

DESIGN DESIGNATION

CURRENT ADT (1988)	= 108400
DESIGN YEAR ADT (2008)	= 156,310
D.H.V.	= 1,5631
D	= 55%
T	= 6%
V (POSTED)	= 55 MPH
V (DESIGN)	= 60 MPH
FUNCTIONAL CLASSIFICATION	INTERSTATE
DESIGN EXCEPTIONS	NONE

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-480-19.23

IR-480-4(70)183

CITY OF MAPLE HEIGHTS
CITY OF GARFIELD HEIGHTS
VILLAGE OF VALLEY VIEW
CITY OF INDEPENDENCE

CUYAHOGA COUNTY CUY-480-19.23	OHIO FHWA REGION 5
IR-480-4(70)183	FEDERAL PROJECT

1
171

ALL PROJECT DESIGNATIONS OF CUY-480-19.23 SHALL GOVERN OVER THE ENTIRE SET OF PLANS IN LIEU OF CUY-480-19.19.

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.

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 improvement.

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 these plans and estimates.

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (I) OF THE REVISED CODE OF OHIO, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DETERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OR LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.

Approved Martin A. Gallito
Date 10-11-89 District Deputy Director of Transportation

Approved B. D. Hankins
Date 12-13-89 Engineer, Bureau of Bridges and Structural Design

Approved Chadwick J. Stitt
Date 1/18/90 Chief Engineer, Planning and Design

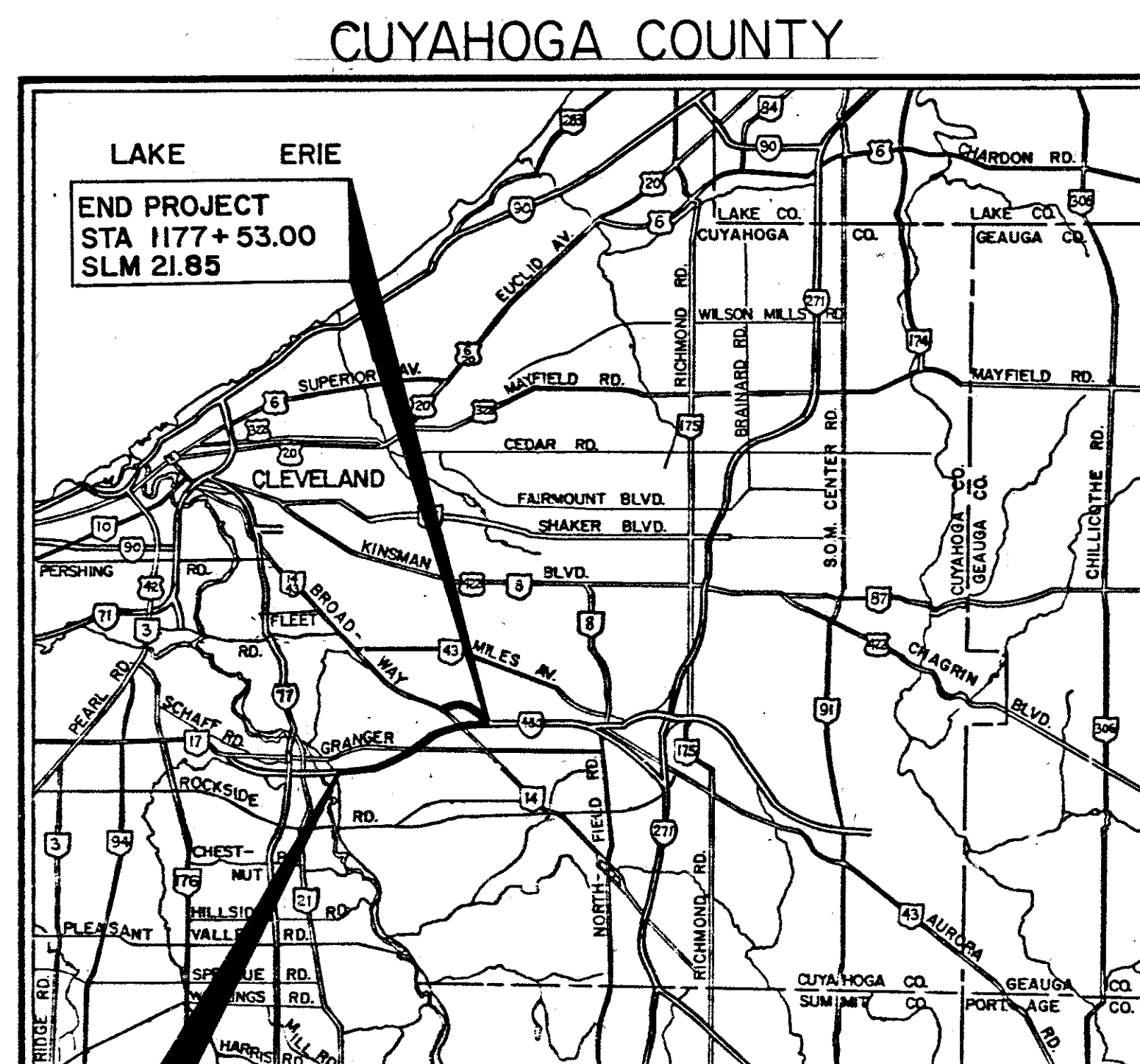
Approved Samuel B. Hurst
Date 1/18/90 Director, Department of Transportation

CONVENTIONAL SIGNS

County Line	-----	Limited Access (only)	-----	LA
Township Line	-----	Right of Way (only)	-----	RW
Section Line	-----	Limited Access & Right of Way	-----	LA & RW
Corporation Line	----- or -----	Existing Right of Way	-----	
Fence Line (existing)	-x-x-	Property Line	----- (in existing fence)	-x-x-
Center Line	----- 352 ----- 353 -----	Railroad	----- or -----	
Trees, Stumps	(to be removed)	Guardrail (existing)	----- (proposed)	-----
Utility Poles: Telephone	φ			
Power	φ			
Light	φ			

INDEX OF SHEETS

TITLE SHEET	1
SCHEMATIC PLAN	2
TYPICAL SECTIONS	3-5
GENERAL NOTES	6-16
CALCULATIONS & SUBSUMMARIES	17-22
GENERAL SUMMARY	23-24
PLAN SHEETS	25-37
INTERSECTION DETAILS	38-43
MISCELLANEOUS DETAILS	44-53
CROSS SECTIONS	54-55
MAINTENANCE OF TRAFFIC PLANS	56-88
TRAFFIC CONTROL PLANS	89-148
LIGHTING PLANS	149-153
STRUCTURE PLANS	154-171



BEGIN PROJECT
STA 1039+02.75
SLM 19.23

LOCATION MAP

SCALE IN MILES



LINE DATA

PROJECT LIMITS

STA 1039+02.75 TO STA 1177+53.00 = 13,850.25 LF = 2.623 MI.

ADDITIONS &/OR DEDUCTIONS

STA 1040+50.00 BK = STA 1040+25.85 AH = +24.15 LF
STA 1145+00.58 BK = STA 1145+22.32 AH = -21.74 LF

PROJECT LENGTH = 13,852.66 LF = 2.624 MI.

ADDITIONAL WORK

STA. 995+20 TO STA. 1039+02.75 = 4382.75 LF.
STA. 1177+53 TO STA. 1198+15 = 2062.00 LF.

TOTAL WORK LENGTH = 20297.4 LF = 3.844 MI.

Portion to be improved. -----
State & Federal Routes -----
Other Roads -----

SCALES

Plan -----

Profile: ----- Horizontal -----, Vertical -----

Cross Section: Horizontal -----, Vertical -----

SUPPLEMENTAL SPECIFICATIONS			
802	5-4-88	947	10-17-83
847	10-17-83	905	5-2-89
931	6-18-85		
850	5-31-88	952	12-14-88
812	8-8-88		
803	10-2-89		

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-2	1-11-85	GR-1	1-11-85	HL-10.11	5-1-87	TC-9.10	4-24-80	TC-41.40	6-18-79	TC-85.10	1-20-84
BP-3	12-6-76	GR-2B	2-5-82	HL-10.12	5-1-87	TC-12.30	1-20-84	TC-41.50	3-26-79	TC-85.20	1-20-84
BP-4	10-1-87	GR-3	1-21-85	HL-10.13	5-1-87	TC-16.20	1-20-84	TC-42.10	8-19-77	MT-95.30	10-10-88
BP-5	10-1-87	GR-4	2-5-82	HL-20.11	5-1-87	TC-17.10	1-20-84	TC-42.20	3-26-79	MT-99.10	11-14-86
BP-7	10-1-87	GR-4A	1-30-84	HL-30.11	5-1-87	TC-21.20	1-20-84	TC-51.10	1-20-84	MT-99.20	4-29-88
BP-12	10-1-87	GR-5	2-5-82	HL-30.21	5-1-87	TC-22.10	3-1-79	TC-52.20	4-3-79	SD-169	6-12-69
BP-13	5-8-87	MC-7A	1-11-85	HL-30.22	5-1-87	TC-22.20	3-1-79	TC-71.10	4-9-79		
BP-1	6-1-65	MC-4	7-26-76	HL-40.10	5-1-87	TC-31.21	3-6-79	TC-72.20	2-26-82		
CB-5	11-10-83	MC-5	6-12-75	HL-50.11	5-1-87	TC-32.10	3-8-79	TC-81.20	1-20-84	TC-18.24	4-25-79
F-1	11-10-83	MC-9	1-30-84	HL-60.11	5-1-87	TC-32.11	3-21-79	TC-82.10	8-29-84	TC-18.26	5-31-79
I-3C 1D	4-1-80	MC-11	8-1-78	HL-60.12	5-1-87	TC-35.10	8-29-84	TC-83.10	1-20-84	TC-52.10	4-3-79
GR-3B	1-21-85	MH-1	12-18-84	HL-60.31	5-1-87	TC-41.10	8-29-84	TC-83.20	1-20-84	MC-6	1-30-81
GR-7	2-5-82	MH-3	12-18-84	HL-20.31	5-1-87	TC-41.20	3-26-79	TC-84.20	1-20-84	MH-2	6-12-75

Plan Prepared By:
DISTRICT 12
LOCATION & DESIGN

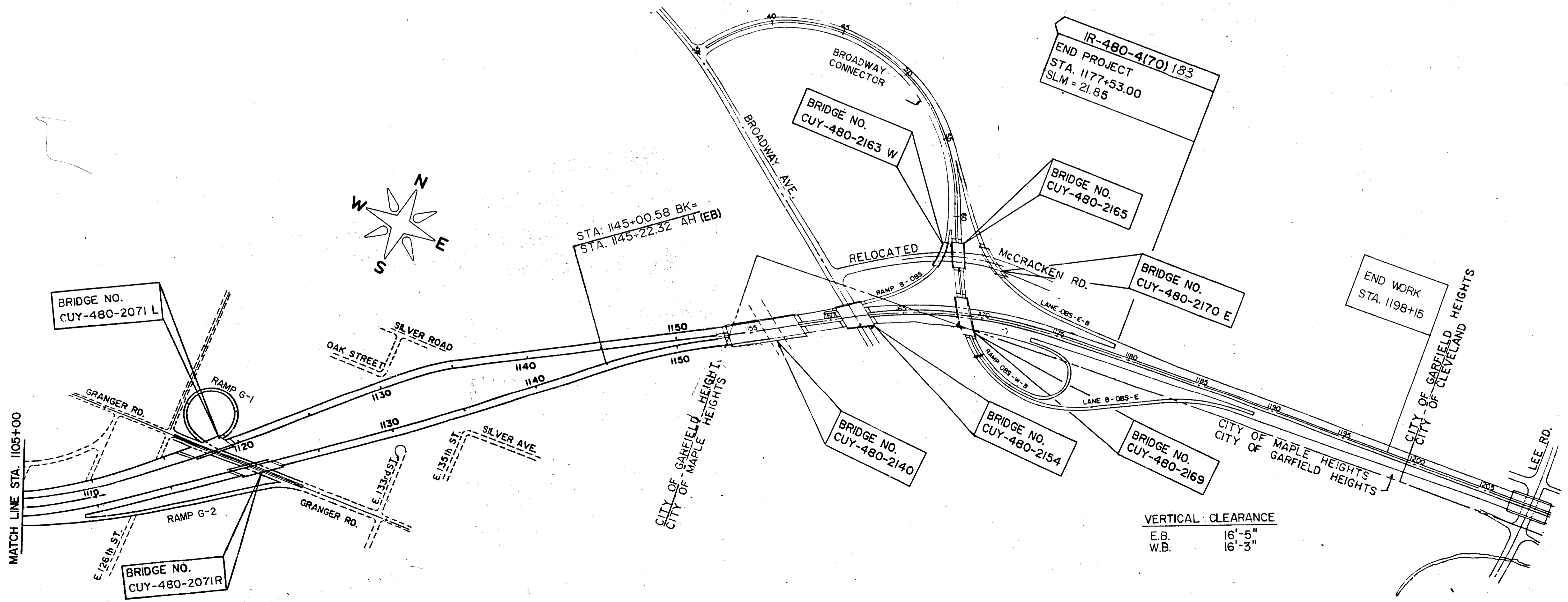
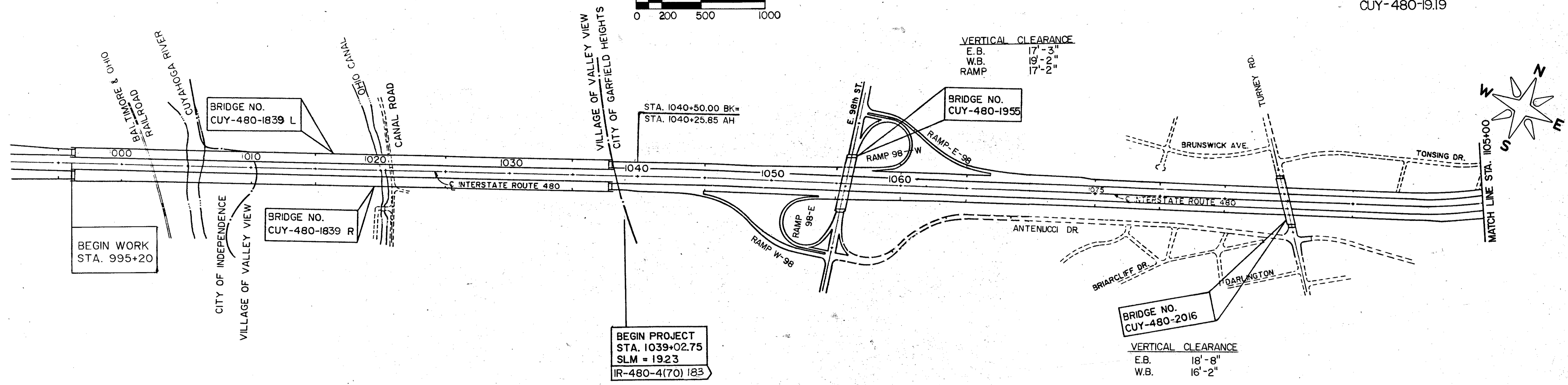
Project: 05656
Date of Letting: 19 Contract No. _____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED: _____
DIVISION ADMINISTRATOR DATE

SCHEMATIC PLAN

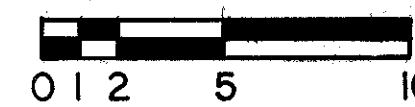
FHA REGION	STATE	PROJECT	2
5	OHIO		171

CUYAHOGA COUNTY
CUY-480-19.19

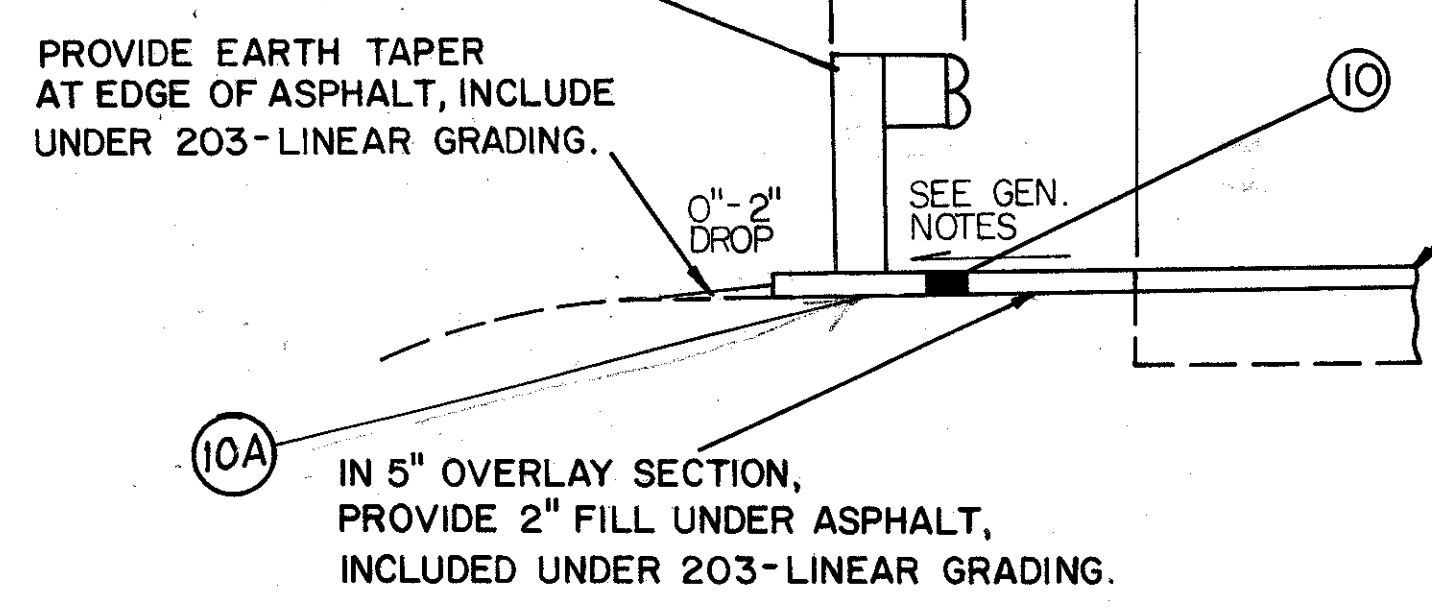
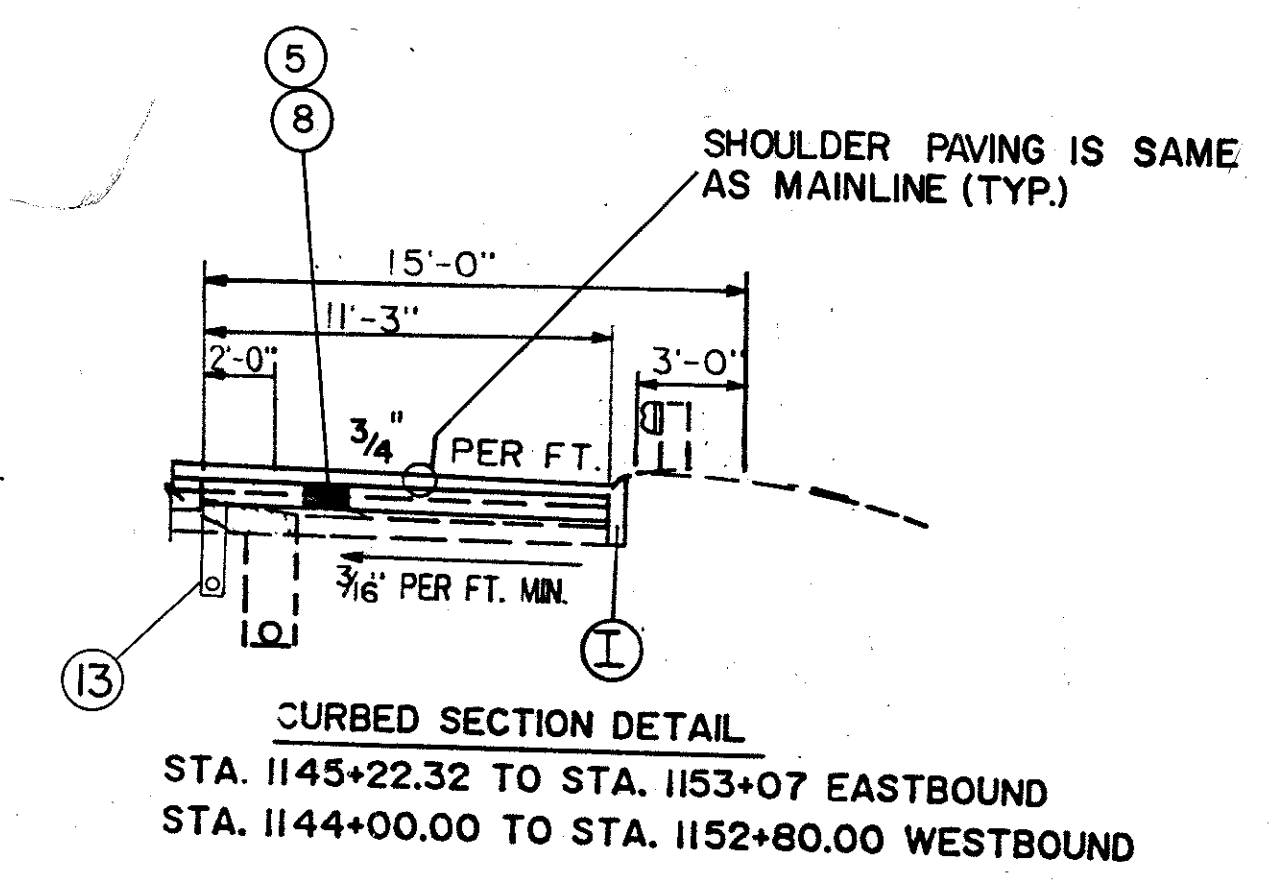
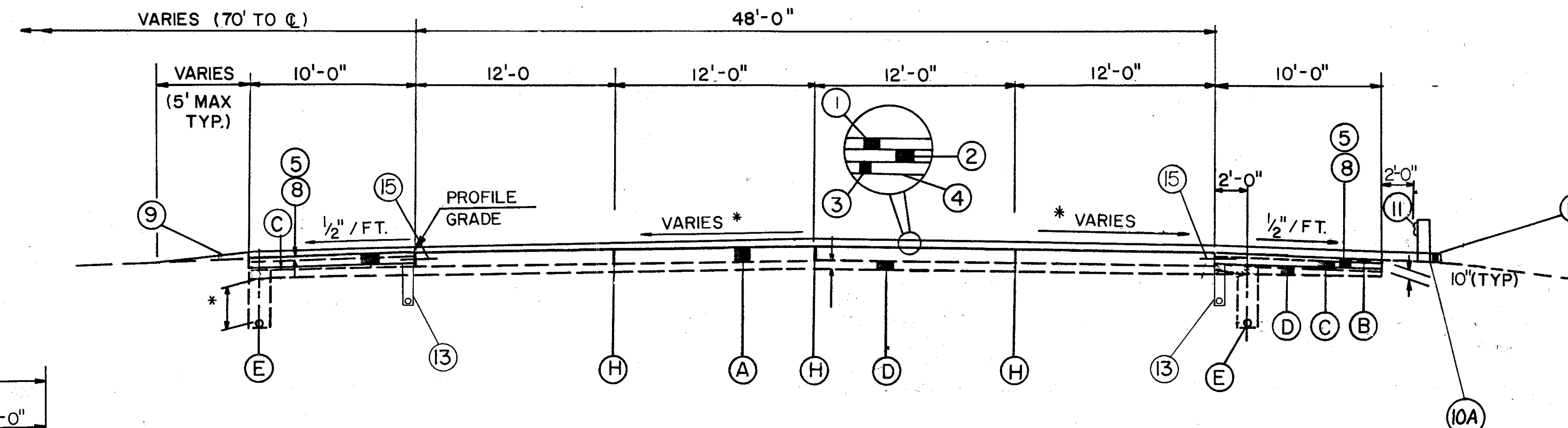


TYPICAL SECTION

TYPE 446



(5" OVERLAY)



4-LANE NORMAL SECTION
 STA. 1039+02.75 TO STA. 1040+50.00 (EB)
 STA. 1040+25.85 TO STA. 1145+00.58 (EB)
 STA. 1145+22.32 TO STA. 1152+77.03 (EB)
 STA. 1039+02.75 TO STA. 1040+50.00 (WB)
 STA. 1040+25.85 TO STA. 1152+77.03 (WB)

* REVERSED ON SUPERELEVATED SECTIONS

SEE SHEET 4 FOR BROADWAY CONNECTOR TYPICAL SECTIONS.

EXISTING LEGEND

IN 3" OVERLAY SECTION, USE LINEAR GRADING TO PROVIDE SMOOTH SURFACE 3" BELOW FINAL SURFACE.

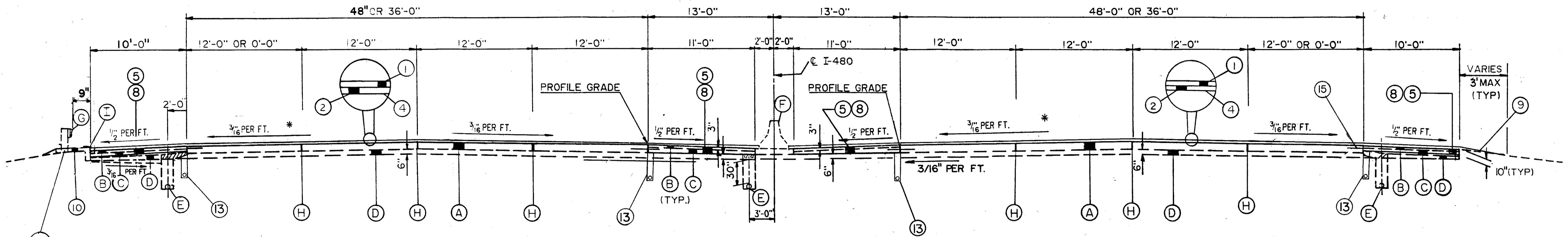
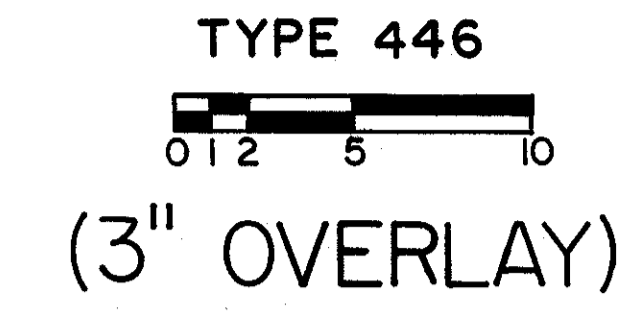
- (A) 10" REINFORCED CONCRETE PAVEMENT (9" ON RAMPS)
- (B) BITUMINOUS AGGREGATE BASE
- (C) AGGREGATE BASE
- (D) SUBBASE
- (E) UNDERDRAIN
- (F) CONCRETE BARRIER
- (G) GUARDRAIL, TYPE 5
- (H) STANDARD LONGITUDINAL JOINT
- (I) CONCRETE CURB

PROPOSED LEGEND

- (1) ITEM 446- ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC - 20, AS PER PLAN. (1 1/4" THICK)
- (2) ITEM 446- ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC - 20 (1 3/4" THICKNESS)
- (3) ITEM 446- ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20 (2" THICKNESS)
- (4) ITEM 407- TACK COAT
- (5) ITEM 203- EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
- (6) ITEM 304- AGGREGATE BASE
- (7) ITEM 310- SUBBASE, TYPE 1, AS PER PLAN
- (8) ITEM 305- CONCRETE BASE, 10" OR 9 1/2" (AVG.), AS PER PLAN
- (9) ITEM 617- COMPACTED AGGREGATE, TYPE B, AS PER PLAN
- (10) ITEM 203- LINEAR GRADING
- (10A) ITEM 404- 3" ASPHALT CONCRETE, AS PER PLAN, AC-20, (INCLUDES SOIL STERILIZATION) (See General Notes)
- (10B) ITEM 408- BITUMINOUS PRIME COAT, APPLIED AT THE RATE OF 0.50 GAL. PER SQ. YD, AS PER PLAN (SEE GENERAL NOTES)
- (11) ITEM 606- GUARDRAIL, TYPE 5, AS PER PLAN (SEE GENERAL NOTES.)
- (12) ITEM 404- ASPHALT CONCRETE, AC-20 (3")
- (13) ITEM 605- 4" SHALLOW PIPE UNDERDRAIN 707.15, AS PER PLAN
- (14) ITEM 305- 9" CONCRETE BASE, AS PER PLAN
- (15) 24"-#5 BAR 30" SPACING (TYP). PLACE AS PER BP-13 AND PAVEMENT REPLACEMENT NOTES

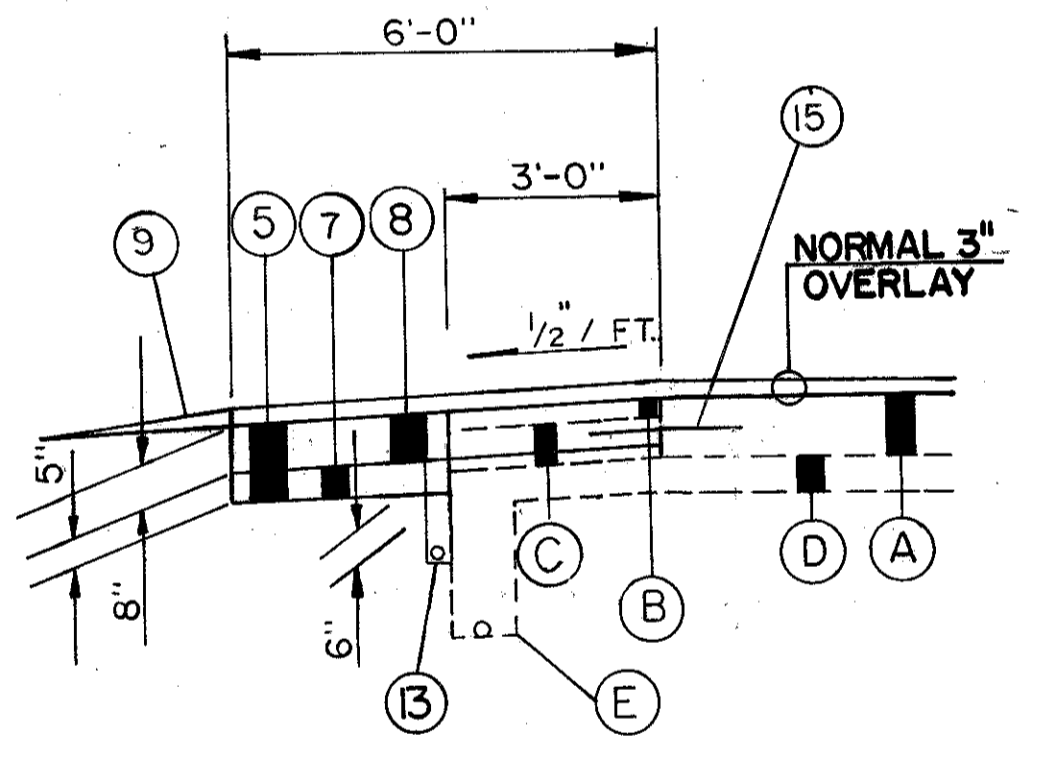
TYPICAL SECTIONS

FOR LEGEND, SEE SHEET 3

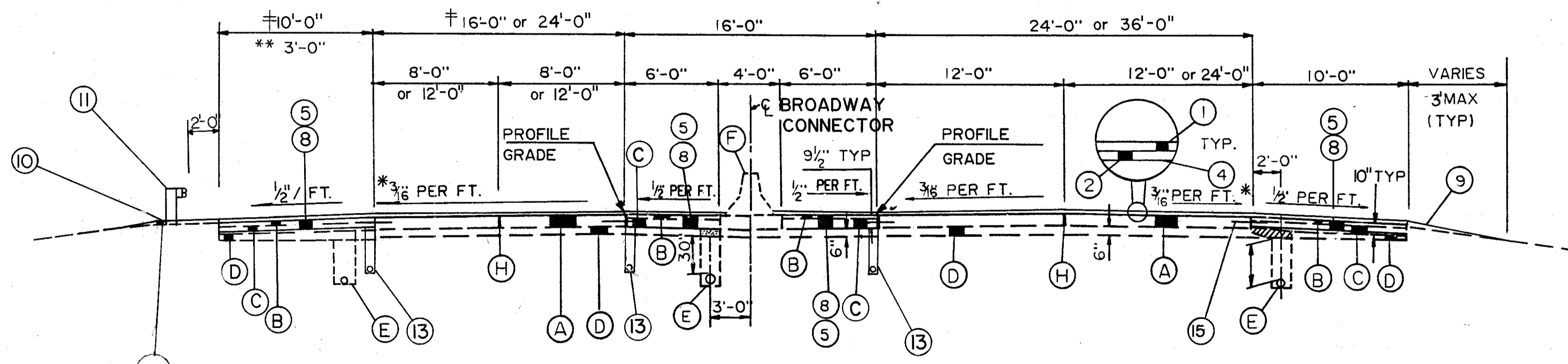


CURBED SECTION (10'-0")
STA. 1158+11.65 TO STA. 1170+81.80 (EB)
STA. 1167+75.00 TO STA. 1169+50.00 (WB)
STA. 63+60.31 TO STA. 65+53.30 (BROADWAY CONNECTOR)

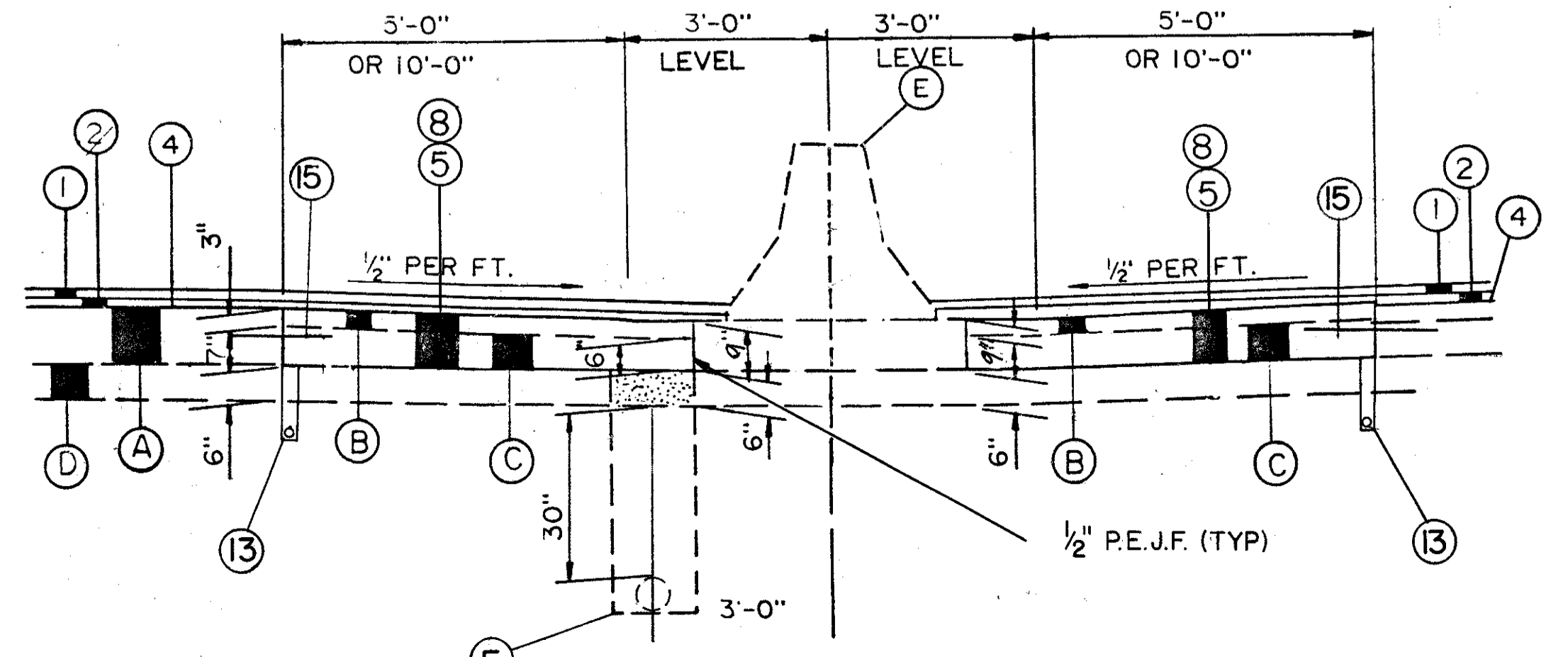
3 OR 4 LANE NORMAL SECTION W/26' MEDIAN
STA. 1152+77.03 TO STA. 1177+53.00
* REVERSE ON SUPERELEVATED SECTIONS



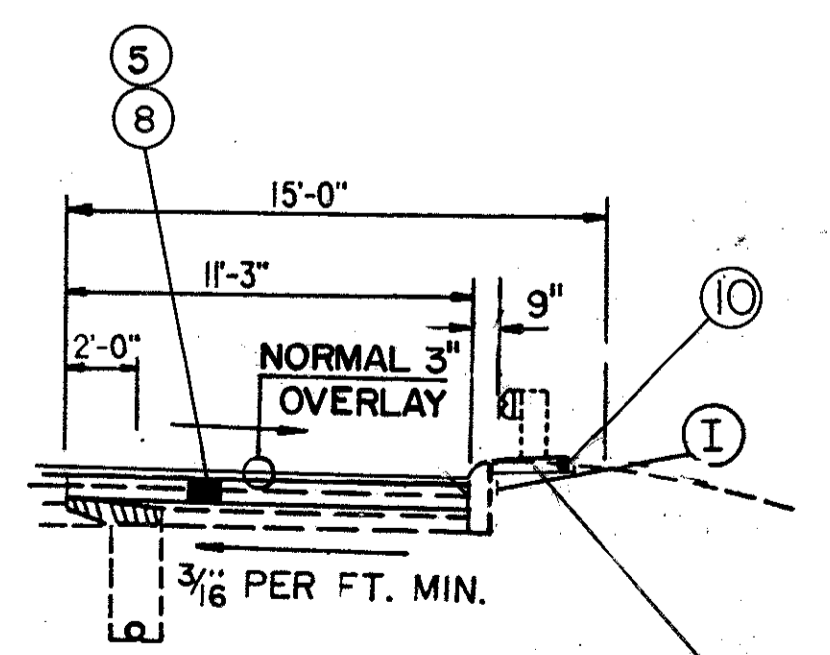
SHOULDER WIDENING (BROADWAY CONNECTOR)
** STA. 57+96.15 TO STA. 62+18.48
** STA. 68+08.65 TO STA. 74+54.29



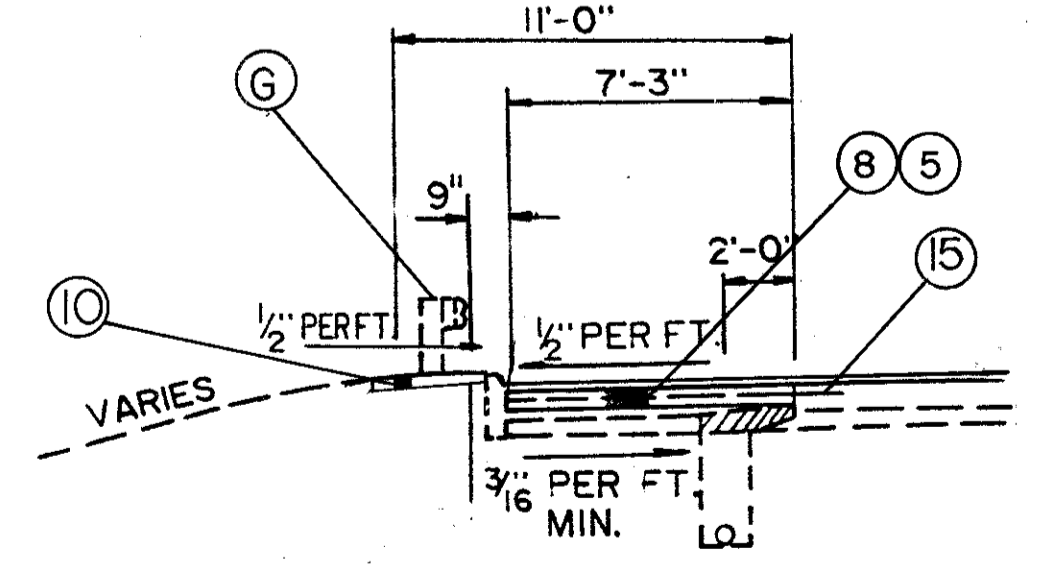
NORMAL SECTION-BROADWAY CONNECTOR
STA. 36+00 TO STA. 74+54.29
* REVERSE ON SUPERELEVATED SECTION



**CONCRETE BARRIER
NORMAL SECTION
SCALE 1/2"=1'-0"**



**CURBED SECTION
DETAIL (11'-3")**
STA. 1158+70.50 TO STA. 1160+89.20 (EB)

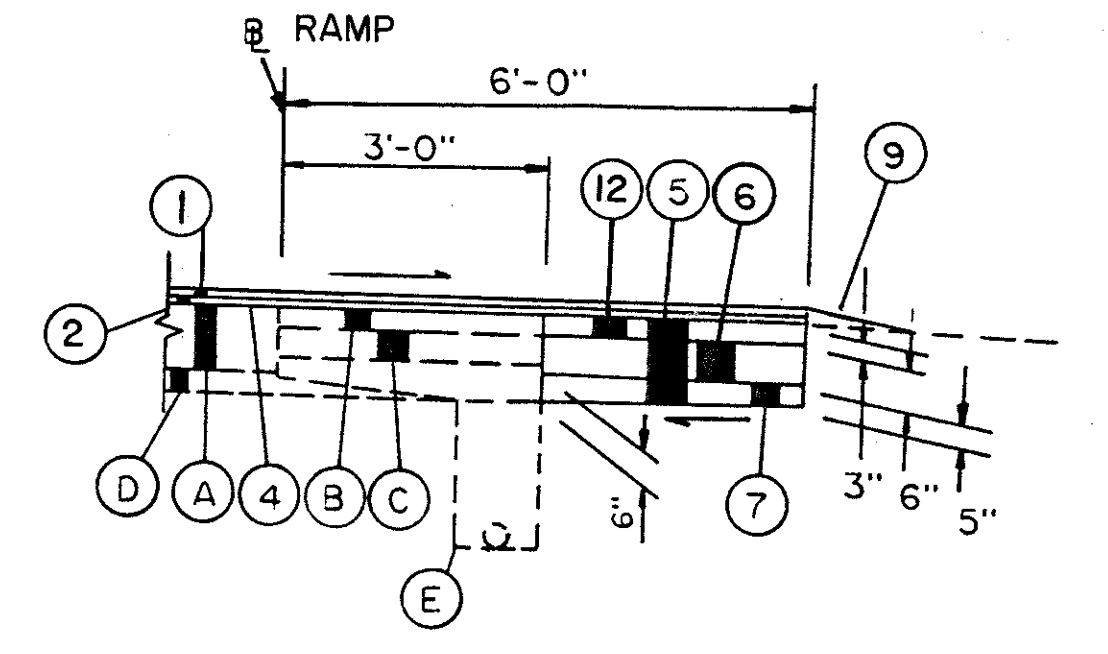
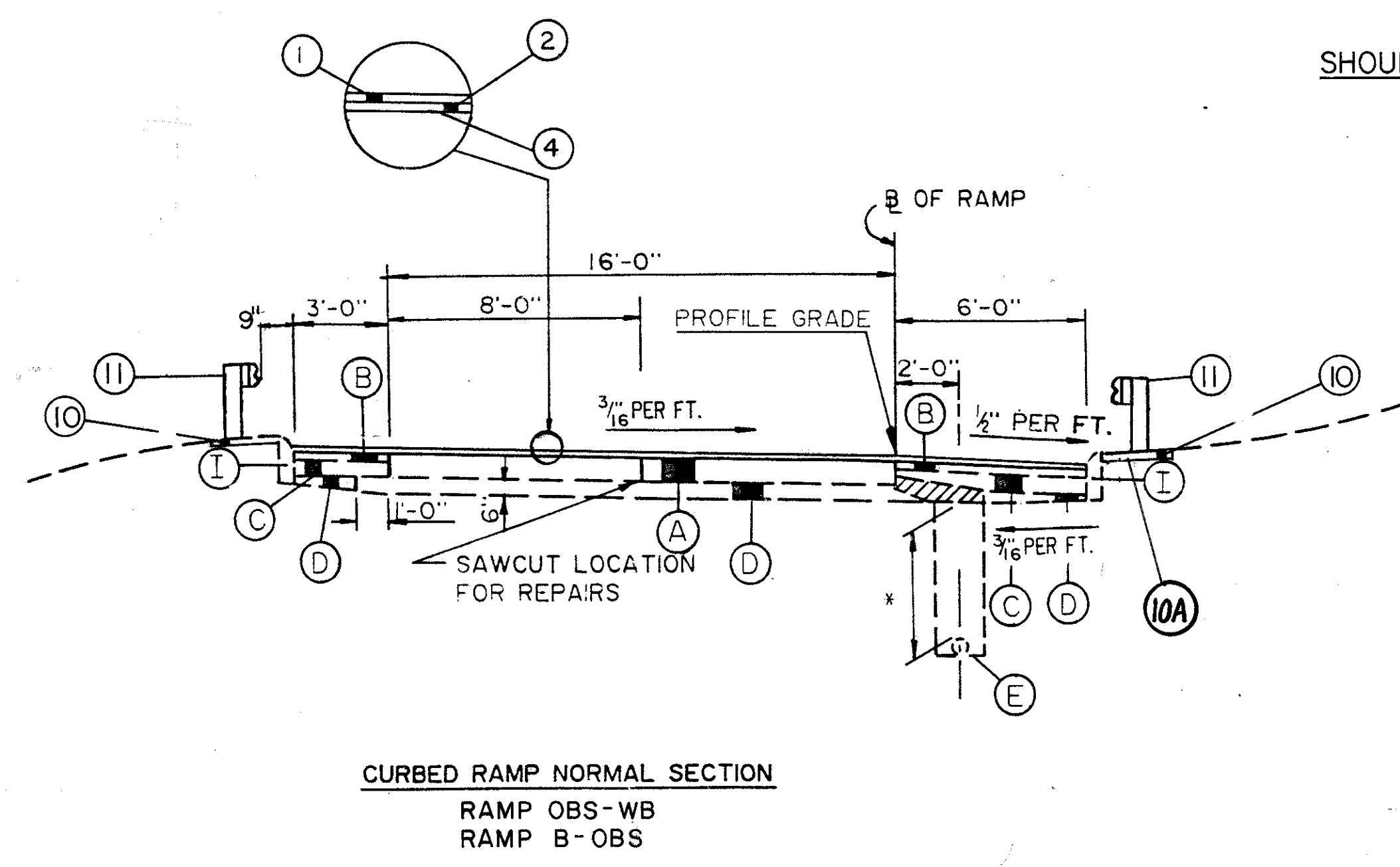
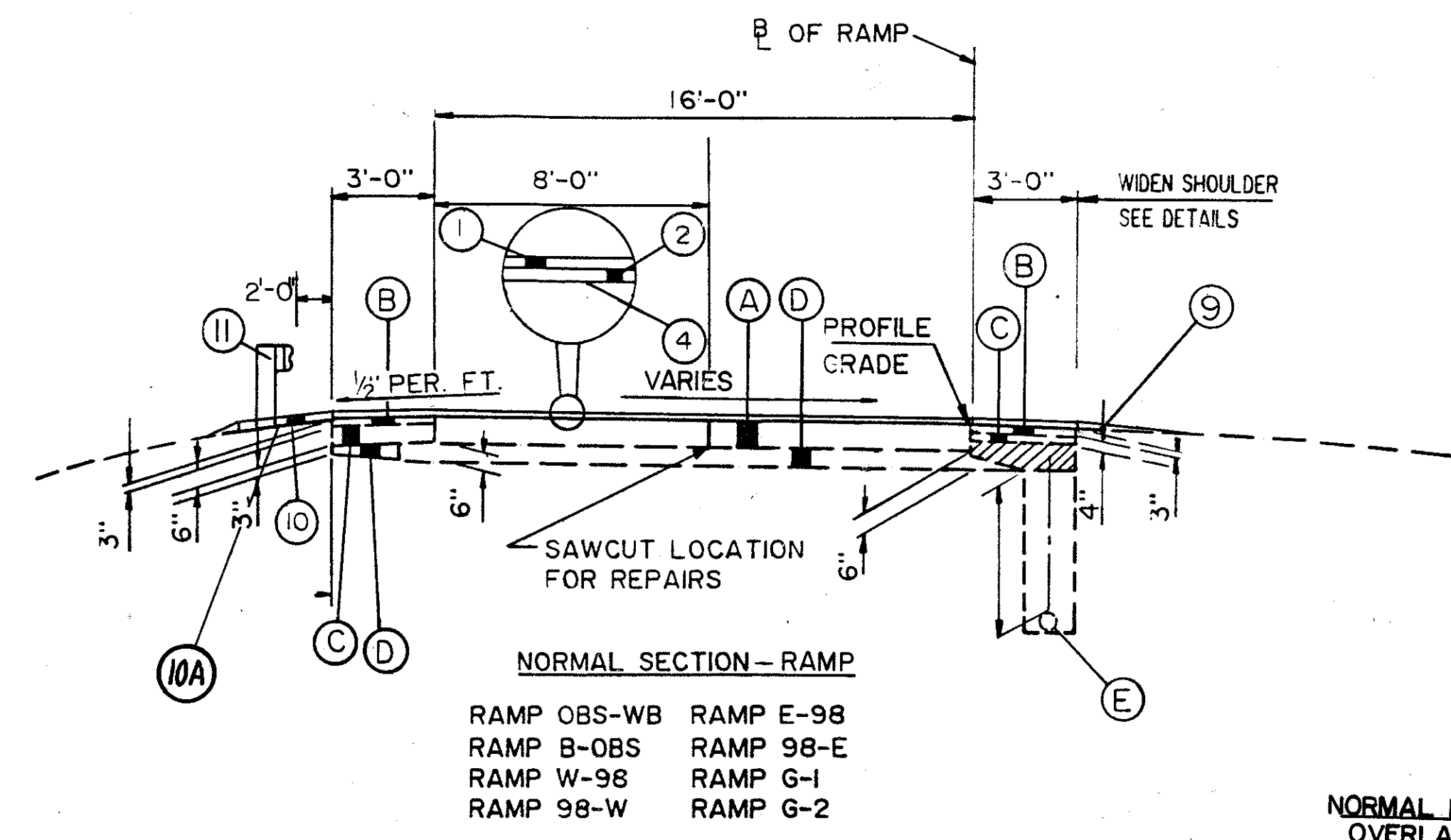
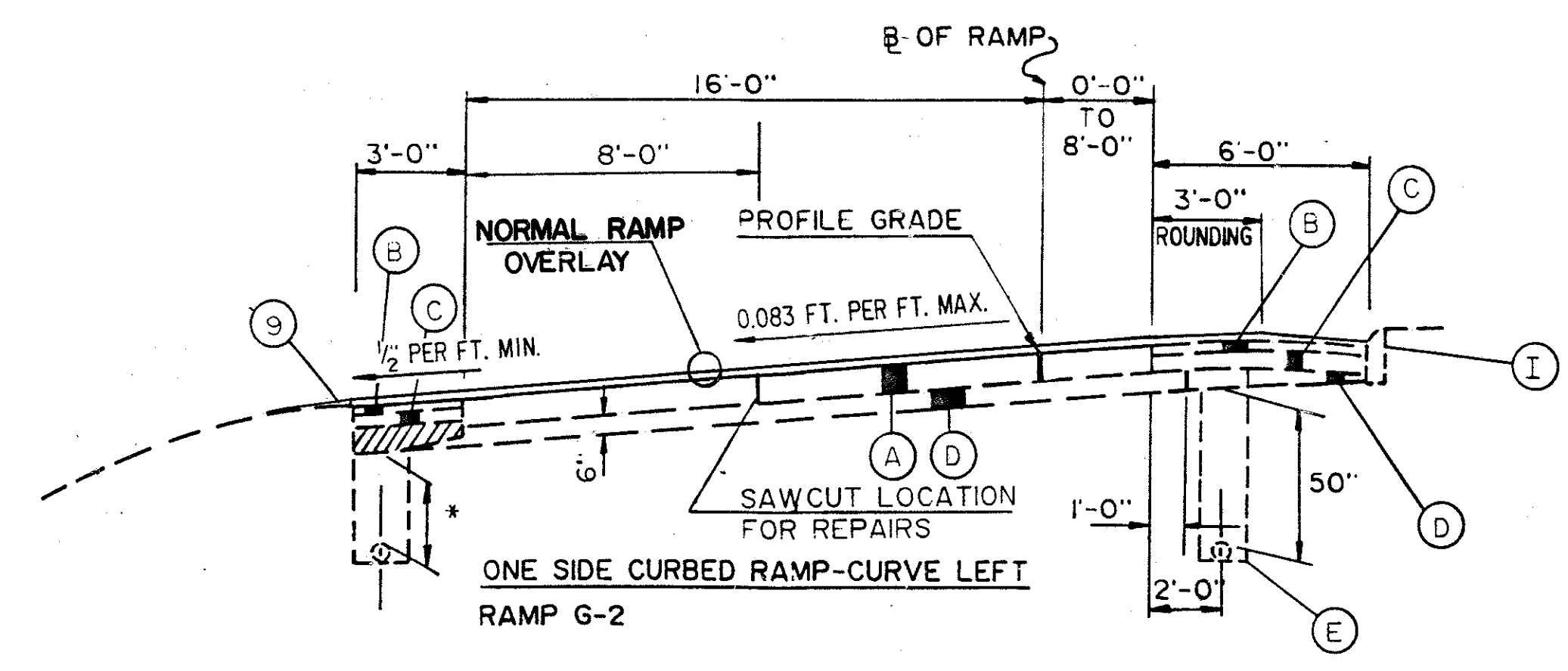
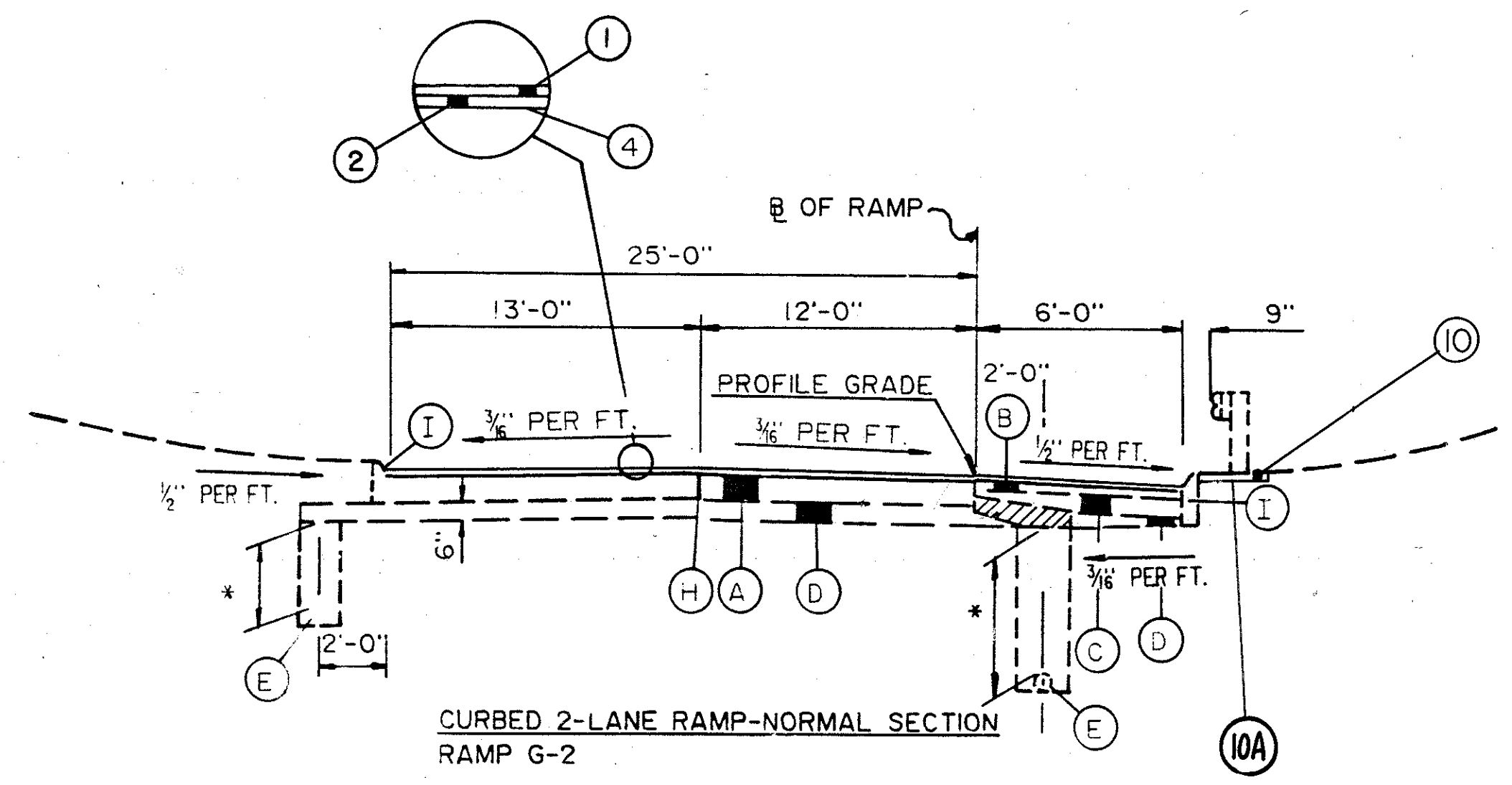
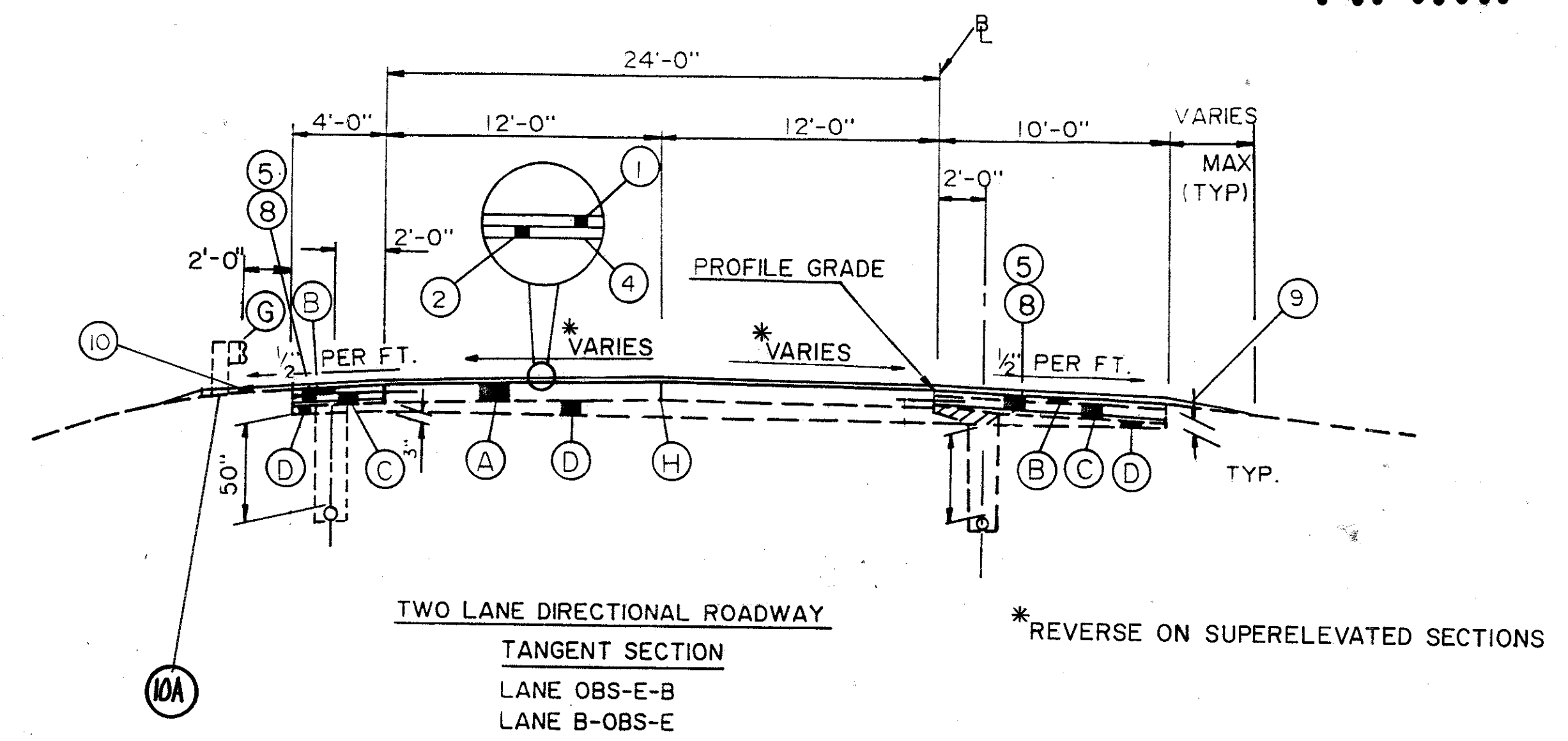


CURBED SECTION (7'-3")
STA. 1158+03.00 TO STA. 1160+27.20 (WB)
STA. 63+66.80 TO STA. 65+73.50 (BROADWAY CONNECTOR)

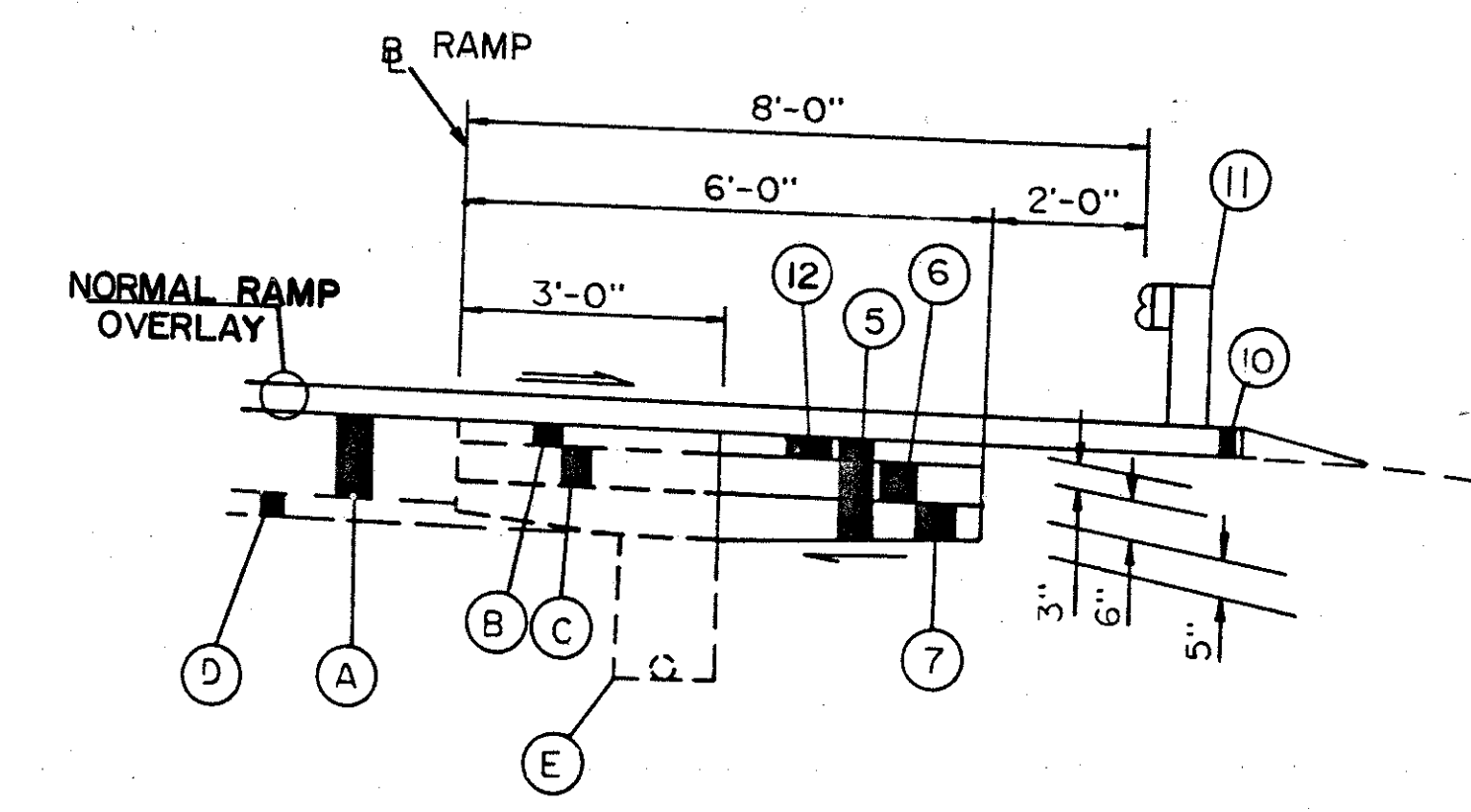
† STA. 35+31 TO STA. 43+80 ADD 12' LANE AND 10' BERM. SEE INTERSECTION DETAILS AND CROSS SECTIONS.

RAMP AND LANE TYPICAL SECTIONS

TYPE 446
 (3" OVERLAY)



NOTE: IF THE EXISTING SHOULDER EDGE IS SEVERELY DETERIORATED, AN ADDITIONAL 6" MAY BE REMOVED TO PROVIDE A GOOD JOINT.



FOR LEGEND, SEE SHEET 3

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	
5	OHIO		6 171

GENERAL

PROJECT DESCRIPTION

THIS PROJECT SHALL CONSIST OF THE SAFETY UPGRADING AND RESURFACING OF IR-480 FROM WCL IN GARFIELD HEIGHTS TO BROADWAY (SR-14). WORK IS ALSO TO INCLUDE 10 BRIDGES (OVERLAYS AND WEARING SURFACE TREATMENT). ITEMS INCLUDED SHALL BE GUARDRAIL, 3" OR 5" ASPHALT CONCRETE, SIGNING, SHOULDER REBUILDING AND WIDENING, AND EROSION CONTROL AND DRAINAGE WORK.

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 800 SQ. FT. OF FLOOR SPACE. PAYMENT SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 619-FIELD OFFICE.

RIGHT OF WAY

ALL WORK SHALL BE PERFORMED WITHIN THE EXISTING RIGHT OF WAY OR EASEMENTS.

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN TAKEN FROM THE RECORDS AND ARE BELIEVED TO REPRESENT THE EXISTING PAVEMENT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THE SAME.

FOR FURTHER INFORMATION IN REGARD TO THE EXISTING TYPICAL SECTIONS THE CONTRACTOR SHALL REFER TO THE PREVIOUS CONSTRUCTION PLANS. THESE PLANS MAY BE REVIEWED AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT TWELVE OFFICES, 10100 BROADWAY AVENUE, GARFIELD HEIGHTS, OHIO 44125.

CONTINGENCY QUANTITIES:

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

UNDERGROUND UTILITIES:

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE.

UTILITY OWNERSHIP:

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

- | | |
|--|---|
| 1. THE CLEVELAND ELECTRIC ILLUMINATING CO.
55 PUBLIC SQUARE
CLEVELAND, OHIO 44101
(216)623-1350 | 5. SUN PIPELINE COMPANY
7155 INKSTER RD.
TAYLOR, MI. 48180
(313)292-8850 |
| 2. OHIO BELL TELEPHONE CO.
1020 BOLIVAR RD.
CLEVELAND, OHIO 44115
(216)822-6291 | 6. CUYAHOGA COUNTY SANITARY ENGINEER
75 PUBLIC SQUARE
CLEVELAND, OHIO 44113
(216)443-7600 |
| 3. THE EAST OHIO GAS CO.
1201 EAST 55TH ST.
CLEVELAND, OHIO 44103
(216)432-6803 | 7. CITY OF CLEVELAND,
DEPT. OF WATER
1201 LAKESIDE AVE.
CLEVELAND, OHIO 44114
(216)664-3349 |
| 4. AT&T
300 SOUTH RIVERIDGE PLAZA
2ND FLOOR
CHICAGO, ILLINOIS 60606
(312) 559-7779 | 8. CLEVELAND PUBLIC POWER
1201 LAKESIDE AVE.
CLEVELAND, OHIO 44114
(216) 664-4600 |

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS OPERATIONS WITH THE CONTRACTOR'S ON OTHER PROJECTS THAT MAY BE IN FORCE DURING THE LIFE OF THIS CONTRACT. NO WAIVER OF ANY PROVISIONS OF 105.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS IS INTENDED.

EQUIPMENT AND MATERIAL STORAGE

IN ORDER TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC THE CONTRACTOR'S ATTENTION IS DIRECTED TO 614.03. IN ADDITION THE FOLLOWING PROVISIONS SHALL APPLY:

- 1) STORED OR PARKED VEHICLES, MATERIALS AND EQUIPMENT SHALL BE LOCATED BEHIND EXISTING PERMANENT GUARDRAIL OR NOT LESS THAN 30 FEET BEYOND THE TRAVELED WAY.
- 2) ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE STATE.

COST PARTICIPATION

THE QUANTITIES WHICH APPEAR IN THE GENERAL SUMMARIES HAVE BEEN PLACED IN THE FOLLOWING PARTICIPATION AREAS:

COST PARTICIPATION I - FEDERAL AND STATE
COST PARTICIPATION II - STATE ONLY

ALL ITEMS ARE PARTICIPATION I UNLESS SHOWN OTHERWISE.

ROADWAY

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

ALL CORNERS SHALL BE ROUNDED (4' MINIMUM) EVEN THOUGH SHOWN OTHERWISE ON THESE PLANS.

CLEARING AND GRUBBING

CLEARING AND GRUBBING IS NOT REQUIRED FOR THIS PROJECT. THIS OPERATION IS INCLUDED UNDER ITEM 203-LINEAR GRADING AND IS A SCALPING OPERATION ADJACENT TO PAVED SHOULDERS AS INDICATED ON THE PLANS.

ITEM 202- RAISED PAVEMENT MARKERS REMOVED FOR STORAGE

RAISED PAVEMENT MARKERS SHALL BE REMOVED FROM THE ROADWAY IN A MANNER THAT PREVENTS DAMAGE TO THE CASTINGS. REMOVED MARKERS ARE TO BE STORED ON THE RIGHT-OF-WAY WITHIN THE PROJECT LIMITS BY THE CONTRACTOR AS DIRECTED. ALL COSTS TO BE INCLUDED IN THE CONTRACTOR'S PRICE BID FOR ITEM 202- RAISED PAVEMENT MARKERS REMOVED FOR STORAGE.

ITEM 202-RAISED PAVEMENT MARKERS.....1300 EACH
REMOVED FOR STORAGE

ITEM 203 - EMBANKMENT, AS PER PLAN

THE METHOD OF MEASUREMENT FOR THIS ITEM SHALL BE BY THE METHOD OF AVERAGE END AREAS WHERE CROSS SECTIONS ARE INCLUDED IN THE PLANS. WHERE CROSS SECTIONS ARE NOT INCLUDED IN THE PLANS (GRANGER ROAD) THE METHOD OF MEASUREMENT SHALL BE BY CALCULATIONS BASED UPON TYPICAL SECTIONS.

THE TOP 3 INCHES OF EMBANKMENT SHALL CONSIST OF LOOSE, FRIABLE, LOAMY SOIL WITHOUT THE ADMIXTURE OF REFUSE OR STONE GREATER THAN 1 INCH. THE SOIL SHALL BE CAPABLE OF SUPPORTING VEGETATION.

ITEM 203 LINEAR GRADING

THIS ITEM SHALL BE PERFORMED ALONG THE OUTSIDE EDGE OF PAVED SHOULDERS UNDER GUARDRAIL IN PREPARATION FOR SOIL STERILANT AND ITEM 404.

THIS ITEM OF WORK SHALL INCLUDE ALL THE SITE RESTORATION AND EMBANKMENT AND EXCAVATION NECESSARY TO PROVIDE A LEVEL SURFACE AT THE EDGE OF SHOULDER FOR RESURFACING. THE CONTRACTOR SHALL PROVIDE SMOOTH SHOULDER SLOPES (1/2" PER FOOT MIN., 1" PER FOOT MAX.).

ITEM 606 GUARDRAIL, TYPE 5 & ITEM 404 ASPHALT CONC. APP.

A SPECIFIED WIDTH ADJACENT TO THE EXISTING OUTSIDE PAVED SHOULDER IN GUARDRAIL AREAS SHALL BE PAVED WITH A 3" COMPACTED COURSE OF ITEM 404 ASPHALT AS SHOWN ON THE TYPICAL SECTION. PRIOR TO PLACING THIS MATERIAL, A SOIL STERILIZER USING ONE OF THE FOLLOWING BRANDS SHALL BE APPLIED AT THE RATE RECOMMENDED BY THE MANUFACTURERS; 1. PRAMITOL 25E BY CIBA-GEIGY 2. KRAVAR BY DUPONT, OR AN APPROVED EQUAL ITEM 408 BITUMINOUS PRIME COAT SHALL BE APPLIED PRIOR TO PLACING 404 ASPHALT CONC. AFTER THE 404 ASPHALT CONCRETE HAS BEEN PLACED AND COMPACTED, HOLES FOR GUARDRAIL POSTS SHALL THEN BE BORED THRU THE 404 BY THE USE OF A BORING MACHINE OR A METHOD APPROVED BY THE ENGINEER. THE DISTURBED AREA AROUND EACH POST SHALL THEN BE BACKFILLED WITH 404.

THE SOIL STERILANT SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 408 BITUMINOUS PRIME COAT, AS PER PLAN.

PAYMENT SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEMS 606 GUARDRAIL, TYPE 5 & 404 ASPHALT CONCRETE, AC-20 AS PER PLAN.

FOR ESTIMATED QUANTITIES, SEE SHEETS 20 AND 23.

ITEM 254-PAVEMENT PLANING, PORTLAND CEMENT CONCRETE

THIS ITEM SHALL CONSIST OF CHIPPING THE EXISTING CONCRETE PAVEMENT AS DETAILED AND DESCRIBED ON SHEET NO. 48, AND AS DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 254- PAVEMENT PLANING, PORTLAND CEMENT CONCRETE...1500 SQ.YD.

ITEM 254-PAVEMENT PLANING, BITUMINOUS

THIS ITEM SHALL CONSIST OF REMOVING EXISTING ASPHALT OVERLAY AS DETAILED ON SHEET NO. 48, AND AS DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 254-PAVEMENT PLANING, BITUMINOUS.....3500 SQ.YD.

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	
5	OHIO		7 171

LOCATION OF GUARDRAIL

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

GUARDRAIL PROTECTION

NO SIGNS SUPPORTS SHALL BE ERECTED BEFORE THE NECESSARY GUARDRAIL PROTECTION IS IN PLACE. SIMILARLY EXISTING GUARDRAIL WHICH PROTECTS AN OBSTRUCTION OR SLOPE WHICH IS TO BE UPGRADED TO ELIMINATE GUARDRAIL, SHALL NOT BE REMOVED UNTIL THAT WORK HAS BEEN COMPLETED. EXISTING GUARDRAIL WHICH IS SCHEDULED TO BE REPLACED WITH TYPE 5 GUARDRAIL, SHALL NOT BE REMOVED UNTIL THE NEW GUARDRAIL IS READY TO BE INSTALLED. UNDER NO CIRCUMSTANCES SHALL ANY HAZARD BE WITHOUT GUARDRAIL PROTECTION FOR MORE THAN 24 HOURS. (SEE PUBLIC SAFETY NOTE SHEET NO. 12)

GUARDRAIL REPLACEMENT

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR SPOT REPLACEMENT OF GUARDRAIL IN ADDITION TO THE QUANTITIES TABULATED ON THE GUARDRAIL SUB-SUMMARY TABLE. THESE QUANTITIES SHALL BE USED TO REPLACE DAMAGED GUARDRAIL SECTIONS WHICH WERE NOT OTHERWISE SCHEDULED TO BE REPLACED.

ITEM 202-GUARDRAIL REMOVED.....	200	L.F.
ITEM 606-GUARDRAIL, TYPE 5*.....	200	L.F.
* As Per Plan		

ITEM 606-GUARDRAIL RAISED

EXISTING TYPE 5 GUARDRAIL WHICH IS NOT SCHEDULED FOR REPLACEMENT IN THESE PLANS SHALL BE RAISED TO THE PROPER HEIGHT AFTER RESURFACING HAS BEEN COMPLETED. (SEE STD. CONSTRUCTION DRAWING GR-2B). PAYMENT FOR RAISING EXISTING GUARDRAIL SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY TO RAISE THE GUARDRAIL IN COMFORMANCE WITH ITEM 606 AND THE STANDARD CONSTRUCTION DRAWINGS, GR-2B (2-5-82).

SEE SHEET 20 FOR QUANTITIES.

FASTENING OF BRIDGE TERMINAL ASSEMBLIES

BRIDGE TERMINAL ASSEMBLIES WHICH ARE FASTENED TO THE EXISTING CONCRETE PARAPETS BY STEEL BOX BLOCKOUTS SHALL BE ATTACHED BY MEANS OF THROUGH BOLTS. EXPANSION ANCHOR BOLTS WILL NOT BE PERMITTED.

THIS ITEM REQUIRES THE USE OF POLYESTER RESIN ANCHORS WITH FEMALE THREADED INSERTS (10 INCH LONG) TO ACCEPT 7/8" DIAMETER BOLTS WHEN THRU BOLTS CANNOT BE USED.

ITEM 202-GUARDRAIL POST REMOVED, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL EQUIPMENT, MATERIAL AND LABOR TO MODIFY EXISTING TYPE A ANCHOR ASSEMBLIES TO THE MORE FLEXIBLE TYPE A ANCHOR ASSEMBLY AS PER STANDARD DRAWING GR-4 (2-5-82).

WORK SHALL INCLUDE THE REMOVAL OF EXISTING POST 12.5' FROM THE FREE END OF THE ANCHOR. POST NEED NOT BE COMPLETELY REMOVED BUT MAY BE CUT OFF AT THE GROUND LINE.

SEQUENCE OF OPERATIONS FOR GUARDRAIL INSTALLATION EXCEPT FOR SHOULDER WIDENING SECTION (SEE MAINTANENCE OF TRAFFIC NOTES):

1. COMPLETE SHOULDER CONSTRUCTION.
2. REMOVE EXISTING GUARDRAIL (INSTALL TEMPORARY CONCRETE BARRIER AT HAZARDS-SEE PUBLIC SAFETY NOTE).
3. CONSTRUCT STRIP OF ITEM 404 - ASPHALT CONCRETE, AC-20 AS PER TYPICAL SECTIONS.

4. INSTALL NEW OR RAISE EXISTING GUARDRAIL.

TYPE 5 GUARDRAIL POST SPACING

WHEN THE OFFSET BETWEEN THE FACE OF THE GUARDRAIL AND BRIDGE PIERS, MAJOR SIGNS, SIGN SUPPORTS, OR OTHER FIXED OBSTACLES IS LESS THAN 5 FT.-6 INCH, THE GUARDRAIL SHALL BE STIFFENED BY PROVIDING 3 FT.-1.5 INCH POST SPACING FROM 12.5 FEET IN ADVANCE OF THE OBSTRUCTION TO ITS END, AS PER STD. DRAWING GR-7. COST INCLUDED IN THE TYPE 5 UNIT PRICE BID.

DUST CONTROL

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR DUST CONTROL:

ITEM 616-WATER.....	10	M.GAL
ITEM 616-CALCIUM CHLORIDE.....	5	TON

CURB AND MEDIAN REPLACEMENT

ITEM 202-CURB REMOVED, AS PER PLAN

THIS ITEM OF WORK SHALL BE USED TO REPLACE ALL OF THE EXISTING CURB AND DISPLACED 4" CONCRETE MEDIAN AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THE CURB REPAIR DETAIL, SHEET 49. THE LOCATIONS ARE AS SHOWN ON THE PLAN SHEETS (RAMP INTERSECTIONS).

THE EXISTING CURB (TYPE 2-A AND INTEGRAL) SHALL BE ENTIRELY REPLACED EXCEPT FOR THE NOSE OF THE MEDIAN WHICH SHALL REMAIN. ALL UNDERDRAINS SHALL ALSO REMAIN. ALL SAW CUTS AND REMOVALS AS SHOWN ON SHEET 50 SHALL BE INCLUDED UNDER ITEM 202-CURB REMOVED, AS PER PLAN. CARE SHOULD BE TAKEN AS TO NOT DISTURB THE EXISTING UNDERDRAIN. THE 4" CONCRETE MEDIAN HAS UPLIFTED OR SAGGED FROM ITS ORIGINAL LOCATION. REPLACE AFFECTED AREAS WITH ITEM 608-4" CONCRETE WALK.

THE FOLLOWING ESTIMATED QUANTITIES SHALL BE USED FOR THIS WORK AND HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	DESCRIPTION	QTY.	UNIT
202	CURB REMOVED, AS PER PLAN	800	LIN.FT.
202	CONCRETE MEDIAN REMOVED	111	SQ. YD.
608	4" CONCRETE WALK	1000	SQ. FT.
609	CURB, TYPE 6	800	LIN.FT.

ITEM 622-CONCRETE BARRIER, TYPE B, AS PER PLAN

THIS ITEM SHALL BE USED TO CONSTRUCT A CONCRETE BARRIER, TYPE B AS SHOWN IN THE PLANS ON SHEET 38.

TRANSITION AS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-9. FOR QUANTITIES, SEE SHEET 24.

ITEM SPECIAL - GROOVED RUMBLE STRIP INSTALLATION

THIS ITEM SHALL CONSIST OF CUTTING GROOVES IN NEW CONCRETE PAVEMENT AS SHOWN IN THE DETAILS ON SHEETS 49. WORK SHALL INCLUDE CLEANING THE GROOVES AND DISPOSING OF ALL EXCESS MATERIALS BEFORE OPENING TO TRAFFIC.

THE PROPOSED RUMBLE STRIPS SHALL CONSIST OF PARALLEL GROOVES CUT AT ONE (1) FOOT CENTER TO CENTER. EACH GROOVE SHALL BE CUT TO A DEPTH OF 3/8" (1/2" MAXIMUM). WIDTH OF THE GROOVE AT THE PAVEMENT SURFACE IS TO BE 4 INCHES.

RUMBLE GROOVES SHALL BE MEASURED BY THE LINEAL FOOT

BASIS OF PAYMENT SHALL BE THE UNIT PRICE BID PER LINEAL FOOT OF RUMBLE GROOVE ACCEPTED IN PLACE. PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIAL REQUIRED TO COMPLETE THIS ITEM. FOR QUANTITIES, SEE SHEET 24.

IMPACT ATTENUATOR WORK

THESE ITEMS OF WORK SHALL INCLUDE REMOVAL AND REPLACEMENT OF THE EXISTING HI-DRO CELL IMPACT ATTENUATOR. REMOVAL SHALL NOT INCLUDE ANY PART OF THE BACK-UP WALL OR CONCRETE PAD WITH THE EXCEPTION OF THE FRONT ANCHORAGE ASSEMBLY AS SHOWN ON SHEET 44.

THE EXISTING ATTENUATOR, HI-DRO CELL MODEL #209800S8S, MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., SHALL BE REMOVED INCLUDING ALL CELLS, PANELS, CABLES, AND MISCELLANEOUS HARDWARE AND DELIVERED BY THE CONTRACTOR TO O.D.O.T. RIVEREDGE YARD, 4940 OLD GRAYTON RD., CLEVELAND, OHIO 44135 (216)676-5295. AT LEAST 48 HOURS ADVANCE NOTICE WILL BE REQUIRED BEFORE DELIVERY. THE REMAINING BACKWALL SHALL BE FREE OF RUST AND DEBRIS.

THE PROPOSED REPLACEMENT ATTENUATOR, HEX FOAM SANDWICH SYSTEM, MODEL #209800H8S, MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., OR APPROVED EQUAL, SHALL BE RETROFITTED ON THE EXISTING BACKWALL AND ANCHORED AS SHOWN ON SHEET 44, OR AS RECOMMENDED BY THE MANUFACTURER.

AFTER ALIGNMENT, STANDARD INSTALLATION PROCEDURES SHALL BE AS PER MANUFACTURERS INSTRUCTIONS. DETAILS FOR PLACEMENT CAN BE OBTAINED THROUGH THE DISTRICT OFFICE.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	DESCRIPTION	QUANTITY	UNIT
202	IMPACT ATTENUATOR REMOVED	1	EACH
SPEC	IMPACT ATTENUATOR, HEX FOAM SANDWICH SYSTEM, MODEL #209800H8S	1	EACH

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	
5	OHIO		

8
171

PAVEMENT

SPREADING EQUIPMENT

AN AUTOMATIC SCREED CONTROL HAVING A 40 FOOT SKI ARM SHALL BE USED FOR PLACING THE INTERMEDIATE COURSE (SEE PROPOSAL NOTE). FOR FULL WIDTH PAVING, THE WIDTH LAID SHALL NOT EXCEED THE PAVER'S RATED WIDTH AS RECOMMENDED BY THE PAVER MANUFACTURER.

LONGITUDINAL JOINTS

LONGITUDINAL JOINTS BETWEEN A PAVEMENT LANE AND ADJOINING BERM OR SPEED CHANGE LANE AND BETWEEN A SPEED CHANGE LANE AND THE ADJOINING BERM SHALL BE MADE THE SAME DAY. ALL LONGITUDINAL JOINTS SHALL BE HOT WITH THE EXCEPTION OF ONE COLD JOINT PER ROADWAY. LONGITUDINAL JOINT LOCATIONS SHALL BE AS APPROVED BY THE ENGINEER. EACH RAMP SHALL HAVE ONLY ONE LONGITUDINAL COLD JOINT LOCATED APPROXIMATELY HALFWAY ACROSS THE RAMP.

ALIGNMENT AND PROFILE:

THE WORK PROPOSED BY THIS PROJECT IS FOR THE RESURFACING OF THE EXISTING PAVEMENT. THE PROFILE OF THE PROPOSED SURFACE WILL BE APPROXIMATELY 3 (OR 5) INCHES ABOVE THAT OF THE EXISTING PAVEMENT.

CONTRACTION JOINTS IN PAVEMENT WIDENING

WHERE NEW CONCRETE PAVEMENT IS PLACED ADJACENT TO EXISTING CONCRETE PAVEMENT, CONTRACTION JOINTS SHALL BE PROVIDED IN THE NEW PAVEMENT SO AS TO FORM A CONTINUOUS JOINT WITH THAT IN THE EXISTING PAVEMENT.

IF THE DISTANCE BETWEEN THE EXISTING JOINTS IS GREATER THAN 40', ADDITIONAL CONTRACTION JOINTS AT A MAXIMUM SPACING OF 40' SHALL BE PLACED IN THE NEW PAVEMENT.

ITEM 251-PARTIAL DEPTH PAVEMENT REPAIR (CONCRETE) *

THIS ITEM SHALL CONSIST OF THE REMOVAL OF 2" MIN., 3" MAX. OF CONCRETE WEARING SURFACE IN AREAS EXHIBITING DETERIORATION.

IF AFTER THE REMOVAL OPERATION, THE ENGINEER DETERMINES THAT A FULL DEPTH REPAIR WILL BE NECESSARY, NO FURTHER WORK WILL BE REQUIRED. PAYMENT FOR THE GRINDING OPERATION WILL BE MADE BY PAYING 50 PERCENT OF THE MEASURED AREA AT THE UNIT PRICE BID FOR ITEM 251-PARTIAL DEPTH PAVEMENT REPAIR (CONCRETE), NOTES CONTINUED LAST COLUMN SHT. 8.

ITEM 252-FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT (SEE PROPOSAL NOTE)

THIS WORK SHALL BE PERFORMED WHERE RIGID REPLACEMENT IS NOT FEASIBLE AS DETERMINED BY THE ENGINEER. (TYPICALLY THE RAMP TERMINI AT INTERSECTING ROADWAYS WHERE CURBS PROHIBIT THE SHIFTING OF THROUGH TRAFFIC)

THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED TO PERFORM THIS WORK AS DIRECTED BY THE ENGINEER:

ITEM 252 - FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT.....	4000	SQ. YD.
ITEM 252 - FULL DEPTH PAVEMENT SAWING.....	6000	LIN.FT.

ITEM 305 - CONCRETE BASE, AS PER PLAN

THIS ITEM SHALL BE USED ON MAINLINE AND DIRECTIONAL LANE BERMS. THE CONTRACTOR SHALL FOLLOW THE MAINTENANCE OF TRAFFIC PLANS TO DETERMINE WHICH PHASE THIS SHALL BE PERFORMED.

ITEM 310 - SUBBASE, TYPE 1, AS PER PLAN

ITEM 304 - AGGREGATE BASE, AS PER PLAN

MATERIALS FURNISHED FOR THESE ITEMS SHALL EXCLUDE ALL SLAG EXCEPT GRANULATED SLAG OR CRUSHED AIR-COOLED BLAST FURNACE SLAG.

ITEM 301 - BITUMINOUS AGGREGATE BASE, AC-20

THIS ITEM SHALL BE USED ON ALL RAMP BERMS TO REPAIR BADLY DAMAGED BERM AREAS. THIS WORK SHALL INCLUDE THE CONSTRUCTION OF A 3" OR 6" COURSE OF ITEM 301 ON THE EXISTING SUBBASE OR NEW SUBBASE AT THE CROSS SLOPES AS SHOWN ON THE TYPICAL SECTIONS.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 301-BITUMINOUS AGGREGATE BASE, AC-20,	500	C.Y.
ITEM 203-EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	500	C.Y.

ITEM 310 - SUBBASE, TYPE 1 AS PER PLAN

THIS ITEM SHALL BE USED TO REPLACE EXISTING UNSUITABLE SUBBASE PRIOR TO THE PLACING OF ITEM 301. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 310-SUBBASE, TYPE 1 AS PER PLAN	500	C.Y.
ITEM 203-EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	500	C.Y.

ITEM 407-TACK COAT

THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENTS AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.075 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

ITEM 446-ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20, AS PER PLAN

THE AGGREGATE IN THE 446 SURFACE COURSE TYPE I IS RESTRICTED TO SLAG, WHEN USED AS A SURFACE COURSE.

STATION MARKINGS IN ASPHALT CONCRETE SURFACE COURSE

THE CONTRACTOR SHALL INSTALL AN INLAID THERMOPLASTIC MARKING EACH 100 FEET INTO THE WARM SURFACE BY THE USE OF A MECHANICAL ROLLER.

THE MARKINGS SHALL BE LOCATED TWELVE INCHES IN FROM THE RIGHT EDGE OF THE PAVED SHOULDER AND SHALL BE SHAPED AS FOLLOWS:

- 1) ONE 4 INCH X 12 INCH RECTANGLE AT EACH 1000 FOOT STATION.
EXAMPLE: STA. 220+00
- 2) TWO 4 INCH DOTS AT EACH 500 FOOT STATION.
EXAMPLE: STA. 225+00
- 3) ONE 4 INCH DOT AT ALL REMAINING 100 FOOT STATIONS.
EXAMPLE: STA. 223+00

ALL COSTS OF MATERIALS AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 446-ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, AS PER PLAN.

ITEM 446-ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20

THIS ITEM SHALL BE USED IN AREAS OF IRREGULAR RAMP SHOULDERS TO PROVIDE A LEVEL SURFACE TO PLACE THE SURFACE COURSE.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

ITEM 446-ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20	500	C.Y.
--	-----	------

ASPHALT APPROACHES AT BRIDGES

THE ASPHALT APPROACHES TO STRUCTURES SHALL BE PLACED AS SHOWN ON THE DETAILS ON SHEET NO. 48. MINOR SURVEY WORK WILL BE REQUIRED TO DETERMINE THE LIMITS OF WEARING COURSE REMOVAL AND CONCRETE PAVEMENT CHIPPING. THEN, AFTER ALL OF THE ASPHALT WORK IS COMPLETE, THE CONTRACTOR SHALL SURVEY EACH LANE AT THE APPROACHES FOR THE ELEVATIONS EVERY 10 FEET. THE DATA SHALL BE GIVEN TO THE PROJECT ENGINEER. THE PROJECT ENGINEER SHALL DETERMINE IF THE PLAN HAS BEEN FOLLOWED AND WHETHER THE CRITERIA OF A STRAIGHT GRADE HAS BEEN MET. IF THE ENGINEER DETERMINES THAT A STRAIGHT GRADE HAS NOT BEEN MET IN ANY OR ALL LANES, THE CONTRACTOR SHALL GRIND 1" OF ASPHALT ACROSS THE FULL WIDTH OF THE PAVEMENT AT A LENGTH DETERMINED BY THE ENGINEER AND SHALL REPLACE THE SURFACE COURSE(S) UNTIL THE STRAIGHT GRADE CRITERIA IS MET. THIS ADDITIONAL WORK SHALL BE AT NO ADDITIONAL COST TO THE STATE. ALL COSTS OF SAID SURVEY SHALL BE INCLUDED IN THE PERTINENT ITEMS.

ITEM 609 - ASPHALT CONCRETE CURB

THIS ITEM SHALL BE USED TO RE-DIRECT THE FLOW OF WATER AWAY FROM BRIDGE ABUTMENTS LOCATED AT THE DOWNGRADE SIDE OF EACH BRIDGE.

TWENTY FIVE (25) FEET OF ASPHALT CURB SHALL BE USED AT EACH LOCATION. THE CURB SHALL BUTT CLOSELY TO THE WINGWALL AND BE LOCATED EITHER BEHIND OR UNDER THE GUARDRAIL.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 609-ASPHALT CONCRETE CURB AC-20, TYPE 1..... 250 L.F.

ITEM 617-COMPACTED AGGREGATE, TYPE B, AS PER PLAN

THE TOP TWO (2) INCHES (SEE REF. #9 OF THE TYPICAL SECTIONS) OF THIS ITEM SHALL BE NEW MATERIALS. THE REMAINING PORTION MAY BE RECLAIMED MATERIAL FROM THE ADJACENT SHOULDER WORK OR NEW MATERIAL. ITEM 617 SPECIFICATIONS ARE WAIVED FOR THE RECLAIMED MATERIAL EXCEPT FOR COMPACTION. WATER, IF NEEDED, SHALL BE APPLIED AS PER 617 AND INCLUDED UNDER ITEM 617-COMPACTED AGGREGATE, TYPE B, AS PER PLAN.

THE QUANTITIES CALCULATED FOR THIS ITEM WHERE BASED ON THE FOLLOWING CRITERIA:

- 5" OVERLAY - 2.5" DEEP BY 5' WIDE
- 3" OVERLAY - 1.5" DEEP BY 3' WIDE

SEE SHEET 24 FOR QUANTITIES.

THE 5" PAVEMENT OVERLAY MUST BE DONE 2 LIFTS.

THIS ITEM SHALL BE PLACED IN TWO PHASES. THE FIRST PHASE AFTER THE INTERMEDIATE ASPHALT COURSE(S) IS PLACED AND BEFORE TRAFFIC IS SHIFTED ONTO THE BERMS. THE SECOND PHASE AFTER THE SURFACE ASPHALT COURSE IS PLACED.

* ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR (CONCRETE) cont from 1st Column. UPON THE DECISION OF THE ENGINEER USING FULL DEPTH PAVEMENT REPAIR, ITEM 303 FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS C, SHOULD BE USED AS DESCRIBED ON SHT. 9. FOR ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR, SEE PLAN DETAILS AND ESTIMATED QUANTITIES ON SHT. 47.

ITEM 407 TACK COAT, AS PER PLAN. TACK COAT SHALL BE DONE INTO TWO SEPARATE APPLICATION, FIRST APPLICATION ON EXISTING PAVEMENT, LAST APPLICATION SHOULD BE DONE PRIOR TO PLACING FINAL SURFACE COURSE.

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	9 171
5	OHIO		

ITEM 803 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS C

THIS ITEM SHALL CONSIST OF REPLACING EXISTING PAVEMENT IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATIONS 803 AND 905. PAYMENT SHALL BE MADE FOR "CLASS C" ALTHOUGH THE CONTRACTOR MAY USE EITHER "CLASS FS", "CLASS MS", "CLASS S" OR "CLASS C". EXISTING BITUMINOUS OVERLAYS REMOVED SHALL BE REPLACED WITH ITEM 301 AS A SEPARATE PAY ITEM.

IF, AFTER REMOVAL OF THE RIGID PAVEMENT, THE ENGINEER DETERMINES THAT THE SUBBASE OR SUBGRADE HAS FAILED OR IS PUMPING, HE SHALL DIRECT THE CONTRACTOR TO EXCAVATE THE UNSUITABLE MATERIAL AND REPLACE IT WITH COMPACTED 304 AGGREGATE. QUANTITIES OF ITEM 203-EXCAVATION AND ITEM 304-AGGREGATE BASE HAVE BEEN PROVIDED TO REPAIR SAID FAILED SUBBASE AREAS.

IF NEW EDGE DRAINS OR UNDERDRAINS ARE NOT PROPOSED AS PART OF THIS PROJECT THEN AGGREGATE DRAINS SHALL BE PLACED ACROSS THE SHOULDERS AS NECESSARY AND AS DIRECTED BY THE ENGINEER. FOR THIS PURPOSE QUANTITIES OF ITEM 301 BITUMINOUS AGGREGATE BASE AND ITEM 304 AGGREGATE BASE HAVE BEEN PROVIDED TO RECONSTRUCT THE PORTION OF THE EXISTING PAVED BERM DISTURBED BY THE TRENCHING OPERATIONS FOR PLACING THE ITEM 605 AGGREGATE DRAINS.

PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNIT	DESCRIPTION
203	CU. YDS.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
301	CU. YDS.	BITUMINOUS AGGREGATE BASE
304	CU. YDS.	AGGREGATE BASE, AS PER PLAN
605	LIN. FT.	AGGREGATE DRAINS
803	SQ. YDS.	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS C
803	LIN. FT.	FULL DEPTH PAVEMENT SAWING

FOR ESTIMATED QUANTITIES, SEE SHEET 47

ITEM 812 - PORTLAND CEMENT

AN ESTIMATED QUANTITY OF ITEM 812 - PORTLAND CEMENT HAS BEEN INCLUDED IN THE PLANS FOR GROUT SUBSEALING OF EXISTING PAVEMENT. APPROXIMATELY 15% OF THE JOINTS AND CRACKS SHALL BE SUBSEALED AS PER SS 812 IN AREAS WITH NO ASPHALT OVERLAYS.

THIS WORK SHALL BE PERFORMED AFTER PAVEMENT REPAIRS ARE COMPLETE AT LOCATIONS WHICH ARE DISTRESSED OR HAVE BREACHED THE WATERPROOFING, BUT ARE NOT TO BE TOTALLY REPAIRED, AS DIRECTED BY THE ENGINEER. ONLY MAINLINE PAVEMENT SHALL BE SUBSEALED.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 812 - PORTLAND CEMENT 34 TONS

ITEM 305-CONCRETE BASE, AS PER PLAN
ITEM 452-PLAIN CONCRETE PAVEMENT, AS PER PLAN

ALL CEMENT USED FOR ITEMS 305 AND 452 SHALL MEET THE REQUIREMENTS OF 701.05 HIGH EARLY STRENGTH PORTLAND CEMENT.

PREFORMED EXPANSION JOINT MATERIAL

WHERE NEW CONCRETE IS PLACED ADJACENT TO EXISTING CONCRETE BARRIER OR CURB OR NEW CONCRETE OF ANOTHER PAY ITEM, PREFORMED EXPANSION JOINT MATERIAL AS PER 516.03 SHALL BE PLACED BETWEEN THE CONCRETE. ALL COSTS FOR THE JOINT MATERIAL SHALL BE INCLUDED IN THE PERTINENT CONCRETE ITEM.

JOINT SEALER

ALL REFERENCES TO 705.01 OR 705.02, APPEARING ON STANDARD DRAWINGS OR ON THE PLANS, SHALL BE CONSIDERED TO READ 705.04.

ITEM SPECIAL-SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS, 705.04

SEE NOTE IN PROPOSAL FOR THIS ITEM OF WORK.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED TO PERFORM THIS ITEM OF WORK:

ITEM	DESCRIPTION	QUANTITY	UNIT
SPECIAL	SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS, 705.04	45000	LIN.-FT.

EROSION CONTROL/DRAINAGE

REVIEW OF DRAINAGE FACILITIES

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

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

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 604 ADJUSTMENT ITEMS OF THE CONTRACT.

EROSION CONTROL

ALL PERMANENT EROSION CONTROL ITEMS SHALL BE PLACED IMMEDIATELY AFTER THE EARTHWORK IS COMPLETED AT EACH LOCATION.

ITEM 601 PROVIDED IN THE 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 THIS ITEM WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

ITEM 601-DUMPED ROCK FILL, TYPE D

THIS ITEM SHALL BE USED AS EROSION CONTROL UNDER STRUCTURES CUY-480-2140, TO PROVIDE A 12" AGGREGATE COVER THROUGHOUT THE EROSION CONTROL LIMITS. SEE THE STRUCTURE GENERAL PLANS AND ELEVATIONS FOR LOCATIONS AND LIMITS.

FOR ESTIMATED QUANTITIES, SEE SHEET 53

ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN (6")

AREAS OF THE EXISTING SLOPE PROTECTION FOR CUY-480-2071 L, CUY-480-2071 R, CUY-480-2154, CUY-480-2163 W, CUY-480-2165, CUY-480-2170 SHALL BE REMOVED AND REPLACED.

THIS WORK SHALL INCLUDE THE FOLLOWING:

- 1) EXCAVATION AND EMBANKMENT: THE EXCAVATION OF MATERIAL (APPROXIMATELY 300 C.Y.) FOR THE PROPOSED CONCRETE SLOPE PROTECTION, THE REMOVAL OF THE EXISTING CONCRETE OF THE SLOPE PROTECTION, AND THE PLACING OF EMBANKMENT MATERIAL (APPROXIMATELY 300 C.Y.) TO FILL ERODED AREAS UNDER AND ADJACENT TO THE PROPOSED CONCRETE SLOPE PROTECTION.
- 2) PROPOSED SLOPE PROTECTION: THE INSTALLATION OF THE NEW WELDED STEEL WIRE FABRIC REINFORCED SLOPE PROTECTION AS SHOWN ON SHEET 52, INCLUDING WELDED STEEL WIRE FABRIC, 709.10 AND FILTER FABRIC (SEE GENERAL NOTE), AND REMOVAL AND REPLACEMENT OF EXISTING TYPE CL FENCE (AS PER ITEM 607)

FILTER FABRIC IS INCLUDED UNDER THIS ITEM OF WORK AND SHALL BE PLACED AS SHOWN ON SHEET NO. 53

THE FABRIC SHALL MEET THE REQUIREMENTS OF SPECIFICATION 712.09 TYPE B (NONWOVEN). FIELD SPLICES SHALL CONSIST OF 12" OVERLAP SECURED IN ANY MANNER SUITABLE TO THE ENGINEER THAT WILL ASSURE THE OVERLAP IS MAINTAINED. OVERLAP CLOSURE AT THE TOP OF THE TRENCH SHALL BE 18", SECURED AS ABOVE. IF THE TRENCH WIDTH IS LESS THAN 18", THE OVERLAP SHALL EQUAL THE TRENCH WIDTH.

ALL COSTS OF REMOVING THE EXISTING CONCRETE SLOPE PROTECTION (6") AND EXCAVATING MATERIAL SHALL BE INCLUDED UNDER ITEM 202 - CONCRETE SLOPE PROTECTION REMOVED. ALL COSTS OF CONSTRUCTING THE NEW SLOPE PROTECTION, INCLUDING ALL NECESSARY EMBANKMENT, WELDED STEEL WIRE FABRIC, FILTER FABRIC, TYPE 4-A CURB, AND TYPE 2 PAVED GUTTER SHALL BE INCLUDED UNDER ITEM 601 - CONCRETE SLOPE PROTECTION AS PER PLAN (6").

FOR ESTIMATED QUANTITIES, SEE SHEET 53

ITEM 604-CATCH BASINS ADJUSTED TO GRADE, AS PER PLAN
ITEM 604-MEDIAN INLETS, ADJUSTED TO GRADE
ITEM 604-MANHOLES ADJUSTED TO GRADE, AS PER PLAN

ALL CASTINGS, EXCEPT THOSE OWNED BY PRIVATE COMPANIES, SHALL BE ADJUSTED BY THE CONTRACTOR. THE TIME BETWEEN ADJUSTING THE CASTINGS AND RESURFACING SHALL BE KEPT TO AN ABSOLUTE MINIMUM. ADJUSTING RINGS SHALL NOT BE USED.

MEDIAN INLET ADJUSTMENT SHALL BE COMPLETED AS SHOWN ON SHEET NO. 50.

THE ESTIMATED QUANTITIES FOR THE ABOVE MENTIONED WORK ARE AS FOLLOWS:

- ITEM 604-CATCH BASINS, ADJUSTED TO GRADE, AS PER PLAN... 10 EACH
- ITEM 604-MEDIAN INLETS, ADJUSTED TO GRADE, AS PER PLAN...15 EACH
- ITEM 604-MANHOLES, ADJUSTED TO GRADE, AS PER PLAN..... 2 EACH

SUPPLEMENTAL UNDERDRAIN CRITERIA

THE EXISTING MAINLINE UNDERDRAIN SYSTEM (UNDERDRAINS AND OUTLETS) SHALL BE SUPPLEMENTED WITH AN UNDERDRAIN SYSTEM AS SHOWN ON SHEET II. THE CONTRACTOR WILL BE FURNISHED FULL SIZE ORIGINAL CONSTRUCTION PLANS TO ESTABLISH THE UNDERDRAIN AND OUTLET LOCATIONS.

SEE DETAILS AND NOTES ON SHEET NO. II

THE FOLLOWING ESTIMATED QTY. HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	DESCRIPTION	QTY.	UNIT
603	6" CONDUIT, TYPE B	100	LIN. FT.
603	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM 3034 OR SDR 35 OR SS 931	750	LIN. FT.
605	4" SHALLOW PIPE UNDERDRAINS, 707.15, AS PER PLAN	60000	LIN. FT.
SPEC	PRECAST REINFORCED CONCRETE OUTLET	15	EACH

UNDERDRAIN OUTLETS IN EARTHWORK AREAS

EXISTING UNDERDRAIN OUTLETS WHICH ARE ENCOUNTERED IN THE EARTHWORK AREAS SHALL BE EXTENDED AS DIRECTED BY THE ENGINEER USING 6 INCH CONDUIT, TYPE F. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 603-6" CONDUIT, TYPE F..... 150 L.F.

ITEM 605-AGGREGATE DRAIN

THE ESTIMATED QUANTITY OF AGGREGATE DRAIN SHALL BE USED WHERE AND AS DIRECTED BY THE ENGINEER TO DRAIN SUBBASE MATERIAL THAT HAS BECOME SATURATED.

ITEM 605-AGGREGATE DRAINS..... 500 LIN.FT.

WATERING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS AS PER 659.09

ITEM 659 - WATER.....4 M.GAL

CONNECTIONS TO EXISTING PIPES

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

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

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

- ITEM 207 - FILTER FABRIC FENCE.....1000 LIN.FT.
- ITEM 207 - TEMPORARY SEEDING AND MULCHING.....600 SQ.YD.
- ITEM 207 - STRAW OR HAY BALES.....500 EACH
- ITEM 659 - MOWING.....7 M.SQ.FT.
- ITEM 659 - COMMERCIAL FERTILIZER.....0.25 TON
- ITEM 659 - REPAIR SEEDING AND MULCHING.....150 SQ.YD.
- ITEM 659 - WATER.....2 M.GAL.

ITEM 207 FILTER FABRIC FENCE

MATERIALS

FILTER FABRIC SHALL MEET THE REQUIREMENT OF ITEM 207.02.

CONSTRUCTION

THE BOTTOM OF THE FENCE SHALL BE BURIED 6" BELOW THE GROUND. THE FENCE SHALL BE HIGH ENOUGH TO RETAIN SEDIMENT LADEN WATER AND ADEQUATELY SUPPORTED TO PREVENT COLLAPSE OR BURSTING. THE GROUND ELEVATION OF THE FENCE SHALL BE HELD CONSTANT EXCEPT THAT THE END ELEVATIONS SHALL BE RAISED TO PREVENT FLOW AROUND THE END OF THE FENCE.

MAINTENANCE

THE FILTER FABRIC FENCE SHALL, AT THE DIRECTION OF THE ENGINEER, BE MAINTAINED TO BE FUNCTIONAL. THIS SHALL INCLUDE REMOVAL OF TRAPPED SEDIMENT AND REQUIRED CLEANING, REPAIR, AND/OR REPLACEMENT OF THE FILTER FABRIC.

PAYMENT

THE COST OF ALL MATERIALS, CONSTRUCTION, MAINTENANCE AND REMOVAL REQUIRED SHALL BE PAID FOR UNDER ITEM 207 LIN. FT. FILTER FABRIC FENCE.

ITEM 604 INLET, NO. 3D, AS PER PLAN

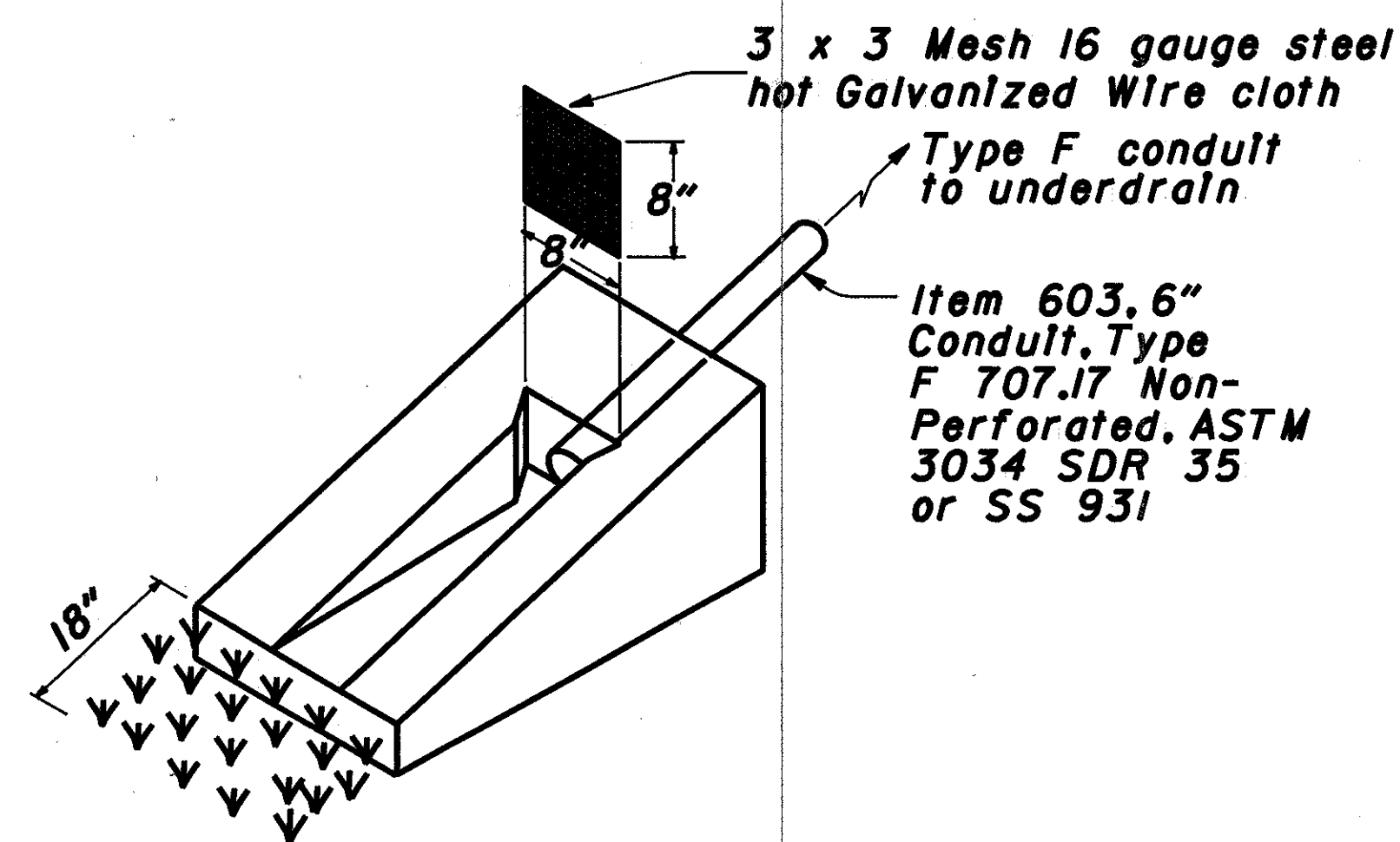
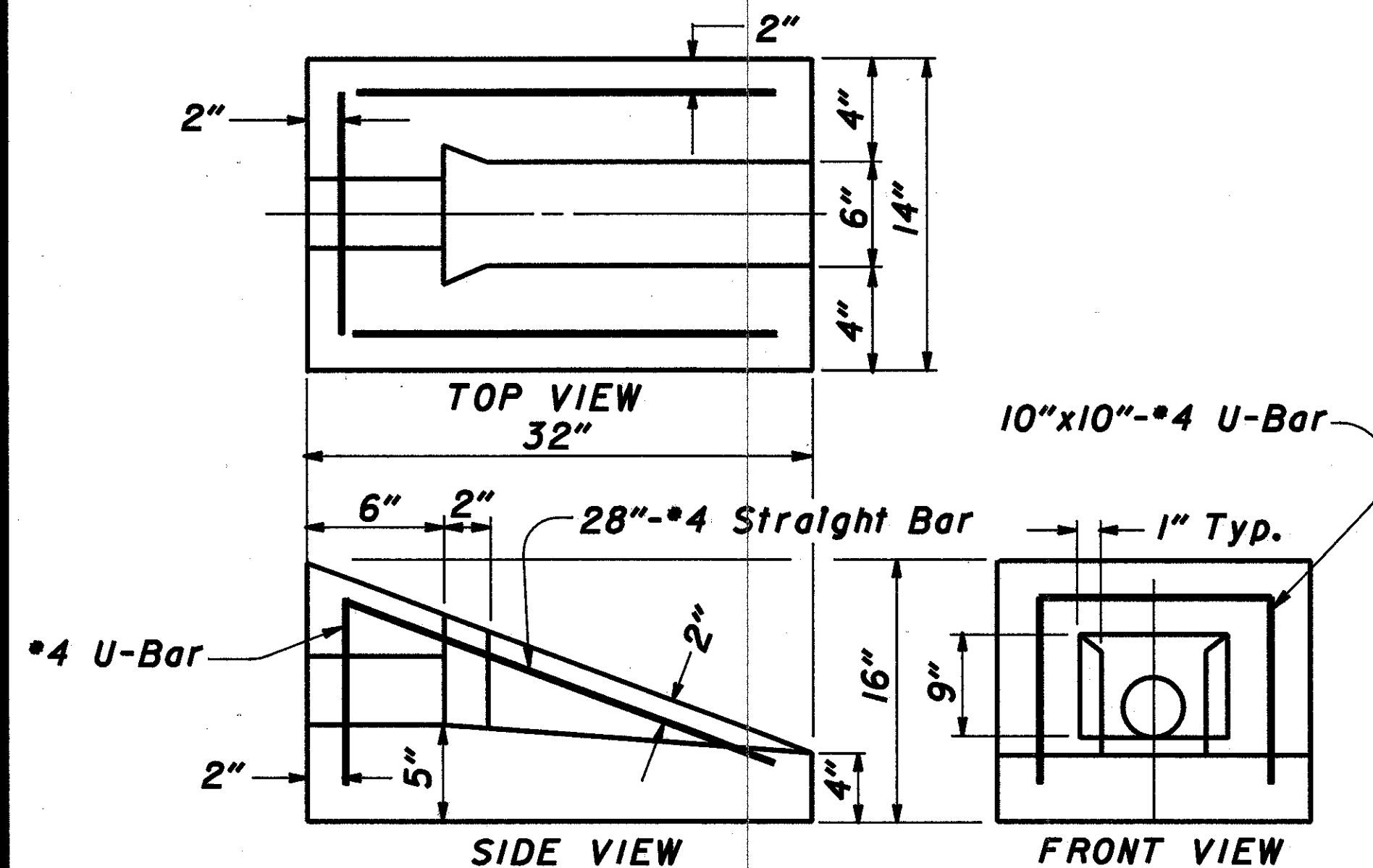
ALL REQUIRED REINFORCING STEEL AS LISTED ON THE STANDARD CONSTRUCTION DRAWING (OR AS MODIFIED) SHALL BE EPOXY-COATED IN ACCORDANCE WITH 709.00. I-BEAMS AND/OR ADDITIONAL PRECAST-REQUIRED REINFORCEMENT ARE NOT SUBJECT TO THIS REQUIREMENT.

ALL COSTS OF THIS TREATMENT SHALL BE INCLUDED IN THE COST OF THIS ITEM.

FHA REGION	STATE	PROJECT	
5	OHIO		11 171

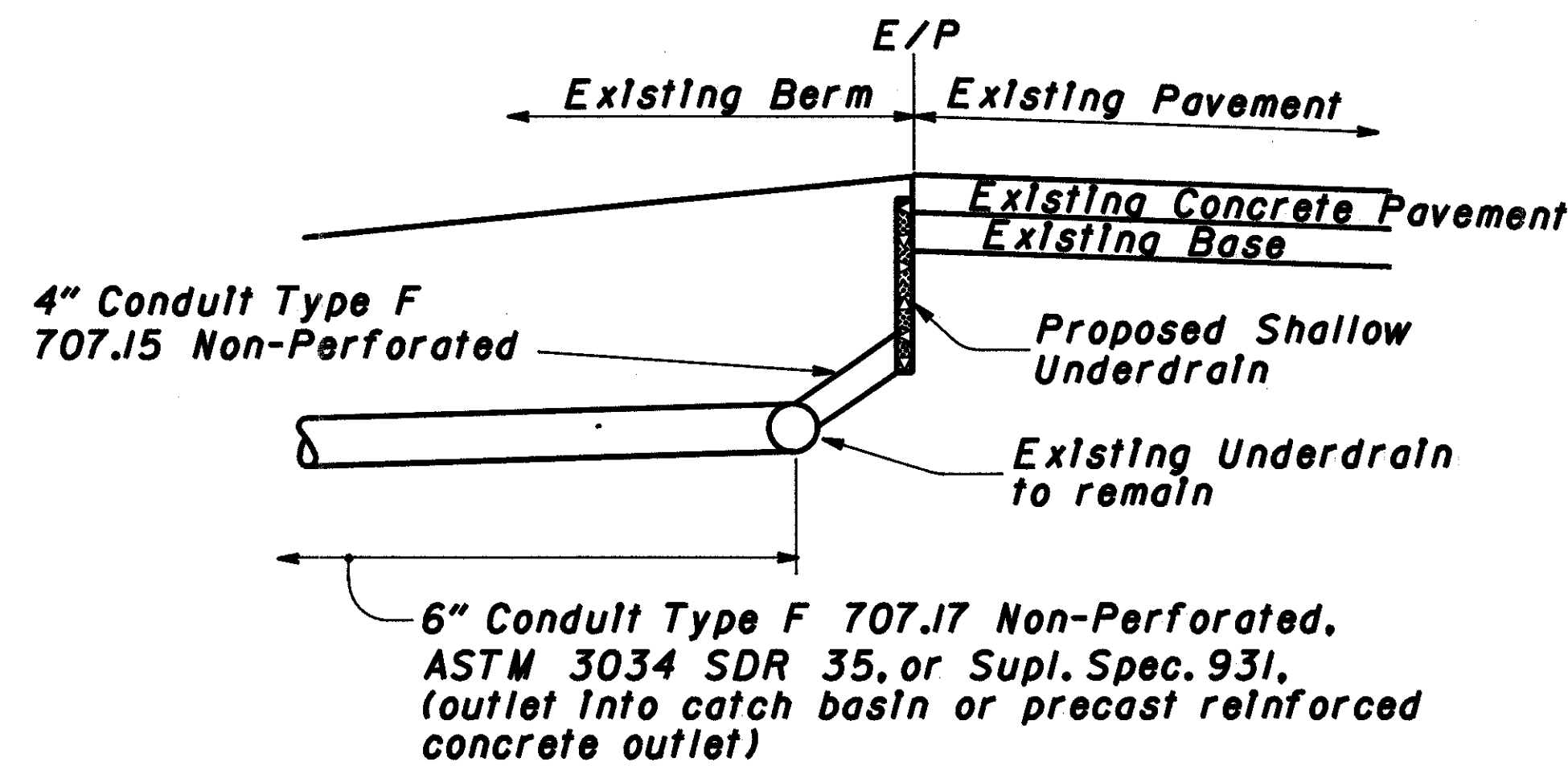
ITEM SPECIAL - PRECAST REINFORCED CONCRETE OUTLET

The Concrete outlet shall meet the requirements of Item 604 in the Construction & Materials Specifications. Payment shall be made on an Each basis. Payment shall include the cost of the Sod & Wire Cloth.

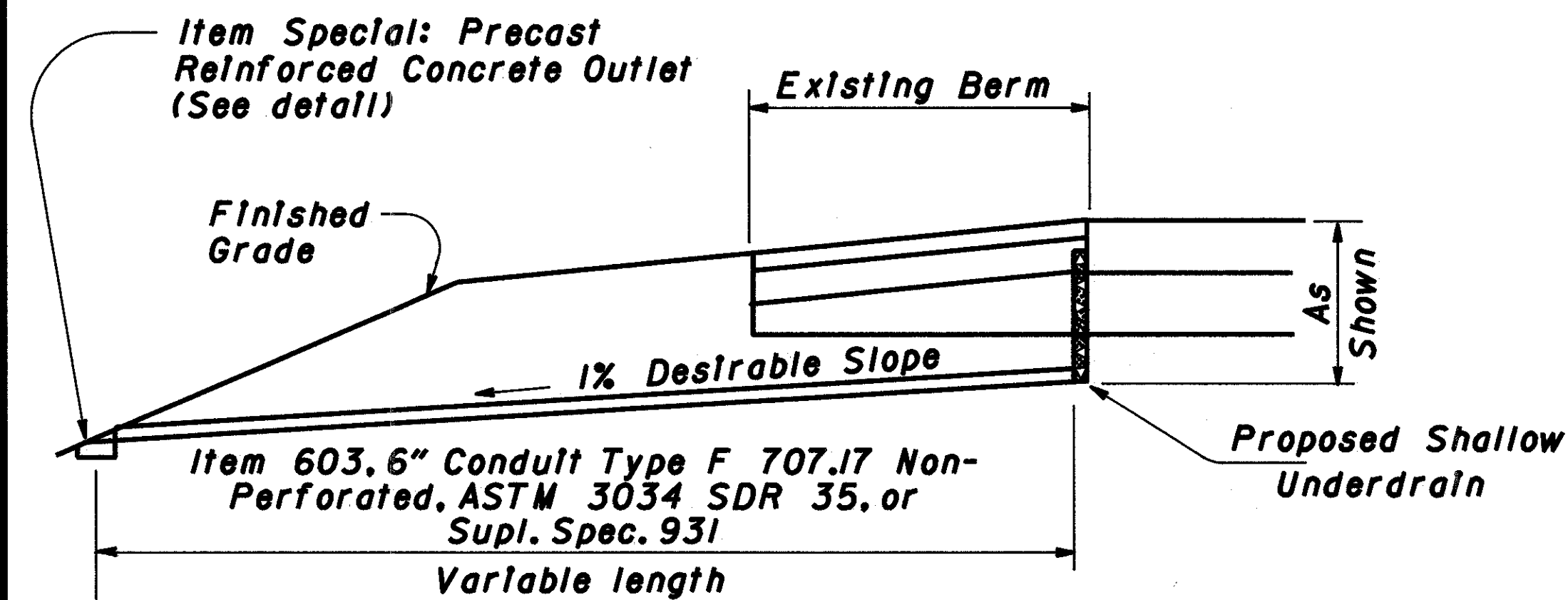


NOTE: The Sod shall be in accordance with Item 660 and staked at each corner approximately 3 inches in from the edge.

OUTLET DETAIL



NOTE: The cost of the 4" conduit Type F 707.15 Non-perforated, and necessary pipe bends and branches needed to connect the existing and proposed underdrains shall be included with the cost of the 6" conduit Type F beyond the existing underdrain.



NOTE: For underdrain outlets into catch basins the above Type F Conduit shall be used entirely between the underdrain & catch basin.

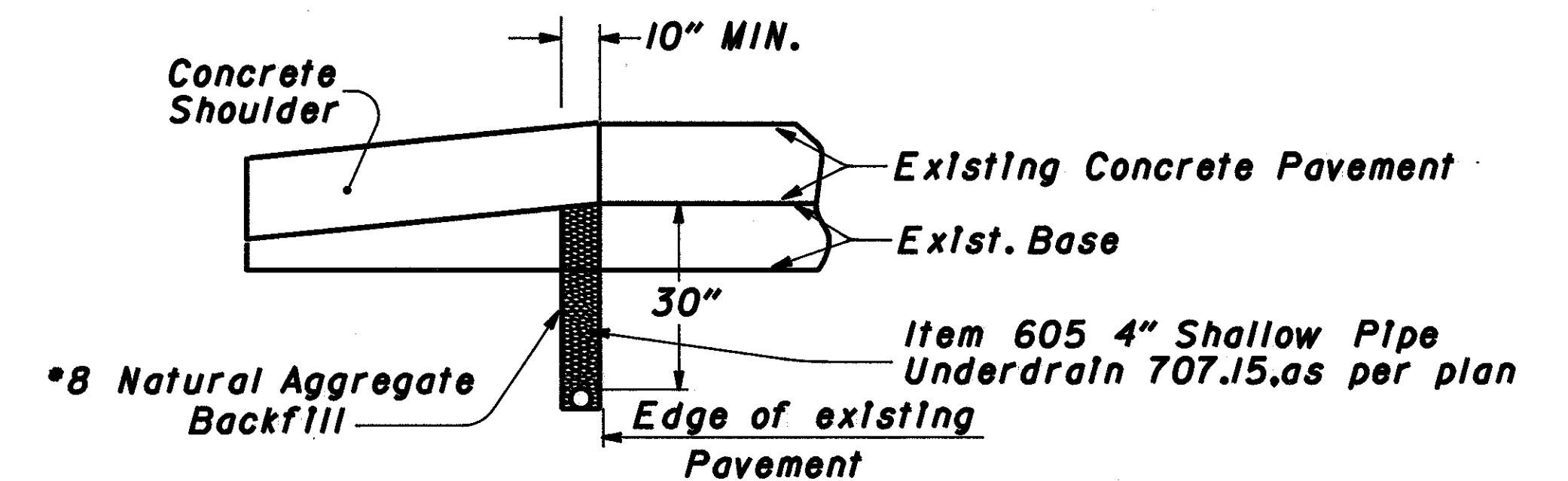
DESCRIPTION: The Item shall consist of furnishing and installing a pipe underdrain system in accordance with the specifications, details as shown on the plans, and as directed by the Engineer.

MATERIALS: The underdrain shall be a pipe underdrain system per Item 605. The outlets for the underdrain system shall be constructed as soon as possible after placement of the underdrain to drain the subbase & subgrade. All pipe bends & branches needed to connect the proposed underdrain to the proposed outlet or to an existing underdrain shall be manufactured fittings.

METHOD OF MEASUREMENT: Completed and accepted underdrains will be measured by the linear foot in place.

BASIS OF PAYMENT: Work completed and accepted under this Item and measured will be paid for at the contract unit price bid per linear foot for Item 605 4" Shallow Pipe Underdrain 707.15, as per plan. The price shall be full compensation for excavation and backfill; for furnishing materials, including material for outlet fittings for all labor, tools equipment, and incidentals necessary to complete the work.

PIPE UNDERDRAIN DETAIL FOR CONCRETE SHOULDERS



ITEM 605 4" SHALLOW PIPE UNDERDRAIN 707.15, AS PER PLAN

PUBLIC SAFETY

THE FOLLOWING PROVISIONS A, B, C, SHALL APPLY WHEN THE LANE ADJACENT TO THE GUARDRAIL IS OPEN TO TRAFFIC.

THE PERIOD OF TIME THAT A HAZARD IS LEFT UNPROTECTED BY THE REMOVAL OF GUARDRAIL SHALL BE HELD TO AN ABSOLUTE MINIMUM AND NO CASE SHALL SUCH A PERIOD BE LONGER THAN ONE WORKING DAY. IF, AFTER ONE DAY, THE ENTIRE RUN OF GUARDRAIL CONSTRUCTION IS NOT COMPLETE THE FOLLOWING SHALL APPLY:

- A. IN AREAS WHERE EXISTING GUARDRAIL HAS BEEN REMOVED OR THE GUARDRAIL IS IN A PARTIAL STAGE OF COMPLETION, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TYPE II BARRICADES OR DRUMS WITH TYPE C (STEADY BURNING) WARNING LIGHTS WITHIN THE LIMITS OF THE UNPROTECTED AREA. THE BARRICADES SHALL BE PLACED AT 50' INTERVALS AND OFFSET AT LEAST TWO FEET FROM THE EDGE OF THE TRAVELED ROADWAY AND IN CLOSE PROXIMITY TO THE CONSTRUCTION. THE APPROACH END OF A PARTIALLY COMPLETED RUN OF GUARDRAIL SHALL BE FASTENED AT GROUND LEVEL TO A STEEL DRUM.
- B. IF THE EXISTING GUARDRAIL IS FOR THE PROTECTION OF AN OBSTACLE (I.E. SIGN SUPPORT, BRIDGE PARAPET, ETC.) THE CONTRACTOR SHALL ERECT TEMPORARY CONCRETE BARRIER AS DETAILED ON SHEET NO. 46 IN THE DIRECTION OF TRAFFIC. THE REQUIREMENTS OF PARAGRAPH "A" SHALL APPLY TO THE REMAINING GUARDRAIL WITHIN THE RUN. TEMPORARY BARRIER SHALL BE FLARED AT A 5:1 TAPER RATE AND SHALL INCLUDE A TEMPORARY END TERMINAL AS PER MC-9A.
- C. THE REQUIREMENTS STATED IN "A" SHALL APPLY FOR A PERIOD NOT TO EXCEED ONE WEEK. WHERE THE REBUILDING OR CONSTRUCTION OF ANY RUN OF GUARDRAIL CANNOT BE ACCOMPLISHED WITHIN ONE WEEK, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY CONCRETE BARRIER IN THE INTERIM TIME IT TAKES TO COMPLETE THE WORK. THE APPROACH END OF THE TEMPORARY CONCRETE BARRIER SHALL BE FLARED 10 FT. (50' AT 5:1 TAPER) AND SHALL INCLUDE A TEMPORARY END TERMINAL AS PER MC-9A. IN ADDITION, A TYPE II BARRICADE WITH TYPE B (HIGH INTENSITY FLASHER) WARNING LIGHT SHALL BE PLACED IN FRONT OF THIS INITIAL SECTION OF TEMPORARY BARRIERS TO PROVIDE FOREWARNING TO THE APPROACHING TRAFFIC.

WHEN THE LANE ADJACENT TO THE GUARDRAIL IS CLOSED TO TRAFFIC, THE PROVISIONS OF PARAGRAPH "A" ABOVE SHALL APPLY AFTER 1 DAY, THE PROVISIONS OF PARAGRAPH "B" SHALL APPLY AFTER 5 DAYS, AND THE PROVISIONS OF PARAGRAPH "C" SHALL APPLY AFTER 15 DAYS.

THE TERM "GUARDRAIL" AS USED HEREIN SHALL BE UNDERSTOOD TO COVER ALL TYPES OF GUARDRAIL, EXISTING OR PROPOSED FOR THE PROJECT, INCLUDING BARRIER DESIGN GUARDRAIL OR CONCRETE BARRIERS.

THE COST OF COMPLYING WITH THESE SAFETY PROCEDURES SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614-MAINTAINING TRAFFIC.

GENERAL CONSTRUCTION SEQUENCE

THE CONTRACTOR IS REMINDED THAT, IN THE CONDUCT OF THIS PROJECT, HIS SEQUENCE OF OPERATIONS SHALL BE PLANNED AND EXECUTED IN SUCH A WAY AS TO MINIMIZE THE NUMBER OF LANE REDUCTIONS AND/OR LANE WIDTH REDUCTIONS REQUIRED TO MAINTAIN TRAFFIC THROUGH THE PROJECT. IN THIS REGARD, WHEN A TRAFFIC LANE IS CLOSED, ALL OPERATIONS TO THAT LANE (EXCEPT THE ASPHALT CONCRETE SURFACE COURSE OVERLAY) SHALL BE PERFORMED IN AN ORDERLY SEQUENCE SUCH THAT IT WILL NOT BE NECESSARY TO AGAIN CLOSE THAT LANE UNTIL THE ASPHALT OVERLAY AND PAVEMENT MARKING OPERATIONS BEGIN.

IT IS THE INTENT OF THIS PROJECT TO MAINTAIN A MINIMUM OF TWO OR THREE LANES OF TRAFFIC (ONE LESS THAN EXISTING) IN EACH DIRECTION ON THE MAINLINE PAVEMENT.

ALL ITEM 305 ON PAVED SHOULDER SHOULD BE IN PLACE PRIOR TO SHIFTING TO PHASE -I.

THE 5" PAVEMENT OVERLAY MUST BE DONE IN TWO (2) LIFTS.

PLACE COMPACTED AGGREGATE AS STATED ON SHEET 8 PRIOR TO SHIFTING TRAFFIC ONTO RESURFACED BERMS.

NOT WITHSTANDING THE ABOVE REQUIREMENTS, NO SHORT-TERM LANE CLOSURES SHALL BE IMPLEMENTED OR IN PLACE DURING INCREASED TRAFFIC VOLUMES CAUSED BY SPECIAL EVENTS, WHEN THE ENGINEER DEEMS THE CLIMATOLOGICAL CONDITIONS TOO HAZARDOUS OR DURING THE PERIOD BEGINNING AT 12:00 NOON ON THE DAY PRECEDING AND CONTINUING UNTIL 12:00 NOON ON THE DAY FOLLOWING LEGAL HOLIDAYS AND HOLIDAY WEEKENDS (MEMORIAL DAY, FOURTH OF JULY, AND LABOR DAY).

IT IS ALSO REQUIRED OF THE CONTRACTOR TO HAVE ALL NORMAL LANES OF TRAFFIC OPENED THROUGHOUT THE WINTER SEASON (NOVEMBER 15TH TO APRIL 15TH). NO LANE RESTRICTIONS, INCLUDING RAMPS, WILL BE ALLOWED DURING THIS TIME. THE CONTRACTOR IS CAUTIONED TO SCHEDULE HIS WORK, ESPECIALLY ASPHALT OVERLAYS, TO MEET THIS REQUIREMENT. SEE "TRAFFIC CONTROL OF OPERATIONS FOR ASPHALT CONCRETE WORK" NOTE FOR ADDITIONAL INFORMATION.

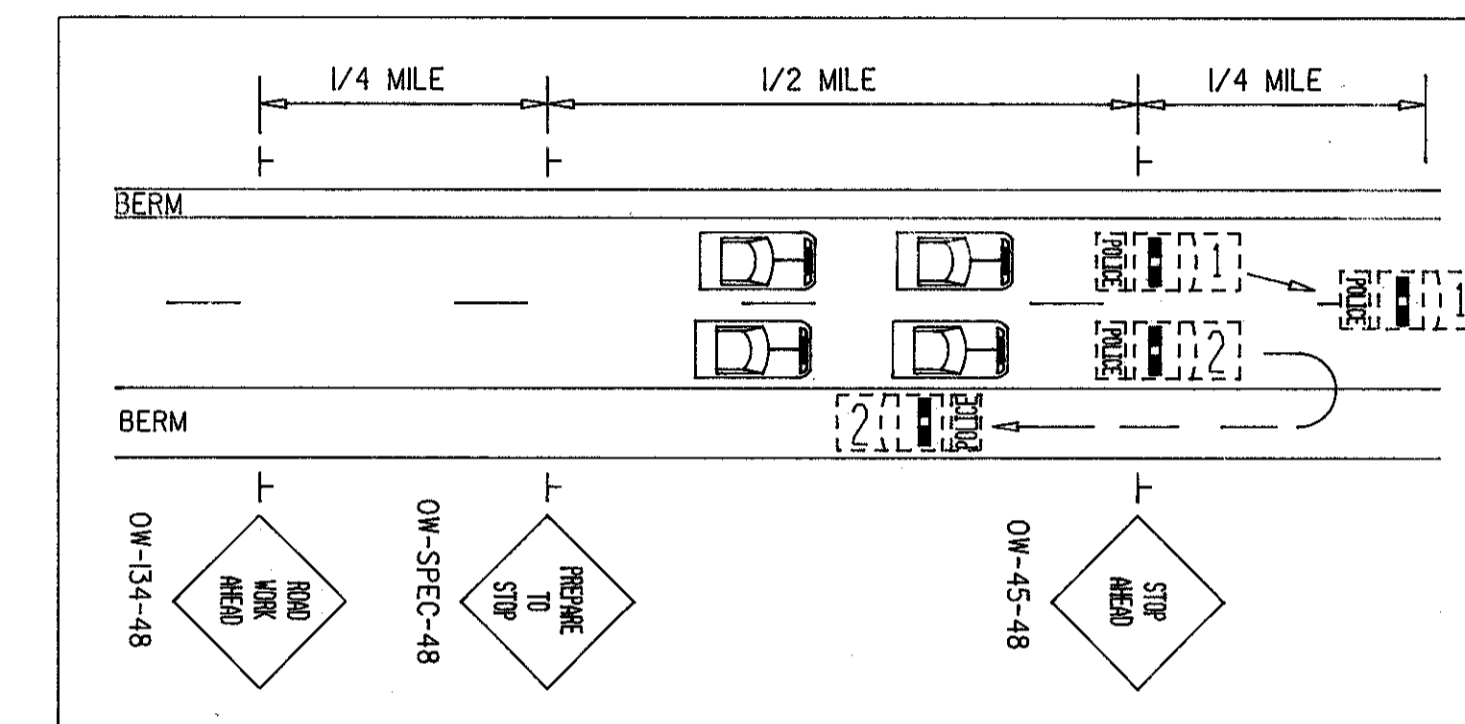
OVERHEAD SIGNS AND SUPPORTS THAT ARE BEING INSTALLED TO REPLACE EXISTING SIGNS AND SUPPORTS SHALL BE IN PLACE PRIOR TO THE REMOVAL OF THE EXISTING SIGNS AND SUPPORTS.

MAINTAINING VEHICULAR TRAFFIC

GENERAL PROVISIONS

1. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE SCHEDULE AND SEQUENCE OF THRU LANES TO BE MAINTAINED DESCRIBED ON SHEET NO. 56 THE CONTRACTOR SHALL SET UP AND OPERATE HIS EQUIPMENT IN SUCH A MANNER AS TO MINIMIZE ENCROACHMENT UPON THE TRAVELLED WIDTH OF PAVEMENT.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE RESPONSIBLE LAW ENFORCEMENT AGENCIES NOT LESS THAN SEVENTY-TWO (72) HOURS PRIOR TO A SCHEDULED DISRUPTION OF TRAFFIC.
3. NO STOPPAGE OF TRAFFIC OR ESTABLISHMENT OF LANE RESTRICTIONS SHALL OCCUR WITHOUT LAW ENFORCEMENT PERSONNEL AT EACH LOCATION TO DIRECT TRAFFIC.
4. DURING OVERHEAD CONSTRUCTION THE CONTRACTOR SHALL PROVIDE IF DEEMED NECESSARY BY THE ENGINEER, SAFETY NETS AND OR OTHER SAFETY DEVICES UNDER THE STRUCTURES TO PROTECT TRAFFIC IN THE AREA OF CONSTRUCTION.
5. DURING NON-WORKING PERIODS, OPEN EXCAVATIONS SHALL BE DELINEATED WITH WARNING FLASHERS AND/OR OTHER APPROVED DEVICES AS DEEMED APPROPRIATE BY THE ENGINEER.
6. EXISTING SIGNS LOCATED WITHIN THE ROAD WORK AREAS WHICH ARE NECESSARY FOR INTERIM OR PERMANENT TRAFFIC CONTROL SHALL BE REMOVED AND REERECTED IN LOCATIONS AS APPROVED BY THE ENGINEER.
7. THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL NEW WARNING AND INFORMATION SIGNS NECESSARY IN MAINTAINING TRAFFIC. THE CONTRACTOR SHALL DETERMINE WHAT SIGNS ARE NEEDED AND ADVISE THE ENGINEER TWO (2) WEEKS IN ADVANCE OF HIS DETAILED PLANS.
8. TRAFFIC CONTROL DEVICES SHALL BE SET UP PRIOR TO THE START OF CONSTRUCTION, AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH SPECIAL CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS THEY ARE NEEDED AND SHALL BE IMMEDIATELY REMOVED THEREAFTER. WHERE OPERATIONS ARE PERFORMED IN STAGES, THERE SHALL BE IN PLACE ONLY THOSE DEVICES THAT APPLY TO THE CONDITION PRESENT DURING THE STAGE IN PROGRESS. ALL SIGNS WITH MESSAGES WHICH DO NOT APPLY DURING A CERTAIN PERIOD SHALL BE COVERED OR SET ASIDE OUT OF THE VIEW OF TRAFFIC.

9. ERECTION OF SPAN TYPE AND BRIDGE MOUNTED OVERHEAD SUPPORTS SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT COMPLETE TRAFFIC STOPPAGE ON ALL LANES OF ANY DIRECTIONAL ROADWAY IS NO MORE THAN 10 MINUTES IN ANY ONE CONSECUTIVE 30 MINUTE PERIOD. A MINIMUM OF THREE (3) LAW ENFORCEMENT PATROL VEHICLES SHALL BE USED TO PACE MOTORISTS TO A STOP. AFTER TRAFFIC HAS BEEN SLOWED, ONE (1) PATROL VEHICLE SHALL TRAVEL ALONG THE ROADWAY SHOULDER 500 FEET BEHIND THE BACK UP OF OF STOPPED VEHICLES. WHERE STOPPAGE OCCURS IN THE VICINITY OF FREEWAY ENTRANCES, THE CONTRACTOR SHALL PLACE FLAGGERS ON THE RAMPS TO STOP TRAFFIC. PATROL VEHICLES SHALL HAVE HIGH RISE FLASHING BEACONS TO PROVIDE ADEQUATE VISIBILITY TO APPROACHING MOTORISTS. WHEN THE ENGINEER DEEMS APPROPRIATE, THE CONTRACTOR SHALL ERECT AND MAINTAIN "ROADWORK AHEAD", "PREPARE TO STOP", AND "STOP AHEAD" SIGNS WITH FLASHING TWELVE INCH (12) TRAFFIC SIGNAL HEADS IN ACCORDANCE WITH 632.05. THESE SIGNS SHALL BE ILLUMINATED DURING NIGHT OPERATIONS. PATROL VEHICLES AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE FOLLOWING SKETCH. ERECTION OF SIGN SPANS SHALL BE DONE AT NIGHT BETWEEN THE HOURS OF 10 P.M. AND 6 A.M. WHEN THE REMOVAL OR ERECTION OF A SIGN REQUIRES CLOSING MORE LANES THAN PERMITTED ON SHEET NO. 56 THAT WORK SHALL ALSO BE PERFORMED.



10. PLACEMENT OF FINAL ROADWAY PAVEMENT MARKINGS SHALL BE ACCOMPLISHED ONLY MONDAY THRU FRIDAY BETWEEN THE HOURS OF 9:00 A.M. AND 3:00 P.M. WITH A MAXIMUM OF ONE LANE EACH DIRECTION CLOSED AT ANY TIME.

THE CONTRACTOR SHALL PROVIDE TWO (2) TRAILING VEHICLES PLUS A POLICE CRUISER WITH FLASHING BEACON FOLLOWING THE PAVEMENT MARKING EQUIPMENT WHEN MARKINGS ARE PLACED IN ORDER TO PROVIDE ADVANCE WARNING TO THE MOTORISTS OF THE TEMPORARY LANE CLOSURE AND CONSTRUCTION. THE TWO (2) TRAILING VEHICLES SHALL TRAVEL 500 FEET APART WITH THE REMOTE VEHICLE TRAVELING ON THE SHOULDER (LEFT OR RIGHT AS APPLICABLE) WHERE USABLE SHOULDER IS AVAILABLE. THE INTERMEDIATE TRAILING VEHICLE SHALL TRAVEL IN THE CLOSED LANE 500 FEET BEHIND THE PAVEMENT MARKING EQUIPMENT. THE POLICE CRUISER SHALL TRAVEL 500 TO 1000 FEET BEHIND THE REMOTE TRAILING VEHICLE.

EACH TRAILING VEHICLE SHALL HAVE A YELLOW FLASHING BEACON PLUS ORANGE AND BLACK CONSTRUCTION WARNING SIGNS MOUNTED ON THE BACK FACING TRAFFIC WITH STANDARD TYPE MESSAGES ADVISING MOTORISTS OF THE WORK AHEAD, ADVISORY WARNING SPEED, AND WHICH LANE IS CLOSED.

11. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE SUFFICIENT CREWS TO IMPLEMENT ALL OF THE TRAFFIC CONTROL IN THE MAINTENANCE OF TRAFFIC PLANS WITHIN THE SAME WORK DAY. THIS WILL PREVENT ANY CONFUSION BETWEEN THE CONSTRUCTION PHASE TRAFFIC PATTERN AND THE EXISTING TRAFFIC PATTERN. THE MAINTENANCE OF TRAFFIC PLANS CAN BE SUB-PHASED BY CONCENTRATING ON ONE DIRECTION OR A LENGTH WITHIN THAT DIRECTION. HOWEVER, IN EACH SUB-PHASE THE MAINTENANCE OF TRAFFIC PLAN SHALL BE COMPLETELY IMPLEMENTED IN THE SAME WORK DAY.
12. FOR ANY OPERATION NOT SPECIFICALLY MENTIONED IN THESE PLANS, THE TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
13. ALL LABOR, MATERIALS, EQUIPMENT AND ANY INCIDENTALS REQUIRED TO COMPLETE THE WORK AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614-MAINTAINING TRAFFIC.

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT
5	OHIO	

13
171

MAJOR WORK ITEMS

THE FOLLOWING MAJOR WORK ITEMS WILL REQUIRE TRAFFIC MAINTENANCE PROCEDURES WHICH SHALL BE INCORPORATED INTO THE CONTRACTORS SEQUENCE OF OPERATIONS.

- A. REMOVAL OF OVERHEAD SIGN SUPPORTS
- B. INSTALLATION OF OVERHEAD SIGN SUPPORTS, INCLUDING SIGNS
- C. REPAIR OF PAVEMENT JOINTS
- D. REPAIR OF PAVEMENT PANELS
- E. SHOULDER RECONSTRUCTION AND WIDENING
- F. BRIDGE REHABILITATION
- G. ASPHALT CONCRETE OVERLAY
- H. PAVEMENT MARKING

TRAFFIC CONTROL OF OPERATION FOR ASPHALT CONCRETE WORK (ITEM 446 COURSES)

ALL ASPHALT CONCRETE OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL ASSURE MINIMUM DANGER AND INCONVENIENCE TO THE HIGHWAY USERS. ALL 446 MAINLINE ASPHALT CONCRETE WORK SHALL BE PERFORMED AT NIGHT BETWEEN THE HOURS OF 8:00 P.M. AND 6:00 A.M.. ALL 446 DIRECTIONAL LANE, BROADWAY CONNECTION, AND RAMP ASPHALT CONCRETE WORK SHALL BE PERFORMED DURING THE DAYTIME BETWEEN THE HOURS OF 9:00 A.M. AND 3:00 P.M..

IN EITHER TRAVELED DIRECTION, ALL OF THE INTERMEDIATE LEVELING COURSE SHALL BE PLACED DURING THE RESPECTIVE PHASE AS SHOWN IN THE PLANS.

PROCEDURE FOR INSTALLATION OF ANY ASPHALT LAYER SHALL BE SUCH THAT NO DISCONTINUITY IN THE ELEVATION OF THE TRAVELED SURFACE SHALL EXIST AT ANY TIME OTHER THEN DURING THE PERMITTED WORKING HOURS AND THEN ONLY WHEN SUCH PROPER TRAFFIC CONTROL DEVICES ARE IN PLACE AS WILL PREVENT SUCH A DISCONTINUITY BEING A DANGER TO HIGHWAY USERS. ANY PART WIDTH RESURFACING JOINTS WHICH MUST BE EXPOSED TO TRAFFIC SHALL BE RAMPED USING ITEM 404-BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC AT A RATE NOT TO EXCEED 1 INCH IN 4 FEET (SEE SHEET 47).

A MINIMUM OF TWO (2) ELEVEN (11) FOOT LANES IN EACH DIRECTION MUST BE MAINTAINED AT ALL TIMES DURING NIGHTTIME RESURFACING OPERATIONS.

WHENEVER ANY PART OF THE TRAVELED SURFACE IS CLOSED, THE MOTORISTS SHALL BE WARNED AND DIVERTED BY THE CONTRACTOR THROUGH THE USE OF A FLASHING ARROW, IN ADDITION TO THOSE PROVISIONS SET FORTH IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND RAMPED AS STATED ABOVE (1 INCH IN 4 FEET).

PRIOR TO OPENING THE ROADWAY TO NORMAL TRAFFIC DURING WINTER MONTHS, ALL ASPHALT WORK INCLUDING THE SURFACE COURSE MUST BE COMPLETED AN EQUAL FULL WIDTH DISTANCE. NO INTERMEDIATE LEVELING COURSE IS TO BE TRAVELED ON DURING WINTER MONTHS NOR SHALL ANY PART WIDTH RESURFACING REMAIN DURING THE WINTER. THE CONTRACTOR IS CAUTIONED TO SCHEDULE HIS OPERATIONS TO MEET THIS REQUIREMENT. IF THE CONTRACTOR DOES NOT MEET THIS REQUIREMENT OR HAS THIS REQUIREMENT WAIVED, THE CONTRACTOR SHALL INCREASE THE THICKNESS OF THE 446 SURFACE COURSE BY 1/2" ENTIRELY AT HIS EXPENSE FOR LABOR, MATERIALS, AND EQUIPMENT.

TRAFFIC CONTROL MATERIALS

A. SIGNS

SIGN DIMENSIONS AND SPECIFICATIONS, INCLUDING LETTER SIZES, SHALL BE AS PROVIDED IN THE "MANUAL", OR IN SIGN DESIGN DRAWINGS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION. THE SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER PRIOR TO THE START OF THE PROJECT.

ALL SIGNS SHALL HAVE A REFLECTORIZED BACKGROUND OF REFLECTIVE MATERIALS AS DESCRIBED IN THE "MANUAL".

B. SIGN SUPPORTS

SUPPORTS SHALL BE ADEQUATE IN MASS AND STABILITY TO PREVENT THE SIGNS BEING BLOWN OVER BY WIND OR VEHICULAR GENERATED AIR TURBULENCE.

C. DRUMS

DRUMS SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. ALL COSTS FOR INSTALLING, MAINTAINING AND SUBSEQUENT REMOVAL OF SAID DRUMS SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

D. SMALL BARRICADES

TYPE II BARRICADES SHALL BE USED TO CLOSE LANES WHERE REQUIRED FOR RESURFACING. THESE SHALL BE AT LEAST 36" HIGH AND 12" WIDE. NEAR THE TOP OF THE BARRICADE THERE SHALL BE A PANEL WITH ALTERNATE ORANGE AND REFLECTORIZED WHITE 6" WIDE STRIPS. THIS PANEL SHALL BE AT LEAST 12" WIDE AND 24" HIGH. A SINGLE FACED FLASHER SHALL BE LOCATED AT THE TOP OF THE BARRICADE AT THE END NEAREST TO TRAFFIC. THE FLASH SHALL FACE ONCOMING TRAFFIC. THE BARRICADES SHALL BE OF SUFFICIENT STABILITY SO THAT WIND OR TRAFFIC AIR TURBULENCE WILL NOT UPSET THEM. BARRICADES SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

E. LIGHTING DEVICES

FLASHERS SHALL BE 12 VOLT BATTERY-OPERATED MODELS WITH 7 INCH DIAMETER YELLOW LENSES ILLUMINATED BY RAPID INTERMITTENT FLASHES OF SHORT DURATION AND SHALL BE PLACED ON ALL SIGNS AT ALL TIMES.

CONTINUOUS BURN LIGHTS SHALL BE 12 VOLT BATTERY OPERATED MODELS WITH MINIMUM 7 INCH DIAMETER YELLOW LENSES. THEY SHALL BE PLACED ABOVE THE GROUND ON THE TOPS OF DRUMS OR BARRICADES AND SPACED AT 50 FT. INTERVALS. CONTINUOUS BURN LIGHTS AS DESCRIBED ABOVE SHALL BE REQUIRED WHENEVER ANY PORTION OF THE TRAVELLED SURFACE IS CLOSED DURING TWILIGHT OR NIGHTTIME HOURS.

F. FLASHING ARROW BARRICADE

WHENEVER ANY PART OF THE TRAVELED SURFACE IS CLOSED, THE MOTORIST SHALL BE WARNED AND DIVERTED BY THE CONTRACTOR THROUGH THE USE OF ONE FLASHING ARROW BARRICADE FOR EACH LANE CLOSED. THE CONTRACTOR SHALL REFER TO STD. DRWG. TC-35.10 AND THE PROVISION SET FORTH IN OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS FOR ALL INFORMATION REGARDING FURNISHING, MAINTAINING, AND USE OF FLASHING ARROW BARRICADES. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614-MAINTAINING TRAFFIC.

ITEM SPECIAL-REPLACEMENT SIGNS

FLAT SHEET SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENT OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER.

PAYMENT FOR THE NEW SIGNS SHALL BE MADE AT THE BID PRICE PER SQUARE FOOT FOR ITEM SPECIAL REPLACEMENT SIGNS AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED SIGNS, HARDWARE AND SUPPORTS AND PROVIDING NECESSARY REPLACEMENT HARDWARE, SUPPORTS, ETC. REPLACEMENT SIGNS SHALL BE NEW BUT OTHER MATERIALS MAY BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.

AS ESTIMATED QUANTITY OF ITEM SPECIAL, REPLACEMENT SIGNS HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM SPECIAL - REPLACEMENT SIGNS..... 500 S.F.

ITEM 404 - BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC

THIS ITEM SHALL BE USED TO REPAIR HOLES IN BRIDGE DECKS, ROADWAY SURFACE AND BERMS WHICH ARE DAMAGED DURING THE CLOSURE. THE CONTRACTOR SHALL USE THIS ITEM TO MAINTAIN THE HIGHWAY ACCORDING TO SEC. 614.02. THIS ITEM SHALL ALSO BE USED FOR TEMPORARY ASPHALT RAMP ALONG JOINTS. THE CONTRACTOR SHALL PERFORM THE ABOVE WORK BETWEEN THE HOURS OF 9 A.M. AND 3 P.M. THE FOLLOWING ESTIMATED QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR THE MAINTENANCE OF TRAFFIC AS OUTLINED ABOVE, TO BE USED AS DIRECTED BY THE ENGINEER ON ALL PARTS OF THIS PROJECT.

ITEM 404 - BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC.... 500 C.Y.

ITEM SPECIAL-REPLACEMENT DRUMS

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENT OF THE PLANS, SPECIFICATION AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER AND PAID FOR UNDER ITEM SPECIAL REPLACEMENT DRUMS. PAYMENT FOR EACH NEW DRUM SHALL INCLUDE (1) THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM AND (2) PROVIDING, MAINTAINING AND REMOVING NEW DRUMS IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUMS. (REPLACEMENT LIGHTS SHALL NOT BE PAID FOR SEPARATELY BUT CONSIDERED INCIDENTAL TO THIS ITEM OR ITEM 614 MAINTAINING TRAFFIC.)

AN ESTIMATED QUANTITY OF ITEM SPECIAL-REPLACEMENT DRUMS HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM SPECIAL - REPLACEMENT DRUMS.....500 EACH

ITEM SPECIAL-LAW ENFORCEMENT OFFICER WITH PATROL CAR

THE CONTRACTOR SHALL PROVIDE AND PAY ALL COST FOR THE SERVICES OF LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR THE EXCLUSIVE PURPOSE OF CONTROLLING TRAFFIC WHENEVER A CHANGE IN THE TRAFFIC PATTERN TAKES PLACE. THE NUMBER OF OFFICERS AND CARS REQUIRED FOR THIS PURPOSE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE OFFICERS SHALL MOVE THEIR PATROL CARS AS NECESSARY TO INSURE THEIR CONSTANT PRESENCE AT THE POINT (S) OF SLOWDOWN, STOPPAGE OR BACK-UP. PAYMENT FOR THE ABOVE WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM SPECIAL- LAW ENFORCEMENT OFFICER WITH PATROL CAR.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS REGARDING SCHEDULING AND PAYMENT OF LAW ENFORCEMENT OFFICER WITH PATROL CAR.

ITEM SPECIAL - LAW ENFORCEMENT OFFICER WITH PATROL CAR400 HRS.

TEMPORARY CONCRETE BARRIER (PUBLIC SAFETY)

TEMPORARY CONCRETE BARRIER SECTIONS (10 FT. LONG MIN.) AS REQUIRED BY THE PUBLIC SAFETY NOTE SHALL BE SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOADING, UNLOADING AND TRANSPORTATION OF THE BARRIER.

THE BARRIER SECTIONS SHALL BE BOLTED TOGETHER WITH STEEL CONNECTIONS AS PER STANDARD CONSTRUCTION DRAWING MC-9A.

ALL COSTS FOR FURNISHING, INSTALLING AND SUBSEQUENT REMOVING TEMPORARY CONCRETE BARRIER AS DESCRIBED UNDER PUBLIC SAFETY SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

ITEM 621 - REMOVAL OF PAVEMENT MARKINGS

THIS ITEM SHALL BE USED TO REMOVE EXISTING PERMANENT PAVEMENT MARKINGS AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS. PAYMENT SHALL BE BASED ON THE ACTUAL LENGTH REMOVED. (GAPS SHALL NOT BE INCLUDED IN THE MEASURED LENGTH). THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 621-REMOVAL OF PAVEMENT MARKINGS..... 75,000 L.F.

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	14 171
5	OHIO		

TEMPORARY PRECAST CONCRETE BARRIERS (BRIDGE CONSTRUCTION)

THE FOLLOWING GUIDELINES APPLY TO THE USE OF TEMPORARY PRECAST CONCRETE BARRIERS TO SEPERATE BRIDGE WORK AREAS FROM THRU TRAFFIC:

ROADWAY (APPROACHES TO BRIDGE WORK AREAS)- THE STANDARD BARRIER AS SHOWN ON STD. DWG. MC-9A APPLIES TO ALL ROADWAY BARRIERS . THE BARRIER SECTION SHALL BE PINNED TOGETHER. PAYMENT SHALL BE INCLUDED UNDER ITEM 622-TEMPORARY CONCRETE BARRIER.

THE FOLLOWING "STRUCTURE" BARRIERS APPLY TO THE BARRIERS PLACED ON THE APPROACH SLABS AND BRIDGES.

STRUCTURE (BRIDGE OVERLAY OR RAILING FACING)- THE STANDARD BARRIER AS SHOWN ON STD. DWG. MC-9A APPLIES. SEE NOTES AND DETAILS ON SHEET 16 REGARDING SPECIAL DECK SURFACE PREPARATIONS, BOLTED END CONNECTIONS AND JOINT BLOCKING. PAYMENT INCLUDED UNDER ITEM 622- TEMPORARY CONCRETE BARRIER, BRIDGE MOUNTED, AS PER PLAN.

STRUCTURE (PARAPET REPLACEMENT WITH TEMPORARY BARRIER SET AT LEAST SIX FEET FROM DECK EDGE). IN ADDITION TO THE REQUIREMENTS OF THE STRUCTURE BARRIER ABOVE, THE BARRIER SECTIONS SHALL BE REINFORCED TO MEET THE BRIDGE RAILING DESIGNS. SEE NOTES AND DETAILS ON SHEET 16 REGARDING THIS ADDITIONAL REINFORCING AND MODIFIED CONNECTIONS. PAYMENT INCLUDED UNDER ITEM 622- TEMPORARY CONCRETE BARRIER, TYPE BRD (BRIDGE MOUNTED, AS PER PLAN.

STRUCTURE (DECK REPLACEMENT OR PARAPET REPLACEMENT WITH BARRIER NEAR THE EDGE OF THE DECK, AND WHERE WARRANTED BY IMPACT SEVERITY). IN ADDITION TO THE REQUIREMENTS OF THE TYPE BRD BARRIER ABOVE, THE BARRIER SECTIONS SHALL BE ANCHORED TO THE BRIDGE DECK AS SHOWN ON SHEET 16 . PAYMENT SHALL BE INCLUDED UNDER ITEM 622-TEMPORARY CONCRETE BARRIER, TYPE BRD, ANCHORED. PAYMENT SHALL INCLUDE REMOVAL OF THE ANCHORS AND REPAIR OF THE DECK SURFACE AS APPROVED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY TO BE USED:

ITEM 622-TEMP. CONC. BARRIER3300 L.F.
ITEM 622-TEMP. CONC. BARRIER, BRIDGE MOUNTED.....7920 L.F.

ITEM 614 - TEMPORARY RAISED PAVEMENT MARKERS

TEMPORARY RAISED PAVEMENT MARKERS (TRPM) SHALL BE USED TO SUPPLEMENT THE PROPOSED TEMPORARY EDGE LINES AND LANE LINES. ALL WORK SHALL CONFORM TO THE DETAILS ON SHEET 15 .

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	DESCRIPTION	QTY.	UNIT
614	TEMPORARY RAISED PAVEMENT MARKERS	15000	EACH

ITEM 614-BARRIER REFLECTORS, TYPE A OR B

BARRIER REFLECTORS AND THEIR MOUNTINGS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION 802 EXCEPT THAT SPACING OF THE REFLECTORS SHALL BE HALF THE DISTANCE SPECIFIED IN S.S.802. THEY SHALL BE PLACED ON EXISTING GUARDRAIL AND BRIDGE PARAPETS ADJACENT TO TRAFFIC LANES WHICH HAVE BEEN SHIFTED FROM THE NORMAL DRIVING LANE PRIOR TO SHIFTING TRAFFIC. THEY SHALL ALSO BE PLACED ON ALL TEMPORARY CONCRETE BARRIERS. REFLECTOR COLOR SHALL MATCH THE COLOR OF THE EDGELINE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 614-BARRIER REFLECTORS, TYPE A.....	200	EACH
ITEM 614-BARRIER REFLECTORS, TYPE B.....	100	EACH

ITEM 614 - TEMPORARY PAVEMENT MARKINGS (RESURFACING OR LANE SHIFT REMOVALS)

TEMPORARY MARKINGS SHALL BE PLACED AT THE LOCATIONS OF THE PERMANENT MARKINGS AS SHOWN IN THE TRAFFIC CONTROL PLANS.

