.98	END OF PROJECT



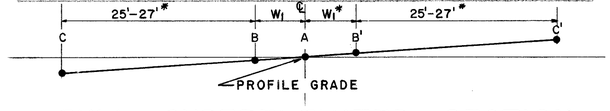
FULL SUPERELEVATED SECTION

S.R. 91

Dc = 1°30' LEFT MAX. SUPERELEVATION FOR 34' = 0.53 e = 0.0156 /FT.

C	B	A	STATIONS	W1	B'	C'	
1036.16	1036.53	1036.62	28+75	6.00	1036.71	1036.32	TRANS. ABOUT B' C' 25' LT. OF B' C' 25' RT. OF B'
1036.09	1036.47	1036.56	29+00	6.00	1036.65	1036.37	
1036.02	1036.41	1036.50	+25	6.00	1036.59	1036.42	
1035.98	1036.37	1036.46	+50	6.00	1036.55	1036.49	
1035.97	1036.36	1036.45	+75	6.00	1036.54	1036.60	
1035.99	1036.38	1036.47	29+93.75	6.00	1036.56	1036.70	
1035.99	1036.38	1036.48	30+00	6.21	1036.58	1036.75	
1036.05	1036.44	1036.55	+25	7.04	1036.66	1036.94	
1036.14	1036.53	1036.65	+50	7.87	1036.77	1037.16	
1036.27	1036.66	1036.79	+75	6.37	1036.89	1037.32	
1036.32	1036.74	1036.85	+83.75	7.00	1036.96	1037.38	
1036.44	1036.86	1036.97	31+00		1037.08	1037.50	
1036.64	1037.06	1037.17	+23.75		1037.28	1037.70	
1036.65	1037.07	1037.18	+25		1037.29	1037.71	
1036.90	1037.32	1037.43	+50		1037.54	1037.96	
1037.18	1037.60	1037.71	+75		1037.82	1038.24	
1037.50	1037.92	1038.03	32+00		1038.14	1038.56	
1037.86	1038.28	1038.39	+25		1038.50	1038.92	
1038.25	1038.67	1038.78	+50		1038.89	1039.31	
1038.68	1039.10	1039.21	+75		1039.32	1039.74	
1039.15	1039.57	1039.68	33+00		1039.79	1040.21	
1039.65	1040.07	1040.18	+25		1040.29	1040.71	
1040.19	1040.61	1040.72	+50		1040.83	1041.25	
1040.76	1041.18	1041.29	+75		1041.40	1041.82	
1041.37	1041.79	1041.90	34+00		1042.01	1042.43	
1042.02	1042.44	1042.55	+25		1042.66	1043.08	
1042.70	1043.12	1043.23	+50		1043.34	1043.76	
1043.42	1043.84	1043.95	+75		1044.06	1044.48	
1044.18	1044.60	1044.71	35+00		1044.82	1045.24	
1044.35	1044.77	1044.88	+08.41		1044.99	1045.41	
1044.97	1045.39	1045.50	+25		1045.61	1046.03	
1045.78	1046.20	1046.31	+50		1046.42	1046.84	
1046.40	1046.82	1046.93	+69		1047.04	1047.46	
1046.59	1047.01	1047.12	+75		1047.22	1047.62	
1047.40	1047.82	1047.93	36+00		1048.01	1048.30	
1048.21	1048.63	1048.74	+25		1048.79	1048.99	
1048.60	1049.02	1049.13	+37.05 AK. +38.57 AH.		1049.17	1049.32	
1048.97	1049.39	1049.50	+50		1049.53	1049.63	
1049.78	1050.20	1050.31	+75		1050.31	1050.32	
1050.59	1051.01	1051.12	37+00		1051.10	1051.00	
1051.40	1051.82	1051.93	+25		1051.88	1051.69	
1052.21	1052.63	1052.74	+50		1052.67	1052.37	
1053.02	1053.44	1053.55	+75		1053.46	1053.06	
1053.26	1053.68	1053.79	+82.52	7.00	1053.68	1053.26	TRANS. ABOUT ℄ C' 34' RT. OF ℄

FULL S.E. C' 27' LT. OF B C' 27' RT. OF B'



FULL SUPERELEVATED SECTION

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SUPERELEVATION TABLES
CURVE NO. 5
AND S.R. 91

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H.	J.A.S.	R.J.Z.		

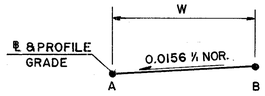
MAY 4 1973

SUPERELEVATION TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

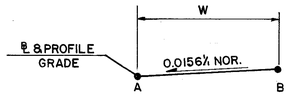
CUYAHOGA COUNTY
CUY-422-16.33

60
258



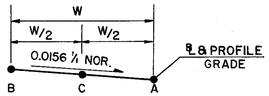
RAMP No. 3

STATION	A	B	W	
853+00	1071.01	1071.57	16'	TRANSITION
+25	1070.95	1071.66		
+50	1070.88	1071.75		
+75	1070.80	1071.83		
854+00	1070.73	1071.91		FULL SUPERELEVATION
+23.30	1070.66	1071.99		
+25	1070.65	1071.98		
+50	1070.58	1071.91		
+75	1070.50	1071.83		
855+00	1070.43	1071.76		
+25	1070.35	1071.68		
+50	1070.28	1071.61		
+75	1070.20	1071.53		
856+00	1070.13	1071.46		
+25	1070.05	1071.38		
+50	1069.98	1071.31		
+5391	1069.97	1071.30		
+75	1069.90	1071.16		TRANSITION
857+00	1069.83	1071.01		
+25	1069.75	1070.84		
+50	1069.68	1070.69		
857+5391	1069.67	1070.67	16'	



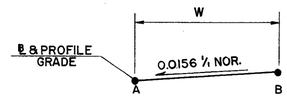
RAMP No. 6

STATION	A	B	W	
935+35	1058.33	1059.00	16'	FULL SUPER.
+50	1058.31	1058.98		
+75	1058.25	1058.92		
936+00	1058.17	1058.84		
+25	1058.07	1058.74		
+50	1057.97	1058.64		
+75	1057.87	1058.54		
937+00	1057.77	1058.44		
+25	1057.67	1058.34		
+50	1057.57	1058.35		
+75	1057.47	1058.36		TRANSITION
938+00	1057.37	1058.37		
+25	1057.27	1058.38		
+50	1057.17	1058.39		
+75	1057.07	1058.40		
939+00	1056.97	1058.30		FULL SUPERELEVATION
+25	1056.91	1058.24		
+50	1056.91	1058.24		
+75	1056.99	1058.32		
940+00	1057.14	1058.47		
+25	1057.37	1058.70		
+50	1057.66	1058.99		
+75	1058.03	1059.36		
941+00	1058.47	1059.80		
+25	1058.98	1060.31		
+50	1059.56	1060.89		
+75	1060.22	1061.55		
+91.96	1060.70	1061.99		TRANS.
942+00	1060.94	1062.23		
+25	1061.74	1062.93		
942+26.62	1061.80	1062.08	16'	



RAMP No. 7

STATION	B	A	C	W	
934+19.29	1057.01	1056.34		16'	FULL SUPER
+25	1056.97	1056.30			
+50	1056.77	1056.10			
+75	1056.53	1055.86			
935+00	1056.15	1055.58			TRANS.
+25	1055.73	1055.27			
+50	1055.26	1054.91			
+75	1054.76	1054.51			
936+00	1054.33	1054.08			
+25	1053.86	1053.61			
+50	1053.34	1053.09			
+75	1052.79	1052.54			
937+00	1052.20	1051.95			SECTION
+25	1051.57	1051.32	1051.34	16.00'	
+50	1050.92	1050.65	1050.79	17.33'	
+75	1050.23	1049.94	1050.03	18.67'	
938+00	1049.50	1049.19	1049.35	20.00'	NORMAL
+25	1048.74	1048.41	1048.58	21.33'	
+50	1047.93	1047.58	1047.76	22.67'	
+75	1047.08	1046.71	1046.90	24.00'	
939+00	1046.18	1045.81	1046.00		
+25	1045.26	1044.89	1045.08		
+50	1044.34	1043.97	1044.16		TRANS.
+75	1043.42	1043.05	1043.24		
940+00	1042.50	1042.13	1042.32		
+25	1041.52	1041.21	1041.40		
+50	1040.54	1040.29	1040.48		
+75	1039.64	1039.45	1039.64		
940+94.32	1039.04	1038.92	1039.11	24'	

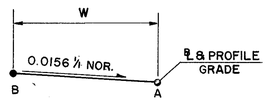


RAMP No. 8

STATION	A	B	W	
940+58	1064.06	1063.79	17'	TRANSITION
+75	1063.79	1063.44		
941+00	1063.47	1063.01		
+25	1063.30	1062.72		
+42	1063.27	1062.61		
+50	1063.27	1062.57		
+75	1063.40	1062.58		
942+00	1063.59	1062.65		
+0777	1063.65	1062.68		
+25	1063.79	1062.73		
+50	1063.98	1062.81		
+75	1064.16	1062.89		
943+00	1064.28	1062.87		FULL SUPER
+25	1064.38	1062.97		
+50	1064.48	1063.07		
+75	1064.58	1063.17		
944+00	1064.68	1063.27		
+25	1064.78	1063.37		
+50	1064.86	1063.64		
+75	1064.88	1063.85		
945+00	1064.86	1064.03		
+25	1064.79	1064.15		
+50	1064.67	1064.22		
+75	1064.50	1064.25		
946+00	1064.30	1064.24		
+25	1064.11	1064.24		
+50	1063.91	1064.24		
+75	1063.72	1064.24	17'	
947+00	1063.52	1064.24	1726	
+25	1063.33	1064.18	16'	
+34.15	1063.27	1064.19		
+50	1063.13	1064.17		
+75	1062.94	1064.16		
948+00	1062.74	1064.07		
+25	1062.55	1063.87		
+50	1062.35	1063.68		
+75	1062.16	1063.48		
949+00	1061.96	1063.29		
+25	1061.77	1063.09		
+50	1061.57	1062.90		
+75	1061.38	1062.70		
950+00	1061.18	1062.51		
+25	1060.99	1062.31		
+50	1060.79	1062.12		
+75	1060.64	1061.97		
951+00	1060.55	1061.88		
+25	1060.54	1061.75		
951+30.35	1060.54	1061.73	16'	

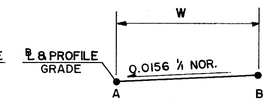
FULL SUPERELEVATION

TRANS.



RAMP No. 9

STATION	B	A	W	
943+05.03	1041.26	1040.89	16'	TRANS.
+25	1041.85	1041.34		
+50	1042.62	1041.95		FULL SUPER.
+75	1043.39	1042.72		
944+00	1044.16	1043.49		
+25	1044.93	1044.26		
+50	1045.70	1045.18		TRANSITION
+75	1046.47	1046.11		
945+00	1047.24	1047.03		
+25	1048.01	1047.95		
+50	1048.78	1048.88		
+75	1049.55	1049.80		NORMAL SECTION
946+00	1050.32	1050.57		
+25	1051.09	1051.34		
+50	1051.86	1052.11		
+75	1052.63	1052.88		
947+00	1053.40	1053.79		TRANSITION
+25	1054.17	1054.70		
+50	1054.94	1055.62		
+75	1055.71	1056.53		
948+00	1056.48	1057.44		
+25	1057.25	1058.21		FULL SUPER.
+50	1058.00	1058.96		
+75	1058.69	1059.65		
949+00	1059.31	1060.27		
949+10	1059.55	1060.51	16'	



RAMP No. 10

STATION	A	B	W	
945+84.28	1066.13	1067.96	16'	FULL SUPERELEVATION
946+00	1065.91	1067.24		
+25	1065.56	1066.89		
+50	1065.21	1066.54		
+75	1064.86	1066.19		
947+00	1064.52	1065.85		
+25	1064.22	1065.55		
+50	1063.94	1065.27		
+75	1063.69	1065.02		
948+00	1063.47	1064.80		
+25	1063.28	1064.61		
+50	1063.11	1064.44	16'	
+75	1062.98	1064.39	17'	
949+00	1062.86	1064.27		
+25	1062.74	1064.15		
+50	1062.62	1064.03		
+75	1062.50	1063.91		
950+00	1062.38	1063.79		
+25	1062.26	1063.67		
+50	1062.14	1063.55		
+75	1062.02	1063.43		
951+00	1061.90	1063.31		
+25	1061.78	1063.19		
+50	1061.66	1063.07		
+75	1061.54	1062.95		
952+00	1061.42	1062.83		
+25	1061.30	1062.71		
+50	1061.18	1062.59		
+75	1061.06	1062.47		
+82.84	1061.02	1062.43		
953+00	1060.94	1062.35		
+25	1060.79	1062.20		
+50	1060.57	1061.98		
+75	1060.29	1061.70		
954+00	1059.94	1061.35		
+25	1059.53	1060.94		
+50	1059.05	1060.42		
+75	1058.51	1059.76		TRANS.
954+90.92	1058.13	1059.31	17'	

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SUPERELEVATION TABLES FOR RAMPS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.A.S.	R.J.Z.			

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY 422-16.33

℄ RAMP #3 CURVE DATA

CURVE #1	CURVE #2	CURVE #3
P.I. STA. 849+27.86	P.I. STA. 855+28.91	P.I. STA. 859+57.17
Δ = 90°-47'-28"	Δ = 37°-23'-04"	Δ = 16°-09'-11"
D = 21°-27'-33"	D = 08°-00'-00"	D = 04°-00'-00"
R = 267.00'	R = 716.20'	R = 1432.40'
T = 270.72'	T = 242.31'	T = 203.26'
L = 423.09'	L = 467.31'	L = 403.83'

℄ USR 422 CURVE DATA

P.I. STA. 846+55.39
Δ = 28°-39'-30"
D = 00°-40'-00"
R = 8594.37'
T = 2195.94'
L = 4299.75'
E = 275.96'

CURVE #1
P.C. STA. 846+57.14
P.T. STA. 850+80.23
℄ RAMP #3 STA. 843+63.59
= ℄ HARPER RD. STA. 62+77.83
C.S. STA. 861+03.76
S.C. STA. 862+53.76 NOSE 20 FT.
= ℄ HARPER RD. STA. 65+24.12
℄ RAMP #5 NOSE STA. 849+04.06
= ℄ 422 STA. 849+04.06
S.C. STA. 851+04.06
℄ RAMP #5 852
℄ HARPER ROAD
℄ RELOC.
℄ USR 422 STA. 848+71.18
= ℄ HARPER RD. STA. 66+79.92
℄ RAMP #4 STA. 850+04.09
= ℄ HARPER RD. STA. 69+50
P.C. STA. 851+47.33
P.T. STA. 852+45.23
℄ RAMP #4 852
℄ RAMP #4 STA. 852+60.60
℄ RAMP #3 855
CURVE #2
P.C. STA. 857+53.91
℄ USR 422 STA. 858+50.77 LT
= NOSE RAMP #3 STA. 858+53.91, 16 FT. RT.
CURVE #3
℄ USR 422 P.O.C. STA. 861+37.74
= ℄ RAMP #3 P.C.C. STA. 861+37.74
℄ USR 422 STA. 861+50.74 RT.
= ℄ RAMP #4 P.C. STA. 861+50
℄ RAMP #4 855
℄ RAMP #4 856 S 51°-57'-11" E 857
℄ U.S.R. 422

SCALE IN FEET
0 50 100 150 200 250

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S.R. 422
LAYOUT, GRADING & CROSS SECTION INDEX PLAN
EAST HALF HARPER RD INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	R.J.Z.			

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

62/258

CUYAHOGA COUNTY
CUY 422-16.33

RAMP #6 CURVE DATA

CURVE #1	CURVE #2	CURVE #3
P.I. STA. 935+31.72	P.I. STA. 940+10.36	P.I. STA. 943+49.55
Δ = 22°-15'-12"	Δ = 46°-16'-32"	Δ = 24°-49'-07"
D = 04°-00'-00"	D = 12°-00'-00"	D = 08°-00'-00"
R = 1432.40'	R = 477.465'	R = 716.20'
T = 281.72'	T = 204.03'	T = 157.59'
L = 556.33'	L = 385.63'	L = 310.23'

RAMP #7 CURVE DATA

CURVE #1	CURVE #2	℄ "A"
P.I. STA. 932+82.37	P.I. STA. 941+37.73	P.I. STA. 942+16.58
Δ = 19°-01'-49"	Δ = 19°-50'-18"	Δ = 67°-27'-34"
D = 04°-00'-00"	D = 16°-00'-00"	D = 38°-11'-50"
R = 1432.40'	R = 358.10'	R = 150.00'
T = 240.09'	T = 62.62'	T = 100.15'
L = 475.76'	L = 123.99'	L = 176.61'

S R 91 CURVE DATA

P.I. STA. 33+16.16
Δ = 09°-38'-58"
D = 01°-30'-00"
R = 3819.72'
T = 322.41'
L = 643.30'

℄ S.R. 91 STA. 42+00, 40' LT. =
21' LT, NOSE RAMP #6 STA. 943+26.62

CURVE #3

P.C. STA. 941+91.96

CURVE #2

P.C. STA. 938+06.33

CURVE #1

℄ U.S. 422 STA. 932+50, 79' LT.
= NOSE RAMP #6 P.C. STA. 932+50

℄ RAMP #6 937

℄ S.R. 91 N 09°-09'-23" W

N 87°-31'-57" E

℄ 936 U.S. 422 937

℄ 422 P.O.T. STA. 930+42.28, 66' LT. =
℄ RAMP #7 P.C. STA. 930+42.28

CURVE #1

℄ 422 P.O.T. STA. 933+20.64, 77' LT. =
NOSE RAMP #7 STA. 933+19.29, 16' LT.

P.T. STA. 935+18.04

℄ RAMP #7 P.O.C. STA 940+94.32
= ℄ "A" P.T. STA 940+94.32

℄ "A" P.C. STA 941+16.43

CURVE #2

P.C. STA. 940+75.11

P.T. STA. 941+99.10

P.T. STA. 36+38.57 AH.
STA. 36+37.05 BK.

℄ US. 422 STA. 942+11.42 =
℄ S.R. 91 STA. 35+90.15

℄ S.R. 91 STA. 32+45 =
℄ RAMP #7 STA. 942+73.19

SCALE IN FEET
0 50 100 150 200 250

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422
LAYOUT, GRADING & CROSS-SECTION INDEX PLAN
WEST HALF
S.R. 91 INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	R.J.Z.			

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

63
258

CUYAHOGA COUNTY
CUY 422- 16.33

℄ RAMP # 8 CURVE DATA

CURVE #1	CURVE #2	CURVE #3
P.I. STA. 944+19.52	P.I. STA. 949+41.16	P.I. STA. 953+44.57
Δ = 59°-44'-46"	Δ = 39°-58'-37"	Δ = 13°-04'-49"
D = 21°-27'-33"	D = 8°-00'-00"	D = 4°-00'-00"
R = 267.00'	R = 716.20'	R = 1432.40'
T = 153.36'	T = 260.51'	T = 164.22'
L = 278.42'	L = 499.71'	L = 327.01'
C = 265.44'	C = 489.64'	C = 326.28'

℄ RAMP #10 CURVE DATA

SPIRAL #1	CURVE #1	SPIRAL #2	CURVE # 2
L_s = 200.00'	Δ = 213°-23'-52"	L_s = 150.00'	Δ = 09°-30'-58"
θ_s = 24°-54'-40"	D = 24°-54'-40"	$\Delta_1+\Delta_2$ = 24°-41'-00"	D = 08°-00'-00"
P = 7.20'	R = 230.00'	θ_s = 12°-41'-03"	R = 716.20'
L.T. = 134.68'	L = 856.64'	P = 2.76'	T = 59.61'
S.T. = 67.89'		L.T. = 89.08'	L = 118.95'
		S.T. = 63.28'	

N

SCALE IN FEET
0 50 100 150 200 250

℄ S.R. 91 CURVE DATA

P.I. STA. 33+16.16
Δ = 9°-38'-58"
D = 1°-30'-00"
R = 3819.72'
T = 322.41'
L = 643.30'
C = 642.54'
E = 0.0156'

℄ RAMP #9 CURVE DATA

CURVE #1	CURVE #2	CURVE #3
Δ = 28°-33'-27"	Δ = 19°-56'-00"	Δ = 8°-00'-00"
D = 16°-00'-00"	D = 8°-00'-00"	D = 4°-00'-00"
R = 358.10'	R = 716.20'	R = 1432.40'
T = 91.14'	T = 125.86'	T = 100.16'
L = 178.49'	L = 249.17'	L = 200.00'
C = 176.64'	C = 247.91'	C = 199.84'

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422
LAYOUT, GRADING & CROSS SECTION INDEX PLAN
EAST HALF
S.R. 91 INTERCHANGE

MAY 4 1973

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	R.J.Z.			

V-1

ADACHE ASSOCIATES, INC.
CALC. BY W.R.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

64
258

U-468(9)
CUYAHOGA COUNTY
CUY. 422 - 16.33

140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

120 30 140

MATCH LINE WITH X-SECT. RAMP #3

1080
1070
1060
1050

196

6:1 8:1

3:1

MATCH LINE WITH X-SECTIONS RAMP #4

10 2395

1073.94

STA. 854+00

(1059.86)

1117

1070
1060
1080

MATCH LINE WITH X-SECTIONS RAMP #3

MATCH LINE STA. 853+50, 145' LT.

170 160 150

40 4867

ADACHE ASSOCIATES, INC.
CALC. BY DATE
CHKD. BY DATE

206

1070
1060
1050

MATCH LINE, 145' LT.

MATCH LINE WITH X-SECTIONS RAMP #4

33 2861

PROPOSED GRADE: 1074.29

STA. 853+50

EXISTING GRADE: (1058.14)

1103

1070
1060

MATCH LINE RAMP #4 SEEDING

BK.
AH.

31 5793

191
263

AHEAD
BACK

AHEAD 0 3396
BACK 0 3413

1074.64

STA. 853+00 BEGIN PROJECT

(1057.18)

1050

1481

6:1 8:1

3:1

MATCH LINE RAMP #2 SEEDING

0 6737

1060

270

1074.99

1200 1050

STA. 852+50

(1055.60)

0 3863

0 2861

270

STA. 852+10 BEGIN U.S. 422
SEEDING QUANTITIES

STA. 852+10 BEGIN WORK

STA. 852+10 BEGIN U.S. 422
EARTHWORK QUANTITIES

0 0

140 20 100 80 60 40 20 0 20 40 60 80 100 140

MAY 1 1973

CROSS SECTIONS STA. 853+50 TO STA. 854+00

ADACHE ASSOCIATES, INC.
CALC. BY W.M.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

65
258

INCLUDING RAMP #4
SEEDING AREA
STA 858+00 AHEAD

164 AHEAD
74 BACK

933

94

1161

115

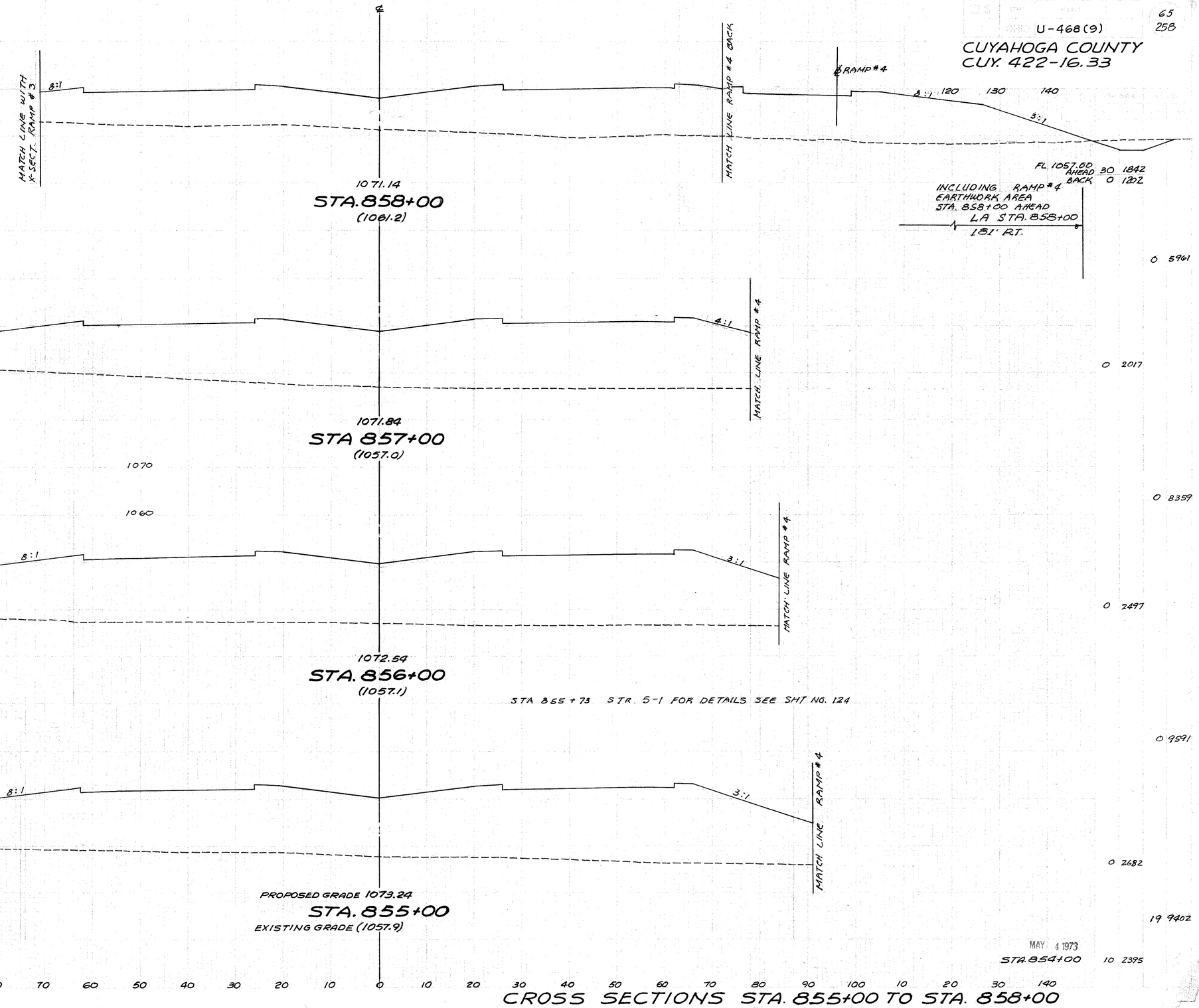
1456

147

1906

196 STA 854+00

FL. 1060.50



CROSS SECTIONS STA. 855+00 TO STA. 858+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.C. DATE 3/26/19
CHKD. BY R.W.H. DATE 4/3/19

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

66
258

140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

STD "A" C.B. T/G 1065.82

STD "E" C.B. T/G 1060.80

62'-15" @ 0.78% TYPE B

68'-15" @ 2.37% TYPE B

8:1

4:1

FL. 15" 1062.0
FL. 6" 1064.16

FL. 15" 1061.52

FL. 15" 1059.91

140

PIPE PROFILE AT STA. 861+25

1059.58

6'x4'x1.5' ROCK C.P.

120 130

EX. LA
168' RT.

1070
1060
1050

L.A.

4:1 8:1 8:1 4:1 4:1

1061.0

1059.65

270 4237
62 1295

189

1069.04
STA. 861+00
(1061.5)

2144

176 4981

ADACHE ASSOCIATES, INC.
CALC. BY
CHKD. BY
DATE

L.A.

EX. LA
168' RT.

1070
1060
1050

M.P. 1063.0

1062.30

33 1395

197

1069.74
STA. 860+00
(1060.8)

2111

85 6252

L.A.
158' LT.

℄ RAMP #3

MATCH LINE X SECT. RAMP #3

EX. LA
274' RT.

1070
1060
1050

8:1 4:1 4:1

1061.90

1058.50

AH 13 1981
BK. 9 1616

201
106
AH
BK.

PROPOSED GRADE 1070.44
STA 859+00
EXISTING GRADE (1061.0)

1500

72 6404

164 AH STA 858+00

MAY 4 1973 STA. 858+00 30 1842

140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20 30 140

CROSS SECTIONS STA. 859+00 TO STA. 861+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468 (9)

CUYAHOGA COUNTY
CUY. 422-16.33

67
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

1080
1070
1060

LA
199
4:1
4:1
8:1
1061.40
1065.54
STA.866+00
(1062.56)
8:1
3:1
2:1
1056.62
120 30 40 150
LA
112 409

2167
1080
1070
1060
LA
191
4:1
1060.50
1066.24
STA. 865+00
(1061.27)
2:1
1056.37
LA.
115 501
420 1685

2178
1080
(+4276) FOR CHANNEL EASEMENT RT. (4276)
(+99) FOR CHANNEL EASEMENT LT. (99)
1070
1060
LA
201
1060.25
1066.94
STA. 864+00
(1063.15)
1058.75
LA
110 554
417 19

2283
1080
1070
1060
LA
15.5' LT.
210
3:1
1060.50
1067.64
STA. 863+00
(1063.16)
LA
15.5' RT.
1059.05
R/W
120 722
426 2363

2350
1080
1070
1060
LA
15.8' LT.
213
2233
3.5:1
4:1
8:1
1060.75
PROPOSED GRADE 1068.34
STA. 862+00
EXISTING GRADE (1061.93)
8:1
4:1
EX. LA
15.8' RT.
1059.35
R/W
84 993
270 4237
378 3176

189 STA. 861+00
140 20 100 80 60 40 20 0 20 40 60 80 100 20 140

CULVERT STA. 864+73
DITCH LP 1058.03

STA. 864+73 STR. S-2 FOR DETAILS SEE SHT. NO. 125

CULVERT STA. 864+73
DITCH LP 1056.57

MAY 4 1973 STA. 861+00 62 1295

CROSS SECTIONS STA. 862+00 TO STA. 866+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.C. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-5-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

120 30 40 150

H.P. STA. 871+50
FL 1063.00

LA

1080
1070
1060

149
1700

6:1 8:1 8:1 6:1

1062.15 1062.50

331 0

1064.71
STA. 871+00
(1064.81)

℄ STD C.B. #4
T/G 1061.35

980 91

158
1789

8:1 8:1

1063.00 1064.35

198 49

STA. 870+00
(1063.93)

4:1 4:1

1059.25

℄ MEDIAN
1063.25

911 209

164
1889

8:1 8:1

1062.15 1064.25

294 64

STA. 869+00
(1065.22)

4:1 4:1

1058.00

℄ STD. C.B. #4
T/G 1061.42

STD HW-E 125' RT.

743 613

176
2006

4:1 8:1 8:1 3:1 3:1

1061.90 1064.42

107 267

STA. 868+00
(1062.30)

105' @ 0.48 %
21" TYPE "B"

1057.12

601 ROCK C.P.
6'×4'×1.5' = 1.78 C.Y.
TYPE B

18" 1057.87
21" 1057.62

FL 21" 1057.37

372 1048

185
2133

2:1 8:1 8:1 3:1 3:1

1061.65 1056.87

94 299

381 1311

199 STA. 866+00

PROPOSED GRADE 1064.42
EXISTING GRADE ℄ (1062.55)

STA. 867+00

STA. 866+00 112 409

MAY 4 1973

140 20 100 80 60 40 20 40 60 80 100 20 140

CROSS SECTIONS STA 867+00 TO STA 871+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

69
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

FT

1080
1070
1060

LA

168

4:1 8:1 8:1 4:1 4:1

1062.00 1066.71 1060.00

120 30 40 150

LA

27 524

STA. 876+00
(1062.44)

1867

183 1696

1080
1070
1060

LA

168

4:1 4:1 8:1 8:1 4:1 4:1

1061.75 1066.31 1059.75

LA

72 392

STA. 875+00
(1062.70)

1872

250 1356

1080
1070
1060

LA

169

4:1 8:1 8:1 4:1 4:1

1061.50 1065.91 1059.50

LA

63 340

STA. 874+00
(1062.51)

1889

357 1269

1080
1070
1060

LA

171

3:1 4:1 8:1 8:1 4:1 4:1

1059.50 1065.51 1058.63

LA

128 345

STA. 873+00
(1062.24)

+1293 FOR CHANNEL EASEMENT LT. 1293 S.Y.
+1672 FOR CHANNEL EASEMENT RT. 1672 S.Y.

CULVERT STA. 872+70
DITCH L.R FL 1059.00

STA. 872+70 STR. S-3 FOR DETAILS SEE SHT. NO. 126

CULVERT STA. 872+70
DITCH L.R FL. 1056.51

1961

411 770

1080
1070
1060

LA

182

4:1 8:1 8:1 4:1 4:1

1061.94 1065.11 1060.95

LA

94 71

STA. 872+00
(1063.79)

1839

787 131

149 STA. 871+00

PROPOSED GRADE
EXISTING GRADE

MAY 4 1973 STA. 871+00 331 0

140 20 100 80 60 40 20 20 40 60 80 100 20 140

CROSS SECTIONS STA. 872+00 TO STA 876+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

70
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

℄

1080 / 1070 / 1060

LA

A = 1.5 ACR.
Q_5 = 25 c.f.s.

1065.70

8:1 4:1 4:1

1064.0

601 - RIP RAP GROUT FILLED

1068.71

1063.50

120 30 40 150

LA

168 43 250

SPILLWAY PROFILE AT STA. 881+00

STA. 881+00
(1066.33)

1861 524 665

1080 / 1070 / 1060

LA

167

6:1 8:1

1066.56

1068.31

8:1 4:1 4:1

1063.75

LA

240 109

STA. 880+00
(1067.04)

1839 1046 217

1080 / 1070 / 1060

LA

164

6:1 8:1

1065.98

1067.91

1064.00

LA

325 8

STA. 879+00
(1069.05)

1828

STA. 878+50
DITCH H.P. 1065.50

1222 15

1080 / 1070 / 1060

LA

165

6:1 8:1

1065.58

1067.51

8:1 6:1

1065.00

LA

335 0

STA. 878+00
(1068.13)

1833 656 807

1080 / 1070 / 1060

LA

165

4:1 4:1 8:1

1062.25

PROPOSED GRADE 1067.11

8:1 4:1 4:1

1060.25

LA

19 436

1850 85 1778

STA. 877+00
(1063.96)

EXISTING GRADE

168 STA. 876+00

MAY 4 1973 STA. 876+00 27 524

140 20 100 80 60 40 20 ℄ 20 40 60 80 100 20 140

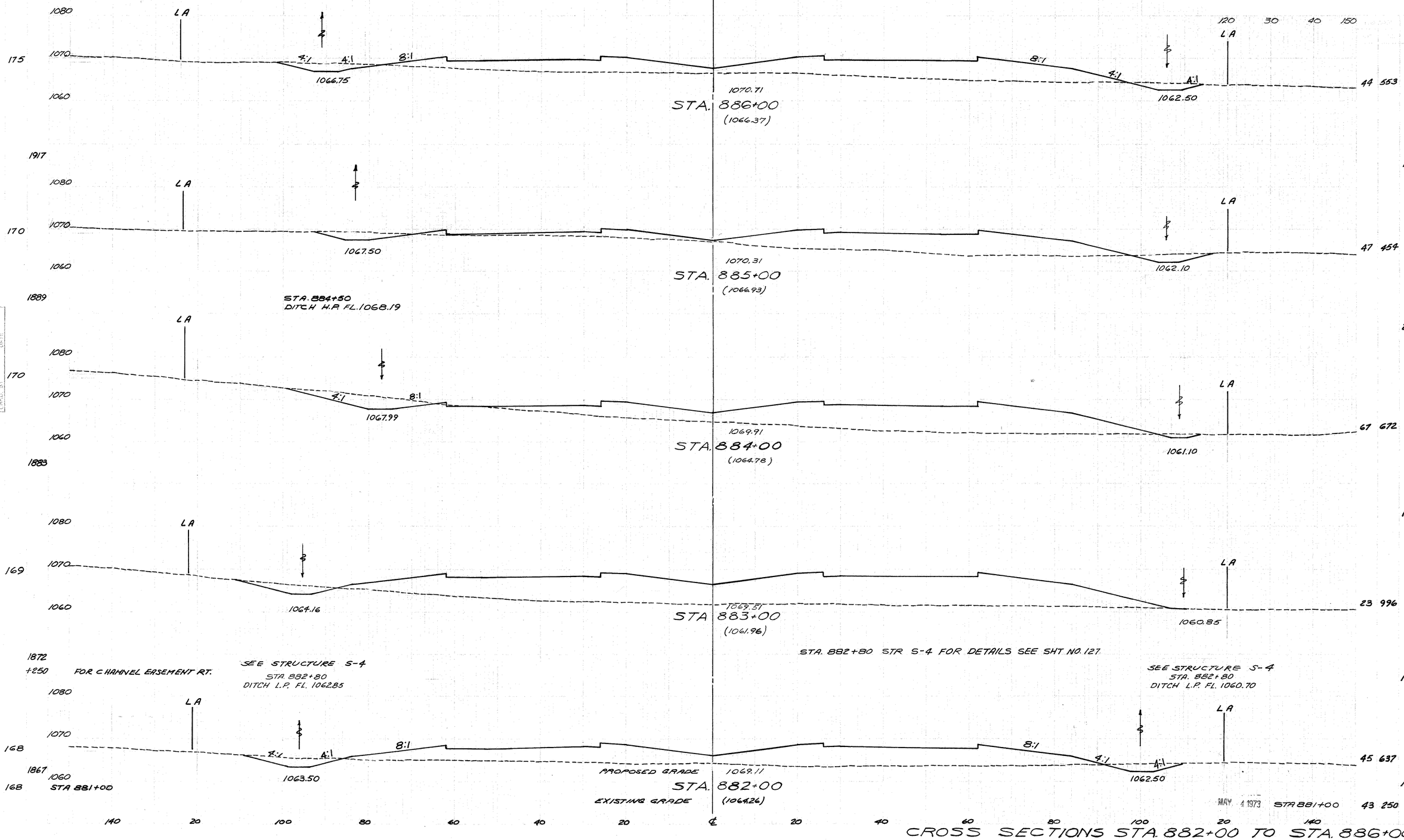
CROSS SECTIONS STA. 877+00 TO STA. 881+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-2669
CHKD. BY R.W.H. DATE 4-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422 - 16.33

71
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10



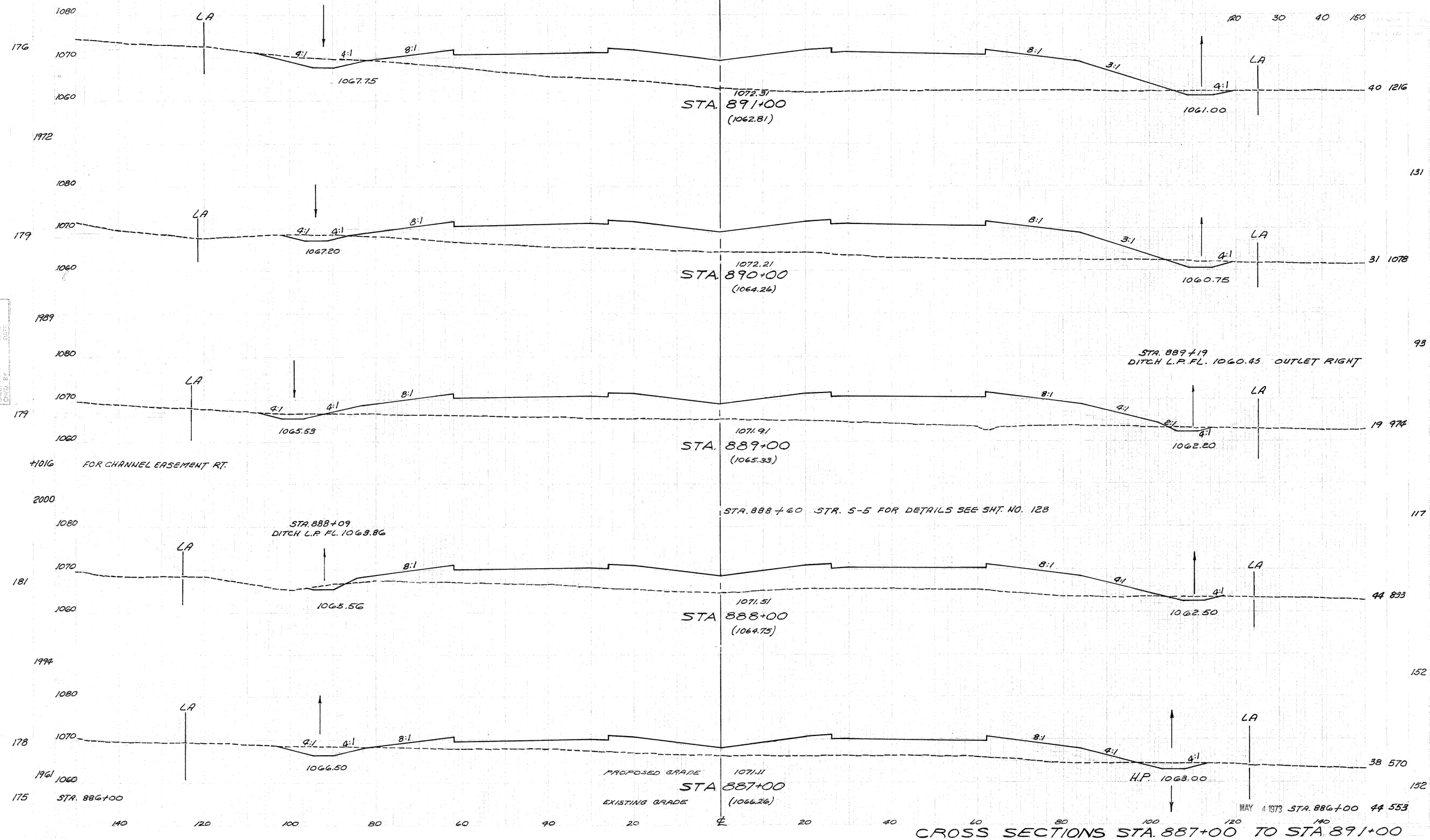
CROSS SECTIONS STA. 882+00 TO STA. 886+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

72
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10



CROSS SECTIONS STA. 887+00 TO STA. 891+00

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-20-69
CHKD. BY R.W.H. DATE 3-31-69

SPILLWAY PROFILE AT STA. 896+70

A=12 ACRS
Q_5=21 CFS.
10 Z'
6"
1069.0
8:1
601- RIP RAP, GROUT FILLED.

STO. #4 C.B.
T/G 1067.71
FL 15" 1062.53
15" CONDUIT, TYPE 'B', 103' @ 42%
FL 15" 1062.10
601- 6'x4'x1.5' = 1.78 C.Y.
1061.60

STA 896+00
(1066.22)

L.A.
4:1
8:1
1067.40

STA 895+00
(1068.81)

1071.11
1067.00
3:1
1061.35

CULVERT STA. 894+72 LT
DITCH L.P. FL 1066.65

CULVERT STA 894+72 RT.
DITCH L.P. FL 1060.30

STA. 894+72 STR S-6 FOR DETAILS SEE SHT. NO. 129

FOR CHANNEL EASEMENT R.T.

STA 894+00
(1068.31)

1071.51
1067.50
H.P 1063.00

STA 893+00
(1067.09)

1071.91
1069.00
1061.50

STA. 892+00
(1065.45)

PROPOSED GRADE 1072.21
EXISTING GRADE
1068.00
1061.25

STA 891+00

MAY 1 1973

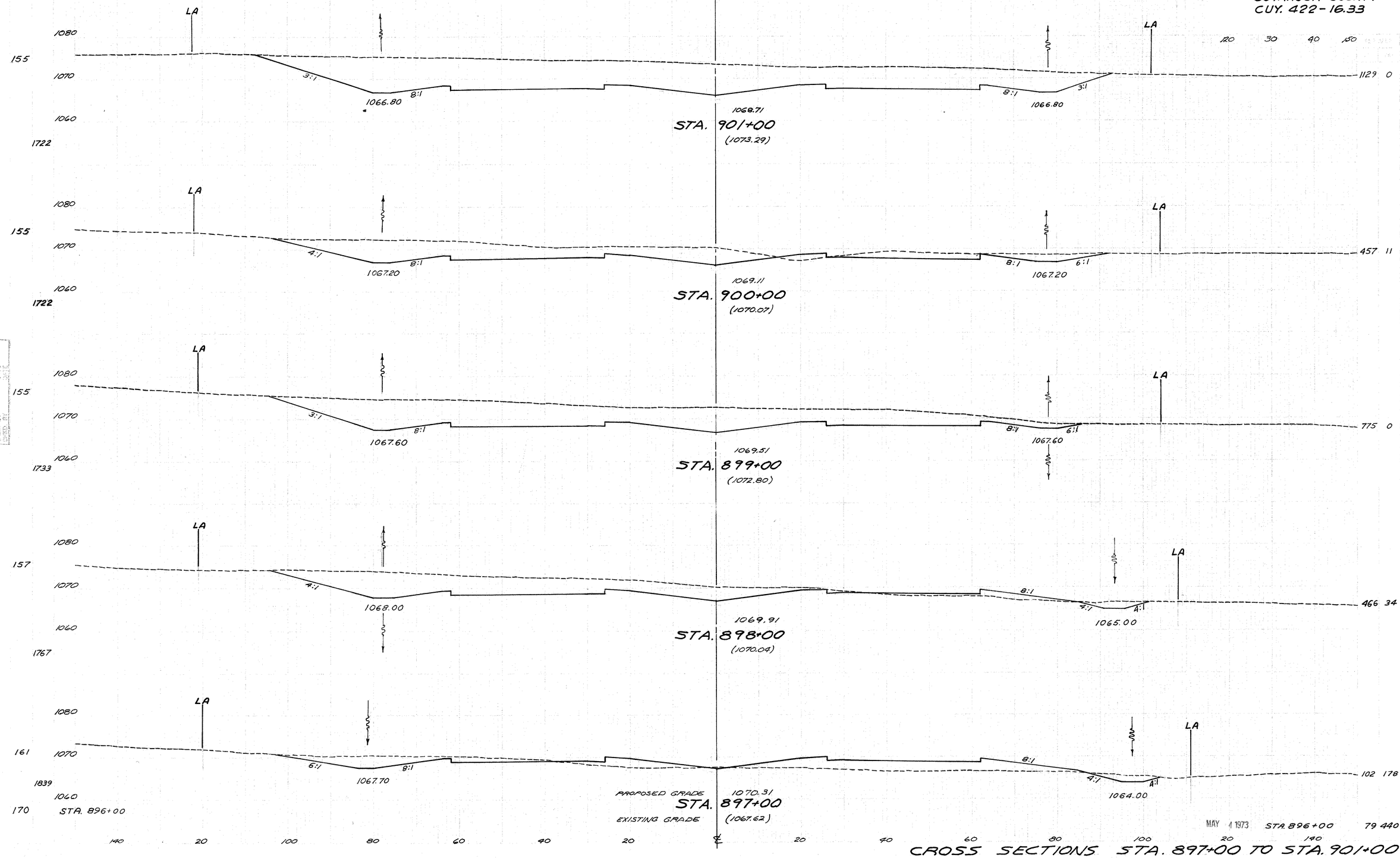
CROSS SECTIONS STA. 892+00 TO STA. 896+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

74
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 | 10 20 30 40 50 60 70 80 90 100 10 120 30 40 50

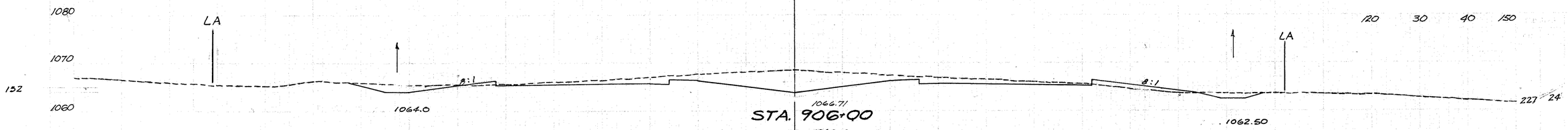


CROSS SECTIONS STA. 897+00 TO STA. 901+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 5-26-69
CHKD. BY K.W.H DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

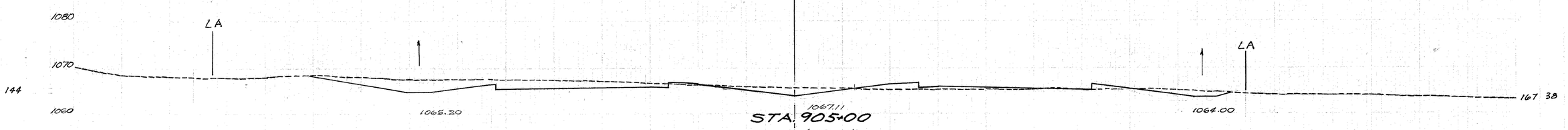
150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10



75
258

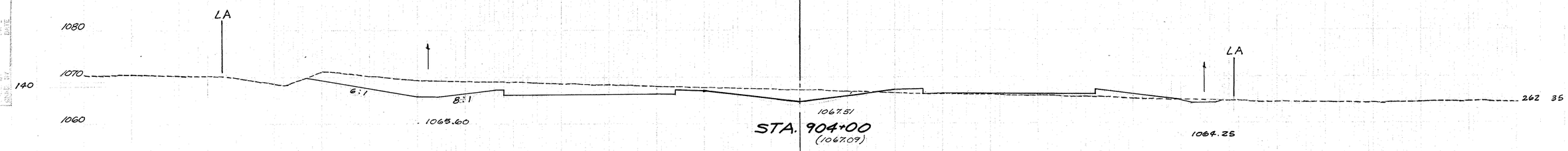
1644

730 115



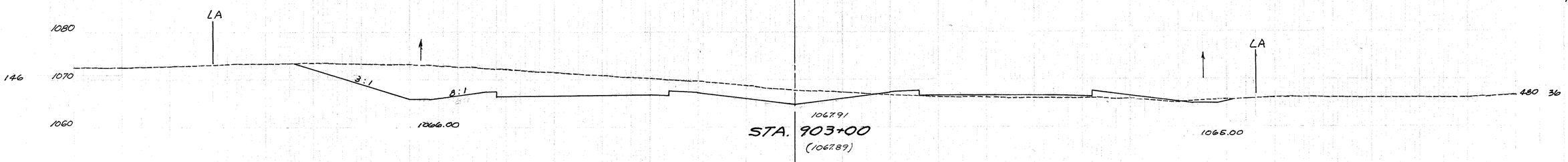
1578

794 135



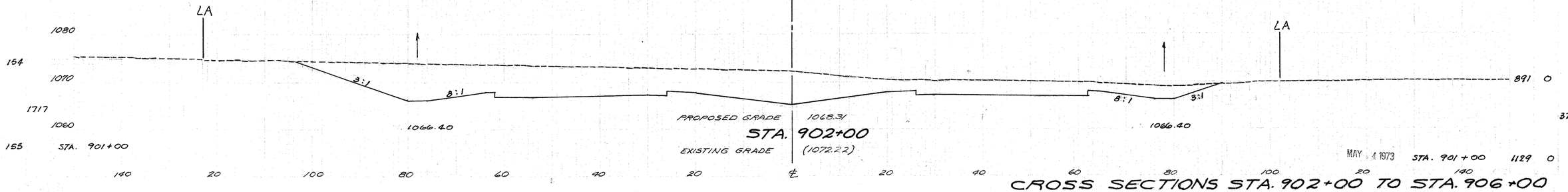
1589

1374 131



1667

2539 67



1717

3741 0

155 STA. 901+00

MAY 4 1973 STA. 901+00 1129 0

140 20 100 80 60 40 20 ℄ 20 40 60 80 100 20 140

CROSS SECTIONS STA. 902+00 TO STA. 906+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 5-26-69
CHKD. BY E.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

76
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

STA. 911 + 24
DITCH L.P. FL 1056.00

120 30 40 150

1080
1070
1060

LA

197

8:1 4:1 8:1 4:1

H.P. FL 1061.50

1064.71
STA. 911+00
(1060.65)

1057.00

87 496

+2231 FOR CHANNEL EASEMENT RT.
2128

P.O.S.T. STA. 910+42 STR S-7 FOR DETAILS SEE SHEET NO. 130

480 1791

1080
1070
1060

LA

186

4:1 4:1 8:1 8:1 4:1 2:1

1059.50

1065.11
STA. 910+00
(1059.45)

1058.50

172 471

STA. 909+49
DITCH L.P. FL 1057.60

622 1157

1983 1080
1070
1060

LA

171

8:1 3:1 4:1 8:1 8:1 4:1 2:1

1060.00

1065.51
STA. 909+00
(1063.91)

1059.00

164 154

STA C.B.
TIE 1062.70

1070
1060

LA

1828

8:1 4:1 2:1

18" FL 1059.85

93' @ 0.33% 18" TYPE B

18" FL. 1059.54

FL 1059.50

601 ROCK C.P. 4'x4'x1.5' TYPE B

PIPE PROFILE AT STA. 908+50

630 426

1080
1070
1060

LA

158

4:1 8:1 8:1 4:1 4:1

1063.00

1065.91
STA. 908+00
(1065.25)

1061.50

176 76

1722
1080
1070
1060

LA

152

4:1 8:1

1689

152 STA. 900+00

1063.50

PROPOSED GRADE 1066.31
STA. 907+00
EXISTING GRADE (1063.50)

1062.00

54 145

426 409

520 313

MAY 4 1973 STA. 906+00 227 24

140 20 100 80 60 40 20 ℄ 20 40 60 80 100 20 140

CROSS SECTIONS STA. 907+00 TO STA. 911+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

77
258

U-468(9)
CUYAHOGA COUNTY
CUY. 422 - 16.33

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

STD = 4 C.B.
T/G 1059.71

186
1070
1060
1050
LA
1058.00
8:1
15"- 1055.92
1062.71
100' @ 0.42% 15" TYPE B
8:1
3:1
4:1
1055.00
15"-1055.50
601 - R. CH. P.
4'x4'x1.5'
120 30 40 150
LA
300 225

STA. 916+00
(1061.28)

STA. 915+12.5 STR. S-8 FOR DETAILS SEE SHT. NO. 130

2094
+1142 FOR CHANNEL EASEMENT RT.
619 2959

STA. 915+25
DITCH L.P. 1051.85
SEE CULVERT DETAILS

191
1070
1060
1050
LA
4:1
4:1
8:1
1052.65
1063.11
8:1
2½:1
4:1
1052.00
LA
34 1373

STA. 915+00
(1054.33)

STA 915+00
DITCH L.P. FL. 1052.65

131 3867

2106
1070
1060
1050
LA
4:1
8:1
1055.00
1063.51
8:1
4:1
1058.30
LA
37 715

STA. 914+00
(1058.49)

250 1430

2094
1070
1060
1050
LA
6:1
8:1
1060.00
1063.91
1061.00
LA
98 57

STA. 913+00
(1063.01)

785 285

2122
1070
1060
2167
1050
193
LA
6:1
8:1
1061.00
1059.00
LA
326 97

PROPOSED GRADE 1064.31
STA. 912+00
EXISTING GRADE (1064.20)

765 1098

197 STA. 911+00

MAY 4 1973 STA. 911+00 87 496

140 20 100 80 60 40 20 ℄ 20 40 60 80 100 20 140

CROSS SECTIONS STA. 912+00 TO STA. 916+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 5-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422 - 16.33

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

1080 / 1070 / 1060 / 1050

190 2111

LA — 3:1 — 1057.61 — 1061.11 — 6:1 — LA — 1935 0

STA. 920+00
(1067.29)

120 30 40 150

5767 0

1080 / 1070 / 1060 / 1050

190 2111

LA — 1058.01 — 1061.51 — LA — 1679 0

STA. 919+00
(1067.92)

6174 0

1080 / 1070 / 1060 / 1050

190 2111

LA — 1058.41 — 1061.91 — LA — 1655 0

STA 918+00
(1068.89)

5674 0

1080 / 1070 / 1060 / 1050

190 2089 186

LA — VARIES 3:1 — DITCH H.P. 1058.81 — 8:1 — 6:1 — 1062.35 DITCH H.P. — LA — 1409 0

PROPOSED GRADE 1062.31
STA. 917+00
EXISTING GRADE (1067.57)

3165 417

STA. 916+00

MAY 4 1973 STA. 916+00 300 225

140 20 100 80 60 40 20 ℄ 20 40 60 80 100 20 140

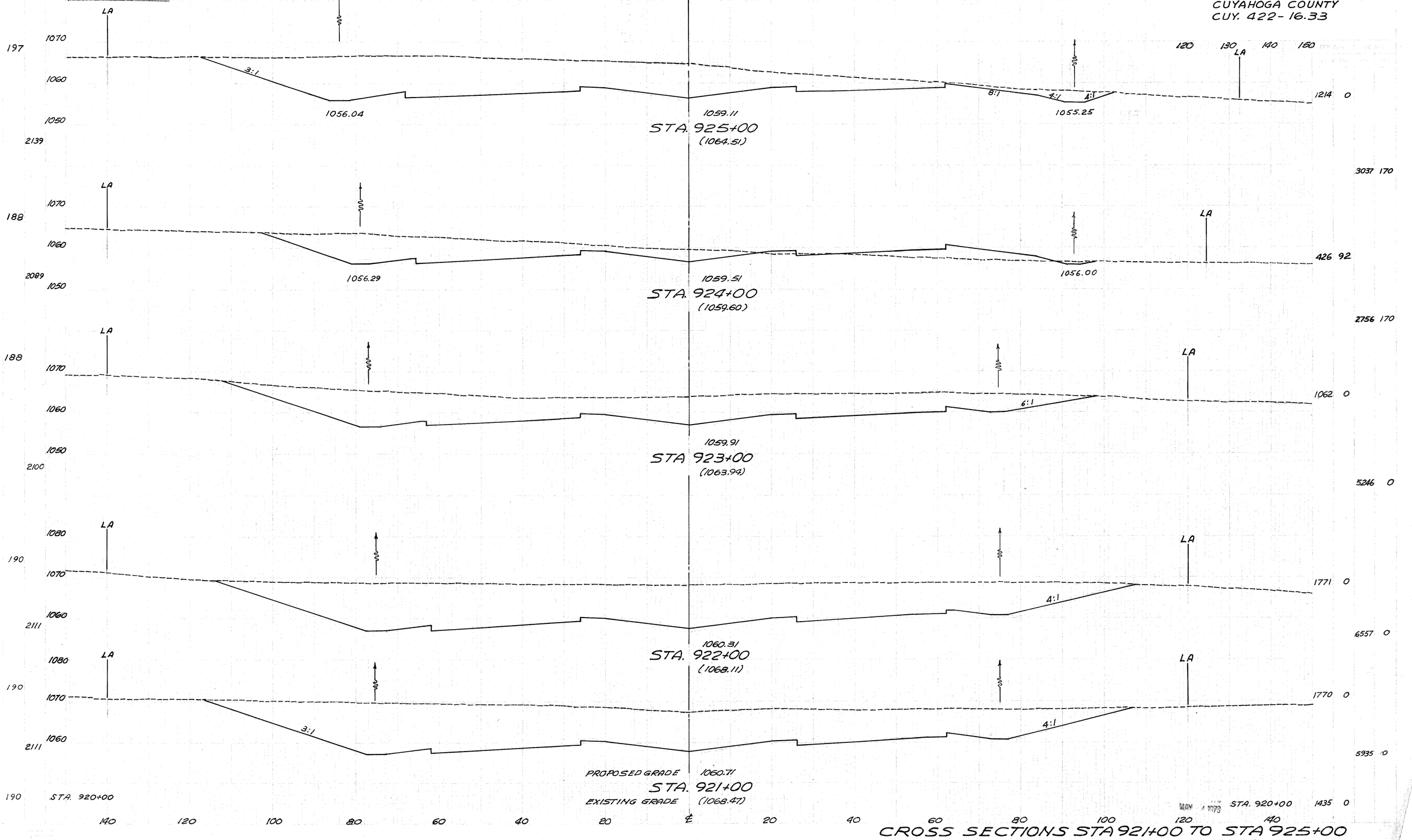
CROSS SECTIONS STA. 917+00 TO STA. 920+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

℄



140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

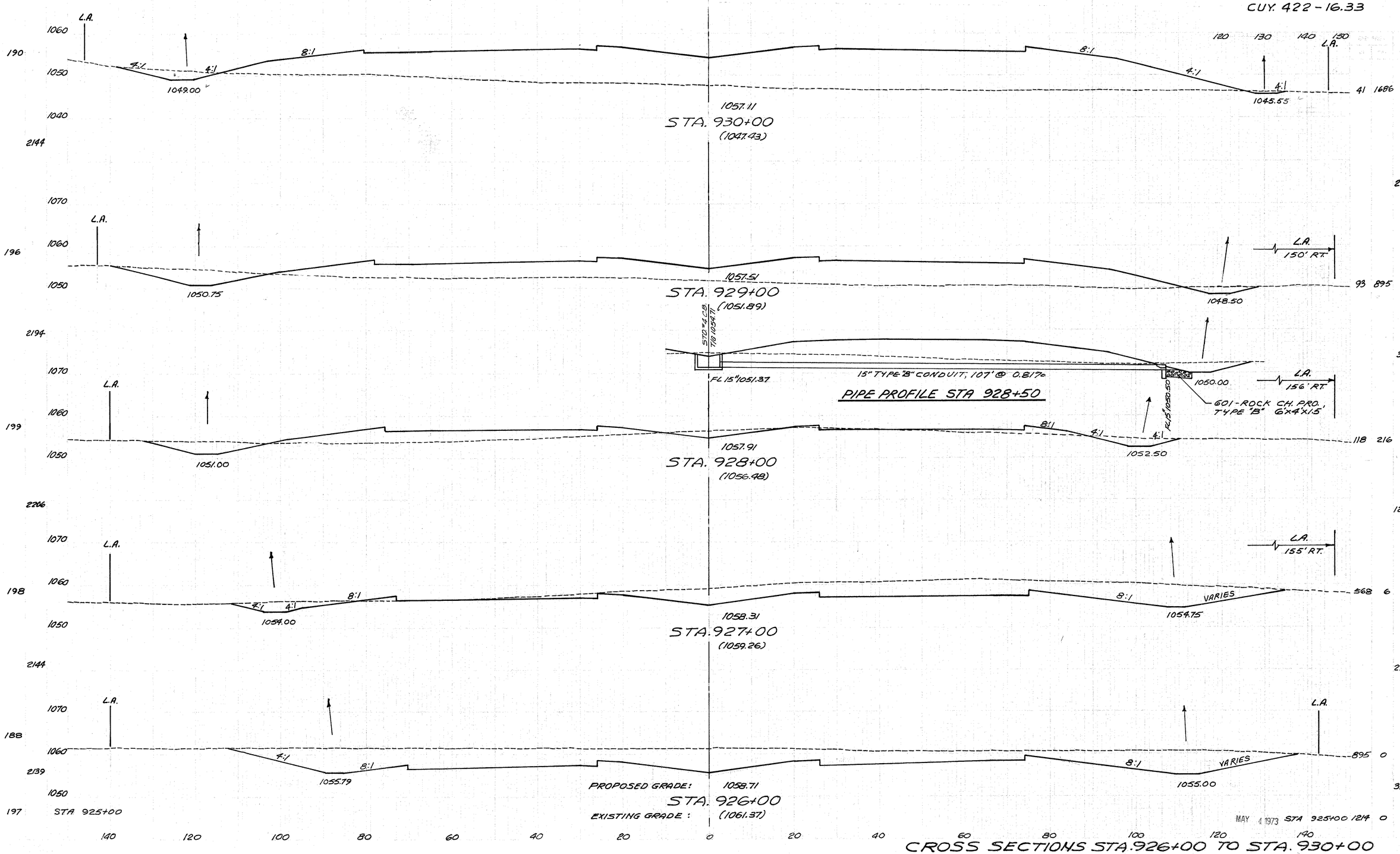
MAY 1973

CROSS SECTIONS STA 921+00 TO STA 925+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 4-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



80
258

249 4780

93 895

391 2057

118 216

1270 411

568 6

2709 11

895 0

3906 0

1214 0

MAY 4 1973 STA 925+00

CROSS SECTIONS STA. 926+00 TO STA. 930+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 1-26-69
CHKD. BY R.W.H DATE 2-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

81
258

140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 120 30 140

STA. 935+00

1061.12
(1046.5)

MATCH LINE RAMP #6
MATCH LINE RAMP #7
8:1
6:1

104 989 1070 1060 1050 1040

0 2290

STA. 934+00

1059.54
(1048.6)

MATCH LINE RAMP #6 AH
MATCH LINE RAMP #6 BK
FULL SECTION BK
MATCH LINE RAMP #7
MATCH LINE RAMP #7 AH
FULL SECTION BK

74 706 1060 1050 1040

0 6863
0 1416
0 4670

STA. 933+00

1058.18
(1048.2)

LA AH BK
8:1 4:1 4:1 8:1 8:1 2.5:1

53 163 1060 1050 1040

1050.00

EXCLUDED RAMP #6 & #7
SEEDING AREA
STA 933+00 AH

EXCLUDED RAMP #6 & #7
EARTHWORK AREA
STA. 933+00 AHEAD

0 1106
21 1975

91 7250

1928

601 - R.C.P. PROT.
12' x 4' x 1.5'
TYPE B

STA. 932+55 (123' LT.) U.S.R. 422
STD HW-E
60' @ 3.67% 12" TYPE B
CURB TYPE B
CB #6 (LT.)
T/G 1057.30
12" FL. 1052.00
1049.30
12" FL. 1049.8

PIPE PROFILE AT STA. 932+55, U.S.R. 422

STA. 932+00

1057.33
(1047.0)

LA
8:1 3:1 4:1 4:1 8:1

184 2061 1060 1050 1040

1049.05
1046.00

STA. 931+50
DITCH H.P. 1047.70

28 1940

96 6869

STA. 931+00

PROPOSED GRADE 1056.97
EXISTING GRADE (1047.3)

LA
3:1 4:1 8:1 8:1 4:1 4:1

187 2084 1060 1050 1040

1048.75
1045.55

STA. 930+50
L.P. FL. 1048.60

STA. 930+50
L.P. FL. 1045.40

24 1769

120 6398

190 STA. 930+00

STA. 930+50 STR. S-9 FOR DETAILS SEE SHEET NO. 132

STA. 930+00

41 1680

MAY 4 1973

CROSS SECTIONS STA. 931+00 TO STA. 935+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 5-3-69

82
258

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

℄

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

1070 / 1060 / 1050 / 1040 — MATCH LINE RAMP #6

219 — 8:1, 4:1

2439

1068.23
STA. 940+00
(1044.4)

8:1, 3.6:1

120 30 40 150

MATCH LINE RAMP #7

0 5260

220 — 8:1, 6:1

2428

1067.20
STA. 939+00
(1043.9)

8:1, 4:1

0 19809

0 5437

1070 / 1060 / 1050 / 1040 — MATCH LINE RAMP #6

217 — 8:1, 6:1

2261

1065.85
STA. 938+00
(1043.4)

8:1, 5:1

0 20050

0 5390

MATCH LINE RAMP #7

1060 / 1050 / 1040 — MATCH LINE RAMP #6

190 — 8:1, 6:1

1911

1064.28
STA. 937+00
(1042.3)

8:1, 6:1

0 18,678

0 4696

0 15,720

MATCH LINE RAMP #7

1060 / 1050 / 1040 — MATCH LINE RAMP #6

154 — 8:1, 6:1

1433

PROPOSED GRADE 1062.70
STA. 936+00
EXISTING GRADE (1043.28)

8:1, 6:1

0 3793

0 11,265

MATCH LINE RAMP #7

109 STA. 935+00

STA 935+00

0 2290

MAY 4 1973

190 20 100 80 60 40 20 0 20 40 60 80 100 20 140

CROSS SECTIONS STA. 936+00 TO STA. 940+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)

CUYAHOG COUNTY
CUY 422- 16.33

83
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

1070 1060 1050 1040

88

RESUME SEEDING
STA. 942+60

MATCH LINE RAMP #10

BRIDGE

LIMIT OF SEEDING

120 30 40 150

MATCH LINE RAMP #9

0 305

1069.60
STA. 942+60
1047.7

RESUME EARTHWORK
STA. 942+60

MATCH LINE X-SECT. S.R. 91 RT.

BEGIN DITCH LT.
STA 942+65
FL. 1051.00

1070 1060 1050 1040

MATCH LINE S.R. 91

172

BK.

LIMIT OF SEEDING

BRIDGE

LIMIT OF SEEDING

SUSPEND SEEDING
STA. 941+50

MATCH LINE RAMP #7

75 889

1069.33
STA. 941+50
(1047.6)

SUSPEND EARTHWORK
STA. 941+50

55 3350

MATCH LINE X-SECT. S.R. 91 LT.

1072

1070 1060 1050 1040

MATCH LINE RAMP #6

214

8:1
3:1
3:1

STA 941+15
FULL SECTION

10 4 7

6 2377

10 4279

19 17664

PROPOSED GRADE 1069.08
STA. 941+00
EXISTING GRADE (1047.02)

MATCH LINE RAMP #7

STA. 940+00

0 5260

2406

219 STA 940+00

150 140 20 100 80 60 40 20 0 20 40 60 80 100 20 140 150

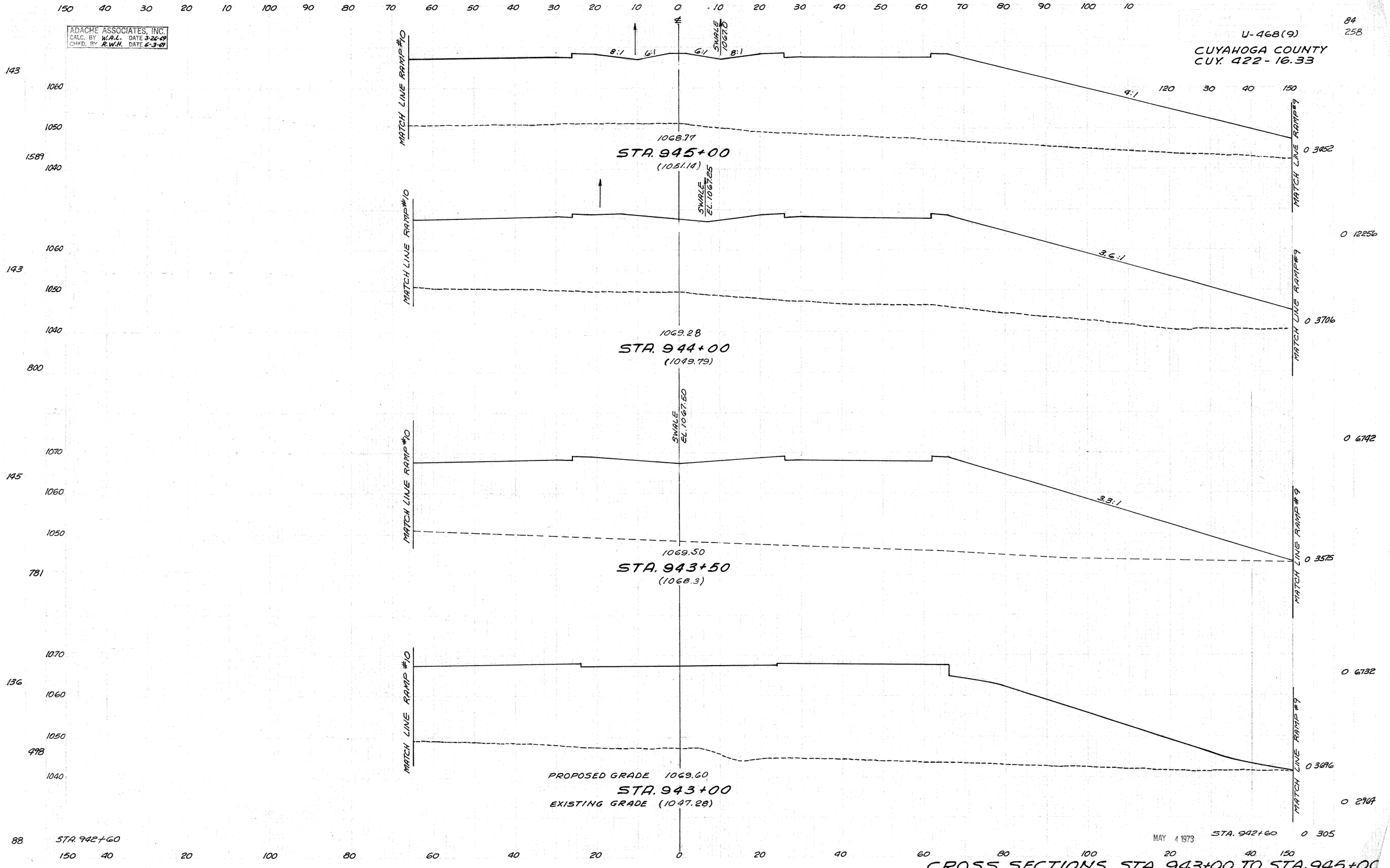
MAY 4 1973

CROSS SECTIONS STA. 941+00 TO STA 942+71.01

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

84
258



CROSS SECTIONS STA. 943+00 TO STA. 945+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422 - 16.33

85
258

STA. 950+00

(1035.71)

1064.36

MATCH LINE RAMP #8 — MATCH LINE RAMP #9

140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1060 / 1050 / 1040

98

120 130 140 150

0 4626

1378

6:1

0 18289

150

0 5250

STA. 949+00

(1037.01)

1065.26

MATCH LINE RAMP #8 — MATCH LINE RAMP #9

170 160 150 A — 1050 / 1040 — A

2017

0 21,215

8:1 4:1

213

0 6206

STA. 948+00

(1038.24)

1066.16

MATCH LINE RAMP #8 — MATCH LINE RAMP #9

2233

0 22,469

8:1 4:1

189

0 5927

STA. 947+00

(1040.06)

1067.06

MATCH LINE RAMP #10 — MATCH LINE RAMP #9

1939

0 18,935

8:1 4:1

160

0 4298

STA. 946+00

EXISTING GRADE (1045.73)

PROPOSED GRADE 1067.06

MATCH LINE RAMP #10 — MATCH LINE RAMP #9

1683

0 14,352

143

STA. 945+00

0 3452

140 20 100 80 60 40 20 0 20 40 60 80 100 20 40 150

MAY 4 1973

CROSS SECTIONS STA. 946+00 TO STA. 950+00

ADACHE ASSOCIATES, INC.
CALC. BY W.R.L. DATE 5-26-69
CHKD. BY R.W.H. DATE 6-3-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

86
258

150 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10

STA. 955+50 END DITCH LT.
FL. 1035.60

BRIDGE

℄ SOLON RD.

F.L. 1034.6

L.A.
156'

120 30 40 150

SUSPEND EARTHWORK
NORTH OF SOLON RD
STA. 955+80 (N) 10 0
(N) 43 1407

LIMIT OF SEEDING

1060
1050
1040
153

L.A.
2:1
3:1
3:1
1035.00
2:1
3:1 NOR.
1059.86
4:1 4:1
1036.05
4:1 4:1
1034.35
(N) 19 950
(S) 35 0

STA. 955+00
(1036.67)

(-400)
(+833)
STA 954+00 - STA 957+00
DEDUCT FOR SOLON RD. (400 S.Y.)
STA 954+53± - STA 958+25±
ADD FOR TEMPORARY AREA LT. (833 S.Y.)

BRIDGE

L.P. STA. 954+83
C.B. T/G. 1034.00
(N) 83
(S) 36 7459

1683
1060
1050
1040
150
L.A.
169' LT.
1034.50
1060.76
LIMIT OF SEEDING
L.A.
RESUME EARTH WORK
SOUTH OF SOLON RD.
℄ SOLON RD. STA. 954+65 (SOUTH) (S) 20
26 3078
3:1 NOR.
3:1 NOR.
1033.4

STA. 954+00
(1038.53)

2089
1060
1050
1040
226 AH.
155 BK
2072
1060
1050
218
1040
2972
1060
1050
317 AH.
78 BK.
1040
978
1030
98
STA. 950+00

STA. 953+25
DITCH L.P. FL. 1033.80

MATCH LINE 145' LT.
2:1
L.A.
4:1 4:1
1034.00
MATCH LINE STA. 953+00, 145' LT.
190 170 150

FULL SECTION
MATCH LINE RAMP #8 BK.
A.H.

MATCH LINE RAMP #8

1061.66
STA. 953+00
1035.36

STA 952+65 STR. S-10 FOR DETAILS SEE SHT. NO. 133

1062.56
STA. 952+00
1033.86

MATCH LINE RAMP #8

PROPOSED GRADE: 1063.96
STA. 951+00
EXISTING GRADE: 1035.23

MATCH LINE RAMP #9 BK.
FULL SECTION AH.

L.A.
190' RT.
2:1
AH 89 5263
BK 61 4128
4:1
3:1 NOR. TO SOLON RD.

1040
MATCH LINE STA 952+00, 143' RT.
150 160 170 180
STA 953+00 END DITCH RIGHT F.L. 1032.00
4:1 4:1
1030.50
1030
STA 952+00
DITCH L.P.
FL. 1030.50
L.A.
270' RT.
MATCH LINE STA 952+00, 140' RT.
35 5088

MATCH LINE STA 951+00, 140' RT.
140 150 160 170 180
4:1 4:1
1030.75
L.A.
230' RT.
LIMIT OF SEEDING
EDGE OF SOLON RD.
2:1
MATCH LINE STA 951+00, 140' RT.
AH 75 5556
BK 0 4062
INCLUDED RAMP #4
EARTHWORK AREA
STA. 951+00 AHEAD
0 8688
MAY 4 1973 STA. 950+00 0 4626

120 15466
178 17,067
20410,644

150 '40 20 100 80 60 40 20 0 20 40 60 80 100 20 140

CROSS SECTIONS STA. 951+00 TO STA. 955+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-69
CHKD. BY R.W.H. DATE 6-3-69

87
258

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ℄ 10 20 30 40 50 60 70 80 90 100 110

120 130 140 150

1060 1050 1040 1030

LA 8:1 2:1 2:1 LA

215 1044.00 1055.36 EXISTING PAVEMENT 1036.50 LIMIT FILL ACCESS RD. 21 1925

STA. 960+00
1043.30
SWALE 1034.75

2406 1060 1050 1040

LA 2:1 EXISTING PAVEMENT

218 STA. 959+29 BEGIN DITCH RT. 1033.00

SEE STR. S-11 DETAILS FOR DITCH CONNECTION
FILL 70 C.Y. FOR PIPE COVER

LA 153' RT. 52 10235 (+70)

(+275) ADD FOR TEMPORARY AREA LT. (275 S.Y.)

1056.26
STA. 959+00
(1036.52)
SWALE 1035.0

4:1

LIMIT OF FILL THIS X-SECT. LIMIT OF FILL ACCESS RD. 7 3602

STA. 958+37 STR. S-11 FOR DETAILS SEE SHT. NO. 134

STA. 958+90 END DITCH RT. 1033.00

LA 154' RT. 206 14,954

1030 LA

2517 1060 1050 180 170 160 150

MATCH LINE STA. 958+00, 45° LT.

2:1

EXISTING PAVEMENT (TO BE REMOVED)

MATCH LINE 235 1040 1030

1057.16
STA. 958+00
(1033.89)

104 4473 LIMIT FILL ACCESS RD. 1033.50 93 6627

STA. 957+85 BEGIN DITCH LT. FL. 1033.50

1060 1050 1040 1030

2289 LA ℄ SOLON RD. LIMIT OF SEEDING BRIDGE

177 1037.20 1058.06
STA. 957+00
1035.04

FULL SECTION 957 + 60 21 4473

LA 155' RT. 47 8281

21 2980 1034.00

H.P. STA. 956+70 1035.25

1060 1050 1040 1030

1944 LIMIT OF SEEDING

LIMIT OF SEEDING BRIDGE

LA ℄ SOLON RD. 2:1

173 1040

1811 1030 1035.50 1036.70 1034.75

LA 155' RT. 40 1310 139 2426

LIMIT OF CUT THIS X-SECT.

PROPOSED GRADE 1058.96
STA. 956+00
EXISTING GRADE 1036.01

153 STA. 955+00

MAY 4 1973
Rev. 1-14-72 STA. 955+00 (S) 35 0

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

CROSS SECTIONS STA. 956+00 TO STA. 960+

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-26-67
CHKD. BY R.W.H. DATE 6-3-67

88 258

U-468-(9)
CUYAHOGA COUNTY
CUY. 422- 16.33

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

120 130 140

255 STA. 962+70
END SEEDING

END WORK STA. 962+70

℄

STA. 962+65
END FILL

257

STA. 962+65
CUT FOR DITCH 111.5 S.F. X 190 L.F. = 81 CU. YDS. (+81)

END EARTH WORK QUANTITIES 33 0
STA. 962+65

14 127

LA

248

6:1 8:1

1052.00

8:1 4:1 4:1

LA

33 602

1053.07

STA. 962+53.64
(1049.8)

1041.25

1367

84 1,113

1060
1050
1040

LA

244 AH
172 BK

INCLUDED AREA AH.

4:1 3:1

LA

AH 600
BK 58 506

1052.50

1053.32

STA. 962+03.64
(1049.5)

1041.00

2061

215 2583

1060
1050
1040

LA

186

6:1 8:1

8:1 4:1 4:1

LA

54 840

2228

STA. 961+00
DITCH H.P. EL. 1053.00

PROPOSED GRADE 1054.46

STA. 961+00

EXISTING GRADE (1048.5)

1038.50

139 5,120

215 STA. 960+00

STA. 960+00 21 1925

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

MAY 4 1973

CROSS SECTIONS STA. 961+00 TO STA. 962+53.64

SEEDING END WIDTH	SEEDING SQ. YDS.
156	878
160	914
169	978
183	1058
198	953
145	769
132 / 156	825
141	313
141	

ADACHE ASSOCIATES, INC.
CALC. BY W.A.C. DATE 3-27-69
CHKD. BY R.W.H. DATE 6-4-69

100 80 60 40 20 0 20 40 60 80 100 120 140

STA. 856+00 (1063.86)

L.P. 1061.15
1070.13
4:1 4:1 8:1 6:1
MATCH LINE U.S.R. 422

STA. 855+50 (1063.77)

LA
1062.00
1070.28
MATCH LINE U.S.R. 422

STA. 855+00 (1063.29)

LA
1062.25
1070.43
MATCH LINE U.S.R. 422

STA. 854+50 (1063.37)

LA
1062.50
1070.58
MATCH LINE U.S.R. 422

STA. 854+00 (1063.97)

LA
1063.00
1070.73
MATCH LINE U.S.R. 422

STA. 853+50

PROPOSED GRADE: 1070.88
EXISTING GRADE: (1064.52)
LA
1063.50
BK.
AH.
AHEAD BACK

STA 853+00 (1065.14)

LA
1071.01

STA. 852+50 (1065.89)

STA 852+50
STA 852+30 BEGIN RAMP SEEDING
4:1 4:1 8:1 6:1
1070.90

100 80 60 40 20 0 20 40 60 80 100 120 140

DIV. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

89
258

CUYAHOGA COUNTY
CUY 422-16.33

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
130	486		
		192	979
77	572		
		122	1136
55	655		
		115	1262
69	708		
		109	1200
49	588		
		59	1006
15	498		
		28	858
A.H. 15	429		
BK.	456		
		44	699
32	299		
		12	111
STA. 852+30 BEGIN RAMP #3 EARTHWORK 0	0		

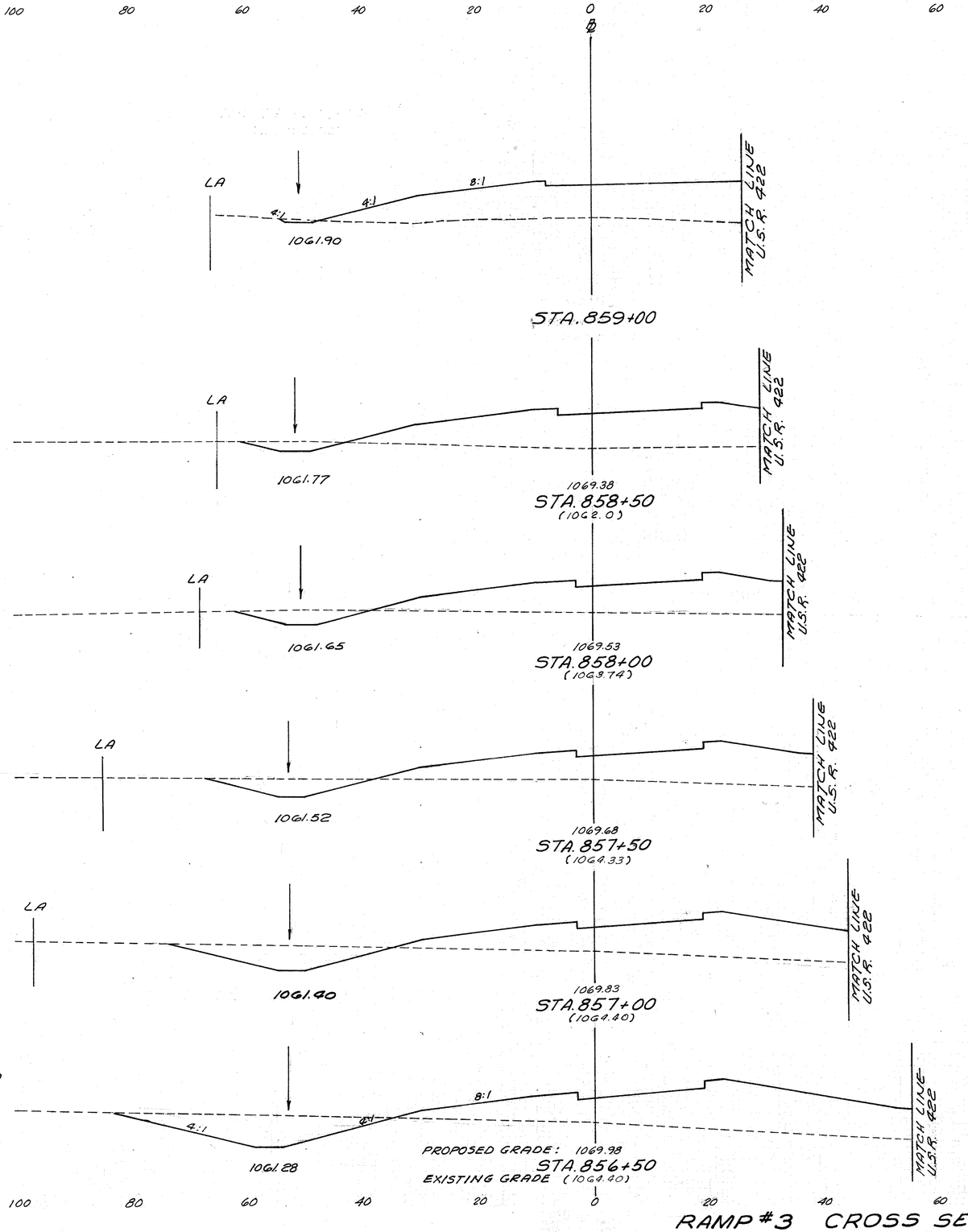
MAY 4 1973

RAMP #3 CROSS SECTIONS STA. 852+30 TO STA. 856+00

SEEDING		SQ YDS.
END WIDTH		
58	1070 / 1060	358
71	1070 / 1060	422
81	1070 / 1060	508
102	1070 / 1060	617
120	1070 / 1060	717
138	1070 / 1060	817
156	STA. 856+00	

ADACHE ASSOCIATES, INC.
CALC. BY W.R.L. DATE 3-27-69
CHKD. BY R.W.M. DATE 3-4-69

STA. 859+00
END RAMP SEEDING
QUANTITIES



FED. ROAD DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

90
258

CUYAHOGA COUNTY
CUY 422-16.33

STA. 859+00
END RAMP
EARTHWORK
QUANTITIES

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	4	365		
			22	694
	20	385		
			52	666
	36	334		
			75	626
	45	342		
			132	677
	98	389		
			234	806
	155	481		
			264	899
MAY 4 1973 STA. 856+00	130	485		

RAMP #3 CROSS SECTIONS STA. 856+50 TO STA. 859+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 9-27-69
CHKD. BY R.W.H. DATE 6-6-69

U-468(9)
CUYAHOGA COUNTY
CUY. 422-16.33

91
258

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
STA. 854+00	31	413		
STA. 853+00	17	459	89	1615
STA. 852+00	48	420	120	1628
STA. 851+43.29 AHEAD	27	359	79	780
STA. 851+43.29 BACK	0	332		
(TO CONSTRUCT OUTLET DITCH TO HARR RD. CHANNEL CUT 200 C.Y.)			(200)	
STA. 851+00	0	315	0	540
STA. 850+80 BEGIN RAMP #4 EARTHWORK	0	0	0	117

	SEEDING	
	END WIDTH	SQ. YDS.
STA. 858+00 END RAMP #4 SEEDING	93	
STA. 854+00	117	
STA. 850+80 BEGIN RAMP #4 SEEDING	100	222

MATCH LINE U.S.R. 422 X-SECT.

6:1 8:1 4:1 4:1

LA 96'

1064.13
STA. 854+00
(1056.90)

1052.80

MATCH LINE U.S.R. 422 X-SECT.

LA 98'

FILL INCLUDED WITH U.S.R. 422 X-SECTIONS

1062.60
STA. 853+00
(1054.11)

1052.40

LA 98'

1061.07
STA. 852+00
(1053.55)

1052.00

LA 113'

BK. AH. 8:1 4:1 4:1

PROPOSED GRADE: 1060.20
STA. 851+43.29
EXISTING GRADE: (1054.21)

1051.75

6:1 4:1

1059.82
STA. 851+00
(1055.8)

MATCH LINE U.S.R. 422 X-SECT.

6:1 8:1 4:1 4:1 LA 88'

1069.79
STA. 858+00
(1059.14)

1057.00

STA. 858+00 END RAMP #4 EARTHWORK 30 640

MATCH LINE U.S.R. 422 X-SECT.

LA 89'

1068.72
STA. 857+00
(1057.17)

1055.00

81 2589
14 758

MATCH LINE U.S.R. 422 X-SECT.

8:1 3:1 4:1 LA 90'

1067.19
STA. 856+00
(1056.04)

1053.60

52 2648
14 672

MATCH LINE U.S.R. 422 X-SECT.

6:1 8:1 4:1 4:1 LA 95'

PROPOSED GRADE 1065.66
STA. 855+00
EXISTING GRADE (1055.61)

1053.20

61 2419
19 634
93 1939
STA. 854+00 31 413

MAY 4 1973

RAMP #4 CROSS SECTIONS STA. 850+80 TO STA. 858+00

SEEDING END WIDTH	SEEDING SQ. YDS.	
		1030
		1040
G3		1030
	(-121)	STA. 27+78 RT. DEDUCT DR. AREA 121 S.Y.
	706	
		1040
	(-82)	STA. 27+14 LT. DEDUCT DR. AREA 82 S.Y.
		1030
		1040
G4 AH 27 BK		1030 STA. 27+00 BEGIN SEEDING LT. SIDE
	187	
81		STA. 26+58 BEGIN SEEDING RT. SIDE
		1040
		1030
		1040
		1030
		1040
		1030

ADACHE ASSOCIATES, INC.
CALC. BY J.O.A. DATE 3-29-67
CHKD. BY R.W.H. DATE 6-5-67

STATE PROJECT NUMBER
LI-468(9)

CUYAHOGA COUNTY
CUY 422-16.33

STA. 28+77 PROFILE OF ASPH. DR., LT.

MEET EXIST. 60' LT. +1.0% ± EDGE TEMP. PAVT. 1036.3±

T R/W

1034.30

STA. 28+00 (1036.94)

1036.80

R/W T

1034.00

STA. 27+14 PROFILE OF ASPH. DR., LT.

MEET EXIST. 50' LT. +4.0% ± EDGE TEMP. PAVT. 1036.6±

T R/W

1034.60

STA. 27+78 PROFILE OF GRAVEL DR., RT.

EDGE TEMP. PAVT. 1036.5± +1.0% ± MEET EX.ST. 45' RT.

R/W

1034.50

STA. 27+00 (1037.07)

1037.04

STA. 26+75 BEGIN DITCH RT. 1034.60

R/W R/W

1037.28

STA. 26+00 (1037.22)

STA. 25+65 (1037.18)

R/W

STA. 25+00 (1037.20)

℄ SOLON ROAD
EXISTING GRADE (1037.22)

100 80 60 40 20 0 20 40 60 80 100 120 140

STA. 27+78 FOR DR. RT. FILL 20 C.Y.
STA. 21+14 FOR DR. LT. FILL 20 C.Y.

STA. 25+00 BEGIN S.R. 91 EARTHWORK.

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
122	0		
		391	0
			(+20)
			(+20)
89	0		
		231	0
36	0		
		36	0
20	0		
		24	0
0	0		

MAY 4 1973

S.R. 91 CROSS SECTIONS STA. 25+00 TO STA. 28+00

SEEDING END WIDTH	50. YDS.

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H. DATE 6-5-69

DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-968(3)	

93
258

CUYAHOGA COUNTY
CUY 422-16.33

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
STA. 33+00	58	114		
			265	517
STA. 32+00 AH		165		
STA. 32+00 BK	85	205		
			326	495
STA. 31+71	91	43		
			326	185
STA. 31+00	85	51		
			181	81
STA. 29+71 FOR DR. LT. FILL 10 C.Y.				(+10)
STA. 29+50 PROPORTIONED	110	30		
			226	81
STA. 29+00	154	3		(+20)
			424	6
STA. 28+77 FOR DR. LT. FILL 20 C.Y.	122	0		

STA. 33+00
(1039.60)
1039.68

STA. 32+00
(1038.63)
1038.03

STA. 31+00
(1037.72)
1036.97

STA. 30+00
(1037.18)
PROPOSED GRADE 1036.48

STA. 29+00
(1036.91)
EXISTING GRADE (1036.91)

MATCH LINE RAMP #7
MATCH LINE RAMP #9
MATCH LINE RAMP #9 AH
FULL SECT. BK.
4:1 NORMAL

STA. 32+00 ± ~ 32+60 ±
DEDUCT FOR PAVED AREA
RAMPS #7 & #9 200 S.Y.

STA. 30+75 ± ~ 31+40 ±
ADD FOR TEMP AREA RT. 602 S.Y.

STA. 30+02 ± ~ 31+75 ±
ADD FOR TEMP. AREA LT. 1145 S.Y.

STA. 29+71
DEDUCT FOR DR. LT 83 S.Y.

STA. 29+50
PROPORTIONED

STA. 28+77
DEDUCT FOR DR. LT. 73 S.Y.

STA. 28+00

STA. 31+20 PROFILE OF ASPH. DR., LT. (ABAND.)

STA. 31+71 RANGE PROFILE OF DITCH, RT. (ABAND.)

STA. 29+71 PROFILE OF ASPH. DR., LT.

STA. 30+83 PROFILE OF GRAVEL DR., RT. (ABAND.)

MEET EX. ST. 60' LT.
SM. EL. 1037.01 ±
CURB GUTTER EL. 1035.97
-5.07% ±

1034.00
1036.56
1033.50

STA. 29+00 END DITCH LT.
STA. 29+00 END DITCH RT.

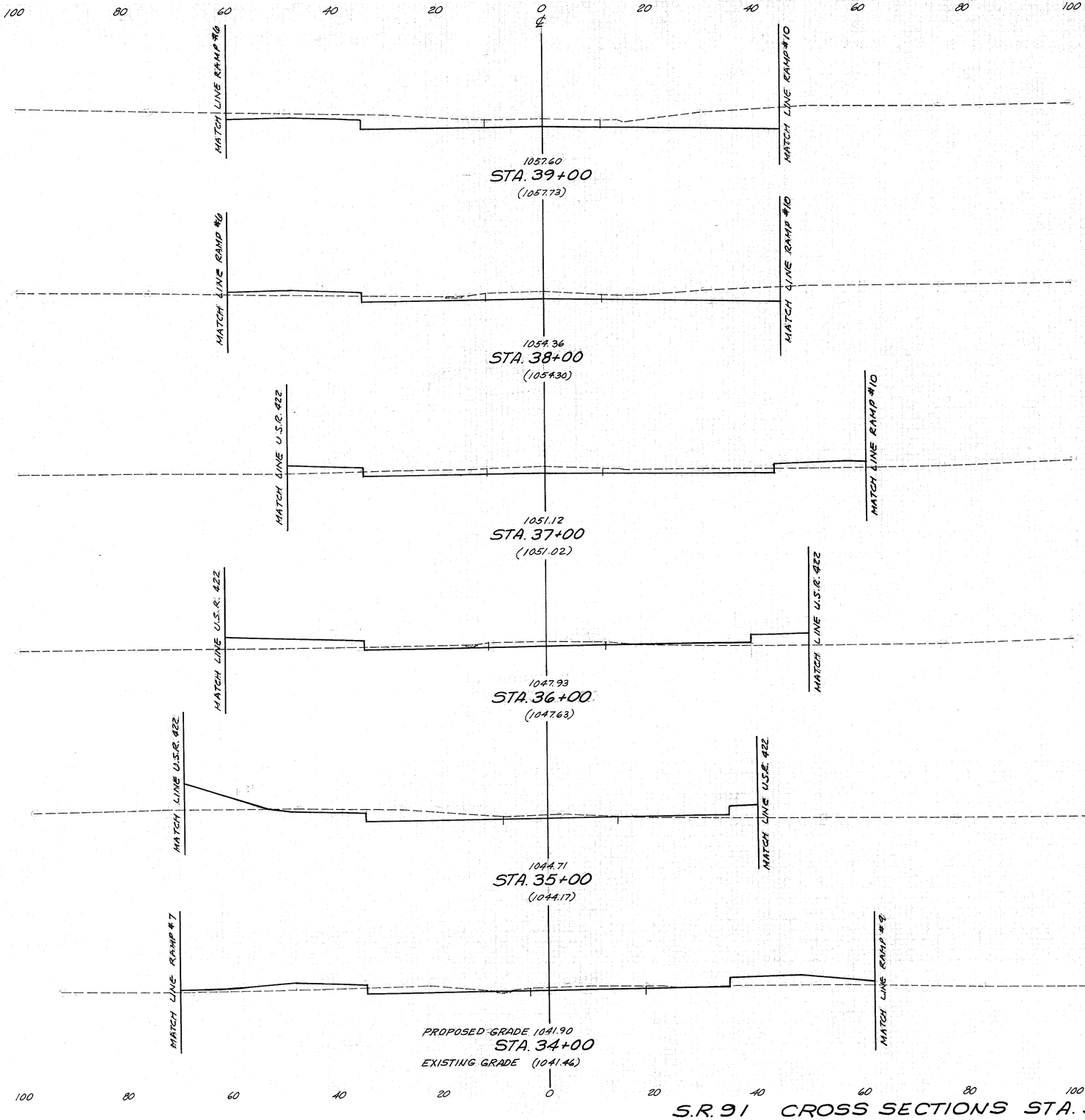
LA
T
R/W
4:1

MAY 1 1973

S.R. 91 CROSS SECTIONS STA. 29+00 TO STA 33+00

SEEDING END WIDTH	SEEDING SQ. YDS.
25	278
25	317
32	383
37	428
40	572
63	706
64	

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-25-69
CHKD. BY R.W.H DATE 4-5-69



STA.	1060	1050	1040	1030
39+00		1057.60		
38+00		1054.36		
37+00		1051.12		
36+00		1047.93		
35+00		1044.71		
34+00		PROPOSED GRADE 1041.90		
		EXISTING GRADE (1041.46)		
33+00				

STATE	PROJECT	FISCAL YEAR
OHIO	U-468(3)	94 258

CUYAHOGA COUNTY
CUY 422-16.33

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
200	0		
		583	35
115	19		
		357	111
78	41		
		219	243
40	90		
		211	302
74	73		
		217	281
43	79		
		187	357
58	114		

STA. 33+00

MAY 4 1973

S.R. 91 CROSS SECTIONS STA. 34+00 TO STA. 39+00

STATE	PROJECT	FISCAL YEAR
OHIO	U-468(9)	

95
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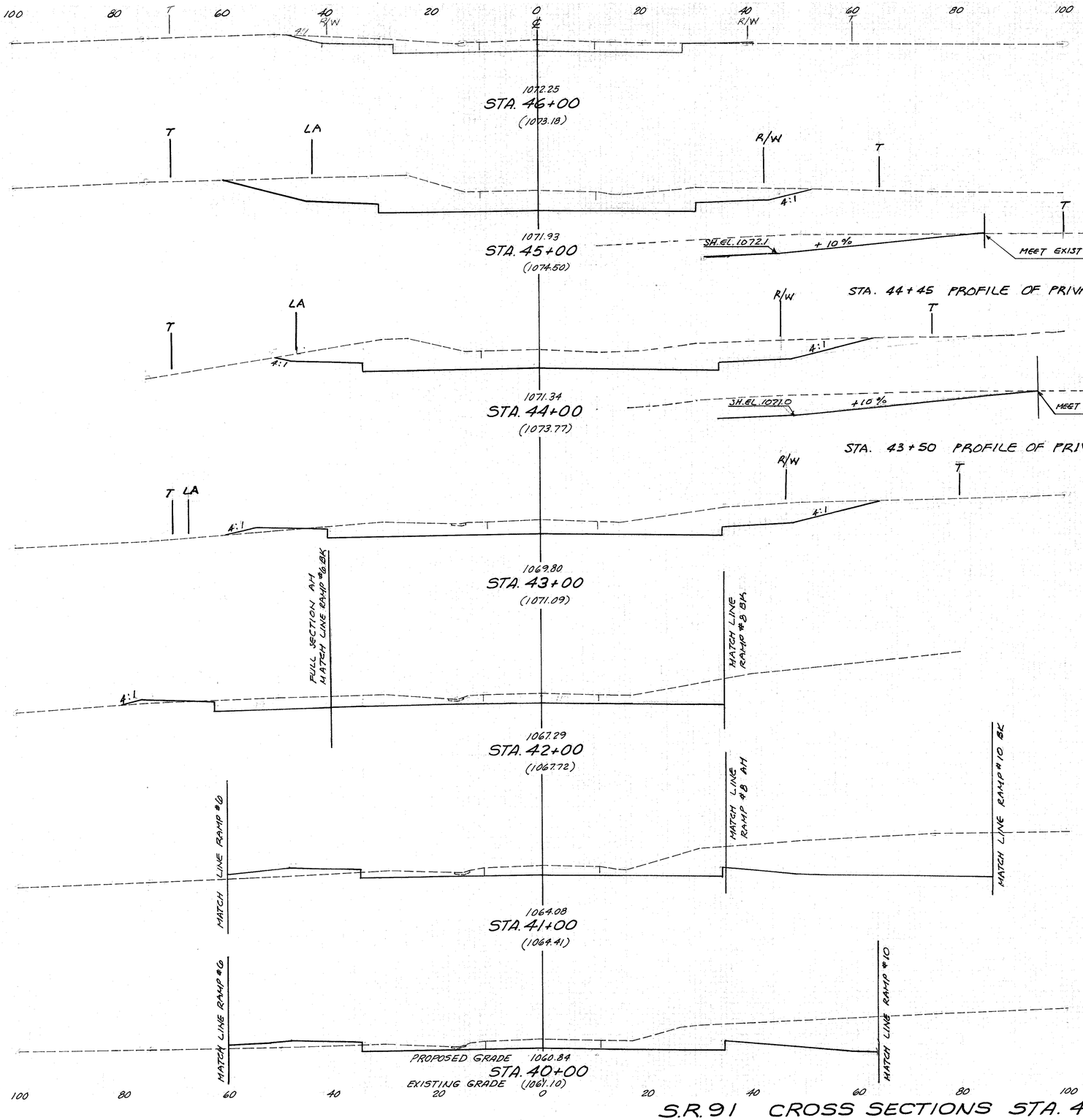
CUYAHOGA COUNTY
CUY 422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H. DATE 5-6-69

SEEDING END WIDTH	SEEDING SQ. YDS.
76	1070
844	1060
76	1070
	1060
850	
77	1070
	1060
850	
76	1070
	1060
750	
59 AH	1070
0 BK	
	1060
144	
26 AH	1070
77 BK	
	1060
733	
55	1070
444	1060
25	STA. 39+00

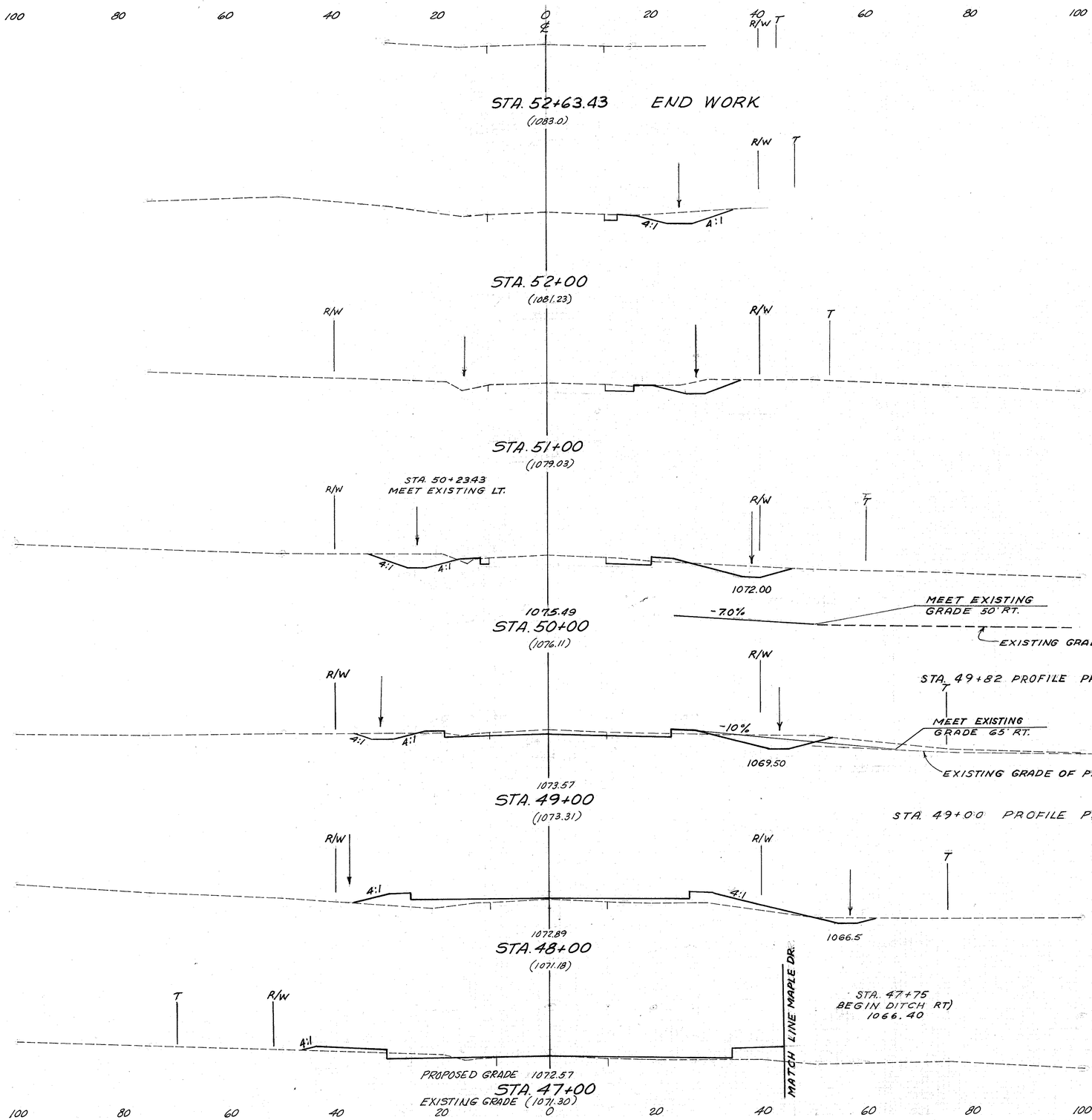


	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	135	0		
			1020	0
	416	0		
1070			1544	0
STA. 44+45 FOR DR. RT. CUT 50 C.Y.				
	418	0	(+50)	
1070			1330	17
STA. 43+50 FOR DR. RT. CUT 75 C.Y.				
	300	9	(+75)	
			861	24
	AH 165	4		
	BK 117			
			480	72
	AH 142	35		
	BK 500			
			1472	111
	295	25		
			917	46
	200	0		

MAY 4 1973 STA. 39+00

S.R. 91 CROSS SECTIONS STA. 40+00 TO STA. 46+00

SEEDING END WIDTH	SEEDING SQ. YDS.	
32	1080	STA 52+62.48 END SEEDING
		ADACHE ASSOCIATES, INC. CALC. BY J.D.A. DATE 3-29-69 CHKD. BY R.W.H. DATE 6-5-69
	1070	
	233	
34		
	1080	
	394	
	1070	
37		
	417	
	1080	
	1070	STA. 50+23.43 END SEEDING LT.
38	AH	
70	BK	
	778	
70	1080	
	(-96)	STA. 49+88 DEDUCT FOR DR. RT. (96 S.Y.)
	1070	
	794	
73	1080	STA 49+00
	(-97)	DEDUCT FOR DR. RT. (97 S.Y.)
	1070	
	756	
63	1080	
	1070	
	628	STA. 47+00 ± - 47+75±
	(-375)	DEDUCT FOR CARRIAGE PK. & MAPLE DR. PAV'T. (375 S.Y.)
50	1080	
	700	1070
76		STA. 46+00



DIST.	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-968(9)	

96
258

CUYAHOGA COUNTY
CUY 422-16.33

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		40	0
34	0		
		130	2
36	1		
		174	15
58	7		
		217	26
			(25)
AH 59	7		
BK 75	7		
			(25)
		159	170
10	85		
		41	244
12	47		
		272	87
135	0		

S.R. 91 CROSS SECTIONS STA. 47+00 TO STA. 52+62

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

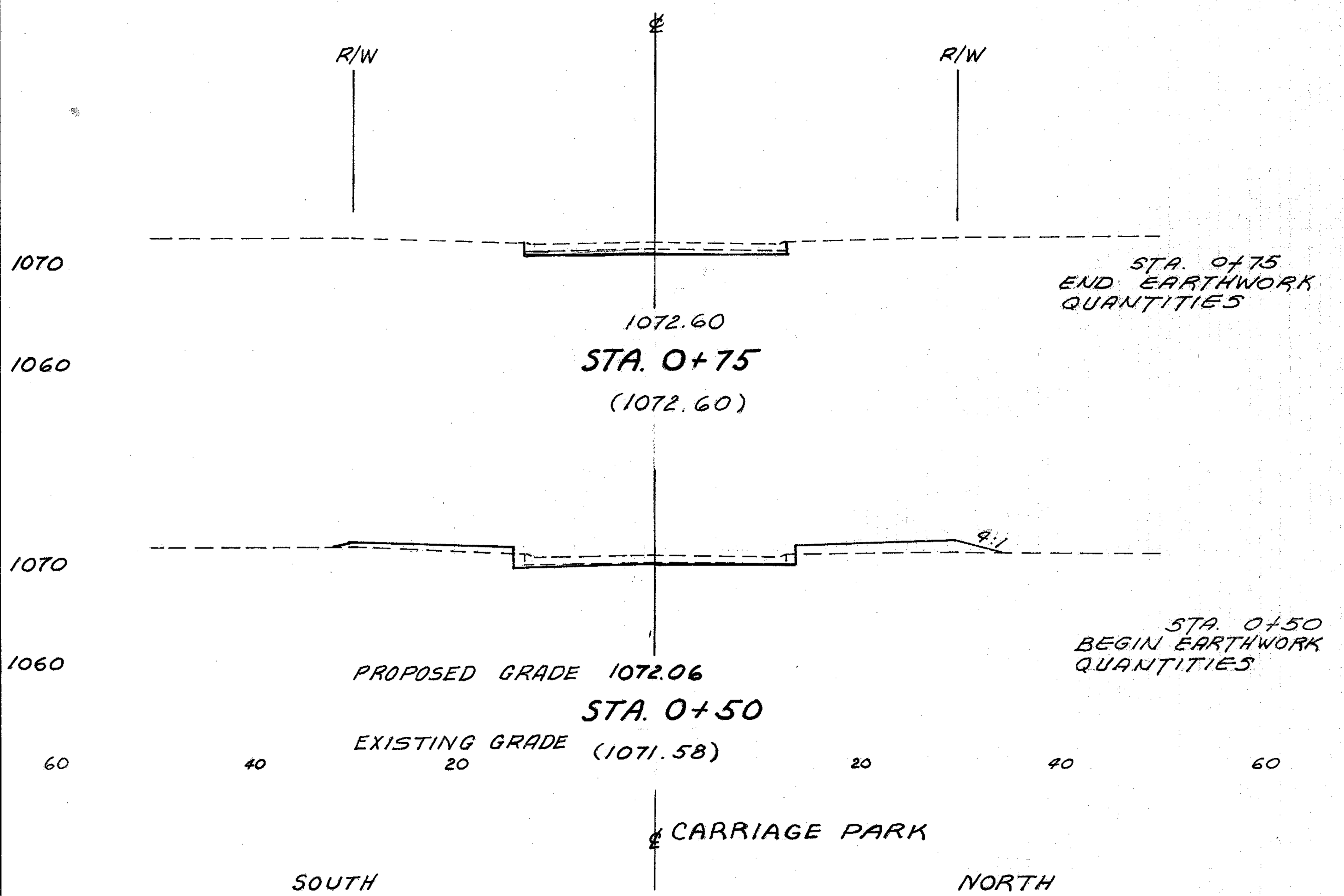
97/258

CUYAHOGA COUNTY
CUY 422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H. DATE 6-5-69

SEEDING	
END WIDTH	SQ. YDS.

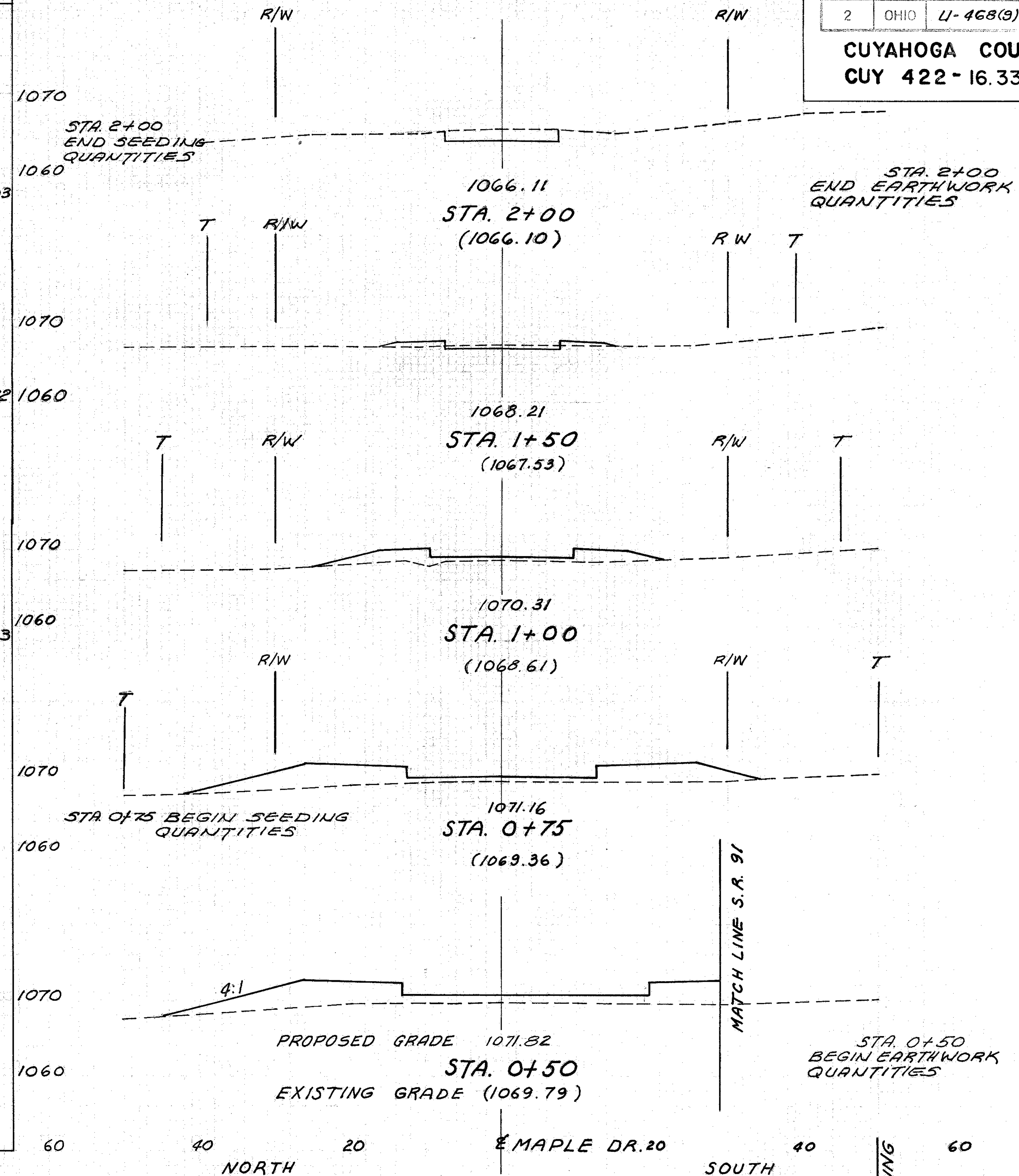
INCLUDED WITH S.R. 91 SEEDING



CROSS SECTIONS FOR CARRIAGE PARK

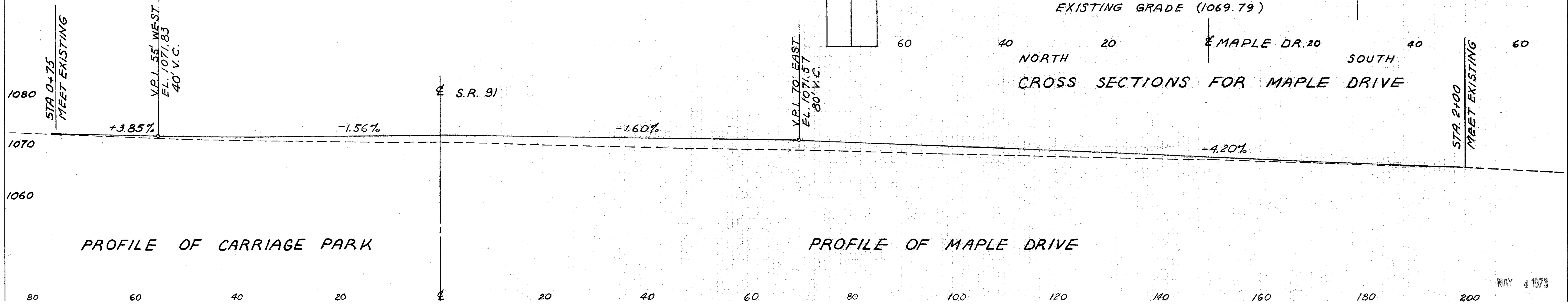
END AREA		VOLUME	
CUT	FILL	CUT	FILL
6	00		
		5	15
4	32		

SEEDING	
END WIDTH	SQ. YDS.
46	
	303
63	
	372
71	
	203
75	



CROSS SECTIONS FOR MAPLE DRIVE

END AREA		VOLUME	
CUT	FILL	CUT	FILL
22	0		
		26	8
6	9		
		6	60
0	56		
		0	89
0	136		
		0	127
0	139		



PROFILE OF CARRIAGE PARK

PROFILE OF MAPLE DRIVE

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

98
258

CUYAHOGA COUNTY
CUY. 422 - 16.33

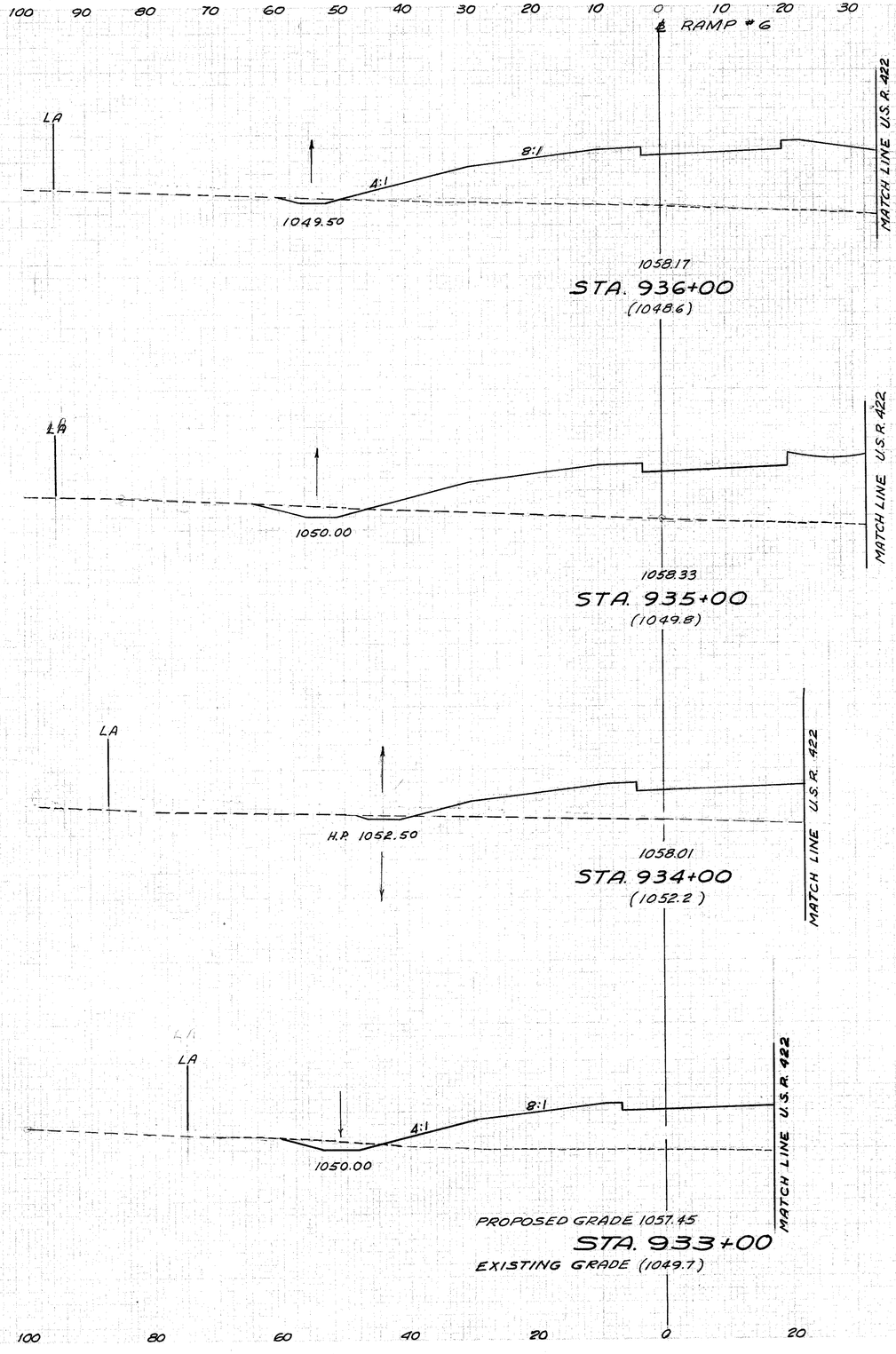
ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-27-69
CHKD. BY R.W.H. DATE 6-5-69

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
106	1156	1060 / 1050 / 1040	7	580		
					50	1981
102	1039	1060 / 1050 / 1040	20	490		
					46	1389
85	861	1060 / 1050 / 1040	5	260		
					37	1085
70		1060 / 1050 / 1040	15	326		

STA. 933+00 BEGIN
RAMP SEEDING QUANTITIES

STA. 933+00 BEGIN RAMP #6
EARTHWORK QUANTITIES

MAY 1 1973



RAMP #6 CROSS SECTIONS STA. 933+00 TO STA. 936+00

SEEDING END WIDTH	SEEDING SQ. YDS.
208	1060
	1050
981	
145	1060
	1050
744	
123	1060
	1050
653	
112	1060
	1050
611	
108	1060
	1050
600	
108	1060
	1050
594	
106	1060
589	1050
106	STA. 936+00

ADACHE ASSOCIATES, INC.
CALC. BY W.A.L. DATE 3-27-69
CHKD. BY R.W.H. DATE 4-5-69

100 80 60 40 20 0 ℄ RAMP #6 20 40 60 80 100

LA

6:1 4:1 8:1 6:1

1053.75

1056.91

STA. 939+50

(1052.8)

MATCH LINE U.S.R. 422

LA

4:1 4:1 8:1 6:1

1053.00

1056.97

STA. 939+00

(1051.8)

MATCH LINE U.S.R. 422

LA

4:1 8:1

1062.00

1057.17

STA. 938+50

(1051.9)

MATCH LINE U.S.R. 422

LA

4:1 4:1 8:1

1051.00

1057.37

STA. 938+00

(1051.6)

MATCH LINE U.S.R. 422

LA

3:1 4:1 8:1

L.P.FL. 1048.50

1057.57

STA. 937+50

(1051.6)

MATCH LINE U.S.R. 422

LA

4:1 8:1

1048.63

1057.77

STA. 937+00

(1050.3)

MATCH LINE U.S.R. 422

LA

4:1 8:1 6:1

1048.75

PROPOSED GRADE 1057.97

STA. 936+50

EXISTING GRADE (1048.7)

100 80 60 40 20 0 20 40 60 80 100

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
2	250		
		20	579
20	375		
		37	862
20	556		
		38	1022
21	548		
		84	929
70	455		
		102	997
40	622		
		41	1125
4	593		
		10	1086
7	580		

STATE PROJECT NO. U-468(9)

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CUYAHOGA COUNTY
CUY 422 - 16.33

MAY 4 1973

RAMP #6 CROSS SECTIONS STA. 936+50 TO STA. 939+50

E-14

21-1

SEEDING		
END WIDTH	SQ. YDS.	
68	389	
77	478	
95	625	
130	842	
173	1131	
234	1422	
278	1350	
208		

ADACHE ASSOCIATES, INC.
CALC. BY N.A.L. DATE 3-27-67
CHKD. BY R.W.H. DATE 6-5-67

80 60 40 20 0 20 40 60 80 100 120 140 160 180

℄ RAMP #6

LA

1070
1060
1050

4:1

STA. 943+00 END RAMP SEEDING

1064.57
STA. 943+00
(1064.6)

6:1 8:1

1060.50
END LT. DITCH

1062.61
STA. 942+50
(1061.6)

4:1 8:1

1055.50

1060.94
STA. 942+00
(1059.0)

6:1 4:1 8:1

1054.75

1059.56
STA. 941+50
(1055.9)

6:1 4:1 8:1

1054.50

1058.47
STA. 941+00
(1058.2)

6:1 8:1

1054.25

1058.66
STA 940+50
(1058.6)

6:1 8:1

1054.00

PROPOSED GRADE 1057.14
STA. 940+00
EXISTING GRADE (1057.2)

MATCH LINE S.R. 91

STA. 939+50

80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180 200

FED. AID PROJ. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY 422-16.33

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
STA. 943+00 END RAMP EARTHWORK	47	22		
			53	93
	10	78		
			32	151
	25	85		
			29	354
	6	297		
			167	296
	174	23		
			620	32
	496	12		
			733	30
	296	20		
			276	250
STA. 939+50	2	250		

MATCH LINE U.S.R. 422

MAY 4 1973

RAMP #6 CROSS SECTIONS STA. 940+00 TO STA. 943+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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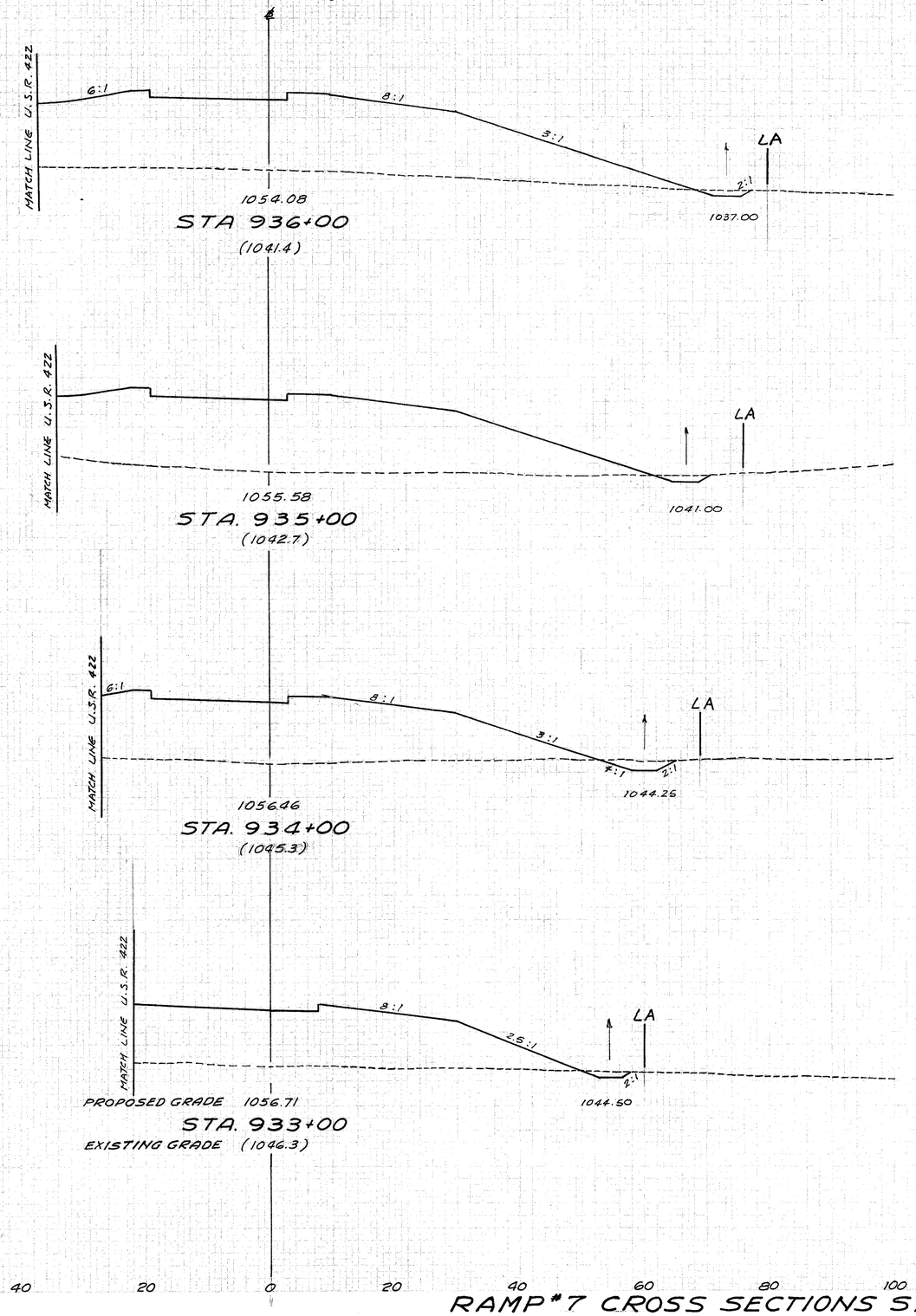
CUYAHOGA COUNTY
CUY. 422 - 16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H DATE 4-5-69

SEEDING END WIDTH	SEEDING SQ. YDS.
99	1850
90	933
78	733
54	

STA. 933+00 BEGIN RAMP SEEDING



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
8	1165		
		30	3811
8	893		
		37	2837
12	639		
		33	2189
6	593		

STA. 933+00
BEGIN RAMP #7
EARTHWORK QUANTITIES

MAY 4 1973

RAMP #7 CROSS SECTIONS STA. 933+00 TO STA. 936+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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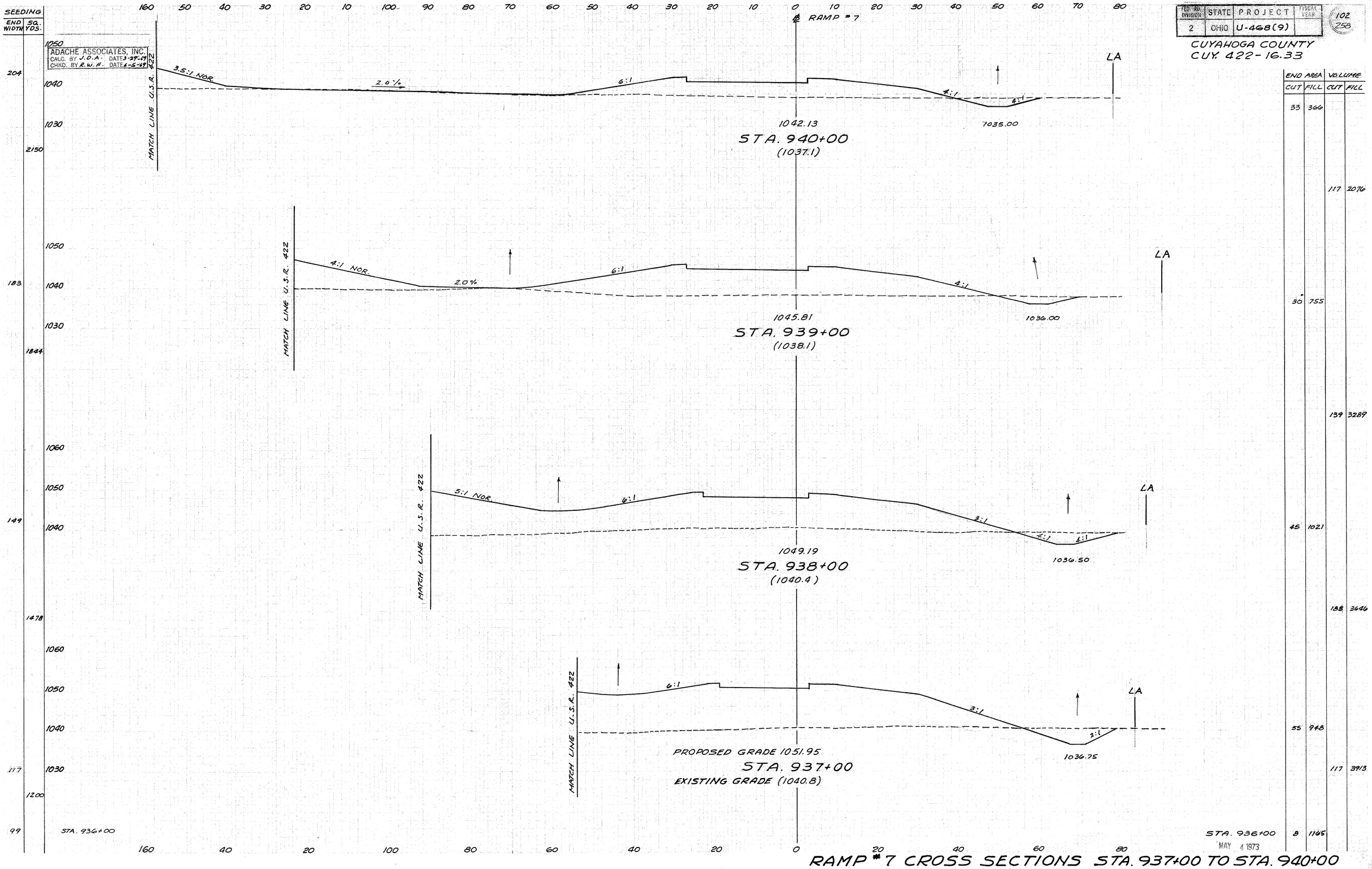
CUYAHOGA COUNTY
CUY. 422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.O.A. DATE 3-27-69
CHKD. BY R.W.H. DATE 4-5-69



MAY 4 1973

RAMP #7 CROSS SECTIONS STA. 937+00 TO STA. 940+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY. 422 - 16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.O.A. DATE 3-27-69
CHKD. BY R.W.H. DATE 4-5-69

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		189	232		
				389	380
		231	178		
				517	270
		327	120		
				667	900
STA. 940+00	33	360			

MAY 4 1973

℄ RAMP # 7

MATCH LINE U.S.R. 422

236 — 1050 — 1040 — 1030 — 1289

STA. 942+00 END RAMP
SEEDING QUANTITIES

LIMIT OF SEEDING

STA. 942+00
END RAMP #2 EARTH
WORK QUANTITIES

48:1

1037.00

1037.80

STA. 942+00
(1035.3)
MATCH LINE X-SECT. S.R. 91 LT.

