MICROFILMED
SEP 7 1989

	OHIO
	FHWA REGION 5
	FEDERAL PROJECT

1/24

SUM-271-2.98
BR-7-89

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
SUM - 271 - 2.98
SUMMIT COUNTY
RICHFIELD TWP.

DESIGN DESIGNATION

CURRENT ADT (1988)	18970
DESIGN YEAR ADT (2008)	20867
DHV	2086
D	50%
T	4410
V	70 MPH
V (POSTED)	55 MPH

FUNCTIONAL CLASSIFICATION — INTERSTATE

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line
Fence Line (existing) (proposed)
Center Line
Trees, Stumps (to be removed)
Utility Poles: Telephone, Power, Light
Limited Access (only) LA
Right of way (only) RW
Limited Access & Right of Way LA&RW
Existing Right of Way
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)

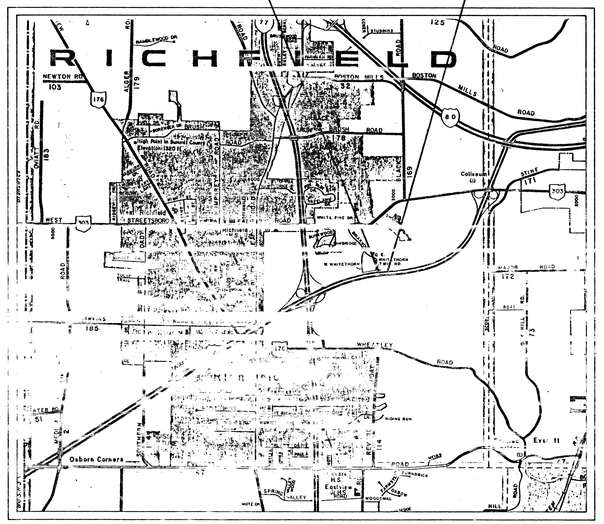
INDEX OF SHEETS

TITLE SHEET	1
GENERAL SUMMARY	2
GENERAL NOTES AND COMPUTATIONS	3
PLAN & PROFILE	4
CULVERT DETAILS	5-6
CHANNEL DETAILS	7
MISCELLANEOUS DETAILS	8
CROSS SECTIONS	9-22
TRAFFIC CONTROL	23-24

LINE DATA

BEGIN WORK	STA. 229+00
END WORK	STA. 241+00
LENGTH OF WORK	1200 L.F. = 0.227 MI.
PROJECT LENGTH	0.00 L.F. =0.00 MI.

BEGIN WORK STA. 229+00
END WORK STA. 241+00



LOCATION MAP

SCALE IN MILES
0 1 2

Portion to be Improved
State & Federal Routes
Other Roads

SCALES

Plan 0 50 100
Profile Horizontal 0 50 100, Vertical 0 10 20
Cross Section Horzt 0 5 10, Vertical 0 5 10

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
Call 800-362-2764 (Toll Free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

1989 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvemnet.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

SUPPLEMENTAL SPECIFICATIONS

802 5-4-88	

Approved William Dunkley
Date 11-17-88 District Deputy Director of Transportation

FFE Approved D. D. Hartshorn FFE
Date 2-13-89 Engineer, Bureau of Bridges and Structural Design

Approved James R. Longenecker
Date 2/14/89 Deputy Director, Operations

Approved Gerald B Hurst
Date 2/15/89 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-2	1-11-85
CB 2-5 & 2-6	5/1/79
HW-4A	4/1/80
MC-4	7/26/76
MC-5	6/12/75
MC-11	8/1/78
MH-1	12/18/84
MH-3	12/18/84
HW-4B	4/1/80
TC-35.10	8/29/84

Plan Prepared By:
DISTRICT 4
OHIO DEPARTMENT OF TRANSPORTATION

SEAL

Project
Date of Letting _____ 19__ Contract No.____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

DIVISION ADMINISTRATOR DATE

CALC. BY ____ DATE ____	CHECKED BY ____ DATE ____

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

2
24

SUM-271-2.98
BR-7-89

GENERAL SUMMARY

ESTIMATED QUANTITIES

SHEET NO.										ITEM	ITEM EXT.	TOTAL	UNIT	ROADWAY
2	3	4	5	6	7	8	9	10	22					
				50						202		50	L.F.	PIPE REMOVED, 24" AND UNDER
					120					202		120	L.F.	PIPE REMOVED, OVER 24"
			1	1						202		2	EACH	HEADWALL REMOVED
					50					202		50	L.F.	GUTTER REMOVED
			1							202		1	EACH	CATCH BASIN REMOVED
									2148	203		2148	C.Y.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
									5011	203		5011	C.Y.	EMBANKMENT
			364							SPEC		364	L.F	FILL AND PLUG EXISTING CULVERT
														DRAINAGE
		20								601		20	L.F.	PAVED GUTTER TYPE 2
			28		247					601		517	C.Y.	ROCK CHANNEL PROTECTION TYPE A
				45	39					601		94	S.Y.	RIPRAP USING 6" REINFORCED CONCRETE SLAB
			10.0	3.3	3.3					602		16.6	C.Y.	CONCRETE MASONRY
				50						603		50	L.F.	24" CONDUIT, TYPE A
			295							603		295	L.F.	48" CONDUIT, TYPE 'A', 706.02,3000LB.D-LOAD, BORED & JACKED
		60								603		60	L.F.	48" CONDUIT TYPE 'A'
		62								603		62	L.F.	72" CONDUIT, TYPE 'C'
		336								603		336	L.F.	84" CONDUIT TYPE 'C'
			1							604		1	EACH	CATCH BASIN, NO. 2-5
		1								604		1	EACH	CATCH BASIN, NO. 2-6
		1								604		1	EACH	CATCH BASIN, AS PER PLAN
			1							604		1	EACH	MANHOLE, NO. 3
			1							604		1	EACH	JUNCTION CHAMBER
														EROSION CONTROL
		100								207		100	EACH	STRAW OR HAY BALES
									2929	659		2929	S.Y.	SEEDING AND MULCHING
	0.03									659		0.03	TON	COMMERCIAL FERTILIZER
	0.17									659		0.17	TON	AGRICULTURAL LIMING
														MISCELLANEOUS
										503		LUMP		COFFERDAMS, CRIBS, AND SHEETING
								1550		622		1550	L.F.	TEMPORARY CONCRETE BARRIER, AS PER PLAN
										614		LUMP		MAINTAINING TRAFFIC
										619		LUMP		FIELD OFFICE
										623		LUMP		CONSTRUCTION LAYOUT STAKES
										624		LUMP		MOBILIZATION

CALC. BY DATE	CHECKED BY DATE

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

3
24

SUM-271-2.98
BR-7-89

GENERAL NOTES

ITEM 619 – FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 300 SQ. FT. OF FLOOR SPACE WHICH SHALL BE IN ACCORDANCE WITH 619.01 AND 619.02. PAYMENT SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 619, FIELD OFFICE.

ITEM SPECIAL – FILL AND PLUG EXISTING CULVERT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN THE EXISTING CULVERT AND FILLING THE AREA THUS SEALED OFF WITH SAND OR OTHER GRANULAR MATERIAL APPROVED BY THE ENGINEER.

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

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

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

ITEM 603 – 48" CONDUIT TYPE A 706.02 3000 LB. D-LOAD BORED AND JACKED

AS PART OF THIS CONTRACT, IT WILL BE NECESSARY TO INSTALL A 48" CONDUIT AT STA. 229+29, SKEWED AT 10°, BY THE METHOD OF BORING AND JACKING. TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SPECIFICATION REQUIREMENT FOR CLASS B BEDDING SHALL BE DISREGARDED.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

ITEM 207	STRAW OR HAY BALES	100 EACH

CONDUIT END TREATMENT

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

CALCULATIONS

COMMERCIAL FERTILIZER

2929 S.Y. x (20 LBS./1000 S.Y.) x (1 TON/2000 LBS.) = 0.029 TONS

AGRICULTURAL LIMING

2929 S.Y. x (100 LBS./1000 S.Y.) x (1 TON/2000 LBS.) = 0.146 TONS

CONNECTION TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBLITY 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.