AFTER THE OVERLAYS ARE PLACED OR FOLLOWING LANE SHIFT REMOVALS THE FOLLOWING TEMPORARY PAVEMENT MARKINGS SHALL BE USED:

ITEM 614-TEMPORARY EDGE LINES, CLASS i.....	60	MILES
ITEM 614-TEMPORARY LANE LINES, CLASS i.....	63	MILES
ITEM 614-TEMPORARY CORE MARKINGS, CLASS ii.....	13500	L.F.
ITEM 614-TEMPORARY CHANNELIZING LINES, CLASS i.....	18000	L.F.
ITEM 614-TEMPORARY STOP LINES, CLASS i.....	500	L.F.

ITEM 614 - TEMPORARY PAVEMENT MARKERS (LANE SHIFTS)

LANE SHIFTS OR LANE CLOSURES SHALL BE IMPLEMENTED USING 55:1 MAXIMUM TAPER RATE ON MAINLINE PAVEMENT AND 40:1 MAXIMUM TAPER RATE ON RAMPS. SEE MAINTENANCE OF TRAFFIC SHEETS FOR ACTUAL LOCATIONS.

ALL CONFLICTING PAVEMENT MARKINGS (INCLUDING THE LANE LINE ADJACENT TO THE LANE CLOSURE TAPER) SHALL BE REMOVED PRIOR TO PLACING THESE PAVEMENT MARKINGS. TEMPORARY RAISED PAVEMENT MARKERS SHALL BE USED IN CONJUNCTION WITH TEMPORARY EDGE LINES AND LANE LINES AS STATED.

SEE SHEET 22 FOR ESTIMATED QUANTITIES TO BE USED AS OUTLINED ABOVE.

614 TEMPORARY RAISED PAVEMENT MARKERS

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA
REGION 5

15

171

FEDERAL
PROJECT

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING, AND SUBSEQUENTLY REMOVING TEMPORARY RAISED PAVEMENT MARKERS (TRPM'S). THE TRPM'S SHALL BE YELLOW OR WHITE, AS DESCRIBED IN THE PLAN.

MATERIAL

ALL UNITS SHALL BE OF SUFFICIENT STRENGTH AND PROPERLY SHAPED SO AS NOT TO BE DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR DAMAGED BY IMPACTS FROM VEHICLES TIRES, INCLUDING THOSE OF HIGH PRESSURE TRUCK TIRES LOADED TO 4500 POUNDS.

RETROREFLECTORS SHALL BE PROVIDED IN ONE OR TWO DIRECTIONS ON EACH UNIT AS REQUIRED BY THE USAGE AND SHALL RETURN WHITE OR YELLOW LIGHT AS IS APPROPRIATED FOR THE APPLICATION.

THE REFLECTOR SHALL HAVE AN EFFECTIVE AREA OF 0.35 SQUARE INCH FOR TYPE A OR 3.0 SQUARE INCH FOR TYPE B. ITS BRIGHTNESS OR SPECIFIC INTENSITY (WHEN TESTED AT 0.2 DEGREE ANGLE OF OBSERVATION AND THE FOLLOWING ANGLES OF INCIDENCE) SHALL MEET OR EXCEED THE FOLLOWING:

SPECIFIC INTENSITY		
TYPE A		
INCIDENCE ANGLE (DEGREES)	WHITE	YELLOW
0	1.0	0.6
20	0.4	0.24
45	-	-
TYPE B		
INCIDENCE ANGLE (DEGREES)	WHITE	YELLOW
0	3.0	1.8
20	1.2	0.72
45	0.3	0.2

ANGLE OF INCIDENCE FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE NORMAL TO THE LEADING EDGE OF THE MARKER FACE (ALSO HORIZONTAL ENTRANCE ANGLE).

ANGLE OF OBSERVATION FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE RETURNED RAY FROM THE MARKER TO THE MEASURING RECEPTOR.

SPECIFIC INTENSITY IS THE MEAN CANDLEPOWER OF THE REFLECTED LIGHT (AT GIVEN INCIDENCE AND DIVERGENCE ANGLES) FOR EACH FOOT-CANDLE AT THE REFLECTOR (ON A PLANE PERPENDICULAR TO THE INCIDENT LIGHT).

TYPE A UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY BOTH AT NIGHT AND DURING DAYLIGHT. THEIR DAY TIME VISIBILITY SHALL BE ASSURED BY SIZE, SHAPE AND COLOR AS FOLLOWS:

- 1) THE UNITS SHALL BE A HIGH VISIBILITY YELLOW OR WHITE COLOR WHICH WILL NOT DEGRADE SUBSTANTIALLY DUE TO TRAFFIC WEAR AND WHICH WILL MATCH THE COLOR OF THE REFLECTOR.
- 2) WHEN VIEWED FROM ABOVE, THE UNITS SHALL HAVE A VISIBLE AREA OF NOT LESS THAN 14 SQUARE INCHES.
- 3) WHEN VIEWED FROM THE FRONT, PARALLEL TO THE PAVEMENT, AS FROM APPROACHING TRAFFIC, THE UNIT SHALL HAVE A WIDTH OF APPROXIMATELY 4 INCHES AND A VISIBLE AREA OF NOT LESS THAN 1.5 SQUARE INCHES.

TYPE B UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY AT NIGHT BY RETRO-REFLECTING AUTOMOTIVE HEADLIGHT BACK TO THE DRIVER.

INSTALLATION: THEY SHALL BE ATTACHED TO CLEAN, DRY PAVEMENT BY A BUTYL ADHESIVE PAD, A BITUMINOUS ADHESIVE OR OTHER CONSTRUCTION GRADE ADHESIVES (SUCH AS FRANKLIN PANEL AND METAL ADHESIVE) SUITABLE TO ANCHOR THE UNIT UNDER THE ABOVE CONDITIONS. WHEN IT IS NECESSARY TO ATTACH UNITS TO NEW CONCRETE WITH CURING COMPOUND REMAINING, THE CURING COMPOUND MEMBRANE SHALL BE REMOVED BY SANDBLASTING OR OTHER MECHANICAL CLEANING METHOD. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL IMMEDIATELY REPLACE, AT HIS COST, ANY UNITS WHICH FAIL (BROKEN HOUSING, HOUSING WORN TO THE EXTENT THAT DAYTIME VISIBILITY IS SIGNIFICANTLY DIMINISHED OR OF AN UNACCEPTABLE COLOR, DETACHED OR BROKEN REFLECTOR, HOUSING DETACHED FROM ADHESIVE).

TRPM'S ARE LIKELY TO BE REMOVED BY SNOW PLOWING OPERATIONS, THUS THEY ARE NOT CONSIDERED SUITABLE FOR USE DURING THE PERIOD FROM OCTOBER 15 UNTIL APRIL 30. THE CONTRACTOR IS ADVISED TO SCHEDULE HIS WORK AND/OR THE USE OF THESE DEVICES TO AVOID THIS PERIOD. SHOULD THE CONTRACTOR CHOOSE TO USE TRPM'S DURING THIS PERIOD AND THEY ARE SUBSEQUENTLY REMOVED OR DESTROYED BY SNOW AND ICE CONTROL ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY, AT HIS COST, PROVIDE A SUBSTITUTE TRAFFIC GUIDANCE SYSTEM EFFECTIVE DURING LIGHT AND DARK AND WHICH IS ACCEPTABLE TO THE ENGINEER.

THE UNITS SHALL BE PLACED ACCURATELY TO DEPICT STRAIGHT OR UNIFORMLY CURVING LINES. WHEN USED TO SUPPLEMENT TEMPORARY PAVEMENT MARKINGS, THEY MAY BE PLACED ON OR IMMEDIATELY ADJACENT TO THE PAVEMENT MARKING. LOCATIONS SHALL BE ADJUSTED UP TO ONE FOOT LONGITUDINALLY OR SIX INCHES LATERALLY TO AVOID PLACEMENT ON JOINTS, CRACKED OR DETERIORATED PAVEMENT. THEY SHALL NOT BE PLACED DIRECTLY ON PAVEMENT MARKINGS IF THIS WILL DETRACT FROM THEIR ABILITY TO REMAIN ATTACHED TO THE PAVEMENT.

APPLICATION

1) WHEN REQUIRED TO SUPPLEMENT PAVEMENT MARKING; THEY SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A OR B	20' C/C
LANE LINE	A OR B	40' C/C*
CENTER LINE (SINGLE/BROKEN)	A OR B	40' C/C *
CENTER LINE (DOUBLE/SOLID)	A OR B	2 UNITS SIDE BY SIDE 4 INCHES APART 20' C/C
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A OR B	10' C/C

* CENTERED IN GAP

2) WHEN USED TO SIMULATE (REPLACE) PAVEMENT MARKING THEY SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A	5' C/C
LANE LINE	A	4@3.33' C/C 30' GAP (40' CYCLE)
CENTER LINE (DOUBLE SOLID)	A	2 UNITS SIDE BY SIDE 5' C/C
CENTER LINE (SINGLE BROKEN)	A	4@3.33' C/C 30' GAP (40' CYCLE)
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A	5' C/C
EDGE LINE (TWO COLOR) (WHITE/YELLOW)	A	BACK TO BACK 5' C/C

YELLOW TRPM'S USED TO SEPARATE OPPOSITE FLOWS OF TRAFFIC (CENTER LINES) SHALL INCLUDE REFLECTIONS FOR BOTH DIRECTIONS. ALL OTHER YELLOW TRPM'S AND WHITE TRPM'S SHALL PROVIDE RETROREFLECTIVITY FOR ONE DIRECTION.

REMOVAL

REMOVAL SHALL BE ACCOMPLISHED IN A MANNER THAT LITTLE OR NONE OF THE ADHESIVE REMAINS ON THE PAVEMENT AND PERMANENT PAVEMENT SURFACES SHALL NOT BE SCARRED, BROKEN OR ROUGHENED SIGNIFICANTLY.

PAYMENT

BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH TRPM AND SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK. IT SHALL ALSO INCLUDE REPLACEMENT AT NO ADDITIONAL COST OF ALL TRPM'S WHICH, IN THE JUDGEMENT OF THE ENGINEER, FAIL FOR ANY REASON, EXCEPT DUE TO FAILURE OF THE PAVEMENT TO WHICH THEY ARE ATTACHED.

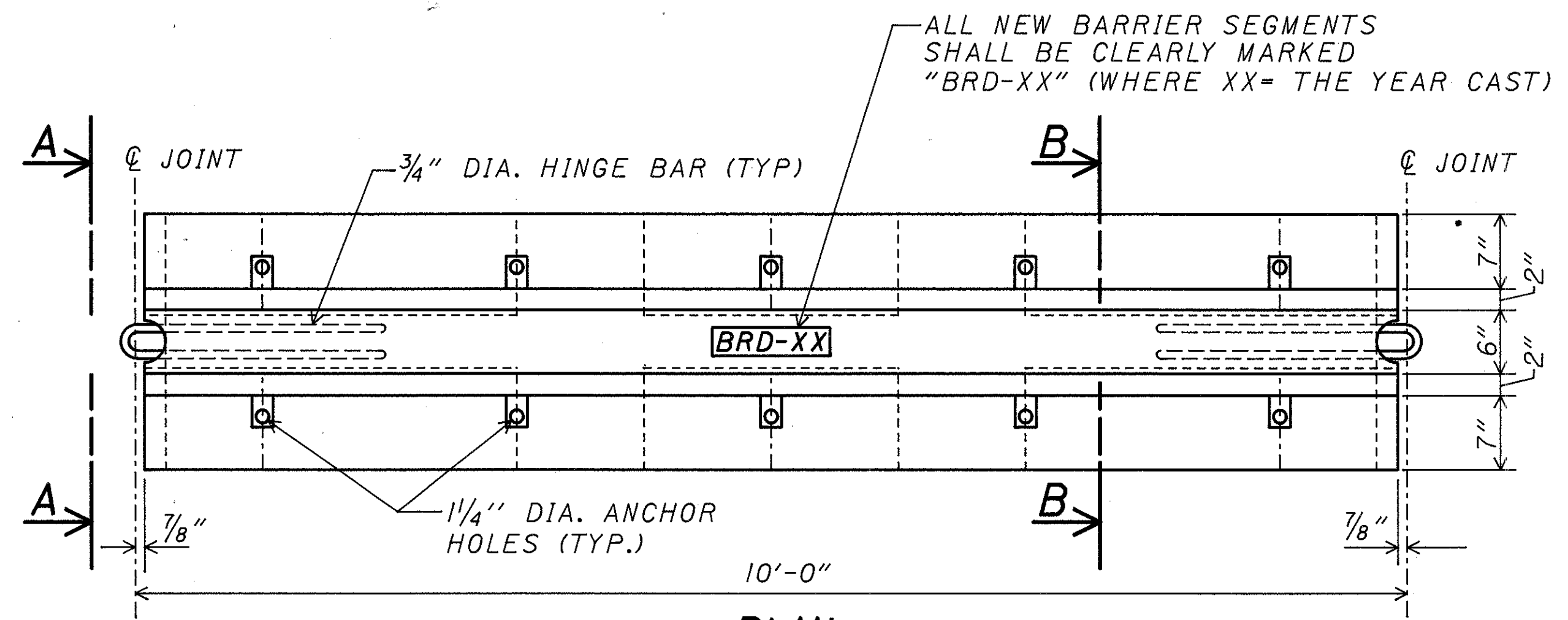
ITEM 614 UNIT EACH DESCRIPTION TEMPORARY RAISED PAVEMENT MARKERS

STATIONING (FROM TO) (SIDE)	SPACING	TYPE A			TYPE B			REMARKS (LINE TYPE)
		W	Y	Y/Y	W	Y	Y/Y	
TOTALS								

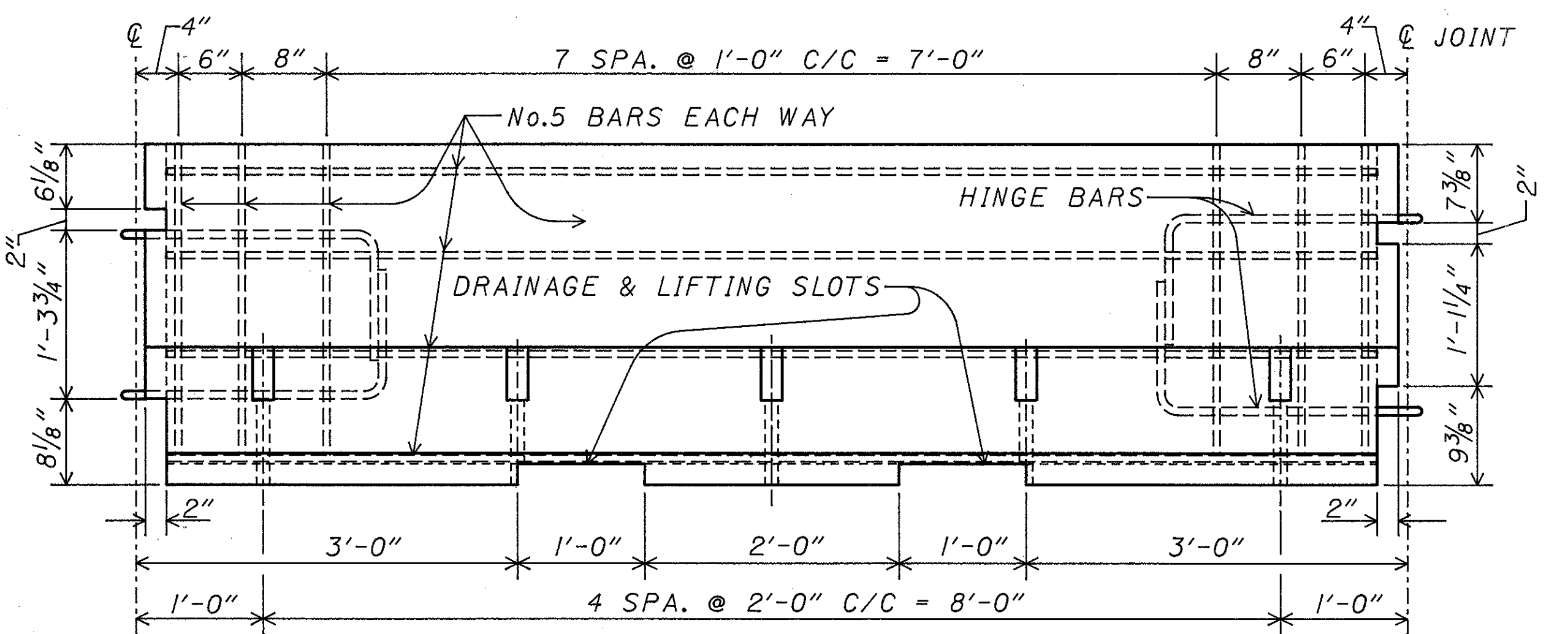
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

614 TEMPORARY RAISED PAVEMENT MARKERS

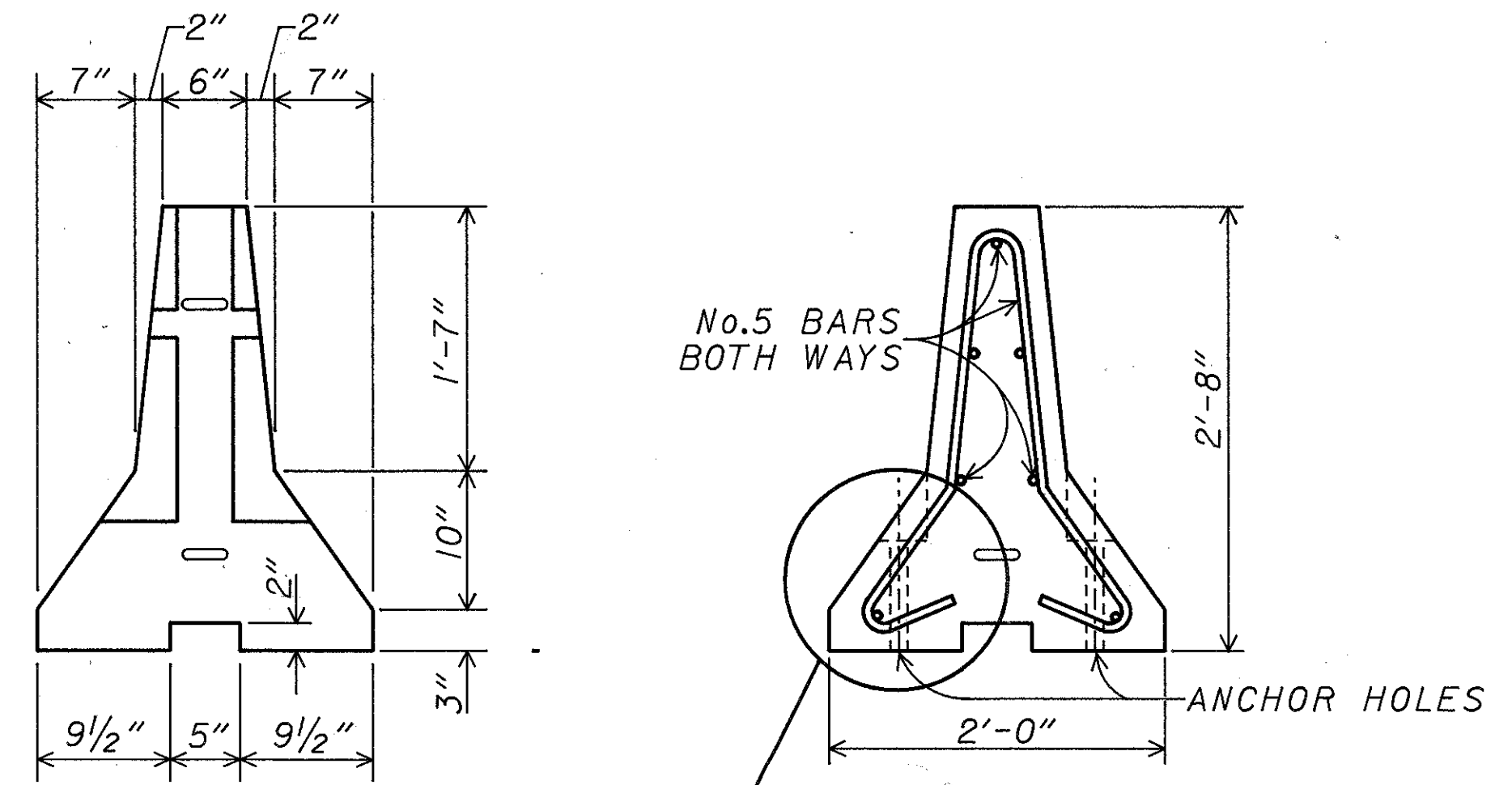
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
					5-87



PLAN

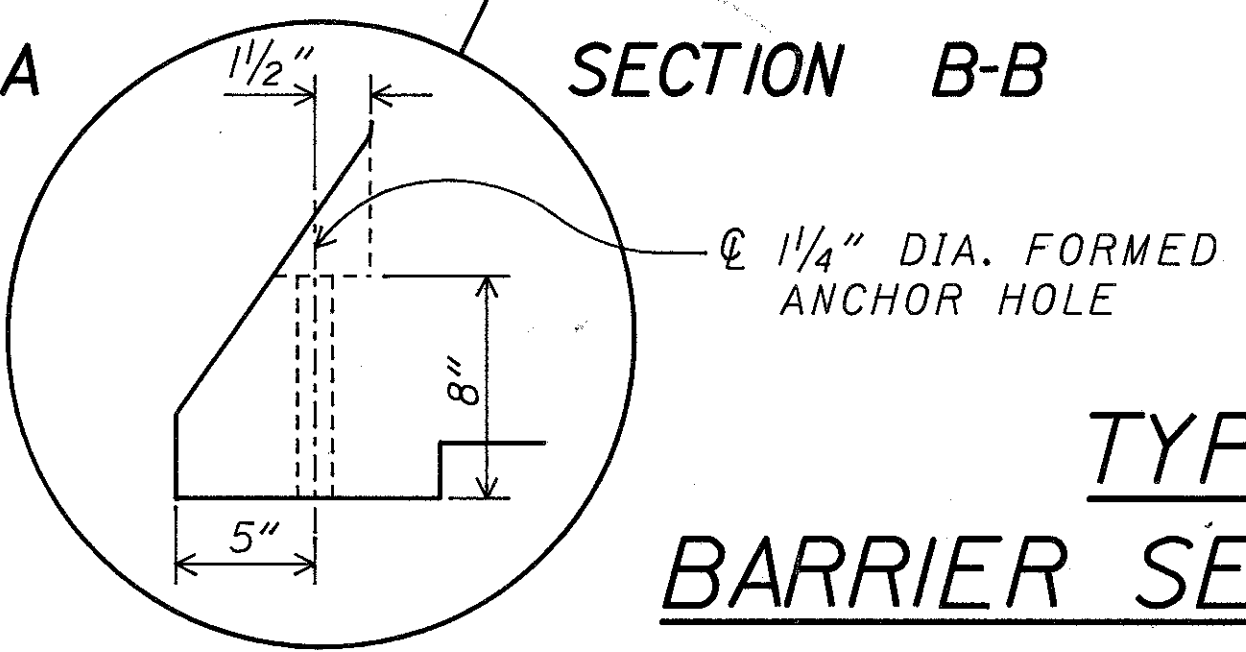


ELEVATION



SECTION A-A

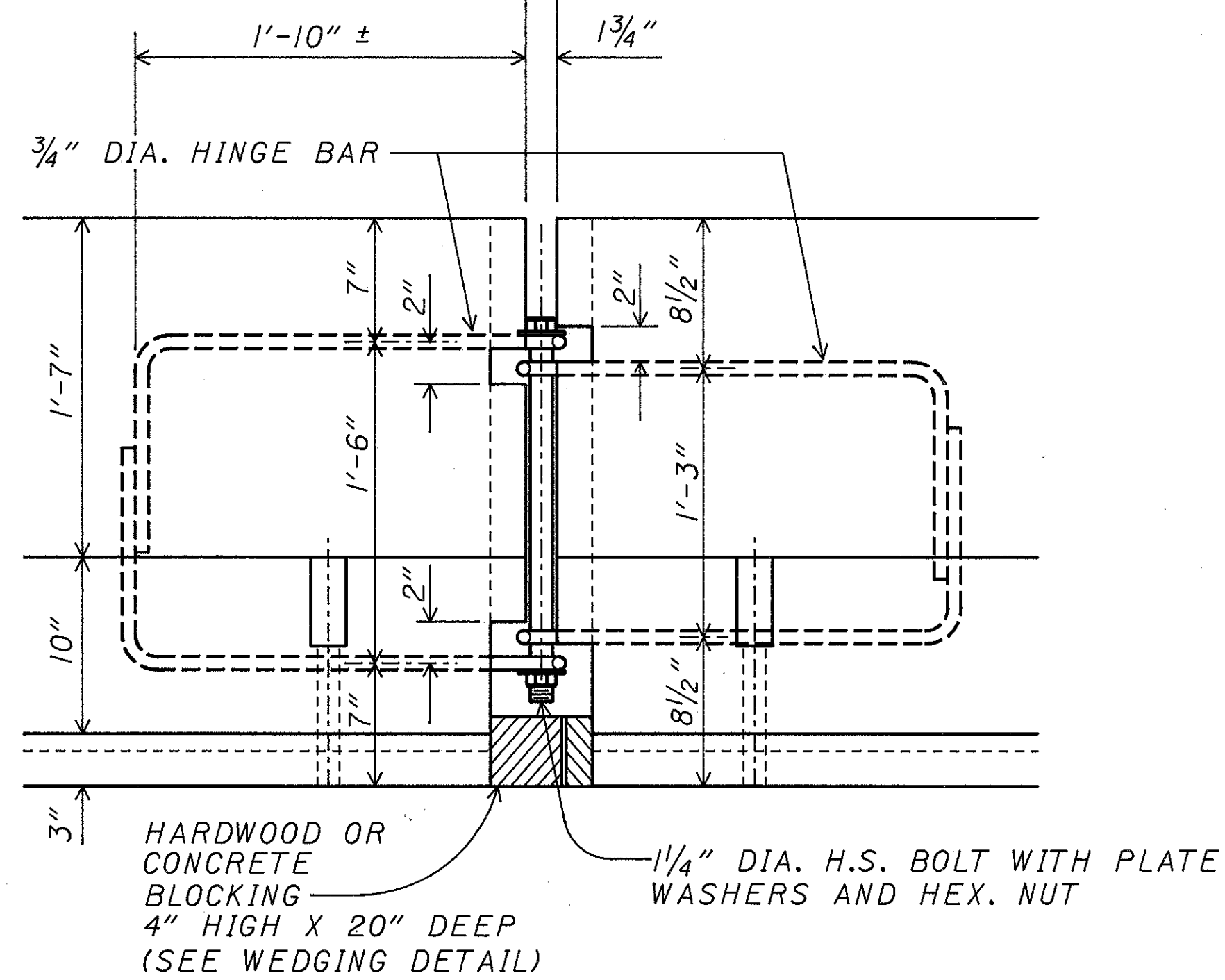
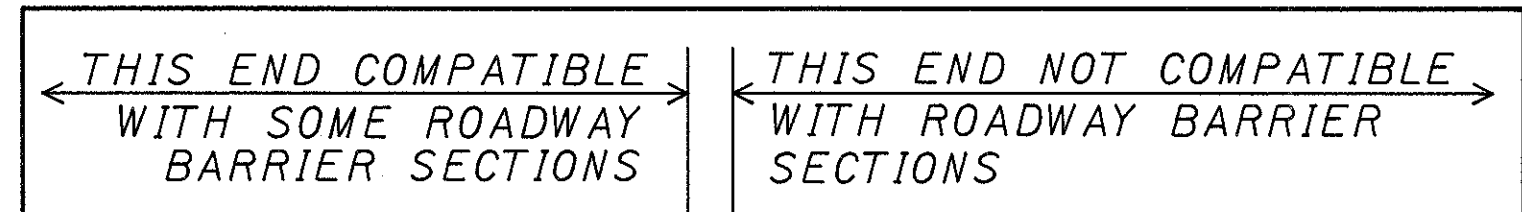
SECTION B-B



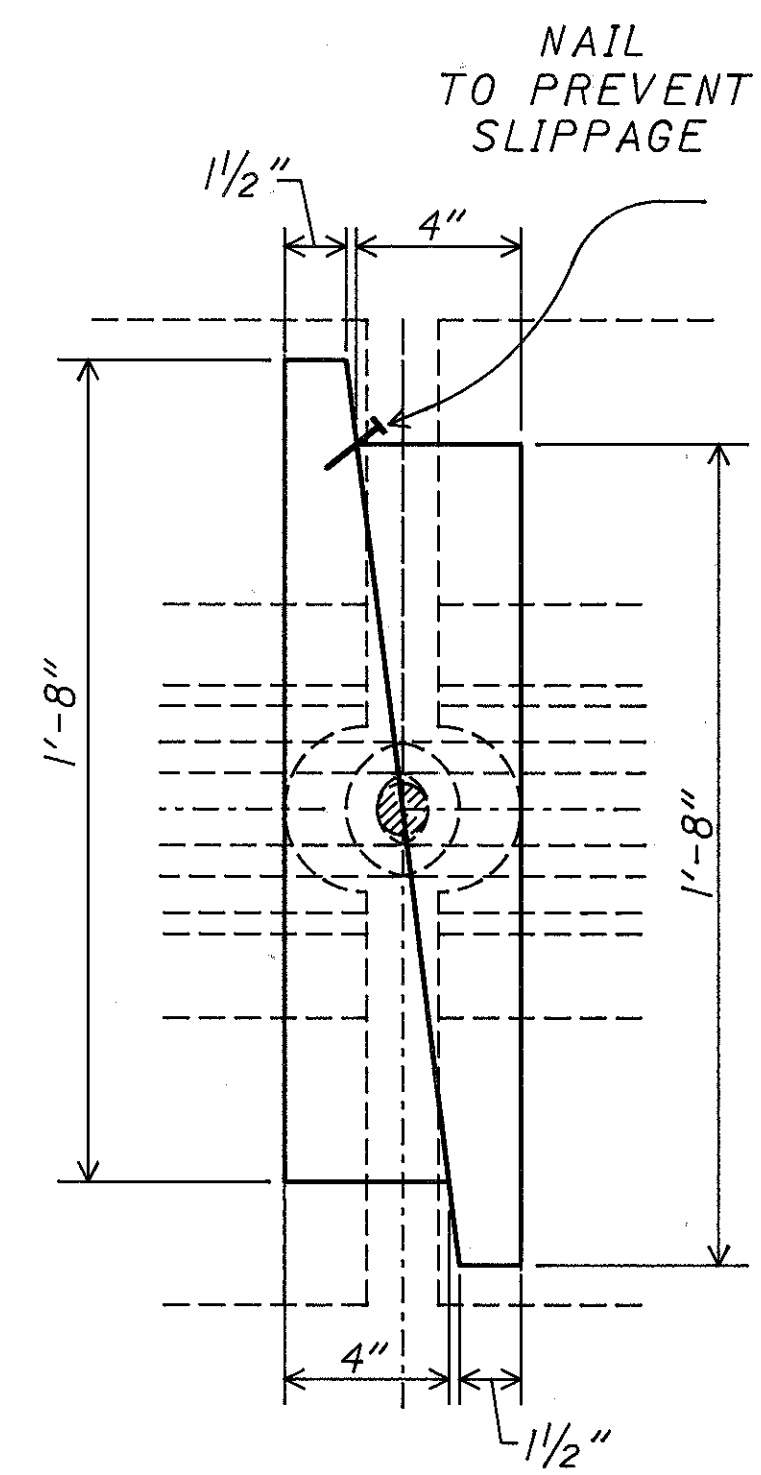
TYPE BRD
BARRIER SECTIONS

MATERIAL REQUIREMENTS:

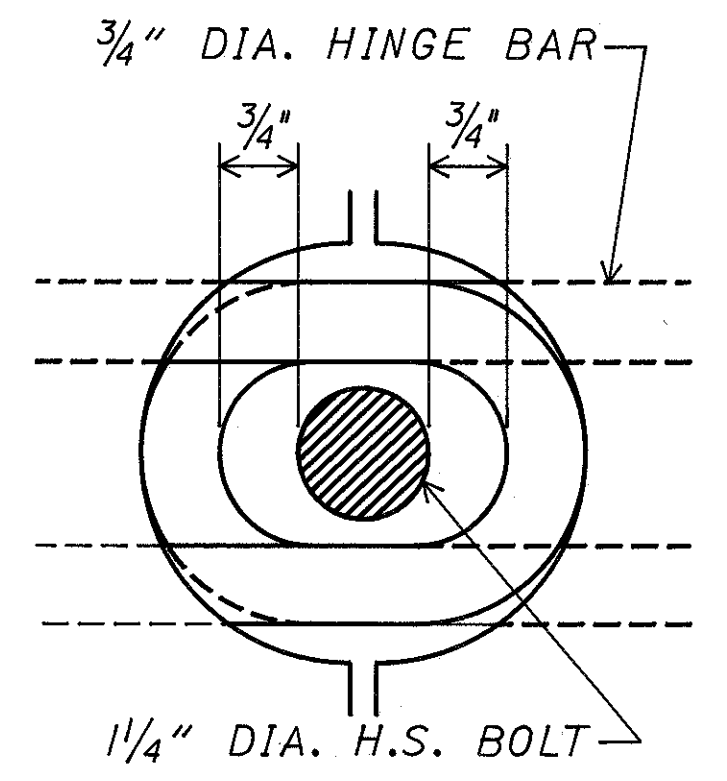
1. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. AND SHALL CONTAIN A CALCIUM NITRITE CORROSION INHIBITING ADMIXTURE. THE ADMIXTURE SHALL BE ADDED TO THE CONCRETE AT THE RATE OF 4.0 GALLONS PER CUBIC YARD OF CONCRETE AND SHALL BE ADDED AS AN AQUEOUS SOLUTION, SUCH AS W.R. GRACE'S DCI CORROSION INHIBITOR (30% SOLIDS) OR APPROVED EQUAL. THE WATER IN SUCH SOLUTION SHALL BE COUNTED AS MIXING WATER FOR THE PURPOSE OF DETERMINING THE WATER TO CEMENT RATIO OF THE CONCRETE. THE CALCIUM NITRITE MUST BE ADDED TO THE MIX IMMEDIATELY AFTER THE AIR-ENTRAINING AND RETARDING ADMIXTURES HAVE BEEN INTRODUCED TO THE BATCH.
2. ALL REINFORCING STEEL AND STEEL ROD CONNECTING LOOPS SHALL BE GRADE 60 REINFORCING STEEL WITH A MINIMUM YIELD STRENGTH OF 60,000 PSI.



DETAIL AT HINGED
CONNECTION

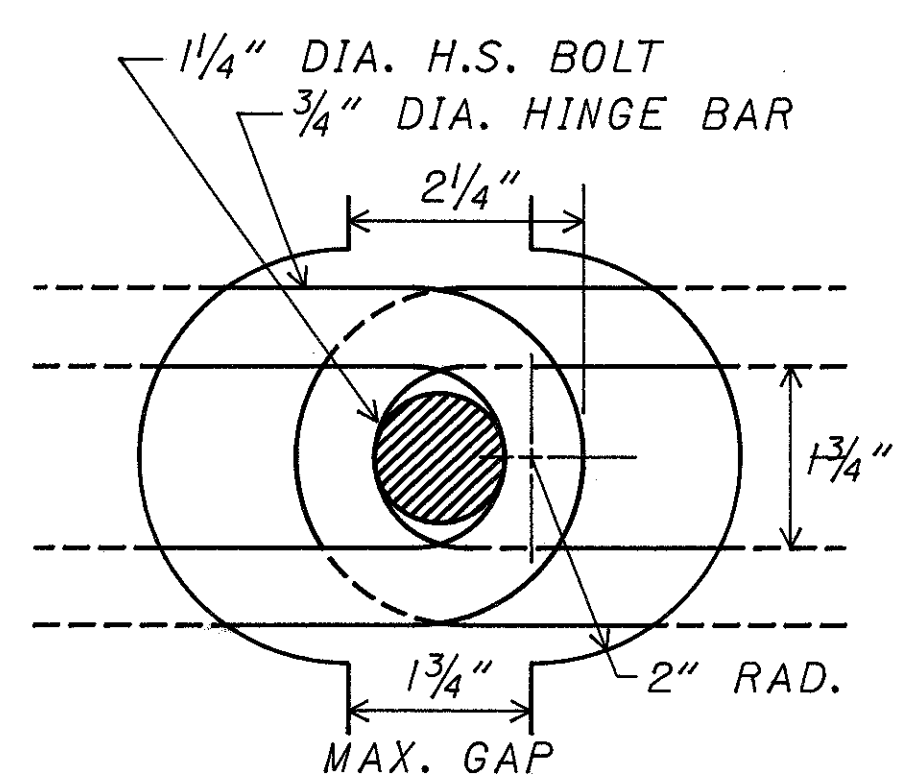


BARRIER
WEDGING DETAIL
(HARDWOOD)



INITIAL JOINT

BARRIER SEGMENTS SHOULD INITIALLY BE PLACED CLOSER TOGETHER SO THAT BOLTS CAN BE EASILY INSERTED THROUGH HINGE BAR LOOPS.



FINAL JOINT

BARRIER JOINTS MUST BE FULLY OPEN BEFORE OPENING IS BLOCKED WITH CONCRETE OR HARDWOOD.

COMMON NOTES:

ALL TEMPORARY CONCRETE BARRIERS ON STRUCTURES

BRIDGE DECK SURFACE PREPARATION

1. THE BRIDGE DECK SURFACE AREA ON WHICH THE PRECAST CONCRETE BARRIER SEGMENTS WILL REST SHALL BE CLEARED OF ALL LOOSE SAND, GRAVEL, DIRT AND DEBRIS.
2. ANY IRREGULARITIES IN THE BRIDGE DECK AREA, UNLESS JUDGED BY THE ENGINEER TO BE INCONSEQUENTIAL, SHALL BE LEVELED WITH GROUT AND/OR ASPHALT.
3. ASPHALT ROLL ROOFING SHALL BE PLACED ON THOSE BRIDGE DECK AREAS, AS JUDGED BY THE ENGINEER, TO HAVE A SURFACE ROUGHNESS WHICH WOULD INHIBIT FRICTION CONTACT BETWEEN BARRIER SEGMENTS AND DECK.

BOLTED JOINT CONNECTIONS

4. WHEN STANDARD MC-9A BARRIER SECTIONS OR TYPE BRD BARRIER SECTIONS ARE USED ON STRUCTURES, THEY SHALL BE BOLTED TOGETHER AND BLOCKED AS SHOWN ABOVE (BOLTING AND BLOCKING DIMENSIONS FOR MC-9A BARRIER MAY VARY FROM THOSE SHOWN).

CONCRETE BARRIER, TYPE BRD, ANCHORED

ALL ANCHORS SHALL BE 1" DIAMETER, HIGH STRENGTH, THRU BOLTS OR APPROVED RESIN ANCHORS. WHEN RESIN ANCHORS ARE USED, THEY MUST BE EMBEDDED A MINIMUM OF 6" INTO FIRM CONCRETE. THE NUMBER OF ANCHORS SHALL BE AS SHOWN BELOW AND SHALL BE PLACED SYMMETRICALLY ABOUT THE TRANSVERSE C/O OF BARRIER SECTION ON THE ROADWAY SIDE OF THE BARRIER.

BRIDGE NO.	TRAFFIC CONTROL PHASE	NO. ANCHORS / 10' SECTION

BRD. - BRIDGE MOUNTED

ZFAI:100122JBRBARI.DGN:1

RESURFACING QUANTITIES

RESURFACING QUANTITIES								
LOCATION		SIDE	END WIDTHS	SURFACE AREA	446	446	446	
					2" INTERMEDIATE COURSE	3/4" INTERMEDIATE COURSE	1 1/4" SURFACE COURSE	
FROM	TO		LIN FT	SQ YDS	CU.YDS.	CU.YDS.	CU.YDS.	
1037+77.75	1039+02.75	EB	66	917	51	45	32	
1039+02.75	1040+12.80	EB	66-78	880	49	42	31	
1040+12.80	1040+50	EB	78	322	18	16	11	
1040+25.85	1042+10	EB	78	1596	89	78	55	
1042+10	1044+88.65	EB	78-105	2833	157	138	98	
1044+88.65	1052+41.27	EB	68	5686	316	276	126	
1052+41.27	1053+71.27	EB	91-101	1387	77	67	48	
1053+71.27	1063+71.27	EB	91-68	8833	491	429	307	
1063+71.27	1101+06.44	EB	68	28221	1568	1372	980	
1101+06.44	1102+06.44	EB	68-78	811	45	39	28	
1102+06.44	1104+87.44	EB	78-80	2467	137	120	86	
1104+87.44	1109+06.44	EB	80-105	4306	239	209	150	
1109+06.44	1117+45.02	EB	68	6336	352	308	220	
1117+45.02	1118+70.02	EB	68	944	52	46	33	
1122+04.54	1123+29.54	EB	68	944	52	46	33	
1123+29.54	1144+72.32	EB	68	16190	899	787	562	
1144+72.32	1145+00.58	EB	68-69.25	215	12	11	7	
1145+22.32	1150+12.50	EB	69.25	3772	210	183	131	
1150+12.50	1151+12.50	EB	79.5-74.5	858	12	42	30	
1151+12.50	1152+37.50	EB	74.5-71.5	1017		49	35	
1152+37.50	1153+12.50	EB	71.5-70.5	594		7	21	
1158+15	1158+90	EB	70.75	590		7	21	
1158+90	1159+95.50	EB	70.75	829		40	29	
1159+95.50	1160+70.50	EB	70.75	590		7	21	
1162+56.53	1163+31.53	EB	70.5-69.5	584		28	20	
1163+31.53	1165+50	EB	69.5	1687		82	59	
1165+50	1166+50	EB	69.5-79.5	828		40	29	
1166+50	1173+56.33	EB	79.5-108.5	7377		359	256	
1173+56.33	1177+53	EB	69.5	3063		149	106	
1177+53	1178+28	EB	69.5	579		7	20	
MAINLINE I-480								
	EASTBOUND	TOTALS		105256	4826	5029	3585	
TOTALS								

RESURFACING QUANTITIES								
LOCATION		SIDE	END WIDTHS	SURFACE AREA	446	446	446	
					2" INTERMEDIATE COURSE	3/4" INTERMEDIATE COURSE	1 1/4" SURFACE COURSE	
FROM	TO		LIN FT	SQ YDS	CU.YDS.	CU.YDS.	CU.YDS.	
1037+77.75	1039+02.75	WB	68	944	52	46	33	
1039+02.75	1040+50	WB	68	1113	62	54	39	
1040+25.85	1047+88.73	WB	68	5764	320	280	200	
1047+88.73	1057+88.73	WB	68-91	8833	491	429	307	
1057+88.73	1059+18.73	WB	91-101	1387	77	67	48	
1059+18.73	1066+98.51	WB	68	5892	327	286	205	
1066+98.51	1073+98.51	WB	80-105	7199	400	350	250	
1073+98.51	1074+98.51	WB	78-68	811	45	39	28	
1074+98.51	1107+98.66	WB	68	24934	1385	1212	866	
1107+98.66	1114+85	WB	68-82	5720	318	278	199	
1114+85	1116+10	WB	82-84	1153	64	56	40	
1119+57.86	1120+82.86	WB	68	944	52	46	33	
1120+82.86	1144+00	WB	68	17507	973	851	608	
1144+00	1148+17.29	WB	69.25	3211	178	156	112	
1148+17.29	1149+17.29	WB	69.25	769	11	30	21	
1149+17.29	1152+33.41	WB	69.3-70.5	2459		120	85	
1152+33.41	1153+08.41	WB	70.5	590		7	21	
1158+15.00	1158+90	WB	73.5-76.5	627		7	22	
1158+90	1159+75.53	WB	76.5-79.5	742		36	26	
1159+75.53	1160+50.53	WB	79.5	663		8	23	
1162+58	1163+33	WB	57.5	479		23	17	
1163+33	1177+53	WB	57.5	9072		441	315	
1177+53	1178+28	WB	57.5	477		5	17	
MAINLINE I-480								
	WESTBOUND	TOTALS		101,290	4755	4827	3515	
TOTALS								

RESURFACING QUANTITIES								
LOCATION		SIDE	END WIDTHS	SURFACE AREA	446	446	446	
					2" INTERMEDIATE COURSE	3/4" INTERMEDIATE COURSE	1 1/4" SURFACE COURSE	
FROM	TO		LIN FT	SQ YDS	CU.YDS.	CU.YDS.	CU.YDS.	
BROADWAY CONNECTOR								
35+30	36+27	BOTH	236-92	1768		38	61	
36+27	37+34	BOTH	87-93	1160		56	40	
37+34	39+00	BOTH	92	1697		82	59	
39+00	43+80	BOTH	92-81	4587		223	159	
43+80	46+41.15	BOTH	81	2350		114	82	
46+41.15	56+41.15	LEFT	40.5-60.5	5611		273	195	
46+41.15	52+89.65	RIGHT	40.5	2918		142	65	
52+89.65	53+89.65	RIGHT	40.5-50.5	506		25	18	
53+89.65	60+88.48	RIGHT	50.5-73.5	4814		234	167	
56+41.15	57+96.15	LEFT	60.5-71.5	1137		55	39	
57+96.15	60+88.48	LEFT	26.5	861		42	30	
60+88.48	62+18.48	BOTH	67	968		11	34	
63+62.15	64+77.15	BOTH	71.5	914		10	32	
64+77.15	65+92.15	BOTH	71.5	914		10	32	
68+08.15	69+33.15	BOTH	69	958		11	33	
69+33.15	73+54.29	BOTH	69	3229		157	112	
BROADWAY CONNECTOR				34392		1483	1158	
TOTALS (THIS SHEET)				240938	9581	11,339	8258	

ITEM 407 - TACK COAT	
240938 SQ.YD. X 0.075 GAL/SQ.YD. = 18070 GAL.	
240,938 S.Y. X 0.075 GAL/SQ.YD. = 18,070 GAL.	
TOTAL TO GENERAL SUM. = 36,140 GAL.	

ZFA2:100323]RESURF .DGN; .C

RESURFACING QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA
REGION 5

FEDERAL
PROJECT

18

171

ZFA2:100323JRESURF2.DGN

LOCATION		SIDE	END WIDTHS LIN FT	SURFACE AREA SQ YDS	446					
FROM	TO				2" INTERMEDIATE COURSE CU.YDS.	3/4" INTERMEDIATE COURSE CU.YDS.	1/4" SURFACE COURSE CU.YDS.			
RAMP W-98										
44+87.30	45+87.30		29-25	300		15	10			
45+87.30	49+42.54		25	1066		52	37			
49+42.54	51+62.54		25-47	880		43	31			
51+62.54	52+88.65		47	659		32	23			
52+88.65	54+52.24		47-45	836		41	29			
54+52.24	55+02.24		64	356		17	12			
55+02.24	55+77.24		64-120	767		17	27			
RAMP 98-E										
44+73.04	45+48.04		20	167		4	6			
45+48.04	45+98		26	144		7	5			
45+98	46+80.66		26	239		12	8			
46+80.66	47+56.25		47-32	332		16	12			
47+56.25	49+36.25		32-27	590		29	20			
49+36.25	51+71.27		27	705		34	24			
51+71.27	52+47.27		27-24	215		10	8			
RAMP 98-W										
66+86.96	66+23.96		24	168		5	6			
66+23.96	65+16.96		30	357		17	12			
65+16.96	64+79.34		30	125		6	4			
64+79.34	64+03.75		51-33	353		17	12			
64+03.75	62+23.75		33-27	600		29	21			
62+23.75	59+88.73		27	705		34	24			
59+88.73	59+15		27-24	209		10	7			
RAMP E-98										
55+90.08	56+65.08		53-110	679		15	24			
56+65.08	57+15.59		53	297		14	10			
57+15.59	58+00.07		29	272		13	9			
58+00.07	58+88.71		31-25	276		13	10			
58+88.71	65+99.34		25	1974		96	69			
65+99.34	66+99.34		25-29	300		15	10			
TOTALS										

LOCATION		SIDE	END WIDTHS LIN FT	SURFACE AREA SQ YDS	446					
FROM	TO				2" INTERMEDIATE COURSE CU.YDS.	3/4" INTERMEDIATE COURSE CU.YDS.	1/4" SURFACE COURSE CU.YDS.			
RAMP G-2										
9+30.45	10+30.45		29-25	300		15	10			
10+30.45	15+75		25	1513		74	53			
15+75	16+75		25-33	322		16	11			
16+75	18+00		33	458		22	16			
18+00	20+86		31	985		48	34			
20+86	21+50.97		82-31	408		20	14			
21+50.97	22+25.97		31-24	229		5	8			
RAMP G-1										
27+71.94	26+96.94		18	150		3	5			
26+96.94	26+46.94		27	150		7	5			
26+46.94	19+83.95		27	1989		97	69			
19+83.95	19+08.95		27	225		5	8			
RAMP B-OBS										
12+22	12+97		25	208		5	7			
12+97	16+95		25	1050		51	36			
16+95	17+70		25	208		5	7			
19+40	20+14.15		25	206		10	7			
20+14.15	20+56.15		20	93		5	3			
LANE OBS-E-B										
63+24.95	66+74.66		38	1477		72	51			
66+74.66	67+99.66		38	528		7	18			
70+30	71+55		38	528		7	18			
71+55	77+67.38		38	2586		126	90			
77+67.38	78+92.38		38	528		7	18			
TOTALS										

LOCATION		SIDE	END WIDTHS LIN FT	SURFACE AREA SQ YDS	446					
FROM	TO				2" INTERMEDIATE COURSE CU.YDS.	3/4" INTERMEDIATE COURSE CU.YDS.	1/4" SURFACE COURSE CU.YDS.			
RAMP OBS-WB										
13+43.80	14+43.80		29-27	311		15	11			
14+43.80	19+75.34		27	1595		78	55			
19+75.34	20+75.34		27-28	306		15	11			
LANE B-OBS-E										
73+54.29	74+54.29		40	444		22	15			
74+54.29	75+50		40	425		21	15			
75+50	84+40		38	3758		183	130			
84+40	87+75		39	1452		71	50			
87+75	89+00		39	542		7	19			
TOTALS (THIS SHEET)				36545		1632	1264			

ITEM 407 - TACK COAT	
36545 SQ.YD. X 0.075 GAL/SQ.YD. = 2741 GAL.	
36,545 S.Y. X 0.075 GAL/S.Y. = 2741 GAL.	
TOTAL TO GEN.SUM. = 5482 GAL.	

SHOULDER WORK QUANTITIES

SHOULDER WORK QUANTITIES

STATION		SHOULDER WIDTH FEET		404	304	305	305	310		
				ASPHALT CONCRETE, AC-20 (3" THICK)	AGGREGATE BASE, AS PER PLAN	CONCRETE BASE, 10' THICK	CONCRETE BASE, 9.5' THICK	SUBBASE, TYPE 1, AS PER PLAN		
FROM	TO	RT.	LT.	CU.YD.	CU.YD.	SO.YD.	SO.YD.	CU.YD.		
EASTBOUND MAINLINE										
1038+02.75	1039+27.75	10	10				278			
1039+27.75	1040+12.80	9	10				180			
1040+12.80	1040+50	8	10				74			
1040+25.85	1042+10	8	10				368			
1042+10	1044+88.65	8	10				557			
1044+88.65	1052+41.27	10	10				1672			
1052+41.27	1053+71.27	10	10				289			
1053+71.27	1063+71.27	8	10				2000			
1063+71.27	1101+06.44	10	10				8300			
1101+06.44	1102+06.44	9	10				211			
1102+06.44	1109+06.44	8	10				1400			
1109+06.44	1118+70.02	10	10				2142			
1122+04.54	1145+00.58	10	10				5102			
1145+22.32	1150+07.03	11.25	10				1144			
1150+07.03	1151+32.03	11.25	16.5				156	229		
1151+32.03	1153+08.41	11.25	12				220	235		
1158+15	1160+26	11.25	11				264	258		
1162+56.63	1165+50	10	11				326	359		
1165+50	1166+50	9	11				100	122		
1166+50	1173+56.33	8	11				628	863		
1173+56.33	1177+53	10	11				441	485		
1177+53	1178+28	10	11				83	92		
WESTBOUND MAINLINE										
1038+02.75	1040+50	10	10				549			
1040+25.85	1047+88.73	10	10				1695			
1047+88.73	1057+88.73	10	8				2000			
1057+88.73	1059+18.73	10	10				289			
1059+18.73	1066+98.51	10	10				1733			
1066+98.51	1073+98.51	10	8				1400			
1073+98.51	1074+98.51	10	9				211			
1074+98.51	1107+98.66	10	10				7334			
1107+98.66	1116+10	10	8				1623			
1119+57.86	1140+00	10	10				4538			
1144+00	1148+17.29	10	11.25				985			
1148+17.29	1151+83.41	10	11.25				458	407		
1151+83.41	1153+08.41	10.5	11.25				156	146		
1158+15	1159+64.53	11	7.25				120	183		
1159+64.53	1160+50.53	11	17.25				165	105		
1162+58	1178+28	11	10				1744	1919		
SUB-TOTAL (MAINLINE)							50,935	5,403		
TOTALS										

SHOULDER WORK QUANTITIES

STATION		SIDE	SHOULDER WIDTH FEET		404	304	305	305	310		
					ASPHALT CONCRETE, AC-20 (3" THICK)	AGGREGATE BASE, AS PER PLAN	CONCRETE BASE, 10' THICK	CONCRETE BASE, 9.5' THICK	SUBBASE, TYPE 1, AS PER PLAN		
FROM	TO		RT.	LT.	CU.YD.	CU.YD.	SO.YD.	SO.YD.	CU.YD.		
BROADWAY CONNECTOR											
36+15	37+34	LT.		10							
36+15	37+34	RT.	10	3.5			132	46			
37+34	56+41.15	LT.	6	10			2119	1271			
37+34	52+89.65	RT.	10	6			1729	1037			
52+89.65	53+89.65	RT.	9	6			100	67			
53+89.65	60+88.48	RT.	8	6			621	466			
56+41.15	57+96.15	LT.	6	8			138	103			
57+96.15	62+18.48	LT.	6	6			282	282	22		
60+88.48	62+18.48	RT.		6				87			
63+62.15	65+92.15	LT.	6	7.25			185	153			
63+62.15	65+92.15	RT.	11.25	6			288	153			
68+08.15	74+54.29	LT.	6	6			431	431	33		
68+08.15	74+54.29	RT.	10	6			718	431			
74+54.29	75+54.29	LT.	5	6			67	56			
74+54.29	75+54.29	RT.	10	6			111	67			
RAMP W-98											
44+87.30	45+87.30		6			3	6			5	
45+87.30	52+88.65		6			19	39			36	
RAMP 98-E											
45+73.04	52+71.27		6			19	39			36	
52+71.27	53+71.27		7			1	3			3	
RAMP 98-W											
66+50	58+88.73		6			21	42			39	
58+88.73	57+88.73		7			1	3			3	
RAMP E-98											
58+00.07	65+99.34		6			22	44			41	
65+99.34	66+99.34		7			1	3			6	
SUB-TOTAL							87	179	7053	4650	224
TOTALS											

SHOULDER WORK QUANTITIES

STATION		SHOULDER WIDTH FEET		404	304	305	305	310			
				ASPHALT CONCRETE, AC-20 (3" THICK)	AGGREGATE BASE, AS PER PLAN	CONCRETE BASE, 10' THICK	CONCRETE BASE, 9.5' THICK	SUBBASE, TYPE 1, AS PER PLAN			
FROM	TO	RT.	LT.	CU.YD.	CU.YD.	SO.YD.	SO.YD.	CU.YD.			
RAMP G-I											
26+72	19+08.95	6		21	42				39		
RAMP B-OBS											
12+22	17+70	6		15	30				28		
19+40	20+56.15	6		3	6				6		
LANE OBS-E-B											
61+74.95	67+99.66	4	10				972				
70+30	78+92.38	4	10				1341				
RAMP OBS-W-B											
13+43.80	14+43.80	7		1	3				3		
14+43.80	19+75.34	6		15	30				27		
LANE B-OBS-E											
74+54.29	75+50	6	10				170				
75+50	85+40	4	10				1540				
85+40	88+90.70	4.5	10				565				
SUB-TOTAL							55	111	4588	103	
TOTALS (THIS SHEET)							142	290	62,576	10,053	327

GUARDRAIL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO	20
FHWA REGION 5	171
FEDERAL PROJECT	

NOTE: SEE SHEET 45 FOR ANCHOR
ASSEMBLY AND FLARE
TREATMENT.

* INCLUDES TRANSITIONS # FOR INFORMATION ONLY.

GUARDRAIL QUANTITIES

REFERENCE NO.	LOCATION		SIDE	202		606						622	408	203	404	SPEC		
				GUARDRAIL REMOVED	GUARDRAIL POST REMOVED, AS PER PLAN.	GUARDRAIL RAISED	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE A	ANCHOR ASSEMBLY, TYPE T	BRIDGE TERMINAL ASSEMBLY, TYPE J	BRIDGE TERMINAL ASSEMBLY, TYPE A	CONCRETE BARRIER, TYPE B42, AS PER PLAN.	BITUMINOUS PRIME COAT, AS PER PLAN.	LINEAR GRADING	ASPHALT CONCRETE, AC-20 (3" THICK), AS PER PLAN.	HERBICIDES FOR WEED CONTROL	#	
																		L.F.
1-G	1038+08.50	1042+50	RT.	500			400						109	487.5	18.1	217		
2-G	1038+08.50	1042+75	RT.	520			500						111	500	18.5	222		
3-G	1038+08.50	1042+00	LT.	350			75						78	350	13.0	156		
4-G	1042+15	1043+90	LT.	125			50						40	125	4.6	56		
5-G	43+34.84	44+84.84	RT.															
6-G	1053+85	1056+35	RT.	250			87.5						25	112.5	4.2	50		
7-G	1053+95.11	1055+45.11	RT.	150			100						28	125	4.6	56		
8-G	1056+14.89	1057+64.89	LT.	150			100						28	125	4.6	56		
9-G	1055+25	1057+25	LT.	250			87.5						25	112.5	4.2	50		
10-G	14+23.10	17+60.60	RT.															
11-G	21+90.93	9+40.23	LT.															
12-G	66+66.74	68+16.74	LT.															
13-G	51+15	52+90	RT.	175			75						40	22	100	3.7	44	
14-G	1065+08	1066+83	RT.	125			50						40	22	100	3.7	44	
15-G	1065+08	1066+83	RT.	125			50						40	22	100	3.7	44	
16-G	1068+50	1070+25	LT.	175			100						40	28	125	4.6	56	
17-G	1068+50	1070+25	LT.	175			100						40	28	125	4.6	56	
18-G	1083+40	1085+15	LT.	125			50						40	22	100	3.7	44	
19-G	14+60.50	15+53.50	RT.															
20-G	19+47	20+22	LT.															
21-G	1087+84	1090+84	RT.	300			150						*60	39	175	6.5	78	
22-G	1087+94.37	1089+69.37	RT.	175			75						*50	22	100	3.7	44	
23-G	19+29	20+16.50	RT.															
24-G	1090+01.49	1091+76.49	LT.	175			100							28	125	4.6	56	
25-G	1088+65	1091+15	LT.	250			87.5							25	112.5	4.2	50	
26-G	15+18.50	15+53.50	RT.															
27-G	1095+30	1097+05	LT.	125			50											
28-G	1095+30	1097+05	LT.	125			50											
29-G	1105+94	1115+69	LT.	975			812.5							184	825	30.6	367	
30-G	1105+15	1106+90	RT.	75			50							40	22	100	3.7	44
31-G	1101+00	10+25	RT.	925			350							40	86	387.5	14.4	172
32-G	1113+93	1119+68	RT.	575			362.5							86	387.5	14.4	172	
33-G	1116+55	1118+55	LT.	62.5			62.5							45	200	7.4	89	
34-G	1119+87	1121+87	RT.	62.5			62.5							45	200	7.4	89	
35-G	19+18	20+76	RT.				100							44	100	3.7	44	
36-G	1122+81	1128+56	RT.	575			462.5							106	475	17.6	211	
37-G	20+75	26+44	RT.	12.5			700							159	712.5	26.4	317	
38-G	1120+75	1128+00	LT.	725			537.5							128	575	21.3	256	
39-G	1143+00	1152+74	LT.	875			850							192	862.5	31.9	383	
40-G	1144+94	1153+03	RT.	787.5			653							40	151	678	25.1	301
41-G	1145+22	1146+97	LT.	175			75							40	22	100	3.7	44
42-G	1158+03	1160+27.20	LT.				225							50	225	8.3	100	
SUB-TOTAL				10170	21		1025	6615.5	17	6	7	29	670	2054	9128	338.1		
SUB-TOTAL																		

GUARDRAIL QUANTITIES

REFERENCE NO.	LOCATION		SIDE	202		606						622	408	203	404	SPEC		
				GUARDRAIL REMOVED	GUARDRAIL POST REMOVED, AS PER PLAN.	GUARDRAIL RAISED	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE A	ANCHOR ASSEMBLY, TYPE T	BRIDGE TERMINAL ASSEMBLY, TYPE J	BRIDGE TERMINAL ASSEMBLY, TYPE A	CONCRETE BARRIER, TYPE B42, AS PER PLAN.	BITUMINOUS PRIME COAT, AS PER PLAN.	LINEAR GRADING	ASPHALT CONCRETE, AC-20 (3" THICK), AS PER PLAN.	HERBICIDES FOR WEED CONTROL	#	
																		L.F.
43-G	1158+70.50	1160+89.20	RT.			185												
44-G	12+31	13+82	LT.			62.5												
45-G	1163+06.50	1165+50	RT.	275														
46-G	63+60.31	65+53.30	RT.			212.5												
47-G	68+16.50	77+50	RT.			825												
48-G	63+66.80	65+73.50	LT.			200												
49-G	68+50.80	70+10	LT.			100												
50-G	70+09.60	77+00	RT.			662.5												
51-G	70+68.75	72+18.75	LT.			62.5												
53-G	35+92.5	53+00	LT.	1025		420	687.5											
54-G	19+62	22+62	LT.	127.5		172.5	75											
55-G	43+50	45+00	LT.	175		75												
56-G	36+45	36+20	LT.	75														
57-G	35+50	36+00	LT.				62.5											
SUB-TOTAL				1677.5	3	2902.5	900	4	1	3	5	160	861	3878	140.3			
SUB-TOTAL																		
TOTALS (THIS SHEET)				11847.5	24	3927.5	7515.5	21	7	10	34	830	2915	13006 (130 STA)	478.4	5774		

ZFA2:[100323]GUARD .DGN:

COMPUTATIONS AND SUB-SUMMARIES

COMPACTED AGGREGATE, AS PER PLAN					
DIRECTION	SIDE	STATION		617	
		FROM	TO	COMPACTED AGGREGATE, AS PER PLAN *	
					CU. YD.
MAINLINE EASTBOUND	LT.	1038+08	1042+33	16	
	RT.	1045+12	1053+70	33	
	LT.	1043+90	1054+18	40	
	RT.	1056+40	1065+60	36	
	LT.	1056+00	1065+60	37	
	BOTH	1066+85	1088+23	165	
	RT.	1090+80	1105+13	55	
	LT.	1090+30	1105+65	59	
	LT.	1106+10	1117+83	45	
	RT.	1109+00	1116+00	27	
	RT.	1127+50	1145+75	70	
	LT.	1122+96	1145+75	88	
	LT.	1146+74	1148+20	6	
	RT.	1162+90	1178+28	21	
	WESTBOUND				
		RT.	1042+12.5	1055+60	52
		LT.	1038+96	1055+60	64
	LT.	1057+25	1069+60	48	
	RT.	1057+88	1069+60	45	
	BOTH	1070+60	1084+15	105	
	LT.	1084+15	1090+00	23	
	RT.	1085+10	1089+15	16	
	RT.	1091+00	1096+05	19	
	LT.	1091+25	1096+05	19	
	BOTH	1097+00	1107+50	81	
	LT.	1107+50	1116+65	35	
	RT.	1119+60	1120+80	5	
	LT.	1121+32.5	1148+20	104	
	RT.	1125+50	1144+00	71	
	RT.	1162+40	1178+28	22	
BROADWAY CONNECTOR					
	BOTH	36+05	37+85	5	
	LT.	37+85	43+40	8	
	RT.	43+80	48+15	6	
	RT.	49+60	62+25	18	
	LT.	44+15	62+25	25	
SUB TOTAL				1469	

COMPACTED AGGREGATE, AS PER PLAN				
DIRECTION	SIDE	STATION		617
		FROM	TO	COMPACTED AGGREGATE, AS PER PLAN *
RAMP W-98	BOTH	44+87	51+50	18
	LT.	51+50	55+50	6
	RT.	52+40	55+75	5
RAMP 98-E	RT.	45+73	48+00	3
	BOTH	48+00	53+71	16
RAMP 98-W	BOTH	57+60	66+50	12
RAMP E-98	LT.	58+00	59+00	1
	BOTH	59+00	66+99	22
RAMP G-2	LT.	9+30	22+35	18
	RT.	9+50	22+70	18
RAMP G-1				
RAMP B-OBS	BOTH	12+31	15+88	10
	LT.	15+88	17+46	2
LANE OBS-E-B	BOTH	61+85	67+90	17
LANE OBS-WB	BOTH	13+43.80	19+75.34	18
LANE B-OBS-E	BOTH	75+85	87+50	32
TOTALS (THIS SHEET)				1667

* - BASED ON 1/2 OVERLAY THICKNESS
 3" OVERLAY - 1.5' DEEP AND 3' WIDE
 5" OVERLAY - 2.5' DEEP AND 5' WIDE
 (SEE GENERAL NOTE SHEET 8
 FOR MORE DETAIL.)

COMPUTATIONS AND SUB-SUMMARIES

EARTHWORK RECAP			
SHEET NO.	203		659
	EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION	EMBANKMENT, AS PER PLAN	SEEDING AND MULCHING
	CU. YDS.	CU. YDS.	SQ. YDS.
54	80	95	362
55	445	1066	2355
41	56	23	69
TOTAL	581	1184	2786

ITEM 659- COMMERCIAL FERTILIZER
* 2786 S.Y. x 9 S.F./S.Y. x 20 LBS./1000 S.F. x TON/2000 LBS.=0.25 TONS
ITEM 659- AGRICULTURAL LIMING
2786 S.Y. x 9 S.F./S.Y. x 100 LBS./1000 S.F. x TON/2000 LBS.=1.25 TONS

* Quantities carried to sht. 10.

ITEM 614-TEMPORARY PAVEMENT MARKING SUB-SUMMARY				
REF	DESCRIPTION	PHASE I	PHASE II	TOTAL
①	TEMPORARY EDGE LINE, CLASS I, 947.03 TYPE B	110,000 L.F.=20.83 MI.	110,000 L.F.=20.83 MI.	220,000 L.F.=41.67 MI.
②	TEMPORARY LANE LINE, CLASS I, 947.03 TYPE B	50,000 L.F.=9.47 MI.	70,000 L.F.=13.26 MI.	120,000 L.F.=22.73 MI.
③	TEMPORARY TRANSVERSE LINES, CLASS I, 947.03 TYPE B	500 L.F.	800 L.F.	1300 L.F.
④	TEMPORARY CHANNELIZING LINES, CLASS I, 947.03 TYPE B	1,500 L.F.		1,500 L.F.
⑤	TEMPORARY DOTTED LINES, CLASS I, 947.03 TYPE B	1,800 L.F.	1,800 L.F.	3,600 L.F.
⑥	TEMPORARY CENTERLINES, CLASS I, 947.03 TYPE B		1,100 L.F.=0.21 MI.	1,100 L.F.=0.21 MI.
⑦	TEMPORARY WORD "ONLY" ON PAVEMENT, 72", CLASS I, 947.03 TYPE B	1 EACH		1 EACH
⑧	TEMPORARY LANE ARROWS, CLASS I, 947.03 TYPE B	1 EACH		1 EACH
⑨	TEMPORARY STOP LINES, CLASS I, 947.03 TYPE B		20 L.F.	20 L.F.

BERM EXCAVATION QUANTITIES		
ITEM	CALCULATION	203
		EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
		CU. YD.
10" CONCRETE PAVEMENT	$62,576 \text{ SQ.YD.} \times 10 \text{ in. DEEP} \times \frac{1 \text{ yd.}}{36 \text{ in.}}$	17,382
9.5" CONCRETE PAVEMENT	$40,053 \text{ SQ.YD.} \times 9.5 \text{ in.} \times \frac{1 \text{ yd.}}{36 \text{ in.}}$	2,653
RAMP BERM WIDENINGS	* (142 + 290 + 327) CU. YD.	759
	TOTAL	20,794

*- QUANTITY TAKEN FROM SHOULDER WORK QUANTITIES, SHEET 19.

614 WORK ZONE SPEED LIMIT SIGN
 A QUANTITY OF 29 EACH WORK ZONE SPEED LIMIT SIGNS ARE CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

GENERAL SUMMARY

PARTICIPATION
I-FEDERAL AND STATE
II-STATE ONLY

CALC. BY:	CUYAHOGA COUNTY	OHIO	23
DATE:	CUY-480-19.19	FHWA REGION 5	171
CHKD BY:		FEDERAL PROJECT	
DATE:			

ITEM	SHEET NUMBER										PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF.		
	6	7	9	10	13	20	22	47	50	43	53	49							I	II
ROADWAY																				
202														293	770	202	770	SQ.YD.	PAVEMENT REMOVED	
202		800						1474					840	3404	202	3404	LIN.FT.	CURB REMOVED, AS PER PLAN	7,49	
202													2100	2177	202	2177	SQ.FT.	WALK REMOVED		
202														318	202	318	LIN.FT.	FENCE REMOVED		
202														1	202	1	EACH	IMPACT ATTENUATOR REMOVED	7,44	
202														135	202	135	LIN.FT.	CONCRETE BARRIER REMOVED		
202	200					11847.5								2047.5	202	12047.5	LIN.FT.	GUARDRAIL REMOVED		
202						24								24	202	24	EACH	GUARDRAIL POSTS REMOVED, AS PER PLAN	7	
202	1300													1300	202	1300	EACH	RAISED PAVEMENT MARKERS REMOVED FOR STORAGE		
202													7595	7595	202	7595	SQ.YD.	CONCRETE SLOPE PROTECTION REMOVED		
202								4						5	202	5	EACH	CATCH BASIN ABANDONED		
202														111	202	111	SQ.YD.	CONCRETE MEDIAN REMOVED		
202														71	202	71	LIN.FT.	CONCRETE MEDIAN REMOVED		
203			1000					21375	475					22850	203	22850	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION		
203							130							130	203	130	STA.	LINEAR GRADING		
203								1184						1184	203	1184	CU.YD.	EMBANKMENT, AS PER PLAN	6	
EROSION CONTROL																				
606		200				7515.5								7715.5	606	7715.5	LIN.FT.	GUARDRAIL, TYPE 5, AS PER PLAN		
606						3927.5								3927.5	606	3927.5	LIN.FT.	RAISING EXISTING GUARDRAIL		
606						21								21	606	21	EACH	ANCHOR ASSEMBLY, TYPE A		
606						7								7	606	7	EACH	ANCHOR ASSEMBLY, TYPE T		
606						34								34	606	34	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE A		
606						10								10	606	10	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE J		
607														192	607	192	LIN.FT.	FENCE, TYPE CLT		
608		1000												3166	608	3166	SQ.FT.	4" CONCRETE WALK		
608														6	608	6	EACH	CURB RAMPS, TYPE I		
616														5	616	5	TON	CALCIUM CHLORIDE		
616														10	616	10	M GAL.	WATER		
SPEC														1	SPEC	1	EACH	IMPACT ATTENUATOR, HEX FOAM SANDWICH SYSTEM, MODEL NO. 209800H8S	7,44	
EROSION CONTROL																				
207					1000									1000	207	1000	LIN.FT.	FILTER FABRIC FENCE		
207					600									600	207	600	SQ.YD.	TEMPORARY SEEDING AND MULCHING		
207					500									500	207	500	EACH	STRAW OR HAY BALES		
601													420	420	601	420	CU.YD.	DUMPED ROCK FILL, TYPE D		
601													7595	601	7595	SQ.YD.	CONCRETE SLOPE PROTECTION, AS PER PLAN (6")	10		
659					7									7	659	7	M SQ.FT.	MOWING		
659					0.25									0.25	659	0.25	TON	COMMERCIAL FERTILIZER		
659					150									150	659	150	SQ.YD.	REPAIR SEEDING AND MULCHING		
659					6									6	659	6	M GAL.	WATER		
659						2786								2786	659	2786	SQ.YD.	SEEDING AND MULCHING		
659						1.25								1.25	659	1.25	TON	AGRICULTURAL LIMING		
SPEC																			6	

ZFA2:1003231GSI .DGN:1

GENERAL SUMMARY

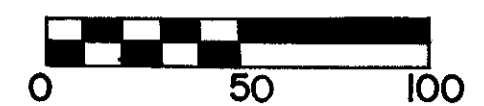
PARTICIPATION
I-FEDERAL AND STATE
II-STATE ONLY

CALC. BY	CUYAHOGA COUNTY	OHIO	24
DATE:	CUY-480-19.19	FHWA REGION 5	171
CHKD BY		FEDERAL PROJECT	
DATE:			

ITEM	SHEET NUMBER																PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF.
	93	7	9	8	10	14	49	17	18	20	19	21	47	43	53	46	13	6						
DRAINAGE																								
603				100													100	603	100	LIN.FT.	6" CONDUIT, TYPE B			
603				750													750	603	750	LIN.FT.	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM 3034 SDR 35 OR SS 931, AS PER PLAN.			
603				150									84	120			354	603	354	LIN.FT.	6" CONDUIT, TYPE F			
604													1				1	604	1	EACH	CATCH BASIN, NO. 5			
604				10													10	604	10	EACH	CATCH BASIN, ADJUSTED TO GRADE, AS PER PLAN	10		
604				15													15	604	15	EACH	MEDIAN INLET, ADJUSTED TO GRADE, AS PER PLAN.	10		
604				2													2	604	2	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	10		
604													1				1	604	1	EACH	MANHOLE, NO. 3			
604													1				1	604	1	EACH	INLET, NO. 3D, AS PER PLAN	10		
605				500								1500					2000	605	2000	LIN.FT.	AGGREGATE DRAINS			
605				60000													62,102	605	62,102	LIN.FT.	4" SHALLOW PIPE UNDERDRAINS, 707.15, AS PER PLAN	10,11		
605	50																382	605	382	LIN.FT.	6" SHALLOW PIPE UNDERDRAINS			
SPEC				15													15	SPEC.	15	EACH	PRECAST REINFORCED CONCRETE OUTLET	10,11		
PAVEMENT																								
251													30000				30000	251	30000	SQ.YD.	PARTIAL DEPTH PAVEMENT REPAIR			
252				6000													6000	252	6000	LIN.FT.	FULL DEPTH PAVEMENT SAWING			
252				4000													4000	252	4000	SQ.YD.	FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT			
301				500									28				528	301	528	CU.YD.	BITUMINOUS AGGREGATE BASE, AC-20			
304													475				765	304	765	CU.YD.	AGGREGATE BASE, AS PER PLAN	8		
305													290				62576	305	62576	SQ.YD.	10" CONCRETE BASE, AS PER PLAN	8,9		
305													10053				10053	305	10053	SQ.YD.	9.5" CONCRETE BASE, AS PER PLAN	8,9		
305													1679				1679	305	1679	SQ.YD.	9" CONCRETE BASE, AS PER PLAN	8,9		
310				500									327				1108	310	1108	CU.YD.	SUBBASE, TYPE I, AS PER PLAN	8		
													479				479	404	479	CU.YD.	ASPHALT CONCRETE, AC-20, AS PER PLAN.			
404													142				143	404	143	CU.YD.	ASPHALT CONCRETE, AC-20			
407																	41,622	407	41,622	GAL.	TACK COAT			
452																	293	452	293	SQ.YD.	13" PLAIN CONCRETE PAVEMENT, AS PER PLAN.			
446																	9522	446	9522	CU.YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE I, AC-20, AS PER PLAN	8		
446				500													23,052	446	23,052	CU.YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20			
612																	2915	408	2915	GAL.	BITUMINOUS PRIME COAT, AS PER PLAN.			
																	71	612	71	SQ.YD.	CONCRETE MEDIAN			
609				250													3500	254	3500	SQ.YD.	PAVEMENT PLANNING, BITUMINOUS			
609				800													250	609	250	LIN.FT.	ASPHALT CONCRETE CURB, AC-20, TYPE I			
617																	1972	609	1972	LIN.FT.	CURB, TYPE 6			
																	1667	617	1667	CU.YD.	COMPACTED AGGREGATE, TYPE B, AS PER PLAN	8		
																	1500	254	1500	SQ.YD.	PAVEMENT PLANNING, PORTLAND CEMENT CONCRETE			
812				34													34	812	34	TON	PORTLAND CEMENT	13,16		
803																	40000	803	40000	SQ.YD.	FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS C	9		
803																	100000	803	100000	LIN.FT.	FULL DEPTH PAVEMENT SAWING	9		
SPEC				45000													45000	SPEC.	45000	LIN.FT.	SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS, 705.04	9		
SPEC																	1947	SPEC.	1947	LIN.FT.	GROOVED RUMBLE STRIPS	7		
SPEC																	400	SPEC.	400	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	14		
FOR LIGHTING SUMMARY, SEE SHEET 151 FOR TRAFFIC CONTROL SUMMARY, SEE SHEET 108 FOR STRUCTURE SUMMARY, SEE SHEET 158 FOR MAINTENANCE OF TRAFFIC SUMMARY, SEE SHEET 111.																								
614																		614		LUMP	MAINTAINING TRAFFIC			
619																		619		LUMP	FIELD OFFICE			
623																		623		LUMP	CONSTRUCTION LAYOUT STAKES			
624																		624		LUMP	MOBILIZATION			

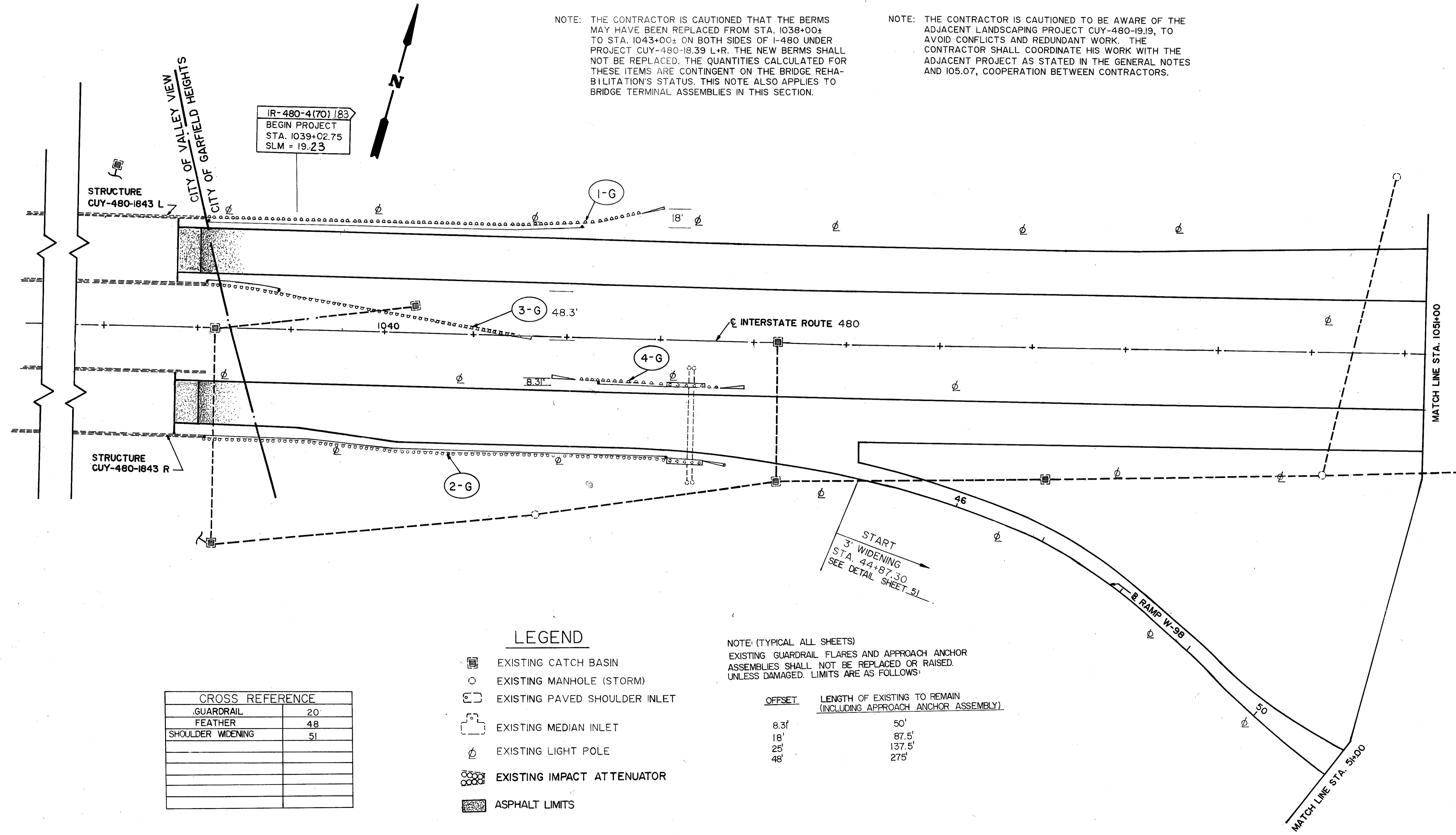
ZFA2:100323JGS2 .DGN:

PLAN SHEET



NOTE: THE CONTRACTOR IS CAUTIONED THAT THE BERMS MAY HAVE BEEN REPLACED FROM STA. 1038+00± TO STA. 1043+00± ON BOTH SIDES OF I-480 UNDER PROJECT CUY-480-18.39 L+R. THE NEW BERMS SHALL NOT BE REPLACED. THE QUANTITIES CALCULATED FOR THESE ITEMS ARE CONTINGENT ON THE BRIDGE REHABILITATION'S STATUS. THIS NOTE ALSO APPLIES TO BRIDGE TERMINAL ASSEMBLIES IN THIS SECTION.

NOTE: THE CONTRACTOR IS CAUTIONED TO BE AWARE OF THE ADJACENT LANDSCAPING PROJECT CUY-480-19.19, TO AVOID CONFLICTS AND REDUNDANT WORK. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE ADJACENT PROJECT AS STATED IN THE GENERAL NOTES AND 105.07, COOPERATION BETWEEN CONTRACTORS.



CROSS REFERENCE	
GUARDRAIL	20'
FEATHER	48'
SHOULDER WIDENING	51'

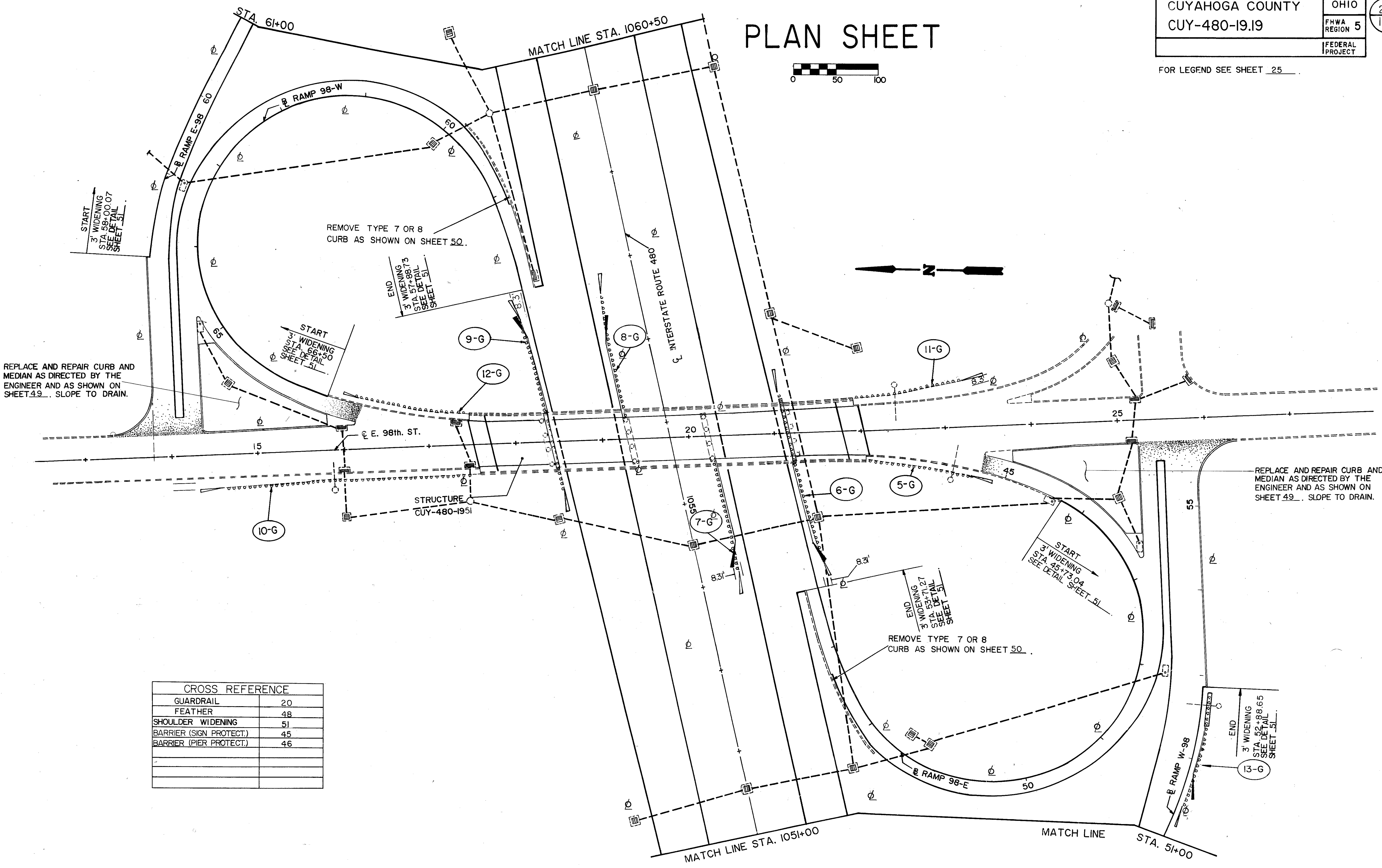
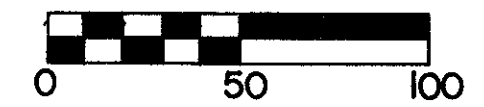
- LEGEND**
- EXISTING CATCH BASIN
 - EXISTING MANHOLE (STORM)
 - EXISTING PAVED SHOULDER INLET
 - EXISTING MEDIAN INLET
 - EXISTING LIGHT POLE
 - EXISTING IMPACT ATTENUATOR
 - ASPHALT LIMITS

NOTE: (TYPICAL ALL SHEETS)
EXISTING GUARDRAIL FLARES AND APPROACH ANCHOR ASSEMBLIES SHALL NOT BE REPLACED OR RAISED, UNLESS DAMAGED. LIMITS ARE AS FOLLOWS:

OFFSET	LENGTH OF EXISTING TO REMAIN (INCLUDING APPROACH ANCHOR ASSEMBLY)
8.3'	50'
18'	87.5'
25'	137.5'
48'	275'

FOR LEGEND SEE SHEET 25

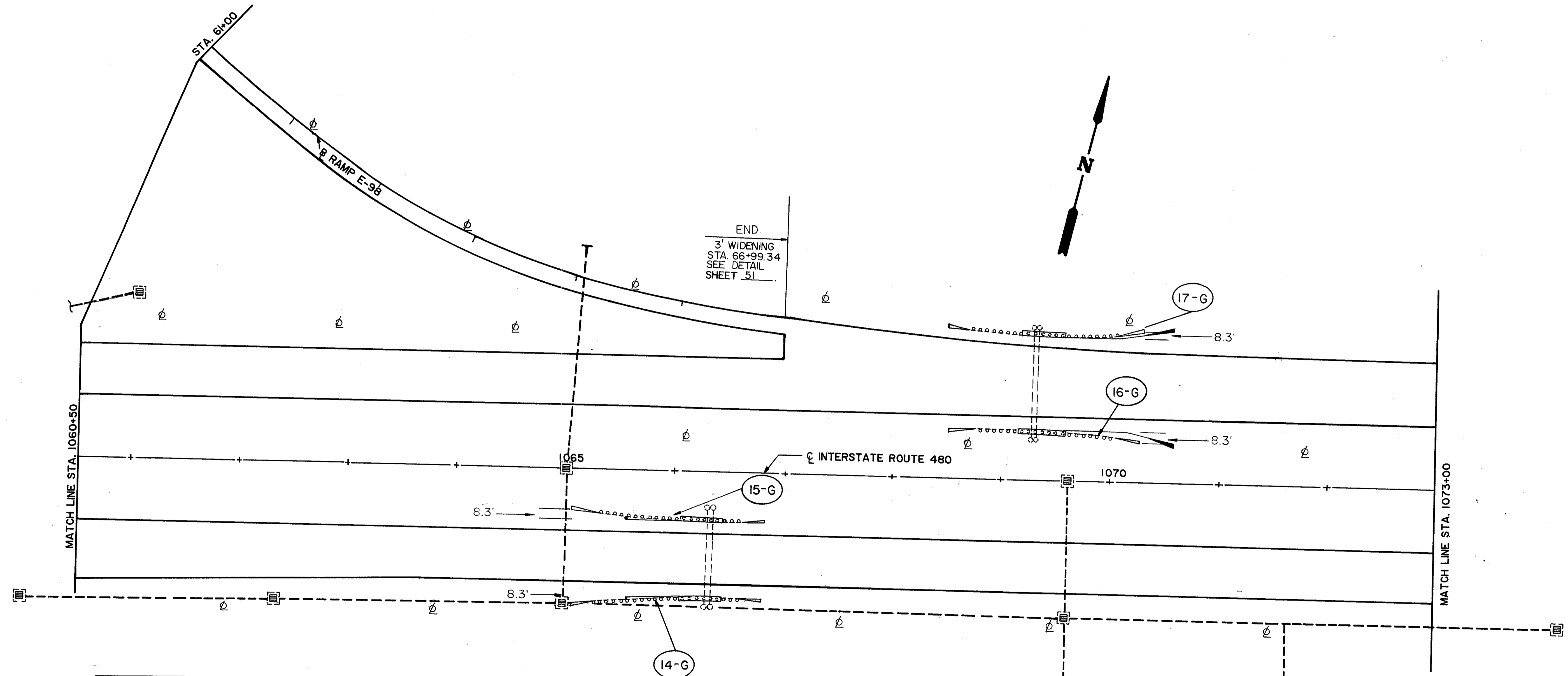
PLAN SHEET



CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48
SHOULDER WIDENING	51
BARRIER (SIGN PROTECT.)	45
BARRIER (PIER PROTECT.)	46

PLAN SHEET

FOR LEGEND SEE SHEET 25.



CROSS REFERENCE	
GUARDRAIL	20
SHOULDER WIDENING	51

PLAN SHEET



CUYAHOGA COUNTY
CUY-480-19.19

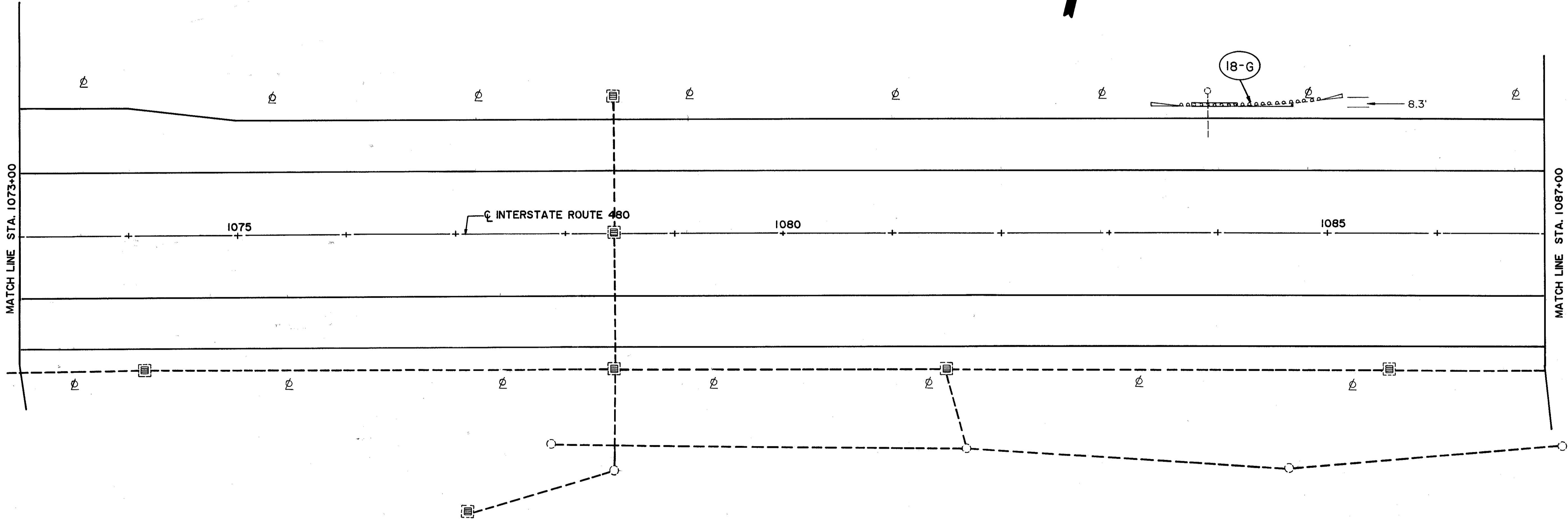
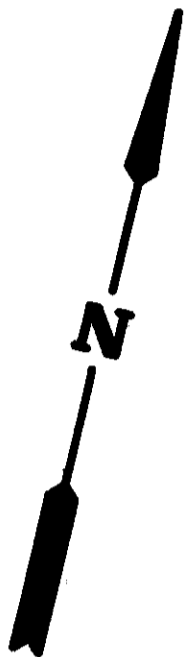
OHIO

FHWA
REGION 5

FEDERAL
PROJECT

28
171

FOR LEGEND SEE SHEET 25.

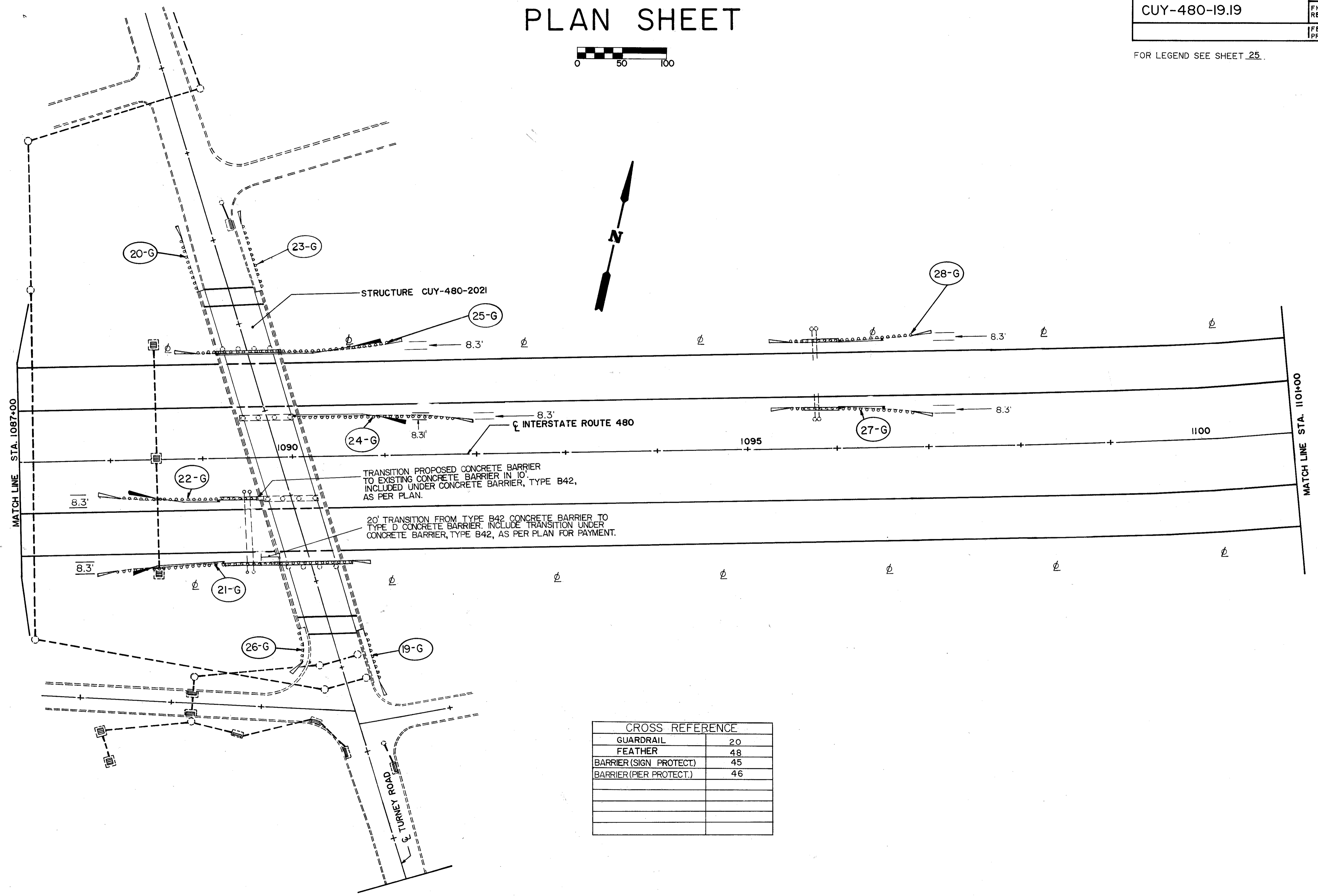


CROSS REFERENCE	
GUARDRAIL	20

PLAN SHEET



FOR LEGEND SEE SHEET 25.



TRANSITION PROPOSED CONCRETE BARRIER TO EXISTING CONCRETE BARRIER IN 10' INCLUDED UNDER CONCRETE BARRIER, TYPE B42, AS PER PLAN.

20' TRANSITION FROM TYPE B42 CONCRETE BARRIER TO TYPE D CONCRETE BARRIER. INCLUDE TRANSITION UNDER CONCRETE BARRIER, TYPE B42, AS PER PLAN FOR PAYMENT.

CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48
BARRIER (SIGN PROTECT.)	45
BARRIER (PIER PROTECT.)	46

PLAN SHEET

CUYAHOGA COUNTY
 CUY-480-19.19

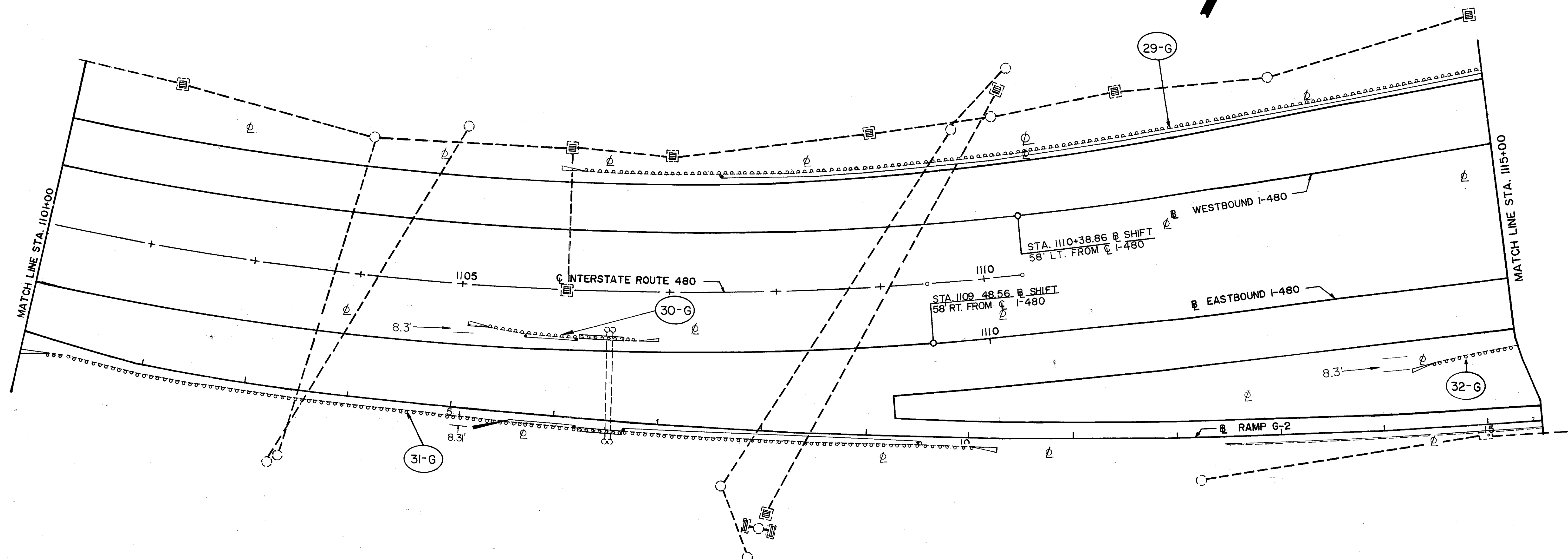
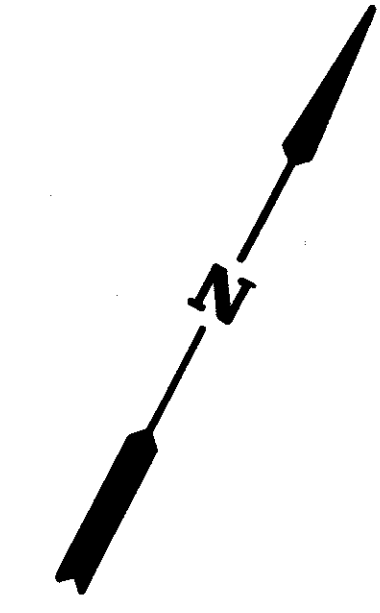
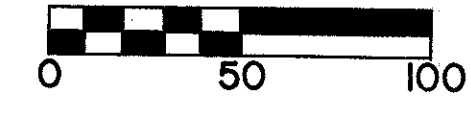
OHIO

FHWA
 REGION 5

FEDERAL
 PROJECT

30
 171

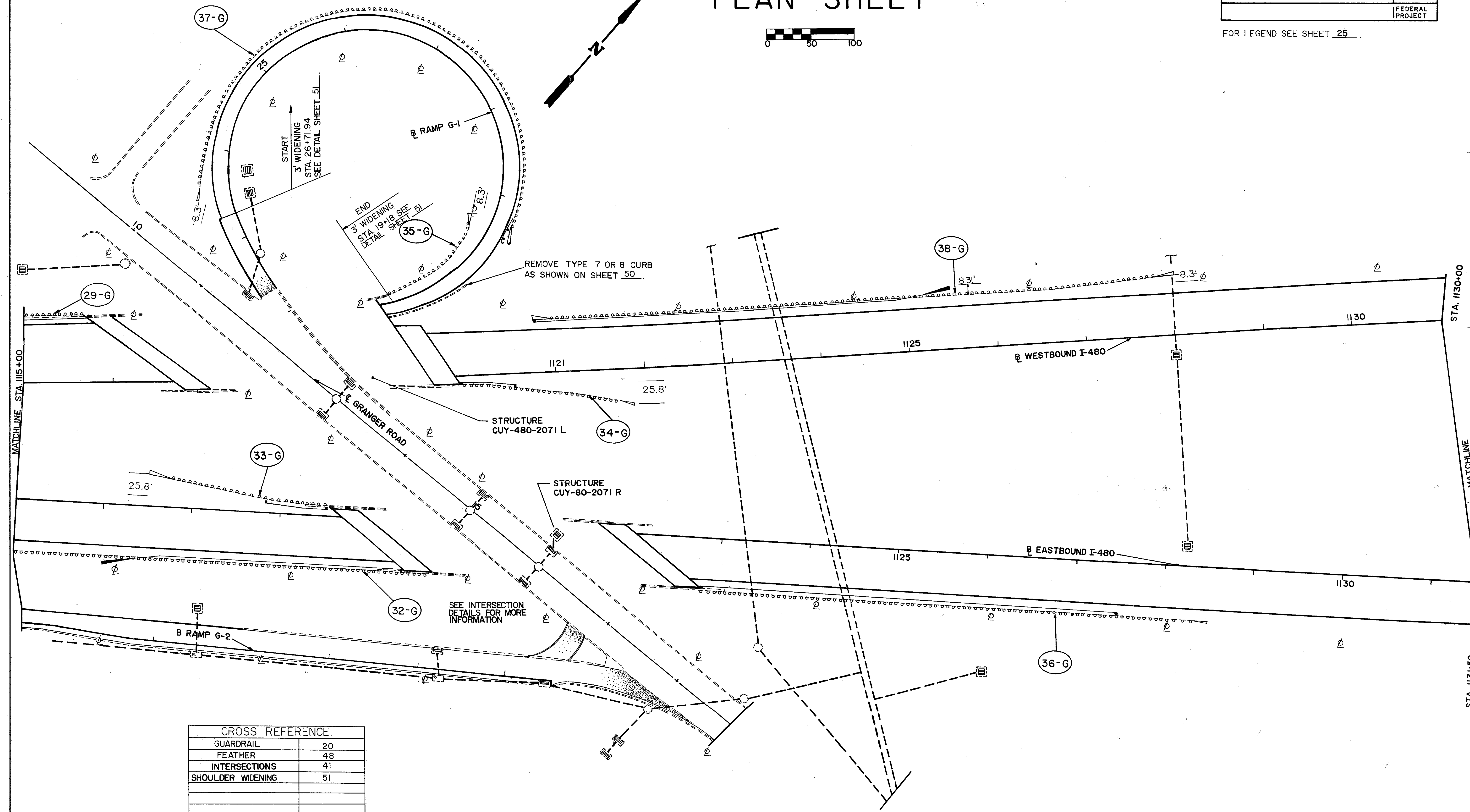
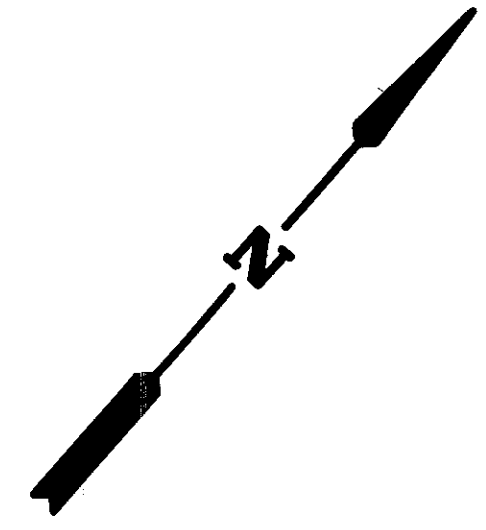
FOR LEGEND SEE SHEET 25



CROSS REFERENCE	
GUARDRAIL	20

PLAN SHEET

FOR LEGEND SEE SHEET 25



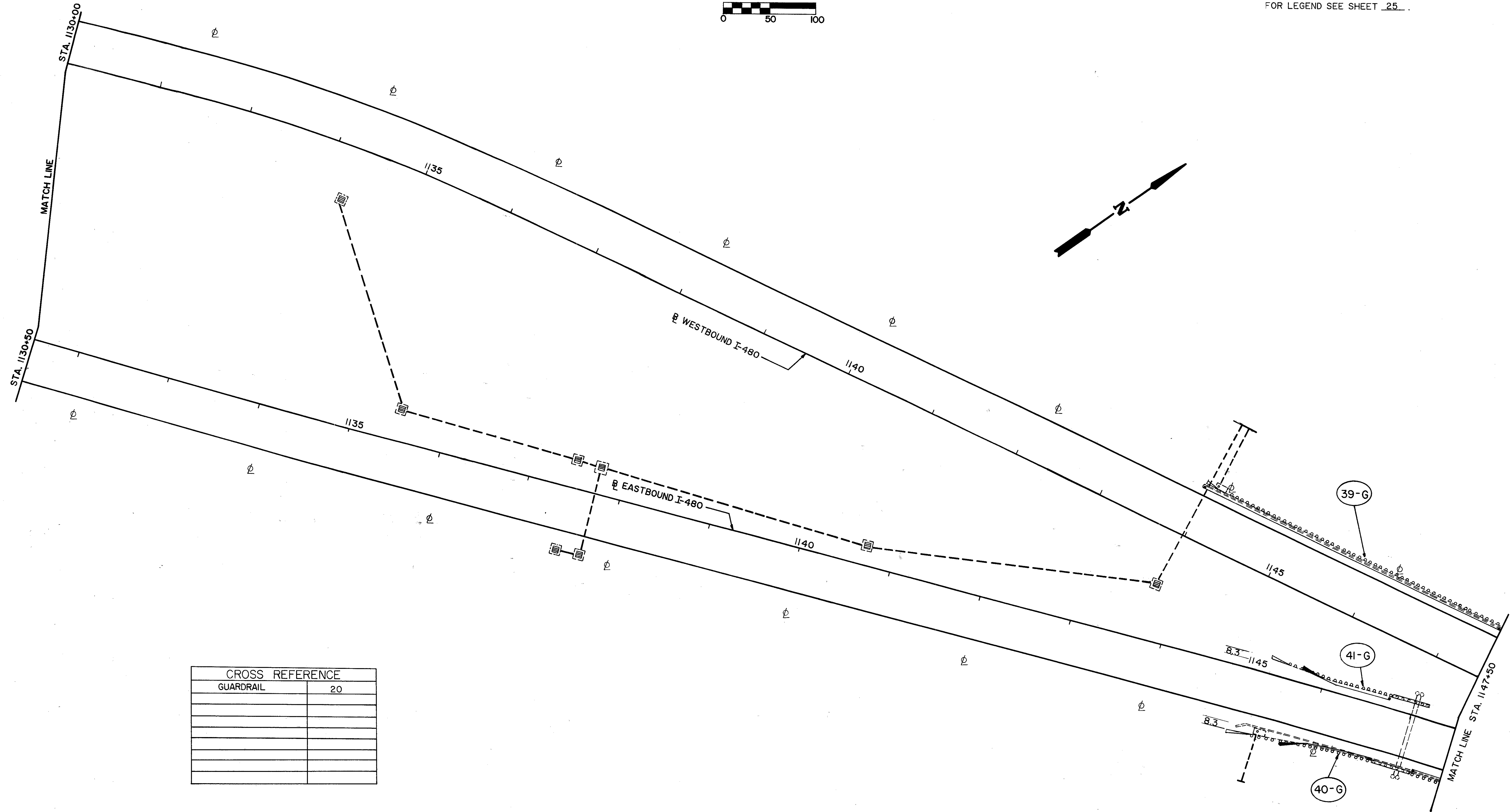
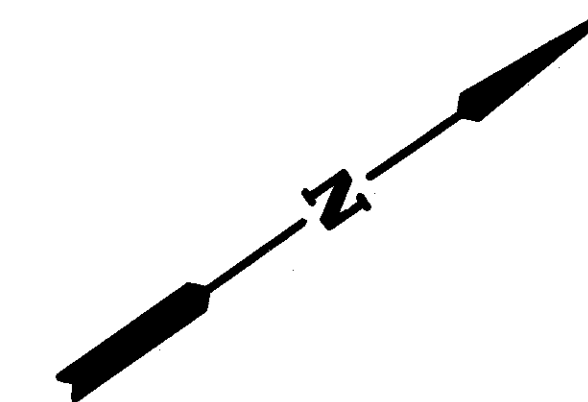
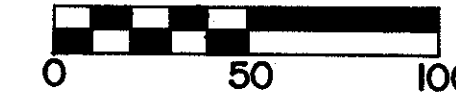
CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48
INTERSECTIONS	41
SHOULDER WIDENING	51

PLAN SHEET

CUYAHOGA COUNTY
 CUY-480-19.19

OHIO	32
FHWA REGION 5	171
FEDERAL PROJECT	

FOR LEGEND SEE SHEET 25.



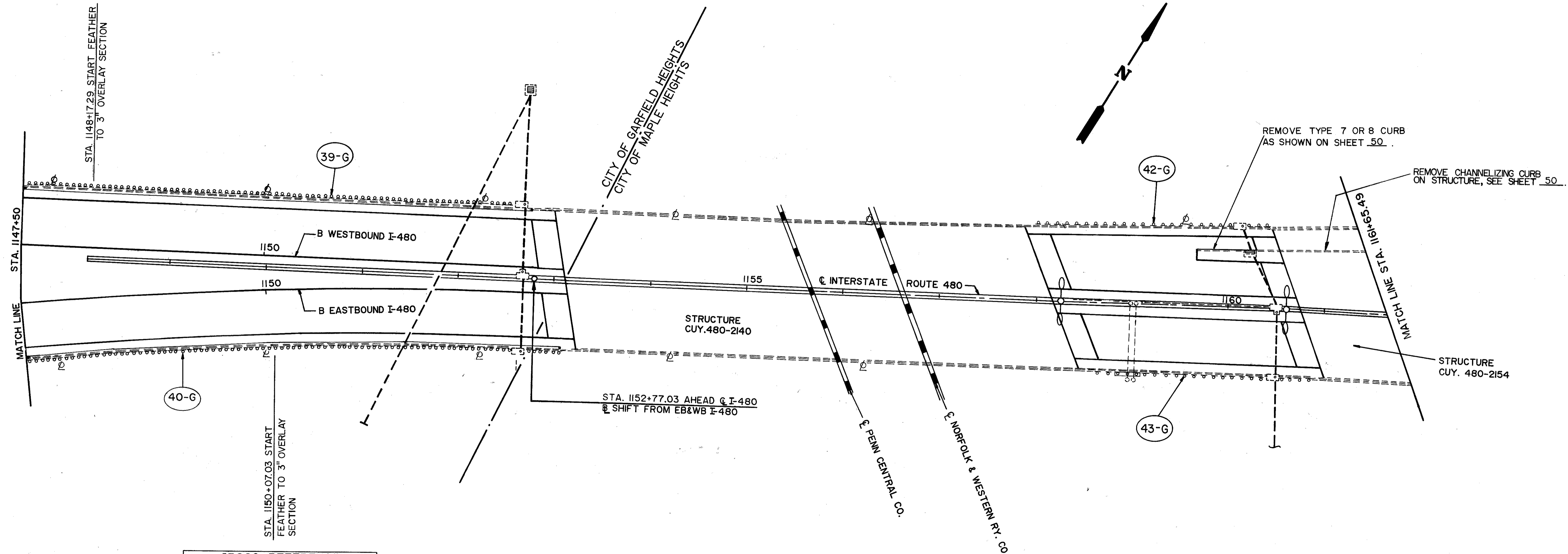
CROSS REFERENCE	
GUARDRAIL	20

PLAN SHEET



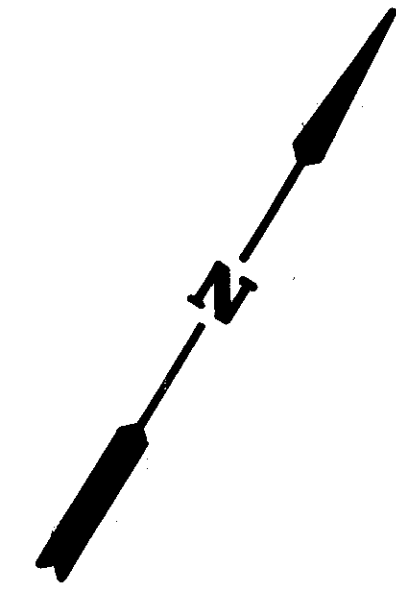
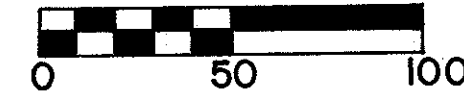
CUYAHOGA COUNTY CUY-480-19.19	OHIO	33
	FHWA REGION 5	171
FEDERAL PROJECT		

FOR LEGEND SEE SHEET 25



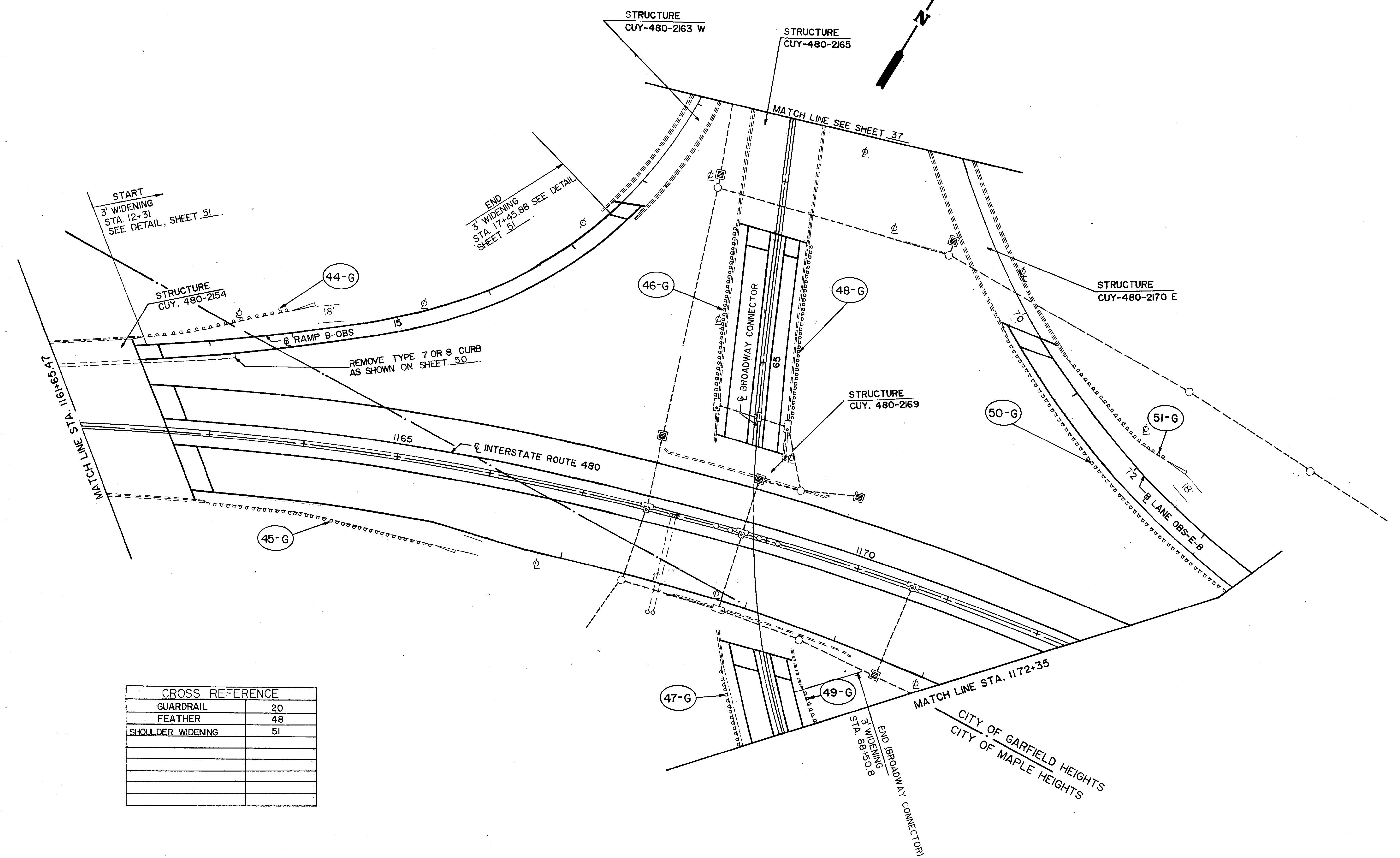
CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48

PLAN SHEET



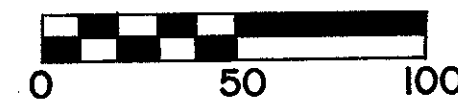
CUYAHOGA COUNTY	OHIO	34 171
CUY-480-19.19	FHWA REGION 5	
FEDERAL PROJECT		

FOR LEGEND SEE SHEET 25



CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48
SHOULDER WIDENING	51

PLAN SHEET

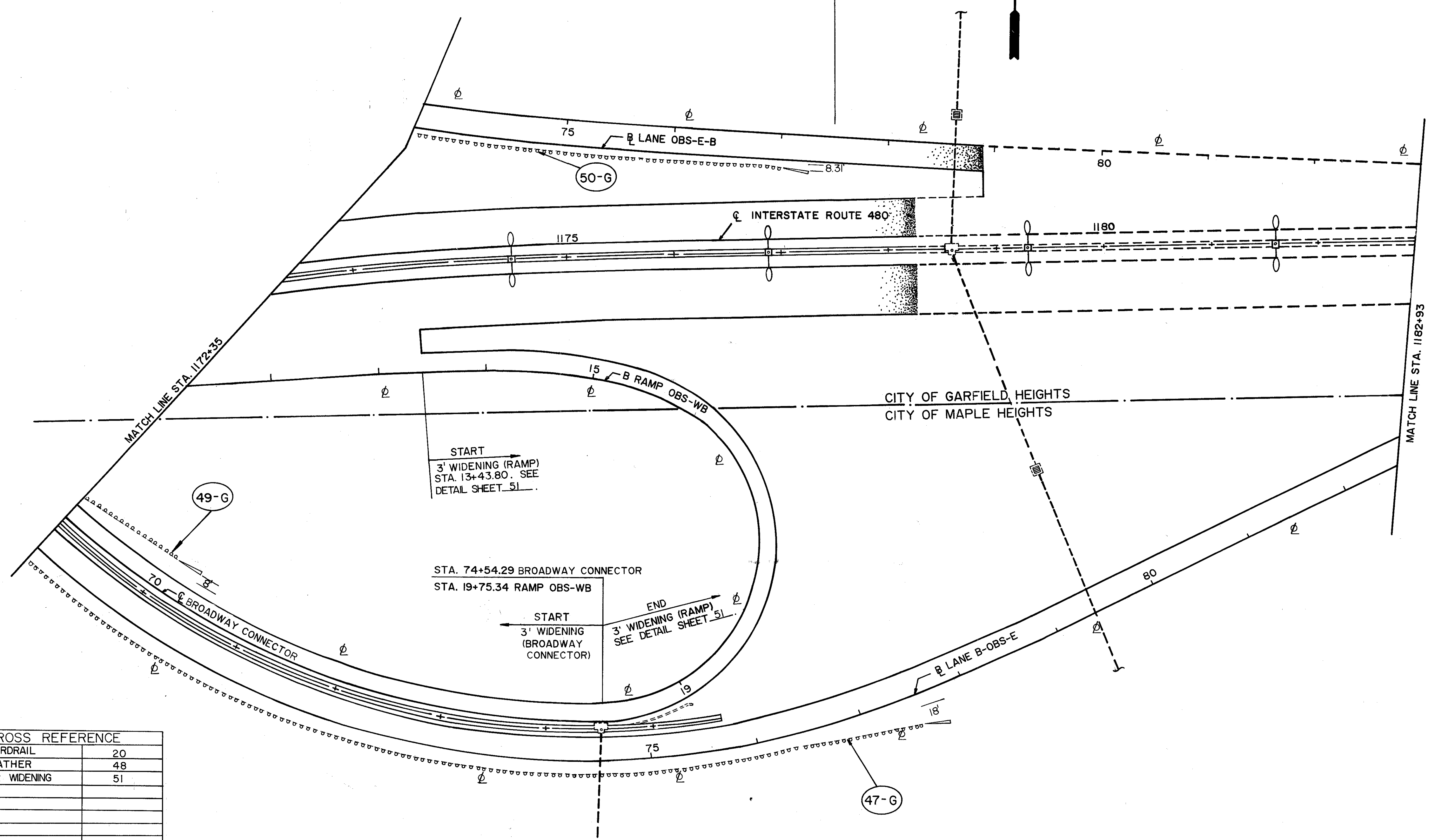


CUYAHOGA COUNTY
 CUY-480-19.19

OHIO	35
FHWA REGION 5	171
FEDERAL PROJECT	

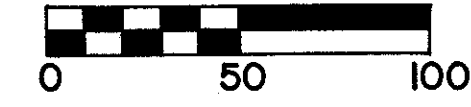
FOR LEGEND SEE SHEET 25

IR-480-4(70)183
 END PROJECT
 STA. 1177+53.00



CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48
SHOULDER WIDENING	51

PLAN SHEET



CUYAHOGA COUNTY
CUY-480-19.19

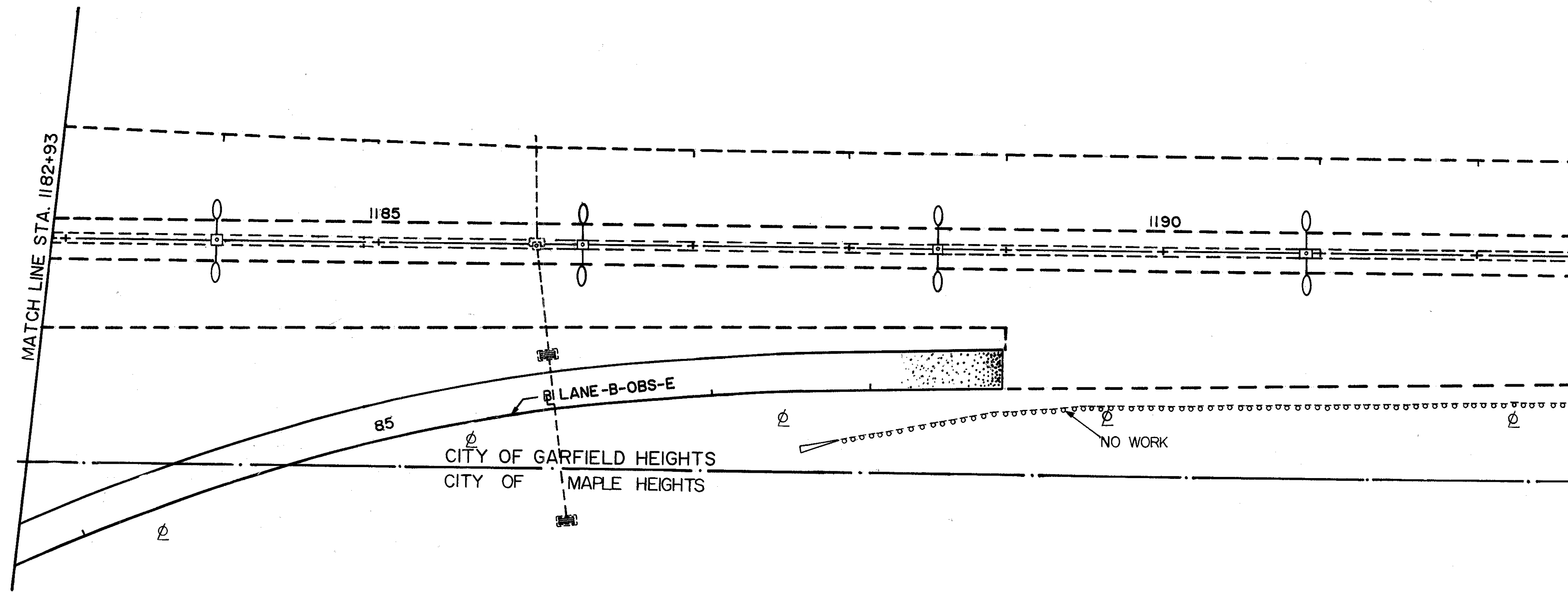
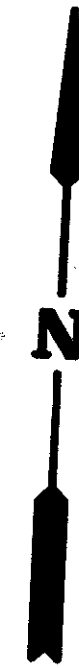
OHIO

FHWA
REGION 5

FEDERAL
PROJECT

36
171

FOR LEGEND SEE SHEET 25

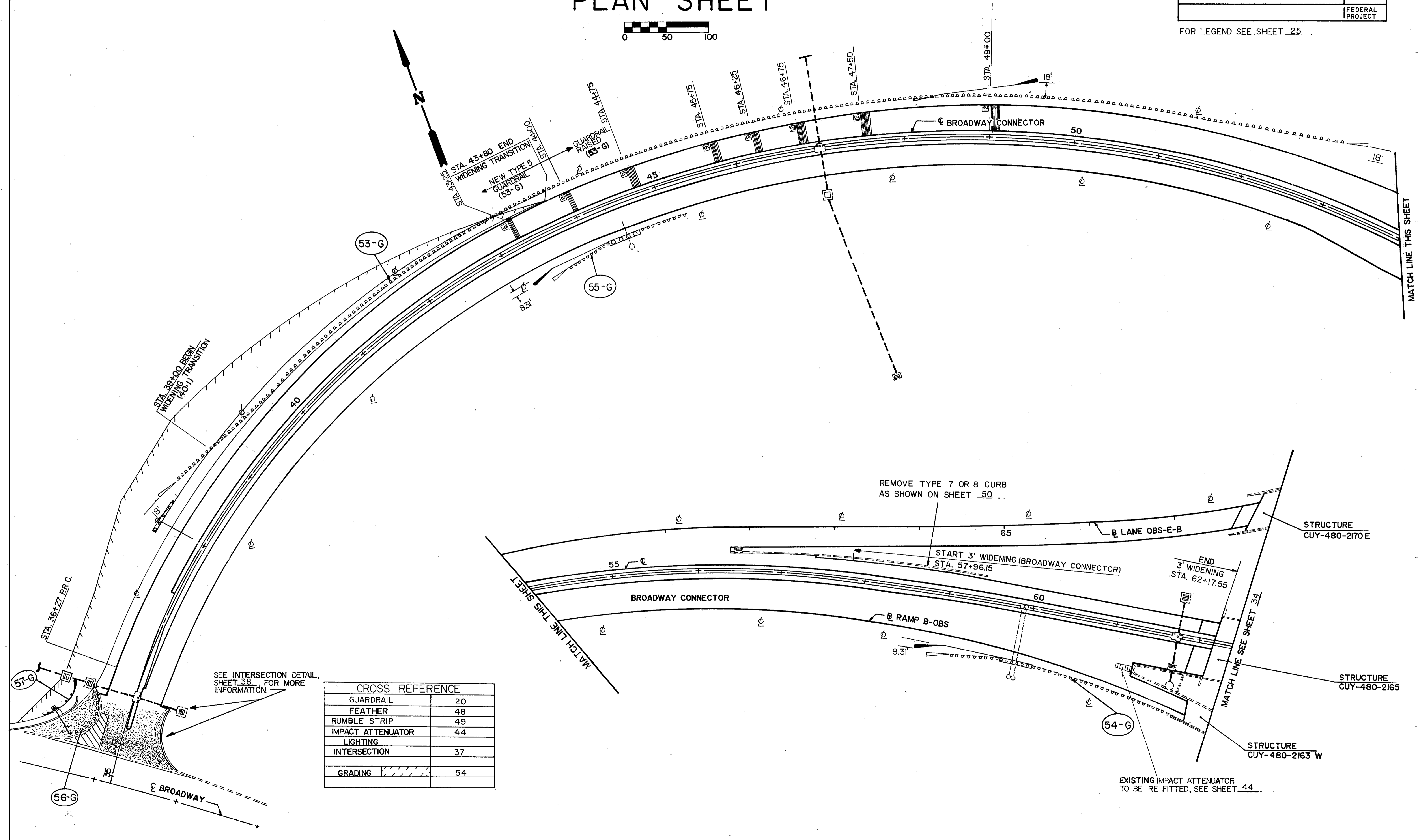


CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48

PLAN SHEET



FOR LEGEND SEE SHEET 25



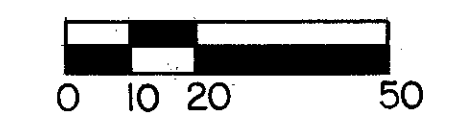
SEE INTERSECTION DETAIL, SHEET 38, FOR MORE INFORMATION.

CROSS REFERENCE	
GUARDRAIL	20
FEATHER	48
RUMBLE STRIP	49
IMPACT ATTENUATOR	44
LIGHTING	
INTERSECTION	37
GRADING	54

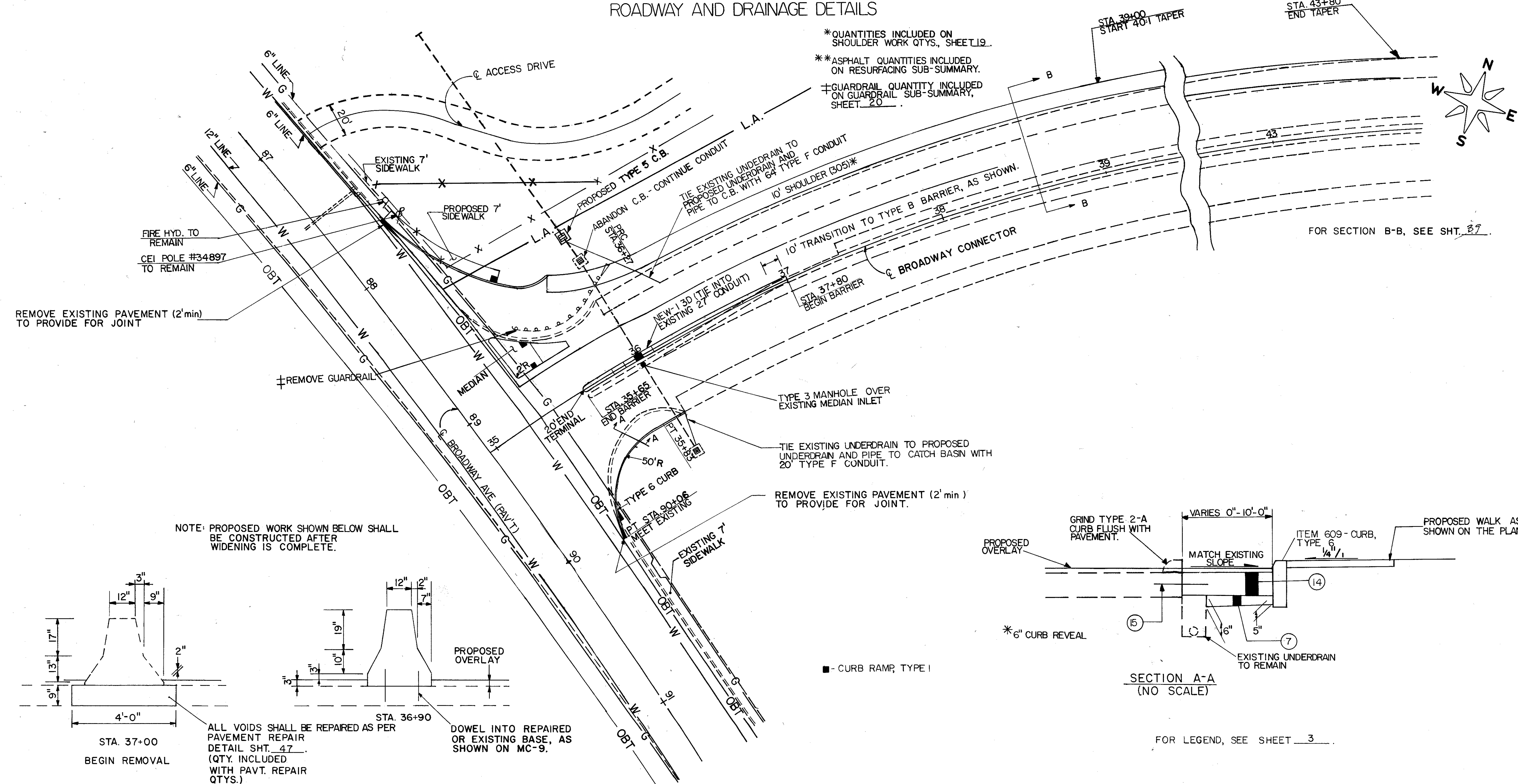
EXISTING IMPACT ATTENUATOR TO BE RE-FITTED, SEE SHEET 44

FOR ESTIMATED QUANTITIES, SEE SHEET 43.

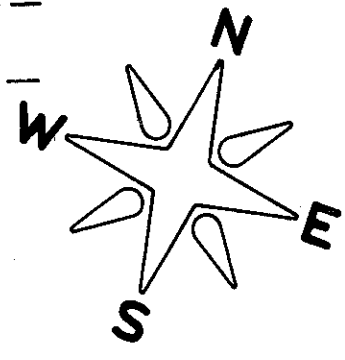
INTERSECTION DETAIL



ROADWAY AND DRAINAGE DETAILS

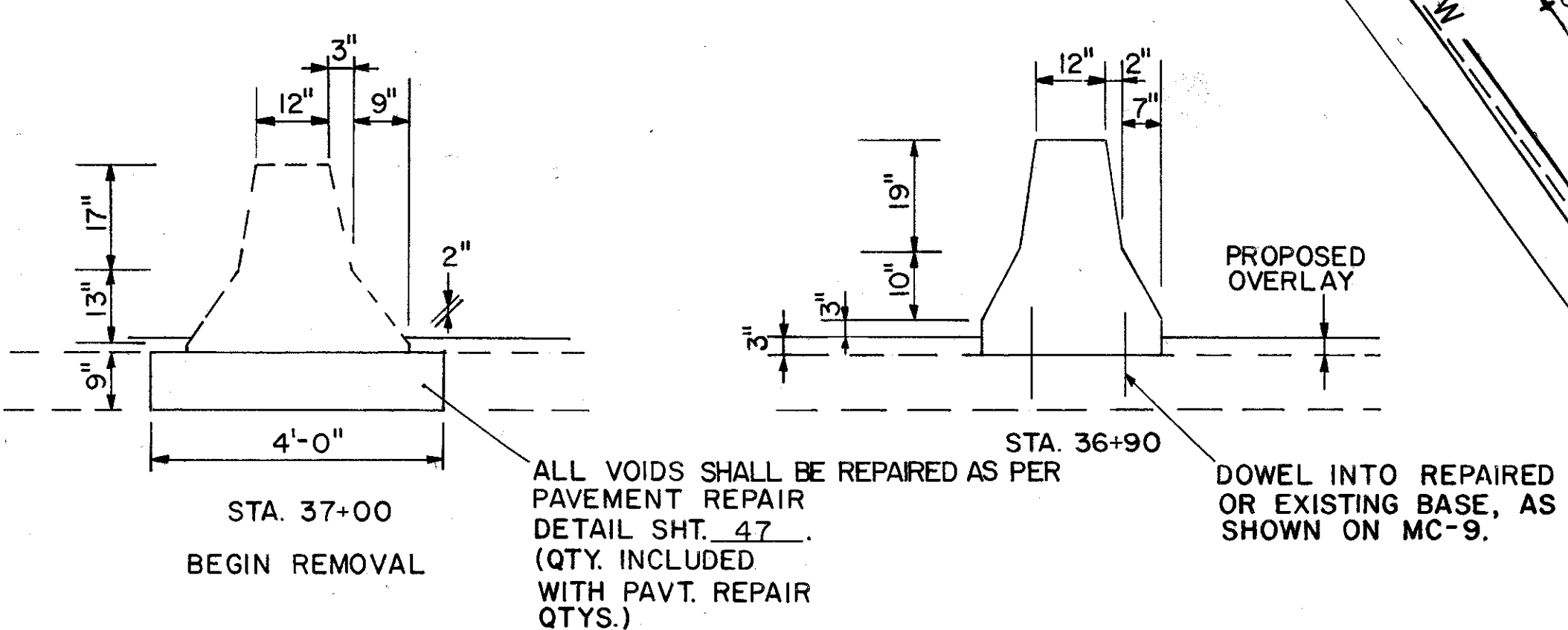


- *QUANTITIES INCLUDED ON SHOULDER WORK QTYS., SHEET 19.
- **ASPHALT QUANTITIES INCLUDED ON RESURFACING SUB-SUMMARY.
- ‡GUARDRAIL QUANTITY INCLUDED ON GUARDRAIL SUB-SUMMARY, SHEET 20.

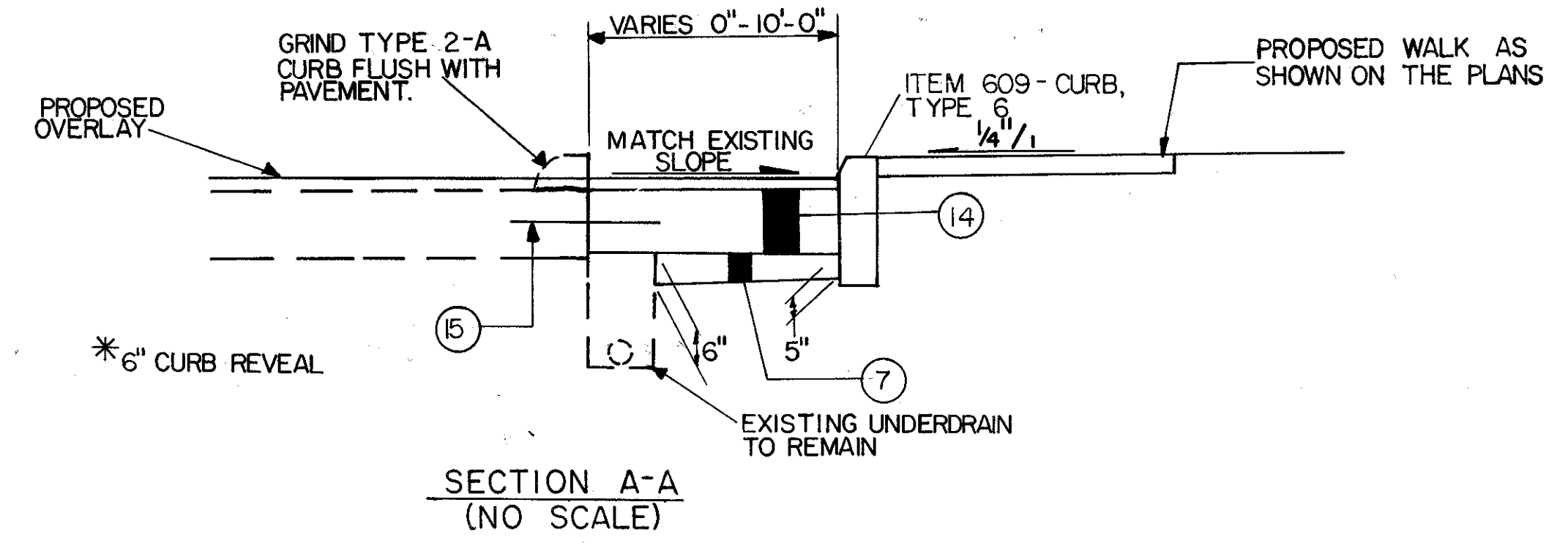


FOR SECTION B-B, SEE SHT. 37.

NOTE: PROPOSED WORK SHOWN BELOW SHALL BE CONSTRUCTED AFTER WIDENING IS COMPLETE.



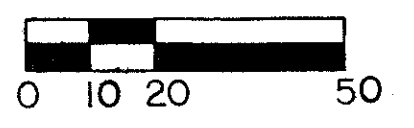
CONCRETE BARRIER DETAIL
 TYPE B BARRIER, AS PER PLAN, TRANSITION IN 10' TO EXISTING BARRIER. TERMINATE AS SHOWN ON MC-9.



FOR LEGEND, SEE SHEET 3.

FOR ESTIMATED QUANTITIES, SEE SHEET 43.

INTERSECTION DETAIL



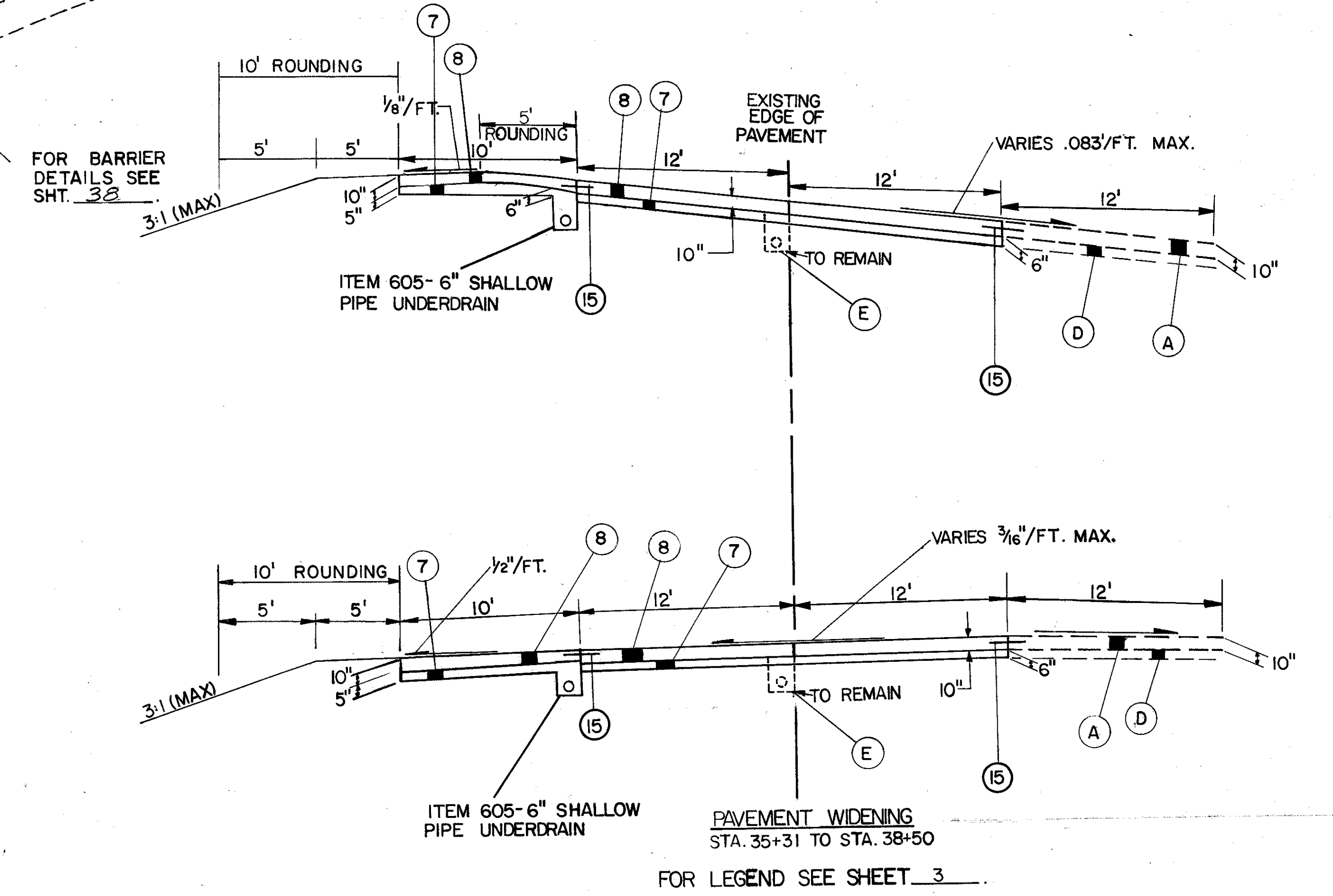
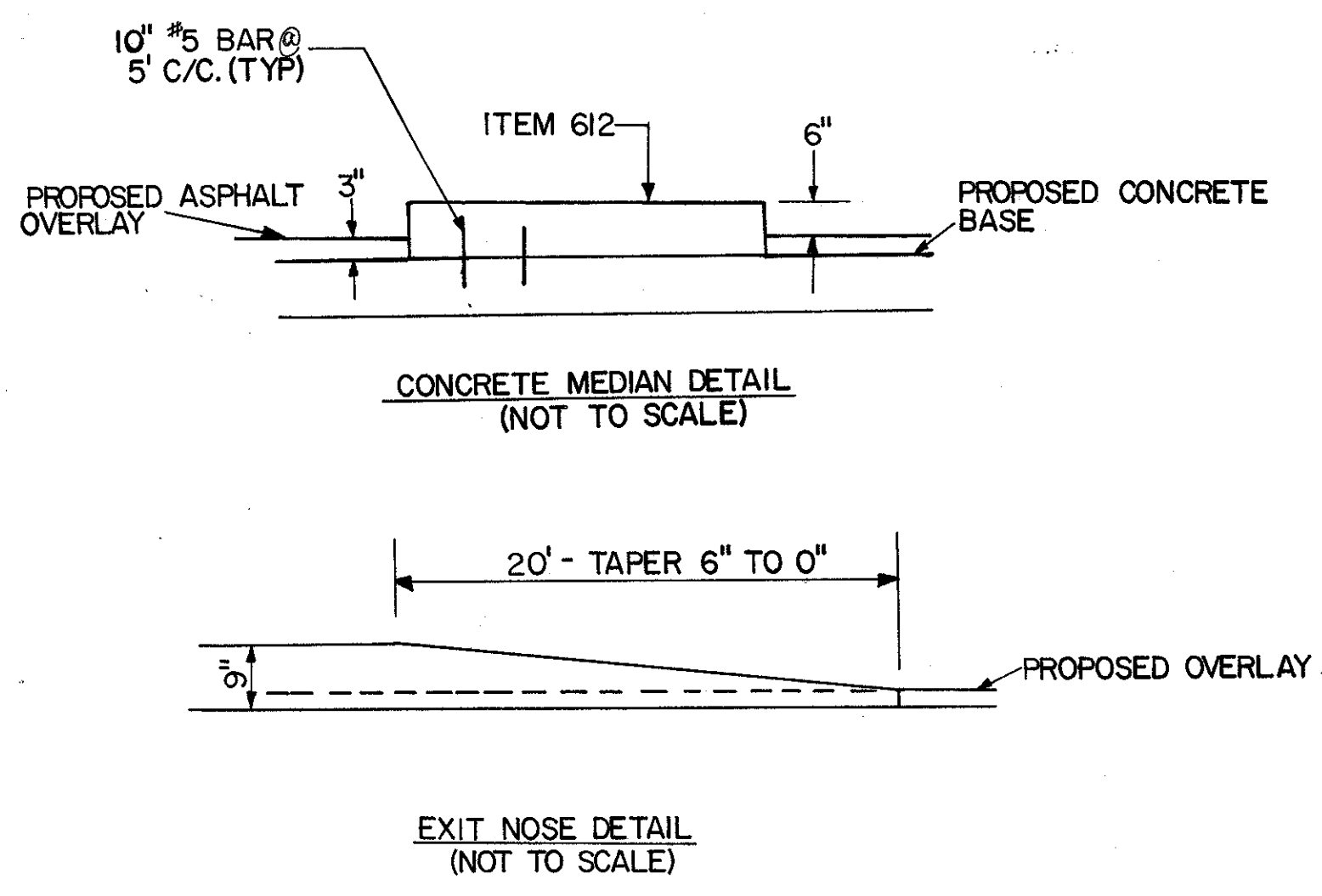
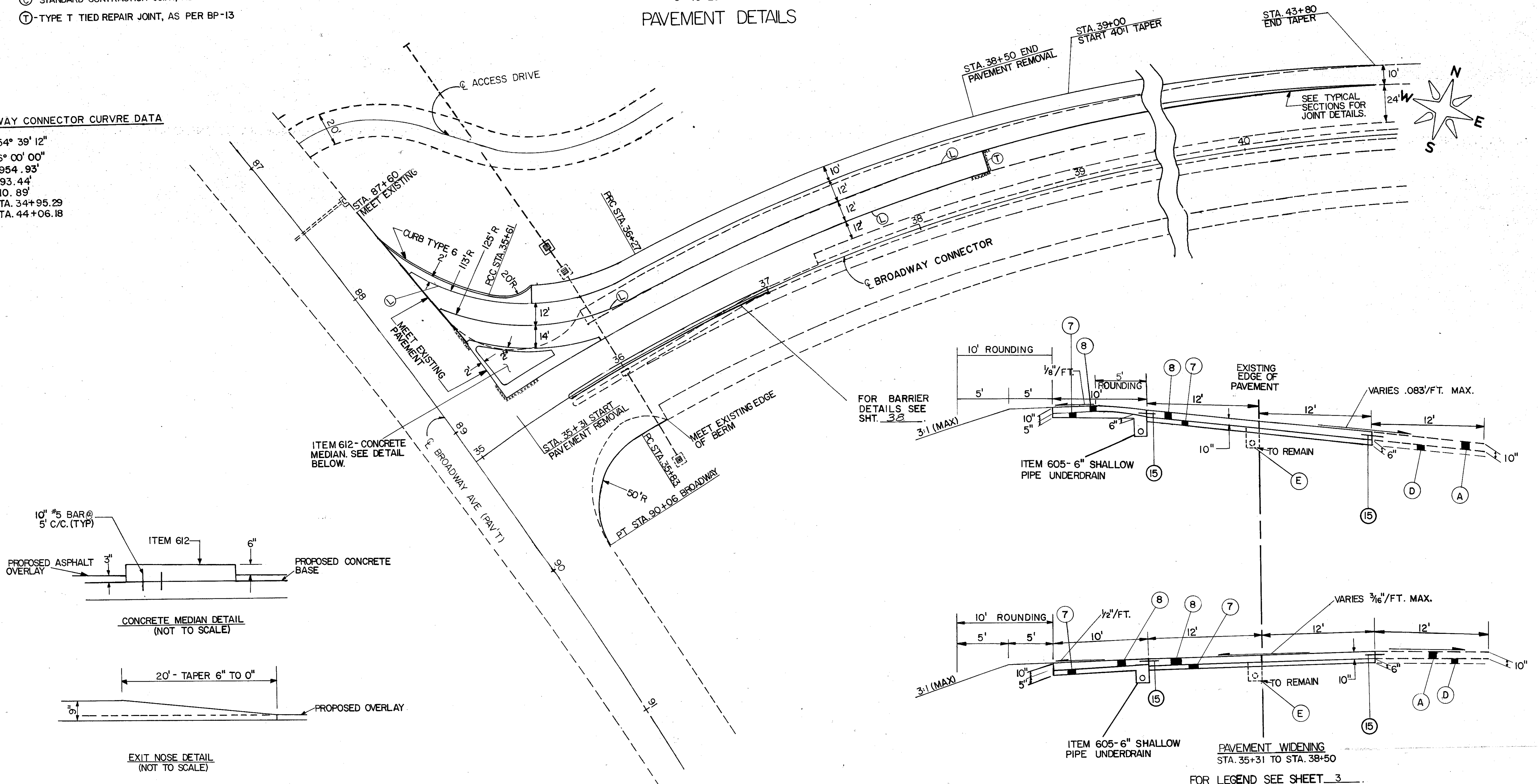
PAVEMENT DETAILS

JOINT LEGEND

- ① - STANDARD LONGITUDINAL JOINT, AS PER BP-13
- ② - STANDARD CONTRACTION JOINT, AS PER BP-4
- Ⓣ - TYPE T TIED REPAIR JOINT, AS PER BP-13

BROADWAY CONNECTOR CURVRE DATA

$\Delta = 54^\circ 39' 12''$
 $D_c = 6^\circ 00' 00''$
 $R = 954.93'$
 $T = 493.44'$
 $L = 910.89'$
 $PC = STA. 34+95.29$
 $PT = STA. 44+06.18$



PAVEMENT WIDENING
 STA. 35+31 TO STA. 38+50
 FOR LEGEND SEE SHEET 3
 SCALE = 3/16" = 1 FT.
 0 1 2 6
 (OVERLAY NOT SHOWN)

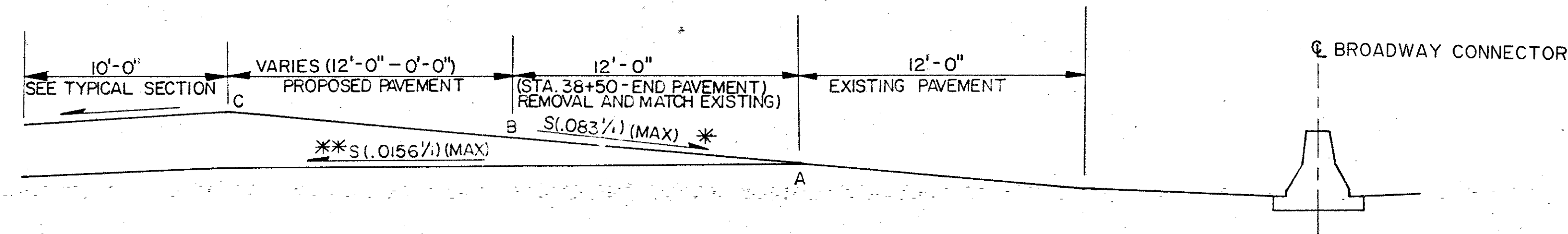
SUPERELEVATION TABLE

CUYAHOGA COUNTY
CUY-480-19.19

OHIO	40
FHWA REGION 5	171
FEDERAL PROJECT	

INTERSECTION DETAIL

NOTE: PAVEMENT ELEVATIONS ARE GIVEN TO TOP OF CONCRETE BASE.



* STA. 36+27 TO STA. 43+80
** STA. 35+31 TO STA. 36+27

BROADWAY CONNECTOR
STA. 35+31 - STA. 43+80

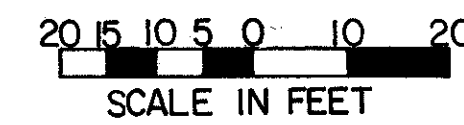
SUPERELEVATIONS

NOTE: PAVEMENT ELEVATIONS ARE GIVEN TO TOP OF CONCRETE BASE.

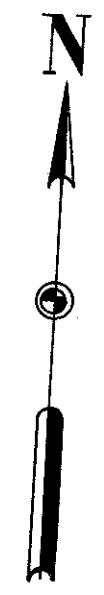
STATION	A (EXISTING PAVEMENT)	B	C	S
35+31	MEET EXISTING			
35+50	839.75	839.57	839.39	.015
35+75	839.55	839.52	839.39	.007
36+00	839.39	839.31	839.22	.007
+25	840.10	840.10	840.10	0
+50	840.50	840.58	840.67	.007
+75	841.08	841.25	841.42	.014
37+00	841.86	842.11	842.36	.021
+25	842.83	843.17	843.50	.028
+50	843.89	844.30	844.71	.034
+75	844.96	845.45	845.94	.041
38+00	846.02	846.58	847.15	.047
+25	847.08	847.73	848.38	.054
+50	848.14	848.95	849.58	.060
+75	849.20	850.08	850.81	.067
39+00	850.27	851.15	852.02	.073
+25	851.31	852.30	853.23	.080
+50	852.31	853.30	854.19	.083
+75	853.31	854.30	855.14	
40+00	854.31	855.30	856.09	
+25	855.31	856.30	857.04	
+50	856.31	857.30	857.98	
+75	857.31	858.30	858.93	
41+00	858.31	859.30	859.88	
+25	859.31	860.30	860.83	
+50	860.31	861.30	861.78	
+75	861.31	862.30	862.73	
42+00	862.31	863.30	863.67	
+25	863.28	864.27	864.54	
+50	864.17	865.16	864.89	
+75	865.01	* 866.00	865.78	
43+00	865.77	866.76	866.93	
+25	866.47	867.46	867.57	
+50	867.09	868.08	868.14	
+75	867.66	868.65	868.66	↓
43+80	MEET EXISTING			

* - EXISTING PAVEMENT TO REMAIN

INTERSECTION DETAIL



ROADWAY AND PAVEMENT DETAILS



CUYAHOGA COUNTY CUY-480-19.19	OHIO	41
	FHWA REGION	5
	FEDERAL PROJECT	171

FOR ESTIMATED QUANTITIES, SEE SHEET 43.

