STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
STA-21-12.39

~~CITY OF MASSILLON~~
LAWRENCE TOWNSHIP
JACKSON TOWNSHIP
PERRY TOWNSHIP
STARK COUNTY
(WAYNE COUNTY)

STARK COUNTY		
STA-21-12.39		
F-48 (9)	FEDERAL PROJECT	

DESIGN DESIGNATION

Current A.D.T. (1988)	=	6810
Design Year A.D.T. (2008)	=	8830
D.H.V.	=	883
D	=	56%
T	=	8%
Design Speed	=	55 m.p.h.
Legal Speed	=	55 m.p.h.
Functional Classification = Arterial (Rural)		
• Design Exception		Approval Date
Graded Shoulder Width		6-23-88

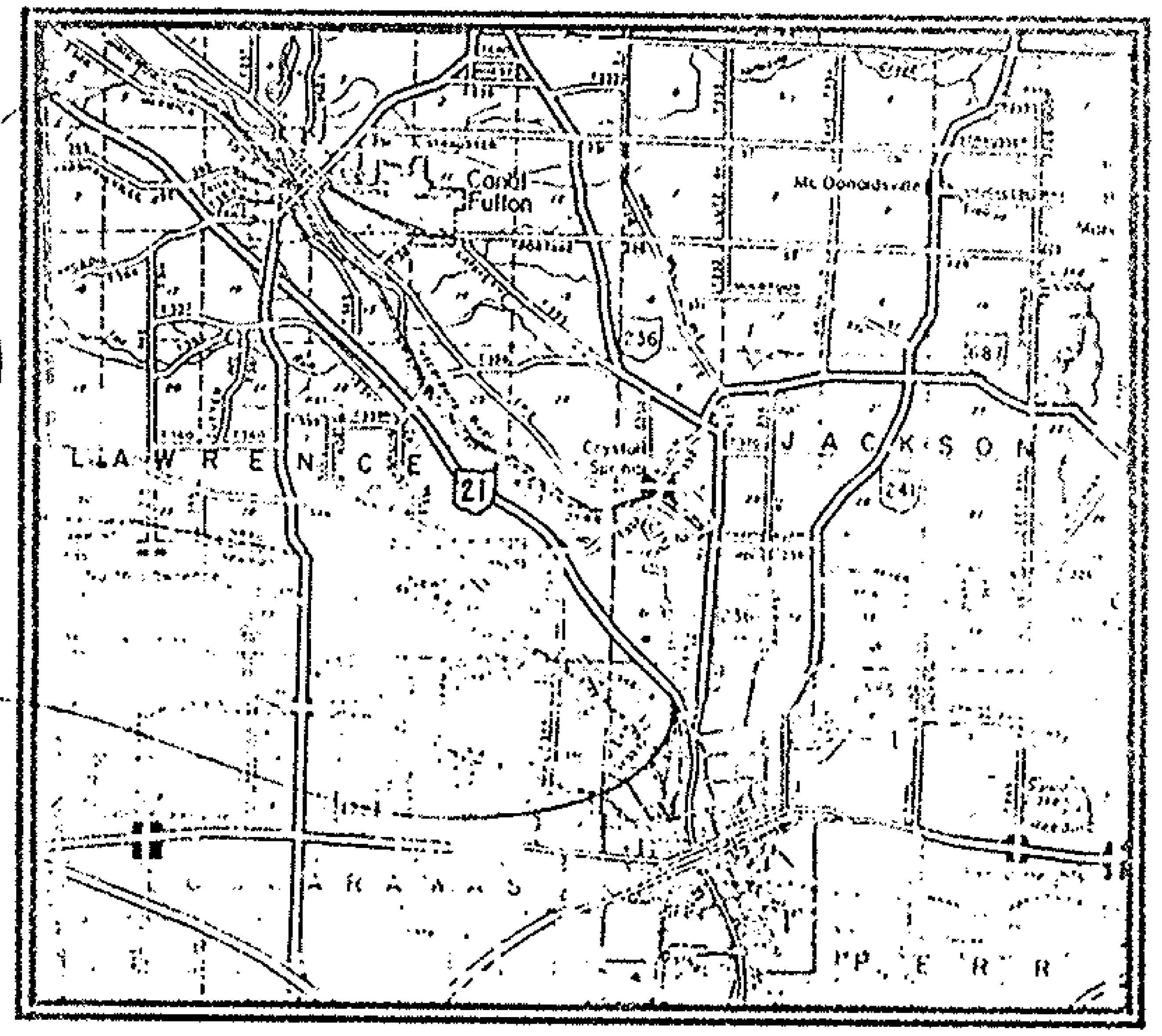
CONVENTIONAL SIGNS

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 — P — (in existing fence) — P —
Railroad ... or ...
Guardrail (existing) ... (proposed) ...

INDEX OF SHEETS

END PROJECT
STA. 1129+94.09 BACK
STA. 0+12.64 AHEAD
STA - 21 - 21.39

BEGIN PROJECT
STA. 654+13.50
STA - 21 - 12.39



LOCATION MAP
SCALE IN MILES
0 1 2 3 4 5

Portion to be Improved
State & Federal Routes
Other Roads

SCALES

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

LINE DATA

NORTHBOUND LANES

Begin Work:	Sta. 647+25.00 ℄ Survey
Begin Project:	Sta. 654+13.50 ℄ Survey
Station Equation:	Sta. 664+56.19 ℄ Survey Back
	= Sta. 664+56.19 ℄ N.B. Pvmt. Ahead
Station Equation:	Sta. 685+14.90 ℄ N.B. Pvmt. Back
	= Sta 685+01.76 ℄ Survey Ahead
Station Equation:	Sta. 918+94.58 ℄ Survey Back
	= Sta. 917+27.79 ℄ Survey Ahead
End Project:	Sta. 1129+94.09 ℄ Survey
Station Equation:	Sta. 1129+94.09 ℄ Survey Back
	= Sta. 0+12.64 ℄ Survey Ahead
End Work:	Sta. 20+50.00 ℄ Survey
Length of Project:	47,760.52 Linear Feet or 9.046 Miles
Length of Work:	50,486.38 Linear Feet or 9.562 Miles

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

1989 SPECIFICATIONS

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

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

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

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

SUPPLEMENTAL SPECIFICATIONS			
802	5-4-88		
811	9-26-88		
836	11-12-85		
		921	12-4-7[illegible]
		[illegible]	1-10-69
847	10-17-83	942	10-12-83
850	5-31-88		
944	6-24-89		

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS							
BP-2	1-11-85	GR-1	1-11-85				
		GR-2B	2-5-82	AS-1-81	11-27-81	MT-99.10	11-14-86
		GR-3	1-21-85	BR-1	5-29-79	MT-99.20	4-29-88
BP-5	10-1-87	GR-4	2-5-82	TC-61.10	4-5-82	TC-35.10	8-29-84
BP-7	10-1-87	GR-4A	1-30-84	TC-72.20	2-26-82		
BP-9	12-6-76	GR-6	2-5-82	TC-41.20	3-26-79		
BP-11	1-30-84	GR-6A	2-5-82				
		GR-7	2-5-82	SD-1-69	6-12-69		
		HW-4A&B	4-1-80	GR-5	2-5-82		
CB 2-3 & 2-4	5-1-79	MC-4	7-26-76				
CB-4	11-10-83	MC-9A	1-11-85				
CB-5	11-10-83	MC-11	8-1-78				
CB-8	11-10-83						

Approved William Buckley
Date 4-5-88 District Deputy Director of Transportation

Approved B.D. Hauklam
Date 4-27-88 Engineer, Bureau of Bridges and Structural Design

Approved George E. [illegible]
Date 6-24-88 Chief Engineer, Planning and Design

Approved Bernard B Hurst
Date 6-24-88 Director, Department of Transportation

REVISED 4-2-90
REVISED 6-7-89

Plan Prepared By:
DISTRICT NO. 7
OHIO DEPARTMENT OF TRANSPORTATION

SEAL

Project: STA - 21 - 12.39
Date of Letting ________ 19__ Contract No.____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED:

DIVISION ADMINISTRATOR DATE

8259
06/11/90

SCHEMATIC PLAN

FHWA REGION	STATE	PROJECT	
5	OHIO		

$\frac{2}{117}$

STARK COUNTY
STA-21-12.39

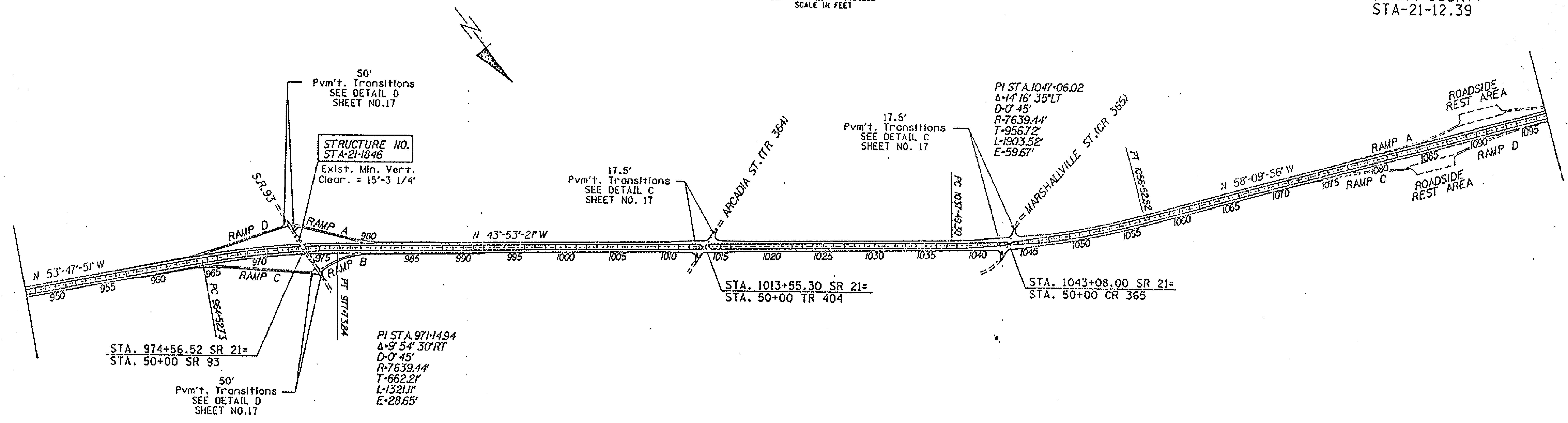
NOTE : This project shall consist of planing the existing pavement to an average depth of 1" and the placement of 2 1/4", 846 Asphalt Intermediate Course and 1 1/4", 846 Asphalt Surface Course as indicated on Typical Section sheet no.'s 4, 5 and 6. This project will also include the removal of existing guardrail and installation of proposed Type 5 guardrail and appropriate anchor assemblies as shown on sheet no. 22. The shoulder slopes shall be constructed to the grades shown on the Typical Sections, subject to the discretion of the Engineer as noted on the Linear Grading detail, sheet no. 21.

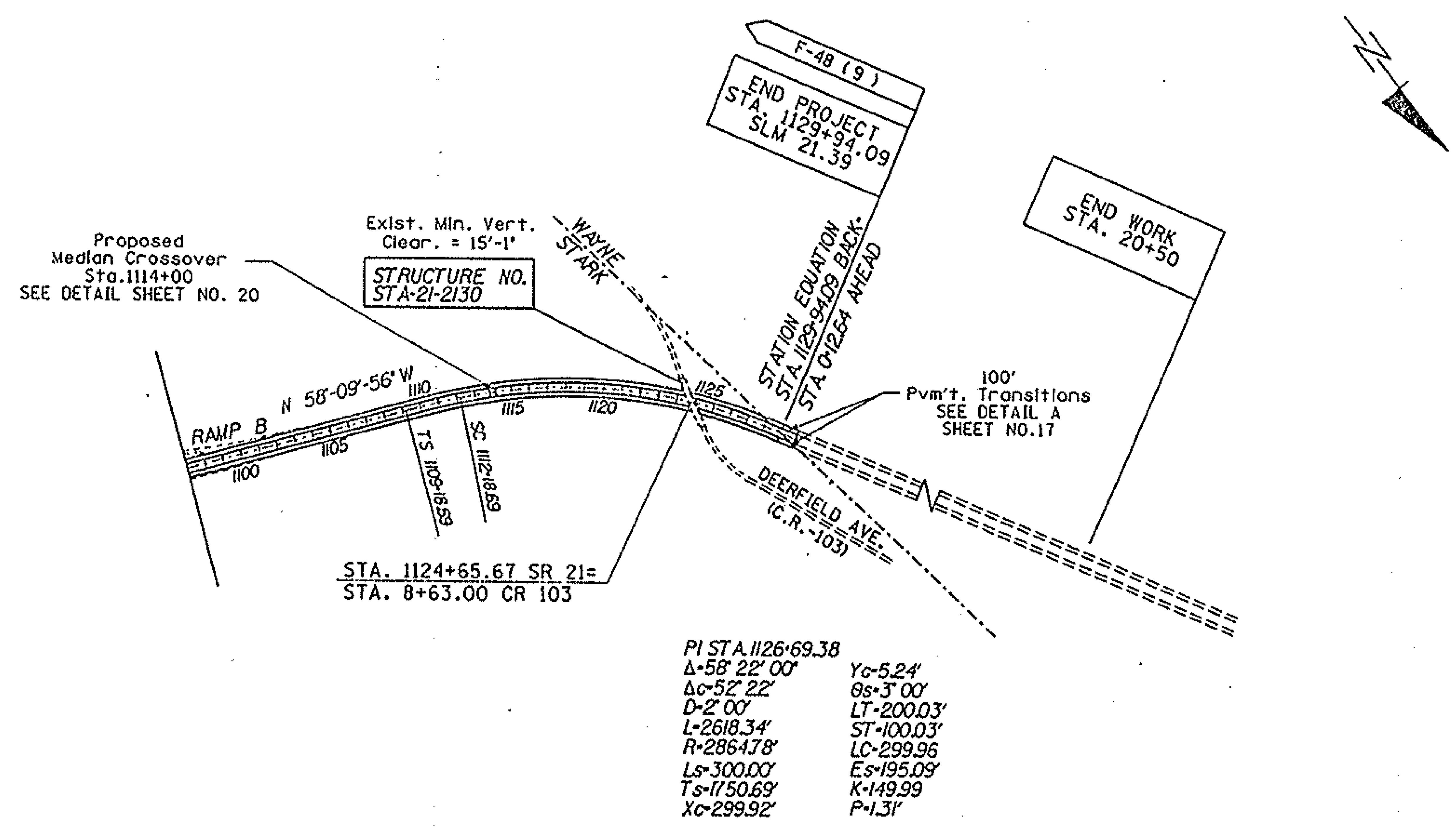
SCHEMATIC PLAN

FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA-21-12.39

0 500 1000
SCALE IN FEET



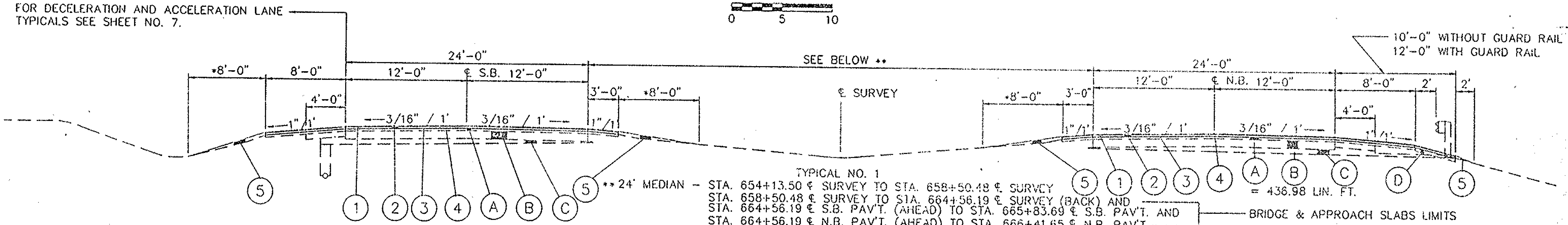


SCHEMATIC PLAN

STARK COUNTY
STA - 21 - 12.39

TYPICAL SECTIONS

TYPE 846
SCALE IN FEET
0 5 10



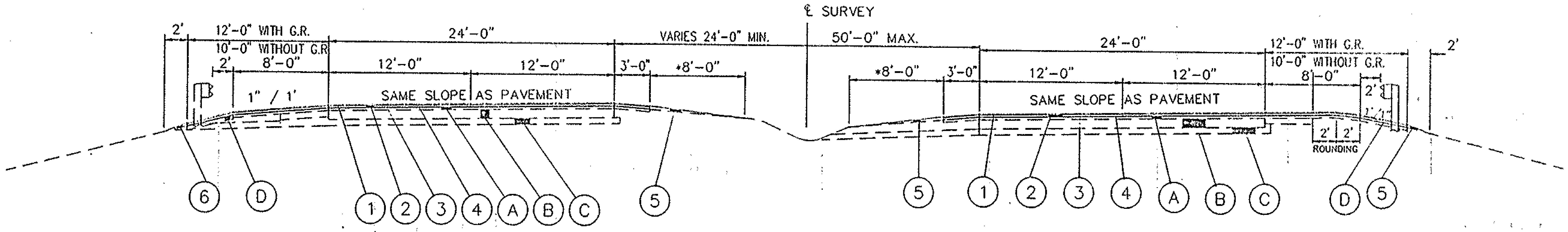
TYPICAL NO. 1

** 24' MEDIAN – STA. 654+13.50 ℄ SURVEY TO STA. 658+50.48 ℄ SURVEY = 436.98 LIN. FT.
STA. 658+50.48 ℄ SURVEY TO STA. 664+56.19 ℄ SURVEY (BACK) AND
STA. 664+56.19 ℄ S.B. PAV'T. (AHEAD) TO STA. 665+83.69 ℄ S.B. PAV'T. AND
STA. 664+56.19 ℄ N.B. PAV'T. (AHEAD) TO STA. 666+41.65 ℄ N.B. PAV'T. — BRIDGE & APPROACH SLABS LIMITS
STA.665+83.69 ℄ S.B. PAV'T. TO STA. 666+50.00 ℄ S.B. PAV'T. = 66.31 LIN. FT.
STA. 666+41.65 ℄ N.B. PAV'T. TO STA. 667+50.00 ℄ N.B. PAV'T. = 108.35 LIN. FT.
** 50' MEDIAN – STA.682+25.00 ℄ S.B. PAV'T. TO STA. 684+98.46 ℄ S.B. PAV'T. (BACK) = 273.46 LIN. FT.
STA.683+25.00 ℄ N.B. PAV'T. TO STA. 685+14.90 ℄ N.B. PAV'T. (BACK) = 189.90 LIN. FT.
STATION EQUATION: STA. 684+98.46 ℄ S.B. & STA. 685+14.90 ℄ N.B. PAV'T. (BACK) = STA. 685+01.76 ℄ SURVEY (AHEAD)
STA. 685+01.76 ℄ SURVEY TO STA. 720+00.00 ℄ SURVEY = 3498.24 LIN. FT.
STA. 737+29.44 ℄ SURVEY TO STA. 761+50.00 ℄ SURVEY = 2420.56 LIN. FT.
STA. 871+92.74 ℄ SURVEY TO STA. 879+80.36 ℄ SURVEY = 787.62 LIN. FT.
STA. 918+50.00 ℄ SURVEY TO STA. 918+94.58 ℄ SURVEY = 44.58 LIN. FT.
STATION EQUATION: STA. 918+94.58 ℄ SURVEY (BACK) = STA. 917+27.79 ℄ SURVEY (AHEAD)
STA. 917+27.79 ℄ SURVEY (AHEAD) TO STA. 963+25.00 ℄ SURVEY = 4597.21 LIN. FT.
STA. 979+00.00 ℄ SURVEY TO STA. 1037+49.30 ℄ SURVEY = 5849.30 LIN. FT.
STA. 1056+52.82 ℄ SURVEY TO STA. 1109+13.29 ℄ SURVEY = 5260.47 LIN. FT.

* SEE DETAIL "A" SHEET NO. 5.

TYPICAL NO. 2
STA. 761+50.00 ℄ SURVEY TO STA. 799+51.75 ℄ SURVEY = 3801.75 LIN. FT.
STA. 818+57.30 ℄ SURVEY TO STA. 848+08.34 ℄ SURVEY = 2951.04 LIN. FT.

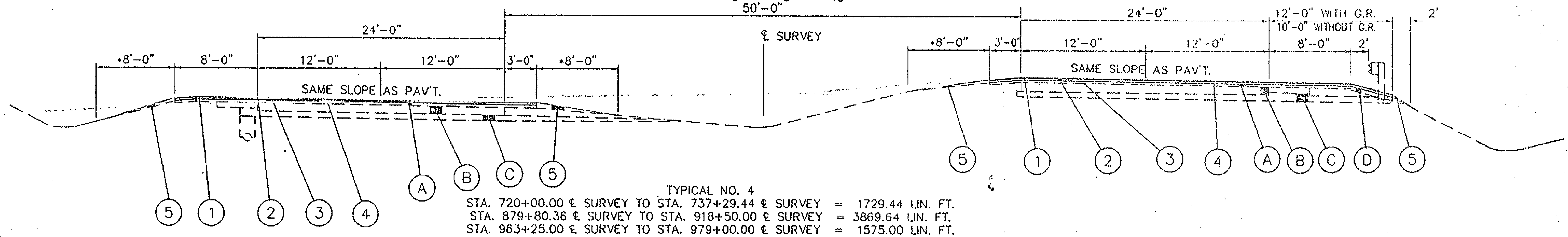
FOR CODE SEE SHEET NO. 5



TYPICAL NO. 3
STA. 666+50.00 ℄ S.B. PAV'T. TO STA. 682+25.00 ℄ S.B. PAV'T. = 1575.00 LIN. FT.
STA. 667+50.00 ℄ N.B. PAV'T. TO STA. 683+25.00 ℄ N.B. PAV'T. = 1575.00 LIN. FT.
STA. 1109+13.29 ℄ SURVEY TO STA. 1129+94.09 ℄ SURVEY (BACK ONLY) = 2080.80 LIN. FT.

TYPICAL SECTIONS

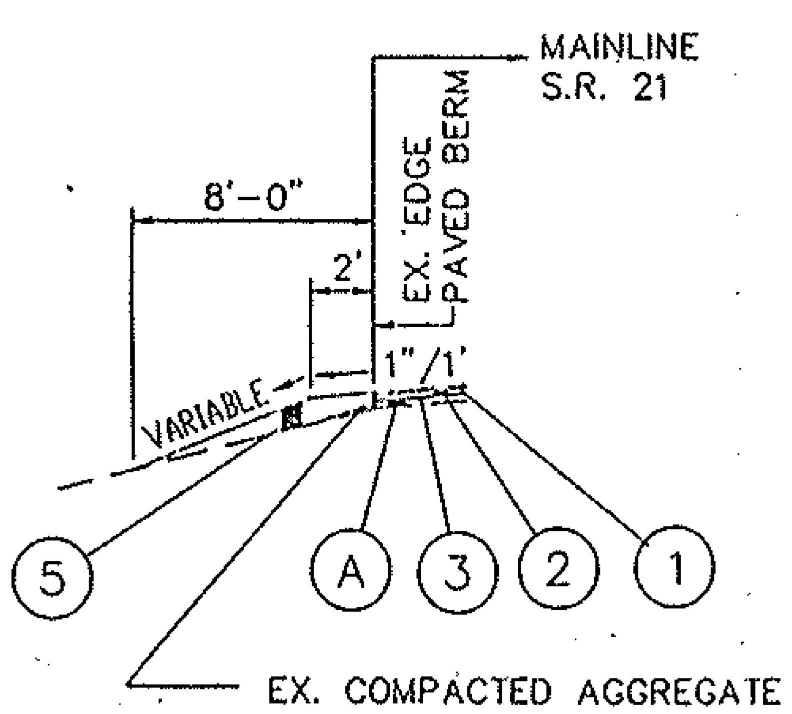
TYPE 846
SCALE IN FEET
0 5 10



TYPICAL NO. 4
STA. 720+00.00 ℄ SURVEY TO STA. 737+29.44 ℄ SURVEY = 1729.44 LIN. FT.
STA. 879+80.36 ℄ SURVEY TO STA. 918+50.00 ℄ SURVEY = 3869.64 LIN. FT.
STA. 963+25.00 ℄ SURVEY TO STA. 979+00.00 ℄ SURVEY = 1575.00 LIN. FT.
STA. 1037+49.30 ℄ SURVEY TO STA. 1056+52.82 ℄ SURVEY = 1903.52 LIN. FT.

* SEE DETAIL "A"
SHEET NO. 5

TYPICAL NO. 5
STA. 799+51.75 ℄ SURVEY TO STA. 818+57.30 ℄ SURVEY = 1905.55 LIN.FT.
STA. 848+08.34 ℄ SURVEY TO STA. 867+47.09 ℄ SURVEY = 1938.75 LIN. FT.
STA. 867+47.09 ℄ SURVEY TO STA. 868+89.09 ℄ SURVEY = BRIDGE LIMITS
STA. 868+89.09 ℄ SURVEY TO STA. 871+92.74 ℄ SURVEY = 303.65 LIN. FT.



DETAIL "A"

CODE

1. ITEM 846 - 1 1/4" ASPHALT SURFACE COURSE, TYPE I, AC-20
2. ITEM 846 - 2 1/4" ASPHALT INTERMEDIATE COURSE, TYPE 2, AC-20
3. ITEM SPECIAL- PAVEMENT PLANNING BITUMINOUS ,1" AVERAGE DEPTH (58.5' AVG. WIDTH USED FOR PAVEMENT CALCULATIONS) [SEE PROPOSAL NOTE]
4. ITEM 407 - TACK COAT, AS PER PLAN
5. ITEM 617 - COMPACTED AGGREGATE, TYPE A
6. ITEM 304 - 6" AGGREGATE BASE
7. ITEM 606 - GUARDRAIL, TYPE 5

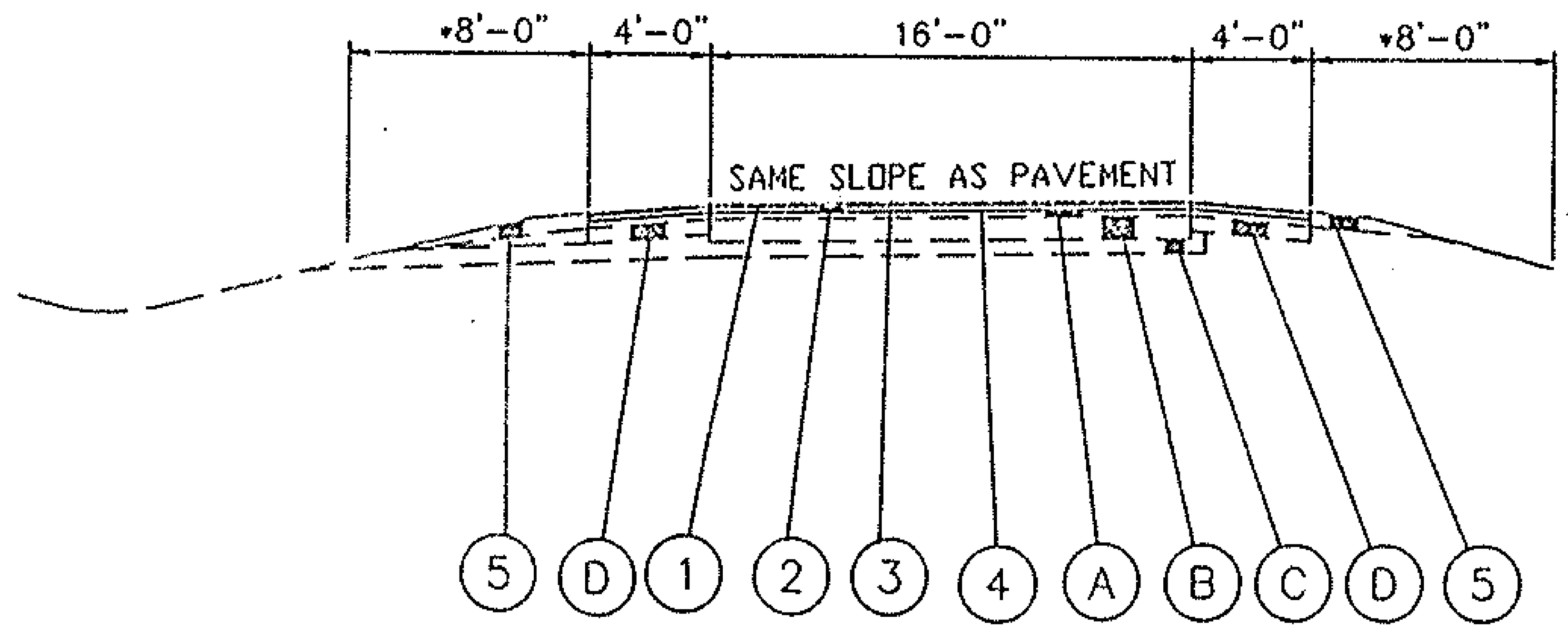
(A) 2 1/2" EXISTING ASPHALT
(B) 9" EXISTING REIN. CONC.PAV'T.
(C) 6" EXISTING AGGREGATE BASE
(D) 4" STABILIZED CRUSHED AGGREGATE

AC-STA21TS2

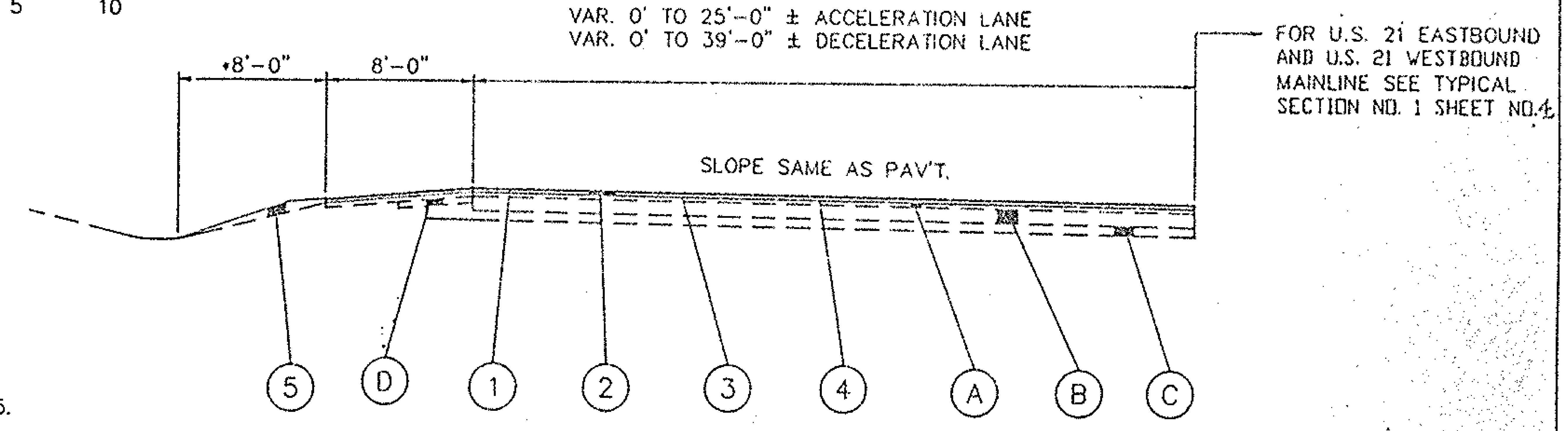
TYPICAL SECTIONS

TYPE 846
SCALE IN FEET
0 5 10

RAMP TYPICALS @ U.S. 93



ACCELERATION AND DECELERATION LANE TYPICALS

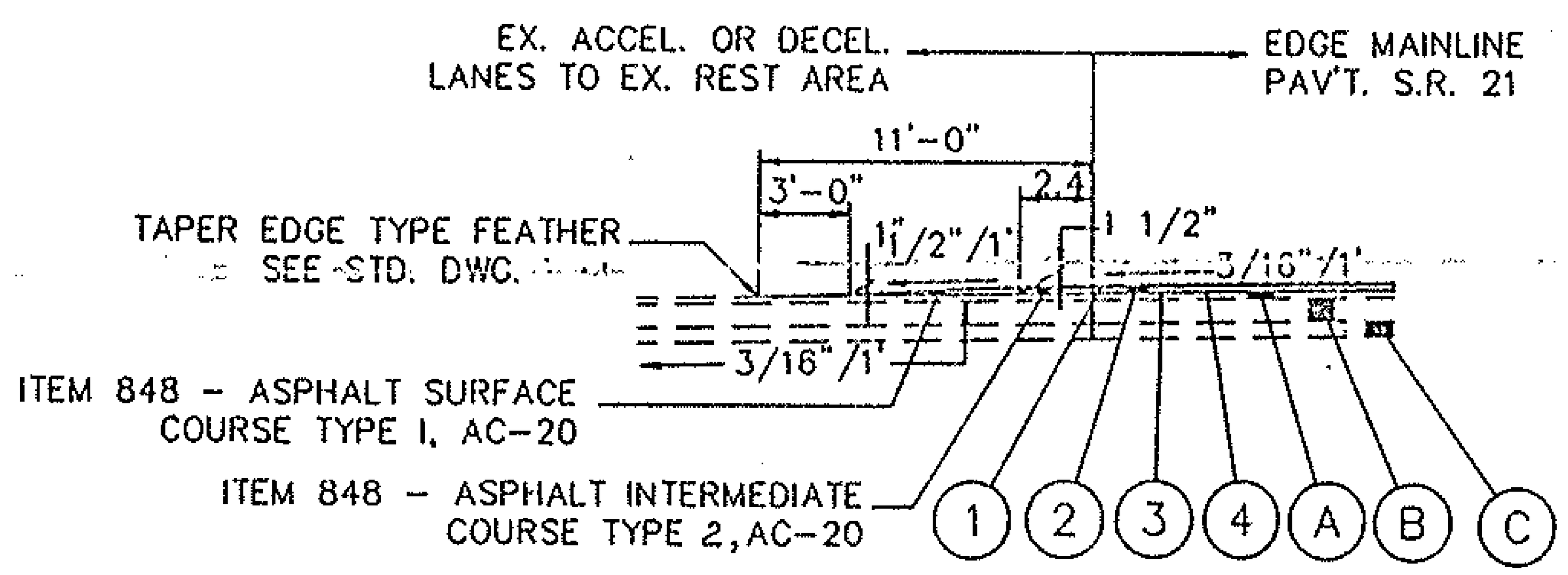


* SEE DETAIL "A" SHEET NO. 5.

FOR CODE SEE SHEET NO. 5.

TYPICAL NO.6
RAMP A STA. 4+14.51 TO STA. 10+30.68 = 616.17 LIN. FT.
RAMP B STA. 0+62.00 TO STA. 4+30.45 = 368.45 LIN. FT.
RAMP C STA. 3+13.16 TO STA. 12+85.72 = 972.56 LIN. FT.
RAMP D STA. 0+63.92 TO STA. 9+39.12 = 875+20 LIN. FT.

TYPICAL NO. 7
RAMP A S.R. 93 DECEL. STA. 979+72.09 TO STA. 987+75
RAMP B S.R. 93 ACCEL. STA. 979+90.05 TO STA.980+83.53 OPPOSITE HAND
RAMP C S.R. 93 DECEL. STA. 957+50.00 TO STA. 965+52.69 OPPOSITE HAND
RAMP D S.R. 93 STA. 955+55.00 TO STA. 964+16.40



TYPICAL NO. 8
ROADSIDE REST AREA RAMPS
RAMP A STA. 1074+50 TO STA. 1084+40
RAMP B STA. 1097+02 TO STA. 1104+00
RAMP C STA. 1072+29 TO STA. 1078+36
RAMP D STA. 1092+75 TO STA. 1103+00

GENERAL NOTES

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.