AREA L.P.
S.R. 91 STA. 33+20 110' LT.
STD. NO. 5 C.B. T/G. 1036.25

MATCH LINE U.S.R. 422

228 — 1050 — 1040 — 1030 — 1306

48:1 — 8:1 — 4:1 NOR — LA

1036.50 — 1037.95 — 1033.75

STA. 941+50
(1035.2)

MATCH LINE U.S.R. 422

242 — 1050 — 1040 — 1030 — 2478

48:1 — 8:1 — 4:1 — 4:1 — LA

1037.00 — 1034.00

PROPOSED GRADE 1038.79
STA. 941+00
EXISTING GRADE (1036.2)

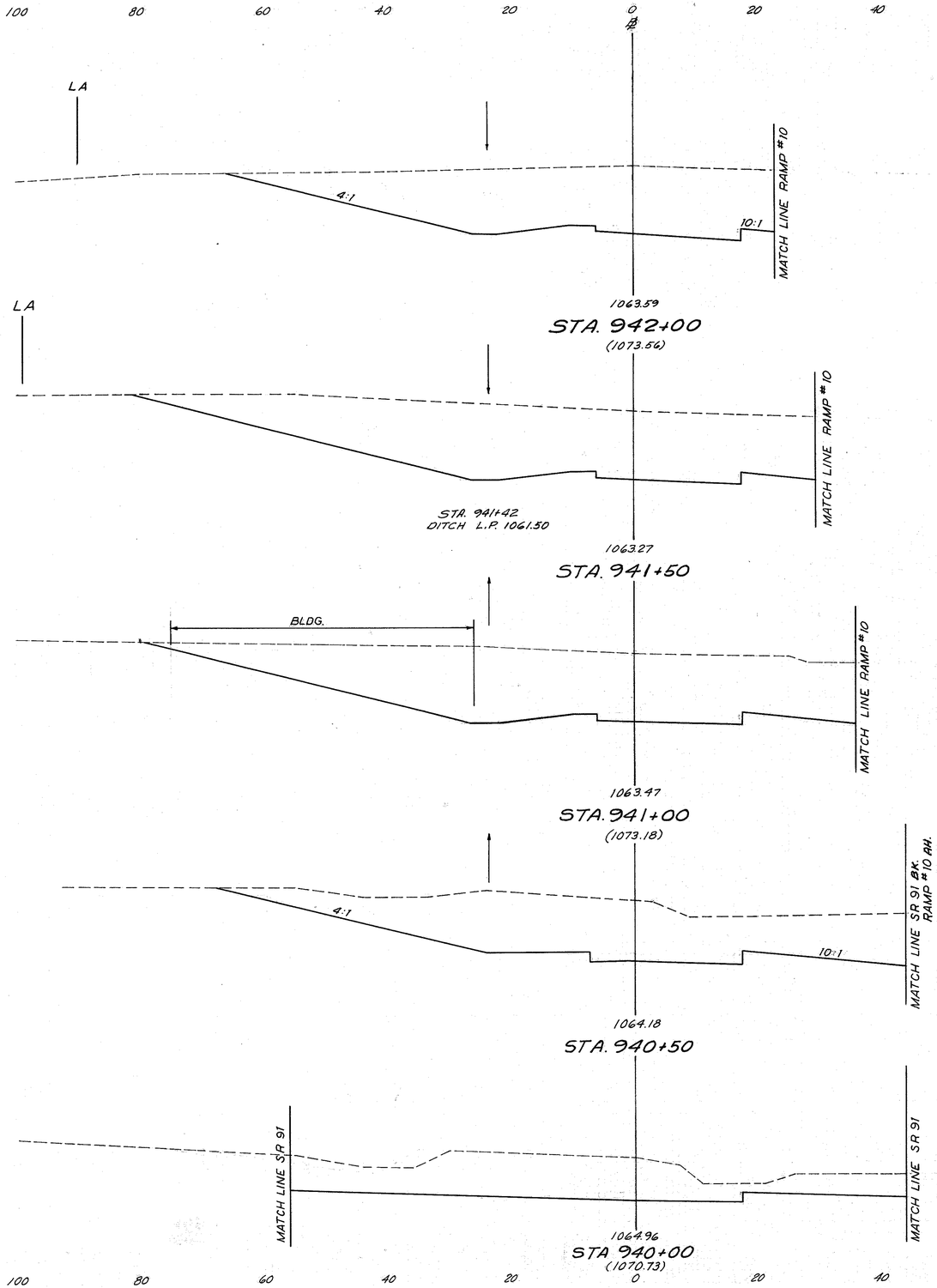
204 — STA. 940+00

180 60 40 20 100 80 60 40 20 0 20 40 60 80

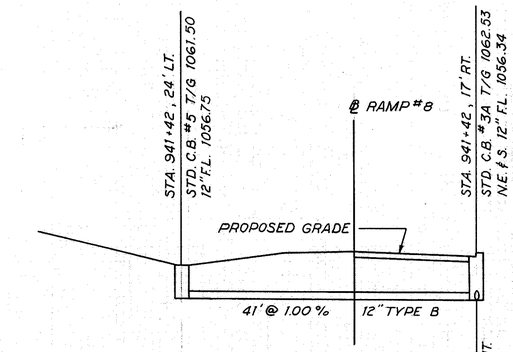
RAMP # 7 CROSS SECTIONS STA. 941+00 TO STA. 942+00

SEEDING	
END	SQ.
WIDTH	YDS.
91	
	553
108	
	636
121	
	714
136	
	453
27	

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H DATE 6-5-69



STA. 940+00 BEGIN
RAMP SEEDING QUANTITIES



PIPE PROFILE STA. 941+42

FED. AID DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUTY
CUY 422-16.33

END AREA		VOLUME	
CUT	FILL	CUT	FILL
733	0		
		1570	0
963	0		
		1815	0
997	0		
		1630	0
763	0		
		1187	0
519	0		

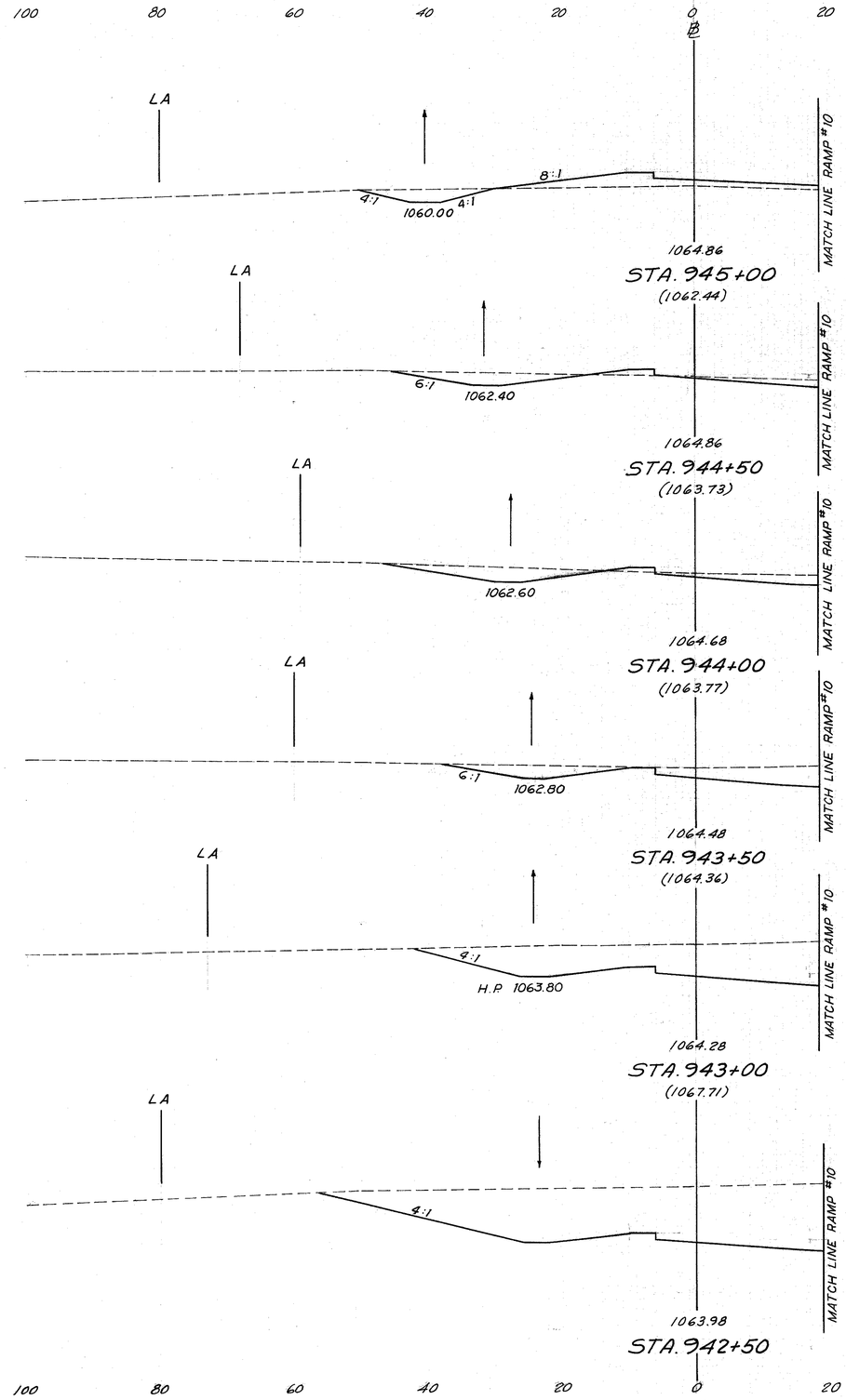
STA. 940+00 BEGIN
RAMP EARTHWORK
QUANTITIES

MAY 4 1973

RAMP #8 CROSS SECTIONS STA. 940+00 TO STA. 942+00

SEEDING END WIDTH	SEEDING SQ. YDS.
75	381 K=1.14 434
62	322 K=1.14 367
54	303 K=1.10 333
55	336 K=1.14 383
66	389 K=1.08 4.20
74	458
91	

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H. DATE 6-5-69



FED. ROAD DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY 422-16.33

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
30	53		
		69	56
45	7		
		106	10
70	4		
		136	4
77	0		
		294	0
241	0		
		685	0
499	0		
		1141	0
733	0		

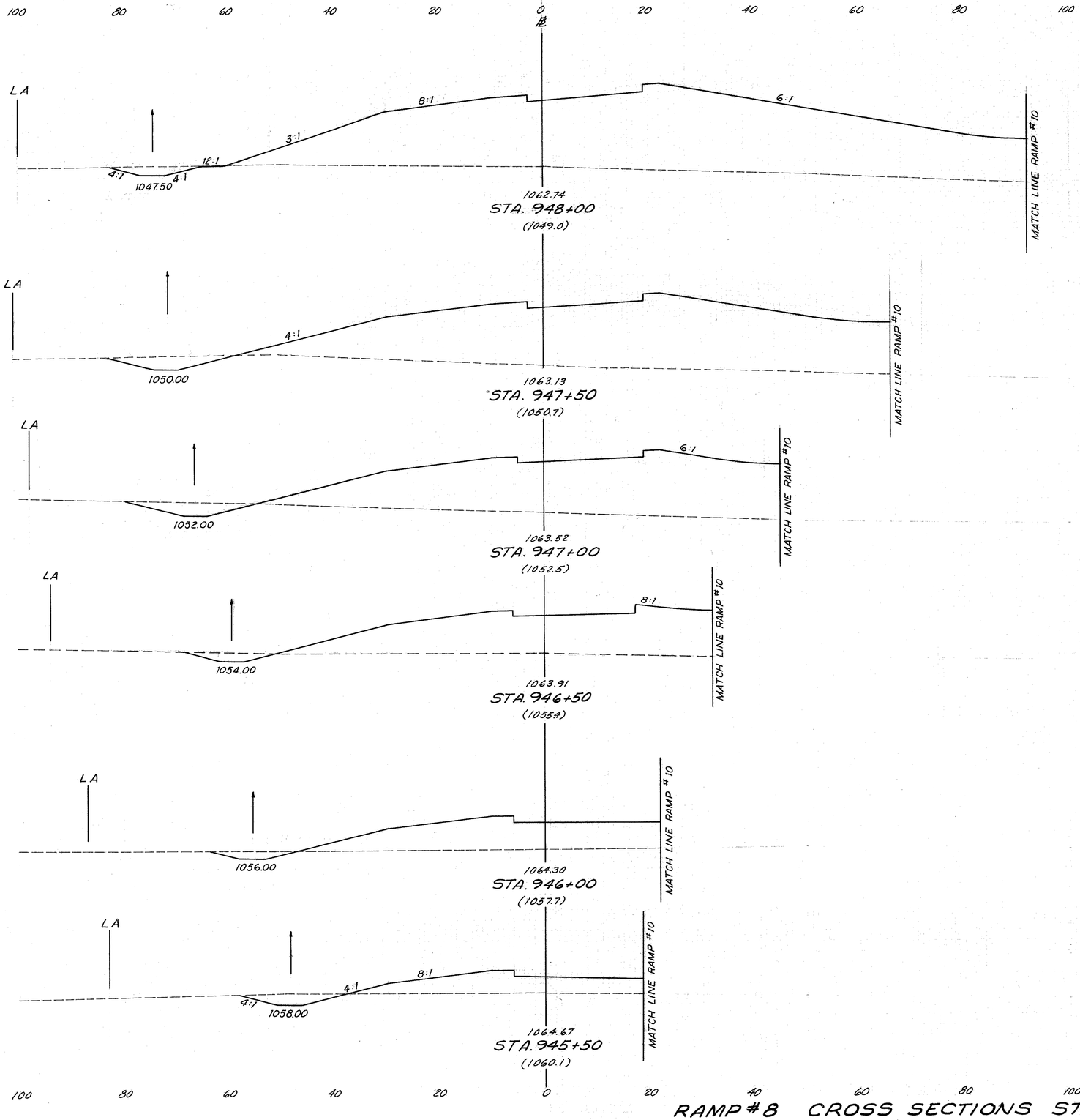
STA. 942+00

MAY 4 1973

RAMP #8 CROSS SECTIONS STA. 942+50 TO STA. 945+00

SEEDING END WIDTH	SQ. YDS.	
173	892	1060 / 1050 / 1040
148	747	1060 / 1050
121	625	1060 / 1050
104	517	1060 / 1050
82	442	1070 / 1060 / 1050
77	422 K=1.12 473	1060 / 1050
75		STA. 945+00

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H DATE 6-5-69



FED. NO. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-4CB(9)	

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CUYAHOGA COUNTY
CUY 422 - 16.33

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
18	1548		
		52	2535
38	1190		
		64	1903
31	865		
		46	1312
19	552		
		31	811
15	324		
		38	453
26	165		
		52	202
30	53		

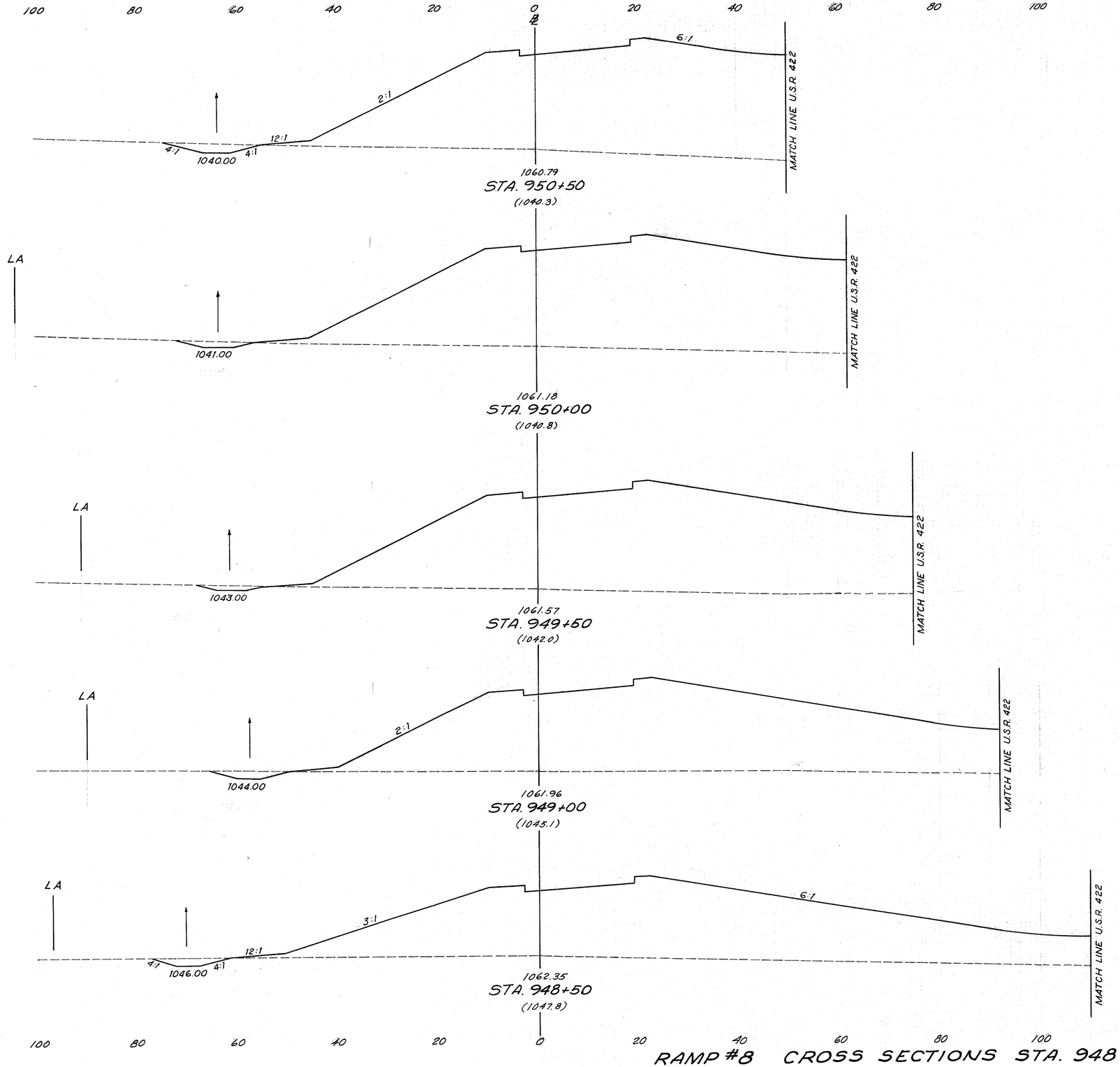
STA. 945+00

MAY 4 1973

RAMP #8 CROSS SECTIONS STA. 945+50 TO STA. 948+00

SEEDING END WIDTH	SEEDING SQ. YDS.	
		1060
147		
		1050
	822	
		1040
		1060
		1050
149		
		1040
	831	
		1060
150		1050
		1040
	872	
		1060
164		1050
	972	1040
		1060
186		
	997	1050
		1040
173		STA. 948+00

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 3-29-69
CHKD. BY R.W.H. DATE 6-5-69



FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-4GB(9)	

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CUYAHOGA COUNTY
CUY 422 -16.33

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
24	1633		
		32	3219
11	1844		
		19	3484
10	1919		
		24	3341
16	1689		
		28	3086
14	1644		
		30	2956
18	1548		
STA. 948+00			

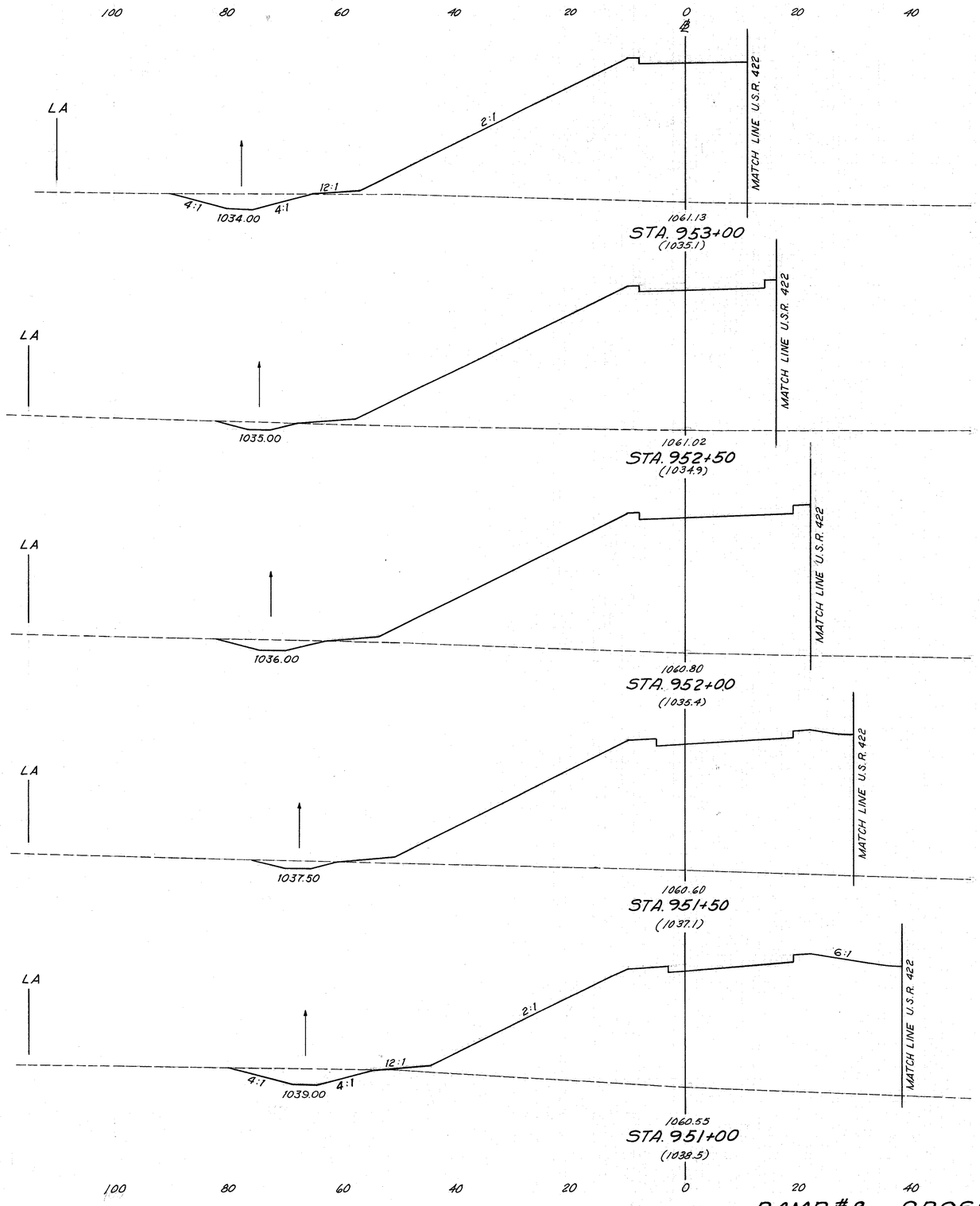
MAY 4 1973

RAMP #8 CROSS SECTIONS STA. 948+50 TO STA. 950+50

SEEDING END	SQ. YDS.
108	1060
	1050
	1040
608 K-096 584	1060
	1050
111	1040
631 K-096 605	1060
	1050
116	1040
672 K-092 618	1060
	1050
126	1040
	1030
725 K-09	
	1050
135	1040
783 K-096 752	1030
147	STA. 950+50

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A DATE 3-29-69
CHKD. BY R.W.H. DATE 6-5-69

STA. 953+00 END RAMP SEEDING QUANTITIES



FED. ROAD DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY 422-16.33

STA. 953+00 END RAMP EARTHWORK QUANTITIES

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
39	1135		
		45	2340
10	1393		
		28	2517
20	1325		
		33	2531
16	1408		
		44	2649
31	1453		
		51	2857
24	1633		

STA. 950+50

MAY 4 1973

RAMP #8 CROSS SECTIONS STA. 951+00 TO STA. 953+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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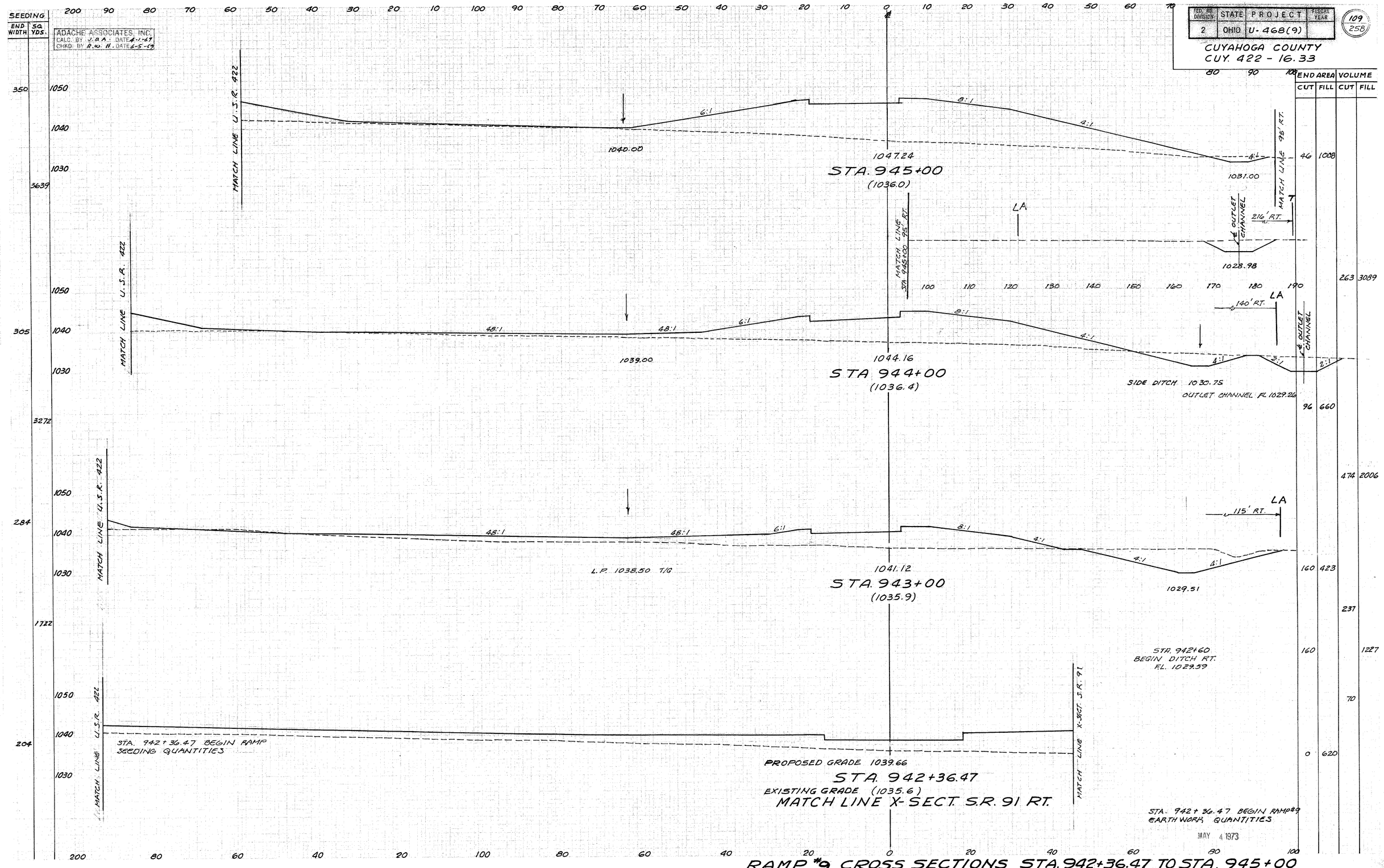
CUYAHOGA COUNTY
CUY. 422 - 16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.B.A. DATE 4-1-67
CHKD. BY R.W.H. DATE 6-5-67

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
350	3639	46	1008	263	3089
305	3272	96	660	474	2006
284	1722	160	423	237	1227
204		160		70	
		0	620		



MAY 4 1973

RAMP #9 CROSS SECTIONS STA. 942+36.47 TO STA. 945+00

SHEET NO.	STATE	PROJECT	FINAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY. 422 - 16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 4-1-69
CHKD. BY R.W.H. DATE 6-5-69

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		1060				
227		1050				
		1040				
		1030				
2472						
		1060				
		1050				
218		1040				
		1030				
2517						
		1060				
		1050				
235		1040				
		1030				
2900						
		1060				
		1050				
287		1040				
3539		1030				
350		STA. 945+00	38	1563		
					185	5387
			62	1396		
					250	5030
			73	1370		
					233	4930
			53	1292		
					183	4259
			46	1008		

MATCH LINE U.S.R. 422

1059.31
STA 949+00
(1034.3)

MATCH LINE U.S.R. 422

1056.48
STA. 948+00
(1036.4)

MATCH LINE U.S.R. 422

1053.40
STA. 947+00
(1038.0)

MATCH LINE U.S.R. 422

PROPOSED GRADE 1050.32
STA. 946+00
EXISTING GRADE (1037.8)

2:1 4:1 LA MATCH LINE 140' RT. 220' T

STA. 949+00 140' RT. 2:1 2:1 1031.25 ℄ OUTLET CHANNEL 1028.26

6:1 8:1 3:1 4:1 4:1 LA MATCH LINE 140' RT. 199' T

STA. 948+00 140' RT. 1034.00 ℄ OUTLET CHANNEL 1028.71

6:1 8:1 4:1 4:1 LA MATCH LINE 140' RT. 193' T

H.P. 1035.00

STA. 947+00 140' RT. ℄ OUTLET CHANNEL 1028.58

6:1 8:1 4:1 LA MATCH LINE 140' RT. 206' T

1034.00 STA. 946+00 140' RT. 2:1 2:1 ℄ OUTLET CHANNEL FL. 1028.78 STA. 945+00

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

100 80 60 40 20 0 20 40 60 80 100 20 30 40 140 150 160 170 180 190 200 140 150 160 170 180 190 140

MAY 4 1973

RAMP #9 CROSS SECTIONS STA. 946+00 TO STA. 949+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

111
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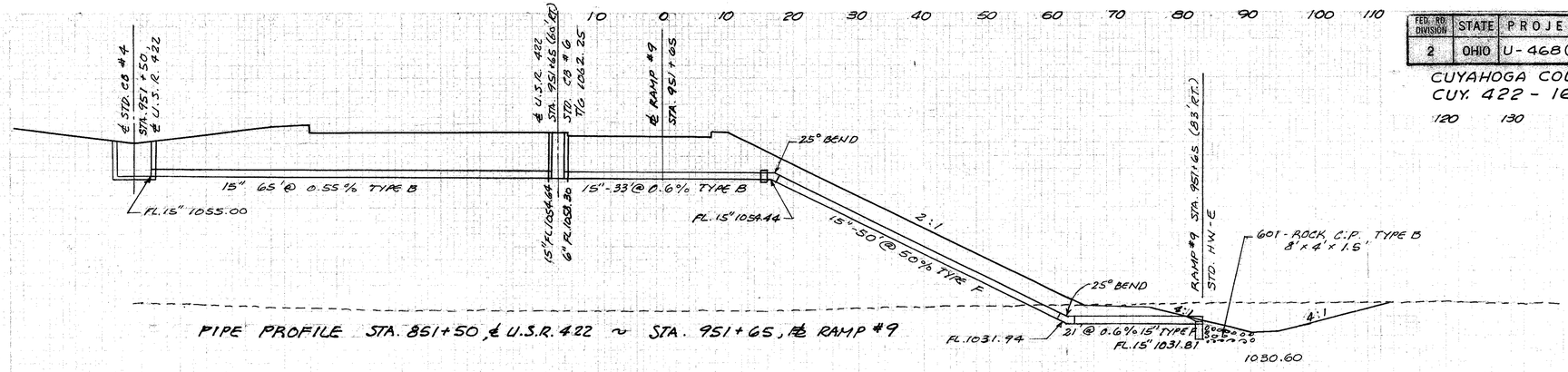
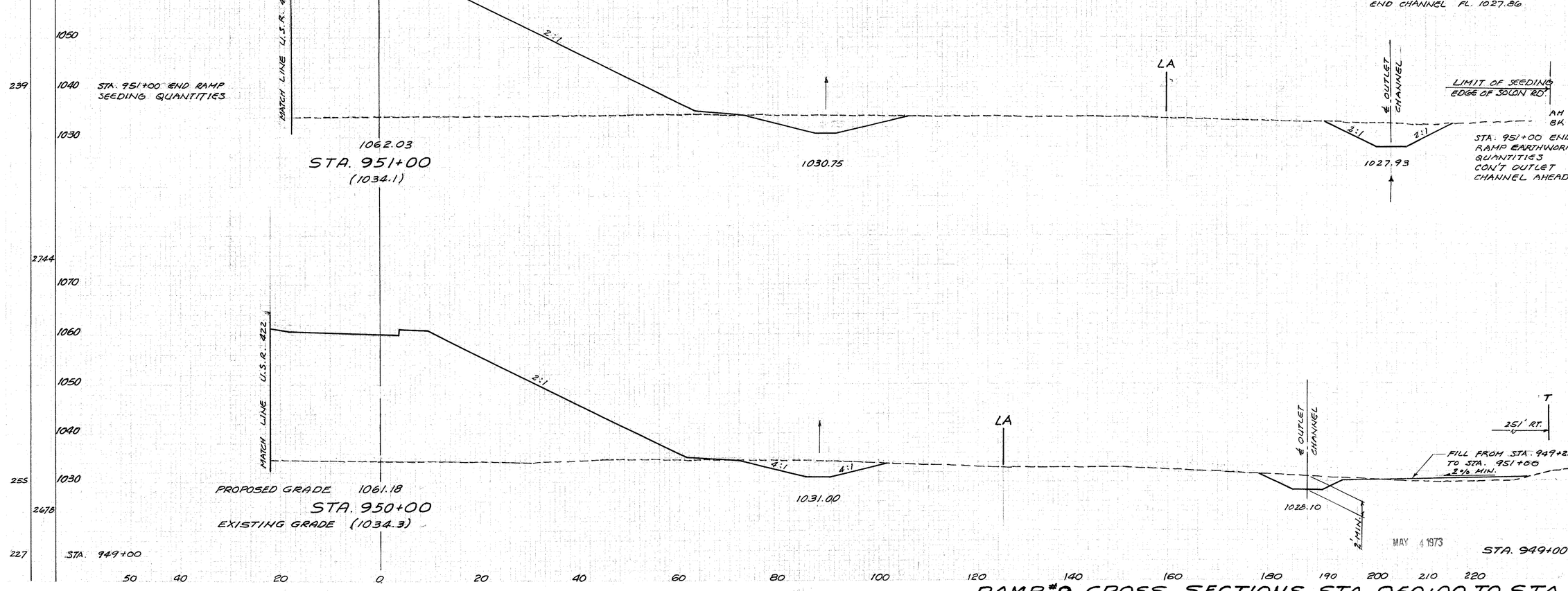
CUYAHOGA COUNTY
CUY. 422 - 16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 6-1-67
CHKD. BY R.W.H. DATE 6-5-67





	ENDAREA		VOLUME	
	CUT	FILL	CUT	FILL
	76			
	65			
	151	1494		
	463	5663		
	99	1564		
	254	5791		
	38	1563		

RAMP #9 CROSS SECTIONS STA. 950+00 TO STA. 951+00

SEEDING END WIDTH	SEEDING SQ. YDS.
189	
	947
140%	
	909
152	
	725
109	
	606
109	
	636
120	

ADACHE ASSOCIATES, INC.
CALC. BY: J.D.A. DATE: 6-1-69
CHKD. BY: R.W.H. DATE: 6-6-69

MATCH LINE RAMP #10

MATCH LINE U.S.R. 422

8:1

4:1

1063.75

STA. 944+50
1068.01
1053.7

3.5:1

STA. 944+00
1068.71
1052.9

3:1

1051.50

STA. 943+50
1069.03

STA. 943+00
1069.12

PROPOSED GRADE
EXISTING GRADE
STA. 942+50

STA. 942+50 BEGIN
RAMP SEEDING QUANTITIES

STA. 942+50 BEGIN
RAMP EARTHWORK
QUANTITIES.

STATE	PROJECT	YEAR	SHEET NO.
OHIO	U-468(9)		112 258

CUYAHOGA COUNTY
CUY 422-16.33

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
3	854		
		28	1537
27	806		
		40	1520
16	836		
		52	1517
40	802		
		37	889
0	158		

MAY 4 1973

RAMP #10 CROSS SECTIONS STA. 942+50 TO STA. 944+50

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 4-1-69
CHKD. BY R.W.H. DATE 4-6-69

FED. ROAD DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY 422-16.33

SEEDING END WIDTH	SEEDING SQ YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		78	2116		
325				102 K=0.20 20	4067
300		32	2276		
271				55 K=0.20 11	3748
251		27	1772	74 K=0.20 15	2809
238		53	1262		
213		3	1597	52 K=0.20 10	2647
189		78	1214	75	2603
		3	854	75	1915

STA. 944+50

1730 K=0.68 1181
1586 K=0.74 1174
1450 K=0.66 957
1358 K=0.64 869
1253 K=0.74 927
1117 K=0.82 916

RADIUS POINT RAMP #10 — 1070 / 1060 — 1055.00

MATCH LINE RAMP #8

1063.94
STA. 947+50
1048.8

6:1 6:1

110 100 90 80

RADIUS POINT RAMP #10 — 1070 / 1060 — 1054.52

8:1 6:1

MATCH LINE U.S.R. 422

1064.52
STA. 947+00
1048.0

RADIUS POINT RAMP #10 — 1070 / 1060 — 1054.75

8:1 7:1

MATCH LINE U.S.R. 422

1065.21
STA. 946+50
1049.3

RADIUS POINT RAMP #10 — 1070 / 1060 — 1054.50

8:1 6:1 6:1

MATCH LINE U.S.R. 422

1065.91
STA. 946+00
1052.7

MATCH LINE RAMP #10 — 1070 / 1060 — 1054.25

8:1 6:1

WATER EL. 1050.3±

MATCH LINE U.S.R. 422

1066.61
STA. 945+50
1052.7

STA. 945+20 TO STA. 946+05
DRAIN EXISTING POND AND
FILL WITH NORMAL EMBANKMENT FILL

MATCH LINE RAMP #10 — 1070 / 1060 / 1050 — 1064.00

8:1 4.5:1

MATCH LINE U.S.R. 422

PROPOSED GRADE 1067.31
STA. 945+00
EXISTING GRADE 1051.3

230 220 210 200 90 80 70 60 50 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60

MAY 1973

RAMP #10 CROSS SECTIONS STA. 945+00 TO STA. 947+50

SEEDING END WIDTH	SQ YDS.	230	220	210	200	90	80	70	60	50	40	30	20	10	100	90	80	70	60	50	40	30	20	10	0	10	20	30	40	50	60	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
224		RADIUS POINT RAMP #10																														93	17		
224		RADIUS POINT RAMP #10																														51	119		
224		RADIUS POINT RAMP #10																														40	189		
235		RADIUS POINT RAMP #10																														32	462		
249		RADIUS POINT RAMP #10																														43	855		
272		RADIUS POINT RAMP #10																														12	1569		
325		STA. 947+50																														78	2116		

1244 K=0.50 622 — 1070 / 1060

1244 K=0.50 622 — 1050 / 1060

1275 K=0.50 638 — 1050 / 1060

1344 K=0.50 672 — 1050 / 1060

1447 K=0.56 810 — 1050 / 1060

1658 K=0.20 995 — 1060 / 1050

H.P. 1060.00

1062.14
STA. 950+50
(1062.2)

1058.50

1062.38
STA. 950+00
(1060.4)

1057.00

1062.62
STA. 949+50
(1058.5)

1056.00

1062.86
STA. 949+00
(1055.7)

6:1

1055.50

1063.11
STA. 948+50
(1052.6)

1055.25

PROPOSED GROUND 1063.47
STA. 948+00
EXISTING GROUND (1049.5)

MATCH LINE RAMP #8

MATCH LINE RAMP #8

MATCH LINE RAMP #8

MATCH LINE RAMP #8

MATCH LINE RAMP #8

MATCH LINE RAMP #8

		133 K=0.90 120	126
		84 K=0.70 59	284
		67 K=0.10 7	603
		69 K=0.20 14	1219
		51 K=0.20 10	2244
		83 K=0.20 17	3412

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 4-1-69
CHKD. BY R.W.H. DATE 6-6-69

NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-4GB(9)	

114
258

CUYAHOGA COUNTY
CUY 422 - 16.33

MAY 4 1973

RAMP #10 CROSS SECTIONS STA. 948+00 TO STA. 950+50

FED. SD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-466(9)	

115
258

CUYAHOGA COUNTY
CUY 422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 4-1-69
CHKD. BY R.W.H. DATE 4-6-69

SEEDING END WIDTH	SEEDING SQ. YDS.	
250	1347	K=0.50 754
235	1281	K=0.50 640
226	1253	K=0.50 627
225	1247	K=0.50 623
224	1244	K=0.50 622
224	1244	K=0.50 622
224		

230 220 210 200 90 80 70 60 50 40 30 220 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60

RADIUS POINT RAMP #10 — 1070 — 1060

8:1 — 10:1 — 10:1

MATCH LINE RAMP #8

1060.57
STA. 953+50
(1070.7)

1060.94
STA. 953+00
(1071.8)

BUILDING

1061.18
STA. 952+50
(1072.1)

1061.42
STA. 952+00
(1068.7)

1061.66
STA. 951+50
(1064.9)

8:1

PROPOSED GRADE 1061.90
STA. 951+00
EXISTING GRADE (1062.8)

STA. 950+50

230 220 210 200 90 80 70 60 50 40 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
1281	82		
		2280	83
1181	8		
		2136	7
1128	0		
		1728	6
738	7		
		933	27
270	22		
		395	26
157	6		
		231	21
93	17		

MAY 4 1973

RAMP #10 CROSS SECTIONS STA. 951+00 TO STA. 953+50

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

116
258

CUYAHOGA COUNTY
CUY 422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 4-1-69
CHKD. BY R.W.H. DATE 6-6-69

STA. 957+00 END RAMP SEEDING QUANTITIES

SEEDING END WIDTH	SEEDING SQ YDS.
113	
774 K=0.90 670	1060
155	1050
	1060
958 K=0.84 805	1050
190	1070
	1060
1139 K=0.80 911	1050
220	1070
	1060
1281 K=0.76 873	1070
241	1060
1386 K=0.66 915	1070
258	1060
1508 K=0.70 1056	1070
285	1080
1486 K=0.64 951	
250	STA. 953+50

℄ RAMP #10

MATCH LINE RAMP #10 — MATCH LINE S.R. 91 — 8:1 — 8:1

1052.71
STA. 957+00
(1053.4)

BUILDING — MATCH LINE RAMP #10 — MATCH LINE S.R. 91

1054.04
STA. 956+50
(1056.4)

BUILDING — MATCH LINE RAMP #10 — MATCH LINE S.R. 91

1055.30
STA. 956+00
(1058.5)

BUILDING — MATCH LINE RAMP #10 — MATCH LINE S.R. 91

1056.62
STA. 955+50
(1060.6)

BUILDING — MATCH LINE RAMP #10 — MATCH LINE S.R. 91

1057.90
STA. 955+00
(1062.1)

BLDG. — MATCH LINE RAMP #10 — MATCH LINE S.R. 91

1059.05
STA. 954+50
(1067.9)

MATCH LINE RAMP #10 (RADIUS POINT) — MATCH LINE S.R. 91 — 8:1

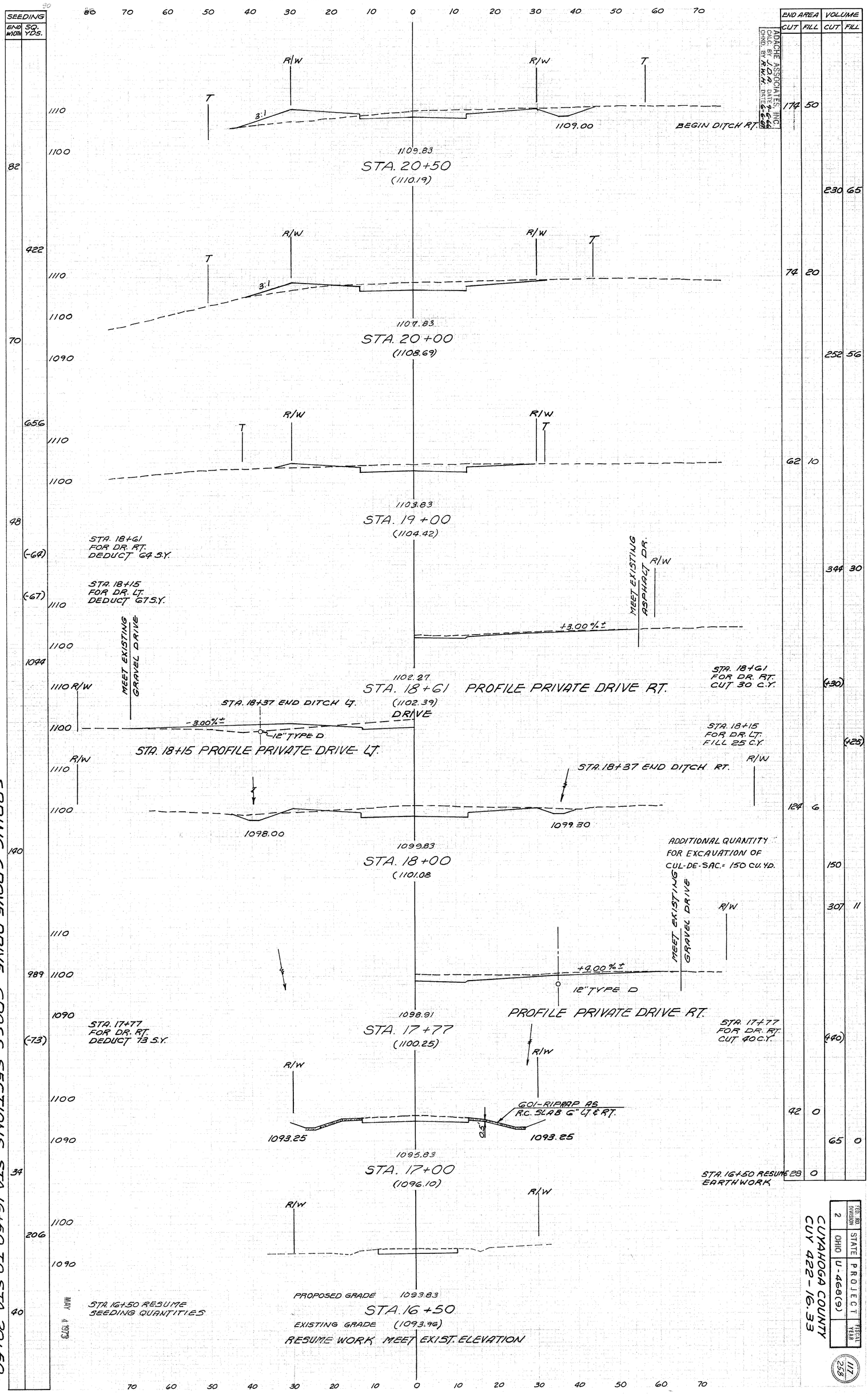
PROPOSED GRADE 1059.94
STA. 954+00
EXISTING GRADE (1070.9)

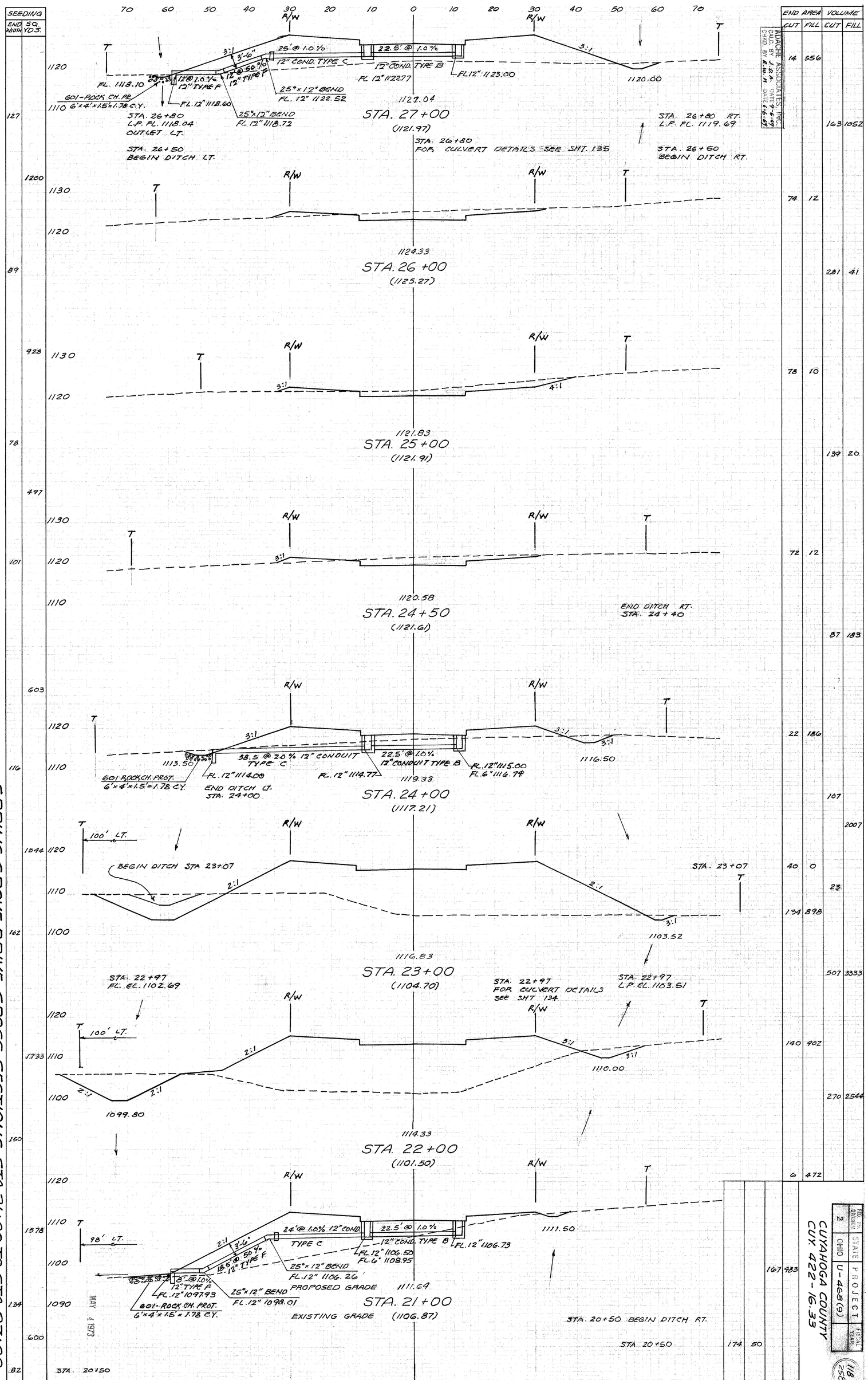
MAY 4 1973 STA. 953+50

STA. 957+00 END RAMP EARTHWORK QUANTITIES

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
91	0		
		312	
246	0		
		385	231
170	250		
		500	343
370	121		
		870	114
570	2		
		1508	9
1059	8		
		2344	56
1472	52		
		2549	124
1281	82		

RAMP #10 CROSS SECTIONS STA. 954+00 TO STA. 957+00


SEEDING
END WIDTH
SQ. YDS.
END AREA
CUT
FILL
VOLUME
CUT
FILL
ADACHE ASSOCIATES, INC.
CALC. BY J.D.A. DATE 4-68
CHKD. BY R.M.A. DATE 6-68
R/W
T
3:1
1109.00
BEGIN DITCH RT.
1109.83
STA. 20+50
(1110.19)
174 50
230 65
1107.83
STA. 20+00
(1108.69)
74 20
252 56
1103.83
STA. 19+00
(1104.42)
62 10
STA. 18+61
FOR DR. RT.
DEDUCT 64 S.Y.
(-64)
STA. 18+15
FOR DR. LT.
DEDUCT 67 S.Y.
(-67)
MEET EXISTING ASPHALT DR.
+3.00%±
344 30
MEET EXISTING GRAVEL DRIVE
1102.27
STA. 18+61 PROFILE PRIVATE DRIVE RT.
STA. 18+61
FOR DR. RT.
CUT 30 C.Y.
(-30)
STA. 18+37 END DITCH LT.
(1102.39)
DRIVE
-3.00%±
12" TYPE D
STA. 18+15 PROFILE PRIVATE DRIVE LT.
STA. 18+15
FOR DR. LT.
FILL 25 C.Y.
(+25)
STA. 18+37 END DITCH RT.
1098.00
1099.30
184 6
1099.83
STA. 18+00
(1101.08)
ADDITIONAL QUANTITY
FOR EXCAVATION OF
CUL-DE-SAC.= 150 CU. YD.
150
307 11
+9.00%±
12" TYPE D
PROFILE PRIVATE DRIVE RT.
1098.91
STA. 17+77
(1100.25)
STA. 17+77
FOR DR. RT.
DEDUCT 73 S.Y.
(-73)
STA. 17+77
FOR DR. RT.
CUT 40 C.Y.
(+40)
601-RIPRAP AS R.C. SLAB 6" LT & RT.
9.5'
1093.25
1093.25
42 0
65 0
1095.83
STA. 17+00
(1096.10)
STA. 16+50 RESUME EARTHWORK
28 0
PROPOSED GRADE 1093.83
STA. 16+50
EXISTING GRADE (1093.96)
RESUME WORK MEET EXIST. ELEVATION
STA. 16+50 RESUME SEEDING QUANTITIES
MAY 4 1973
SPRING GROVE DRIVE CROSS SECTIONS STA. 16+50 TO STA. 20+50
FED. RD. DIVISION 2
STATE OHIO
PROJECT U-468(9)
FISCAL YEAR
CUYAHOGA COUNTY
CUY 422-16.33
117
258


SEEDING
END WIDTH
SQ. YDS.
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70
R/W
T
3:1
3'-6"
25'@ 1.0%
22.5'@ 1.0%
12" COND. TYPE C
12" COND. TYPE B
12'@ 1.0% = 12" TYPE F
12'@ 50% = 12" TYPE F
25°x12" BEND
FL. 12" 1122.52
FL. 12" 1118.72
FL. 12" 1118.60
FL. 1118.10
601-ROCK CH. PR.
6'x4'x1.5'=1.78 C.Y.
STA. 26+80
L.P. FL. 1118.04
OUTLET LT.
STA. 26+50
BEGIN DITCH LT.
1127.04
STA. 27+00
(1121.97)
FL 12" 1122.77
FL 12" 1123.00
1120.60
STA. 26+80 RT.
L.P. FL. 1119.69
STA. 26+80
FOR CULVERT DETAILS SEE SHT. 135
STA. 26+60
BEGIN DITCH RT.
1124.33
STA. 26+00
(1125.27)
4:1
1121.83
STA. 25+00
(1121.91)
1120.58
STA. 24+50
(1121.61)
END DITCH RT.
STA. 24+40
38.5'@ 20% 12" CONDUIT TYPE C
22.5'@ 1.0% 12" CONDUIT TYPE B
1113.50
FL. 12" 1114.00
FL. 12" 1114.77
FL. 12" 1115.00
FL. 6" 1116.79
1116.50
601 ROCK CH. PROT.
6'x4'x1.5'=1.78 C.Y.
END DITCH LT.
STA. 24+00
1119.33
STA. 24+00
(1117.21)
100' LT.
BEGIN DITCH STA 23+07
STA. 23+07
1103.52
1116.83
STA. 23+00
(1104.70)
STA. 22+97
FL. EL. 1102.69
STA. 22+97
FOR CULVERT DETAILS
SEE SHT 134
STA. 22+97
L.P. EL. 1103.51
1110.00
1099.80
1114.33
STA. 22+00
(1101.50)
98' LT.
24'@ 1.0% 12" COND. TYPE C
22.5'@ 1.0%
12" COND. TYPE B
18.5'@ 50% = 12" TYPE F
8'@ 1.0% = 12" TYPE F
FL. 12" 1109.93
FL. 12" 1106.50
FL. 6" 1108.95
FL. 12" 1106.73
1111.50
25°x12" BEND
FL. 12" 1106.26
PROPOSED GRADE
FL. 12" 1097.93
25°x12" BEND
FL. 12" 1098.01
601-ROCK CH. PROT.
6'x4'x1.5'=1.78 C.Y.
1111.69
STA. 21+00
EXISTING GRADE (1106.87)
STA. 20+50 BEGIN DITCH RT.
STA. 20+50
END AREA
VOLUME
CUT
FILL
CALC. BY J.A.F. DATE 9-6-67
CHKD. BY R.W.H. DATE 9-6-67
ARMCHE ASSOCIATES, INC.
SPRING GROVE DRIVE CROSS SECTIONS STA. 21+00 TO STA 27+00
MAY 4 1973
NO. OF SHEETS 2
STATE OHIO
PROJECT U-468(9)
FISCAL YEAR
CUYAHOGA COUNTY
CUY. 422-16.33
118
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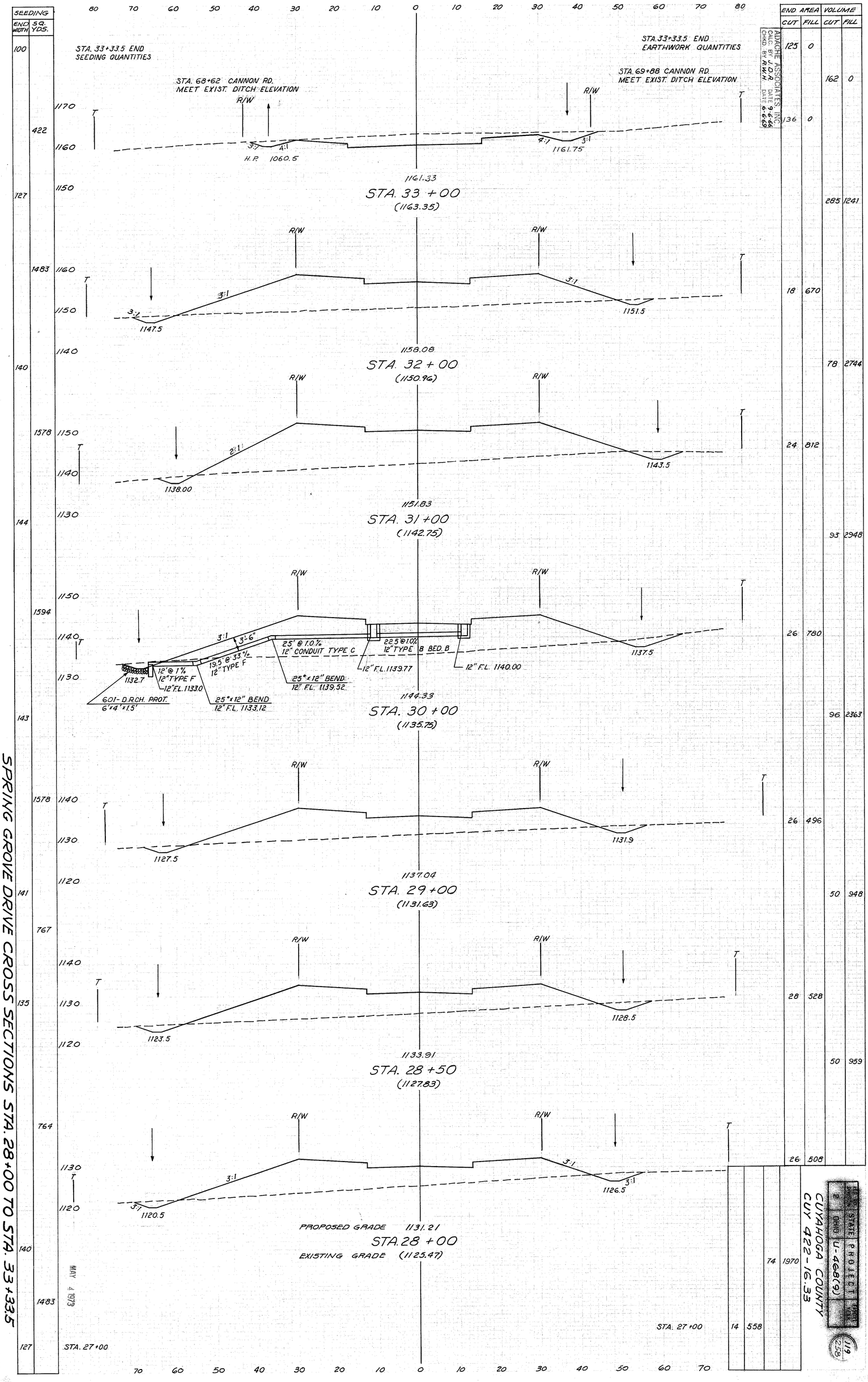

SEEDING END WIDTH	SEEDING SQ. YDS.	STATION	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
100	422	33+33.5	125	0	162	0
			136	0		
127	1483	33+00	18	670	285	1241
140	1578	32+00	24	812	78	2744
144	1594	31+00	26	780	93	2948
143	1578	30+00	26	496	96	2363
141	767	29+00	28	528	50	948
135	764	28+50	26	508	50	959
140	1483	28+00	74	1970		
127		27+00	14	558		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
CUY-422-16.33

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 5-6-69
CHKD. BY N.C.G. DATE 9-24-69

		STA. 7+70	STA. 7+00	STA. 6+00	STA. 5+00	STA. 4+00	STA. 3+00	STA. 2+00	STA. 1+00	STA. 0+50	STA. 0+09
			1036.0	1032.1	1032.2	1033.3	1035.9	1036.7	1035.9		
END AREA	CUT	11	8	0	0	0	37	106	100	91	173
	FILL	0	359	630	519	170	41	3	3	7	0
VOLUME	CUT	25	465	15	1831	0	2128	0	1276	69	391
	FILL										
			265	81	381	11	177	9	200	6	

PROPOSED GRADE 1035.55
STA. 0+09 MEET EXISTING

STA. 7+70 MEET EXISTING

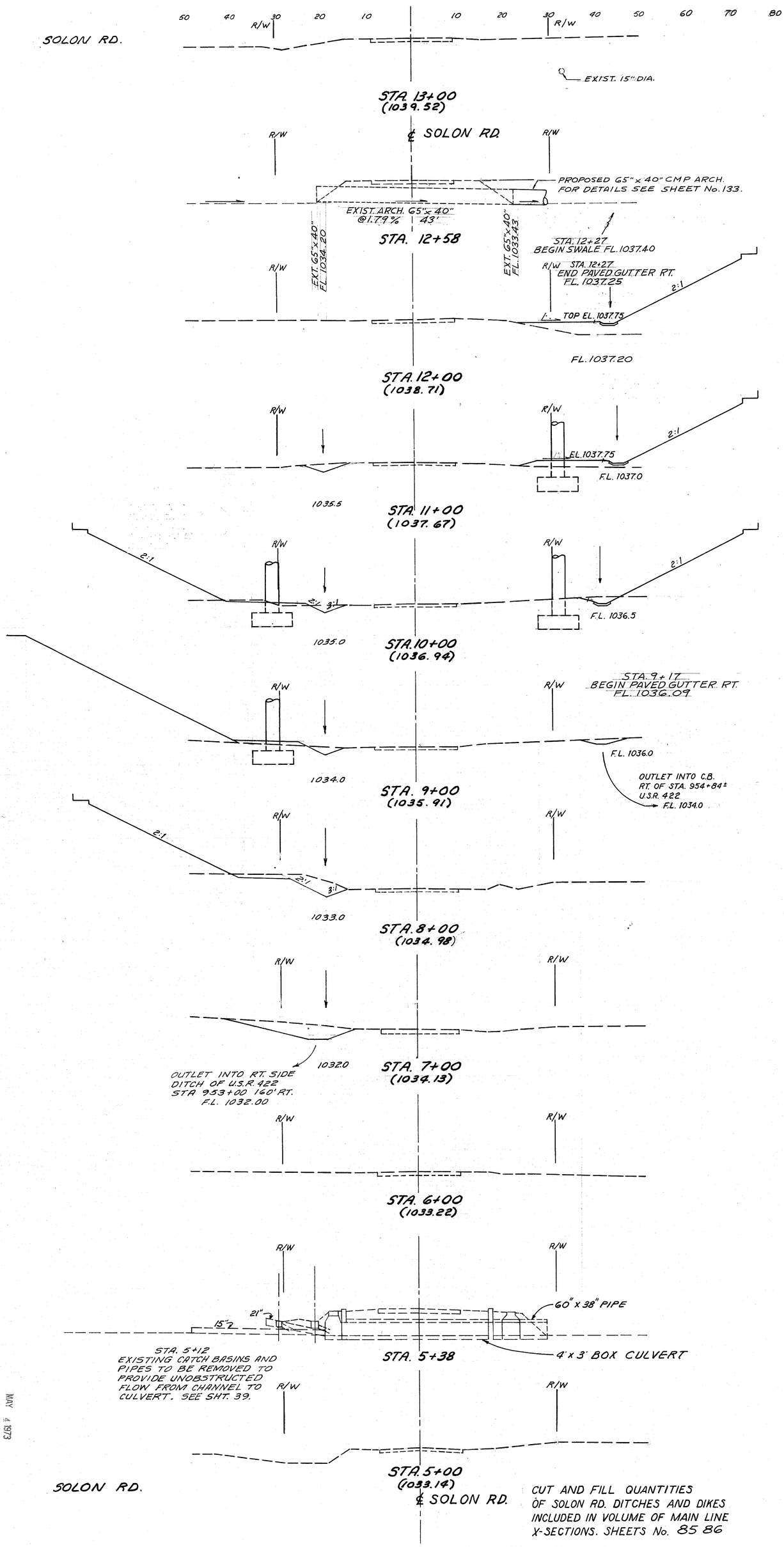
FOR CHANNEL EASEMENT RT. 350 S.Y.

FOR SEEDING ALONG SOLON RD.
& TEMP. ALONG SOLON RD. 900 S.Y.

SEEDING												
END AREA	0	84	82	(4350)	84	81	72	79	84	71	(900)	
SQ YD		189	922	922	917	850	839	906	517			

MAY 4 1973

ACCESS ROAD STA. 0+09 TO STA. 7+40.53



EXIST. SOLON RD. STA. 5+00 TO STA. 13+00

MAY 4 1973

CUT AND FILL QUANTITIES
OF SOLON RD. DITCHES AND DIKES
INCLUDED IN VOLUME OF MAIN LINE
X-SECTIONS. SHEETS No. 85 86

CUYAHOGA COUNTY
CUY-422-16.33

SHEET NO.	STATE	PROJECT	SHEET YEAR
2	OHIO	U-468(9)	

121
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FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

122/258

CUYAHOGA COUNTY
CUY. 422-16.33

USR 422 STA. 854+00 (15'LT.) STD. CB #5 T/G 1060.90
STA. 855+00 M.SH.#18
STA. 855+00 M.SH.#19
RAMP #3 STA. 856+00 (60'RT.) STD. MH #1
D-3
D-7
PROPOSED GRADE
EXISTING SURFACE
184' @ 0.55% 18" TYPE C
18" 1057.61
18" 1056.40
33" 1055.35
SEE PLAN SHEET #18
SEE PLAN SHEET #19

USR 422 STA. 890+40 (15'LT.) EXIST. SAN. S.M.H.
8" @ 2.5%
8" 1066.70
330' @ 2.93% 8" TYPE B 706.08 WITH 706.12 JOINTS
EXIST. SANIT. PIPE (REMOVED)
SEE PLAN SHEET #22
D-10
℄ USR 422
PROPOSED GRADE
EXISTING SURFACE
STA. 894+81 (60'RT.) MANHOLE REMOVED PIPE CONNECT THROUGH
STA. 892+86 (60'RT.) STANDARD, MH #19 (USE EXIST. CASTING) T/C EL. 1064.30 ± 106.11 LENGTHS
8" 1056.70
EXIST. SANITARY PIPE (REMOVED)
8" @ 0.8%
FL. 8" 1056.0 ± MEET EXIST. F.L.
S.R. 91 STA. 37+00 60'RT. STD. MH #1 T/C 1052.0
8" @ 10%
FL. 33" 1043.20
S. FL. 33" 1042.20
N. FL. 18" 1043.45
N.E. FL. 18" 1043.45

RAMP #6 STA. 937+50 45'LT. STD. HW-2
D-3
℄ RAMP #6
RAMP #6 STA. 937+80 22'RT. STD. MH #1 T/C 1058.50
PROPOSED GRADE
EXISTING SURFACE
D-5
1048.50
33" 1048.42
-74' @ 0.9% TYPE B
33" 1047.75
226' @ 0.9% 33" TYPE C 706.02 E.S. 706.08 OR 707.13 #14 GAUGE
SEE PLAN SHEET #36
SEE PLAN SHEET # 27

USR 422 STA. 940+00 (60'LT.) STD CB #5 A T/G 1052.50
33" 1045.72
262' @ 0.96% 33" TYPE B
SEE PLAN SHEET #27
D-6
℄ PROPOSED 12" WATER MAIN
SR. 91
EXIST. 12" SANIT. SEWER
TOP EL. 1082.6 PROP. 12" W.M.
EXIST. SANITARY SEWER FL. 15" 1041.07

℄ CHANNEL S.R. 91-SOLON RD.
RAMP #9 STA. 943+50 (60'RT.) STD. HW-2
℄ RAMP #9
D-3
RAMP #9 STA. 943+70 (62'LT.) STD. CB #5A T/G 1038.50
M.L. SH. #39
M.L. SH. #38 (QUANTITIES)
D-16
STA. 941+30 (65'RT.) STD. MH. #1 T/C 1042.25
FL 33" 1037.29
FL 12" 1038.08
FL 36" 1036.08
139' @ 2.05% 36" TYPE C
134' @ 2.05% 36" TYPE B
36" 1033.23
SEE PLAN SHEET #39
SEE PLAN SHEET #34
℄ USR 422
PROPOSED GRADE
SEE PLAN SHEET #34
273' @ 1.8% 33" TYPE C, 706.02 CL III OR 707.13 #14 GAUGE
SR. 91 STA. 41+88 (49'RT.) STD. MH #1 T/C 1066.47
EXIST. SURFACE
PROPOSED GRADE
RAMP #8
SR. 91 STA. 41+12 (66'RT.) STD. M.H. #1 T/C 1066.79
D-7
SR. 91 STA. 39+60 (52'RT.) STD. CB #5 T/G 1057.75
15" @ 1.6%
N. FL 15" 1059.56
SR. 91 STA. 37+00 60'RT. STD. MH #1 T/C 1052.0
N. FL 18" 1043.95
W. FL 33" 1043.20
S. FL 33" 1042.20
18" @ 2.6%
GO1 R.CH. PR. 28'x 10'x 1.5' TYPE B
1029.38
FL 36" 1030.98
SR. 91 STA. 37+40 (60'RT.) STD. MH. NO. 1 T/C 1052.0
EXISTING SURFACE
PROPOSED GRADE
RAMP #10
153' @ 2.8% 15" TYPE C 706.01 E.S. 706.02 OR 706.08 E.S.
76' @ 3% 15" TYPE B
S. FL 15" 1057.05
W. FL 12" 1064.96
N/F 5 FL 15" 1054.77
E. FL 12" 1055.02
FL 18" 1050.24
FL 15" 1050.49
STA. 90+10 ML. SH. 35
STA. 90+10 ML. SH. 35
2G1' @ 2.6% 18" TYPE B
33" @ 1.8%
FL 18" 1043.95
FL 33" 1043.20
FL 33" 1042.20
SEE PLAN SHEET # 34
SEE PLAN SHEET # 35

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422
PIPE PROFILES

VERT: 0 5 10 15 20
HORIZ: 0 10 20 40 60 80
SCALE IN FEET

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	L.N.	R.W.H.		

MAY 1973

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468 (9)	

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CUYAHOGA COUNTY
CUY. 422-16.33

S.R. 9/ STA. 29+00(45°LT) STD. HW-E
EXIST. GROUND
S.R. 9/ STA. 29+50 LT. STD. C.B. 3-A T/G 1035.81
℄ S.R. 9
PROPOSED GRADE
S.R. 9/ STA. 29+90(24°RT) STD. MH #1 T/C 1037.23
53'@3.62% 12" TYPE "C"
69'@0.27% 18" TYPE "B"
EXIST. 12" W.M.
24"
SEE SH. #34 FOR PIPE PROFILE
12"FL 1034.00
12"FL 1032.08
18"FL 1031.58
S.6% 12"FL 1032.08
18"FL 1031.40
12"FL 1031.90
24"FL 1030.90
SEE PLAN SHEET #33
SEE PLAN SHEET #34

S.R. 9/ STA. 29+50 LT. STD. C.B. 3-A T/G 1035.81
S.R. 9/ STA. 29+90 LT. STD. C.B. 3-A T/G 1035.80
40'@0.65% 12" TYPE "B"
18"FL 1031.58
12"FL 1032.08
12"FL 1032.34
SEE PLAN SHEET #34

S.R. 9/ STA. 30+75 LT. STD. C.B. #3 T/G 1035.97
S.R. 9/ STA. 30+58(NEG. RT) STD. C.B. #3-A T/G 1036.62
℄ S.R. 9
PROPOSED GRADE
EXIST. GROUND
51'@0.65% 12" TYPE "B"
12" EXIST. WAT. M.
30'@3.86% 12" TYPE "B"
12"FL 1032.65
12"FL 1032.32
24"FL 1030.66
SEE PLAN SHEET #34

S.R. 9/ STA. 31+75(97°LT) STD. HW-E
"A" (CONNECTOR RD.)
STA. 31+75 (39°LT.) STD. MH. #1 T/C 1037.75
STA. 31+75 LT. STD. C.B. #3-A T/G 1037.01
STA. 31+75(42°RT) STD. MH. #1 T/C 1038.95
℄ S.R. 9
PROPOSED GRADE
EXIST. GROUND
STA. 31+75(85°RT) STD. HW-E
0.25%
58'@0.8% 18" TYPE "B"
75'@0.9% 24" TYPE "B"
EXIST. 12" WATERMAIN
6'@0.86% 24" TYPE "C"
43'@0.17% 27" TYPE "C" 706.02 706.08 E.S. 707.13 #14 GAUGE
(6)I-R.C.H. PR. 10'x8'x1.5" TYPE "B"
18"FL 1033.60
18"FL 1033.14
24"FL 1032.64
24"FL 1032.59
24"FL 1031.91
S.24"FL 1030.34
27"FL 1030.09
27"FL 1029.84
SEE PLAN SHEET No. 34

S.R. 9/ STA. 31+75 (39°LT.) STD. MH. #1 T/C 1037.75
S.R. 9/ STA. 32+77 (39°LT.) STD. MH. #1 T/C 1038.70
S.R. 9/ STA. 33+20 (110°LT.) STD. C.B. #5 T/G 1036.25
RAMP #7
℄ S.R. 9
PROPOSED GRADE
EXIST. GROUND
102'@0.30% 24" TYPE "B"
83'@0.23% 24" TYPE "C"
W. 18"FL 1033.14
N.& E. 24"FL 1032.64
24"FL 1032.95
12"FL 1033.95
24"FL 1033.14
SEE PLAN SHEET #34
SEE PLAN SHEET No. 37

S.R. 9/ STA. 32+27 STD. MH #1 T/C 1038.70
S.R. 9/ STA. 32+82 LT. STD. C.B. 3-A T/G 1038.63
S.R. 9/ STA. 33+27 (NEG. RT) STD. C.B. 3-A T/G 1040.16
℄ S.R. 9
61'@1% 12" TYPE "B"
7'@1% 12" TYPE "C"
EXIST. 12" WATERMAIN
24"FL 1032.95
12"FL 1033.95
12"FL 1034.02
12"FL 1034.63
SEE PLAN SHEET No. 34

S.R. 9/ STA. 34+50 LT. STD. C.B. 3-A T/G 1042.53
S.R. 9/ STA. 34+30 (NEG. RT) STD. C.B. 3-A T/G 1042.66
S.R. 9/ STA. 34+30 (63°RT.) STD. MH #1 T/C 1042.25
℄ S.R. 9
PROPOSED GRADE
46'@1% 12" TYPE "B"
58'@1% 12" TYPE "B"
EXIST. 12" WATERMAIN
12"FL 1039.12
12"FL 1038.66
12"FL 1038.08
36"FL 1036.08
33"FL 1037.29
SEE PLAN SHEET No. 34

S.R. 9/ STA. 37+00 (60°LT) STD. MH #1 T/C 1052.0
STA. 37+30 (60°RT) STD. C.B. #5 T/G 1051.25
S.R. 9/ STA. 37+80 LT. STD. C.B. #3 T/G 1053.0
PROPOSED GRADE
EXIST. GROUND
33K 12" TEE
12" WEST FROM MH. ALONG 33" PIPE LINE
RADIAL
37'@10% 18" TYPE "C"
50'@6.5% 12" TYPE "B"
33" FL. 1044.28
706.01 E.S. 706.02
706.08 E.S. 707.13
18"FL 1047.15
12"FL 1049.00
S. 33"FL 1042.20
W. 33"FL 1043.20
N.E. FL 18"-1044.45
SEE PLAN SHEET No. 34

S.R. 9/ STA. 42+07(27°LT) STD. C.B. #3-A T/G 1063.50
S.R. 9/ STA. 41+88 RT. STD. C.B. 3-A T/G 1065.74
STA. 41+88(49°RT) STD. MH #1 T/C 1066.47
℄ S.R. 9
EXIST. GROUND
PROPOSED GRADE
104'@0.6% 12" TYPE "B"
12"-7@1% TYPE "C"
12"FL 1062.45
12"FL 1062.03
W. 12"FL 1061.96
N. 15"FL 1059.56
S. 15"FL 1057.05
SEE PLAN SHEET No. 35

RAMP #8
STA. 948+75 (59°LT.) STD. HW-E
STA. 949+50 (110°RT.) STD. C.B. #5 T/G 1030.75
PROPOSED GRADE
169'@0.8% 15" TYPE "B" CL. IV
EXIST. GROUND
15"FL 1045.50
15"FL 1046.95
1045.0
601-R.C.H.PR. 11'x4'x1.5' TYPE "B"
SEE PLAN SHEET No. 38

U.S. R 422 STA. 953+65 STD HW-E (144°LT)
2:1
3.5'
88'@1% 12" TYPE B
12"x25° BEND
12"FL 1053.92
42'@50% 12" TYPE F
12"FL 1054.80
EXISTING GROUND
19@1% 12" TYPE F
12"x25° BEND
12"FL 1035.00
12"FL 1034.81
1034.30
601-R.C.H. PR. 14'x4'x1.5' TYPE B
SEE PLAN SHEET No. 28

SPRING GROVE DR. CUL-DE-SAC STA. 2+45(LT.)
STD. C.B. #6 T/G 1067.03
SPRING GROVE DR. CUL-DE-SAC
PROPOSED GRADE
SPRING GROVE DR. CUL-DE-SAC STA. 2+45(14°RT.) STD. HW-E
EXIST. GROUND
87'@2.76% 12" TYPE "B"
12"FL 1061.10
8'
4:1
601-R.C.H. PR. 13'x4'x1.5' TYPE B
12"FL 1063.50
1060.0
SEE PLAN SHEET No. 20

S.R. 9/ STA. 47+09 (38°RT) EXIST. M.H. T/C 1072.03
℄ MAPLE DR.
PROPOSED GRADE
S.R. 9/ STA. 47+25(59°RT) STD. C.B. 2-28 T/G 1066.5
EXIST. GROUND
67'@0.7% 12" TYPE "B"
12"FL 1064.03
EXT. 27"FL 1060.38
12" W.M.
12"FL 1064.50
SEE PLAN SHEET No. 35

S.R. 9/ STA. 47+21 (45°LT) STD. C.B. 3-A T/G 1071.73
S.R. 9/ STA. 47+17 (17°LT) EXIST. M.H. ADJUST TO GRADE T/C 1072.37
28'@1% 12" TYPE "B"
24"
12"FL 1068.00
12"FL 1067.72
24"FL 1061.74

S.R. 9/ STA. 47+53 (45°LT) STD. C.B. 3-A T/G 1071.80
S.R. 9/ STA. 47+55 (32°LT) M.H. ADJUST TO GRADE T/G 1072.29
S.R. 9/ STA. 47+94 (36°LT) STD. C.B. 2-28 T/G 1070.50
13'@1% 12" TYPE "B"
5'-12" TYPE "C"
15"x12" TEE
RADIAL
12"FL 1068.0
12"FL 1067.87
24"FL 1063.62
12"FL 1067.00
EXIST. 15"FL 1065.01
SEE PLAN SHEET No. 35

S.R. 9/ STA. 48+92 RT. STD. C.B. #3 T/G 1056.60
69° SOUTH AT STA. 39+60 FROM C.B. ALONG PIPE LINE
EXISTING GROUND
PROPOSED GRADE
18"x12" TEE
51' NORTH FROM MH STA. 37+00 ALONG PIPE
RADIAL
13'-12" TYPE "C"
17'@13.52% 12" TYPE "B"
12"FL 1051.50
18"FL 1048.15
18"FL 1044.79
12"FL 1047.70
SEE PLAN SHEET No. 34

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S. 422

PIPE PROFILES

VERT: 0 5 10 15 20
HORIZ: 0 10 20 40 60 80
SCALE IN FEET

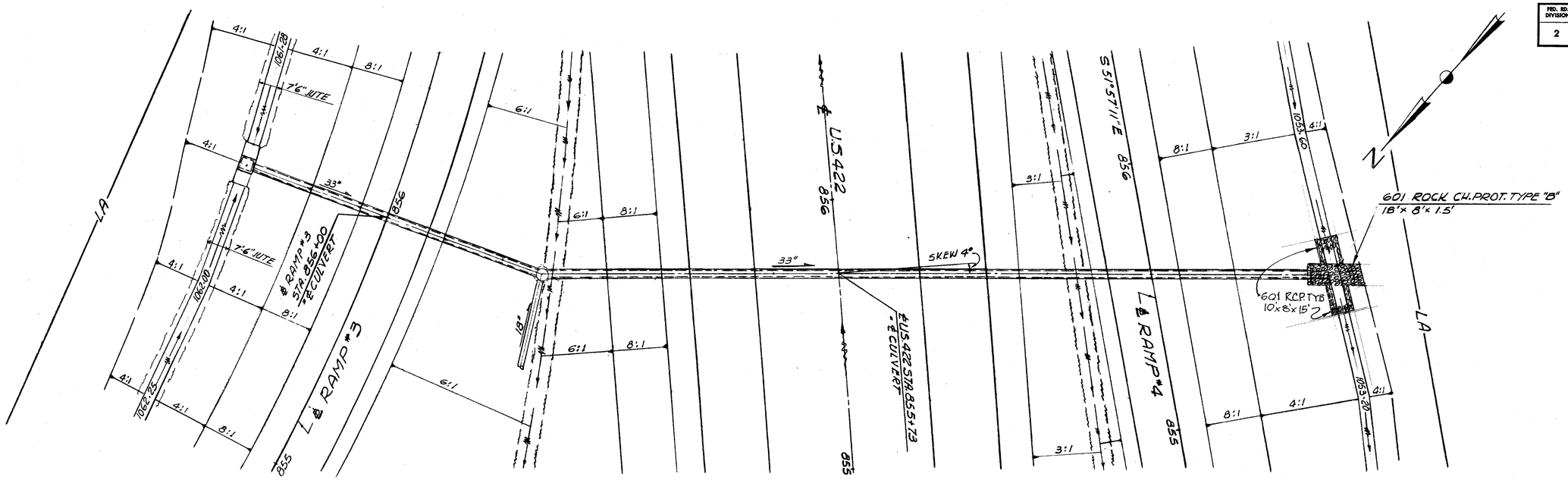
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	L.N.	R.W.H.		

MAY 1973

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

124
258

CUYAHGA COUNTY
CUY 422 - 16.33



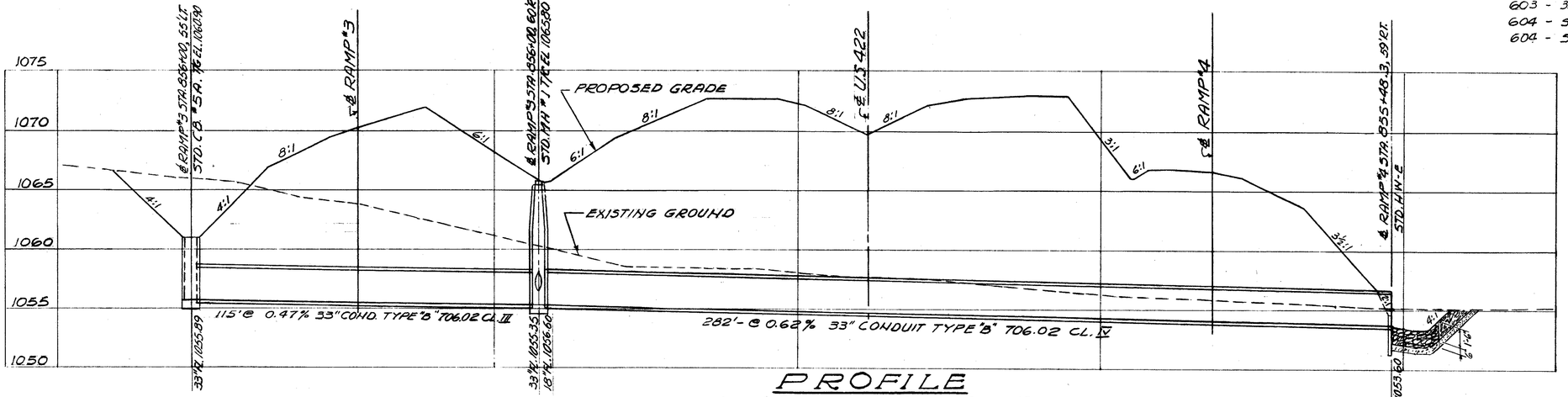
PLAN

0 5 10 20 40 60 80 100
SCALE IN FEET

DRAINAGE AREA A= 20 ACRES
DISCHARGE Q25= 46 C.F.S

ESTIMATED QUANTITIES

601 - ROCK CHANNEL PROTECTION TYPE "B"	23	C.Y.
602 - CONCRETE MASONRY	0.55	C.Y.
603 - 33" CONDUIT TYPE "B" 706.02 CL. III	115	L.F.
603 - 33" CONDUIT TYPE "B" 706.02 CL. IV	282	L.F.
604 - STD. MH #1	1	EA.
604 - STD. C.B #S-A	1	EA



PROFILE

VERT: 0 5 10 15 20 25
HORIZ: 0 10 20 40 60 80 100
SCALE IN FEET

MAY 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

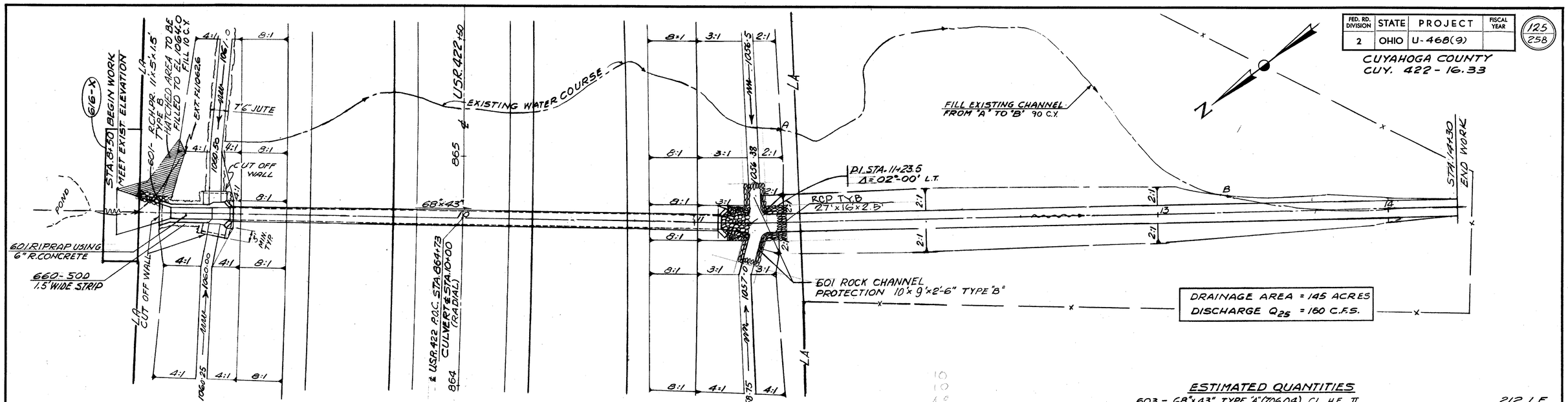
STRUCTURE S-1
CULVERT DETAILS
STA. 855 + 73

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.N. 1-5-69	J.D.A.	R.W.H. 5-22-69			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

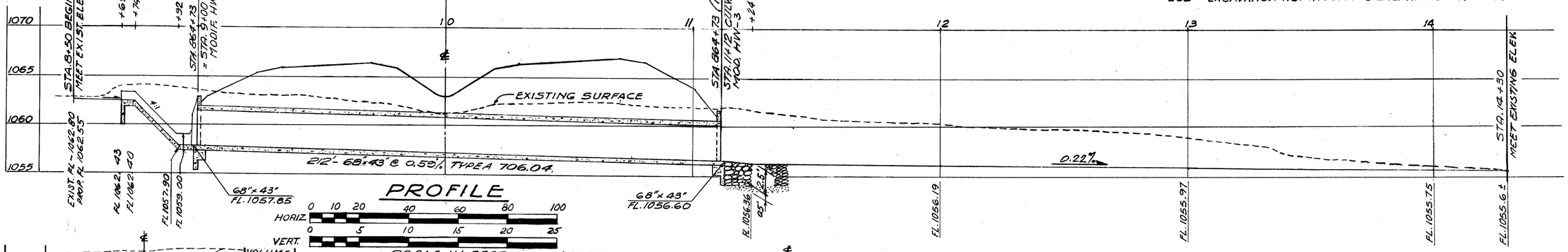
125
258

CUYAHOGA COUNTY
CUY. 422 - 16.33



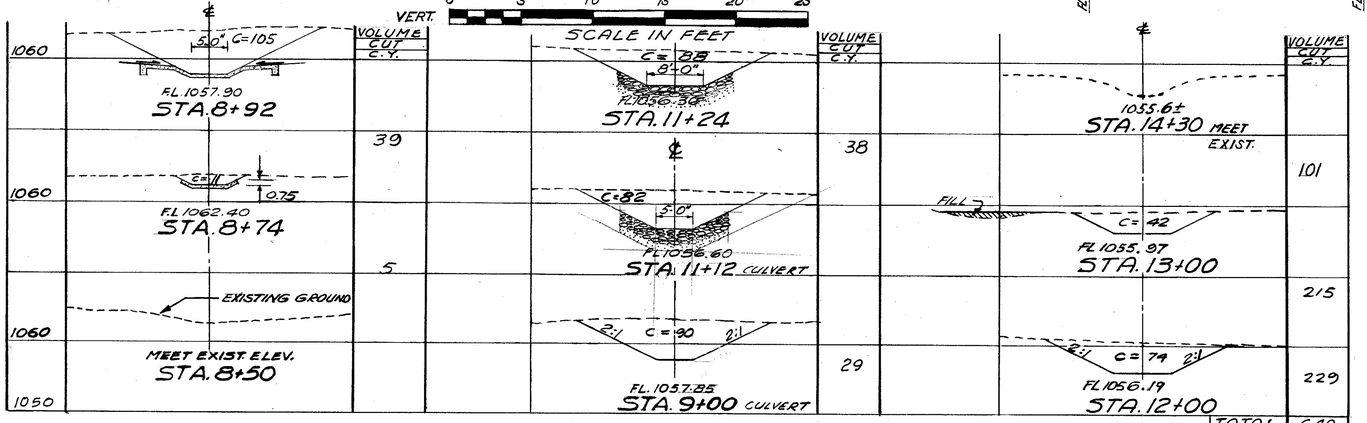
PLAN

0 10 20 40 60 80 100
SCALE IN FEET.



PROFILE

HORIZ. 0 10 20 40 60 80 100
VERT. 0 5 10 15 20 25
SCALE IN FEET



ESTIMATED QUANTITIES

603 - 68"x 43" TYPE "A" (706.04) CL. H.E. II	212 L.F.
660 - SODDING	8 S.Y.
602 - CONCRETE MASONRY	14 C.Y.
601 - RIP-RAP (USING 6" REINF. CONCRETE SLAB)	42 S.Y.
601 - ROCK CHANNEL PROTECTION TYPE "B"	68 C.Y.
203 - EMBANKMENT	100 C.Y.
203 - EXCAVATION NOT INCLUDING EMBANK. CONSTRUCTION	657 C.Y.

10
10
4.5
68

HW-3 MODIFIED
H = 4'-11"
Q = 3'- 3"
b = 1'- 6'
C = 3'- 7"
d = #7
L_2 = 3'- 7"
h_2 = 3'- 3"

CHANNEL CROSS SECTIONS
0 5 10 20 30 40 50
SCALE IN FEET

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 2-18-69
CHKD. BY R.W.H DATE 3-20-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-2
CULVERT DETAILS
STA. 864+73

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.W.H.		

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

126
258

CUYAHOGA COUNTY
CUY 422-16.33

DOLL HOUSE & FOOT BRIDGE NOT TO BE DISTURBED

MATCH LINE STA. 8+25 FOR CONTIN. SEE SHEET 12 & PT. "INSERT A"

P.I. STA 8+68.82
Δ=20°06' T=8.82'
R=50' L=17.45'

P.C. STA 8+59.37

P.T. STA 8+76.82

CUTOFF WALLS

76" JUTE

660-STRIP OF SOD 1.5' WIDE

EXIST. WATERCOURSE

USR 422 STA. 872+70
CULVERT STA. 10+00

873

USR 422
S 34°-34'-46" E

CUT OFF WALL

4' TYP.

601-RIPRAP 6" R.C. SLAB.

601-ROCK CHANNEL PROTECTION TYPE "B" 14' X 13' X 2.5' AVER.

P.I. STA. 11+00
Δ=14°-30'

℄ 101 SLAG DR.

℄ PROPOSED CHANNEL RELOCATION

42"

STA. 13+50 MEET EXIST.

END WORK MEET EXIST.

EXISTING WATERCOURSE

STA. 6+80 BEGIN WORK MEET EXISTING.

P.C. STA 7+30.62

P.T. STA 7+46.12

"INSERT A"

EXISTING WATERCOURSE

EXIST. WATER COURSE

MATCH LINE STA. 8+25

SPRING GROVE DR.
S 33°-37'-14" W

DRAINAGE AREA	A = 79 ACRES
DISCHARGE	Q_{25} = 90 C.F.S.

ESTIMATED QUANTITIES

603	53"x34" CONDUIT TYPE "A" 706.04 CL. H.E. II	182 L.F.
603	42" CONDUIT TYPE "D"	34 L.F.
660	SODDING	13 S.Y.
602	CONCRETE MASONARY	11 C.Y.
601	RIPRAP USING 6" R.C. SLAB	43 S.Y.
601	ROCK CHANNEL PROT. TYPE B	34 C.Y.
203	EXCAV. NOT INCLUD. EMBANK. CONSTR.	506 C.Y.
203	EMBANKMENT (FILL FOR DRIVEWAY)	51 C.Y.

PLAN

0 20 40 60 80 100
SCALE IN FEET

PROFILE

HORIZ.: 0 5 10 20 40 60 80 100
VERT.: 0 5 10 15 20 25
SCALE IN FEET

STA. 9+12 STD. HWY #1 MODIF.

STA. 10+94 STD. HWY #1 MODIF.

MODIFIED HEADWALL #1
H=6.92'
L=16.50'

STA. 12+06 HW-E

STA. 12+40 HW-E

℄ SLAG DRIVE

STA. 13+50 MEET EXIST. ELEV.

EL. 1059.50

EL. 1062.59

EL. 1062.50

EL. 1058.00

EL. 1059.00

EL. 1057.59

N 15 DITCH EL. 1053.53

EXISTING GROUND

182'-@ 0.75% 53"x34" CONDUIT TYPE "A" 706.04 CL. H.E. II

0.25%

2'-6"

0'-6"

EL. 1064.25

EL. 53"x34" 1056.53

EL. 1056.51

EL. 42" 1056.26

EL. 42" 1056.25

EL. 1056.04

EL. 1055.94

CHANNEL CROSS SECTIONS

STA. 8+81		STA. 9+12 CULVERT H.W.		STA. 12+00	
	CUT VOLUME C.Y.		CUT VOLUME C.Y.		CUT VOLUME C.Y.
1060	30	C=68 S.F.	14	EL. 1055.0 ± STA. 13+50 MEET EXIST. ELEV.	9
C=98 S.F.		8'-0"		1060	
EL. 1058.0 STA. 9+04	37	EL. 1056.51 STA. 11+00		C=10	
1060		EL 58.0		EL. 1056.01 STA. 13+00	80
C=12 S.F. 4'-6" 2:1		C=54 2:1		1060	
EL. 1062.50 STA. 8+86	3	EL. 1056.53 STA. 10+94 CULVERT H.W.		C=33	
1060		C=105.5 S.F.		EL. 1056.26 STA 12+00	187
8' C=21 S.F. 4:1 4:1	65	EL. 1057.89 STA. 9+12 CULVERT H.W.		TOTAL	506
EL. 1052.59 STA. 8+81					

APPROACH CHANNEL X-SECTIONS

STA. 6+80 BEGIN WORK		STA. 7+00		STA. 8+00	
	CUT VOLUME		CUT VOLUME		CUT VOLUME
1060		EXIST. GR. 1067.0 PROP. FL. 1066.0		EXIST. GR. 1066.20 PROP. FL. 1065.68	
		8'-0" C=18 S.F.	7	8'-0" C=18 S.F.	74
		EXIST. GR. 1066.20 PROP. FL. 1065.68		EXIST. GR. 1065.70 PROP. FL. 1063.97	
		STA 7+00		STA 8+00	
1060		1060		1060	
				CUL-DE-SAC R/W	
				CUL-DE-SAC SH. EL. 1066.80	

DRIVE PROFILE A-A

0 ℄ SPRING GROVE DR.
+50 +63 BEGIN FILL +04 +25 +50 +50

PROPOSED GRADE
RESIDENT TYPE "2 DRIVE FOR QUANTITIES SEE SHT. 56
EL. 1061.10
5%
5%
EXISTING GROUND
END FILL
42" FL. 1056.2

1060
1055

ADACHE ASSOCIATES, INC.
CALC. BY: L.N. DATE 5-18-73
CHKD. BY R.W.H. DATE 5-20-73

VERT.: 0 5 10 15 20 25
HORIZ.: 0 5 10 20 40 60 80 100
SCALE IN FEET

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-3

CULVERT DETAILS

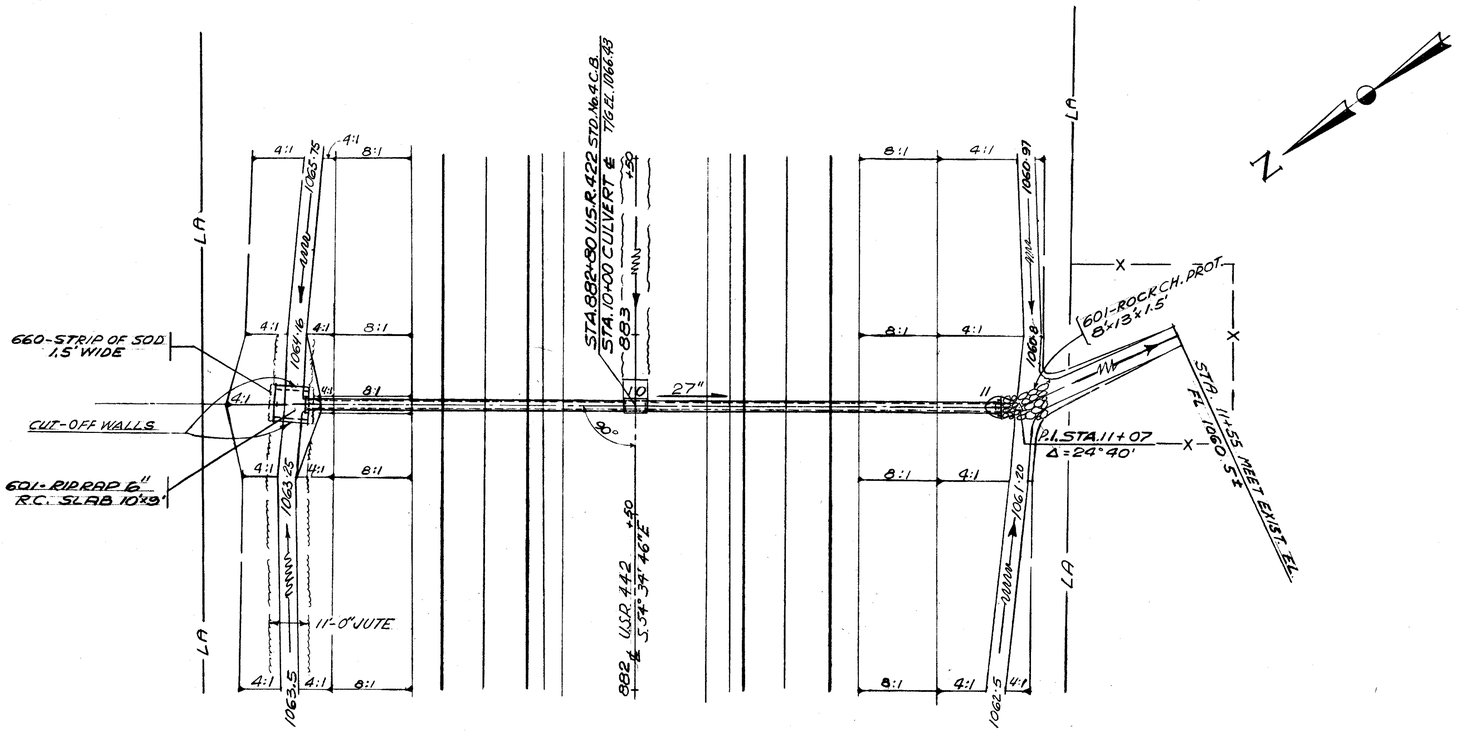
STA. 872+70

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

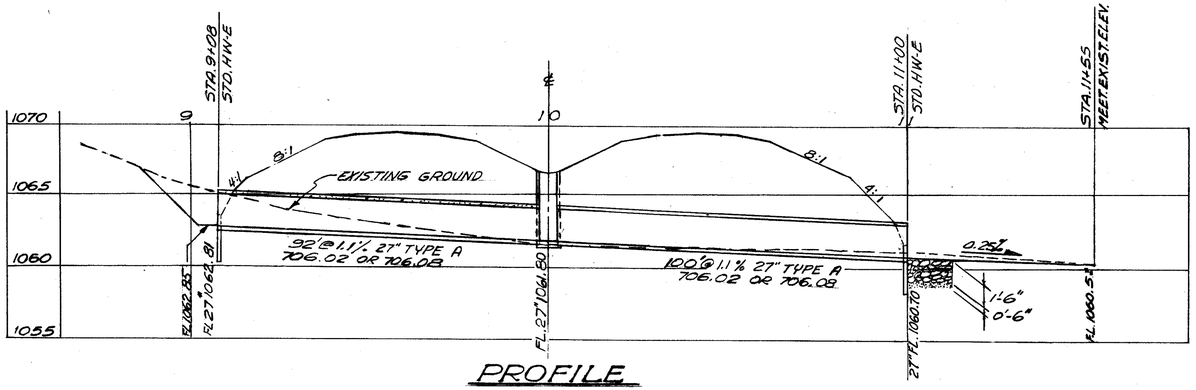
127/258

CUYAHOGA COUNTY
CUY. 422-16.33



PLAN

0 5 10 20 40 60 80 100
SCALE IN FEET



PROFILE

HORIZ.: 0 5 10 20 40 60 80 100
VERT.: 0 5 10 15 20 25
SCALE IN FEET

DRAINAGE AREA =	1.5 ACRES
DISCHARGE Q25 =	32 C.F.S.

ESTIMATED QUANTITIES

603 –	27" CONDUIT TYPE A, 706.02 OR 706.03	192 LIN. FT
602 –	CONCRETE MASONRY	0.94 C.Y.
601 –	ROCK CHANNEL PROTECTION TYPE B	8 C.Y.
601 –	RIP RAP 6" R.C. SLAB	10 S.Y.
604 –	STD. No 4 CB	1 EA
660 –	SODDING	3 S.Y.
203 –	EXCAVATION NOT INCLUD EMBANKMENT CONSTR.	6 C.Y.

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 2-18-69
CHKD. BY R.W.H. DATE 5-20-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-4

CULVERT DETAILS

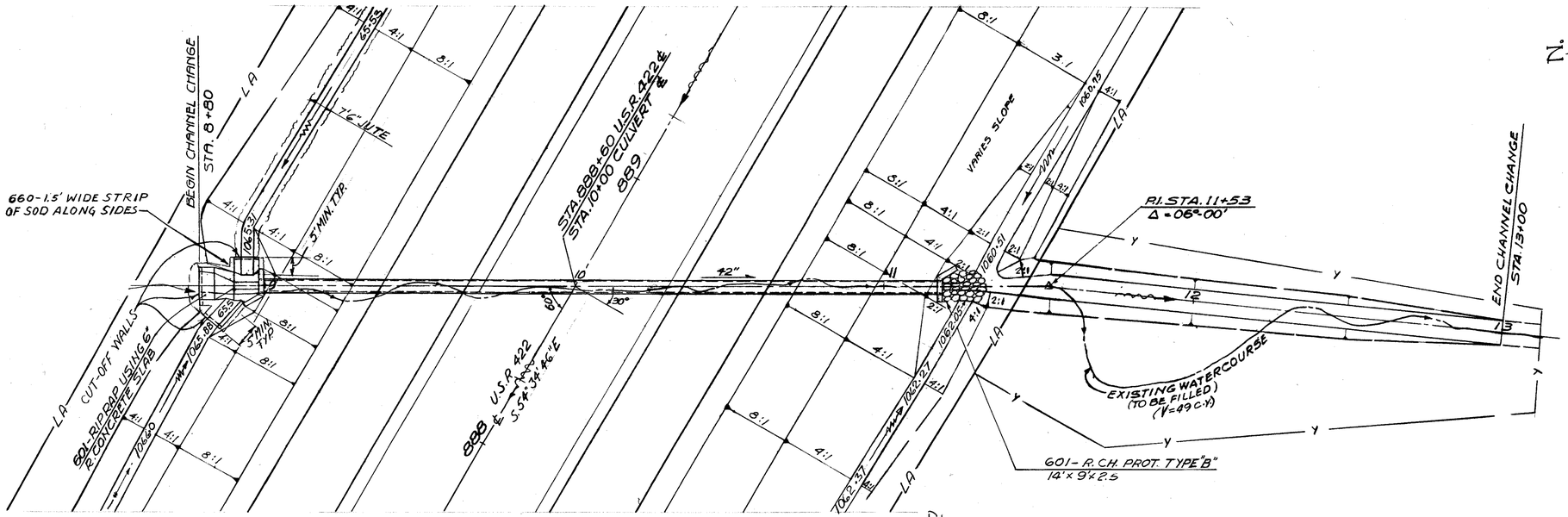
STA. 882+80

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

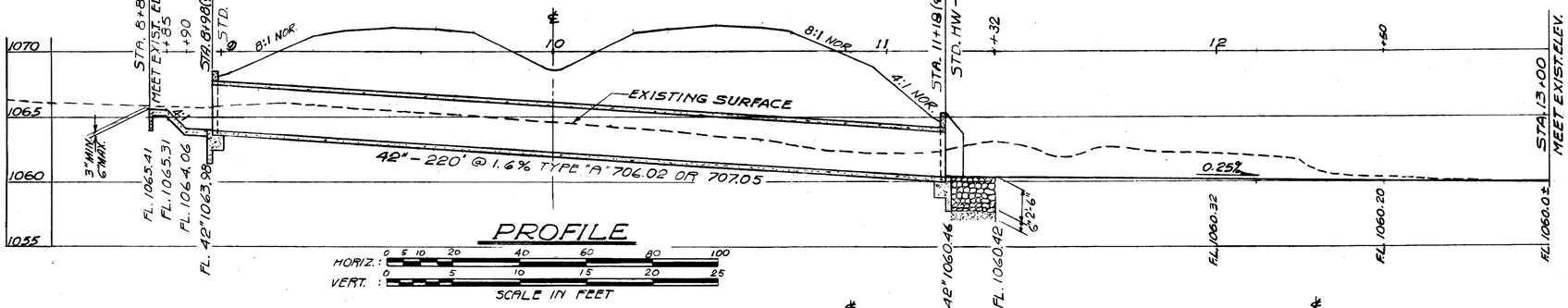
128
258

CUYAHOGA COUNTY
CUY. 422-16.33



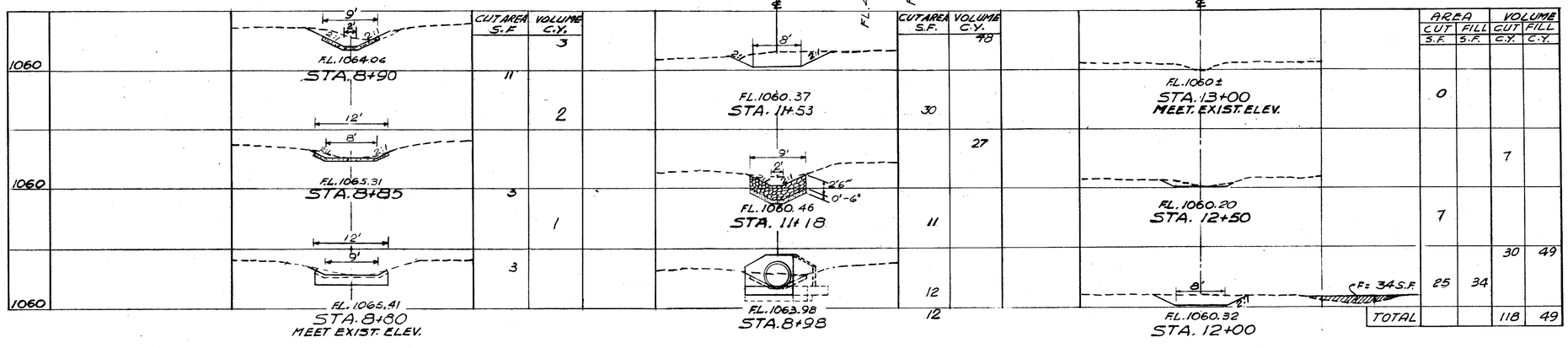
PLAN

SCALE IN FEET



PROFILE

HORIZ.: 0 5 10 20 40 60 80 100
VERT.: 0 5 10 15 20 25
SCALE IN FEET



	CUT AREA S.F.	VOLUME C.Y.
	3	
	11	
		2
	3	
		1
	3	
		3
		48
	30	
		27
	11	
		12
	12	

	AREA CUT S.F.	AREA FILL S.F.	VOLUME CUT C.Y.	VOLUME FILL C.Y.
	0			
			7	
	7			
			30	49
	25	34		
TOTAL			118	49

CHANNEL CROSS SECTIONS

SCALE IN FEET

ESTIMATED QUANTITIES

603 — 42" CONDUIT TYPE "A" 706.02 OR 707.05	— 220 L.F.
602 — CONCRETE MASONRY	— 14.6 C.Y.
601 — RIPRAP USING 6" REINF. CONCRETE SL AB	— 32 S.Y.
601 — ROCK CHANNEL PROT. TYPE B	— 14 C.Y.
660 — SODDING	— 6 S.Y.
203 — EXCAVATION NOT INCLUDING EMBANK. CONST.	— 118 C.Y.
203 - EMBANKMENT	— 49 C.Y.

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 2-21-69
CHKD. BY R.W.H. DATE 3-20-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-5
CULVERT DETAILS
STA. 888+60

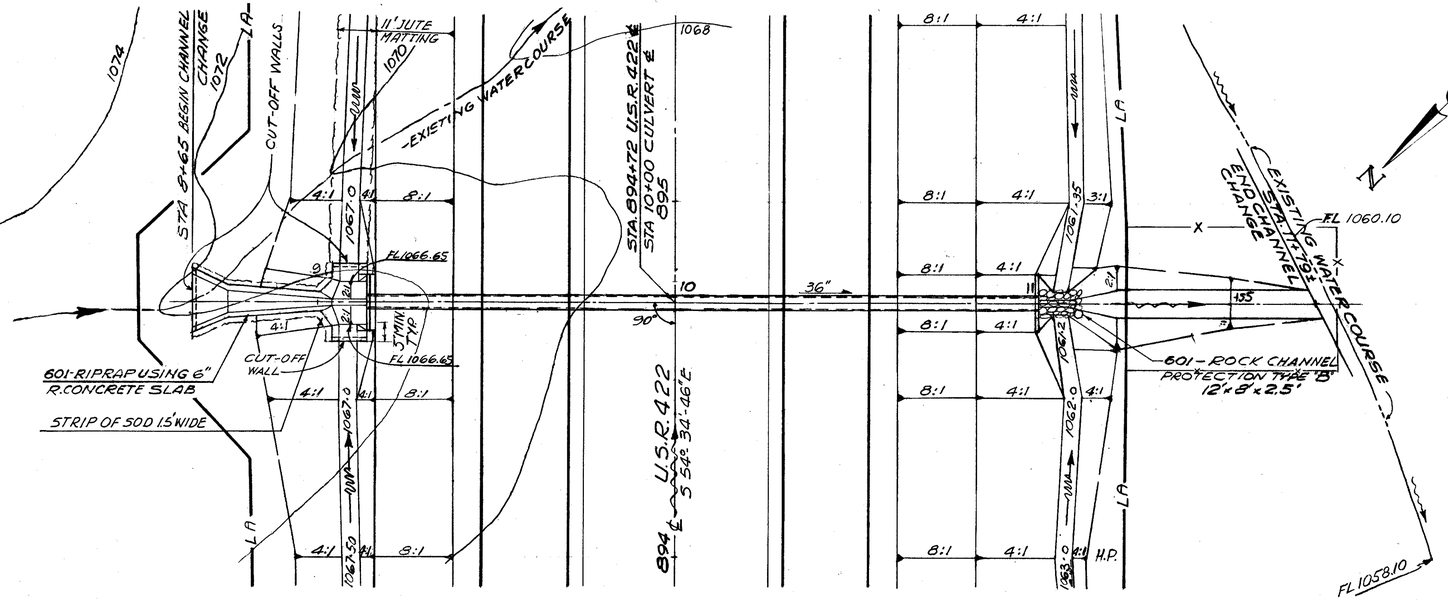
MAY 1 1973

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

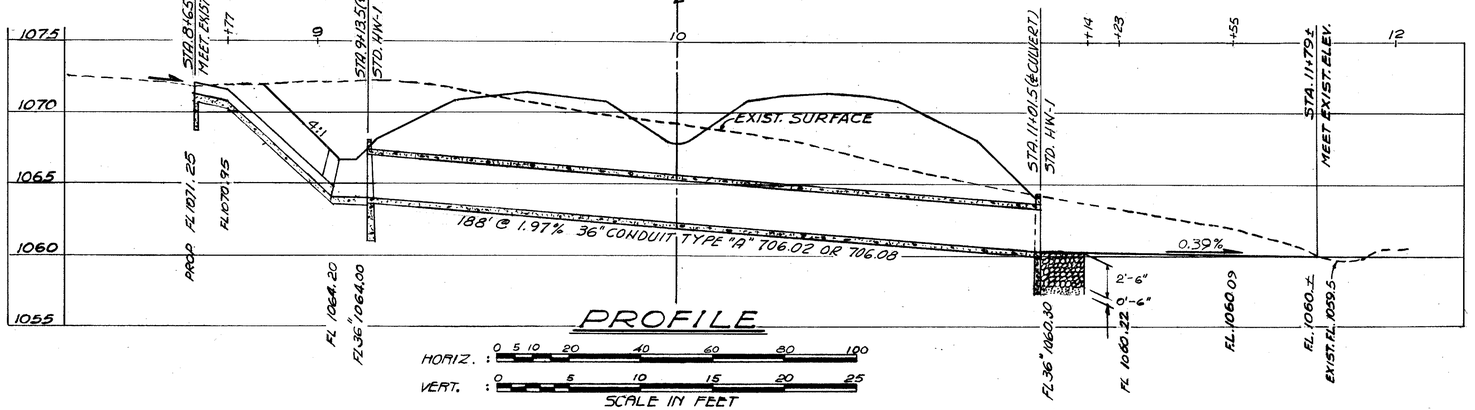
129
258

CUYAHOGA COUNTY
CUY. 422 - 16.33



PLAN

0 10 20 40 60 80 100
SCALE IN FEET



PROFILE

HORIZ. : 0 5 10 20 40 60 80 100
VERT. : 0 5 10 15 20 25
SCALE IN FEET

DRAINAGE AREA =	31 ACRES
DISCHARGE Q_{25} =	53 C.F.S.

AREA S.F.	VOLUME C.Y.		
0	9	FL.1060.± STA.11+79 MEET EXIST.ELEV.	1060
21			1060
	48	FL.1060.09 STA.11+55	
60		8' 2:1	1060
	42	FL.1060.22 STA.11+23	
44		8' 2'	1060
		FL.1060.30 STA.11+01.5 HW FACE	
140			1070
	49	FL.1064.0 STA.9+13.5 HW FACE	
136		5.0' 2' 5.0' 2:1 2:1	1070
	72	FL.1064.20 STA.9+04	
7		9' 6' 2:1	1070
	4	FL.1070.95 STA.8+77	
10		15' EXISTING SURFACE PROPOSED GRADE	1070
		FL.1071.25 STA.8+65 MEET EXIST.ELEV.	
TOTAL 224 C.Y.			

CHANNEL CROSS SECTIONS

0 5 10 20 30 40 50
SCALE IN FEET

ESTIMATED QUANTITIES

603	— 36" CONDUIT TYPE "A" 706.02 OR 706.08	188.0 L.F.
602	— CONCRETE MASONRY	13.0 C.Y.
601	— RIPRAP USING 6" REINF. CONCRETE SLAB	64.0 S.Y.
601	— ROCK CHANNEL PROTECTION TYPE 'B"	11.0 C.Y.
660	— SODDING	16.0 S.Y.
203	— EXCAVATION NOT INCLUDING EMBANK. CONSTR	224.0 C.Y.

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 2-28-69
CHKD. BY R.W.H. DATE 5-2069

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-6

CULVERT DETAILS

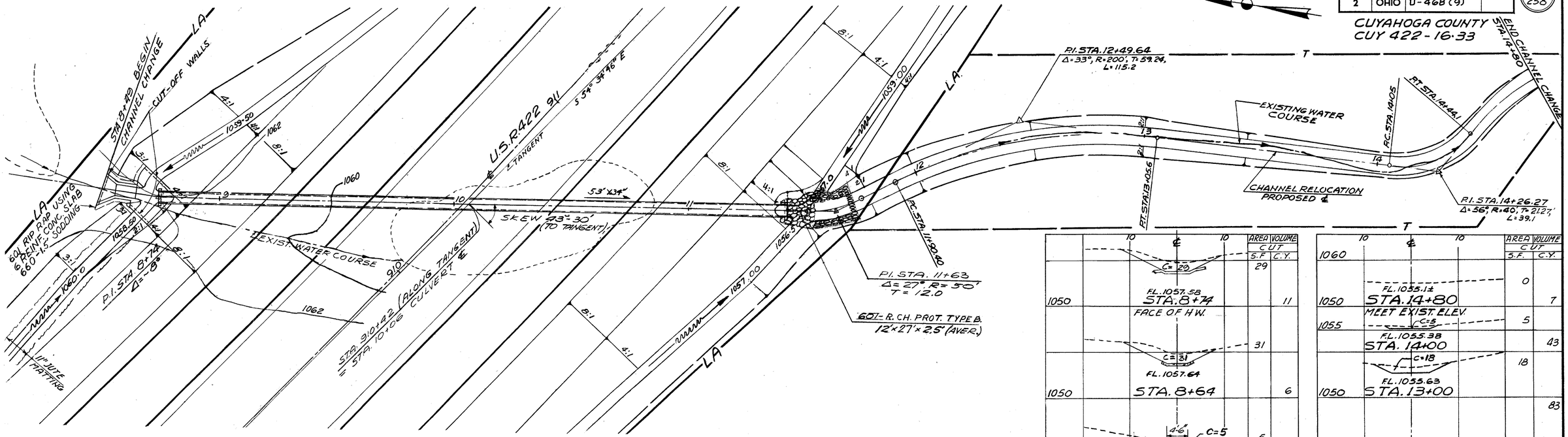
STA. 894+72

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468 (9)	

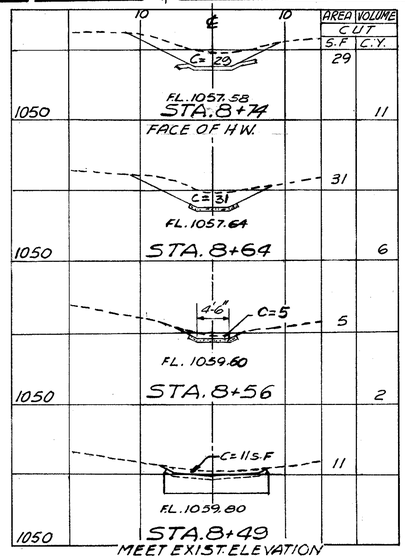
130
258

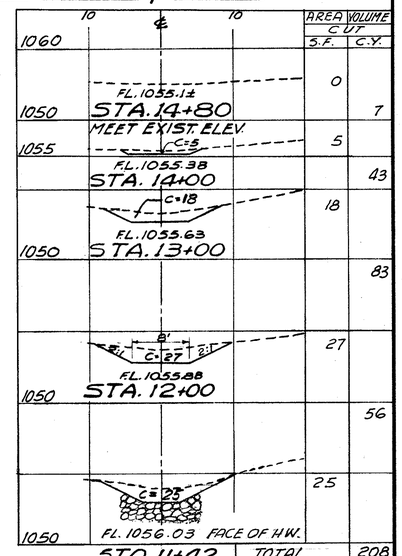
CUYAHOGA COUNTY
CUY 422-16.33



PLAN

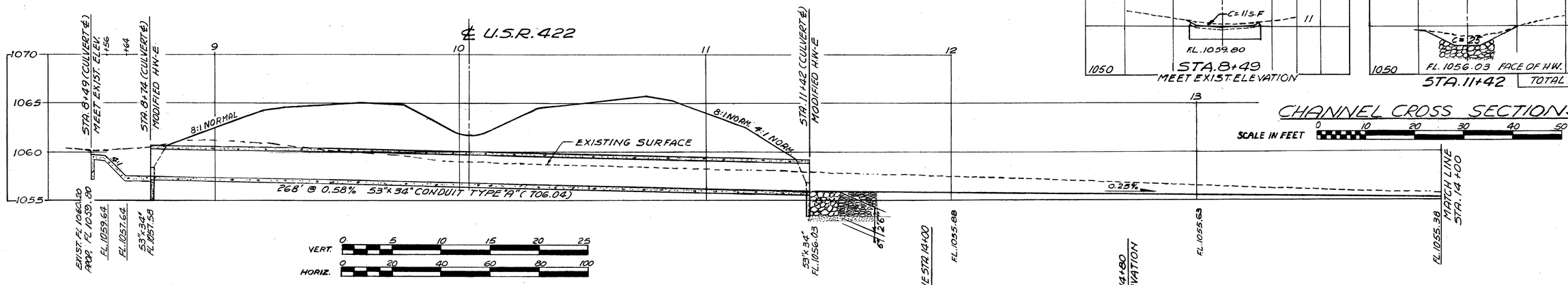
0 10 20 40 60 80 100
SCALE IN FEET

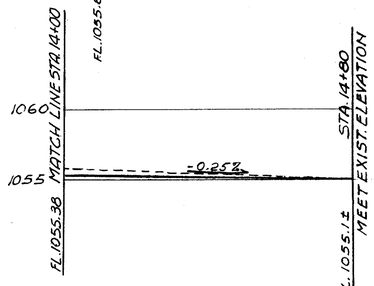




CHANNEL CROSS SECTIONS

SCALE IN FEET 0 10 20 30 40 50





ESTIMATED QUANTITIES

603 = 53"×34"	CONDUIT TYPE "A" 706.04 CL. H.E. II	268 LIN FT.
602 = CONCRETE MASONRY		1.60 C.Y.
601 = RIPRAP USING 6" REINF. CONCRETE SLAB		36 S.Y.
601 = ROCK CHANNEL PROTECTION TYPE B		36 C.Y.
660 = SODDING		9 S.Y.
203 = EXCAVATION NOT INCLUDING EMBANK. CONST.		208 C.Y.

DRAINAGE AREA - 59 ACRES
DISCHARGE Q_{25} - 80 C.F.S.

MODIFIED HW-E
W = 7.30 FT.
H = 3.45 FT.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-7

CULVERT DETAILS

STA. 910+42 (TANGENT)

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 2-26-69
CHKD. BY R.W.H. DATE 3-20-69

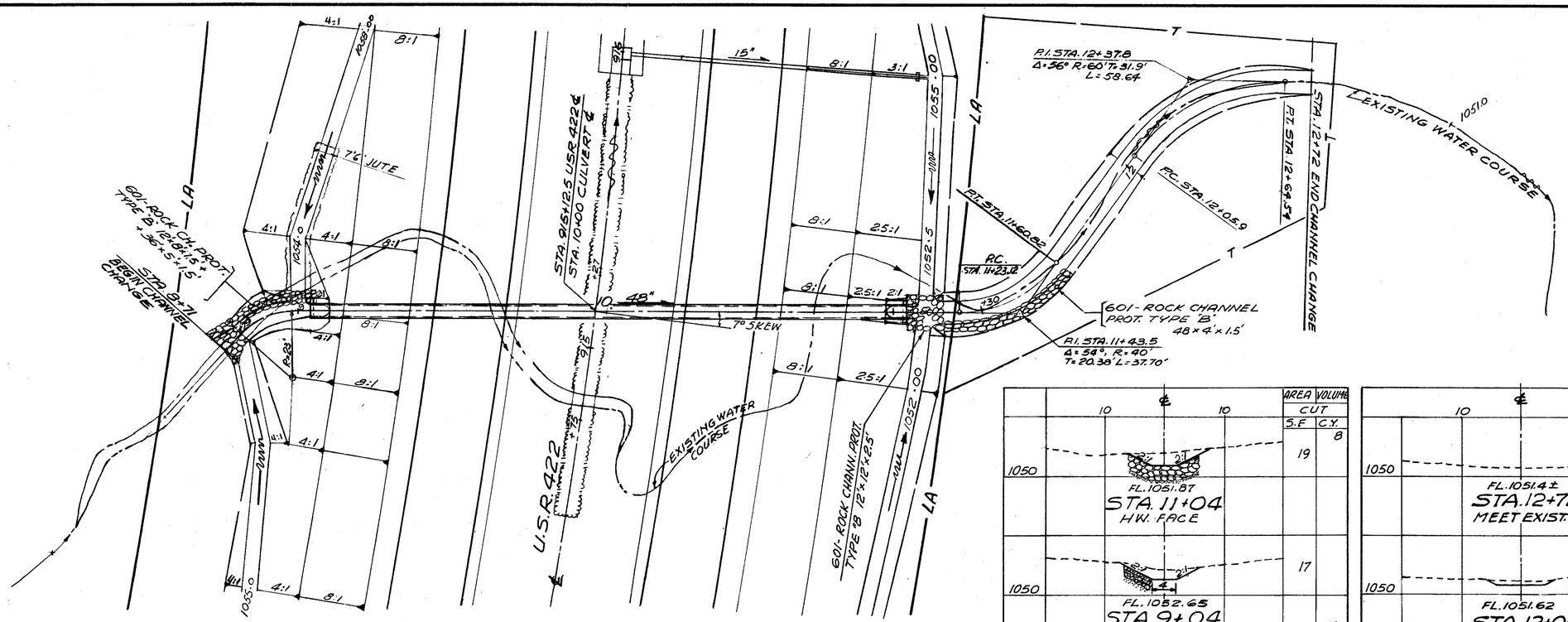
DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

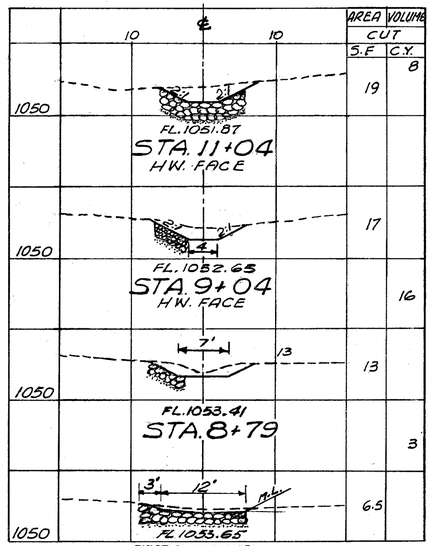
131
258

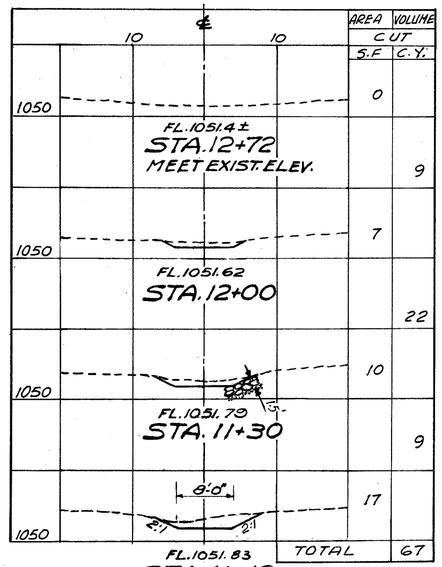
CUYAHOGA COUNY
CUY 422-16.33

DRAINAGE AREA A=53 ACRES
DISCHARGE Q_{25} = 92 C.F.S.