EROSION CONTROL

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

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

4
24

SUM-271-2.98
BR-7-89

CALC. BY ____ CHECKED BY ____
DATE ____ DATE ____

N64° 47' 49" E
306.24'
227+31.77
159.91'
LA R/W
230+50.27
198.47 LT
LA R/W
N82° 44' 49" E
201.31'
232+49.88
149.45'
N69° 37' 13" E
404.21'
LA R/W
236+53.99
140.57'
N49° 52' 29" E
291.41'
LA R/W
N67° 56' 46" E
969.67'
239+30.36
232+97'
241+00
234+20'

CURVE DATA
Δ = 11° 54' 59" LT
Dc = 1° 28'
R = 3906.53'
T = 407.71'
L = 812.48'

P.T. 231+40.75

BEGIN WORK
STA. 229+00
S.L.M. 4.33

STRUCTURE
#0437

PROPOSED
50 L.F.-24"
TYPE 'A'
CONDUIT
REPLACEMENT

FOR STRUCTURE REPLACEMENT
DETAIL SEE SHEET NO. 6

STRUCTURE
#0456

END WORK
STA. 241+00
S.L.M. 4.56

229 230 231 232 233 234 235 236 237 238 +25 239 240 241 242 243

PROPOSED
364 L.F. - 48"
TYPE "A"
CONDUIT

EXISTING
24" C.M.P.
PLUG & ABANDON

℄ REF. MONUMENTS
PT. STA. 231+40.75
STA. 250+00

N 68° 21' 41" E

I.R. 271

EXISTING 24" CMP

BM
CB FLOOR 941.99

20'
PG-1

FOR STRUCTURE REPLACEMENT
DETAIL SEE SHEET NO. 5

SEE DETAIL SHEET NO. 8
CATCH BASIN
AS PER PLAN
233+00
186.0' RT.

EXISTING 72" CMP

336 LF 84" TYPE 'C' CONDUIT

EXISTING 84" CMP

62 LF
72" TYPE 'C'
CONDUIT

CB-1
P-1
P-2
R-1
R-2
CB-2

RIPRAP 50'x 7'
ROCK CHANNEL PROTECTION TYPE A
20'x 15'x 1.5'
120'x 16'x 1.5'
STA. 241+00
255.0 RT.

R/W N68° 21' 41" E
242+50
191.23

S 3° 02' 56" W
119.77'

R/W S 73° 03' 24" W
301.01'

239+00
275.36

242+00
300.00'

SEE DETAIL SHEET NO. 7

BENCH MARK
CATCH BASIN FLR.
STA. 240+00 18' RT.
ELEV. 941.99

ESTIMATED QUANTITIES

REF			
R-1	202	HEADWALL REMOVED	1 EACH
R-2	202	HEADWALL REMOVED	1 EACH
PG-1	601	PAVED GUTTER TYPE 2	20 L.F.
P-1	603	72" TYPE "C" CONDUIT	62 L.F.
P-2	603	84" TYPE "C" CONDUIT	336 L.F.
CB-1	604	CATCH BASIN NO. 2-6	1 EACH
CB-2	604	CATCH BASIN, AS PER PLAN	1 EACH

960
950
940
930
920
910
900
890
880

EXISTING 72" CMP

EXISTING
IE 921.72

3.25%

EXISTING
INLET IE 908.9

EXISTING 84" CMP @ 3%

EXISTING PAVED
GUTTER

MEET EXISTING FL
AFTER REMOVAL
IE 885.1

PAVEMENT PROFILE ELEVATIONS
(PAVEMENT PROFILE NOT SHOWN)

WESTBOUND	996.91	993.91	993.91	990.91	987.91	984.91	981.91	978.91	975.91	972.91	969.91	966.91	963.91	960.37	
EASTBOUND	974.95	971.99	971.99	969.03	966.07	963.11	960.15	957.19	954.25	951.66	949.57	947.97	946.88	946.27	

PLAN & PROFILE SHEET

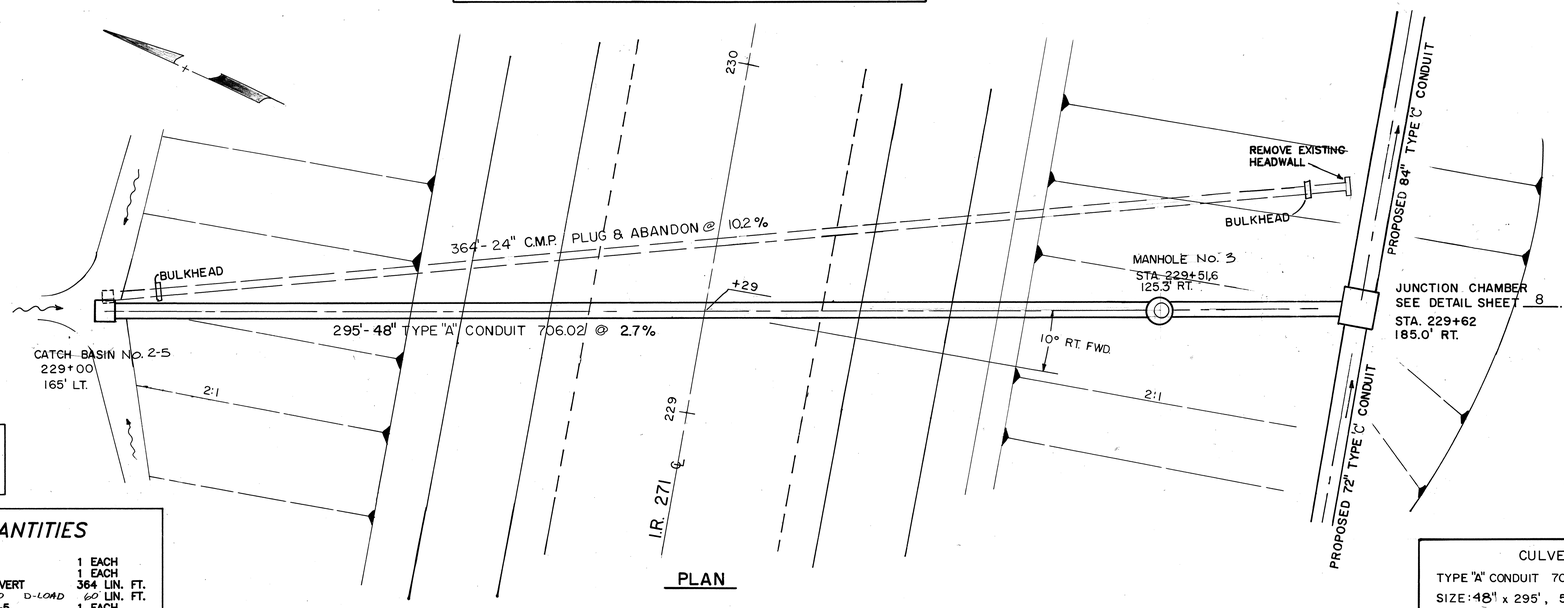
CALC. BY ____ DATE ____	CHECKED BY ____ DATE ____

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

5
24

SUM-271-2.98
BR-7-89

REPLACEMENT OF
STRUCTURE Nº SUM-271-0437



PLAN

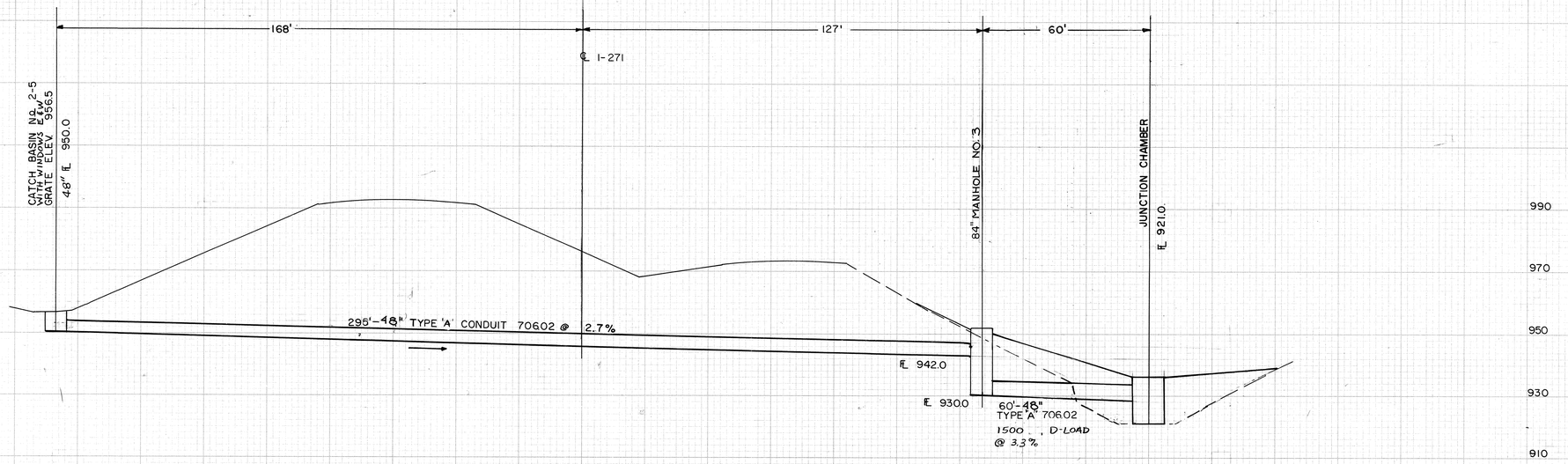
AREA = 21 ACRES
Q_{50} = 24 c.f.s.