EMBANKMENT AND EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION CALCULATION

THE FOLLOWING EARTHWORK QUANTITIES ARE TO BE USED FOR THE INSTALLATION OF THE LEFT TURN LANE. (THE GROUND IS LEVEL THROUGHOUT THE AREA)

EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION

$$24' \text{ WIDE} \times \frac{15''}{12} = 30 \text{ SQ. FT.} \times 50' = \frac{1500}{27} = 56 \text{ C.Y.}$$

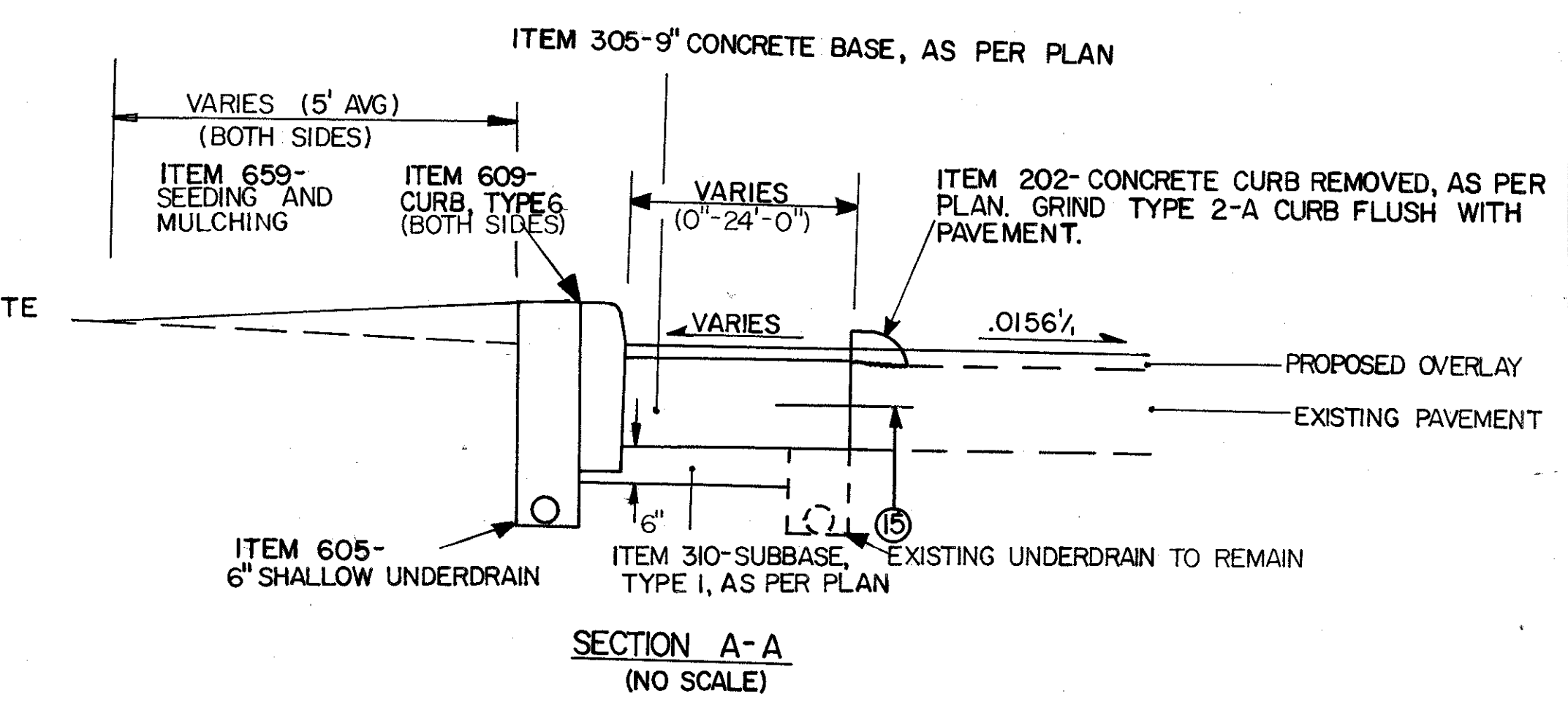
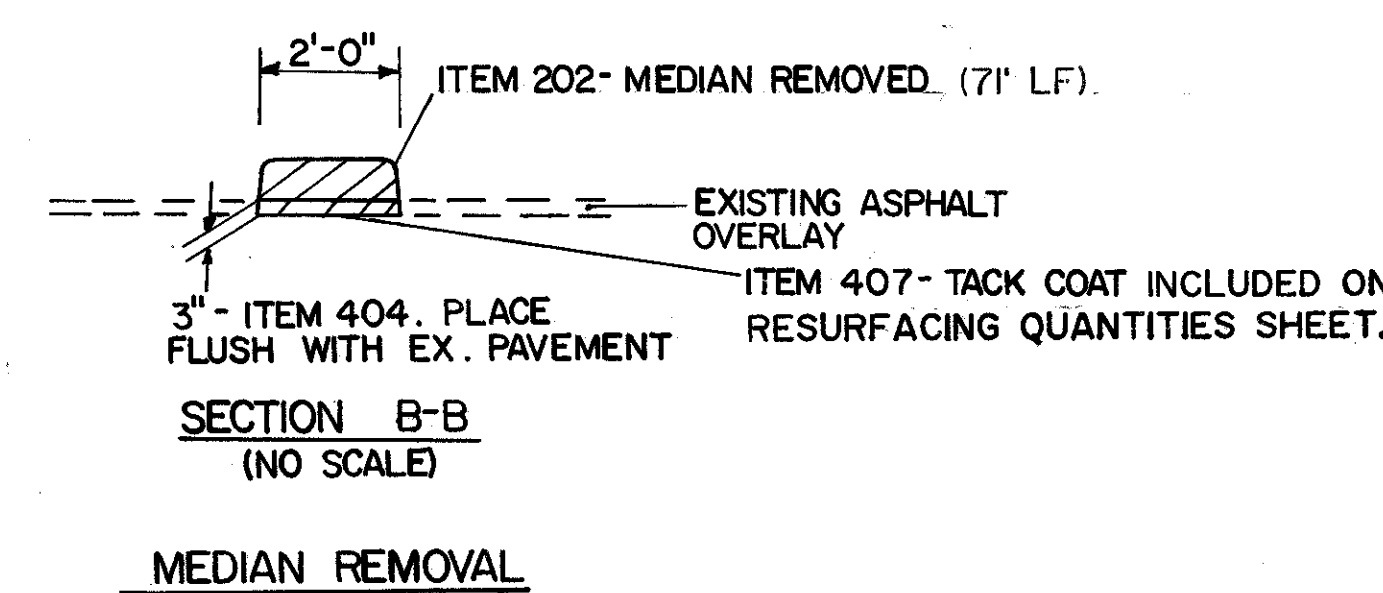
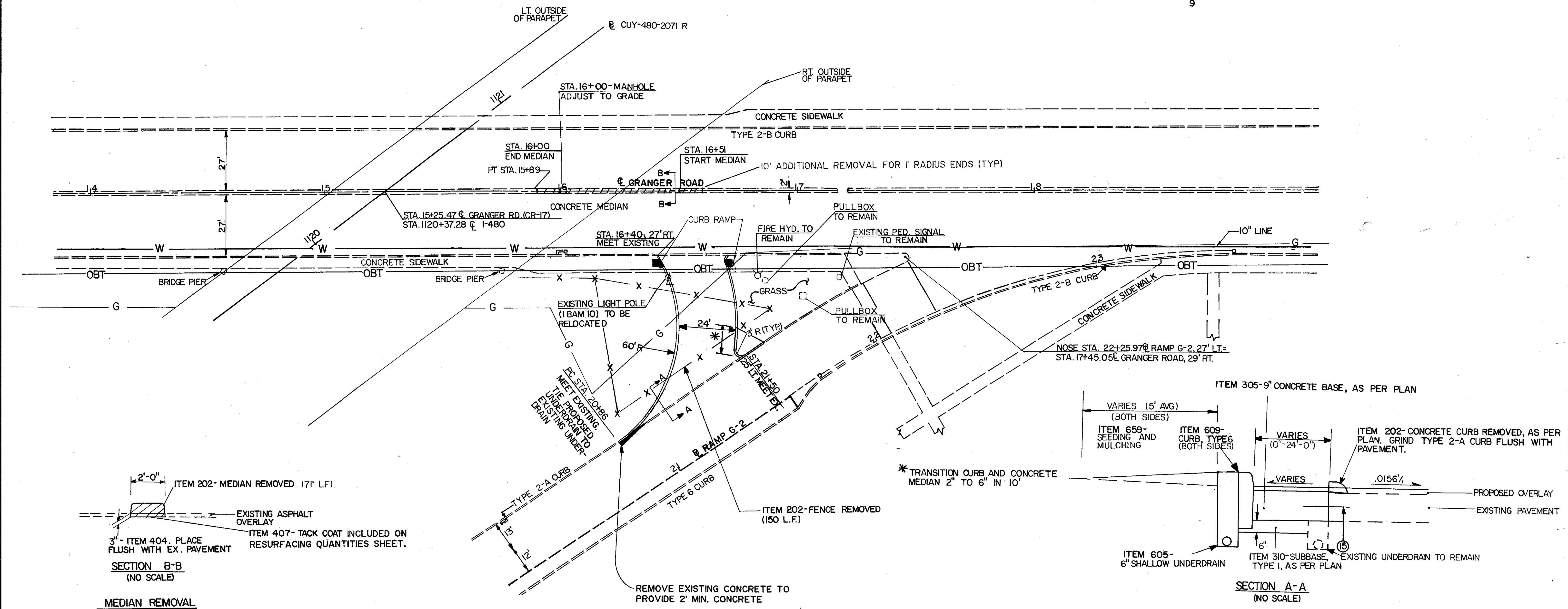
EMBANKMENT

$$5' \text{ (AVG)} \times \frac{12''}{12} \text{ (AVG DEPTH)} = 5 \text{ SQ. FT.} \times 80' = \frac{400 \text{ CU. FT.}}{27} = 15 \text{ C.Y.}$$

$$5' \text{ (AVG)} \times \frac{12''}{12} \text{ (AVG DEPTH)} = 5 \text{ SQ. FT.} \times 45' = \frac{225 \text{ CU. FT.}}{27} = 8 \text{ C.Y.}$$

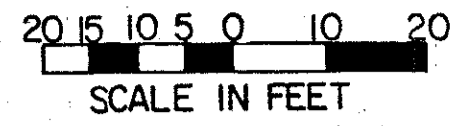
SEEDING AND MULCHING

$$5' \text{ (AVG)} \times (80' + 45') = \frac{625 \text{ SQ. FT.}}{9} = 69 \text{ S.Y.}$$



FOR REFERENCE NUMBERS, SEE SHEET 3.

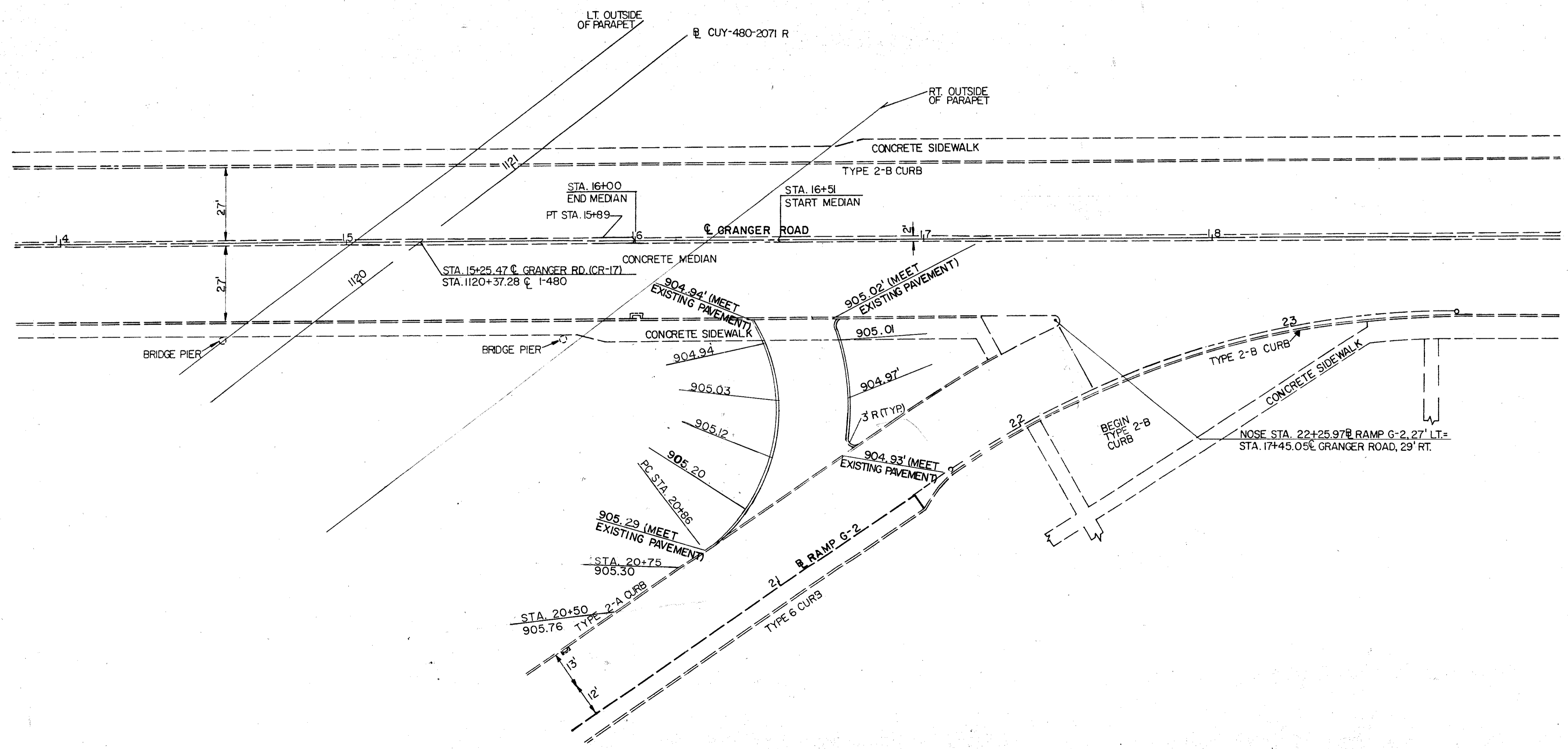
INTERSECTION DETAIL



PAVEMENT ELEVATIONS

NOTE: ELEVATIONS ARE TO TOP OF CONCRETE BASE.

20 FOOT TYPICAL SPACINGS FOR ELEVATIONS



INTERSECTION QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA
REGION 5

FEDERAL
PROJECT

43
171

SHEET NO.	LOCATION	202	202	202	202	202	202	202		305	310		404		603	604	604	604	605	608	608	609	612		622	607		
		MEDIAN REMOVED	PAVEMENT REMOVED	CURB REMOVED, AS PER PLAN	CATCH BASIN ABANDONED	WALK REMOVED	FENCE REMOVED	CONCRETE BARRIER REMOVED			9" CONCRETE BASE	6" SUBBASE, TYPE I AS PER PLAN		ASPHALT CONCRETE, AC-20 (3")		6" CONDUIT, TYPE F	CATCH BASIN, NO. 5	MANHOLE, NO. 3	INLET, NO. 1-3D, AS PER PLAN	6" SHALLOW UNDERDRAIN	4' CONCRETE WALK	CURB RAMPS, TYPE I	CURB, TYPE 6	CONCRETE MEDIAN		CONCRETE BARRIER, TYPE B, AS PER PLAN	FENCE, TYPE CLT	
		LIN.FT.	SQ.YD.	LIN.FT.	EACH	SQ.FT.	LIN.FT.	LIN.FT.		SQ.YD.	CU.YD.		CU.YD.		LIN.FT.	EACH	EACH	EACH	LIN.FT.	SQ.FT.	EACH	LIN.FT.	SQ.YD.		LIN.FT.	LIN.FT.		
38	BROADWAY CONNECTOR																											
	L.T. RT.		477	99	1	72	168	135		1455	243				64	1		1	107	66	3	107	.60		135	132		
				99		5				64	11				20		1		94		1	94						
41	GRANGER RD.	71		92			150			160	27		1						131		2	131	11.0			60		
	TOTALS	71	477	290	1	77	318	135		1679	281		1		84	1	1	1	332	66	6	332	71		135	192		

AUTO TABLE PARAMETER FILE = ESTIMATE.DAT

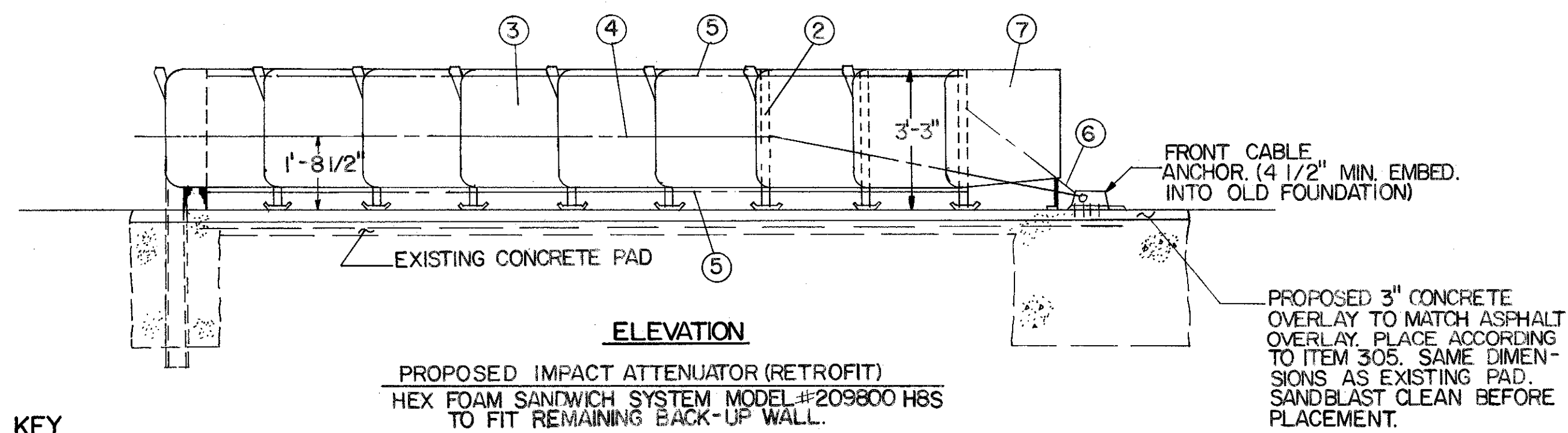
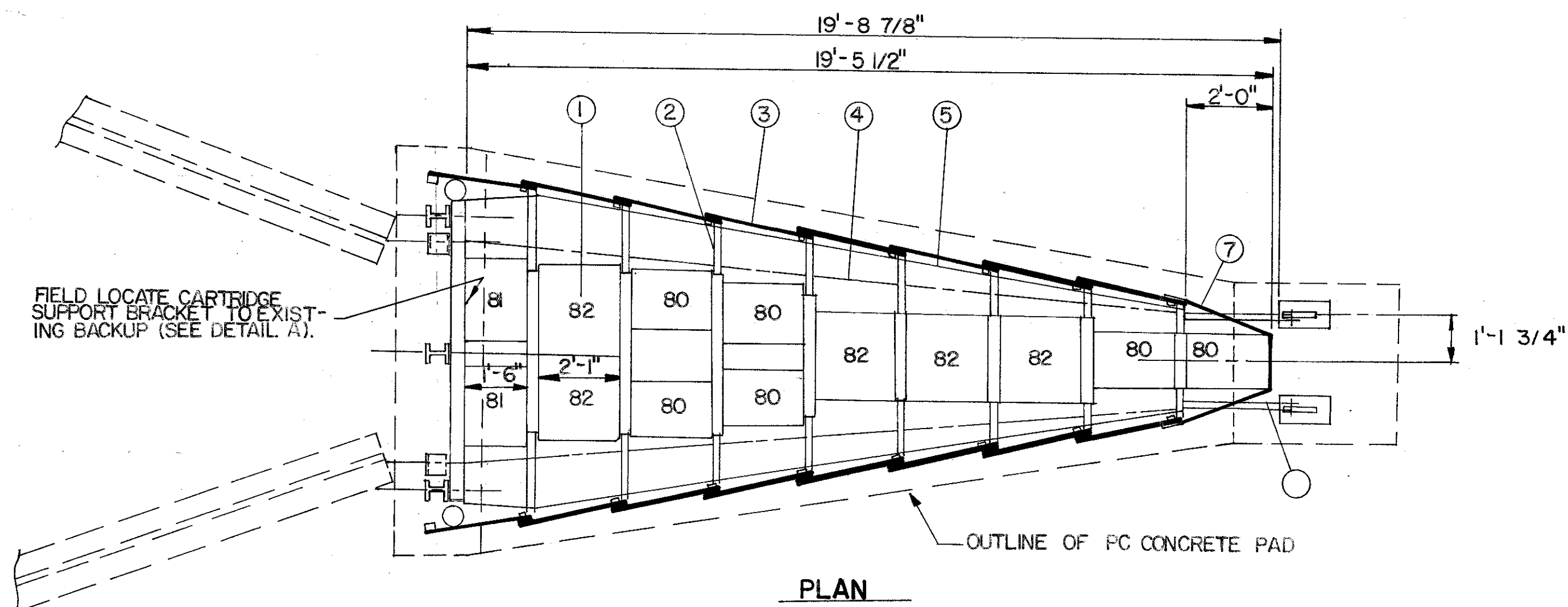
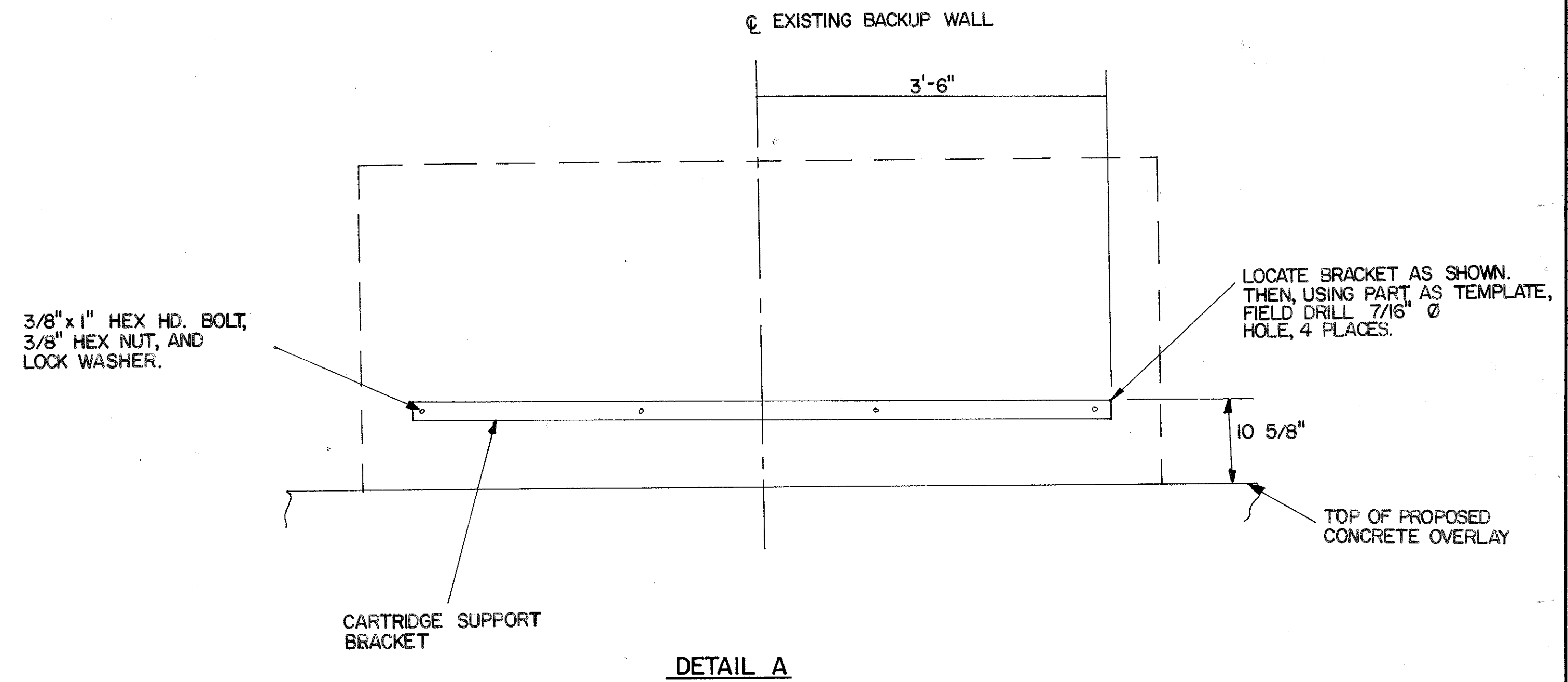
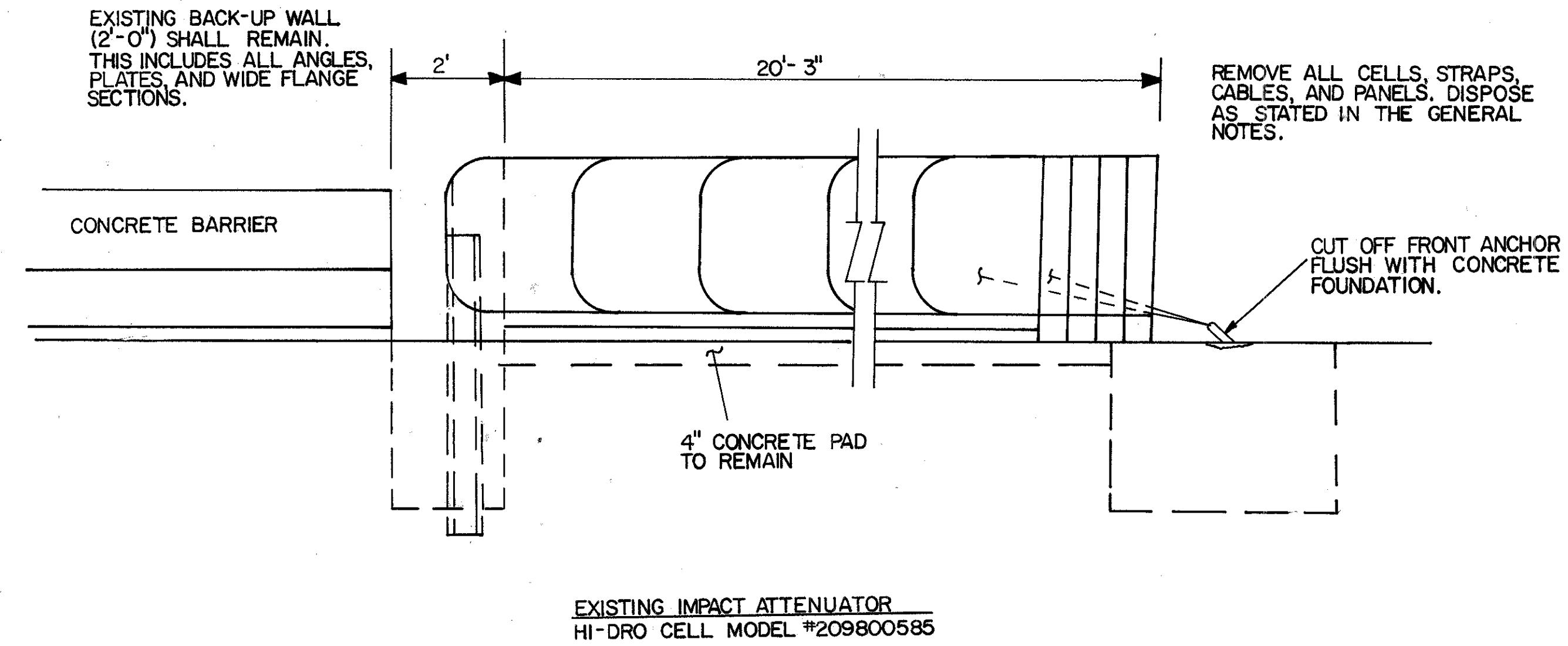
ZFA2:100323ESTIMATE .DGN:

IMPACT ATTENUATOR DETAILS

FOR FURTHER INFORMATION, SEE GENERAL NOTES SHEET 7.

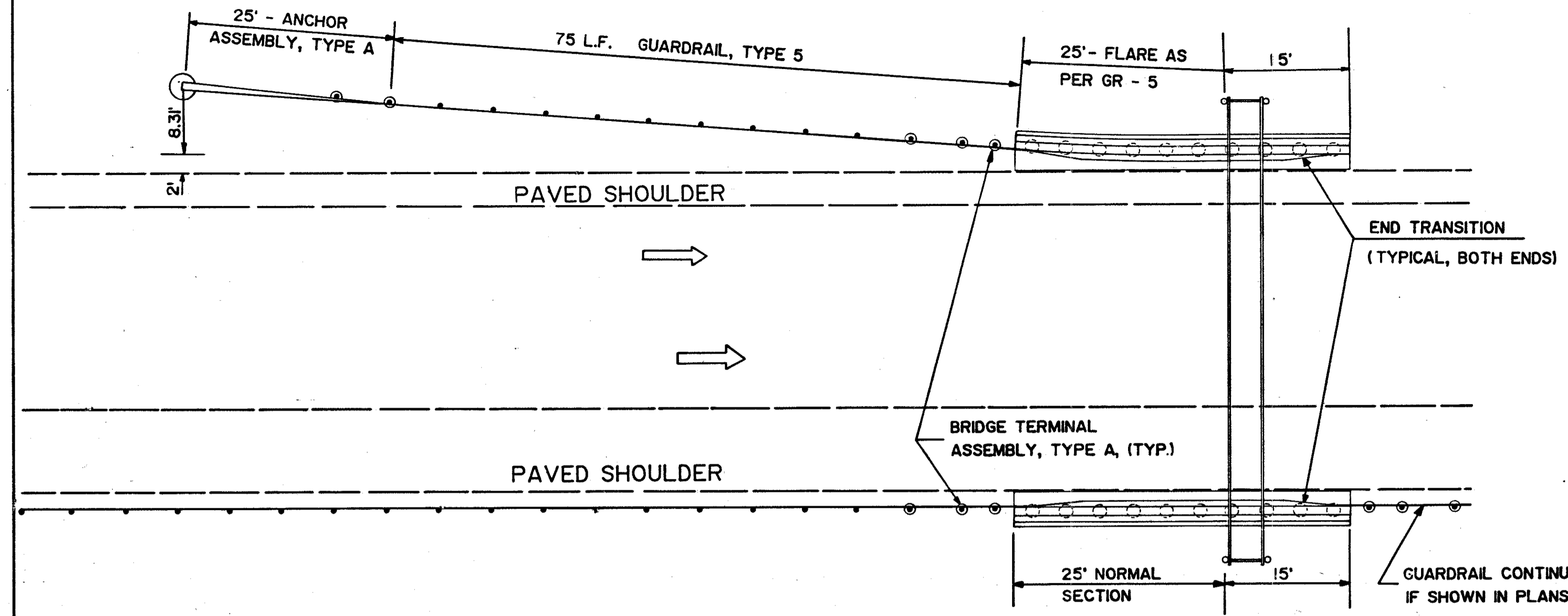
CUYAHOGA COUNTY
CUY-480-19.19

OHIO	44
FHWA REGION 5	171
FEDERAL PROJECT	



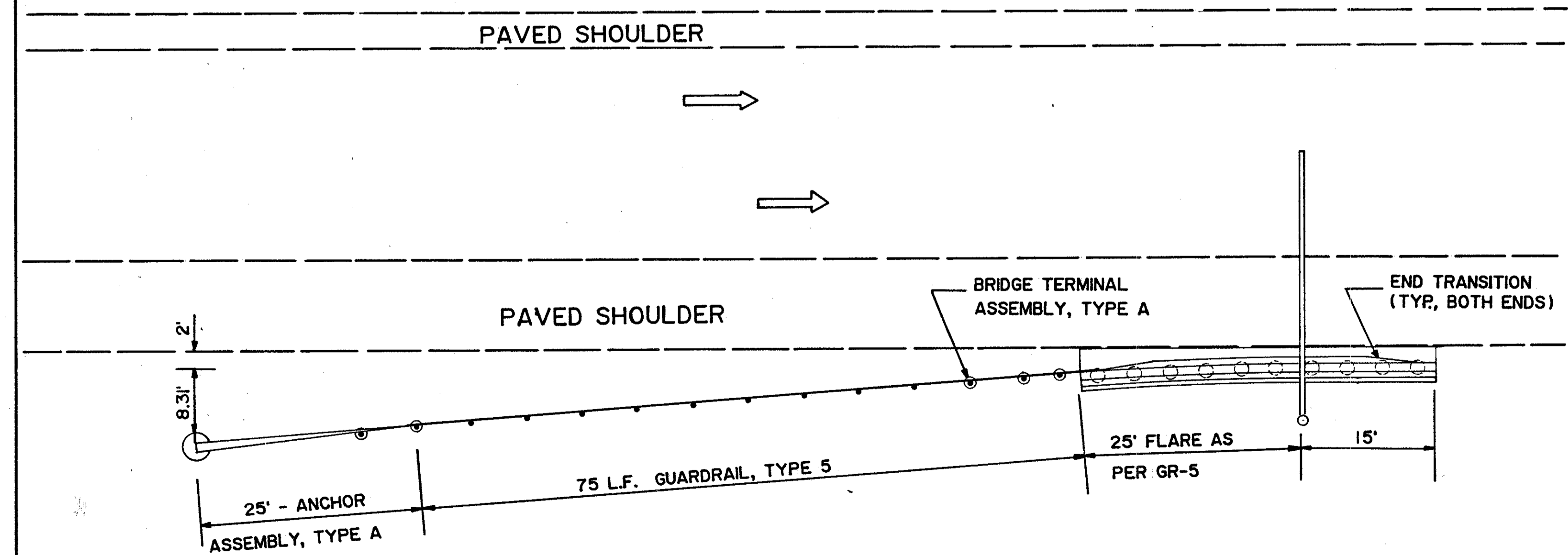
KEY

- | | |
|---------------------|--------------------|
| ① CARTRIDGE | ⑤ PULL-OUT CABLE |
| ② DIAPHRAGM | ⑥ SECONDARY CABLE |
| ③ FENDER PANEL | ⑦ SAFETY-FLEX BELT |
| ④ RESTRAINING CABLE | |

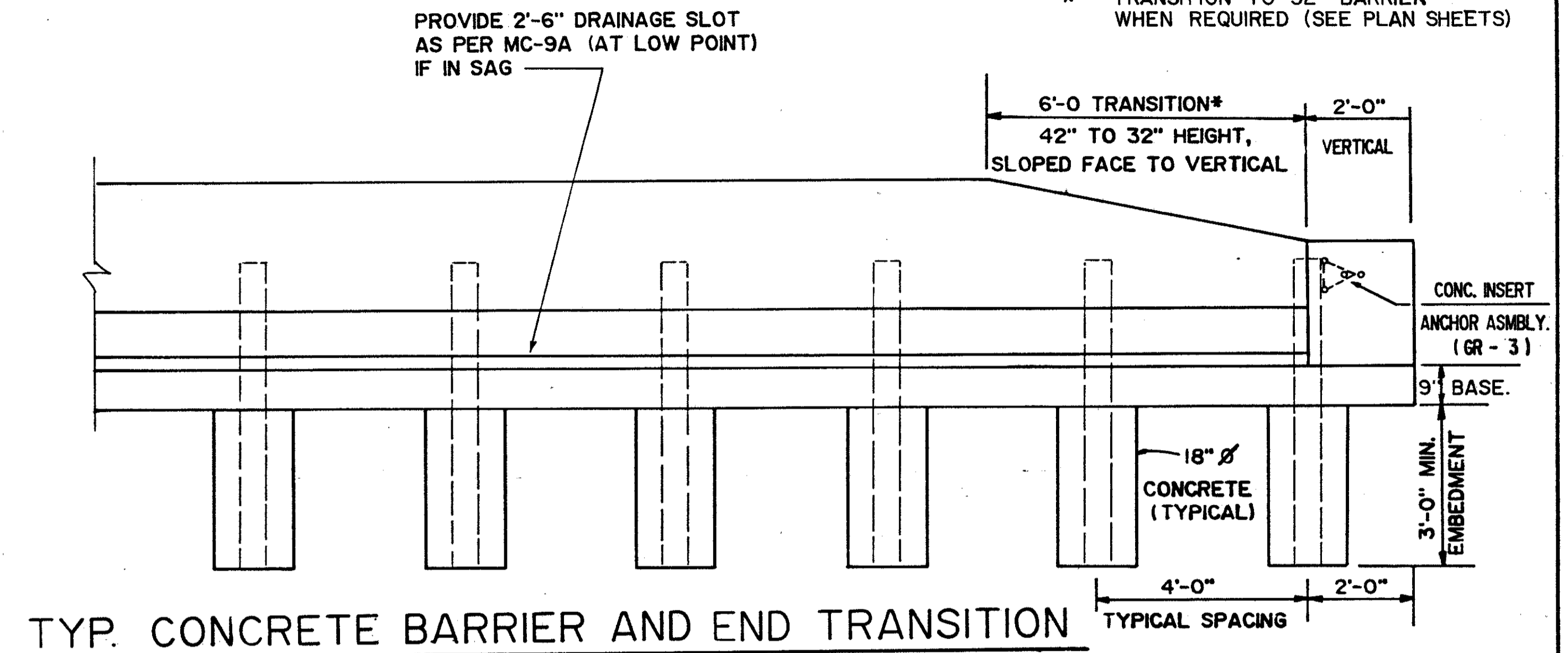


PROTECTION OF OVERHEAD SIGN BRIDGE

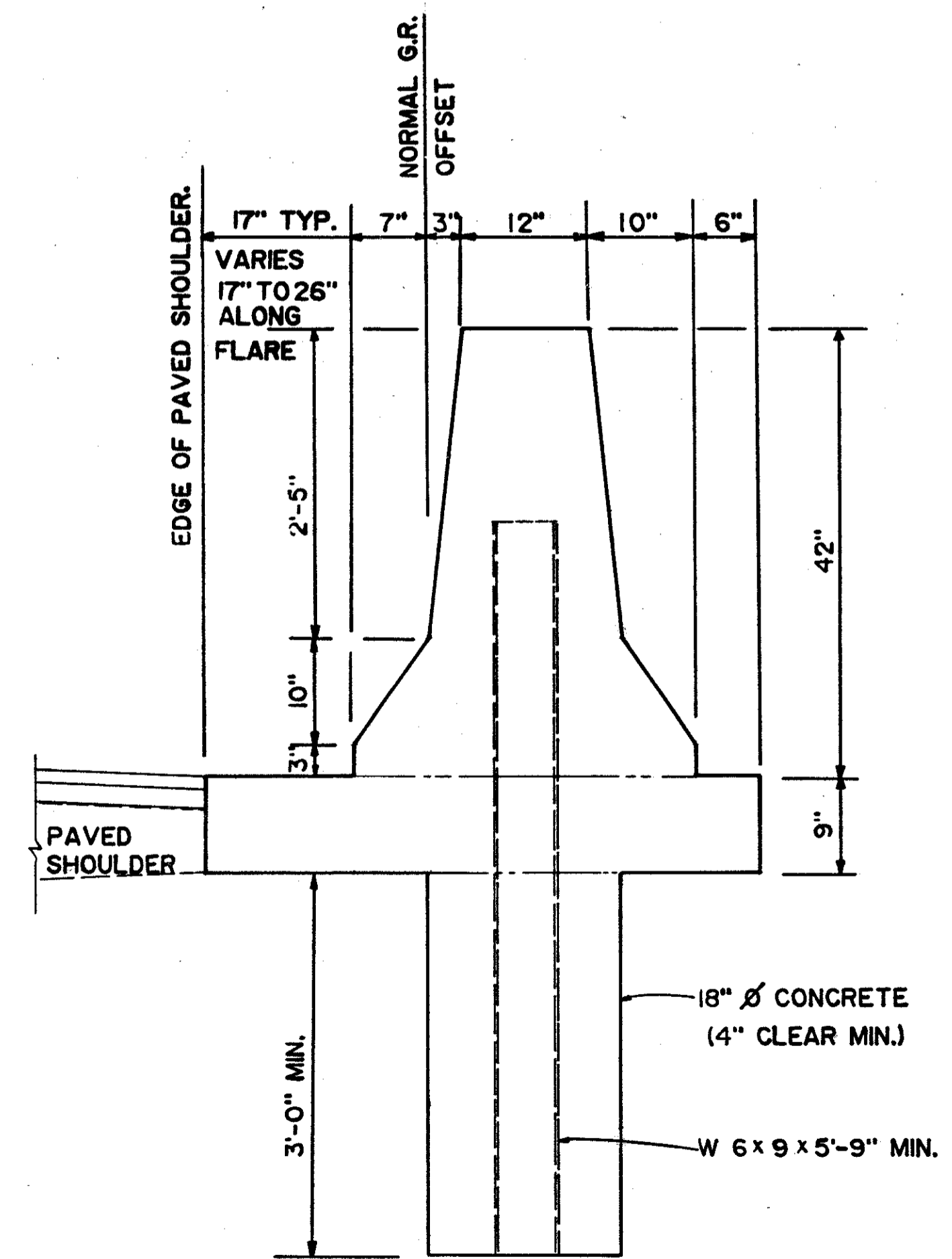
GUARDRAIL AND BARRIER SHALL BE FLARED WHEREVER POSSIBLE. UNFLARED DETAIL ABOVE ONLY APPLIES TO APPLICATIONS WITHIN A LONG GUARDRAIL RUN.



PROTECTION OF CANTILEVER SIGN SUPPORT



TYP. CONCRETE BARRIER AND END TRANSITION

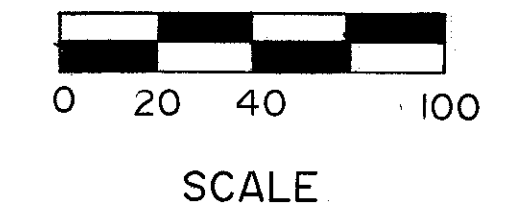
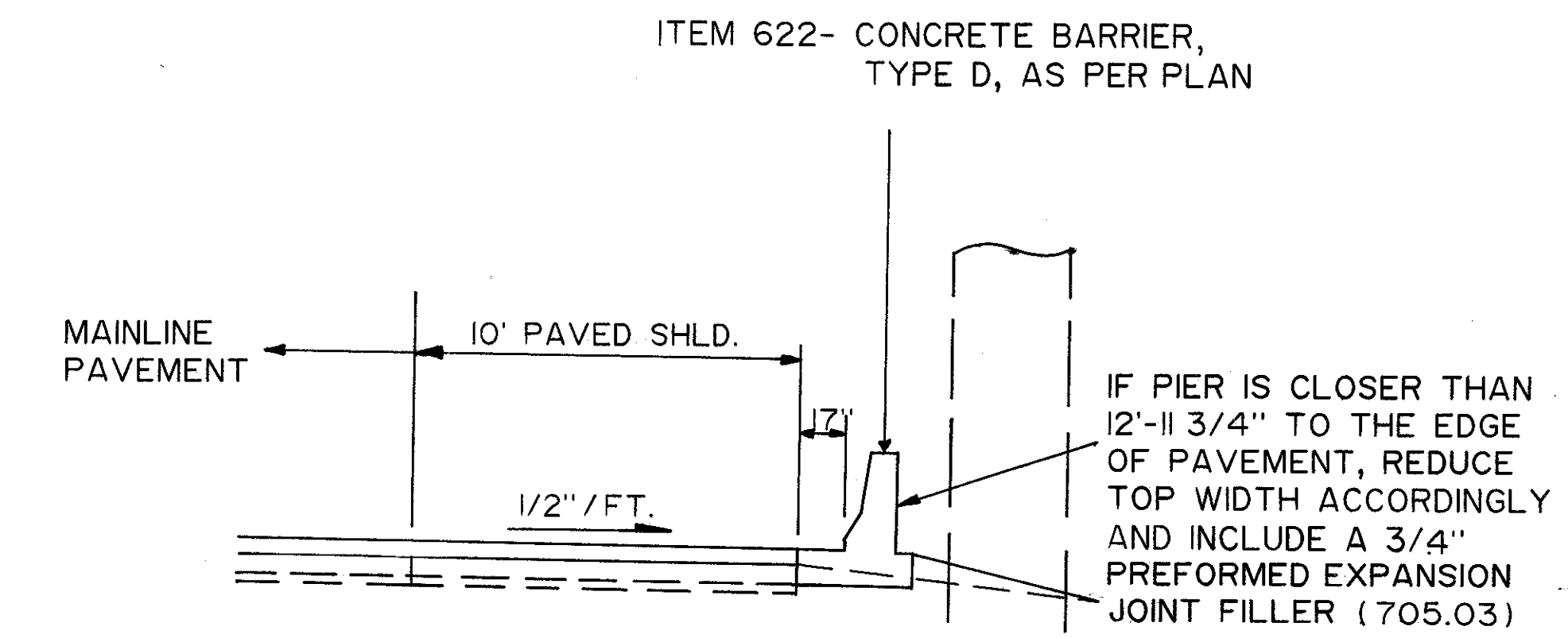
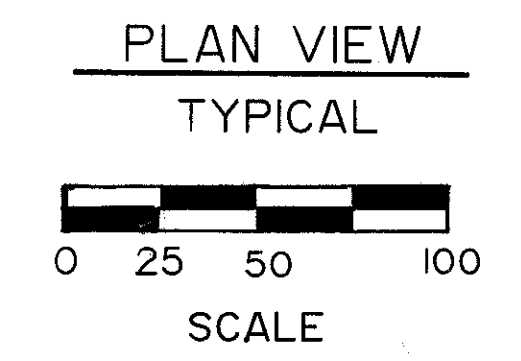
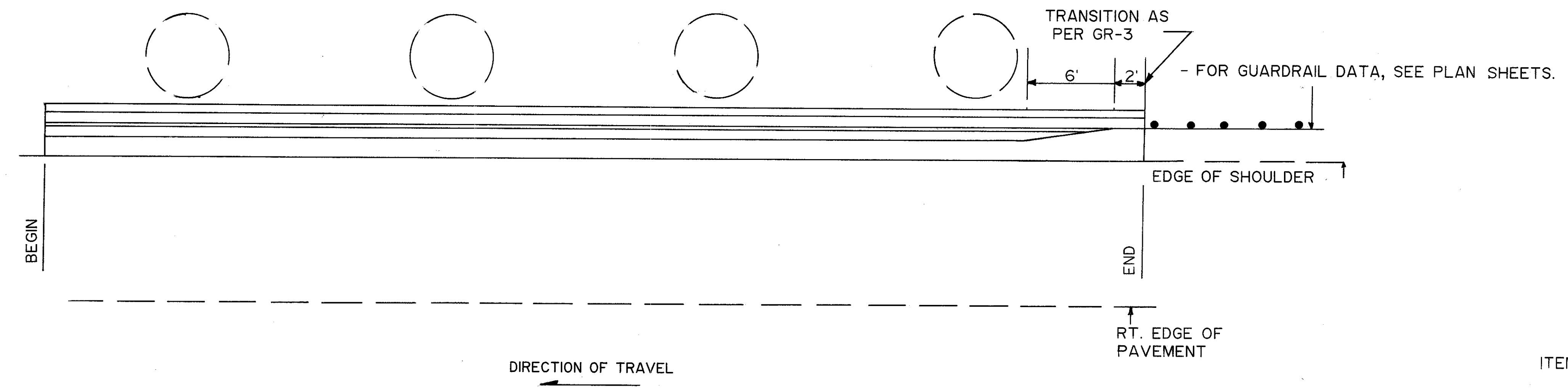


**TYPICAL BARRIER SECTION
TYPE B42 AS PER PLAN**

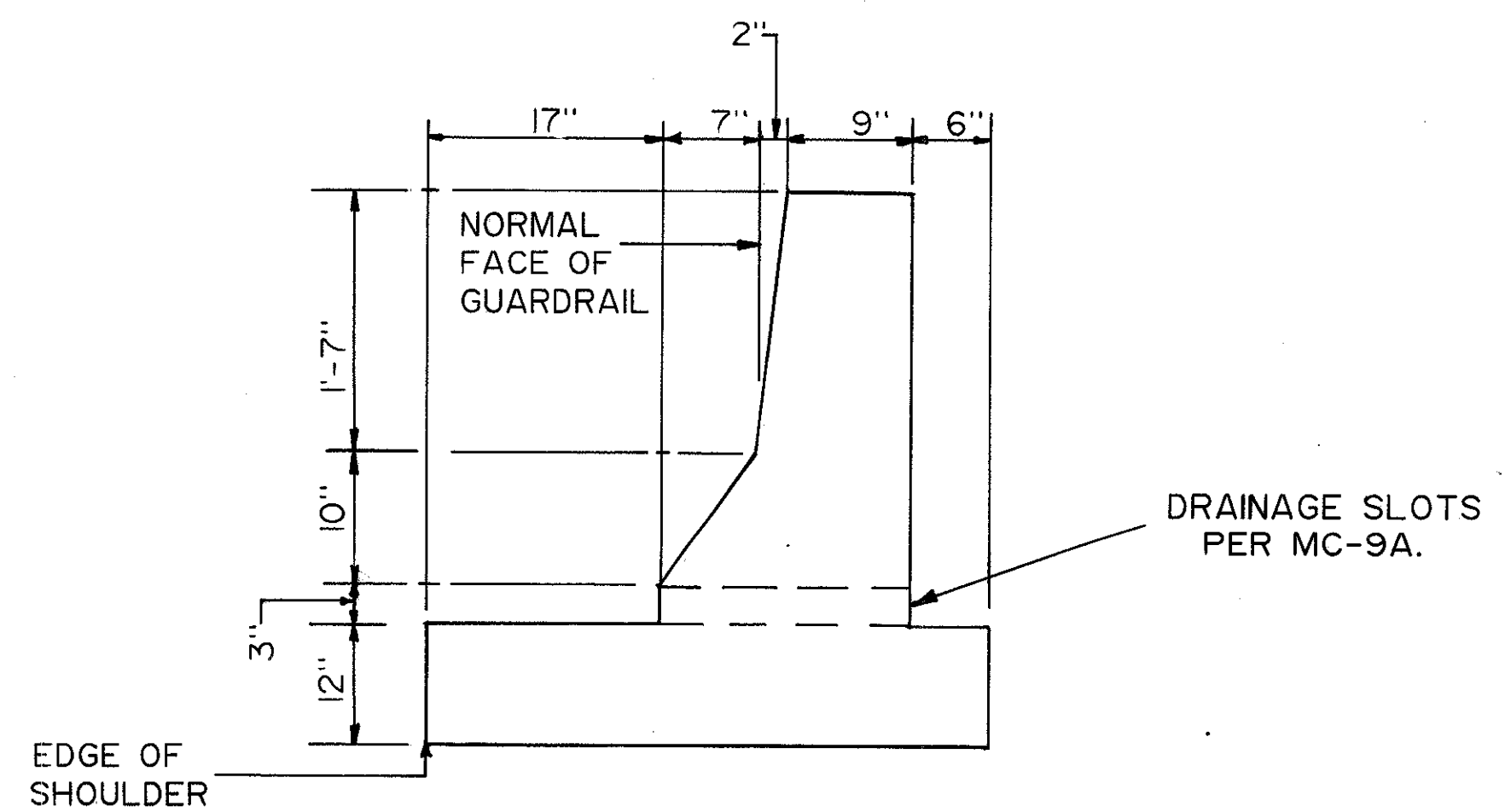
ITEM 622-CONCRETE BARRIER, TYPE B42, AS PER PLAN
THIS WORK SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY TO CONSTRUCT THE CONCRETE BARRIER AS DETAILED ON THIS SHEET. FOR DETAILS NOT SHOWN SEE STANDARD CONSTRUCTION DRAWING MC-9

CONCRETE BARRIER DETAILS

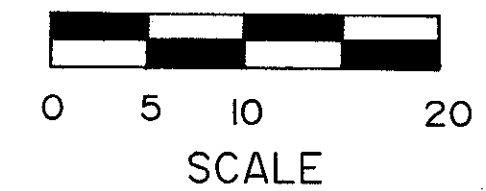
BRIDGE PIER PROTECTION



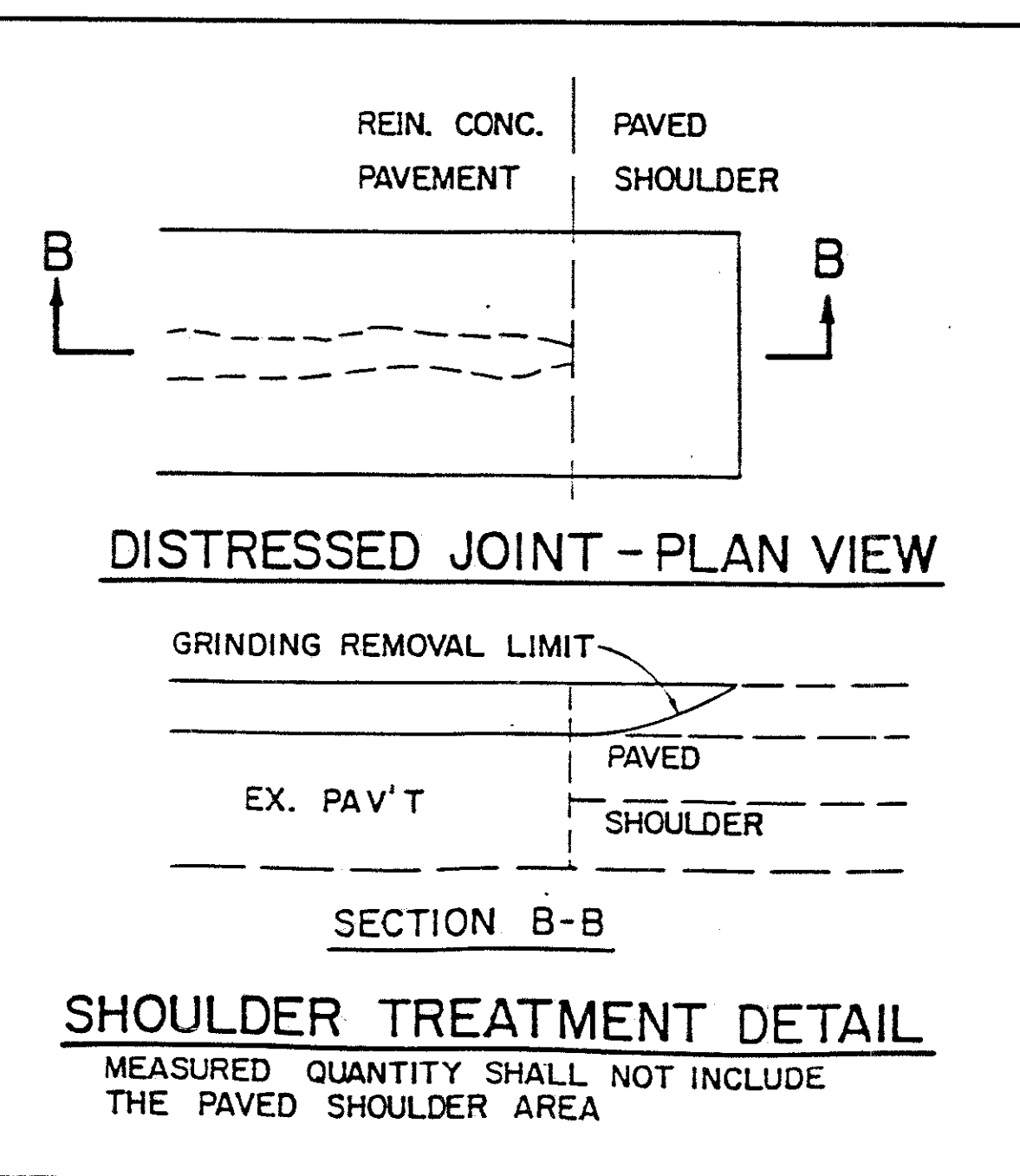
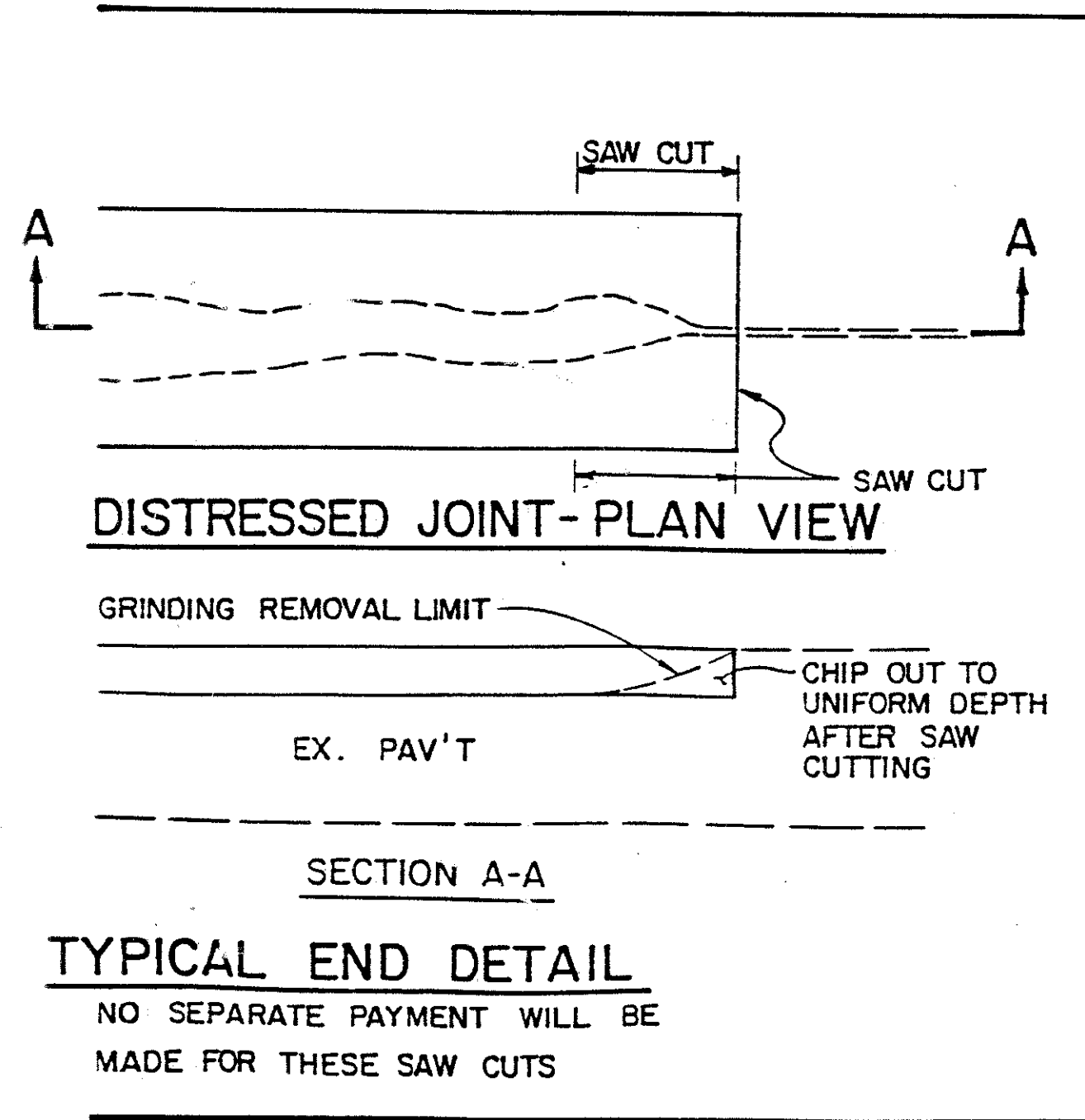
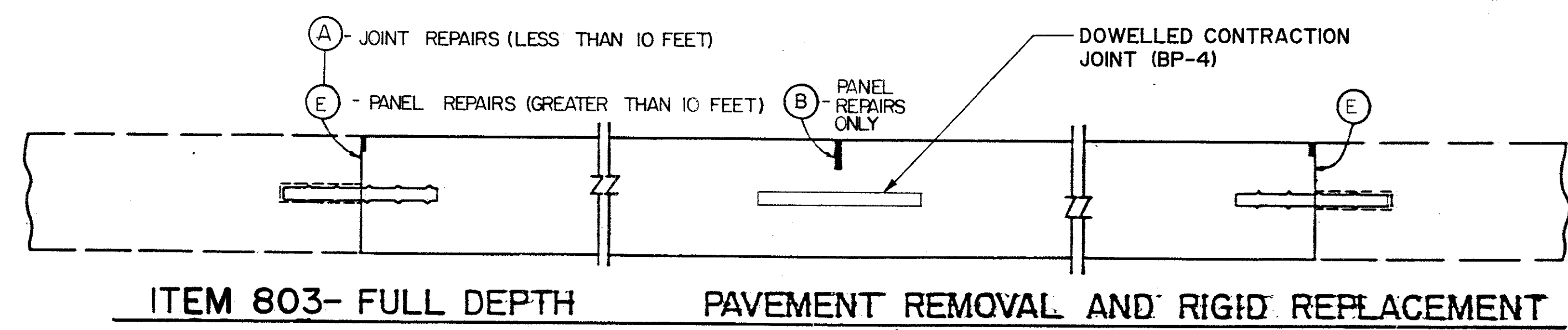
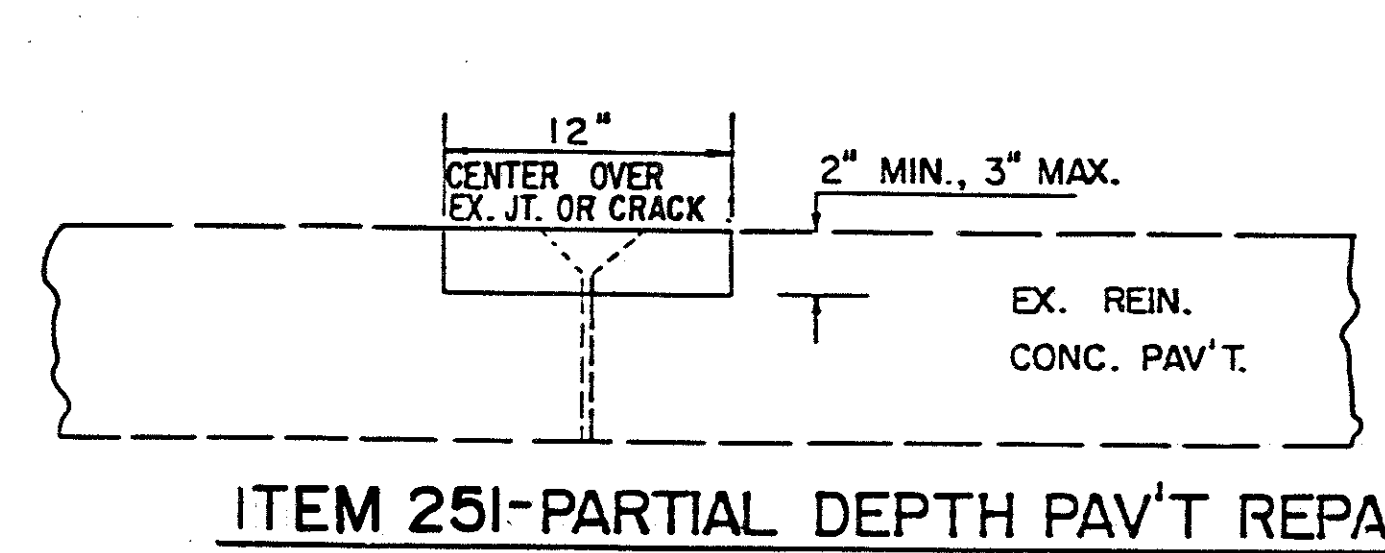
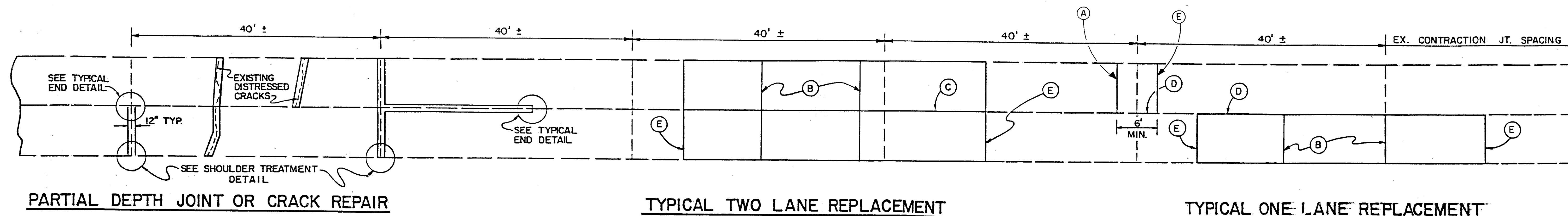
CONCRETE BARRIER SUB-SUMMARY					
STATION		SIDE	622 CONCRETE BARRIER, TYPE D, AS PER PLAN		LIN. FT.
FROM	TO		TYPE	LENGTH	
1055+15	EB 1055+90	EB RT.	75		
1055+65	WB 1056+40	WB RT.	75		
1089+15	WB 1089+90	WB RT.	75		
1089+80	EB 1090+55	EB RT.	75		
TOTALS			300		



CONCRETE BARRIER, TYPE D, AS PER PLAN



PAVEMENT REPAIR DETAILS



LEGEND

- (A) TYPE T TIED REPAIR JOINT, AS PER BP-13
- (B) SAWED CONTRACTION JOINT AS PER BP-4 MAX. SPACING 20' ±
- (C) LONGITUDINAL BUTT JOINT AS PER BP-3 (USING HOOK BOLTS)
- (D) LONGITUDINAL JOINT AS PER BP-13
- (E) TYPE Y DOWELLED REPAIR JOINT, AS PER BP-13

SEE GENERAL NOTES ON SHEET 9 / FOR ADDITIONAL INFORMATION

ESTIMATED QUANTITIES *		
ITEM 803	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS C	40000 SQ. YDS.
ITEM 803	FULL DEPTH PAVEMENT SAWING	100000 LIN. FT.
ITEM 203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	475 CU. YDS.
ITEM 301	BITUMINOUS AGGREGATE BASE, AC-20	28 CU. YDS.
ITEM 304	AGGREGATE BASE, AS PER PLAN	475 CU. YDS.
ITEM 605	AGGREGATE DRAINS	1500 LIN. FT.

* QUANTITY ESTIMATES ARE BASED ON DYNAFLECT READINGS AND VISUAL INSPECTION. AN ADDITIONAL 25% WAS ADDED TO THE REPAIR AREA TO COMPENSATE FOR ANY ROADWAY DETERIORATION THAT MAY OCCUR BETWEEN THE TIME OF PLAN PREPARATION AND ACTUAL CONSTRUCTION.

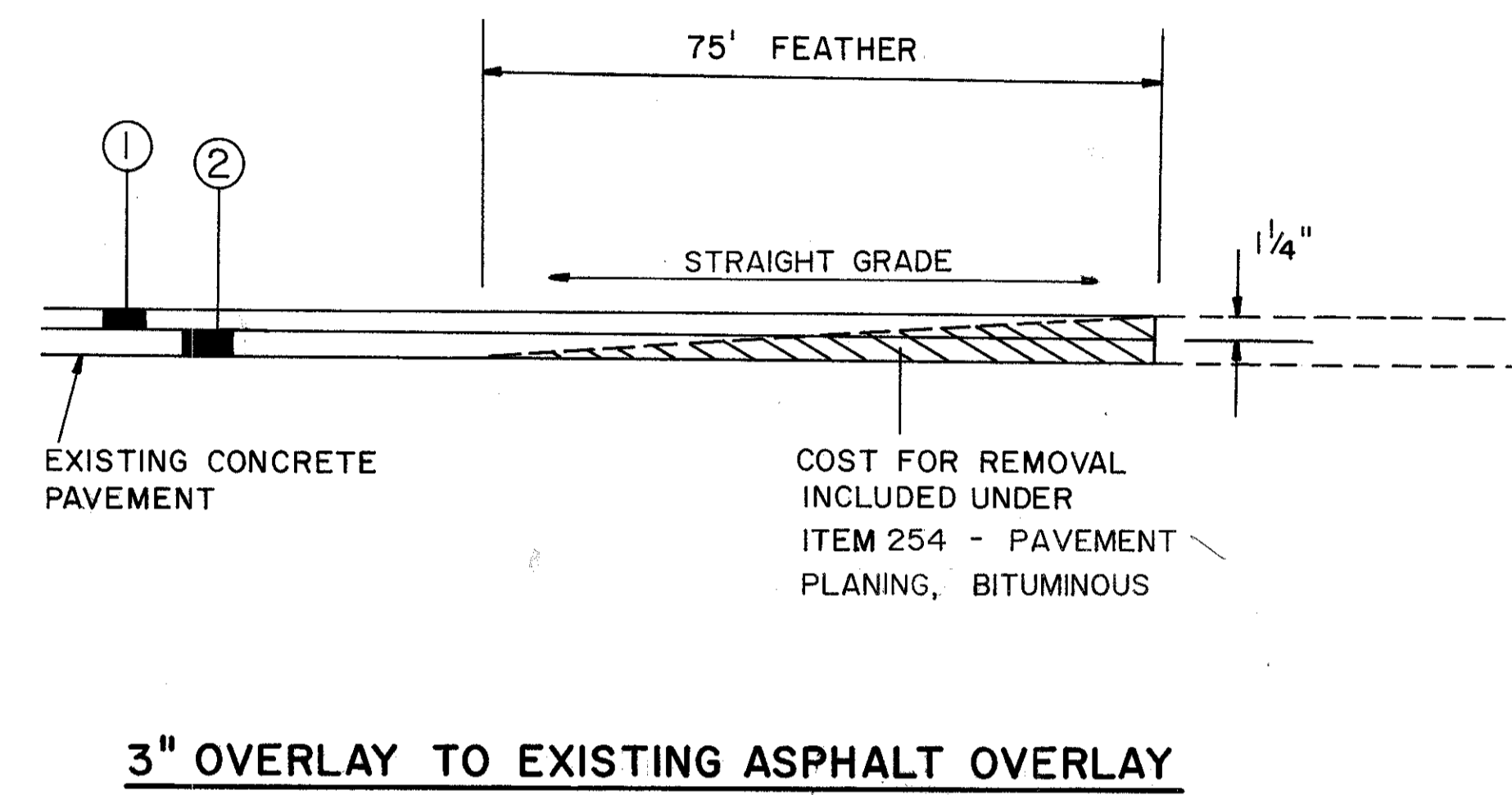
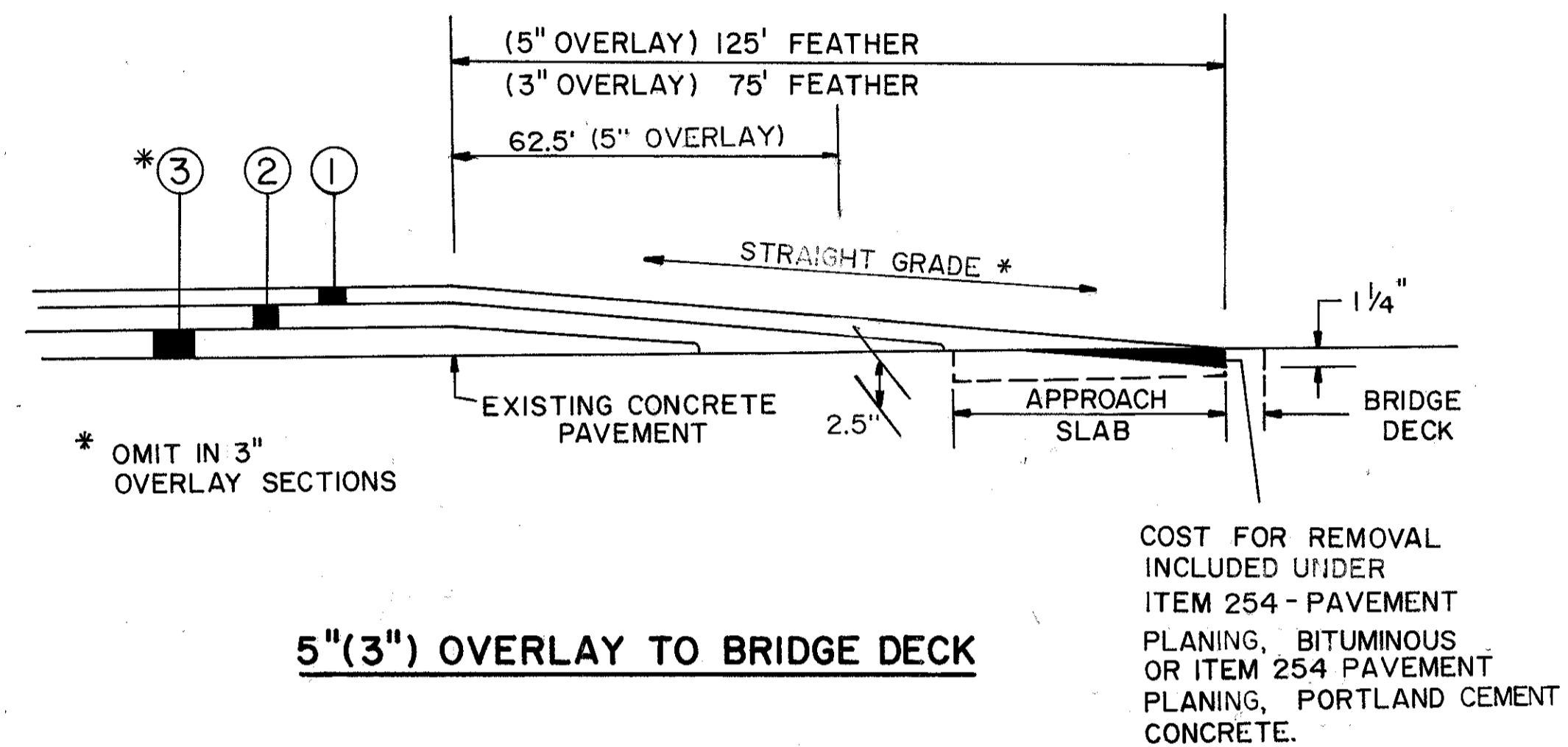
ESTIMATED QUANTITY *	
ITEM 251- PARTIAL DEPTH PAVEMENT REPAIR	30000 S.Y.

SEE ADDITIONAL NOTES SHT. 8.

VISUAL SURVEY
 EXISTING PORTLAND CEMENT CONCRETE PAVEMENT AREA=177,894 S.Y. 7/20/89

FEATHER DETAILS

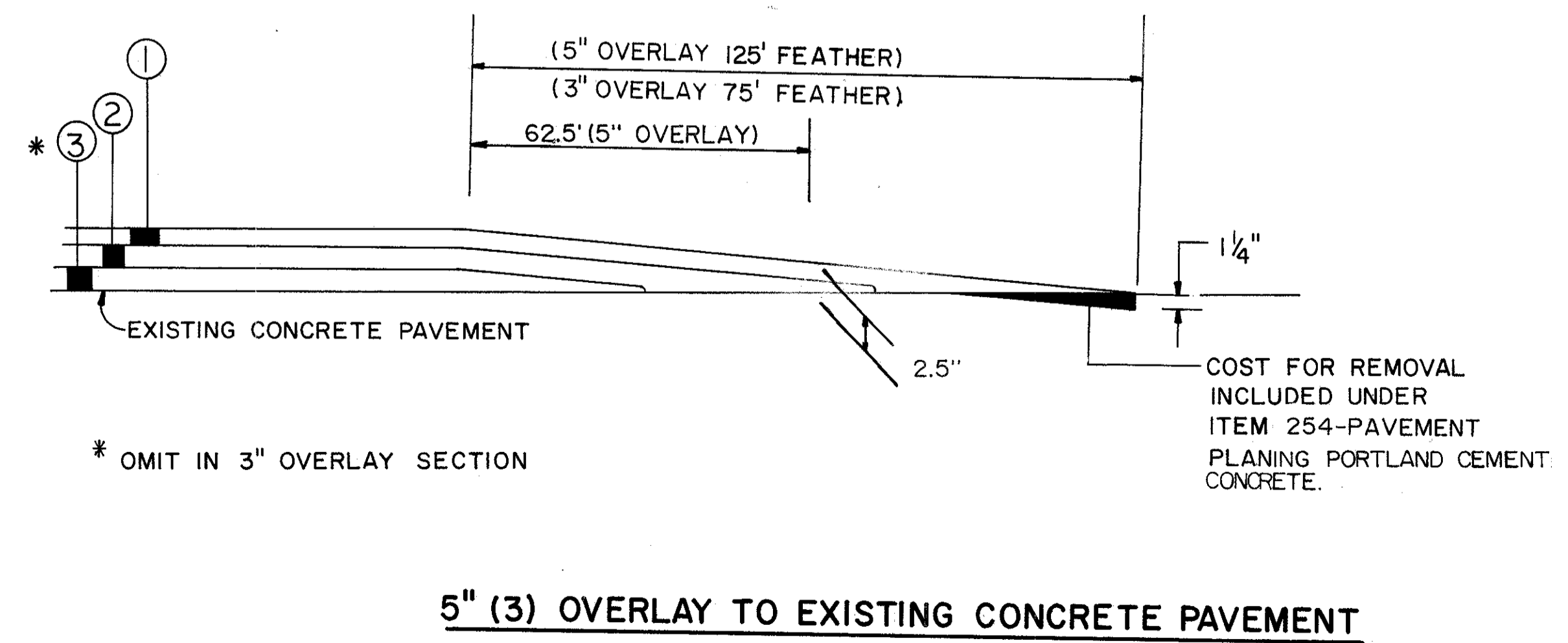
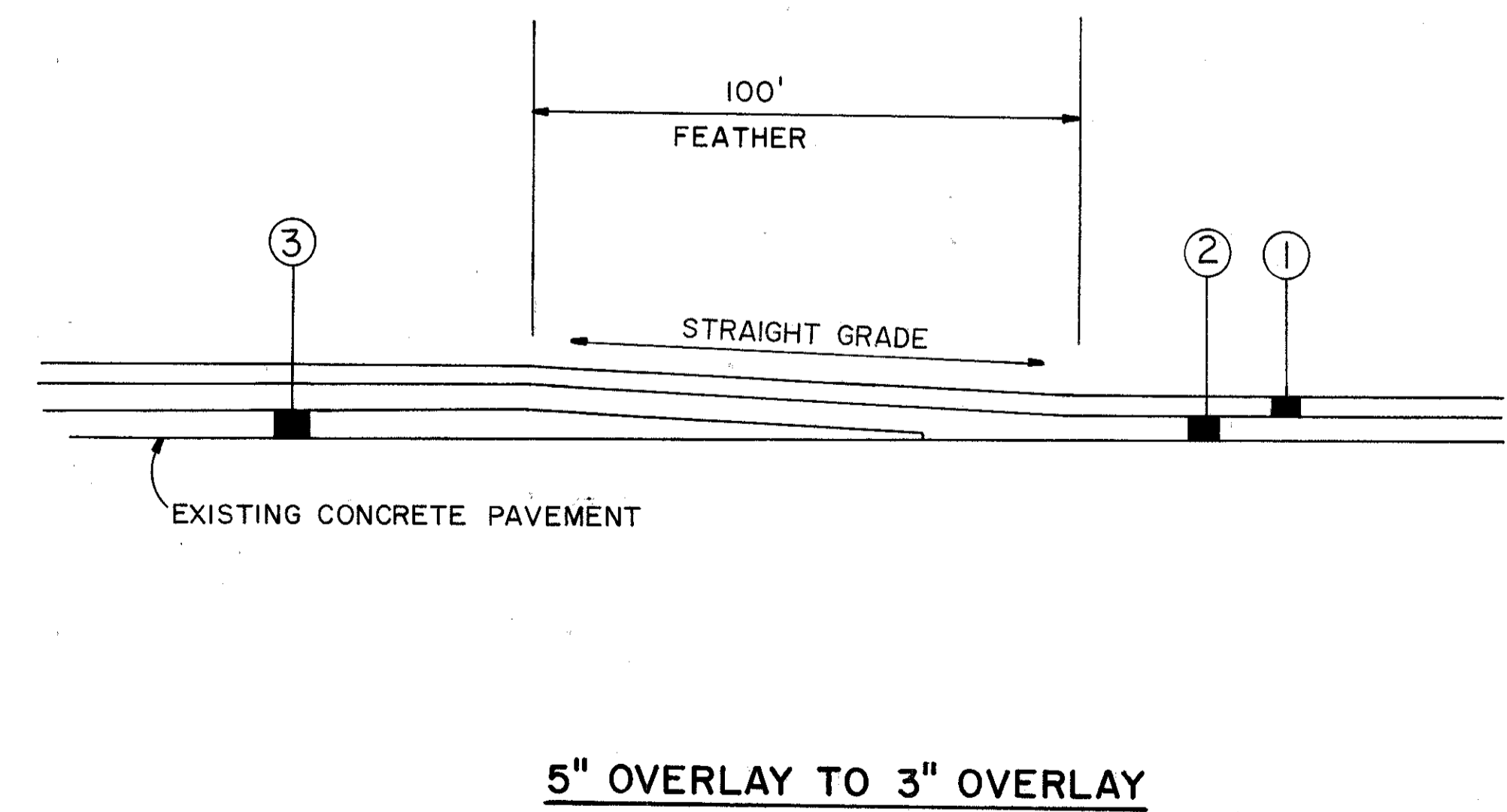
(NOT TO SCALE)



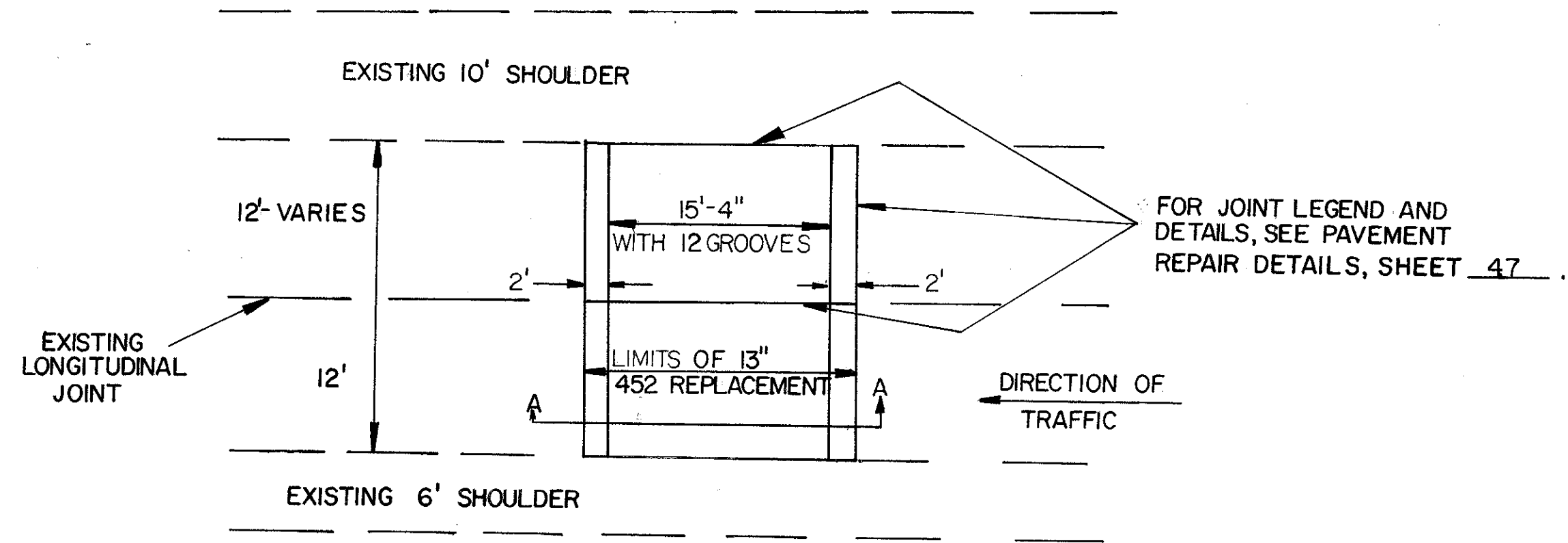
LEGEND

- ① ITEM 446-1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20, AS PER PLAN
- ② ITEM 446-1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
- ③ ITEM 446-2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20

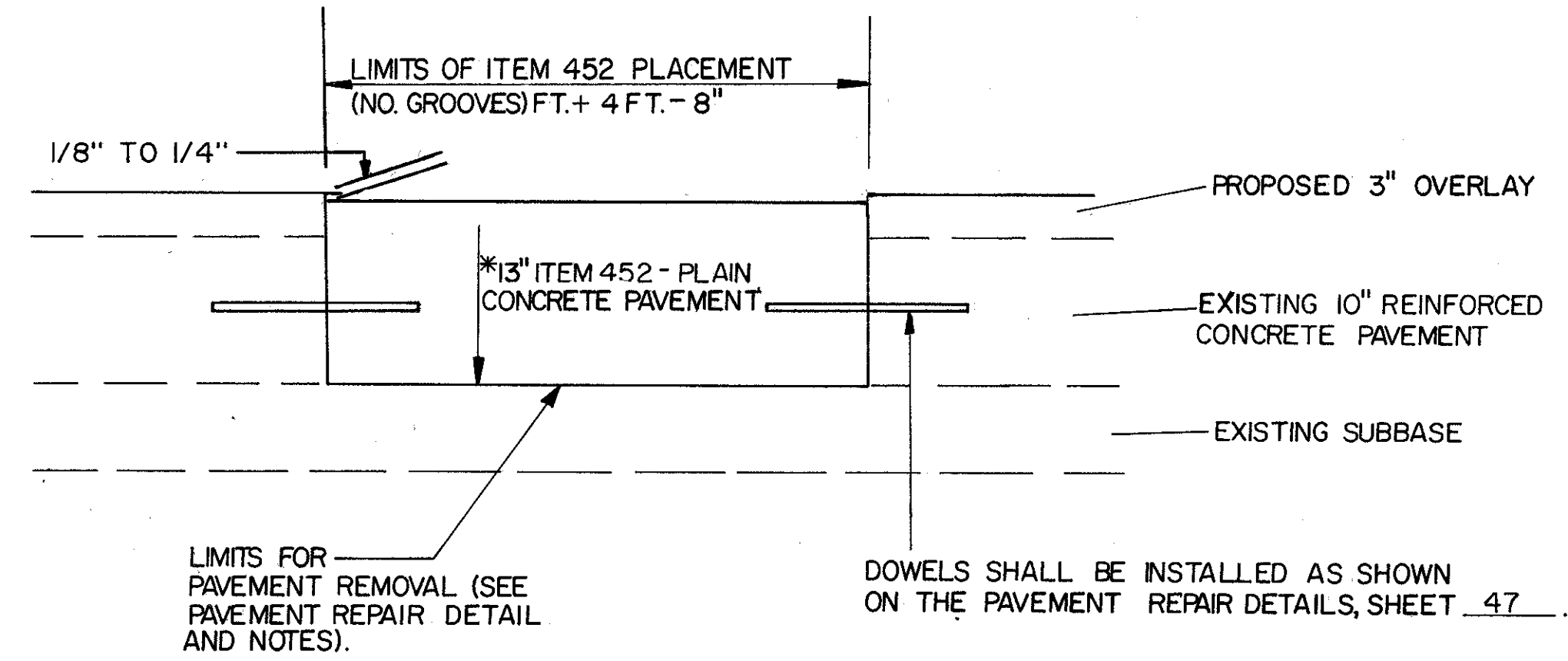
* SEE GENERAL NOTE "ASPHALT APPROACH AT BRIDGES" REGARDING SPECIAL PROVISIONS FOR THESE TRANSITIONS.



MISCELLANEOUS DETAILS



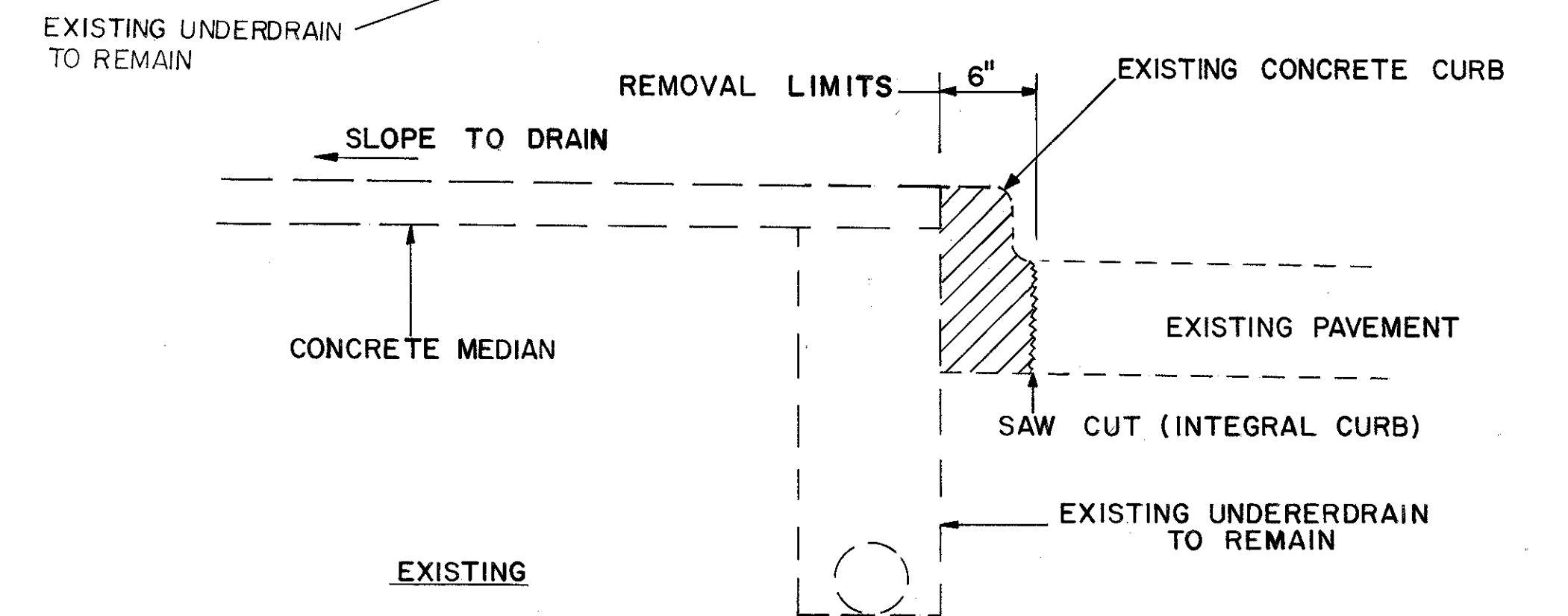
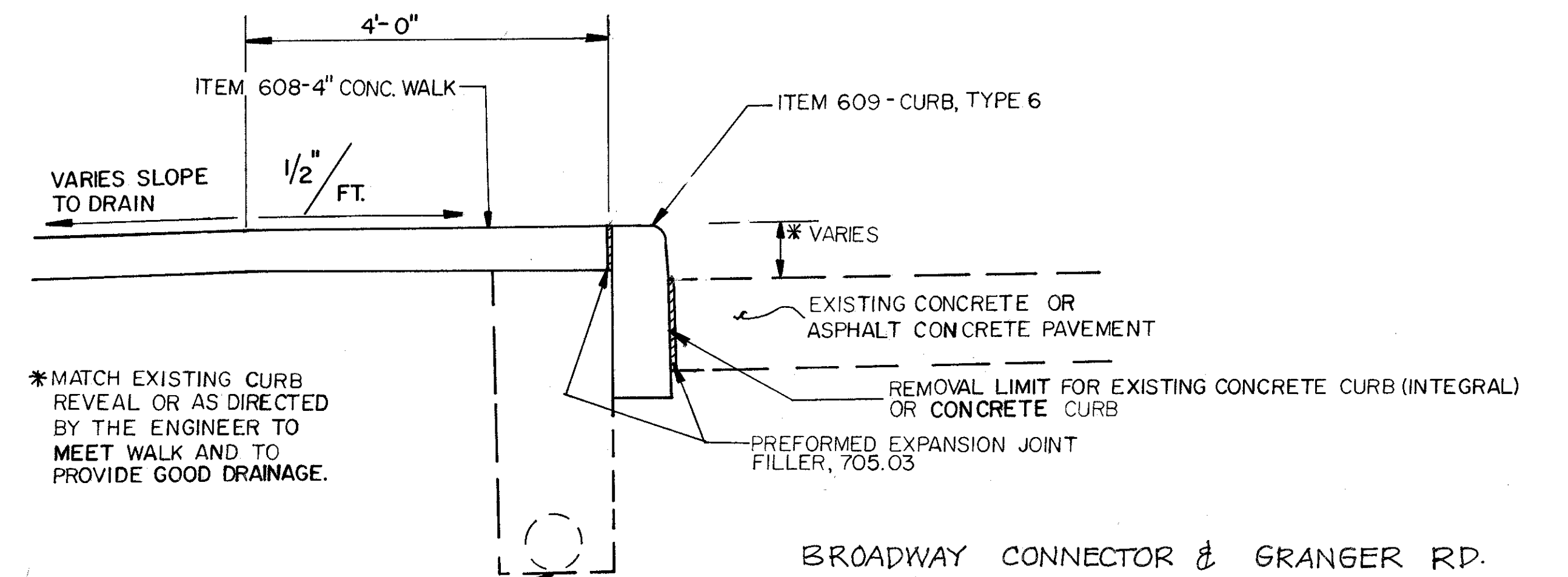
GENERAL RUMBLE GROOVE PLAN



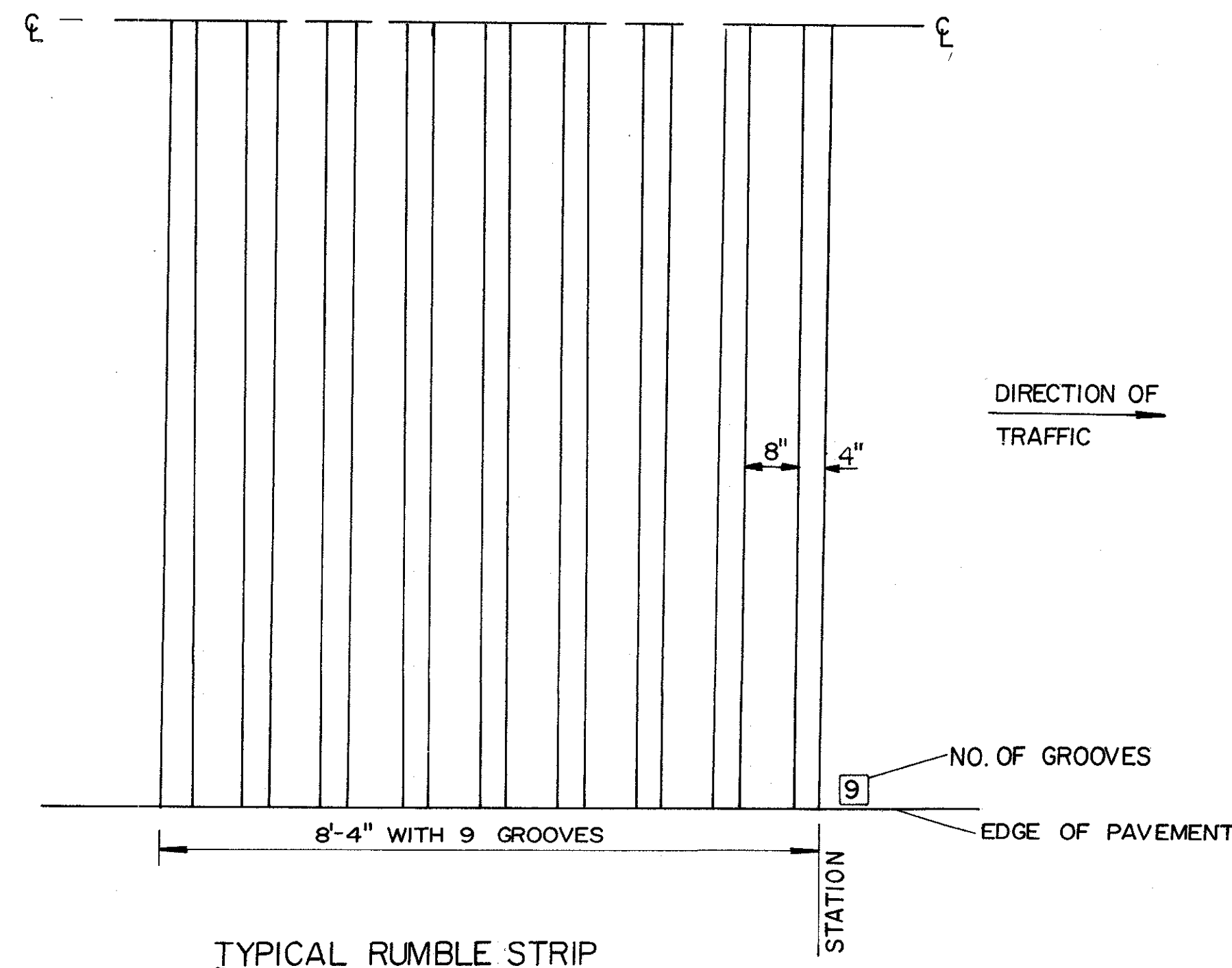
SECTION A-A

ESTIMATED QUANTITIES

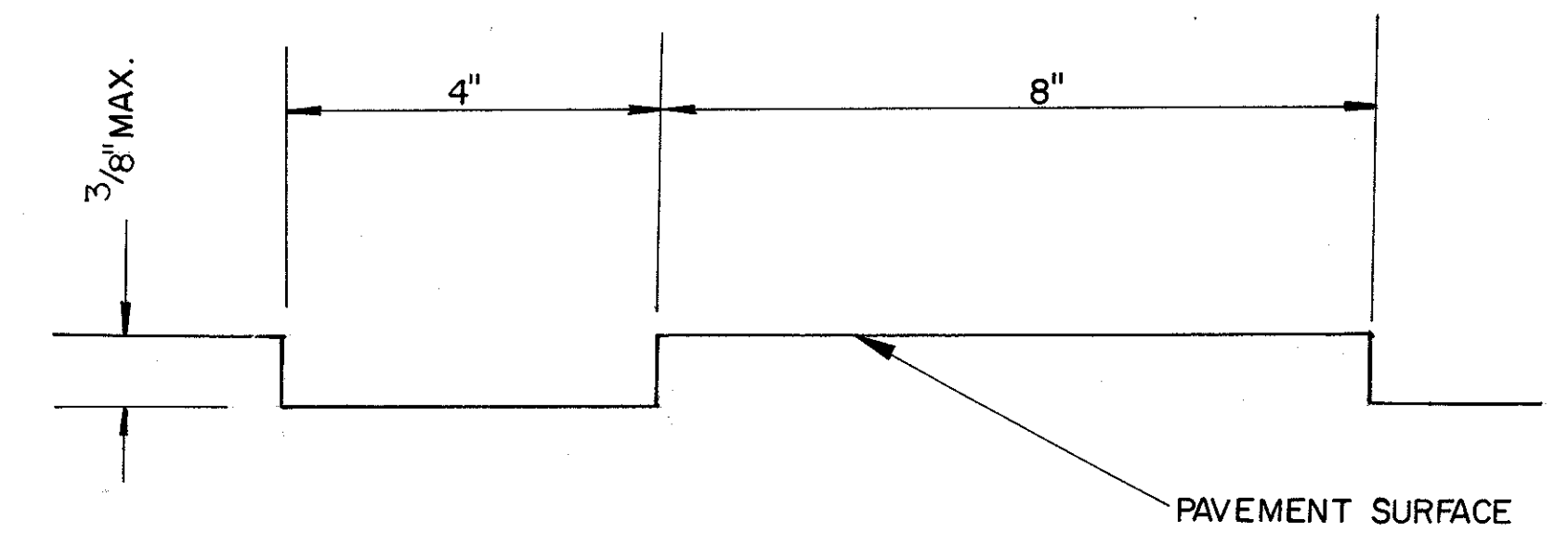
ITEM	DESCRIPTION	QTY	UNIT
202	PAVEMENT REMOVED	293	S.Y.
452	13" PLAIN CONCRETE PAVEMENT, AS PER PLAN.	293	S.Y.
SPECIAL	GROOVED RUMBLE STRIP INSTALLATION	1947	L.F.



CURB REPAIR DETAIL
(SEE GENERAL NOTE SHEET)



TYPICAL RUMBLE STRIP



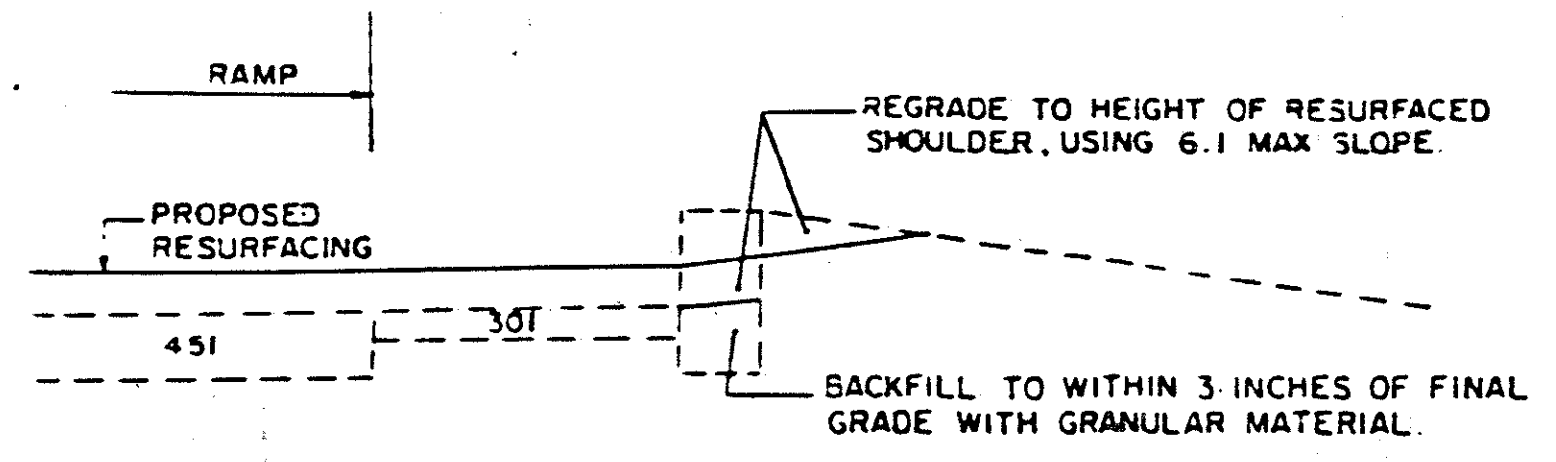
TYPICAL GROOVE DETAIL

MISCELLANEOUS DETAILS

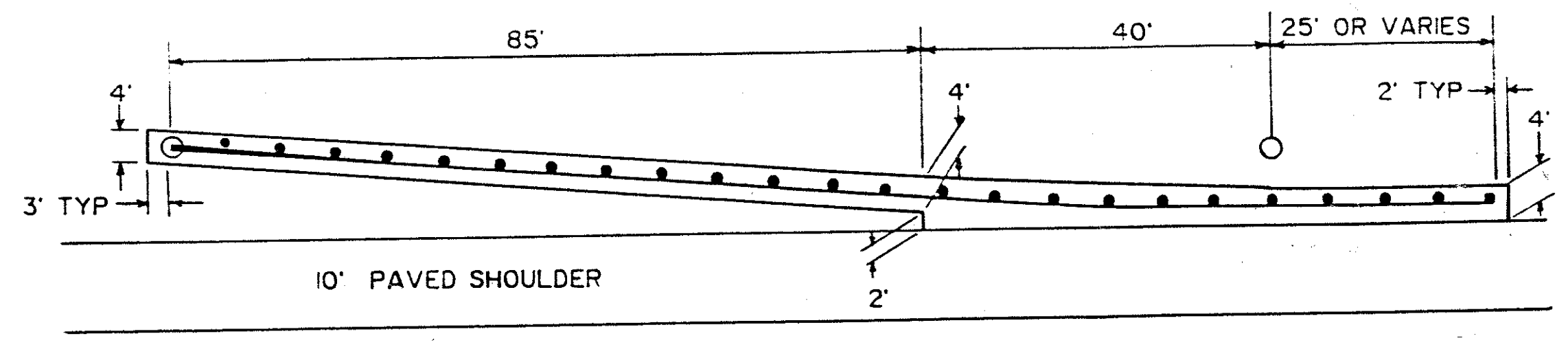
ITEM 202 - CURB REMOVED, AS PER PLAN

THE FOLLOWING DETAILS AND SPECIFICATIONS SHALL APPLY TO THIS ITEM OF WORK:

CASE I - TYPE 6 OR 7 CURB REMOVED



NOTES
RESTORE DISTURBED AREA IN CONFORMANCE WITH ITEM 659. ALL WORK SHOWN SHALL BE INCLUDED UNDER ITEM 202 (WITH THE EXCEPTION OF THE RESURFACING ITEMS.)

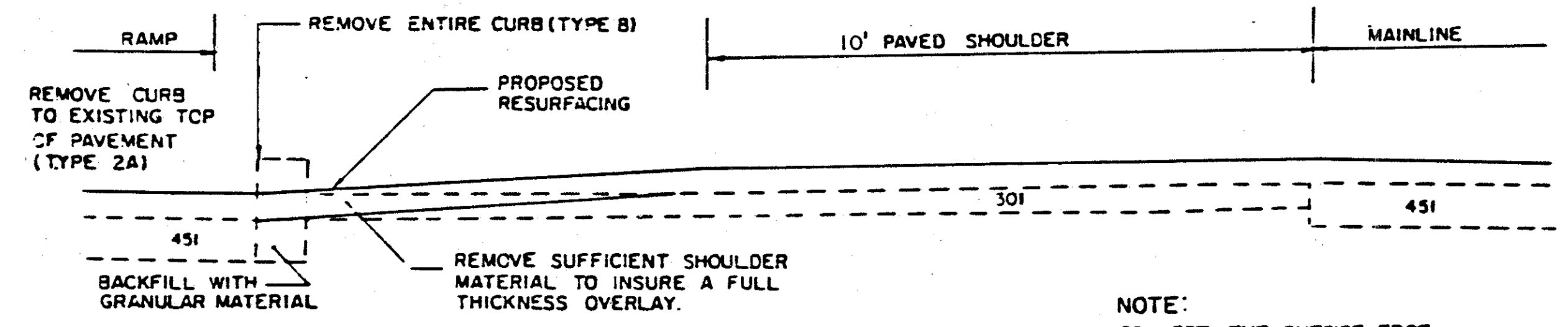


NOTE:
GUARDRAIL SHOWN MAY BE EXISTING, PROPOSED, OR RAISED AS SHOWN IN THE PLANS.

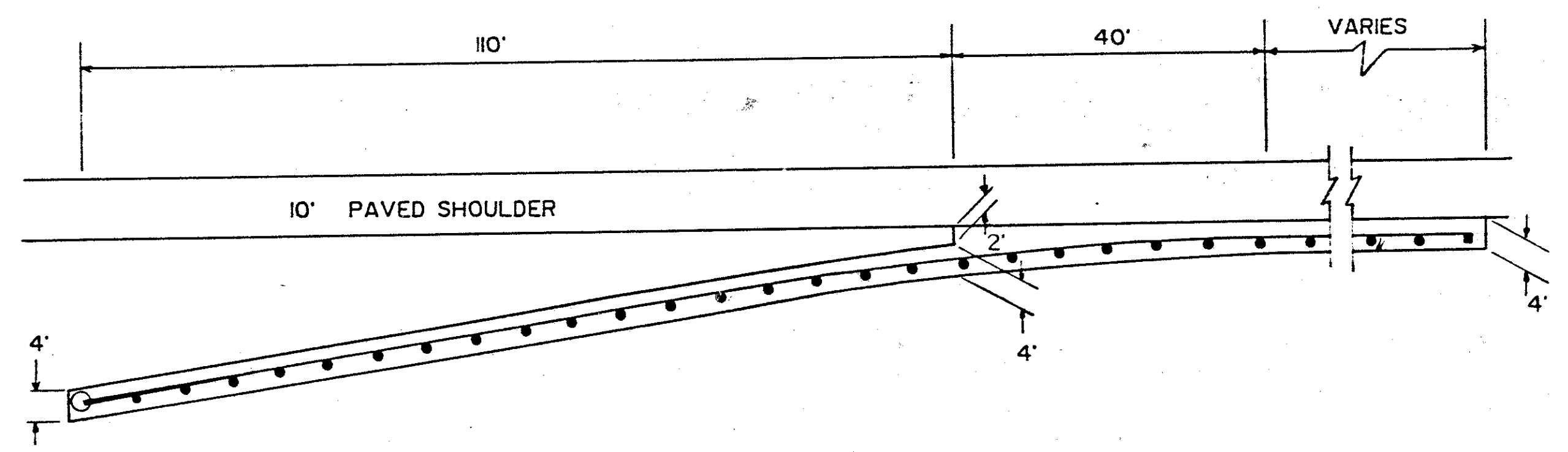
A 4' WIDE STRIP OF ITEM 404 SHALL BE CONSTRUCTED UNDER ALL PROPOSED GUARDRAIL. SEE TYPICAL SECTIONS FOR DETAILS WHEN GUARDRAIL OFFSET EXCEEDS 2 FEET FROM EDGE OF PAVED BERM

ITEM 404 FOR EROSION CONTROL WITH 8.30' GUARDRAIL FLARE

CASE 2 - TYPE 2A OR 8 CURB REMOVED

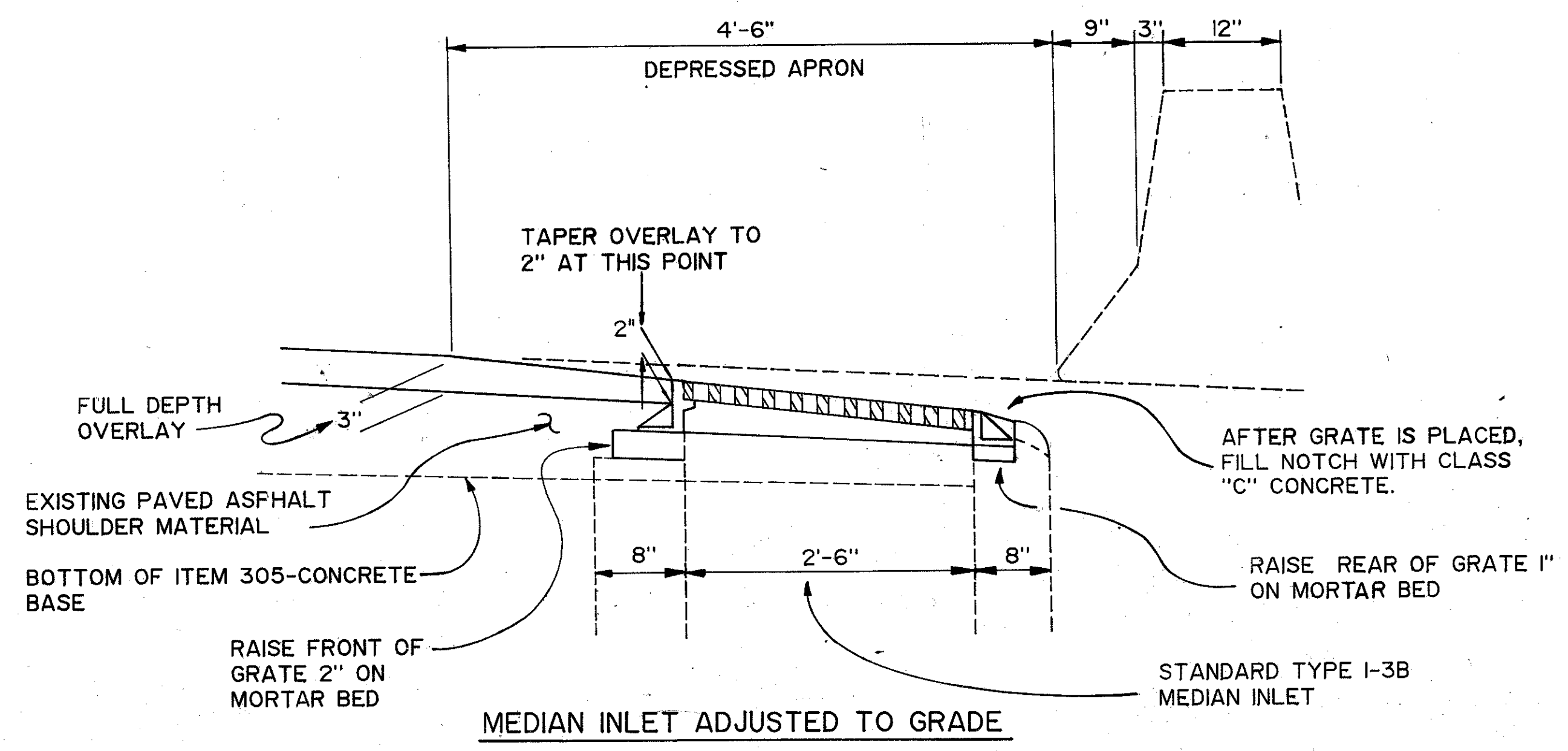


NOTE:
CONNECT THE OUTSIDE EDGE OF THE 10 FT. PAVED SHOULDER AND THE CURB GUTTER LINE WITH A STRAIGHT GRADE.



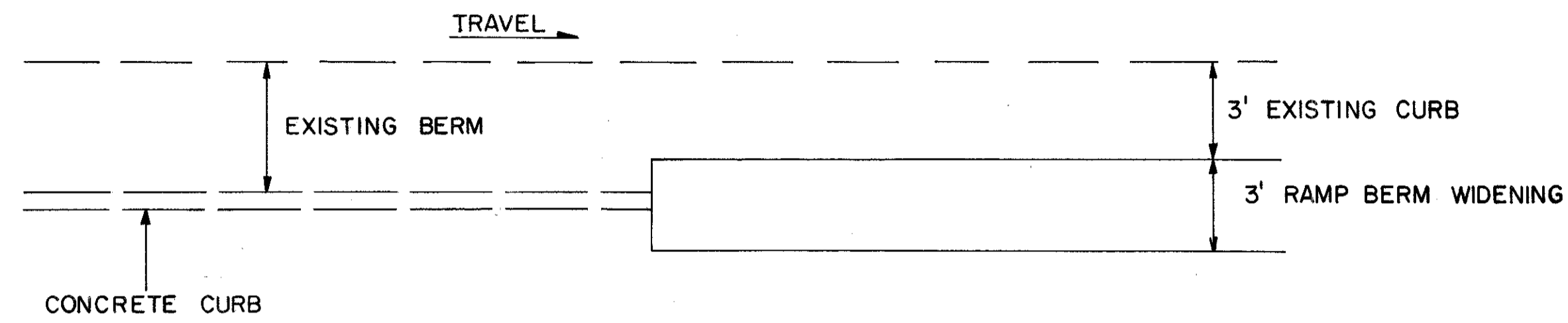
ITEM 404 FOR EROSION CONTROL WITH 18' GUARDRAIL FLARE

ESTIMATED QUANTITIES (I)				
RAMP No	LOCATION		202	
			CURB REMOVED	CATCH BASIN ABANDONED
	FROM	TO	LIN. FT.	EACH
98-W	57+88.73	59+88.73	200	1
98-E	51+71.27	53+71.27	200	
G-1	18+94.00	19+50.00	56.00	
B-OBS	9+64.53	13+25	360	1
B-OBS-E	85+40.70	89+00	359	1
BROADWAY CONNECTOR	56+41.15	59+40	299	1
PARTICIPATION CODE I - TOTALS			1474	4

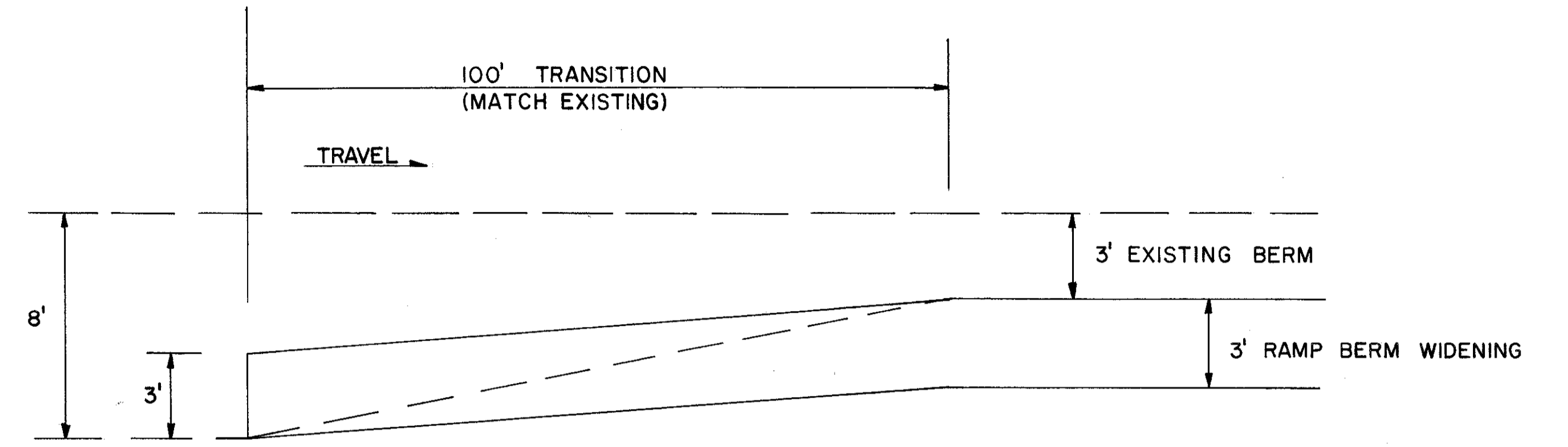


RAMP WIDENING TRANSITIONS

CUYAHOGA COUNTY CUY-480-19.19	OHIO	51 171
	FHWA REGION 5	
FEDERAL PROJECT		

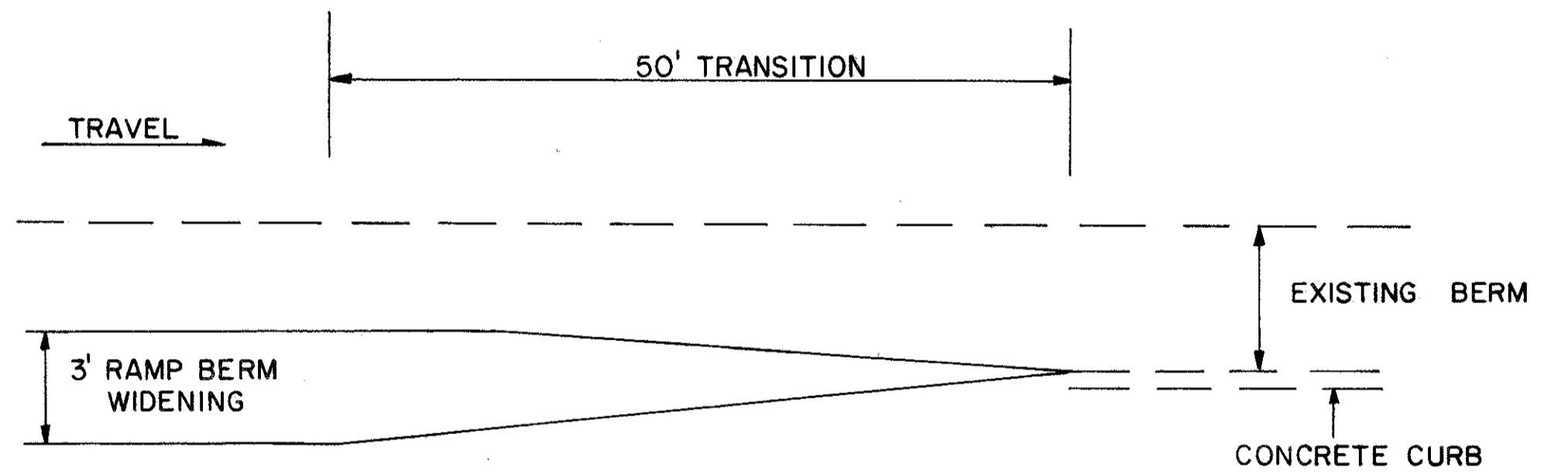


RAMP BEGINNING AT CURB



UNCURBED RAMP TRANSITION

NOT TO SCALE



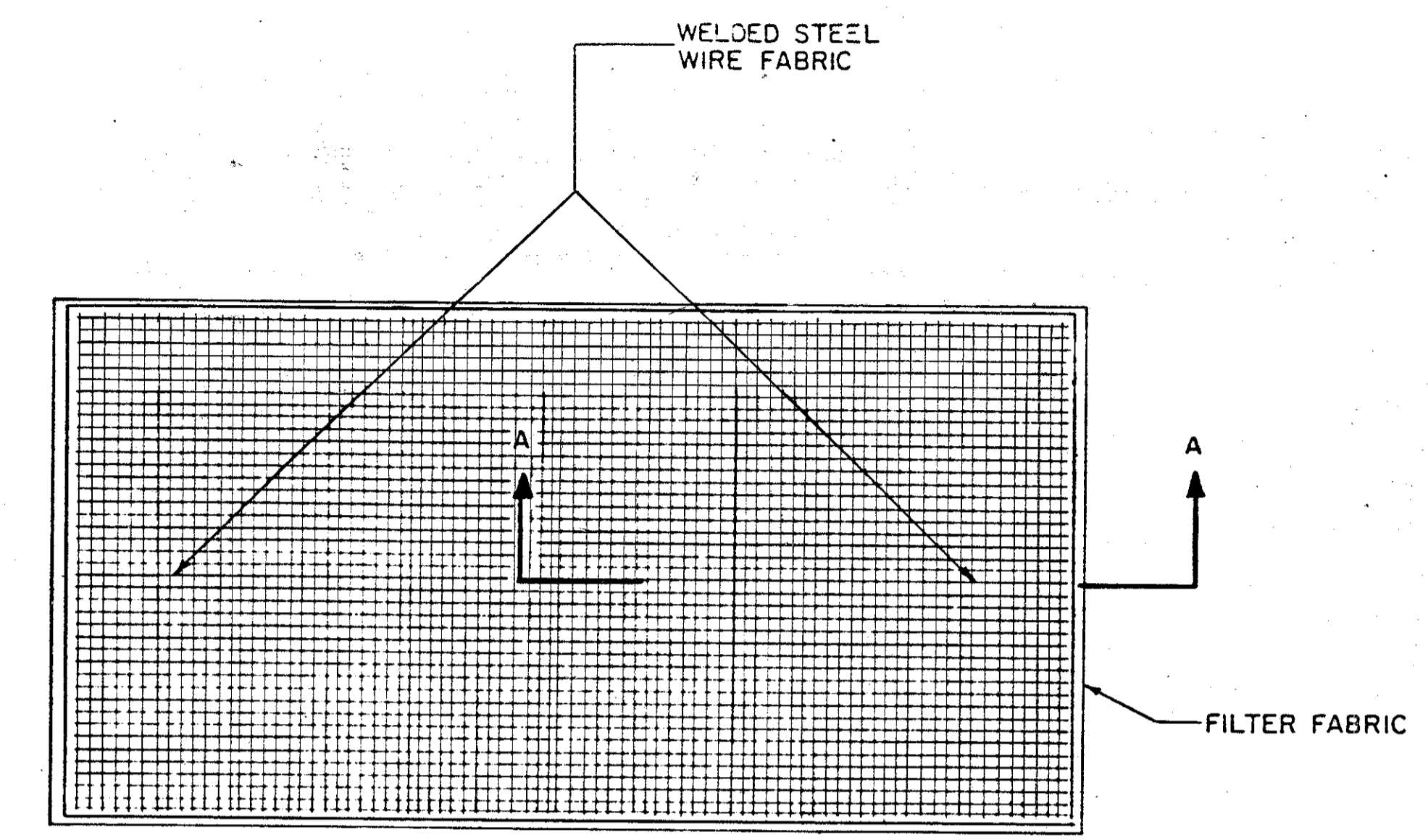
RAMP TERMINATING AT CURB

PHWA REGION	STATE	PROJECT
5	OHIO	

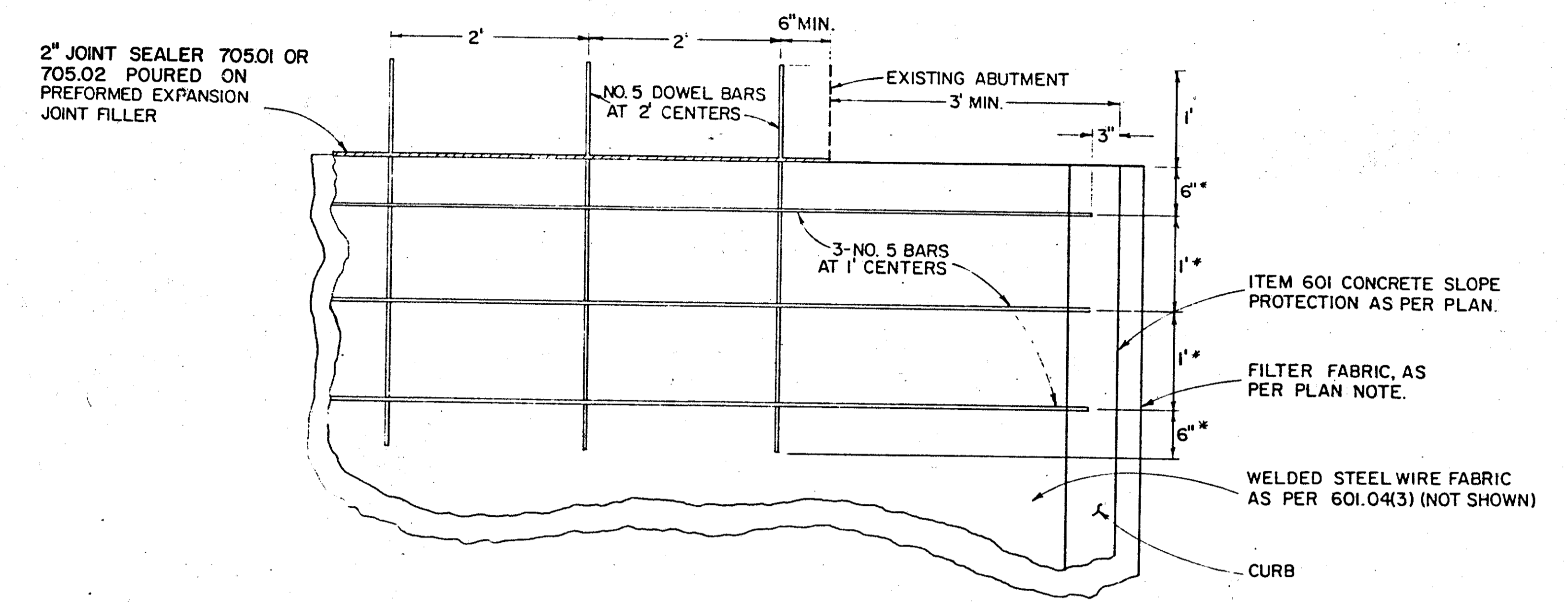
52
171

CUYAHOGA COUNTY
CUY-480-19.19

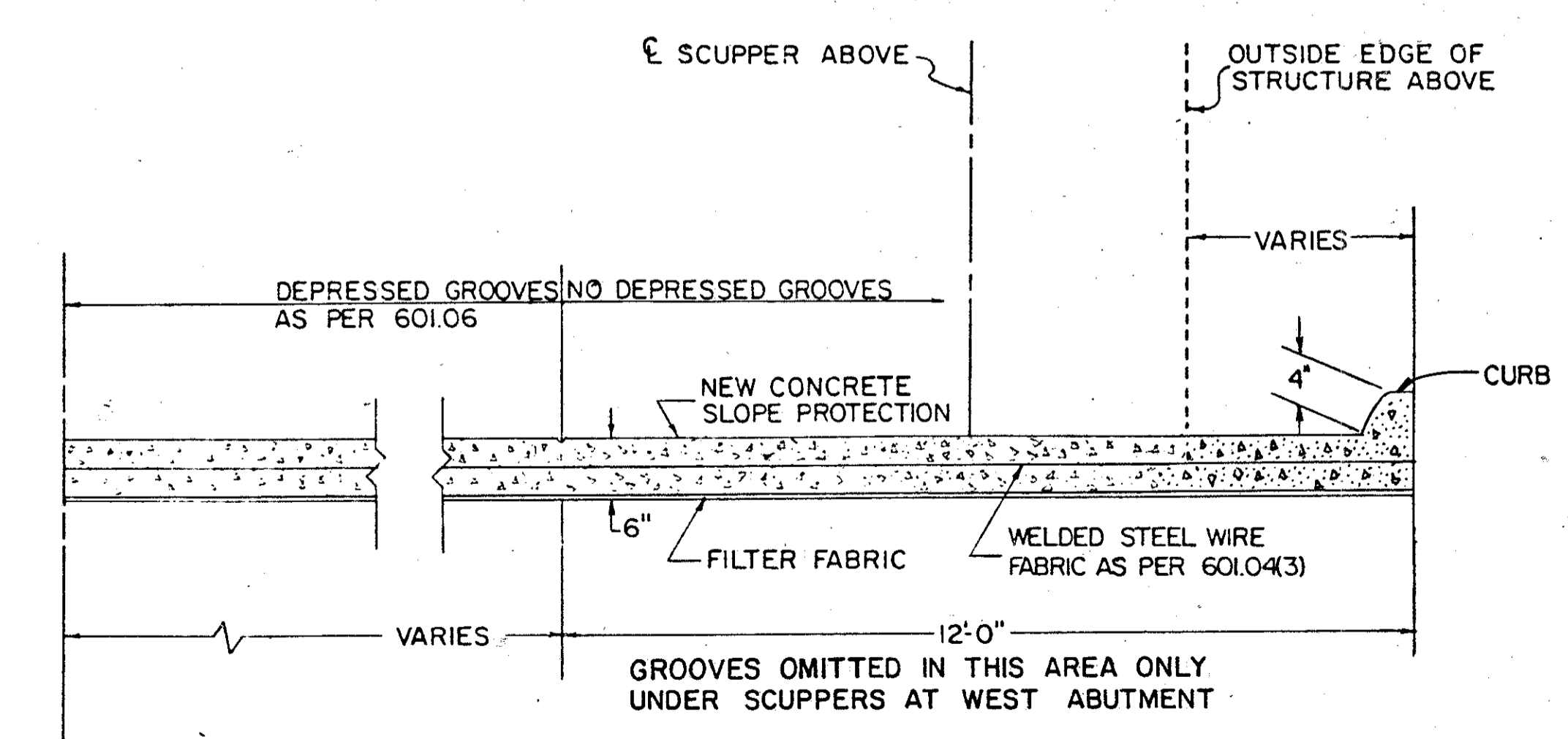
EROSION REPAIR PLAN



CONCRETE SLOPE PROTECTION
AS PER PLAN



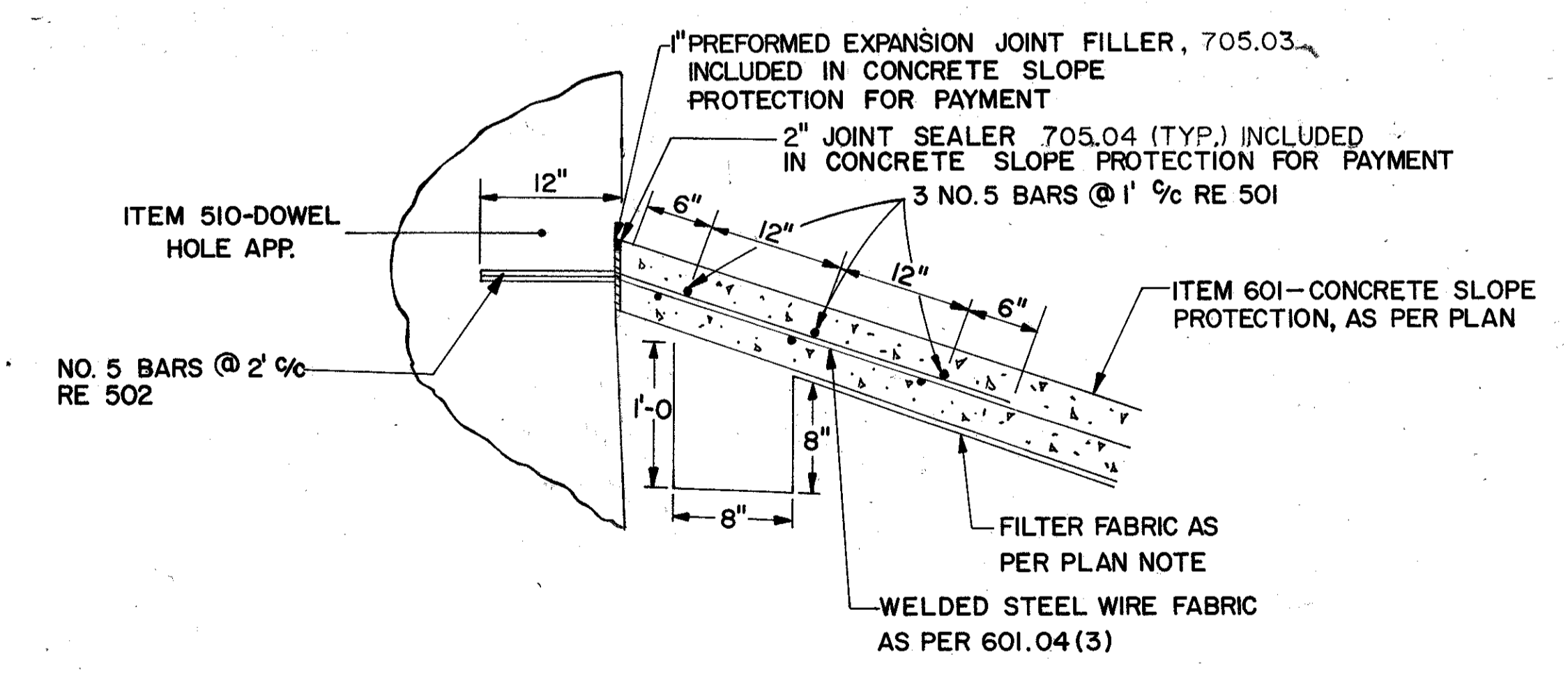
SLOPE PROTECTION REINFORCING DETAIL



CONCRETE SLOPE PROTECTION
AS PER PLAN

SECTION A-A

SEE ADDITIONAL NOTES SHT. 10

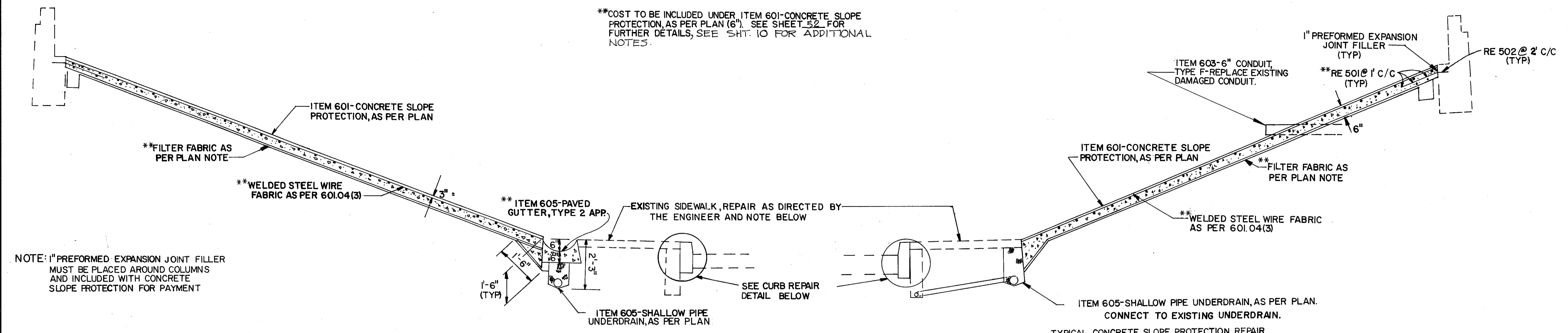


ANCHORING DETAIL

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES		
EROSION REPAIR PLAN		
REVIEWED	DATE	REVISED

EROSION CONTROL DETAILS

**COST TO BE INCLUDED UNDER ITEM 601-CONCRETE SLOPE PROTECTION, AS PER PLAN (6"). SEE SHEET 52 FOR FURTHER DETAILS, SEE SHT. 10 FOR ADDITIONAL NOTES.



NOTE: 1" PREFORMED EXPANSION JOINT FILLER MUST BE PLACED AROUND COLUMNS AND INCLUDED WITH CONCRETE SLOPE PROTECTION FOR PAYMENT

TYPICAL CONCRETE SLOPE PROTECTION REPAIR WITH EXISTING PAVED GUTTER

- BRIDGE NO. CUY-480-2071R (N. SLOPE)
- BRIDGE NO. CUY-480-2071L (N. SLOPE)
- BRIDGE NO. CUY-480-2154 (E. SLOPE)

SLOPE PROTECTION DETAILS (NOT TO SCALE)

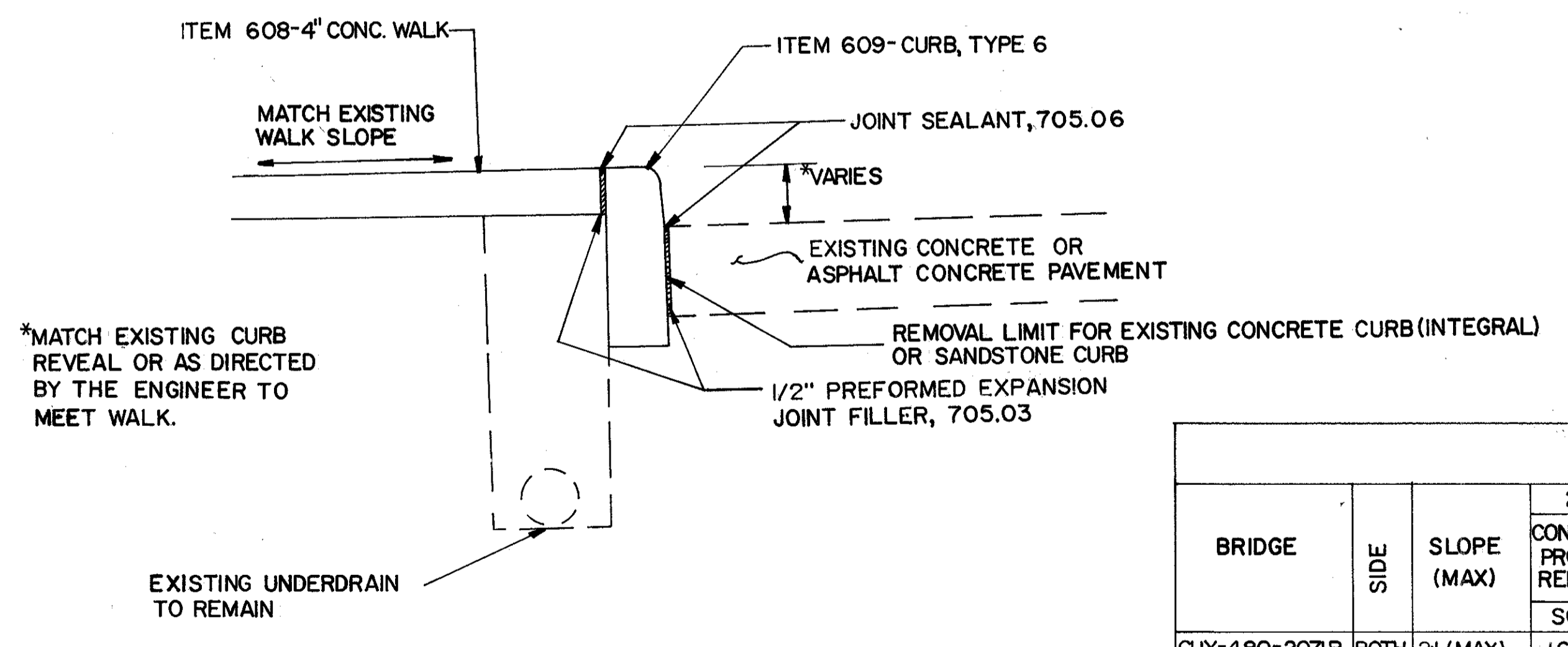
TYPICAL CONCRETE SLOPE PROTECTION REPAIR WITHOUT PAVED GUTTER

- BRIDGE NO. CUY-480-2071R (S. SLOPE)
- BRIDGE NO. CUY-480-2071L (S. SLOPE)
- BRIDGE NO. CUY-480-2154 (W. SLOPE)
- BRIDGE NO. CUY-480-2163 W (N. SLOPE - CONTINUOUS)
- BRIDGE NO. CUY-480-2165 (N. SLOPE - CONTINUOUS)
- BRIDGE NO. CUY-480-2163 W (S. SLOPE)
- BRIDGE NO. CUY-480-2165 (S. SLOPE)
- BRIDGE NO. CUY-480-2170 (N. AND S. SLOPES)

SIDEWALK AND CURB REPAIRS

THESE ITEMS OF WORK SHALL BE USED TO REPLACE EXISTING CONCRETE WALK THAT HAS BUCKLED, CRACKED, OR MOVED FROM ITS INTENDED LOCATION. THIS IN TURN ALSO CAUSED THE EXISTING FENCE TO MOVE AND BE IN NEED OF REPLACEMENT. ALL REPLACEMENT WALK SHALL BE IN THE SAME LOCATION AS EXISTING AND SHALL BE AS DIRECTED BY THE ENGINEER (TYPICAL ALL APPLICABLE BRIDGES). ALSO THE CONCRETE CURB IN SOME LOCATIONS NEEDS REPLACEMENT. REPLACE AS SHOWN IN DETAIL A THIS SHEET. THE FOLLOWING QUANTITIES FROM THE SUB-SUMMARY BELOW HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE WORK.

+ ITEMS FOR USE WITH SIDEWALK AND CURB REPAIRS.



CURB REPAIR DETAIL A

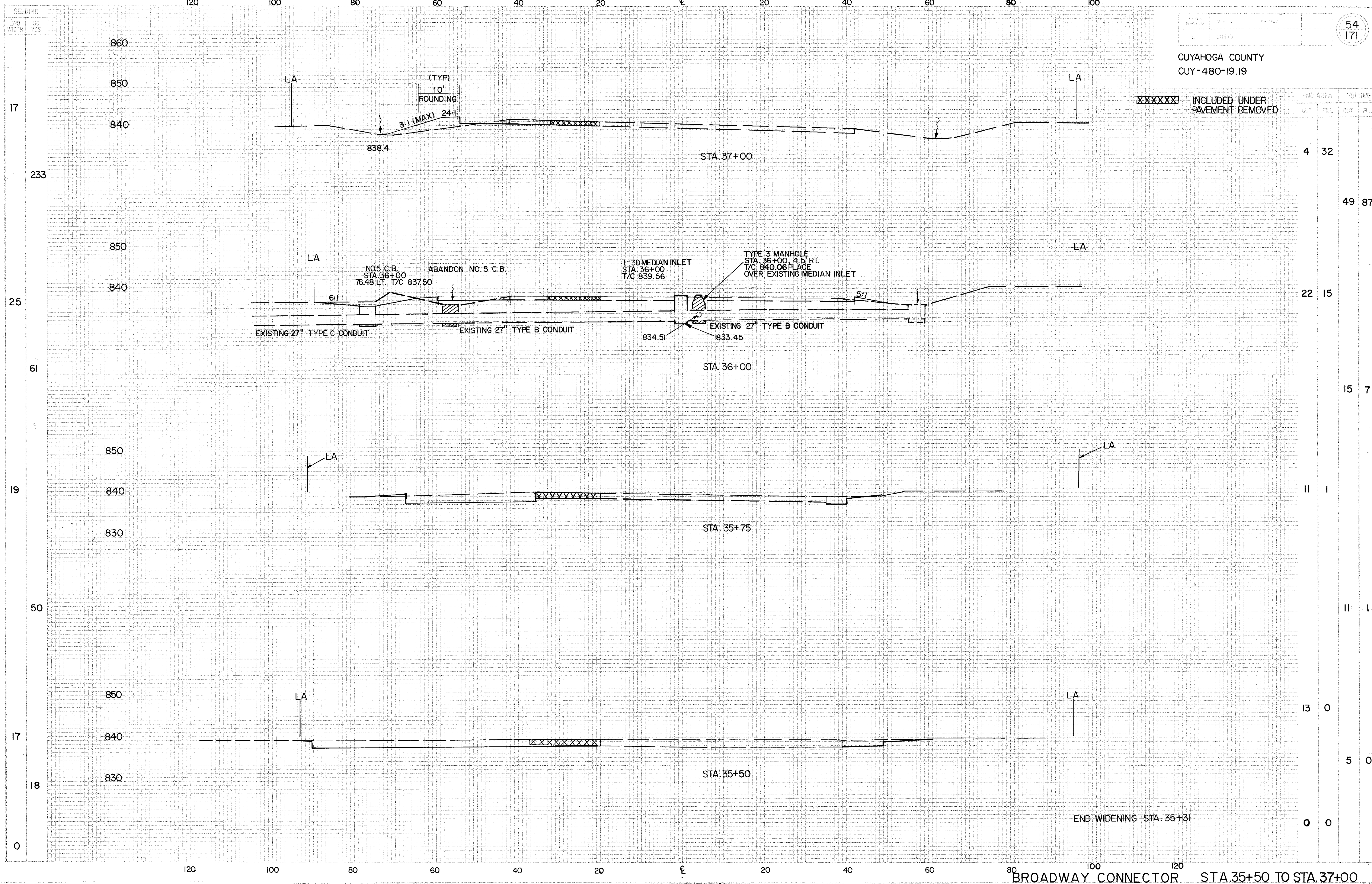
*MATCH EXISTING CURB REVEAL OR AS DIRECTED BY THE ENGINEER TO MEET WALK.

†NOTE: BRIDGES CUY-480-2163 W AND CUY-480-2165 SHARE A CONTINUOUS NORTH SIDE CONCRETE PROTECTION SYSTEM. QUANTITIES ARE TOTALS FOR NORTH AND SOUTH SIDES.

BRIDGE	SIDE	SLOPE (MAX)	202	202	202	601	601	608	609	603	605
			CONC. SLOPE PROTECT. REMOVED	CURB REMOVED AS PER PLAN	WALK REMOVED +	CONC. SLOPE PROTECT. A.P.P. (6")	DUMPED ROCK FILL, TYPE D		4" CONC. WALK +	CURB, TYPE 6 +	6" CONDUIT TYPE F
			SQ. YD.	LIN. FT.	SQ. FT.	SQ. YD.	CU. YD.	SQ. FT.	LIN. FT.	LIN. FT.	LIN. FT.
CUY-480-2071R	BOTH	2:1 (MAX)	1600	200	500	1600		500	200	20	380
CUY-480-2071L	BOTH	2:1 (MAX)	2000	170	425	2000		425	170	20	385
CUY-480-2140	BOTH	2:1 (MAX)					420				
CUY-480-2154	BOTH	2:1 (MAX)	1970	200	500	1970		500	200	20	805
CUY-480-2163W	BOTH	2:1 (MAX)	220	60	150	220		150	60	20	65
CUY-480-2165	BOTH	2:1 (MAX)	1025	100	250	1025		250	100	20	249
CUY-480-2170E	BOTH	2:1 (MAX)	780	110	275	780		275	110		218
		TOTALS	7595	840	2100	7595	420	2100	840	120	2102

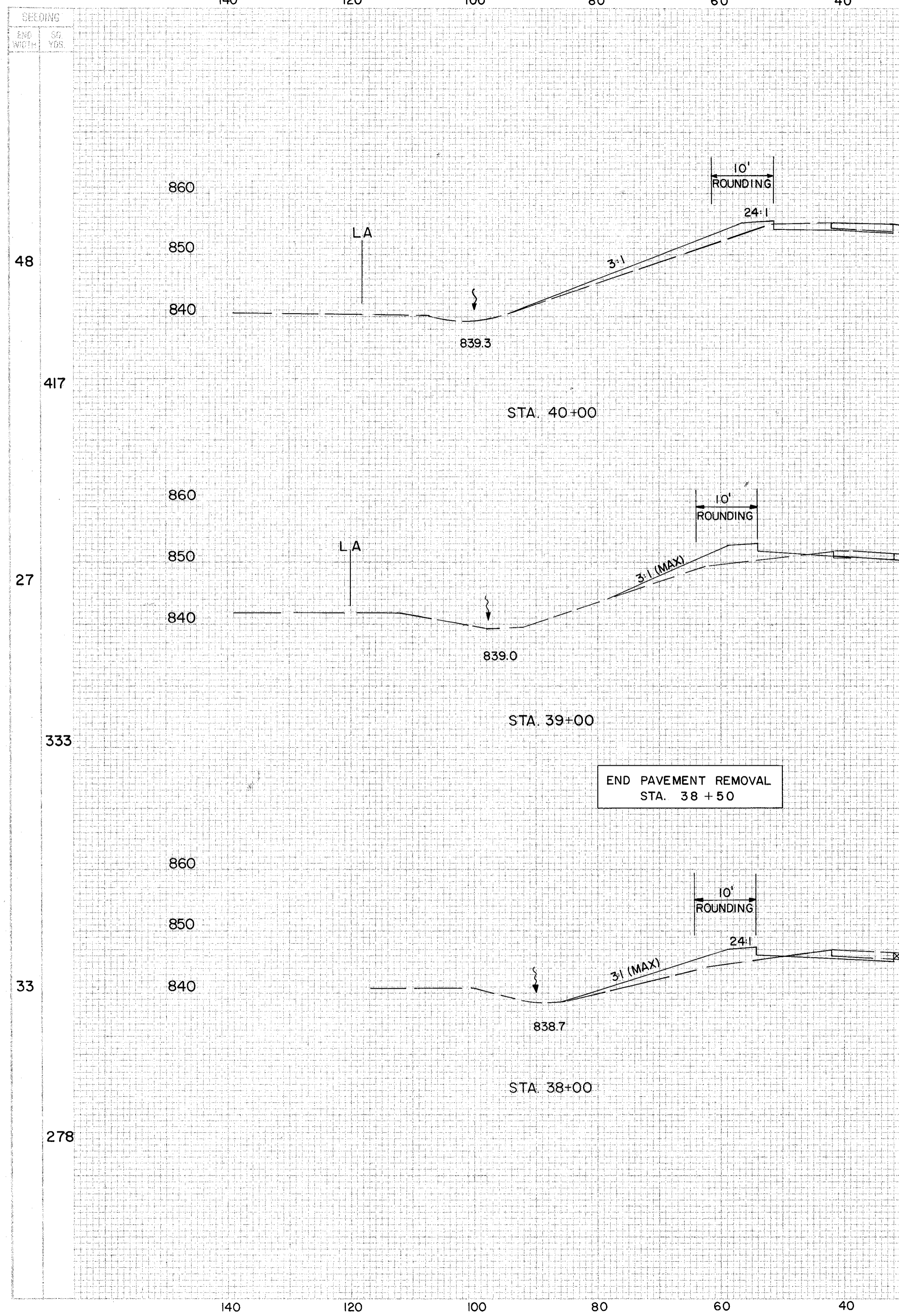
SEE NOTE †

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 LOCATION & DESIGN				
EROSION CONTROL DETAILS				
CUYAHOGA COUNTY OHIO				
DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	LM	DATE	DATE	DATE
	DATE			SHEET

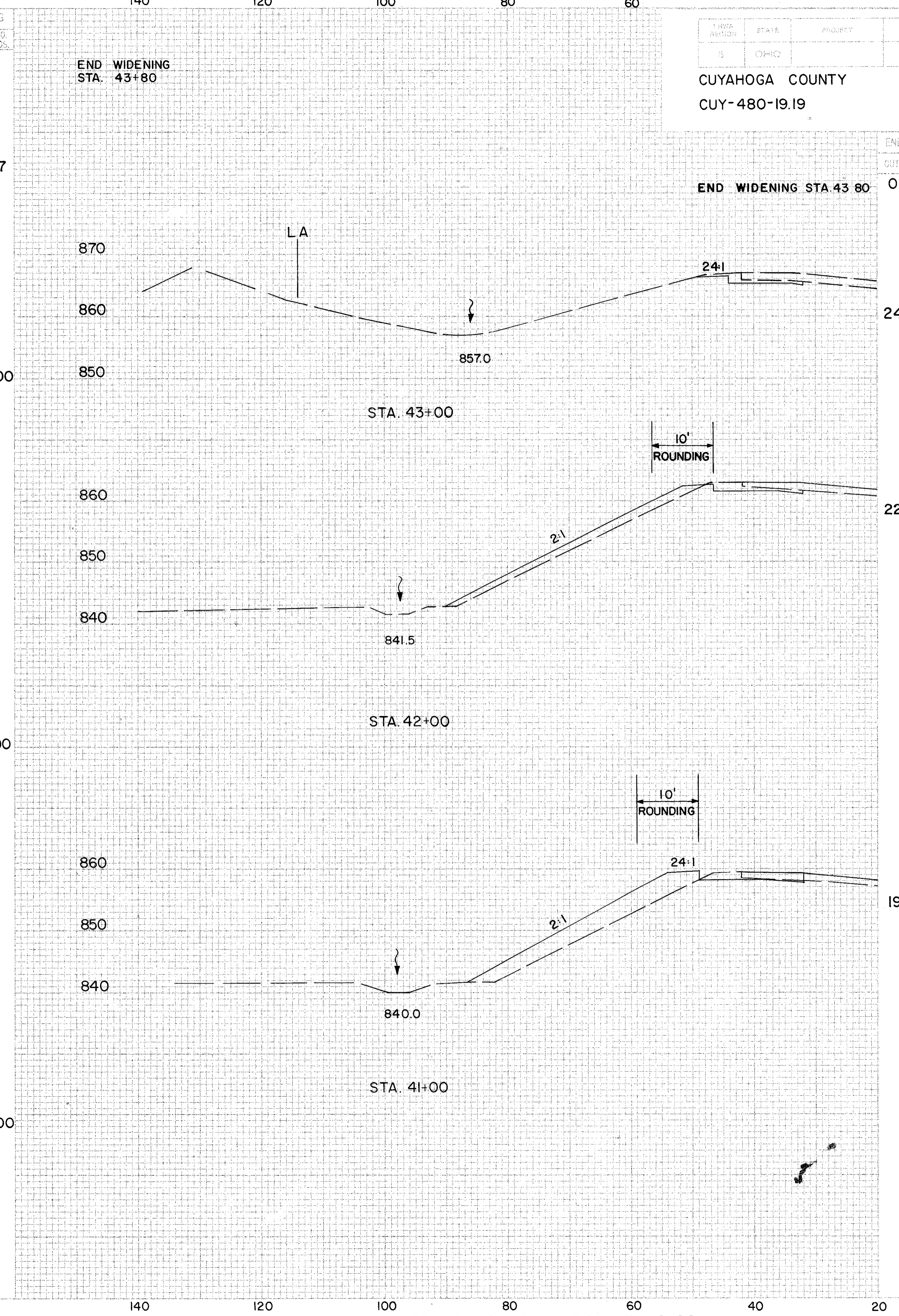


XXXXXX INCLUDED UNDER PAVEMENT REMOVED

END AREA	VOLUME	
	CUT	FILL
4	32	
		49
22	15	
		15
61		7
19	1	
		1
50		1
17	0	
		5
18	0	
		0
0	0	



END AREA		VOLUME		SEEDING	
CUT	FILL	CUT	FILL	END WIDTH	SO. YRS.
23	37	64	147	0	0
12	43	59	152	27	300
20	39	45	130	33	500
45	130			48	500



END AREA		VOLUME		SEEDING	
CUT	FILL	CUT	FILL	END WIDTH	SO. YRS.
0	0	0	0	0	0
24	0	22	47	27	300
19	106	19	106	33	500
24	0	22	47	48	500

TOWN: _____ STATE: _____ PROJECT: _____
 COUNTY: CUYAHOGA COUNTY
 PROJECT NO.: CUY-480-19.19
 SHEET NO.: 55 OF 171

U-3

MAINTENANCE OF TRAFFIC
MISCELLANEOUS DETAILS

CUYAHOGA COUNTY
CUY - 480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

56
171

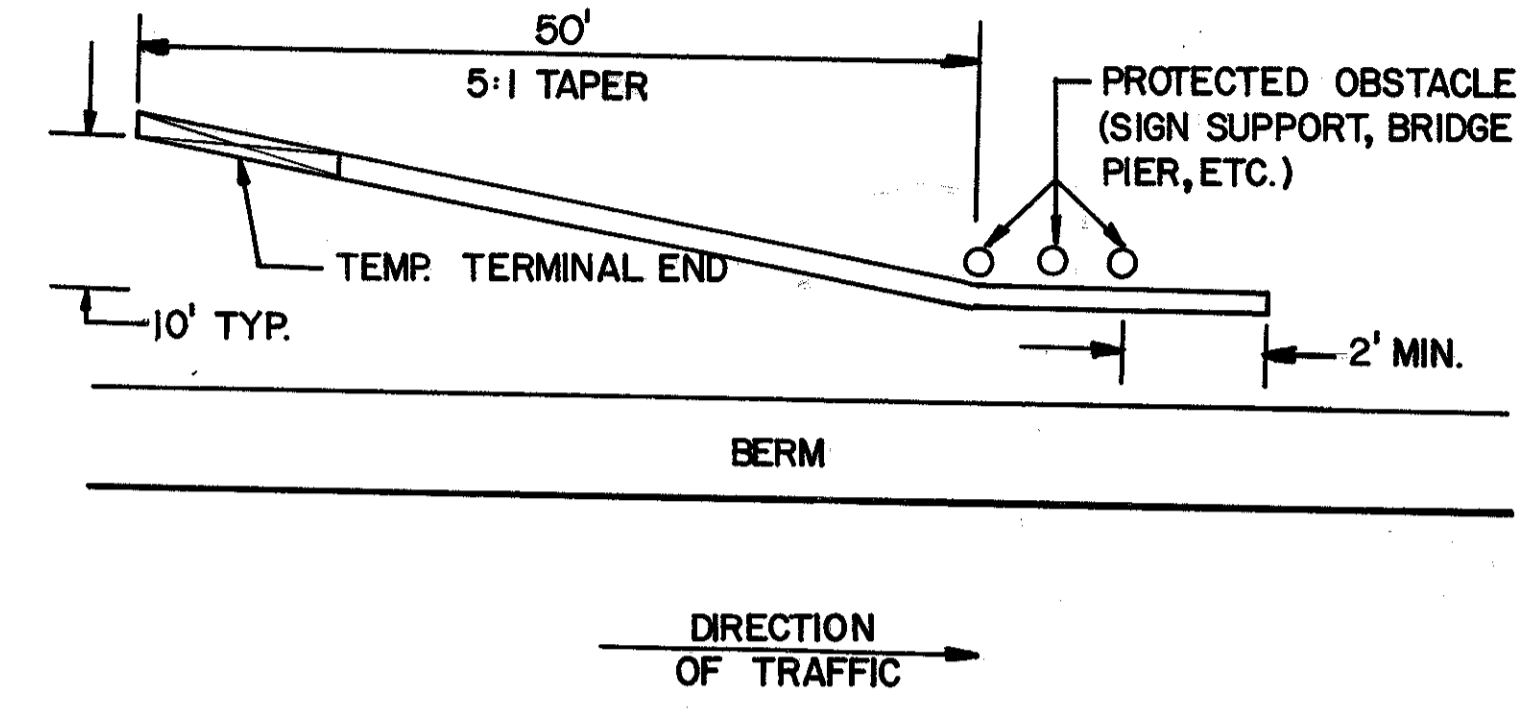
ADVANCE WARNING SIGNS				
	DISTANCE	SIGN	SIZE	DESCRIPTION
LEFT LANE CLOSED	500'	OW-60 D	48" X 48"	WIDTH TRANSITION (SYMBOLIC)
	1000'	OW-143	24" X 24"	35 MPH
		OW-123 MOD	48" X 48"	LEFT LANE CLOSED 1000'
	2000'	OW-123 MOD	48" X 48"	LEFT LANE CLOSED 2000'
	3000'	OW-134	48" X 48"	ROAD WORK AHEAD
5200'	OW-134	48" X 48"	ROAD WORK AHEAD	
RIGHT LANE CLOSED	500'	OW-60 G	48" X 48"	WIDTH TRANSITION (SYMBOLIC)
	1000'	OW-143	24" X 24"	35 MPH
		OW-122 MOD	48" X 48"	RIGHT LANE CLOSED 1000 FT.
	2000'	OW-122 MOD	48" X 48"	RIGHT LANE CLOSED 2000 FT.
	3000'	OW-134	48" X 48"	ROAD WORK AHEAD
5200'	OW-134	48" X 48"	ROAD WORK AHEAD	
LANE SHIFT (ADVANCE)	500'	OW-5	48" X 48"	LANE SHIFT (SYMBOLIC)
		OW-143	24" X 24"	35 MPH
	1000'	OC-53	48" X 48"	MAINTAIN PRESENT LANE
	2000'	OC-49 R	48" X 48"	RIGHT LANE MUST USE SHOULDER
		OW-145 A	30" X 16"	2000'
3000'	OC-39AL	48" X 48"	ALL TRUCKS LEFT 2 LANES	
LANE SHIFT (THRU)	500'	OC-49R	48" X 48"	RIGHT LANE MUST USE SHOULDER
	1500' c/c	OC-49R	48" X 48"	RIGHT LANE MUST USE SHOULDER
LANE SHIFT (END)	0'	OC-6	48" X 48"	LANE SHIFT (SYMBOLIC)
		OC-143	24" X 24"	35 MPH
EXIT RAMP ACROSS CLOSED LANE	GORE	OW-SPEC	48" X 48"	EXIT RAMP
	500'	OW-SPEC	48" X 48"	EXIT RAMP 500'
	1000'	OW-SPEC	48" X 48"	EXIT RAMP 1000'
EXIT ONLY LANE	500'	OW-SPEC	48" X 48"	RIGHT LANE MUST EXIT
	1000'	OW-SPEC	48" X 48"	RIGHT LANE MUST EXIT
	2000'	OW-SPEC	48" X 48"	RIGHT LANE MUST EXIT

DUAL SIGN INSTALLATION

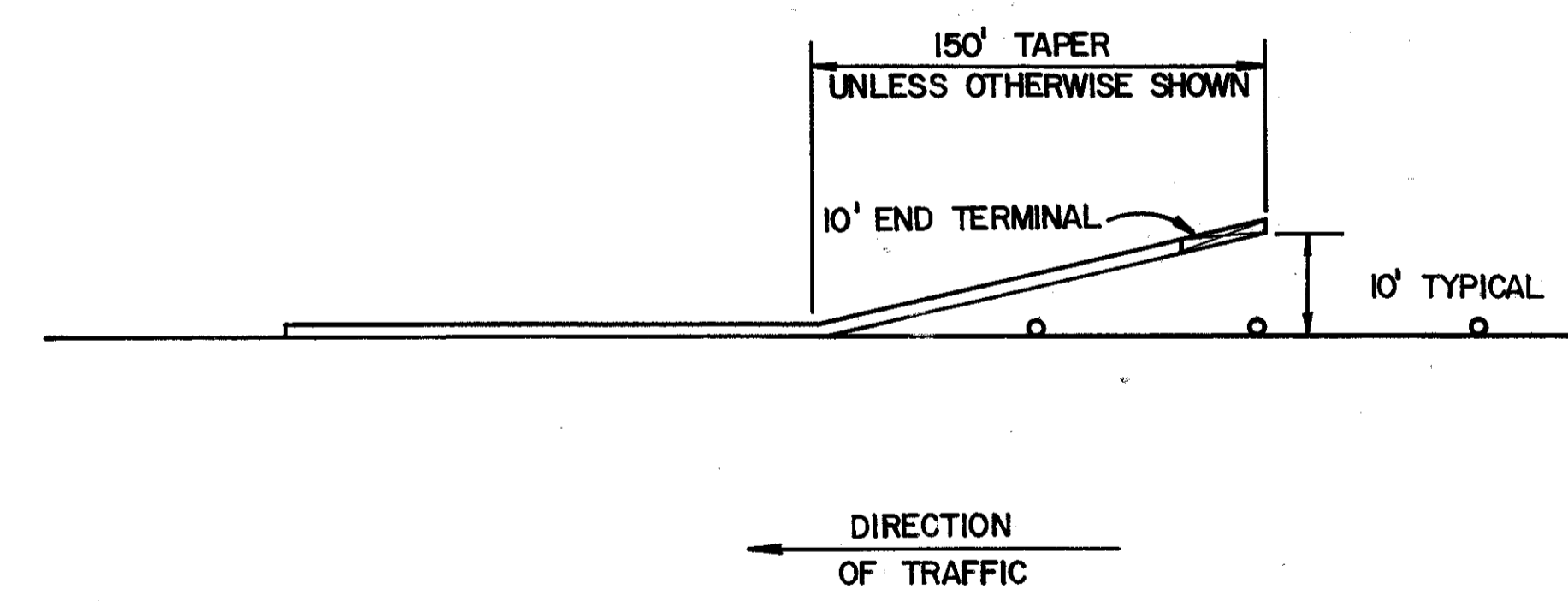
SINGLE INSTALLATION

ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS OR REDIRECTS TRAFFIC SHALL BE ERRECT BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHENEVER THEY ARE NOT APPLICABLE. THE SIGNS SHALL BE REQUIRED ON BOTH SIDES OF THE ROADWAY AND MOUNTED AT THE HEIGHT INDICATED ON THE PLATE C-1 OF THE "OMUTCD". THE SIGN LEGENDS AND LOCATIONS SHALL BE AS INDICATED IN THE FOLLOWING TABLE. DISTANCES ARE MEASURED FROM THE POINT OF RESTRICTION. SIGN SUPPORT POSTS SHALL BE MAXIMUM 4 LB. STEEL POST OR 4"X4" NOMINAL WOOD POSTS.

EXTRA ADVANCE WARNING SIGN GROUPS AS PER STANDARD DRAWING MT-95.30 SHALL BE INSTALLED WHEN DIRECTED BY THE ENGINEER.