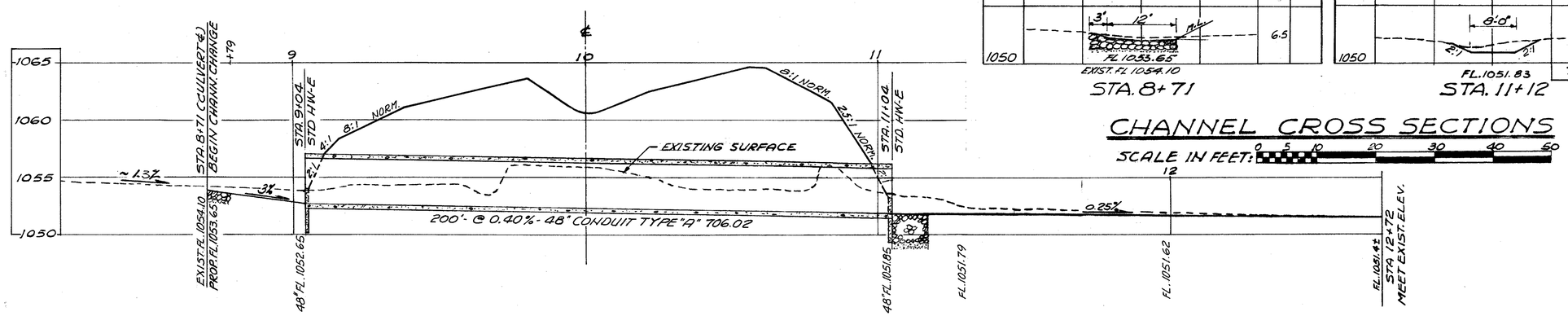


PLAN
SCALE IN FEET
0 5 10 20 40 60 80 100





CHANNEL CROSS SECTIONS
SCALE IN FEET: 0 5 10 20 30 40 50



PROFILE
SCALE IN FEET
VERT: 0 5 10 15 20 25
HORIZ: 0 5 10 20 40 60 80 100

ESTIMATED QUANTITIES

603 - 48" CONDUIT TYPE A, 706.02	200 L.F.
602 - CONCRETE MASONRY	1.72 C.Y.
601 - ROCK CHANNEL PROTECTION TYPE 'B'	50 C.Y.
203 - EXCAVATION NOT INCLUD. EMBANK. CONSTRUCT.	67 C.Y.

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 3-21-69
CHKD. BY R.W.H. DATE 3-21-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-8
CULVERT DETAILS
STA 915+12.5

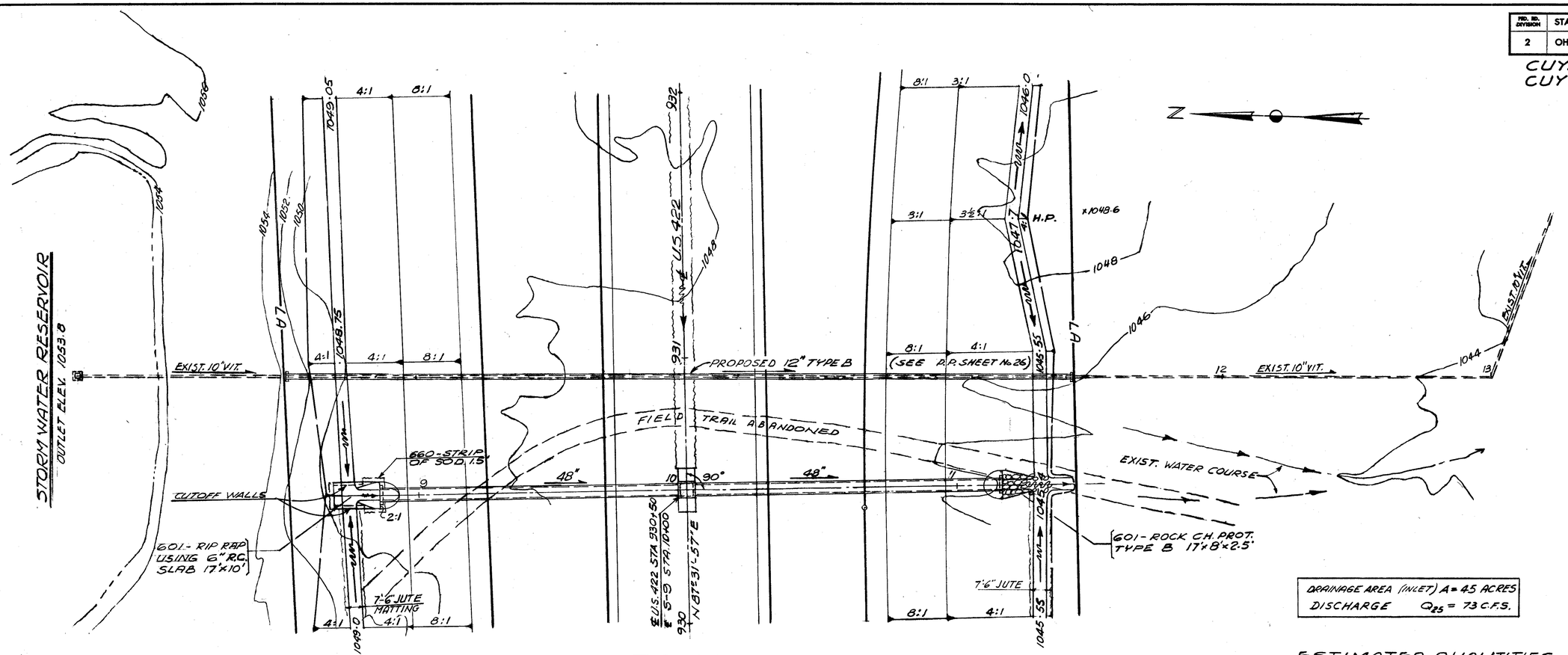
DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

132
258

CUYAHOGA COUNTY
CUY 422-16.33

STORM WATER RESERVOIR
OUTLET ELEV. 1033.8



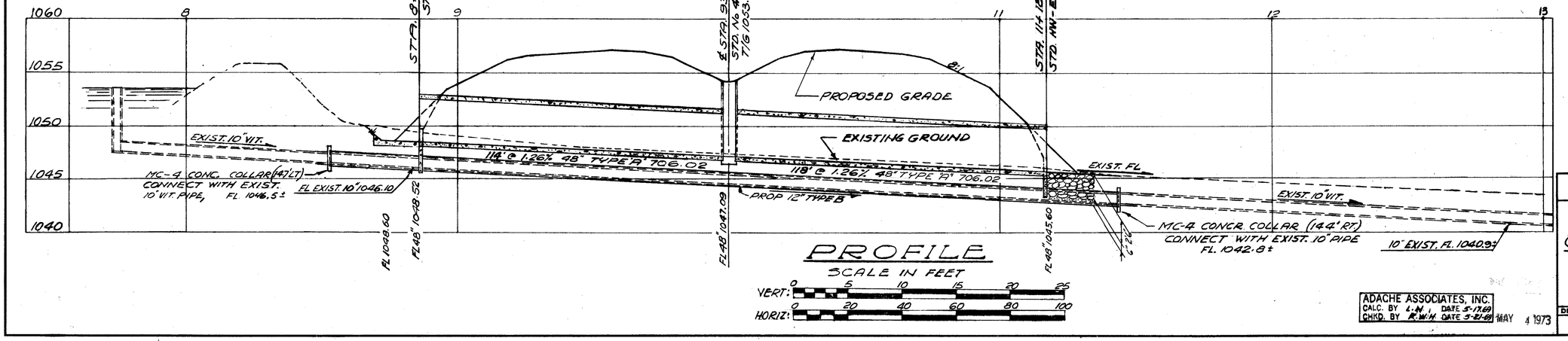
PLAN

0 10 20 40 60 80 100
SCALE IN FEET

DRAINAGE AREA (INLET) A = 45 ACRES
DISCHARGE Q_{25} = 73 C.F.S.

ESTIMATED QUANTITIES

603 - 48" CONDUIT TYPE "A" 706.02	232 L.F.
604 - STD. No. 4A CB	1 EA.
602 - CONCRETE MASONRY	1.72 C.Y.
601 - ROCK CHANNEL PROTECTION TYPE "B"	15 C.Y.
601 - RIP RAP 6" R.C. SLAB	19 S.Y.
660 - SODDING	5 S.Y.



PROFILE

SCALE IN FEET
VERT: 0 5 10 15 20 25
HORIZ: 0 20 40 60 80 100

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 5-17-69
CHKD. BY R.W.H. DATE 5-21-69

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

STUCTURE S-9
CULVERT DETAILS
STA. 930+50

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.N.	L.N.	R.W.H.			

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

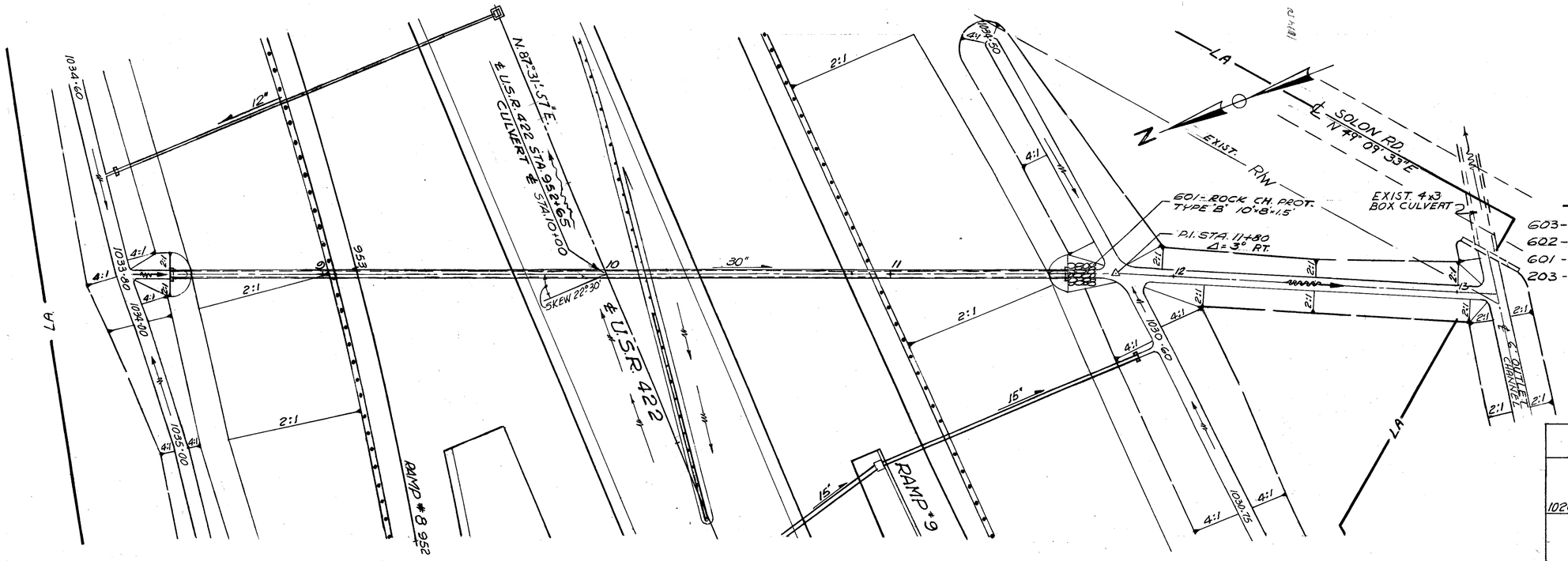
133
258

CUYAHOGA COUNTY
CUY. 422 - 16.33

DRAINAGE AREA A=10 ACRES
DISCHARGE Q_{25} = 30 C.F.S.

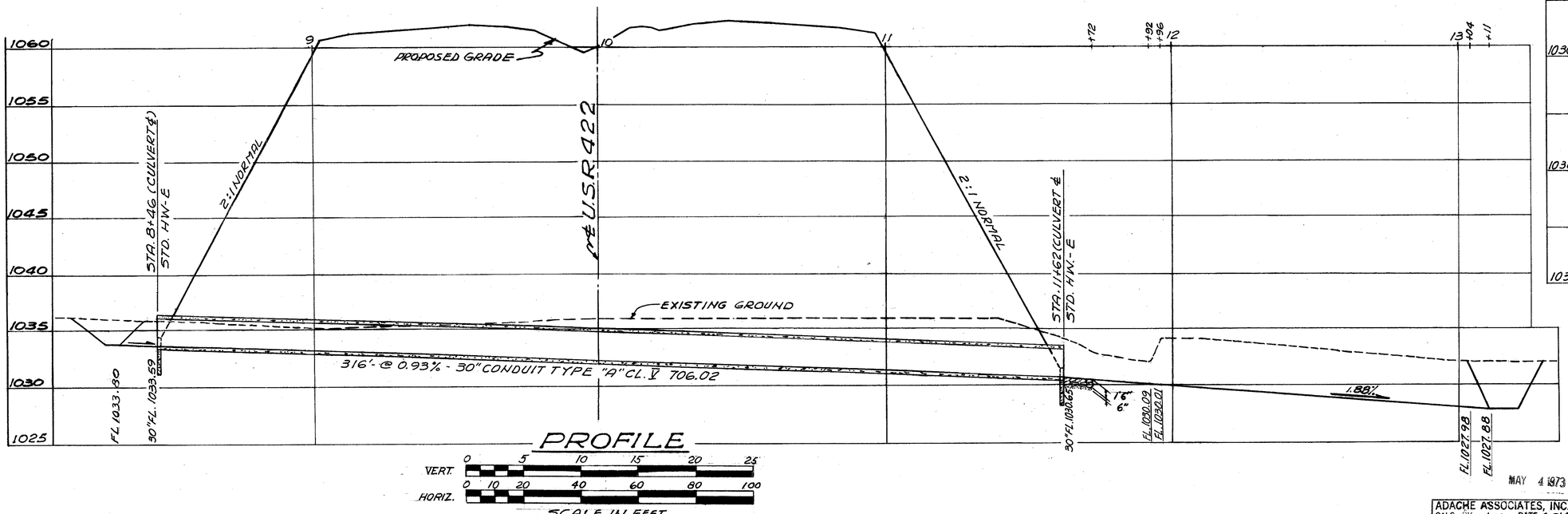
ESTIMATED QUANTITIES

603 - 30" CONDUIT TYPE A, CL V 706.02	316 L.F.
602 - CONCRETE MASONRY	1.02 C.Y.
601 - ROCK CHANNEL PROT. TYPE "B"	6 C.Y.
203 - EXCAVATION NOT INCL. EMBANK. CONSTR.	236 C.Y.



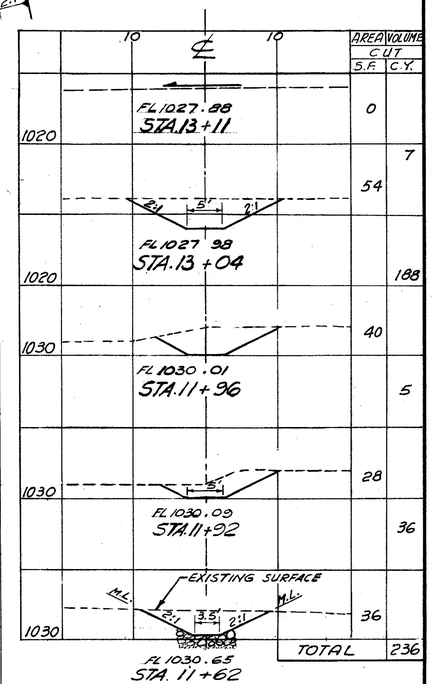
PLAN

0 10 20 40 60 80 100
SCALE IN FEET



PROFILE

VERT. 0 5 10 15 20 25
HORIZ. 0 10 20 40 60 80 100
SCALE IN FEET



	AREA CUT S.F.	VOLUME CUT C.Y.
	0	
		7
	54	
		188
	40	
		5
	28	
		36
	36	
TOTAL		236

CHANNEL X-SECTIONS

0 10 20 30 40 50
SCALE IN FEET

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC BY L.N. DATE 4-21-69
CHKD. BY R.W.H. DATE 5-21-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

STRUCTURE S-10

CULVERT DETAILS

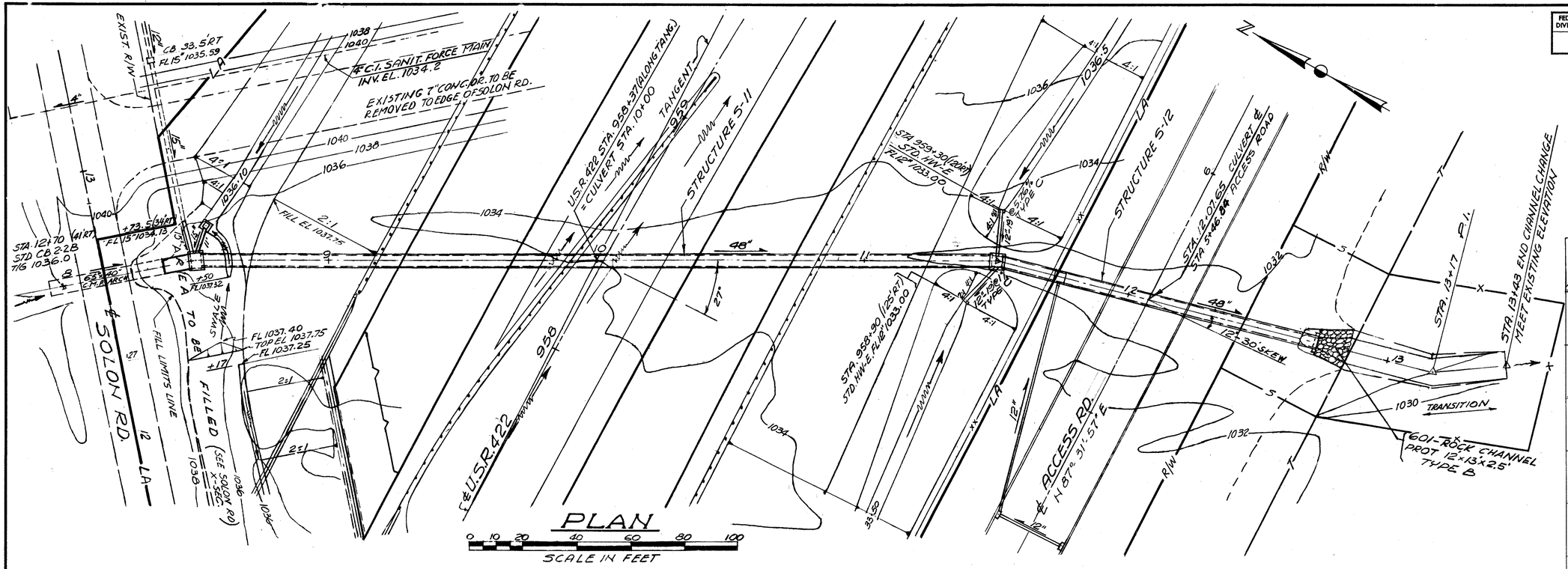
STA. 952+65

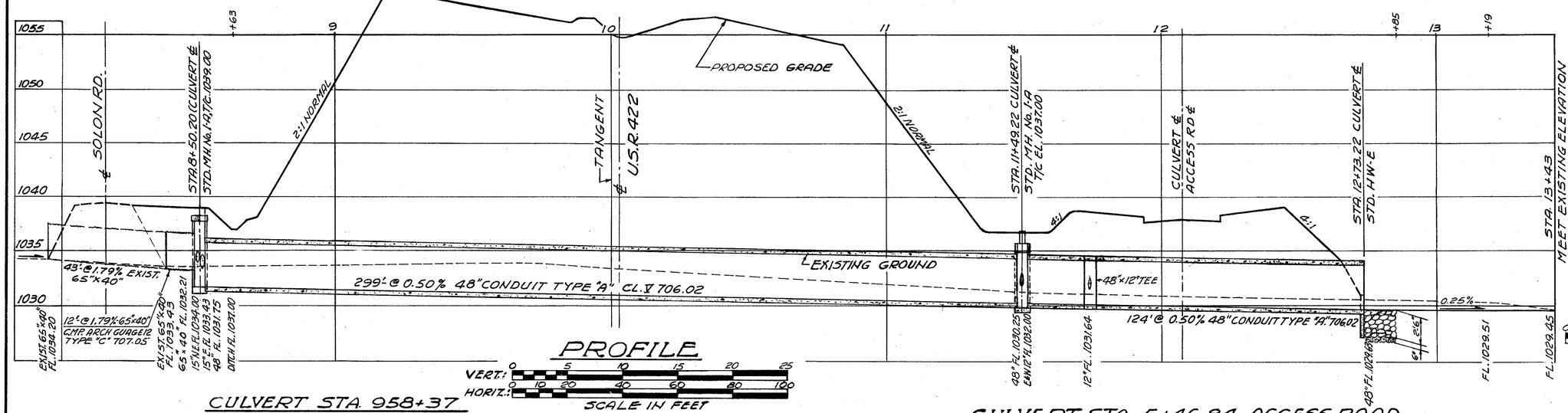
DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	L.N.	R.W.H.		

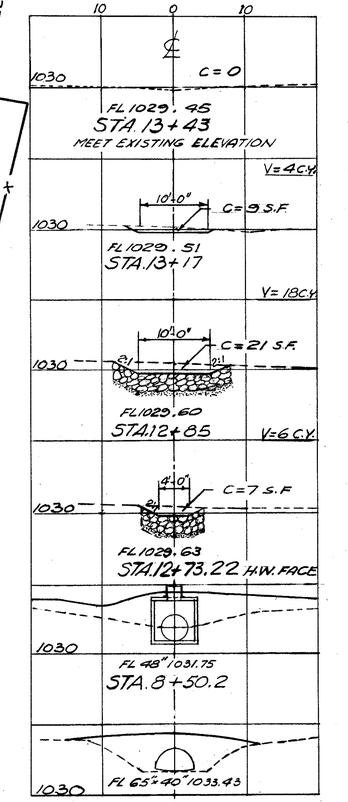
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

134
258

CUYAHOGA COUNTY
CUY. 422 - 16.33







CHANNEL CROSS SECTIONS

SCALE IN FEET

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 4-11-69
CHK'D BY R.W.H. DATE 5-21-69

CULVERT STA. 958+37

DRAINAGE AREA	A = 59 ACRES
DISCHARGE	Q_{25} = 97 C.F.S

ESTIMATED QUANTITIES

603 - 65"x40" C.M.P. ARCH GUAGE 12 TYPE "C" 707.05	12 L.F.
603 - 48" CONDUIT TYPE "A" 706.02 CL. V	299 L.F.
604 - STANDARD M.H. No. 1-A	1 EA
203 - EMBANKMENT	25 C.Y.

CULVERT STA. 5+46.84 ACCESS ROAD

DRAINAGE AREA	A = 61 ACRES
DISCHARGE	Q_{25} = 101 C.F.S.

ESTIMATED QUANTITIES

601 - ROCK CHANNEL PROTECTION TYPE "B"	18 C.Y.
602 - CONCRETE MASONRY	0.86 C.Y.
603 - 48" CONDUIT TYPE "A"	124 L.F.
604 - STANDARD M.H. No. 1-A.	1 EA
604 - 48"x12" TEE TYPE "A" 70602	
203 - EXCAVATION NOT INCLUDING EMBANK. CONSTR.	28 C.Y.

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

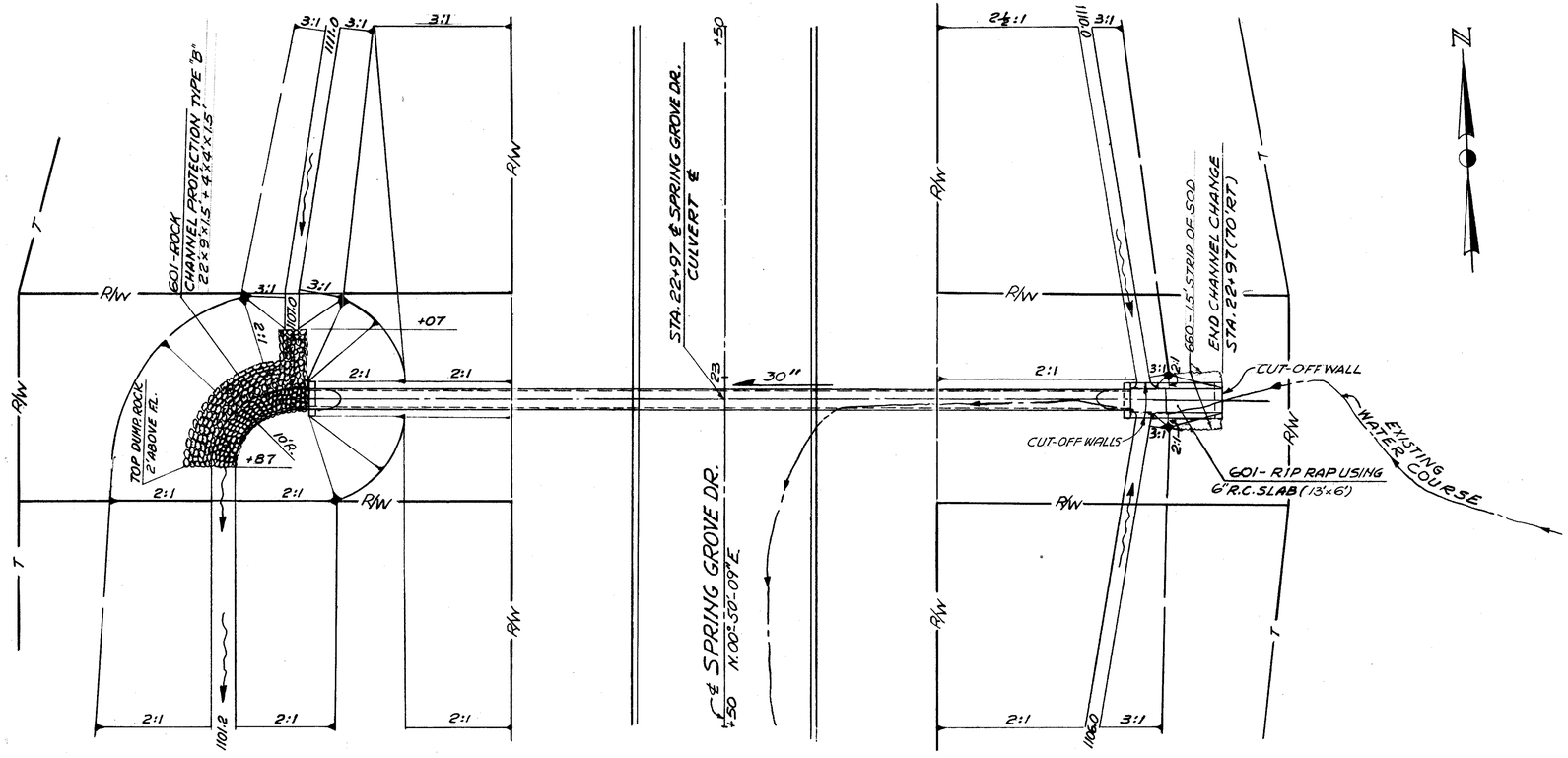
STRUCTURES S-11 & S-12
CULVERT DETAILS
STA. 958+37 (TANGENT LINE)
STA. 5+46.84 (ACCESS ROAD)

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	L.N.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

135
258

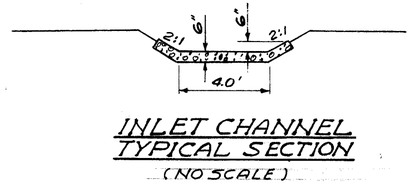
CUYAHOGA COUNTY
CUY 422 - 16.33



PLAN

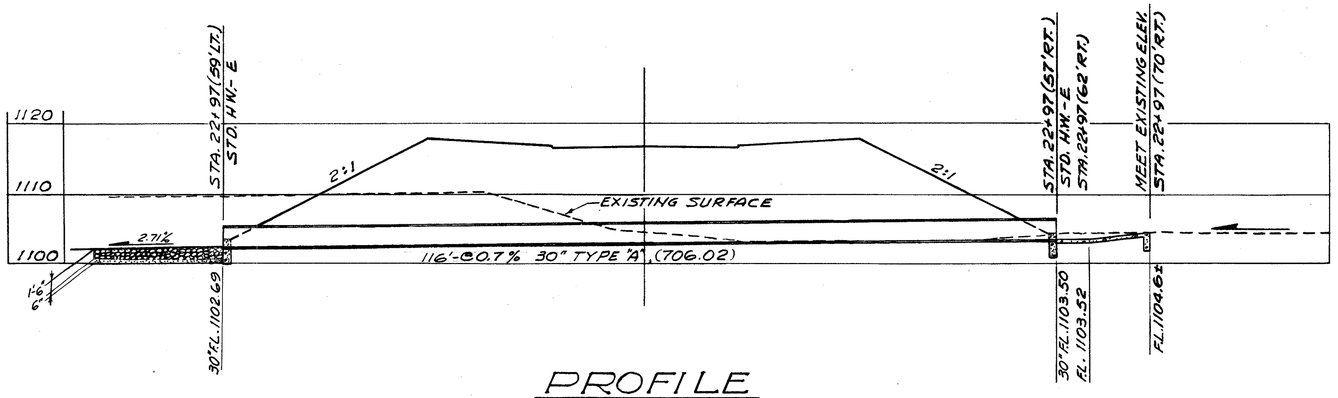
0 10 20 30 40 50

SCALE IN FEET



INLET CHANNEL TYPICAL SECTION
(NO SCALE)

DRAINAGE AREA	14.0 ACRES
DISCHARGE	Q_{25} = 36.0 C.F.S.



PROFILE

0 10 20 30 40 50

SCALE IN FEET

ESTIMATED QUANTITIES

603	- 30" CONDUIT TYPE "A" (706.02)	- 116.0 L.F.
602	- CONCRETE MASONRY	- 1.02 C.Y.
601	- RIP RAP USING 6" R. CONCRETE SLAB	- 9.0 S.Y.
601	- ROCK CHANNEL PROTECTION TYPE "B"	- 16.0 C.Y.
660	- SODDING	- 4.0 S.Y.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

U.S.R. 422
SPRING GROVE DRIVE CULVERT DETAILS
STA. 22+97

MAY 4 1973

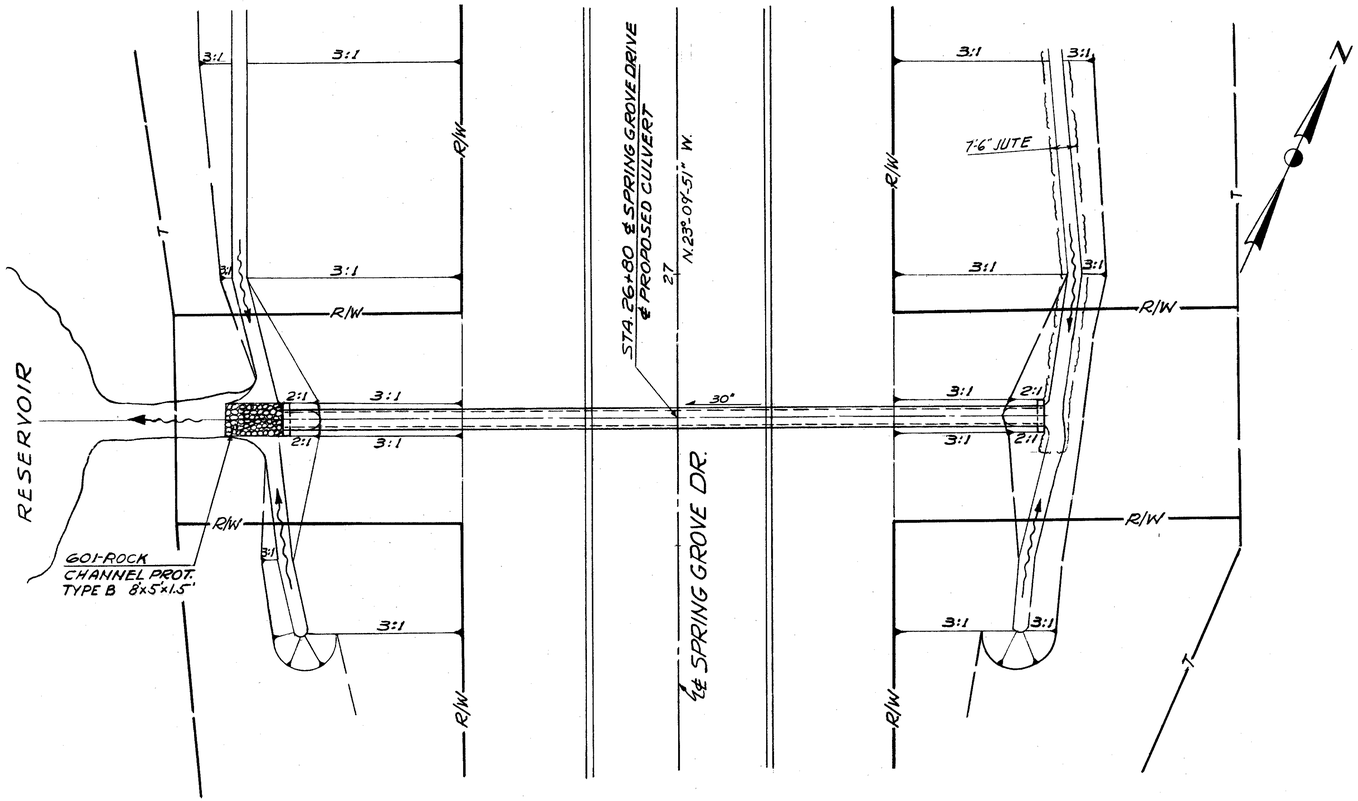
ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 3-23-73
CHKD. BY R.W.H. DATE 3-27-73

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	J.D.A.	R.W.H.		

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468(9)	

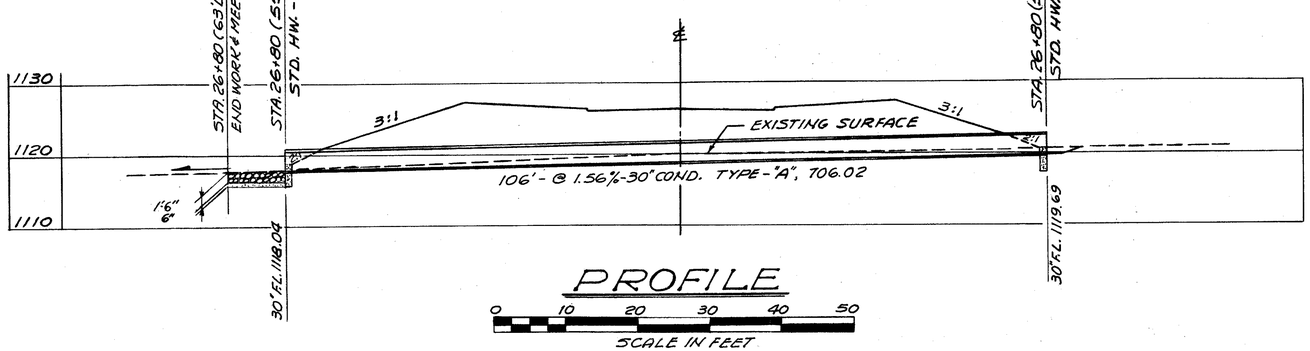
136
258

CUYAHOGA COUNTY
CUY 422 - 16:33



PLAN

0 10 20 30 40 50
SCALE IN FEET



PROFILE

0 10 20 30 40 50
SCALE IN FEET

DRAINAGE AREA	A = 9 ACRES
DISCHARGE	Q_{25} = 27 C.F.S.

ESTIMATED QUANTITIES

603	30" CONDUIT TYPE "A" 706.02	106.0 L.F
602	CONCRETE MASONRY	1.02 C.Y.
601	ROCK CHANNEL PROTECTION TYPE "B"	3.0 C.Y.

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY L.N. DATE 3-24-69
CHKD. BY R.W.H DATE 3-27-69

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

SPRING GROVE DRIVE CULVERT DETAILS

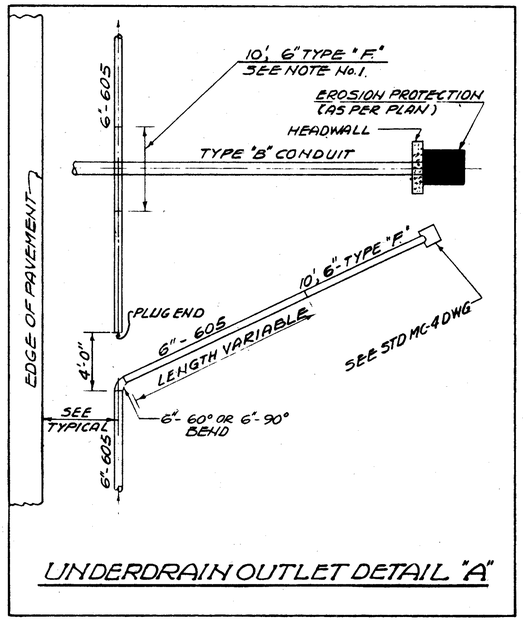
STA. 26+80

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	J.D.A.	R.W.H.		

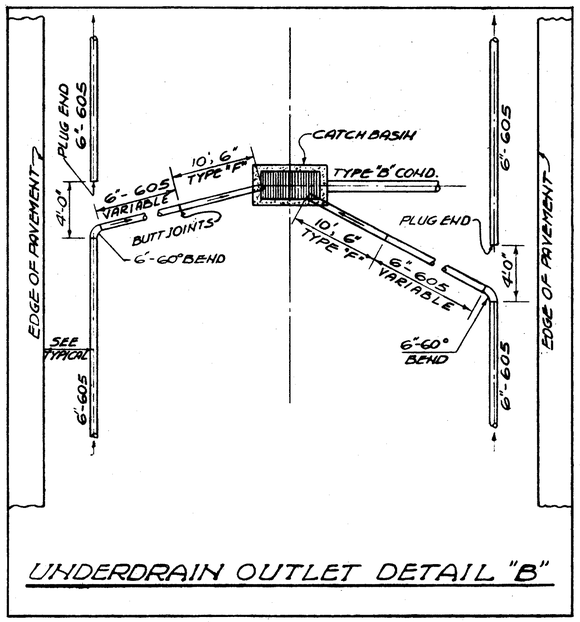
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

137
258

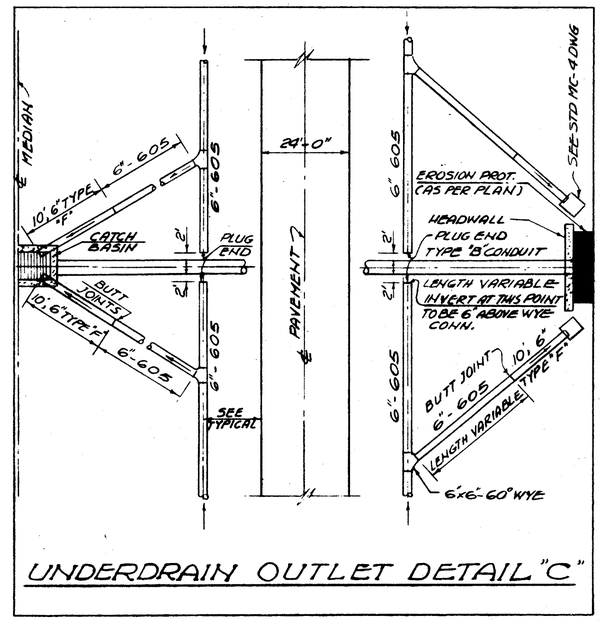
CUYAHOGA COUNTY
CUY 422-16.33



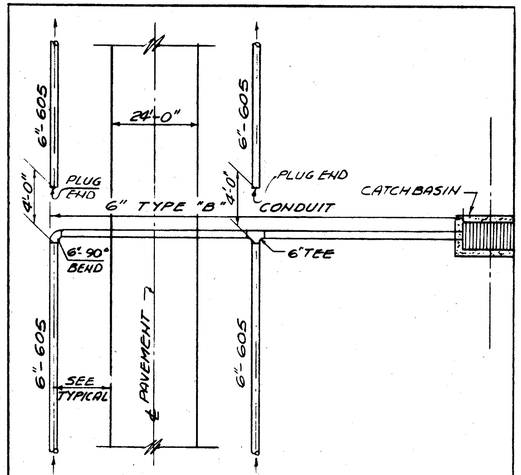
UNDERDRAIN OUTLET DETAIL "A"



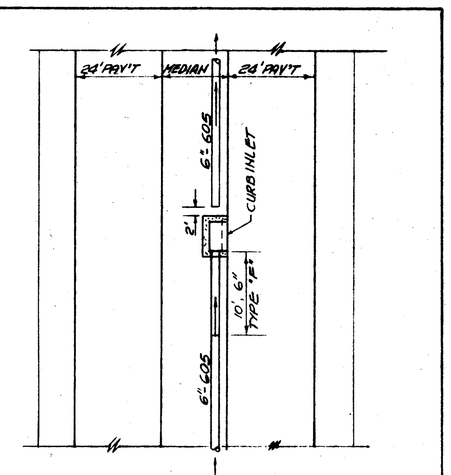
UNDERDRAIN OUTLET DETAIL "B"



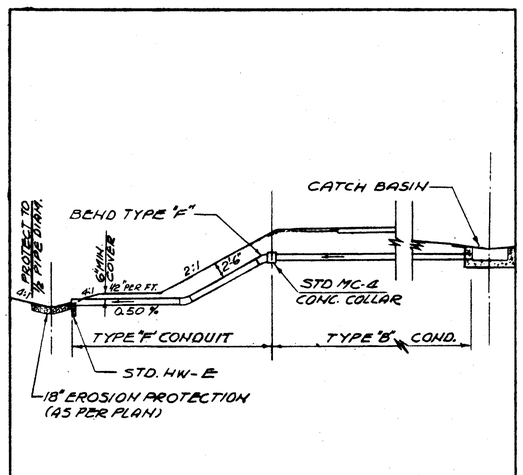
UNDERDRAIN OUTLET DETAIL "C"



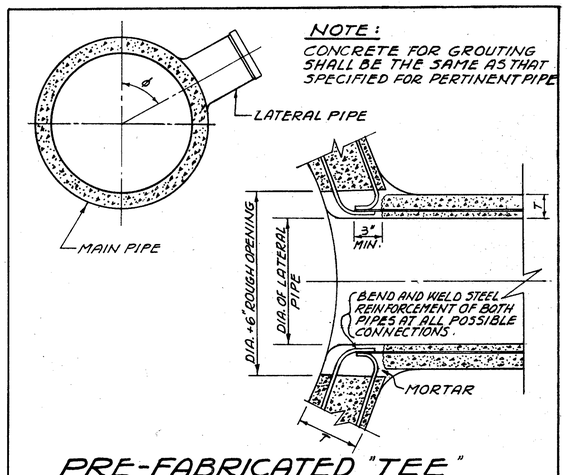
UNDERDRAIN OUTLET DETAIL "D"



UNDERDRAIN OUTLET DETAIL "E"



MEDIAN OUTLET DETAIL IN HIGH FILL



PRE-FABRICATED "TEE" CONNECTION

NOTES:

1. WHEN IT IS DESIRABLE TO CONTINUE THE UNDERDRAIN ACROSS A TRAVERSE LINE SUCH AS IN DETAIL "A" A 10 FEET LENGTH OF 6" TYPE "F" CONDUIT SHOULD BE USED TO SPAN THE TRENCH UNLESS SUCH CROSSING IS ABOVE THE AREA OF GRANULAR BACKFILL.
2. MEDIAN OUTLET PIPES IN HIGH FILL, MAY OUTLET ONE FOOT ABOVE DITCH BOTTOM.

MAY 4 1973

ADACHE ASSOCIATES, INC.
CALC. BY DATE
CHKD. BY DATE

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

U.S.R. 422
TYPICAL UNDERDRAIN AND MEDIAN OUTLET DETAILS

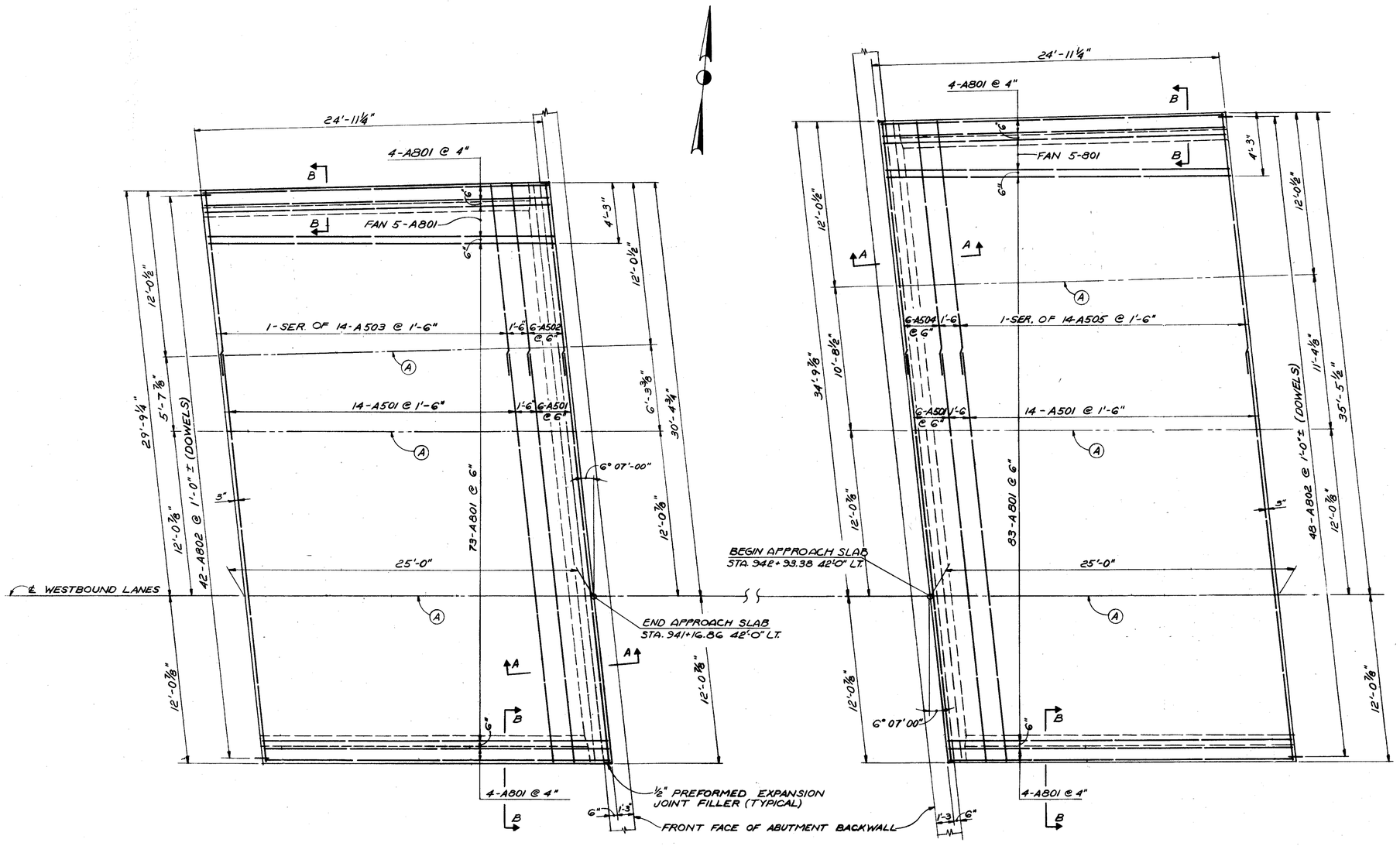
NO SCALE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	J.D.A.	R.W.H.		

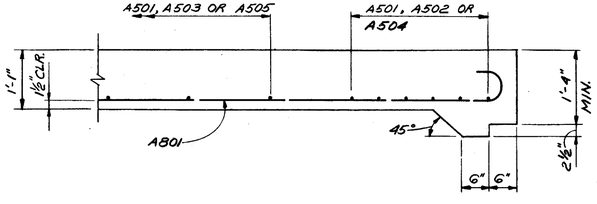
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(3)	

138
258

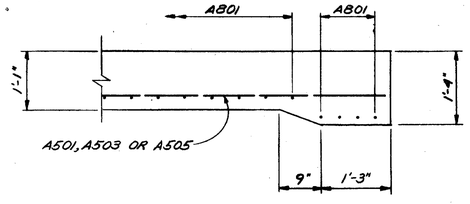
CUYAHOGA COUNTY
CUY. 422—16.33



PLAN



SECTION A-A

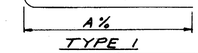


SECTION B-B

REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	A
A501	40	30'-0"		STR.	
A502	6	13'-9"		STR.	
A503	1	13'-1" TO		STR	
	SERIES	13'-9"			
	OF 14	W/INCR=3/8			
A 504	6	18'-2"		STR.	
A505	1	18'-2" TO		STR.	
	SERIES	18'-10"			
	OF 14	W/INCR=3/8			
A801	182	25'-9"		1	24'-8
A802	90	1'-6"		STR.	
TOTAL WEIGHT					

BAR BENDING DIAGRAM:



TYPE 1

ESTIMATED QUANTITIES

ITEM	TOTAL	UNITS	DESCRIPTION
611	247	SQ. YDS.	13" REINFORCED CONCRETE APPROACH SLAB

NOTES

REFERENCE SHALL BE MADE TO STD. DWG. AS-1-67, DATED 6-12-60, FOR DETAILS & NOTES NOT SHOWN.
CONCRETE SHALL BE CLASS "C"
Ⓐ = STANDARD LONGITUDINAL SAW JOINT
PAVEMENT DETAILS - SEE SHEET NO. 54

DO NOT PROVIDE JACKING HOLES

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

APPROACH SLAB DETAIL
BRIDGE NO. CUY. 422 — 1800
U.S.R. 422 OVER S.R. 91

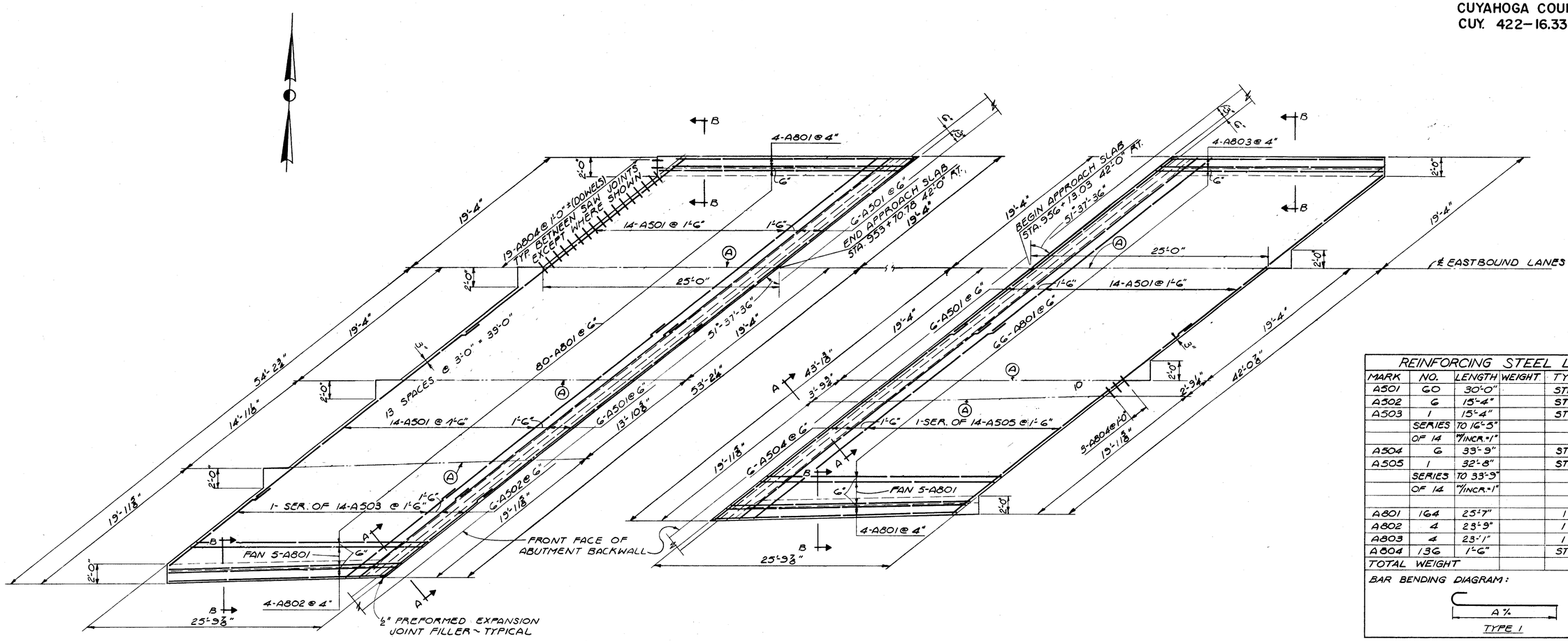
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.S. 5-24-67	D.S.	H.S. 5-28-67			

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

133
258

CUYAHOGA COUNTY
CUY. 422-16.33



REINFORCING STEEL LIST

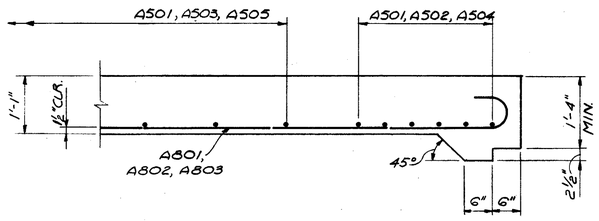
MARK	NO.	LENGTH	WEIGHT	TYPE	A
A501	60	30'-0"		STR.	
A502	6	15'-4"		STR.	
A503	1	15'-4"		STR.	
	SERIES OF 14	TO 16'-5" W/INCR.=1"			
A504	6	33'-9"		STR.	
A505	1	32'-8"		STR.	
	SERIES OF 14	TO 33'-9" W/INCR.=1"			
A801	164	25'-7"		1	24'-6"
A802	4	25'-9"		1	22'-9"
A803	4	23'-1"		1	22'-0"
A804	136	1'-6"		STR.	
TOTAL WEIGHT					

BAR BENDING DIAGRAM:

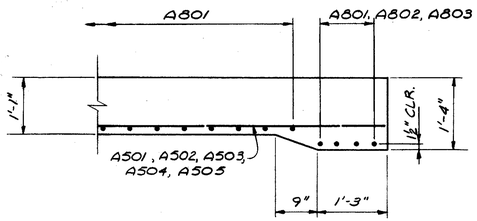
TYPE 1

ESTIMATED QUANTITES

ITEM	TOTAL	UNITS	DESCRIPTON
611	233	SQ. YDS.	13" REINFORCED CONCRETE APPROACH SLAB



SECTION A-A



SECTION B-B

NOTES

REFERENCE SHALL BE MADE TO STD. DWG. AS-1-67, DATED 6-12-69, FOR DETAILS AND NOTES NOT SHOWN.

CONCRETE SHALL BE CLASS "C"

Ⓐ = STANDARD LONGITUDINAL SAW JOINTS

PAVEMENT DETAILS - SEE SHEET NO. 53

DO NOT PROVIDE JACKING HOLES

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

APPROACH SLAB DETAIL
BRIDGE NO. CUY. 422-1825
U.S.R. 422 OVER SOLON RD.

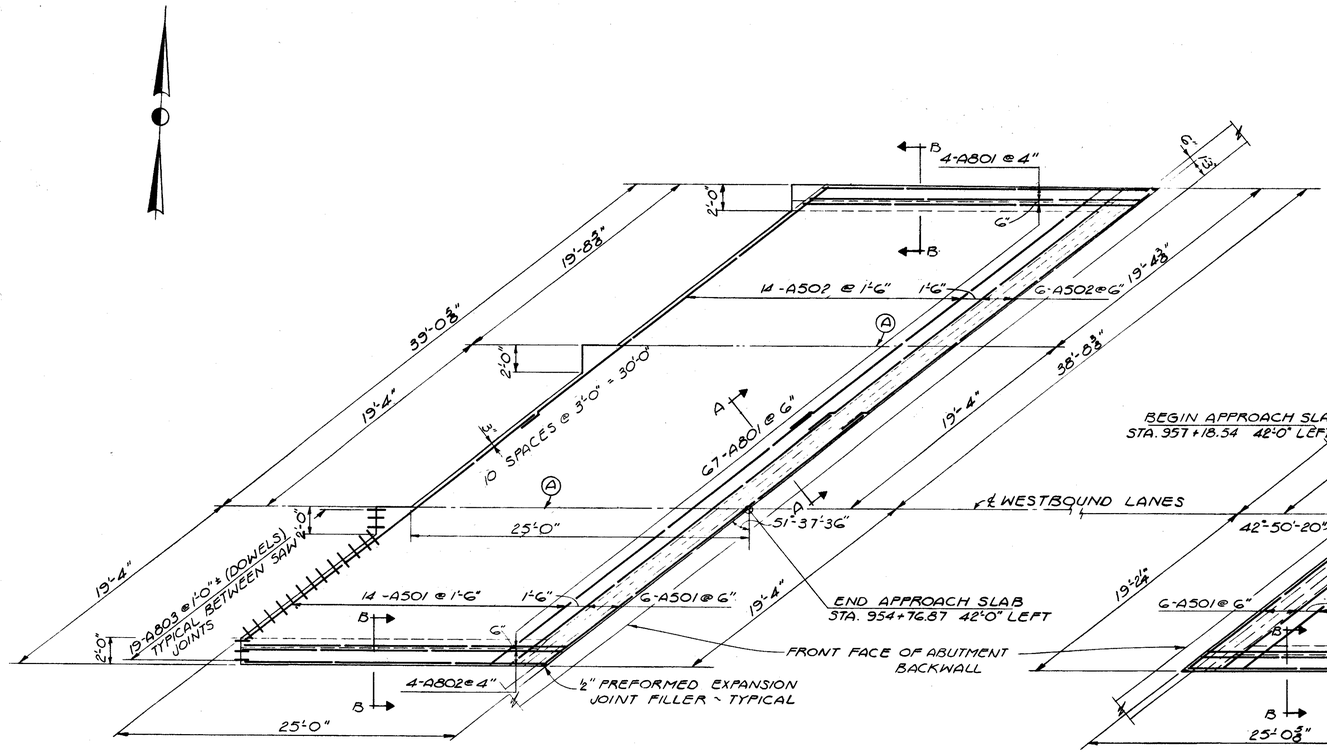
MAY 4 1973

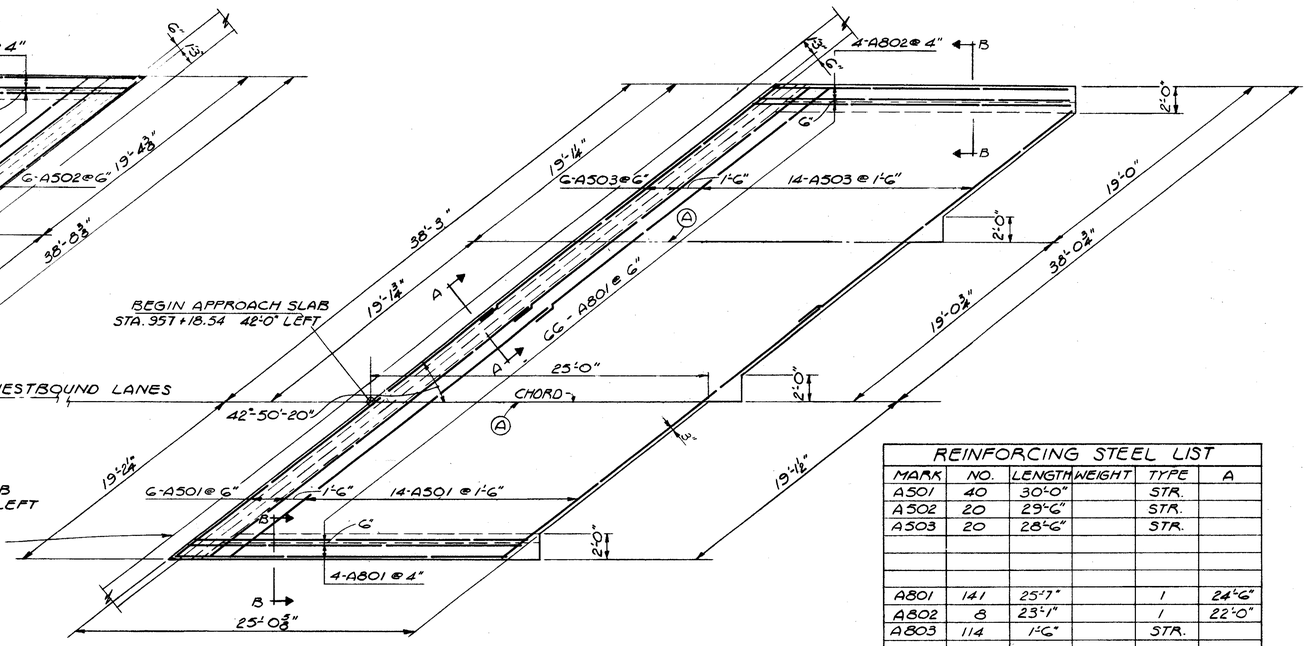
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
W.V.S. 5-26-69	W.V.S.	H.G. 5-27-69			

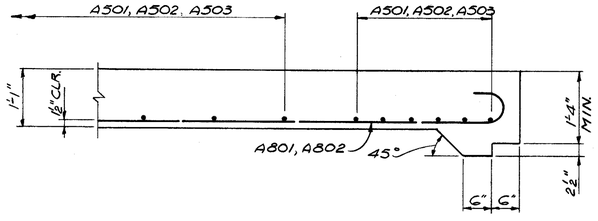
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

140
258

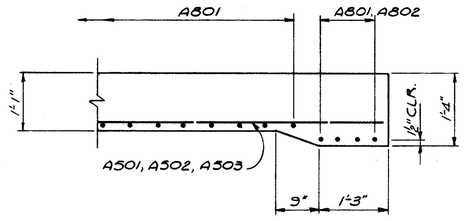
CUYAHOGA COUNTY
CUY. 422-16.33







SECTION A-A

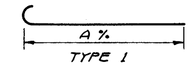


SECTION B-B

REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	A
A501	40	30'-0"		STR.	
A502	20	29'-6"		STR.	
A503	20	28'-6"		STR.	
A801	141	25'-7"		1	24'-6"
A802	8	23'-1"		1	22'-0"
A803	114	1'-6"		STR.	

BAR DIAGRAM:



ESTIMATED QUANTITIES

ITEM	TOTAL	UNITS	DESCRIPTION
G11	200	SQ. YDS.	13" REINFORCED CONCRETE APPROACH SLAB

NOTES

REFERENCE SHALL BE MADE TO STD. DWG. AS-1-67, DATED 6-12-69, FOR DETAILS AND NOTES NOT SHOWN.

CONCRETE SHALL BE CLASS "C"

Ⓐ = STANDARD LONGITUDINAL SAW JOINTS

PAVEMENT DETAILS - SEE SHEET NO. 52

Do Not Provide Jacking Holes

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

APPROACH SLAB DETAIL
BRIDGE NO. CUY. 422-1825
U.S.R. 422 OVER SOLON RD.

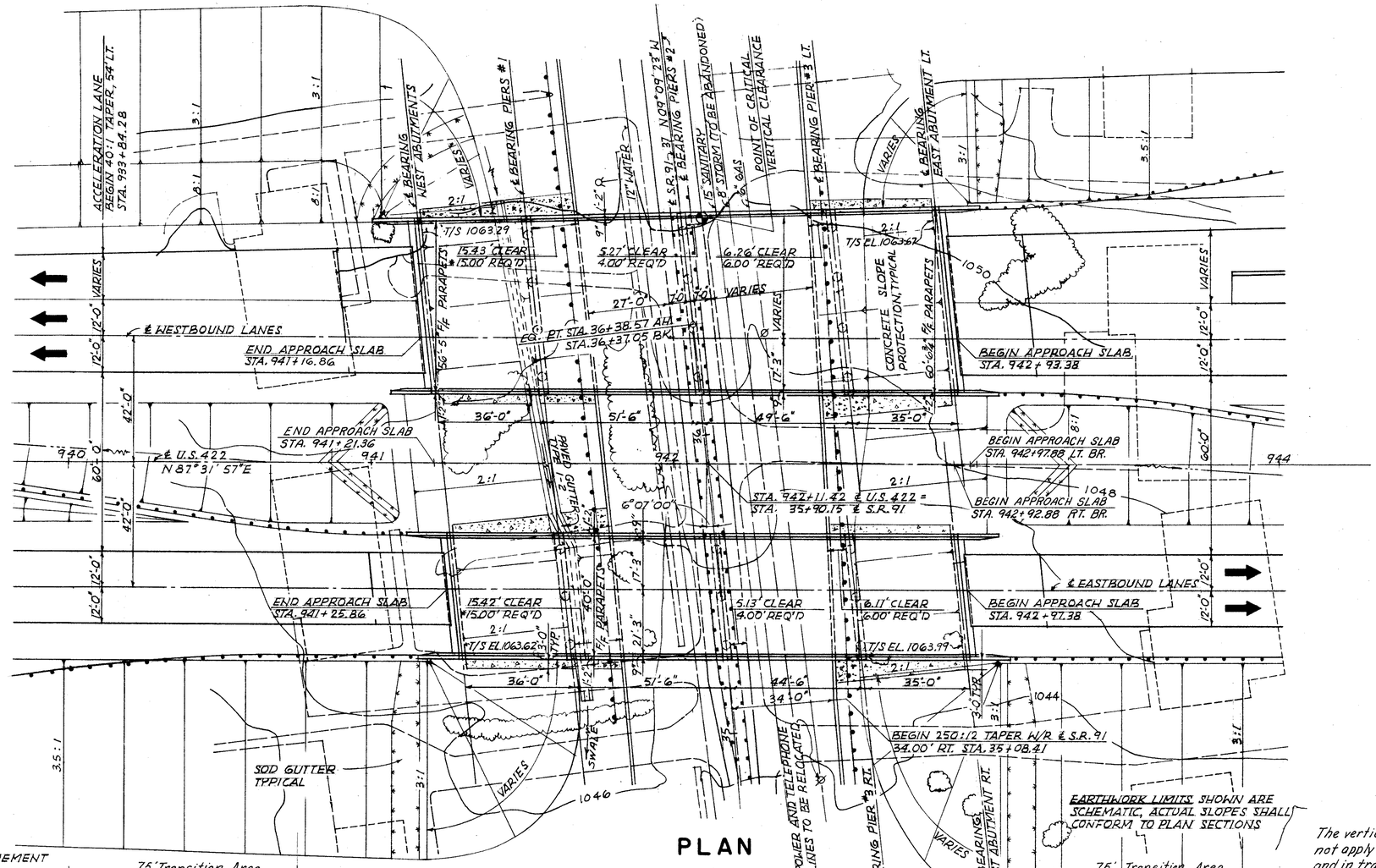
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
W.V.S. 5-26-69	W.V.S.	H.G. 5-29-69			

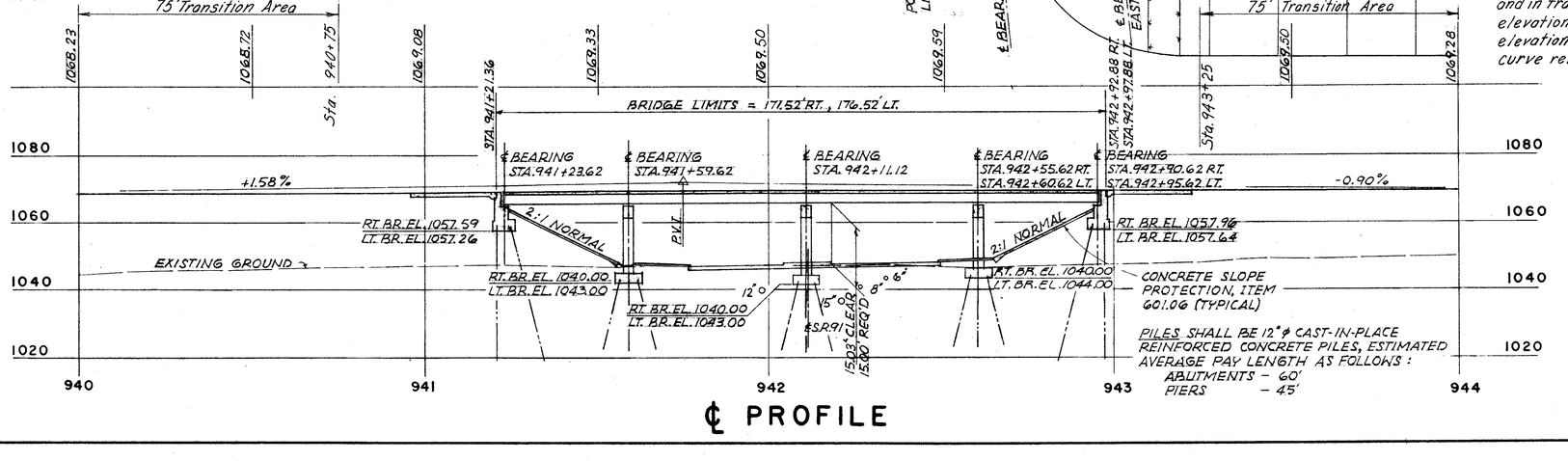
MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

141/258

CUYAHOGA COUNTY
CUY. - 422 - 16.33





CURVE DATA
℄ SURVEY S.R. 91

P.I. STA. 33+16.16
Δ = 9°38'58"
D = 1°30'00"
R = 3819.72'
T = 322.41'
L = 643.30'
E = 13.58'

VERTICAL CURVE DATA U.S. 422

P.V.I STA. 941+75
EL. = 1071.78
COR. = 2.48'
P.C. = 1069.30
V.C. = 800'
G_1 = +1.58%
G_2 = -0.90%

* SIGHT DISTANCE REQUIREMENT

DESIGN TRAFFIC
1975 A.D.T.
12,850 (W.B.)
9,650 (E.B.)

The vertical curve data does not apply to elevations on bridge and in transition area. Bridge elevations are 1½" above the elevations obtained from vertical curve reference data

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 36'-0"~51'-6"~49'-6"~35'-0" ℄ BRGS. LT. BR.
36'-0"~51'-6"~44'-6"~35'-0" ℄ BRGS. RT. BR.

ROADWAY: LEFT - VARIES 56'-5" TO 60'-6¾" F/F PARAPETS
RIGHT - 40'-0" F/F PARAPETS

LOADING: HS 20-44

SKEW: 6°07'00" RIGHT FORWARD

SURFACE COURSE 1½" ASPHALT CONCRETE

ALIGNMENT: TANGENT

APPROACH SLABS: LT. BR. - SEE SHEET NO. 1 / 18
RT. BR. - AS-1-67 (25' LONG)

1 / 18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND OHIO 44142

SITE PLAN

BRIDGE NO. CUY.-422-1800 L/R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY. - 422 - 16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

MAY 4 1973

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.R.A.	L.R.A.	[illegible]	R.C.	

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

142
258

CUYAHOGA COUNTY
CUY—422—16.33

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69	SHEETS 1, 2 & 3	DATED 6-12-69
BOLTED BEAM SPLICE DETAILS	SD-1-69	SHEET 4	DATED 6-12-69
ROCKER AND BOLSTER DETAILS	RB-1-55		REVISED 2-2-59
APPROACH SLAB DETAILS	AS-1-67		REVISED 6-12-69
BRIDGE RAILING DETAILS	BR-1-67	SHEET 1	REVISED 10-15-71

SUPPLEMENTAL SPECIFICATIONS:

808	DATED	1-1-71
836	DATED	1-1-71

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1965, AND "INTERIM SPECIFICATIONS", 1966-1967, ALSO INCLUDING THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING - HS20-44

CONCRETE CLASS C - UNIT STRESS 1200 P.S.I. FOR SUPERSTRUCTURE
UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE

STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20,000 P.S.I.

REINFORCING STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20,000 P.S.I.
SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A306 OR A499 OR A82 OR A615
IF BARS IN ACCORDANCE WITH ASTM A616 ARE PROVIDED THEY SHALL BE SUBJECT TO BEND TESTS AS PER AASHO DESIGNATION M 42-70.

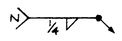
ALL CONCRETE SHALL BE CLASS C.

EMBANKMENT CONSTRUCTION: THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENTS AND PIERS 1 and 3.

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 33 TONS PER PILE FOR THE ABUTMENTS, AND 40 TONS PER PILE FOR THE PIERS.

UTILITY LINES: ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO CO-OPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WOULD BE HELD TO A MINIMUM.

WELDS ON NON-STRESS CARRYING MEMBERS ARE SHOWN THUS:



END DAM PAINTING: PORTIONS OF END DAMS WHICH WILL BE IN CONTACT WITH STEEL OR WITH CONCRETE SHALL NOT BE PAINTED. ALL OTHER PORTIONS SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH CONSTRUCTION AND MATERIALS SPECIFICATION 514.

MAINTENANCE AND PROTECTION OF TRAFFIC: TRAFFIC SHALL BE MAINTAINED ON S.R. 91 AS INDICATED ON THE ROADWAY PLANS (GENERAL NOTES).

PAVEMENT JACKING HOLES SHALL NOT BE USED AS SHOWN ON STANDARD DRAWING AS-1-67.

DECK FINISHING: TEXTURING OF THE DECK SURFACE AS PROVIDED IN 451.09 SHALL NOT BE DONE.

FOR LIGHTING DETAILS SEE SHEET: 218B/258 & 218C/258

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPERSTR. LEFT	SUPERSTR. RIGHT	ABUTMENTS LEFT	ABUTMENTS RIGHT	PIERS LEFT	PIERS RIGHT	GENERAL LEFT	GENERAL RIGHT
404	51	Cu. Yd.	Asphalt concrete (70-85 or AC-20), as per plan	31	20						
503	1,066	CU. YDS	UNCLASSIFIED EXCAVATION			324	242	278	222		
505	LUMP	SUM	TEST PILE							LUMP	
507	175	LIN. FT.	PREBORED HOLES					100	75		
507	8,330	LIN. FT.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES			2,040	1,560	2,700	2,030		
509	262,342	LBS	REINFORCING STEEL	175,081		27,396		59,865			
511	552	CU. YDS	CLASS "C" CONCRETE, SUPERSTRUCTURE	321	231						
511	210	CU. YDS	CLASS "C" CONCRETE, PIER CAPS & COLUMNS					118	92		
511	219	CU. YDS	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS			126	93				
511	353	CU. YDS	CLASS "C" CONCRETE, FOOTINGS			97	70	106	80		
512	29	LIN. FT.	PREMOLDED SEALING STRIP			15	14				
513	337,270	LBS	STRUCTURAL STEEL	201,640	135,630						
514	337,270	LBS	FIELD PAINTING OF STRUCTURAL STEEL	201,640	135,630						
518	91	CU. YDS	POROUS BACKFILL			54	37				
518	186	LIN. FT.	6" PERFORATED HELICAL CMP, INCLUDING SPECIALS, 707.01			112	74				
518	140	LIN. FT.	6" NON-PERFORATED HELICAL CMP, 707.01			80	60				
518	15	EACH.	SCUPPERS INCLUDING SUPPORTS,	9	6						
601	1,156	SQ. YDS.	CONCRETE SLOPE PROTECTION							638	518
625			ELECTRICAL EQUIPMENT (SEE SHEET NO. 210 FOR QUANTITIES)								
808	552	UNITS	Chemical admixture for concrete, Type A, B or D	321	231						
Special	25	Cu. Yds.	Sand-asphalt (See proposal note)	15	10						
Special	1851	Sq. Yds.	Membrane waterproofing, Sheet type (See proposal note)	1116	735						

TEST PILE. PAYMENT WILL BE MADE FOR ONLY ONE TEST PILE. IT MAY BE DRIVEN FOR EITHER THE LEFT OR RIGHT BRIDGE.

MAY 4 1973

2 / 18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL NOTES & ESTIMATED QUANTITIES

BRIDGE NO. CUY-422-1800 L/R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G. 4/21/69	V.I.P.	L.A.A. 4/21/69	L.E.D.	10-1-69	1-14-72

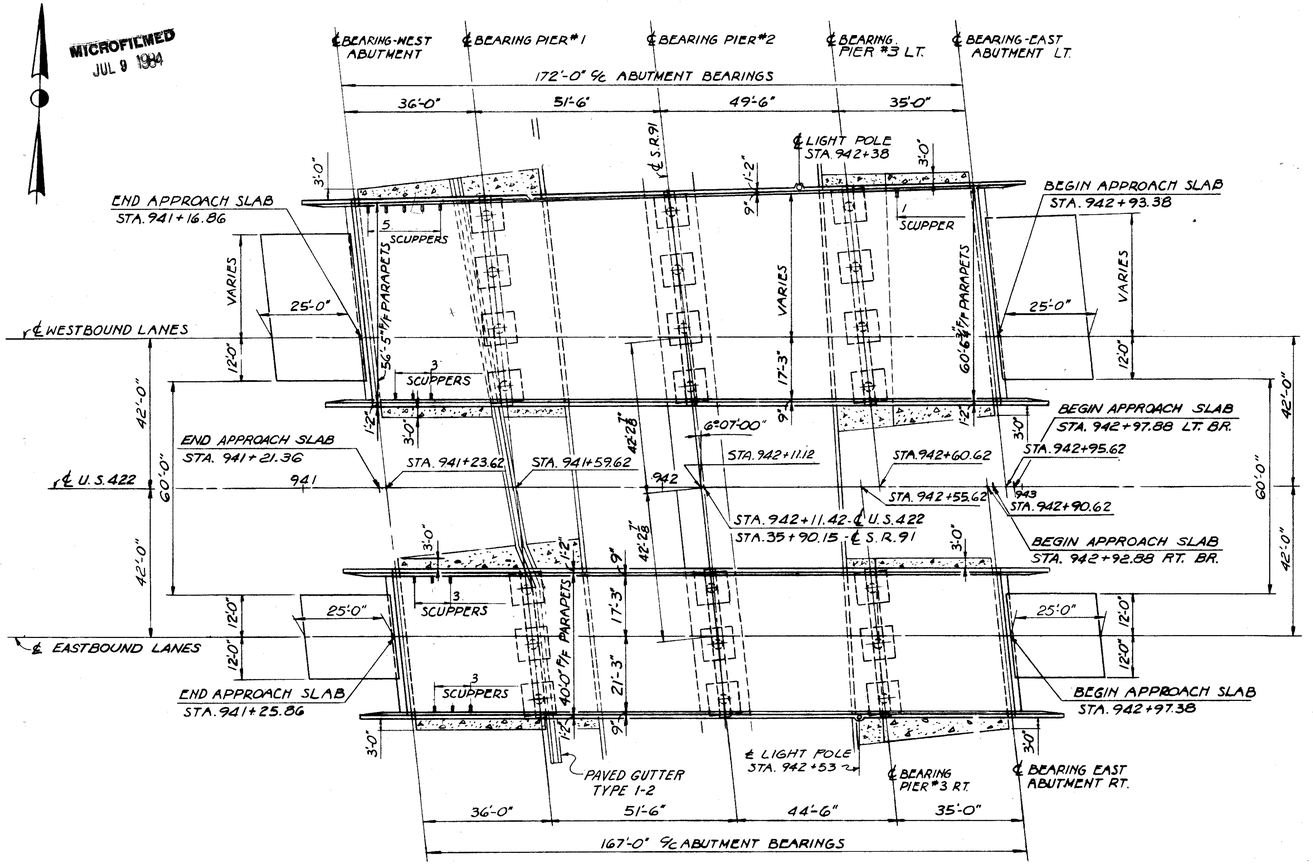
REV. 8-20-73

MICROFILMED
JUL 9 1984

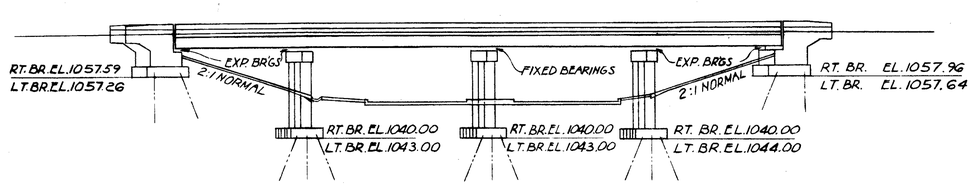
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

143
258

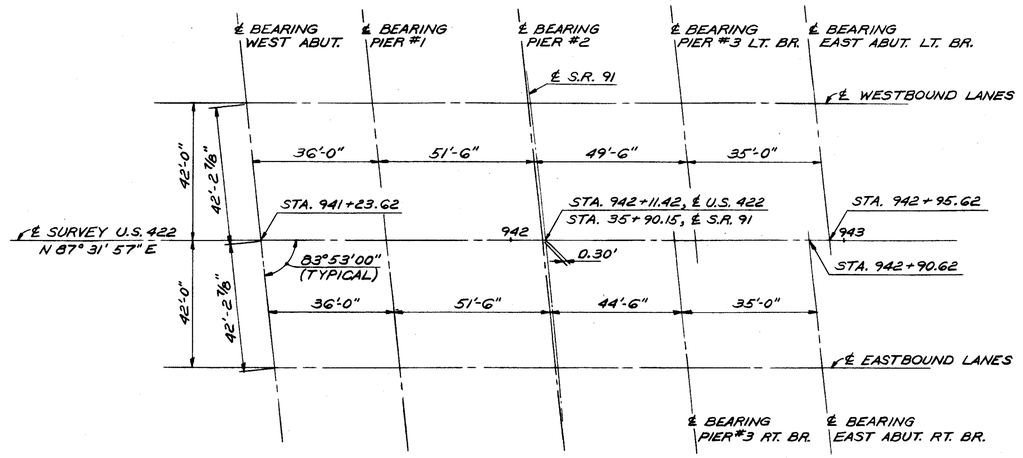
CUYAHOGA COUNTY
CUY-422-16.33



GENERAL PLAN



ELEVATION



GEOMETRIC TIE

NOTES

FOR SCUPPER LOCATIONS AND SPACING SEE FRAMING PLAN.
SHEET NO. 13/18 FOR LEFT BRIDGE
SHEET NO. 14/18 FOR RIGHT BRIDGE

FOR BRIDGE LIGHT POLE LOCATIONS SEE SHEET NO. 16/18

FOR APPROACH SLAB DETAILS SEE STANDARD DRAWING AS-1-67 REVISED 6-12-69 AND PROJECT PLAN SHEET NO. 138

FOR PARAPET PANEL SPACING SEE DECK SLAB PLAN SHEET NO. 16/18

3 / 18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL PLAN & ELEVATION

BRIDGE NO. CUY-422-1800 L/R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

MAY 4 1973

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-1-69	

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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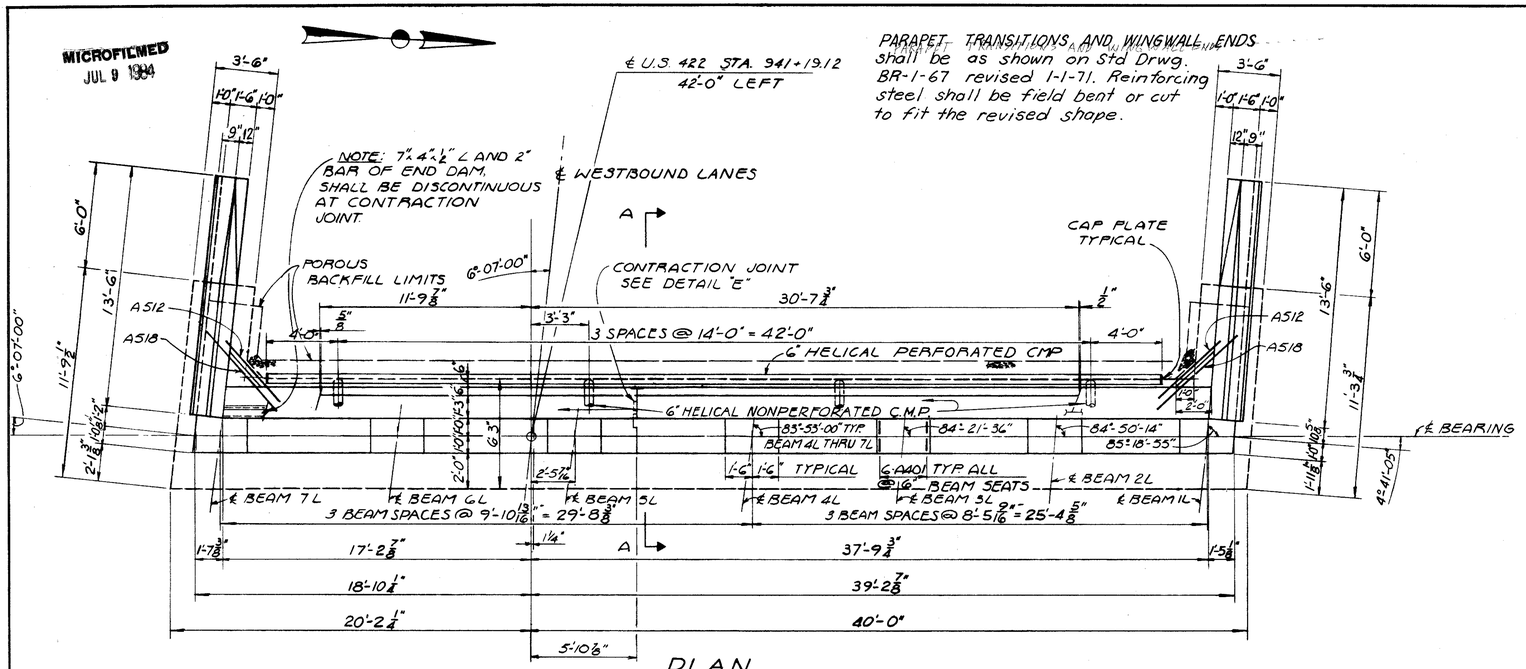
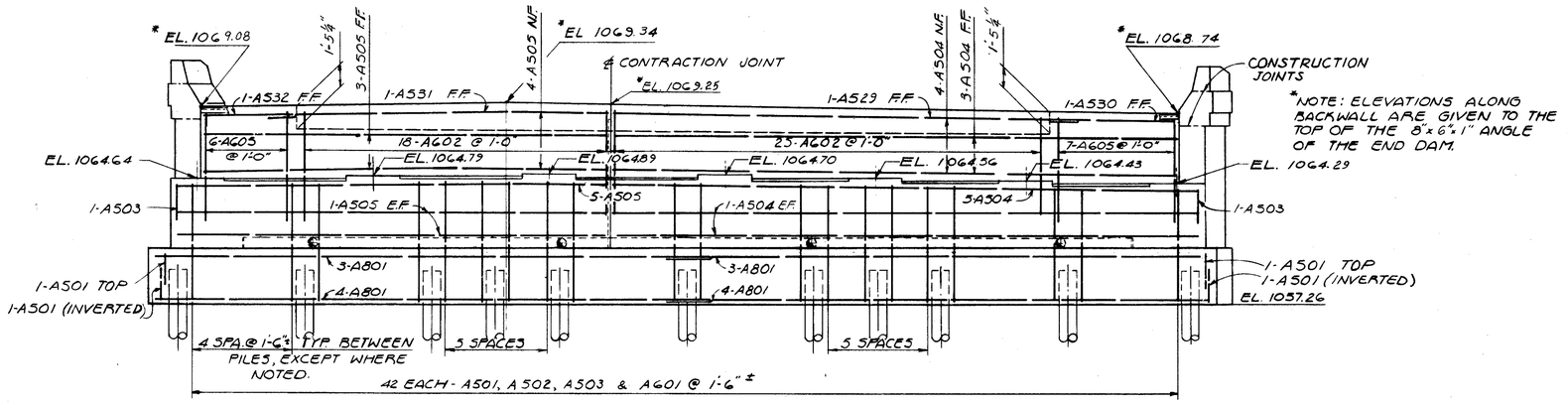
258

CUYAHOGA COUNTY
CUY-422-16.33

PARAPET, TRANSITIONS, AND WINGWALL ENDS shall be as shown on Std Drwg. BR-1-67 revised 1-1-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

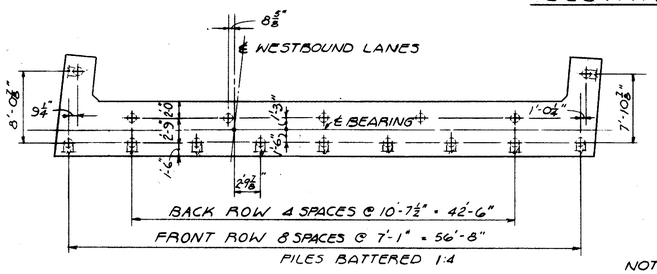


PLAN
WEST ABUT. - LEFT BRIDGE



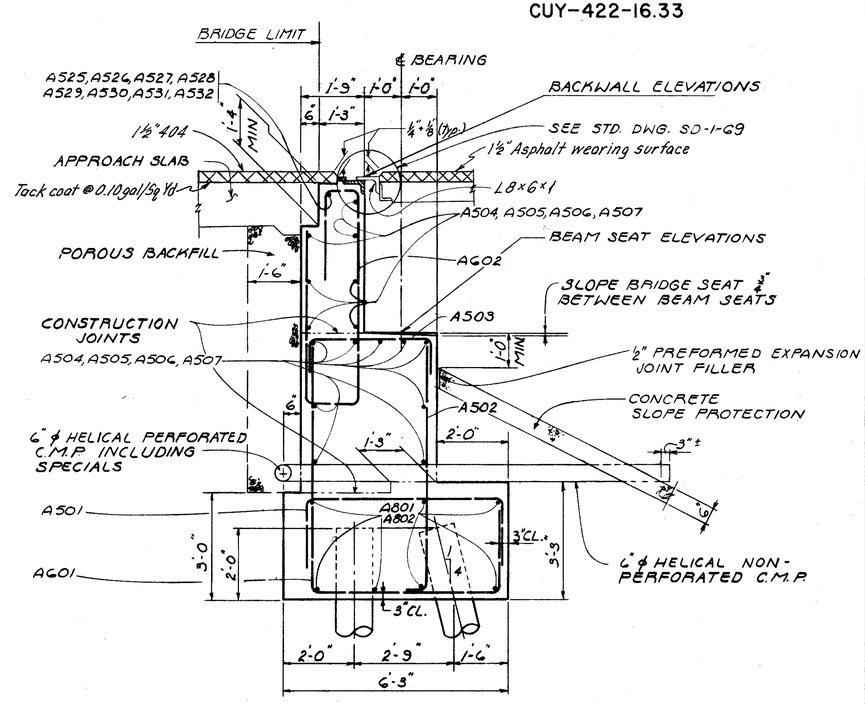
*NOTE: ELEVATIONS ALONG BACKWALL ARE GIVEN TO THE TOP OF THE 8"x6"x1" ANGLE OF THE END DAM.

ELEVATION



NOTE: USE 16 PILES THIS ABUTMENT.

PILING LAYOUT



SECTION "A-A"

NOTES

FOR GEOMETRIC TIE SEE SHEET NO. 3/18

ABUTMENT PILES ARE 12" ϕ CAST-IN-PLACE REINFORCED CONCRETE.

POROUS BACKFILL, 1.5 FT. THICK, FULL LENGTH OF ABUTMENT AND WINGS, SHALL EXTEND UP TO THE SUBGRADE

WINGWALL DETAILS, ABUTMENT LOCATION PLAN, AND DETAIL "E" - SEE SHEET NO. 6/18

REINFORCING STEEL LIST - SEE SHEET NO. 15/18

ABBREVIATIONS USED - E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

4/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1800 L
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

MAY 4 1973

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	WS	L.R.A.	L.E.D.	10-1-69	

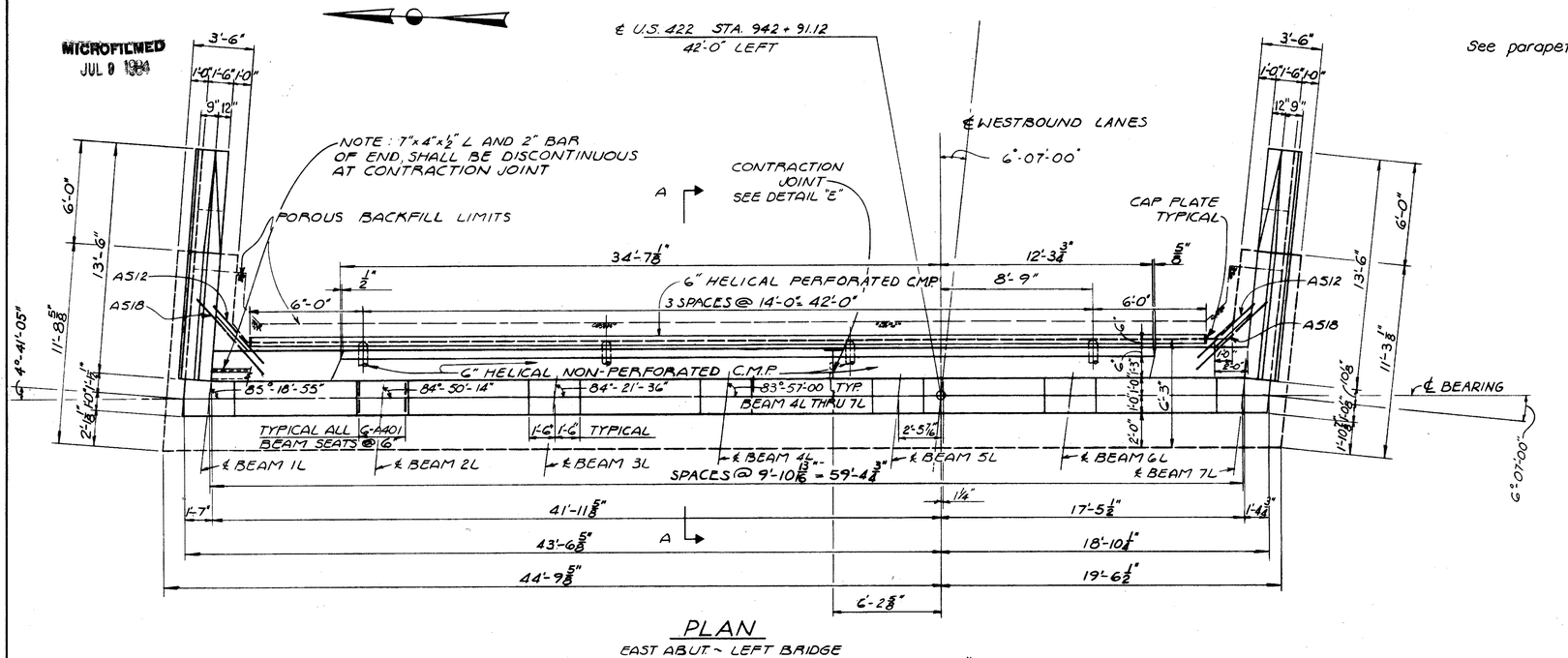
MICROFILMED
JUL 8 1994

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

145
258

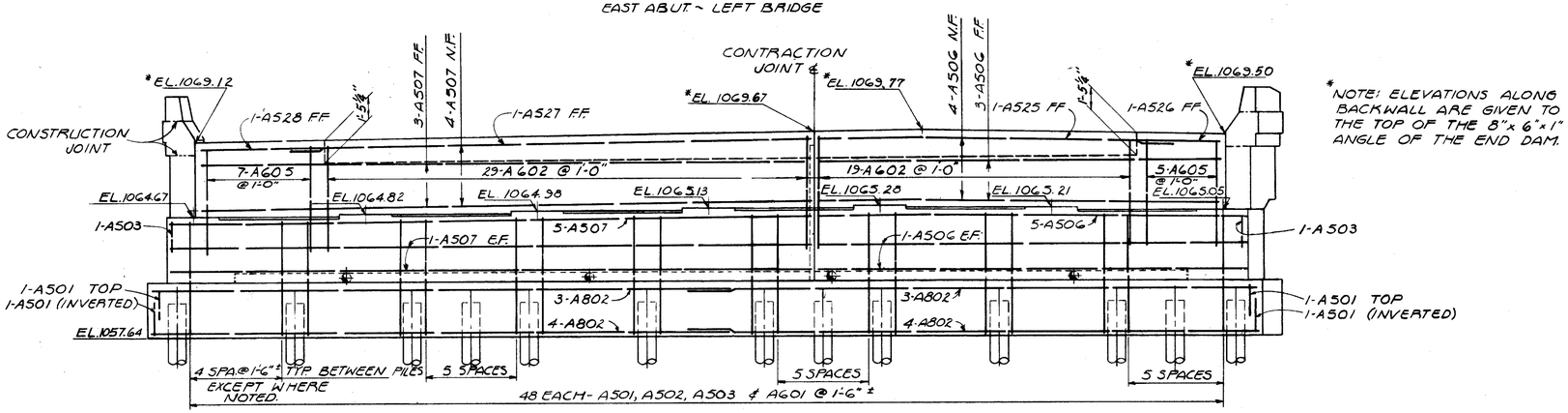
CUYAHOGA COUNTY
CUY-422-16.33

See parapet transition note sheet 4/18



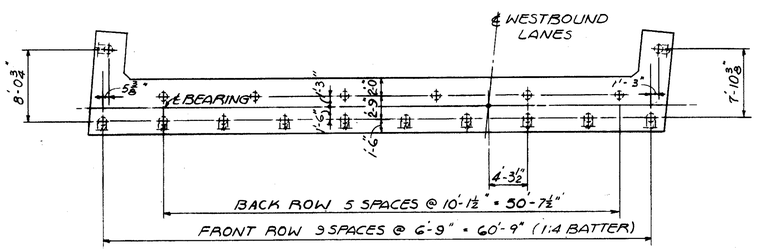
PLAN

EAST ABUT. - LEFT BRIDGE



ELEVATION

*NOTE: ELEVATIONS ALONG BACKWALL ARE GIVEN TO THE TOP OF THE 8"x 6"x 1" ANGLE OF THE END DIAM.



NOTE: USE 18 PILES THIS ABUTMENT.

PILING LAYOUT

NOTES

WINGWALL DETAILS AND ABUTMENT LOCATION PLAN - SEE SHEET NO. 3/18

SECTION A-A - SEE SHEET NO. 4/18

DETAIL "E" - SEE SHEET NO. 3/18

REINFORCING STEEL LIST - SEE SHEET NO. 18/18

ABBREVIATIONS USED ARE - E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

ADDITIONAL NOTES - SEE SHEET NO. 4/18

3/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1800 L
U.S. 422 OVER S.R. 91

CUYAHOGA COUNTY
CUY-422-16.33

LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

MAY 4 1973

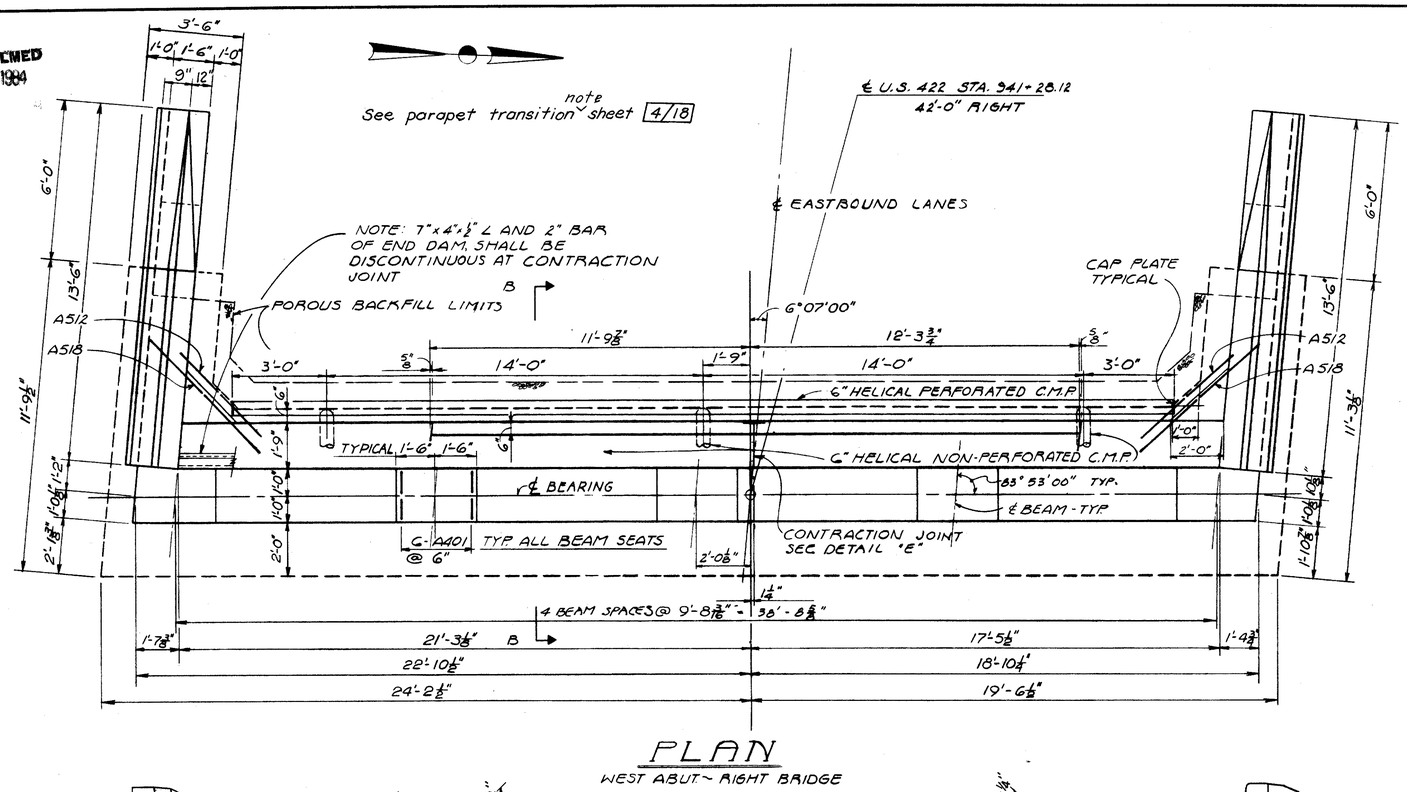
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.S.	L.R.A.	L.E.D.	10-1-69	

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

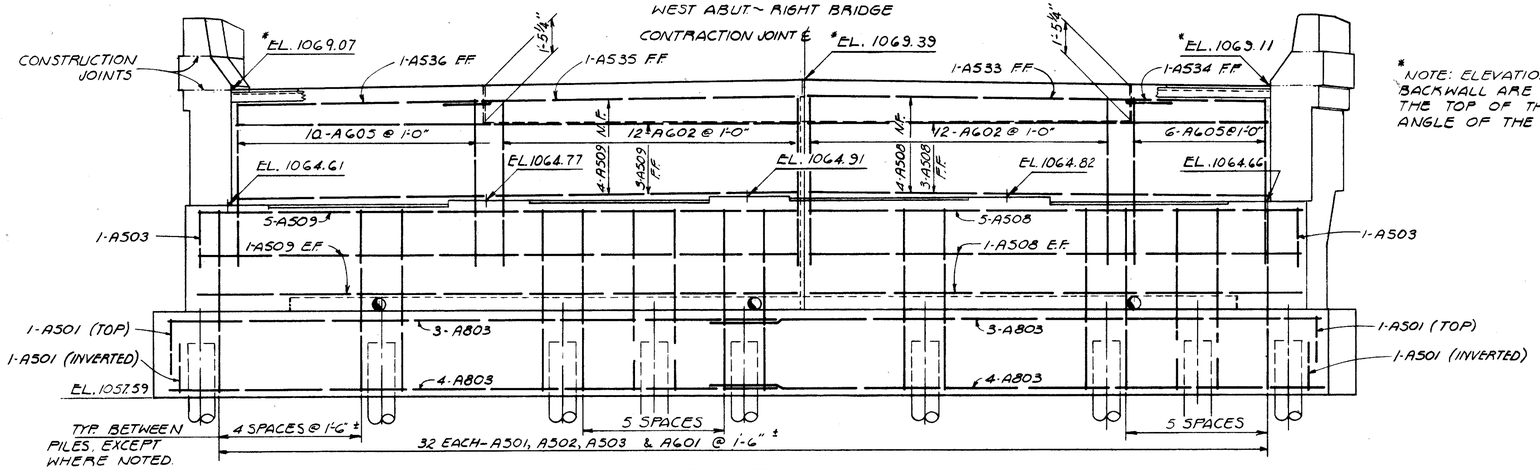
146/258

CUYAHOGA COUNTY
CUY-422-16.33



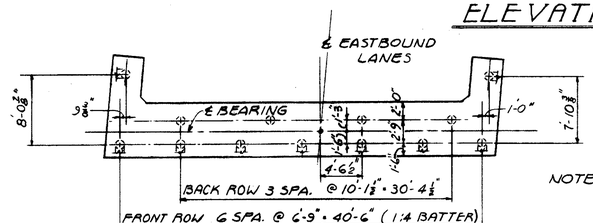
PLAN

WEST ABUT. - RIGHT BRIDGE



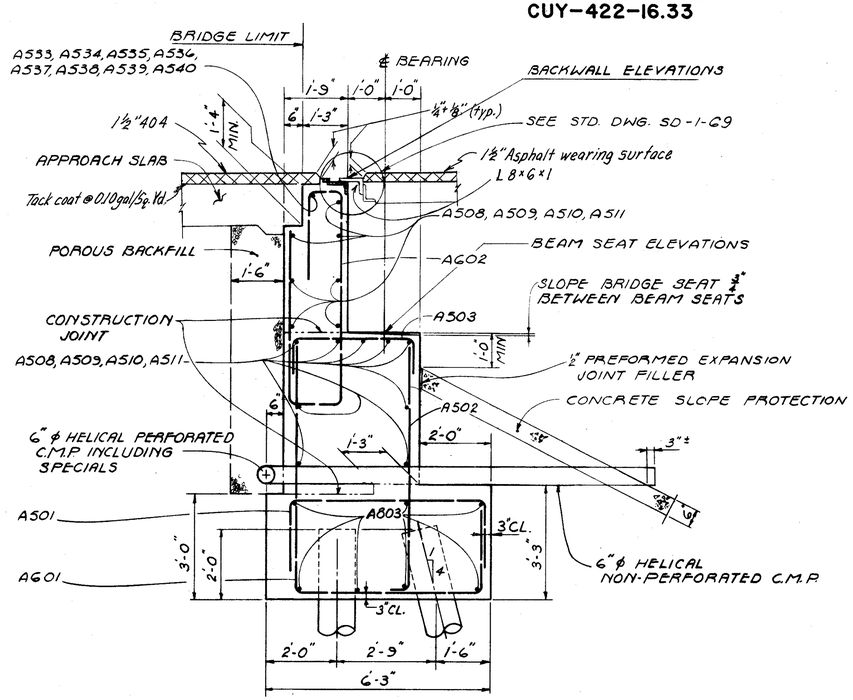
ELEVATION

*NOTE: ELEVATIONS ALONG BACKWALL ARE GIVEN TO THE TOP OF THE 8"x6"x1" ANGLE OF THE END DAM.



PILING LAYOUT

NOTE: USE 13 PILES THIS ABUTMENT.



SECTION "B"-"B"

NOTES

WINGWALL DETAILS AND ABUTMENT LOCATION PLAN - SEE SHEET NO. 3/18

DETAIL 'E' - SEE SHEET NO. 3/18

REINFORCING STEET LIST - SEE SHEET NO. 13/18

ABBREVIATIONS USED ARE - E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

ADDITIONAL NOTES - SEE SHEET NO. 4/18

6/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1800 R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

MAY 4 1973

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.S.	L.R.A.	L.E.D.	10-1-69	

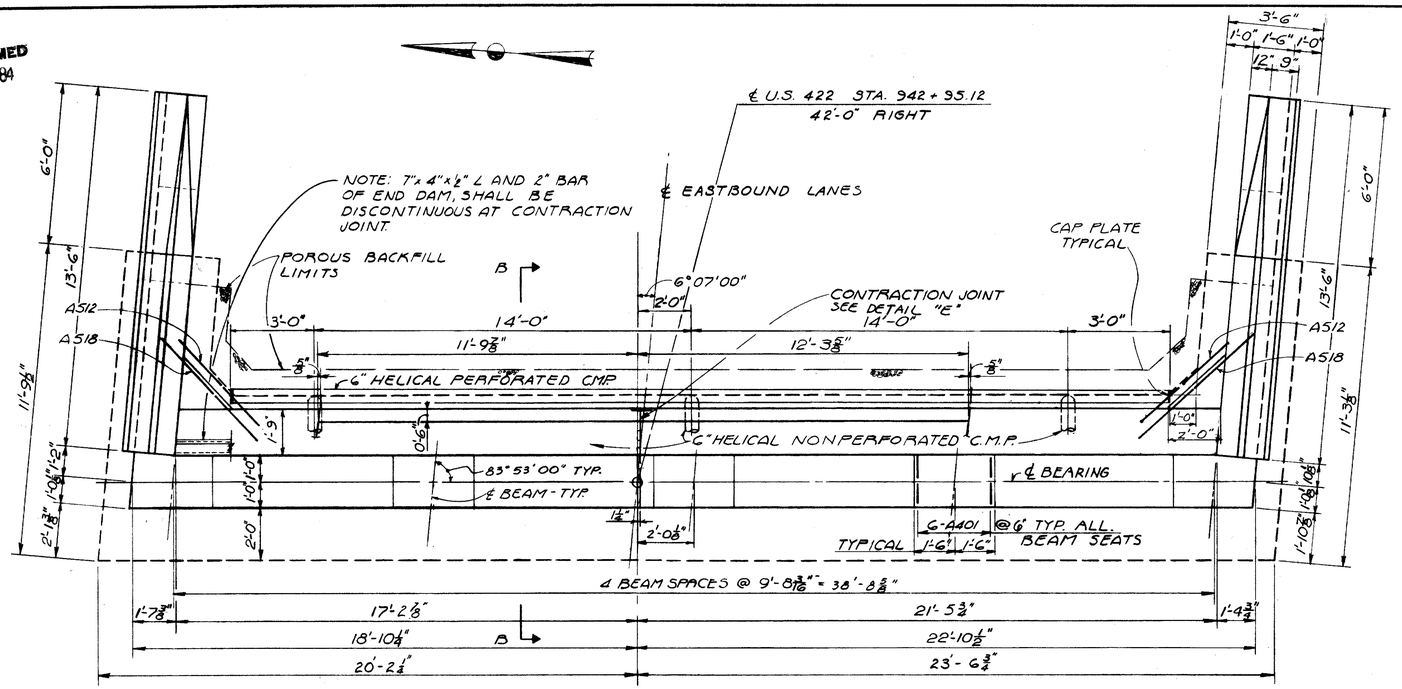
MICROFILMED
JUL 9 1984

See parapet transition note sheet 4/18

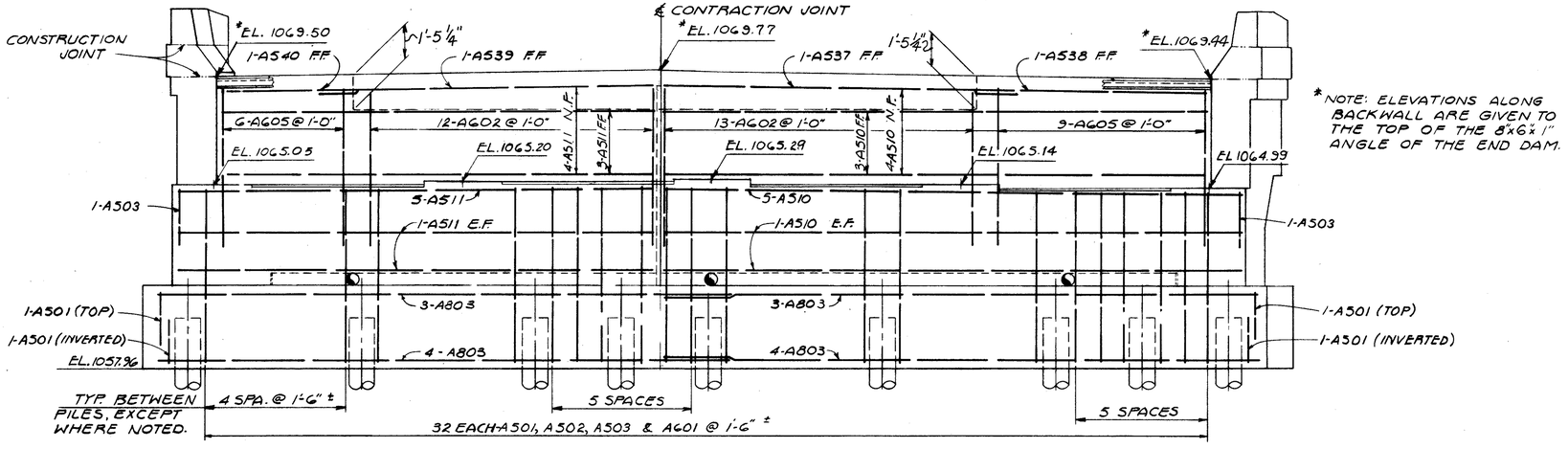
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

147/258

CUYAHOGA COUNTY
CUY-422-16.33

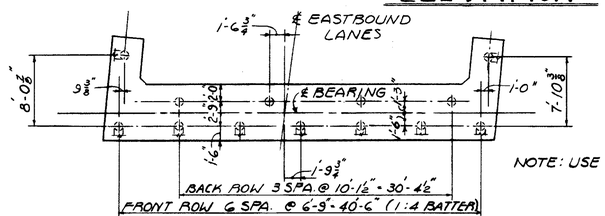


PLAN
EAST ABUT. ~ RIGHT BRIDGE



*NOTE: ELEVATIONS ALONG BACKWALL ARE GIVEN TO THE TOP OF THE 8"x6"x 1" ANGLE OF THE END DAM.

ELEVATION



NOTE: USE 13 PILES THIS ABUTMENT.

PILING LAYOUT

NOTES

WINGWALL DETAILS AND ABUTMENT LOCATION PLAN - SEE SHEET NO. 3/18

SECTION B-B - SEE SHEET NO. 6/18

DETAIL "E" - SEE SHEET NO. 3/18

REINFORCING STEEL LIST - SEE SHEET NO. 15/18

ABBREVIATIONS USED ARE - E.F. = EACH FACE, N.F. = NEAR FACE, AND FF = FAR FACE.

ADDITIONAL NOTES - SEE SHEET NO. 4/18

MAY 4 1973

7/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1800 R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33

LEFT	STA. 941+16.86 TO	STA. 942+93.38
RIGHT	STA. 941+25.86 TO	STA. 942+97.38

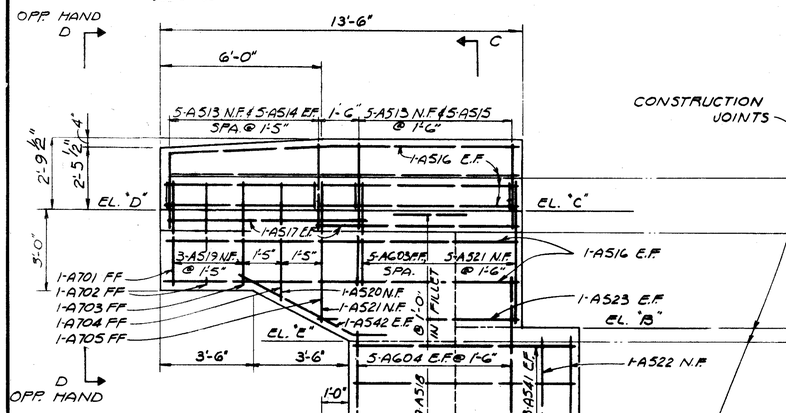
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.S.	L.R.A.	L.E.D.	10-1-69	

MICROFILMED
JUL 9 1984

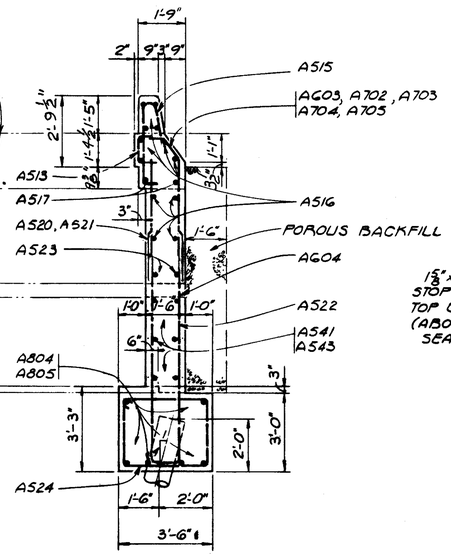
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

148
258

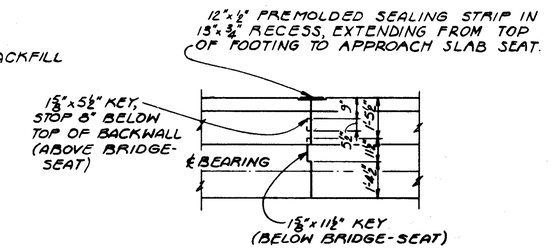
CUYAHOGA COUNTY
CUY-422-16.33



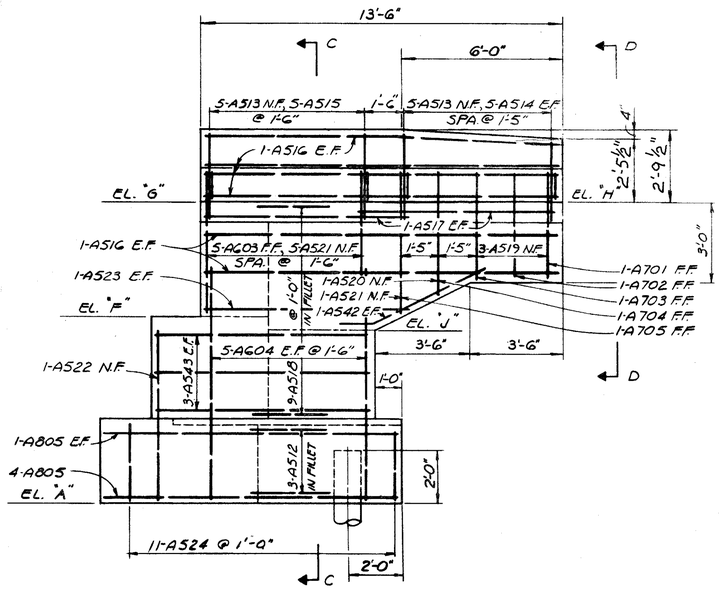
WINGWALL ELEVATION
LEFT BRIDGE - N.E. & S.W. WINGWALLS
RIGHT BRIDGE - N.E. & S.W. WINGWALLS



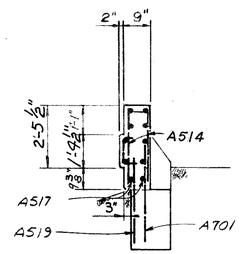
SECTION "C"-"C"



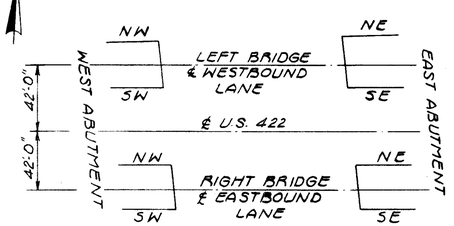
DETAIL "E"
CONTRACTION JOINT DETAIL



WINGWALL ELEVATION
LEFT BRIDGE - N.W. & S.E. WINGWALLS
RIGHT BRIDGE - N.W. & S.E. WINGWALLS



VIEW D-D



ABUTMENT LOCATION PLAN

NOTES

ABUTMENT PLAN AND ELEVATION DETAILS SEE SHEETS NO. 4/18 5/18 6/18 AND 7/18.

REINFORCING STEEL LIST - SEE SHEET NO. 10/18.

ABBREVIATIONS USED ARE - E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

ADDITIONAL NOTES - SEE SHEET NO. 4/18.

PROVIDE 2" CONDUIT, SEC. 713.04, TYPE III THROUGH WINGWALLS N.E. AND N.W. LEFT, AND S.E. AND S.W. RIGHT.
FOR DETAILS OF EXPANSION FITTINGS AND COUPLINGS, SEE DWG. HL-5.

ELEVATION TABLE

LOCATION	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"
LEFT BRIDGE WEST ABUTMENT	1057.25	1064.63	1068.38	1068.31	1064.06	1064.28	1068.64	1068.57	1063.78
LEFT BRIDGE EAST ABUTMENT	1057.63	1064.66	1069.02	1069.01	1064.16	1063.04	1069.40	1069.40	1064.61
RIGHT BRIDGE WEST ABUTMENT	1057.62	1064.61	1068.37	1068.30	1064.05	1064.63	1069.01	1068.94	1064.15
RIGHT BRIDGE EAST ABUTMENT	1057.62	1063.04	1069.40	1069.40	1064.55	1064.98	1069.34	1069.33	1064.54

MAY 4 1973

8/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WINGWALL DETAILS

BRIDGE NO. CUY-422-1800 L
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.S.	L.R.A.	L.E.D.	10-1-69	

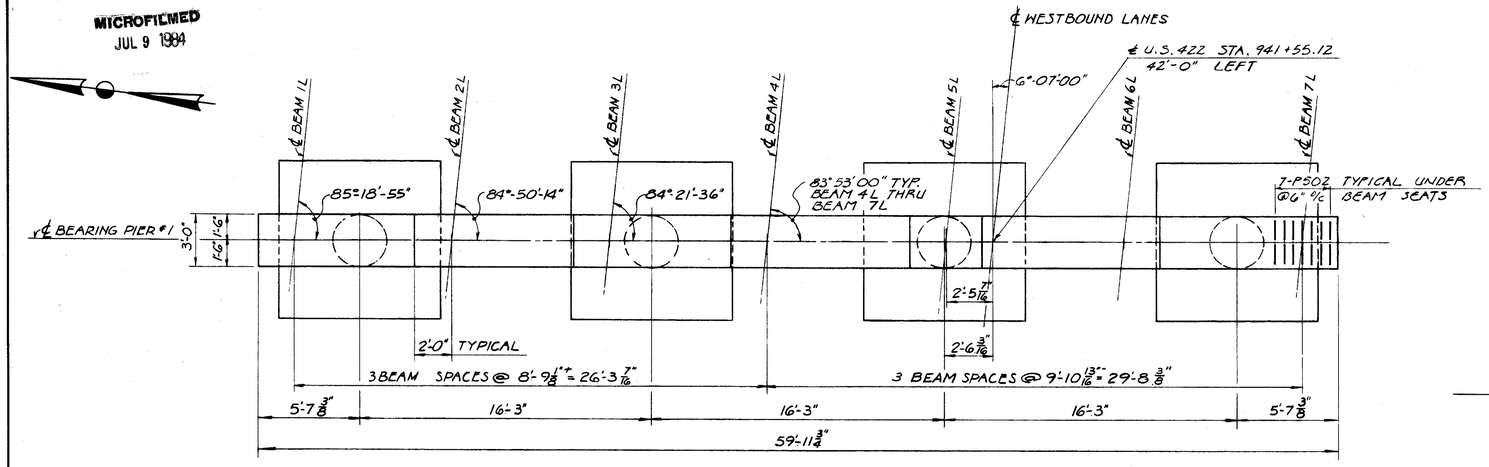
REV. 8-20-73

MICROFILMED
JUL 9 1984

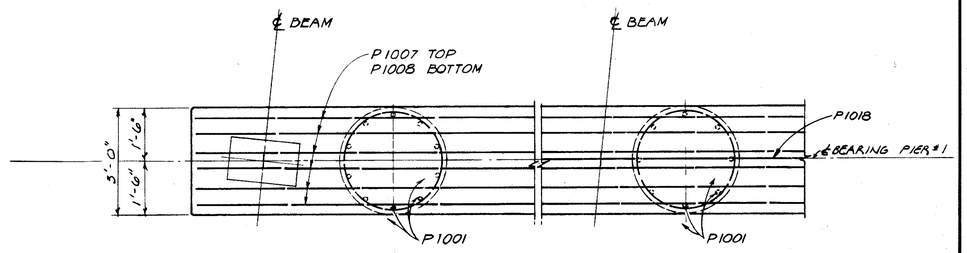
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

149
258

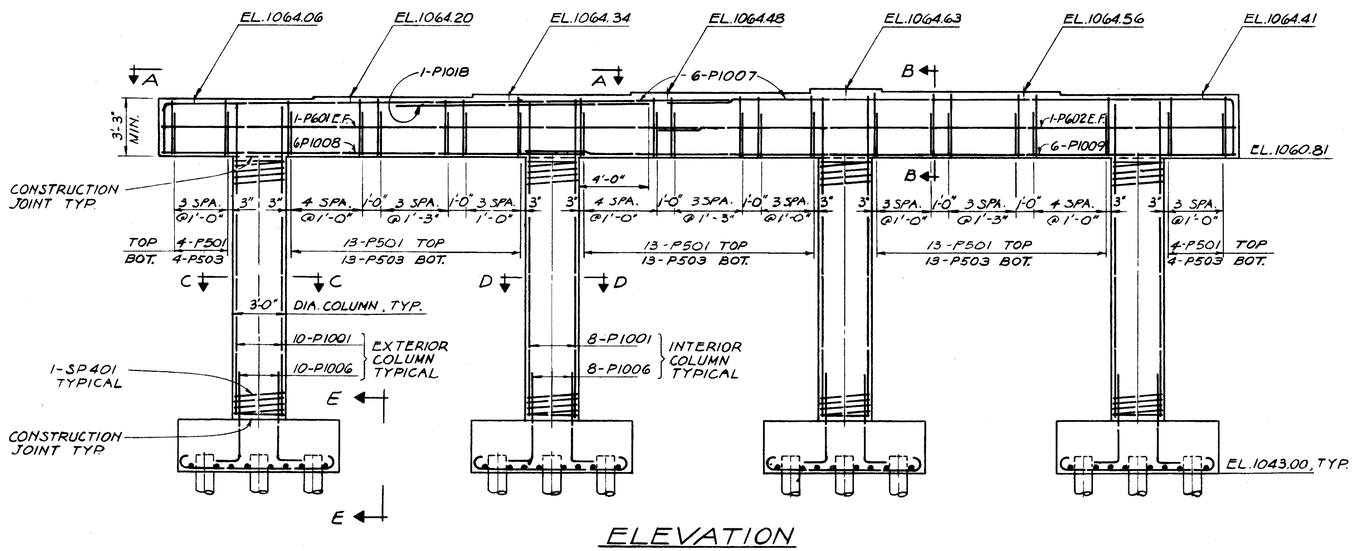
CUYAHOGA COUNTY
CUY-422-16.33



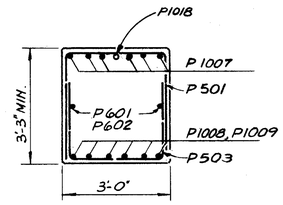
PLAN



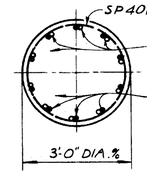
VIEW A-A



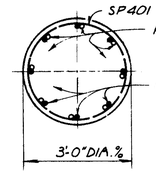
ELEVATION



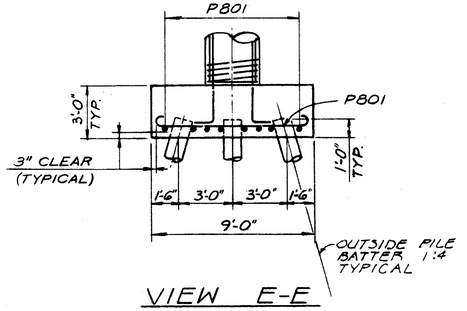
SECTION B-B



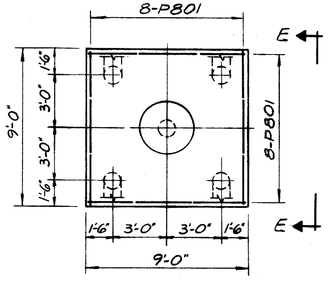
SECTION C-C



SECTION D-D



VIEW E-E



TYPICAL FOOTING PLAN

NOTES

FOR GEOMETRIC TIE--SEE SHEET Nº 3/18

ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES.

ABBREVIATIONS USED ARE AS FOLLOWS:
E. F. - EACH FACE
T. & B. - TOP AND BOTTOM

FOR REINFORCING STEEL LIST AND BAR BENDING DETAILS SEE SHEET NO. 18/18

9 / 18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. CUY-422-1800 L
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-1-69	

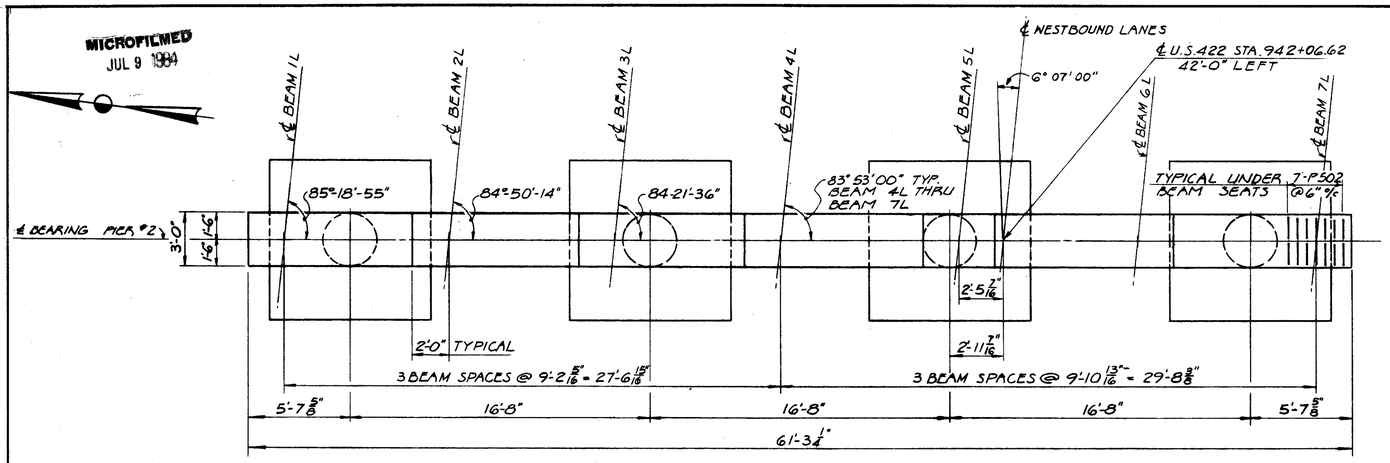
MAY 4 1973

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

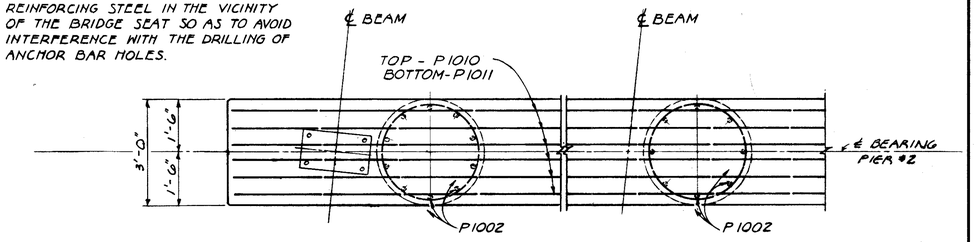
150
258

CUYAHOGA COUNTY
CUY-422-16.33

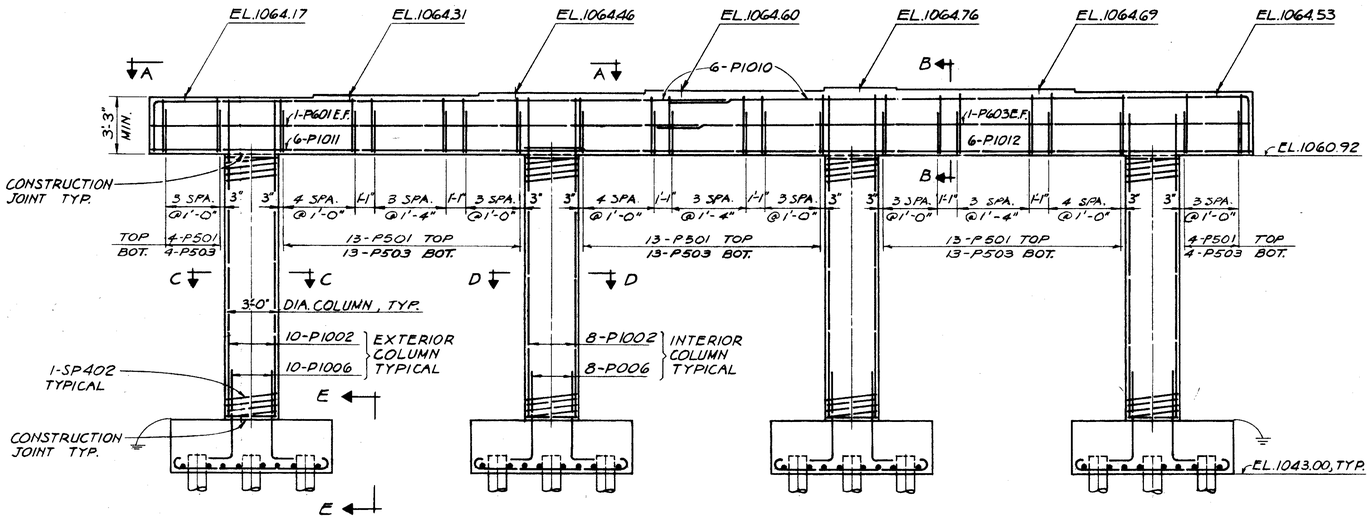


PLAN

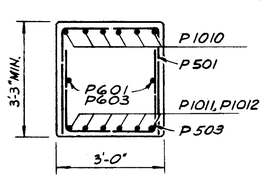
BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.