ESTIMATED QUANTITIES

202	CATCH BASIN REMOVED	1 EACH
202	HEADWALL REMOVED	1 EACH
SPEC	FILL & PLUG EXISTING CULVERT	364 LIN. FT.
603	48" TYPE 'A' CONDUIT 1500 D-LOAD	60 LIN. FT.
604	CATCH BASIN No. 2-5	1 EACH
604	84" MANHOLE No. 3	1 EACH
604	JUNCTION CHAMBER	1 EACH
603	48" TYPE 'A' CONDUIT 3000 D-LOAD BORED & JACKED	295 LIN. FT.

CULVERT DATA

TYPE "A" CONDUIT 706.02 3000 D-LOAD, BORED & JACKED
SIZE: 48" x 295', 54" x 60'
SKEW: 10° RT. FWD.
WORK REQ'D: "BORE AND JACK" NEW 48" CONDUIT AS SHOWN



PROFILE

STR. Nº SUM-271-0437
CULVERT DETAIL

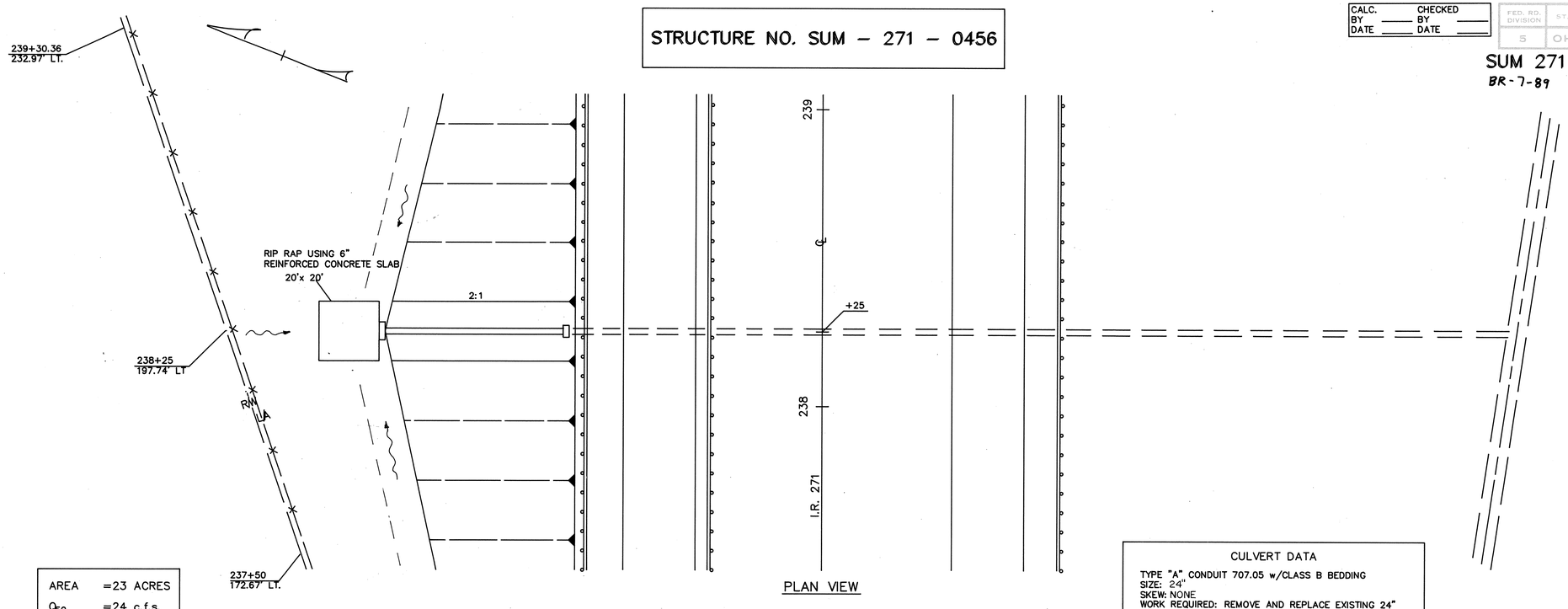
FINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
AREAS CHECKED
NOTE BOOK
NO.
DATE
BY

STRUCTURE NO. SUM – 271 – 0456

CALC. BY ____ CHECKED BY ____	FED. RD. DIVISION	STATE	PROJECT	
DATE ____ DATE ____	5	OHIO		

6
24

SUM 271 – 2.98
BR-7-89



PLAN VIEW

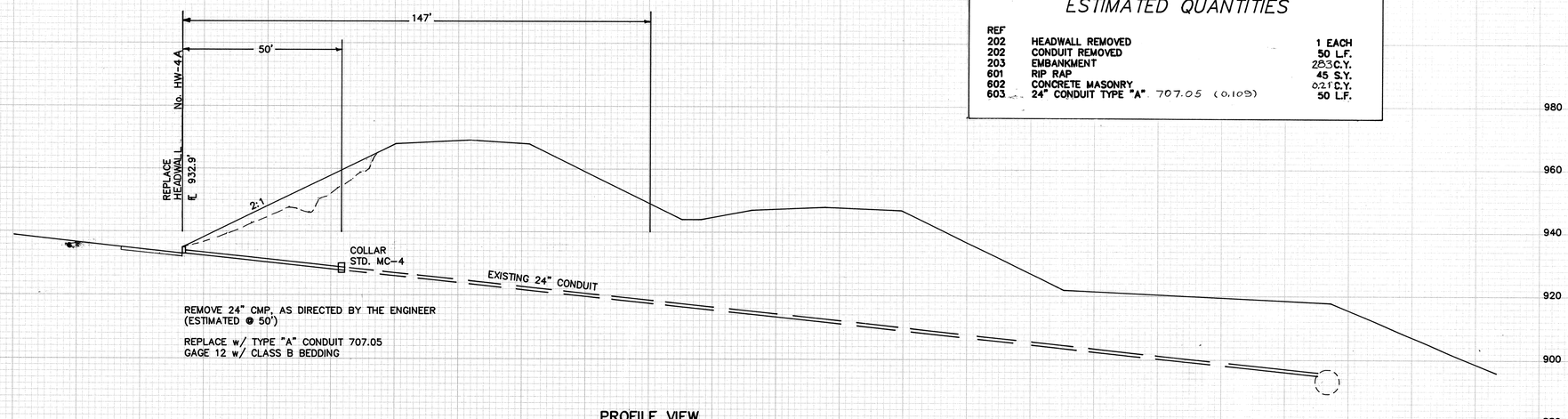
AREA =23 ACRES
Q_{50} =24 c.f.s.

CULVERT DATA

TYPE "A" CONDUIT 707.05 w/CLASS B BEDDING
SIZE: 24"
SKEW: NONE
WORK REQUIRED: REMOVE AND REPLACE EXISTING 24" COLLAPSED CONDUIT, AS DIRECTED BY THE ENGINEER

ESTIMATED QUANTITIES

REF		
202	HEADWALL REMOVED	1 EACH
202	CONDUIT REMOVED	50 L.F.
203	EMBANKMENT	283 C.Y.
601	RIP RAP	45 S.Y.
602	CONCRETE MASONRY	0.21 C.Y.
603	24" CONDUIT TYPE "A" 707.05 (0.109)	50 L.F.



REMOVE 24" CMP, AS DIRECTED BY THE ENGINEER (ESTIMATED @ 50')