TEMPORARY PROTECTION OF OBSTACLES



TYPICAL BARRIER TAPER

SCHEDULE OF LANES TO BE MAINTAINED			
APPROXIMATE STATION LIMITS	NO. OF THROUGH LANES EACH DIRECTION	NO. OF LANE TO BE MAINTAINED	PERMISSABLE ADDITIONAL LANE CLOSURES FOR WORK ITEMS ONLY
I-480 (EB)	4	3	10 AM TO 2 PM (A+B) 8 PM TO 6 AM (C)
I-480 (WB)	4	3	10 AM TO 2 PM (A+B) 8 PM TO 6 AM (C)
STA.1037+00 TO STA.1160+00	3	2	8 PM TO 6 AM (C)
STA.1160+00 TO STA.1177+03	3	2	8 PM TO 6 AM (C)
BROADWAY CONNECTOR(EB)	2	#1	**9AM TO 3 PM (C)
(WB)	2	#1	**9AM TO 3 PM (C)
RAMPS AND DIRECTIONAL LANES	1 OR MORE	#1	PROVIDE 2 LANES AT INTERSECTIONS WHENEVER POSSIBLE

* PHASE 2 ONLY

** PHASE 1 ONLY

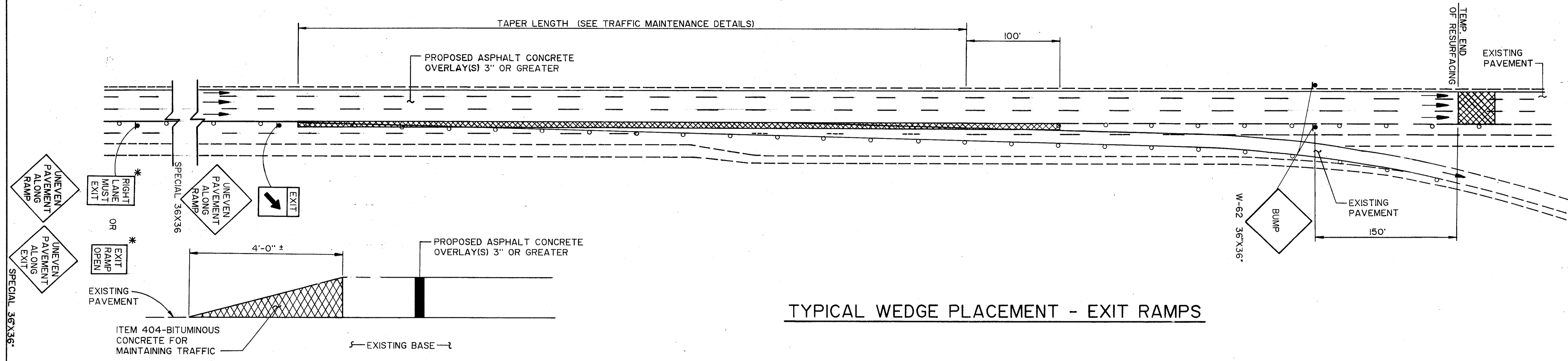
- A-CONSTRUCTION ZONE SET-UPS AND TAKE-DOWNS (LANE SHIFT)
- B-PARTIAL DEPTH PAVT. REPAIR, JOINT CLEANING AND SEALING
- C-ASPHALT OVERLAY

MAINTENANCE OF TRAFFIC

MISCELLANEOUS DETAILS

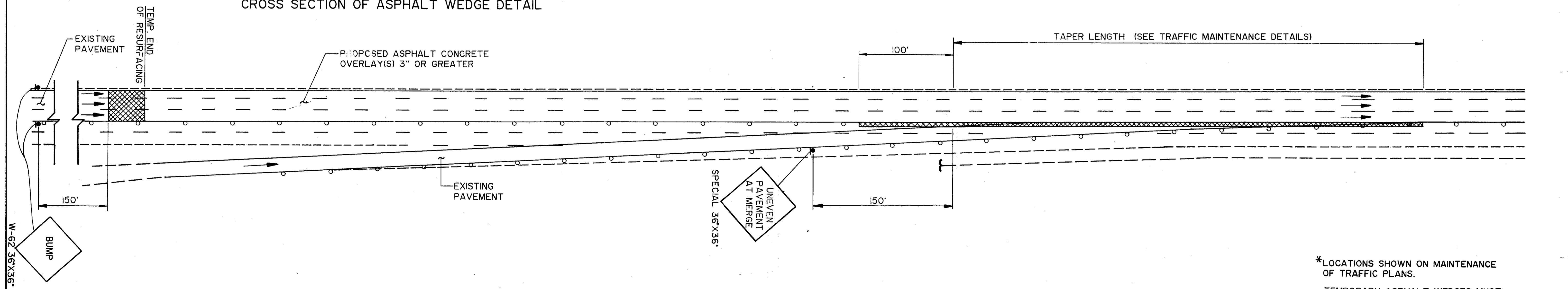
CUYAHOGA COUNTY
CUY-480-19.19

OHIO	57
FHWA REGION 5	171
FEDERAL PROJECT	



TYPICAL WEDGE PLACEMENT - EXIT RAMP

CROSS SECTION OF ASPHALT WEDGE DETAIL



TYPICAL WEDGE PLACEMENT - ENTRANCE RAMP

*LOCATIONS SHOWN ON MAINTENANCE OF TRAFFIC PLANS.

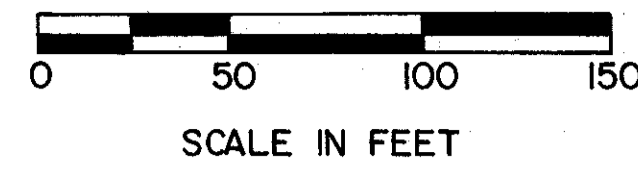
TEMPORARY ASPHALT WEDGES MUST BE IN PLACE PRIOR TO ALLOWING TRAFFIC TO CROSS LONGITUDINAL RESURFACING JOINT.

ITEM 404-BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC

NOTE: RIGHT CLOSURES SHOWN DETAILS ALSO APPLY TO LEFT CLOSURES

WEDGE REMOVAL SHALL BE PAID FOR UNDER ITEM 202- WEARING COURSE REMOVED

MAINTENANCE OF TRAFFIC



CUYAHOGA COUNTY
 CUY-480-19.19

OHIO
 FHWA REGION 5
 FEDERAL PROJECT

58
 171

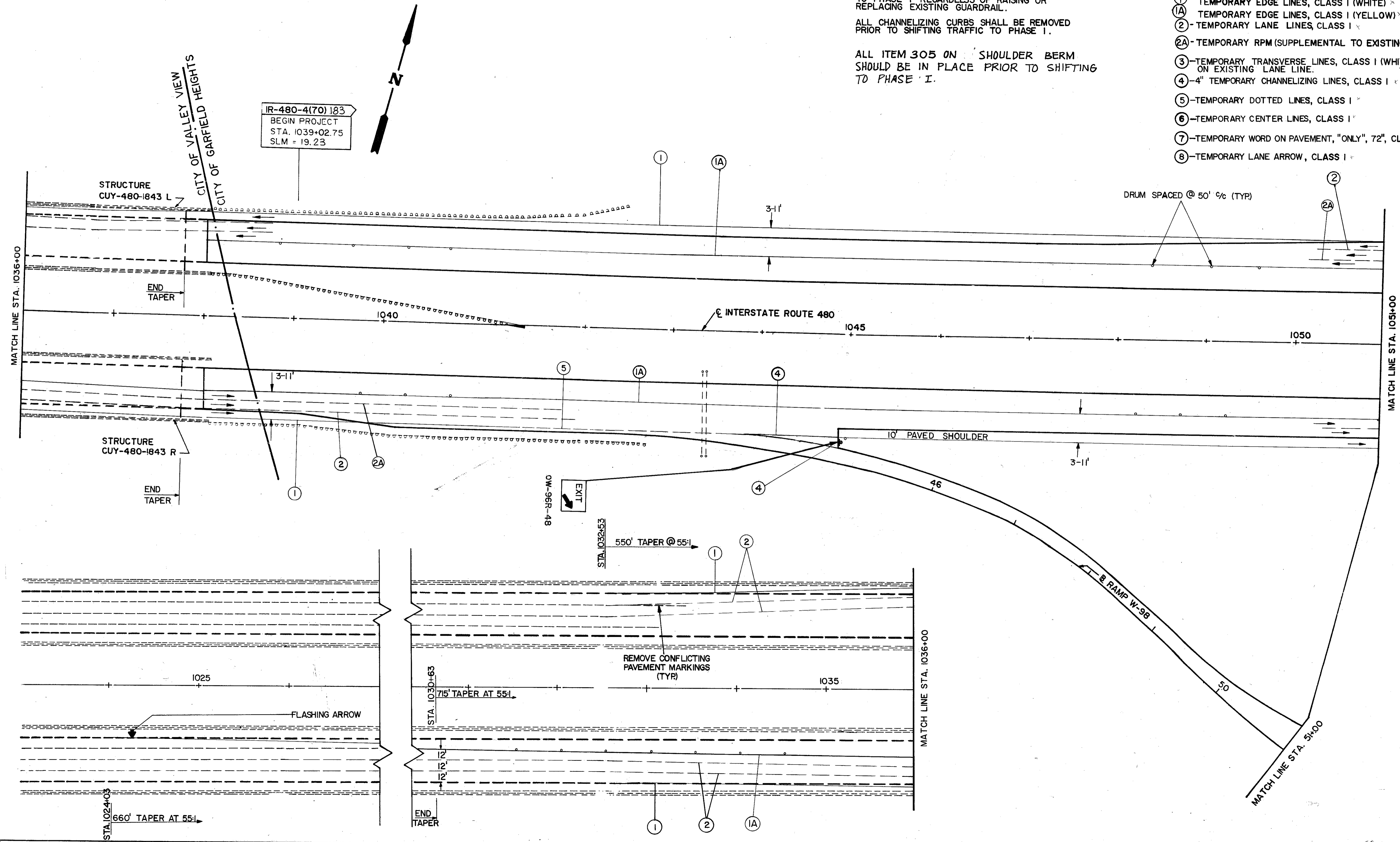
NOTE: ITEM 614 - BARRIER REFLECTORS SHALL BE PLACED BEFORE TRAFFIC IS SHIFTED TO PHASE I REGARDLESS OF RAISING OR REPLACING EXISTING GUARDRAIL.

ALL CHANNELIZING CURBS SHALL BE REMOVED PRIOR TO SHIFTING TRAFFIC TO PHASE I.

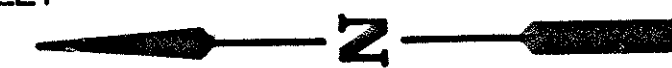
ALL ITEM 305 ON SHOULDER BERM SHOULD BE IN PLACE PRIOR TO SHIFTING TO PHASE I.

TEMPORARY PAVEMENT MARKING LEGEND

- ① TEMPORARY EDGE LINES, CLASS I (WHITE) x
- ①A TEMPORARY EDGE LINES, CLASS I (YELLOW) x
- ② TEMPORARY LANE LINES, CLASS I x
- ②A TEMPORARY RPM (SUPPLEMENTAL TO EXISTING LANE LINE ONLY)
- ③ TEMPORARY TRANSVERSE LINES, CLASS I (WHITE) x ON EXISTING LANE LINE.
- ④ 4" TEMPORARY CHANNELIZING LINES, CLASS I x
- ⑤ TEMPORARY DOTTED LINES, CLASS I x
- ⑥ TEMPORARY CENTER LINES, CLASS I x
- ⑦ TEMPORARY WORD ON PAVEMENT, "ONLY", 72", CLASS I x
- ⑧ TEMPORARY LANE ARROW, CLASS I x



MAINTENANCE OF TRAFFIC



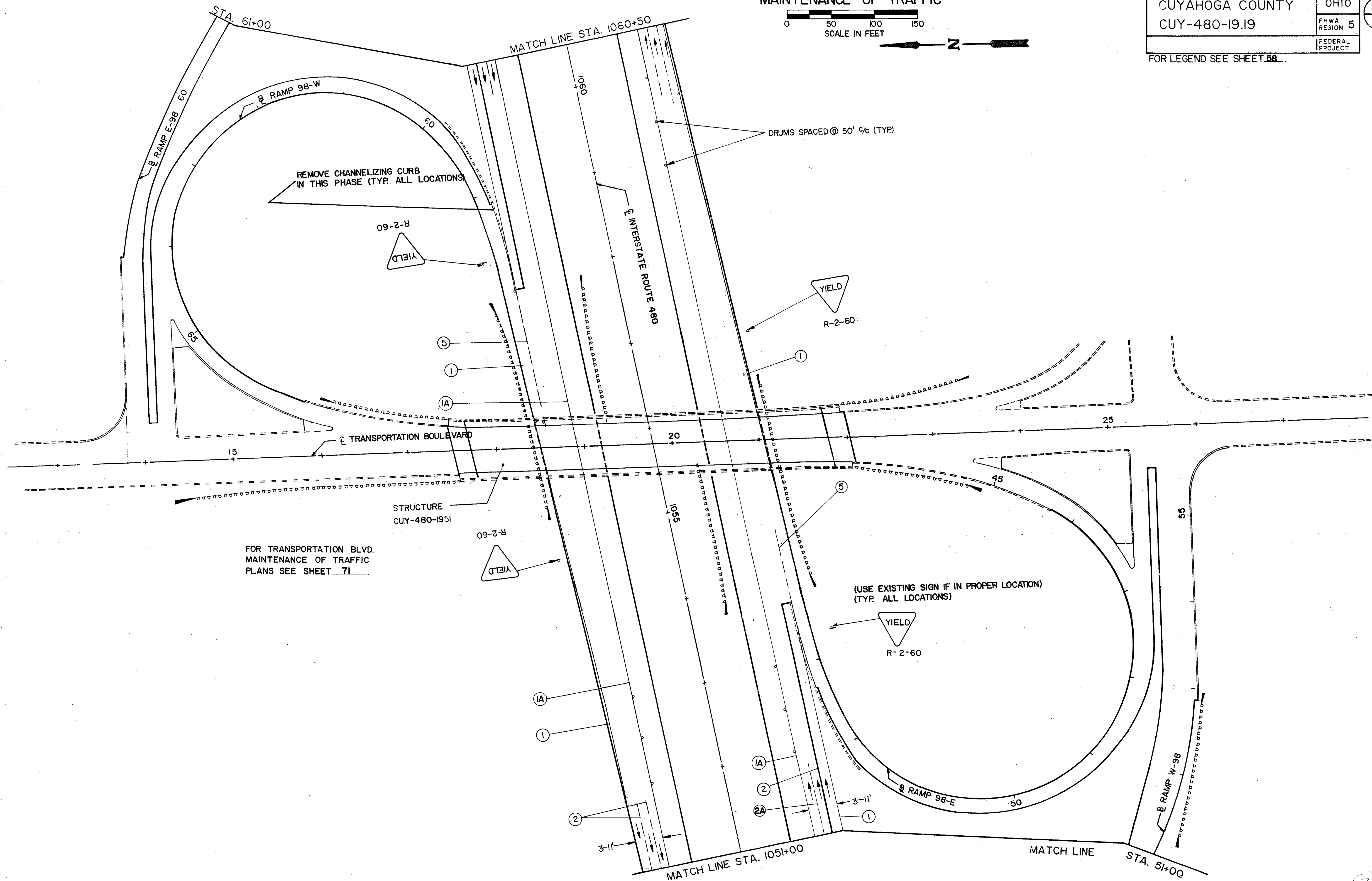
CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5

59
171

FEDERAL
PROJECT

FOR LEGEND SEE SHEET 58



REMOVE CHANNELIZING CURB
IN THIS PHASE (TYP. ALL LOCATIONS)

DRUMS SPACED @ 50' +/- (TYP)

FOR TRANSPORTATION BLVD.
MAINTENANCE OF TRAFFIC
PLANS SEE SHEET 71

(USE EXISTING SIGN IF IN PROPER LOCATION)
(TYP. ALL LOCATIONS)

YIELD
R-2-60

YIELD
R-2-60

YIELD
R-2-60

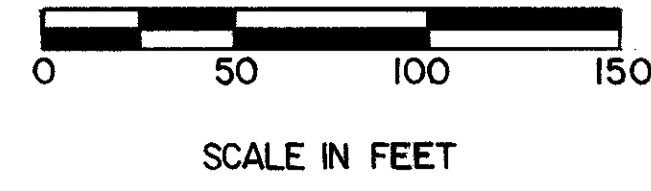
YIELD
R-2-60

YIELD
R-2-60

YIELD
R-2-60

YIELD
R-2-60

MAINTENANCE OF TRAFFIC

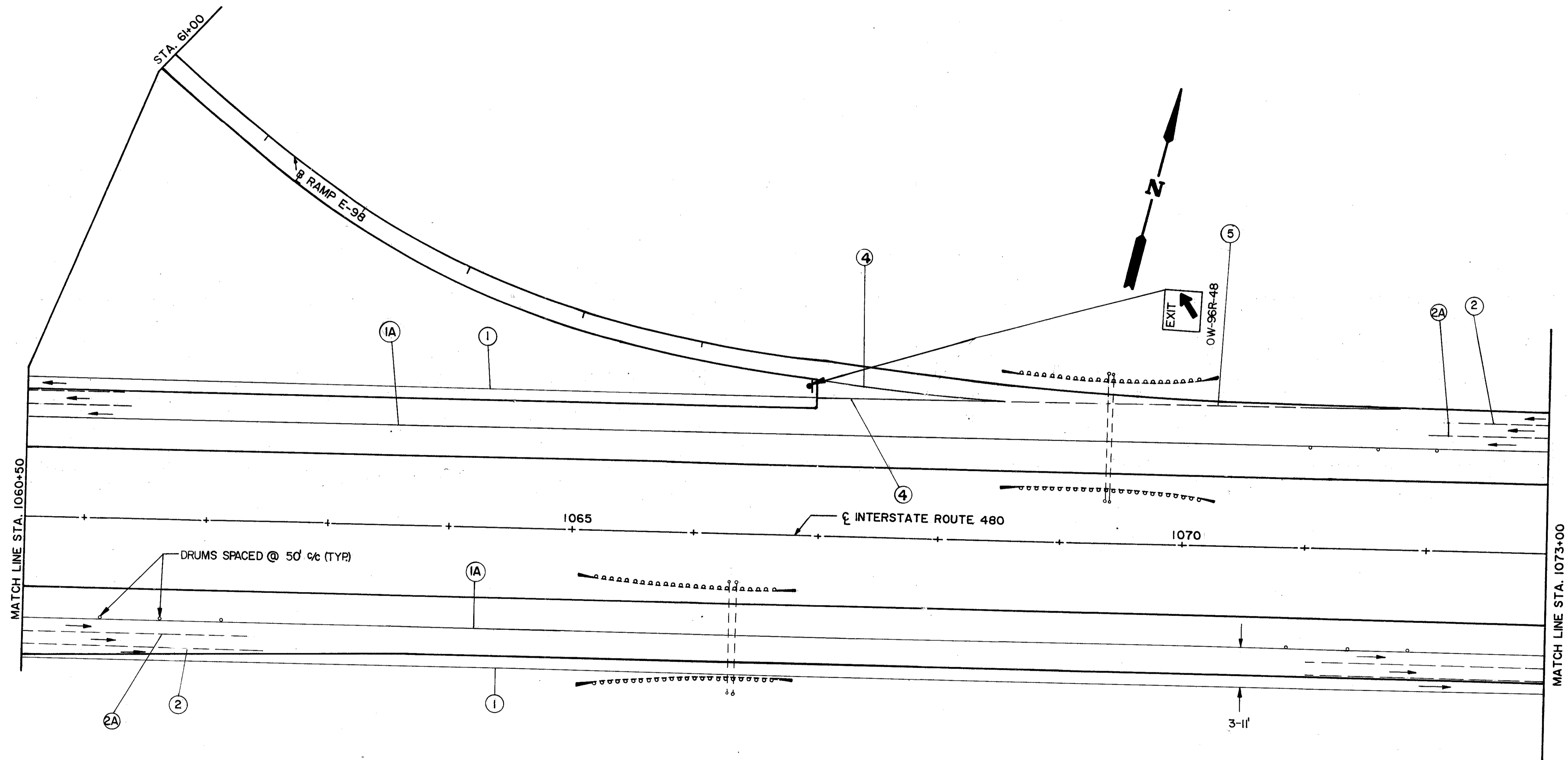


CUYAHOGA COUNTY
CUY-480-19.19

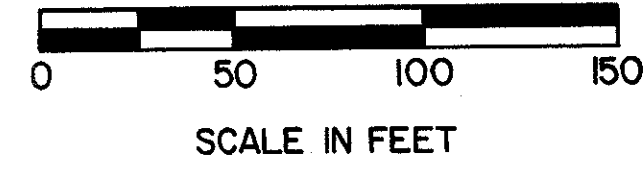
OHIO
FHWA
REGION 5
FEDERAL
PROJECT

60
171

FOR LEGEND SEE SHEET 58



MAINTENANCE OF TRAFFIC

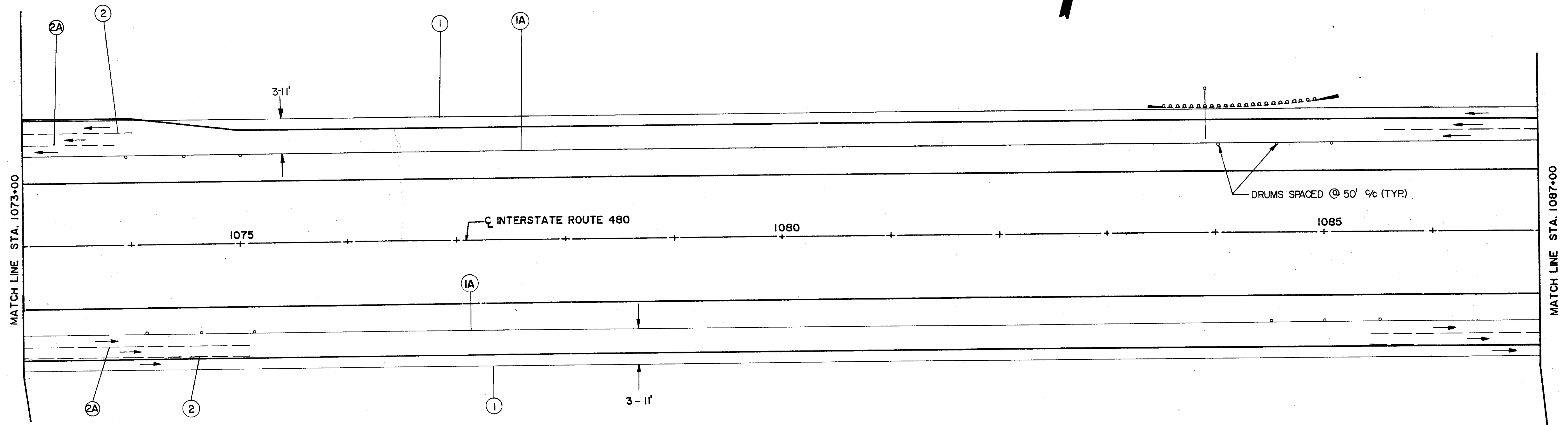
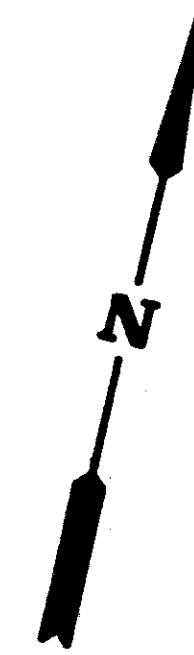


CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

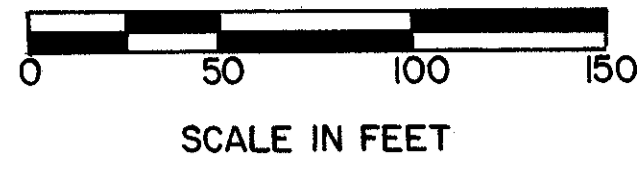
61
171

FOR LEGEND SEE SHEET 58



4

MAINTENANCE OF TRAFFIC

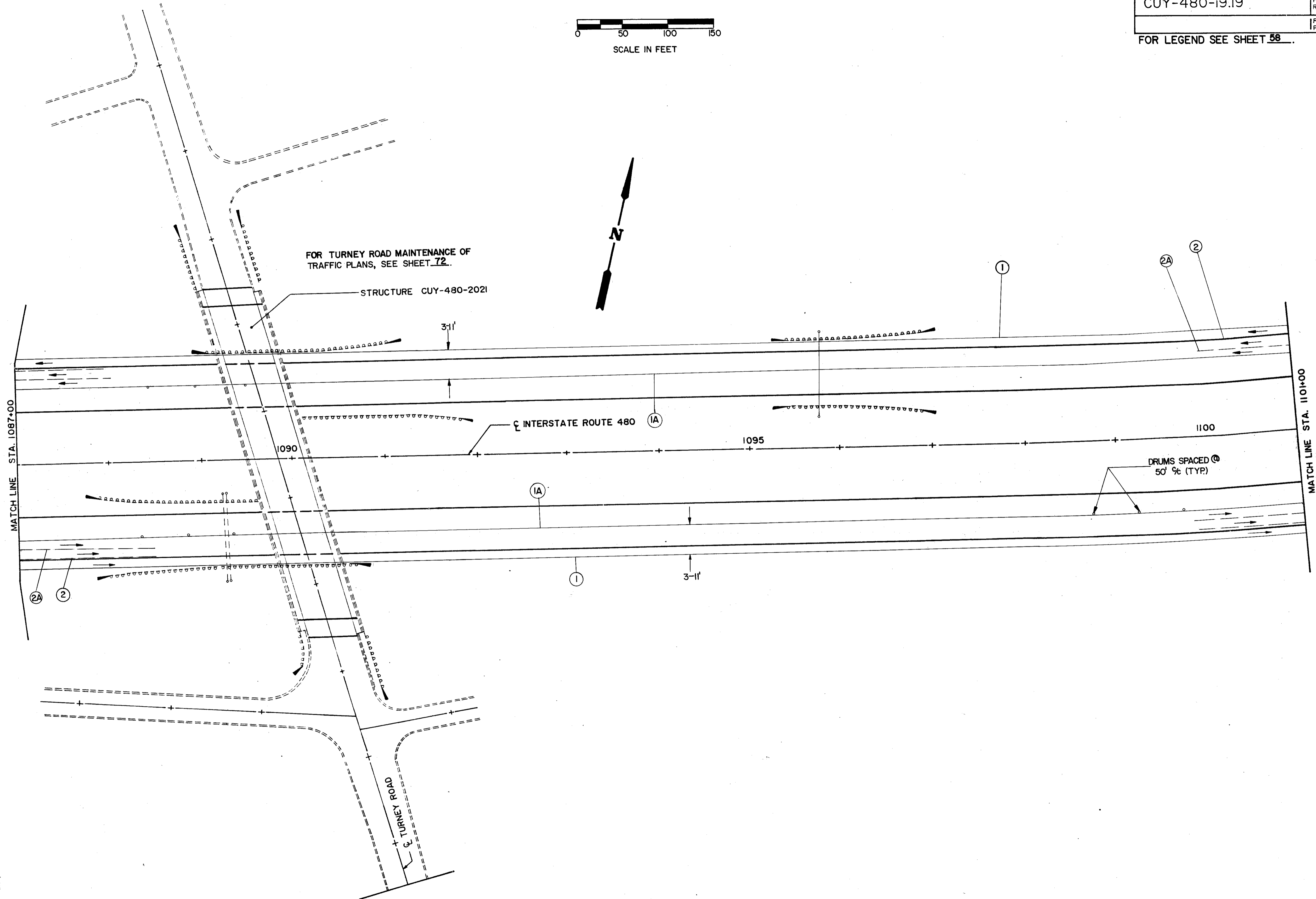


CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

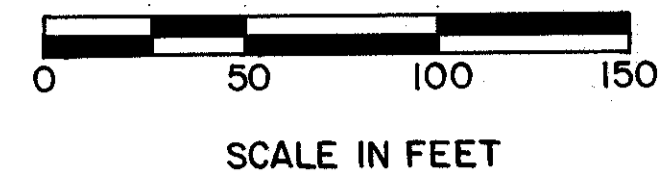
62
171

FOR LEGEND SEE SHEET 58



5

MAINTENANCE OF TRAFFIC

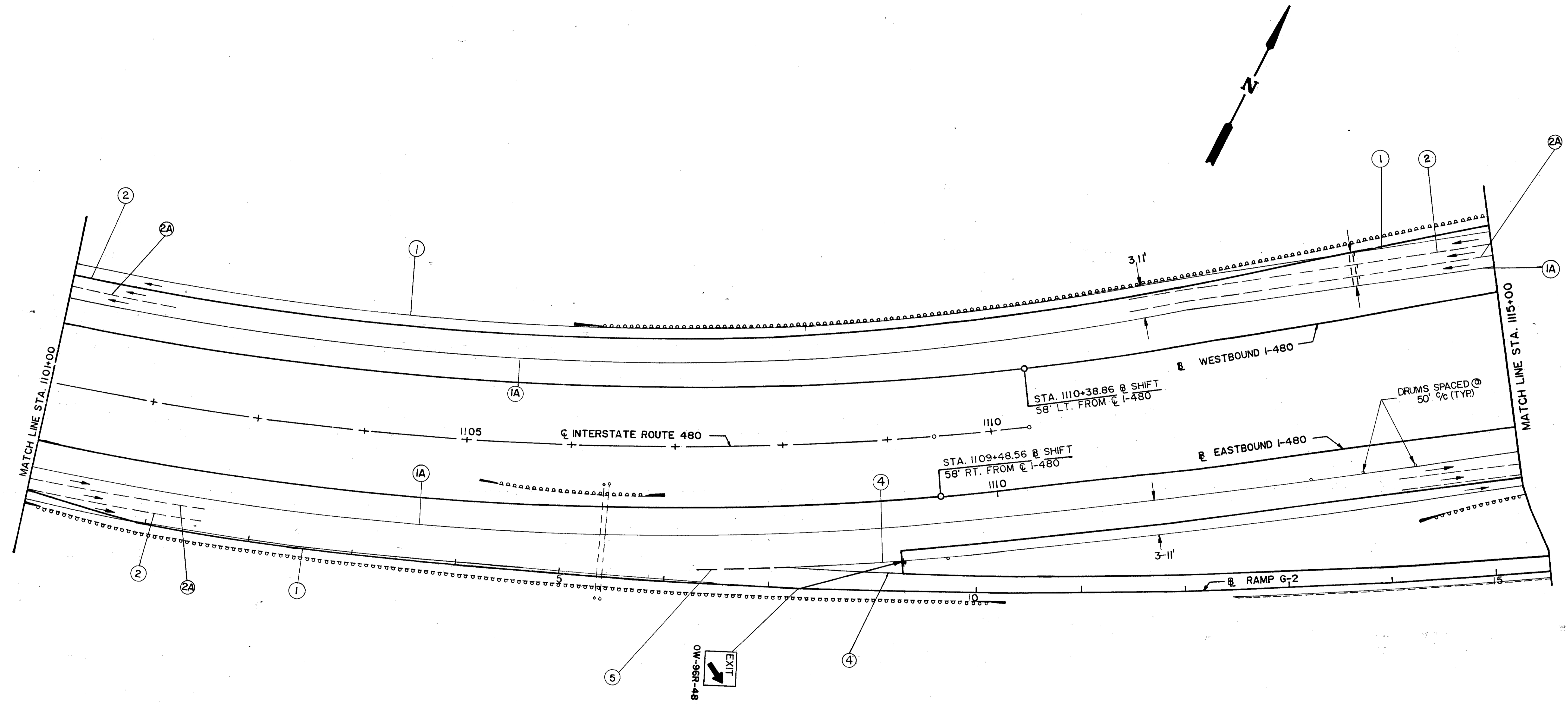


CUYAHOGA COUNTY
CUY-480-19.19

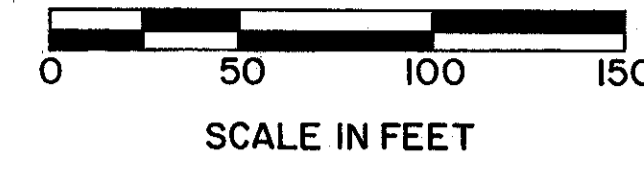
OHIO
FHWA REGION 5
FEDERAL PROJECT

63
171

FOR LEGEND SEE SHEET 58



MAINTENANCE OF TRAFFIC



CUYAHOGA COUNTY
CUY-480-19.19

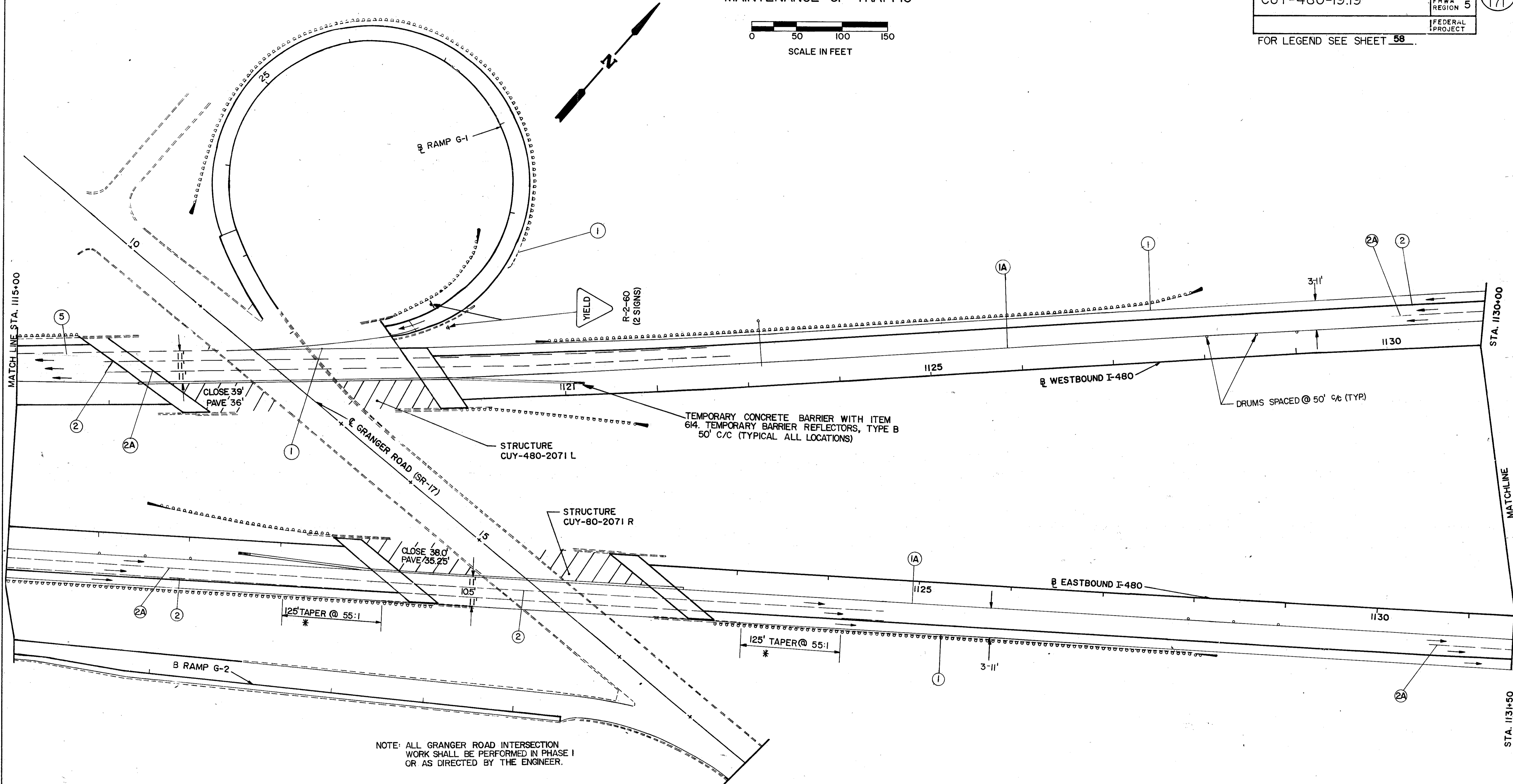
OHIO

FHWA
REGION 5

FEDERAL
PROJECT

64
171

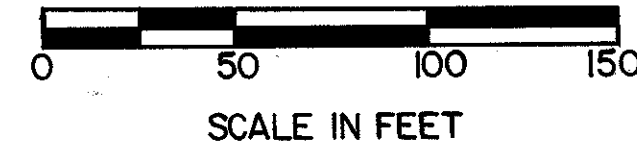
FOR LEGEND SEE SHEET 58



NOTE: ALL GRANGER ROAD INTERSECTION
WORK SHALL BE PERFORMED IN PHASE I
OR AS DIRECTED BY THE ENGINEER.

* TAPER REBUILT SHOULDER 10' TO 11.25'
WIDE IN 100' (TYP.)

MAINTENANCE OF TRAFFIC

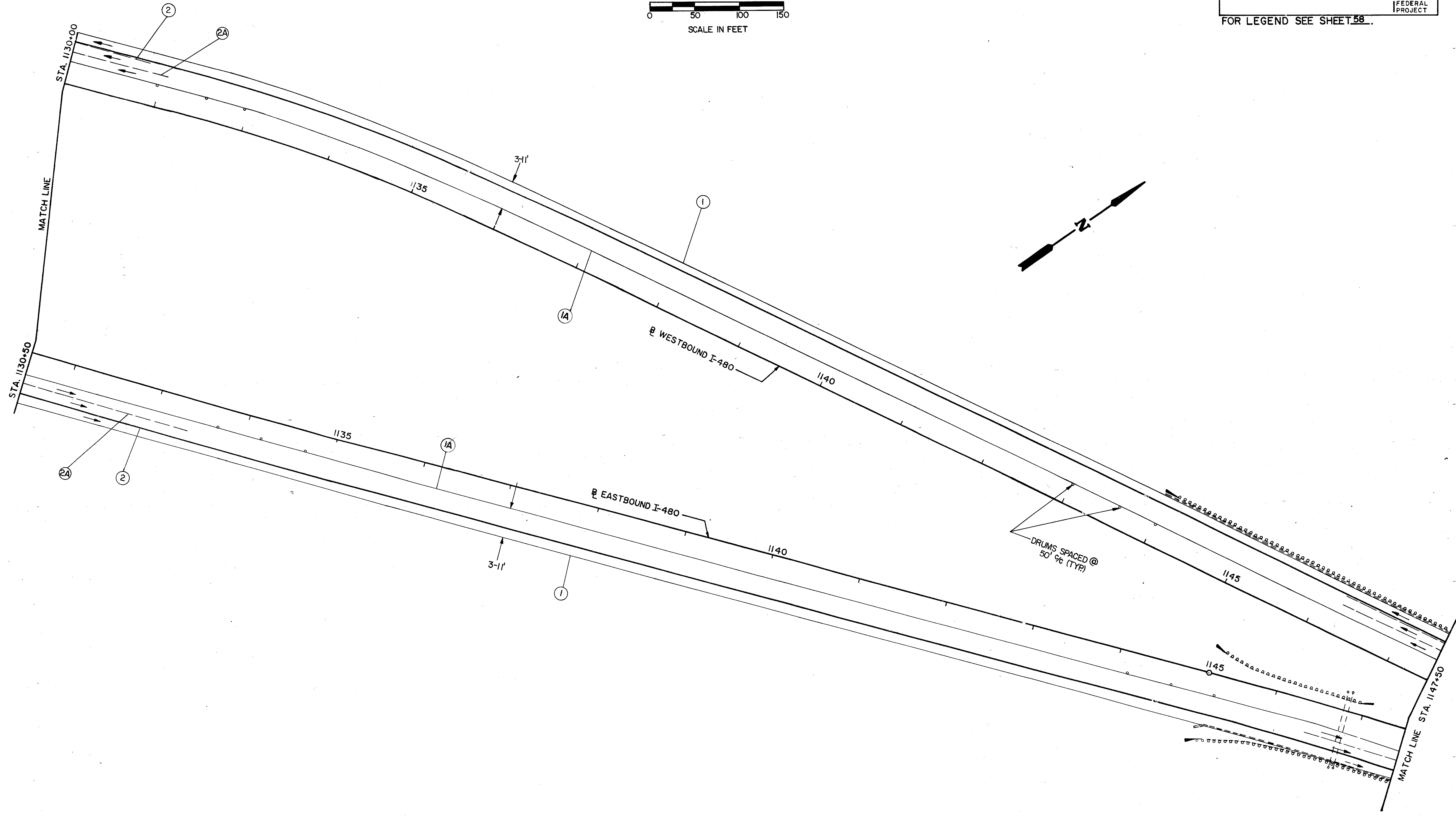
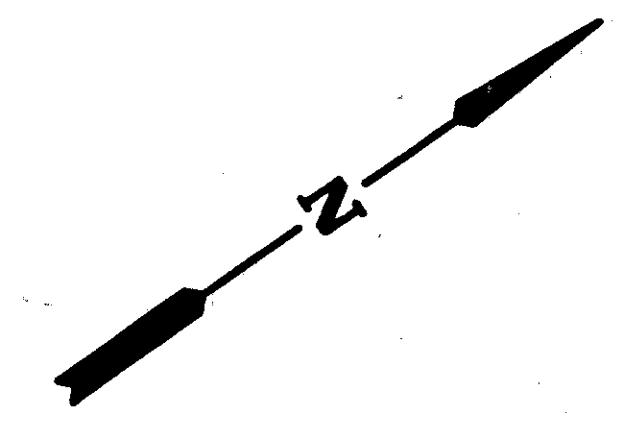


CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

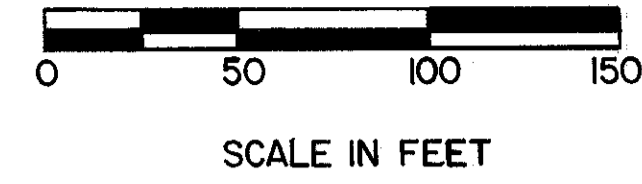
65
171

FOR LEGEND SEE SHEET 58.



8

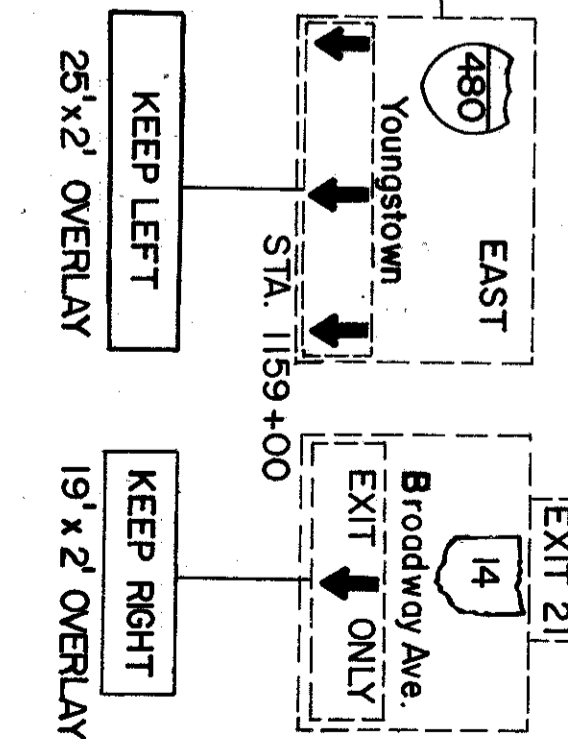
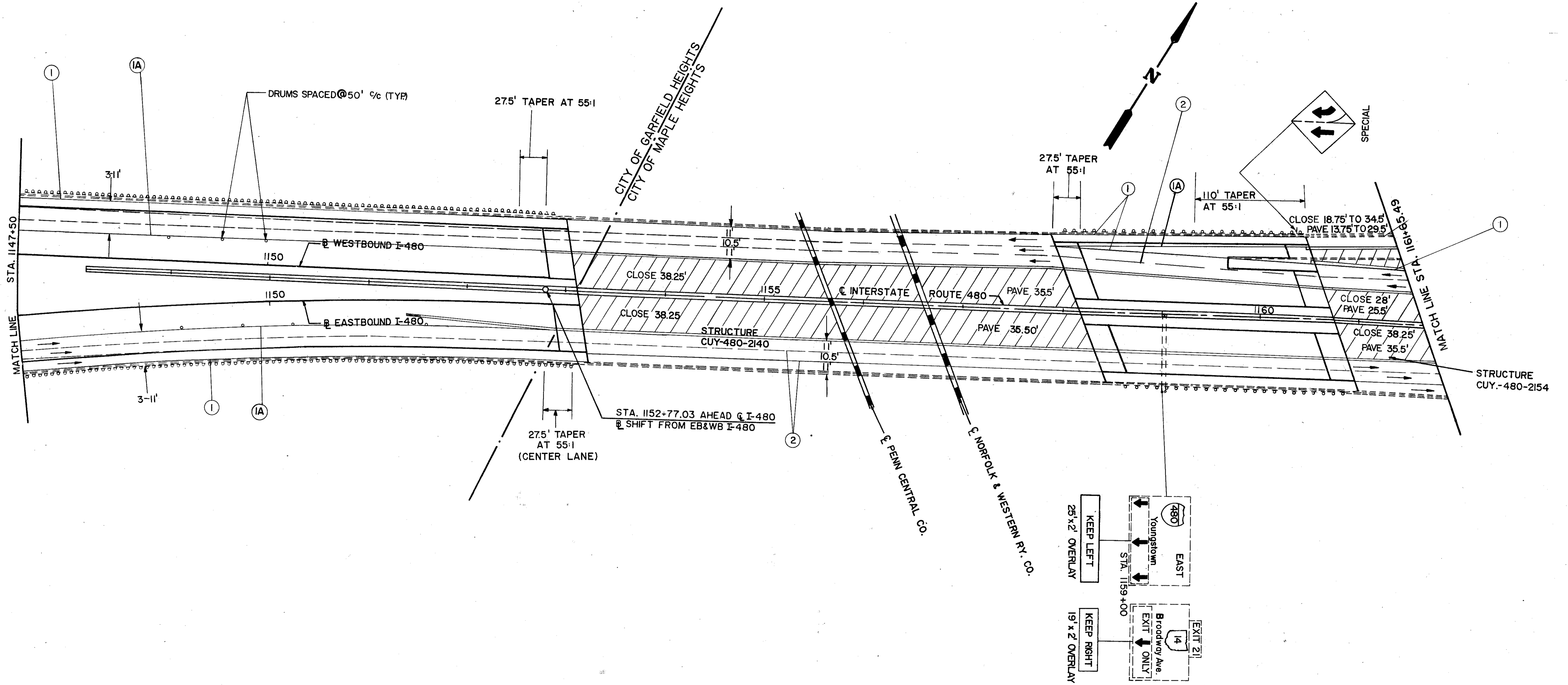
MAINTENANCE OF TRAFFIC



CUYAHOGA COUNTY
CUY-480-19.19

OHIO	66
FHWA REGION 5	171
FEDERAL PROJECT	

FOR LEGEND SEE SHEET 58



MAINTENANCE OF TRAFFIC



SCALE IN FEET

CUYAHOGA COUNTY

CUY-480-19.19

OHIO

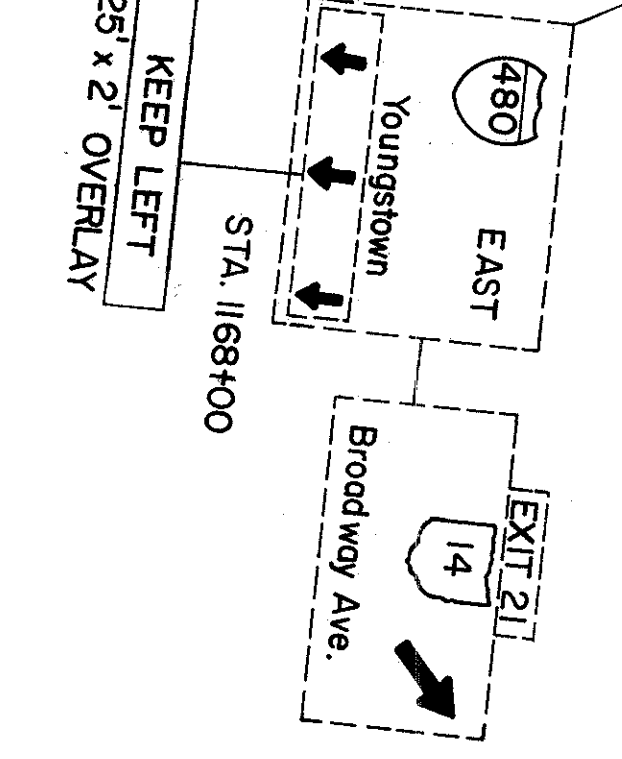
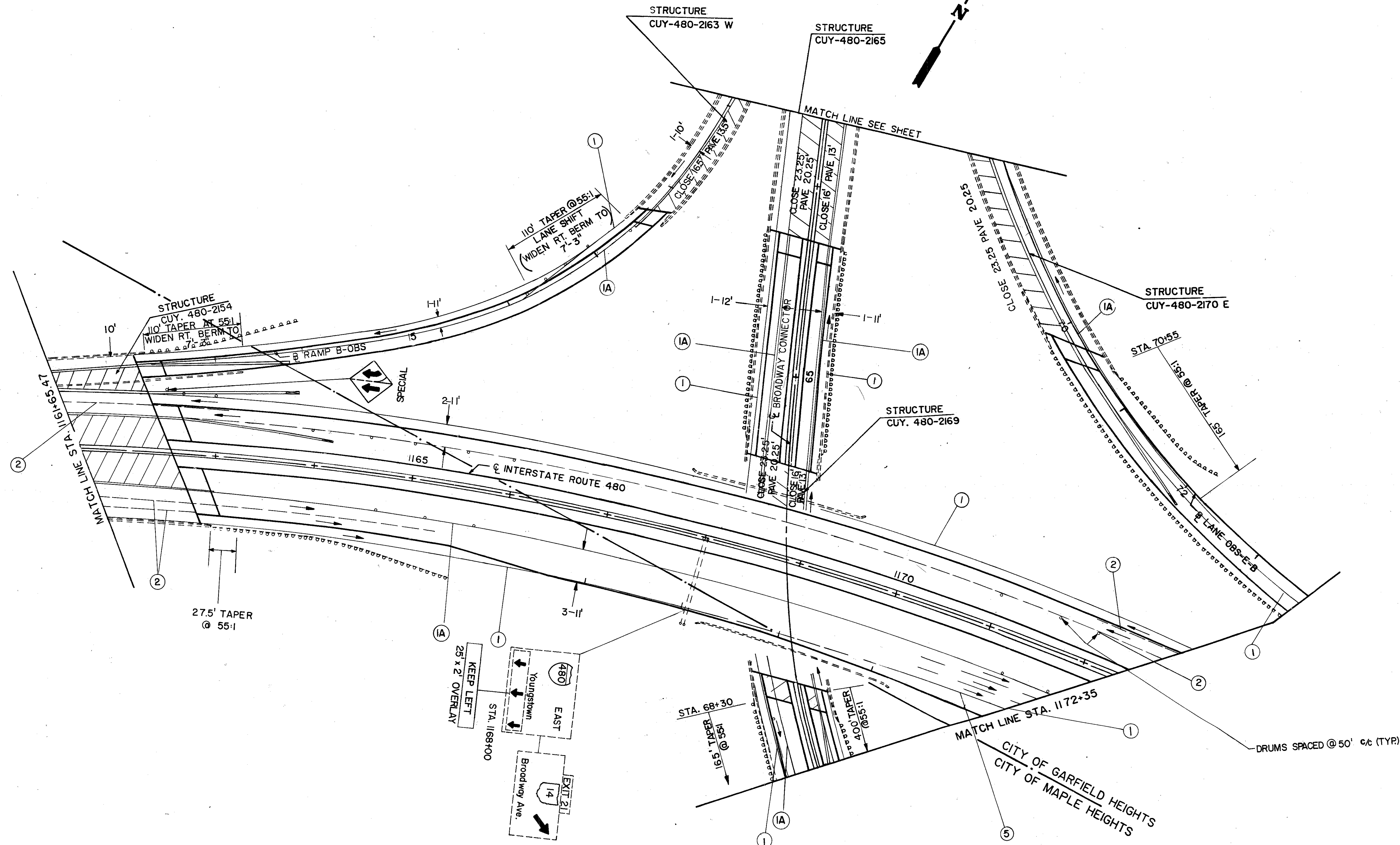
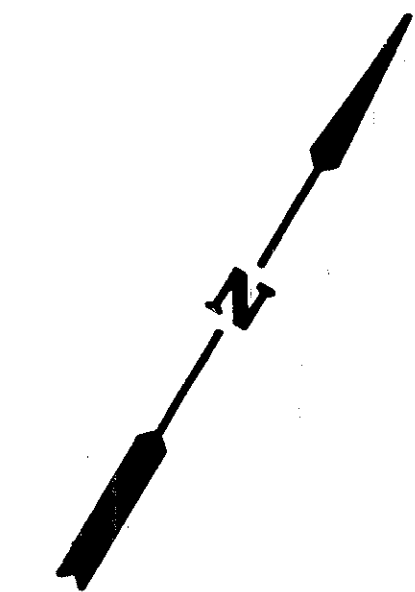
FHWA REGION 5

67

171

FEDERAL PROJECT

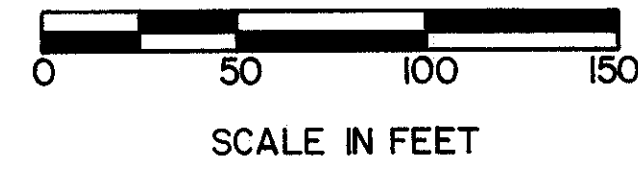
FOR LEGEND SEE SHEET 58



CITY OF GARFIELD HEIGHTS
CITY OF MAPLE HEIGHTS

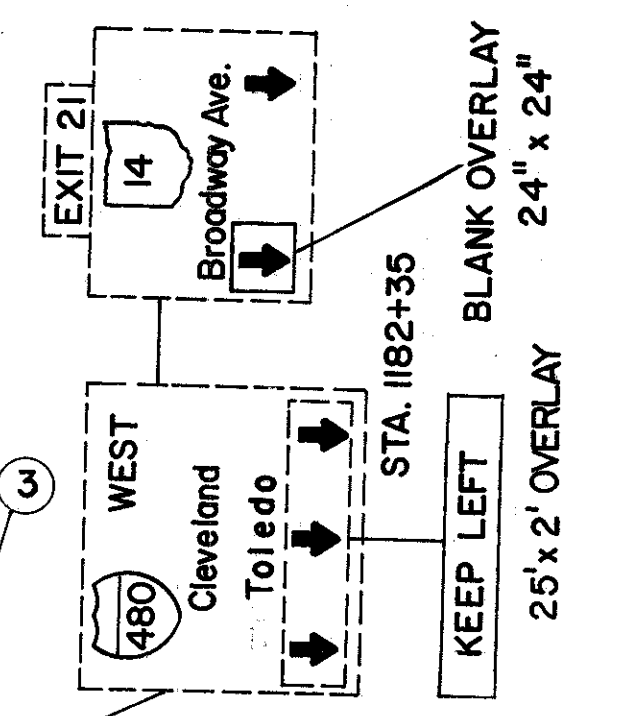
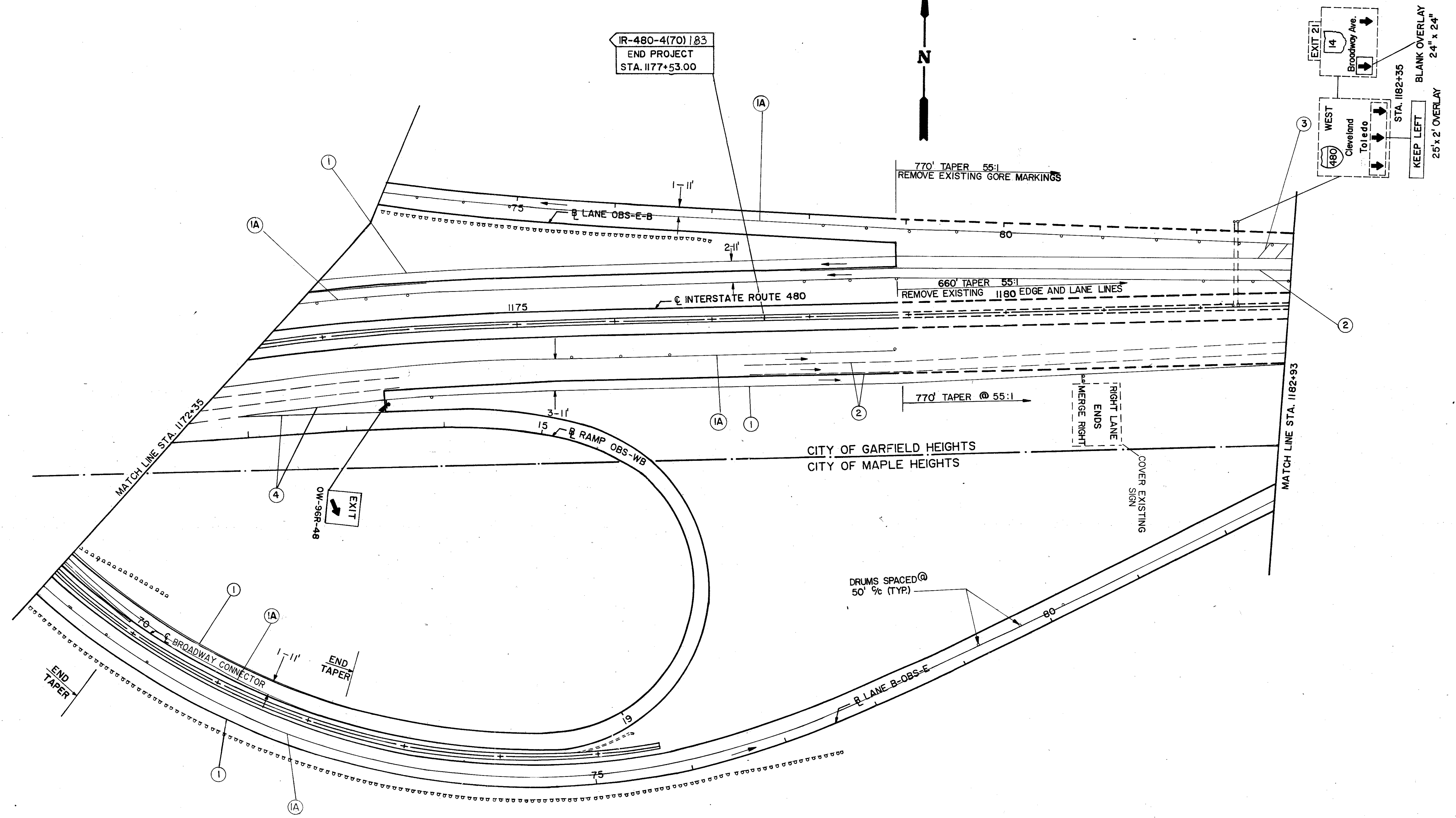
DRUMS SPACED @ 50' @ (TYR)

MAINTENANCE OF TRAFFIC



FOR LEGEND SEE SHEET 58

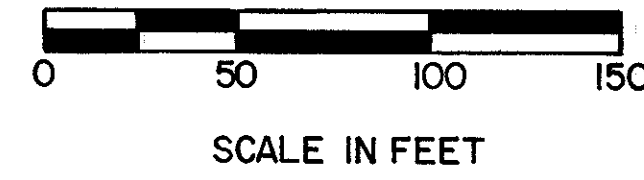
IR-480-4(70)183
END PROJECT
STA. 1177+53.00



CITY OF GARFIELD HEIGHTS
CITY OF MAPLE HEIGHTS

DRUMS SPACED @
50' % (TYP.)

MAINTENANCE OF TRAFFIC



CUYAHOGA COUNTY
CUY-480-19.19

OHIO

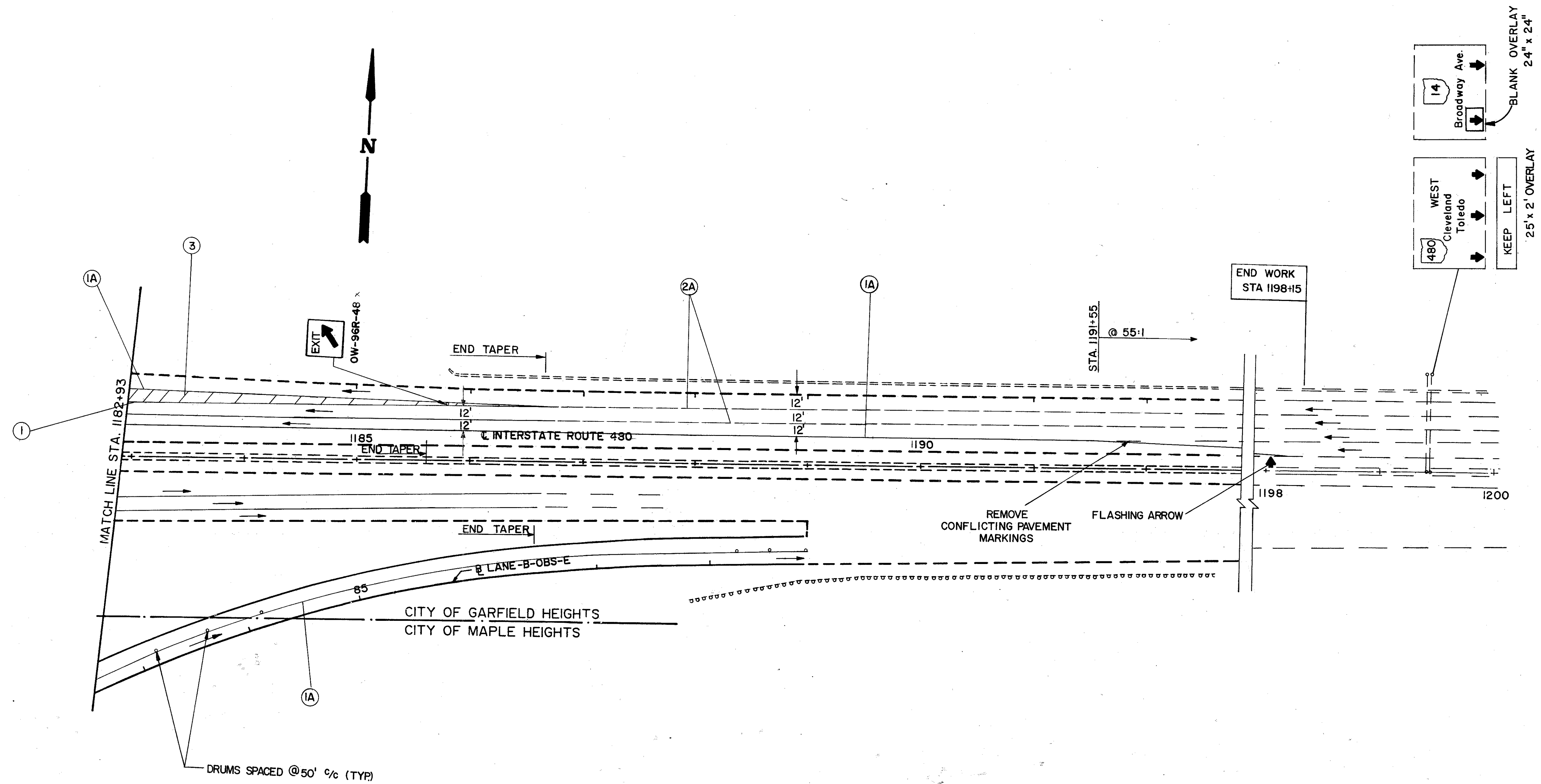
FHWA
REGION 5

FEDERAL
PROJECT

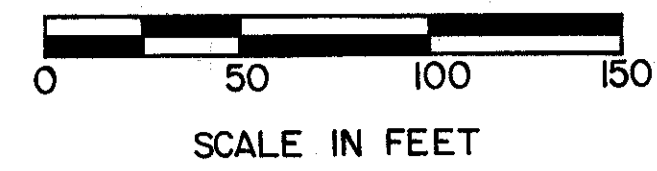
69

171

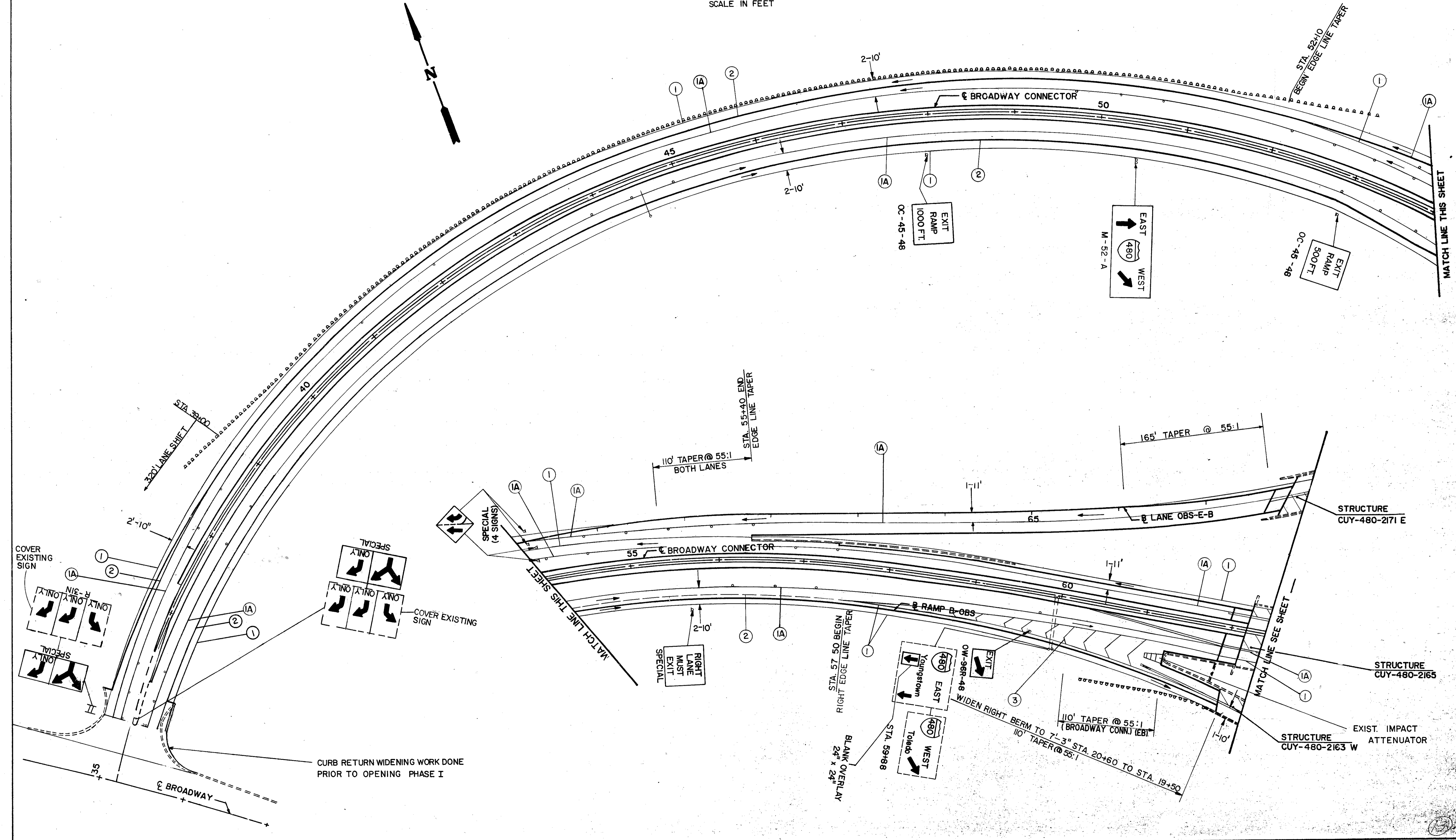
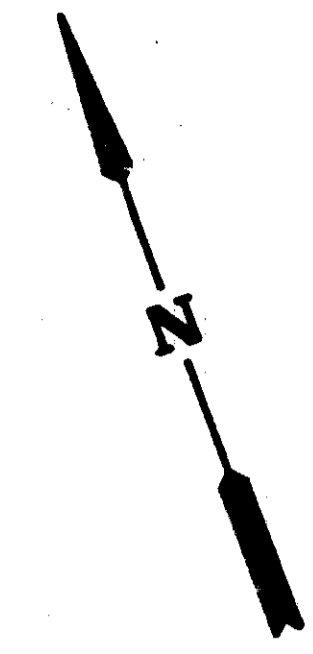
FOR LEGEND SEE SHEET 58



MAINTENANCE OF TRAFFIC



FOR LEGEND SEE SHEET 58



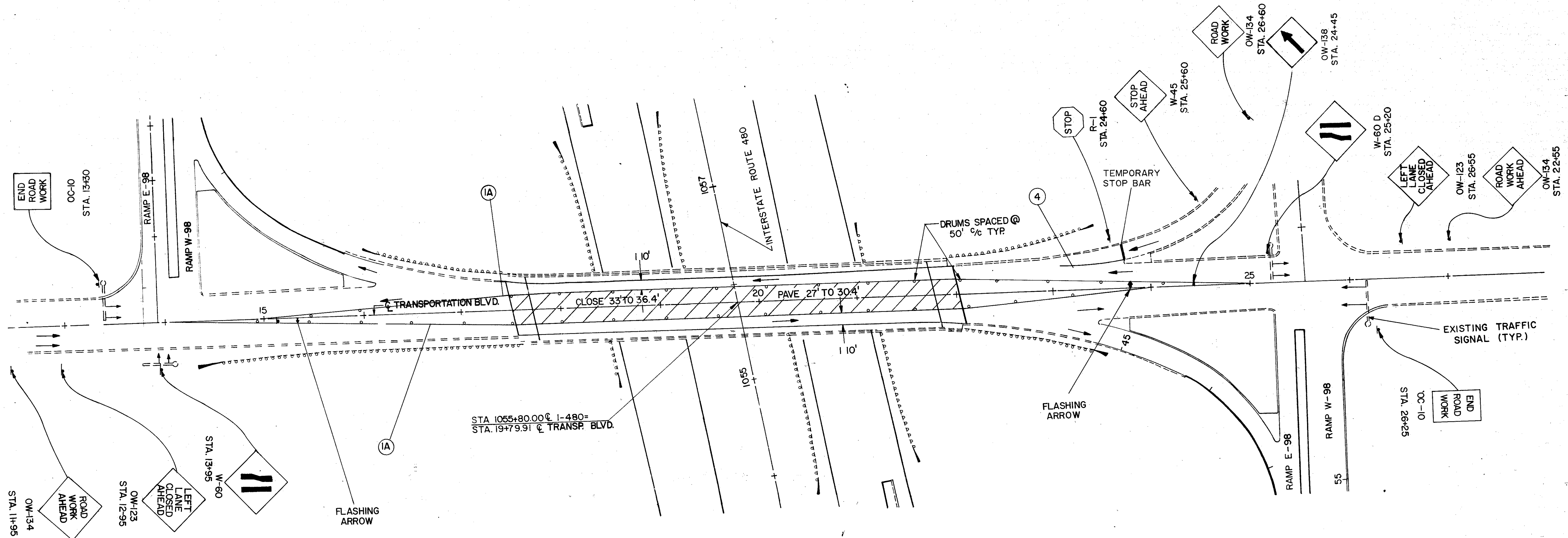
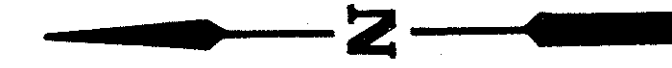
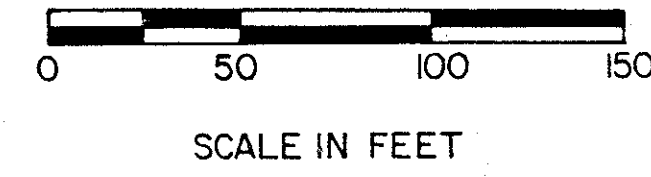
CURB RETURN WIDENING WORK DONE PRIOR TO OPENING PHASE I

MAINTENANCE OF TRAFFIC

CUYAHOGA COUNTY
 CUY 480 19.19

OHIO	71
FHWA REGION 5	171
FEDERAL PROJECT	

FOR LEGEND SEE SHEET 58



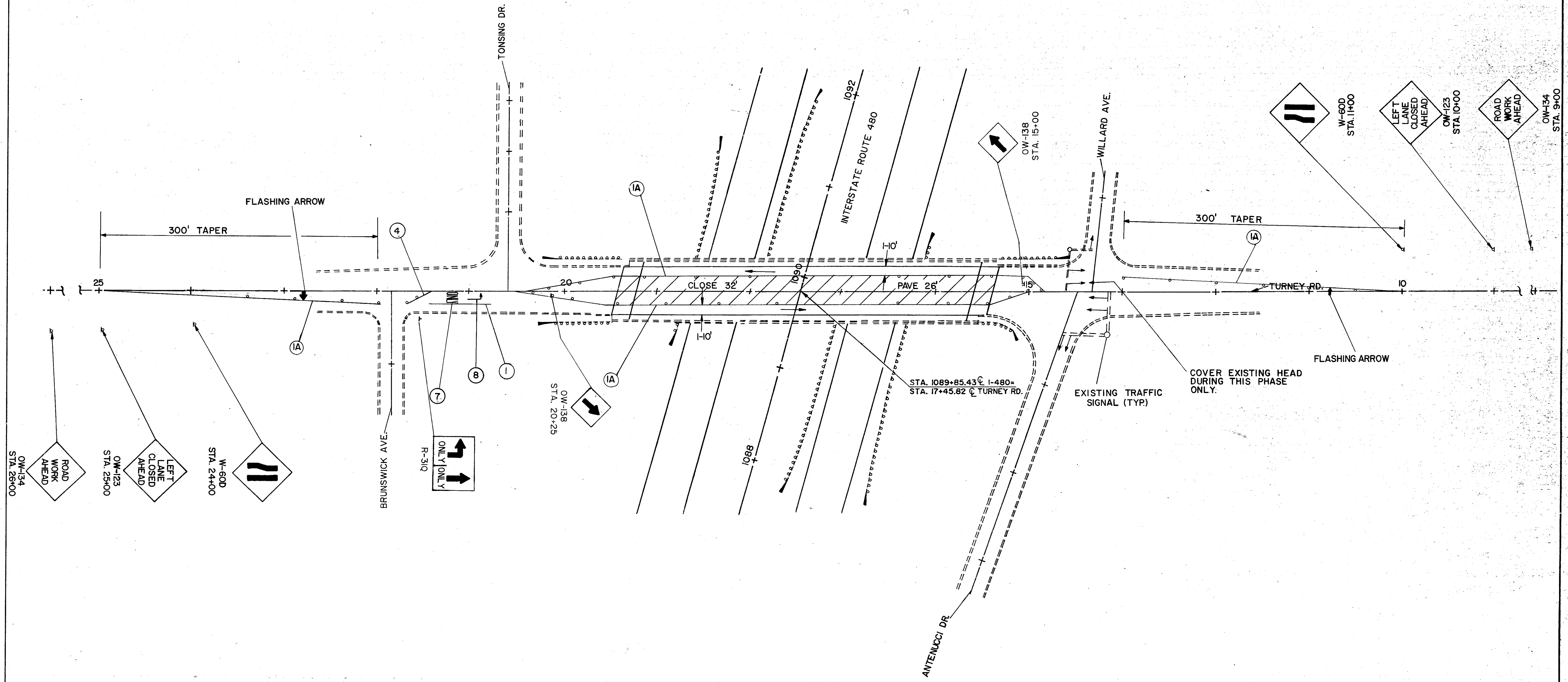
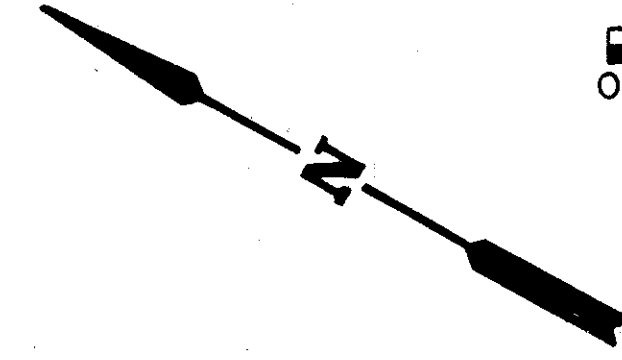
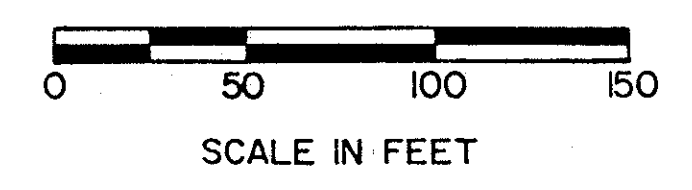
MAINTENANCE OF TRAFFIC

CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA REGION 5
FEDERAL PROJECT

72
171

FOR LEGEND SEE SHEET 58



MAINTENANCE OF TRAFFIC

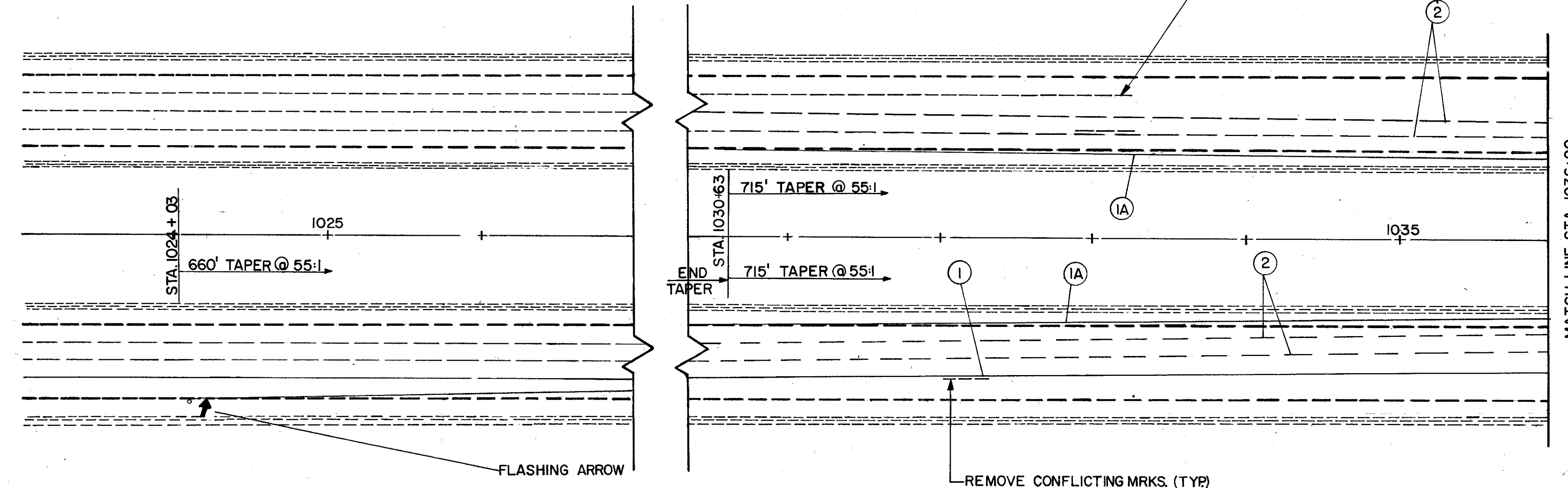
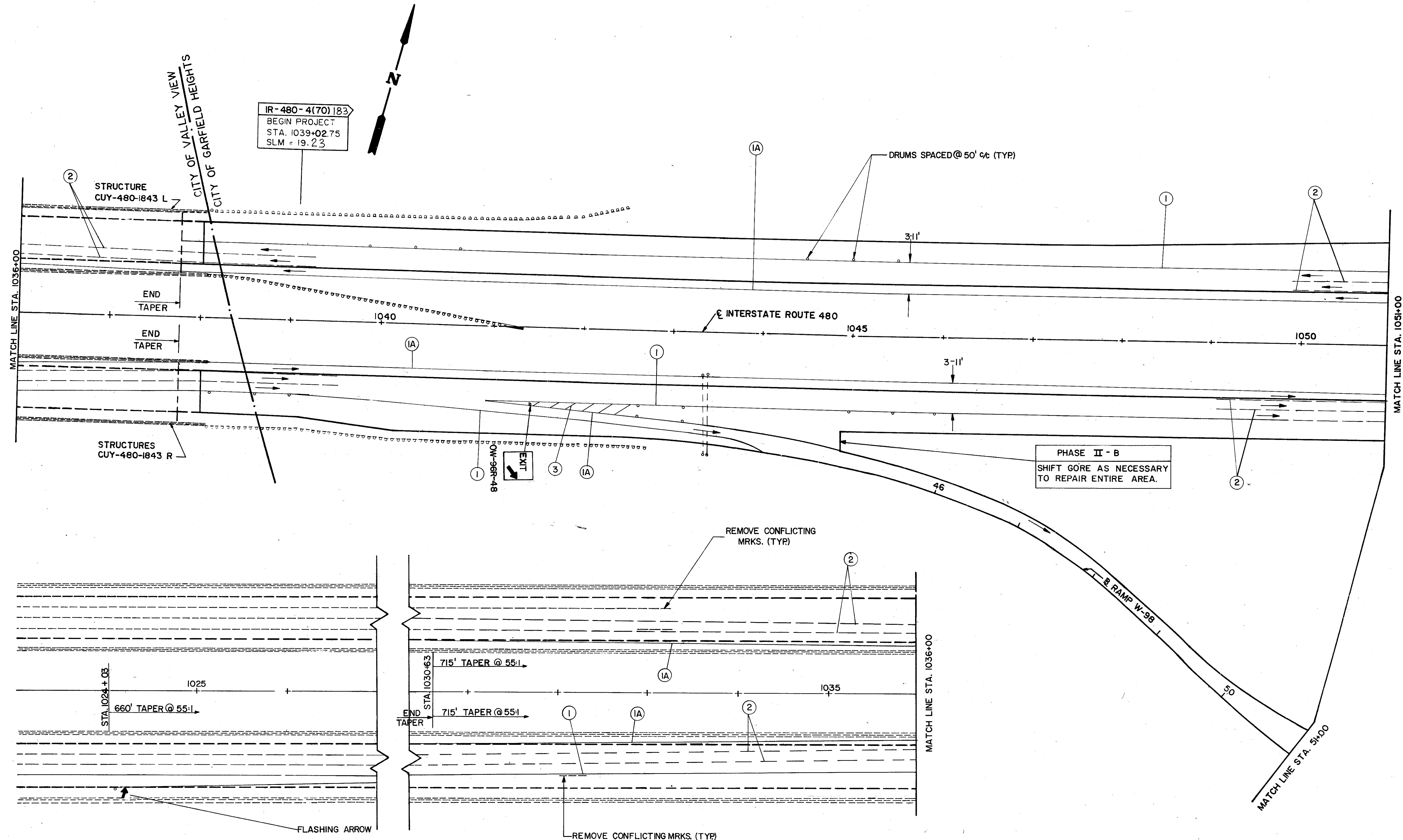


CUYAHOGA COUNTY
CUY-480-19.19

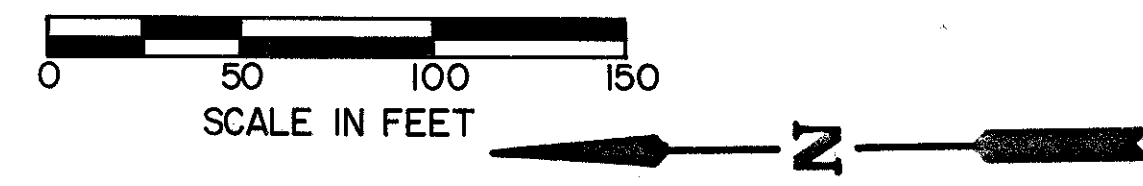
OHIO
FHWA
REGION 5
FEDERAL
PROJECT

73
171

FOR LEGEND SEE SHEET 58.



MAINTENANCE OF TRAFFIC

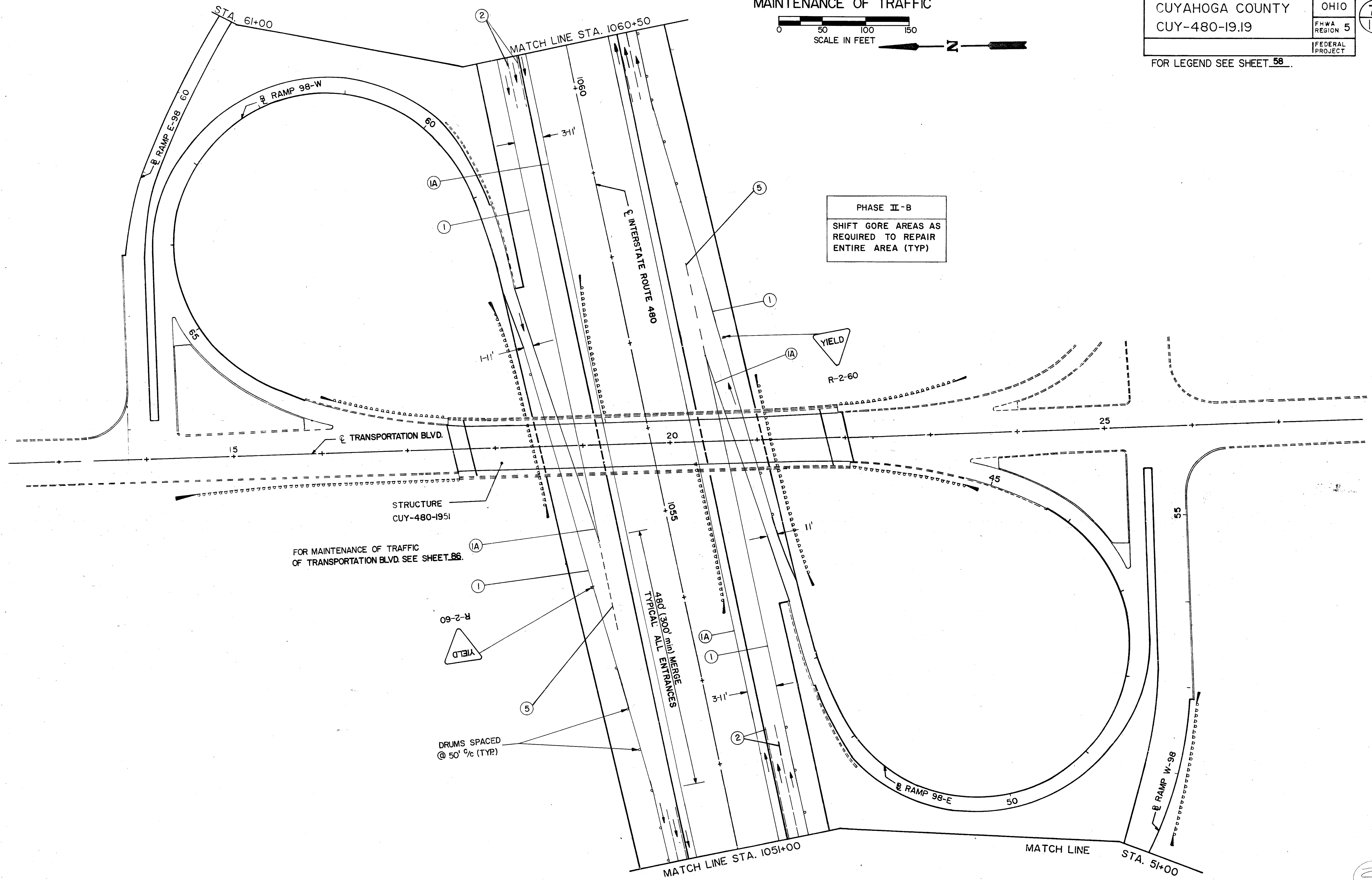


CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

74
171

FOR LEGEND SEE SHEET 58



FOR MAINTENANCE OF TRAFFIC
OF TRANSPORTATION BLVD. SEE SHEET 58.

PHASE II-B
SHIFT GORE AREAS AS
REQUIRED TO REPAIR
ENTIRE AREA (TYP)

STRUCTURE
CUY-480-1951

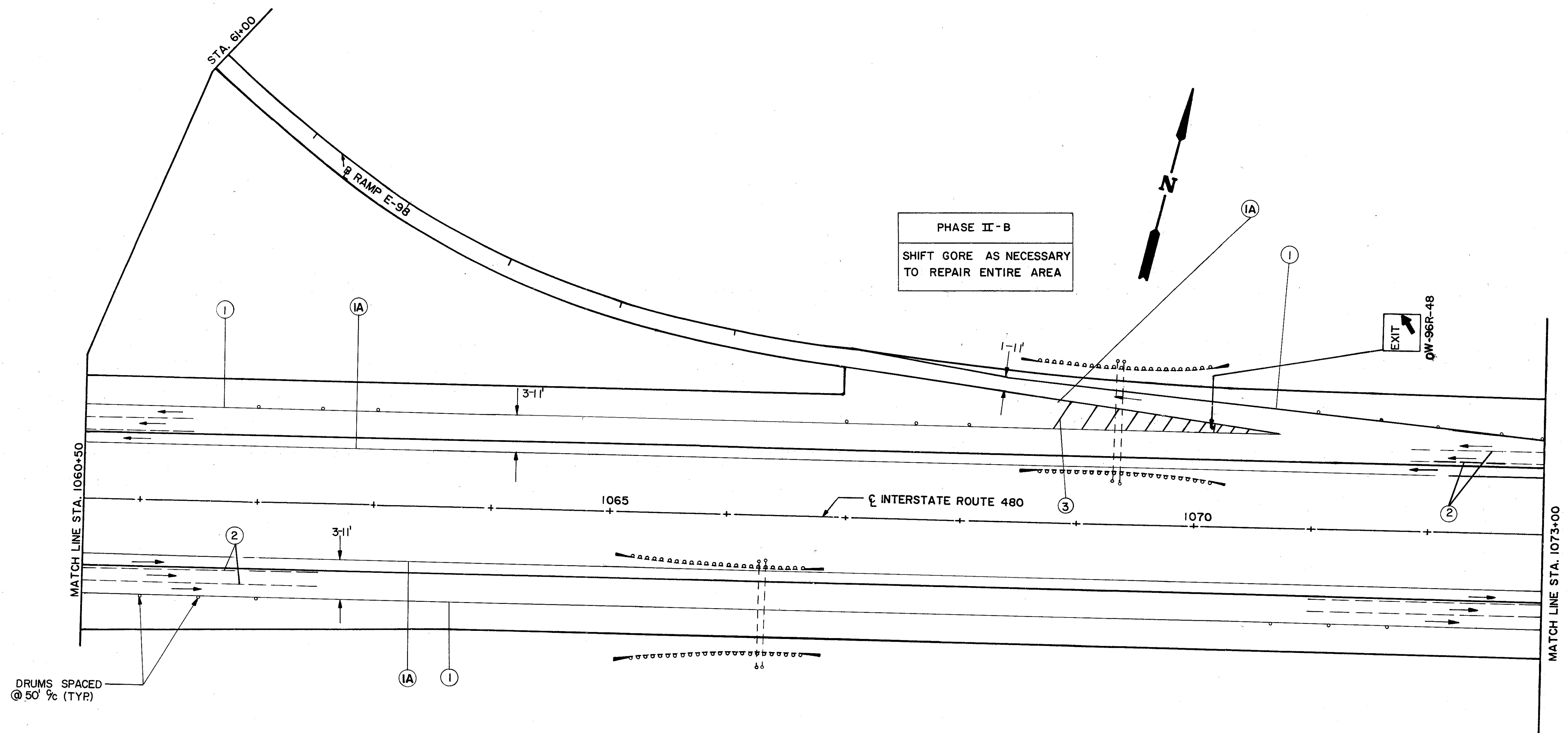
DRUMS SPACED
@ 50' 5/8 (TYR)

MAINTENANCE OF TRAFFIC

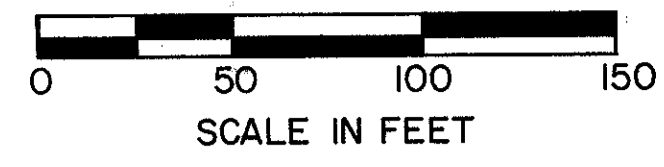


CUYAHOGA COUNTY CUY-480-19.19	OHIO	75
	FHWA REGION 5	171
FEDERAL PROJECT		

FOR LEGEND SEE SHEET 58



MAINTENANCE OF TRAFFIC



CUYAHOGA COUNTY
CUY-480-19.19

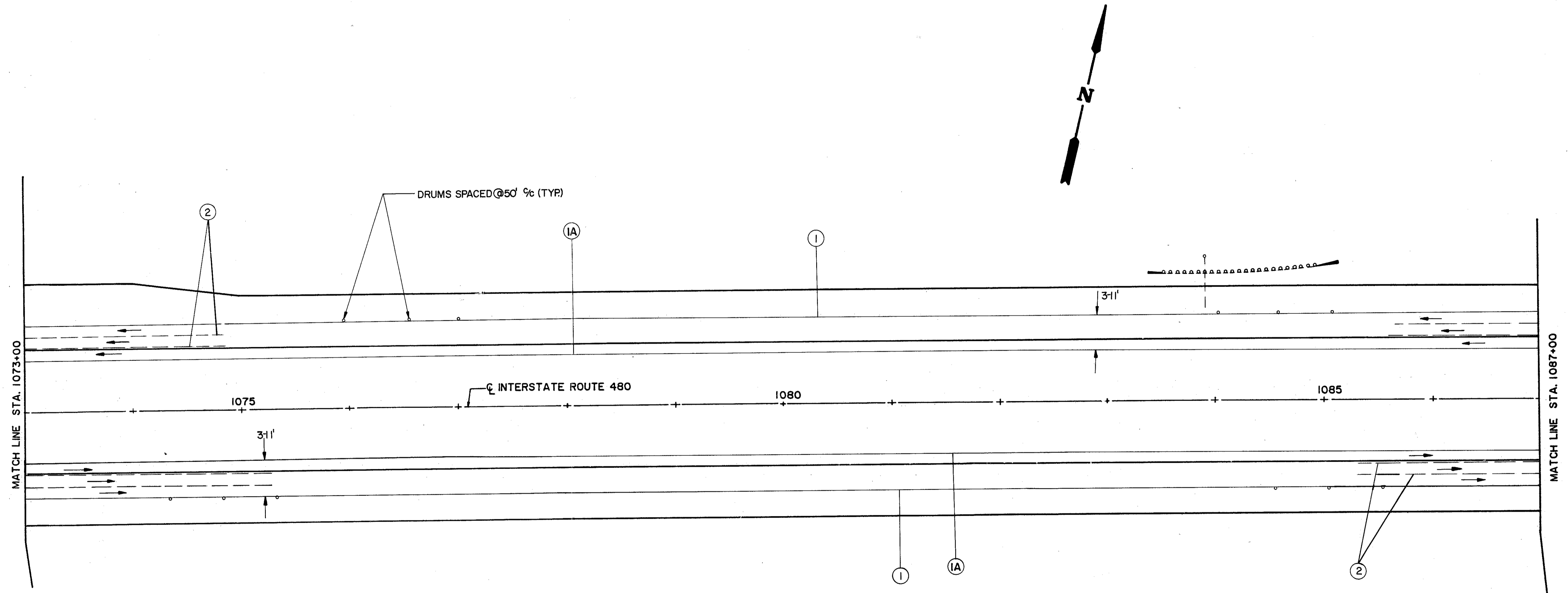
OHIO

FHWA
REGION 5

FEDERAL
PROJECT

76
171

FOR LEGEND SEE SHEET 58.



MAINTENANCE OF TRAFFIC

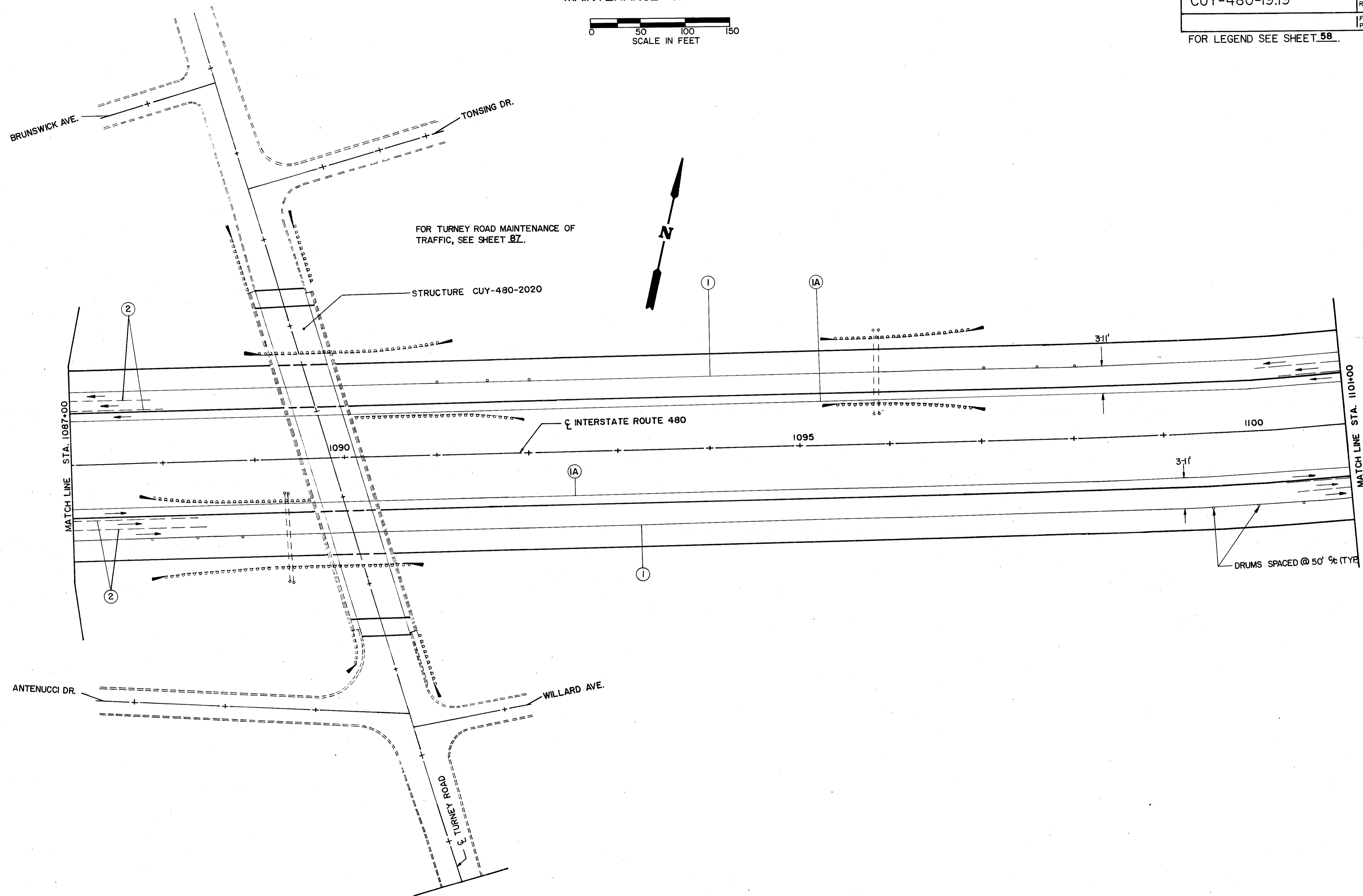


CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

77
171

FOR LEGEND SEE SHEET 58.



MAINTENANCE OF TRAFFIC



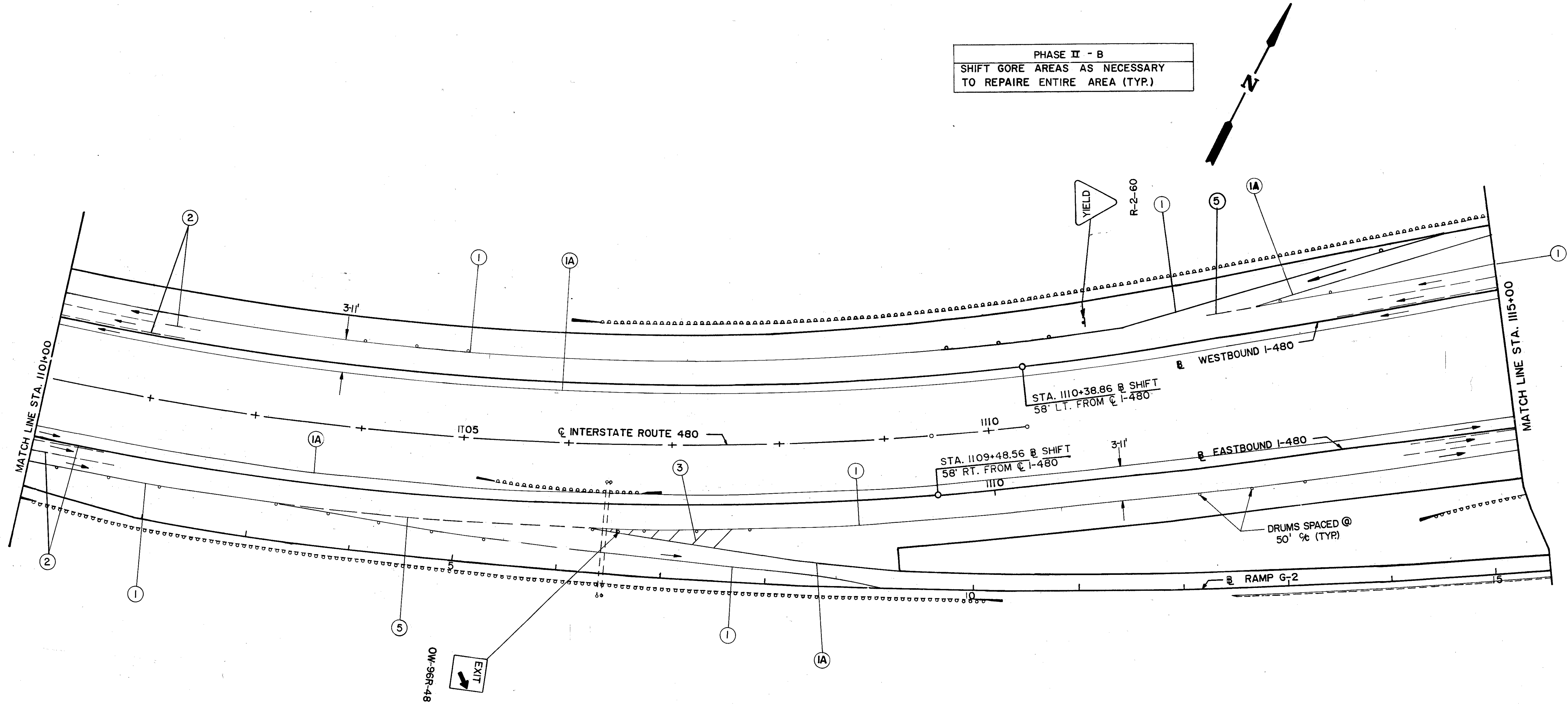
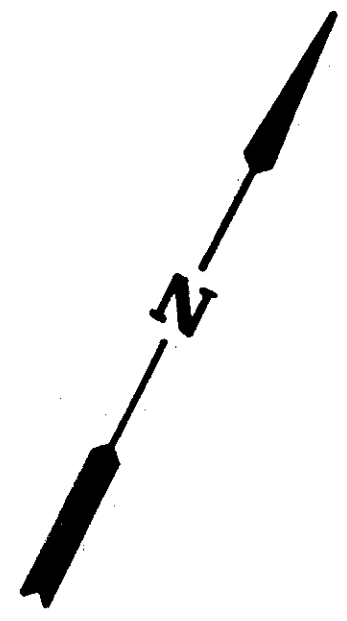
CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

78
171

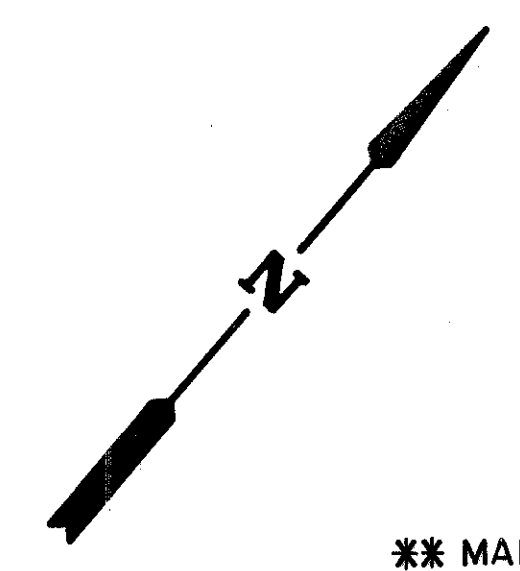
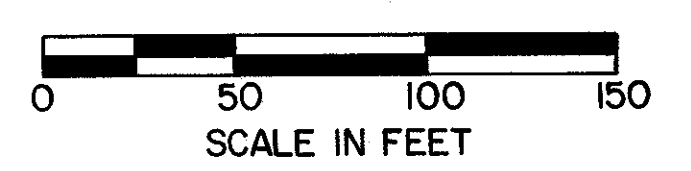
FOR LEGEND SEE SHEET 58.

PHASE II - B
SHIFT GORE AREAS AS NECESSARY
TO REPAIR ENTIRE AREA (TYP.)

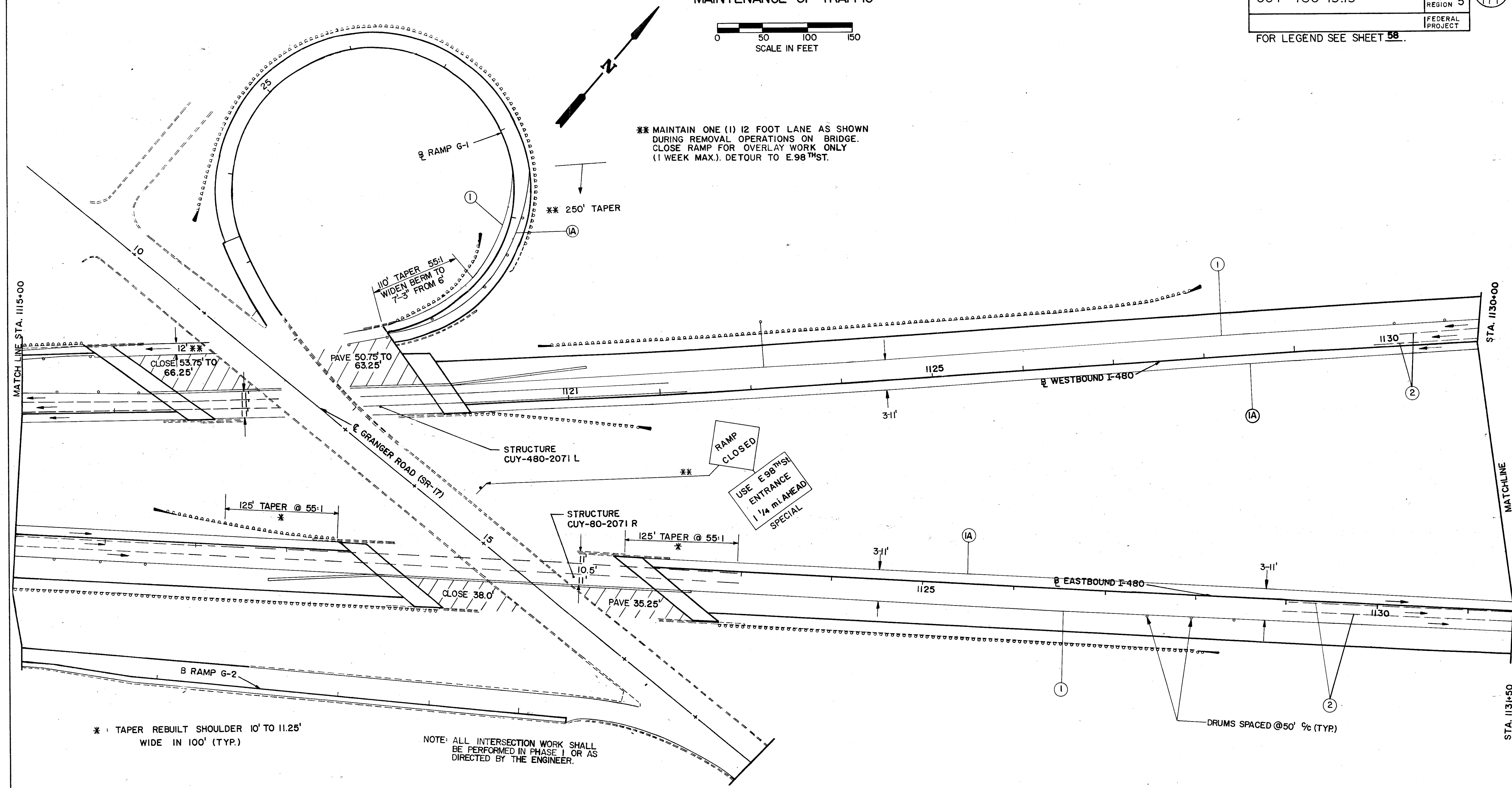


FOR LEGEND SEE SHEET 58.

MAINTENANCE OF TRAFFIC



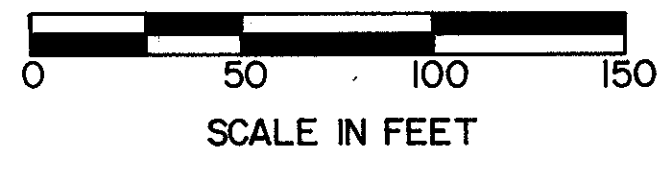
** MAINTAIN ONE (1) 12 FOOT LANE AS SHOWN
DURING REMOVAL OPERATIONS ON BRIDGE.
CLOSE RAMP FOR OVERLAY WORK ONLY
(1 WEEK MAX.). DETOUR TO E. 98TH ST.



* : TAPER REBUILT SHOULDER 10' TO 11.25'
WIDE IN 100' (TYP.)

NOTE: ALL INTERSECTION WORK SHALL
BE PERFORMED IN PHASE 1 OR AS
DIRECTED BY THE ENGINEER.

MAINTENANCE OF TRAFFIC

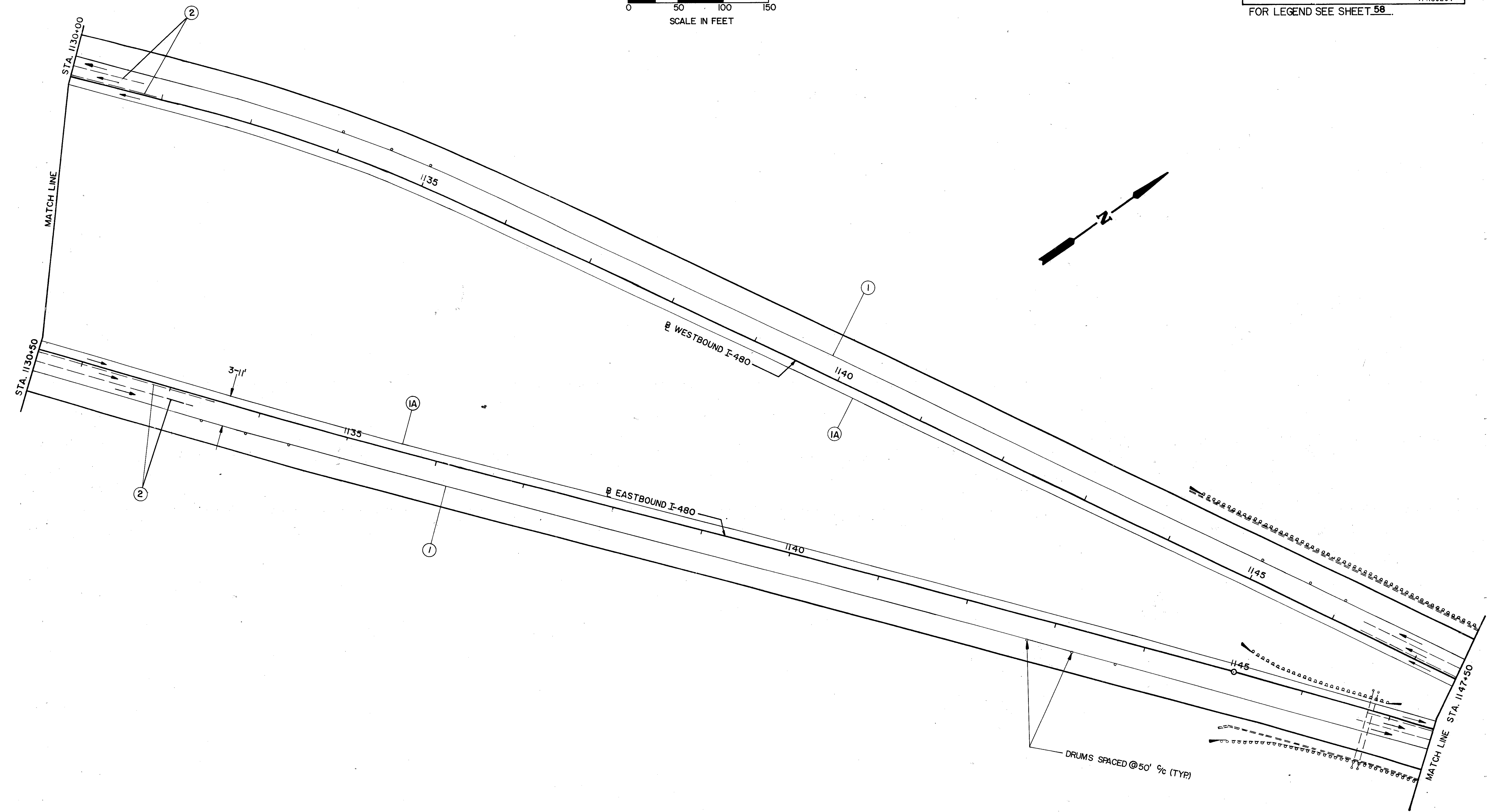


CUYAHOGA COUNTY
CUY-480-19.19

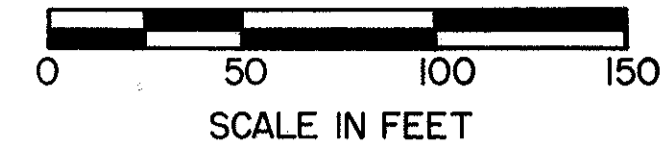
OHIO
FHWA
REGION 5
FEDERAL
PROJECT

80
171

FOR LEGEND SEE SHEET 58



MAINTENANCE OF TRAFFIC



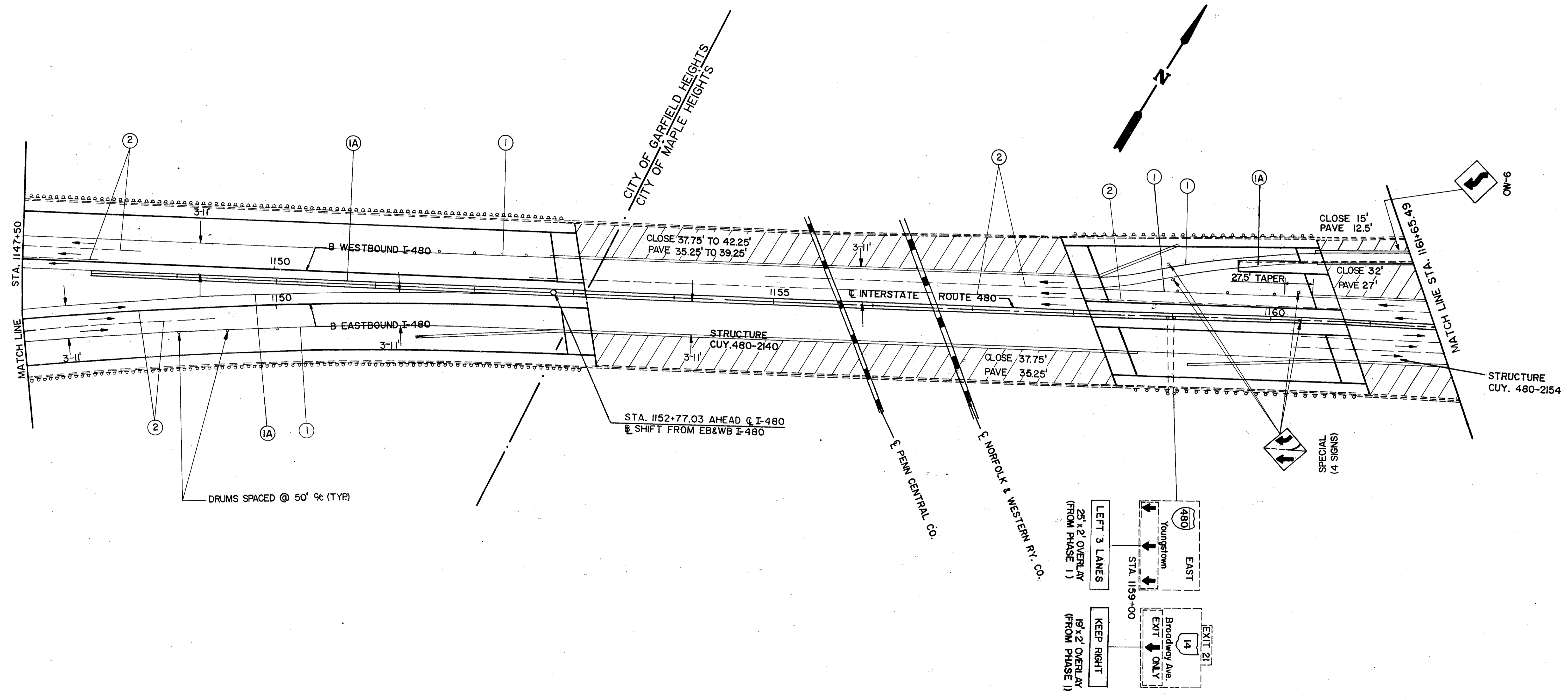
CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5

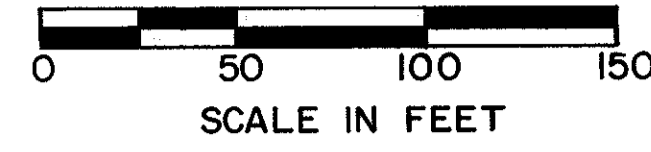
81
171

FEDERAL
PROJECT

FOR LEGEND SEE SHEET 58.



MAINTENANCE OF TRAFFIC

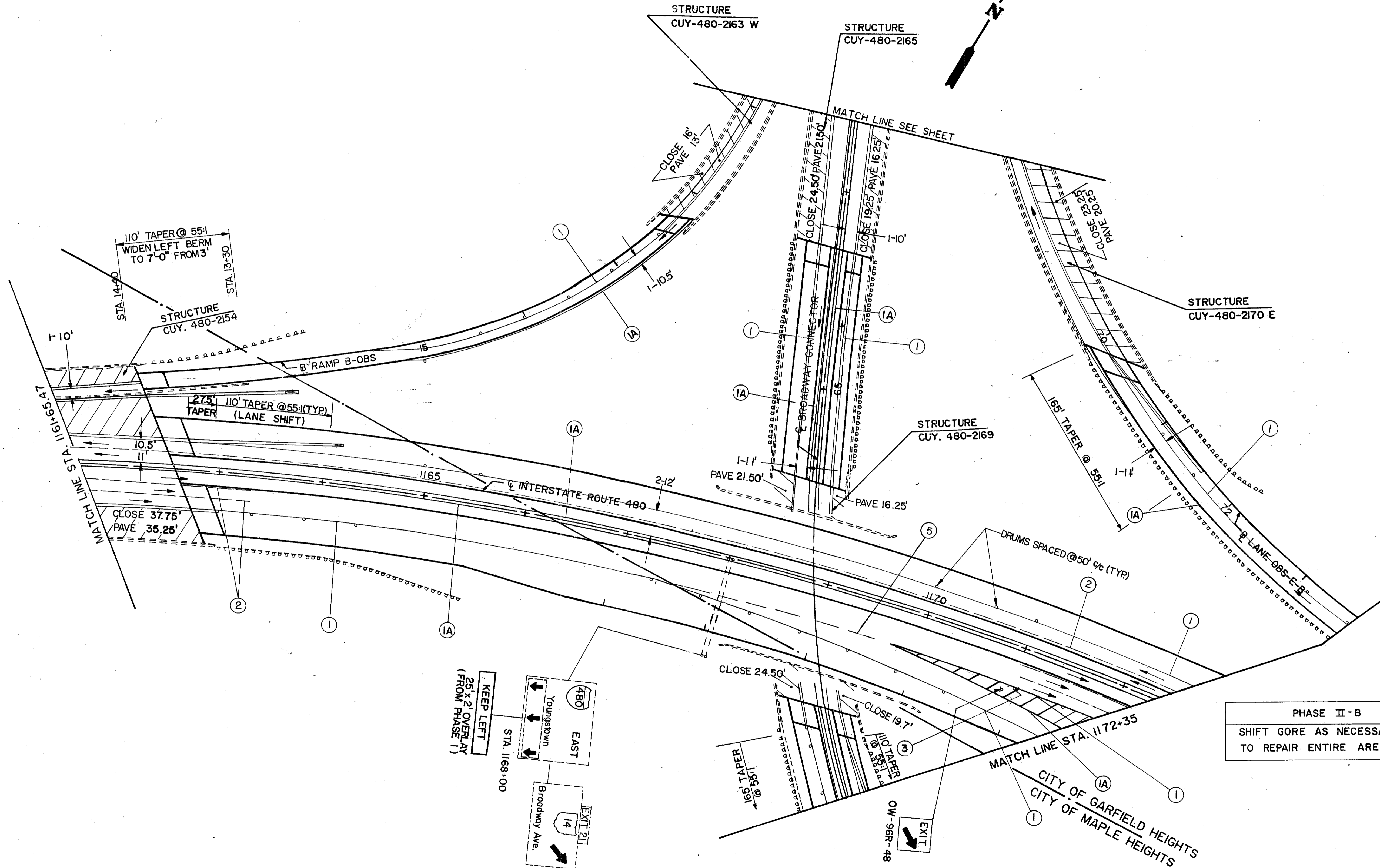


CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA REGION 5
FEDERAL PROJECT

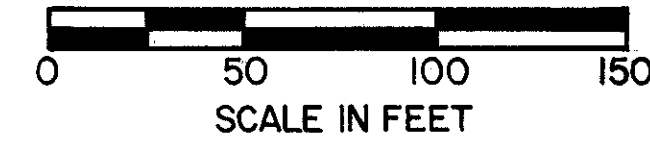
82
171

FOR LEGEND SEE SHEET 58



PHASE II-B
SHIFT GORE AS NECESSARY
TO REPAIR ENTIRE AREA

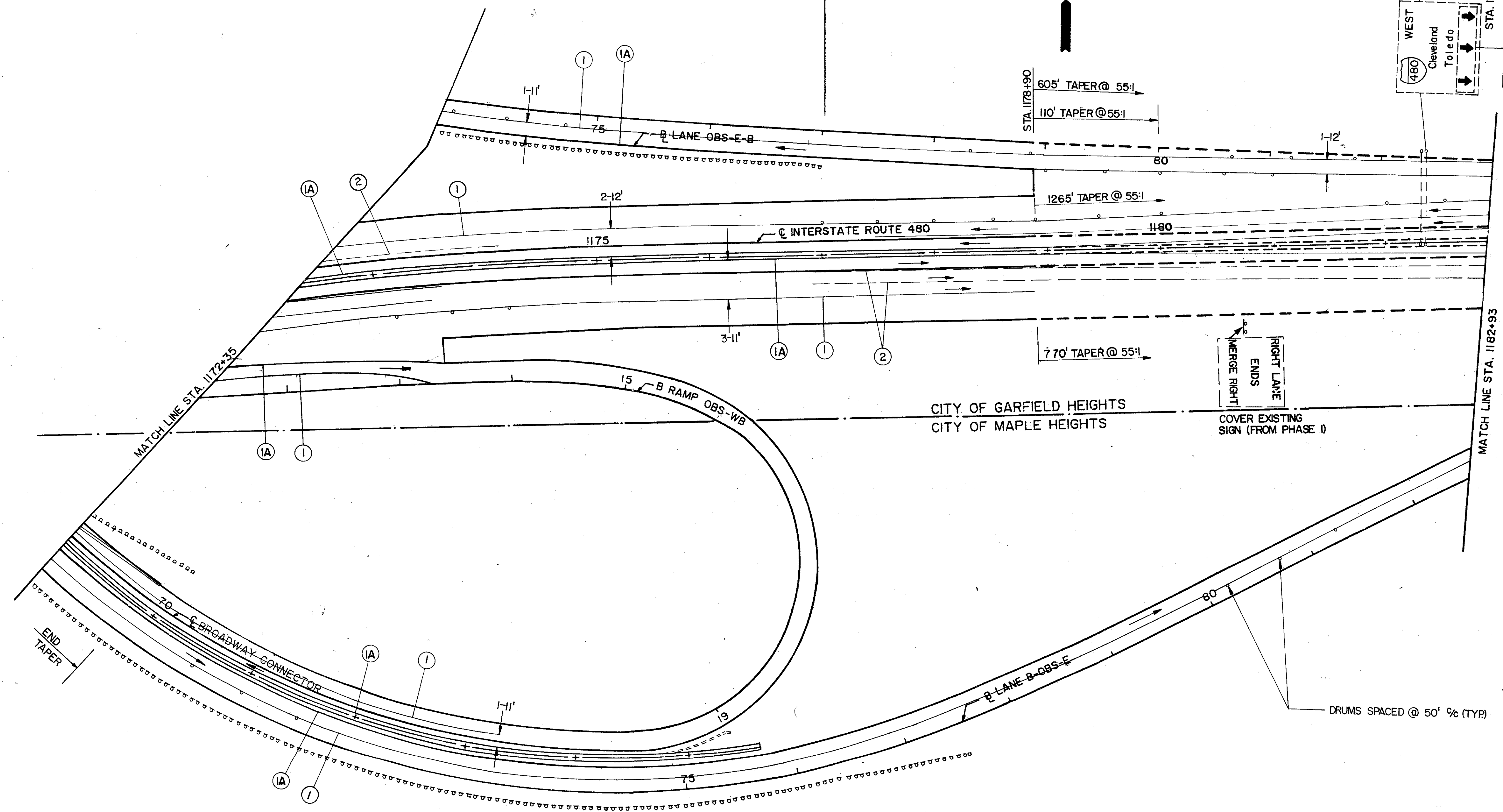
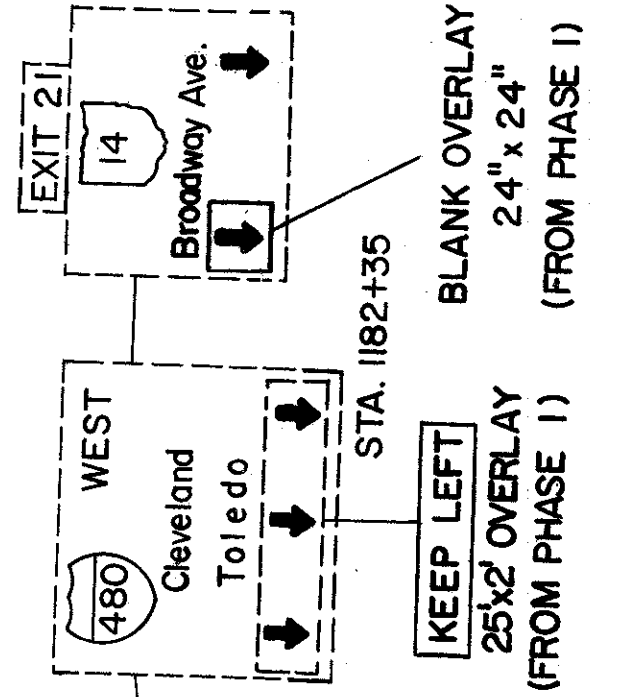
MAINTENANCE OF TRAFFIC



IR-480-4(70)183
END PROJECT
STA. 1177+03.00



FOR LEGEND SEE SHEET 58.

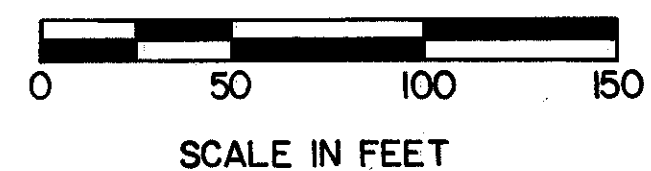


CITY OF GARFIELD HEIGHTS
CITY OF MAPLE HEIGHTS

RIGHT LANE ENDS
MERGE RIGHT
COVER EXISTING SIGN (FROM PHASE I)

DRUMS SPACED @ 50' % (TYR)

MAINTENANCE OF TRAFFIC

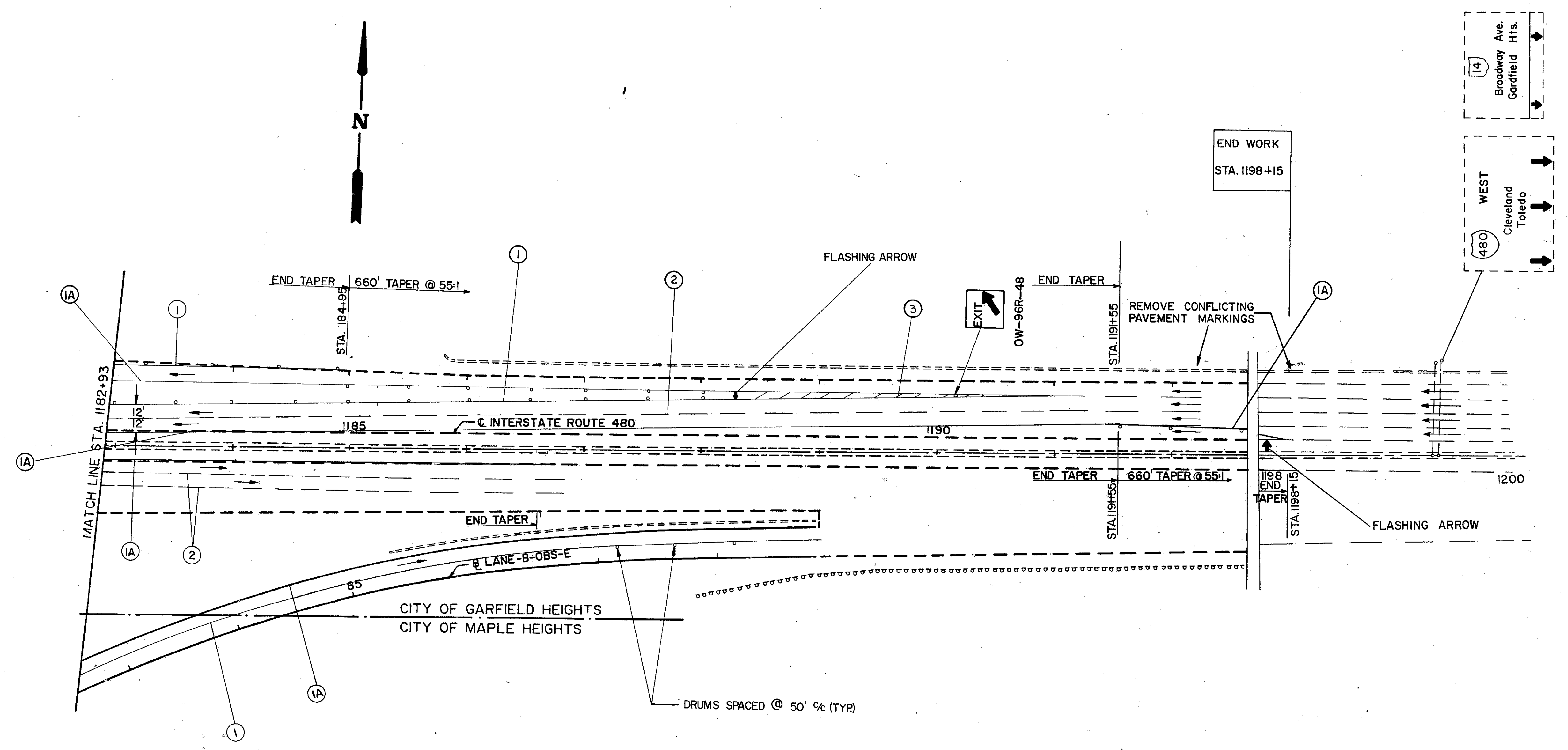


CUYAHOGA COUNTY
CUY-480-19.19

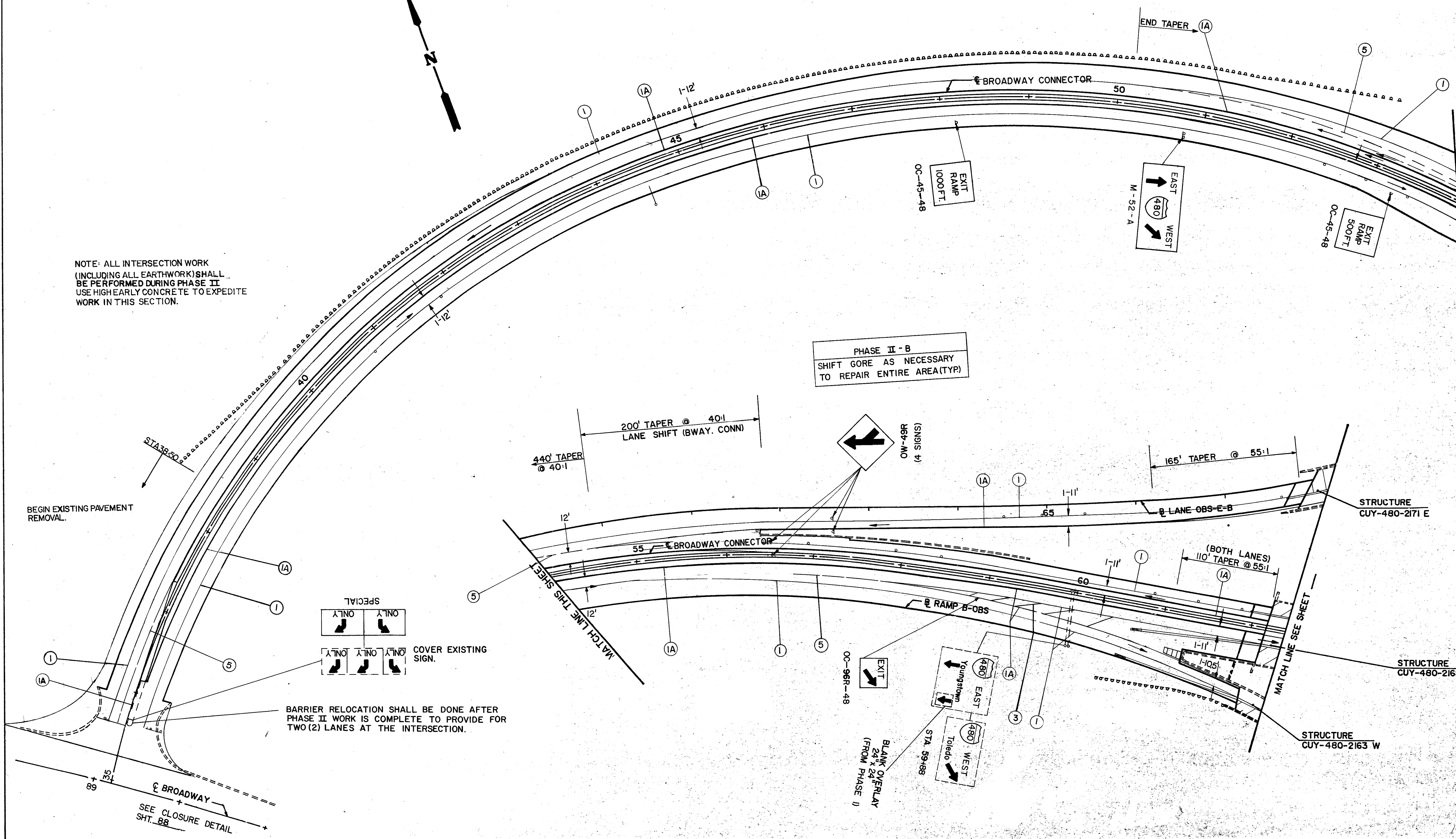
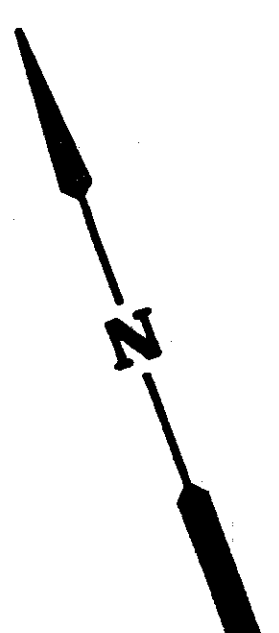
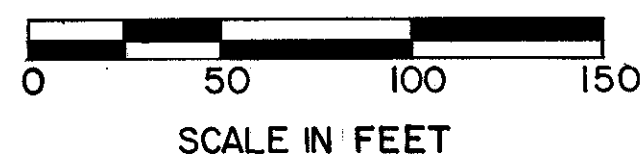
OHIO
FHWA
REGION 5
FEDERAL
PROJECT

84
171

FOR LEGEND SEE SHEET 58



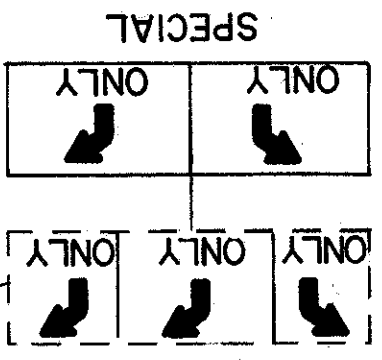
MAINTENANCE OF TRAFFIC



NOTE: ALL INTERSECTION WORK (INCLUDING ALL EARTHWORK) SHALL BE PERFORMED DURING PHASE II USE HIGH EARLY CONCRETE TO EXPEDITE WORK IN THIS SECTION.

PHASE II - B
SHIFT GORE AS NECESSARY TO REPAIR ENTIRE AREA (TYP)

BEGIN EXISTING PAVEMENT REMOVAL

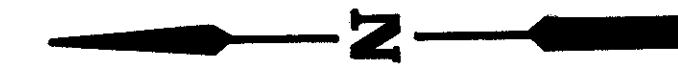
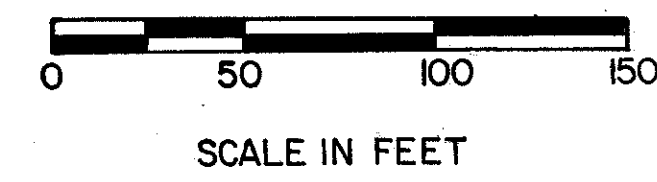


COVER EXISTING SIGN.

BARRIER RELOCATION SHALL BE DONE AFTER PHASE II WORK IS COMPLETE TO PROVIDE FOR TWO (2) LANES AT THE INTERSECTION.

SEE CLOSURE DETAIL SHT. 88

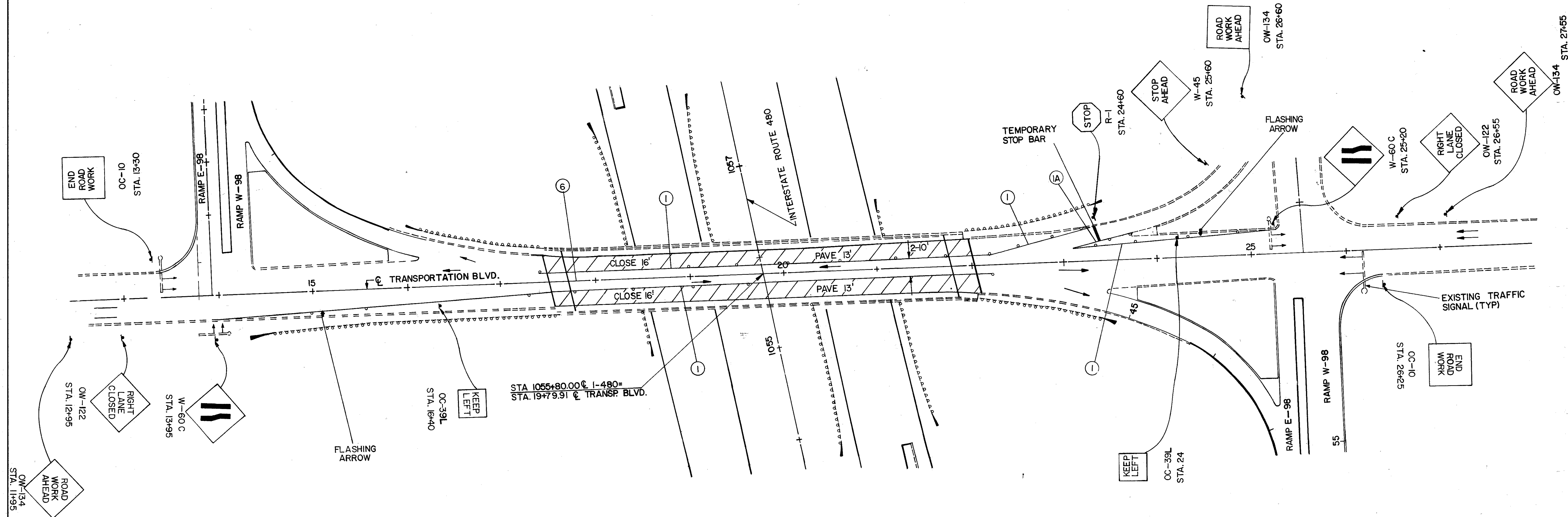
MAINTENANCE OF TRAFFIC



CUYAHOGA COUNTY
 CUY 480 19.19

OHIO	86
FHWA REGION 5	171
FEDERAL PROJECT	

FOR LEGEND SEE SHEET 58.

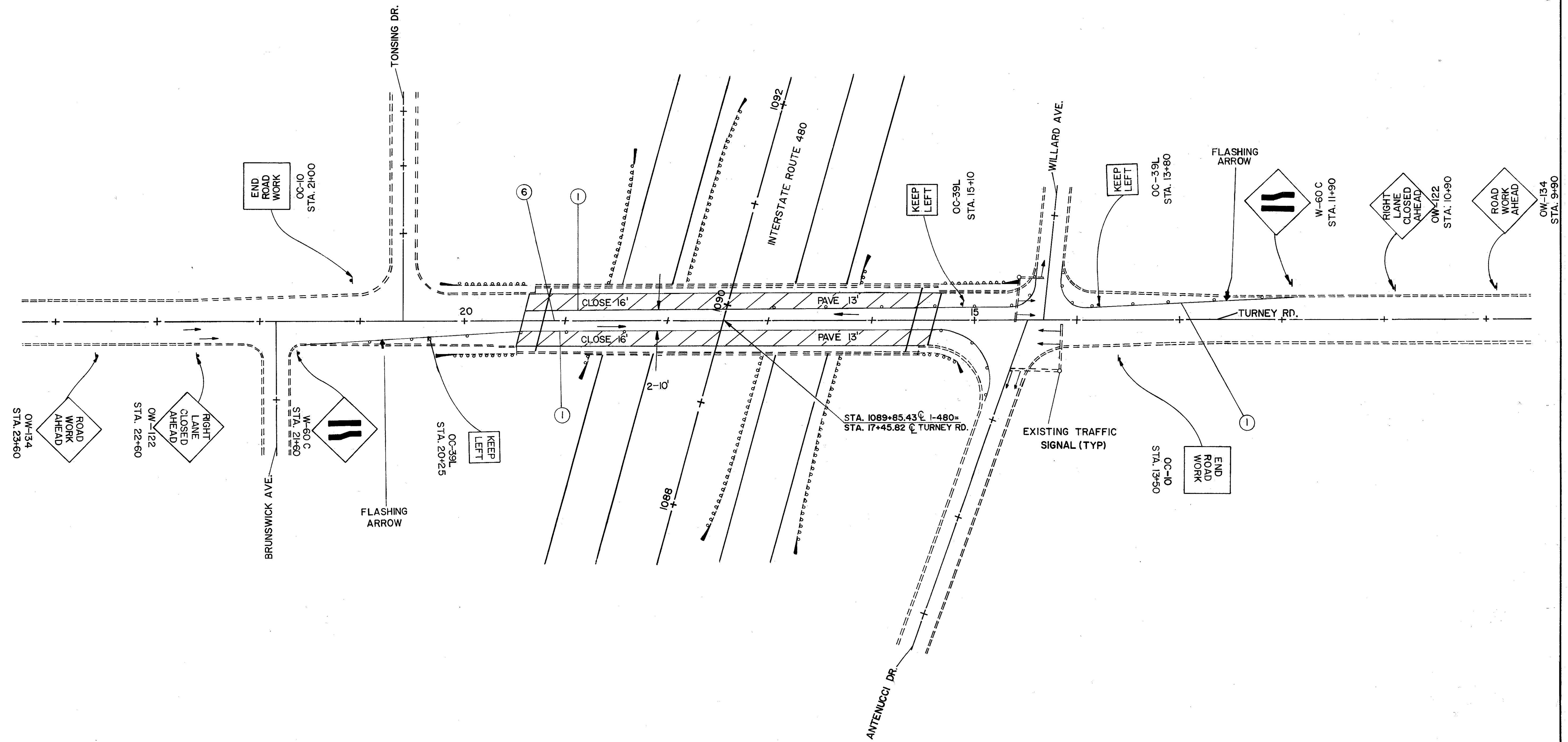
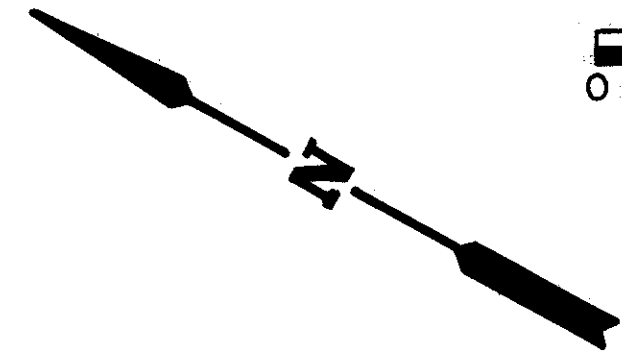
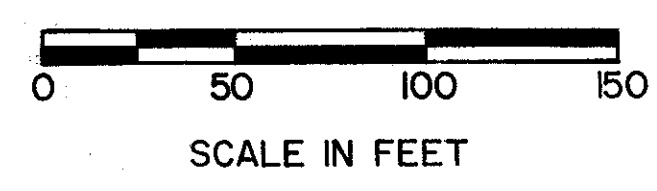


MAINTENANCE OF TRAFFIC

CUYAHOGA COUNTY
CUY-480-19.19

OHIO	87
FHWA REGION 5	171
FEDERAL PROJECT	

FOR LEGEND SEE SHEET 58.

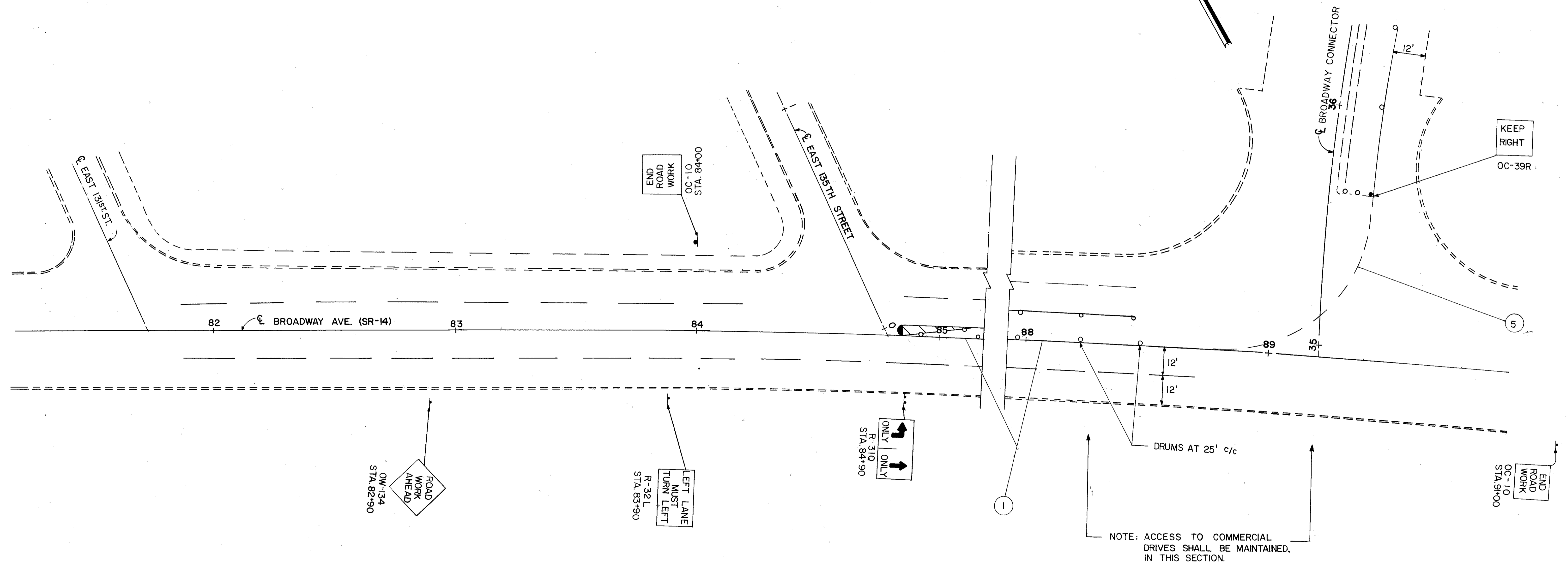
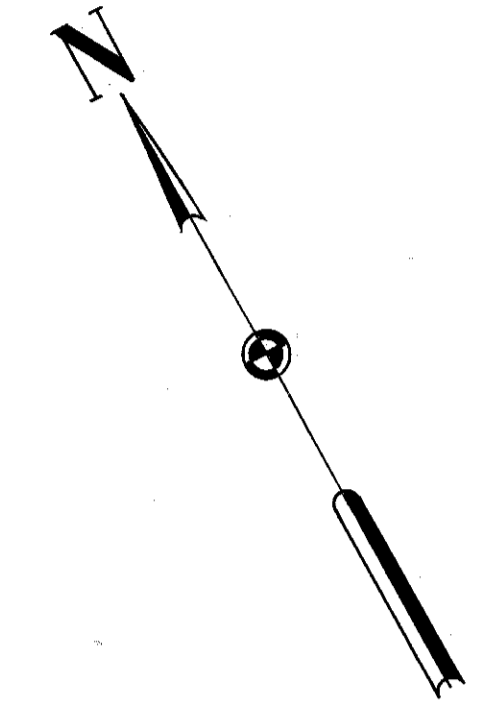


FOR TEMPORARY PAVEMENT MARKING
LEGEND, SEE SHEET 58

MAINTENANCE OF TRAFFIC



PHASE II BROADWAY AVE. (SR-14)



GENERAL NOTES

CUY - 480 - 19.19

FHWA REGION	STATE	PROJECT	
5	OHIO		

89
171

TRAFFIC CONTROL

REMOVAL OF EXISTING ITEMS

ALL 630 REMOVAL ITEMS NOT SPECIFICALLY INCLUDING STORAGE OR REERECTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR. REMOVAL AND DISPOSAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

630 REMOVAL OF SIGN SERVICE

INCIDENTAL TO THE REMOVAL, RELOCATION OR MODIFICATION OF A SIGN SUPPORT IN ACCORDANCE WITH SPECIFICATION 630.12, SIGN SERVICE TO THE SUPPORT SHALL ALSO BE REMOVED. SIGN SERVICE CABLES SHALL BE DISCONNECTED AT THE SERVICE PULLBOX AND REMOVED. CONNECTION OF THE REMAINING CABLES SHALL CONFORM TO 625.17 TO INSURE CIRCUIT CONTINUITY.

630 SIGN LOCATIONS

SIGN LOCATIONS OF EXISTING AND PROPOSED SIGNS ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR PRIOR TO ERECTION OF ALL SIGN SUPPORTS (POSTS, BEAMS, AND OVERHEADS) SHALL STAKE THE PROPOSED LOCATION, INCLUDING OFFSET. OVERHEAD SUPPORT LOCATIONS SHALL ALSO INCLUDE FOUNDATION ELEVATIONS. THE ENGINEER SHALL APPROVE ALL SUPPORT LOCATIONS AND MAY ADJUST THE LOCATION TO CORRECT SLOPE AND SUBSURFACE DIFFICULTIES, SIGN SIGHT DISTANCE OBSTRUCTIONS, IMPROVE SAFETY AND ELIMINATE OVERHEAD OBSTACLES.

PAYMENT FOR STAKING SHALL BE INCIDENTAL TO THE VARIOUS SIGN SUPPORT ITEMS.

630 FLATSHEET SIGN INSTALLATIONS

ALL FREEWAY FLATSHEET SIGN INSTALLATIONS NOT BEHIND GUARDRAIL SHALL BE OFFSET 30 FEET FROM THE EDGE OF PAVEMENT. SEE SHEET 139 FOR DETAILS.

USE STANDARD DRAWING TC-42.20 FOR FLATSHEET SIGNS INSTALLED BEHIND GUARDRAIL, ON CROSS ROADS, ON RAMPS AND BETWEEN RAMPS AND MAINLINE.

ITEM 631 - REMOVAL OF DISCONNECT SWITCH ENCLOSURE AND DISPOSAL

INCIDENTAL TO THE REMOVAL OF DISCONNECT SWITCH ENCLOSURE, THE DISCONNECT SWITCH SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

ITEM 631 - REMOVAL OF LUMINAIRE AND DISPOSAL

INCIDENTAL TO THE REMOVAL OF THE LUMINAIRE, THE WIRING, BALLAST, AND THE MOUNTING BRACKET ASSEMBLY SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

ITEM 631 - BALLAST ENCLOSURE MOUNTING BRACKET ASSEMBLY

BALLAST ENCLOSURE MOUNTING BRACKET ASSEMBLIES SHALL BE FURNISHED FOR INSTALLATION FOR OVERPASS MOUNTED LIGHTING ONLY. BRACKETS SHALL BE IN ACCORDANCE WITH PLAN DETAILS AND GALVANIZED IN ACCORDANCE WITH 711.02. BRACKETS SHALL BE TYPE B FOR OVERPASS STRUCTURES AS DETAILED IN THE PLANS AND ON TC-32.11.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH ASSEMBLY WHICH SHALL INCLUDE ALL NECESSARY BRACKETS, FIELD DRILLING AND HARDWARE FURNISHED AND IN PLACE.

ITEM 631 - BALLAST WIRING ENCLOSURE, TYPE B

BALLAST ENCLOSURES SHALL BE FURNISHED AND INSTALLED AS DETAILED IN THE PLANS. THE ENCLOSURE SHALL BE MOUNTED ON BRACKETS WHICH ARE SEPARATELY FURNISHED FOR OVERPASS STRUCTURES.

ENCLOSURES SHALL BE TYPE B FOR OVERPASS STRUCTURES AS DETAILED IN THE PLANS. SEE SHEET 140 FOR DETAILS.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH ENCLOSURE, FURNISHED, IN PLACE, COMPLETE AND READY FOR SERVICE.

ITEM 631 - BALLAST, BY TYPE, INTEGRAL

BALLAST FOR MERCURY VAPOR LUMINAIRES SHALL BE MOUNTED WITHIN THE LUMINAIRE HOUSING (INTEGRAL) OR MOUNTED IN A WEATHERPROOF HOUSING ATTACHED TO OR BESIDE THE LUMINAIRE (CONTIGUOUS). BALLAST HOUSINGS SHALL BE OF CORROSION RESISTANT MATERIALS.

INTEGRAL BALLASTS SHALL BE USED TO LIGHT ALL NON-STRUCTURALLY MOUNTED OVERHEAD SIGNS AS SHOWN IN THE PLANS.

FORMER CONSTRUCTION PLANS

FOR EXISTING SIGNING DETAILS REFER TO APPLICABLE PLANS LISTED BELOW:

COUNTY, ROUTE & SECTION	PROJECT NO.
CUY-480-18.43	634-70
CUY-480-19.43	477-75
CUY-480-21.40	15-74

COPIES OF THESE PLANS ARE AVAILABLE FOR REFERENCE THROUGH DISTRICT 12 OF THE OHIO DEPARTMENT OF TRANSPORTATION.

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958, AND 961 ON TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 730, 731, AND 733.

ITEM 630 - 2" DIAMETER POST

THIS ITEM SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO PROVIDE AND INSTALL THE MEDIAN MOUNTED SIGN POST AS DETAILED ON SHEET 140.

ITEM 630 - SPAN WIRE SUPPORT, BY TYPE, AS PER PLAN

THIS ITEM SHALL BE USED TO MOUNT A SPAN WIRE SUPPORT ON AN EXISTING CEI POLE AS SHOWN ON THE PLANS ON SHEET 134.

FOR QUANTITIES, SEE SHEET 102.

LOOP DETECTORS

ESTIMATED QUANTITIES OF ITEM 632-LOOP DETECTOR PAVEMENT CUTTING AND LOOP DETECTOR WIRE, TYPE E ARE PROVIDED AS A CONTINGENCY WHEN WIRE IS CUT, BROKEN OR DESTROYED DUE TO PAVEMENT REPAIR, OR BUTT JOINT OPERATIONS.

NEW LOOP DETECTORS SHALL BE PLACED AT THE SAME LOCATIONS AND SAME SIZE AS THE EXISTING. THE LOOP DETECTOR WIRE SHALL BE REPLACED TO THE PULL BOX OR POLE, WHICHEVER IS APPLICABLE, UNDER ITEM 632 AND TC-82.10.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	QUANTITY	UNIT
ITEM 632-LOOP DETECTOR PAVEMENT CUTTING	300	L.F.
ITEM 632-LOOP DETECTOR WIRE, TYPE E	600	L.F.

ITEM 802-BARRIER REFLECTORS, TYPE A OR B

THIS ITEM SHALL BE USED TO PLACE THE FINAL BARRIER REFLECTORS. THE EXISTING TEMPORARY BARRIER REFLECTORS SHALL REMAIN AND THE PROPOSED REFLECTORS SHALL BE USED TO DECREASE THE SPACINGS TO MATCH S.S. 802.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	DESCRIPTION	QTY.	UNIT
802	BARRIER REFLECTORS, TYPE A	200	EACH
802	BARRIER REFLECTORS, TYPE B	100	EACH

TRAFFIC CONTROL

PROTECTIVE COATING OF OVERHEAD SIGN SUPPORT SECTIONS, GENERAL

OVERHEAD SIGN SUPPORTS CAN BE SEPARATED INTO MAJOR SECTIONS SUCH AS END FRAMES, TRUSSES, VERTICAL POLES, AND CANILEVER ARMS. FOR THE IMPLEMENTATION OF THIS WORK ITEM IT WILL BE BENEFICIAL TO REFER TO THE MAJOR SECTIONS OF THE OVERHEAD SIGN SUPPORTS RATHER THAN THE WHOLE SUPPORT. MORE SPECIFIC INSTRUCTIONS AND FLEXIBILITY CAN BE GIVEN BASED UPON THE UNIT OF MEASURE AND PAYMENT PER MAJOR SUPPORT SECTION.

THE PROTECTIVE COATING OF OVERHEAD SIGN SUPPORT SECTIONS SHALL BE A FOUR PART PROCESS TO INCLUDE SURFACE PREPARATION FOLLOWED BY A THREE STEP COATING SYSTEM. THIS THREE STEP COATING SYSTEM SHALL CONSIST OF AN EPOXY-PRIME COAT, AN EPOXY INTERMEDIATE COAT, AND AN URETHANE TOP COAT, WITH EACH COAT A DIFFERENT COLOR. FOR AN EXPLANATION OF THE MATERIALS TO BE USED SEE NOTE ENTITLED "COATING SYSTEM." THE PURPOSE OF THIS COATING IS TO PROVIDE PROTECTION FOR NEW (UNWEATHERED) AND OLDER WEATHERED GALVANIZED STEEL SUPPORT SECTIONS FROM CORROSIVE ELEMENTS IN THE ATMOSPHERE. COATING AND SURFACE PREPARATION OF NEW GALVANIZED SUPPORT SECTIONS SHOULD BE DONE BY THE MANUFACTURER.

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION LAWS, RULES OR REGULATIONS OF FEDERAL, STATE, OR LOCAL AGENCIES. THE COATING MATERIALS SPECIFIED FOR THE WORK CAN BE HAZARDOUS TO THE HEALTH OF THE APPLICATOR IF NOT APPLIED AS PER THE MANUFACTURERS INSTRUCTIONS. THE CONTRACTOR SHALL FOLLOW THE DATA SHEET AND THE LABEL ON THE PAINT CONTAINERS. THESE PRECAUTIONS SHALL INCLUDE THE USE OF RESPIRATORS AND EYE AND SKIN PROTECTION AS SPECIFIED. THE CONTRACTOR SHALL ALSO INSURE THAT HIS PAINTING OPERATIONS AND LOCATIONS WILL NOT ENDANGER OR ADVERSELY AFFECT THE PUBLIC IN GENERAL.

THE PROPOSED CLEANING AND COATING OPERATIONS SHALL BE PERFORMED ONLY WHEN THE AMBIENT TEMPERATURE IS 50 DEGREES F OR ABOVE. ALL STEEL SURFACES OF TRUSS AND END FRAMES INCLUDING THE WELDED AREAS, BALLAST ENCLOSURE MOUNTING BRACKET AND THE BASE PLATES ARE TO BE CLEANED AND COATED. BEFORE EACH COATING IS APPLIED, IT SHALL BE MIXED WITH AN APPROVED POWER, MECHANICAL MIXER TO A UNIFORM CONSISTENCY WHICH SHALL BE MAINTAINED DURING ITS APPLICATION. EACH COAT SHALL BE APPLIED IN A WORKMANLIKE MANNER AS A CONTINUOUS FILM OF UNIFORM THICKNESS WHICH IS FREE OF HOLES, PORES, RUNS OR SAGS. ALL COATS SHALL BE APPLIED BY BRUSH. THINNING OF PAINT IS STRICTLY PROHIBITED. PAINT NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED. THE COATING SHALL PENETRATE ALL JOINTS AND CONNECTIONS. THE ENGINEER SHALL BE NOTIFIED 24 HOURS PRIOR TO ANY CLEANING OR COATING OPERATIONS SO THAT INSPECTION SERVICES CAN BE PROVIDED.

COATING SYSTEM

THE COATING SYSTEM SHALL CONSIST OF A POLYAMIDE-CURED EPOXY PRIME COAT, A POLYAMIDE-CURED EPOXY INTERMEDIATE COAT AND AN ALIPHATIC POLYURETHANE TOP COAT. THE COATING MATERIALS USED SHALL BE THOSE AS LISTED FROM ONE OF THE FOLLOWING MANUFACTURERS OR AN APPROVED EQUAL.