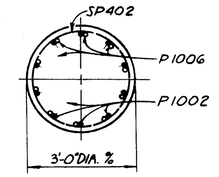
VIEW A-A



ELEVATION



SECTION B-B



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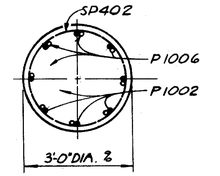
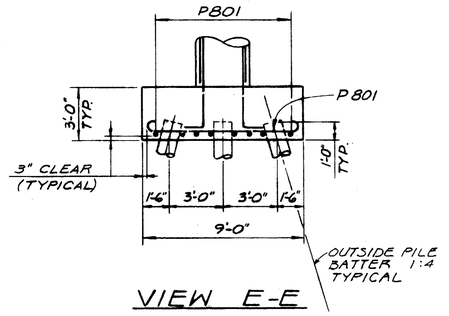
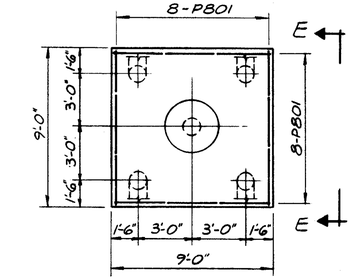


SECTION D-D



VIEW E-E



TYPICAL FOOTING PLAN

NOTE: PREBORED HOLES SHALL BE MADE 5.0 FT. DEEP FROM THE BOTTOM OF FOOTING BEFORE DRIVING PILES FOR THIS PIER.

NOTES

FOR GEOMETRIC TIE SEE SHEET NO. 3/18

ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES.

ABBREVIATIONS USED ARE AS FOLLOWS:
E. F. - EACH FACE
T. & B. - TOP AND BOTTOM

FOR REINFORCING STEEL LIST AND BAR BENDING DETAILS SEE SHEET NO. 18/18

FOR GROUNDING DETAILS AT PIER NO. 2 SEE STD. DWG. HL-7.

10/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. CUY-422-1800 L
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	C.R.A.	L.E.D.	10-1-69	

MAY 4 1973

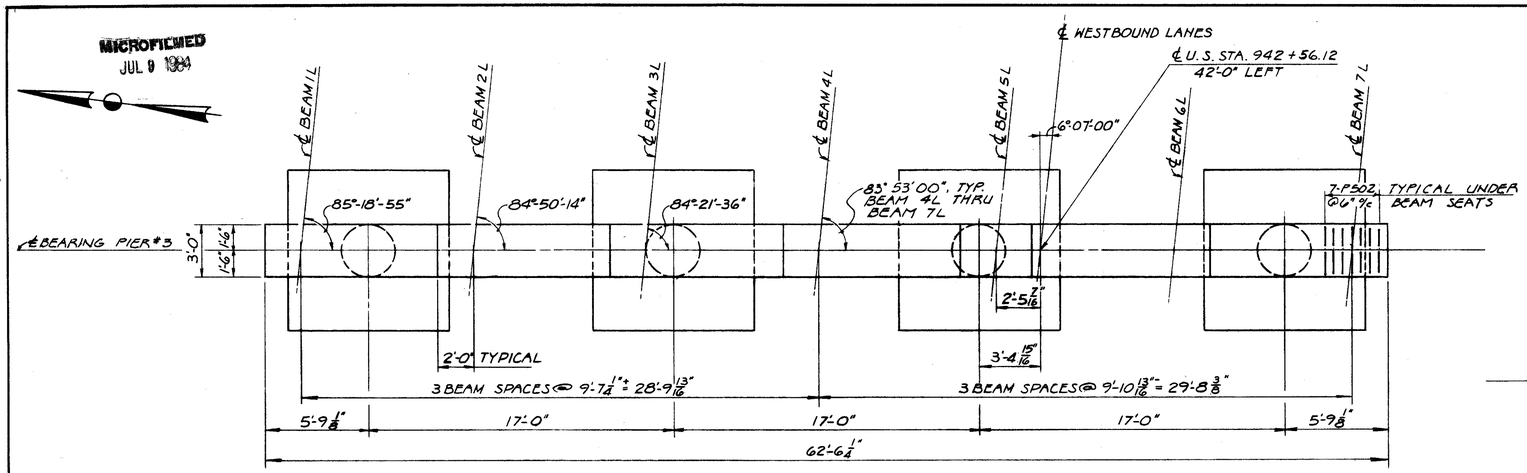
REV 8-20-73

MICROFILMED
JUL 9 1984

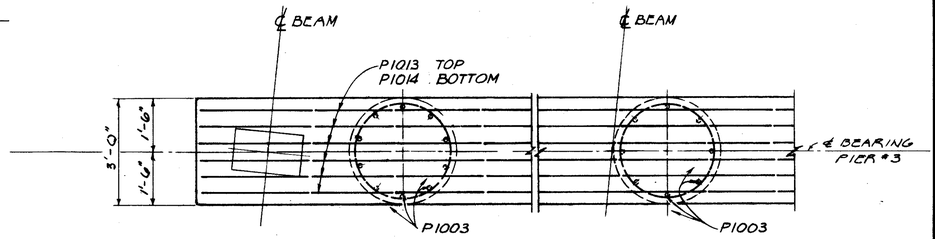
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

151/258

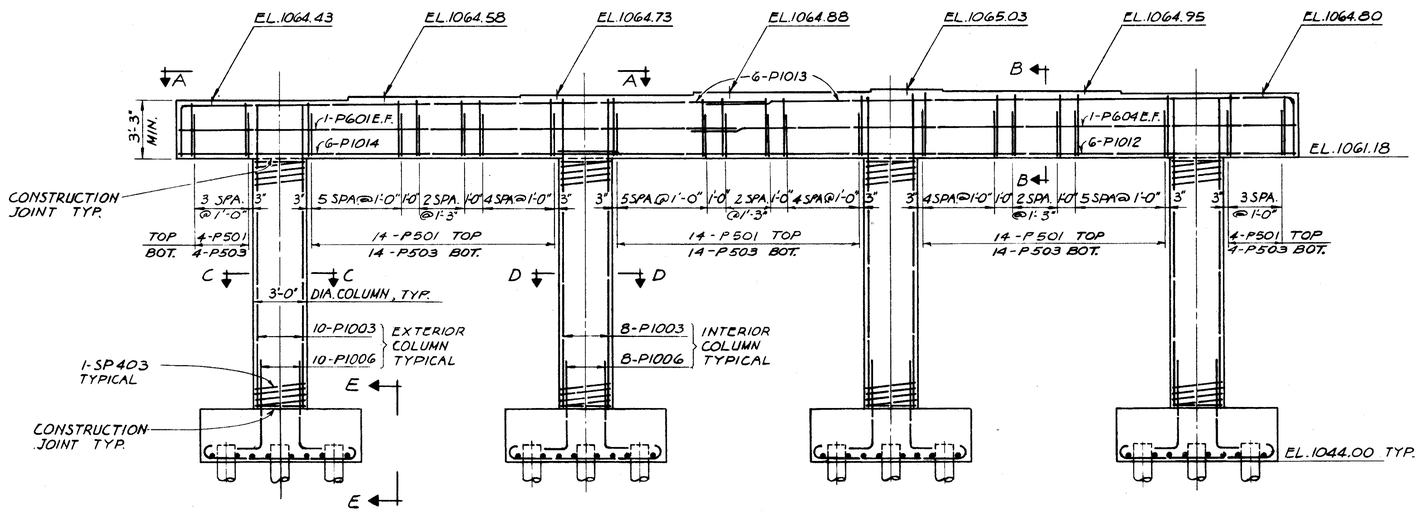
CUYAHOGA COUNTY
CUY-422-16.33



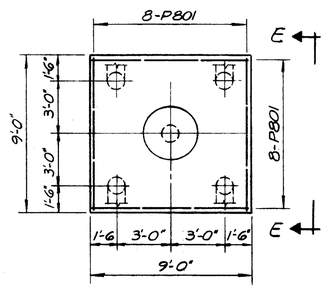
PLAN



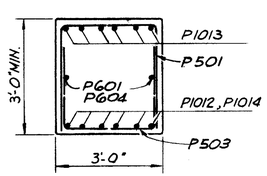
VIEW A-A



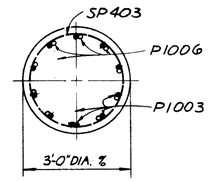
ELEVATION



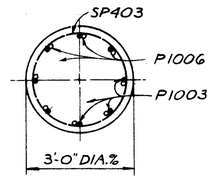
TYPICAL FOOTING PLAN



SECTION B-B



SECTION C-C



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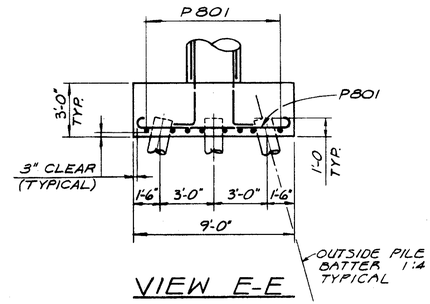

VIEW E-E

NOTES

FOR GEOMETRIC TIE SEE SHEET NO. 3/18

ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES.

ABBREVIATIONS USED ARE AS FOLLOWS:
E. F. = EACH FACE
T. & B. = TOP & BOTTOM

FOR REINFORCING STEEL LIST AND BAR-BENDING DETAILS SEE SHEET NO. 16/18

11/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. CUY-422-1800 L
U.S. 422 OVER S.R. 91

CUYAHOGA COUNTY
CUY-422-16.33

LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-1-69	

MAY 4 1973

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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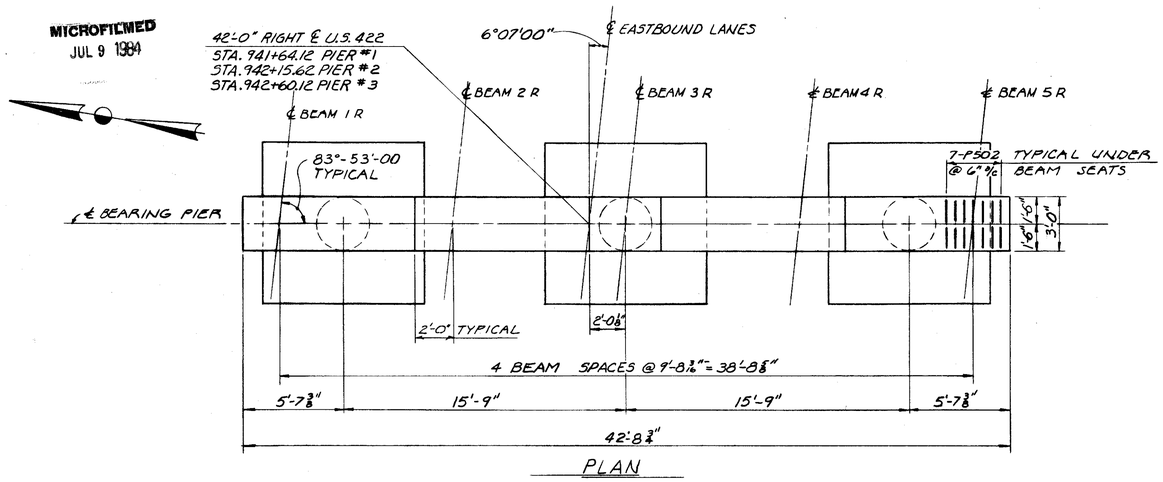
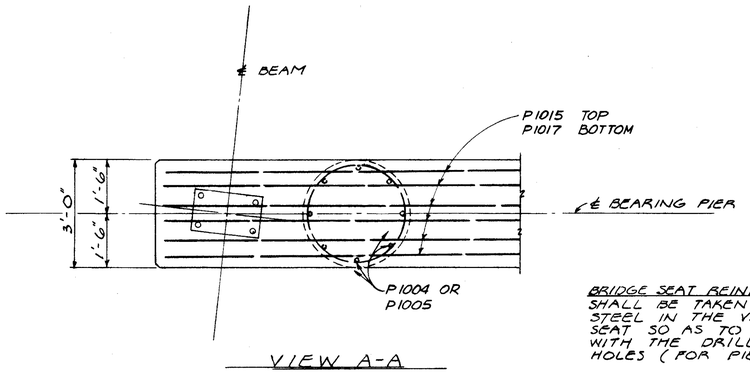
CUYAHOGA COUNTY
CUY-422-16.33

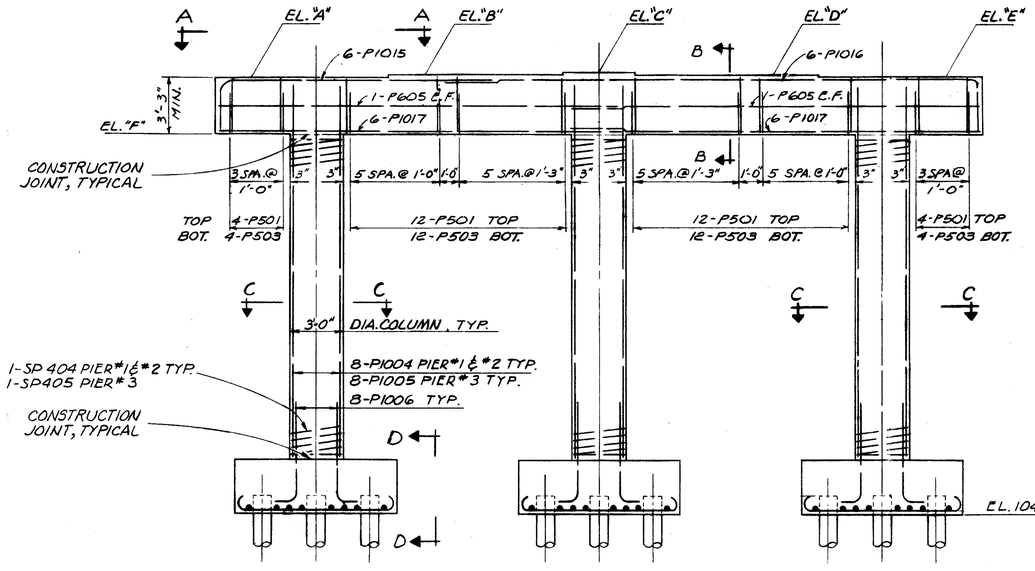


PLAN

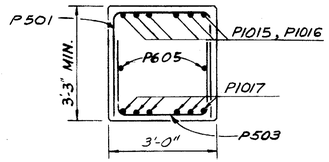


VIEW A-A

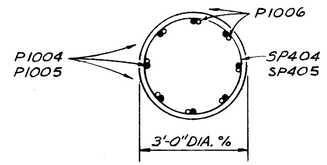
BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES (FOR PIER #2 ONLY)



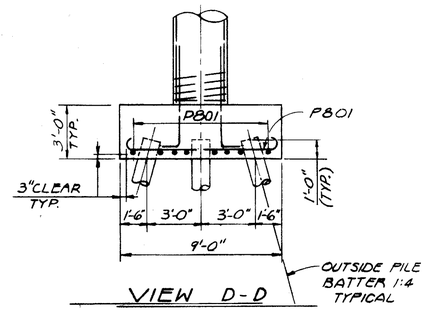
ELEVATION



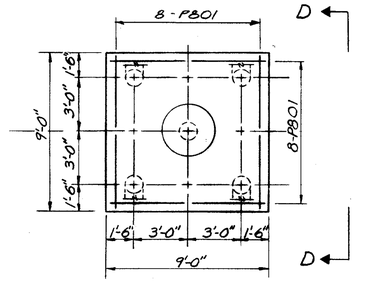
SECTION B-B



SECTION C-C



VIEW D-D



TYPICAL FOOTING PLAN

NOTE: PREBORED HOLES SHALL BE MADE 5.0 FT. DEEP FROM THE BOTTOM OF FOOTING BEFORE DRIVING PILES FOR PIER #2.

ELEVATION TABLE						
LOCATION	"A"	"B"	"C"	"D"	"E"	"F"
PIER #1	1064.93	1064.59	1064.68	1064.53	1064.39	1061.14
PIER #2	1064.55	1064.70	1064.79	1064.64	1064.49	1061.24
PIER #3	1064.81	1064.96	1065.05	1064.90	1064.75	1061.50

NOTES

FOR GEOMETRIC TIE SEE SHEET NO. 3/18

ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES.

ABBREVIATIONS USED ARE AS FOLLOWS:
E. F. - EACH FACE
T. & B. - TOP AND BOTTOM

FOR REINFORCING STEEL LIST AND BAR BENDING DETAILS SEE SHEET NO. 16/18

FOR GROUTING DETAILS AT PIER NO.2 SEE STD. DWG. HL-7.

MAY 4 1973

12/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. CUY-422-1800 R
U.S. 422 OVER S.R. 91

CUYAHOGA COUNTY
CUY-422-16.33

LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	B.W.	L.R.A.	L.E.D.	10-1-69	

REV. 8-20-73

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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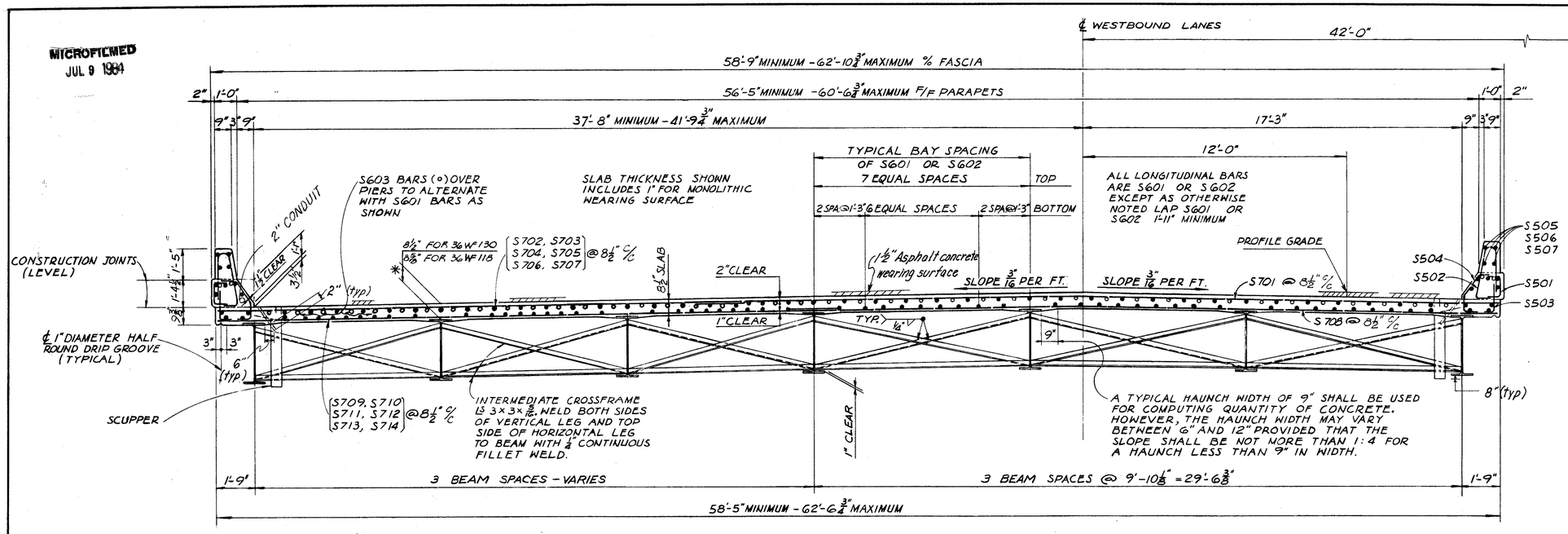
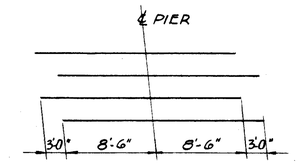
CUYAHOGA COUNTY
CUY-422-16.33



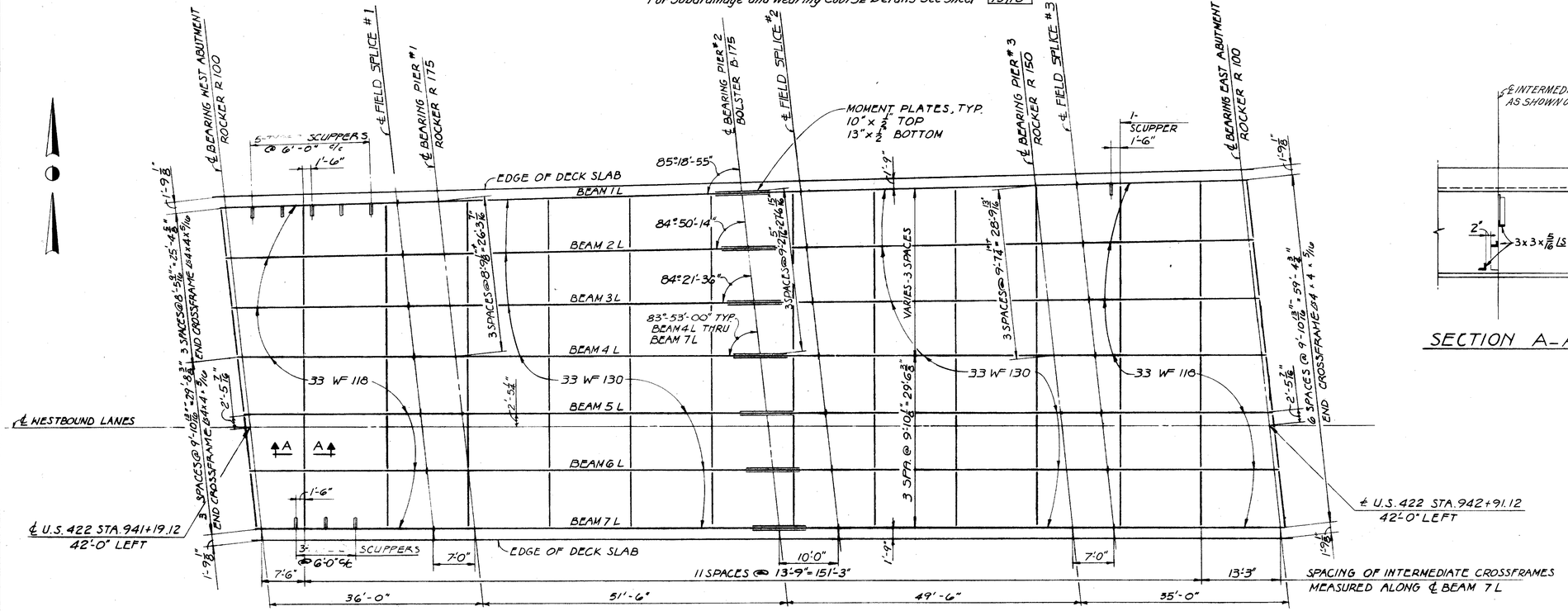
TRANSVERSE SECTION

For Subdrainage and Wearing Course Details See Sheet # 15/18

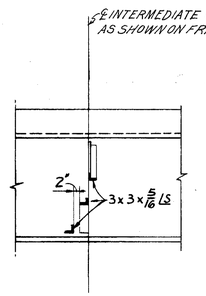


STAGGER DIAGRAM

OF S603 BARS OVER PIERS



FRAMING PLAN



SECTION A-A

NOTES

FOR GEOMETRIC TIE SEE SHEET NO. 3/18

FOR DECK SLAB PLAN SEE SHEET NO. 16/18

FOR SUPERSTRUCTURE DETAILS SEE SHEET No. 15/18

FOR ROCKERS AND BOLSTERS SEE STANDARD DRAWING RB-1-55 REVISED 2-2-59

FOR END CROSSFAME AND SCUPPER DETAILS SEE STANDARD DRAWING SD-1-69 DATED 6-12-69 SHEET No. 1, 2 and 3 of 4 AND THE BOX DEPTH DIMENSIONS OF THE SCUPPERS SHALL BE CHANGED FROM 4½" and 7½" TO 5½" and 8½" TO INSURE CONCRETE COVER OF THE SUPPORT ANGLES. PLACE THE TOP OF THE SCUPPER ¼" BELOW THE ROADWAY SURFACE.

THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT OF SCUPPERS DURING CONSTRUCTION. SCUPPER, INCLUDING SUPPORT ANGLES, SHALL BE GALVANIZED IN ACCORDANCE WITH SEC. 711.02.

SCUPPERS shall be in accordance with Std. Dng. SD-1-69 except that scupper pipes shall extend 8" below the bottom of the beams instead of 2".

13/18

*NOTE: THIS IS THE DESIGN DIMENSION THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.

DECK REINFORCING BARS: AT THE CONTRACTOR'S OPTION, A PORTION (NOT TO EXCEED 25%) OF THE UPPER LONGITUDINAL BARS (S601 & S602) IN THE DECK SLAB MAY BE PLACED BENEATH THE UPPER TRANSVERSE BARS FOR SUPPORT OF THE TOP MAT.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRANSVERSE SECTION & FRAMING PLAN

BRIDGE NO. CUY-422-1800 L
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.D.	L.R.A.	L.E.D.	10-1-69	

MAY 4 1973

REV. 8-20-73

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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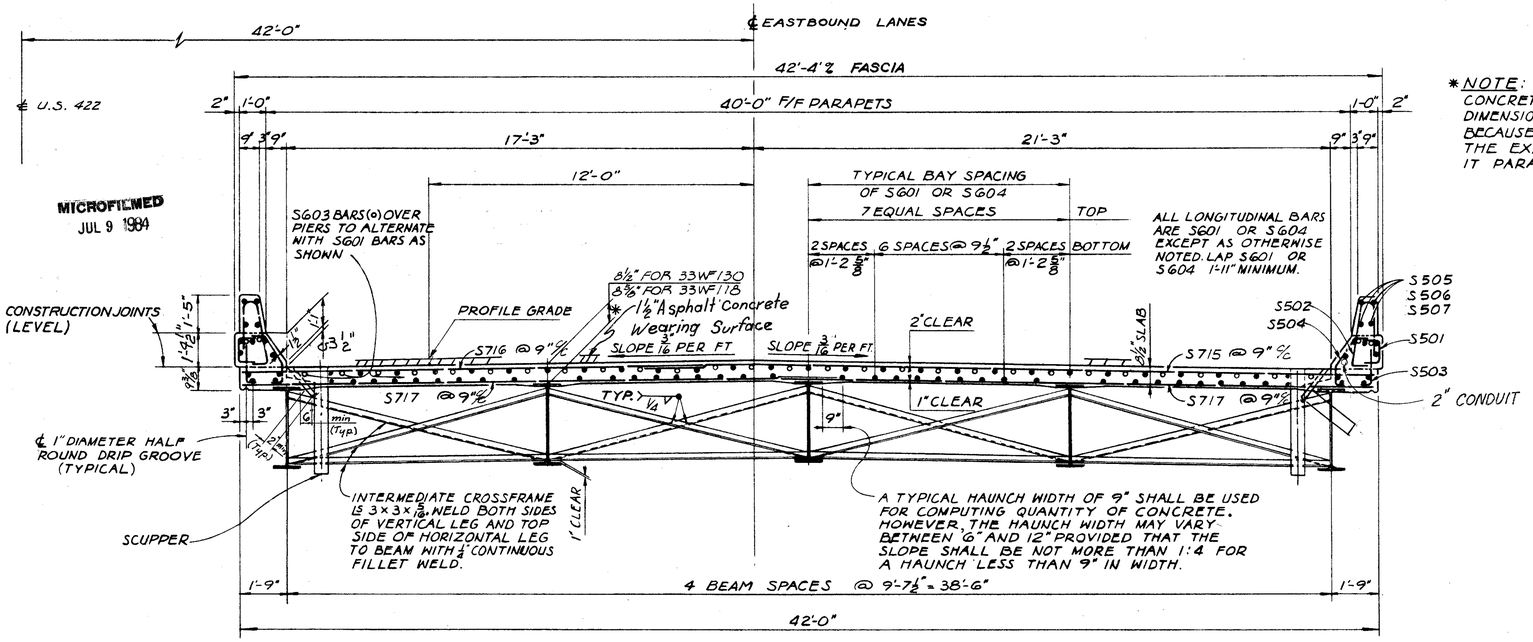
CUYAHOGA COUNTY
CUY-422-16.33

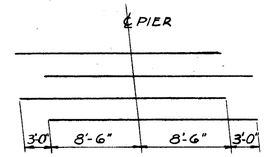
MICROFILMED
JUL 9 1984



TRANSVERSE SECTION

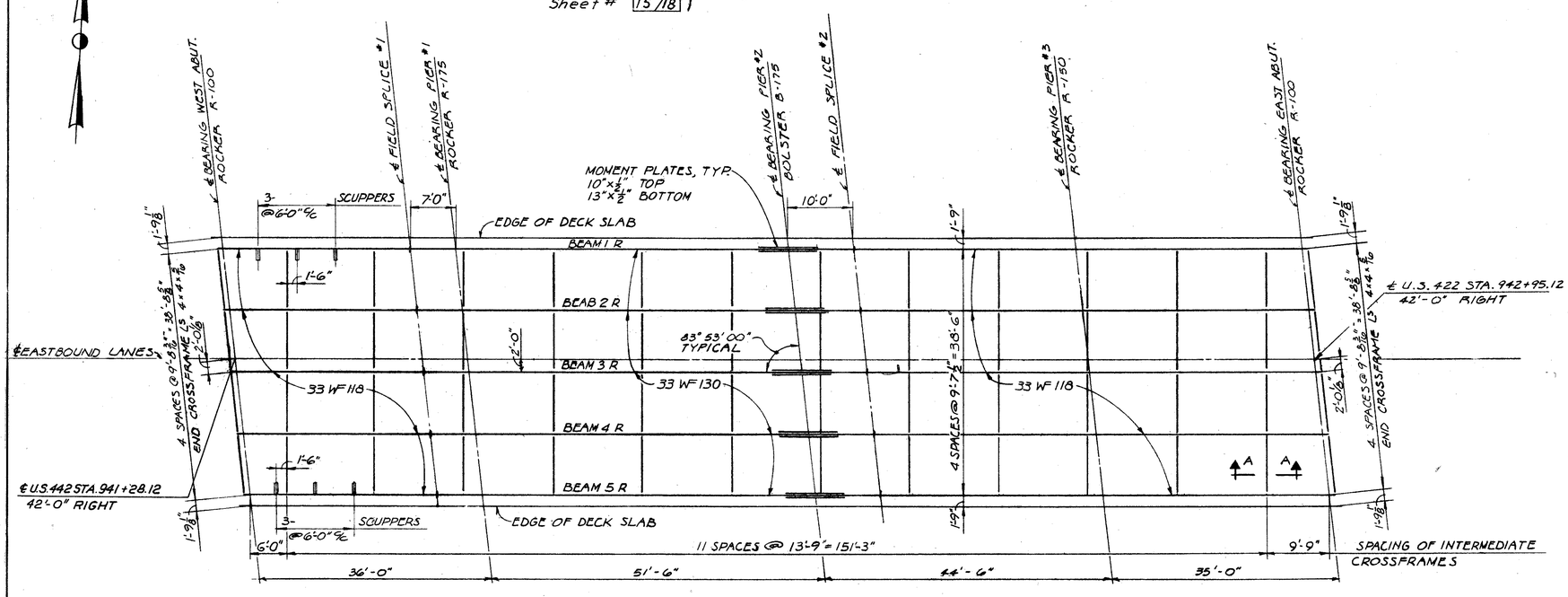
(For drainage and wearing course details Sheet # 15/18)

* NOTE: THIS IS THE DESIGN DIMENSION THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.



STAGGER DIAGRAM

OF S603 BARS OVER PIERS



FRAMING PLAN

DECK REINFORCING BARS: AT THE CONTRACTOR'S OPTION, A PORTION (NOT TO EXCEED 25%) OF THE UPPER LONGITUDINAL BARS (S601 & S604) IN THE DECK SLAB MAY BE PLACED BENEATH THE UPPER TRANSVERSE BARS FOR SUPPORT OF THE TOP MAT.

NOTES

FOR DECK SLAB PLAN SEE SHEET NO. 16/18

FOR SUPERSTRUCTURE DETAILS SEE SHEET NO. 15/18

FOR SECTION A-A AND ALL OTHER NOTES SEE SHEET NO. 13/18

FOR ADDITIONAL NOTES SEE SHEET NO. 13/18

MAY 4 1973

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ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRANSVERSE SECTION & FRAMING PLAN

BRIDGE NO. CUY-422-1800 R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33

LEFT	STA. 941+16.86	TO STA. 942+93.38
RIGHT	STA. 941+25.86	TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-1-69	

REV. 8-20-73

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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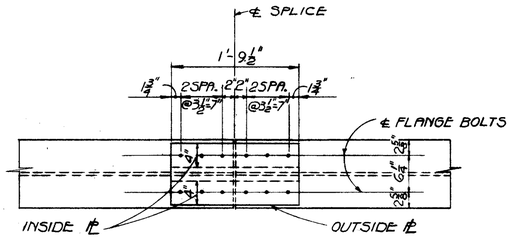
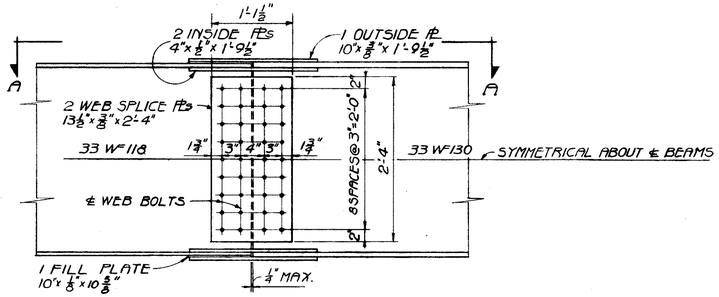
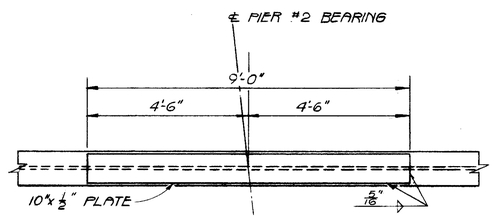
CUYAHOGA COUNTY
CUY-422-16.33



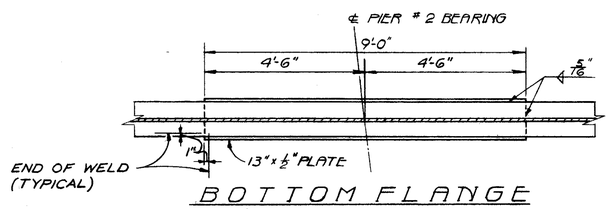
VIEW A-A



BEAM SPLICE DETAIL



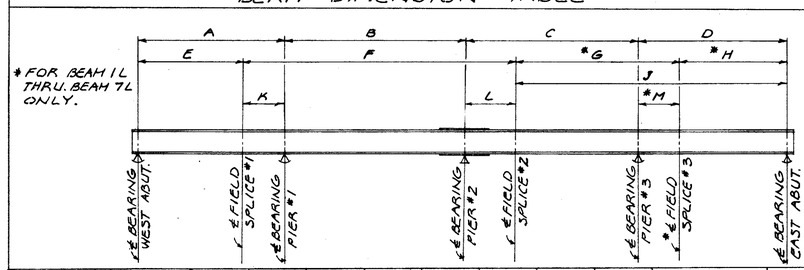
TOP FLANGE



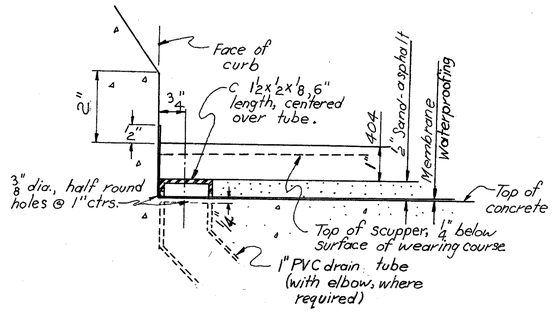
BOTTOM FLANGE

MOMENT PLATE DETAILS

BEAM DIMENSION TABLE



BEAM \ DIMENSION	A	B	C	D	E	F	*G	*H	J	K	L	*M
BEAM 1L	35'-11"	51'-4 29/32"	49'-9 3/8"	34'-11"	28'-11"	68'-4 5/16"	46'-4 3/8"	27'-11"	-	7'-0"	10'-0"	7'-0"
BEAM 2L	35'-11 15/16"	51'-5"	49'-5"	34'-11 5/16"	28'-11 5/16"	68'-5"	46'-5"	27'-11 5/16"	-	7'-0"	10'-0"	7'-0"
BEAM 3L	35'-11 29/32"	51'-5 1/8"	49'-5 1/2"	34'-11 5/8"	28'-11 5/8"	68'-5 1/2"	46'-5 1/2"	27'-11 3/8"	-	7'-0"	10'-0"	7'-0"
BEAM 4L THRU. BEAM 7L	36'-0"	51'-6"	49'-6"	35'-0"	29'-0	68'-6"	46'-6"	28'-0"	-	7'-0"	10'-0"	7'-0"
BEAM 1R THRU. BEAM 5R	36'-0"	51'-6"	44'-6"	35'-0"	29'-0"	68'-6"	-	-	69'-6"	7'-0"	10'-0"	-



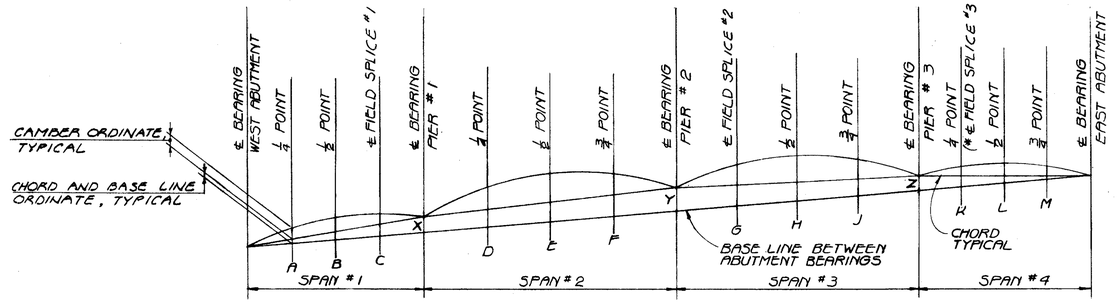
SUBDRAINAGE AND WEARING COURSE DETAILS

In addition to the location and spacing provisions of 518.07, the PVC subdrainage tubes shall be located so that discharge from them will clear all structural members, including crossbracing, conduit support angles and diaphragms, by at least 6". Place the top of the tube ¼" below the concrete surface. Place membrane over tube, puncturing if membrane is a sheet type, with the hole sealed around the lip of the tube.

Include subdrainage with Item 404, Asphalt Concrete for payment.

DEFLECTION AND CAMBER TABLE

BEAM	LOCATION / DESCRIPTION	A	B	C	D	E	F	G	H	J	K	L	M	X	Y	Z
BEAM 1L THRU. BEAM 7L	DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	0	0	0	0	0	0	0	0	0	1 5/16"	1 3/8"	7/8"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1/16"	1/16"	0"	1/8"	3/16"	1/8"	1/16"	1/8"	1/16"	0"	1/16"	1/16"			
	VERTICAL CURVE ADJUSTMENT	1/16"	1/16"	1/16"	1/16"	1/8"	1/16"	1/16"	1/8"	1/16"	1/16"	1/16"	1/16"			
	REQUIRED CAMBER	1/8"	1/8"	1/16"	3/16"	5/16"	3/16"	1/8"	1/4"	1/8"	1/16"	1/8"	1/8"			
	ORDINATE BETWEEN CHORD AND BASE LINE	1/4"	7/16"	3/4"	1"	1 1/8"	1 1/4"	1 5/16"	1 1/8"	1"	3/4"	7/16"	1/4"			
BEAM 1R THRU. BEAM 5R	DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	0	0	0	0	0	0	0	0	0	1"	1 15/16"	7/8"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1/16"	1/16"	0"	1/8"	1/4"	1/8"	0	1/16"	1/16"	1/16"	1/16"	1/16"			
	VERTICAL CURVE ADJUSTMENT	1/16"	1/16"	1/16"	1/8"	1/8"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"			
	REQUIRED CAMBER	1/8"	1/8"	1/16"	1/4"	3/8"	3/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"			
	ORDINATE BETWEEN CHORD AND BASE LINE	1/4"	7/16"	11/16"	1"	1 1/16"	1 3/16"	1 1/16"	1 1/16"	15/16"	5/8"	7/16"	3/16"			



CAMBER DIAGRAM

* FOR BEAM 1L THRU. BEAM 7L ONLY.

NOTES

HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER UNLESS OTHERWISE NOTED.

FOR FRAMING PLAN LEFT SEE SHEET 13/18

FOR FRAMING PLAN RIGHT SEE SHEET 14/18

FOR ADDITIONAL BEAM SPLICE DETAILS SEE STANDARD DRAWING SD-1-69 DATED 6-12-69 SHEET NO. 4 OF 4.

15/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SUPERSTRUCTURE DETAILS

BRIDGE NO. CUY-422-1800 L/R
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CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
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MAY 4 1973

REV. 8-20-73

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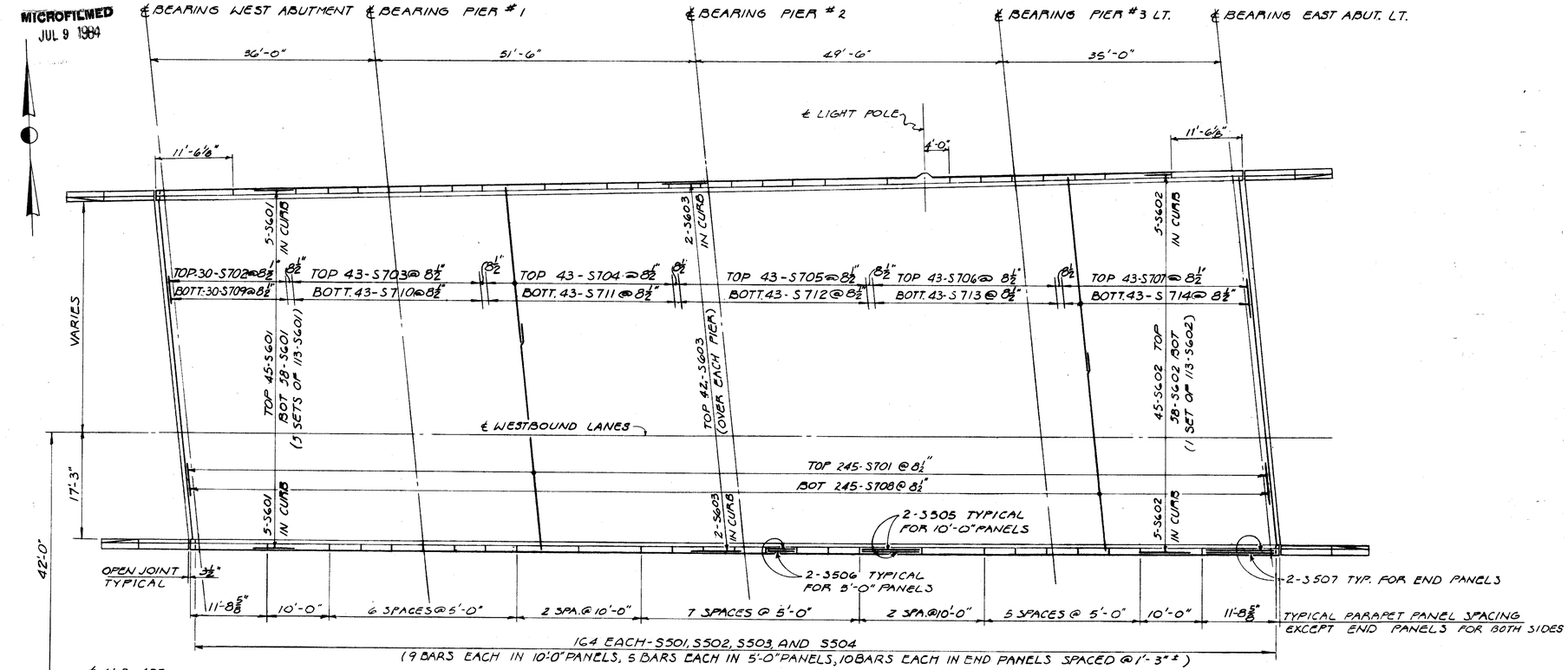
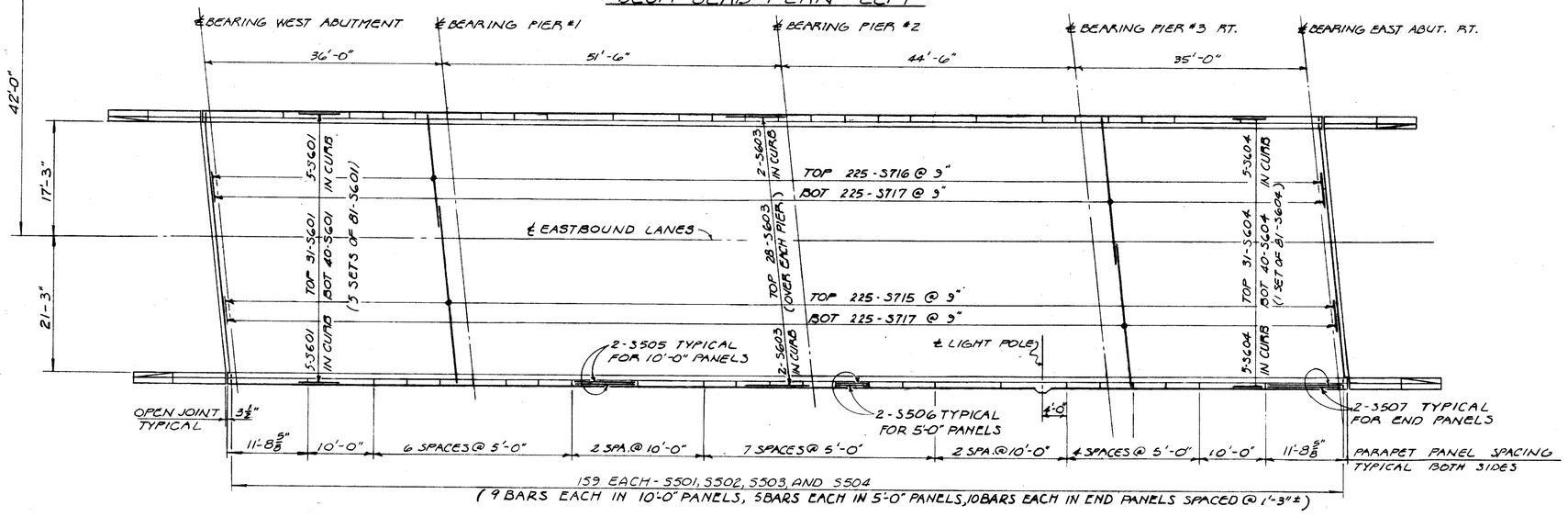
CUYAHOGA COUNTY
CUY-422-16.33



DECK SLAB PLAN - LEFT



DECK SLAB PLAN - RIGHT

FOR DETAILS OF PILASTER ANCHOR BOLTS AND PILASTER SEE STD. DWGS. HL-3 & HL-4. SET ANCHOR BOLT ON 15" BOLT CIRCLE.

NOTES

FOR TRANSVERSE SECTION LEFT SEE SHEET NO. 13/18

FOR TRANSVERSE SECTION RIGHT SEE SHEET NO. 14/18

FOR DECK ELEVATION PLAN SEE SHEET NO. 17/18

FOR REINFORCING STEEL LIST AND BAR BENDING DETAILS SEE SHEET NO. 18/18

16/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

DECK SLAB PLAN

BRIDGE NO. CUY-422-1800 L/R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33

LEFT STA. 941+16.86 TO STA. 942+93.38
STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.J	L.D.	L.E.D. 10-1-69		

MAY 4 1973

REV. 8-20-73

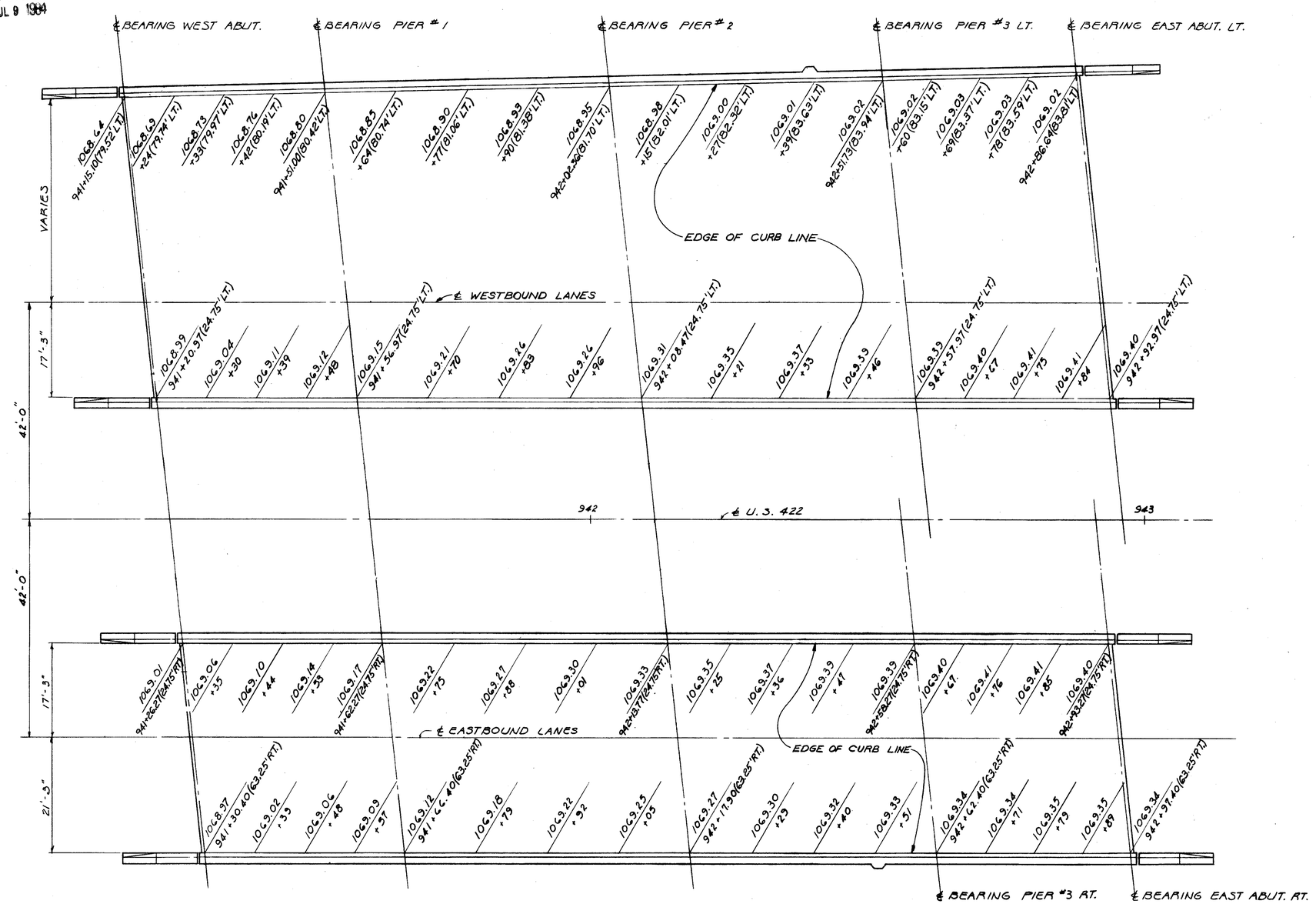
18

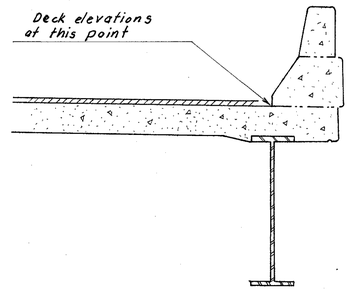
MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468-(9)	

157/258

CUYAHOGA COUNTY
CUY-422-16.33





NOTES

FOR FRAMING PLAN LEFT SEE SHEET NO. 13/18

FOR FRAMING PLAN RIGHT SEE SHEET NO. 14/18

DECK ELEVATION PLAN

NOTE: ELEVATIONS SHOWN ARE TOP OF DECK INCLUDING DEAD LOAD DEFLECTION DUE TO WEIGHT OF CONCRETE.

MAY 4 1973

17/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

DECK ELEVATION PLAN

BRIDGE NO. CUY-422-1800 L/R
U.S. 422 OVER S.R. 91
CUYAHOGA COUNTY
CUY-422-16.33
LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.36

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.J.	L.R.A.	L.E.D.	10-1-69	

MICROFILMED
JUL 9 1984

REINFORCING STEEL LIST

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

158
258

CUYAHOGA COUNTY
CUY-422-16.33

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	SHAPE
ABUTMENTS										
A401	144	3'-0"	289	7		2'-2"				BT.
A501	170	8'-3"	1467	1	1'-7"	5'-4	1'-7"			BT.
A502	154	7'-1"	1138	13	8"	6'-7"				BT.
A503	162	6'-2"	1042	1	1'-6"	3'-5"	1'-6"			BT.
A504	16	32'-11"	549							ST.
A505	16	24'-2"	403							ST.
A506	16	24'-8"	412							ST.
A507	16	36'-9"	613							ST.
A508	16	8'-3"	138							ST.
A509	16	22'-5"	374							ST.
A510	16	22'-2"	370							ST.
A511	16	18'-7"	310							ST.
A512	24	4'-6"	113							ST.
A513	80	2'-0"	167	7	1'-0"					BT.
A514	80	2'-9"	229							ST.
A515	40	5'-11"	247	16	8"	3'-1"	2'-5"			BT.
A516	96	13'-2"	1318							ST.
A517	32	7'-4"	245							ST.
A518	72	6'-0"	451							ST.
A519	24	2'-10"	71							ST.
A520	8	3'-9"	31							ST.
A521	48	4'-4"	217							ST.
A522	12	7'-5"	93	13	1'-0"	6'-7"				BT.
A523	16	7'-8"	128							ST.
A524	88	11'-11"	1094	3	2'-7"	3'-2"				BT.
A525	1	20'-0"	21							ST.
A526	1	6'-7"	7							ST.
A527	1	29'-9"	31							ST.
A528	1	8'-9"	9							ST.
A529	1	26'-2"	27							ST.
A530	1	8'-6"	9							ST.
A531	1	19'-2"	20							ST.
A532	1	6'-9"	7							ST.
A533	1	13'-7"	14							ST.
A534	1	6'-5"	7							ST.
A535	1	13'-5"	14							ST.
A536	1	10'-9"	11							ST.
A537	1	13'-8"	14							ST.
A538	1	10'-3"	11							ST.
A539	1	13'-4"	14							ST.
A540	1	7'-0"	7							ST.
A541	24	8'-3"	207							ST.
A542	16	6'-9"	113	8	4'-6"	2'-3"	2'-0"	1'-0"		BT.
A543	24	8'-0"	200							ST.
A601	154	14'-5"	3335	1	6'-7"	5'-4"	2'-10"			BT.
A602	140	15'-4"	3224	2	4'-5"	1'-5"	6'-0"	11"	3'-2"	BT.
A603	40	6'-6"	391	5	9"	9"	11½"	4'-4"		BT.
A604	40	18'-10"	1132	1	9'-0"	1'-2"	9'-0"			BT.
A605	50	13'-1"	1100	1	6'-0"	1'-5"	6'-0"			BT.
A701	8	4'-4"	71							ST.
A702	8	4'-9"	78	5	9"	2⅛"	11½"	3'-2"		BT.
A703	8	4'-10"	79	5	9"	4"	11½"	3'-2"		BT.
A704	8	5'-6"	90	5	9"	6"	11½"	3'-9"		BT.
A705	8	6'-2"	101	5	9"	9"	11½"	4'-4"		BT.
A801	14	31'-2"	1165							ST.
A802	14	33'-3"	1243							ST.
A803	28	22'-11"	1713							ST.
A804	24	11'-3"	721							ST.
A805	24	11'-0"	705							ST.
TOTAL ABUTS = 27,396										

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	SHAPE
SUPERSTRUCTURE										
S501	646	2'-0"	1348	7	1'-0"					BT.
S502	646	5'-4"	3593	15	2'-2"	2'-5"	7⅛"			BT.
S503	646	2'-2"	1460	13	1'-8"	8"				BT.
S504	646	3'-8"	2470	5	9"	9"	11½"	10"	8"	BT.
S505	96	9'-8"	968							ST.
S506	280	4'-8"	1363							ST.
S507	32	11'-3"	375							ST.
S601	970	30'-0"	45708							ST.
S602	113	32'-6"	5516							ST.
S603	234	20'-0"	7029							ST.
S604	81	27'-6"	3346							ST.
S701	245	36'-7"	18320							ST.
S702	30	24'-5"	1497							ST.
S703	43	25'-2"	2212							ST.
S704	43	25'-11"	2278							ST.
S705	43	26'-8"	2344							ST.
S706	43	27'-5"	2410							ST.
S707	43	28'-2"	2476							ST.
S708	245	32'-7"	16317							ST.
S709	30	28'-5"	1743							ST.
S710	43	29'-2"	2564							ST.
S711	43	29'-11"	2629							ST.
S712	43	30'-8"	2695							ST.
S713	43	31'-5"	2761							ST.
S714	43	32'-2"	2827							ST.
S715	225	27'-0"	12417							ST.
S716	225	17'-2"	7895							ST.
S717	450	22'-1"	20312							ST.
L505	8	2'-10"	24							*BT.
L506	8	8'-1"	68							*BT.
L507	12	7'-3"	90							*BT.
L508	8	3'-0"	26							ST.
TOTAL SUPER. = 175,081										

*For Bending Diagrams See Std. Dwg. HL-4

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	SHAPE
PIERS										
P501	240	6'-3"	2065	1	2'-11"	2'-8"	2'-11"			BT.
P502	252	3'-8"	964	7	2'-8"					BT.
P503	240	6'-7"	1648	1	2'-1"	2'-8"	2'-1"			BT.
P601	6	30'-0"	270							ST.
P602	2	31'-7"	95							ST.
P603	2	32'-10"	99							ST.
P604	2	34'-1"	102							ST.
P605	12	22'-2"	400							ST.
P801	336	10'-8"	9569	11	8'-6"					BT.
P1001	36	17'-9"	2750							ST.
P1002	36	18'-0"	2788							ST.
P1003	36	17'-2"	2659							ST.
P1004	48	21'-2"	4372							ST.
P1005	24	21'-6"	2220							ST.
P1006	180	7'-2"	5551	13	6'-0"	1'-6"				BT.
P1007	12	34'-2"	1764	13	31'-8"	2'-10"				BT.
P1008	6	23'-4"	602							ST.
P1009	6	39'-7"	1022							ST.
P1010	12	34'-10"	1799	13	32'-4"	2'-10"				BT.
P1011	6	24'-2"	624							ST.
P1012	12	40'-0"	2065							ST.
P1013	12	35'-6"	1833	13	33'-0"	2'-10"				BT.
P1014	6	25'-5"	656							ST.
P1015	18	17'-6"	1355	13	15'-0"	2'-10"				BT.
P1016	18	33'-10"	2621	13	31'-4"	2'-10"				BT.
P1017	36	22'-10"	3537							ST.
P1018	1	14'-0"	60							ST.
SPIRALS			6375							
TOTAL PIERS = 59,865										

REPLACEMENT BARS

RE601	1	6'-5"								ST.
RE501	2	6'-7"								ST.
RE601	4	6'-11"								ST.
RE701	6	7'-3"								ST.
RE801	1	7'-6"								ST.
RE1001	2	8'-3"								ST.

SPIRAL REINFORCEMENT

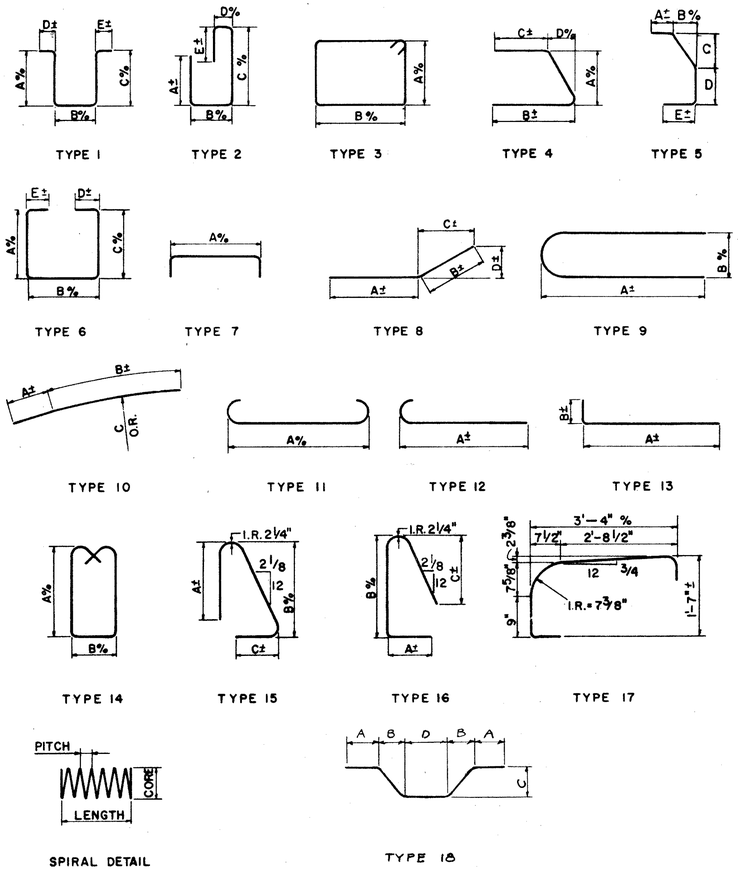
MARK	NO.	LENGTH	WEIGHT	CORE	PITCH	SPACERS
SP401	4	14'-7"	1111	32"	4½"	16-1×1×⅛ LS
SP402	4	14'-10"	1128	32"	4½"	16-1×1×⅛ LS
SP403	4	14'-0"	1069	32"	4½"	16-1×1×⅛ LS
SP404	6	18'-0"	2053	32"	4½"	24-1×1×⅛ LS
SP405	3	18'-4"	1044	32"	4½"	12-1×1×⅛ LS

REPLACEMENT BAR

RE401	1	ONE TURN	32"		

NOTE: OTHER SPIRAL REINFORCEMENT DETAILS IN ACCORDANCE WITH C.R.S.I. STANDARD PRACTICE.

BENDING DIAGRAMS



BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED. INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A700 IS A NO. 7 SIZE BAR AND A1014 IS A NO. 10 SIZE BAR.

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ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

REINFORCING STEEL LIST
BRIDGE NO. CUY-422-1800 L/R
U.S. 422 OVER S.R. 91

CUYAHOGA COUNTY
CUY-422-16.33

LEFT STA. 941+16.86 TO STA. 942+93.38
RIGHT STA. 941+25.86 TO STA. 942+97.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.S.	W.J.S.	L.E.D.	10-1-69	

MAY 4 1973

REV. 8-20-73

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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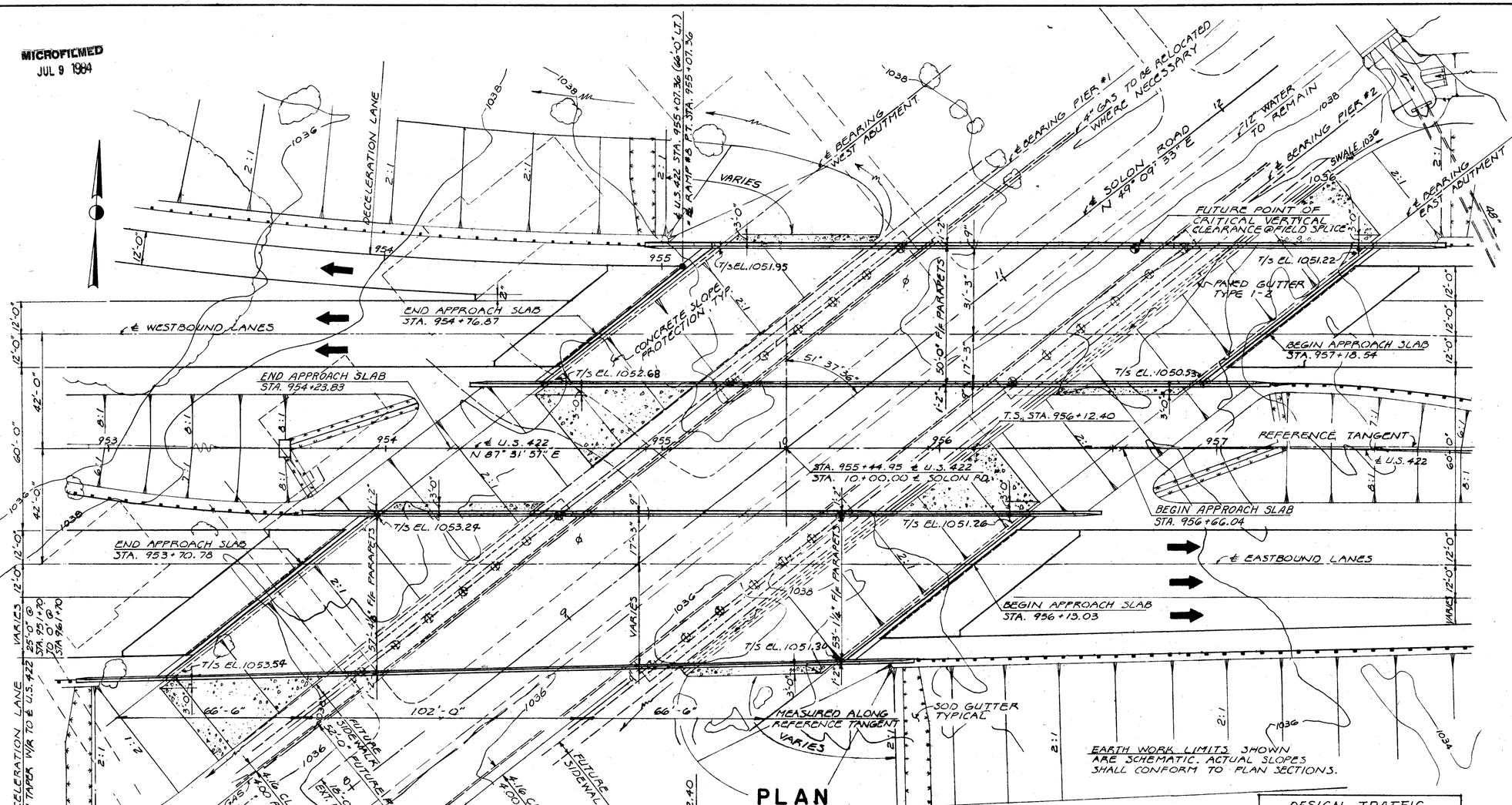
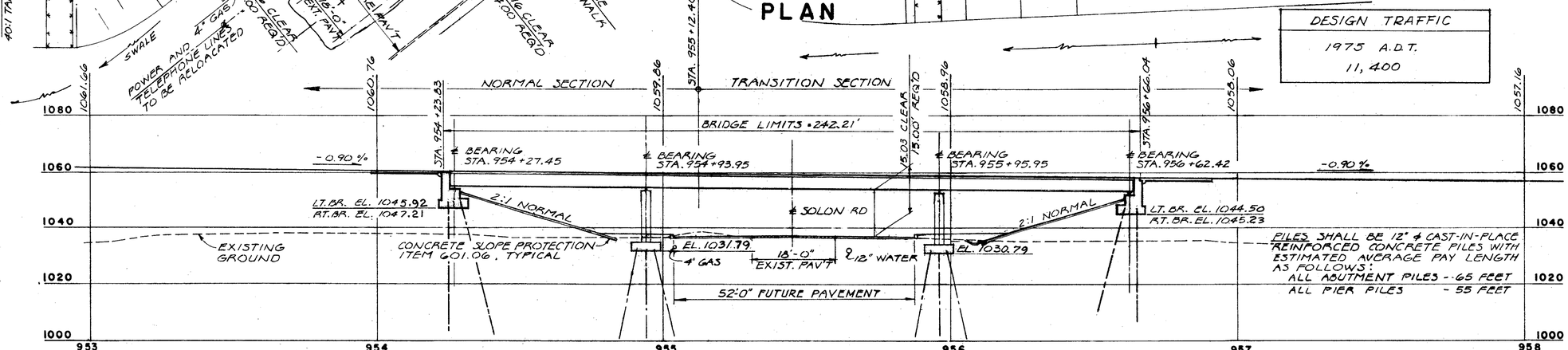
CUYAHOGA COUNTY
CUY-422-16.33

SPIRAL CURVE DATA & SURVEY U.S.R. 422

P.I. = STA. 968.+77.38. L_c = 1825.76'
Δ = 42°-30'-55" RT L_s = 300.'
D_c = 36°-30'-55" T_s = 1264.78'
D_o = 2°-00'-00" E_s = 210.56
R_c = 2864.79'





DESIGN TRAFFIC
1975 A.D.T.
11,400

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 66'-6" ~ 102'-0" ~ 66'-6" ℄ BEARINGS ALONG REFERENCE TANGENT.

ROADWAY: LT. BR. - 50'-0" T/F PARA PETS.
RT. BR. - VARIES 53'-1¼" TO 57'-4⅛" F/F PARAPETS.

LOADING: HS 20 - 44

SKEW: 51° 37' 36" LEFT FORWARD W/R TO REFERENCE TANGENT.

SURFACE COURSE: 2½" Asphalt Concrete

ALIGNMENT: LT.BR. - TRANSITION CURVE RT.
RT.BR. - TANGENT W/R TO REFERENCE TANGENT

APPROACH SLABS: SEE SHEET NO. 139 & 140

SUPERELEVATION: VARIES

1 / 17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SITE PLAN

BRIDGE NO. CUY-422-1825 L/R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY CUY-422-1633 STA. 954+23.83 TO STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
M.K.K.	M.K.K.	L.R.A.	R.C.	

MAY 4 1973

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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258

CUYAHOGA COUNTY
CUY-422-16.33

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69	SHEETS 1 & 2 & 3	DATED	6-12-69
ROCKER AND BOLSTER DETAILS	RB-1-55		REVISED	2-2-59
APPROACH SLAB DETAILS	AS-1-67		REVISED	6-12-69
BRIDGE RAILING DETAILS	BR-1-67	SHEET 1	REVISED	10-15-71

SUPPLEMENTAL SPECIFICATIONS:

808	DATED	1-1-71
836	DATED	1-1-71

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1965, AND "INTERIM SPECIFICATIONS", 1966-1967, ALSO INCLUDING THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING - HS20-44

CONCRETE CLASS C - UNIT STRESS 1200 P.S.I. FOR SUPERSTRUCTURE
UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE

STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20,000 P.S.I.

REINFORCED STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20,000 P.S.I.
SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A306 OR A499 OR A82 OR A615
IF BARS IN ACCORDANCE WITH ASTM A616 ARE PROVIDED THEY SHALL BE SUBJECT TO BEND TESTS AS PER AASHO DESIGNATION M42-70

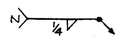
ALL CONCRETE SHALL BE CLASS C.

EMBANKMENT CONSTRUCTION: THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION SHALL THEN BE MADE FOR THE ABUTMENTS.

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 32 TONS PER PILE FOR THE ABUTMENTS, AND 40 TONS PER PILE FOR THE PIERS.

UTILITY LINES: ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO CO-OPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WOULD BE HELD TO A MINIMUM.

WELDS ON NON-STRESS CARRYING MEMBERS ARE SHOWN THUS:



END DAM PAINTING: PORTIONS OF END DAMS WHICH WILL BE IN CONTACT WITH STEEL OR WITH CONCRETE SHALL NOT BE PAINTED. ALL OTHER PORTIONS SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH CONSTRUCTION AND MATERIALS SPECIFICATION 514.

MAINTENANCE AND PROTECTION OF TRAFFIC: TRAFFIC SHALL BE MAINTAINED ON SOLON ROAD AS INDICATED ON THE ROADWAY PLANS (GENERAL NOTES).

PAVEMENT JACKING HOLES SHALL NOT BE PROVIDED AND SPACING AS SHOWN ON STANDARD DRAWING AS-1-67.

DECK FINISHING: TEXTURING OF THE DECK SURFACE AS PROVIDED IN 451.09 SHALL NOT BE DONE.

FOR LIGHTING DETAILS SEE SHEETS (218-B / 258) , (218-C / 258) .

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPERSTR. LEFT	SUPERSTR. RIGHT	ABUTMENTS LEFT	ABUTMENTS RIGHT	PIERS LEFT	PIERS RIGHT	GENERAL LEFT	GENERAL RIGHT
404	147	CU.YDS.	ASPHALT CONCRETE (70-85 or AC-20), as per plan	71	76						
503	1,837	CU.YDS	UNCLASSIFIED EXCAVATION			523	548	363	403		
505	LUMP	SUM	TEST PILE							LUMP	
506	LUMP	SUM	PILE TEST LOAD							LUMP	
506	1	Each	SUBSEQUENT PILE TEST LOAD							1	
507	13,300	LIN.FT.	12"CAST-IN-PLACE REINFORCED CONCRETE PILES			3,250	3,450	3,080	3,520		
509	368,886	LBS	REINFORCING STEEL	242,935		50,541		75,410			
511	833	CU.YDS	CLASS "C" CONCRETE, SUPERSTRUCTURE	396	437						
511	124	CU.YDS	CLASS "C" CONCRETE, PIER COLUMNS					56	68		
511	462	CU.YDS	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS			225	237				
511	669	CU.YDS	CLASS "C" CONCRETE, FOOTINGS			145	160	172	192		
512	84	LIN.FT.	PREMOLDED SEALING STRIP			38	46				
513	806,730	LBS	STRUCTURAL STEEL	371,340	435,390						
514	806,730	LBS	FIELD PAINTING OF STRUCTURAL STEEL	371,340	435,390						
516	27	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER				27				
518	225	CU.YDS	POROUS BACKFILL			109	116				
518	339	LIN.FT.	6" PERFORATED HELICAL CMP, INCLUDING SPECIALS, 707.01			160	179				
518	244	LIN.FT.	6" NON-PERFORATED HELICAL CMP, 707.01			120	124				
518	22	EACH	SCUPPERS INCLUDING SUPPORTS,	10	12						
601	1,634	SQ.YDS	CONCRETE SLOPE PROTECTION							716	918
625			ELECTRICAL EQUIPMENT (SEE SHEET NO. 210 FOR QUANTITIES)								
808	833	UNITS	Chemical admixture for concrete, Type A, B or D	396	437						
Special	38	Cu.Yds.	Sand Asphalt (See proposal note)	18	20						
Special	2713	Sq.Yds.	Membrane Waterproofing, Sheet type (See proposal note)	1288	1425						

FIRST TEST PILE. PAYMENT WILL BE MADE FOR ONLY ONE FIRST TEST PILE. IT MAY BE DRIVEN FOR EITHER THE LEFT OR RIGHT BRIDGE.

MAY 4 1973

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ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL NOTES & ESTIMATED QUANTITIES

BRIDGE NO. CUY-422-1825 L/R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY
CUY-422-16.33

STA. 954+23.83 TO
STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G. 2/18/69	V.I.P.	L.A.A. 4/25/69	L.E.D	10-3-69	1-14-72

REV. 8-20-73

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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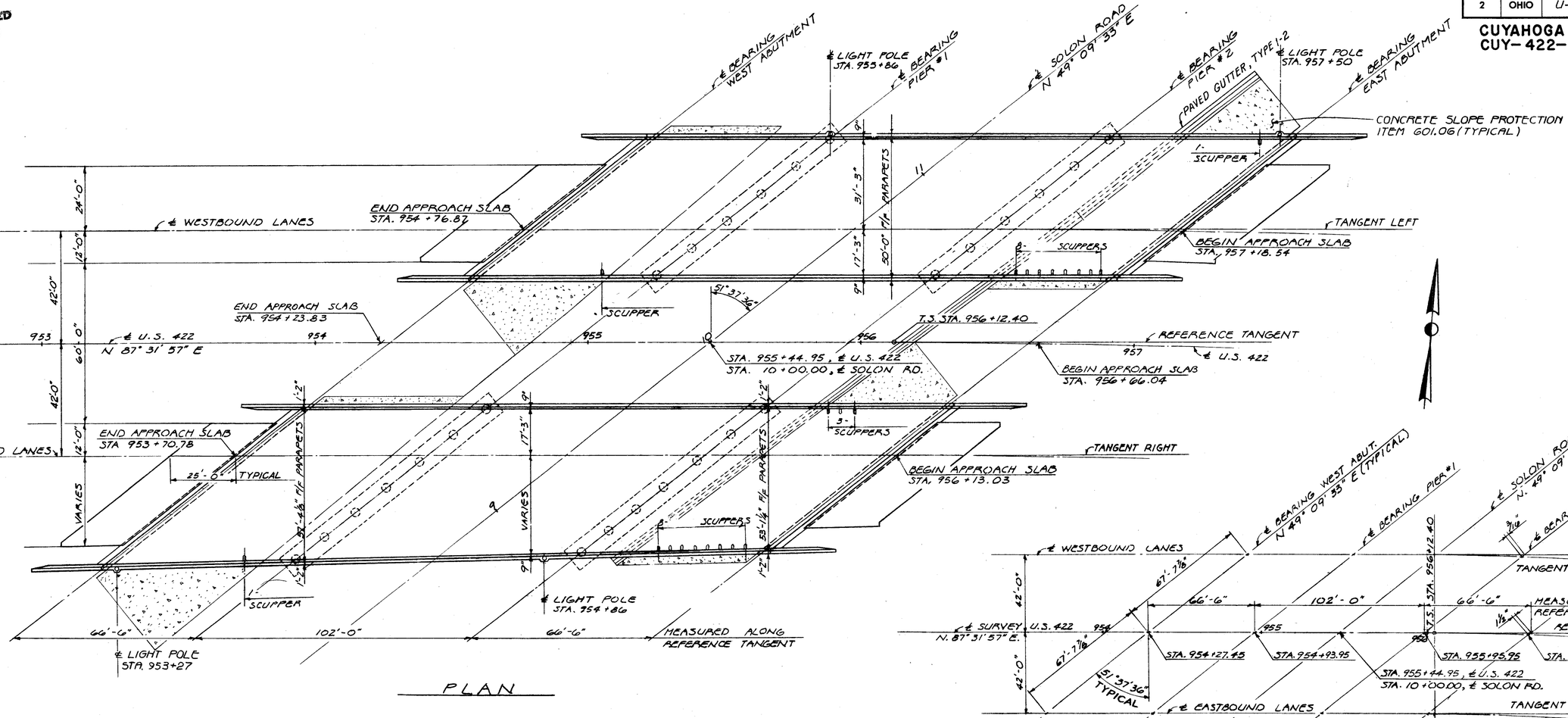
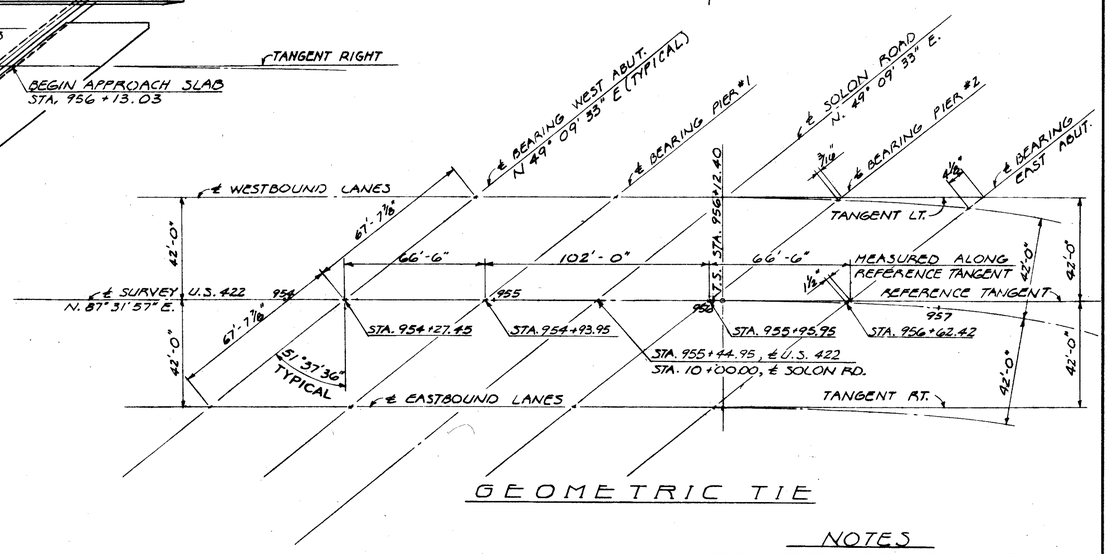
CUYAHOGA COUNTY
CUY-422-16.33

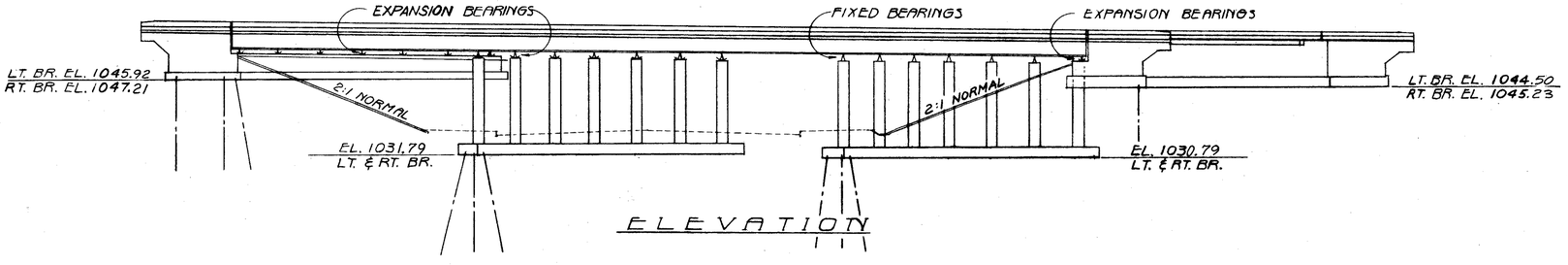


PLAN



GEOMETRIC TIE

NOTE: FOR PARAPET PANEL SPACING SEE DECK SLAB PLAN SHEET NO. 14/16



ELEVATION

NOTES

FOR SCUPPER LOCATIONS AND SPACING SEE FRAMING PLAN.
SHEET NO. 12/17 FOR LEFT BRIDGE
SHEET NO. 13/17 FOR RIGHT BRIDGE

FOR BRIDGE LIGHT POLE LOCATIONS SEE SHEET NO. 15/17

FOR APPROACH SLAB DETAILS SEE STANDARD DRAWING AS-1-67 REVISED 6-12-69 AND PROJECT PLAN SHEET NO. 139 & NO. 140.

3/17

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL PLAN & ELEVATION

BRIDGE NO. CUY-422-1825 L/R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY
CUY-422-16.33

STA. 954+23.83 TO
STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
H.G.	N.K.	L.R.A.	L.E.D. 10-3-69	

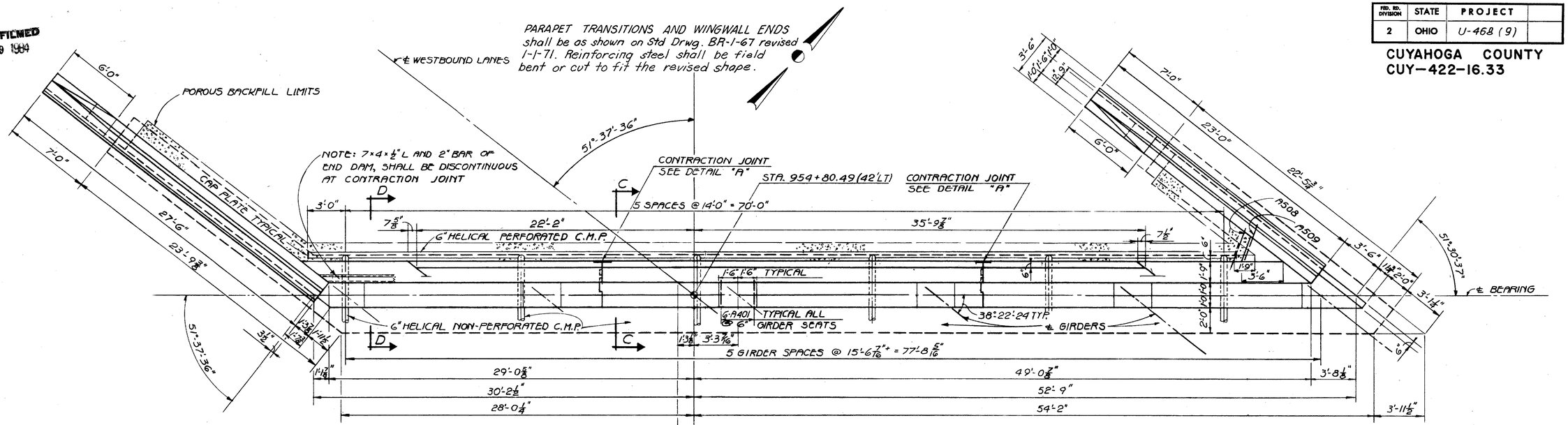
MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

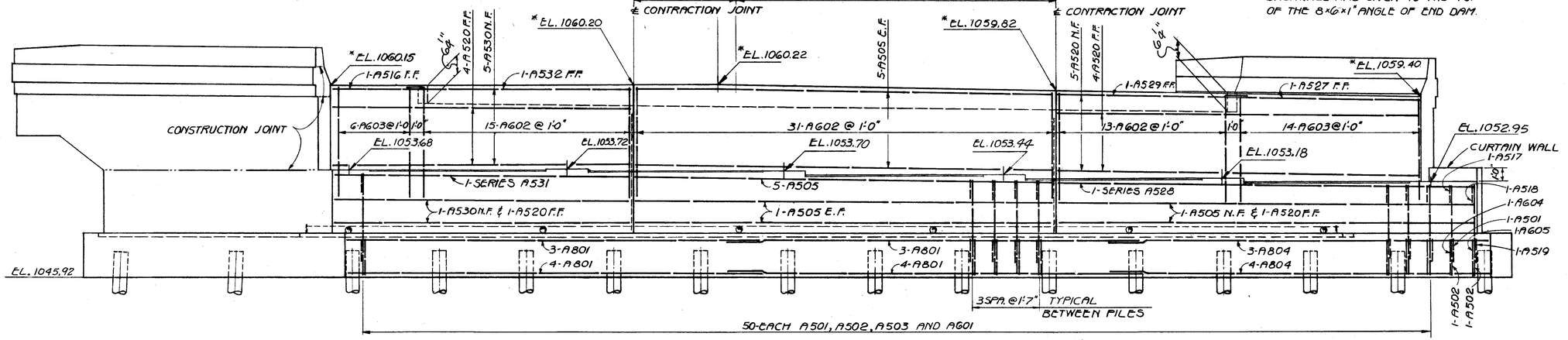
162
258

CUYAHOGA COUNTY
CUY-422-16.33

PARAPET TRANSITIONS AND WINGWALL ENDS shall be as shown on Std Drwg. BR-1-67 revised 1-1-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

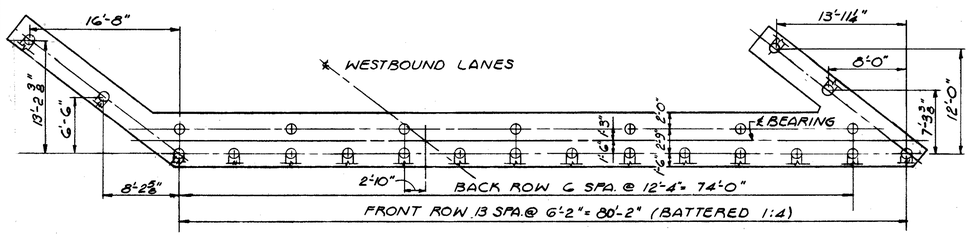


PLAN
WEST ABUTMENT - LEFT BRIDGE



ELEVATION

*NOTE: ALL ELEVATIONS ALONG BACKWALL ARE GIVEN TO THE TOP OF THE 8×6×1" ANGLE OF END DAM.



NOTE: USE 25 PILES THIS ABUTMENT.

PILING LAYOUT

NOTES

GEOMETRIC TIE SEE SHEET NO. 3/17

ABUTMENT PILES ARE 12" ϕ CAST-IN-PLACE REINFORCED CONCRETE.

POROUS BACKFILL, 1.5 FT. THICK, FULL LENGTH OF ABUTMENT AND WINGS, SHALL EXTEND UP TO THE SUBGRADE

WINGWALL DETAILS AND ABUTMENT LOCATION PLAN - SEE SHEET NO. 8/17

SECTIONS C-C & D-D, AND DETAIL "A" - SEE SHEET NO. 6/17

REINFORCING STEEL LIST - SEE SHEET NO. 17/17

ABBREVIATIONS USED ARE - E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

MAY 4 1973

4/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1825 L
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	N.K.	L.R.A.	L.E.D.	10-3-69	

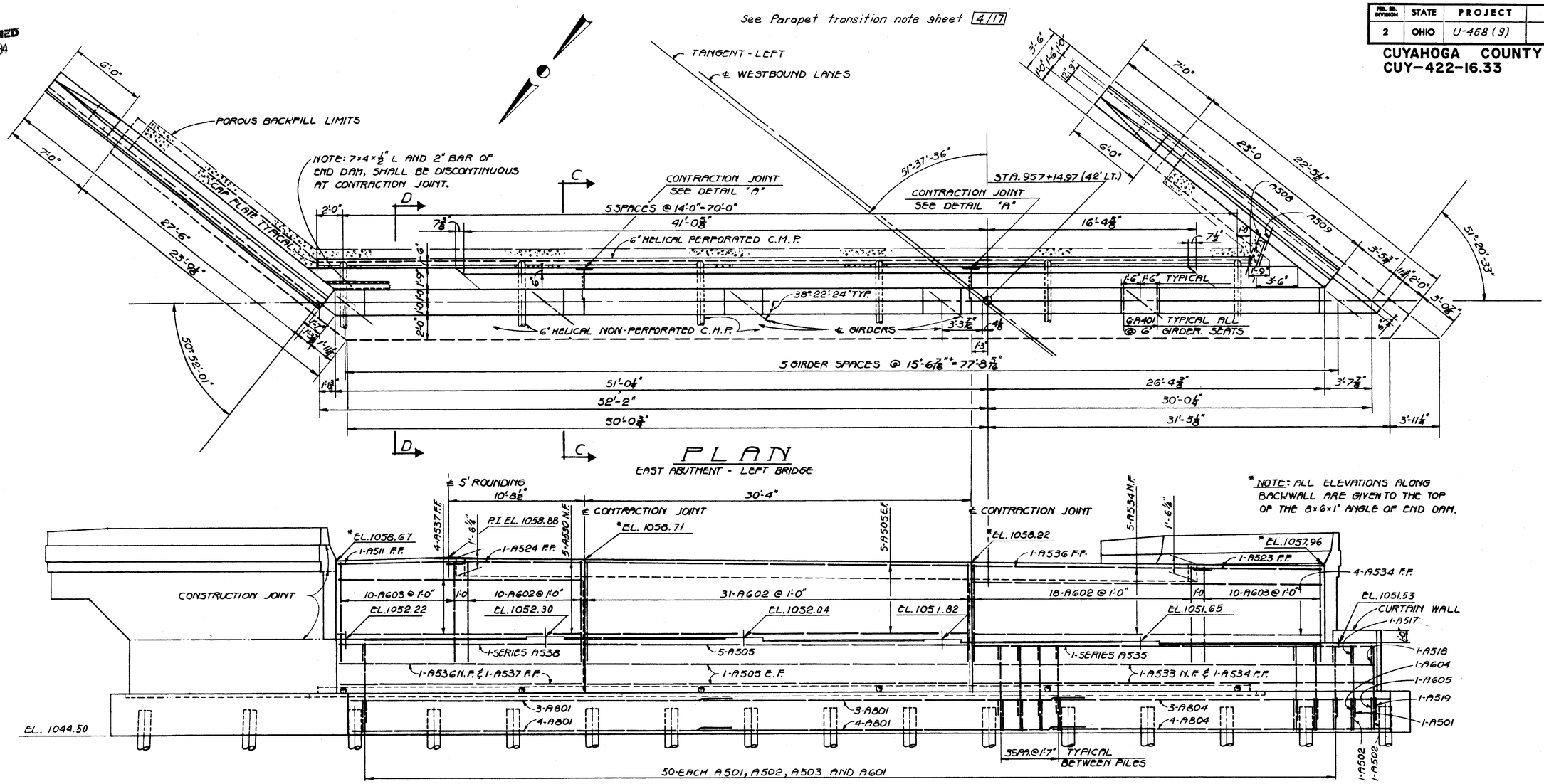
MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

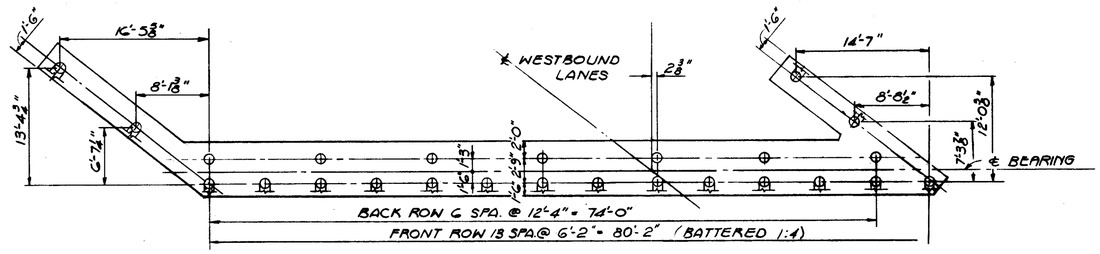
163
258

CUYAHOGA COUNTY
CUY-422-16.33

See Parapet transition note sheet 4/17



* NOTE: ALL ELEVATIONS ALONG BACKWALL ARE GIVEN TO THE TOP OF THE 8×6×1" ANGLE OF END DAM.



NOTE: USE 25 PILES THIS ABUTMENT.

NOTES

WINGWALL DETAILS AND ABUTMENT LOCATION PLAN ~ SEE SHEET NO. 6/17

SECTION C-C & D-D AND DETAIL "A" ~ SEE SHEET NO. 6/17

REINFORCING STEEL LIST ~ SEE SHEET NO. 7/17

ABBREVIATIONS USED ARE ~ E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

ADDITIONAL NOTES ~ SEE SHEET NO. 4/17

MAY 4 1973

5/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1825 L
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY
CUY-422-16.33

STA. 954+23.83 TO
STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	N.K.	L.R.A.	L.E.D.	10-3-69	

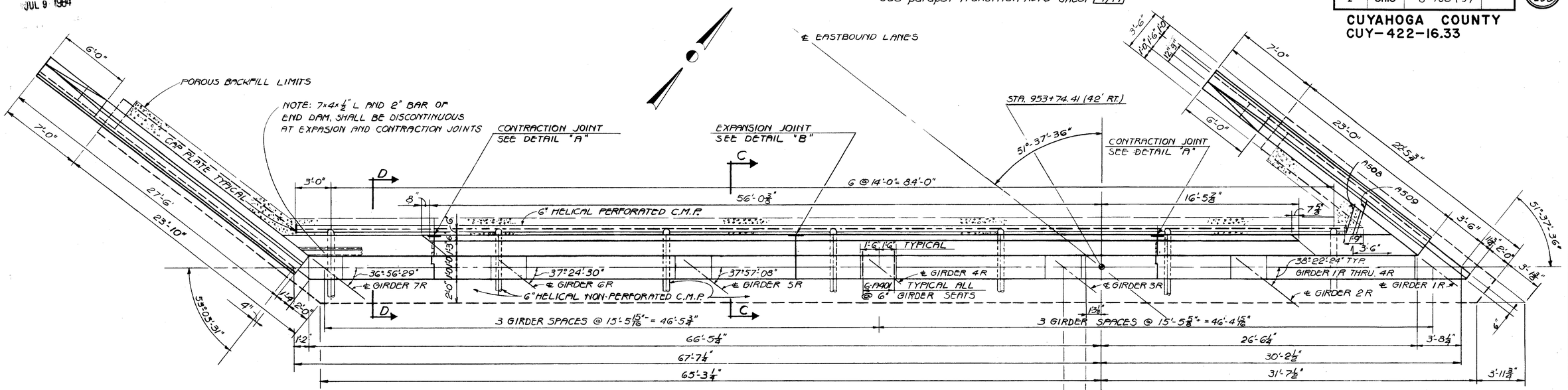
MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

164/258

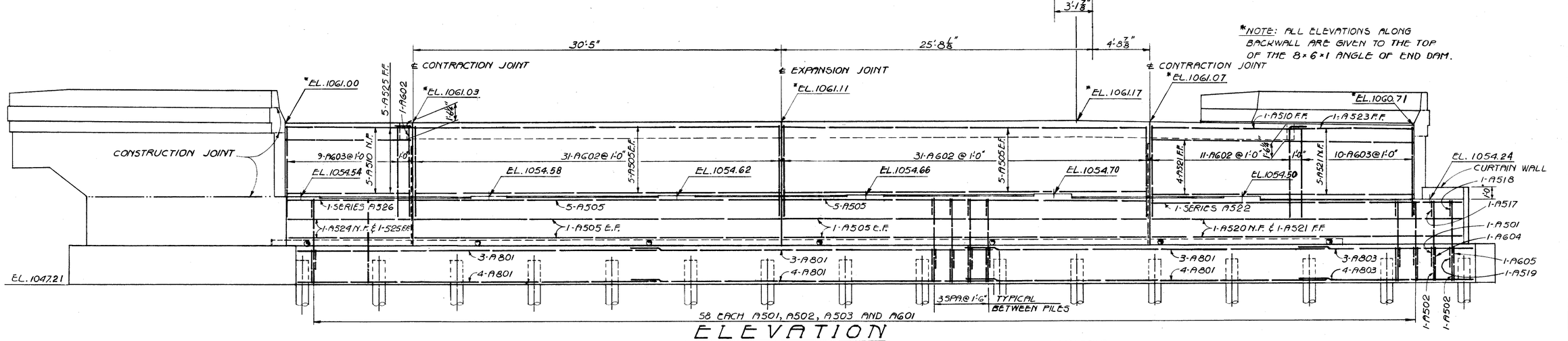
CUYAHOGA COUNTY
CUY-422-16.33

See parapet transition note sheet 4/17

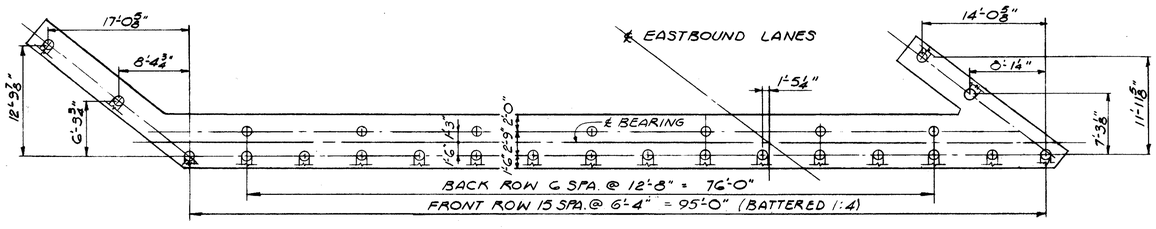


PLAN

WEST ABUTMENT - RIGHT BRIDGE



ELEVATION



PILING LAYOUT

NOTE: USE 27 PILES THIS ABUTMENT.

NOTES

WINGWALL DETAILS AND ABUTMENT LOCATION PLAN ~ SEE SHEET NO. 8/17

SECTIONS C-C ℄ D-D AND DETAILS 'A' ℄ 'B' ~ SEE SHEET NO. 8/17

REINFORCING STEEL LIST ~ SEE SHEET NO. 17/17

ABBREVIATIONS USED ARE ~ E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

ADDITIONAL NOTES ~ SEE SHEET NO. 4/17

MAY 4 1973

6/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1825 R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	N.K.	L.R.A.	L.E.D.	10-3-69	

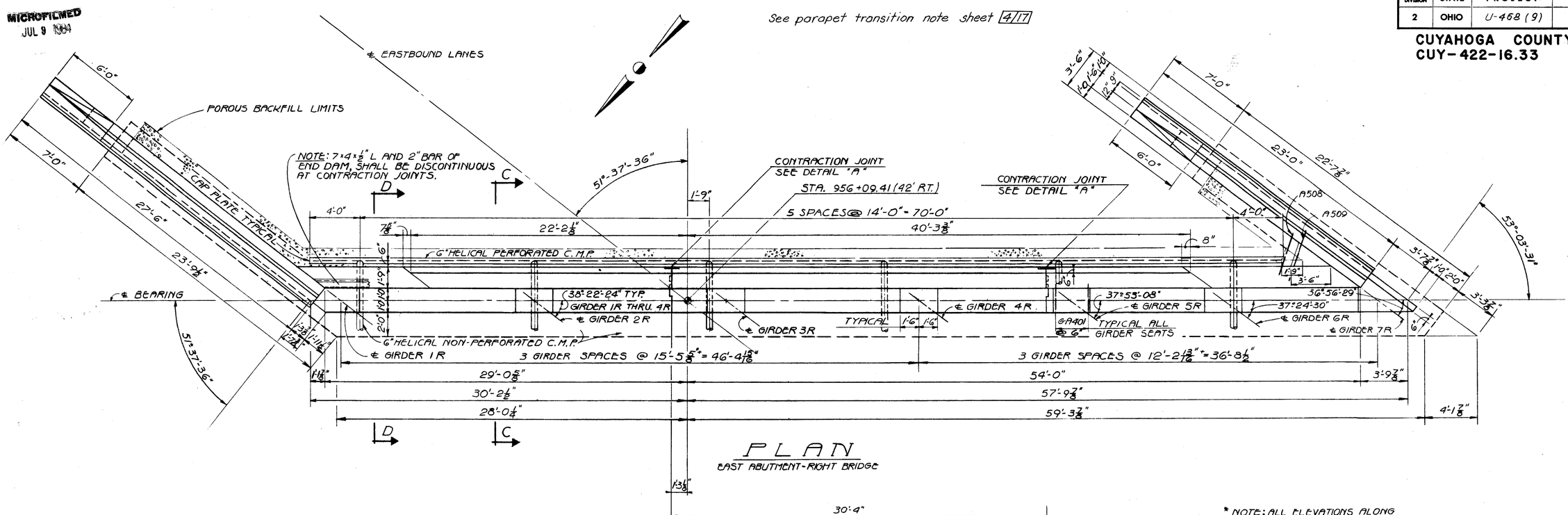
MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

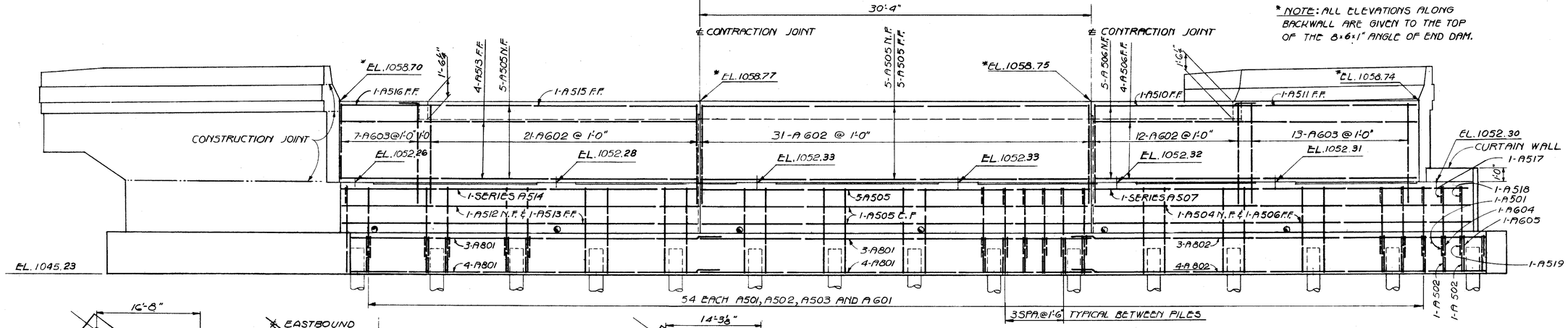
165
258

CUYAHOGA COUNTY
CUY-422-16.33

See parapet transition note sheet 4/17

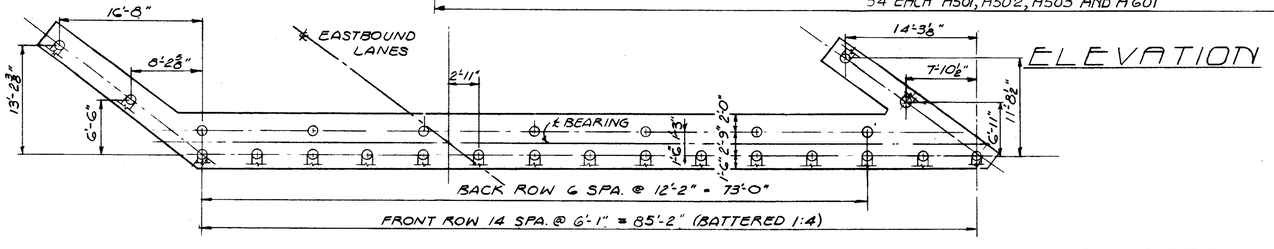


PLAN
EAST ABUTMENT-RIGHT BRIDGE



ELEVATION

* NOTE: ALL ELEVATIONS ALONG BACKWALL ARE GIVEN TO THE TOP OF THE 8×6×1" ANGLE OF END DAM.



NOTE: USE 26 PILES THIS ABUTMENT.

PILING LAYOUT

NOTES

WINGWALL DETAILS AND ABUTMENT LOCATION PLAN - SEE SHEET NO. 5/17

SECTIONS C-C℄ D-D AND DETAIL "A" - SEE SHEET NO. 5/17

REINFORCING STEEL LIST - SEE SHEET NO. 7/17

ABBREVIATIONS USED ARE - E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

ADDITIONAL NOTES - SEE SHEET NO. 4/17

MAY 4 1973

7/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

ABUTMENT DETAILS

BRIDGE NO. CUY-422-1825 R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

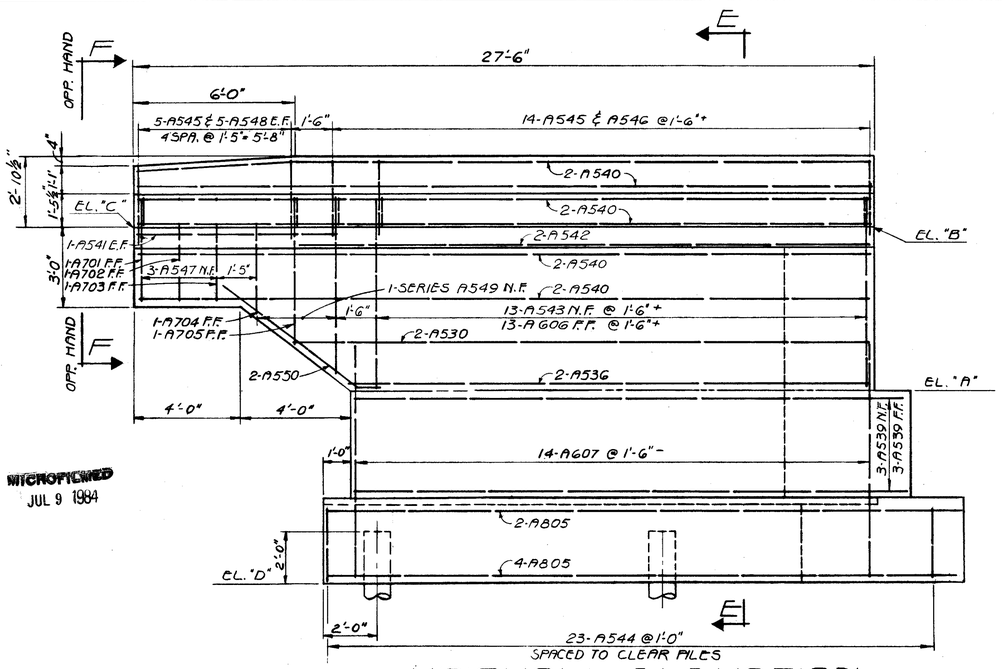
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	N.K.	L.R.A.	L.E.D.	10-3-69	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

166
258

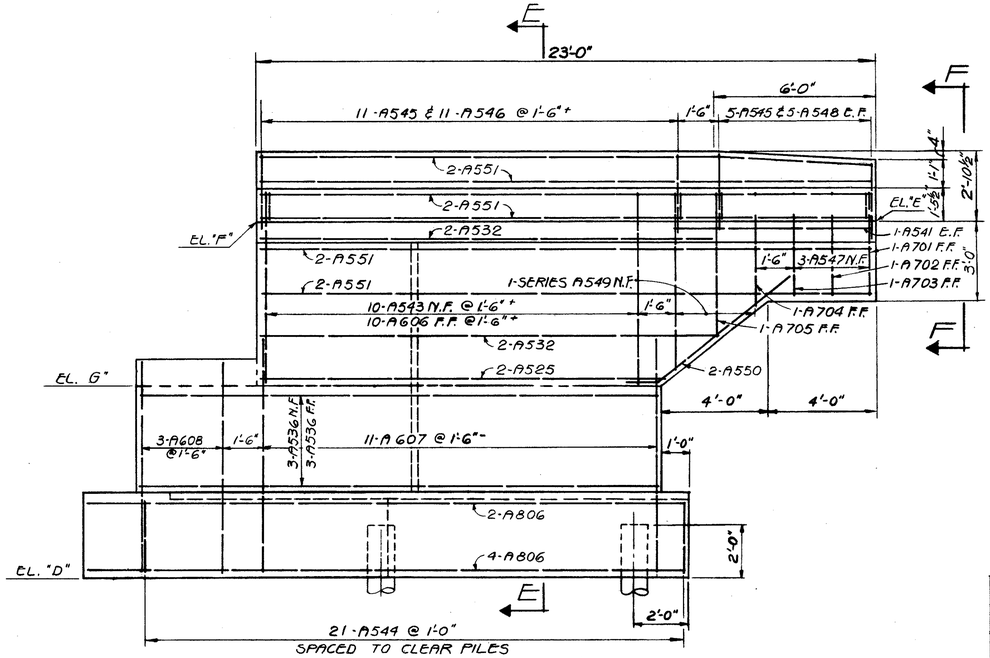
CUYAHOGA COUNTY
CUY-422-16.33

MICROFILMED
JUL 9 1984



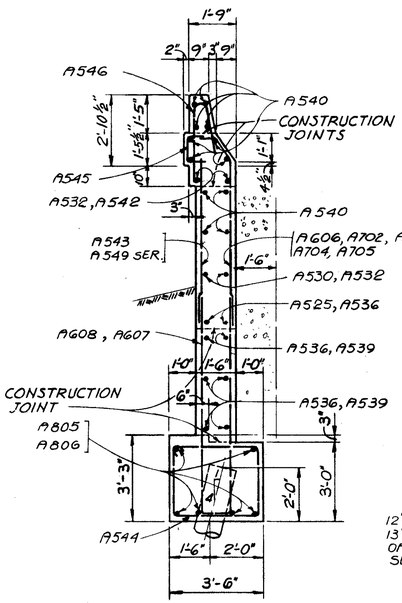
WINGWALL ELEVATION

LEFT BRIDGE - S. W. & N. E.
RIGHT BRIDGE - S. W. & N. E.

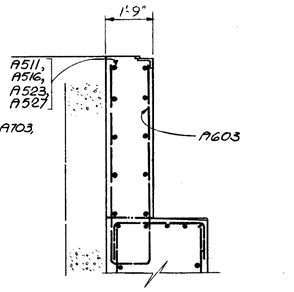


WINGWALL ELEVATION

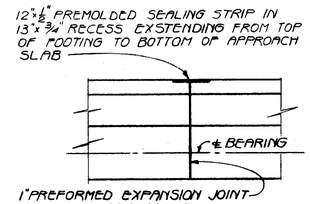
LEFT BRIDGE - N.W. & S.E.
RIGHT BRIDGE - N.W. & S.E.



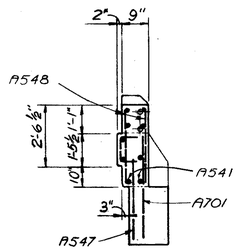
SECTION E-E



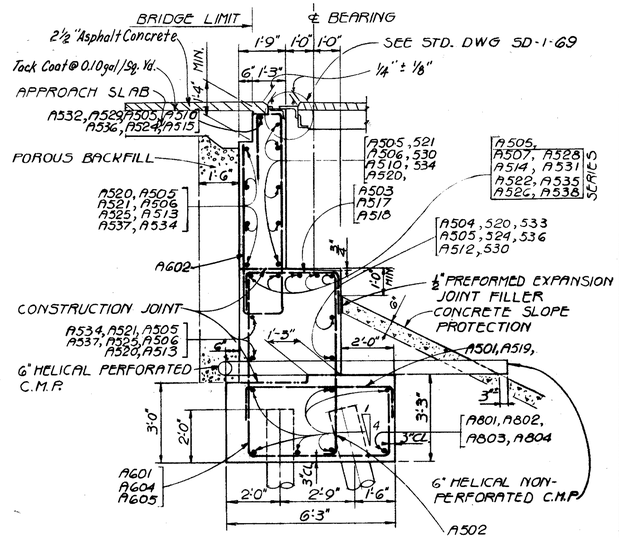
SECTION D-D



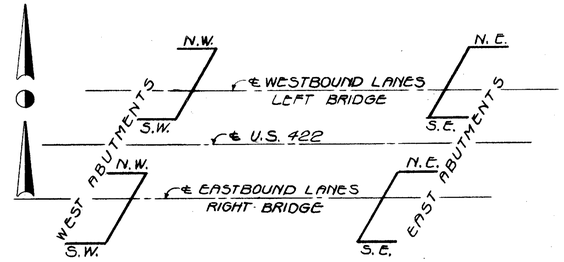
DETAIL "B"
(EXPANSION JOINT)



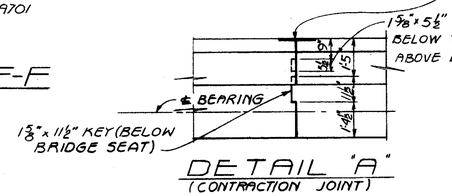
VIEW F-F



SECTION C-C



ABUTMENT LOCATION PLAN



DETAIL "A"
(CONTRACTION JOINT)

NOTES

ABUTMENT ELEVATIONS AND PLANS ~ SEE SHEETS NO. 4/17, 5/17, 6/17, AND 7/17.

REINFORCING STEEL LIST ~ SEE SHEET NO. 17/17.

ABBREVIATIONS USED ARE ~ E.F. = EACH FACE, N.F. = NEAR FACE, AND F.F. = FAR FACE.

FOR DETAILS OF EXPANSION FITTINGS AND COUPLINGS, SEE STD. DWG. HL-5.

ADDITIONAL NOTES ~ SEE SHEET NO. 4/17

ELEVATION TABLE

LOCATION	A	B	C	D	E	F	G	
LEFT BRIDGE - WEST ABUTMENT	1053.68	1059.96	1060.20	1045.92	1059.39	1059.21	1052.95	
LEFT BRIDGE - EAST ABUTMENT	1052.22	1058.48	1058.43	1044.50	1057.54	1057.77	1051.53	
RIGHT BRIDGE - WEST ABUTMENT	1054.54	1060.81	1061.05	1047.21	1060.73	1060.52	1054.24	
RIGHT BRIDGE - EAST ABUTMENT	1052.26	1058.51	1058.29	1045.23	1058.29	1058.55	1052.30	

8/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WINGWALL DETAILS

BRIDGE NO. CUY-422-1825 R
U.S.422 OVER SOLON RD.
CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
N.G.	N.K.	L.R.A.	L.E.D. 10-3-69	

MAY 4 1973

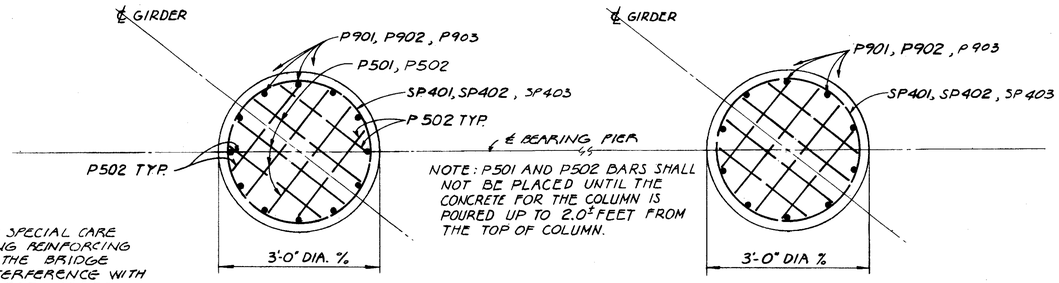
REV. 8-20-73

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

167/258

CUYAHOGA COUNTY
CUY-422-16.33

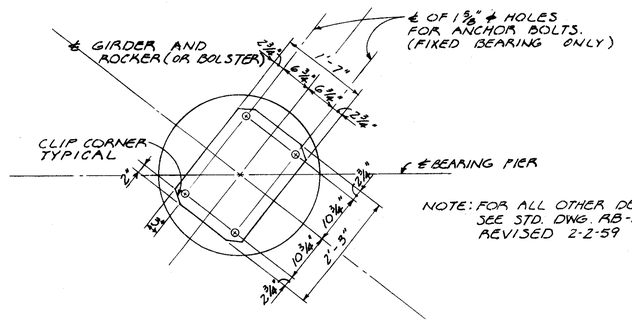


NOTE: P501 AND P502 BARS SHALL NOT BE PLACED UNTIL THE CONCRETE FOR THE COLUMN IS POURED UP TO 2.0± FEET FROM THE TOP OF COLUMN.

BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES. (FOR PIER #2 ONLY)

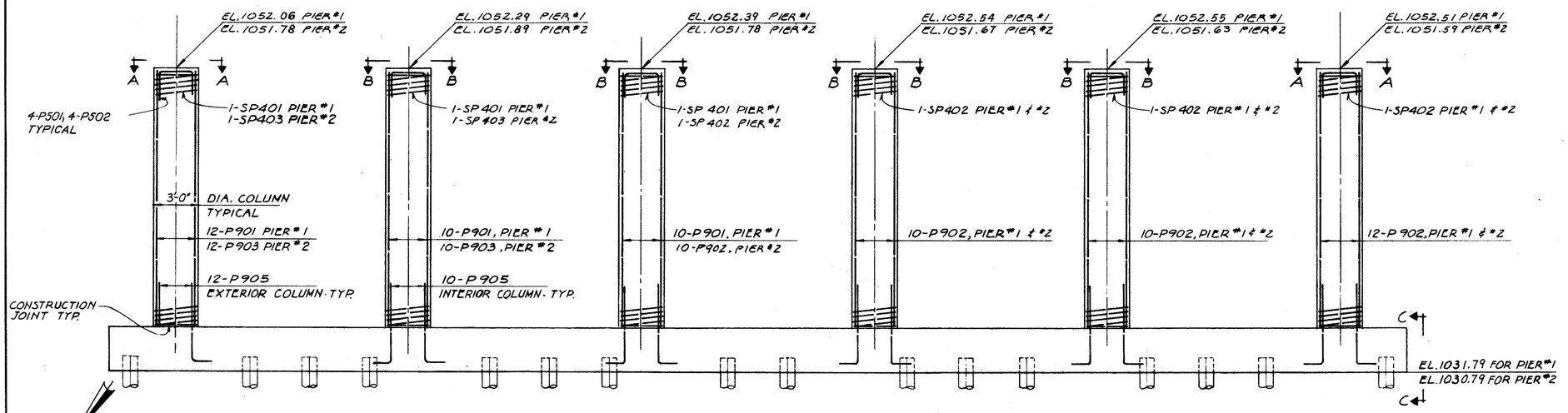
VIEW A-A

VIEW B-B

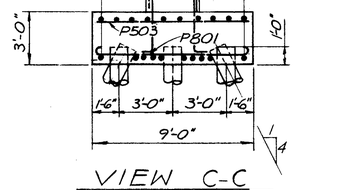


NOTE: FOR ALL OTHER DETAILS SEE STD. DWG. RB-1-55 REVISED 2-2-59

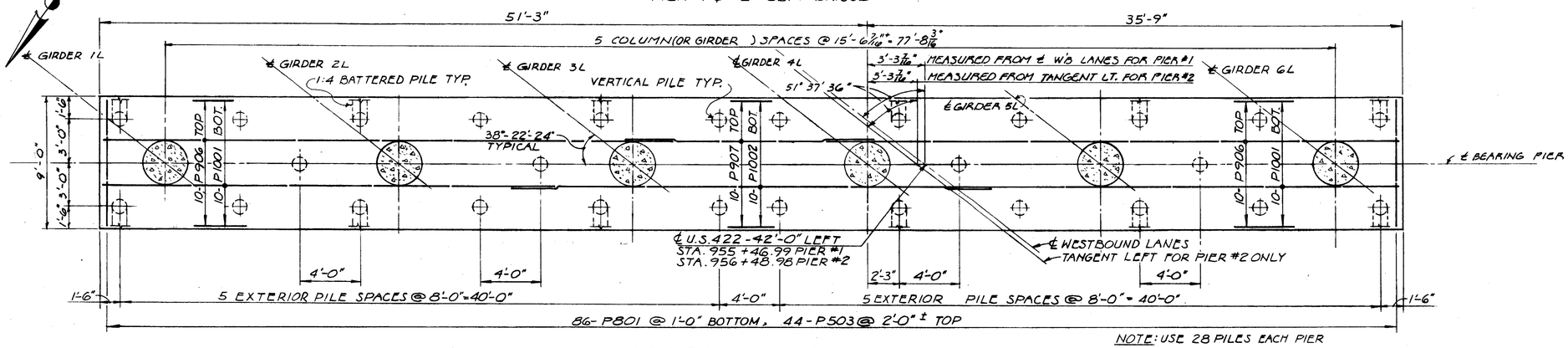
BEARING BASE PLATE DETAIL
(TYPICAL)



ELEVATION
PIER #1 ℄ #2 LEFT BRIDGE



VIEW C-C



NOTE: USE 28 PILES EACH PIER

FOOTING PLAN

NOTES

ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES.

FOR REINFORCING STEEL LIST AND BAR BEND DETAILS SEE SHEET NO. 17/17

FOR GEOMETRIC TIE SEE SHEET NO. 3/17

ALL FOOTING REINFORCEMENT SHALL HAVE 3" MINIMUM CONCRETE COVER.

FOR GROUNDING DETAILS AT PIER NO. 2 SEE STD. DWG. HL-5.

9/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. CUY-422-1825 L
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-3-69	

MAY 4 1973

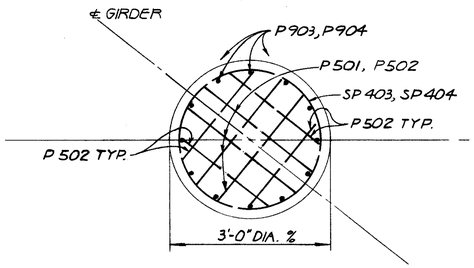
REV. 8-20-73

MICROFILMED
JUL 9 1984

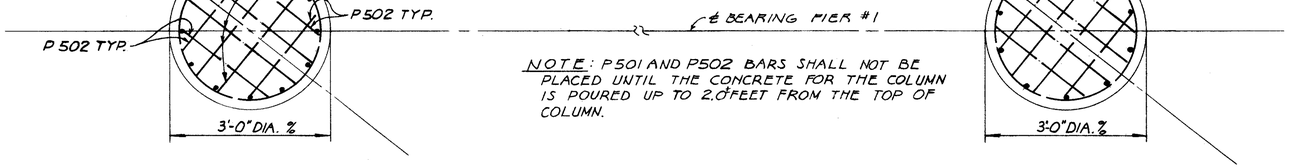
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

168
258

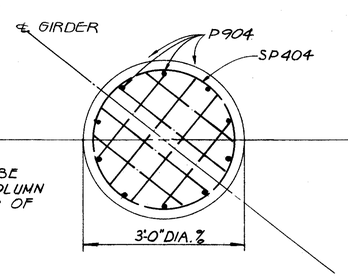
CUYAHOGA COUNTY
CUY-422-16.33



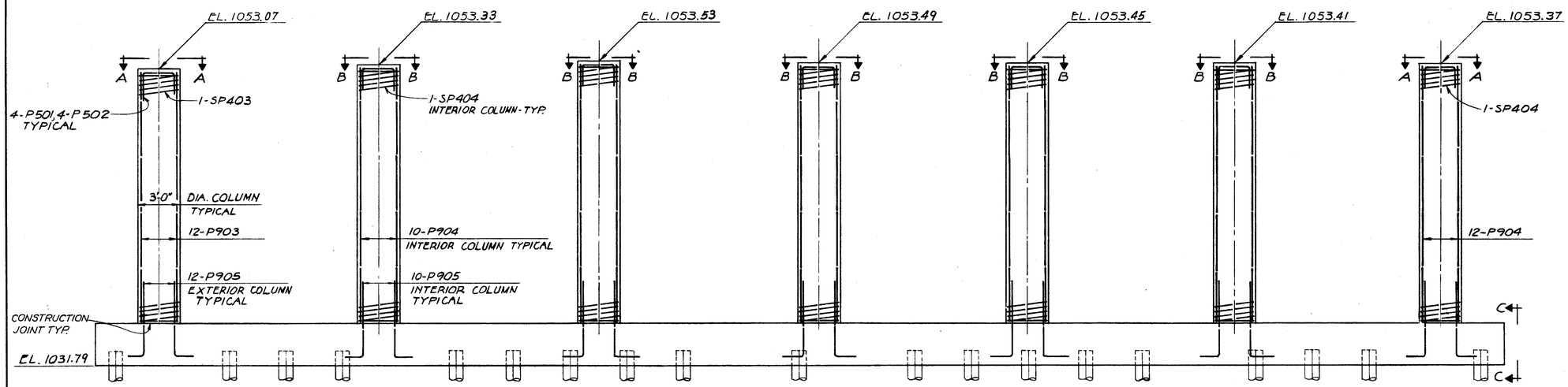
VIEW A-A



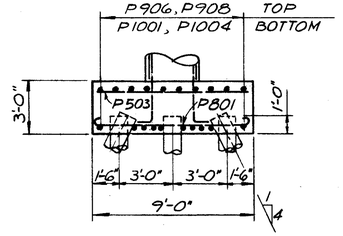
NOTE: P501 AND P502 BARS SHALL NOT BE PLACED UNTIL THE CONCRETE FOR THE COLUMN IS POURED UP TO 2.0 FEET FROM THE TOP OF COLUMN.



VIEW B-B



ELEVATION
PIER # 1 RIGHT BRIDGE



VIEW C-C

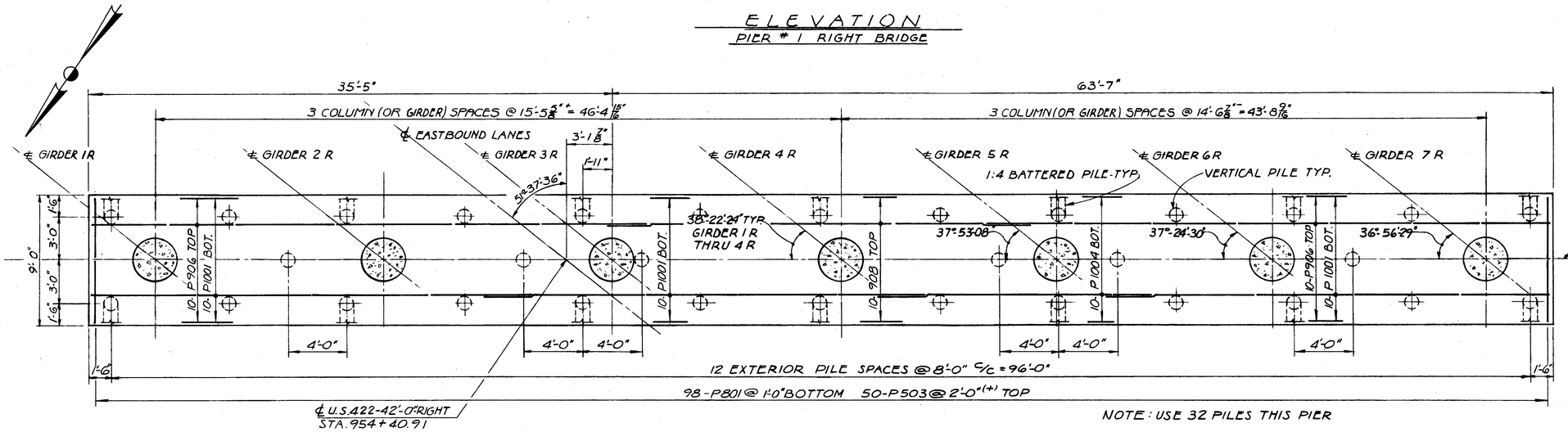
NOTES

ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES.

FOR REINFORCING STEEL LIST AND BAR BENDING DETAILS SEE SHEET NO. 17/17

FOR GEOMETRIC TIE SEE SHEET NO. 3/17

ALL FOOTING REINFORCEMENT SHALL HAVE 3" MINIMUM CONCRETE COVER.



