CUYAHOGA COUNTY CUY-422F-0.51	OHIO FHWA REGION 5	1 102
FR-65(43).	FEDERAL PROJECT	

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-422F-0.51

CITY OF WARRENSVILLE HTS.
VILLAGE OF ORANGE
CITY OF SOLON

MICROFILMED
APR 23 1992

CUYAHOGA COUNTY

DESIGN DESIGNATION	
1985 ADT	=34800
2005 ADT	=48700
DHV	=4870
D	=60%
T	=7%
V	=70 MPH
Legal Speed	*= 55 MPH*

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line or
Fence Line (existing) (proposed)
Center Line 352 353
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light

Limited Access (only) LA
Right of Way (only) RW
Limited Access & Right of Way LA & RW
Existing Right of Way
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)

INDEX OF SHEETS

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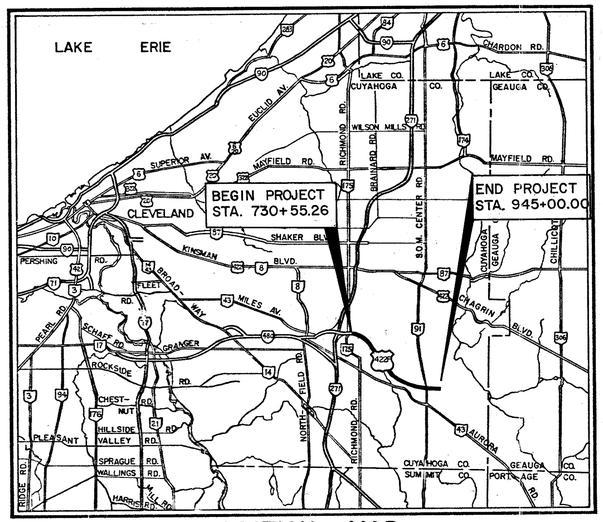


LOCATION MAP

SCALE IN MILES
0 1 2 5 10

Portion to be improved
State & Federal Routes
Other Roads

SCALES

Plan 0 25 50 100
Profile: Horizontal, Vertical
Cross Section: Horizontal 0 5 10 20, Vertical 0 5 10 20

LINE DATA

PROJECT LIMITS

STA. 730+55.26 TO STA. 945+00.00 = 21,444.74 L.F.
TOTAL PROJECT LENGTH = 4.062 MILES

ADDITIONAL WORK

STA. 729+72	TO	STA. 730+55.26	= 83.26 L.F.
STA. 945+00.00	TO	STA. 962+03.64	= 1703.64 L.F.

TOTAL LENGTH OF WORK = 23,231.64 L.F. = 4.400 MILES

UNDERGROUND UTILITIES
TWO WORKING DAYS BEFORE YOU DIG Call — 800-352-2764 (Toll free) OHIO UTILITIES PROTECTION SERVICE NON-MEMBERS MUST BE CALLED DIRECTLY

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.

1987 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.

Approved *Walter A. Gallot*
Date *12-23-86* District Deputy Director of Transportation

Approved *Walter J. Jostings*
JEM Date *1-9-87* Engineer, Bureau of Bridges and Structural Design

Approved *Wayne L. Shiltz*
Date *5-1-87* Chief Engineer, Planning and Design

Approved *Wayne T. Shiltz*
Date *5-1-87* Director, Department of Transportation

SUPPLEMENTAL SPECIFICATIONS		
846	11-24-86	
847	10-17-83	
850	2-25-86	
921	12-4-72	
947	10-17-83	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS							
BP-2	1-11-85	GR-5	2-5-82	HL-1	12-28-84	TC-22.10 3-1-79	TC-52.10 4-3-79
BP-3	12-6-76	GR-6	2-5-82	HL-2	7-27-73	TC-22.20 3-1-79	TC-52.20 4-3-79
BP-4	1-11-85	GR-6A	2-5-82	HL-3	12-28-84	TC-31.21 3-6-79	TC-61.10 4-5-82
BP-5	1-11-85	LA-1	6-1-79	HL-8	1-21-76	TC-32.10 3-8-79	TC-71.10 4-9-79
		MC-1	6-13-69	HL-9	3-22-77	TC-32.11 3-21-79	TC-72.20 2-26-82
BP-11	1-30-84	MC-4	7-26-76	HL-11	6-1-79	TC-35.10 8-29-84	TC-82.10 8-29-84
BP-13	1-11-85			HL-12	12-28-84	TC-41.10 8-29-84	
		MC-9	1-30-84			TC-41.20 3-26-79	
GR-1	1-11-85	MC-9A	1-11-85	TC-12.30	1-20-84	TC-41.50 3-26-79	
GR-2B	2-5-82	MC-11	8-1-78	TC-18.24	4-25-79	TC-42.10 8-19-77	
GR-3	1-21-85			TC-18.26	5-31-79	TC-42.20 3-26-79	
GR-4	2-5-82			TC-21.10	1-20-84	TC-51.10 1-20-84	
GR-4A	1-30-84			TC-21.20	1-20-84	TC-51.11 1-20-84	

Plan Prepared By:
O.D.O.T. DISTRICT 12
Location & Design

Project: CUY-422F-0.51
Date of Letting ____ 19__, Contract No. ____

3337 1147

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

RRUNING 44-560 29724

LDU300 Rev. 9-3-75

FHWA REGION	STATE	PROJECT	
5	OHIO		

2
102

CUYAHOGA COUNTY
CUY-422F-0.51

SCHEMATIC PLAN

N

0 200 400 800 1200 1600 2000
SCALE IN FEET

DESIGN EXCEPTIONS

1) MAINLINE RIGHT SHOULDER WIDTH 9'-3" INSTEAD OF 10'-0" ON STRUCTURES.

2) SPEED CHANGE LANES RIGHT SHOULDER WIDTH 7'-3" INSTEAD OF 10'-0" ON STRUCTURES.

BEGIN WORK
STA. 729+72

BEGIN PROJECT
STA. 730+55.26
S.L.M. = 0.51

FR-65(43)

BRIDGE No.
CUY-422F-0115L

BRIDGE No.
CUY-422F-0115R

BRIDGE No.
CUY-422F-0136

BRIDGE No.
CUY-422F-0244L

BRIDGE No.
CUY-422F-0244R

BRIDGE No.
CUY-422F-0222

EMERY RD.

RICHMOND RD.

RAMP E-N

RAMP N-E

I-271

SPRINGFIELD RD.

MILES RD.

BRAINARD RD.

SOUTH CHAGRIN PARKWAY

HARPER ROAD

BEDFORD RD.

CANNON RD.

740 750 760 770 780 790 800 810 820 830 835+00

Dc = 1°00' 00"
S.E. = 0.024 FT./FT.

Dc = 1°00' 00"
S.E. = 0.024 FT./FT.

CITY OF WARRENSVILLE HTS.

VILLAGE OF ORANGE

CITY OF SOLON

CITY OF BEDFORD

MATCH LINE STA. 835+00

SCHEMATIC PLAN

CUYAHOGA COUNTY CUY-422F-0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	3 102

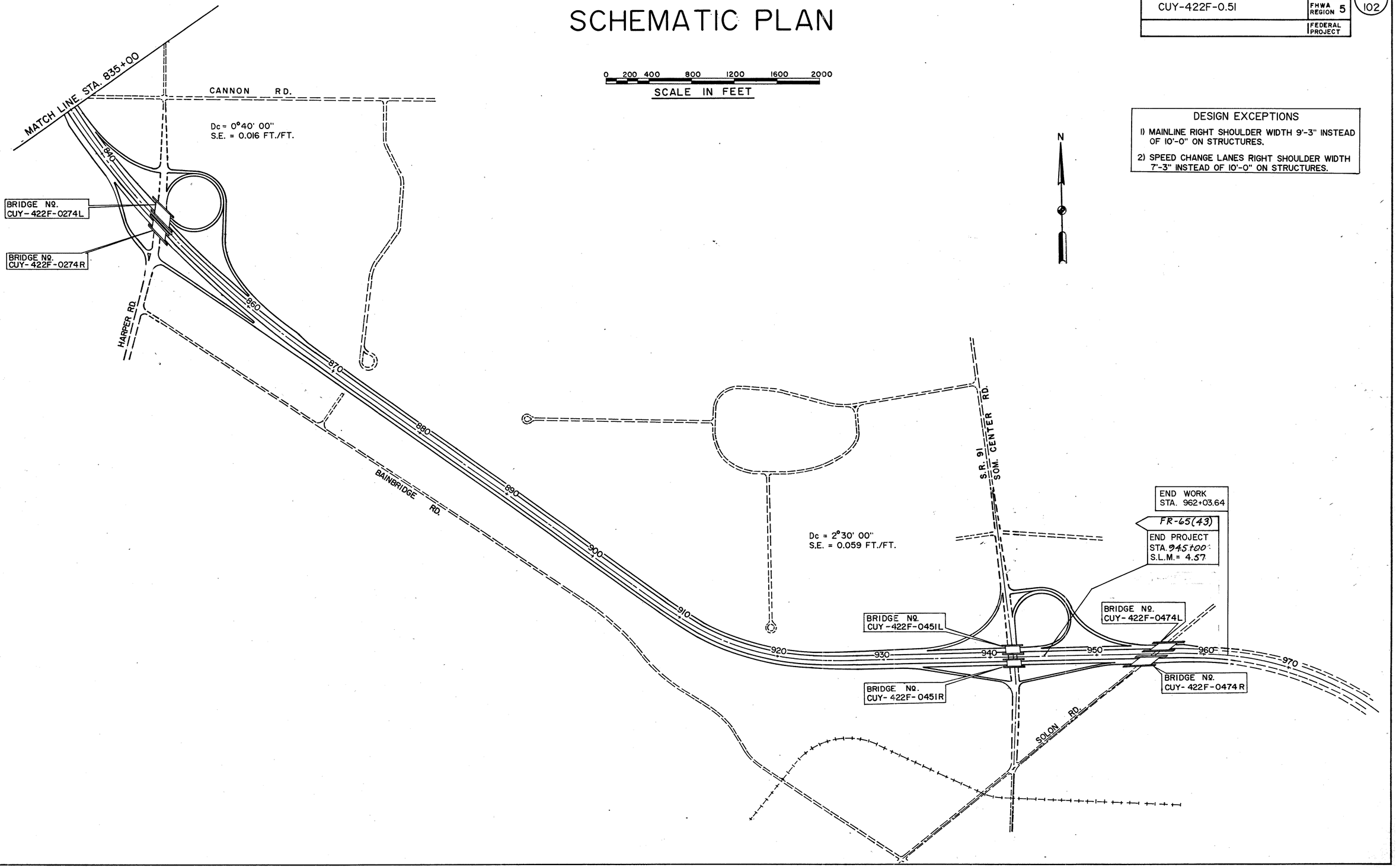
0 200 400 800 1200 1600 2000
SCALE IN FEET

N

DESIGN EXCEPTIONS

1) MAINLINE RIGHT SHOULDER WIDTH 9'-3" INSTEAD OF 10'-0" ON STRUCTURES.

2) SPEED CHANGE LANES RIGHT SHOULDER WIDTH 7'-3" INSTEAD OF 10'-0" ON STRUCTURES.

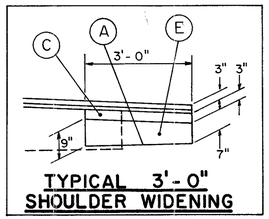


CUYAHOGA COUNTY	OHIO	4
CUY-422F-0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

TYPICAL SECTIONS

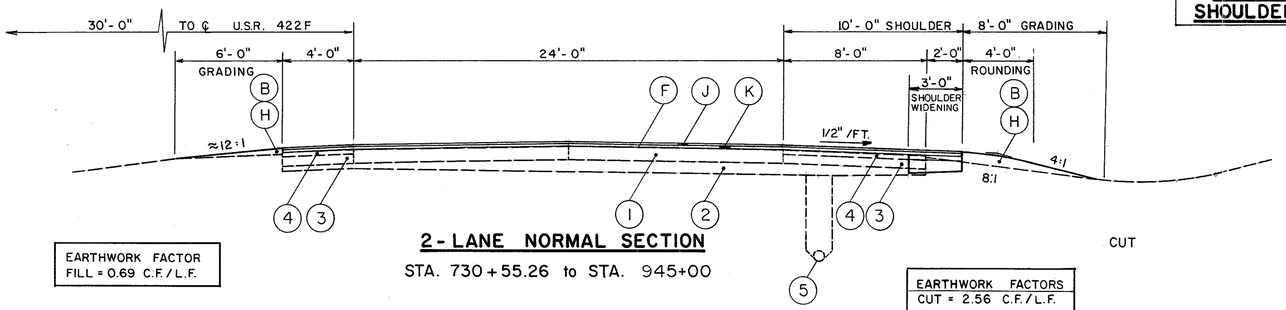
TYPE 846

0 1' 2' 4'



TYPICAL 3'-0" SHOULDER WIDENING

NOTES: GRADING INDICATES THE PAY WIDTH FOR SEEDING AND MULCHING. THE TYPICAL EMBANKMENT LIMIT IS APPROXIMATELY 6 INCHES LESS.



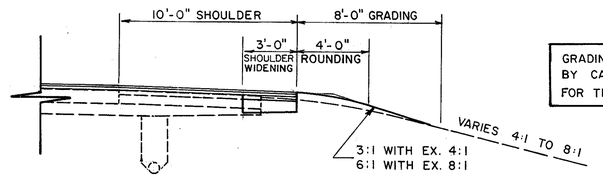
2-LANE NORMAL SECTION

STA. 730+55.26 to STA. 945+00

EARTHWORK FACTOR
FILL = 0.69 C.F./L.F.

EARTHWORK FACTORS
CUT = 2.56 C.F./L.F.
FILL = 2.74 C.F./L.F.
FILL = 1.55 C.F./L.F. W/O RESURFACING

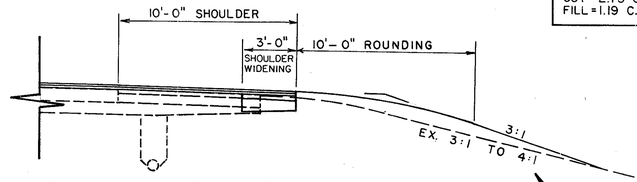
TYPICAL SHOULDER WIDENING ON FILL



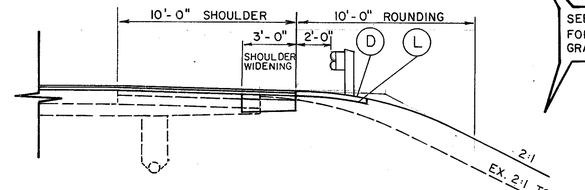
EXISTING SLOPE 4:1 TO 8:1

GRADING QUANTITIES BY CALCULATIONS FOR THESE SECTIONS

EARTHWORK FACTORS
CUT = 2.75 C.F./L.F.
FILL = 1.19 C.F./L.F.

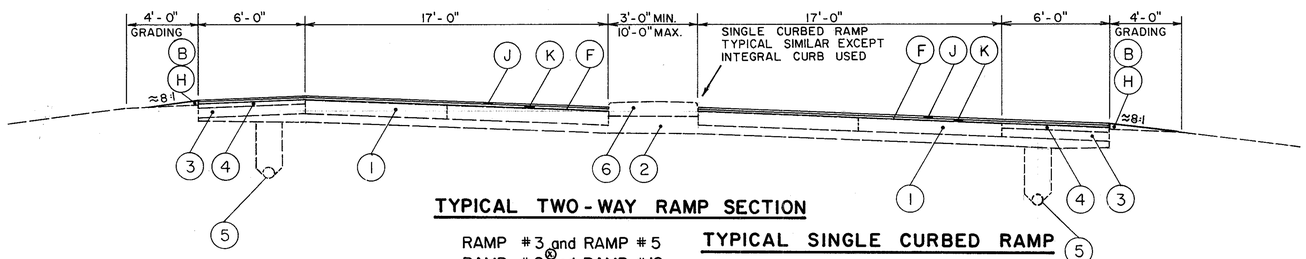


EXISTING SLOPE 3:1 TO 4:1 WITHOUT GUARDRAIL



EXISTING SLOPE 2:1 TO 3:1 WITH GUARDRAIL

SEE CROSS-SECTIONS FOR EXACT GRADING



TYPICAL TWO-WAY RAMP SECTION

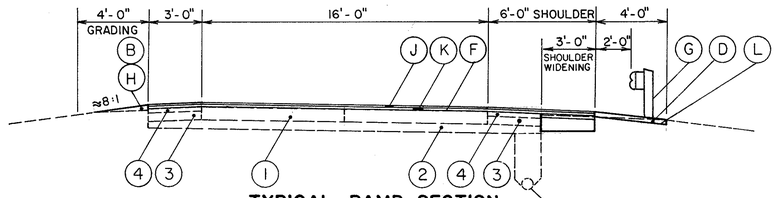
RAMP #3 and RAMP #5
RAMP #8 ⊗ and RAMP #10

TYPICAL SINGLE CURBED RAMP

RAMP #3
RAMP #5
RAMP #10

⊗ - NO RESURFACING RAMP Nº 8

EARTHWORK FACTOR (ALL RAMPS)
FILL = 0.44 C.F./L.F. (EACH SIDE) - W/O GUARDRAIL



TYPICAL RAMP SECTION

RAMP #'s 1 thru 7, 10
RAMP #'s 8 & 9, SHOULDER WIDENING ONLY

EARTHWORK FACTOR
CUT = 2.75 C.F./L.F.
FILL = 0.44 C.F./L.F. (W/O GUARDRAIL)
FILL = 0.00 C.F./L.F. (W/ GUARDRAIL)

EXISTING

1. 9" REINFORCED CONCRETE PAVEMENT
2. SUBBASE
3. AGGREGATE BASE
4. BITUMINOUS AGGREGATE BASE
5. UNDERDRAIN, 30" SHALLOW, 50" DEEP – See sheet 9 for new system.
6. CONCRETE MEDIAN

LEGEND

PROPOSED

- (A) ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
- (B) ITEM 203 EMBANKMENT, AS PER PLAN
- (C) ITEM 301 3" BITUMINOUS AGGREGATE BASE, AC-20
- (D) ITEM 301 3" BITUMINOUS AGGREGATE BASE, AS PER PLAN, AC-20 – GR
- (E) ITEM 310 SUBBASE, TYPE II, AS PER PLAN
- (F) ITEM 407 TACK COAT AS PER PLAN
- (G) ITEM 606 GUARDRAIL, STANDARD TYPE 5
- (H) ITEM 659 SEEDING AND MULCHING (See General Note)
- (J) ITEM 846 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AS PER PLAN AC-20
- (K) ITEM 846 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (1 3/4" AVERAGE), AC-20
- (L) ITEM SPEC. HERBICIDES FOR WEED CONTROL

GENERAL NOTES

GENERAL

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.

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
2. OHIO BELL TELEPHONE CO.
   1020 BOLIVAR RD.
   CLEVELAND, OHIO 44115
   (216) 822-6291
3. THE EAST OHIO GAS CO.
   1201 EAST 55TH ST.
   CLEVELAND, OHIO 44103
   (216) 432-6803
4. N.E. OHIO REGIONAL SEWER DIST.
   1127 EUCLID AVENUE
   CLEVELAND, OH 44115
   (216) 781-6600
5. OHIO DEPT. OF TRANSPORTATION
   10100 BROADWAY AVE.
   GARFIELD HTS., OHIO 44125
   (216) 614-1926
6.
7. CITY OF CLEVELAND,
   DEPT. OF WATER
   1201 LAKESIDE AVE.
   CLEVELAND, OHIO 44114
   (216) 664-3349
8.

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.

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.

ALTERNATE METHODS

IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC, PROVIDED THE INTENT OF THE PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THEREFROM. NO ALTERNATE PLAN SHALL BE PLACED INTO EFFECT UNTIL APPROVAL HAS BEEN GRANTED, IN WRITING, BY THE DIRECTOR.

EQUIPMENT AND MATERIAL STORAGE

IN ORDER TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC THE CONTRACTORS 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) ANY REMOVED ITEMS SHALL NOT BE STORED ON THE RIGHT OF WAY FOR MORE THAN THIRTY DAYS.
3) THE STORAGE OF EQUIPMENT, MATERIALS AND VEHICLES WITHIN THE HIGHWAY RIGHT OF WAY WILL BE PERMITTED. THE NUMBER OF AREAS AND EXACT LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4) 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

ALL ITEMS ARE COST 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.

ITEM 202-CHIPPING CONCRETE PAVEMENT

THIS ITEM SHALL CONSIST OF CHIPPING THE EXISTING CONCRETE PAVEMENT AS DETAILED AND DESCRIBED ON SHEET NO. 32

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 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.

GUARDRAIL PROTECTION

NO SIGNS SUPPORTS SHALL BE ERECTED BEFORE THE NECESSARY GUARDRAIL PROTECTION IS IN PLACE. SIMILARILY 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. II)

GUARDRAIL OVER CULVERTS AND PIER FOOTINGS:

WHEN SUFFICIENT POST DEPTH IS NOT AVAILABLE DUE TO A CULVERT OR PIER FOOTING, THE GUARDRAIL POSTS DIRECTLY OVER THE CULVERT OR PIER FOOTING SHALL NOT BE DRIVEN BUT SET IN HOLES. IF THE DISTANCE BETWEEN THE GROUND LINE AND THE TOP OF THE CULVERT OR PIER FOOTING IS LESS THAN THREE FEET, THE POST SHALL BE ENCASED IN A MINIMUM OF 4" THICKNESS OF CLASS C CONCRETE FOR THE FULL DEPTH BELOW GROUND.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 606-GUARDRAIL TYPE 5.

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 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 IN THE MEDIAN WHICH WERE NOT OTHERWISE SCHEDULED TO BE REPLACED.

ITEM 202-GUARDRAIL REMOVED..... 200 L.F.
ITEM 606-GUARDRAIL,TYPE 5..... 200 L.F.

FASTENING OF BRIDGE TERMINAL ASSEMBLIES

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

WHEN MOUNTING IS TO AN EXISTING WALL THE END TERMINAL SHALL BE ATTACHED USING 7/8 INCH DIAMETER ADHESIVE ANCHORS.

SEQUENCE OF OPERATIONS FOR GUARDRAIL INSTALLATION

1. COMPLETE SHOULDER CONSTRUCTION.
2. REMOVE EXISTING GUARDRAIL (INSTALL TEMPORARY CONCRETE BARRIER AT HAZARDS-SEE PUBLIC SAFETY NOTE).
3. CONSTRUCT STRIP OF ITEM 301 - BITUMINOUS AGGREGATE BASE, AS PER PLAN AS PER TYPICAL SECTIONS.
4. INSTALL NEW 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 4 FEET 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 QUATITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR DUST CONTROL:

ITEM 616-WATER..... 50 M.GAL.
ITEM 616-CALCIUM CHLORIDE..... 5 TON

STANDARD DRAWING BP-13

The last sentence of the footnote (*) on Standard Drawing BP-13 shall be revised to read "If the patch length exceeds 20 feet, the fabric shall consist of W8.5 or D8.5 longitudinal wires spaced 6" c/c and W4 or D4 transverse wires spaced 12" c/c."

PAVEMENT

TACK COAT, AS PER PLAN

THE TACK COAT OPERATION SHALL BE APPROVED AS PER SECTION 407.05 OF THE SPECIFICATIONS. THE APPLICATION RATE SHALL BE 0.075 GALLONS PER SQUARE YARD. THE APPLICATION OF COVER AGGREGATE (IF REQUIRED, AS DETERMINED BY THE ENGINEER) SHALL BE CONSIDERED AS INCIDENTAL TO THE TACK COAT ITEM AND SHALL BE APPLIED AT 7 LBS. PER SQUARE YARD.

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 INCHES ABOVE THAT OF THE EXISTING PAVEMENT.

ITEM 301 - BITUMINOUS AGGREGATE BASE, AS PER PLAN

THIS ITEM SHALL BE USED ON ALL RAMP BERMS PRIOR TO MOVING TRAFFIC ONTO THEM AND TO REPAIR BADLY DAMAGED OR DISTRESSED BERMS AS DIRECTED BY THE ENGINEER. THIS WORK SHALL INCLUDE THE REMOVAL OF 3" OR 6" OF THE EXISTING SHOULDER MATERIAL AND 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. WHEN USED FOR MAINTAINING TRAFFIC THE DEPTH SHALL BE 6 INCHES. WHEN PERFORMING THIS ITEM ON SHOULDERS WHICH ARE TO BE WIDENED THIS ITEM SHALL BE USED TO PAY FOR THE ADDITIONAL 3 INCHES OF MATERIAL REQUIRED IN THE WIDENED AREA. ALL COST OF EXCAVATION AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 301-BITUMINOUS AGGREGATE BASE, AS PER PLAN. THE CONTRACTOR SHALL PERFORM THE ABOVE BETWEEN THE HOURS OF 9:00 A.M. AND 3:00 P.M. AND SHALL NOT CLOSE MORE THAN ONE LANE IN EACH DIRECTION AT ANY ONE TIME.

THIS ITEM SHALL ALSO BE USED FOR EROSION CONTROL UNDER EXISTING OR PROPOSED GUARDRAIL. EXCAVATION AND SITE RESTORATION NECESSARY FOR PLACEMENT SHALL BE INCLUDED IN THIS ITEM. THIS ITEM SHALL BE PLACED FLUSH WITH THE SURROUNDING SOIL OR SHOULDER.

WHEN WORKING UNDER EXISTING GUARDRAIL THE COMPACTION METHOD SHALL BE AS APPROVED BY THE ENGINEER. BEFORE COMPLETION OF WORK ON THIS PROJECT BY THE CONTRACTOR, ANY DAMAGE TO THIS ITEM CAUSED BY THE INSTALLATION OF GUARDRAIL OR OTHER ITEMS OF WORK SHALL BE REPAIRED, AT NO ADDITIONAL COST TO THE STATE.

FOR ESTIMATED QUANTITIES, SEE PERTINENT CALCULATION SHEETS OR SUB-SUMMARY SHEETS.

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 OR 305. ALL COST OF EXCAVATION AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 310 - SUBBASE, TYPE I AS PER PLAN. THE FOLLOWING ESTIMATED QUANTITY IS INCLUDEDIN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 310 - SUBBASE, TYPE 1 AS PER PLAN..... 60 C.Y.

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, STANDARD TYPE 1... 600 L.F.

ITEM 846

ON THIS PROJECT, ITEM 846, Table 2-2, PROPERTIES OF MIXTURES SHALL BE FOR HEAVY TRAFFIC VOLUMES.

ITEM 846-ASPHALT CONCRETE AS PER PLAN

THE AGGREGATE IN THE 846 SURFACE COURSE TYPE I IS RESTRICTED TO SLAG.

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 846-ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20, AS PER PLAN.

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.

ITEM 305 - CONCRETE BASE, AS PER PLAN

THIS ITEM SHALL BE USED ON ALL MAINLINE BERMS PRIOR TO MOVING TRAFFIC ONTO THEM. THIS WORK SHALL INCLUDE THE REMOVAL OF 9" OF THE EXISTING SHOULDER MATERIAL AND THE CONSTRUCTION OF A 9" COURSE OF ITEM 305 ON THE EXISTING SUBBASE OR NEW SUBBASE. ALL COSTS OF EXCAVATION AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 305-CONCRETE BASE, AS PER PLAN. THE CONTRACTOR SHALL PERFORM THIS WORK BETWEEN THE HOURS OF 9:00 A.M. AND 3:00 P.M. AND SHALL NOT CLOSE MORE THAN ONE LANE IN EACH DIRECTION AT ANY ONE TIME.

FOR ESTIMATED QUANTITIES, SEE PERTINENT CALCULATION SHEETS OR SUB-SUMMARY SHEETS.

FULL DEPTH RIGID PAV'T REMOVAL AND FLEXIBLE REPLACEMENT (SEE PROPOSAL)

THIS WORK SHALL BE PERFORMED WHERE RIGID REPLACEMENT IS NOT FEASIBLE AS DETERMINED BY THE ENGINEER. (TYPICALLY THE RAMP TERMINI AT INTER-SECTING 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 SPECIAL - FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT.....500 S.Y.

ITEM SPECIAL - *FULL DEPTH PAVEMENT SAWING* . . . 1500 *L.F.*

RETRO-REFLECTORS ON CONCRETE BARRIERS

RETRO-REFLECTORS SHALL BE MOUNTED AT 100 FOOT SPACING ON THE FACE OF ALL CONCRETE BARRIERS. THE TOP OF THE REFLECTOR SHALL BE MOUNTED 26 INCHES ABOVE THE NEAR EDGE OF PAVEMENT, BUT NOT LESS THAN 3 INCHES BELOW THE TOP OF THE BARRIER. THE REFLECTOR SHALL BE INSTALLED WITH A SLIGHT BACKWARDS SLANT SO THAT IT IS EXPOSED TO RAIN.

THE REFLECTOR SHALL BE AMBER OR CRYSTAL. (TO MATCH THE ADJACENT EDGE LINE PAVEMENT MARKING) THE REFLECTOR SHALL BE A MINIMUM OF APPROXIMATELY 8 SQUARE INCHES AND TILTED APPROXIMATELY 15 DEGREES TO THE NORMAL. THE REFLECTOR SHALL BE AS MANUFACTURED BY "STIMSONITE", "ASTRO OPTICS" OR AN APPROVED EQUAL.

THE ADHESIVE SHALL BE "FRANKLIN PANEL AND METAL FRAMING ADHESIVE" OR "PRODUCTS RESEARCH AND CHEMICAL CORPORATION PR-35" OR AN APPROVED EQUAL. SUFFICIENT ADHESIVE SHOULD BE USED TO COVER THE ATTACHMENT AREA. "FLASHING" SHALL BE EMPLOYED TO ENHANCE THE ADHESION.

ALL COSTS OF MATERIAL AND INSTALLATION SHALL BE CONSTRUCTED INCIDENTAL TO THE PERTINENT CONCRETE BARRIER ITEM.

ITEM SPECIAL-PARTIAL DEPTH PAVEMENT REPAIR

THIS ITEM OF WORK SHALL CONSIST OF PARTIAL DEPTH REMOVAL OF EXISTING PAVEMENT IN AREAS EXHIBITING DETERIORATION AT THE SURFACE, APPLYING TACK COAT, AND PLACING AND COMPACTING 404 ASPHALT CONCRETE.

THE REPAIR AREAS WILL GENERALLY BE RECTANGULAR IN SHAPE WITH DIMENSIONS AS REQUIRED TO ENVELOP SURFACE DETERIORATION. TYPICAL REPAIR AREAS WILL EXTEND THE FULL WIDTH OF A TRAFFIC LANE AT TRANSVERSE JOINTS, ALONG PORTIONS OF LONGITUDINAL JOINTS AND OTHER AREAS OF DETERIORATING PAVEMENT AS DIRECTED BY THE ENGINEER.

THE TYPICAL AND MINIMUM REPAIR WIDTH SHALL BE 12 INCHES. THE DEPTH OF REPAIR MAY VARY BETWEEN A 2 INCH MINIMUM AND A 3 INCH MAXIMUM AS REQUIRED TO REMOVE THE EXISTING ASPHALT PATCH OR DISTRESSED CONCRETE. ALL REPAIR AREAS WILL BE LOCATED BY THE ENGINEER AND MARKED WITH PAINT PRIOR TO THE START OF THE WORK.

THE PAVEMENT SHALL BE REMOVED TO THE SPECIFIED DEPTH WITHIN THE DESIGNATED LIMITS BY A GRINDING METHOD THAT WILL CUT NEAT VERTICAL EDGES AND WILL NOT LOOSEN OR OTHERWISE DAMAGE ADJACENT PAVEMENT. PAVEMENT SO REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH 203.05.

AFTER REMOVAL OF THE PAVEMENT, ITEM 407 - TACK COAT SHALL BE APPLIED AT APPROXIMATELY 0.25 GALLONS PER SQUARE YARD TO ALL VERTICAL FACES AND HORIZONTAL SURFACES.

ASPHALT CONCRETE MEETING THE REQUIREMENTS OF 404 SHALL THEN BE PLACED AND COMPACTED IN ONE OR MORE LIFTS AS NECESSARY TO FINISH FLUSH WITH THE ADJACENT PAVEMENT SURFACES. THE EDGES OF ALL PATCHES SHALL BE SEALED WITH ASPHALT CEMENT. THE MATERIAL SHALL BE APPLIED AT A UNIFORM WIDTH OF 4 INCHES AND AT A RATE SUFFICIENT TO FILL SURFACE VOIDS.

THE NUMBER OF SQUARE YARDS TO BE PAID FOR SHALL BE CALCULATED USING THE DIMENSIONS ESTABLISHED BY THE ENGINEER. PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE WORK INCLUDING TACK COAT, ASPHALT CONCRETE AND SEAL MATERIAL. PAYMENT WILL BE MADE UNDER ITEM SPECIAL - PARTIAL DEPTH PAVEMENT REPAIR.

FOR ADDITIONAL DETAILS, NOTES AND QUANTITIES SEE SHEET NO. 31.

ASPHALT APPROACHES AT BRIDGES

THE ASPHALT APPROACHES TO STRUCTURES SHALL BE PLACED AS SHOWN ON THE DETAILS ON SHEET NO. 32. MINOR SURVEY WORK WILL BE REQUIRED TO DETERMINE THE LIMITS OF WEARING COURSE REMOVAL AND CONCRETE PAVEMENT CHIPPING. ALL COSTS OF SAID SURVEY SHALL BE INCLUDED IN THE PERTINENT 202 ITEMS.

ITEM 310 SUBBASE, TYPE I OR II, AS PER PLAN

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

ITEM SPECIAL - FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT

DESCRIPTION. THIS WORK SHALL CONSIST OF PAVEMENT REMOVAL, SUBBASE/SUBGRADE CORRECTION, RIGID PAVEMENT REPLACEMENT, AND SHOULDER RESTORATION IN ACCORDANCE WITH DETAILS SHOWN IN THE PLANS. UNLESS OTHERWISE PROVIDED HEREIN, THE MATERIALS AND WORK SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF 202, 301, 305, 310, 402, 404, 451, 452, 453.499, 846 & 448 AS APPLICABLE. THE REQUIREMENTS OF ITEM 451.16 SHALL BE WAIVED FOR THIS WORK.

MATERIALS. PORTLAND CEMENT CONCRETE SHALL BE CLASS C, ITEM 499 UNLESS OTHERWISE SPECIFIED IN THE PLANS.

JOINT SEALER SHALL MEET THE REQUIREMENTS OF ASTM D-3405, SHALL BE SAMPLED IN ACCORDANCE WITH 705.01 AND SHALL BE PRETESTED BEFORE SHIPMENT TO THE PROJECT.

BOND-BREAKER MATERIAL SHALL BE ON THE APPROVED LIST ISSUED BY THE LABORATORY.

NONSHRINK NONMETALLIC GROUT SHALL MEET THE REQUIREMENTS OF ASTM C-881, TYPE I, GRADE 3, CLASS A, B OR C EXCEPT GEL TIME. THE GROUT SHALL CONSIST OF A TWO COMPONENT EPOXY OR POLYESTER RESIN BONDING COMPOUND THAT WILL FIRMLY ANCHOR THE DOWEL/TIE BAR WITHIN 15 MINUTES.

THE GROUT SHALL BE ACCEPTED BY CERTIFICATION IN ACCORDANCE WITH 101.061.

FULL DEPTH PAVEMENT SAWING. THE LIMITS OF ALL REPAIRS WILL BE LOCATED AND MARKED BY THE ENGINEER. RIGID PAVEMENT AREAS EXHIBITING DETERIORATION AT THE SURFACE SHALL BE MARKED ONE (1) FOOT MINIMUM BEYOND THE LIMITS OF DETERIORATION BUT IN NO CASE SHALL THE MINIMUM DIMENSION OF THE RIGID REPLACEMENT BE LESS THAN SHOWN IN THE PLANS. PAVEMENT DESIGNATED TO BE REMOVED SHALL BE SAWED FULL DEPTH WITH A DIAMOND SAW BLADE. IF THE EXISTING PAVEMENT IS TO BE OVERLAID WITH ASPHALT CONCRETE, OTHER APPROVED METHODS OF FULL DEPTH SAWING MAY BE USED.

IN AREAS WITH AN EXISTING BITUMINOUS OVERLAY, AN OFF-SET CUT MAY BE MADE THROUGH THE OVERLAY AT THE OPTION OF THE CONTRACTOR, AND THE OVERLAY REMOVED TO PROVIDE CLEARANCE FOR THE FULL DEPTH SAW CUT THROUGH THE RIGID PAVEMENT. IF SUCH A SAW CUT IS MADE AT THE OPTION OF THE CONTRACTOR, IT SHALL BE AT NO ADDITIONAL COST TO THE STATE.

RIGID PAVEMENT REMOVAL. PROCEDURES USED FOR THE RIGID PAVEMENT REMOVAL SHALL NOT CAUSE SPALLING OR CRACKING OF THE ADJACENT PAVEMENT AND SHALL RESULT IN NO DISTURBANCE TO THE UNDERLYING SUBBASE/SUBGRADE OR SURFACED SHOULDER. THE CONTRACTOR MAY ELECT TO MAKE ADDITIONAL SAW CUTS TO FACILITATE THE REMOVAL OF THE PAVEMENT, HOWEVER, ONLY THE CUTS DESIGNATED BY THE ENGINEER WILL BE MEASURED FOR PAYMENT.

IF THE ADJACENT PAVEMENT IS DAMAGED DURING THE PAVEMENT SAWING OR RIGID PAVEMENT REMOVAL, AN ADDITIONAL FULL DEPTH DIAMOND BLADE SAW CUT SHALL BE MADE THE FULL WIDTH OF THE LANE AT A LENGTH THAT WILL ENCOMPASS THE DAMAGED PAVEMENT. THIS ADDITIONAL WORK WILL BE PERFORMED AT NO ADDITIONAL COST TO THE STATE.

SUBBASE/SUBGRADE CORRECTION. PRIOR TO PLACING THE CONCRETE FOR THE RIGID REPLACEMENT, ANY SUBBASE/SUBGRADE MATERIAL THAT IS DISTURBED BELOW THE DESIRED LEVEL OF CLEANOUT SHALL BE REMOVED AND THE PATCH AREA COMPACTED TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL REPLACE THE SUBBASE/SUBGRADE MATERIAL REMOVED WITH CONCRETE AS PART OF THE RIGID REPLACEMENT AT NO ADDITIONAL COST TO THE STATE.

FURNISHING AND PLACING NEW STEEL. ALL REINFORCEMENT, DOWELS AND TIE BARS SHALL BE OF THE SIZE INDICATED IN THE PLAN. DOWEL BARS SHALL BE SMOOTH AND EPOXY COATED AS PER 709.13. THE TIE BARS SHALL BE ROUND, DEFORMED BARS AND EPOXY COATED AS PER 709.13. DOWEL/TIE BAR HOLES SHALL BE DRILLED WITH HYDRAULIC OR ELECTRIC DRILLS. THE DOWEL/TIE BARS SHALL BE PERMANENTLY ANCHORED INTO THE EXISTING PAVEMENT WITH GROUT. THE GROUT SHALL BE MECHANICALLY INJECTED INTO THE REAR PORTION OF THE HOLE. ENOUGH MATERIAL SHALL BE INJECTED TO PROVIDE COMPLETE COVERAGE AROUND THE DOWEL/TIE BAR TO INSURE THEY ARE PERMANENTLY ANCHORED INTO THE EXISTING PAVEMENT. A SATISFACTORY METHOD SHALL BE USED TO HOLD THE DOWEL/TIE BAR IN THE PROPER ALIGNMENT UNTIL THE GROUT HAS HARDENED.

RIGID REPLACEMENT. THE RIGID REPLACEMENT SHALL NOT BE PLACED UNTIL THE GROUT AROUND THE DOWEL/TIE BAR HAS HARDENED. FORMS SHALL BE USED TO PROVIDE A STRAIGHT AND NEAT EDGE AT THE SHOULDER. EACH PATCH SHALL BE CAST IN ONE CONTINOUS FULL-DEPTH OPERATION. THE CONCRETE SHALL BE CONSOLIDATED IN PLACE BY USE OF AN INTERNAL TYPE VIBRATOR. THE CONCRETE SHALL BE CONSOLIDATED AROUND THE EDGES OF THE PATCH AND INTERNALLY. INTERNAL VIBRATORS FOR CONSOLIDATING THE CONCRETE SHALL BE AN APPROVED MECHANICAL SPUD TYPE. THE VIBRATORS SHALL BE CAPABLE OF VISIBLY AFFECTING THE CONCRETE FOR A DISTANCE OF 12 INCHES FROM THE VIBRATOR HEAD.

FINISHING AND TEXTURING. PATCHES THAT ARE LESS THAN 12 FEET IN LENGTH SHALL BE SCREEDED EITHER TRANSVERSELY OR LONGITUDINALLY AS DIRECTED BY THE ENGINEER. FOR PATCHES OVER 12 FEET IN LENGTH, THE SCREED SHALL BE PLACED PERPENDICULAR TO THE CENTERLINE.

WHILE THE CONCRETE IS STILL PLASTIC, THE CONTRACTOR SHALL TEST THE PATCH SURFACE FOR TRUENESS AND FOR BEING FLUSH WITH THE EDGES OF THE ADJACENT SLABS BY USE OF A STRAIGHTEDGE. FOR PATCHES 10 FEET OR LESS IN LENGTH THE STRAIGHTEDGING SHALL BE DONE BY PLACING THE STRAIGHTEDGE PARALLEL TO THE PAVEMENT CENTERLINE WITH THE ENDS RESTING ON THE EXISTING PAVEMENT AND DRAWING THE STRAIGHTEDGE ACROSS THE PATCH. THE STRAIGHTEDGE SHOULD BE IN CONTACT WITH THE EXISTING PAVEMENT WHILE DRAWING IT ACROSS THE PATCH AND ANY HIGH OR LOW SPOTS EXCEEDING 1/8 INCH SHOULD BE CORRECTED. IF ANY CORRECTIONS ARE MADE, THE SURFACE SHALL BE RECHECKED.

THE SURFACE OF THE CONCRETE SHALL BE TEXTURED TO MATCH THE SURROUNDING PAVEMENT.

CURING. CONCRETE CURING COMPOUND SHALL BE APPLIED TO THE RIGID REPLACEMENT SURFACE IN ACCORDANCE WITH 451.10. IF THE RIGID REPLACEMENT IS TO BE OVERLAID WITH ASPHALT CONCRETE BEFORE OPENING TO TRAFFIC, THE CONTRACTOR MAY USE A 407 TACK COAT IN LIEU OF A CONCRETE CURING MEMBRANE AT A RATE OF 0.10 GALLONS PER SQUARE YARD.

JOINTS. TRANSVERSE JOINTS BETWEEN THE RIGID REPLACEMENT AND THE EXISTING RIGID PAVEMENT SHALL BE SAWED OR FORMED BEFORE THE REPAIR IS OPENED TO TRAFFIC. BOTH FACES OF THE JOINT SHALL BE THOROUGHLY CLEANED BY SAND-BLASTING TO THE DEPTH OF THE BOTTOM OF THE PROPOSED SEALER. THE SAND-BLAST CLEANING OPERATION SHALL BE SUCH THAT WHEN COMPLETED THE CONCRETE JOINT WHICH IS TO RECEIVE THE NEW JOINT SEALANT SHALL BE COMPLETELY FREE OF ALL DIRT; DUST; TAR AND ASPHALT; DISCOLORATION AND STAIN; AS WELL AS ANY AND ALL OTHER FORMS OF CONTAMINATION, LEAVING A CLEAN, NEWLY EXPOSED CONCRETE SURFACE. THE TOP OF THE FRESHLY PLACED SEALANT SHALL BE 1/4 INCH (± 1/16 INCH) BELOW THE PAVEMENT SURFACE. THE SHAPE FACTOR (DEPTH TO WIDTH RATIO) OF THE SEALANT SHALL BE BETWEEN ONE (1) AND TWO (2).

WEARING COURSE REPLACEMENT. EXISTING BITUMINOUS OVERLAY REMOVED SHALL BE REPLACED IN ACCORDANCE WITH DETAILS SHOWN IN THE PLANS AND THE COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT.

SHOULDER RESTORATION. PRIOR TO OPENING THE RIGID REPLACEMENT TO TRAFFIC, THE SHOULDER SHALL BE RESTORED TO THE ORIGINAL LINE AND GRADE USING AN AGGREGATE OR BITUMINOUS CONCRETE IN ACCORDANCE WITH THE PLANS OR AS APPROVED BY THE ENGINEER. THE LOW AREAS SHALL BE FILLED AND COMPACTED FLUSH WITH THE SURROUNDING SHOULDER. MATERIALS REMOVED FROM THE SHOULDER SHALL BE DISPOSED OF BY THE CONTRACTOR.

OPENING TO TRAFFIC. THE RIGID REPLACEMENT MAY BE OPENED TO TRAFFIC WHEN NEW CONCRETE HAS ATTAINED A MODULUS OF RUPTURE OF 400 P.S.I. BEAMS SHALL BE CAST BY THE ENGINEER TO DETERMINE THE MODULUS OF RUPTURE.

EMERGENCIES. WHEN THE PAVEMENT HAS BEEN REMOVED AND THE CONTRACTOR IS UNABLE TO COMPLETE THE REQUIRED RIGID REPLACEMENT IN TIME FOR IT TO BE OPENED TO TRAFFIC ON SCHEDULE, THE EXCAVATION SHALL BE FILLED WITH A COMMERCIALLY AVAILABLE BITUMINOUS MIXTURE OR OTHER SUITABLE TEMPORARY PATCH MATERIAL WITH A DURABLE SURFACE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THESE PATCHES WHILE THEY ARE IN SERVICE. THE COST OF PLACING, MAINTAINING, REMOVING AND DISPOSING OF THE TEMPORARY PATCHES WILL BE AT THE CONTRACTOR'S EXPENSE.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT. THE QUANTITY OF FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT TO BE PAID FOR SHALL BE THE NUMBER OF SQUARE YARDS OF RIGID PAVEMENT REMOVED TO THE LIMITS ESTABLISHED BY THE ENGINEER. ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL PAVEMENT REMOVED, SUBBASE/SUBGRADE CORRECTION, RIGID REPLACEMENT, FURNISHING AND PLACING NEW STEEL, JOINTS, WEARING COURSE REPLACEMENT, SHOULDER RESTORATION AND ALL INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE QUANTITY OF FULL DEPTH PAVEMENT SAWING TO BE PAID FOR SHALL BE THE NUMBER OF LINEAR FEET OF FULL DEPTH SAW CUTS COMPLETED AT THE DESIGNATED LIMITS OF THE REPAIR AREAS.

PAYMENT SHALL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQ. YDS.	FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT
SPECIAL	LIN. FT.	FULL DEPTH PAVEMENT SAWING

SUBBASE/SUBGRADE FAILURES

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 AND PLACE AGGREGATE DRAINS AS NECESSARY. 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
605	LIN. FT.	AGGREGATE DRAINS

7/12/85

DRAINAGE AND EROSION CONTROL

ITEM SPECIAL - HERBICIDES FOR WEED CONTROL

PRIOR TO PLACING THE ITEM 301 BITUMINOUS AGGREGATE, AN APPLICATION OF PRINCEP 80W, OR AMISINE OR AN APPROVED EQUAL, SHALL BE APPLIED TO THE SHOULDER BED. THE RATE AND METHOD OR APPLICATION SHALL BE IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS .

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD, "ITEM SPECIAL - HERBICIDES FOR WEED CONTROL," WHICH PRICE SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND WATER REQUIRED TO COMPLETE THIS ITEM OF WORK.

CONCRETE SLOPE PROTECTION REPAIR

THIS WORK SHALL INCLUDE THE REMOVAL OF THE EXISTING CONCRETE SLOPE PROTECTION, PLACING EMBANKMENT MATERIAL TO FILL ERODED AREAS UNDER AND ADJACENT TO THE PROPOSED CONCRETE SLOPE PROTECTION, REPLACING EXISTING PIPE OUTLETS AND THE INSTALLATION OF NEW SLOPE PROTECTION. FILTER FABRIC (712.09 TYPE B) SHALL BE PLACED UNDER ALL NEW SLOPE PROTECTION. ALL JOINTS BETWEEN THE NEW AND OLD SLOPE PROTECTION SHALL BE SEALED WITH 705.01. ALL ADDITIONAL OPEN JOINTS AND CRACKS SHALL ALSO BE SEALED WITH 705.01. ALL REPAIR AREAS 10 FT. BY 10 FT. AND LARGER SHALL BE REINFORCED USING 709.10 WELDED STEEL WIRE FABRIC.
ALL COSTS OF REMOVAL INCLUDING REMOVING ANY WASHED OUT SOIL AT THE BASE OF THE SLOPE PROTECTION SHALL BE INCLUDED UNDER ITEM 202 - CONCRETE SLOPE PROTECTION REMOVED.

ALL COSTS OF CONSTRUCTING THE NEW CONCRETE SLOPE PROTECTION, INCLUDING ALL NECESSARY ENBANKMENT AND JOINT AND CRACK SEALING SHALL BE INCLUDED UNDER ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 202 - CONCRETE SLOPE PROTECTION REMOVED .....1300 S.Y.
ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN ....1300 S.Y.
ITEM 603 - 6" CONDUIT, TYPE E, 707.19 .....200 L.F.

AGGREGATE SLOPE PROTECTION REPAIR

THIS ITEM SHALL BE USED TO REPAIR EXISTING SLOPE PROTECTION WHICH HAS BEEN ERODED AS A RESULT OF BRIDGE DRAINAGE.

THIS WORK SHALL INCLUDE THE PLACEMENT OF NON-POROUS EMBANKMENT MATERIAL AND EITHER CRUSHED AGGREGATE SLOPE PROTECTION OR BAGGED RIPRAP.

SMALL EROSION AREAS SHALL BE REPAIRED USING EMBANKMENT AND CRUSHED AGGREGATE SLOPE PROTECTION TO MATCH THE SURROUNDING AREA.

LARGE EROSION AREAS SHALL BE REPAIRED AS FOLLOWS:

1) CONSTRUCT EMBANKMENT TO FORM A SHALLOW DITCH (6 INCHES DEEP) ALONG THE LINE OF SCUPPERS.
2) PLACE A CONSTANT WIDTH (AS DETERMINED BY THE ENGINEER) OF BAGGED RIPRAP ALONG THE PREPARED SLOPE.
3) COVER ALL REMAINING REPAIR AREAS WITH CRUSHED AGGREGATE SLOPE PROTECTION.

ALL COSTS OF FURNISHING AND PLACING THE EMBANKMENT SHALL BE INCLUDED UNDER ITEM 601 - CRUSHED AGGREGATE SLOPE PROTECTION, AS PER PLAN OR ITEM 601 - RIPRAP, CLOTH OR BURLAP BAGS, AS PER PLAN.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE AS DIRECTED BY THE ENGINEER:

ITEM 601-CRUSHED AGGREGATE SLOPE PROTECTION,
AS PER PLAN ..... 60 S.Y.
ITEM 601-RIPRAP, CLOTH OR BURLAP BAGS, AS PER PLAN .... 25 S.Y.

WATERING AND MOWING 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 ..... 100 M.GAL.
ITEM 659 - MOWING ..... 200 M.SQ.FT.

ITEM 605-AGGREGATE DRAIN

THE FOLLOWING ESTIMATED QUANTITY IS INCLUDED IN THE GENERAL SUMMARY TO BE USED WHERE AND AS DIRECTED BY THE ENGINEER TO DRAIN SUBBASE MATERIAL WHICH HAS BECOME SATURATED.

ITEM 605-AGGREGATE DRAIN..... 200 L.F.

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 ..... 100 L.F.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED TO TWO (2) FEET BEYOND THE CONSTRUCTION LIMIT AS SHOWN ON THE CROSS SECTIONS.

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:

207	TEMPORARY SEEDING AND MULCHING.....	18000 SQ. YD.
207	STRAW OR HAY BALES.....	100 EACH
207	FILTER FABRIC FENCE.....	2000 LIN. FT.
659	MOWING.....	200 M. SQ. FT.
659	COMMERCIAL FERTILIZER.....	1.0 TON
659	REPAIR SEEDING AND MULCHING.....	5000 SQ. YD.
659	WATER.....	40 M. GAL.

SPRING DRAINS

REFERENCE IS MADE TO THE DETAILED DRAWING ON STANDARD CONSTRUCTION DRAWING MC-1, SHOWING THE METHOD OF DRAINING ANY SPRING THAT MAY BE SHOWN ON THE PLAN, OR ENCOUNTERED DURING CONSTRUCTION, AS DETERMINED BY THE ENGINEER. SPRING DRAINS SHALL BE OUTLETTED TO HIGHWAY DRAINAGE STRUCTURE WITH 10' OF 6" CONDUIT TYPE F IN LIEU OF AGGREGATE DRAIN AS SHOWN ON THE STANDARD CONSTRUCTION DRAWING. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 605 - 6" UNCLASSIFIED PIPE UNDERDRAIN, 707.01
TYPE III OR 707.21 TYPE III, AS PER PLAN.... 100 L.F.

ITEM 603 - 6" CONDUIT TYPE "F"..... 50 L.F.

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

REVIEW OF DRAINAGE FACILITIES

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

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

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

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

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.

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.

GENERAL NOTES

CUYAHOGA COUNTY
CUY - 422F - 0.51

FHWA REGION	STATE	PROJECT	
5	OHIO		

ITEM(S) - 605 (VARIOUS) PIPE UNDERDRAINS, AS PER PLAN

ALL GRANULAR FILTER MATERIALS FOR THIS (THESE) ITEM(S) SHALL BE Nº 8 OR Nº 9 SIZE, & LIMITED TO DURABLE NATURAL AGGREGATES OR AIR COOLED BLAST FURNACE SLAG.

OPTIONAL 4" SHALLOW PIPE UNDERDRAIN, AS PER PLAN.

THIS ITEM MAY BE USED AS AN OPTION TO ITEM 605 - 4" SHALLOW PIPE UNDERDRAINS AS PER PLAN AND SHALL CONSIST OF FURNISHING AND INSTALLING AN UNDERDRAIN SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS, AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

UNDERDRAIN SHALL BE THE MONSANTO DRAINAGE MAT (MDM) AS PRODUCED BY THE MONSANTO COMPANY OF ST. LOUIS, MISSOURI. THE TRADE NAME FOR THE MDM SYSTEM IS HYDRAWAY.

THE MDM SHALL BE INSTALLED IN A TRENCH AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. BACKFILL THE TRENCH WITH THE EXCAVATED MATERIAL PLACED IN TWO LAYERS AND COMPACTED TO A DENSITY OF NOT LESS THAN 90% OF THE MAXIMUM DRY WEIGHT DENSITY. PLACE THE FIRST LAYER OF BACKFILL MATERIAL SIMULTANEOUSLY WITH THE TRENCHING OPERATION TO HOLD THE MAT FLUSH AGAINST THE TRENCH WALL.

SPLICE THE MDM, AS INDICATED PRIOR TO PLACING IT IN TRENCH, USING THE KIT FURNISHED BY THE MANUFACTURER AND IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. ALL MATERIAL REQUIRED FOR THE SPLICE WILL BE SUPPLIED IN THE KIT BUT ANY EQUIPMENT REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR.

PLACE THE UNDERDRAIN OUTLETS IN ACCORDANCE WITH ITEM 603 AS DIRECTED BY THE ENGINEER, USING THE OUTLET FITTINGS INDICATED. MONSANTO WILL SUPPLY OUTLET FITTINGS WHICH WILL MAKE THE TRANSITION BETWEEN THE MDM SYSTEM AND A STANDARD 4 INCH DIAMETER PIPE. INSTALL FITTINGS AS RECOMMENDED BY THE MANUFACTURER.

ADDITIONAL PRODUCT INFORMATION AND INSTALLATION INSTRUCTIONS MAY BE OBTAINED BY CONTACTING JOHN JONES, MANAGER COMMERCIAL DEVELOPMENT, ENGINEERED PRODUCTS DIVISION, MONSANTO CO., ST. LOUIS, MO. 63167. TELEPHONE: (800) 325-4330.

THE CONTRACTOR SHALL NOT BEGIN INSTALLATION OF THE MDM SYSTEM UNLESS A REPRESENTATIVE OF THE MONSANTO COMPANY IS PRESENT.

PROPOSED UNDERDRAIN WORK

THE EXISTING UNDERDRAINS, UNDERDRAIN OUTLETS AND UNDERDRAIN BACKFILL HAVE BEEN BLOCKED WITH TUFA DEPOSITS. IT IS THE INTENT OF THESE PLANS TO CONSTRUCT A NEW UNDERDRAIN SYSTEM TO SUPPLEMENT THE EXISTING SYSTEM.

THE UNDERDRAINS SHALL BE REPLACED AS FOLLOWS:

1) DEEP UNDERDRAINS: 50 INCHES BELOW SUBGRADE - REPLACE AT ORIGINAL DEPTH USING ITEM 605 - 6" DEEP PIPE UNDERDRAIN, AS PER PLAN.

2) SHALLOW UNDERDRAINS: 30 INCHES BELOW SUBGRADE - REPLACE WITH FLOW LINE BEING 24 INCHES BELOW EXISTING TOP OF PAVEMENT USING ITEM 605 - 4" SHALLOW PIPE UNDERDRAINS AS PER PLAN.

3) DEEP UNDERDRAIN OUTLETS: THE PROPOSED UNDERDRAIN SHALL BE CONNECTED TO THE EXISTING DEEP UNDERDRAIN, FROM THAT POINT ON NEW DEEP UNDERDRAIN SHALL BE CONSTRUCTED TO THE OUTLET POINT WITH THE LAST 10 FEET OF PIPE BEING ITEM 603 - 6" CONDUIT, TYPE F.

4) SHALLOW UNDERDRAIN OUTLETS: THE PROPOSED UNDERDRAIN SHALL BE OUTLETTED USING ITEM 603 - 4" CONDUIT, TYPE E, 707.19. THE 4 INCH OUTLET PIPE SHALL BE CONNECTED TO THE EXISTING UNDERDRAIN OUTLET AND FROM THAT POINT ON THE NEW 4 INCH CONDUIT SHALL REPLACE THE EXISTING CONDUIT TO THE OUTLET POINT.

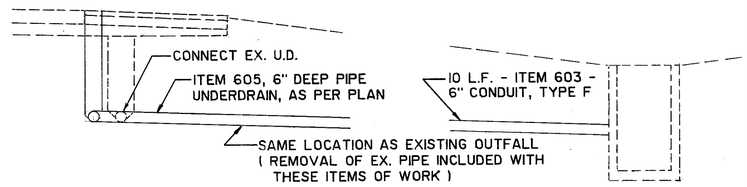
5) UNDERDRAIN CROSSING UNDER PAVEMENT: THE PAVEMENT SHALL BE REMOVED AND REPLACED AS PER THE PAVEMENT REPLACEMENT DETAILS. NEW 6 INCH CONDUIT TYPE B SHALL BE CONSTRUCTED UNDER THE PAVEMENT AT THE REQUIRED DEPTH. PAYMENT FOR PAVEMENT REPLACEMENT SHALL BE MADE SEPARATELY. THE CONTRACTOR MAY JACK THIS CONDUIT AT HIS OPTION.

THE CONTRACTOR WILL BE FURNISHED FULL SIZE ORIGINAL CONSTRUCTION PLANS AT THE PRE-CON TO ESTABLISH THE TYPE OF UNDERDRAINS AND OUTLET POINTS.

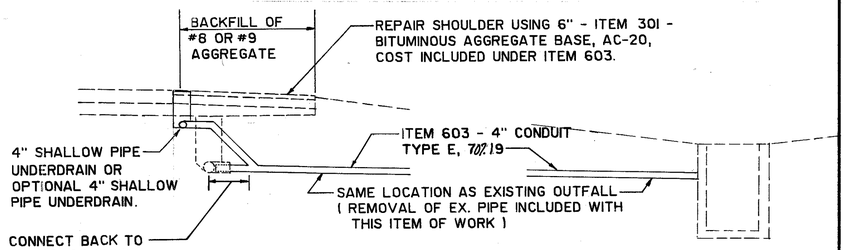
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO PERFORM THIS ITEM OF WORK:

ITEM 603 - 4" CONDUIT TYPE E, 707.19	1300 L.F.
ITEM 603 - 6" CONDUIT TYPE B	250 L.F.
ITEM 603 - 6" CONDUIT TYPE F	320 L.F.
ITEM 605 - 4" SHALLOW PIPE UNDERDRAINS, AS PER PLAN	40000 L.F.
ITEM 605 - 6" DEEP PIPE UNDERDRAINS, AS PER PLAN	22000 L.F.

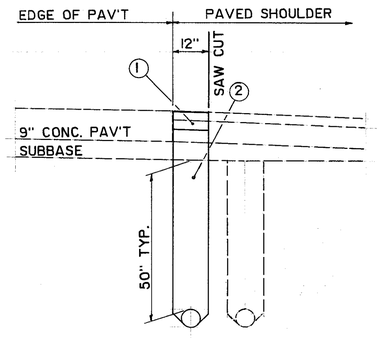
LATERAL UNDERDRAIN OUTLETS



TYPICAL DEEP UNDERDRAIN OUTLET

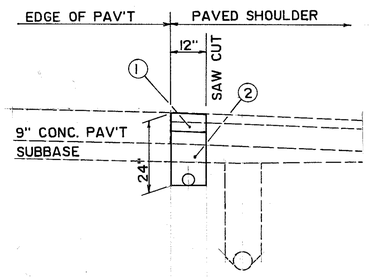


TYPICAL SHALLOW UNDERDRAIN OUTLET



6" DEEP PIPE UNDERDRAIN AS PER PLAN

THE COST OF THE SAW CUT AND FURNISHING AND PLACING THE 301 MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 605 - 6" DEEP PIPE UNDERDRAIN, AS PER PLAN.



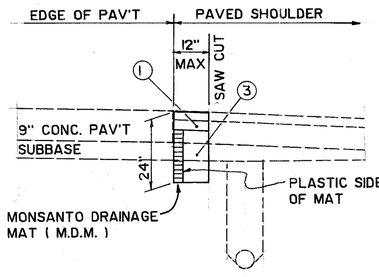
4" SHALLOW PIPE UNDERDRAIN, AS PER PLAN

LEGEND

① - 6" - ITEM 301 - BITUMINOUS AGGREGATE BASE, AC-20

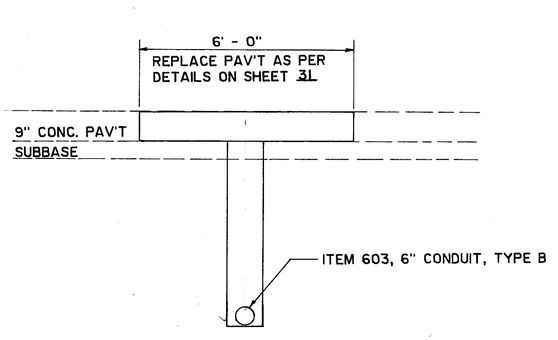
② - #8 OR #9 AGGREGATE BACKFILL

③ - RECOMPACTED EXCAVATED MATERIAL



OPTIONAL 4" SHALLOW PIPE UNDERDRAIN, AS PER PLAN

THE COST OF THE SAW CUT AND FURNISHING AND PLACING THE 301 MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 605 - 4" SHALLOW PIPE UNDERDRAIN AS PER PLAN.



LATERAL PAVEMENT CROSSING

MAINTAINING TRAFFIC

TRAFFIC CONTROL FOR ASPHALT CONCRETE OPERATIONS (ITEM 846 COURSES)

ALL ASPHALT CONCRETE OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL ASSURE MINIMUM DANGER AND INCONVENIENCE TO THE HIGHWAY USERS. ASPHALT CONCRETE WORK SHALL BE PERFORMED AT NIGHT BETWEEN THE HOURS OF 8:00 P.M. AND 6:00 A.M. RAMPS SHALL BE PAVED BETWEEN THE HOURS OF 10:00 A.M. AND 3:00 P.M.

PLACEMENT OF THE OVERLAY COURSES SHALL BE PERFORMED AFTER ALL SHOULDER CONSTRUCTION IS COMPLETE.

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.

TRAFFIC MUST BE MAINTAINED AT ALL TIMES IN BOTH DIRECTIONS IN ACCORDANCE WITH THE GENERAL CONSTRUCTION SEQUENCE NOTE ON SHEET NO. 11.

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.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS ANY PART-WIDTH RESURFACING JOINT EXCEPT AS IS NECESSARY DURING THE ACTUAL RESURFACING OPERATION. 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.

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.

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 PERMANENT LANE CLOSURES SHALL BE DELINEATED WITH DRUMS SPACED AT 50 FEET CENTER TO CENTER. 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 MAY BE USED INSTEAD OF DRUMS 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. FOR NIGHTTIME USE A STEADY BURN LIGHT SHALL BE LOCATED AT THE TOP OF THE BARRICADE AT THE END NEAREST TO 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, BARRICADES OR CONCRETE BARRIERS 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 REQUIRMENT 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 REPLACMENT 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.

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

ITEM SPECIAL - REPLACEMENT SIGNS..... 800 S.F.

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..... 200 EACH

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 AND TO PROVIDE TEMPORARY ASPHALT RAMPS. THE CONTRACTOR SHALL USE THIS ITEM TO MAINTAIN THE HIGHWAY ACCORDING TO SEC. 614.02.
ANY CLOSURES NECESSARY TO PERFORM THIS WORK SHALL BE AS APPROVED BY THE ENGINEER. PRIOR TO RESURFACING, TEMPORARY ASPHALT RAMPS SHALL BE REMOVED AS PART OF THIS ITEM. 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....160 C.Y.

TEMPORARY CONCRETE BARRIER (PUBLIC SAFETY)

TEMPORARY CONCRETE BARRIER SECTIONS (10 FT. LONG) 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.

TEMPORARY CONCRETE BARRIER (BRIDGE RECONSTRUCTION)

TEMPORARY CONCRETE BARRIER SECTIONS ARE REQUIRED TO SEPARATE THE WORK AREA FROM THE THRU TRAFFIC WHILE WORK IS BEING PERFORMED ON THIS BRIDGE.

THE TEMPORARY CONCRETE BARRIER SHALL MEET THE REQUIREMENTS ABOVE AND SHALL BE PAID FOR SEPARATELY IN THE UNIT PRICE BID FOR ITEM 622 - TEMPORARY CONCRETE BARRIER.

THE FOLLOWING ESTIMATED QUANITY IS INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE.

ITEM 622 - TEMPORARY CONCRETE BARRIER ..... 6000 LIN. FT.

ITEM 614 - TEMPORARY PAVEMENT MARKINGS (LANE SHIFTS)

LANE SHIFTS OR LANE CLOSURES SHALL BE IMPLEMENTED USING 55:1 MAXIMUM TAPER RATES ON MAINLINE PAVEMENT AND 40:1 MAXIMUM TAPER RATES ON RAMPS.

TYPICAL LOCATIONS INCLUDE:

A) LANE CLOSURES
B) LANE SHIFTS AT BRIDGES
C) ENTRANCE/EXIT RAMP EXTENSIONS ACROSS CLOSED OUTSIDE LANES.

ALL CONFLICTING PAVEMENT MARKINGS (INCLUDING THE LANE LINE ADJACENT TO THE LANE CLOSURE TAPER) SHALL BE REMOVED PRIOR TO PLACING THESE PAVEMENT MARKINGS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 614 - TEMPORARY EDGE LINE, CLASS I, 947.03 TYPE B 4.40 MILES

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

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 MARKINGS SHALL BE USED:

ITEM 614 - TEMPORARY LANE LINES, CLASS II	18.54	MILES
ITEM 614 - TEMPORARY EDGE LINES, CLASS I	44.08	MILES
ITEM 614 - TEMPORARY GORE MARKINGS, CLASS II	1800	L.F.
ITEM 614 - TEMPORARY STOP LINES, CLASS I	350	L.F.