- AMERON
210 NORTH BERRY STREET
BREA, CALIFORNIA 92621
LOCAL TELEPHONE CONTACT: (216) 896-3602
PRIME COAT: AMERCOAT 71
INTERMEDIATE COAT: AMERLOCK 400
TOP COAT: AMERCOAT 450 GL

- GLIDDEN COATINGS AND RESINS
14979 BAGLEY ROAD
MIDDLEBURG HTS., OHIO 44130
LOCAL TELEPHONE CONTACT: (216) 845-4646
PRIME COAT: GLID-GUARD EPOXY CHROMATE METAL PRIMER
NO. 5251/5252
INTERMEDIATE COAT: GLID-GUARD EPOXY CHEMICAL
RESISTANT FINISH NO. 5240 SERIES
TOP COAT: GLID-THANE ONE POLYURETHANE
COATINGS NO. 6100 SERIES
- PORTER PAINT CO.
400 SOUTH 13TH STREET
LOUISVILLE, KY 40201
LOCAL TELEPHONE CONTACT: (216) 562-6709
PRIME COAT: PORTER PAINTS MCR 4300
INTERMEDIATE COAT: PORTER PAINTS MCR 4300
TOP COAT: PORTER PAINTS HYTHANE
- POLY-CARB
33095 BAINBRIDGE ROAD
P.O. BOX 39278
SOLON, OHIO 44139
LOCAL TELEPHONE CONTACT: (216) 248-1223
PRIME COAT: MARK-60 (ULTRAPOX)
INTERMEDIATE COAT: MARK-60 (ULTRAPOX) (LIGHT GREY)
TOP COAT: MARK-73 (ULTRA-KOTE) (MEDIUM GREY)
- SHERWIN WILLIAMS COMPANY
761 BETA DRIVE
MAYFIELD VILLAGE, OHIO 44143
LOCAL TELEPHONE CONTACT: (216) 461-3310
PRIME COAT: TILE-CLAD II HI-BILD PRIMER
INTERMEDIATE COAT: HI-SOLIDS CATALYZED EPOXY
(PURE WHITE) (SLATE GREY)
TOP COAT: HI-BILD ALIPHATIC POLYURETHANE ENAMEL

ALL THREE COATS OF THE SYSTEM SHALL BE MANUFACTURED BY THE SAME COMPANY TO INSURE COMPATIBILITY AMONG COATS.

SURFACE PREPARATION, NEW SUPPORT SECTIONS

NEW UNWEATHERED GALVANIZED SUPPORT SECTIONS SHOULD HAVE THEIR SURFACE PREPARATION AS WELL AS THEIR PROTECTIVE COATING DONE AT THE MANUFACTURER OF THE SUPPORT SECTIONS.

THE SUPPORT SECTIONS SHALL BE PREPARED FOR COATING BY SSPC-SP1 FOLLOWED BY SSPC-SP7 (SOLVENT CLEANING FOLLOWED BY A BRUSH BLAST). BEFORE THE PREPARED SURFACE DEGRADES FROM THE PRESCRIBED STANDARDS, THE PRIME COAT SHALL BE APPLIED. IN EVERY CASE, THE SURFACE SHALL BE COATED WITH THE EPOXY PRIME COAT ON THE SAME DAY OF SURFACE PREPARATION. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING OR OTHER DAMAGE TO THE PREPARED SURFACE.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING, TRANSPORTATION COSTS AND MATERIALS NECESSARY TO ACCOMPLISH THIS ITEM OF WORK PER MAJOR SUPPORT SECTION.

BASIS OF PAYMENT WILL BE AS FOLLOWS:

ITEM SPECIAL - SURFACE PREPARATION, NEW SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

SURFACE PREPARATION, EXISTING SUPPORT SECTIONS

EXISTING, WEATHERED GALVANIZED SUPPORT SECTIONS SHOULD HAVE THEIR SURFACE PREPARATION AS WELL AS THEIR PROTECTIVE COATING DONE UNDER CONDITIONS OF TEMPERATURE AND HUMIDITY WITHIN THE SAME RANGE AS SPECIFIED BY THE MANUFACTURER OF THE EPOXY-PRIME COAT MATERIAL TO BE USED IMMEDIATELY AFTER THIS CLEANING OPERATION. THE SUPPORT SECTIONS SHALL BE PREPARED FOR COATING BY SSPC-SP1 FOLLOWED BY SSPC-SP10 (SOLVENT CLEANING FOLLOWED BY A COMMERCIAL BLAST CLEANING.) BEFORE THE PREPARED SURFACE DEGRADES FROM THE PRESCRIBED STANDARDS, THE PRIME COAT SHALL BE APPLIED. IN EVERY CASE, THE SURFACE SHALL BE COATED WITH THE EPOXY PRIME COAT ON THE SAME DAY AS THE SURFACE PREPARATION. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING MARRING, OR OTHER SURFACE DAMAGE TO THE PREPARED SURFACE.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING, TRANSPORTATION COSTS AND MATERIALS NECESSARY TO ACCOMPLISH THIS ITEM OF WORK PER MAJOR SUPPORT SECTION.

BASIS OF PAYMENT WILL BE AS FOLLOWS:

SPECIAL: SURFACE PREPARATION, EXISTING SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTIONS.

TRAFFIC CONTROL (CONT'T)

COATING, EPOXY-PRIME COAT, SUPPORT SECTIONS

THIS ITEM SHALL CONSIST OF THE APPLICATION OF ONE (1) COAT OF AN EPOXY PRIMER TO SUPPORT SECTIONS. THE TOTAL DRY FILM THICKNESS OF THIS COAT SHALL BE BETWEEN 1.5 TO 2.0 MILS. IF MORE THAN ONE PASS IS NECESSARY TO OBTAIN THE REQUIRED MIL THICKNESS THAT COST SHALL BE BORNE BY THE CONTRACTOR. THE COLOR OF THIS COAT SHALL BE NOTICEABLY DIFFERENT FROM THE BASE MATERIAL AND OTHER PROPOSED COATS. THIS COAT SHALL IN ALL CASES BE APPLIED OVER SURFACES THAT WERE PREPARED EARLIER THAT SAME DAY. THE THINNING OF THE EPOXY MATERIAL IS STRICTLY PROHIBITED. MATERIAL NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED.

WHEN THE AVERAGE DRY FILM THICKNESS OF THIS COAT OVER THE ENTIRE SUPPORT SECTION IS LESS THAN THE SPECIFIED 1.5 TO 2.0 MILS BUT IS AT LEAST 1.25 MILS, THE CONTRACT BID PRICE FOR THIS ITEM SHALL BE REDUCED IN DIRECT PROPORTION TO THE PERCENT DEFICIENCY OF COATING UP TO 16-2/3%. IF THE DEFICIENCY OF COATING IS MORE THAN 16-2/3% (I.E., THE AVERAGE DRY FILM THICKNESS IS LESS THAN 1.25 MILS) THE WORK FOR THIS ITEM SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RECOATED AT THE FULL EXPENSE OF THE CONTRACTOR, INCLUDING ALL LABOR, EQUIPMENT, AND MATERIAL.

THE EPOXY PRIME COAT CHOSEN BY THE CONTRACTOR SHALL BE ONE OF THE FOLLOWING TWO-COMPONENT COMPOSITIONS CONFORMING TO ITS LISTED PROPERTIES:

AMERCOAT 71
 % SOLIDS BY VOLUME: 47% +/- 2%
 POT LIFE: 8 HRS. • 77 DEGREES F (25 DEGREES C)
 DRYING TIME: 4 HRS. • 77 DEGREES F

EPOXY CHROMATE METAL PRIMER NO. 5251/5252:
 % SOLIDS BY VOLUME: 32.2% +/- 2%
 POT LIFE: 24 HRS. • 80 DEGREES F, 5 HRS. • 100 DEG. F
 DRYING TIME: 1 HR. TO TOUCH, 3-4 HRS. RECOAT
 VISCOSITY: BASE 71-75 KU (STORMER)
 CURING AGENT 56-60 KU (STORMER)
 % SOLIDS BY WEIGHT: 51.5% +/- 2%

MCR-4301 EPOXY PRIMER
 % SOLIDS BY VOLUME: 48.0% +/- 2%
 POT LIFE: 30 HRS. • 50-60 DEG. F.
 16 HRS. • 80-100 DEG. F.
 DRYING TIME: 4-6 HRS. • 50-60 DEG. F.

MARK-60 (ULTRAPOX):
 % SOLIDS BY WEIGHT: 70-75% +/- 2%
 POT LIFE: 6 HRS. • 75 DEGREES F
 DRYING TIME: 2-3 HRS. INITIAL SET • 75 DEGREES F
 VISCOSITY: 300-500 CPS • 75 DEGREES F

TILE-CLAD II HI-BILD PRIMER
 % SOLIDS BY VOLUME: 48% +/- 2%
 % SOLIDS BY WEIGHT: 63% +/- 2%
 POT LIFE: 8 HRS. • 77 DEGREES F
 DRYING TIME: 1 HR. TO TOUCH, 6 HRS. TO RECOAT • 77 F

FOR NEW SUPPORT SECTIONS THIS PRIME COAT SHOULD BE DONE AT THE MANUFACTURER OF THE SUPPORT SECTIONS. VERIFICATION BY THE MANUFACTURER OF THE COATING MATERIAL FOR THE PRIME COAT PROCEDURES WILL BE REQUIRED. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING, OR OTHER SURFACE DAMAGE TO THE PRIME COAT.

THE PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING COSTS, AND MATERIALS NECESSARY TO ACCOMPLISH THIS ITEM OF WORK. THIS PRIME COAT SHALL BE MANUFACTURED BY THE THE SAME COMPANY SUPPLYING THE INTERMEDIATE AND TOP COATS. A PROPERLY CALIBRATED DRY FILM THICKNESS INSTRUMENT WILL BE USED TO CHECK THE COATING.

BASIS OF PAYMENT WILL BE AS FOLLOWS:

ITEM SPECIAL - COATING, EPOXY PRIME COAT, SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS

THIS ITEM SHALL CONSIST OF THE APPLICATION OF ONE (1) COAT OF EPOXY TO SUPPORT SECTIONS. THE TOTAL DRY FILM THICKNESS OF THIS COAT SHALL NOT BE LESS THAN SIX (6.0) MILS. IF MORE THAN ONE PASS IS NECESSARY TO OBTAIN THE REQUIRED THICKNESS, THAT COST SHALL BE BORNE BY THE CONTRACTOR. THINNING OF THE EPOXY MATERIAL IS STRICTLY PROHIBITED. MATERIAL NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED. THE COLOR OF THIS COAT SHALL BE LIGHT GREY.

WHEN THE AVERAGE DRY FILM THICKNESS OF THIS COAT OVER THE ENTIRE SUPPORT SECTION IS LESS THAN THE SPECIFIED SIX (6.0) MILS BUT IS AT LEAST (5.0) MILS, THE CONTRACT PRICE FOR THIS ITEM SHALL BE REDUCED IN DIRECT PROPORTION TO THE PERCENT DEFICIENCY OF COATING UP TO 16-2/3%. IF THE DEFICIENCY OF COATING IS MORE THAN 16-2/3% (I.E. THE AVERAGE DRY FILM THICKNESS IS LESS THAN 5.0 MILS) THE WORK FOR THIS ITEM SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RECOATED AT THE FULL EXPENSE OF THE CONTRACTOR, INCLUDING ALL LABOR, EQUIPMENT, AND MATERIAL.

THE EPOXY INTERMEDIATE COAT CHOSEN BY THE CONTRACTOR SHALL BE ONE OF THE FOLLOWING TWO-COMPONENT COMPOSITIONS CONFORMING TO ITS LISTED PROPERTIES.

AMERLOCK 400:
 % SOLIDS BY VOLUME: 83% +/- 2%
 POT LIFE: 2-1/2 HRS. • 70 DEGREES F
 DRYING TIME: 20 HRS. • 70 DEGREES F

GLID-GUARD EPOXY CHEMICAL RESISTANT FINISH NO. 5240 SERIES:
 % SOLIDS BY VOLUME: 44.7% +/- 2%
 POT LIFE: 10 HRS. • 80 DEGREES F
 DRYING TIME: 4 HRS. • 77 DEGREES F TO HANDLE
 VISCOSITY: 68-72 KU
 % SOLIDS BY WEIGHT: 58.0% +/- 2%

MCR 4361 HIGH BUILD EPOXY (OFF-WHITE)
 % SOLIDS BY VOLUME: 49.4% +/- 2%
 POT LIFE: 30 HRS. • 50-60 DEG. F.,
 16 HRS. • 80-100 DEG. F.
 DRYING TIME: 1-2 HRS. • 60-80 DEG. F.

MARK-60 ULTRAPOX:
 % SOLIDS BY WEIGHT: 70-75% +/- 2%
 POT LIFE: 6 HRS. • 75 DEGREES F
 DRYING TIME: 2-3 HRS. INITIAL SET • 75 DEGREES F
 VISCOSITY: 300-500 CPS • 75 DEGREES F

HI-SOLIDS CATALYZED EPOXY:
 % SOLIDS BY VOLUME: 61% +/- 2% (PURE WHITE)
 % SOLIDS BY WEIGHT: 77% +/- 2% (PURE WHITE)
 POT LIFE: 5 HRS. • 77 DEGREES F
 DRYING TIME: 1 HR. TO TOUCH, 4 HRS. TACK FREE, 6 HRS. TO RECOAT • 77 DEGREES F & 50% R.H.

AT LEAST 24 HOURS BUT NO MORE THAN THREE (3) DAYS SHALL ELAPSE AFTER THE APPLICATION OF THE EPOXY PRIME COAT AND BEFORE THE APPLICATION OF THE EPOXY INTERMEDIATE COAT. SURFACES SHALL IN ALL CASES BE CLEAN BEFORE THE INTERMEDIATE COAT IS APPLIED.

FOR NEW SUPPORT SECTIONS, THIS INTERMEDIATE COAT SHOULD BE DONE AT THE MANUFACTURER OF THE SUPPORT SECTIONS. VERIFICATION BY THE MANUFACTURER FOR THE INTERMEDIATE COAT PROCEDURE WILL BE REQUIRED. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING OR OTHER SURFACE DAMAGE TO THE INTERMEDIATE COAT.

THE PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING COSTS, AND MATERIAL NECESSARY TO ACCOMPLISH THIS ITEM OF WORK. THIS INTERMEDIATE COAT SHALL BE MANUFACTURED BY THE SAME COMPANY SUPPLYING THE PRIME AND TOP COATS. A PROPERLY CALIBRATED DRY FILM THICKNESS INSTRUMENT WILL BE USED TO CHECK THE COATING.

BASIS OF PAYMENT WILL BE AS FOLLOWS:

ITEM SPECIAL - COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

TRAFFIC CONTROL (CONT'D)

COATING, URETHANE TOP COAT, SUPPORT SECTIONS

THIS ITEM SHALL CONSIST OF THE APPLICATION OF ONE (1) COAT OF URETHANE TO SUPPORT SECTIONS. THE TOTAL DRY FILM THICKNESS OF THIS COAT SHALL NOT BE LESS THAN ONE AND ONE-HALF (1.5) MILS. IF MORE THAN ONE PASS IS NECESSARY TO OBTAIN THE REQUIRED MIL THICKNESS THAT COST SHALL BE BORNE BY THE CONTRACTOR. THINNING OF THE URETHANE MATERIAL IS STRICTLY PROHIBITED. MATERIAL NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED. THE COLOR OF THIS COAT SHALL BE MEDIUM GRAY.

WHEN THE AVERAGE DRY FILM THICKNESS OF THIS COAT OVER THE ENTIRE SUPPORT SECTION IS LESS THAN THE SPECIFIED ONE AND ONE-HALF (1.5) MILS BUT IS AT LEAST ONE (1.0) MIL, THE CONTRACT PRICE FOR THIS ITEM SHALL BE REDUCED IN DIRECT PROPORTION TO THE PERCENT DEFICIENCY OF COATING UP TO 33 1/3%. IF THE DEFICIENCY OF COATING IS MORE THAN 33-1/3% (I.E., THE AVERAGE DRY FILM THICKNESS IS LESS THAN 1.0 MIL) THE WORK FOR THIS ITEM SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RECOATED AT THE FULL EXPENSE OF THE CONTRACTOR, INCLUDING ALL LABOR, EQUIPMENT, AND MATERIAL.

THE URETHANE TOP COAT CHOSEN BY THE CONTRACTOR SHALL BE ONE OF THE FOLLOWING MATERIALS CONFORMING TO ITS LISTED PROPERTIES:

AMERCOAT 450 GL:
 % SOLIDS BY VOLUME: 45% +/- 2%
 POT LIFE: 20 HRS. @ 77 DEGREES F
 DRYING TIME: 8 HRS. @ 77 DEGREES F DRY-THROUGH

GLID-THANE ONE POLYURETHANE COATINGS NO. 6100 SERIES:
 % SOLIDS BY VOLUME: 38% +/- 2%
 DRYING TIME: 8-12 HRS. @ 77 DEGREES F TO HANDLE
 VISCOSITY: 100-250 CPS
 % SOLIDS BY WEIGHT: 52-55%

HYTHANE
 % SOLIDS BY VOLUME: 42% +/- 2%
 POT LIFE: 16 HRS. @ 50 DEG. F.
 12 HRS. @ 75 DEG. F.

MARK-73 (ULTRA-KOTE):
 % SOLIDS BY VOLUME: 52.5% +/- 2%
 POT LIFE: 8 HRS. @ 75 DEGREES F
 DRYING TIME: 4-5 HRS. @ 75 DEGREES F TACK FREE
 VISCOSITY: 70-75 KU @ 75 DEGREES F
 % SOLIDS BY WEIGHT: 55% +/- 2%

HI-BILD ALIPHATIC POLYURETHANE ENAMEL
 % SOLIDS BY VOLUME: 40% +/- 2% (CATALYZED)
 % SOLIDS BY WEIGHT: 48% +/- 2% (CATALYZED)
 POT LIFE: 6 HRS. @ 77 DEGREES F
 DRYING TIME: 30 MIN. TO TOUCH, 4 HRS. TACK FREE,
 18 HRS. MIN., 72 HRS. MAX TO RECOAT.

AT LEAST 24 HOURS BUT NO MORE THAN THREE (3) DAYS SHALL ELAPSE AFTER THE APPLICATION OF THE EPOXY INTERMEDIATE COAT AND BEFORE THE APPLICATION OF THE URETHANE TOP COAT. SURFACES SHALL IN ALL CASES BE CLEAN BEFORE THE TOP COAT IS APPLIED.

FOR NEW SUPPORT SECTIONS, THIS TOP COAT SHOULD BE DONE AT THE MANUFACTURER OF THE SUPPORT SECTIONS. VERIFICATION BY THE MANUFACTURER FOR THE TOP COAT PROCEDURE WILL BE REQUIRED. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING OR OTHER SURFACE DAMAGE TO THE TOP COAT.

THE PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING COST, AND MATERIALS NECESSARY TO ACCOMPLISH THIS ITEM OF WORK. THIS TOP COAT SHALL BE MANUFACTURED BY THE SAME COMPANY SUPPLYING THE PRIME AND INTERMEDIATE COATS. A PROPERLY CALIBRATED, DRY FILM THICKNESS INSTRUMENT WILL BE USED TO CHECK THE COATING.

BASIS OF PAYMENT WILL BE AS FOLLOWS:

ITEM SPECIAL - COATING, URETHANE TOP COAT, SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

PREQUALIFICATION

PRIOR TO USE, THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR COPIES OF THE MANUFACTURER'S CERTIFIED TEST DATA SHOWING THAT THE MATERIAL COMPLIES WITH THE REQUIREMENTS OF THIS SPECIFICATION. THE TEST DATA SHALL INCLUDE THE BRAND NAME OF THE PAINT, NAME OF MANUFACTURER, NUMBER OF THE LOT TESTED AND DATE OF MANUFACTURE. WHEN THE PAINT HAS BEEN APPROVED BY THE DIRECTOR, FURTHER PERFORMANCE TESTING BY THE MANUFACTURER WILL NOT BE REQUIRED UNLESS THE FORMULATION OR MANUFACTURING PROCESS HAS BEEN CHANGED, IN WHICH CASE NEW CERTIFIED TEST RESULTS WILL BE REQUIRED.

ACCEPTANCE

THE MANUFACTURER SHALL SUBMIT CERIFIED TEST DATA IN ACCORDANCE WITH REQUIREMENTS OF THIS SPECIFICATION.

THE STATE RESERVES THE RIGHT TO SAMPLE AND TEST DELIVERED LOTS FOR COMPLIANCE.

LOCATIONS

THE FOLLOWING SUMMARY OF MAJOR SUPPORT SECTIONS TO HAVE A PROTECTIVE COATING APPLIED IS NOTED BELOW:

SUPPORT NO.	NEW GALVANIZED SECTIONS	EXISTING GALVANIZED SECTIONS
SIGNALS		
9		1 VERT. POLE, 1 ARM
10		1 VERT. POLE
11		2 END FRAMES
12		1 VERT. POLE
21		2 END FRAMES
22		1 VERT. POLE, 1 ARM
33		2 END FRAMES, 1 TRUSS
40		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
46		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
47		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
48		1 VERT. POLE, 1 ARM
51		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
53		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
56		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
60		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
64		2 END FRAMES
65		2 END FRAMES, 1 TRUSS
69		1 VERT. POLE, 1 ARM
70		2 END FRAMES
72		2 END FRAMES
74		2 END FRAMES, 1 TRUSS
87		1 VERT. POLE, 1 ARM
92		1 VERT. POLE, 1 ARM, 1 LIGHT. ARM
94	1 VERT. POLE, 1 ARM	
97		2 END FRAMES
104		2 END FRAMES
110		2 END FRAMES, 1 TRUSS
133	1 VERT. POLE	
140	1 VERT. POLE, 1 ARM, 1 LIGHT. ARM	
143	1 VERT. POLE, 1 ARM	
149		2 END FRAMES
158	1 VERT. POLE, 1 ARM	
SIGNALS		
BROADWAY	3 POLES, 5 ARMS	
GRANGER	2 POLES, 2 ARMS	1 POLE, 1 ARM
EB-98		3 POLES, 3 ARMS
WB-98		2 POLES, 3 ARMS

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

ITEM SPECIAL - SURFACE PREPARATION, EXISTING SUPPORT SECTIONS.....	77	EACH
ITEM SPECIAL - SURFACE PREPARATION, NEW SUPPORT SECTIONS.....	22	EACH
ITEM SPECIAL - COATING, EPOXY PRIME COAT, SUPPORT SECTIONS.....	99	EACH
ITEM SPECIAL - COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS.....	99	EACH
ITEM SPECIAL - COATING, URETHANE TOP COAT, SUPPORT SECTIONS.....	99	EACH

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	
5	OHIO		

93
171

SIGNALS

SEQUENCE OF OPERATIONS

IN PERFORMING THE VARIOUS ITEMS OF WORK, THE CONTRACTOR SHALL PLAN ALL WORK AND "MAINTENANCE OF TRAFFIC" TO MINIMIZE THE DISRUPTION TO THE MOTORING PUBLIC. OFF THE ROAD WORK MAY BE PERFORMED DURING THE PEAK HOUR TRAFFIC RESTRICTIONS. THUS WHEN COMBINED WITH OTHER WORK A FULL WORK DAY CAN BE ACCOMPLISHED. THE OFF THE ROAD TYPE WORK SHOULD NEVER INFRINGE UPON THE TRAVELED ROADWAY. LISTED BELOW IS A SUGGESTED SEQUENCE OF OPERATIONS FOR THE VARIOUS IMPROVEMENTS.

ALL FOUNDATION WORK, TRENCHING AND CONDUIT WORK, PULL BOX AND GROUND ROD INSTALLATIONS AND DRILLING OR JACKING OPERATIONS SHOULD BE PERFORMED AT THOSE LOCATIONS WHERE REQUIRED. MAST ARM SUPPORTS SHOULD BE INSTALLED AFTER PROPER CURING OF THE CONCRETE FOUNDATIONS.

NEW POWER SERVICE AND POWER CABLE SHOULD BE INSTALLED WHERE REQUIRED. INSTALL NEW HOUSINGS AT THOSE LOCATIONS WHICH ARE NEW SIGNAL INSTALLATIONS OR AT THOSE LOCATIONS WHERE THE EXISTING HOUSING WILL NOT INTERFERE. COMPLETE WIRING IN THE CABINET(S) AT THE INSTALLATION(S) AND AS MUCH WIRING IN THE REPLACEMENT CABINETS AS POSSIBLE WITHOUT AFFECTING THE EXISTING SIGNAL OPERATION.

AT LOCATIONS WHERE THE EXISTING CONTROLLER HOUSING IS TO BE UPGRADED, THE FOLLOWING PROCEDURES MUST BE FOLLOWED. THE INTENT OF THIS PLAN IS TO ALLOW THE CONTRACTOR TO SHUT DOWN AN EXISTING SIGNAL FOR 6 HOURS UTILIZING A POLICE OFFICER WITH PATROL CAR TO MAINTAIN TRAFFIC. DURING THIS TIME THE NEW SIGNAL HEADS, SPAN, WIRING AND CONTROLLER HOUSING MUST BE INSTALLED AND IN OPERATION PRIOR TO THE AFTERNOON RUSH HOUR.

AS SUGGESTED ABOVE THE NEW SIGNAL CABLE AND LEAD-IN CABLE MAY BE INSTALLED PRIOR TO THE REPLACEMENT HOUSING INSTALLATION TO INSURE THAT THE SIGNAL WILL BE OPERATIONAL IN THE ALLOTTED 6 HOUR TIME RESTRICTION. THE SIGNAL HEAD REPLACEMENT SHALL BE ACCOMPLISHED IN SUCH A MANNER SO THAT THE EXISTING STRAIN POLES ARE NOT OVERSTRESSED. A HEAD BY HEAD REPLACEMENT OR A SYSTEM REPLACEMENT IS ACCEPTABLE AS LONG AS THE SIGNALS ARE OPERATIONAL PRIOR TO THE CONTRACTOR LEAVING THE JOB SITE EACH DAY. ALL TRAFFIC SIGNAL HEADS SHALL BE WIRED CONTINUOUSLY FROM HEAD TO HEAD AS NOTED IN THE WIRING SCHEMATIC ON EACH PLAN SHEET. NO EXTERNAL SPLICES WILL BE PERMITTED IN THE PERMANENT WIRING.

UNDERGROUND UTILITIES

THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT. THE OHIO DEPARTMENT OF TRANSPORTATION HAS USED THE BEST AVAILABLE INFORMATION TO DETERMINE THE UTILITY COMPANY OWNERS IN THIS AREA, BUT CANNOT GUARANTEE THAT THIS LIST IS COMPLETE.

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE.

ITEM 633- COORDINATOR, TIME BASED, AS PER PLAN

IN ACCORDANCE WITH CMS 733.08 PARAGRAPH 18 THE TBC SHALL BE A SEPARATE UNIT WITHIN THE CABINET.

CLEVELAND ELECTRIC ILLUMINATING COMPANY
P.O. BOX 5000
ROOM 477
CLEVELAND, OHIO 44101
(216) 861-9000
ATTN.: ROBERT HOHERZ

CLEVELAND WATER DEPARTMENT
1201 LAKESIDE
CLEVELAND, OHIO 44103
(216) 664-3236
ATTN.: C. BECK

OHIO BELL TELEPHONE
5755 GRANGER ROAD
CLEVELAND, OHIO 44105
(216)
ATTN.: GREG OLENICKA

AMERICAN TELEPHONE AND TELEGRAPH (AT&T)
3833 WAYMOUTH ROAD
MEDINA, OHIO 44256
(216) 725-4552

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 12
TRAFFIC ENGINEER'S OFFICE
P.O. BOX 258003
GARFIELD HTS., OHIO 44125-8003
(216) 582-2100

SPACE CABLE
8600 PLEASANT VALLEY ROAD
INDEPENDENCE, OHIO 44131
(216) 524-9492

EAST OHIO GAS COMPANY
1201 E. 55TH STREET
CLEVELAND, OHIO 44103
(216) 432-6803
ATTN.: RICHARD GENDER

POWER SUPPLY FOR TRAFFIC SIGNALS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE POWER COMPANY AND MAKING ALL NECESSARY ARRANGEMENTS TO DISCONNECT THE EXISTING POWER SUPPLIES AS REQUIRED IN ORDER TO REPLACE THE INDICATED CONTROLLERS AND/OR CABINETS. THE COST OF THIS POWER DISCONNECTION/CONNECTION SERVICE WILL BE INCIDENTAL TO THE COST OF THE "POWER SERVICE" PAY ITEM. SERVICE TO ALL SIGNALS IS SUPPLIED BY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY. THE VOLTAGE SUPPLIED SHALL BE 120/240 VOLTS AC; HOWEVER, ONLY 2 WIRE SERVICE 120V AC SHALL BE FURNISHED FROM THE DISCONNECT SWITCH TO THE CONTROLLER HOUSING. ALL NECESSARY WORK TO INSTALL AND COMPLETE THE OPERATIVE SYSTEM WILL BE INCLUDED IN THE VARIOUS ELECTRICAL BID ITEMS IN THIS CONTRACT.

ITEM 605-SHALLOW PIPE UNDERDRAINS

AN ESTIMATED QUANTITY OF 50 LINEAR FEET OF ITEM 605 SHALLOW PIPE UNDERDRAIN IS PROVIDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE PROJECT ENGINEER. THIS ITEM SHALL BE USED TO PROVIDE POSITIVE DRAINAGE FOR THE PULL BOXES. PERFORATED 3" PVC PIPE OR CONDUIT MATERIAL SHALL BE USED

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	DESCRIPTION	QUANTITY	UNIT
605	SHALLOW PIPE UNDERDRAINS	50	LIN.FT.

ITEM 614-MAINTAINING TRAFFIC

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE NECESSARY TRAFFIC CONTROL TO PROTECT THE WORK AREA AND THE MOTORING PUBLIC AS PER THE REQUIREMENT OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (O.M.U.T.C.D.) AND/OR AS SET FORTH IN THESE PLANS. TRAFFIC SHALL BE MAINTAINED ON THE EXISTING PAVEMENT WITHOUT INTERRUPTION EXCEPT AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL SET UP AND OPERATE HIS/HER EQUIPMENT IN SUCH A MANNER SO AS TO MINIMIZE THE EXTENT OF ENCROACHMENT UPON THE TRAVELED PORTION OF THE PAVEMENT.

THE EXISTING SIGNAL OPERATION FOR THE LOCATIONS TO BE UPGRADED SHALL BE MAINTAINED UNTIL THE CONTROLLER UPGRADE OPERATION IS STARTED. THE EXISTING SIGNAL SHALL BE MAINTAINED BY UTILIZING THE EXISTING SIGNAL EQUIPMENT AND/OR A PORTION OF THE NEW SIGNAL EQUIPMENT. AT NO TIME SHALL THE CONTRACTOR LEAVE A WORK LOCATION WITHOUT THE TRAFFIC SIGNAL BEING OPERATIONAL. WHENEVER ANY EXISTING SIGNAL IS REQUIRED TO BE PUT OUT OF SERVICE DUE TO NECESSARY UPGRADE WORK BY THE CONTRACTOR, A LAW ENFORCEMENT OFFICER WITH PATROL CAR SHALL BE SUPPLIED BY THE CONTRACTOR TO REGULATE AND CONTROL TRAFFIC AT EACH INTERSECTION AFFECTED DURING THAT OFF PEAK PERIOD OF TIME, NOT TO EXCEED 6 HOURS, OR AS DIRECTED BY THE ENGINEER, WHERE NO SIGNAL INDICATIONS ARE BEING DISPLAYED.

ANY CLOSURE SHALL BE IMPLEMENTED DURING NON-PEAK HOURS (NON-PEAK HOURS ARE 9:00 A.M. UNTIL 3:00 P.M.) WHEN IT IS NECESSARY TO CLOSE ONE LANE OF TRAFFIC ADJACENT TO THE WORK. THE CLOSURE SHALL BE ACCOMPLISHED BY THE APPLICATION OF TRAFFIC CONTROL DEVICES AS SHOWN ON SHEETS AND OF THE PLANS. ALL ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS TRAFFIC, SHALL BE ERECTED BEFORE ANY SUCH RESTRICTIONS ARE PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHEN THEY ARE NOT APPLICABLE, AS DETERMINED BY THE ENGINEER. FOR WORK WHICH IS CONFINED TO THE SHOULDER, THE TRAFFIC CONTROL SHALL CONFORM TO FIGURE C-12 OF THE O.M.U.T.C.D.. IF THE CONTRACTOR FAILS TO COMPLY WITH THE PROVISIONS AS SET FORTH IN THESE PLANS AND/OR THE PROVISIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND SUCH A FAILURE TO COMPLY RESULTS IN A CONDITION AT THE WORK SITE WHICH IS UNSAFE FOR THE PUBLIC, THE ENGINEER WILL SUSPEND WORK UNTIL THE CONTRACTOR COMPLIES WITH THE NECESSARY REQUIREMENTS.

THE ABOVE ITEM OF WORK - WITH THE EXCEPTION OF THE LAW ENFORCEMENT OFFICER WITH PATROL CAR - WILL BE INCLUDED IN THE LUMP SUM PRICE FOR ITEM 614-MAINTAINING TRAFFIC.

ITEM 632-LOOP DETECTOR UNIT, DELAY AND EXTEND, AS PER PLAN ITEM 632-LOOP DETECTOR UNIT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632, THE LOOP DETECTOR AMPLIFIERS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES.

- 1.) THE OUTPUT RELAY SHALL BE ELECTROMECHANICAL WITH THE NORMALLY CLOSED, OPEN AND THE RELAY COMMON CONTACTS BROUGHT OUT IN THE HARNESS.
- 2.) THE AMPLIFIER SHALL BE AUTOMATICALLY SELF-TUNING.
- 3.) THE UNITS ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SIGNAL CHANNEL AMPLIFIER AS DESCRIBED IN 732.07.

FOR QUANTITIES, SEE SHEET 110 .

ITEM 632-LOOP DETECTOR TIE-IN

THIS WORK SHALL CONSIST OF MAKING CONNECTIONS TO EXISTING LOOP DETECTOR LEAD-IN WIRE WHETHER THAT WIRE IS UNDERGROUND OR AERIAL. INCLUDED IN THIS ITEM ARE THE SPLICING KITS THAT MUST BE USED TO MAKE THESE CONNECTIONS.

THIS ITEM IS ONLY NEEDED WHEN A TIE-IN SITUATION EXISTS. WHEN ALL NEW LEAD-IN WIRE SPECIFIED IN THE PLAN, THIS ITEM OF WORK IS NOT PERMITTED.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM	DESCRIPTION	QUANTITY	UNIT
632	LOOP DETECTOR TIE-IN	5	EACH

SIGNALS (CONT.)

ITEM SPECIAL-TEMPORARY WIRING OF SIGNAL HEADS

THE CONTRACTOR SHALL REPLACE AND MODIFY THE EXISTING VEHICULAR SIGNAL HEAD ARRANGEMENT AND PROVIDE NEW SIGNAL CABLE TO ALL HEADS. IF THE NEW SIGNAL CABLE CANNOT BE PLACED WITHOUT DISRUPTION TO THE EXISTING SIGNAL OPERATION, THE CONTRACTOR SHALL INSTALL TEMPORARY WIRING TO EACH HEAD ON THE OUTSIDE OF EACH MAST ARM UTILIZING EXTERNAL SPLICES AT EACH SIGNAL HEAD. AGAIN, PLEASE NOTE THAT NO WORK SHALL BE PERFORMED UNTIL THE NEW CONTROLLER AND HOUSING ARE IN PLACE AND IN OPERATION.

THE FOLLOWING QUANTITY IS BEING CARRIED TO THE GENERAL SUMMARY:

ITEM SPEC	DESCRIPTION	QUANTITY	UNIT
	TEMPORARY WIRING OF SIGNAL HEADS	10	EACH

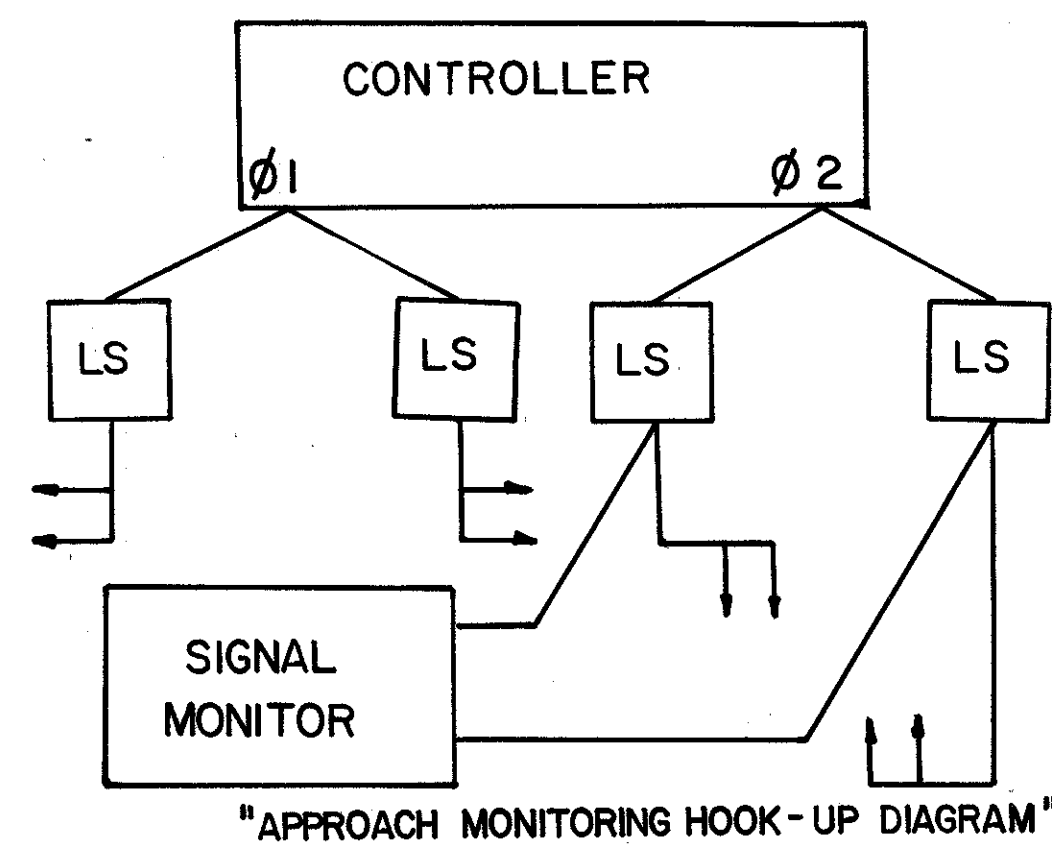
ITEM 633-CONTROLLER, ACTUATED (2,3,4) PHASE, SOLID STATE DIGITAL, MICROPROCESSOR WITH CABINET, BY TYPE

THE OVERLAP PROGRAMMING SHALL BE BY USE OF AN INTERCHANGEABLE PLUG-IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF TS-1-1983. IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING (IN ACCORDANCE WITH SECTION 733.04 PART 3B OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS). APPROACH MONITORING SHALL BE REQUIRED AS SHOWN ON THE "APPROACH MONITORING HOOK-UP DIAGRAM". THE CONFLICT MONITOR SHALL HAVE PROGRAMMABLE CHANNELS TO ACCOMPLISH APPROACH MONITORING FEATURE. THE CONTROLLER CABINET SHALL BE KEYPED TO THE STATE MASTER. IT SHALL ALSO BE PAINTED YELLOW, FEDERAL STANDARD 595 COLOR 13655. CONTROLLER CABINET SIZE SHALL COMPLY TO THE REQUIREMENTS OF NEMA TS-1 SECTION 14. PRINTED BOARD TYPE BACK PANELS OF THE CONTROLLER CABINET WILL NOT BE ACCEPTABLE. SOLDERED CONNECTIONS WILL BE PERMITTED FOR WIRING ON THE BACK SIDE OF THE BACK PANEL. ALL CONTROLLER MEMORIES SHALL BE INVOLATILE AND SHALL NOT REQUIRE BATTERIES OR OTHER SOURCES OF ENERGY TO RETAIN DATA WHILE POWER IS REMOVED FROM THE CONTROLLER. PAYMENT FOR ITEM 633 CONTROLLER, BY TYPE, SOLID STATE DIGITAL, MICROPROCESSOR WITH CABINET BY TYPE, WILL BE AT THE CONTRACT BID PRICE PER EACH UNIT COMPLETE AND IN PLACE AND SHALL INCLUDE ALL CONNECTIONS TESTED AND ACCEPTED.

THE FUTURE PHASE REQUIREMENT SHALL INCLUDE ALL WIRING AND COMPONENTS FOR THE CONFLICT MONITOR, FLASH TRANSFER RELAYS AND LOAD SWITCHES SUCH THAT WHEN EXPANSION IS IMPLEMENTED, THE ONLY WORK REQUIRED WILL BE TO REPROGRAM THE CONFLICT MONITOR, HOOK-UP THE SIGNAL HEADS AND DETECTORS AND ACTIVATE THE ADDED PHASES ON THE CONTROLLER.

FOR QUANTITIES SEE SHEET IIO.

IN ORDER TO EMPLOY "APPROACH MONITORING" A SEPARATE SIGNAL CABLE MUST BE INSTALLED TO THE SIGNAL FACES OF EACH APPROACH, ADDITIONAL LOAD SWITCHES ARE REQUIRED TO ACCOMMODATE EACH APPROACH, AND A NEMA "PLUS" TYPE OF MONITOR UNIT IS REQUIRED AND ADDITIONAL CHANNELS IN THE MONITOR UNIT ARE NECESSARY.



TYPICAL

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING THE COMPLETION OF THE 10-DAY TEST. IN THE EVENT OF UNSATISFACTORY OPERATION, THE CONTRACTOR SHALL CORRECT THE INSTALLATION, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED WHILE CORRECTING ANY UNSATISFACTORY OPERATION SHALL BE ABSORBED BY THE CONTRACTOR.

THE CONTRACTOR'S RESPONSIBILITY SHALL BE LIMITED TO NECESSARY REPAIRS REPLACEMENT OF DEFECTIVE PARTS WITH PARTS EQUAL TO OR BETTER THAN THOSE ORIGINALLY SPECIFIED IN REMEDYING FAULTY INSTALLATION IN AN APPROVED MANNER INCLUDING ALL LABOR, MATERIAL, AND EQUIPMENT COSTS RELATED THERE TO. DURING THIS PERIOD THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND PROPER OPERATION OF ALL CONTRACTOR INSTALLED EQUIPMENT. DURING THIS SAME PERIOD, THE ENGINEER WILL BE RESPONSIBLE FOR THE MAINTENANCE AND PROPER OPERATION OF ALL EQUIPMENT NOT TO BE REPLACED. IN THE EVENT OF AN OUTAGE OR EQUIPMENT MALFUNCTION, THE ENGINEER WILL DETERMINE WHO IS RESPONSIBLE FOR THE REPAIR. THE ENGINEER WILL CONTACT THE CONTRACTOR IF THE EQUIPMENT FAILURE IS HIS/HER RESPONSIBILITY. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT THE OUTAGE. THE CONTRACTOR SHALL HAVE SUFFICIENT PERSONNEL AND EQUIPMENT AVAILABLE TO RESTORE NORMAL OPERATION WITHIN 4 HOURS AFTER NOTIFICATION. WHEN THE CONTRACTOR FAILS TO RESPOND TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS DESCRIBED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

CUSTOMARY MANUFACTURERS' GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

ITEM SPECIAL- PIER MOUNTED SIGNAL HEAD

THIS WORK SHALL CONSIST OF MOUNTING SIGNAL HEADS AS SHOWN ON SHEET 148.

INCLUDED SHALL BE ALL CONDUIT, JUNCTION BOXES, CONNECTORS, EQUIPMENT, WORK, AND LABOR NECESSARY TO COMPLETE THIS ITEM. SIGNAL HEADS SHALL BE PAID FOR SEPARATELY.

FOR QUANTITIES, SEE SHEET IIO.

ITEM 632-REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN.

THIS WORK SHALL CONSIST OF THE REMOVAL OF THOSE EXISTING TRAFFIC SIGNALS COMPONENT PARTS AT THOSE LOCATIONS NOTED IN THE PLANS. ALL REMOVED MATERIAL WILL BE DISPOSED OF BY THE CONTRACTOR EXCEPT FOR THE FOLLOWING ITEMS WHICH WILL REMAIN THE PROPERTY OF THE STATE OF OHIO AND BE DELIVERED BY THE CONTRACTOR TO THE TRAFFIC DEPARTMENT AT THE WARRENSVILLE MAINTENANCE YARD, 25609 EMERY ROAD, WARRENSVILLE HTS., OHIO. A MINIMUM OF 24 HOURS PRIOR NOTICE MUST BE GIVEN PRIOR TO THE DELIVERY OF ANY MATERIAL. MATERIAL WILL ONLY BE ACCEPTED BETWEEN THE HOURS OF 7:30 A.M. TO 10:30 A.M. AND 1:00 P.M. TO 3:00 P.M. WEEKDAYS, EXCLUDING HOLIDAYS.

1. ALL TRAFFIC SIGNAL CONTROLLERS WITH HARNESS, LOAD SWITCHES, LOOP DETECTOR UNITS WITH HARNESES, FLASHER UNITS AND SR-4 RELAYS WITHIN BUT NOT INCLUDING THE CONTROLLER CABINETS (EXCEPT FOR I-480 AND SR-14 WHICH IS TO BE REVISED)
2. VEHICULAR SIGNAL HEADS (FROM I-480 AND SR-14 ONLY)
3. PEDESTRIAN SIGNAL HEADS (I-480 AND SR-17)
4. MESSENGER WIRE AND SIGNAL CABLE (NEATLY COILED), LEFT TURN SIGNAL SIGNS AND STRAIN POLES FROM I-480 & SR-14.

IN ADDITION, THE FOLLOWING ITEMS ARE INCLUDED AS PART OF THE REMOVAL FOR THIS PAY ITEM AND ARE SUMMARIZED BELOW FOR EACH SIGNALLED LOCATION:

I-480 AND SR-14

1. 8 SIGNAL HEADS
2. MESSENGER WIRE, SIGNAL CABLE
3. 3 STRAIN POLES AND 4 FOUNDATIONS
4. CONTROLLER FOUNDATION
5. DOWN GUY INSTALLATION
6. POWER SERVICE, POWER CABLE, SERVICE CABLE
7. LOOP DETECTOR LEAD-IN CABLE
8. 2 WOOD POLES

I-480 AND SR-17

1. PEDESTRIAN HEAD AND PUSH BUTTONS
2. 6 VEHICULAR SIGNAL HEADS
3. CONTROLLER AND CABINET
4. SIGNAL CABLE
5. LOOP DETECTOR LEAD-IN CABLE
6. PORTION OF COMBINATION SIGNAL SUPPORT SIGN SUPPORT WHICH HOLDS THE TWO SIGNAL HEAD FACING SR-17 WB TRAFFIC.

I-480 AND I-480 WB AT TRANSPORTATION BLVD. (TWO LOCATIONS)

1. VEHICULAR SIGNAL HEADS
2. CONTROLLER AND CABINET
3. SIGNAL CABLE
4. LOOP DETECTOR LEAD-IN CABLE

FOR QUANTITIES, SEE SHEET IIO.

ITEM 632-REMOVAL OF POLE MOUNTED CABINET AND CONTROLLER AND RE-ERECTION, AS PER PLAN.

AT THE INTERSECTION OF I-480 AND SR-14. (BROADWAY AVE.) THE EXISTING POLE MOUNTED CABINET WAS RECENTLY INSTALLED BY STATE FORCES. THE EXISTING CONTROLLER, CABINET AND ASSOCIATED HARDWARE IS TO BE REMOVED AND RE-ERECTED BY THE CONTRACTOR TO CONTROL THE NEW SIGNAL SYSTEM. THE CABINET HAS BEEN PRE-WIRED FOR A 4 PHASE OPERATION WITH PEDESTRIAN MOVEMENTS. CURRENTLY THE SIGNAL IS OPERATING AS A 3 PHASE SYSTEM WITH NO PEDESTRIAN MOVEMENTS. EXTREME CARE SHOULD BE USED IN REMOVING AND REINSTALLING THE CONTROLLER CABINET AND ASSOCIATED EQUIPMENT. ANY DAMAGE DONE TO THE CABINET OR EQUIPMENT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE EXISTING TRAFFIC CONTROL SYSTEM MUST REMAIN IN OPERATION TO CONTROL TRAFFIC. THE ONLY INTERRUPTIONS PERMITTED WILL BE WHEN THE TEMPORARY SIGNAL SYSTEM (PAID FOR UNDER A SEPARATE PAY ITEM) IS PUT INTO OPERATION AND WHEN THE NEW SIGNAL SYSTEM IS TO BE PLACED IN OPERATION. WHENEVER THE SIGNAL IS NOT IN FULL OPERATION, TRAFFIC SHALL BE MAINTAINED BY A LAW ENFORCEMENT OFFICER(S) AS PROVIDED IN THE PLANS. THE TRAFFIC SIGNALS SHALL NOT BE TAKEN OUT OF SERVICE DURING PEAK HOUR TIMES, 6:00 A.M. - 9:00 A.M. AND 3:00 P.M. - 6:00 P.M.- WEEKDAYS. THE SIGNALS MUST BE FULLY OPERATIONAL PRIOR TO THE CONTRACTOR LEAVING THE JOB SITE.

INCLUDED IN THE THIS ITEM OF WORK WILL BE ALL THE LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO REMOVE, RE-ERECT, AND PLACE IN OPERATION THE EXISTING POLE MOUNTED CABINET, CONTROLLER, AND ASSOCIATED HARDWARE. ANY UNUSED OPENINGS IN THE BOTTOM OF THE CABINET SHALL BE SEALED WITH A WATERTIGHT GASKET AND PLATE.

A COPY OF THE WIRING DIAGRAM FOR THE CABINET IS IN THE FIELD HOUSING OR IS AVAILABLE AT THE DISTRICT 12 TRAFFIC OFFICE 5500 TRANSPORTATION BLVD. GARFIELD HTS., OHIO 44125. PHONE NUMBER (216)-581-2100 EXT.296.

FOR QUANTITIES, SEE SHEET IIO.

SIGNALS (CONT.)

ITEM 614-TEMPORARY TRAFFIC SIGNAL

IN ORDER FOR THE CONTRACTOR TO CONSTRUCT THE NEW ALIGNMENT OF THE EXIT RAMP FROM I-480 TO SR-14, MODIFICATION TO THE EXISTING SIGNAL SYSTEM WILL BE REQUIRED. IT IS RECOMMENDED THE THE CONTRACTOR COMPLETE AS MUCH WORK AS POSSIBLE PRIOR TO MODIFYING THE EXISTING OPERATION, SO THAT THE LOOP DETECTORS MAY EFFICIENTLY CONTROL THE FLOW OF TRAFFIC. ONCE THE MODIFICATIONS ARE MADE THE SIGNAL WILL WORK FIXED TIME.

THIS WORK SHALL CONSIST OF THE FOLLOWING:

1. FURNISH AND INSTALL CLASS 1-45' WOOD POLE WITH DOWN GUY IN LINE WITH THE EXISTING SPAN, CLEAR OF THE WORK AREA.
2. FURNISH AND INSTALL MESSENGER WIRE WITH ACCESSORIES TO TIE INTO THE EXISTING SPAN USING A BULL RING OR STRAIN INSULATOR AS NOTED ON TC 84.20.
3. FURNISH AND INSTALL SIGNAL CABLE FROM NEW WOOD POLE TO A POINT ON THE NEW SPAN WHERE WATERTIGHT SPLICES CAN BE MADE INTO THE EXISTING CABLES REMOVED FROM THE CONTROLLER HOUSING. ALLOW ENOUGH CABLE TO REACH THE CONTROLLERHOUSING WHICH IS TO BE REMOVED AND REINSTALLED ON THE NEW POLE.
4. REMOVE CONTROLLER AND HOUSING, CONDUIT RISER, POWER SERVICE, POWER CABLE AND SERVICE CABLE AND REINSTALL ON NEW WOOD POLE. THE CONTRACTOR WILL FURNISH AND INSTALL ADDITIONAL SERVICE CABLE IF NECESSARY.
5. FURNISH AND INSTALL GROUND ROD, CABLE AND CLAMP AT NEW WOOD POLE TO CABINET.
6. INSTALL POWER TO CABINET, LABEL AND CONNECT VARIOUS SIGNAL CABLES PUT PHASE 2 AND PHASE 3 ON RECALL.
7. CHECK FLASHING OPERATION AND SIGNAL TIMING.

THE EXISTING CONTROLLER SHOULD NOT BE REMOVED UNTIL THE NEW POLE DOWN GUY AND MESSENGER WIRE IS INSTALLED. ONCE THE SIGNAL IS SHUT DOWN, LAW ENFORCEMENT OFFICERS SHALL CONTROL TRAFFIC UNTIL THE TEMPORARY INSTALLATION IS BACK IN SERVICE. THE SIGNAL SHALL NOT BE OUT OF SERVICE DURING THE PEAK HOURS OF TRAFFIC, 6:00 A.M. TO 9:00 A.M. AND 3:00 P.M. TO 6:00 P.M. WEEKDAYS. THE SIGNAL MUST BE FULLY OPERATIONAL PRIOR TO THE CONTRACTOR LEAVING THE JOB SITE.

INCLUDED IN THIS ITEM OF WORK WILL BE ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM OF WORK.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM DESCRIPTION	QUANTITY	UNIT
614 TEMPORARY TRAFFIC SIGNAL	1	EACH

ITEM 625-PULLBOX, 713.08, 18"

THE FOLLOWING ESTIMATED CONTINGENCY QUANTITY SHALL BE USED AS DIRECTED BY THE ENGINEER TO REPLACE BADLY DAMAGED PULLBOXES THAT ARE TO REMAIN IN SERVICE. IF PULLBOXES ARE FOUND TO BE ADEQUATE, THIS ITEM SHALL BE NON-PERFORMED.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM DESCRIPTION	QUANTITY	UNIT
625 PULLBOX, 713.08, 18"	5	EACH

TRAFFIC CONTROL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA REGION 5

FEDERAL PROJECT

96
171

GROUND MOUNTED SIGNS

REFERENCE NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	SPECIAL DETAIL SHEET NO.	LOCATION	SIGN CODE NO.	SIGN SIZE	SIGNS, FLAT SHEET, TYPE G	SIGNS, EXTRUSHEET, TYPE G	GROUND MOUNTED SUPPORTS, NO. 2 POST	GROUND MOUNTED SUPPORTS, NO. 3 POST	GROUND MOUNTED SUPPORTS, NO. 4 POST	GROUND MOUNTED SUPPORTS, NO. 6 POST	ONE WAY SUPPORTS, NO. 4 POST	2" DIAMETER POST	GROUND MOUNTED SUPPORTS, S4x 7.7 BEAM	GROUND MOUNTED SUPPORTS, W6x 9 BEAM	GROUND MOUNTED SUPPORTS, W10x 12 BEAM	CONCRETE FOR EMBEDDED FOUNDATIONS	BREAKAWAY BEAM CONNECTION	SIGN SUPPORT ASSEMBLY, BRIDGE MOUNTED	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	SIGN ATTACHMENT ASSEMBLY	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT	REMOVAL OF GROUND MOUNTED BEAM SUPPORT		
							SO FT	SO FT	LN FT	LN FT	LN FT	LN FT	LN FT	LN FT	LN FT	LN FT	LN FT	CU. YD.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH		
1	112		138	995+20 EB	R-52-24	2' X 2.5'	5.0			13.2																			
2	112		138	995+20 EB	R-52-24	2' X 2.5'	5.0			13.0																			
3	112			995+94 EB	X-6L	1' X 3'	3.0		14.0																				
4	112			995+94 EB	X-6R	1' X 3'	3.0		14.0																				
5	112		138	999+42 WB	R-52-24	2' X 2.5'	5.0																						
6	112		138	1001+22 WB	R-52-24	2' X 2.5'	5.0																						
7	112		138	1001+22 EB	R-52-24	2' X 2.5'	5.0																						
8	112		138	1003+02 EB	R-52-24	2' X 2.5'	5.0																						
13	113		138	1010+55 WB	R-52-24	2' X 2.5'	5.0																						
14	113		138	1012+55 WB	R-52-24	2' X 2.5'	5.0																						
15	113		138	1014+55 EB	R-52-24	2' X 2.5'	5.0																						
16	113		138	1016+50 EB	R-52-24	2' X 2.5'	5.0																						
17	113		138	1018+45 WB	R-52-24	2' X 2.5'	5.0																						
18	113		138	1020+41 WB	R-52-24	2' X 2.5'	5.0																						
19	113		138	1022+40 EB	R-52-24	2' X 2.5'	5.0																						
20	113		138	1024+35 EB	R-52-24	2' X 2.5'	5.0																						
23	114		138	1028+25 WB	R-52-24	2' X 2.5'	5.0																						
24	114		138	1030+24 WB	R-52-24	2' X 2.5'	5.0																						
25	114		138	1034+25 EB	R-52-24	2' X 2.5'	5.0																						
26	114		138	1036+20 EB	R-52-24	2' X 2.5'	5.0																						
27	115			1038+08 WB	X-6R	1' X 3'	3.0		14.0																				
28	115			1038+08 WB	X-6L	1' X 3'	3.0		14.0																				
29	115			1038+20 WB	GN	11' X 3.5'		38.5									18.6-23.4	2.2											
30	115			1038+70 EB	GN	11' X 3.5'		38.5									18.6-23.4	2.2									2		
160	115			1042+00 EB	GB	13' X 7.0'																					2		
31	115		138	1038+80 WB	R-52-24	2' X 2.5'	5.0				13.7																		
32	115		138	1038+80 WB	R-52-24	2' X 2.5'	5.0				12.8																		
34	115		139	1045+68 EB	GF	6' X 5'		30.0						16.6-17.1				0.54	2										
35	115			47+35 RAMP W-98	W-47-48	4' X 4'	16.0				14.9-15.2																		
36	115		141	1048+30 WB-Rt.	W-68-48	4' X 4'	16.0				16.5-16.8																		
37	115		141	1048+30 WB-Lt.	W-68-48	4' X 4'	16.0				16.0-16.2																		
38	115			50+00 RAMP W-98	D-4B	10' X 4'		40.0							14.6-15.3			0.66	2								2		
39A	116			58+83 RAMP E-98	R-31F	3' X 2.5'	7.5																						
39B	116			58+83 RAMP E-98	R-41A-36	3' X 2'	6.0																						
41	116			56+17 RAMP E-98	R-37R-24	2' X 2.5'	5.0				12.0																		
42A	116			56+14 RAMP E-98	R-43R-36	3' X 1'	3.0				13		14														2		
42B	116			56+14 RAMP E-98	R-41B-36	3' X 3'	9.0																						
42C	116			56+14 RAMP E-98	R-43L-36	3' X 1'	3.0																						
43	116			57+00 RAMP E-98	R-2-36	3' X 3' X 3'	3.9				12.8																		
44	116			56+01 RAMP E-98	R-15B	2.5' X 1.5'	3.75																						
45	116			65+74 RAMP 98-W	R-15B	2.5' X 1.5'	3.75																						
49	116			1051+16 EB	W-49R-48	4' X 4'	16.0				16.5-16.8																		
50	116			1053+70 EB	R-2-60	5' X 5' X 5'	10.8																						
52A	116			23+57 E98th Lt.	R-41B-36	3' X 3'	9.0																						
52B	116			23+57 E98th Lt.	R-2-36	3' X 3' X 3'	3.9																						
54	116			45+92 RAMP 98-E	R-15B	2.5' X 1.5'	3.75																						
55	116			46+60 RAMP 98-E	R-2-36	3' X 3' X 3'	3.9				12.8																		
56A	116			25+21 E98th Rt.	R-15B	2.5' X 1.5'	3.75																						
56B	116			25+21 E98th Lt.	M-45	3.5' X 5'		17.5																					
57	116			52+00 RAMP W-98	R-41A-36	3' X 2'	6.0				13.0-13.2																		
TOTALS							262	164.5	56	90.3	168.1			14		33.7	29.9	84	5.6	4		26			18	19	4	21	8

TRAFFIC CONTROL QUANTITIES, GROUND MOUNTED SIGNS

ZFA2:100323JAMK .DGN;

TRAFFIC CONTROL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

97
171

GROUND MOUNTED SIGNS

REFERENCE NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	SPECIAL DETAIL SHEET NO.	LOCATION	SIGN CODE NO.	SIGN SIZE	630 SIGNS, FLAT SHEET, TYPE G SQ FT	630 SIGNS, EXTRUSHEET, TYPE G SQ FT	630 GROUND MOUNTED SUPPORTS, NO. 2 POST LIN FT	630 GROUND MOUNTED SUPPORTS, NO. 3 POST LIN FT	630 GROUND MOUNTED SUPPORTS, NO. 4 POST LIN FT	630 GROUND MOUNTED SUPPORTS, NO. 6 POST LIN FT	630 ONE WAY SUPPORTS, NO. 4 POST LIN FT	630 2" DIAMETER POST LIN FT	630 GROUND MOUNTED SUPPORTS, S4x 7.7 BEAM LIN FT	630 GROUND MOUNTED SUPPORTS, W6x 9 BEAM LIN FT	630 GROUND MOUNTED SUPPORTS, W10x 12 BEAM LIN FT	630 CONCRETE FDR EMBEDDED FOUNDATIONS CU	630 BREAKAWAY BEAM CONNECTION EACH	630 SIGN SUPPORT ASSEMBLY, BRIDGE MOUNTED EACH	630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH	630 SIGN ATTACHMENT ASSEMBLY EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT EACH	630 REMOVAL OF GROUND MOUNTED BEAM SUPPORT EACH			
58A	116			55+50 RAMP W-98	R-37R-24	2' X 2.5'	5.0																							
58B	116			55+50 RAMP W-98	N-29-24	2' X 2'	4.0																							
58C	116			55+50 RAMP W-98	N-15-24	2' X 0.5'	1.0																							
59A	116			55+50 RAMP W-98	R-43L-36	3' X 1'	3.0				14		15																	
59B	116			55+50 RAMP W-98	R-43R-36	3' X 1'	3.0																							
59C	116			55+50 RAMP W-98	R-41B-36	3' X 3'	9.0																							
59D	116			55+50 RAMP W-98	R-31M	4' X 2.5'	10.0																							
60A	116			52+65 RAMP W-98	R-41A-36	3' X 2'	6.0																							
61	117			1061+20 WB	W-49-48	4' X 4'	16.0																							
62	117			63+00 RAMP E-98	D-4B	10' X 4'		40.0								16.1-16.9		0.66	2									2		
63	117			1065+93 EB	R-35-48	4' X 5'	20.0				15.8-16.1																	2		
65D	117			1069+30 WB	W-97-48	4' X 5'	20.0																							
66A	117			1071+50 EB	M-5C-36-3	4' X 3'	12.0																							
66B	117			1071+50 EB	IM-39-36	3' X 1.5'	4.5																							
67	118			1075+46 EB	R-10-48	4' X 5'	20.0																							
68	118			1081+31 EB	R-7A-48	4' X 4'	16.0																							
71	119			1090+54 WB	R-7A-48	4' X 4'	16.0																							
72D	119			1095+80 WB	R-10-48	4' X 5'	20.0																							
73	119			1097+60 WB		16' X 6'																								
75	120			9+40 RAMP G-2	W-98-48	4' X 5'	20.0				14.8-14.9																	2		
76	120			1109+86 EB	GF	6' X 5'		30.0							13.9-14.3			0.54	2									2		
77	120			12+66 RAMP G-2	W-47-48	4' X 4'	16.0																							
78	121			26+75 RAMP G-1	W-32-96	8' X 4'	32.0								12.6-12.8			0.54	2									2		
80	121			1118+60 WB	R-2-60	5' X 5' X 5'	10.83																							
82	121			1118+57 EB	X-6L	1' X 3'	3.0		14.0																					
83	121			1119+65 EB	X-6R	1' X 3'	3.0		14.0																					
84	121			20+10 RAMP G-2	R-41A-36	3' X 2'	6.0																							
85A	121			21+98 RAMP G-2	R-121-24	2' X 2'																								
85B	121			21+98 RAMP G-2	R-43L-36	3' X 1'	3.0				14		15															2		
85C	121			21+98 RAMP G-2	R-43R-36	3' X 1'	3.0																							
85D	121			21+98 RAMP G-2	R-41B-36	3' X 3'	9.0																							
86A	121			22+00 RAMP G-2	R-121-24	2' X 2'																								
86B	121			22+00 RAMP G-2	R-43L-36	3' X 1'	3.0				14		15															2		
86C	121			22+00 RAMP G-2	R-43R-36	3' X 1'	3.0																							
86D	121			22+00 RAMP G-2	R-41B-36	3' X 3'	9.0																							
88A	121			14+03 GRANGER LT.	W-SPC-36	3' X 3'	9.0																							
88B	121			14+03 GRANGER LT.	W-143-24	2' X 2'	4.0																							
89	121			19+24 RAMP G-1	X-6R	1' X 3'	3.0		14.0																					
90	121			1119+78 WB	X-6L	1' X 3'	3.0		14.0																					
91	121			17+17 GRANGER LT.	W-82S-42	3.5' X 4.75'	16.6																							
93	121			1122+40 WB	W-49R-48	4' X 4'	16.0																							
95	122			1136+32 WB	R-10-48	4' X 5'	20.0																							
96	122			1146+40 EB		14' X 5'																								
98	123			1152+00 EB	GN	12' X 3.5'		42.0								18.3-22.4	2.2											2		
99	123			1153+00 WB	GN	11' X 3.5'		38.5								18.1-21.0	2.2											2		
100	123		140	1153+08 EB	X-6L	1' X 3'	3.0							5.0																
101	123			1153+03 EB	X-6R	1' X 3'	3.0		14.0																					
TOTALS							383.9	150.5	70.0		103.6		45	5.0	53.6	33.0	79.8	6.14	6.0		20.0				20.0	21.0	5.0		13.0	18.0

TRAFFIC CONTROL QUANTITIES, GROUND MOUNTED SIGNS

ZFA2:100323JAMK2 .DGN;

TRAFFIC CONTROL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA REGION 5

FEDERAL PROJECT

99
171

GROUND MOUNTED SIGNS

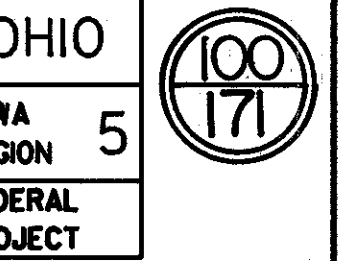
REFERENCE NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	SPECIAL DETAIL SHEET NO.	LOCATION	SIGN CODE NO.	SIGN SIZE	630 SIGNS, FLAT SHEET, TYPE G SQ FT	630 SIGNS, EXTRUSHEET, TYPE G SQ FT	630 GROUND MOUNTED SUPPORTS, NO. 2 POST LIN FT	630 GROUND MOUNTED SUPPORTS, NO. 3 POST LIN FT	630 GROUND MOUNTED SUPPORTS, NO. 4 POST LIN FT	630 GROUND MOUNTED SUPPORTS, NO. 6 POST LIN FT	630 ONE WAY SUPPORTS, NO. 4 POST LIN FT	630 2' DIAMETER POST LIN FT	630 GROUND MOUNTED SUPPORTS, S4x 7.7 BEAM LIN FT	630 GROUND MOUNTED SUPPORTS, W6x 9 BEAM LIN FT	630 GROUND MOUNTED SUPPORTS, W10x 12 BEAM LIN FT	630 CONCRETE FDR EMBEDDED FOUNDATIONS CU FT	630 BREAKAWAY BEAM CONNECTION EACH	630 SIGN SUPPORT ASSEMBLY, BRIDGE MOUNTED EACH	630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH	630 SIGN ATTACHMENT ASSEMBLY EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT EACH	630 REMOVAL OF GROUND MOUNTED BEAM SUPPORT EACH		
142	127			44+00 BWAY. CONN.	W-47-48	4' X 4'	16.0				16.5-17.7																		
144A	127			47+00 BWAY. CONN.	W-SPL-48	4' X 4'	16.0								17.8-20.4			0.54									2	2	
144B	127			47+00 BWAY. CONN.	W-145A-30	2.5' X 1.3'	3.33																						
145A	127			47+00 BWAY. CONN.	W-SPL-48	4' X 4'																							
145B	127			47+00 BWAY. CONN.	W-145A-30	2.5' X 1.3'																							
146	127			48+70 BWAY. CONN.	R-10-48	4' X 5'	20.0																						
147A	127			62+55 LANE OBS-E-B	W-65-48	4' X 4'	16.0																						
147B	127			62+55 LANE OBS-E-B	WP3-65-24	2' X 1.5'	3.0																						
147C	127			62+55 LANE OBS-E-B	W143-24	2' X 2'	4.0																						
148	127			59+00 BWAY. CONN.	W-49R-48	4' X 4'	16.0				16.6-16.9																		
149C	127			59+88 BWAY. CONN.	R-10-48	4' X 5'	20.0																						
150	127			66+40 LANE OBS-E-B	R-10-48	4' X 5'	20.0																						
151	127			61+00 BWAY. CONN.	R-10-48	4' X 5'	20.0																						
152	127			20+53 RAMP B-OBS	W-98-48	4' X 5'	20.0																						
153	127		140	62+18 BWAY. CONN.	X-6L	1' X 3'	3.0							5.0															
154	127		140	19+40 RAMP B-OBS	X-6L	1' X 3'	3.0							5.0															
155	127		140	62+10 BWAY. CONN.	X-6R	1' X 3'	3.0							5.0															
156	127			19+50 RAMP B-OBS	X-6R	1' X 3'	3.0																						
157	117		139	1066+18 WB	GF	6' X 5'		30.0																					
161	118					7 X 2																							
161	118			1084+50 EB	GSH-1	10' X 2'		14.0																					
162	120			14+66 RAMP G-2																									
					M-50-66	5.5 X 2'	11																						
					D-11	5.5 X 1.5'	8.25																						
163	121			16+67 RAMP G-2	D-4B	10' X 4'				40.0																			
164	121			18+95 RAMP G-2	R-31F-30	3' X 2.5'	7.5																						
165	121			20+10 RAMP G-2	R-41A-36	3' X 2'	6																						
166	121			21+55 RAMP G-2	N-19-24	2.5 X 1.5'	3.75			16																			
167	121			16+30 RAMP G-2	R-43R-36	3' X 1'	3																						
					R-41B-36	3' X 3'	9																						
					R-43L-36	3' X 1'	3																						
168	121			16+90 RAMP G-2	R-43R-36	3' X 1'	3																						
					R-41B-36	3' X 3'	9																						
					R-43L-36	3' X 1'	3																						
TOTALS							252.9	10.4	14.0	22.3	92		30	15.0	245.4	70	3.4	5.1	14		2.0			2.0	15.0		5.0	10.0	

TRAFFIC CONTROL QUANTITIES, GROUND MOUNTED SIGNS

ZFA2:100323JAMK4 .DGN

TRAFFIC CONTROL QUANTITIES

OHIO
CUYAHOGA COUNTY
CUY-480-19.19



•• FOR INFORMATION ONLY
+ REMOTE, NOT INTEGRAL B= BACK-TO-BACK MOUNT

OVERHEAD MOUNTED SIGNS

SUPPORT NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	LOCATION	SIGN SIZE	SIGN CODE NO.	630		630		630		630		630		630		630		630		630		630		630		630		630		630		630		
						SIGNS, FLAT SHT. TYPE G	SIGNS, EXTRUSHEET TYPE G	REMOVAL OF SIGN AND DISPOSAL	REMOVAL OF OVD. SIGN SUPPORT AND DISPOSAL	OVERHEAD SIGN SUPPORT TC-9.10	OVERHEAD SIGN SUPPORT TC-12.30			OVERHEAD SIGN SUPPORT TC-16.20	CONC. FOR ANCHOR BASE FOUNDATIONS	SIGN ATTACHMENT ASSEMBLY	REMOVAL OF LUMINAIRE AND DISPOSAL	REMOVAL AND DISPOSAL OF DISCONNECT SWITCH	DISCONNECT SWITCH WITH ENCL., TYPE "X"	GROUND ROD	SIGN SERVICE	SIGNS WIRED	SIGNS WIRED, OVERPASS STRUCTURE MOUNTED	LUMINAIRE SUPPORT ASSEMBLY TC-31.21				MERCURY VAPOR LUMINAIRE WITH LAMP TC-31.21			BALLAST, INTEGRAL			BALLAST WIRING ENCLOSURE		SWITCH ENCLOSURE MTD. BRKT. ASSEMBLY
											DES #2 10' ARMS	DES #4 16' ARMS	DES #5 20' ARMS											DES #10 30' ARMS	DES #12 45' ARM	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
9	112	130	1004+45 EB	16' X 11' 7' X 2'	GB GEP	SF	SF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
10	112	130	1005+45 WB	9' X 3.5'	GN		31.5	I																												
11A	112	130	1007+45 WB	17' X 10'	GG		170	I																												
B	112	130	1007+45 WB	12' X 10'	GG		120	I																												
C	112	130	1007+45 WB	14' X 10'	GE		140	I																												
B	112	130		7' X 2'	GEP		14																													
C	112	130		7' X 2'	GEP		14																													
12	112	130	1009+70 EB	8' X 3.5'	GN		28.0	I																												
21A	114	130	1025+45 WB	17' X 10'	GG		170	I																												
B	114	130	1025+45 WB	12' X 10'	GG		120	I																												
C	114	130	1025+45 WB	14' X 10'	GE		140	I																												
B	114	130		7' X 2'	GEP		14																													
C	114	130		7' X 2'	GEP		14																													
22	114	131	1025+45 EB	16' X 11' 7' X 2'	GB GEP		176 14	I																												
33A	115	131	1043+65 EB	16' X 7.5'	GG			I																												
B	115	131	1043+65 EB	15' X 10'	GB		150	I																												
C	115	131	1043+65 EB	22' X 9'	GE		198	I																												
B	115	131		7' X 2'	GEP		14																													
C	115	131		7' X 2'	GEP		14																													
40		131	14+43 RAMP 98-W	8' X 8'	GH-I		64.0	I																												
46	116	131	16+75 E.98 Lt.	10' X 6.5'	GH-I		65.0	I																												
47	116	131	15+85 E.98 Rt.	10' X 7'	GH		70.0	I																												
48	116	132	4+05 E.98 Rt.	8' X 8'	GH		64.0	I																												
51	116	132	22+42 E.98 Lt.	9' X 8'	GH		72.0	I																												
53	116	132	44+38 RAMP 98-E	12' X 5.5'	GH-I		66.0	I																												
56C	116	132	25+21 E.98 Rt.	10' X 7'	GH-I		70.0	I																												
60B	116	132	52+65 RAMP W-98	3' X 3.5'	R-26A		10.5'	I																												
C	116	132	52+65 RAMP W-98	3' X 3.5'	R-30A		10.5'	I																												
D	116	132	52+65 RAMP W-98	3' X 3.5'	R-27A		10.5'	I																												
64B	117	133		7' X 2'	GEP		14																													
64A	117	133	1066+33 EB	16' X 10'	GB		160.0	I																												
B	117	133	1066+33 EB	15' X 10'	GB		150																													
TOTALS							31.5	2526.5	24																											

TRAFFIC CONTROL QUANTITIES, OVERHEAD MOUNTED SIGNS

ZFA2:[100323]MJM .DGN;

TRAFFIC CONTROL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA
REGION 5

FEDERAL
PROJECT



** FOR INFORMATION ONLY
+ REMOTE, NOT INTEGRAL

B= BACK-TO-BACK MOUNT

OVERHEAD MOUNTED SIGNS

SUPPORT NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	LOCATION	SIGN SIZE	SIGN CODE NO.	630		630		630		630		630		630		630		630		630		630		630		630		630		630		630			
						SIGNS, FLAT SHT. TYPE G	SIGNS, EXTRUSHEET TYPE G	REMOVAL OF SIGN AND DISPOSAL	REMOVAL OF OVD. SIGN SUPPORT AND DISPOSAL	OVERHEAD SIGN SUPPORT TC-9.10	OVERHEAD SIGN SUPPORT TC-12.30			OVERHEAD SIGN SUPPORT TC-16.20	CONC. FOR ANCHOR BASE FOUNDATIONS	SIGN ATTACHMENT ASSEMBLY	REMOVAL OF LUMINAIRE AND DISPOSAL	REMOVAL AND DISPOSAL OF DISCONNECT SWITCH	DISCONNECT SWITCH WITH ENCL., TYPE "X"	GROUND ROD	SIGN SERVICE	SIGNS WIRED	SIGNS WIRED, OVERPASS STRUCTURE MOUNTED	LUMINAIRE SUPPORT ASSEMBLY TC-31.21				MERCURY VAPOR LUMINAIRE WITH LAMP TC-31.21			BALLAST, INTEGRAL			BALLAST WIRING ENCLOSURE		SWITCH ENCLOSURE MTD. BRKT. ASSEMBLY	
											DES #2 10' ARMS	DES #4 16' ARMS	DES #5 20' ARMS											DES #10 30' ARMS	DES #12 45' ARM	CU	YD	EA	EA	EA	EA	EA	EA	EA	EA		EA
65A	117	133	1069+30 WB	18' X 10'	GG																																
B	117	133	1069+30 WB	13' X 12.5'	GB		162.5																														
C	117	133	1069+30 WB	22' X 9'	GE		198																														
B	117	133		11' X 2'	GEP		22																														
C	117	133		7' X 2'	GEP		14																														
69	118	132	1083+90 WB	16' X 9'	GB		144																														
				7' X 2'	GEP		14																														
70A	119	135	1089+30 EB	16' X 10'	GB		160																														
B	119	135	1089+30 EB	15' X 9'	GB		135																														
B	119	135		7' X 2'	GEP		14																														
72A	119	133	1095+80 WB	15' X 7.5'	GB		112.5																														
B	119	133	1095+80 WB	13' X 12.5'	GB		162.5																														
C	119	133	1095+80 WB	19' X 11'	GB		209																														
B	119	133		11' X 2'	GEP		22																														
C	119	133		7' X 2'	GEP		14																														
74A	120	133	1106+40 EB	25' X 10'	GG																																
B	120	133	1106+40 EB	19' X 10'	GB		190																														
C	120	133	1106+40 EB	18' X 7.5'	GE		135																														
B	120	133		7' X 2'	GEP		14																														
C	120	133		7' X 2'	GEP		14																														
79A	121	134	11+40 GRANGER BR.	7' X 5'			35																														
79B	121	134	11+40 GRANGER BR.	11' X 4'			44																														
81	121	134	12+90 GRANGER BR.	8' X 6'			48																														
87	121	135	13+50 GRANGER LT.	10' X 5.5'	GH-1		55																														
92	121	135	18+03 GRANGER LT.	8' X 5.5'			44.0																														
94	121	135	1123+18 WB	19' X 11'	GB		209																														
				7' X 2'	GEP		14																														
97A	122	136	1147+00 EB	25' X 10'	GG		250																														
B	122	136	1147+00 EB	19' X 10'	GE		190																														
B	122	136		7' X 2'	GEP		14																														
104A	123	136	1159+00 EB	25' X 10'	GG		250																														
B	123	136	1159+00 EB	19' X 10'	GE		190																														
B	123	136		7' X 2'	GEP		14																														
110A	124	136	1168+00 EB	25' X 10'	GG		250																														
B	124	136	1168+00 EB	14' X 8.5'	GE		119																														
C	124	136	1168+00 EB	22' X 10'	GE		220																														
C	124	136		7' X 2'	GEP		14																														
133	127	136	80+35 BROADWAY	10' X 8.5'			85.0																														
TOTALS							3782	25	2	1				1		5.97	70	42	12	12	2	2	21		2	33	6	2	34	8	2	34	8				

TRAFFIC CONTROL QUANTITIES, OVERHEAD MOUNTED SIGNS

ZFA2:100323JM2 .DGN;

TRAFFIC CONTROL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA REGION 5

FEDERAL PROJECT

102
171

•• FOR INFORMATION ONLY
+ REMOTE, NOT INTEGRAL

B= BACK-TO-BACK MOUNT

OVERHEAD MOUNTED SIGNS

SUPPORT NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	LOCATION	SIGN SIZE FT X FT	SIGN CODE NO.	630	630	630	630	630	630			630	630	631	631	631	625	631	631	631	631			631		631		631			
						SIGNS, FLAT SHT. TYPE G	SIGNS, EXTRUSHEET TYPE G	REMOVAL OF SIGN AND DISPOSAL	REMOVAL OF OVD. SIGN SUPPORT AND DISPOSAL	SPAN WIRE SIGN SUPPORT TC-17.10	OVERHEAD SIGN SUPPORT TC-12.30			OVERHEAD SIGN SUPPORT TC-16.20	CONC. FOR ANCHOR BASE FOUNDATIONS	SIGN ATTACHMENT ASSEMBLY	REMOVAL OF LUMINAIRE AND DISPOSAL	REMOVAL AND DISPOSAL OF DISCONNECT SWITCH	DISCONNECT SWITCH WITH ENCL., TYPE *X	GROUND ROD	SIGN SERVICE	SIGNS WIRED	SIGNS WIRED, OVERPASS STRUCTURE MOUNTED	LUMINAIRE SUPPORT ASSEMBLY TC-31.21			MERCURY VAPOR LUMINAIRE WITH LAMP TC-31.21		BALLAST, INTEGRAL		BALLAST WIRING ENCLOSURE		SWITCH ENCLOSURE MTD. BRKT. ASSEMBLY
						DES #4 90' SPAN AS PER PLAN	DES #4 16' ARMS	DES #5 20' ARMS	DES #10 30' ARMS	DES #12 45' ARM	CU	YD	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
140A	127	137	90+12 BROADWAY	10' X 8.5'	GH		85.0								2.92	2••B																	
B	127	137	90+12 BROADWAY	10' X 8.5'	GH		85.0									2••B																	
143	127	137	44+45 BWAY. CONN.	13' X 10'	GB		130								2.92	3••																	
149A	127	137	59+88 BWAY. CONN.	17' X 10'	GG		170									3	2																
B	127	137	59+88 BWAY. CONN.	15' X 7.5'	GE		112.5									3	2																
158A	127	137	38+00 BWAY. CONN. LT.	3' X 3.5'	R-26A	10.5																											
B	127	137	38+00 BWAY. CONN. LT.	3' X 3.5'	R-27A	10.5																											
C	127	137	38+00 BWAY. CONN. LT.	3' X 3.5'	R-27A	10.5																											
159A	127	134	86+75 BROADWAY	3' X 2'	R-26A	6																											
B	127	134		3' X 2'	R-28A	6																											
C	127	134		3' X 2'	R-30A	6																											
TOTALS						49.5	582.5	5	2	1	1	1			8.76	6	7	3	3	2	2	5			4	8	8						

TRAFFIC CONTROL QUANTITIES, OVERHEAD MOUNTED SIGNS

ZFA2:[100323]MJM3 .DGN;

TRAFFIC CONTROL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA REGION 5

FEDERAL PROJECT

104
171

PAVEMENT MARKINGS

TEMP. SIGNING

REFERENCE NO.	PLAN SHEET NO.	LOCATION		PAVEMENT MARKINGS												TEMP. SIGNING								
		ROADWAY	FROM STATION	TO STATION	847	847	847		847		847	847	847	847	847				847	847		614		
					EDGE LINES (WHITE)	EDGE LINES (YELLOW)	LANE LINES		CENTER LINES SOLID DOUBLE		CHANNELIZING LINES (WHITE)		STOP LINES	CROSSWALK LINES	1' TRANSVERSE LINES (YELLOW)	1' TRANSVERSE LINES (WHITE)	2' TRANSVERSE LINES (WHITE)				LANE ARROWS	WORD "ONLY" ON PAVEMENT, 72-IN		WORK ZONE MARKING SIGNS
LIN FT	LIN FT	LIN FT		LIN FT		LIN FT		LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT				EACH	EACH		EACH				
		RAMP W-98	44+89	49+43	454	454																		
		RAMP W-98	49+43	51+00	157	157	157																	
		RAMP W-98	51+00	51+55	55	55	55																	
		RAMP W-98	51+55	52+89	134	134	268																	
		RAMP W-98	52+89	54+05		116	232																	
		RAMP W-98	54+05	55+55		150																		
		RAMP 98-E LT.	45+65	53+71																				
		RAMP 98-E RT.	45+73	53+71	798	806																		
		RAMP 98-W LT.	57+89	66+50	861																			
		RAMP 98-W RT.	57+89	65+99		810																		
		RAMP E-98	56+10	57+60		150																		
		RAMP E-98	57+60	58+00		40																		
		RAMP E-98	58+00	61+00	300	300																		
		RAMP E-98	61+00	66+99	599	599																		
		TRANS. BLVD.	17+00	22+50			1100	550																
		RAMP G-2	9+30	15+52	622	622																		
		RAMP G-2	15+52	17+20	168	168																		
		RAMP G-2	17+20	18+00	80	80	80																	
		RAMP G-2	18+00	21+16.2	316		316																	
		RAMP G-2 RT.	21+16.2	22+08	41																			
		RAMP G-2 LT.	21+10.2	21+64		50																		
		RAMP G-1 LT&RT	18+99	26+72	773	773																		
		RAMP B-OBS	9+65	11+65.49	201	201																		
		RAMP B-OBS	11+65.49	19+08	743	743																		
		RAMP B-OBS	19+08	20+56	148	148																		
		LANE OBS-E-B	61+75	68+17	642	642	642																	
		LANE OBS-E-B	68+17	73+62	545	545	545																	
		LANE OBS-E-B	73+62	78+91	529	529	529																	
		RAMP OBS-WB	13+44	19+75	631	631																		
		LANE B-OBS-E	74+54	82+93	839	839	839																	
		LANE B-OBS-E	82+93	89+00	607	607	607																	
		TURNEY ROAD	15+00	19+80			960	480																
TOTALS					10243	10349	6330		1030															
					3.90 MI.	1.20 MI.		0.20 MI.		579	126	100	182					14	14		12			

TRAFFIC CONTROL QUANTITIES, PAVEMENT MARKINGS

.DGN:

ZFA2:[100323]LGM2

TRAFFIC CONTROL QUANTITIES

CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA REGION 5
FEDERAL PROJECT

105
171

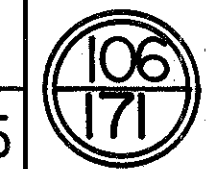
REFERENCE NO.	PLAN SHEET NO.	PAVEMENT MARKINGS															TEMP SIGNING										
		LOCATION			847	847	847		847		847	847	847	847	847				847	847		614					
		ROADWAY	FROM STATION	TO STATION	EDGE LINES (WHITE) LIN FT	EDGE LINES (YELLOW) LIN FT	LANE LINES LIN FT		CENTER LINES SOLID DOUBLE LIN FT		CHANNELIZING LINES (WHITE) LIN FT		STOP LINES LIN FT	CROSSWALK LINES LIN FT	1' TRANSVERSE LINES (YELLOW) LIN FT	1' TRANSVERSE LINES (WHITE) LIN FT	2' TRANSVERSE LINES (WHITE) LIN FT				LANE ARROWS EACH	WORD "ONLY" ON PAVEMENT, 72-IN EACH		WORK ZONE MARKING SIGNS EACH			
		BWAY. CONN. RT.	35+65	36+08		43																					
		BWAY. CONN. RT.	36+08	38+00	192	192	192																				
		BWAY. CONN. RT.	38+00	56+62	1862	1862	1862																				
		BWAY. CONN. RT.	56+62	59+12	250	250	500																				
		BWAY. CONN. RT.	59+12	60+88	176	176	176			352						216											
		BWAY. CONN. RT.	60+88	61+88		100	100			100																	
		BWAY. CONN. RT.	61+88	62+40	52	52	52																				
		BWAY. CONN.	35+36	35+65																							
		BWAY. CONN. LT. LT.	35+49	36+79	118					236	26	188	56		18						3	3					
		BWAY. CONN. LT. RT.	35+66	36+79		113				44	18				60						3	3					
		BWAY. CONN. LT.	36+79	39+00	221	221	442																				
		BWAY. CONN. LT.	39+00	53+41	1441	1441	1441																				
		BWAY. CONN. LT.	53+41	56+41	300	300	600			300																	
		BWAY. CONN. LT.	56+41	62+40	599	599																					
		BWAY. CONN. RT.	62+40	69+00	660	660	660																				
		BWAY. CONN. LT.	62+40	69+00	660	660																					
		BWAY. CONN. RT. LT.	69+00	74+54	1108	1108	554																				
TOTALS					7639	7777	6622			1032	44	244			294						9	9			2		
					2.92 MI.		1.25 MI.																				

TRAFFIC CONTROL QUANTITIES, PAVEMENT MARKINGS

ZFA2:100323JLGM3 .DGN

SIGNAL SUB-SUMMARY

OHIO
FHWA REGION 5
FEDERAL PROJECT



SIGNAL SUB-SUMMARY

REFERENCE NO.	LOCATION	GROUND ROD	625							CONCRETE FOR ANCHOR BASE FOUNDATIONS	VEHICLE SIGNAL HEADS, 12" LENS, T-WAY			PEDESTRIAN SIGNAL HEAD, TYPE A2	PEDESTRIAN PUSH-BUTTON	REM. OF TRAFFIC SIGNAL INSTALL. AS PER PLAN	PEDESTAL, 8', TRANSFORMER BASE	632					POWER CABLE, 3 CONDUCTOR, NO. 8 AWG	SERVICE CABLE, 3 COND.(TRIPLEX), NO. 4 AWG	POWER SERVICE	SIGNAL CABLE, 5 COND., NO. 14 AWG	SIGNAL CABLE, 7 COND., NO. 14 AWG	SIGNAL SUPPORT, TYPE TC-81.20				
			CONDUIT, 7/3.04, 1"	CONDUIT, 7/3.04, 2"	CONDUIT, 7/3.04, 3"	CONDUIT JACKED UNDER PAVEMENT, 3'	TRENCH	PULL BOX, 7/3.08, 18"	PULL BOX, 7/3.08, 24"		CU.YD.	3 SECTION	4 SECTION					5 SECTION	PAVEMENT CUTTING	LOOP DETECTOR								UNIT, DELAY AND EXTEND, AS PER PLAN	DESIGN #2, 28' ARM	DESIGN #2, 30' ARM	DESIGN #1(POLE) 37' ARM, 23' ARM	DESIGN #3(POLE) 30' ARM, 23' ARM
																				WIRE, TYPE E	LEAD-IN CABLE	UNIT, AS PER PLAN										
	GRANGER RD. (SR-17)	EACH	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	LIN.FT.	LIN.FT.	EACH	LIN.FT.	LIN.FT.	EACH	EACH	EACH	EACH		
L-1																	100	260	150													
L-2						65											60	115	220													
L-3																	110	275	20													
P-1																																
P-2																																
P-3																																
P-4																																
P-5		1		35		35			1.39																							
P-6																																
S-1		1		85					1.48	2																						
S-2		1		80		80			1.48	2																						
S-3		1	55							2																						
S-4		2								2																						
	BROADWAY (SR-14)																															
L-1																																
L-2				65				65																								
L-3																																
L-4																																
L-5						85																										
P-1																																
P-2																																
P-3		1		25				25	1.39																							
P-4		1		25				25	1.39																							
S-1		2		50	80		130		1.67	2												50	200	1								
S-2		1		10		75	10		2.66	4																						
S-3		1				110			2.66	4																						
	TRANS. BLVD. (I-480 EB)										7	1																				
	TRANS. BLVD. (I-480 WB)										5		1																			
TOTALS			12	55	375	80	335	370	9	1	14.12	30	1	2	10	10	4	3	730	1960	950	4	1	150	400	2	5150	735	2	1	1	

ZFA2:1003231SIGSUB.DGN;

SIGNAL SUB-SUMMARY

CUYAHOGA COUNTY
CUY-480-19.19

OHIO

FHWA REGION 5

FEDERAL PROJECT



SIGNAL SUB-SUMMARY

REFERENCE NO.	LOCATION	632				633				SPEC														
		REMOVAL OF POLE MTD. CABINET AND CONTROLLER AND RE-ERECTION, AS PER PLAN	CONTROLLER,ACTU- ATED,2 PHASE, SOLID STATE DIGITAL, MICROPROC.,	CONTROLLER,ACTU- ATED,3 PHASE, SOLID STATE DIGITAL, MICROPROC.	CONTROLLER,ACTU- ATED,4 PHASE, SOLID STATE DIGITAL, MICROPROC.	COORDINATOR, TIME BASED, SEP. UNIT TYPE	CONCRETE FOR CABINET FOUNDATIONS	CONTROLLER WORK PAD	FLASH TRANSFER RELAY	PIER MOUNTED SIGNAL HEADS														
		EACH	EACH	EACH	EACH	EACH	CU.YD.	SO.FT.	EA.	EACH														
S-3 S-4	GRANGER RD. (SR-17)		1				1.85	10.4		2														
S-1	BROADWAY (SR-14)	1						12.0																
	TRANS.BLVD. (I-480 EB)					1																		
	TRANS.BLVD. (I-480 WB)			1																				
TOTALS		1	1	1	1	2	1.85	22.4	2	2														

ZFA2:[100323]SIGSUBI.DGN

TRAFFIC CONTROL SUMMARY

PARTICIPATION
I-FEDERAL AND STATE
II-STATE ONLY

CALC. BY: _____	CUYAHOGA COUNTY	OHIO	<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 108 171 </div>
DATE: _____	CUY-480-19.19	FHWA REGION 5	
CHKD BY: _____		FEDERAL PROJECT	
DATE: _____			

ITEM	SHEET NUMBER										PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF.		
	95	96	97	98	99	100	101	102			I	II								
																	TRAFFIC CONTROL			
625								2	2				12	16		625	16	EACH	GROUND ROD	
625													55	55		625	55	LIN.FT.	CONDUIT, 1", 713.04	
625													375	375		625	375	LIN.FT.	CONDUIT, 2", 713.04	
625													80	80		625	80	LIN.FT.	CONDUIT, 3", 713.04	
625													335	335		625	335	LIN.FT.	CONDUIT JACKED OR DRILLED UNDER PAVEMENT, 3"	
625													370	370		625	370	LIN.FT.	TRENCH	
625	5												9	14		625	14	EACH	PULL BOX, CONCRETE, 713.08, 18"	
625													1	1		625	1	EACH	PULL BOX, CONCRETE, 713.08, 24"	
630			18	20	4	2										630	44	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
630			19	21	35	15										630	90	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
630			4	5												630	9	EACH	REMOVAL OF MAJOR GROUND MOUNTED SIGN AND DISPOSAL	
630			21	13	27	5										630	66	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
630			8	18	10	10										630	46	EACH	REMOVAL OF GROUND MOUNTED BEAM SUPPORT AND DISPOSAL	
630			262	384	389	253				32		50				630	1370	SQ.FT.	SIGNS, FLAT SHEET, TYPE G	
630			165	151	45	104				2527	3782	583				630	7357	SQ.FT.	SIGNS, EXTRUSHEET, TYPE G	
630			56	70	112	14										630	252	LIN.FT.	GROUND-MOUNTED SUPPORTS, NO. 2 POST	
630			90	24	22											630	136	LIN.FT.	GROUND-MOUNTED SUPPORTS, NO. 3 POST	
630			168	104	271	92										630	635	LIN.FT.	GROUND-MOUNTED SUPPORTS, NO. 4 POST	
630			14	45	14	30										630	103	LIN.FT.	ONE WAY SUPPORTS, NO. 4 POST	
630				5	30	15										630	50	LIN.FT.	2" DIAMETER POST	
630			34	54	126	245										630	459	LIN.FT.	GROUND-MOUNTED SUPPORTS, S 4X7.7 BEAM	
630			30	33	28	70										630	161	LIN.FT.	GROUND-MOUNTED SUPPORTS, W 6X9 BEAM	
630			84	80												630	164	LIN.FT.	GROUND-MOUNTED SUPPORTS, W 10X12 BEAM	
630			56	6.14	2.82	5.1										630	19.66	CU.YD.	CONCRETE FOR EMBEDDED FOUNDATIONS	
630										6.0	8.8					630	14.8	CU.YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS	
630			4	6	6	14										630	30	EACH	BREAKAWAY BEAM CONNECTION	
630			26	20	4	2										630	52	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
630										24	25	5				630	54	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	
630											2	2				630	4	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	
630											1					630	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-9.10, DESIGN #2, 10 FEET ARM	
630												1				630	1	EACH	SPAN WIRE SIGN SUPPORT, TYPE TC-17.10, DESIGN #4, SPAN 90', AS PER PLAN	
630												1				630	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN #10, 30 FEET ARM	
630													1			630	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN #4, 16 FEET ARM	
630													1			630	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN #5, 20 FEET ARM	
630													1			630	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.20, DESIGN #12, 45 FEET ARM	
630										59	70	6				630	135	EACH	SIGN ATTACHMENT ASSEMBLY	

ZFA2:100323JTCGSI .DGN:1

TRAFFIC CONTROL SUMMARY

PARTICIPATION
I-FEDERAL AND STATE
II-STATE ONLY

CALC. BY	CUYAHOGA COUNTY CUY-480-19.19	OHIO	109 171
DATE		FHWA REGION 5	
CHKD BY		FEDERAL PROJECT	
DATE			

ITEM	SHEET			NUMBER			PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF.
	100	101	102	103	104	105	I	II						
													TRAFFIC CONTROL (CONT.)	
631	35	42	7						84	631	84	EACH	REMOVAL OF LUMINAIRE AND DISPOSAL	
631	14	12	3						29	631	29	EACH	REMOVAL OF DISCONNECT SWITCH AND DISPOSAL	
631	13	12	3						28	631	28	EACH	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X	
631		2	2						4	631	4	EACH	SIGN SERVICE	
631	19	21	5						45	631	45	EACH	SIGNS WIRED	
631	33	41	4						78	631	78	EACH	LUMINAIRE SUPPORT ASSEMBLY, TYPE TC-31.21	
631	27	34	8						69	631	69	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 175-WATT LAMP	
631	4	8							12	631	12	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 250-WATT LAMP	
631	15	34	8						57	631	57	EACH	BALLAST, TYPE CMRI175 (480), INTEGRAL	
631		8							8	631	8	EACH	BALLAST, TYPE CMRI250 (480), INTEGRAL	
631	12								12	631	12	EACH	BALLAST, TYPE CMRI175 (480)	
631	2	2							4	631	4	EACH	BALLAST, TYPE CMRI100 (480), INTEGRAL	
631	(4)								4	631	4	EACH	BALLAST, TYPE CMRI250 (480)	
631	4								4	631	4	EACH	BALLAST WIRING ENCLOSURE, TYPE B	
631	4								4	631	4	EACH	BALLAST WIRING ENCLOSURE MOUNTING BRACKET	
631	4								4	631	4	EACH	SWITCH ENCLOSURE MOUNTING BRACKET ASSEMBLY	
631	2	2							4	631	4	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31-21 WITH 100-WATT LAMP	
802									200	802	200	EACH	BARRIER REFLECTORS, TYPE A	
802									100	802	100	EACH	BARRIER REFLECTORS, TYPE B	
847				13.04	3.90	2.92			19.86	847	19.86	MILE	EDGE LINES, 947.02	
847				18.86	1.20	1.25			21.31	847	21.31	MILE	LANE LINES, 947.02	
847					0.20				0.20	847	0.20	MILE	CENTERLINES, 947.02	
847				4378	579	1032			5989	847	5989	LIN.FT.	CHANNELIZING LINES, 947.02	
847					126	44			170	847	170	LIN.FT.	STOP LINES, 947.02	
847					100	244			344	847	344	LIN.FT.	CROSSWALK LINES, 947.02	
847				1358	182	294			1834	847	1834	LIN.FT.	TRANSVERSE LINES, 12", 947.02	
847					14	9			23	847	23	EACH	LANE ARROWS, 947.02	
847					14	9			23	847	23	EACH	WORD ON PAVEMENT, 72", 947.02	
847				2659					2659	847	2659	LIN.FT.	TRANSVERSE LINES, 947.02	

ZFA2:[100323]TCGS2 .DGN:2

TRAFFIC CONTROL SUMMARY

PARTICIPATION
I-FEDERAL AND STATE
II-STATE ONLY

CALC. BY:	CUYAHOGA COUNTY CUY-480-19.19	OHIO
DATE:		FHWA REGION 5
CHKD BY:		FEDERAL PROJECT
DATE:		

110
17

ITEM	SHEET NUMBER										PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF.
	92	89	93	94	95	106	107	I	II									
— TRAFFIC CONTROL (CONT.) —																		
632						14.1							14.1		632	14.1	CU.YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS
632						30							30		632	30	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12-INCH LENS, 1-WAY
632						1							1		632	1	EACH	VEHICULAR SIGNAL HEAD, 4-SECTION, 12-INCH LENS, 1-WAY
632						2							2		632	2	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12-INCH LENS, 1-WAY
632						10							10		632	10	EACH	PEDESTRIAN SIGNAL HEAD, TYPE A2
632						10							10		632	10	EACH	PEDESTRIAN PUSHBUTTON
632						4							4		632	4	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
632						3							3		632	3	EACH	PEDESTAL, 8 FEET, TRANSFORMER BASE
632					300	730							1030		632	1030	LIN.FT.	LOOP DETECTOR PAVEMENT CUTTING
632						4							4		632	4	EACH	LOOP DETECTOR UNIT, AS PER PLAN
632						1							1		632	1	EACH	LOOP DETECTOR UNIT, DELAY AND EXTEND, AS PER PLAN
632					600	1960							2560		632	2560	LIN.FT.	LOOP DETECTOR WIRE, TYPE E
632						950							950		632	950	LIN.FT.	LOOP DETECTOR LEAD-IN CABLE
632						5							5		632	5	EACH	LOOP DETECTOR TIE-IN
632						150							150		632	150	LIN.FT.	POWER CABLE, 3-CONDUCTOR NO. 8 AWG
632						400							400		632	400	LIN.FT.	SERVICE CABLE (TRIPLEX), 3-CONDUCTOR NO. 4 AWG
632						2							2		632	2	EACH	POWER SERVICE
632						5150							5150		632	5150	LIN.FT.	SIGNAL CABLE, 5-CONDUCTOR NO. 14 AWG
632						735							735		632	735	LIN.FT.	SIGNAL CABLE, 7-CONDUCTOR NO. 14 AWG
632						1							1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN #2, 30' ARM
632						1							1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN #1 POLE, DES. #4 ARM, 37' AND DES. #1 ARM, 23'
632						1							1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN #3 POLE, DES. #2 ARM, 30' AND DES. #1 ARM, 23'
632						2							2		632	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN #2, 28' ARM
632													1		632	1	EACH	REMOVAL OF POLE MOUNTED CABINET AND CONTROLLER AND REERECTION, AS PER PLAN
633													1		633	1	EACH	CONTROLLER, ACTUATED, 2 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, WITH CABINET
633													1		633	1	EACH	CONTROLLER, ACTUATED, 3 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, WITH CABINET
633													1		633	1	EACH	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, WITH CABINET
633													2		633	2	EACH	COORDINATOR, TIME BASED, AS PER PLAN
633													1.9		633	1.9	CU.YD.	CONCRETE FOR CABINET FOUNDATION
633													22		633	22	SQ.FT.	CONTROLLER WORK PAD
633													2		633	2	EACH	FLASH TRANSFER RELAY
SPEC													2		SPEC	2	EACH	PIER MOUNTED SIGNAL HEAD
SPEC													22		SPEC	22	EACH	SURFACE PREPARATION, NEW SUPPORT SECTION
SPEC													99		SPEC	99	EACH	COATING, EPOXY PRIME COAT, SUPPORT SECTION
SPEC													99		SPEC	99	EACH	COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTION
SPEC													99		SPEC	99	EACH	COATING, URETHANE TOP COAT, SUPPORT SECTION
SPEC													77		SPEC	77	EACH	SURFACE PREPARATION, EXISTING SUPPORT SECTION
SPEC													10		SPEC	10	EACH	TEMPORARY WIRING OF SIGNAL HEAD
614													1		614	1	EACH	TEMPORARY TRAFFIC SIGNAL

ZFA2:1100323JTCGS3 .DGN:

TRAFFIC CONTROL SUMMARY

PARTICIPATION
I-FEDERAL AND STATE
II-STATE ONLY

CALC. BY:	CUYAHOGA COUNTY CUI-480-19.19	OHIO
DATE:		
CHKD BY:		FHWA REGION 5
DATE:		FEDERAL PROJECT



ITEM	SHEET						NUMBER			PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF.
	13	14	20	22	43	46	103	104	105	I	II						
															MAINTENANCE OF TRAFFIC		
614							15	12	2			29		614	29	EACH	WORK ZONE MARKING SIGNS
614				41.67								41.67		614	41.67	MILE	TEMPORARY EDGE LINES, CLASS I, 947.03 TYPE B
614				22.73								22.73		614	22.73	MILE	TEMPORARY LANE LINES, CLASS I, 947.03 TYPE B
614				1300								1300		614	1300	LIN.FT.	TEMPORARY TRANSVERSE LINES, CLASS I, 947.03 TYPE B
614				1500								1500		614	1500	LIN.FT.	TEMPORARY CHANNELIZING LINES, CLASS I, 947.03 TYPE B
614				3600								3600		614	3600	LIN.FT.	TEMPORARY DOTTED LINES, CLASS I, 947.03 TYPE B
614				0.21								0.21		614	0.21	MILE	TEMPORARY CENTERLINES, CLASS I, 947.03 TYPE B
614														614		EACH	TEMPORARY WORD "ON PAVEMENT, CLASS I, 947.03 TYPE B, 72"
614														614		EACH	TEMPORARY LANE ARROWS, CLASS I, 947.03 TYPE B
614				20								20		614	20	LIN.FT.	TEMPORARY STOP LINES, CLASS I, 947.03 TYPE B
614				29								29		614	29	EACH	WORK ZONE SPEED LIMIT SIGN (SEE PROPOSAL NOTE)
614		15000										15000		614	15000	EACH	TEMPORARY RAISED PAVEMENT MARKERS
614		200										200		614	200	EACH	BARRIER REFLECTORS, TYPE A
614		100										100		614	100	EACH	BARRIER REFLECTORS, TYPE B
614		60										60		614	60	MILE	TEMPORARY EDGE LINES, CLASS I
614		63										63		614	63	MILE	TEMPORARY LANE LINES, CLASS I
614		13500										13500		614	13500	LIN.FT.	TEMPORARY GORE MARKINGS, CLASS II
614		18000										18000		614	18000	LIN.FT.	TEMPORARY CHANNELIZING LINES, CLASS I
614		500										500		614	500	LIN.FT.	TEMPORARY STOP LINES, CLASS I
404		500										500		404	500	CU.YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC.
621	75000											75000		621	75000	LIN.FT.	REMOVAL OF PAVEMENT MARKINGS
622					135							135		622	135	LIN.FT.	TEMPORARY CONCRETE BARRIER, TYPE B, AS PER PLAN.
622		3300										3300		622	3300	LIN.FT.	TEMPORARY CONCRETE BARRIER
622		7920										7920		622	7920	LIN.FT.	TEMPORARY CONCRETE BARRIER, BRIDGE MOUNTED, AS PER PLAN.
622			830									830		622	830	LIN.FT.	TEMPORARY CONCRETE BARRIER, TYPE B42, AS PER PLAN.
622					300							300		622	300	LIN.FT.	TEMPORARY CONCRETE BARRIER, TYPE D, AS PER PLAN.
SPEC		500										500		SPEC	500	SQ.FT.	REPLACEMENT SIGNS
SPEC		500										500		SPEC	500	EACH	REPLACEMENT DRUMS

ZFA2:100323JTCGS4 .DGN:2



BEGIN WORK
STA. 995+20

X-6L

3

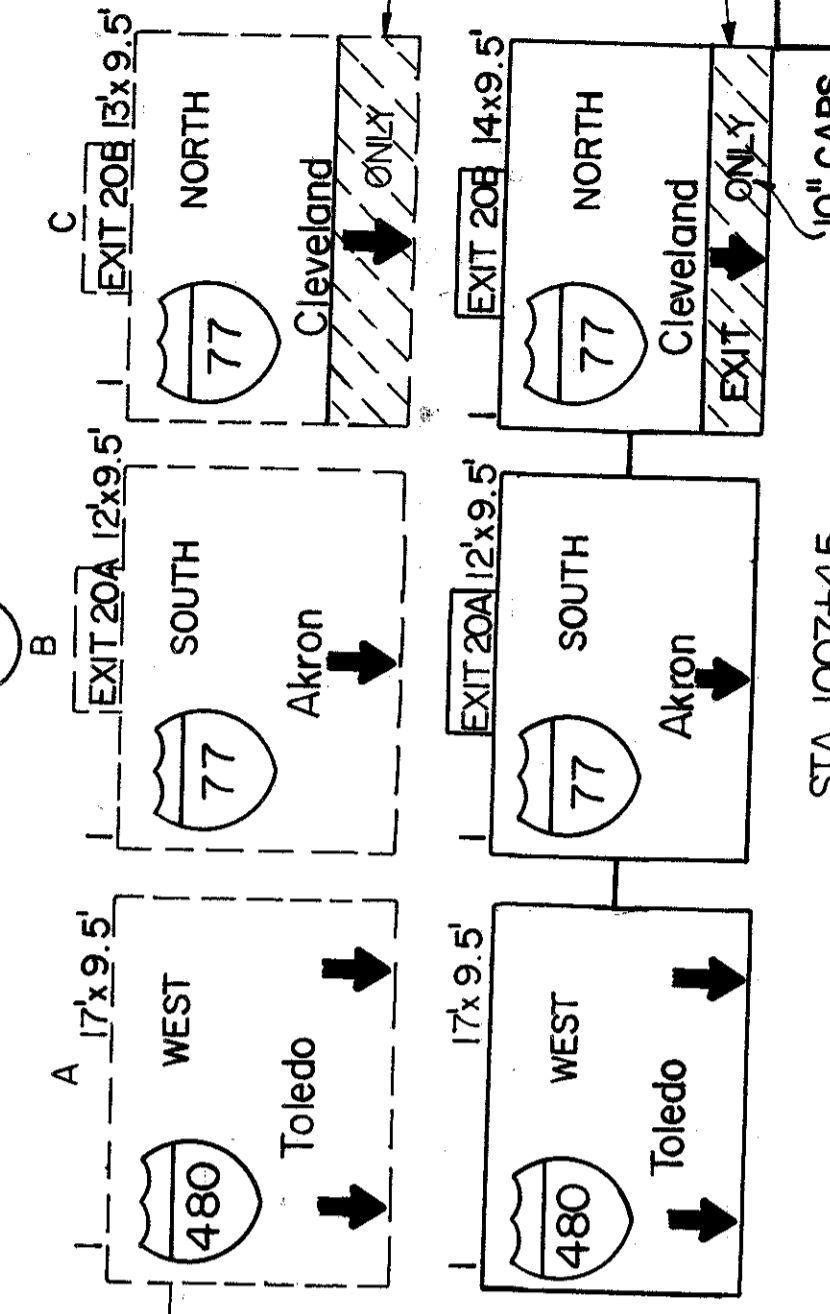
5
6
NO DRIVING ON MARKED SHOULDER
R-52-24

STA. 999+42
POLE MOUNTED
SEE DETAIL SHT. 138

STA. 1001+22
POLE MOUNTED
SEE DETAIL SHT. 138

IV GN 9'x3'
INDEPENDENCE
CORP LIMIT

STA. 1005+45



STA. 1007+45

MATCH LINE STA. 1010+00

996 998 1000 1002 1004 1006 1008

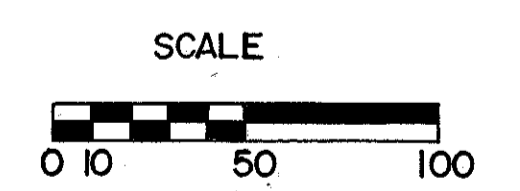
CUYAHOGA RIVER

CITY OF INDEPENDENCE
VILLAGE OF VALLEY VIEW

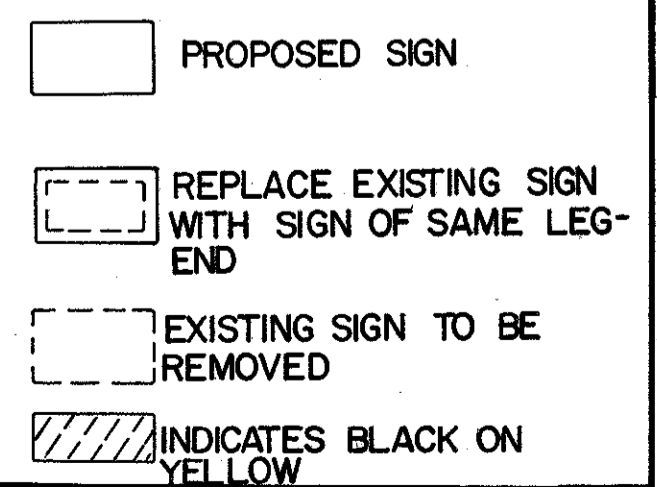
IV
VALLEY VIEW
CORP LIMIT
8'x3'

2

LEGEND	
PAVEMENT MARKINGS	
①	EDGE LINE (WHITE)
②	EDGE LINE (YELLOW)
③	LANE LINE
④	TRANSVERSE LINE (2')
⑤	STOP LINE
⑥	CHANNELIZING LINE
⑦	CROSSWALK LINE
⑧	TRANSVERSE LINE (1') (WHITE)
⑨	SOLID DOUBLE CENTERLINE
⑩	LANE ARROWS
⑪	WORD "ONLY" ON PVMT (72")
⑫	TRANSVERSE LINE (1') (YELLOW)



SIGNS



7
8
NO DRIVING ON MARKED SHOULDER
R-52-24

STA. 1001+22
POLE MOUNTED
SEE DETAIL SHT. 138

STA. 1003+02
POLE MOUNTED
SEE DETAIL SHT. 138

EXIT 21 16'x10.5'
Transportation
Boulevard
E. 98th St
3/4 MILE
STA. 1004+45

LEVEL 1 LEGEND WITH REDUCED SPACING TO FIT ON PROPOSED SIGN.

9

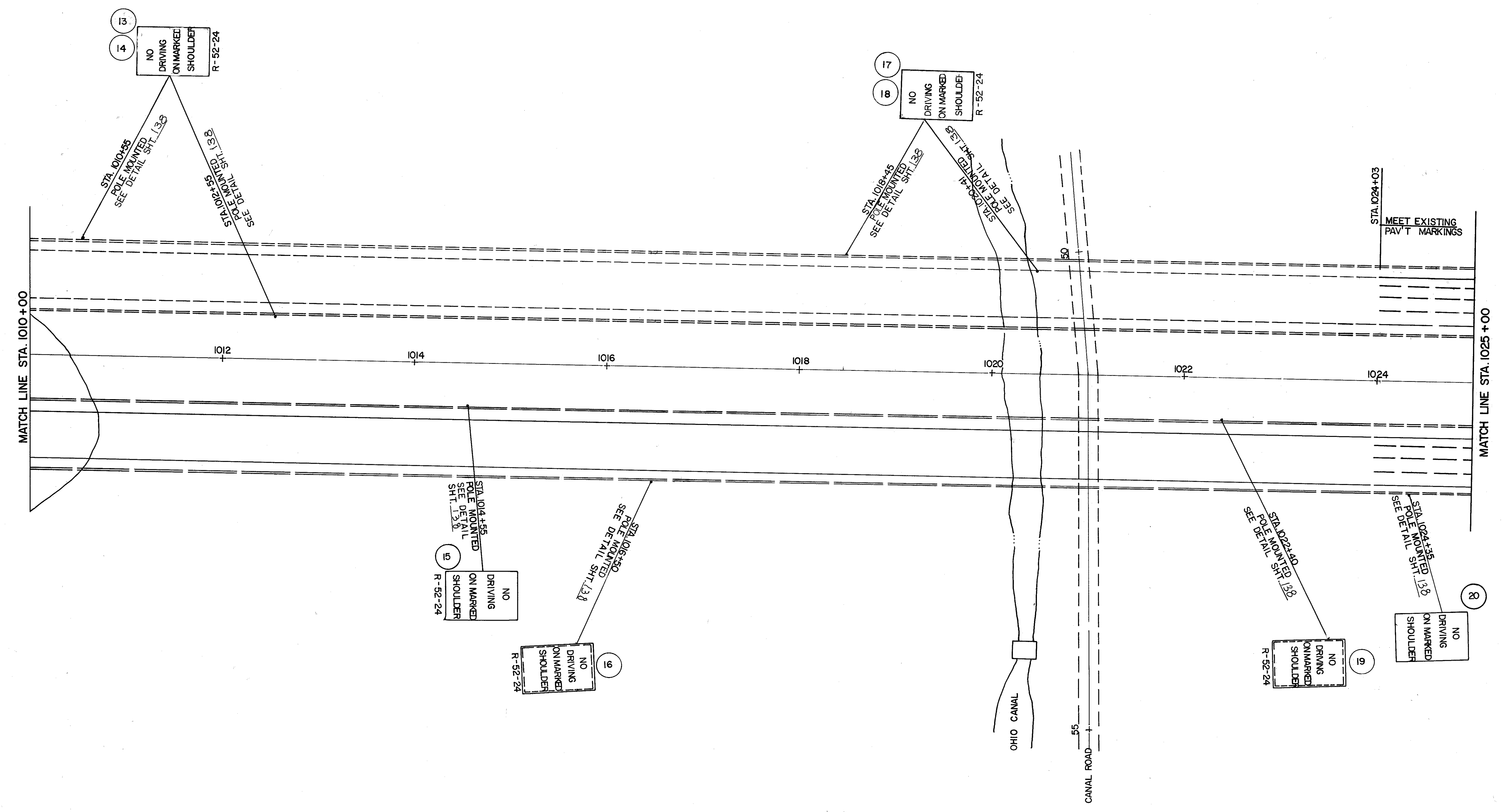
STA. 995+20
STA. 985+20

X-6R

4

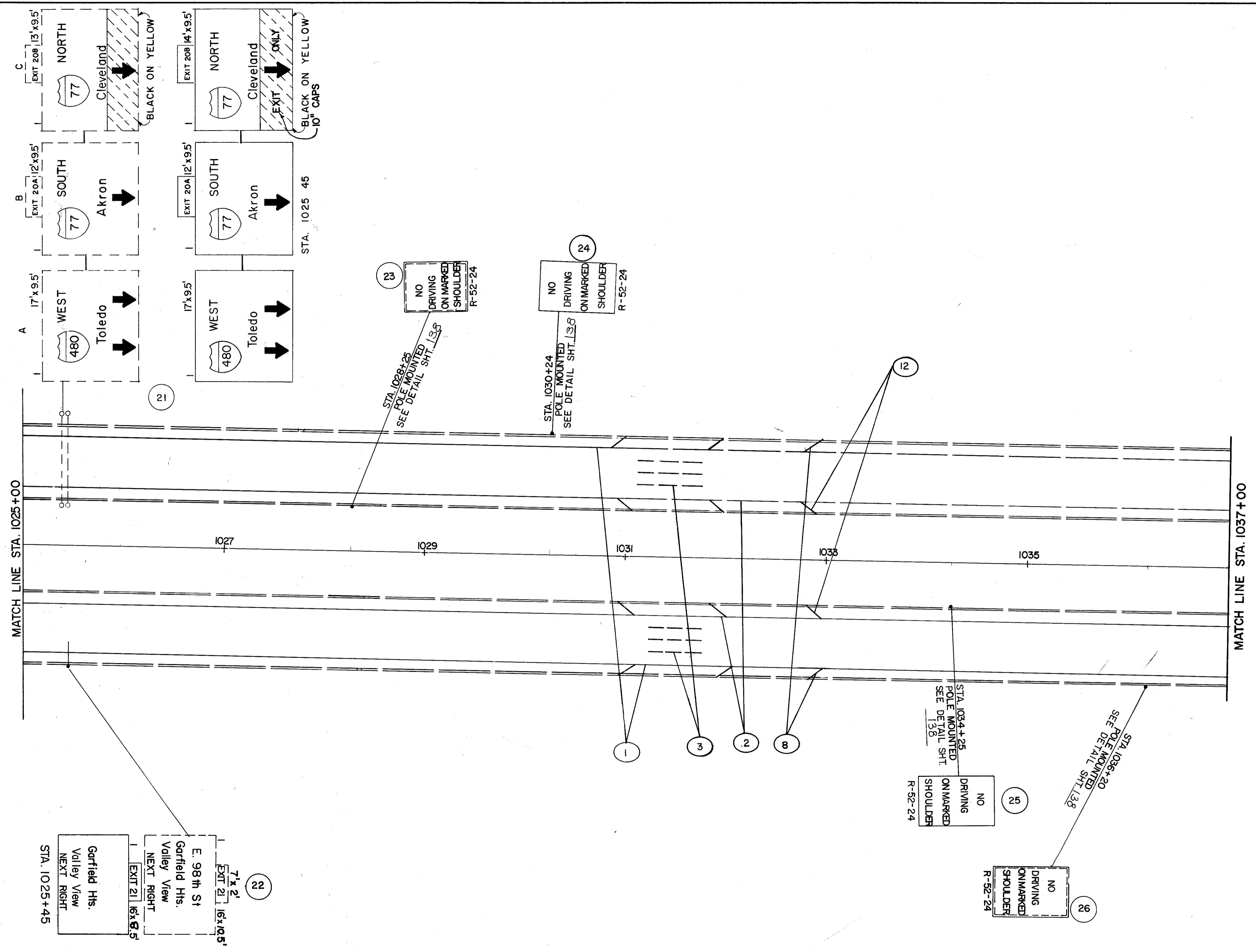
1
2
NO DRIVING ON MARKED SHOULDER
R-52-24

FOR LEGEND, SEE SHEET 112



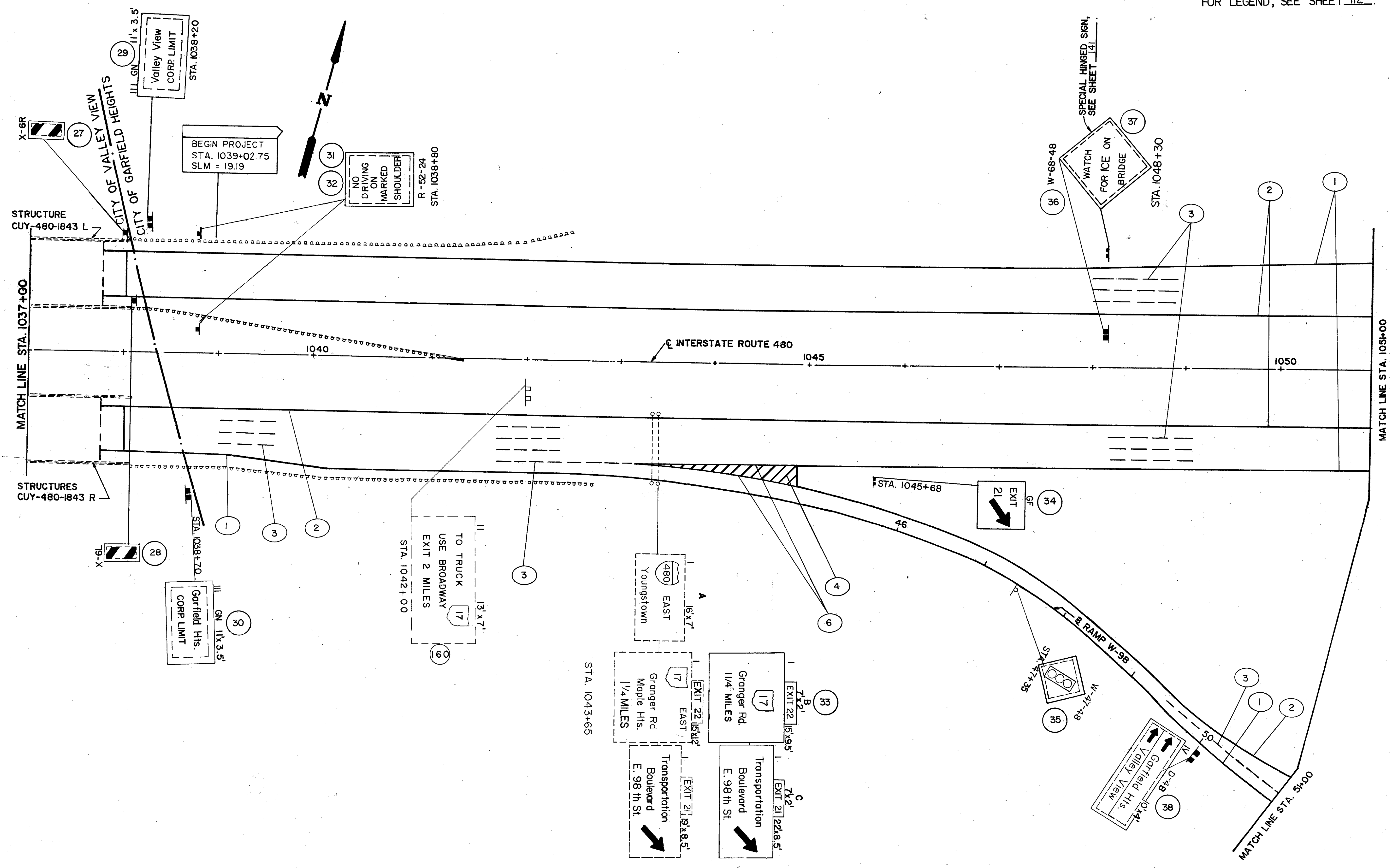
913840

FOR LEGEND, SEE SHEET 112



U-3

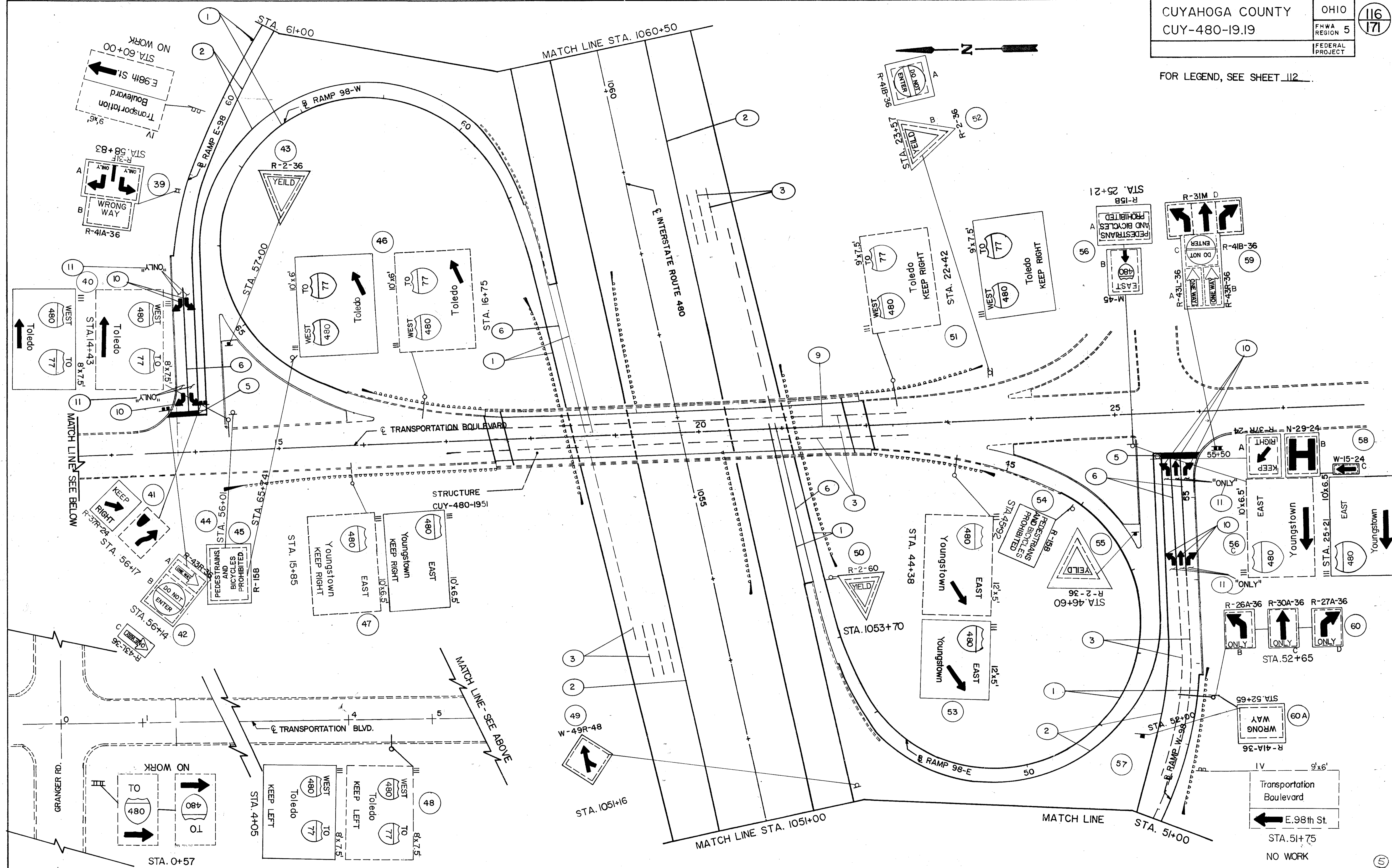
FOR LEGEND, SEE SHEET 112.



TRAFFIC CONTROL

STA. 1039+27.75 TO STA. 1051+00

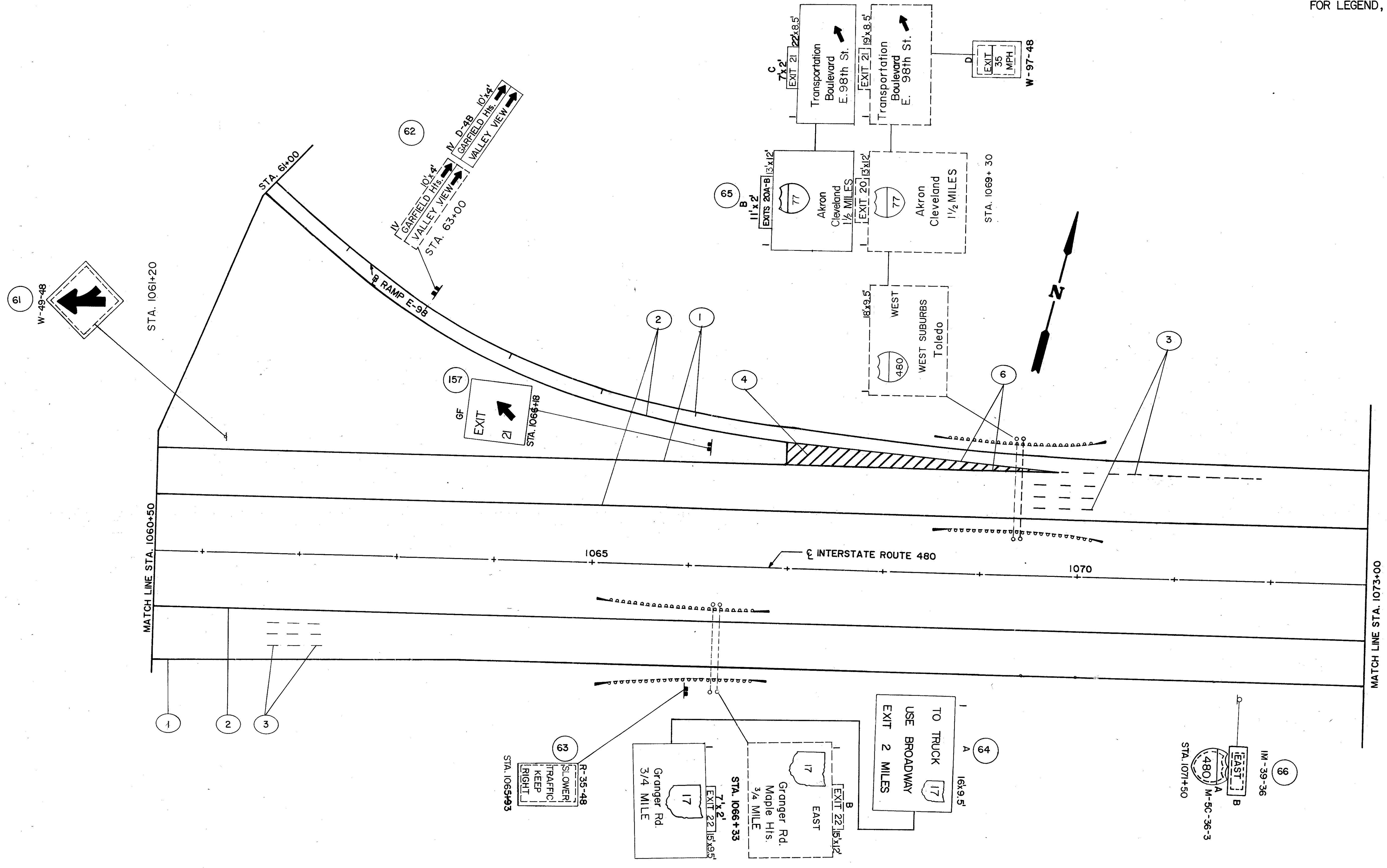
FOR LEGEND, SEE SHEET 112



TRAFFIC CONTROL

STA. 1051+00 TO STA. 1060+50

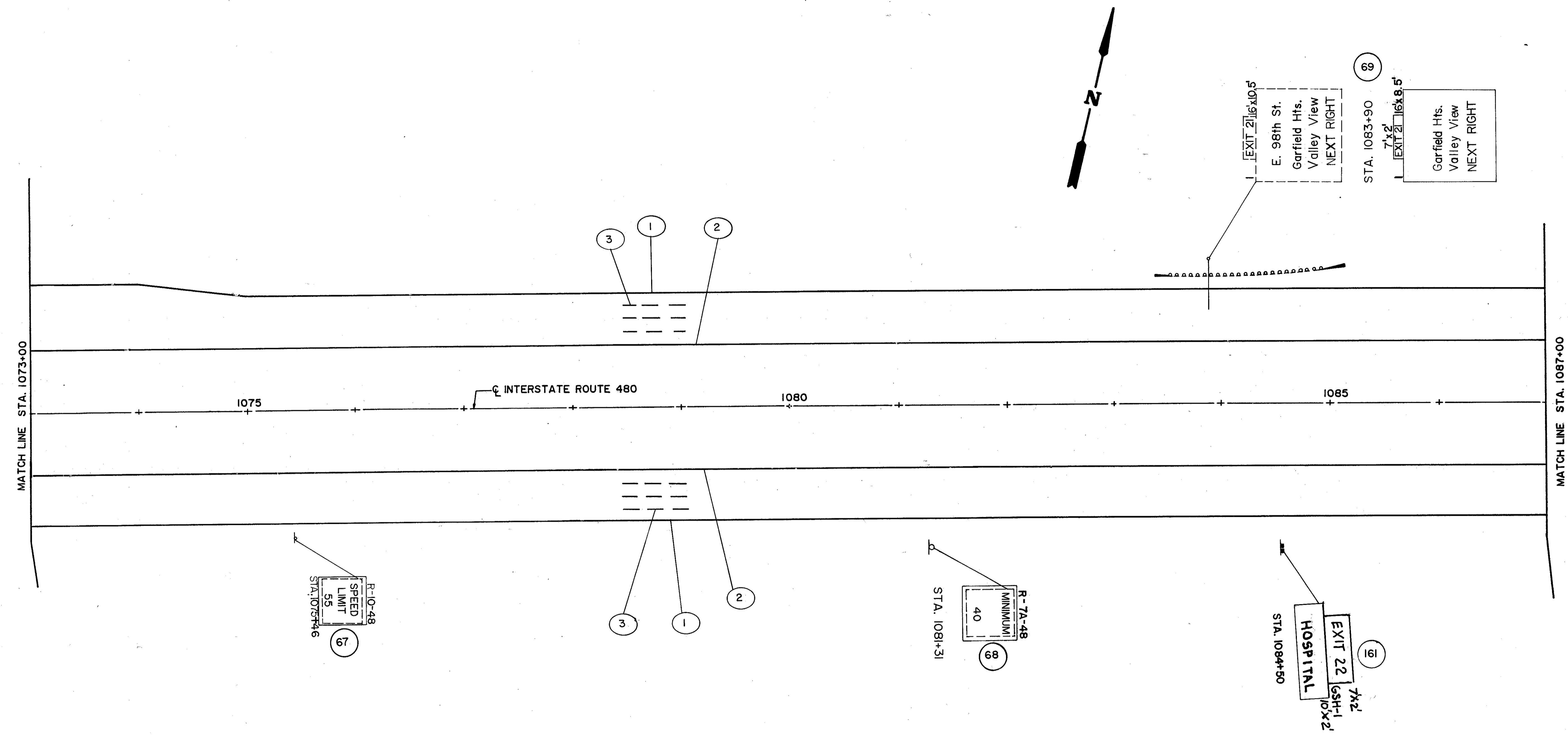
FOR LEGEND, SEE SHEET 112



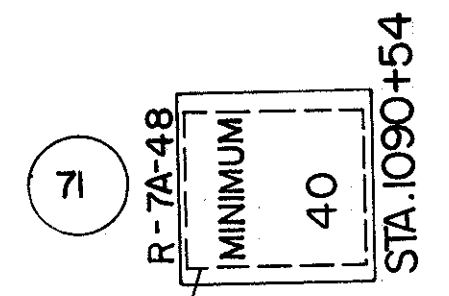
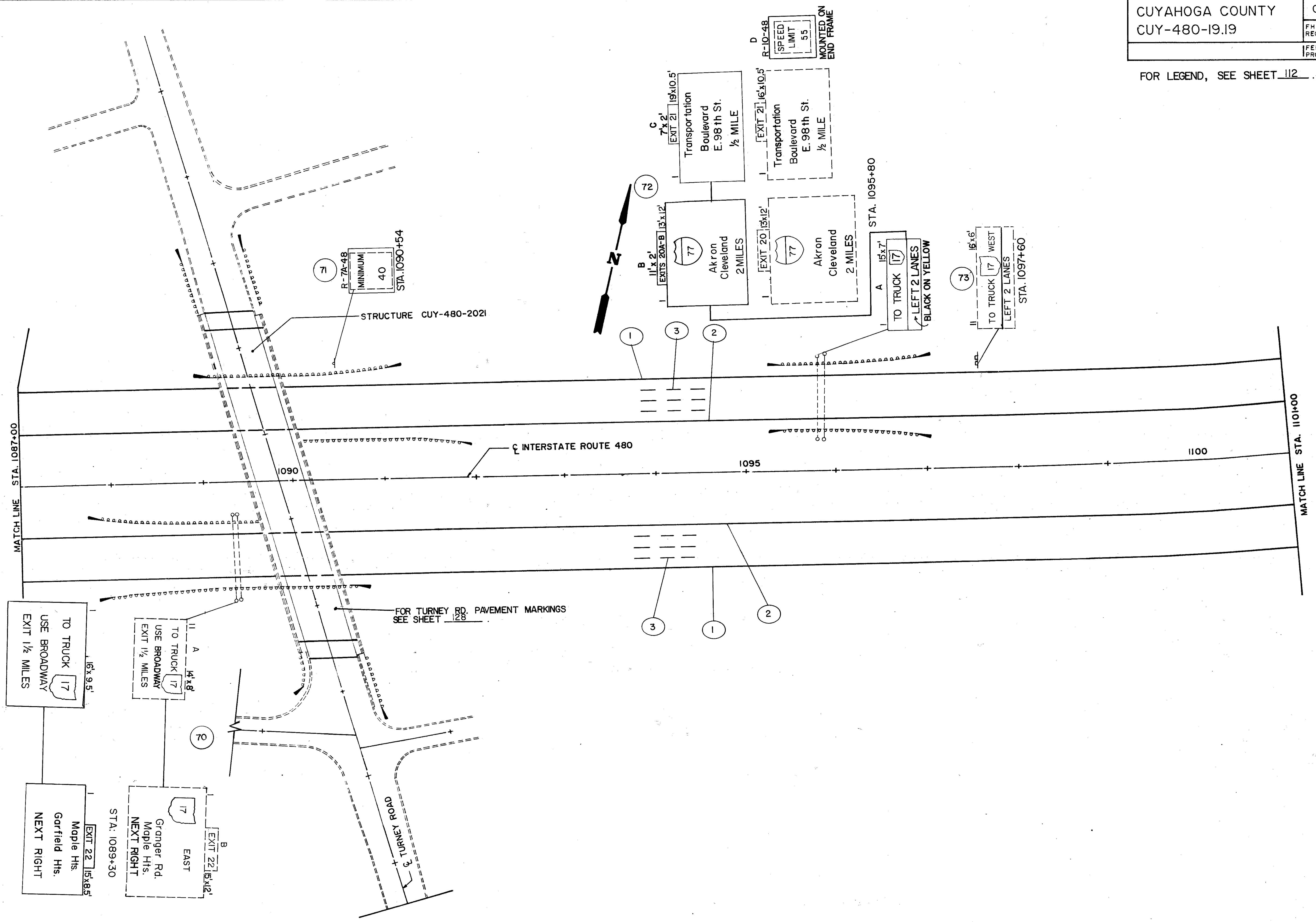
TRAFFIC CONTROL

STA. 1060+50 TO STA. 1073+00

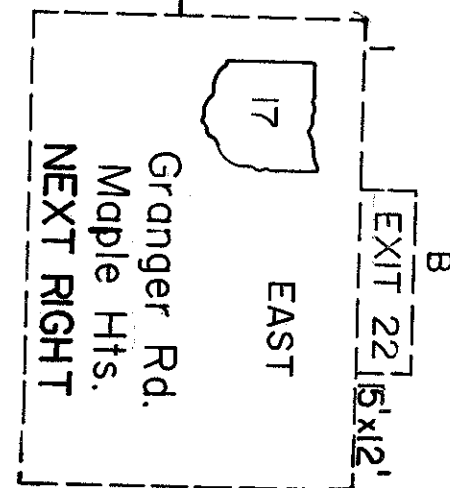
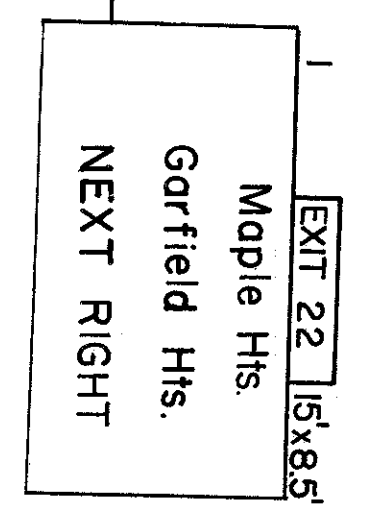
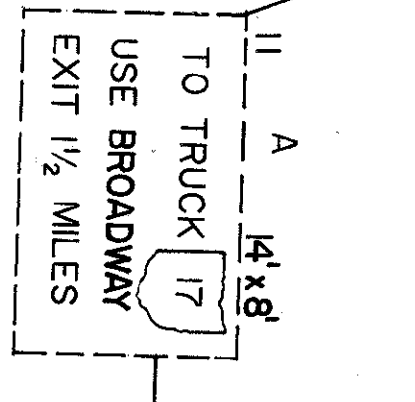
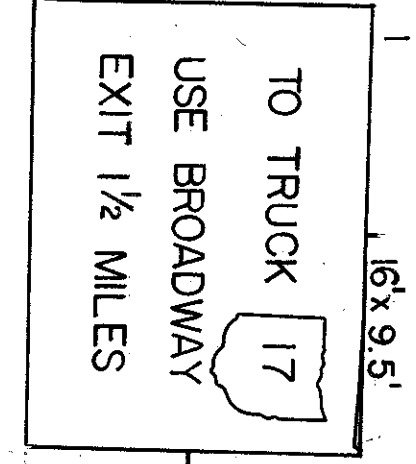
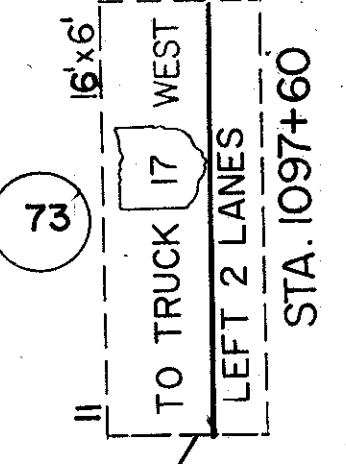
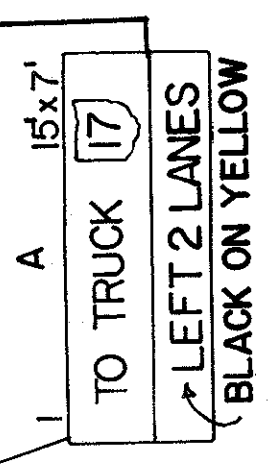
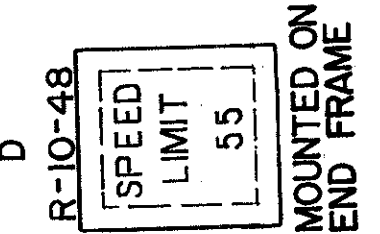
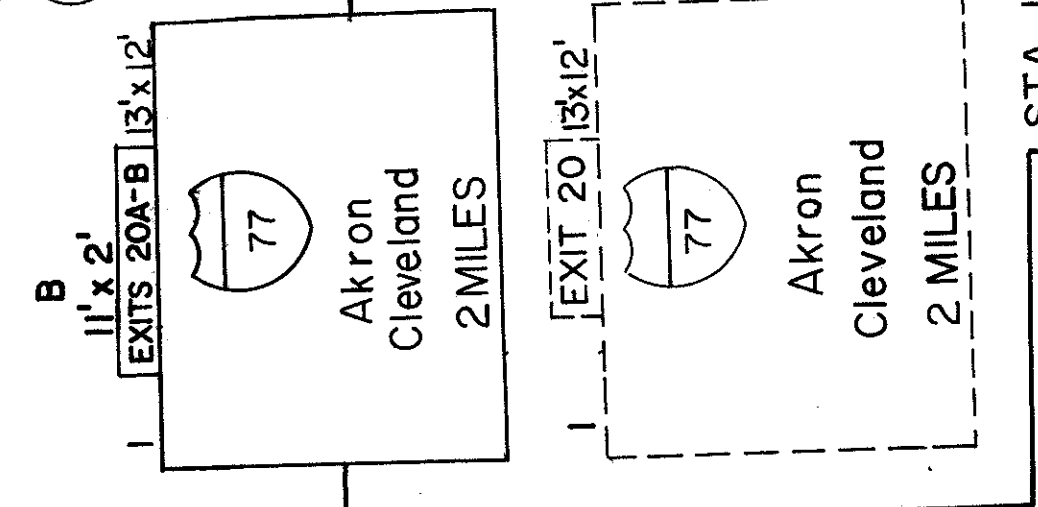
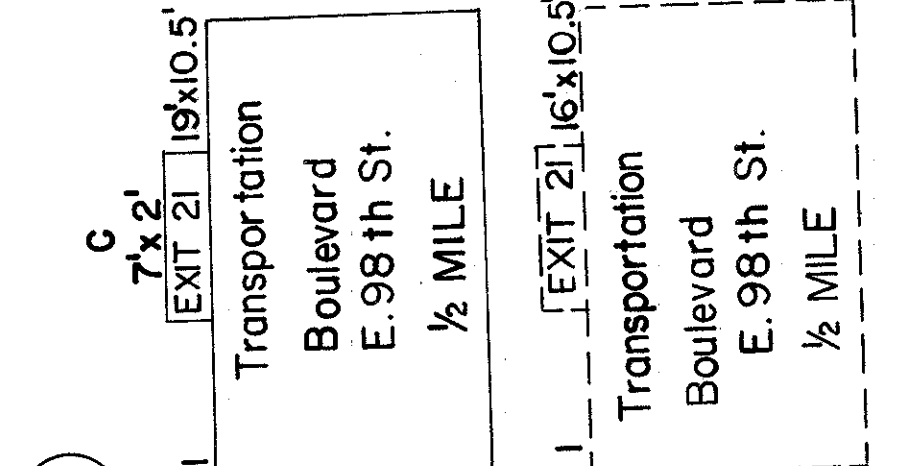
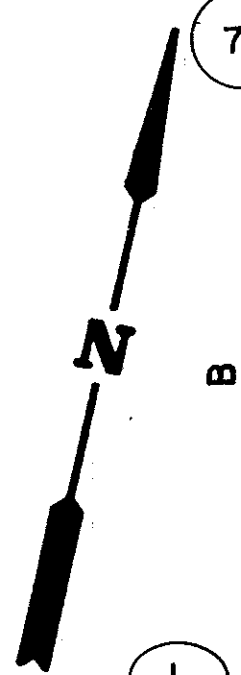
FOR LEGEND, SEE SHEET 112



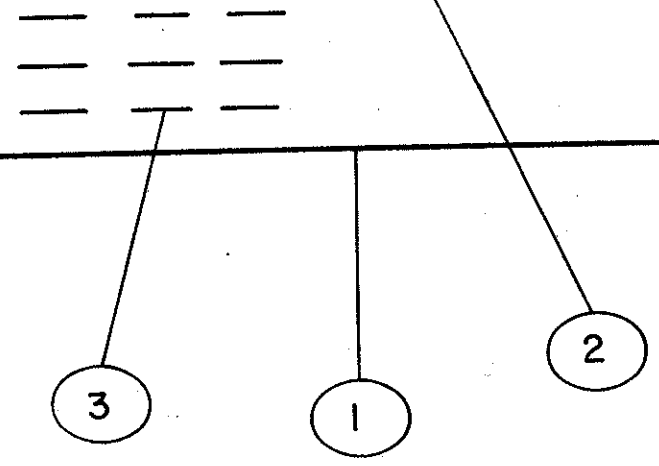
FOR LEGEND, SEE SHEET 112



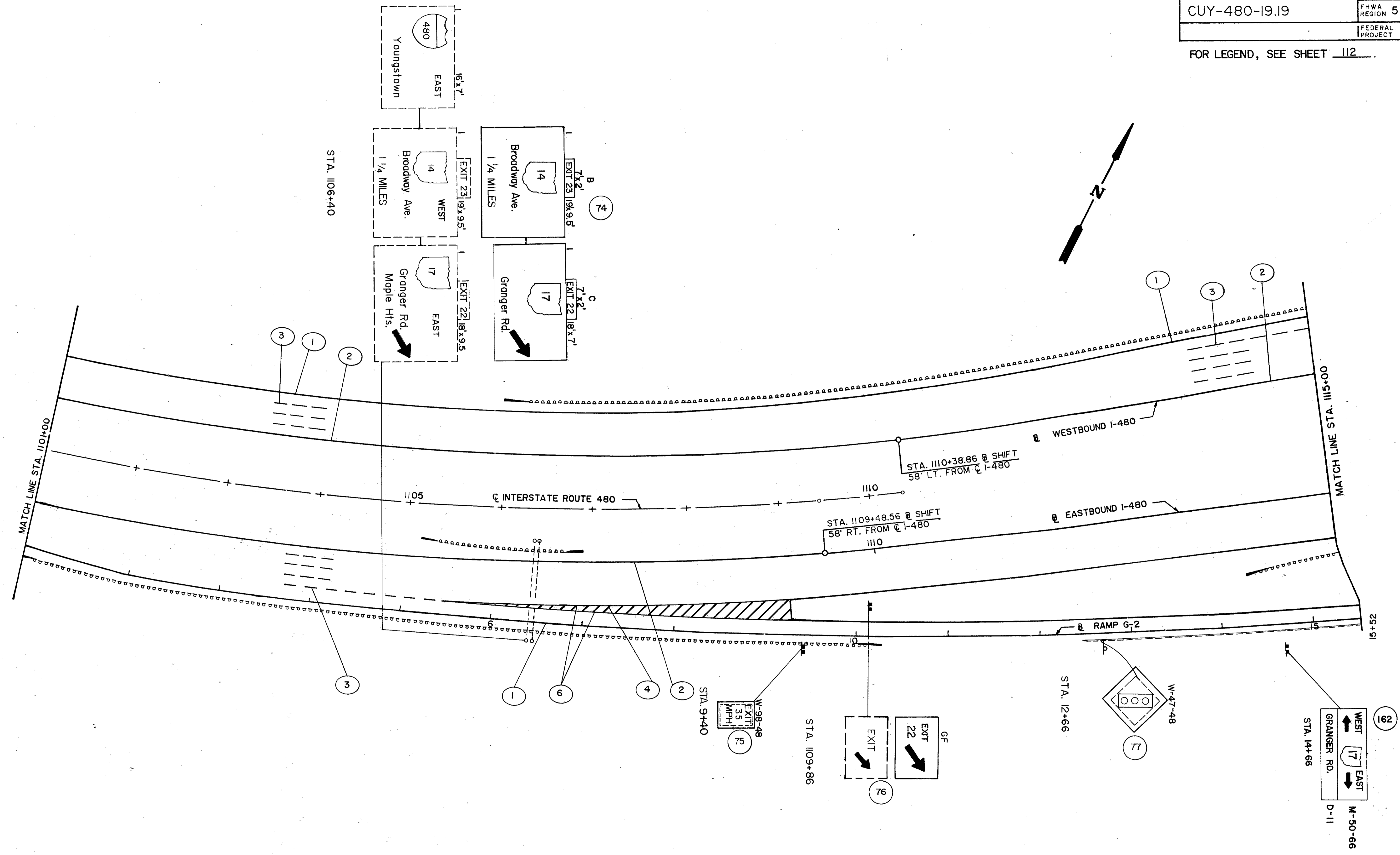
STRUCTURE CUY-480-2021



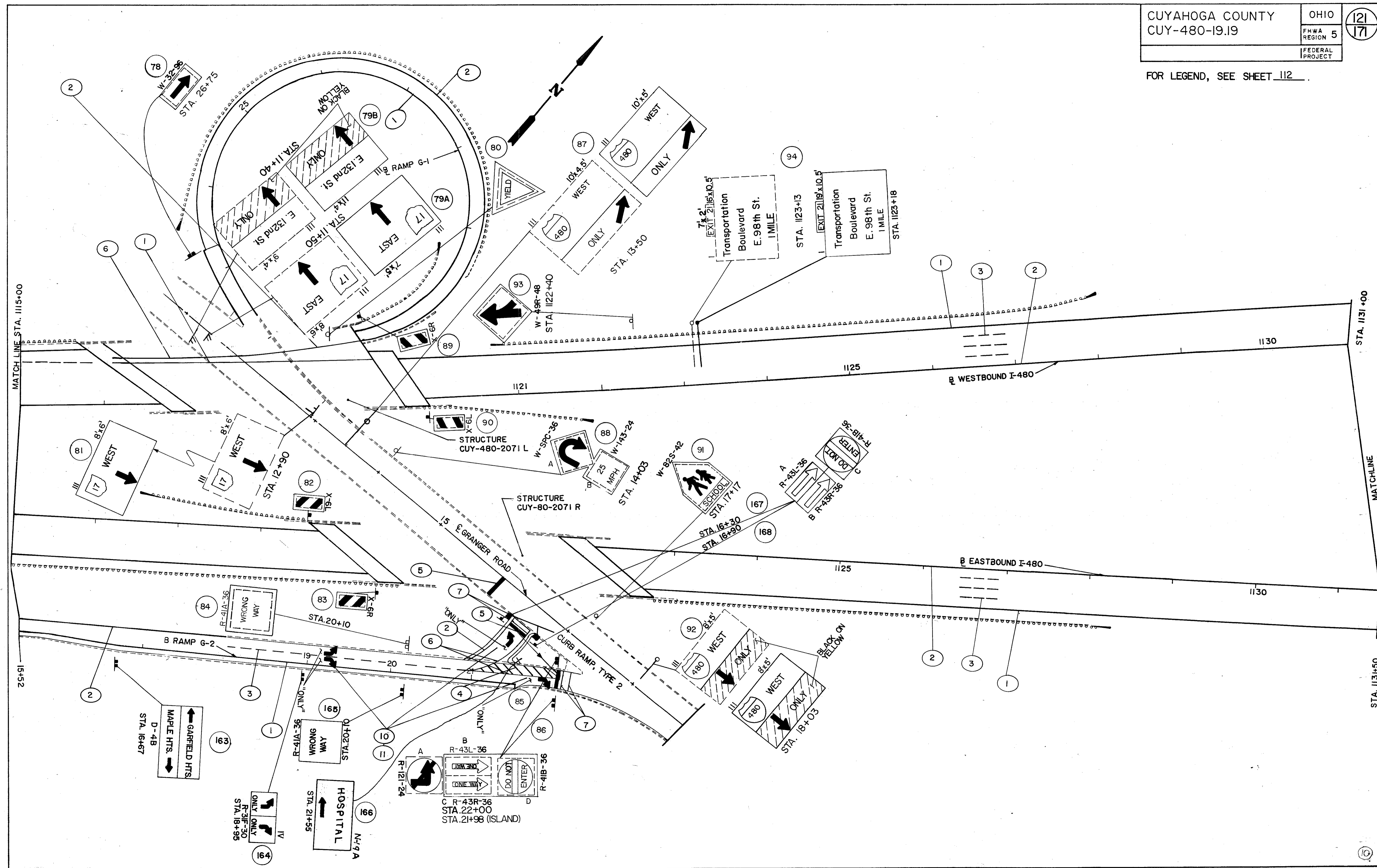
FOR TURNEY RD. PAVEMENT MARKINGS SEE SHEET 128



FOR LEGEND, SEE SHEET 112



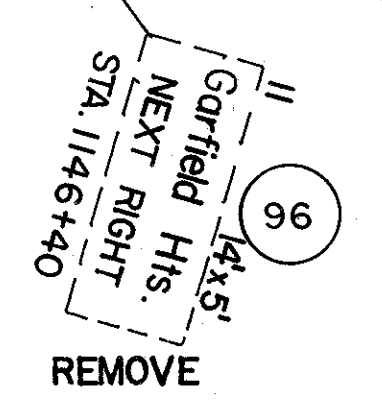
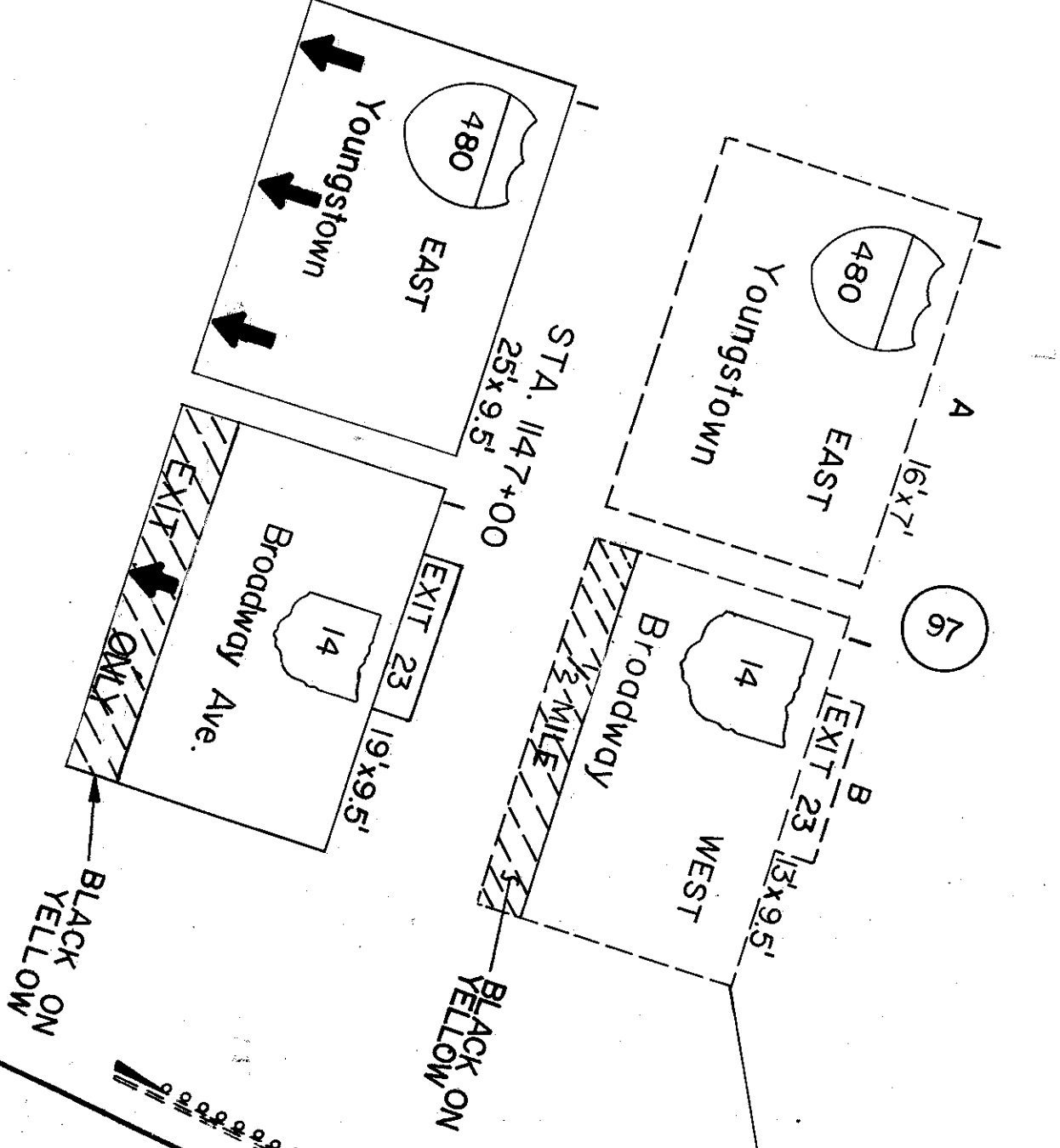
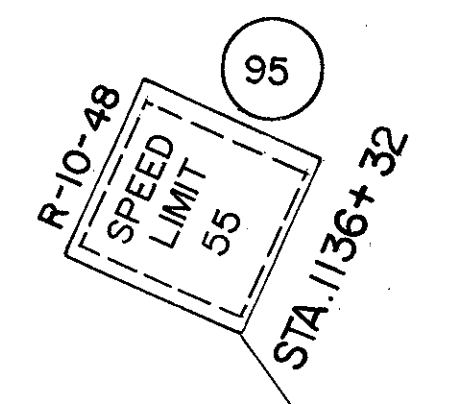
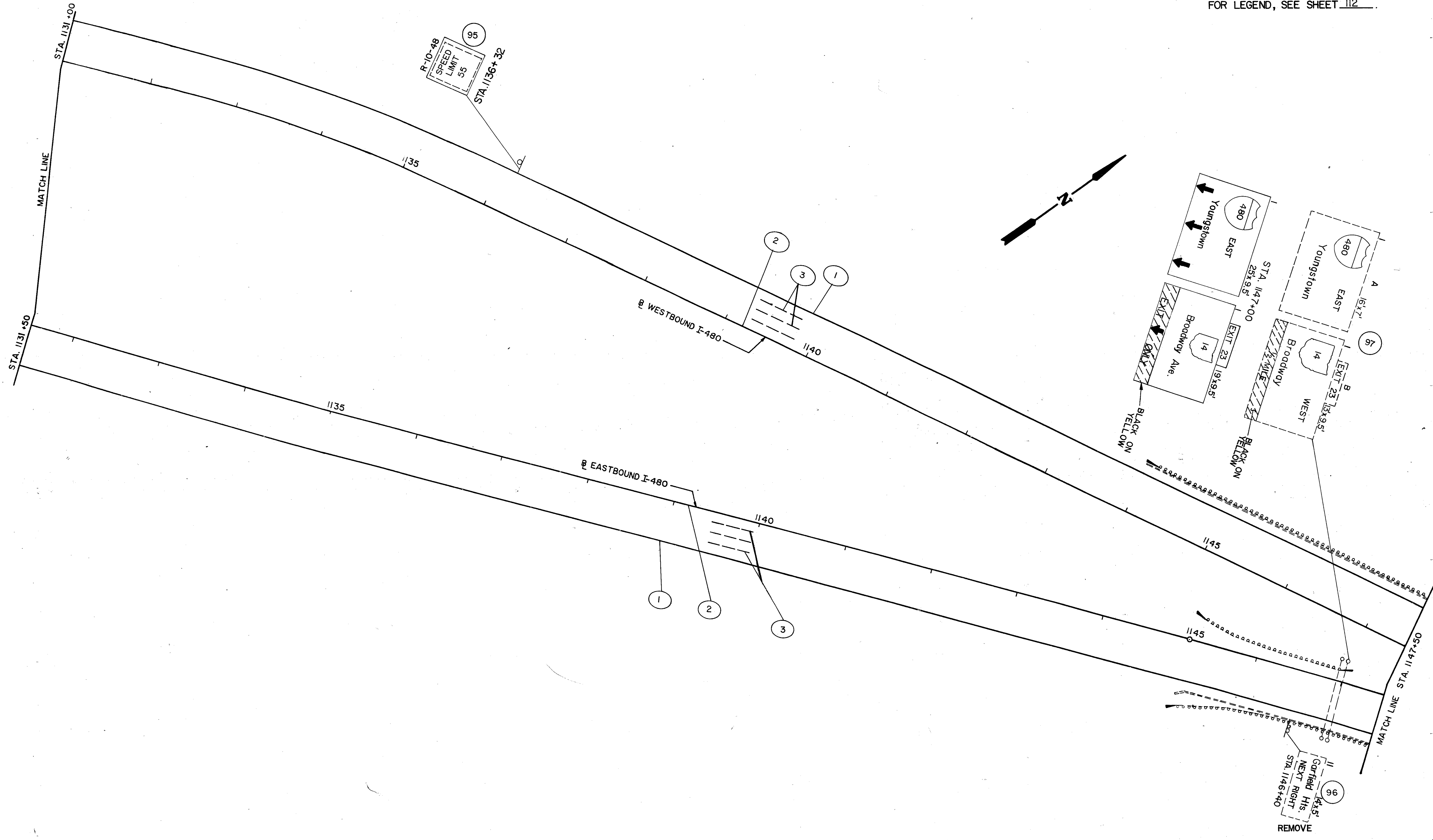
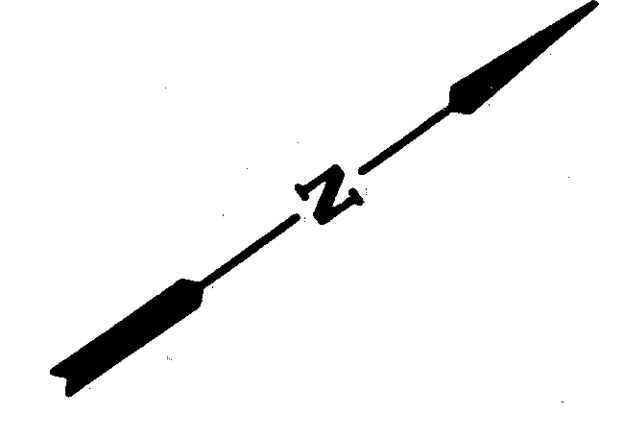
FOR LEGEND, SEE SHEET 112



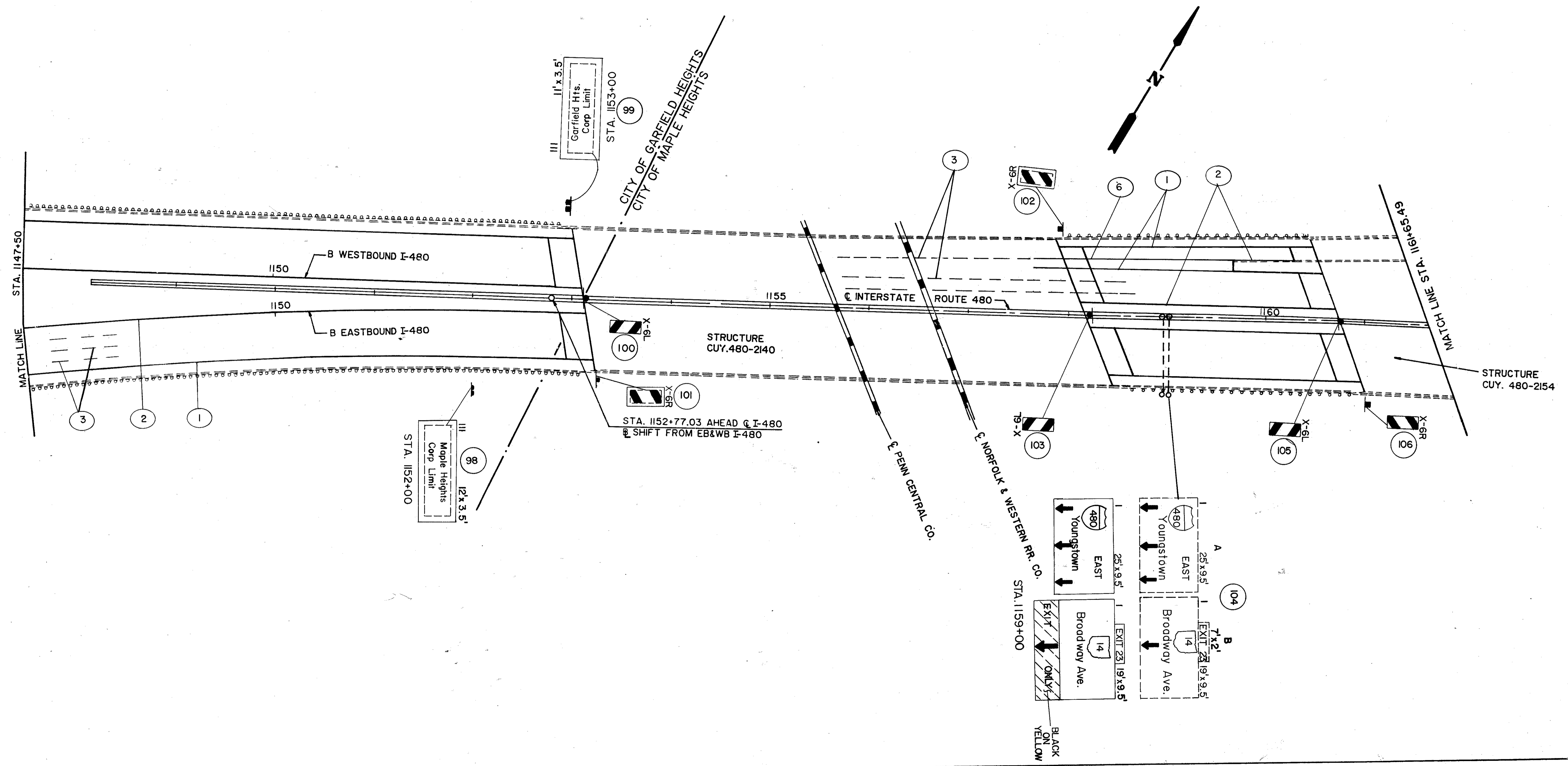
TRAFFIC CONTROL

STA. 1115+00 TO STA. 1131+50

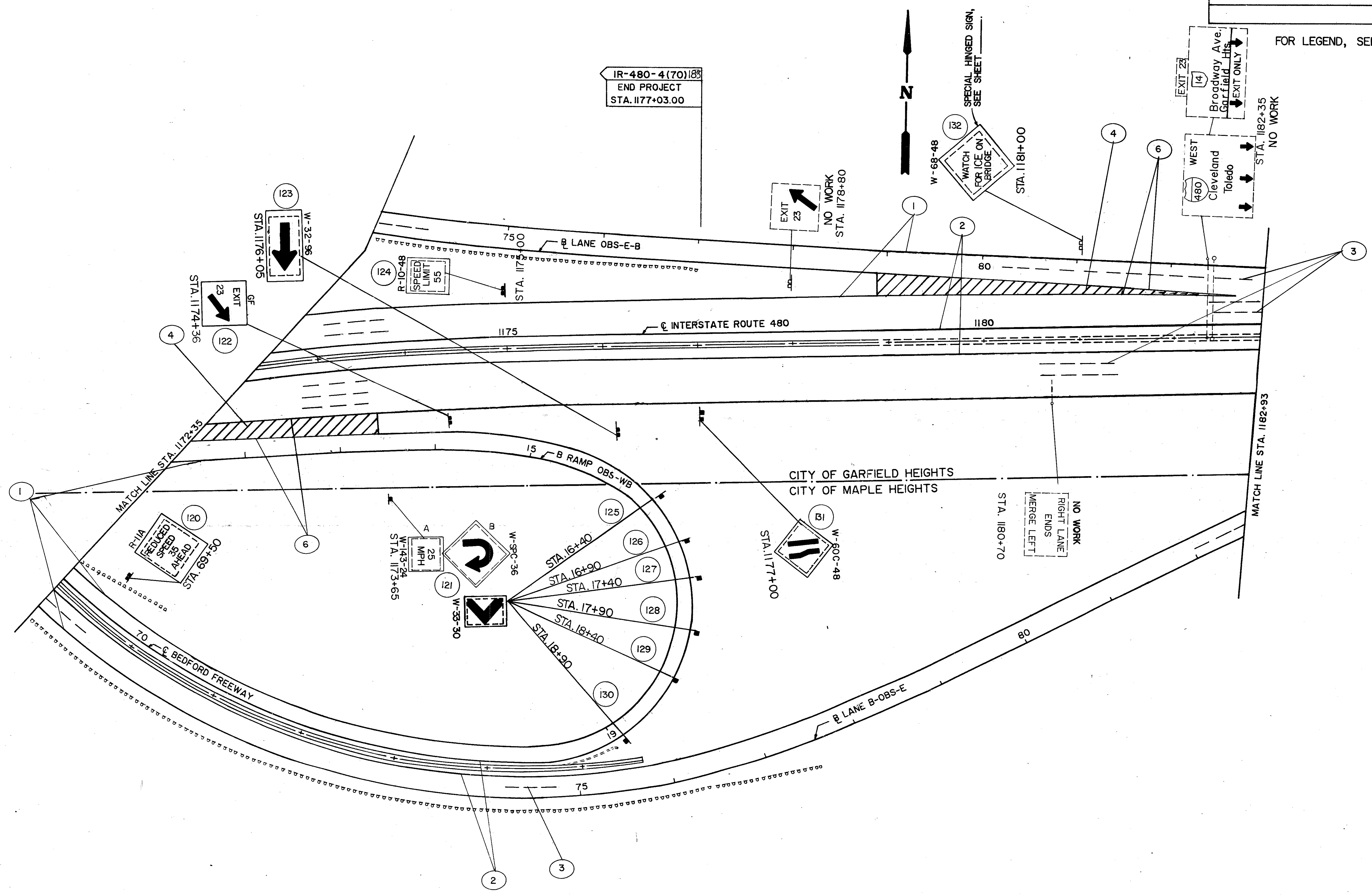
FOR LEGEND, SEE SHEET 112



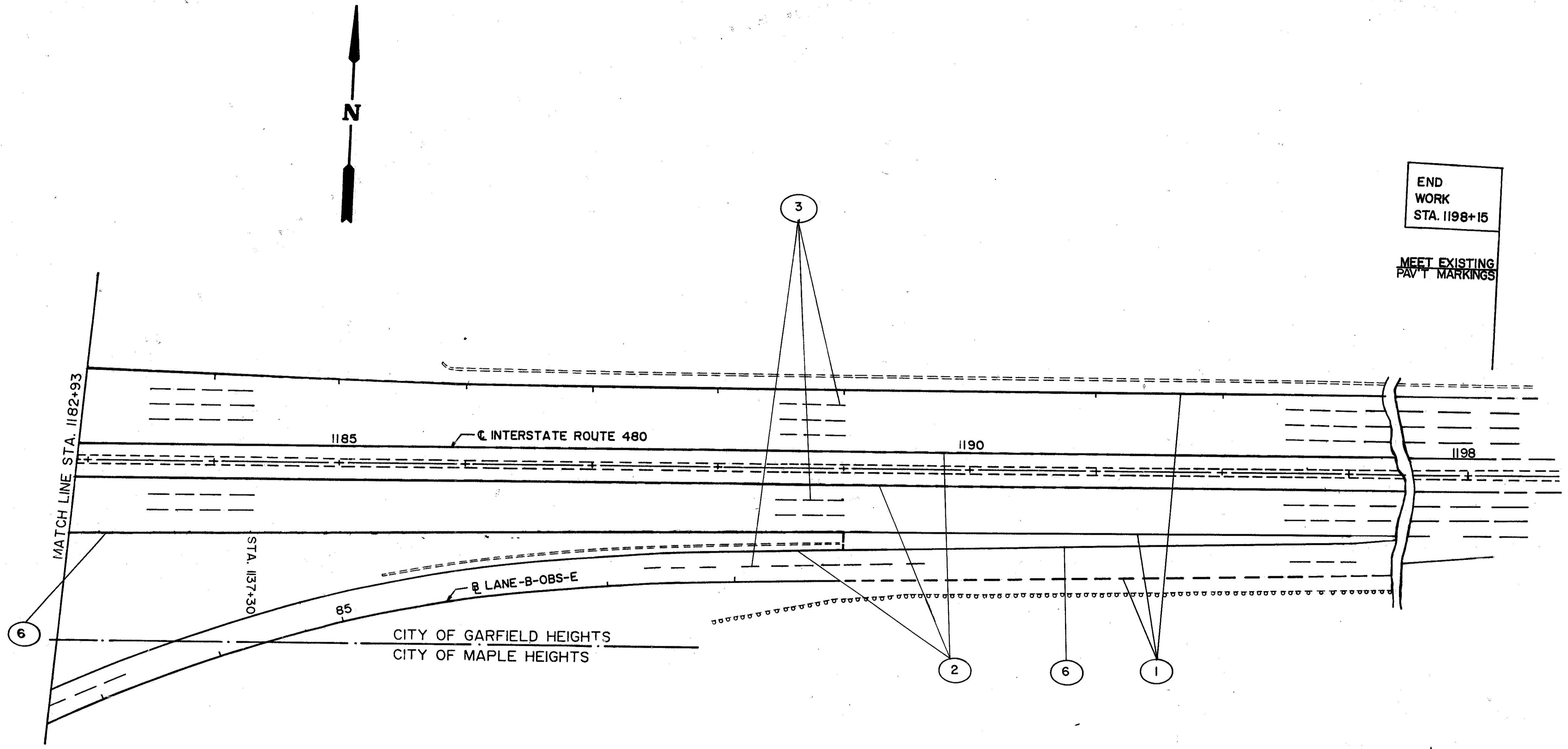
FOR LEGEND, SEE SHEET 112



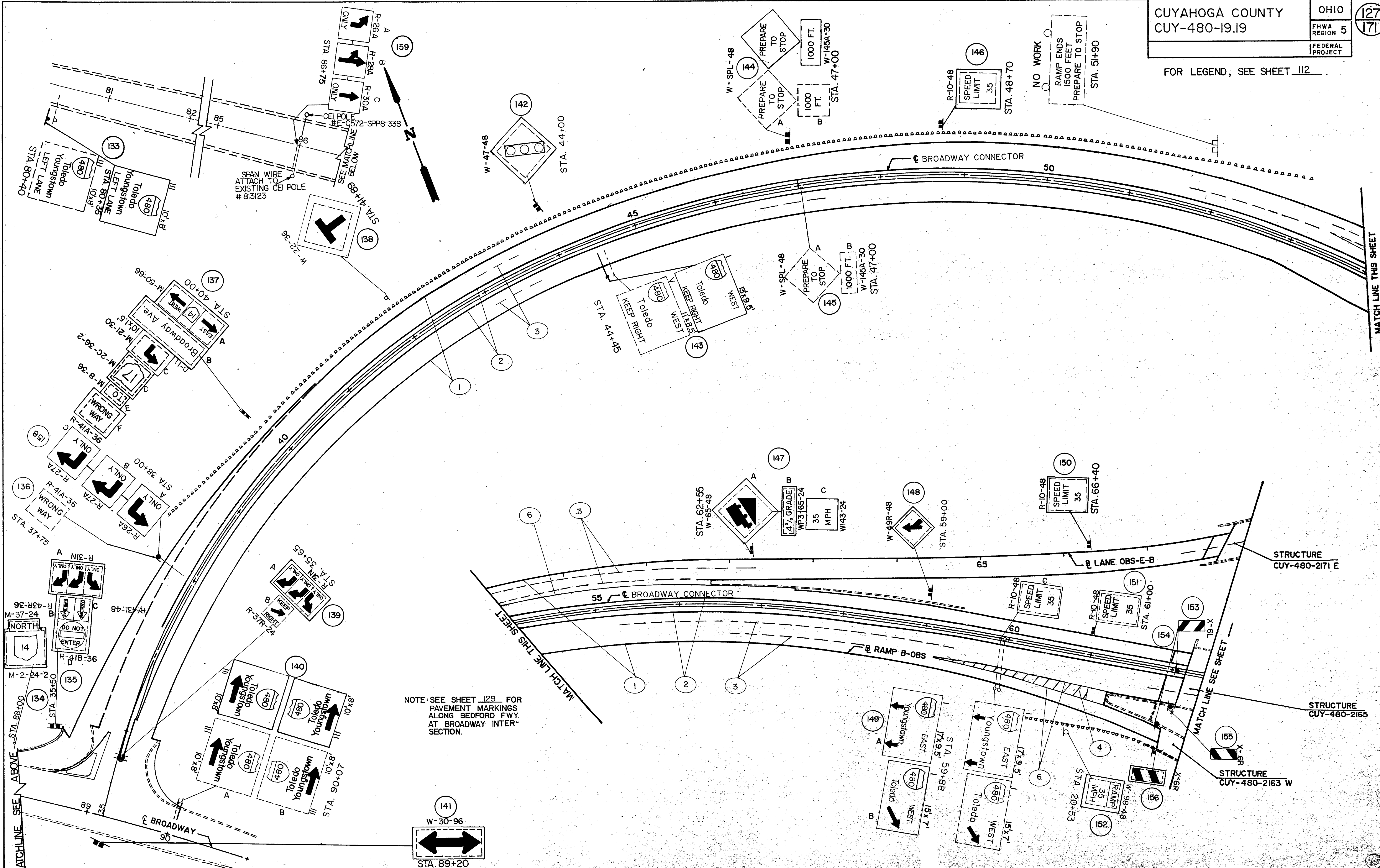
FOR LEGEND, SEE SHEET 112



FOR LEGEND, SEE SHEET 112



FOR LEGEND, SEE SHEET 112



NOTE: SEE SHEET 129 FOR
PAVEMENT MARKINGS
ALONG BEDFORD FWY.
AT BROADWAY INTER-
SECTION.