UNDERGROUND UTILITIES

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

UTILITY OWNERSHIP

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

ELECTRIC:
OHIO EDISON (CORRESPONDENCE)
76 SOUTH MAIN STREET
AKRON , OHIO 44308
ATTN: MR. BENJAMIN MCCOY
AC-216-384-5715

OHIO EDISON (PLANS)
48 FIRST STREET N.W.
MASSILLON, OHIO 44646
ATTN: MR. D.J.BLAKE
AC-216-833-3141

WATER:
OHIO WATER SERVICE
123 THIRD STREET S.E.
MASSILLON, OHIO 44646
ATTN: MR. MERRILL SLOAN
AC-216-833-2220

TELEPHONE:
OHIO BELL TELEPHONE
823 MCKINLEY AVE. N.W.
CANTON, OHIO 44703
ATTN: MR. HANK FRIEDRICH
AC-216-489-2628

UNITED TELEPHONE
270 SOUTH PARK AVE.
WARREN, OHIO 44483
ATTN: MRS. MONICA MEGYESI
AC-216-841-1214

TELEVISION:
MASSILLON CABLE T.V. INC.
P.O. BOX 814
MASSILLON, OHIO 44646
ATTN: MR. NEAL TRAVIS
AC-216-833-4134

GAS:
EAST OHIO GAS COMPANY
4725 SOUTHWAY S.W.
CANTON, OHIO 44706
ATTN: MR. W.R. KOST
AC-216-478-3140

CONTINGENCY QUANTITIES

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

PROJECT TRANSITIONS AND FEATHERS

THE LENGTH OF THE PROJECT TRANSITIONS AND FEATHERS ARE INDICATED ON THE PLAN SHEETS. THE FEATHER TYPE, WHETHER BUTT-TYPE JOINT OR FEATHER EDGE TYPE, ARE SHOWN ON THE PLANS. REFER TO STANDARD CONSTRUCTION DRAWING BP-5 FOR FEATHERING DETAILS.

WATERING PERMANENT SEEDED AREAS

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

659 WATER..12 M GAL.

REPAIR OF GRASS AREAS

WHERE OPERATIONS RESULT IN DISTURBING GRASS AREAS, THE AREAS SHALL BE REPAIRED IN ACCORDANCE WITH ITEM 659, SEEDING AND MULCHING. LIMITS OF REPAIR AREAS SHALL BE DETERMINED BY THE ENGINEER.

ITEM 846

THIS WORK SHALL CONSIST OF CONSTRUCTING A SURFACE COURSE AND INTERMEDIATE COURSE IN ACCORDANCE WITH THE SPECIFICATIONS FOR HEAVY TRAFFIC VOLUMES AS PER SUPPLEMENTAL SPECIFICATION 846, ASPHALT CONCRETE.

ITEM 448

ASPHALT CONCRETE IS PROVIDED FOR USE BY THE ENGINEER AT A THICKNESS OF 1/2" TO CORRECT MINOR DEPRESSIONS AND CORRECTION OF EXISTING PAVED BERMS.

ITEM 448 ASPHALT CONCRETE, TYPE 1, AC-20.................1714 CU. YD.

ITEM 407 TACK COAT, AS PER PLAN

THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. WHEN COVER AGGERATE IS NEEDED, IT SHALL BE USED AS DIRECTED BY THE ENGINEER, AND IT SHALL BE CONSIDERED INCIDENTAL TO, AND BE INCLUDED FOR PAYMENT IN: ITEM 407 TACK COAT, AS PER PLAN. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.10 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

GUARDRAIL REPLACEMENT

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

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.

CONNECTION TO EXISTING PIPE

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

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

PROPOSED CATCH BASINS, INLETS AND MANHOLES

PROPOSED GRATE AND LID ELEVATIONS AND HORIZONTAL LOCATIONS WERE DEVELOPED FROM THE BASE FIELD INFORMATION. TO ENSURE THAT THE ELEVATIONS AND LOCATIONS BLEND TO THE FIELD CONDITIONS AND PROVIDE A FUNCTIONAL SYSTEM, THE ENGINEER SHALL RE-EVALUATE THE LAYOUT BEFORE ANY PROPOSED WORK PROCEEDS.

JOINT SEALERS

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

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

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

ITEM 207	TEMPORARY SEEDING AND MULCHING	11,038 SQ.YD.
ITEM 207	STRAW AND HAY BALES	160 EACH
ITEM 207	TEMPORARY SLOPE DRAINS	280 LIN.FT.
ITEM 207	TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS	1400 CU.YD.
ITEM 601	ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER	12 CU.YD.
ITEM 659	MOWING	124 M.SQ.FT.
ITEM 659	COMMERCIAL FERTILIZER	1 TON
ITEM 659	REPAIR SEEDING AND MULCHING	2759 SQ.YD.
ITEM 659	WATER	24 M.GAL.

EXTENSION OVER ONE CONSTRUCTION SEASON

IF THIS PROJECT EXTENDS OVER ONE CONSTRUCTION SEASON, THE SURFACE COURSE MUST BE IN PLACE OVER THE WINTER. NO BINDER COURSE, LEVELING COURSE, BASE COURSE OR INTERMEDIATE COURSE WILL BE PERMITTED TO BE EXPOSED OVER THE WINTER MONTHS BETWEEN CONSTRUCTION SEASONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING THE SURFACING TO BE COMPLETE BY THE END OF THE CONSTRUCTION SEASON.

ITEM 604 INLET RECONSTRUCTED TO GRADE, AS PER PLAN.

THE EXISTING MEDIAN INLETS AT STA.666+10 AND STA.974+80 SHALL BE RECONSTRUCTED TO GRADE AND FITTED WITH A SOLID CAST IRON COVER. THE DIMENSIONS FOR THE SOLID COVER ARE APPROXIMATELY 2'-4" SQUARE AND 1" THICK. THESE DIMENSIONS SHALL BE FIELD CHECKED BY THE ENGINEER BEFORE THE SOLID COVERS ARE ORDERED. COST OF THE SOLID COVERS SHALL BE INCLUDED IN THE EACH PRICE BID FOR ITEM 604 INLET RECONSTRUCTED TO GRADE, AS PER PLAN.

ITEM 617 COMPACTED AGGREGATE

THIS ITEM SHALL BE USED AS DIRECTED BY THE ENGINEER TO TRANSITION FROM THE EDGE OF THE PROPOSED PAVED BERM TO THE EXISTING SOD OR SEEDED BERM AND TO CORRECT MINOR DEPRESSIONS AT THE EDGE OF THE PAVED BERM.

PROFILE AND ALIGNMENT

THE PROPOSED PAVEMENT RESURFACING COURSE SHALL FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. PREVIOUS CONSTRUCTION PLANS SHOWING THE ORIGINAL ALIGNMENT AND PROFILE GRADE ARE ON FILE FOR INSPECTION IF NECESSARY AT THE O.D.O.T. DISTRICT 4 OFFICE AS PROJECT NO. STA-21-12.39
THE PROPOSED ASPHALT CONCRETE OVERLAYS VARY AS SHOWN ON THE TYPICAL SECTIONS.

EROSION CONTROL PADS AND ANIMAL GUARDS

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL PIPE UNDERDRAINS AND FARM DRAINS, AS PER STANDARD CONSTRUCTION DRAWING MC-4, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE.

CONDUIT END TREATMENT

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

ITEM 617 WATER :
AN ESTIMATED QUANTITIES OF 50 M. GAL. CARRIED TO THE GENERAL SUMMARY TO BE USED AS ~~DIRECTED~~ BY THE ENGINEER.

ADDITIONAL QUANTITIES:

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THESE PLANS TO BE USED IF AND AS DIRECTED BY THE ENGINEER. THE HORIZONTAL LOCATIONS, GRATE ELEVATIONS, FLOWLINE ELEVATIONS SHALL BE EVALUATED BY THE ENGINELR BEFORE ANY FIELD WORK BEGINS.

*ITEM SPECIAL: CLEANING EXISTING CONDUIT	70 LIN. FT. *
ITEM 604: CATCH BASIN RECONSTRUCTED TO GRADE	8 EACH
ITEM 604: CATCHBASIN NO. 5 RECONSTRUCTED TO GRADE	4 EACH
ITEM 604: INLETS RECONSTRUCTED TO GRADE	4 EACH
ITEM 202: RAISED PAVEMENT MARKERS REMOVED FOR STORAGE	1552 EACH
ITEM 201: CLEARING AND GRUBBING	LUMP LUMP

* 100% STATE FUNDING

QUANTITIES CARRIED TO GENERAL SUMMARY

SYMBOLS:

ITEM 846 , 1 1/4" ASPHALT SURFACE COURSE, TYPE I, AC-20 ON
ITEM 846 , 1 3/4" ASPHALT INTERMEDIATE COURSE, TYPE 2, AC-20 ON
ITEM 301 , 9" BITUMINOUS AGGREGATE BASE, AC-20 ON
ITEM 407 , TACK COAT, AS PER PLAN ON
ITEM 304 , 6" AGGREGATE BASE

ITEM 846 , 1 1/4" ASPHALT SURFACE COURSE, TYPE 1 , AC-20 ON
ITEM 846 , 1 3/4" ASPHALT INTERMEDIATE COURSE, TYPE 2, AC-20 ON
ITEM 448 , 1/2" ASPHALT CONCRETE COURSE, TYPE 1, AC-20 ON
ITEM 407 , TACK COAT, AS PER PLAN

SEE PAVEMENT TRANSITION DETAILS - SHEET NO. 17.

MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC

IT IS THE INTENTION TO PERFORM THE REQUIRED WORK WITH MINIMUM INCONVENIENCE AND THE MAXIMUM SAFETY TO THE CONTRACTOR AND THE TRAVELING PUBLIC. IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC, PROVIDED THE INTENT OF THE BELOW PROVISIONS ARE 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. THE MINIMUM LENGTH BETWEEN LANE CLOSURES SHALL BE 2 MILES.

THE USE OF BERMS TO MAINTAIN TRAFFIC, UNLESS OTHERWISE INDICATED OR APPROVED BY THE ENGINEER, IS PROHIBITED. SHOULD ANY EXISTING OR NEW BERM AREAS BECOME DAMAGED OR DESTROYED DUE TO THE CONTRACTOR'S NEGLIGENCE TO PROVIDE ADEQUATE SIGNS, BARRICADES, CONES, FLAGGERS, OR OTHER TRAFFIC CONTROL DEVICE. THE RESTORATION OF THE BERMS WILL BE AT THE CONTRACTORS EXPENSE.

EXISTING SPEED LIMIT SIGN LEGENDS IN AREAS WHERE TRAFFIC IS RESTRICTED TO LESS THAN TWO LANES SHALL BE COVERED AND ADVISORY SPEED LIMITS BE PLACED. THE PROJECT ENGINEER SHALL RECORD COVERED AND UNCOVERED SIGNS IN THE PROJECT DIARY. ADVISORY SPEED SHALL BE USED IN CONJUCTION WITH STANDARD ORANGE WARNING SIGNS MOUNTED BELOW THE WARNING SIGN ON THE SAME SUPPORT.

DURING ALL HOURS WHEN TRAFFIC IS RESTRICTED TO LESS THAN TWO LANES IN THE SAME DIRECTION OF FLOW THE CONTRACTOR SHALL EMPLOY AT LEAST ONE QUALIFIED PERSON TO CONTINUOUSLY PATROL THE RESTRICTED AREA, 24 HOURS A DAY, TO MAINTAIN LIGHTS, SIGNS, BARRICADES, CONES, DRUMS, SO AS TO PROVIDE A SAFE FACILITY FOR THE TRAVELING PUBLIC. HE SHALL HAVE AVAILABLE ALL TOOLS AND MATERIALS NECESSARY TO PERFORM THIS FUNCTION AT ALL TIMES.

A MINIMUM LANE WIDTH OF 12 FEET SHALL BE PROVIDED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF A PERSON OR PERSONS WHO CAN BE CONTACTED AT ANY TIME BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ALL **INTERESTED POLICE AGENCIES. THIS PERSON OR** PERSONS SHALL BE RESPONSIBLE **FOR PLACING OR REPLACING NECESSARY TRAFFIC** CONTROL DEVICES IN ACCORD**ANCE WITH THE "OHIO MANUAL OF UNIFORM TRAFFIC** CONTROL DEVICES" LATEST **EDITION, AND THESE PLANS.**

THE STANDARD DEVICE FOR CLOSING ALL LANES TO TRAFFIC SHALL BE WEIGHTED, **PROPERLY REFLECTORIZED** DRUMS OR TEMPORARY PRECAST CONCRETE BARRIERS AS [illegible]. DRUMS PLACED ON A NEWLY PAVED SURFACED COURSE SHALL BE PLACED ON 1/2" PLYWOOD. CONES MAY BE USED IN DAYTIME IN LIEU OF DRUMS IF APPROVED BY THE ENGINEER. CONES MAY BE WEIGHTED TO INCREASE STABILITY BY DOUBLE STACKING, SAND BAGS, OR AS APPROVED BY THE ENGINEER. METAL WEIGHTS OF ANY TYPE OVER THE CONE WILL NOT BE PERMITTED.

DETAILS SHOWING THE PLACEMENT OF DRUMS, SIGNS, WARNING LIGHTS, AND FLASHING ARROW PANEL ARE SHOWN ON DETAIL SHEET NO. 100

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

LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS, EXCEPT WHEN THE WORK INVOLVES BRIDGE WORK, PARAPET WORK, OR AS REQUIRED FOR THE CURING OF CONCRETE USED IN JOINT REPAIRS OR REPLACEMENTS. NORMAL WORKING HOURS SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLIMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

References to Supplemental Specifications 857, 858, 861, 957, 958 and 961 on the Traffic Control Standard Construction Drawings in these plans shall be considered to read as respective references to Items 630, 631, 633, 730, 731 and 733.

CONTRACTORS EQUIPMENT STORAGE:

PAVERS, ROLLERS AND OTHER EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY WHEN PAVING OPERATIONS ARE SCHEDULE TO CONTINUE WITHIN THE NEXT WORKDAY: OTHERWISE THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA. THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. WHEN PARKING ALONG THE HIGHWAY, THE EQUIPMENT SHALL BE PARKED EITHER FIFTY (50) FEET FROM THE EDGE OF PAVEMENT OR (4) FEET BEHING GUARDRAIL WITH A MINIMUM OF 125' OF GUARDRAIL PRECEDING THE EQUIPMENT. ADEQUATE BARRICADES AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDES OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTORS STORAGE AREA.

FOR SHORT PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS FOR THE COMPLETION OF ASPHALT CONCRETE COURSES, THE PAVED BERMS ALONG THE RAMPS MAY BE USED TO MAINTAIN RAMP TRAFFIC WHILE THE RAMPS ARE BEING RESURFACED. A MINIMUM LANE WIDTH OF 11' SHALL BE PROVIDED FOR RAMP TRAFFIC.

BRIDGE AND DECK WORK

STRUCTURE NO. STA-21-1248 L&R
STRUCTURE NO. STA-21-1644 L&R

A MINIMUM OF ONE LANE TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AS PER PROVISIONS OUTLINED ON SHEET NO. 65, "CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY". SHEET NO. 59 THRU 62 "TEMPORARY CONCRETE BARRIER TRAFFIC CONTROL DETAILS, WHICHEVER IS APPLICABLE.

TRENCH FOR WIDENING

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

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING ON THIS PROJECT WILL BE COMPLETED TO A DEPTH 1 1/4 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF THE WORK DAY. EXCEPT FOR A SHORT LENGTH OF A WORK SECTION (25 FEET OR LESS) AT THE END OF THE TRENCH, NO TRENCH WILL BE LEFT OPEN OVERNIGHT. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING WILL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

COOPERATION WITH RAILROADS

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

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

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

TEMPORARY CONCRETE BARRIER, AS PER PLAN

AN ESTIMATED QUANTITY OF *** LIN. FT. OF ITEM 622-TEMPORARY CONCRETE BARRIER, AS PER PLAN SHALL BE FURNISHED, INSTALLED, MAINTAINED AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR. THE TEMPORARY CONCRETE BARRIER SHALL BE USED TO CLOSE ONE LANE OF THE ROADWAY DURING BOTH THE RETROFITTING OF THE EXISTING PARAPETS WITH THE PROPOSED SAFETY SHAPE PARAPET AND DURING BRIDGE DECK REPAIRS.

*** SEE SHEET NUMBERS 74 — 77 FOR ADDITIONAL DETAILS AND QUANTITIES.

THIS ITEM SHALL BE PAID FOR BY THE ACTUAL LINEAL FEET OF ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN INSTALLED AT A PARTICULAR STRUCTURE. ANY COSTS ASSOCIATED WITH REMOVING AND RESETTING THE TEMPORARY CONCRETE BARRIER AT A STRUCTURE, SO THAT THE CLOSED LANE MAY BE OPENED AND THE OPEN LANE CLOSED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN.

ANY COSTS ASSOCIATED WITH FURNISHING, INSTALLING, MAINTAINING AND WHERE NECESSARY REPLACING REFLECTORS SHALL BE AS DESCRIBED ON SHEET NOS. 107 AND 108.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TRAFFIC CONTROL AND TRAFFIC CONTROL DEVICES REQUIRED BY THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" LATEST EDITION, SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

QUANTITIES

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

ITEM 404	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	75 CU.YD.
ITEM 410	TRAFFIC COMPACTED SURFACE TYPE A OR B	100 CU.YD.
ITEM 616	CALCIUM CHLORIDE	5 TONS
ITEM 616	WATER	50 M. GAL.
ITEM 614	WORK ZONE SPEED LIMIT SIGN	78 EACH

PAYMENT

PAYMENT FOR ALL THE MAINTENANCE OF TRAFFIC, EXCEPT FOR ITEMS DESIGNATED AS "ITEM 614, TEMPORARY PAVEMENT MARKINGS, ITEM 446 ASPHALT SURFACE COURSE, TYPE I, AC-20, ITEM 446 ASPHALT INTERMEDIATE COURSE, TYPE 2, AC-20, ITEM 304 AGGREGATE BASE, ITEM 407 TACK COAT, ITEM 621 REMOVAL OF PAVEMENT MARKINGS FOR MAINTAINING TRAFFIC", ITEM 410 TRAFFIC COMPACTED SURFACE, A OR B, ITEM 616, CALCIUM CHLORIDE, ITEM 616, WATER, ITEM 622, TEMPORARY CONCRETE BARRIER, SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614, MAINTAINING TRAFFIC.

PROTECTION OF AERIAL LINES AND TRACK

RAILROAD AERIAL LINES WILL NOT BE RELOCATED BY THE RAILROAD. THE CONTRACTOR SHALL USE ALL PRECAUTIONS NECESSARY TO SEE THAT THE LINES AND TRACK ARE SHIELDED OR PROTECTED AND ARE NOT DISTURBED DURING THE CONSTRUCTION STAGE AND SHALL COOPERATE WITH THE RAILROAD IN THE PROTECTION OF THESE LINES. PLANS AND METHODS OF PROTECTING OR SHEILDING THE AERIAL LINES AND TRACK SHALL BE APPROVED BY THE RAILROAD PRIOR TO STARTING WORK.

REVISED 4-2-90
REVISED 6-7-89
REVISED 8-5-88

U.S.R. 21 MAINLINE CALCULATIONS

NOTE:
(1)=TYPE 1
(2)=TYPE 2

STA. 653+13.50 TO STA. 654+13.50 = 100' TRANSITION AREA
ITEM 846(1) – 35' – 8 3/4" X 70' X 1 1/4" / 27 = 9.65 CU. YD
ITEM 846(1) – 28' – 6 1/2" X 70' X (1 1/4"+2 1/4"/2) / 27 = 10.79 CU. YD.
ITEM 846(1) – 35' – 8 3/4" X 70' X 1 1/4" / 27 = 9.65 CU. YD.
ITEM 846(1) – 100' X 8' X 1 1/4" / 27 = 3.09 CU. YD.
ITEM 846(2) – 35' – 8 3/4" X 70' X (1"+ 2 1/4" / 2) / 27 = 12.54 CU. YD.
ITEM 846(2) – 100' X 8' X 1 3/4" / 27 = 4.32 CU. YD.
ITEM 407 – 100' X 70' / 9 X 0.10 = 77.78 GAL.
ITEM 202 – 35'– 8 3/4" X 70' / 9 = 277.89 SQ. YD.
ITEM 617 – 100' X 20' X(4" + 0" / 2) / 27 = 12.35 CU. YD.
ITEM 203 – 100' X 8' / 9 = 88.89 SQ. YD.

STA. 654+ 13.50 TO STA. 657+69.23 = 355.73'
ITEM 846(1) – 355.73' X 78' X 1 1/4" / 27 = 107.08 CU. YD.
ITEM 846(2) – 355.73' X 78' X 2 1/4" / 27 = 192.69 CU. YD.
ITEM SPECIAL– 355.73' X 58.5' /9 = 2312.25 SQ. YD.
ITEM 407 – 355.73' X 70' / 9 X 0.10 = 276.68 GAL.
ITEM 617 – 355.73' X 20' X (4"+ 0"/2) / 27 = 43.92 CU. YD.
ITEM 203 – 355.73' X 8' / 9 = 316.20 SQ. YD.

STA. 657 + 69.23 TO STA. 658 + 75.48 = 106.25' TRANSITION AREA
ITEM 846(1) – 31'–3" X 70' X 1 1/4" / 27 = 8.44 CU. YD.
ITEM 846(1) – 25'–0" X 70' X (2 1/4"+ 1 1/4"/2) / 27 = 9.45 CU. YD.
ITEM 846(1) – 50'–0" X 70' X (1 1/4"+ 1"/2) / 27 = 12.16 CU. YD.
ITEM 846(1) – 106'–3" X 8' X 1 1/4" / 27 = 3.28 CU. YD.
ITEM 846(2) – 31'–3" X 70' X (2 1/4"+ 1" /2) / 27 = 10.97 CU. YD.
ITEM 846(2) – 106'–3" X 8' X 1 3/4" / 27 = 4.59 CU. YD.
ITEM 407 – 106'–3" X 70' / 9 X 0.10 = 82.64 GAL.
ITEM 202 – 50' X 70' / 9 = 388.89 SQ. YD.
ITEM 617 – 106'–3" X 20' X (4"+0" / 2) /27 = 13.11 CU. YD.
ITEM 203 – 106'–3" X 8' / 9 = 94.44 SQ. YD.

STA. 665+58.69(SB) TO STA 666+64.94(SB) = 106'–3" TRANSITION AREA
ITEM 846(1) – 50' X 35' X (1"+ 1 1/4"/2) / 27 = 6.07 CU. YD.
ITEM 846(1) – 25' X 35' X (1 1/4"+ 2 1/4" / 2) / 27 = 4.73 CU. YD.
ITEM 846(1) – 31'–3" X 35' X 1 1/4" / 27 = 4.22 CU. YD.
ITEM 846(1) – 106'–3" X 4' X 1 1/4" / 27 = 1.64 CU. YD.
ITEM 846(2) – 31'–3" X 35' X (1"+ 2 1/4" / 2) / 27 = 5.49 CU. YD.
ITEM 846(2) – 106'–3" X 4' X 1 3/4" / 27 = 2.30 CU. YD.
ITEM 202 – 50' X 35' / 9 = 194.44 SQ. YD.
ITEM 407 – 106'–3" X 35' / 9 X 0.10 = 41.32 GAL.
ITEM 617 – 106'–3" X 10' X (4"+0"/2) / 27 = 6.56 CU. YD.
ITEM 203 – 106'–3" X 4' / 9 = 47.22 SQ. YD.

STA. 666+ 64.94(SB) TO STA. 674+ 28.40(SB) = 763.46'
ITEM 846(1) – 763.46' X 39' X 1 1/4 "/ 27 = 114.91 CU. YD.
ITEM 846(2) – 763.46 X 39' X 2 1/4" / 27 = 206.77 CU. YD.
ITEM SPECIAL– 763.46' X 29.25' /9 = 2481.25 SQ. YD.
ITEM 407 – 763.46' X 35' / 9 X 0.10 = 296.90 GAL.
ITEM 617 – 763.46' X 10' X (4"+0" /2) / 27 = 47.14 CU. YD.
ITEM 203 – 763.46' X 4' / 9 = 339.32 SQ. YD.

STA. 674+ 28.40(SB) TO STA. 684+ 98.46(SB) = 1070.06'
ITEM 846(1) – 1070.06' X 37' X 1 1/4" / 27 = 152.80 CU. YD.
ITEM 846(2) – 1070.06' X 37' X 2 1/4" / 27 = 274.95 CU. YD.
ITEM SPECIAL– 1070.06' X 29.25' /9 = 3477.70 SQ. YD.
ITEM 407 – 1070.06' X 35' / 9 X 0.10 = 416.13 GAL.
ITEM 617 – 1070.06' X 16' X (4"+ 0" /2) / 27 = 105.71 CU. YD.
ITEM 203 – 1070.06' X 2' / 9 = 237.79 SQ. YD.

STA. 666+ 16.65(NB) TO STA 667+ 22.90(NB) = 106'– 3" TRANSITION AREA
ITEM 846(1) – 50' X 35' X (1"+ 1 1/4"/2) / 27 = 6.07 CU. YD.
ITEM 846(1) – 25' X 35' X (1 1/4"+ 2 1/4" / 2) / 27 = 4.73 CU. YD.
ITEM 846(1) – 31'–3" X 35' X 1 1/4" / 27 = 4.22 CU. YD.
ITEM 846(1) – 106'–3" X 4' X 1 1/4" / 27 = 1.64 CU. YD.
ITEM 846(2) – 31'–3" X 35' X (1"+ 2 1/4" / 2) / 27 = 5.49 CU. YD.
ITEM 846(2) – 106'–3" X 4' X 1 3/4" / 27 = 2.30 CU. YD.
ITEM 202 – 50' X 35' / 9 = 194.44 SQ. YD.
ITEM 407 – 106'–3" X 35' / 9 X 0.10 = 41.32 GAL.
ITEM 617 – 106'– 3" X 10' X (4" + 0" / 2)/27 = 6.56 CU. YD.
ITEM 203 – 106'–3" X 4' / 9 = 47.22 SQ. YD.

STA. 667+22.90(NB) TO STA. 674+62.65(NB) = 739.75'
ITEM 846(1) – 739.75' X 39' X 1 1/4" / 27 = 111.34 CU. YD.
ITEM 846(2) – 739.75' X 39' X 2 1/4" / 27 = 200.35 CU. YD.
ITEM SPECIAL– 739.75' X 29.25' /9 = 2404.19 SQ. YD.
ITEM 407 – 739.75' X 35'/ 9 X 0.10 = 287.68 GAL.
ITEM 617 – 739.75' X 10' X (4"+ 0" / 2) / 27 = 45.67 CU. YD.
ITEM 203 – 739.75' X 4' / 9 = 328.78 SQ. YD.

STA.674 + 62.65(NB) TO STA. 679+ 80 (NB) = 517.35'
ITEM 846(1) – 517.35' X 37' X 1 1/4" / 27 = 73.87 CU. YD.
ITEM 846(2) – 517.35' X 37' X 2 1/4" / 27 = 132.93 CU. YD.
ITEM SPECIAL– 517.35' X 29.25' /9 = 1681.39 SQ. YD.
ITEM 407 – 517.35' X 35' / 9 X 0.10 = 201.19 GAL.
ITEM 617 – 517.35' X 16' X (4"+ 0" /2) / 27 = 51.11 CU. YD.
ITEM 203 – 517.35' X 2' / 9 = 114.97 SQ. YD.

STA. 679+ 80 (NB) TO ST 681+ 55 (NB) = 175'
ITEM 846(1) – 175.00' X 39' X 1 1/4" / 27 = 26.34 CU. YD.
ITEM 846(2) – 175.00' X 39' X 2 1/4" /27 = 47.40 CU. YD.
ITEM SPECIAL– 175.00' X 29.25' /9 = 568.75 SQ. YD.
ITEM 407 – 175.00' X 35' / 9 X 0.10 = 68.06 GAL.
ITEM 617 – 175.00' X 10' X (4"+ 0" /2) / 27 = 10.80 CU. YD.
ITEM 203 – 175.00' X 4' / 9 = 77.78 SQ. YD.

STA. 681+ 55(NB) TO STA. 684 + 87.5(NB) = 332.50'
ITEM 846(1) – 332.50' X 37' X 1 1/4" / 27 = 47.48 CU. YD.
ITEM 846(2) – 332.50' X 37' X 2 1/4" / 27 = 85.43 CU. YD.
ITEM SPECIAL– 332.50' X 29.25' /9 = 1080.63 SQ. YD.
ITEM 407 – 332.50' X 35' / 9 X 0.10 = 129.31 GAL.
ITEM 617 – 332.50' X 16' X (4"+ 0" /2) /27 = 32.85 CU. YD.
ITEM 203 – 332.50' X 2' /9 = 73.89 SQ. YD.

STA. 684+ 87.5(NB) TO STA. 685+ 14.90(NB) = 27.40'
ITEM 846(1) – 27.40' X 39' X 1 1/4" / 27 = 4.12 CU. YD.
ITEM 846(2) – 27.40' X 39' X 2 1/4" / 27 = 7.42 CU. YD.
ITEM SPECIAL– 27.40' X 29.25' /9 = 89.05 SQ. YD.
ITEM 407 – 27.40' X 35' / 9 X 0.10 = 10.66 GAL.
ITEM 617 – 27.40' X 10' X (4"+ 0" /2) /27 = 1.69 CU. YD.
ITEM 203 – 27.40' X 4' /9 = 12.18 SQ. YD.

STA. 685+ 01.76 TO STA. 687+ 00 = 198.24'
ITEM 846(1) – 198.24' X 76' X 1 1/4" / 27 = 58.15 CU. YD.
ITEM 846(2) – 198.24' X 76' X 2 1/4" / 27 = 104.63 CU. YD.
ITEM SPECIAL– 198.24' X 58.5' /9 = 1288.56 SQ. YD
ITEM 407 – 198.24' X 70' / 9 X 0.10 = 154.19 GAL.
ITEM 617 – 198.24' X 26' X (4"+ 0" /2) / 27 = 31.82 CU. YD.
ITEM 203 – 198.24' X 6' / 9 = 132.16 SQ. YD.

STA 687+ 00 TO STA. 694+00 = 700.00
ITEM 846(1) – 700.00' X 78' X 1 1/4" / 27 = 210.72 CU. YD.
ITEM [illegible](2) – [illegible]0.00' X 78' X 2 1/4" / 27 = 379.17 CU. YD.
ITEM SPECIAL– 700.00' X 58.5' /9 = 4550.00 SQ. YD.
ITEM 407 – 700.00' X 70' / 9 X 0.10 = 544.44 GAL.
ITEM 617 – 700.00 X 20 X (4" + 0"/2) / 27 = 86.44 CU. YD.
ITEM 203 – 700.00' X 8' / 9 = 622.22 SQ. YD.

STA. 694+ 00 TO STA 694+ 87.5 = 87.5
ITEM 846(1) – 87.5' X 76' X 1 1/4' / 27 = 25.66 CU. YD.
ITEM 846(2) – 87.5 X 76' X 2 1/4" / 27 = 46.18 CU. YD.
ITEM SPECIAL– 87.5' X 58.5' /9 = 568.75 SQ. YD.
ITEM 407 – 87.5' X 70' / 9 X 0.10 = 68.06 GAL.
ITEM 617 – 87.5' X 26' X (4"+ 0"/ 2) / 27 = 14.05 CU. YD.
ITEM 203 – 87.5' X 6' / 9 = 58.33 SQ. YD.

STA. 694+ 87.5 TO STA. 737+ 75 = 4287.5'
ITEM 846(1) – 4287.5' X 74' X 1 1/4" / 27 = 1224.45 CU. YD.
ITEM 846(2) – 4287.5' X 74' X 2 1/4" / 27 = 2203.30 CU. YD.
ITEM SPECIAL– 4287.5' X 58.5' /9 = 27,868.75 SQ. YD.
ITEM 407 – 4287.5' X 70' / 9 X 0.10 = 3334.72 GAL.
ITEM 617 – 4287.5' X 32' X (4"+ 0" / 2) / 27 = 847.08 CU. YD.
ITEM 203 – 4287.5' X 4' / 9 = 1905.56 SQ. YD

STA. 737+ 75 TO STA. 742+ 37.5 = 462.5'
ITEM 846(1) – 462.5' X 76' X 1 1/4" / 27 = 135.65 CU. YD.
ITEM 846(2) – 462.5 X 76' X 2 1/4" / 27 = 244.10 CU. YD.
ITEM SPECIAL– 462.5' X 58.5' /9 = 3,006.25 SQ. YD.
ITEM 407 – 462.5' X 70' / 9 X 0.10 = 359.72 GAL.
ITEM 617 – 462.5' X 26' X (4"+ 0" / 2) / 27 = 74.24 CU. YD.
ITEM 203 – 462.5' X 6' / 9 = 308.33 SQ. YD.

STA. 742+ 37.5 TO STA. 746+ 75 = 437.5'
ITEM 846(1) – 437.5' X 74' X 1 1/4" / 27 = 124.94 CU. YD.
ITEM 846(2) – 437.5' X 74' X 2 1/4" / 27 = 224.83 CU. YD.
ITEM SPECIAL– 437.5' X 58.5' /9 = 2,843.75 SQ. YD.
ITEM 407 – 437.5' X 70' / 9 X 0.10 = 340.28 GAL.
ITEM 617 – 437.5' X 32' X (4"+ 0" / 2) / 27 = 86.44 CU. YD.
ITEM 203 – 437.5' X 4'/ 9 = 194.44 SQ. YD.

STA. 746+ 75 TO STA. 751+ 50 = 475'
ITEM 846(1) – 475' X 76' X 1 1/4" / 27 = 139.32 CU. YD.
ITEM 846(2) – 475' X 76' X 2 1/4" / 27 = 250.69 CU. YD.
ITEM SPECIAL– 475' X 58.5' /9 = 3,087.50 SQ. YD.
ITEM 407 – 475' X 70' / 9 X 0.10 = 369.44 GAL.
ITEM 617 – 475' X 26' X (4"+ 0" /2) / 27 = 76.25 CU. YD.
ITEM 203 – 475' X 6' /9 = 316.67 SQ. YD.

STA. 751+ 50 TO STA. 755+ 83.23 = 433.23'
ITEM 846(1) – 433.22' X 7[illegible] X 1 1/4" / 27 = 123.72 CU. YD.
ITEM 846(2) – 433.23' X 74' X 2 1/4" / 27 = 222.63 CU. YD.
ITEM SPECIAL– 433.23' X 58.5 /9 = 2,815.99 SQ. YD.
ITEM 407 – 433.23 X 70' / 9 X 0.10 = 336.96 GAL.
ITEM 617 – 433.23' X 32' X (4"+ 0" / 2) / 27 = 85.59 CU. YD.
ITEM 203 – 433.23' X 4' / 9 = 192.55 SQ. YD.

STA. 755+ 83.23 TO STA. 756+ 31.94 = 48.71'
ITEM 846(1) – 48.71' X 61' X 1 1/4" / 27 = 11.47 CU. YD.
ITEM 846(2) – 48.71' X 61' X 2 1/4" / 27 = 20.63 CU. YD.
ITEM SPECIAL– 48.71' 53.25' /9 = 288.20 SQ. YD.
ITEM 407 – 48.71' X 59' / 9 X 0.10 = 31.93 GAL.
ITEM 617 – 48.71' X 16' X (4"+ 0" / 2) / 27 = 4.81 CU. YD.
ITEM 203 – 48.71' X 2' / 9 = 10.82 SQ. YD.

STA. 756+ 31.94 TO STA. 763+ 33.23 = 701.29'
ITEM 846(1) – 701.29' X 48' X 1 1/4" / 27 = 129.91 CU. YD.
ITEM 846(2) – 701.29' X 48' X 2 1/4" / 27 = 233.76 CU. YD.
ITEM SPECIAL– 701.29' X 48' /9 = 3740.21 SQ. YD.
ITEM 407 – 701.29' X 48' / 9 X 0.10 = 374.02 GAL.

CALCULATIONS

U.S.R. 21 MAINLINE CALCULATIONS CONT.

STA. 763 + 33.23 TO STA. 763 +81.94 = 48.71'

ITEM 846(1)	– 48.71' X 61' X 1 1/4" / 27	= 11.47 CU. YD.
ITEM 846(2)	– 48.71' X 61' X 2 1/4" / 27	= 20.63 CU. YD.
ITEM SPECIAL	– 48.71' X 53.25' /9	= 288.20 SQ. YD.
ITEM 407	– 48.71' X 59' / 9 X 0.10	= 31.93 GAL.
ITEM 617	– 48.71' X 16' X (4"+ 0" / 2) / 27	= 4.81 CU. YD.
ITEM 203	– 48.71' X 2' / 9	= 10.82 SQ. YD.