ITEM 621- REMOVAL OF PAVEMENT MARKINGS

THIS ITEM SHALL BE USED TO REMOVE EXISTING PERMANENT PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH THE TEMPORARY MARKINGS AS DETAILED ON SHEET NOS 13&14. PAYMENT SHALL BE BASED UPON 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 ..... 9000 L.F.

MAINTAINING TRAFFIC

PUBLIC SAFETY

THE FOLLOWING PROVISIONS "A", "B" AND "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 IN 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 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. 34 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 BARRIER 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" ABOVE SHALL APPLY AFTER 5 DAYS AND THE PROVISIONS OF PARAGRAPH "C" ABOVE 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.

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 FINAL OVERLAY AND PAVEMENT MARKING OPERATIONS BEGIN.

IT IS THE INTENT OF THIS PROJECT TO MAINTAIN A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON THE MAINLINE PAVEMENT.

IT IS ALSO REQUIRED OF THE CONTRACTOR TO HAVE ALL NORMAL LANES OF TRAFFIC OPENED THROUGHOUT THE WINTER SEASON (DECEMBER 1ST THRU MARCH 1ST). 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.

OVERHEAD SIGNS AND SUPPORTS THAT ARE BEING MODIFIED SHALL NOT BE REMOVED UNTIL THE NEW FOUNDATION IS CONSTRUCTED AND ANY REQUIRED SUPPORT MODIFICATIONS ARE AT THE SITE.

MAJOR WORK ITEMS

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

A. MODIFICATION OF OVERHEAD SIGN SUPPORTS
B. RELOCATION OF EXISTING LIGHT STANDARDS
C. REPAIR OF PAVEMENT JOINTS AND PANELS
D. INSTALLATION OF CONCRETE BARRIER
E. ASPHALT CONCRETE OVERLAY
F. PAVEMENT MARKING
G. BRIDGE REPAIRS
H. SHOULDER WIDENING

MAINTAINING VEHICULAR TRAFFIC

GENERAL PROVISIONS

1. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION SEQUENCE NOTE ON THIS SHEET.
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 AGENCY NOT LESS THAN TWENTY-FOUR (24) 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.

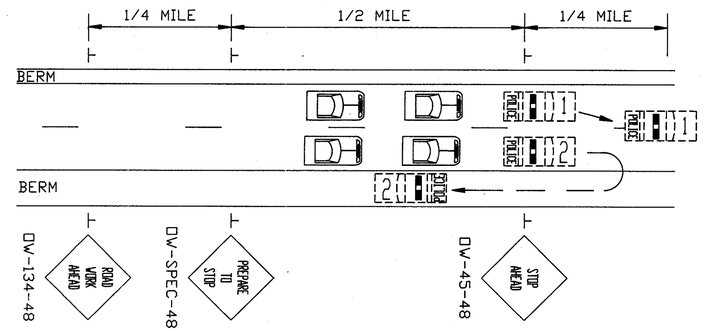
5. DURING NON-WORKING PERIODS, OPEN EXCAVATIONS SHALL BE DELINEATED WITH WARNING FLASHERS AND/OR OTHER APPROVED DEVICES AS DEEMED APPROPRIATE BY THE ENGINEER.

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 LONGER THAN 10 MINUTES IN ANY ONE CONSECUTIVE 30 MINUTE PERIOD. A MINIMUM OF TWO (2) 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 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.


1/4 MILE
1/2 MILE
1/4 MILE
BERM
BERM
TYPE II BARRICADE
TYPE II BARRICADE
TYPE II BARRICADE

614 WORK ZONE PAVEMENT MARKINGS

GENERAL

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

THE MARKINGS SHALL BE EVALUATED BY THE ENGINEER IN ACCORDANCE WITH THE THREE PERFORMANCE PARAMETERS CONTAINED IN SUPPLEMENT 1047. THE MARKINGS SHALL BE REPAIRED OR REPLACED WHEN THE NUMERICAL RATING OF A PARAMETER IS (a) SIX OR LOWER FOR DURABILITY, (b) FOUR OR LOWER FOR VISUAL EFFECTIVENESS AND (c) FOUR OR LOWER FOR NIGHT VISIBILITY. THE CONTRACTOR SHALL REPAIR OR REPLACE UNSATISFACTORY MARKINGS IMMEDIATELY AND AT NO ADDITIONAL COST TO THE STATE.

~~THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMUTCD FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167-36) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168-36) SIGN OR BOTH AS MAY BE APPROPRIATE. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL ALSO BE ERECTED ON EACH ENTRANCE RAMP, AT INTERSECTIONS OF THROUGH ROADS TO WARN ENTERING OR TURNING TRAFFIC OF THE CONDITION AND AT LEAST ONCE EVERY TWO MILES ALONG THE ROADWAY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY.~~

TEMPORARY PAVEMENT MARKING MATERIALS

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

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT (1) PARAGRAPH 621.14 SHALL NOT APPLY, (2) WHERE THE MARKINGS ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST DRY PAINT MAY BE USED FOR 621.02, AND (3) WHEN APPLIED TO NEW ASPHALT PAVEMENT SURFACES OR PLANED ASPHALT PAVEMENT SURFACES, THE SPECIFIED APPLICATION RATE SHALL BE AS FOLLOWS:

WIDTH OF LINE, IN.	GALLONS PER MILE OF LINE				
	4	6	8	12	24
SOLID LINE	24	36	48	72	144
DASHED LINE	6	9			
DOTTED LINE	8	12			

TYPE B AND TYPE C PREFORMED MATERIAL

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

PLACEMENT

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

LINE PLACEMENT TOLERANCE FOR FINAL SURFACES SHALL BE IN ACCORDANCE WITH 621.052. ON SURFACES OTHER THAN THE FINAL, THE TOLERANCE PERMITTED SHALL BE TWICE THAT IN 621.052.

LAYOUT AND PREMARKING SHALL BE IN ACCORDANCE WITH 621.051.

TEMPORARY MARKING CLASSES

CLASS I MARKINGS

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

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

CLASS II MARKINGS

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

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

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

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

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 2.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 24 GALLONS PER MILE FOR GORE MARKINGS.

CONFLICTING EXISTING MARKINGS

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

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

INTERIM MARKINGS

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

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE SUM OF $200 PER CALENDAR DAY WILL BE DEDUCTED FROM ANY MONEY DUE THE CONTRACTOR, NOT AS A PENALTY BUT AS LIQUIDATED DAMAGES.

METHOD OF MEASUREMENT

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

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

BASIS OF PAYMENT

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

ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS _____, ___*
~~614~~	~~MILES~~	~~TEMPORARY CENTER LINES, CLASS _____, ___*~~
~~614~~	~~LIN. FT.~~	~~TEMPORARY CHANNELIZING LINES, CLASS I, ___*~~
614	MILES	TEMPORARY EDGE LINES, CLASS I, ___*
614	LIN. FT.	TEMPORARY GORE MARKINGS, CLASS II, ___*
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, ___*
~~614~~	~~LIN. FT.~~	~~TEMPORARY CROSSWALK LINES, CLASS I, ___*~~
~~614~~	~~EACH~~	~~TEMPORARY LANE ARROWS, CLASS I, ___*~~
~~614~~	~~EACH~~	~~TEMPORARY RAILROAD SYMBOL MARKINGS, CLASS I, ___*~~
~~614~~	~~EACH~~	~~TEMPORARY WORD "ONLY" ON PAVEMENT, 72 INCH, CLASS I, ___*~~
~~614~~	~~LIN. FT.~~	~~TEMPORARY TRANSVERSE LINES, CLASS I, ___*~~
~~614~~	~~LIN. FT.~~	~~TEMPORARY DOTTED LINES, CLASS I, ___*~~

*TYPE MATERIAL (621 PAINT, 947.03 TYPE B OR 947.03 TYPE C OR LEFT BLANK TO PERMIT ANY OF THE THREE)

fh4

~~621 EDGE LINES ON NEW ASPHALT PAVEMENTS~~

~~EDGE LINES SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT (1) ON EVERY ROADWAY AND RAMP, EDGE LINES SHALL BE IN PLACE PRIOR TO EXPOSING IT TO TRAFFIC, (2) WHERE THE EDGE LINES ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST DRY PAINT MAY BE USED FOR 621.02; AND (3) WHEN APPLIED TO NEW ASPHALT PAVEMENT THE SPECIFIED APPLICATION RATE SHALL BE 24 GALLONS PER MILE.~~

~~614 WORK ZONE MARKING SIGNS~~

~~THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE WORK ZONE MARKING SIGNS (OW-167 AND OW-168) WITHIN THE WORK LIMITS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.~~

~~THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED BUT GOOD CONDITION PROVIDED THE SIGNS MEET CURRENT DEPARTMENT SPECIFICATIONS. SIGN FACES SHALL BE REFLECTORIZED WITH TYPE G SHEETING COMPLYING WITH THE REQUIREMENTS OF 730.19. WORK ZONE MARKING SIGNS SHALL BE PROVIDED WITH SUITABLE YIELDING SUPPORTS OF SUFFICIENT STRENGTH AND STABILITY.~~

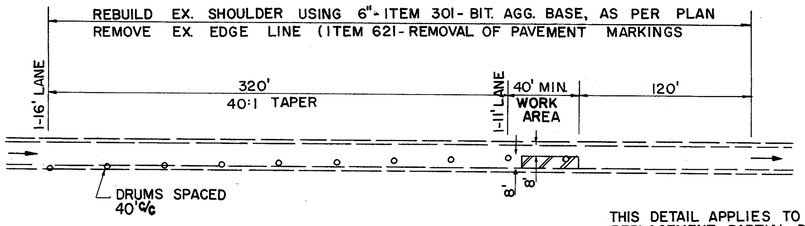
~~WORK ZONE MARKING SIGNS WILL BE MEASURED AS THE NUMBER OF SIGN INSTALLATIONS, INCLUDING THE SIGN AND NECESSARY SUPPORTS. ALL OTHER WORK ZONE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.~~

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

ITEM	UNIT	DESCRIPTION
614	EACH	WORK ZONE MARKING SIGNS

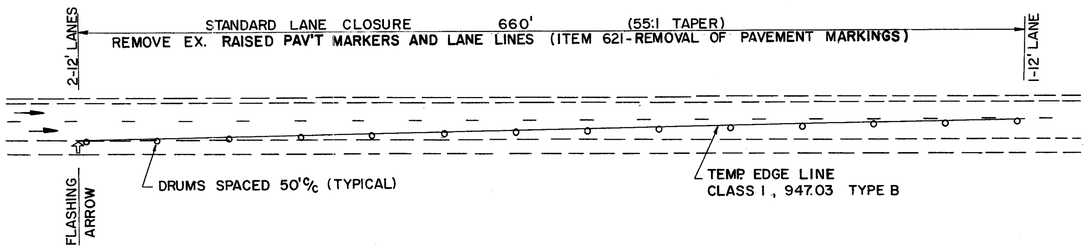
~~A QUANTITY OF _____ EACH WORK ZONE MARKING SIGNS (_____ EACH "NO EDGE LINES" OW-167 AND _____ EACH "UNMARKED NO PASSING ZONES" OW-168) ARE CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.~~

2-21-86

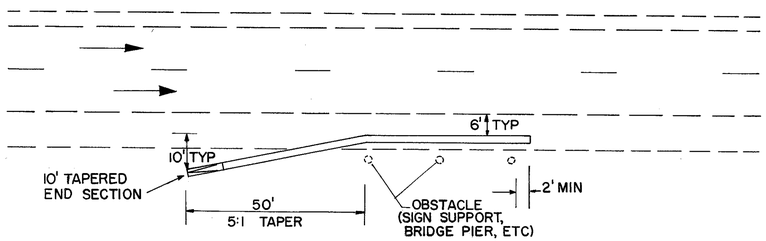


REPAIR OF ONE LANE RAMP
REVERSE FOR OPPOSITE SIDE

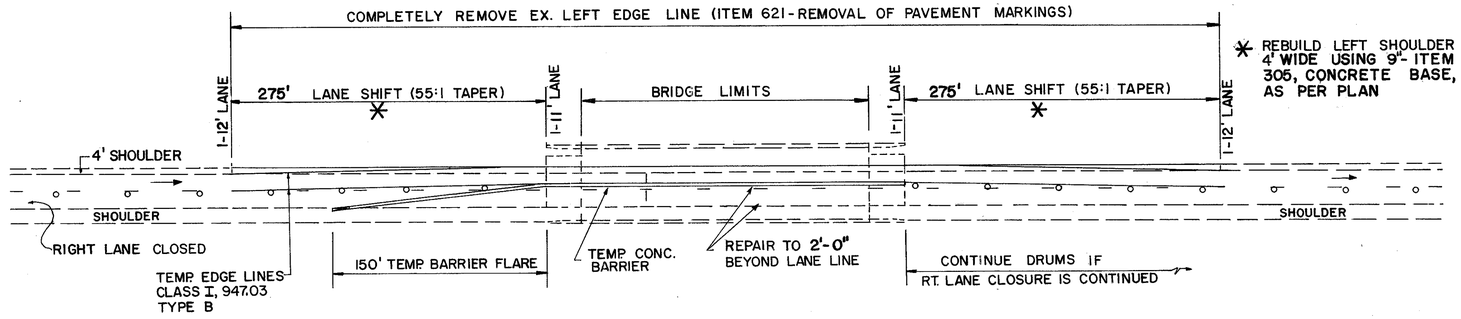
THIS DETAIL APPLIES TO CONCRETE PAVEMENT REPLACEMENT. PARTIAL DEPTH OR OTHER MINOR PAVEMENT REPAIRS SHALL BE PERFORMED DURING DAYTIME HOURS AND SHALL BE PHASED AS DETAILED ABOVE EXCEPT THE SHOULDERS SHALL NOT BE REBUILT AND THE EXISTING PAVEMENT MARKINGS SHALL NOT BE REMOVED.



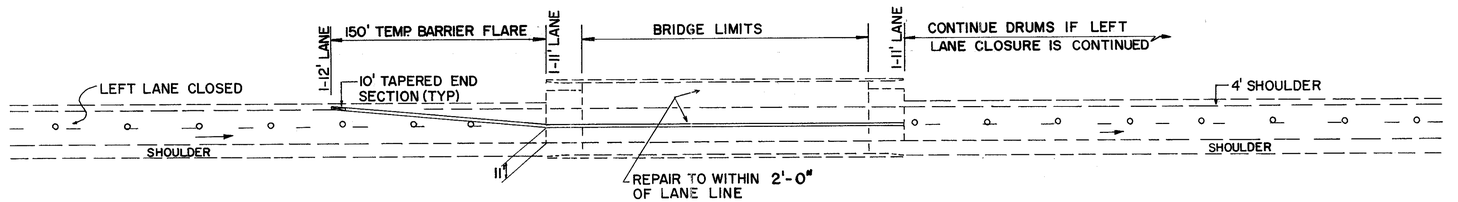
TYPICAL RIGHT LANE CLOSURE
REVERSE FOR LEFT LANE CLOSED



TEMPORARY CONCRETE BARRIER AT HAZARDS
SEE PUBLIC SAFETY NOTE FOR REQUIRED USE



TYPICAL REPAIR OF RIGHT LANE ON STRUCTURE



TYPICAL REPAIR OF LEFT LANE ON STRUCTURE

ADVANCE WARNING SIGNS

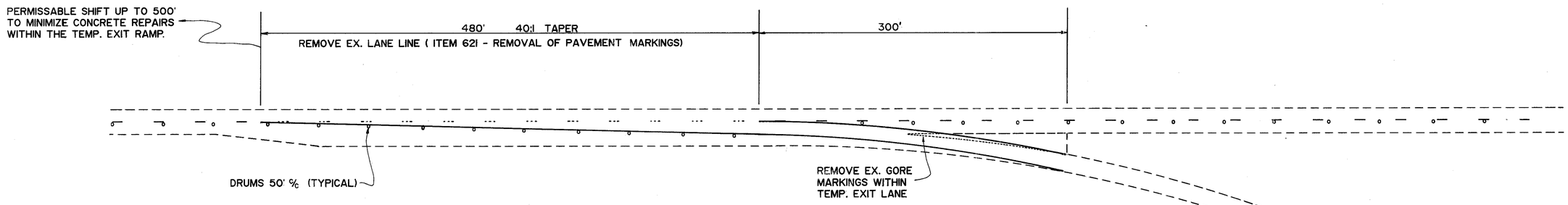
	DISTANCE	SIGN	SIZE	DESCRIPTION
LEFT LANE CLOSED	500'	OW-60D	48"X48"	WIDTH TRANSITION (SYMBOLIC)
	1000'	OW-143	30"X30"	35 MPH
		OW-123 MOD	48"X48"	LEFT LANE CLOSED 1000 FT
	2000'	OW-123 MOD	48"X48"	LEFT LANE CLOSED 2000 FT
	3000'	OW-134	48"X48"	ROAD WORK AHEAD
	5200'	OW-134	48"X48"	ROAD WORK AHEAD
RIGHT LANE CLOSED	500'	OW-60C	48"X48"	WIDTH TRANSITION (SYMBOLIC)
	1000'	OW-143	30"X30"	35 MPH
		OW-122 MOD	48"X48"	RIGHT LANE CLOSED 1000 FT
	2000'	OW-122 MOD	48"X48"	RIGHT LANE CLOSED 2000 FT
	3000'	OW-134	48"X48"	ROAD WORK AHEAD
	5200'	OW-134	48"X48"	ROAD WORK AHEAD
LANE SHIFT	1000'	OW-134 MOD	48"X48"	ROAD WORK 1000'
		OW-143	30"X30"	35 MPH
	2000'	OW-134	48"X48"	ROAD WORK AHEAD
	3000'	OW-134	48"X48"	ROAD WORK AHEAD
EXIT RAMP ACROSS CLSD LANE	GORE	OW-SPEC	48"X48"	EXIT RAMP ↗
	500'	OW-SPEC	48"X48"	EXIT RAMP 500 FT
	1000'	OW-SPEC	48"X48"	EXIT RAMP 1000 FT

DUAL SIGN INSTALLATION

SINGLE INSTALLATION

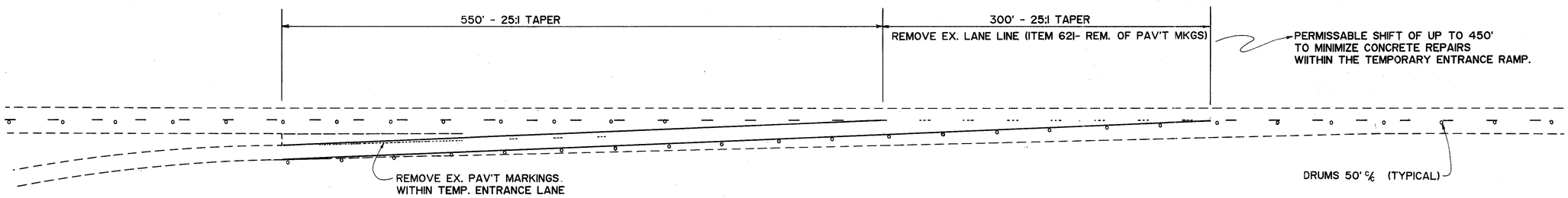
19032

TRAFFIC MAINTENANCE



TYPICAL EXIT RAMP ACROSS CLOSED LANE

PAVEMENT REPAIRS WHICH FALL WITHIN THE TEMPORARY EXIT/ENTRANCE RAMP LANES SHALL BE REPAIRED USING FLEXIBLE MATERIALS. EVERY ATTEMPT SHALL BE MADE TO AVOID PAVEMENT REPAIRS WITHIN THE TEMPORARY RAMPS BY SHIFTING THE TEMPORARY RAMP TERMINI. (SEE DETAILS). WHEN FLEXIBLE REPAIRS ARE *necessary* THEY SHALL BE PERFORMED BETWEEN 10 AM. AND 3 PM. FLAGGERS SHALL BE REQUIRED TO CONTROL TRAFFIC DURING THAT WORK.



TYPICAL ENTRANCE RAMP ACROSS CLOSED LANE

ITEM 203 - EMBANKMENT , AS PER PLAN

Stations From	Stations To	Side	Length (Ft.)	Cut Factor (C.F. / L.F.)	Fill Factor (C.F / L.F.)	Volume Cut (C.Y.)	Volume Fill (C.Y.)
EASTBOUND							
735+00	737+74	OUTSIDE	274	-	0.69	-	7
737+74	738+74	OUTSIDE	100	2.75	(0.69+1.19)/2	10	4
738+74	760+50	OUTSIDE	2,176	2.75	1.19	222	96
766+29	775+33	OUTSIDE	904	2.56	2.74	86	92
775+33	775+93	OUTSIDE	60	2.87	2.74	6	6
775+93	820+70	OUTSIDE	4,477	2.56	2.74	424	454
820+70	821+45	OUTSIDE	75	2.87	2.74	8	8
821+45	823+50	OUTSIDE	205	2.56	2.74	19	21
842+63	846+00	OUTSIDE	337	2.56	2.74	32	34
846+00	847+93	OUTSIDE	193	2.75	1.19	20	8
857+50	858+47	OUTSIDE	97	2.75	1.19	10	4
861+50	898+00	OUTSIDE	3,650	2.56	2.74	346	370
898+00	902+00	OUTSIDE	400	2.75	1.19	41	18
902+00	940+00	OUTSIDE	3,800	2.56	2.74	360	386
940+00	941+16	OUTSIDE	116	2.75	1.19	12	5
945+50	945+75	OUTSIDE	25	2.56	2.74	2	3
945+75	950+20	OUTSIDE	445	2.56	1.55	42	26
961+00	962+04	OUTSIDE	104	2.56	1.55	10	6
EASTBOUND							
729+80	763+79	MEDIAN	3,399	0	0.69	0	87
766+98	832+06	MEDIAN	6,508	0	0.69	0	166
834+42	847+51	MEDIAN	1,309	0	0.69	0	34
850+36	941+12	MEDIAN	9,076	0	0.69	0	232
943+06	945+75	MEDIAN	269	0	0.69	0	7

RESURFACING QUANTITIES

Stations From	Stations To	Side	End Widths (Ft.)	Surface Area (Sq. Yds.)	1½" SURFACE (CU.YDS)	1-3/4"INTER. (CU.YDS)
RAMP #1						
836+00	837+00		22/23	250	8.7	12.2
837+00	838+00		23/25	267	9.3	13.0
838+00	844+74		25	1,872	65.0	91.0
844+74	845+76		25/100	506	17.6	24.6
RAMP #2						
842+65	843+65		29/25	300	10.4	14.6
843+65	845+52		25	519	18.0	25.2
845+52	847+00		25/33	477	16.6	23.2
847+00	848+93		33	708	24.6	34.4
848+93	850+00		33/43	452	15.7	22.0
850+00	850+70		20	184	6.4	8.9
RAMP #3						
843+97	844+60		95/23	362	12.6	17.6
844+60	845+50		23	230	8.0	11.2
845+50	846+26		23/17	169	5.9	8.2
846+26	852+11		23	1,495	51.9	72.7
852+11	852+25		23/25	37	1.3	1.8
852+25	857+54		25	1,469	51.0	71.4
857+54	858+54		25/29	300	10.4	14.6
RAMP #4						
850+40	851+47		95/22	489	17.0	23.8
851+47	858+47		25	1,944	67.5	94.5
858+47	859+50		25	286	9.9	13.9
859+50	860+47		25/24	264	9.2	12.8
860+47	861+50		24	275	9.5	13.4
RAMP #5						
849+68	850+04		24	96	3.3	4.7
850+04	851+04		26/25	283	9.8	13.8
851+04	854+05		25	836	29.0	40.6
854+05	854+17		28/23	34	1.2	1.7
854+17	861+04		23	1,756	61.0	85.4
861+04	861+54		23/24	131	4.5	6.4
861+54	862+54		18/19	206	7.2	10.0
RAMP #6						
932+50	933+50		24	267	9.3	13.0
933+50	934+50		24/25	272	9.4	13.2
934+50	942+27		25	2,158	74.9	104.9
942+27	943+27		16/20	200	6.9	9.7
RAMP #7						
933+19	934+19		29/25	300	10.4	14.6
934+19	937+76		25	992	34.4	48.2
937+76	938+74		25/33	316	11.0	15.4
938+74	941+64		33	1,063	36.9	51.7
941+64	942+40		33/100	460	16.0	22.4

RESURFACING QUANTITIES

Stations From	Stations To	Side	End Widths (Ft.)	Surface Area (Sq. Yds.)	1½" SURFACE (CU.YDS.)	1 3/4"INTER. (CU.YDS.)
RAMP #10						
943+84	944+82		22/23	245	8.5	11.9
944+82	945+85		23/25	275	9.5	13.4
945+85	948+00		25	597	20.7	29.0
948+00	948+50		25	139	4.8	6.8
948+50	948+68		25/23	48	1.7	2.3
948+68	954+91		23	1,592	55.3	77.4
954+91	955+91		17/20	206	7.2	10.0
				RAMP SUB-TOTALS:	879.4	1231.5
EASTBOUND						
729+80	730+55	R	57/54	462	16.1	22.5
730+55	731+66	R	54/52	654	22.7	31.8
731+66	738+74	R	52/38	3,540	122.9	172.1
738+74	763+62	R	38	10,505	364.8	510.7
763+62	763+87	R	50	139	4.8	6.8
766+52	766+77	R	50	139	4.8	6.8
766+77	831+95	R	38	27,520	955.6	1,337.8
831+95	832+20	R	50	139	4.8	6.8
834+04	834+29	R	50	139	4.8	6.8
834+29	835+40	R	38/50	543	18.9	26.4
835+40	839+75	R	50	2,417	83.9	117.5
839+75	840+58	R	50/52	470	16.3	22.9
840+58	841+87	R	52/64	831	28.9	40.4
841+87	842+63	R	64/78	600	20.8	29.2
842+63	847+63	R	38	2,111	73.3	102.6
847+63	847+88	R	50	139	4.8	6.8
850+22	850+47	R	50	139	4.8	6.8
850+47	858+47	R	38	3,378	117.3	164.2
858+47	861+50	R	45/38	1,397	48.5	67.9
861+50	871+50	R	62/38	5,556	192.9	270.1
871+50	925+00	R	38	22,589	784.3	1,098.1
925+00	926+00	R	38/50	489	17.0	23.8
926+00	930+42	R	50	2,456	85.3	119.4
930+42	933+21	R	50/77	1,845	60.1	89.7
933+21	941+01	R	38	3,293	114.3	160.1
941+01	941+26	R	38	106	3.7	5.2
942+97	943+22	R	38	106	3.7	5.2
943+22	945+75	R	38	1068	37.0	51.9
				EASTBOUND SUB-TOTALS:	3217.1	4510.3

RESURFACING QUANTITIES

Stations From	Stations To	Side	End Widths (Ft.)	Surface Area (Sq. Yds.)	1½" SURFACE (CU.YDS.)	1 3/4"INTER. (CU.YDS.)
	WESTBOUND					
729+80	730+55	L	38/50	367	12.7	17.8
730+55	764+85	L	38	14,482	502.8	704.0
764+85	765+10	L	50	139	4.8	6.8
767+75	768+00	L	50	139	4.8	6.8
768+00	826+00	L	38	24,489	850.3	1,190.4
826+00	832+47	L	38/56	3,379	117.3	164.3
832+47	832+72	L	67	186	6.5	9.0
834+57	834+84	L	72	200	6.9	9.7
834+84	836+00	L	58/61	767	26.6	37.3
836+00	837+78	L	38/46	831	28.9	40.4
837+78	839+04	L	38	532	18.5	25.9
839+04	846+86	L	38/58	4,128	143.3	200.7
846+86	847+11	L	69	192	6.7	9.3
849+68	849+93	L	75	208	7.2	10.1
849+93	850+22	L	38/46	859	29.8	41.8
850+22	858+50	L	38	3,496	121.4	169.9
858+50	861+58	L	77/50	2,013	69.9	97.9
861+58	865+50	L	50	2,178	75.6	105.9
865+50	866+50	L	50/38	489	17.0	23.8
866+50	922+50	L	38	23,644	821.0	1,149.4
922+50	932+50	L	38/63	5,611	194.8	272.8
932+50	933+84	L	38	566	19.7	27.5
933+84	940+92	L	38/56	3,697	128.4	179.7
940+92	941+17	L	56	156	5.4	7.6
942+93	943+18	L	59	164	5.7	8.0
943+18	943+84	L	59/61	440	15.3	21.4
943+84	945+75	L	38	806	28.0	39.2
945+01	954+76	L	51/48	412	14.3	-
957+18	957+93	L	48	400	13.9	-
				WESTBOUND SUB-TOTALS:	3279.4	4577.4
				SHEET TOTALS:	7394	10,319

ITEM 407- TACK COAT, AS PER PLAN

$\frac{7394\ C.Y.}{1.25"} \times \frac{36"}{Y.D.} = 212{,}947\ S.Y.$

$212{,}947\ S.Y. \times \frac{0.075\ GALS.}{S.Y.} = \underline{\underline{15{,}971\ GALS.}}$

3'-0" SHOULDER WIDENING

Stations From	Stations To	Side	Length (Ft.)
	EASTBOUND		
737+74	763+33	R	2,559
766+29	831+92	R	6,563
834+06	842+63	R	857
842+63	847+93	R	530
850+58	858+47	R	789
861+50	933+21	R	7,171
933+21	941+16	R	795
943+12	950+20	R	708
951+70	952+96	R	126
955+91	962+04	R	613
	WESTBOUND		
730+55	765+18	L	3,463
768+32	832+18	L	6,386
837+78	846+62	L	884
850+22	858+50	L	828
858+50	932+50	L	7,400
934+10	941+00	L	690
943+84	952+29	L	845
952+29	954+93	L	264
957+82	962+04	L	422
	RAMP NO. 1		
836+00	838+00	L	200
838+00	844+75	L	675
	RAMP NO. 2		
842+64	849+68	R	704
	RAMP NO. 3		
852+25	858+54	L	629
	RAMP NO. 4		
851+47	861+50	R	1,003
	RAMP NO. 5		
850+04	854+05	L	401
	RAMP NO. 6		
932+50	942+27	L	977
	RAMP NO. 7		
933+19	941+64	R	845
	RAMP NO. 8		
947+33	952+30	L	497
	RAMP NO. 9		
943+05	951+70	R	865
	RAMP NO. 10		
943+84	948+50	L	466
	TOTAL:		49,155

ITEM 301 - BITUMINOUS AGGREGATE BASE (3" THICK)
3'-0" X 3"/12" X 49,155 ÷ 27 = 1365 C.Y.

ITEM 310 - SUBBASE, TYPE II (8" AVERAGE THICKNESS)
3'-0" X 8"/12" X 49,155 ÷ 27 = 3641 C.Y.

PRESSURE RELIEF JOINTS

LOCATION *	SPECIAL PRESSURE RELIEF JOINT, TYPE C	605 AGGREGATE DRAINS
	LIN. FT.	LIN. FT.
735+00	56	40
745+00	48	40
755+00	48	40
780+00	48	40
790+00	48	40
800+00	48	40
810+00	48	40
820+00	48	40
859+00	81	40
870+00	52	40
880+00	48	40
890+00	48	40
900+00	48	40
910+00	48	40
920+00	48	40
930+00	79	40
TOTAL	844	640

* LOCATION MAY BE ADJUSTED ±50 TO AVOID EXISTING JOINT LOCATIONS OR TO ALLOW THE PRESSURE RELIEF JOINT TO BE INSTALLED BY BULKHEADING IN A PAVEMENT REPAIR AREA.

SEEDING AND MULCHING

Stations From	Stations To	Side	Length (Ft.)	End Width (Ft.)	Surface Area (Sq. Yds)
EASTBOUND					
735+00	737+74	OUTSIDE	274	6	183
737+74	738+74	OUTSIDE	100	(6+8)/2=7	78
738+74	760+50	OUTSIDE	2,176	8	1,934
766+29	823+50	OUTSIDE	5,721	8	5,085
842+63	847+93	OUTSIDE	530	8	471
857+50	858+47	OUTSIDE	97	8	86
861+50	933+21	OUTSIDE	7,171	8	6,374
933+21	941+16	OUTSIDE	795	8	707
945+50	950+20	OUTSIDE	470	8	418
961+00	962+04	OUTSIDE	104	8	92
729+80	763+79	MEDIAN	3,399	6	2,266
766+98	832+06	MEDIAN	6,508	6	4,339
834+42	847+51	MEDIAN	1,309	6	873
850+36	941+12	MEDIAN	9,076	6	6,051
943+06	945+75	MEDIAN	269	6	179
			EASTBOUND SUB-TOTAL		29,136
WESTBOUND					
735+00	759+50	OUTSIDE	2,450	8	2,178
770+50	824+50	OUTSIDE	5,400	8	4,800
837+78	846+62	OUTSIDE	884	8	786
850+22	858+54	OUTSIDE	832	8	740
858+54	932+50	OUTSIDE	7,396	8	6,574
934+10	941+00	OUTSIDE	690	8	613
945+15	952+30	OUTSIDE	715	8	636
960+50	962+04	OUTSIDE	154	8	137
729+80	764+62	MEDIAN	3,482	6	2,321
767+82	832+39	MEDIAN	6,457	6	4,305
834+82	846+94	MEDIAN	1,212	6	808
850+06	941+06	MEDIAN	9,100	6	6,067
943+07	945+75	MEDIAN	268	6	179
953+88	954+30	MEDIAN	42	6	28
957+20	957+80	MEDIAN	60	6	40
			WESTBOUND SUB-TOTAL		30,212

SEEDING AND MULCHING

Stations From	Stations To	Side	Length (Ft.)	End Width (Ft.)	Surface Area (Sq. Yds)
RAMP#1					
836+00	844+75	LT.	875	4	389
841+00	845+78	RT.	478	4	212
RAMP#2					
843+50	849+68	RT.	618	4	275
842+65	850+58	LT.	793	4	352
RAMP#3					
846+26	858+54	LT.	1,228	4	546
852+25	858+54	RT.	629	4	280
RAMP#4					
851+47	861+50	RT.	1,003	4	446
850+50	855+85	LT.	535	4	238
RAMP#5					
850+04	861+54	LT.	1,150	4	511
851+00	854+05	RT.	305	4	136
RAMP#6					
932+50	942+27	LT.	977	4	434
935+35	942+27	RT.	692	4	308
RAMP#7					
933+19	941+64	RT.	845	4	376
933+19	942+05	LT.	886	4	394
RAMP#10					
943+84	954+91	LT.	1,107	4	492
945+85	948+50	RT.	265	4	118
			RAMPS SUB-TOTAL:		5,507
			TOTAL:		64,855

202- RAISED PAVEMENT MARKERS REMOVED FOR STORAGE

STATION FROM	STATION TO	SIDE	EACH		
729+72	914+75	EB	232		
729+72	940+50	WB	264		
RAMP GORES			120		
TOTAL			616		

MAINTAINING TRAFFIC

ITEM 301- BIT. AGG. BASE, A.P.P.				ITEM 305- CONCRETE BASE, A.P.P.		
LOCATION	C.Y. LOCATION	# OF LOCATIONS	TOTALS	S.Y. LOCATION	# OF LOCATIONS	TOTALS
BRIDGE SHIFT				245	6	232
RAMP SHIFT	53	3	159			
ADDITIONAL			141			230
TOTAL			300			1700

GUARDRAIL

REFERENCE NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED	202 GUARDRAIL POSTS REMOVED AS PER PLAN	606 GUARDRAIL TYPE 5	606 ANCHOR ASSEMBLY, TYPE A	606 ANCHOR ASSEMBLY, TYPE T	606 BRIDGE TERMINAL ASSEMBLY, TYPE A	301 BITUMINOUS AGGREGATE BASE AS PER PLAN	SPEC. HERBICIDES FOR WEED CONTROL
				L.F	EACH	L.F	EACH	EACH	EACH	C.Y.	S.Y.
G-1	729+72	734+99	RT.	525		512.5		1		19.6	235
G-2	729+82	736+05	LT.	625		600	1			23.3	279
G-3	743+52	745+25	LT.	175		112.5	1	1		6.7	80
G-4	759+54.5	765+17	LT.	562.5		55.0	-	1	1	20.9	251
G-5	760+33	763+28	RT.	300		275	1		1	11.2	135
G-6	763+00	764+12.5	℄		1					4.3	51
G-7	763+54.5	764+42	℄							3.2	39
G-8	767+55	768+67.5	℄		1					4.3	51
G-9	768+83	771+08	LT.	275		250	1		1	10.3	124
G-10	774+12.5	777+12.5	℄		2					20.4	244
G-11	774+07	776+28	RT.	200		100	1		1	4.6	56
G-12	774+75	777+00	LT.	200		100	1		1	4.6	56
G-13	819+00	822+00	℄		2					20.4	244
G-14	819+25	821+58	LT.	225		100	1		1	4.6	56
G-15	819+45	831+92	RT.	1,250		1,150	1		2	43.5	522
G-16	825+00	832+81	LT.	775		762.5		1	1	28.8	346
G-17	831+12.5	832+25	℄		1					4.3	51
G-18	834+07	848+07(RAMP 2)	RT.	1,400		1,387.5		1	1	52.0	624
G-19	834+54	835+66.5	℄		1					4.3	51
G-20	835+00	841+52(RAMP 1)	LT.	650		625	1		1	24.2	290
G-21	844+95	846+60	LT.	162.5							
G-22	845+67	847+92	RT.	225		200	1		1	8.4	101
G-23	846+33	847+45.5	℄		1					4.3	51
G-24	849+45	850+86	LT.	150		125	1		1	5.7	68
G-25	850+10	851+22.5	℄		1					4.3	51
G-26	850+56	856+81	RT.	625		612.5		1	1	23.3	279
G-27	939+10	941+10	℄		1					7.5	90
G-28	939+12	941+12	RT.	187.5		162.5	1		1	7.1	85
G-29	943+05	945+05(RAMP10)	LT.	200		175	1		1	7.5	90
G-30	943+10	945+10	℄		1			1		7.5	90
G-31	943+12.5	946+50	RT.	337.5							
G-32	945+92(RAMP 9)	953+00	RT.	700		675	1		1	25.9	311
G-33	948+12(RAMP 8)	955+00	LT.	687.5		675		1	1	25.6	306
G-34	951+74	953+68.5	℄		1					7.5	90
G-35	955+95	961+05	RT.	500		487.5		1	1	18.6	224
G-36	957+25	959+25	℄		1					7.5	90
G-37	957+90	961+91.5	LT.	300		387.5	1		1	15.3	183
		TOTALS		11,237.5	14	9530	15	9	20	491.5	5,894

EARTHWORK

SHEET NO.	203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION CU. YDS.	203 EMBANKMENT, AS PER PLAN CU. YDS.	659 SEEDING AND MULCHING SQ. YDS.	
40	102	2,008	4,630	
41	77	796	1,966	
42	53	1,326	1,929	
43	79	1,556	2,673	
44	32	214	711	
45	93	1,222	2,641	
46	104	3,643	5,544	
47	104	225	1,420	
48	100	1,921	3,944	
TOTALS	744	12,911	25,458	

ITEM 659 - COMMERCIAL FERTILIZER

(64855 - 25458) S.Y. x 9 S.F. / S.Y. x 20 LBS / 1,000 S.F. x TON / 2,000 LBS. = 8.13 TONS

ITEM 659 - AGRICULTURAL LIMING

(64855 - 25458) S.Y. x 9 S.F. / S.Y. x 100 LBS / 1,000 S.F. x TON / 2,000 LBS. = 40.64 TONS

SCOPE OF PROPOSED GUARDRAIL WORK

THE EXISTING MEDIAN GUARDRAIL IS TO REMAIN. THE EXISTING OUTSIDE GUARDRAIL SHALL BE REPLACED AT THE NEW OFFSET. (SEE TYPICAL SECTIONS)
THE PLAN VIEWS DO NOT INDICATE A DIFFERENCE BETWEEN EXISTING AND PROPOSED GUARDRAIL WHEN LOCATED IN CLOSE PROXIMITY.

GENERAL SUMMARY

CALC. BY / DATE	CUYAHOGA COUNTY CUY-422F-0.51.	OHIO FHWA REGION 5	19 102
CHKD. BY / DATE			

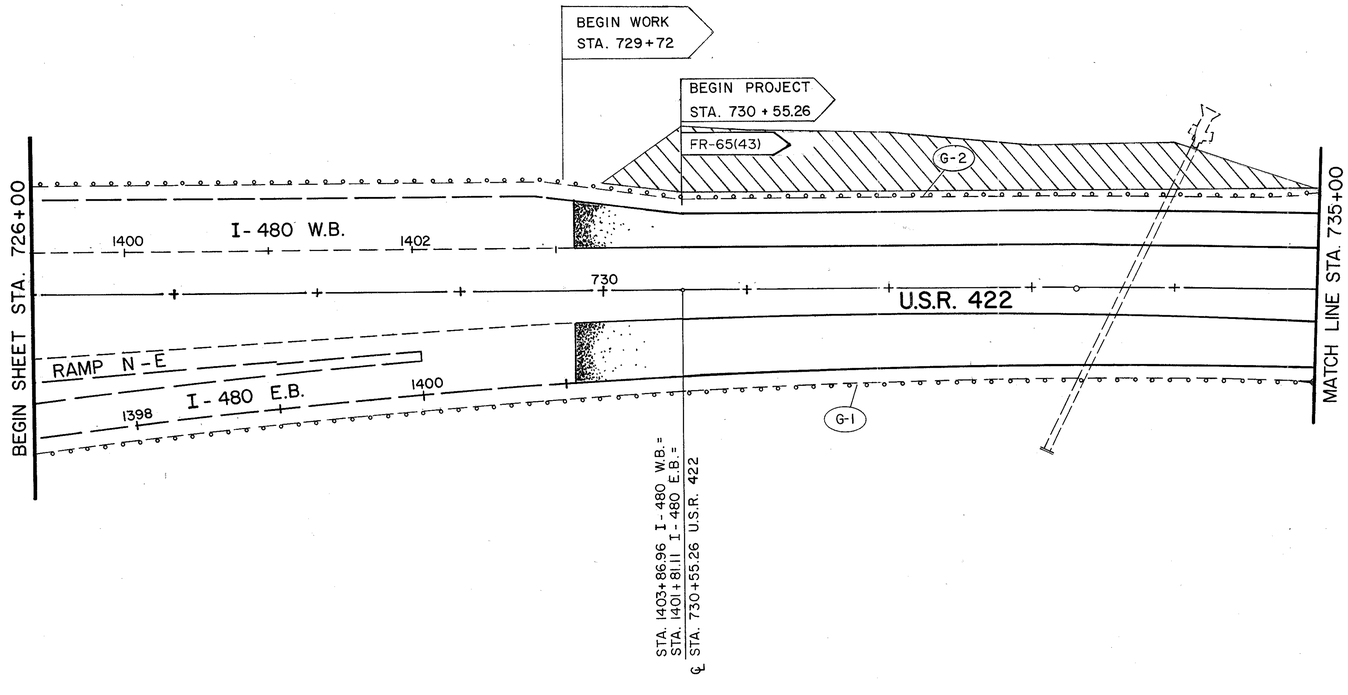
| ITEM | SHEET NUMBER | | |

GENERAL SUMMARY

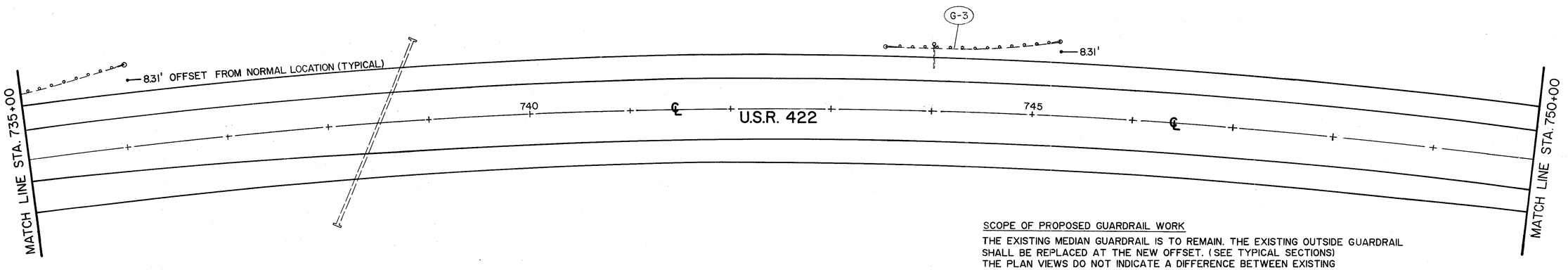
CALC. BY / DATE	CUYAHOGA COUNTY CUY-422F-0.51	OHIO FHWA REGION 5	20 102
CHKD. BY / DATE			

ITEM	SHEET NUMBER																			ITEM	QUANT.	UNIT	DESCRIPTION
								6		8	9	11		16	17	18		31	38	34				
																							PAVEMENT
301															1365			15	73		301	1453	CU. YD.	BITUMINOUS AGGREGATE BASE, AC-20
301															300	492					301	792	CU. YD.	BITUMINOUS AGGREGATE BASE, AC-20, AS PER PLAN
304																		250			304	250	CU. YD.	AGGREGATE BASE
305															1700						305	1700	SQ. YD.	9" CONCRETE BASE, AS PER PLAN
310								60													310	60	CU. YD.	SUBBASE TYPE I, AS PER PLAN
310															3641				193		310	3834	CU. YD.	SUBBASE TYPE II, AS PER PLAN
407														15,971					94		407	16,065	GAL.	TACK COAT, AS PER PLAN
609								600													609	600	LIN. FT.	ASPHALT CONCRETE CURB AC-20, STANDARD TYPE I
622																				260	622	260	LIN. FT.	CONCRETE BARRIER, STANDARD TYPE D, modified as per plan
846														7394					44		846	7438	CU. YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE I, AC-20, AS PER PLAN
846														10,319					61		846	10,380	CU. YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
SPEC.																		15,000			SPEC.	15,000	SQ. YD.	FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT
SPEC.								1500										20,000			SPEC.	21,500	LIN. FT.	FULL DEPTH PAVEMENT SAWING
SPEC.																		6000			SPEC.	6000	SQ. YD.	PARTIAL DEPTH PAVEMENT REPAIR
SPEC.															844						SPEC.	844	LIN. FT.	PRESSURE RELIEF JOINT, STANDARD TYPE C
SPEC.								500													SPEC.	500	SQ. YD.	FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT
																							DRAINAGE
603											1300										603	1300	LIN. FT.	4" CONDUIT, TYPE E, 707.19
603											250										603	250	LIN. FT.	6" CONDUIT, TYPE B
603										200											603	200	LIN. FT.	6" CONDUIT, TYPE E, 707.19
603										150	320										603	470	LIN. FT.	6" CONDUIT, TYPE F
605											40,000										605	40,000	LIN. FT.	4" SHALLOW PIPE UNDERDRAINS, AS PER PLAN
605											22,000										605	22,000	LIN. FT.	6" DEEP PIPE UNDERDRAINS, AS PER PLAN
605										100											605	100	LIN. FT.	6" UNCLASSIFIED PIPE UNDERDRAIN, 707.01 TYPE III OR 707.21 TYPE III, AS PER PLAN
605										200					640			700			605	1540	LIN. FT.	AGGREGATE DRAINS
																							FOR TRAFFIC CONTROL SUMMARY SEE SHEET 54
																							FOR LIGHTING SUMMARY SEE SHEET 78
																							FOR STRUCTURE SUMMARY SEE SHEET 95
SPEC.												500									SPEC.	500	HOURS	LAW ENFORCEMENT OFFICER WITH PATROL CAR
614																					614	LUMP		MAINTAINING TRAFFIC
619																					619	LUMP		FIELD OFFICE
623																					623	LUMP		CONSTRUCTION LAYOUT STAKES
624																					624	LUMP		MOBILIZATION

CUYAHOGA COUNTY	OHIO	21
CUY-422F-0.51	FHWA REGION 5	102
	FEDERAL PROJECT	



CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	61
GRADING	40
LIGHTING	80

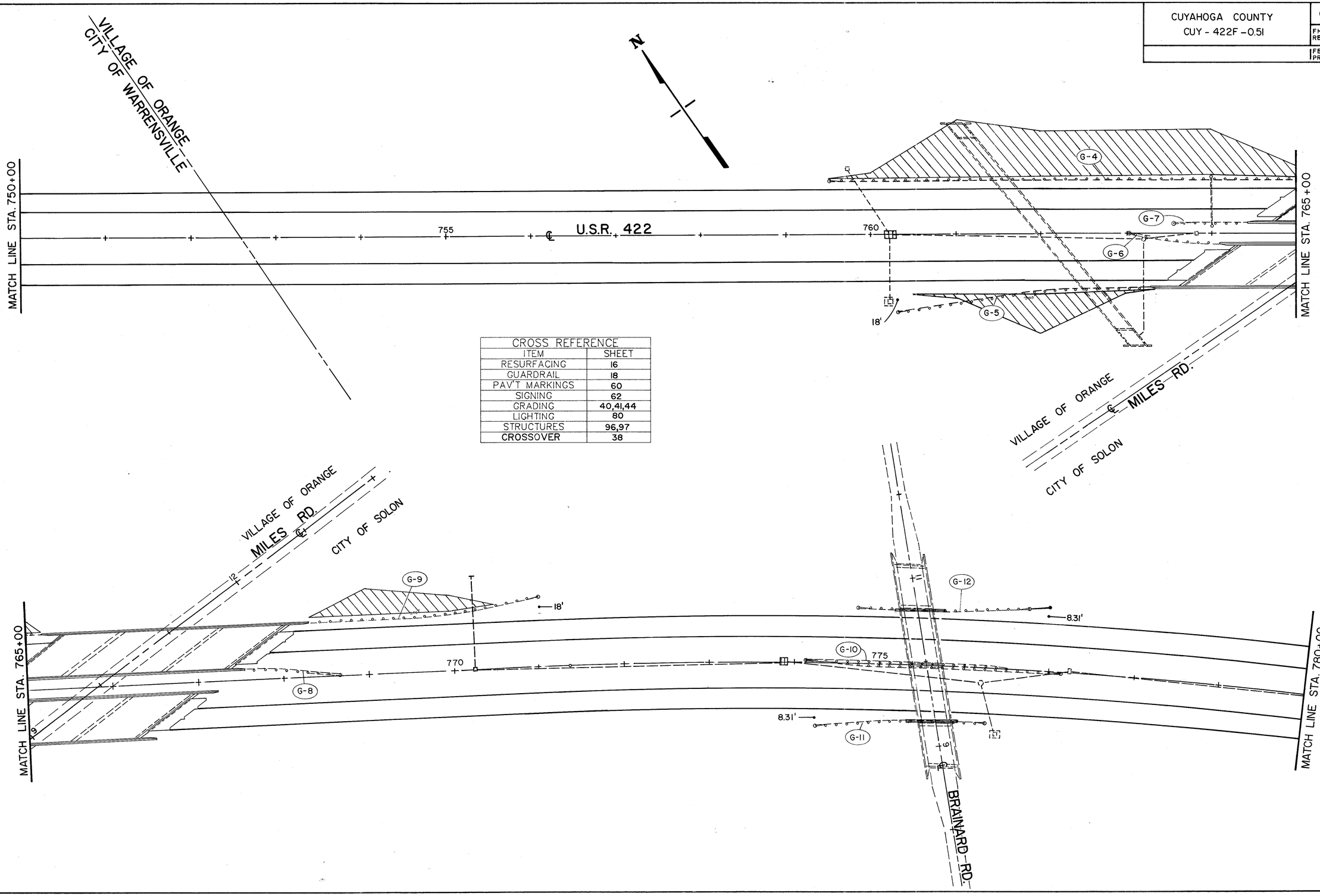


SCOPE OF PROPOSED GUARDRAIL WORK

THE EXISTING MEDIAN GUARDRAIL IS TO REMAIN. THE EXISTING OUTSIDE GUARDRAIL SHALL BE REPLACED AT THE NEW OFFSET. (SEE TYPICAL SECTIONS) THE PLAN VIEWS DO NOT INDICATE A DIFFERENCE BETWEEN EXISTING AND PROPOSED GUARDRAIL WHEN LOCATED IN CLOSE PROXIMITY.

PLAN VIEW STA. 726+00 TO STA. 750+00

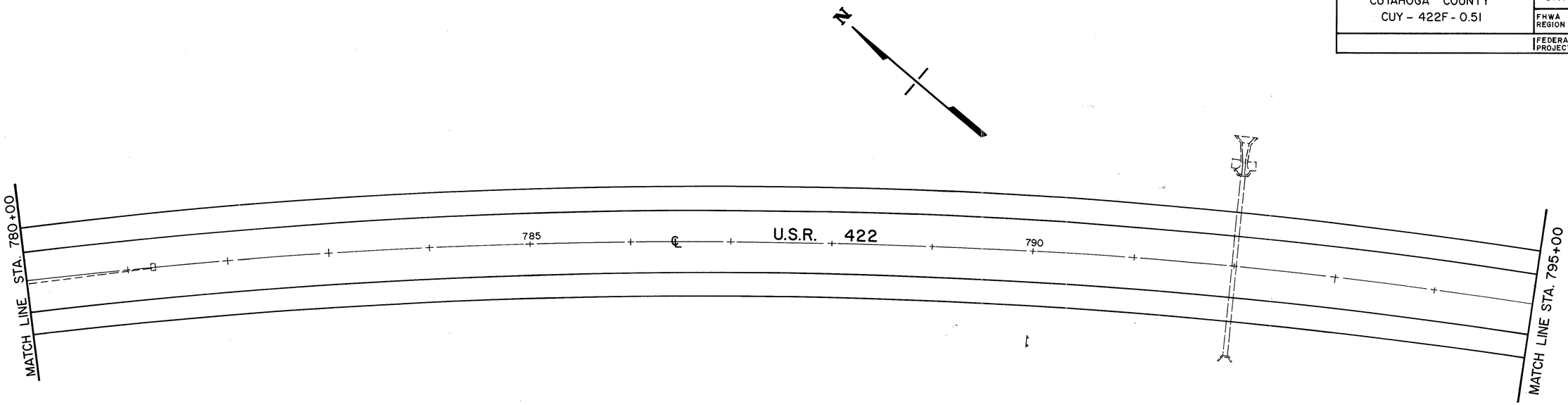
CUYAHOGA COUNTY	OHIO	22
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	



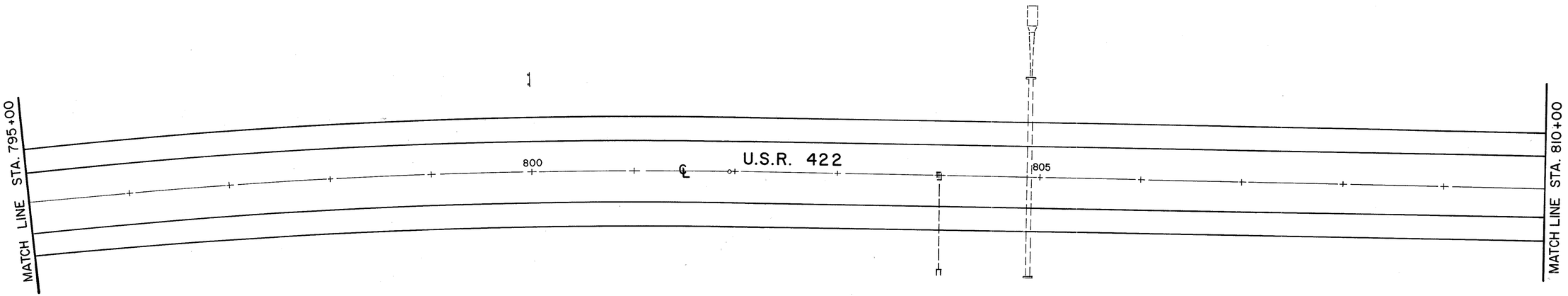
CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	62
GRADING	40,41,44
LIGHTING	80
STRUCTURES	96,97
CROSSOVER	38

PLAN VIEW STA. 750+00 TO STA. 780+00

CUYAHOGA COUNTY CUY - 422F - 0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	23 102

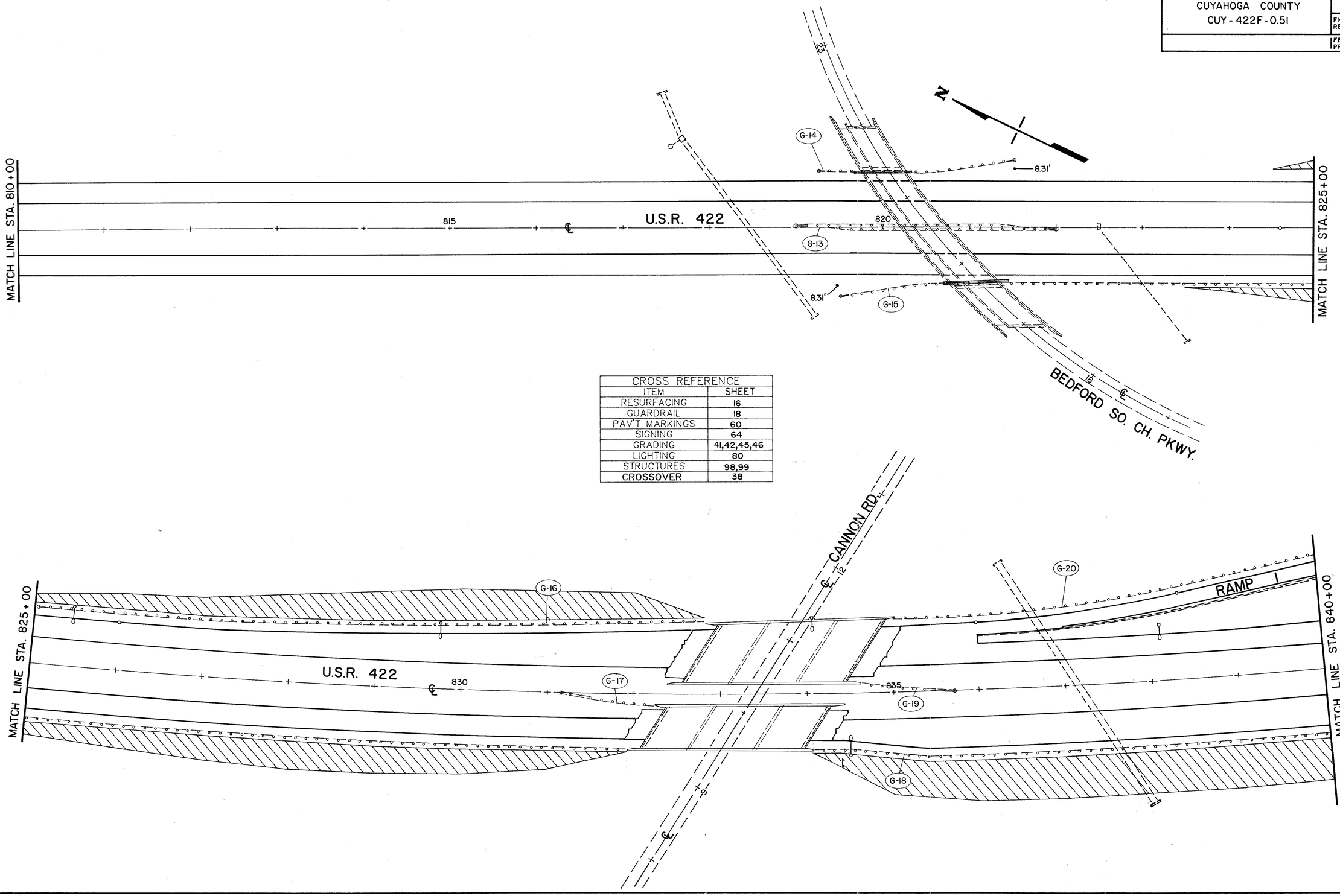


CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	63



PLAN VIEW STA. 780+00 TO STA. 810+00

CUYAHOGA COUNTY	OHIO	24
CUY-422F-0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

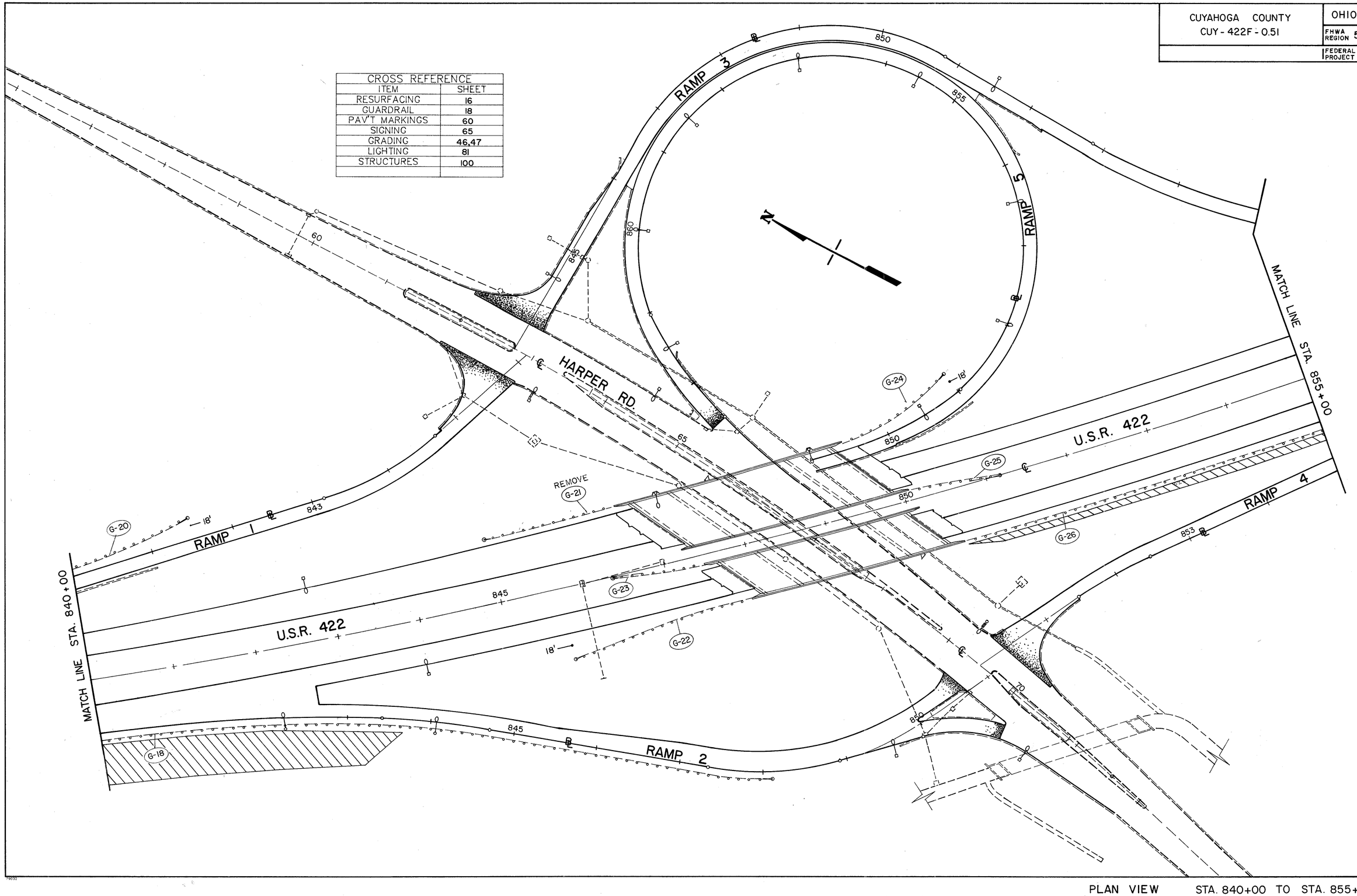


CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	64
GRADING	41,42,45,46
LIGHTING	80
STRUCTURES	98,99
CROSSOVER	38

PLAN VIEW STA. 810+00 TO STA. 840+00

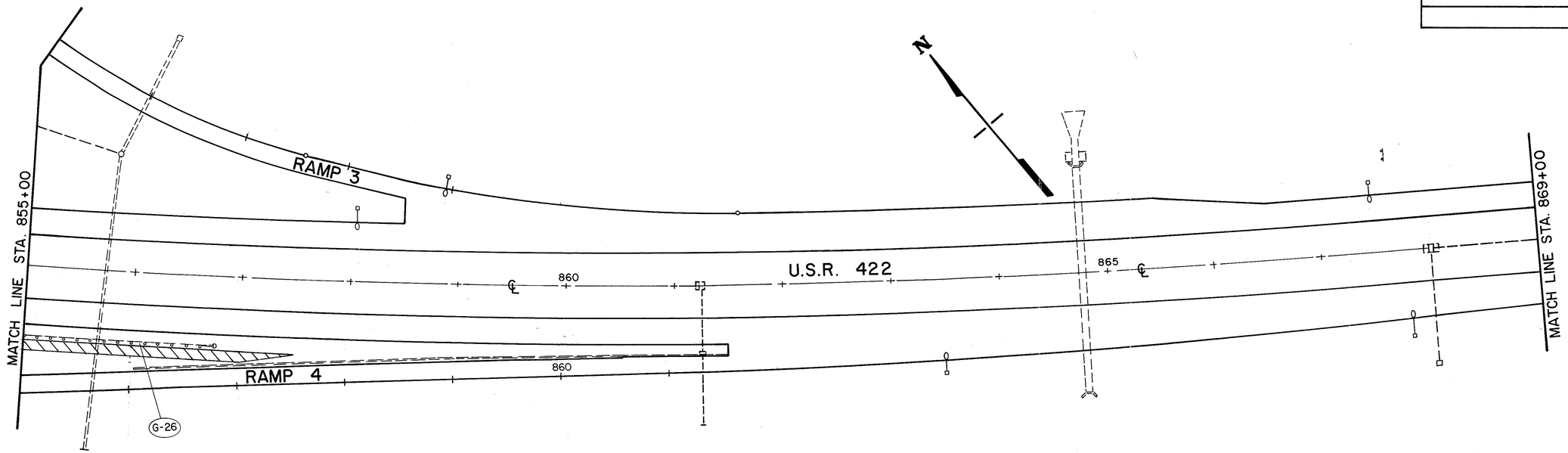
CUYAHOGA COUNTY	OHIO	25
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	65
GRADING	46,47
LIGHTING	81
STRUCTURES	100