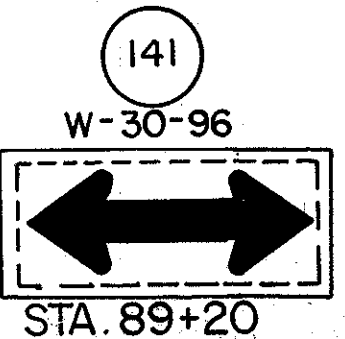
TRAFFIC CONTROL

STA. 35+00 TO STA. 68+19.66 BROADWAY CONNECTOR

MATCHLINE SEE ABOVE

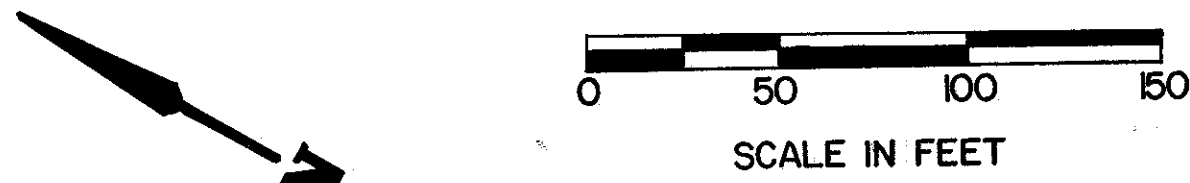
MATCH LINE THIS SHEET

MATCH LINE SEE SHEET



MATCHLINE SEE ABOVE

TRAFFIC CONTROL

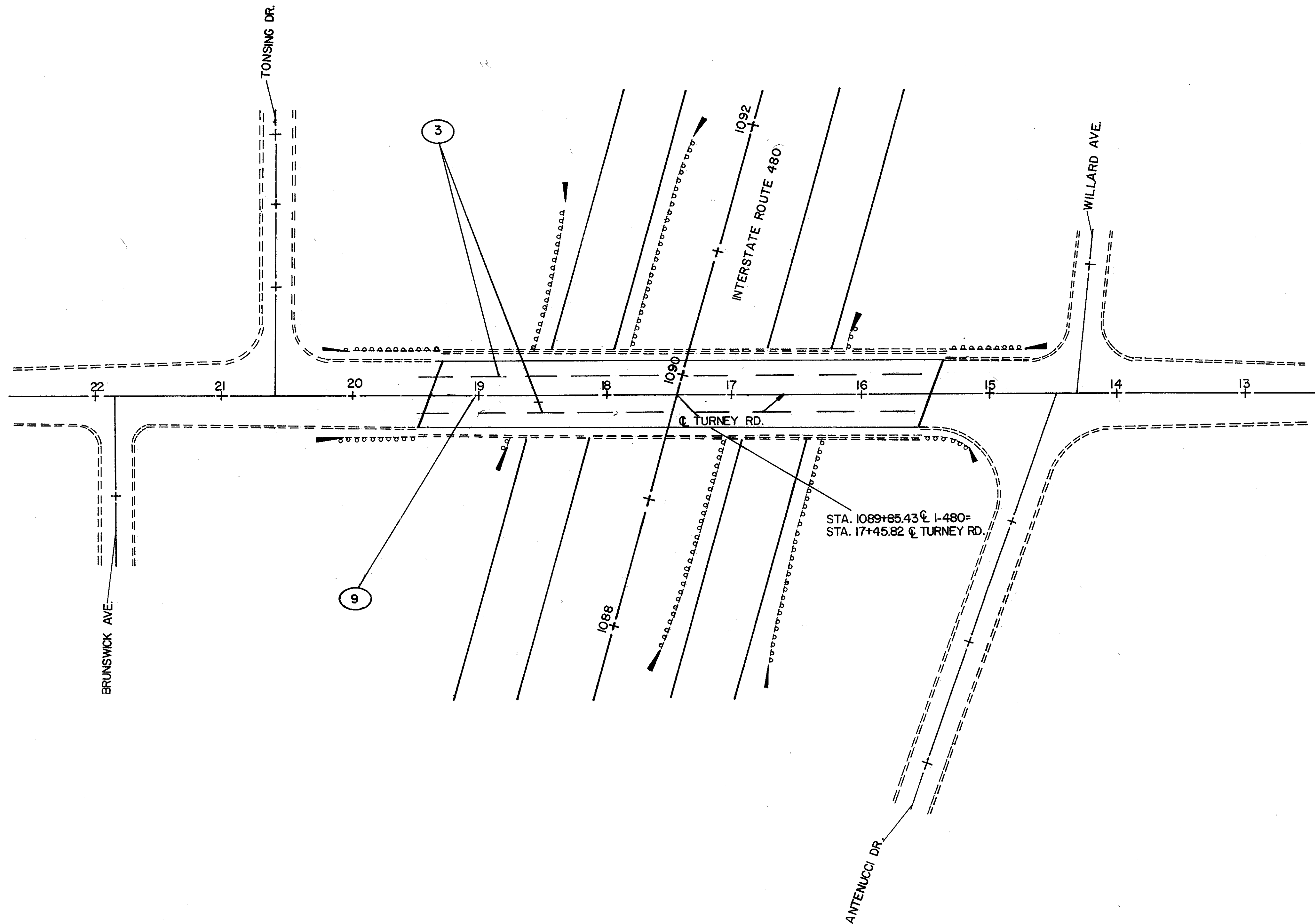


CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA REGION 5
FEDERAL PROJECT

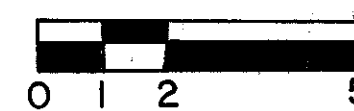
128
171

FOR LEGEND, SEE SHEET 112.

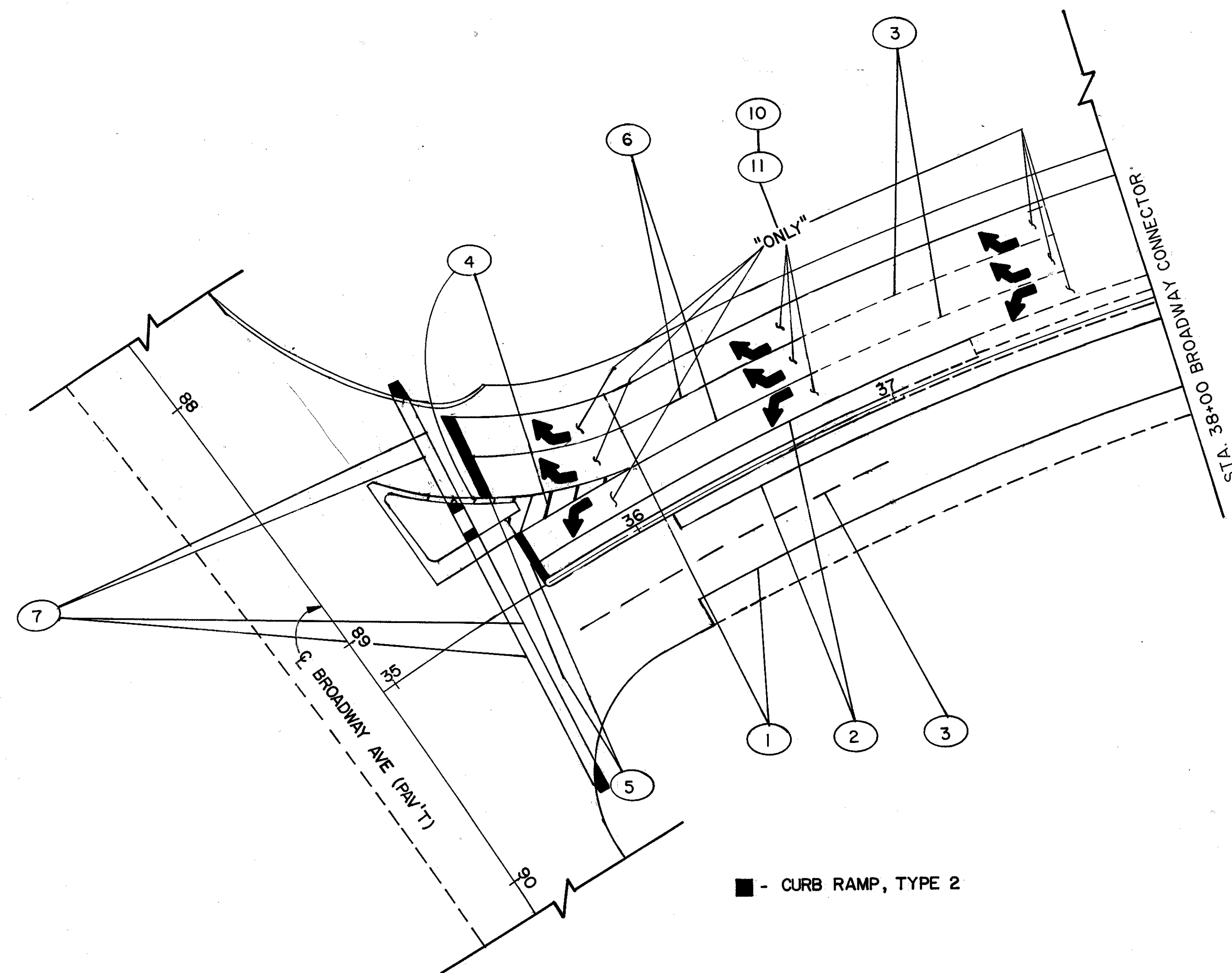


FOR LEGEND, SEE SHEET 112

PAVEMENT MARKINGS

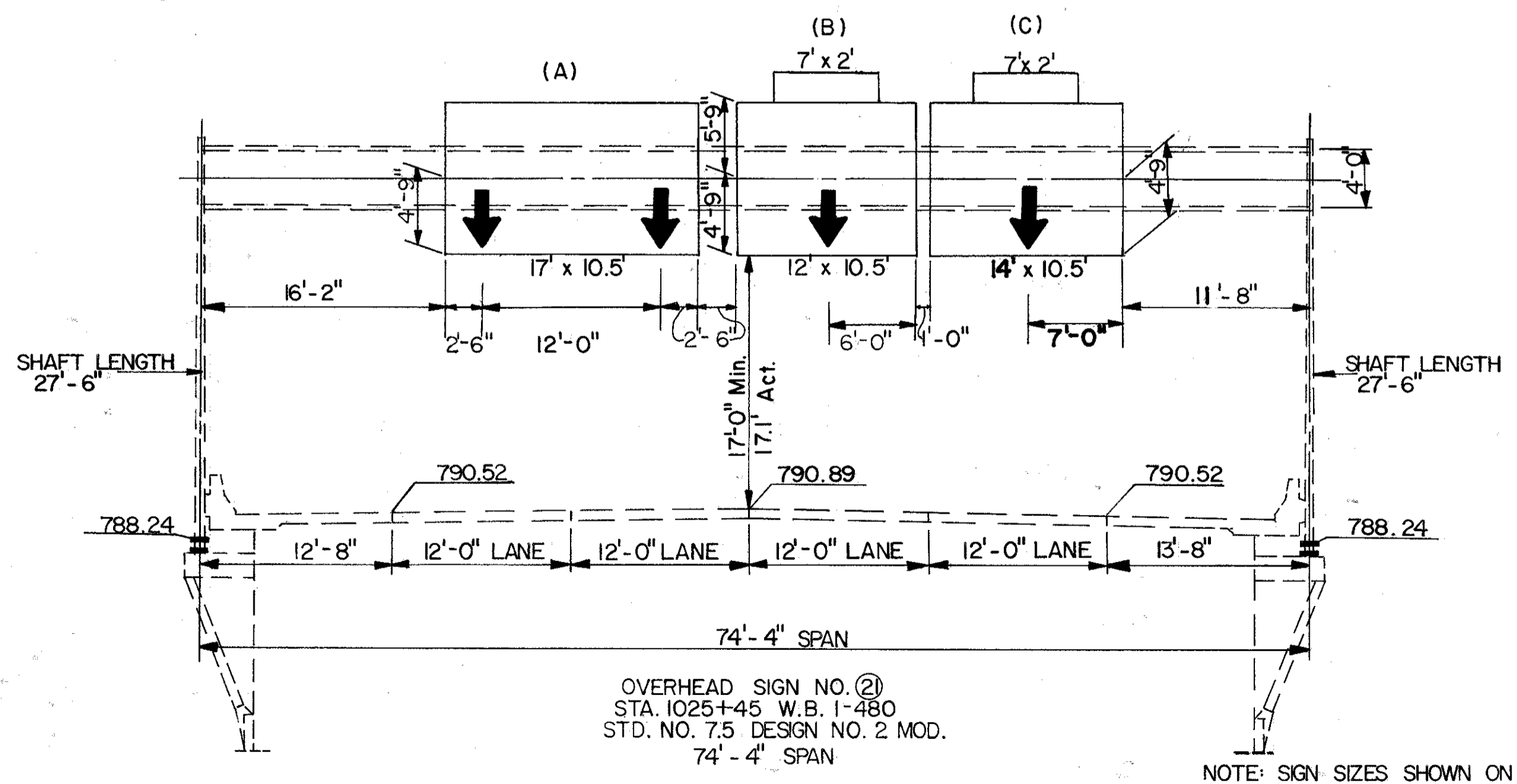
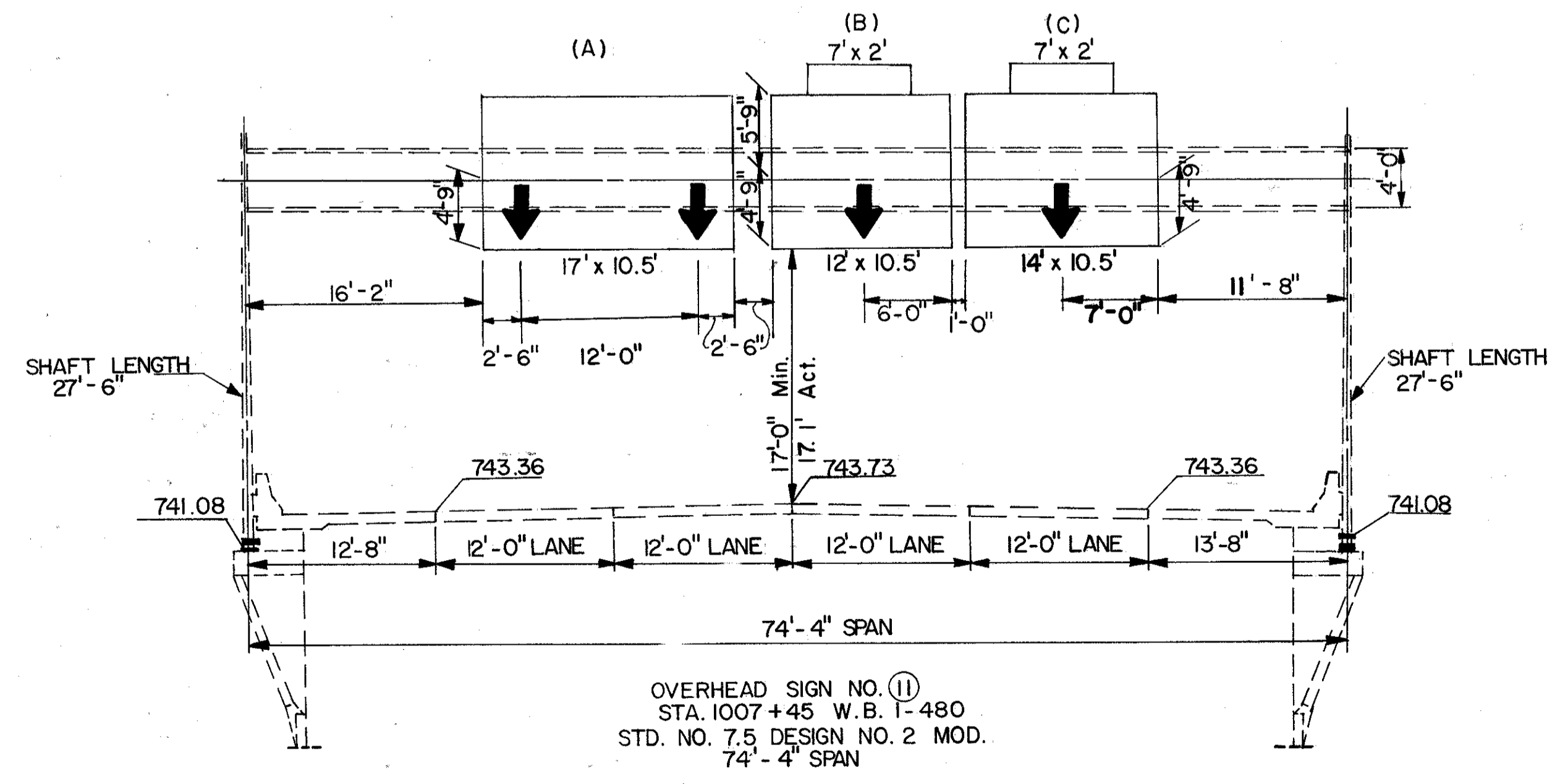
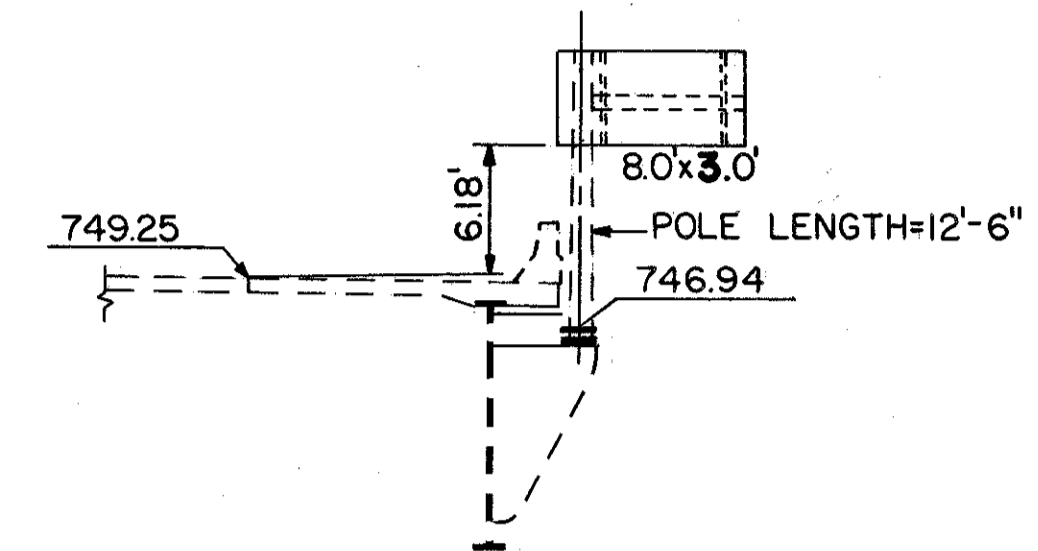
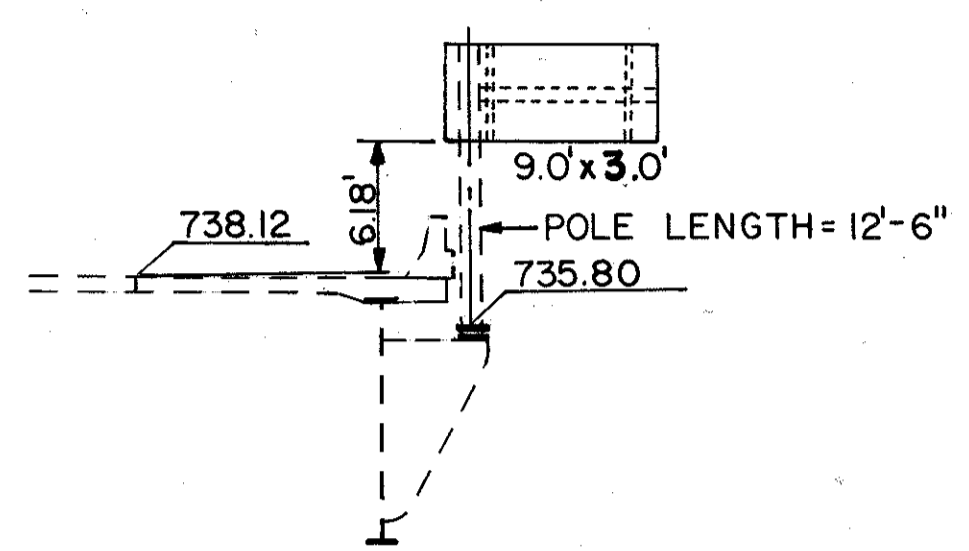
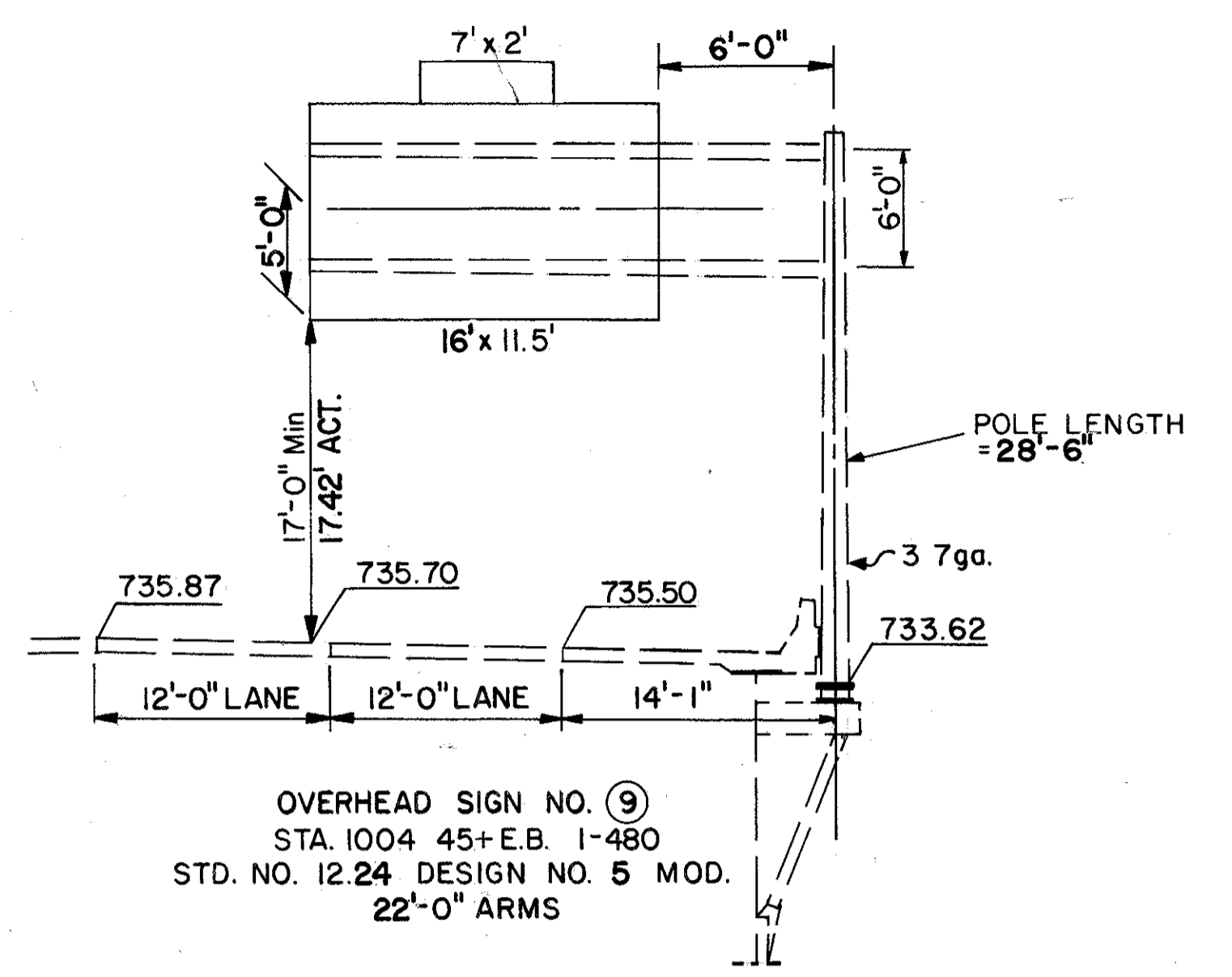


BROADWAY CONNECTOR AND BROADWAY AVE. INTERSECTION



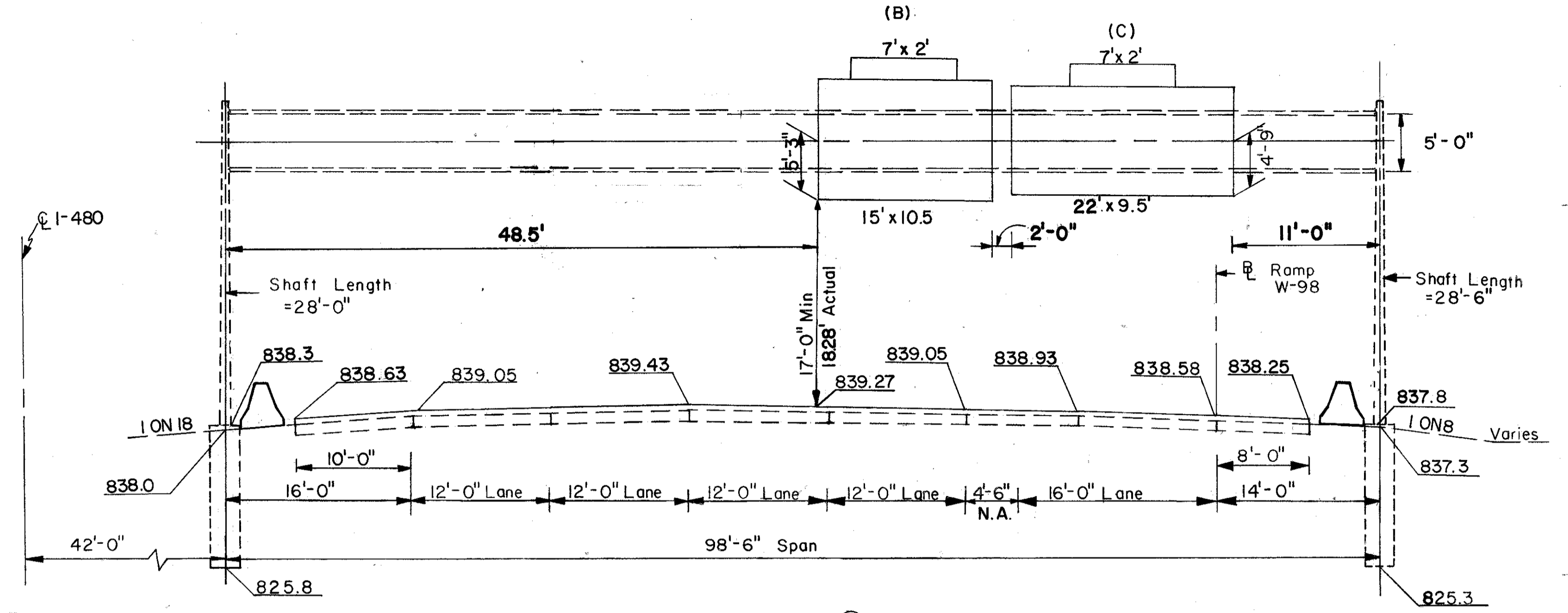
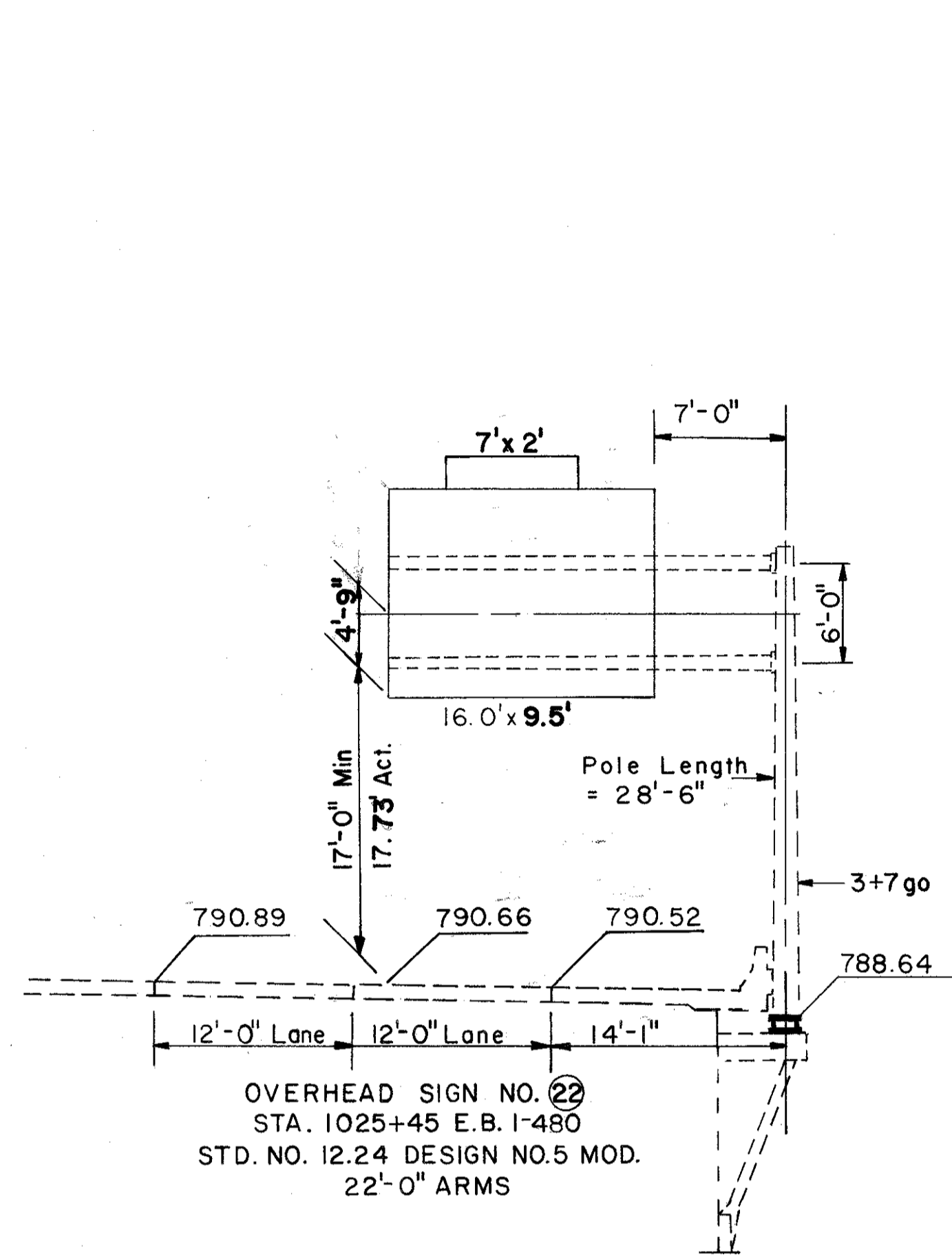
■ - CURB RAMP, TYPE 2

SIGN SUPPORT ELEVATIONS

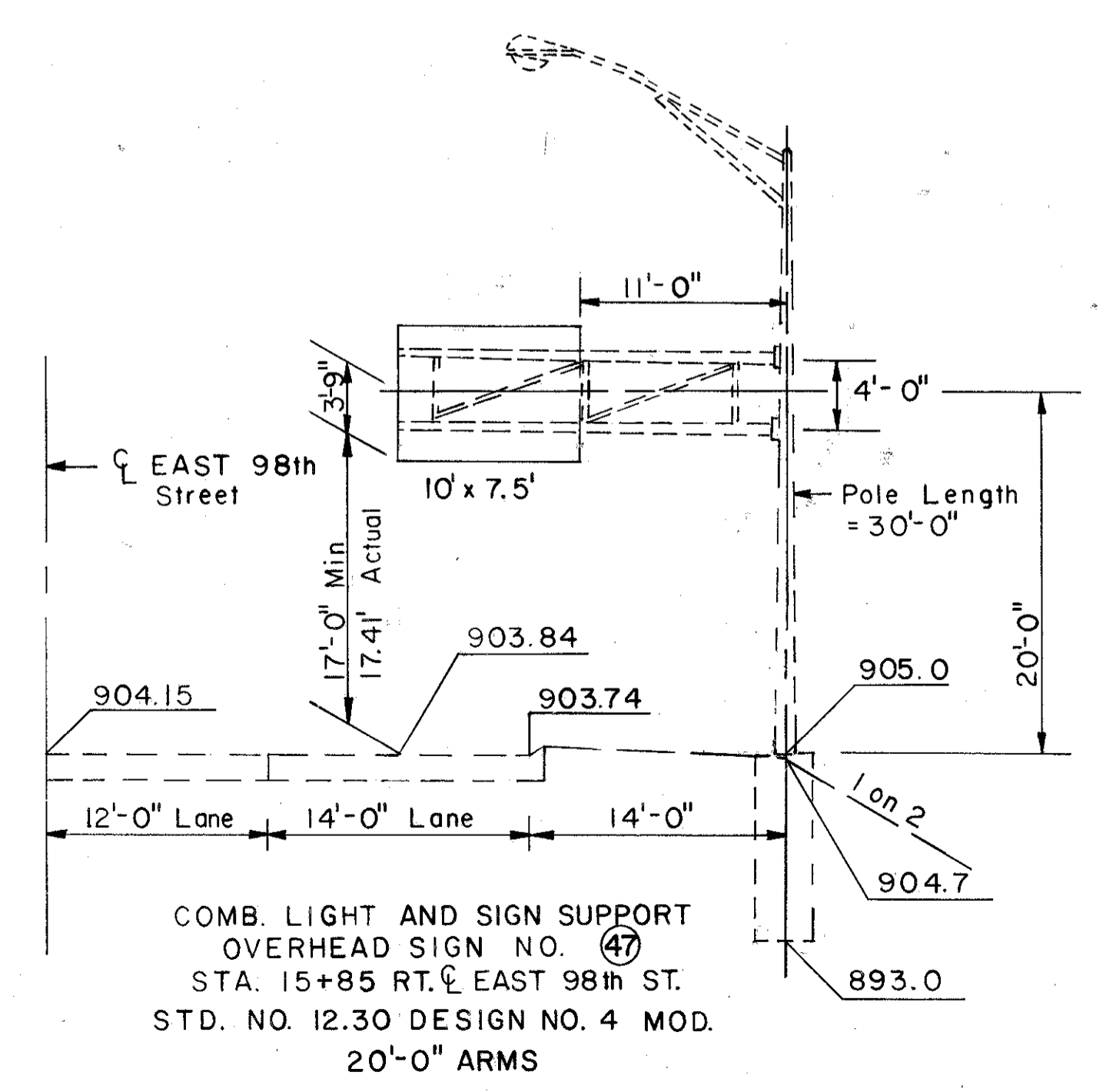
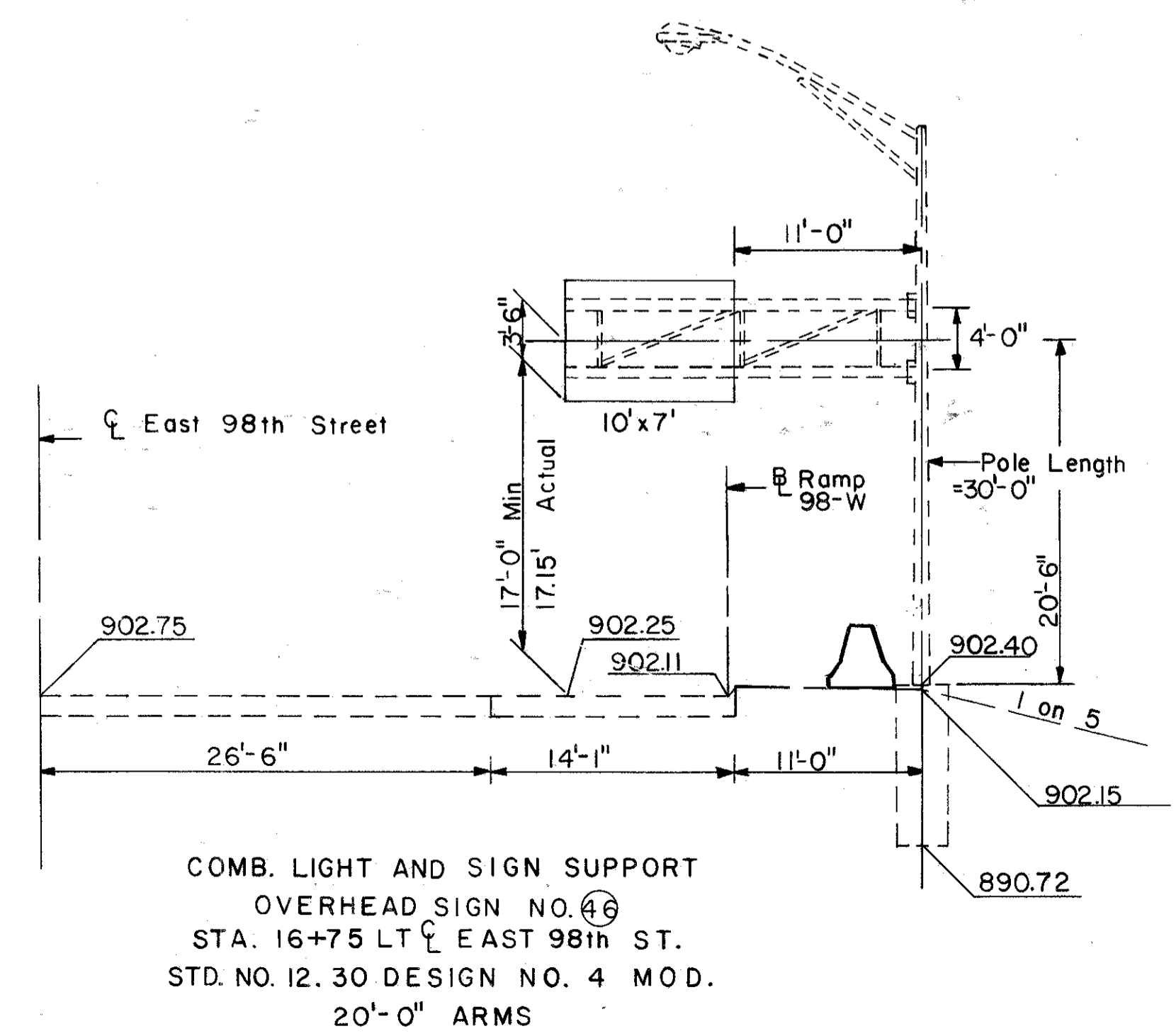
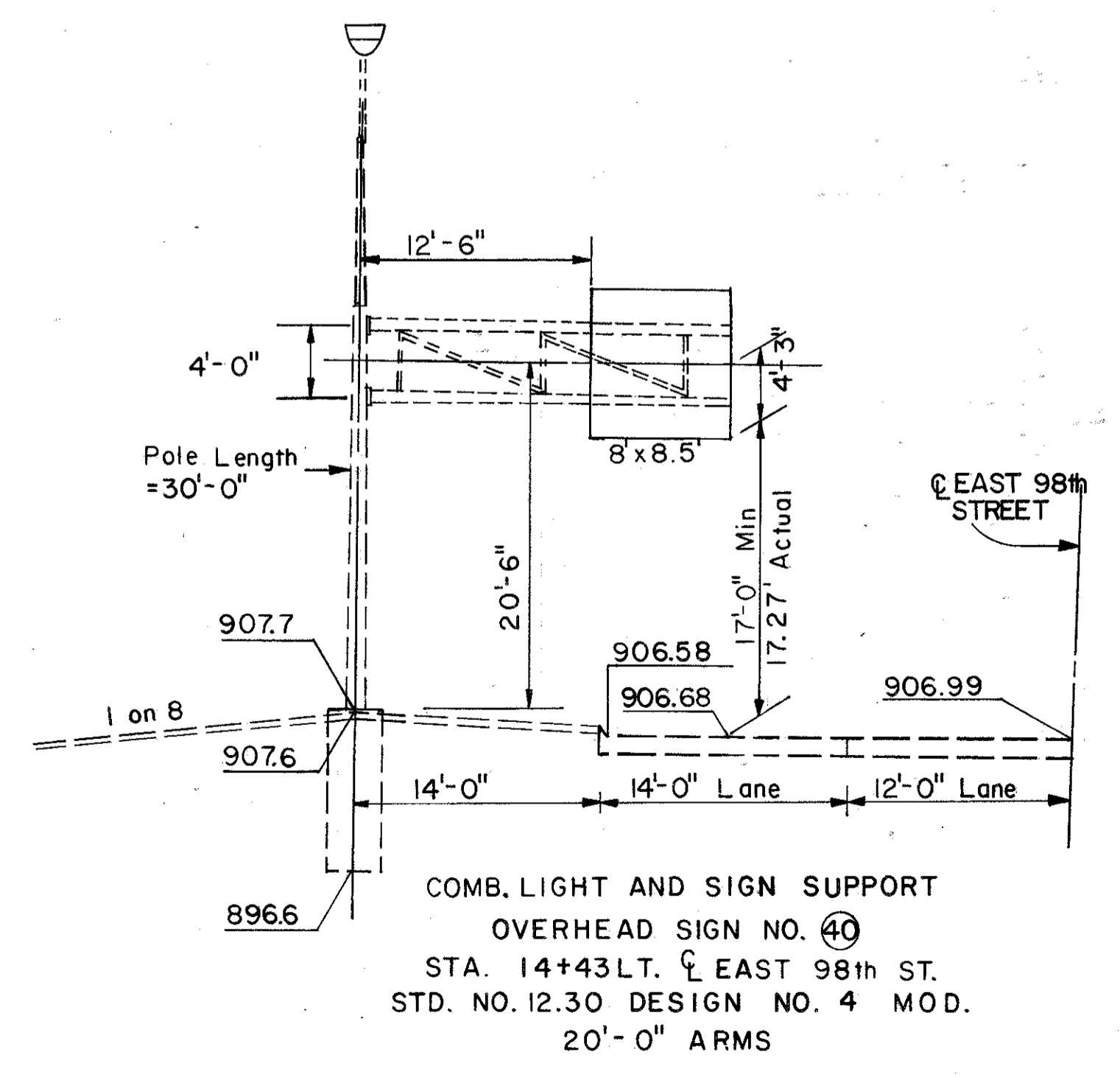


NOTE: SIGN SIZES SHOWN ON THIS SHEET ARE ACTUAL AND INCLUDE THE ADDED 1'-0" FOR GLARE SHIELDS AND LUMINAIRE ASSEMBLY.

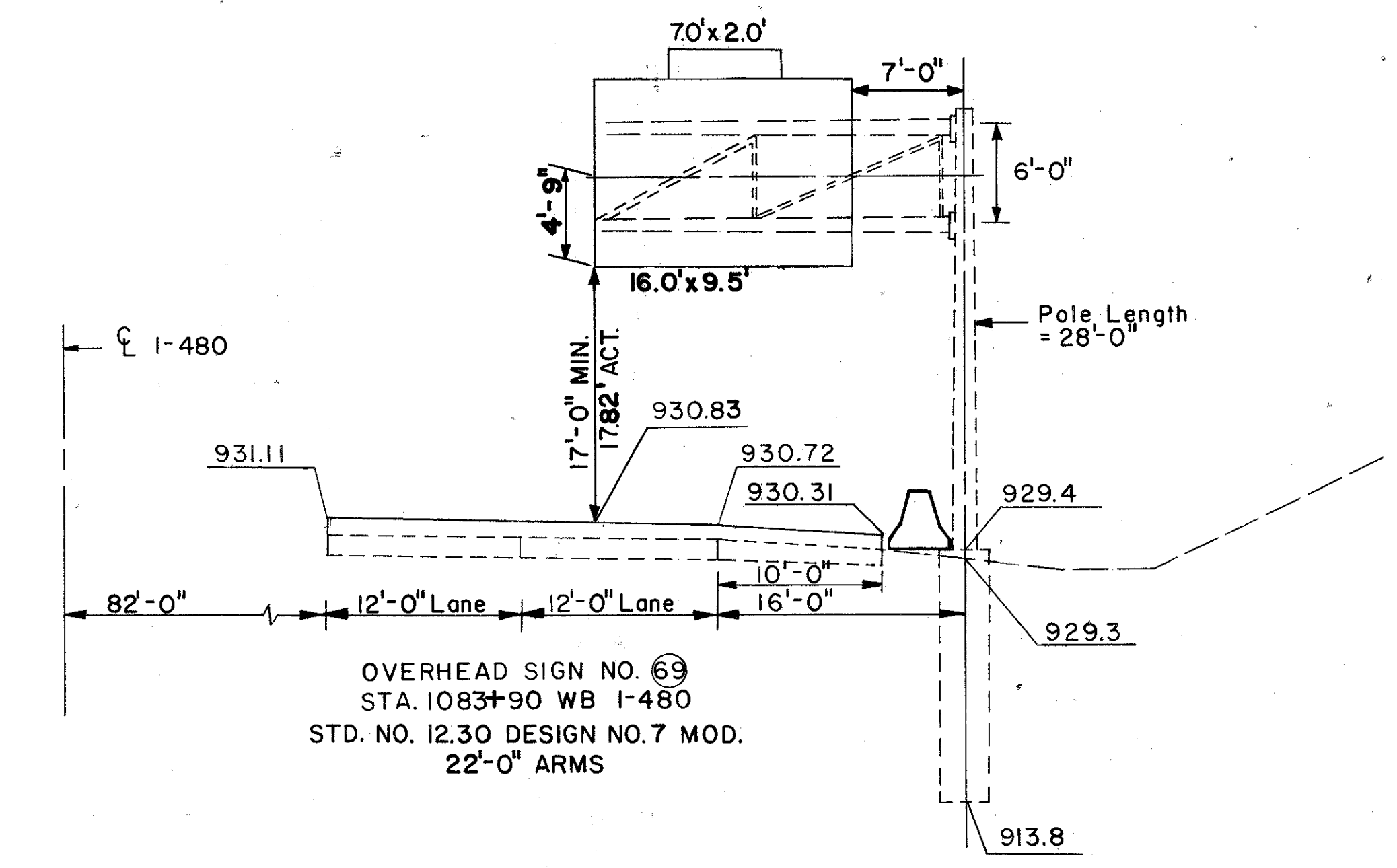
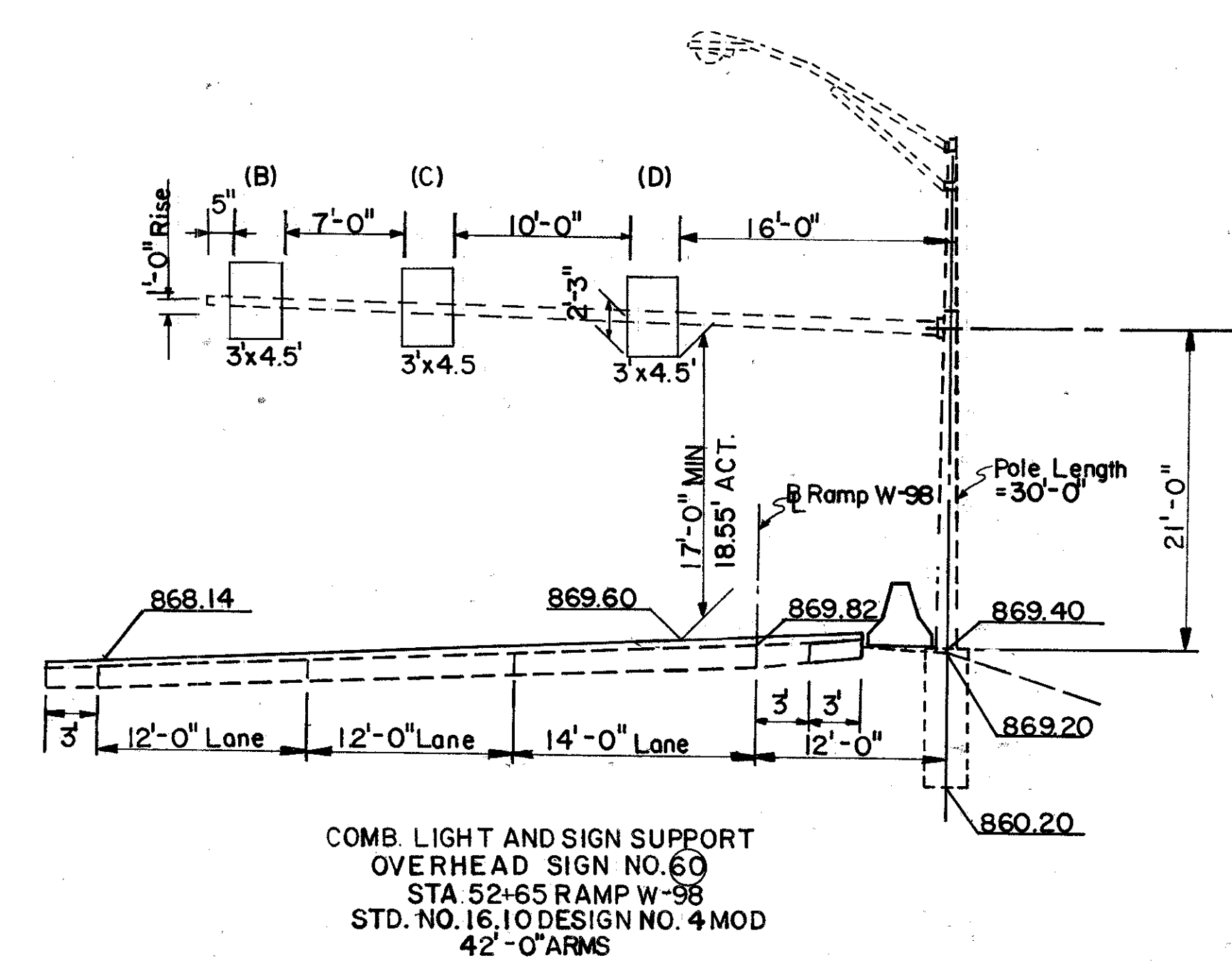
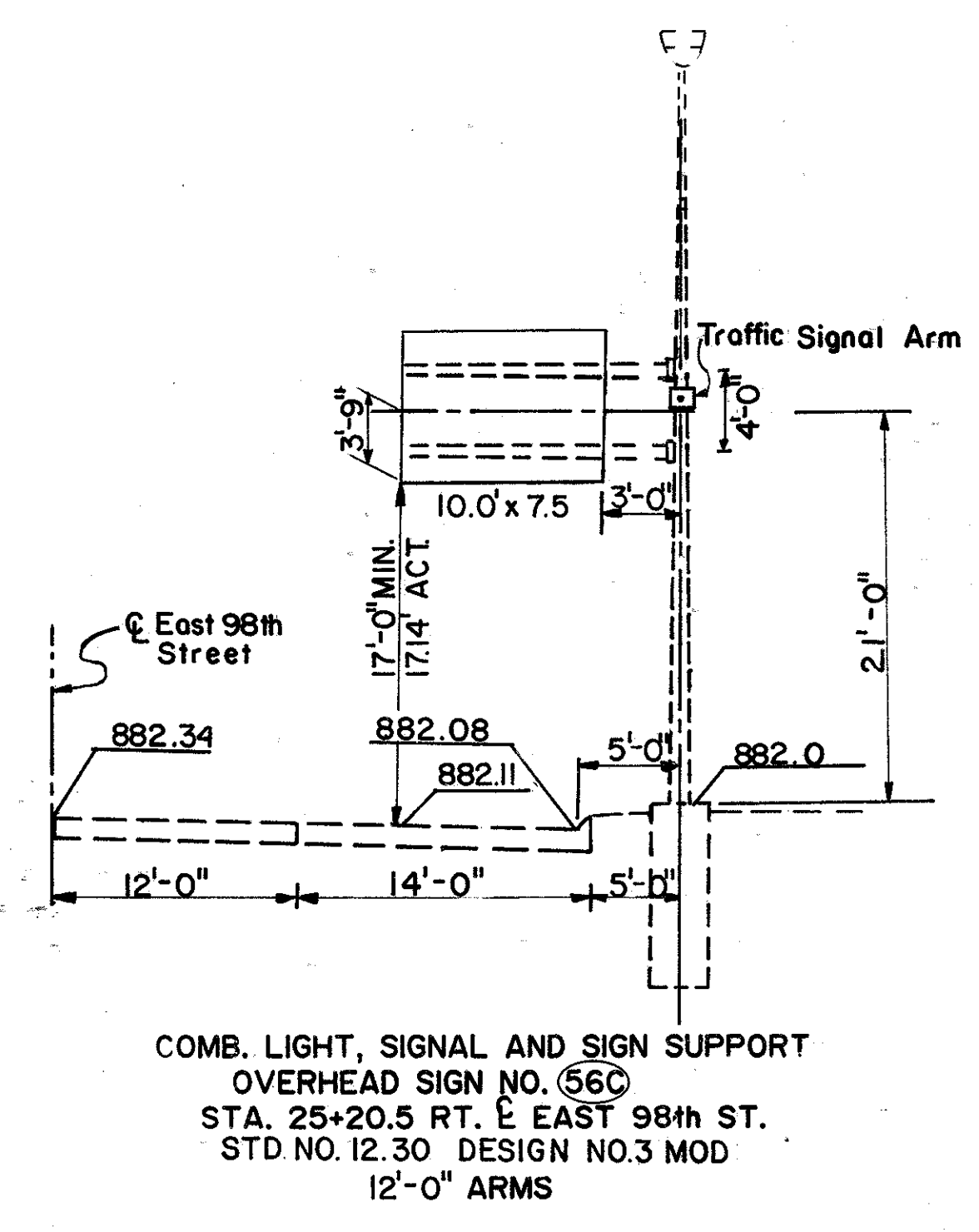
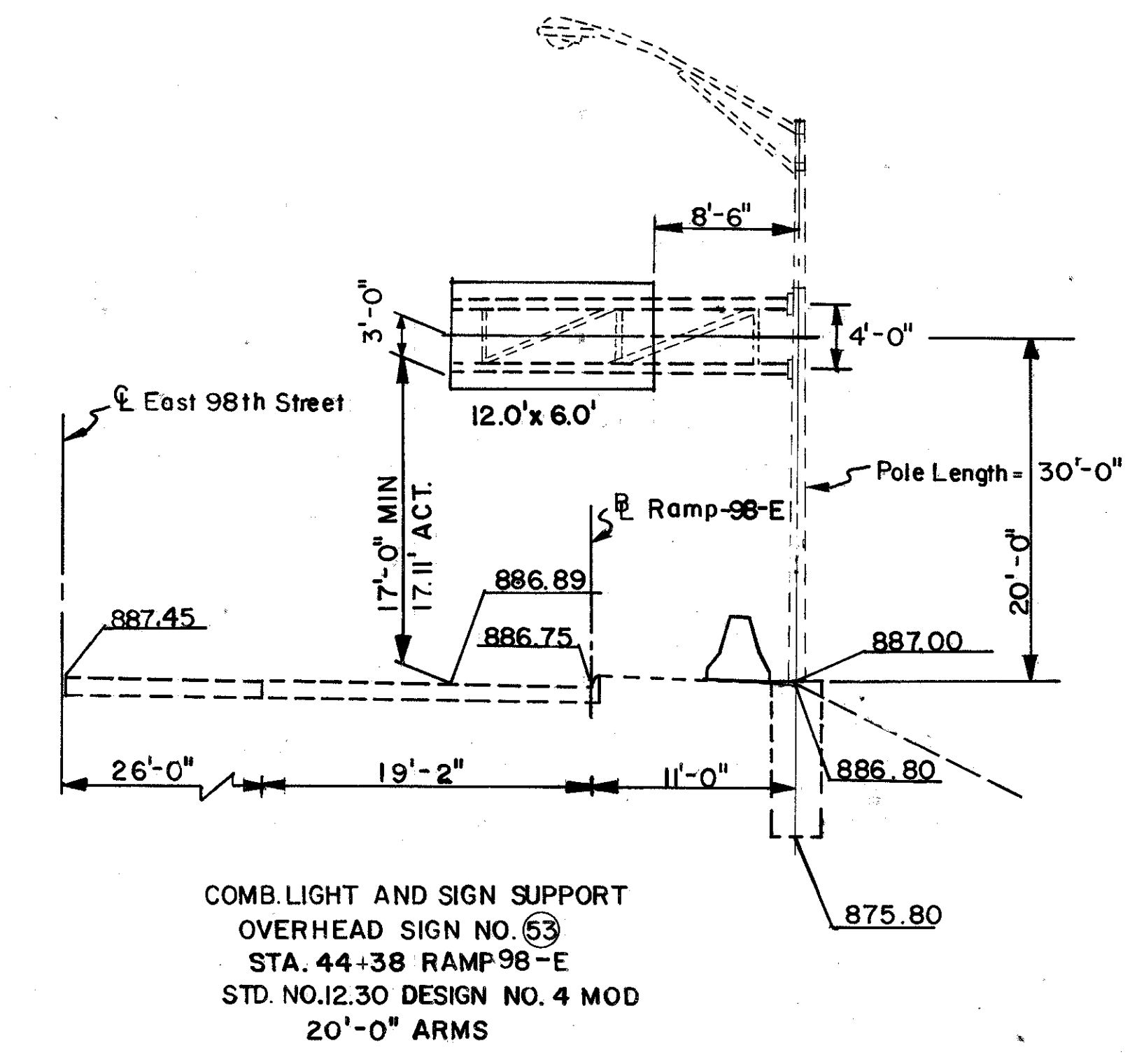
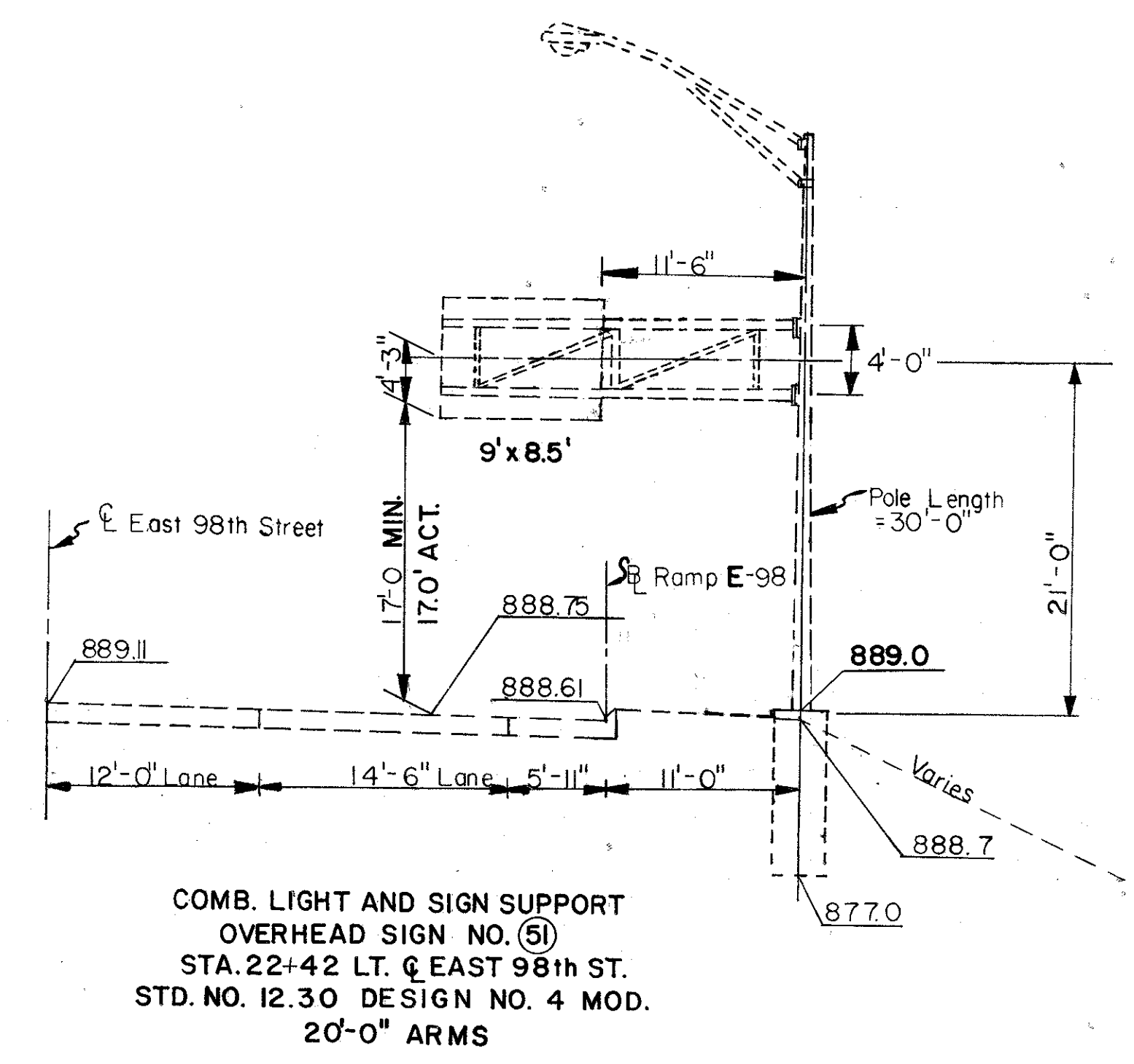
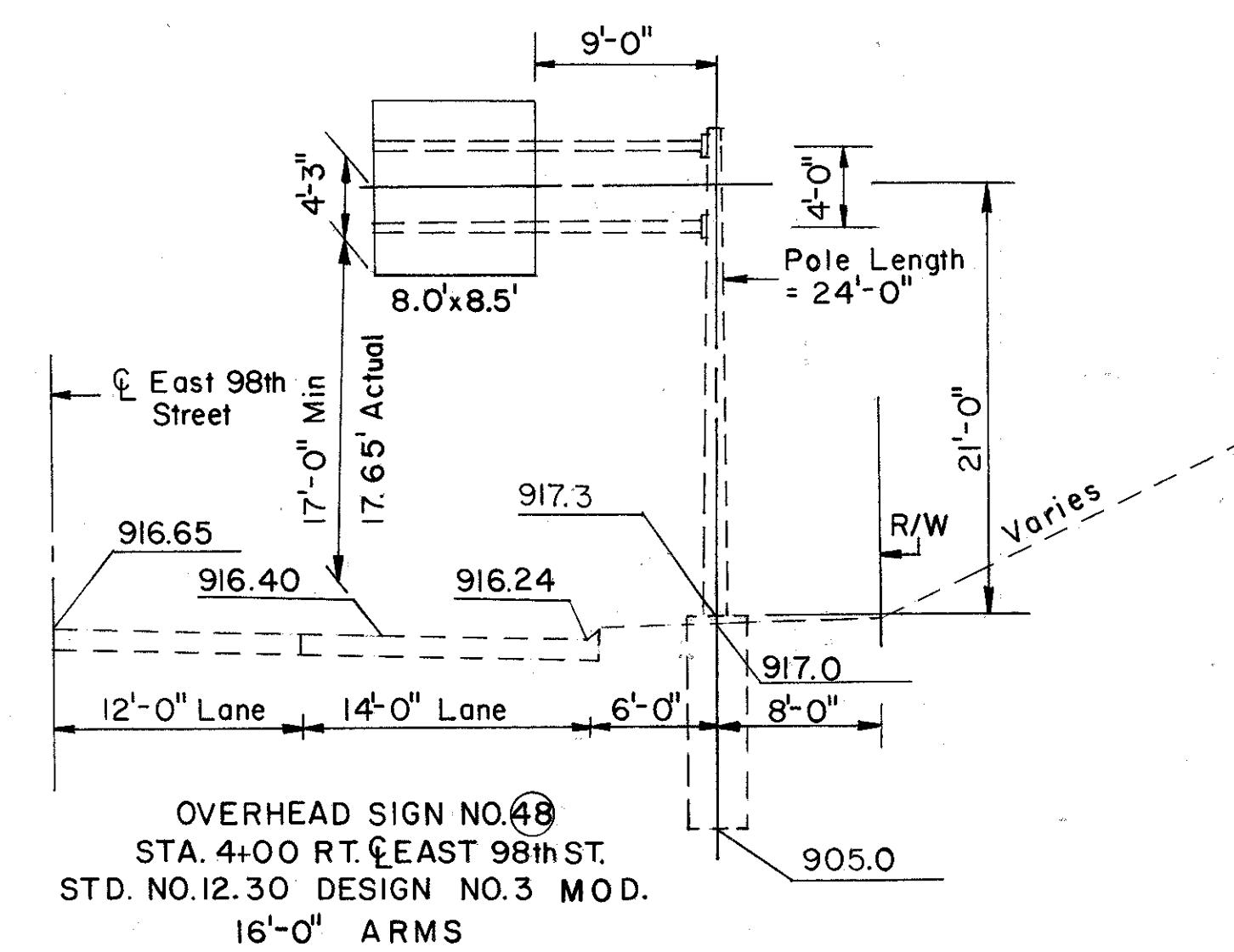
SIGN SUPPORT ELEVATIONS



- NOTES:**
- SIGN SIZES ARE ACTUAL AND INCLUDE THE ADDITIONAL 1'-0" FOR GLARE SHIELD AND LUMINAIRE ASSEMBLY.
 - ELEVATIONS INCLUDE PROPOSED 5" RESURFACING, WHERE APPLICABLE.



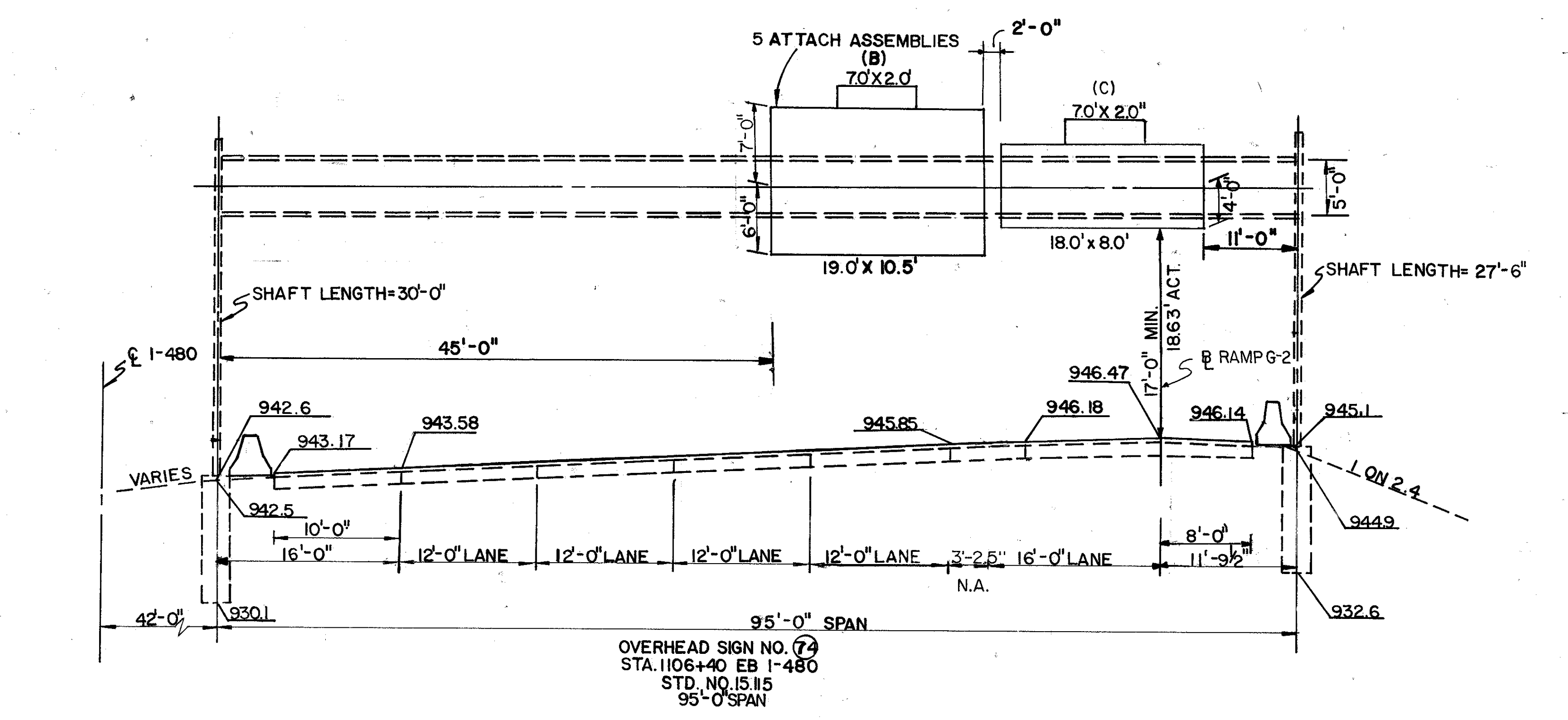
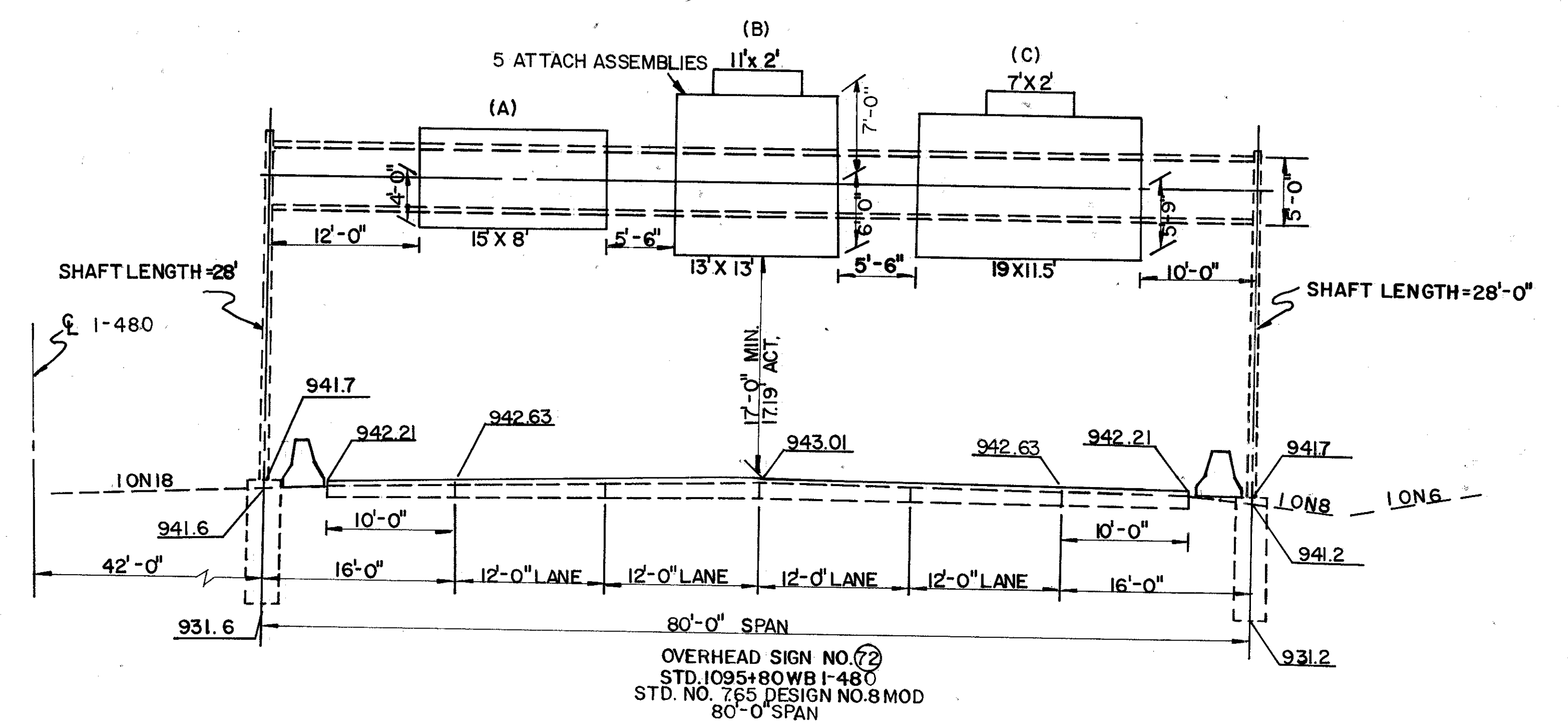
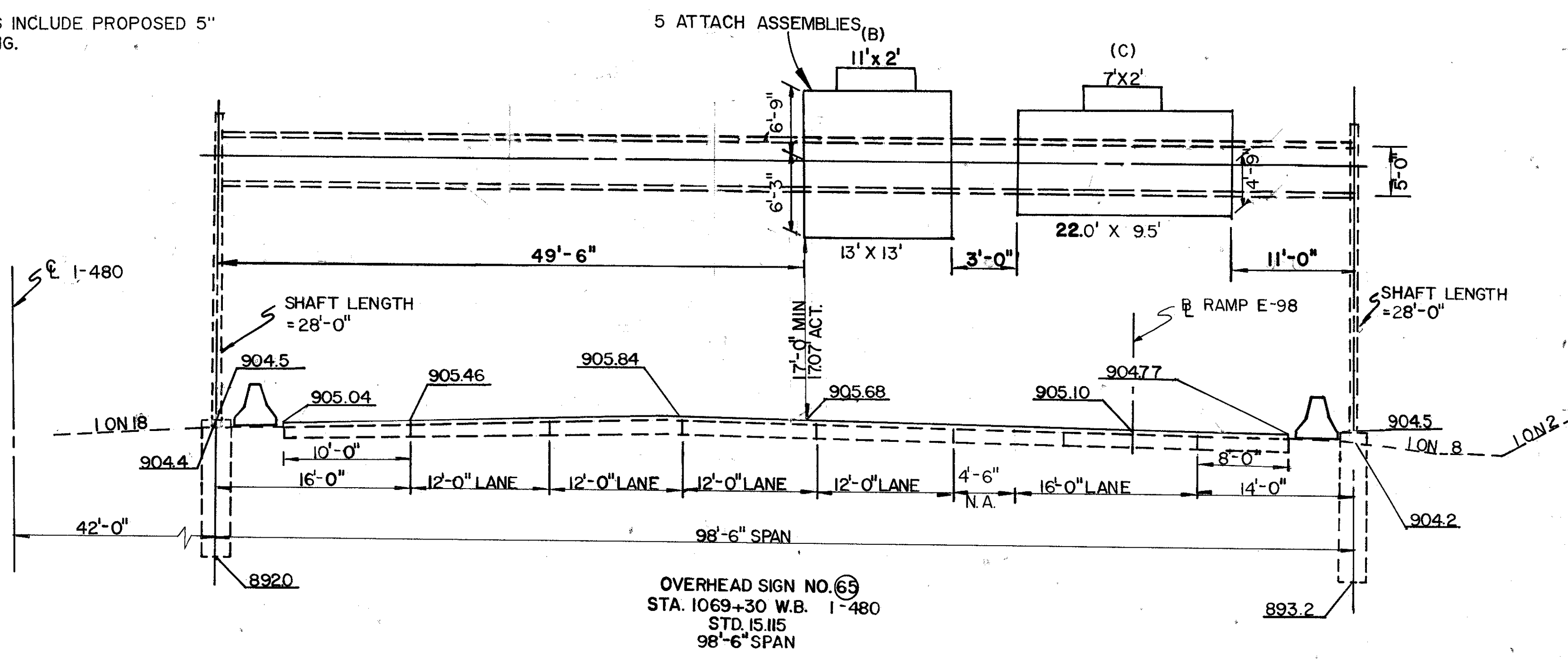
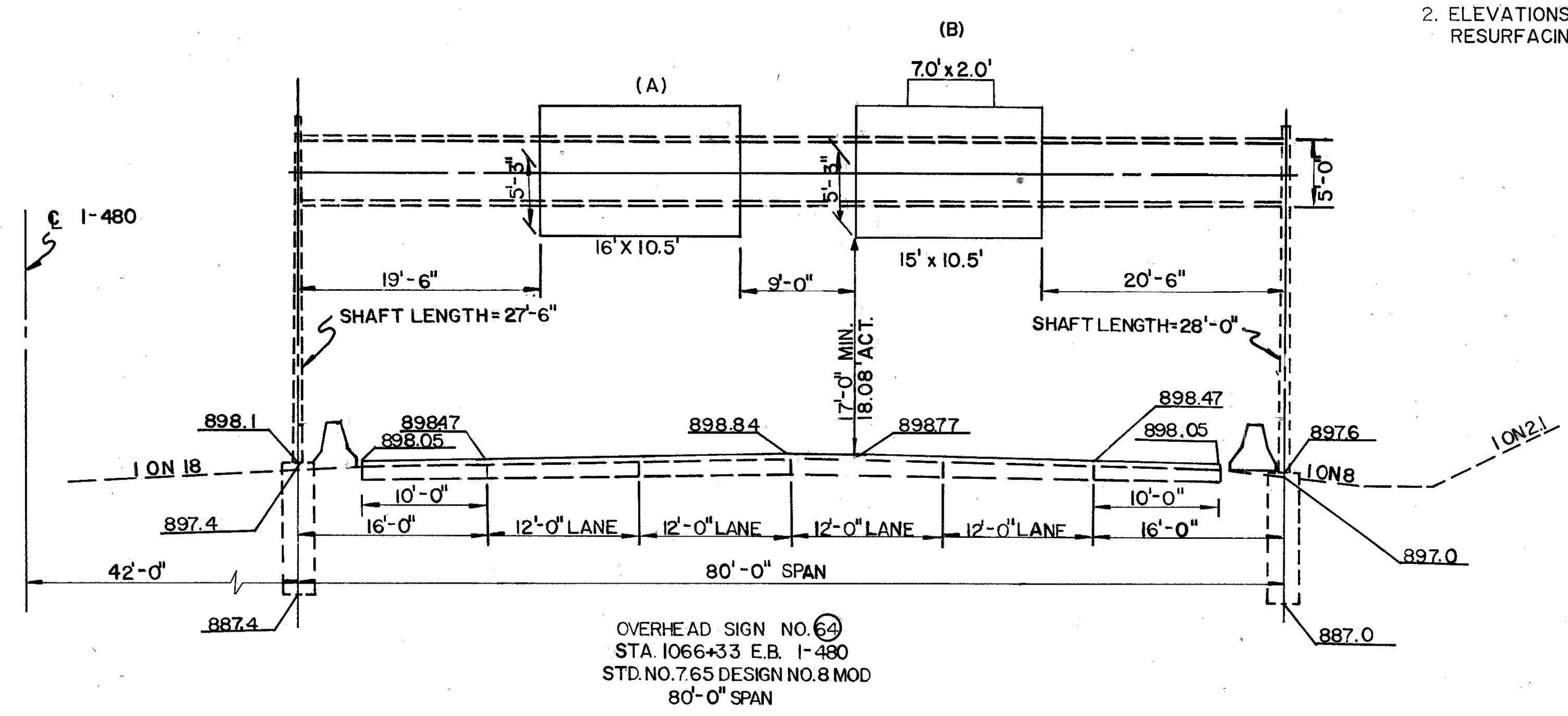
SIGN SUPPORT ELEVATIONS



- NOTES:
- SIGN SIZES ARE ACTUAL AND INCLUDE THE ADDITIONAL 1'-0" FOR GLARE SHIELD AND LUMINAIR ASSEMBLY.
 - ELEVATIONS INCLUDE PROPOSED 5" RESURFACING WHERE APPLICABLE.

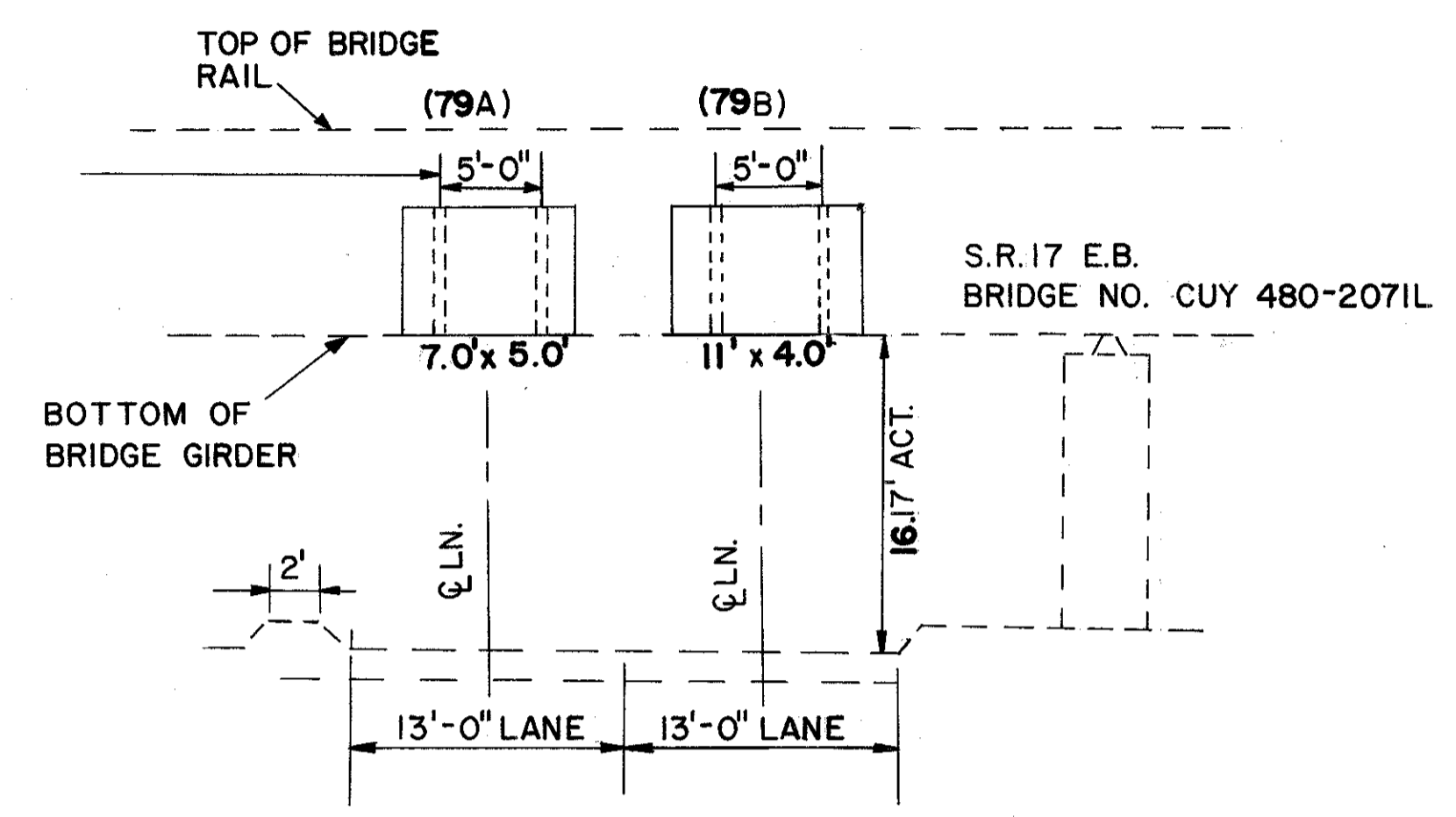
SIGN SUPPORT ELEVATIONS

NOTES: 1. SIGN SIZES ARE ACTUAL AND INCLUDE THE ADDITIONAL 1'-0" FOR GLARE SHIELD AND LUMINAIRE ASSEMBLY.
2. ELEVATIONS INCLUDE PROPOSED 5" RESURFACING.



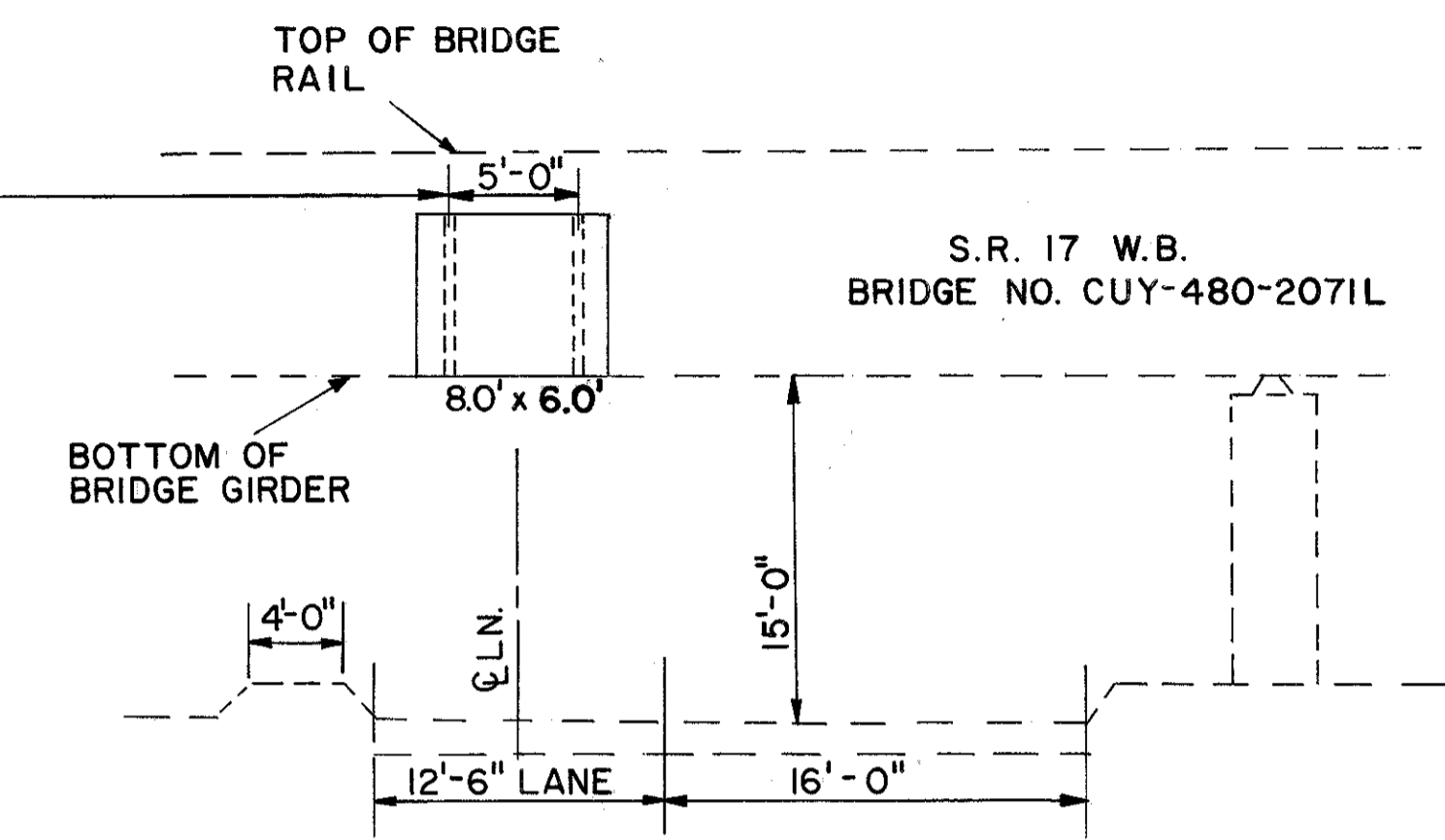
SIGN SUPPORT ELEVATIONS

USE EXISTING SIGN SUPPORT (TC-18.26 DES. NO.9) WITH SIGN BRACKET SPACING AS INDICATED USING EXISTING HOLES

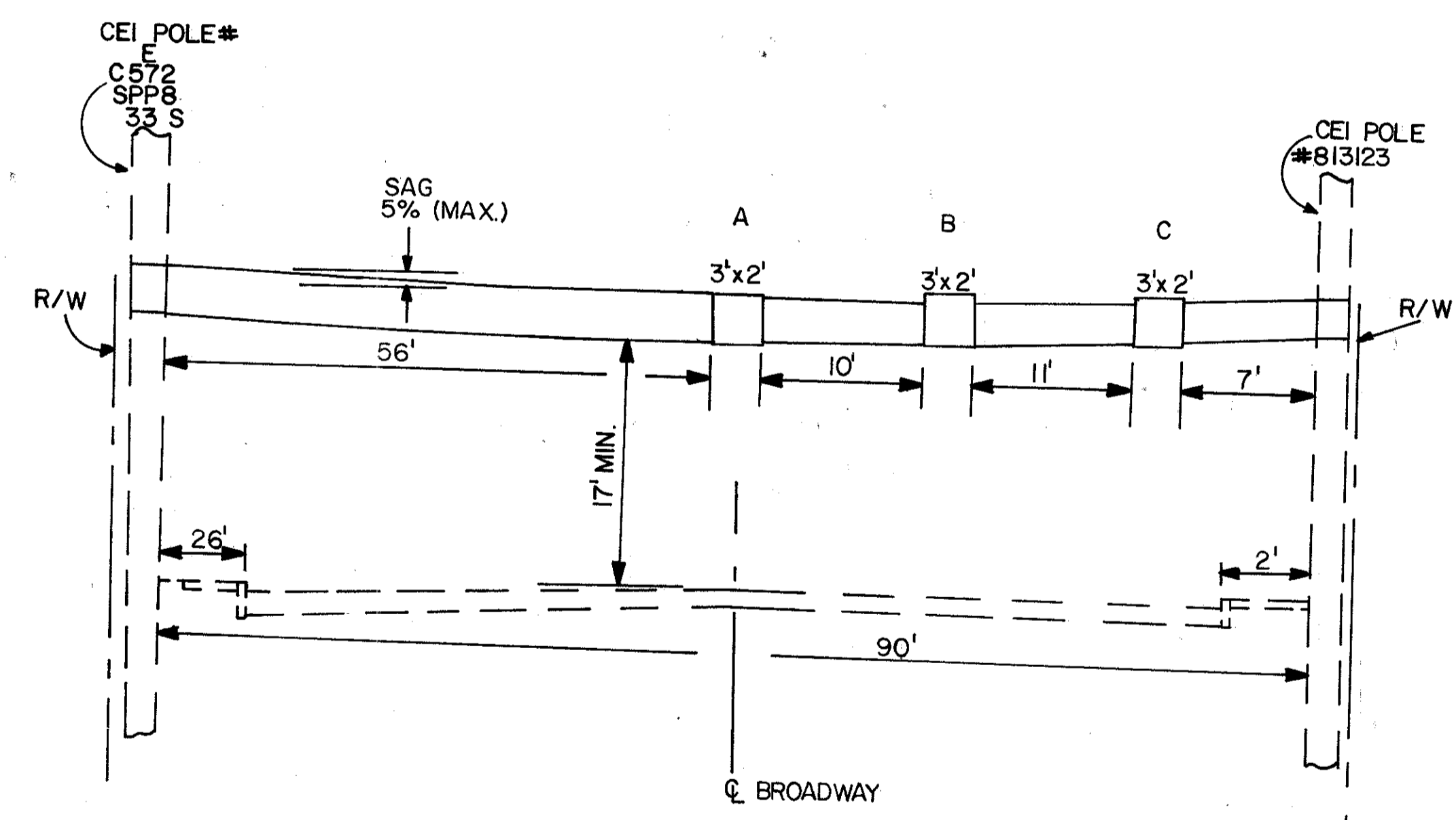


OVERHEAD SIGN NO. (79A) & (79B)
STA. 11+40 GRANGER RD. RT.
STRUCTURE MOUNTED(SKEW)
TC-18.26 DES. NO. 9

USE EXISTING SIGN SUPPORT (TC-18.26 DES. NO.9) WITH SIGN BRACKET SPACING AS INDICATED USING EXISTING HOLES

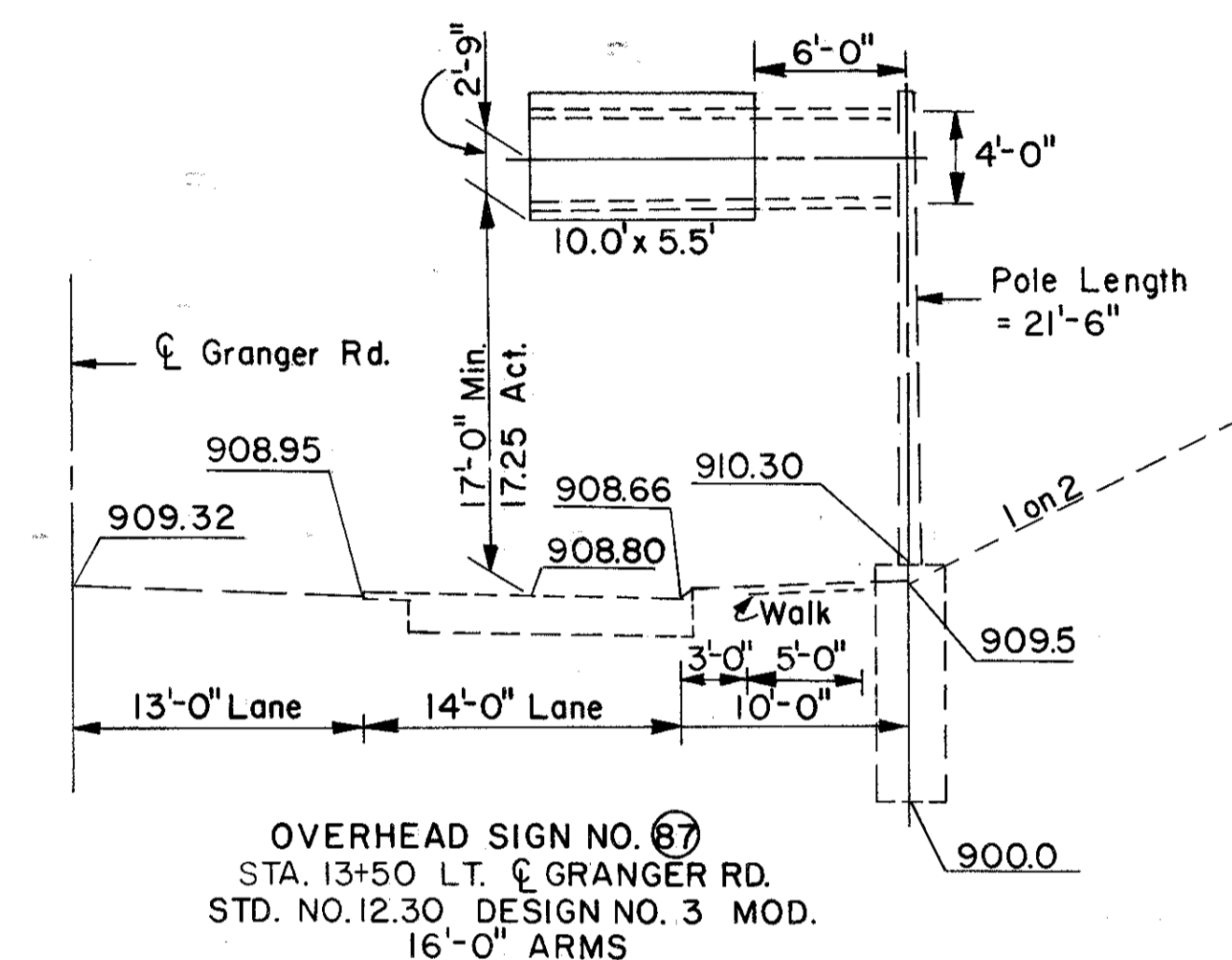
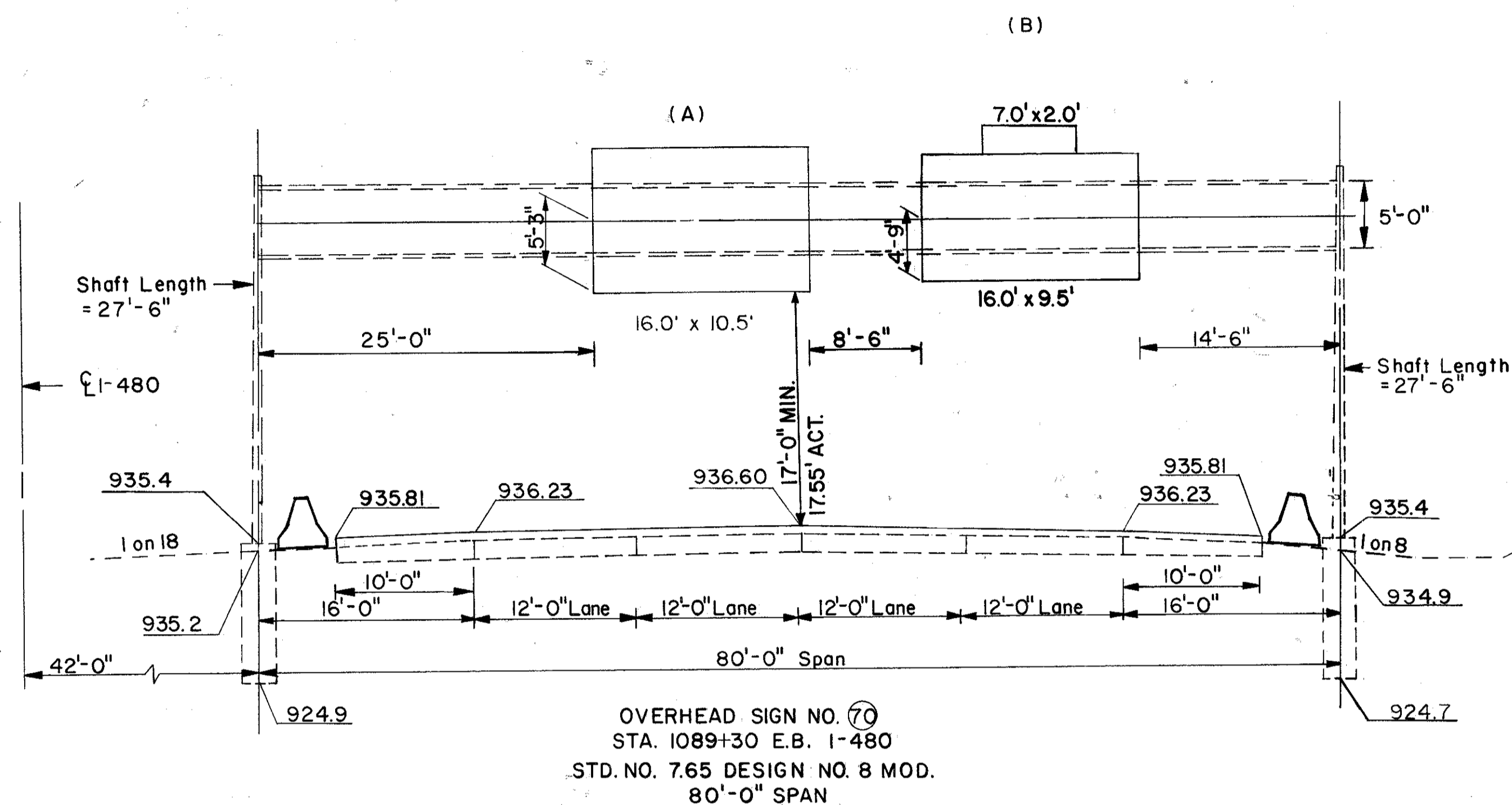


OVERHEAD SIGN NO. (8)
STA. 12+90 GRANGER RD. LT.
STRUCTURE MOUNTED(SKEW)
TC-18.26 DES. NO. 9



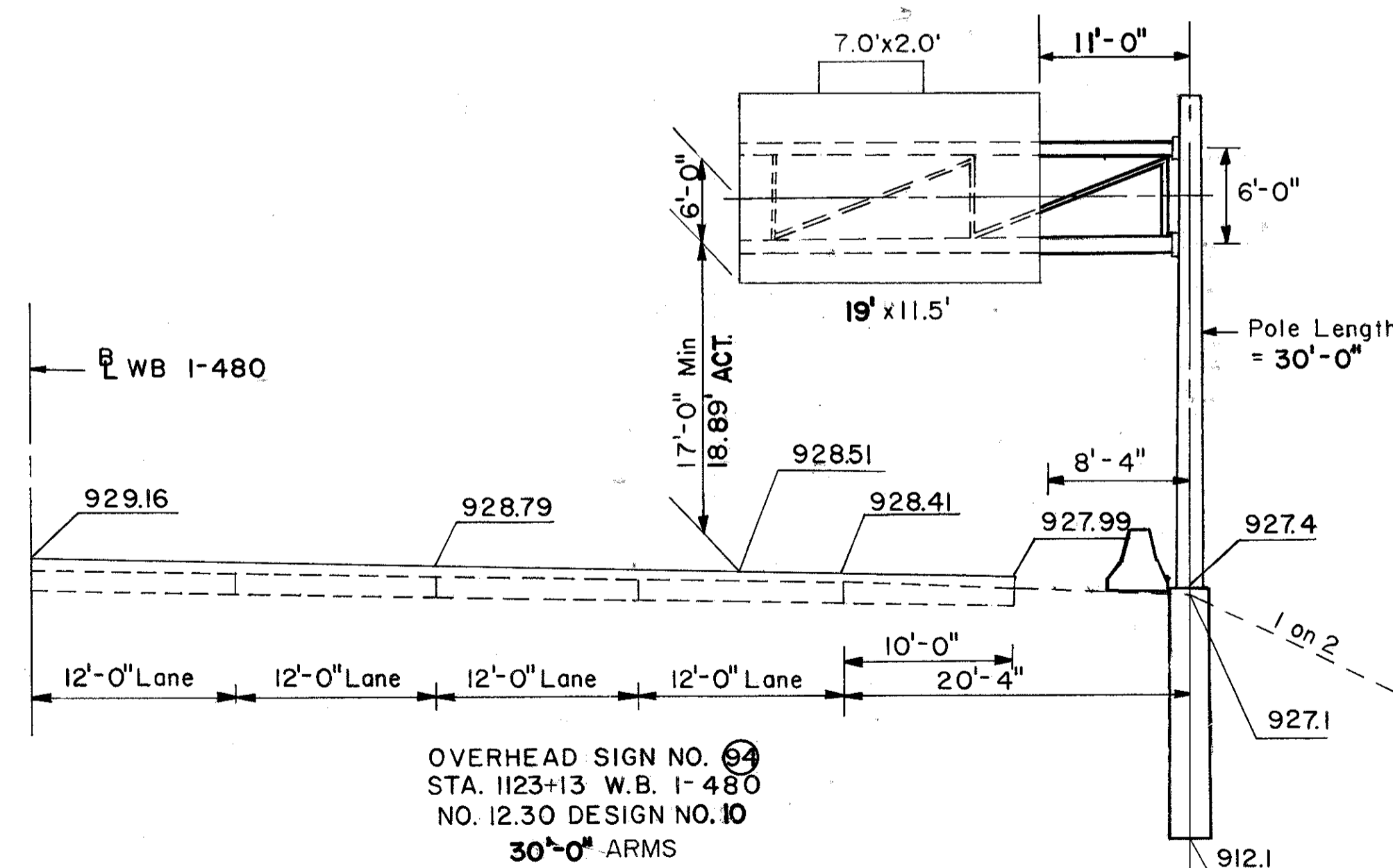
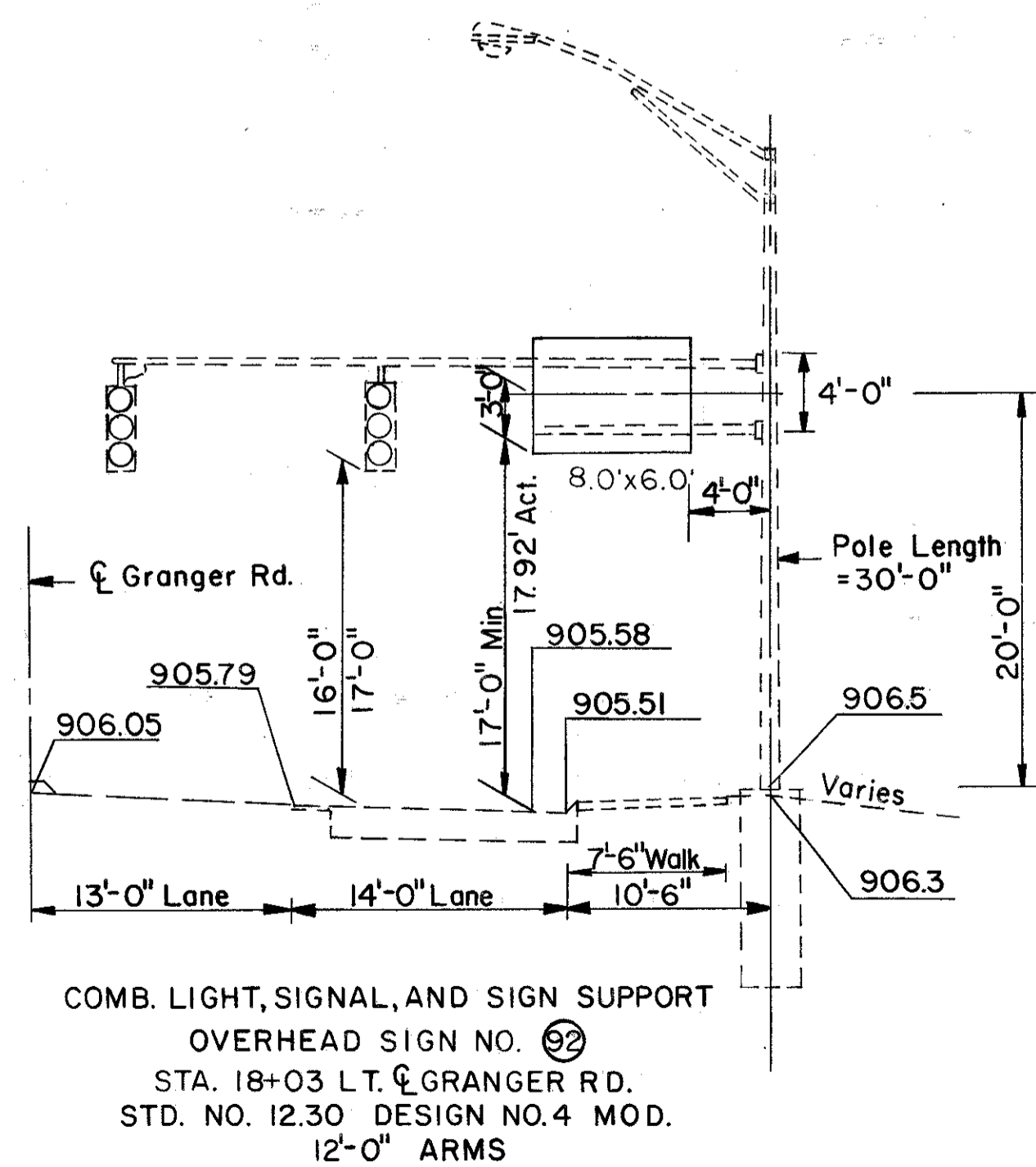
OVERHEAD SIGN NO. (159)
STA. 86+75 BROADWAY
TC-17.10 DESIGN NO. 4
75' SPAN
(MOUNT ON EXISTING CEI
POLES AS SHOWN)

SIGN SUPPORT ELEVATIONS

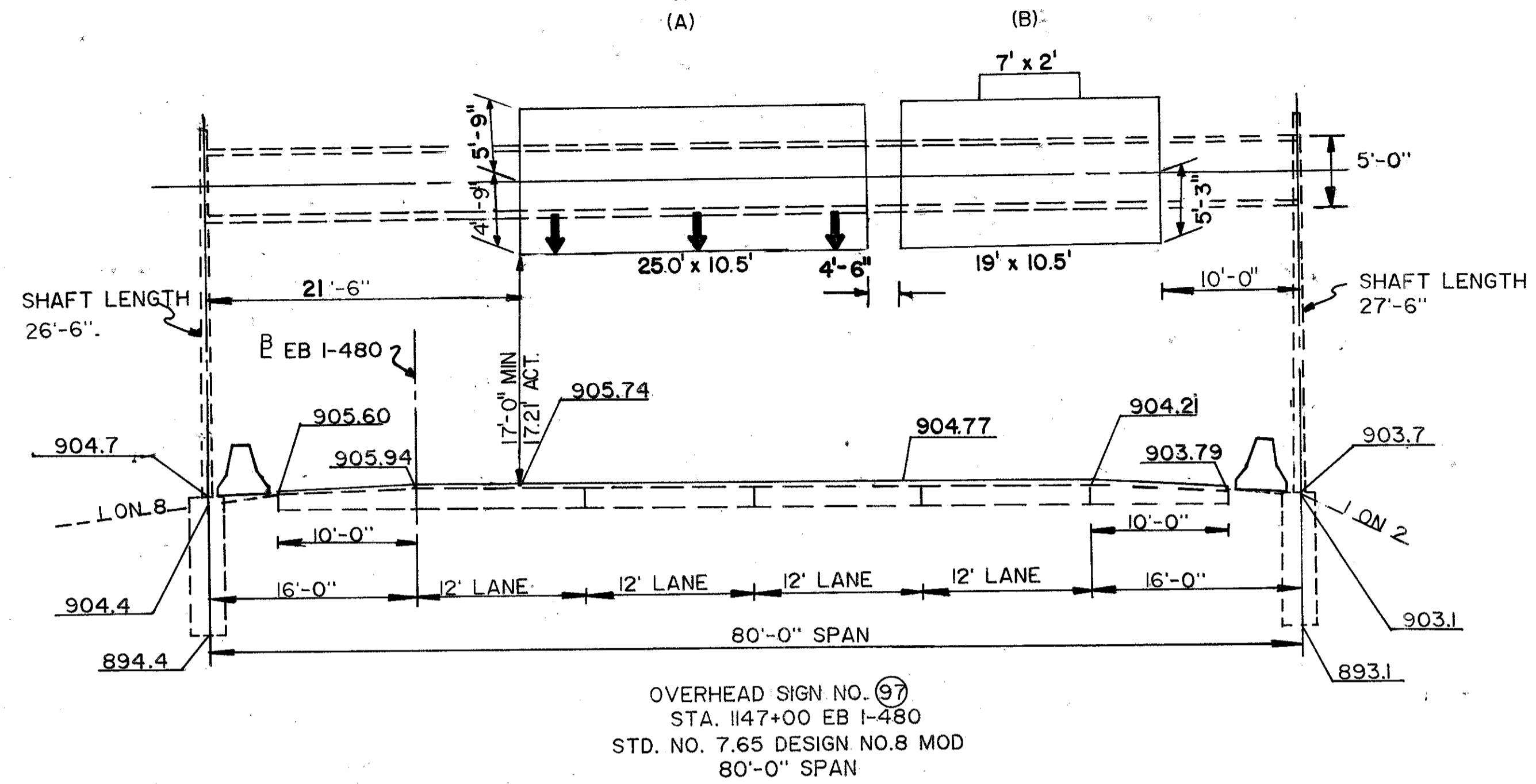


NOTES:

- SIGN SIZES ARE ACTUAL AND INCLUDE THE ADDITIONAL 1'-0" FOR GLARE SHIELD AND LUMINAIRE ASSEMBLY
- ELEVATIONS INCLUDE PROPOSED 5" RESURFACING WHERE APPLICABLE.

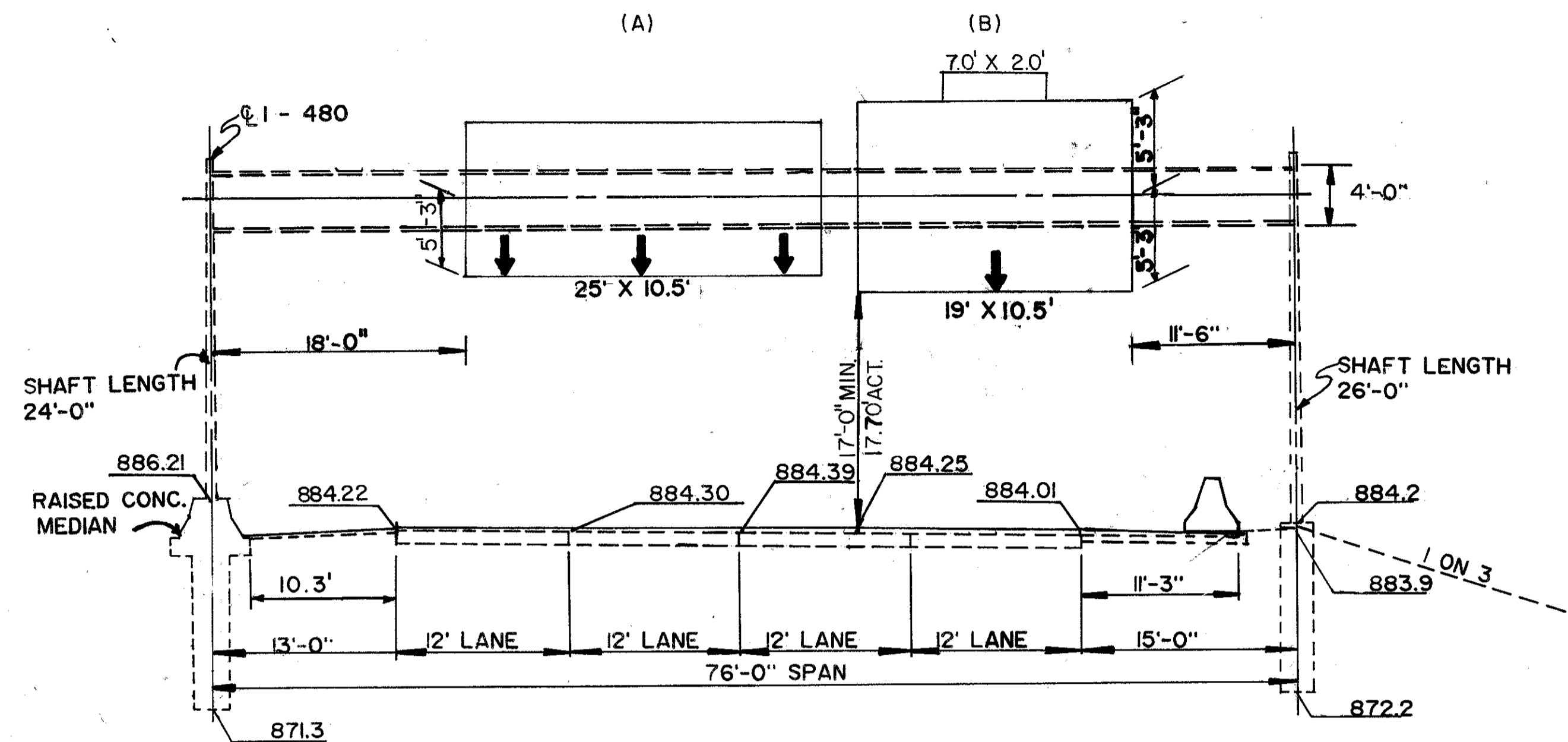


SIGN SUPPORT ELEVATIONS



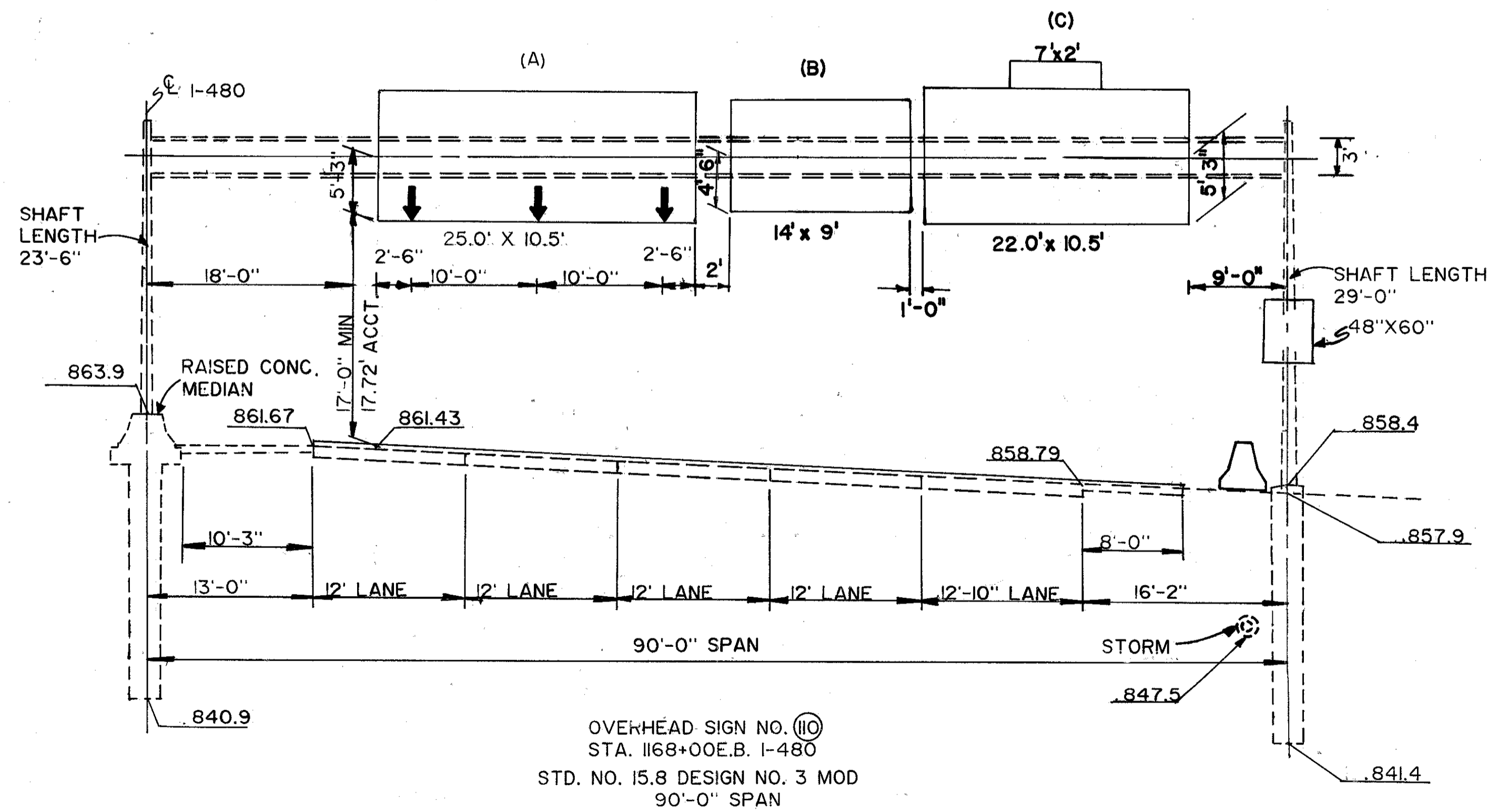
OVERHEAD SIGN NO. (97)
 STA. 1147+00 E.B. I-480
 STD. NO. 7.65 DESIGN NO. 8 MOD
 80'-0" SPAN

NOTE: ELEVATIONS ABOVE INCLUDE PROPOSED
 5" RESURFACING.



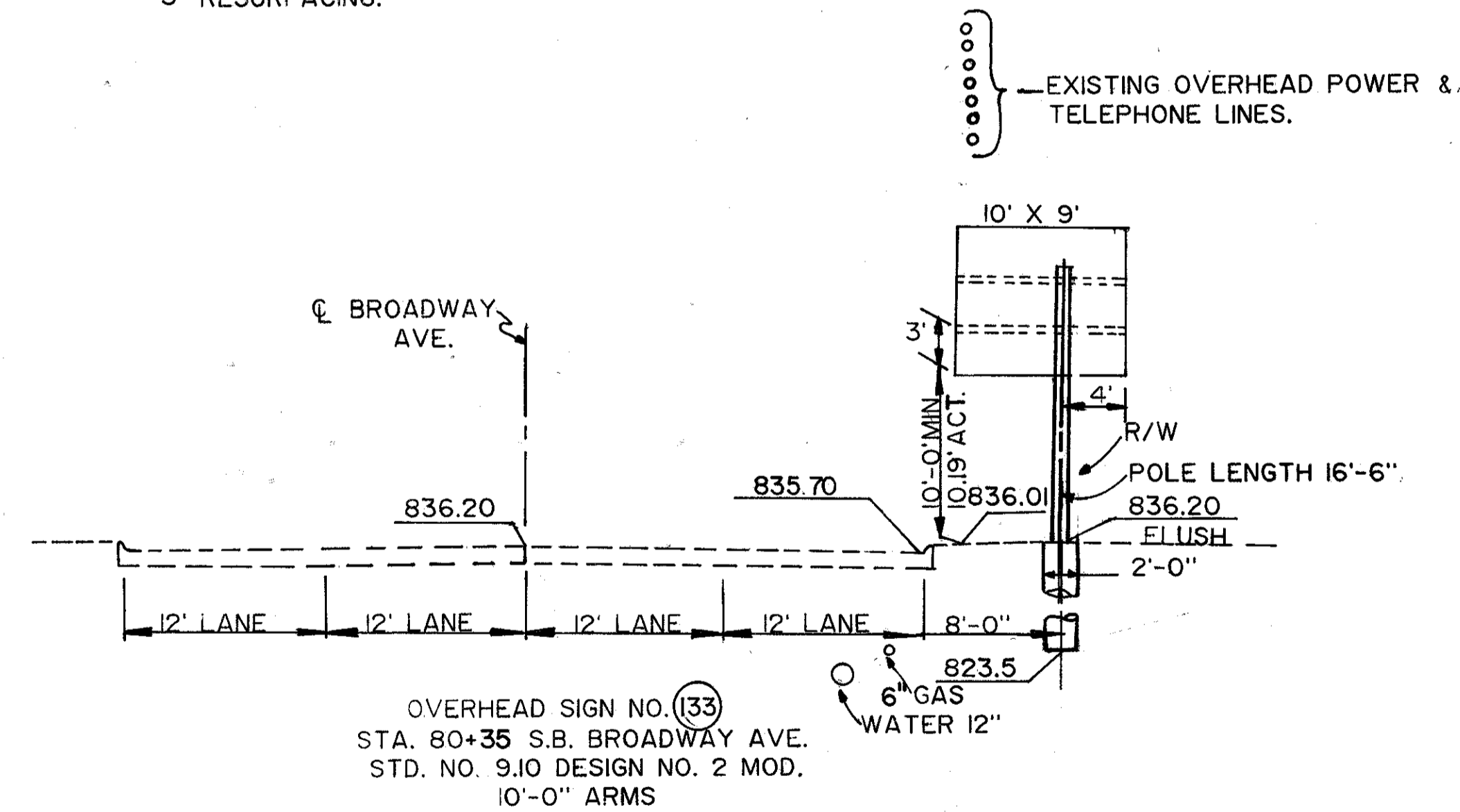
OVERHEAD SIGN NO. (104)
 STA. 1159+00 E.B. I-480
 STD. NO. 7.6 DESIGN NO. 3 MOD
 76'-0" SPAN

NOTE: ELEVATIONS ABOVE INCLUDE PROPOSED
 3" RESURFACING.



OVERHEAD SIGN NO. (110)
 STA. 1168+00 E.B. I-480
 STD. NO. 15.8 DESIGN NO. 3 MOD
 90'-0" SPAN

NOTE: ELEVATIONS ABOVE INCLUDE PROPOSED
 3" RESURFACING.



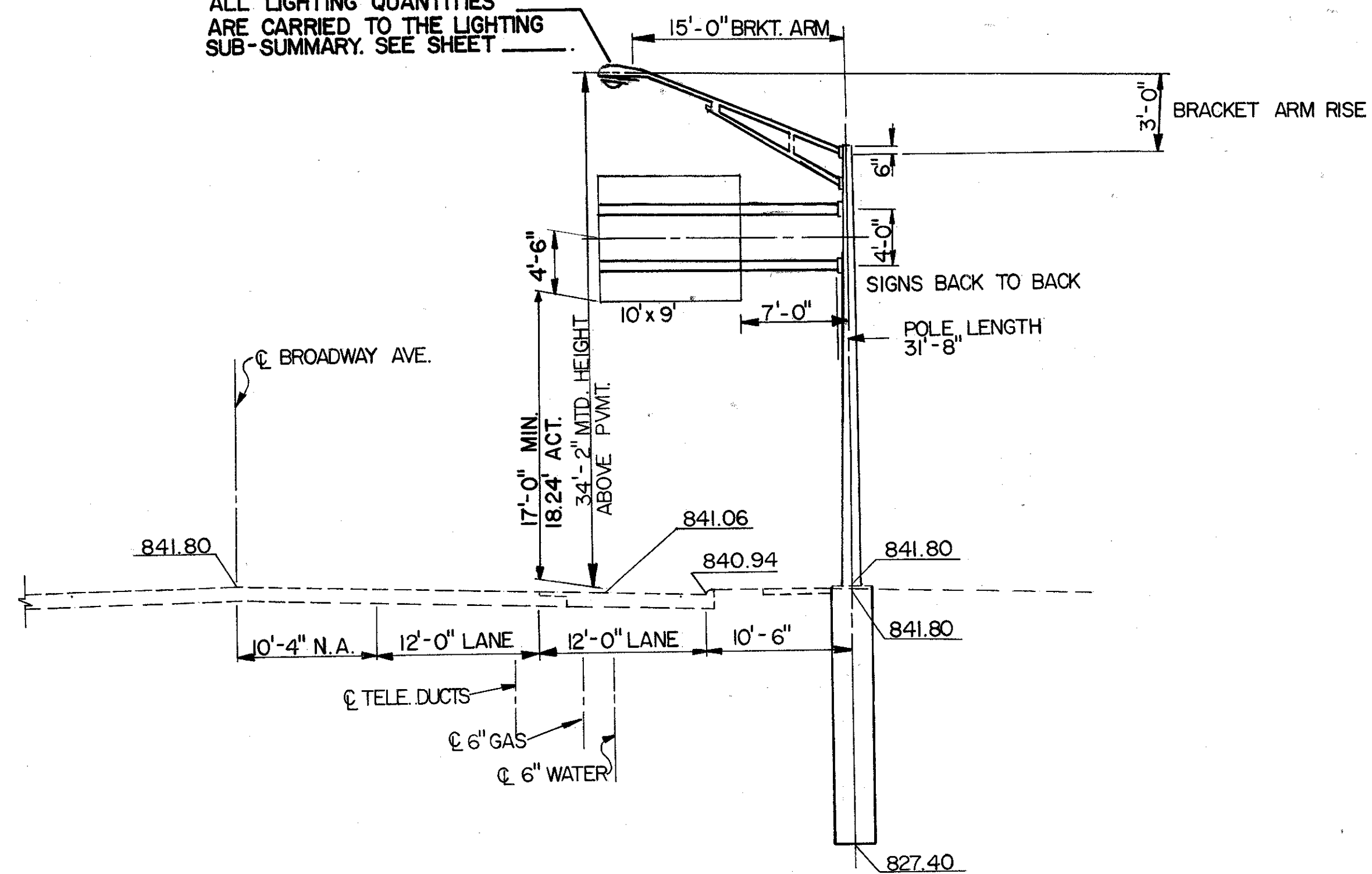
OVERHEAD SIGN NO. (133)
 STA. 80+35 S.B. BROADWAY AVE.
 STD. NO. 9.10 DESIGN NO. 2 MOD.
 10'-0" ARMS

NOTES:

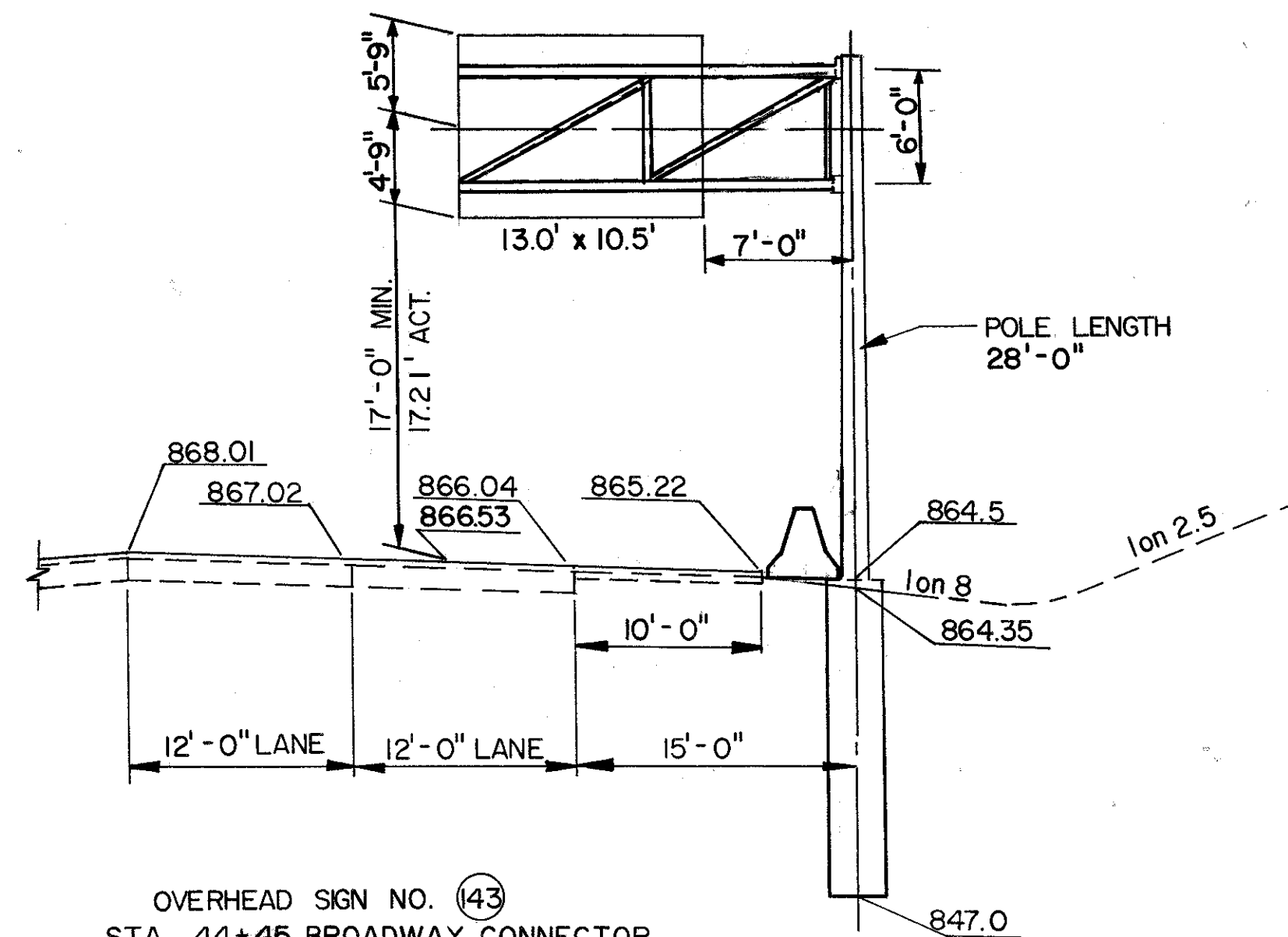
1. SIGN SIZES ARE ACTUAL AND INCLUDE
 THE ADDITIONAL 1'-0" FOR GLARE SHIELD
 AND LUMINAIRE ASSEMBLY.

SIGN SUPPORT ELEVATIONS

ALL LIGHTING QUANTITIES
ARE CARRIED TO THE LIGHTING
SUB-SUMMARY. SEE SHEET



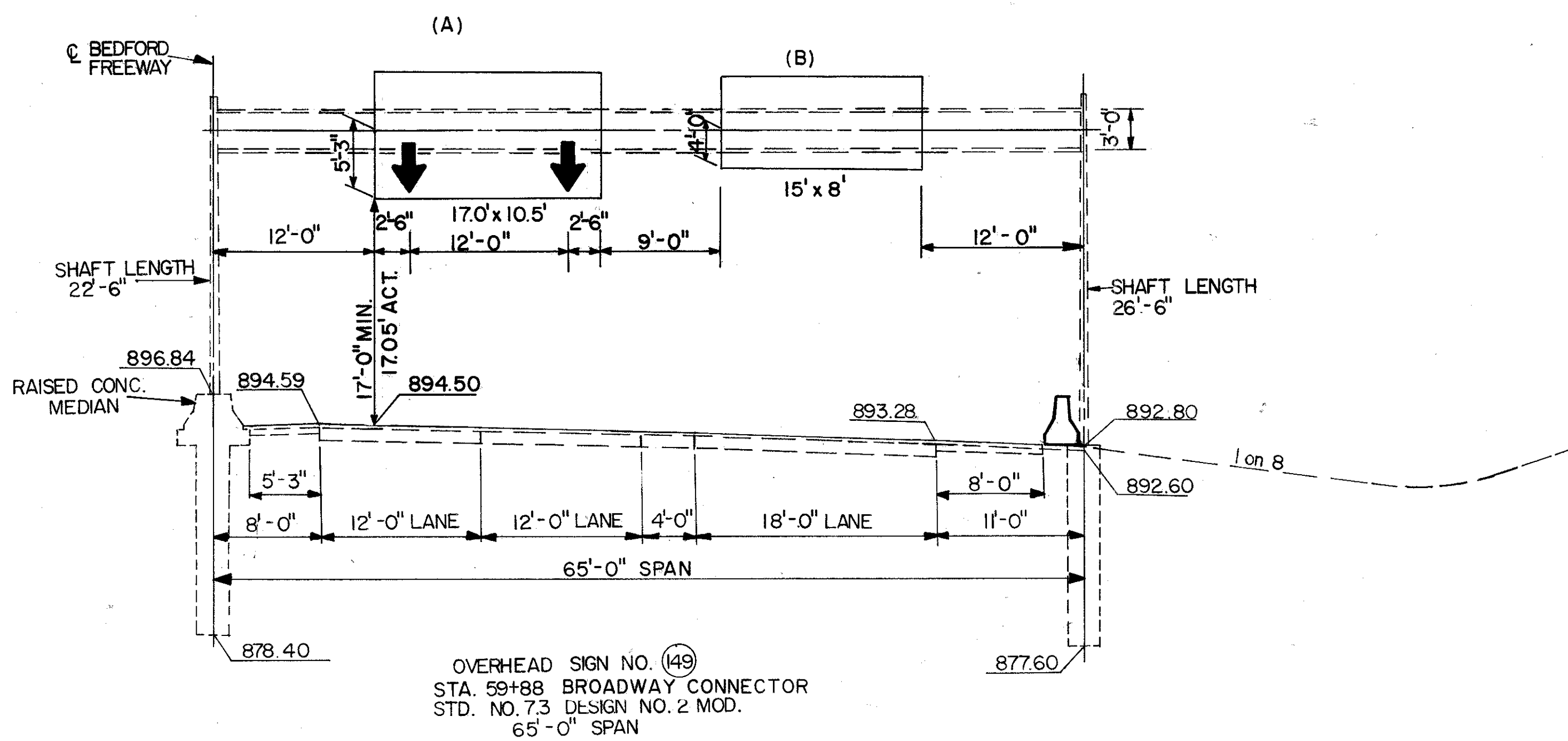
OVERHEAD SIGN NO. (140)
STA. 90+12 BROADWAY AVE.
STD. NO. 12.30-DESIGN NO. 4 MOD.
16'-0" ARMS



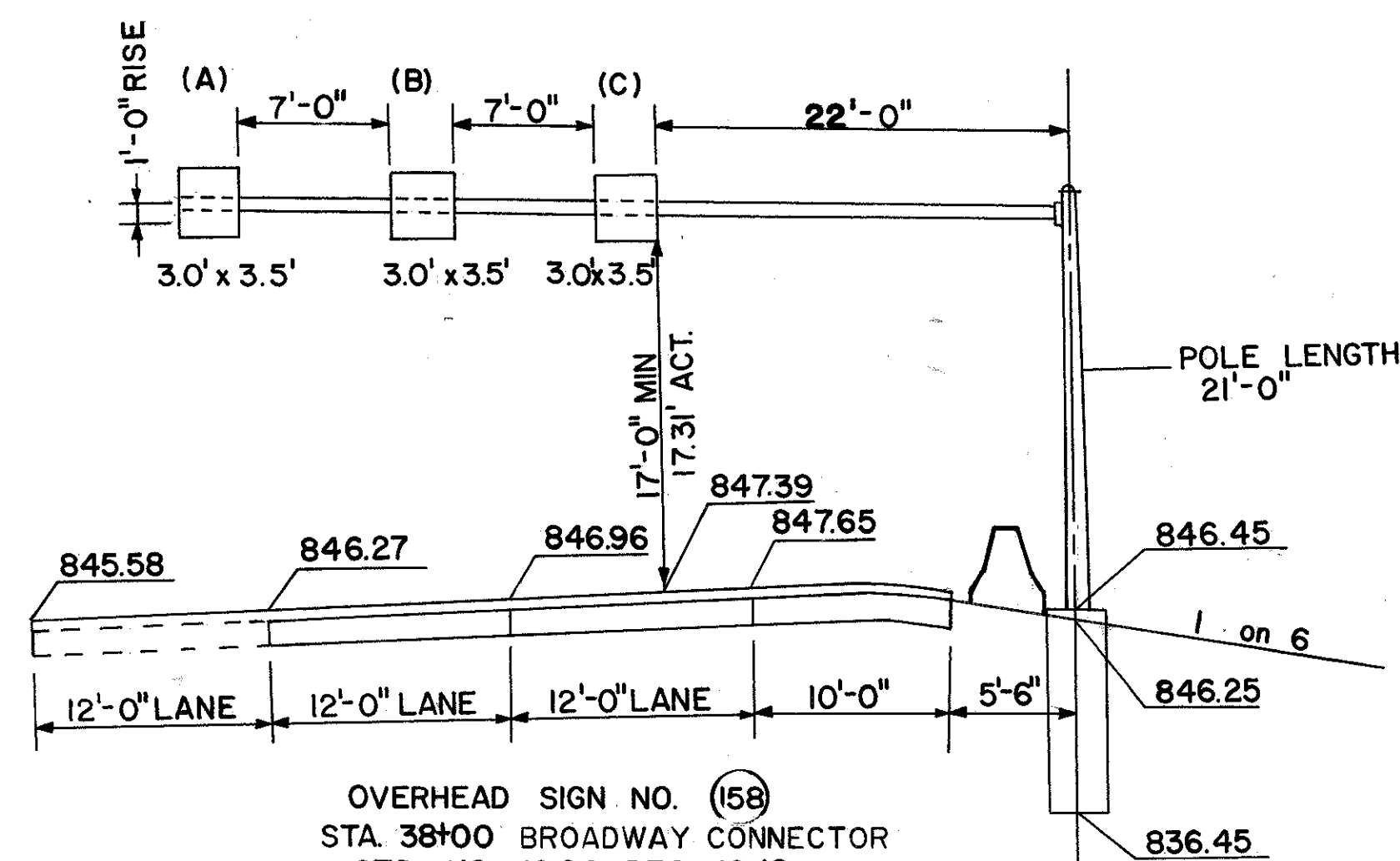
OVERHEAD SIGN NO. (143)
STA. 44+45 BROADWAY CONNECTOR
STD. NO. 12.30-DESIGN NO. 5
20'-0" ARMS

NOTES:

- SIGN SIZES ARE ACTUAL AND INCLUDE THE ADDITIONAL 1'-0" FOR GLARE SHIELD AND LUMINAIRE ASSEMBLY.
- ELEVATIONS INCLUDE PROPOSED 3" RESURFACING WHERE APPLICABLE.