STA. 763 + 81.94 TO STA. 779 + 46.00 = 1564.06'

ITEM 846(1)	– 1564.06' X 74' X 1 1/4" / 27	= 446.67 CU. YD.
ITEM 846(2)	– 1564.06' X 74' X 2 1/4" / 27	= 803.75 CU. YD.
ITEM SPECIAL	– 1564.06' X 58.5' /9	= 10,166.39 SQ. YD.
ITEM 407	– 1564.06' X 70' / 9 X 0.10	= 1216.49 GAL.
ITEM 617	– 1564.06' X 32' X (4" + 0" / 2) / 27	= 309.01 CU. YD.
ITEM 203	– 1564.06' X 4' / 9	= 695.14 SQ. YD.

STA. 779 + 46 TO STA. 783 + 30 = 384'

ITEM 846(1)	– 384' X 79' X 1 1/4" / 27	= 117.07 CU. YD.
ITEM 846(2)	– 384' X 79' X 2 1/4" / 27	= 210.67 CU. YD.
ITEM SPECIAL	– 384' X 58.5' /9	= 2,496.00 SQ. YD.
ITEM 407	– 384' X 70' /9 X 0.10	= 298.67 GAL.
ITEM 617	– 384' X 26' X (4"+ 0" / 2) / 27	= 61.64 CU. YD.
ITEM 203	– 384' X 9' / 9	= 384.00 SQ. YD.
ITEM 304	– 384' X 5' X 6" / 27	= 35.56 CU. YD.

STA. 783+30 TO STA. 790+50 = 720.00'

ITEM 846(1)	– 720' X 81' X 1 1/4" / 27	= 225.07 CU. YD.
ITEM 846(2)	– 720' X 81' X 2 1/4" / 27	= 405.00 CU. YD.
ITEM SPECIAL	– 720' X 58.5' /9	= 4,680.00 SQ. YD.
ITEM 407	– 720' X 70' / 9 X 0.10	= 560.00 GAL.
ITEM 617	– 720' X 20' X (4"+ 0" / 2) / 27	= 88.91 CU. YD.
ITEM 203	– 720' X 11' / 9	= 880.00 SQ. YD.
ITEM 304	– 720' X 5' X 6" / 27	= 66.67 CU. YD.

STA. 790+50 TO STA. 800+00 = 950'

ITEM 864(1)	– 950' X 83' X 1 1/4" / 27	= 304.30 CU. YD.
ITEM 846(2)	– 950' X 83' X 2 1/4" / 27	= 547.57 CU. YD.
ITEM SPECIAL	– 950' X 58.5' /9	= 6,175.00 SQ. YD.
ITEM 407	– 950' X 70' / 9 X 0.10	= 738.89 GAL.
ITEM 617	– 950' X 14' X (4"+ 0" / 2) / 27	= 82.12 CU. YD.
ITEM 203	– 950' X 13' / 9	= 1372.22 SQ. YD.
ITEM 304	– 950' X 5' X 6" / 27	= 87.96 CU. YD.

STA. 800+00 TO STA. 801+92.5 = 192.5'

ITEM 846(1)	– 192.5' X 81' X 1 1/4" / 27	= 60.18 CU. YD.
ITEM 846(2)	– 192.5' X 81'X 2 1/4" / 27	= 108.28 CU. YD.
ITEM SPECIAL	– 192.5' X 58.5 /9	= 1,251.25 SQ. YD.
ITEM 407	– 192.5' X 70' / 9 X 0.10	= 149.72 GAL.
ITEM 617	– 192.5' X 20' X (4"+ 0" / 2) / 27	= 23.77 CU. YD.
ITEM 203	– 192.5' X 11' / 9	= 235.78 SQ. YD.
ITEM 304	– 192.5' X 5' X 6" / 27	= 17.82 CU. YD.

STA. 801+92.5 TO STA. 811+50 = 957.5'

ITEM 846(1)	– 957.5' X 79' X 1 1/4" / 27	= 291.92 CU. YD.
ITEM 846(2)	– 957.5' X 79' X 2 1/4" / 27	= 525.30 CU. YD.
ITEM SPECIAL	– 957.5' X 58.5' /9	= 6,223.75 SQ. YD.
ITEM 407	– 957.5' X 70' / 9 X 0.10	= 744.72 GAL.
ITEM 617	– 957.5' X 26' X (4"+ 0" / 2) / 27	= 153.70 CU. YD.
ITEM 203	– 957.5' X 9' / 9	= 957.5 SQ. YD.
ITEM 304	– 957.5' X 5' X 6" / 27	= 88.66 CU. YD.

STA. 811+50 TO STA. 825+37.5 = 1387.5'

ITEM 846(1)	– 1387.5' X 81' X 1 1/4" / 27	= 433.73 CU. YD.
ITEM 846(2)	– 1387.5' X 81' X 2 1/4" / 27	= 780.47 CU. YD.
ITEM SPECIAL	– 1387.75 X 58.5' /9	= 9,018.75 SQ. YD.
ITEM 407	– 1387.5' X 70' / 9 X 0.10	= 1079.17 GAL.
ITEM 617	– 1387.5' X 20' X (4"+ 0" / 2) / 27	= 171.33 CU. YD.
ITEM 203	– 1387.5' X 11' / 9	= 1695.83 SQ. YD.
ITEM 304	– 1387.5' X 5' X 6" / 27	= 128.47 CU. YD.

STA. 825+37.5 TO STA. 837+00 = 1162.5'

ITEM 846(1)	– 1162.5' X 79' X 1 1/4" / 27	= 354.42 CU. YD.
ITEM 846(2)	– 1162.5' X 79' X 2 1/4" / 27	= 637.76 CU. YD.
ITEM SPECIAL	– 1162.5' X 58.5' /9	= 7,556.25 SQ. YD.
ITEM 407	– 1162.5' X 70' / 9 X 0.10	= 904.17 GAL.
ITEM 617	– 1162.5' X 26' X (4"+ 0" / 2) / 27	= 186.61 CU. YD.
ITEM 203	– 1162.5' X 9' / 9	= 1162.5 SQ. YD.
ITEM 304	– 1162.5' X 5' X 6" / 27	= 107.64 CU. YD.

STA. 837+00 TO STA. 844+91.5 = 791.5'

ITEM 846(1)	– 791.5' X 81' X 1 1/4" / 27	= 247.42 CU. YD.
ITEM 846(2)	– 791.5' X 81' X 2 1/4" / 27	= 445.22 CU. YD.
ITEM SPECIAL	– 791.5' X 58.5' /9	= 5,144.75 SQ. YD.
ITEM 407	– 791.5' X 70' / 9 X 0.10	= 615.61 GAL.
ITEM 617	– 791.5' X 20' X (4"+ 0" / 2) / 27	= 97.74 CU. YD.
ITEM 203	– 791.5' X 11' / 9	= 967.39 SQ. YD.
ITEM 304	– 791.5' X 5' X 6" / 27	= 73.29 CU. YD.

STA. 844+91.5 TO STA. 849+50 = 458.5'

ITEM 846(1)	– 458.5' X 83' X 1 1/4" / 27	= 146.86 CU. YD.
ITEM 846(2)	– 458.5' X 83' X 2 1/4" / 27	= 264.27 CU. YD.
ITEM SPECIAL	– 458.5' X 58.5' /9	= 2,980.25 SQ. YD.
ITEM 407	– 458.5' X 70' / 9 X 0.10	= 356.61 GAL.
ITEM 617	– 458.5' X 14' X (4"+ 0" / 2) / 27	= 39.63 CU. YD.
ITEM 203	– 458.5' X 13' / 9	= 662.28 SQ. YD.
ITEM 304	– 458.5' X 5' X 6" / 27	= 42.45 CU. YD.

STA. 849+50 TO STA. 854+15.75 = 465.75'

ITEM 864(1)	– 465.75' X 81' X 1 1/4" / 27	= 145.59 CU. YD.
ITEM 846(1)	– 465.75' X 81' X 2 1/4" / 27	= 261.98 CU. YD.
ITEM SPECIAL	– 465.75' X 58.5' /9	= 3,027.38 SQ. YD.
ITEM 407	– 465.75' X 70' / 9 X 0.10	= 362.25 GAL.
ITEM 617	– 465.75' X 20' X (4"+ 0" / 2) / 27	= 57.51 CU. YD.
ITEM 203	– 465.75' X 11' / 9	= 569.25 SQ. YD.
ITEM 304	– 465.75' X 5' X 6" / 27	= 43.13 CU. YD.

STA. 854+15.75 TO STA. 862+65 = 849.25'

ITEM 846(1)	– 849.25' X 74' X 1 1/4" / 27	= 242.53 CU. YD.
ITEM 846(2)	– 849.25' X 74' X 2 1/4" / 27	= 436.42 CU. YD.
ITEM SPECIAL	– 849.25' X 58.5' /9	= 5,520.13 SQ. YD.
ITEM 407	– 849.25' X 70' / 9 X 0.10	= 660.53 GAL.
ITEM 617	– 849.25' X 32' X (4"+ 0" / 2) / 27	= 167.79 CU. YD.
ITEM 203	– 849.25' X 4' / 9	= 377.44 SQ. YD.

STA. 862+65 TO STA. 862+90 = 25'

ITEM 846(1)	– 25' X 76' X 1 1/4" / 27	= 7.33 CU. YD.
ITEM 846(2)	– 25' X 76' X 2 1/4" / 27	= 13.19 CU. YD.
ITEM SPECIAL	– 25' X 58.5' /9	= 162.50 SQ. YD.
ITEM 407	– 25' X 70' / 9 X 0.10	= 19.44 GAL.
ITEM 617	– 25' X 26' X (4"+ 0" / 2) / 27	= 4.01 CU. YD.
ITEM 203	– 25' X 6' / 9	= 16.67 SQ. YD.

STA. 862+90 TO STA. 866+55.84 = 365.84'

ITEM 846(1)	– 365.84' X 78' X 1 1/4" / 27	= 110.13 CU. YD.
ITEM 846(2)	– 365.84' X 78' X 2 1/4" / 27	= 198.16 CU. YD.
ITEM SPECIAL	– 365.84' X 58.5' /9	= 2,377.96 SQ. YD.
ITEM 407	– 365.84' X 70' / 9 X 0.10	= 284.54 GAL.
ITEM 617	– 365.84' X 20' X (4"+ 0" / 2) / 27	= 45.18 CU. YD.
ITEM 203	– 365.84' X 8' / 9	= 325.19 SQ. YD.

STA. 866+55.84 TO STA. 867+62.09 = 106'-3" TRANSITION AREA

ITEM 846(1)	– 31'-3" X 70' X 1 1/4" / 27	= 8.44 CU. YD.
ITEM 846(1)	– 25'-0" X 70' X (2 1/4"+ 1 1/4" / 2) / 27	= 9.45 CU. YD.
ITEM 846(1)	– 50'-0" X 70' X (1 1/4"+ 1" / 2) / 27	= 12.16 CU. YD.
ITEM 846(1)	– 106'-3" X 8' X 1 1/4" / 27	= 3.28 CU. YD.
ITEM 846(2)	– 31'-3" X 70' X (2 1/4"+1" / 2) / 27	= 10.97 CU. YD.
ITEM 846(2)	– 106'-3" X 8' X 1 3/4" / 27	= 4.59 CU. YD.
ITEM 407	– 106'-3" X 70' /9 X 0.10	= 82.64 GAL.
ITEM 202	– 50' X 70' / 9	= 388.89 SQ. YD.
ITEM 617	– 106'-3" X 20' X (4"+0" / 2) / 27	= 13.11 CU. YD.
ITEM 203	– 106'-3" X 8' / 9	= 94.44 SQ. YD.

STA. 868+74.09 TO STA. 868+88.37 = 14.28'(USE 15')

ITEM 846(1)	– 15.00' X 70' X (1"+1 1/4" / 2) / 27	= 3.65 CU. YD.
ITEM 846(1)	– 15.00' X 8' X 1 1/4" / 27	= 0.46 CU. YD.
ITEM 846(2)	– 15.00' X 8' X 1 3/4" / 27	= 0.65 CU. YD.
ITEM 202	– 15.00' X 70' / 9	= 116.67 SQ. YD.
ITEM 407	– 15.00' X 70' / 9 X 0.10	= 11.67 GAL.
ITEM 617	– 15.00' X 20' X (4"+0" / 2) / 27	= 1.85 CU. YD.
ITEM 203	– 15.00' X 8' / 9	= 13.33 SQ. YD.

STA. 868+88.37 TO STA. 875+ 86.65 = 698.28'

ITEM 846(1)	– 35' X 48' X 1 1/4" / 27	= 6.48 CU. YD.
ITEM 846(1)	– 25' X 48' X (1 1/4"+2 1/4" / 2) / 27	= 6.48 CU. YD.
ITEM 846(1)	– 31'-3" X 48' X 1 1/4" / 27	= 5.79 CU. YD.
ITEM 846(1)	– 606.31' X 48' X 1 1/4" / 27	= 112.32 CU. YD.
ITEM 846(2)	– 31'-3" X 48' X (1"+2 1/4" / 2) / 27	= 7.52 CU. YD.
ITEM 846(2)	– 606.31' X 48' X 2 1/4" / 27	= 202.10 CU. YD.
ITEM SPECIAL	– 606.31' X 48' /9	= 3,233.65 SQ. YD.
ITEM 407	– 606.31' X 48' / 9 X 0.10	= 323.37 GAL.
ITEM 202	– 35' X 48' / 9	= 186.67 SQ. YD.

STA. 875+86.65 TO STA. 876+17.89 = 31.24'

ITEM 864(1)	– 31.24' X 61' X 1 1/4" / 27	= 7.35 CU. YD.
ITEM 846(2)	– 31.24' X 61' X 2 1/4" / 27	= 13.23 CU. YD.
ITEM SPECIAL	– 31.24' X 58.25' /9	= 184.84 SQ. YD.
ITEM 407	– 31.24' X 59' / 9 X 0.10	= 20.48 GAL.
ITEM 617	– 31.24' X 16' X (4"+0" / 2) / 27	= 3.09 CU. YD.
ITEM 203	– 31.24' X 2' /9	= 6.94 SQ. YD.

STA. 876+17.89 TO STA. 899+62.5 = 2344.61'

ITEM 846(1)	– 2344.61' X 74' X 1 1/4" / 27	= 669.59 CU. YD.
ITEM 846(2)	– 2344.61' X 74' X 2 1/4" / 27	= 1204.86 CU. YD.
ITEM SPECIAL	– 2344.61' X 58.5' /9	= 15,239.97 SQ. YD.
ITEM 407	– 2344.61' X 70' / 9 X 0.10	= 1823.59 GAL.
ITEM 617	– 2344.61' X 32' X (4"+0" / 2) / 27	= 463.23 CU. YD.
ITEM 203	– 2344.61' X 4' / 9	= 1042.05 SQ. YD.

STA. 899+62.5 TO STA. 899+85 = 22.5'

ITEM 846(1)	– 22.5' X 76' X 1 1/4" / 27	= 6.60 CU. YD.
ITEM 846(2)	– 22.5' X 76' X 2 1/4" / 27	= 11.88 CU. YD.
ITEM SPECIAL	– 22.5' X 58.5' /9	= 146.25 SQ. YD.
ITEM 407	– 22.5' X 70' / 9 X 0.10	= 17.5 GAL.
ITEM 617	– 22.5' X 26' X (4"+0" / 2) / 27	= 3.61 CU. YD.
ITEM 203	– 22.5' X 6' / 9	= 15.00 SQ. YD.

STA. 899+85 TO STA. 912+50 = 1265'

ITEM 846(1)	– 1265' X 78' X 1 1/4" / 27	= 380.79 CU. YD.
ITEM 846(2)	– 1265' X 78' X 2 1/4" / 27	= 685.21 CU. YD.
ITEM SPECIAL	– 1265' X 58.5' /9	= 8,222.50 SQ. YD.
ITEM 407	– 1265' X 70' / 9 X 0.10	= 983.89 GAL.
ITEM 617	– 1265' X 20' X (4"+0" / 2) / 27	= 156.20 CU. YD.
ITEM 203	– 1265' X 8' / 9	= 1124.44 SQ. YD.

STA. 912+50 TO STA. 912+60' = 10'

ITEM 846(1)	– 10' X 76' X 1 1/4" / 27	= 2.93 CU. YD.
ITEM 846(2)	– 10' X 76' X 2 1/4" / 27	= 5.28 CU. YD.
ITEM SPECIAL	– 10' X 58.5' /9	= 65.00 SQ. YD.
ITEM 407	– 10' X 70' / 9 X 0.10	= 7.78 GAL.
ITEM 617	– 10' X 26' X (4"+0" / 2) / 27	= 1.60 CU. YD.
ITEM 203	– 10' X 6' / 9	= 6.67 SQ. YD.

STA. 912+60 TO STA. 918+94.58 = 634.58'

ITEM 846(1)	– 634.58' X 74' X 1 1/4" / 27	= 181.23 CU. YD.
ITEM 846(2)	– 634.58' X 74' X 2 1/4" / 27	= 326.10 CU. YD.
ITEM SPECIAL	– 634.58' X 58.5' /9	= 4,124.77 SQ. YD.
ITEM 407	– 634.58' X 70' / 9 X 0.10	= 493.56 GAL.
ITEM 617	– 634.58' X 32' X (4"+0" / 2) / 27	= 125.37 CU. YD.
ITEM 203	– 634.58' X 4' / 9	= 282.04 SQ. YD.

S.R. 21 MAINLINE CALCULATIONS CONT.

STA. 917+27.79 TO STA. 944+00 = 2672.21'
ITEM 846(1) – 2672.21' X 74' X 1 1/4" / 27 = 763.14 CU. YD.
ITEM 846(2) – 2672.21' X 74' X 2 1/4" / 27 = 1373.22 CU. YD.
ITEM SPECIAL– 2672.21' X 58.5' /9 = 17,369.37 SQ. YD.
ITEM 407 – 2672.21' X 70' / 9 X 0.10 = 2078.39 GAL.
ITEM 617 – 2672.21' X 32' X (4"+0" / 2) / 27 = 527.95 CU. YD.
ITEM 203 – 2672.21' X 4' / 9 = 1187.65 SQ. YD.

STA. 944+00 TO STA. 945+00 = 100'
ITEM 846(1) – 100' X 76' X 1 1/4" / 27 = 29.33 CU. YD.
ITEM 846(2) – 100' X 76' X 2 1/4" / 27 = 52.78 CU. YD.
ITEM SPECIAL– 100' X 58.5 /9 = 650.00 SQ. YD.
ITEM 407 – 100' X 70' / 9 X 0.10 = 77.78 GAL.
ITEM 617 – 100' X 26' X (4"+0" / 2) / 27 = 16.05 CU. YD.
ITEM 203 – 100' X 6' / 9 = 66.67 SQ. YD.

STA. 945+00 TO STA. 954+00 = 900'
ITEM 846(1) – 900' X 78' X 1 1/4" / 27 = 270.92 CU. YD.
ITEM 846(2) – 900' X 78' X 2 1/4" / 27 = 487.50 CU. YD.
ITEM SPECIAL– 900' X 58.5' /9 = 5,850.00 SQ. YD.
ITEM 407 – 900' X 70' / 9 X 0.10 = 700.00 GAL.
ITEM 617 – 900' X 20' X (4"+0" / 2) / 27 = 111.13 CU. YD.
ITEM 203 – 900' X 8' / 9 = 800.00 SQ. YD.

STA. 954+00 TO STA. 955+55 = 155'
ITEM 846(1) – 155' X 76' X 1 1/4" / 27 = 45.46 CU. YD.
ITEM 846(2) – 155' X 76' X 2 1/4" / 27 = 81.81 CU. YD.
ITEM SPECIAL– 155' X 58.5' /9 = 1,007.50 SQ. YD.
ITEM 407 – 155' X 70' / 9 X 0.10 = 120.56 GAL.
ITEM 617 – 155' X 26' X (4"+0" / 2) / 27 = 24.88 CU. YD.
ITEM 203 – 155' X 6' / 9 = 103.33 SQ. YD.

STA. 955+55 TO STA. 957+50 = 195'
ITEM 846(1) – 195' X 64' X 1 1/4" / 27 = 48.16 CU. YD.
ITEM 846(2) – 195' X 64' X 2 1/4" / 27 = 86.67 CU.YD.
ITEM SPECIAL– 195' X 54.7' /9 = 1,185.17 SQ. YD.
ITEM 407 – 195' X 62' / 9 X 0.10 = 134.33 GAL.
ITEM 617 – 195' X 24' X (4"+0" / 2) / 27 = 28.90 CU. YD.
ITEM 203 – 195' X 2' / 9 = 43.33 SQ. YD.

STA. 957+50 TO STA. 965+50 = 800'
ITEM 846(1) – 800' X 54' X 1 1/4" / 27 = 166.72 CU. YD.
ITEM 846(2) – 800' X 54' X 2 1/4" / 27 = 300.00 CU. YD.
ITEM SPECIAL– 800' X 50.9' /9 = 4,524.44 SQ. YD.
ITEM 407 – 800' X 54' / 9 X 0.10 = 480.00 GAL.
ITEM 617 – 800' X 16' X (4"+0" / 2) / 27 = 79.03 CU. YD.

STA. 965+50 TO STA. 965+55 = 5'
ITEM 846(1) – 5' X 64' X 1 1/4" / 27 = 1.23 CU. YD.
ITEM 846(2) – 5' X 64' X 2 1/4" / 27 = 2.22 CU. YD.
ITEM SPECIAL– 5' X 54.7' /9 = 30.39 SQ. YD.
ITEM 407 – 5' X 62' / 9 X 0.10 = 3.44 GAL.
ITEM 617 – 5' X 24' X (4"+0" /2) / 27 = 0.74 CU. YD.
ITEM 203 – 5' X 2' / 9 = 1.11 SQ. YD.

STA. 965+55 TO STA. 973+48 = 793'
ITEM 846(1) – 793' X 74' X 1 1/4" / 27 = 226.47 CU. YD.
ITEM 846(2) – 793' X 74' X 2 1/4" / 27 = 407.51 CU. YD.
ITEM SPECIAL– 793' X 58.5' /9 = 5,154.50 SQ. YD.
ITEM 407 – 793' X 70' / 9 X 0.10 = 616.78 GAL.
ITEM 617 – 793' X 32' X (4"+0" /2) / 27 = 156.67 CU. YD.
ITEM 203 – 793' X 4' / 9 = 352.44 SQ. YD.

STA. 973+48 TO STA. 973+53 = 5'
ITEM 846(1) – 5' X 76' X 1 1/4" / 27 = 1.47 CU. YD.
ITEM 846(2) – 5' X 76' X 2 1/4" / 27 = 2.64 CU. YD.
ITEM SPECIAL– 5' X 58.5' /9 = 32.50 SQ. YD.
ITEM 407 – 5' X 70' / 9 X 0.10 = 3.89 GAL.
ITEM 617 – 5' X 26' X (4"+0" / 2) / 27 = 0.80 CU. YD.
ITEM 203 – 5' X 6' / 9 = 3.33 SQ. YD.

STA. 973+53 TO STA. 975+60.5 = 207.5'
ITEM 846(1) – 207.5' X 78' X 1 1/4" / 27 = 62.46 CU. YD.
ITEM 846(2) – 207.5 X 78' X 2 1/4" / 27 = 112.40 CU. YD.
ITEM SPECIAL– 207.5' X 58.5' /9 = 1,348.75 SQ.YD.
ITEM 407 – 207.5' X 70' / 9 X 0.10 = 161.39 GAL.
ITEM 617 – 207.5' X 20' X (4"+0" / 2) / 27 = 25.62 CU. YD.
ITEM 203 – 207.5' X 8' / 9 = 184.44 SQ. YD.

STA. 975+60.5 TO STA. 975+65.5 = 5'
ITEM 846(1) – 5' X 76' X 1 1/4" / 27 = 1.47 CU. YD.
ITEM 846(2) – 5' X 76' X 2 1/4" / 27 = 2.64 CU. YD.
ITEM SPECIAL– 5' X 58.5' /9 = 32.50 SQ. YD.
ITEM 407 – 5' X 70' / 9 X 0.10 = 3.89 GAL.
ITEM 617 – 5' X 26' X (4"+0" / 2) / 27 = 0.80 CU. YD.
ITEM 203 – 5' X 6' / 9 = 3.33 SQ. YD.

STA. 975+65.5 TO STA. 979+40 = 374.5'
ITEM 846(1) – 374.5' X 74' X 1 1/4" / 27 = 106.95 CU. YD.
ITEM 846(2) – 374.5' X 74' X 2 1/4" / 27 = 192.45 CU. YD.
ITEM SPECIAL– 374.5' X 58.5' /9 = 2,434.25 SQ. YD.
ITEM 407 – 374.5' X 70' / 9 X 0.10 = 291.28 GAL.
ITEM 617 – 374.5' X 32' X (4"+0" / 2) / 27 = 73.99 CU. YD.
ITEM 203 – 374.5' X 4' / 9 = 166.44 SQ. YD.

STA. 979+40 TO STA. 979+75 = 35'
ITEM 846(1) – 35' X 64' X 1 1/4" / 27 = 8.64 CU. YD.
ITEM 846(2) – 35' X 64' X 2 1/4" / 27 = 15.56 CU. YD.
ITEM SPECIAL– 35' X 54.7' /9 = 212.72 SQ. YD.
ITEM 407 – 35' X 62' / 9 X 0.10 = 24.11 GAL.
ITEM 617 – 35' X 24' X (4"+0" /2) / 27 = 5.19 CU. YD.
ITEM 203 – 35' X 2' / 9 = 7.78 SQ. YD.

STA. 979+75 TO STA. 987+75 = 800'
ITEM 846(1) – 800' X 54' X 1 1/4" / 27 = 166.72 CU. YD.
ITEM 846(2) – 800' X 54' X 2 1/4" / 27 = 300.00 CU. YD.
ITEM SPECIAL– 800' X 50.9' /9 = 4,524.44 SQ. YD.
ITEM 407 – 800' X 54 / 9 X 0.10 = 480.00 GAL.
ITEM 617 – 800' X 16' X (4"+0" / 2) / 27 = 79.03 CU. YD.

STA. 987+75 TO STA. 993+40 = 565'
ITEM 846(1) – 565' X 64' X 1 1/4" / 27 = 139.55 CU. YD.
ITEM 846(2) – 565' X 64' X 2 1/4" / 27 = 251.11 CU. YD.
ITEM SPECIAL– 565' X 54.7' /9 = 3,433.94 SQ. YD.
ITEM 407 – 565' X 62 / 9 X 0.10 = 389.22 GAL.
ITEM 617 – 565' X 24' X (4"+0" / 2) / 27 = 83.72 CU. YD.
ITEM 203 – 565' X 2' / 9 = 125.56 SQ. YD.

STA. 993+40 TO STA. 1009+60.87 = 1620.87'
ITEM 846(1) – 1620.87' X 74' X 1 1/4" / 27 = 462.90 CU. YD.
ITEM 846(2) – 1620.87' X 74' X 2 1/4" / 27 = 832.95 CU. YD.
ITEM SPECIAL– 1620.87' X 58.5' /9 = 10,535.66 SQ. YD.
ITEM 407 – 1620.87' X 70' / 9 X 0.10 = 1260.68 GAL.
ITEM 617 – 1620.87' X 32' X (4"+0" / 2) / 27 = 320.24 CU. YD.
ITEM 203 – 1620.87' X 4' / 9 = 720.39 SQ. YD.

STA. 1009+60.87 TO STA. 1010+04.25 = 43.38'
ITEM 846(1) – 43.38' X 64' X 1 1/4" / 27 = 10.72 CU. YD.
ITEM 846(2) – 43.38' X 64' X 2 1/4" / 27 = 19.28 CU. YD.
ITEM SPECIAL– 43.38' X 54.7' /9 = 263.65 SQ. YD.
ITEM 407 – 43.38' X 62' / 9 X 0.10 = 29.88 GAL.
ITEM 617 – 43.38' X 16' X (4"+0" / 2) / 27 = 4.29 CU. YD.
ITEM 203 – 43.38' X 2' / 9 = 9.64 SQ. YD.

STA. 1010+04.25 TO STA. 1017+05.00 = 700.75'
ITEM 846(1) – 700.75' X 48' X 1 1/4" / 27 = 129.81 CU. YD.
ITEM 846(2) – 700.75' X 48' X 2 1/4"/ 27 = 233.58 CU. YD.
ITEM SPECIAL– 700.75' X 48' /9 = 3,737.33 SQ. YD.
ITEM 407 – 700.75' X 48' / 9 X 0.10 = 373.73 GAL.

STA. 1017+05.00 TO STA. 1017+49.73 = 44.73'
ITEM 846(1) – 44.73' X 63' X 1 1/4" / 27 = 10.88 CU. YD.
ITEM 846(2) – 44.73' X 63' X 2 1/4"/ 27 = 19.57 CU. YD.
ITEM SPECIAL– 44.73' X 54.7' /9 = 271.86 SQ. YD.
ITEM 407 – 44.73' X 59' / 9 X 0.10 = 29.32 GAL.
ITEM 617 – 44.73' X 10' X (4"+0" / 2) / 27 = 2.76 CU. YD.
ITEM 203 – 44.73' X 4' / 9 = 19.88 SQ. YD.

STA. 1017+49.73 TO STA. 1021+80 = 430.27'
ITEM 846(1) – 430.27' X 76' X 1 1/4" / 27 = 126.20 CU. YD.
ITEM 846(2) – 430.27' X 76' X 2 1/4"/ 27 = 227.09 CU. YD.
ITEM SPECIAL– 430.27' X 58.5' /9 = 2,796.76 SQ. YD.
ITEM 407 – 430.27' X 70' / 9 X 0.10 = 334.65 GAL.
ITEM 617 – 430.27' X 26' X (4"+0" / 2) / 27 = 69.07 CU. YD.
ITEM 203 – 430.27' X 6' / 9 = 286.85 SQ. YD.

STA. 1021+80 TO STA. 1038+95.7 = 1715.7'
ITEM 846(1) – 1715.7' X 74' X 1 1/4" / 27 = 489.98 CU. YD.
ITEM 846(2) – 1715.7' X 74' X 2 1/4" / 27 = 881.68 CU. YD.
ITEM SPECIAL– 1715.70' X 58.5' /9 = 11,152.05 SQ. YD.
ITEM 407 – 1715.7' X 70' / 9 X 0.10 = 1334.43 GAL.
ITEM 617 –1715.7' X 32' X (4" + 0"/2) / 27 = 338.97 CU. YD.
ITEM 203 – 1715.7' X 4' / 9 = 762.53 SQ. YD.

STA. 1038+95.7 TO STA. 1039+49.82 = 54.12'
ITEM 846(1) – 54.12' X 61' X 1 1/4" / 27 = 12.74 CU. YD.
ITEM 846(2) – 54.12' X 61' X 2 1/4" / 27 = 22.93 CU. YD.
ITEM SPECIAL– 54.12' X 53.53' /9 = 320.21 SQ. YD.
ITEM 407 – 54.12 X 58' / 9 X 0.10 = 34.88 GAL.
ITEM 617 – 54.12' X 16' X (4"+0" / 2) / 27 = 5.35 CU. YD.
ITEM 203 – 54.12' X 2' / 9 = 12.03 SQ. YD.

STA. 1039+49.82 TO STA. 1046+66.40 = 716.58'
ITEM 846(1) – 716.58' X 48' X 1 1/4" / 27 = 132.74 CU. YD.
ITEM 846(2) – 716.58' X 48' X 2 1/4" / 27 = 238.86 CU. YD.
ITEM SPECIAL– 716.58' X 48' /9 = 3,821.76 SQ. YD.
ITEM 407 – 716.58' X 48' / 9 X 0.10 = 382.17 GAL.

STA. 1046+66.40 TO STA. 1047+03.52 = 37.12'
ITEM 846(1) – 37.12' X 63' X 1 1/4" / 27 = 9.03 CU. YD.
ITEM 846(2) – 37.12' X 63' X 2 1/4" / 27 = 16.24 CU. YD.
ITEM SPECIAL– 37.12' X 53.25' /9 = 219.63 SQ. YD.
ITEM 407 – 37.12' X 59' / 9 X 0.10 = 24.33 GAL.
ITEM 617 – 37.12' X 10' X (4"+0" / 2) / 27 = 2.29 CU. YD.
ITEM 203 – 37.12' X 4' / 9 = 16.50 SQ. YD.

STA. 1047+03.52 TO STA. 1049+12.5 = 208.98'
ITEM 846(1) – 208.98' X 76' X 1 1/4" / 27 = 61.30 CU. YD.
ITEM 846(2) – 208.98' X 76' X 2 1/4" / 27 = 110.30 CU. YD.
ITEM SPECIAL– 208.98' X 58.5' /9 = 1,358.37 SQ. YD.
ITEM 407 – 208.98' X 70' / 9 X 0.10 = 162.54 GAL.
ITEM 617 – 208.98' X 26' X (4"+0" / 2) / 27 = 33.55 CU. YD.
ITEM 203 – 208.98' X 6' / 9 = 139.32 SQ. YD.

U.S.R. 21 MAINLINE CALCULATIONS CONT.

STA. 1049+12.5 TO STA. 1054+00 = 487.5'

ITEM 846(1)	487.5' X 78' X 1 1/4" / 27	146.75 CU. YD.
ITEM 846(2)	487.5' X 78' X 2 1/4" / 27	264.06 CU. YD.
ITEM SPECIAL	487.5' X 58.5' /9	3,168.75 SQ. YD.
ITEM 407	487.5' X 70' / 9 X 0.10	379.17 GAL.
ITEM 617	487.5' X 20' X (4"X0" / 2) / 27	60.20 CU. YD.
ITEM 203	487.5' X 8' / 9	433.33 SQ. YD.

STA. 1054+00 TO STA. 1057+50 = 350'

ITEM 846(1)	350' X 76' X 1 1/4" / 27	102.66 CU. YD.
ITEM 846(2)	350' X 76' X 2 1/4" / 27	184.72 CU. YD.
ITEM SPECIAL	350' X 58.5' /9	2,275.00 SQ. YD.
ITEM 407	350' X 70' / 9 X 0.10	272.22 GAL.
ITEM 617	350' X 26' X (4"+0" / 2) / 27	56.18 CU. YD.
ITEM 203	350' X 6' / 9	233.33 SQ. YD.

STA. 1057+50 TO STA. 1072+29.42 = 1479.42'

ITEM 846(1)	1479.42' X 74' X 1 1/4" / 27	422.50 CU. YD.
ITEM 846(2)	1479.42' X 74' X 2 1/4" / 27	760.26 CU. YD.
ITEM SPECIAL	1479.42' X 58.5' /9	9,616.23 SQ. YD.
ITEM 407	1479.42' X 70' / 9 X 0.10	1150.66 GAL.
ITEM 617	1479.42' X 32' X (4"+0" / 2) / 27	292.29 CU. YD.
ITEM 203	1479.42' X 4' / 9	657.52 SQ. YD.

STA. 1072+29.42 TO STA. 1074+50 = 220.58'

ITEM 846(1)	220.58' X 66.4' X 1 1/4" / 27	56.52 CU. YD.
ITEM 846(1)	220.58' X 5.6' X (2 1/4"+1" / 2) / 27	6.20 CU. YD.
ITEM 846(1)	220.58' X 3' X (1"+0" / 2) / 27	1.02 CU. YD.
ITEM 846(2)	220.58' X 64' X 2 1/4" / 27	98.04 CU. YD.
ITEM 846(2)	220.58' X 2.4' X (2 1/4" + 1" / 2) / 27	2.66 CU. YD.
ITEM SPECIAL	220.58' X 54.7' /9	1,340.64 SQ. YD.
ITEM 407	220.58' X 73' / 9 X 0.30	178.91 GAL.
ITEM 617	220.58' X 24' X (4"+0" / 2) / 27	32.69 CU. YD.
ITEM 203	220.58' X 2' / 9	49.02 SQ. YD.