NOTE: USE 32 PILES THIS PIER

FOOTING PLAN

MAY 4 1973

10/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. CUY-422-1825 R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY
CUY-422-16.33

STA. 954+23.83 TO
STA. 956+66.04

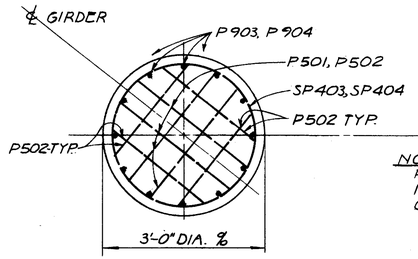
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-3-69	

MICROFILMED
JUL 8 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

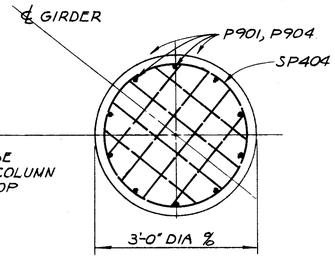
169
258

CUYAHOGA COUNTY
CUY-422-16.33



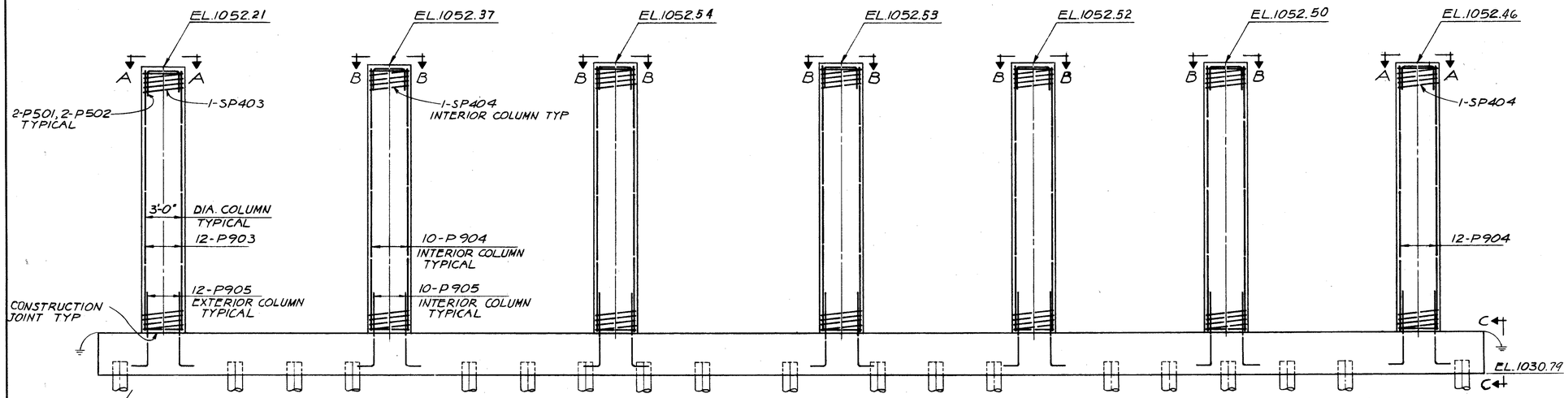
VIEW A-A

NOTE: P501 AND P502 BARS SHALL NOT BE PLACED UNTIL THE CONCRETE FOR THE COLUMN IS POURED UP TO 2.0± FEET FROM THE TOP OF COLUMN.

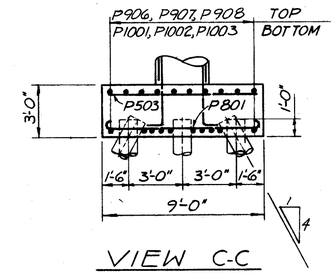


VIEW B-B

BRIDGE SEAT REINFORCING: SPECIAL CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SO AS TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.



ELEVATION
PIER #2 RIGHT BRIDGE



VIEW C-C

NOTES

ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES.

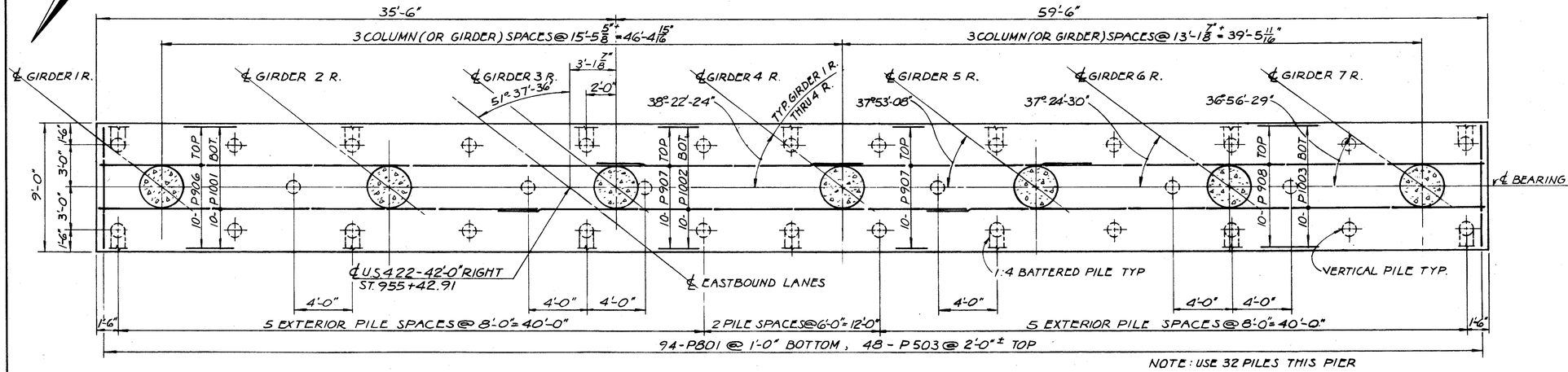
FOR REINFORCING STEEL LIST AND BAR BENDING DETAILS SEE SHEET NO. 17/17

FOR BEARING BASE PLATE DETAIL SEE SHEET NO. 9/17

FOR GEOMETRIC TIE SEE SHEET NO. 3/17

ALL FOOTING REINFORCEMENT SHALL HAVE 3" MINIMUM CONCRETE COVER.

FOR GROUNDING DETAILS AT PIER NO. 2 SEE STD. DWG. HL-7.



NOTE: USE 32 PILES THIS PIER

FOOTING PLAN

11/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. CUY-422-1825 R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY CUY-422-16.33 — STA. 954+23.83 TO STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-3-69	

MAY 4 1973

REV. 8-20-73

MICROFICMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

170
258

CUYAHOGA COUNTY
CUY-422-16.33

℄ WESTBOUND LANES — 42'-0" — ℄ U.S. 422

52'-4" ℅ FASCIA
50'-0" F/F PARAPETS
2" 1'-0" 9" 3" 9" 7'-3" 12'-0" 12'-0" 12'-0" 5'-3" 9" 3" 9" 1'-0" 2"
52'-0"

TYPICAL BAY SPACING OF S601 OR S602 7 EQUAL SPACES
2 SPACES @ 1'-2 3/4" | 6 SPACES @ 9 1/2" | 2 SPACES @ 1'-2 3/4" | TOP | BOTTOM

S603 BARS (o) OVER PIERS TO ALTERNATE WITH S601 BARS AS SHOWN
5'-6" 2'-6"

ALL LONGITUDINAL BARS ARE S 601 OR S 602 EXCEPT AS OTHERWISE NOTED. LAP S 601 OR S 602 1'-11" MINIMUM

CONSTRUCTION JOINTS (LEVEL)
1'-5" 1'-5 1/2" 10"
1 1/2" CLEAR
2" CLEAR (TYP.)
VARIES (SEE NOTE BELOW)
S 701 @ 9" ℄
TOP OF SLAB TO TOP OF WEB
VARIES
2 1/2" Asphalt concrete Wearing surface
2" CLEAR
8 1/2" SLAB
S 701 @ 9" ℄
PROFILE GRADE
S505, S506, S507
S502
S504
S501
S503
2" (TYP.) min. S 703 @ 9" ℄
1" CLEAR
S 702 @ 9" ℄
3" 3"
6" (TYP.) min.
9"
2 1/2" CLEAR TYP.
1/4 (TYP.)
1/4 (TYP.)
1/4 (TYP.)
℄ 1" DIAMETER HALF ROUND DRIP GROOVE (TYPICAL)
SCUPPER
℄ 5' ROUNDING
1" CLEAR (TYP.)
VARIES
VARIES

NOTE: VARIES FROM 3/16"/FT. AT STA. 955+12.40 TO 1/2"/FT. AT STA. 955+83.20

A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

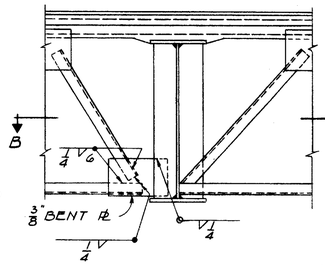
5 GIRDER SPACES @ 9'-7 3/4" = 48'-2 3/4"

L5 3x3x5/16 (TYPICAL)

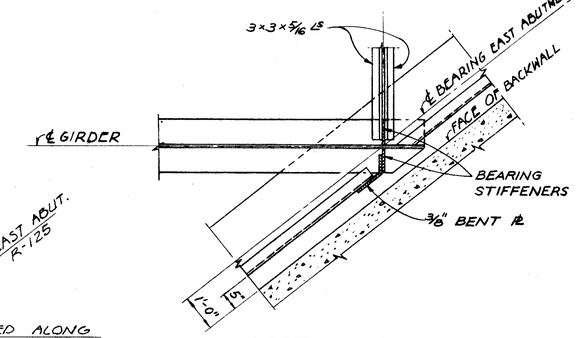
3/8" FILL ℄ TYPICAL EXCEPT 3/4" FILL FOR 3x3x5/16 L5 ATTACHED TO PIER BR'G. STIFFENER AND 5/16" FILL FOR 3x3x5/16 L5 ATTACHED TO ABUT. BR'G. STIFFENER

* NOTE: THIS IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER SECTION 511.18 OF CONSTRUCTION AND MATERIAL SPECIFICATIONS.

DECK REINFORCING BARS: AT THE CONTRACTOR'S OPTION, A PORTION (NOT TO EXCEED 25%) OF THE UPPER LONGITUDINAL BARS (S601 & S602) IN THE DECK SLAB MAY BE PLACED BENEATH THE UPPER TRANSVERSE BARS FOR SUPPORT OF THE TOP MAT.



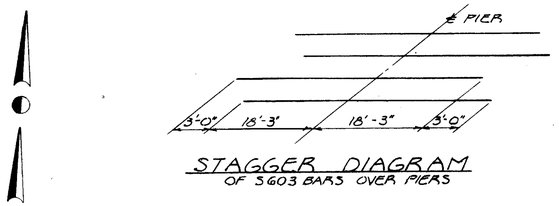
VIEW A-A



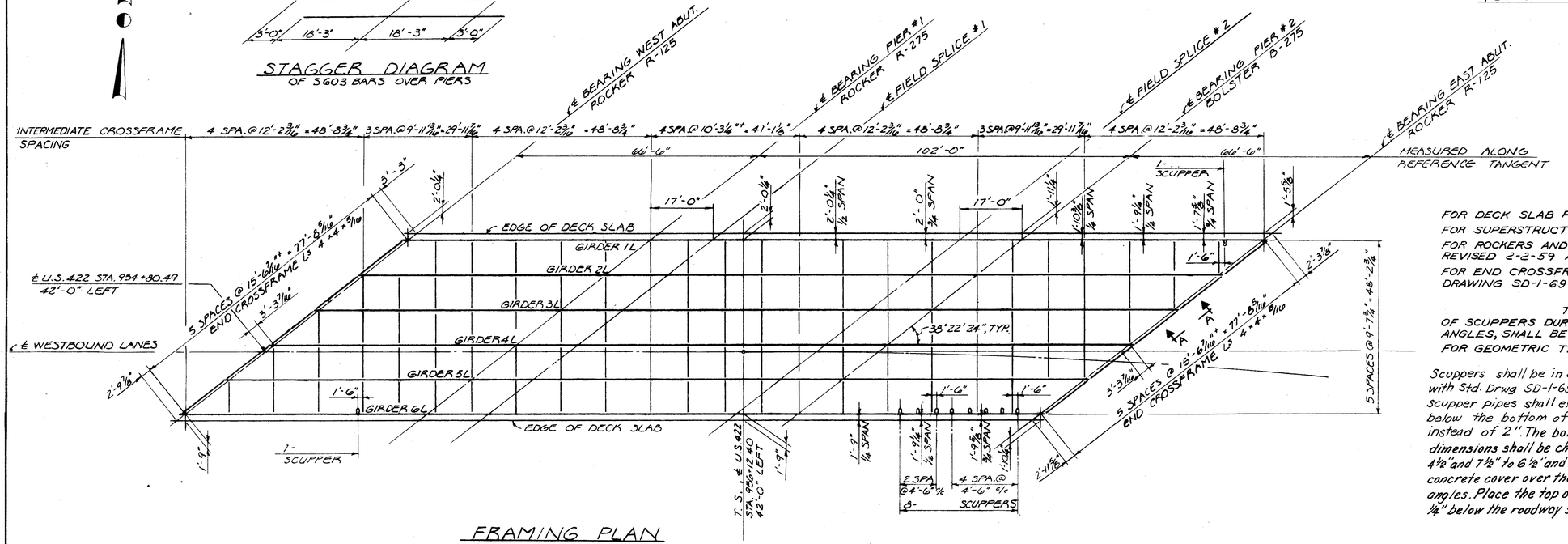
SECTION B-B

TRANSVERSE SECTION

For Sub drain and Wearing Surface Details see Sheet 14/17



STAGGER DIAGRAM
OF S603 BARS OVER PIERS



FRAMING PLAN

NOTES

FOR DECK SLAB PLAN SEE SHEET NO. 15/17
FOR SUPERSTRUCTURE DETAILS SEE SHEET NO. 14/17
FOR ROCKERS AND BOLSTERS SEE STANDARD DRAWING RB-1-55 REVISED 2-2-59 AND SHEET NO. 9/17
FOR END CROSSFRAME AND SCUPPER DETAILS SEE STANDARD DRAWING SD-1-69 DATED 6-12-69 SHEET NO. 1, 2 AND 3 OF 4.

THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT OF SCUPPERS DURING CONSTRUCTION. SCUPPER, INCLUDING SUPPORT ANGLES, SHALL BE GALVANIZED IN ACCORDANCE WITH SEC. 711.02.
FOR GEOMETRIC TIE SEE SHEET NO. 3/17

Scuppers shall be in accordance with Std. Drwg SD-1-69 except that scupper pipes shall extend 8" below the bottom of the beams instead of 2". The box depth dimensions shall be changed from 4 1/2" and 7 1/2" to 6 1/2" and 9 1/2" to insure concrete cover over the support angles. Place the top of the scupper 1/4" below the roadway surface.

MAY 4 1973

12/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRANSVERSE SECTION & FRAMING PLAN
BRIDGE NO. CUY-422-1825 L
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY
CUY-422-16.33
STA. 954+23.83 TO STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	N.K.	L.R.A.	L.E.D.	10-3-69	

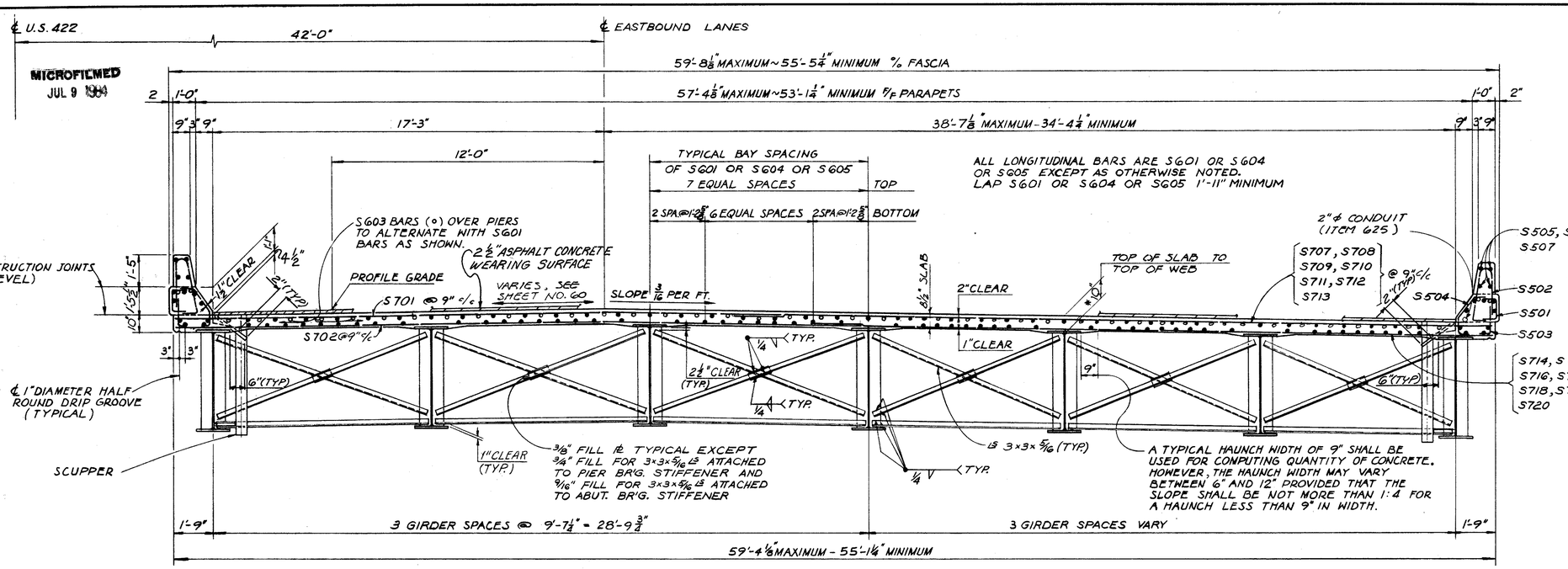
REV. 8-20-73

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

171
258

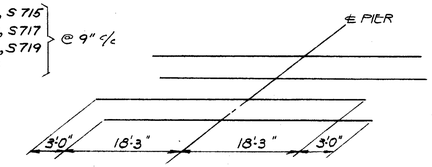
CUYAHOGA COUNTY
CUY-422-16.33



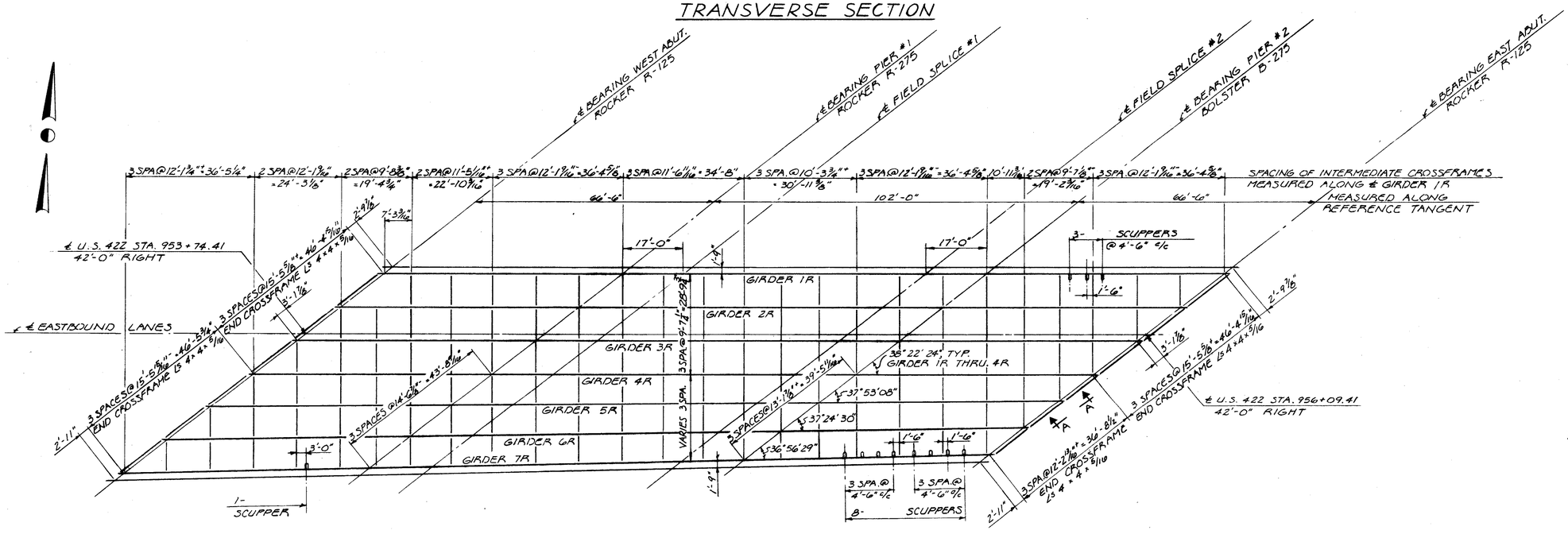
FOR SUBDRAINAGE AND WEARING SURFACE DETAILS SEE SHEET 14/17

TRANSVERSE SECTION

*NOTE: THIS IS THE DESIGN DIMENSION THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER SECTION 511.18 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.



STAGGER DIAGRAM
OF S603 BARS OVER PIERS



FRAMING PLAN

NOTES

FOR DECK SLAB PLAN SEE SHEET NO. 15/17

FOR SUPERSTRUCTURE DETAILS SEE SHEET NO. 14/17

FOR VIEW A-A SEE SHEET 12/17

FOR ADDITIONAL NOTES SEE SHEET NO. 12/17 AND 14/17

DECK REINFORCING BARS: AT THE CONTRACTOR'S OPTION, A PORTION (NOT TO EXCEED 25%) OF THE UPPER LONGITUDINAL BARS (S601, S604 & S605) IN THE DECK SLAB MAY BE PLACED BENEATH THE UPPER TRANSVERSE BARS FOR SUPPORT OF TOP MAT. 13/17

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRANSVERSE SECTION & FRAMING PLAN

BRIDGE NO. CUY-422-1825 R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY
CUY-422-16.33

STA. 954+23.83 TO
STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.R.A.	L.E.D.	10-3-69	

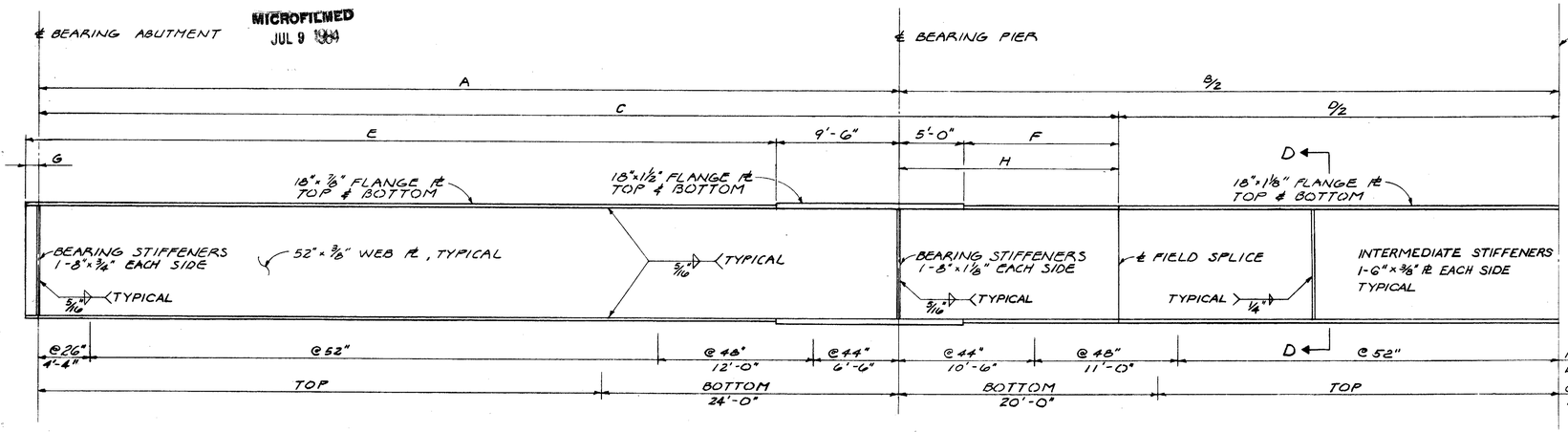
REV. 8-20-73

MICROFILMED
JUL 9 1969

RED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

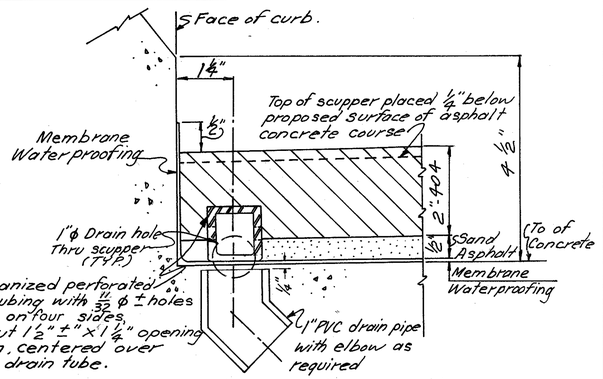
172
258

CUYAHOGA COUNTY
CUY-422-16.33



TYPICAL GIRDER ELEVATION

GIRDER DIMENSION TABLE								
DIMENSION / GIRDER	A	B	C	D	E	F	G	H
GIRDERS 1L THRU 6L GIRDERS 1R THRU 4R	66'-6"	102'-0"	83'-6"	68'-0"	58'-2 1/2"	12'-0"	1'-2 1/2"	17'-0"
GIRDER 5R	67'-2 11/16"	103'-1 3/16"	84'-4 15/16"	68'-8 7/8"	58'-11 15/16"	12'-2 1/4"	1'-2 5/8"	17'-2 1/4"
GIRDER 6R	67'-11 7/16"	104'-2 3/4"	85'-3 7/8"	69'-5 7/8"	59'-8 1/4"	12'-4 7/16"	1'-2 13/16"	17'-4 7/16"
GIRDER 7R	68'-8 1/4"	105'-4 1/4"	86'-0 15/16"	70'-2 7/8"	60'-5 1/4"	12'-6 11/16"	1'-3"	17'-6 11/16"



IN ADDITION TO LOCATION AND SPACING PROVISIONS OF 518.07, THE DISCHARGE FROM THE TUBES SHALL CLEAR CROSS BRACING BY AT LEAST 6". PLACE TOP 1/4" BELOW THE CONCRETE SURFACE, POSITION ACCURATELY TO MATCH 1 1/2" ± x 1 1/4" OPENINGS IN PERFORATED TUBING; HOLES IN TUBING MAY BE CUT IN THE FIELD TO MATCH PLASTIC DRAIN TUBES AS PLACED. PLACE MEMBRANE OVER TUBE, PUNCTURING IF MEMBRANE IS A SHEET TYPE, WITH THE HOLE SEALED AROUND THE LIP OF THE TUBE. INCLUDE WITH ITEM 404 - ASPHALT CONCRETE FOR PAYMENT.

NOTE

THE WEB PLATES MAY BE SHOP SPLICED AS REQUIRED BY AVAILABLE PLATE LENGTHS. THE LOCATION OF SUCH SHOP WEB SPLICES AND THE LOCATION AND DETAILS OF ANY ADDITIONAL SHOP FLANGE SPLICES SHALL BE SUBMITTED TO THE DIRECTOR OF HIGHWAY FOR APPROVAL PRIOR TO THE ORDERING OF MATERIALS.

LOCATE INTERMEDIATE STIFFENERS TO SERVE AS ATTACHMENTS FOR CROSSFRAMES.

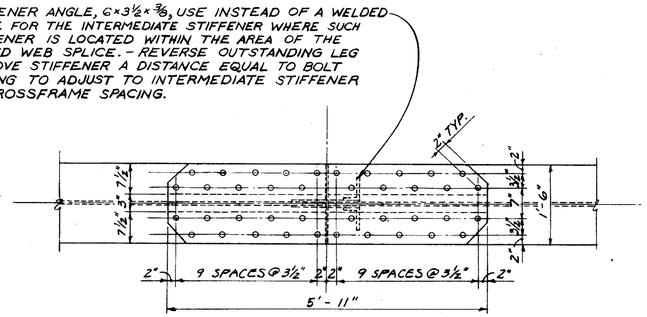
FOR FRAMING PLAN LEFT SEE SHEET NO. 12/17

FOR FRAMING PLAN RIGHT SEE SHEET NO. 13/17

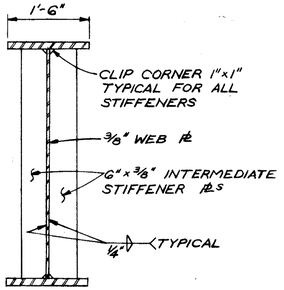
HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER UNLESS OTHERWISE NOTED.

THE STRUCTURAL TUBING SHALL BE HELD IN PLACE DURING PLACEMENT OF THE SAND-ASPHALT AND 404 ASPHALT CONCRETE BY A METHOD APPROVED BY THE ENGINEER.

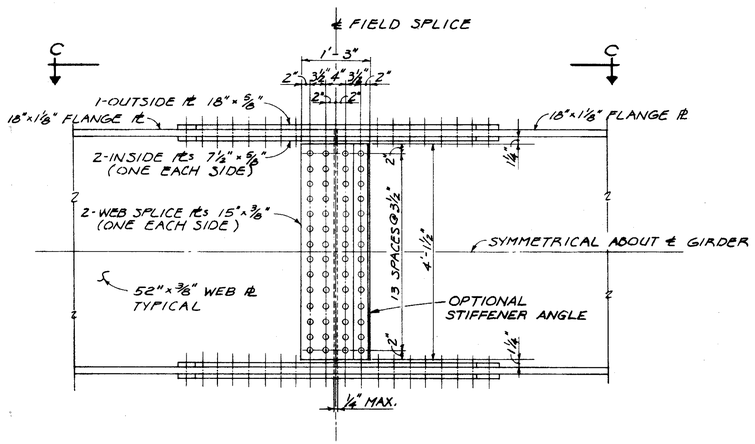
STIFFENER ANGLE, 6"x3 1/2"x 3/8, USE INSTEAD OF A WELDED PLATE FOR THE INTERMEDIATE STIFFENER WHERE SUCH STIFFENER IS LOCATED WITHIN THE AREA OF THE BOLTED WEB SPLICE. - REVERSE OUTSTANDING LEG OR MOVE STIFFENER A DISTANCE EQUAL TO BOLT SPACING TO ADJUST TO INTERMEDIATE STIFFENER OR CROSSFRAME SPACING.



VIEW C-C

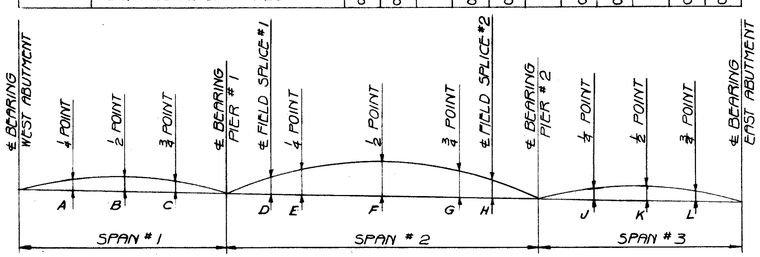


SECTION D-D



FIELD SPLICE DETAIL
(TYPICAL)

DEFLECTION AND CAMBER TABLE												
GIRDER / DESCRIPTION / DIMENSION	A	B	C	D	E	F	G	H	J	K	L
EXTERIOR GIRDERS — DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	1/16"	1/8"	3/16"	1/8"	1/16"	0	0	0
EXTERIOR GIRDERS — DEFL. DUE TO REMAINING DEAD LOAD	1/16"	1/16"	0	1/4"	3/8"	11/16"	3/8"	1/4"	0	1/16"	1/16"
EXTERIOR GIRDERS — REQUIRED SHOP CAMBER	1/16"	1/16"	0	5/16"	1/2"	7/8"	1/2"	5/16"	0	1/16"	1/16"
INTERIOR GIRDERS — DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	1/16"	1/8"	3/16"	1/8"	1/16"	0	0	0
INTERIOR GIRDERS — DEFL. DUE TO REMAINING DEAD LOAD	1/8"	1/8"	0	5/16"	1/2"	13/16"	1/2"	5/16"	0	1/8"	1/8"
INTERIOR GIRDERS — REQUIRED SHOP CAMBER	1/8"	1/8"	0	3/4"	1 3/16"	1"	3/4"	3/16"	0	1/8"	1/8"



CAMBER DIAGRAM

MAY 4 1973

14/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SUPERSTRUCTURE DETAILS

BRIDGE NO. CUY-422-1825 L/R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY CUY-422-16.33 — STA. 954+23.83 TO STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	N.K.	L.R.A.	L.E.D.	10-3-69	

REV. 8-20-73

MICROFILMED
JUL 9 1984

FOR DETAILS OF PILASTER ANCHOR BOLTS AND PILASTER SEE STD. DWGS. HL-3 & HL-4. SET ANCHOR BOLTS ON 15" BOLT CIRCLE.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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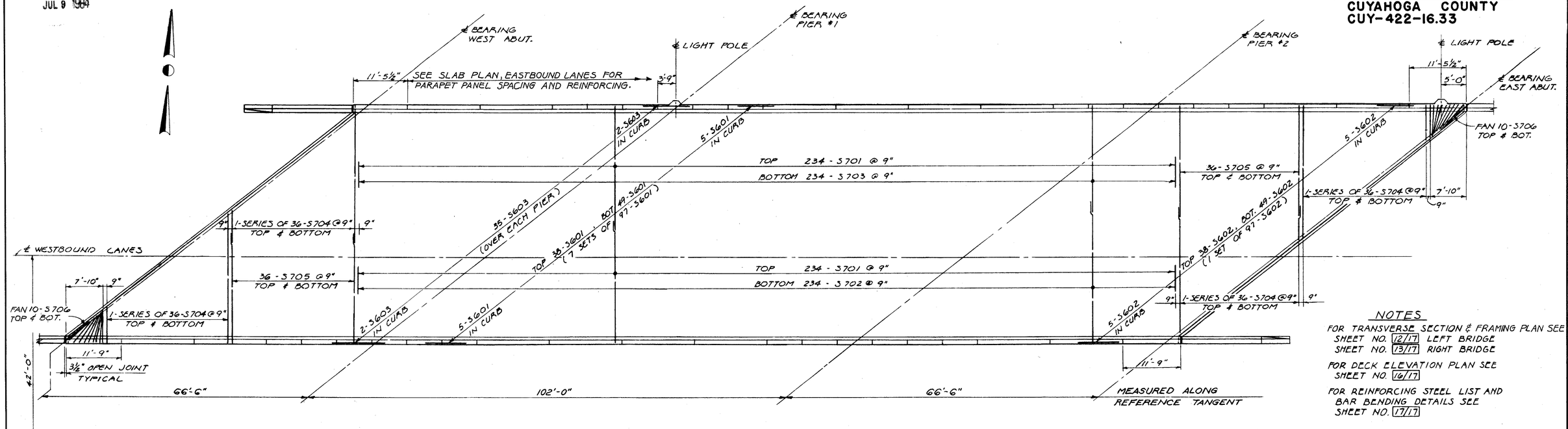
CUYAHOGA COUNTY
CUY-422-16.33



NOTES

FOR TRANSVERSE SECTION & FRAMING PLAN SEE
SHEET NO. 12/17 LEFT BRIDGE
SHEET NO. 13/17 RIGHT BRIDGE

FOR DECK ELEVATION PLAN SEE
SHEET NO. 16/17

FOR REINFORCING STEEL LIST AND BAR BENDING DETAILS SEE
SHEET NO. 17/17

DECK SLAB PLANS

MAY 4 1973

15/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

DECK SLAB PLAN

BRIDGE NO. CUY-422-1825 L/R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	V.I.P.	L.D.	L.E.D.	10-3-69	

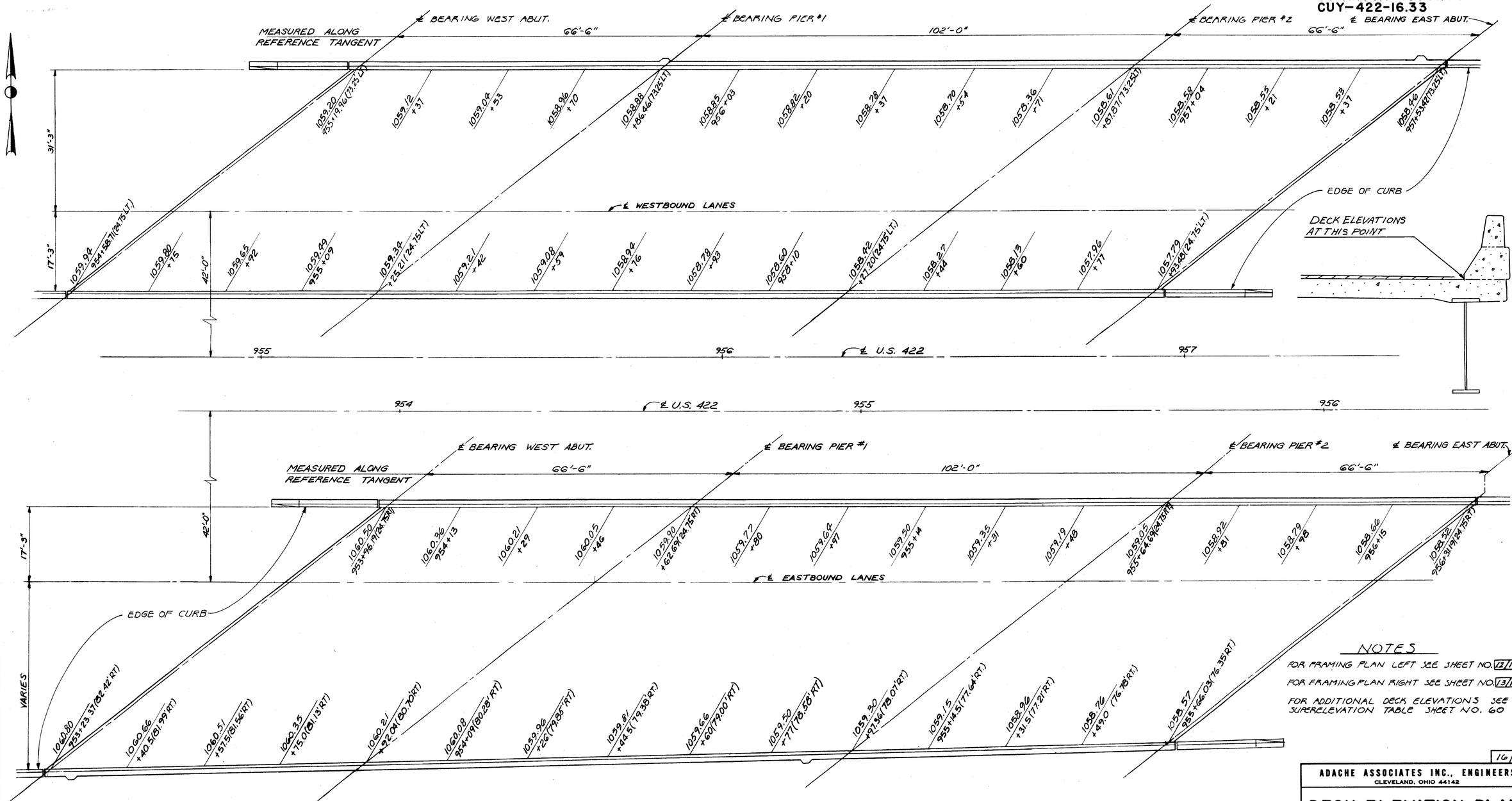
REV. 8-20-73

MICROFILMED
JUL 9 1984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

174
258

CUYAHOGA COUNTY
CUY-422-16.33



DECK ELEVATION PLAN

NOTE: ELEVATIONS SHOWN ARE TOP OF DECK INCLUDING DEAD LOAD DEFLECTION DUE TO WEIGHT OF CONCRETE

NOTES

FOR FRAMING PLAN LEFT SEE SHEET NO. 12/17

FOR FRAMING PLAN RIGHT SEE SHEET NO. 13/17

FOR ADDITIONAL DECK ELEVATIONS SEE SUPERELEVATION TABLE SHEET NO. 60

MAY 4 1973

16/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

DECK ELEVATION PLAN

BRIDGE NO. CUY-422-1825 L/R
U.S. 422 OVER SOLON RD.

CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

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H.G.	V.I.P.	L.R.A.	L.E.D.	10-3-69	

MICROFILMED
JUL 9 1984

REINFORCING STEEL LIST

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

175/258

CUYAHOGA COUNTY
CUY-422-16.33

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	SHAPE
ABUTMENTS										
A401	156	3'-0"	313	7	2'-2"					BT.
A501	216	8'-4"	1877	1	1'-7"	5'-5"	1'-7"			BT.
A502	220	7'-1"	1625	13	6'-7"	8"				BT.
A503	212	7'-2"	1585	1	2'-0"	3'-5"	2'-0"			BT.
A504	2	29'-4"	61							ST.
A505	102	30'-0"	3192							ST.
A506	11	25'-1"	288							ST.
A507	1	25'-1" TO	142							ST.
	SERIES OF	29'-4"								
	5	INCR. 1'-0⅜								
A508	16	6'-0"	100							ST.
A509	44	5'-3"	241							ST.
A510	7	12'-10"	94							ST.
A511	2	13'-10"	29							ST.
A512	2	27'-6"	57							ST.
A513	6	31'-10"	199							ST.
A514	1	27'-6" TO	155							ST.
	SERIES OF	31'-10"								
	5	INCR. 1'-1"								
A515	1	22'-10"	24							ST.
A516	2	10'-3"	21							ST.
A517	4	6'-1"	25	1	2'-0"	2'-4"	2'-0"			BT.
A518	4	4'-11"	21	1	2'-0"	1'-2"	2'-0"			BT.
A519	4	7'-2"	30	1	1'-7"	4'-3"	1'-7"			BT.
A520	19	25'-7"	507							ST.
A521	11	21'-10"	250							ST.
A522	1	21'-10"	124							ST.
	SERIES OF	TO 25'-7"								
	5	INCR. 11¼								
A523	2	10'-9"	22							ST.
A524	3	10'-0"	31							ST.
A525	15	14'-7"	228							ST.
A526	1	10'-0" TO	64							ST.
	SERIES OF	14'-7"								
	5	INCR. 1'-1¾								
A527	1	13'-2"	14							ST.
A528	1	25'-7 TO	145							ST.
	SERIES OF	30'-0"								
	5	INCR. 1'-1⅛								
A529	1	14'-0"	15							ST.
A530	20	21'-6"	448							ST.
A531	1	21'-6" TO	123							ST.
	SERIES OF	25'-7"								
	5	INCR. 1'-0½								
A532	17	17'-0"	301							ST.
A533	2	31'-2"	65							ST.
A534	11	27'-11"	320							ST.
A535	1	27'-11"	154							ST.
	SERIES OF	TO 31'-2"								
	5	INCR. 9¾								
A536	35	19'-2"	700							ST.
A537	6	23'-4"	146							ST.
A538	1	19'-2" TO	111							ST.
	SERIES OF	23'-4"								
	5	INCR. 1'-0½								
A539	24	20'-6"	513							ST.
A540	48	27'-2"	1360							ST.
A541	16	7'-6"	125							ST.
A542	8	26'-0"	217							ST.
A543	92	6'-3"	600							ST.
A544	176	11'-11"	2188	3	2'-7"	3'-2"				BT.
A545	140	2'-0"	292	7	1'-0"					BT.
A546	100	5'-9"	600	16	6"	3'-0"	2'-5"			BT.
A547	24	3'-0"	75							ST.
A548	80	2'-9"	229							ST.
A549	8	3'-3" TO	113							ST.
	SERIES OF	5'-9"								
	3	INCR. 1'-3"								
A550	16	8'-4"	139	8	1'-7"	6'-9"				BT.
A551	48	22'-8"	1135							ST.

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	SHAPE
A601	212	14'-6"	4617	1	6'-7"	5'-5"	2'-10"			BT.
A602	256	19'-8"	7562	2	6'-8"	1'-5"	8'-0"	11"	3'-2"	BT.
A603	79	17'-5"	2067	1	8'-2"	1'-5"	8'-2"			BT.
A604	4	13'-5"	81	1	6'-7"	4'-4"	2'-10"			BT.
A605	4	12'-3"	74	1	6'-7"	3'-2"	2'-10"			BT.
A606	100	8'-1"	1214	5	9"	9"	11½"	6'-3"	1'-2⅝"	BT.
A607	100	18'-10"	2829	1	9'-0"	1'-2"	9'-0"			BT.
A608	12	15'-6"	279	1	2'-10"	5'-5"	7'-7"			BT.
A701	8	4'-4"	71							ST.
A702	8	4'-9"	78	5	9"	2¼"	11½"	3'-2"		BT.
A703	8	4'-10"	79	5	9"	4"	11½"	3'-2"		BT.
A704	8	5'-2"	84	5	9"	6"	11½"	4'-5"		BT.
A705	8	7'-6"	123	5	9"	9"	11½"	5'-8"		BT.
A801	63	30'-0"	5046							ST.
A802	7	26'-2"	489							ST.
A803	7	18'-0"	336							ST.
A804	14	30'-10"	1153							ST.
A805	24	23'-6"	1506							ST.
A806	24	22'-2"	1420							ST.
TOTAL ABUTS = 50,541										
SUPERSTRUCTURE										
S501	838	2'-0"	1748	7	1'-0"					BT.
S502	838	5'-4"	4661	15	2'-2"	2'-5"	7½"			BT.
S503	838	2'-2"	1894	13	1'-8"	8"				BT.
S504	838	3'-8"	3205	5	9"	9"	11½"	10"	8"	BT.
S505	130	15'-2"	2151							ST.
S506	192	7'-2"	1435							ST.
S507	24	11'-2"	280							ST.
S601	1583	30'-0"	71330							ST.
S602	97	40'-0"	5828							ST.
S603	170	39'-6"	10086							ST.
S604	1	12'-0"	1073							ST.
	SERIES OF	TO 19'-9"								
	45	INCR. 2½								
S605	1	12'-0"	1383							ST.
	SERIES OF	TO 19'-9"								
	58	INCR. 1⅜								
S606	5	12'-0"	90							ST.
S607	5	19'-9"	148							ST.
S701	690	27'-0"	38411							ST.
S702	462	30'-0"	28330							ST.
S703	234	24'-0"	11479							ST.
S704	8	8'-1"								ST.
	SERIES OF	TO 28'-9"								
	36	INCR. 7⅛								
S705	144	23'-7"	6941							ST.
S706	40	7'-6"	613							ST.
S707	30	34'-3"	2100							ST.
S708	33	33'-8"	2271							ST.
S709	33	33'-1"	2232							ST.
S710	33	32'-6"	2192							ST.
S711	33	31'-10"	2147							ST.
S712	33	31'-3"	2108							ST.
S713	33	30'-7"	2063							ST.
S714	30	31'-3"	1916							ST.
S715	33	30'-8"	2069							ST.
S716	33	30'-1"	2029							ST.
S717	33	29'-6"	1990							ST.
S718	33	28'-10"	1945							ST.
S719	33	28'-3"	1906							ST.
S720	33	27'-7"	1861							ST.

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E	SHAPE
S721	4	7'-4"	7090							ST.
	SERIES OF	TO 32'-1"								
	44	INCR. 7"								
S722	88	27'-7"	4961							ST.
S723	4	7'-6"	5992							ST.
	SERIES OF	TO 32'-1"								
	39	INCR. 7⅛								
S724	78	25'-5"	4052							ST.
S725	36	6'-11"	509							ST.
L505	16	2'-10"	48							
L506	16	8'-1"	136							
L507	24	7'-3"	180							
L508	16	3'-0"	52							

FOR BENDING DIAGRAMS SEE STD. DWG HL-4

TOTAL SUPER. = 242,935

PIERS

P501	104	5'-3"	569	1	1'-6"	2'-6	1'-6"			BT.
P502	104	4'-11"	533	1	1'-6"	2'-2"	1'-6"			BT.
P503	186	8'-6"	1649							ST.
P801	364	10'-8"	10367	11	8'-6"					BT.
P901	32	17'-1"	1859							ST.
P902	74	17'-6"	4403							ST.
P903	46	17'-10"	2789							ST.
P904	124	18'-5"	7764							ST.
P905	276	6'-10"	6412	13	5'-7"	1'-6"				BT.
P906	70	37'-0"	8806							ST.
P907	40	18'-0"	2448							ST.
P908	20	30'-0"	2040							ST.
P1001	80	30'-0"	10327							ST.
P1002	30	33'-0"	4260							ST.
P1003	10	38'-0"	1635							ST.
P1004	10	18'-0"	775							ST.
SPIRALS			8774							
TOTAL PIERS = 75,410										

REPLACEMENT BARS

RE401	1	6'-3"								ST.
RE501	2	6'-7"								ST.
RE601	6	6'-11"								ST.
RE701	7	7'-3"								ST.
RE801	1	7'-6"								ST.
RE901	2	7'-10"								ST.

SPIRAL REINFORCEMENT

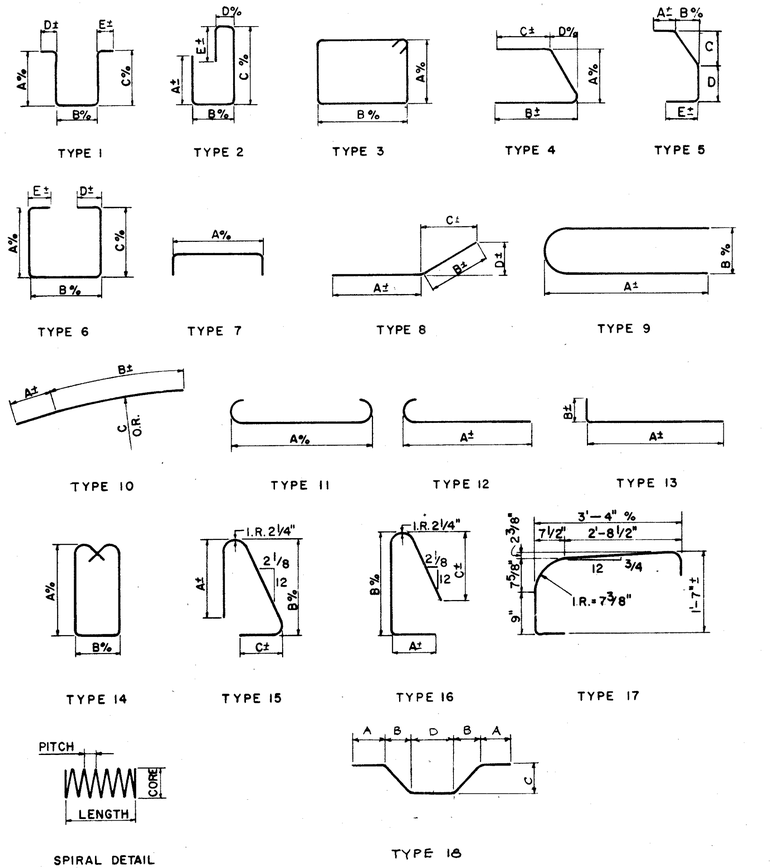
MARK	NO.	LENGTH	WEIGHT	CORE	PITCH	SPACERS
SP401	3	17'-1"	967	32"	4½"	12 - 1×1×⅛ LS
SP402	7	17'-6"	2309	32"	4½"	28 - 1×1×⅛ LS
SP403	4	17'-10"	1343	32"	4½"	16 - 1×1×⅛ LS
SP404	12	18'-5"	4155	32"	4½"	48 - 1×1×⅛ LS

REPLACEMENT BAR

RE402	1	ONE TURN	32"	

NOTE: OTHER SPIRAL REINFORCEMENT DETAILS IN ACCORDANCE WITH C.R.S.I. STANDARD PRACTICE.

BENDING DIAGRAMS



BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED. INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A700 IS A NO. 7 SIZE BAR AND A1014 IS A NO. 10 SIZE BAR.

17/17

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

REINFORCING STEEL LIST

BRIDGE NO. CUY-422-1825 L/R
U.S. 422 OVER SOLON RD.
CUYAHOGA COUNTY STA. 954+23.83 TO
CUY-422-16.33 STA. 956+66.04

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.G.	W.J.S.	W.J.S.	L.E.D.	10-3-69	

MAY 4 1973

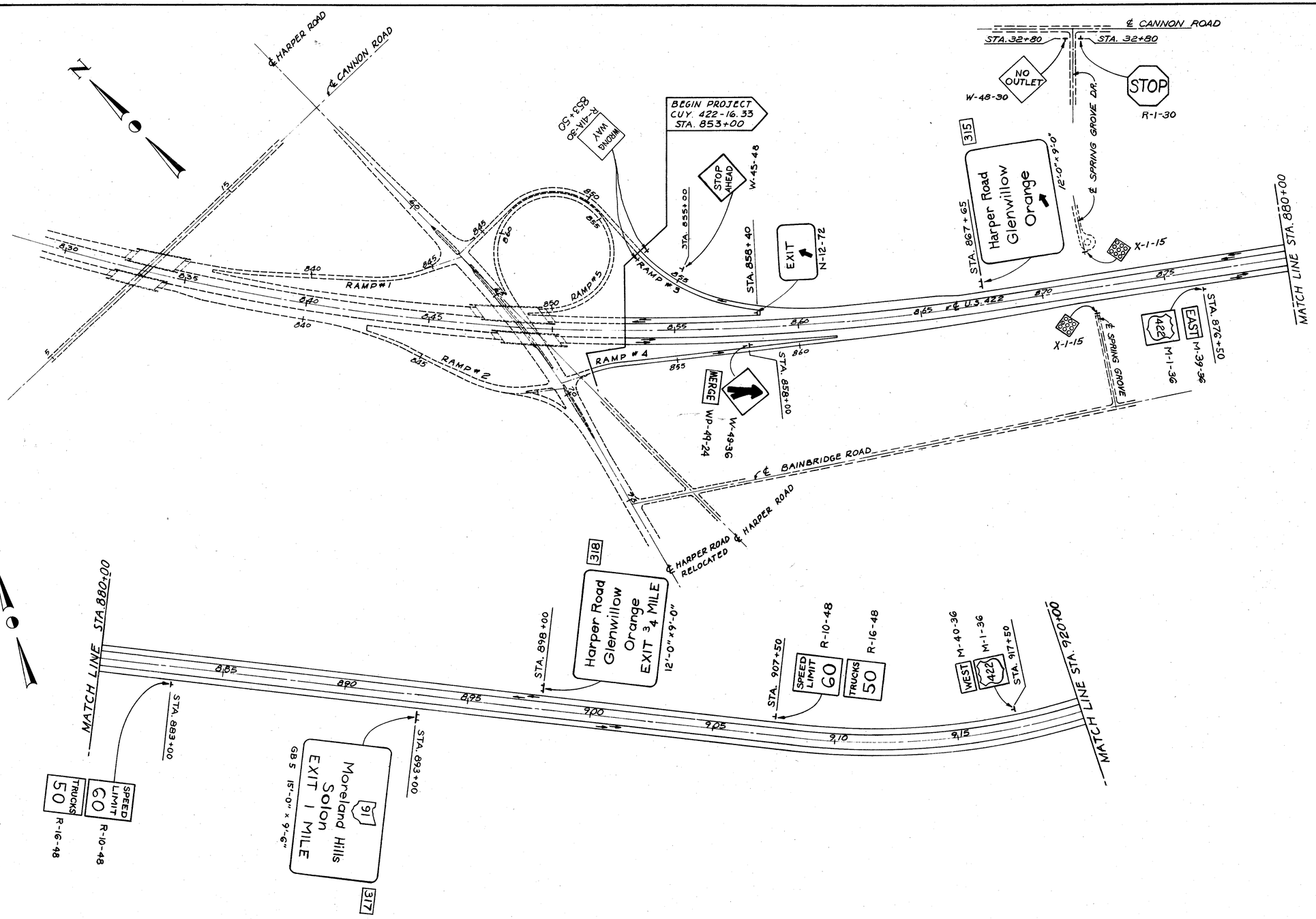
REV. 8-20-73

E-14

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

176
258

CUYAHOGA COUNTY
CUY-422-16.33



MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SIGNING PLAN
U.S. 422

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.H.	D.Z.	W.B.		1-14-72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

177
258

CUYAHOGA COUNTY
CUY – 422 – 16.33

MATCH LINE STA 920+00

STA 925+00

STA 933+35

STA 938+00

STA 51+50

STA 48+00

STA 46+85

STA 44+50

STA 44+00

STA 42+40

STA 40+50

STA 39+10

STA 33+30

STA 32+85

STA 32+30

STA 30+65

STA 29+00

STA 27+50

STA 22+50

STA 945+00

STA 948+00

STA 949+50

STA 952+20

STA 960+65

END PROJECT
CUY. 422-16.33
STA. 962-0364

℄ U.S. 422

℄ SOLON ROAD

℄ CARRIAGE PARK

℄ MAPLE DR.

RAMP #6

RAMP #7

RAMP #8

RAMP #9

RAMP #10

M-37-24
S.R. 91

M-1-24

M-17-24

M-2-24

M-25-20

M-24-20

M-39-24

M-38-24

R-1-36

R-2-48

R-37A-24

R-41B-30

R-41A-30

R-43L-36

R-43R-36

W-49-36

WP-49-24

W-45-48

W-60C-36

D-3 6'-0" x 2'-6"

D-4-2 13'-0" x 4'-0"

D-4-2 13'-0" x 4'-0"

9'-0" x 4'-0"

9'-0" x 6'-6"

15'-0" x 9'-6"

15'-0" x 9'-6"

6'-0" x 5'-0"

8'-0" x 4'-0"

8'-0" x 4'-0"

9'-0" x 4'-0"

8'-0" x 2'-6"

13'-0" x 4'-0"

NORTH

EAST

WEST

Cleveland

Warren

Solon

Moreland Hills

Solon I
Moreland Hills 3

Cleveland
WEST
9'-0" x 4'-0"

EAST
Warren
6'-0" x 5'-0"

WEST EAST

EXIT
N-12-72

JCT
422
M-1-24
M-17-24

STOP
R-1-30

YIELD
R-2-48

DO NOT ENTER
R-41B-30

ONE WAY
R-43L-36
R-43R-36

WRONG WAY
R-41A-30
942+90 Lt
941+70 Rt

WRONG WAY
R-41A-30
938+00 Rt

KEEP RIGHT
R-37A-24

MERGE
W-49-36
WP-49-24

STOP AHEAD
W-45-48

R-38R-24
KEEP RIGHT
RP-38R

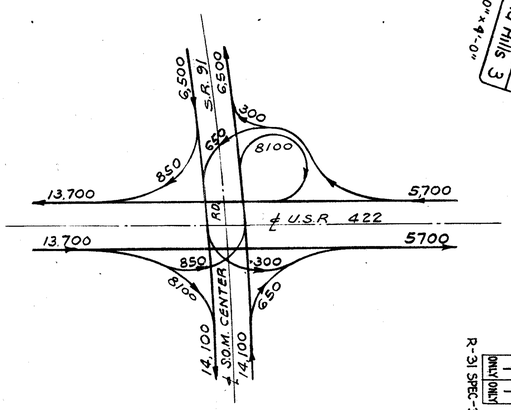
EXISTING TRAFFIC LIGHT
CITY OF SOLON

323
324
325
326
327
320
321

R-31 SPEC-36
ONLY
ONLY

R-41A-30
WRONG WAY
939+40
Rt. & Lt.

S.R. 91 INTERSECTION
1975 A.D.T
(REGIONAL PLANNING COMMISSION)



ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SIGNING PLAN
U.S. 422 & S.R. 91
INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.H.	D.Z.	W.B.		1-14-72

MAY 4 1973

Rev. 11-9-73

Rev. 8-20-73

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

178
258

CUYAHOGA COUNTY
CUY-422-16.33

TRAFFIC CONTROL PLAN

GENERAL SUMMARY *TYPE CODE 7221*

SHEET NUMBERS					ITEM	QUANTITY TOTALS	UNIT	DESCRIPTION
179	181	182	186					
		70			620	70	EACH	DELINEATOR TYPE A POST MOUNTED
		1			620	1	EACH	DELINEATOR TYPE A- BRACKET MOUNTED
		201			620	201	EACH	DELINEATOR TYPE D POST MOUNTED
		8			620	8	EACH	DELINEATOR TYPE D BRACKET MOUNTED
		11.45			621	11.45	MILES	4" EDGE LINE
		0.95			621	0.95	MILES	4" LANE LINE
		4.42			621	4.42	MILES	6" LANE LINE
		3,004			621	3,004	LIN.FT.	8" CHANNELIZING LINE
		2,111			621	2,111	LIN.FT.	BROAD TRANSVERSE LINE
		4,590			621	4,590	LIN.FT.	CURB MARKING
		3,296			621	3,296	SQ.FT.	ISLAND MARKING
		2,526			621	2,526	LIN.FT.	CENTER LINE
		10			621	10	EACH	LANE ARROW
		117			621	117	LIN.FT.	STOP LINE 24" WIDE
	2				625	2	EACH	SIGN SERVICE COMPLETE FOR STRUCTURE MOUNTED SIGN
	2				625	2	EACH	MERCURY VAPOR STRUCTURE MOUNTED SIGN WIRED COMPLETE
	3				625	3	EACH	MERCURY VAPOR SIGN WIRED COMPLETE
	2				625	2	EACH	SIGN SERVICE COMPLETE
	4				625	4	EACH	DISCONNECT SWITCH WITH ENCLOSURE
	4				625	4	EACH	STRUCTURE MOUNTED SIGN SWITCH ENCLOSURE MOUNTING BRACKET
	5				625	5	EACH	480 VOLT MERCURY VAPOR SIGN LIGHTING LUMINAIRE WITH BALLAST AND 100 WATT LAMP
	2				625	2	EACH	GROUNDING, AS PER PLAN
	2				625	2	EACH	GROUND ROD
145	211 144				815	500	SQ.FT.	INTERIM COVERING FOR SIGNS
	210 211				815	1121	SQ.FT.	SIGN ERECTION EXTRU SHEET TYPE
	402				815	402	SQ.FT.	SIGN ERECTION FLAT SHEET TYPE
	171				816	171	LIN.FT.	STRUCTURAL SUPPORT, STEEL BEAM 10 WF 21
	179				816	179	LIN.FT.	STRUCTURAL SUPPORT, STEEL BEAM 12 WF 31
	103				816	103	LIN.FT.	STRUCTURAL SUPPORT, 6# BEAM, DRIVEN
	979				816	979	LIN.FT.	STRUCTURAL SUPPORT, 4# POST DRIVEN
	62				816	62	LIN.FT.	STRUCTURAL SUPPORT, 4# POST, AS PER PLAN DRIVEN
	2				816	2	EACH	COMBINATION LIGHTING AND OVERHEAD SIGN SUPPORT
	2				816	2	EACH	OVERHEAD OVERPASS STRUCTURE MOUNTED SIGN SUPPORT
	5.6				816	5.6	CU.YD.	CONCRETE FOR OVERHEAD SIGN SUPPORTS
	20.3				816	20.3	CU.YD.	CONCRETE FOR GROUND MOUNTED SIGN SUPPORTS
	10				816	10	EACH	BREAK AWAY SIGN SUPPORT CONNECTIONS
			5		621	5	EACH	PAVEMENT MARKING WORD "ONLY"

MAY 4 1973

Rev. 11-9-73

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN
GENERAL SUMMARY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H. 10-13-67	D.Z.	W.B. 10-18-67			1-14-72

Rev. 8-20-73

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

179
258

CUYAHOGA COUNTY
CUY - 422-16.33

T R A F F I C C O N T R O L N O T E S

MATERIALS - GENERAL

MATERIALS TO BE FURNISHED MAY BE SPECIFIED IN THE PLANS BY A GIVEN MANUFACTURER'S CATALOG NUMBER OR TYPE. THIS IS FOR DESCRIPTIVE PURPOSES ONLY AND THE CONTRACTOR MAY ASSUME THAT APPROVED EQUAL MATERIALS MAY BE FURNISHED.

ITEM 816, STRUCTURAL SUPPORTS, STEEL BEAM (TYPE)

THE STRUCTURAL STEEL BEAM SUPPORTS INCLUDING 8 AND 6 POUND BEAMS, 4 POUND DRIVE POST AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123 AND A-153, RESPECTIVELY.

QUANTITIES FOR ITEM 816, "STRUCTURAL SUPPORTS, STEEL BEAM (TYPE)", APPEARING IN THE QUANTITY TABLES ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT SUPPORT LENGTHS PRIOR TO FABRICATION AND GALVANIZING OF SUPPORTS. PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT, WHICH PRICE AND PAYMENT SHALL INCLUDE ALL COSTS IN CONNECTION WITH THE EMBEDMENT OF THE SUPPORTS.

ITEM 816, OVERHEAD SIGN SUPPORT, BY TYPE

ALL COMPONENT PARTS OF THE OVERHEAD SIGN SUPPORTS SHALL BE STEEL, EXCEPT FOR THE TRUSS AND COMPONENTS FOR THE NO. 7 SERIES WHICH SHALL BE ALUMINUM. FOR SPECIFIC DETAILS AND MATERIALS, SEE SHEETS NO. 189 THROUGH 203.

COST OF FURNISHING AND INSTALLING THE SIGN BRACKETS AND THE FIXTURE SUPPORT ARM, LENGTH "G", WITH MOUNTING HOLES AND HARDWARE SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

MODIFYING SUPPLEMENTAL SPECIFICATION 816 SWITCH ENCLOSURE MOUNTING BRACKETS INCLUDING MOUNTING BOLTS AND DRILLED HOLES SHALL BE FURNISHED AND INSTALLED UNDER PAYMENT FOR ITEM 816 OVERHEAD SIGN SUPPORT STRUCTURES AT THE CONTRACT PRICE FOR OVERHEAD SIGN SUPPORT, BY TYPE.

PAYMENT FOR THIS ITEM SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH OVERHEAD SIGN SUPPORT, BY TYPE, INSTALLED IN PLACE AND ACCEPTED, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL ANCHOR BOLTS AND 2-INCH AND 3/4-INCH EMT CONDUIT ELLS (FOR INSTALLATION UNDER ITEM 816, "CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATIONS"), AND FOR FURNISHING AND INSTALLING EACH OVERHEAD SIGN SUPPORT STRUCTURE SHOWN ON SHEETS NO. 189 THROUGH 190. INCLUDING FIXTURE SUPPORT ARMS, SWITCH ENCLOSURE MOUNTING BRACKET, SIGN BRACKETS AND ALL COMPONENT PARTS NECESSARY TO MAKE A COMPLETE WORKABLE INSTALLATION READY FOR SIGN ERECTION, INSTALLATION OF DISCONNECT SWITCH AND ENCLOSURE, GROUND ROD AND WIRE CONNECTIONS AND SIGN WIRING.

ERECTION OF THESE SUPPORTS SHALL BE ACCOMPLISHED IN A MANNER MEETING THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 816.

ITEM 816, CONCRETE FOUNDATIONS, FOR SIGN SUPPORTS

PAYMENT FOR THIS ITEM SHALL BE BASED ON PLAN DIMENSIONS (OR DIMENSIONS AS MODIFIED BY THE ENGINEER IN LIEU OF PLAN QUANTITIES) AS REQUIRED IN SUPPLEMENTAL SPECIFICATION 816.

PAYMENT FOR REINFORCING STEEL AND INSTALLATION ONLY OF 2-INCH AND 3/4-INCH CONDUIT ELLS SHALL BE INCLUDED IN THE COST OF CONCRETE FOUNDATIONS FOR OVERHEAD SIGN SUPPORTS. CONCRETE SHALL BE CLASS "C".

BASIS OF PAYMENT SHALL BE AS FOLLOWS:

1. CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATIONS, PER CUBIC YARD.

2. CONCRETE FOR GROUND MOUNTED SIGN SUPPORT FOUNDATIONS, PER CUBIC YARD.

ITEM 815, SIGN ERECTION, BY TYPE

THE CONTRACTOR SHALL ERECT SIGN PANELS AS INDICATED ON THE SCHEMATIC SIGNING LAYOUT SHEET NO. 183-188 & 191. THE PANELS WILL BE FURNISHED BY OTHERS AND SHALL BE MOUNTED ON THE BRACKETS OR BEAM SUPPORTS PROVIDED IN THE PLANS.

ALL SIGN MATERIAL AND ACCESSORIES WILL BE FURNISHED AND TRANSPORTED BY OTHERS TO A DELIVERY POINT DESIGNATED BY THE CONTRACTOR ON OR NEAR THE SUBJECT PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HANDLING, PROTECTION, AND STORAGE OF THE SIGN PANELS AND ACCESSORIES FROM THE TIME OF UNLOADING BY OTHERS AT THE DELIVERY POINT.

WORK SHALL INCLUDE ASSEMBLY OF SIGN PANELS AND ATTACHMENT OF OVERLAYS IN CONFORMANCE WITH THE SCHEMATIC SIGNING LAYOUTS.

THE CONTRACTOR SHALL SUBMIT, IN THREE COPIES, A SCHEDULE FOR SIGN ERECTION TO THE ENGINEER AT LEAST 120 CALENDAR DAYS PRIOR TO THE START OF ANY SCHEDULED ERECTION WORK. THE SCHEDULE SHALL INCLUDE PROPOSED DATES, SIGN NUMBERS, AND DELIVERY POINT. THE ENGINEER WILL FURNISH COPIES OF THE SCHEDULE TO THE DIVISION TRAFFIC ENGINEER AND TO THE ENGINEER OF TRAFFIC, 450 EAST TOWN STREET, COLUMBUS, OHIO.

THE PRICE BID PER SQUARE FOOT FOR "ITEM 815, SIGN ERECTION, BY TYPE", SHALL INCLUDE PAYMENT FOR ALL NECESSARY EQUIPMENT, LABOR, AND TOOLS TO STORE, ASSEMBLE, AND ERECT THE SIGNS AS SPECIFIED.

ELECTRICAL - GENERAL

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY MATERIAL, LABOR AND FACILITIES REQUIRED TO COMPLETE THE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE DESIGNS, DIMENSIONS AND DETAILS SHOWN IN THE PLANS AND DESCRIBED IN THE SPECIFICATIONS.

ALL MATERIAL, WORKMANSHIP AND CONSTRUCTION METHODS, EXCEPT AS MODIFIED HEREIN, SHALL CONFORM TO THE GENERAL REQUIREMENTS OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, CONSTRUCTION AND MATERIALS SPECIFICATIONS, JANUARY 1, 1971.

ITEM 625, SIGN SERVICE

THIS ITEM SHALL CONSIST OF THE COMPLETION OF THE ELECTRICAL SYSTEM AND COMPONENTS FROM THE CONNECTORS IN THE PULL BOX (INCLUDED WITHIN THE ROADWAY LIGHTING QUANTITIES) TO THE PRIMARY SIDE OF THE DISCONNECT SWITCH.

WORK WILL INCLUDE THE FURNISHING AND INSTALLING (INCLUDING TRENCHING AND BACKFILLING) OF THE 2-INCH GALVANIZED STEEL CONDUIT AND COUPLINGS FROM THE PULL BOX TO THE CONDUIT ELL IN THE SIGN SUPPORT FOUNDATION.

THIS ITEM WILL ALSO INCLUDE THE FURNISHING AND INSTALLING OF THE 1/C 600 VOLT SERVICE WIRE FROM THE CONNECTORS TO THE DISCONNECT SWITCH.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 625, WIRE AND CABLE

WIRE AND CABLE INSTALLATION SHALL CONFORM TO SECTION 625.14 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS AND SHALL BE OF THE SIZES AND TYPES SHOWN ON THE PLANS.

WIRE OR CABLE INSTALLED IN CONDUIT ON OR WITH SIGN STRUCTURES SHALL BE NO. 10 RHH, 600 VOLT STANDARD COPPER WIRE (POLE AND BRACKET CABLE).

CABLE INSTALLED UNDERGROUND LEADING FROM THE PULL BOX TO THE DISCONNECT SWITCH SHALL BE NO. 4 OR NO. 6 SINGLE CONDUCTOR CIRCUIT CABLE.

~~ITEM 625, DISCONNECT SWITCH WITH TYPE "Y" OR "Z" ENCLOSURE~~

THIS ITEM SHALL INCLUDE FURNISHING OF A 30 AMP, 600 VOLT FUSED DISCONNECT SWITCH OF TYPE AND MAKE AS INDICATED ON SHEET NO. 198 & 199 AND SHALL BE MOUNTED IN A NEMA 4 STAINLESS STEEL ENCLOSURE TYPE "Y" OR "Z" AND ATTACHED TO EACH SIGN SUPPORT BY MEANS OF A MOUNTING BRACKET AS DESCRIBED IN DETAIL ON THE ABOVE SHEET & 190.

EACH SWITCH ENCLOSURE SHALL BE FURNISHED WITH ONE PADLOCK. PADLOCKS SHALL HAVE A BRASS BODY AND WROUGHT IRON SHACKLE EQUAL TO RUSSWIN NO. 2882 KA OR MASTER NO. 4 KA OR APPROVED EQUAL.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE PER EACH AT CONTRACT UNIT PRICE, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT TO COMPLETE THIS ITEM OF WORK.

~~ITEM 625, TRANSFORMERS, BY TYPE~~

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING TRANSFORMERS AS DETAILED AND SPECIFIED ON SHEET NO. 181, 198 & 199.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THIS COMPLETE ITEM OF WORK.

~~ITEM 625, BALLAST, BY TYPE~~

BALLAST FOR FIXTURES SHALL BE WEATHERPROOF OUTDOOR TYPE FOR A 120 VOLT, 60 CYCLE SYSTEM AND SHALL PROVIDE LAMP STARTING AT AN AMBIENT TEMPERATURE OF -20 DEGREES F.

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING ALL BALLAST TYPES "A" THROUGH "D" AS DETAILED AND SPECIFIED ON SHEET NO. 181, 198 & 199.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, FURNISHED TO THE JOB FOR INSTALLATION UNDER ITEM 625, "SIGNS WIRED, COMPLETE".

~~ITEM 625, LIGHT FIXTURE WITH LAMP, BY TYPE AND SIZE~~

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING ALL LIGHT FIXTURES AND LAMPS, TYPES AND SIZES AS SPECIFIED ON SHEET NO. 181, 197 & 198.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, FURNISHED TO THE JOB FOR INSTALLATION UNDER ITEM 625, "SIGNS WIRED, COMPLETE".

ITEM 625, GROUND ROD

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING GROUND ROD AND CABLE AS DETAILED AND SPECIFIED ON SHEET NO. 181 & 199.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

~~ITEM 625, SIGNS WIRED, COMPLETE~~

THIS ITEM SHALL CONSIST OF THE COMPLETION OF THE ELECTRICAL SIGN LIGHTING SYSTEM FOR EACH ILLUMINATED SIGN.

WORK SHALL INCLUDE INSTALLATION OF LIGHT FIXTURES AND BALLASTS, AND FURNISHING AND INSTALLATION OF ALL RIGID AND FLEXIBLE CONDUIT, CONDULETS, JUNCTION BOXES, CABLE, FASTENERS, HARDWARE, AND ALL OTHER ITEMS REQUIRED TO ENERGIZE THE SIGN LIGHTING SYSTEM. SEE DETAILS ON SHEET NO.

THE COST OF FURNISHING AND INSTALLING CABLE, CABLE GRIPS, CABLE SPLICE UNITS, AND NECESSARY FASTENERS FROM THE DISCONNECT SWITCH TO THE SIGNS (OR BETWEEN SIGNS) WITHIN SIGN SUPPORT MEMBERS SHALL BE INCLUDED IN THIS ITEM OF WORK.

BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH SIGN WIRED, WHICH PRICE SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS TO PROVIDE A COMPLETE AND ACCEPTED ITEM OF WORK.

ILLUMINATED SIGNS REQUIRING TWO (2) BALLASTS SHALL BE CONSIDERED AS AN EQUIVALENT OF TWO (2) SEPARATE SIGNS FOR DETERMINATION OF PAYMENT QUANTITIES.

ITEM 625, INSPECTION AND TESTING OF SIGN LIGHTING

THE CONTRACTOR SHALL FURNISH ALL LABOR, ELECTRICAL POWER, AND EQUIPMENT NECESSARY TO DEMONSTRATE TO THE ENGINEER THAT NO SHORT CIRCUITS AND UNSPECIFIED GROUNDS EXIST AND THAT THE SIGN CIRCUITS ARE PROPERLY CONNECTED AND OPERABLE PRIOR TO ACCEPTANCE.

THIS DEMONSTRATION SHALL INCLUDE A MEGGARING TEST TO SHOW THAT THE POWER CONDUCTORS ARE NOT GROUNDED AND THAT THE RESISTANCE TO GROUND FOR THE GROUND CONDUCTOR IS NOT MORE THAN 25 OHMS. WHERE RESISTANCE EXCEEDS 25 OHMS, ADDITIONAL LENGTH AND/OR NUMBERS OF RODS SHALL BE INSTALLED PER REQUIREMENTS OF SECTION 625.10.

A VOLTAGE AND AMPERAGE MEASUREMENT SHALL BE MADE AT THE SIGN SUPPORT SWITCH.

WHERE A LOW VOLTAGE TAP TRANSFORMER IS USED, THE VOLTAGE MEASUREMENT SHALL BE USED TO DETERMINE THE APPLICABLE TAP.

AFTER THE SIGN LIGHTING SYSTEM IS COMPLETED, THE ENTIRE SYSTEM SHALL BE OPERATED CONTINUOUSLY EACH NIGHT UNTIL SEVEN (7) CONSECUTIVE DAYS ELAPSE WITHOUT FAILURE OR DEFECT. THE CONTRACTOR SHALL RECORD AND SUBSEQUENTLY CORRECT ANY DEFECTS WHICH MAY DEVELOP AT NO EXTRA COST TO THE STATE.

DURING THE TEST PERIOD, ADJUSTMENTS TO FIXTURE AIMING ANGLES SHALL BE MADE TO OBTAIN MAXIMUM UNIFORMITY AS DIRECTED BY THE ENGINEER.

THE ABOVE MEASUREMENTS, VOLTAGE TAP SELECTION NOTATIONS, AND METHODS OF DEFECT CORRECTION SHALL BE RECORDED AND DELIVERED TO THE ENGINEER FOR INCLUSION IN THE PROJECT RECORDS.

INSPECTION AND TESTING OF THE SIGN LIGHTING SYSTEM SHALL BE CONSIDERED A SUBSIDIARY WORK ITEM AND PAYMENT THEREFORE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RESPECTIVE ITEMS TESTED.

UNDERGROUND UTILITIES

EXTREME CAUTION SHALL BE EXERCISED IN AREAS WITH UNDERGROUND ELECTRICAL CONDUIT OR CABLE, SEWERS, DRAINS, WATER LINES, OR OTHER UNDERGROUND UTILITIES.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL DAMAGE INFLICTED ON UNDERGROUND UTILITIES IN THE EXCAVATION AND PLACEMENT OF SIGN SUPPORT FOUNDATIONS, PROTECTIVE GUARD RAIL, DELINEATORS AND THE LIKE.

CERTIFICATION AND APPROVAL OF SIGN SUPPORT AND SIGN LIGHTING ITEMS

THE CONTRACTOR SHALL SUBMIT THROUGH PROPER CHANNELS THE DRAWINGS, INFORMATION, AND SAMPLES AS REQUIRED BELOW:

A. EIGHT (8) COPIES OF SHOP DRAWINGS AND MATERIAL LISTS FOR APPROVAL
   1. OVERHEAD SIGN SUPPORTS AND BREAKAWAY CONNECTIONS.
   2. SIGN LIGHTING LAYOUT PLAN AND DETAILS FOR WIRING, CONDUIT SIZE AND PLACEMENT FROM SIGN DISCONNECT SWITCH TO FIXTURE.

B. EIGHT (8) COPIES OF CATALOG CUTS, DESCRIPTIONS OF SAMPLES OF FABRICATORS STANDARD ITEMS, AS SHOWN IN THE PLANS, OR THEIR EQUALS, FOR APPROVAL OF THEIR USE.

C. CERTIFICATIONS AND/OR SAMPLES FOR ALL MATERIALS WHICH HAVE BEEN APPROVED ABOVE UNDER "A" AND "B".

D. APPROVAL OF ITEMS UNDER "A" AND "B" SHALL BE IN THE HANDS OF THE CONTRACTOR PRIOR TO ANY PURCHASE OR INSTALLATION.

E. CERTIFICATIONS OF SAMPLES UNDER "C" MUST BE IN HAND AND APPROVED PRIOR TO CONTRACT COMPLETION.

ITEM 815, INTERIM COVERING FOR SIGNS

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING AN INTERIM COVER AND ATTACHMENT MATERIALS FOR SIGNS SO INDICATED IN THE PLANS, OR AS DIRECTED BY THE ENGINEER. THIS ITEM SHALL ALSO INCLUDE THE SUBSEQUENT REMOVAL OF COVERS WHEN DIRECTED BY THE ENGINEER.

MATERIAL FOR COVERING SHALL BE PLASTIC COATED BURLAP BLANKETS IN CONFORMANCE WITH SECTION 705.09.

THE ENGINEER SHALL APPROVE THE METHOD PROPOSED FOR ATTACHING INTERIM COVERS TO SIGNS PRIOR TO INSTALLATION OF COVERS.

WORK SHALL INCLUDE ALL NECESSARY MATERIAL, HARDWARE, LABOR, AND EQUIPMENT REQUIRED TO PERFORM THE REQUIRED ITEM OF WORK.

BASIS OF PAYMENT FOR ITEM 815, "INTERIM COVERING FOR SIGNS", SHALL BE PER SQUARE FOOT.

IN ADDITION TO THE 355 SQUARE FEET REFERRED TO IN THE PLANS, AN ADDITIONAL QUANTITY OF 145 SQUARE FEET FOR ITEM 815, "INTERIM COVERING FOR SIGNS", HAVE BEEN INCLUDED TO COVER SIGNS AS DIRECTED BY THE ENGINEER.

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL NOTES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H. 10-13-69	M.P.	W.B. 10-15-69			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY 422 - 16.33

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T R A F F I C C O N T R O L N O T E S

ITEM 816, ALTERNATE DESIGNS FOR OVERHEAD SIGN SUPPORTS

IF THE CONTRACTOR DESIRES TO FURNISH AN ALTERNATE DESIGN FOR OVERHEAD SIGN SUPPORTS, THE ALTERNATE DESIGNS MUST BE SUBMITTED TO THE STATE AT LEAST 21 DAYS PRIOR TO OPENING OF BIDS. THE BIDDER WILL BE NOTIFIED AS TO ACCEPTANCE OR REJECTION OF ALTERNATE DESIGN AT LEAST 7 DAYS BEFORE BIDS ARE TO BE OPENED. ALTERNATE DESIGNS MUST UTILIZE TUBULAR STRUCTURAL MEMBERS. SUBMISSIONS SHALL BE MADE TO OHIO DEPARTMENT OF TRANSPORTATION, BUREAU OF DESIGN SERVICES 25 S. FRONT STREET, COLUMBUS, OHIO 43216.

ITEM 816, INTERIM STEEL DRIVE POSTS, 4 POUNDS PER FOOT, AS PER PLAN

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING 4 POUND PER LINEAR FOOT STEEL DRIVE POSTS AS SPECIFIED FOR INTERIM LANE WIDTH TRANSITIONS.

THIS ITEM SHALL INCLUDE 4 POUNDS PER FOOT STEEL DRIVE POSTS 11'-0" LONG BOLTED TO THE INSIDE OF INTERIM BARRELS FURNISHED UNDER ITEM 606 USING A MINIMUM OF THREE (3) 5/16-INCH STEEL BOLTS SPACED ON 12 INCH CENTERS.

POST FLANGES SHALL BE 90 DEGREES TO INTERIM EDGE LINES FACING APPROACHING TRAFFIC. STEEL BEARING PLATES 3" x 2" SHALL BE USED AT EACH BOLT OUTSIDE THE BARREL TO PREVENT PULL THROUGH. MOUNTING OF SIGNS ON THE DRIVE POSTS WITH THE BOTTOM OF THE SIGNS 7 FEET ABOVE THE PAVEMENT SHALL BE INCLUDED IN ITEM 815.

THE QUANTITY FURNISHED AND INSTALLED WILL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING DRIVE POSTS INCLUDING NECESSARY HARDWARE, LABOR AND EQUIPMENT.

ITEM 816, STRUCTURAL SUPPORTS, 6-POUND OR 8-POUND BEAM, AS PER PLAN

THIS ITEM SHALL CONSIST OF THE FURNISHING, ASSEMBLY, AND INSTALLATION OF TWO (2) 3-POUND OR 4-POUND PER FOOT DRIVE POSTS (6-POUND BEAM) IN COMBINATION WITH A SQUARE SEAMLESS TUBULAR POST EXTENSION SPLICED TO THE TOP OF THE 6-POUND OR 8-POUND BEAM. DETAILS ARE SHOWN ON SHEET NO. 202.
SQUARE TUBULAR POST MATERIAL SHALL CONFORM TO ASTM A-570 GRADE 'B' AFTER FABRICATION.

WORK SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND HARDWARE NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK.

BASIS OF PAYMENT FOR ITEM 816, "STRUCTURAL SUPPORTS, 6-POUND OR 8-POUND BEAM, AS PER PLAN", SHALL BE PER LINEAR FOOT MEASURED BY TOTAL LENGTH OF COMBINATION BEAM FROM END TO END.

GALVANIZED SUPPORTS

THE STRUCTURAL STEEL BEAM SUPPORTS INCLUDING THE 8-POUND AND 6-POUND BEAMS AND THE 4-POUND DRIVE POST SHALL BE GALVANIZED, AFTER PUNCHING, IN ACCORDANCE WITH ASTM A-153 EXCEPT WHERE ALUMINUM OR STAINLESS STEEL IS SPECIFIED.

ITEM 816, ROCK EXCAVATION

WHERE SOLID ROCK IS ENCOUNTERED IN EXCAVATION FOR SIGN SUPPORT FOUNDATIONS, THE DEPTH TO BE EXCAVATED BELOW ROCK SURFACE MAY BE DECREASED AS DIRECTED BY THE ENGINEER TO A MAXIMUM OF THIRTY-FIVE (35) PERCENT OF DEPTH SPECIFIED IN THE PLANS.

COVER BASES

COVER BASES SHALL BE PROVIDED FOR ALL OVERHEAD SIGN AND SIGNAL SUPPORT FOUNDATIONS THAT ARE LOCATED IN SIDEWALKS, TREE LAWNS OR IN TRAFFIC ISLANDS USED AS WALKS. PAYMENT FOR COVER BASES AND ALL TOOLS, MATERIALS, AND LABOR NECESSARY TO ERECT THE COVER BASES SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 816, "OVERHEAD SIGN SUPPORTS", OR FOR ITEM 816, "SIGNAL SUPPORT".

EXISTING SIGNS

EXISTING SIGNS LOCATED WITHIN THE ROADWORK AREAS WHICH ARE NECESSARY FOR INTERIM OR PERMANENT TRAFFIC CONTROL SHALL BE REMOVED AND RE-ERECTED IN LOCATIONS INDICATED BY THE PLANS OR AS APPROVED BY THE ENGINEER. STOP SIGNS WILL BE MAINTAINED AT ALL TIMES WHILE TRAFFIC IS MAINTAINED. THE COST OF REMOVAL, RE-ERECTION AND SUBSEQUENT REMOVAL IF REQUIRED SHALL BE CONSIDERED A SUBSIDIARY WORK ITEM, THE COST OF WHICH SHALL BE INCLUDED IN THE PRICE BID FOR THE ROADWAY WORK ITEMS. THE SIGNS WHICH ARE TO BE RE-ERECTED ON THE BERMS SHALL BE LOCATED WITH THE CENTER LINE OF SUPPORT ON THE P.I. OF THE SHOULDER.

CAPPING OF CONDUIT

ALL CONDUIT IN FOUNDATIONS WHICH WILL NOT HAVE WIRE OR CABLE PULLED INTO IT DURING CONSTRUCTION SHALL HAVE THE ENDS CLOSED WITH CAPPED BUSHINGS OR OTHERWISE SEALED IN AN APPROVED MANNER TO COMPLETELY KEEP ALL MOISTURE AND FOREIGN MATTER OUT OF THE CONDUIT.

SIGN LOCATIONS

ALL SIGNS SHALL BE PLACED NORMAL TO THE ROADWAY ON WHICH THEY ARE STATIONED UNLESS OTHERWISE NOTED ON THE PLANS.

ITEM 816, OVERHEAD SIGN SUPPORT FABRICATION

IN LIEU OF PLAN DETAILS THE FOLLOWING ARE FABRICATION REQUIREMENTS FOR SUPPORTS IN THIS PROJECT:

ALL HANDHOLES FABRICATED FOR SUPPORTS SHALL BE 4" x 8" IN SIZE WITH FACE FLUSH WITH POLE EXTERIOR AT THE REQUIRED LOCATIONS DESCRIBED IN PLANS.

THE ELECTRICAL SERVICE ENTRY THROUGH EACH VERTICAL SIGN SUPPORT POLE SHALL BE PROVIDED BY MEANS OF A 2 INCH HALF-COUPLING CENTERED AT A HEIGHT OF 5'-0" ABOVE THE BOTTOM OF THE BASE PLATE.

THE TYPE "Y" OR "Z" DISCONNECT SWITCH ENCLOSURE SHALL BE MOUNTED IN SUCH A MANNER THAT THE BOTTOM OF THE ENCLOSURE WILL BE 4'-9-1/2" (± 1/4") ABOVE BOTTOM OF BASE PLATE.

PAYMENT FOR THE FABRICATION REQUIREMENT SPECIFIED ABOVE SHALL BE INCIDENTAL TO THE COST OF EACH SUPPORT STRUCTURE.

ITEM 816, OVERPASS STRUCTURE MOUNTED SIGN SUPPORT BY TYPE

THIS ITEM OF WORK SHALL CONSIST OF THE FURNISHING, FABRICATION, AND ERECTION OF THE MATERIALS FOR THE OVERPASS STRUCTURE MOUNTED SIGN SUPPORTS IN ACCORDANCE WITH MATERIALS AND REQUIREMENTS SPECIFIED IN THESE PLANS AND DETAILED ON SHEET NO.

WORK SHALL INCLUDE ALL NECESSARY FRAMING, SIGN BRACKETS, LIGHT FIXTURE SUPPORT ARMS, WELDING, BOLTS, COMPLETE AND READY FOR INSTALLATION OF ELECTRICAL SIGN LIGHTING COMPONENTS.

BASIS OF PAYMENT SHALL BE AT THE BID PRICE PER EACH OVERPASS STRUCTURE MOUNTED SIGN SUPPORT, BY TYPE INCLUDING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS REQUIRED TO PERFORM THE ITEM OF WORK.

ITEM 816, BREAKAWAY SIGN SUPPORT CONNECTION

THIS ITEM CONSISTS OF CUTTING AND DRILLING THE STRUCTURAL SUPPORT, FURNISHING AND ATTACHING THE FUSE PLATE, AND FURNISHING AND ATTACHING THE BASE PLATES FOR EACH STRUCTURAL SIGN SUPPORT AS INDICATED ON THE PLANS.

ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO FABRICATE AND INSTALL THIS ITEM FOR EACH SIGN SUPPORT (EXCLUSIVE OF THE STRUCTURAL SIGN SUPPORT) WILL BE MEASURED AND PAID FOR AT THE UNIT PRICE BID FOR ITEM 816 EACH BREAKAWAY SIGN SUPPORT CONNECTION.

ITEM 816, CONSTRUCTION LAYOUT STAKES FOR SIGNS

THE CONTRACTOR SHALL STAKE OUT ALL SIGN AND TRAFFIC SIGNAL SUPPORTS IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816 PRIOR TO INSTALLATION OF ANY FOUNDATIONS OR SUPPORTS.

AFTER STAKEOUT THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF SEVEN (7) DAYS IN ADVANCE OF SCHEDULED WORK. SUPPORT LOCATIONS FOR EACH SUPPORT WILL BE FIELD CHECKED AND APPROVED BY THE ENGINEER AND/OR DIVISION TRAFFIC ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION WORK REQUIRED.

IF BOTH MAJOR AND MINOR TYPE SUPPORTS ARE INCLUDED WITHIN THE PROJECT, IT WILL BE PERMISSIBLE TO PERFORM THE CONSTRUCTION STAKEOUT AND FIELD INSPECTION IN TWO (2) STAGES, ONE FOR MAJOR SUPPORTS AND ONE FOR MINOR SUPPORTS.

COST FOR THIS ITEM OF WORK WILL BE INCIDENTAL TO THE VARIOUS 816 ITEMS OF WORK CONTAINED IN THE PROJECT.

ITEM 816, SIGN SUPPORT IDENTIFICATION DECALS

EACH SIGN SUPPORT INSTALLATION SHALL BE IDENTIFIED BY A COMBINATION OF LETTERS AND NUMBERS WHICH WILL INDICATE THE COUNTY, ROUTE, AND STRAIGHT LINE MILEAGE. (SAMPLES: LAK-2-0.02, CUY-90-17.58).

IDENTIFYING NUMBERS SHALL BE AS INDICATED ON SHEET NO. 192 IN THESE PLANS OR AS SPECIFIED BY THE MAINTAINING AGENCY.

IDENTIFICATION SHALL BE BY ADHESIVE TYPE DECALS WITH SILVER WHITE REFLECTIVE CHARACTERS ON A REFLECTIVE INTERSTATE GREEN BACKGROUND IN ACCORDANCE WITH MILITARY SPECIFICATIONS MIL-P-13689A.

THE TOP LEGEND OF THE DECAL SHALL BE LOCATED APPROXIMATELY 8 FEET ABOVE THE GROUND LINE, ON THE QUADRANT OF THE SURFACE OF THE SIGN SUPPORT THAT FACES ONCOMING TRAFFIC.

ITEM 620, DELINEATORS, AS PER PLAN

THE CONTRACTOR SHALL HAVE THE OPTION OF DRIVING OR CONCRETE EMBEDDING THE DELINEATOR POST IN ACCORDANCE WITH DETAILS OF SHEET NO. 204.

POSTS MAY BE TRIMMED ON THE EMBEDDED ENDS TO ADJUST FOR GRADE AND REQUIRED DELINEATOR MOUNTING HEIGHT. CONCRETE SHALL BE CLASS "C".

IN EITHER CASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO UNDERGROUND UTILITIES OR CABLE DURING PERFORMANCE OF THIS ITEM OF WORK.

THE QUANTITY FURNISHED AND INSTALLED SHALL BE PAID FOR AT THE PRICE BID PER EACH, WHICH PRICE SHALL BE FULL COMPENSATION FOR EITHER TYPE OF INSTALLATION.

DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKETS

THIS ITEM SHALL INCLUDE THE FABRICATING, FURNISHING AND INSTALLATION OF DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKETS WHEN ENCLOSURES ARE MOUNTED ON EXISTING OVERHEAD SIGN SUPPORTS (NOT PART OF THIS PROJECT) OR ATTACHED TO CONCRETE BRIDGE COLUMNS OR ABUTMENTS.

WORK SHALL CONSIST OF FIELD DRILLING, ATTACHMENT AND HARDWARE AS DETAILED ON SHEET NO. 190 & 199.

BASIS OF PAYMENT SHALL BE AT THE BID PRICE PER EACH MOUNTING BRACKET WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING, FABRICATION, AND INSTALLATION INCLUDING ALL LABOR, MATERIAL, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

ITEM 625, STRUCTURE MOUNTED SIGNS WIRED, COMPLETE

THIS ITEM SHALL CONSIST OF THE FURNISHING AND/OR INSTALLING THE ELECTRICAL SIGN LIGHTING SYSTEM COMPONENTS FROM THE DISCONNECT SWITCH TO THE LIGHT FIXTURES.

WORK SHALL INCLUDE INSTALLATION OF LIGHT FIXTURES, BALLAST AND THE FURNISHING AND INSTALLATION OF RIGID AND FLEXIBLE CONDUIT, CONDULETS, JUNCTION BOXES, CABLE, FASTENERS, HARDWARE, GROUNDING SYSTEM AND ALL OTHER ITEMS REQUIRED TO ENERGIZE THE SIGN LIGHTING SYSTEM. SEE DETAILS ON SHEET NO. 190, 197, 198 & 199.

BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH SIGN WIRED WHICH PRICE SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS TO PROVIDE A COMPLETE AND ACCEPTED ITEM OF WORK.

ILLUMINATED SIGNS REQUIRING TWO (2) BALLASTS SHALL BE CONSIDERED AS AN EQUIVALENT OF TWO (2) SEPARATE SIGNS FOR DETERMINATION OF PAYMENT QUANTITIES.

ITEM 625, SIGN SERVICE FOR STRUCTURE MOUNTED SIGNS

THIS ITEM OF WORK SHALL CONSIST OF THE COMPLETION OF THE ELECTRICAL SYSTEM AND COMPONENTS CONNECTING THE CONNECTORS IN THE PULL BOX (INCLUDED WITHIN THE ROADWAY LIGHTING QUANTITIES) WITH THE PRIMARY SIDE OF THE DISCONNECT SWITCH.

WORK WILL INCLUDE THE FURNISHING AND INSTALLING (INCLUDING TRENCHING AND BACKFILLING) OF THE 1-1/4 INCH TYPE II OR III METAL CONDUIT AND NO. 12 AWG, 600 VOLT DIRECT BURIAL CABLE FROM THE PULL BOX TO THE SWITCH ENCLOSURE AND SHALL ALSO INCLUDE ALL FITTING AND FASTENERS NEEDED TO COMPLETE THIS ITEM OF WORK.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT THE CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

816 STRUCTURAL SUPPORTS DRIVEN TYPE

DRIVEN TYPE STRUCTURAL SUPPORTS WILL BE DRIVEN TO A DEPTH OF FIVE FEET (5'-0") MINIMUM BELOW GROUND LINE IN SUCH A MANNER THAT NO DEFORMATION WITHIN THE LENGTH OF THE SUPPORT, OR DAMAGE TO THE SUPPORT, WILL OCCUR.

PRIOR TO INSTALLATION EACH SUPPORT SHALL BE SIGNIFICANTLY MARKED WITH PAINT AT A LOCATION ON THE SUPPORT 5'-6" FROM THE EMBEDDED END, AND APPROVED BY THE ENGINEER.

"STRUCTURAL SUPPORTS G LB. BEAM, DRIVEN AND G LB BEAM, AS PER PLAN, DRIVEN," WILL INCLUDE THE 10"x12"x1/4" SOIL PLATE DETAILED IN THE PLANS.

PAYMENT FOR INSTALLATION OF SIGN SUPPORTS BY THE ABOVE METHOD SHALL BE INCLUDED IN THE COST OF THE VARIOUS SUPPORT TYPES SPECIFIED INCLUDING ALL LABOR, EQUIPMENT AND MATERIALS REQUIRED.

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL NOTES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H. 10-15-69	M.P.	W.T.B. 10-15-69			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

1804
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CUY-422-16.33

625 MERCUURY VAPOR SIGN LIGHTING LUMINAIRE, WITH BALLAST AND LAMP, BY RATING

This item of work shall consist of furnishing mercury vapor sign lighting luminaires with lamp and integral ballast as specified below.

The luminaire shall be no more than 8½" high overall by 16" wide by 18¼" deep including the ballast enclosure. These measurements shall be checked when the luminaire is resting on a horizontal table top with the lens up.

The outer housing of the luminaire, the frame for the lens, and the ballast housing shall be of cast aluminum with a finish of gray baked acrylic base enamel.

The lamp housing body shall bave 3-5/16" diameter holes drilled according to the mounting plate design shown on Sheet _____. The centerline of two of the boltholes shall be l 3/8" away from and parallel with the projection of the lamp centerline on the base of the lamp housing.

The reflector shall be made of a single piece of aluminum, die formed to shape and processed to distribute the light evenly over the sign area. A heavy duty mogul base lampholder shall be securely fastened to the reflector and the reflector shall be securely fastened to the lamp housing.

The luminaire shall have a borosilicate glass lens capable of withstanding thermal shock and impact of freezing rain and hail. The lens shall be either clear or have a mild diffusion pattern molded into its inner surface. A permanent, flexible, waterproof sealer shall be used to seal the lens into its frame. A continuous water proof gasket shall be provided to seal the lens and frame unit to the lamp housing. This gasket shall be so designed to stay in the proper position for at least 10 years regardless of the number of times the lens unit is opened for service or adjustment.

The lens unit shall be hinged on one edge and fastened on the other edge with spring loaded latches that require no tools to open. The hinges, latches and all other external fasteners shall be of stainless steel.

The luminaire shall be provided with an integral ballast of at least 90% power factor, and of the constant wattage autotransformer type to provide plus or minus 5% lamp watt variation for a plus or minus 10% line voltage variation. Primary supply voltage shall be 60 hertz and 120, 208, 240, 277 or 480 volts as specified in the plans. The luminaire shall operate satifactorily over any expected outdoor temperatures down to -20 degrees F. Self-ballasted mercury vapor lamp type luminaires are not acceptable.

Basis of payment for this item shall be at contract unit price per each "625 Mercury Vapor Sign Lighting Luminaire With Ballast and Lamp, By Rating" furnished to the job for installation under item 625 Mercury Vapor Lighted Sign Wired Complete.

625 MERCURY VAPOR LIGHTED SIGN, WIRED COMPLETE:

This item shall consist of the installation of the mercury vapor luminaires furnished under "625 Mercury Vapor Sign Lighting Luminaire, with Lamp By Rating". It will also include furnishing and installation of the electrical components and hardware from the disconnect switch to the luminaire including furnishing and installing the 2.16#/ft. aluminum channel and fixture mounting plate with "J" bolts. These items will be mounted on the "G" Support arm which is included with Item 816 Overhead Sign Support By Type.

Luminaires shall be mounted as shown on Sheet _____. Wiring shall be not less than #12 THW in 3/4" dia. conduit. The wires should be continuous from a junction box on the top chord of the sign support or on structure mounted conduit to the first fixture, and then continuous to the second, third and fourth fixtures on a single sign. On multiple sign installations each sign shall have a separate junction box so that, if maintenance is needed, the sign and all electrical devices attached to it can be disconnected as a unit from the support by disconnecting only two wires and the U bolts attaching it to the support.

Conduit for the mercury vapor sign lighting shall be as follows:

1. A screw-on-cover, 1¼" double hub junction box shall be fastened to a 1¼" coupling welded to the top truss chord of the sign support arm with a short 1¼" nipple. On structure mounted signs the junction box shall be attached to the conduit mounted on structure.

2. A length of 3/4" P.V.C. covered flexible waterproof conduit shall connect the junction box through a 1¼"x3/4" bushing to a 3/4" LR or LL condulet on the sign bracket nearest tha pole on which the switch enclosure is mounted.

3. 3/4" rigid conduit shall connect the LR or LL condulet to a 3/4" LB condulet so arranged to line up the short end with the l 1/8" dia. holes in the sign bracket and fixture support arm. This rigid conduit shall be fastened to the sign bracket with not less than 2 conduit clamps placed within 3" of the condulet fittings and not more than 24" c/c.

4. 3/4" rigid conduit shall connect the above LB condulet to the short end of another LB condulet fitting at the other end of the fixture support arm. This conduit shall be run through both 1 1/8" dia. holes in the fixture support arm, be jogged out of the way of the fasteners on the diagonal bracing rods, when required, be fastened near each end an at not less than 24" c/c, and be made to a length that, when screwed into both condulet fittings, the rear condulet shall be approximately centered on the sign bracket web and the front condulet shall fit snugly against the outer plate of the fixture support arm. The long end of the front condulet shall be angled downward approximately 30 degrees, when viewed from the front of the sign, to allow the next piece of conduit to be jogged easily to lay along the centerline and approxmiately 3/8" in front of flange of the channel that supports the lighting fixtures.

5. A 3/4" type "T" condulet fitting shall be located within approximately 18" of the near edge of each fixture on the sign. 3/4" rigid conduit shall be connected from the LB condulet fitting described above to the first "T" condulet. Straight lengths of conduit shall connect as many "T" condulets as are required for the number of luminaires specified for the sign. A threaded plug shall be used to close the opening in the last "T" condulet used on each sign installation. Suitable conduit clamps shall be used on 24" centers to hold the entire run of conduit on the centerline of the channel flange as listed under Item 4 above. The Type "T" condulets shall be so oriented that the third tapped opening shall be perpendicular to the face of the sign.

6. A length of 2/4" P.V.C. covered waterproof flexible conduit shall connect each fixture to each corresponding "T" condulet. The length of this conduit shall be so arranged to make a neat and gradual curve into the fixture without either sharp bends or drooping appearance. Wiring for mercury vapor sign lighting shall be sized and installed according to the National Electrical Code but shall be not less than No. l2 THW and shall be spliced only in junction boxes or in the wiring enclosure of the luminaire. All wiring shall be in conduit, inside structural chords and poles, or in electrical boxes and fixtures. Solderless connectors, of the proper size and type, may be used where splices and junctions are allowed above ground level. However, when used, they shall be securely taped with water resistant electrical tape to form a waterproof joint. When solderless connectors are not used, all splices and junctions above ground shall be soldered and double taped to make a waterproof electrical joint.

Payment for this item shall be at the contract unit price bid for the following:

1. 625 Mercury Vapor Lighted Sign, Wired Complete.

2. 625 Mercury Vapor Lighted Sign, Wired Complete (Structure Mounted).

Payment shall include all labor and materials to connect all luminaires on one sign into the disconnect switch enclosure, including conuit on structure for structure mounted signs. When more than one sign is mounted on an installation, each sign shall be considered as a separate pay item.

DISCONNECT SWITCH WITH ENCLOSURE

This item shall include furnishing of a 30 amp. 600 volt fused disconnect switch in a NEMA 4 stainless steel enclosure attached to each sign support by means of mounting brackets as described in detail on sheet 198.

The disconnect switch shall be a 3 pole, solid neutral type meeting the requirements of 713.19, 10.

The enclosure shall meet the requirements of 713.20 with the following exceptions.

1) The stenciled legend or plate shall read "sign lighting".

2) A chase nipple shall be furnished and installed in the back of the enclosure.

3), Factory installed hubs shall not be provided on the top.

4) A screened ventilation opening shall not be provided.

5) Mounting poles, slots and chase nipple location shall match those provided on the switch enclosure bracket and sign support.

Each switch enclosure shall be furnished with one padlock. Padlocks shall have a brass body and wrought iron shackle equal to Russwin No. 2882 KA or Master No. KA or approved equal. Padlocks shall be all keyed alike with Master Key 3476.

Basis of payment for this item shall be per each at contract unit price, which shall include all labor, material, and equipment to complete this item of work.

MAY 4 1973

SIGN QUANTITIES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-422-16.33

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SHEET	STATION	SIDE	SIGN CODE NUMBER	SIGN ERECTION FLAT SHEET TYPE	SIGN ERECTION EXTRU SHEET TYPE	STRUCTURAL SUPPORT 4 LBS. DRIVE POST		STRUCTURAL SUPPORT 4 LBS. POST		STRUCTURAL SUPPORT 6 LBS. BEAM AS PER PLAN		STRUCTURAL SUPPORT STEEL BEAM 10WF21		STRUCTURAL SUPPORT STEEL BEAM 12WF31		CONCRETE FOR GROUND MOUNTED SIGN SUPPORT FOUNDATIONS		BREAKAWAY CONNECTION
				SQ.FT.	SQ.FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	DIAMETER & DEPTH	CU. YDS.	NO.
	U.S. 422																	
	858+00	RT.	W-49-36 (WP 48-24)	8.0 2.0		2	18											
	858+40	LT.	N-12-72		30			2	18.0 18.0									
	867+65	LT.	315 12'-0"x9'-0"		108							2	28.0 28.0			2-2'-6"ϕx7'-6"	2.72	2
	876+50	RT.	M-99-36 M-1-36	13.5		2	18											
	883+00	RT.	R-10-48 R-16-48	36.0				2	19.0 19.5									
	893+00	RT.	317 GB-5 18'-0"x9'-6"		142.5									2	29.0 31.0	2-2'-6"ϕx9'-0"	3.26	2
	898+00	LT.	318 12'-0"x9'-0"		108							2	23.0 21.5			2-2'-6"ϕx7'-6"	2.72	2
	907+50	LT.	R-10-48 R-16-48	36.0				2	19.5 18.0									
	917+50	LT.	M-10-36 M-1-36	13.5		2	18											
	925+00	RT.	320 15'-0"x9'-6"		142.5									2	29.0 30.0	2-2'-6"ϕx9'-0"	3.26	2
	933+35	RT.	N-12-72		30			2	18.0 18.0									
	934+50	LT.	W-49-36 (WP 48-24)	8.0 2.0		2	18											
	946+00	LT.	W-49-36 (WP 48-24)	8.0 2.0		2	18											
	949+50	RT.	W-49-36 (WP 48-24)	8.0 2.0		2	18											
	952+20	LT.	N-12-72		30			2	18.0 18.0									
	960+65	LT.	321 15'-0"x9'-6"		142.5									2	29.0 31.0	2-2'-6"ϕx9'-0"	3.26	2
	RAMP #3																	
	855+00	LT.	W-45-48	16.0		2	18											
	853+50	Rt&lt	R-41A-30	3.75		NW 2	14.0 14.0											
	RAMP #7																	
	938+00	RT.	D-4-2 13'-0"x4'-0 M-2-24 M-26-20	6.1	52#	1	8.5			2	18.5 19.5							
	942+25	RT.	R-1-36 R-41A-30	15.25		2	14.5											
	939+40	Rt&lt	R-21A-30 R-31SPEC-36	3.75 3.0		NW 2	14.0 14.0											
	942+25	LT.	R-41A-30 R-43R-36 R-43L-36	12.25						1	15.5							
	942+90	RT.	R-2-48	7.0		2	15.0											
	RAMP #8																	
	940+15	LT.	R-1-36 R-41A-30	15.25		2	14.5											
	941+70	Rt	R-41A-30	3.75		2	15.5											
	940+15	RT.	R-41A-30 R-43R-36	12.25						1	15.5							
	942+90	Lt	R-43L-36 R-41A-30	3.75		2	15.5											
	945+00	LT.	D-4-2 13'-0"x4'-0 M-2-24 M-2.5-20	6.1	52#	1	8.5			2	14.0 20.0							
	948+00	LT.	W-48-48 R-41A-30	16.0 3.75		2	18											
	948+00	Rt	R-41A-30	3.75		2	15.5											
	SPRING GROVE DRIVE																	
	32+80	RT.	R-1-30	6.0		2	14.5											
	32+80	LT.	W-48-30	6.3		2	15.5											
			X-1-15	1.6		2	11.0											
			X-1-15	1.6		2	11.0											

SHEET	STATION	SIDE	SIGN CODE NUMBER	SIGN ERECTION FLAT SHEET TYPE	SIGN ERECTION EXTRU SHEET TYPE	STRUCTURAL SUPPORT 4 LBS. DRIVE POST		STRUCTURAL SUPPORT 6 LBS. BEAM		STRUCTURAL SUPPORT 4 LBS. POST AS PER PLAN		STRUCTURAL SUPPORT STEEL BEAM 10WF21		STRUCTURAL SUPPORT STEEL BEAM 12WF31		CONCRETE FOR GROUND MOUNTED SIGN SUPPORT FOUNDATIONS		BREAKAWAY CONNECTION
				SQ.FT.	SQ.FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	PCS.	LENGTH LIN. FT.	DIAMETER & DEPTH	CU. YDS.	NO.
	S.R. 91																	
	22+50	RT.	M-17-24 M-1-24	6.0		2	16.5											
	27+50	RT.	D-3-W8'-0"x2'-6"		20.0 #	2	14.5											
	29+00	LT.	M-38-24 M-2-24	6.0		2	16.5											
	30+65	MED.	R-37A-24	5.0		1	14.5											
	32+30	MED.	M-39-24 M-1-24 M-24-20	8.1		2	14.5											
	33+30	MED.	R-37A-24	5.0		1	14.5											
	39+10	RT.	327 8'-0"x4'-0		32.0	2	17.0											
	40+50	MED.	R-38R-24 RP-38R	8.0		1	14.5											
	41+50	MED.	R-37A-24	5.0		1	14.5											
	44+50	RT.	W-60-36	9.0		2	16.0											
	44+80	MED.	R-38R-24 RP-38R	8.0		1	14.5											
	48+00	RT.	M-37-24 M-2-24	6.0		2	16.5											
	46+85	LT.	D-3-W8'-0"x2'-6"		20.0 #	2	14.5 14.5											
	51+50	LT.	M-17-24 M-1-24	6.0		2	16.5											
	MAPLE DR.																	
	0+40	LT.	R-1-30	6.0		2	14.5											
	CARRIAGE PARK DR.																	
	0+40	LT.	R-1-30	6.0		2	14.5											
	TOTAL			401.8	909.5		9.79		10.3		62				170.5		179.0			15.22	10

144 SQ.FT. INTERIM COVERING FOR SIGNS

SHEET NO.	LOCATION	REFERENCE NO.	STATION	ITEM 625												ITEM 815						CONCRETE FOUNDATION	
				SIGN SERVICE COMPLETE	MERCURY VAPOR SIGN WIRED COMPLETE	STRUCTURE MOUNTED SIGN SERVICE COMPLETE	M.V. STRUCTURE MOUNTED SIGN WIRED COMPLETE	DISCONNECT SWITCH WITH GLX.CLOSURE	400 WATT MERCURY VAPOR LUMINAIRE WITH LAMP WITH BALLAST AND 100 WATT LAMP			OVERHEAD SIGN SUPPORT 100/230 DESIGN 2 MODIFIED	OVERPASS STRUCTURE MOUNTED SIGN SUPPORT	STRUCTURE MOUNTED SIGN SWITCH ENCLOSURE MOUNTING BRACKET	GROUNDING, AS PER PLAN	GROUND ROD UNIT	INTERIM COVERING	SIGN SIZE LENGTH	SIGN SIZE HEIGHT (ACTUAL)	SIGN SIZE HEIGHT (EFFECTIVE)	SIGN ERECTION EXTRUSHEET TYPE	SIZE	CONCRETE
				EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	S.F.	FT.	FT.	FT.	S.F.	DIAM.& DEPTH	C.Y.
	S.R. 91	326	32+85 RT.	1	2			1	2			1				1	1	72	6'-0" 6'-0"	6'-0" 6'-0"	5'-0" 5'-0"	36 36	3'-0"ϕx11'-0	2.8
	S.R. 91	325	35+20 RT.			1	1	1	1				1	2	1		45	9'-0"	5'-0"	4'-0"	45		
	S.R. 91	324	36+77 LT.			1	1	1	1				1	2	1		40	8'-0"	5'-0"	4'-0"	40		
	S.R. 91	323	42+40 LT.	1	1			1	1			1				1	54	9'-0"	6'-0"	5'-0"	54	3'-0"ϕx11'-0	2.8
	TOTAL			2	3	2	2	4	5			2	2	4	2	2	211				211		5.6

MAY 4 1973

Rev. 11-9-73

Rev. 8-20-73

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

SIGN QUANTITIES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H. 10-13-69	D.E.	W.B. 10-15-69	Revised R.G.E.	4-16-73	4-4-72

PAVEMENT MARKING AND DELINEATOR QUANTITIES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-422-16.33

ITEM 621

STATION FROM	STATION TO	SIDE	4" EDGE LINE L.F.	4" LANE LINE L.F.	6" LANE LINE L.F.	8" CHANNEL LINE L.F.	BROAD TRANSVERSE LINE L.F.	CURB MARKING L.F.	ISLAND MARKING S.F.	CENTER LINE L.F.	LANE ARROW EACH	STOP LINE 24"WIDE L.F.
U.S. 422												
853+00	962+04	LT.	21,808		10,904							
858+50	860+35	LT.				370	578					
860+35	863+15	LT.			280							
927+40	929+80	LT.	240	240								
929+80	932+50	LT.	270			270						
939+00	941+00	LT.	200		200							
941+00	943+84	LT.	284			284						
952+30	953+95	LT.				330	515					
953+95	956+75	LT.			280							
853+00	962+04	RT.	21,808		10,904							
861+50	864+35	RT.	285			285						
864+35	866+75	RT.	240		240							
928+60	931+40	RT.			280							
931+40	933+21	RT.				362	553					
951+70	954+35	RT.	265			265						
954+35	956+75	RT.	240		240							
RAMP #3												
853+00	858+54	LT. & RT.	1,108									
RAMP #4												
851+50	860+50	LT. & RT.	1,800									
860+50	861+50	RT.	100									
855+85	861+50	LT.						565				
RAMP #6												
932+50	933+50	LT.	100									
933+50	942+27	LT. & RT.	1,754									
932+50	935+05	RT.						255				
942+27	943+27	LT.						100				
942+27	943+11	RT.	84					84				
943+27	945+02	LT.	175					175				
943+11	943+27	RT.						32	75			
943+27	943+62	RT.				90	56					
RAMP #7												
933+19	941+00	LT. & RT.	1,562									
941+00	942+93	RT.	193					193				
941+00	942+40	LT.	140									
939+75	941+35	C		160								
941+35	941+70	C				70	37		60			
941+70	942+40	C		70				70				
941+63 A	942+64 A	C		112				112				
942+40	942+64 A	C		93				93	85			
942+64	942+94	C				60	30					
942+25	——	C										18
939+75	942+95	C									6	
RAMP #8												
940+00	942+10	RT.						210				
940+00	940+58	LT.						120				
940+16	——											48
940+58	952+30	LT.	1,172									
940+58	946+81	RT.						623				
942+05	946+10	RT.							748			
946+05	952+30	RT.	625									
942+10	946+05	RT.						395				
940+50											1	

ITEM 621 (CONT.)

STATION FROM	STATION TO	SIDE	4" EDGE LINE L.F.	4" LANE LINE L.F.	6" LANE LINE L.F.	8" CHANNEL LINE L.F.	BROAD TRANSVERSE LINE L.F.	CURB MARKING L.F.	ISLAND MARKING S.F.	CENTER LINE L.F.	LANE ARROW EACH	STOP LINE 24"WIDE L.F.
RAMP #9												
942+05	943+05	RT.						145				
942+05	942+34	LT.						29				
943+05	951+70	RT.	865									
942+34	950+70	LT.	836									
949+10	951+70	LT.						260				
RAMP #10												
943+84	954+91	LT.	1,107									
954+91	957+10	LT.						219				
943+84	945+84	RT.						200				
944+84	948+60	RT.	376									
948+60	952+80	RT.						420				
949+30	952+80	RT.							748			
955+91	956+31					80	40		110			
S.R. 91												
25+00	29+25	LT.	425									
26+00	46+90	LT.		2,090								
29+00	46+90	RT.		1,790								
26+25	29+25	RT.	300									
26+00	30+54	C								908		
29+00	30+54	C				308*	270*					
30+50	32+50	C							189			
41+00	42+00	LT.	100									
38+80	39+10	RT.	30									
33+20	34+85	C							868			
40+53	40+80	C							224			
38+82	39+82	RT.	100									
33+25	34+25	C				100				3	13	
41+45	41+60	C							189			
45+25	46+90	C				130*	32*			350		
47+80	52+64	LT. & RT.	968									
47+80	52+64	C								968		
MAPLE DRIVE												
0+00	2+00		435					160		140		16
CARRIAGE PARK DR.												
0+00	2+00		480					130		160		22
SPRING GROVE DR.												
0+09	4+61			452								
TOTAL			60,475	5,007	23,328	3,004	2,111	4,590	3,296	2,526	10	117
TOTAL MILES			11.45	0.95	4.42							

* yellow

ITEM 620

STATION FROM	STATION TO	SIDE	INTERVAL L.F.	A POST EACH	A BRACKET EACH	D POST EACH	D BRACKET EACH	POST EACH	BRACKET EACH
U.S. 422									
853+00	858+50	LT.	200	3					
858+50	859+10	LT.	60			2			
859+10	861+50	LT.	80			3			
861+50	866+50	LT.	100			5			
866+50	922+50	LT.	200	27					
922+50	932+50	LT.	100			11			
932+50	943+84	LT.	100			8	2		
943+84	952+29	LT.	200	4					
952+29	955+40	LT.	80			3	1		
955+40	962+04	LT.	100			3	2		
853+00	858+35	RT.	200	2					
861+50	871+00	RT.	100			9			
871+00	925+00	RT.	200	26					
925+00	930+00	RT.	100			6			
930+00	933+21	RT.	80			4			
933+21	950+25	RT.	200	8	1				
950+70	962+04	RT.	100			8	3		
RAMP #3									
853+00	858+54	LT. & RT.	50			11			
RAMP #4									
851+50	861+50	LT. & RT.	50			12			
RAMP #6									
932+50	934+10	LT.	80			2			
934+10	943+00	RT.	50			18			
RAMP #7									
933+19	940+00	RT.	100			7			
940+00	941+20	RT.	60			2			
RAMP #8									
940+90	942+70	LT.	60			4			
942+70	945+40	LT.	30			9			
945+40	947+20	LT.	60			3			
947+20	952+20	RT.	50			11			
RAMP #9									
943+00	945+10	RT.	30			8			
945+10	947+10	RT.	60 & 70			3			
947+10	950+10	LT.	50			7			
950+10	951+70	RT.	80			2			
RAMP #10									
943+84	945+40	LT.	60			3			
945+40	955+00	RT.	30			33			
955+00	957+10	LT. & RT.	50 & 60			4			
TOTAL				70	1	201	8		

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

PAVEMENT MARKING AND DELINEATOR QUANTITIES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H. 10-19-72	D.Z.	J.S. 10-15-73	Reviewed R.S.E.	4-16-73	11-14-72

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FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
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END PROJECT
CUY-422-13.96
STA. 853+00

BEGIN PROJECT
CUY-422-16.33
STA. 853+00

RAMP #3
RAMP #5

R-4A-30
WRONG WAY
STA. 853+50

STA. 855+00
STOP AHEAD W-45-48

RAMP #3
STA. 858+40
℄ U.S. 422 STA. 858+53.91 16' RT. =
℄ U.S. 422 STA. 858+50.00 77' LT.

EXIT N-12-72

STA 861+57.74

STA. 864+00
MATCH LINE

℄ HARPER ROAD

℄ U.S. 422

RAMP #4

STA. 858+00

MERGE W-49-36
WP-49-24

US 422 STA. 861+50
RAMP #4 STA. 861+50

LEGEND

- A* 4" EDGE LINE
- B 4" LANE LINE
- C 8" CHANNEL LINE
- *D BROAD TRANSVERSE LINE
- *E CURB MARKING
- F ISLAND MARKING
- G BARRIER LINE
- H LANE ARROW
- J STOP LINE 24" WIDE
- K 6" LANE LINE
- ○ SINGLE WHITE DELINEATOR
- □ DOUBLE AMBER DELINEATOR

- COMBINATION SIGN & LIGHT
- PULL BOX
- STRUCTURE MOUNTED SIGN
- CONDUIT

* LEFT HAND (IN DIRECTION OF TRAFFIC) EDGE LINES, CURB MARKINGS, AND BROAD TRANSVERSE LINES ON ALL DIVIDED ROADWAYS AND RAMPS WILL BE YELLOW.