OVERHEAD SIGN NO. (149)
STA. 59+88 BROADWAY CONNECTOR
STD. NO. 7.3 DESIGN NO. 2 MOD.
65'-0" SPAN



OVERHEAD SIGN NO. (158)
STA. 38+00 BROADWAY CONNECTOR
STD. NO. 16.20 DES. NO. 12
45'-0" ARMS

TRAFFIC CONTROL MISCELLANEOUS DETAILS

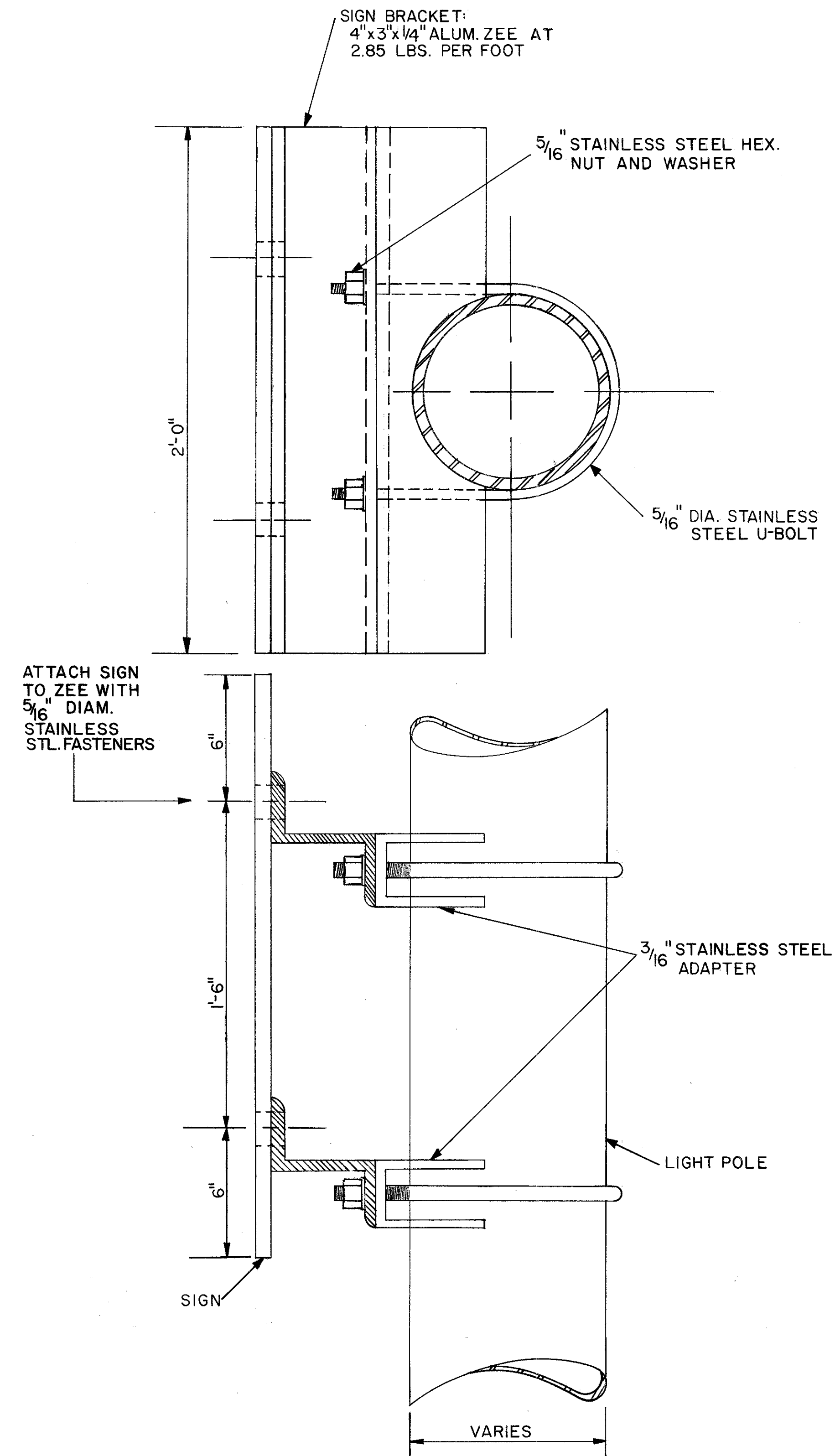
CUYAHOGA COUNTY
CUY-480-19.19

OHIO

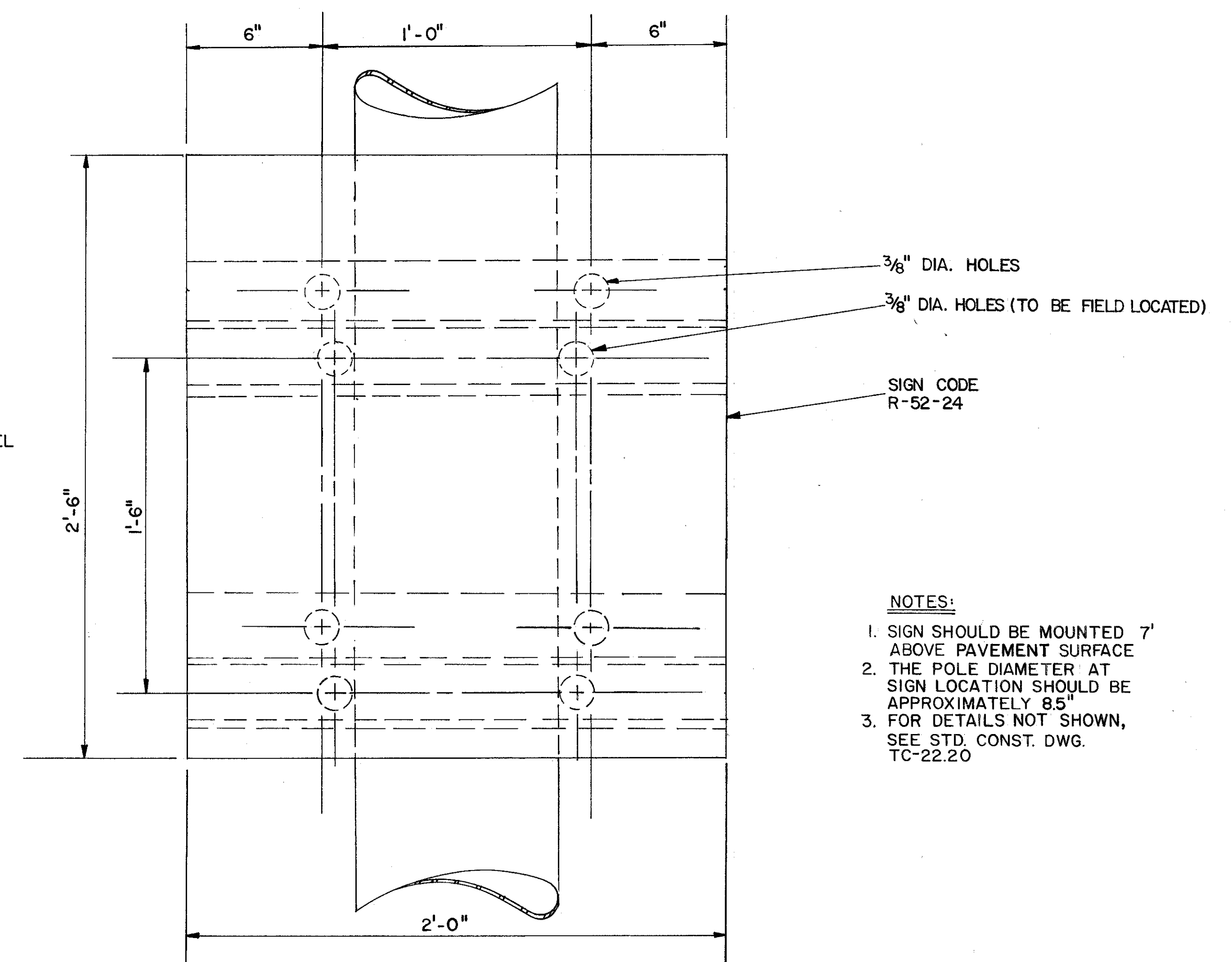
FHWA
REGION 5

FEDERAL
PROJECT

138
171



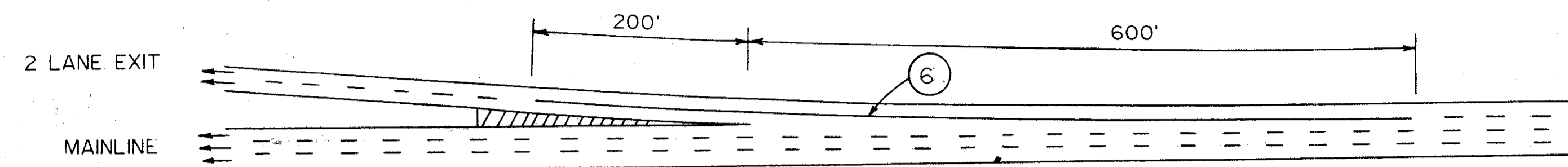
SPECIAL POLE MOUNT DETAIL FOR R-52-24 BRIDGE SIGNS



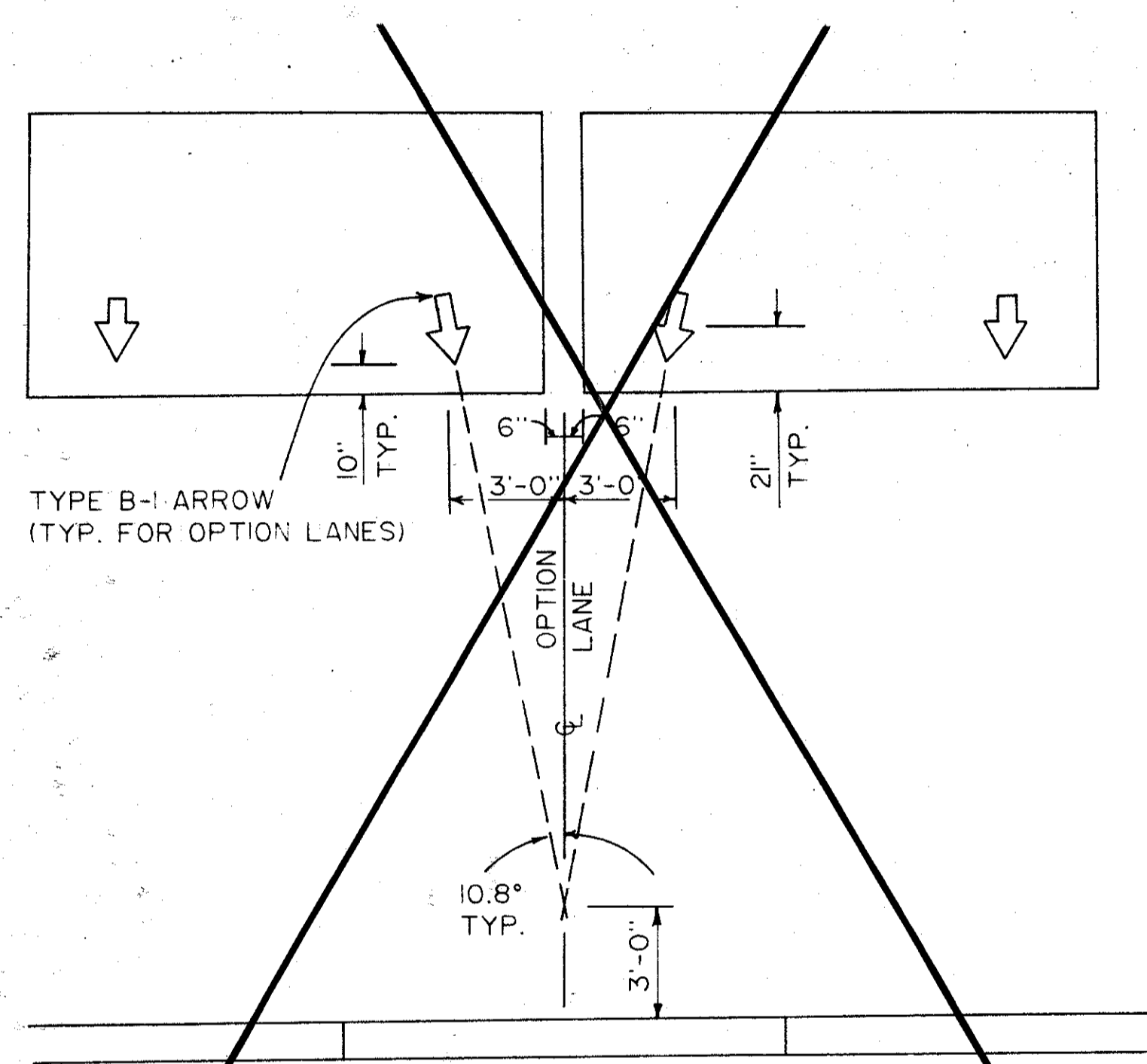
NOTES:

1. SIGN SHOULD BE MOUNTED 7' ABOVE PAVEMENT SURFACE
2. THE POLE DIAMETER AT SIGN LOCATION SHOULD BE APPROXIMATELY 8.5"
3. FOR DETAILS NOT SHOWN, SEE STD. CONST. DWG. TC-22.20

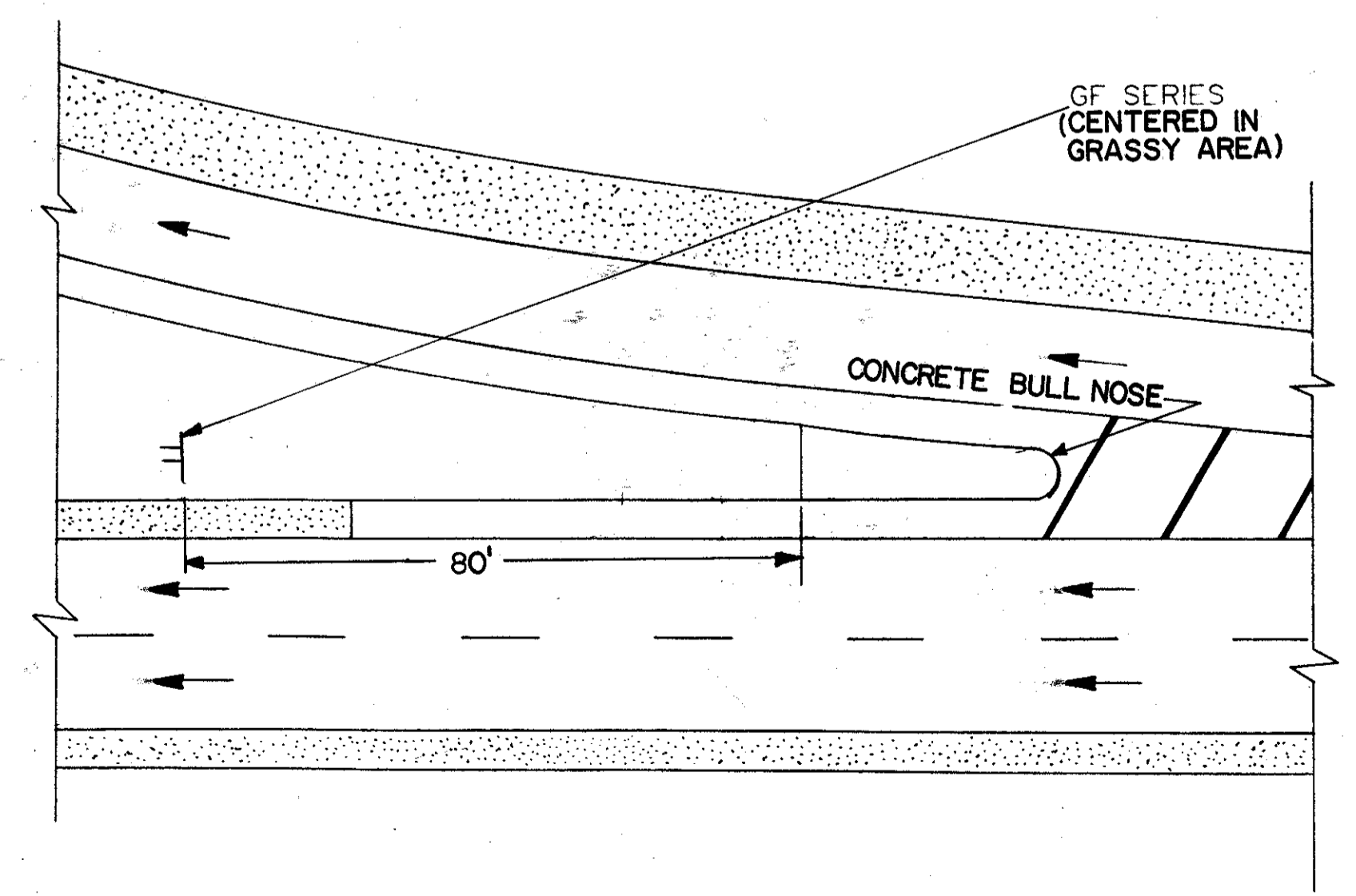
TRAFFIC CONTROL DETAILS



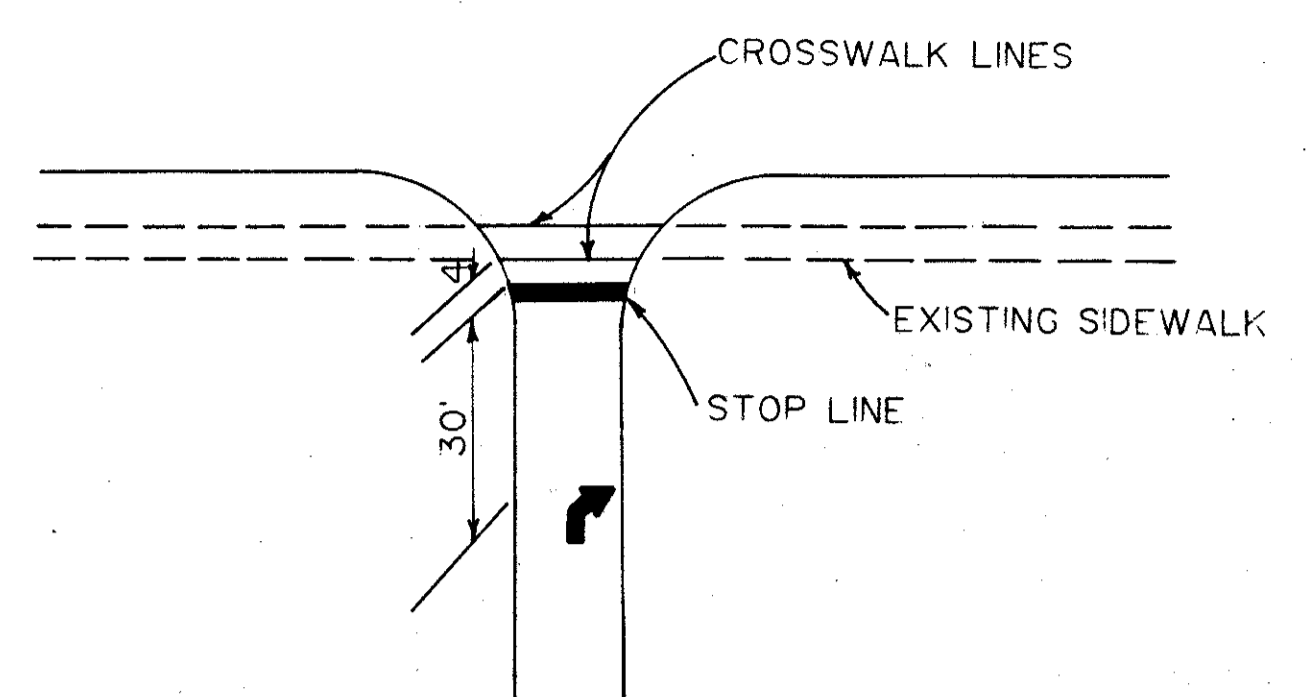
TYPICAL PLACEMENT OF ADDITIONAL CHANNELIZING LINE AT TWO LANE EXIT TERMINALS



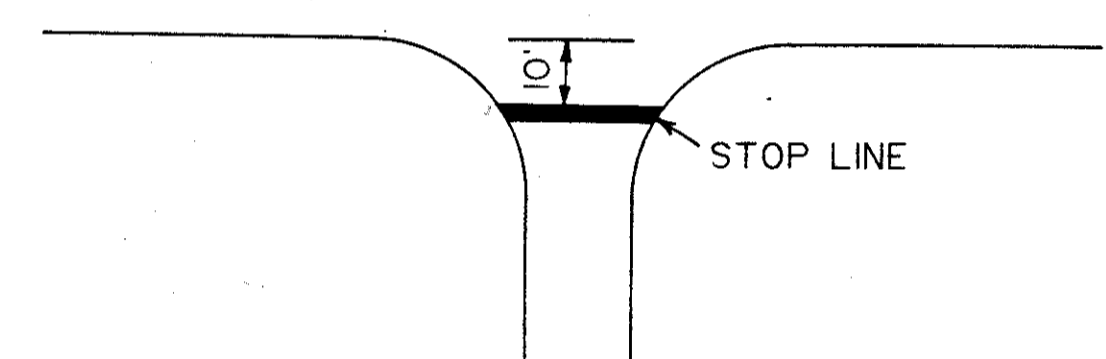
TYPICAL ARROW ORIENTATION AT OPTION LANE



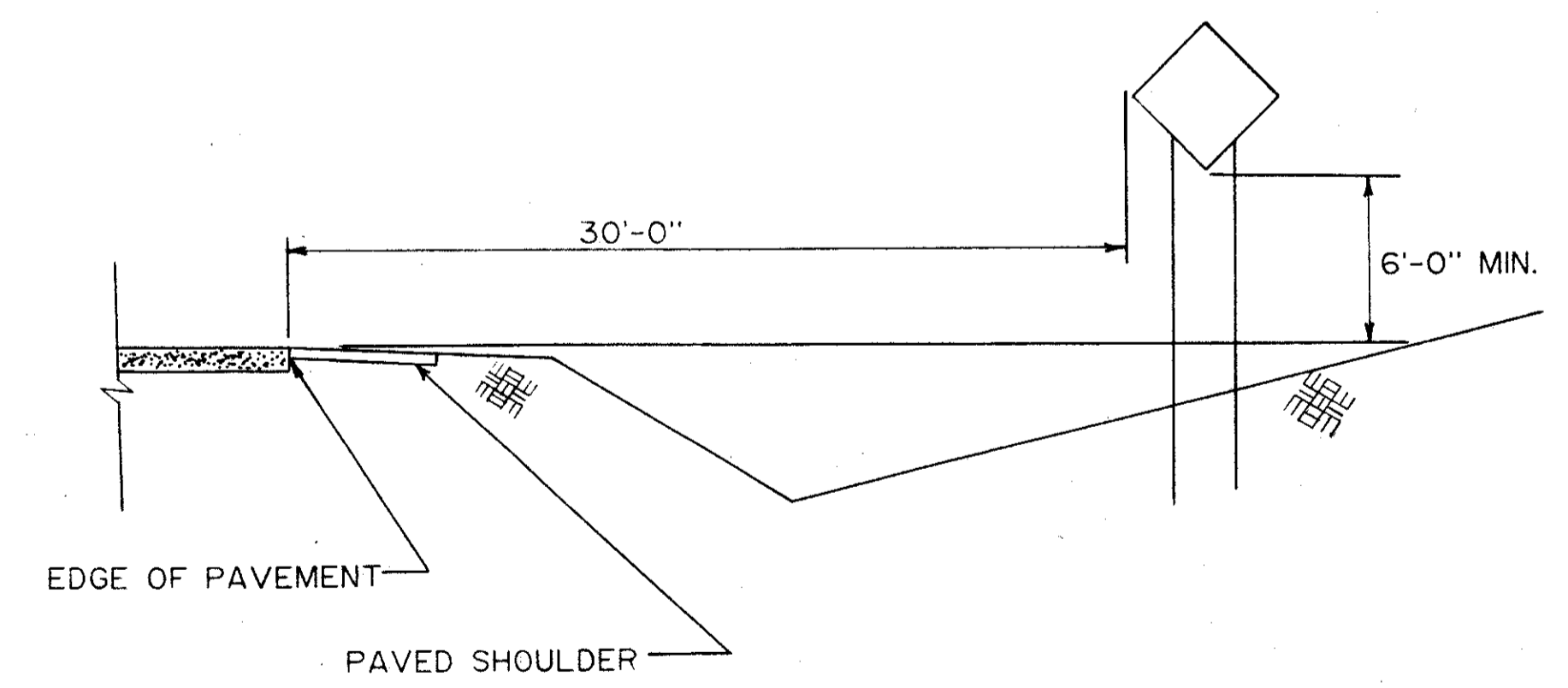
TYPICAL PLACEMENT OF GF SERIES SIGNS



TYPICAL PLACEMENT OF STOP LINES (WITH SIDEWALKS)



TYPICAL PLACEMENT OF STOP LINES (WITHOUT SIDEWALKS)



630 - FLATSHEET SIGN INSTALLATIONS

ALL FREEWAY FLATSHEET SIGN INSTALLATIONS NOT BEHIND GUARDRAIL SHALL BE OFFSET 30 FEET FROM THE EDGE OF PAVEMENT.
 USE STANDARD DRAWING TC-42.20 FOR FLATSHEET SIGNS INSTALLED BEHIND GUARDRAIL, ON CROSS ROADS, ON RAMPS AND BETWEEN RAMPS AND MAINLINE.

SIGNING AND BALLAST ENCLOSURE DETAILS

CUYAHOGA COUNTY
CUY-480-19.19

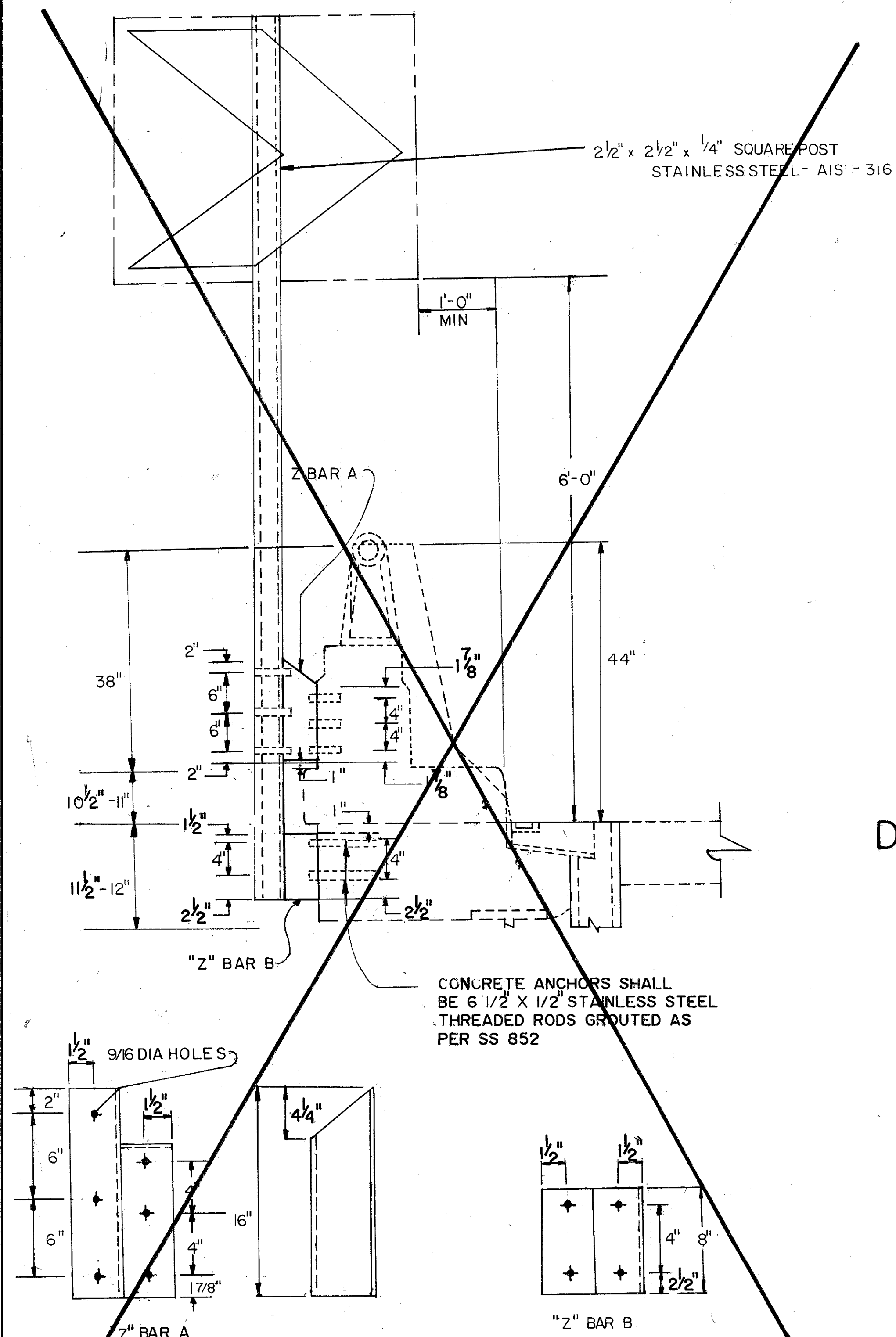
OHIO

FHWA
REGION 5

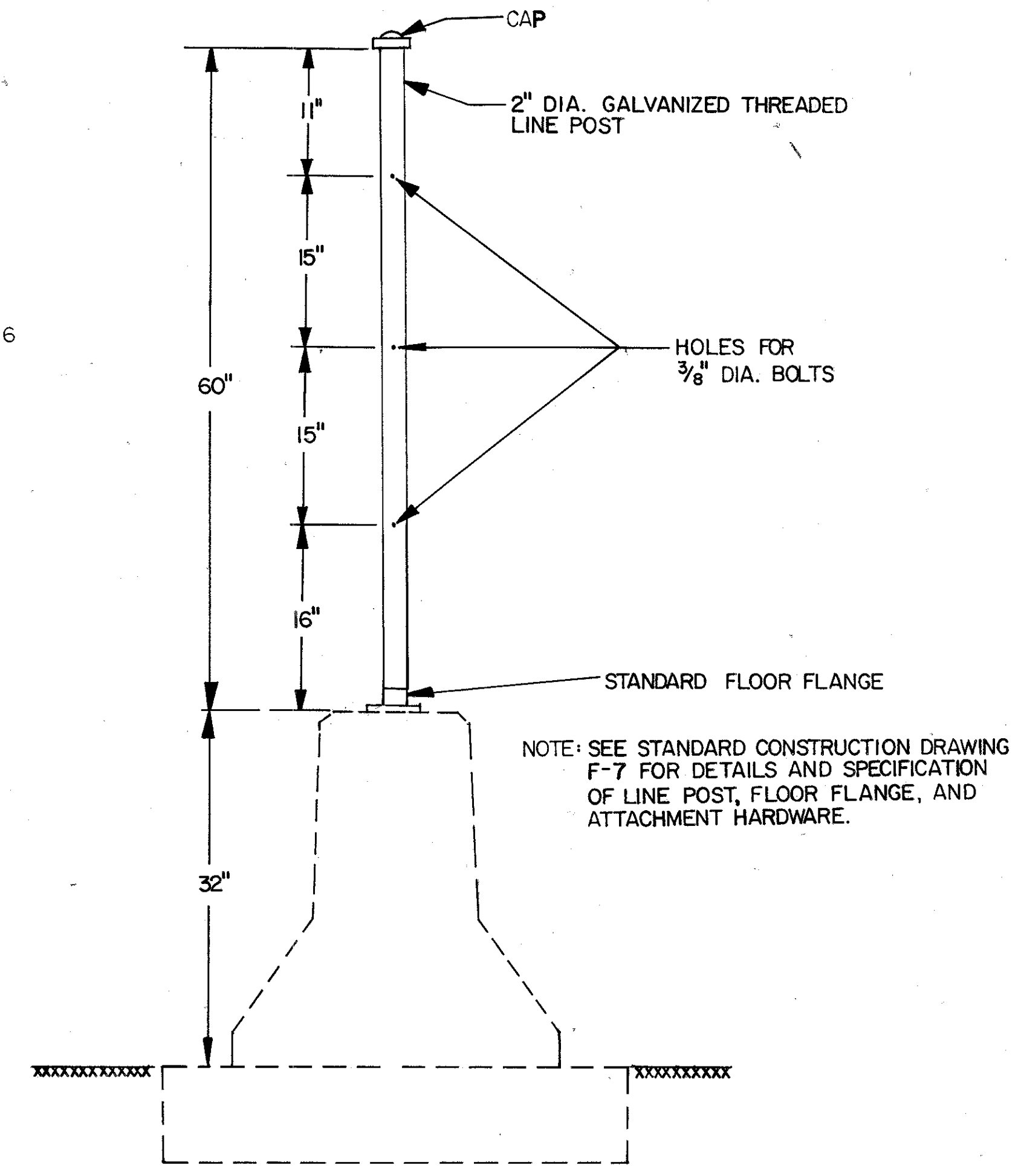
FEDERAL
PROJECT

140
17

W33-30 CHEVRON ARROW

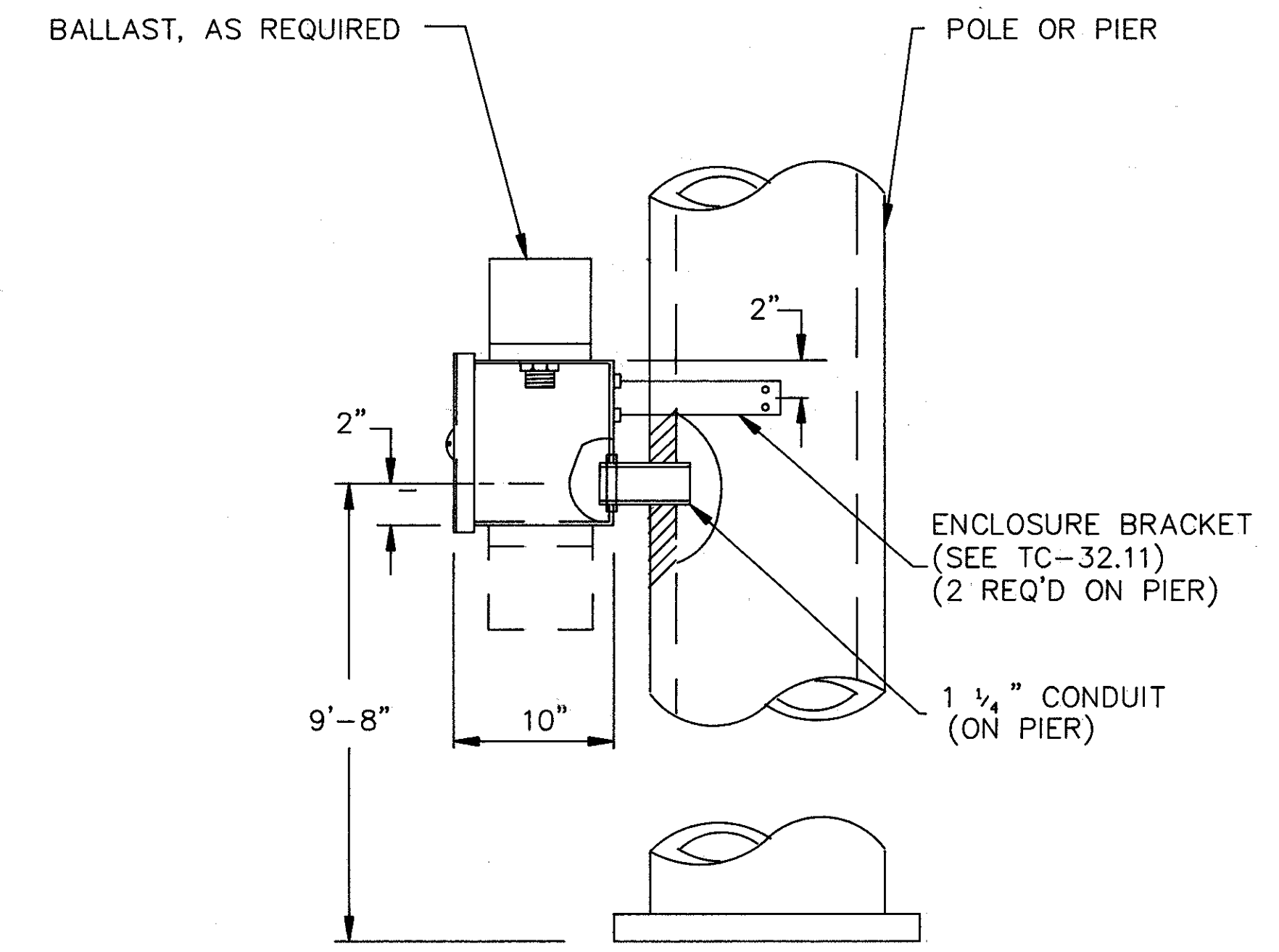
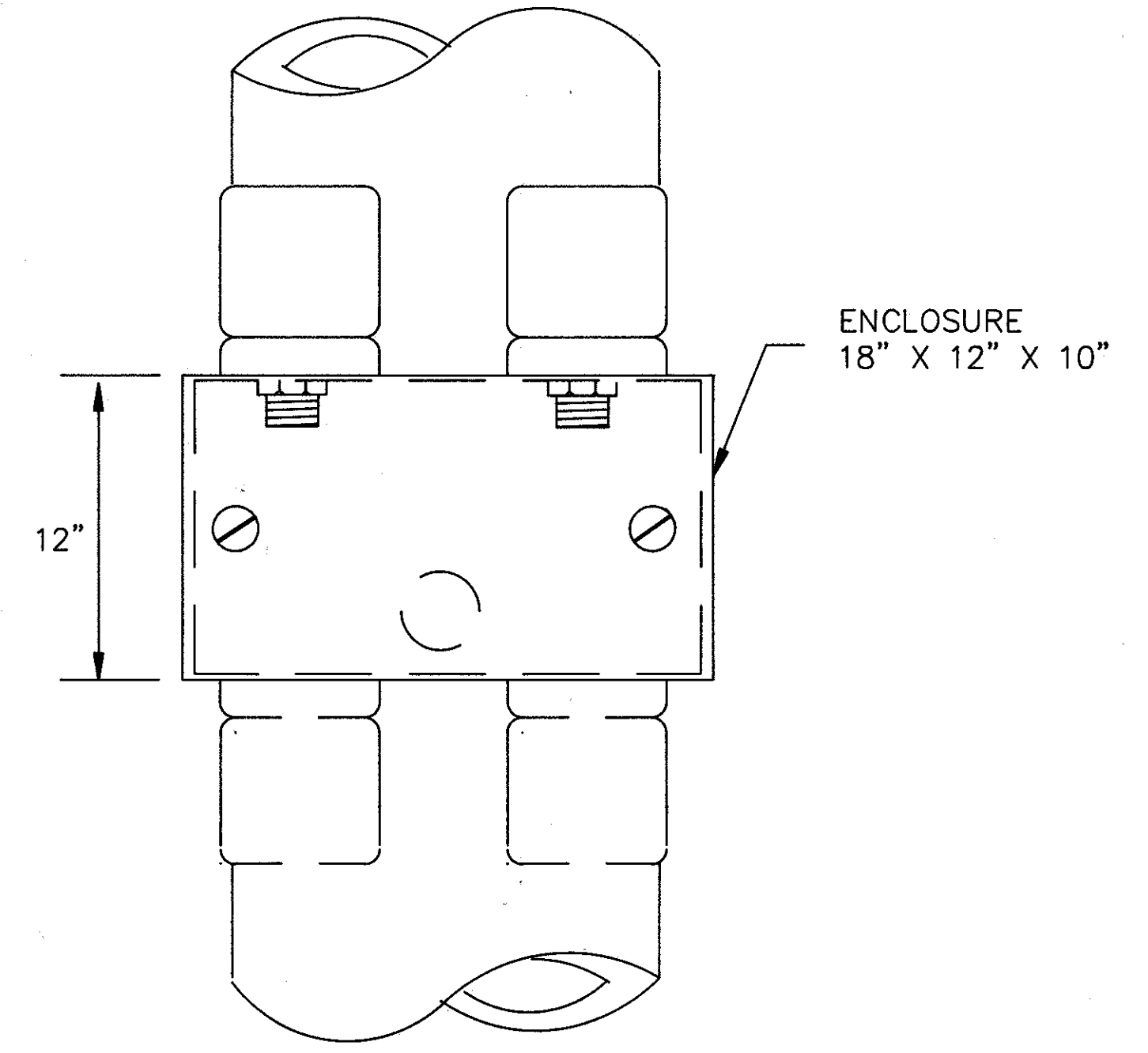


CHEVRON ARROW
POST CONNECTION



DETAILS OF POST FOR SIGN

ITEM 630-2" DIAMETER POST
THIS ITEM SHALL INCLUDE ALL MATERIALS,
EQUIPMENT, AND LABOR NECESSARY TO PROVIDE AND
INSTALL THE MEDIAN MOUNTED SIGN POST AS DETAILED
ABOVE.

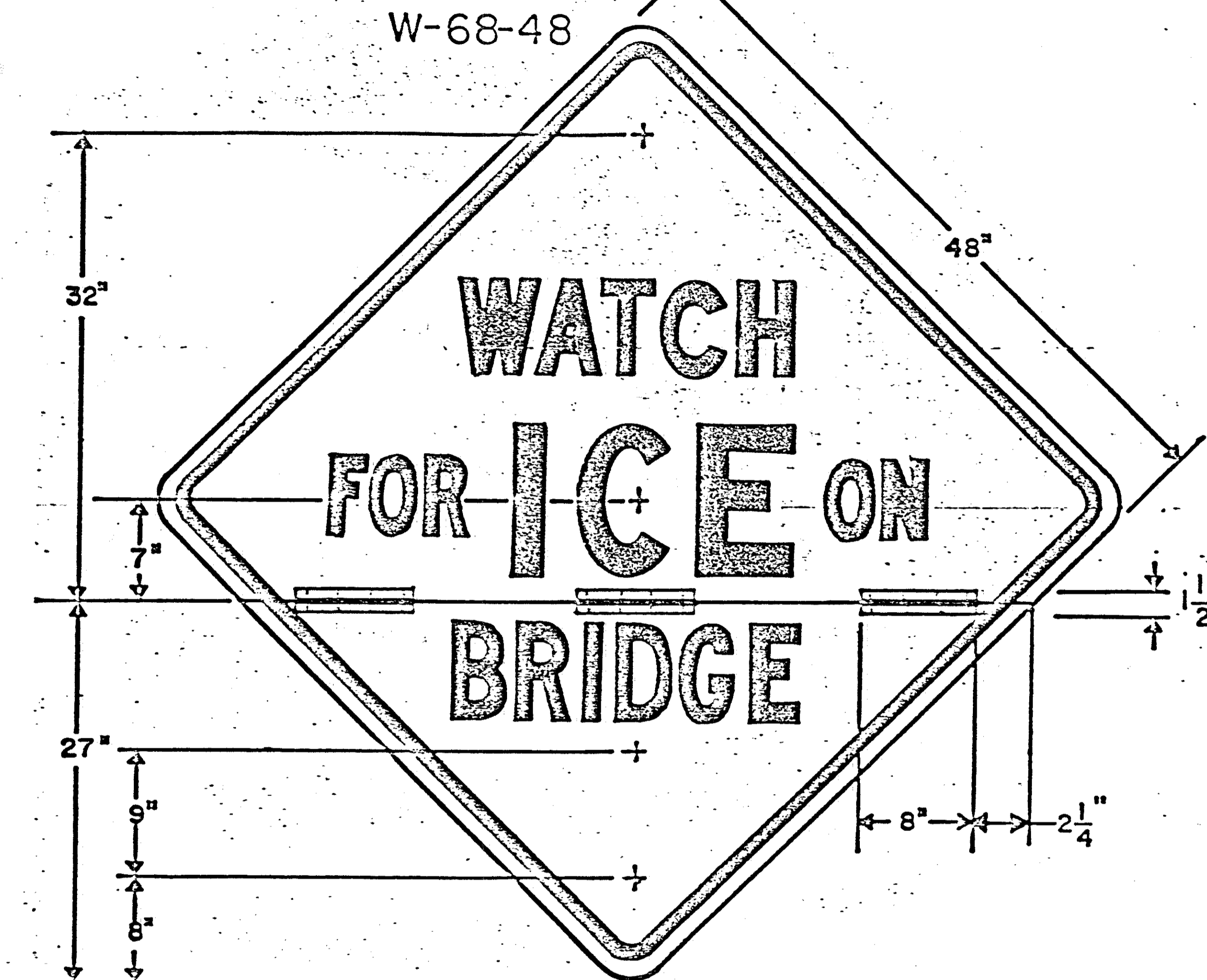
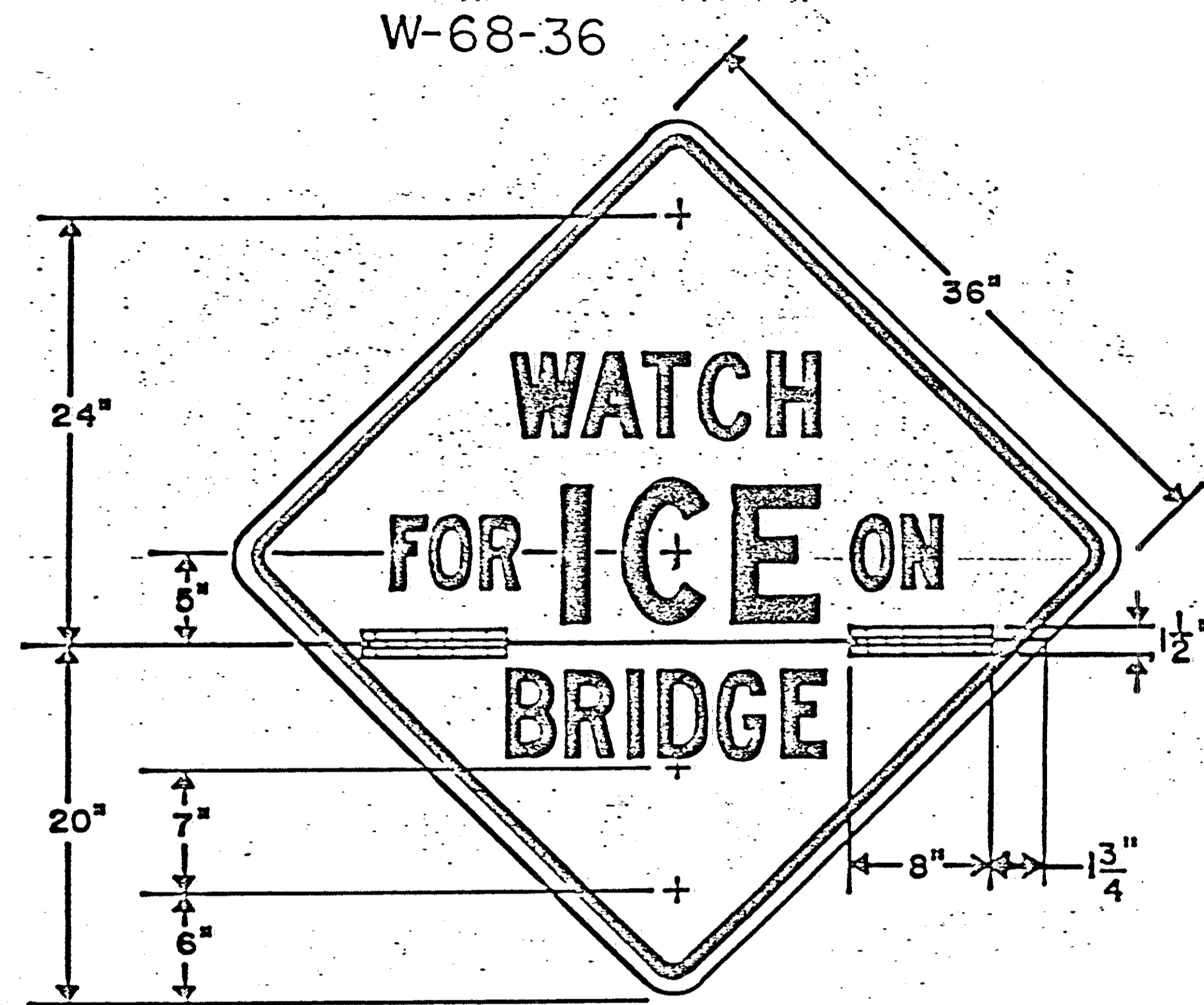


631 - BALLAST ENCLOSURE, TYPE B

MISCELLANEOUS DETAILS

CUYAHOGA COUNTY
CUY-480-19.19

141
171



NOTES:

1) The sign shall be hinged with 8" lengths of 1 1/2" brass-plated hinge which is riveted to each section of the sign and then covered with yellow reflective sheeting (Type F-730.18) to match the background of the sign.

- 2) To fold the sign down, remove the top two bolts, fold the upper part of the sign down and insert a bolt through the lowest hole in the sign and into the post. Tighten the bolt to prevent the sign from flapping in the wind and sustaining damage.
- 3) Generally a 48 inch warning sign is mounted on two number 3 drive posts; however, in order to accommodate the sign hole alignment, only one number 4 sign support shall be used in mounting the W-68-48 sign.

OHIO DEPARTMENT OF TRANSPORTATION

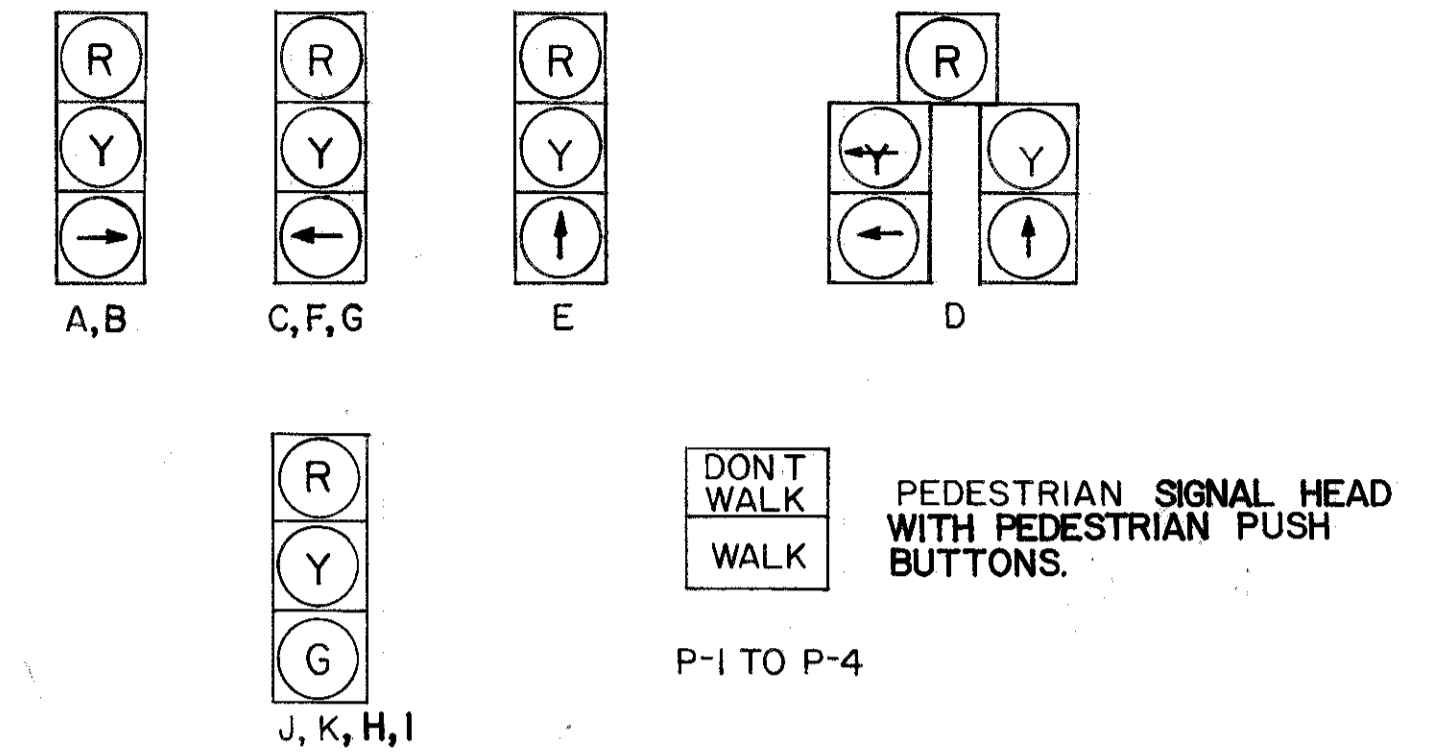
"HINGED" WATCH FOR ICE ON BRIDGE SIGN W-68	DATE 10/82
---	---------------

SIGNALIZATION PLAN

TRAFFIC SIGNAL TIMING CHART	TIME IN SECONDS			
	φ1	φ2	φ3	φ4
MINIMUM (TRUE)	40	12	12	12
NO. OF ACTUATION TO GIVE MAX INITIAL				
MAXIMUM INITIAL				
PASSAGE TIME	5	3	3	3
TIME WAITING				
MINIMUM GAP				
MAXIMUM GREEN	50	35	20	20
1st CLEARANCE (YELLOW)	4	4	3	3
2nd CLEARANCE (RED)	2	2	1	1
INITIALIZATION	G	R	R	R
RECALL	ON	LOCK	LOCK	LOCK
AMPLIFIER TYPE REQUIRED		LOOP	LOOP	LOOP
NUMBER		2	1	1
WALK	7	-	-	7
PED CLEARANCE	32	-	-	15
PED RECALL	ON	-	-	OFF

SIGNAL TIMING CHART

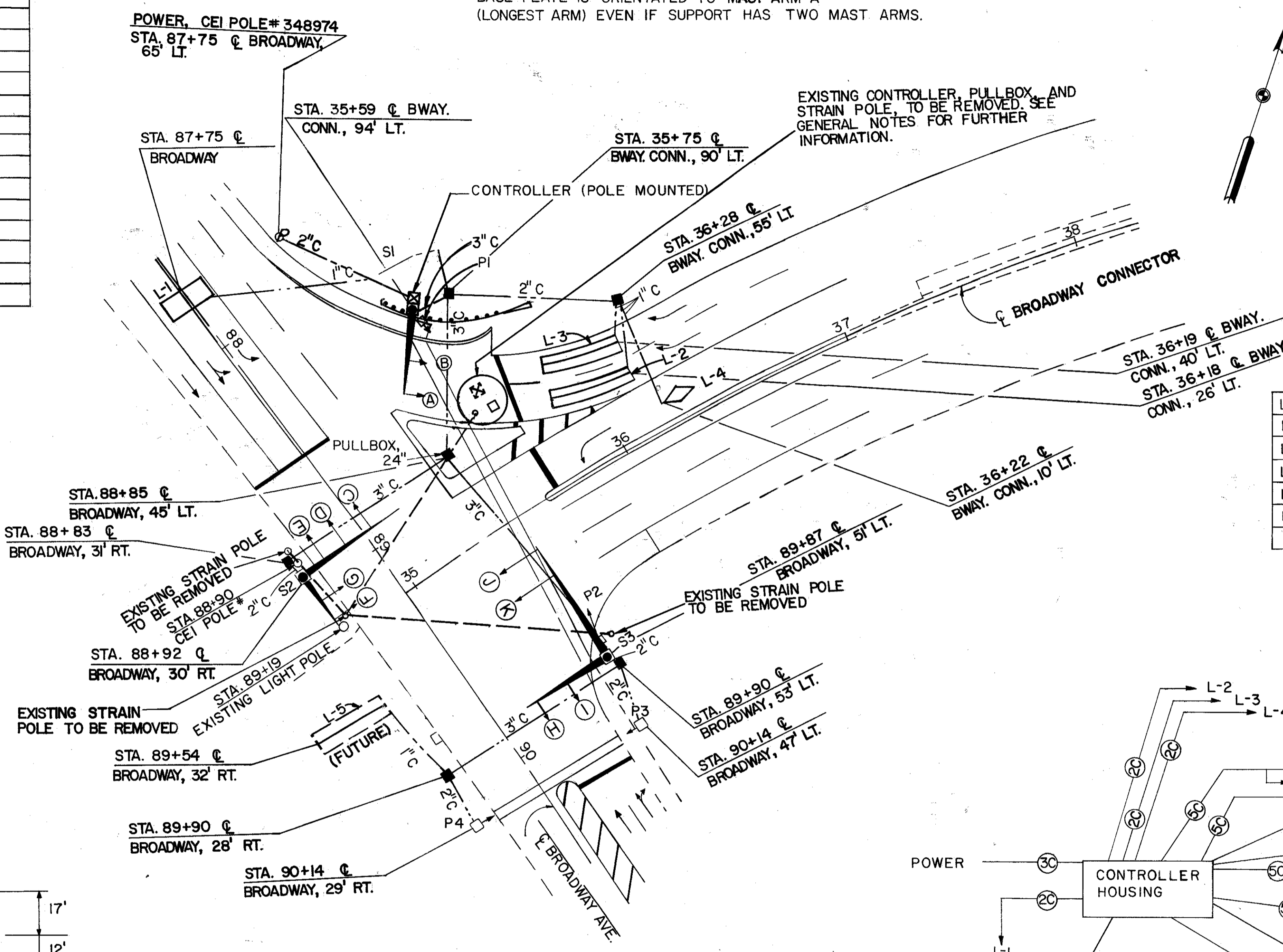
NOTE: FOR UTILITY LOCATIONS, SEE PLAN SHT. 38.
 FOR PAVEMENT MARKING QTY'S, SEE SHT. 105.
 ALL ANGLES MEASURED CLOCKWISE.
 BASE PLATE IS ORIENTATED TO MAST ARM "A"
 (LONGEST ARM) EVEN IF SUPPORT HAS TWO MAST ARMS.



SIGNAL HEADS

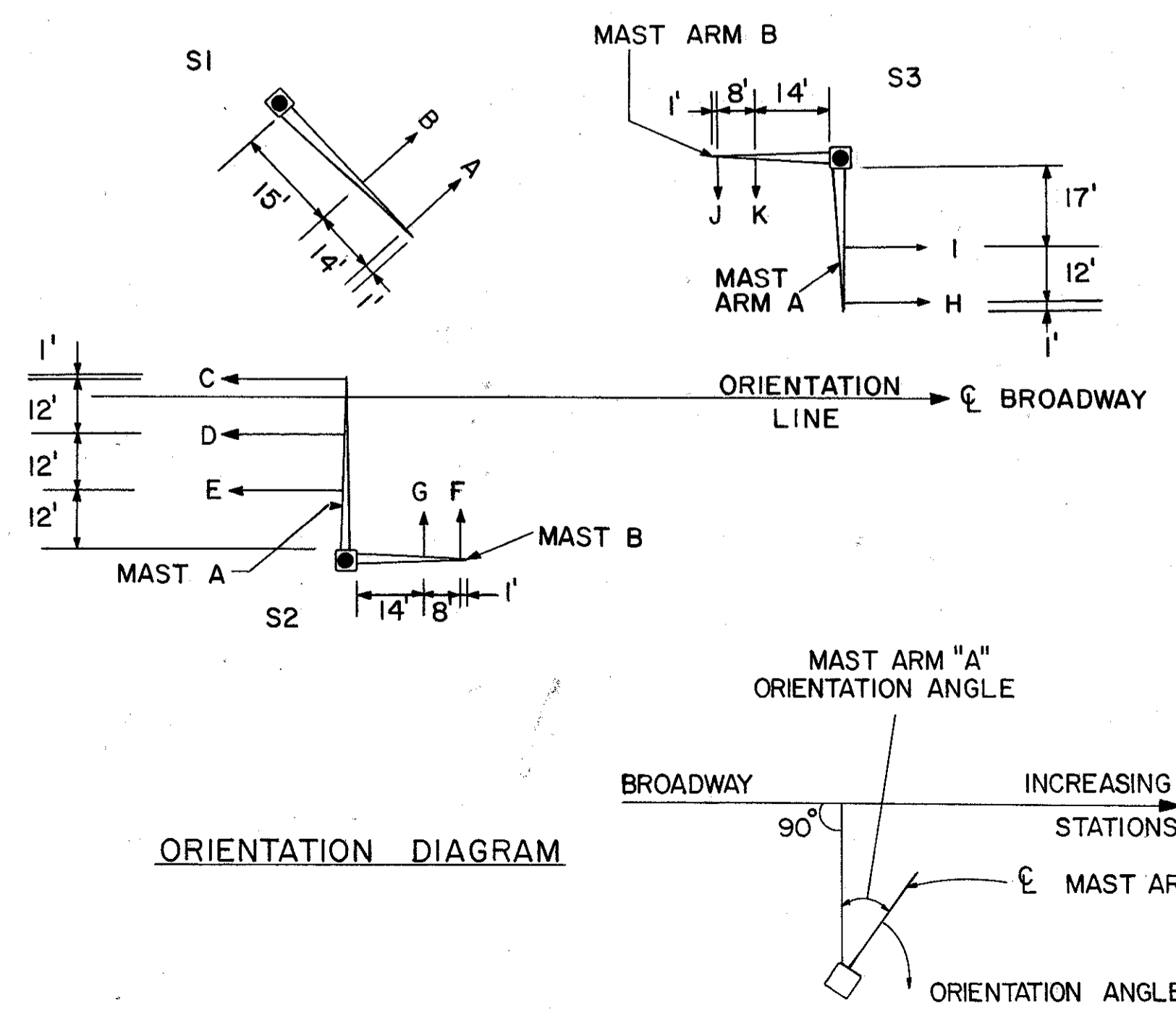
SUPPORT NO.	POLE DES. NO.	ARM DES. NO.	SIGNAL SUPPORT TYPE			SUPPORT TC-81.20		ORIENTATION FROM MAST		ANGLES FROM MAST ARM A	
			L	L1	L3	ANGLE (DEG)	ANGLE (DEG)	ANGLE (DEG)	ANGLE (DEG)		
S1	2	23	30	15		315°	315°	0°	180°	180°	90°
S2	11	4	23	37	12	12	0°	90°		180°	270°
		1	23	14	22						
S3	3	2	23	30'	17'	29'	0°	90°	100°	45°	180°
		1	23	14'	22						

SIGNAL SUPPORT CHART

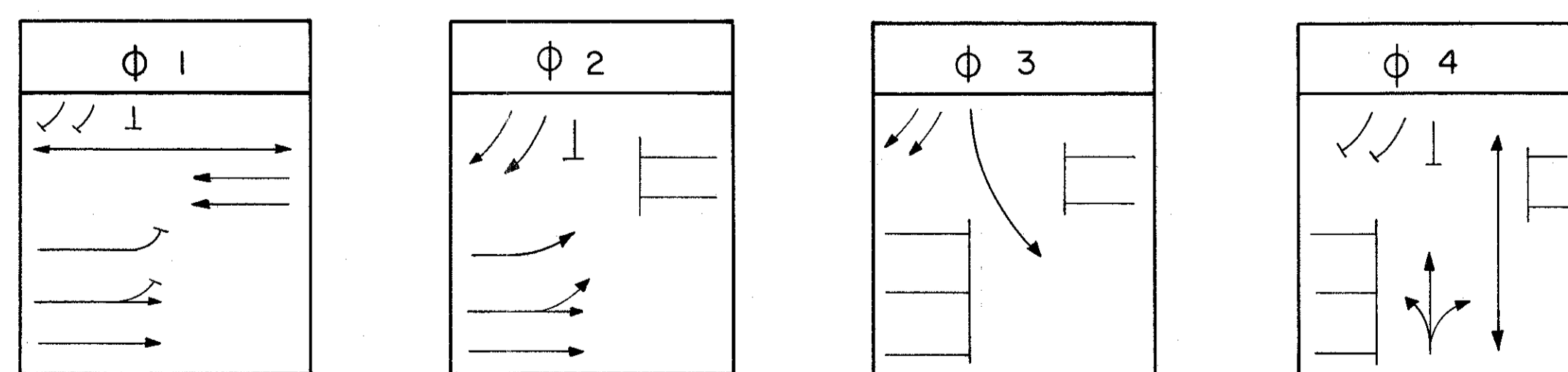


LOOP	SIZE	TURNS	MODE	DELAY	EXT.	DELAY INHIBIT
L-1	8x20	2	PRES			
L-2	8x30	2-4-2	PRES			
L-3	8x30	2-4-2	PRES			
L-4	7x7	3	PRES			
L-5	8x30	2-4-2	PRES			

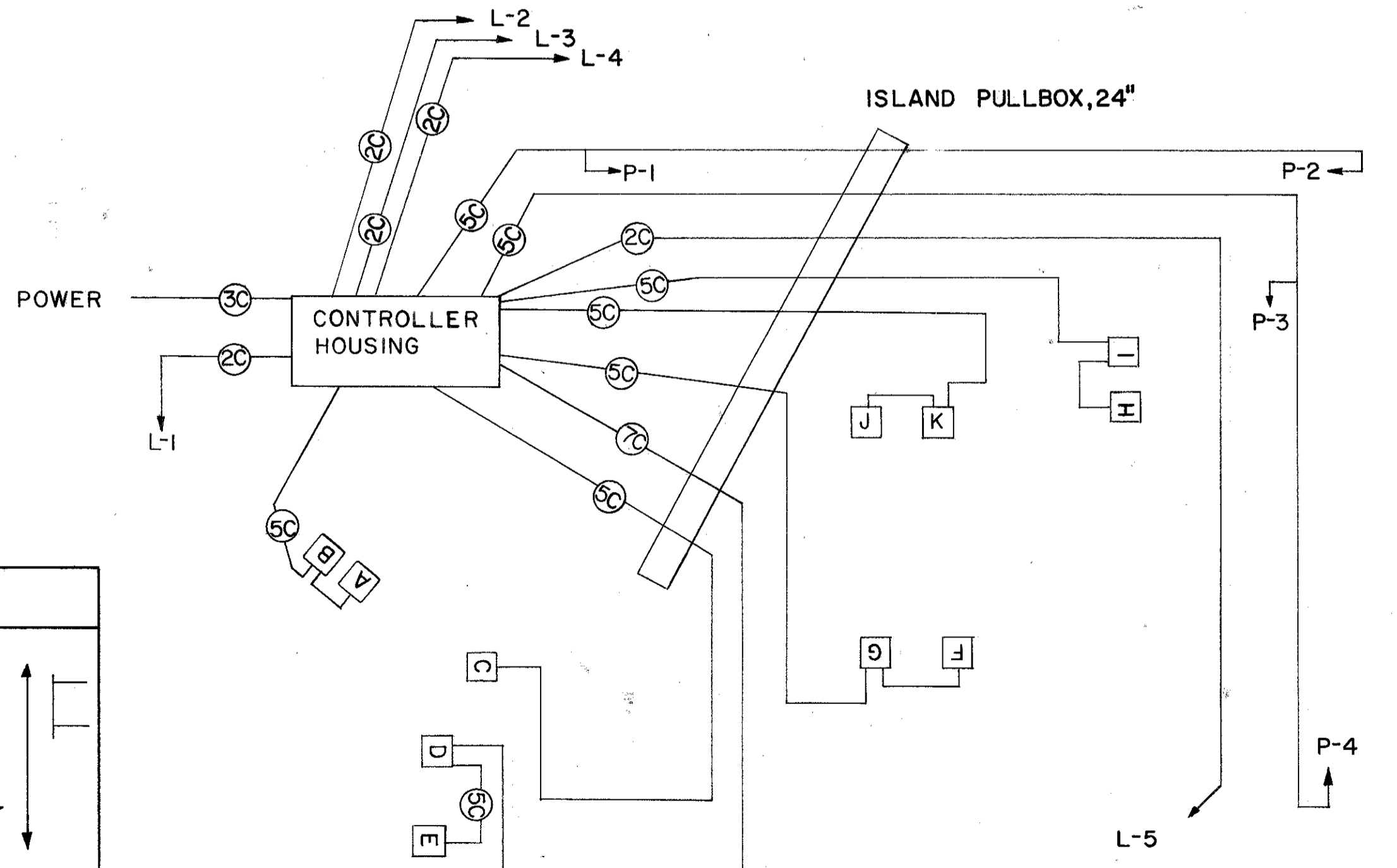
LOOP DETECTOR CHART



ORIENTATION DIAGRAM



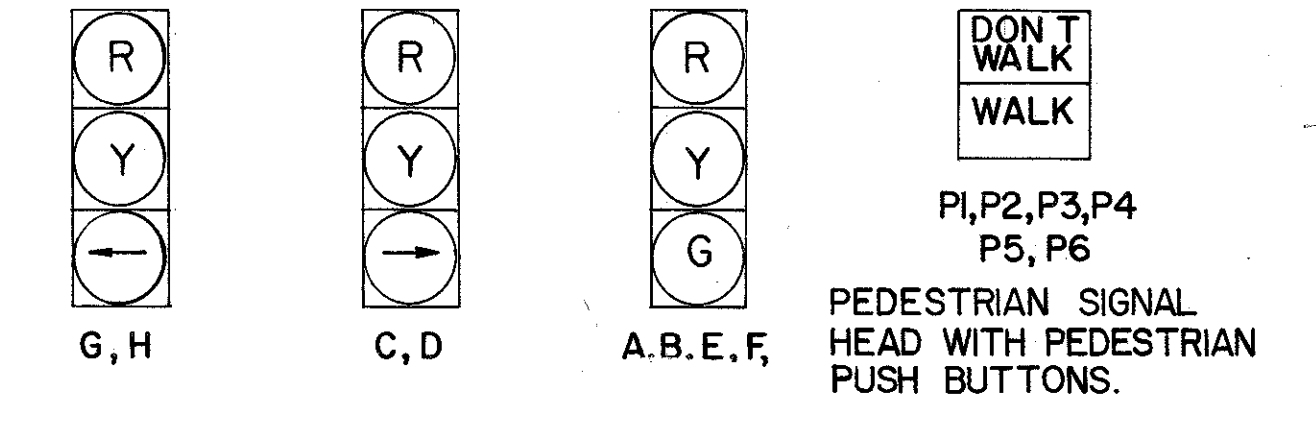
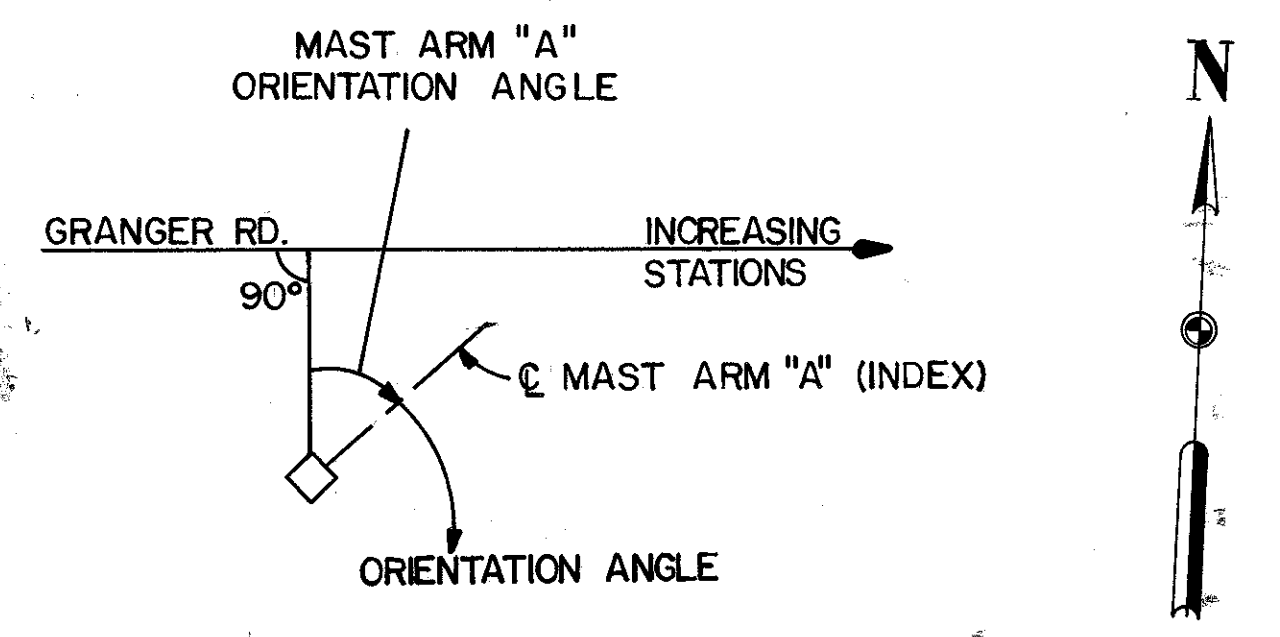
PHASING DIAGRAM



WIRING DIAGRAM

SIGNALIZATION PLAN

NOTE: FOR UTILITY LOCATIONS, SEE SHEET 41.
FOR PAVEMENT MARKING QTYS., SEE SHEET 104.
ALL ANGLES MEASURED CLOCKWISE
BASE PLATE IS ORIENTED TO MAST ARM "A"
(LONGEST ARM) EVEN IF SUPPORT HAS TWO MAST ARMS.



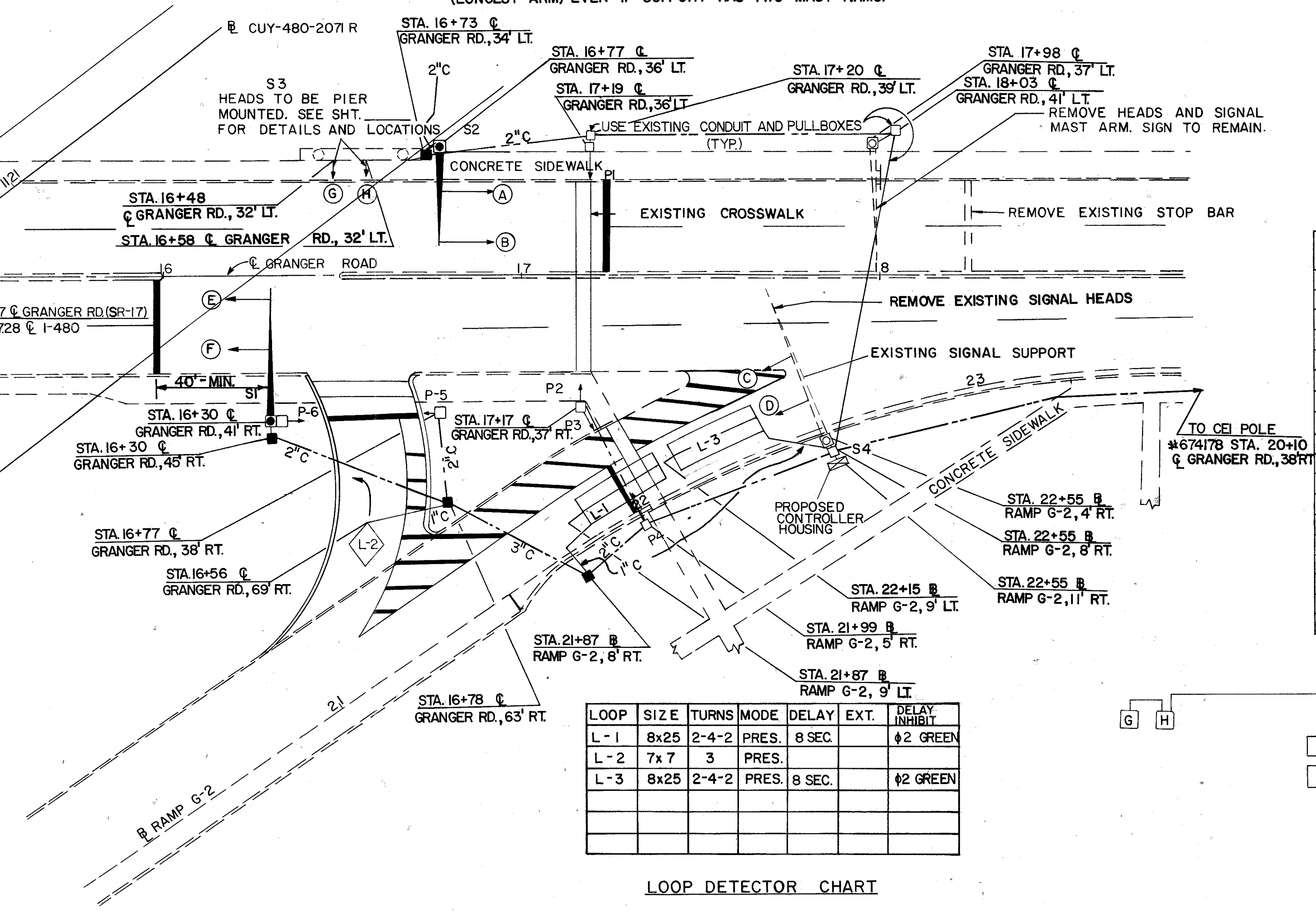
SIGNAL HEADS

FUNCTION	TIME IN SECONDS	
	φ1	φ2
MINIMUM (TRUE)	45	12
NO. OF ACTUATION TO GIVE MAX INITIAL		
MAXIMUM INITIAL		
PASSAGE TIME		3
TIME WAITING		
MINIMUM GAP		
MAXIMUM GREEN	80	40
1st CLEARANCE (YELLOW)	4	4
2nd CLEARANCE (RED)	5	1
INITIALIZATION	G	R
RECALL	ON	OFF
AMPLIFIER TYPE REQUIRED	-	LOOP
NUMBER	-	3 2w/delay 8sec
WALK	25	7
PED CLEARANCE	8	12
PED RECALL	ON	OFF

SIGNAL TIMING CHART

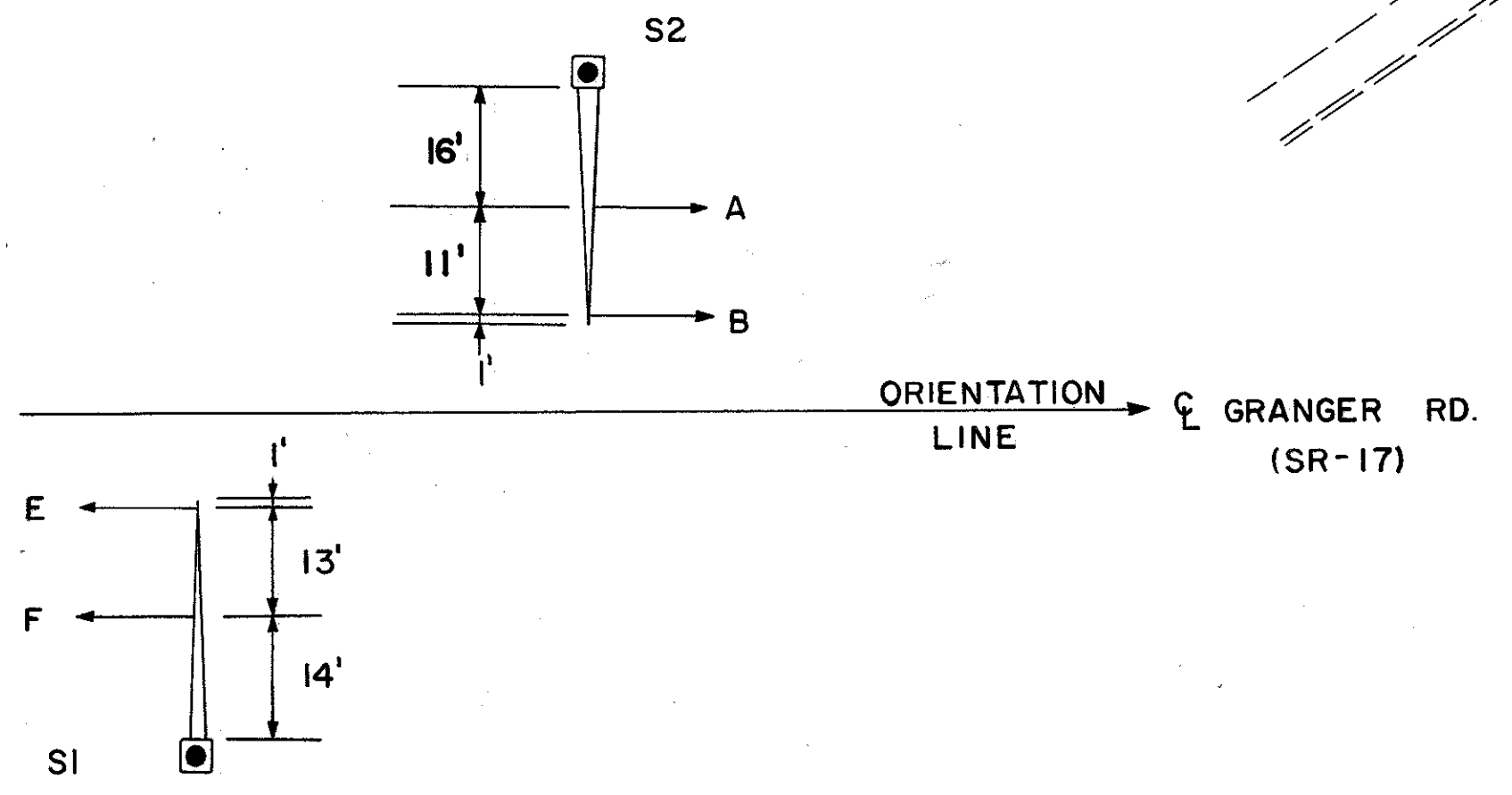
SUPPORT NO.	DESIGN NO.	SIGNAL SUPPORT TYPE TC-81.20			ORIENTATION ANGLES FROM MAST ARM A		PEDESTRIAN SIGNAL	PEDESTRIAN PUSH BUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRKT.	HANDHOLE CABLE ENT. (12" FROM TOP)
		L (FT)	L1 (FT)	L2 (FT)	MAST ARM A ANGLE (DEG.)	MAST ARM B						
S1	2	23	28	14	27	0°	90°	0°	180°			270°
S2	2	23	28	16	27	0°	90°	0°	90°			180°

SIGNAL SUPPORT CHART

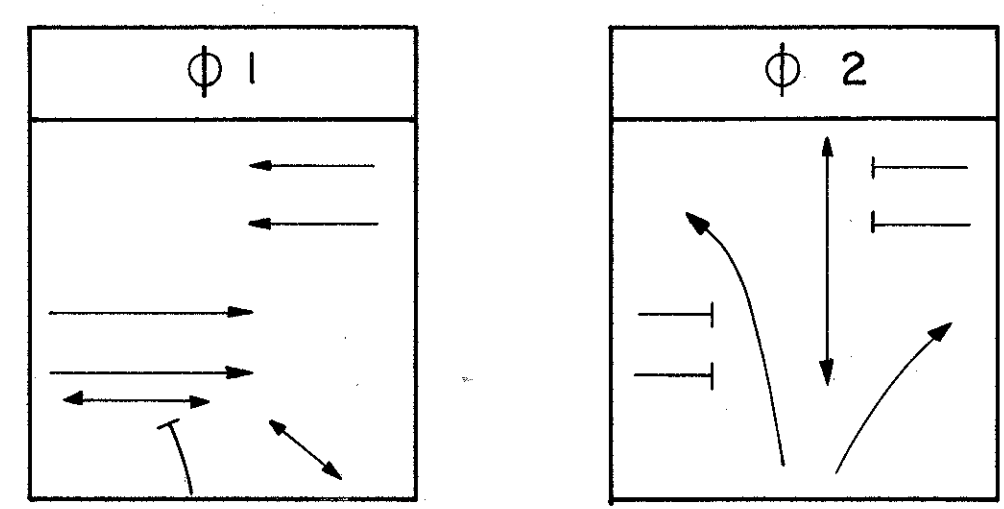


LOOP	SIZE	TURNS	MODE	DELAY	EXT.	DELAY INHIBIT
L-1	8x25	2-4-2	PRES.	8 SEC.		φ2 GREEN
L-2	7x7	3	PRES.			
L-3	8x25	2-4-2	PRES.	8 SEC.		φ2 GREEN

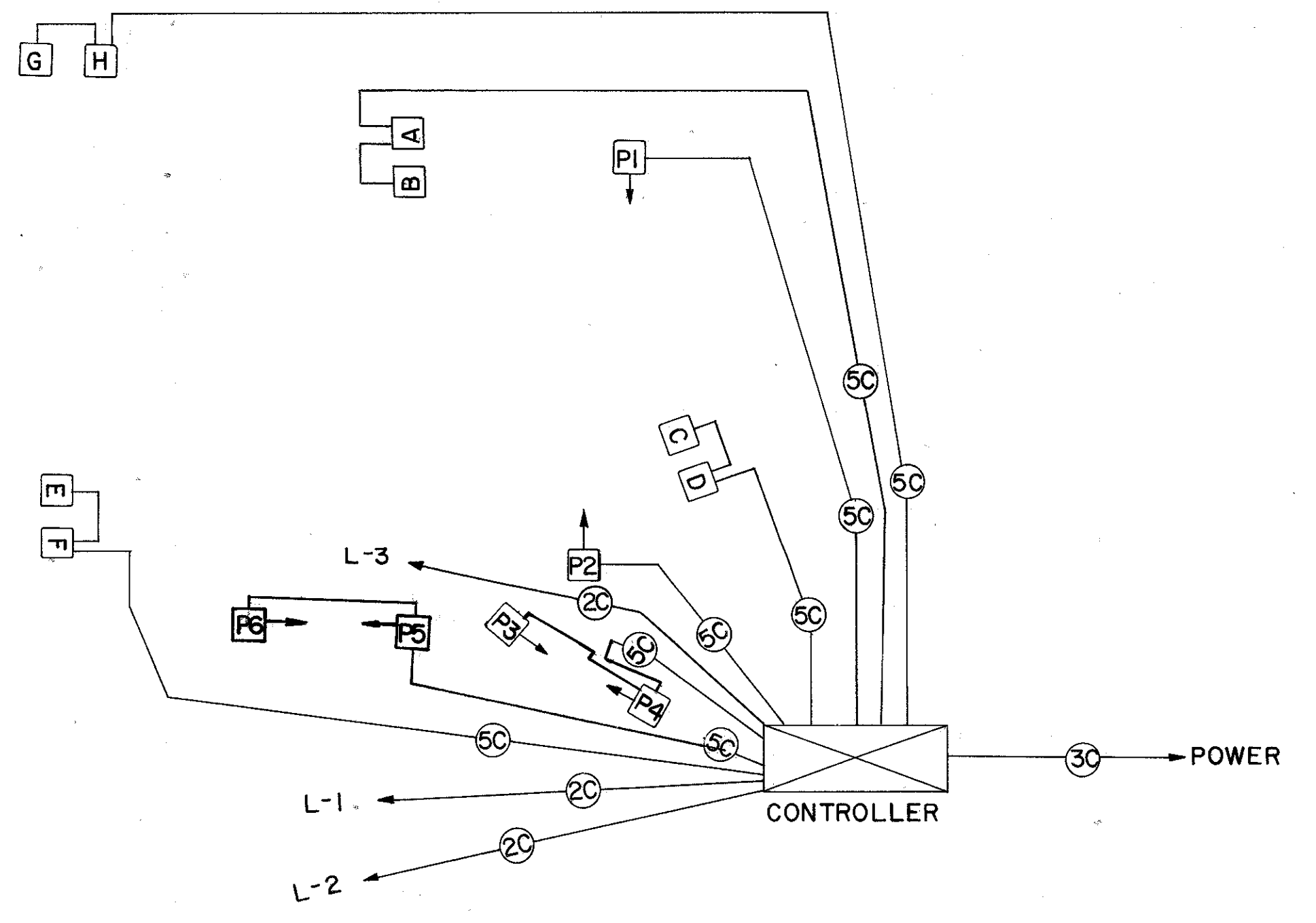
LOOP DETECTOR CHART



ORIENTATION DIAGRAM



PHASE DIAGRAMS



WIRING DIAGRAM

SIGNAL DISPLAY CHART

IR-480/BROADWAY CONNECTOR (SR-14)

HEADS	Ø1			Ø2			Ø3			Ø4		
	R _W	CL	R _{CL}	R _W	CL	R _{CL}	R _W	CL	R _{CL}	R _W	CL	R _{CL}
A	R	R	R	→	→	→	→	→	Y	R	R	R
B	R	R	R	→	→	→	→	→	Y	R	R	R
C	R	R	R	←	Y	R	R	R	R	R	R	R
D	↑	↑	↑	→	→	→	→	→	→	→	→	→
E	G	G	G	G	Y	R	R	R	R	R	R	R
F	R	R	R	R	R	R	←	Y	R	R	R	R
G	R	R	R	R	R	R	←	Y	R	R	R	R
H	G	Y	R	R	R	R	R	R	R	R	R	R
I	G	Y	R	R	R	R	R	R	R	R	R	R
J	R	R	R	R	R	R	R	R	R	G	Y	R
K	R	R	R	R	R	R	R	R	R	G	Y	R
P1	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
P2	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
P3	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW
P4	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW

IR-480/GRANGER ROAD (SR-17)

HEADS	Ø1			Ø2		
	R _W	CL	R _{CL}	R _W	CL	R _{CL}
A	G	Y	R	R	R	R
B	G	Y	R	R	R	R
C	R	R	R	←	Y	R
D	R	R	R	←	Y	R
E	G	Y	R	R	R	R
F	G	Y	R	R	R	R
G	R	R	R	←	Y	R
H	R	R	R	←	Y	R
P1	DW	DW	DW	W	FDW	DW
P2	DW	DW	DW	W	FDW	DW
P3	W	FDW	DW	DW	DW	DW
P4	W	FDW	DW	DW	DW	DW
P5	W	FDW	DW	DW	DW	DW
P6	W	FDW	DW	DW	DW	DW

SIGNALIZATION PLAN

NOTE: FOR PAVEMENT MARKING QTYS, SEE SHEET 104.
ALL CABLE SHALL BE RUN THROUGH EXISTING CONDUIT.

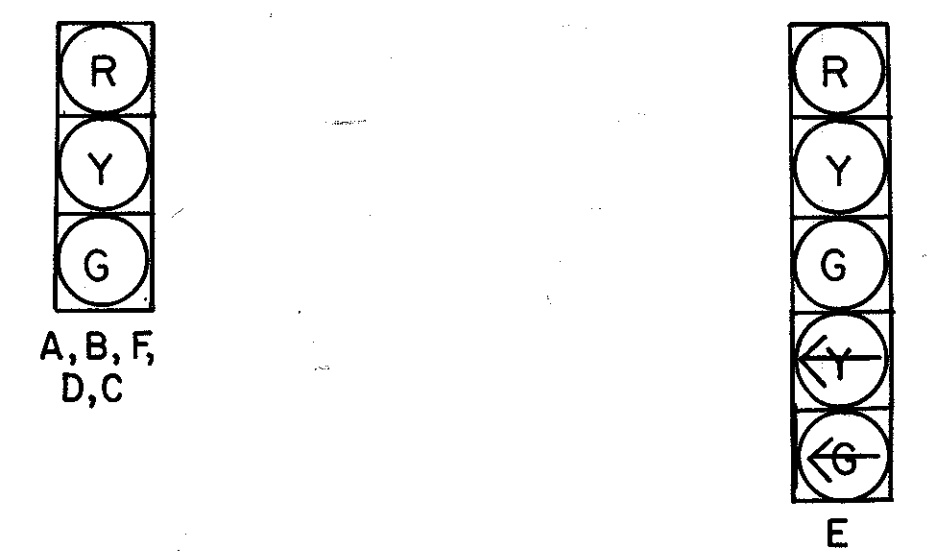
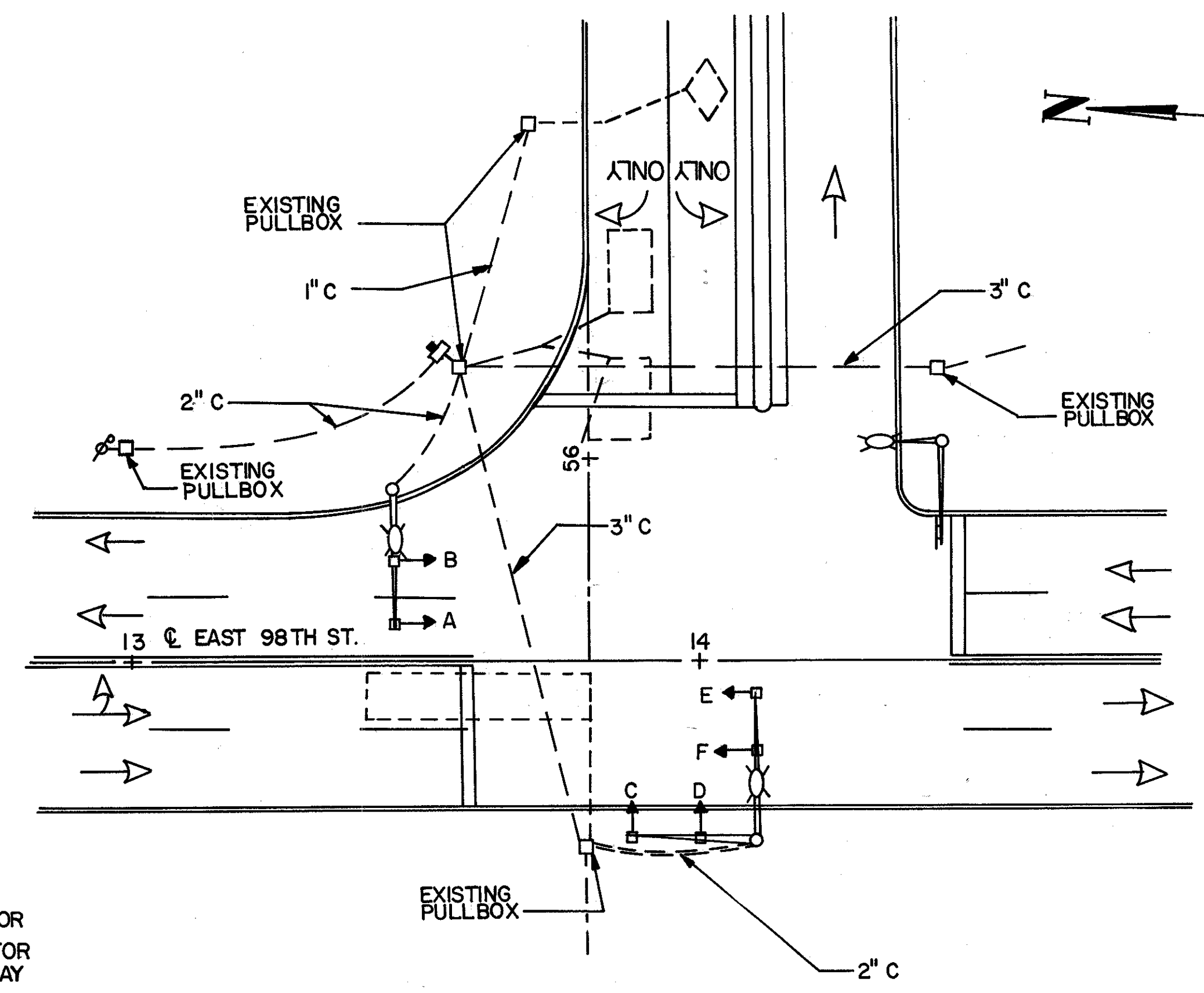
	φ 1			φ 2			φ 3		
	R/W	YCL	RCL	R/W	YCL	RCL	R/W	YCL	RCL
A	G	Y	R	R	R	R	R	R	R
B	G	Y	R	R	R	R	R	R	R
C	R	R	R	R	R	R	G	Y	R
D	R	R	R	R	R	R	G	Y	R
E	G	G	G	G	Y	R	R	R	R
F	G	G	G	G	Y	R	R	R	R

SIGNAL SEQUENCE CHART

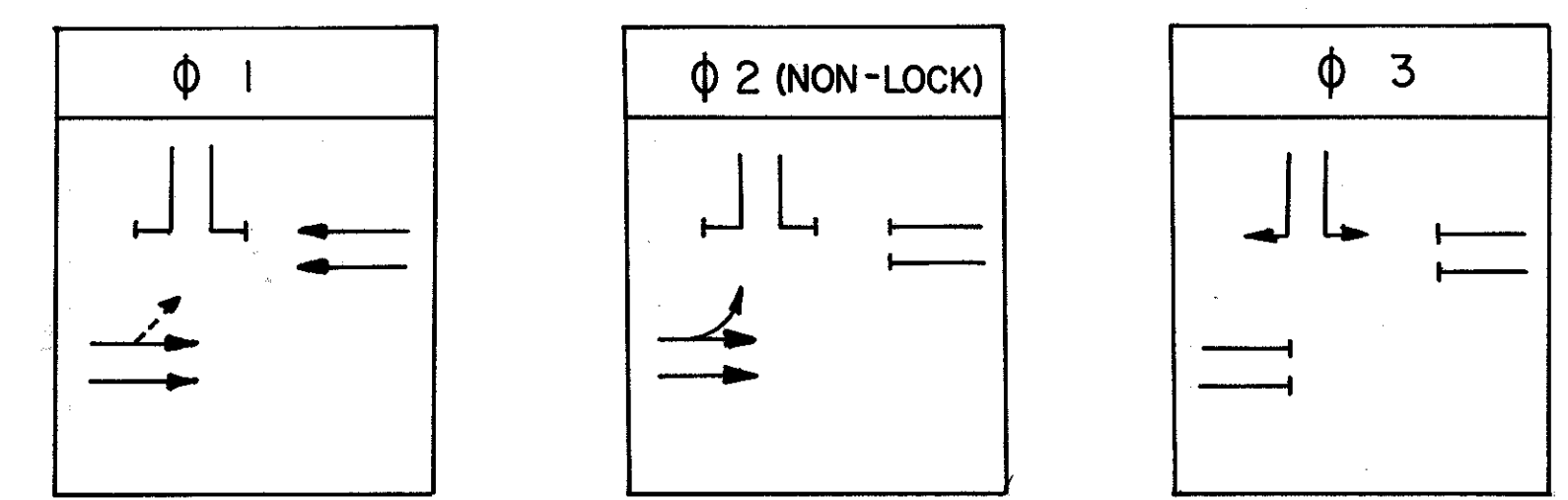
TRAFFIC SIGNAL TIMING CHART	TIME IN SECONDS		
	φ 1	φ 2	φ 3
MINIMUM (TRUE)	20	10	10
NO. OF ACTUATION TO GIVE MAX INITIAL			
MAXIMUM INITIAL			
PASSAGE TIME		3	3
TIME WAITING			
MINIMUM GAP			
MAXIMUM GREEN		30	40
1 st CLEARANCE (YELLOW)	4	4	4
2 nd CLEARANCE (RED)	1	1	1
INITIALIZATION	G	R	R
RECALL	ON	NON LOCK	LOCK DETEC
AMPLIFIER TYPE REQUIRED		*	**
NUMBER			
WALK			
PED CLEARANCE			
PED RECALL			

SIGNAL TIMING CHART

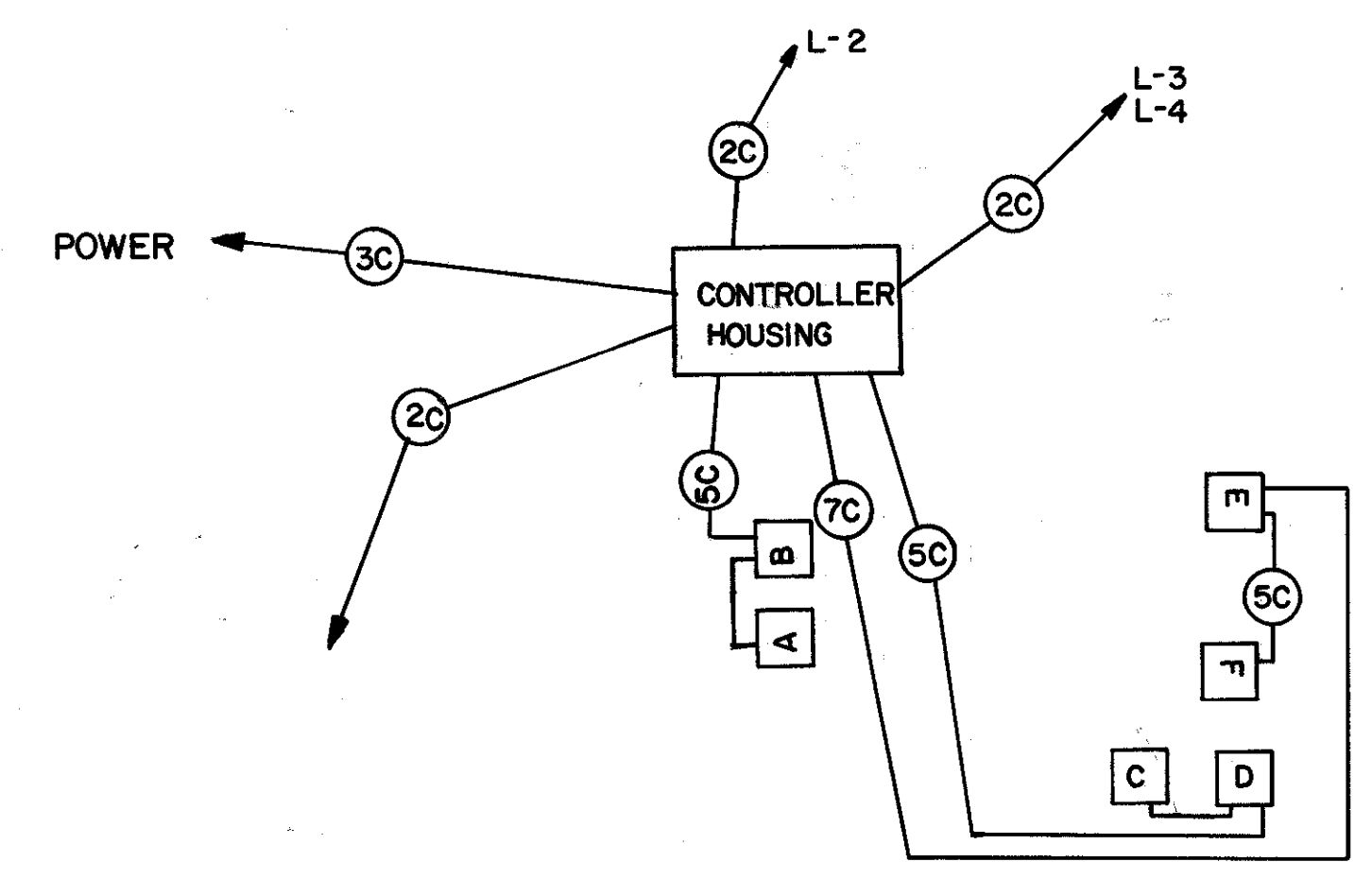
* 1 LOOP DETECTOR
** 1 LOOP DETECTOR w/ BUILT-IN DELAY



SIGNAL HEADS



PHASING DIAGRAM



WIRING DIAGRAM

SIGNALIZATION PLAN

I-480 EB AT E.98th-(TRANSPORTATION BLVD.)
 (FUTURE)

	φ 1			φ 2			φ 3			φ 4		
	R/W	YCL	RCL	R/W	YCL	RCL	R/W	YCL	RCL	R/W	Y/C	RCL
A	G	Y	R				R	R	R	R	R	R
B	G	Y	R				R	R	R	R	R	R
C	R	R	R				G	G	G	G	Y	R
D	R	R	R				G	G	G	G	Y	R
E	G	Y	R				R	R	R	R	R	R
F	G	Y	R				R	R	R	R	R	R
G	R	R	R				G	Y	R	R	R	R
H	R	R	R				G	Y	R	R	R	R

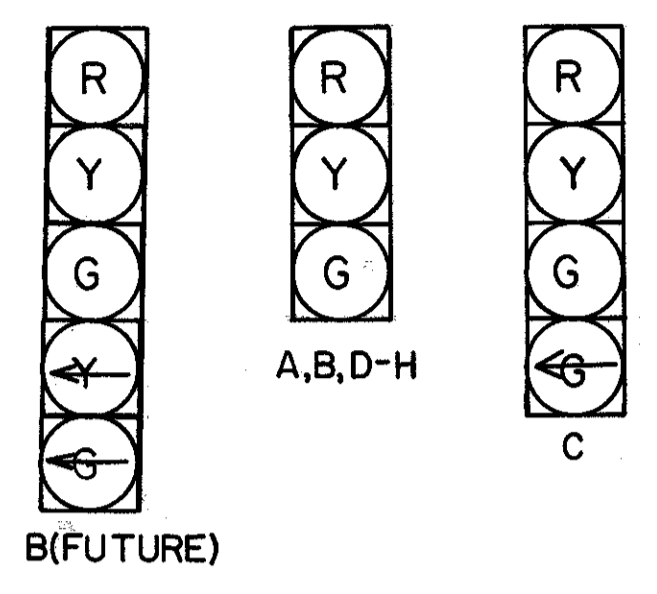
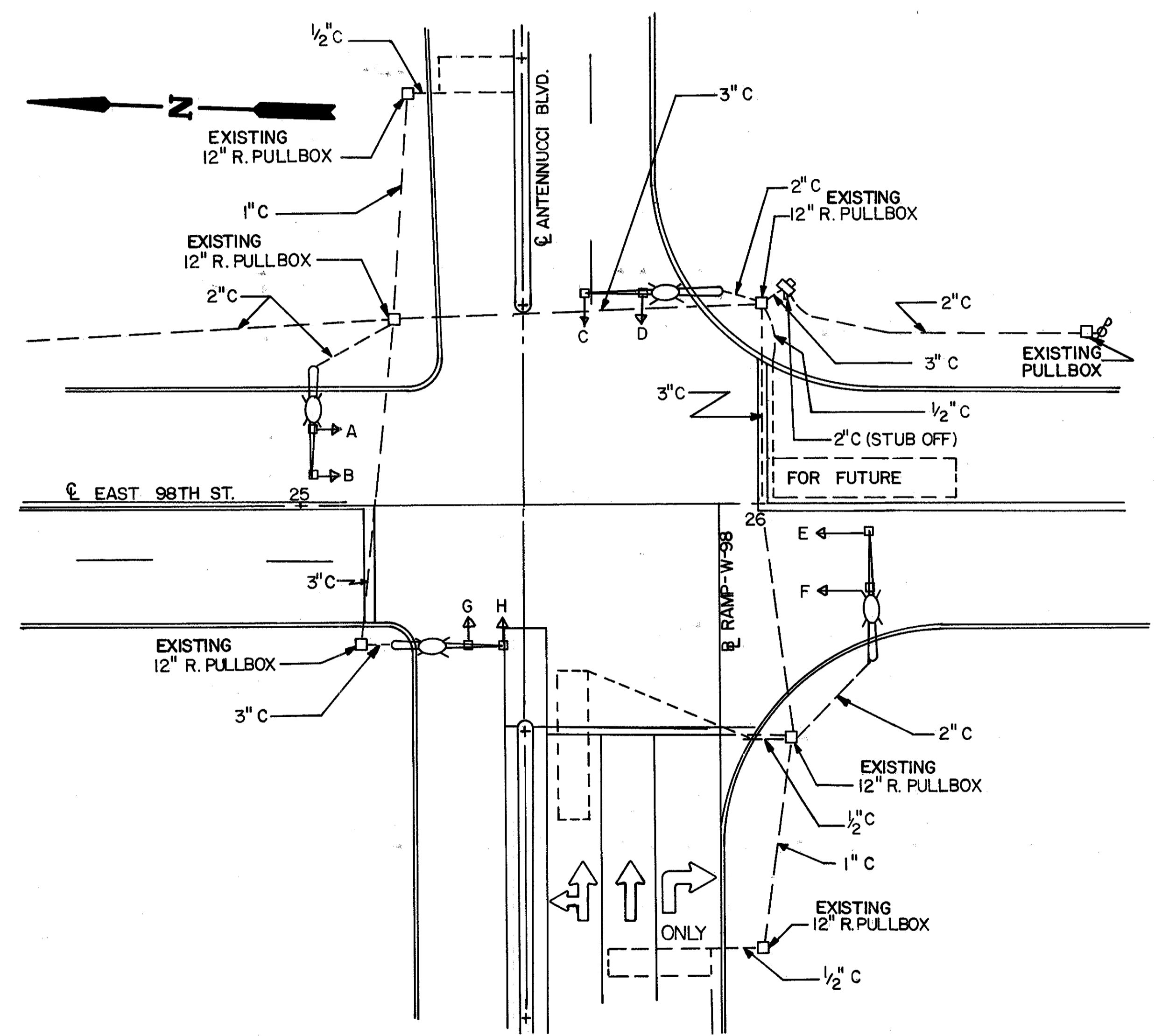
NOTE:
 FOR PAVEMENT MARKING QTYS, SEE SHEET 104.
 ALL CABLE SHALL BE RUN THROUGH EXISTING CONDUIT.

SIGNAL SEQUENCE CHART

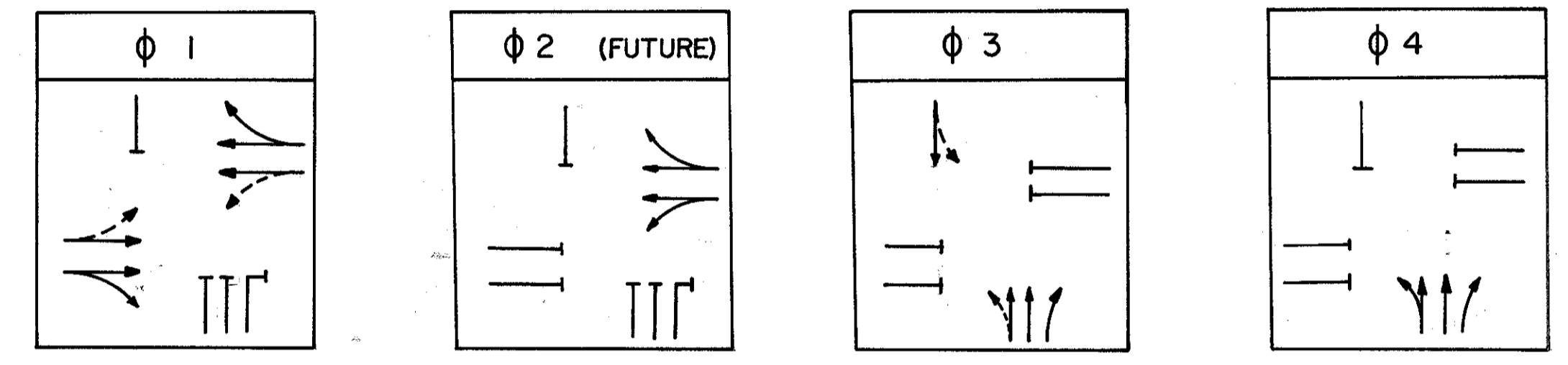
TRAFFIC SIGNAL TIMING CHART	TIME IN SECONDS			
	φ 1	φ 2	φ 3	φ 4
MINIMUM (TRUE)	15		10	10
NO. OF ACTUATION TO GIVE MAX INITIAL	-	-	-	-
MAXIMUM INITIAL	-	-	-	-
PASSAGE TIME	-	-	3.0	3.0
TIME WAITING	-	-	-	-
MINIMUM GAP	-	-	-	-
MAXIMUM GREEN	-	-	25	15
1 st CLEARANCE (YELLOW)	4.0	4.0	4.0	
2 nd CLEARANCE (RED)	1.0	1.0	1.0	
INITIALIZATION	G	-	-	
RECALL	-	-	OFF	VEH
AMPLIFIER TYPE REQUIRED	-	-	LOOP	LOOP
NUMBER	-	-	1	1
WALK	-	-	-	-
PED CLEARANCE	-	-	-	-
PED RECALL	-	-	-	-

NOTE: TRUE MIN GREEN = MIN.

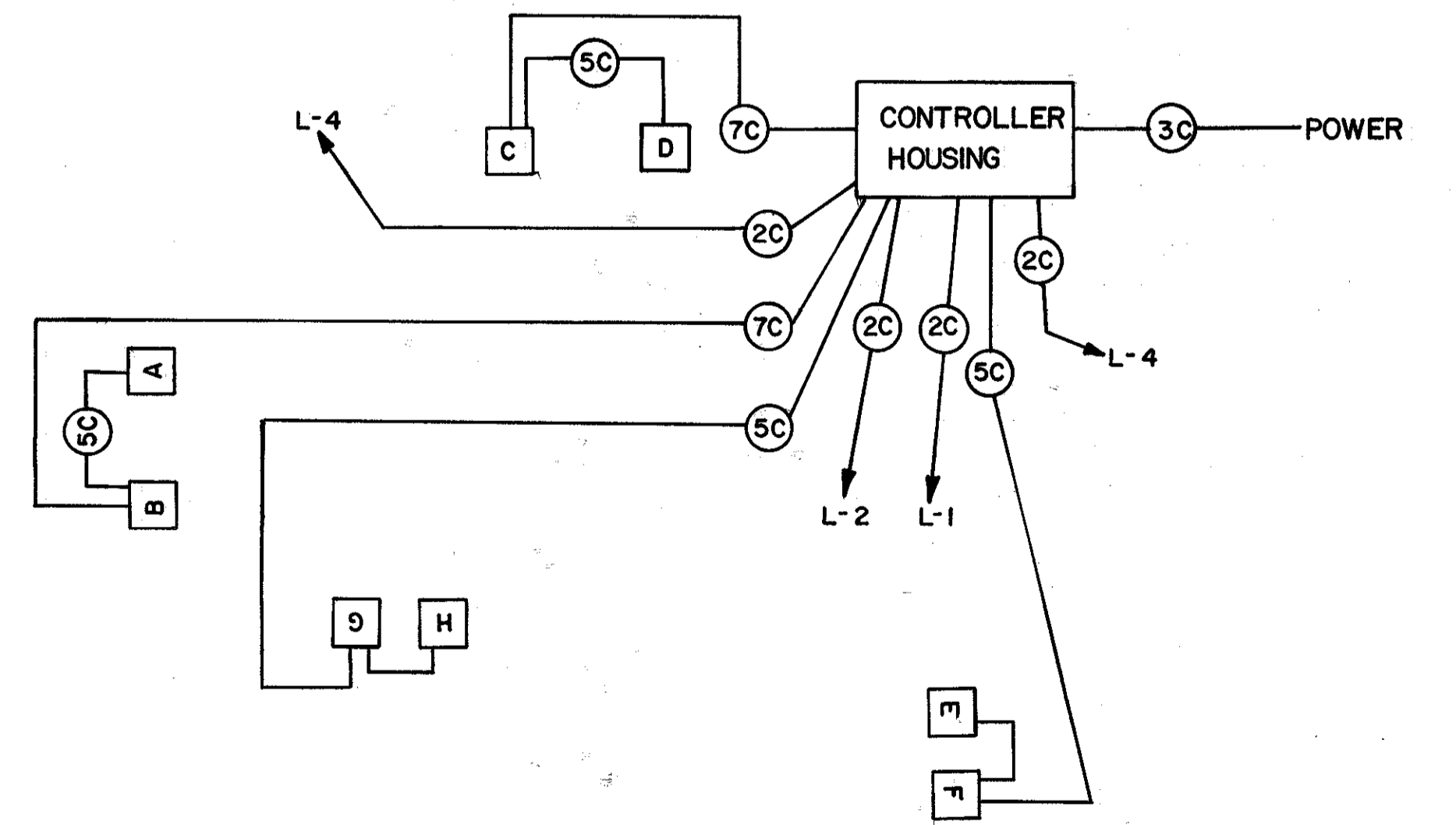
SIGNAL TIMING CHART



SIGNAL HEADS



PHASING DIAGRAM



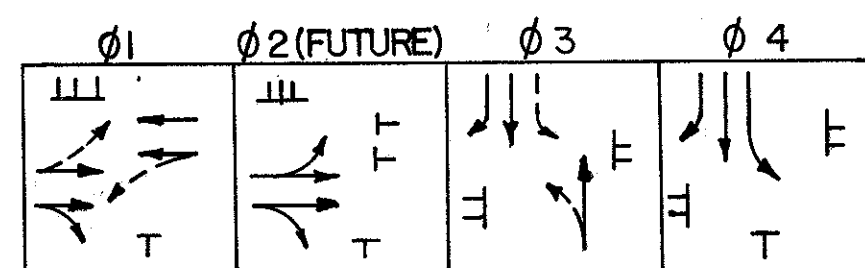
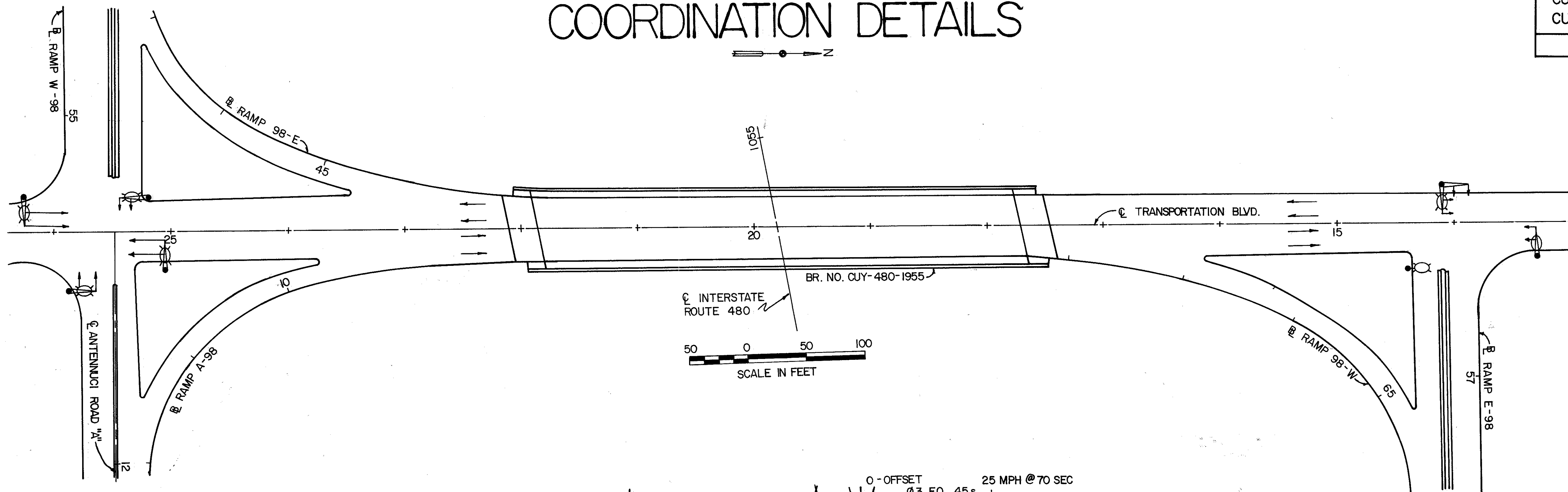
WIRING DIAGRAM

COORDINATION DETAILS

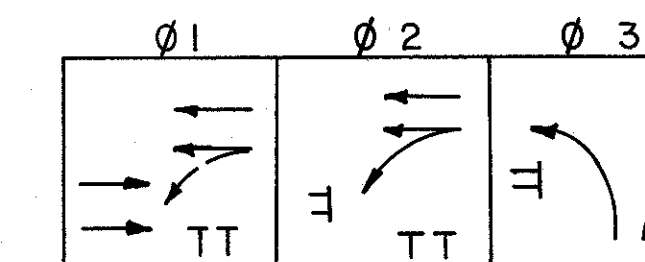
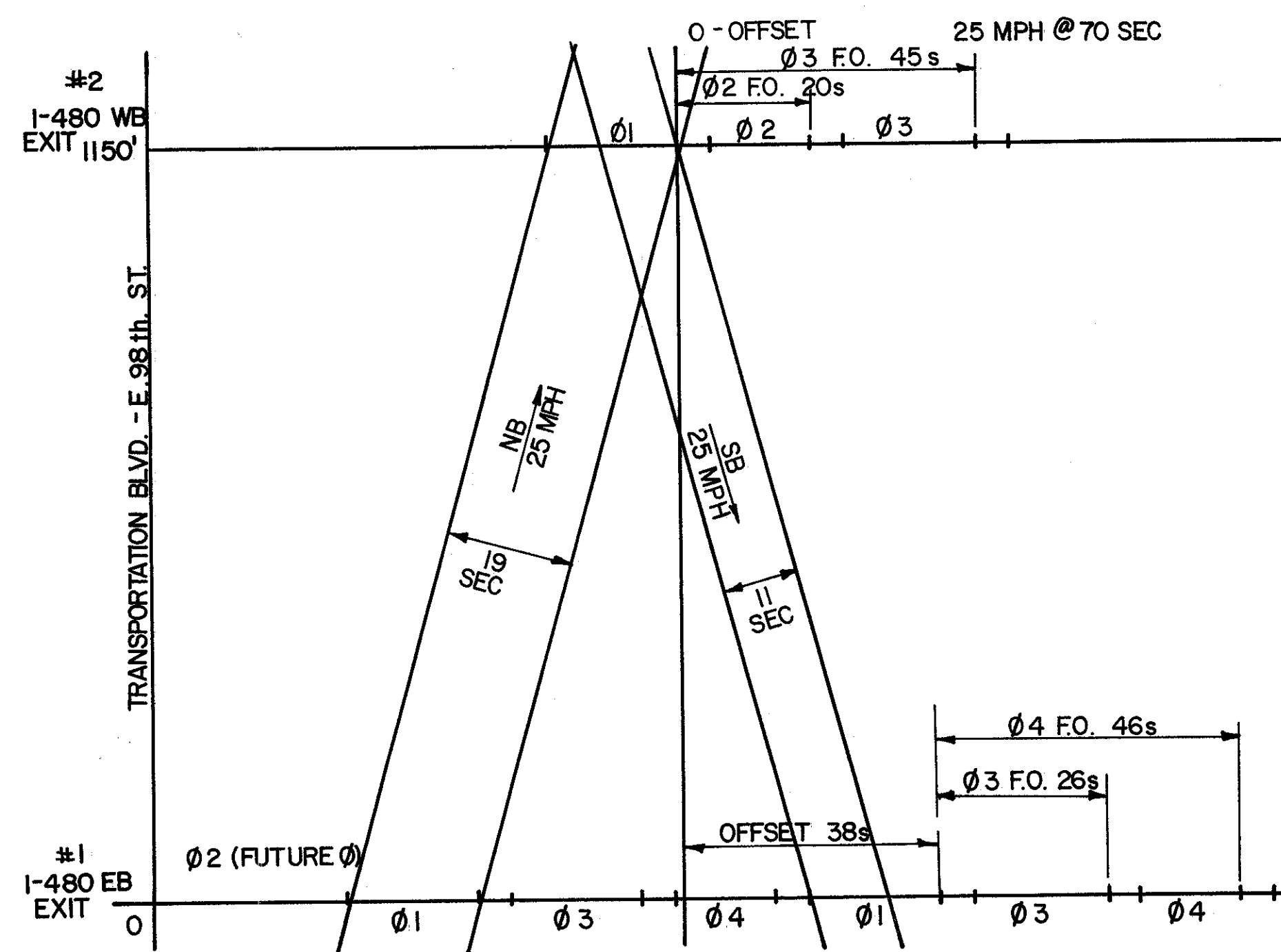
CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA REGION 5
FEDERAL PROJECT

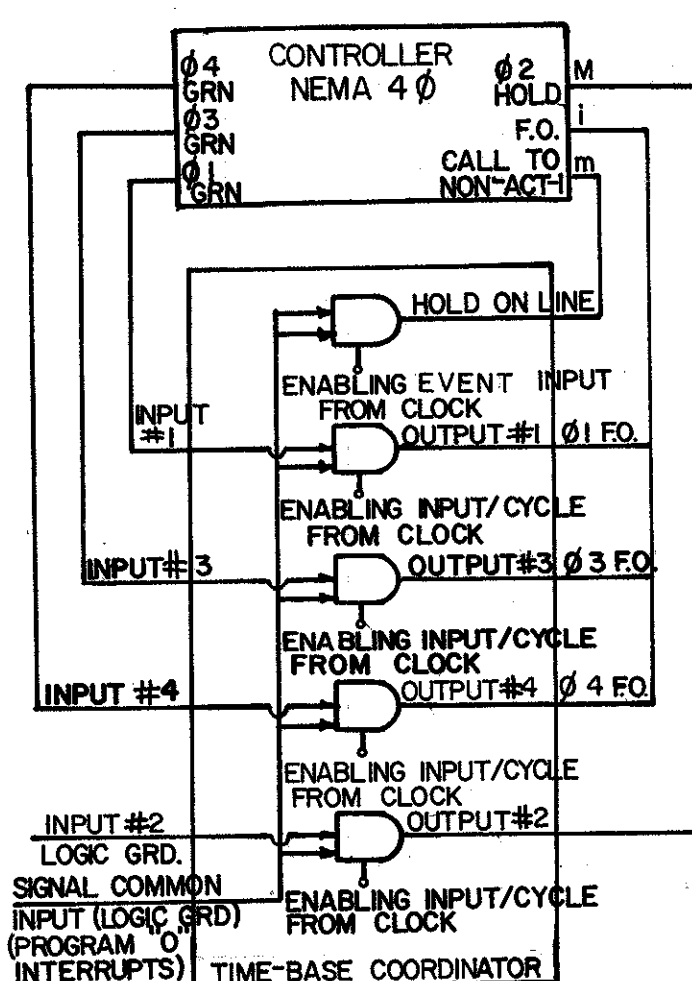
147
171



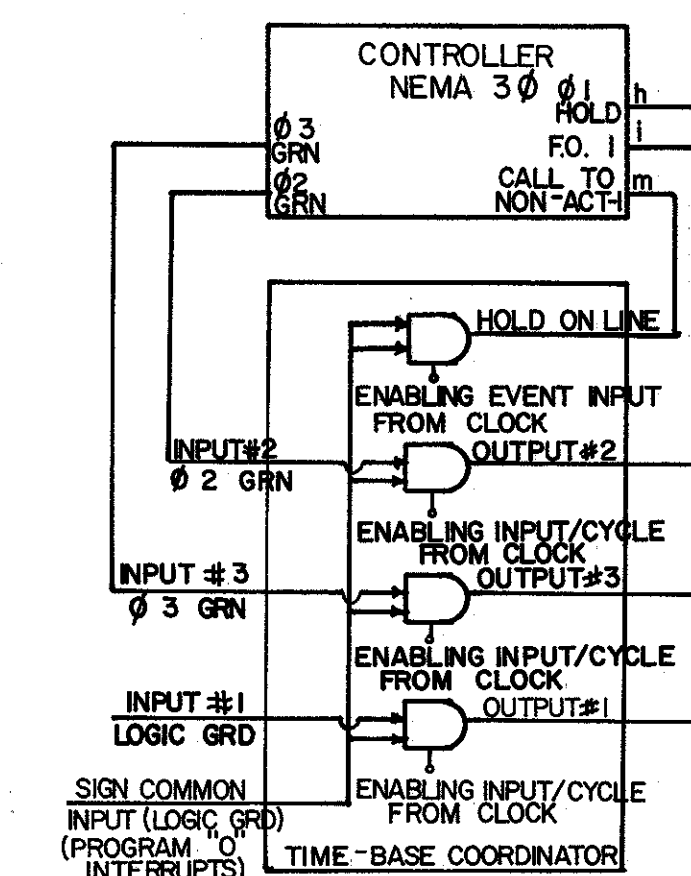
PROGRAM CARD					
LOCATION: I-480 EB @ TRANSPORTATION BLVD.			INT. NO. 1		
PROGRAM NO. 1			CYCLE LENGTH 70 SEC. OFFSET 38 SEC.		
OUTPUT	ON %	ON SEC.	OFF %	OFF SEC.	DESCRIPTION
1	4	3	0	0	PHASE 1 HOLD, ENABLE-LOGIC GROUND
2	37	26	41	29	PHASE 2 FORCE OFF #1, ENABLE PHASE 2 GREEN
3	66	46	70	49	PHASE 3 FORCE OFF #1, ENABLE PHASE 3 GREEN
TIME OF DAY		2200 - 0600		0600 - 2200	
DAY OF WEEK		SUN - SAT		SUN - SAT	
FLASHING OPERATION		YES		NO	



PROGRAM CARD					
LOCATION: I-480 WB @ TRANSPORTATION BLVD.			INT. NO. 2		
PROGRAM NO. 1			CYCLE LENGTH 70 SEC. OFFSET 0 SEC.		
OUTPUT	ON %	ON SEC.	OFF %	OFF SEC.	DESCRIPTION
1	4	3	0	0	PHASE 1 HOLD, ENABLE-LOGIC GROUND
2	29	20	33	23	PHASE 2 FORCE OFF #1, ENABLE PHASE 2 GREEN
3	64	45	69	48	PHASE 3 FORCE OFF #1, ENABLE PHASE 3 GREEN
TIME OF DAY		2200 - 0600		0600 - 2200	
DAY OF WEEK		SUN - SAT		SUN - SAT	
FLASHING OPERATION		YES		NO	



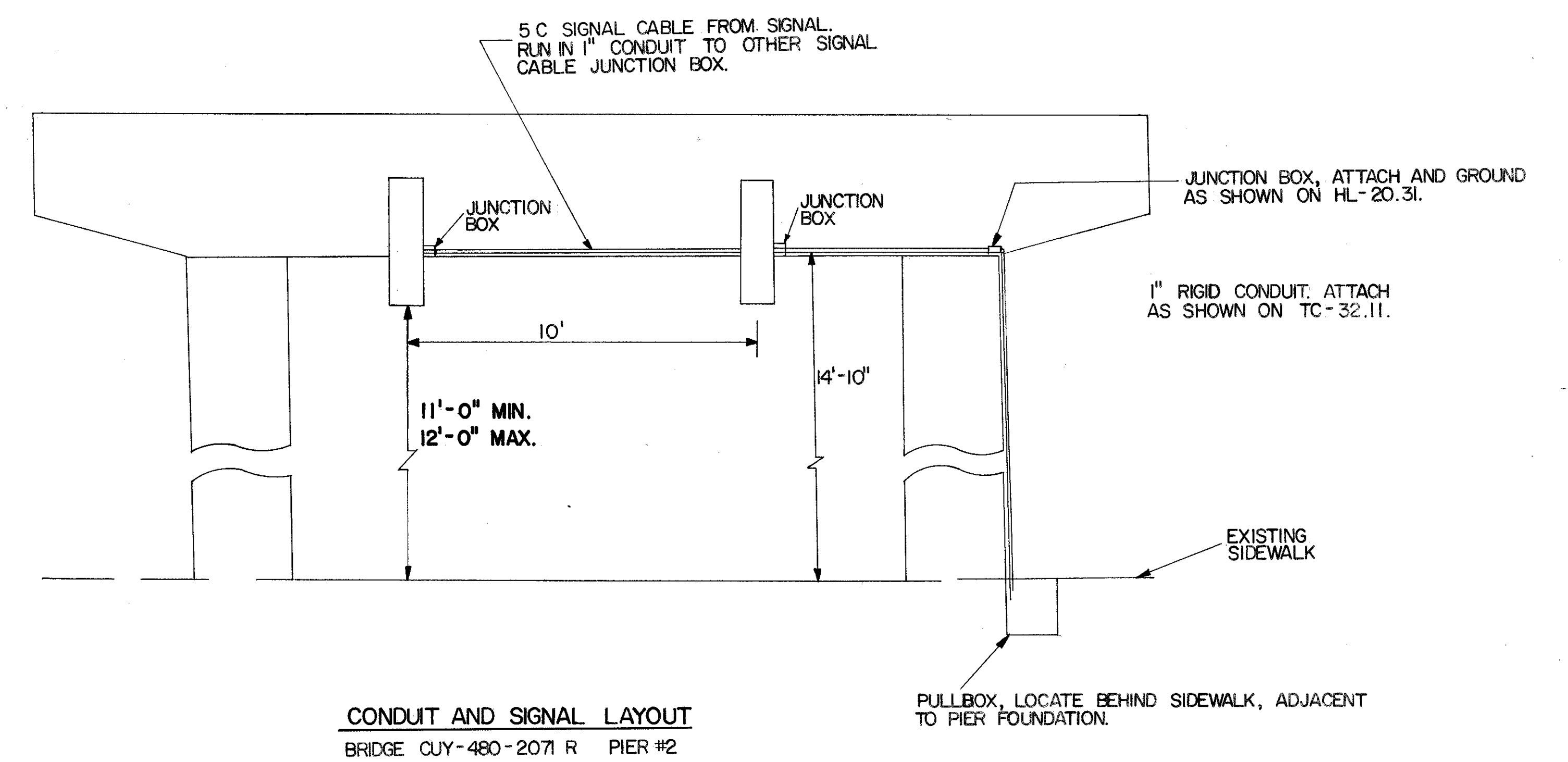
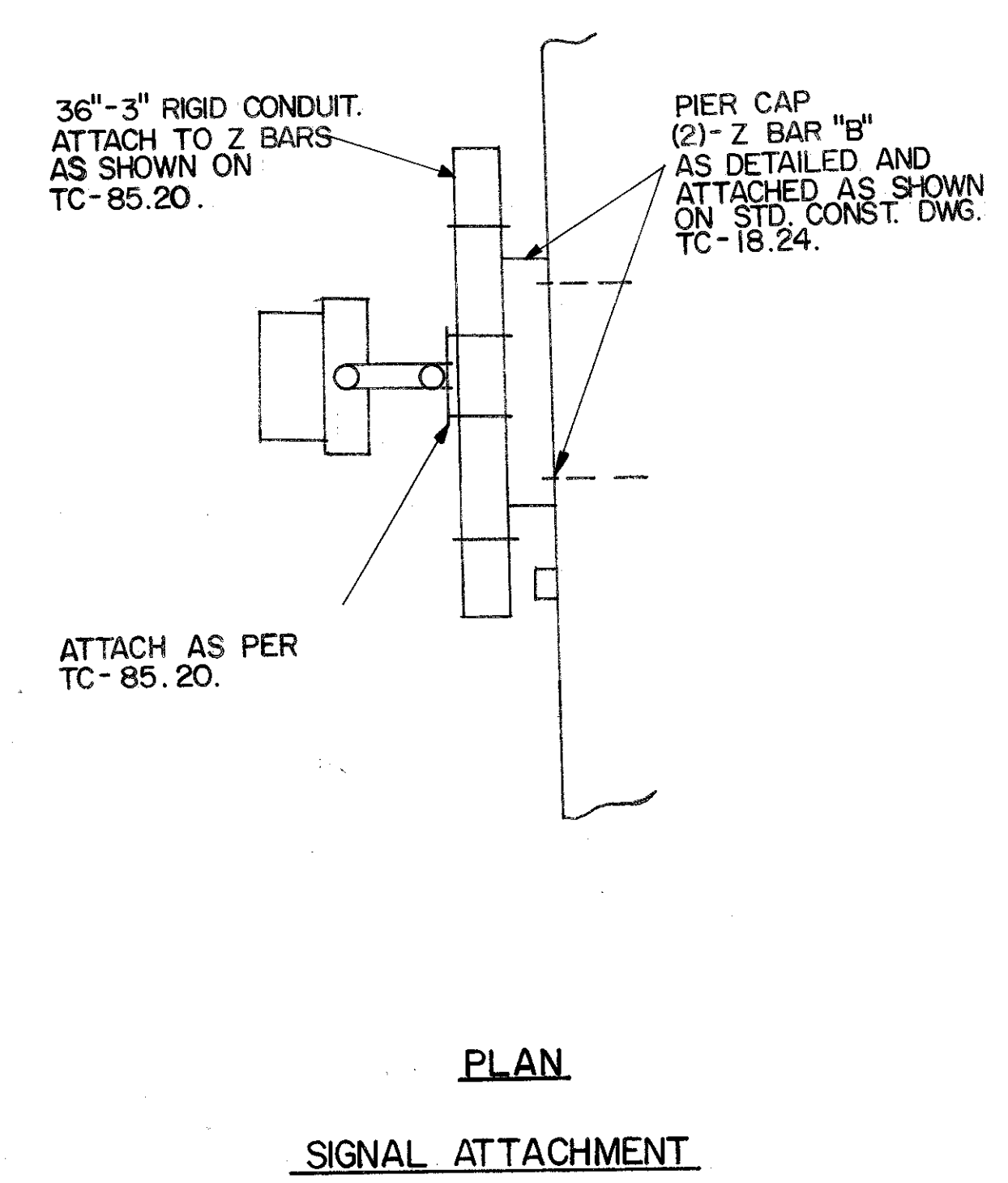
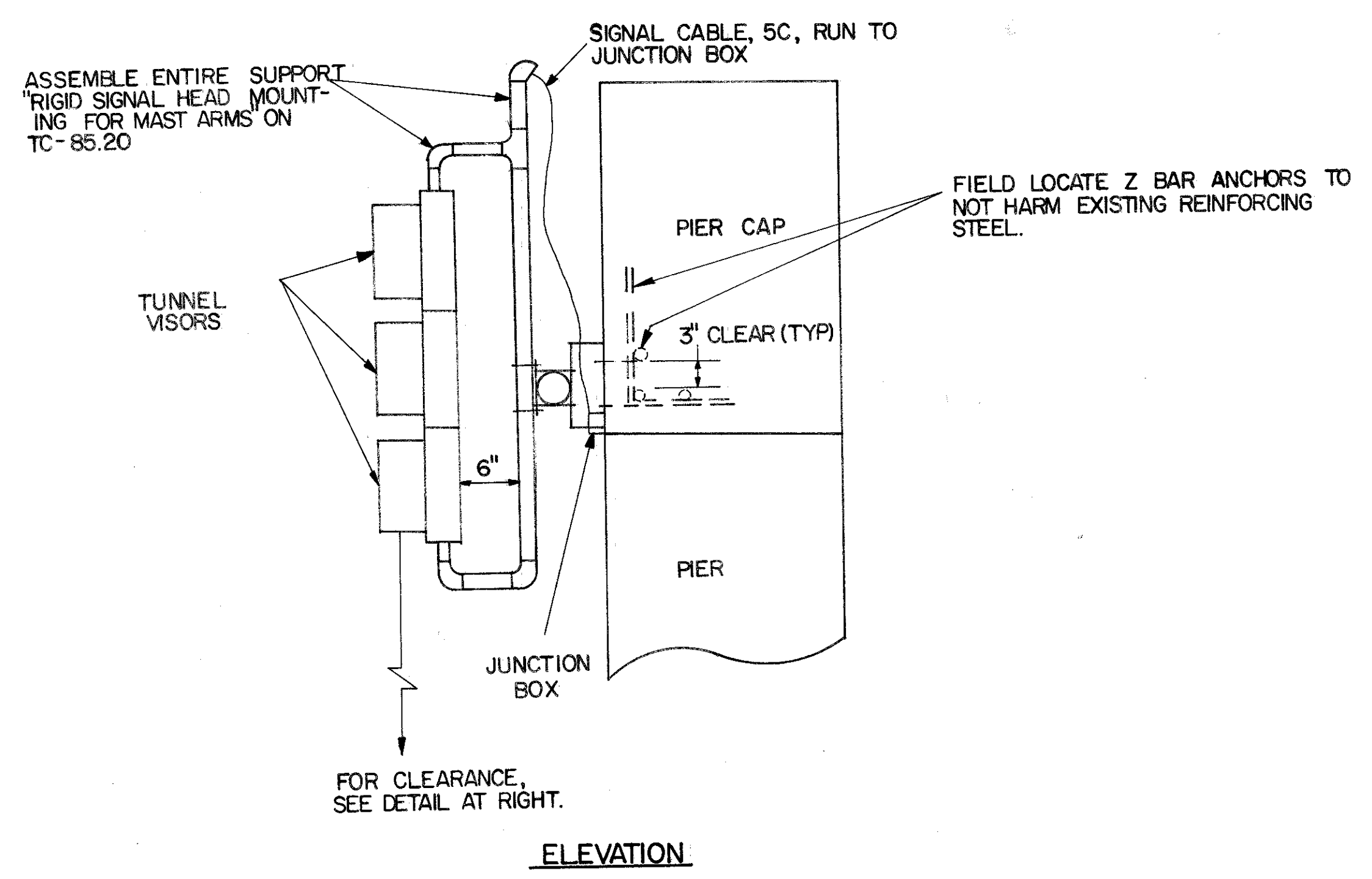
TIME-BASE COORDINATOR PROGRAM CONTINUOUS



TIME-BASE COORDINATOR PROGRAM CONTINUOUS

PIER CAP SIGNAL INSTALLATION

CUYAHOGA COUNTY CUY-480-19.19	OHIO	148 171
	FHWA REGION 5	
FEDERAL PROJECT		



GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	
5	OHIO		

149
171

LIGHTING

PROPOSED WORK

IT IS THE INTENT OF THESE PLANS TO REPLACE THE EXISTING AFFECTED INTERSECTION LIGHTING WITH A COMPLETE NEW LIGHTING SYSTEM AS SHOWN. WORK SHALL INCLUDE THE PROVIDING ALL OF THE LIGHTING ITEMS AS SHOWN TO COMPLETE THE WORK.

SEQUENCE OF OPERATIONS

THE EXISTING LIGHTS SHALL REMAIN OPERATIVE UNTIL THE PROPOSED LIGHTING IS IN PLACE AND READY TO BE CONNECTED TO THE EXISTING CIRCUIT. THE FOLLOWING SEQUENCE OF OPERATIONS SHALL BE USED:

- 1.) CONSTRUCT EMBANKMENT (IF REQUIRED)
- 2.) INSTALL FOUNDATIONS
- 3.) CONSTRUCT UNDERGROUND CIRCUITS AND INSTALL LIGHT STANDARDS
- 4.) CONNECT NEW CIRCUIT INTO EXISTING CIRCUIT
- 5.) REMOVE EXISTING LIGHT STANDARDS, FOUNDATIONS AND PULLBOXES

GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

CLEVELAND ELECTRIC ILLUMINATING CO.
55 PUBLIC SQUARE
CLEVELAND, OH 44101

SUPPLIED POWER SHALL BE 480 VOLT, 2 WIRE, ONE SIDE GROUNDED.

LUMINAIRES

STYLE B LUMINAIRES SHALL HAVE SINGLE RATED 480 VOLT, 200 WATT, INTEGRAL REGULATOR BALLAST FOR USE WITH HIGH PRESSURE SODIUM LAMPS AND SHALL BE GENERAL ELECTRIC M400, CROUSE-HINDS OVM, AMERICAN 25/26, OR EQUAL APPROVED BY THE ENGINEER.

LAMPS-HIGH PRESSURE SODIUM (HPS)

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", CROUSE-HINDS "CERAMALUX", SYLVANIA "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER.

ITEM 202 - LUMINAIRE REMOVED FOR STORAGE

THIS ITEM OF WORK SHALL CONSIST OF REMOVING AN EXISTING LUMINAIRE AND STORING IT ON THE PROJECT SITE FOR REMOVAL BY STATE FORCES.

ITEM 202 - LIGHT POLE REMOVED FOR STORAGE

THIS ITEM OF WORK SHALL INCLUDE THE REMOVAL OF THE EXISTING LIGHT POLE AND BRACKET ARM AND STORING IT ON THE PROJECT FOR STATE FORCES.

ITEM 202 - LIGHT POLE FOUNDATION REMOVED, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF REMOVING AN EXISTING LIGHT POLE FOUNDATION TO A MINIMUM OF ONE FOOT BELOW FINISHED GRADE OR TO 6" BELOW SUBGRADE, WHICHEVER IS LOWER. BACKFILL THE RESULTANT DEPRESSION WITH COMPACTED SOIL AND RESTORE THE DISTURBED AREA.

ITEM 603 - UNDERDRAINS FOR PULL BOXES

THIS ITEM OF WORK SHALL CONSIST OF PROVIDING UNDERDRAINS FOR PULL BOXES AS SHOWN ON THE PLANS. UNDERDRAINS SHALL BE INSTALLED AT THE BOTTOM OF THE PULL BOXES AND SHALL BE CONNECTED TO THE DRAINAGE SYSTEM. THE DRAINAGE SHALL BE MAINTAINED TO GRADE AND SHALL BE PROTECTED BY A COVER AND SHALL BE INSTALLED TO DRAIN THE DISTURBED AREA.

ITEM 603 - UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD DRAWING HL-30.11 FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHEREVER POSSIBLE. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE TO DRAIN BOTH EXISTING AND PROPOSED PULLBOXES:

ITEM 603 - 4" CONDUIT, TYPE E..... 20 L.F.

LIGHTING SUB-SUMMARY

CUYAHOGA COUNTY
CUY-480-19.19

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

150
171

LIGHTING SUB-SUMMARY

PLAN SHEET NO.	LOCATION	STATION		202			625																
		FROM	TO	LUMINAIRE REMOVED FOR STORAGE	LIGHT POLE REMOVED FOR STORAGE	LIGHT POLE FOUND. REMOVED, AS PER PLAN	LIGHT POLE, DESIGN AT 15 B 41.7	LIGHT POLE, DESIGN AT 18 B 41.7	LUMINAIRE, STYLE B, TYPE II, 200 WATT HPS	LUMINAIRE, STYLE B, TYPE III, 200 WATT HPS	CONNECTOR KIT, TYPE II	CONNECTOR KIT, TYPE III	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE	LIGHT POLE FOUNDATION, 24" X 8' DEEP	GROUND ROD, 713.16	3" CONDUIT, 713.04	TRENCH, 24" DEEP	PULL BOX, 18", 713.08	CABLE SPLICING KIT	NO. 10 AWG POLE AND BRACKET CABLE	1.5" DUCT CABLE W/2 NO. 4 AWG 5000 V. CABLES	BRACKET ARM, 15'	
		BROADWAY CONNECTOR																					
		44+25	41+79														246		2			256	
		41+79																			119		246
		41+79	39+43														236				119		246
		39+43																					246
		39+43	37+07														236				119		246
		37+07																					180
		37+07	88+27(BW)														170						180
		88+27(LT)	88+27(RT)																4				
		88+27	88+20									105											
		88+20										40				10	10				113		
		90+12	(BW)																		93		
		GRANGER RD.																					
		16+34																			113		10
TOTALS				6	5	5	2	3	3	3	7	7	145	5	5	10	898	1	6	676	938	1	

ZFA2:100323ROADLT .DGN:1

LIGHTING SUMMARY

PARTICIPATION
I - FEDERAL AND STATE
II - STATE ONLY

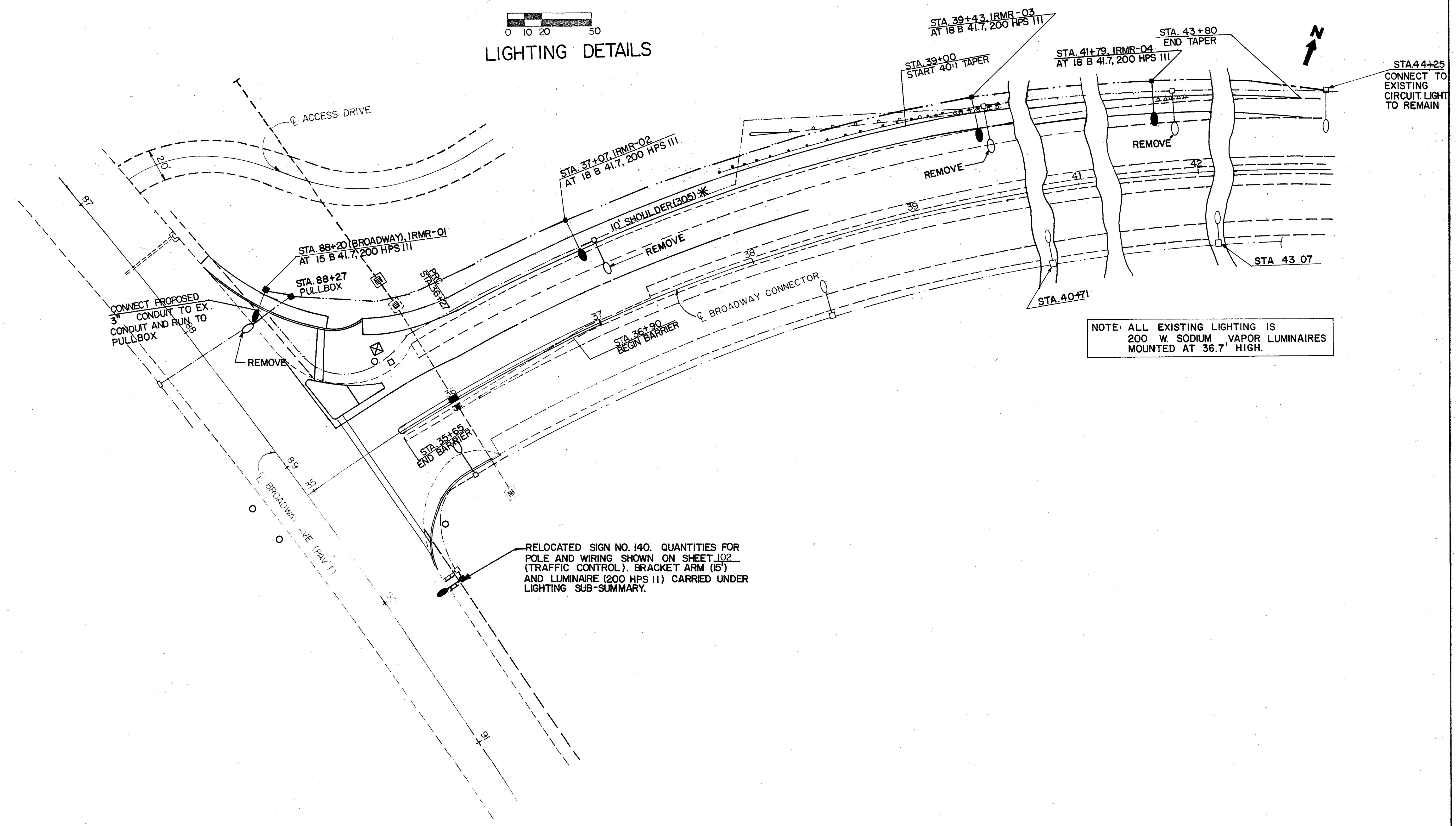
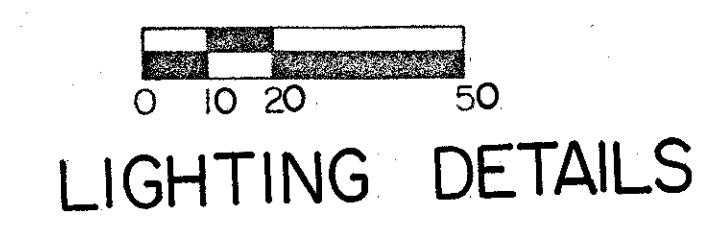
CALC. BY: _____ DATE: _____	CUYAHOGA COUNTY CUY-480-19.19	OHIO FHWA REGION 5 FEDERAL PROJECT	(151) 171
CHKD BY: _____ DATE: _____			

ITEM	SHEET NUMBER		PARTICIPATION		ITEM	ITEM EXT.	UNIT	GRAND TOTAL	DESCRIPTION
	149	150	I	II					
									LIGHTING
202		6	6		202	EACH	6	LUMINAIRE REMOVED FOR STORAGE	
202		5	5		202	EACH	5	LIGHT POLE REMOVED FOR STORAGE	
202		5	5		202	EACH	5	LIGHT POLE FOUNDATION REMOVED, AS PER PLAN	
603	20		20		603	LIN. FT.	20	4" CONDUIT, TYPE E	
625		2	2		625	EACH	2	LIGHT POLE, DESIGN AT 15 B 41.7	
625		3	3		625	EACH	3	LIGHT POLE, DESIGN AT 18 B 41.7	
625		3	3		625	EACH	3	LUMINAIRE, STYLE B, TYPE II, 200 WATT H.P.S.	
625		3	3		625	EACH	3	LUMINAIRE, STYLE B, TYPE III, 200 WATT H.P.S.	
625		1	1		625	EACH	1	BRACKET ARM 15'	
625		10	10		625	LIN. FT.	10	CONDUIT, 3", 713.04	
625		7	7		625	EACH	7	CONNECTOR KIT, TYPE II	
625		7	7		625	EACH	7	CONNECTOR KIT, TYPE III	
625		145	145		625	LIN. FT.	145	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE	
625		5	5		625	EACH	5	LIGHT POLE FOUNDATION, 24" X 8' DEEP	
625		5	5		625	EACH	5	GROUND ROD, 713.16	
625		898	898		625	LIN. FT.	898	TRENCH, 24" DEEP	
625		1	1		625	EACH	1	PULL BOX, 18", 713.08, CONCRETE	
625		6	6		625	EACH	6	CABLE SPLICING KIT	
625		676	676		625	LIN. FT.	676	NO. 10 AWG, POLE AND BRACKET CABLE	
625		938	938		625	LIN. FT.	938	1.5" DUCT-CABLE WITH 2 NO. 4 AWG, 5000-VOLT CABLES	

ZFA2:[100323]LTSUM .DGN;

FOR ESTIMATED QUANTITIES, SEE SHEET 150.

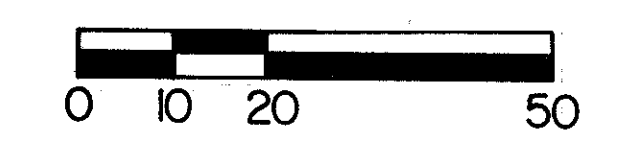
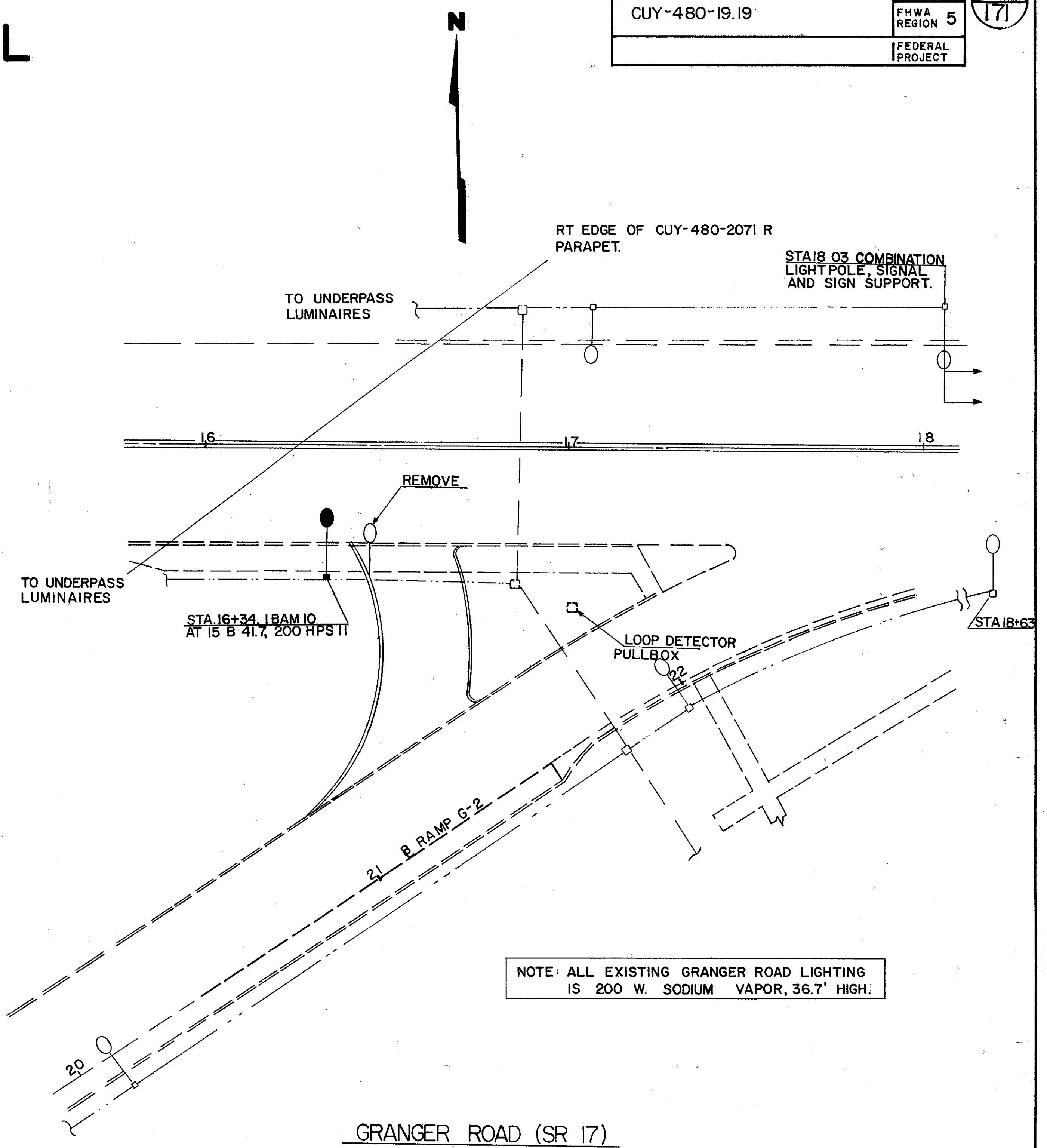
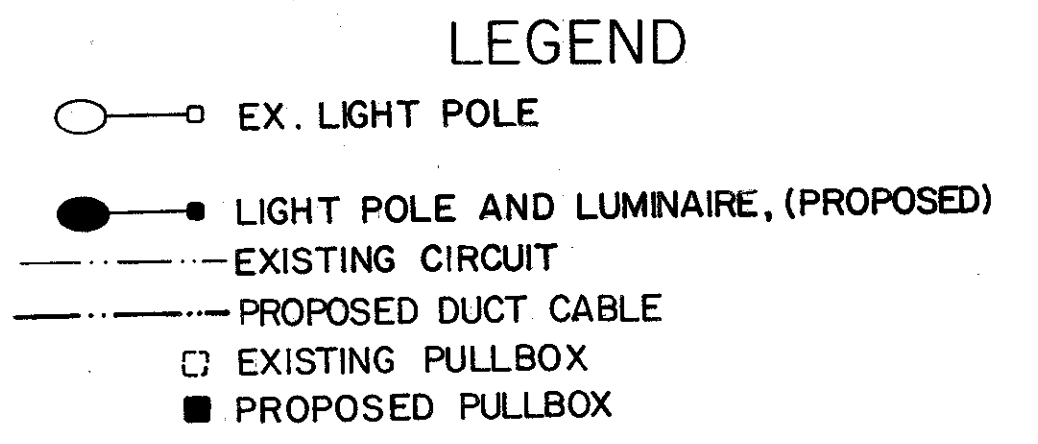
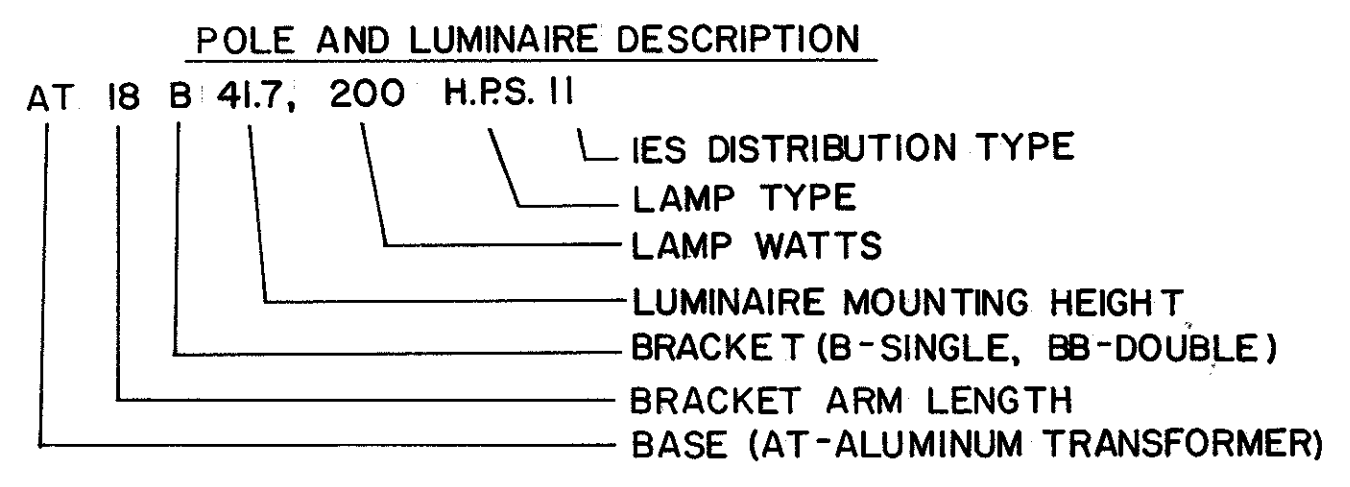
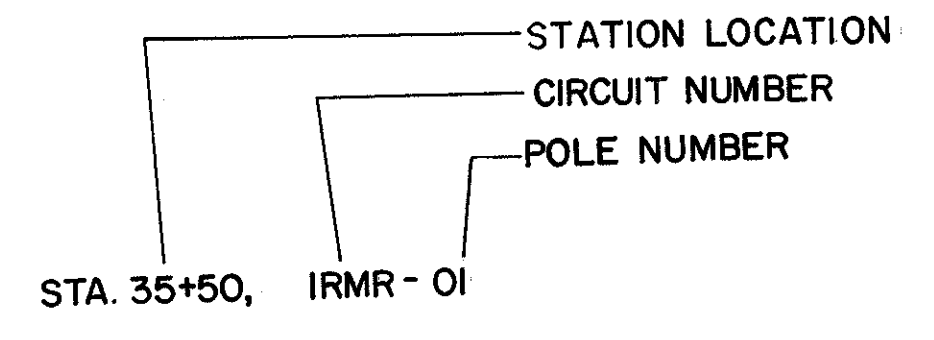
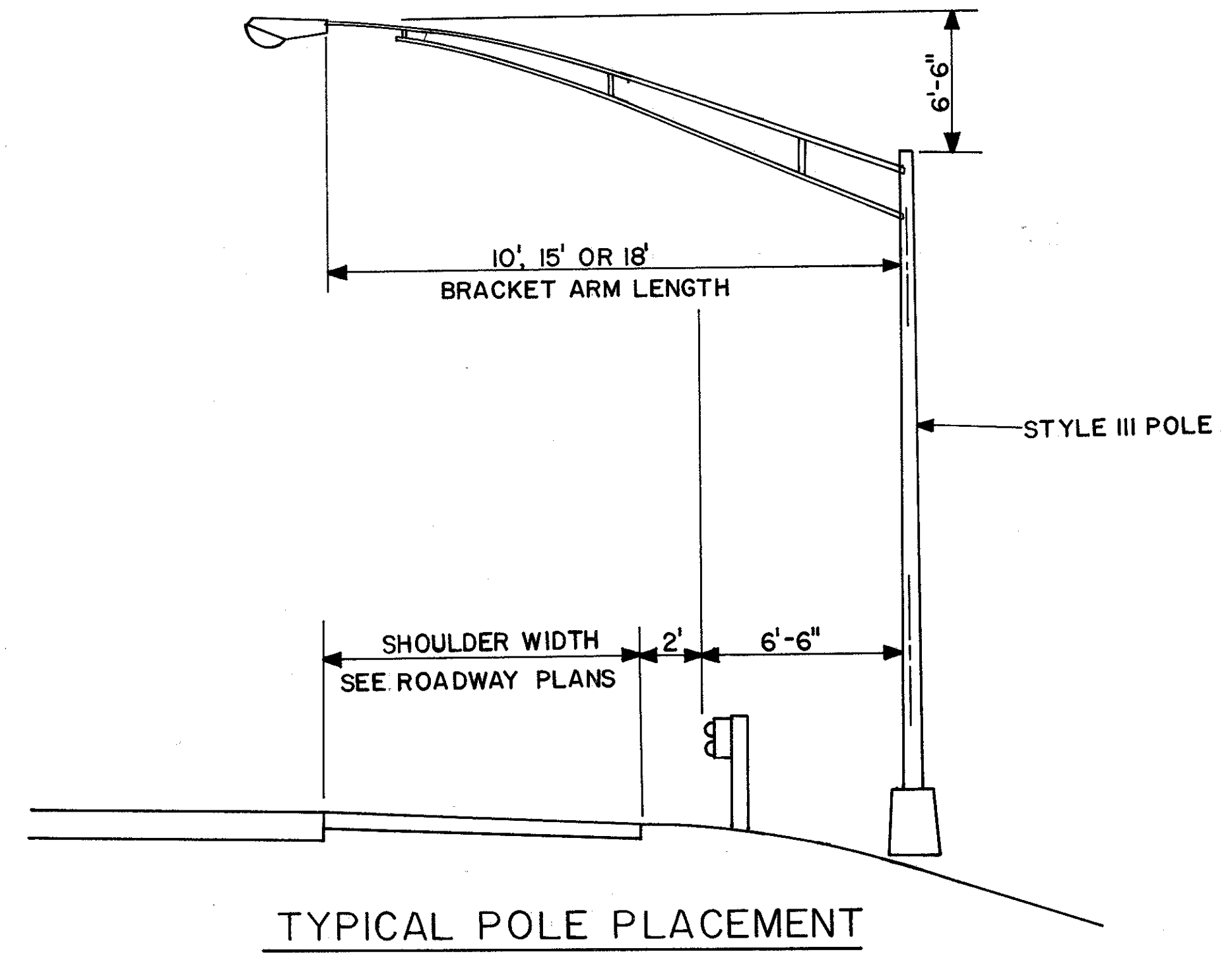
INTERSECTION DETAIL



INTERSECTION DETAIL

LIGHTING DETAILS

CUYAHOGA COUNTY CUY-480-19.19	OHIO	153
	FHWA REGION 5	171
FEDERAL PROJECT		



FHWA REGION	STATE	PROJECT	
5	OHIO		

STRUCTURES

SCOPE OF PROPOSED WORK

1. REPLACE THE EXISTING ASPHALT BRIDGE WEARING COURSE WITH A SUPERPLASTICIZED DENSE CONCRETE OVERLAY TO GRADE (CUY-480-1955 AND CUY-480-2016).
 2. REPLACE THE EXISTING ASPHALT BRIDGE WEARING COURSE WITH A MICRO-SILICA CONCRETE OVERLAY TO GRADE (ALL REMAINING BRIDGES).
- NOTE: FOR ITEMS 1 AND 2, THE EXISTING WEARING COURSE IS 1/4" ABOVE THE EXPANSION JOINTS. THE TERM "TO GRADE" SHALL REFER TO THE PROPOSED OVERLAY MEETING THE EXPANSION JOINTS FLUSH.
3. REMOVE SUBDRAINAGE AND PLUG EXIST. ASPHALT DRAINS ON ALL BRIDGES.
 4. PATCH ANY UNSOUND CONCRETE ON PIERS, ABUTMENTS, WINGWALLS, & PARAPETS. (CUY-480-1955, 2016, 2071L, 2071R, 2140, 2154, 2163W, 2165, 2169, 2170E).
 5. SEAL ALL EXPOSED CONCRETE SURFACES EXCEPT PIER CAP BOTTOMS AND 25% OF THE CIRCUMFERENCE OF ALL PIERS (SEE GENERAL NOTE FOR MORE INFORMATION). CUY-480-1955, 2016, 2071L, 2071R, 2140, 2154, 2163W, 2165, 2169, AND 2170E.
 6. RESET BEARINGS (BR. NO. CUY-480-2071 L AND CUY-480-2154).
 7. SEAL MEDIAN BARRIER JOINTS (BR. NO. CUY-480-2140, CUY-480-2154, CUY-480-2165, AND CUY-480-2169).
 8. MODIFY SCUPPERS (CUY-480-2016, 2071 R, 2071 L, 2140, 2154, 2163 W, 2165, 2169, 2170 E).
 9. SEAL EXPANSION JOINTS (CUY-480-1955, 2016, 2071 R, 2071 L, 2140, 2154, 2163 W, 2165, 2169, 2170 E).

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.5 AND 105.2.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

PLANS OF EXISTING STRUCTURES ARE AVAILABLE FOR EXAMINATION AT THE OHIO DEPARTMENT OF TRANSPORTATION; DISTRICT 12 OFFICE; 5500 TRANSPORTATION BLVD.; GARFIELD HEIGHTS, OHIO.

COOPERATION WITH RAILROADS

THE CONTRACTOR SHALL COOPERATE AT ALL TIMES WITH LOCAL OFFICIALS OF THE RAILROAD COMPANY. HE SHALL USE ALL REASONABLE CARE AND DILIGENCE IN THE WORK IN ORDER TO AVOID ACCIDENTS, DAMAGE OR INTERFERENCE WITH THE TRAINS OR OTHER PROPERTY OF THE RAILROAD. THE CONTRACTOR SHALL NOTIFY THE LOCAL OFFICIALS OF THE RAILROAD PRIOR TO STARTING WORK THAT MAY AFFECT RAILROAD PROPERTY AND FACILITIES AND SHALL PAY THE RAILROAD COMPANY THE COST OF FLAGMEN FURNISHED BY THE RAILROAD COMPANY AND MADE NECESSARY BECAUSE OF ANY OF THE CONTRACTOR'S OPERATIONS OVER OR ADJACENT TO THE TRACKS.