STA. 1074+50 TO STA. 1077+35.79 = 285.79'

ITEM 846(1)	285.79' X 58.8' X 1 1/4" / 27	64.85 CU. YD.
ITEM 846(1)	285.79' X 11.2' X (2 1/4"+ 1" / 2) / 27	16.05 CU. YD.
ITEM 846(1)	285.79' X 6' X (1"+0" / 2) / 27	2.65 CU. YD.
ITEM 846(2)	285.79' X 54' X 2 1/4" / 27	107.17 CU. YD.
ITEM 846(2)	285.79' x 4.8' x (2 1/4" + 1" / 2) / 27	6.88 CU. YD.
ITEM SPECIAL	285.79' X 50.9' /9	1,616.30 SQ. YD.
ITEM 407	285.79' X 76' / 9 X 0.10	241.33 GAL.
ITEM 617	285.79' X 16' X (4"+0" / 2) / 27	28.23 CU. YD.

STA. 1077+35.79 TO STA. 1086+00 = 864.21'

ITEM 846(1)	864.21' X 66.4' X 1 1/4" / 27	221.46 CU. YD.
ITEM 846(1)	864.21' X 5.6' X (2 1/4"+ 1" / 2) / 27	24.27 CU. YD.
ITEM 846(1)	864.21' X 3' X (1"+0" / 2) / 27	4.00 CU. YD.
ITEM 846(2)	864.21' X 64' X 2 1/4" / 27	384.09 CU. YD.
ITEM 846(2)	864.21' X 2.4' X (2 1/4"+1 " / 2) / 27	10.40 CU. YD.
ITEM SPECIAL	864.21' X 54.7' /9	5,252.48 SQ. YD.
ITEM 407	864.21' X 73' / 9 X 0.10	700.97 GAL.
ITEM 617	864.21' X 24' X (4"+0" / 2) / 27	128.06 CU. YD.
ITEM 203	864.21' X 2' / 9	192.05 SQ. YD.

STA. 1086+00 TO STA. 1091+00 = 500'

ITEM 846(1)	500' X 74' X 1 1/4" / 27	142.79 CU. YD.
ITEM 846(2)	500' X 74' X 2 1/4" / 27	256.94 CU. YD.
ITEM SPECIAL	500' X 58.5' /9	3,250.00 SQ. YD.
ITEM 407	500' X 70' / 9 X 0.10	388.89 GAL.
ITEM 617	500' X 32' X (4"+0" / 2) / 27	98.79 CU. YD.
ITEM 203	500' X 4' / 9	222.22 SQ. YD.

STA. 1091+00 TO STA. 1098+02.34 = 702.34'

ITEM 846(1)	702.34' X 66.4' X 1 1/4" / 27	179.98 CU. YD.
ITEM 846(1)	702.34' X 5.6' X (2 1/4"+ 1" / 2) / 27	19.72 CU. YD.
ITEM 846(1)	702.34' X 3' X (1"+ 0" / 2) / 27	3.25 CU. YD.
ITEM 846(2)	702.34' X 64' X 2 1/4" / 27	312.15 CU. YD.
ITEM 846(2)	702.34' X 2.4' X (2 1/4"+ 1" / 2) / 27	8.45 CU. YD.
ITEM SPECIAL	702.34' X 54.7' /9	4,268.67 SQ. YD.
ITEM 407	702.34' X 73' / 9 X 0.10	569.68 GAL.
ITEM 617	702.34' X 24' X (4"+0" / 2) / 27	104.07 CU. YD.
ITEM 203	702.34' X 2' / 9	156.08 SQ. YD.

STA. 1098+02.34 TO STA. 1100+75 = 272.66'

ITEM 846(1)	272.66' X 58.8' X 1 1/4" / 27	61.87 CU. YD.
ITEM 846(1)	272.66' X 11.2' X (2 1/4"+ 1" / 2) / 27	13.31 CU. YD.
ITEM 846(1)	272.66' X 6' X (1"+0" / 2) / 27	2.53 CU. YD.
ITEM 846(2)	272.66' X 54' X 2 1/4" / 27	102.25 CU. YD.
ITEM 846(2)	272.66' X 4.8' X (2 1/4" + 1" / 2) / 27	6.56 CU. YD.
ITEM SPECIAL	272.66' X 50.9' /9	1,542.04 SQ. YD.
ITEM 407	272.66' X 76' / 9 X 0.10	230.25 GAL.
ITEM 617	272.66' X 16' X (4"+0" / 2) / 27	26.94 CU. YD.

STA. 1100+75 TO STA. 1100+87.5 = 12.5'

ITEM 846(1)	12.5' X 68.4' X 1 1/4" / 27	0.26 CU. YD.
ITEM 846(1)	12.5' X 5.6' X (2 1/4"+ 1" / 2) / 27	0.35 CU. YD.
ITEM 846(1)	12.5' X 3' X (1"+0" / 2) / 27	0.06 CU. YD.
ITEM 846(2)	12.5' X 66' X 2 1/4" / 27	5.73 CU. YD.
ITEM 846(2)	12.5' X 2.4' X (2 1/4" + 1" / 2) / 27	0.15 CU. YD.
ITEM SPECIAL	12.5' X 54.7' /9	75.97 SQ. YD.
ITEM 407	12.5' X 73' / 9 X 0.10	10.14 GAL.
ITEM 617	12.5' X 18' X (4" + 0" / 2) / 27	1.39 CU. YD.
ITEM 203	12.5' X 4' / 9	5.56 SQ.

STA. 1100+87.5 TO STA. 1106+00 = 512.5'

ITEM 846(1)	512.5' X 78' X 1 1/4" / 27	154.27 CU. YD.
ITEM 846(2)	512.5' X 78' X 2 1/4" / 27	277.60 CU. YD.
ITEM SPECIAL	512.5' X 58.5' /9	3,331.25 SQ. YD.
ITEM 407	512.5' X 70' / 9 X 0.10	398.61 GAL.
ITEM 617	512.5' X 20' X (4" + 0" / 2) / 27	63.28 CU. YD.
ITEM 203	512.5' X 8' / 9	445.56

STA. 1106+00 TO STA. 1109+87.5 = 387.5'

ITEM 846(1)	387.5' X 76' X 1 1/4" / 27	113.66 CU. YD.
ITEM 846(2)	387.5' X 76' X 2 1/4" / 27	204.51 CU. YD.
ITEM SPECIAL	387.5' X 58.5' /9	2,518.75 SQ. YD.
ITEM 407	387.5' X 70' / 9 X 0.10	301.39 GAL.
ITEM 617	387.5' X 26' X (4"+0" / 2) / 27	62.20 CU. YD.
ITEM 203	387.5' X 6' / 9	258.33 SQ. YD.

STA. 1109+87.5 TO STA. 1113+50 = 362.5'

ITEM 846(1)	362.5' X 74' X 1 1/4" / 27	103.53 CU. YD.
ITEM 846(2)	362.5' X 74' X 2 1/4" / 27	186.28 CU. YD.
ITEM SPECIAL	362.5' X 58.5' /9	2,356.25 SQ. YD.
ITEM 407	362.5' X 70' / 9 X 0.10	281.94 GAL.
ITEM 617	362.5' X 32' X (4"+0" / 2) / 27	71.62 CU. YD.
ITEM 203	362.5' X 4' / 9	161.11 SQ. YD.

STA. 1113+50 TO STA. 1113+75 = 25'

ITEM 846(1)	25' X 76' X 1 1/4" / 27	7.33 CU. YD.
ITEM 846(2)	25' X 76' X 2 1/4" / 27	13.19 CU. YD.
ITEM SPECIAL	25' X 58.5' /9	162.50 SQ. YD.
ITEM 407	25' X 70' / 9 X 0.10	19.44 GAL.
ITEM 617	25' X 26' X (4"+0" / 2) / 27	4.01 CU. YD.
ITEM 203	25' X 6' / 9	16.67 SQ. YD.

STA. 1113+75 TO STA. 1117+50 = 375'

ITEM 846(1)	375' X 78' X 1 1/4" / 27	112.88 CU. YD.
ITEM 846(2)	375' X 78' X 2 1/4" / 27	203.13 CU. YD.
ITEM SPECIAL	375' X 58.5' /9	2,437.50 SQ. YD.
ITEM 407	375' X 70' /9 X 0.10	291.67 GAL.
ITEM 617	375' X 20' X (4"+0" / 2) / 27	46.31 CU. YD.
ITEM 203	375' X 8' / 9	333.33 SQ. YD.

STA. 1117+50 TO STA. 1119+50 = 200'

ITEM 846(1)	200' X 76' X 1 1/4" / 27	58.66 CU. YD.
ITEM 846(2)	200' X 76' X 2 1/4" / 27	105.56 CU. YD.
ITEM SPECIAL	200' X 58.5' /9	1,300.00 SQ. YD.
ITEM 407	200' X 70' / 9 X 0.10	155.56 GAL.
ITEM 617	200' X 26' X (4"+0" / 2) / 27	32.11 CU. YD.
ITEM 203	200' X 6' / 9	133.33 SQ. YD.

STA. 1119+50 TO STA. 1123+69.5 = 419.5'

ITEM 846(1)	419.5' X 74' X 1 1/4" / 27	119.80 CU. YD.
ITEM 846(2)	419.5' X 74' X 2 1/4" / 27	215.58 CU. YD.
ITEM SPECIAL	419.5' X 58.5' /9	2,726.75 SQ. YD.
ITEM 407	419.5' X 70' / 9 X 0.10	326.28 GAL.
ITEM 617	419.5' X 32' X (4"+0" / 2) / 27	82.88 CU. YD.
ITEM 203	419.5' X 4' / 9.	186.44 SQ. YD.

STA. 1123+69.5 TO STA. 1123+74.5 = 5'

ITEM 846(1)	5' X 76' X 1 1/4" / 27	1.47 CU. YD.
ITEM 846(2)	5' X 76' X 2 1/4" / 27	2.64 CU. YD.
ITEM SPECIAL	5' X 58.5' /9	32.50 SQ. YD.
ITEM 407	5' X 70' / 9 X 0.10	3.89 GAL.
ITEM 617	5' X 26' X (4"+0" / 2) / 27	0.80 CU. YD.
ITEM 203	5' X 6' / 9	3.33 SQ. YD.

STA. 1123+74.5 TO STA. 1125+87 = 207.5'

ITEM 846(1)	207.5' X 78' X 1 1/4" / 27	62.46 CU. YD.
ITEM 846(2)	207.5' X 78' X 2 1/4" / 27	112.40 CU. YD.
ITEM SPECIAL	207.5' X 58.5' /9	1,348.75 SQ. YD.
ITEM 407	207.5' X 70' / 9 X 0.10	161.39 GAL.
ITEM 617	207.5' X 20' X (4"+0" / 2) / 27	25.62 CU. YD.
ITEM 203	207.5' X 8' / 9	184.44 SQ. YD.

STA. 1125+82 TO STA. 1125+87 = 5'

ITEM 846(1)	5' X 76' X 1 1/4" / 27	1.47 CU. YD.
ITEM 846(2)	5' X 76' X 2 1/4" / 27	2.64 CU. YD.
ITEM SPECIAL	5'X 58.5' /9	32.50 SQ. YD.
ITEM 407	5' X 70' / 9 X 0.10	3.89 GAL.
ITEM 617	5' X 26' X (4"+0" / 2) / 27	0.80 CU. YD.
ITEM 203	5' X 6' / 9	3.33 SQ. YD.

STA. 1125.87 TO STA. 1129+94.09 = 407.09'

ITEM 846(1)	407.09' X 74' X 1 1/4" / 27	116.26 CU. YD.
ITEM 846(2)	407.09' X 74' X 2 1/4" / 27	209.20 CU. YD.
ITEM SPECIAL	407.09' X 58.5' /9	2,646.09 SQ. YD.
ITEM 407	407.09' X 70 / 9 X 0.10	316.63 GAL.
ITEM 617	407.09' X 32' X (4"+0" / 2) / 27	80.43 CU. YD.
ITEM 203	407.09' X 4' / 9	180.93 SQ. YD.

STA. 0+12.64 TO STA. 1+12.64 = 100' TRANSITION AREA

ITEM 846(1)	35'-8 3/4" X 70' X 1 1/4" / 27	9.65 CU. YD.
ITEM 846(1)	28'-6 1/2" X 70' X (2 1/4"+1 1/4" / 2) / 27	10.79 CU. YD.
ITEM 846(1)	35'-8 3/4" X 70' X 1 1/4" / 27	9.65 CU. YD.
ITEM 846(1)	100' X 4' X 1 1/4" / 27	1.54 CU. YD.
ITEM 846(2)	35'-8 3/4" X 70' X (2 1/4"+ 1" / 2) / 27	12.54 CU. YD.
ITEM 846(2)	100' X 4' X 1 3/4" / 27	2.16 CU. YD.
ITEM 407	100' X 70' / 9 X 0.10	77.78 GAL.
ITEM 617	100' X 32' X (4"+0" / 2) / 27	19.76 CU. YD.
ITEM 203	100' X 4' / 9	44.44 SQ. YD.
ITEM 202	35'-8 3/4" X 70' / 9	277.89 SQ. YD.

GRAND TOTALS

ITEM 846(1)	13336 CU. YD.
ITEM 846(2)	23586 CU. YD.
ITEM 407	35623 GALS.
ITEM 617	7256 CU. YD.
ITEM 304	692 CU. YD.
ITEM 203	27330 SQ. YD.
ITEM 202	2026 SQ. YD.
ITEM SPECIAL PAVEMENT PLANING	296,005 SQ. YD.

QUANTITIES CARRIED TO THE GENERAL SUMMARY

GENERAL SUMMARY

ITEM	SHEET NUMBER 7	8	10	11	12	16	17	18	19	22	23	24	20	27	34	35A	59	113	114	117	ITEM EXT.	ITEM	QUANT.	UNIT	* 100% STATE FUNDING DESCRIPTION
																									ROADWAY
202												62					544				35100	202	606	LIN.FT.	PIPE REMOVED, 24" AND UNDER
202			2293	278													15446				23000	202	18017	SQ.YD.	PAVEMENT REMOVED
202									329					8			3710				32000	202	4047	LIN.FT.	CURB REMOVED
202										34362.5											38100	202	34362.6	LIN.FT.	GUARD RAIL REMOVED FOR STORAGE
202										225.00											38400	202	225	LIN.FT.	GUARD RAIL REMOVED FOR STORAGE, BARRIER DESIGN
202																	3860				30000	202	3860	SQ.FT.	" WALK REMOVED
																	6				58100	202	6	EACH	CATCH BASIN REMOVED
202	1552																				54100	202	1552	EACH	RAISED PAVEMENT MARKERS REMOVED FOR STORAGE
202																38					35200	202	38	LIN. FT.	PIPE REMOVED, OVER 24"
202																	1				58000	202	1	EACH	MANHOLE REMOVED
SPEC.																	LUMP				202 58000	SPEC	LUMP	——	RESTAREA REMOVED, NORTH BOUND
SPEC.																	LUMP				202 98000	SPEC	LUMP	——	REST AREA REMOVED, SOUTH BOUND
SPEC.																	2				202 66000	SPEC	2	EACH	DRILLED WELL ABANDONED
SPEC.																	2				202 98100	SPEC	2	EACH	ROADSIDE TOILET AND STORAGE UNIT REMOVED
203																	4908				20000	203	4908	CU.YD.	EMBANKMENT
203									29			232		58	120		5448	246	147		12000	203	6280	CU.YD.	EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION
203											.250	27	100		605						20001	203	982	CU.YD.	EMBANKMENT, AS PER PLAN
203									70									422	303		50000	203	795	SQ.YD.	SUBGRADE COMPACTION
203																	50				40000	203	50	CU.YD.	BORROW
404		75																			35000	404	75	CU.YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC
410		100																			12000	410	100	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B
614		78																			12470	614	78	EACH	WORK ZONE SPEED LIMIT SIGN
606										33200.0											13000	606	33200.0	LIN.FT.	GUARDRAIL, TYPE 5
606										50.0											15500	606	50.00	LIN.FT.	GUARDRAIL, BARRIER DESIGN, TYPE 5
606										34											25000	606	34	EACH	ANCHOR ASSEMBLY, TYPE A
606										2											25500	606	2	EACH	ANCHOR ASSEMBLY, BARRIER DESIGN, TYPE A
606										33											26500	606	33	EACH	ANCHOR ASSEMBLY TYPE T
606										8											30000	606	8	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE A
606										6											30500	606	6	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE B
616		5																			20000	616	5	TON	CALCIUM CHLORIDE
616		50																			10000	616	50	M.GAL.	WATER
SPEC																	2				202 28100	SPEC	2	EACH	AEROBIC DIGESTION SEWAGE TREATMENT PLANT REMOVED
203													1549								60200	203	1549	STA.	LINEAR GRADING, METHOD 1
203													345								60204	203	345	STA.	LINEAR GRADING, METHOD 2
203									150												60001	203	150	STA.	LINEAR GRADING, AS PER PLAN
																									EROSION CONTROL
601														2	12						32200	601	14	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
601	12																				34200	601	12	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER
601														27	40						11000	601	67	SQ.YD.	RIPRAP USING 6" REINFORCED CONCRETE SLAB
601																9					26000	601	9	CU. YD.	DUMPED ROCK FILL, TYPE B
207	160																				70000	207	160	EACH	STRAW OR HAY BALES
207	280																				40000	207	280	LIN.FT.	TEMPORARY SLOPE DRAINS
207	11038																				10000	207	11038	SQ.YD.	TEMPORARY SEEDING AND MULCHING
207	1400																				50000	207	1400	CU.YD.	TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS
654																	180				10000	654	180	M.SQ.FT.	RENOVATING EXISTING SOIL
659	124																				40000	659	124	M.SQ.FT.	MOWING
659	36																107				35000	659	143	M.GAL.	WATER
659	2759																				14000	659	2759	SQ.YD.	REPAIR SEEDING AND MULCHING
659	1.00										0.10	0.17		0.04	0.20		4.65				20000	659	6.16	TON	COMMERCIAL FERTILIZER
659											1132	1890		448	2181		49469				10000	659	55120	SQ.YD.	SEEDING AND MULCHING
659					25												9				30000	659	34	TON	AGRICULTURAL LIMING
660															78						30000	660	78	SQ.YD.	SODDING

REVISED 5-11-90
REVISED 4-3-90
REVISED 6-7-89

GENERAL SUMMARY

GENERAL SUMMARY

DATE 10-87 CHKD. BY L.L.H. DATE 11-87	STA-21-12.39 F-48 (9)	FHWA REGION 5 FEDERAL PROJECT	117

ITEM	7	8	10	11	12	16	17	18	19	22	23	24	27	34	35A	113	114	117	59	74	76	77	75	ITEM EXT.	ITEM	QUANT.	UNIT	DESCRIPTION (* 100% STATE FUNDING)
																												DRAINAGE
602													0.31		1.84									20000	602	2.15	CU.YD.	CONCRETE MASONRY
603															38									19200	603	38	LIN. FT.	42" CONDUIT, TYPE A, 707.05 (0.109) TYPE C
603													100											07400	603	100	LIN.FT.	18" CONDUIT, TYPE B, 706.02, 1750 D LOAD
603											138													06100	603	138	LIN.FT.	15" CONDUIT, TYPE C
603													650											07600	603	650	LIN.FT.	18" CONDUIT, TYPE C, 706.02, 1750 D LOAD
603									310															02600	603	310	LIN.FT.	8" CONDUIT, TYPE F
603									240															01500	603	240	LIN.FT.	6" CONDUIT, TYPE F
604													1											04900	604	1	EACH	CATCH BASIN, NO. 2-3
604											1													01200	604	1	EACH	CATCH BASIN, NO. 4
604													1											01600	604	1	EACH	CATCH BASIN, NO. 5
604											1													02800	604	1	EACH	CATCH BASIN, NO. 8
604											2													20801	604	2	EACH	INLET RECONSTRUCTED TO GRADE, AS PER PLAN. (SEE SHEET NO. 7)
604	4																							20800	604	4	EACH	INLET RECONSTRUCTED TO GRADE
604	8																							09500	604	8	EACH	CATCH BASIN RECONSTRUCTED TO GRADE
604	4																							09500	604	4	EACH	CATCH BASIN NO. 5 RECONSTRUCTED TO GRADE
605							2128																	31100	605	2128	LIN.FT.	AGGREGATE DRAINS
SPECIAL															100									603 20400	SPECIAL	100	SQ. YD.	ASPHALT INVERT REPAIR
SPECIAL	70												80											202 70100 *	SPECIAL	150*	LIN.FT.	CLEANING EXISTING CONDUIT *
																												PAVEMENT
301									16				3						283		84	84		10002	301	470	CU.YD.	BITUMINOUS AGGREGATE BASE, AC-20
304									10				3						800		45	45		20000	304	903	CU.YD.	AGGREGATE BASE
310							208																	20000	310	208	CU.YD.	SUBBASE, TYPE II
310																70	51		565					12000	310	686	CU YD	SUBBASE, TYPE I, GRADING A
407			35124	1804	1681			87	2				2								41	41		10000	407	38,782	GAL.	TACK COAT
448	1714			245	220			12																16000	448	2,191	CU.YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
611																406	293							15001	611	699	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (T=13"), AS PER PLAN
609													8											14000	609	8	LIN.FT.	CURB, TYPE 2-A
617																					4	2		10100	617	6	CU.YD.	COMPACTED AGGREGATE, TYPE A
622																				1430	240	240	1430	40001	622	3340	LIN.FT.	TEMPORARY CONCRETE BARRIER, AS PER PLAN
622																				835	660	660	818	40000	622	2973	LIN.FT.	TEMPORARY CONCRETE BARRIER
617	1																							25000	617	1	M.GAL.	WATER
446			12,219	681	585			30	1				1						117		14	14		01400	446	13,662	CU.YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
446			21,147	922	791			42	1				1						164					01200	446	23,668	CU.YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
						425																		00100	811	425	TON	ASPHALT UNDERSEALING
254			346,640																					01000	254	346,640	SQ.YD.	PAVEMENT PLANING, BITUMINOUS
SPECIAL							38280																	450 14000	SPECIAL	38,280	LIN.FT.	SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS, 705.04 (See Proposal Note)
SPECIAL							192																	251 34000	SPECIAL	192	LIN.FT.	PRESSURE RELIEF JOINTS, TYPE C, AS PER PLAN
251							9191																	01200	251	9191	SQ.YD.	PARTIAL DEPTH PAVEMENT JOINT REPAIR
252							2800																	01000	252	2800	SQ.YD.	FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT
252							10500																	01500	252	10,500	LIN.FT.	FULL DEPTH PAVEMENT SAWING
																												FOR TRAFFIC CONTROL QUANTITIES - SEE SHEET NO. 78
																												FOR BRIDGE QUANTITIES - SEE SHEET NO. 112
614		LUMP																						11000	614	LUMP		MAINTAINING TRAFFIC
619	LUMP																							10000	619	LUMP		FIELD OFFICE
623																								10000	623	LUMP		CONSTRUCTION LAYOUT STAKES
624																								11000	624	LUMP		MOBILIZATION

REVISED 4-11-90
REVISED 4-2-90
REVISED 6-7-89

GENERAL SUMMARY

DATE 10-87 CHKD. BY L.L.H. DATE 11-87	STA-21-12.39 F-48(9)	FHWA REGION 5 FEDERAL PROJECT	117

ITEM	7	8	12	13	14	18	19	20	21	22	23	24	27	34	59	109	110	ITEM	QUANT.	UNIT	• 100% STATE FUNDING DESCRIPTION
																					ROADWAY
201	LUMP																	201	LUMP	——	CLEARING AND GRUBBING
202												62			544			202	606	LIN.FT.	PIPE REMOVED, 24" AND UNDER
202			2026	278											15446			202	17750	SQ.YD.	PAVEMENT REMOVED
202									329				8		3710			202	4047	LIN.FT.	CURB REMOVED
202										34362.5								202	34362.50	LIN.FT.	GUARD RAIL REMOVED FOR STORAGE
202										225.00								202	225.00	LIN.FT.	GUARD RAIL BARRIER DESIGN REMOVED FOR STORAGE
202															3860			202	3860	SQ.FT.	WALK REMOVED
															6			202	6	EACH	CATCH BASIN REMOVED
202	1552																	202	1552	EACH	RAISED PAVEMENT MARKERS REMOVED FOR STORAGE
202																LUMP	LUMP	202	LUMP	——	PORTIONS OF STRUCTURES REMOVED
202															1			202	1	EACH	MANHOLE REMOVED
SPEC.															LUMP			SPEC	LUMP	——	RESTAREA REMOVED NORTH BOUND
SPEC.															LUMP			SPEC	LUMP	——	REST AREA REMOVED SOUTH BOUND
SPEC.															2			SPEC	2	EACH	DRILLED WATER WELL ABANDONED
SPEC.															2			SPEC	2	EACH	ROAD SIDE TOILET AND STORAGE UNIT REMOVED
203															4908			203	4908	CU.YD.	EMBANKMENT
203									29			232	58	120	5448	95	39	203	6021	CU.YD.	EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION
203											250	27		605				203	882	CU.YD.	EMBANKMENT, AS PER PLAN (SEE SHEET NUMBER 21)
203									150									203	150	STATIONS	LINEAR GRADING, AS PER PLAN (SEE SHEET NUMBER 21)
203			27330	1484	176				70									203	29060	SQ.YD.	SUBGRADE COMPACTION
203															50			203	50	CU.YD.	BORROW
404		15																404	15	CU.YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC
410		100																410	100	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B
509																1652	1232	509	2884	LBS.	REINFORCING STEEL
510																300	196	510	496	EACH	DOWEL HOLES
606										33200.0								606	33200.0	LIN.FT.	GUARDRAIL, TYPE 5
606										50.0								606	50.00	LIN.FT.	GUARDRAIL, BARRIER DESIGN, TYPE 5
606										34								606	34	EACH	ANCHOR ASSEMBLY, TYPE A
606										2								606	2	EACH	ANCHOR ASSEMBLY, BARRIER DESIGN, TYPE A
606										33								606	33	EACH	ANCHOR ASSEMBLY TYPE T
606										8								606	8	EACH	BRIDGE TERMINAL ASSEMBLY TYPE A
606										6								606	6	EACH	BRIDGE TERMINAL ASSEMBLY TYPE B
616		5																616	5	TON	CALCIUM CHLORIDE
616		50																616	50	M.GAL.	WATER
SPEC															2			SPEC	2	EACH	AEROBIC DIGESTION SEWAGE TREATMENT PLANT REMOVED
																					EROSION CONTROL
601													2	12				601	14	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
601	12																	601	12	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER
601													27	40				601	67	SQ.YD.	RIPRAP, USING 6" REINFORCED CONCRETE SLAB
207	160																	207	160	EACH	STRAW OR HAY BALES
207	280																	207	280	LIN.FT.	TEMPORARY SLOPE DRAINS
207	11038																	207	11038	SQ.YD.	TEMPORARY SEEDING AND MULCHING
207	1400																	207	1400	CU.YD.	TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS
654															180			654	180	M.SQ.FT.	RENOVATING EXISTING SOIL
659	124																	659	124	M.SQ.FT.	MOWING
659	36														107			659	143	M.GAL.	WATER
659	2759																	659	2759	SQ.YD.	REPAIR SEEDING AND MULCHING
659	1.00										0.10	0.17	0.04	0.20	4.65			659	6.16	TON	COMMERCIAL FERTILIZER
659											1132	1890	448	2181	49,469			659	55120	SQ.YD.	SEEDING AND MULCHING
659					25													659	25	TON	AGRICULTURAL LIMING
660														78				660	78	SQ.YD.	SODDING

ASPHALT SUBSEALING DETAILS

~~ITEM SPECIAL—ASPHALT UNDERSEALING OF EXISTING CONCRETE PAVEMENT~~

~~THIS WORK SHALL CONSIST OF FURNISHING AND PUMPING AN ASPHALT MATERIAL UNDER PORTLAND CEMENT CONCRETE PAVEMENT.~~

~~ASPHALT MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-238 "ASPHALT FOR UNDERSEALING PORTLAND CEMENT CONCRETE PAVEMENT". EXCEPT MIMIMUM FLASH POINT SHALL BE 500°F.~~

~~THE ASPHALT TANKER SHALL BE FULLY INSULATED. IT SHALL BE EQUIPPED WITH REMOVABLE MANHOLE COVERS. SHALL HAVE A 2"(5 CM) MINIMUM SIZE OVERFLOW PIPE AND SHALL HAVE SUITABLE STRAINERS AT THE OUTLET TO THE PUMP. THE ASPHALT TRANSPORT TANKER SHALL HAVE A MINIMUM CAPACITY OF 500 GALLONS AND A REVERSIBLE PUMP. THE ASPHALT TRANSPORT TANKER SHALL BE CAPABLE OF HEATING THE ASPHALT TO APPLICATION TEMPERATURE, AND CIRCULATING IT DURING THE ENTIRE HEATING PROCESS. ALL NECESSARY EQUIPMENT FOR ACCURATELY MEASURING THE TEMPERATURE OF THE ASPHALT SHALL BE PROVIDED. A PUMP FILTER SHOULD BE EQUIPPED WITH A RETURN LINE FOR RECIRCULATION; A 1-1/2 INCH (36 MM) MINIMUM SIZE, FLEXIBLE METAL CIRCULATING HOSE WITH A QUICK CUT-OFF VALVE SHALL BE PROVIDED.~~

~~A TAPERED NOZZLE SHALL BE USED IN PUMPING THE ASPHALT MATERIAL UNDER THE PAVEMENT. THE NOZZLE SHALL BE EQUIPPED WITH A 3-WAY VALVE SO DESIGNED THAT THE ASPHALT MAY CIRCULATE BACK TO THE DISTRIBUTOR TANK WHEN PUMPING OPERATIONS ARE NOT IN PROGRESS. A COMBINATION FOOT STAND AND SHIELD SHALL BE ATTACHED TO THE NOZZLE IN SUCH A WAY THAT AFTER THE NOZZLE HAS BEEN FIRMLY WEDGED INTO THE HOLE, THE OPERATOR CAN HOLD IT IN POSITION BY STANDING ON THE WINGS OF THE STAND.~~

~~AIR OR ELECTRIC POWERED DRILLS CAPABLE OF DRILLING HOLES NOT TO EXCEED 1-1/2 INCH IN DIAMETER THROUGH THE PAVEMENT SHALL BE OPERATED IN SUCH A MANNER THAT "OUT-OF-ROUND" HOLES WILL NOT BE PRODUCED.~~

~~AIR COMPRESSORS TO BE USED FOR BLOWING AIR INTO CAVITIES BENEATH THE PAVEMENT SHALL BE CAPABLE OF DELIVERING A MINIMUM OF 105 CU.FT. OF AIR PER MINUTE.~~

~~ALL STORAGE TANKS, PIPES, RETORTS, BOOSTER TANKS, AND DISTRIBUTORS USED IN STORING OR HANDLING THE ASPHALT SHALL BE KEPT CLEAN AND IN GOOD OPERATING CONDITION AT ALL TIMES SO THERE WILL BE NO CONTAMINATION OF THE ASPHALT WITH FOREIGN MATERIAL.~~

~~ASPHALT INJECTION HOLES WILL BE DRILLED IN A PATTERN INDICATED ON THE PLANS OR DESIGNATED BY THE ENGINEER. THEY SHALL NOT BE LARGER THAN 1-1/2 INCH IN DIAMETER. THEY SHALL BE DRILLED VERTICALLY AND ROUND AND TO A DEPTH SUFFICENT TO PENETRATE ANY STABILIZED BASE, BUT SHALL NOT PENETRATE A GRANULAR SUBBASE MORE THAN 2 INCHES. IN CASE OF AN EXISTING BITUMINOUS OVERLAY ON RIGID PAVEMENT, HOLES SHALL BE DRILLED THROUGH THE OVERLAY AND THE UNDERLYING CONCRETE AND THE NOZZLE SHALL BE SUFFICIENT LENGTH THAT IT CAN BE DRIVEN TO A SNUG FIT INTO THE CONCRETE SLAB WITHOUT THE UPPER PART OF THE NOZZLE BEING BELOW THE ELEVATION OF EXISTING BITUMINOUS SURFACE. UNSATISFACTORY OR "OUT-OF-ROUND" HOLES THAT DO NOT ACCOMODATE THE ASPHALT NOZZLE SHALL BE PLUGGED AND NEW HOLES DRILLED.~~

~~THE ASPHALT MATERIAL SHALL BE HEATED TO A TEMPERATURE OF 400 F TO 450 F BEFORE PUMPING OPERATIONS BEGIN. WHEN PUMPED UNDER THE PAVEMENT THE TEMPERATURE OF THE ASPHALT SHALL BE NOT LESS THAN 380 F. THE ASPHALT SHALL BE CIRCULATED THROUGH THE NOZZLE PRIOR TO PUMPING IN ORDER TO FREE AND WARM THE NOZZLE AND HOSES. ASPHALT HEATED TO A TEMPERATURE OF 500 F OR MORE WILL BE REJECTED.~~

~~WATER, LIMEWATER, OR SAND SHALL BE SPRINKLED AROUND THE HOLE PRIOR TO PUMPING TO PREVENT ANY ASPHALT THAT MAY LEAK FROM AROUND THE NOZZLE FROM STICKING TO THE PAVEMENT. PRIOR TO PUMPING THE ASPHALT, COMPRESSED AIR AT APPROXIMATELY 70 P.S.I. PRESSURE SHALL BE BLOWN THROUGH THE HOLE FOR NOT LESS THAN 15 SECONDS NOR MORE THAN 60 SECONDS. THE AIR NOZZLE SHALL BE FIRMLY WEDGED INTO THE HOLE.~~

~~THE ASPHALT NOZZLE SHALL BE INSERTED IN THE HOLE, DRIVEN TO SNUG FIT, AND PUMPING OF THE UNDERSEALING IS COMPLETE. A POSITIVE MEANS OF MONITORING LIFT FROM THE STABLE REFERENCE POINT SHALL BE PERFORMED BY THE CONTRACTOR USING EQUIPMENT SATISFACTORY TO THE ENGINEER. PUMPING SHALL BE DISCONTINUED WHEN ANY OF THE FOLLOWING CONDITIONS OCCUR:~~

~~1. PAVEMENT IS RAISED UP TO 1/8 INCH (MAX)~~

~~2. 18 GALLONS OF MATERIAL HAS BEEN PUMPED~~

~~NO PAYMENT FOR ANY UNDERSEALING MATERIAL AT THE SUBJECT LOCATION SHALL BE MADE WHEN THIS TOLERANCE HAS BEEN EXCEEDED. IF ASPHALT SEEPS FROM THE JOINTS OR CRACKS BEFORE THE UNDERSEALING IS COMPLETE, THE PUMPING SHALL BE STOPPED UNTIL THE EXTRUDED ASPHALT HAS CONGEALED. UPON COMPLETION OF THE PUMPING OPERATION, THE NOZZLE SHALL BE REMOVED AND TEMPORARY PLUG DRIVEN INTO THE HOLE WITHOUT AN EXCESS BACK-FLOW OF ASPHALT. AFTER THE ASPHALT HAS BEEN HARDENED, THE PLUG SHALL BE REMOVED AND A HARDWOOD PLUG AT LEAST 3 INCHES LONG AND MINIMUM OF 1/16 INCH LARGER THAN THE DIAMETER OF THE DRILLED HOLE SHALL BE DRIVEN FLUSH WITH THE SURFACE OF THE CONCRETE PAVEMENT. ANY ASPHALT EXTRUDED DURING THE PUMPING OPERATIONS SHALL BE IMMEDIATLY CLEANED FROM THE PAVEMENT SURFACE AND REMOVED FROM THE PROJECT.~~

~~ASPHALT UNDERSEALING SHALL NOT BE PERFORMED WHEN DAYTIME TEMPERATURES ARE BELOW 40°F OR IF THE SUBGRADE OR BASE COURSE MATERIAL IS FROZEN OR CONTAINS ABNORMAL AMOUNT OF MOISTURE FROM A RECENT RAINFALL. THE DRILLING AND PUMPING OPERATIONS SHALL BE DONE ONLY WHEN GENERAL WEATHER CONDITIONS ARE SUITABLE.~~