REPLACE w/ TYPE "A" CONDUIT 707.05 GAGE 12 w/ CLASS B BEDDING

PROFILE VIEW

STR. No. SUM-271-0456
CULVERT REPLACEMENT DETAIL

CALC. BY	CHECKED BY
DATE	DATE

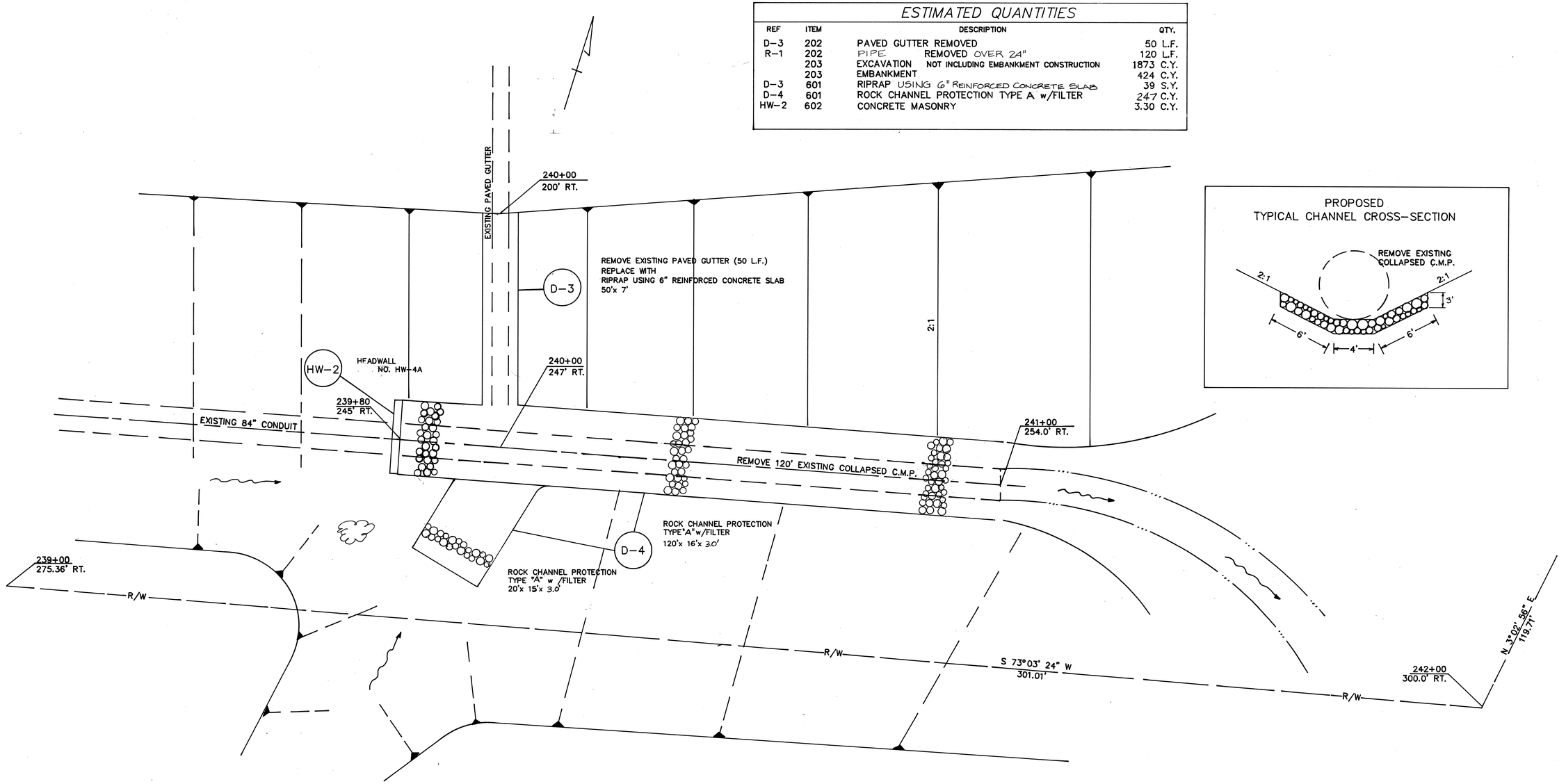
FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

7
24

SUM - 271 - 2.98
BR-7-89

ESTIMATED QUANTITIES

REF	ITEM	DESCRIPTION	QTY.
D-3	202	PAVED GUTTER REMOVED	50 L.F.
R-1	202	PIPE REMOVED OVER 24"	120 L.F.
	203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	1873 C.Y.
	203	EMBANKMENT	424 C.Y.
D-3	601	RIPRAP USING 6" REINFORCED CONCRETE SLAB	39 S.Y.
D-4	601	ROCK CHANNEL PROTECTION TYPE A w/FILTER	247 C.Y.
HW-2	602	CONCRETE MASONRY	3.30 C.Y.



PROPOSED
TYPICAL CHANNEL CROSS-SECTION

0 5 10 20 30
SCALE IN FEET

CHANNEL DETAIL

B-271-CHN

CALC. BY DATE	CHECKED BY DATE

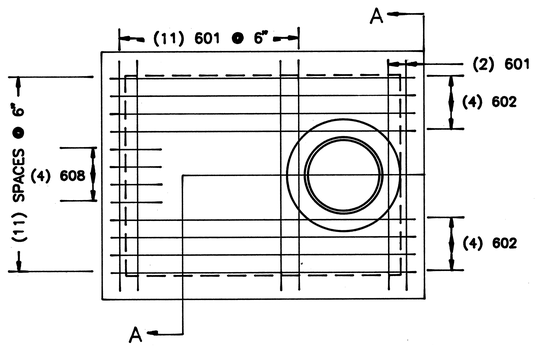
FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

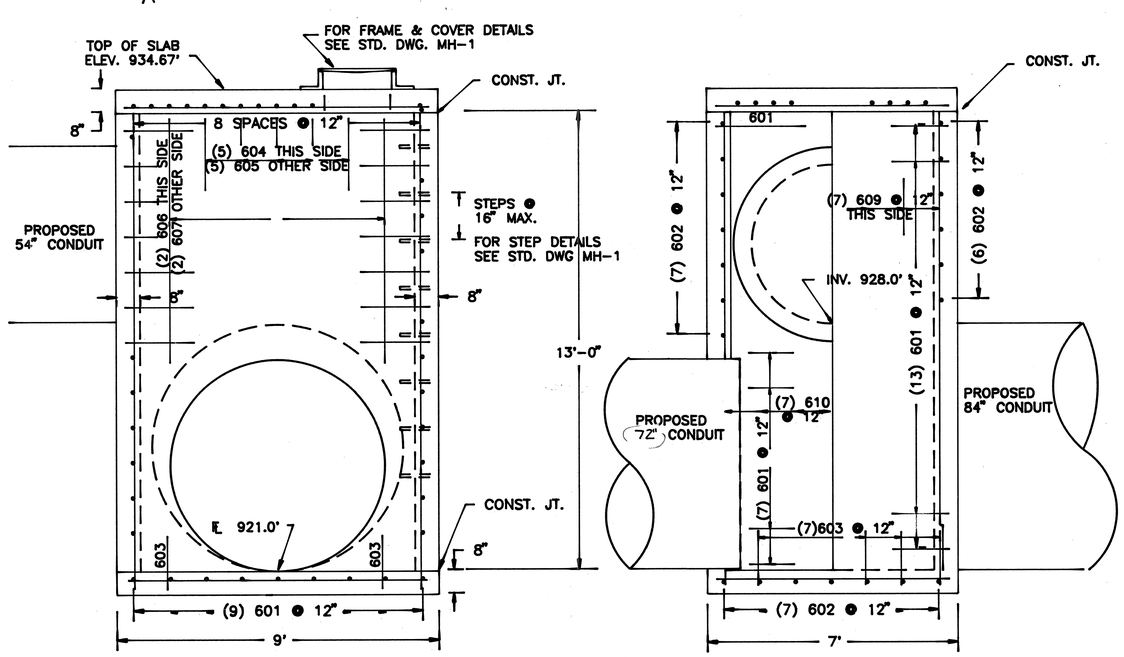
SUM-271-2.98
BR-7-89

8/24

JUNCTION CHAMBER

STA. 229+62 185.0' RT.





SECTION A – A

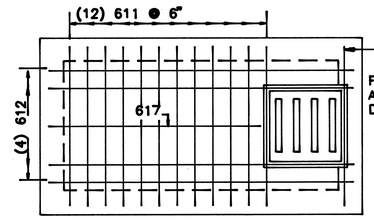
SCALE IN FEET 0 1 2 3 4

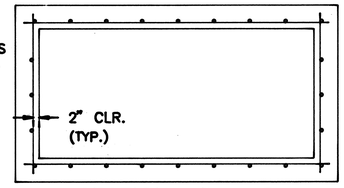
REINFORCING STEEL

MARK	NO.	LENGTH
601	43	6'-6"
602	27	8'-6"
603	18	1'-6"
604	5	6'-6"
605	5	5'-6"
606	2	8'-0"
607	2	7'-0"
608	4	5'-0"
609	7	13'-0"
610	7	6'-4"
611	50	4'-6"
612	23	8'-6"
613	14	1'-6"
614	10	13'-0"
615	10	5'-8"
616	4	6'-10"
617	1	6'-1"

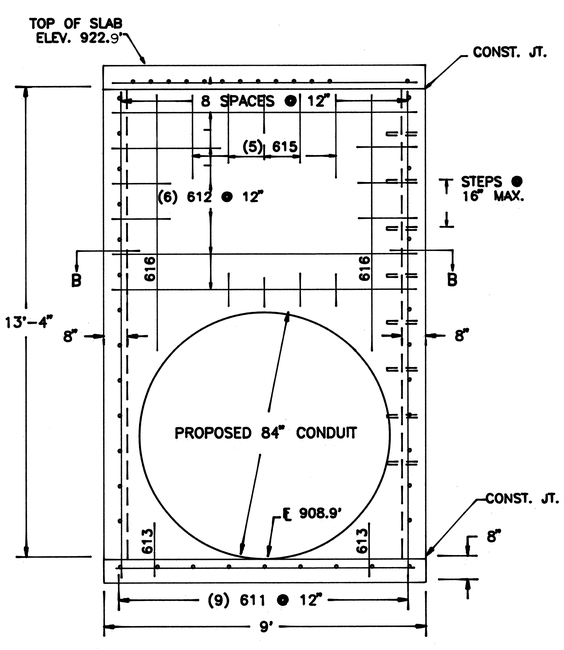
CATCH BASIN AS PER PLAN

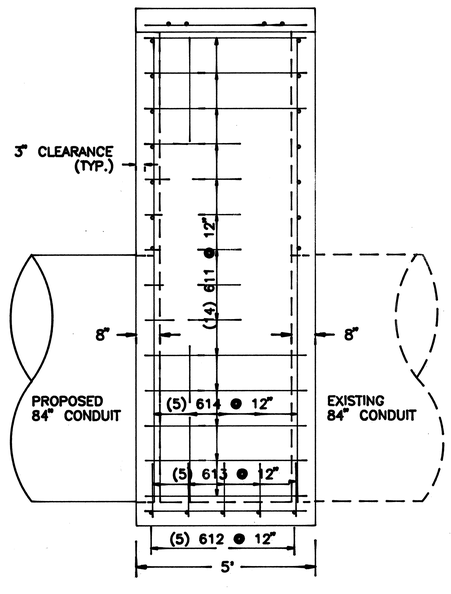
STA. 233+00 186.0' RT.