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H.	D.Z	W.B.			1-14-72

Rev. 8-20-73

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-422-16.33

℄ SPRING GROVE DRIVE

X-1-15
(MOUNTED 4'-0" CLEAR ABOVE PAVEMENT)

315
Harper Road
Glenwillow
Orange
12'-0" x 9'-0"

PT. STA. 867+58.80
STA. 867+65

MATCH LINE STA. 864+00

865 866 867 868 869 870 871 872 873 ℄ U.S. 422 874 875 876 877 878 879

+35 +75

STA. 871+50

X-1-15
(MOUNTED 4'-0 CLEAR ABOVE PAVEMENT)

℄ SPRING GROVE DRIVE

422 EAST
M-1-36 M-39-36

STA. 876+50

MATCH LINE STA. 880+00

881 882 883 884 885 886 887 888 889 ℄ U.S. 422 890 891 892 893 894 895

STA. 883+00

SPEED LIMIT 60 R-10-48
TRUCKS 50 R-16-48

91
Moreland Hills
Solon
EXIT 1 MILE
317
GB 5 15'-0" x 9'-6"

STA. 893+00

MATCH LINE STA. 896+00

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H.	D.Z.	W.B.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

185
258

CUYAHOGA COUNTY
CUY-422-16.33

MATCH LINE 896+00

STA. 898+00

318 Harper Road
Glenwillow
Orange
EXIT ¾ MILE
12'-0" x 9'-0"

897 898 899 900 901 902 ℄ U.S. 422 903 904 905 906 907 908 909 910 911

R-10-48 SPEED LIMIT 60

R-16-48 TRUCKS 50

STA. 907+50

T.S. STA. 908+27.89

MATCH LINE 912+00

S.C. STA. 912+27.82

913 914 915 916 917 918 919 ℄ U.S. 422 920 921 922 923 924 925 926 927

STA. 917+50

M-40-36 WEST
M-1-36 422

C.S. STA. 923+43.41

S.T. STA. 927+43.41

+40

MATCH LINE 928+00

STA. 925+00

91 Moreland Hills
Solon
15'-0" x 9'-6"

320

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
A.H.	D.E.	W.T.B.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY
CUY-422-16.33

MATCH LINE STA. 42+00

MATCH LINE STA. 928+00

RAMP #6 STA. 932+50 = ℄ U.S. 422 STA. 932+50

STA. 934+50

W-49-36

VIP-49-24

MERGE

RAMP #6

℄ U.S. 422

℄ SR 91

RAMP #7 STA. 935+26 = ℄ U.S. 422 STA. 933+20

STA. 933+35

N-12-72

EXIT

RAMP #7

STA. 938+00

STA. 942+25

STA. 32+80

STA. 36+77

STA. 40+50

R-37A-24

KEEP RIGHT

8'-0" x 4'-0"

324

EAST Warren 422

R-43L-36

ONE WAY

R-41B-30

DO NOT ENTER

R-43R-36

R-41A-30

WRONG WAY

R-31SEC-36

36"x36"

ONE WAY

699+50

(6 Locations)

M-24-20

M-1-24

422

M-39-24

EAST

D-4-2

Solon

Moreland Hills 3

13'-0" x 4'-0"

M-25-20

91

M-2-24

STOP

R-1-36

DO NOT ENTER

R-41B-30

MATCH LINE STA. 32+00

LEGEND

*A	4" EDGE LINE
B	4" LANE LINE
C	8" CHANNEL LINE
*D	BROAD TRANSVERSE LINE
*E	CURB MARKING
F	ISLAND MARKING
G	BARRIER LINE
H	LANE ARROW
J	STOP LINE 24" WIDE
K	6" LANE LINE
L	WORD "ONLY"
○	SINGLE WHITE DELINEATOR
□	DOUBLE AMBER DELINEATOR

COMBINATION SIGN & LIGHT

PULL BOX

STRUCTURE MOUNTED SIGN

CONDUIT

*LEFT HAND (IN DIRECTION OF TRAFFIC) EDGE LINES, CURB MARKINGS AND BROAD TRANSVERSE LINES ON ALL DIVIDED ROADWAYS AND RAMPS WILL BE YELLOW.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H.	D.E.	W.T.B.			1-14-72

Rev. 11-9-73 MAY 4 1973

Rev. 8-20-73

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
CUY-422-16.33

MATCH LINE STA. 42+00

STA. 940+15

R-41B-30 DO NOT ENTER

STOP R-1-36

STA. 940+50

STA. 940+15

RAMP #10

STA. 945+00

M-2-24 91 M-25-20 Solon Moreland Hills 3 D-4-2 13'-0" x 4'-0"

R-43R-36 ONE WAY

R-41B-30 DO NOT ENTER

R-43L-36 ONE WAY

R-41A-30 WRONG WAY 941+30 Rt 940+90 Lt

KEEP RIGHT R-37A-24

STA. 39+10

WEST Cleveland 327 8'-0" x 4'-0"

℄ S.R. 91

RAMP #10 STA. 943+84.28 = ℄ U.S. 422 STA 943+84.28

STA. 946+00

W-49-36 WP-49-24 MERGE

STA. 948+00

STOP AHEAD W-45-48

R-41A-30 WRONG WAY 948+00

RAMP #8 950

STA. 952+20

EXIT N-12-72

RAMP #8 STA. 952+30.35 = ℄ U.S. 422 STA 952+29.00

℄ SOLON ROAD

STA. 958+00

MATCH LINE

321 91 Moreland Hills Solon 15'-0" x 9'-6"

STA. 960+65

END PROJECT CUY. 422 - 16.33 STA. 962+03.64

℄ U.S. 422

STA. 35+20

WEST Cleveland 325 9'-0" x 4'-0"

EAST Warren 326 6'-0" x 5'-0"

KEEP RIGHT R-37A-24

STA. 33+30

STA. 32+85 49.0' RIGHT

RAMP #9

STA. 949+50

W-49-36 WP-49-24 MERGE

RAMP #9 STA. 951+70 = ℄ U.S. 422 STA. 951+70

MATCH LINE STA. 32+00

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H.	D.Z.	W. 73.		MAY 4 1973	1-14-72

Rev. 11-9-73

Rev. 8-20-73

FED. RD. DIVISION	STATE	PROJECT	
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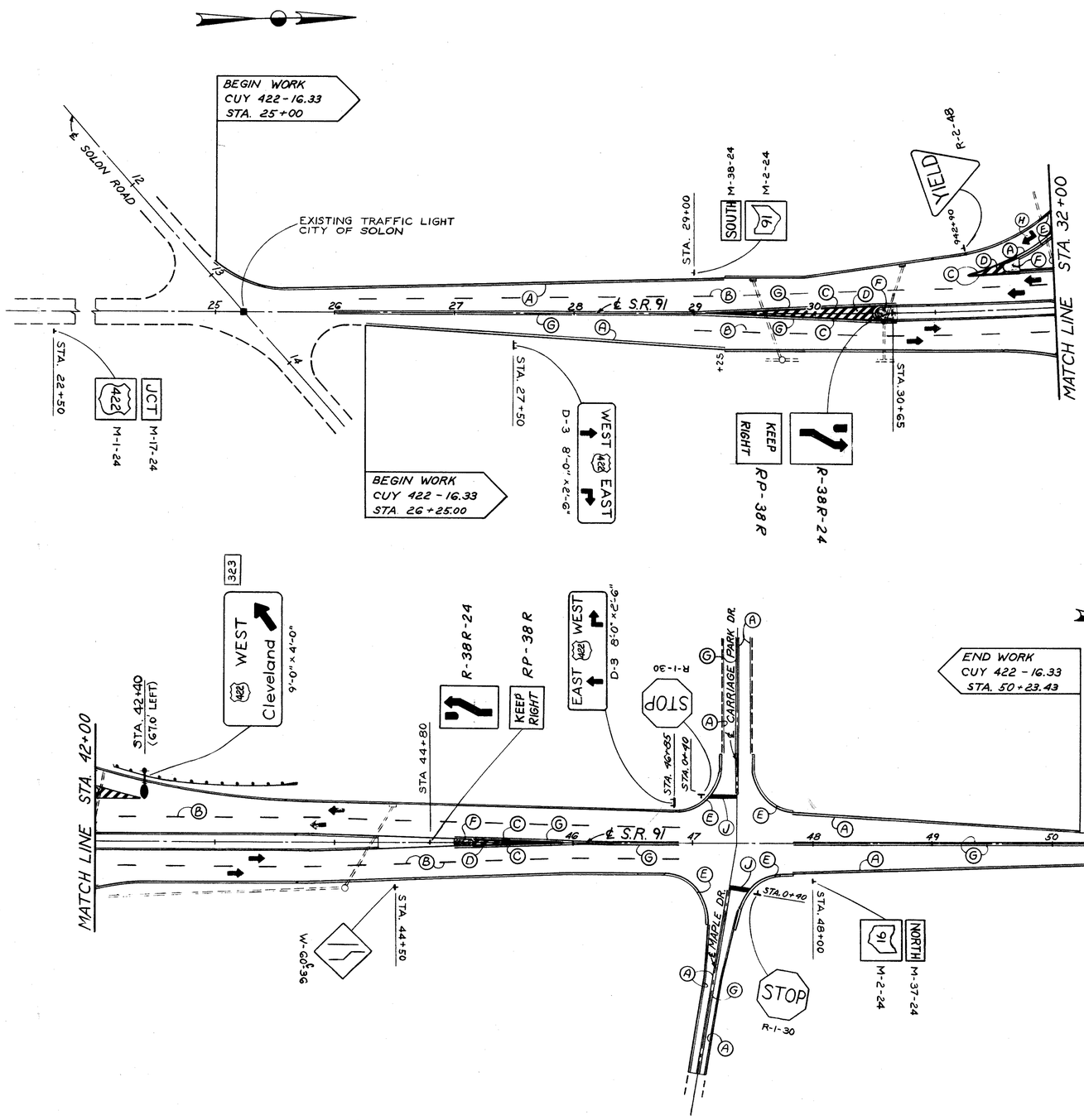
CUYAHOGA COUNTY
CUY-422-16.33



LEGEND

- A 4" EDGE LINE
- B 4" LANE LINE
- * C 8" CHANNEL LINE
- * D BROAD TRANSVERSE LINE
- E CURB MARKING
- F ISLAND MARKING
- G BARRIER LINE
- H LANE ARROW
- J STOP LINE 24" WIDE
- K 6" LANE LINE

* shall be yellow on this sheet only

- ○ SINGLE WHITE DELINEATOR
- ▣ DOUBLE AMBER DELINEATOR

- COMBINATION SIGN & LIGHT
- PULL BOX
- STRUCTURE MOUNTED SIGN
- CONDUIT

MAY 4 1973

Rev. 11-9-73

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.H.	D.E.	W.T.B.			1-14-72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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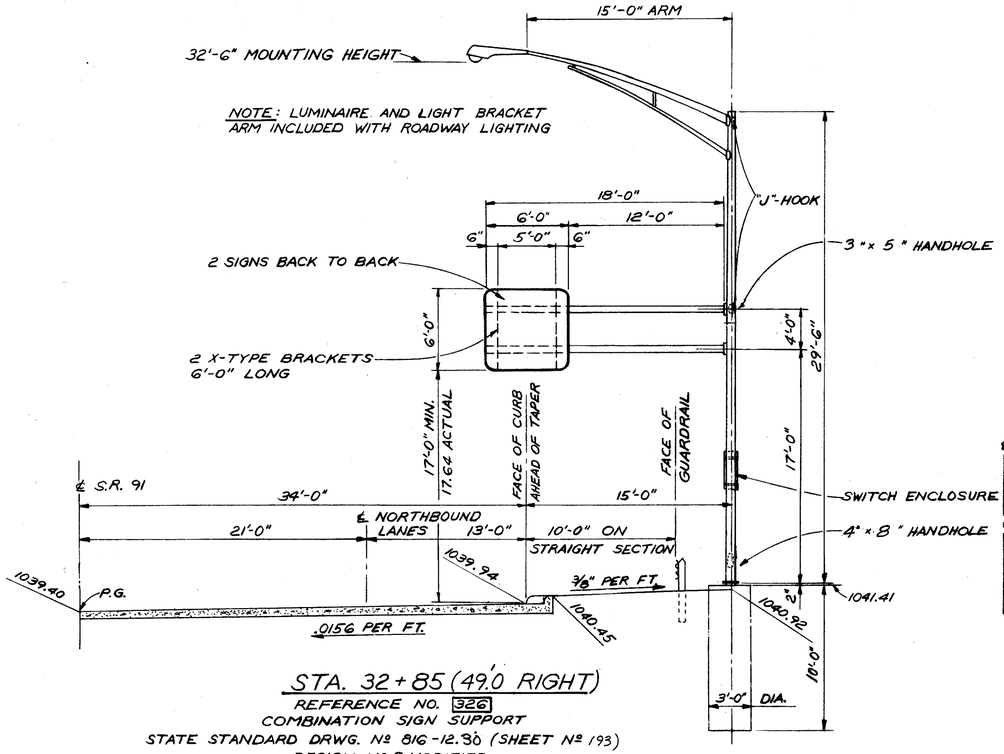
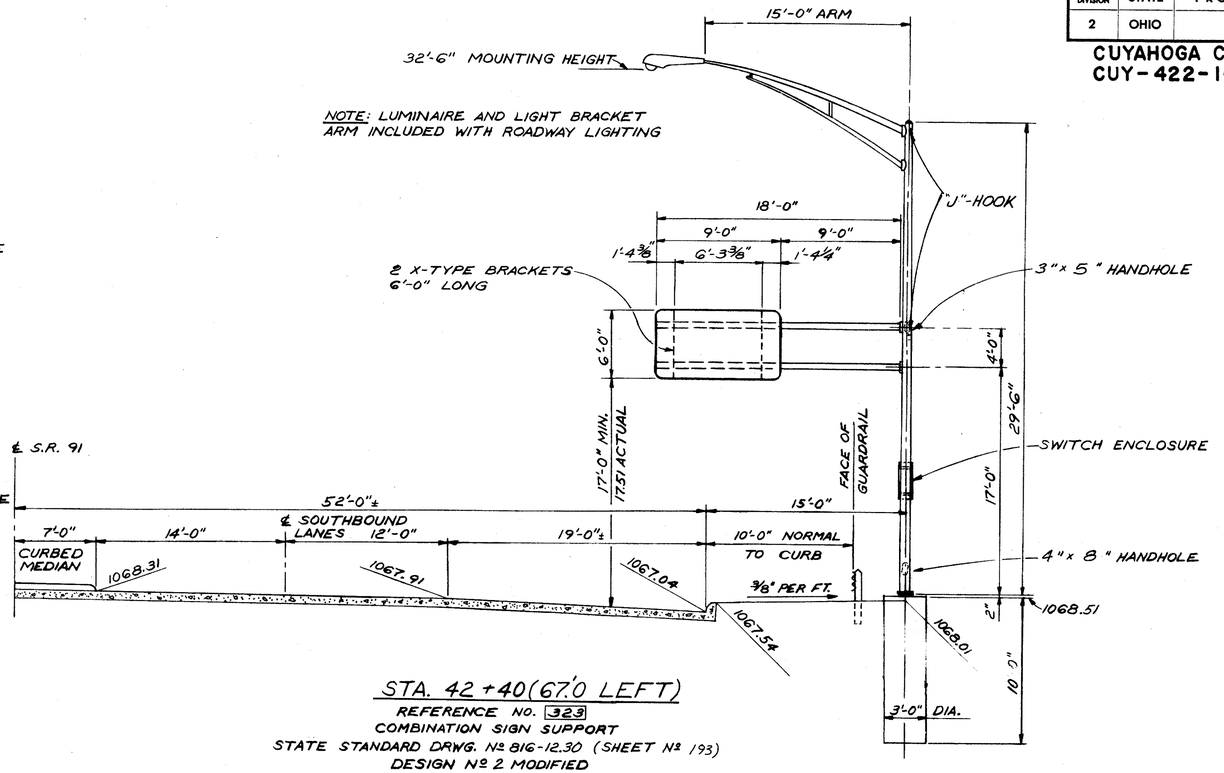
CUYAHOGA COUNTY
CUY-422-16.33



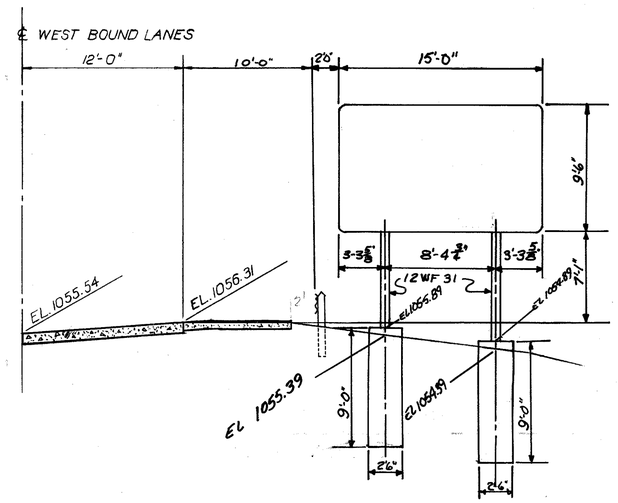
STA. 32+85 (49.0 RIGHT)

REFERENCE NO. 326
COMBINATION SIGN SUPPORT
STATE STANDARD DRWG. Nº 816-12.30 (SHEET Nº 193)
DESIGN Nº 2 MODIFIED



STA. 42+40 (67.0 LEFT)

REFERENCE NO. 323
COMBINATION SIGN SUPPORT
STATE STANDARD DRWG. Nº 816-12.30 (SHEET Nº 193)
DESIGN Nº 2 MODIFIED



STATION 960+65 LEFT
REFERENCE SIGN 321

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN
OVERHEAD SIGN DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.S	D.S.	W.B.			FSE 9/16/73

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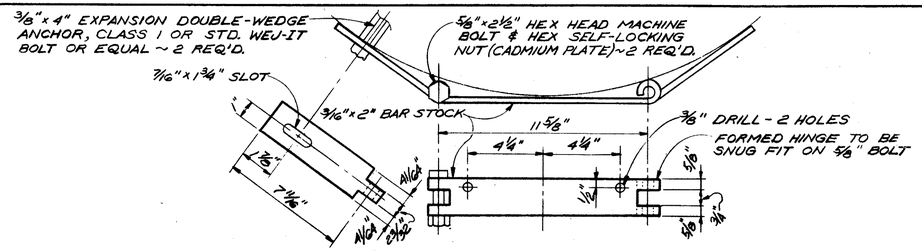
2	OHIO			258

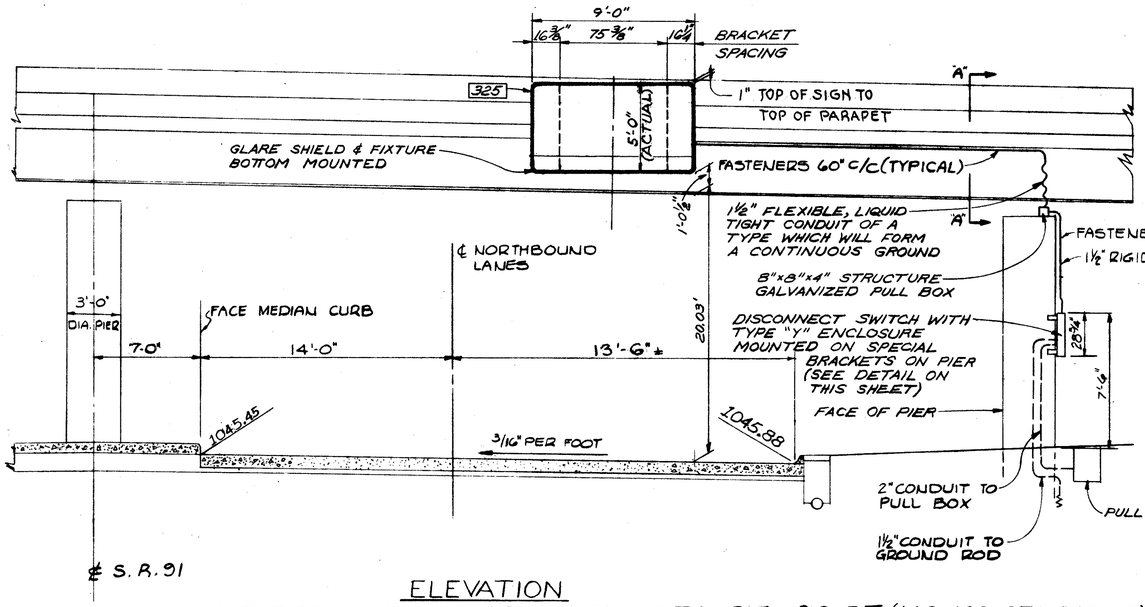
CUYAHOGA COUNTY
CUY - 422 - 16.33



ENCLOSURE MOUNTING BRACKET FOR CONCRETE PIERS

PLAN
BRIDGE MOUNTED SIGN STA. 35+20 RT. (U.S. 422-STA. 942+45)

SIGN REFERENCE NO. 325
SEE SHEET 194 FOR SUPPORT DETAILS

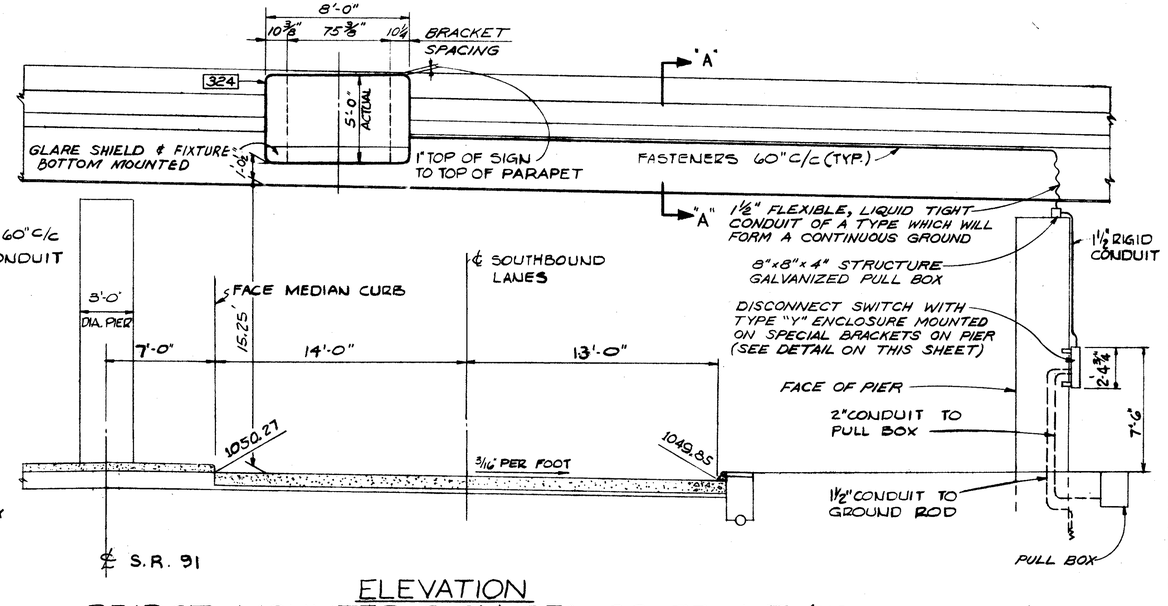


ELEVATION
BRIDGE MOUNTED SIGN STA. 35+20 RT. (U.S. 422-STA. 942+45)

SIGN REFERENCE NO. 325
FOR STANDARD DETAILS SEE SHEET Nº 194

PLAN
BRIDGE MOUNTED SIGN STA. 36+77 L.T. (U.S. 422-STA. 941+88)

SIGN REFERENCE NO. 324
SEE SHEET 194 FOR SUPPORT DETAILS



ELEVATION
BRIDGE MOUNTED SIGN STA. 36+77 L.T. (U.S. 422 STA. 941+88)

SIGN REFERENCE NO. 324
FOR STANDARD DETAILS SEE SHEET Nº 194

NOTES

BASIS OF PAYMENT FOR STRUCTURE MOUNTED SIGNS INSTALLATIONS--THE PAY ITEMS OF WORK REQUIRED FOR THE CONSTRUCTION OF THESE ILLUMATED SIGNS MOUNTED ON STRUCTURE No. CUY-422-1800 L/R ARE LISTED SEPARATLY UNDER THE TRAFFIC CONTROL ITEMS. THESE PAY ITEMS ARE DESCRIBED AS FOLLOWS:

1. SIGN ERECTION - AS DESCRIBED IN THE GENERAL NOTES ON SHEET 179
2. SPECIAL STRUCTURAL CONNECTION--PAYMENT FOR THIS ITEM SHALL BE MADE AT THE CONTRACT UNIT PRICE BID, AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FINISHING AND INSTALLING THE ALUMINUM FIXTURE SUPPORT ARMS, ALUMINUM Z-BAR SIGN BRACKETS, Z-BAR STRUCTURE CONNECTIONS, ALUMINUM AND STEEL ANGLE CONNECTIONS TO THE STRUCTURE TOGETHER WITH THE REQUIRED ANCHOR BOLTS AND BOLTED AND WELDED CONNECTIONS.
3. 30 AMPERE FUSED DISCONNECT SWITCH WITH TYPE "Y" ENCLOSURE--AS DESCRIBED IN GENERAL NOTES EXCEPT FOR USE ON SPECIAL SUPPORT BRACKETS SHOWN ABOVE.
4. STRUCTURE MOUNTED SIGN WIRING, COMPLETE AS DESCRIBED IN GENERAL NOTES ON SHEET 180.
5. SPECIAL SWITCH ENCLOSURE MOUNTING BRACKET AS PER PLAN--THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING THE SPECIAL BRACKET AS DETAILED ON THIS SHEET. BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THIS COMPLETE ITEM OF WORK.
6. SIGN BALLAST, TYPE "A" --AS DESCRIBED IN THE GENERAL NOTES ON SHEET 179.
7. LIGHT FIXTURE WITH "HO" LAMP --AS DESCRIBED IN THE GENERAL NOTES ON SHEET 179
8. TRANSFORMERS, TYPES I OR II--AS DESCRIBED IN THE GENERAL NOTES ON SHEET 179.

MAY 4 1973

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ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN
OVERHEAD SIGN DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
D.S.	D.S.	W.T.	REVISED ESE 4-16-73	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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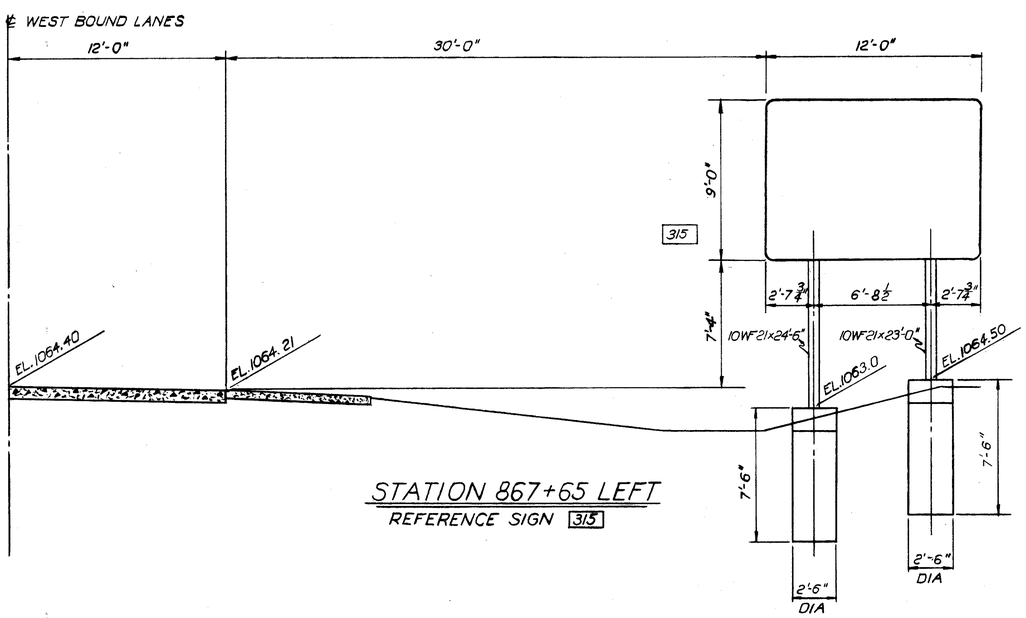
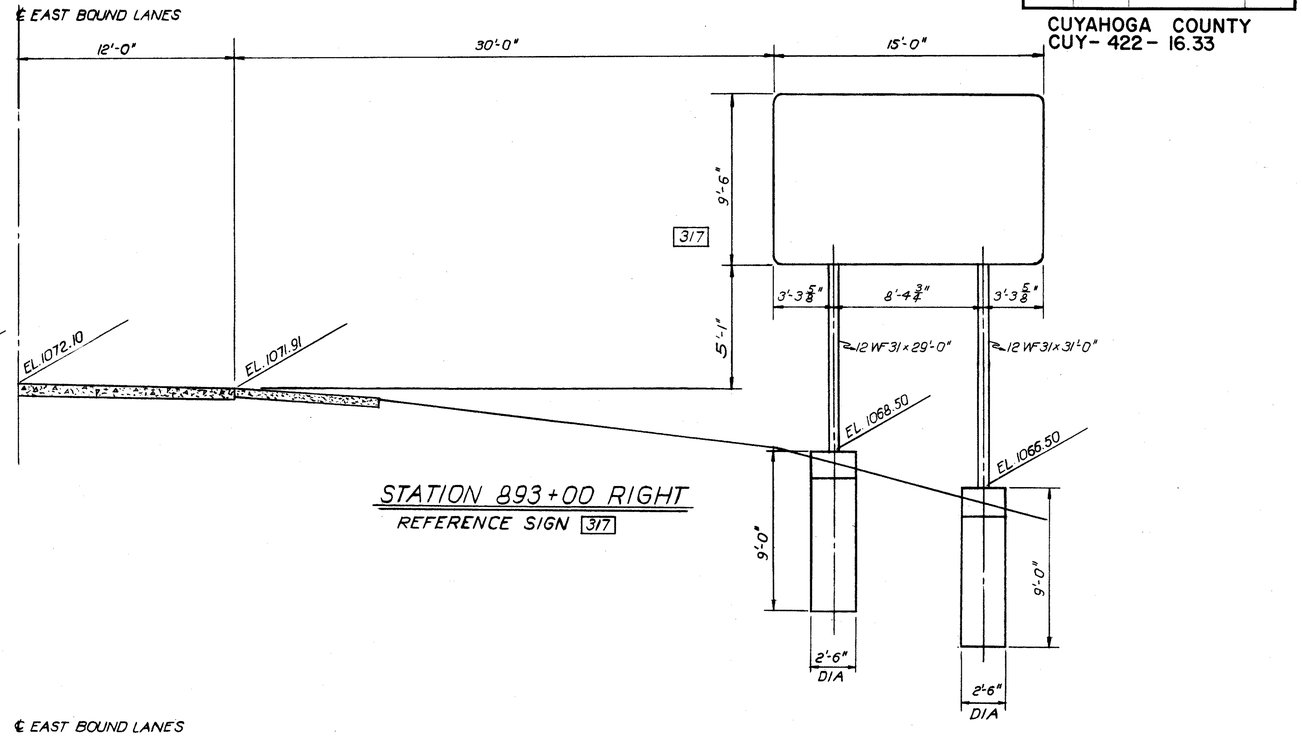
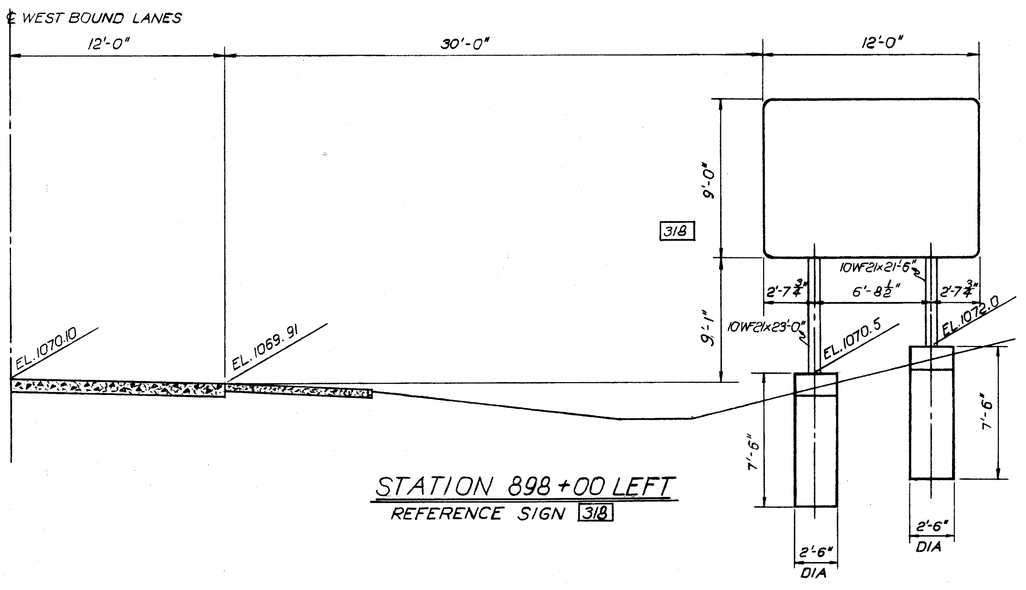
CUYAHOGA COUNTY
CUY- 422 - 16.33



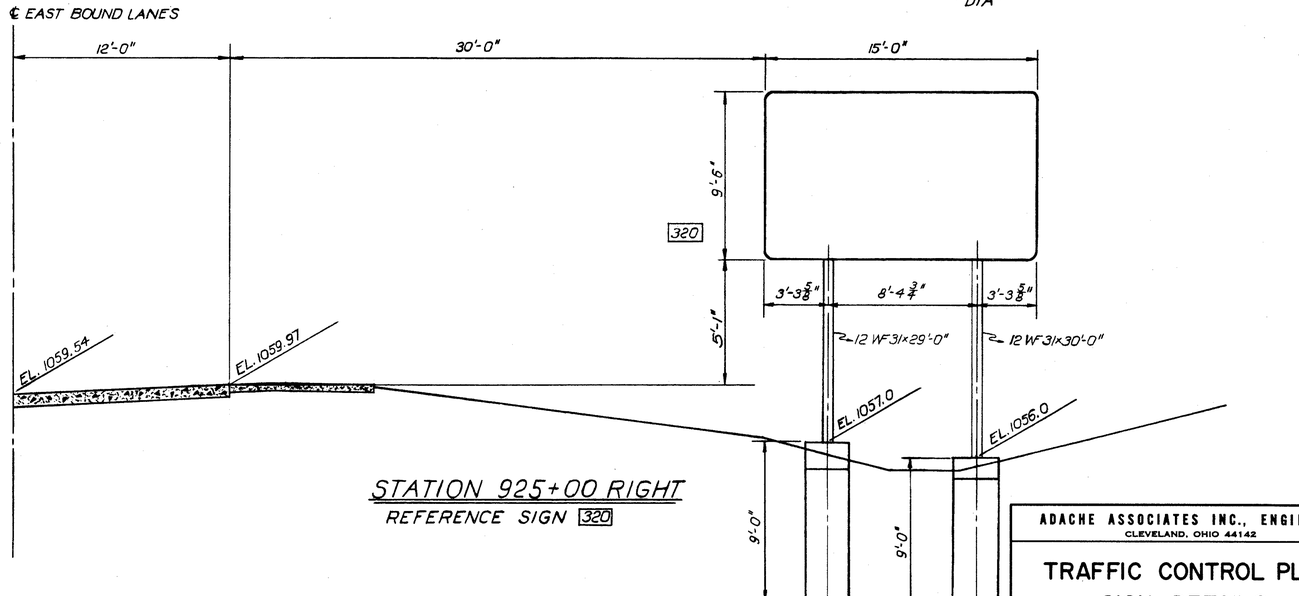
STATION 867+65 LEFT
REFERENCE SIGN 315



STATION 893+00 RIGHT
REFERENCE SIGN 317



STATION 898+00 LEFT
REFERENCE SIGN 318



STATION 925+00 RIGHT
REFERENCE SIGN 320

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN
SIGN DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.T.	J.T.	W.73.			P.S.E. 9-16-73

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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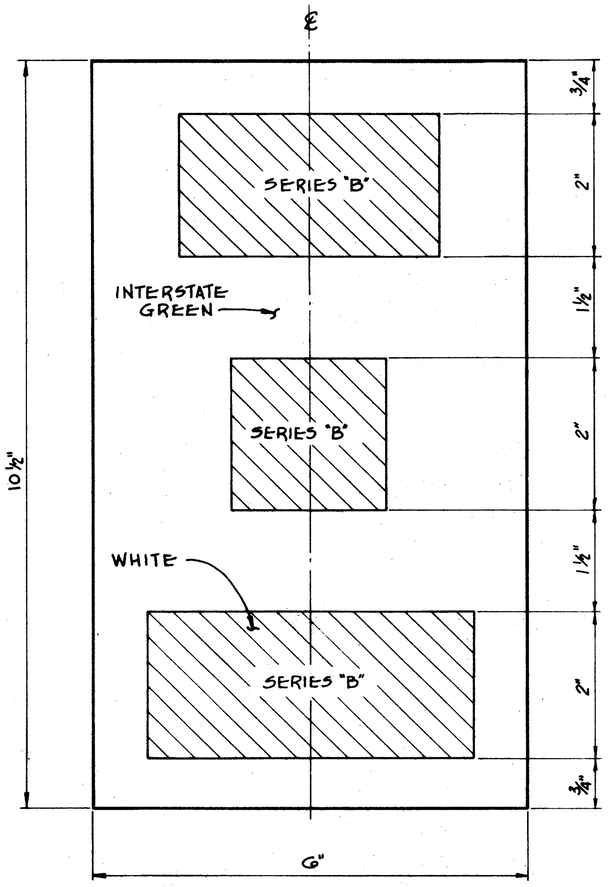
CUYAHOGA COUNTY
CUY-422-16.33



LEGEND VARIES, SEE TABLE

CUY
90
0.04

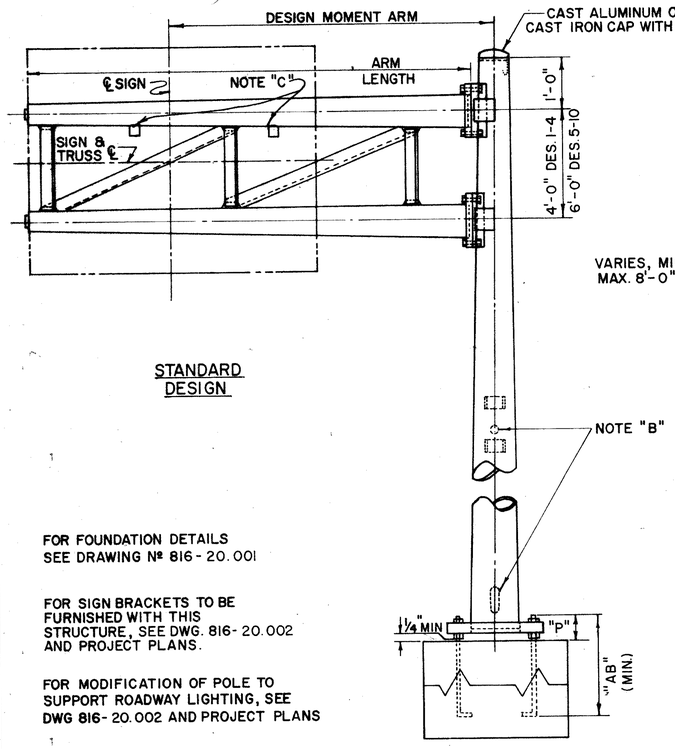
EXAMPLE

SUPPORT NO.	STATION	LOCATION	DIRECTION	DECAL LEGENDS		
				COUNTY	RT	MILEAGE
315	867+65	U.S. 422	WB	CUY	422	16.61
317	893+00	U.S. 422	EB	CUY	422	17.09
318	898+00	U.S. 422	WB	CUY	422	17.18
320	925+00	U.S. 422	EB	CUY	422	17.69
321	960+65	U.S. 422	WB	CUY	422	18.37
326A,326B	32+85	S.R. 91	NB	CUY	91	0.62
325	35+20	S.R. 91	NB	CUY	91	0.67
324	36+77	S.R. 91	SB	CUY	91	0.70
327	39+10	S.R. 91	NB	CUY	91	0.74
323	42+40	S.R. 91	SB	CUY	91	0.80

MAY 4 1973

SIGN SUPPORT INDENTIFICATION DECALS

CUY-422-16.33

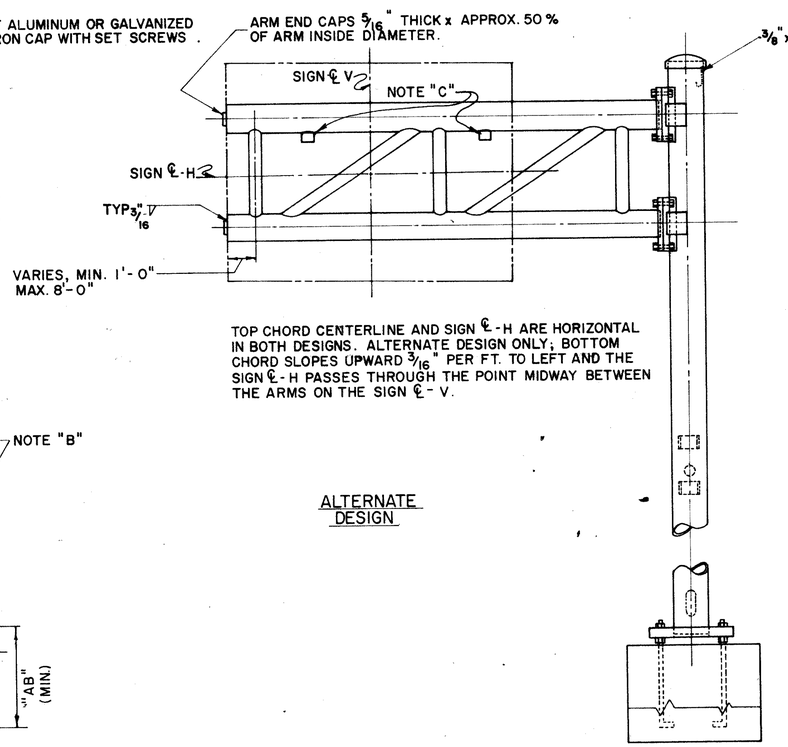


STANDARD DESIGN

FOR FOUNDATION DETAILS SEE DRAWING Nº 816-20.001

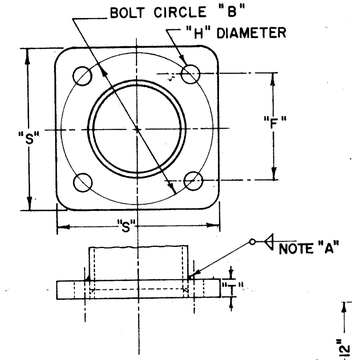
FOR SIGN BRACKETS TO BE FURNISHED WITH THIS STRUCTURE, SEE DWG. 816-20.002 AND PROJECT PLANS.

FOR MODIFICATION OF POLE TO SUPPORT ROADWAY LIGHTING, SEE DWG 816-20.002 AND PROJECT PLANS

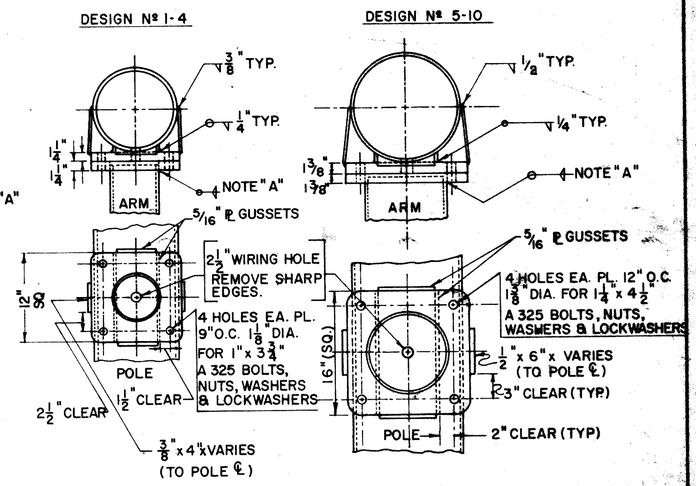


TOP CHORD CENTERLINE AND SIGN ℄ - H ARE HORIZONTAL IN BOTH DESIGNS. ALTERNATE DESIGN ONLY; BOTTOM CHORD SLOPES UPWARD 3/16" PER FT. TO LEFT AND THE SIGN ℄ - H PASSES THROUGH THE POINT MIDWAY BETWEEN THE ARMS ON THE SIGN ℄ - V.

ALTERNATE DESIGN



POLE BASE DETAIL



ARM ATTACHMENT DETAIL

NOTE "A"
POLE BASE AND ARM ATTACHMENT PLATE TO BE WELDED INSIDE AND OUTSIDE WITH FILLET WELDS. EACH FILLET WELD SHALL BE EQUAL TO THE WALL THICKNESS OF THE RESPECTIVE TUBING.

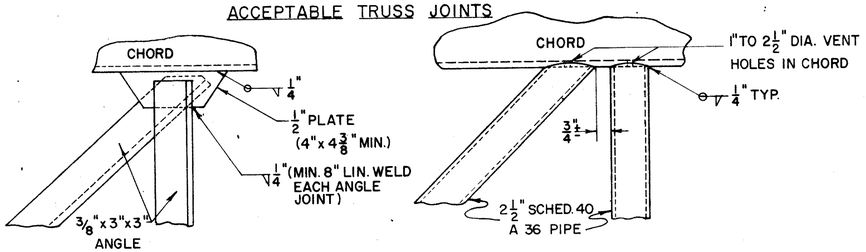
NOTE "B"
CONSTRUCTION DETAILS AND LOCATION OF HANDHOLE AND SWITCH GEAR MOUNTING BRACKETS ARE SHOWN ON DRAWING 816-20.002

NOTE "C"
SIGNS UNDER 20'-0" LONG, ONE 1¼" PIPE COUPLING WELDED TO THE TOP CHORD APPROXIMATELY 12" OUTBOARD OF FIRST SIGN BRACKET. FOR SIGNS 20'-0" OR OVER, A SECOND 1¼" PIPE COUPLING IS REQUIRED APPROXIMATELY 12" OUTBOARD OF THE SECOND SIGN BRACKET. ALL SHARP EDGES INSIDE THE CHORD AND PIPE COUPLING MUST BE REMOVED.

1. UNLESS OTHERWISE NOTED, DIMENSIONS AND INSTRUCTIONS APPLY TO BOTH THE STANDARD DESIGN AND ALTERNATE DESIGN.
2. SIGN SUPPORT ARMS UNDER 18'-0" LONG DO NOT REQUIRE TRUSSING.
3. THE DESIGN OF THESE OVERHEAD SIGN SUPPORTS IS IN ACCORDANCE WITH THE AASHO SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS AS REVISED IN 1968.

DESIGN NUMBER	POLE SIZE OUTSIDE DIAMETERS	ARM SIZE OUTSIDE DIAMETERS
1	2 PLY. 7 GA. 10" x 6.50" x 25'-0"	7 GA. 6" x 3.76" x 16'-0"
1 ALT	8 5/8" x .500" WALL x 25'-0"	5 9/16" x .258" WALL x 16'-0"
2	2 PLY. 7 GA. 10" x 6.50" x 25'-0"	3 GA. 6" x 4.60" x 20'-0"
2 ALT	8 5/8" x .562" WALL x 25'-0"	5 9/16" x .344" WALL x 20'-0"
3	0 GA. 13" x 9.22" x 27'-0"	7 GA. 8" x 5.76" x 16'-0"
3 ALT	10 3/4" x .438 WALL x 27'-0	6 5/8" x .250" WALL x 16'-0"
4	0 GA. 13" x 9.22" x 27'-0"	7 GA. 9" x 6.20" x 20'-0"
4 ALT	10 3/4" x .500" WALL x 27'-0"	6 5/8" x .344" WALL x 20'-0"
5	0 GA. 15" x 11.08" x 28'-0"	7 GA. 9.5" x 6.42" x 22'-0"
5 ALT	12 3/4" x .500" WALL x 28'-0"	8 5/8" x .250" WALL x 22'-0"
6	2 PLY. 7 GA. 15" x 11.08" x 28'-0"	3 GA. 10" x 6.36" x 26'-0"
6 ALT	12 3/4" x .562" WALL x 28'-0"	8 5/8" x .322" WALL x 26'-0"
7	2 PLY. 7 GA. 16.5" x 12.58" x 28'-0"	3 GA. 10" x 6.64" x 24'-0"
7 ALT	14" x .562" WALL x 28'-0"	8 5/8" x .322" WALL x 24'-0"
8	2 PLY. 3 GA. 16.5" x 12.58" x 28'-0"	3 GA. 11" x 7.08" x 28'-0"
8 ALT	14" x .594" WALL x 28'-0"	10 3/4" x .279" WALL x 28'-0"
9	2 PLY. 3 GA. 16.5" x 12.30" x 30'-0"	3 GA. 11" x 7.36" x 26'-0"
9 ALT	14" x .688" WALL x 30'-0"	10 3/4" x .279" WALL 26'-0"
10	2 PLY. 3 GA. 18" x 13.80" x 30'-0"	3 GA. 13" x 8.80" x 30'-0"
10 ALT	16" x .656" WALL x 30'-0"	10 3/4" x .438" WALL x 30'-0"

ACCEPTABLE TRUSS JOINTS



DESIGN NUMBER	DESIGN SIZE (SQ. FT.)	DESIGN MOMENT ARM (FT.)	DIM. "F" (IN.)	DIM. "P" (IN.)	DIM. "S" (IN.)	DIM. "T" (IN.)	BOLT CIRCLE "B" (IN.)	ANCHOR BOLTS "AB" (IN.)	DIM. "H" (IN.)
1	80	12	10 5/8	7 3/4	15 5/8	2	15	1¾ x 84	2 1/8
2	80	16	10 5/8	7 3/4	15 5/8	2	15	1¾ x 84	2 1/8
3	120	12	12 3/4	8½	18½	2	18	2 x 90	2 3/8
4	120	16	12 3/4	8½	18½	2	18	2 x 90	2 3/8
5	180	14	15½	8½	23	2	22	2 x 90	2 3/8
6	180	18	15½	8½	23	2	22	2 x 90	2 3/8
7	240	14	16 5/8	9¾	24½	2½	23½	2½ x 114	2 7/8
8	240	18	16 5/8	9¾	24½	2½	23½	2½ x 114	2 7/8
9	300	15½	16 5/8	9¾	24½	2½	23½	2½ x 114	2 7/8
10	300	19½	18	9¾	26½	2½	25½	2½ x 114	2 7/8

MATERIAL SPECIFICATIONS

POLE & ARMS: ANY STEEL WITH MIN. 52,000 P.S.I. YIELD STRESS AFTER ERECTION.
TRUSS MEMBERS: ASTM A-36
BASE & OTHER PLATE STOCK: ASTM A-36
ANCHOR BOLTS: MIN. 54,000 P.S.I. YIELD STRESS AS ERECTED.
ARM ATTACHMENT BOLTS: ASTM A-325
MISC. BOLTS & NUTS: ASTM A-307 (GALVANIZED PER ASTM A-153)
WELDING: SECTION 513.17, OHIO CONST. & MAT. SPECIFICATIONS
GALVANIZING AFTER FABRICATION, ALL STRUCTURAL PARTS: ASTM A-123

GALVANIZE ONLY TOP 16" OF ALL ANCHOR BOLTS PER ASTM A-123

MAY 4 1973

BUREAU OF DESIGN SERVICES
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD SIGN SUPPORT

Date 3-23-72

STANDARD CONSTRUCTION DRAWING 816-12.30

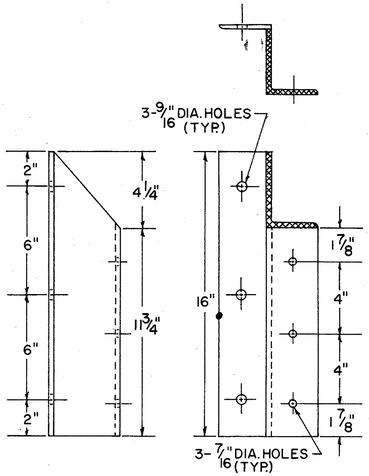
APPROVED W. O. Cunningham
ENGINEER OF DESIGN SERVICES

BRUNING 44-560 10943

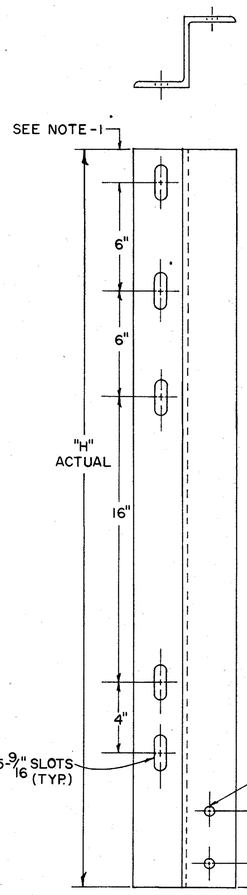
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

194/258

CUY-422-16.33



"Z" BAR-A
(4"x3 1/16"x 1/4" @ 2.85 LB.)



"Z" BAR-C
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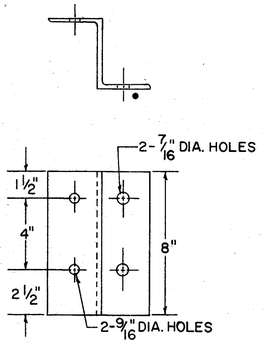

"Z" BAR-B
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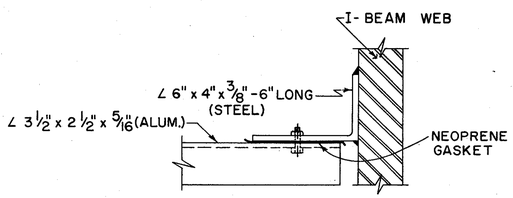
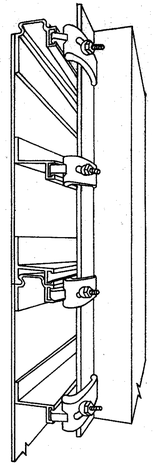
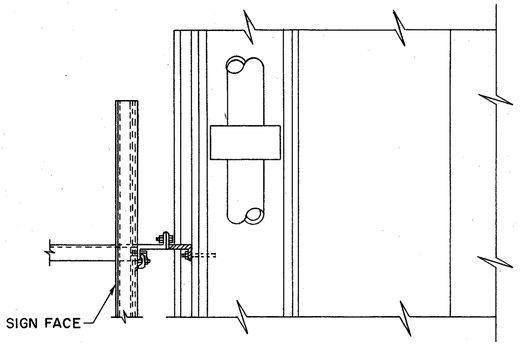


SECTION A-A

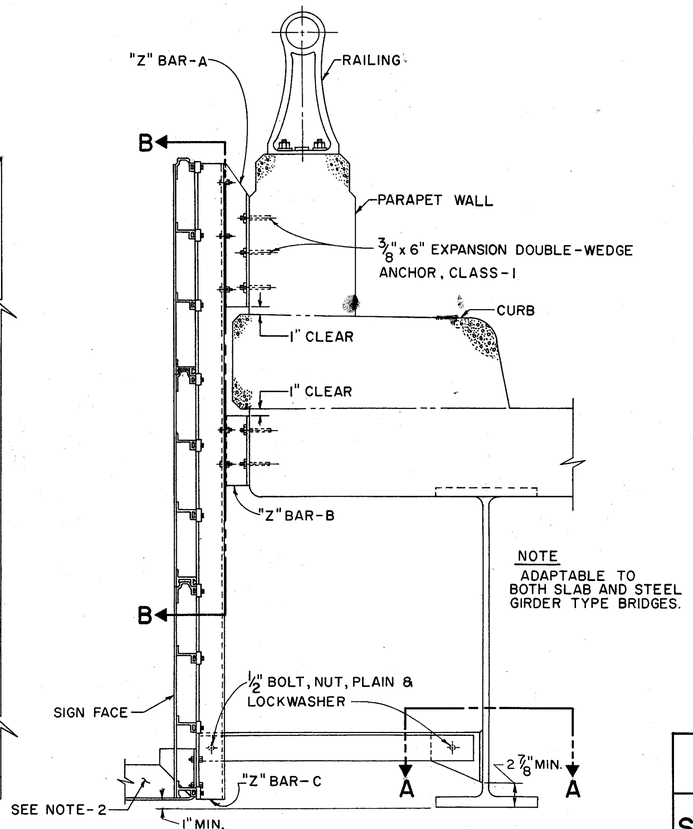


CLAMP ASSEMBLY

SECTION B-B



TOP VIEW



SIDE VIEW BRIDGE MOUNT

NOTES

ALL STRUCTURAL SHAPES TO BE ALUMINUM, EXCEPT AS NOTED.

EXPANSION BOLTS TO BE GALVANIZED STEEL.

(1.) THIS DIMENSION VARIES FOR SIGNS OVER 4'-6" ON SLAB TYPE BRIDGES AND SIGNS OVER 5'-6" ON STEEL GIRDER TYPE BRIDGES.

(2.) FOR ELECTRICAL DETAIL SEE DRAWINGS,
EI-1 PAGE _____.
EI-2 PAGE _____.

(3.) ALL MATERIALS SHALL CONFORM TO THE STATE OF OHIO, CONSTRUCTION & MATERIALS SPECIFICATIONS, AND THE SUPPLEMENTAL SPECIFICATIONS 816, OR AS OTHER-WISE SPECIFIED.

MAY 4 1973

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

SPECIAL SIGN SUPPORT

SPL-816

DATE
1-24-68
4-24-69

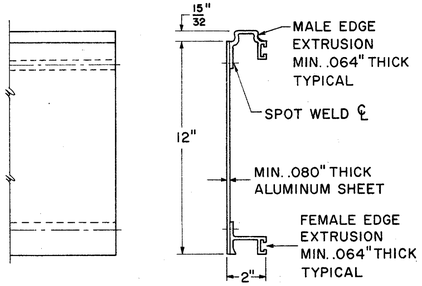
APPROVED _____
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

195
258

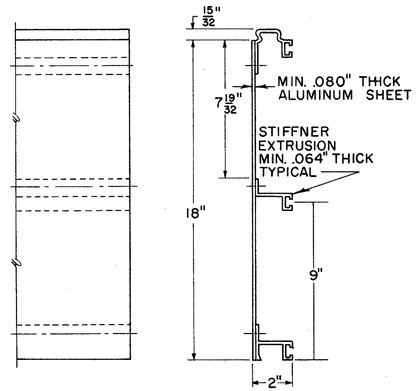
CUYAHOGA COUNTY
CUY.-422-16.33

12" EXTRUSHEET PANEL



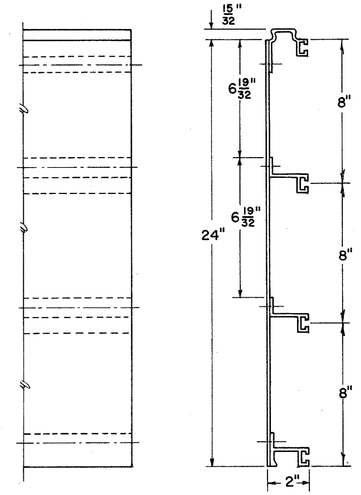
FRONT VIEW SIDE VIEW

18" EXTRUSHEET PANEL



FRONT VIEW SIDE VIEW

24" EXTRUSHEET PANEL



FRONT VIEW SIDE VIEW

NOTES:

EXTRUSHEET PANELS SHALL BE ALUMINUM; SPOT WELDING AND ALL MATERIALS SHALL CONFORM WITH SUPPLEMENTAL SPECIFICATION 815

COMBINATIONS OF 12", 18", AND 24" PANELS ARE USED TO ATTAIN REQUIRED SIGN HEIGHT.

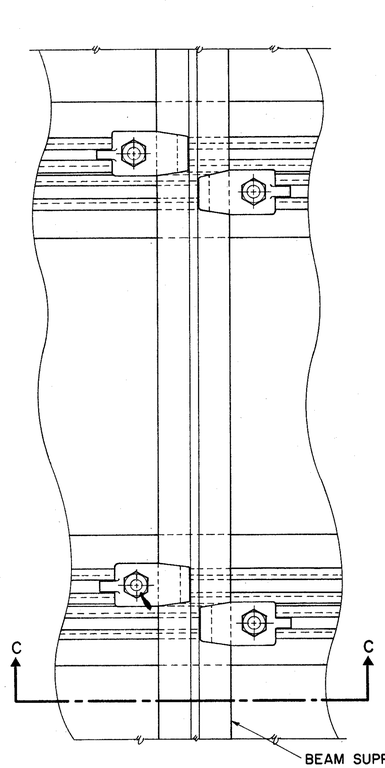
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN WITH NO SPLICES.

PANELS SHALL BE INTERLOCKED AND ERECTED WITH THE MALE EXTRUSION LOCATED AT THE TOP EDGE OF THE SIGN.

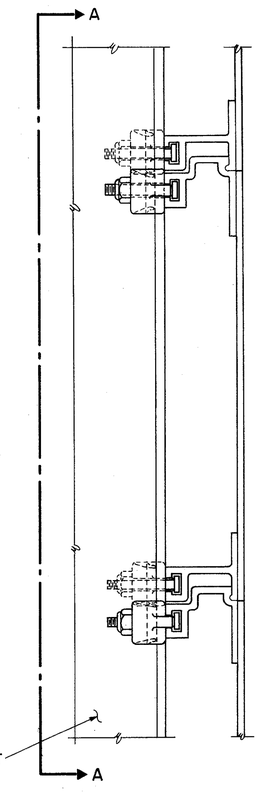
EXTRUSHEET PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND ON BOTH SIDES AT TOP AND BOTTOM EDGE OF SIGN.

THE PANELS SHALL BE DESIGNED TO WITHSTAND A WIND LOAD OF 35 POUNDS PER SQUARE FOOT, IN ACCORDANCE WITH THE A.A.S.H.O. SPECIFICATION FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.

THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0".
THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".

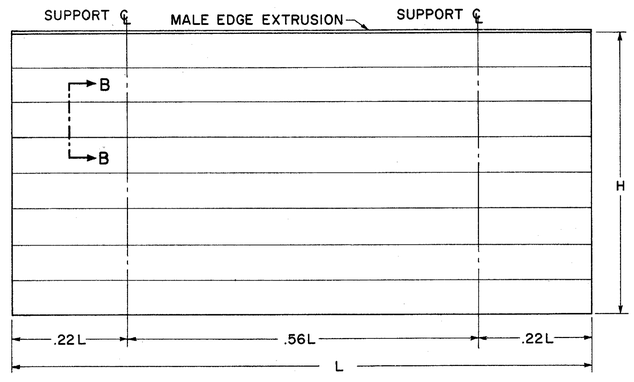


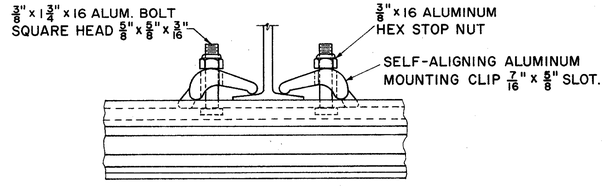
SECTION A-A



SECTION B-B

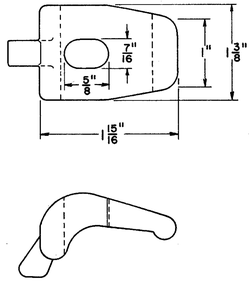
GENERAL ARRANGEMENT





SECTION C-C

CLIP DETAIL



SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM EXTRUSHEET PANEL SIGN

ECD 1

DATE
9-25-63
5-19-64
10-21-65

APPROVED Fred C Garber
ENGINEER OF TRAFFIC

MAY 4 1973

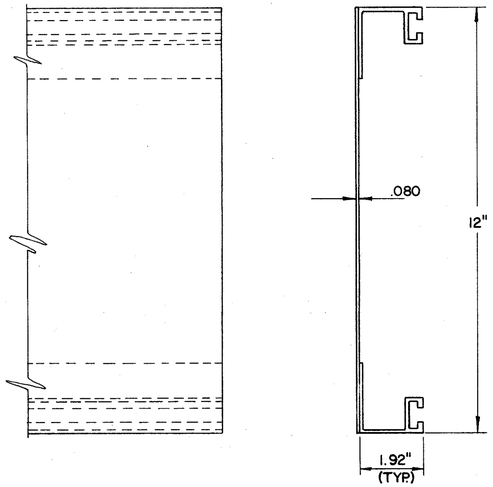
ALUMINUM EXTRUSHEET PANEL SIGN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

196
258

CUYAHOGA COUNTY
CUY.-422-16.33

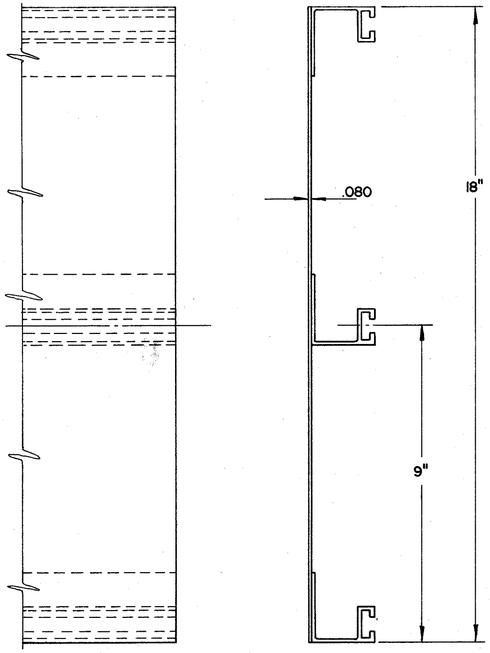
12" BOLTED-EXTRUSHEET PANEL



FRONT VIEW

SIDE VIEW

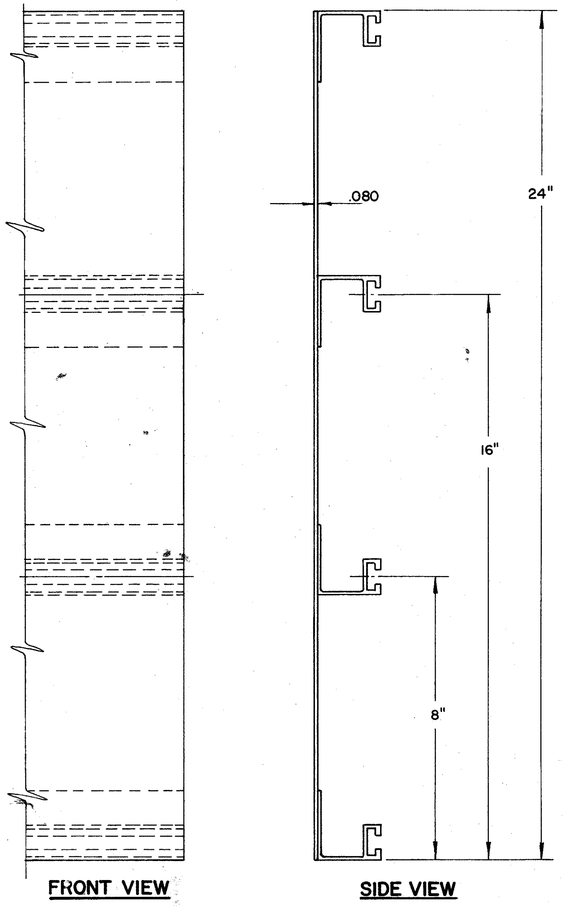
18" BOLTED-EXTRUSHEET PANEL



FRONT VIEW

SIDE VIEW

24" BOLTED-EXTRUSHEET PANEL



FRONT VIEW

SIDE VIEW

NOTES

EXTRU-SHEET PANELS SHALL BE ALUMINUM; SPOT WELDING, MATERIALS AND HARDWARE SHALL CONFORM WITH SPECIFICATION NO. 815

COMBINATIONS OF 12",18" AND 24" PANELS ARE TO BE USED TO ATTAIN REQUIRED SIGN HEIGHT.

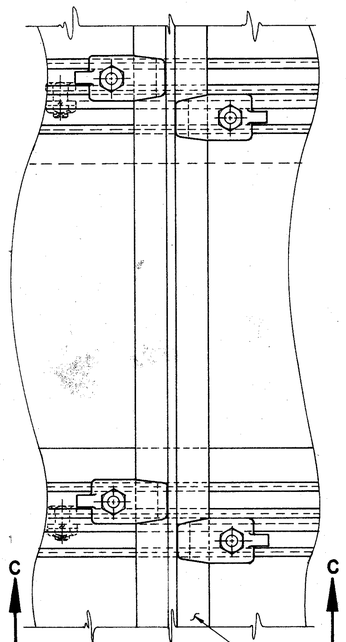
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN, WITH NO SPLICES.

THE PANELS SHALL BE ERECTED HORIZONTALLY AND BOLTED ON 24" CENTERS.

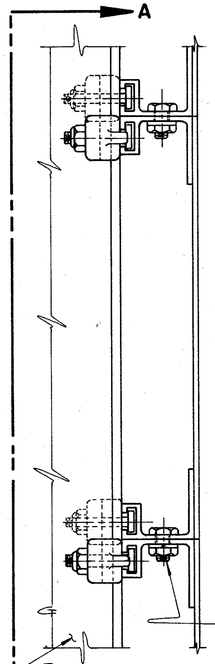
THE PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND BOTH SIDES AT TOP AND BOTTOM EDGES OF SIGN.

THE PANELS SHALL BE DESIGNED IN ACCORDANCE WITH THE A.A.S.H.O SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, BASE ON A WIND LOAD OF 35#/SQ.FT.

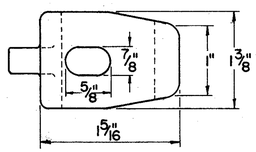
THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0". THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".

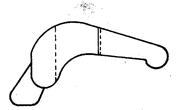


SECTION A-A

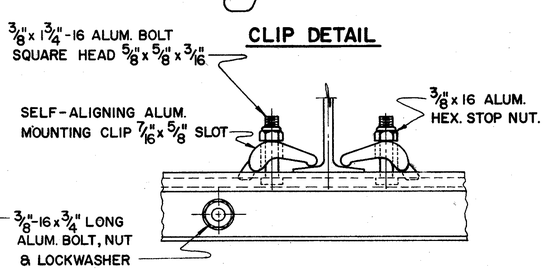


SECTION B-B

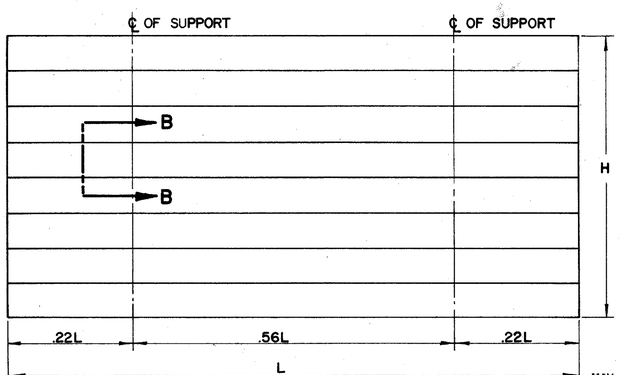




CLIP DETAIL



SECTION C-C



GENERAL ARRANGEMENT

MAY 4 1973

SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM BOLTED EXTRUSHEET PANEL SIGN

ECD 2

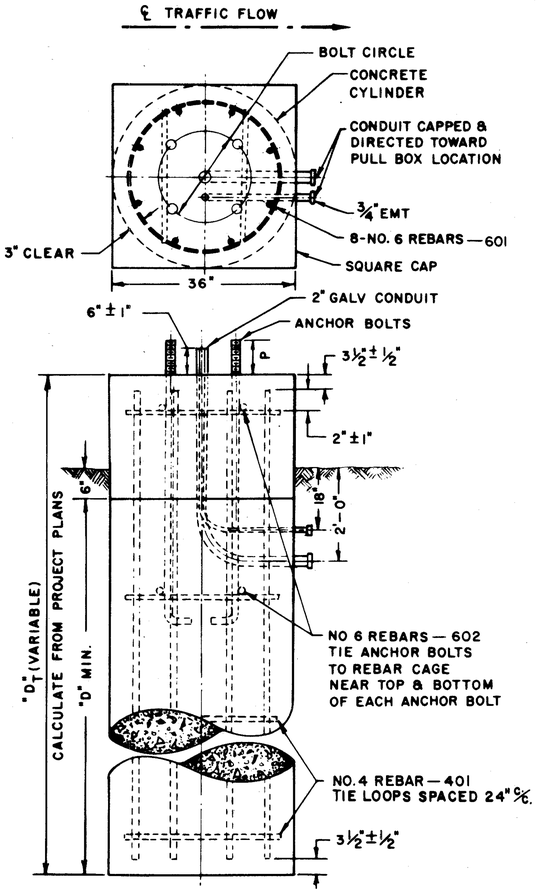
DATE 10-14-65

APPROVED Fred C. Talbot
ENGINEER OF TRAFFIC

ALUMINUM BOLTED-EXTRUSHEET PANEL SIGN

CUY-422-16.33

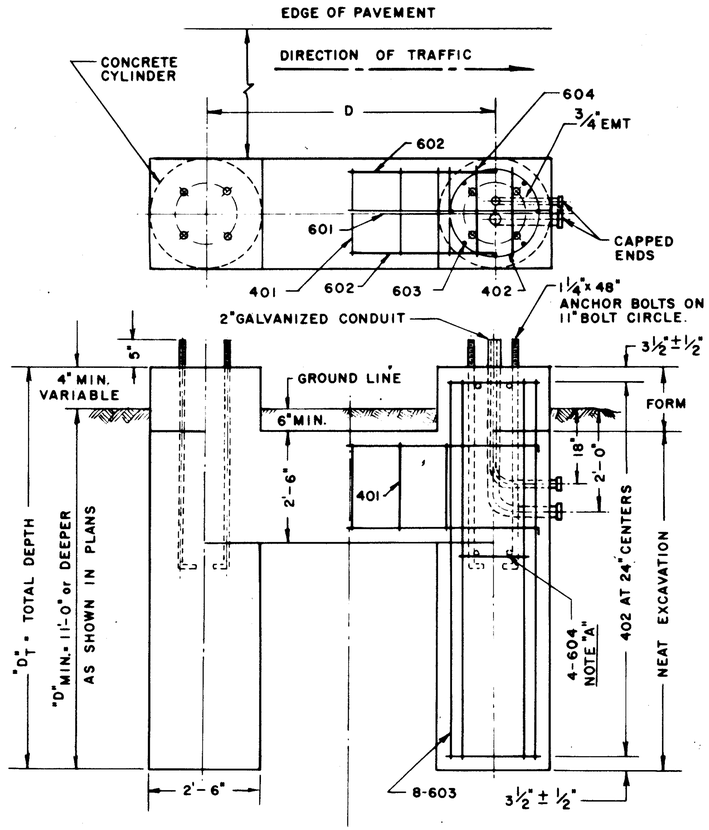
197
258



816-12.30 FOUNDATIONS

DESIGN NUMBERS	ANCHOR BOLTS (in.)	BOLT CIRCLE (in.)	"P" (in.)	"D" (ft.)
1 & 2	1¾ x 84	15	7¾	9
3 & 4	2 x 90	18	8½	11
5 & 6	2 x 90	22	8½	11
7, 8 & 9	2½ x 114	23½	9¾	15
10	2½ x 114	25½	9¾	17

REINFORCEMENT SCHEDULE				
MARK	NO.	LENGTH	TYPE	
401	24"℅	8'-6"	401	2'-5" / 401
601	8	D_T 6"	STR.	
602	4	2'-5"	STR.	



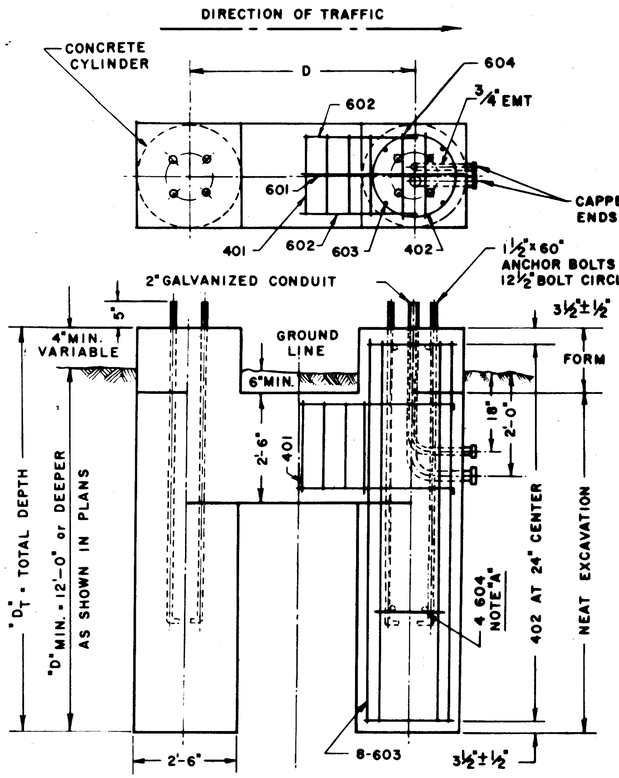
816-7. xx FOUNDATIONS

(RIGHT HAND SHOWN — LEFT HAND OPPOSITE)

NOTE "A" TIE ANCHOR BOLTS TO REBAR CAGE NEAR TOP & BOTTOM OF ANCHOR BOLTS.

ALUMINUM TRUSS BOX SIZE	"D"
3'-0"	4'-5"
4'-0"	5'-7"
5'-0"	6'-7"

REINFORCEMENT SCHEDULE FOR ALUMINUM TRUSS FOUNDATIONS				
MARK	NO.	LENGTH	TYPE	
401	12" ℅	8'-6"	401	601 602 1'-0" / 2'-0" 2'-0" / 401 / 2'-0" / 402
402	24" ℅	7'-6"	402	
601	4	D=4'-0"	601	
602	8	D=2'-0"	602	
603	32	D=0'-6"	STR.	
604	16	2'-0"	STR.	



816-15. xx FOUNDATIONS

(RIGHT HAND SHOWN — LEFT HAND OPPOSITE)

STEEL TRUSS BOX SIZE	"D"
3'-4"±	5'-3"
5'-0"	6'-7"

REINFORCEMENT SCHEDULE FOR STEEL TRUSS FOUNDATIONS				
MARK	NO.	LENGTH	TYPE	
401	12" ℅	8'-6"	401	601 602 1'-0" / 2'-0" 2'-0" / 401 / 2'-0" / 402
402	24" ℅	7'-6"	402	
601	4	D± 4'-0"	601	
602	8	D± 2'-0"	602	
603	32	D± 0'-6"	STR.	
604	16	2'-0"	STR.	

NOTE "A" TIE ANCHOR BOLTS TO REBAR CAGE NEAR TOP & BOTTOM OF ANCHOR BOLTS

BUREAU OF DESIGN SERVICES
OHIO DEPARTMENT OF HIGHWAYS

SIGN SUPPORT FOUNDATIONS

DATE 3-23-72

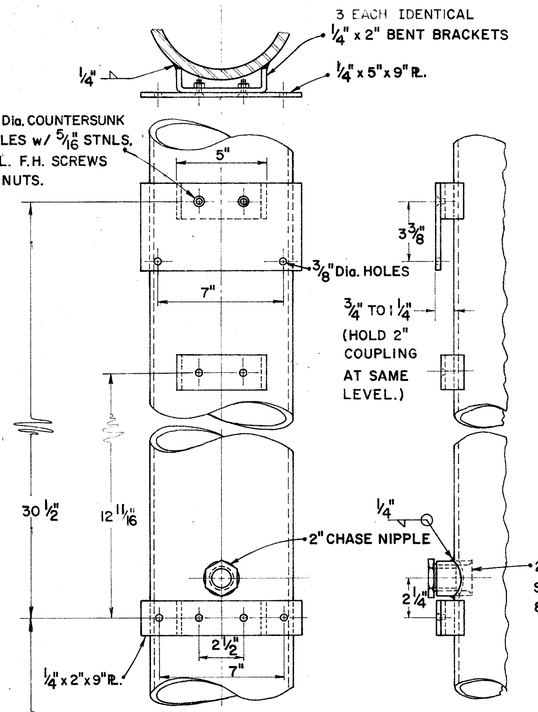
STANDARD CONSTRUCTION DRAWING 816-20.001

APPROVED W. J. Cunningham
ENGINEER OF DESIGN SERVICES

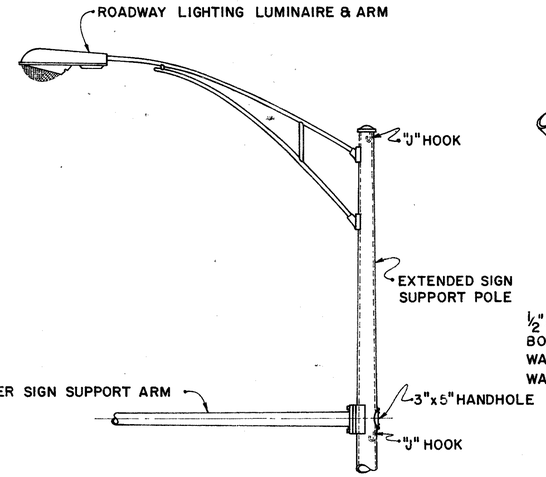
MAY 4 1973

CUY-422-16.33

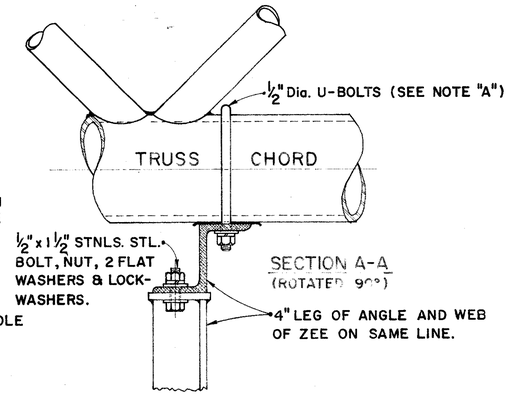
198/258



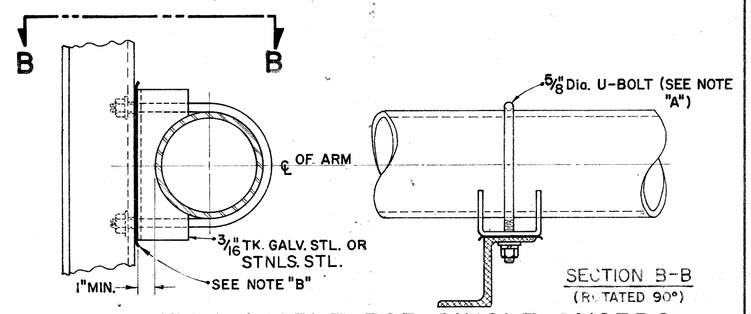
SWITCH ENCLOSURE BRACKET



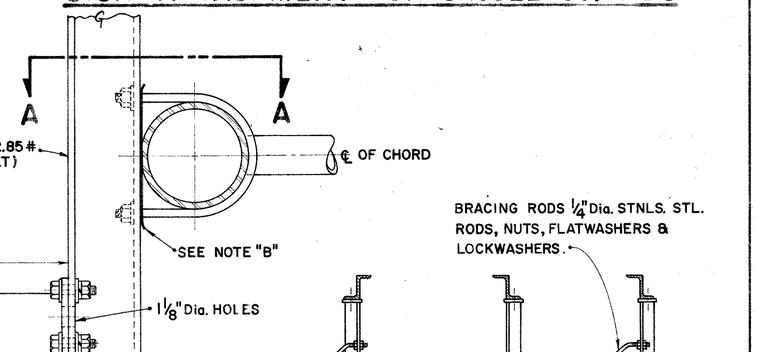
POLE EXTENSION FOR LIGHTING LUMINAIRE

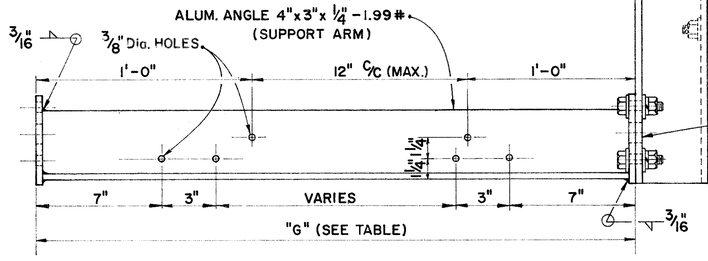


SIGN ATTACHMENT FOR BOX TRUSS



SIGN ATTACHMENT FOR SINGLE CHORDS





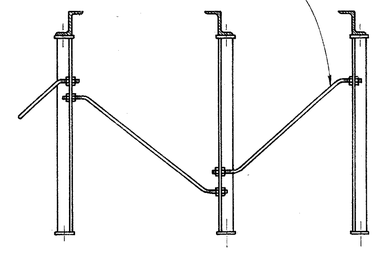
SUPPORT ARM & SIGN BRACKET

(MAKE AS LEFTS & RIGHTS FOR EACH SIGN)

SIGN HEIGHT	SUPPORT ARM LENGTH "G"	BRACING ROD REQUIRED
4'-0" to 6'-0"	2'-9"	NO
6'-6" to 7'-6"	3'-3"	NO
8'-0" to 11'-0"	4'-3"	YES
11'-6" to 14'-0"	5'-9"	YES

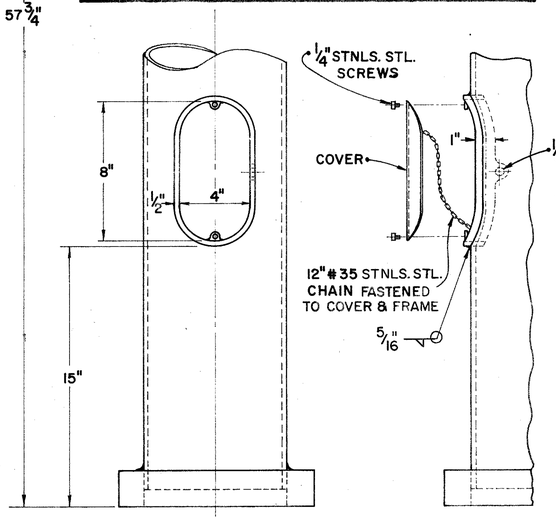
NOTE:
FOR LENGTH AND QUANTITY OF SIGN BRACKETS SEE PROJECT PLAN.

UNLESS OTHERWISE NOTED, MIDPOINT OF SIGN BRACKETS AND TRUSS CENTER-LINE SHALL BE AT THE SAME ELEVATION.

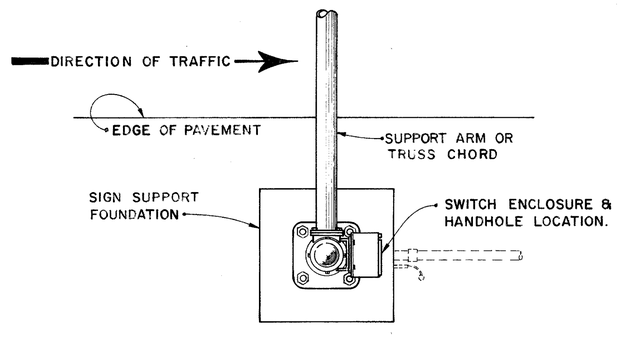


BRACING ROD ARRANGEMENT

WHEN ONLY TWO SUPPORT ARMS REQ'D PER SIGN, USE TWO BRACING RODS TO FORM "X" BRACING.



4" x 8" CURVED HANDHOLE.



SWITCH ENCLOSURE & HANDHOLE ORIENTATION

NOTE "A"
U-BOLTS, NUTS & WASHERS SHALL BE STAINLESS STEEL FOR USE WITH ALUMINUM TRUSS CHORDS. WHEN USED WITH GALVANIZED CHORDS, THE U-BOLT ONLY MAY BE GALVANIZED STEEL.

NOTE "B"
CONTACT BETWEEN ALUMINUM AND GALVANIZED PARTS MUST BE PREVENTED WITH A MIN. 1/16" THICK NEOPRENE GASKET OR APPROVED SUBSTITUTE. NO GASKET IS REQUIRED BETWEEN STAINLESS STEEL AND ALUMINUM.

NOTE:
ALL STL. PARTS (EXCEPT STNLS.) SHALL BE GALVANIZED AFTER FABRICATION PER ASTM A-123.

MAY 4 1973

BUREAU OF DESIGN SERVICES
OHIO DEPARTMENT OF HIGHWAYS

MISCELLANEOUS
OVERHEAD SIGN SUPPORT DETAILS

DATE 3-23-72

STANDARD CONSTRUCTION DRAWING 816-20.002

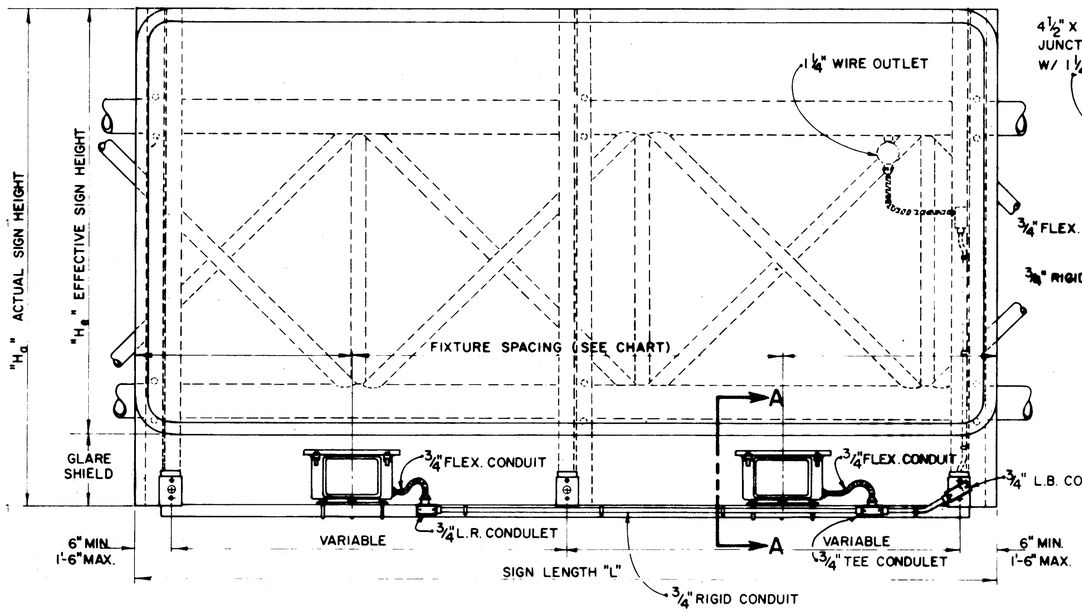
APPROVED M. J. Cunningham
ENGINEER OF DESIGN SERVICES

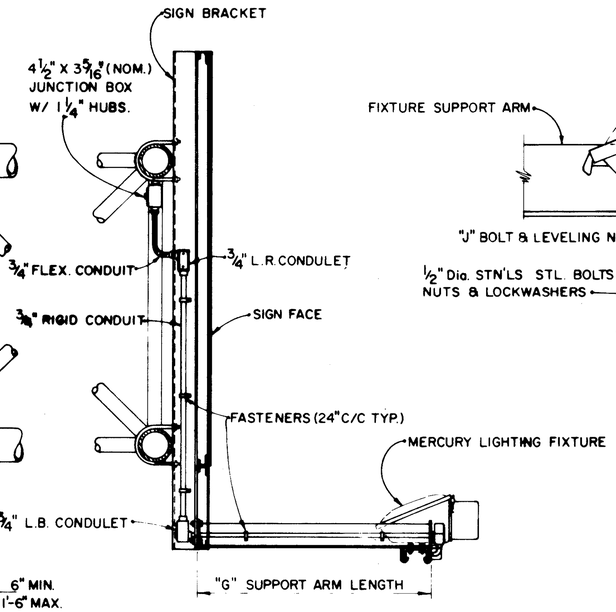
BRUNING 44-560-10942

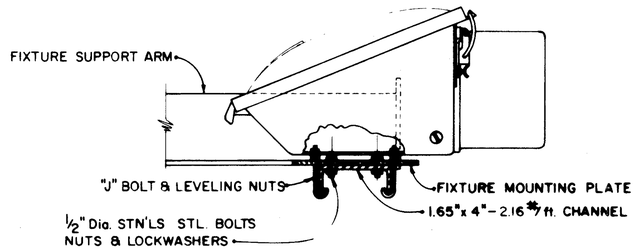
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

199
258

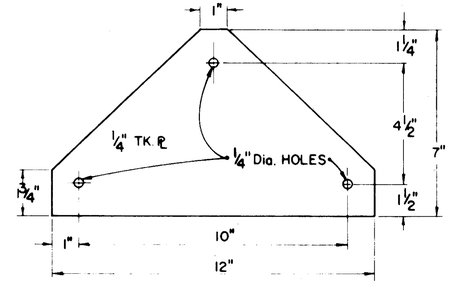
CUY-422-16.33







SECTION A-A



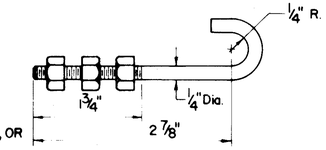
SIGN LENGTH "L"	NO. OF FIXTURES	LIGHT FIXTURE SPACING						SUPPORT ARM SPACING					NO. OF SIGN BRACKETS
4'-0"	1	2'-0"	2'-0"					6"	36"	6"			2
5'-0"	1	2'-6"	2'-6"					6"	48"	6"			2
6'-0"	1	3'-0"	3'-0"					6"	60"	6"			2
7'-0"	1	3'-6"	3'-6"					6"	72"	6"			2
8'-0"	1	4'-0"	4'-0"					10 3/8"	75 3/8"	10 1/4"			2
9'-0"	1	4'-6"	4'-6"					16 3/8"	75 3/8"	16 1/4"			2
10'-0"	1	5'-0"	5'-0"					10 3/8"	99 3/8"	10 1/4"			2
11'-0"	1	5'-6"	5'-6"					16 3/8"	99 3/8"	16 1/4"			2
12'-0"	2	3'-0"	6'-0"	3'-0"				6"	66"	66"	6"		3
13'-0"	2	3'-6"	6'-0"	3'-6"				6"	72"	72"	6"		3
14'-0"	2	4'-0"	6'-0"	4'-0"				8 5/8"	75 3/8"	75 3/8"	8 5/8"		3
15'-0"	2	4'-6"	6'-0"	4'-6"				14 5/8"	75 3/8"	75 3/8"	14 5/8"		3
16'-0"	2	4'-0"	8'-0"	4'-0"				8 5/8"	75 3/8"	99 3/8"	8 5/8"		3
17'-0"	2	4'-6"	8'-0"	4'-6"				14 5/8"	75 3/8"	99 3/8"	14 5/8"		3
18'-0"	2	4'-0"	10'-0"	4'-0"				8 5/8"	99 3/8"	99 3/8"	8 5/8"		3
19'-0"	2	4'-6"	10'-0"	4'-6"				14 5/8"	99 3/8"	99 3/8"	14 5/8"		3
20'-0"	3	4'-0"	6'-0"	6'-0"	4'-0"			7"	75 3/8"	75 3/8"	75 3/8"	6 7/8"	4
21'-0"	3	4'-6"	6'-0"	6'-0"	4'-6"			13"	75 3/8"	75 3/8"	75 3/8"	12 7/8"	4
22'-0"	3	4'-0"	7'-0"	7'-0"	4'-0"			7"	75 3/8"	75 3/8"	99 3/8"	6 7/8"	4
23'-0"	3	4'-6"	7'-0"	7'-0"	4'-6"			13"	75 3/8"	75 3/8"	99 3/8"	12 7/8"	4
24'-0"	3	4'-0	8'-0"	8'-0	4'-0"			7"	75 3/8"	99 3/8"	99 3/8"	6 7/8"	4
25'-0"	3	4'-6"	8'-0"	8'-0"	4'-6			13"	75 3/8"	99 3/8"	99 3/8"	12 7/8"	4
26'-0"	4	4'-0"	6'-0"	6'-0"	6'-0"	4'-0"		7"	99 3/8"	99 3/8"	99 3/8"	6 7/8"	4
27'-0"	4	4'-6"	6'-0"	6'-0"	6'-0"	4'-6"		13"	99 3/8"	99 3/8"	99 3/8"	12 7/8"	4

EFFECTIVE SIGN HEIGHT "H"	SUPPORT ARM LENGTH "G"	APPROX. AIMING ANGLE	LAMP WATTS	ANSI LAMP CODE	BALLAST TYPE
3'-0" to 5'-0"	2'-9"	0°	100	H38-4HT	CMRI-100-(a)
5'-1" to 6'-6"	3"-3"	0°	175	H39-22KB	CMRI-175-(a)
6'-7" to 10'-0"	4'-3"	2°	175	H39-22KB	CMRI-175-(a)
10'-1" to 13'-0"	5'-9"	8°	250	H37-5KB	CMRI-250-(a)
13'-1" to 15'-0"	7'-3"	8°	250	H37-5KB	CMRI-250-(a)

(a) = OPERATING VOLTAGE (120V., 208V., 240V., 277V., OR 480V.)

FIXTURE MOUNTING PLATE

(ALUMINUM)



"J" BOLT

(STAINLESS STEEL BOLT, NUTS & LOCKWASHERS)

BUREAU OF DESIGN SERVICES
OHIO DEPARTMENT OF HIGHWAYS

MERCURY VAPOR SIGN LIGHTING DETAILS

STANDARD CONSTRUCTION DRAWING

DATE 4-13-72

MAY 4 1973

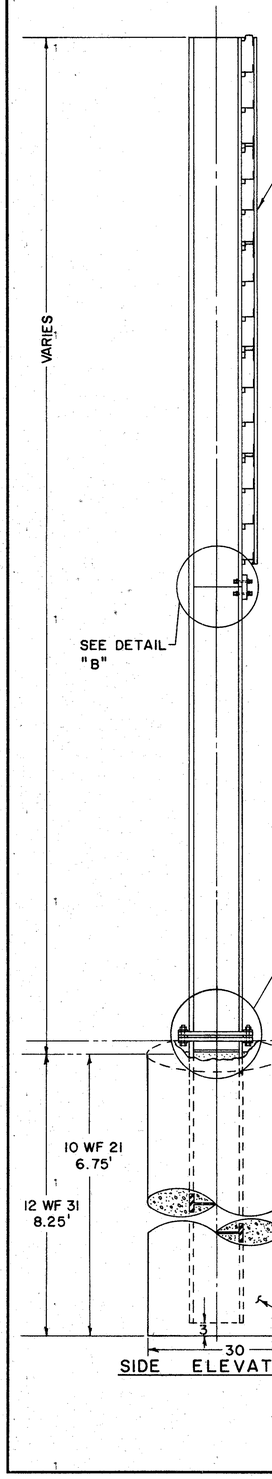
APPROVED _____
ENGINEER OF DESIGN SERVICES

BRUNING 44-560 10943

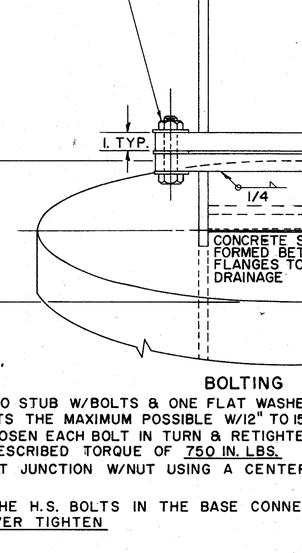
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

200
258

CUYAHOGA COUNTY
CUY.-422-16.33



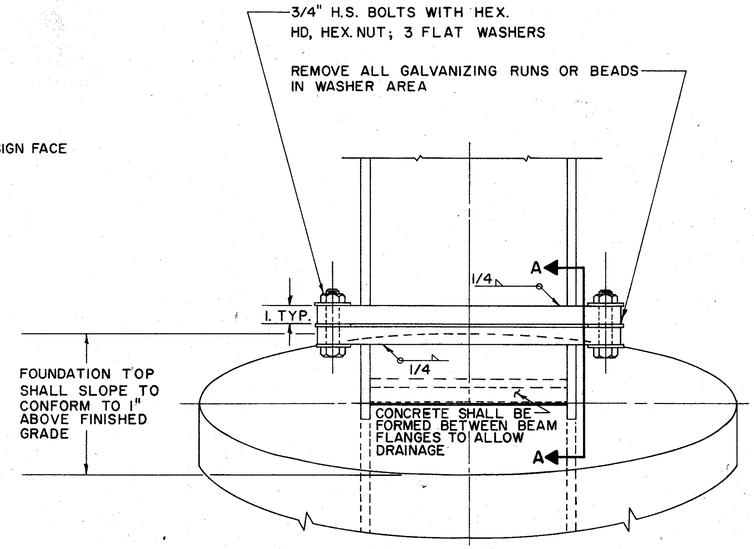
SIDE ELEVATION



FRONT ELEVATION

FOUNDATION TABLE	CU. YDS. CONCRETE 2 POSTS	CU. YDS. CONCRETE 3 POSTS
10 WF 21	2.50	3.75
12 WF 31	3.00	4.50

BREAK-AWAY SUPPORT

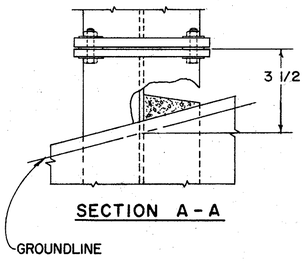


BOLTING PROCEDURE

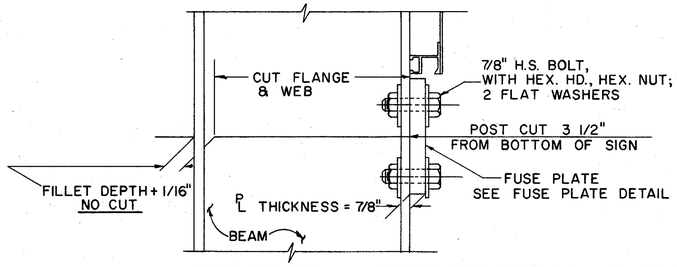
1. ASSEMBLE POST TO STUB W/BOLTS & ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE W/12" TO 15" WRENCH TO BED & TO CLEAN BOLT THREADS. LOOSEN EACH BOLT IN TURN & RETIGHTEN BOLTS IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE OF 750 IN. LBS.
3. BURR THREADS AT JUNCTION W/NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

NOTE: TIGHTEN THE H.S. BOLTS IN THE BASE CONNECTION ONLY TO GIVEN TORQUE DO NOT OVER TIGHTEN

VIEW "A" ROTATED 180°



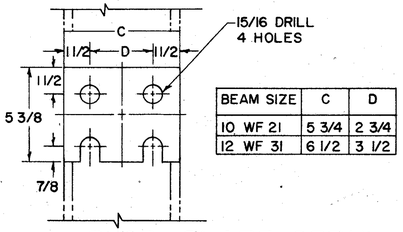
SECTION A-A



FABRICATOR NOTE: ALL FRICTION FUSE BOLTS SHALL BE TIGHTENED IN THE SHOP FOLLOWING A METHOD APPROVED BY THE ENGINEER. TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN MINIMUM RESIDUAL TENSION IN EACH BOLT OF 36,050 LBS.

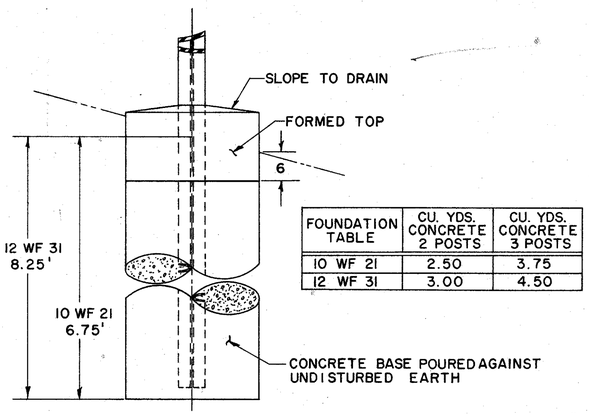
NOTE: INSTALL FUSE PLATE WITH NOTCHES TOWARD BASE

DETAIL "B"



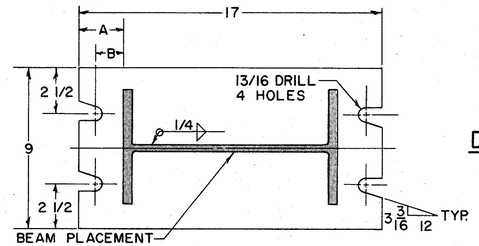
BEAM SIZE	C	D
10 WF 21	5 3/4	2 3/4
12 WF 31	6 1/2	3 1/2

FUSE PLATE DETAIL



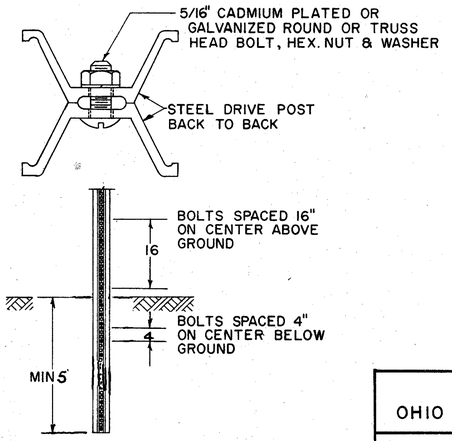
FOUNDATION TABLE	CU. YDS. CONCRETE 2 POSTS	CU. YDS. CONCRETE 3 POSTS
10 WF 21	2.50	3.75
12 WF 31	3.00	4.50

FRONT ELEVATION
STANDARD SUPPORT

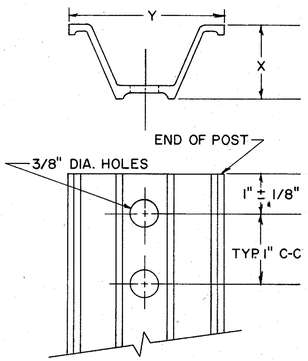


BEAM SIZE	A	B
10 WF 21	3 1/2	2 5/8
12 WF 31	2 1/2	1 5/8

BASE PLATE DETAIL



6# BEAM DETAIL



WEIGHT PER FOOT	X ± 3/32"	Y ± 1/8"
2.00 #	1 15/32"	3 1/16"
3.00 #	1 7/8"	3 1/2"
4.00 #	2"	3 5/8"

DRIVE POST DETAIL

NOTE: THE FOUNDATION FOR 4# DRIVE POST IS SIMILAR TO THE FOUNDATION SHOWN FOR 6# & 8# BEAM

NOTES: ALL MATERIALS SHALL CONFORM TO THE STATE OF OHIO, CONSTRUCTION & MATERIALS SPECIFICATIONS OR AS OTHERWISE SPECIFIED

1) 511 FOUNDATIONS
2) 711.01 STRUCTURAL STEEL SHAPES & PLATES
3) 711.09 H.S. STEEL BOLTS, NUTS & WASHERS

ALL DIMENSIONS IN INCHES UNLESS OTERWISE SHOWN

STRUCTURAL SUPPORTS

MAY 4 1973
REVISED 1-14-72

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

GROUND MOUNTED SIGN SUPPORTS

GMSS

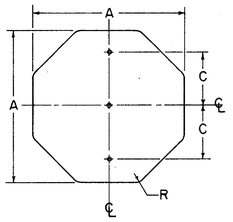
DATE 5-10-68 7-12-68

APPROVED _____
ENGINEER OF TRAFFIC

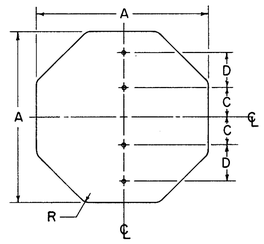
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

201/258

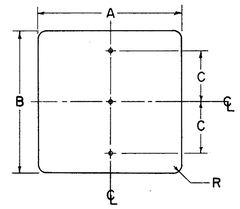
CUYAHOGA COUNTY
CUY.-422-16.33



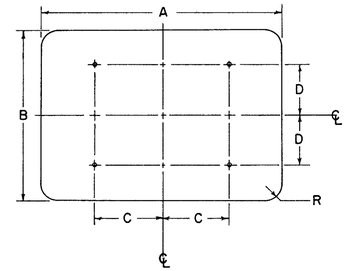
A	C	R	GAUGE
30	8	1 1/2	.080
36	8	1 1/2	.080



A	C	D	R	GAUGE
48	8	10	1 1/2	.100

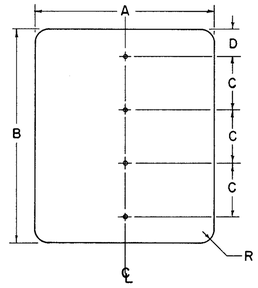


A	B	C	R	GAUGE
30	42	12	1 1/2	.080
36	36	11	1 1/2	.080
36	42	15	1 1/2	.080
36	48	15	1 1/2	.080
48	24	10	3	.100
48	36	13	3	.100

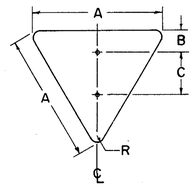


A	B	C	D	R	GAUGE
48	36	22	16	3	.100
48	60	22	22	3	.100

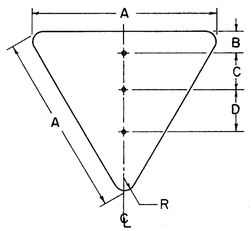
SPEED LIMIT SIGNS ON TWO SUPPORTS



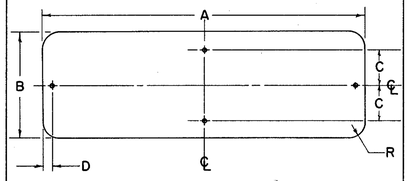
A	B	C	D	R	GAUGE
48	48	12	6	3	.100
48	60	15	7 1/2	3	.100



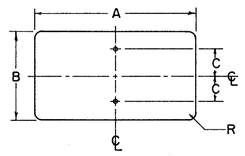
A	B	C	R	GAUGE
36	3	16	2 1/2	.080



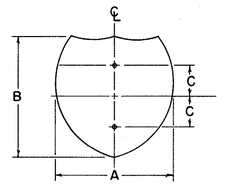
A	B	C	D	R	GAUGE
48	4	10	15	3	.100
60	5	10	15	4	.100



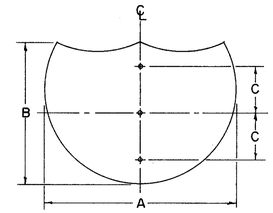
A	B	C	D	R	GAUGE
36	12	4	1	1 1/2	.080



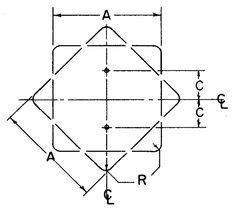
A	B	C	R	GAUGE
12	6	3	1 1/2	.063
20	15	6	1 1/2	.063
24	12	4 1/2	1 1/2	.063
24	18	15	1 1/2	.063
24	30	8	1 1/2	.063
24	48	10	1 1/2	.100
30	36	10 1/2	1 1/2	.080
36	18	7 1/2	1 1/2	.080



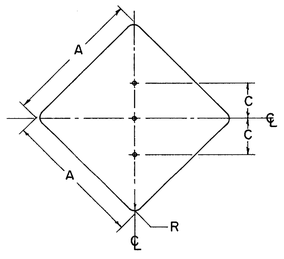
A	B	C	GAUGE
24	24	8	.063
30	24	8	.080



A	B	C	GAUGE
36	36	11	.080
48	36	11	.100

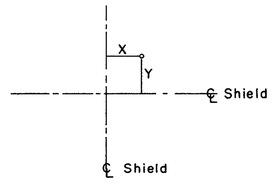


A	C	R	GAUGE
18	7 1/2	1 1/2	.063
24	8	1 1/2	.063
30	8	1 1/2	.080



A	C	R	GAUGE
36	12	3	.080
48	14	3	.100

Location of holes on "Demountable Shields" (attached to guide signs)



SIZE	NO. HOLES	X	Y
(26) 24X24	4	7	7
30X24	4	8	8
(39) 36X36	4	10	10
		0	10
48X36	6	15	10

For notes on fastening see drawing for miscellaneous "Signing Items" sheet.

NOTES:

ALL DEMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.

MATERIAL

FLAT SIGN BLANKS SHALL BE FURNISHED IN ALUMINUM ALLOY 6061-T6, (ASTM-B209, GSIIA-T6) WITH MILL FINISH.

BOLT HOLES

THE BOLT HOLES SHALL BE 3/8" IN DIAMETER, AND MAY BE DRILLED, BLANKED OR PUNCHED TO FINISHED SIZE.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

SIGN BLANK DETAILS

SBD

DATE 4-14-67

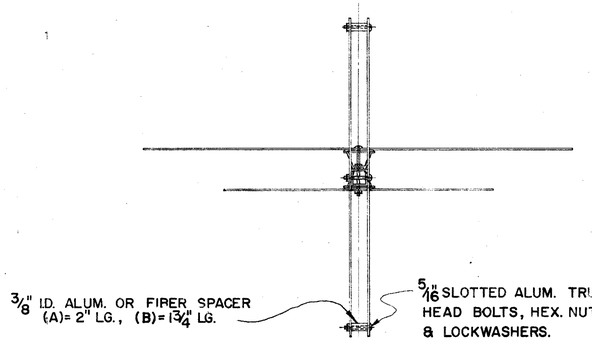
MAY 4 1973

APPROVED_____
ENGINEER OF TRAFFIC

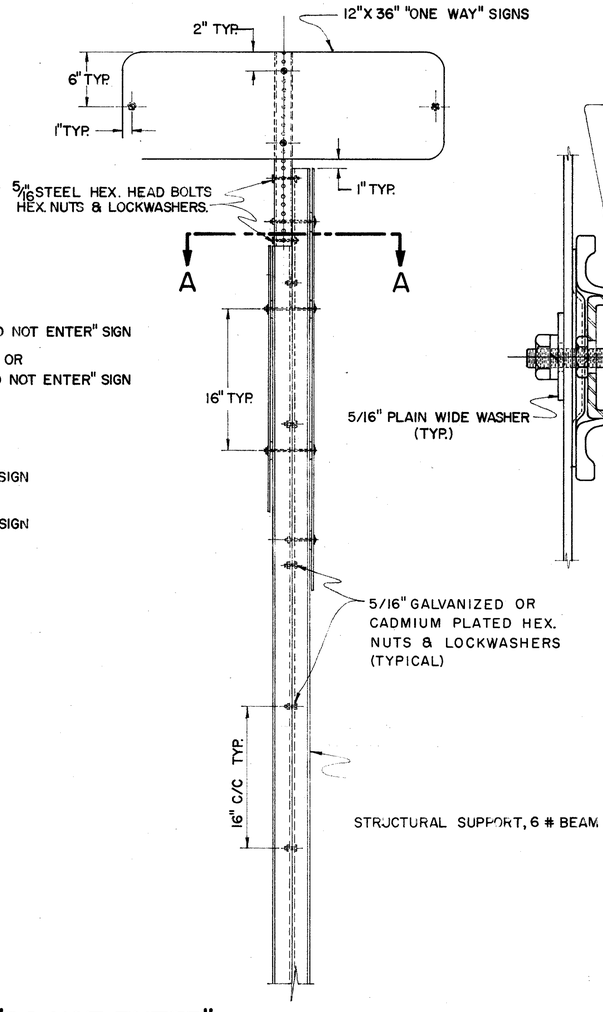
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

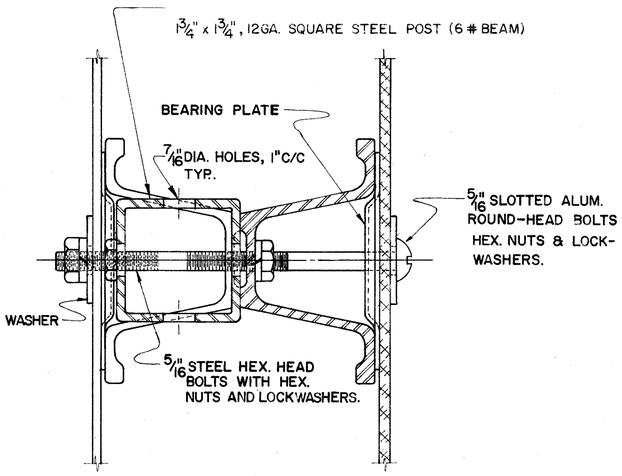
202
258

CUYAHOGA COUNTY
CU Y.-422-16.33



"ONE WAY", "STOP", "DO NOT ENTER",
SIGN INSTALLATION.





SECTION A-A

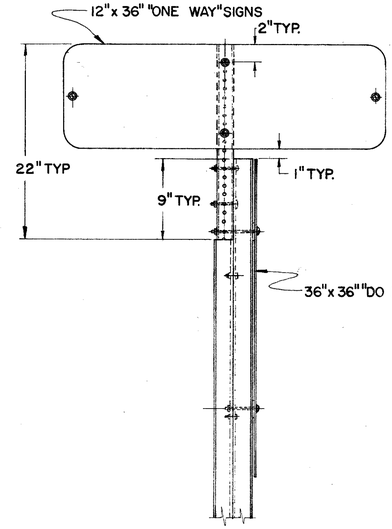
NOTES

MATERIALS

ALL SIGN MATERIALS SHALL BE IN ACCORDANCE WITH SUPPLEMENT SPECIFICATION 815.

ALL STRUCTURAL MATERIALS SHALL BE IN ACCORDANCE WITH SUPPLEMENT SPECIFICATION 816.

FOR SPECIFICATIONS FOR THE 2" & 1 3/4" SQUARE STEEL POST SEE GENERAL NOTES, SHEET NO. 180.



"ONE WAY", "DO NOT ENTER"
SIGN INSTALLATION

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

SPECIAL "ONE WAY" SIGN SUPPORT DETAILS	SOW	DATE 2-7-66 4-18-67
APPROVED _____ ENGINEER OF TRAFFIC		

MAY 4 1973

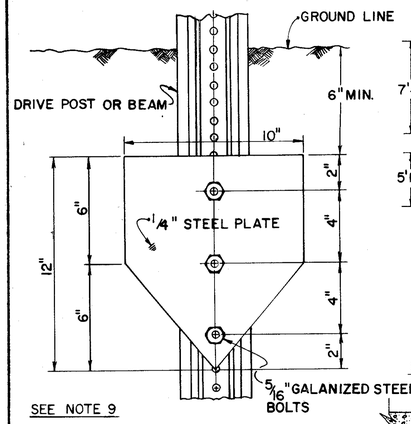
REVISED 1-14-72

SPECIAL "ONE WAY" SIGN SUPPORT DETAILS

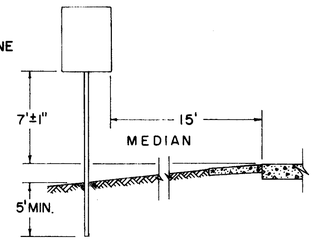
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

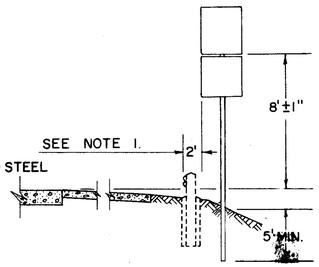
203
258

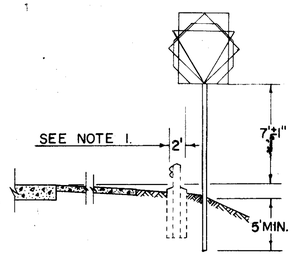
CUYAHOGA COUNTY
CUY - 422 - 16.33

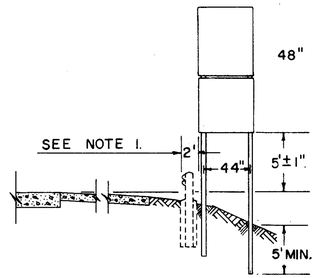


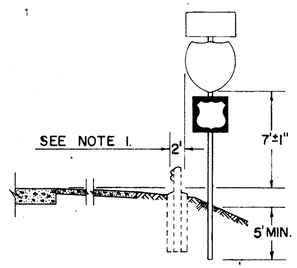
SOIL PLATE DETAIL

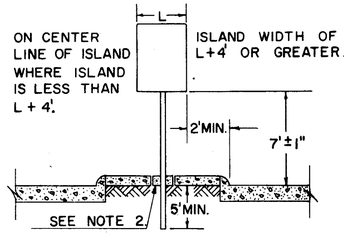


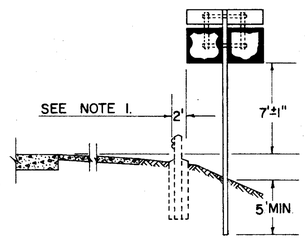


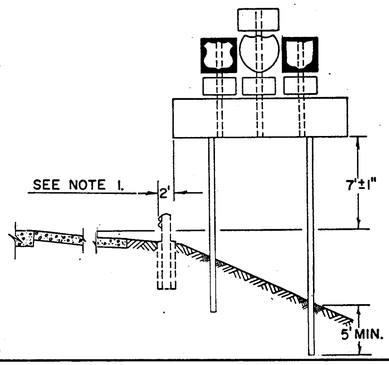


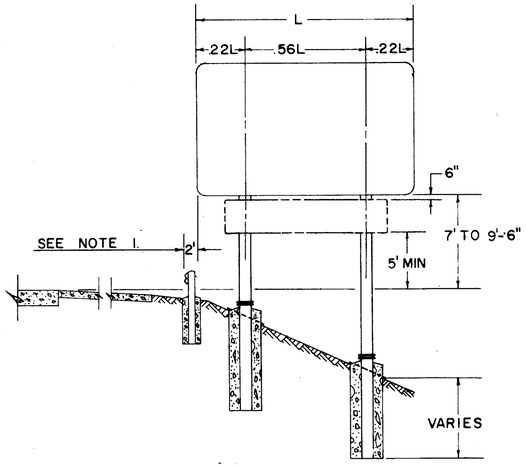


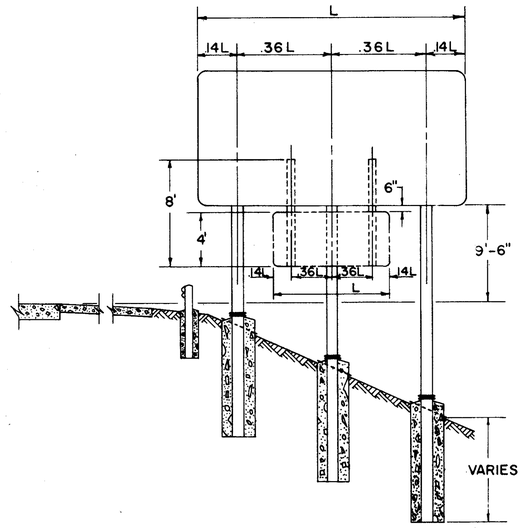


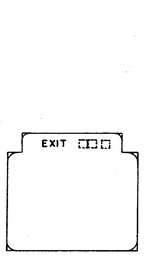


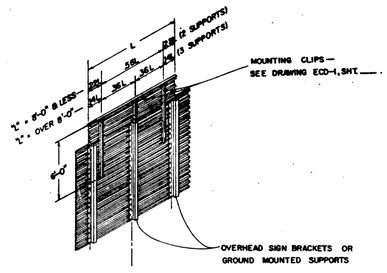




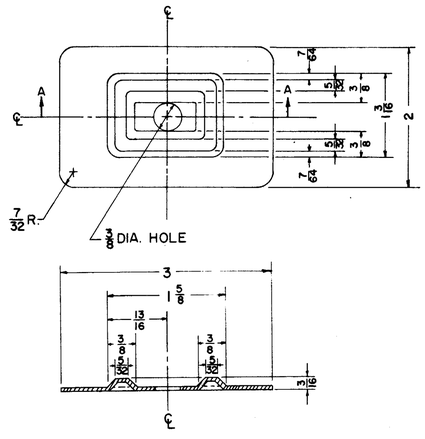








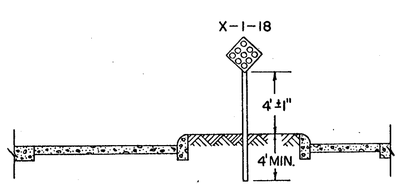
"EXIT" SIGN ATTACHMENT DETAIL



SECTION AA

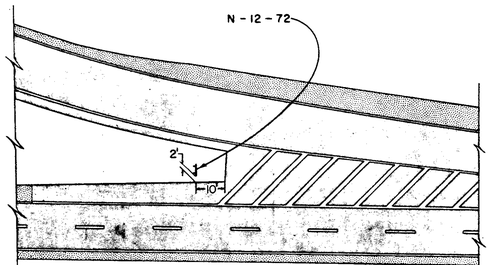
NOTE:
THE PLATE IS SYMMETRICAL ABOUT EITHER CENTERLINE.
METAL SHALL BE 16 GAUGE STEEL.
ALL DIMENSIONS ARE IN INCHES.

BEARING PLATE DETAIL



SIGN SUPPORT SPACING

L=FT	2 SUPPORTS .22	2 SUPPORTS .56	3 SUPPORTS .14	3 SUPPORTS .36	L=FT	2 SUPPORTS .22	2 SUPPORTS .56	3 SUPPORTS .14	3 SUPPORTS .36
5.0	1.10	2.80	0.70	1.80	17.0	3.74	9.52	2.38	6.12
6.0	1.32	3.36	0.84	2.16	18.0	3.96	10.08	2.52	6.48
7.0	1.54	3.92	0.98	2.52	19.0	4.18	10.64	2.66	6.84
8.0	1.76	4.48	1.12	2.88	20.0			2.80	7.20
9.0	1.98	5.04	1.26	3.24	21.0			2.94	7.56
10.0	2.20	5.60	1.40	3.60	22.0			3.08	7.92
11.0	2.42	6.16	1.54	3.96	23.0			3.22	8.28
12.0	2.64	6.72	1.68	4.32	24.0			3.36	8.64
13.0	2.86	7.28	1.82	4.68	25.0			3.50	9.00
14.0	3.08	7.84	1.96	5.04	26.0			3.64	9.36
15.0	3.30	8.40	2.10	5.40	27.0			3.78	9.72
16.0	3.52	8.96	2.24	5.76	28.0			3.92	10.08



DIRECTION OF TRAFFIC

NEW DRAWING.
REVISE 1-14-72

NOTES

1. THE NEAR EDGE OF ALL MAIN LINE SIGNS, EXCEPT GORE INSTALLATIONS, SHALL BE LOCATED TWO FOOT (2') BACK OF GUARD RAIL FACE. THIS DIMENSION SHALL BE DETERMINED BY ROADWAY TYPICAL SECTION & USED WHETHER OR NOT GUARD RAIL IS PRESENT.

ON RAMPS THE NEAR EDGE OF SIGNS SHALL BE LOCATED TWO FOOT (2') BACK OF GUARD RAIL FACE. THIS DIMENSION WILL BE DETERMINED AND USED AS FOR MAIN LINE ABOVE.

ON APPROACHES THE NEAR EDGE OF SIGNS SHALL BE

(A) TWO FOOT (2') BEHIND EXISTING GUARD RAIL

(B) TWO FEET (2') FROM THE EDGE OF PAVED OR TRAVELED SHOULDER WITH A MINIMUM OF 6' FROM EDGE OF ROADWAY PAVEMENT.

2. POSTS PLACED IN CONCRETE MEDIANS SHALL BE INSTALLED BY DRIVING THROUGH A 6" SLEEVE OR CORE DRILLED HOLE. THE HOLE SHALL BE FILLED WITH ASPHALTIC CONCRETE AFTER THE POST IS IN THE PROPER POSITION.

3. HORIZONTAL BACK BRACING SHALL ALWAYS BE MOUNTED ON THE FRONT FLANGE OF THE SUPPORT EXCEPT WHERE SIGNS ARE MOUNTED BACK TO BACK. BACK BRACING SHALL NEVER EXTEND ABOVE TOP EDGE OF UPPERMOST SIGN PLATE AND SHALL BE ATTACHED TO SUPPORTS USING 5/16" GALVANIZED STEEL BOLTS.

4. SCREWS, NUTS, AND WASHERS FOR SIGN ERECTION SHALL BE ALUMINUM EXCEPT AS NOTED ABOVE. 5/16" TRUSS HEAD SLOTTED MACHINE SCREWS WITH HEX. NUTS PLAIN AND LOCKWASHERS SHALL BE USED. PLAIN WASHERS SHALL BE 5/16" WIDE", USED ON SIGN FACE ONLY

5. SIGN INSTALLATIONS SHALL BE PLACED SO THAT SUPPORTS ARE NOT PLACED IN DRAINAGE DITCHES.

6. HORIZONTAL CLEARANCES SHOWN PERTAIN TO NON-CURBED SECTIONS. SECTIONS WITH UNMOUNTABLE CURB SHALL HAVE A HORIZONTAL CLEARANCE OF 2'-0" MINIMUM FROM THE CURB FACE TO THE SIGN EDGE.

7. VERTICAL AND HORIZONTAL CLEARANCE BETWEEN SIGNS ON ONE ASSEMBLY SHALL BE A MAXIMUM OF 2" AND A MINIMUM OF 1".

8. GALVANIZED STEEL BEARING PLATES SHALL BE INCLUDED BETWEEN ALL SHEET ALUMINUM SIGNS ATTACHED TO VERTICAL SUPPORTS AT EACH SIGN BOLT LOCATION.

9. SOIL PLATES SHALL BE ATTACHED TO ALL 4 LB. POST AND 6 LB. BEAMS AS DETAILED ON THIS SHEET, EXCEPT WHERE POSTS ARE PLACED IN CONCRETE MEDIANS AS COVERED IN NOTE 2. MAY 4 1973

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

TYPICAL PLACEMENT OF SIGNS

TPS-1.1

DATE
9-27-67
7-12-68
5-13-69
3-5-71
12-21-71

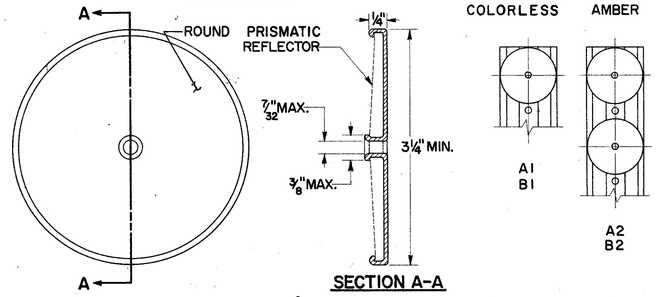
APPROVED _____
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

204
258

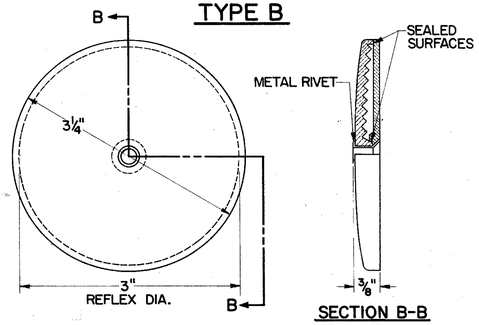
CUYAHOGA COUNTY
CUY.-422-16.33

TYPE A



SECTION A-A

TYPE B

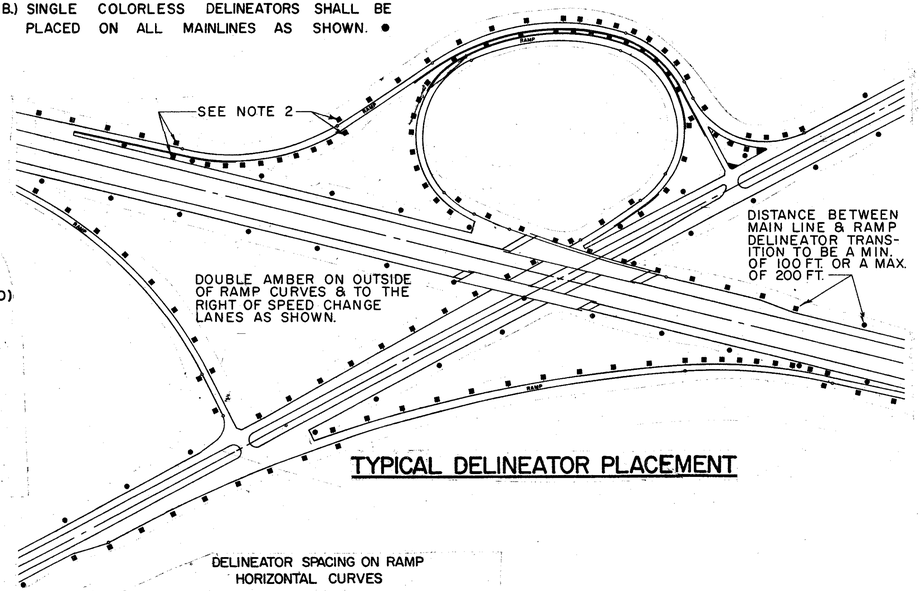


SECTION B-B

NOTE:

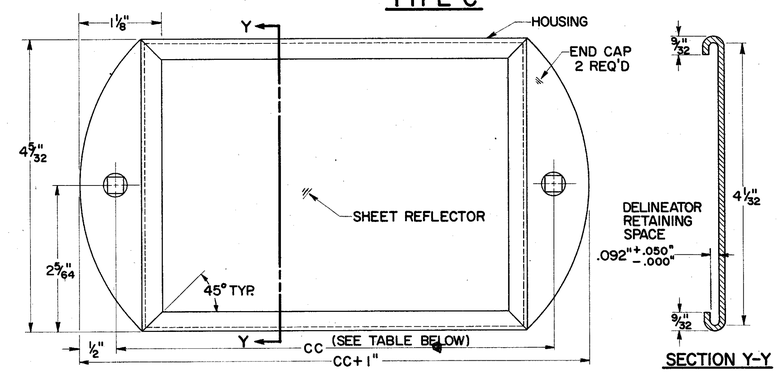
(A.) DOUBLE AMBER DELINEATORS SHALL BE PLACED ON ALL RAMPS AS SHOWN. ■

(B.) SINGLE COLORLESS DELINEATORS SHALL BE PLACED ON ALL MAINLINES AS SHOWN. ●

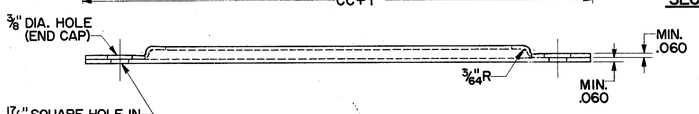


TYPICAL DELINEATOR PLACEMENT

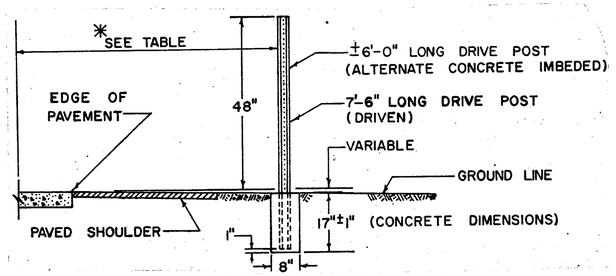
TYPE C



SECTION Y-Y



TYPE	DIM. CC
C1 – SINGLE COLORLESS	6"
C2 – DOUBLE AMBER	11"



LATERAL PLACEMENT OF DELINEATORS

* TABLE

TYPE DELINEATOR	NO GUARDRAIL	GUARDRAIL
SINGLE COLORLESS	12'-6"	6" OUTSIDE
DOUBLE AMBER RIGHT SIDE	** 8'-6"	6" OUTSIDE
DOUBLE AMBER LEFT SIDE	4'-6"	6" OUTSIDE

** THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.

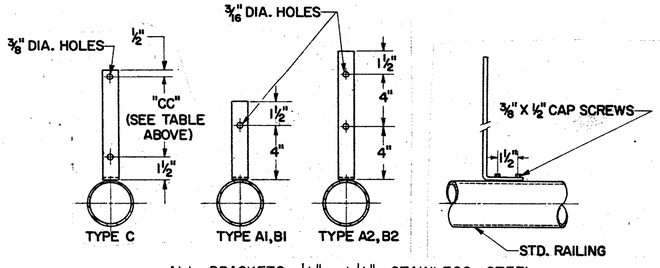
DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

RADII, FT. FROM	RADII, FT. TO	SPACING ON CURVE	* TRANSITION SPACING	
TANGENT	1,801	100'	100'	100'
1,800	1,401	80'	100'	100'
1,400	1,001	70'	100'	100'
1,000	751	60'	100'	100'
750	551	50'	80'	100'
550	326	40'	70'	100'
325	———	30'	60'	100'

* SUCH AS 40' TO 70' TO 100' OR 100' TO 80' TO 50' OR ANY OTHER COMBINATION SHOWN ABOVE.

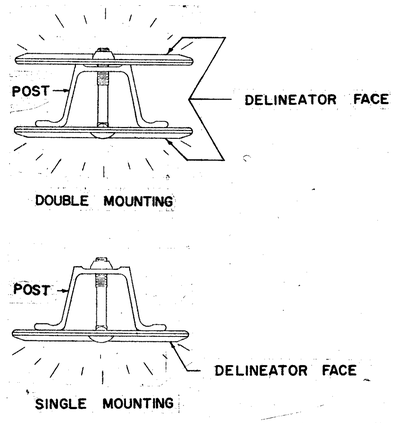
NOTES

1. TYPE A1 OR B1 DELINEATORS ON THE RIGHT OF THE THROUGH ROADWAY ARE TO BE SPACED AT 200 FT. INTERVALS THROUGHOUT, REGARDLESS OF CURVES.
2. WHEN CROSSING FROM LEFT TO RIGHT OR FROM RIGHT TO LEFT ON THE RAMPS, THE DELINEATORS AT THE POINT OF CROSSOVER ARE TO BE AT THE SAME STATION ON EACH SIDE.
3. NO DELINEATORS ARE TO BE PLACED IN PAVED BERM
4. WHEN RADII OF CURVE ON RAMPS REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.

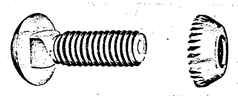


ALL BRACKETS 1/4" x 1 1/4" STAINLESS STEEL

BRIDGE RAIL BRACKET

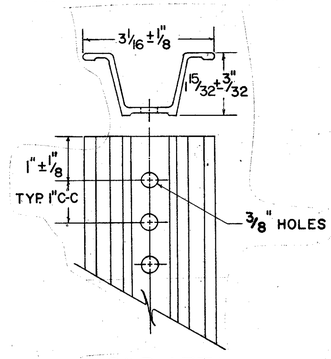


DELINEATOR MOUNTING



TAMPER RESISTANT FASTENERS SHALL BE USED TO FASTEN DELINEATORS TO POST AS/OR SIMILAR TO ONE SHOWN ABOVE.

TAMPER RESISTANT FASTENERS



2 LB./FT. DELINEATOR DRIVE POST

MAY 4 1973

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

DELINEATOR DETAILS	620	DATE 9-25-62 5-24-65 9-12-67

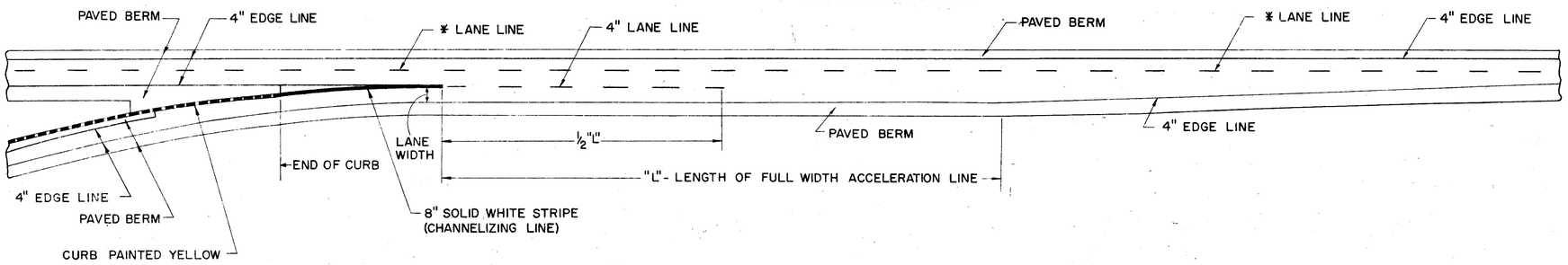
APPROVED Robert A. Lower
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

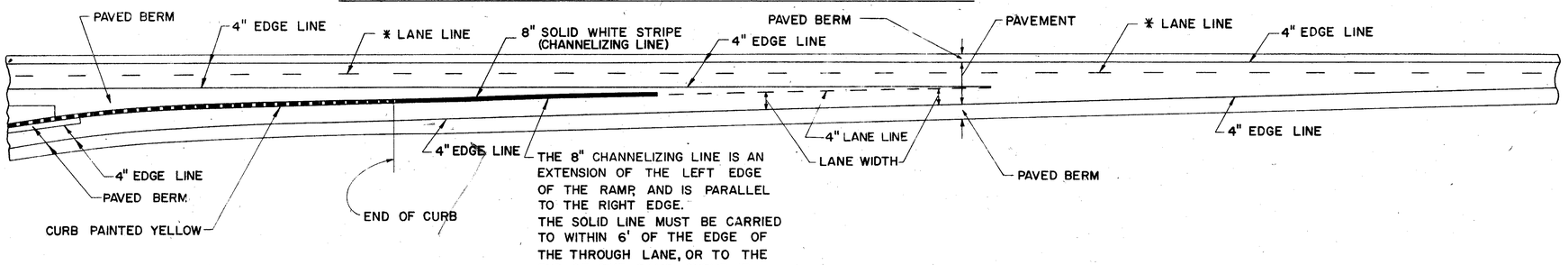
205
258

CUYAHOGA COUNTY
CUY.-422-16.33

ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE



ENTRANCE TERMINAL - TAPERED ACCELERATION LANE



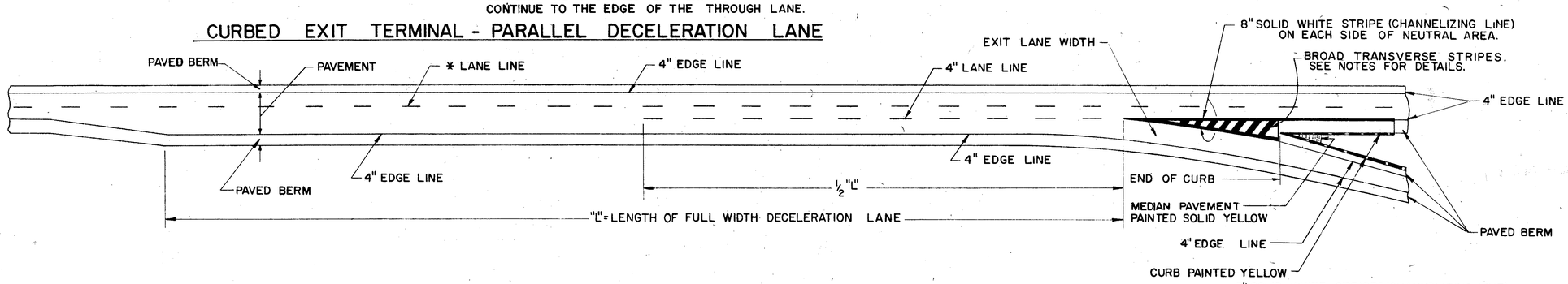
THE 8" CHANNELIZING LINE IS AN EXTENSION OF THE LEFT EDGE OF THE RAMP AND IS PARALLEL TO THE RIGHT EDGE. THE SOLID LINE MUST BE CARRIED TO WITHIN 6' OF THE EDGE OF THE THROUGH LANE, OR TO THE END OF THE RAMP CURVE IF CLOSER. THE 4" DASHED LINE SHOULD CONTINUE TO THE EDGE OF THE THROUGH LANE.