~~WHERE TRAFFIC IS MAINTAINED, A MOVABLE SHIELD AT LEAST 4 FT. BY 4 FT. IN SIZE SHALL BE PLACED BETWEEN THE PUMPING OPERATION AND THE TRAFFIC. TRAFFIC MAY BE PERMITTED TO USE THE PUMPED AREAS UPON REMOVAL OF THE TEMPORARY PLUGS AND AFTER THE HARDWOOD PLUGS ARE DRIVEN.~~

~~HOLES DRILLED THROUGH THE EXISTING PAVEMENT, AT THE LOCATION AND TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, WILL BE MEASURED AS THE NUMBER OF HOLES. PAYMENT FOR EACH HOLE WILL BE FULL COMPENSATION FOR DRILLING, TEMPORARY PLUGGING, AND FINAL PLUGGING OF THE HOLE.~~

~~ASPHALT MATERIAL WILL BE MEASURED BY THE GALLON AT THE APPLIED TEMPERATURE AND CONVERTED TO 60 F BY THE APPROPRIATE COLUMN OF TABLE 25 OF "ASTM-IP PETROLEUM MEASUREMENT TABLES", ASTM DESIGNATED D-1250. THE UNIT PRICE PER GALLON SHALL BE FULL COMPENSATION FOR THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS, AND OR OTHER COSTS NECESSARY FOR AND INCIDENTAL TO THE UNDERSEALING OF THE PAVEMENT AT THE DESIGNATED LOCATIONS IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE PLAN REQUIREMENTS OR AS DESIGNATED BY THE ENGINEER.~~

~~ON PROJECTS WITH FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT, THE ASPHALT UNDERSEALING AT EACH SLAB OR JOINT SHALL BE DONE BEFORE THE COMPLETION OF THE FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT ITEM.~~

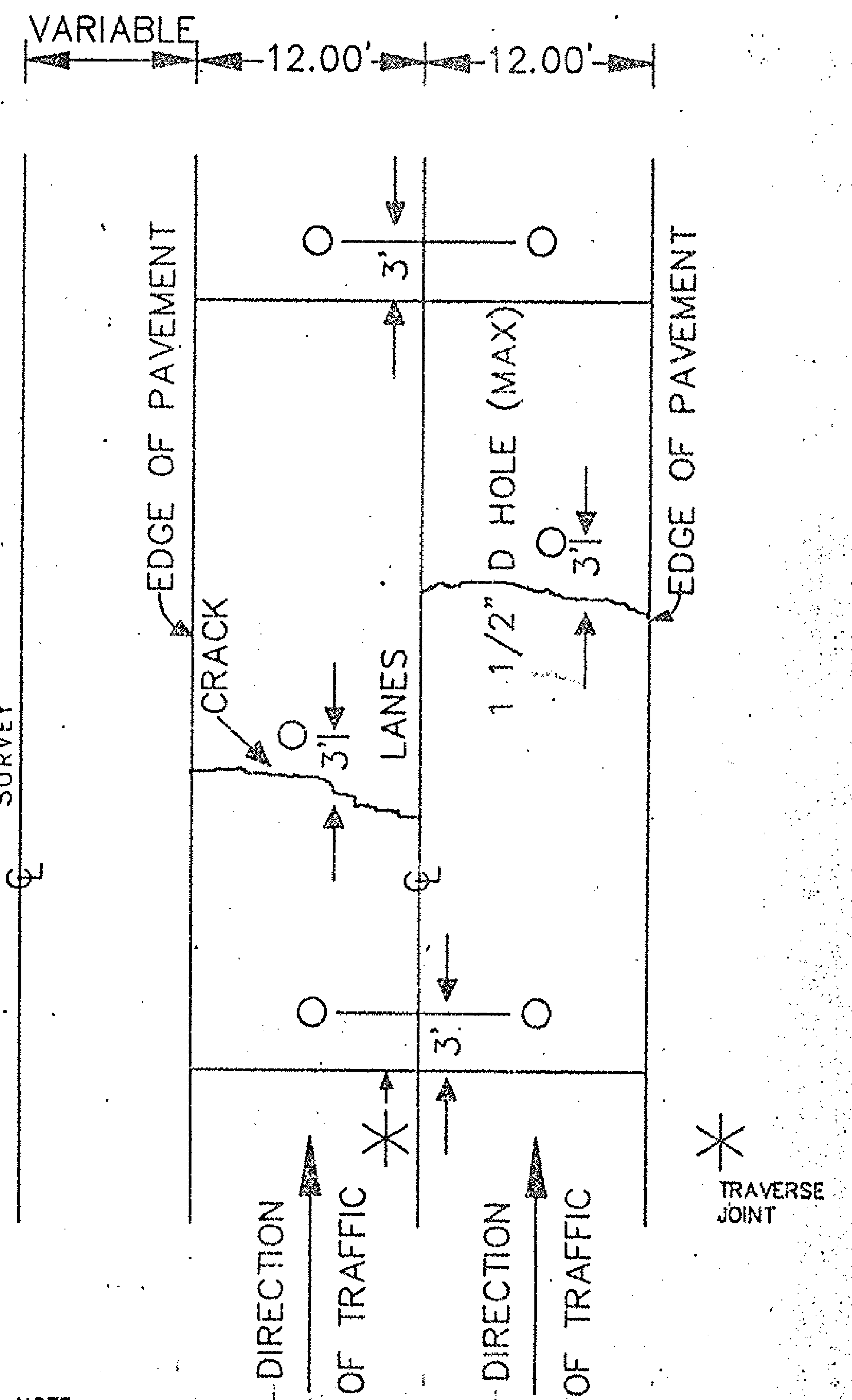
~~PAYMENT WILL BE MADE AT THE CONTRACT PRICES FOR:~~

ITEM	UNIT	DESCRIPTION
811	425 TON	ASPHALT UNDERSEALING

NORTHBOUND LANES		
STATION		
FROM	TO	LIN.FT.
654+13.50 ℄ SURVEY	664+56.19 ℄ SURVEY BK.	1042.69
664+56.19 ℄ N.B. PAVT. AH.	685+14.90 ℄ N.B. PAVT. BK.	2058.71
685+01.76 ℄ SURVEY AH.	918+94.58 ℄ SURVEY BK.	23392.82
917+27.79 ℄ SURVEY AH.	1129+94.09 ℄ SURVEY BK.	21266.30
	TOTAL =	47760.52

SOUTHBOUND LANES		
STATION		
FROM	TO	LIN.FT.
654+13.50 ℄ SURVEY	664+56.19 ℄ SURVEY BK.	1042.69
664+56.19 ℄ S.B. PAVT. AH.	684+98.46 ℄ S.B. PAVT. BK.	2042.27
685+01.76 ℄ SURVEY AH.	918+94.58 ℄ SURVEY BK.	23392.82
917+27.79 ℄ SURVEY AH.	1129+94.09 ℄ SURVEY BK.	21266.30
	TOTAL =	47744.08

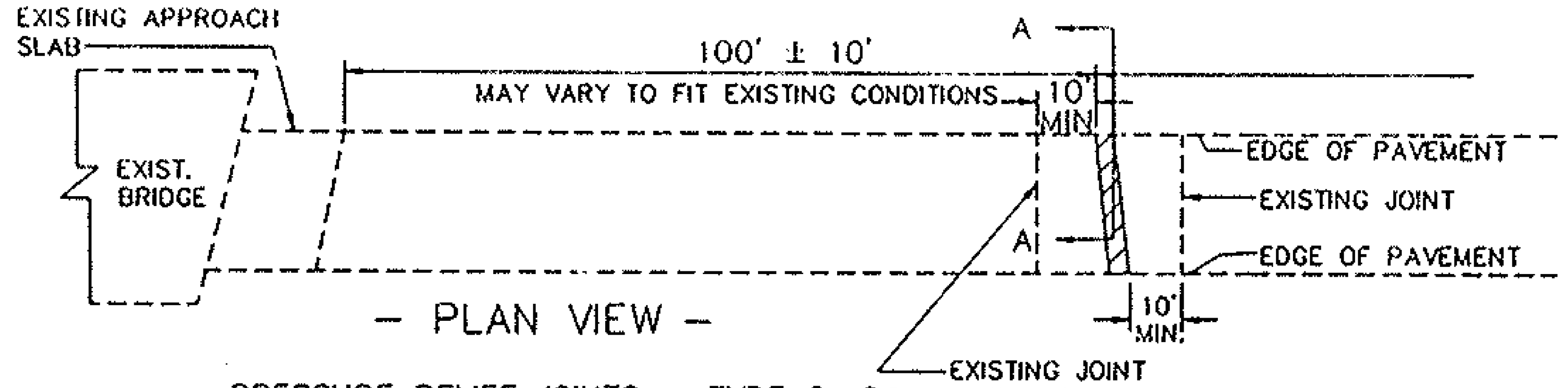
HOLE PATTERN



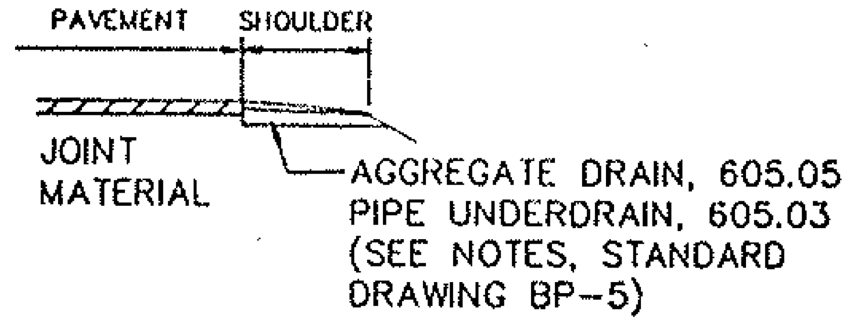
NOTE
UNDERSEALING HOLES SHOULD BE DRILLED NOT MORE THAN 3' PAST EACH CRACK AND JOINT. TRANSVERSE PLACEMENT OF THE HOLES SHOULD BE EXPERIMENTED WITH TO FIND THE OPTIMUM LOCATION. BEGIN BY PLACING THE HOLE IN THE CENTER OF THE LANE AND MAKE NOTE OF WHICH SIDE OF THAT LANE THE MATERIAL CREEPS OUT OF FIRST, THE EDGE OF THE PAVEMANT OR THE LONGITUDINAL JOINT. IF ON THE AVERAGE THE MATERIAL IS SEEN FIRST AT THE EDGE OF THE PAVEMENT, MOVE THE HOLES TOWARD THE LONGITUDINAL JOINT, AND VISE-VERSA.

REVISED 4-2-90
REVISED 6-7-97

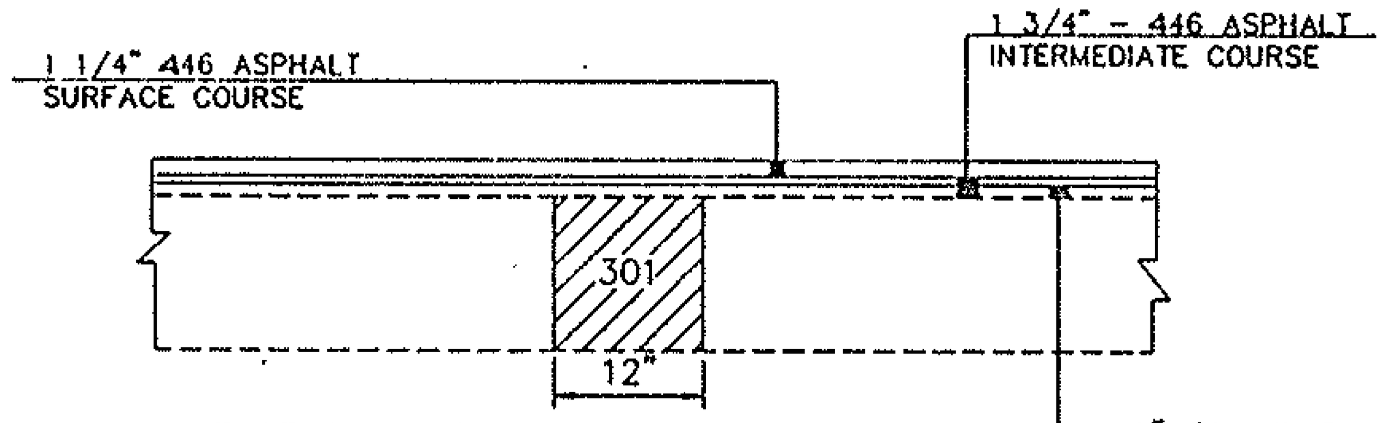
T.A.K. 10-8
L.L.H. 11-8



PRESSURE RELIEF JOINTS – TYPE C, AS PER PLAN



SECTION A–A



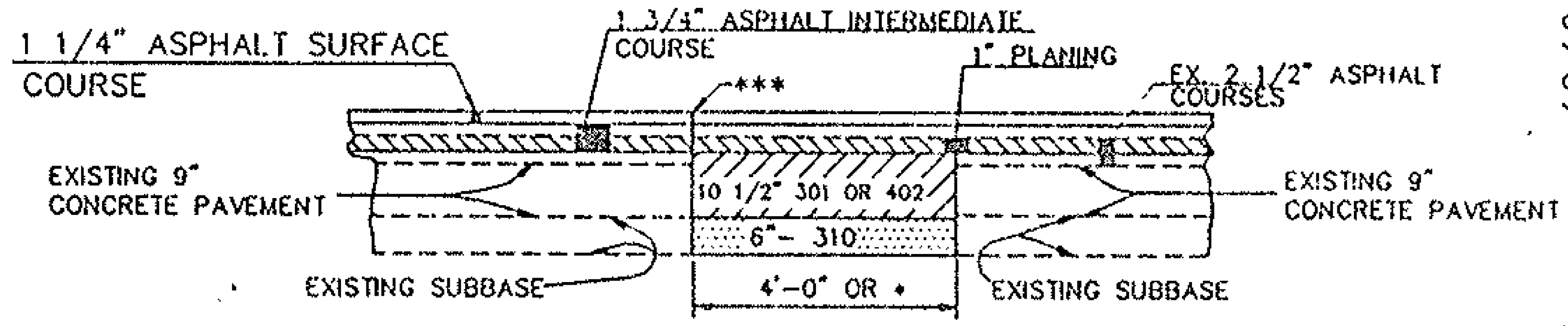
TYPE C – WITH RESURFACING AND PLANING

NOTE: PAYMENT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY TO REMOVE THE EXISTING MATERIAL FROM THE EXISTING PRESSURE RELIEF JOINTS AND REPLACE WITH ITEM 301 BITUMINOUS AGGREGATE BASE PLACED IN TWO OR THREE LIFTS WITH THE MAXIMUM DEPTH OF ANY LIFT NOT TO EXCEED 6". THE WORK SHALL BE PERFORMED AS DESCRIBED IN SECTIONS 253.01, 253.03 AND 253.04 OF THE CONSTRUCTION & MATERIAL SPECIFICATIONS AND PAYMENT SHALL INCLUDE THE FURNISHING OF ALL LABOR AND MATERIAL TO PERFORM THE WORK THUS DESCRIBED.

ESTIMATED QUANTITIES

	NORTHBOUND LIN. FT.	SOUTHBOUND LIN. FT.	TOTAL LIN. FT.
ITEM SPECIAL ----- PRESSURE RELIEF JOINTS – TYPE C	96	96	192
ITEM 605 ----- AGGREGATE DRAINS	64	64	128

QUANTITIES CARRIED TO GENERAL SUMMARY



SECTION A–A

℄ FULL DEPTH

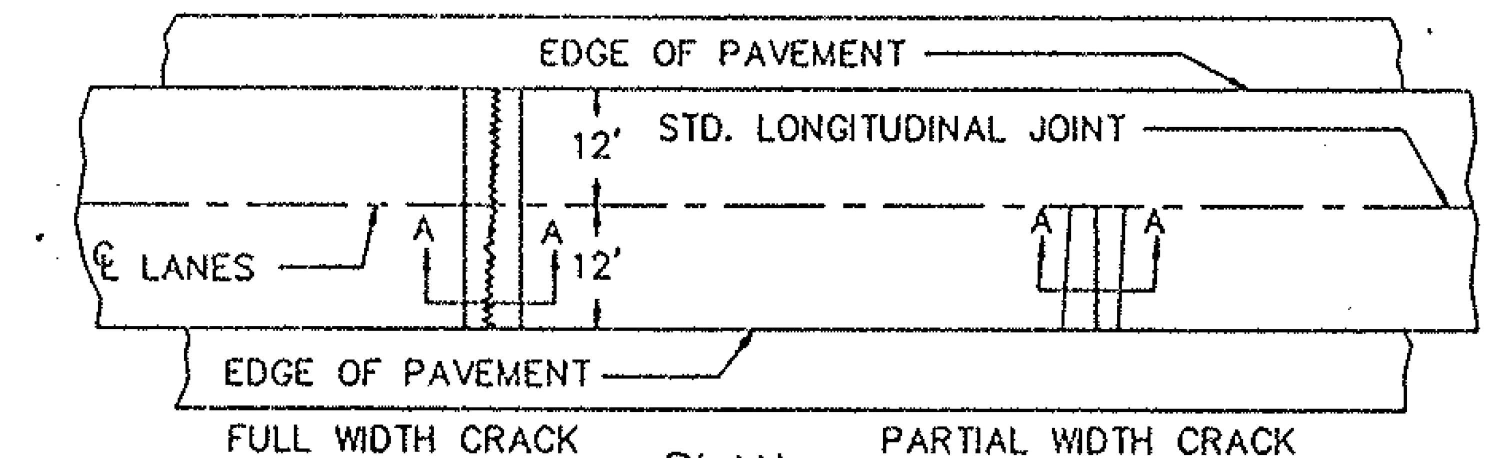
ESTIMATED QUANTITIES	
ITEM 252 ------------------------ FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT	2800 SQ. YD.
ITEM 252 ------------------ ℄ PAVEMENT SAWING	10,500 LIN. FT.
ITEM 310 ------------------ SUBBASE, TYPE II	208 CU. YD.
ITEM 605	2,000 LIN. FT.

QUANTITIES CARRIED TO GENERAL SUMMARY

NOTE: THE EXISTING CONCRETE PAVEMENT SHALL BE SAWED FULL DEPTH.

MINIMUM LENGTH OF FULL DEPTH PVM'T. REPAIR SHALL BE LIMITED TO 12'(LANE WIDTH) FOR PARTIAL WIDTH REPAIR AND 24' FOR FULL WIDTH REPAIR.

* AS DIRECTED BY THE ENGINEER

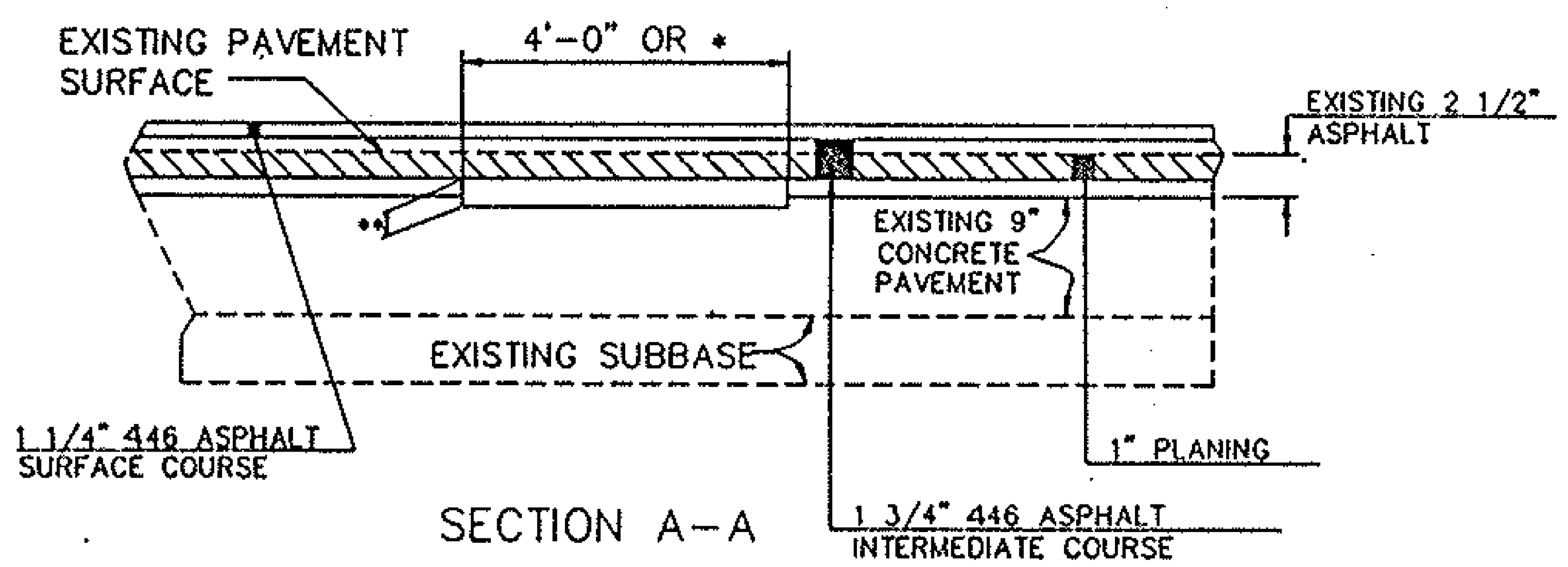


PLAN

PARTIAL DEPTH PAVEMENT REPAIR

* AS DIRECTED BY THE ENGINEER

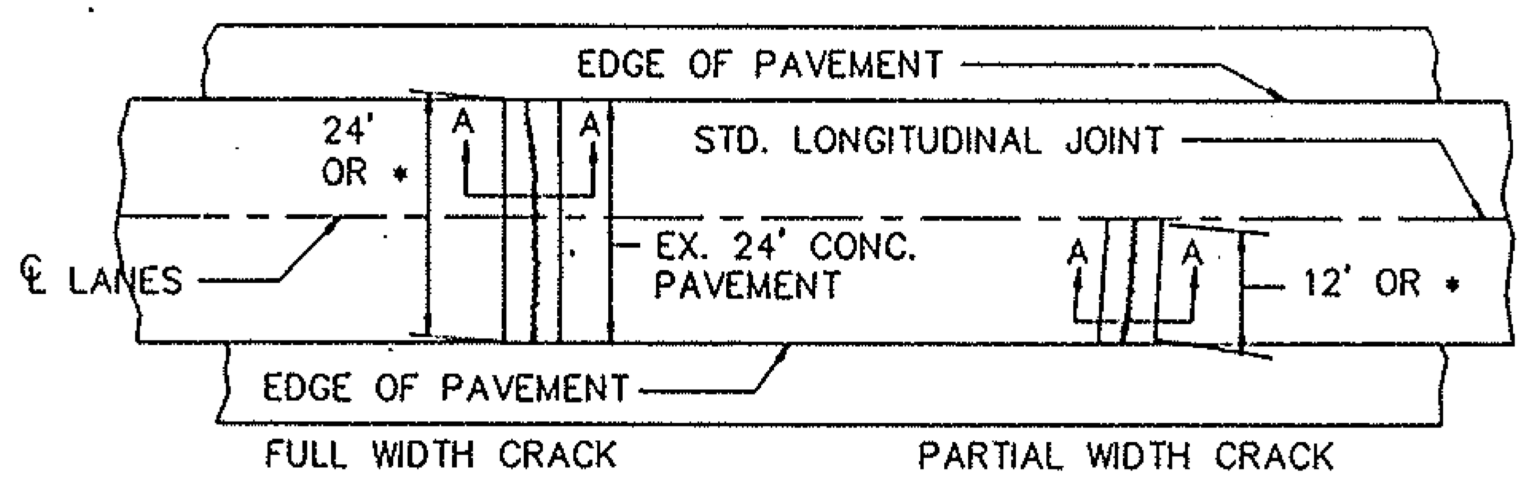
** VARIES AS DIRECTED BY THE ENGINEER (3" MAXIMUM DEPTH)



SECTION A–A

ESTIMATED QUANTITIES		
ITEM 251 ------------- PARTIAL DEPTH PAVEMENT JOINT REPAIR	9191	SQ.YD.

QUANTITIES CARRIED TO GENERAL SUMMARY



PLAN

:AS PER PROPOSAL NOTE
JOINTS @ 60' C/C

ESTIMATED QUANTITIES	
ITEM SPECIAL– SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS 705.04	38280 LIN. FT.

*** ONE JOINT ONLY

QUANTITIES CARRIED TO GENERAL SUMMARY

REVISED 4-2-90
REVISED 6-7-89.

ITEM SPECIAL–ASPHALT UNDERSEALING OF EXISTING CONCRETE PAVEMENT

THIS WORK SHALL CONSIST OF FURNISHING AND PUMPING AN ASPHALT MATERIAL UNDER PORTLAND CEMENT CONCRETE PAVEMENT.

ASPHALT MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-238 "ASPHALT FOR UNDERSEALING PORTLAND CEMENT CONCRETE PAVEMENT". EXCEPT MIMIMUM FLASH POINT SHALL BE 500°F.

THE ASPHALT TANKER SHALL BE FULLY INSULATED. IT SHALL BE EQUIPPED WITH REMOVABLE MANHOLE COVERS. SHALL HAVE A 2"(5 CM) MINIMUM SIZE OVERFLOW PIPE AND SHALL HAVE SUITABLE STRAINERS AT THE OUTLET TO THE PUMP. THE ASPHALT TRANSPORT TANKER SHALL HAVE A MINIMUM CAPACITY OF 500 GALLONS AND A REVERSIBLE PUMP. THE ASPHALT TRANSPORT TANKER SHALL BE CAPABLE OF HEATING THE ASPHALT TO APPLICATION TEMPERATURE, AND CIRCULATING IT DURING THE ENTIRE HEATING PROCESS. ALL NECESSARY EQUIPMENT FOR ACCURATELY MEASURING THE TEMPERATURE OF THE ASPHALT SHALL BE PROVIDED. A PUMP FILTER SHOULD BE EQUIPPED WITH A RETURN LINE FOR RECIRCULATION; A 1-1/2 INCH (36 MM) MINIMUM SIZE, FLEXIBLE METAL CIRCULATING HOSE WITH A QUICK CUT-OFF VALVE SHALL BE PROVIDED.

A TAPERED NOZZLE SHALL BE USED IN PUMPING THE ASPHALT MATERIAL UNDER THE PAVEMENT. THE NOZZLE SHALL BE EQUIPPED WITH A 3-WAY VALVE SO DESIGNED THAT THE ASPHALT MAY CIRCULATE BACK TO THE DISTRIBUTOR TANK WHEN PUMPING OPERATIONS ARE NOT IN PROGRESS. A COMBINATION FOOT STAND AND SHIELD SHALL BE ATTACHED TO THE NOZZLE IN SUCH A WAY THAT AFTER THE NOZZLE HAS BEEN FIRMLY WEDGED INTO THE HOLE, THE OPERATOR CAN HOLD IT IN POSITION BY STANDING ON THE WINGS OF THE STAND.

AIR OR ELECTRIC POWERED DRILLS CAPABLE OF DRILLING HOLES NOT TO EXCEED 1-1/2 INCH IN DIAMETER THROUGH THE PAVEMENT SHALL BE OPERATED IN SUCH A MANNER THAT "OUT-OF-ROUND" HOLES WILL NOT BE PRODUCED.

AIR COMPRESSORS TO BE USED FOR BLOWING AIR INTO CAVITIES BENEATH THE PAVEMENT SHALL BE CAPABLE OF DELIVERING A MINIMUM OF 105 CU.FT. OF AIR PER MINUTE.

ALL STORAGE TANKS, PIPES, RETORTS, BOOSTER TANKS, AND DISTRIBUTORS USED IN STORING OR HANDLING THE ASPHALT SHALL BE KEPT CLEAN AND IN GOOD OPERATING CONDITION AT ALL TIMES SO THERE WILL BE NO CONTAMINATION OF THE ASPHALT WITH FOREIGN MATERIAL.

ASPHALT INJECTION HOLES WILL BE DRILLED IN A PATTERN INDICATED ON THE PLANS OR DESIGNATED BY THE ENGINEER. THEY SHALL NOT BE LARGER THAN 1-1/2 INCH IN DIAMETER. THEY SHALL BE DRILLED VERTICALLY AND ROUND AND TO A DEPTH SUFFICENT TO PENETRATE ANY STABILIZED BASE, BUT SHALL NOT PENETRATE A GRANULAR SUBBASE MORE THAN 2 INCHES. IN CASE OF AN EXISTING BITUMINOUS OVERLAY ON RIGID PAVEMENT, HOLES SHALL BE DRILLED THROUGH THE OVERLAY AND THE UNDERLYING CONCRETE AND THE NOZZLE SHALL BE SUFFICIENT LENGTH THAT IT CAN BE DRIVEN TO A SNUG FIT INTO THE CONCRETE SLAB WITHOUT THE UPPER PART OF THE NOZZLE BEING BELOW THE ELEVATION OF EXISTING BITUMINOUS SURFACE. UNSATISFACTORY OR "OUT-OF-ROUND" HOLES THAT DO NOT ACCOMODATE THE ASPHALT NOZZLE SHALL BE PLUGGED AND NEW HOLES DRILLED.

THE ASPHALT MATERIAL SHALL BE HEATED TO A TEMPERATURE OF 400 F TO 450 F BEFORE PUMPING OPERATIONS BEGIN. WHEN PUMPED UNDER THE PAVEMENT THE TEMPERATURE OF THE ASPHALT SHALL BE NOT LESS THAN 380 F. THE AS-PHALT SHALL BE CIRCULATED THROUGH THE NOZZLE PRIOR TO PUMPING IN ORDER TO FREE AND WARM THE NOZZLE AND HOSES. ASPHALT HEATED TO A TEMPERATURE OF 500 F OR MORE WILL BE REJECTED.

WATER, LIMEWATER, OR SAND SHALL BE SPRINKLED AROUND THE HOLE PRIOR TO PUMPING TO PREVENT ANY ASPHALT THAT MAY LEAK FROM AROUND THE NOZZLE FROM STICKING TO THE PAVEMENT. PRIOR TO PUMPING THE ASPHALT, COMPRESSED AIR AT APPROXIMATELY 70 P.S.I. PRESSURE SHALL BE BLOWN THROUGH THE HOLE FOR NOT LESS THAN 15 SECONDS NOR MORE THAN 60 SECONDS. THE AIR NOZZLE SHALL BE FIRMLY WEDGED INTO THE HOLE.

THE ASPHALT NOZZLE SHALL BE INSERTED IN THE HOLE, DRIVEN TO SNUG FIT, AND PUMPING OF THE UNDERSEALING IS COMPLETE. A POSITIVE MEANS OF MON-ITORING LIFT FROM THE STABLE REFERENCE POINT SHALL BE PERFORMED BY THE CONTRACTOR USING EQUIPMENT SATISFACT-ORY TO THE ENGINEER. PUMPING SHALL BE DISCONTINUED WHEN ANY OF THE FOLLOWING CONDITIONS OCCUR:

1. PAVEMENT IS RAISED UP TO 1/8 INCH (MAX)
2. 18 GALLONS OF MATERIAL HAS BEEN PUMPED

NO PAYMENT FOR ANY UNDERSEALING MATERIAL AT THE SUBJECT LOCATION SHALL BE MADE WHEN THIS TOLERANCE HAS BEEN EXCEEDED. IF ASPHALT SEEPS FROM THE JOINTS OR CRACKS BEFORE THE UNDERSEALING IS COMPLETE, THE PUMPING SHALL BE STOPPED UNTIL THE EXTRUDED ASPHALT HAS CONGEALED. UPON COMP-LETION OF THE PUMPING OPERATION, THE NOZZLE SHALL BE REMOVED AND TEMP-ORARY PLUG DRIVEN INTO THE HOLE WITHOUT AN EXCESS BACK-FLOW OF ASPHALT. AFTER THE ASPHALT HAS BEEN HARDENED, THE PLUG SHALL BE RE-MOVED AND A HARDWOOD PLUG AT LEAST 3 INCHES LONG AND MINIMUM OF 1/16 INCH LARGER THAN THE DIAMETER OF THE DRILLED HOLE SHALL BE DRIVEN FLUSH WITH THE SURFACE OF THE CONCRETE PAVEMENT. ANY ASPHALT EXTRUDED DURING THE PUMPING OPERATIONS SHALL BE IMMEDIATLY CLEANED FROM THE PAVEMENT SURFACE AND REMOVED FROM THE PROJECT.

ASPHALT UNDERSEALING SHALL NOT BE PERFORMED WHEN DAYTIME TEMPERA-TURES ARE BELOW 40°F OR IF THE SUBGRADE OR BASE COURSE MATERIAL IS FROZEN OR CONTAINS ABNORMAL AMOUNT OF MOISTURE FROM A RECENT RAINFALL. THE DRILLING AND PUMPING OPERATIONS SHALL BE DONE ONLY WHEN GENERAL WEATHER CONDITIONS ARE SUITABLE.

WHERE TRAFFIC IS MAINTAINED, A MOVABLE SHIELD AT LEAST 4 FT. BY 4 FT. IN SIZE SHALL BE PLACED BETWEEN THE PUMPING OPERATION AND THE TRAFFIC. TRAFFIC MAY BE PERMITTED TO USE THE PUMPED AREAS UPON REMOVAL OF THE TEMPORARY PLUGS AND AFTER THE HARDWOOD PLUGS ARE DRIVEN.

HOLES DRILLED THROUGH THE EXISTING PAVEMENT, AT THE LOCATION AND TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, WILL BE MEASURED AS THE NUMBER OF HOLES. PAYMENT FOR EACH HOLE WILL BE FULL COMPENSATION FOR DRILLING, TEMPORARY PLUGGING, AND FINAL PLUGGING OF THE HOLE.

ASPHALT MATERIAL WILL BE MEASURED BY THE GALLON AT THE APPLIED TEMPERATURE AND CONVERTED TO 60 F BY THE APPROPRIATE COLUMN OF TABLE 25 OF "ASTM-IP PETROLEUM MEASUREMENT TABLES", ASTM DESIGNATED D-1250. THE UNIT PRICE PER GALLON SHALL BE FULL COMPENSATION FOR THE FURNISH-ING OF ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS, AND OR OTHER COSTS NECESSARY FOR AND INCIDENTAL TO THE UNDERSEALING OF THE PAVEMENT AT THE DESIGNATED LOCATIONS IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE PLAN REQUIREMENTS OR AS DESIGNATED BY THE ENGINEER.

ON PROJECTS WITH FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT, THE ASPHALT UNDERSEALING AT EACH SLAB OR JOINT SHALL BE DONE BEFORE THE COMPLETION OF THE FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT ITEM.