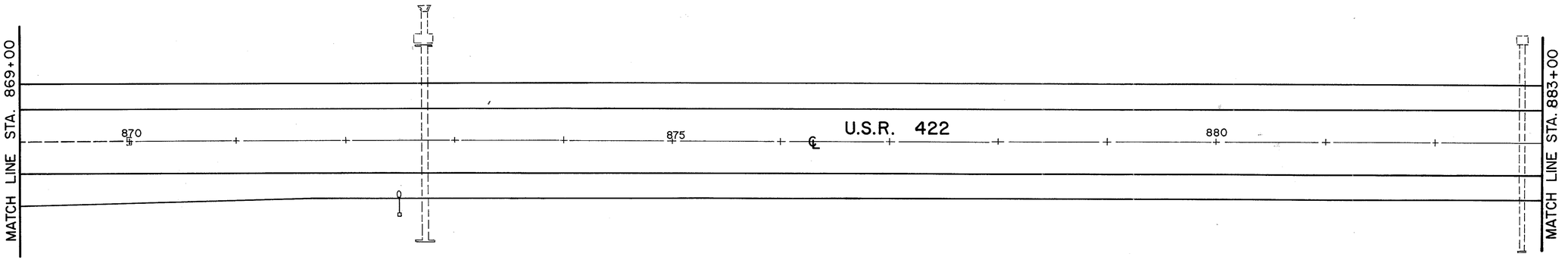


PLAN VIEW STA. 840+00 TO STA. 855+00

CUYAHOGA COUNTY	OHIO	26
CUY-422F-0.51	FHWA REGION 5	102
	FEDERAL PROJECT	



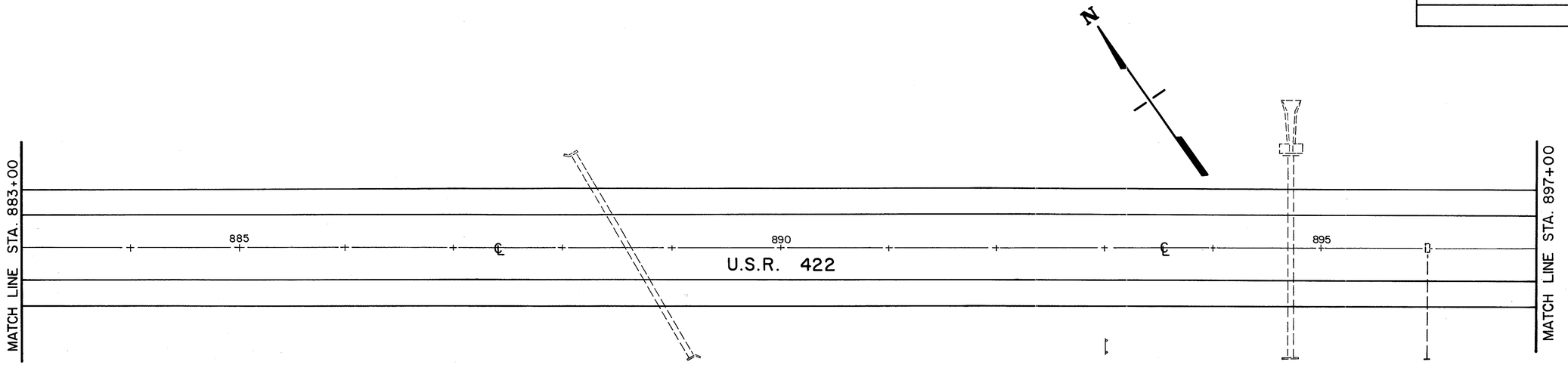
CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	66
GRADING	47
LIGHTING	82



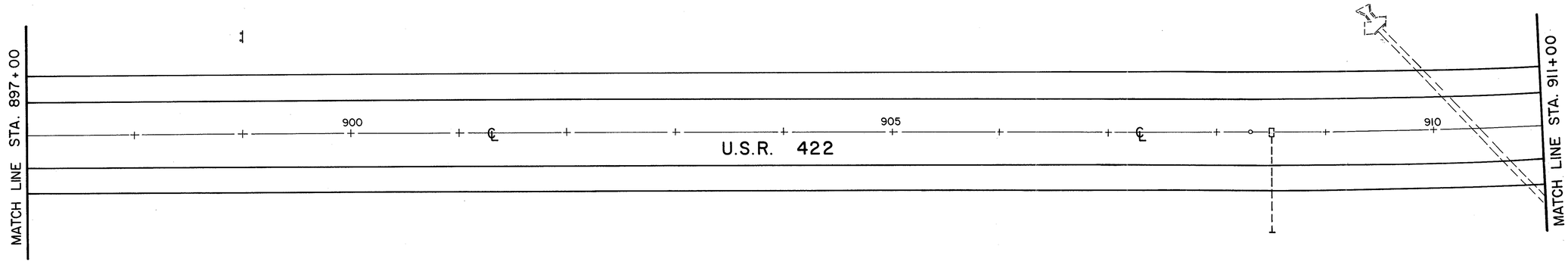
79032

PLAN VIEW STA. 855+00 TO STA. 883+00

CUYAHOGA COUNTY	OHIO	27
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

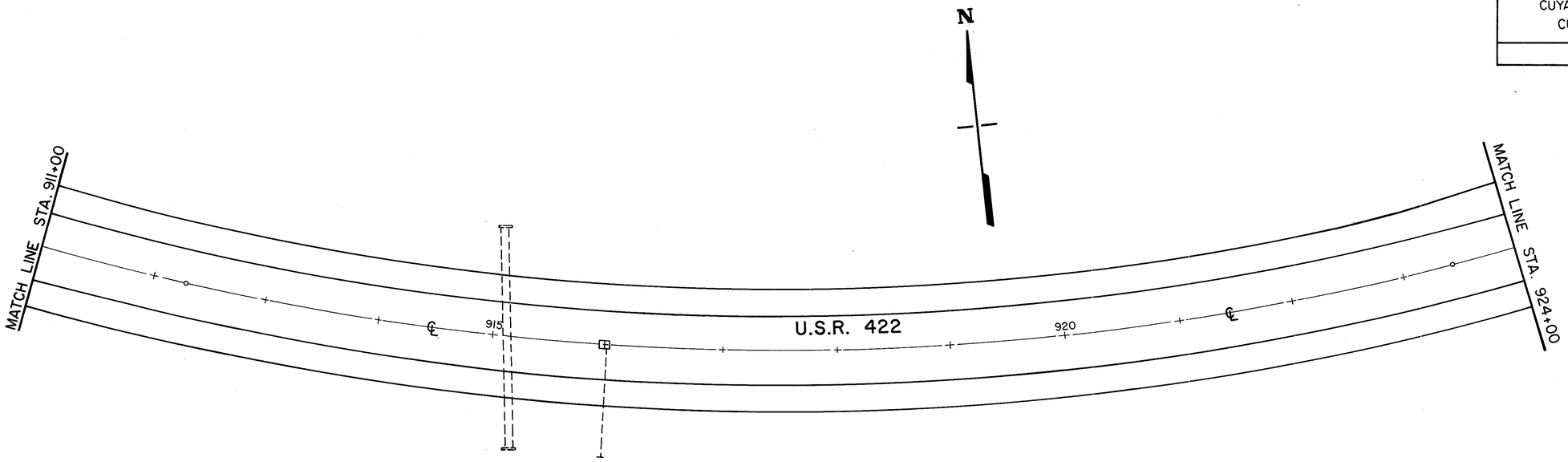


CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	67
CROSSOVER	38

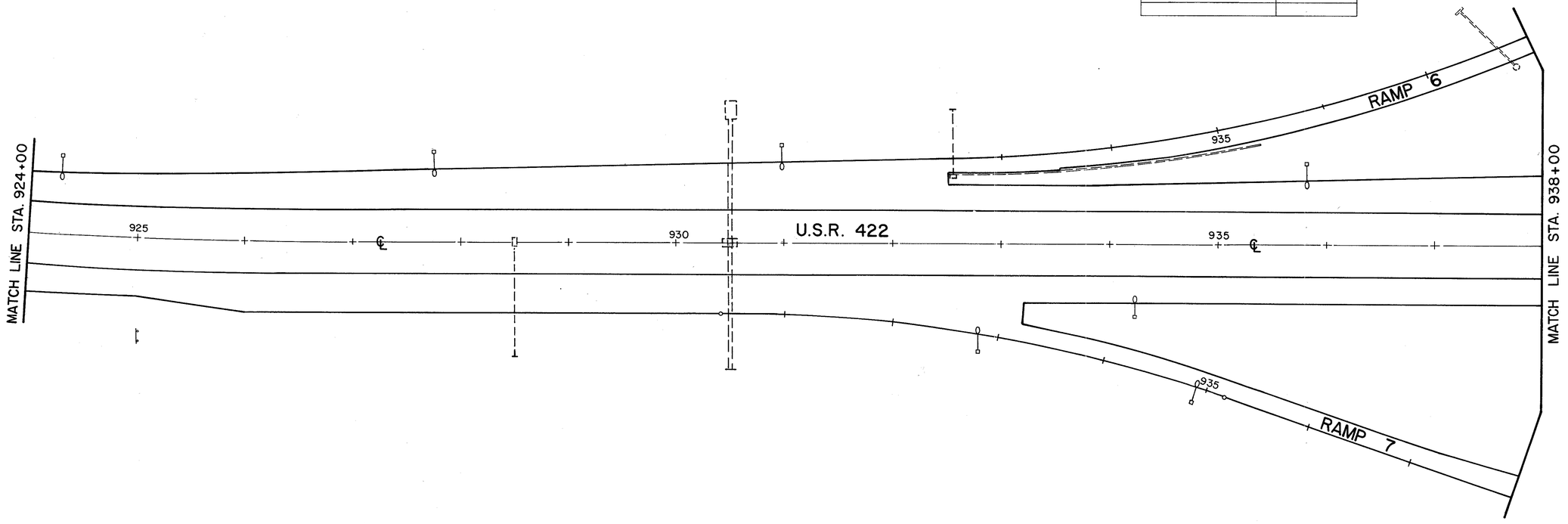


PLAN VIEW STA. 883+00 TO STA. 911+00

CUYAHOGA COUNTY CUY - 422F - 0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	28 102

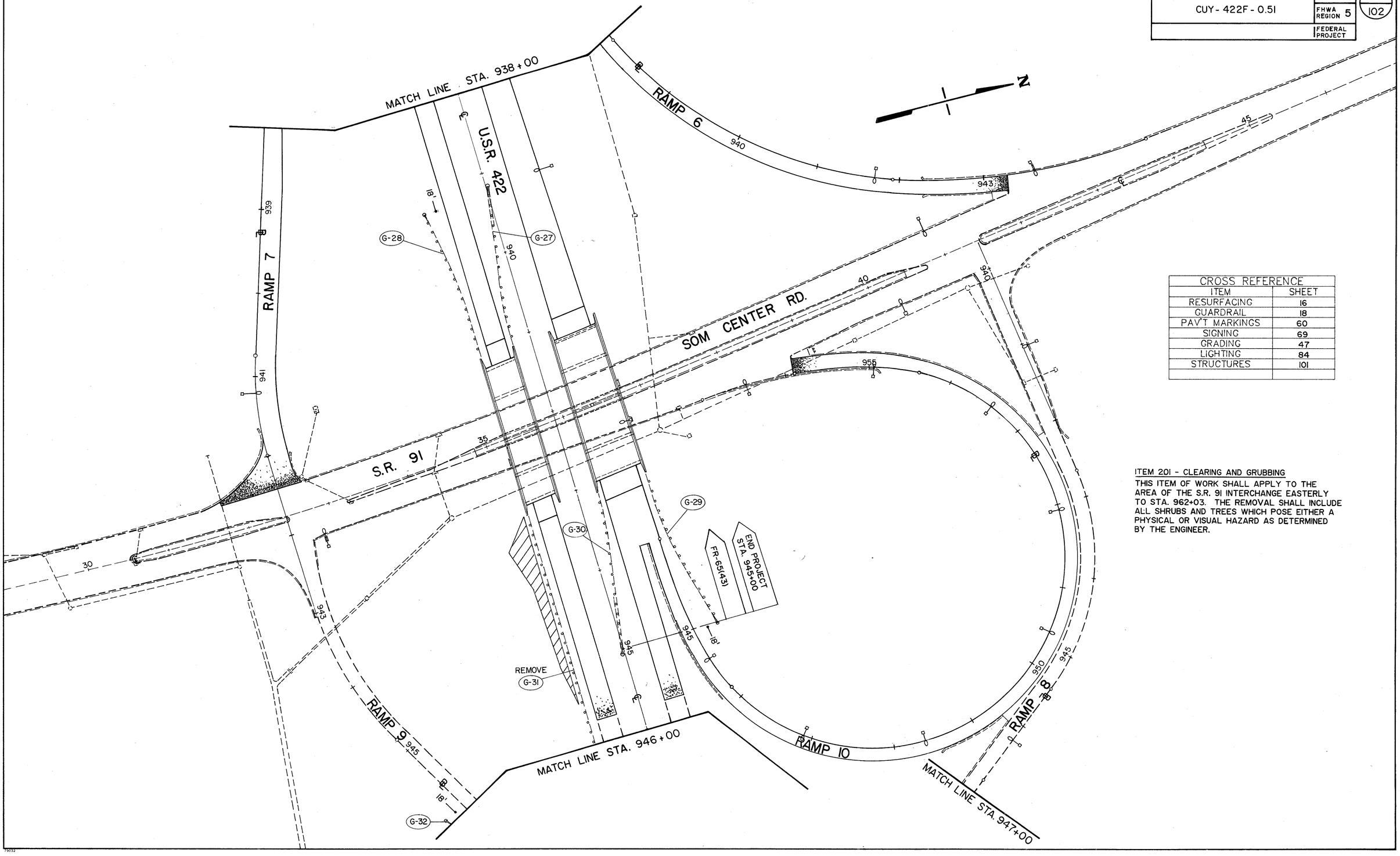


CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	68
LIGHTING	83



PLAN VIEW STA. 911+00 TO 938+00

CUYAHOGA COUNTY CUY - 422F - 0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	29 102



CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	69
GRADING	47
LIGHTING	84
STRUCTURES	101

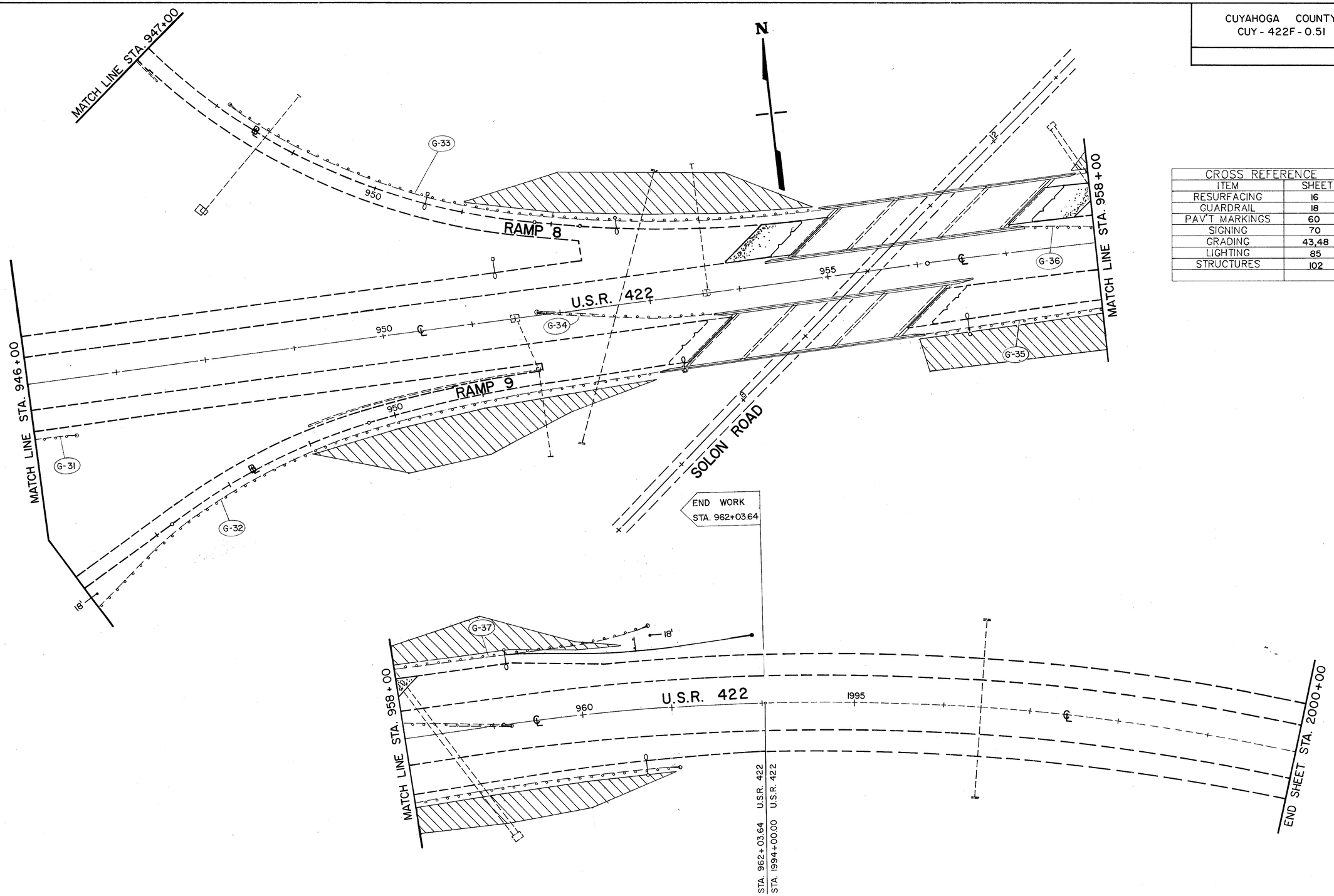
ITEM 201 - CLEARING AND GRUBBING

THIS ITEM OF WORK SHALL APPLY TO THE AREA OF THE S.R. 91 INTERCHANGE EASTERLY TO STA. 962+03. THE REMOVAL SHALL INCLUDE ALL SHRUBS AND TREES WHICH POSE EITHER A PHYSICAL OR VISUAL HAZARD AS DETERMINED BY THE ENGINEER.

PLAN VIEW STA. 938+00 TO STA. 946+00

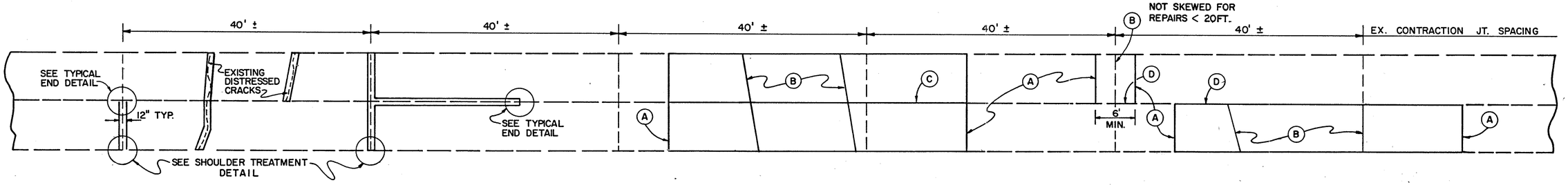
CUYAHOGA COUNTY	OHIO	30
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

CROSS REFERENCE	
ITEM	SHEET
RESURFACING	16
GUARDRAIL	18
PAV'T MARKINGS	60
SIGNING	70
GRADING	43,48
LIGHTING	85
STRUCTURES	102



PLAN VIEW STA. 946+00 TO STA. 2000+00

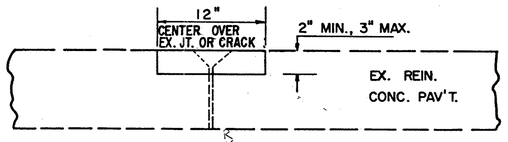
19032



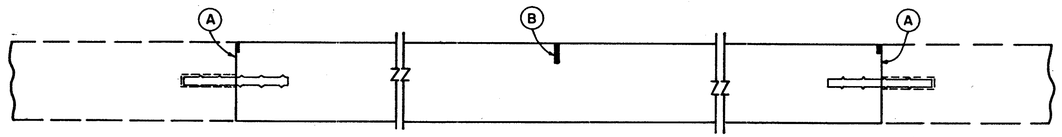
PARTIAL DEPTH JOINT OR CRACK REPAIR

TYPICAL TWO LANE REPLACEMENT

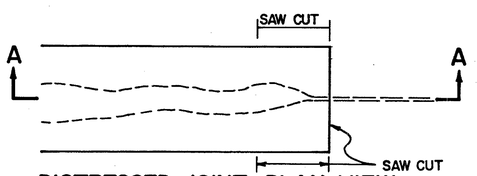
TYPICAL ONE LANE REPLACEMENT



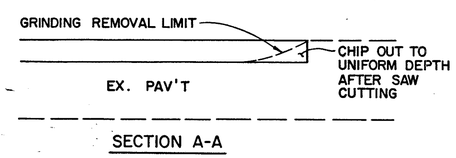
ITEM-SPECIAL-PATIAL DEPTH PAV'T REPAIR



ITEM SPECIAL - FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT



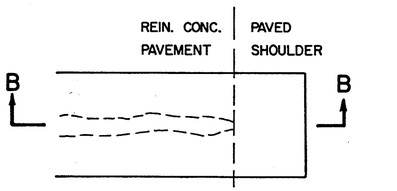
DISTRESSED JOINT - PLAN VIEW



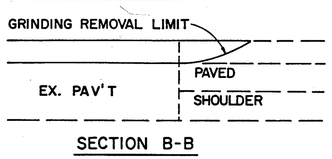
SECTION A-A

TYPICAL END DETAIL

NO SEPARATE PAYMENT WILL BE MADE FOR THESE SAW CUTS



DISTRESSED JOINT - PLAN VIEW



SECTION B-B

SHOULDER TREATMENT DETAIL

MEASURED QUANTITY SHALL NOT INCLUDE THE PAVED SHOULDER AREA

SEE GENERAL NOTE ON SHEET Nº 5 FOR ADDITIONAL INFORMATION

ESTIMATED QUANTITY		
ITEM SPECIAL- PARTIAL DEPTH PAVEMENT REPAIR	6,000	S.Y.

LEGEND

- (A) TYPE T TIED REPAIR JOINT, AS PER BP-13
- (B) SAWED CONTRACTION JOINT AS PER BP-4 (SKEWED 2:12, MAX. SPACING 20' %)
- (C) LONGITUDINAL BUTT JOINT AS PER BP-3 (USING HOOK BOLTS)
- (D) LONGITUDINAL JOINT AS PER BP-13

SEE GENERAL NOTES ON SHEET 7 FOR ADDITIONAL INFORMATION

REINFORCING MESH AS SHOWN ON STD. DRAWING BP-13 IS NOT REQUIRED.

ESTIMATED QUANTITIES			
ITEM SPECIAL	FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT	15,000	SQ. YDS.
ITEM SPECIAL	FULL DEPTH PAVEMENT SAWING	20,000	LIN. FT.
ITEM 203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	250	CU. YDS.
ITEM 301	BITUMINOUS AGGREGATE BASE	15	CU. YDS.
ITEM 304	AGGREGATE BASE	250	CU. YDS.
ITEM 605	AGGREGATE DRAINS	700	LIN. FT.

LOCATION	202 WEARING COURSE REMOVED	202 CHIPPING CONCRETE PAVEMENT
	SQ. YDS.	SQ. YDS.
729+80 WB	49	118
729+80 EB	49	149
BR. CUY-422F-0115L	311	89
BR. CUY-422F-0115R	315	124
BR. CUY-422F-0244L	491	394
BR. CUY-422F-0244R	387	241
BR. CUY-422F-0274L	408	134
BR. CUY-422F-0274R	312	104
BR. CUY-422F-0451L	415	371
BR. CUY-422F-0451R	236	72
BR. CUY-422F-0474L	219	160
RAMP NO. 1	-	105
RAMP NO. 2	10	77
RAMP NO. 3	-	97
RAMP NO. 4	4	99
RAMP NO. 5	-	28
RAMP NO. 6	-	28
RAMP NO. 7	-	105
RAMP NO.10	-	25
945+75 WB	49	83
945+75 EB	49	83
ADDITIONAL	296	214
TOTAL	3600	2900

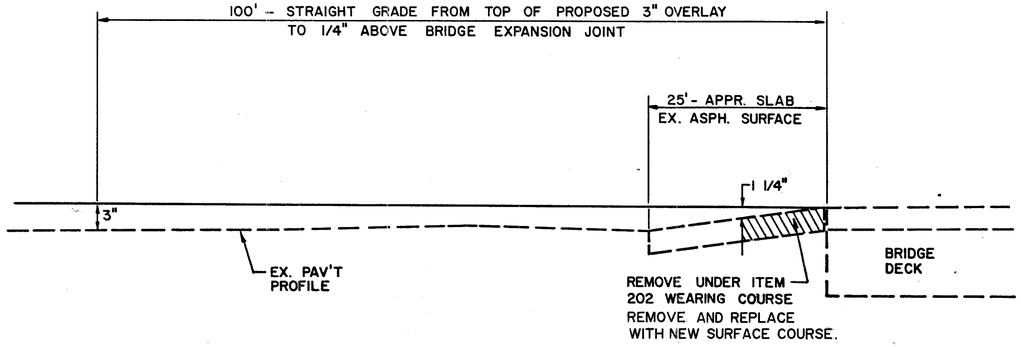
FEATHERING AT STRUCTURES SHALL BE AS PER THE ADJACENT DETAILS. ALL OTHERS SHALL BE BUTT JOINT TYPES AS SHOWN ON STANDARD DRAWING BP-5.

NOTES: (CASE I AND CASE II)

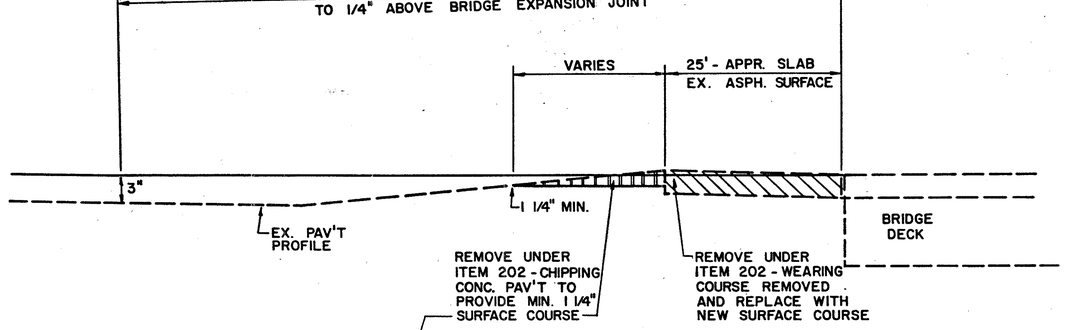
THE CONTRACTOR SHALL SET CONTROL ELEVATIONS AT 10 FOOT INTERVALS AT ALL EDGE LINES AND LANE LINES TO ESTABLISH THE GRADE AS DETAILED ABOVE.

THE LIMITS OF THE WEARING COURSE REMOVED AND PAVEMENT PLANING SHALL BE DETERMINED AFTER THE CONTROL ELEVATIONS ARE SET.

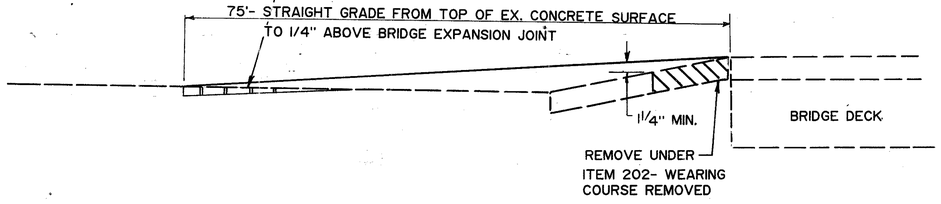
OVERLAY VARIATIONS IN EXCESS (UP OR DOWN) OF ¼ INCH FROM THE CONTROL ELEVATIONS SHALL DEEM THAT WORK UNACCEPTABLE. THE SURFACE COURSE IN THOSE AREAS SHALL BE REMOVED AND REPLACED AT THE PROPER GRADE AT NO ADDITIONAL COST TO THE STATE.



FEATHER DETAIL ADJACENT TO STRUCTURES
CASE I - EXISTING APPR. SLAB LOW



FEATHER DETAIL ADJACENT TO STRUCTURES
CASE II - EXISTING APPR. SLAB HIGH OR AT GRADE



FEATHER DETAIL WITHOUT PROPOSED 3" OVERLAY
CASE III - BR. № CUY-422F-0474 L ONLY

FHWA REGION	STATE	PROJECT	
5	OHIO		

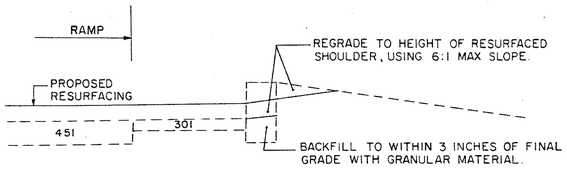
33
102

CUYAHOGA COUNTY
CUY-422F-0.51

ITEM 202 - CURB REMOVED, AS PER PLAN

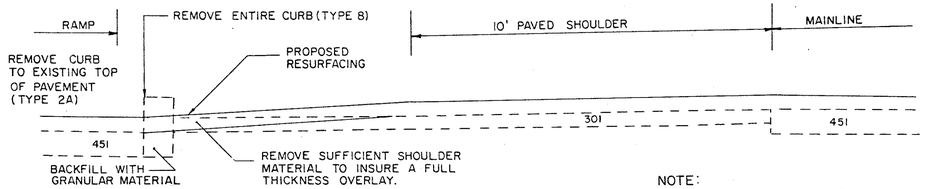
THE FOLLOWING DETAILS AND SPECIFICATIONS SHALL APPLY TO THIS ITEM OF WORK:

CASE 1 - 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.)

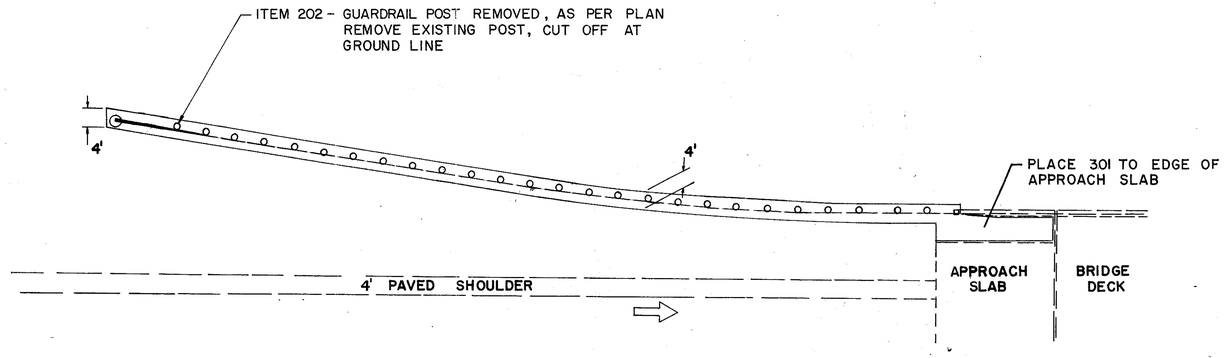
CASE 2 - TYPE 2A OR 8 CURB REMOVED



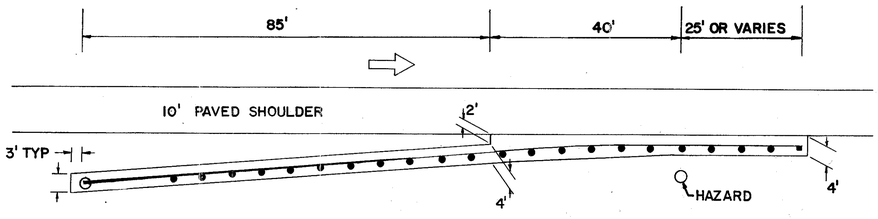
NOTE:
CONNECT THE OUTSIDE EDGE OF THE 10 FT. PAVED SHOULDER AND THE CURB GUTTER LINE WITH A STRAIGHT GRADE.

ESTIMATED QUANTITIES

RAMP Nº	LOCATION FROM	LOCATION TO	202 CURB REMOVED AS PER PLAN LIN. FT.	202 CATCH BASIN ABANDONED EACH
1	836+00	841+00	503	
4	855+83	861+50	565	1
5	849+04	851+04	140	
6	932+50	935+50	289	1
9	949+00	951+70	265	
10	943+84	945+84	208	
PARTICIPATION CODE - TOTALS			1970	2

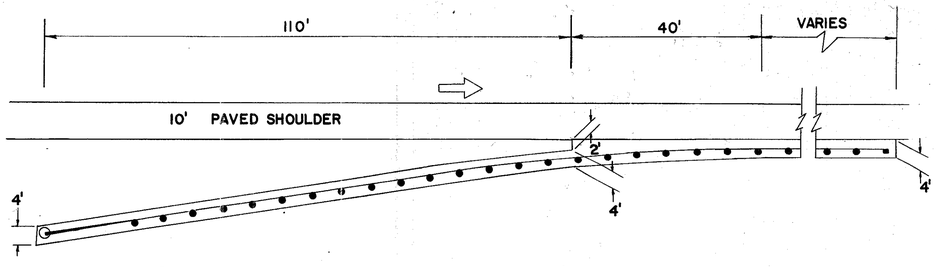


ITEM 301 FOR EROSION CONTROL UNDER EXISTING MEDIAN GUARDRAIL
(EXISTING GUARDRAIL TO REMAIN)



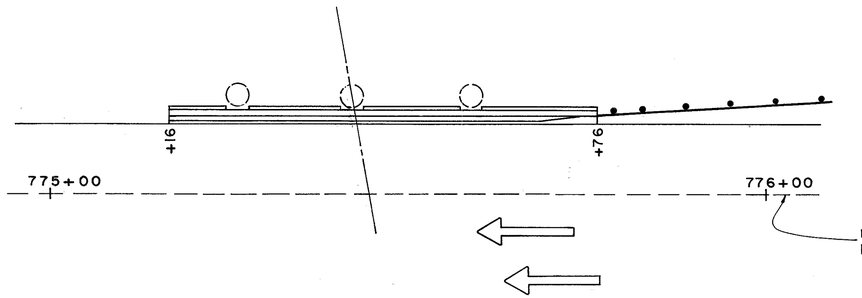
ITEM 301 FOR EROSION CONTROL WITH 8.31' GUARDRAIL FLARE

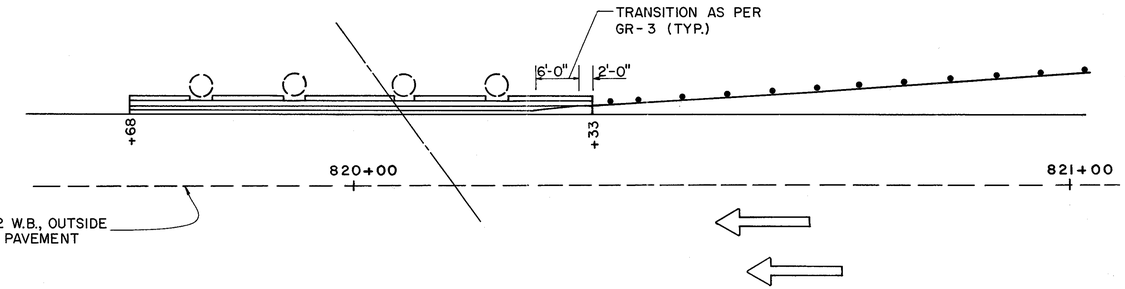
A 4' WIDE STRIP OF ITEM 301 SHALL BE CONSTRUCTED UNDER ALL GUARDRAIL



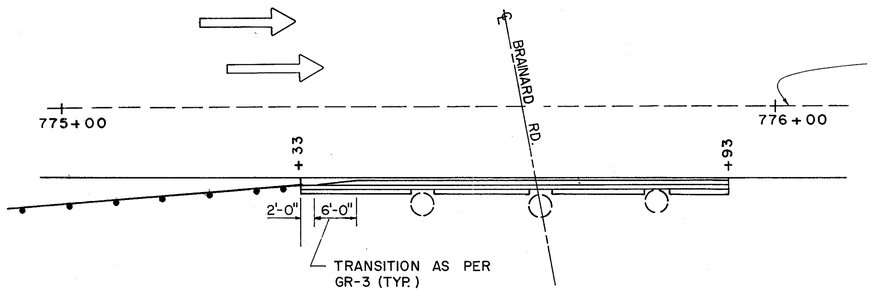
ITEM 301 FOR EROSION CONTROL WITH 18' GUARDRAIL FLARE

CUYAHOGA COUNTY CUY-422F-0.51	OHIO	34 102
	FHWA REGION 5	
	FEDERAL PROJECT	

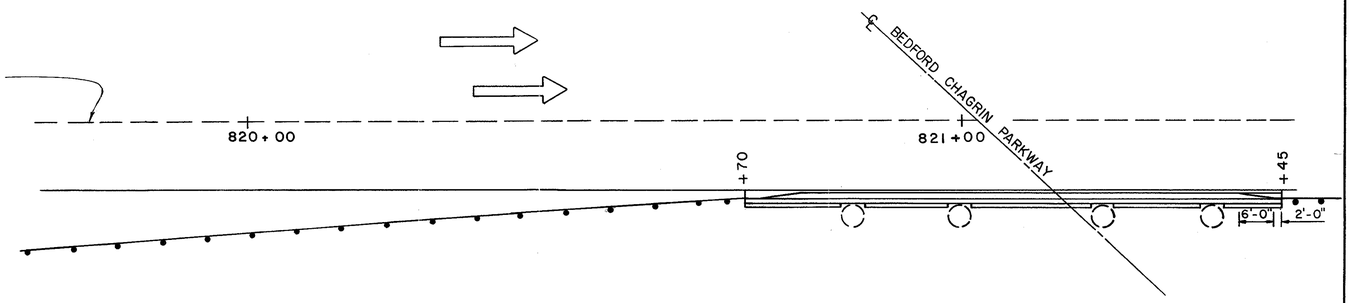




U.S.R. 422 W.B., OUTSIDE EDGE OF PAVEMENT

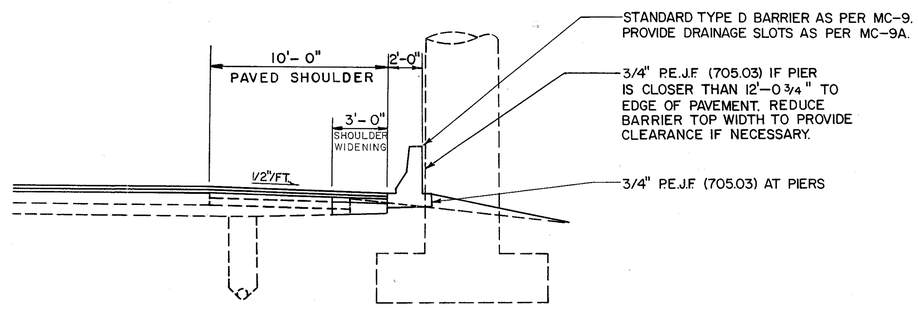


U.S.R. 422 E.B., OUTSIDE EDGE OF PAVEMENT



CONCRETE BARRIER

FROM	TO	622 CONCRETE BARRIER STANDARD TYPE D LIN. FT.	
775+16 W.B.	775+76 W.B.	60	
775+33 E.B.	775+93 E.B.	60	
819+68 W.B.	820+33 W.B.	65	
820+70 E.B.	821+45 E.B.	75	
	TOTAL	260	

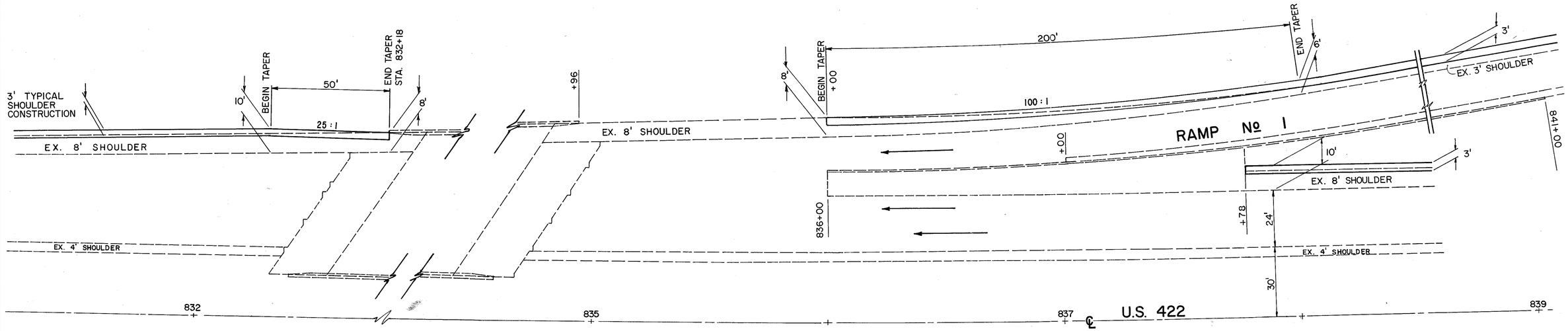


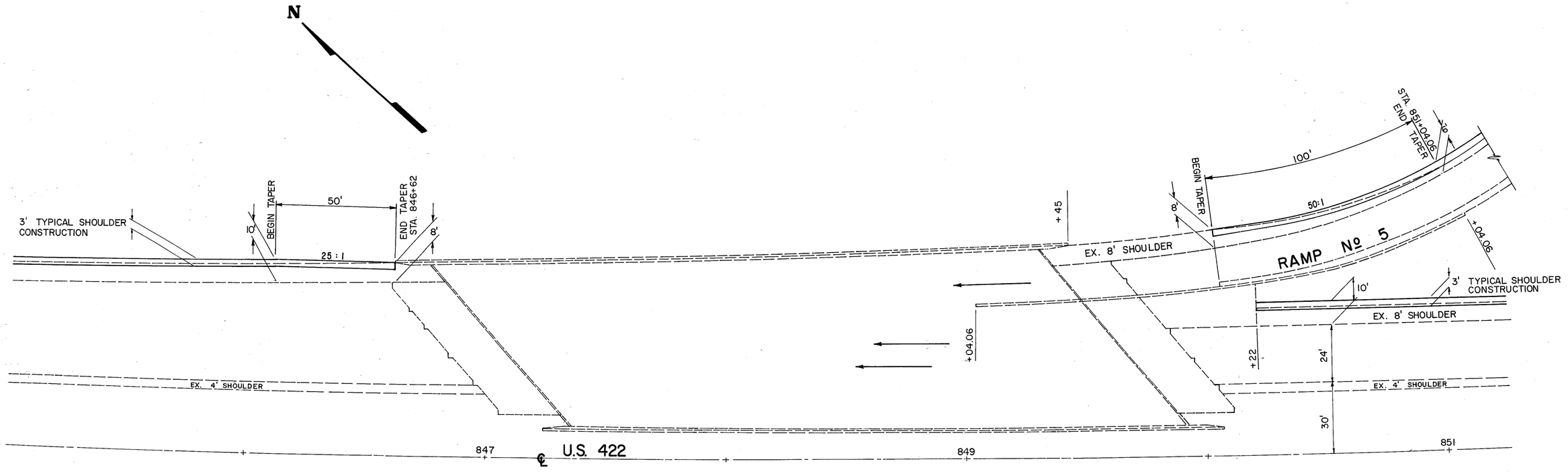
CONCRETE BARRIER DETAIL

SEE TYPICAL SECTION, SHEET Nº 4 FOR SHOULDER WIDENING DETAILS.

CONCRETE BARRIER DETAILS

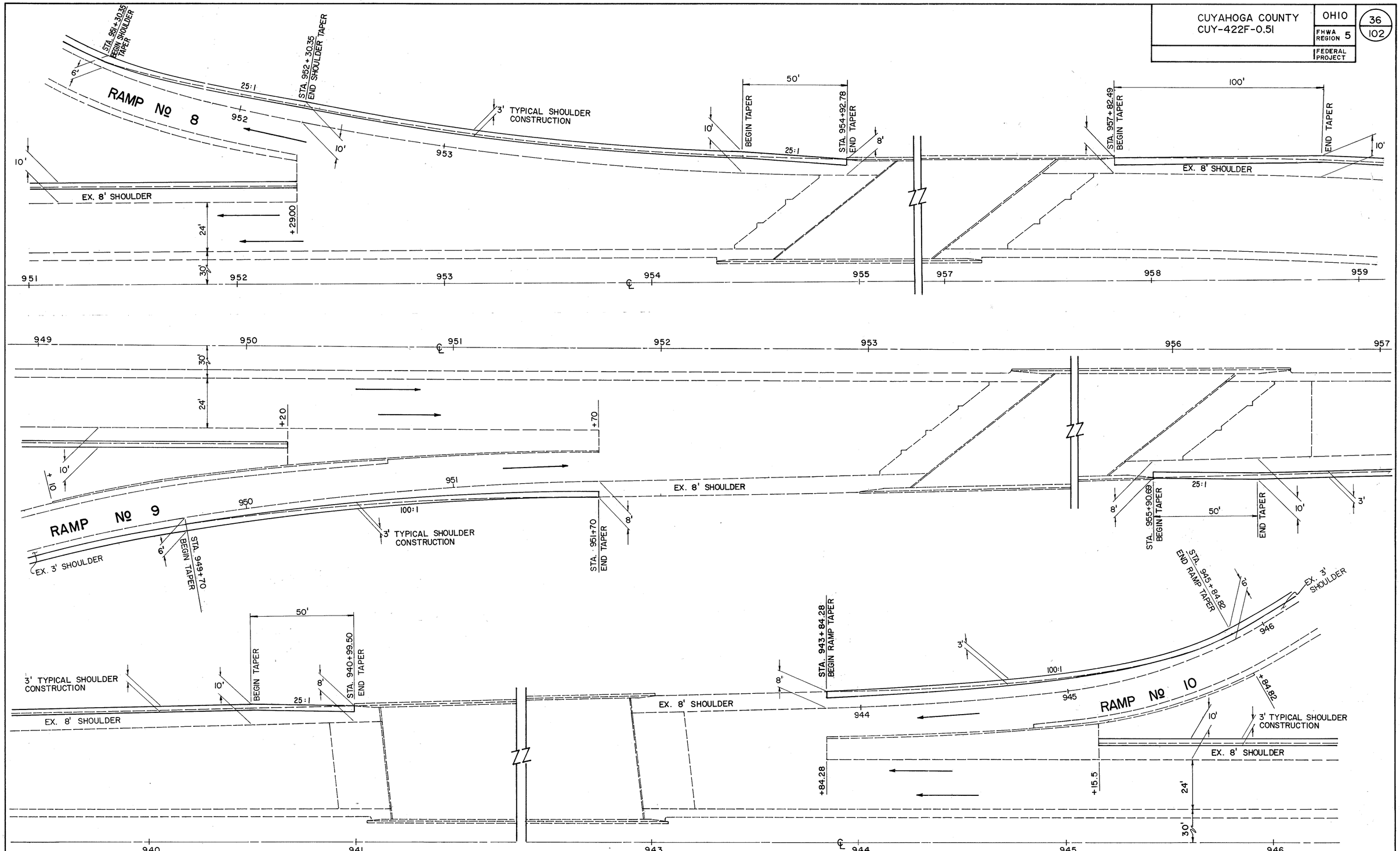
CUYAHOGA COUNTY CUY-422F-0.51	OHIO	35 102
	FHWA REGION 5	
	FEDERAL PROJECT	





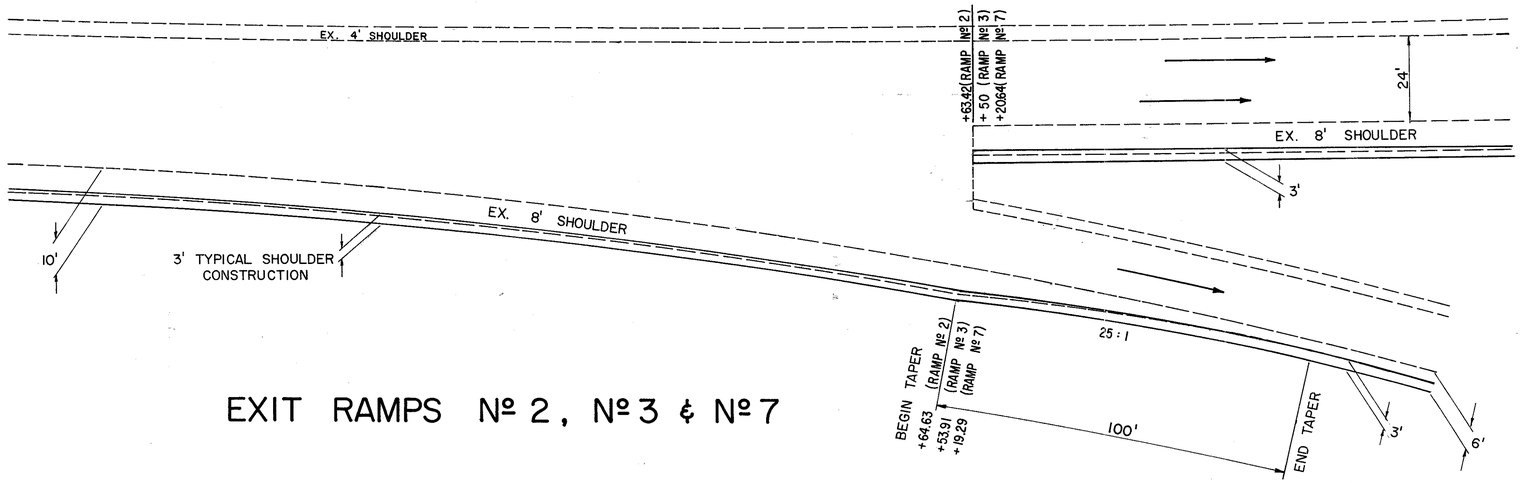
SHOULDER WIDENING TRANSITIONS

CUYAHOGA COUNTY CUY-422F-0.51	OHIO	36 102
	FHWA REGION 5	
	FEDERAL PROJECT	

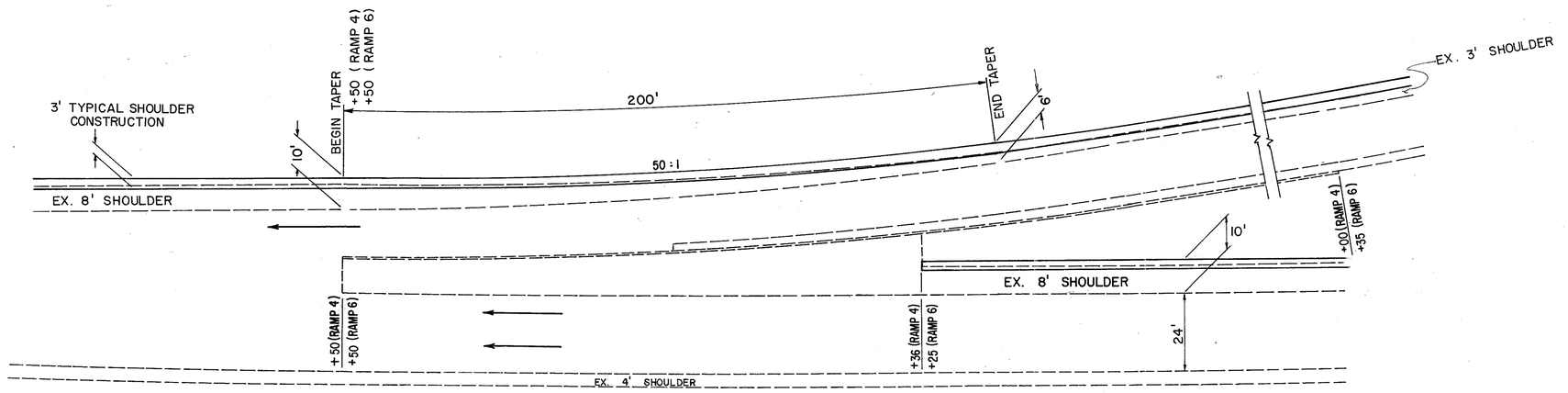


79032

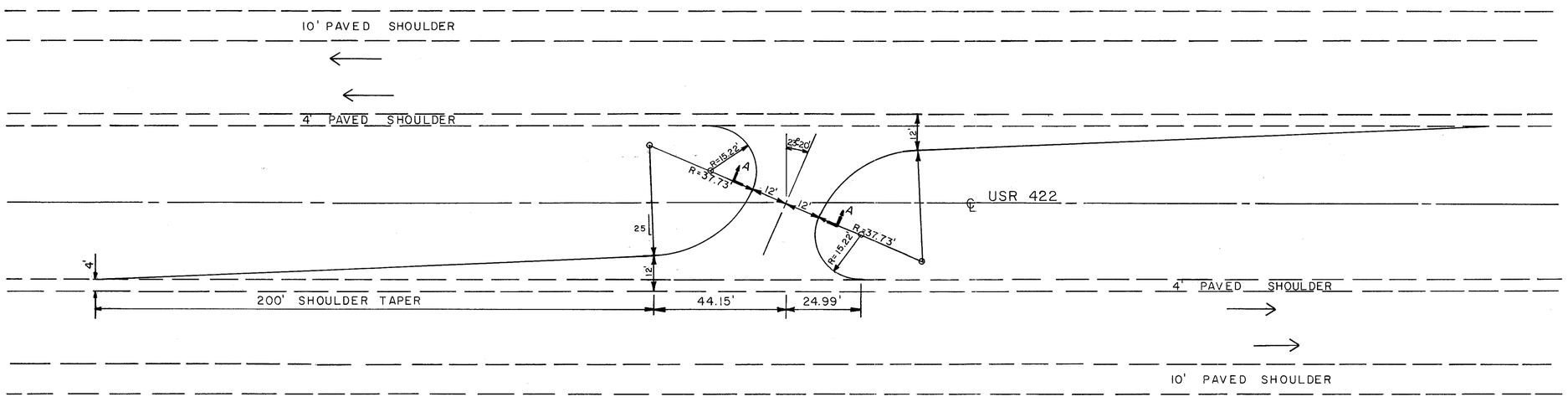
SHOULDER WIDENING TRANSITION



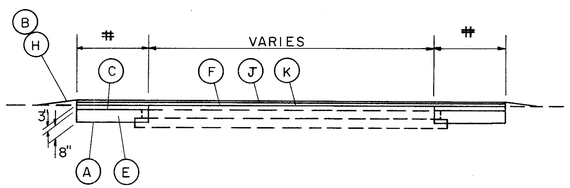
EXIT RAMPS Nº 2, Nº 3 & Nº 7



ENTRANCE RAMPS Nº 4 & Nº 6



TYPICAL CROSSOVER

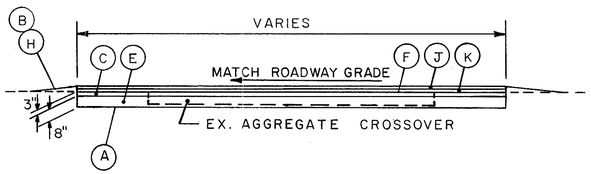


TYPICAL SECTION A-A
STA. 756 + 37

– WIDEN TO DIMENSIONS SHOWN ON TYPICAL CROSSOVER

LEGEND

- (A) 203 – EXC. NOT INCL. EMB CONSTR.
- ✳ (B) 203 – EMBANKMENT, AS PER PLAN
- (C) 301 – BIT. AGGREGATE BASE
- (E) 310 – SUBBASE, TYPE II
- (F) 407 – TACK COAT AS PER PLAN
- ✳ (H) 659 – SEEDING AND MULCHING
- (J) 846 – 1¼" ASP. CONC. SUR. COURSE, TYPE 1, AC-20 1 A.P.P.
- (K) 846 – 1¾" ASP. CONC. INT. COURSE, TYPE 2, AC-20



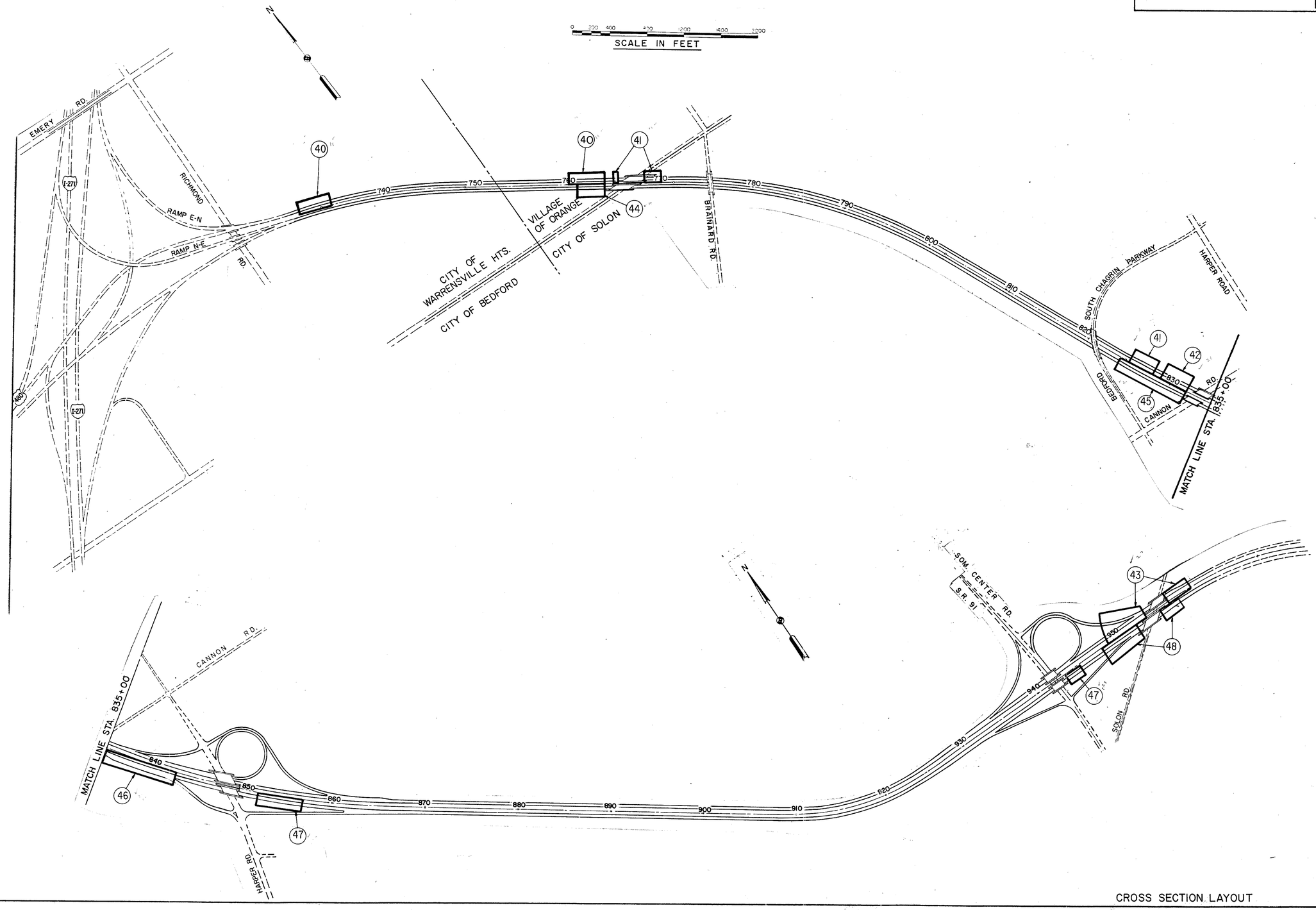
TYPICAL SECTION A-A
STA. 816 + 73
STA. 896 + 28

✳ – PAYMENT AND QUANTITIES FOR THESE ITEMS ARE INCLUDED IN THE MAINLINE SHOULDER GRADING CALCULATIONS.