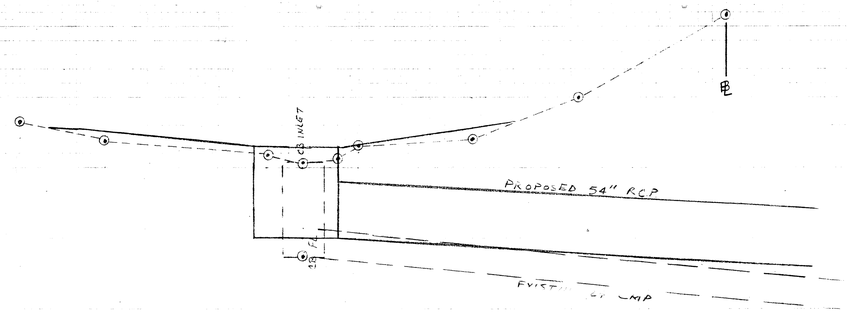
SECTION B – B

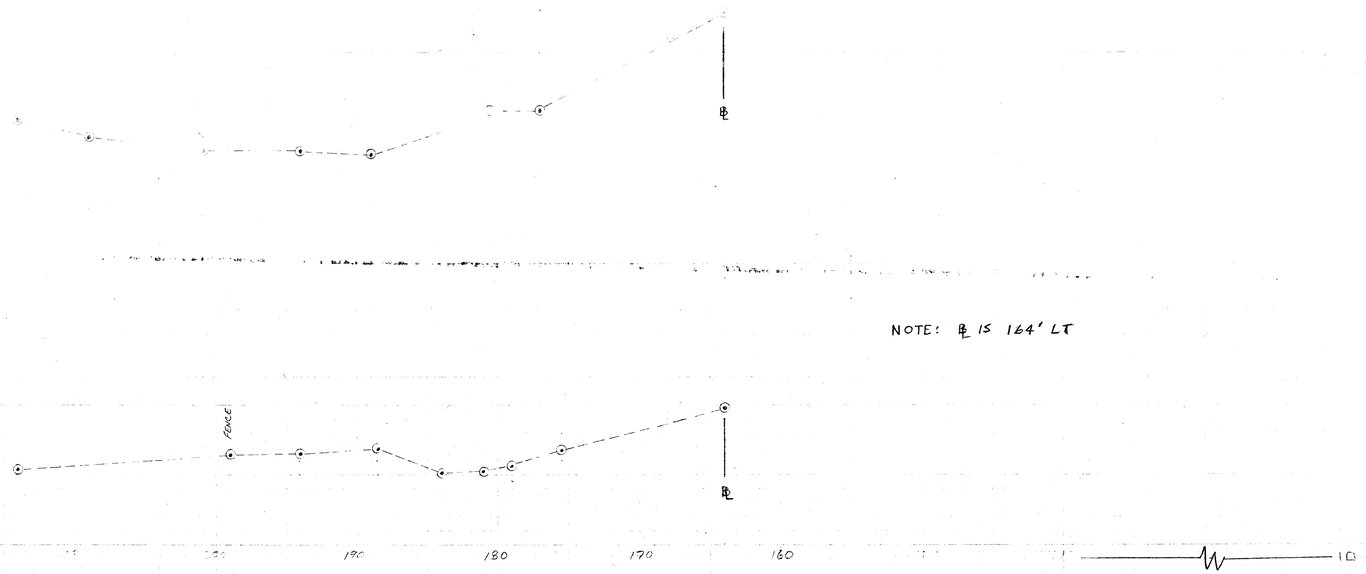




SCALE IN FEET 0 1 2 3 4

SEEDING	
END WIDTH	SQ. YDS.
30	100





NOTE: ℄ IS 164' LT

END AREAS		VOLUME	
CUT	FILL	CUT	FILL
			13
		13	
			13

℄ STA 229+00

℄ STA 228+75

℄ STA 228+50

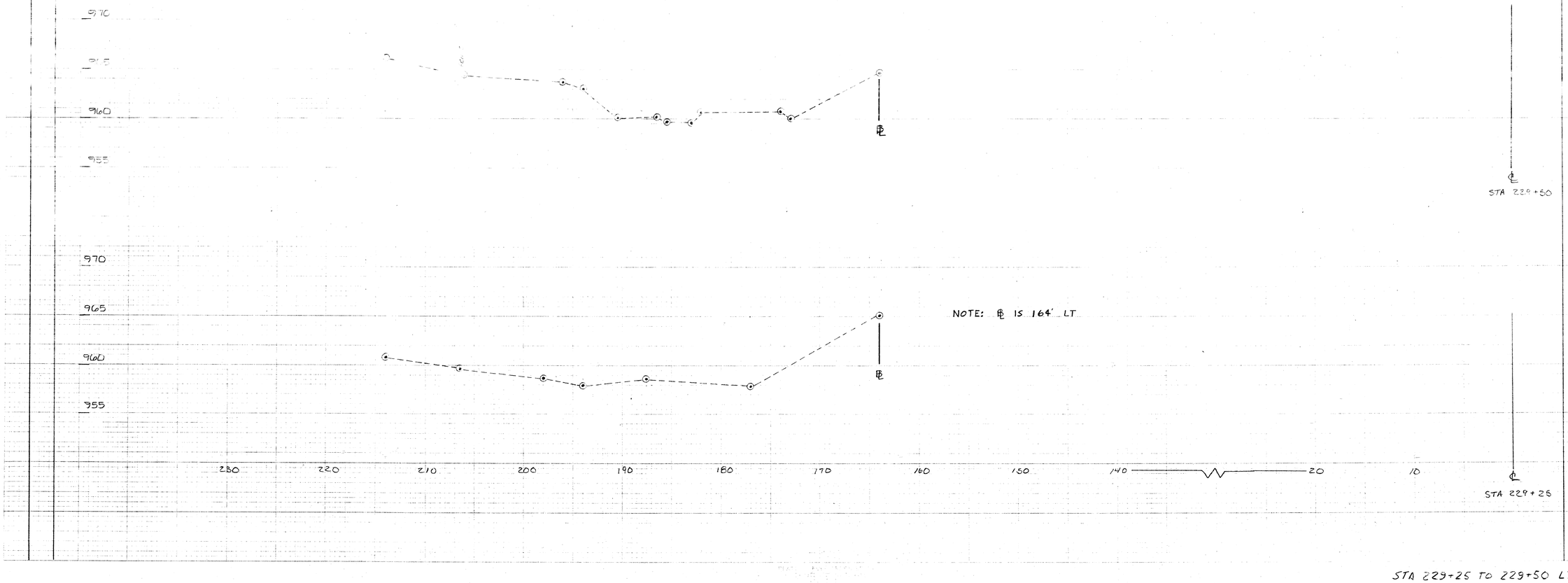
STA 228+50 TO 229+00 LT

BR-7-89

SUM-271-2.98

10/24

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL



STA 229+25 TO 229+50 LT

SEEDING			END AREA		VOLUME	
END WIDTH	SQ. YDS.		CUT	FILL	CUT	FILL
75		970				
		965				
		960				
	201	955				
		950				
		945				92
70		940				
		935				99
		930				

11
24

SUM-271-2.98
BR-7-89

11B

E.P.

2:1

REPLACE 50 L.F. (EST.) 24"
TYPE "A" CONDUIT 707.05 GAGE 12

MASONRY COLLAR

℄
STA. 238+25

FINAL SURVEY
DATE
BY
SURVEYED
PLOTTED
PLOT DATE
AREAS
AREAS CHECKED
NOTE BOOK
NO.

ORIGINAL SURVEY
DATE
BY
SURVEYED
PLOTTED
PLOT DATE
AREAS
AREAS CHECKED
NOTE BOOK
NO.

75		935
	201	940
		945
		950
		955
		960
		965
		970

11B

147

E.P.

92

℄
STA. 238+00

170 160 150 140 130 120 110 100 90 80 70 60

STA. 238+00 TO 238+25 LT.