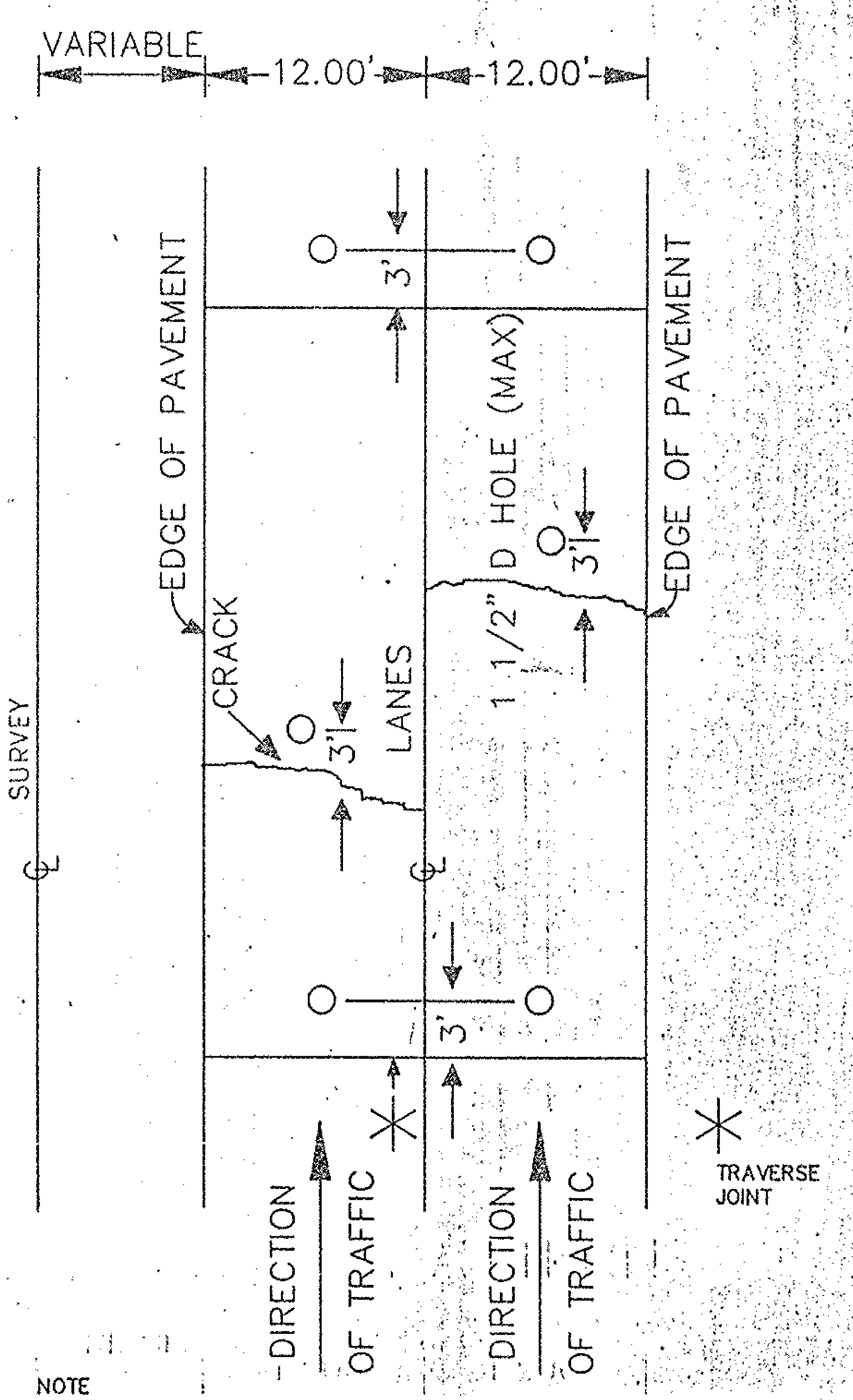
PAYMENT WILL BE MADE AT THE CONTRACT PRICES FOR:

ITEM		UNIT	DESCRIPTION
SPECIAL	9450	EACH	HOLES FOR UNDERSEALING
SPECIAL	141750	GALLONS	UNDERSEALING MATERIAL

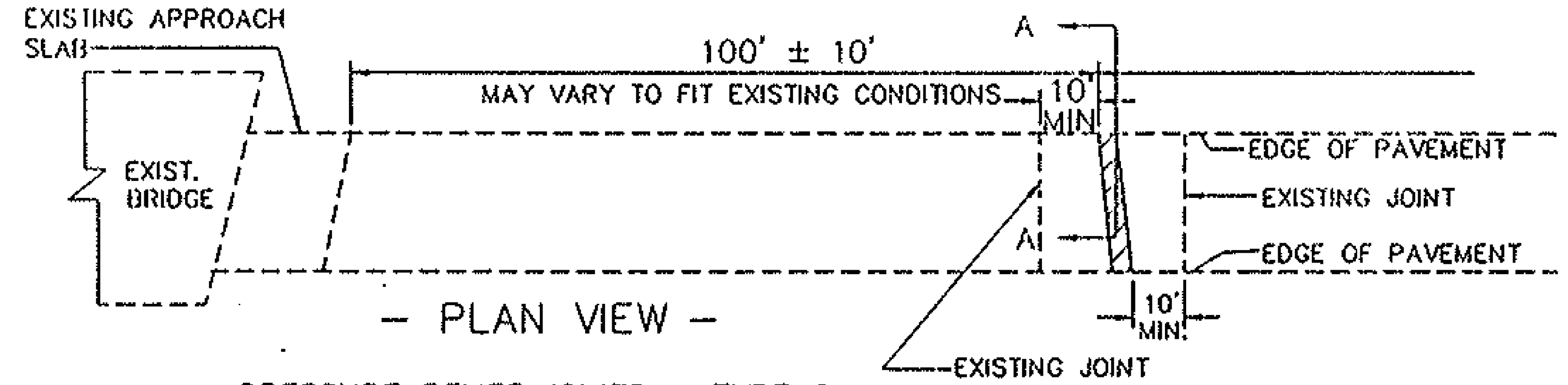
NORTHBOUND LANES		
STATION		
FROM	TO	LIN.FT.
654+13.50 ℄ SURVEY	664+56.19 ℄ SURVEY BK	1042.69
664+56.19 ℄ N.B. PAVT. AH	685+14.90 ℄ N.B. PAVT. BK	2058.71
685+01.76 ℄ SURVEY AH	918+94.58 ℄ SURVEY BK	23392.82
917+27.79 ℄ SURVEY AH	1129+94.09 ℄ SURVEY BK	21266.30
	TOTAL =	47760.52

SOUTHBOUND LANES		
STATION		
FROM	TO	LIN.FT.
654+13.50 ℄ SURVEY	664+56.19 ℄ SURVEY BK	1042.69
664+56.19 ℄ S.B. PAVT. AH	684+98.46 ℄ S.B. PAVT. BK	2042.27
685+01.76 ℄ SURVEY AH	918+94.58 ℄ SURVEY BK	23392.82
917+27.79 ℄ SURVEY AH	1129+94.09 ℄ SURVEY BK	21266.30
	TOTAL =	47744.08

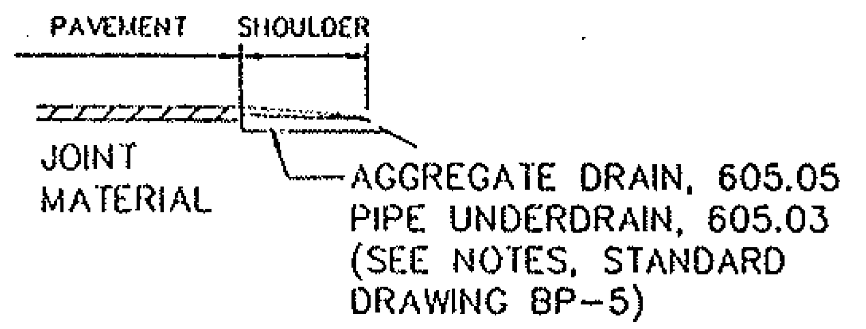
HOLE PATTERN



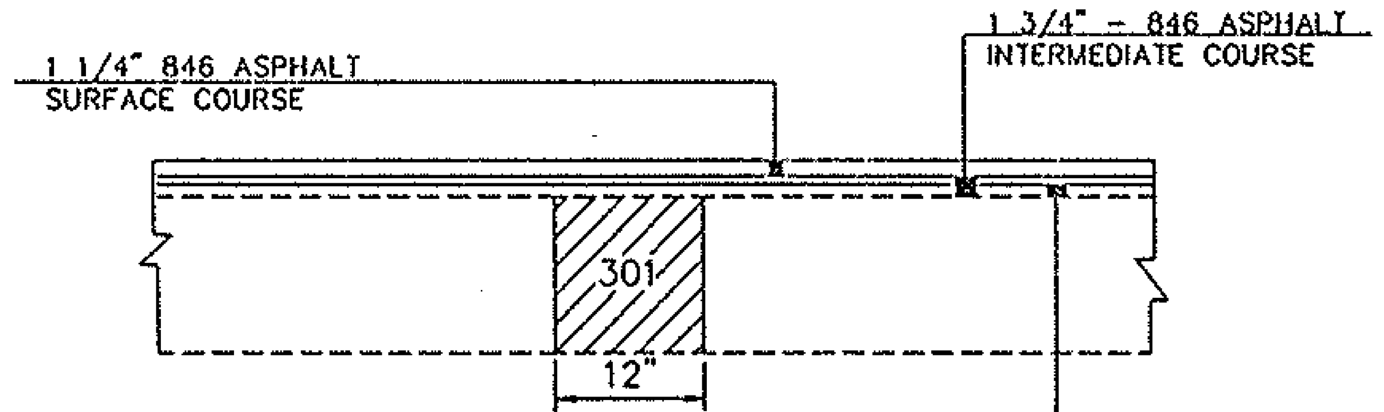
NOTE
UNDERSEALING HOLES SHOULD BE DRILLED NOT MORE THAN 3' PAST EACH CRACK AND JOINT. TRANSVERSE PLACEMENT OF THE HOLES SHOULD BE EXPERIMENTED WITH TO FIND THE OPTIMUM LOCATION. BEGIN BY PLACING THE HOLE IN THE CENTER OF THE LANE AND MAKE NOTE OF WHICH SIDE OF THAT LANE THE MATERIAL CREEPS OUT OF FIRST, THE EDGE OF THE PAVEMANT OR THE LONGITUDINAL JOINT. IF ON THE AVERAGE THE MATERIAL IS SEEN FIRST AT THE EDGE OF THE PAVEMENT, MOVE THE HOLES TOWARD THE LONGITUDINAL JOINT, AND VISE-VERSA.



PRESSURE RELIEF JOINTS - TYPE C



SECTION A-A



TYPE C - WITH RESURFACING AND PLANING

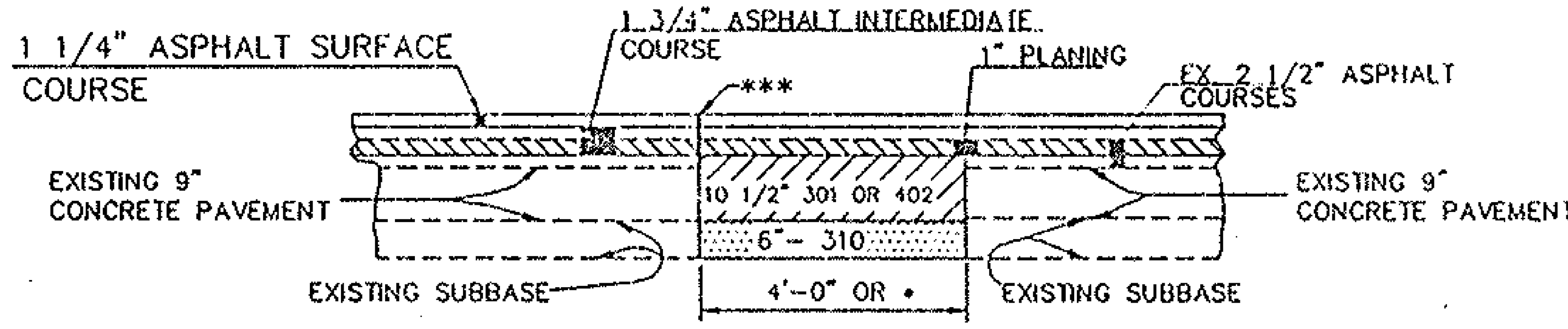
ESTIMATED QUANTITIES

	NORTHBOUND LIN. FT.	SOUTHBOUND LIN. FT.	TOTAL LIN. FT.
ITEM SPECIAL----PRESSURE RELIEF JOINTS - TYPE C	672	672	1344
ITEM 605---- AGGREGATE DRAINS	448	448	896

QUANTITIES CARRIED TO GENERAL SUMMARY

FULL DEPTH PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT

SEE PROPOSAL NOTE NO. 62 (5-14-80)



SECTION A-A

℄ FULL DEPTH

ESTIMATED QUANTITIES

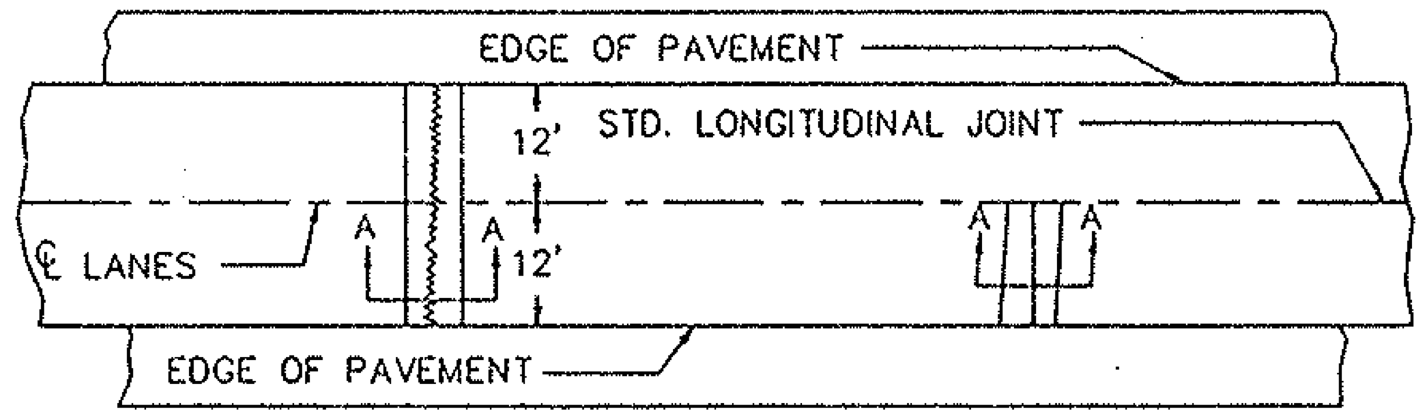
ITEM SPECIAL------FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT	1,248 SQ. YD.
ITEM SPECIAL----------PAVEMENT SAWING	5,616 LIN. FT.
ITEM 310----------SUBBASE, TYPE II	208 CU. YD.

QUANTITIES CARRIED TO GENERAL SUMMARY

NOTE: THE EXISTING CONCRETE PAVEMENT SHALL BE SAWED FULL DEPTH.

MINIMUM LENGTH OF FULL DEPTH PVM'T. REPAIR SHALL BE LIMITED TO 12'(LANE WIDTH) FOR PARTIAL WIDTH REPAIR AND 24' FOR FULL WIDTH REPAIR.

* AS DIRECTED BY THE ENGINEER



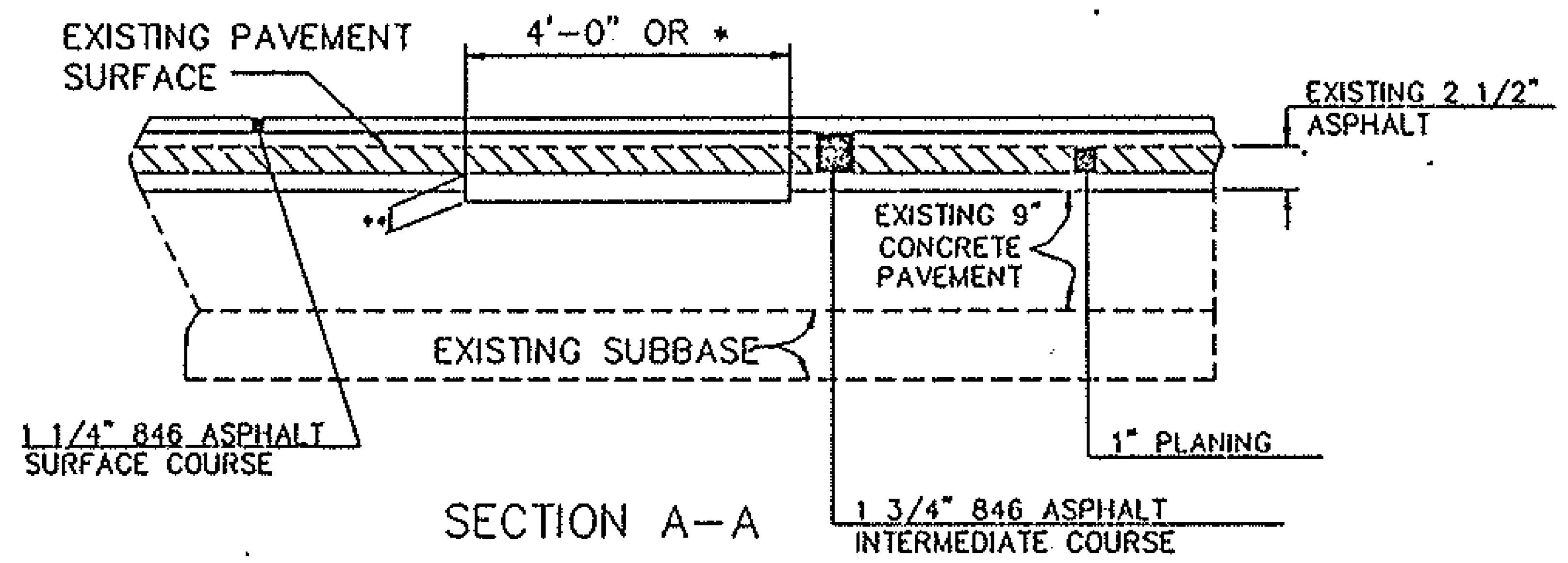
PLAN

PARTIAL DEPTH PAVEMENT REPAIR

SEE PROPOSAL NOTE NO. 61 (3-13-79)

* AS DIRECTED BY THE ENGINEER

** VARIES AS DIRECTED BY THE ENGINEER (3" MAXIMUM DEPTH)

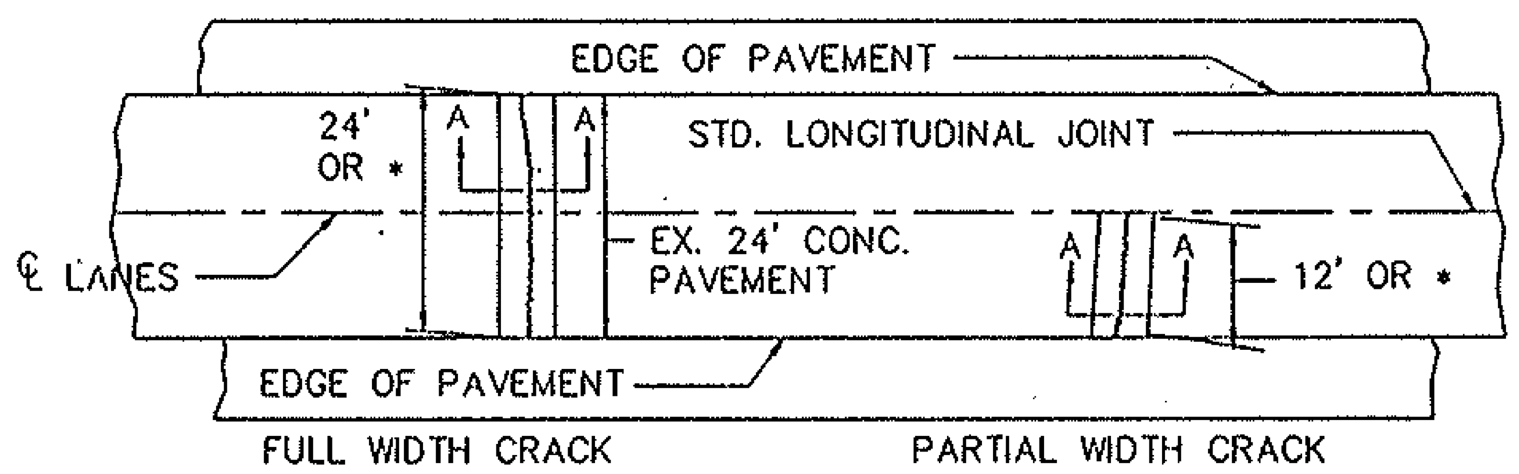


SECTION A-A

ESTIMATED QUANTITIES

ITEM SPECIAL--------PARTIAL DEPTH PAVEMENT JOINT REPAIR	8354 SQ.YD.

QUANTITIES CARRIED TO GENERAL SUMMARY



PLAN

:AS PER PROPOSAL NOTE NO. 210
JOINTS @ 60' C/C

ESTIMATED QUANTITIES

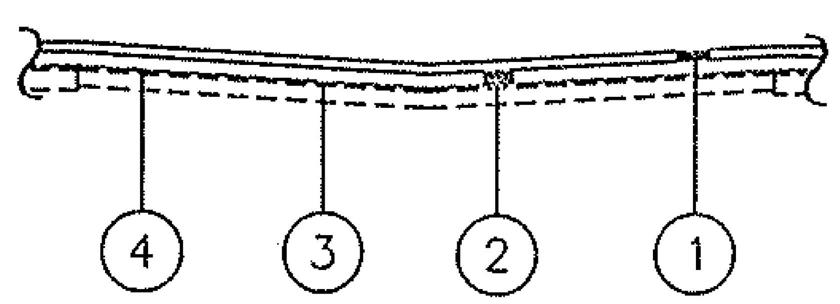
ITEM SPECIAL- SAWING AND SEALING ASPHALT CONCRETE PAVEMENT JOINTS 705.04	38280 LIN. FT.

*** ONE JOINT ONLY

QUANTITIES CARRIED TO GENERAL SUMMARY

TYPICAL MEDIAN CROSSOVER

SECTION ~AA~



NOTE: FOR BALLOONED LEGEND SEE SHEET 5.

~ CALCULATIONS ~

STA. 941+70 AND STA. 1114+00 ~ ESTIMATED AREA = 3896°' X 2 = 7792°'

ITEM 846 ~	.792°' X 1 1/4" ÷ 27	=	30.07 CU. YDS.
ITEM 846 ~	7792°' X 1 3/4" ÷ 27	=	42.08 CU. YDS.
ITEM 407 ~	7792°' ÷ 9 X 0.10	=	86.57 GALS.
ITEM 617 ~	INCLUDED IN MAIN LINE CALCULATIONS		
ITEM 448 ~	7792°' X 1/2" ÷ 27	=	12.03 CU. YDS.

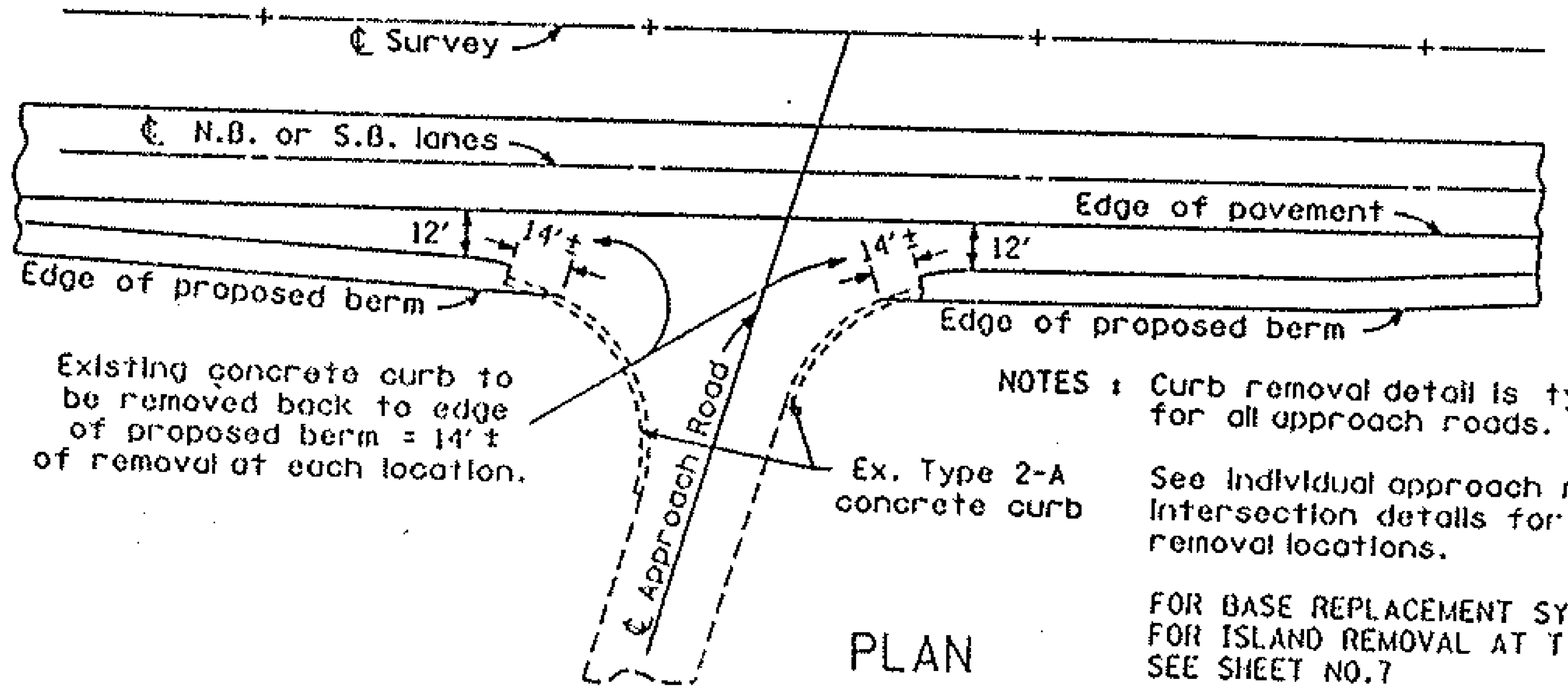
~ ESTIMATED QUANTITIES ~

ITEM 846 ~	ASPHALT SURFACE COURSE, TYPE 1, AC-20	30 CU. YDS.
ITEM 846 ~	ASPHALT INTERMEDIATE COURSE, TYPE 2, AC-20	42 CU. YDS.
ITEM 407 ~	TACK COAT, AS PER PLAN	87 GALS.
ITEM 448 ~	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20	12 CU. YDS.

QUANTITIES CARRIED TO GENERAL SUMMARY

MISCELLANEOUS TABLES AND DETAILS

APPROACH ROAD CURB REMOVAL DETAIL

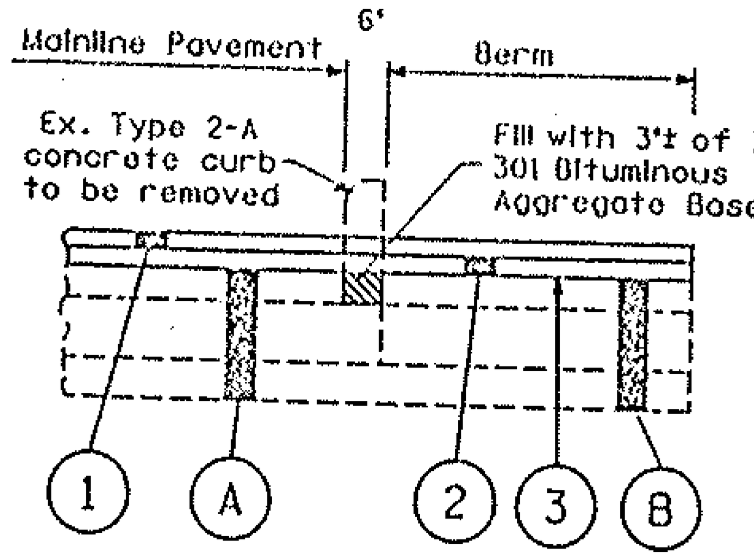


PLAN

NOTES : Curb removal detail is typical for all approach roads.

See individual approach road intersection details for curb removal locations.

FOR BASE REPLACEMENT SYMBOL FOR ISLAND REMOVAL AT T.R.-352 SEE SHEET NO.7



SECTION A-A

LEGEND

1 Item 846 1 1/4" Asphalt Surface Course , Type 1

2 Item 846 1 3/4" Asphalt Intermediate Course , Type 2

3 Item 407 Tack Coat, As Per Plan

A Existing pvm't.: 2 1/2" Asphalt on 9" reinforced conc. pvm't. on 6"± Subbase

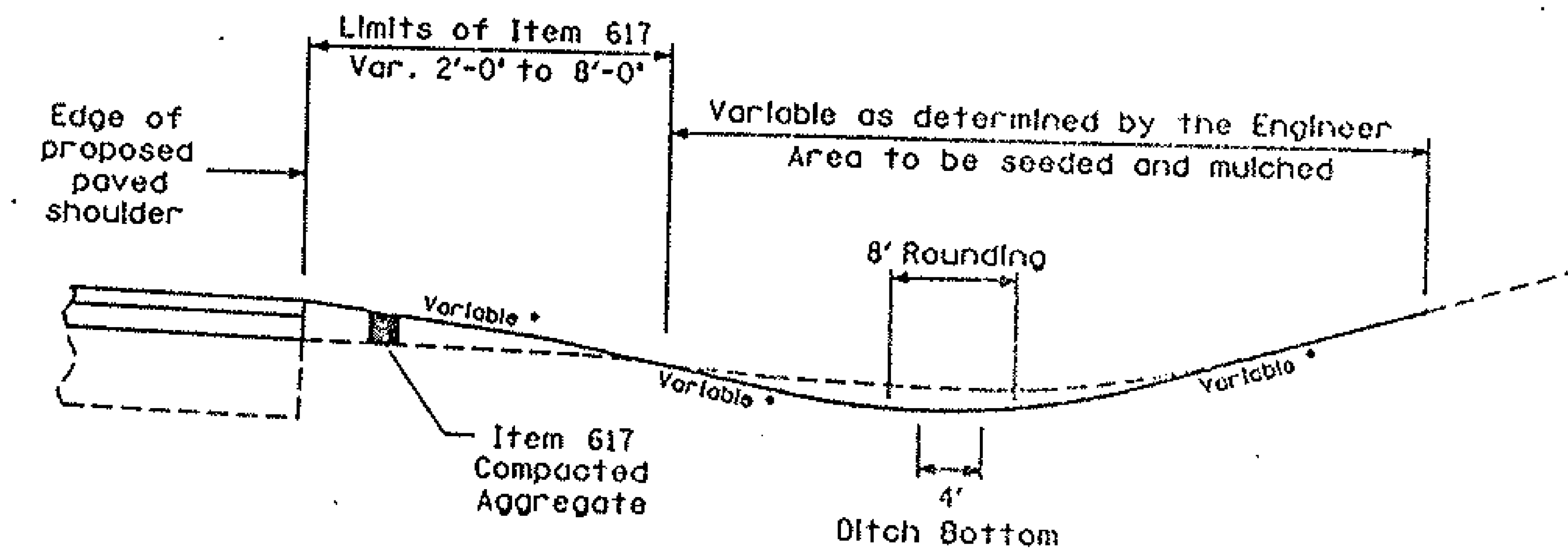
B Existing berm: 2 1/2" Asphalt on 9" on 6" Aggregate Base on 6"± Subbase

CURB REMOVAL TABLE

PLAN REF. NO.	QUANTITY FROM SHEET NO.	LOCATION AND STATION FROM	TO	SIDE	ITEM 202 CURB REMOVED	ITEM 203 EXCAVATION NOT INCLUDING EMBANK. CONSTR.	ITEM 203 SUBGRADE COMPACTION	ITEM 301 BIT. AGGREGATE BASE AC-20	ITEM 304 AGGREGATE BASE	ITEM 407 TACK COAT	ITEM 846 ASPHALT SURFACE COURSE TYPE 1	ITEM 846 ASPHALT INTERMED. COURSE TYPE 2
					LIN. FT.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GALLON	CU. YD.	CU. YD.
		T.R.-352										
1-R	53	49+27	49+38	Rt.	14		0.78	0.07		0.08	0.03	0.04
2-R	↓	48+79	49+14	Lt.	105	29	57.30	14.33	9.56	Included in approach calculations		
3-R		761+02	761+16	Lt.	14		0.78	0.07		0.08	0.03	0.04
4-R		758+46	758+60	Rt.	14		0.78	0.07		0.08	0.03	0.04
5-R	53	50+61	50+74	Lt.	14		0.78	0.07		0.08	0.03	0.04
		T.R.-356										
1-R	54	871+46	871+59	Lt.	14		0.78	0.07		0.08	0.03	0.04
2-R	↓	47+36	47+78	Lt.	14		0.78	0.07		0.08	0.03	0.04
3-R		48+56	48+69	Rt.	14		0.78	0.07		0.08	0.03	0.04
4-R	54	872+87	872+99	Rt.	14		0.78	0.07		0.08	0.03	0.04
		T.R.-404										
1-R	55	49+28	49+40	Rt.	14		0.78	0.07		0.08	0.03	0.04
2-R	↓	1014+71	1014+85	Lt.	14		0.78	0.07		0.08	0.03	0.04
3-R		1012+24	1012+40	Rt.	14		0.78	0.07		0.08	0.03	0.04
4-R	55	50+60	50+72	Lt.	14		0.78	0.07		0.08	0.03	0.04
		C.H.-365										
1-R	56	49+32	49+44	Rt.	14		0.78	0.07		0.08	0.03	0.04
2-R	↓	1044+05	1044+19	Lt.	14		0.78	0.07		0.08	0.03	0.04
3-R		50+58	50+69	Rt.	14		0.78	0.07		0.08	0.03	0.04
4-R	56	1042+02	1042+16	Rt.	14		0.78	0.07		0.08	0.03	0.04
QUANTITIES CARRIED TO GENERAL SUMMARY					329	29	70	16	10	2	1	1

I:STA21M01

LINEAR GRADING DETAIL



* As directed by the Engineer

LINEAR GRADING AS PER PLAN :

This item of work shall consist of regrading the existing shoulder, slopes and ditches from the edge of the proposed paved shoulder through the ditch to re-establish the grade of the shoulder and the original flow line of the ditch.

Any voids or irregularities under the limits of Item 617 which cannot be corrected by the placement of the Item 617 as shown on the typical sections shall be filled and compacted as per CMS Item 203 , using excess material up to the level of the Item 617.

Embankment , as per plan , shall be provided if no excess embankment material exists. Embankment , as per plan shall meet the requirements of CMS Item 203 except that granular material as per 203.02 shall be excluded. Embankment , as per plan , may be obtained from areas within the Right-of-Way as approved by the Engineer.

Where areas are regraded to obtain embankment material they shall be seeded and mulched as per CMS Item 659.09. The method of measurement shall be considered as one station equal to 100 feet and shall include all work required as described above.

Payment for all of the work listed above shall be included in the unit price bid for Item 203 Linear grading , as per plan __________stations. The following estimated quantities have been provided to be used as directed by the Engineer:

ITEM	ESTIMATED QUANTITIES
203	Linear Grading , as per plan__________150 Stations

Quantities carried to General Summary

UNDERDRAIN OUTLET REPLACEMENT :

This item of work shall consist of replacing all eroded , crushed or deteriorated underdrain outlets as shown in the underdrain outlet replacement table at the right of this sheet.

All existing outlet replacement ends shall be delineated by the placement of a flexible post mounted delineator in the immediate area of the pipe outlet, placed so as not to obstruct the outlet. Payment for furnishing and placing delineators at underdrain outlets will be made at the contract price per 'each' for Item 620 , Delineator , Type C , Flexible Post Mounted and Delineator, Type D, Flexible Post Mounted

The locations , flowlines and existing pipe sizes as shown in the underdrain outlet replacement table are taken from the original construction plans. This information shall be considered approximate and the quantities provided may require adjustment based upon actual field conditions. The Contractor shall locate all existing underdrain outlets which do not outlet into an existing catch basin , inlet or other drainage structure and the extent of deterioration and subsequent replacement shall then be determined by the Engineer at each respective location.

Actual flowline elevations may differ from those given in the underdrain outlet replacement table and shall be adjusted by the Engineer if necessary to provide positive drainage into the existing ditch. Quantities for existing underdrain outlet replacement shall be designated for use 'as directed by the Engineer'.