ESTIMATED QUANTITIES

LOCATION	203	301	310	407		846	
	EXC. NOT INCL. EMB. CONSTR.	BIT. AGG. BASE, AC-20 RT-11 or RT-12	SUBBASE TYPE II	TACK COAT AS PER PLAN		ASP. CONC. SUR. COURSE, TYPE 1, A.P.P.	ASP. CONC. INT. COURSE, TYPE 2
	CU. YDS.	CU. YDS.	CU. YDS.	GALS.		CU. YDS.	CU. YDS.
756 + 37	9.9	2.7	7.2	31.4		14.5	20.4
816 + 73	128.0	34.9	93.1	31.4		14.5	20.4
896 + 28	128.0	34.9	93.1	31.4		14.5	20.4
TOTAL	266	73	193	94		44	61

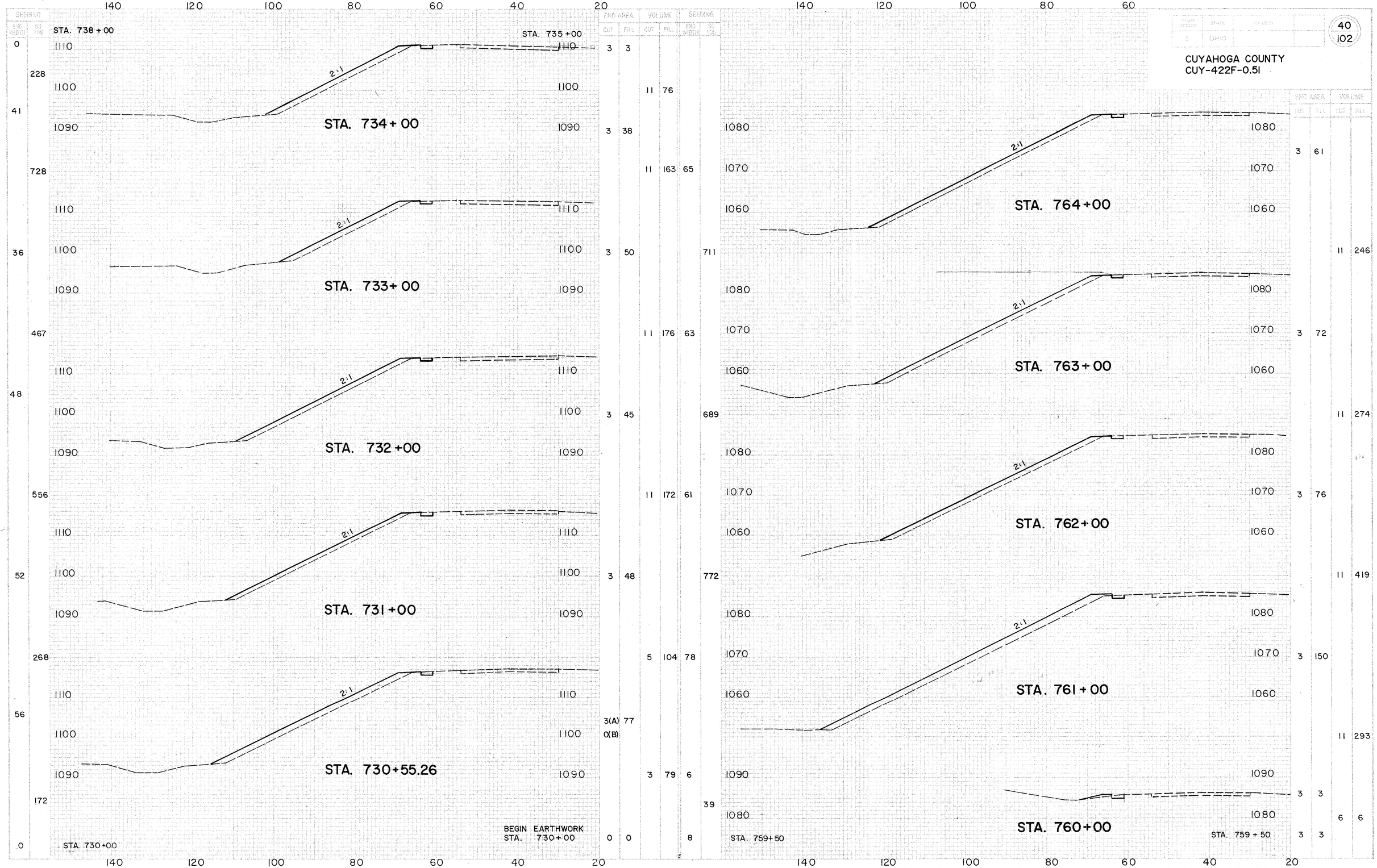
CUYAHOGA COUNTY CUY-422F-0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	39 102



CROSS SECTION LAYOUT

STATE	PROJECT	SHEET NO.	TOTAL SHEETS
OHIO		40	102

CUYAHOGA COUNTY
CUY-422F-0.51



STA. 730+55.26 TO STA. 734+00

STA. 760+00 TO STA. 764+00

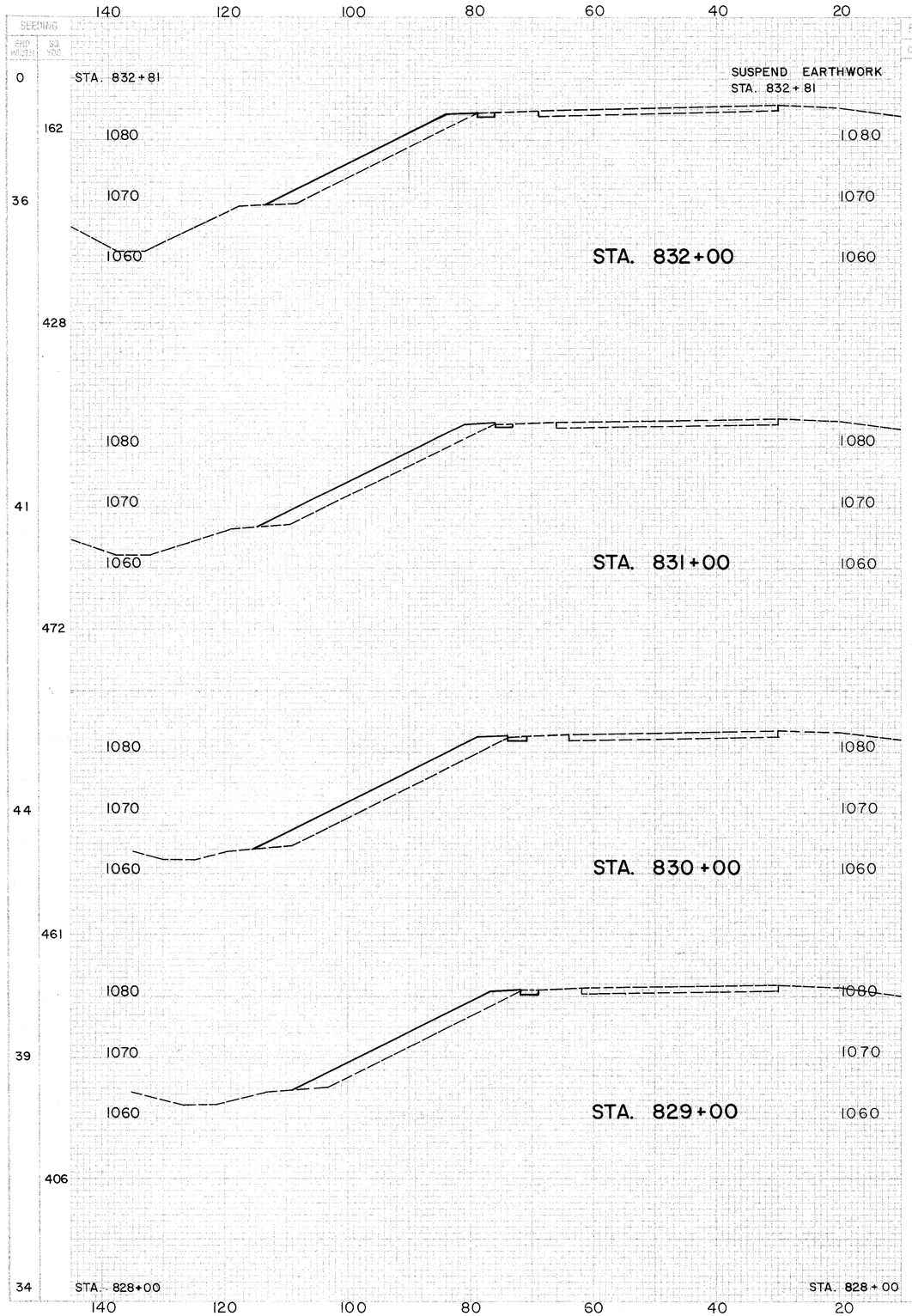
CUYAHOGA COUNTY
CUY-422F-0.51

SEEDING END WIDTH	SEEDING SQ YDS	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
8	83	STA. 770 + 50	3	3	6	13
22	328	STA. 770+00	3	11	11	119
38	144	STA. 769+00	3	53	8	67
0		STA. 768 +32				
		RESUME EARTHWORK STA. 768+32	3	0		
0	0	STA. 768+00				
		SUSPEND EARTHWORK STA. 765 + 18	3	0		
19	19	STA. 765+00	3	9	2	3
65	467	STA. 764+00	3	61	11	130
		STA. 764+00	3	61		

SEEDING END WIDTH	SEEDING SQ YDS	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		STA. 770+50	3	3		
		STA. 769+00	3	53		
		STA. 768+32	3	0		
		STA. 768+00				
		STA. 765+18	3	0		
		STA. 765+00	3	9		
		STA. 764+00	3	61		
34	361	STA. 828+00	3	62	11	219
31	311	STA. 827+00	3	56	11	165
25	200	STA. 826+00	3	33	11	72
11	53	STA. 825+00	3	6	6	8
8		STA. 824+50	3	3		
		STA. 824+50	3	3		

STA. 765+00 .. STA. 768+00 TO STA. 770+00 STA. 825+00 TO STA. 828+00

SEEDING		END AREA		VOLUME		SEEDING	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	END WIDTH	SQ. YDS.
0							
	162	3	0				
				9	99		
36		3	66				
	428						
				11	263		
41		3	76				
	472						
				11	330		
44		3	102				
	461						
				11	354		
39		3	89				
	406						
				11	280		
34		3	62				



FEDERAL	STATE	PROJECT		42
	OHIO			102

CUYAHOGA COUNTY
CUY-422F-0.51

END AREA		VOLUME	
CUT	FILL	CUT	FILL

STA. 829+00 TO STA. 832+00

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0		STA. 954+93				
	279		3	0		
54					10	169
		STA. 954+00	3	98		
	611				11	376
56						
		STA. 953+00	3	105		
	600				11	376
52						
		STA. 952+00 RAMP No. 8	3	98		
	289				11	182
0						
		STA. 951+00 RAMP No. 8	3	0		
0		STA. 950+50			6	0

SUSPEND EARTHWORK
STA. 954+93

RESUME EARTHWORK
STA. 957+82

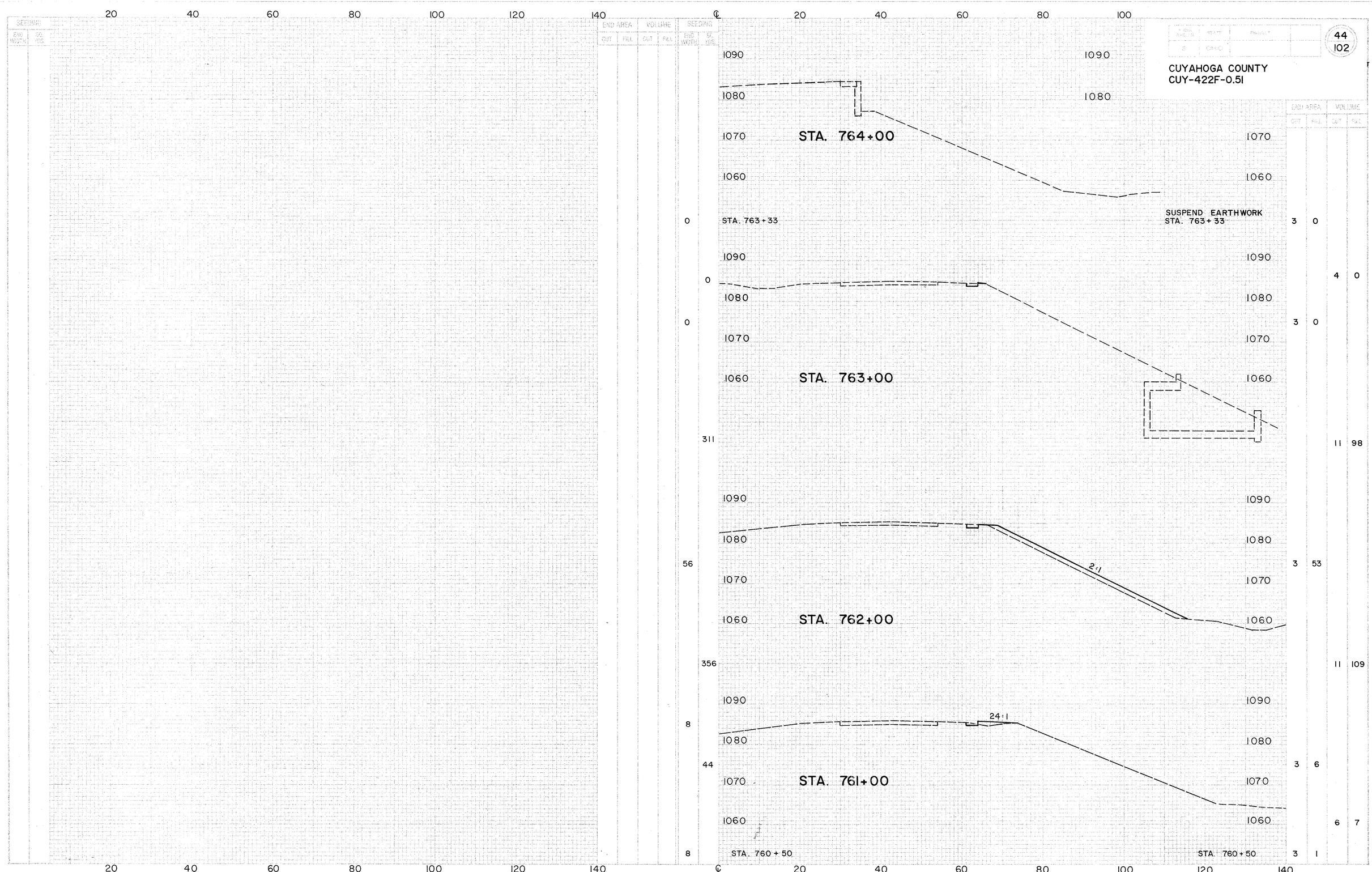
SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
8		STA. 960+50				
	111		3	3		
12					6	7
		STA. 960+00	3	4		
	333				11	211
48						
		STA. 959+00	3	110		
	422				11	230
28						
		STA. 958+00	3	14		
28		STA. 957+82				
		STA. 955+00	0	0	2	5

STATE	PROJECT		43
DIST.	COUNTY		102

CUYAHOGA COUNTY
CUY-422F-0.51

STA. 951+00 TO STA. 955+00
STA. 958+00 TO STA. 960+00

CUYAHOGA COUNTY
CUY-422F-0.51



STA. 761+00 TO STA. 764+00

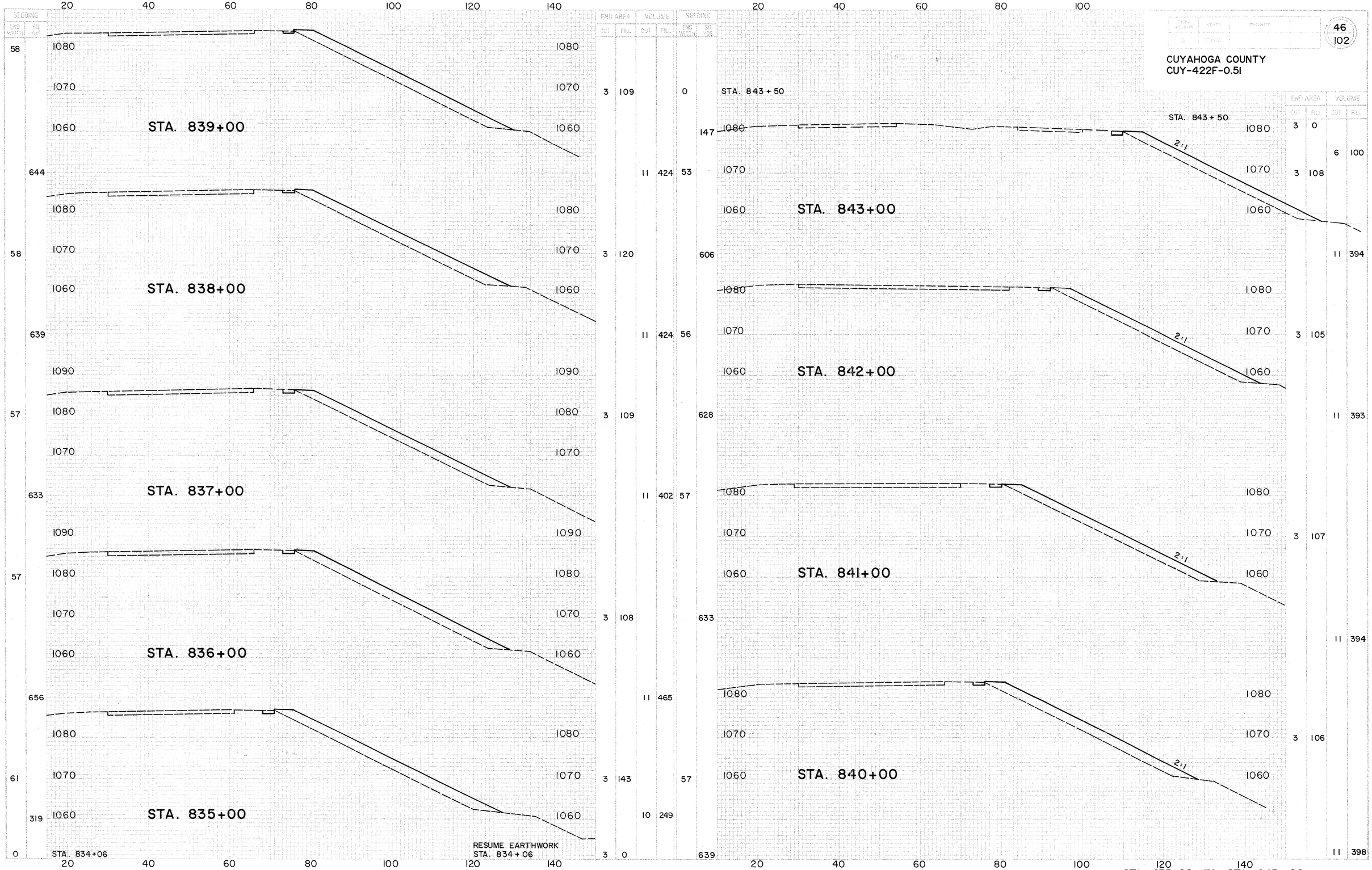
CUYAHOGA COUNTY
CUY-422F-0.51

SEEDING END WIDTH	SEEDING SQ. YDS.	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		STA. 828+00				
38	400		3	68	11	215
		STA. 827+00				
34	344		3	48	11	157
		STA. 826+00				
28	256		3	37	11	85
		STA. 825+00				
18	139		3	9	11	26
		STA. 824+00				
7	42		3	5	6	7
8		STA. 823+50	3	3		

SEEDING END WIDTH	SEEDING SQ. YDS.	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0		STA. 832+00				
0			3	0		
		STA. 831+92				
		SUSPEND EARTHWORK STA. 831+92				
38	194		3	53	10	90
		STA. 831+00				
36	411		3	49	11	189
		STA. 830+00				
40	422		3	64	11	209
		STA. 829+00				
6	433				11	244

STA. 824+00 TO STA. 832+00

CUYAHOGA COUNTY
CUY-422F-0.51



STA. 835+00 TO STA. 843+00

CUYAHOGA COUNTY
CUY-422F-0.51

SEEDING END WIDTH	SEEDING SQ. YDS.	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
10	117	STA. 855+00	3	5	11	20
11	128	STA. 854+00	3	6	11	24
12	133	STA. 853+00	3	7	11	26
12	133	STA. 852+00	3	7	11	26
12	28	STA. 851+00	3	0	5	5
0		STA. 850+58 RESUME EARTHWORK STA. 850+58				
8	61	STA. 945+50				
14	183	STA. 945+00	3	3	6	6
		STA. 945+50	3	3	11	19
19	150	STA. 944+00	3	7	6	22
35	82	STA. 943+50	3	17	4	12
4		STA. 943+12 RESUME EARTHWORK STA. 943+12	3	0		
8	61	STA. 857+50	3	1	6	7
14	183	STA. 857+00	3	6	11	30
19	161	STA. 856+00	3	10	11	28

STA. 851+00 TO STA. 857+00 STA. 943+50 TO STA. 945+00

CUYAHOGA COUNTY
CUY-422F-0.51

SEEDING END WIDTH	SEEDING SQ. YDS.	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		STA. 953+00				
0		STA. 952+96	0	0	0	0
	155				5	39
29		STA. 952+00	3	22		
	522				11	154
65		STA. 951+00 RAMP Nº 9	3	61		
	706				11	224
62		STA. 950+00 RAMP Nº 9	3	60		
	350				11	113
1		STA. 949+00 RAMP Nº 9	3	1		
3					6	1
0		STA. 948+50	3	0		

SUSPENDED EARTHWORK
STA. 952+96

SEEDING END WIDTH	SEEDING SQ. YDS.	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0		STA. 961+00	3	0		
200					11	113
36			3	61		
417					11	224
39		STA. 959+00	3	71		
483					11	343
48		STA. 958+00	3	114		
539					11	424
49		STA. 957+00	3	115		
544					11	280
49		STA. 956+00	3	36		
25					1	6
0		STA. 955+91	3	0		

RESUME EARTHWORK
STA. 955+91

RAMP Nº 9 STA. 949+00 TO STA. 953+00 STA. 956+00 TO STA. 960+00

TRAFFIC CONTROL

PROPOSED SIGNING WORK

MAJOR GROUND MOUNTED AND OVERHEAD SIGNS
THESE SIGNS SHALL BE REPLACED WITH NEW EXTRUSHEET SIGNS.

MAJOR OVERHEAD SIGN SUPPORTS
THESE SUPPORTS SHALL BE RELOCATED OR MODIFIED AS NECESSARY FOR LATERAL CLEARANCE DUE TO SHOULDER WIDENING. NEW SUPPORTS WILL BE REPLACED WHERE LARGER PROPOSED SIGN SIZES MAKE THE EXISTING SUPPORT UNUSABLE. ALL MAJOR OVERHEAD SIGN SUPPORTS, EXISTING AND PROPOSED, SHALL RECEIVE A PROTECTIVE COATING.

GROUND MOUNTED SIGNS
THESE SIGNS SHALL BE REMOVED AND REPLACED AT THE LOCATIONS AS DETAILED IN THE PLANS.

620 REMOVAL OF DELINEATORS

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE REMOVAL OF EXISTING POST MOUNTED DELINEATORS AND BRACKET MOUNTED DELINEATORS.

ITEM 620 POST MOUNTED DELINEATOR REMOVED FOR DISPOSAL 244 EACH
ITEM 620 BRACKET MOUNTED DELINEATOR REMOVED FOR DISPOSAL 13 EACH
TOTAL 257 EACH

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 PREPARATION AND SHIPMENT OF STORED SIGNS, BY TYPE

FLATSHEET AND EXTRUSHEET SIGNS REMOVED AND STORED UNDER OTHER ITEMS OF WORK SHALL BE PROCESSED AND SHIPPED TO THE DISTRICT 12 MAINTENANCE YARD AT EMERY ROAD AND SR-175 IN WARRENSVILLE HEIGHTS, OHIO.

PROCESSING OF FLATSHEET SIGNS SHALL INCLUDE THE STACKING AND BANDING TOGETHER OF SIMILAR SIZE SIGNS INTO 150 POUND (MAXIMUM) BUNDLES. BANDING SHALL BE WITH TWO STEEL STRAPS AND CLIPS PLACED PERPENDICULAR TO EACH OTHER. FLATSHEET SIGNS WEIGH APPROXIMATELY 1.25 POUNDS PER SQUARE FOOT. BUNDLES SHALL BE LOADED ONTO PALLETS APPROXIMATELY 4' X 4'. SIGN BUNDLES SHALL ALSO BE BANDED TO THE PALLETS. LOADED PALLETS SHALL HAVE A MAXIMUM WEIGHT OF 1000 POUNDS.

PROCESSING OF EXTRUSHEET SIGNS SHALL INCLUDE THE CAREFUL REMOVAL OF ALL DEMOUNTABLE COPY AND THE DISSASSEMBLY OF THE SIGN INTO PANELS NO WIDER THAN 4 FEET. DEMOUNTABLE COPY AND SIGN HARDWARE SHALL BE SUITABLY PACKAGED SUCH AS IN BURLAP BAGS FOR SHIPMENT. EXTRUSHEET PANELS OF SIMILAR LENGTHS SHALL BE BANDED TOGETHER INTO A BUNDLE WEIGHING NO MORE THAN 1000 POUNDS. BANDING SHALL BE WITH A MINIMUM OF 2 STEEL STRAPS AND CLIPS AND SHALL BE SPACED NO MORE THAN 5 FEET APART. EXTRUSHEET SIGNS WEIGH APPROXIMATELY 2.25 POUNDS PER SQUARE FOOT. LOADED BUNDLES SHALL HAVE A MAXIMUM WEIGHT OF 1000 POUNDS.

THE DISTRICT 12 TRAFFIC ENGINEER SHALL BE NOTIFIED AT LEAST 3 DAYS PRIOR TO THE DELIVERY OF THE SIGNS TO THE MAINTENANCE YARD. THE SIGNS SHALL BE TRANSPORTED BY THE CONTRACTOR TO THE MAINTENANCE YARD WHERE THEY WILL BE UNLOADED AND STORED. A FORK LIFT OF 1000 POUND CAPACITY WILL BE PROVIDED BY THESTATE TO THE CONTRACTOR FOR UNLOADING.

PAYMENT WILL BE THE CONTRACT UNIT PRICE PER EACH SIGN INCLUDING ALL LABOR, EQUIPMENT, BANDING MATERIAL, PALLETS, TRANSPORTATION, AND MISCELLANEOUS MATERIAL TO PERFORM THE WORK.

630 EACH PREPARATION AND SHIPMENT OF STORED SIGNS, FLATSHEET.
630 EACH PREPARATION AND SHIPMENT OF STORED SIGNS, EXTRUSHEET.

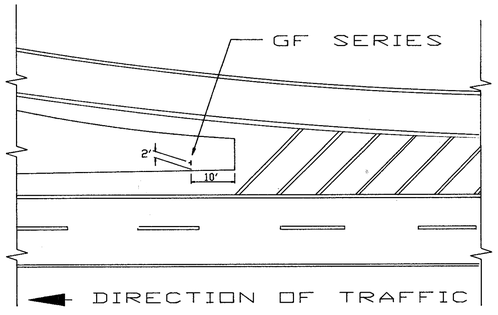
630 SIGN LOCATIONS

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.

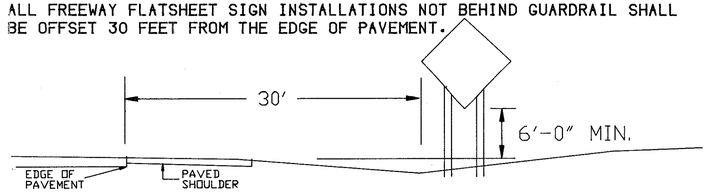
TYPICAL PLACEMENT OF GF SERIES SIGNS

THE SKETCH BELOW DETAILS THE PLACEMENT OF THE GF SERIES SIGNS MOUNTED IN THE GORE.



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.

630 OVERHEAD SIGN SUPPORT MODIFICATION, NEW BOX TRUSS SECTION

THE FOLLOWING OVERHEAD SIGN SUPPORTS SHALL BE MODIFIED AS SHOWN IN THE PLANS. THE MODIFICATIONS SHALL CONSIST OF THE ADDITION OF A NEW BOX TRUSS SECTION ATTACHED TO THE CENTER OF THE EXISTING SPAN.

SUPPORT NO.	LOCATION	TYPE	DESIGN NO.	NEW BOX TRUSS SECTION LENGTH
302	764+00	7.4	1	4 FT.

PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE FOR ITEM 630-OVERHEAD SIGN SUPPORT MODIFICATION, NEW BOX TRUSS SECTION, BY TYPE, INCLUDING ALL NECESSARY MATERIAL, PARTS, EQUIPMENT AND LABOR.

REMOVAL OF DISCONNECT SWITCH ENCLOSURE

INCIDENTAL TO THE INSTALLATION OF NEW DISCONNECT SWITCH ENCLOSURES, ANY EXISTING DISCONNECT SWITCHES AND ENCLOSURES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

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.

TRAFFIC CONTROL

631 BALLAST ENCLOSURE

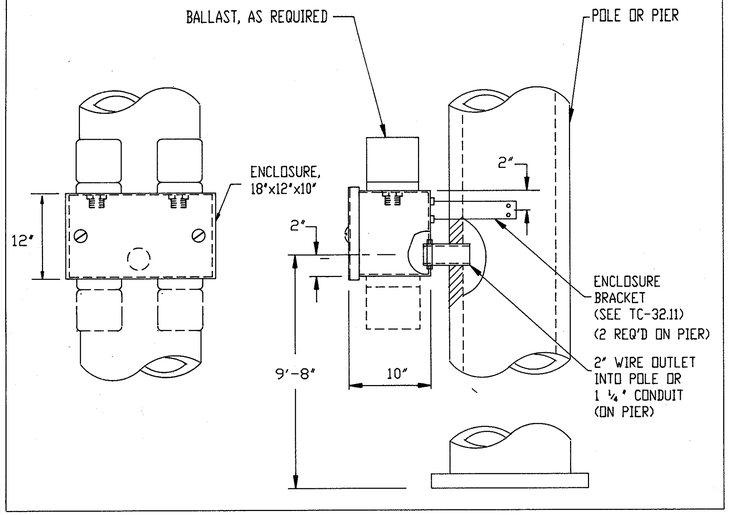
BALLAST ENCLOSURES SHALL BE FURNISHED AND INSTALLED ON OVERHEAD SIGN SUPPORTS AS SHOWN ON TC-32.10 OR DETAILED IN THE PLANS. THE ENCLOSURE SHALL BE MOUNTED ON BRACKETS WHICH ARE A PART OF NEW OVERHEAD SUPPORTS OR SEPARATELY FURNISHED FOR EXISTING SUPPORTS OR OVERPASS STRUCTURES.

MOUNTING BRACKETS SHALL NOT BE PAID FOR SEPARATELY BUT INCLUDED UNDER PAYMENT FOR NEW SUPPORTS. BALLAST ENCLOSURE MOUNTING BRACKET ASSEMBLY, TYPE A SHALL BE AS PER TC-32.10 ON SPAN TYPE SUPPORTS. BALLAST ENCLOSURE MOUNTING BRACKET ASSEMBLY, TYPE B SHALL BE AS SHOWN ON THE FOLLOWING DETAIL ON CANTILEVER TYPE SUPPORTS OR OVERPASS STRUCTURES.

FOR BALLAST ENCLOSURES ON EXISTING SUPPORTS OR OVERPASS MOUNTED, PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH ENCLOSURE, FURNISHED, IN PLACE, COMPLETE, AND READY FOR SERVICE.

631 BALLAST ENCLOSURE, BY TYPE

631 - BALLAST ENCLOSURE, TYPE B



FORMER CONSTRUCTION PLANS

FOR EXISTING SIGNING DETAILS REFER TO APPLICABLE PLANS LISTED BELOW:

COUNTY,ROUTE & SECTION	FEDERAL NO.	PROJECT NO.
CUY-422/480-13.96/25.57	U-468(8)	451-73
CUY-422-16.33	U-468(9)	756-73
CUY-422-(16.20)(18.02)	U-468(14)	448-75

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

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS:

REFERENCE TO THE SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958, AND 961 ON THE TRAFFIC CONTROL STANDARD DRAWINGS IN THIS PLAN SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731, AND 733.

TRAFFIC SIGNAL LOOP DETECTORS

THIS WORK SHALL CONSIST OF REPLACING EXISTING TRAFFIC SIGNAL LOOP DETECTOR WIRE WHICH MAY BE DESTROYED ON VARIOUS RAMPS BY PAVEMENT REPAIR OPERATIONS. THE LOOP DETECTOR WIRE SHALL BE REPLACED TO THE PULL BOX UNDER ITEM 625 AND STANDARD CONSTRUCTION DRAWING TC-82.10. THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE.

ITEM 632 - LOOP DETECTOR PAVEMENT CUTTING ..... 250 L.F.
ITEM 632 - LOOP DETECTOR WIRE, TYPE E ..... 500 L.F.

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 URETHANETOP 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, GALVANIZED STEEL SUPPORT SECTIONS OR EXISTING, WEATHERED, GALVANIZED SUPPORT SECTIONS FROM CORROSIVE ELEMENTS IN THE ATMOSPHERE. THIS PROCESS WILL BE CONSIDERED REFURBISHING FOR EXISTING GALVANIZED SUPPORT SECTIONS TO RENEW THEIR STRUCTURAL STEEL PROTECTION. THE DIFFERENCE BETWEEN THE COATING OF NEW SUPPORT SECTIONS VERSUS EXISTING SUPPORT SECTIONS IS DETAILED IN THE SURFACE PREPARATION. COATING AND SURFACE PREPARATION OF NEW GALVANIZED SUPPORT SECTIONS SHOULD BE DONE BY THE MANUFACTURER.

ANY OVERHEAD SIGN SUPPORT SECTION THAT IS ALUMINUM DOES NOT REQUIRE A PROTECTIVE COATING PROCESS TO BE IMPLEMENTED. THEREFORE, ON THIS PROJECT ALL OVERHEAD TRUSSES ARE ALUMINUM AND DO NOT REQUIRE A PROTECTIVE COATING PROCESS. THE END FRAMES FOR THE TRUSSES ARE STEEL AND DO REQUIRE THE PROTECTIVE COATING PROCESS. SOME SUPPORT SECTIONS ARE EXISTING AND WILL BE REUSED WHILE OTHERS WILL BE PROVIDED NEW. A SUMMARY LIST IS PROVIDED ON SHEET NO. 58.

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 RECOMMENDATIONS CONTAINED ON THE MATERIAL SAFETY DATA SHEET, PRODUCT 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 LOCATION WILL NOT ENDANGER OR AFFECT THE PUBLIC IN GENERAL. THE ENGINEER SHALL HAVE THE CONTRACTOR CEASE PAINTING OPERATIONS IF THE WIND OR OTHER CONDITIONS ARE SUCH THAT THE SURROUNDING ENVIRONMENT IS BEING DETRIMENTALLY AFFECTED DUE TO THE WORK.

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 CONSISTANCY 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 HOLIDAYS, 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.

THE WORK OF COATING THE EXISTING GALVANIZED SUPPORT SECTIONS IS INTENDED TO BE DONE IN THE FIELD AT THE SUPPORT LOCATION WITH THE SUPPORT SECTION IN PLACE. THE NEW GALVANIZED SECTIONS ARE INTENDED TO BE DONE BY THE MANUFACTURER. IN SOME INSTANCES, IF APPROVED BY THE ENGINEER, THE WORK OF COATING EITHER THE EXISTING GALVANIZED SUPPORT SECTIONS OR THE NEW GALVANIZED SECTIONS COULD BE DONE AT THE CONTRACTOR'S MAINTENANCE YARD OR STORAGE AREA. IF THE WORK OF COATING IS PERMITTED AT THE CONTRACTOR'S MAINTENANCE YARD OR STORAGE AREA THE CONTRACTOR SHALL BE RESPONSIBLE FOR HANDLING, LOADING, AND TRANSPORTATION COSTS. ONCE SUPPORT SECTIONS ARE COATED THEY SHALL BE HANDLED AND TRANSPORTED WITH EXTREME CARE SO AS NOT TO SCRAPE, MAR, OR DAMMAGE THE COATING IN ANY MANNER. NYLON SLINGS AND PADDED BLOCKS SHALL BE REQUIRED IN HANDLING AND TRANSPORTATION.

SURFACE PREPARATION AND COATING OF THE EXISTING GALVANIZED SUPPORT SECTIONS, ESPECIALLY CANTILEVER ARMS, AT THE FIELD LOCATION WILL REQUIRE PROTECTIVE SHIELDS AND/OR TARPS WHERE INTERFERENGE OR POSSIBLE DAMAGE TO VEHICLES USING THE HIGHWAY MAY OCCUR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THESE PROTECTIVE SHIELDS AND/OR TARPS AND IF NEEDED SHALL IMMEDIATELY INSTALL THEM OR CEASE OPERATIONS.

THE SURFACE PREPARATION AND COATING SHALL BE SCHEDULED TO COINCIDE WITH LANE CLOSURES THAT WILL BE NEEDED FOR OTHER WORK ITEMS ON THIS PROJECT. THIS SHALL BE NECESSARY TO MINIMIZE THE AMOUNT OF TIME THAT LANES NEED TO BE CLOSED DURING THE DURATION OF THE PROJECT. IF OTHER TIMES ARE REQUIRED FOR LANE CLOSURES PRIOR APPROVAL BY THE ENGINEER MUST BE GIVEN. ALL TRAFFIC MAINTENANCE REQUIREMENTS PER THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

COATING SYSTEM

THE COATING SYSTEM SHALL CONSIST OF AN EPOXY PRIME COAT, AN EPOXY INTERMEDIATE COAT, AND A URETHANE TOP COAT.

THE COATING MATERIALS USED SHALL BE THOSE AS LISTED FROM ONE OF THE FOLLOWING MANUFACTURERS OR AN APPROVED EQUAL.

1. AMERON
   210 NORTH BERRY STREET
   BREA, CALIFORNIA 92621
   LOCAL TELEPHONE CONTACT: (216) 896-3602
   PRIME COAT: AMERCOAT 71
   INTERMEDIATE COAT: AMERLOCK 400 (LIGHT GREY)
   TOP COAT: AMERCOAT 450 GL (MEDIUM GREY)
2. 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 (LIGHT GREY) RESISTANT FINISH NO. 5240 SERIES
   TOP COAT: GLID-THANE ONE POLYURETHANE (MEDIUM GREY) COATINGS NO. 6100 SERIES
3. INTERNATIONAL PAINT COMPANY
   MORRIS & ELMWOOD AVENUES
   P.O. BOX 386
   UNION, NEW JERSEY 07083
   LOCAL TELEPHONE CONTACT: (216) 562-6709
   PRIME COAT: INTERGUARD EPA 130/131 EPOXY
   INTERMEDIATE COAT: INTERGARD TAA SERIES/TAA 423 HS EPOXY (LIGHT GREY)
   TOP COAT: INTERTHANE PC SERIES FINISH (MEDIUM GREY)
4. VALSPAR CORPORATION
   901 GREENWOOD AVENUE
   KANKAKEE, ILLINOIS 60901
   LOCAL TELEPHONE CONTACT: (216) 241-0849
   PRIME COAT: ZINC CHROMATE EPOXY PRIMER 13-R-56
   INTERMEDIATE COAT: HIGH SOLIDS EPOXY 76 SERIES (LIGHT GREY F-44)
   TOP COAT: VAL-CHEM URETHANE ENAMEL 40 SERIES (MED. GREY)
5. 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)
6. 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, EXISTING SUPPORT SECTIONS

THE EXISTING, WEATHERED GALVANIZED SUPPORT SECTIONS SHALL BE CLEANED AND FREE OF MOISTURE OR FROST. TEMPERATURE AND HUMIDITY SHALL BE AT LEVELS TO CAUSE A CLEARLY DEFINED THIN FILM OF WATER PLACED WITH A DAMP CLOTH UPON THE SURFACE TO BE COATED TO EVAPORATE WITHIN 15 MINUTES, OR THE RELATIVE HUMIDITY SHALL BE LESS THAN 85 PERCENT.

AREAS OF RUST, SCALE OR FLAKING MATERIAL ON THE EXISTING SUPPORT SECTIONS SHALL BE CLEANED BY SAND BLASTING. AS NOTED PREVIOUSLY, PROTECTIVE SHIELDS AND/OR TARPS WILL BE REQUIRED WHERE INTERFERENCE OR POSSIBLE DAMAGE TO VEHICLES USING THE HIGHWAY MAY OCCUR. AREAS WHERE THE EXISTING GALVANIZATION IS IN RELATIVELY GOOD SHAPE, SANDBLASTING SHALL NOT BE DONE. THE INTENT IS TO SALVAGE AS MUCH OF THE EXISTING GALVANIZING PROTECTION ON THE SUPPORT SECTIONS AS POSSIBLE. THE DEGREE OF RUSTING ON THE EXISTING SUPPORT SECTIONS VARIES WITH THE MAJORITY HAVING 30-50% OF ITS SURFACE AREA RUSTED. MUCH OF THE RUST IS CONCENTRATED ON THE SIDE FACING THE WIND DIRECTION OR FLOW OF TRAFFIC.

BEFORE SANDBLASTING BEGINS THE SUPPORT SECTION SHALL BE INSPECTED FOR AREAS THAT ARE CONTAMINATED BY BITUMINOUS MATERIAL, GREASE, OIL, ETC. THESE CONTAMINATED AREAS SHALL IMMEDIATELY BE SOLVENT CLEANED WITH METHYL ETHYL KETONE AND CLEAN RAGS.

AFTER THE SPOT CLEANING OF THE CONTAMINATED AREAS IS PREFORMED AND THE SOLVENT IS ALLOWED TO DRY, SANDBLASTING CAN BE DONE. SANDBLASTING SHALL REMOVE ALL THE RUST DOWN TO BARE METAL PER SPECIFICATION
AFTERWARDS, THE TOTAL AREA OF THE SUPPORT, INCLUDING THE SANDBLASTING AREAS AND NON-SANDBLASTED AREAS SHALL BE SOLVENT WIPED WITH METHYL ETHYL KETONE AND CLEAN RAGS. SUFFICIENT TIME SHOULD BE ALLOWED FOR THE SOLVENT TO DRY.

ALL SANDBLASTING AND CLEANED SURFACES SHALL BE DRY AND APPROVED BY THE ENGINEER PRIOR TO COATING. THE EPOXY PRIMER COAT SHALL BE APPLIED BEFORE THE SAND BLASTED AND CLEANED SURFACES HAVE DEGRADED FROM THE PRESCRIBED STANDARDS AND BEFORE SURFACE RUST BEGINS TO APPEAR. THEREFORE, IMMEDIATE APPLICATION OF THE EPOXY PRIME COAT SHALL BE DONE ON THE SAME DAY THAT THE SURFACES ARE SANDBLASTED CLEAN.

THE BASIS OF 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 SECTION.

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. BETTER QUALITY AND TREATMENT SHOULD BE ABLE TO BE PREFORMED AT THE MANUFACTURER.

THE SUPPORT SECTIONS SHALL BE SOLVENT DEGREASED BY IMMERSION IN METHYL ETHYL KETONE BEFORE A WASH PRIMER IS APPLIED. THE WASH PRIMER TO BE USED IS AS SPECIFIED IN THE DOD-P-15328 (FORMULA 117). IT SHOULD BE SPRAY APPLIED TO GIVE 0.3 TO 0.5 MIL DRY THICKNESS. CERTIFICATION BY THE MANUFACTURER OF THIS PROCEDURE WILL BE REQUIRED.

BEFORE THE PREPARED SURFACE DEGRADES FROM THE PRESCRIBED STANDARDS, THE PRIME COAT SHALL BE APPLIED. IN EVERY CASE, THE SURFACE SHALL BE COATED WITH ALUMINUM PIGMENTED EPOXY PRIME COAT ON THE SAME DAY OF 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, NEW SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

TRAFFIC CONTROL

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 ALUMINUM.

THIS COAT SHALL IN ALL CASES BE APPLIED OVER SURFACES THAT WERE PREPARED EARLIER THAT SAME DAY. THIS COAT SHALL BE APPLIED BY BRUSH. 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%

INTERGUARD EPA 130/131:
% SOLIDS BY VOLUME: 63% +/- 2%
POT LIFE: 8 HRS. @ 77 DEGREES F
DRYING TIME: 5 HRS. TO TOUCH, 16 HRS. RECOAT @ 77 DEG. F

ZINC CHROMATE EPOXY PRIMER:
% SOLIDS BY VOLUME: 48% +/- 2%
POT LIFE: 16-20 HRS. @ 75 DEGREES F
DRYING TIME: 1 HR. TO TOUCH, OVERNIGHT FOR BRUSH APPL.
VISCOSITY: 70-75 KREBSUNITS

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. CERTIFICATION BY THE MANUFACTURER

FOR THIS PRIME COAT PROCEDURES WILL BE REQUIRED. EXISTING WEATHERED, GALVANIZED, SUPPORT SECTIONS WILL BE DONE AT THE FIELD LOCATION OR THE CONTRACTOR'S STORAGE YARD. 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 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:
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 MIL THICKNESS THAT COST SHALL BE BORNE BY THE CONTRACTOR. THE COLOR OF THIS COAT SHALL BE LIGHT GREY. THIS COAT SHALL BE APPLIED BY BRUSH. 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 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%

INTERGARD TAA SERIES/TAA 423 HS EPOXY:
% SOLIDS BY VOLUME: 90% +/- 2%
POT LIFE: 8 HRS. @ 77 DEGREES F
DRYING TIME: 5 HRS. TO TOUCH @ 77 DEGREES F

MOBIL HIGH SOLIDS EPOXY76 SERIES:
% SOLIDS BY VOLUME: 85% +/- 2%
POT LIFE: 4 HRS. @ 75 DEGREES F
DRYING TIME: 8 HRS. @ 75 DEGREES F TO TOUCH
VISCOSITY: 85-90 KU @ 75 DEGREES 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 ALUMINUM PIGMENTED 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. CERTIFICATION BY THE MANUFACTURER FOR THE INTERMEDIATE COAT PROCEDURE WILL BE REQUIRED. EXISTING WEATHERED, GALVANIZED SUPPORT SECTIONS WILL BE DONE AT THE FIELD LOCATION OR THE CONTRACTOR'S STORAGE YARD. 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:
SPECIAL COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

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. THE COLOR OF THIS COAT SHALL BE MEDIUM GREY. THIS COAT SHALL BE APPLIED BY BRUSH. 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 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%

INTERTHANE PC SERIES FINISH
% SOLIDS BY VOLUME: 45% +/- 2%
POT LIFE: 6-8 HRS. @ 77 DEGREES F
DRYING TIME: 2 HRS. TO TOUCH @ 77 DEGREES F

VAL-CHEM URETHANE ENAMEL:
% SOLIDS BY VOLUME: 42.7% +/- 2%
POT LIFE: 8 HRS. @ 77 DEGREES F
DRYING TIME: 30-45 MINUTES TO TOUCH @ 75 DEGREES F
VISCOSITY: 70-80 KU @ 75 DEGREES 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 BY CLEAN BEFORE THE TOP COAT IS APPLIED.

TRAFFIC CONTROL

FOR NEW SUPPORT SECTIONS, THIS TOP COAT SHOULD BE DONE AT THE MANUFACTURER OF THE SUPPORT SECTIONS. CERTIFICATION BY THE MANUFACTURER FOR THE TOP COAT PROCEDURE WILL BE REQUIRED. EXISTING WEATHERED, GALVANIZED SUPPORT SECTIONS WILL BE DONE AT THE FIELD LOCATION OR THE CONTRACTOR'S STORAGE YARD. 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:
SPECIAL COATING, URETHANE TOP COAT, SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

PERFORMANCE REQUIREMENTS

THE COATING SYSTEM WHICH CONSISTS OF THE ALUMINUM PIGMENTED EPOXY PRIME COAT, THE EPOXY INTERMEDIATE COAT, AND THE URETHANE TOP COAT SHALL BE TESTED PRIOR TO USE.
ONE PANEL FOR EACH OF THE SPECIFIED TESTS SHALL BE PREPARED TO THE REQUIREMENTS OF ASTM D 609 EXCEPT THAT THE THICKNESS SHALL BE 1/8 INCH MINIMUM, THE SURFACE SHALL BE BLAST CLEANED TO EQUAL AS NEARLY AS IS PRACTICAL THE STANDARD SA 2-1/2 OF ASTM D 2200 (STEEL STRUCTURE PAINTING COUNCIL SSPC-SP10 MEETS THIS REQUIREMENT), AND THE SURFACE SHALL HAVE A NOMINAL HEIGHT OF PROFILE OF 1.5 MILS. THE PANELS SHALL BE COATED AND PERMITTED TO CURE IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. THE COATING THICKNESS IN THE SYSTEM TO BE TESTED SHALL BE AS FOLLOWS:

EPOXY PRIMER:	(1.5-2.0)	+/- 0.25 MILS
EPOXY:	6.0	+/- 0.5 MILS
URETHANE:	1.5	+/- 0.5 MILS

THE COATING SYSTEM SHALL PASS EACH OF THE FOLLOWING TESTS:

A. FRESH WATER RESISTANCE. THE PANEL SHALL BE SCRIBED TO THE DEPTH OF THE BASE METAL IN THE FORM OF AN "X" HAVING AT LEAST 2-INCH LEGS AND THEN IMMERSED IN FRESH TAP WATER AT 75 +/- 5 DEGREES F. AFTER 30 DAYS OF IMMERSION, THE PANEL SHALL SHOW NO RUSTING NOR SHALL THE COATING SHOW ANY BLISTERING OR SOFTENING.

B. SALT WATER RESISTANCE. THE PANEL SHALL BE SCRIBED AS SPECIFIED IN "A" ABOVE AND THEN IMMERSED IN A WATER SOLUTION OF 5 PERCENT SODIUM CHLORIDE AT 75+/-5 DEGREES F. THE PANELS SHALL SHOW NO RUSTING NOR SHALL THE COATING EXHIBIT ANY BLISTERING OR SOFTENING AFTER 7, 14, AND 30 DAYS. THE SODIUM CHLORIDE SOLUTION SHALL BE REPLACED WITH A FRESH SOLUTION AFTER THE EXAMINATION AT 7 AND 14 DAYS.

C. WEATHERING RESISTANCE. THE PANEL SHALL BE TESTED IN ACCORDANCE WITH ASTM G - 23 TYPE D. THE PANEL SHALL BE PLACED ON TEST AT THE BEGINNING OF A WET CYCLE, AFTER 1000 HOURS CONTINUOUS EXPOSURE, THE COATING SHALL SHOW NO BLISTERING OR LOSS OF ADHESION, NOR SHALL THE PANEL SHOW ANY RUSTING.

D. SALT FOG RESISTANCE. THE PANEL SHALL BE SCRIBED AS SPECIFIED IN "A" ABOVE, AND THEN TESTED IN ACCORDANCE WITH ASTM B 117. AFTER 1000 HOURS OF CONTINUOUS EXPOSURE THE COATING SHALL SHOW NO LOSS OF BOND NOR SHALL IT SHOW RUSTING OR BLISTERING BEYOND 1/16 INCH FROM THE CENTER OF THE SCRIBE MARK.

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 QUALITATIVE **AND QUANTITATIVE** 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 CERTIFIED TEST DATA **IN ACCORDANCE WITH 101.06** FOR EACH LOT SHOWING COMPLIANCE WITH THE MATERIAL 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
301		1 VERT. POLE, 1 CANTILEVER ARM
302		2 END FRAMES
307	1 VERT. POLE, 1 CANT. SIGN ARM 1 LIGHTING ARM	
310	1 VERT. POLE, 1 CANT. SIGN ARM 1 LIGHTING ARM	
323		1 VERT. POLE, 1 CANT. SIGN ARM 1 LIGHTING ARM
326	1 VERT. POLE, 1 CANT. SIGN ARM 1 LIGHTING ARM	

GENERAL SUMMARY

CALC. BY		CUYAHOGA COUNTY	OHIO	54
CHKD. BY		CUY-422F-0.51	FHWA REGION 5	102
DATE				

* 100% STATE

ITEM	SHEET NUMBER 49	50		55	56	57	58	59	60	ITEM	QUANT.	UNIT	DESCRIPTION
													TRAFFIC CONTROL
620	257									620	257	EACH	DELINEATOR REMOVED FOR DISPOSAL
620								8		620	8	EACH	DELINEATOR, TYPE C, BRACKET MOUNTED
620								215		620	215	EACH	DELINEATOR, TYPE C, FLEXIBLE POST MOUNTED
620								55		620	55	EACH	DELINEATOR, TYPE D, FLEXIBLE POST MOUNTED
625							5			625	5	EACH	GROUND ROD
630					99					630	99	LIN.FT.	ONE WAY SUPPORTS, Nº 4 POST
630				4.6	4.7	18.3				630	27.6	CU.YD.	CONCRETE FOR EMBEDDED FOUNDATIONS
630							16.9			630	16.9	CU.YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS
630				184	114	466				630	764	LIN.FT.	GROUND MOUNTED SUPPORTS, Nº 3 POST
630				470	242	14				630	726	LIN.FT.	GROUND MOUNTED SUPPORTS, Nº 4 POST
630				180	30					630	210	LIN.FT.	GROUND MOUNTED SUPPORTS, S4 x 7.7 BEAM
630				68	100	68				630	236	LIN.FT.	GROUND MOUNTED SUPPORTS, W6 x 9 BEAM
630						135				630	135	LIN.FT.	GROUND MOUNTED SUPPORTS, W8 x 18 BEAM
630					41	84				630	125	LIN.FT.	GROUND MOUNTED SUPPORTS, W10 x 12 BEAM
630						117				630	117	LIN.FT.	GROUND MOUNTED SUPPORTS, W12 x 30 BEAM
630				14	8	12				630	34	EACH	BREAKAWAY BEAM CONNECTION
630				4	5	10	13			630	* 32	EACH	PREPARATION AND SHIPMENT OF STORED SIGNS, EXTRUSHEET
630				45	44	13				630	* 102	EACH	PREPARATION AND SHIPMENT OF STORED SIGNS, FLATSHEET
630							1			630	1	EACH	OVERHEAD SIGN SUPPORT MODIFICATION, TYPE TC-7.4, DESIGN 1 MODIFIED NEW 4' BOX TRUSS SECTION
630							1			630	1	EACH	COMBINATION OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 3 MODIFIED, 18'-0" ARM
630							1			630	1	EACH	COMBINATION OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 4 MODIFIED 23'-0" ARM
630							1			630	1	EACH	COMBINATION OVERHEAD SIGN SUPPORT, TYPE TC 12.30, DESIGN 4 MODIFIED 20'-0" ARM
630							25			630	25	EACH	SIGN ATTACHMENT ASSEMBLY
630							12			630	12	EACH	LUMINAIRE SUPPORT ASSEMBLY, TYPE TC-31.21
630				28		15	275			630	378	SQ.FT.	SIGNS, OVERLAY
630				328	216	1864	1176			630	3584	SQ.FT.	SIGNS, EXTRUSHEET, TYPE G
630				341	338	255				630	934	SQ.FT.	SIGNS, FLATSHEET, TYPE G
630				48	45	14				630	107	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE
630				1	4	9				630	14	EACH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND STORAGE
630				8	4	4				630	16	EACH	REMOVAL OF GROUND MOUNTED BEAM SUPPORT
630				51	40	15				630	106	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT
630							13			630	13	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND STORAGE
630							3			630	3	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL
630							1			630	1	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND RE-ERECTION, TYPE TC-12.30
631							16			631	16	EACH	REMOVAL OF LUMINAIRES AND DISPOSAL
631							9			631	9	EACH	SIGNS WIRED
631							4			631	4	EACH	SIGNS WIRED, OVERPASS STRUCTURE MOUNTED
631							5			631	5	EACH	SIGN SERVICE
631							5			631	5	EACH	DISCONNECT SWITCH WITH ENCLOSURE, TYPE "X"
631							4			631	4	EACH	BALLAST WIRING ENCLOSURE, TYPE B
631							4			631	4	EACH	BALLAST WIRING ENCLOSURE MOUNTING BRACKET
631							1			631	1	EACH	BALLAST, TYPE CMRI-100W-480V, INTEGRAL
631							5			631	5	EACH	BALLAST, TYPE CMRI-175W-480V, INTEGRAL
631							7			631	7	EACH	BALLAST, TYPE CMRI-250W-480V, INTEGRAL
631							5			631	5	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21, WITH 100 WATT LAMP
631							5			631	5	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21, WITH 175 WATT LAMP
631							7			631	7	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21, WITH 250 WATT LAMP
631							4			631	4	EACH	BALLAST, TYPE CMRI-100W-480V
632		250								632	250	LIN.FT.	LOOP DETECTOR PAVEMENT CUTTING
632		500								632	500	LIN.FT.	LOOP DETECTOR WIRE, TYPE E
847								22.11		847	22.11	MILE	EDGE LINES, 947.02
847								9.34		847	9.34	MILE	LANE LINES, 947.02
847								3,771		847	3771	LIN.FT	CHANNELIZING LINES, 947.02
847								203		847	203	LIN.FT.	STOP LINES, 947.02
847								999		847	999	LIN.FT.	TRANSVERSE LINES, 947.02
847								8		847	8	EACH	WORD "ONLY" ON PAVEMENT, 72 INCH, 947.02
847								16		847	16	EACH	LANE ARROWS, 947.02
SPEC.							7			SPEC.	7	EACH	SURFACE PREPARATION, EXISTING SUPPORT SECTIONS
SPEC.							9			SPEC.	9	EACH	SURFACE PREPARATION, NEW SUPPORT SECTIONS
SPEC.							16			SPEC.	16	EACH	COATING, EPOXY PRIME COAT, SUPPORT SECTIONS
SPEC.							16			SPEC.	16	EACH	COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS
SPEC.							16			SPEC.	16	EACH	COATING, URETHANE TOP COAT, SUPPORT SECTIONS

TRAFFIC CONTROL QUANTITIES

CALCULATIONS
MADE BY _____ DATE _____
CHECKED _____ DATE _____

FHWA	STATE	PROJECT	
5	OHIO		

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CUYAHOGA COUNTY
CUY-422F-0.51

GROUND MOUNTED SIGNS

REF. NO.	STATION	SIDE	CODE	SIZE	SIGNS			GROUND MOUNTED SIGN SUPPORTS							CONCRETE FOR EMBEDDED FOUNDATION	BREAKAWAY BEAM CONNECTION	PREPARATION AND SHIPMENT OF STORED SIGNS, FLATSHEET	REMOVAL OF GRD. MTD. SIGN AND STORAGE	REMOVAL OF GRD. MTD. MAJOR SIGN AND STORAGE	REMOVAL OF GRD. MTD. BEAM SUPPORT	REMOVAL OF GRD. MTD. POST SUPPORT	PREPARATION AND SHIPMENT OF STORED SIGNS EXTRUSHEET
					FLAT SHEET	EXTRU SHEET	OVERLAY	NO. 3 POST	NO. 4 POST	S 4 x 7.7 BEAM	W 6 x 9 BEAM	W 10 x 12 BEAM	ONE WAY SUPPORT NO. 4 POST									
					SQ. FT.	SQ. FT.	SQ. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.		CU. FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH
1	744+75	RT	R-10-48	48"X60"	20				14.5-14.5								1	1			2	
2	752+20	LT	GN	168"X42"		49					16.0-14.0				0.66	2	1	1			2	
3	753+00	RT	GN	96"X42"		28				14.0-12.6					0.54	2						
4	756+15	℄	R-123-36	36"X36"	9				15.5								1	1			1	
5	756+15	℄	R-19-24	24"X30"	5												1	1				
6	756+60	℄	R-19-24	24"X30"	5												1	1				
7	756+60	℄	R-123-36	36"X36"	9				15.5								1	1			1	
8	762+00	RT	GD	15'X5'		75	28												1			1
9	763+25	RT	X-6R	12"X36"	3			11.5									1	1			1	
10	764+07	RT	X-6L	12"X36"	3			11.5									1	1			1	
11	765+05	LT	GN	84"X36"		28					18.0-20.0				0.66							
12	767+00	RT	GN	84"X36"		28				15.0-12.6					0.54	2	1	1			2	
13	767+55	LT	X-6L	12"X36"	3			11.5									1	1			1	
14	768+32	LT	X-6R	12"X36"	3			11.5									1	1			1	
15	811+00	LT	R-10-48	48"X60"	20				14.5-14.5								1	1			2	
16	816+55	℄	R-123-36	36"X36"	9				15.5								1	1			1	
17	816+55	℄	R-19-24	24"X30"	5												1	1				
18	816+90	℄	R-123-36	36"X36"	9				15.5								1	1			1	
19	816+90	℄	R-19-24	24"X30"	5												1	1				
20	821+00	LT															1	1			2	
21	831+90	RT	X-6R	12"X36"	3			11.5									1	1			1	
22	832+25	RT	X-6L	12"X36"	3			11.5									1	1			1	
23	834+60	LT	X-6L	12"X36"	3			11.5									1	1			1	
24	835+00	LT	X-6R	12"X36"	3			11.5									1	1			1	
25	836+00	LT															1	1			1	
26	838+50	LT	W-49R-48	48"X48"	16				15.0-15.0								1	1			2	
27	842+70	RT	GF	72"X60"		30				16-16					0.54	2		1		2		1
28	847+46	RT	X-6L	12"X36"	3			11.5									1	1			1	
29	847+93	RT	X-6R	12"X36"	3			11.5									1	1			1	
30	849+47	LT	X-6R	12"X36"	3			11.5									1	1			1	
31	850+07	LT	X-6L	12"X36"	3			11.5									1	1			1	
32	851+00	LT	W-49R-48	48"X48"	16				15.5-15.5								1	1			2	
33	851+00	LT	EDU.PLAQUE														1	1				
34	857+95	RT	EDU.PLAQUE														1	1				
35	857+95	RT	W-49R-48	48"X48"	16				15.0-15.0								1	1			2	
36	858+38	LT	GF	72"X60"		30				16-16					0.54	2		1		2		1
37	861+50	RT	GF														1	1			2	
39	882+98	RT	R-10-48	48"X60"	20				17.5-17.5								1	1			2	
40	896+05	℄	R-123-36	36"X36"	9				17								1	1			1	
41	896+05	℄	R-19-24	24"X30"	5												1	1				
42	896+60	℄	R-19-24	24"X30"	5												1	1				
43	896+60	℄	R-123-36	36"X36"	9				17								1	1			1	
44	907+14	LT	R-10-48	48"X60"	20				17.5-17.5								1	1			2	
45	932+50	LT	GF														1	1			2	
46	933+37	RT	GF	72"X60"		30				15.5-15.5					0.54	2		1		2		1
47	934+50	LT	W-49R-48	48"X48"	16				15.0-15.0								1	1			2	
48	941+10	RT	X-6L	12"X36"	3			11.5														
49	941+16	RT	X-6R	12"X36"	3			11.5														
50	943+03	LT	X-6R	12"X36"	3			11.5									1	1			1	
51	943+10	LT	X-6L	12"X36"	3			11.5														
52	945+98	LT	W-49R-48	48"X48"	16				16.5-16.5								1	1			2	
53	945+98	LT	EDU.PLAQUE														1	1				
54	949+50	RT	W-49R-48	48"X48"	16				15.0-15.0												2	
55	952+20	LT	GF	72"X60"		30				15.5-15.5					0.54	2				2		
56	RAMP 2 843+92	RT	GF														1	1			1	
57	RAMP 2 843+92	RT	GE														1	1				
58	RAMP 2 845+50	RT	SPEC.	36"X36"	9				15.0-16.0													
59	RAMP 2 845+50	RT	R-31F-36	36"X30"	7.5																	
60	RAMP 2 845+50	LT	SPEC.	36"X36"	9																	
61	RAMP 2 845+50	LT	R-31F-36	36"X30"	7.5				15.0-16.0													
			SPEC.																			
			R-31F-36																			
	TOTALS				341	328	28	184	470	180.2	68				4.56	14	45	48	1	8	51	4

GROUND MOUNTED SIGN QUANTITIES

TRAFFIC CONTROL QUANTITIES

CALCULATIONS
MADE BY _____ DATE _____
CHECKED _____ DATE _____

FHWA	STATE	PROJECT	
5	OHIO		

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CUYAHOGA COUNTY
CUY-422F-0.51

GROUND MOUNTED SIGNS

REF. NO.	STATION	SIDE	CODE	SIZE	SIGNS			GROUND MOUNTED SIGN SUPPORTS							CONCRETE FOR EMBEDDED FOUNDATION	BREAKAWAY BEAM CONNECTION	PREPARATION AND SHIPMENT OF STORED SIGNS, FLATSHEET	REMOVAL OF GRD. MTD. SIGN AND STORAGE	REMOVAL OF GRD. MTD. MAJOR SIGN AND STORAGE	REMOVAL OF GRD. MTD. BEAM SUPPORT	REMOVAL OF GRD. MTD. POST SUPPORT	PREPARATION AND SHIPMENT OF STORED SIGNS EXTRUSHEET
					FLAT SHEET	EXTRU SHEET	OVERLAY	NO. 3 POST	NO. 4 POST	S 4 x 7.7 BEAM	W 6 x 9 BEAM	W 10 x 12 BEAM	ONE WAY SUPPORT NO 4 POST									
					SQ. FT.	SQ. FT.	SQ. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.		CU. FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH
62	RAMP 2 847+60	RT.	D-4B-2	120"X48"		40					15.5-16.5				0.66				1		2	1
63	RAMP 2 847+60	RT.	M-24-30														1	1				
64	RAMP 2 847+60	RT.	M-2-36-2														1	1				
65	RAMP 2 847+60	RT.	M-8-36														1	1				
66	RAMP 2 847+60	RT.	R-47A-36	36"X36"	6												1	1				
67	RAMP 2 847+60	LT.	R-41A-36	36"X36"	6				13-0								1	1			1	
68	RAMP 2 850+60	LT.	SPEC.	36"X36"	9												1	1			1	
69	RAMP 2 850+53	LT.	R-121-36														1	1				
70	RAMP 2 850+53	RT.	SPEC.														1	1			1	
71	RAMP 2 850+60	RT.	R-120-36	36"X36"	9												1	1				
72	RAMP 2 850+60	RT.	R-41B-36	36"X36"	9				12.5								1	1			1	
73	RAMP 2 850+60	LT.	R-43R-48	48"X18"	6												1	1				
74	RAMP 2 850+60	LT.	R-41B-36	36"X36"	9				12.5				14				1	1			1	
75	RAMP 2 850+60	LT.	R-43L-48	48"X18"	6												1	1				
76	RAMP 3 844+17	RT.	R-43L-43	48"X18"	6												1	1				
77	RAMP 3 844+17	RT.	R-41B-36	36"X36"	9				12.5				14				1	1			1	
78	RAMP 3 844+17	RT.	R-43R-48	48"X18"	6												1	1				
79	RAMP 3 844+24	LT.	R-41B-36	36"X36"	9												1	1			1	
80	RAMP 3 844+24	LT.	R-1-48	48"X48"	16				12.5				14				1	1				
81	RAMP 3 845+10	LT.	R-120-36														1	1				
82	RAMP 3 845+10	LT.	SPEC.														1	1			1	
83	RAMP 3 845+10	RT.	R-120-36														1	1				
84	RAMP 3 845+10	RT.	SPEC.														1	1			1	
85	RAMP 3 845+55	LT.	R-41A-36	36"X24"	6																	
86	RAMP 3 845+55	LT.	R-31F-36	36"X30"	7.5																	
87	RAMP 3 845+55	LT.	SPEC.	36"X36"	9				15.0-16.0													
88	RAMP 3 845+55	RT.	R-41A-36														1	1			2	
89	RAMP 3 845+55	RT.	R-31F-36	36"X30"	7.5																	
90	RAMP 3 845+55	RT.	SPEC.	36"X36"	9				16.0-16.0													
91	RAMP 3 846+03	LT.	R-41A-36														1	1			2	
92	RAMP 3 849+00	LT.	W-32-96	96"X48"		32				15.0-15.0					0.54	2		1			2	1
93	RAMP 3 851+00	LT.	D-4B-2	120"X48"		40					16.5-18.0				0.66	2			1		2	1
94	RAMP 3 853+45	RT.	R-41A-36	36"X24"	6			12.5									1	1			2	
95	RAMP 3 853+45	LT.	R-41A-36	36"X24"	6			12.5									1	1			2	
96	RAMP 3 855+00	LT.	W-45-48	48"X48"	16				16.0-16.5								1	1			2	
97	RAMP 7 938+00	RT.	D-4B-2	156"X48"		52					16-17				0.66	2			1	2		1
98	RAMP 7 938+00	RT.	M-25-30	30"X24"	5												1	1				
99	RAMP 7 938+00	RT.	M-2-36-2	36"X36"	9												1	1				
100	RAMP 7 939+40	RT.	R-31F-36	36"X30"	7.5			12.5-12.5									1	1			2	
101	RAMP 7 939+40	RT.	R-41A-36	36"X24"	6												1	1				
102	RAMP 7 939+40	LT.	R-31F-36	36"X30"	7.5			13.5-13.5									1	1			1	
103	RAMP 7 939+40	LT.	R-41A-36	36"X24"	6												1	1				
104	RAMP 7 942+12	RT.	R-43R-48	48"X18"	6												1	1				
105	RAMP 7 942+12	RT.	R-41B-36	36"X36"	9				12.5				14				1	1			1	
106	RAMP 7 942+12	RT.	R-43L-48	48"X18"	6												1	1				
107	RAMP 7 942+25	LT.	R-43R-48	48"X18"	6												1	1				
108	RAMP 7 942+25	LT.	R-41B-36	36"X36"	9				12.5				14				1	1			1	
109	RAMP 7 942+25	LT.	R-43L-48	48"X18"	6												1	1				
110	RAMP 8 940+15	RT.	R-43L-48	48"X18"	6												1	1				
111	RAMP 8 940+15	RT.	R-41B-36	36"X36"	9				12.5				14				1	1			1	
112	RAMP 8 940+15	RT.	R-43R-48	48"X18"	6												1	1				
113	RAMP 8 940+23	LT.	R-41B-36	36"X36"	9												1	1			2	
114	RAMP 8 940+23	LT.	R-1-48	48"X48"	16				13.5				15				1	1				
115	RAMP 8 941+70	LT.	R-41A-36	36"X24"	6																	
116	RAMP 8 941+70	RT.	R-31F-36	36"X30"	7.5			12.0-12.0													1	
117	RAMP 8 942+90	LT.																			2	
118	RAMP 8 945+00	LT.	D-4B-2	156"X48"		52						19.5-21.0			2.20	2			1	2		1
119	RAMP 8 948+00	RT.	R-41A-36	36"X24"	6			12.5													2	
120	RAMP 8 948+00	LT.	W-45-48	48"X48"	16				16.0-16.0												2	
	TOTALS				337.5	216		113.5	241.5	30	99.5	40.5	99		4.72	8	44	45	4	4	40	5

GROUND MOUNTED SIGN QUANTITIES

TRAFFIC CONTROL QUANTITIES

CALCULATIONS
MADE BY _____ DATE _____
CHECKED _____ DATE _____

FHWA	STATE	PROJECT	
5	OHIO		

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CUYAHOGA COUNTY
CUY-422F-0.51

GROUND MOUNTED SIGNS

REF. NO.	STATION	SIDE	CODE	SIZE	SIGNS			GROUND MOUNTED SIGN SUPPORTS													
					FLAT SHEET	EXTRU SHEET	OVERLAY	NO. 3 POST	NO. 4 POST	W 8 x 18 BEAM	W 6 x 9 BEAM	W 10 x 12 BEAM	ONE WAY SUPPORT NO. 4 POST	W 12 x 30 BEAM	CONCRETE FOR EMBEDDED FOUNDATION	BREAKAWAY BEAM CONNECTION	PREPARATION AND SHIPMENT OF STORED SIGNS, FLATSHEET	REMOVAL OF GRD. MTD. SIGN AND STORAGE	REMOVAL OF GRD. MTD. MAJOR SIGN AND STORAGE	REMOVAL OF GRD. MTD. BEAM SUPPORT	REMOVAL OF GRD. MTD. POST SUPPORT	PREPARATION AND SHIPMENT OF STORED SIGNS, EXTRUSHEET
					SQ. FT.	SQ. FT.	SQ. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	CU. FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH
121	HARPER RD. 60+70	LT	W-60C-36	36"X36"	9				14.0								1	1			1	
122	HARPER RD. 61+40	Q	EDU.PLAQUE														1	1				
123	HARPER RD. 61+40	Q	R-38R-24	24"X30"	5			12.0									1	1			1	
124	HARPER RD. 62+65	Q	EDU.PLAQUE														1	1			1	
125	HARPER RD. 62+65	Q	R-37R-24	24"X30"	5			12.0														
126	HARPER RD. 63+86	Q	R-37R-24	24"X30"	5			12.0									1	1			1	
127	HARPER RD. 63+86	Q	EDU.PLAQUE														1	1				
128	HARPER RD. 68+80	Q	R-37R-24	24"X30"	5			12.0									1	1			1	
129	HARPER RD. 70+00	Q	R-37R-24	24"X30"	5			12.0									1	1			2	
130	S.R. 91 31+67	Q	R-38R-24	24"X30"	5			12.0									1	1			1	
131	S.R. 91 32+27	Q	R-37R-24	24"X30"	5			12.0									1	1			1	
132	S.R. 91 33+30	Q	R-37R-24	24"X30"	5			12.0									1	1			1	
133	S.R. 91 40+50	Q	R-37R-24	24"X30"	5			12.0									1	1			1	
134	S.R. 91 41+55	Q	R-37R-24	24"X30"	5			12.0									1	1			1	
135	RAMP 3 844+17	RT	R-1-48	48"X48"	16																	
136	RAMP 1 844+90	LT	R-15D-30	30"X30"	6.25			12.0														
137	RAMP 5 862+30	LT	R-15D-30	30"X30"	6.25			12.0														
138	RAMP 4 851+10	RT	R-15D-30	30"X30"	6.25			12.0														
139	RAMP 3 844+24	LT	R-43L-48	48"X18"	6																	
140	RAMP 3 844+24	LT	R-43R-48	48"X18"	6																	
141	RAMP 3 844+65	LT	R-31F-36	36"X30"	7.5			12.0-12.0														
142	RAMP 3 844+65	RT	R-31F-36	36"X30"	7.5			12.0-12.0														
143	RAMP 2 849+40	LT	R-31F-36	36"X30"	7.5			13-13														
144	RAMP 2 849+40	RT	R-31F-36	36"X30"	7.5			13-13														
145	RAMP 7 941+75	RT	R-31F-36	36"X30"	7.5			12-12														
146	RAMP 7 941+75	LT	R-31F-36	36"X30"	7.5			13-13														
147	RAMP 9 943+00	RT	R-15D-30	30"X30"	6.25			12.0														
148	RAMP 6 942+50	LT	R-15D-30	30"X30"	6.25			12.0														
149	RAMP 10 955+40	LT	R-15D-30	30"X30"	6.25			12.0														
150	RAMP 8 940+15	RT	R-1-48	48"X48"	16.0																	
151	RAMP 8 940+45	RT	R-31F-36	36"X30"	7.5			12.0-12.0														
152	RAMP 8 940+45	LT	R-31F-36	36"X30"	7.5			12.0-12.0														
153	RAMP 8 941+70	LT	R-31F-36	36"X30"	7.5			12.0-12.0														
154	RAMP 8 940+23	LT	R-43L-48	48"X18"	6																	
155	RAMP 8 940+23	LT	R-43R-48	48"X18"	6																	
156	RAMP 8 945+00	LT	M-2-36-2	36"X36"	9																	
157	RAMP 8 945+00	LT	M-25-30	30"X24"	5																	
158	RAMP 8 948+00	LT	R-41A-36	36"X24"	6																	
159	RAMP 2 849+40	LT	R-31F-36	36"X30"	7.5			13.0-13.0														
160	RAMP 2 849+40	RT	R-31F-36	36"X30"	7.5			13.0-12.0														
303	790+00	RT		14'-0"X6'-0"		84.0													1			1
304	800+00	LT		15'-0"X12'-0"		180.0													1			1
305	HARPER 64+90	LT		10'-0"X5'-0"		50.0	7.5				17.0-17.0				0.66	2			1		3	1
306	834+40	RT		14'-0"X6'-0"		84.0				21.75-26.75					2.20				1	2		1
315	867+62	LT		14'-0"X6'-0"		84.0													1			1
317	893+00	RT		19'-0"X12'-0"		228.0													1			1
318	898+00	LT		14'-0"X6'-0"		84.0													1			1
320	925+00	RT		19'-0"X12'-0"		228.0													1			1
321	960+65	LT		19'-0"X12'-0"		228.0													1			1
327	(SR 91) 39+15	RT		10'-0"X5'-0"		50.0	7.5				17.0-17.0			29.0-30.0	3.00						1
330	805+10	RT		12'-0"X7'-0"		84.0						21.0-21.0			0.66	2		1				
331	820+65	RT		14'-0"X6'-0"		84.0						20.5-21.5			2.20	2						
332	882+00	LT		14'-0"X6'-0"		84.0				20.5-22.5					2.20							
333	890+00	LT		12'-0"X7'-0"		84.0				21.0-22.5					2.20	2						
334	907+00	RT		19'-0"X12'-0"		228.0								29.0-28.5	3.00	2						
	TOTALS				255	1864	15	466	14	134.5	68	84		116.5	18.32	12	13	14	9	4	15	10

GROUND MOUNTED SIGN QUANTITIES

TRAFFIC CONTROL QUANTITIES

FHWA	STATE	PROJECT	
5	OHIO		

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CUYAHOGA COUNTY
CUY-422F-0.51

OVERHEAD SIGNS

SUPPORT NO.	ROADWAY	SIDE	STATION	CODE	SIZE	630 SIGNS EXTRUSHEET, TYPE G		630 SIGN OVERLAY	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND STORAGE	630 PREPARATION AND SHIPMENT OF STORED SIGNS, EXTRUSHEET	630 REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	630 REMOVAL OF OVERHEAD SIGN SUPPORT AND RE ERECTION TYPE 12.30	630 COMBINATION OVERHEAD SIGN SUPPORT, TYPE 12.30 DESIGN 3, MOD. 29'-6" POLE 18'-0" ARM	630 COMBINATION OVERHEAD SIGN SUPPORT, TYPE 12.30 DESIGN 4, MOD. 23'-0" ARM, 29'-6" POLE	630 COMBINATION OVERHEAD SIGN SUPPORT TYPE 12.30 DESIGN 4, MOD. 20'-0" ARM, 29'-6" POLE	630 OVERHEAD SIGN SUPPORT MODIFICATION TYPE 7.4 DESIGN 1 MOD. NEW 4' BOX TRUSS SECTION	630 CONCRETE FOR ANCHOR BASE FOUNDATION	630 SIGN ATTACHMENT ASSEMBLY	630 LUMINAIRE SUPPORT ASSEMBLY, TYPE 31.21		
						SQ. FT.		SQ. FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	CU.YDS.	EACH	2'-9" EACH	5'-9" EACH
301	422	LT.	744+00		14'-0"x 12'-0"	168.0		30	1	1		1						2.92	3		2
302	422	LT.	764+00		23'-0"x12'-6"	287.5			1	1									7		3
					14'-0"x12'-0"	168.0		30	1	1						1		5.20	5		2
307	HARPER RD.	RT.	63+26		9'-0"x 7'-0"	63.0		7.5	1	1	1				1			2.92			
308	HARPER RD.	RT.	65+50		10'-0"x5'-0"	50.0		24.5	1	1									2	1	
309	HARPER RD.	LT.	67+92		10'-0"x5'-6"	55.0		7.5	1	1									2	1	
310	HARPER RD.	LT.	69+15		8'-0"x7'-0"	56.0		28	1	1	1		1					2.92			
					8'-0"x7'-0"	56.0		24	1	1											
323	S.R. 91	LT.	42+40		10'-0"x5'-6"	55.0		7.5	1	1									2	1	
324	S.R. 91	LT.	36+77		10'-0"x5'-0"	50.0		31.5	1	1									2	1	
325	S.R. 91	RT.	35+20		10'-0"x5'-6"	55.0		7.5	1	1									2	1	
326	S.R. 91	RT.	32+85		8'-0"x7'-0"	56.0		38.5	1	1	1			1				2.92			
					8'-0"x7'-0"	56.0		38.5	1	1											
	TOTALS					1175.5		275	13	13	3	1	1	1	1	1	1	16.88	25	5	7
																				12	

SUPPORT NO.	ROADWAY	SIDE	STATION			625 GROUND ROD	631 REMOVAL OF LUMINAIRES AND DISPOSAL	631 BALLAST TYPE CMRI-100W-480V	631 MERCURY VAPOR LUMINAIRE WITH LAMP TYPE 250 WATT	631 BALLAST, TYPE CMRI-250 WATT 480 VOLT, INTEGRAL	631 SIGNS WIRED	631 SIGNS WIRED, OVERPASS STRUCTURE MOUNTED	631 SIGN SERVICE	631 DISCONNECT SWITCH WITH ENCLOSURE, TYPE X	631 BALLAST WIRING ENCLOSURE		631 BALLAST WIRING ENCLOSURE MOUNTING BRACKET	631 MERCURY VAPOR LUMINAIRE WITH LAMP TYPE 31.21		631 BALLAST TYPE CMRI-INTEGRAL		SPECIAL SURFACE PREPARATION, SUPPORT SECTIONS		SPECIAL COATING, EPOXY PRIME COAT, SUPPORT SECTIONS	SPECIAL COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS	SPECIAL COATING, URETHANE TOP COAT, SUPPORT SECTIONS
															TYPE B	TYPE A		100W	175W	100W 480V	175W 480V	EXIST.	NEW			
						EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH		EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
301	422	LT.	744+00			1	2		2	2	1		1	1								2		2	2	2
302	422	LT.	764+00			1	4		5	5	2		1	1								2		2	2	2
307	HARPER RD.	RT.	63+26			1	1				1		1	1					1		1		3	3	3	3
308	HARPER RD.	RT.	65+50				1	1				1			1		1									
309	HARPER RD.	LT.	67+92				1	1				1			1		1									
310	HARPER RD.	LT.	69+15			1	2				2		1	1					2		2		3	3	3	3
323	S.R. 91	LT.	42+40				1				1							1		1		3		3	3	3
324	S.R. 91	LT.	36+77				1	1				1			1		1	1								
325	S.R. 91	RT.	35+20				1	1				1			1		1	1								
326	S.R. 91	RT.	32+85			1	2				2		1	1					2		2		3	3	3	3
	TOTALS					5	16	4	7	7	9	4	5	5	4		4	5	5	1	5	7	9	16	16	16

TRAFFIC CONTROL QUANTITIES

620 DELINEATORS

CALCULATIONS
MADE BY _____ DATE _____
CHECKED BY _____ DATE _____

FHWA REGION	STATE	PROJECT	
5	OHIO		

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CUYAHOGA COUNTY
CUY-422F-0.51

ROADWAY	STATION TO STATION		SIDE	INTERVAL	POST	BRACK.	POST	BRACK.