NOTES

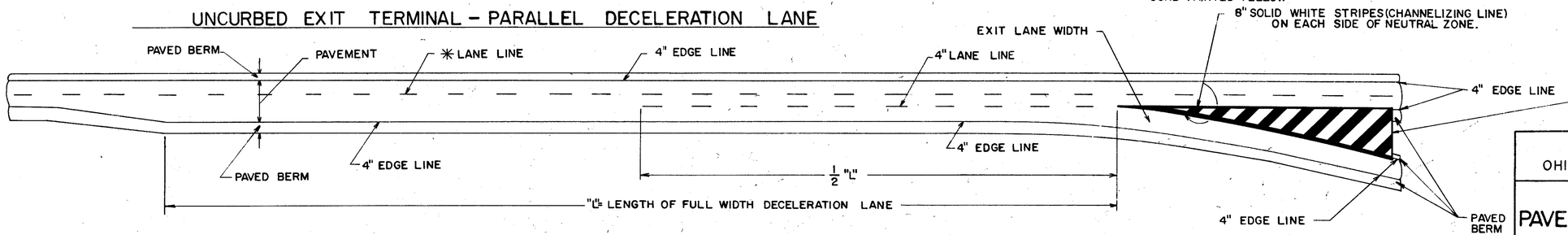
DIAGONAL STRIPES AT EXIT RAMPS SHALL BE 24" BROAD TRANSVERSE STRIPES, 621.11, WITH A 6' SPACE BETWEEN STRIPES.

* 6" LANE LINE ON INTERSTATE HIGHWAYS ONLY.
4" LANE LINE ON ALL OTHER HIGHWAYS.

CURBED EXIT TERMINAL - PARALLEL DECELERATION LANE



UNCURBED EXIT TERMINAL - PARALLEL DECELERATION LANE



MAY 4 1973

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT MARKING | 621

DATE
7-17-61
4-6-62
5-24-65
9-[illegible]-67
4-17-68

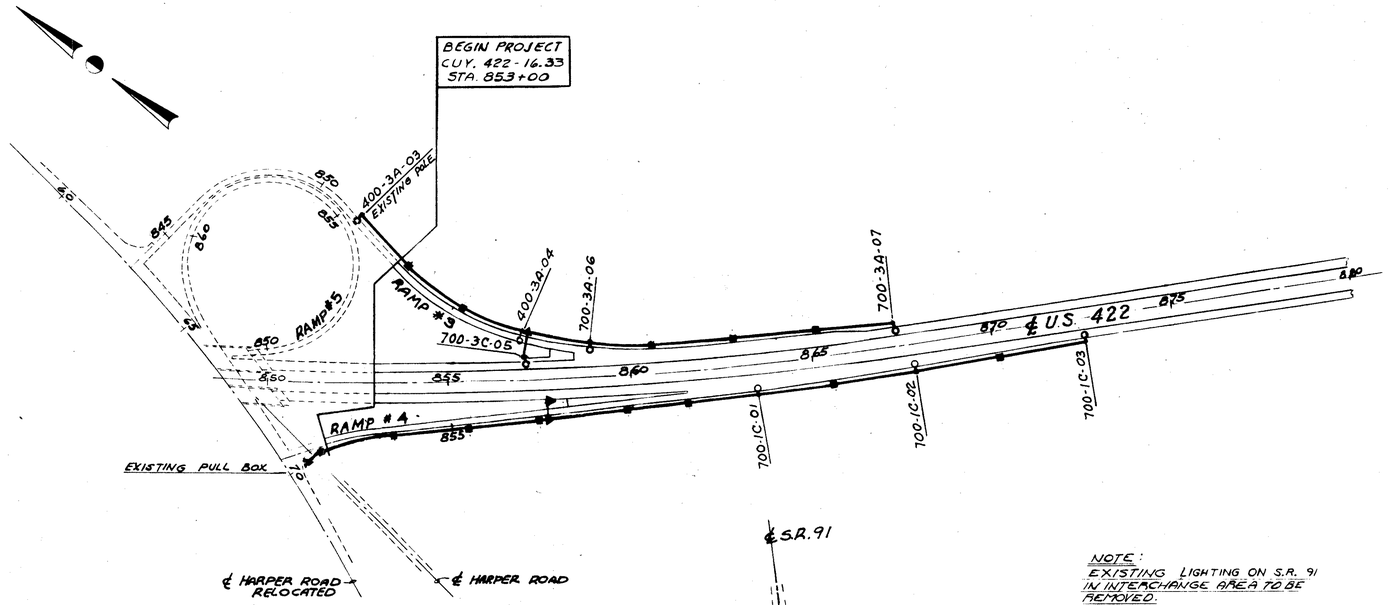
APPROVED Robert E. Lower
ENGINEER OF TRAFFIC

E-14

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

206/258

CUYAHOGA COUNTY
CUY-422-16.33



NOTE:
EXISTING LIGHTING ON S.R. 91 IN INTERCHANGE AREA TO BE REMOVED.

END PROJECT
CUY. 422-16.33
STA. 962-03.64

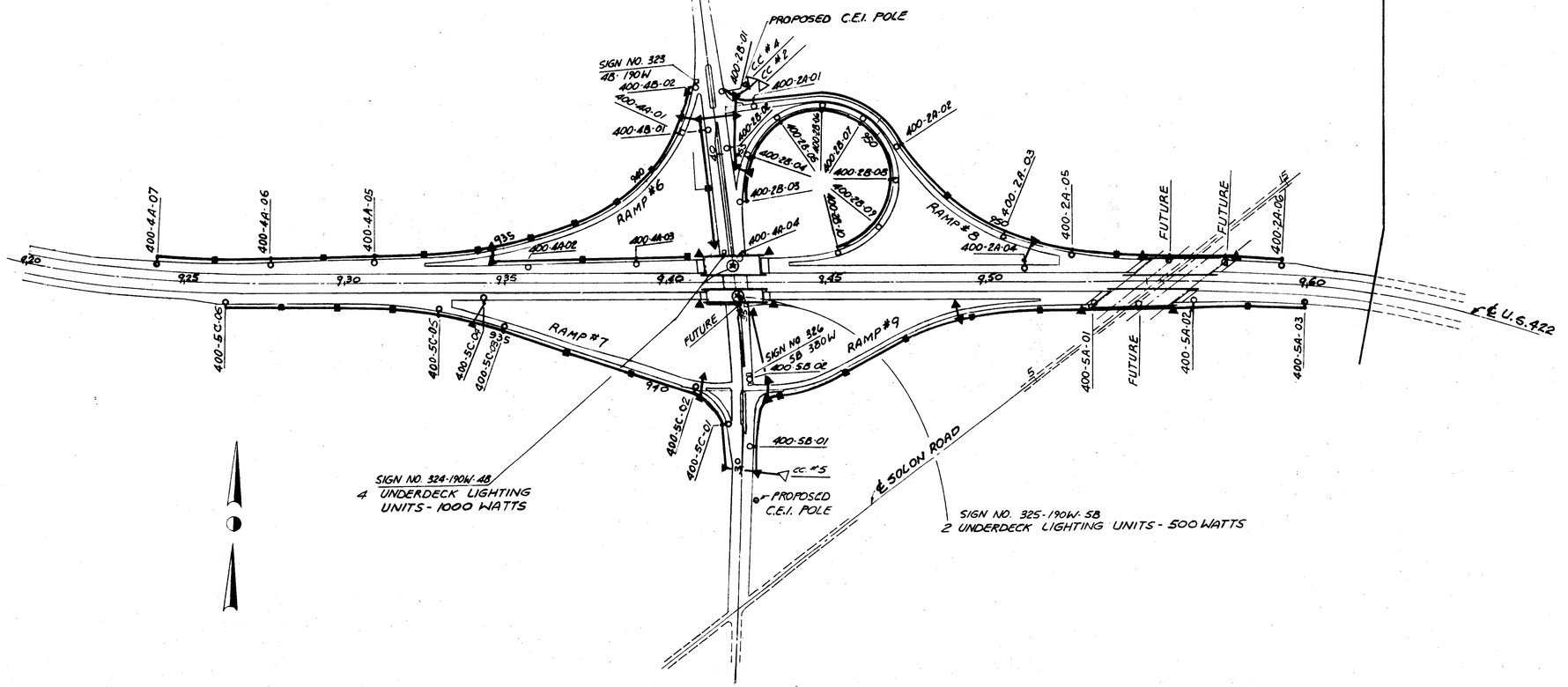
LIGHTING DESIGN DATA

INITIAL INTENSITY 1.0 TO 1.2 F.C. ✳
UNIFORMITY RATIO 4/1 MAX. ✳
SYSTEM VOLTAGE 480 60 Hz
FREEWAY LIGHTS 700W@40'M.H.(NOM.)-HARPER RD. INTER.
RAMP LIGHTS 400 W @ 32.5 FT. M.H. (NOM.)
FREEWAY LIGHTS 400 W@ 32.5 FT. M.H. (S.R. 91 INTERCHANGE)

✳ These values are for fully lighted sections of roadway.

LEGEND FOR THIS PLAN

- LIGHTING UNIT - POLE MOUNTED (CIRCUIT NO. & WATTAGE GIVEN)
- ILLUMINATED SIGN (CIRCUIT NO. & WATTAGE GIVEN)
- CONTROL CENTER
- PULL BOX
- UNDERDECK LIGHTING UNITS
- Indicates future light poles



MAY 4 1973

Rev. 1-14-72

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

LIGHTING PLAN
U.S. 422 & S.R. 91
INTERCHANGE

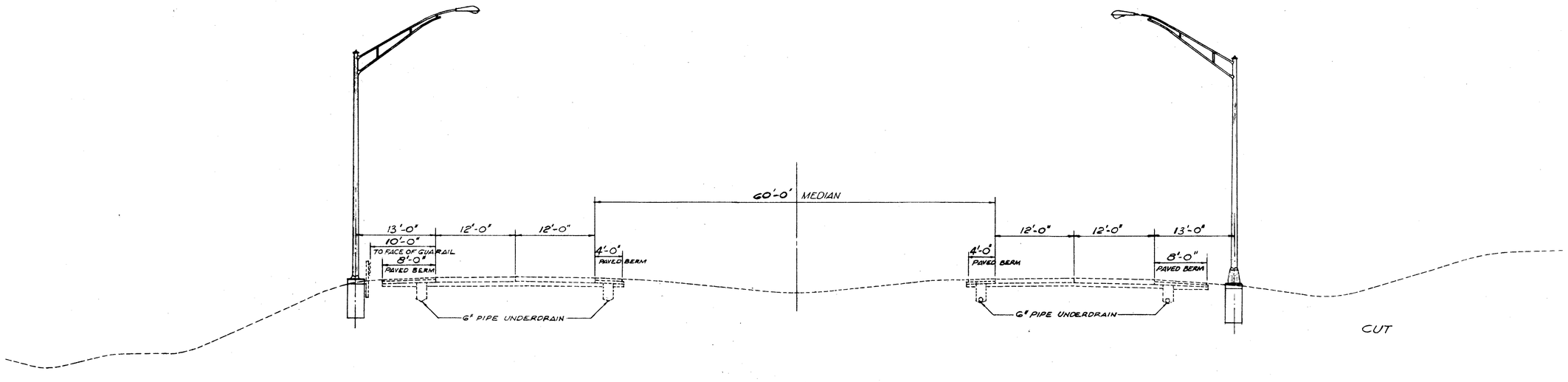
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WB	R.C.	R.L.B.			

TYPICAL SECTION

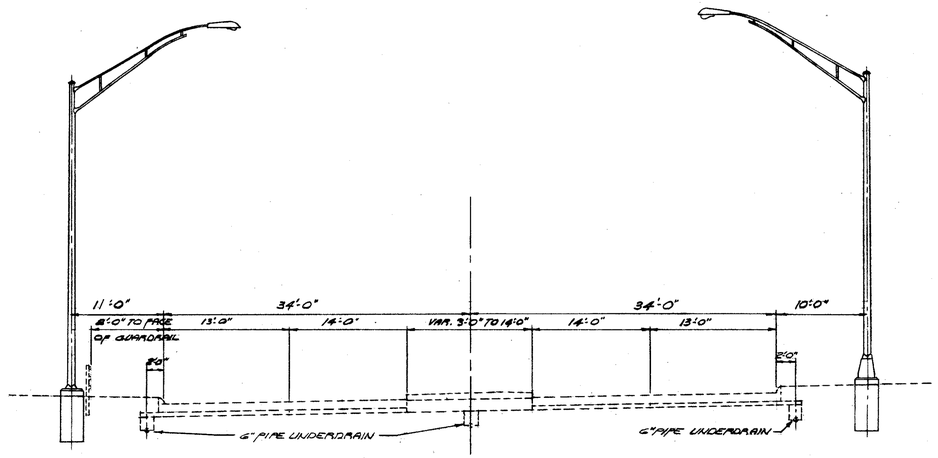
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

207
258

CUYAHOGA COUNTY
CUY-422-16.33



NORMAL SECTION
U.S. 422



TYPICAL REVERSE CROWN SECTION
S.R. 91

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TYPICAL SECTIONS

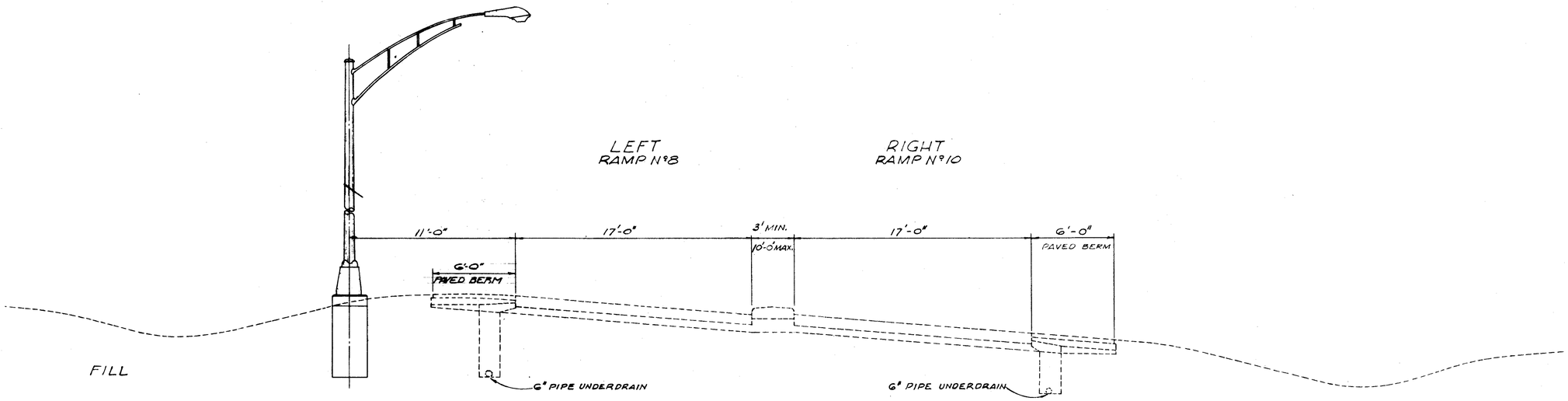
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WB	J.G.	R.L.B.			

TYPICAL SECTIONS

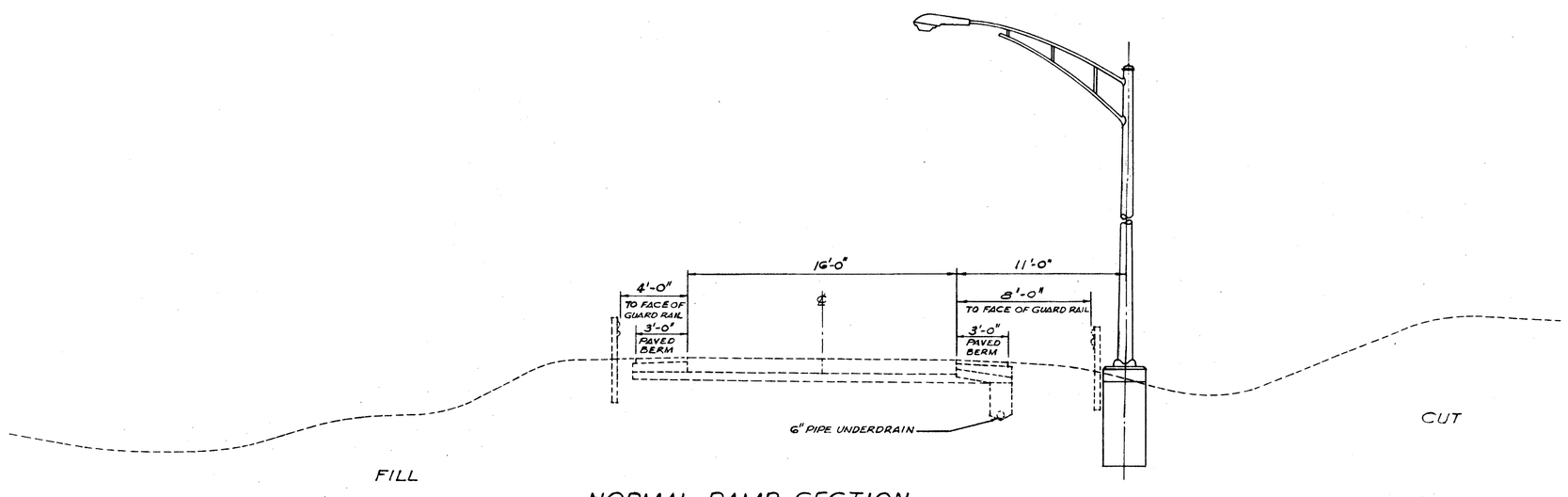
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

208
258

CUYAHOGA COUNTY
CUY-422-16.33



TWO WAY RAMP CONNECTION
S.R. 91 CONNECTION



NORMAL RAMP SECTION

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TYPICAL SECTIONS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WB	J.G.	R.L.B.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

209
258

CUYAHOGA COUNTY
CUY - 422 - 16.33

L I G H T I N G N O T E S

SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

625.03 GENERAL

POWER WILL BE FURNISHED BY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, 55 PUBLIC SQUARE, CLEVELAND, OHIO 44114, AT THE POINTS SHOWN ON THE PLANS.

CONTRACTOR TO PAY FOR TEMPORARY POWER DURING CONSTRUCTION.

FOR PROJECT VOLTAGE AND DESIGN CRITERIA, REFER TO SHEET No.(S) 206.

625.05 & 713.01 LIGHT POLES

LIGHT POLE DATA TABLE

STYLE	POLE DESIGN NUMBER	SHAFT BASE DIAMETER	TAPER INCHES/FT.	GAUGE	FOUNDATION ANCHOR BOLTS: SIZE	BOLT CIRCLE	PROJECTION ABOVE FOUNDATION	BRACKET ARM LENGTH	NOMINAL MOUNTING HEIGHT	ELASTIC DEFLECTION RATE, INCHES PER 100 LB.	AT 2/3 OF YIELD STRESS: LOAD IN POUNDS DOWN FROM TOP	TOTAL DEFLECTION IN INCHES	PERMANENT SET IN INCHES	AT YIELD STRESS: LOAD IN POUNDS DOWN FROM TOP	TOTAL DEFLECTION IN INCHES	PERMANENT SET IN INCHES	TRANSFORMER BASE SIZE	FOUNDATION SIZE
II	T-10B-34.2	8.0"x 3.87"x29'6"	.14	1	1"x40"	15"	4½"	10'	34.2	3.32	540	18.4	0.5	810	30.0	3.2	AT-A	24" x 6'
II	AT-10B-34.2	8.0"x 3.87"x29'6"	.14	1	1"x40"	15"	4½"	10'	34.2'	3.32	540	18.4	0.5	810	30.0	3.2	AT-A	24" x 6'
II	T-12B-34.2	9.6"x 4.87"x29'6"	.14	1	1"x40"	15"	4½"	12'	41.7'	2.92	600	18.0	0.5	900	29.4	3.1	AT-A	24" x 6'
II	AT-12B-41.7	9"x 5.65"x33'-6"	.10	1	1"x40"	15"	4½"	12'	41.7'	2.92	600	18.0	0.5	900	29.4	3.1	AT-A	24" x 8'
II	AT-12B-34.2	9.0"x 4.87"x 29'-6"	.14	1	1"x 40"	15"	4½"	12'									AT-A	24" x 6'
	FUTURE				1"x40"	17¼"	4½"											

HIGH VOLTAGE DIRECT CURRENT TESTS

A high voltage test, as described in SUPPLEMENTAL SPECIFICATION 839, shall be performed on all distribution cable and duct cable systems to be installed on this project. The test shall not be performed until after all new construction, such as guardrail, fence, delineator posts, sign supports, etc., in the immediate vicinity of the location of the cable run being tested, has been completed.

ITEM 605 SHALLOW PIPE UNDERDRAINS

An estimated quantity of 100 lin. ft. of 605, 4" Shallow Pipe Underdrains is provided in the lighting general summary for use as directed by the Engineer in providing positive drainage for pull boxes in fill areas. It is intended that all pull boxes in these areas be provided with such drainage, provided the length of underdrain necessary to obtain a satisfactory outfall does not exceed 20 ft. approximately. A perforated PVC pipe or conduit material approved by the Engineer may be used in the construction of this item.

SERVICE TO UNDERPASS LIGHTING, AS PER PLAN

THIS ITEM SHALL CONSIST OF PROVIDING COMPLETE ELECTRICAL SERVICE, EXCEPT FOR LUMINAIRES, LAMPS, AND STRUCTURE GROUNDING, FOR AN UNDERPASS LIGHTING SYSTEM ON BRIDGE NO. CUY-422-1800 L/R. THE INSTALLATION WORK SHALL INCLUDE CONDUITS, CONDUIT GROUNDING, MOUNTINGS, FITTINGS, JUNCTION BOXES, CABLES, AND ALL INCIDENTALS NECESSARY TO COMPLETE, READY FOR USE, THE SERVICE AS DETAILED ON SHEET 216. THE LUMP SUM PRICE BID FOR "ITEM 625 - SERVICE TO UNDERPASS LIGHTING, AS PLAN." SHALL INCLUDE PAYMENT FOR ALL EQUIPMENT, LABOR, AND MATERIALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED. COMPONENT PARTS NOT SPECIFICALLY MENTIONED BUT REQUIRED FOR SATISFACTORY OPERATION OF THIS ITEM SHALL BE FURNISHED AND CONSIDERED PAID FOR AS PART OF THIS ITEM.

625.07 - 713.18 UNDERPASS LUMINAIRES

250-WATT UNDERPASS LUMINAIRES SHALL BE HOLOPHANE "UNDERPASS WALLPACK," OR EQUAL WESTINGHOUSE, OR McGRAW-EDISON UNDERPASS UNIT APPROVED BY THE ENGINEER, AND SHALL BE FURNISHED WITH AN INTEGRAL FUSE HOLDER AND 10-AMPERE FUSE. THE INTEGRAL BALLAST SHALL BE OF A REGULATOR TYPE RATED FOR 480 VOLTS.

CONDUIT ON STRUCTURES

EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE OZ TYPE AX, CROUSE - HINDS TYPE XJ-4, APPLETON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER, FOR BRIDGE NOS. CUY-422-1800 L/R AND CUY-422-1825 L/R.

EACH EXPANSION FITTING SHALL HAVE A COPPER EXTERNAL BONDING JUMPER.

713.11 LUMINAIRES

700 WATT LUMINAIRES SHALL BE GENERAL ELECTRIC "M-1000" WITH 700W BALLAST, WESTINGHOUSE "OV-50", McGRAW-EDISON "UNISTYLE" 700W, OR APPROVED EQUAL.

400 WATT LUMINAIRES SHALL BE GENERAL ELECTRIC "M-400", WESTINGHOUSE "OV-25", McGRAW-EDISON "UNISTYLE" 400W, OR APPROVED EQUAL.

BALLAST FOR 700 WATT LUMINAIRES SHALL BE SINGLE-VOLTAGE RATED 480 VOLTS, INTEGRAL REGULATOR TYPE.

BALLAST FOR 400 WATT LUMINAIRES SHALL BE DUAL-VOLTAGE RATED 240/480 VOLTS, INTEGRAL REGULATOR TYPE.

713.14 LAMPS FOR LUMINAIRES

MERCURY LAMPS SHALL BE GENERAL ELECTRIC "BONUS LINE", WESTINGHOUSE "LIFE GUARD", SYLVANIA "ROUGH SERVICE", OR APPROVED EQUAL.

ITEM 625 MARKERS

An estimated quantity of 31 each of 625 Markers is provided in the lighting general summary for use as directed by the Engineer in providing ground surface indication of the location of underground circuits. The markers shall be located directly over the centerline of the cable or duct. It is intended that a marker shall be provided at a point midway between adjacent side-mounted light units where the distance between units exceeds 300 ft. but does not exceed 450 ft., and at intervals of approximately 200 ft. on all other circuit sections located outside of paved areas.

RESTORATION OF DISTURBED AREAS

THE CONTRACTOR SHALL REPLACE SEEDED AND SODDED AREAS, PAVED SHOULDERS AND ALL OTHER DISTURBED SURFACES TO A CONDITION EQUAL TO THAT EXISTING BEFORE WORK WAS STARTED. ALL REPLACEMENTS SHALL BE DONE IN ACCORDANCE WITH THE PERTINENT SPECIFICATION ITEMS AS DIRECTED BY THE ENGINEER. PAYMENT FOR ALL RESTORATION WORK, INCLUDING MATERIALS, EQUIPMENT, LABOR, INCIDENTALS AND DISPOSAL OF ALL SURPLUS MATERIALS, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS 625.

ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

THE PAY ITEMS IN THE LIGHTING GENERAL SUMMARY INCLUDE THE PULL BOX OR JUNCTION BOX ADJACENT TO EACH LIGHTED SIGN AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

WHERE A COMBINATION POLE WITH LIGHTED SIGN AND HIGHWAY LIGHTING IS TO BE PROVIDED, THE SIGN, POLE, FOUNDATION, GROUND ROD, SIGN COMPONENTS AND SIGN SERVICE ARE INCLUDED IN THE TRAFFIC CONTROL QUANTITIES.

THE LUMINAIRE, LAMPS, POLE AND BRACKET CABLE, BRACKET ARM AND COMPLETION OF THE ELECTRICAL CIRCUIT FROM AND INCLUDING THE CONNECTION TO THE DISCONNECT SWITCH (PROVIDED UNDER TRAFFIC CONTROL QUANTITIES) TO THE BALLAST AND LUMINAIRE SHALL BE PROVIDED UNDER ROADWAY LIGHTING QUANTITIES.

LIGHT POLE ANCHOR BOLTS FOR BRIDGES

ANCHOR BOLTS FOR MOUNTING LIGHT POLES ON BRIDGES AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF 713.01 AND DETAILS SHOWN ON THE PLANS AND STANDARD DRAWINGS, OR THE APPROVED SHOP DRAWINGS, FOR THE RESPECTIVE POLES TO BE PLACED THEREON. PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR EACH SET OF THE SIZE REQUIRED AND NECESSARY TO INSTALL ONE POLE, AND THIS PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND PLACING THE BOLTS.

BOLTS SHALL BE PROVIDED FOR FUTURE LIGHT POLES. THE BOLT PROJECTION AND BOLT CIRCLE DIAMETER SHALL BE AS LISTED IN THE TABLE OF MECHANICAL PROPERTIES UNDER ENTRY MARKED "FUTURE".

CONTROL CENTERS

Control centers N°2 and N°5 will consist of a safety switch installed on the C.E.I. pole, plus conduit from safety switch to a point below grade, and riser and weatherhead. Necessary wiring shall be N°4 AWG, with five feet coiled at the weatherhead for connection by C.E.I.

Control centers N°1 and N°4 are the same as N°2 and 5 except that the contractor must furnish and set a wood pole with minimum size as per 713.19 and actual size to be determined by field conditions, dependent on the length of the C.E.I. service drop.

The safety switch shall be 30 amp., 600 Volt ac, fused in stainless steel enclosure, equal to Square D Co's Cat. N° W999FA221A, Columbus Electric Works Cat. N° CEW 10185L630.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

LIGHTING NOTES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
W.B. 12-10-71	M.P.	R.L.B. 12-10-71			

MAY 4 1973

Rev. 11-9-73

Rev. 12-28-71

GENERAL LIGHTING QUANTITIES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	U-468(9)

210
258

CUYAHOGA COUNTY
CUY-422-16.33

TYPE CODE 7221

LINE No.	ITEM	STRUCTURES: SOLON S.R.91 BRIDGE NO. CUY-422-1800 4/R	STRUCTURES: SOLON SOLON ROAD BRIDGE NO. CUY-422-1825 4/R	ROADWAY: CITY OF SOLON SHEET No. 213	214	214	211	212	213	214	215	216	209	TOTAL	TOTAL
1	625									1				1	1
2	625						1		4	11	3			19	19
3	625		1	1						4				6	6
4	625						3	3						6	6
5	625														
6	625								8	1				9	9
7	625									1	1			2	2
8	625						1		12	17	3			33	33
9	625						3	3						6	6
10	625		2	4										6	6
11															
12	625						3	3						6	6
13	625						1		4	13	4			22	22
14	625		1	1					8	5				15	15
15	625											6		6	6
16															
17	625						3	3						6	6
18	625		1	1			1		12	18	4			37	37
19	625											6		6	6
20										3	1			4	4
21	625						4	3	12	17	3			39	39
22	625						3		10	16	3			32	32
23	625						2,706	1198	4,815	5,056	562			14,327	14,327
24	625														
25	625						109		262	400	107			878	878
26	625	224	214	632										1,070	1,070
27															
28															
29	625	834	230	1,304			160		464	1,754	364			4,510	4,510
30	625		89	89			411	322	639	1,601	360			3,511	3,511
31															
32	625						2657	1218	4,693	4826	485			13,879	13,879
33	625														
34															
35	625			6			2		12	30	10			60	60
36	625		1	1			5	3	12	18	3			43	43
37	625		1	1			5	3	12	18	3			43	43
38	625						4		6	8				18	18
39	625	LUMP	LUMP									LUMP		LUMP	LUMP
40															
41															
42	625	1												1	1
43	625		2	4										6	6
44	839												Lump	Lump	LUMP
45	625									Lump				Lump	LUMP
46	625									Lump				Lump	LUMP SUM
47	625										Lump			Lump	LUMP SUM
48	625		1											1	1
49	625			1										1	1
50	625			1										1	1
51															
52													31	31	31
53													100	100	100
54															
55															
56															

LINE No.	ITEM	UNIT	DESCRIPTION: LIGHTING	REF. LETTER
1	625	EACH	LIGHT POLE, DESIGN T10B34.2	A
2	625	EACH	LIGHT POLE, DESIGN AT 10B 34.2	B
3	625	EACH	LIGHT POLE, DESIGN T12B34.2	E
4	625	EACH	LIGHT POLE, DESIGN AT 12B 41.7	F
				C
6	625	EACH	LIGHT POLE, DESIGN AT 12B 34.2	D
7	625	EACH	BRACKET ARM 15'-0"	
8	625	EACH	LIGHT POLE FOUNDATION 24" x 24" x 72" DEEP	
9	625	EACH	LIGHT POLE FOUNDATION 24" x 24" x 96" DEEP	
10	625	SETS	LIGHT POLE ANCHOR BOLTS FOR STRUCTURE, 713.01	
11				
12	625	EACH	LUMINAIRE TYPE II, 700 WATT MERCURY 713.11	
13	625	EACH	LUMINAIRE TYPE II, 400 WATT MERCURY 713.11	
14	625	EACH	LUMINAIRE TYPE III, 400 WATT MERCURY. 713.11	
15	625	EACH	LUMINAIRE UNDERPASS 250 WATT MERCURY 713.11	
16				
17	625	EACH	MERCURY LAMP, 700 WATT 713.14	
18	625	EACH	MERCURY LAMP, 400 WATT 713.14	
19	625	EACH	MERCURY LAMP, 250 WATT 713.14	
20	625	EACH	PULL BOXES, 24", 713.09	
21	625	EACH	GROUND RODS	
22	625	EACH	PULL BOXES, CIRCULAR (CORRUGATED) 18" I.D. 713.09	
23	625	LIN. FT.	TRENCH, 24" DEEP	
24				
25	625	LIN. FT.	3" CONDUIT, TYPE III 713.04	
26	625	LIN. FT.	2" CONDUIT, TYPE III 713.04	
27				
28				
29	625	LIN. FT.	DISTRIBUTION CABLE, NO. 4 AWG 600 VOLT	
30	625	LIN. FT.	POLE & BRACKET CABLE, NO. 10 AWG -	
31				
32	625	LIN. FT.	1½" DUCT CABLE WITH TWO NO. 4 AWG, 600 VOLT CABLES	
33				
34				
35	625	EACH	CONNECTOR KIT, TYPE I	
36	625	EACH	CONNECTOR KIT, TYPE II	
37	625	EACH	CONNECTOR KIT, TYPE III	
38	625	EACH	CONNECTOR KIT, TYPE VII B	
39	625	LUMP	SERVICE TO UNDERPASS LIGHTING FOR BRIDGE NO. 1800 L/R	
40				
41				
42	625	EACH	STRUCTURE GROUNDING SYSTEM, BRIDGE NO. 1800-L	
43	625	EACH	JUNCTION BOX, 18"x08"x06"	
44	839	LUMP	HIGH VOLTAGE TEST	
45	625	LUMP	CONTROL CENTER, NO. 2	
46	625	LUMP	CONTROL CENTER NO. 4	
47	625	LUMP	CONTROL CENTER NO. 5	
48	625	EACH	STRUCTURE GROUNDING SYSTEM, BRIDGE NO. 1800 R	
49	625	EACH	STRUCTURE GROUNDING SYSTEM, BRIDGE NO. 1825 L	
50	625	EACH	STRUCTURE GROUNDING SYSTEM, BRIDGE NO. 1825 R	
51				
52	625	EACH	MARKERS	
53	605	LIN. FT.	4" SHALLOW PIPE UNDERDRAINS	
54				
55				
56				

MAY 4 1973

Rev. 11-9-73 Rev. 1-14-72

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL LIGHTING QUANTITIES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
A.S. 2-17-70	J.G.	R.B. 12-4-70			

Rev. 8-20-73

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

211
258

CUYAHOGA COUNTY
CUY-422-16.33

LEGEND

- 400 WATT LUMINAIRE AND LAMP (TYPE III).
- 400 WATT LUMINAIRE AND LAMP (TYPE II).
- ANCHOR BASE LIGHT POLE.
- CAST ALUMINUM BASE.
- 700 WATT LUMINAIRE AND 700 WATT LAMP (TYPE II).
- PULL BOX - STATION & OFFSET, RT. OR LT. & MAINLINE OR OTHERWISE INDICATED
- CONTROL CENTER.
- 1½" DUCT CABLE W/2 #4 IN 24" DEEP TRENCH.
- 3" CONDUIT W/ 2#4 (SLASH LINES INDICATE NUMBER OF WIRES)

OTHER SYMBOLS ARE IDENTIFIED AS SHOWN

Indicates future light poles.

2B-06 4+64 R-4
11A 10B 32.5 ( )

- CIRCUIT N° AND POLE N°
- STATION (B.L. RAMP OR C.L. MAIN LINE).
- RAMP N° (NO SUFFIX FOR MAIN LINE).
- PAVEMENT WIDTH IF NOT STANDARD.
- NOMINAL LUMINAIRE MOUNTING HEIGHT.
- BRACKET ARM LENGTH.
- "A" FOR ANCHOR BASE, "AT" FOR CAST BASE.
- GAUGE

SIMILAR IDENTIFICATION IS USED FOR SIGNS.

BEGIN PROJECT
CUY.-422-16.33
STA. 853.00

34-03 851+50 R-3
11AT 10B 34.2
(EXISTING CUY-422-13.96)
FURNISH & INSTALL NEW
CONNECTORS - TYPE II & TYPE III

853+20 R-3

855+10 R-3

34-04 857+00 R-3
AT-10B 34.2

857+00 R-3
10' LT. ℄

34-05 - 857+06
AT-12B - 41.7

34-06 858+94
AT-12B 41.7 (SG)

860+68

862+90

RAMP #3

℄ US. 422

℄ HARPER ROAD

857+90
66' RT. ℄

RAMP #4

INSTALL 2 NEW TYPE VII B
CONNECTOR KITS FOR CIRCUIT 1C

EXISTING PULL-BOX
CUY-422-13.96
H.R. STA. 70+20 55' LT ℄

EXISTING CONTROL CENTER NO. 1
CUY-422-13.96

853+41 R-4

855+53 R-4

857+65 R-4

857+90
10' RT. ℄ R-4

3" CONDUIT - PROVIDE PULL-
WIRE AND CAP BOTH ENDS
FOR FUTURE USE

859+77

861+50

1C-01 863+48
AT 12B 417 (441)

STA. 864+00
MATCH LINE

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

LIGHTING PLAN

MAY 4 1973

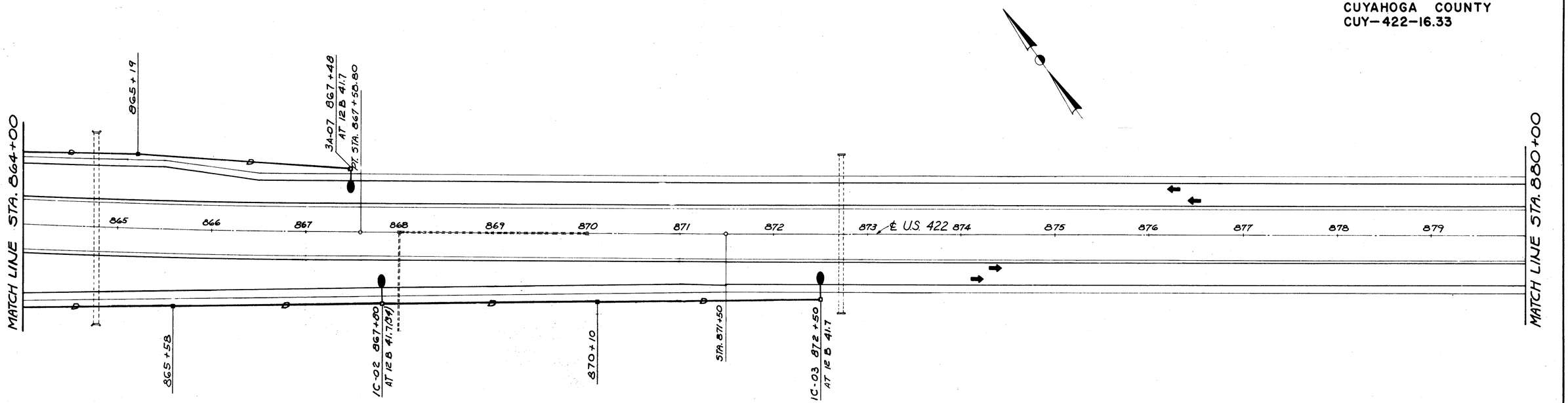
Rev. 1-14-72

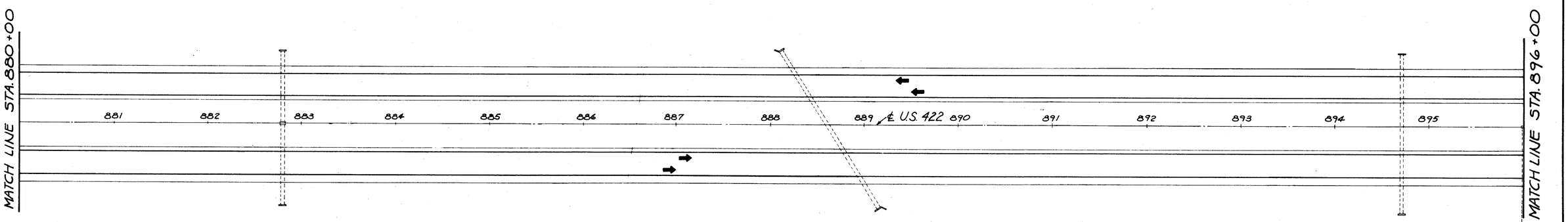
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.L.S	J.G	W.S			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

212
258

CUYAHOGA COUNTY
CUY-422-16.33





FOR LEGEND SEE DWG. # 211

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

LIGHTING PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.L.S	J.G.	WS			

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

213
258

CUYAHOGA COUNTY
CUY-422-16.33

MATCH LINE STA. 928+00

MATCH LINE STA. 42+00

C.S. STA 923+43.41

44-07 924+28 AT 12B 342(29)

LA

926+04

S.T. STA 927+43.41

44-06 927+74 AT 12B 342(37)

923 924 925 926 927

929+39 MARKER

LA

LA

930+98 342(45)

44-05 AT 12B

SC-06 926+21 AT 12B 342(36)

932+50

927+95

934+20 RG

934+50 10' LT. ℄ RG

LA

935+70 RG

44-02 935+82 AT 12B 34.2(29)

937+20 RG

938+70 RG

LA

940+20 RG

44-01 941+70 RG AT 10B 34.2

942+55 10' LT. ℄ R-6

943

41+15 SR 91 45' LT. ℄

39+00 SC

40+88 SC

48-01 AT 10B 34.2

929 930 931 932 933 934 935 ℄ U.S. 422 936 937 938 939 940 941 942

933 934 935 936 937 938 939 940 941 42 41 40 39 38

RAMP #6

237+42

44-03 954+15 AT 12B 342(37)

940+81 MARKER

940+93 80' LT. ℄

36+90

45' LT. ℄ SR 91

934+50 66' LT ℄

℄ SR 91

PULLBOX FOR UNDER PASS LIGHTING AND FOR SIGN SERVICE

SIGN NO. 324 RT. AB-190 LJ ℄ STA. 941+88

FOR UNDER PASS LIGHTING PLAN SEE SH. NO. 21C

CUY-422-1800 L/R

2" CONDUIT WITH 2#4 FOR CONDUIT INSTALLATION DETAIL SEE DWG. 143

941+07 66' RT. ℄

2" CONDUIT, INSTALL PULL-WIRE AND CAP BOTH ENDS FOR FUTURE USE

FOR LEGEND SEE DWG. #211

929+69

931+39

LA

SC-05 932+81 AT 12B 342(56)

934+15 A-7 10' RT. ℄

SC-04 934+23 AT 12B 34.2

SC-03 934+91 R7 AT 10B 34.2

RAMP #7

937+01 R7

939+11 R7

3" CONDUIT - PROVIDE PULL-WIRE AND CAP BOTH ENDS FOR FUTURE USE

941+45 A-7 35' LT. ℄

LA

SC-02 941+21 R7 AT 10B 34.2

941+45 A-7 15' RT. ℄

MATCH LINE STA. 32+00

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

LIGHTING PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.L.B	J.G.	W.S.			

MAY 4 1973

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

214
258

CUYAHOGA COUNTY
CUY-422-16.33

MATCH LINE STA. 42+00
CC. #224
STA. 940+60
80' LT. ℄ R-8

2-24" PULLBOXES

1-24" PULLBOX

℄ S.R. 91

41+15
45' RT. ℄ S.R. 91

940+50
10' LT. ℄ R-8

39+60
45' RT. ℄ S.R. 91

955+20 - 10' LT. ℄ R-10

28-04 954+94 R10
AT 108 34.2

28-02 40+30 C
AT 108 34.2

28-03 38+75 C
AT 108 34.2

44-04 942+58
T12 B34.2

943+07
87' LT. ℄

28-05 953+44 R10
AT 108 34.2

24-01 941+03 RB
AT 108 34.2

28-06 951+93 R10
AT 108 34.2

28-07 950+45 R10
AT 108 34.2

28-08 948+40 R10
AT 108 34.2

28-09 946+90 R10
AT 108 34.2

28-10 945+40 R10
AT 108 34.2

RAMP #10

LA

946+21 RB
24-02 AT 108 34.2

948+39 RB

930+57 RB
2A-03 T108 34.2

951+33
24-04 AT 128 34.2

951+40 RB
10' LT. ℄

RAMP #8

952+75
2A-05 T124 34.2

954+17

END PROJECT
CUY. 422 - 16.33
STA. 962+03.64

24-06 959+24
T128 B34.2

MATCH LINE
STA. 958+00

959+17

959

960 ℄ U.S. 422

961

962

SA-03 959+92
T128 B34.2

NOTE: FOR FUTURE LIGHTS ON STRUCTURES, PROVIDE SUFFICIENT WIRE IN STRUCTURE JUNCTION BOX TO PERMIT RE-SPLICING AT LEAST TWO TIMES. ALSO, PROVIDE CAPS ON ANCHOR BOLTS FOR PROTECTION FROM RUST, ETC.

CUY-422-1800 L/R

FOR UNDERPASS LIGHTING PULL SEE SH. NO. 216

943+80
66' RT. ℄

SIGN NO. 525
CCT. #58-190 W

PULLBOX FOR UNDERPASS LIGHTING AND SIGN SERVICE
STA. 35+10-45' RT. ℄ S.R. 91

942+53
FUTURE
(SEE NOTE)

942+98 R9

38-02 32+85
POLE BY TRAFFIC CONTROL
3A 1.5B

SIGN NO. 526
CCT. 58-380N

32+75
49' RT. ℄ S.R. 91

942+60
20' RT. ℄ R-9

MATCH LINE STA. 32+00

RAMP #9

945+16 R9

947+34 R9

949+15
66' RT. ℄

3" CONDUIT - INSTALL PULL-WIRE AND CAP BOTH ENDS FOR FUTURE USE

949+20
10' RT. ℄ R-9

949+32 R9

951+70
MARKER

952+85
86' RT. ℄

953+27

54-01
T128 B34.2

2" COND. WITH 2 #4 - FOR COND. INSTALL. DET. SEE SHT. 161

954+36
FUTURE
(SEE NOTE)

955+95
79' RT. ℄

54-02 956+47 (SE)
T128 B34.2

2" COND. WITH 2 #4 - FOR COND. INSTALLATION DET. SEE SHT. 161

954+90
76' LT. ℄

955+86
FUTURE
(SEE NOTE)

CUY-422-18.25 L/R

SOLON ROAD

957+30
FUTURE
(SEE NOTE)

957+92
77' LT. ℄

MATCH LINE
STA. 958+00

NOTE: FOR LEGEND SEE SHEET NO. 211

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

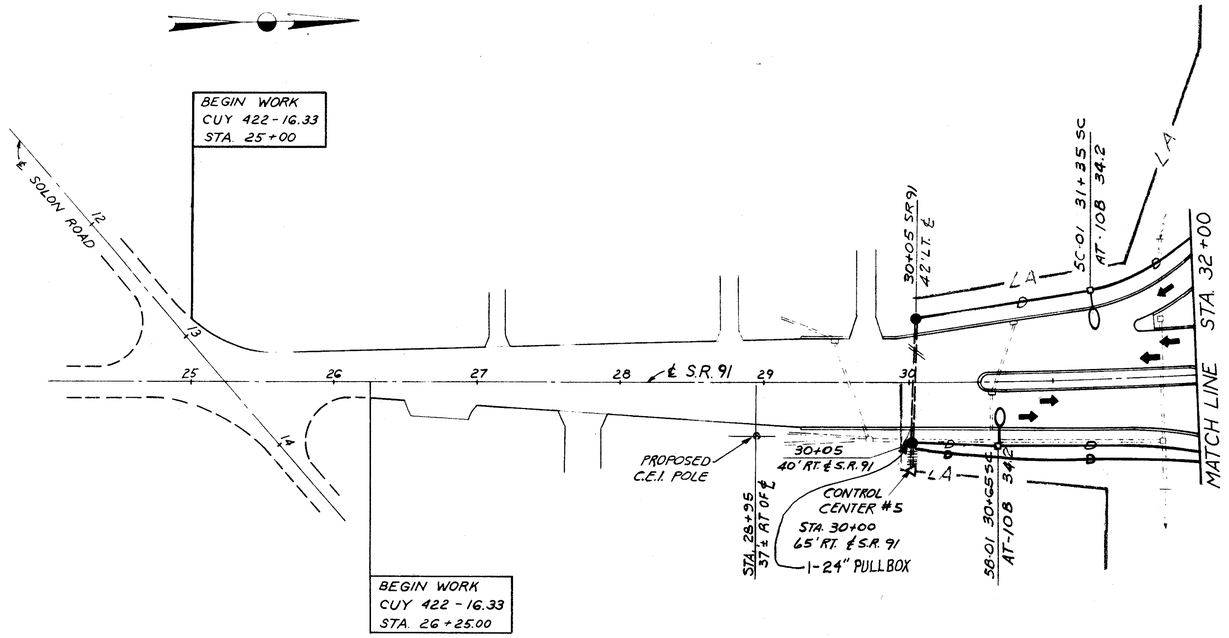
LIGHTING PLAN

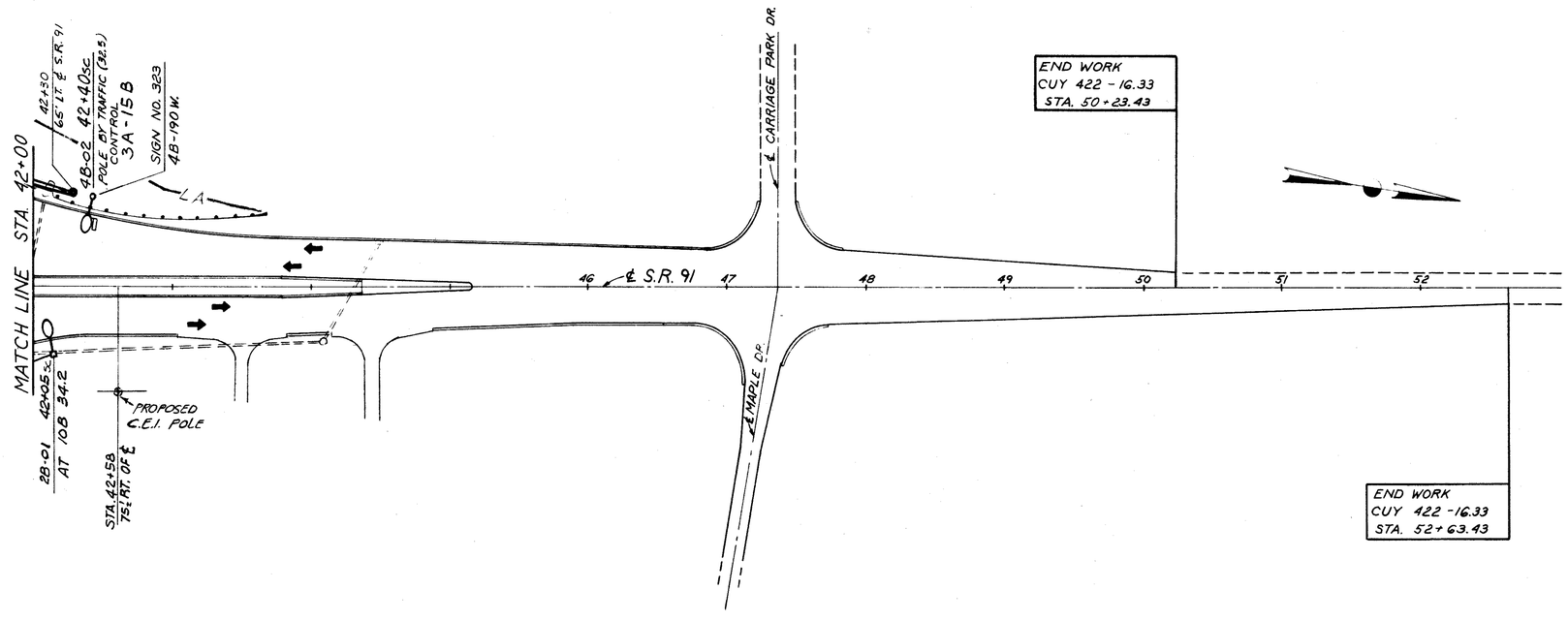
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.L.B.	J.G.	W.S.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

215
258

CUYAHOGA COUNTY
CUY-422-16.33





FOR LEGEND SEE DRAWING NO. 211

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

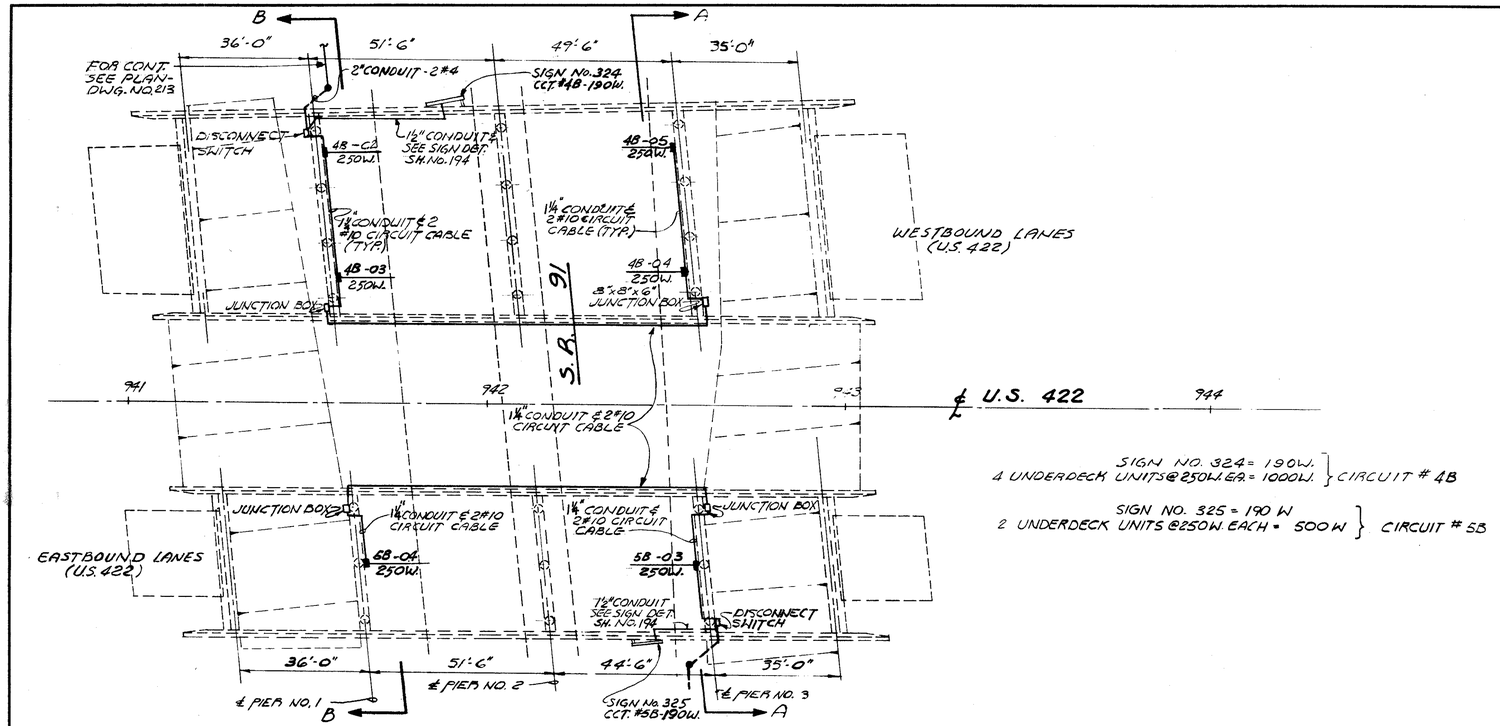
LIGHTING PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.L.B	J.G.	WS			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

2/6
258

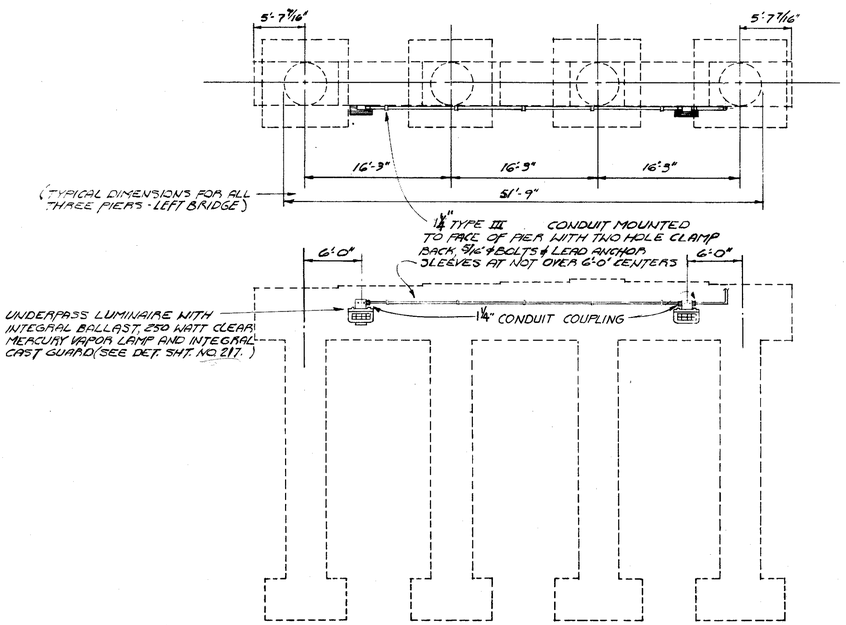
CUYAHOGA COUNTY
CUY-422-16.33



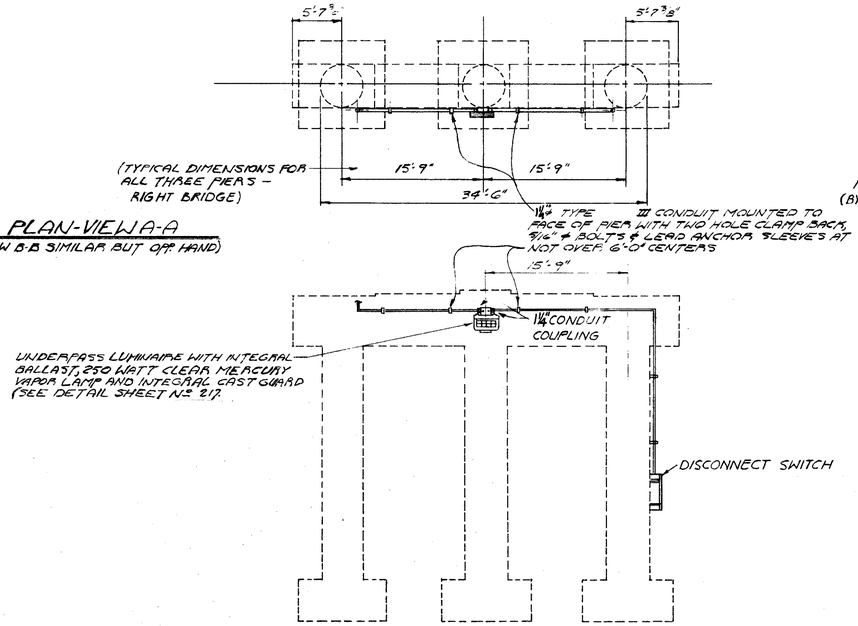
SIGN NO. 324 = 190W.
4 UNDERDECK UNITS @ 250W. EA. = 1000W. } CIRCUIT # 4B

SIGN NO. 325 = 190 W
2 UNDERDECK UNITS @ 250W. EACH = 500W } CIRCUIT # 5B

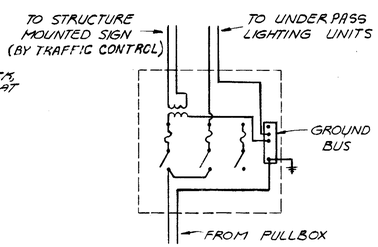
UNDERDECK LIGHTING PLAN



ELEVATION-VIEW A-A
(VIEW B-B SIM. BUT OPP. HAND)



PLAN-VIEW A-A
VIEW B-B SIMILAR BUT OPP. HAND)



TYPICAL WIRING OF DISCONNECT SWITCH FOR UNDERDECK LIGHTING AND SIGN

MAY 4 1973

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

UNDERPASS LIGHTING

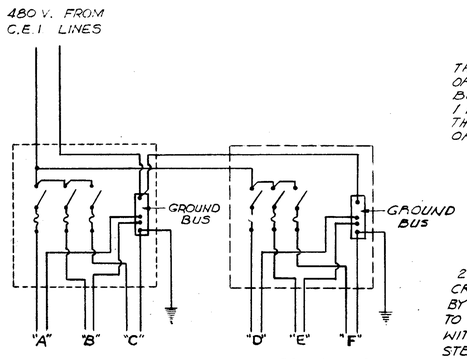
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.L.B	J.G.	WS			

LIGHTING DETAILS

PRO. ID. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

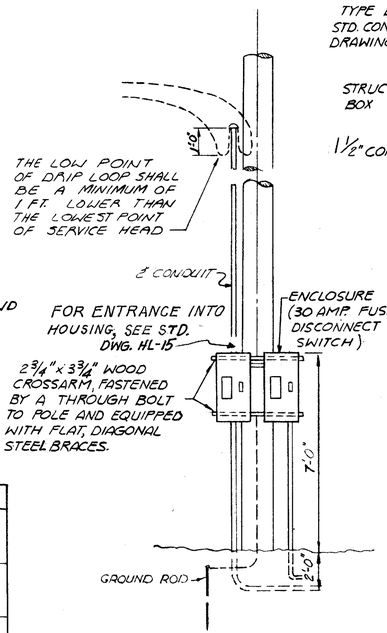
217/258

CUYAHOGA COUNTY
CUY-422-16.33

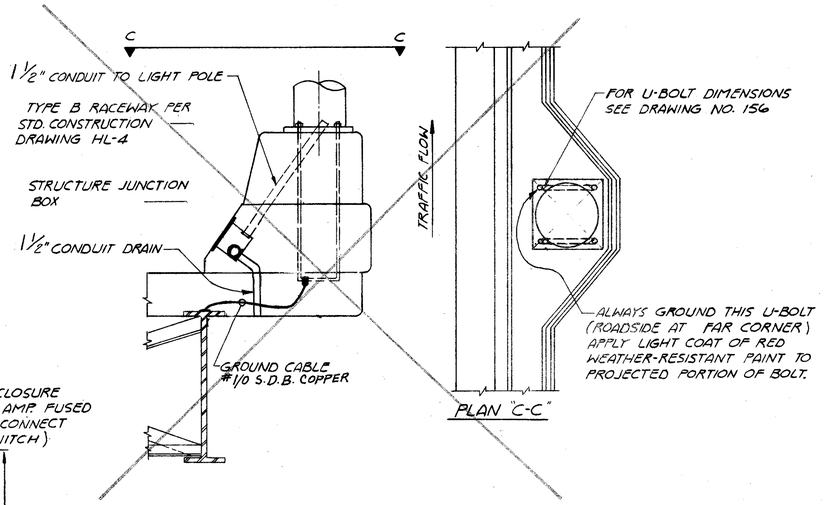


TYPICAL CONTROL CENTER WIRING

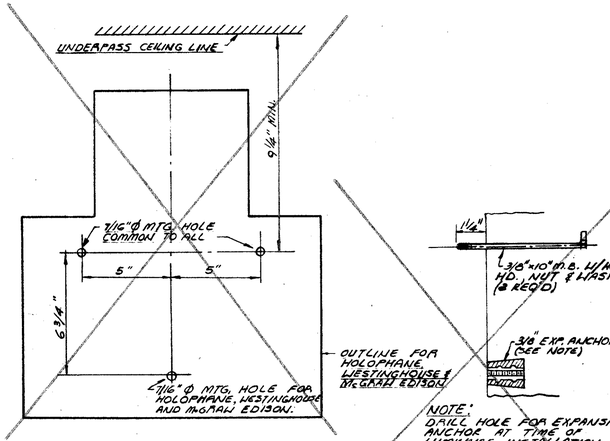
CONTROL CENTER	"A"	"B"	"C"	"D"	"E"	"F"
No. 2 & NO. 4	2A	2B	SPARE	4A	4B SIGN Nº 323 & 324 UNDERDECK LIGHTING	SPARE
No. 5	5A	5B SIGN Nº 325 & 326 UNDERDECK LIGHTING	SPARE	NOT USED	NOT USED	NOT USED



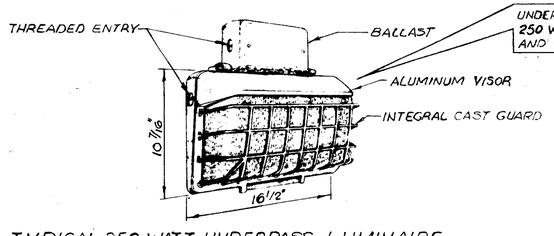
TYPICAL CONTROL CENTER



BRIDGE MOUNTED POLE DETAILS

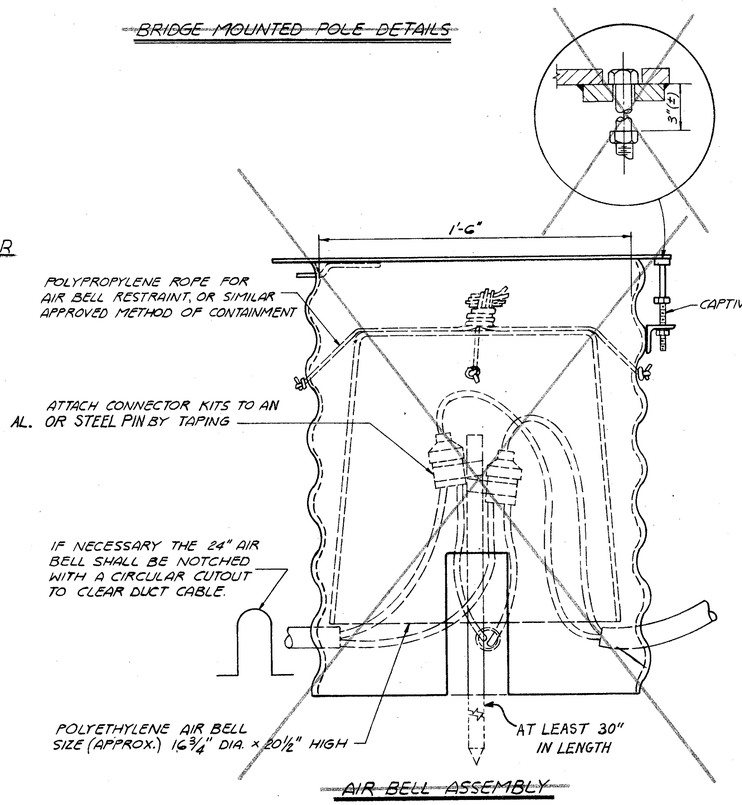


UNDERPASS LUMINAIRE MOUNTING DETAIL

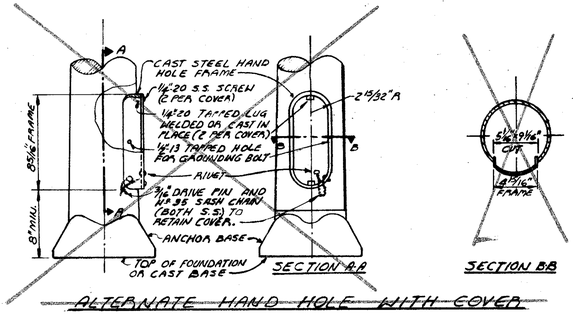


UNDERPASS LUMINAIRE WITH INTEGRAL BALLAST 250 WATT, CLEAR MERCURY VAPOR LAMP, AND INTEGRAL CAST GUARD.

TYPICAL 250 WATT UNDERPASS LUMINAIRE



AIR BELL ASSEMBLY



ALTERNATE HAND HOLE WITH COVER

MAY 4 1973
Rev. 8-20-73

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

LIGHTING DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.L.B.	J.G.	W.S.			

GENERAL PLAN WATER MAINS

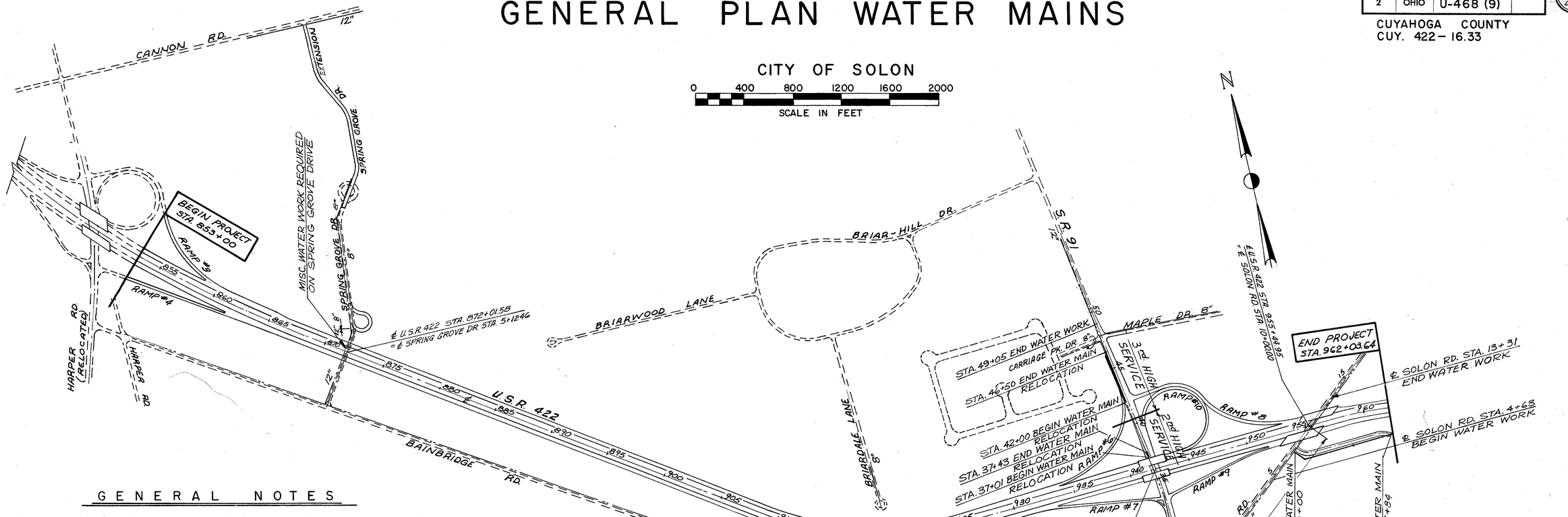
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

219
258

CUYAHOGA COUNTY
CUY. 422 – 16.33

CITY OF SOLON

0 400 800 1200 1600 2000
SCALE IN FEET



GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE THE DIRECTOR OF PUBLIC UTILITIES TWO (2) WEEKS NOTICE PRIOR TO STARTING CONSTRUCTION AND FIVE (5) DAYS NOTICE FOR WORK REQUIRING INSPECTION.
2. ALL CAST IRON PIPE SHALL BE A.S.A. CLASS 25 PIPE CEMENT LINED WITH CLASS D FITTINGS CEMENT LINED.
3. ALL DUCTILE IRON PIPE SHALL BE A.S.A. CLASS 6 PIPE CEMENT LINED WITH CLASS D DUCTILE IRON FITTINGS.
4. MISCELLANEOUS WATER WORK OCCURING ON SPRING GROVE DRIVE IS NOT DETAILED ON THESE PLANS, BUT INDICATED TO BE DONE ON THE ROADWAY PLANS, AND THE QUANTITIES INCLUDED AS WATER WORK.

TYPE CODE Y060

ESTIMATED QUANTITIES FOR WATER WORK ITEM SPECIAL

SHEET NO.	LOCATION	4"A.S.A. CL. 25 CAST IRON PIPE/CL. 'D' FITTINGS/C.I. CEMENT LINED)	6"A.S.A. CL. 25 CAST IRON PIPE/CL. 'D' FITTINGS/C.I. CEMENT LINED)	8"A.S.A. CL. 25 CAST IRON PIPE/CL. 'D' FITTINGS/C.I. CEMENT LINED)	12"A.S.A. CL. 25 CAST IRON PIPE/CL. 'D' FITTINGS/C.I. CEMENT LINED)	12"A.S.A. CL. 6 DUCTILE IRON PIPE/CL. 'D' DUCTILE IRON FITTINGS/ALL CEM LINED)	6"FIRE HYDRANT	4"FIRE HYDRANT REMOVED AND RESET.	6"FIRE HYDRANT REMOVED AND RESET.		6"HUB VALVE	12"HUB VALVE	12"INSERTING VALVE	12"x12"ENLARGED I.D. TAPPING SLEEVE & 12"TAPPING VALVE	12"x6"TAPPING SLEEVE AND 6"TAPPING VALVE		MISCELLANEOUS METAL WORK	ADJUST VALVE BOX TO GRADE	SERVICE CONNECTION EXTENDED	2"SERVICE CONNECTION EXTENDED	4"SERVICE CONNECTION RELOCATE RETAP & RECONNECT.	8"FIRE PROTECTION RELOCATE RETAP & RECONNECT.	BUILD AS PER PLAN 4"METER VAULT/SALVAGE CASTING	BUILD AS PER PLAN 4"METER & 8"FIRE SERV. VAULT/SALVAGE CASTING	SERVICE CONNECTION RELOCATE RETAP & RECONNECT	SERV. CONN. ABAND. PLUG AT MAIN & REMOVE CURB COCK BOX		12"TRANSITE TO CAST IRON PIPE CONNECTION.			6"WATER MAIN PLUG WITH CLAMPS.		2"METER VAULT REMOVED OR ABANDONED.	4"METER & 8"FIRE SERVICE VAULT REMOVED OR ABANDON.		SHEETING AND BRACING LEFT IN PLACE.
	UNIT	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.		EA.	EA.	EA.	EA.	EA.		LBS.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		EA.			EA.		EA.	EA.		M.B.F.
41	SPRING GR. DR.																	4	1															
42	SPRING GR. DR.		10						1						1		564										1				1			
56	SPRING GR. DR.																	2																
228	S.R. 91	50						2										5	3	1			1									1		
229	S.R. 91	53						2										3													8			
230	S.R. 91	22			100	43		1										2								1	5							
231	S.R. 91	15	37		350		2	1			2		1				515	5																
232	SOLON & ACC. RD.				170							1		1			882	4									5		2				1	
233	ACCESS RD.	56	16	62	594	42	2				2	1					1286					1	1		1									
221																																	4	
	TOTAL	196	63	62	1214	85	4	6	1		4	2	1	1	1		3247	25	4	1	1	1	1	1	1		19		2			1		1	1	4

LEGEND

- EXISTING WATER MAIN
- EXISTING WATER MAIN TO BE ABAND.
- RELOCATED WATER MAIN
- EXISTING HYDRANT
- RELOCATED HYDRANT
- LINE VALVE
- EXISTING SERVICE CONNECTION WITH PLUG AT WATER MAIN
- RELOCATED SERVICE CONNECTION

APPROVED 3-30-1970

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF WATER AND HEAT

EXECUTIVE COMMISSIONER FOR ADMINISTRATION DEPT. OF PUBLIC UTILITIES

ENGINEER OF CONSTRUCTION & SURVEYS

ENGINEER OF DESIGN

ENGINEER – CITY OF SOLON

1/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

GENERAL PLAN–WATER MAINS CROSSING U.S.R. 422 IN CITY OF SOLON

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
RWH 2/20/69	JAS 2/28/69	RJT 10/10/69			

WATERWORK NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

220
258

CUYAHOGA COUNTY
CUY-422-16.33

SCOPE OF WORK

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING OF CAST IRON CEMENT LINED PIPE AND DUCTILE IRON CEMENT LINED PIPE WITH ALL APPURTENANCES, COMPLETE IN ALL DETAILS, TESTED AND READY FOR OPERATION. THE CONTRACTOR SHALL DO ALL THE WORK AND FURNISH ALL THE LABOR AND MATERIALS NECESSARY FOR THE PROPER AND FINAL COMPLETION OF THIS CONTRACT IN THE MANNER AND UNDER THE CONDITIONS HEREIN SPECIFIED AND PROVIDED, AND IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

DEFINITIONS

WHEREVER IN THESE SPECIFICATIONS OR IN OTHER CONTRACT DOCUMENTS THE FOLLOWING TERMS OR PRONOUNS IN PLACE OF THEM ARE USED, THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE STATE

THE STATE IS THE STATE OF OHIO ACTING THROUGH ITS AUTHORIZED REPRESENTATIVE.

ENGINEER

THE ENGINEER IS DIVISION DEPUTY DIRECTOR OR DIVISION ENGINEER, THE DIVISION CONSTRUCTION ENGINEER OR THE DIVISION MAINTENANCE ENGINEER OR THE PROJECT ENGINEER ASSIGNED TO ADMINISTER THE CONTRACT.

THE CITY

THE CITY IS THE DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND OR THEIR DULY DESIGNATED DEPUTIES, AGENTS OR REPRESENTATIVES.

STATUS OF CITY INSPECTOR

INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES SHALL BE AUTHORIZED TO INSPECT ALL WORK DONE AND MATERIALS FURNISHED. SUCH INSPECTION MAY EXTEND TO ALL OR ANY PART OF THE WATERWORKS, AND TO THE PREPARATION OR MANUFACTURE OF THE MATERIALS TO BE USED IN THE WATERWORKS. THE CITY INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES SHALL MAKE WORK INSTRUCTIONS THROUGH THE PROJECT ENGINEER.

ACCESS TO WORK AND PLACE OF MANUFACTURE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES, AT LEAST SEVEN (7) DAYS PRIOR TO THE COMMENCEMENT OF THE MANUFACTURE OF ANY MATERIALS, OF THE TIME AND PLACE WHERE THE MANUFACTURE IS TO COMMENCE, IN ORDER THAT A REPRESENTATIVE OF THE ENGINEER AND DIRECTOR MAY BE PRESENT TO INSPECT THE MANUFACTURE. THE CONTRACTOR SHALL PROVIDE, WITHOUT CHARGE OR EXPENSE TO THE STATE AND CITY, ALL NECESSARY ASSISTANCE TO THE ENGINEER AND DIRECTOR WHEN REQUIRED FOR INSPECTION OR VERIFICATION OF WORK DONE.

DIMENSIONS, DETAILED DRAWINGS & ELEVATIONS

(A) - FIGURED DIMENSIONS ON DRAWINGS SHALL TAKE PRECEDENCE OVER MEASUREMENTS BY SCALE, AND DETAILED DRAWINGS ARE TO TAKE PRECEDENCE OVER GENERAL DRAWINGS AND SHALL BE CONSIDERED AS EXPLANATORY OF THEM AND NOT AS INDICATING EXTRA WORK. IF, HOWEVER, ANY OF THE DETAILED DRAWINGS SHOW MORE ELABORATE OR EXPENSIVE WORK THAN IS SPECIFIED AND INDICATED BY THE CONTRACT DRAWINGS, NOTICE THEREOF MUST BE GIVEN TO THE ENGINEER BY THE CONTRACTOR WITHIN TEN (10) DAYS AFTER THE RECEIPT OF SUCH DETAILED DRAWINGS IN ORDER THAT THE DRAWINGS MAY BE AMENDED OR THE ADDITIONAL EXPENSE ON ACCOUNT OF SUCH WORK MAY BE ADJUSTED AND AUTHORIZED. IF THE ENGINEER DOES NOT RECEIVE SUCH NOTICE FROM THE CONTRACTOR WITHIN TEN (10) DAYS AFTER DETAILED DRAWINGS HAVE BEEN RECEIVED BY HIM, IT IS HEREBY AGREED THAT THE CONTRACTOR ACCEPTS THE DRAWING AND WILL EXECUTE THEM WITHOUT CLAIM FOR EXTRA COMPENSATION.

FLOODS & FREEZING WEATHER

PROPER FACILITIES SHALL BE PROVIDED FOR PROTECTING THE WORK FROM DAMAGE BY FLOOD, RAIN OR FROST, AND WORK DONE IN FREEZING WEATHER SHALL BE DONE IN SUCH MANNER AS THE ENGINEER MAY APPROVE. VALVES SHALL BE PROTECTED FROM FREEZING UNTIL BACKFILLED IN THE COMPLETED WORK.

ADDITIONAL WORK

(A) - ATTENTION IS CALLED TO THE FACT THAT THE WORK OF THIS CONTRACT INCLUDES CERTAIN PERFORMANCES AS INCIDENTAL TO THE ITEMIZED REQUIREMENTS HEREOF AND, THOUGH NOT EXCLUSIVE, ARE AS FOLLOWS: TO PERFORM ALL EXCAVATION, BACKFILLING, SHEETING, BRACING, TEMPORARY AND FINAL REPAVING AND TO TEST THE INSTALLATION. SAND BACKFILL SHALL BE PLACED UNDER EXISTING AND PROPOSED PAVEMENT AND SIDEWALK. FOR THE PERFORMANCES HEREIN DESCRIBED AND FOR OTHER INCIDENTAL PERFORMANCES OF LIKE NATURE, THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCE, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT.

(B) - PRELIMINARY FLUSHING: BEFORE BEING PLACED IN SERVICE ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH SHALL HAVE BEEN BACKFILLED.

(C) - CHLORINATION: FOLLOWING PRELIMINARY FLUSHING, THE NEWLY LAID WATER PIPE SHALL BE CHLORINATED. THE PROCESS OF CHLORINATING, THE METHOD OF PROCEDURE, THE CHLORINATING AGENT, AND THE RATE OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER. THE CITY WILL FURNISH THE NECESSARY LABOR AND MATERIAL REQUIRED FOR SUCH CHLORINATION AND INSTALL THE NECESSARY TAPS AT THE ENDS OF THE WATER MAIN SECTIONS TO BE CHLORINATED. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR ANY MATERIAL, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER, FOR THE CHLORINATION AND THE SAMPLING OF THE WATER. THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR FOR EXCAVATING AND BACKFILLING WHICH WILL BE REQUIRED FOR THE INSTALLATION OF TAPS FOR INJECTING THE CHLORINE SOLUTION, OPERATING PUMPS AND FLUSHING MAINS.

(D) - FINAL FLUSHING AND TEST: FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE NEWLY LAID PIPE AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER THROUGHOUT ITS LENGTH SHALL, UPON TEST, BOTH CHEMICALLY AND BACTERIOLOGICALLY, BE PROVEN EQUAL TO THE WATER QUALITY SERVED THE PUBLIC FROM THE EXISTING WATER SUPPLY SYSTEM.

(E) - FOR THE PERFORMANCES DESCRIBED IN PARAGRAPHS B, C AND D, THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCES, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF PIPE FURNISHED AND INSTALLED.

PAINTING

(A) - IT IS THE INTENTION OF THESE SPECIFICATIONS TO PROVIDE THAT ALL METAL WORK SUBJECT TO CORROSION SHALL BE SATISFACTORILY PROTECTED BY A DURABLE COATING OF PAINT OR OTHER APPROVED MATERIAL AND THAT ALL METAL SURFACES NOT BURIED IN EARTH, OR IN CONCRETE, SHALL BE LEFT CLEAN AND WELL PAINTED AT THE COMPLETION OF THE CONTRACT. UNLESS OTHERWISE SPECIFIED, THE PROTECTION SHALL BE AT LEAST THAT GIVEN BY THREE (3) COATS OF APPROVED PAINT. THE FIRST COAT IS TO BE APPLIED AT THE SHOP BEFORE THE METAL HAS RUSTED AND AFTER ALL GREASE, DIRT AND SCALE HAS BEEN REMOVED. BOLTS AND NUTS SHALL NOT BE SHOP COATED, BUT SHALL RECEIVE THREE (3) COATS OF APPROVED PAINT AFTER INSTALLATION.

(B) - ALL METAL WORK WHICH HAS NOT BEEN COATED BEFORE THE ARRIVAL ON THE JOB SHALL BE GIVEN A TEMPORARY PROTECTIVE COATING OF SUCH A NATURE AS TO PERMIT THE READY ADHERENCE OF FUTURE COATINGS. THE TEMPORARY COATING SHALL BE A GOOD GRADE ASPHALTIC PAINT OR OTHER APPROVED MATERIAL. THIS TEMPORARY PROTECTION SHALL APPLY PARTICULARLY TO THE FOLLOWING MATERIAL, AND ELSEWHERE WHEN IN THE OPINION OF THE ENGINEER, SUCH PROTECTION IS NECESSARY.

MANHOLE RINGS AND COVERS
LADDERS AND LADDER RUNGS — VALVE BOXES AND COVERS

(C) - ALL SURFACES OF METAL WHICH WILL BE IN CONTACT AFTER ASSEMBLING SHALL BE PAINTED, AT LEAST ONE COAT, BEFORE ASSEMBLING. THE FINAL COAT OF PAINT ON ALL EXPOSED WORK SHALL BE GIVEN SHORTLY BEFORE THE COMPLETION OF THE CONTRACT.

(D) - WHERE PAINTING CLAUSES APPEAR HEREINAFTER, THEY SHALL TAKE PRECEDENCE OVER THIS SECTION, EXCEPT THAT TEMPORARY PROTECTION HEREIN DESCRIBED MAY BE REQUIRED.

(E) - ALL OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE PARTICULAR ITEM REQUIRING THE PAINTING

TESTS, INSPECTION AND REPORTS

NOT WITHSTANDING THE REQUIREMENTS OF ANY OTHER PROVISIONS OF THESE SPECIFICATIONS, THE CONTRACTOR SHALL ARRANGE FOR AND PAY ALL COSTS INVOLVED FOR SHOP INSPECTION OF ALL MATERIALS FURNISHED, MANUFACTURE OF ALL PIPE, VALVES, FITTINGS, ETC., FIELD AND SHOP WELDS AND WELDING, AND FURNISH TO THE STATE AND THE CITY COPIES OF ALL SHOP, FABRICATION, MANUFACTURE AND OTHER RELATED INSPECTION REPORTS OF MATERIALS FURNISHED. THIS INSPECTION SHALL BE DONE BY A RECOGNIZED INSPECTION LABORATORY APPROVED BY THE CITY.

IN THE CASE OF ANY ITEM NOT SPECIFICALLY MENTIONED IN THE "WATERWORK NOTES", THE STATE OF OHIO DEPARTMENT OF HIGHWAYS "CONSTRUCTION AND MATERIAL SPECIFICATIONS " SHALL GOVERN.

HANDLING PIPE AND ACCESSORIES

(A) - UNLOADING: CAST IRON OR DUCTILE IRON PIPE, FITTINGS, VALVES, HYDRANTS, AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, HAULED TO AND DISTRIBUTED AT THE SITE OF THE PROJECT BY THE CONTRACTOR; THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. IN LOADING AND UNLOADING THEY SHALL BE LIFTED BY HOISTS OR SLID, OR ROLLED ON SKIDWAYS IN SUCH MANNER AS TO AVOID SHOCK. UNDER NO CIRCUMSTANCES SHALL THEY BE DROPPED. PIPE HANDLED ON SKIDWAYS MUST NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ON THE GROUND.

(B) - AT SITE OF WORK: IN DISTRIBUTING THE MATERIAL AT THE SITE OF THE WORK, EACH PIECE SHALL BE UNLOADED OPPOSITE OR NEAR THE PLACE WHERE IT IS TO BE LAID IN THE TRENCH.

(C) - PROTECTION OF PIPE COATING: PIPE SHALL BE HANDLED IN SUCH MANNER THAT A MINIMUM AMOUNT OF DAMAGE TO THE COATING WILL RESULT. ANY CAST IRON OR DUCTILE IRON PIPE OR FITTING, THE COATING OF WHICH HAS BEEN DAMAGED IN SHIPPING OR HANDLING, SHALL HAVE THE DAMAGED PORTION WELL CLEANED AND COVERED WITH AN ASPHALT PAINT, APPROVED BY THE ENGINEER, BEFORE BEING PLACED IN THE WORK. THE CONTRACTOR SHALL THOROUGHLY COAT ALL EXPOSED PARTS OF BOLTS AND NUTS WITH AN APPROVED ASPHALT PAINT AFTER ALL PIPE HAS BEEN LAID AND BEFORE BACKFILLING HAS BEEN PLACED. ALL FIELD COATING SHALL BE FURNISHED BY THE CONTRACTOR.

(D) - PIPE KEPT CLEAN: THE INTERIOR OF THE PIPE, FITTINGS AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.

(E) - FROST PROTECTION: VALVES AND HYDRANTS BEFORE INSTALLATION SHALL BE DRAINED AND STORED IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE BY FREEZING.

CHANGES IN WATER PIPES

(A) - IN SUCH LOCATIONS AS MAY BE INDICATED ON THE CONTRACT DRAWINGS OR AS ORDERED BY THE ENGINEER TO CHANGE THE LOCATION OF HOUSE CONNECTIONS, SUCH CHANGES WILL BE MADE AS WORK TO BE DONE BY THE CITY. THE CONTRACTOR SHALL NOTIFY THE CITY IN AMPLE TIME TO PERMIT THE CITY TO MAKE SUCH CHANGES AND AVOID UNNECESSARY DELAY IN THE COMPLETION OF THE WORK. THE CONTRACTOR SHALL ALSO COOPERATE WITH THE CITY IN MAKING THESE CHANGES AND SHALL DO ALL EXCAVATING, BACKFILLING, SEEDING, SODDING AND REPAVING AS MAY BE REQUIRED. PAYMENT FOR THE WORK PERFORMED BY THE CONTRACTOR WILL BE AT THE UNIT PRICE BID FOR THE APPROPRIATE SERVICE CONNECTIONS AND WATER METERS RELOCATED (SEE SHEETS NUMBERED 41,228,230 & 231.) SEE WORK TO BE DONE BY THE CITY.

(B) - WHEREVER IT BECOMES NECESSARY, IN THE OPINION OF THE ENGINEER, TO CHANGE THE LOCATION OR ELEVATION OF WATER MAINS AND HYDRANTS AND WHERE CONNECTIONS ARE TO BE MADE BETWEEN EXISTING DISTRIBUTION MAINS AND WATER MAINS UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING WATER LINE MATERIALS REQUIRED TO MAKE THE CONNECTION, AND SHALL FURNISH AND INSTALL COMPLETE, ALL THE CAST IRON OR DUCTILE IRON PIPE, FITTINGS AND VALVES TO MAKE THE CONNECTIONS INDICATED, EXCEPT TAPPING SLEEVES AND VALVES WHICH WILL BE INSTALLED BY THE CITY. THE CONTRACTOR SHALL ALSO FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT AND MAKE THE EXCAVATION, BACKFILL AND REPAVING FOR SUCH CONNECTIONS. PAYMENT FOR THIS WILL BE INCLUDED IN PRICE BID UNDER APPROPRIATE ITEM FOR SIZE OF WATER MAIN OR CONNECTION TO BE INSTALLED (SEE SHEETS NUMBERED 42, 230, 231 & 232.) ALL PIPES, VALVES, AND APPURTENANCES REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR. SEE WORK TO BE DONE BY THE CITY.

WORK TO BE DONE BY THE CITY

(A) - THE CITY WATER DEPARTMENT WILL FURNISH THE PIPING MATERIAL FOR AND MAKE ALL CHANGES REQUIRED, INCLUDING TAPPING, IN THE LOCATION OF EXISTING HOUSE SERVICE CONNECTIONS AND METERS. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR MATERIAL, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER.

(B) - THE CITY WATER DEPARTMENT WILL INSTALL ALL TAPPING SLEEVES AND VALVES, BUT THE CONTRACTOR SHALL SUPPLY THE TAPPING SLEEVES AND VALVES AND LEAD. THE CONTRACTOR SHALL FURNISH ALL AIR COMPRESSORS REQUIRED FOR THE WORK. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR THE LABOR AND INSTALLATION COST INCIDENTAL TO THE WORK PERFORMED BY THE CITY OF CLEVELAND, DIVISION OF WATER.

MAY 4 1970

2/18

3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30-1970
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER & HEAT
EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
ENGINEER OF CONSTRUCTION & SURVEYS
DESIGN ENGINEER
ENGINEER – CITY OF SOLON

ADACHE ASSOCIATES, INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2/12/69		R.W.H. 2/23/69			

WATERWORK NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

221/258

CUYAHOGA COUNTY
CUY-422-16.33

WORK TO BE DONE BY THE CITY (CONT'D)

(C) - IN LOCATIONS WHERE BRANCH SLEEVES AND VALVES CANNOT BE INSTALLED THE CONTRACTOR WILL BE REQUIRED TO CUT IN TEES AND SLEEVE-IN THE REMAINDER OF THE CUT SECTION OF THE EXISTING MAIN. TO SPEED UP THIS OPERATION, IT IS CALLED TO THE CONTRACTOR'S ATTENTION THAT THE WATER DEPARTMENT HAS ON HAND AT HARVARD YARD 4 MOTOR OPERATED PIPE CUTTERS WHICH ARE AVAILABLE FOR CUTTING PIPE BY CITY FORCES AT THE FOLLOWING RATES. THESE PRICES INCLUDE COST OF LABOR, USE OF PIPE CUTTING MACHINE, AND TRUCK. THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, BACKFILLING AND REPAVING AND ALL AIR COMPRESSOR EQUIPMENT SHALL BE FURNISHED BY THE CONTRACTOR.

SIZE OF PIPE	COST PER CUT
6", 8" & 12"	$30.00

EXCAVATION

(A) - THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, ROADWAYS, DRIVEWAYS AND OTHER SIMILAR MATERIALS AND MAKE TO THE LINES AND GRADES GIVEN, ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN, PIPE CONNECTIONS AND APPURTENANT STRUCTURES, INCLUDING TUNNEL AND SHAFT EXCAVATION. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINING, SHEETING AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES OR CONDITIONS FORESEEN OR UNFORESEEN AND ENCOUNTERED IN THE WORK OF THIS CONTRACT.

(B) - TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF REFILL UNDER AND AROUND PIPES, AND SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND BRACING, PUMPING AND DRAINING AS MAY BE NECESSARY .

(C) - THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.

(D) - THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED, BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY AND OF THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEETED TRENCH SHALL BE EIGHTEEN (18) INCHES AND FOR PIPE TEN (10) INCHES OR LARGER, AT LEAST TWELVE (12) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR CONCRETE PIPE AND EIGHTEEN (18) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR CAST IRON AND STEEL PIPE. EXCEPT BY CONSENT OF THE ENGINEER, THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL BE NOT MORE THAN TWO (2) FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.

(E) - THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID. THE PIPE SHALL BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

(F) - ANY PART OF THE TRENCH EXCAVATED BELOW GRADE SHALL BE CORRECTED WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(G) - WHEN THE UNCOVERED TRENCH BOTTOM AT SUBGRADE IS SOFT AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, A FURTHER DEPTH AND/OR WIDTH SHALL BE EXCAVATED AND REFILLED TO PIPE FOUNDATION GRADE AS REQUIRED UNDER (F), OR OTHER APPROVED MEANS SHALL BE ADOPTED TO ASSURE A FIRM FOUNDATION FOR THE PIPE.

(H) - LEDGE ROCK, BOULDERS, LARGE STONES, AND SHALE SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST SIX (6) INCHES BELOW ALL PARTS OF THE PIPE, VALVES, OR FITTINGS, AND TO A CLEAR WIDTH OF SIX (6) INCHES ON EACH SIDE OF ALL CONCRETE PIPE AND NINE (9) INCHES ON EACH SIDE OF ALL CAST IRON AND STEEL PIPE SHALL BE PROVIDED.

(I) - EXCAVATION BELOW SUBGRADE IN ROCK, SHALE OR IN BOULDERS SHALL BE REFILLED TO SUBGRADE WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(J) - BELL HOLES OF AMPLE DIMENSIONS SHALL BE DUG IN EARTH TRENCHES AT EACH JOINT TO PERMIT THE JOINTING TO BE MADE PROPERLY. ADEQUATE CLEARANCE FOR PROPERLY JOINTING PIPE LAID IN ROCK SHALL BE PROVIDED AT BELL HOLES.

(K) - THE USE OF EXCAVATING MACHINERY WILL BE PERMITTED EXCEPT IN PLACES WHERE OPERATION OF SAME WILL CAUSE DAMAGE TO TREES, BUILDINGS, OR EXISTING STRUCTURES ABOVE OR BELOW GROUND; IN WHICH CASE HAND METHODS SHALL BE EMPLOYED.

(L) - TREES, FENCES, POLES AND ALL OTHER PROPERTY SHALL BE PROTECTED UNLESS THEIR REMOVAL IS AUTHORIZED. ANY PROPERTY DAMAGED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.

(M) - HYDRANTS UNDER PRESSURE, VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES, FIRE OR POLICE CALL BOXES, OR OTHER UTILITY CONTROLS SHALL BE LEFT UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIOD.

(N) - THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATIONS IN GOOD ORDER DURING THE CONSTRUCTION, SO AS NOT TO HINDER OR INJURE THE PIPE LAYING, MASONRY OR OTHER WORK; HE SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT MOVEMENT OF THE SIDES OF SUCH EXCAVATION, AND SHALL REMOVE AT HIS OWN EXPENSE ANY MATERIAL SLIDING INTO THE EXCAVATION.

SHEETING AND BRACING

(A) - THE CONTRACTOR SHALL FURNISH AND PUT IN PLACE SUCH SHEETING AND BRACING AS MAY BE REQUIRED TO SUPPORT THE SIDES OF TRENCHES OR OTHER EXCAVATION AND SHALL REMOVE SUCH SHEETINGS AND BRACINGS, AS THE TRENCH OR EXCAVATION IS FILLED UP, UNLESS THE ENGINEER SHALL ORDER IT LEFT IN PLACE, IN WHICH CASE THE CONTRACTOR SHALL CUT THE PLANK OFF AT A HEIGHT AS ORDERED BY THE ENGINEER, OR AS CALLED FOR ON THE CONTRACT DRAWINGS. THAT PORTION OF THE TIMER ORDERED TO BE LEFT IN PLACE WILL BE PAID FOR AT THE RATE OF EIGHTY DOLLARS ($80.00) PER THOUSAND FEED BOARD MEASURE. NO PAYMENT WILL BE MADE FOR WASTED ENDS.

A QUANTITY OF 4 MBF HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR SHEETING AND BRACING LEFT IN PLACE.

(B) - WHENEVER THE EXCAVATIONS FOR THE WORK HEREIN TO BE DONE ARE IMMEDIATELY ADJACENT TO OTHER SUBSURFACE STRUCTURES, THE CONTRACTOR SHALL FURNISH AND PLACE SHEETING AND BRACING WHERE NOTED ON CONTRACT DRAWINGS AND AS MAY BE NECESSARY, SO AS TO REDUCE TO A MINIMUM THE POSSIBILITY OF INJURING OR DAMAGING THE SAME

(C) - IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT SUFFICIENT OR PROPER SUPPORTS, SHEETING, OR BRACINGS HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS, SHEETING OR BRACING, AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS BY THE CONTRACTOR SHALL NOT RELIEVE OR RELEASE HIM FROM HIS RESPONSIBILITY FOR SUFFICIENCY OF SUCH SUPPORTS.

DISPOSAL OF EXCAVATED MATERIAL

THIS ITEM SHALL BE AS SPECIFIED IN ITEM 203.05 OF THE STATE OF OHIO DEPARTMENT OF HIGHWAY CONSTRUCTION AND MATERIAL SPECIFICATIONS

MAINTENANCE OF SERVICE AND CONNECTING RELOCATED MAINS

THE CONTRACTOR SHALL FOLLOW STRICTLY THE SEQUENCE OF CONSTRUCTION SHOWN ON THE CONTRACT DRAWINGS.

(1) 12" WATER MAIN RELOCATION AT S.R. 91, 2nd HIGH SERVICE, SEE SHEET 228.

(2) 12" WATER MAIN RELOCATION AT S.R. 91, 3rd HIGH SERVICE, SEE SHEET 230.

(3) 12" WATER MAIN RELOCATION AT SOLON ROAD AND ACCESS ROAD, 2nd HIGH SERVICE. SEE SHEET 232.

LAYING PIPE

(A) -PROPER IMPLEMENTS, TOOLS, AND FACILITIES, SATISFACTORY TO THE ENGINEER SHALL BE PROVIDED AND USED BY THE CONTRACTOR FOR THE SAFE AND CONVENIENT PROSECUTION OF THE WORK. ALL PIPE, FITTINGS, AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH PIECE BY PIECE BY MEANS OF DERRICK, PROPER SLINGS, AND OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH MANNER AS TO PREVENT DAMAGE TO PIPE OR COATING UNDER NO CIRCUMSTANCES SHALL PIPE OR ACCESSORIES BE DROPPED OR DUMPED INTO THE TRENCH. IF ANY DEFECTIVE PIECE BE DISCOVERED WHILE PIPE IS SUSPENDED OR AFTER BEING LAID, A NEW PIECE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT THE SITE OF THE WORK.

(B) - ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH, AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING.

(C) - AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY APPROVED MEANS, AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE. NO PIPE SHALL BE LAID IN WATER, OR WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF THE ENGINEER.

(D) - WHEREVER NECESSARY TO DEFLECT PIPE FROM A STRAIGHT LINE, EITHER IN THE VERTICAL OR HORIZONTAL PLANE TO AVOID OBSTRUCTIONS, TO PLUMB STEMS, OR FOR OTHER REASONS, THE DEGREE OF DEFLECTION SHALL BE APPROVED BY THE ENGINEER.

(E) - BEFORE LAYING CAST IRON OR DUCTILE IRON PIPE, ALL LUMPS, BLISTERS AND EXCESS COAL TAR COATING SHALL BE REMOVED FROM THE BELL AND SPIGOT ENDS OF EACH PIPE, THE PIPE ENDS SHALL THEN BE KEPT CLEAN UNTIL JOINTS ARE MADE.

(F) - PREPARATION OF PIPE ENDS FOR STEEL PIPE SHALL BE IN ACCORDANCE WITH THE A.W.W.A. SPECIFICATIONS C 201-50 AND C 202-49 FOR ELECTRIC FUSION WELDED STEEL WATER PIPE

FLOATING

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST THE FLOATING OF THE PIPE DUE TO WATER COMING INTO THE TRENCH, OR THROUGH CAVING IN, FLUSHING OR PUDDLING IN CASE OF SUCH FLOATING THE CONTRACTOR SHALL REPLACE THE PIPE AT HIS OWN EXPENSE, AND MAKE WHOLLY GOOD ANY INJURY OR DAMAGE WHICH MAY HAVE RESULTED.

TESTING MAINS

(A) - ALL PIPES, VALVES, FITTINGS, ETS., SHALL BE LAID IN SUCH A MANNER AS TO LEAVE ALL JOINTS WATERTIGHT. AFTER THE PIPE IS LAID, AND BEFORE BACKFILLING IS PLACED AROUND THE JOINTS, SUCH LENGTHS OF THE WATER MAIN AS THE ENGINEER MAY DETERMINE, SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE OF SEVENTY-FIVE (75) POUNDS PER SQUARE INCH ABOVE THE STATIC PRESSURE, BUT NOWHERE LESS THAN 100 POUNDS PER SQUARE INCH.

(B) - THE TEST SHALL BE UNDER THE DIRECTION OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OR HIS DESIGNATE. THE CONTRACTOR MAY OBTAIN WATER FOR TESTING BY OBSERVING THE RULES AND REGULATIONS ENFORCED IN THE MUNICIPALITIES OR TOWNSHIPS IN WHICH THE WORK IS BEING DONE. THE CITY WILL FURNISH A PRESSURE GAGE FOR MEASURING THE PRESSURE ON THE WATER MAIN, BUT THE CONTRACTOR SHALL FURNISH A SUITABLE PUMP, PIPES, TEST HEADS AND ALL APPLIANCES, LABOR, FUEL AND OTHER APPURTENANCES NECESSARY TO MAKE THESE TESTS.

(C) - THE TEST PRESSURE SHALL BE MAINTAINED FOR A SUFFICIENT LENGTH OF TIME TO ALLOW FOR A THOROUGH EXAMINATION OF JOINTS AND ELIMINATION OF LEAKAGE WHERE NECESSARY. THE PIPE LINES SHALL BE MADE ABSOLUTELY TIGHT UNDER THE TEST PRESSURE.

(D) - AFTER A SECTION OF THE WATER MAIN HAS BEEN TESTED, THE CONTRACTOR SHALL DRAIN SAME. IN CASE THE DRAINS ARE CONNECTED TO VALVE OR DRAIN VAULTS, THEN THE CONTRACTOR SHALL, WITHIN A REASONABLE TIME AFTER THE TEST HAS BEEN COMPLETED, PUMP ALL WATER OUT OF THE VAULTS.

(E) - IN COLD WEATHER, IMMEDIATELY AFTER TESTING A SECTION OF THE WATER MAIN, THE CONTRACTOR IS TO OPEN ALL VALVES, AIR COCKS, BYPASSES AND DRAINS AND PROPERLY DRAIN BONNETS OF ALL VALVES IN THE SECTION OF THE WATER MAIN; AND TAKE ALL OTHER PRECAUTIONS NECESSARY TO PREVENT INJURY TO WATER MAIN AND APPURTENANCES DUE TO FREEZING.

CLOSING VALVES

THE CLOSING OF ALL GATE VALVES ON EXISTING MAINS FOR MAKING CONNECTIONS, TESTS, OR FOR ANY OTHER CAUSE SHALL BE DONE BY THE CITY AND SUFFICIENT NOTICE SHALL BE GIVEN TO THE CITY, BY THE CONTRACTOR, SO THAT THE WORK MAY BE DONE WITH A MINIMUM OF INCONVENIENCE TO THE PUBLIC AND DELAY TO THE CONTRACTOR.

PLUGGING DEAD ENDS

STANDARD PLUGS WITH CLAMPS SHALL BE INSERTED INTO THE BELLS OF ALL DEAD ENDS OF PIPES, TEES, OR CROSSES, AND SPIGOT ENDS CAPPED AND CLAMPED BY THE CONTRACTOR, ON ALL MAINS CONSTRUCTED BY HIM AND ON ALL EXISTING WATER MAINS WHERE INDICATED ON THE CONTRACT DRAWINGS. CONCRETE PIERS SHALL BE PLACED WHEN CALLED FOR ON THE CONTRACT DRAWINGS, OR ORDERED BY THE ENGINEER. THE COST OF FURNISHING THE PLUGS SHALL BE INCLUDED IN THE PER LINEAL FOOT PRICE BID FOR THE VARIOUS SIZES OF NEW WATER MAINS, AND FOR THE SIZE OF PLUG INSTALLED WHERE SHOWN ON EXISTING WATER MAIN (SEE PAY ITEM, SHEET NUMBER 42).

BACKFILLING

(A) - THIS WORK INCLUDES ALL BACKFILLING, TOGETHER WITH RAMMING, PUDDLING, AND ROLLING, AS REQUIRED, THE REGRADING OF GROUNDS, THE REPLACING OF SURFACE AND SUBSURFACE STRUCTURES, THE PLACING AND MAINTAINING OF TEMPORARY SIDEWALKS; AND DRIVEWAYS, THE FURNISHING OF SUITABLE MATERIAL FOR BACKFILL, RESEEDING LAWNS AND REPLACING TREES AND SHRUBBERY DAMAGED BY THE CONTRACTOR; AND ALL APPURTENANT WORK INCIDENTAL THERETO. PAVEMENTS, CURBS, SIDEWALK AND DRIVEWAYS WITHIN THE LIMITS OF THE WORK SHALL BE TEMPORARILY SURFACED, MAINTAINED AND FINALLY REPLACED OR REPAVED AS SET FORTH UNDER "ROAD SURFACES, SIDEWALKS, DRIVEWAYS AND CURBING" (SEE NEXT SHEET).

(B) - BACKFILL, UNLESS OTHERWISE SPECIFIED, MAY BE MADE WITH MATERIAL EXCAVATED FROM THE TRENCHES, PROVIDING SAME IS SATISFACTORY TO THE ENGINEER. IF, IN THE OPINION OF THE ENGINEER, THE MATERIAL EXCAVATED IS UNSATISFACTORY, THEN THE CONTRACTOR SHALL FURNISH AT HIS OWN EXPENSE OTHER MATERIAL SUITABLE FOR BACKFILL. ALL BACKFILL SHALL BE FREE FROM SLAG, CINDERS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL.

(C) - BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE BROUGHT TO THE GRADE OF THE BOTTOM OF THE PIPE EXCEPT AT FIELD JOINTS. WHEREVER THE BOTTOM OF THE TRENCH HAS BEEN EXCAVATED BELOW THE BOTTOM OF THE PIPE, THE CONTRACTOR SHALL PLACE SAND OR OTHER MATERIAL SATISFACTORY TO THE ENGINEER TO BRING THE BOTTOM OF THE TRENCH TO THE GRADE OF THE BOTTOM OF THE PIPE. THIS BED SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS LAID.

(D) - UNLESS OTHERWISE SPECIFIED, THE BACKFILL UNDER, AROUND AND TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF ALL PIPE SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER, WHICH MATERIAL SHALL BE FREE FROM STONE AND OTHER OBJECTIONABLE MATERIAL NOTED ABOVE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL, SO AS TO AVOID INJURING, DISTORTING OR MOVING THE PIPE WHEN COMPACTING SAME. ABOVE THIS LEVEL THE BACKFILL SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER. HOWEVER, WHERE SPECIFIED, SAND SHALL BE USED FOR THE ENTIRE PORTION OF THE BACKFILL - SEE PARAGRAPH (H).

(E) - BACKFILLING AS NOTED IN PARAGRAPH (D) SHALL BE TAMPED IN THIN LAYERS. SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.

MAY 4 1973

3/18

3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30- 1970

DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER & HEAT
EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
ENGINEER OF CONSTRUCTION & SURVEYS
DESIGN ENGINEER
ENGINEER - CITY OF SOLON

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2/22/69		R.W.H. 2/25/69			

WATERWORK NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

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CUYAHOGA COUNTY
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BACKFILLING (CONT'D)

(F) - ONLY AFTER THE BACKFILL PREVIOUSLY MENTIONED HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACIED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.

(G) - BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.

(H) - THE ENTIRE BACKFILL SHALL BE MADE WITH SAND WHERE PERMANENT PAVEMENTS, CURBS, DRIVEWAYS, OR SIDEWALKS, HAVE BEEN OPENED FOR OR UNDERCUT BY THE EXCAVATION.

(I) - ALL SAND TO BE USED FOR BACKFILL SHALL BE A NATURAL BANK SAND, GRADED FROM FINE TO COARSE, NOT LUMPY OR FROZEN, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH, OR OTHER DELETERIOUS OR OBJECTIONABLE MATERIAL. IT SHALL NOT CONTAIN A TOTAL OF MORE THAN 10 PER CENT BY WEIGHT OF LOAM AND CLAY, AND ALL MATERIAL MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. NOT MORE THAN 5 PER CENT SHALL REMAIN ON A NO. 4 SIEVE.

(J) - SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER EXCAVATION, EXCEEDING ONE FOOT MEASURED FROM THE TOP SURFACE, IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG BELOW GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER: A FOUR (4) INCH LAYER OF CRUSHED LIME STONE SHALL BE PLACED ON THE ENTIRE WIDTH OF THE BOTTOM OF THE TRENCH, FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF THREE (3) INCHES OF SAND. THE CRUSHED LIME STONE SHALL BE WELL GRADED FROM FINE TO COARSE, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH OR OTHER OBJECTIONABLE MATERIAL. ALL LIME STONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED STONE, HYDRATED LIME SHALL BE SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THIS BED OF CRUSHED LIME STONE SHALL BE THOROUGHLY TAMPED BEFORE THE 3" LAYER OF SAND IS PLACED. THE BACKFILL AROUND AND TO THE DEPTH OF 3 INCHES ABOVE THE TOP OF THE PIPE SHALL BE MADE WITH SAND. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL SO AS TO AVOID INJURING OR MOVING THE PIPE WHEN COMPACTING SAME. ON TOP OF THE SAND THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIME STONE FIVE (5) INCHES THICK ON THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THE COMPACTED LAYER OF LIME STONE HYDRATED LIME SHALL BE THEN APPLIED IN THE AMOUNT OF 3/4 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH SAND, CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM, PREVIOUSLY DESCRIBED, MAY BE OMITTED WHERE THE CINDER DEPTH, MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2'-6".

ROAD SURFACES, SIDEWALKS, DRIVEWAYS, AND CURBING

(A) - THE CONTRACTOR SHALL REMOVE ALL PAVEMENTS AND ROAD SURFACES WITHIN THE LINES OF EXCAVATION. AFTER THE PIPE HAS BEEN LAID, ALL APPURTENANT WORK CONSTRUCTED AND BACKFILL COMPLETED, HE SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE PAVEMENT OR ROAD SURFACE HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY PAVEMENT IN THE PAVED PORTION OF STREETS, OR A TEMPORARY ROAD SURFACE IN THE UNPAVED PORTION OF STREETS, SO AS TO PROVIDE A SAFE AND PASSABLE ROADWAY UNTIL SUCH TIME AS THE FINAL PAVEMENT OR ROAD SURFACE IS COMPLETED.

(B) - ALL FINAL PAVING OF ROAD SURFACES, IF SO NOTED ON CONTRACT DRAWINGS, SHALL BE DONE BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND IN CONFORMITY TO THE CITY OF CLEVELAND, DEPARTMENT OF PUBLIC SERVICE, STANDARD CONSTRUCTION DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF THE WORK. THE BASE OF PAVEMENT OF ITEM 305 SPECIAL SHALL BE INSTALLED ON A CAREFULLY PREPARED BED (LEVEL WITH THE BOTTOM OF THE ABUTTING BASE) OVER DISTURBED AREAS AND SHALL BE OF THE THICKNESS SPECIFIED, BUT IN NO CASE LESS THAN 7" THICK. WHERE PAVEMENT OR BASE OF PAVEMENT HAS BEEN DAMAGED BY CAVE-IN, OR BY TRENCH CUT LEAVING A PORTION OR PORTIONS OF PAVEMENT 18 INCHES OR LESS IN WIDTH (BETWEEN SUCH CUT OR DAMAGE) TO CURB OR OTHER SUBSTRUCTURE, THAT REMAINING PORTION OF PAVEMENT SHALL BE REMOVED AND RESTORED MONOLITHIC WITH THE TYPE AND KIND OF PAVEMENT SPECIFIED FOR THE ADJACENT TRENCH AREA. THE WEARING COURSE OVER TRENCH OR OTHER DISTRUBED AREAS SHALL BE RESTORED TO MATCH EXISTING PAVEMENT UNLESS OTHERWISE SPECIFIED. ASPHALTIC CONCRETE WEARING COURSE OVER SUCH AREAS SHALL BE NEATLY AND SQUARELY CUT, NOT LESS THAN 3 FEET WIDE, BEFORE THE INSTALLATION OF A CAREFULLY TOOTHED-IN TO ADJACENT PAVEMENT, UNLESS OTHERWISE SPECIFIED. EXPANSION JOINTS SHALL BE INSTALLED BETWEEN BRICK WEARING COURSE (IF GROUTED) AND CURB OR OTHER SUBSTRUCTURE, WHERE SUCH RESTORATION IS REQUIRED BY THESE SPECIFICATIONS.

(C) - IF ANY SIDEWALKS, DRIVEWAYS OR CURBS, ARE REMOVED OR INJURED BY THE CONTRACTOR IN THE COURSE OF MAKING EXCAVATION OR HANDLING MATERIALS, OR FOR ANY OTHER REASON WHICH MAY BE ATTRIBUTED TO WORK WHICH HAS BEEN DONE BY THE CONTRACTOR, THEN HE SHALL RELAY SAME AFTER ALL WORK, INCLUDING BACKFILLING HAS BEEN COMPLETED. IF ANY STONE SIDEWALKS, DRIVEWAYS, OR CURBS WHICH HAVE BEEN REMOVED OR INJURED, ARE UNFIT TO BE RELAID, THEN THE CONTRACTOR SHALL FURNISH NEW MATERIAL AND RELAY SAME. ALL CONCRETE OR CEMENT SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH ARE REMOVED OR INJURED BY THE CONTRACTOR SHALL BE BROKEN UP BY HIM AND HE SHALL FURNISH ALL LABOR AND MATERIALS AND CONSTRUCT NEW SIDEWALKS, DRIVEWAYS OR CURBS, TO REPLACE THOSE REMOVED OR INJURED. AT INTERSECTING WALKS, DRIVES, ETC., ADDITIONAL CONCRETE SLABS BEYOND THE EXCAVATION LIMITS SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL, IN ORDER TO AVOID HAVING MORE JOINTS THAN IN THE ORIGINAL WORK. ALL SLABS REPLACED SHALL BE OF FULL WIDTH. THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE SIDEWALK HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY SIDEWALK SO AS TO PROVIDE A SAFE AND PASSABLE SIDEWALK UNTIL SUCH TIME AS THE FINAL SIDEWALK IS COMPLETED.

(D) - ALL PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH THE CONTRACTOR IS REQUIRED TO REPLACE OR TO HAVE REPLACED, SHALL, AT THE EXPIRATION OF THIS CONTRACT, BE IN AT LEAST AS GOOD CONDITION AS AT THE TIME OF AWARDING THE CONTRACT.

(E) - TUNNELING WILL NOT BE PERMITTED WITHOUT PERMISSION OF THE ENGINEER. IN BACKFILLING TUNNELS, SAND SHALL BE USED AS FAR AS POSSIBLE AND BALANCE OF BACKFILLING MADE WITH CLASS "C" CONCRETE, RAMMED IN PLACE.

(F) - NO SPECIFIC OR SEPARATE PAYMENT WILL BE MADE FOR ALL OF THIS WORK, BUT THE COST THERE OF SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT. RESTORATION AS NOTED ABOVE WILL ONLY BE REQUIRED IN AREAS WHERE THE PLANS DO NOT OTHERWISE PROPOSE NEW CONSTRUCTION OF PAVEMENT, SIDEWALKS, AND CURBS, EXCEPT THAT TEMPORARY RESTORATION IN SUCH AREAS MAY BE REQUIRED BY THE ENGINEER IN ORDER TO MAINTAIN TRAFFIC OR LOCAL ACCESS.

LIST AND INVOICES

(A) - THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH THE LIST IN DUPLICATE OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME.

(B) - THE MATERIAL SHALL BE SHIPPED IN SUCH SECTIONS AS THE ENGINEER MAY ORDER.

CAST IRON AND DUCTILE IRON PIPE AND FITTINGS

WORK INCLUDED

(A) - THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, BACKFILLING, SAND BACKFILL AND REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

CAST IRON PIPE AND FITTINGS

(A) - ALL PIT CAST PIPE SHALL BE MANUFACTURED IN ALL RESPECTS IN ACCORDANCE WITH, AND SHALL MEET THE REQUIREMENTS OF THE LATEST "STANDARD SPECIFICATIONS FOR CAST IRON PIPE AND SPECIAL FITTINGS" AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION WHICH SPECIFICATIONS EXCEPT AS HEREIN MODIFIED ARE MADE A PART OF THESE SPECIFICATIONS.

(B) - ALL PIT CAST PIPE AND FITTINGS SHALL BE CEMENT LINED AND OF THE SIZE AND CLASSES NOTED ON THE RESPECTIVE CONTRACT DRAWINGS.

(C) - IN LIEU OF PIT CAST PIPE ABOVE, THE CONTRACTOR WILL BE PERMITTED TO FURNISH EITHER CENTRIFUGAL OR HIGH STRENGTH CEMENT LINED PIPE. THE METAL SHALL HAVE A MODULUS OF RUPTURE OF NOT LESS THAN 40,000 PSI AND A TENSILE STRENGTH OF NOT LESS THAN 18,000 PSI AND SHALL BE FOR CLASS NOTED ON THE CONTRACT DRAWINGS. PIPE MAY BE FURNISHED IN 12,16 OR 18 FOOT LENGTHS. THE CENTRIFUGALLY CAST PIPE SHALL CONFORM TO THE AMERICAN STANDARD SPECIFICATIONS A21.6-1952 AND ALL SUBSEQUENT AMENDMENTS THERETO.

WHEN NOTED ON THE CONTRACT DRAWINGS, DUCTILE IRON PIPE SHALL BE SUPPLIED. ALL DUCTILE IRON PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.A. A21.51. ALL DUCTILE IRON FITTINGS SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.A. A21.10 OR AWWA C 100-08. DUCTILE IRON SHALL HAVE A MINIMUM OF 60,000 PSI ULTIMATE TENSILE STRENGTH, 40,000 PSI YIELD POINT AND 10% ELONGATION. THE CHEMICAL ANALYSIS SHALL BE AS FOLLOWS: CARBON 3% MINIMUM, PHOSPHORUS .08% MAXIMUM AND SILICON 2.75% MAXIMUM.

(1) - THE THICKNESS OF THE CENTRIFUGALLY CAST DUCTILE IRON PIPE AND CAST IRON PIPE SHALL CONFORM TO THE FOLLOWING:

CAST IRON PIPE				DUCTILE IRON PIPE			
SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS	SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS
4"	250 PSI	.44"	25	4"	350 PSI	.41"	6
6"	250 PSI	.48"	25	6"	350 PSI	.43"	6
8"	250 PSI	.52"	25	8"	350 PSI	.45"	6
10"	250 PSI	.56"	25	10"	350 PSI	.47"	6
12"	250 PSI	.60"	25	12"	350 PSI	.49"	6
16"	200 PSI	.68"	25	16"	350 PSI	.52"	6

(2) - ALL FITTINGS, SUCH AS BENDS, TEES, CROSSES, OFFSETS, HYDRANT BRANCHES, ETC., SHALL HAVE BELL AND BELL OR BELL AND SPIGOT ENDS WITH CAST LEAD JOINTS. PIPE BETWEEN OFFSETS OR BENDS AND ON HYDRANT BRANCHES SHALL ALSO BE OF BELL AND SPIGOT TYPE WITH LEAD JOINTS.

(D) - ALL PIPE SHALL HAVE BELL AND SPIGOT ENDS FOR CAST LEAD JOINTS OR A SLIP ON TYPE JOINT WITH COMPRESSED RUBBER RING INSERTS. ALL PIPE AND FITTINGS SHALL BE CEMENT LINED.

(E) - GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF THE GASKET.

(F) - WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY IN SUCH PARTICULARS AS ARE LACKING THEREON, SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CURRENT EDITION OF THE "HANDBOOK OF CAST IRON PIPE" BY THE CAST IRON PIPE RESEARCH ASSOCIATION OR WHICH ARE OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

(G) - WHEREVER CHANGES IN LINE AND GRADES OF THE MAIN AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS, THE CONTRACTOR WILL BE PERMITTED TO SUBMIT DETAILS USING COMBINATIONS OF STANDARD FITTINGS AND SMALL DEFLECTIONS (NOT TO EXCEED A MAXIMUM OF ONE HALF (1/2) INCH JOINT OPENING) IN THE ADJOINING LENGTHS OF PIPE.

(H) - PLUGS FOR BELL AND SPIGOT PIPE AND CAPS FOR LUGGED PIPE SHALL BE FURNISHED WITH TWO (2) PLUGGED TWO (2") INCH TAPS FOR DRAIN AND AIR COCK CONNECTIONS.

(I) - CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID TYPE PATTERN SLEEVES AS SHOWN OR AS REQUIRED.

(J) - TESTS, INSPECTION, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED AS SET FORTH ELSEWHERE IN THESE NOTES.

(K) - BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL CAST IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS.

CEMENT LINING

ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO THE AMERICAN STANDARD SPECIFICATION A21.4-1952 AND ALL SUBSEQUENT AMENDMENTS THERETO.

MARKING

ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO DENOTE THE MANUFACTURER, CLASS, DATE, WEIGHT, AND OTHER ELEMENTS OF IDENTIFICATION.

FACING AND DRILLING

ALL FLANGES SHALL BE CAST SOLID AND FACED ACCURATELY AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL FLANGES SHALL BE COATED WITH WHITE LEAD IMMEDIATELY AFTER THEY HAVE BEEN FACED AND DRILLED. ALL FLANGED PIPE AND FITTINGS SHALL BE FACED AND DRILLED TO "AMERICAN 1928 STANDARD" DRILLING, UNLESS SPECIAL DRILLING IS CALLED FOR. WHERE TAP OR STUD BOLTS ARE REQUIRED, FLANGES SHALL ALSO BE TAPPED.

LAYING

(A) - PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPES AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATING FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTINGS SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

(B) - IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER, BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE LAID, SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE COMPLETED WORK, AND WHEN LAID SHALL CONFORM TO THE LINES AND GRADES GIVEN BY THE ENGINEER. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A BULKHEAD DURING CONSTRUCTION. IN NO EVENT SHALL ANY PORTION OF THE DAMAGED PIPE BE PERMITTED TO REMAIN IN THE LINE. ANY APPROVAL STAMPS FOUND ON THE PIPE SHALL BE REMOVED OR THE PIPE BROKEN UP FOR SCRAP.

(C) - PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

(D) - IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS. THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST "STANDARD SPECIFICATIONS FOR LAYING CAST IRON PIPE" AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION.

CUTTING PIPE

WHENEVER THE PIPES REQUIRE CUTTING TO FIT INTO THE LINES, THE WORK SHALL BE DONE IN A SATISFACTORY MANNER SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. IN NO EVENT SHALL FLAME CUTTING BE USED. WHEN A PIECE OF PIPE IS CUT TO FIT INTO THE LINE, NO PAYMENT WILL BE MADE FOR THE PORTION CUT OFF AND NOT USED IN THE LINE.

TRANSITE PIPE CONNECTIONS

WHENEVER TRANSITE PIPE IS ENCOUNTERED AND A CONNECTION REQUIRED THE CONTRACTOR SHALL MAKE AN EXPLORATION HOLE AT EACH LOCATION AND MEASURE THE PIPE OUTSIDE DIAMETER. THE CONTRACTOR SHALL PROVIDE ALL THE NECESSARY FITTINGS TO COMPLETE THE CONNECTIONS AS SHOWN OR AS SPECIFIED.

MAY 4 1973 | 4/18

3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30-1970
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER & HEAT
EXECUTIVE COMMISSIONER FOR ADMIN.
DEPT. OF PUBLIC UTILITIES
ENGINEER OF CONSTRUCTION & SURVEYS
DESIGN ENGINEER
ENGINEER-CITY OF SOLON

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2/24/69		R.W.H. 2/25/69			

WATERWORK NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

223
258

CUYAHOGA COUNTY
CUY-422-16.33

JOINTS

(A) - FLANGED JOINTS:

(1) - FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. FLANGES SHALL BE EITHER CAST STEEL FORGED OR ROLLED STEEL OR PROPERLY WELDED AND MACHINED FABRICATED STEEL PLATES WELDED TO PIPE WITH TWO CONTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO "AMERICAN 1928 STANDARD". EACH BLIND FLANGE SHALL BE CAST IRON AND HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR TWO (2) INCH STANDARD PIPE AND FURNISHED WITH PLUGS. ALL BOLTS FOR FLANGES AND OTHER TYPES OF BOLTING SHALL CONFORM TO THE "TENTATIVE SPECIFICATIONS FOR STEEL MACHINE BOLTS AND NUTS AND TAP BOLTS. ASTM DESIGNATION A 307-49T"

(2) - ALL BOLTS USED IN THE FINISHED WORK FOR FLANGES SHALL BE OF MEDIUM OPEN HEARTH STEEL. THE ENDS OF ALL BOLTS MUST BE FINISHED TO STANDARD RADIUS IN ACCEPTABLE MANNER. ALL SCREW THREADS SHALL BE AMERICAN STANDARD COARSE THREAD (N.C.). STUD BOLTS DOUBLE END (ROD) SHALL BE USED TO MAKE THE FLANGED JOINTS ON PIPE. ALL NUTS SHALL BE HEXAGONAL COLD PRESSED SEMI-FINISHED AND MADE OF MEDIUM OPEN HEARTH STEEL. ALL DIMENSIONS TO BE ACCORDING TO AMERICAN STANDARD HEAVY. BOLTS AND NUTS SHALL BE DELIVERED TO THE FIELD FREE FROM GREASE RUST AND DIRT AND SHALL BE PROPERLY PROTECTED FROM MOISTURE AND DIRT IN THE FIELD. GASKETS FOR FLANGED PIPE SHALL BE 5X MANILA ROPE PATTERN OR OTHER APPROVED TYPE.

(B) - LEAD JOINTS. - IN JOINTING ALL BELL AND SPIGOT PIPE AND FITTINGS HAVING LEAD JOINTS THE SPIGOT OF EACH PIPE SHALL BE PROPERLY SEATED IN THE BELL OF THE NEXT ADJACENT PIECE AND ADJUSTED SO AS TO GIVE A UNIFORM ANNULAR SPACE. THE JOINT SHALL BE MADE WITH TWISTED HARD JUTE AND SOFT PIG LEAD. BEFORE PLACING THE JUTE. IT SHALL BE STERILIZED EITHER BY BOILING OR BY DIPPING IN A CONCENTRATED SOLUTION OF "HTH". THE JUTE SHALL BE TWISTED AND THOROUGHLY DRIVEN INTO THE BELL SO THAT THE LEAD, AFTER HAVING BEEN CAULKED, SHALL HAVE THE FOLLOWING DEPTH

SIZE OF PIPE	DEPTH OF LEAD
4 - 20 (BOTH INCLUSIVE)	2-1/2 INCHES
24	2-3/4 "
30	3-1/4 "
30 - 36	3-1/4 "
SLEEVES	SOLID

THE FURNACE AND MELTING POT SHALL BE KEPT NEAR THE JOINT TO BE POURED AND EACH JOINT SHALL BE MADE WITH ONE POURING. DROSS SHALL NOT BE ALLOWED TO ACCUMULATE IN THE MELTING POT. THE JOINTS SHALL BE THOROUGHLY CAULKED BY COMPETENT PIPE JOINERS AND IN SUCH MANNER AS WILL SECURE A TIGHT JOINT WITHOUT OVERSTRAINING THE IRON OF THE BELL.

(C) - VICTAULIC TYPE COUPLINGS:

(1) - WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED, THE CONTRACTOR SHALL FURNISH AND INSTALL VICTAULIC TYPE COUPLINGS FOR CONNECTION OF CAST IRON, CONCRETE, OR STEEL PIPE AND FITTINGS. STEEL PIPE ENDS SHALL BE FABRICATED AND GROOVED AS INDICATED ON THE DRAWINGS. THE COUPLINGS SHALL BE ADAPTED FOR INSTALLATION ON SHOULDERED END CAST IRON SPACERS REDUCERS AND FITTINGS AND DESIGNED FOR NOT LESS THAN THE WORKING PRESSURE NOTED ON THE CONTRACT DRAWINGS. COUPLINGS SHALL BE COMPOSED OF MALLEABLE IRON HOUSINGS HELD TOGETHER WITH STEEL BOLTS HEAT TREATED AND WITH A CONTINUOUS HOLLOW MOLDED RUBBER SEALING RING, OF SUCH TYPE THAT THE SEAL BECOMES TIGHT AS THE PRESSURE WITHIN THE PIPE INCREASES. THE JOINTS SHALL BE CONSTRUCTED AND INSTALLED AND BE EQUAL IN ALL RESPECTS TO THOSE MANUFACTURED BY THE VICTAULIC COMPANY OF AMERICA. MALLEABLE HOUSINGS SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR MALLEABLE IRON CASTINGS, A.S.T.M. DESIGNATION A 47-33". BOLTS SHALL BE MANUFACTURED BY THE COUPLING MANUFACTURER AND SHALL BE HEAT TREATED CADMIUM PLATED STEEL BOLTS HAVING 100,000 PSI. TENSILE STRENGTH.