UNDERDRAIN OUTLET REPLACEMENT TABLE

		LOCATION AND STATION	OFFSET DISTANCE FROM ℄	SIDE	FLOWLINE ELEVATION	ITEM 603 6" CONDUIT TYPE F	ITEM 603 8" CONDUIT TYPE F		ITEM 620 DELINEATOR TYPE C FLEXIBLE POST MOUNTED
						LIN. FT.	LIN. FT.		EACH
		S.R.-21							
		673+90	70'	Lt.	887.50	10			1
		674+80	80'	Rt.	990.00	10			1
		694+10	80'	Lt.	1024.30	10			1
		699+00	70'	Rt.	1038.30		10		1
		732+50	87'	Rt.	1058.30		10		1
		758+34	82'	Rt.	1034.84		10		1
		758+38	82'	Rt.	1034.84		10		1
		767+95	80'	Lt.	1020.10		10		1
		773+90	79'	Rt.	1006.00		10		1
		777+98	74'	Rt.	998.63		10		1
		781+00	80'	Lt.	995.00	10			1
		784+60	73'	Rt.	983.30		10		1
		786+00	80'	Lt.	984.50	10			1
		790+50	76'	Rt.	970.00		10		1
		799+75	77'	Rt.	963.50		10		1
		810+65	88'	Rt.	968.62		10		1
		814+75	75'	Rt.	983.00		10		1
		816+00	94'	Rt.	970.10		10		1
		824+68	95'	Rt.	974.02		10		1
		825+75	75'	Lt.	991.40	10			1
		841+00	80'	Lt.	986.50	10			1
		862+00	80'	Lt.	947.30		10		1
		863+00	92'	Rt.	943.00		10		1
		875+96	75'	Rt.	942.23		10		1
		878+00	80'	Lt.	945.00	10			1
		880+71	80'	Rt.	945.56		10		1
		883+00	80'	Lt.	949.40		10		1
		890+00	5' Rt. ℄	Med.	955.00	10			1
		892+02	79'	Rt.	957.86		10		1 D
		912+30	80'	Lt.	995.00	10			1
		913+20	80'	Rt.	997.50	10			1
		925+25	80'	Lt.	1027.63		10		1
		934+50	80'	Lt.	932.00	10			1
		961+65	75'	Lt.	1082.50	10			1
		967+00	70'	Rt.	1091.50	10			1
		967+09	70'	Rt.	1091.50	10			1
		8+00 Ramp A	30'	Rt.	1111.40	10			1
		2+30 Ramp B	55'	Lt.	1112.70	10			1
		3+80 Ramp C	30'	Rt.	1090.80	10			1 D
		989+13	65'	Lt.	1145.70		10		1
		1011+80	95'	Rt.	1152.50	10			1
		1013+20	80'	Lt.	1150.00	10			1
		1015+00	80'	Rt.	1144.00	10			1
		1021+00	82'	Rt.	1131.00		10		1
		1030+95	73'	Rt.	1134.40		10		1
		1033+00	74'	Rt.	1133.60		10		1
		1035+38	74'	Rt.	1132.21		10		1
		1059+00	73'	Rt.	1131.30		10		1
		1059+00	80'	Lt.	1130.70	10			1
		1085+95	80'	Lt.	1111.20	10			1
		1099+50	92'	Lt.	1070.00		10		1
		1100+00	5' Rt. ℄	Med.	1069.00	10			1
		1100+65	8C	Lt.	1066.00		10		1 D
		1117+60	76'	Rt.	1025.56		10		1
		1118+80	80'	Lt.	1027.00		10		1
QUANTITIES CARRIED TO GENERAL SUMMARY						240	310		52/3 *

* QUANTITIES CARRIED TO TRAFFIC CONTROL GENERAL SUMMARY

GUARD RAIL TABLES

GUARD RAIL REMOVAL TABLE

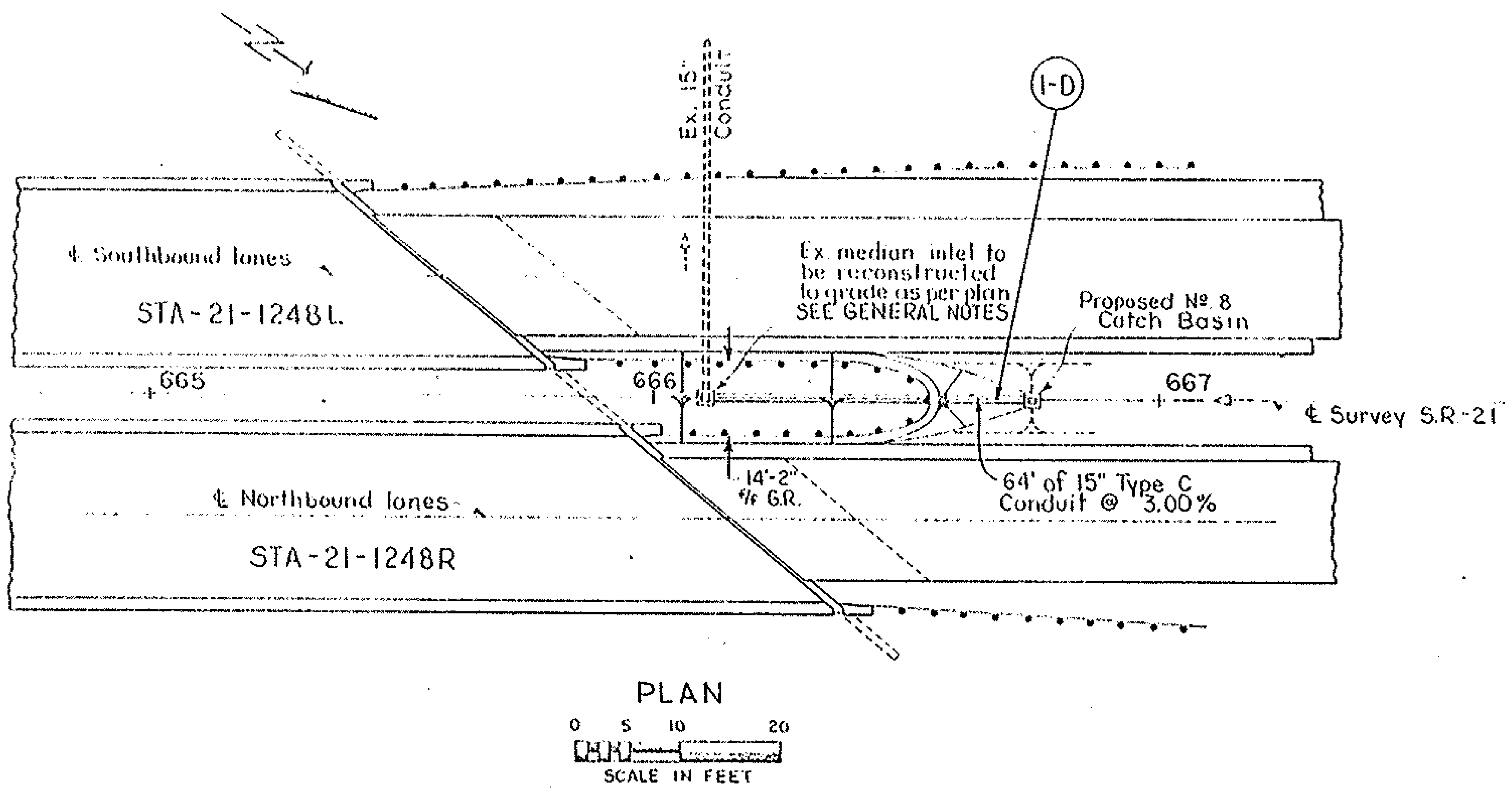
PLAN REF. NO.	QUANTITY FROM SHEET NO.	LOCATION AND STATION FROM	LOCATION AND STATION TO	SIDE	ITEM 202 GUARD RAIL REMOVED FOR STORAGE LIN. FT.	ITEM 202 GUARD RAIL BARRIER DESIGN REMOVED FOR STORAGE LIN. FT.	
		S.R.-21					
1-R	36	651+06.7	658+19.2	Lt.	712.5		
2-R	↓	651+84.7	659+22.2	Rt.	737.5		
3-R		657+10	658+85	Med	137.5	37.5	
4-R		665+85	667+60	Med	137.5	37.5	
5-R	↓	665+40.9	674+28.4	Lt.	887.5		
6-R	36	666+43.9	674+62.7	Rt.	818.75		
1-R	37	679+80	681+55	Rt.	175		
2-R	37	684+87.5	694+00	Rt.	912.5		
3-R	37	687+00	694+87.5	Lt.	787.5		
1-R	38	737+75	740+00	Rt.	225		
1-R	39	740+00	742+37.5	Rt.	237.5		
2-R	39	746+75	751+50	Rt.	475		
1-R	40	779+46	800+00	Med.	2,054		
2-R	40	783+30	800+00	Lt.	1,670		
3-R	40	790+50	800+00	Rt.	950		
1-R	41	800+00	801+92.5	Lt.	192.5		
2-R	41	800+00	830+00	Med.	3,000		
3-R	41	811+50	825+37.5	Rt.	1,387.5		
1-R	42	830+00	854+15	Med.	2,414.75		
2-R	42	837+00	849+50	Rt.	1,250		
3-R	42	844+91.5	854+16.5	Lt.	925		
1-R	43	862+65	867+65	Lt.	500		
2-R	↓	862+90	867+65	Rt.	475		
3-R		868+71.5	871+52.5	Lt.	281.25		
4-R		868+71.5	871+15	Rt.	237.5		
5-R		865+90	867+65	Med.	125	50	
6-R		867+52.5	867+65	Med.	12.5		
7-R	↓	868+71.5	868+84	Med.	12.5		
8-R	43	868+71.5	870+46.5	Med.	125	50	

PLAN REF. NO.	QUANTITY FROM SHEET NO.	LOCATION AND STATION FROM	LOCATION AND STATION TO	SIDE	ITEM 202 GUARD RAIL REMOVED FOR STORAGE LIN. FT.	ITEM 202 GUARD RAIL BARRIER DESIGN REMOVED FOR STORAGE LIN. FT.	
1-R	44	899+62.5	912+50	Lt.	1,287.5		
2-R	44	899+85	912+60	Rt.	1,275		
1-R	45	944+00	945+00	Rt.	100		
1-R	46	945+00	959+00	Lt.	1,400		
2-R	↓	945+00	954+00	Rt.	900		
3-R		973+48	975+00	Rt.	152		
4-R		973+53	975+00	Lt.	147		
		RAMP D					
5-R		0+80(D)	4+05(D)	Rt.	325		
		RAMP A					
6-R	↓	9+10(A)	9+76(A)	Rt.	66		
7-R	46	9+10(A)	9+78(A)	Lt.	68		
1-R	47	975+00	975+65.5	Lt.	65.5		
2-R	↓	975+00	975+60.5	Rt.	60.5		
		RAMP A					
3-R	↓	7+88(A)	9+10(A)	Rt.	121.5		
4-R	47	8+78(A)	9+10(A)	Lt.	32		
1-R	48	1015+30	1021+80	Rt.	650		
1-R	49	1041+00	48+45	Lt.	306.25		
2-R	↓	48+45	1046+00	Lt.	250		
3-R	↓	1049+12.5	1054+00	Lt.	487.5		
4-R	49	51+42	1057+50	Rt.	1,537.5		
1-R	51	1100+75	1109+87.5	Rt.	912.5		
2-R	↓	1100+87.5	1106+00	Lt.	512.5		
3-R		1113+50	1117+50	Rt.	400		
4-R		1113+75	1119+50	Lt.	575		
5-R		1123+12.5	1125+00	Med.	325	25	
6-R	↓	1123+69.5	1125+00	Lt.	130.5		
7-R	51	1123+74.5	1125+00	Rt.	125		
1-R	52	1125+00	1125+82	Lt.	82		
2-R	52	1125+00	1125+87.5	Med.	125	25	
3-R	52	1125+00	1125+87.5	Rt.	87.5		
QUANTITIES CARRIED TO GENERAL SUMMARY					34,362.50	225	

PROPOSED GUARD RAIL TABLE

PLAN REF. NO.	QUANTITY FROM SHEET NO.	LOCATION AND STATION FROM	LOCATION AND STATION TO	SIDE	ITEM 606 GUARD RAIL TYPE 5 LIN. FT.	ITEM 606 GUARD RAIL BARRIER DESIGN TYPE 5 LIN. FT.		ITEM 606 ANCHOR ASSEMBLY STANDARD TYPE A (EACH)	ITEM 606 ANCHOR ASSEMBLY STANDARD TYPE T (EACH)	ITEM 606 ANCHOR ASSEMBLY BARRIER DESIGN TYPE A (EACH)	ITEM 606 BRIDGE TERMINAL ASSEMBLY STANDARD TYPE A (EACH)	ITEM 606 BRIDGE TERMINAL ASSEMBLY STANDARD TYPE B (EACH)
		S.R.-21										
1-GR	36	651+06.7	658+19.2	Lt.	700				1		1	
2-GR	↓	651+84.7	659+22.2	Rt.	712.5			1			1	
3-GR		658+06.6	668+81.4	Med.	137.5						2	
4-GR		665+81.8	666+56.6	Med.	137.5						2	
5-GR	↓	665+40.9	674+28.4	Lt.	862.5			1			1	
6-GR	36	666+43.9	674+62.7	Rt.	806.25				1		1	
1-GR	37	679+80	681+55	Rt.	137.5			1	1			
2-GR	37	684+87.5	694+00	Rt.	675			1	1			
3-GR	37	687+00	694+87.5	Lt.	750			1	1			
1-GR	38	737+75	740+00	Rt.	200			1				
1-GR	39	740+00	742+37.5	Rt.	225				1			
2-GR	39	746+75	751+50	Rt.	437.5			1	1			
1-GR	40	779+46	800+00	Med.	2,029			1				
2-GR	40	783+30	800+00	Lt.	1,657.5				1			
3-GR	40	790+50	800+00	Rt.	925			1				
1-GR	41	800+00	801+92.5	Lt.	167.5			1				
2-GR	41	800+00	830+00	Med	3,000							
3-GR	41	811+50	825+37.5	Rt.	1,350			1	1			
1-GR	42	830+00	854+15	Med.	2,389.75			1				
2-GR	42	837+00	849+50	Rt.	1,212.5			1	1			
3-GR	42	844+91.5	854+16.5	Lt.	887.5			1	1			
1-GR	43	862+65	867+65	Lt.	487.5				1			1
2-GR	↓	862+90	867+65	Rt.	450			1				1
3-GR		868+71.5	871+52.5	Lt.	256.25			1				1
4-GR		868+71.5	871+15	Rt.	225				1			1
5-GR	↓	866+02.5	867+65	Med.	112.5	25				1		1
8-GR	43	868+71.5	870+34	Med.	112.5	25				1		1

PLAN REF. NO.	QUANTITY FROM SHEET NO.	LOCATION AND STATION FROM	LOCATION AND STATION TO	SIDE	ITEM 606 GUARD RAIL TYPE 5 LIN. FT.	ITEM 606 GUARD RAIL BARRIER DESIGN TYPE 5 LIN. FT.		ITEM 606 ANCHOR ASSEMBLY STANDARD TYPE A (EACH)	ITEM 606 ANCHOR ASSEMBLY STANDARD TYPE T (EACH)	ITEM 606 ANCHOR ASSEMBLY BARRIER DESIGN TYPE A (EACH)	ITEM 606 BRIDGE TERMINAL ASSEMBLY STANDARD TYPE A (EACH)	ITEM 606 BRIDGE TERMINAL ASSEMBLY STANDARD TYPE B (EACH)
1-GR	44	899+62.5	912+50	Lt.	1,250.0			1	1			
2-GR	44	899+85	912+60	Rt.	1,237.5			1	1			
1-GR	45	944+00	945+00	Rt.	75			1				
1-GR	46	945+00	959+00	Lt.	1,362.5			1	1			
2-GR	↓	945+00	954+00	Rt.	887.5				1			
3-GR		973+48	975+00	Rt.	127			1				
4-GR		973+53	975+00	Lt.	134.5				1			
		RAMP D										
5-GR		0+80(D)	4+05(D)	Rt.	312.5				1			
		RAMP A										
6-GR		9+10(A)	9+76(A)	Rt.	66							
7-GR	↓	9+10(A)	9+78(A)	Lt.	68							
8-GR	46	973+84.3	975+00	Med.	237.5							
1-GR	47	975+00	975+65.5	Lt.	40.5			1				
2-GR	↓	975+00	975+60.5	Rt.	48				1			
		RAMP A										
3-GR		7+88(A)	9+10(A)	Rt.	96.5			1				
4-GR	↓	8+78(A)	9+10(A)	Lt.	7			1				
5-GR	47	975+00	975+28.8	Med.	62.5							
1-GR	48	1015+30	1021+80	Rt.	612.5			1	1			
1-GR	49	1041+00	48+45	Lt.	281.25				2			
2-GR	↓	48+45	1046+00	Lt.	212.50			1	1			
3-GR	↓	1049+12.5	1054+00	Lt.	450			1	1			
4-GR	49	51+42	1057+50	Rt.	1,487.5			1	2			
1-GR	51	1100+75	1109+87.5	Rt.	875			1	1			
2-GR	↓	1100+87.5	1106+00	Lt.	475			1	1			
3-GR		1113+50	1117+50	Rt.	362.5			1	1			
4-GR		1113+75	1119+50	Lt.	537.5			1	1			
5-GR		1123+93.4	1125+00	Med.	218.6							
6-GR	↓	1123+69.5	1125+00	Lt.	118.0				1			
7-GR	51	1123+74.5	1125+00	Rt.	100			1				
1-GR	52	1125+00	1125+82	Lt.	57			1				
2-GR	52	1125+00	1125+87.5	Med.	81.4							
3-GR	52	1125+00	1125+87.5	Rt.	75				1			
QUANTITIES CARRIED TO GENERAL SUMMARY					33,200	50		34	33	2	8	6



(1-D) ITEM ESTIMATED QUANTITIES

Item	Description	Quantity
Special	Inlet Reconstructed to grade, As Per Plan	1 Each
603	15" Conduit, Type C	64 Lin. Ft.
604	Catch Basin, Nº. 8	1 Each

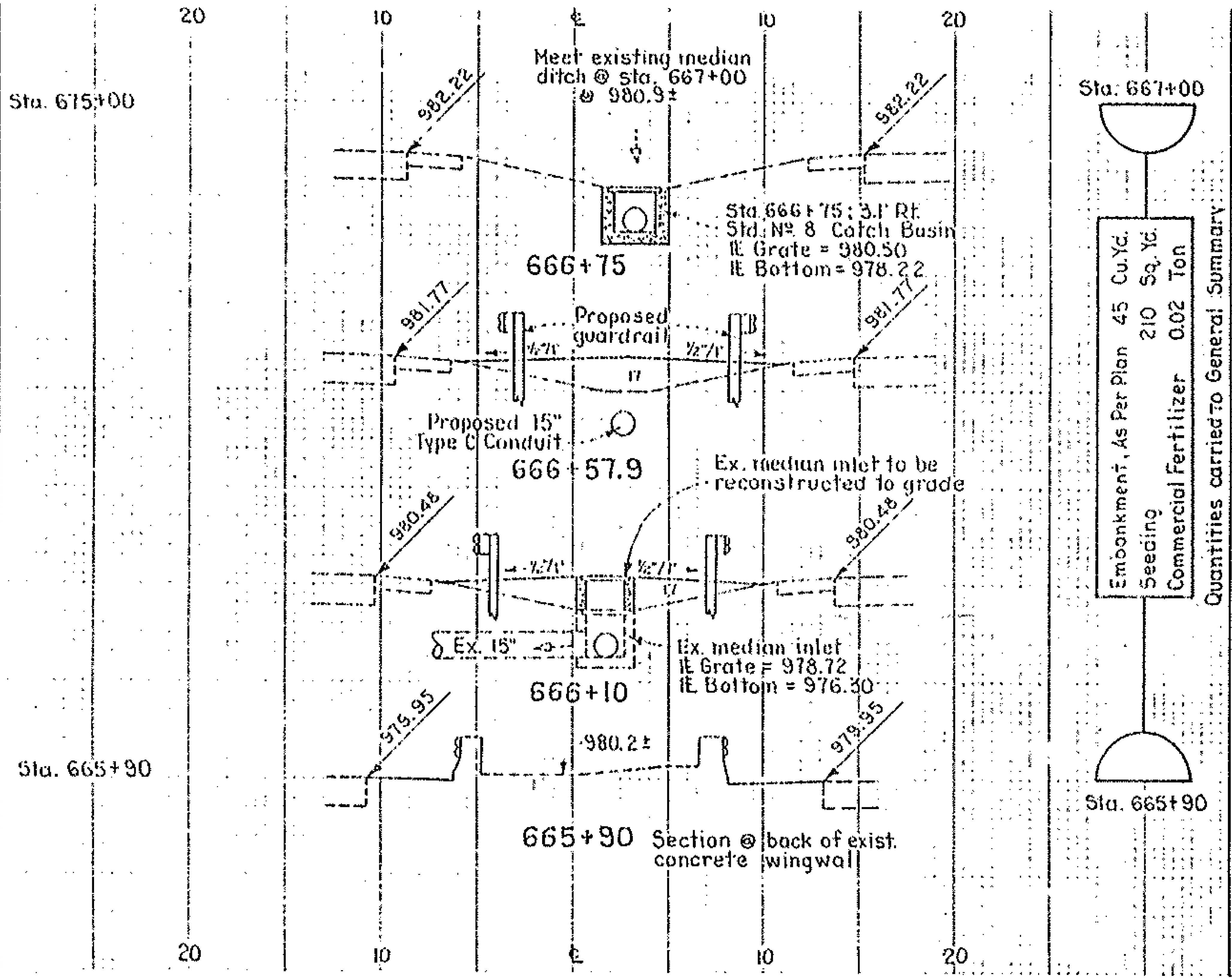
Quantities carried to General Summary

FOR PLAN DETAILS NOT SHOWN SEE SHEET Nº. 36

FOR GUARD RAIL DETAILS NOT SHOWN SEE ST'D. CONSTR. DWG. GR-6A

FOR CATCH BASIN DETAILS NOT SHOWN SEE ST'D. CONSTR. DWG.'S CB-4 AND CB-8

SEEDING END WIDTH	SEEDING SQ. YD.
10	
	39
18	
	35
18	
	96
18	
	40
18	

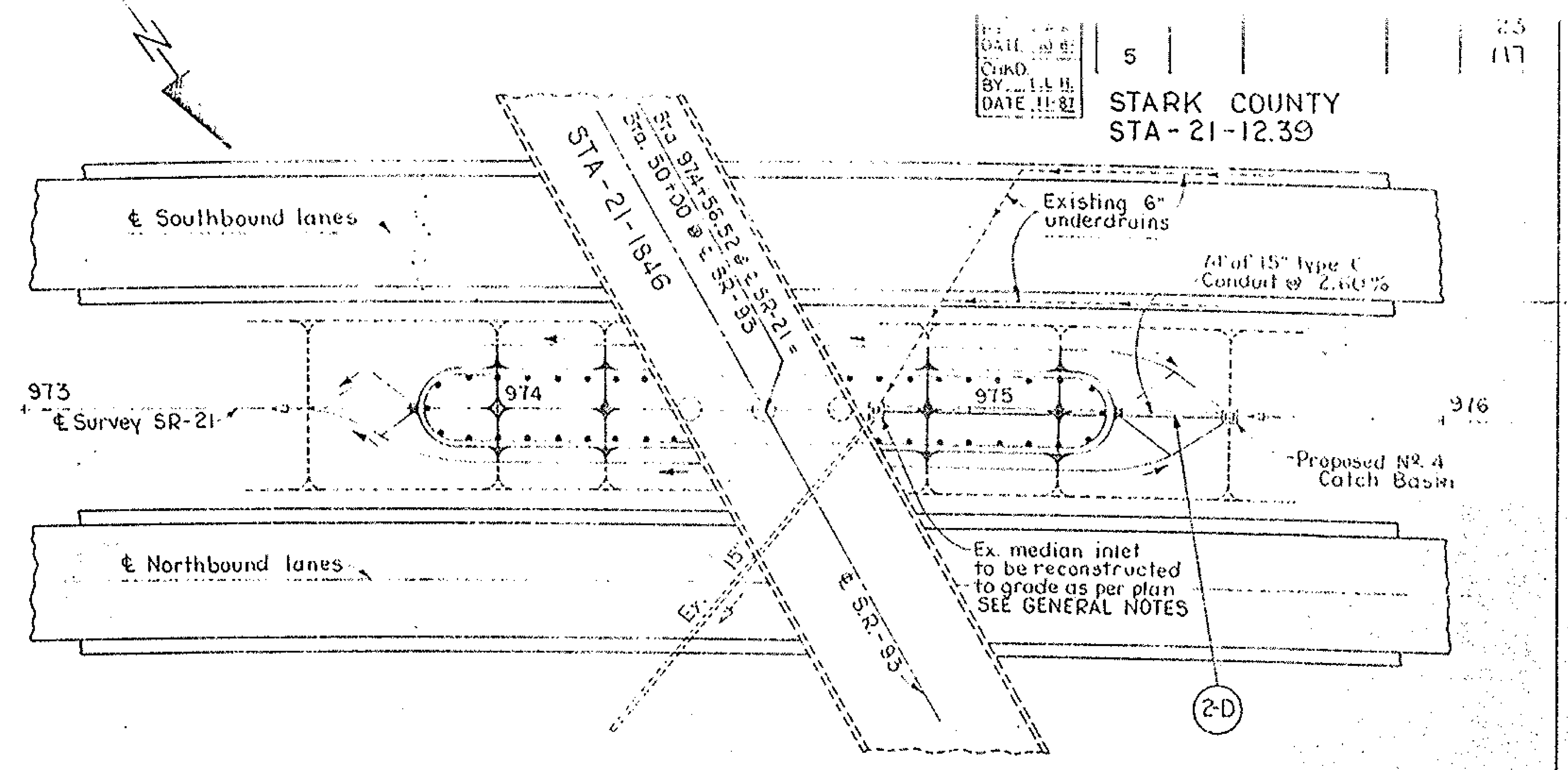


Sta. 667+00

Embankment, As Per Plan 45 Cu. Yd.
Seeding 210 Sq. Yd.
Commercial Fertilizer 0.02 Ton
Quantities carried to General Summary

Sta. 665+90

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		0	1
0	2		
		0	6
0	17		
		0	31
0	17		
		0	7
0	0		



(2-D) ITEM ESTIMATED QUANTITIES

Item	Description	Quantity
Special	Inlet Reconstructed to Grade,	1 Each
603	15" Conduit, Type C	74 Lin. Ft.
604	Catch Basin, Nº. 4	1 Each

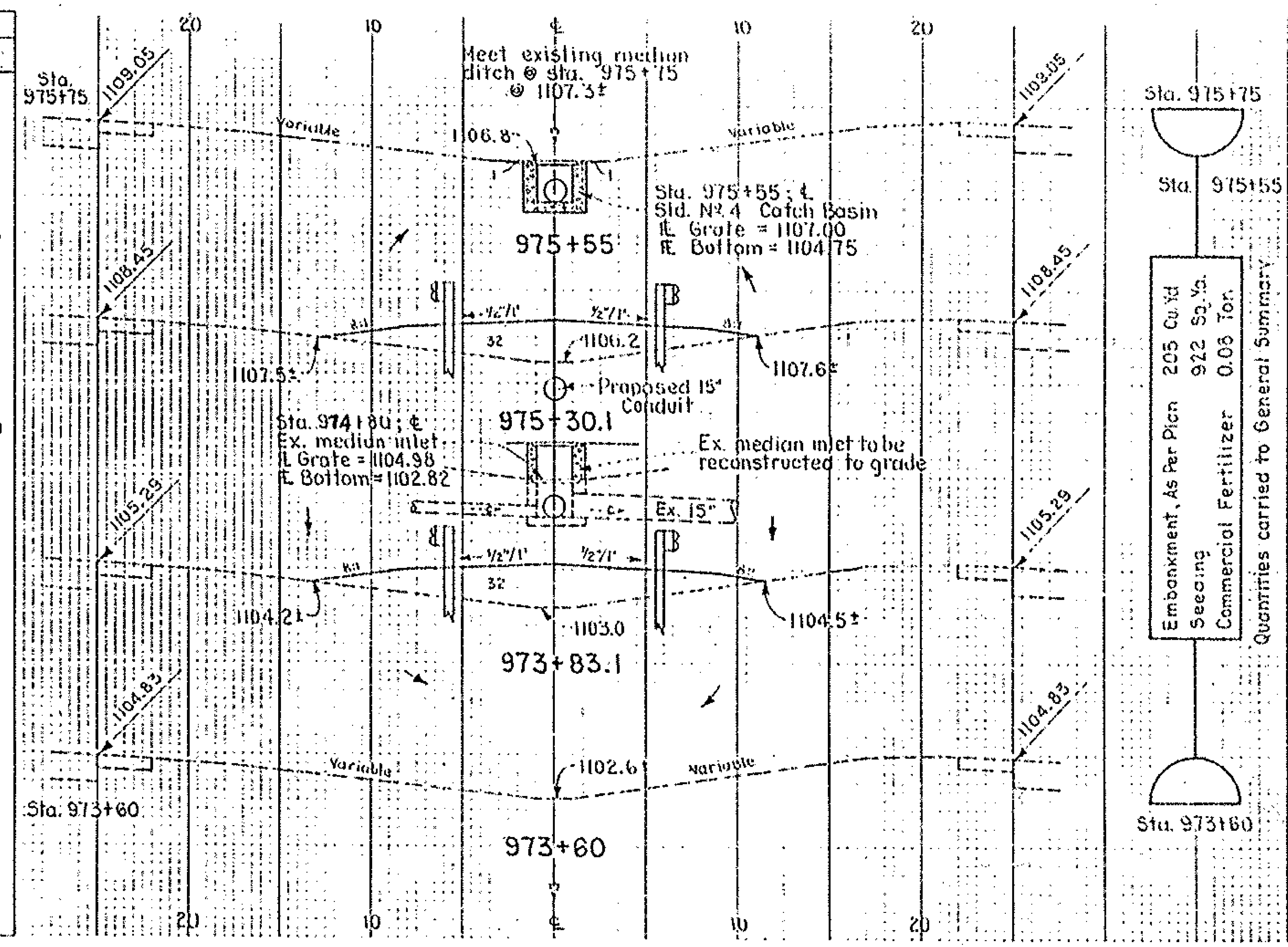
Quantities carried to General Summary

PLAN

0 5 10 20
SCALE IN FEET

FOR PLAN DETAILS NOT SHOWN SEE SHEET Nº.'s 46 & 47

SEEDING END WIDTH	SEEDING SQ. YD.
10	
	38
24	
	95
44	
	719
44	
	70
10	



Sta. 975+75

Sta. 975+55

Embankment, As Per Plan 205 Cu. Yd.
Seeding 922 Sq. Yd.
Commercial Fertilizer 0.08 Ton
Quantities carried to General Summary

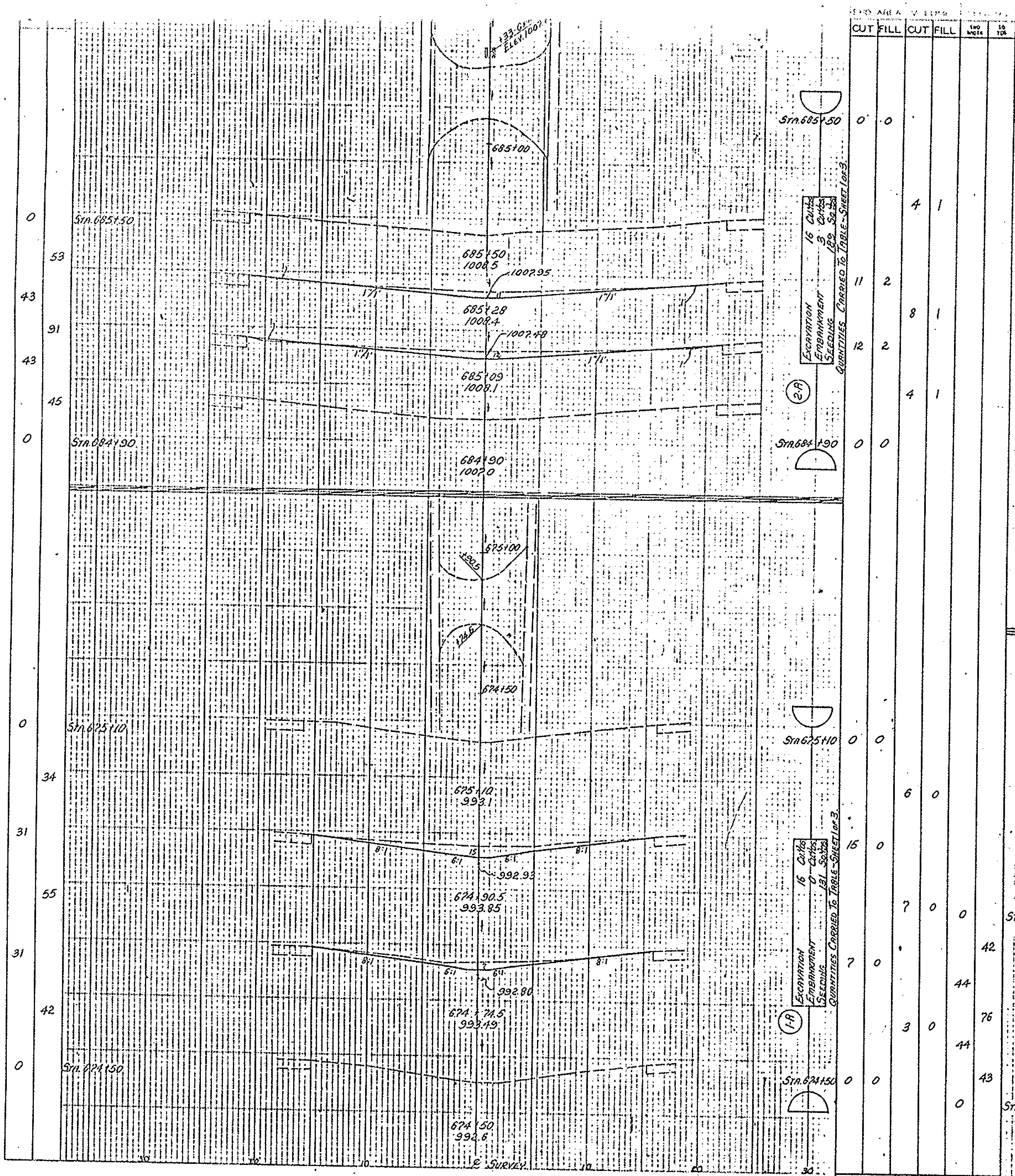
Sta. 973+60

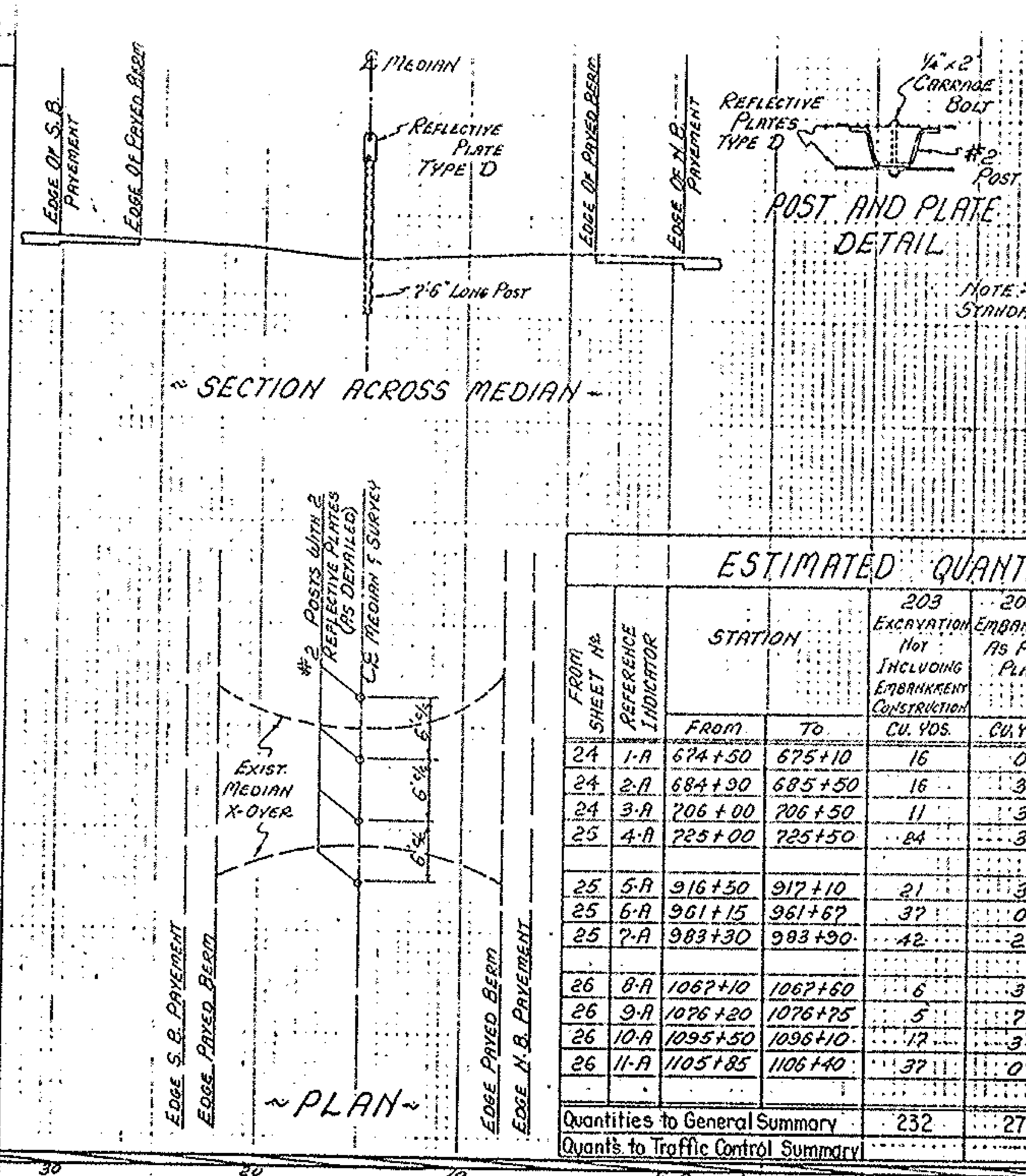
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		0	1
0	2		
		0	16
0	32		
		0	174
0	32		
		0	14
0	0		