TRAFFIC CONTROL QUANTITIES

FHWA	STATE	PROJECT	
5	OHIO		

CUYAHOGA COUNTY
CUY-422F-0.51

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PAVEMENT MARKINGS

	ROADWAY	SIDE	STATION FROM	STATION TO	EDGE LINE (WHITE)	EDGE LINE (YELLOW)	4" LANE LINE	CENTER LINE SOLID DOUBLE	CENTER LINE BROKEN SINGLE	CENTER LINE BROKEN AND SOLID DOUBLE	8" CHANNEL LINE (WHITE)	8" CHANNEL LINE (YELLOW)	24" STOP LINE	24" TRANSVERSE LINE (WHITE)	24" TRANSVERSE LINE (YELLOW)	LANE ARROWS	WORD "ONLY" ON PAVEMENT	ISLAND MARKINGS
					LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	SQ. FT.
	S.R. 422 E.B.	RT.	729+80	733+40	360	360	720											
		RT.	733+40	838+10	10,470	10,470	10,470											
		RT.	838+10	841+00	290	290	580											
		RT.	841+00	861+50	2,050	2,050	2,050				332			226				
		RT.	861+50	865+00	700	350	350				350							
		RT.	865+00	867+00	200	200	400											
		RT.	867+00	928+75	6,175	6,175	6,175											
		RT.	928+75	931+50	275	275	550											
		RT.	931+50	933+20	170	170	170				345			230				
		RT.	933+20	951+70	1,850	1,850	1,850											
		RT.	951+70	953+30	320	160	160				160							
		RT.	953+30	956+00	270	270	540											
		RT.	956+00	962+03	603	603	603											
	S.R. 422 W.B.	LT.	729+80	830+70	10,090	10,090	10,090											
		LT.	830+70	836+00	860	530	730				330							
		LT.	836+00	844+50	850	850	850											
		LT.	844+50	846+80	230	230	460											
		LT.	846+80	849+07	454	227	227				227							
		LT.	849+07	858+53	946	946	946											
		LT.	858+53	860+60	207	207	207				417			298				
		LT.	860+60	863+00	240	240	480											
		LT.	863+00	927+60	6,460	6,460	6,460											
		LT.	927+60	930+12	252	252	504											
		LT.	930+12	932+52	480	240	240				240							
		LT.	932+52	939+20	668	668	668											
		LT.	939+20	941+00	180	180	360											
		LT.	941+00	943+85	570	285	285				285							
		LT.	943+85	952+35	850	850	850											
		LT.	952+35	953+90	155	155	155				315			223				
		LT.	953+90	956+25	235	235	470											
		LT.	956+25	962+03	578	578	578											
	RAMP #1		836+00	845+70	980	970												
	RAMP #2		842+64	847+00	436	436												
			847+00	849+56	256	256	50				180					4	2	
			849+56	850+50	175	170					80			22				
		LT.		850+50									22					
		RT.		850+85									16					
	RAMP #3			844+10									65					
			844+10	845+50	150	140					140					4	2	
			845+50	858+53	1300	1300												
	RAMP #4		850+40	861+49	1,120	1,110												
	RAMP #5		849+07	863+40	1,433	1,440												
	RAMP #6		932+52	943+40	1,088	1,090												
	RAMP #7		933+20	939+00	580	580												
			939+00	942+25	340	320	100				230					4	2	
				942+25									60					
	RAMP #8		940+17	941+55	140	138					140					4	2	
			940+17										40					
			941+55	952+35	1,080	1,080												
	RAMP #9		943+10	951+70	865	860												
	RAMP #10		943+85	955+90	1,205	1,210												
	TOTALS				59,186	57,546	49,328				3771		203	999		16	8	
					= 22.11 mi.		= 9.34 mi.											

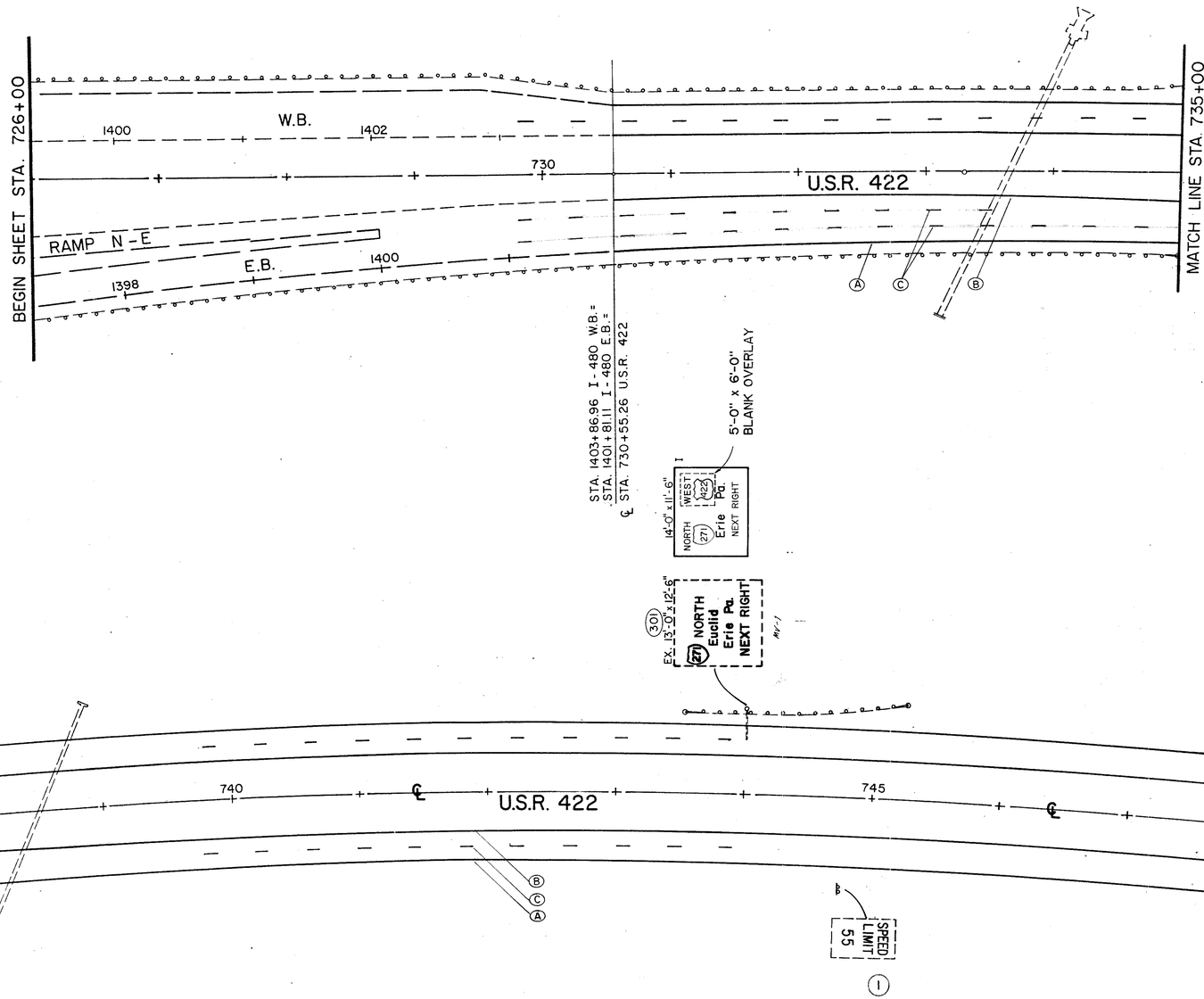
PAVEMENT MARKING QUANTITIES

CUYAHOGA COUNTY	OHIO	61
CUY-422F-0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

NOTES: EX. SIGN SIZES ARE OVERALL.
PROPOSED SIGN SIZES DO NOT INCLUDE THE GLARE SCREEN (WHEN LIT).
SIGN LIGHTING REQUIRES AN ADDITIONAL 6" EXTRUSHEET HEIGHT AND 6" LIGHTING SUPPORT TUBE.

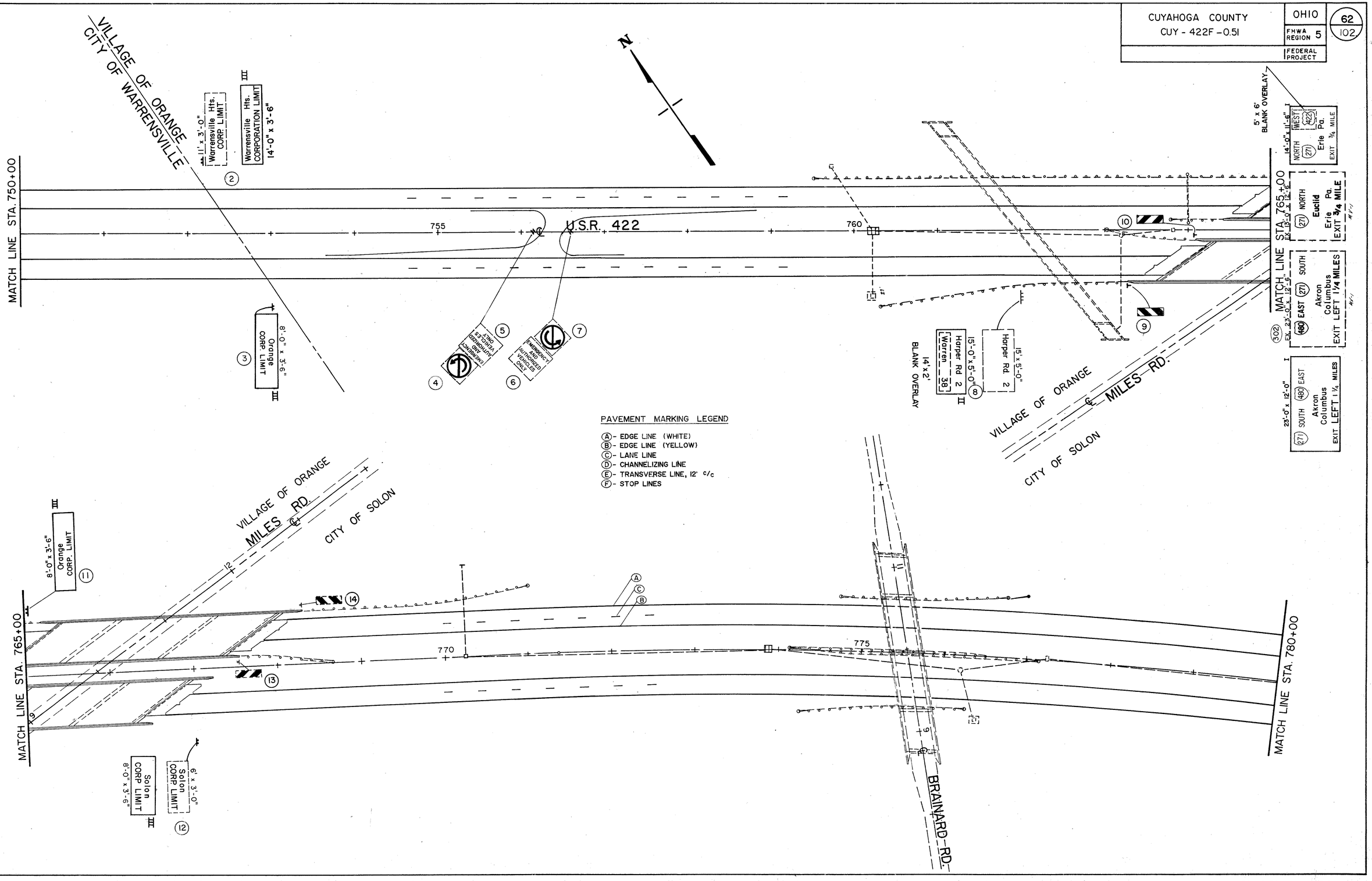
PAVEMENT MARKING LEGEND

- (A)- EDGE LINE (WHITE)
- (B)- EDGE LINE (YELLOW)
- (C)- LANE LINE
- (D)- CHANNELIZING LINE
- (E)- TRANSVERSE LINE, 12' c/c
- (F)- STOP LINES



TRAFFIC CONTROL STA. 726+00 TO STA. 750+00

CUYAHOGA COUNTY	OHIO	62
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

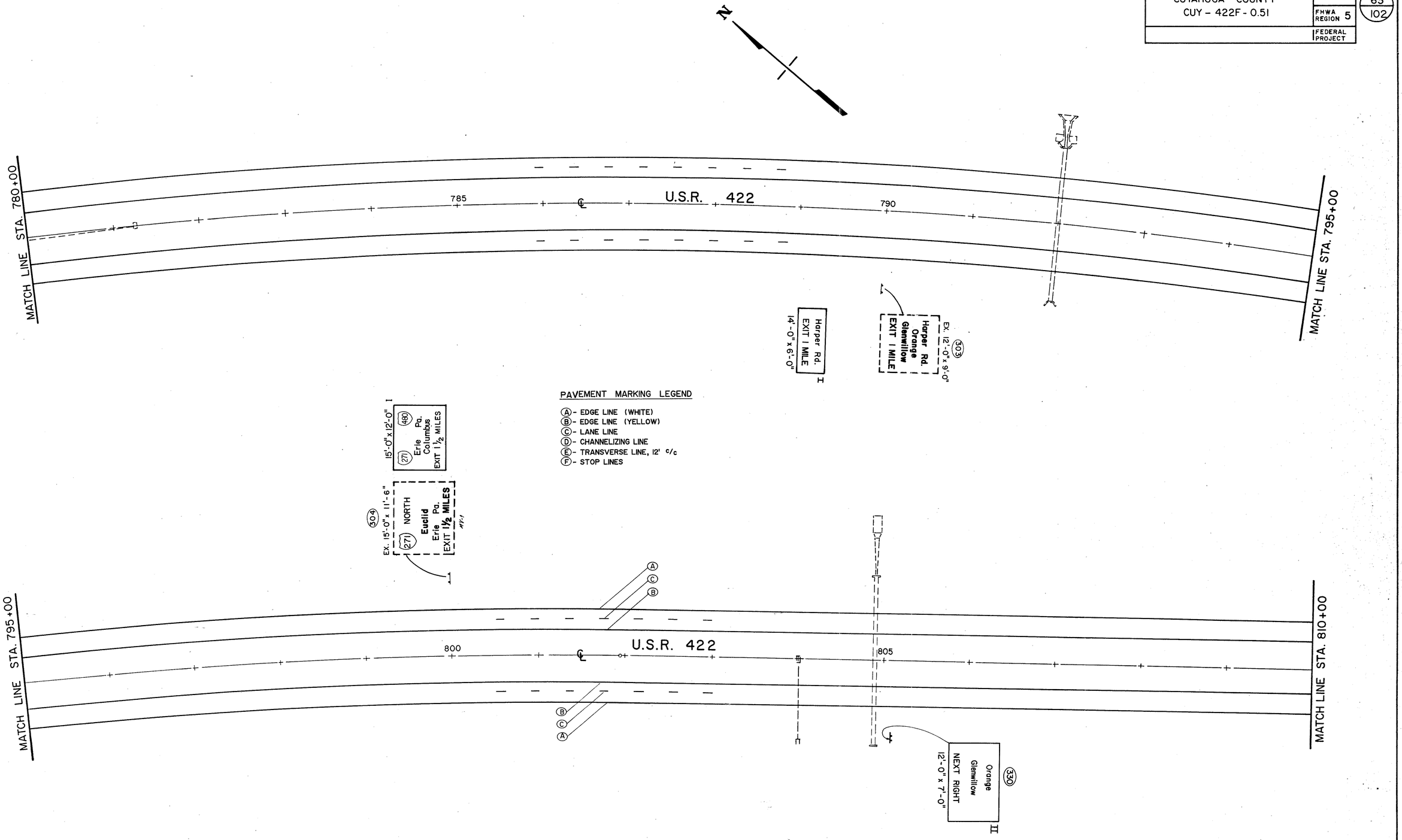


PAVEMENT MARKING LEGEND

- (A) - EDGE LINE (WHITE)
- (B) - EDGE LINE (YELLOW)
- (C) - LANE LINE
- (D) - CHANNELIZING LINE
- (E) - TRANSVERSE LINE, 12' c/c
- (F) - STOP LINES

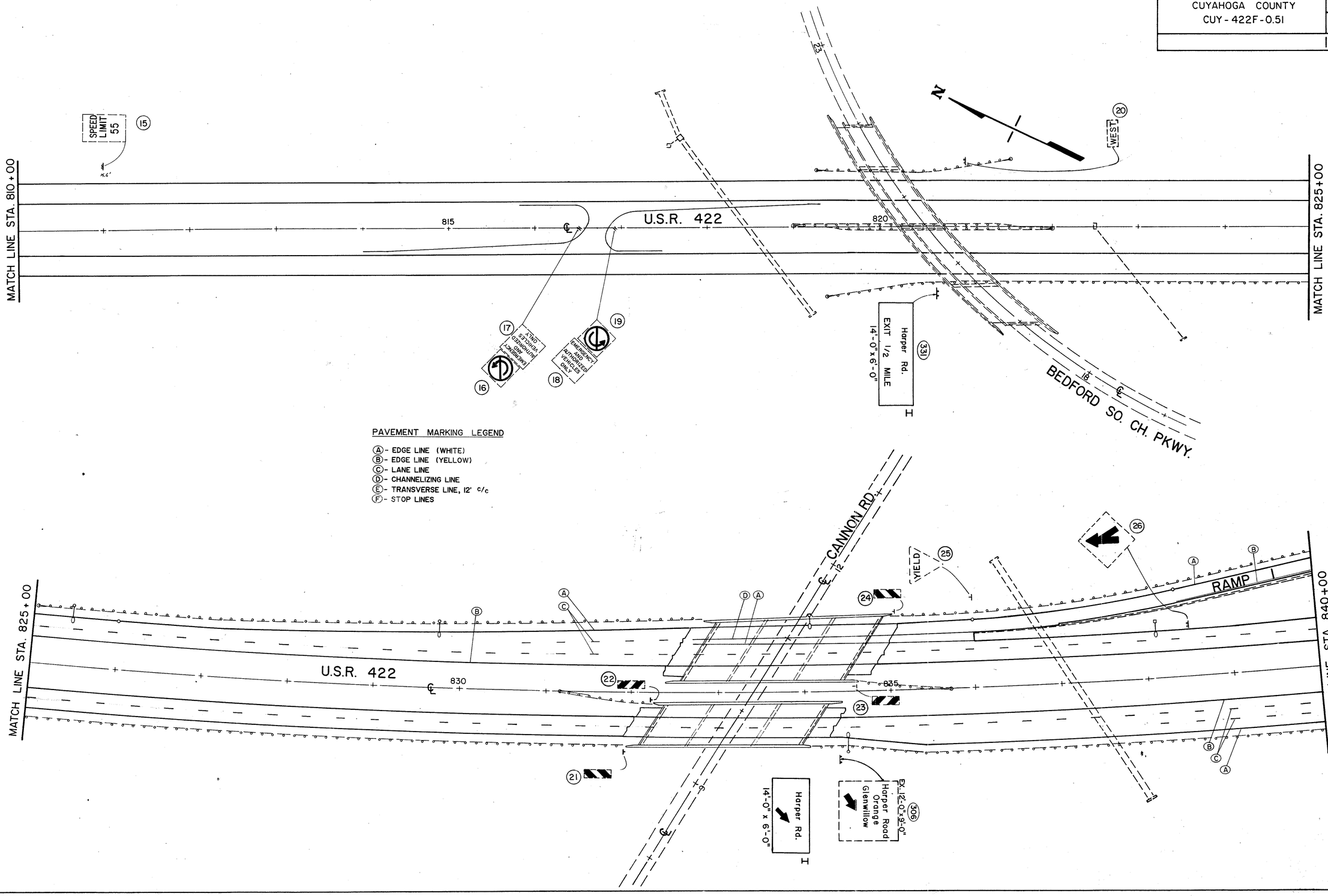
TRAFFIC CONTROL STA. 750+00 TO STA. 780+00

CUYAHOGA COUNTY CUY - 422F - 0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	63 102



TRAFFIC CONTROL STA. 780+00 TO STA. 810+00

CUYAHOGA COUNTY	OHIO	64
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	



TRAFFIC CONTROL STA. 810+00 TO STA. 840+00

CUYAHOGA COUNTY	OHIO	65
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG
Call··· 800-352-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS
MUST BE CALLED DIRECTLY

PAVEMENT MARKING LEGEND

- (A) - EDGE LINE (WHITE)
- (B) - EDGE LINE (YELLOW)
- (C) - LANE LINE
- (D) - CHANNELIZING LINE
- (E) - TRANSVERSE LINE, 12' c/c
- (F) - STOP LINES

HARPER RD. ℄ 65

RAMP 1 ℄ 843

RAMP 2 ℄ 845

RAMP 3 ℄ 850

RAMP 4 ℄ 853

RAMP 5 ℄ 855

U.S.R. 422 ℄ 845

U.S.R. 422 ℄ 850

MATCH LINE STA. 840+00

MATCH LINE STA. 855+00

EX 12" WATER MAIN

Ex. 12" WATER MAIN

60

NO WORK

KEEP RIGHT

NO LEFT TURN

WRONG WAY

DO NOT ENTER

STOP

PROHIBITED PEDESTRIANS BICYCLES MOTORCYCLES LESS THAN 5 BRAKE HP

TRUCKS NO LEFT TURN

TRUCKS NO RIGHT TURN

ONLY

Cleveland WEST 9'-0" x 6'-6" BLANK-OVERLAY

Orange 3 Glenwillow 4 10' x 4'-0"

Warren EAST 10'-0" x 4'-6"

Cleveland WEST 10'-0" x 5'-0" 3'-0" x 2'-6" BLANK OVERLAY

Ex. 8'-0" x 6'-0" TO 271 WEST Cleveland

Ex. 8'-0" x 5'-0" TO 16 Warren EAST

Ex. 8'-0" x 6'-0" TO 43

Ex. 8'-9" x 0'-8" TO 16 Warren EAST

Ex. 8'-0" x 7'-0" TO 271 480 WEST Cleveland

10'-0" x 5'-0" WEST Cleveland 3'-0" x 2'-6" BLANK OVERLAY

Warren EAST 422 8'-0" x 6'-6" Ex. 6'-0" TO 271 NEXT RIGHT 310

TO 9 7'-0" x 4'-0" OVERLAY

6' x 5'-0" EXIT

STOP AHEAD

WRONG WAY

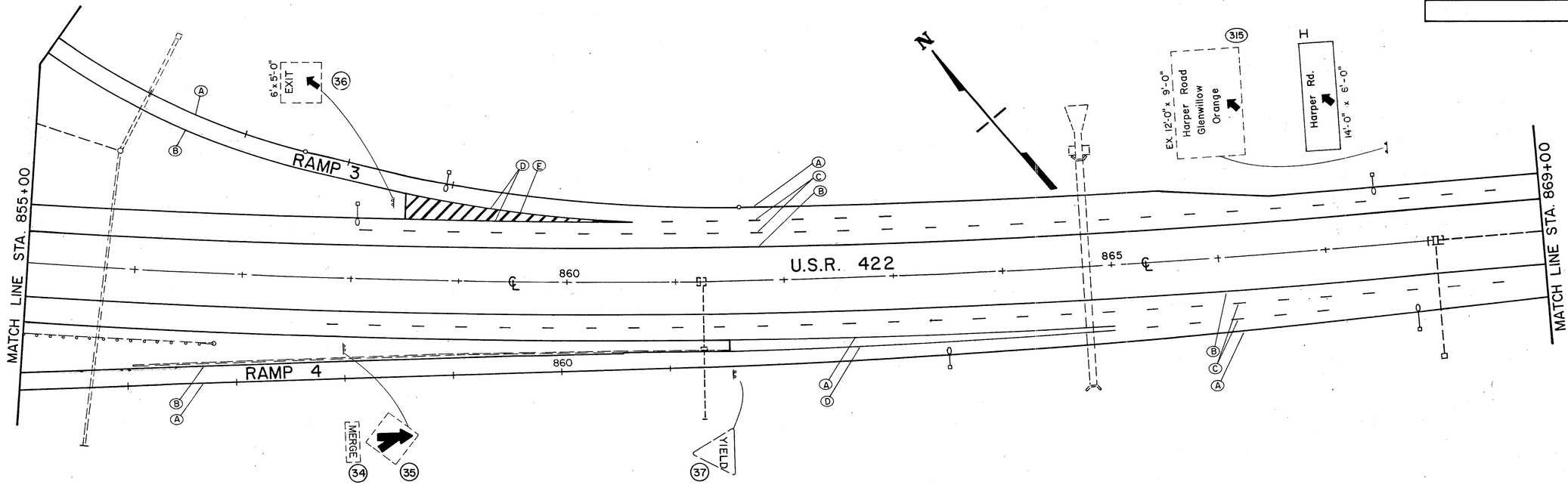
8' x 4'-0"

10' x 4'-0" Orange 3 Glenwillow 4

* - COMBINE NEW SIGNS BACK TO BACK

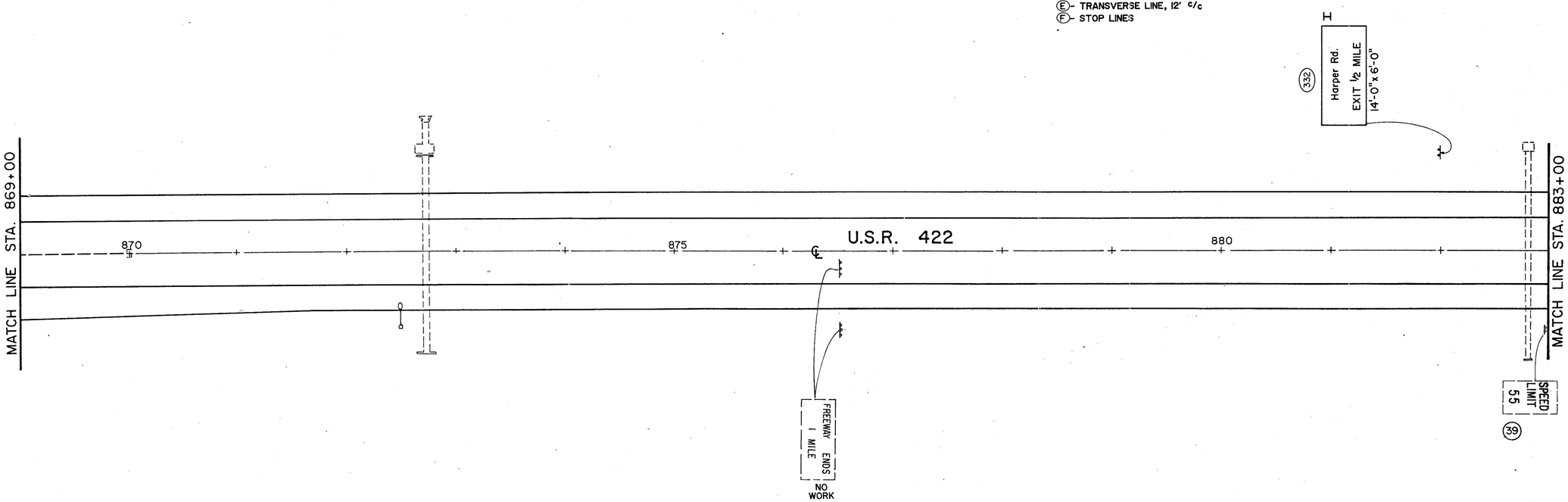
TRAFFIC CONTROL STA. 840+00 TO STA. 855+00

CUYAHOGA COUNTY	OHIO	66
CUY-422F-0.51	FHWA REGION 5	102
	FEDERAL PROJECT	



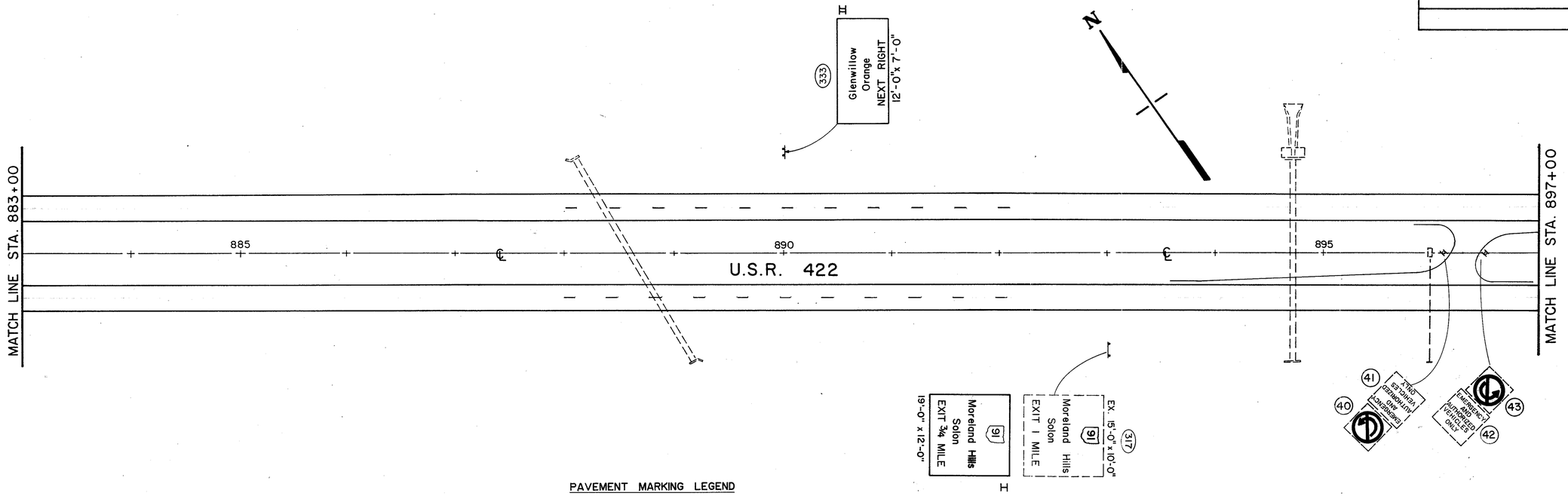
PAVEMENT MARKING LEGEND

- (A)- EDGE LINE (WHITE)
- (B)- EDGE LINE (YELLOW)
- (C)- LANE LINE
- (D)- CHANNELIZING LINE
- (E)- TRANSVERSE LINE, 12' c/c
- (F)- STOP LINES



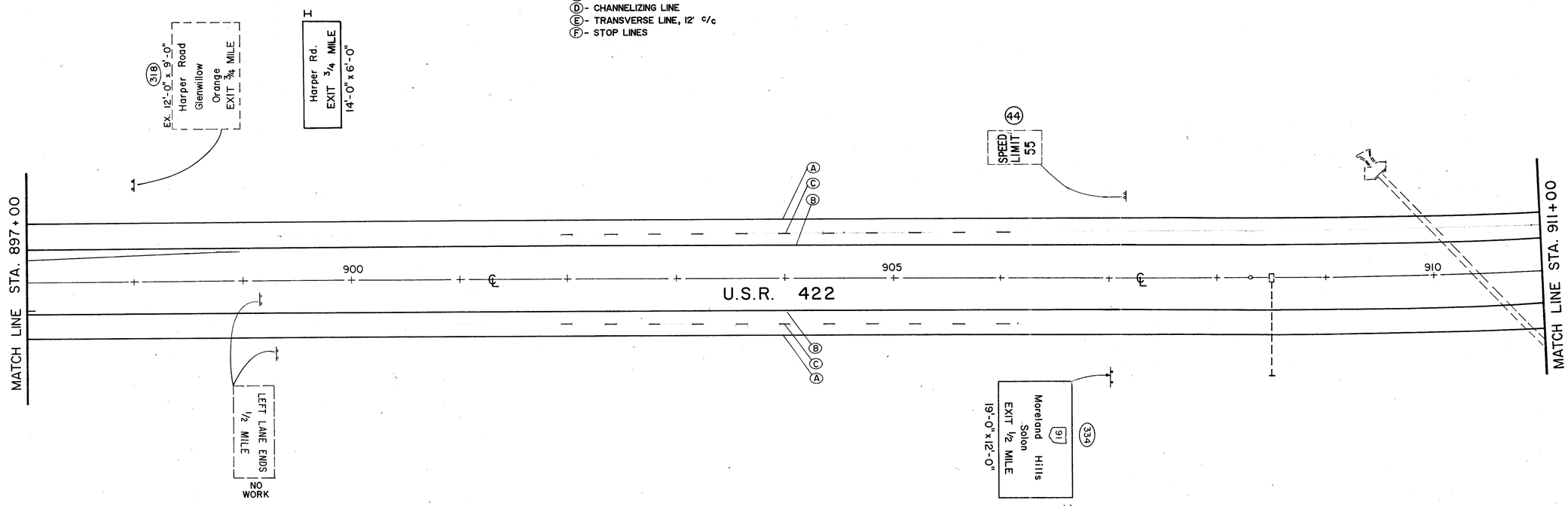
TRAFFIC CONTROL STA. 855+00 TO STA. 883+00

CUYAHOGA COUNTY	OHIO	67
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	



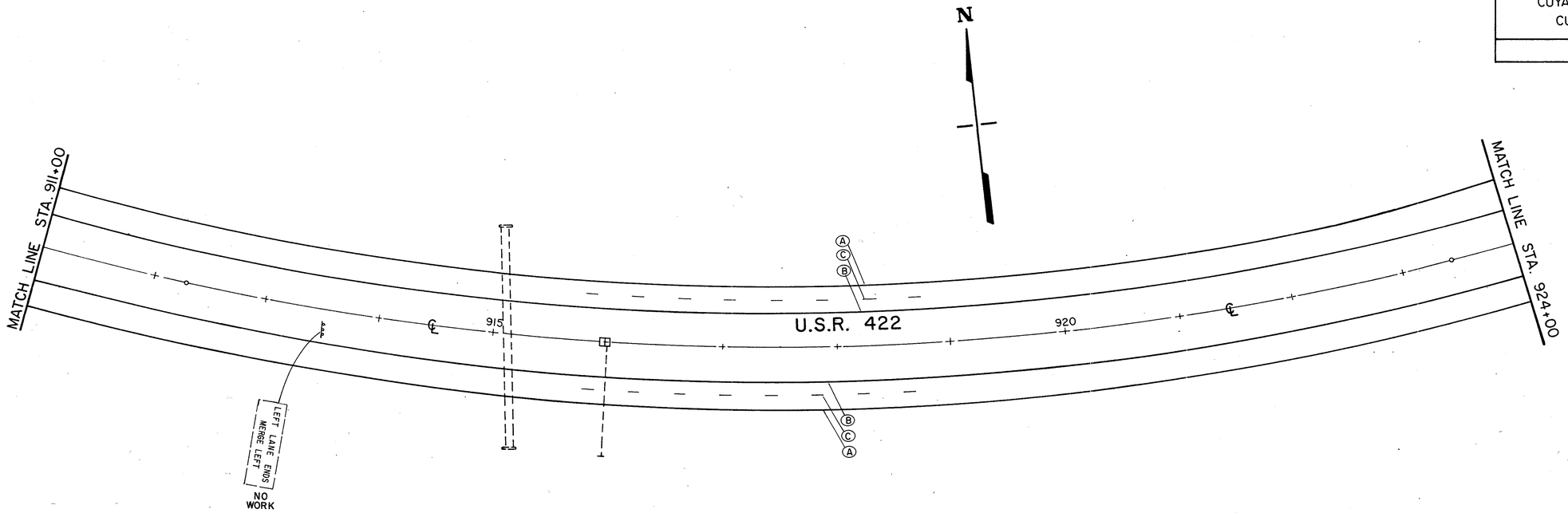
PAVEMENT MARKING LEGEND

- (A) - EDGE LINE (WHITE)
- (B) - EDGE LINE (YELLOW)
- (C) - LANE LINE
- (D) - CHANNELIZING LINE
- (E) - TRANSVERSE LINE, 12' c/c
- (F) - STOP LINES



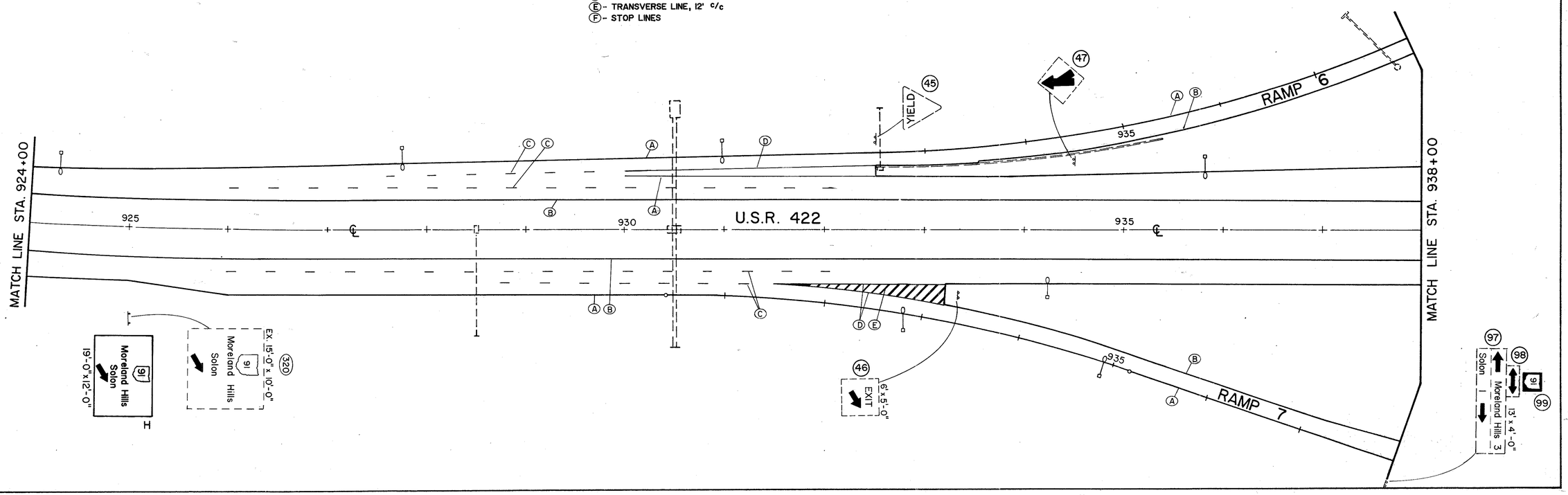
TRAFFIC CONTROL STA. 883+00 TO STA. 911+00

CUYAHOGA COUNTY	OHIO	68
CUY - 422F - 0.51	FHWA REGION 5	102
	FEDERAL PROJECT	



PAVEMENT MARKING LEGEND

- (A) - EDGE LINE (WHITE)
- (B) - EDGE LINE (YELLOW)
- (C) - LANE LINE
- (D) - CHANNELIZING LINE
- (E) - TRANSVERSE LINE, 12' c/c
- (F) - STOP LINES



TRAFFIC CONTROL STA. 911+00 TO 938+00

CUYAHOGA COUNTY CUY- 422F - 0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	69 102

MATCH LINE STA. 938+00

RAMP 6

RAMP 7

U.S.R. 422

SOM CENTER RD.

S.R. 91

RAMP 9

RAMP 8

RAMP 10

EX. 12" WATER MAIN

MATCH LINE STA. 946+00

MATCH LINE STA. 947+00

939 940 941 943 945 950 955

WRONG WAY

DO NOT ENTER

ONE WAY

ONLY

KEEP RIGHT

STOP

MERGE

PROHIBITED PEDESTRIANS BICYCLES MOTORCYCLES LESS THAN 3 BRAKE HP

Warren EAST

Cleveland WEST

Solon Moreland Hills

3'-0"x2'-6" BLANK OVERLAY

7'-0"x5'-6" BLANK OVERLAY

9'-0"x4'-6" OVERLAY

10'-0"x4'-6" OVERLAY

8'-0"x6'-6"

10'-0"x5'-0"

8'-0"x4'-0"

13'x4'-0"

EX. 6'-0"x6'-0"

EX. 8'-0"x4'-0"

EX. 9'-0"x5'-0"

EX. 10'-0"x5'-0"

EX. 8'-0"x2'-6" BLANK OVERLAY

EX. 10'-0"x4'-6" OVERLAY

EX. 8'-0"x5'-0"

EX. 9'-0"x5'-0"

EX. 8'-0"x4'-0"

EX. 10'-0"x5'-0"

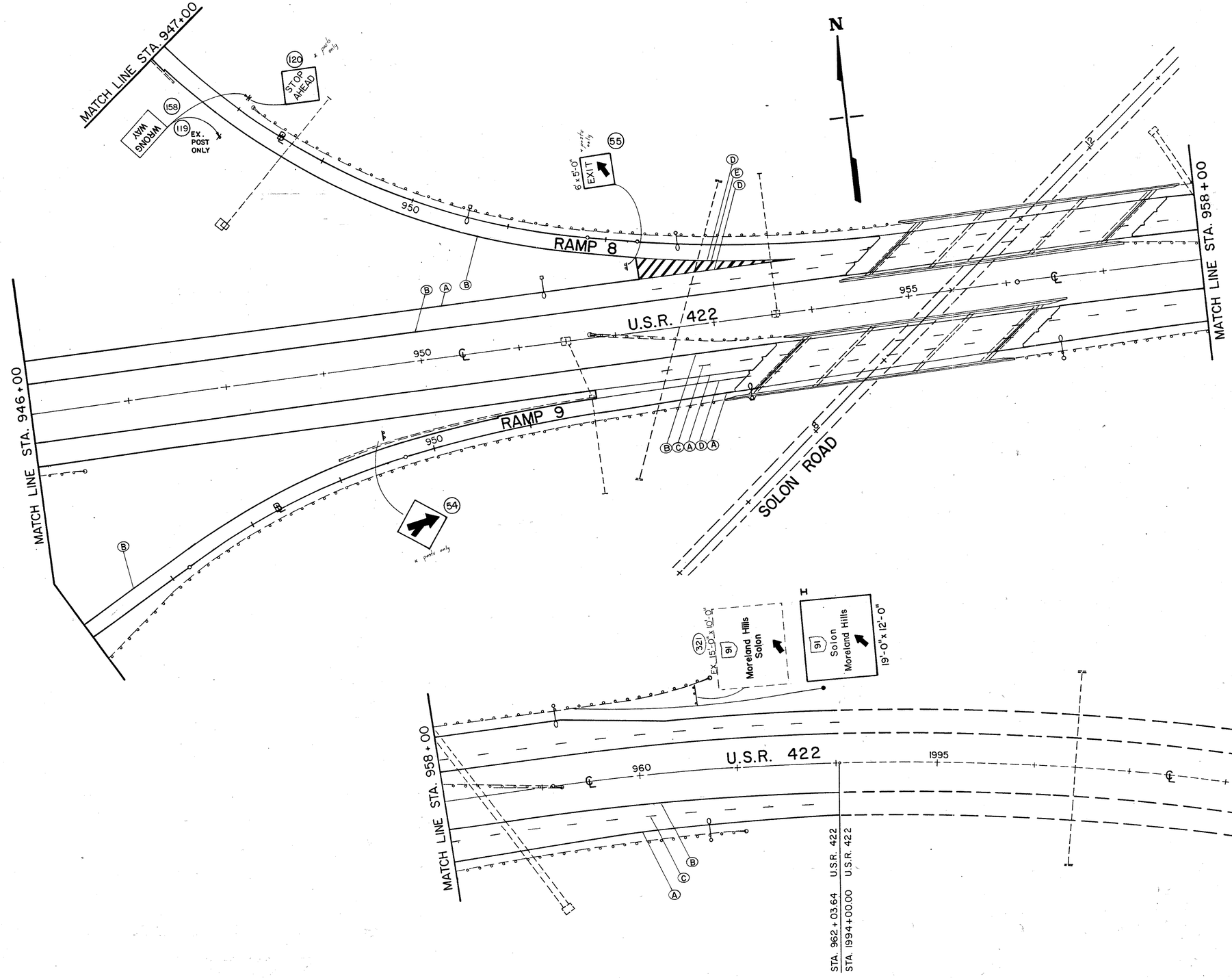
EX. 10'-0"x4'-6" OVERLAY

EX. 8'-0"x5'-0"

EX. 8'-0"x4'-0"

EX. 10

CUYAHOGA COUNTY CUY - 422F - 0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	70 102



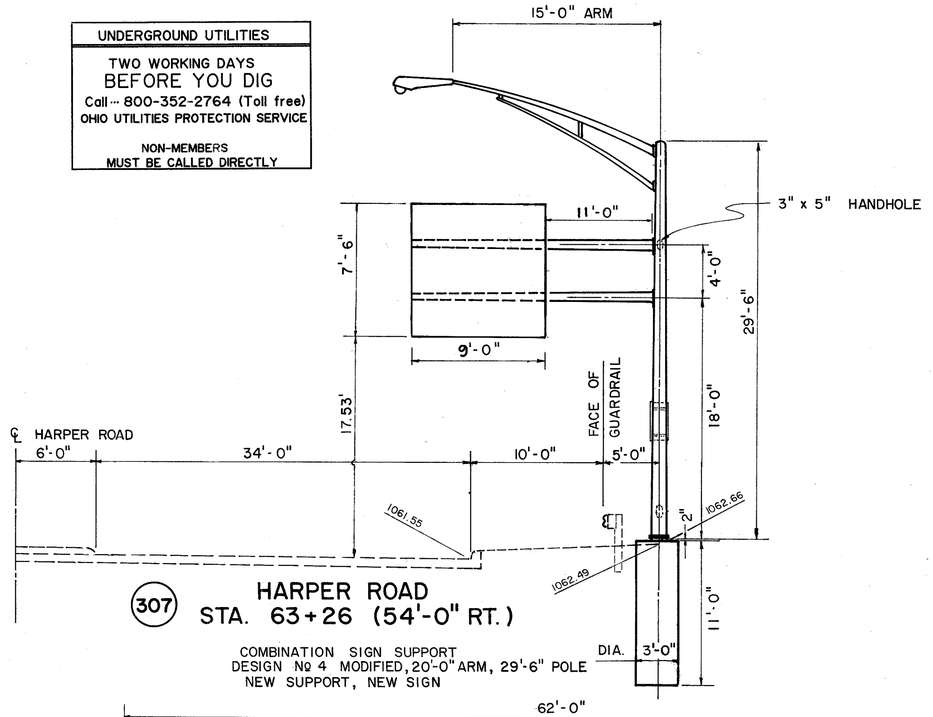
N

PAVEMENT MARKING LEGEND

- (A)- EDGE LINE (WHITE)
- (B)- EDGE LINE (YELLOW)
- (C)- LANE LINE
- (D)- CHANNELIZING LINE
- (E)- TRANSVERSE LINE, 12' c/c
- (F)- STOP LINES

TRAFFIC CONTROL STA. 946+00 TO STA. 2000+00

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
Call ··· 800-352-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

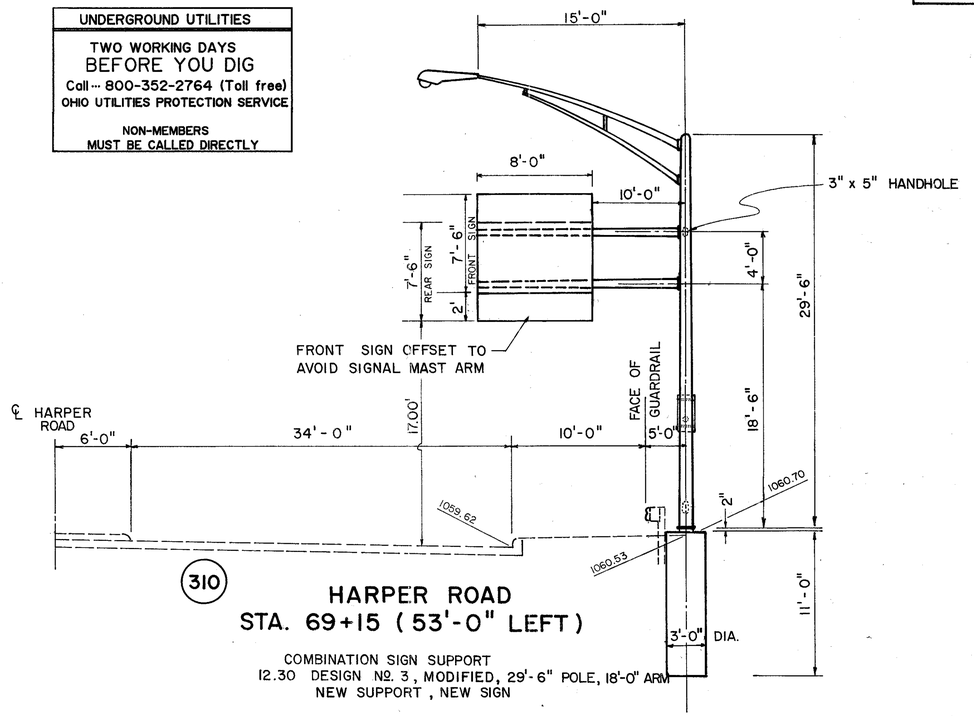


307

HARPER ROAD
STA. 63+26 (54'-0" RT.)

COMBINATION SIGN SUPPORT
DESIGN No 4 MODIFIED, 20'-0" ARM, 29'-6" POLE
NEW SUPPORT, NEW SIGN

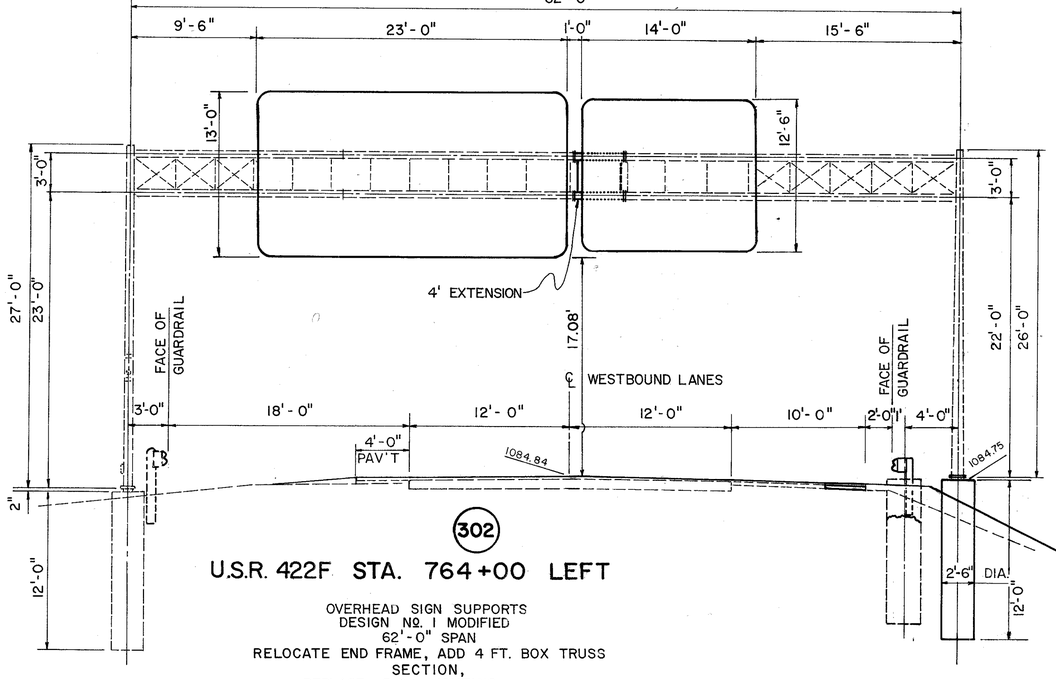
UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
Call ··· 800-352-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY



310

HARPER ROAD
STA. 69+15 (53'-0" LEFT)

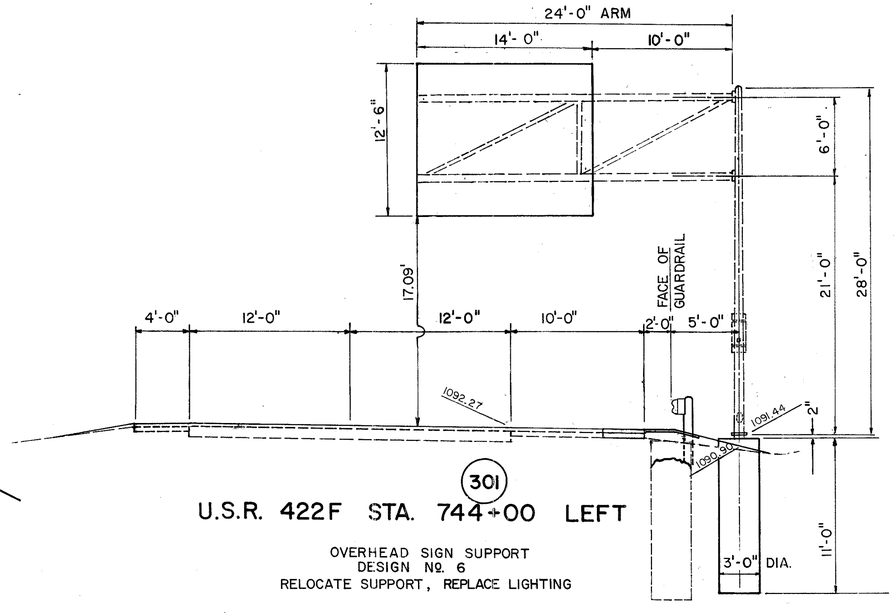
COMBINATION SIGN SUPPORT
12.30 DESIGN No. 3, MODIFIED, 29'-6" POLE, 18'-0" ARM
NEW SUPPORT, NEW SIGN



302

U.S.R. 422F STA. 764+00 LEFT

OVERHEAD SIGN SUPPORTS
DESIGN No. 1 MODIFIED
62'-0" SPAN
RELOCATE END FRAME, ADD 4 FT. BOX TRUSS SECTION,
REPLACE SIGN LIGHTING



301

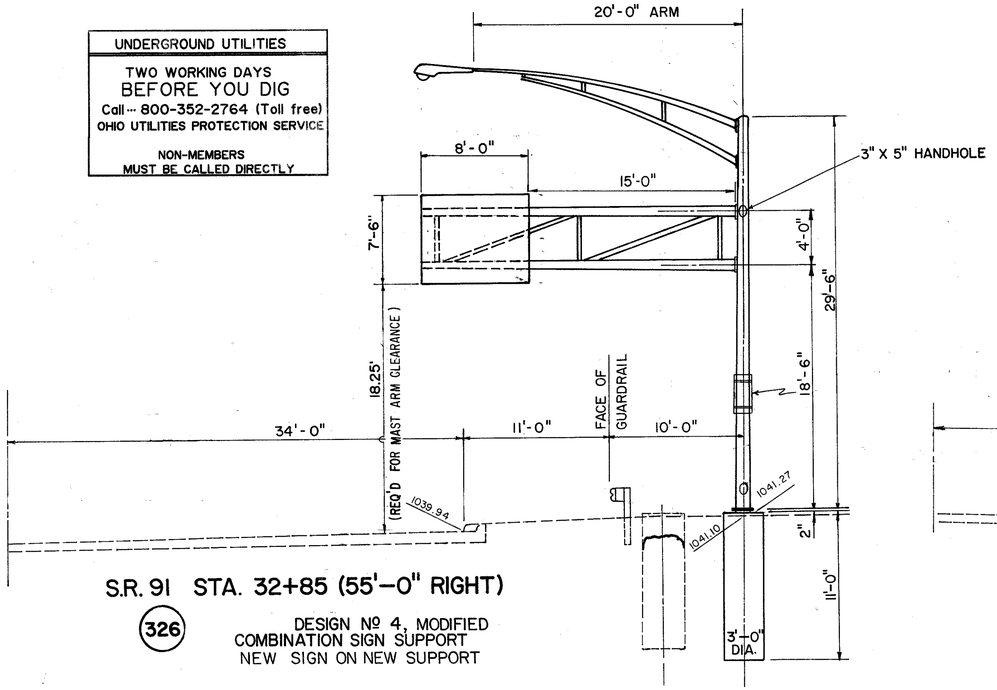
U.S.R. 422F STA. 744+00 LEFT

OVERHEAD SIGN SUPPORT
DESIGN No. 6
RELOCATE SUPPORT, REPLACE LIGHTING

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG
Call -- 800-352-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE

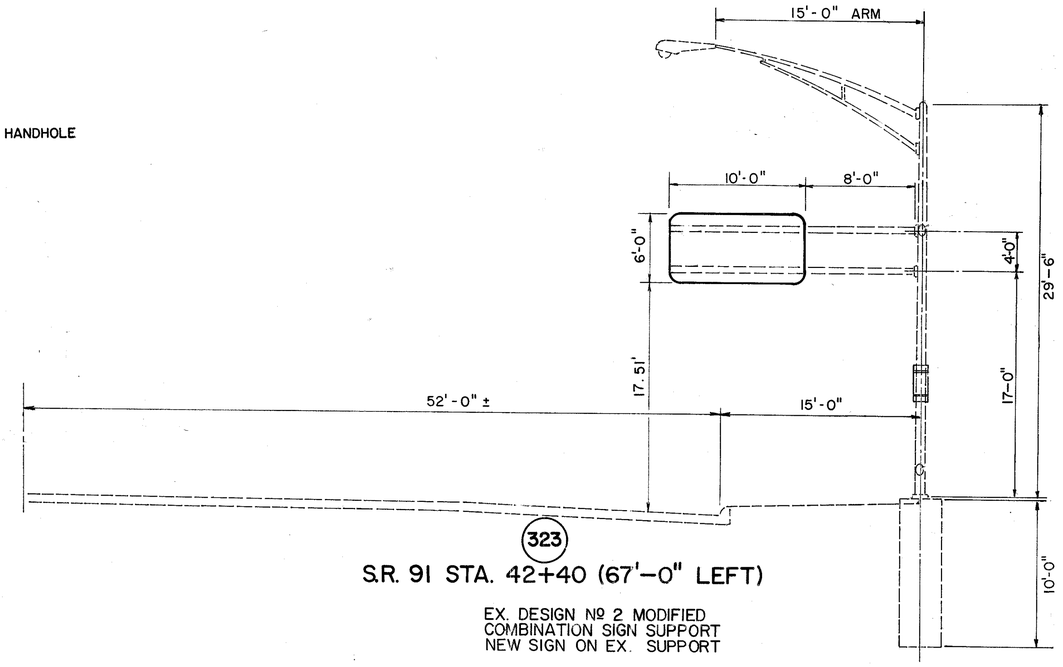
NON-MEMBERS
MUST BE CALLED DIRECTLY



S.R. 91 STA. 32+85 (55'-0" RIGHT)

326

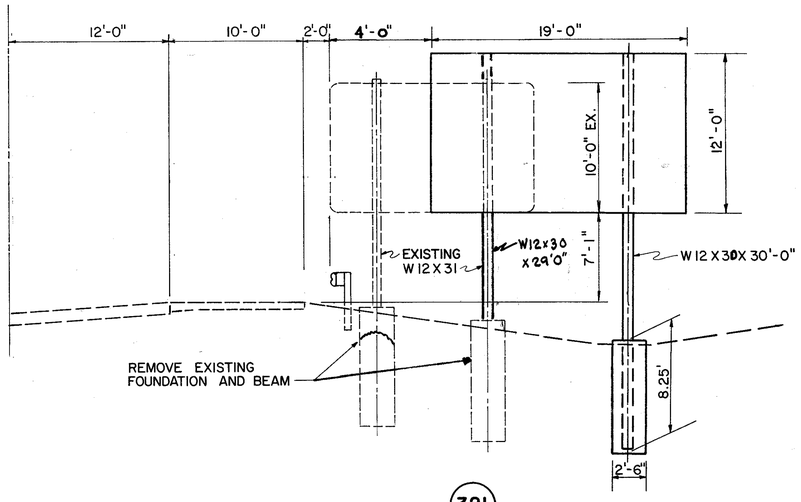
DESIGN Nº 4, MODIFIED
COMBINATION SIGN SUPPORT
NEW SIGN ON NEW SUPPORT



323

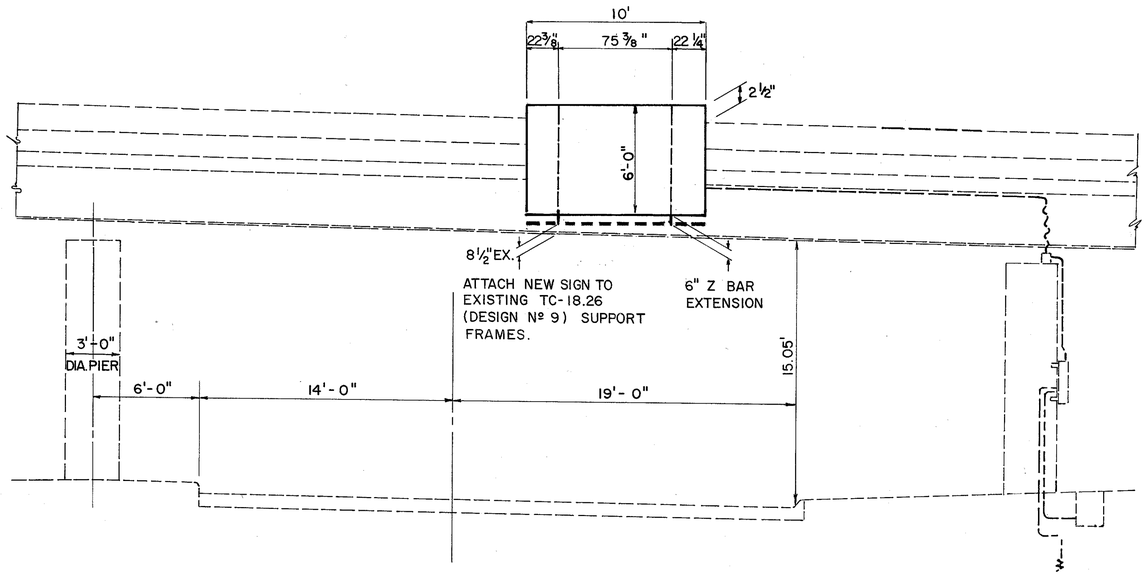
S.R. 91 STA. 42+40 (67'-0" LEFT)

EX. DESIGN Nº 2 MODIFIED
COMBINATION SIGN SUPPORT
NEW SIGN ON EX. SUPPORT

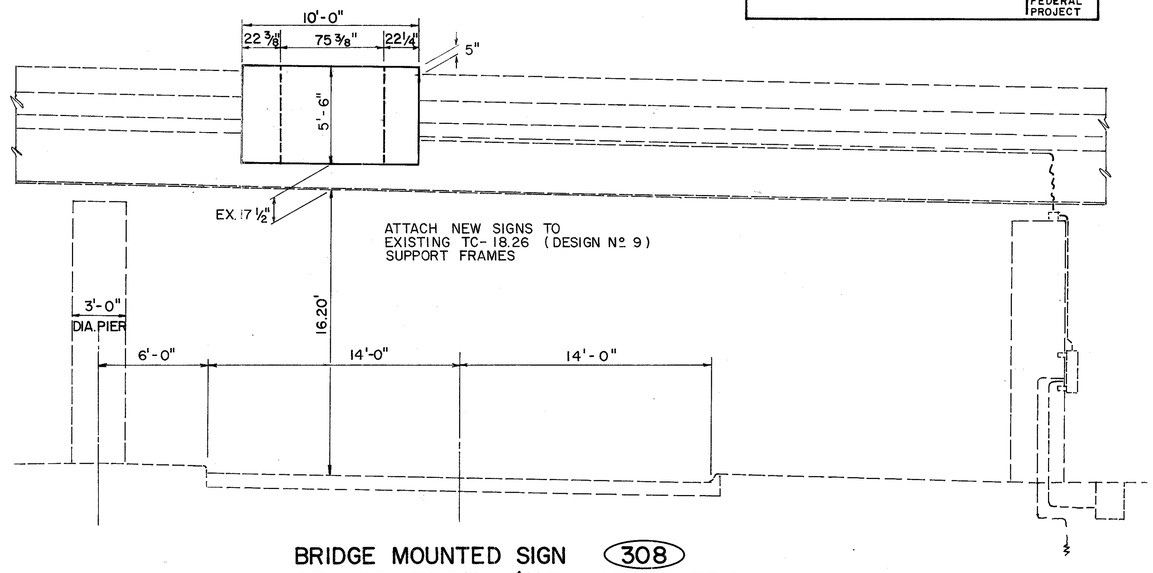


321

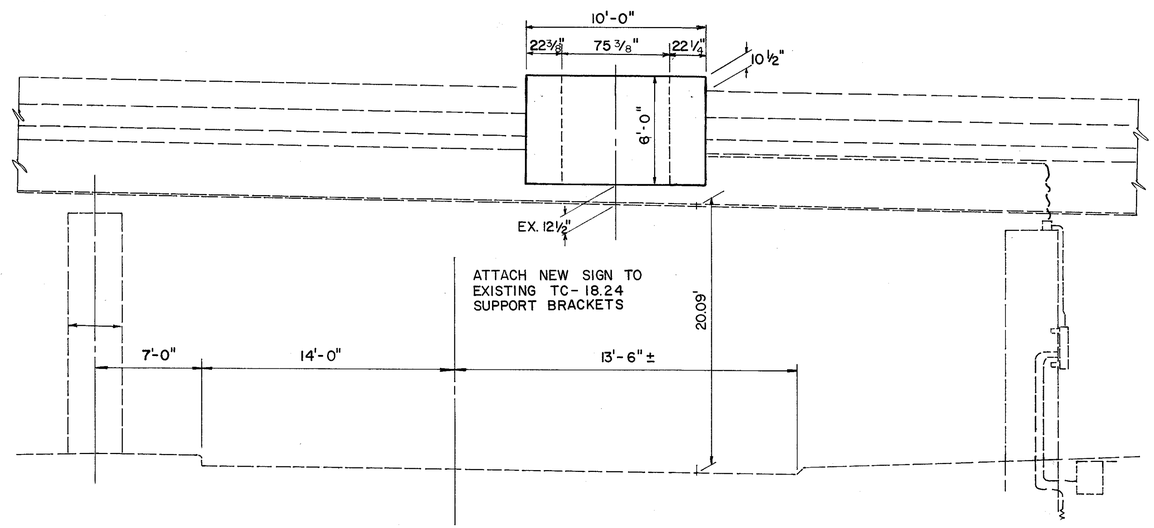
STATION 960+65 LEFT



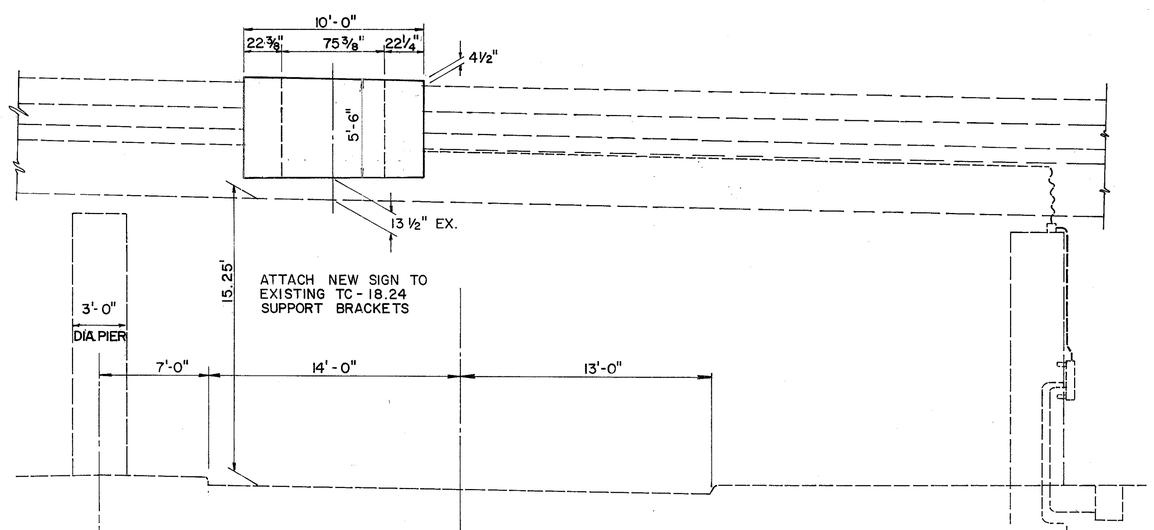
BRIDGE MOUNTED SIGN (309)
STA. 67+92 LT. (S.B. HARPER RD.)
NEW SIGN AND SIGN SUPPORT BRACKETS (WITH 6" EXTENSION)



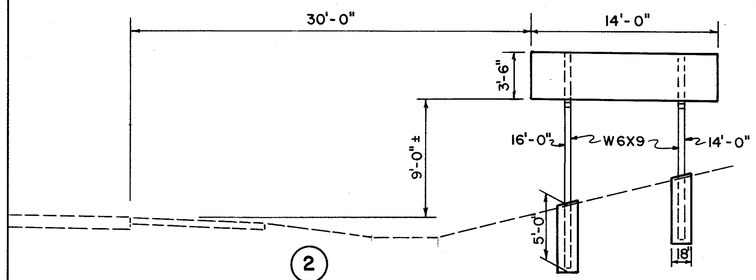
BRIDGE MOUNTED SIGN (308)
STA. 65+50 RT. (N.B. HARPER RD.)
NEW SIGN AND SIGN SUPPORT BRACKETS



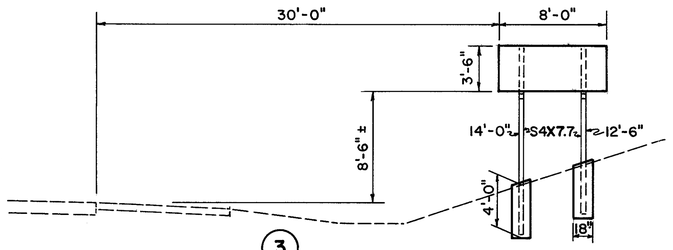
BRIDGE MOUNTED SIGN (325)
STA. 35+20 RT. (N.B. S.R. 91)
STA. 942+45 RT. (W.B. U.S. 422F)
NEW SIGN AND SIGN SUPPORT BRACKETS



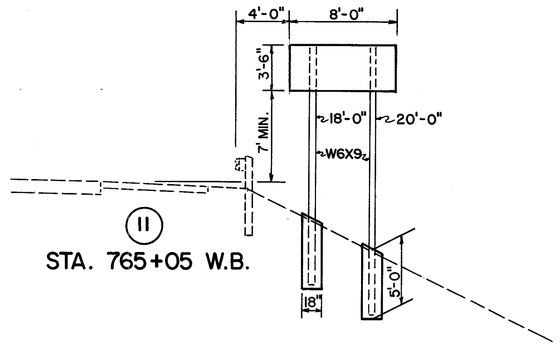
BRIDGE MOUNTED SIGN (324)
STA. 36+77 LT. (S.B. S.R. 91)
STA. 941+88 LT. (E.B. U.S. 422F)
NEW SIGN AND SIGN SUPPORTS BRACKETS



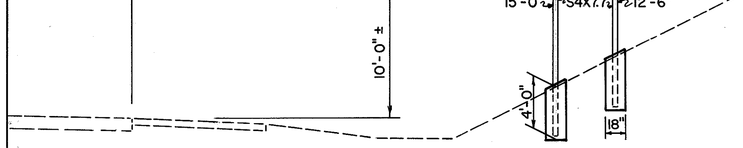
(2)
STA. 752+20 W.B.