BRUNING 44-132 53337

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

BR-7-89

SUM-271-2.98

SEEDING		END AREA		VOLUME	
END WIDTH	SQ YDS.	CUT	FILL	CUT	FILL

970

965

960

955

950

945

940

935

170 160 150 140 130 120 110 100 90 80 70 60 20 10 ℄

STA 238+50

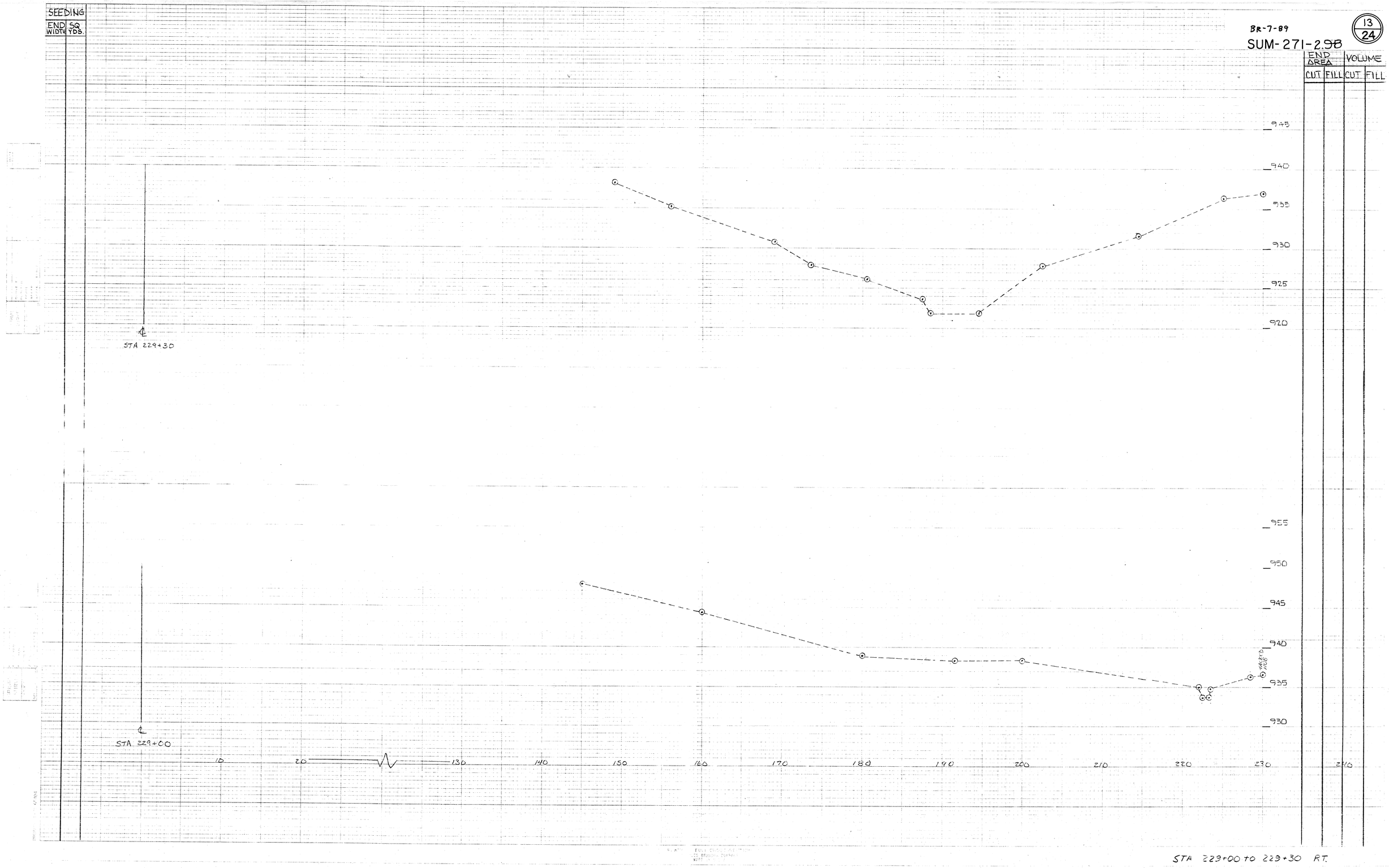
STA 238+50 LT

BR-7-89

SUM-271-2.98

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL



STA 229+00 to 229+30 RT.

BR-7-89

SUM-271-2.98

14
24

SEEDING

END SR WIDTH YDS.

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
940				
935				
930				
925	21	30		
920				
915				
			22	613

19
11

℄ STA 230+00

14

FINAL SURVEY
NOTE BOOK
NO.
DATE
BY
SURVEYED
PLOTTED
TRACED
AREAS CHECKED

940
935
930
925
920
915
921.5

10 20 30 40 50 60 70 80 90 200 210 220 230

℄ STA 229+50

		3	352
			27 617

ORIGINAL SURVEY
DRAWN
CHECKED
PLOTTED
TRACED
AREAS CHECKED
NOTE BOOK
NO.
DATE
BY

BRUNK. 40-22 66404

PLATE 9 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

STA 229+50 to 230+00 RT.

BR-7-89

SUM-271-2.98

15/24

SEEDING
END SP
WIDTH 7.0S.

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
940				
935				
930	26	325		
925				
920				
915				
			44	580
940				
935				
930	21	302		
925				
920				
915				
			89	616

14
27

℄
STA 231+00

19

12
17

℄
STA 230+50

10 20 130 140 150 160 170 180 190 200 210 220 280

14.7

FINAL SURVEY
NOTE: (NONE)
NO. DATE BY

ORIGINAL SURVEY
NOTE: (NONE)
NO. DATE BY

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

STA 230-50 to 231-00 RT.

BR-7-89

SUM-271-2.98

16
24

SEEDING

END WIDTH 90 YDS.

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
940				
935				
930				
925				
920			75	369
915				
910				
			32	611
940				
935				
930				
925				
920			67	296
915				
910				
			83	633

2B
3 11

℄ STA 232+00

E 912.9

34
34

℄ STA 231+50

E 914.8

10 20 130 140 150 160 170 180 190 200 210 220 230

269

STA 231+50 TO 232+00 RT.

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

BRUNING 10-72 65-604

FINAL SURVEY — NOTE BOOK — NO. — RUNWAY ID — PLOTTED — TEMPLATE — DRAWN — CHECKED — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — DRAWN — CHECKED

BR-7-89

SUM-271-2.98

17
24

SEEDING
END SQ
WIDTH YDS.

10
10

STA 233+00

156

END AREA		VOLUME	
CUT	FILL	CUT	FILL
22	387		
		54	687

930
925
920
915
910
905

WINGWALL
WALL
℄ OF 84" CONDUIT

24
12

STA 232+50

242

END AREA		VOLUME	
CUT	FILL	CUT	FILL
36	352		
		34	326

935
930
925
920
915
910

℄ 910.9

10 20 130 140 150 160 170 180 190 200 210 220 230

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

STA 232+50 TO 233+00 RT.