NO SCAFFOLDING, PLANKS OR OTHER EQUIPMENT SHALL BE SUSPENDED OR ERECTED ABOVE OR WITHIN 10 FEET OF A RAIL OVER WHICH TRAINS ARE OPERATING WITHOUT PRIOR WRITTEN APPROVAL OF THE CHIEF ENGINEER, OR HIS AUTHORIZED REPRESENTATIVE OF THE RAILROAD COMPANY.

FAILURE TO NOTIFY THE RAILROAD COMPANY, AS NOTED ABOVE, SHALL BE CAUSE FOR STOPPING WORK UNTIL ALL THE PROVISIONS FOR PROTECTING RAILROAD PROPERTY HAVE BEEN PROVIDED.

PLAN OF OPERATIONS AND PROTECTION

THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR A COMPLETE SCHEDULE OF CONSTRUCTION OPERATIONS ALONG WITH PLANS CONTAINING HIS PROPOSED METHODS OF PREVENTING DEBRIS FROM FALLING ON THE ROADWAY OR RAILROAD BELOW. THESE PLANS MUST BE SUBMITTED AND APPROVED PRIOR TO COMMENCING THE WORK. NO REMOVAL WORK SHALL BE STARTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

TYING REBARS

THE PURPOSE OF THIS ITEM IS TO TIE EXPOSED STEEL REINFORCING BARS WHICH ARE IN CROSS CONTACT OR LAPPED. TACK WELDING SHALL NOT BE PERMITTED. THIS WORK SHALL BE PERFORMED WHERE, AND AS DETERMINED BY, THE ENGINEER TO RESTRICT THE RELATIVE MOVEMENT OF THE REINFORCING BARS.

PAYMENT FOR THIS WORK INCLUDING EXTRA REMOVAL OF CONCRETE TO PERMIT TYING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM SPECIAL-MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS) AND FOR ITEM 850-SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VARIABLE THICKNESS).

BRIDGE DECK REPAIR AND OVERLAY WITH MICRO-SILICA MODIFIED CONCRETE (SEE PROPOSAL NOTE)

THESE ITEMS SHALL CONFORM TO THE PROPOSAL NOTE EXCEPT AS NOTED HEREIN:

4.0 PROPORTIONING AND MIXING

THE INITIAL MIX DESIGN SHALL BE BASED UPON THE PROPORTIONING OF COARSE AND FINE AGGREGATE TO ACHIEVE A MORTAR CONTENT OF 62 PERCENT, WHERE ALL AGGREGATE PASSING A NO. 8 SIEVE IS CONSIDERED AS FINE AGGREGATE. THE CONTRACTOR WILL BE SUPPLIED DESIGN CHARTS AT THE PRE-CON TO DETERMINE THE BATCH WEIGHTS BASED UPON THE SIEVE ANALYSIS OF THE AGGREGATE USED. THE CONTRACTOR MAY SUBSEQUENTLY ADJUST HIS AGGREGATES TO IMPROVE WORKABILITY AS PER 499.03.

ITEM 202-WEARING COURSE REMOVED, AS PER PLAN

THIS ITEM OF WORK SHALL INCLUDE THE REMOVAL OF THE ASPHALT WEARING COURSE AND SHALL BE PERFORMED IN A SEPARATE OPERATION FROM THE DECK SCARIFICATION.

ITEM 202- SUBDRAINAGE REMOVED

THIS ITEM OF WORK SHALL CONSIST OF REMOVING THE EXISTING 1 1/4" X 1 1/4" PERFORATED STRUCTURAL TUBING AT EACH GUTTER LINE AND PLUGGING THE 1" PVC DRAIN TUBES AS FOLLOWS:

- 1) PROPOSED CONCRETE OVERLAY- DRIVE A CORK OR RUBBER STOPPER INTO THE PVC PIPE AT LEAST 1" BELOW THE CONCRETE SURFACE.

PAYMENT PER LINEAR FOOT FOR THIS ITEM SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO PERFORM THIS WORK AS OUTLINED ABOVE.

ITEM 202- PORTIONS OF STRUCTURES REMOVED

WORK TO BE PAID FOR UNDER THIS ITEM SHALL INCLUDE THE REMOVAL OF STRUCTURAL COMPONENTS AS DETAILED IN THE PLANS AND AS DIRECTED BY THE ENGINEER. THESE REMOVALS ARE INCLUDED BUT NOT NECESSARILY LIMITED TO THE FOLLOWING LIST:

1. CHANNELIZING CURB AND ADJACENT SCUPPER ON STRUCTURE CUY-480-2154 AS SHOWN ON SHEET 169.

ONLY PNEUMATIC OR HAND TOOLS THAT WILL GIVE RESULTS SATISFACTORY TO THE ENGINEER SHALL BE USED IN THE REMOVAL OF THE DISINTEGRATED CONCRETE. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING REINFORCING STEEL WHICH IS TO REMAIN IN PLACE. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 60 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT HAMMERS NOT TO EXCEED 90 POUNDS MAY BE USED WITH THE APPROVAL OF THE ENGINEER. NO HOE RAMS SHALL BE USED. ANY STEEL WHICH IS MADE UNUSEABLE BY THE CONTRACTOR'S CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST. A VOID FROM SCUPPER REMOVAL SHALL BE REPAIRED WITH ITEM SPECIAL-MICROSILICA MODIFIED CONCRETE OVERLAY (FULL DEPTH REPAIR) (SEE NOTE IN PROPOSAL FOR FURTHER DETAILS).

ITEM 509- REINFORCING STEEL, AS PER PLAN

THIS ITEM SHALL BE USED TO REPLACE REINFORCING STEEL WHICH IS BENT, ELONGATED, MISSING OR EXTREMELY CORRODED. BARS SHALL BE THE SAME SIZE AS ORIGINAL BARS AND SHALL BE PLACED AS NEAR AS POSSIBLE TO THEIR ORIGINAL LOCATION. BARS SHALL BE LAPPED ACCORDING TO SECTION 509.08. PAYMENT FOR THIS ITEM SHALL INCLUDE THE COST OF ALL MATERIALS AND LABOR NECESSARY TO COMPLETE THE ABOVE WORK, INCLUDING REMOVAL OF EXISTING STEEL. ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSEABLE BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE STRUCTURE SUMMARY:

ITEM	DESCRIPTION	QUANTITY	UNIT
509	REINFORCING STEEL, AS PER PLAN	100	LB.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL NOTES

CUYAHOGA COUNTY					OHIO
DESIGNED	TRACED	CHECKED	REVIEWED	REVISED	
DATE	DATE	DATE	DATE	DATE	SHEET 1 / 18

GENERAL REPAIR OF CONCRETE STRUCTURES

REPAIRS TO CONCRETE STRUCTURES SHALL BE MADE USING THE FOLLOWING REPAIR MATERIALS AT THE GENERAL LOCATIONS DESCRIBED HERIN:

1. ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN. TO BE USED WHERE THE DEPTH OF MATERIAL LOSS OR DEPTH TO SOUND CONCRETE EXCEEDS ONE INCH.
2. ITEM SPECIAL - REPAIRING CONCRETE WITH SOLVENT-FREE EPOXY RESIN. TO BE USED WHERE THE DEPTH OF MATERIAL LOSS IS ONE HALF INCH OR LESS. THESE AREAS ARE TYPICALLY DEFINED AS HAVING POPOUTS, BEING LIGHTLY SCALED, OR HONEYCOMBED.

THE REPAIR LOCATIONS SHALL BE DETERMINED BY SOUNDING ALL CONCRETE COMPONENTS OF THE BRIDGES IN ACCORDANCE WITH THE FOLLOWING ITEM:

ITEM SPECIAL - SOUNDING CONCRETE BRIDGE COMPONENTS

THIS WORK SHALL CONSIST OF SUPPLYING THE MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR SOUNDING AND MARKING CONCRETE BRIDGE COMPONENTS IN ORDER THAT THE ENGINEER MAY OUTLINE THE SPALLED AND DELAMINATED AREAS TO BE REPAIRED. THE CONTRACTOR SHALL SOUND THE CONCRETE BRIDGE COMPONENTS LISTED WITH HAMMERS, AND THE ENGINEER SHALL OUTLINE ALL UNSOUND AREAS FOR CONCRETE RESTORATION. THE FOOTAGE UNDER THIS ITEM SHALL BE THE NUMBER OF SQUARE FEET OF CONCRETE SURFACE THAT IS SATISFACTORILY SOUNDED AND ACCEPTED. THE ACCEPTED QUANTITIES FROM SOUNDING WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR, AND EQUIPMENT NECESSARY FOR SOUNDING CONCRETE BRIDGE COMPONENTS. PAYMENT WILL BE MADE UNDER ITEM SPECIAL-SOUNDING CONCRETE BRIDGE COMPONENTS.

THE ENGINEER SHALL MAKE THE FINAL DETERMINATION AS TO WHICH OF THE FOLLOWING REPAIR ITEMS WILL BE USED AT EACH LOCATION:

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN

THE CONTRACTOR MAY USE EITHER OF THE FOLLOWING TWO REPAIR METHODS. EACH INDIVIDUAL PATCH LOCATION SHALL BE REPAIRED ENTIRELY BY THE SAME METHOD.

METHOD 1 - THIS ITEM CONSISTS OF PATCHING EXISTING STRUCTURAL CONCRETE IN ACCORDANCE WITH ITEM 519 AND THE FOLLOWING ADDITIONAL REQUIREMENTS:

- A. SURFACE PREPARATION SHALL INCLUDE THE THOROUGH SANDBLASTING AND AIR CLEANING OF ALL SURFACES WHICH ARE TO BE IN CONTACT WITH THE PATCHING MATERIAL.
- B. NO STEEL WIRE FABRIC SHALL BE REQUIRED.

METHOD 2 - THIS ITEM CONSISTS OF PATCHING EXISTING STRUCTURAL CONCRETE USING A TROWELABLE MORTAR IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

- A. DESCRIPTION: THIS ITEM CONSISTS OF THE REMOVAL OF ALL LOOSE AND DISINTEGRATED CONCRETE, PREPARATION OF THE SURFACE, AND THE MIXING, PLACING, FINISHING AND CURING OF THE PATCHES AS DIRECTED BY THE ENGINEER. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS, AND IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- B. MATERIALS: THE PATCHING MATERIAL SHALL BE SIKATOP 122 AND 123, THERMAL-CHEM PRODUCT NO. 304, POLYCARB MARK 193.4 AND 194, FIVE STAR HIGHWAY PATCH, UPO BOSTICK 964, EUCLID CHEMICAL EUO VERTICOAT, MASTER BUILDERS SET VERTIPATCH OR DURALTOP AND DURALPATCH GEL. THE MATERIAL SHALL BE TINTED TO CURE TO THE COLOR OF THE EXISTING CONCRETE. ALL MATERIALS SHALL BE STORED AND INCORPORATED IN THE WORK AS RECOMMENDED BY THE MANUFACTURER. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT AT THE JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER ARE SURE THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF PATCHING CONCRETE STRUCTURES WITH THE SELECTED MATERIAL.

- C. REMOVAL OF CONCRETE: ALL LOOSE, SOFT, HONEY-COMBED, AND DISINTEGRATED CONCRETE, PLUS ONE-FOURTH OF AN INCH DEPTH OF SOUND CONCRETE SHALL BE REMOVED. WHERE THE BOND BETWEEN THE CONCRETE AND A REINFORCING BAR HAS BEEN DESTROYED, OR WHERE MORE THAN ONE-HALF OF THE PERIPHERY OF SUCH A BAR HAS BEEN EXPOSED, THE ADJACENT CONCRETE SHALL BE REMOVED TO A DEPTH THAT WILL PROVIDE A MINIMUM ONE-HALF OF AN INCH CLEARANCE AROUND THE BAR EXCEPT WHERE OTHER REINFORCING BARS MAKE THIS IMPRACTICAL. AFTER COMPLETION OF THE SECONDARY REMOVAL OPERATION, THE ENGINEER WILL RE-SOUND THE AREAS TO ENSURE THAT ONLY SOLID CONCRETE REMAINS. THE CONTRACTOR SHALL LEAVE HIS LADDERS, PLATFORMS, OR SCAFFOLDS IN PLACE FOR A SUFFICIENT LENGTH OF TIME AND IN SUCH A MANNER TO PERMIT THE ENGINEER TO SOUND THE CONCRETE. ALL WORK SHALL BE DONE IN A MANNER THAT WILL NOT DAMAGE OR SHATTER THE CONCRETE THAT IS TO REMAIN, AND WILL NOT CUT, ELONGATE OR DAMAGE THE REINFORCING STEEL IN ANY WAY. CONCRETE MAY BE REMOVED BY CHIPPING OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NORMAL 35-POUND CLASS. WHERE EXISTING REINFORCING BARS WOULD BE LESS THAN ONE INCH FROM THE PROPOSED FINISHED SURFACE OF CONCRETE, THEY SHALL, IF PRACTICAL, BE DRIVEN BACK INTO RECESSES CUT IN THE MASONRY TO OBTAIN THAT COVERAGE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

- D. SURFACE PREPARATION: CLEANING SHALL PRECEDE APPLICATION OF THE PATCHING MATERIAL BY NOT MORE THAN 24 HOURS. THE SURFACE TO BE PATCHED AND THE EXPOSED REINFORCING STEEL SHALL BE THOROUGHLY CLEANED BY SANDBLASTING FOLLOWED BY AN AIR BLAST. IT MAY BE NECESSARY TO USE HAND TOOLS TO REMOVE SCALE FROM THE REINFORCING STEEL. THE SURFACE SHALL BE MADE FREE OF SPALLS, LAITANCE AND ALL TRACES OF FOREIGN MATERIAL. IF NECESSARY, DETERGENT CLEANING SHALL PRECEDE BLAST CLEANING TO ENSURE THE REMOVAL OF CONTAMINANTS THAT ARE DETERIMENTAL TO ACHIEVING AN ADEQUATE BOND. THE PREPARED SURFACE SHALL BE LEFT IN THE CONDITION AS RECOMMENDED BY THE MANUFACTURER. ANY ADDITIONAL SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE PATCHING MATERIAL WHICH IS USED. ALL UNCHIPPED SURFACES THAT WILL RECEIVE NEW MATERIAL SHALL BE MECHANICALLY ROUGHENED.

- E. PATCHING: THE MIXING, PROPORTIONING, PLACING AND CURING PROCEDURES AND TOOLS, EQUIPMENT, LABOR AND MATERIALS USED SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS. THE SURFACE OF THE REPAIR AREA SHALL BE FLUSH WITH THE SURROUNDING AREA.

- F. CURING: PATCHES SHALL BE CURED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

- G. METHOD OF MEASUREMENT: THE QUANTITY SHALL BE THE ACTUAL AREA IN SQUARE FEET OF THE EXPOSED SURFACE OF ALL COMPLETED PATCHES. IRRESPECTIVE OF DEPTH OR THICKNESS OF THE PATCH COMPLETE, IN PLACE AND ACCEPTED. IF THE PATCH INCLUDES CORNERS OR EDGES OF MEMBERS ALL OF THE EXPOSED SURFACES SHALL BE INCLUDED. THE COST OF ALL LABOR, EQUIPMENT, INCIDENTALS AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.

- H. BASIS OF PAYMENT: PAYMENT WILL BE MADE AT THE CONTRACT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
519	SQ. FT.	PATCHING CONCRETE STRUCTURES, AS PER PLAN

ITEM SPECIAL - REPAIRING CONCRETE STRUCTURES WITH SOLVENT FREE EPOXY RESIN

- A. DESCRIPTION: THIS ITEM CONSISTS OF THE REMOVAL OF ALL LOOSE AND DISINTEGRATED, CONCRETE, PREPARATION OF THE SURFACE, AND THE MIXING AND APPLICATION OF THE EPOXY RESIN AS DIRECTED BY THE ENGINEER. THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- B. MATERIALS: SHALL BE A TWO PART, SOLVENT FREE, EPOXY RESIN COATING. THE COLOR SHALL CLOSELY MATCH THAT OF THE CONCRETE. THE MATERIAL SHALL BE SIKAGARD 62, EUCLID CHEMICAL EPOXY 452 LV, POLY-CARB MARK-65; THERMAL-CHEM PRODUCT NO. 901 OR DURALKOTE.

A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT AT THE JOB SITE DURING THE APPLICATION OF THE EPOXY COATING UNTIL SUCH A TIME AS HE AND THE ENGINEER ARE SATISFIED THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF APPLYING THE EPOXY COATING.

- C. REMOVAL OF CONCRETE: ALL LOOSE AND DISINTEGRATED CONCRETE SHALL BE REMOVED FROM THE AREAS TO BE REPAIRED IN SUCH A MANNER AND TO SUCH AN EXTENT AS TO EXPOSE A SOLID CONCRETE SURFACE. AFTER COMPLETION OF THE REMOVAL OPERATION THE ENGINEER WILL RE-SOUND THE AREA TO INSURE THAT ONLY SOLID CONCRETE REMAINS. THE CONTRACTOR SHALL LEAVE HIS LADDERS, PLATFORMS, OR SCAFFOLDS IN PLACE FOR A SUFFICIENT LENGTH OF TIME AND IN SUCH A MANNER TO PERMIT THE ENGINEER TO SOUND THE CONCRETE.

CONCRETE MAY BE REMOVED BY SCABLERS, CHIPPING, OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 10 POUND CLASS. CARE SHALL BE USED IN WORKING NEAR REINFORCING STEEL SO AS NOT TO DAMAGE OR DEBOND THE STEEL, OR TO SHATTER THE CONCRETE AROUND IT. WHEN REMOVAL BECOMES EXTENSIVE THE ENGINEER MAY REQUIRE AN AREA TO BE REPAIRED AND PAID FOR UNDER THE APPROPRIATE CONCRETE PATCHING ITEM.

- D. SURFACE PREPARATION: CLEANING SHALL PRECEDE THE APPLICATION OF THE COATING BY NOT MORE THAN 24 HOURS. THE SURFACE TO BE COATED, AND EXPOSED REINFORCING STEEL, SHALL BE THOROUGHLY CLEANED BY SANDBLASTING FOLLOWED BY AN AIR BLAST. IT MAY BE NECESSARY TO USE HAND TOOLS TO REMOVE SCALE FROM THE REINFORCING STEEL. SURFACES SHALL BE MADE FREE OF SPALL, LAITANCE, AND ALL TRACES OF FOREIGN MATERIALS.

- E. APPLICATION: THE EPOXY SHALL BE APPLIED TO THE CONCRETE SURFACES BY BRUSHING, UNDER CONDITIONS IN THE MANNER SPECIFIED BY THE MANUFACTURER. TWO COATS SHALL BE APPLIED AT THE RATE OF 200 SQUARE FEET PER GALLON FOR EACH COAT. THE FIRST COAT SHALL BE TINTED TO APPEAR DIFFERENT IN COLOR THAN THE SECOND COAT. THE COLOR OF THE SECOND SHALL CLOSELY MATCH THAT OF THE EXISTING CONCRETE SURFACE.

- F. PAYMENT: THE COST OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE COATING OF THE CONCRETE, INCLUDING REMOVALS AND SURFACE PREPARATION, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQ. FT.	REPAIRING CONCRETE STRUCTURES WITH SOLVENT-FREE EPOXY RESIN

INSPECTION AND SOUNDING OF CONCRETE PATCHES

AFTER CURING AND BEFORE FINAL ACCEPTANCE, ALL PATCHED AREAS SHALL BE SOUNDED. ALL UNSOUND AREAS AND AREAS EXHIBITING CRACKING SHALL BE REMOVED AND REPATCHED ACCORDING TO THIS NOTE.

ALL SOUNDING, AND REPLACEMENT OF REJECTED AREAS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE RESPECTIVE PATCHING ITEM.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 LOCATION & DESIGN				
GENERAL NOTES				
CUYAHOGA COUNTY OHIO				
DESIGNED DATE	TRACED DATE	CHECKED DATE	REVIEWED DATE	REVISED
			SHEET 2 / 18	

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT
5	OHIO	

156
171

ITEM SPECIAL- SCUPPER MODIFICATION

THIS ITEM OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO MODIFY THE EXISTING SCUPPERS AS SHOWN ON SHEET I69.

PAYMENT SHALL BE MADE UNDER THE UNIT PRICE, EACH, ITEM SPECIAL- DRAINAGE MODIFICATION.

ITEM SPECIAL- POURED POLYURETHANE JOINT SEAL

1) THE MATERIAL FOR THIS ITEM IS A TWO-PART, COLD APPLIED, CHEMICALLY CURING, SELF LEVELING, ELASTOMERIC, POLYURETHANE JOINT SEALANT. IT SHALL BE "FX-551" AS MANUFACTURED BY FOX INDUSTRIES INCORPORATED, "UREXPAN NR-200" AS MANUFACTURED BY PECORA CORPORATION OR AN APPROVED EQUAL.

2) IT SHALL BE USED AS A SECOND SEAL ON TOP OF THE BITUMEN IMPREGNATED FOAM JOINT SEAL, AS SHOWN ON SHEET I69.

3) IT SHALL ALSO BE USED TO SEAL ALL STRUCTURAL EXPANSION JOINTS, AS SHOWN IN THE PLANS (ALL BRIDGES).

4) THE INSTALLED AND CURED MATERIAL SHALL BE 1/2 INCH DEEP AND SHALL BE BONDED TO THE SIDES OF THE JOINT. ANY UNBONDED SECTION SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

5) DAMS AS REQUIRED TO CONTAIN THE POURED SEALER, SHALL BE INCIDENTAL TO THIS ITEM OF WORK.

PAYMENT FOR ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT SHALL BE INCLUDED IN THE UNIT COST PER LINEAR FOOT OF ITEM SPECIAL- POURED POLYURETHANE JOINT SEAL.

ITEM SPECIAL- SOUNDING OF CONCRETE DECK BOTTOMS

THIS WORK SHALL CONSIST OF SUPPLYING THE MATERIALS, LABOR AND EQUIPMENT NECESSARY FOR SOUNDING DECK BOTTOMS IN ORDER THAT THE ENGINEER MAY OUTLINE THE DELAMINATED AREAS. AFTER ALL ASPHALT OVERLAY REMOVAL AND SCARIFICATION OF UNSOUND COVER REMOVAL OPERATIONS ON A GIVEN BRIDGE ARE COMPLETED, THE CONTRACTOR SHALL SOUND THE ENTIRE DECK BOTTOM WITH HAMMERS AND THE ENGINEER SHALL OUTLINE ALL UNSOUND AREAS FOR EPOXY INJECTION. ALL LOOSE, SCALED, OR DELAMINATED DECK BOTTOM CONCRETE SHALL BE REMOVED DURING SOUNDING. THE FOOTAGE FOR THIS ITEM SHALL BE THE NUMBER OF SQUARE FEET OF DECK BOTTOM THAT ARE SATISFACTORILY SOUNDED AND ACCEPTED. THE ACCEPTED QUANTITIES OF DECK BOTTOM SOUNDING WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR, AND EQUIPMENT NECESSARY FOR SOUNDING CONCRETE DECK BOTTOMS AND REMOVING LOOSE CONCRETE. PAYMENT WILL BE MADE UNDER ITEM SPECIAL-SOUNDING CONCRETE DECK BOTTOMS.

ITEM SPECIAL- LOW-PRESSURE EPOXY INJECTING DELAMINATED CONCRETE

THIS WORK SHALL CONSIST OF LOW-PRESSURE EPOXY INJECTION OF DELAMINATED BOTTOM COVER CONCRETE OF BRIDGE DECKS AND PARAPET CRACKS ADJACENT TO FENCE POSTS. IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS AS DIRECTED BY THE ENGINEER.

THE INJECTION RESIN SHALL BE THERMAL-CHEM INJECTION RESIN PRODUCT NO. 2, DURALCRETE LV, POLY-CARB MARK-10 INJECTION RESIN OR SIKADUR 52 INJECTION RESIN. THE BONDER SHALL BE THERMAL-CHEM BONDER PRODUCT NO. 4, DURALCRETE GEL, POLY-CARB MARK-8 NON-SAG EPOXY BONDER OR SIKADUR HI-MOD GEL (SIKASTIX 31). ALL MATERIALS SHALL BE STORED, AND INCORPORATED IN THE WORK AS RECOMMENDED BY THE MANUFACTURERS. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT AT THE JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER ARE SURE THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF EPOXY PRESSURE GROUTING.

PORTS SHALL BE INSTALLED IN CLEAN HOLES VACUUM-DRILLED (TO PREVENT FINES FROM BEING IMPACTED INTO THE CRACK), 3 INCHES DEEP IN THE CONCRETE SO THAT THE EPOXY WILL PENETRATE THE HOLLOW PLANE. THE FIRST PORT SHALL BE LOCATED NEAR THE EDGE OF THE OUTLINED UNSOUND AREA. ADDITIONAL PORTS SHALL BE PLACED AT DISTANCES SLIGHTLY GREATER THAN THE DISTANCE FROM THE FIRST PORT TO THE VOID EDGE. PORT PLACEMENT MUST ENSURE THAT THE GROUT FACE REACHES THE EDGE OF THE VOID BEFORE REACHING THE NEXT PORT. PORTS AND VISIBLE CRACKS SHALL BE SEALED WITH BONDER TO PREVENT EMISSION OF INJECTION RESIN. THE BONDER SHALL CURE 24 HOURS PRIOR TO INJECTION OF EPOXY RESIN.

THE RESIN SHALL BE INJECTED ONLY WHEN THE DECK IS DRY AND ITS TEMPERATURE IS ABOVE 50 DEGREES F.

THE EPOXY INJECTION EQUIPMENT SHALL BE CAPABLE OF INJECTING THE MATERIAL INTO THE PORTS AT LOW PRESSURES OF 14 TO 20 PSI. THE INJECTION EQUIPMENT SHALL BE CAPABLE OF METERING, MIXING AND INJECTING THE EPOXY RESIN ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

THE INJECTION SHALL COMMENCE AT THE EDGE OF THE DELAMINATION AND CONTINUE UNTIL THE EPOXY RESIN APPEARS AT THE NEXT PORT. MOST INCOMPLETELY FILLED VOIDS ARE CAUSED BY THE OPERATOR STOPPING THE INJECTION PROCESS PREMATURELY; THEREFORE, A STEADY, LOW PRESSURE SHALL BE MAINTAINED ON THE EPOXY UNTIL A STEADY CLEAR FLOW APPEARS AT THE NEXT PORT. THEN THE INJECTION NOZZLE IS REMOVED, THE PORT CLOSED AND THE INJECTION CONTINUED FROM PORT TO PORT UNTIL THE VOID IS COMPLETELY FILLED. SINCE THE GROUT FACE IS MOVING UNDER VISCOUS FLOW CONDITIONS WHICH ARE GOVERNED BY FLUID SURFACE FRICTION, THE INJECTION PROCESS IS SLOW. REGARDLESS, INJECTION PRESSURE SHALL BE 20 PSI MAXIMUM SO THAT COVER CONCRETE IS NOT BLOWN OFF. PROGRESS OF THE EPOXY SHALL BE CHECKED WITH A TAPPING HAMMER.

THE OUTLINED INJECTED VOIDS SHALL BE SOUNDED WITH A HAMMER BY THE ENGINEER. ANY REMAINING UNSOUND AREAS SHALL BE PORTED AND REINJECTED AT NO ADDITIONAL COST TO THE STATE. ALL EQUIPMENT, LABOR AND MATERIALS REQUIRED BY THE ENGINEER TO ACCOMPLISH THIS WORK SHALL BE SUPPLIED BY THE CONTRACTOR.

THE FOOTAGE UNDER THIS ITEM SHALL BE THE NUMBER OF SQUARE FEET OF DELAMINATED CONCRETE THAT ARE SATISFACTORILY LOW-PRESSURE EPOXY INJECTED AND ACCEPTED.

THE ACCEPTED QUANTITIES OF LOW-PRESSURE EPOXY INJECTED CONCRETE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE FOOT, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING ALL MATERIALS, SOUNDING THE INJECTED AREAS, SUPPLYING THE MANUFACTURER'S REPRESENTATIVE AND ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THIS WORK ACCORDING TO SPECIFICATIONS.

ITEM SPECIAL- RESET BEARINGS

RESETTING BEARINGS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SHEET I70 OF THE PLANS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ITEM SPECIAL- RESET BEARINGS. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THIS WORK.

ITEM SPECIAL- SEALING OF CONCRETE SURFACES (EPOXY)

A SEALER SHALL BE APPLIED TO THE EXPOSED CONCRETE SURFACES OF THE BRIDGES AS LISTED BELOW. SEE THE PROPOSAL FOR SEALER MATERIAL AND SURFACE PREPARATION REQUIREMENTS AND APPLICATION RATES AND PROCEDURES.

- 1) CURBS, GUTTERS, SIDEWALKS AND PARAPETS (ALL FACES).
- 2) CONCRETE MEDIAN BARRIERS (ALL FACES).
- 3) DECK EDGES AND THE UNDERSIDE IN ANY BAY LOCATED BENEATH AN OPEN OR SEALED JOINT OR AN UNDERSIDE EXTENDING BEYOND THE EXTERIOR BEAMS.
- 4) PIERS, INCLUDING CAPS AND COLUMNS. SEALER SHALL NOT BE APPLIED TO 25% OF THE CIRCUMFERENCE OF THE PIER (OPPOSITE THE TRAVELED WAY) OR THE PIER CAP BOTTOMS.
- 5) ABUTMENTS, INCLUDING BACKWALLS AND WINGWALLS.

ITEM SPECIAL - NEOPRENE SHEET MEDIAN BARRIER JOINT SEAL (1/2" X 10")

A) DESCRIPTION
THIS WORK SHALL INCLUDE FURNISHING AND INSTALLING A NEOPRENE SHEET SEAL ALONG THE TOP OF THE BRIDGE MEDIAN BARRIER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

B) MATERIAL
1) THE NEOPRENE PIECES SHALL MEET THE FOLLOWING SPECIFICATIONS.

PROPERTY	REQUIREMENT	ASTM METHOD
TENSILE STRENGTH, MIN., PSI	2000	D-412-62T
ELONGATION AT BREAK, MIN.	250%	D-412-51T
HARDNESS, DUROMETER A	60 +5	D-2240 MODIFIED
OZONE RESISTANCE, 20% ELONGATION 300 PPHM 40°C (104°F) (70 HRS)		
WIPE SURFACES WITH SOLVENT TO REMOVE CONTAMINATION	NO CRACKS	D-1149
HEAT AGING 70 HRS @ 212°F		
TENSILE STRENGTH, MAX. % DECREASE	-20	D-573
ELONGATION, MAX. % DECREASE	-20	
HARDNESS, MAX. CHANGE	+10/-0	
OIL SWELL, ASTM OIL #3 70 HRS. @ 212°F MAX. WEIGHT INCREASE AT SPECIFIC GRAVITY 1.35 +3	+45	D-471
COMPRESSION SET, 70 HRS. @ 212°F LOW TEMPERATURE	40% MAX. NOT BRITTLE	D-395 (B) D-746
RESISTANCE TO SALT, VARIATION OF VOLUME IN % 70 HRS. AT 40°C IN CALCIUM CHLORIDE SOLUTION	-5% TO +10%	

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL NOTES

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	T.A.K. DATE	LPH DATE	DATE	DATE

OHIO

SHEET 3 / 18

GENERAL NOTES

GENERAL NOTES

CUY-480-19.19

FHWA REGION	STATE	PROJECT	
5	OHIO		

157
171

2) ADHESIVES SHALL BE SIKADUR 31 MANUFACTURED BY THE SIKA CHEMICAL COMPANY OF LYNHURST, NEW JERSEY, FEL-POXY FP-01 MANUFACTURED BY THE FELT PRODUCTS COMPANY OF SKOKIE, ILLINOIS, OR AN APPROVED EQUAL. ADHESIVES SHALL BE STORED AT TEMPERATURES BETWEEN 50°F AND 80°F AND SHALL BE USED WITHIN 270 DAYS AFTER THE DATE OF MANUFACTURE.

C) REQUIREMENTS

THE MEDIAN SEAL SHALL BE CONTINUOUS ALONG THE LENGTH OF THE BRIDGE EXCEPT AT INTERMEDIATE EXPANSION JOINTS AND AT LIGHT AND SIGN SUPPORTS. ELASTOMERIC SHEETS SHALL BE AS LONG AS PRACTICAL WITH FIELD SPLICES BONDED TOGETHER WITH ADHESIVE.

D) SURFACE PREPARATION

1) NEOPRENE

TO AVOID THE SUBSEQUENT CONTAMINATION OF PREPARED SURFACES ALL SURFACES SHALL BE CLEANED WITH METHYL ETHYL KETON (MEK), TOLUENE (T) OR OTHER APPROVED SOLVENT USING CLEAN DISPOSABLE CLOTHS. THEN NOT MORE THAN 7 DAYS PRIOR TO THE SEAL INSTALLATION, A THIN (1/8" MIN. THICKNESS) COATING OF CYCLIZING PASTE* SHALL BE APPLIED TO THE BONDING SURFACE. AFTER 25 TO 40 MINUTES, THE PASTE SHALL BE WASHED FROM THE SURFACES WITH CLEAN WATER.

*CYCLIZING PASTE IS A MIXTURE OF ONE POUND OF PITTSBURGH PLATE GLASS INDUSTRIES' HISIL 223 OR AN APPROVED ALTERNATE AND SIX POUNDS OF CONCENTRATED SULFURIC ACID (18 MOLAR). TO MIX THE PASTE, ADD HISIL TO ACID SLOWLY WHILE STIRRING MIXTURE TO ACHIEVE A SMOOTH VISCOUS PASTE. NOTE: SINCE CONCENTRATED SULFURIC ACID IS VERY CORROSIVE AND HISIL IS AN EXTREMELY FINE NON-TOXIC POWDER, RUBBER GLOVES AND GLASSES SHOULD BE USED BY THOSE USING THE PASTE, WHILE GLOVES, GLASSES AND A RESPIRATOR SHOULD BE USED BY THOSE MIXING THE PASTE.

2) CONCRETE

THE CONCRETE SURFACE SHALL BE THOROUGHLY CLEANED TO REMOVE DUST, CURING COMPOUND, LAITANCE AND ANY OTHER FOREIGN MATERIALS BY MEANS OF SANDBLASTING FOLLOWED BY AIR BROOMING OR POWER SWEEPING TO REMOVE DUST AND SAND FROM THE SURFACE AND OPENED PORES.

E) FIELD BONDING

IMMEDIATELY PRIOR TO ADHESIVE APPLICATION, BONDING SURFACES SHALL BE CLEAN, DRY AND WARMER THAN 45°F AND SHALL BE MAINTAINED ABOVE 45°F UNTIL THE ADHESIVE HAS CURED.

ADHESIVE COMPONENTS SHALL BE COMBINED IN THE EXACT RATIOS RECOMMENDED BY THE ADHESIVE MANUFACTURER AND SHALL BE THOROUGHLY MIXED TO ENSURE A UNIFORM MATERIAL FREE FROM ENTRAPPED AIR. THE BONDING PROCEDURES AND RATE OF APPLICATION SHALL BE IN ACCORDANCE WITH THE ADHESIVE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. FOR PROPER CONTROL DURING CURING, LIGHT PRESSURE SHOULD BE MAINTAINED UNTIL THE ADHESIVE HAS CURED.

F) MEASUREMENT AND PAYMENT

MEDIAN BARRIER SEAL WILL BE MEASURED BY THE LINEAR FOOT COMPLETED IN PLACE AND PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR ITEM SPECIAL, MEDIAN BARRIER SEAL. THIS PRICE SHALL BE PAYMENT IN FULL FOR FURNISHING ALL MATERIALS, EQUIPMENT AND LABOR TO COMPLETE THE WORK SPECIFIED FOR ITEM SPECIAL-NEOPRENE SHEET MEDIAN BARRIER JOINT SEAL (1/2" X 10").

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL NOTES

DESIGNED		TRACED		CHECKED		REVIEWED		REVISED	
DATE		DATE		DATE		DATE		DATE	
		T.A.K.		L.P.H.					
		DATE		DATE		DATE		DATE	

SHEET 4 / 18

GENERAL NOTES

STRUCTURE SUMMARY

PARTICIPATION
I-FEDERAL AND STATE
II-STATE ONLY

CALC. BY	CUYAHOGA COUNTY CUY-480-19.19	OHIO	158 171
DATE		FHWA REGION 5	
CHKD BY		FEDERAL PROJECT	
DATE			

ITEM	GEN.	STRUCTURE NUMBER											PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF.
		1955	2016	2071R	2071L	2140	2154	2163W	2165	2169	2170E	I	II							
202															LUMP	202	LUMP		PORTIONS OF STRUCTURES REMOVED	
202		2408	2075	2107	2792	8032	3252	497	1154	1701	1014				25032	202	25032	SQ.YD.	WEARING COURSE REMOVED, AS PER PLAN	154
202		810	718	541	550	992	700	306	584	860	378				6439	202	6439	LIN.FT.	SUBDRAINAGE REMOVED	
509	100														100	509	100	LB.	REINFORCING STEEL, AS PER PLAN	154
519		1196	203	55	42	304	80	24	52	61	39			1028	1028	519	2056	SQ.YD.	PATCHING CONCRETE STRUCTURES, AS PER PLAN	155,168,171
850		2408	2075											4483	850	4483	SQ.YD.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY(2 1/2" THICK)	169	
850		65	56											121	850	121	CU.YD.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY(VARIABLE THICKNESS)	168,169	
850														LUMP	850	LUMP		TEST SLAB		
SPEC.								497		1701				2198	SPEC.	2198	SQ.YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY(1 1/2" THICK) (SEE PROPOSAL NOTE)	169	
SPEC.				2107	2792	8032	3252		1154		1014			18351	SPEC.	18351	SQ.YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY(2 1/2" THICK) (SEE PROPOSAL NOTE)	169	
SPEC.				57	76	218	88	13	31	46	45			574	SPEC.	574	CU.YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY(VARIABLE THICKNESS) (SEE PROPOSAL NOTE)	168,169	
SPEC.								1						1	SPEC.	1	CU.YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY(FULL DEPTH REPAIR) (SEE PROPOSAL NOTE)		
SPEC.														LUMP	SPEC.	LUMP		TEST SLAB (SEE PROPOSAL NOTE)		
SPEC.		2419	2354	1197	1579	3943	2282	664	1466	1786	1109			18799	SPEC.	18799	SQ.YD.	SEALING CONCRETE SURFACES (EPOXY)(SEE PROPOSAL NOTE)	156	
SPEC.		21159	20646	10359	13824	33975	19980	5715	12762	15417	9639			163476	SPEC.	163476	SQ.FT.	SOUNDING CONCRETE BRIDGE COMPONENTS	155	
SPEC.		1715	305	83	62	456	119	35	77	92	58			1501	SPEC.	1501	SQ.FT.	REPAIRING CONCRETE WITH SOLVENT-FREE EPOXY RESIN	155,168,171	
SPEC.		21167	19134	29947	30573		28918	4918	9859	14731	12455			171702	SPEC.	171702	SQ.FT.	SOUNDING CONCRETE DECK BOTTOMS	156	
SPEC.		287	259	299	306		289	49	99	147	125			1860	SPEC.	1860	SQ.FT.	LOW-PRESSURE EPOXY INJECTING DELAMINATED CONCRETE	156,169	
SPEC.		112	133	240	250	260	335	37	166	159	122			1814	SPEC.	1814	LIN.FT.	POURED POLYURETHANE JOINT SEAL	156,168,169	
SPEC.						504	185		145	218				1052	SPEC.	1052	LIN.FT.	NEOPRENE SHEET MEDIAN BARRIER JOINT SEAL	156	
SPEC.							21							22	SPEC.	22	EACH	RESET BEARINGS	156,170	
SPEC.									166					166	SPEC.	166	LIN.FT.	PRECOMPRESSED BITUMIN IMPREGNATED FOAM JOINT SEAL (4" X 2")	168	
SPEC.				8	8	5	28	11	2	6	7	3		78	SPEC.	78	EACH	SCUPPER MODIFICATION	156 & 169	

ZFA2:1100323JBRSUM .DGN:2

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

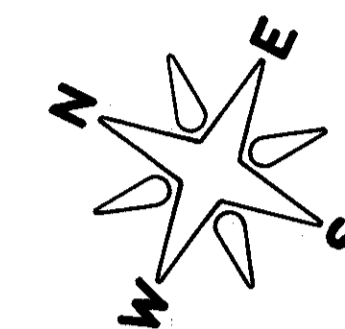
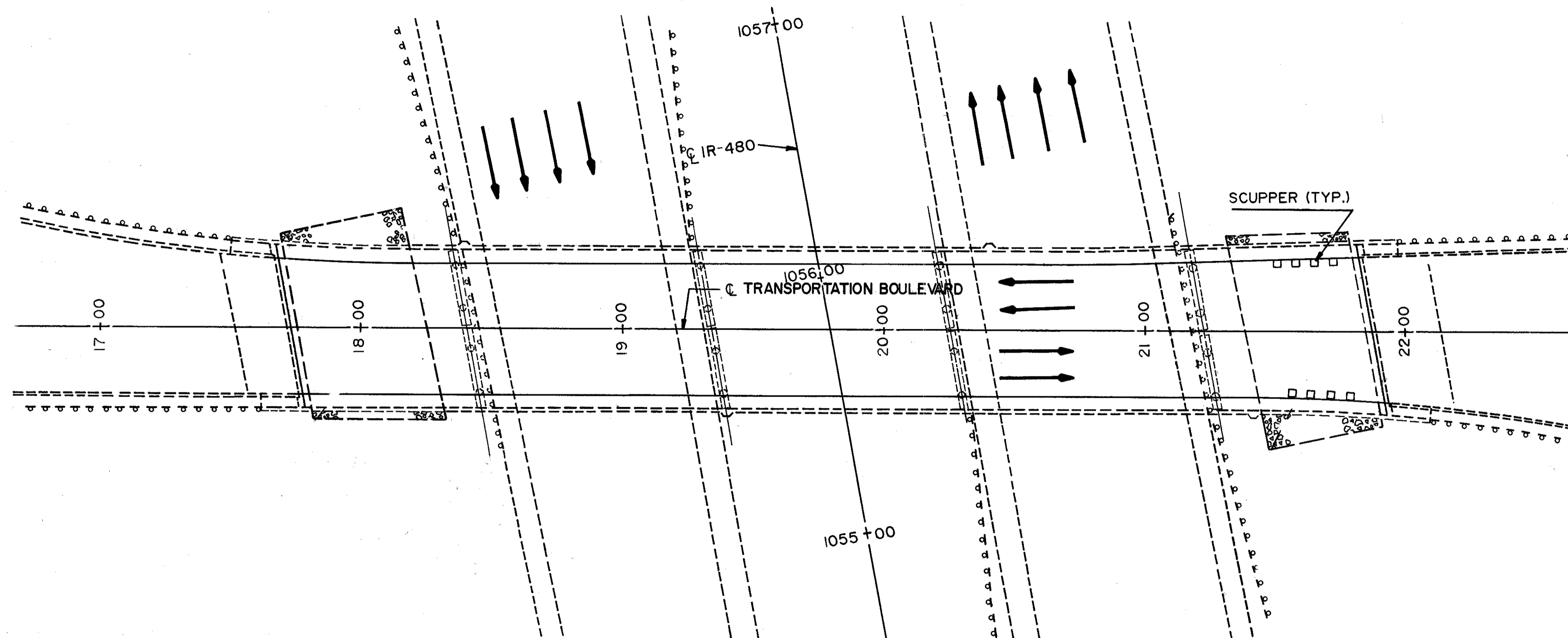
STRUCTURE SUMMARY

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	DATE	DATE	DATE	DATE

Revised 4-9-90 SHEET 5 / 18

PLAN AND BRIDGE TRANSVERSE SECTION



LEGEND

- CRUSHED AGGREGATE SLOPE PROTECTION
- CONCRETE SLOPE PROTECTION
- EXISTING CRUSHED AGGREGATE SLOPE PROTECTION
- EXISTING CONCRETE SLOPE PROTECTION

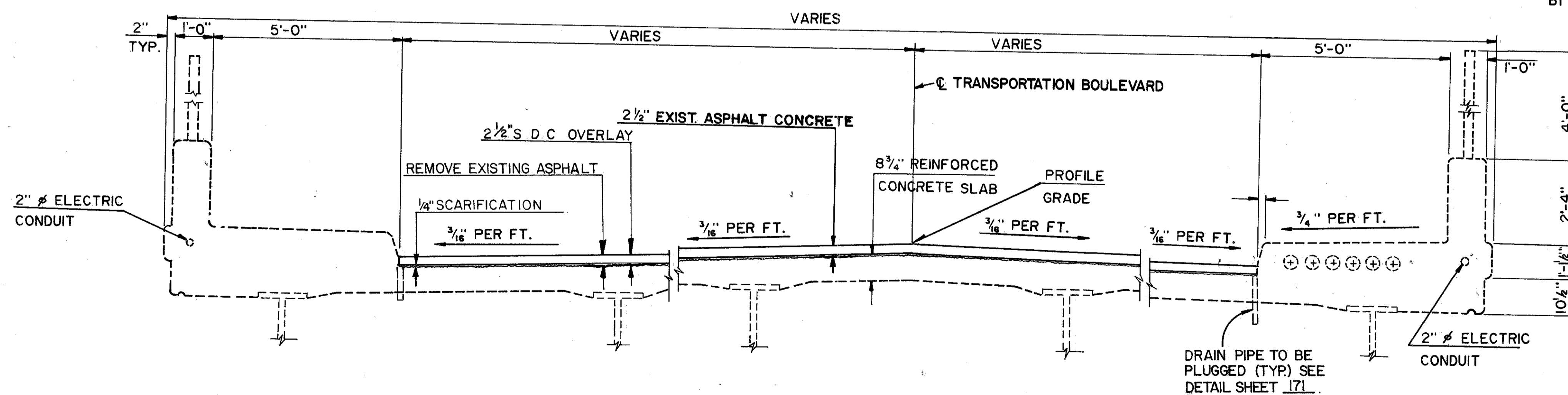
* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	SPECIAL	* 519	* SPECIAL
	SOUNDING CONCRETE BRIDGE COMPONENTS	PATCHING CONCRETE STRUCTURES, AS PER PLAN	REPAIRING CONCRETE WITH SOLVENT FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	1737	348	521
PIERS & CAPS	5265	32	48
PARAPETS	14157	57	85
** ADDITIONAL TOTAL	21,159	196	1715

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER.

- M.S.C. — MICRO-SILICA MODIFIED CONCRETE
- S.D.C. — SUPERPLASTICIZED DENSE CONCRETE

PLAN VIEW
SCALE IN FEET
0 30 60 90



TYPICAL TRANSVERSE SECTION
SCALE IN FEET
0 2 4 6 8

PROPOSED WORK

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM.
- 2) 2 1/2" S.D.C. OVERLAY TO GRADE
- 3) SEAL CONCRETE SURFACES
- 4) SEALING EXPANSION JOINTS
- 5) PATCH CONCRETE SURFACES
- 6) DECK BOTTOM SOUNDING AND EPOXY INJECTING

EXISTING STRUCTURE

TYPE: CONTINUOUS 5-SPAN STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.
 SPANS: 65'-0", 95'-2 3/8", 91'-4 1/2", 95'-2 3/8", AND 57'-0"
 ROADWAY: VARIES, 53'-0" TO 56'-5" CURB TO CURB
 LOADING: HS 20-44
 WEAR SURFACE: 2 1/2" ASPHALT CONCRETE
 ALIGNMENT: TANGENT
 SKEW: 9°-56'-47"

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
 DISTRICT 12 LOCATION & DESIGN

PLAN AND BRIDGE
 TRANSVERSE SECTION
 BR. NO. CUY-480-1955
 TRANSPORTATION BLVD. OVER IR-480

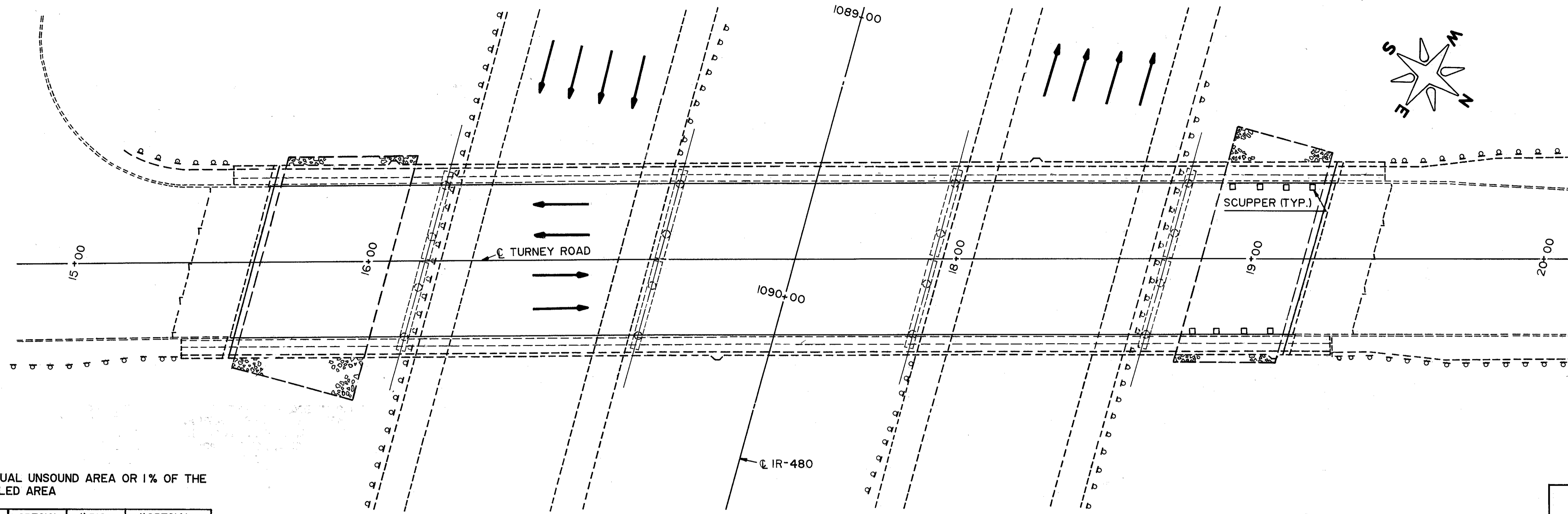
CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	T.A.K. DATE	DATE	DATE	DATE

SHEET 6 / 18

PLAN AND BRIDGE TRANSVERSE SECTION

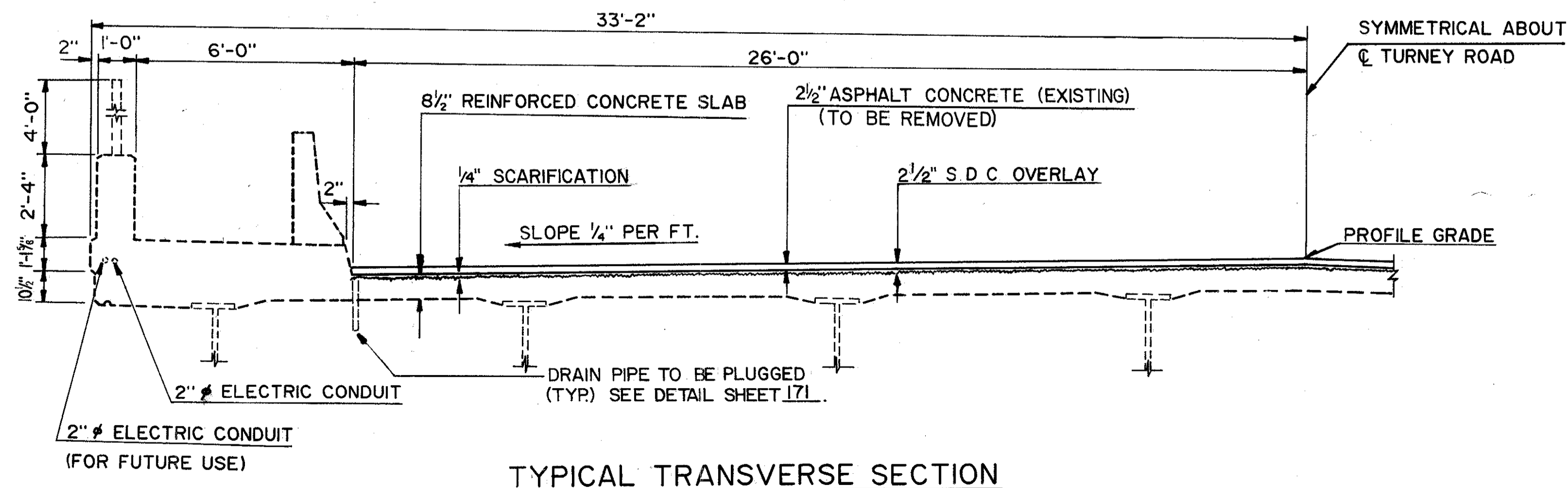
FOR LEGEND SEE SHEET 159.



* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	SPECIAL SOUNDING CONCRETE BRIDGE COMPONENTS SQ. FT.	*519 PATCHING CONCRETE STRUC- TURES, AS PER PLAN SQ. FT.	*SPECIAL REPAIRING CON- CRETE WITH SOLVENT FREE EPOXY RESIN SQ. FT.
ABUTMENTS	1638	6	10
PIERS&CAPS	5796	48	72
PARAPETS	13212	53	79
** ADDITIONAL		96	144
TOTAL	20646	203	305

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER



PROPOSED WORK

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
- 2) 2 1/2" S.D.C. OVERLAY TO GRADE
- 3) SEAL CONCRETE SURFACES
- 4) SEAL EXPANSION JOINTS
- 5) PATCH CONCRETE SURFACES
- 6) DECK BOTTOM SOUNDING AND EPOXY INJECTING

EXISTING STRUCTURE

TYPE: CONTINUOUS 5-SPAN STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.

SPANS: 57'-0", 79'-4 7/8", 93'-4 7/8", 79'-4 7/8" AND 48'-0"

ROADWAY: 52'-0" CURB TO CURB

LOADING: HS 20-44

WEARING SURFACE: 2 1/2" ASPHALT CONCRETE

ALIGNMENT: TANGENT

SKEW: 15°-27'-33"

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

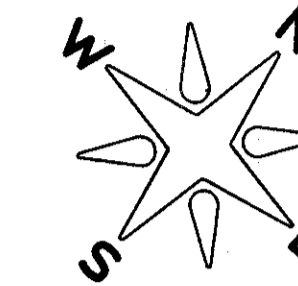
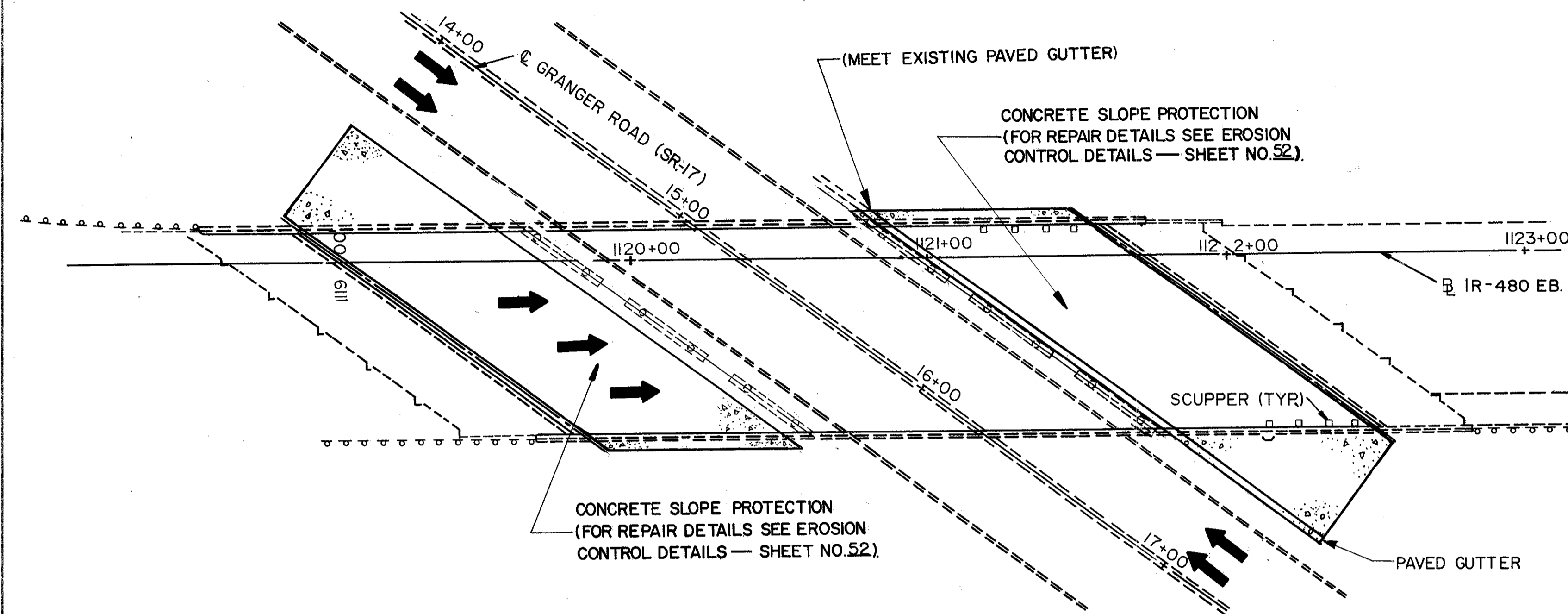
PLAN AND BRIDGE
TRANSVERSE SECTION
BR. NO. CUY-480-2016
TURNEY RD. OVER IR-480

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	T.A.K. DATE	L.B.P. DATE	DATE	DATE

SHEET 7/18

FOR LEGEND SEE SHEET 159.

PLAN AND BRIDGE TRANSVERSE SECTION

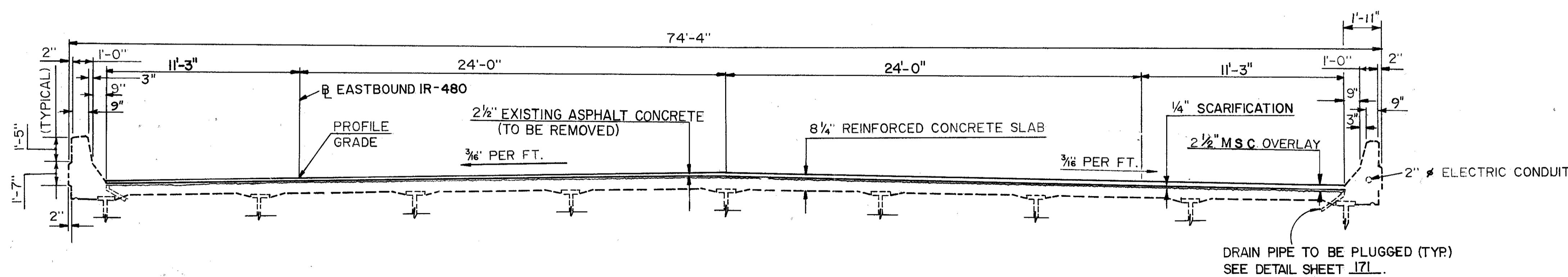
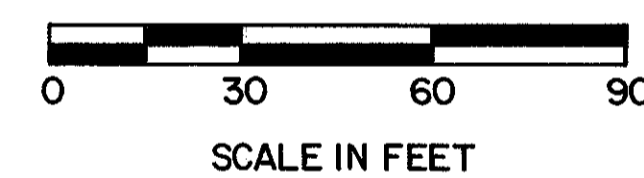


* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

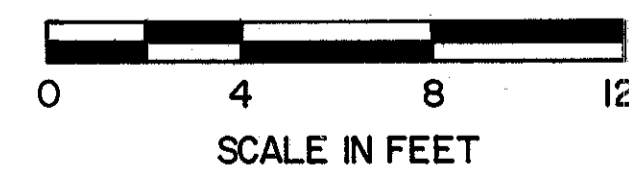
LOCATION	SPECIAL	* 519	* SPECIAL
	SOUNDING CONCRETE BRIDGE COMPONENTS	PATCHING CONCRETE STRUCTURES, AS PER PLAN	REPAIRING CONCRETE WITH SOLVENT FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	2979	6	9
PIERS & CAPS	5274	11	16
PARAPETS	2106	4	6
** ADDITIONAL		21	31
TOTAL	10359	42	62

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER

PLAN VIEW



TYPICAL TRANSVERSE SECTION



PROPOSED WORK

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
- 2) 2 1/2" M.S.C. OVERLAY TO GRADE
- 3) SLOPE PROTECTION REPAIR
- 4) SEAL CONCRETE SURFACES
- 5) SEAL EXPANSION JOINTS
- 6) PATCH CONCRETE SURFACES
- 7) DECK BOTTOM SOUNDING AND EPOXY INJECTING

EXISTING STRUCTURE

TYPE: CONTINUOUS 3-SPAN STEEL GIRDER WITH REINFORCED CONCRETE DECK
 SPANS: 75'-6", 116'-0", AND 75'-6"
 ROADWAY: 70'-6", CURB TO CURB
 LOADING: HS 20-44
 WEARING SURFACE: 2 1/2" ASPHALT CONCRETE
 ALIGNMENT: TANGENT
 SKEW: 53°-17'-15"

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
 DISTRICT 12 LOCATION & DESIGN

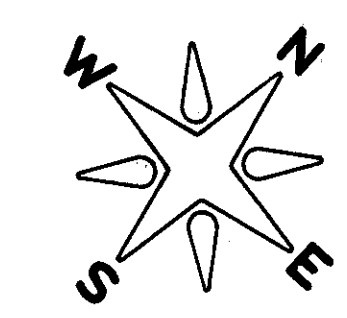
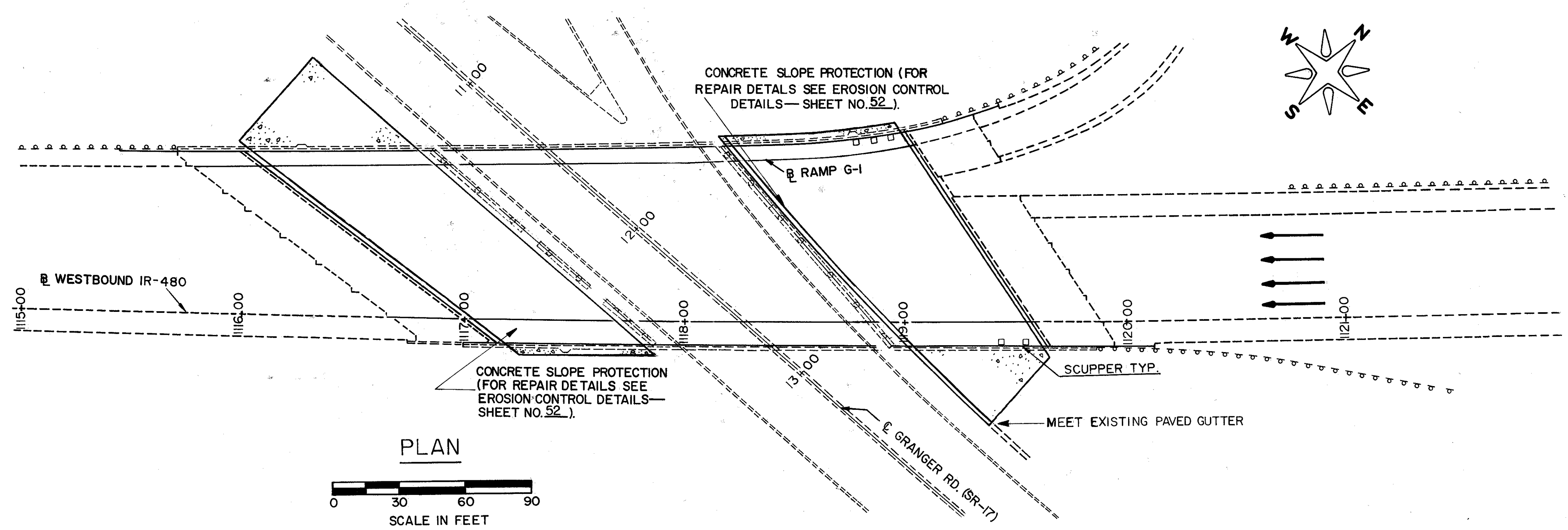
PLAN AND BRIDGE
 TRANSVERSE SECTION
 BR. NO. CUY-480-2071 R
 IR-480 E.B. OVER GRANGER RD. (SR-17)

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
T.A.K.	D.A.	D.A.		
DATE	DATE	DATE	DATE	DATE

SHEET 8 / 18

FOR LEGEND SEE SHEET 159.

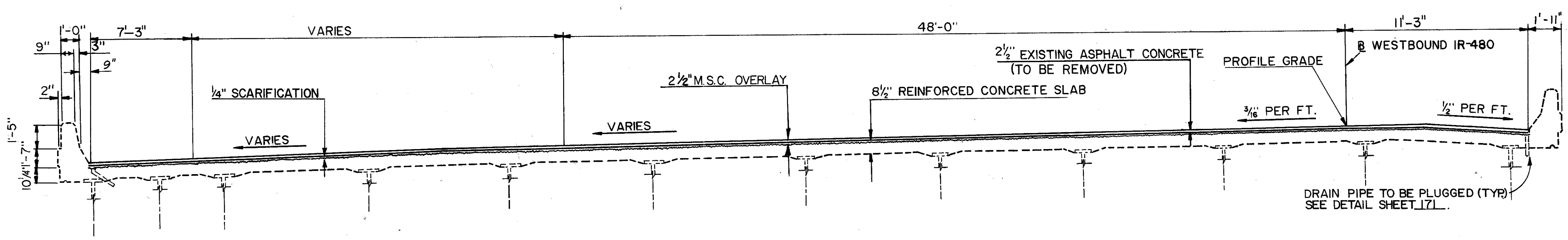
PLAN AND BRIDGE TRANSVERSE SECTION



* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	SPECIAL	* 519	* SPECIAL
	SOUNDING CONCRETE BRIDGE COMPONENTS	PATCHING CONCRETE STRUCTURES, AS PER PLAN	REPAIRING CONCRETE WITH SOLVENT FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	3240	6	10
PIERS & CAPS	4419	9	13
PARAPETS	6165	12	19
** ADDITIONAL TOTAL	13824	28	41

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER



PROPOSED WORK

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAIN SYSTEM
- 2) 2 1/2" M.S.C. OVERLAY TO GRADE
- 3) SLOPE PROTECTION AND REPAIR
- 4) SEAL CONCRETE SURFACES
- 5) RESET BEARINGS
- 6) SEAL EXPANSION JOINTS
- 7) PATCH CONCRETE SURFACES
- 8) DECK BOTTOM SOUNDING AND EPOXY INJECTING

EXISTING STRUCTURE

TYPE: CONTINUOUS 3-SPAN STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 72'-11 1/8", 109'-10 7/8", AND 71'-7 7/8"

ROADWAY: VARIES

LOADING: HS 20-44

WEARING SURFACE: 2 1/2" ASPHALT CONCRETE

ALIGNMENT: 0°-25'-00"

SKEW: VARIES, WEST: 53°-26'-39" EAST: 33°-12'-32"

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

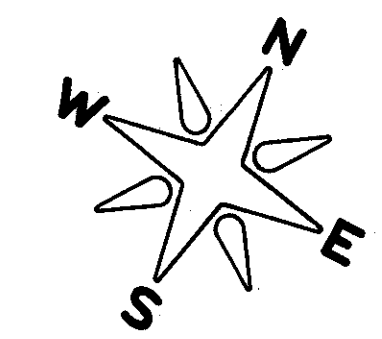
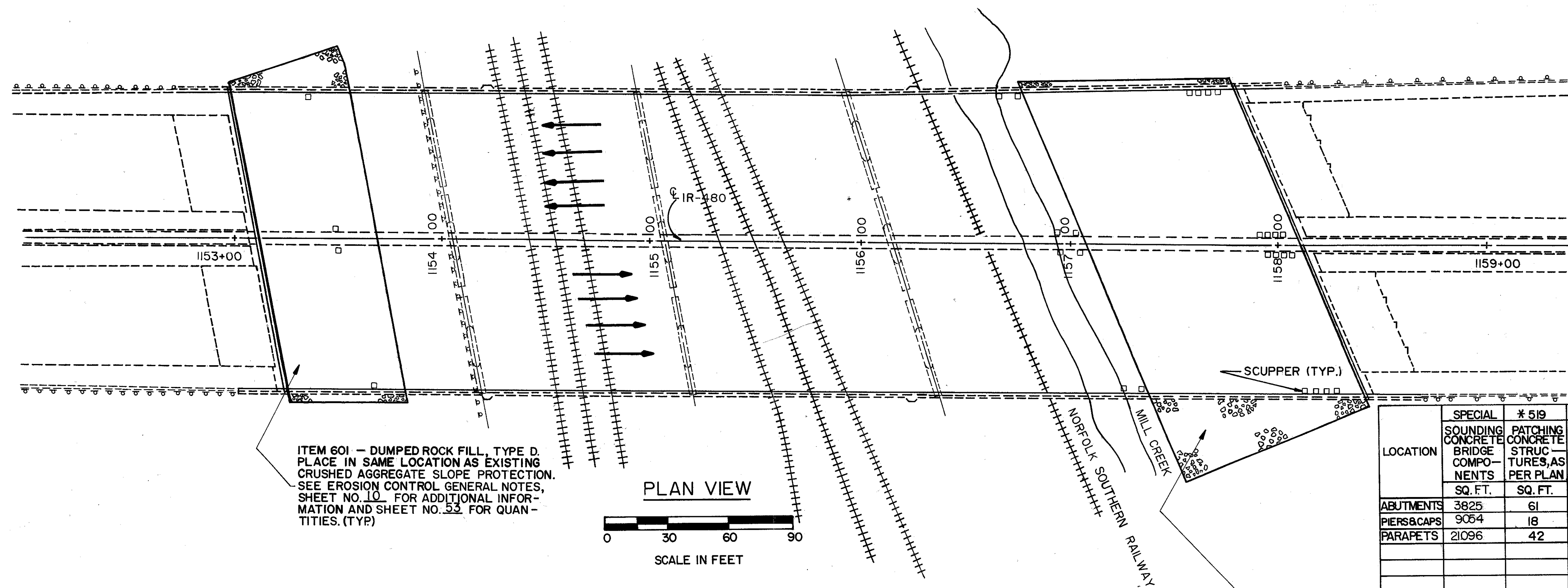
PLAN AND BRIDGE TRANSVERSE SECTION
CUY-480-2071 L
IR-480 W.B. OVER GRANGER RD. (SR-17)

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
T.A.K.	T.A.K.	2014		
DATE	DATE	DATE	DATE	DATE

SHEET 9 / 18

PLAN AND BRIDGE TRANSVERSE SECTION



EXISTING STRUCTURE

TYPE: CONTINUOUS 5-SPAN STEEL GIRDER WITH REINFORCED CURB DECK AND SUBSTRUCTURE.
 SPANS: 96'-6", 100'-0", 110'-2 7/8", 110'-2 7/8", 87'-0"
 ROADWAY: WIDTH VARIES-144'-6" TO 148'-11 1/8"
 CURB TO CURB WITH CONCRETE BARRIER
 LOADING: HS-20-44
 WEARING SURFACE: 2 1/2" ASPHALT CONCRETE
 ALIGNMENT: TANGENT
 SKEW: WEST: 10°26'00" EAST: 22°51'39"

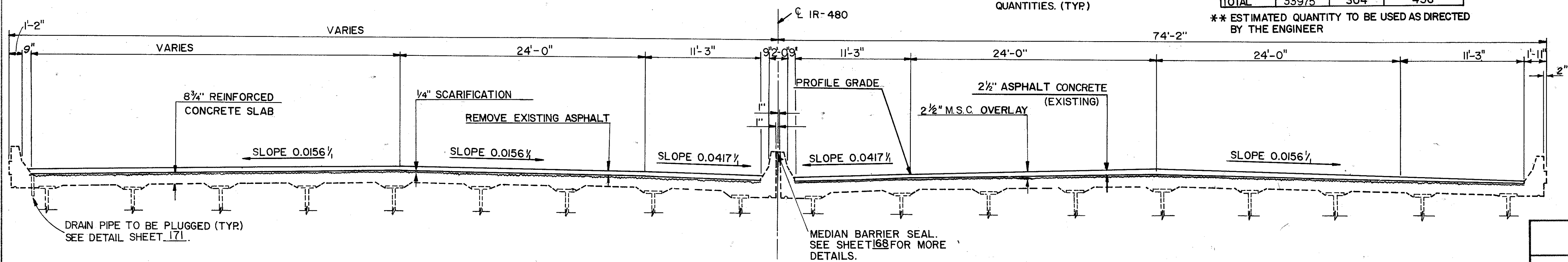
PROPOSED WORK

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
- 2) 2 1/2" M.S.C. OVERLAY TO GRADE
- 3) SLOPE PROTECTION REPAIR
- 4) SEAL CONCRETE SURFACES
- 5) SEAL EXPANSION JOINTS
- 6) PATCH CONCRETE SURFACE
- 7) SEAL MEDIAN BARRIER JOINT

LOCATION	SPECIAL	* 519	* SPECIAL
	SOUNDING CONCRETE BRIDGE COMPONENTS	PATCHING CONCRETE STRUCTURES AS PER PLAN	REPAIRING CONCRETE WITH SOLVENT FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	3825	61	92
PIERS&CAPS	9054	18	27
PARAPETS	21096	42	63
** ADDITIONAL		183	274
TOTAL	33975	304	456

* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER



STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
 DISTRICT 12 LOCATION 8 DESIGN

PLAN AND BRIDGE TRANSVERSE SECTION

BR. NO. CUY-480-2140
 IR-480 OVER MILL CREEK AND N. S. RR.

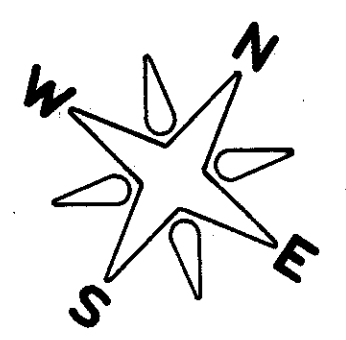
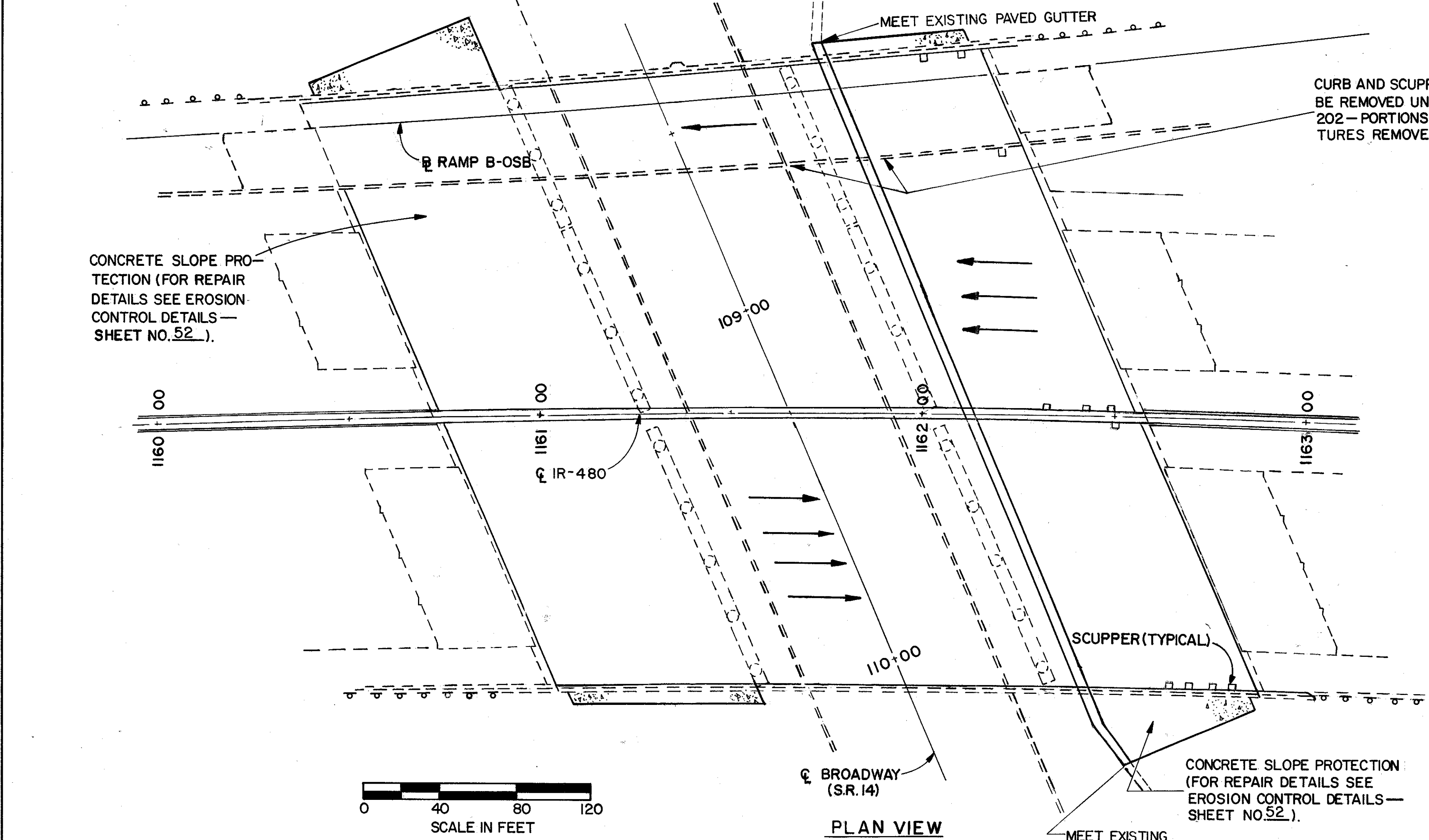
CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	T.A.K. DATE	DATE	DATE	DATE

SHEET 10/18

PLAN AND BRIDGE TRANSVERSE SECTION

FOR LEGEND SEE SHEET 159.



* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	SPECIAL	#519	* SPECIAL
	SOUNDING CONCRETE BRIDGE COMPONENTS	PATCHING CONCRETE STRUCTURES, AS PER PLAN	REPAIRING CONCRETE WITH SOLVENT-FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	4,050	8	12
PIERS & CAPS	8,118	16	24
PARAPETS	7,812	16	23
** ADDITIONAL		40	60
TOTAL	19,980	80	119

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER

- ### PROPOSED WORK
- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
 - 2) 2 1/2" M. S. C. OVERLAY TO GRADE
 - 3) SLOPE PROTECTION REPAIR
 - 4) SEAL CONCRETE SURFACES
 - 5) RESET BEARINGS
 - 6) SEAL EXPANSION JOINT
 - 7) PATCH CONCRETE SURFACES
 - 8) REMOVE CHANNELIZING CURB
 - 9) SEAL MEDIAN BARRIER JOINT
 - 10) DECK BOTTOM SOUNDING AND EPOXY INJECTING

EXISTING STRUCTURE

TYPE: CONTINUOUS 3-SPAN ROLLED BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.

SPANS: 51'-11 1/8", 74'-9 3/4", 52'-9 3/8"

ROADWAY: WIDTH VARIES 158'-10" TO 168'-8 3/8"

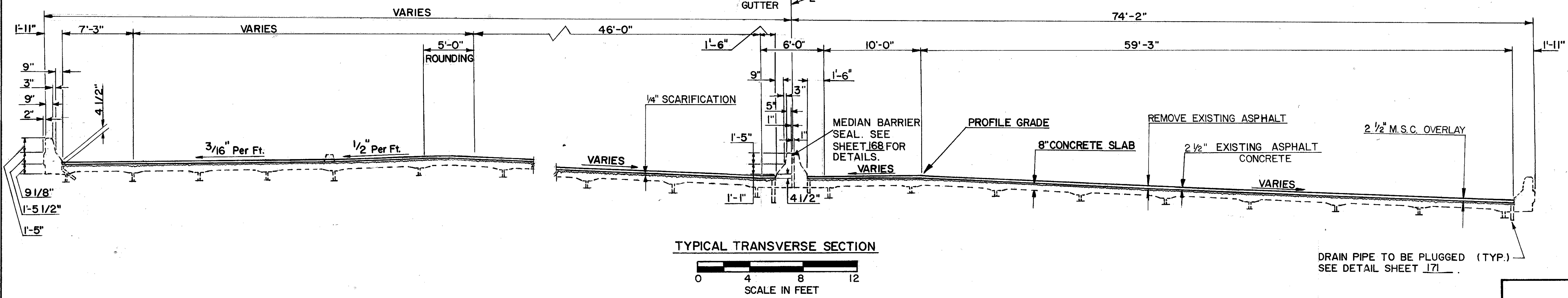
CURB TO CURB WITH CONCRETE BARRIER

LOADING: HS 20-44

WEARING SURFACE: 2 1/2" ASPHALT CONCRETE

ALIGNMENT: SPIRAL AND 2°00'00" CURVE RIGHT

SKREW: 22°-44'-03"



STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

PLAN AND BRIDGE TRANSVERSE SECTION

BR. NO. CUY-480-2154
IR-480 OVER BROADWAY (SR-14)

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	T.A.K. DATE	L.H.# DATE	DATE	DATE

SHEET 11 / 18

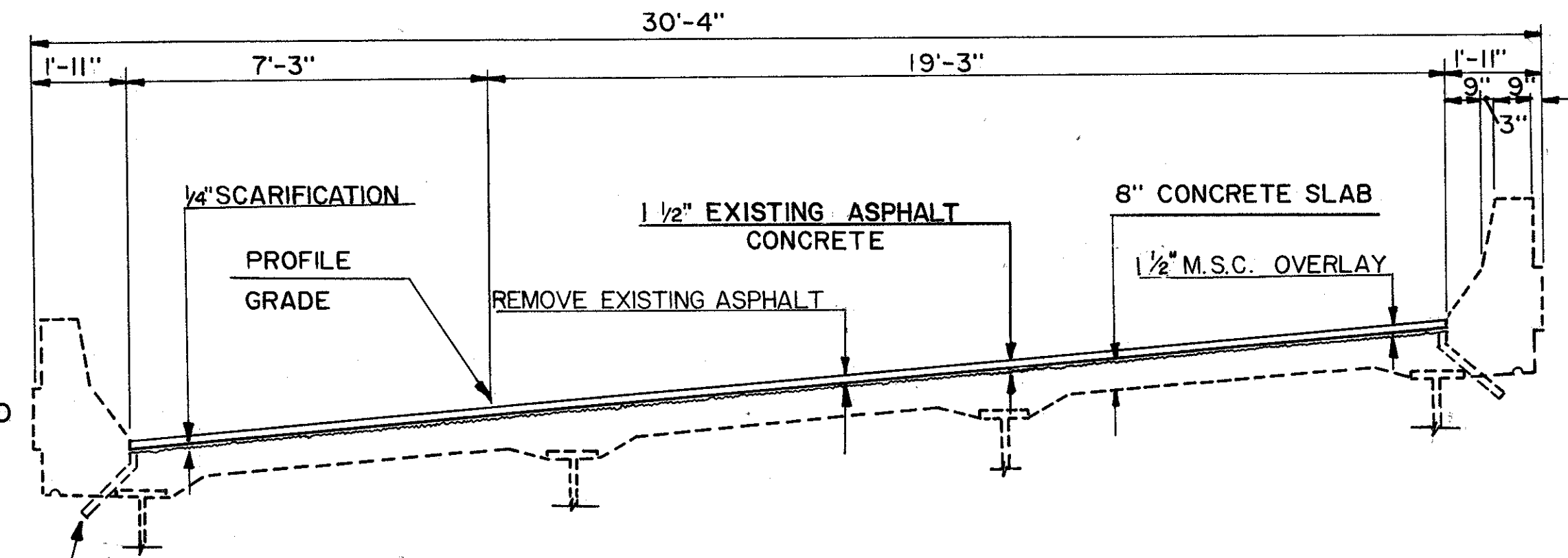
PLAN AND BRIDGE TRANSVERSE SECTION

FOR LEGEND SEE SHEET 159.

* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	CUY-480-2163 W		
	SPECIAL SOUNDING CONCRETE BRIDGE COMPONENTS	* 519 PATCHING CONCRETE STRUCTURES, AS PER PLAN	* SPECIAL REPAIRING CONCRETE WITH SOLVENT-FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	864	2	3
PIERS&CAPS	1260	3	4
PARAPETS	3591	7	11
** ADDITIONAL		12	17
TOTAL	5715	24	35

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER



TYPICAL TRANSVERSE SECTION
CUY-480-2163 W

DRAIN PIPE TO BE PLUGGED (TYP.)
SEE DETAIL SHEET 171.

* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	CUY-480-2165		
	SPECIAL SOUNDING CONCRETE BRIDGE COMPONENTS	* 519 PATCHING CONCRETE STRUCTURES, AS PER PLAN	* SPECIAL REPAIRING CONCRETE WITH SOLVENT-FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	666	2	2
PIERS&CAPS	6516	13	20
PARAPETS	5580	11	17
** ADDITIONAL		26	38
TOTAL	12762	52	77

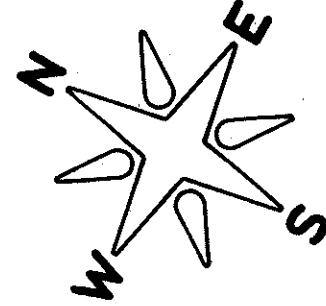
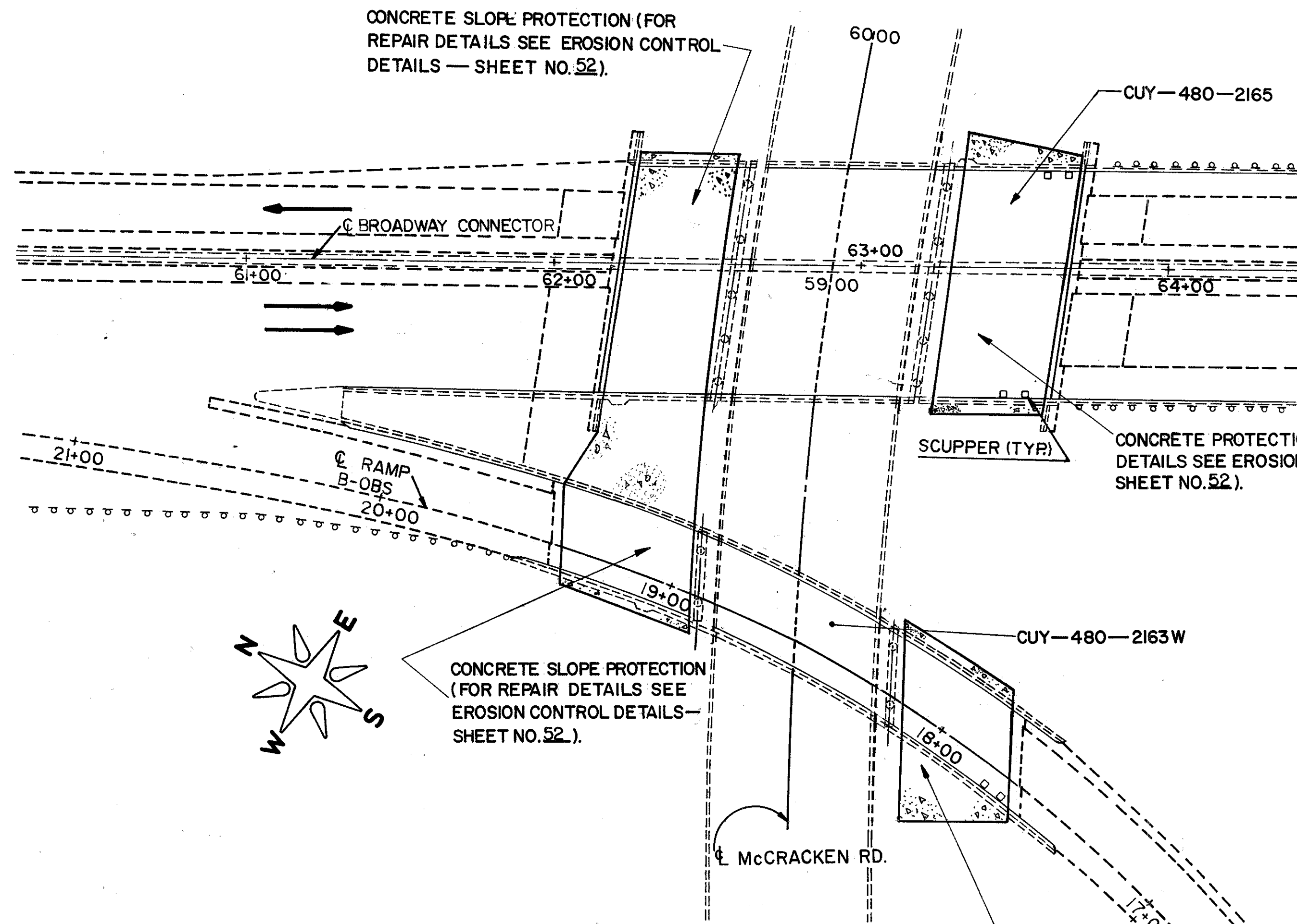
** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER

EXISTING STRUCTURE
(BR. NO. CUY-480-2163 W)

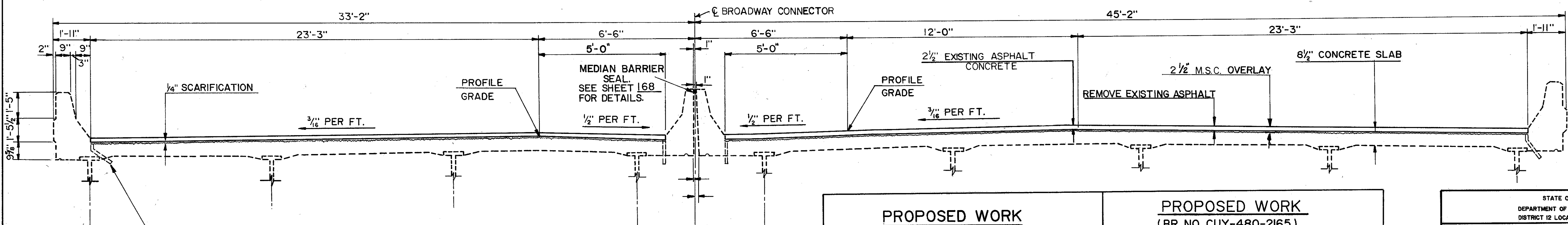
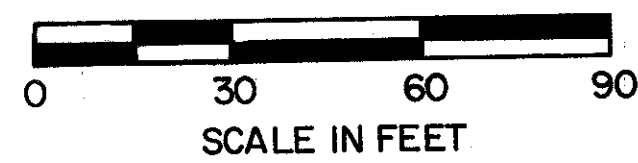
TYPE: CONTINUOUS 3-SPAN ROLLED BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 48'-9", 69'-3", 48'-7"
ROADWAY: 26'-6" CURB TO CURB
LOADING: HS 20-44
WEARING SURFACE: 1 1/2" ASPHALT CONCRETE
ALIGNMENT: 13°-30'-00"
SKEW: 23°-50'-55"

EXISTING STRUCTURE
(BR. NO. CUY-480-2165)

TYPE: CONTINUOUS 3-SPAN ROLLED BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 38'-9", 64'-3", 40'-3"
ROADWAY: 74'-6" CURB TO CURB WITH CONCRETE BARRIER
LOADING: HS 20-44
WEARING SURFACE: 2 1/2" ASPHALT CONCRETE
ALIGNMENT: TANGENT
SKEW: 07°-46'-02"



PLAN



DRAIN PIPE TO BE PLUGGED (TYP.)
SEE DETAIL SHEET 171.

TYPICAL TRANSVERSE SECTION
CUY-480-2165



PROPOSED WORK

(BR. NO. CUY-480-2163 W)

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
- 2) 1 1/2" M.S.C. OVERLAY TO GRADE
- 3) SLOPE PROTECTION REPAIR
- 4) SEAL CONCRETE SURFACES
- 5) SEAL EXPANSION JOINTS
- 6) PATCH CONCRETE SURFACES
- 7) DECK BOTTOM SOUNDING AND EPOXY INJECTING

PROPOSED WORK

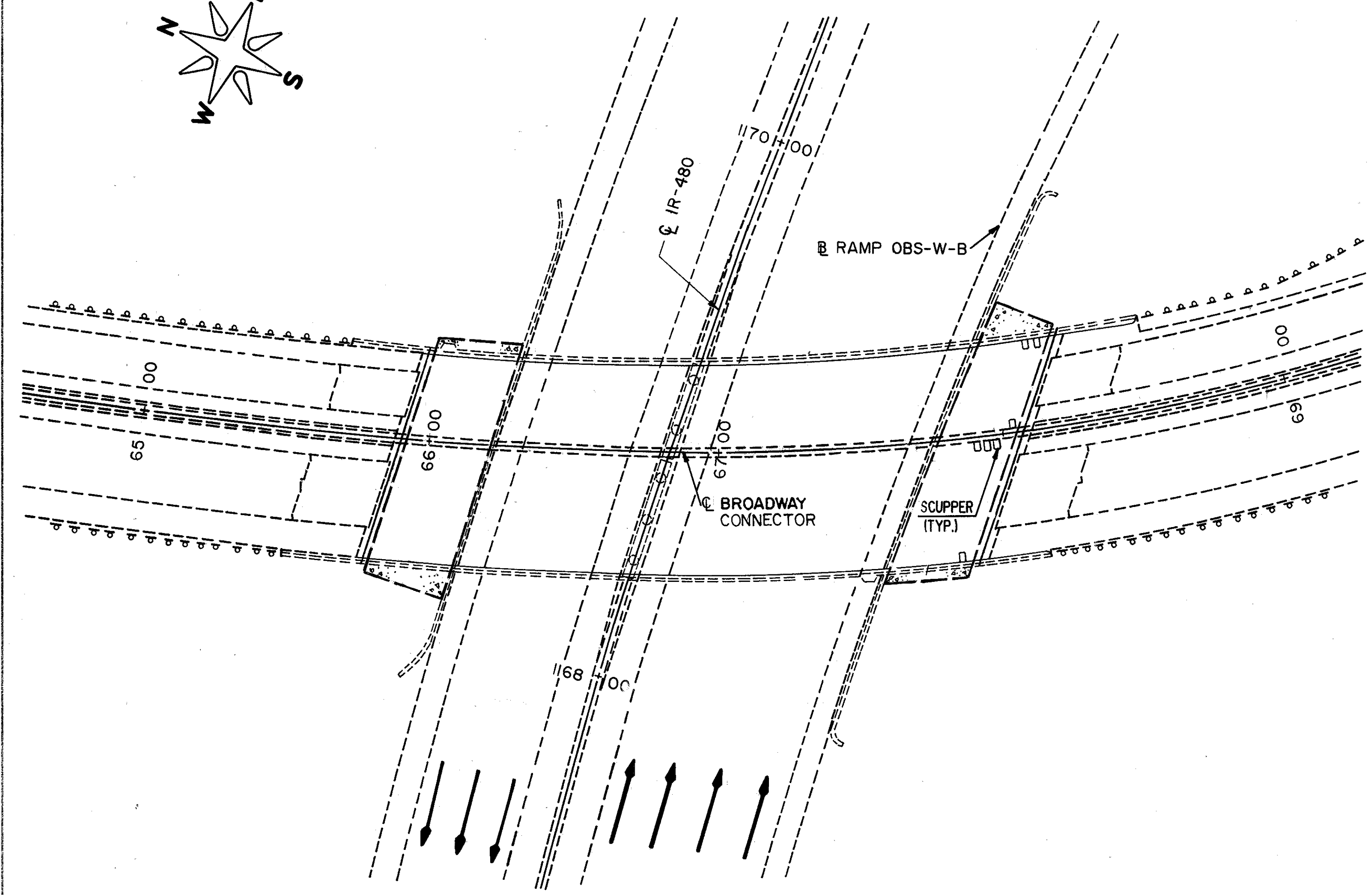
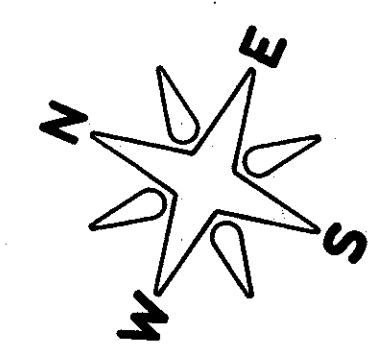
(BR. NO. CUY-480-2165)

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
- 2) 2 1/2" M.S.C. OVERLAY TO GRADE
- 3) SLOPE PROTECTION REPAIR
- 4) SEAL CONCRETE SURFACES
- 5) SEAL EXPANSION JOINTS
- 6) PATCH CONCRETE SURFACE
- 7) SEAL MEDIAN BARRIER JOINT
- 8) DECK BOTTOM SOUNDING AND EPOXY INJECTING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 LOCATION & DESIGN				
PLAN AND BRIDGE TRANSVERSE SECTION				
CUY-480-2163 W CUY-480-2165				
BROADWAY CONNECTOR RAMPS OVER McCracken Rd. CUYAHOGA COUNTY OHIO				
DESIGNED DATE	TRACED T.A.K. DATE	CHECKED J.D.H. DATE	REVIEWED DATE	REVISED DATE
				SHEET 12 / 18

FOR LEGEND SEE SHEET 159.

PLAN AND BRIDGE TRANSVERSE SECTION



* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	SPECIAL SOUNDING CONCRETE BRIDGE COMPO- NENTS SQ. FT.	* 519 PATCHING CONCRETE STRUC- TURES, AS PER PLAN SQ. FT.	* SPECIAL REPAIRING CON- CRETE WITH SOLVENT-FREE EPOXY RESIN SQ. FT.
ABUTMENTS	3,798	8	11
PIERS & CAPS	1,926	4	6
PARAPETS	9,693	19	29
** ADDITIONAL		30	46
TOTAL	15,417	61	92

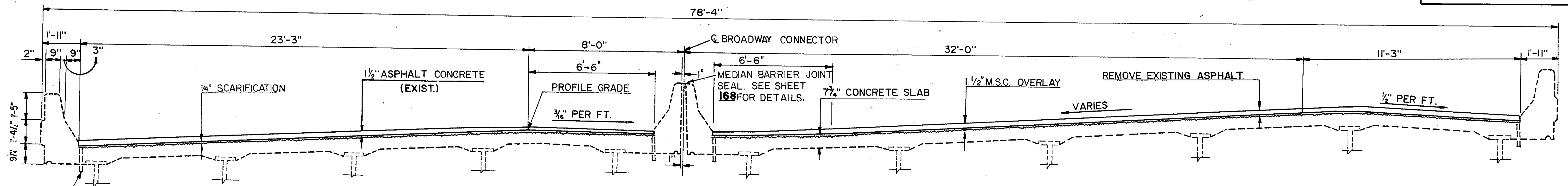
** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER

PROPOSED WORK

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
- 2) 1 1/2" M.S.C. OVERLAY TO GRADE
- 3) SEAL CONCRETE SURFACES
- 4) SEAL EXPANSION JOINTS
- 5) PATCH CONCRETE SURFACES
- 6) SEAL MEDIAN BARRIER JOINT
- 7) DECK BOTTOM SOUNDING AND EPOXY INJECTING

EXISTING STRUCTURE

TYPE: CONTINUOUS 2-SPAN STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
 SPANS: 92'-2 3/8", 120'-9 3/8"
 ROADWAY: 74'-6" CURB TO CURB WITH CONCRETE BARRIER
 LOADING: HS 20-44
 WEARING SURFACE: 1 1/2" ASPHALT CONCRETE
 ALIGNMENT: SPIRAL
 SKEW: 16°-57'-37"



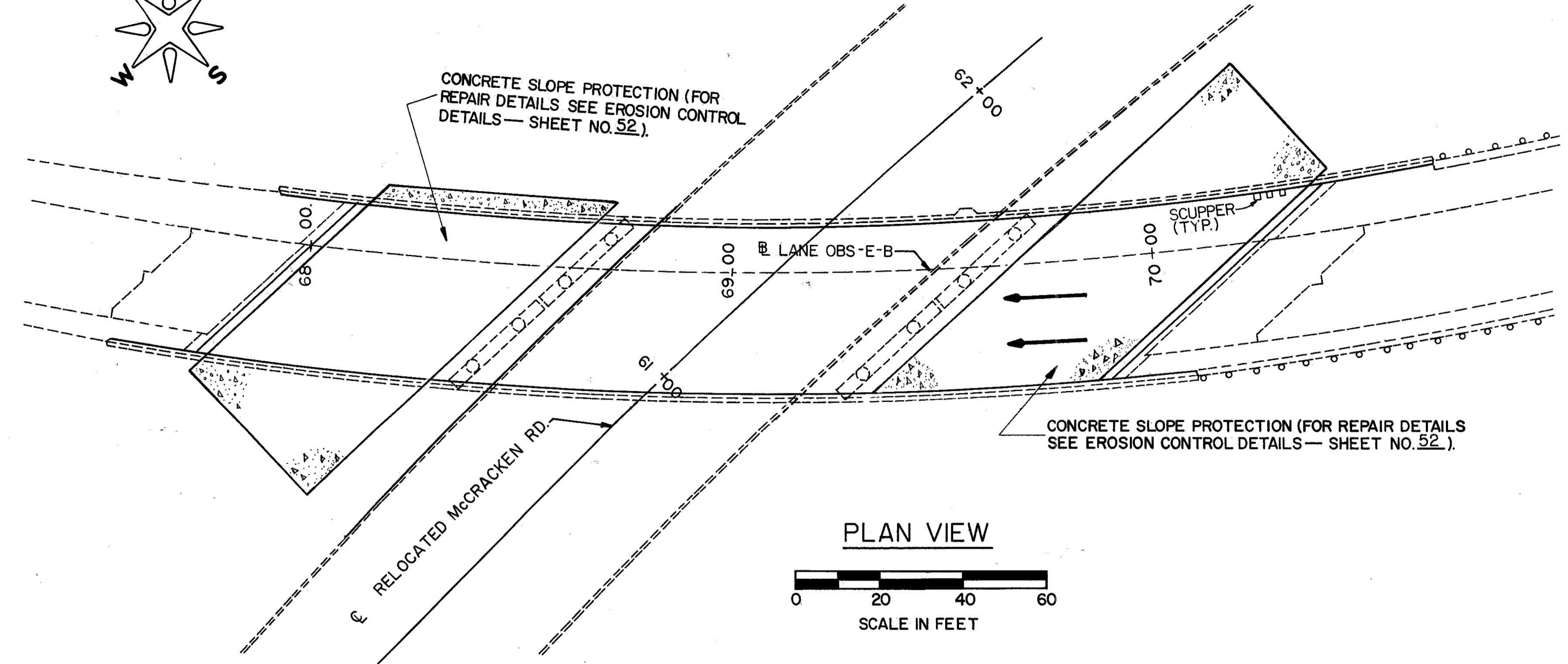
STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
 DISTRICT 12 LOCATION & DESIGN

PLAN AND BRIDGE
 TRANSVERSE SECTION
 BR. NO. CUY-480-2169
 BROADWAY CONNECTOR OVER IR-480

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
T.A.K.	T.A.K.			
DATE	DATE	DATE	DATE	DATE
				SHEET 13 / 18

FOR LEGEND SEE SHEET 159

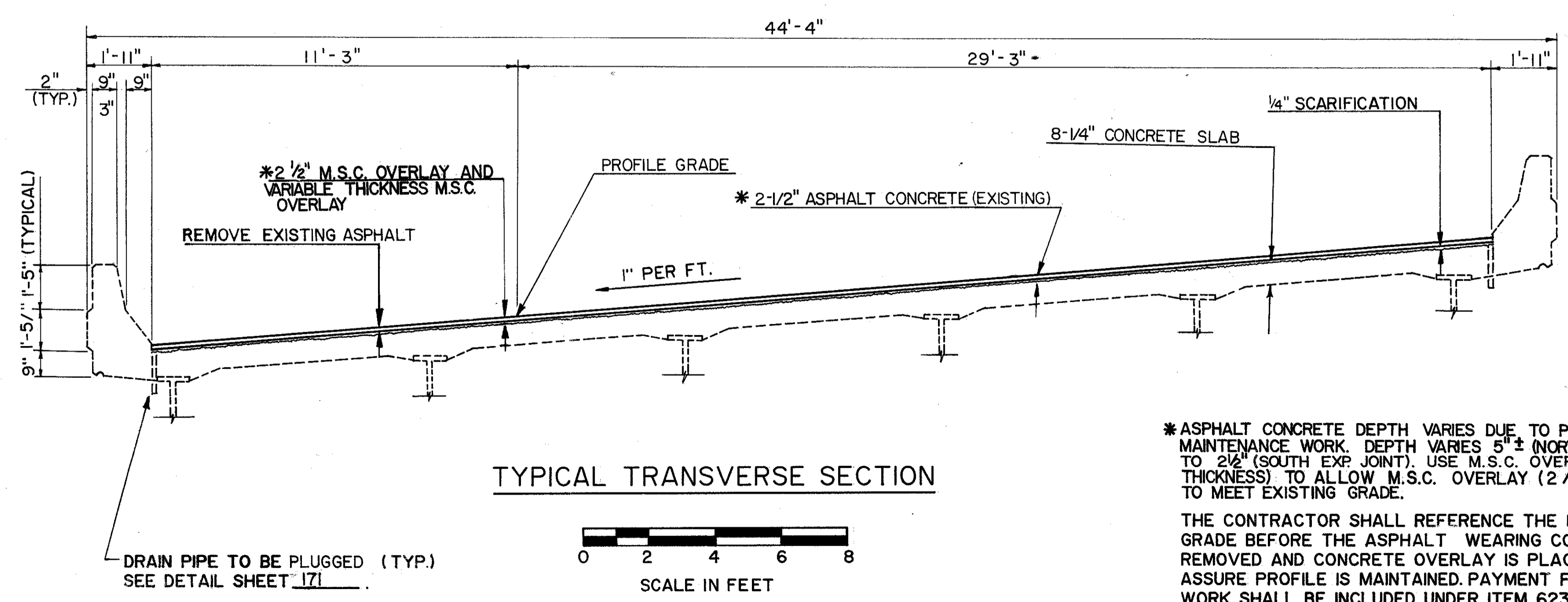
PLAN AND BRIDGE TRANSVERSE SECTION



* ACTUAL UNSOUND AREA OR 1% OF THE SEALED AREA

LOCATION	SPECIAL	* 519	* SPECIAL
	SOUNDING CONCRETE BRIDGE COMPONENTS	PATCHING CONCRETE STRUCTURES, AS PER PLAN	REPAIRING CONCRETE WITH SOLVENT FREE EPOXY RESIN
	SQ. FT.	SQ. FT.	SQ. FT.
ABUTMENTS	1,755	4	5
PIERS & CAPS	2,592	5	8
PARAPETS	5,292	11	16
** ADDITIONAL		19	29
TOTAL	9,639	39	58

** ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE ENGINEER



* ASPHALT CONCRETE DEPTH VARIES DUE TO PREVIOUS MAINTENANCE WORK. DEPTH VARIES 5" ± (NORTH EXP JOINT) TO 2 1/2" (SOUTH EXP JOINT). USE M.S.C. OVERLAY (VARIABLE THICKNESS) TO ALLOW M.S.C. OVERLAY (2" THICKNESS) TO MEET EXISTING GRADE.

THE CONTRACTOR SHALL REFERENCE THE EXISTING GRADE BEFORE THE ASPHALT WEARING COURSE IS REMOVED AND CONCRETE OVERLAY IS PLACED TO ASSURE PROFILE IS MAINTAINED. PAYMENT FOR THIS WORK SHALL BE INCLUDED UNDER ITEM 623-CONSTRUCTION LAYOUT STAKES.

PROPOSED WORK

- 1) REMOVAL OF EXISTING ASPHALT WEARING SURFACE AND SUBDRAINAGE SYSTEM
- 2) 2 1/2" M.S.C. OVERLAY TO GRADE
- 3) SLOPE PROTECTION REPAIR
- 4) SEAL CONCRETE SURFACES
- 5) SEAL EXPANSION JOINTS
- 6) PATCH CONCRETE SURFACES
- 7) DECK BOTTOM SOUNDING AND EPOXY INJECTING

EXISTING STRUCTURE

TYPE: CONTINUOUS 3-SPAN STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.
 SPANS: 61'-8 7/16", 95'-1 7/16", AND 66'-5"
 ROADWAY: 40'-6" CURB TO CURB
 LOADING: HS 20-44
 WEARING SURFACE: 2 1/2" ASPHALT CONCRETE
 ALIGNMENT: SPIRAL, 6°-30'-00" LEFT
 SKEW: 46°-51'-13"

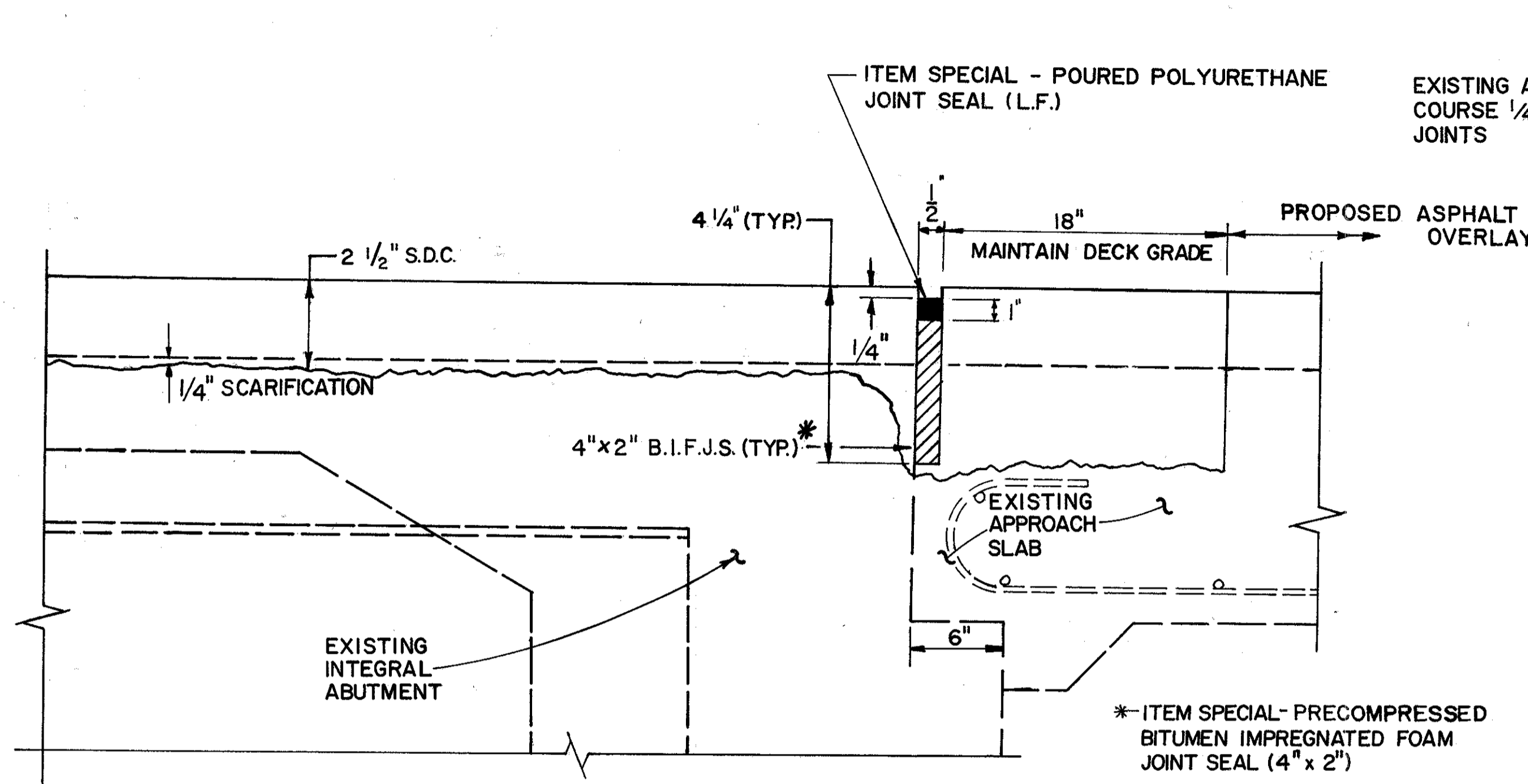
STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
 DISTRICT 12 LOCATION & DESIGN

PLAN AND BRIDGE
 TRANSVERSE SECTION
 BR. NO. CUY-480-2170 E
 LANE OBS-E-B OVER MCCRACKEN RD.
 CUYAHOGA COUNTY OHIO

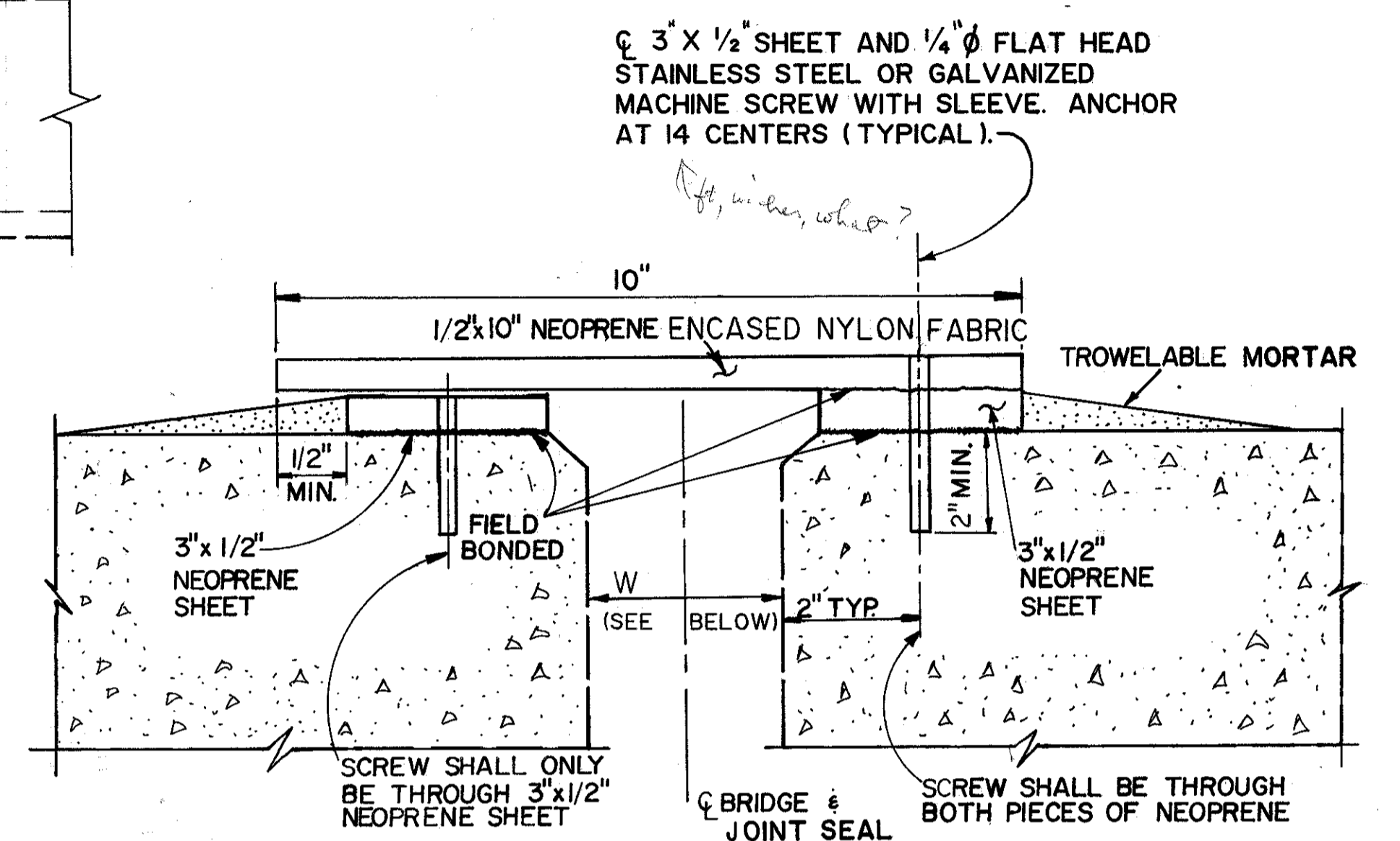
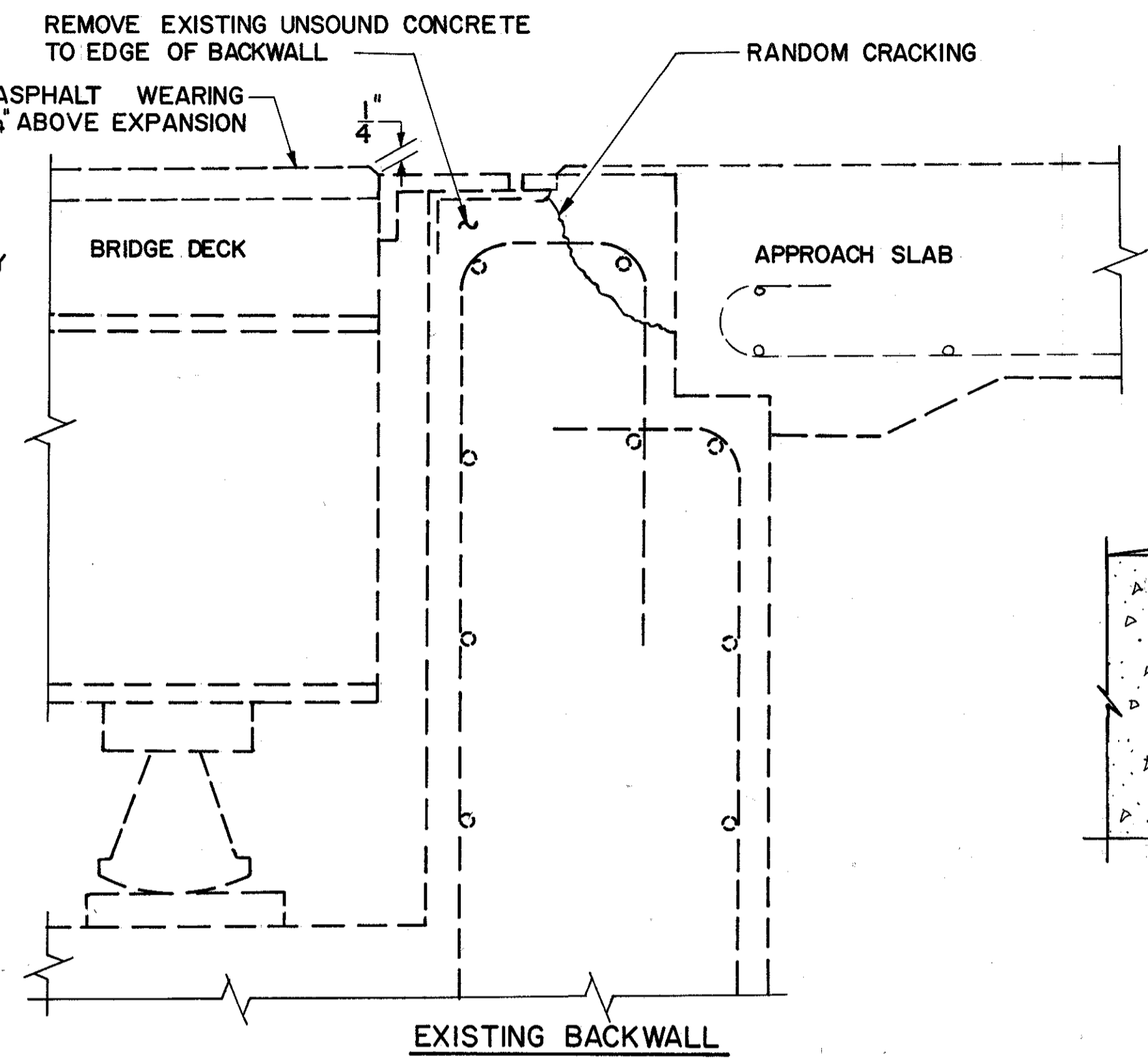
DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	T.A.K. DATE	# DATE	DATE	DATE

SHEET 14 / 18

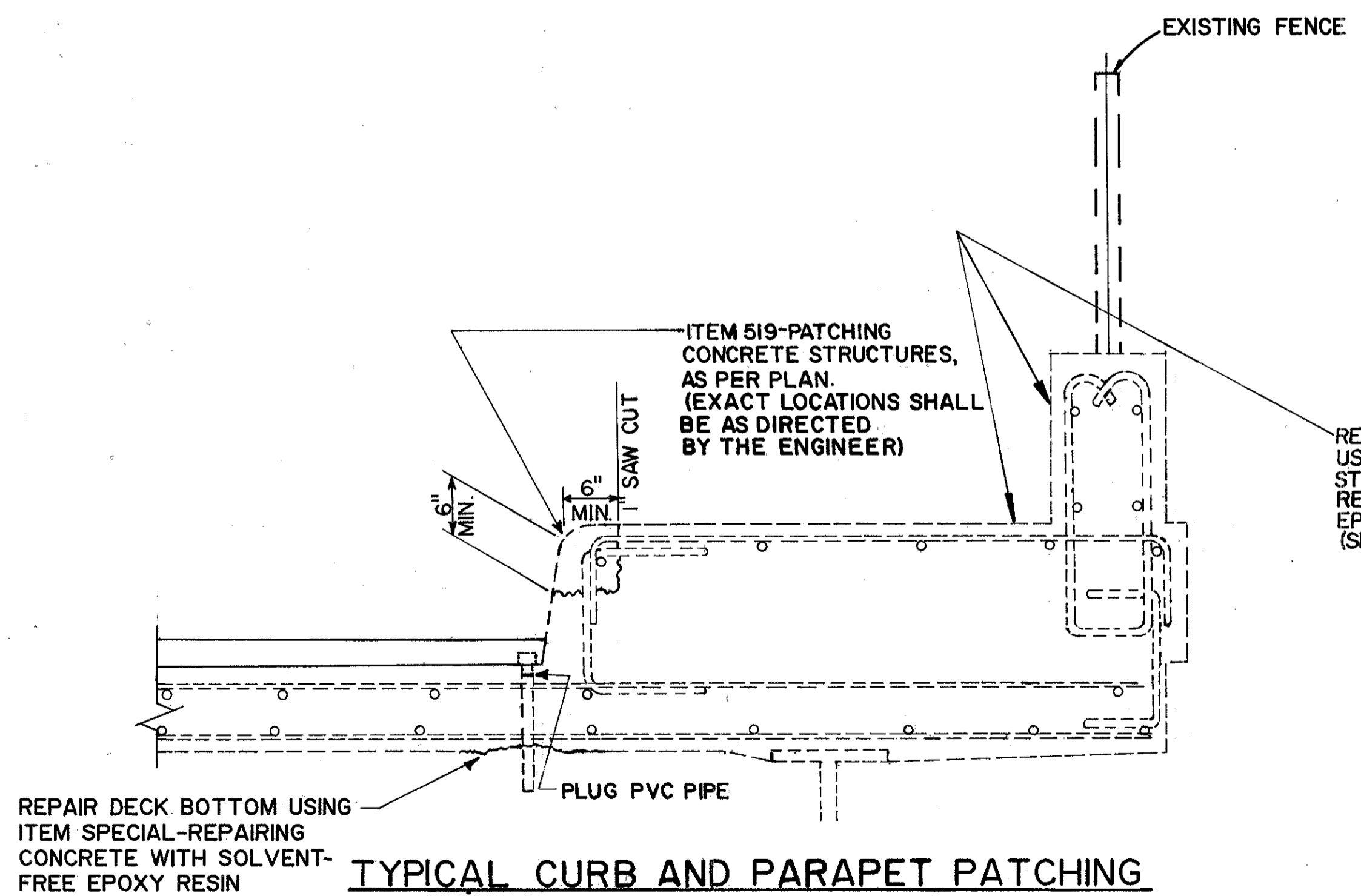
MISCELLANEOUS DETAILS



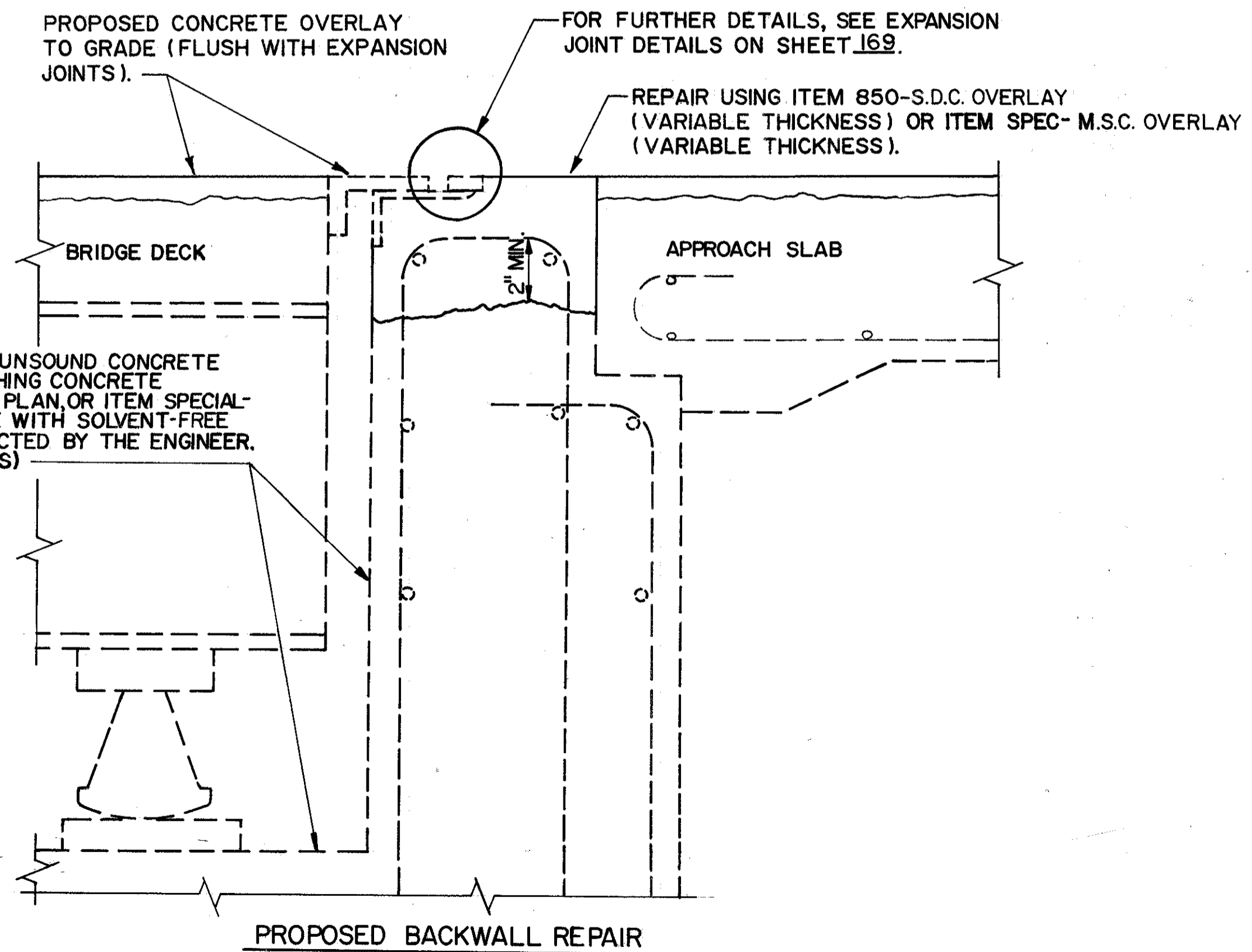
INTEGRAL ABUTMENT SEAL
CUY-480-2165



NEOPRENE MEDIAN JOINT SEAL DETAIL



NOTE: SEE SHEET 171 FOR ADDITIONAL PARAPET PATCHING DETAILS.



NOTE:
MEDIAN BARRIER SEAL SHALL BE CONTINUOUS EXCEPT AT SIGN SUPPORTS, LIGHT POLES AND PULL BOX PILASTERS AND AT EXPANSION JOINTS.
PAYMENT FOR STAINLESS STEEL SCREWS AND TROWELABLE MORTAR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM SPECIAL-NEOPRENE SHEET MEDIAN BARRIER JOINT SEAL FOR PAYMENT. MORTAR SHALL BE AS SPECIFIED IN ITEM 519-PATCHING CONCRETE STRUCTURES, AS PER PLAN (METHOD 2)

BRIDGE	W (IN.)
CUY-480-2140	2.0
CUY-480-2154	1.7
CUY-480-2165	1.8
CUY-480-2169	1.8

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

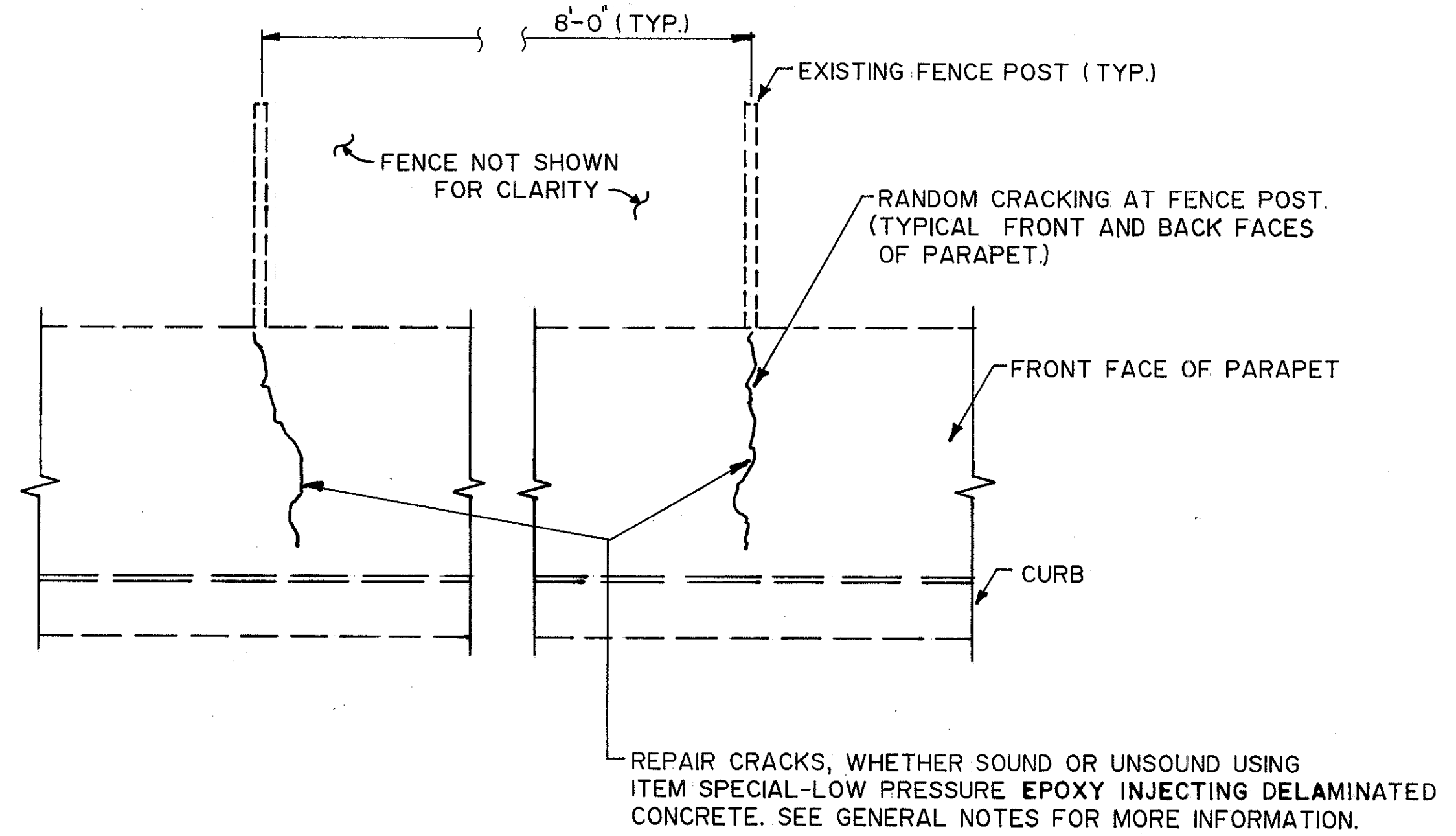
MISCELLANEOUS DETAILS

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	DATE	DATE	DATE	DATE

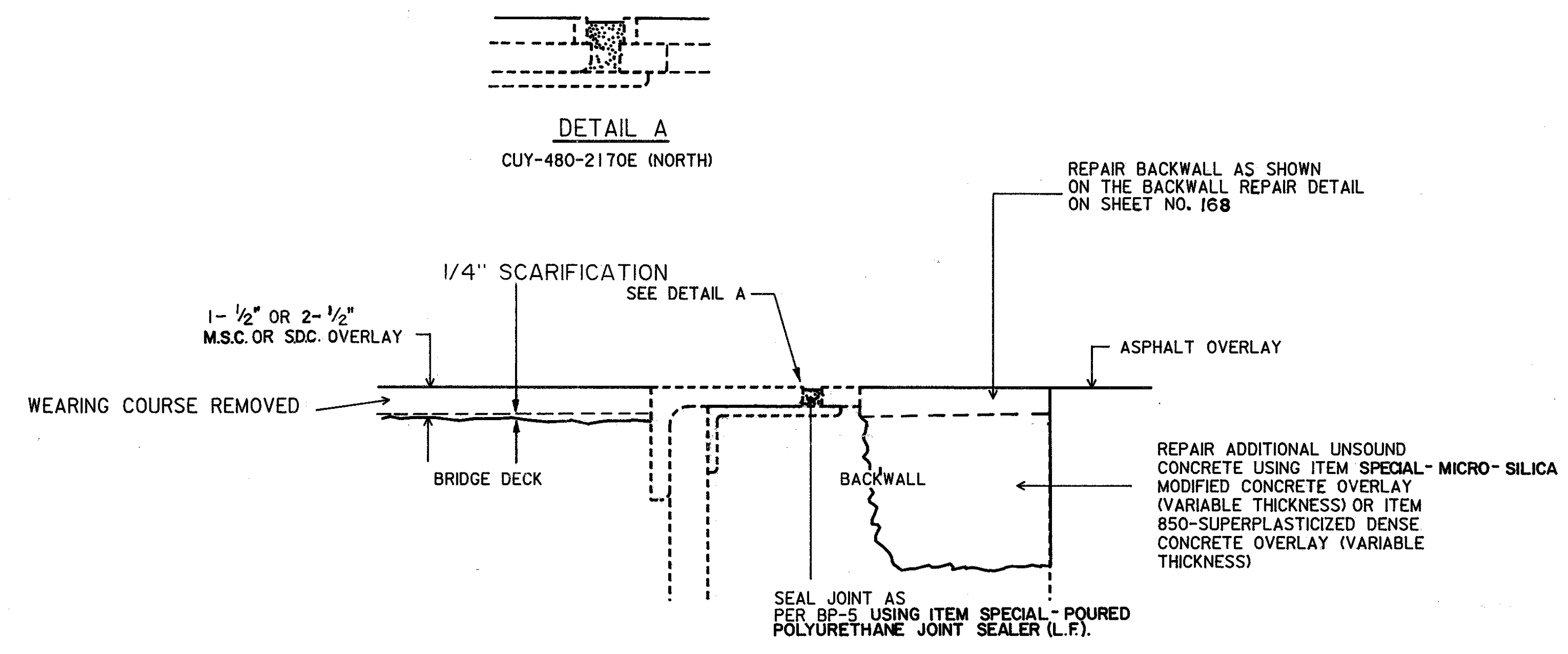
SHEET 15/18

MISCELLANEOUS DETAILS



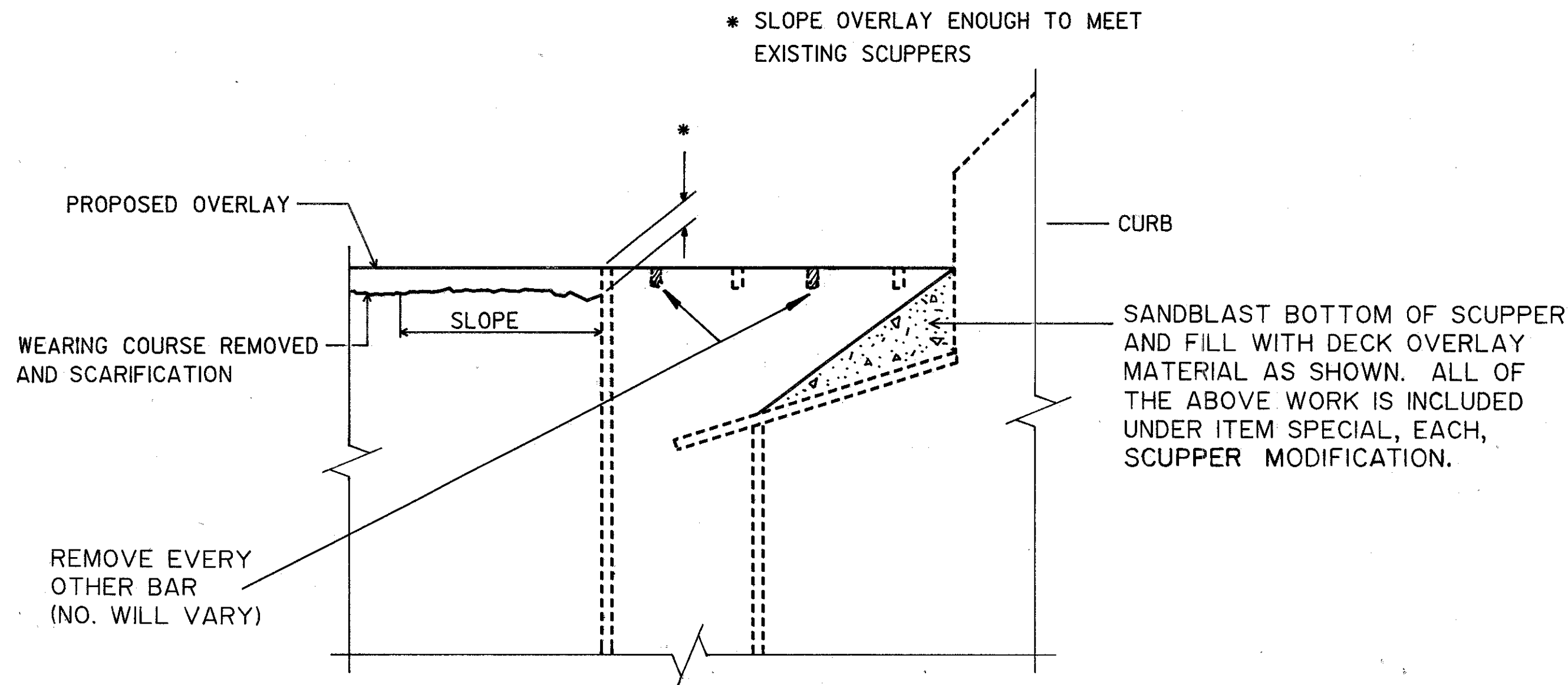
TYPICAL PARAPET CRACK REPAIR (AT FENCE POST)

CUY-480-1955 CUY-480-2016



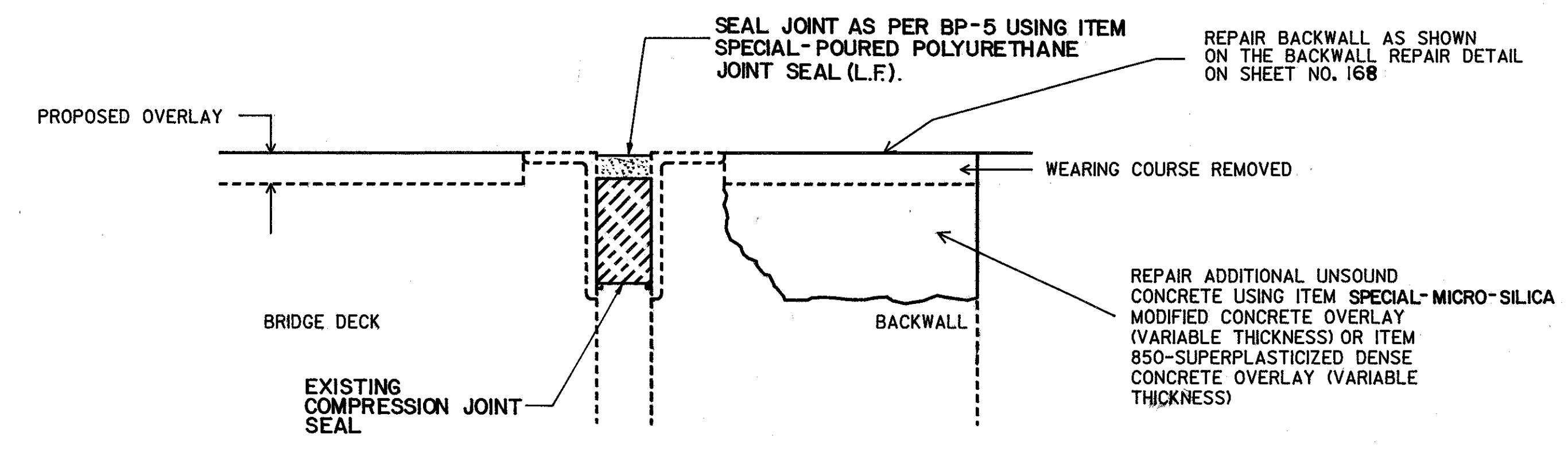
TRANSVERSE SEALING OF STRUCTURAL EXPANSION JOINTS

CUY-480-1955 CUY-480-2154
 CUY-480-2016 CUY-480-2169
 CUY-480-2071 R CUY-480-2170 E (SOUTH)
 CUY-480-2071 L CUY-480-2140



TYPICAL OVERLAY AT SCUPPERS

CUY-480-2016 CUY-480-2163 W
 CUY-480-2071R CUY-480-2165
 CUY-480-2071L CUY-480-2169
 CUY-480-2140 CUY-480-2170 E
 CUY-480-2154



TRANSVERSE SEALING OF STRUCTURAL EXPANSION JOINTS

WITH COMPRESSION SEAL

CUY-480-2163 W

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

MISCELLANEOUS DETAILS

DESIGNED					TRACED					CHECKED					REVIEWED					REVISED																			
DATE					DATE					DATE					DATE					DATE																			
										T.A.K.										L.H.S.																			
CUYAHOGA COUNTY																				OHIO																			
SHEET 16 / 18																																							

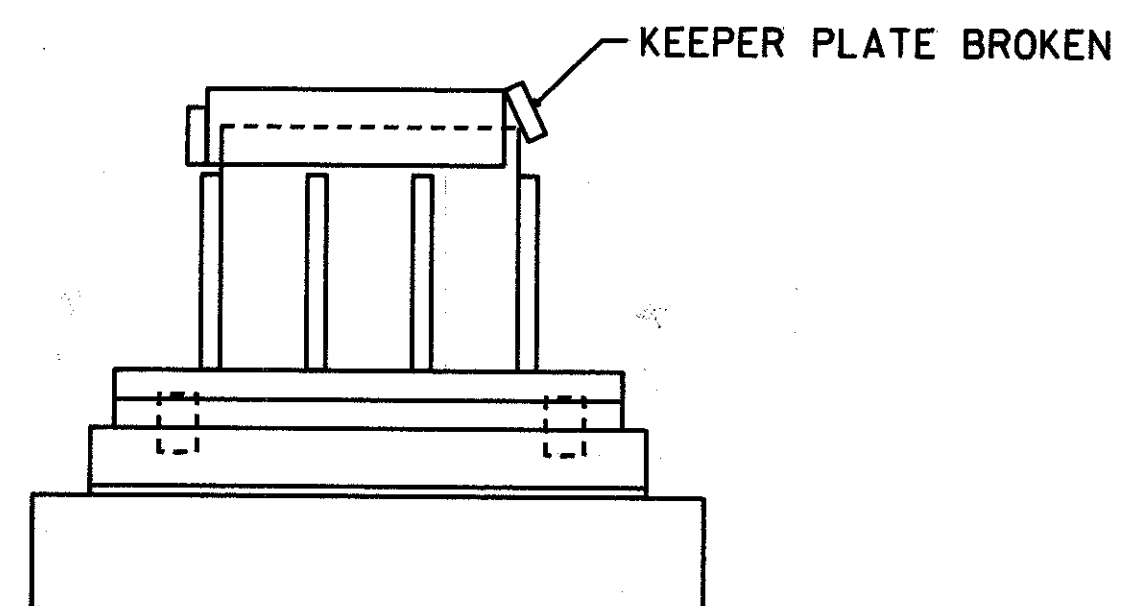
ZFA2:[I00323]BRIDGE .DGN

FHWA REGION	STATE	PROJECT	
5	OHIO		

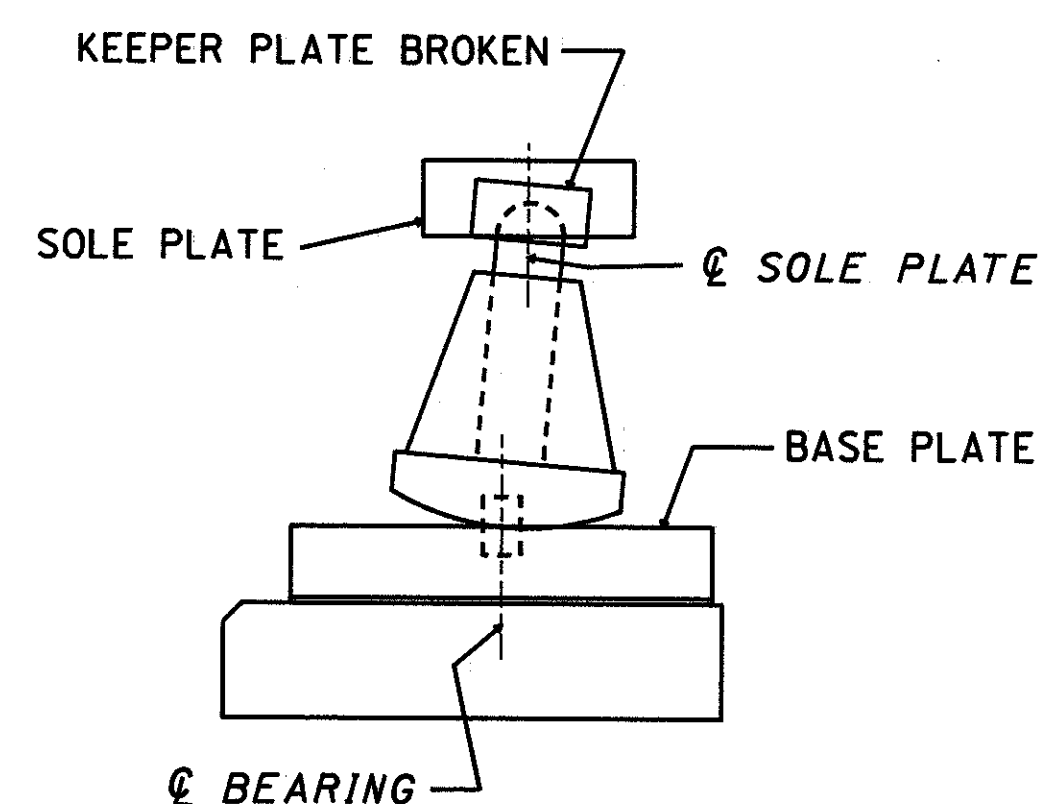
170
171

CUYAHOGA COUNTY
CUI-480-1919

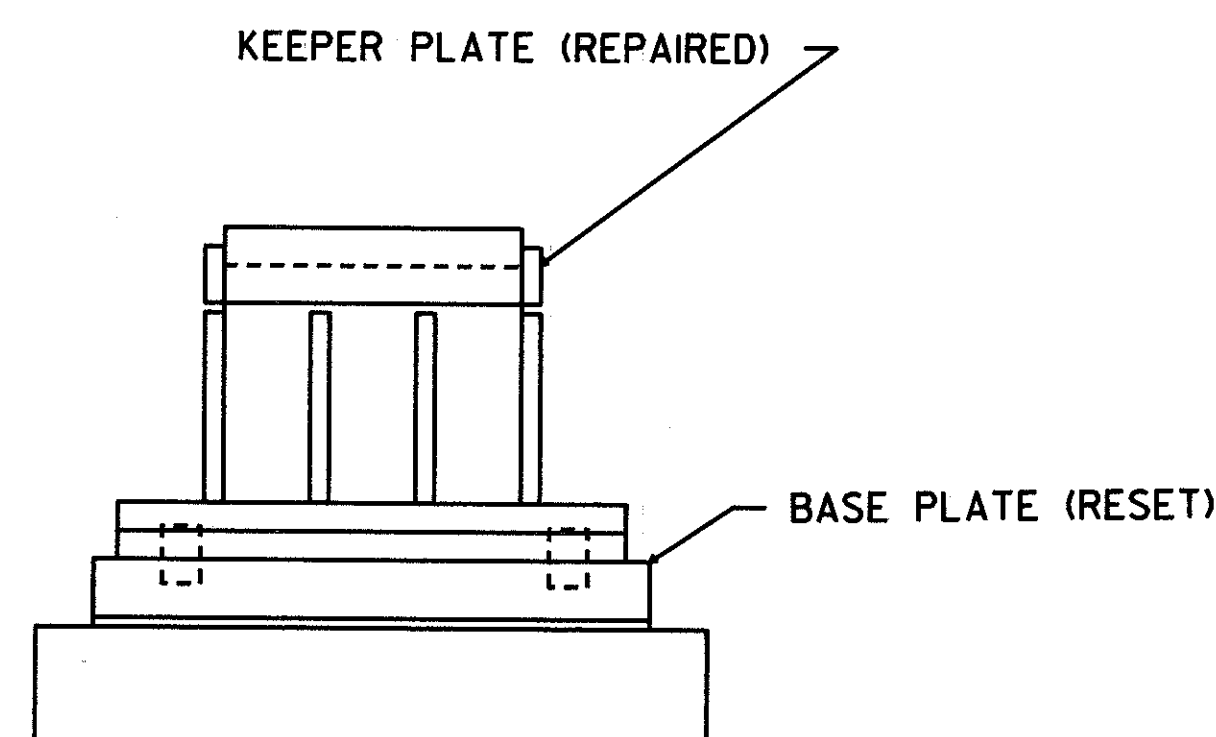
ROCKER DETAILS



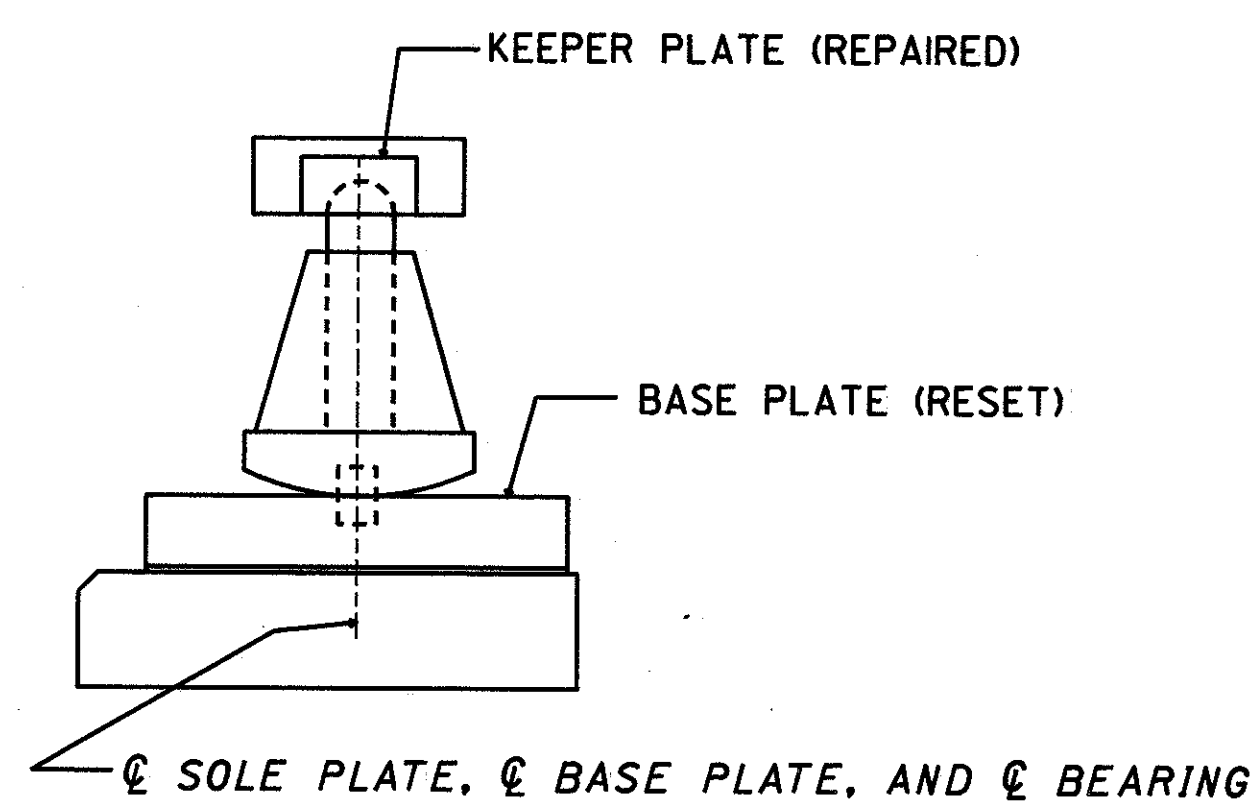
EXISTING FRONT ELEVATION



EXISTING SIDE ELEVATION



MODIFIED FRONT ELEVATION



MODIFIED SIDE ELEVATION

PROCEDURE FOR BEARING REPAIR

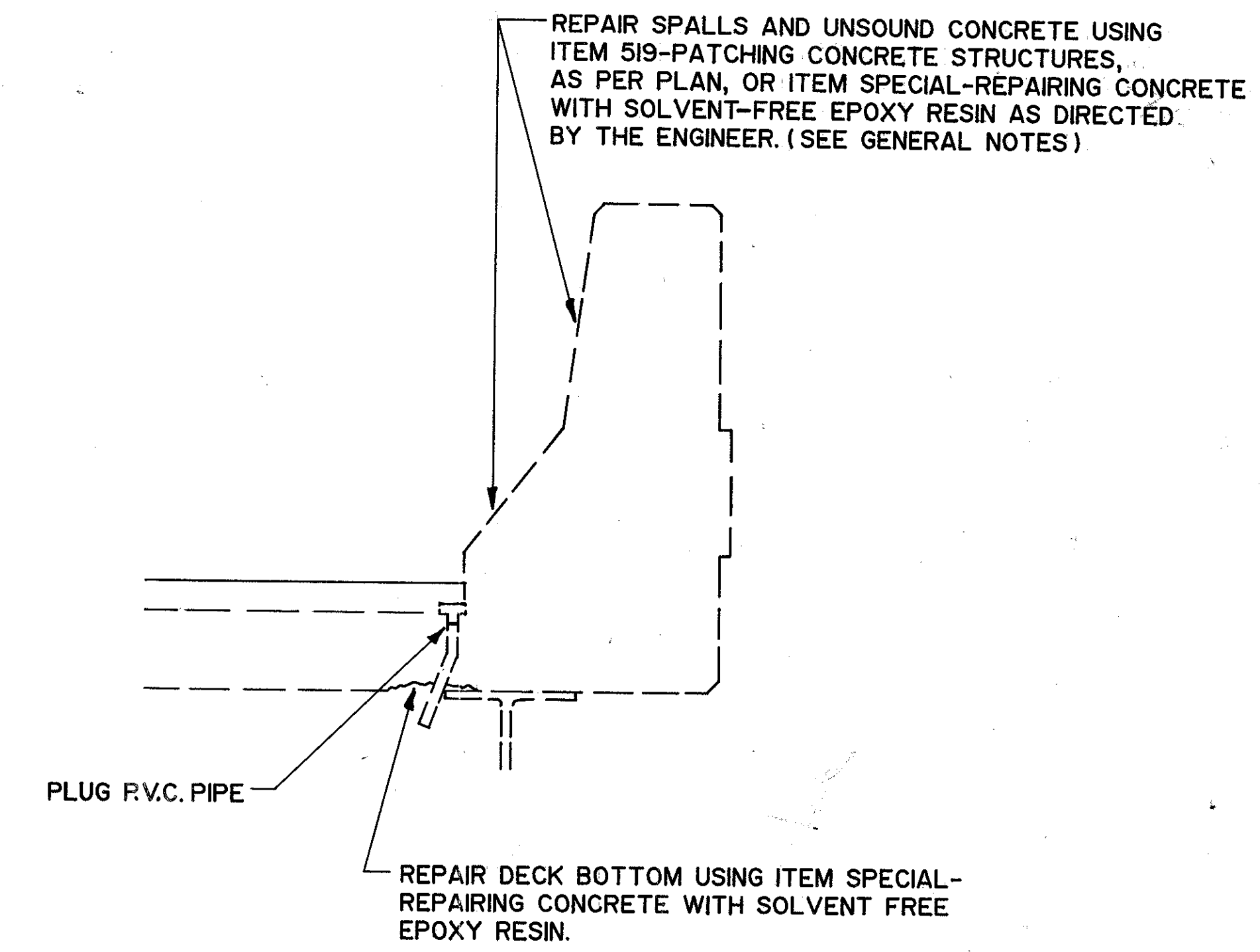
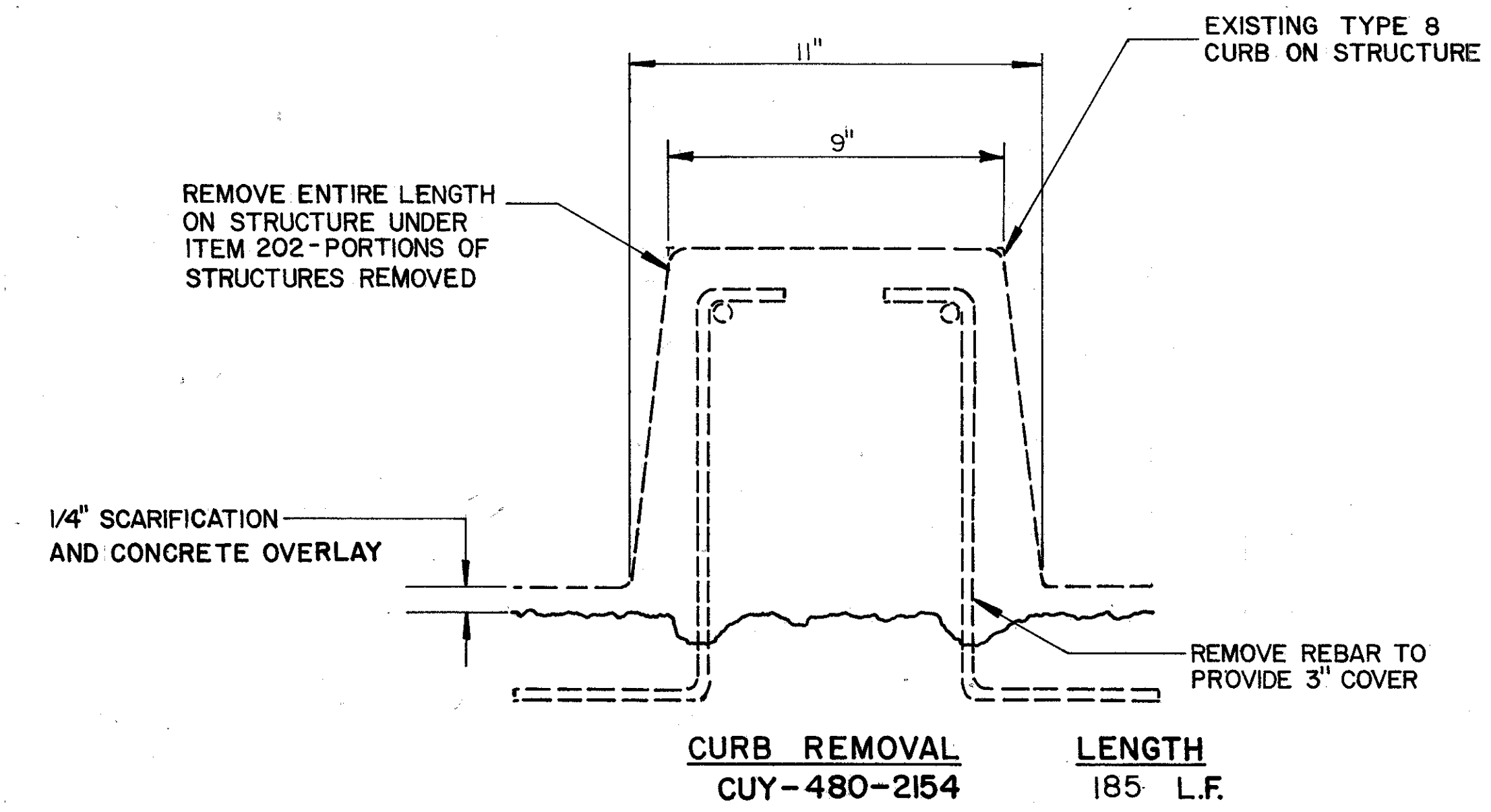
AT LOCATIONS WHERE BACKWALL IS RETAINED

1. RAISE THE SUPERSTRUCTURE AT THE ABUTMENT (1/4" MAX.) UNTIL THERE IS NO CONTACT BETWEEN THE SOLE PLATE AND THE BEARING.
2. RESET THE ROCKER AND BASE PLATE OR BASE PLATE ONLY IN FINAL POSITION, BY CENTERING, AT 60° F, THE BASE PLATE UNDER THE SOLE PLATE BOTH IN THE LONGITUDINAL AND TRANSVERSE DIRECTION.
3. LOWER THE SUPERSTRUCTURE (BEAMS)
4. REWELD THE KEEPER PLATE TO THE SOLE PLATE AS REQUIRED WITH A 5/16" FILLET WELD
5. PLACE TROWELABLE MORTAR (EPOXY) AROUND THE BASE PLATE (SEE ITEM 519-PATCHING CONCRETE STRUCTURES-METHOD 2)

PAID FOR UNDER ITEM SPECIAL - RESET BEARINGS

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 LOCATION & DESIGN				
ROCKER DETAILS BR NO. CUY-480-2071L CUI-480-2154				
CUYAHOGA COUNTY OHIO				
DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
DATE	DATE	DATE	DATE	DATE
	T.A.K.			
				SHEET 17 / 18

MISCELLANEOUS DETAILS



171/171
2-19-19
180-18.18