(3)
STA. 753+00 E.B.

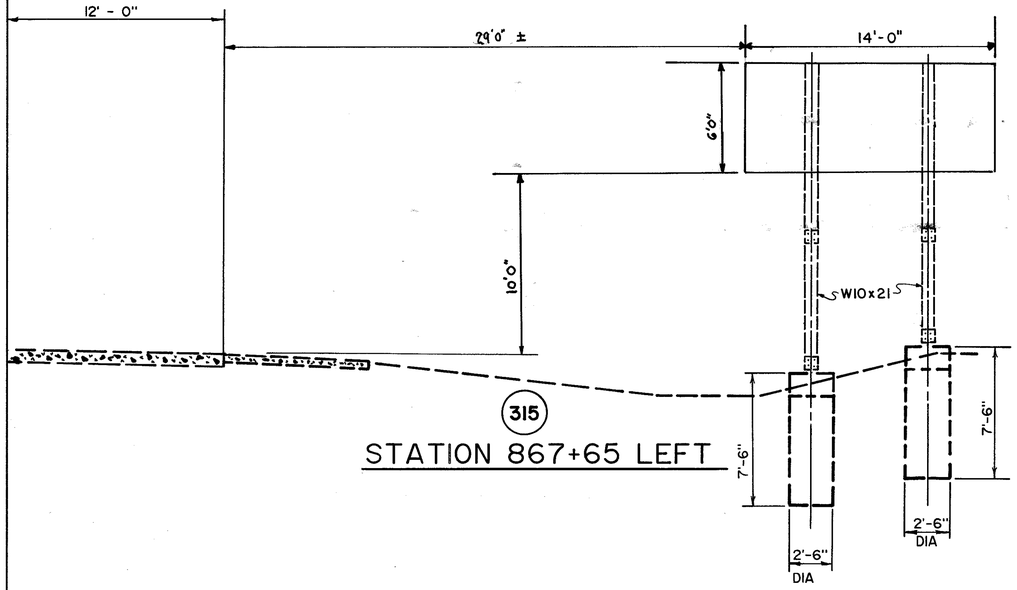


(11)
STA. 765+05 W.B.



(12)
STA. 767+00 E.B.

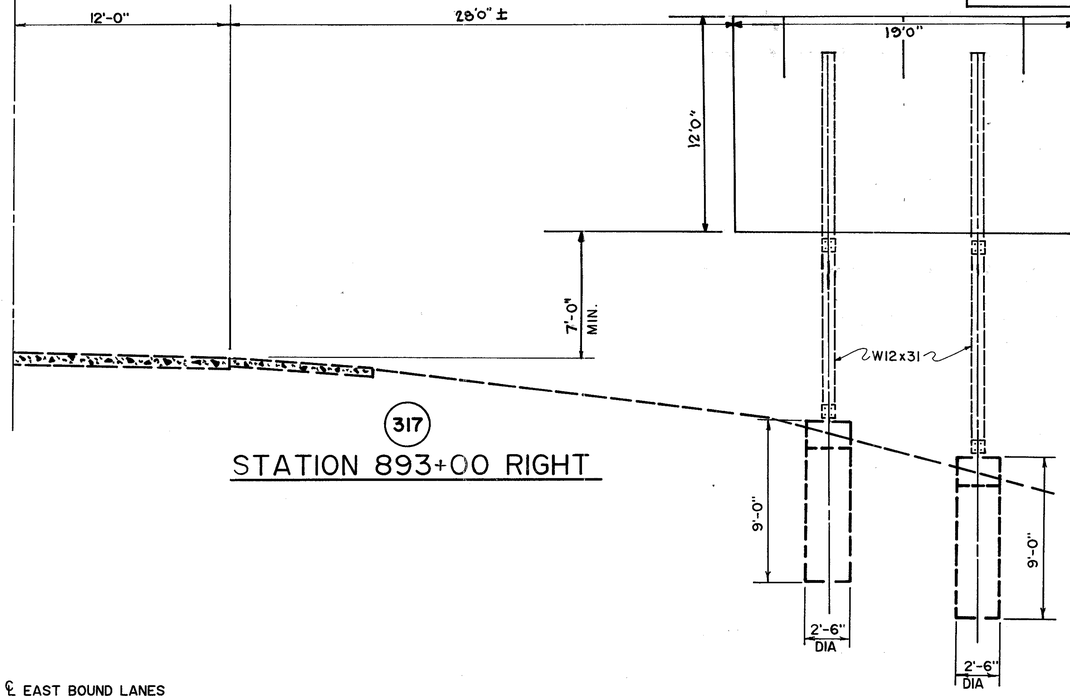
℄ WEST BOUND LANES



315

STATION 867+65 LEFT

℄ EAST BOUND LANES



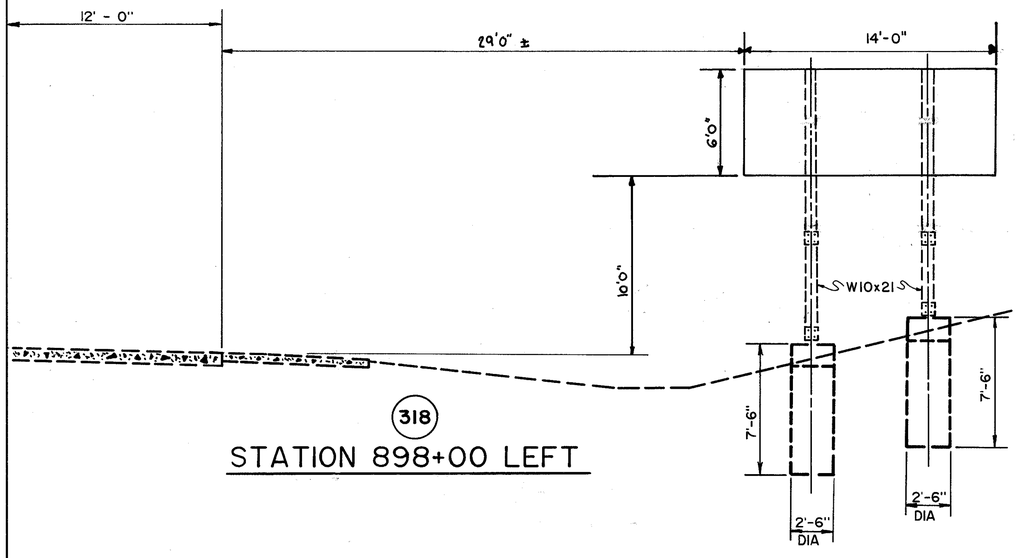
317

STATION 893+00 RIGHT

NOTES

1. NO CONNECTIONS SHALL BE MADE BETWEEN THE BREAKAWAY BEAMS AND THE EXTRUSHEET SIGN.
2. ANY PORTION OF THE EXTRUSHEET SIGN NOT CONNECTED TO THE BEAMS SHALL BE CONSIDERED TO BE A SUPPLEMENTAL PANEL AND SHALL BE SUPPORTED WITH NO. 3 POSTS AS PER NOTES 2 & 3 OF TC-42.10. (MINIMUM OF THREE)

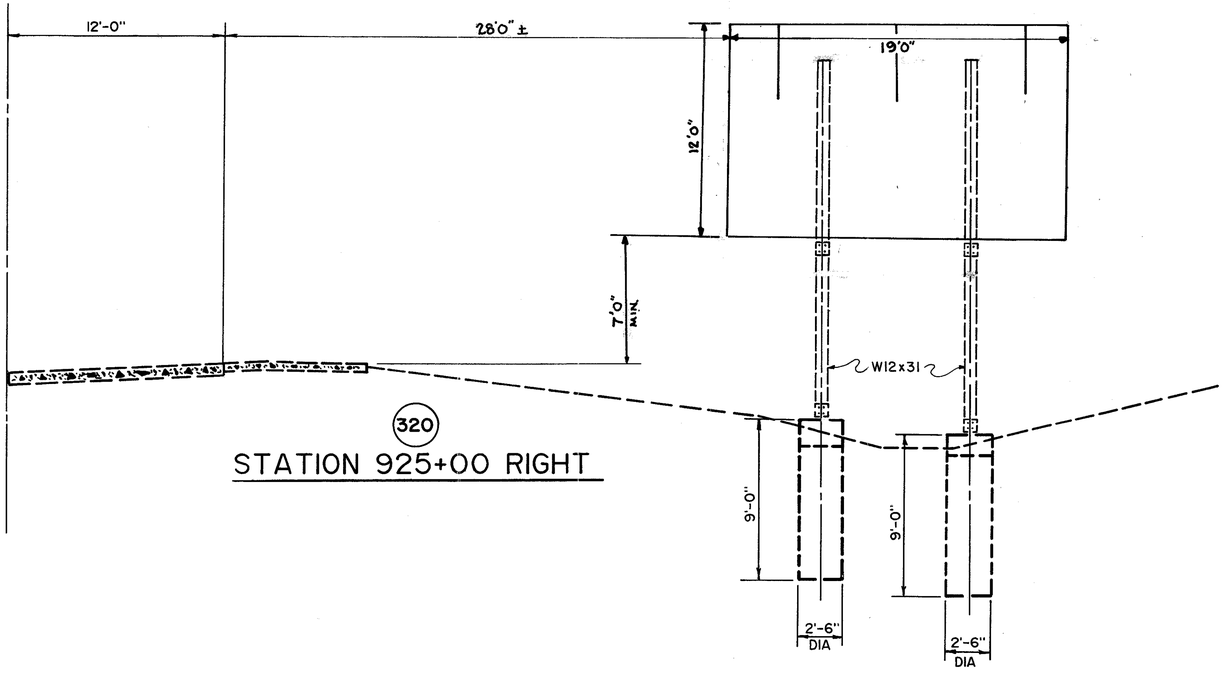
℄ WEST BOUND LANES



318

STATION 898+00 LEFT

℄ EAST BOUND LANES

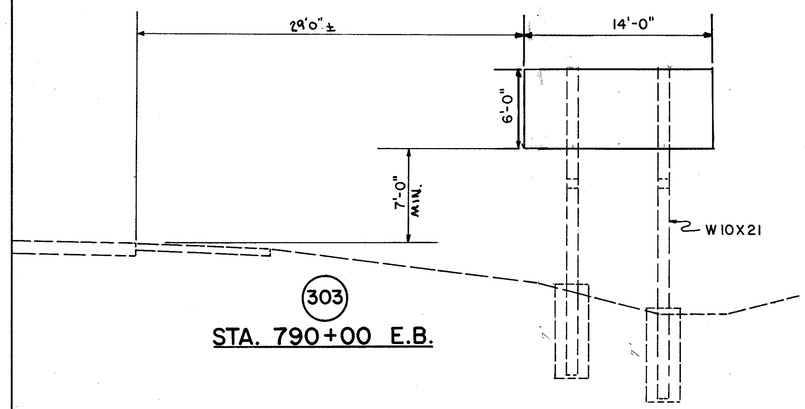


320

STATION 925+00 RIGHT

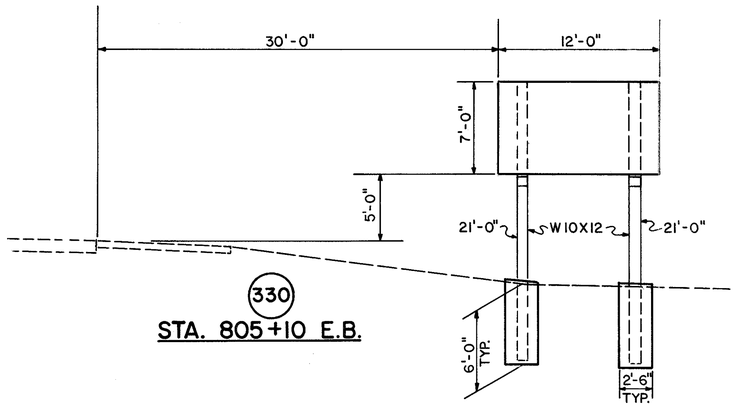
MAJOR GROUND MOUNTED SIGN DETAILS

CUYAHOGA COUNTY CUY-422F-0.51	OHIO	76 102
	FHWA REGION 5	
	FEDERAL PROJECT	



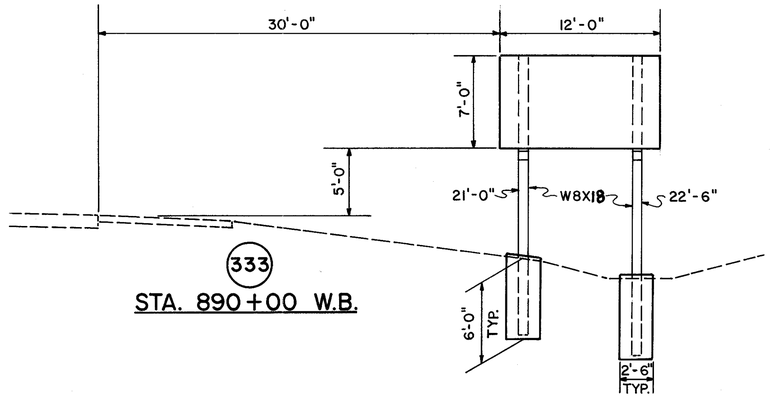
303

STA. 790+00 E.B.



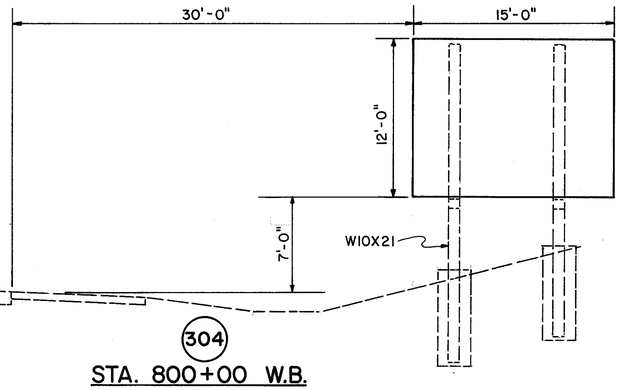
330

STA. 805+10 E.B.



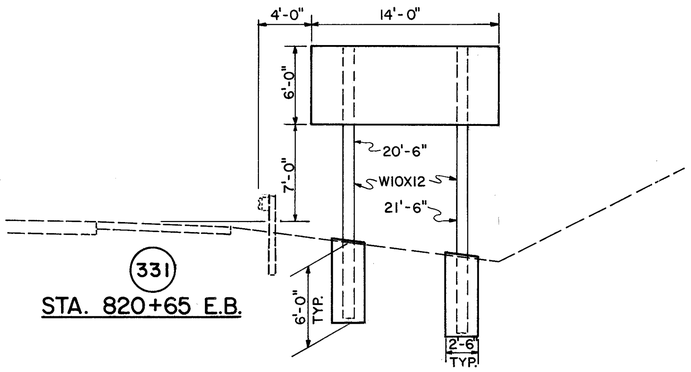
333

STA. 890+00 W.B.



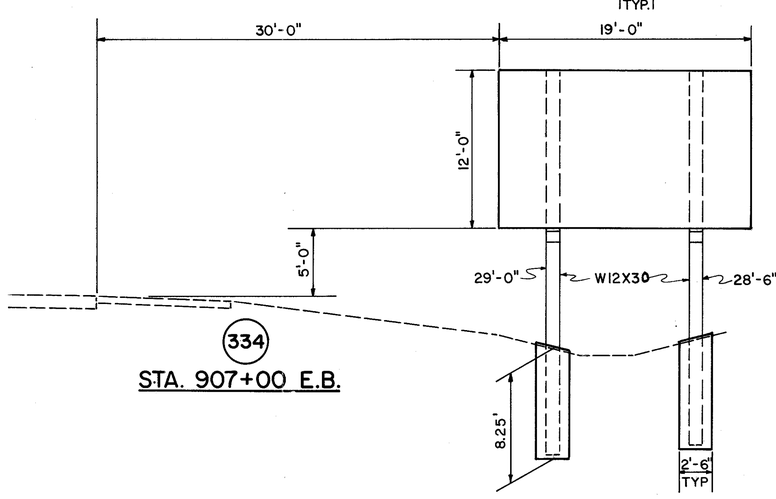
304

STA. 800+00 W.B.



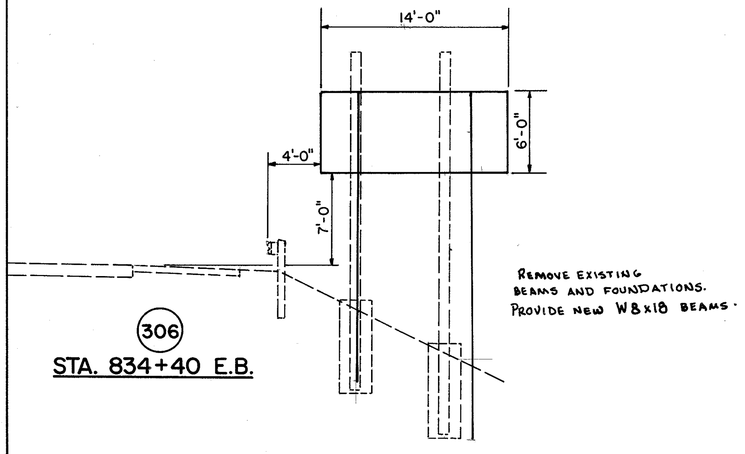
331

STA. 820+65 E.B.



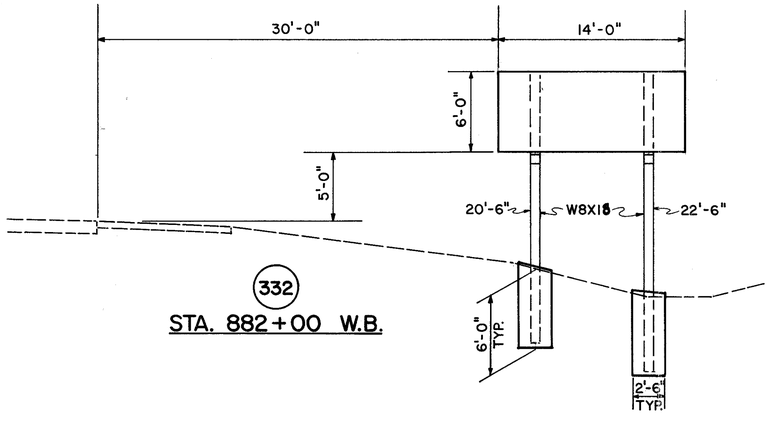
334

STA. 907+00 E.B.



306

STA. 834+40 E.B.



332

STA. 882+00 W.B.

MAJOR GROUND MOUNTED SIGN DETAILS

GENERAL NOTES

PROPOSED WORK

IT IS THE INTENT OF THESE PLANS TO REPLACE ANY EXISTING LIGHT STANDARDS WHICH WOULD HAVE AN INSUFFICIENT OFFSET FROM THE PAVED SHOULDER AS A RESULT OF SHOULDER WIDENING OPERATION.

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 CURCUIT
5.) REMOVE EXISTING LIGHT STANDARDS, FOUNDATIONS AND PULLBOXES

SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

REFERENCE SHALL BE MADE TO STANDARD CONSTRUCTION DRAWINGS LISTED ON THE TITLE SHEET OF THESE PLANS.

GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

CLEVELAND ELECTRIC ILLUMINATING COMPANY
55 PUBLIC SQUARE
CLEVELAND, OH 44101

THIS PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP WITH A MAXIMUM UNIFORMITY OF 4.0 TO 1 FOR CONVENTIONAL UNITS. 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, ITT AMERICAN 400, OR EQUAL APPROVED BY THE ENGINEER.

STYLE C LUMINAIRES SHALL HAVE SINGLE RATED 480 VOLT, 310 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS AND SHALL BE GENERAL ELECTRIC M-1000, CROUSE-HINDS OVL, ITT AMERICAN 1000, OR EQUAL APPROVED BY THE ENGINEER.

LAMPS-HIGH PRESSURE SODIUM (HPS)

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", WESTINGHOUSE "CERAMALUX", SYLVANIA "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER. 150 WATT HPS LAMPS SHALL BE OF THE 100 VOLT DESIGN, ANSI S56.

CABLE SPLICING KIT

THIS ITEM SHALL CONSIST OF PROVIDING AND INSTALLING AN APPROVED CABLE SPLICING KIT AS DESCRIBED IN PARAGRAPH 5 OF SECTION 713.15 OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE COST OF ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR THIS ITEM SHALL BE INCLUDED IN THE UNIT PRICE-BID FOR EACH "ITEM 625 - CABLE SPLICING KIT."

STANDARD CONSTRUCTION DRAWING HL-3

POLE BASE DETAILS SHOWN ON THIS DRAWING ARE ESSENTIALLY FOR GALVANIZED STEEL POLES. FOR ALUMINUM DESIGNS, OR OTHER PERMITTED STEEL MATERIAL DESIGNS, VARIATIONS FROM THESE DETAILS WILL BE ACCEPTABLE, AS APPROVED BY THE ENGINEER.

REMOVAL OF EXISTING ITEMS

SUPPLEMENTING ITEM 202 OF THE SPECIFICATIONS, THE CONTRACTOR SHALL REMOVE EXISTING ROADWAY LIGHTING UNITS, POLE AND FOUNDATION, AND THE ADJACENT PULLBOX WHERE DESCRIBED IN THE PLANS.

THE CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ON THE PROJECT, AT THE LOCATION SPECIFIED BY THE ENGINEER, THE LAMP AND LUMINAIRE ASSEMBLY FROM EACH LIGHT POLE UNIT, ALL TRANSFORMER KITS AND BASES AND CONNECTOR KITS, POLES, BRACKET ARMS AND OTHER ITEMS DEEMED SALVAGEABLE BY THE ENGINEER. CIRCUIT CABLE IS TO BE ABANDONED IN PLACE OR REMOVED AS DIRECTED IN THE PLANS. FOUNDATIONS TO BE REMOVED MAY BE REMOVED EITHER COMPLETELY OR TO NOT LESS THAN ONE FOOT BELOW FINISHED GRADE. PULL BOXES ARE TO BE ABANDONED IN PLACE IN A MANNER DESCRIBED IN 202.09. SALVAGEABLE LIGHTING MATERIALS REMOVED BY THE CONTRACTOR SHALL BE DELIVERED AND UNLOADED AT THE FOLLOWING ADDRESS:

OHIO DEPARMENT OF TRANSPORTATION
MR. JOSEPH MORAN
DISTRICT LIGHTING ENGINEER
RIVEREDGE YARD
GRAYTON ROAD
CLEVELAND, OHIO

ALL WORK SHALL BE PERFORMED BY THE CONTRACTOR.

REMOVAL OF EXISTING CABLE

WHEREVER NEW DUCT CABLE IS TO BE INSTALLED IN EXISTING CONDUIT THE EXISTING CABLE SHALL BE REMOVED. ALL COSTS OF SAID REMOVAL SHALL BE CONSIDERED AS INCIDENTAL TO THE PROPOSED DUCT CABLE ITEM.

HAZARDOUS MATERIAL

NO MATERIAL FURNISHED UNDER THIS SPECIFICATION SHALL CONTAIN POLYCHLORINATED BIPHENYLS (PCB'S). TRANSFORMERS, BALLASTS AND CAPACITORS SHALL BE MARKED "NO PCB'S" IN ACCORDANCE WITH FEDERAL ENVIRONMENTAL PROTECTION AGENCY REGULATION 40 CFR 761.

ITEM SPECIAL - PLASTIC CAUTION TAPE

THE LOCATION OF UNDERGROUND DUCT CABLE OR NON-METALLIC CONDUIT, WHEN INSTALLED IN LOCATIONS OTHER THAN THE NORMAL OR ALTERNATE TRENCH ALIGNMENT SHOWN ON STANDARD CONSTRUCTION DRAWING HL-1, SHALL BE MARKED BY THE USE OF A CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE LINE. THE IDENTIFYING TAPE SHALL BE AN INERT MATERIAL, APPROXIMATELY 6" WIDE, COMPOSED OF POLYETHYLENE PLASTIC, HIGHLY RESISTANT TO ALKALIS, ACID OR OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THE TAPE SHALL BE BRIGHT YELLOW WITH IDENTIFYING PRINTING "ELECTRIC" IN BLACK LETTERS, ONE SIDE ONLY. TAPES SHALL BE SUPPLIED IN CONTINUOUS ROLLS WITH THE IDENTIFYING LETTERING REPEATED CONTINUOUSLY THE FULL LENGTH OF THE TAPE. IDENTIFYING TAPES SHALL BE BURIED IN THE ELECTRIC LINE TRENCH WITH ONE STRIP PLACED APPROXIMATELY DOWN THE CENTERLINE AND LOCATED APPROXIMATELY 8" TO 12" BELOW THE FINAL FINISHED GRADE. THE TAPE SHALL BE PLACED IN THE TRENCH WITH PRINTED SIDE UP AND SHALL BE ESSENTIALLY PARALLEL WITH THE FINISHED SURFACE. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE TAPE IS NOT PULLED, DISTORTED, OR OTHERWISE MISPLACED IN COMPLETING THE TRENCH BACKFILL. TAPE SHALL BE ALLEN SYSTEM'S, TERRA TAPE, TECTA TAPE, OR EQUAL AS APPROVED BY THE ENGINEER.

THE TAPE SHALL BE PAID FOR PER LINEAL FEET OF "ITEM SPECIAL - PLASTIC CAUTION TAPE," COMPLETE AND IN PLACE.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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CUYAHOGA COUNTY

CUY - 422F - 0.51

GENERAL LIGHTING QUANTITIES

LINE No.	ITEM	SPEC. No.	STRUCTURES	ROADWAY	SHEET 79	ROADWAY TOTAL	ITEM	UNIT	LINE No.	DESCRIPTION
				4		4	202	EACH		PULLBOX REMOVED
				60		60	202	L.F.		ELECTRICAL CONDUIT REMOVED
				28		28	202	EACH		LIGHT POLE REMOVED
				28		28	202	EACH		LIGHT POLE FOUNDATION REMOVED
				25		25	603	L.F.		4" CONDUIT, TYPE E
				2		2	625	EACH		18" PULLBOX, 713.08
				38		38	625	EACH		CABLE SPLICING KIT
				30		30	625	EACH		CONNECTOR KIT, TYPE II
				30		30	625	EACH		CONNECTOR KIT, TYPE III
				2		2	625	EACH		15' BRACKET ARM
				1		1	625	EACH		20' BRACKET ARM
				2		2	625	EACH		LIGHT POLE FOUNDATION, 24" x 6' DEEP
				26		26	625	EACH		LIGHT POLE FOUNDATION, 24" x 8' DEEP
				28		28	625	EACH		GROUND ROD 713.16
				26		26	625	EACH		LIGHT POLE, DESIGN AT18B41.7
				2		2	625	EACH		LIGHT POLE, DESIGN AT25B34.2
				5		5	625	EACH		LUMINAIRE, STYLE B, TYPE II, 200 WATT HIGH PRESSURE SODIUM
				26		26	625	EACH		LUMINAIRE, STYLE C, TYPE II, 310 WATT HIGH PRESSURE SODIUM
				3654		3654	625	L.F.		№ 10 AWG POLE AND BRACKET CABLE
				8399		6399	625	L.F.		TRENCH, 24" DEEP
				8981		8981	625	L.F.		1 1/2" DUCT CABLE WITH 2 № 4 AWG 5000 VOLT CABLES
						LUMP	625			HIGH VOLTAGE TEST
					373	373	SPEC.	L.F.		PLASTIC CAUTION TAPE

LIGHTING QUANTITIES

FHWA	STATE	PROJECT	
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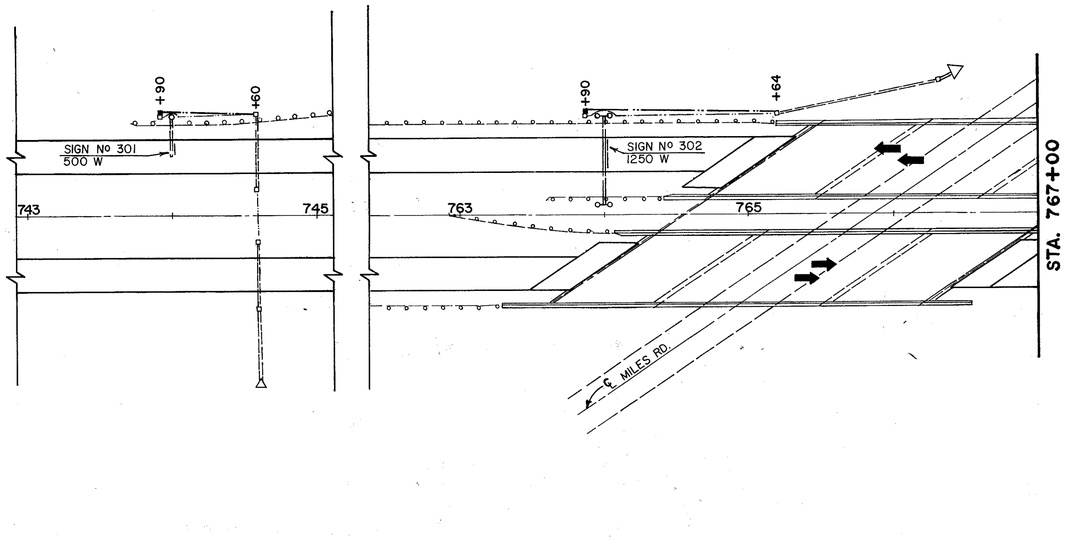
LINE NO.	PLAN SHEET NO.	LOCATION	FROM	TO	202 PULLBOX REMOVED EACH	202 ELECTRICAL CONDUIT REMOVED LIN. FT.	202 LIGHT POLE REMOVED EACH	202 LIGHT POLE FOUNDATION REMOVED EACH	603 4" CONDUIT TYPE E LIN.FT.	625 18" PULLBOX 713.08 EACH	625 CABLE SPLICE KIT EACH	625 CONNECTOR KIT, TYPE 11 EACH	625 CONNECTOR KIT, TYPE III EACH	625 15' BRACKET ARM EACH	625 20' BRACKET ARM EACH	SPECIAL PLASTIC CAUTION TAPE LIN.FT.	625 LIGHT POLE FOUNDATION 24"X6'DEEP EACH	625 LIGHT POLE FOUNDATION 24"X8'DEEP EACH	625 GROUND ROD 713.16 EACH	625 LIGHT POLE, DESIGN AT 18B 41.7 EACH	625 LIGHT POLE, DESIGN AT 25B 34.2 EACH	625 LUMINAIRE STYLE B TYPE 11, 200 WATT HIGH PRESSUE SODIUM EACH	625 LUMINAIRE STYLE C TYPE 11, 310 WATT HIGH PRESSURE SODIUM EACH	625 NO. 10 AWG POLE AND BRACKET CABLE LIN. FT.	625 TRENCH 24" DEEP LIN. FT.	625 1¼" DUCT CABLE WITH 2 NO. 4 AWG 5000 VOLT CABLES LIN. FT.
1	80	LT.	743+90	744+60	1				15	1	4															70	80
2	80	LT.	763+90	765+24	1				10	1	4															134	144
3	80	LT.	825+51				1	1																			
4	80	LT.	825+61	829+87								1	1					1	1	1				1	120	422	432
5	80	LT.	829+77				1	1																			
6	80	LT.	829+87	832+87							2	1	1					1	1	1				1	120	297	307
7	80	RT.	834+50				1	1																			
8	80	RT.	834+60	842+13								1	1					1	1	1				1	120	760	770
9	80	LT.	838+12				1	1																			
10	80	LT.	838+40	838+45	1	10					2					10										10	60
11	80	LT.	838+55	842+83								1	1					1	1	1				1	120	432	442
12	81	RT.	842+13	843+75							2	1	1					1	1	1				1	120	162	172
13	81	RT.	842+23				1	1																			
14	81	LT.	842+73				1	1																			
15	81	LT.	842+83	846+67							2	1	1					1	1	1				1	120	380	390
16	81	RT.	843+75	843+87							4	1	1			25		1	1	1				1	120	25	72
17	81	RT.	843+97				1	1																			
18	81	RAMP 5	850+55				1	1																			
19	81	RAMP 5	850+55	852+05								2	2			133	1		1		1	1			119	133	143
20	82	LT.	857+06			20	1	1																			
21	82	LT.	857+06	857+30								1	1			20		1	1	1				1	120	20	80
22	82	RAMP 3	857+20	859+04							2	1	1					1	1	1				1	120	184	194
23	82	RAMP 3	858+94				1	1																			
24	82	LT.	859+04	865+50								1	1					1	1	1				1	120	640	650
25	82	LT.	867+48				1	1																			
26	82	RAMP 4	859+50	863+38							2	1	1					1	1	1				1	120	388	398
27	82	RAMP 4	863+48				1	1																			
28	82	RT.	863+38	867+70								1	1					1	1	1				1	120	437	447
29	82	RT.	867+70	872+40								1	1					1	1	1				1	120	474	484
30	82	RT.	867+80				1	1																			
31	82	RT.	872+50				1	1																			
32	83	LT.	922+60	926+90								1	1					1	1	1				1	120	415	425
33	83	LT.	924+28				1	1																			
34	83	RT.	926+00	932+71								1	1					1	1	1				1	120	226	236
35	83	RT.	926+21				1	1																			
36	83	LT.	926+90	931+20								1	1					1	1	1				1	120	430	440
37	83	LT.	927+74				1	1																			
38	83	LT.	930+98				1	1																			
39	83	LT.	931+20	934+50							2	1	1					1	1	1				1	120	330	340
40	83	RAMP 7	932+71	934+15							2	1	1					1	1	1				1	120	134	144
41	83	RAMP 7	932+81				1	1																			
42	83	RT.	934+15	934+33								1	1			15		1	1	1				1	120	15	75
43	83	RT.	934+23			10	1	1																		50	90
44	83	LT.	934+50	935+00	1	10																					
45	83	LT.	935+00	939+00								1	1					1	1	1				1	120	400	410
46	83	LT.	935+82				1	1																			
47	84	LT.	939+00	940+93							2	1	1					1	1	1				1	120	193	203
48	84	LT.	939+15				1	1																			
49	84	RAMP 10	945+25	946+90								2	2			155	1		1		1	1			119	155	165
50	84	RAMP 10	945+40				1	1																			
51	85	LT.	951+23	952+85							2	1	1			15		1	1	1				1	120	150	215
52	85	LT.	951+33			10	1	1																			
53	85	LT.	952+75				1	1																			
54	85	LT.	952+85	954+90							2	1	1					1	1	1				1	120	215	225
55	85	RT.	955+95	957+00							2	1	1					1	1	1				1	120	110	120
56	85	RT.	956+47				1	1																			
57	85	RT.	957+00	961+20								1	1					1	1	1				1	120	408	418
58	85	LT.	957+30	959+30							2	1	1					1	1	1				1	120	200	210
59	85	LT.	959+24				1	1																			
60	85	RT.	959+92				1	1																			
61	81	HARPER	63+26											1									1		95		
62	81	HARPER	69+15											1									1		95		
63	84	S.R. 91	32+85												1								1		106		
64																											
65																											
66			TOTALS		4	60	28	28	25	2	38	30	30	2	1	373	2	26	28	26	2	5	26	3654	8399	8981
67																											

LIGHTING QUANTITIES

CUYAHOGA COUNTY CUY-422F-0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	80 102



STATION LOCATION
CIRCUIT NUMBER
POLE NUMBER

STA. 838+55, HRP 2A-03

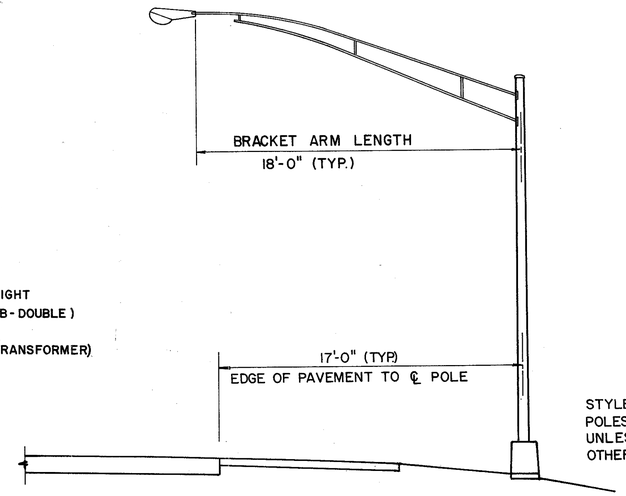
POLE AND LUMINAIRE DESCRIPTION

AT 18 B 41.7, 310 H.P.S. II

- IES DISTRIBUTION TYPE
- LAMP TYPE
- LAMP WATTS
- LUMINAIRE MOUNTING HEIGHT
- BRACKET (B-SINGLE, BB-DOUBLE)
- BRACKET ARM LENGTH
- BASE ('AT'- ALUMINUM TRANSFORMER)

LEGEND

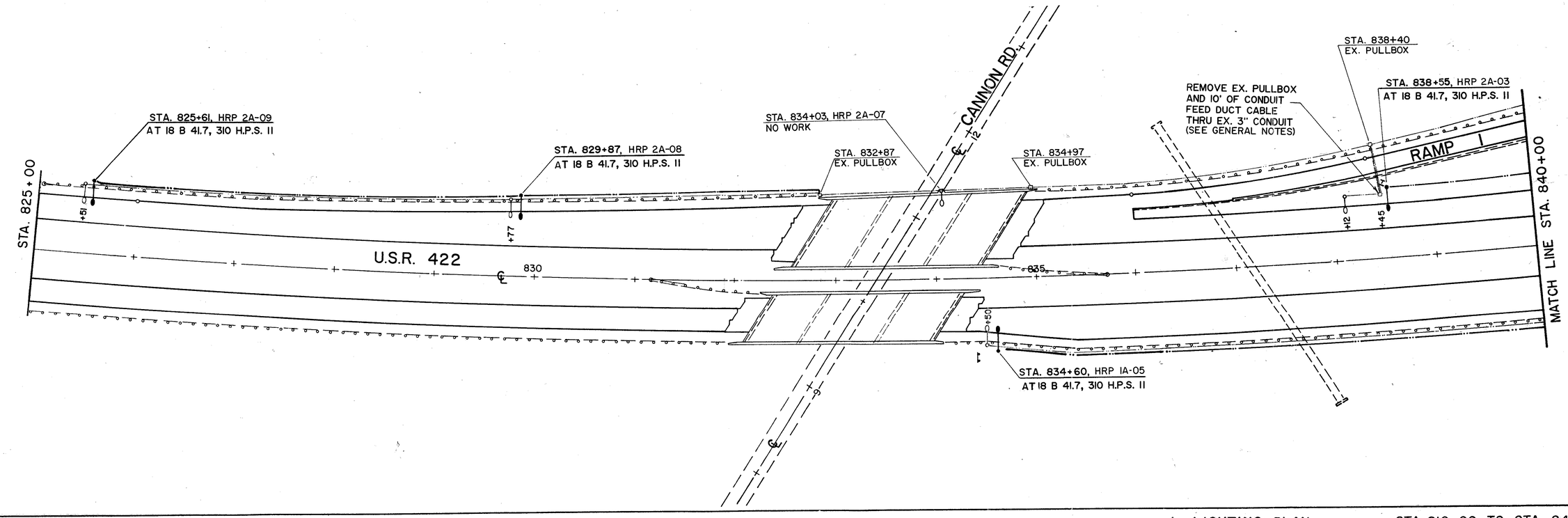
- EX. LIGHT POLE AND LUMINAIRE
- LIGHT POLE AND LUMINAIRE
- EXISTING CIRCUIT
- PROPOSED DUCT CABLE
- EXISTING PULLBOX
- PROPOSED PULLBOX
- PLASTIC CAUTION TAPE



STYLE III LIGHT POLES TYPICAL UNLESS SHOWN OTHERWISE.

TYPICAL POLE PLACEMENT

ALL LOCATIONS TYPICAL EXCEPT STA. 850+55 AND STA. 945+25



LIGHTING PLAN STA. 810+00 TO STA. 840+00

CUYAHOGA COUNTY	OHIO	81
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	FEDERAL PROJECT	

STA. 851+50, HRP 2B-10
NO WORK

STA. 857+00, HRP 2B-08
NO WORK

STA. 855+50, HRP 2B-09
NO WORK

STA. 858+50, HRP 2B-07
NO WORK

STA. 853+55, HRP 2B-11
NO WORK

STA. 860+00, HRP 2B-06
NO WORK

STA. 852+05, HRP 2B-12
NO WORK

STA. 861+50, HRP 2B-05
NO WORK

STA. 64+50, HRP 2B-03
NO WORK

STA. 850+55, HRP 2B-13
AT 25 B 342, 200 H.P.S. II
(STYLE II POLE)

STA. 65+65, HRP 2B-04
NO WORK

EXISTING CONTROL CENTER "HRP 2"
ON CEI POLE #800750
STA. 60+67, 54' LT.

STA. 844+62, HRP 2B-02
NO WORK

STA. 62+00 HRP 2B-01
NO WORK

STA. 60+75, HRP 2A-01
NO WORK

HRP 2A-02
STA. 63+26, 54' RT.
15B33.8, 200 H.P.S. II
(BRACKET ARM & LUM. ONLY)
SIGN № 307, 175 W

STA. 846+67
EX. PULLBOX

SIGN № 308
100 W

STA. 849+05, HRP 2A-06
NO WORK

HRP 1B-03
STA. 69+15, 53' LT.
15B33.8, 200 H.P.S. II
(BRACKET ARM & LUM. ONLY)
SIGN № 310, 350 W

SIGN № 309
100 W

STA. 842+83, HRP 2A-04
AT 18 B 41.7, 310 H.P.S. II

STA. 847+07, HRP 2A-05
NO WORK

STA. 843+87, HRP 1A-03
AT 18 B 41.7, 310 H.P.S. II

STA. 842+13 HRP 1A-04
AT 18 B 41.7, 310 H.P.S. II

STA. 844+07, HRP 1A-02
NO WORK

FEED DUCT CABLE
THRU EX. 3" CONDUIT

STA. 849+52, HRP 1A-01
NO WORK

EXISTING CONTROL CENTER "HRP 1"
STA. 71+85, 75' LT.

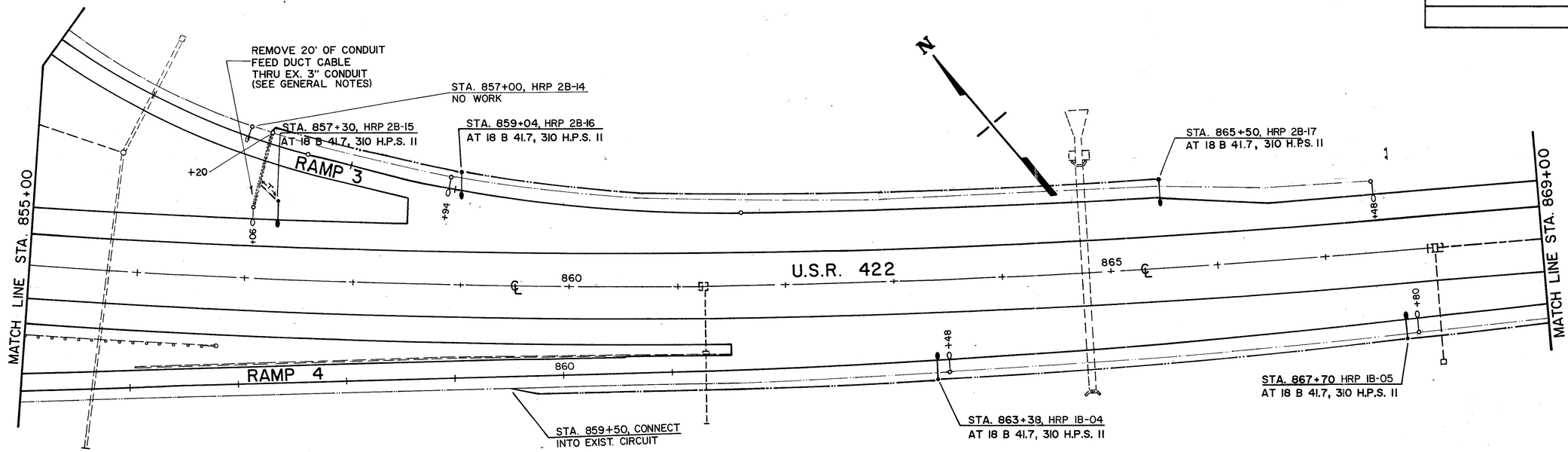
STA. 72+00, HRP 1B-02
NO WORK

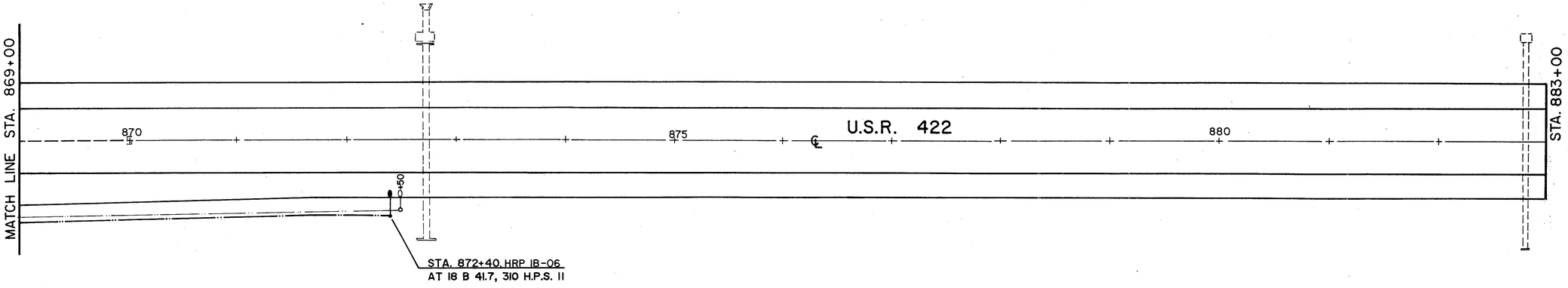
STA. 70+60, HRP 1B-01
NO WORK

RAMP 1
RAMP 2
RAMP 3
RAMP 4
RAMP 5
HARPER RD.
U.S.R. 422
MATCH LINE STA. 840+00
MATCH LINE STA. 855+00

LIGHTING PLAN STA. 840+00 TO STA. 855+00

CUYAHOGA COUNTY	OHIO	82
CUY-422F-0.51	FHWA REGION 5	102
	FEDERAL PROJECT	

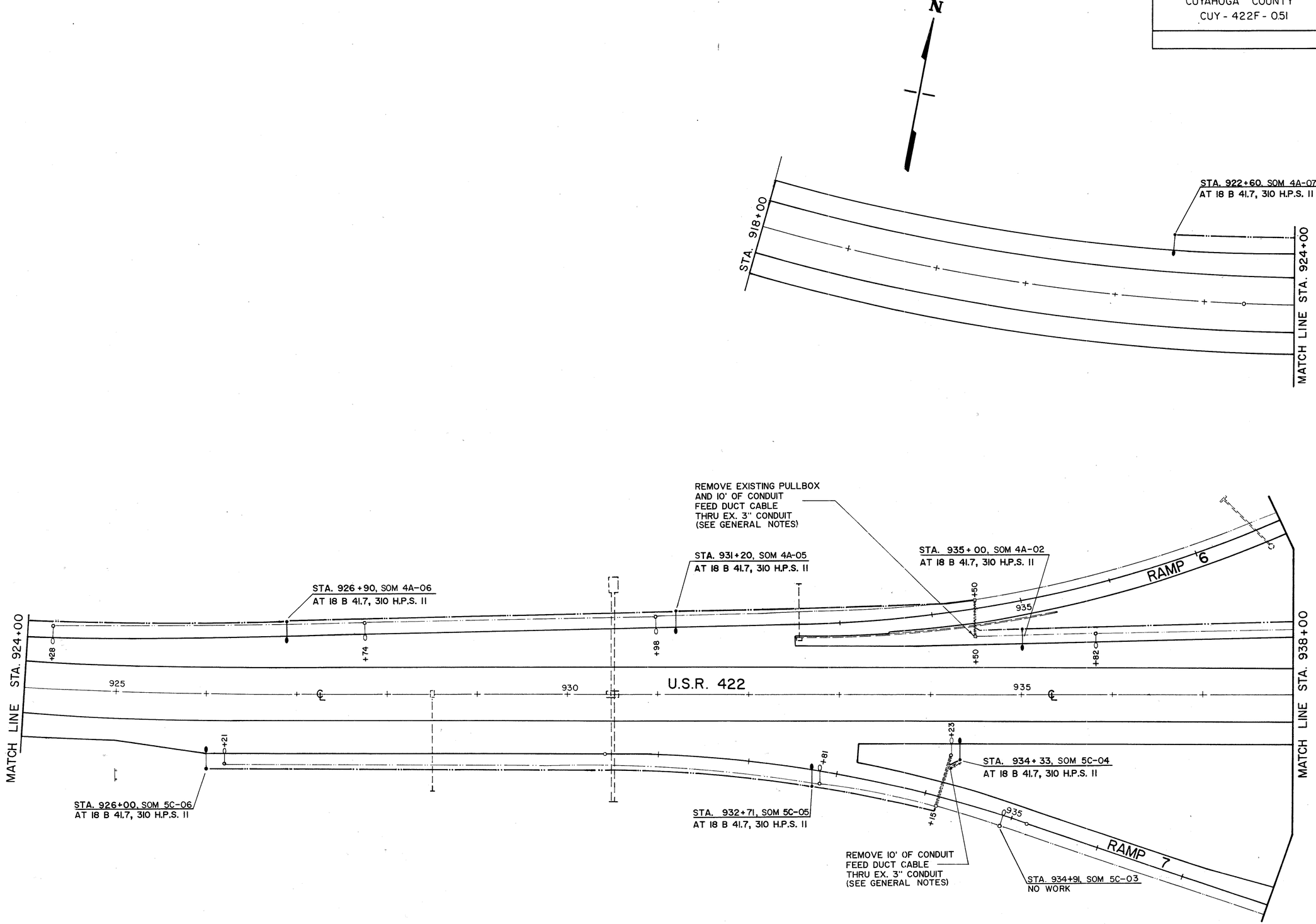




LIGHTING PLAN

STA 855+00 TO STA 883+00

CUYAHOGA COUNTY	OHIO
CUY - 422F - 0.51	FHWA REGION 5
	FEDERAL PROJECT



LIGHTING PLAN STA. 911+00 TO 938+00

CUYAHOGA COUNTY CUY- 422F - 0.51	OHIO	84 102
	FHWA REGION 5	
	FEDERAL PROJECT	

MATCH LINE STA. 938+00

RAMP 6

U.S.R. 422

STA. 939+00, SOM 4A-03
AT 18 B 41.7, 310 H.P.S. II

STA. 941+70, SOM 4A-01
NO WORK

STA. 42+40, SOM 4B-02
SIGN Nº 323, 100 W

STA. 40+86, SOM 4B-01
NO WORK

STA. 42+05, SOM 2B-01
NO WORK

SOM CENTER RD.

STA. 940+60, 80' LT.
CONTROL CENTER SOM 2 & 4

STA. 40+30, SOM 2B-02
NO WORK

STA. 941+03, SOM 2A-01
NO WORK

SIGN Nº 324
+100 W (U.P.)

STA. 921+41, SOM 5C-02
NO WORK

RAMP 7

STA. 38+17, SOM 2B-03
NO WORK

STA. 942+38, SOM 4A-04
NO WORK

STA. 954+94, SOM 2B-04
NO WORK

STA. 953+44, SOM 2B-05
NO WORK

STA. 951+95, SOM 2B-06
NO WORK

STA. 31+35, SOM 5C-01
NO WORK

S.R. 91

SIGN Nº 325
100 W
+500 W (U.P.)