(2) - ALL METAL PARTS OF THE COUPLINGS SHALL BE COATED AT THE SHOP WITH ONE COAT OF BITUMINOUS PRIMER FURNISHED BY THE SAME MANUFACTURER WHO FURNISHES THE COATINGS AS SPECIFIED UNDER "PAINTING."

(D) - WHERE LUGGED JOINTS ARE USED FOR "TIED DISTANCES" AS SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL SUPPLY PIPE AND FITTINGS HAVING LUGGED JOINTS. THESE JOINTS SHALL, IN ALL RESPECTS, COMPLY TO THE STANDARD A.W.W.A. SPECIFICATIONS, AND DIMENSIONS FOR THE CLASS OF PIPE AND FITTINGS SPECIFIED. ALL BOLT DIMENSIONS AND OTHER FEATURES SHALL STRICTLY COMPLY WITH THOSE WHICH HAVE BEEN ESTABLISHED UNDER THE AMERICAN WATER WORKS ASSOCIATION STANDARDS.

(E) - ALL BOLTS AND NUTS SHALL BE OF THE SAME QUALITY AS PROVIDED ABOVE FOR FLANGED JOINTS.

PAINTING

AFTER ERECTION, ALL EXPOSED OR DAMAGED COATINGS AND ALL BOLTS FOR FLANGES, LUGGED JOINTS AND VICTAULIC COUPLINGS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF INERTOL 50 OR BITUMASTIC 50 OR APPROVED EQUAL.

DRAWINGS

(A) - THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, DUPLICATE PRINTS OF ALL SHOP DRAWINGS FOR PIT CAST IRON PIPE AND FITTINGS AND MISCELLANEOUS DETAILS WHICH ARE NOT STANDARD CONSTRUCTION, AND ARE NOT MENTIONED IN THE REGULAR CATALOGUE OF THE COMPANY FURNISHING THE PIPE. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

(B) - THE APPROVAL OF THE DRAWINGS BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

MEASUREMENT

THE NUMBER OF LINEAR FEET OF CAST IRON OR DUCTILE IRON PIPE LINE AND CONNECTIONS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAR FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE PIPING INCLUDING FITTINGS AND VALVES CONNECTED UP IN PLACE. FOR CONNECTIONS BETWEEN NEW AND EXISTING MAINS, MEASUREMENT SHALL BE THE DISTANCE FROM CENTERLINE TO CENTERLINE OF MAINS AND THE ACTUAL LENGTH OF EXISTING MAIN ORDERED TO BE REMOVED TO MAKE THE CONNECTION.

PAYMENT

(A) THE UNIT PRICE STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF CAST IRON OR DUCTILE IRON PIPE LINE AND CONNECTIONS SHALL INCLUDE THE FURNISHING, LAYING, CONNECTING, PAINTING AND TESTING OF CAST IRON OR DUCTILE IRON PIPE AND FITTINGS, AND CONCRETE PIERS. THE EXCAVATION, SHEETING AND BRACING, BACKFILLING, SAND BACKFILL THE PERMANENT REPAVING, THE CUTTING INTO, REMOVAL AND DISPOSAL OF EXISTING PIPES AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO COMPLETE THE WORK AS SPECIFIED, SHOWN OR ORDERED.
(B) TRANSITE PIPE CONNECTION SHALL BE PAID FOR ON THE ACTUAL NUMBER COMPLETE AND ACCEPTED, AND SHALL BE FULL COMPENSATION FOR ALL WORK REQUIRED TO MAKE OR PROVIDE THE SPECIAL FITTINGS AS SHOWN OR SPECIFIED.

FURNISHING AND SETTING FIRE HYDRANTS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL HYDRANTS, CAULKING MATERIAL, LABOR, TOOLS AND EQUIPMENT FOR AND SHALL PROPERLY CONNECT AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS 6" HYDRANTS, COMPLETE, AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

HYDRANTS

THE 6" HYDRANTS SHALL BE CITY OF CLEVELAND STANDARD AND SHALL CONFORM TO THE CITY SPECIFICATIONS AND THE HYDRANT DETAIL SHOWN ON SHEET NO. 235 & 236.

SETTING

(A) - GENERAL LOCATION: HYDRANT SHALL BE LOCATED IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY, AND IN SUCH MANNER THAT THE POSSIBILITY OF DAMAGE FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED. UNLESS OTHERWISE DIRECTED THE SETTING OF ANY HYDRANT SHALL CONFORM TO THE FOLLOWING

(B) - LOCATION REGARDING CURB LINES WHEN PLACED BEHIND CURB THE HYDRANT BARREL SHALL BE SET SO THAT CENTER OF BARREL WILL BE NO LESS THAN 3 FEET FROM THE GUTTER FACE OF THE CURB, OR DEVIATE FROM LOCATION INDICATED ON CONTRACT DRAWINGS EXCEPT BY CONSENT OF THE ENGINEER.

(C) - LOCATION REGARDING SIDEWALK WHEN SET IN THE LAWN SPACE BETWEEN THE CURB AND THE SIDEWALK OR BETWEEN THE SIDEWALK AND THE PROPERTY LINE, NO PORTION OF THE HYDRANT OR NOZZLE CAP SHALL BE WITHIN 6 INCHES OF THE SIDEWALK.

(D) - POSITION OF NOZZLES THE HYDRANT SHALL STAND PLUMB, WITH NOZZLE POINTING TOWARD CURB AND AT AN ANGLE OF FORTY-FIVE DEGREES THEREFROM. WHERE HYDRANT BRANCH PIPING IS PARALLEL WITH, OR NOT AT RIGHT-ANGLES TO CURB, THE CONTRACTOR SHALL RELEASE SWIVEL HEAD BOLTS AND ADJUST HYDRANT NOZZLES TO FACE CURB AT PROPER ANGLE. HYDRANT WITHOUT SWIVEL HEADS WILL BE ADJUSTED BY THE CITY WHERE NECESSARY TO CORRECT ANGLE ON NOZZLES WITH CURBING. ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH TOPS OF FROST CASING AT LEAST FOUR INCHES ABOVE GRADE.

(E) - CONNECTION TO MAIN: THE HYDRANT SHALL BE CONNECTED TO THE MAIN PIPE WITH A CAST IRON BRANCH CONTROLLED BY THE INDEPENDENT GATE VALVE OF THE SAME SIZE AS HYDRANT EXCEPT AS OTHERWISE DIRECTED.

(F) - DRAINAGE AT HYDRANT: DRAINAGE SHALL BE PROVIDED AT BASE OF THE HYDRANT BY FILLING AROUND ELBOW WITH COARSE GRAVEL OR CRUSHED STONE TO AT LEAST SIX INCHES ABOVE THE WASTE OPENING. WHEREVER HYDRANT IS SET IN ROCK, CLAY OR OTHER IMPERVIOUS SOIL THE TRENCH SHALL BE WIDENED AND DEEPENED ON EACH SIDE OF HYDRANT BASE, WHICH SPACE SHALL BE FILLED COMPACTLY WITH COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND OF SUFFICIENT QUANTITY TO ABSORB ALL WATER TO BE DRAINED FROM HYDRANT WHEN VALVE IS CLOSED.

(G) - ANCHORAGE FOR HYDRANT THE HYDRANT SHALL BE SET ON A STONE SLAB OR SIMILAR FOUNDATION AND BASE OF HYDRANT AND HYDRANT TEE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH WITH CONCRETE BACKING OR IT SHALL BE TIED TO THE PIPE WITH SUITABLE RODS OR CLAMPS AS DIRECTED BY THE ENGINEER.

(H) - CLEANING: HYDRANT SHALL BE THOROUGHLY CLEANED OF DIRT OR FOREIGN MATTER BEFORE SETTING.

PAYMENT

(A) - THE UNIT PRICE STIPULATED TO BE PAID FOR EACH HYDRANT SETTING SHALL INCLUDE FURNISHING THE HYDRANT, IN ACCORDANCE WITH RESPECTIVE SPECIFICATION SET FORTH ELSEWHERE IN THESE NOTES, SETTING, TESTING, PAINTING, THE EXCAVATION, SHEETING AND BRACING, BACKFILLING, AND THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

(B) - THE PIPE WILL BE PAID FOR UNDER "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS."

(C) - THE VALVES WILL BE PAID FOR UNDER "VALVES."

REMOVING AND RESETTING OF EXISTING FIRE HYDRANTS

WORK INCLUDED

THE CONTRACTOR SHALL PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER REMOVAL OF THE HYDRANT AT THE LOCATION SHOWN ON THE PLANS. THE CONTRACTOR SHALL INSPECT, CLEAN AND RESET THE HYDRANT AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS; FURNISHING ALL MATERIAL, LABOR, TOOLS AND EQUIPMENT REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

SETTING

THE HYDRANT SHALL BE RESET AS REQUIRED IN THE SECTION ON "SETTING" UNDER ITEM "FURNISHING AND SETTING FIRE HYDRANT."

PAYMENT

(A) - THE UNIT PRICE STIPULATED TO BE PAID FOR EACH EXISTING HYDRANT REMOVED AND RESET SHALL INCLUDE THE REMOVAL, INSPECTION, CLEANING, SETTING, TESTING, PAINTING, EXCAVATION, SHEETING AND BRACING, BACKFILLING AND THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

(B) - THE PIPE WILL BE PAID FOR UNDER "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS."

(C) - THE VALVES WILL BE PAID FOR UNDER "VALVES."

FIRE HYDRANTS ABANDONED

WHERE FIRE HYDRANTS ARE INDICATED TO BE ABANDONED (NOT FOR REMOVAL), HYDRANTS BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF BY HIM. THE COST OF SUCH REMOVAL AND DISPOSAL SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION.

2-INCH GALVANIZED WROUGHT IRON AND BRASS PIPE FOR FLUSHING CONNECTIONS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED, ALL 2-INCH EXTRA STRONG BRASS PIPE AND FITTINGS, AND ALL 2-INCH EXTRA HEAVY GALVANIZED WROUGHT IRON PIPE AND FITTINGS RESPECTIVELY, WHICH ARE NECESSARY FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

BRASS PIPE & FITTINGS

ALL BRASS PIPE AND FITTINGS SHALL BE EXTRA STRONG 2-INCH PIPE SIZE AND SHALL CONFORM TO A.S.T.M. SPECIFICATIONS B 43-42. FITTINGS SHALL BE EXTRA STRONG WEIGHT AND SHALL HAVE SOUND WELL-FITTING THREADS.

GALVANIZED WROUGHT IRON PIPE & FITTINGS

ALL GALVANIZED WROUGHT IRON PIPE, NIPPLES AND FITTINGS SHALL BE EXTRA HEAVY GENUINE WROUGHT IRON PIPE A.S.T.M. DESIGNATION A 72-59T. THE FITTINGS SHALL BE BEADED AND OF EXTRA HEAVY WEIGHT MALLEABLE IRON. ALL PIPE AND FITTINGS SHALL BE HOT GALVANIZED INSIDE AND OUTSIDE, AND SHALL HAVE SOUND WELL-FITTING THREADS.

ERECTION

ALL PIPE SHALL BE CAREFULLY PLACED TO THE PROPER LINES AND GRADES, AND SHALL BE CONNECTED UP, UNLESS OTHERWISE SHOWN, WITH SCREW FITTINGS. SCREW JOINTS SHALL BE MADE TIGHT WITH A GRAPHITE PASTE AND SCREWED HOME. A LIBERAL NUMBER OF UNIONS SHALL BE USED TO PERMIT THE READY REMOVAL OF ANY SECTION.

PAYMENT

NO SEPARATE PAYMENT WILL BE MADE FOR 2-INCH PIPE. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM WITH WHICH THE PIPE IS USED.

MAY 4 1973

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3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30-1970

- DIRECTOR OF PUBLIC UTILITIES
- COMMISSIONER OF WATER & HEAT
- EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
- ENGINEER OF CONSTRUCTION & SURVEYS
- DESIGN ENGINEER
- ENGINEER-CITY OF SOLON

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2-22-69		R.W.H. 2-25-69			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

224/258

CUYAHOGA COUNTY
CUY-422-16.33

WATERWORK NOTES

VALVES

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY SET IN PLACE AND CONNECT AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL AIR COCKS, DRAIN VALVES, GATE VALVES, AND INSERTING VALVES OF THE VARIOUS SIZES AND TYPES SPECIFIED OR ORDERED, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. INSERTING VALVES SHALL BE INSTALLED BY THE INSERTING VALVE SUPPLIER. THE CONTRACTOR SHALL PAY ALL CHARGES FOR INSERTION.(SEE SHEET NO. 226)

AIR COCKS

ALL AIR COCKS OR AIR VENT VALVES SHALL BE 2-INCH BRASS ANGLE TYPE GLOBE VALVES. 2-INCH AIR COCKS SHALL BE EQUAL IN ALL RESPECTS TO THE FARNAN "CLEVELAND STANDARD" BRASS AIR VENT VALVE NO. W-4695 AS MANUFACTURED BY THE FARNAN BRASS WORKS.

GATE VALVES & INSERTING VALVES

(A) - TYPE OF VALVES: THE GATE & INSERTING VALVES SHALL BE MANUFACTURED IN FULL COMPLIANCE WITH THE STANDARD SPECIFICATIONS FOR GATE VALVES FOR ORDINARY WATERWORKS SERVICE OF THE AMERICAN WATERWORKS ASSOCIATION AWWA C 500-61 OR LATEST REVISION THEREOF AND IN ADDITION SHALL COMPLY WITH THE FOLLOWING SUPPLEMENTARY REQUIREMENTS. ALL GATE VALVES SHALL BE THE NONREVOLVING DOUBLE DISC TYPE. ALL GATE VALVES 16 IN. AND UNDER IN SIZE SHALL BE DOUBLE DISC PARALLEL OR TAPERED SEAT BOTTOM WEDGE OR SIDE WEDGE TYPE. ALL GATE VALVES 20 IN. AND OVER IN SIZE SHALL BE DOUBLE DISC PARALLEL SEAT BOTTOM WEDGE OR SIDE WEDGE TYPE AND SHALL INCLUDE BYPASS VALVES ATTACHED THERETO. IN CLOSING THE VALVE THE DISCS WHEN OPPOSITE THE PORTS SHALL BE PRESSED FIRMLY AGAINST THE BODY SEATS BY WEDGES OR SOME OTHER DEVICE EQUALLY SUITABLE TO THE ENGINEER.

(B) - VALVES WITH STATIONARY STEMS: ALL GATE VALVES, UNLESS OTHERWISE ORDERED, SHALL BE MADE WITH SINGLE, NONRISING STEMS.

(C) - OUTSIDE SCREW AND YOKE VALVES: GATE VALVES WITH OUTSIDE SCREW AND YOKES SHALL BE MADE WITH SINGLE RISING STEMS.

(D) - WHEELS: ALL OUTSIDE SCREW AND YOKE VALVES SHALL BE EQUIPPED WITH WHEELS FOR OPERATING SAME. WHEELS ARE TO BE OF MALLEABLE IRON. WHEELS SHALL HAVE CAST ON THEM AN ARROW INDICATING THE DIRECTION OF TURNING FOR OPENING THE VALVE.

(E) - HUB ENDS: THE DIMENSIONS OF THE BELLS ON VALVES UP TO AND INCLUDING 24 IN. IN DIAMETER SHALL CONFORM TO THOSE FOR CLASS D PRESSURE FITTINGS AS REQUIRED BY AWWA C 100. ON VALVES 30 IN. AND LARGER IN SIZE THE BELL DIMENSIONS SHALL BE FOR THE CLASSES ORDERED.

(F) - VICTAULIC ENDS: VICTAULIC ENDS SHALL CONFORM TO THE DIMENSIONS GIVEN ON THE CONTRACT DRAWINGS.

MECHANICAL JOINT ENDS: THE BELL DIMENSIONS SHALL CONFORM TO TABLE 11.# OF ASA A-21.11 (AWWA C111). "A MECHANICAL JOINT FOR CAST IRON PRESSURE PIPE AND FITTINGS."

(G) - FLANGE ENDS: THE END FLANGES OF FLANGED END GATE VALVES SHALL CONFORM IN DIMENSIONS AND DRILLING TO THE "AMERICAN 125 LB. CAST IRON FLANGES STANDARD", UNLESS OTHERWISE ORDERED.

(H) - SCREW ENDS: ALL 2 IN. GATE VALVES AND UNDER SHALL BE MADE WITH SCREW ENDS UNLESS OTHERWISE SPECIFIED. THE 3 IN. AND 4 IN. HAND-WHEEL GATE VALVES SHALL BE FURNISHED WITH SCREW ENDS WHENEVER REQUIRED BY THE ENGINEER. THREADS TO BE INSIDE STANDARD IRON PIPE THREADS.

(I) - SOLDER JOINT ENDS: THE END CONNECTION SOCKETS OF SOLDER-JOINT GATE VALVES SHALL BE MADE TO CLOSE TOLERANCES AND SNUGLY FIT TYPE K AND L COPPER TUBING TO PERMIT MAKING SWEAT JOINTS. DEPTH OF JOINTS ON 1-1/2 IN. VALVES SHALL BE NOT LESS THAN 1-3/16 IN. AND ON 2 IN. VALVES NOT LESS THAN 1-3/8 IN.

(J) - VERTICAL AND HORIZONTAL VALVES: ALL GATE VALVES, 16 IN. AND UNDER, SHALL BE CONSTRUCTED TO WORK VERTICALLY. VALVES OVER 16 IN. WATERWAY SHALL BE CONSTRUCTED TO WORK HORIZONTALLY.

(K) - BY-PASSES: BY-PASSES WITH GATE VALVES SHALL BE PROVIDED ON VALVES 20 IN. AND LARGER. THE BY-PASSES SHALL BE LOCATED ON OR BELOW THE HORIZONTAL CENTERLINE OF THE VALVES. BY-PASS VALVES SHALL BE OF THE SAME SIZE AS THE BY-PASS AND SHALL CONFORM TO THE REQUIREMENT OF THESE SPECIFICATIONS FOR THE SPECIFIC VALVE USED. THE SIZE REQUIREMENTS OF BY-PASSES SHALL BE AS FOLLOWS: 20 IN. VALVES SHALL BE PROVIDED WITH 3 IN. BY-PASSES VALVES 24 IN. TO 30 IN. INCLUSIVE, SHALL BE PROVIDED WITH 4 IN. BY-PASSES, VALVES 36 IN. TO 42 IN. INCLUSIVE, SHALL BE PROVIDED WITH 6 IN. BY-PASSES; 48 IN. VALVES SHALL BE PROVIDED WITH 8 IN. BY-PASSES.

(L) - BOSSES: OUTSIDE SCREW AND YOKE GATE VALVES 6 IN. AND LARGER IN SIZE SHALL BE PROVIDED WITH TWO BOSSES ON ONE SIDE OF BODY, LOCATED ON THE HORIZONTAL CENTERLINE OF GATE VALVES, TO PERMIT THE INSTALLATION OF BY-PASS AROUND THE GATE. BOSSES ARE TO BE LEFT SOLID AND OF AMPLE SIZE TO PERMIT DRILLING AND TAPPING FOR BY-PASSES HAVING DIAMETERS NOT LESS THAN ONE-SIXTH OF THE NOMINAL SIZE OF GATE VALVE.

(M) - FLANGES: WHEN FLANGED VALVES ARE REQUIRED THE FLANGES SHALL BE FACED AND DRILLED. BOLT HOLES SHALL BE SPOT FACED ON THE BACK WHEN NECESSARY TO SECURE AN EVEN BEARING. ALL BOLT HOLES SHALL BE OF THE SIZE SHOWN ON THE DRAWINGS TO BE SUBMITTED AND APPROVED SHALL BE ACCURATELY DRILLED FROM TEMPLATES SPACED EQUAL DISTANCES APART AND SHALL STRADDLE HORIZONTAL AND VERTICAL AXIS, ALL AS SHOWN ON THE DRAWINGS. THE DIMENSIONS AND DRILLING OF ALL END FLANGES SHALL CONFORM TO THE SPACING INDICATED ON THE DRAWINGS WHICH SHALL BE THE AMERICAN 125 LBS. CAST IRON FLANGE STANDARD, FLANGES SHALL BE PLAIN FACE WITH A SMOOTH FINISH.

(N) - MARKING: ALL GATE VALVES 3 IN. AND OVER SHALL HAVE THE IDENTITY OF MAKER, SIZE AND THE YEAR WHEN MADE AND ALSO THE LETTERS "C.W.D." CAST UPON ITS BODY OR DOME IN RAISED LETTERS.

(O) - STUFFING BOXES: THE STUFFING BOX ON EACH GATE VALVE 3 IN. OR OVER, MUST BE SEPARATE FROM THE DOME AND FASTENED TO IT BY BOLTS. FOR 2 IN. VALVES AND UNDER, THE STUFFING BOXES MAY BE FORMED IN THE DOME OF THE VALVE. WHEN REQUIRED BY THE ENGINEER, VALVES 16 IN. AND SMALLER, SHALL BE FURNISHED WITH "O" RING TYPE SEAL PLATE. THE SEAL PLATE SHALL BE FITTED WITH AT LEAST TWO "O" RINGS, THE LOWER "O" RING SERVING AS THE PRESSURE SEAL AND THE UPPER "O" RING AS A COMBINED DIRT AND MOISTURE SEAL. THE "O" RINGS SHALL BE PRECISION RUBBER CORPORATION QUALITY COMPOUND NO. 122-70, OR APPROVED EQUAL.

(P) - SEAT AND GATE RINGS: DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS SHALL BE PROPORTIONED TO FIT THE TEST PRESSURE REQUIRED, AND SHALL MEET THE APPROVAL OF THE ENGINEER. THE RINGS SHALL BE FIRMLY SECURED IN PLACE BY AN APPROVED DEVICE WHICH WILL PREVENT THEM FROM WORKING LOOSE, PARTICULARLY WHEN THE VALVE IS LEFT PARTLY OPEN. DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS FOR GATE VALVES SHALL BE NOT LESS THAN THAT SPECIFIED IN THE FOLLOWING TABLES. BODY SEAT RINGS SHALL BE MADE OF GRADE ONE BRONZE. GATE SEAT RINGS SHALL BE MADE OF GRADE FIVE BRONZE.

BODY AND GATE RINGS

BOTTOM WEDGE

VALVE SIZE	BODY RINGS FACE	BODY RINGS DEPTH	BODY RINGS THICKNESS AT BASE OF THREADS	BODY RINGS FACE THICKNESS	GATE RINGS FACE	GATE RINGS FACE THICKNESS	GATE RINGS DEPTH
3"	9/16	9/16	3/16	3/16	5/8	5/32	1/4
4"	9/16	9/16	3/16	3/16	5/8	5/32	5/16
6"	11/16	9/16	3/16	5/32	11/16	5/32	5/16
8"	3/4	5/8	3/16	7/32	13/16	5/32	5/16
10"	3/4	5/8	3/16	7/32	13/16	5/32	11/32
12"	7/8	5/8	7/32	7/32	1	5/32	11/32
16"	1-1/8	3/4	1/4	9/32	1-1/4	3/16	1/2
20"	1-3/8	1-1/8	5/16	3/8	1-3/8	3/8	5/8
24"	1-3/8	1-1/8	5/16	3/8	1-3/8	3/8	5/8
30"	1-1/2	1-1/4	3/8	7/16	1-1/2	7/16	3/4
36"	1-1/2	1-1/4	3/8	7/16	1-1/2	7/16	3/4
42"	1-3/4	1-1/2	1/2	1/2	1-3/4	1/2	7/8
48"	2	1-3/4	1/2	5/8	2	5/8	1

SIDE WEDGE

3"	13/32	1/2	3/16	3/16	ALL BRONZE DISC		
4"	7/16	9/16	3/16	3/16	1/2	5/32	21/64
6"	1/2	11/16	9/32	1/4	5/8	5/32	21/64
8"	17/32	11/16	9/32	1/4	11/16	5/32	21/64
10"	5/8	13/16	3/8	5/16	13/16	5/32	21/64
12"	5/8	13/16	3/8	5/16	13/16	5/32	21/64
16"	3/4	1	15/32	3/8	7/8	3/16	13/32
20"	7/8	1-5/16	17/32	7/16	1	1/4	17/32
24"	1-1/16	1-3/8	21/32	1/2	1-9/16	5/16	19/32
30"	1-5/16	1-1/2	25/32	1/2	1-7/16	5/16	19/32
36"	1-1/2	1-1/2	27/32	1/2	1-9/16	5/16	19/32
42"	1-3/4	1-9/16	29/32	9/16	1-13/16	5/16	5/8
48"	2	1-5/8	29/32	5/8	2-1/16	3/8	11/16

DIMENSIONS IN INCHES

(Q) - VALVE STEM: ALL GATE VALVES SHALL BE OF THE SINGLE SCREW TYPE. THE STEMS SHALL BE OF GRADE THREE BRONZE. THE THREADS OF STEMS AND STEM NUTS SHALL BE OF ACME, MODIFIED ACME OR ONE-HALF V TYPE. IF REQUESTED, A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS. ALL STEM COLLARS SHALL BE CAST INTEGRAL WITH STEMS. THE DIAMETERS OF STEMS AT THE BASE OF THE THREAD SHALL BE NOT LESS THAN THOSE SHOWN BELOW. THE STEM OPENING AND THRUST-BEARING RECESS SHALL BE GRADE ONE BRONZE BUSHED. THE NUMBER OF THREADS PER INCH SHALL BE AS GIVEN BELOW.

SIZE OF VALVE INCHES	DIAMETER OF STEM AT BASE OF THREAD - INCHES	NO. OF THREADS PER INCH
1-1/2	0.469	4
2	0.469	4
3	0.859	4
4	0.859	3
6	1.000	3
8	1.000	3
10	1.125	3
12	1.188	3
16	1.438	3
20	1.896	3
24	1.980	2
30	2.480	2
36	2.730	2
42	3.230	2
48	3.980	2

(R) - WRENCH CAPS: THE WRENCH CAPS AND RETAINING NUTS ON HEADS OF VALVE STEMS AND PINION SHAFTS SHALL BE OF GRADE THREE BRONZE. ON VALVES 24 IN. AND OVER, WRENCH CAPS SHALL BE 2 IN. SQUARE AND 2 IN. DEEP. ON VALVES 4 IN. TO 20 IN. INCLUSIVE, THEY SHALL BE 1-3/4 IN. SQUARE ON TOP, 1-7/8 IN. SQUARE AT BASE, AND 1-3/4 IN. DEEP. ON 3 IN. VALVES AND UNDER, THEY SHALL BE 1-1/4 IN. SQUARE ON TOP 1-3/8 IN. SQUARE AT BASE AND 1-1/2 IN. DEEP. MACHINED WRENCH CAPS FOR VALVES 3 IN. TO 48 IN. INCLUSIVE SHALL BE FITTED TO A MACHINED SQUARE STEM OR PINION SHAFT AND HELD IN PLACE BY A RETAINING NUT. WRENCH CAPS SHALL HAVE A CUT-AWAY SKIRT TO PERMIT EASY ACCESS TO GLAND BOLTS.

(S) - VALVES TO OPEN CLOCKWISE, EXCEPT 2 IN. AND UNDER: ALL GATE VALVES 3 IN. AND OVER, INCLUDING BY-PASS VALVES, SHALL BE MADE TO OPEN BY TURNING IN A CLOCKWISE DIRECTION. VALVES 2 IN. AND UNDER SHALL BE MADE TO OPEN BY TURNING IN A COUNTER-CLOCKWISE DIRECTION. ALL VALVES TO BE SO MADE THAT THEY CAN BE EASILY OPERATED.

(T) - FACING OF GATES: ALL DISCS OR GATES AND THREADS FOR SEAT RINGS IN THE BODY SHALL BE MACHINED TRUE AND A GROOVE OR GROOVES SHALL BE MACHINED IN EACH DISC OR GATE FOR THE RECEPTION OF THE FACE RING. THE DISC AND SEAT RINGS SHALL BE SECURELY AND RIGIDLY ATTACHED TO THE DISCS OR BODY SEATS IN A MANNER APPROVED BY THE ENGINEER, AND THE RINGS ARE TO BE FINISHED TO A TRUE SURFACE.

(U) - ROLLERS AND SCRAPERS: IN ALL VALVES 20 IN. IN DIAMETER AND LARGER DESIGNED TO LIE HORIZONTALLY, EACH GATE OR DISC SHALL BE PROVIDED WITH TWO BRONZE ROLLERS TRAVELLING ON BRONZE-FACED TRACKS AND PROVIDED WITH SUITABLE BRONZE SCRAPERS; OR TWO STAINLESS STEEL ROLLERS TRAVELLING ON STAINLESS STEEL-FACED TRACKS AND PROVIDED WITH SUITABLE STAINLESS STEEL SCRAPERS. THE THICKNESS OF THE FACING OF THE TRACKS SHALL BE NOT LESS THAN 1/4 IN. THE BRONZE SHALL BE CLASS I AND THE STAINLESS STEEL SHALL BE ASTM A 276-55, TYPE 302.

(V) - VALVE GUIDES: ALL VALVES 20 IN. IN DIAMETER AND LARGER SHALL BE PROVIDED WITH GUIDES OR TRACKS WHICH SHALL BE MADE STRAIGHT AND TRUE AND ALL IRREGULARITIES MUST BE MACHINED OFF. THE GUIDES OR TRACKS OF HORIZONTAL VALVES SHALL BE SUBSTANTIALLY FACED WITH A MINIMUM OF 1/4 IN. OF GRADE ONE BRONZE, OR STAINLESS STEEL ASTM A 276-55, TYPE 302, SATISFACTORY TO THE ENGINEER, SECURELY FASTENED AND PLANED OFF SMOOTH AND TRUE.

(W) - GEARING: ALL VALVES 20 IN. IN DIAMETER AND LARGER SHALL BE EQUIPPED WITH ENCLOSED CUT TOOTH STEEL GEARS. GEARS, SHAFTS AND BEARINGS, SHALL BE SUCH AS TO PRODUCE EASY OPERATION WITHOUT BENDING OR TWISTING.

(X) - DOWEL PINS: ALL GEAR VALVES SHALL HAVE TWO DOWEL PINS SET IN THE FLANGES CONNECTING THE DOME AND BODY. SIZE OF THE PINS TO BE SHOWN IN PLANS.

(Y) - INDICATORS: ALL VALVES 20 IN. IN DIAMETER AND OVER, SHALL BE EQUIPPED WITH INDICATORS DENOTING THE POSITIONS OF THE GATE. THE MOVING PART AND BEARINGS TO BE OF BRONZE OR BRONZE-LINED.

(Z) - GREASE CASES: ALL VALVES 20 IN. IN DIAMETER AND LARGER, SHALL HAVE WATER TIGHT GREASE CASES INSTALLED. THE GREASE CASES SHALL BE OF THE EXTENDED TYPE AND SHALL BE MADE OF CAST IRON CONFORMING TO ASTM SPECIFICATIONS SERIAL DESIGNATION A 126, CLASS B OR ANY SUBSEQUENT AMENDMENT THERETO. BEARING SURFACES FOR VALVE STEM AND PINION SHAFT SHALL BE BRONZE BUSHED WITH GRADE ONE BRONZE. THE GREASE CASES SHALL BE SECURELY BOLTED TO THE VALVE BONNET THROUGH A HEAVY CAST IRON YOKE. THE YOKE SHALL BE OF SUFFICIENT LENGTH TO PROVIDE SPACE FOR PACKING VALVE AND GREASE CASE STUFFING BOXES. ALL GREASE CASES SHALL BE PROVIDED WITH A REMOVABLE COVER SECURELY BOLTED IN PLACE TO ALLOW EASY ACCESS TO THE GEARS. THERE SHALL ALSO BE PROVIDED CONVENIENT FILLING AND DRAINING PLUGS AND SUFFICENT OIL TO FULLY SUBMERGE THE PINION GEAR. THE VALVES SHALL BE DELIVERED WITH THE GREASE CASES FILLED WITH THE PROPER OIL AS RECOMMENDED BY THE MANUFACTURER.

(AA) - BRONZE PARTS: THE STEMS, STEM NUTS, OPERATING NUTS, RETAINING NUTS, DISC AND SEAT RINGS, SHALL BE OF SOLID BRONZE. OTHER PARTS SUCH AS WEDGES, GLANDS, THRUST BEARINGS, GEAR SPINDLES, ROLLERS, SCRAPERS AND TRACKS, AND ALL OTHER PARTS COMING TOGETHER IN OPERATION, SHALL BE OF BRONZE, OR SUBSTANTIALLY LINED WITH BRONZE OR STAINLESS STEEL OF A THICKNESS NOT LESS THAN 1/4 OF AN INCH AND AS SHOWN ON DRAWINGS SUBMITTED AND APPROVED. ALL 2" VALVES AND UNDER SHALL BE MADE ENTIRELY OF BRONZE, EXCEPT HAND-WHEELS WHICH SHALL BE OF MALLEABLE IRON.

(BB) - CAST IRON PARTS: THE BODIES, COVERS, DISCS, FRAMES, ETC., OF ALL GATE VALVES 3" AND OVER, SHALL BE OF CAST IRON.

(CC) - WATERWAY OPENING: WITH THE VALVE OPEN, AN UNOBSTRUCTED WATERWAY SHALL BE AFFORDED. THE DIAMETER OF WHICH IS NOT TO BE LESS THAN THE FULL NOMINAL DIAMETER OF THE VALVE.

MAY 4 1973 6/18

3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30- 1970
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER & HEAT
EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
ENGINEER OF CONSTRUCTION & SURVEYS
DESIGN ENGINEER
ENGINEER- CITY OF SOLON

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2/23/69		R.W.H. 2/26/69			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

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258

CUYAHOGA COUNTY
CUY-422-16.33

WATERWORK NOTES

MATERIAL SPECIFICATIONS

(A) - STRENGTH OF VALVES: THE GATE AND CHECK VALVES SHALL BE DESIGNED FOR 150 LB. WORKING PRESSURE AND SHALL WITHSTAND AN INTERNALLY APPLIED HYDROSTATIC PRESSURE AT ALL POINTS OF AT LEAST 300 LBS. PER SQUARE INCH. A FACTOR OF SAFETY OF NOT LESS THAN 10 SHALL BE USED ON THE DESIGN. SHOULD TESTS DEVELOP ANY WEAKNESS, THE VALVES FROM THAT DESIGN SHALL BE REJECTED AND A NEW DESIGN MADE.

(B) - REINFORCEMENT AT FLANGES. ALL VALVE FLANGES SHALL BE REINFORCED BY FILLETS IN ACCORDANCE WITH THE MANUFACTURER'S PRACTICE PROVEN SATISFACTORY IN ACTUAL SERVICE.

(C) - JOINTS: ALL JOINTS OF THE VALVES SHALL BE FACED TRUE IN A LATHE OR PLANER AND PUT TOGETHER WITH A GASKET OF SOME MATERIAL ACCEPTABLE TO THE ENGINEER.

(D) - BOLT HOLES: ALL BOLT HOLES SHALL BE ACCURATELY DRILLED FROM TEMPLATES AND SPACED EQUAL DISTANCES APART.

(E) - BOLTS AND NUTS: ALL BOLTS AND NUTS SHALL BE MADE OF SILICON BRONZE (ASTM B 98-55 ALLOY A) OR STAINLESS STEEL (ASTM A 276-55, TYPE 302).

(F) - PARTS TO BE INTERCHANGEABLE: ALL PARTS OF VALVES OF THE SAME SIZE AND MAKE MUST BE PERFECTLY INTERCHANGEABLE AND ALL WORK DONE IN A THOROUGH AND WORKMANLIKE MANNER.

(G) - CASTINGS: ALL CASTINGS, WHETHER OF BRONZE, IRON OR STEEL, SHALL BE SOUND AND SMOOTH WITHOUT COLD SHUTS SWELLS, LUMPS, SCABS, BLISTERS, SAND HOLES OR OTHER IMPERFECTIONS, AND SHALL BE MADE IN ACCORDANCE WITH THE BEST MODERN FOUNDRY PRACTICE TO OBTAIN CASTINGS OF THE BEST QUALITY AND OF UNIFORM THICKNESS. NO WELDING, PLUGGING OR FILLING OF HOLES OR OTHER DEFECTS WILL BE PERMITTED. FOR PARTS WHOSE THICKNESS IS LESS THAN ONE (1") INCH, CASTING BEING THINNER THAN THE SPECIFIED THICKNESS BY .06 INCH OR MORE SHALL BE REJECTED. AND FOR PARTS WHOSE THICKNESS IS ONE (1") INCH OR MORE, CASTINGS BEING THINNER THAN SPECIFIED BY .08 INCH OR MORE SHALL BE REJECTED.

(H) - BRONZE PARTS: (1) BRONZE FOR PARTS, OTHER THAN THOSE LISTED BELOW, SHALL BE GRADE ONE. (2) VALVE STEMS, PINION SHAFTS, STEM NUTS, WRENCH CAPS AND RETAINING NUTS SHALL BE MADE OF GRADE THREE BRONZE. (3) DISC RINGS SHALL BE MADE OF GRADE FIVE BRONZE.

(I) - TESTS OF BRONZE: (1) IF DEMANDED A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS. (2) ALL STEMS OF 16-INCH GATE VALVES AND OVER, SHALL HAVE A PROLONGATION ON ONE END OF EACH STEM, OF THE SAME DIMENSIONS AND CROSS SECTION AS THE STEM AND OF SUFFICIENT LENGTH TO ENABLE THE CUTTING OF SPECIMENS PARALLEL WITH THE LONGITUDINAL AXIS OF THE STEM. SPECIMENS SHALL BE CUT FROM PROLONGATIONS ONE-HALF WAY BETWEEN SURFACE AND CENTRAL AXIS. OTHER METHODS OF TEST WILL BE CONSIDERED BY THE ENGINEER, BUT MUST BE SUBMITTED IN DETAIL WITH THE BID. (3) FOR ALL STEMS OF GATE VALVES SMALLER THAN 16 INCHES, NOT LESS THAN TWO TEST PIECES SHALL BE CAST FROM THE MOLTEN METAL OF EACH HEAT, FROM WHICH VALVE STEMS ARE BEING MADE. (4) ALL STEMS MADE FROM BRONZE SHOWING LESS STRENGTH, ELONGATION AND/OR DUCTILITY THAN ABOVE REQUIRED SHALL BE REJECTED. (5) TESTS OF VALVE STEMS, OR THE VARIOUS PARTS OF ANY VALVE MAY BE MADE AT ANY TIME BEFORE OR AFTER DELIVERY, AND IF FOUND TO BE DEFICIENT IN STRENGTH OR UNSATISFACTORY TO THE ENGINEER, THE WHOLE LOT OR SHIPMENT MAY BE REJECTED.

(J) - CAST IRON:

(1) - QUALITY: CAST IRON SHALL CONFORM TO ASTM SPECIFICATIONS A 126, CLASS B, OR LATEST REVISION THEREOF. ALL IRON CASTINGS SHALL BE TOUGH AND WITHOUT BRITTLENESS, SUCH AS MAY BE CUT DRILLED AND SHIPPED BY HAND WITH DUE EASE. A BLOW FROM A HAMMER SHALL PRODUCE AN INDENTATION ON THE EDGE OF THE CASTING WITHOUT FLAKING THE METAL.

(2) - TESTS: BARS FROM THE MOLTEN METAL FROM WHICH THE VALVES ARE BEING MADE SHALL BE TESTED AT SUCH TIME AND IN SUCH MANNER, AS THE ENGINEER MAY REQUIRE. THE REQUIREMENTS OF ASTM SPECIFICATIONS A 126 SHALL GOVERN TESTING PROCEDURES TO DETERMINE THE PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE IRON CASTINGS. SHOULD THE RESULT OBTAINED FROM THE BAR TESTED FAIL TO SHOW THAT THE CAST IRON MEETS THE REQUIREMENTS HEREIN SPECIFIED. THE ENTIRE MELT WILL BE REJECTED. TEST BARS HOWEVER WHOSE FAILURE IS DUE TO INHERENT DEFECTS SHALL NOT BE CONSIDERED. ALL VALVES MADE FROM IRON SHOWING LESS STRENGTH THAN CALLED FOR IN THE ASTM SPECIFICATIONS SHALL BE REJECTED.

(K) - QUALITY OF WROUGHT IRON: ALL WROUGHT IRON SHALL BE TOUGH FIBROUS AND UNIFORM IN CHARACTER. SPECIMENS CUT FROM BARS AND BROKEN IN A TESTING MACHINE SHALL SHOW A TENSILE STRENGTH OF NOT LESS THAN 45,000 PSI. WITH AN ELONGATION OF 18 PERCENT IN EIGHT DIAMETERS.

(L) - QUALITY OF MATERIALS:

GRADE ONE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 62.

GRADE TWO CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132 ALLOY A.

GRADE THREE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132 ALLOY B.

GRADE FOUR ROLLED BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 21, ALLOY A (ONE-HALF HARD).

GRADE FIVE BRONZE SHALL BE SUFFICIENTLY MALLEABLE TO CONFORM TO DOVETAILED GROOVES WHEN PEENED OR ROLLED, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH WITHOUT DEFORMATION OF 4000 PSI. AND SHALL HAVE THE FOLLOWING CHEMICAL COMPOSITION:

COPPER, PERCENT.	91.0
TIN, PERCENT.	0.0
ZINC, PERCENT	5.0
LEAD, PERCENT	4.0

SILICON BRONZE

THIS BRONZE SHALL CONFORM TO ASTM SPECIFICATION B-98, ALLOY A.

STAINLESS STEEL

THE STAINLESS STEEL SHALL CONFORM TO ASTM SPECIFICATIONS A-276, TYPE 302.

CAST IRON

THE CAST IRON SHALL CONFORM TO ASTM SPECIFICATION A 126 CLASS B.

(M) - OTHER MATERIALS: ALL OTHER MATERIALS USED IN THE MANUFACTURE OF THESE VALVES AND NOT SPECIFIED IN THE SPECIFICATIONS SHALL BE OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS, AND SUBJECT TO INSPECTION, TESTS, AND APPROVAL BY THE ENGINEER.

(N) - CHEMICAL ANALYSIS: CHEMICAL ANALYSIS OF THE MATERIAL USED SHALL BE FURNISHED BY THE CONTRACTOR WHENEVER REQUIRED BY THE ENGINEER.

(O) - CLEANING OF CASTINGS: ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED ON THE OUTSIDE AND INSIDE SURFACES AND PROTECTED FROM RAIN OR MOISTURE UNTIL THEY ARE PAINTED

(P) - HYDROSTATIC TESTS AT SHOP: ALL GATE VALVES SHALL BE TESTED IN THE SHOP BY HYDROSTATIC PRESSURE, BY CLOSING THE VALVE AND APPLYING THE REQUIRED TEST PRESSURE IN THE BODY AND DOME OF THE VALVE AS SPECIFIED BELOW.

3" AND UNDER	300 PSI - NO TIME REQUIREMENT
4" THROUGH 12"	400 PSI - NO TIME REQUIREMENT
14" THROUGH 20"	300 PSI FOR 15 MINUTES, DROP PRESSURE TO 150 PSI, THEN ELEVATE AGAIN TO 300 PSI FOR 15 MINS. A TOTAL OF 1/2 HOUR.
24" THROUGH 48"	300 PSI FOR 1/2 HOUR, DROP PRESSURE TO 150 PSI, THEN ELEVATE TO 300 PSI FOR 30 MINS. - A TOTAL OF 1 HOUR.

THIS IS A MODIFICATION OF SECTION 29 OF THE "STANDARD SPECIFICATIONS AWWA DESIGNATION C-500-61". ALL LEAKS, FLAWS OR OTHER DEFECTS DEVELOPED IN MAKING THESE TESTS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER OR THE ENTIRE PIECE SHALL BE REJECTED. AFTER TESTING, ALL VALVES SHALL BE THOROUGHLY DRAINED. ALL EQUIPMENT FOR TESTING AND ALL TESTS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

(Q) - PERFORMANCE TESTS: EACH VALVE SHALL BE OPERATED IN THE POSITION THAT IT WILL ASSUME IN SERVICE AND FOR THE FULL LENGTH OF GATE TRAVEL IN BOTH DIRECTIONS, TO DEMONSTRATE THE FREE AND PERFECT FUNCTIONING OF ALL PARTS IN THE INTENDED MANNER. ANY DEFECTS OF WORKMANSHIP SHALL BE CORRECTED AND THE TEST REPEATED UNTIL SATISFACTORY PERFORMANCE IS DEMONSTRATED.

MAY 4 1973

7/18

3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30-1970

DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER & HEAT
EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
ENGINEER OF CONSTRUCTION & SURVEYS
DESIGN ENGINEER
ENGINEER — CITY OF SOLON

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2/23/67		R.W.H. 2/28/67			

WATERWORK NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

226/258

CUYAHOGA COUNTY
CUY-422-16.33

PLACING AND TESTING

(A) - ALL VALVES SHALL BE SET ACCURATELY AND CAREFULLY TO THE LINES AND GRADES GIVEN. ALL CONNECTIONS TO PIPE SHALL HAVE THE NECESSARY FLANGE, LEAD, MECHANICAL, SCREWED, VICTAULIC OR SOLDERED ENDS AS REQUIRED UNDER THE FOLLOWING ITEMS: CAST IRON AND DUCTILE IRON PIPE AND FITTINGS, FURNISHING AND SETTING 6" (SIX INCH) HYDRANTS, 2-INCH GALVANIZED WROUGHT IRON PIPE AND BRASS PIPE AND AS SHOWN ON THE VALVE SCHEDULE.

(B) - AFTER THE VALVES ARE SET IN PLACE AND READY TO OPERATE, THE CONTRACTOR SHALL TEST THEM UNDER WORKING PRESSURE AND CONDITIONS HEREIN SPECIFIED UNDER THE SPECIFICATION "TESTING MAINS" AND ANY VALVE FOUND TO LEAK SHALL BE MADE WATER-TIGHT AND, IF FOUND TO BE OF FAULTY DESIGN, SHALL BE SATISFACTORILY REPAIRED OR REPLACED BY THE CONTRACTOR.

PAINTING

(A) - IRON BODY VALVES SHALL EITHER BE DIPPED IN ASPHALT PAINT AND ALL BRONZE PARTS CLEANED, OR ALL IRON CASTINGS SHALL BE PAINTED INSIDE, BEFORE ASSEMBLING WITH TWO (2) COATS OF AN APPROVED PAINT AND AFTER PASSING THE HYDRAULIC TEST SHALL BE GIVEN AT LEAST TWO (2) COATS OF APPROVED PAINT OUTSIDE.

(B) - AFTER ERECTION, ALL EXPOSED METAL SURFACES OF VALVES EXCEPT BRASS OR BRONZE SHALL BE PAINTED WITH TWO (2) FIELD COATS OF COAL TAR PITCH PAINT INERTOL 66 OR KOPPERS BITUMASTIC 50, OR APPROVED EQUAL.

INSPECTION

THE ENGINEER, OR HIS AUTHORIZED DESIGNATE WILL INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE RESPECTIVE CITIES OR STATE MAY REQUIRE. SUCH OFFICER SHALL HAVE UNRESTRICTED ACCESS TO THE CONTRACTOR'S PLANT AND TO ALL PARTS OF THE WORK AND OTHER PLACES AT WHICH THE PREPARATION OF THE MATERIAL AND THE CONSTRUCTION OF THE DIFFERENT PARTS OF THE WORK TO BE DONE UNDER THESE SPECIFICATIONS ARE CARRIED ON AND HE SHALL RECEIVE ALL FACILITIES AND ASSISTANCE TO CARRY OUT HIS WORK OF INSPECTION AND TESTING IN A MANNER SATISFACTORY TO THE ENGINEER. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS OR ANY MODIFICATIONS THEREOF AS HEREIN PROVIDED AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE.

DRAWINGS

(A) - PRIOR TO THE MANUFACTURE OF ANY VALVES, THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND, COMPLETE WORKING, DETAIL, AND DIMENSION DRAWINGS SHOWING THICKNESSES AND KINDS OF MATERIAL AND SIMILAR INFORMATION.

(B) - ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL, DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED. AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL AGAIN FURNISH TO THE ENGINEER FOURTEEN ADDITIONAL PRINTS OF EACH DRAWING; TWELVE (12) ON PAPER AND TWO (2) ON CLOTH; SIX (6) AND TWO (2), RESPECTIVELY, SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

PAYMENT

THE UNIT PRICE STIPULATED FOR VALVES SHALL INCLUDE THE FURNISHING, PLACING, TESTING AND PAINTING OF THE AIR COCKS, DRAIN VALVES, CHECK AND GATE VALVES, INCLUDING BY-PASS VALVES, OPERATING NUTS AND OTHER ACCESSORIES AND APPURTENANCES AND THE FURNISHING OF ALL LABOR TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

TAPPING SLEEVE AND VALVE

WORK INCLUDED

(A) - THE CONTRACTOR SHALL FURNISH THE TAPPING SLEEVE AND VALVE FOR THE LOCATIONS SHOWN ON THE DRAWINGS OR ON WORKING DRAWINGS FURNISHED BY THE ENGINEER OR AS DIRECTED OF THE SIZES SHOWN OR REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(B) - IN GENERAL, THE WORK OF THIS ITEM CONTEMPLATES THE FURNISHING AND DELIVERY OF THE MATERIAL TO THE PROPER LOCATION ON THE JOB. THE CITY WATER DEPARTMENT WILL INSTALL THE TAPPING SLEEVES AND VALVES, BUT THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION AND BACKFILLING REQUIRED THEREFOR AND REPAVING IF SO NOTED ON THE CONTRACT DRAWINGS.

QUALITY OF VALVES

THE TAPPING SLEEVE AND VALVE SHALL BE A.P. SMITH MFG. CO. OR APPROVED EQUAL. ALL SLEEVES SHALL BE OF THE CLASS AND SIZE AS SHOWN OR AS DIRECTED AND SHALL CONFORM FOR MATERIALS, TESTS, PAINTING, DRAWINGS, ETC. TO THE REQUIREMENTS OF THE ITEM "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS" OF THESE SPECIFICATIONS INSOFAR AS THEY APPLY. THE VALVES FURNISHED AND USED UNDER THIS ITEM SHALL COMPLY WITH THE REQUIREMENTS OF THE ITEM "VALVES" OF THIS CONTRACT WHENEVER THE SAME MAY BE PERTINENT. THE PROVISIONS OF THE SECTIONS (U), (V), AND (W) OF THE ITEM ON VALVES PERTAINING TO GREASE CASES SHALL APPLY TO THE TAPPING SLEEVE AND VALVE.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH TAPPING SLEEVE AND VALVE FURNISHED UNDER THIS ITEM, SHALL INCLUDE THE FURNISHING AND DELIVERY TO THE PROPER LOCATION, AND SHALL INCLUDE ALL EXCAVATION, SHEETING AND BRACING, BACKFILLING, SAND BACKFILLING, SEEDING AND SODDING AND REPAVING, IF SO NOTED ON THE CONTRACT DRAWINGS, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE INSTALLATION OF THE TAPPING SLEEVE AND VALVE BY THE CITY OF CLEVELAND, DIVISION OF WATER, WILL BE AT NO EXPENSE TO THE CONTRACTOR.

VALVE BOX

MATERIALS AND SPECIFICATIONS (EXCLUDING BASIS OF PAYMENT) SHALL CONFORM TO STATE OF OHIO DEPARTMENT OF HIGHWAYS CONSTRUCTION AND MATERIALS DATED JANUARY 1, 1969. SPECIFICATION ITEM 604. SEE ITEM "MISCELLANEOUS METAL WORK."

INSERTING VALVE

THE INSERTING VALVES TO BE INSTALLED SHALL BE A.P. SMITH MFG. CO. OR APPROVED EQUAL. IT SHALL BE INSTALLED IN THE LINE BY A MACHINE AND OPERATORS APPROVED BY THE CITY. COMPLETE SHOP DRAWINGS AND PROCEDURES TO BE FOLLOWED SHALL BE APPROVED BY THE CITY BEFORE PROCEEDING WITH THE WORK. SEE PARAGRAPH "WORK INCLUDED" ON SHEET NO. 224

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH INSERTING VALVE, CLASSIFIED AS TO SIZE AND TYPE, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ALL EXCAVATION, BACKFILL, AND REPAVING - IF REQUIRED, AND FOR FURNISHING, HAULING, AND PLACING THE VALVE, CONNECTIONS AND OTHER MATERIAL, AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

2-INCH SERVICE CONNECTIONS, WATER METER RELOCATED AND SERVICE CONNECTION EXTENDED

WORK INCLUDED

THE CITY OF CLEVELAND, DIVISION OF WATER, WILL REMOVE AND RESET THE METER, ITS BY-PASS AND ALL PIPE AND VALVES NECESSARY FOR THE EXTENSION OF SERVICE AT NO COST TO THE CONTRACTOR.

THE CONTRACTOR SHALL CONSTRUCT THE VAULT AS PER PLAN WITH SALVAGE CASTING AND PERFORM ALL NECESSARY EXCAVATION, BACKFILLING, SEEDING, SODDING AND REPAVING REQUIRED IN MAKING THESE CONNECTIONS AND ALTERATIONS. THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "2-INCH SERVICE CONNECTIONS, WATER METER RELOCATED AND SERVICE CONNECTION EXTENDED."

MEASUREMENT

SHALL BE THE ACTUAL NUMBER LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "2-INCH SERVICE CONNECTION, WATER METER RELOCATED AND SERVICE CONNECTION EXTENDED" SHALL INCLUDE THE CONSTRUCTION OF THE VAULT AS PER PLAN WITH SALVAGE CASTING AND NECESSARY EXCAVATION, BACKFILLING, SEEDING, SODDING AND REPAVING, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

4-INCH SERVICE CONNECTION AND 8-INCH FIRE SERVICE PROTECTION CONNECTION RELOCATED, RETAPPED AND RECONNECTED

WORK INCLUDED

THE CITY OF CLEVELAND, DIVISION OF WATER, SHALL CONSTRUCT ALL PIPING AND VALVES NECESSARY TO CONNECT, FROM THE PROPOSED WATER MAIN TEE TO THE FIRST FLANGE BEYOND THE METER AND BY-PASS, AS PER DETAIL ON SHEET 235. THIS WORK SHALL BE PERFORMED AT NO COST TO THE CONTRACTOR.

THE CONTRACTOR SHALL CONSTRUCT THE VAULT AS PER PLAN WITH SALVAGE CASTINGS AND PERFORM ALL NECESSARY EXCAVATION, BACKFILLING, SEEDING, SODDING AND REPAVING REQUIRED IN MAKING THESE CONNECTIONS AND ALTERATIONS. THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "4-INCH SERVICE CONNECTION AND 8-INCH FIRE SERVICE." THE CONTRACTOR SHALL COMPLETE THE PIPING FROM THE FLANGE BEYOND THE METER AND BY-PASS, AS PER DETAIL TO THE EXISTING SERVICE.

MEASUREMENT

SHALL BE THE ACTUAL NUMBER, LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED. THE PIPE SHALL BE THE ACTUAL NUMBER OF LINEAR FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS, AS MEASURED ALONG THE AXIS OF THE PIPE, INCLUDING FITTINGS.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "4-INCH SERVICE CONNECTION AND 8-INCH FIRE SERVICE VAULT" SHALL INCLUDE THE CONSTRUCTION OF THE VAULT AS PER PLAN WITH SALVAGE CASTING, ALL EXCAVATION, BACKFILLING, SEEDING, SODDING, REPAVING, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE UNIT PRICE STIPULATED FOR PIPE SHALL BE PAID FOR ON A LINEAR FOOT BASIS CLASSIFIED AS TO SIZE AND TYPE. THE UNIT PRICE STIPULATED FOR EACH SERVICE CONNECTION CLASSIFIED AS TO SIZE AND TYPE RELOCATED, RETAPPED, AND RECONNECTED SHALL BE ESTIMATED SEPARATELY AND PAID FOR BY THE ACTUAL NUMBER COMPLETED AND ACCEPTED.

SERVICE CONNECTIONS RELOCATED, RETAPPED, AND RECONNECTED

WORK INCLUDED

THE CITY OF CLEVELAND, DIVISION OF WATER, WILL RELOCATE CURB BOXES, RESET METERS AND METER VAULTS AND EXTEND CONNECTIONS AT NO COST TO THE CONTRACTOR.

THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION, BACKFILLING, SEEDING, SODDING, AND REPAVING REQUIRED IN MAKING THESE SERVICE CONNECTIONS AND ALTERATIONS AND COSTS THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "SERVICE CONNECTION EXTENDED" OR "WATER METER RELOCATED". THE CURB BOXES SHALL BE RELOCATED BY THE CITY AND SET TO FINAL GRADE BY THE CONTRACTOR.

MEASUREMENT

THE SERVICE CONNECTION EXTENDED AND WATER METER RELOCATED TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "SERVICE CONNECTION EXTENDED" AND "WATER METER RELOCATED" UNDER THIS ITEM SHALL INCLUDE THE EXCAVATION, BACKFILLING, SEEDING AND SODDING AND REPAVING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN

BRICK AND PLAIN CONCRETE MASONRY

UNDER THESE ITEMS THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS AND EQUIPMENT FOR THE CONSTRUCTION, COMPLETE, OF ALL MISCELLANEOUS MASONRY STRUCTURES AND INCLUDING ALL WATER MAIN DRAIN AND PITOMETER VAULTS, ACCESS AND ANCHORAGE MANHOLES, VALVE CHAMBERS, SEWER MANHOLES, CATCH BASINS, ANCHORS, PIERS AT PIPE BENDS AND UNDER LINE VALVES, FLOORS FOR DRAIN AND VALVE VAULTS, AND OTHER APPURTENANT WORK TOGETHER WITH THE HAULING MIXING, PLACING, FORMS, SCAFFOLDING, SHEETING AND BRACING, GROUTING, PLASTERING, CURING, ETC., ALL AS SPECIFIED, REQUIRED OR SHOWN ON THE CONTRACT DRAWINGS.

BRICK AND MASONRY MATERIAL

(A) - THE MATERIAL FURNISHED BY THE CONTRACTOR FOR THE VARIOUS KINDS OF MASONRY CONSTRUCTION TO BE CONSTRUCTED SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

(B) - ALL BRICK FURNISHED AND USED SHALL BE NO. 2 SHALE BRICK AND SHALL COMPLY WITH THE REQUIREMENTS FOR "GRADE SA" ASTM DESIGNATION: C 32

(C) - PORTLAND CEMENT. A.S.T.M. C 150, TYPE I. STATE OF OHIO DEPT. OF HIGHWAYS CONSTRUCTION AND MATERIAL SPEC'S. DATED JAN. 1, 1969. ITEM 701.04.

(D) - AGGREGATE FOR PORTLAND CEMENT CONCRETE. STATE OF OHIO DEPT. OF HIGHWAYS CONSTRUCTION AND MATERIAL SPEC'S DATED JAN. 1, 1969. ITEM 703.02.

(E) - FINE AGGREGATE FOR MORTAR OR GROUT. STATE OF OHIO DEPT. OF HIGHWAYS CONSTRUCTION AND MATERIAL SPEC'S. DATED JAN. 1, 1969. ITEM 703.03.

MAY 4 1973

8/18

3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30-1970

- DIRECTOR OF PUBLIC UTILITIES
- COMMISSIONER OF WATER & HEAT
- EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
- ENGINEER OF CONSTRUCTION & SURVEYS
- DESIGN ENGINEER
- ENGINEER-CITY OF SOLON

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2/23/67		RWH 2/28/67			

WATERWORK NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

227
258

CUYAHOGA COUNTY
CUY-422-16.33

MANHOLE CONSTRUCTION

(A) - ALL BRICK MANHOLES, BRICK NECKS AND EXTENSIONS SHALL BE BUILT IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

(B) - THE WALLS OF MANHOLES SHALL BE BUILT OF NO. 2 SHALE BRICK LAID IN 1:3 PORTLAND CEMENT MORTAR, WITH BRICK ARRANGED RADIALLY AS HEADERS, FORMING A WALL NINE INCHES THICK. IN DEEP MANHOLES THE WALL SHALL BE 13" THICK BELOW A POINT 12' FROM THE SURFACE. BELOW THE EXTERIOR OF THE SEWER, IN SEWER MANHOLES, THE MASONRY OF THE MANHOLE MUST CONFORM TO THAT OF THE SEWER PROPER. ALL OF THE BRICK COMPOSING SAID MANHOLES SHALL BE LAID IN FULL MORTAR BEDS AND JOINTS, WITH NO MORTAR JOINTS APPEARING ON THE INNER SURFACE OF THE MANHOLE EXCEEDING THREE-EIGHTHS INCHES(3/8") THICK.

(C) - THE TOP OF THE WALLS OF MANHOLES SHALL BE PROPERLY LEVELED OFF WITH MORTAR SO AS TO FORM A FLAT SURFACE UPON WHICH THE CAST IRON MANHOLE RING IS TO REST, AND SAID MANHOLE SHALL BE CARRIED TO PROPER HEIGHT AS INDICATED BY THE CONTRACT DRAWINGS.

(D) - THE ENTIRE OUTER SURFACE OF ALL BRICK MANHOLES SHALL BE PLASTERED WITH A SMOOTH COATING OF 1:3 PORTLAND CEMENT MORTAR, AT LEAST ONE-HALF (1/2) INCH THICK

PAYMENT

NO SEPARATE PAYMENT WILL BE MADE FOR BRICK OR PLAIN CONCRETE MASONRY. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM IN WHICH IT IS USED. PAYMENT FOR CONCRETE PIERS IS TO BE INCLUDED IN THE PRICE BID FOR THE PIPE.

MISCELLANEOUS METAL WORK

WORK INCLUDED

(A)- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MISCELLANEOUS METAL WORK WHICH IS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT AND IS NOT SPECIFICALLY INCLUDED UNDER THE OTHER ITEMS OF THESE SPECIFICATIONS.

(B) - IN GENERAL, THE WORK SHALL INCLUDE THE FURNISHING AND INSTALLING OF MANHOLE FRAMES AND COVERS, MANHOLE STEPS, VALVE BOXES, EXTENSION STEMS AND BRACE, STRUCTURAL MEMBERS, BRONZE BOLTS, AND OTHER SIMILAR ITEMS REQUIRED FOR THE PROPER COMPLETION OF THE WORK.

MATERIALS

ALL CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 604 OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1969 EXCEPT THAT THE CAST IRON SHALL BE CLASS NO.30. WROUGHT IRON SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATIONS A 207-39. ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATIONS A 7-46. ALL BRONZE BOLTS AND NUTS SHALL CONFORM TO U.S. STANDARD SIZES, AND SHALL BE CLEAN CUT AND HAVE WELL FITTED THREADS. ALL BRONZE BOLTS AND NUTS SHALL BE OF TOBIN OR MANGANESE BRONZE, OR OF SIMILAR APPROVED MATERIALS.

CLEANING AND TESTING

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMER TEST. NO CASTINGS SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

COATING

EACH CASTING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUT WITH ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE BLACK ASPHALT VARNISH.

OTHER METHODS OF COATING AND TYPES OF COATING MATERIALS SHALL BE SUBJECT TO THE APPROVAL OF THE DIRECTOR. IN ADDITION TO THE SHOP COAT THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

INSPECTION

THE DIRECTOR OR HIS AUTHORIZED ASSISTANT, SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATION THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR, AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

STEPS AND LADDERS

GALVANIZED WROUGHT IRON STEPS AND LADDERS OF THE SIZE AND SHAPE SHOWN ON THE CONTRACT DRAWINGS, SHALL BE BUILT INTO THE BRICK AND CONCRETE MASONRY OF THE MANHOLES AS INDICATED ON THE DRAWINGS.

RIMS AND COVERS

(A) - ALL CAST IRON MANHOLE RIMS AND COVERS OF THE FORMS, DIMENSIONS AND DETAILS SHOWN ON THE CONTRACT DRAWINGS, SHALL BE FURNISHED AND INSTALLED AS DIRECTED.

(B) - THE RIMS SHALL BE PROPERLY SET IN PLACE IN A FULL BED OF MORTAR OR POURED MONOLITHIC IN THE MASONRY, AT SUCH ELEVATION AS TO MAKE THE TOP OF THE RIM CONFORM TO THE FINISHED SURFACES OF THE STRUCTURES OR THE FINISHED GRADE AS ESTABLISHED BY THE DIRECTOR.

VALVE BOXES AND COVERS

THE CONTRACTOR SHALL FURNISH AND INSTALL, OVER EACH VERTICALLY SET VALVE AT THE LOCATIONS SHOWN ON THE DRAWINGS, OR AS REQUIRED, VALVE BOXES AND COVERS OF THE TYPES AND SIZES INDICATED ON THE CONTRACT PLANS. THESE SHALL BE CAREFULLY LOCATED OVER THE VALVE NUTS, AND SHALL BE SET PLUMB AND TRUE TO ELEVATION AS REQUIRED.

DETAILED DRAWINGS

COMPLETE DETAILED DRAWINGS OF MISCELLANEOUS METAL WORK SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL, PRIOR TO THE MANUFACTURE OF ANY WORK TO BE FURNISHED UNDER THIS ITEM, IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAINTING

ALL MISCELLANEOUS METAL WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAL TAR PITCH, INERTOL 50, BITUMASTIC 50 OR APPROVED EQUAL.

MEASUREMENT

THE WEIGHT OF MISCELLANEOUS METAL WORK TO BE PAID FOR SHALL BE THE NUMBER OF POUNDS OF METAL WORK ACTUALLY FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE DETAILED DRAWINGS APPROVED BY THE ENGINEER. IN COMPUTING THE WEIGHTS, IF NOT DETERMINED BY WEIGHING, ONE (1) CUBIC FOOT OF CAST IRON SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND FIFTY (450) POUNDS AND ONE (1) CUBIC FOOT OF STEEL SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND NINETY (490) POUNDS.

PAYMENT

THE UNIT PRICE STIPULATED PER POUND FOR MISCELLANEOUS METAL WORK SHALL INCLUDE THE FURNISHING, ERECTING, MACHINING, FITTING, ADJUSTING, BOLTING, CLEANING AND PAINTING OF ALL MISCELLANEOUS METAL WORK, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

METER VAULT REMOVED OR ABANDONED

WORK INCLUDED

THE WORK SHALL BE DONE IN ACCORDANCE WITH ITEM 202.08 OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS SPECIFICATIONS DATED 1-1-69. THE EXISTING CASTING SHALL BE SALVAGED FOR REUSE. IF THE EXISTING CASTING IS DAMAGED OR DOES NOT MEET THE SPECIFICATIONS FOR ITS RELOCATION THE CONTRACTOR SHALL PROVIDE A NEW CASTING AT THE UNIT PRICE BID FOR ITEM SPECIAL MISCELLANEOUS METAL WORK.

MEASUREMENT

ONE EACH.

BASIS OF PAYEMENT

THE UNIT PRICE STIPULATED FOR EACH, CLASSIFIED AS TO TYPE AND SIZE OF METER VAULT, SHALL INCLUDE THE REMOVAL OF ALL CONCRETE, BRICK, ABANDONED PIPE AND THE FURNISHING OF ALL LABOR AND TOOLS NECESSARY TO COMPLETE THE WORK.

ADJUST EXISTING VALVE BOX TO GRADE

WORK INCLUDED

THE CONTRACTOR SHALL RAISE OR LOWER THE EXISTING VALVE BOX TO FIT THE NEW GRADE BY USING APPROPRIATE EXTENSION SECTIONS (IF NEEDED), OR BY EXCAVATING UNDER AND LOWERING BOX. BACKFILL SHALL BE TAMPED UNDER THE VALVE BOX TO INSURE THE BOX HAS A FIRM FOOTING.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH, "ADJUST EXISTING VALVE BOX TO GRADE", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ADJUSTING THE VALVE BOX, EXCAVATION, TAMPING EARTH UNDER VALVE BOX, BACKFILL, AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

PLUGGING EXISTING WATER MAINS AND BRANCHES
PLUGGING SERVICE CONNECTION AT MAIN AND REMOVING CURB COCK BOX

WORK INCLUDED

THE WORK INCLUDED UNDER THESE ITEMS SHALL CONSIST OF THE PLUGGING OF EXISTING WATER MAINS AND BRANCHES AND THE PLUGGING OF SERVICE CONNECTIONS AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED FOR THE PROPER COMPLETION OF THE WORK UNDER THIS CONTRACT.

(A) - PLUGGING EXISTING MAINS AND BRANCHES
THE CONTRACTOR SHALL DO THE EXCAVATING, SHEETING AND BRACING, CUTTING INTO AND REMOVING PIPE, PLUGGING PIPE, TEES AND CROSSES AT THE MAINS AND BRANCHES WITH CAST IRON PLUGS OR CAPS WITH CLAMPS AND CONCRETE PIERS, SAND BACKFILLING, BACKFILLING, TEMPORARY PAVING, AND REPAVING AS REQUIRED.

(B) - PLUGGING SERVICE CONNECTION AT MAIN AND REMOVING CURB COCK BOX
THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, SHEETING AND BRACING, SAND BACKFILLING, BACKFILLING AND REPAVING REQUIRED FOR THIS ITEM, BUT THE CITY WILL FURNISH THE MATERIAL AND PLUG THE SERVICE CONNECTIONS.

THE CONTRACTOR SHALL ARRANGE WITH THE CITY OF CLEVELAND, DIVISION OF WATER, FOR THE NECESSARY WORK UNDER THIS ITEM.

MEASUREMENT

THE PLUGGING OF THE EXISTING MAINS AND BRANCHES AND THE PLUGGING OF THE SERVICE CONNECTIONS SHALL BE PAID FOR AT THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "PLUGGING EXISTING WATER MAINS AND BRANCHES", SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK.

THE UNIT PRICE STIPULATED FOR EACH "PLUGGING SERVICE CONNECTION AT MAIN AND REMOVING CURB COCK BOX" SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL OF THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK. THE WORK PERFORMED BY THE CITY OF CLEVELAND, DIVISION OF WATER, WILL BE AT NO COST TO THE CONTRACTOR.

REMOVED ITEMS

ALL MATERIALS CONSISTING OF PIPE AND FITTINGS, VALVES, FIRE HYDRANTS, VALVE BOXES AND VAULT COVERS WHICH ARE INDICATED FOR REMOVAL BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED BY HIM.

MAY 4 1973

9/18

3rd HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30-1970
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER & HEAT
EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
ENGINEER OF CONSTRUCTION & SURVEYS
DESIGN ENGINEER
ENGINEER-CITY OF SOLON

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

WATERWORK NOTES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	J.A.S. 2/12/69		R.W.H. 2/26/69			

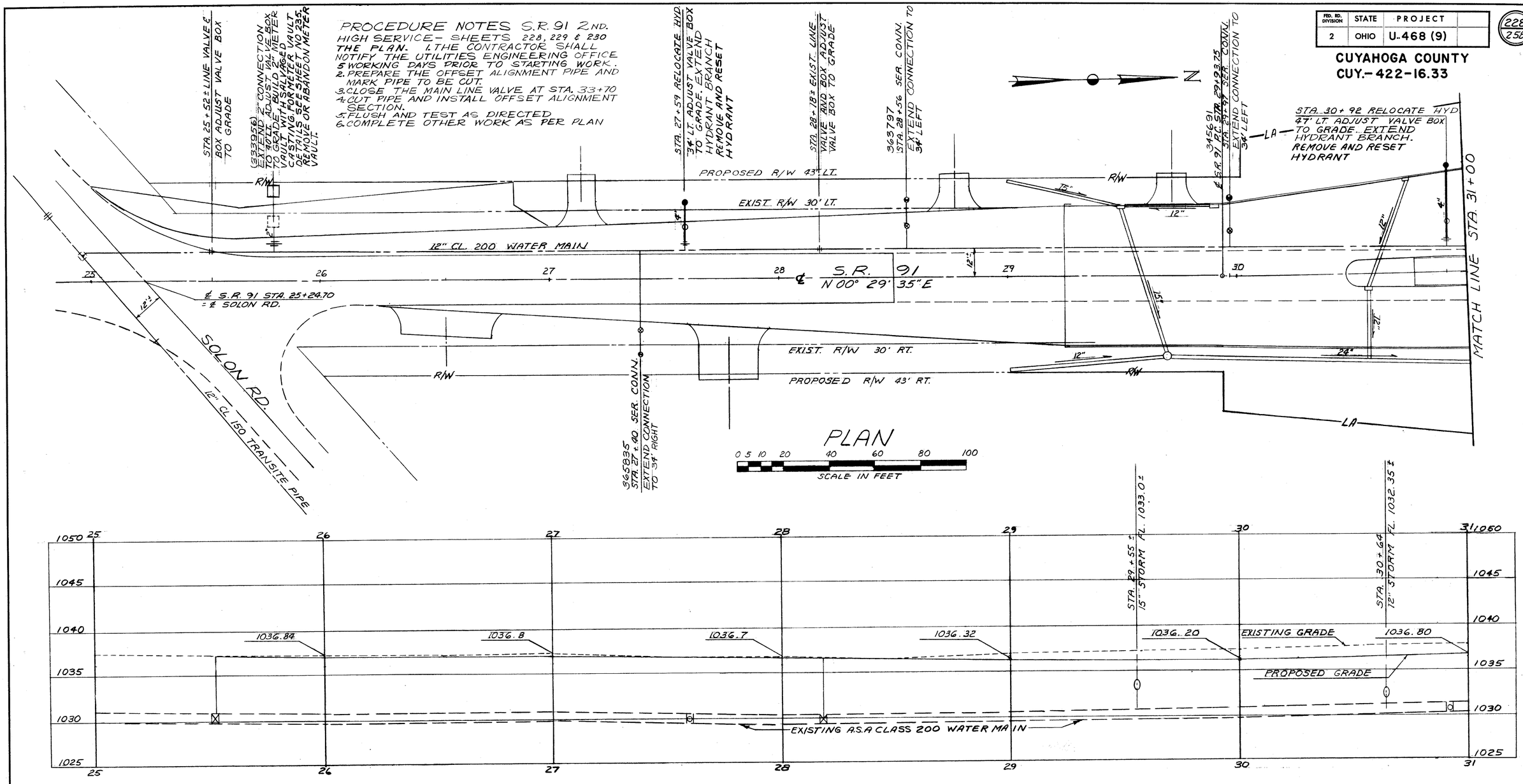
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

228
258

CUYAHOGA COUNTY
CUY.-422-16.33

PROCEDURE NOTES S.R. 91 2ND. HIGH SERVICE- SHEETS 228, 229 & 230

THE PLAN. 1. THE CONTRACTOR SHALL NOTIFY THE UTILITIES ENGINEERING OFFICE 5 WORKING DAYS PRIOR TO STARTING WORK.
2. PREPARE THE OFFSET ALIGNMENT PIPE AND MARK PIPE TO BE CUT.
3. CLOSE THE MAIN LINE VALVE AT STA. 33+70
4. CUT PIPE AND INSTALL OFFSET ALIGNMENT SECTION.
5. FLUSH AND TEST AS DIRECTED
6. COMPLETE OTHER WORK AS PER PLAN



PLAN

0 5 10 20 40 60 80 100
SCALE IN FEET

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	4" A.S.A. CL. 25 C.I. PIPE/CL. D FITTINGS ALL CEMENT LINED	50	LIN.FT.
SPECIAL	4" HYDRANT REMOVED AND RESET	2	EA.
SPECIAL	ADJUST VALVE BOX TO GRADE	5	EA.
SPECIAL	EXTEND SERVICE CONNECTION	3	EA.
SPECIAL	BUILD 2" METER VAULT/SALVAGE CASTING	1	EA.
SPECIAL	2" METER VAULT REMOVED OR ABANDONED	1	EA.
SPECIAL	2" SERVICE CONNECTION EXTENDED	1	EA.

PROFILE

HORIZ 0 5 10 20 40 60 80 100
VERT 0 5 10 15 20 25
SCALE IN FEET

Mark A Fisher
ENGINEER CITY OF SOLON

APPROVED 3-30-1970

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF WATER & HEAT

EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES

ENGINEER OF CONSTRUCTION & SURVEYS

ENGINEER OF DESIGN

MAY 14 1973

10/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

2nd HIGH SERVICE DETAILS

S.R. 91
STA. 25+00 TO STA. 31+00
IN THE CITY OF SOLON

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 1-14-69	L.W. 1-21-69	R.J.Z. 10-6-69			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

229
258

CUYAHOGA COUNTY
CUY.-422-16.33

℄ SR. 91 CURVE DATA

P.I. STA. 33+16.16
Δ = 09° 38'-58"
D = 01° 30'-00"
R = 3819.72'
T = 322.41'
L = 643.30'
C = 642.54'
E = 13.58

MATCH LINE STA 31+00

MATCH LINE STA 37+00

LA

RAMP #7

RAMP #9

942

372239
STA 31+82 SERVICE CONN
ABAND. & PLUG AT MAIN
REMOVE CURB COCK BOX

℄ RAMP #7 P.I. STA. 941+99.10

℄ S.R. 91 STA. 32+45 =
℄ RAMP #7 STA. 942+73.19

STA. 33+70 ± EXIST. LINE
VALVE & BOX ADJ. VALVE
BOX TO GRADE

STA. 33+89± RELOCATE
HYD. 37' LEFT ADJUST
VALVE BOX TO GRADE
EXTEND HYDRANT BRANCH
REMOVE AND RESET HYDRANT

STA. 33+57 ± 12"x12"x8" TEE

PILES FOR CENTER PIER FOUNDATION SHALL BE PREBORED TO DEPTH AS SHOWN ON BRIDGE DETAILS SEE SHEET NO. 150 & 152.

345697
STA. 35+55± SERV. CONN.
ABAND. & PLUG AT MAIN
REMOVE CURB COCK BOX

℄ U.S.R. 422

345699
STA. 36+38± SERV. CONN.
ABAND. & PLUG AT MAIN
REMOVE CURB COCK BOX

STA. 36+38.57 AH.
EQ. PT. STA. 36+37.05 BK.

STA. 36+97± RELOCATE
HYD 37' LT. ADJ. VALVE
BOX TO GRADE
EXTEND HYDRANT 4"INCH
REMOVE AND RESET
HYDRANT

EXISTING 12" A.S.A. CLASS 200 WATER MAIN

S.R. 91

N 09°09'23" W

346112
STA. 32+65± SERV. CONN.
ABAND. & PLUG AT MAIN
REMOVE CURB COCK BOX.

346113
STA. 33+23
SERV. CONN.
ABAND. & PLUG AT
MAIN REMOVE
CURB COCK BOX

℄ S.R. 91 STA. 32+45 =
℄ RAMP #9 STA. 941+77.02

346219
STA. 34+37 ± SERV.
CONN. ABAND. & PLUG
AT MAIN REMOVE CURB
COCK BOX

368287-1"
STA. 35+13± SERV. CONN.
ABAND. & PLUG AT
MAIN REMOVE CURB
COCK BOX

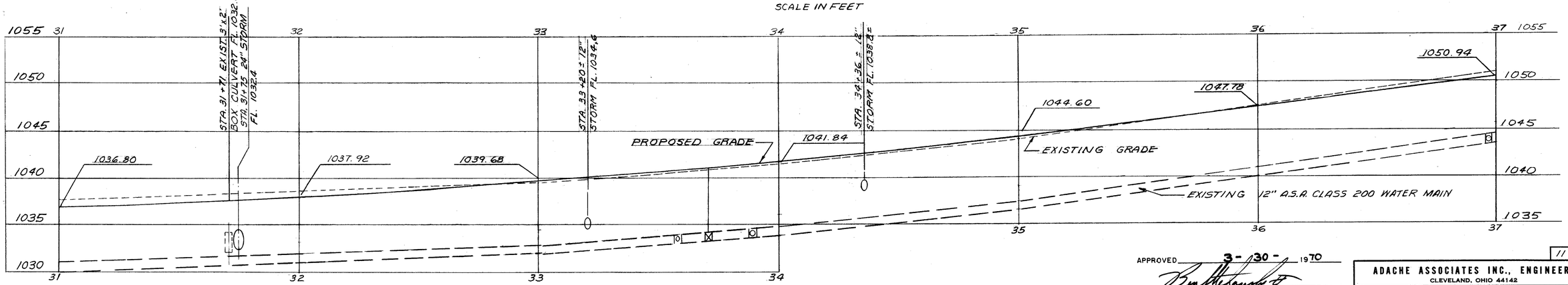
℄ U.S.R. 422 STA. 942+11.42
℄ S.R. 91 P.O.C. STA. 35+90.15

392050
STA. 36+13 1" SERV.
CONN ABAND. &
PLUG AT MAIN
REMOVE CURB COCK
BOX

943

PLAN

0 5 10 20 40 60 80 100
SCALE IN FEET



PROFILE

HORIZ 0 5 10 20 40 60 80 100
VERT 0 5 10 15 20 25
SCALE IN FEET

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	4" A.S.A. CLASS 25 CAST IRON PIPE CEMENT LINED WITH CLASS "D" FITTINGS.	53	LIN.FT.
SPECIAL	4" HYDRANT REMOVED AND RESET	2	EA.
SPECIAL	ADJUST VALVE BOX TO GRADE	3	EA.
SPECIAL	ABANDON SERVICE CONNECTION PLUG AT MAIN REMOVE CURB COCK BOX	8	EA.

Merle A. Fisher
ENGINEER CITY OF SOLON

APPROVED 3-30-1970
Ben Stephenson Jr.
DIRECTOR OF PUBLIC UTILITIES
J. C. Slater
COMMISSIONER OF WATER & HEAT
Arnold Mittel
EXECUTIVE COMMISSIONER FOR ADMIN. DEPT. OF PUBLIC UTILITIES
Elmer A. Wiesler
ENGINEER OF CONSTRUCTION & SURVEYS
William J. Lowery
ENGINEER OF DESIGN
MAY 4 1973

11/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

2nd HIGH SERVICE DETAILS

S.R. 91
STA. 31+00 TO STA. 37+00
IN THE CITY OF SOLON

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 1-16-69	L.W. 1-22-69	R.J.Z. 10-6-69			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

230
258

CUYAHOGA COUNTY
CUY.-422-16.33

2nd HIGH SERVICE DISTRICT

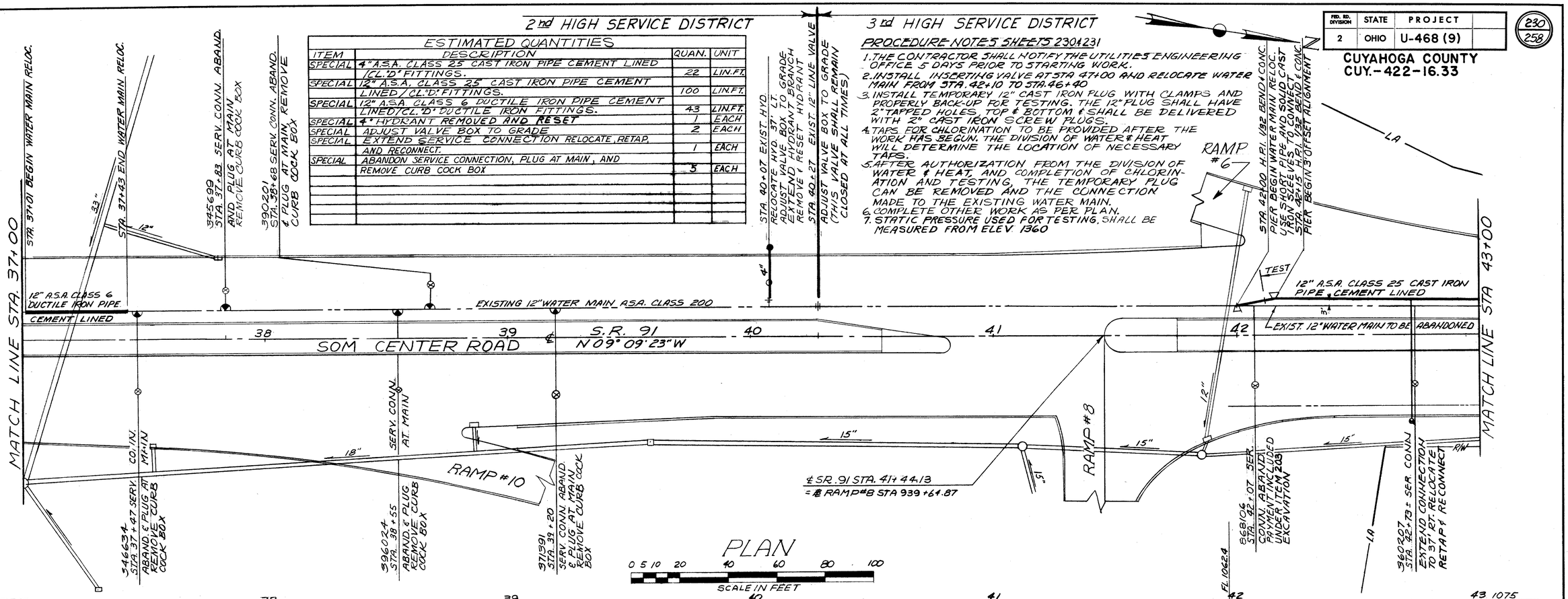
ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	4" A.S.A. CLASS 25 CAST IRON PIPE CEMENT LINED /CL."D" FITTINGS.	22	LIN.FT.
SPECIAL	12" A.S.A. CLASS 25 CAST IRON PIPE CEMENT LINED/CL."D" FITTINGS.	100	LIN.FT.
SPECIAL	12" A.S.A. CLASS 6 DUCTILE IRON PIPE CEMENT LINED/CL."D" DUCTILE IRON FITTINGS.	43	LIN.FT.
SPECIAL	4" HYDRANT REMOVED AND RESET	1	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE	2	EACH
SPECIAL	EXTEND SERVICE CONNECTION RELOCATE, RETAP, AND RECONNECT.	1	EACH
SPECIAL	ABANDON SERVICE CONNECTION, PLUG AT MAIN, AND REMOVE CURB COCK BOX	5	EACH

3rd HIGH SERVICE DISTRICT

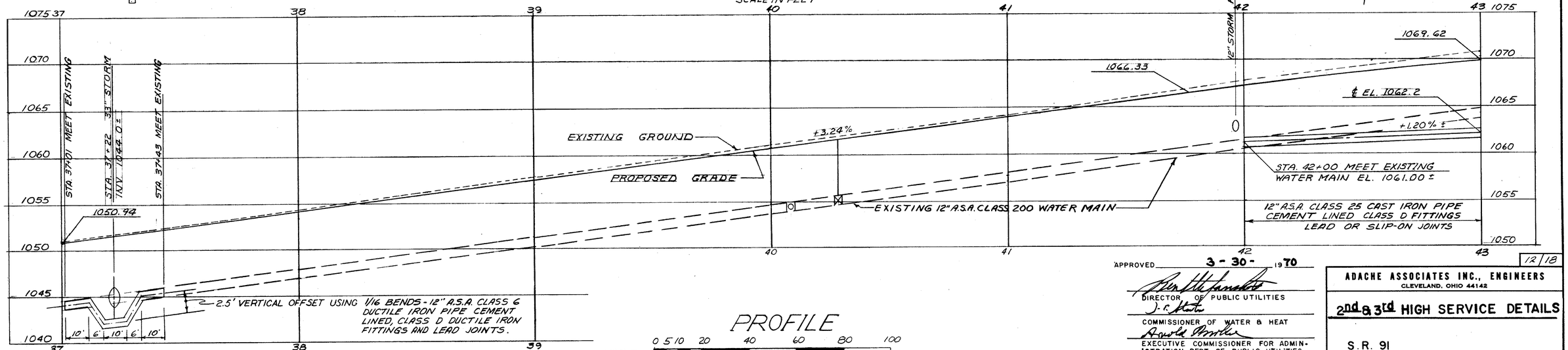
PROCEDURE NOTES SHEETS 230 & 231

1. THE CONTRACTOR SHALL NOTIFY THE UTILITIES ENGINEERING OFFICE 5 DAYS PRIOR TO STARTING WORK.
2. INSTALL INSERTING VALVE AT STA 41+00 AND RELOCATE WATER MAIN FROM STA. 42+10 TO STA. 46+40
3. INSTALL TEMPORARY 12" CAST IRON PLUG WITH CLAMPS AND PROPERLY BACKUP FOR TESTING. THE 12" PLUG SHALL HAVE 2" TAPPED HOLES, TOP & BOTTOM & SHALL BE DELIVERED WITH 2" CAST IRON SCREW PLUGS.
4. TAPS FOR CHLORINATION TO BE PROVIDED AFTER THE WORK HAS BEGUN. THE DIVISION OF WATER & HEAT WILL DETERMINE THE LOCATION OF NECESSARY TAPS.
5. AFTER AUTHORIZATION FROM THE DIVISION OF WATER & HEAT, AND COMPLETION OF CHLORINATION AND TESTING, THE TEMPORARY PLUG CAN BE REMOVED AND THE CONNECTION MADE TO THE EXISTING WATER MAIN.
6. COMPLETE OTHER WORK AS PER PLAN.
7. STATIC PRESSURE USED FOR TESTING, SHALL BE MEASURED FROM ELEV. 1360



PLAN

0 5 10 20 40 60 80 100
SCALE IN FEET



PROFILE

HORIZ 0 5 10 20 40 60 80 100
VERT 0 5 10 15 20 25
SCALE IN FEET

Mark A. Fisher
ENGINEER CITY OF SOLON

APPROVED 3 - 30 - 1970

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF WATER & HEAT

EXECUTIVE COMMISSIONER FOR ADMINISTRATION DEPT. OF PUBLIC UTILITIES

ENGINEER OF CONSTRUCTION & SURVEYS

ENGINEER OF DESIGN

MAY 4 1973

12/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

2nd & 3rd HIGH SERVICE DETAILS

S.R. 91
STA. 37+00 TO STA 43+00
IN THE CITY OF SOLON

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 1-18-69	L.W. 1-22-69	R.J.Z. 10-7-69			

FED. ED. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

231/258

CUYAHOGA COUNTY
CUY.-422-16.33

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	4" A.S.A. CL. 25 C.I. CEMENT LINED/CL. D FTTGS.	15	LIN.FT.
SPECIAL	6" A.S.A. CL. 25 C.I. CEMENT LINED/CL. D FTTGS.	37	LIN.FT.
SPECIAL	12" A.S.A. CL. 25 C.I. CEMENT LINED/CL. D FTTGS.	350	LIN.FT.
SPECIAL	6" HUB VALVE	2	EACH
SPECIAL	12" INSERTING VALVE	1	EACH
SPECIAL	6" HYDRANT	2	EACH
SPECIAL	4" HYDRANT REMOVE & RELOCATE	1	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE	5	EACH
SPECIAL	MISCELLANEOUS METAL WORK	515	LBS.

STA. 43+07 EXIST. 4" HYD. VALVE. ABANDON. PAYMENT INCLUDED WITH ITEM 203 EXCAVATION

STA. 43+75 6" HYD. 37 LT. 6" VALVE & NO. 2 VALVE BOX. 6" C.I. CEMENT LINED PIPE 12"X12"X6" TEE (ALL BELLS)

398 & 23 STA. 44+50 SERV. CONN. ABANDON. PAYMENT INCLUDED WITH ITEM 203 EXCAVATION

STA. 46+08 EXIST. 4" HYD. & VALVE ABANDON. PAYMENT INCLUDED WITH ITEM 203 EXCAV.

STA. 46+25 6" HYD. 30 LT. 6" VALVE NO. 2 BOX. 6" C.I. CEMENT LINED PIPE 12"X12"X6" TEE (ALL BELLS)

STA 46+35 HPI 1/32 BEND. CONC. PIER END 30 OFFSET ALIGNMENT

PIER END 30 OFFSET ALIGNMENT

USE SHORT PIPE & SOLID C.I. SLEEVES TO CONNECT

STA. 46+50 H.P.I. 1/32 BEND. CONC. PIER. MEET EXISTING WATER MAIN END WATER MAIN RELOCATION

STA. 47+00 12" INSERTING VALVE WITH No 4 VALVE BOX

8" CL. 25 WATER MAIN ADJUST VALVE BOX TO GRADE

STA 48+93 EXIST. HYD. RELOCATE HYD. 30 LT. ADJUST VALVE BOX TO GRADE. EXTEND HYDRANT BRANCH REMOVE AND RESET HYDRANT

STA 49+05 EXISTING 12" LINE VALVE ADJUST VALVE BOX TO GRADE

MATCH LINE STA. 43+00

LA — LA — EXISTING R/W

12" A.S.A. CLASS 25 CAST IRON PIPE CEMENT LINED

℄ EXISTING 12" WATER MAIN TO BE ABANDONED

℄ S.R. 91 N 09°09'23" W

SOM CENTER ROAD

EXIST. 12" WATER MAIN A.S.A. CLASS 200

℄ S.R. 91 STA. 43+36.43 = ℄ CARRIAGE PK. STA. 0+00

CARRIAGE PARK

15" EXIST.

TEST

℄ MAPLE DR.

EXISTING R/W — R/W

27" EXIST.

℄ S.R. 91 STA. 47+36.43 = ℄ MAPLE DR. STA. 0+00

TOP OF WATER MAIN EL. 1063.0±
12" STORM 1064.25±

8" CL. 25 WATER MAIN ADJUST VALVE BOX TO GRADE

PLAN

0 5 10 20 40 60 80 100
SCALE IN FEET

STA. 43+15 12"x6" TEE

STA. 44+38 12" STORM EL. 1066.5±

STA. 46+25 12"x6" TEE

STA. 46+50 MEET EXIST.

1071.67

EXISTING GROUND

PROPOSED GRADE +0.32%

1072.23

1072.19

℄ EL. 1062.2

+50 ℄ EL. 1064.0

+1.20%

+0.50%±

12" A.S.A. CLASS 25 CAST IRON PIPE CEMENT LINED
CLASS D FITTINGS LEAD OR SLIP-ON JOINTS

EXISTING 12" A.S.A. CLASS 200 WATER MAIN

PROFILE

HORIZ. 0 5 10 20 40 60 80 100
VERT. 0 5 10 15 20 25
SCALE IN FEET

Merle A. Fisher
ENGINEER CITY OF SOLON

APPROVED 3-30- 19 70

Robert Hanselman
DIRECTOR OF PUBLIC UTILITIES

J. E. Hota
COMMISSIONER OF WATER & HEAT

Arnold Porter
EXECUTIVE COMMISSIONER FOR ADMINISTRATION DEPT. OF PUBLIC UTILITIES

Edward J. Friedlander
ENGINEER OF CONSTRUCTION & SURVEYS

William J. Searey
ENGINEER OF DESIGN

MAY 4 1973

13/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

3rd HIGH SERVICE DETAILS

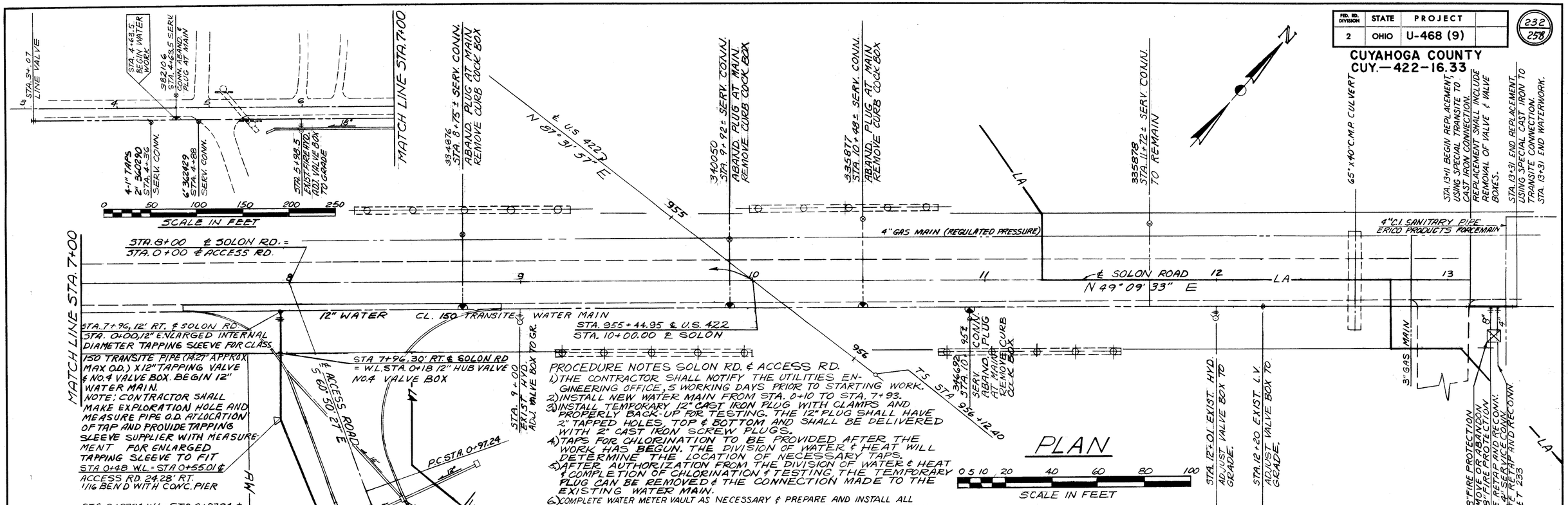
S.R. 91
STA. 43+00 TO STA. 49+00
IN THE CITY OF SOLON

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 1-20-69	L.W. 1-23-69	R.J.Z. 10-8-69			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

232
258

CUYAHOGA COUNTY
CUY.—422—16.33



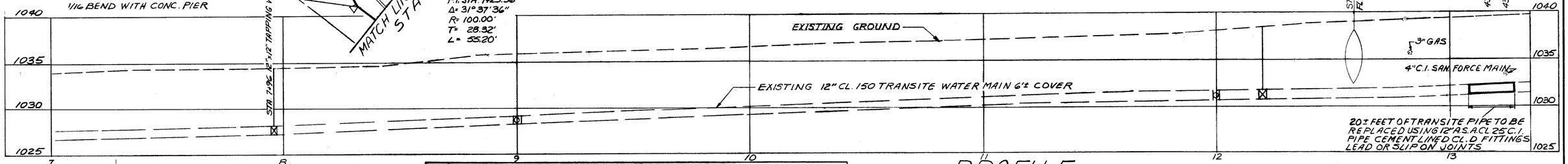
PROCEDURE NOTES SOLON RD. & ACCESS RD.

1) THE CONTRACTOR SHALL NOTIFY THE UTILITIES ENGINEERING OFFICE, 5 WORKING DAYS PRIOR TO STARTING WORK.
2) INSTALL NEW WATER MAIN FROM STA. 0+10 TO STA. 7+93.
3) INSTALL TEMPORARY 12" CAST IRON PLUG WITH CLAMPS AND PROPERLY BACK-UP FOR TESTING. THE 12" PLUG SHALL HAVE 2" TAPPED HOLES, TOP & BOTTOM AND SHALL BE DELIVERED WITH 2" CAST IRON SCREW PLUGS.
4) TAPS FOR CHLORINATION TO BE PROVIDED AFTER THE WORK HAS BEGUN. THE DIVISION OF WATER & HEAT WILL DETERMINE THE LOCATION OF NECESSARY TAPS.
5) AFTER AUTHORIZATION FROM THE DIVISION OF WATER & HEAT & COMPLETION OF CHLORINATION & TESTING, THE TEMPORARY PLUG CAN BE REMOVED & THE CONNECTION MADE TO THE EXISTING WATER MAIN.
6) COMPLETE WATER METER VAULT AS NECESSARY & PREPARE AND INSTALL ALL NECESSARY FITTINGS FOR WATER SERVICE CONNECTION TO MINIMIZE THE TIME WATER SERVICE IS DISRUPTED.
7) AT A TIME CHOSEN BY THE WATER DEPT., THE METER SHALL BE DISCONNECTED FROM THE OLD VAULT & RESET AT THE NEW VAULT. THIS WORK TO BE COMPLETED IN ONE CONTINUOUS OPERATION AND SERVICE RESTORED.
8) REPLACE TRANSITE PIPE TO ELIMINATE TRANSITE TAPPING SLEEVES AND VALVES. THIS WORK TO BE CO-ORDINATED WITH THE CITY.

PLAN

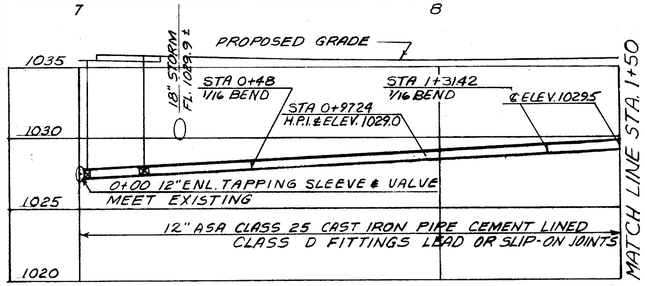
0 5 10 20 40 60 80 100
SCALE IN FEET

CONTRACTOR SHALL LOCATE EXISTING TRANSITE PIPE JOINTS FOR REPLACEMENT. REPLACEMENT SHALL BE FROM EXISTING TRANSITE PIPE JOINT TO EXISTING TRANSITE PIPE JOINT FOR PROPER FIT OF SPECIAL ENLARGED BELL BY CAST IRON SPIGOT SPECIAL ADAPTOR.



PROFILE

HORIZ. 0 5 10 20 40 60 80 100
VERT. 0 5 10 15 20 25
SCALE IN FEET



ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	12" A.S.A. CL. 25 C.I. CEMENT LINED/CL. 'D' FITTINGS	170	LIN. FT.
SPECIAL	12" ENLARGED I.D. TAPPING SLEEVE & 12" TAPPING VALVE	1	EACH
SPECIAL	12" TRANSITE TO CAST IRON CONNECTION	2	EACH
SPECIAL	12" HUB VALVE	1	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE	4	EACH
SPECIAL	SERVICE CONNECTION ABANDON, PLUG AT MAIN AND REMOVE CURB COCK BOX.	5	EACH
SPECIAL	MISCELLANEOUS METAL WORK	882	LBS.
SPECIAL	4" METER AND 8" FIRE PROTECTION REMOVE OR ABAND.	1	EACH

APPROVED 3-30-1970

Mark A. Fisher
ENGINEER CITY OF SOLON

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF WATER & HEAT

EXECUTIVE COMMISSIONER FOR ADMINISTRATION DEPT. OF PUBLIC UTILITIES

ENGINEER OF CONSTRUCTION & SURVEYS

ENGINEER OF DESIGN

MAY 4 1973

14 / 18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

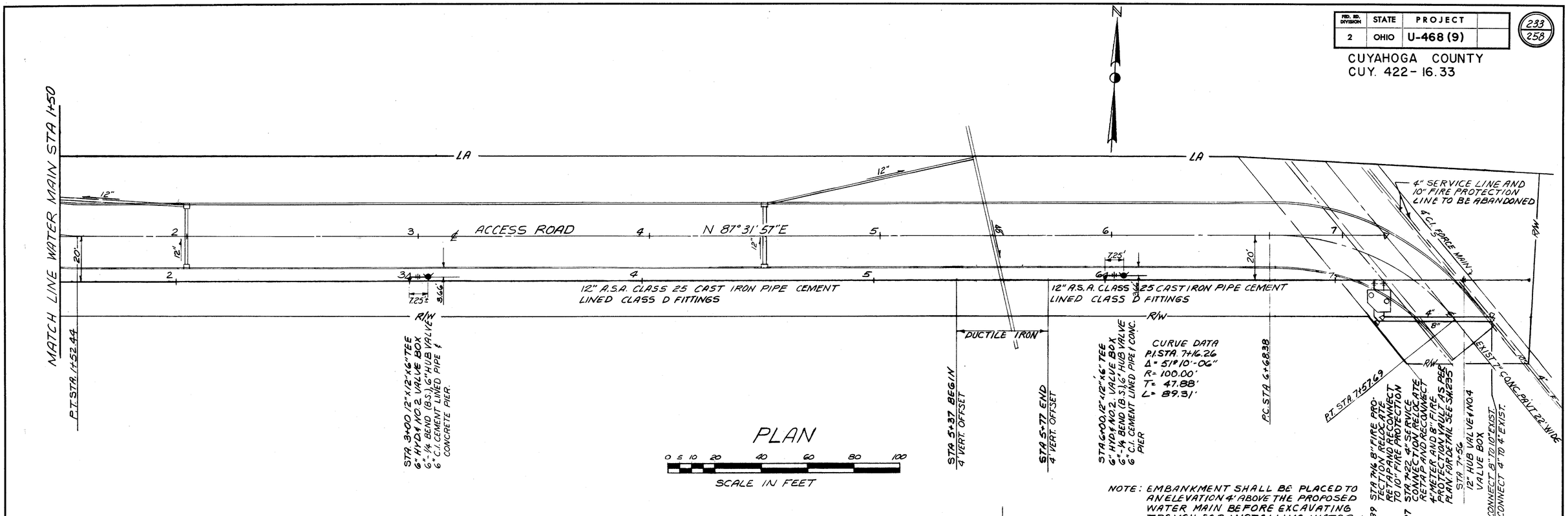
2nd HIGH SERVICE DETAILS
SOLON ROAD
ACCESS ROAD WATER MAIN
STA. 0+00 — STA. 1+50
IN THE CITY OF SOLON

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 1-28-69	L.W. 2-5-69	R.J.Z. 10-8-69			

FED. ID. DIVISION	STATE	PROJECT	
2	OHIO	U-468 (9)	

233
258

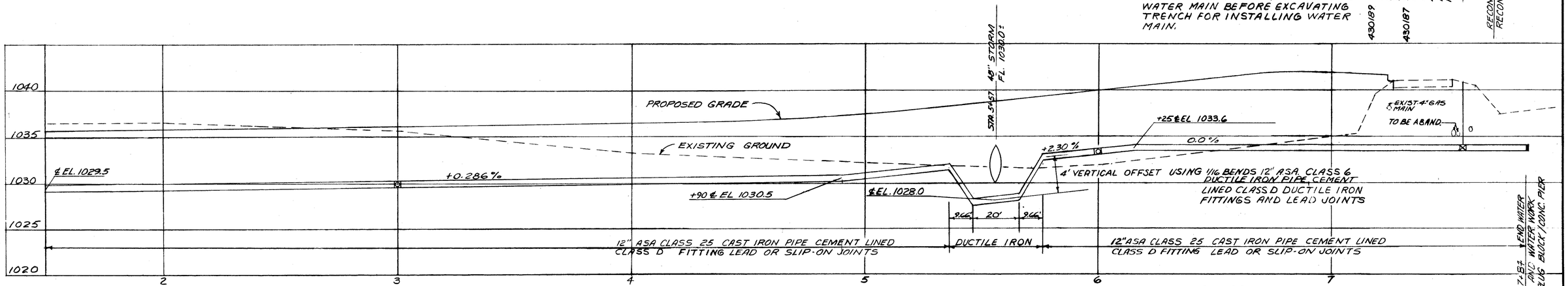
CUYAHOGA COUNTY
CUY. 422 - 16.33



PLAN

0 5 10 20 40 60 80 100
SCALE IN FEET

NOTE: EMBANKMENT SHALL BE PLACED TO AN ELEVATION 4' ABOVE THE PROPOSED WATER MAIN BEFORE EXCAVATING TRENCH FOR INSTALLING WATER MAIN.



PROFILE

HORZ. 0 5 10 20 40 60 80 100
VERT. 0 5 10 15 20 25
SCALE IN FEET

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUAN.	UNIT
SPECIAL	4" A.S.A. CL. 25 C.I. CEMENT LINED/CL.D.FITTINGS	56	LIN.FT.
SPECIAL	6" A.S.A. CL. 25 C.I CEMENT LINED/CL.D. FITTINGS	16	LIN.FT.
SPECIAL	8" A.S.A. CL. 25 C.I. CEMENT LINED/CL.D. FITTINGS	62	LIN.FT.
SPECIAL	12" A.S.A. CL. 25 C.I. CEMENT LINED/CL.D. FITTINGS	594	LIN.FT.
SPECIAL	12" AS.A. CL. 6 DUCTILE IRON CEMENT LINED/CLASS D FITTINGS	42	LIN.FT.
SPECIAL	6" HUB VALVE	2	EACH
SPECIAL	12" HUB VALVE	1	EACH
SPECIAL	6" HYDRANT	2	EACH
SPECIAL	4" METER & 8" FIRE PROTECTION VAULT AS PER PLAN WITH SALVAGED CASTING	1	EACH
SPECIAL	4" SERVICE CONN. RELOCATE, RETAP AND RECONNECT	1	EACH
SPECIAL	8" FIRE PROTECTION RELOCATE, RETAP AND RECONN.	1	EACH
SPECIAL	MISCELLANEOUS METAL WORK	1286	LBS

APPROVED 3-30-1970

DIRECTOR OF PUBLIC UTILITIES

COMMISSIONER OF WATER & HEAT

EXECUTIVE COMMISSIONER FOR ADMINISTRATION DEPT. OF PUBLIC UTILITIES

ENGINEER OF CONSTRUCTION & SURVEYS

ENGINEER OF DESIGN

ENGINEER CITY OF SOLON

MAY 4 1973

15 | 18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

2nd HIGH SERVICE DETAILS

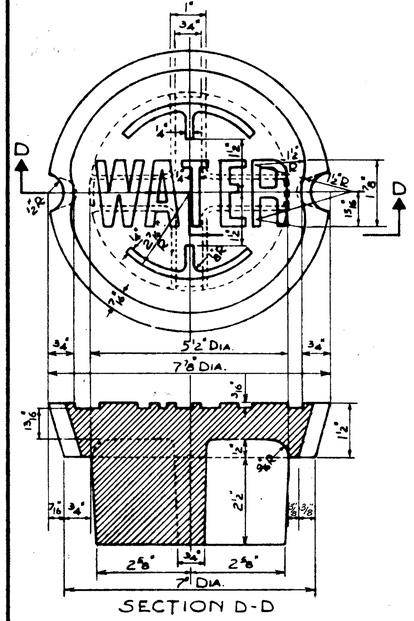
ACCESS ROAD WATER MAIN STA. 1+50 - STA. 7+05 IN THE CITY OF SOLON

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 1-29-69	L.W. 2-7-69	R.J.Z. 10-8-69			

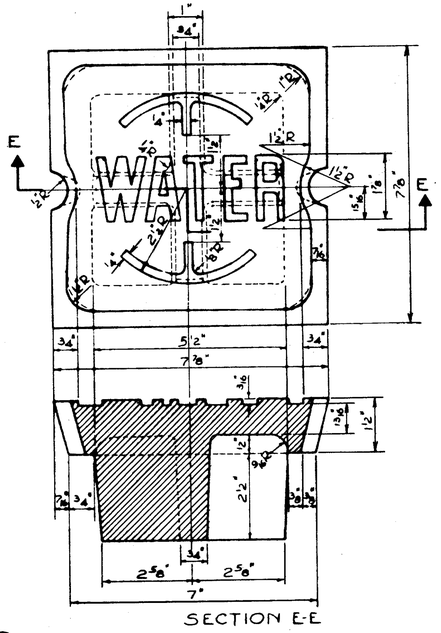
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

234
258

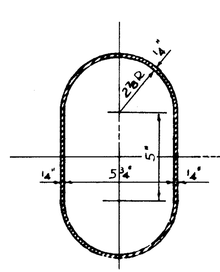
CUYAHOGA COUNTY
CUY.-422-16.33



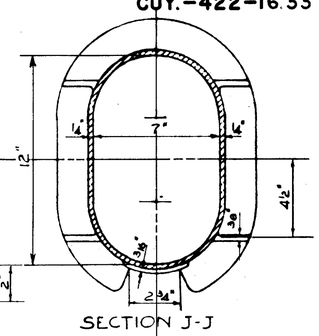
DETAIL OF ROUND COVER FOR No.1 AND 2 TOP
EST. WT. 20#



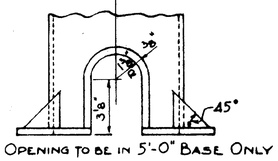
DETAIL OF SQUARE COVER FOR No.3 AND 4 TOP
EST. WT. 23#

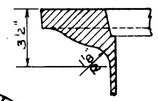


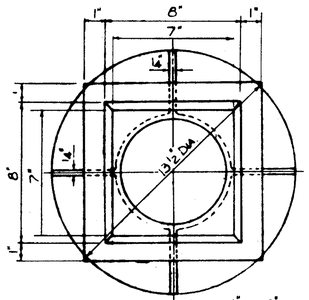
SECTION H-H

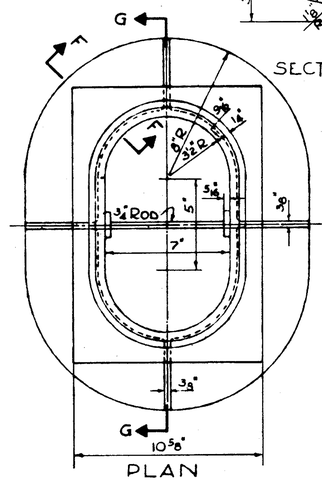


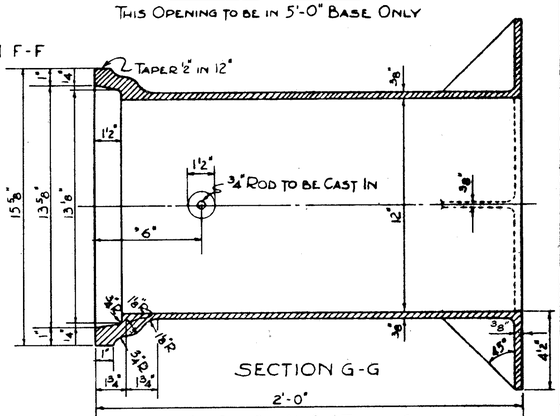
BASE
EST WEIGHT 2'-6" LONG = 70#
EST WEIGHT 5'-0" LONG = 126#





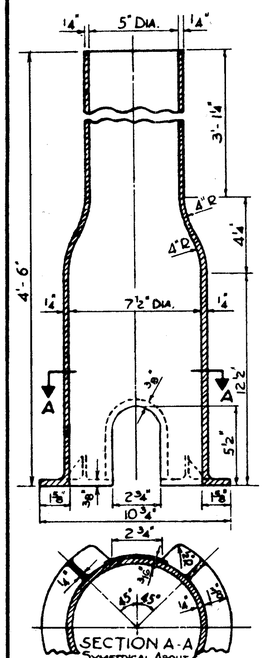




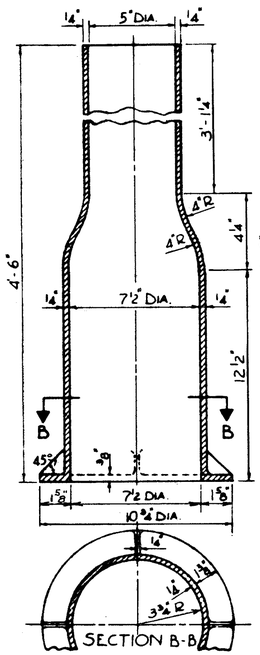


TOP
EST. WEIGHT 128#

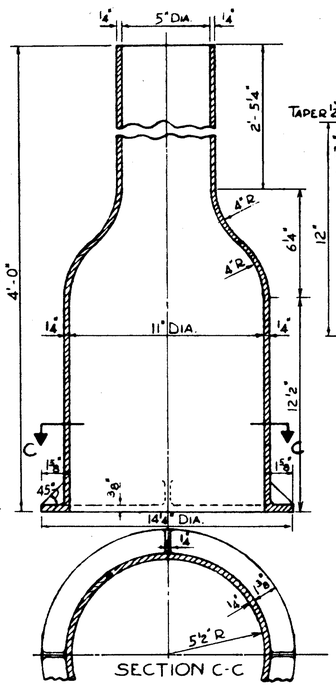
AIR COCK BOX No.5 IS TOP AND COVER
AIR COCK BOX No.6 IS TOP, BASE 2'-6" LONG AND COVER
FLUSHING BOX No.7 IS TOP, BASE 5'-0" LONG AND COVER



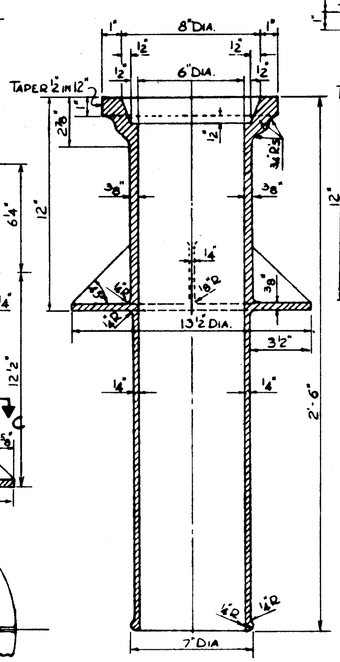
BASE No.1
FOR 1½" AND 2" VALVES
EST. WEIGHT 69#



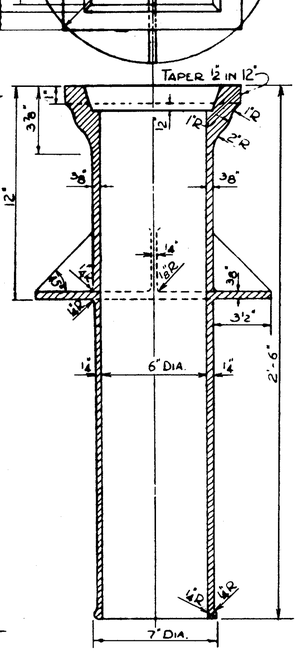
BASE No.2 AND 3
FOR 3", 4", 6" AND 8" VALVES
EST. WEIGHT 71#



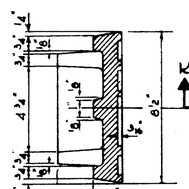
BASE No.4
FOR 10", 12" AND 16" VALVES
EST. WEIGHT 79#



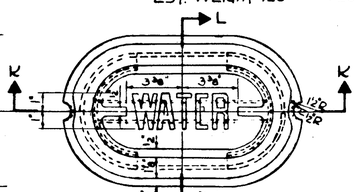
TOP WITH ROUND HEAD No.1 AND 2
EST WEIGHT 73#

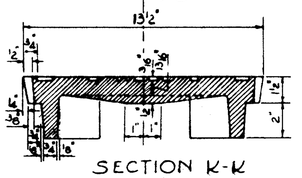


TOP WITH SQUARE HEAD No. 3 AND 4
EST WEIGHT 85#



COVER
EST WEIGHT 37#





DETAIL OF AIR COCK BOX No.5 AND 6
AND FLUSHING BOX No.7

MAY 4 1973

16/18

ADACHE ASSOCIATES INC. ENGINEERS
CLEVELAND, OHIO

WATER MAINS
VALVE BOX DETAILS

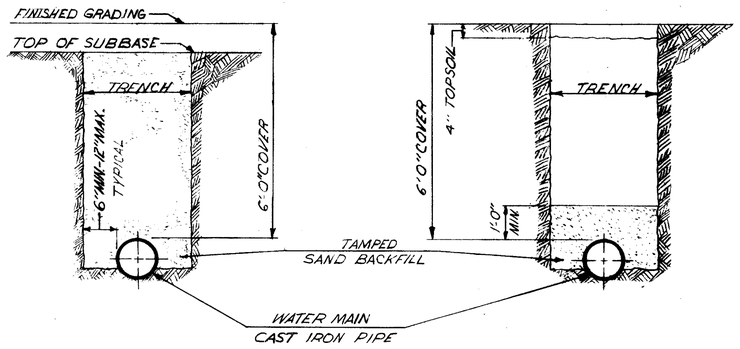
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
		R. W. H. 2-10-69			

16

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	U-468(9)	

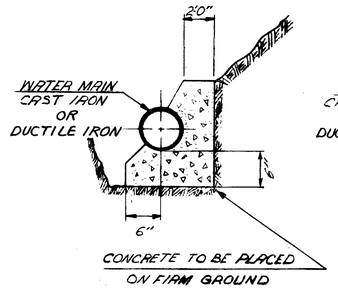
235
258

CUYAHOGA COUNTY
CUY-422-16.33

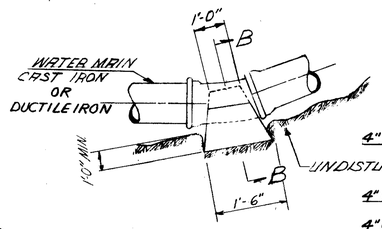


TYPICAL DETAIL OF TRENCH
UNDER EXISTING OR FUTURE PAVEMENT, DRIVES, SIDEWALKS

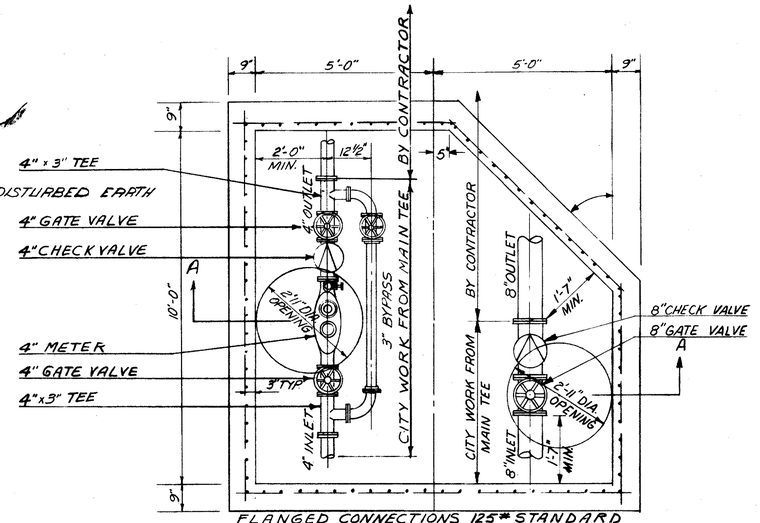
TYPICAL DETAIL OF TRENCH OUTSIDE PAVEMENT



SECTION B-B

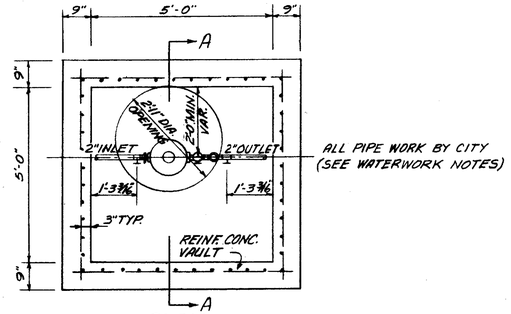


TYPICAL PIER FOR HORIZONTAL BENDS



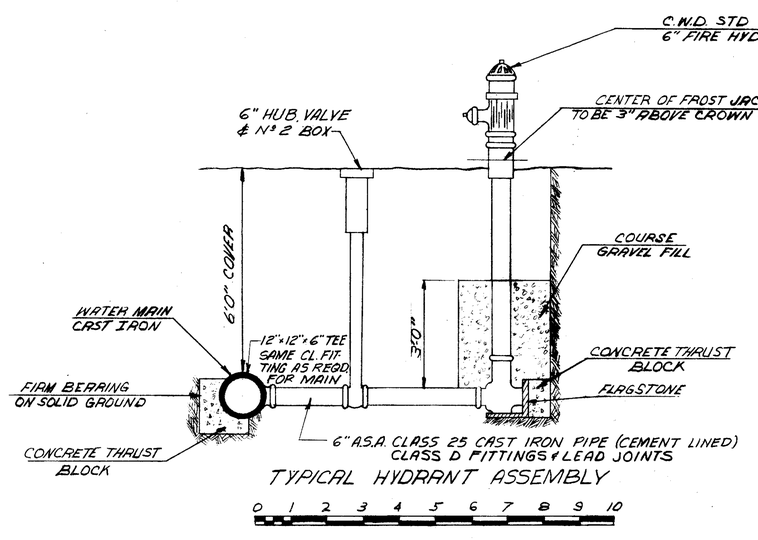
FLANGED CONNECTIONS 125# STANDARD FITTINGS AND VALVES

PLAN
TYPICAL 4" METER AND 8" FIRE SERVICE VAULT

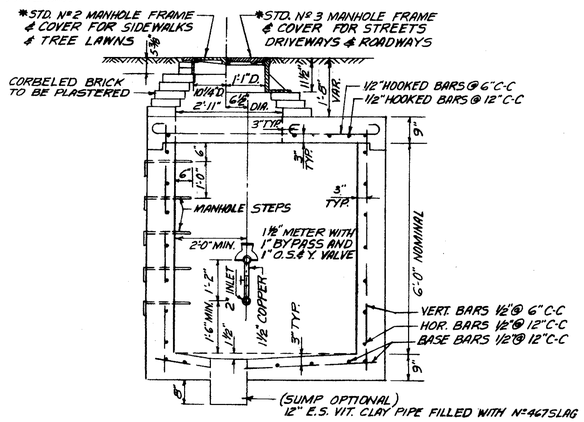


ALL PIPE WORK BY CITY (SEE WATERWORK NOTES)

PLAN
TYPICAL 2" METER VAULT

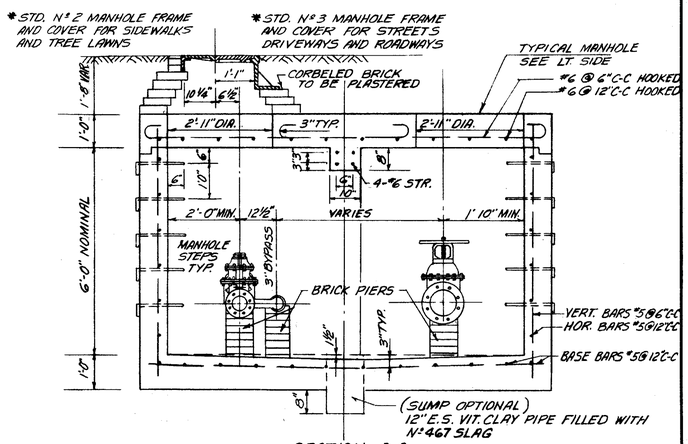


TYPICAL HYDRANT ASSEMBLY



SECTION A-A
VERTICAL SECTION OF 2" METER VAULT

* SALVAGED CASTINGS



SECTION A-A
VERTICAL SECTION 4" METER AND 8" FIRE SERVICE VAULT

APPROVED 3 - 30 - 1970

ENGINEER OF PUBLIC UTILITIES

COMMISSIONER OF WATER & HEAT

EXECUTIVE COMMISSIONER FOR ADMINISTRATION DEPT. OF PUBLIC UTILITIES

ENGINEER OF CONSTRUCTION & SURVEYS

ENGINEER OF DESIGN

ENGINEER — CITY OF SOLON

MAY 4 1973

17/18

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

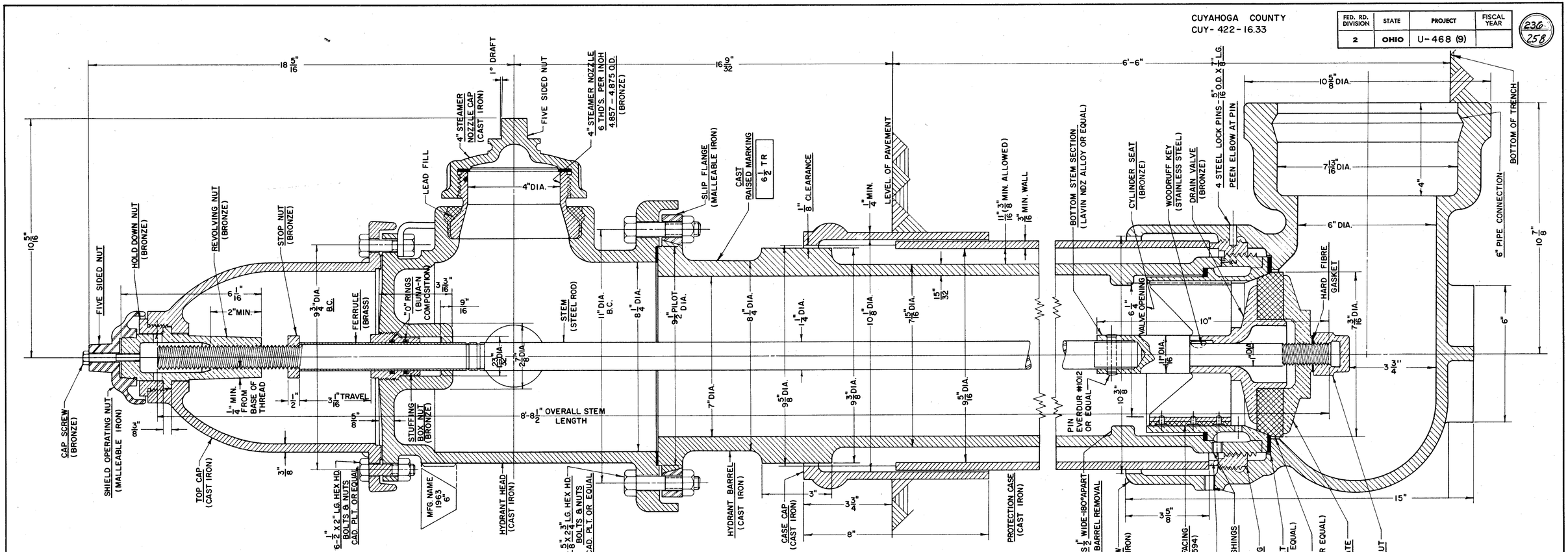
WATER MAIN DETAILS

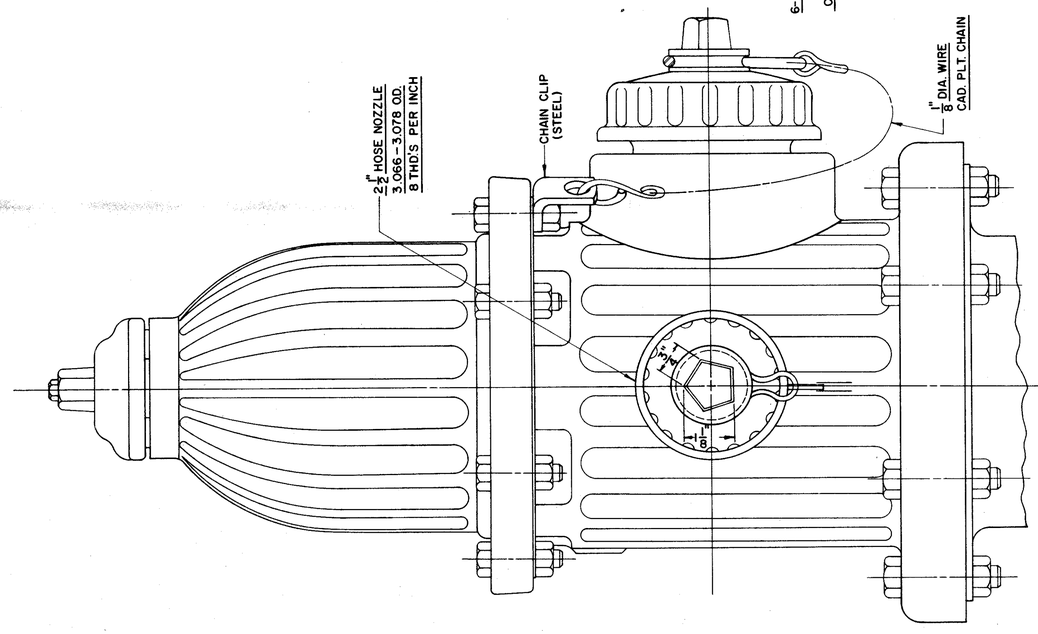
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H. 2-10-69	W.A.L. 2-11-69	R.J.Z. 10-9-69			

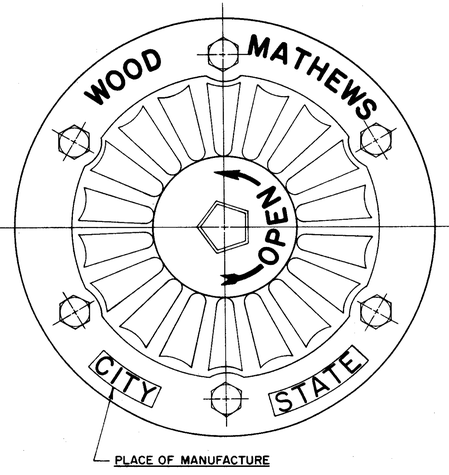
CUYAHOGA COUNTY
CUY- 422 - 16.33

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	U-468 (9)	

236
258







PLACE OF MANUFACTURE

MAY 4 1973

18/18

HIGH SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

APPROVED 3-30-1970
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER & HEAT
EXECUTIVE COMMISSIONER FOR ADMIN.
DEPT. OF PUBLIC UTILITIES
ENGINEER OF CONSTRUCTION & SURVEYS
DESIGN ENGINEER
ENGINEER-CITY OF SOLON

6" HYDRANT DETAIL

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			R.W.H. 1-22-70			