BRUNING 40-27 65404

BR-7-89

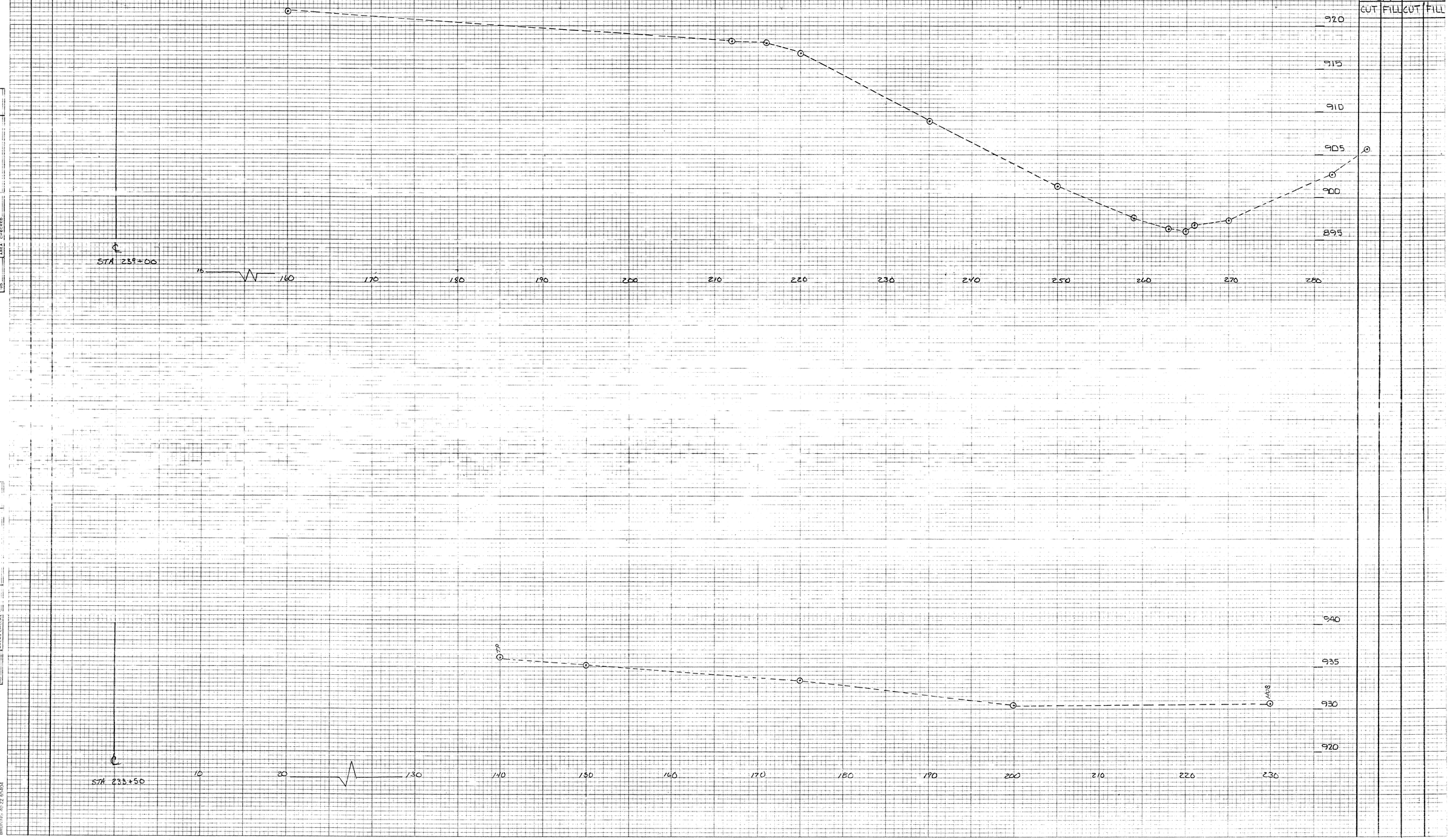
SUM-271-2.98

18
24

SEEDING

END AREA: CUT | FILL

VOLUME: CUT | FILL



FINAL SURVEY — DATE, BY, SURVEYED, PLOTTED, TRANS. FILE, TRACED, AREAS CHECKED, NOTE BOOK, NO.

ORIGINAL SURVEY — DATE, BY, SURVEYED, PLOTTED, TRANS. FILE, TRACED, AREAS CHECKED, NOTE BOOK, NO.

BRUNING NO. 22 65404

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

STA 233+50 to 239+00 RT.

SUBGRADE
END WIDTH 56 TO 58

19/24 END AREA VOLUME CUT FILL CUT FILL

SUM 271 2.98
BR-7-87

FINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
AREAS
NOTE BOOK
NO.
CHECKED
DATE
BY

ORIGINAL SURVEY
LOWERED
PLOTTED
TEMPLATE
NOTE BOOK
NO.
REAR CHECKED
DATE
BY

℄ STA 240+25

℄ STA 240+00

E 887.5

E 888.1

920 915 910 905 900 895 890 885

RW

550 28

500 28

550 24

500 24

10 160 170 180 190 200 210 220 230 240 250 260 270 280

BRUNING 44-132 53357

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

STA. 240+00 TO 240+25 RT.

SEEDING
END SQ.
WITH YDS.

SUM-2 11-298

BR-7-89

20
24

END AREA VOLUME
CUT FILL CUT FILL

920
915
910
905
900
895
890
885

450 52

60
38

Z=1

℄ STA 240+75

℄ 885.3

2:1

1:1

450 52

452 56

60
28

Z=1

517

℄ 886.6

527 70

499 45

60 70 80 190 200 210 220 230 240 250 260 270 280 290

253

STA 240+50 TO 240+75 RT.

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TRIPLE E
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TRIPLE E
AREAS
AREAS CHECKED
BY
DATE

BRUNING 44-132 53337

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

SEEDING
END AREA SQ. YDS.
WIDTH

SUM-Z -298
BR-7-87

21
24

END AREA VOLUME
CUT FILL CUT FILL

716
810
805
800
795
790
785
780
775
770
765
760
755
750
745
740
735
730
725
720
715
710
705
700
695
690
685
680
675
670
665
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415
410
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400
395
390
385
380
375
370
365
360
355
350
345
340
335
330
325
320
315
310
305
300
295
290
285
280
275
270
265
260
255
250
245
240
235
230
225
220
215
210
205
200
195
190
185
180
175
170
165
160

STA 241+50

STA 241+00

892.0

20
76

60
28

2929 TOTAL SEEDING CARRIED TO THIS SHEET

TOTAL CUT & FILL CARRIED TO THIS SHEET

2049 4827

STA 241+00 TO 241+50 RT.

FINAL SURVEY
SURVEYED
PLOTTED
CHECKED
AREAS
AREAS CHECKED
NOTE BOOK
NO.
BY
DATE

ORIGINAL SURVEY
SURVEYED
PLOTTED
CHECKED
AREAS
AREAS CHECKED
NOTE BOOK
NO.
BY
DATE

BRUNING 44-132 53337

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

BR-7-89

SUM-271-2.98

22/24

SEEDING
END SS
WIDTH 105.

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL

910
905
900
895
890
885
880
875

10 20 160 170 180 190 200 210 220 230 240

℄ STA 242+00

MAINLINE A

MAINLINE A 250 260 270 280 290 300 310 320 330 340

100

STA 243+00 BT

PLATE 3 FULL CROSS SECTION

BRUNING 40-22 6640M

FINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
AREAS CHECKED
NOTE BOOK
NO.

ORIGINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
AREAS CHECKED
NOTE BOOK
NO.

DATE
BY

CALC. BY ____ DATE ____	CHECKED BY ____ DATE ____

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

SUM-271- 2.98
BR-7-89

MAINTENANCE OF TRAFFIC

CONTRACTOR'S EQUIPMENT – OPERATION AND STORAGE

THE CONTRACTOR'S EQUIPMENT SHALL BE OPERATED IN THE DIRECTION OF TRAFFIC, WHERE PRACTICAL. A QUALIFIED FLAGMAN SHALL BE EMPLOYED WHERE THE CONTRACTOR'S EQUIPMENT MUST MERGE WITH THE TRAFFIC STREAM. THE CONTRACTOR'S EQUIPMENT SHALL BE EQUIPPED WITH AT LEAST ONE AMBER FLASHING LIGHT. PAVERS, ROLLERS AND OTHER EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY WHEN PAVING OPERATIONS ARE SCHEDULED TO CONTINUE WITHIN THE NEXT WORKDAY: OTHERWISE THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA, THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. WHEN PARKING ALONG THE HIGHWAY THE EQUIPMENT SHALL BE PARKED EITHER FIFTY (50) FEET **FROM THE EDGE OF PAVEMENT OR 4 FEET BEHIND EXISTING OR PROPOSED GUARDRAIL WITH A MINIMUM OF 125 FEET OF GUARDRAIL PRECEDING THE EQUIPMENT. NO EQUIPMENT SHALL BE PARKED IN THE MEDIAN OF THE HIGHWAY.** ADEQUATE BARRICADES AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTOR'S STORAGE AREA.

MAINTENANCE OF TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. TWO LANE DIRECTIONAL TRAFFIC SHALL BE MAINTAINED ON THE EXISTING PAVEMENT AT ALL TIMES WITHOUT INTERRUPTION DURING CONSTRUCTION OF THE WORK EXCEPT WHEN CONSTRUCTION WORK REQUIRES MEN AND EQUIPMENT TO OCCUPY A THROUGH LANE.

2. NO MORE THAN ONE LANE OF DIRECTIONAL TRAFFIC, IN EACH DIRECTION SHALL BE CLOSED AT ANY TIME. THE CONTRACTOR SHALL SET UP AND OPERATE HIS EQUIPMENT IN SUCH A MANNER AS TO ENCROACH UPON THE TRAVELLED WIDTH OF THE PAVEMENT TO A MINIMUM EXTENT.

3. NO LANE RESTRICTIONS OR LANE REDUCTIONS SHALL BE PERMITTED FROM 2:00 PM PRECEDING A LEGAL HOLIDAY TO 10:00 AM FOLLOWING A LEGAL HOLIDAY, EXCEPT AS NOTED BELOW.

5. TRAFFIC, INCLUDING ANY AND ALL CONTRACTORS VEHICLES OR EQUPMENT SHALL NOT BE CROSSED OVER THE MEDIAN AT ANY TIME.

6. THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL, OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PREFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC CONTROL DEVICES AT THE BEGINNING AND AT THE END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

7. AN ESTIMATED QUANTITY OF 1550 LIN. FT. OF ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN SHALL BE FURNISHED, INSTALLED, MAINTAINED AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR. THE TEMPORARY CONCRETE BARRIER SHALL BE USED TO CLOSE ONE LANE OF THE ROADWAY PRIOR TO AND DURING THE TIME THE EXISTING GUARDRAIL IS REMOVED FOR ACCESS TO THE WORK AREA OR DURING THE TIME THE CONTRACTOR IS DRIVING OR REMOVING SHEETING. SEE SHEET 24 FOR ADDITIONAL DETAILS.