STA. 32+85, 55' RT., SOM 5B-02
20B34.2, 200 H.P.S. II
(BRACKET ARM & LUM. ONLY)
SIGN Nº 326, 350 W

STA. 950+45, SOM 2B-07
NO WORK

STA. 30+65, SOM 5B-01
NO WORK

STA. 30+00, 65' RT.
CONTROL CTR. SOM 5

STA. 945+25, SOM 2B-10
AT 25 B 34.2, 200 H.P.S. II
(STYLE II POLE)

STA. 948+90, SOM 2B-08
NO WORK

STA. 946+90, SOM 2B-09
NO WORK

RAMP 9

RAMP 10

RAMP 8

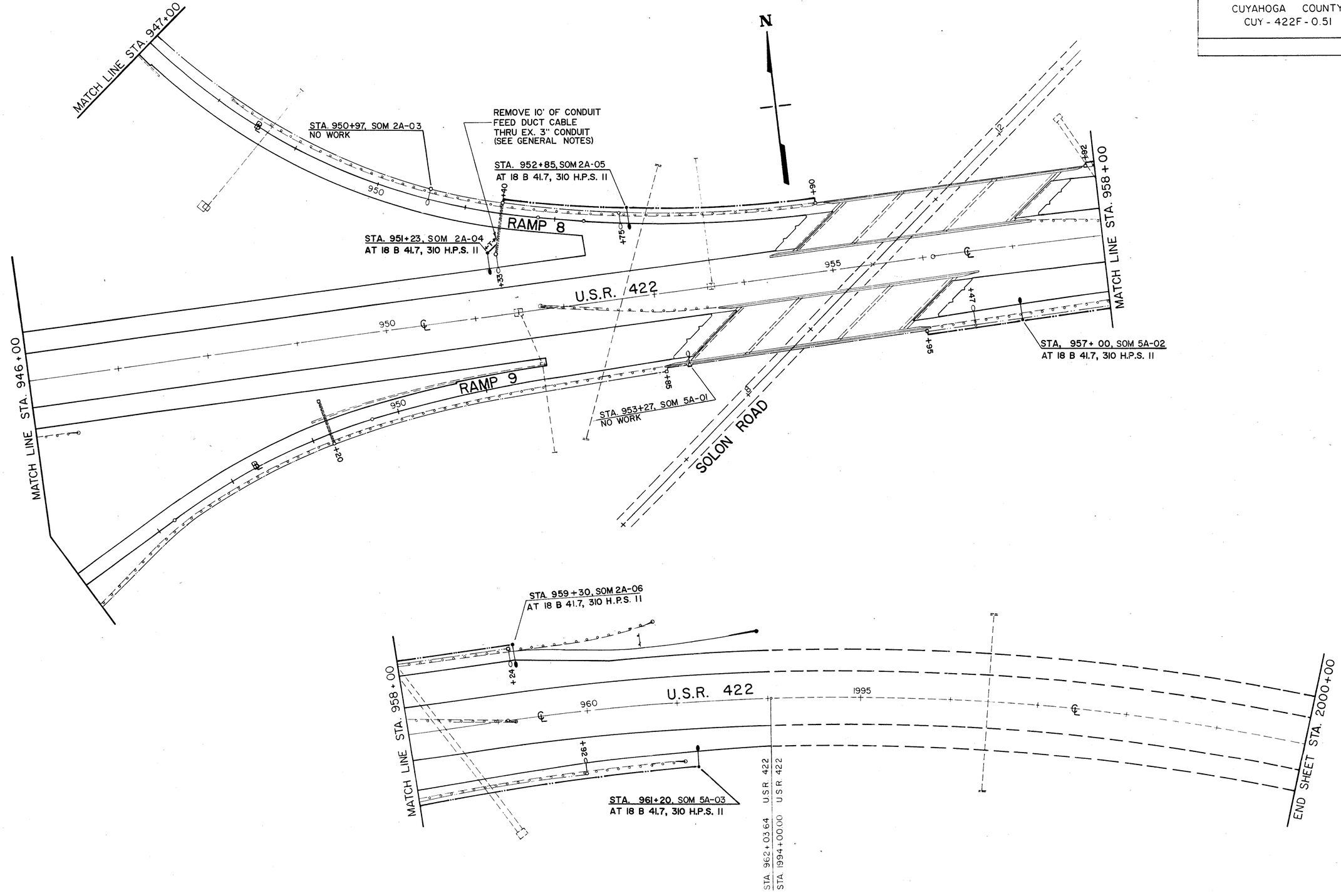
MATCH LINE STA. 946+00

MATCH LINE STA. 947+00

STA. 946+21, SOM 2A-02
NO WORK

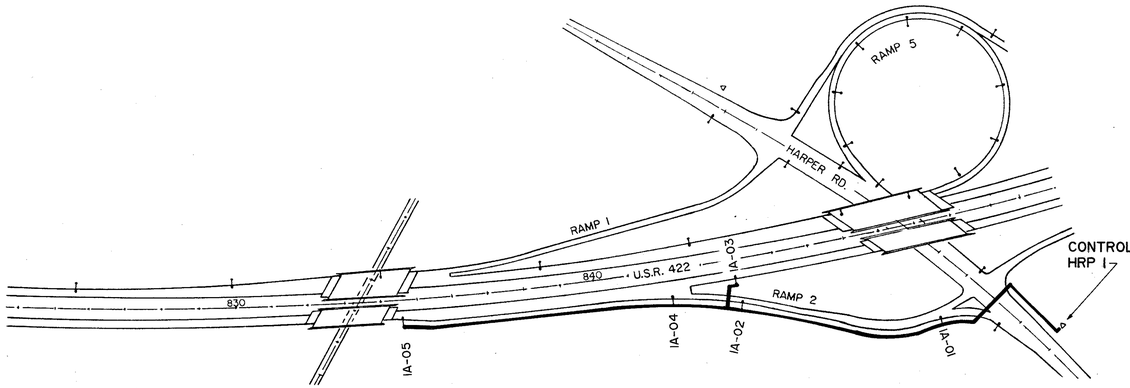
LIGHTING PLAN STA. 938+00 TO STA. 946+00

CUYAHOGA COUNTY CUY - 422F - 0.51	OHIO FHWA REGION 5 FEDERAL PROJECT	85 102



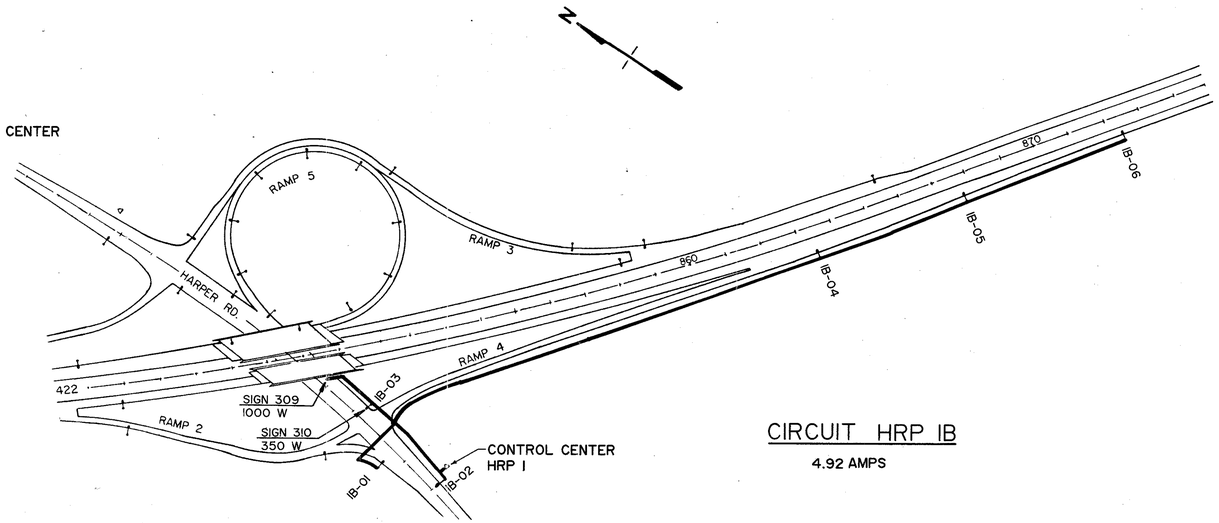
LIGHTING PLAN STA. 946+00 TO STA. 2000+00

CUYAHOGA COUNTY CUY-422F-0.51	OHIO	86 102
	FHWA REGION 5	
	FEDERAL PROJECT	



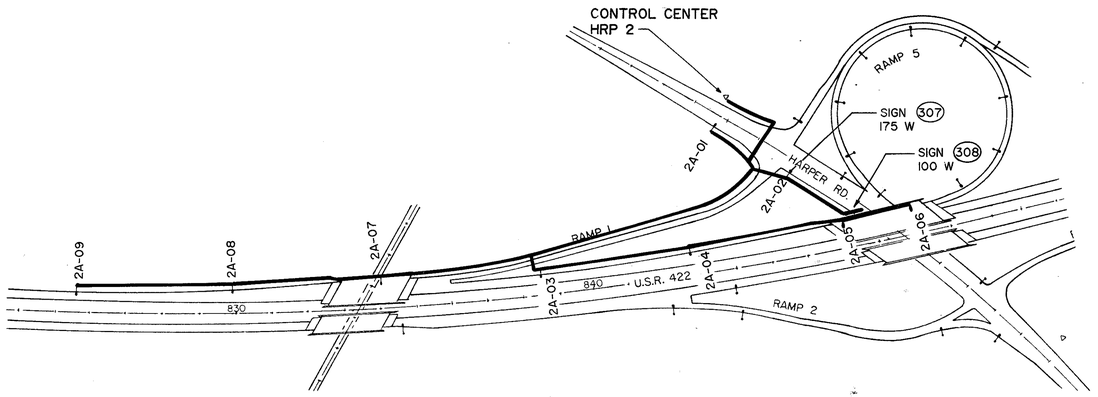
CIRCUIT HRP 1A

3.46 AMPS



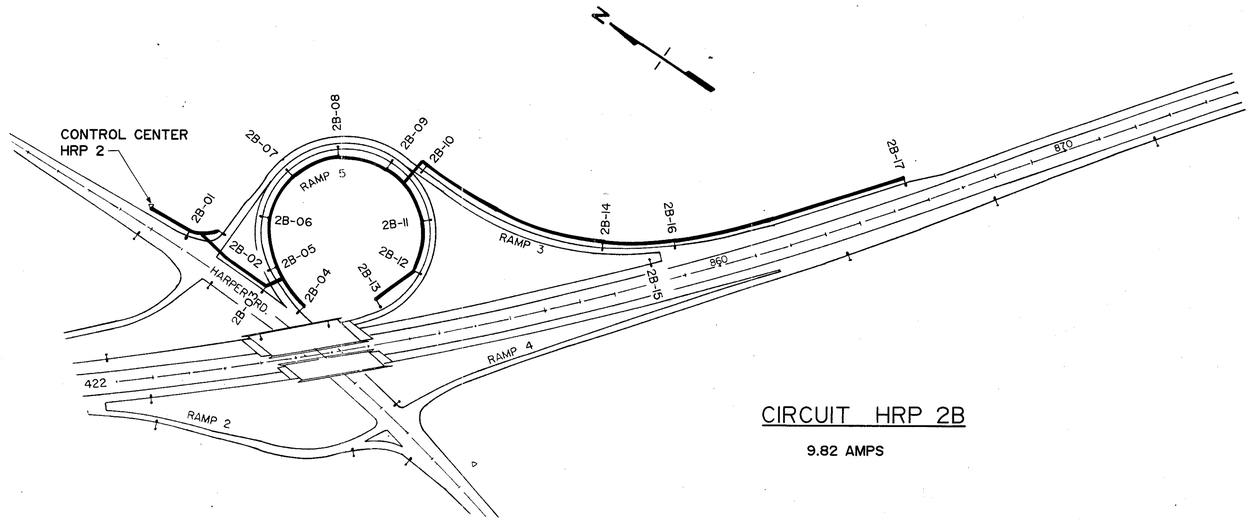
CIRCUIT HRP 1B

4.92 AMPS



CIRCUIT HRP 2A

7.23 AMPS

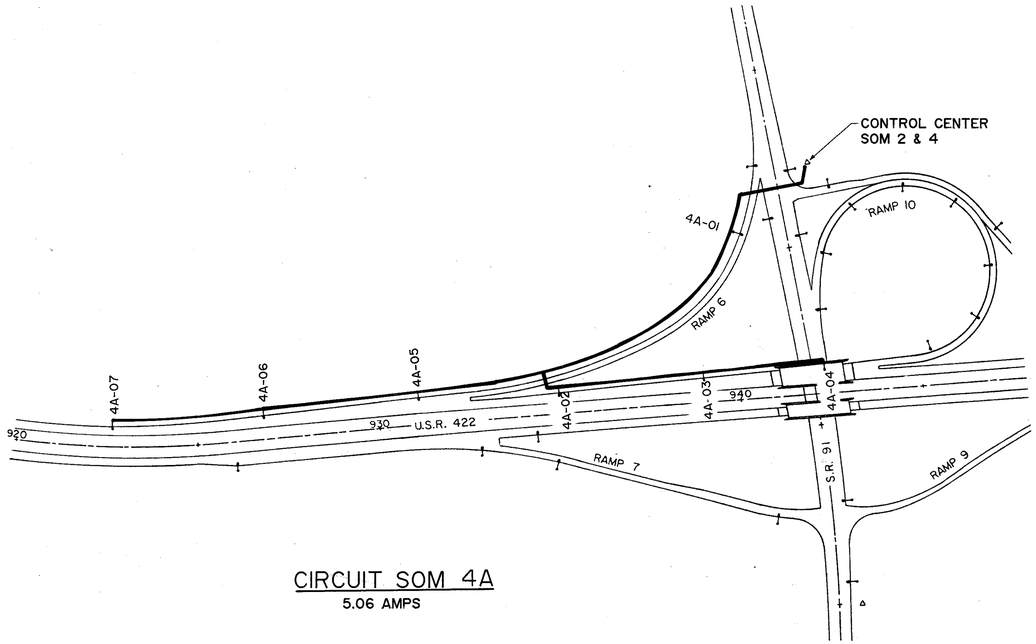


CIRCUIT HRP 2B

9.82 AMPS

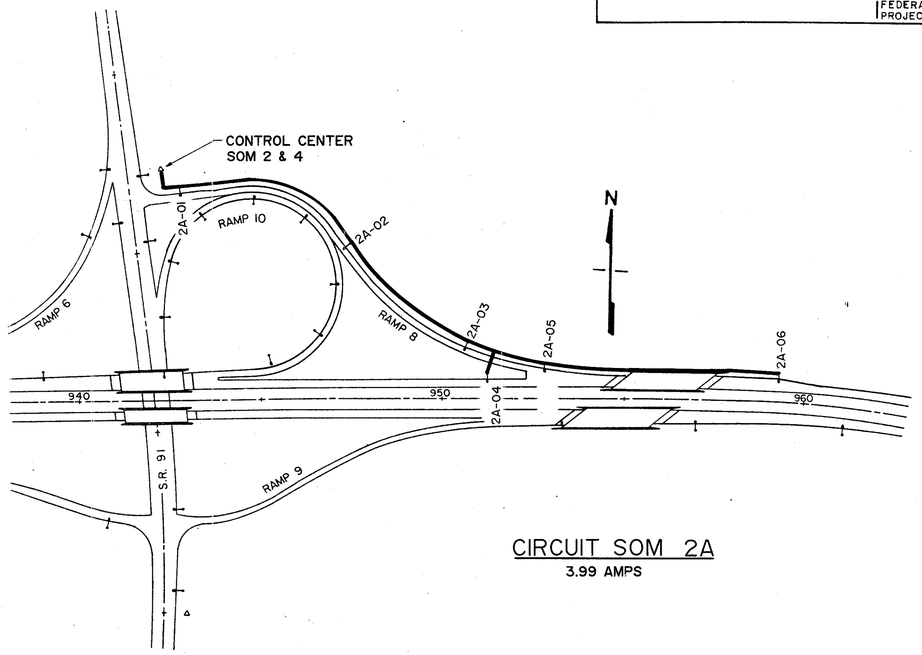
CIRCUIT MAPS

CUYAHOGA COUNTY CUY-422F-0.51	OHIO	87 102
	FHWA REGION 5	
	FEDERAL PROJECT	



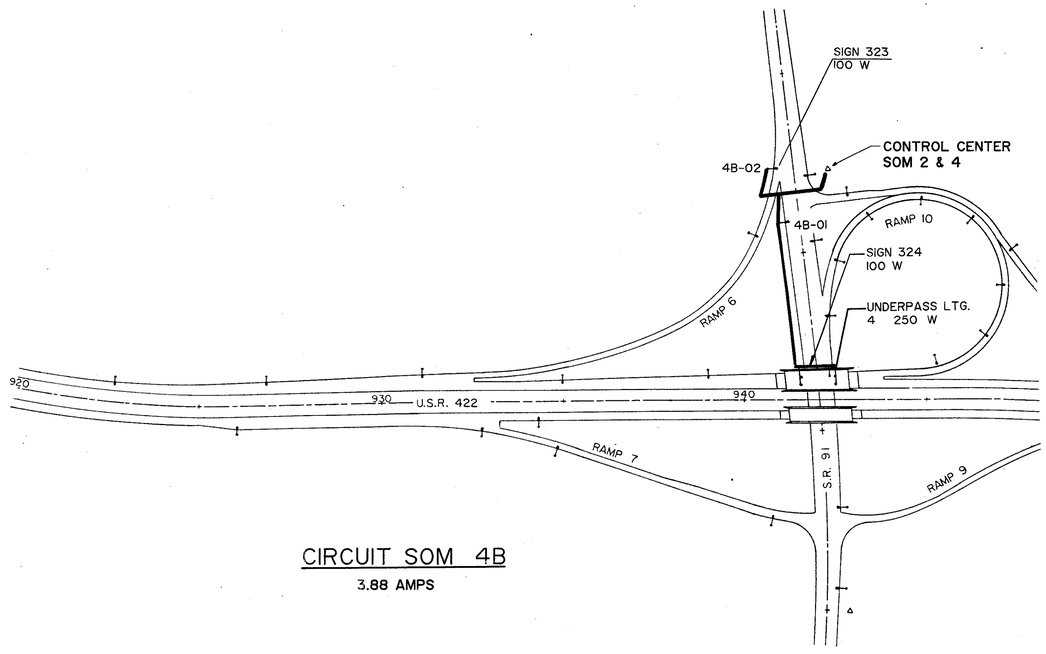
CIRCUIT SOM 4A

5.06 AMPS



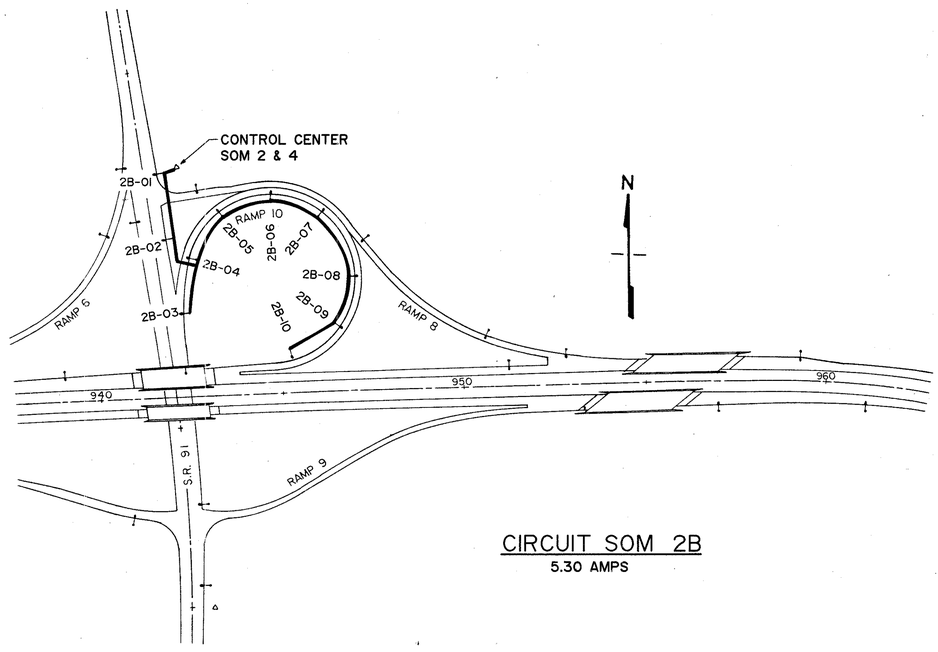
CIRCUIT SOM 2A

3.99 AMPS



CIRCUIT SOM 4B

3.88 AMPS



CIRCUIT SOM 2B

5.30 AMPS

CIRCUIT MAPS

CUYAHOGA COUNTY CUY-422F-0.51	OHIO
	FHWA REGION 5
	FEDERAL PROJECT

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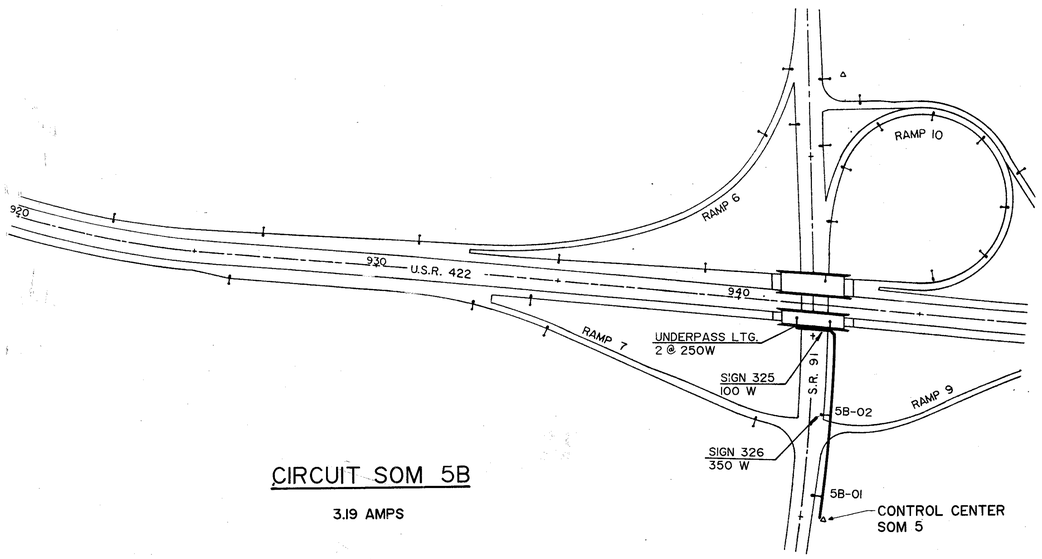
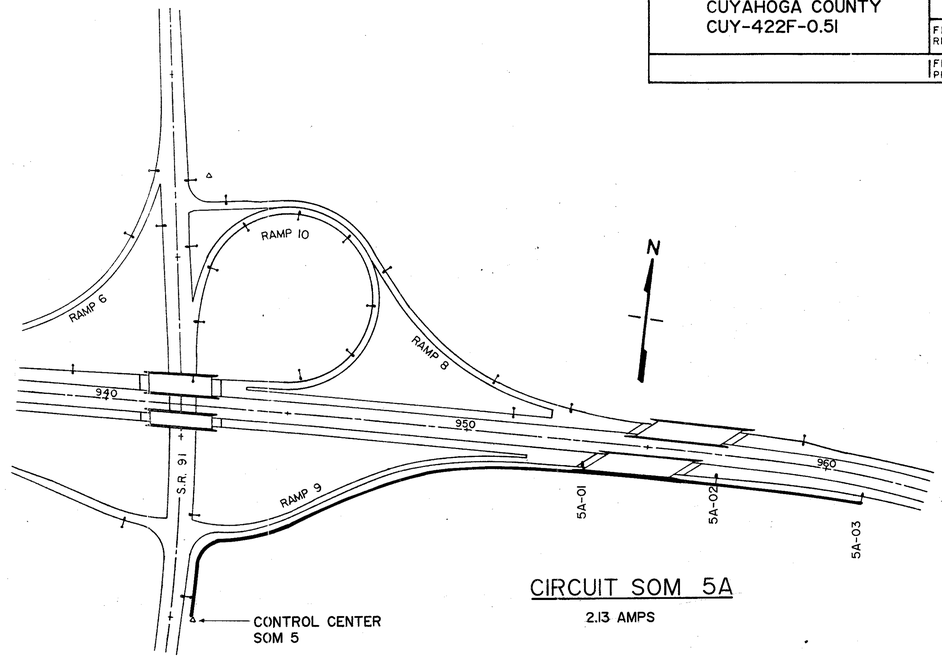


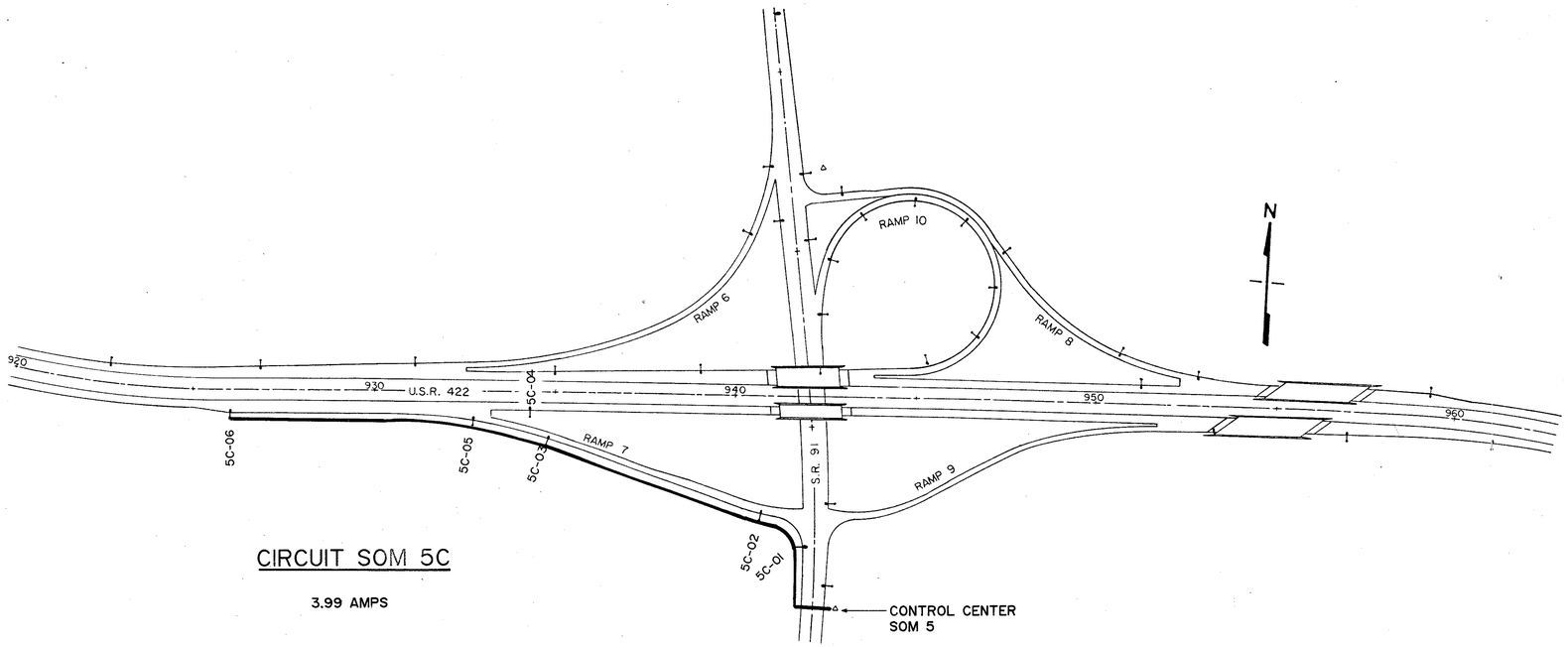
CIRCUIT SOM 5B

3.19 AMPS



CIRCUIT SOM 5A

2.13 AMPS



CIRCUIT SOM 5C

3.99 AMPS

CIRCUIT SUMMARY

CIRCUIT \ LAMP / OPERATING AMPS	200W H.P.S. 0.53	310W H.P.S. 0.80	100W M.V. 0.21	175W M.V. 0.36	250W M.V. 0.60	TOTAL LOAD (AMPS)
HRP 1A	2	3				3.46
HRP 1B	3	3	1	2		4.92
HRP 2A	2	7	1	1		7.23
HRP 2B	14	3				9.82
SOM 2A	3	3				3.99
SOM 2B	10					5.30
SOM 4A	2	5				5.06
SOM 4B	2		2		4	3.88
SOM 5A	1	2				2.13
SOM 5B	2		1	2	2	3.19
SOM 5C	3	3				3.99

GENERAL NOTES

CUY-422F-0.51 STRUCTURES

FHWA REGION	STATE	PROJECT	
5	OHIO		

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SCOPE OF PROPOSED WORK

1. REPLACE THE EXISTING ASPHALT BRIDGE WEARING COURSE WITH A SUPER-PLASTICIZED DENSE CONCRETE OVERLAY (ALL WESTBOUND MAINLINE BRIDGES)
2. REPLACE THE EXISTING ASPHALT BRIDGE WEARING COURSE WITH A MICROSILICA CONCRETE OVERLAY. (ALL EASTBOUND MAINLINE BRIDGES)
3. SEAL EXISTING FULL DEPTH DECK CRACKS WITH HIGH MOLECULAR WEIGHT METHACRYLATE RESIN PRIOR TO OVERLAYING.
4. PLUG EXISTING ASPHALT DRAINS ON ALL BRIDGES.
5. PATCH ANY UNSOUND CONCRETE ON PIERS, ABUTMENTS, WINGWALLS, PARAPETS ETC. (ALL BRIDGES)
6. SEAL ALL CONCRETE SURFACES EXPOSED TO DEICING SALTS (ALL BRIDGES).
7. RESET BEARINGS, BR. NOS. CUY-422F-0115 L&R & CUY-422F-0451 L&R.
8. REPAIR DAMAGED STRUCTURAL STEEL, BR. NOS. CUY-422F-0222 & CUY-422F-451L.

CONCRETE BRIDGE DECK OVERLAY SEQUENCE

1. REMOVE EXISTING ASPHALT AND WATERPROOFING (ITEM 202-WEARING COURSE REMOVED).
2. ENGINEER SHALL DETERMINE AREAS TO BE CRACK SEALED BASED UPON VISUAL UNDERDECK SURVEY.
3. CLEAN AREAS TO BE SEALED, PREPARE SURFACE AND PLACE HMWM SEALER (ITEM SPECIAL - TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN).
4. SCARIFICATION OF THE ENTIRE DECK, REMOVAL OF UNSOUND CONCRETE, PREPARATION OF SURFACE, PLACEMENT AND CURING OF OVERLAY (CONCRETE OVERLAY PAY ITEMS).

LIMITATION OF OPERATIONS FOR STRUCTURE WORK

THE CONTRACTOR'S ACTIVITIES AND WORK SCHEDULE SHALL BE CONSTRAINED BY THE FOLLOWING SPECIAL LIMITATIONS:

(1) NO LANE CLOSURES SHALL BE IMPLEMENTED OR IN PLACE DURING THE PERIOD BEGINNING NOVEMBER 15TH AND ENDING MARCH 15TH.

(2) NO CONCRETE OVERLAY OPERATIONS OR CONCRETE PATCHING AND SEALING OPERATIONS SHALL BE PERFORMED DURING THE PERIOD BEGINNING OCTOBER 15TH AND ENDING APRIL 15TH.

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 102.05 AND 105.02.

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; 10100 BROADWAY AVENUE; GARFIELD HEIGHTS, OHIO.

ITEM 202 - SUBDRAINAGE FOR WEARING COURSE 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 INCH PVC DRAIN TUBES AS FOLLOWS:

1) WITH PROPOSED CONCRETE OVERLAY - DRIVE A RUBBER OR CORK STOPPER INTO THE PVC PIPE FLUSH OR BELOW THE CONCRETE SURFACE.

2) WITH EXISTING ASPHALT OVERLAY TO REMAIN-DRIVE A RUBBER O R CORK STOPPER INTO THE OVC PIPE AT LEAST 1 INCH BELOW THE CONCRETE SURFACE AND FILL THE REMAINING VOID WITH EPOXY GROUT.

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

ITEM 202 - WEARING COURSE REMOVED, AS PER PLAN

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

ITEM 519- PATCHING CONCRETE STRUCTURES, AS PER PLAN
ITEM SPECIAL- PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR

THESE ITEMS SHALL BE USED AS DIRECTED BY THE ENGINEER TO REPAIR DAMAGED CONCRETE AREAS OUTLINED BY THE ENGINEER.

GENERALLY, ITEM SPECIAL - PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR MAY BE USED WHERE THE SURFACE TO BE REPAIRED CANNOT READILY BE FORMED AND POURED AND THE REPAIR DEPTH IS 1 INCH OR LESS. ITEM 519 SHALL BE USED WHERE THE REPAIR DEPTH IS GREATER THAN 1 INCH AND THE SURFACE CAN BE READILY FORMED AND POURED. ALL SURFACES TO BE PATCHED AND THE EXPOSED REINFORCING STEEL WITHIN SHALL BE THOROUGHLY CLEANED BY SAND BLASTING FOLLOWED BY AN AIRBLAST.

CLEANING SHALL PRECEDE APPLICATION OF THE EPOXY BONDING AGENT OR ERECTION OF THE FORMS BY NOT MORE THAN 24 HOURS.

PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE PER SQUARE FOOT OF ITEM 519- PATCHING CONCRETE STRUCTURES, AS PER PLAN, AND ITEM SPECIAL - PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR.

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN

THIS ITEM SHALL CONSIST OF PATCHING EXISTING STRUCTURAL CONCRETE AT THE LOCATIONS AS SHOWN IN THE PLANS AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH ITEM 519 AND THE FOLLOWING ADDITIONAL REQUIREMENTS:

1. SURFACE PREPARATION SHALL INCLUDE THE THOROUGH SANDBLASTING AND AIR CLEANING OF ALL SURFACES WHICH ARE TO BE IN CONTACT WITH THE PATCHING MATERIAL.
2. IN AREAS TO BE PATCHED WITH CLASS "S" CONCRETE ALL OF THE ACCESSIBLE PREPARED CONCRETE SURFACES SHALL BE COATED WITH TWO-COMPONENT EPOXY BONDING AGENT CONFORMING TO AASHTO M-235-731, CLASS III. THE BONDING MATERIAL SHALL BE MIXED AND PLACED AS PER THE MANUFACTURER'S RECOMMENDATIONS.
3. REMOVAL DEPTH SHALL BE 2 INCHES MINIMUM OR TO SOUND CONCRETE.
4. NO STEEL WIRE FABRIC SHALL BE REQUIRED.
5. THE CONCRETE MAY BE TROWELLED IN PLACE PROVIDING AN ACCEPTABLE SMOOTH APPEARANCE CAN BE ACHIEVED AS DETERMINED BY THE ENGINEER.

PAYMENT SHALL BE MADE UNDER THE SQUARE FOOT UNIT PRICE FOR ITEM 519-PATCHING CONCRETE STRUCTURES, AS PER PLAN.

ITEM SPECIAL- PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR

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 UPON THE FOLLOWING CONCRETE BRIDGE COMPONENTS IN ACCORDANCE WITH THESE SPECIFICATIONS, AND IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS AS DIRECTED BY THE ENGINEER.

1. EDGES OF DECK.
2. ABUTMENTS, INCLUDING BACKWALLS AND WINGWALLS.
3. PIERS, INCLUDING COLUMNS AND CAPS.
4. CURBS, SIDEWALKS AND PARAPETS.

B. MATERIALS: THE PATCHING SHALL BE SIKATOP 122 AND 123, THERMAL-CHEM PRODUCT NO. 304 OR POLY-CARB MARK 193.4 AND 194. 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: THE ENGINEER SHALL SOUND THE STRUCTURAL COMPONENTS AND OUTLINE THE AREAS TO BE REMOVED. ALL LOOSE, SOFT, HONEY-COMBED, AND DISINTEGRATED CONCRETE, PLUS ONE FOURTH OF AN INCH DEPTH OF SOUND CONCRETE SHALL BE REMOVED. AFTER COMPLETION OF THE REMOVAL OPERATION, THE ENGINEER WILL RE-SOUND THE AREAS TO ENSURE THAT ONLY SOLID CONCRETE REMAINS. ALL WORK SHALL BE DONE IN A MANNER THAT WILL NOT DAMAGE OR SHATTER THE CONCRETE THAT IS TO REMAIN. CONCRETE MAY BE REMOVED BY CHIPPING OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 15-POUND CLASS.

D. SURFACE PREPARATION: CLEANING SHALL PRECEDE APPLICATION OF THE PATCHING MATERIAL BY NOT MORE THAN 24 HOURS. THE SURFACE TO BE PATCHED SHALL BE THOROUGHLY CLEANED BY SANDBLASTING FOLLOWED BY AN AIR BLAST. 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 DETRIMENTAL 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 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, OR IF A PATCH EXTENDS COMPLETELY THROUGH A MEMBER, BOTH EXPOSED SURFACES SHALL BE INCLUDED.

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

ITEM	UNIT	DESCRIPTION
SPECIAL	SQUARE FEET	PATCHING CONCRETE WITH TROWELABLE EPOXY MORTAR.

STRUCTURE NOTES

OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
EMF DATE	DATE	DATE	PWL DATE	SHEET 1 / 14

GENERAL NOTES

CUY-422F-0.51 STRUCTURES

FHWA REGION	STATE	PROJECT	
5	OHIO		

ITEM SPECIAL - ROCKER RESETTING

THIS ITEM OF WORK SHALL CONSIST OF VERTICALLY RESETTING TILTED ROCKERS AS FOLLOWS:

1) LIFT THE INDIVIDUAL BEAM OR GIRDER UNTIL THERE IS NO CONTACT BETWEEN THE SOLE PLATE AND ROCKER (1/4 INCH MAXIMUM).

2) RESET THE ROCKER AND BASE PLATE INTO THEIR FINAL POSITION BY CENTERING THE BASE PLATE UNDER THE SOLE PLATE BOTH LONGITUDINALLY AND TRANSVERSELY AT 60°F.

3) LOWER BEAM OR GIRDER.

4) PLACE TROWELLABLE EPOXY MORTAR AROUND THE PERIMETER OF THE BASE PLATE TO PREVENT FUTURE MOVEMENT. (SEE NOTE ON SHEET 89)

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE STRUCTURE SUMMARY TO BE USED WHERE AND AS DIRECTED BY THE ENGINEER.

ITEM SPECIAL - ROCKER RESETTING 10 EACH

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, SIDEWALKS AND PARAPETS (ALL FACES).
2) CONCRETE BARRIER MEDIANS (ALL FACES).
3) DECK EDGES AND THE UNDERSIDE EXTENDING BEYOND THE EXTERIOR BEAMS.
4) PIERS INCLUDING CAPS AND COLUMNS.
5) ABUTMENTS INCLUDING BACKWALLS AND WINGWALLS.

ITEM SPECIAL - HEAT STRAIGHTENING OF DAMAGED STRUCTURAL STEEL

THIS ITEM SHALL CONSIST OF HEAT STRAIGHTENING DAMAGED PORTIONS OF EXISTING BEAMS/GIRDERS AS SHOWN ON THE PLANS. IT SHALL BE ACCOMPLISHED IN ACCORDANCE WITH 513.06 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND AS NOTED IN THESE PLANS.

THE REPAIRS SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF A PERSON WHO SHALL PRESENT WRITTEN DOCUMENTATION PRIOR TO BEGINNING WORK OF HIS SUCCESSFUL HEAT STRAIGHTENING EXPERIENCES WITH COMPARABLE BRIDGE BEAMS/GIRDERS. HE SHALL POSSESS THE KNOWLEDGE AND EXPERIENCE TO APPLY THE HEAT IN SUCH A MANNER, SEQUENCE AND AMOUNT THAT THE FINAL STRAIGHTENING MEMBER RETAINS AS LITTLE RESIDUAL STRESS AS POSSIBLE. HEAT SHALL BE APPLIED AT OR BELOW 1200 DEGREES FAHRENHEIT AND MONITORED WITH CONTACT THERMOMETERS, PYROMETRIC STICKS, OR OTHER HEAT INDICATING DEVICES. THESE HEAT INDICATING DEVICES SHALL BE SUPPLIED BY THE CONTRACTOR AND MADE AVAILABLE TO THE INSPECTOR AT ALL TIMES. TORCH TIP SIZES SHALL BE LIMITED TO 1" DIAMETER MAXIMUM. THE HEAT STRAIGHTENING SHALL BE ACCOMPLISHED WITH THE USE OF "V" HEATS OR TRIANGULAR HEATS. THE BASE OF THE "V" SHALL NOT EXCEED 6". THE "V" IS HEATED FROM THE APEX TO THE BASE IN A MANNER SUCH THAT ONLY PLACE SHOWING COLOR IS DIRECTLY UNDER THE TORCH. THE ENTIRE "V" SHALL NOT BE HEATED SIMULTANEOUSLY NOR SHALL IT BE REHEATED UNTIL AFTER IT HAS COOLED TO THE TOUCH. FORCED COOLING IS NOT PERMITTED. THE STRAIGHTENING SHALL BE ACCOMPLISHED WITH AS LITTLE MECHANICAL FORCE AS POSSIBLE.

FINAL STRAIGHTNESS TOLERANCES FOR THE BOTTOM FLANGE SHALL BE WITHIN 1/4" OF TILT ROTATION AT THE EDGES AND 1/2" OF SWEEP IN 20 FEET (3/4" AT POINT OF IMPACT). THE FINAL WEB SHALL BE LESS THAN 3/16" OUT OF PLUMB. LOCALIZED DEFLECTIONS IN THE WEB SHALL BE NO MORE THAN 3/16" AS MEASURED WITH A STRAIGHTEDGE HELD VERTICALLY AND HORIZONTALLY. THESE TOLERANCES SHALL BE MET BEFORE ANY CROSS FRAMES OR OTHER LATERAL RESTRAINT DEVICES ARE ATTACHED. IN NO CASE SHALL THE BEAMS/GIRDERS BE FORCED INTO POSITION AND THEN WELDED TO THE CROSS FRAMES TO HOLD THEM IN POSITION.

OBVIOUS TEARS OR CRACKS PRESENT IN THE BEAMS/GIRDERS AS A RESULT OF THE ACCIDENT SHALL BE REPAIRED WITH FULL PENETRATION BUTT WELDING AS PER 513.17 OF THE CMS AND SUBSEQUENT NON-DESTRUCTIVE TESTING AS PER 513.21 OF THE CMS, UNLESS OTHERWISE SPECIFIED ON THE PLANS. THE CONTRACTOR WILL BE RESPONSIBLE FOR HAVING THIS WELDING RADIOGRAPHICALLY INSPECTED. RADIOGRAPHS SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL.

BURRS, NICKS, GOUGES, SCRAPES, ETC. SHALL BE GROUND AS SMOOTH AS POSSIBLE TO ELIMINATE POSSIBLE STRESS CONCENTRATIONS AND SHALL COMPLY WITH SURFACE QUALITY AS DEFINED IN ASTM A6.

THE COMPLETED STRAIGHTENING SHALL BE FOLLOWED BY AN INSPECTION FOR CRACKS ON THE FLANGE EDGES. THIS INSPECTION SHALL BE MADE BY USING A MAGNETIC PARTICLE INSTRUMENT SUCH AS THE PARKER CONTOUR PROBE OR BY DYE PENETRANT TESTING. CRACKS DISCOVERED AS A RESULT OF THIS INSPECTION WILL BE REPAIRED BY THE CONTRACTOR WITH THE COST BEING SUBJECT TO NEGOTIATION.

THIS ITEM SHALL INCLUDE REPLACEMENT OF ALL DAMAGED CROSS FRAMES AND OTHER ATTACHMENTS BY THE SAME METHOD OF ATTACHMENT AS ORIGINALLY CONSTRUCTED.

ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH 513.17 OF THE CMS AND THE AWS STRUCTURAL WELDING CODE, SUPPLEMENT 1027.

IF THE CONTRACTOR CANNOT MEET THE SPECIFIED STRAIGHTNESS TOLERANCES BY HEAT STRAIGHTENING, HE SHALL CUT OUT THE DAMAGED WEB AND BOTTOM FLANGE AND REPLACE WITH NEW STRUCTURAL STEEL OF THE SAME TYPE AND SHAPE BY FULL PENETRATION BUTT WELDING AS PER 513.17 OF THE CMS AND SUBSEQUENT NONDESTRUCTIVE TESTING AS PER 513.21 OF THE CMS. GENEROUS COPE HOLES SHALL BE PROVIDED AT ALL WELD INTERSECTIONS. RADIOGRAPHS SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL. CERTIFIED TEST DATA FOR ALL STRUCTURAL STEEL SHALL BE FURNISHED TO THE ENGINEER SHOWING COMPLIANCE WITH THE REQUIREMENTS OF 711 OF THE CMS. IF THIS METHOD OF REPAIR IS CHOSEN, THE CONTRACTOR SHALL REMOVE THE DEAD LOAD OF THE DAMAGED MEMBER IN A MANNER DEEMED SATISFACTORY TO THE ENGINEER BEFORE THE REMOVAL AND REPLACEMENT PROCESS BEGINS. ANY DAMAGE TO THE STRUCTURE CAUSED BY IMPROPER JACKING AND SUPPORT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

IF, AS A RESULT OF THE ACCIDENT OR STRAIGHTENING PROCESS THE TOP FLANGE OF THE BEAM/GIRDER HAS PULLED AWAY FROM THE CONCRETE DECK, THE VOID SHALL BE FILLED BY EPOXY INJECTION THRU HOLES DRILLED IN THE DECK OVER THE VOID AFTER COMPLETION OF THE BEAM REPAIR. MATERIALS AND PROCEDURES SHALL BE GOVERNED BY PROPOSAL NOTE.

AFTER THE HEAT STRAIGHTENING HAS BEEN COMPLETED AND APPROVED ALL STRUCTURAL STEEL WITHIN THE HEAT STRAIGHTENING ZONE SHALL BE PAINTED THE PAINTING SYSTEM SHALL BE AS PER SYSTEM B OF ITEM 514 AND SHALL CONSIST OF SURFACE PREPARATION, COMPLETE COAT PRIME AND COMPLETE COAT FINISH. THE COLOR OF THE FINISH COAT SHALL MATCH THE EXISTING FINISH COAT.

BASIS OF PAYMENT

ALL OF THE ABOVE IS TO BE INCLUDED FOR PAYMENT UNDER:

ITEM	UNIT	DESCRIPTION
SPECIAL	LUMP SUM	HEAT STRAIGHTENING OF DAMAGED STRUCTURAL STEEL

THIS ITEM OF WORK SHALL BE USED ON THE FOLLOWING STRUCTURES:

BR. NO. CUY-422F-0222, EAST EXTERIOR BEAM OVER EASTBOUND LANES
BR. NO. CUY-422F-0451L, NORTH EXTERIOR BEAM OVER NORTHBOUND LANES
BR. NO. CUY-422F-0136, EAST EXTERIOR BEAM OVER WESTBOUND LANES (100% STATE COST)

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

STRUCTURE NOTES

OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
EMF			DWL	
DATE	DATE	DATE	DATE	SHEET 2/14

GENERAL NOTES

CUY-422F-0.51 STRUCTURES

FHWA REGION	STATE	PROJECT	
5	OHIO		

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ITEM SPECIAL - TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN

THIS WORK SHALL CONSIST OF PREPARING AND TREATING THE SPECIFIED CONCRETE SURFACES OF BRIDGE DECKS WITH A PENETRATING SEALER IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND THE MANUFACTURER'S RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.

THE WORK ITEM SHALL NOT BE PERFORMED DURING THE PERIOD BEGINNING NOVEMBER 1ST AND ENDING MARCH 31ST.

EXISTING ASPHALT AND WATERPROOFING SHALL FIRST BE REMOVED FROM THE ENTIRE DECK. THE ENGINEER SHALL THEM MARK (WITHIN 48 HOURS) THE SURFACES TO WHICH THE SEALER IS TO BE APPLIED. THESE SURFACES SHALL THEN BE SANDBLASTED, MANUAL OR POWER BROOM SWEPT, BLOWN WITH COMPRESSED AIR AND VACUUMED. SO THAT THEY SHALL BE DRY AND FREE OF DUST, DIRT, ASPHALT, RUBBER, OR ANY COATINGS WHICH WOULD PREVENT THE PENETRATION OF THE HMWM RESIN. THE CLEANING EQUIPMENT SHALL BE FITTED WITH SUITABLE TRAPS, FILTERS, DRIP PANS, DRIERS AND OTHER DEVICES TO PREVENT OIL AND OTHER FOREIGN MATERIAL FROM BEING DEPOSITED ON THE SURFACE. TRAFFIC SHALL NOT BE ALLOWED ON THE CLEAN SURFACE PRIOR TO APPLICATION OF THE SEALER.

THE MATERIAL USED FOR TREATING THE CONCRETE SHALL BE A LOW VISCOSITY, NON-FUMING, HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) RESIN CONFORMING TO THE FOLLOWING:

	HMWM RESIN
VISCOSITY	MAXIMUM 25 CPS (BROOKFIELD #1 SPINDLE 50 RPM AT 77° F) CALIF. TEST 434
DENISTY	GREATER THAN 8.76 LB/GAL AT 77° F.
FLASH POINT	GREATER THAN 200° F. (PINSKY-MARTENS CC)
VAPOR PRESSURE	LESS THAN 1.0 MM HG AT 77° F.
TG (DSC)	>58° C ASTM D 323

THE MATERIALS MAY BE OBTAINED FROM THE FOLLOWING SUPPLIERS:

ADHESIVE ENGINEERING
1411 INDUSTRIAL ROAD
SAN CARLOS, CA 94070
PHONE: 1-213-627-7382

REVOLAN, INC.
1631 SOUTH TENTH STREET
SAN JOSE, CA 95112
PHONE: 1-408-288-8658

SIKA CORPORATION
P.O. BOX 297
LYNDHURST, NEW JERSEY 07071
PHONE: 1-201-933-8800

ROHM AND HAAS COMPANY
727 NORRISTOWN ROAD
SPRING HOUSE, PA 19477
PHONE: 1-215-641-7000

A COMPATIBLE PROMOTER/INITIATOR SYSTEM CAPABLE OF PROVIDING THE SAME PHYSICAL QUALITIES OF THE HARDENED RESIN AS IF PROMOTED/INITIATED WITH 2% COBALT NAPHTHANATE (6%) AND 2% CUMENE HYDROPEROXIDE SHALL ALSO BE PROVIDED. MATERIALS SHALL BE STORED AT 65-80 F. THE SYSTEM SHALL PROVIDE A RESIN GEL TIME OF NOT LESS THAN 40 MINUTES TO NOT MORE THAN 1-1/2 HOURS AT THE TIME AND TEMPERATURE OF APPLICATION. THE GEL TIME SHALL BE ADJUSTED TO COMPENSATE FOR THE CHANGE IN TEMPERATURE THROUGHOUT THE DAY. THE TEMPERATURE OF THE SURFACES TO BE TREATED MAY RANGE FROM 50 F TO 120 F. THE CONTRACTOR SHALL ARRANGE TO HAVE A TECHNICAL REPRESENTATIVE ON SITE TO PROVIDE MIXING PROPORTIONS, EQUIPMENT SUITABILITY, AND SAFETY ADVICE TO THE CONTRACTOR AND ENGINEER. ANY CONFLICT BETWEEN THESE PROVISIONS AND REPRESENTATIVES ADVICE SHALL BE RESOLVED AT THE JOB SITE. THE TECHNICAL REPRESENTATIVE SHALL REMAIN AT THE JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER AGREE THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF THE APPLICATION OF THE SEALER.

THE PROMOTER AND INITIATOR, IF SUPPLIED SEPARATE FROM THE RESIN, SHALL NOT CONTACT EACH OTHER DIRECTLY. CONTAINERS OF PROMOTERS OR INITIATORS SHALL NOT BE STORED TOGETHER IN A MANNER THAT WILL ALLOW LEAKAGE OR SPILLAGE FROM ONE TO CONTACT THE CONTAINERS OR MATERIAL OF THE OTHER.

MACHINE APPLICATION OF THE RESIN MAY BE PERFORMED BY USING A TWO-PART RESIN SYSTEM UTILIZING A PROMOTED RESIN FOR ONE PART AND AN INITIATED RESIN FOR THE OTHER PART. THIS TWO-PART RESIN SYSTEM MAY BE COMBINED AT A SPRAY BAR THROUGH SEPARATE POSITIVE DISPLACEMENT PUMPS. THE PUMP PRESSURE AT THE SPRAY BAR SHALL NOT BE GREAT ENOUGH TO CAUSE APPRECIABLE ATOMIZATION OF THE RESIN. COMPRESSED AIR SHALL NOT BE USED TO PRODUCE THE SPRAY.

CLEAN AND FLUSHING OF EQUIPMENT, TOOLS, ETC.. SHALL BE DONE WITH AN APPROPRIATE SOLVENT, AS APPROVED BY THE ENGINEER, IN SUCH A MANNER TO MINIMIZE PERSONAL AND ENVIRONMENTAL HAZARDS. WORKMEN SHOULD BE ADVISED THE RESIN WILL SOFTEN GUM RUBBER SOLES, AND A FACEMASK SHOULD BE USED TO PROTECT FROM ACCIDENTAL SPLASHES. CLOTHING AND LEATHER SATURATED WITH RESIN WILL HARDEN AND BECOME USELESS.

THE SURFACE TO BE TREATED SHALL BE VISIBLY DRY AND ITS TEMPERATURE BETWEEN 50° AND 120° F PRIOR TO RESIN APPLICATION. THE RESIN MAY NOT BE APPLIED WHEN RAIN IS FORECAST WITH 12 HOURS OR WHEN THE AMBIENT AIR TEMPERATURE IS BELOW 50° F. THE DECK SHALL BE PRE-MARKED TO CONTROL MIXED MATERIAL USAGE AND TO PROVIDE A RATE OF APPLICATION OF APPROXIMATELY 100 SQUARE FEET PER GALLON. THE EXACT RATE SHALL BE DETERMINED BY THE ENGINEER BUT WILL NOT EXCEED 150 SQUARE FEET PER GALLON.

BEFORE USING THE MATERIAL THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR COPIES OF THE MANUFACTURER'S CERTIFIED TEST DATA SHOWING THAT THE MATERIAL COMPLIES WITH THE QUALITATIVE, QUANTITATIVE AND PERFORMANCE REQUIREMENTS OF THIS SPECIFICATION. THE TEST DATA SHALL BE DEVELOPED BY AN INDEPENDENT APPROVED TESTING LABORATORY, AND SHALL INCLUDE THE BRAND NAME OF THE MATERIAL, NAME OF MANUFACTURER, NUMBER OF THE LOT TESTED AND DATE OF MANUFACTURE. WHEN THE MATERIAL 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.

THE MANUFACTURER SHALL SUBMIT CERTIFIED TEST DATA FROM AN INDEPENDENT APPROVED TESTING LABORATORY FOR EACH LOT SHOWING COMPLIANCE WITH THE MATERIAL REQUIREMENTS OF THIS SPECIFICATION. IN ADDITION, THE MANUFACTURER SHALL CERTIFY THAT THE FORMULATION IS THE SAME AS THAT FOR WHICH PERFORMANCE DATA HAS BEEN SUBMITTED. THE STATE RESERVES THE RIGHT TO SAMPLE AND TEST DELIVERED LOTS FOR COMPLIANCE.

THE DECK SURFACES TO BE TREATED SHALL BE FLOODED WITH RESIN, ALLOWING PENETRATION INTO THE CONCRETE AND FILLING OF ALL CRACKS. THE INITIATED MIX OF PROMOTED RESIN SHALL BE LIMITED TO 5 GALLONS AT A TIME FOR MANUAL APPLICATION. A SIGNIFICANT INCREASE IN VISCOSITY SHALL BE CAUSE FOR REJECTION. THE TREATMENT SHALL BE APPLIED WITHIN 5 MINUTES AFTER COMPLETE MIXING. EXCESS MATERIAL SHALL BE REDISTRIBUTED BY SQUEEGEE OR BROOMS WITHIN 10 MINUTES AFTER APPLICATION.

THE HMWM RESIN SHALL ALSO BE APPLIED TO THE PARAPET DEFLECTION JOINT CRACKS. NO SURFACE PREPARATION IS REQUIRED FOR THOSE AREAS.

IF THE SURFACE CONTAINS LARGE DEEP CRACKS, THE LOW-VISCOSITY LIQUID COULD RUN COMPLETELY THROUGH THE CONCRETE SLAB. IN THESE AREAS, A SECOND COAT WILL BE REQUIRED AFTER THE FIRST COAT HAS STARTED TO CURE.

TRAFFIC AND EQUIPMENT SHALL NOT BE PERMITTED ON THE TREATED DECK UNTIL IT IS TACK FREE AND A MINIMUM OF 6 HOURS HAVE ELAPSED SINCE TREATMENT. THE TREATMENT SHALL BE PROTECTED FROM MOISTURE FOR NOT LESS THAN 4 HOURS AFTER PLACEMENT.

THE YARDAGE UNDER THIS ITEM WILL BE THE NUMBER OF SQUARE YARDS OF CONCRETE BRIDGE DECK WHICH ARE PREPARED, TREATED WITH HIGH MOLECULAR WEIGHT METHACRYLATE RESIN AND ARE COMPLETE IN PLACE AND ACCEPTED.

THE ACCEPTED QUANTITIES OF DECK TREATMENT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL LABOR, MATERIALS, INCLUDING CATALYSTS, TOOLS, EQUIPMENT AND INCIDENTALS, AND FOR PERFORMING ALL THE WORK INVOLVED IN PREPARING AND TREATING THE CONCRETE SURFACES ACCORDING TO SPECIFICATIONS.

PAYMENT WILL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQUARE YARD	TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN

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BRIDGE DECK REPAIR AND OVERLAY WITH MICRO-SILICA MODIFIED CONCRETE

1.0 DESCRIPTION

THIS WORK SHALL CONSIST OF FURNISHING THE NECESSARY LABOR, MATERIALS AND EQUIPMENT TO REPAIR AND OVERLAY CONCRETE BRIDGE DECKS IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLE CLOSE CONFORMITY WITH THE GRADES, THICKNESSES AND CROSS SECTIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THIS WORK SHALL INCLUDE THE REMOVAL OF PATCHES OTHER THAN SOUND PORTLAND CEMENT CONCRETE AND ALL LOOSE AND UNSOUND CONCRETE; SCARIFICATION OF THE SOUND EXISTING CONCRETE SURFACE; REMOVAL, FORMING AND CONCRETE FOR FULL-DEPTH REPAIRS; BLAST CLEANING; FURNISHING, PLACING, FINISHING, TEXTURING AND CURING OF A MICRO-SILICA MODIFIED CONCRETE (MSC) OVERLAY; AND ALL OTHER OPERATIONS NECESSARY TO COMPLETE THIS WORK ACCORDING TO THE SPECIFICATIONS AND TO THE SATISFACTION OF THE ENGINEER.

THE MSC OVERLAY SHALL BE NOT LESS THAN 1 1/4 INCHES THICK (THICKER WHERE LOOSE OR DISINTERGRATED CONCRETE IS TO BE REPLACED) AND BE CONSTRUCTED A AS A SINGLE MONOLITIC ELEMENT OF THE STRUCTURE. ITS SURFACE SHALL BE FINISHED TO 1 INCH ABOVE THE SURFACE OF THE ORIGINAL CONCRETE DECK.

SPALLED OR DELAMINATED TOPS OF BACKWALLS SHALL BE REPAIRED WITH MSC (VARIABLE THICKNESS).

2.0 MATERIALS

THE MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

FINE AGGREGATE (NATURAL SAND)	703.02*
COARSE AGGREGATE (NO. 8) (LIMESTONE OR SLAG)	703.02*
PORTLAND CEMENT, TYPE I OR IA**	701.04 OR 701.01
WATER	499.02
CHEMICAL ADMIXTURE	705.12, ASTM C 494, TYPE A OR D
AIR-ENTRAINING ADMIXTURE	705.10
SUPERPLASTICIZING ADMIXTURE (HIGH RANGE WATER REDUCER)	705.12, ASTM C 494, TYPE F
PORTLAND CEMENT CONCRETE (FOR FULL-DEPTH REPAIR)	511, CLASS S
CURING MATERIALS	705.05 OR 705.06, WHITE OPAQUE
CURING (FOR FULL-DEPTH REPAIR)	511.14
MICRO-SILICA ADMIXTURE	

* DELETERIOUS MATERIAL SHALL NOT EXCEED ONE-HALF THE REQUIREMENT FOR SUPERSTRUCTURE AGGREGATE AND SODIUM SULFATE SOUNDNESS LOSS SHALL NOT EXCEED 5 PERCENT.

** ONLY ONE BRAND OF CEMENT SHALL BE USED FOR EACH BRIDGE DECK OVERLAY UNLESS OTHERWISE PERMITTED BY THE ENGINEER.

NOTE: THE CONTRACTOR SHALL OBTAIN A WRITTEN STATEMENT FROM THE MANUFACTURER OF THE MICRO-SILICA ADMIXTURE THAT HE IS SATISFIED WITH THE COMPATIBILITY OF THE COMBINATION OF MATERIALS AND THE SEQUENCE IN WHICH THEN ARE COMBINED.

3.0 EQUIPMENT

A. MIXERS

CONCRETE SHALL BE MIXED IN A CENTRAL MIXING PLANT OR BY A READY-MIXED CONCRETE TRUCK CAPABLE OF DISCHARGING CONCRETE HAVING A MAXIMUM WATER-CEMENT RATIO OF 0.36. MIXING EQUIPMENT SHALL MEET THE REQUIREMENTS OF 499.04(B). ADMIXTURES SHALL BE INTRODUCED INTO THE CONCRETE IN SUCH A MANNER THAT WILL DISPENSE IT THROUGHOUT THE ENTIRE LOAD. BATCH PLANTS SHALL MEET THE REQUIREMENTS OF 499.04(A) AND SHALL BE LOCATED SUCH THAT THE MAXIMUM TIME REQUIRED FROM START OF MIXING TO COMPLETION OF DISCHARGE OF THE CONCRETE AT THE SITE OF WORK SHALL NOT EXCEED 90 MINUTES.

B. FINISHING EQUIPMENT

THE PLACING AND FINISHING EQUIPMENT SHALL BE DESIGNED SO THAT THE ELAPSED TIME BETWEEN DEPOSITING CONCRETE ON THE DECK AND FINAL FINISHING SHALL NOT EXCEED 10 MINUTES.

AN APPROVED FINISHING MACHINE WITH ADJUSTABLE RAILS SHALL BE USED; THE FINISHING MACHINE RAIL SUPPORTS SHALL NOT BE SET ON THE SCARIFIED SURFACE TO BE OVERLAYED EXCEPT WHERE HAND FINISHING EQUIPMENT IS AUTHORIZED. PROVISION SHALL BE MADE FOR RAISING THE SCREEDS TO CLEAR THE CONCRETE SURFACE FOR TRAVELING IN REVERSE.

FINISHING EQUIPMENT SHALL BE INSPECTED PRIOR TO STARTING WORK ON THE PROJECT AND SHALL MEET THE FOLLOWING REQUIREMENTS:

A. THE DESIGN OF THE MACHINE AND APPURTENANT EQUIPMENT SHALL BE SUCH AS TO PERMIT SCREED CONSOLIDATION OF THE CONCRETE. TWO OR MORE VIBRATING SCREEDS SHALL BE LONG ENOUGH TO EXTEND ON ONE SIDE AT LEAST 6 INCHES BEYOND A FORMED FACE OR A PREVIOUSLY PLACED SECTION. THE BOTTOM FACE OF VIBRATING SCREEDS SHALL BE METAL. VIBRATION FREQUENCY FOR SCREEDS SHALL BE BETWEEN 3,000 AND 11,000 PULSES PER MINUTE. INTERNAL VIBRATION WILL BE REQUIRED FOR CONSOLIDATION OF CONCRETE IN AREAS REQUIRING HAND FINISHING.

OR

B. THE FINISHING EQUIPMENT MAY BE EQUIPPED WITH ONE OR MORE ROTATING ROLLERS, AUGERS AND VIBRATING PANS. VIBRATION FREQUENCY FOR PANS SHALL BE BETWEEN 1,500 AND 2,000 PULSES PER MINUTE.

D. FINISHING MACHINE RAIL AND SUPPORTS

FINISHING MACHINES SHALL BE SUPPORTED BY RAIL AND SUPPORTS MADE OF STEEL. RAIL SHALL BE FURNISHED IN SECTIONS NOT LESS THAN 10 FEET IN LENGTH AND BE OF SUFFICIENT CROSS-SECTION SO THAT THE WEIGHT OF THE FINISHING MACHINE CAUSES ZERO VERTICAL DEFLECTION WHILE IN MOTION. RAIL SHALL BE STRAIGHT WITH NO SECTIONS EXCEEDING A TOLERANCE OF 1/8 INCH IN 10 FEET IN ANY DIRECTION. RAIL SUPPORTS SHALL BE SCREW-TYPE, ADJUSTABLE SADDLES AND SHALL BE OF SUFFICIENT NUMBER UNDER THE RAIL SO THAT ZERO VERTICAL DEFLECTION OCCURS UNDER THE WEIGHT OF THE FINISHING MACHINE.

4.0 PROPORTIONING AND MIXING

ALL REQUIRED CHARACTERISTICS OF THE MIX, I.E. AIR ENTRAINMENT AND SLUMP, SHALL BE ADJUSTED OFF THE DECK BEFORE PLACEMENT OF THE OVERLAY BEGINS. THE COMPONENTS FOR MICRO-SILICA MODIFIED CONCRETE SHALL BE COMBINED INTO A WORKABLE MIXTURE OF UNIFORM COMPOSITION AND CONSISTENCY.

THE PROPORTIONING OF COARSE AND FINE AGGREGATES SHALL BE BASED UPON 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 FOLLOWING PROPORTIONS ARE SHOWN FOR INFORMATION ONLY AND ARE BASED UPON A FINE AGGREGATE WITH 83 PERCENT PASSING THE NO. 8 SIEVE AND COARSE AGGREGATE WITH THREE PERCENT PASSING THE NO. 8 SIEVE.

QUANTITIES OF MATERIAL PER CUBIC YARD (DRY WEIGHTS*)

TYPE OF COARSE AGGREGATE	COARSE AGGREGATE (LBS)	FINE AGGREGATE (LBS)	CEMENT (LBS)	SILICA (LBS)	MAXIMUM WATER-CEMENT RATIO
LIMESTONE	1540	1170	700	105	0.36
SLAG	1335	1170	700	105	0.36

* THE SPECIFIC GRAVITIES USED FOR DETERMINING THE ABOVE WEIGHTS ARE: NATURAL SAND 2.62, GRAVEL 2.62, LIMESTONE 2.65 AND SLAG 2.30, MICRO-SILICA 2.20.

THE BATCH WEIGHTS PREVIOUSLY DESCRIBED SHALL BE CORRECTED TO COMPENSATE FOR THE MOISTURE CONTAINED IN THE AGGREGATE AT THE TIME OF USE. A CHEMICAL ADMIXTURE (705.12, TYPE A OR D) SHALL BE USED. THE TRANSIT MIXER CHARGE SHALL BE LIMITED TO 3/4 OF ITS RATED CAPACITY OR 6 CUBIC YARDS, WHICHEVER IS THE SMALLER, UNLESS A LARGER SIZE IS APPROVED BY THE ENGINEER.

THE SPECIFIED CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.36 SHALL NOT BE EXCEEDED. ANY ADMIXTURE ADDED AT THE JOB SITE SHALL BE MIXED A MINIMUM OF 5 MINUTES. AFTER ALL COMPONENTS HAVE BEEN ADDED, THE SLUMP RANGE SHALL BE 6±2 INCHES. THE AIR CONTENT OF FRESH UNVIBRATED MSC AT THE TIME OF PLACEMENT SHALL BE 8±2 PERCENT. TWO CYLINDERS SHALL BE MADE FOR EACH READY-MIXED CONCRETE TRUCK LOAD OF MSC INCORPORATED INTO THE WORK.

IF A SLUMP LOSS OCCURS AFTER MIXING AND BEFORE PLACEMENT OF THE MSC OVERLAY, THE CHARGE MAY BE "RETEMPERED" WITH THE ADMIXTURE TO RESTORE PLASTICITY. THE SLUMP RANGE AND AIR CONTENT SHALL BE RECHECKED TO ENSURE CONFORMANCE TO THE ALLOWABLE VALUES. IF THE CONSISTENCY OF THE CHARGE AFTER "RETEMPERING" IS SUCH AS TO CAUSE SEGREGATION OF THE COMPONENTS, THIS WILL BE CAUSE FOR REJECTION ON THE LOAD. THE MSC OVERLAY SHALL STILL BE PLACED WITHIN THE 90 MINUTE LIMITATION AS PER 3.0 (A).

THE CONTRACTOR SHALL MAKEONE OR MORE TRIAL BATCHES OF THE MSC OF THE SIZE TO BE HAULED AT LEAST 4 DAYS BEFORE THE OVERLAY IS TO BE PLACED. HE SHALL CAST ONE OR MORE SMALL TEST SLABS, E.G. 8 FT. LONG X A WIDTH WHICH IS WIDE ENOUGH TO ACCOMMODATE HIS TINING EQUIPMENT X 1 1/4 IN. THICK, FOR TEXTURING ACCORDING TO 7.0 AND SHALL PREPARE OTHER SAMPLES AND SPECIMENS AS DIRECTED BY THE ODOT TESTING LABORATORY. THE CONTRACTOR SHALL FURNISH THE REQUIRED MATERIALS AND SAMPLES WITHOUT CHARGE TO THE STATE AS PER 106.03. THE TESTING LABORATORY SHALL BE NOTIFIED 7 DAYS IN ADVANCE OF THE TEST BATCH PREPARATION AND IT SHALL CONDUCT ALL THE REQUIRED TESTS.

5.0 PREPARATION OF EXISTING DECK

OVERLAYS OTHER THAN SOUND PORTLAND CEMENT CONCRETE, THE TOP 1/4 INCH OF SOUND EXISTING CONCRETE SURFACE, ALL PATCHES OTHER THAN SOUND PORTLAND CEMENT CONCRETE, AND ALL OBVIOUSLY LOOSE AND DISINTEGRATED CONCRETE SHALL BE REMOVED. AFTER THIS INITIAL REMOVAL, THE CONTRACTOR SHALL SOUND THE DECK AND OUTLINE OTHER AREAS OF LOOSE AND UNSOUND CONCRETE FOR REMOVAL SUBJECT TO THE APPROVAL OF THE ENGINEER. AEROSOL SPRAY PAINT FOR OUTLINING SHALL BE PROVIDED BY THE CONTRACTOR.

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WHERE THE BOND BETWEEN THE CONCRETE AND ANY REINFORCING STEEL HAS BEEN DESTROYED, OR WHERE MORE THAN ONE HALF OF THE PERIPHERY OF THE STEEL HAS BEEN MINIMUM 3/4-INCH CLEARANCE AROUND THE STEEL EXCEPT WHERE OTHER REINFORCING STEEL MAKES THIS IMPRACTICABLE. REINFORCEMENT WHICH HAS BECOME LOOSE SHALL BE ADEQUATELY SUPPORTED AND TIED BACK INTO PLACE. REINFORCEMENT THAT IS DAMAGED BY ANY OF THE CONTRACTOR'S OPERATIONS SHALL BE REMOVED AND REPLACED AT NO COST TO THE DEPARTMENT. WHERE THE DECK IS SOUND FOR LESS THAN ONE HALF OF ITS ORIGINAL DEPTH, THE CONCRETE SHALL BE REMOVED FULL DEPTH EXCEPT FOR LIMITED AREAS AS MAY BE DESIGNATED BY THE ENGINEER. AFTER COMPLETION OF EACH REMOVAL OPERATION, THE CONTRACTOR WILL AGAIN SOUND AND RE-OUTLINE UNSOUND AREAS OF THE DECK SUBJECT TO APPROVAL OF THE ENGINEER TO ENSURE THAT ONLY SOULD CONCRETE REMAINS. FINAL SOUNDING OF THE DECK SHALL BE DONE BY THE ENGINEER AND SHALL NOT BE PERFORMED WITHIN 24 HOURS AFTER A RAIN. IN NO CASE SHALL THE FINAL SOUNDING BE MADE UNLESS THE DECK IS DRY. FINAL SOUNDING SHALL CONSIST OF AS MANY SUCCESSIVE RESOUNDINGS AS REQUIRED TO ENSURE THAT ALL DETERIORATED AND FRACTURED CONCRETE HAS BEEN REMOVED.

CONCRETE SHALL BE REMOVED BY CHIPPING, EXCEPT THAT THE SOUND EXISTING CONCRETE SURFACE MAY BE REMOVED BY POWER-DRIVEN SCARIFIERS. OVERSCARIFICATION SHALL NOT BE ALLOWED. THE COST OF EXTRA MSC CAUSED BY OVER-SCARIFICATION SHALL BE BORNE BY THE CONTRACTOR. VEHICLES OTHER THAN APPROVED CONSTRUCTION EQUIPMENT WILL NOT BE PERMITTED ON THOSE SECTIONS OF THE DECK WHERE CONCRETE REMOVAL OPERATIONS OR SCARIFICATION HAVE BEGUN. CONTAMINATION OF THE DECK BY CONSTRUCTION EQUIPMENT OR FROM ANY OTHER SOURCE SHALL BE PREVENTED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 35-POUND CLASS AND SHALL BE OPERATED AT AN ANGLE OF LESS THAN 45 DEGREES WITH RESPECT TO THE SURFACE OF THE DECK. CONCRETE SHALL BE REMOVED IN A MANNER THAT PREVENTS CUTTING, ELONGATING OR DAMAGING REINFORCING STEEL.

FORMS SHALL BE PROVIDED TO SUPPORT CONCRETE PLACED IN FULL-DEPTH REPAIR AREAS. THE FORMS FOR AREAS OF UP TO 4 SQUARE FEET MAY BE SUSPENDED FROM WIRES FROM THE REINFORCING STEEL. FOR AREAS GREATER THAN 4 SQUARE FEET, THE FORMS SHALL BE SUPPORTED FROM THE PRIMARY MEMBERS OF THE SUPERSTRUCTURE OR BY SHORING FORM BELOW.

AREAS OF FULL-DEPTH REPAIR SHALL HAVE THE CONCRETE FACES AND REINFORCING STEEL CLEANED AS DESCRIBED BELOW.

SURFACES TO WHICH THE OVERLAY IS TO BOND SHALL INCLUDE EXPOSED REINFORCING AND STRUCTURAL STEEL, THE WORK FACE OF A PREVIOUSLY PLACED OVERLAY AND THE FACES OF CURBS, BARRIERS, ETC., UP TO A HEIGHT OF AT LEAST 1 INCH ABOVE THE PROPOSED OVERLAY SURFACE. NOT MORE THAN 24 HOURS PRIOR TO PLACEMENT OF ATHE MSC OVERLAY, SUCH SURFACES SHALL BE BLAST CLEANED BY AN ABRASIVE BLASTING OR AN APPROVED METHOD OF WATER BLASTING WITH 7000 PSI MINIMUM PRESSURE. THESE SURFACES SHALL BE MADE FREE OF SPALLS, LAITANCE, AND ALL CONTAMINANTS DETRIMENTAL TO THE ACHIEVEMENT OF AN ADEQUATE BOND.

BRIDGE SCUPPERS SHALL BE CLEANED OF ALL FOREIGN MATTER AND PLUGGED PRIOR TO PLACEMENT OF THE OVERLAY. SCUPPERS SHALL BE UNPLUGGED TO PERMIT FREE DRAINAGE OF WATER FROM THE DECK SURFACE FOLLOWING OVERLAY PLACEMENT.

6.0 FINISHING MACHINE DRY RUN

AFTER THE SCREED RAILS OR OTHER SUPPORTS HAVE BEEN SET TO PROPER PROFILE AND PRIOR TO PLACING THE OVERLAY, THE FINISHING MACHINE, WITH FILLER BLOCKS ATTACHED TO THE BOTTOM OF THE SCREED, SHALL BE PASSED OVER THE ENTIRE AREA OF THE DECK TO BE OVERLAID. THE THICKNESS OF THE FILLER BLOCKS SHALL BE THE PLAN SPECIFIED OVERLAY THICKNESS MINUS 1/8 INCH.

THE FILLER BLOCKS SHOULD CLEAR THE SCARIFIED DECK SURFACE BY NOT MORE THAN 1/8 INCH. CONCRETE WHICH DOES NOT CLEAR THE FILLER BLOCKS SHALL BE REMOVED.

7.0 PLACING, CONSOLIDATED AND FINISHING

IMMEDIATELY BEFORE THE MSC OVERLAY IS PLACED, THE NEWLY EXPOSED CONCRETE SURFACE SHALL BE CLEANED WITH AN AIR BLAST AND THEN COVERED WITH A COATING OF BONDING GROUT. THE MSC OVERLAY SHALL BE PLACED ONLY WHEN THE EXISTING DECK IS SURFACE DRY. THE BONDING GROUT SHALL CONSIST OF EQUAL PARTS BY VOLUME OF PORTLAND CEMENT AND SAND, MIXED WITH ENOUGH WATER TO FORM A SLURRY OF PAINT-LIKE CONSISTENCY WHICH SHALL BE SUCH AS TO ALLOW IT TO BE APPLIED WITH A STIFF BRUSH OR BROOM TO EXISTING CONCRETE SURFACES IN A THIN EVEN COATING THAT WILL NOT RUN OR PUDDLE. THE GROUT SHALL BE SCRUBBED ONTO SURFACE DRY DECKS (SURFACES WHICH ARE DRY ENOUGH TO ABSORB SOME OF THE MOISTURE FROM THE GROUT) WITH ENOUGH CARE TO ENSURE THAT ALL SURFACES ARE EVENLY COVERED AND THAT EXCESS GROUT WILL NOT COLLECT IN LOW AREAS. THE BONDING GROUT SHALL BE APPLIED FOR ONLY A SHORT DISTANCE, NOT TO EXTEND BEYOND THE REAR WHEELS OF THE MIXER OR MSC CARRIER, IN ADVANCE OF THE PLACEMENT OF THE MSC OVERLAY AND SHALL NOT BE ALLOWED TO DRY PRIOR TO OVERLAY PLACEMENT. THE GROUT SHALL BE MIXED AND PLACED WITHIN THE SAME TIME REQUIRMENTS AS FOR THE MSC OVERLAY.

THE NEWLY EXPOSED SURFACES IN FULL-DEPTH REPAIR AREAS SHALL BE SIMILARLY CLEANED AND COATED WITH BONDING GROUT IMMEDIATELY PRIOR TO PLACING 511 CONCRETE.

CONCRETE FOR FULL-DEPTH REPAIRS SHALL BE 511 CONCRETE OR, AT THE OPTION OF THE CONTRACTOR, MSC PLACED SIMULTANEOUSLY WITH THE OVERLAY. WHEN 511 CONCRETE IS USED, IT SHALL BE PLACED UP TO THE PLAN LOWER BOUNDARY OF THE 1 1/4 INCH THICK OVERLAY, GIVEN A BROOM FINISH, AND CURED AS SPECIFIED IN 8.0.

CONTAMINATION OF THE WETTED DECK BY CONSTRUCTION EQUIPMENT OR FROM ANY OTHER SOURCE SHALL BE PREVENTED BY PLACEMENT OF A CLEAN 4-MIL POLYETHYLENE SHEET (OR ANY OTHER COVERING AS APPROVED BY THE ENGINEER) ON THE SURFACE OF THE DECK FOLLOWING THE AIR BLAST CLEANING.

WHERE REINFORCING STEEL IS EXPOSED, THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORTS FOR THE CONCRETE MIXER SO THAT REINFORCING STEEL AND ITS BOND WITH THE CONCRETE WILL NOT BE DAMAGED BY THE WEIGHT AND MOVEMENT OF THE CONCRETE MIXER, OR SHALL PROVIDE MEANS TO CONVEY CONCRETE FROM THE MIXER TO THE FINISHING MACHINE.

IMMEDIATELY FOLLOWING APPLICATION OF THE BONDING GROUT, THE MSC OVERLAY SHALL BE PLACED, CONSOLIDATED AND FINISHED TO THE PLAN SURFACE. HAND VIBRATORS SHALL BE USED FOR FULL DEPTH REPAIR, VARIABLE DEPTH AREAS, AT ALL EDGES AND ADJACENT TO JOINT BULKHEADS.

AFTER THE MSC HAS BEEN CONSOLIDATED AND FINISHED, IT SHALL BE TEXTURED TRANSVERSELY TO PROVIDE A RELATIVELY UNIFORM PATTERN OF GROOVES SPACED ON 5/8-INCH CENTERS WITH A TOLERANCE OF + 1/8 INCH. GROOVES SHALL BE APPROXIMATELY 0.15 INCHES DEEP AND 0.10 INCHES WIDE. A STRIP OF SURFACE 9 TO 12 INCHES WIDE ADJACENT TO CURBS AND BARRIERS SHALL NOT BE TEXTURED.

THE CONTRACTOR SHALL STENCIL THE DATE OF CONSTRUCTION (MONTH AND YEAR) AND THE LETTERS MS INTO THE OVERLAY BEFORE IT TAKES ITS FINAL SET. THE DATE SHALL BE LOCATED IN THE RIGHT-HAND CORNER OF THE DECK AT THE FORWARD ABUTMENT. IT SHALL BE PLACED PARALLEL TO THE EDGE OF THE OVERLAY AND CENTERED AT 12 INCHES IN FROM BOTH THE EDGE OF THE OVERLAY AND END FINISH. THE NUMERALS SHALL BE 3 TO 4 INCHES IN HEIGHT, 1/4 INCH IN DEPTH AND FACE THE CENTERLINE OF THE ROADWAY.

LONGITUDINAL JOINTS ARE PERMITTED, BUT ONLY TO THE EXTENT NECESSARY TO ACCOMMODATE THE WIDTH OF THE FINISHING MACHINE, TO FACILITATE CHANGES IN ROADWAY CROWN, AND TO PERMIT MAINTENANCE OF VEHICULAR TRAFFIC, EXCEPT AS APPROVED BY THE DIRECTOR. LONGITUDINAL JOINTS SHALL NOT BE USED IN CLOSE PROXIMITY TO FACES OF CURBS OR BARRIERS OR AT EDGES OF DECK. ALL JOINTS IN THE OVERLAY SHALL BE FORMED.

ANY PONDING PROBLEM WHICH IS NOTED PRIOR TO FINAL ACCEPTANCE OF THE OVERLAY SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE STATE.

A 10-FOOT STRAIGHTEDGE SHALL BE USED TO CHECK THE OVERLAY DIRECTLY BEHIND THE FINISHING MACHINE. IT SHALL ALSO BE USED TO CHECK TRANSVERSELY ALONG THE EDGES OF THE OVERLAY WHERE HAND FINISHING IS DONE. ANY IRREGULARITIES EXCEEDING 1/8 INCH IN 10 FEET SHALL BE CORRECTED IMMEDIATELY.

8.0 CURING

BEFORE A FULL DEPTH REPAIR MADE WITH 511 CONCRETE IS OVERLAID, IT SHALL BE WATER-CURED AND SHALL HAVE ATTAINED A MODULUS OF RUPTURE OF 400 PSI.

AS SOON AS THE TINING OPERATION IS COMPLETED, THE FINISHED OVERLAY SURFACE SHALL BE COVERED WITH A SINGLE LAYER OF CLEAN WET BURLAP. THE FRESH OVERLAY SURFACE SHALL RECEIVE A WET BURLAP CURE FOR 3 DAYS. FOR THE ENTIRE CURING PERIOD OF 72 HOURS THE BURLAP SHALL BE KEPT WET BY THE CONTINUOUS APPLICATION OF WATER THROUGH SOAKER HOSES. EITHER A 4-MIL WHITE OPAQUE POLYETHYLENE FILM OR A WET BURLAP-WHITE OPAQUE POLYETHYLENE SHEET SHALL BE USED TO COVER THE WET BURLAP FOR THE ENTIRE 72 HOUR PERIOD.

THE CURE DAY SHALL BE DEFINED AS A 24-CONSECUTIVE HOUR PERIOD OF TIME. THE TEMPERATURE AT THE OVERLAY SURFACE SHALL BE MAINTAINED ABOVE 35 F UNTIL THE CURING PERIOD IS COMPLETED. ANY DAY DURING WHICH THE AIR TEMPERATURE AT THE OVERLAY SURFACE FALLS BELOW 45 F SHALL NOT BE COUNTED AS A CURE DAY.

AS SOON AS THE OVERLAY HAS BEEN CURED, ALL JOINTS AND ABUTTING SURFACES SHALL BE SEALED BY PAINTING THEM WITH A CEMENT-WATER SLURRY OF A THICK PAINTLIKE CONSISTENCY. JOINTS TO BE SEALED SHALL INCLUDE TRANSVERSE JOINTS IN THE MSC CONCRETE, JOINTS BETWEEN MSC CONCRETE AND STEEL ENDDAMS, LONGITUDINAL JOINTS BETWEEN MSC CONCRETE PLACEMENTS, AND LONGITUDINAL JOINTS BETWEEN MSC CONCRETE AND SAFETY CURB, BARRIERS, PARAPETS, BULB ANGLES, ETC. ON THE EDGES OF DECKS WITHOUT CURBS, THE INTERFACE BETWEEN THE OVERLAY AND THE EXISTING DECK SHALL BE SEALED IN A SIMILAR MANNER. ANY CRACKING WHICH OCCURS PRIOR TO OPENING TO TRAFFIC SHALL BE SEALED IN THIS MANNER OR REPAIRED OR CORRECTED IN ANOTHER MANNER AS DIRECTED BY THE ENGINEER AT NO COST TO THE STATE. THE DECK SHALL BE SOUNDED AND ANY DELAMINATED AREAS REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

TRAFFIC WILL NOT BE PERMITTED ON THE FINISHED OVERLAY SURFACE UNTIL AFTER COMPLETION OF THE 3-DAY WET CURE.

ANY IMPROPERLY CURED OVERLAY MAY BE ORDERED TO BE REMOVED BY THE ENGINEER.

9.0 LIMITATION ON PLACING OPERATIONS

PRIOR TO OVERLAY PLACEMENT, THE ENGINEER SHALL ESTABLISH THE CONTRACTOR'S ABILITY TO PLACE THE OVERLAY ON A CONTINUOUS BASIS AND TO CONSOLIDATE, FINISH, TEXTURE AND COMMERCE CURING WITHIN THE TIME INTERVAL SPECIFIED IN 8.0. ONCE THE FINISHING MACHINE HAS MADE THE FIRST PASS, WORKERS SHALL NOT BE ALLOWED TO WALK IN THE FRESHLY PLACED OVERLAY.

THE OVERLAY SHALL BE PLACED ONLY WHEN THE LOCAL AMBIENT TEMPERATURE IS ABOVE 45 F AND IS FORECAST TO REMAIN ABOVE 45 F FOR THE CURING PERIOD. THE OVERLAY SHALL NOT BE PLACED WHEN RAIN IS FORECAST WITHIN THE INTENDED WORKING PERIOD. OVERLAYS SHALL BE PLACED ONLY IF THE OVERLAY SURFACE EVAPORATION RATE, AS AFFECTED BY AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, DECK TEMPERATURE, RELATIVE HUMIDITY AND WIND VELOCITY, IS 0.1 POUND PER SQUARE FOOT PER HOUR OR LESS. THE CONTRACTOR SHALL DETERMINE AND DOCUMENT AND ATOMOSPHERIC CONDITIONS, SUBJECT TO VERIFICATION BY THE ENGINEER. NO MSC SHALL BE PLACED IF THE AMBIENT AIR TEMPERATURE IS 85 F OR HIGHER OR PREDICTED TO GO ABOVE 85 F DURING THE OVERLAY PLACEMENT REGARDLESS OF THE SURFACE EVAPORATION RATE.

STATE OF OHIO
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DISTRICT 12 LOCATION & DESIGN

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DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
EVF DATE	DATE	DATE	DWL DATE	SHEET 5/14

GENERAL NOTES

CUY-422F-0.51 STRUCTURES

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5	OHIO		

FIGURE 1 MAY BE FOUND ON PAGE 11 OF SUPPLEMENTAL SPECIFICATION 850 AND SHALL BE USED TO DETERMINE GRAPHICALLY THE LOSS OF SURFACE MOISTURE FOR THE OVERLAY. IN NO CASE SHALL THE TEMPERATURE OF THE MSC EXCEED 90 F DURING PLACEMENT. IF RAIN OCCURS DURING PLACING OF THE OVERLAY, ALL OPERATIONS SHALL CEASE. NO MSC OVERLAY SHALL BE PLACED AFTER OCTOBER 15TH EXCEPT BY SPECIFIC PERMISSION OF THE DIRECTOR.

IF PLACEMENT OF THE OVERLAY IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA. THE PLAN SHALL BE SUBMITTED AT LEAST 15 CALENDAR DAYS IN ADVANCE AND BE APPROVED BY THE ENGINEER BEFORE CONCRETE IS PLACED. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

DURING DELAYS IN THE OVERLAY PLACEMENT OPERATIONS OF MORE THAN 10 MINUTES, THE WORK FACE OF THE OVERLAY AND ANY BONDING GROUTED AREAS SHALL BE TEMPORARILY COVERED WITH WET BURLAP. IF AN EXCESSIVE DELAY IS ANTICIPATED, A BULKHEAD SHALL BE INSTALLED AT THE WORK FACE AND THE OVERLAY PLACEMENT OPERATION TERMINATED.

UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER, AN OVERLAY SHALL NOT BE PLACED ADJACENT TO A PREVIOUS OVERLAY WHICH HAS CURED FOR LESS THAN 36 HOURS.

ADEQUATE PRECAUTIONS SHALL BE TAKEN TO PROTECT THE FRESHLY PLACED OVERLAY FROM RAIN.

PRIOR TO THE END OF THE FULL CURING PERIOD FOR ANY SECTION, NO POWER DRIVEN TOOLS HEAVIER THAN A 15-POUND CHIPPING HAMMER SHALL BE USED ADJACENT TO THE NEW OVERLAY.

VEHICLES OTHER THAN APPROVED CONSTRUCTION EQUIPMENT WILL NOT BE PERMITTED ON THOSE SECTIONS OF THE DECK WHERE CONCRETE REMOVAL OPERATIONS HAVE BEGUN. CONTAMINATION BY CONSTRUCTION EQUIPMENT OR FROM ANY OTHER SOURCE SHALL NOT BE PERMITTED.

10.0 MANUFACTURER'S REPRESENTATIVE

THE MANUFACTURER'S TECHNICAL REPRESENTATIVE FOR THE MICRO-SILICA ADMIXTURE SHALL BE NOTIFIED WHEN THE ADMIXTURE IS SELECTED AND SHALL BE PRESENT DURING THE PLACEMENT OF THE OVERLAY UNLESS HIS PRESENCE IS WAIVED BY THE ENGINEER. OPERATIONS AND PROCEDURES WHICH ARE CONSIDERED BY THE REPRESENTATIVE AS BEING DETRIMENTAL TO THE INTEGRITY OF THE OVERLAY WILL NOT BE PERMITTED.

11.0 METHOD OF MEASUREMENT

FOR MEASUREMENT OF QUANTITIES, THE OVERLAY IS DIVIDED BY A HORIZONTAL PLANE INTO TWO ITEMS, CONSISTING OF AN UPPER PART OF UNIFORM THICKNESS "MSC OVERLAY (PLAN SPECIFIED THICKNESS)" AND A LOWER PART OF VARIABLE THICKNESS MSC OVERLAY (VARIABLE THICKNESS)". "FULL-DEPTH REPAIR" IS MEASURED AS A SEPARATE PAY ITEM.

MSC OVERLAY (PLAN SPECIFIED THICKNESS) SHALL BE MEASURED AS THE ACTUAL DECK AREA IN SQUARE YARDS OVERLAID. THE BID PRICE FOR THIS ITEM INCLUDES THE COST OF FURNISHING, PLACING, FINISHING, TEXTURING AND CURING THE PLAN SPECIFIED THICKNESS OVERLAY. IT ALSO INCLUDES THE COST OF SURFACE SCARIFYING, REMOVAL OF SCARIFICATION DEBRIS, CLEANING, APPLYING BONDING GROUT, TEST SLABS AND ALL OTHER MATERIAL, LABOR AND EQUIPMENT REQUIRED TO COMPLETE THIS WORK, BUT NOT SPECIFICALLY INCLUDED IN THE OTHER ITEMS OF PAVEMENT.

FULL-DEPTH REPAIR SHALL BE MEASURED AS THE VOLUME IN CUBIC YARDS BASED ON THE MEASURED AREA OF FULL-DEPTH OPENINGS IN THE DECK AND THE EXISTING SLAB THICKNESS, LESS 1/4 INCH. THE BID PRICE FOR THIS ITEM INCLUDES THE COST OF REMOVING UNSOUND CONCRETE EXCLUSIVE OF CONCRETE REMOVED BY SCARIFICATION, REMOVED OF SOUND CONCRETE WHERE THE DEPTH OF SOUND CONCRETE IS LESS THAN HALF OF THE ORIGINAL THICKNESS OF THE DECK, FURNISHING AND INSTALLING FORMS AND SUPPORTS, FURNISHING AND PLACING EITHER MSC OR 511 CONCRETE, AND IF 511 CONCRETE IS USED, THE FINISHING AND CURING REQUIRED.

MSC OVERLAY (VARIABLE THICKNESS) SHALL BE THE VOLUME IN CUBIC YARDS MEASURED AS THE DIFFERENCE BETWEEN THE TOTAL VOLUME (AS DIRECTED BY THE BATCH QUANTITY TICKETS FOR THE READY-MIX TRUCKS) OF MSC OVERLAY PLACED AND ACCEPTED, LESS THE CALCULATED VOLUME OF THE MSC OVERLAY (PLAN SPECIFIED THICKNESS), LESS THE VOLUME OF THE MSC USED FOR FULL-DEPTH REPAIR, AND LESS ANY WASTED MSC. THE VOLUME OF MSC REMAINING IN THE DRUM OF THE LAST READY-MIX TRUCK SHALL BE WEIGHED OR MEASURED BY THE ENGINEER. THE BID PRICE FOR THIS ITEM INCLUDES THE COST OF FURNISHING AND PLACING THE VARIABLE THICKNESS OVERLAY. IT ALSO INCLUDES THE COST OF REMOVAL OF ALL CONCRETE EXCEPT THAT REMOVED BY SCARIFICATION AND AS PART OF THE FULL-DEPTH REPAIR. CONCRETE FOR THE TEST SLABS REQUIRED UNDER 4.0 SHALL BE PAID FOR ON A LUMP SUM BASIS. ALL OTHER CONCRETE FOR TESTING PURPOSES SHALL BE FURNISHED WITHOUT CHARGE TO THE DEPARTMENT PER 106.03.

12.0 BASIS OF PAYMENT

PAYMENT FOR COMPLETED AND ACCEPTED QUANTITIES AS MEASURED ABOVE WILL BE MADE AT THE CONTRACT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQUARE YARD	MICRO-SILICA MODIFIED CONCRETE OVERLAY (1-3/4 INCHES THICK)
SPECIAL	CUBIC YARD	MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS)
SPECIAL	LUMP SUM	TEST SLAB

ITEM 850 - SUPERPLASTICIZED DENSE CONCRETE OVERLAY, AS PER PLAN

THIS ITEM SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION EXCEPT AS MODIFIED HEREIN:

850.02 MATERIALS

COARSE AGGREGATE SHALL BE LIMITED TO LIMESTONE OR SLAG

850.04 PROPORTIONING AND MIXING

THE PROPORTIONING OF COARSE AND FINE AGGREGATES SHALL BE BASED UPON 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 AGGREGATES USED.

THE FOLLOWING PROPORTIONS ARE SHOWN FOR INFORMATION ONLY AND ARE BASED UPON A FINE AGGREGATE WITH 83 PERCENT PASSING THE NO. 8 SIEVE AND COARSE AGGREGATE WITH THREE PERCENT PASSING THE NO. 8 SIEVE.

QUANTITIES OF MATERIAL PER CUBIC YARD (DRY WEIGHTS*)

TYPE OF COARSE AGGREGATE	COARSE AGGR. (LBS)	FINE AGGR. (LBS)	CEMENT (LBS)	MAX. W/C RATIO
LIMESTONE	1565	1050	825	0.36
SLAG	1350	1050	825	0.36

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 BID PRICE FOR ITEM SPECIAL-MICROSILICA CONCRETE OVERLAY (VARIABLE THICKNESS) AND FOR ITEM SPECIAL SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VARIABLE THICKNESS).

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
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STRUCTURE NOTES

OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
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STRUCTURE SUMMARY

CALC. BY _____ DATE _____
CHKD. BY _____ DATE _____

CUYAHOGA COUNTY
CUY-422F-0.51

OHIO
FHWA REGION 5

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* 100% STATE

ITEM	BRIDGE Nº CUY-422F-												GENERAL	ITEM	QUANT.	UNIT	DESCRIPTION
	0115 L	0115 R	0136	0222	0244L	0244R	0274L	0274R	0451L	0451R	0474L	0474R					
202	1451	1451	26	17	1367	1016	2008	1295	1097	719	1277	1414		202	13,138	SQ. YD.	WEARING COURSE REMOVED, AS PER PLAN
202							LUMP							202	LUMP		PORTIONS OF STRUCTURES REMOVED
202	515	515	472	301	362	362	493	461	349	336	472	472		202	5110	LIN.FT.	SUBDRAINAGE FOR WEARING COURSE REMOVED
404			2	1										404	3	CU. YD.	ASPHALT CONCRETE, AC-20
512			39	25										512	64	SQ. YD.	WATERPROOFING, TYPE A
513							54							513	54	POUND	STRUCTURAL STEEL (AISC CERTIFICATION NOT REQUIRED)
519			210	120			8	8	8	12				** 519	366	SQ. FT.	PATCHING CONCRETE STRUCTURES, AS PER PLAN
850	1451						2008		1097					850	4556	SQ. YD.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (1-3/4 INCHES THICK)
850					1367						1277			850	2644	SQ. YD.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (2-3/4 INCHES THICK)
850	24				23		33		18		21			850	119	CU. YD.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VARIABLE THICKNESS)
850							1							850	1	CU. YD.	FULL-DEPTH REPAIR
850													LUMP	850	LUMP		TEST SLAB
SPEC	140	500			1100	500	1430	500	530	70	650	140		SPEC	5560	SQ. YD.	TREATING CONCRETE BRIDGE DECKS WITH HMWM RESIN
SPEC		1451						1295		719				SPEC	3465	SQ. YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY (1-3/4 INCHES THICK)
SPEC						1016						1414		SPEC	2430	SQ. YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY (2-3/4 INCHES THICK)
SPEC		24				17		22		12		24		SPEC	99	CU. YD.	MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS)
SPEC													LUMP	SPEC	LUMP		TEST SLAB
SPEC			*LUMP	LUMP					LUMP				*(1@100% ST 2@ Normal)	SPEC	LUMP		HEAT STRAIGHTENING OF DAMAGED STRUCTURAL STEEL
SPEC	1267	1267	1127	1388	943	824	1355	1115	947	787	646	710		SPEC	12,376	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY) (SEE PROPOSAL NOTE)
SPEC	6	2		2		3			3					SPEC	* 16	SQ. FT.	PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR
SPEC													10	SPEC	10	EACH	ROCKER RESETTING

** 50% Federal Participation

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

STRUCTURE SUMMARY

OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
ENF DATE	DATE	DATE	DWL DATE	SHEET 7/14

LD0303 Rev. 11-21-73

FHWA REGION	STATE	PROJECT	
5	OHIO		

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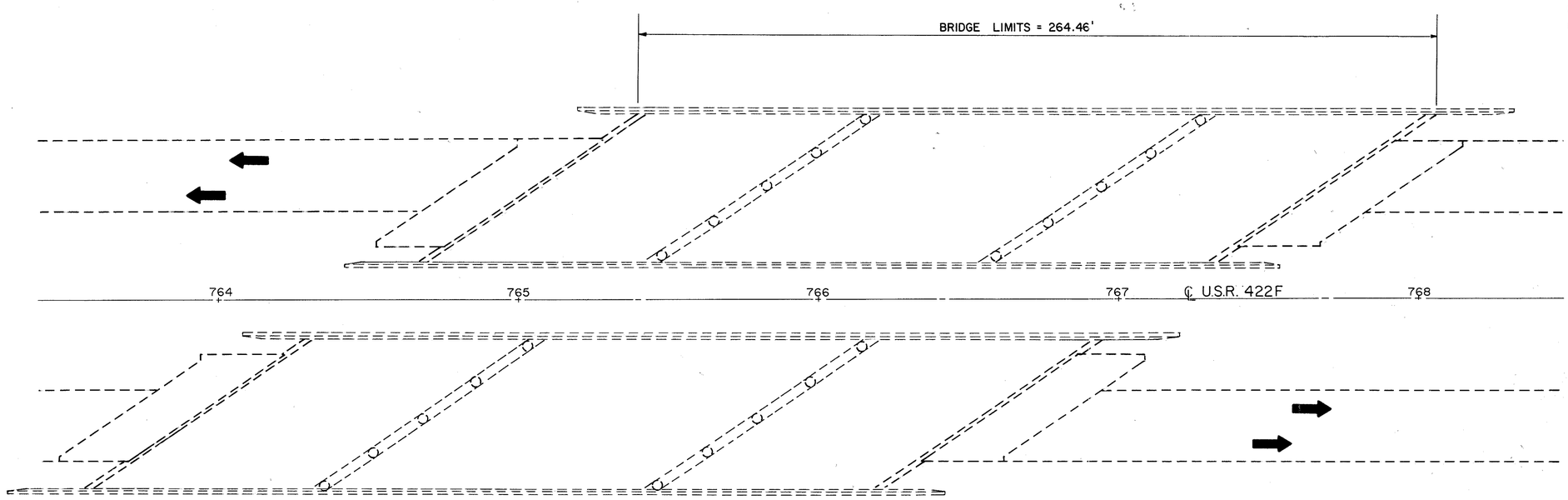
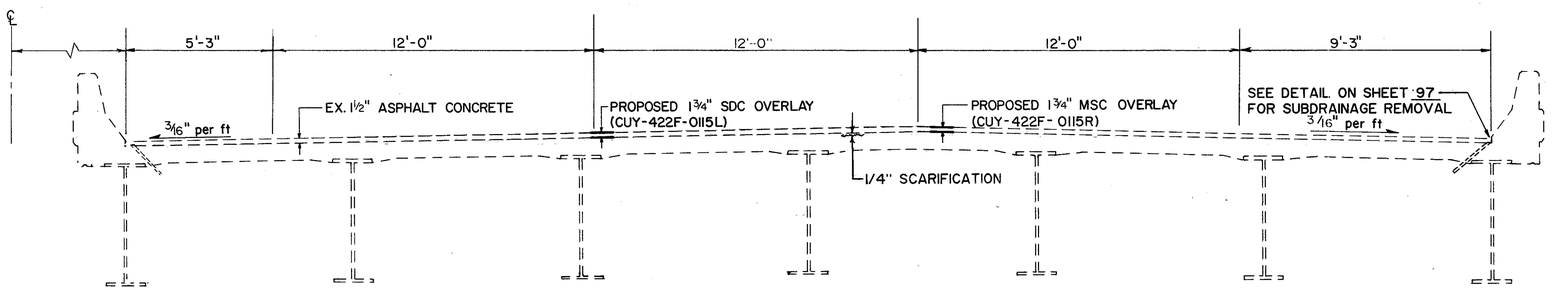
CUYAHOGA COUNTY
CUY-422F-0.51

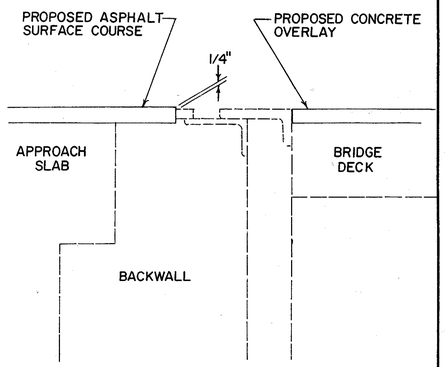


LOCATION	519 PATCHING CONCRETE STRUCTURES AS PER PLAN SQ. FT.	520 PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR SQ. FT.
BR. Nº CUY-422F-0115L		
WEST PIER		1
WEST ABUTMENT		1
EAST ABUTMENT		2
50% EXPANSION FACTOR		2
TOTAL		6
BR. Nº CUY-422F-0115R		
EAST BACKWALL		1
50% EXPANSION FACTOR		1
TOTAL		2

PLAN



CUY-422F-0115 L&R



TYPICAL ABUTMENT
ALL BRIDGES

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL PLAN.

BRIDGE No. CUY-422F-0115 L&R
U.S.R. 422FOVER MILES RD.

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
EAVE	WCV		JWL	
DATE	DATE	DATE	DATE	SHEET 8 / 14

	519	520
LOCATION	PATCHING CONCRETE STRUCTURES AS PER PLAN	PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR
	SQ. FT.	SQ. FT.
PIER Nº 1	60	
PIER Nº 3	15	
WEST CURB & WALK	65	
50% EXPANSION FACTOR	70	
TOTAL	210	

FHWA REGION	STATE	PROJECT	
5	OHIO		

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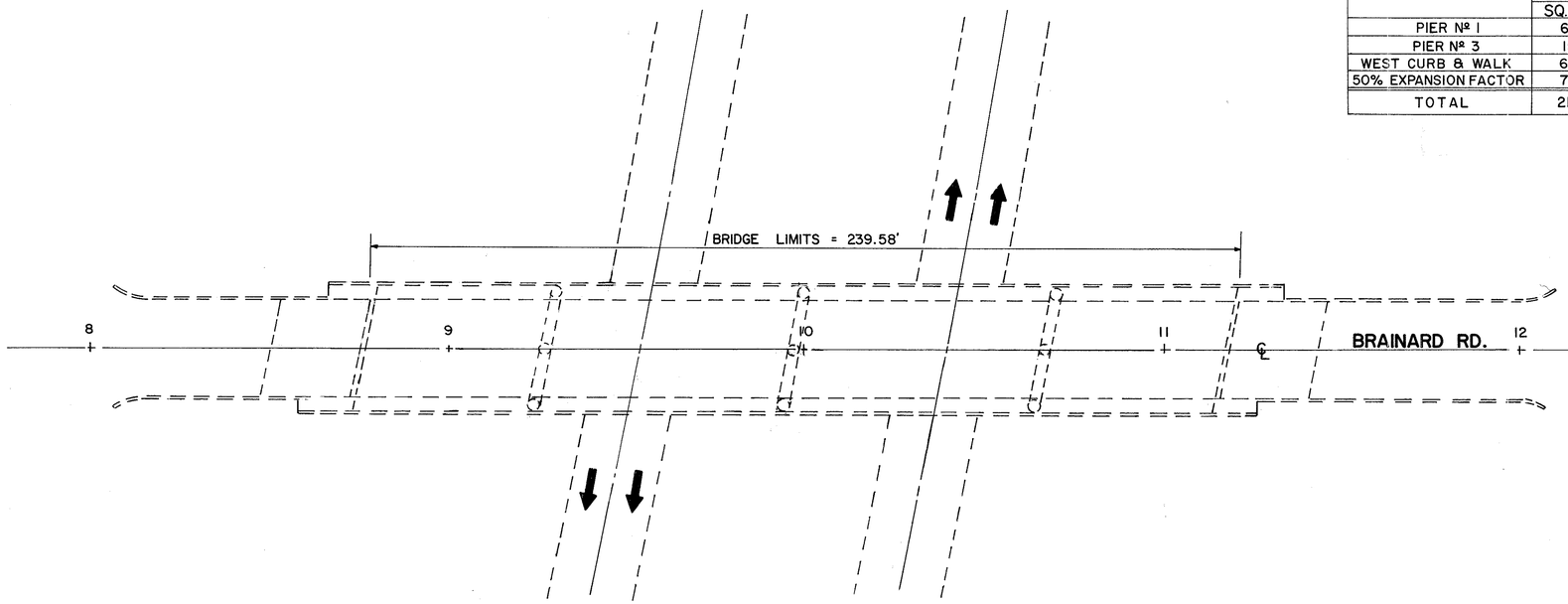
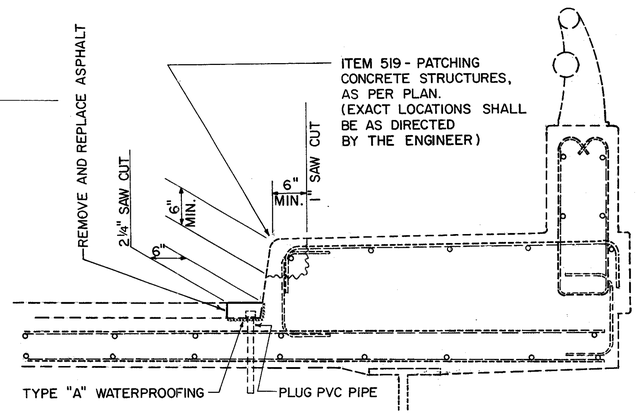
CUYAHOGA COUNTY
CUY-422F-0.51

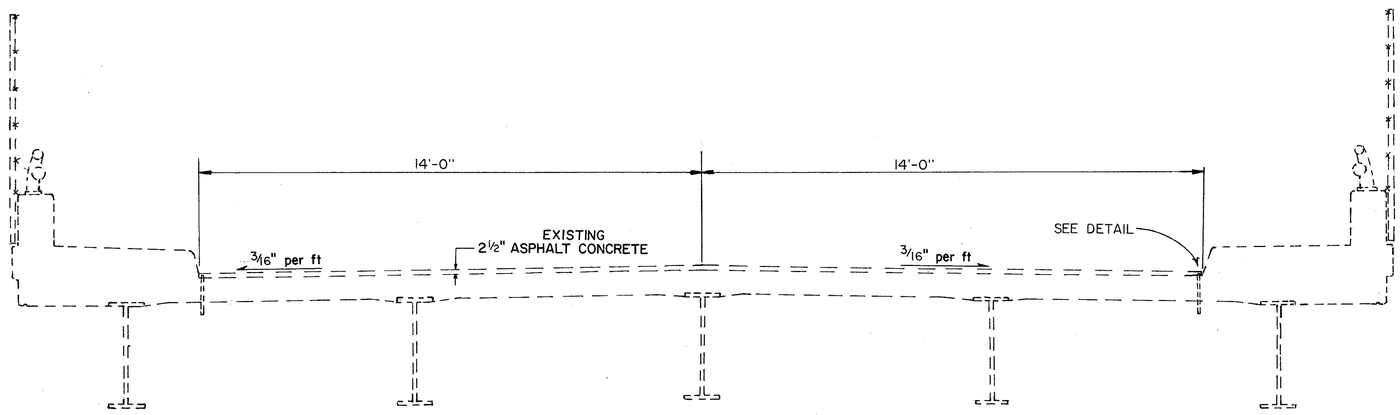


PLAN



TYPICAL CURB PATCHING AND SUBDRAINAGE REMOVAL

(SEE GENERAL NOTES)



CUY-422F-0136

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL PLAN

BRIDGE No. CUY-422F-0136
BRAINARD RD. OVER U.S.R. 422F

CUYAHOGA COUNTY OHIO

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EMF DATE	WCV DATE	DATE	DWL DATE	SHEET 9/14

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5	OHIO		

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CUYAHOGA COUNTY
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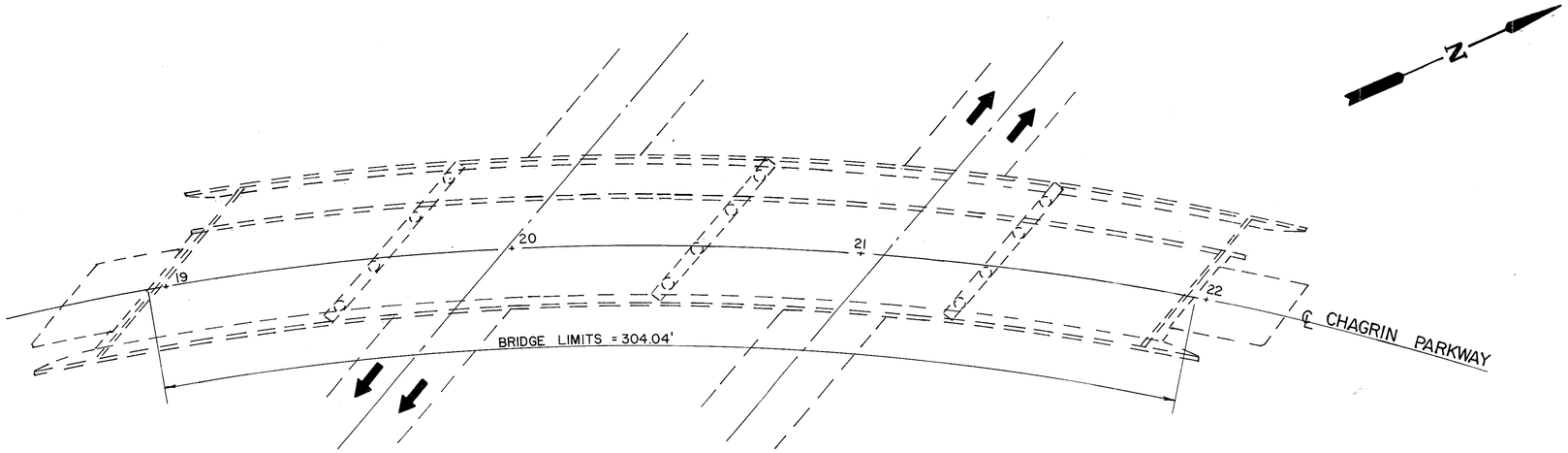
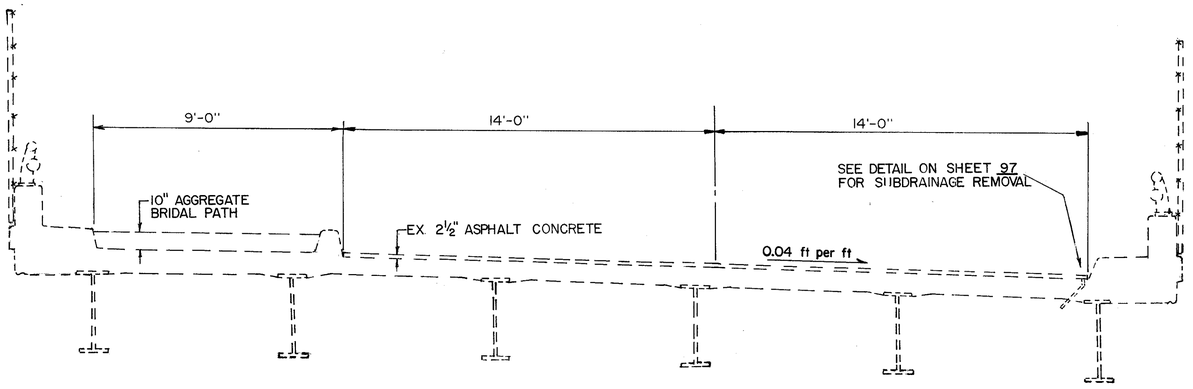


PLAN

LOCATION	519 PATCHING CONCRETE STRUCTURES AS PER PLAN. SQ. FT.	520 PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR SQ. FT.
PIER Nº 1	45	
PIER Nº 3	35	
SOUTH BACKWALL		1
50% EXPANSION FACTORS	40	1
TOTAL	120	2



CUY-422F-0222

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL PLAN

BRIDGE No. CUY-422F-0222
CHAGRIN PKWY. OVER U.S.R. 422F

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
ENF DATE	WCV DATE	DATE	DWL DATE	SHEET 10/14

FHWA REGION	STATE	PROJECT	
5	OHIO		

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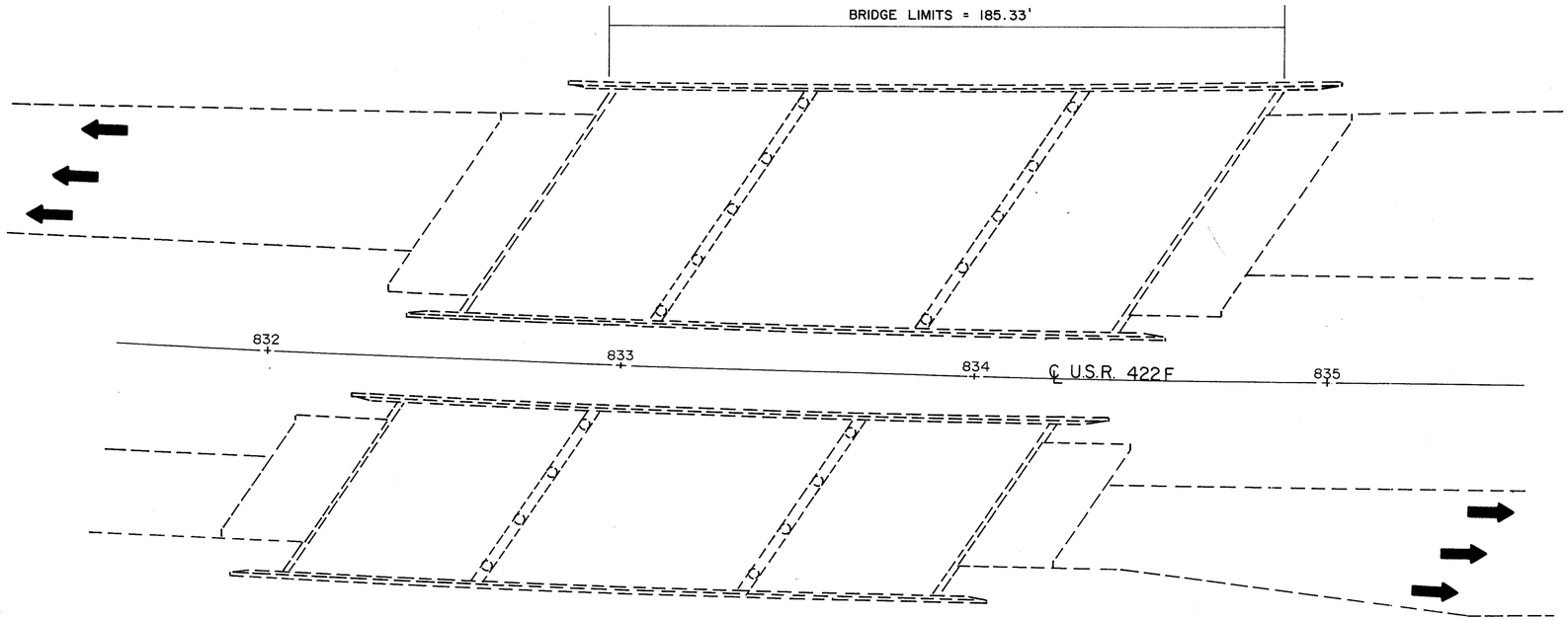
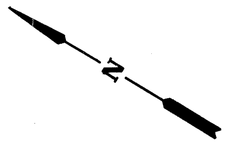
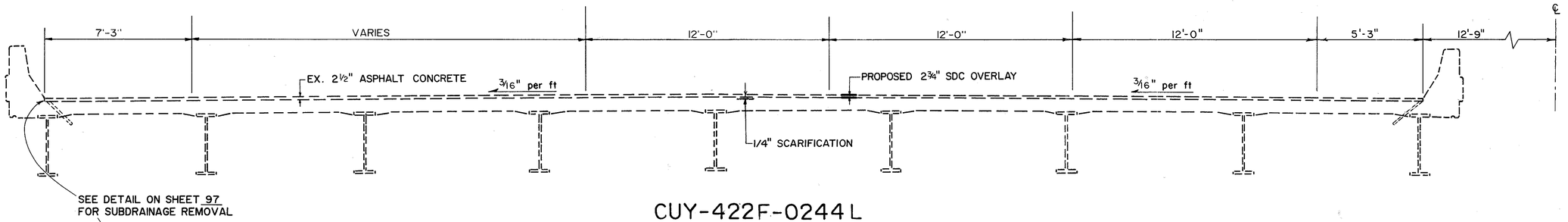
CUYAHOGA COUNTY
CUY-422F-0.51



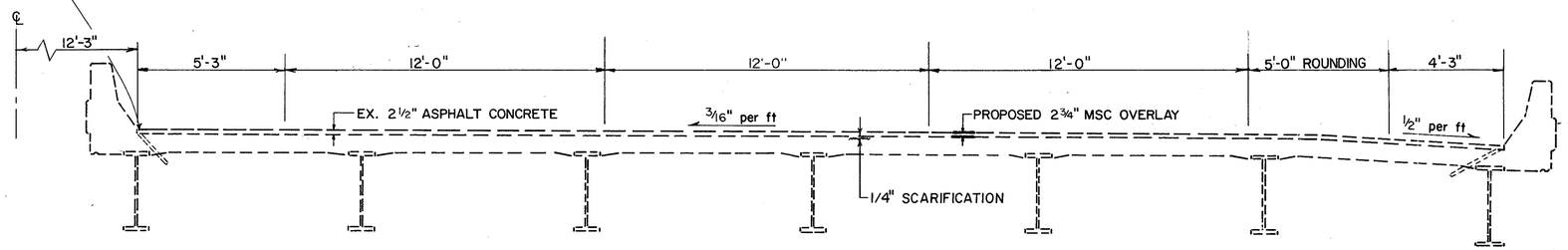
PLAN



LOCATION	519 PATCHING CONCRETE STRUCTURES AS PER PLAN SQ. FT.	520 PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR SQ. FT.
BR. Nº CUY-422F-0244 R		
EAST ABUTMENT		2
50% EXPANSION FACTOR		1
TOTAL		3



CUY-422F-0244 L



CUY-422F-0244 R

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL PLAN

BRIDGE No. CUY-422F-0244L&R
U.S.R. 422FOVER CANNON RD.

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
EXF	WCV		DWL	
DATE	DATE	DATE	DATE	SHEET 11/14

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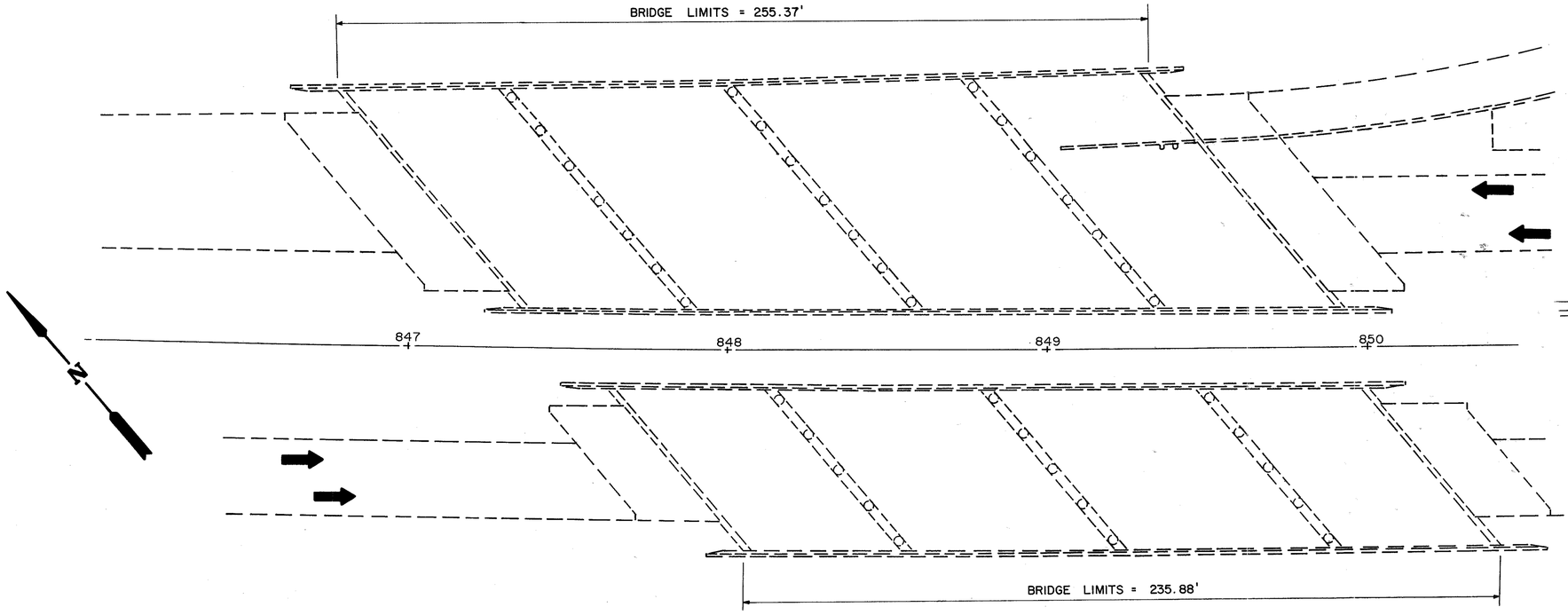

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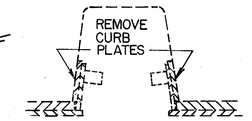
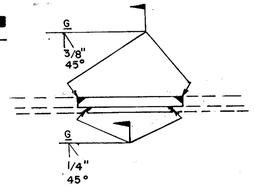
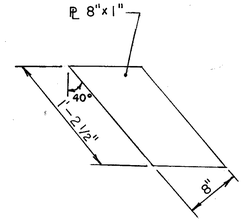
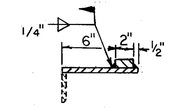


EXISTING CURB PLATES

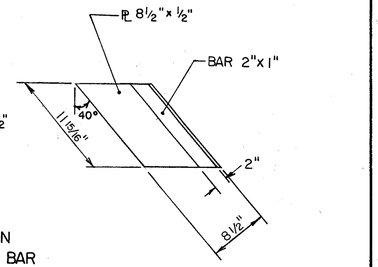




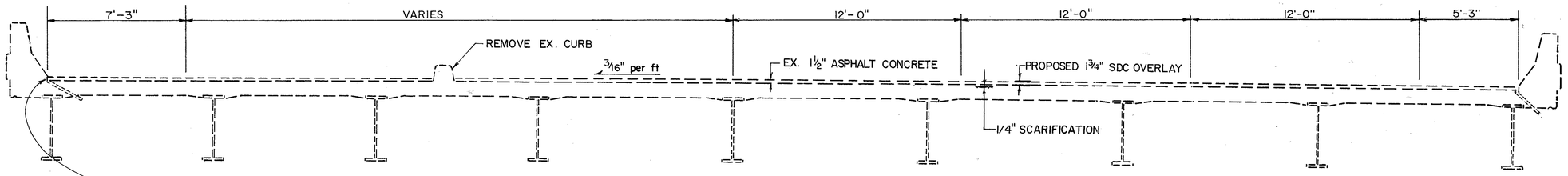
PROPOSED TOP PLATE



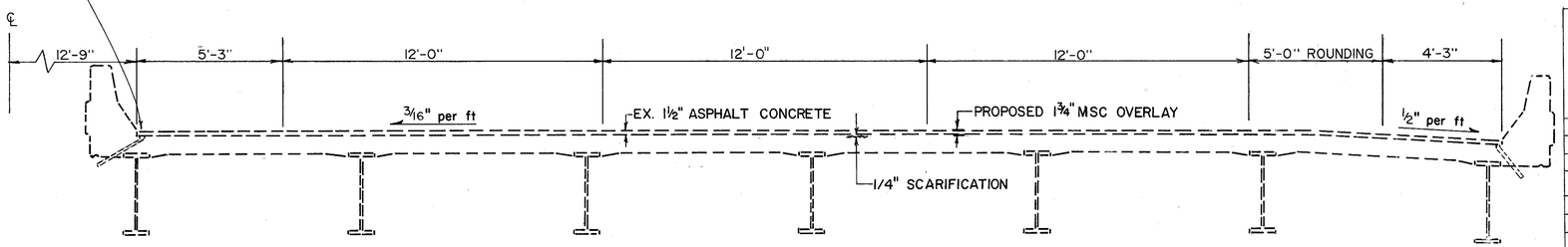
PROPOSED SECTION BOTTOM PLATE AND BAR



PROPOSED BOTTOM PLATE AND BAR



CUY-422F-0274 L



CUY-422F-0274 R

LOCATION	519 PATCHING CONCRETE STRUCTURES AS PER PLAN SQ. FT.
BR. Nº CUY-422F-0274L	
WEST ABUTMENT	5
50% EXPANSION FACTOR	3
TOTAL	8
BR. Nº CUY-422F-0274R	
PIER Nº 3	5
50% EXPANSION FACTOR	3
TOTAL	8

ITEM 202-PORTIONS OF STRUCTURES REMOVED (CUY-422F-0274L)

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING CURB AND CURB SCUPPERS. EXISTING CURB REINFORCING STEEL SHALL BE REMOVED TO BELOW THE TOP DECK REINFORCING MAT.

THE REMOVAL SHALL INCLUDE APPROXIMATELY 42 L.F. OF REINFORCED CONCRETE CURB AND 2 SCUPPERS.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL PLAN

BRIDGE No. CUY-422F-0274 L&R
U.S.R. 422FOVER HARPER RD.

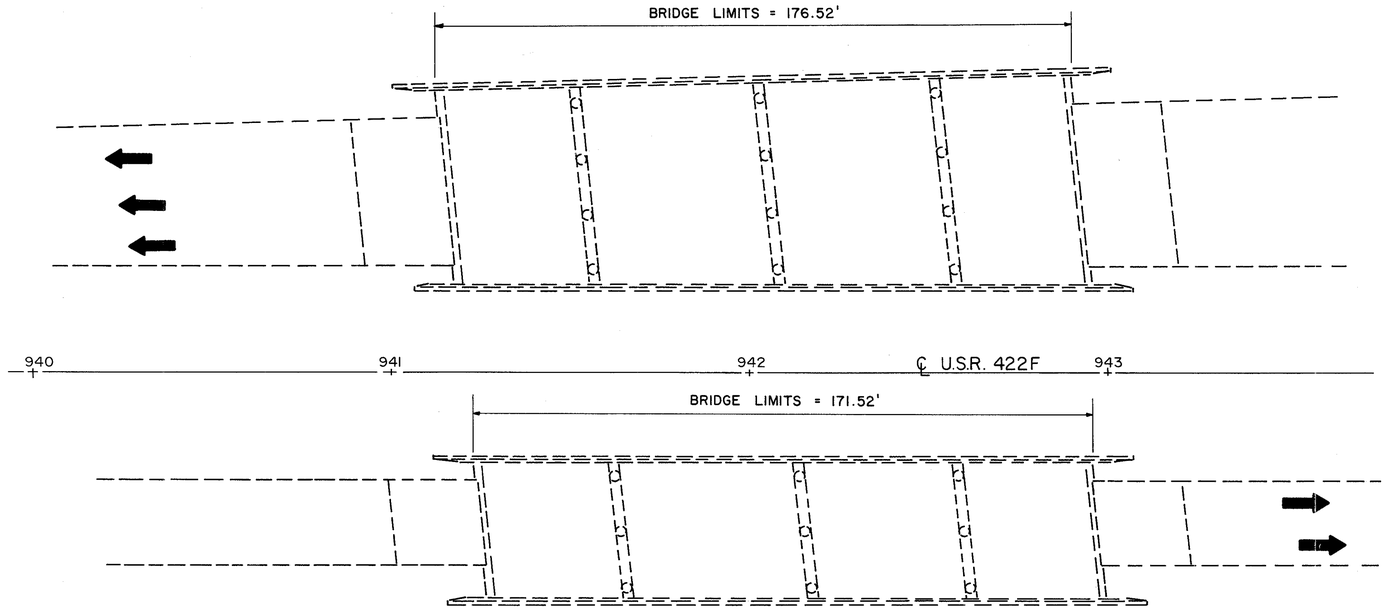
CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
EWF	WCV		DWL	
DATE	DATE	DATE	DATE	SHEET 12/14

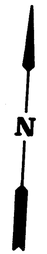
FHWA REGION	STATE	PROJECT	
5	OHIO		

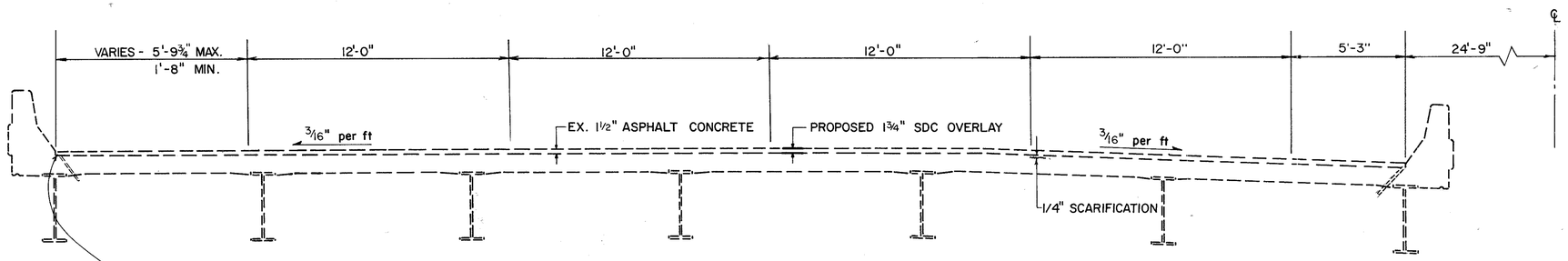
101
102

CUYAHOGA COUNTY
CUY-422F-0.51

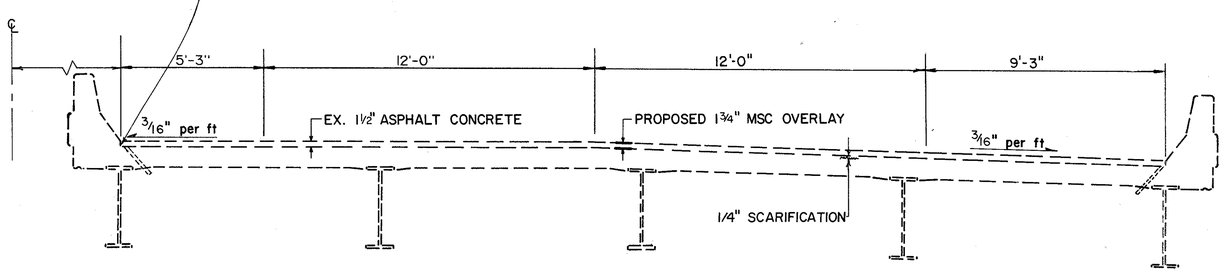


PLAN





CUY-422F-0451 L



CUY-422F-0451 R.

LOCATION	519 PATCHING CONCRETE STRUCTURES AS PER PLAN	520 PATCHING CONCRETE STRUCTURES WITH TROWELABLE EPOXY MORTAR
	SQ. FT.	SQ. FT.
BR. Nº CUY-422F-0451 L		
PIER Nº 2	5	
EAST BACKWALL		2
50% EXPANSION FACTOR	3	1
TOTAL	8	3
BR. Nº CUY-422F-0451R		
PIER Nº 3	8	
50% EXPANSION FACTOR	4	
TOTAL	12	

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL PLAN

BRIDGE No. CUY-422F-0451 L&R
U.S.R. 422 OVER S.R. 91

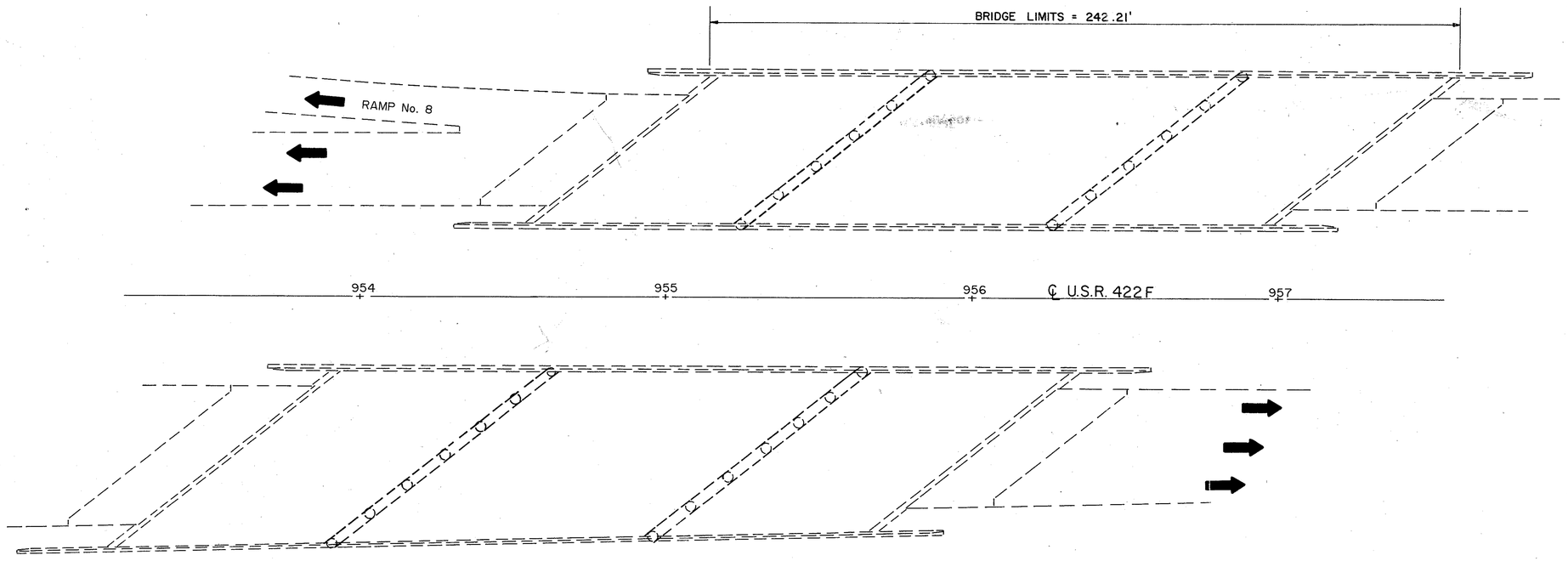
CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
ENF DATE	WCV DATE	DATE	DWL DATE	SHEET 13/14

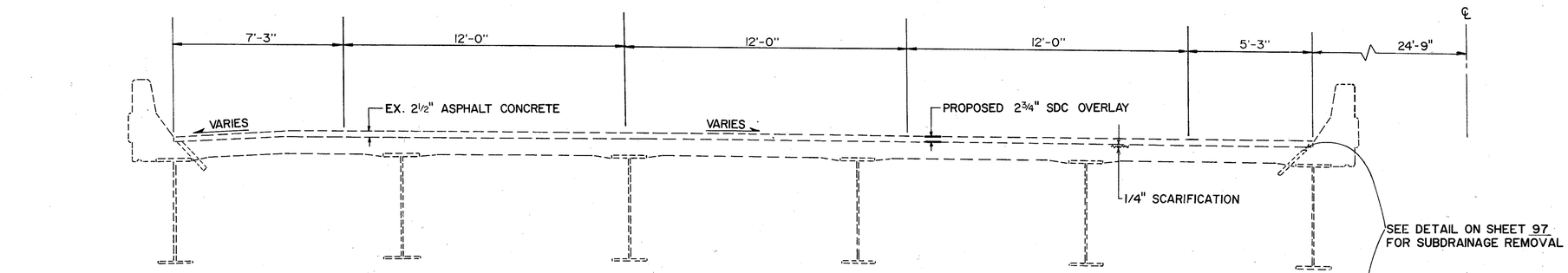
FHWA REGION	STATE	PROJECT	
5	OHIO		

102
102

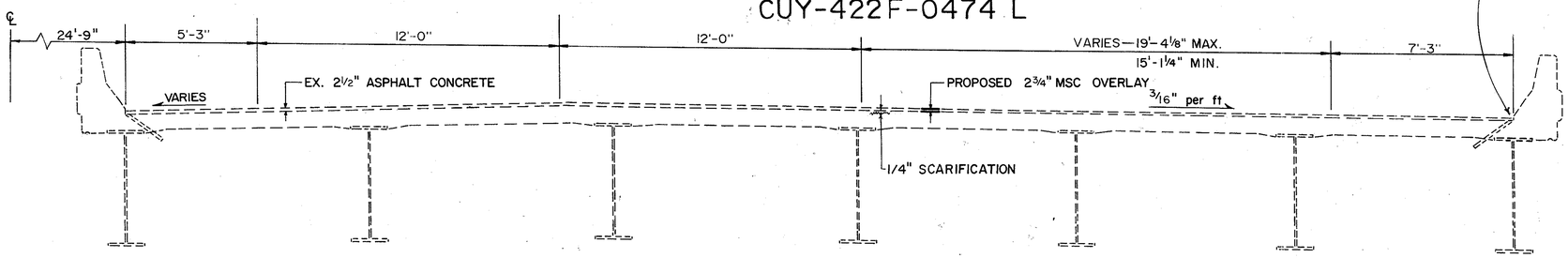
CUYAHOGA COUNTY
CUY-422F-0.51



PLAN



CUY-422F-0474 L



CUY-422F-0474 R

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

GENERAL PLAN

BRIDGE No. CUY-422F-0474 L&R
U.S.R. 422F OVER SOLON RD.

CUYAHOGA COUNTY OHIO

DESIGNED	TRACED	CHECKED	REVIEWED	REVISED
ENF	WCV		DWL	
DATE	DATE	DATE	DATE	SHEET 14/14