THE ESTIMATED LENGTH OF TEMPORARY CONCRETE BARRIER WAS BASED ON TWO NORTHBOUND RUNS OF BARRIER AND THREE SOUTHBOUND RUNS OF BARRIER. EACH RUN OF BARRIER HAVING A 200 FOOT LONG TAPER, A 10 FOOT LONG TAPERED END TRANSITION SECTION AND A 100 FOOT LONG WORK ZONE LENGTH. SUCCESSIVE LENGTHS OF TEMPORARY CONCRETE BARRIER SHALL BE CONNECTED WITH DRUMS OR BARRICADES SPACED ON 50 FOOT CENTERS.

THIS ITEM SHALL BE PAID FOR BY THE ACTUAL LINEAL FEET OF ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN, FURNISHED, INSTALLED, MAINTAINED AND REMOVED. ANY COSTS ASSOCIATED WITH FURNISHING, INSTALLING, MAINTAINING AND WHERE NECESSARY, REPLACING REFLECTORS AS DESCRIBED ON SHEET 24, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN.

8. CONES SHALL NOT BE ACCEPTABLE TRAFFIC CONTROL DEVICES FOR LANE RESTRICTIONS OR LANE REDUCTIONS THAT ARE IN OPERATION ONE-HALF HOUR AFTER SUNSET OR ONE-HALF HOUR BEFORE SUNRISE. ALL NIGHTTIME LANE RESTRICTIONS OR LANE REDUCTIONS SHALL REQUIRE DRUMS OR BARRICADES AT A MAXIMUM SPACING OF FIFTY (50) FEET. TYPE C STEADY BURNING WARNING LIGHTS SHALL BE MOUNTED ON EACH AND EVERY DRUM OR BARRICADE USED FOR THE TAPER FOR NIGHTTIME LANE RESTRICTIONS. STEEL DRUMS SHALL NOT BE ACCEPTABLE TRAFFIC CONTROL DEVICES AT ANY TIME OR UNDER ANY CIRCUMSTANCES.

9. A FLASHING ARROW PANEL (TC 35.10) SHALL BE USED FOR TRAFFIC CONTROL WHENEVER THERE IS A LANE RESTRICTION OR LANE REDUCTION.

10. ALL TRAFFIC CONTROL DEVICES REQUIRED INSIDE THE WORK LIMITS EXCEPT REGULATORY SIGNS SHALL BE FURNISHED, ERECTED, MAINTAINED AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR.

11. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL FLAGS, FLAGGERS, WATCHMEN, BARRICADES, SIGNS, SIGN SUPPORTS AND INCIDENTALS RELATED THERETO. THE ABOVE ITEMS SHALL BE UTILIZED IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.

17. FOR ADDITIONAL MAINTENANCE OF TRAFFIC NOTES, DETAILS AND SKETCHES, SEE SHEET Nos. 24. IN REFERENCE TO THESE SHEETS. WHENEVER POSSIBLE THE WORK VEHICLE SHOWN PARKED ON THE ROADWAY SHALL BE REPLACED WITH AN ADDITIONAL 300 FEET OF PARALLEL WORK ZONE LENGTH PRIOR TO THE START OF THE WORK AREA.

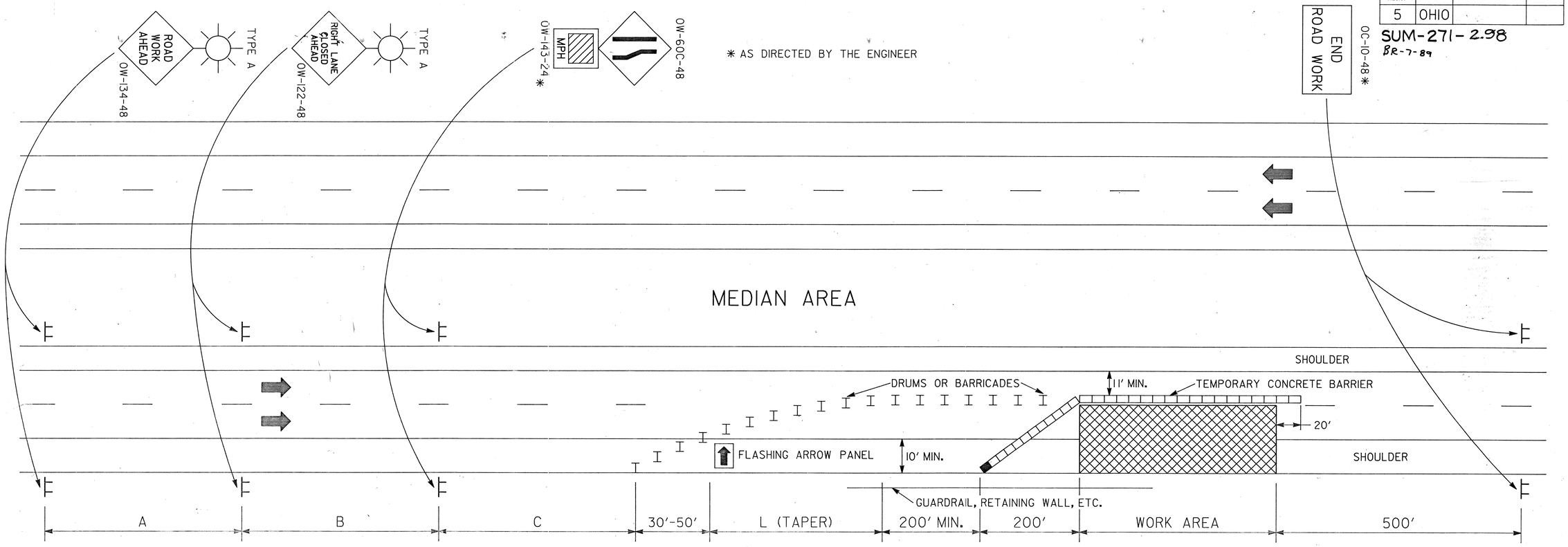
THE FOLLOWING QUANTITIES SHALL BE USED FOR THE MAINTENANCE OF TRAFFIC ON THIS PROJECT:

ITEM	614	MAINTAINING TRAFFIC	LUMP	LUMP
ITEM	622	TEMPORARY CONCRETE BARRIER, AS PER PLAN	1550	L.F.

F.H.W.A. REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

24
24

SUM-271-2.98
BR-7-89



STANDARD MC-9A END TERMINAL

GENERAL NOTES:

1. THE TAPER LENGTH (L) SHALL BE IN ACCORDANCE WITH SECTION 7F-17 OF THE OMUTCD. THE LOCATION OF THE TRANSITION TAPER AND LOCATION OF THE ADVANCE WARNING SIGNS SHOULD BE ADJUSTED TO PROVIDE FOR ADEQUATE SIGHT DISTANCE FOR THE EXISTING VERTICAL AND HORIZONTAL ROADWAY ALIGNMENT. IN ORDER TO DETERMINE THE MINIMUM NUMBER OF CHANNELIZING DEVICES FOR THE TRANSITION TAPER, SEE TABLE 7-5 OMUTCD. FOR A 55 MPH PREVAILING SPEED AND A 12 FT. LANE, NOT LESS THAN THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. NOT LESS THAN FIVE (5) DRUMS OR BARRICADES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS OR BARRICADES SHALL BE SPACED APPROXIMATELY 50' CENTER TO CENTER. CONES SHALL NOT BE USED FOR NIGHT LANE CLOSURES.

2. WHEN WORK IS BEING PERFORMED, IN THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY, AN OW-123-48 SIGN(S) SHALL BE SUBSTITUTED FOR THE OW-122-48 SIGN(S) AND AN OW-60D-48 SIGN(S) SHALL BE SUBSTITUTED FOR THE OW-60C-48 SIGN(S).

3. THE FLASHING ARROW PANEL SHALL MEET REQUIREMENTS CONTAINED IN TC-35.10.

4. TYPE A, FLASHING BARRICADE WARNING LIGHTS, SHOWN ON THE "ROAD WORK AHEAD" AND THE "RIGHT LANE CLOSED AHEAD" SIGNS, ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.

5. ALL TEMPORARY CONCRETE BARRIER SECTIONS, WITHIN THE WORK AREA, SHALL BE PROVIDED WITH SIDE MOUNTED REFLECTORS AT 10 FT. SPACINGS, AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 802.

6. METAL DRUMS SHALL NOT BE USED FOR TRAFFIC CONTROL.

7. PAYMENT FOR THE REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN.

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

OHIO DEPARTMENT OF TRANSPORTATION

CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY WITH TEMPORARY CONCRETE BARRIER

DATE

DR. SAJ | CK. JKP | **MT4LDTCB**