MEDIAN GUARD RAIL AND DRAINAGE DETAILS

STARK COUNTY

STA - 21 - 12.39

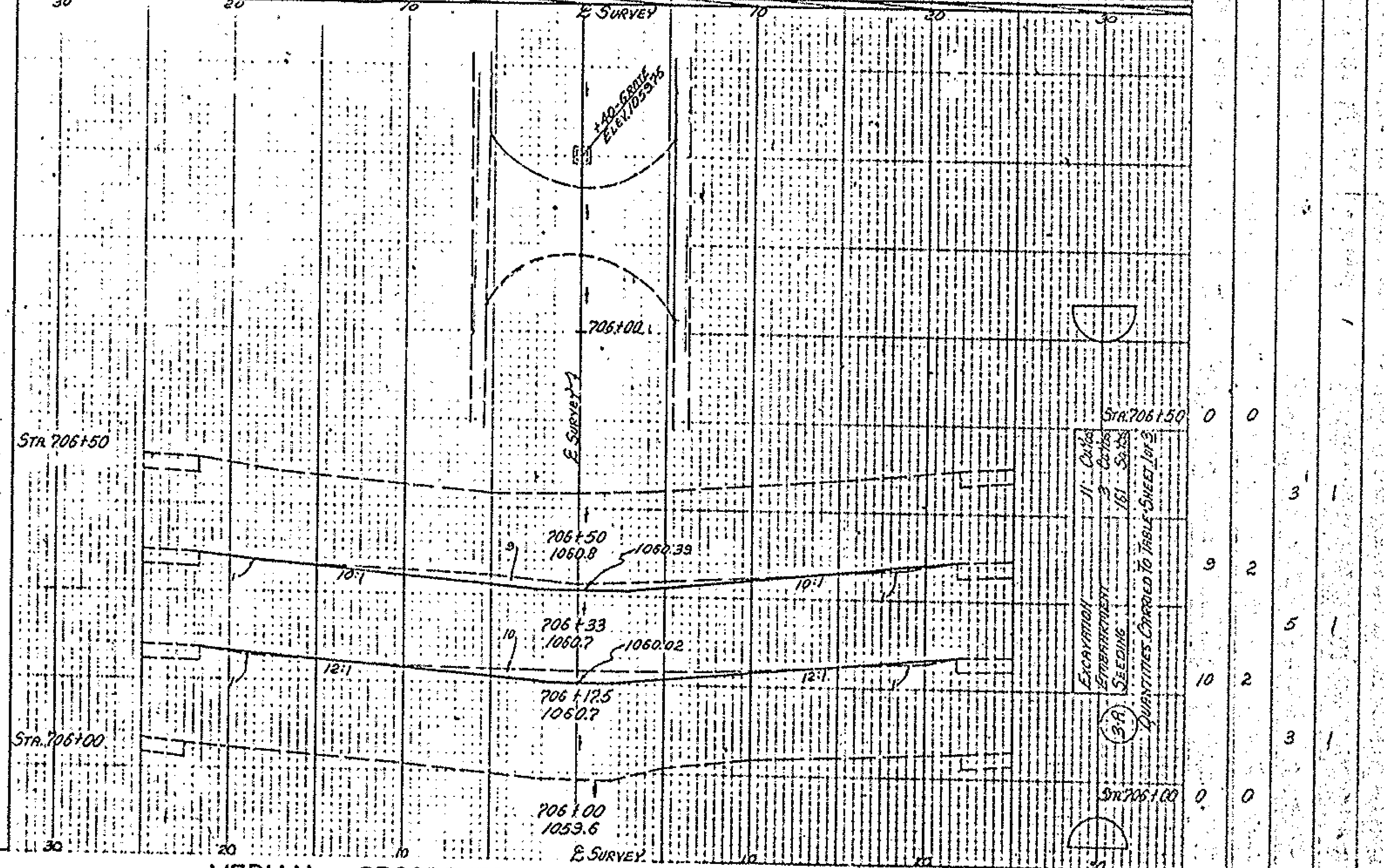




NOTE: FOR DETAILS NOT SHOWN - SEE STANDARD CONST. DRAWING T.C. 61.10; 4-5-82

ESTIMATED QUANTITIES

From Sheet No.	Reference Indicator	Station From	Station To	203 Excavation Not Including Embankment Construction (Cu. Yds.)	203 Embankment As Per Plan (Cu. Yds.)	659 Seeding and Mulching (Sq. Yds.)	202 Pipe Removed 24" and Under (Lin. Ft.)	659 Commercial Fertilizer (Ton)	630 #2 Posts (Lin. Ft.)	620 Reflector Type D (Each)
24	1-A	674+50	675+10	16	0	131		0.17	30	8
24	2-A	684+90	685+50	16	3	189		1890 Sq. Yds. x 9/1000 x 20/2000	30	8
24	3-A	706+00	706+50	11	3	161			30	8
25	4-A	725+00	725+50	24	3	167			30	8
25	5-A	916+50	917+10	21	3	178			30	8
25	6-A	961+15	961+67	37	0	174	31		30	8
25	7-A	983+30	983+90	42	2	187	31		30	8
26	8-A	1067+10	1067+60	6	3	155			30	8
26	9-A	1076+20	1076+75	5	7	193			30	8
26	10-A	1095+50	1096+10	17	3	185			30	8
26	11-A	1105+85	1106+40	37	0	170			30	8
Quantities to General Summary				232	27	1,890	62	0.17		
Quant's. to Traffic Control Summary									330	88



MEDIAN CROSSOVER GRADING SHEET NO 2 OF 3.

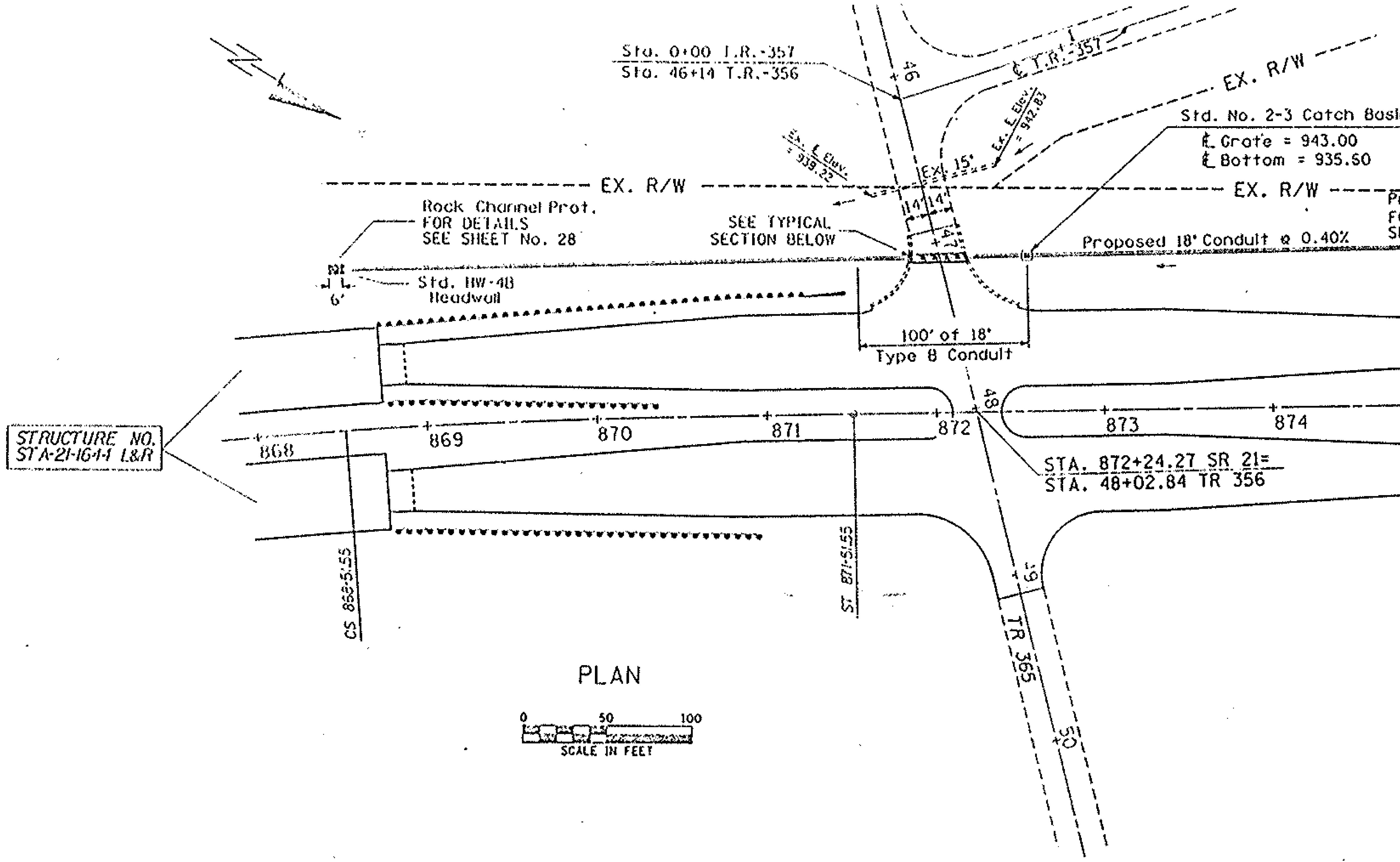
2 | OHIO

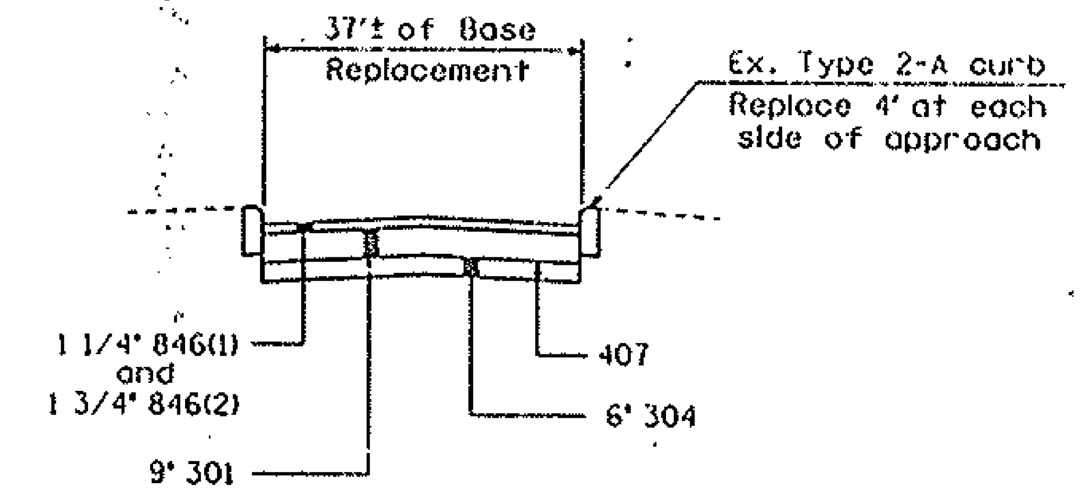
STARK COUNTY
STA - 21 - 12.39

MEDIAN CROSSOVER GRADING SHEET NO 3 OF 3.

DRAINAGE DETAILS

STARK COUNTY
STA-21-12.39



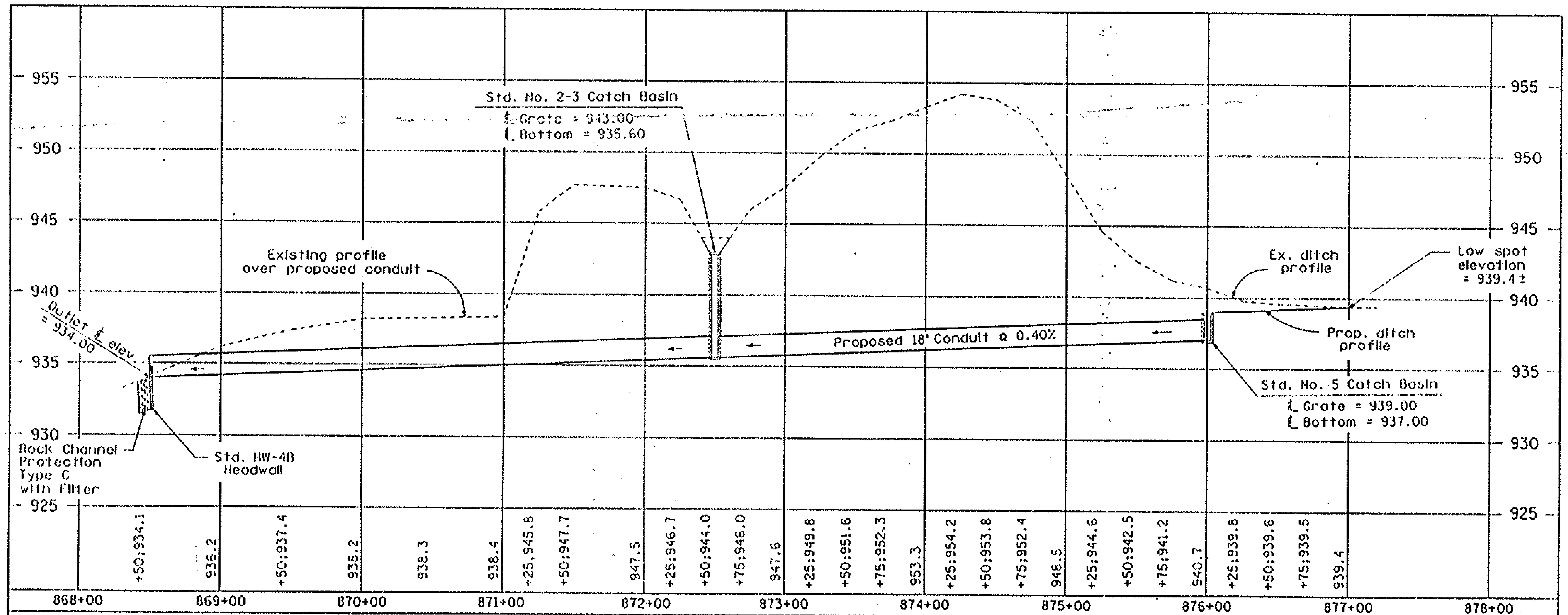


BASE REPLACEMENT TYPICAL SECTION
FOR PVM'T. SYMBOL DETAILS SEE SHEET NO. 7

ITEM	ESTIMATED QUANTITIES		
203	Excavation not Including Embankment Construction	58	Cu. Yd.
304	Aggregate Base	3	Cu. Yd.
601	Rock Channel Protection Type C with Filter	2	Cu. Yd.
601	Riprap, Using 6" Reinforced Concrete Slab	27	Sq. Yd.
602	Concrete Masonry	0.33	Cu. Yd.
603	18" Conduit, Type C, 706.02, 1750 D Load	650	Lin. Ft.
603	18" Conduit, Type B, 706.02, 1750 D Load	100	Lin. Ft.
604	Catch Basin, No.5	1	Each
604	Catch Basin, No.2-3	1	Each
609	Curb, Type 2-A	8	Lin. Ft.
659	Commercial Fertilizer	0.04	Ton
659	Seeding and Mulching	448	Sq. Yd.
846	Asphalt Surface Course, Type 1, AC-20	1	Cu. Yd.
846	Asphalt Intermediate Course, Type 2, AC-20	1	Cu. Yd.
• Special	Cleaning existing conduit	80	Lin. Ft. •
202	Curb Removal	8	Lin. Ft.
407	Tack Coat	2	Gallon
301	Bituminous Aggregate Base, AC-20	3	Cu. Yd.

• 100% STATE FUNDING

QUANTITIES CARRIED TO GENERAL SUMMARY



SECTION ALONG ℄ OF PROPOSED 18" CONDUIT

2	OHIO		

STARK COUNTY
STA - 21 - 12.39

DRAINAGE DETAILS STA 868+00 TO STA 869+50 SHEET 2 OF 7

2	OHIO

STARK COUNTY
STA - 21 - 12.39

DRAINAGE DETAILS STA. 870+00 TO STA. 872+00 SHEET 3 OF 7

2	OHIO		

STARK COUNTY

STA - 21 - 12.39

DRAINAGE DETAILS STA 872 + 25 TO STA 873 + 50 SHEET 4 OF 7

2 OHIO

STARK COUNTY
STA - 21 - 1239

DRAINAGE DETAILS STA. 873+75 TO STA. 874+50 SHEET 5 OF 7

2 | OHIO

STARK COUNTY

STA - 21 - 12.39

DRAINAGE DETAILS STA 874 75 TO STA 875 50 SHEET 6 OF 7

FED. AID DIVISION	STATE	PROJECT	
2	OHIO		

33/117

STARK COUNTY
STA- 21 -12.39

NOTE:
THE EXISTING 18" CONDUIT @ STA. 876+00 IS BURIED UNDER THE SOIL AND IS PLUGGED WITH EARTH. THIS CONDUIT MUST BE CLEANED SO IT WILL PERFORM EFFICIENTLY. A QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED, AS DIRECTED BY THE ENGINEER TO ACCOMPLISH THIS PURPOSE.

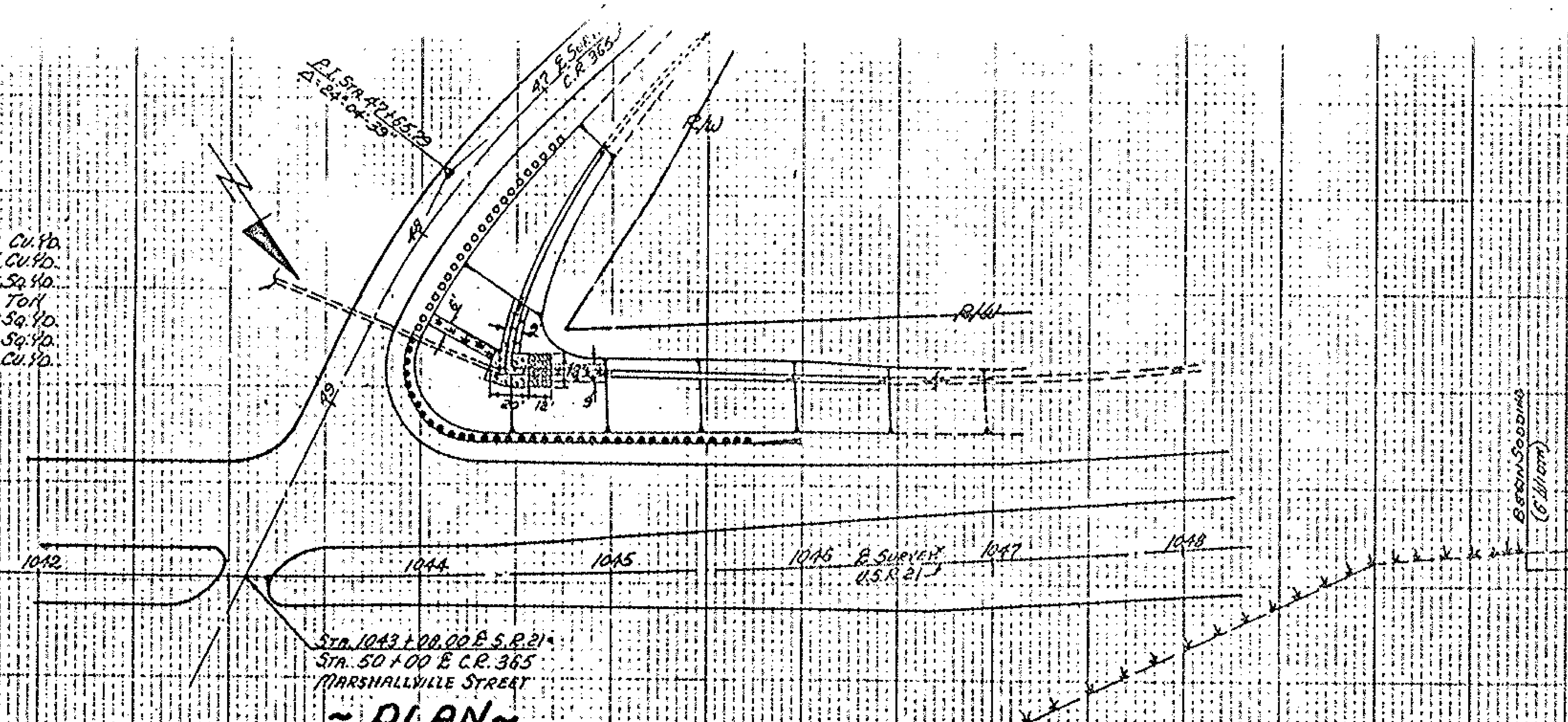
DRAINAGE DETAILS STA 875+75 TO STA 877+00 SHEET 7 OF 7

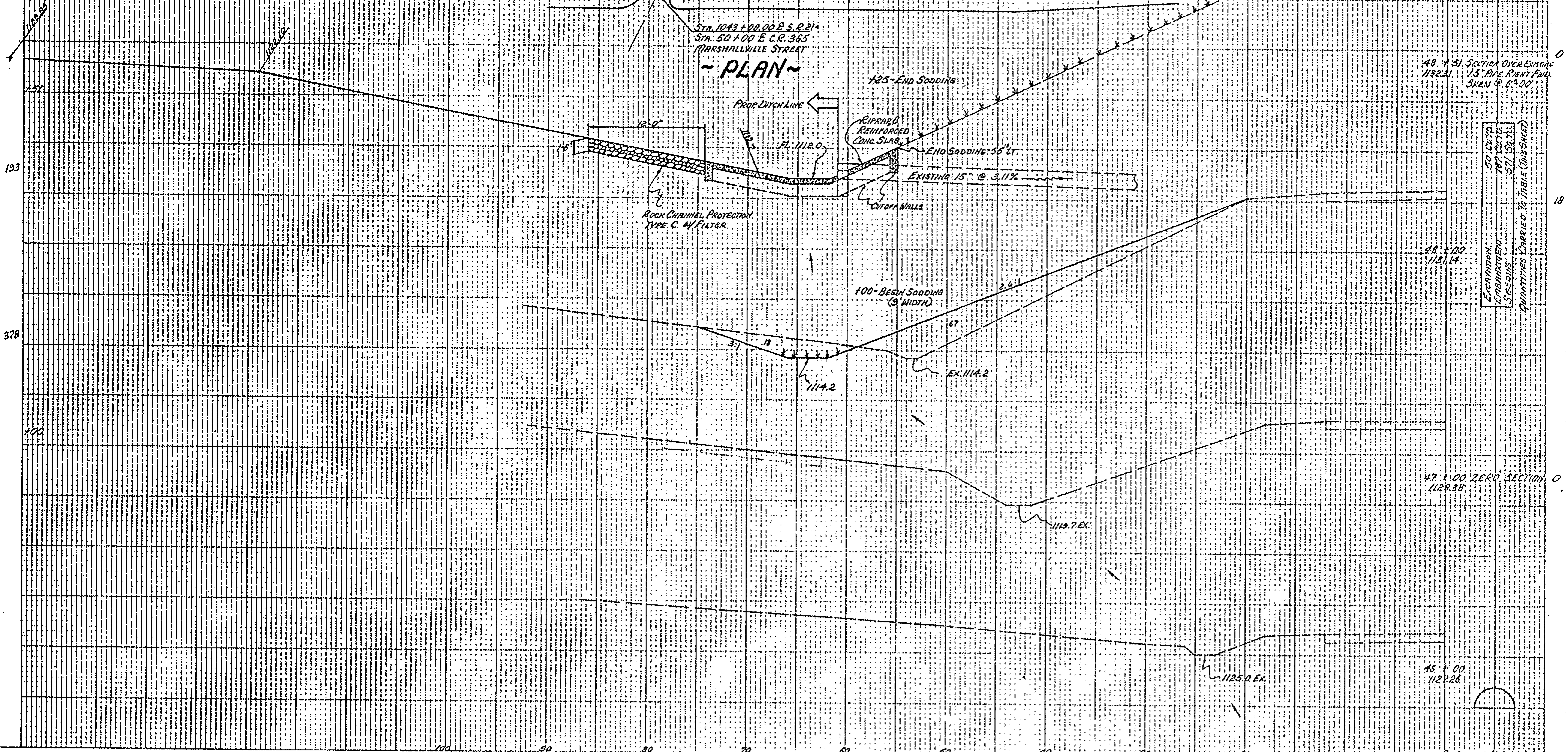
STARK COUNTY
STA-21-12.39

~ ESTIMATED QUANTITIES ~

ITEM 203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	120 CU. YD.
ITEM 203	EMBANKMENT, AS PER PLAN	605 CU. YD.
ITEM 659	SEEDING	2181 SQ. YD.
ITEM 659	FERTILIZER (2181 SQ. YD. X 9/1000 X 20/2000)	0.20 TON
ITEM 660	SODDING	783 SQ. YD.
ITEM 601	RIPRAP, 6" REINFORCED CONCRETE SLAB	40 SQ. YD.
ITEM 601	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	12. CU. YD.

QUANTITIES CARRIED TO GENERAL SUMMARY



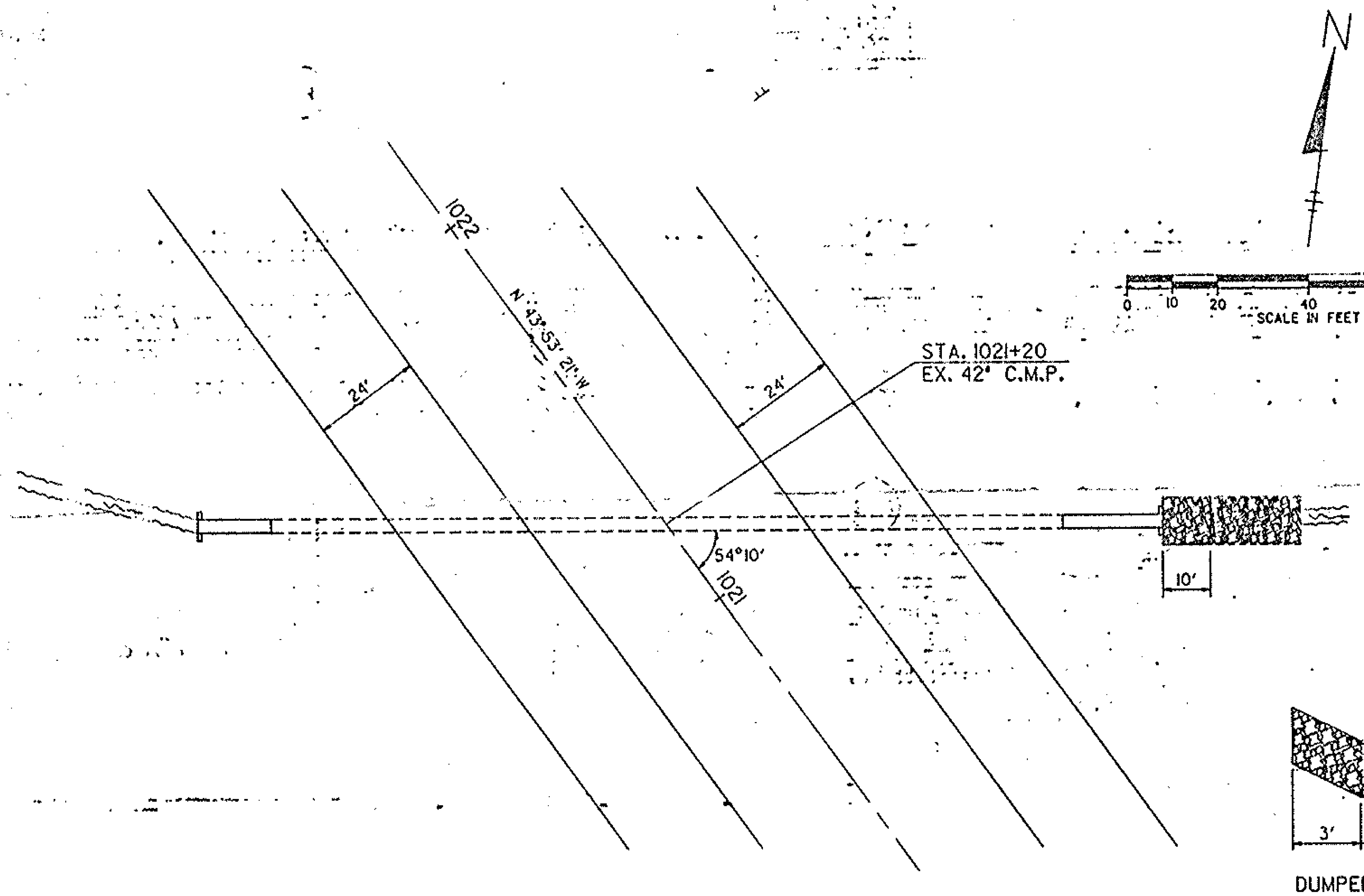


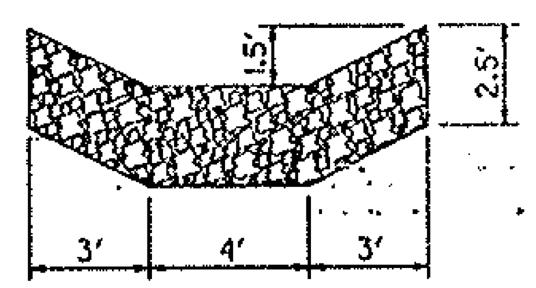
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		17	63
18	67		
		33	124
0	0		

0	
193	
68	
378	
0	

DRAINAGE DETAILS-(CR-365) MARSHALLVILLE STREET ~ SHEET NO. 2 OF 2.

DRAINAGE DETAILS





DUMPED ROCK DETAIL

BENCHMARK
TOP OF NORTH-WEST ANCHOR BOLT TO WEST POST OF "MARSHALLVILLE RD. 1/2" STA. 1021+83, 72' RT. ELEVATION = 1139.185

DESCRIPTION OF WORK REQUIRED

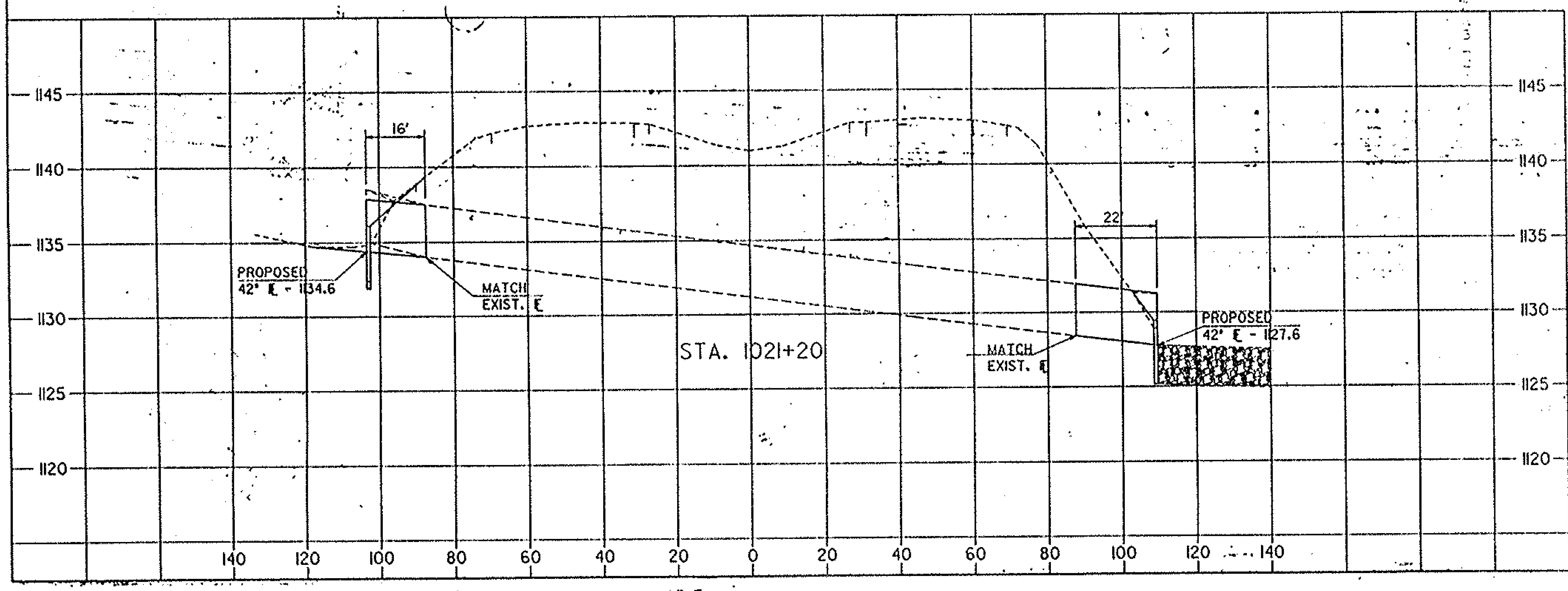
THIS WORK SHALL CONSIST OF REMOVING THE EXISTING HALF HEIGHT CONCRETE HEADWALLS AND 38 FEET OF 42" C.M.P. THE PIPE SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE EXISTING PIPE TO REMAIN.

THE PIPE THAT WAS REMOVED IS TO BE REPLACED WITH 38 FEET OF ITEM 603 - 42" TYPE A CONDUIT - 707.05 (0.109) TYPE C WITH HW-4A HEADWALLS.

A QUANTITY OF ITEM 601 - DUMPED ROCK FILL, TYPE B HAS BEEN INCLUDED FOR USE AS DIRECTED BY THE ENGINEER TO RECONSTRUCT THE OUTLET CHANNEL PROTECTION FOR 10 FEET FROM THE HEADWALL.

A QUANTITY HAS ALSO BEEN PROVIDED FOR ASPHALT INVERT REPAIR. THIS WORK IS TO REPAIR THE PAVED INVERT IN VARIOUS AREAS WITHIN THE EXISTING PIPE. REPAIR SHALL BE MADE USING ASPHALT MATERIAL MEETING THE REQUIREMENTS OF AASHTO M243 SUITABLE FOR TROWEL APPLICATION SUCH AS SX ASPHALT MASTIC. MANUFACTURED BY GRUNDY INDUSTRIES, 1301 HERKIMER STREET, JOLIET, ILL. 60432 OR THIO-DECK MEMBRANE SP MANUFACTURED BY CARBOLINE COMPANY, TORCH BUILDING PRODUCTS DIVISION, 350 HANLEY INDUSTRIAL COURT, ST. LOUIS, MO. 63144. THE AREAS WHERE THE ASPHALT MATERIAL IS TO BE APPLIED SHALL BE DRY AND FREE OF LOOSE DEBRIS PRIOR TO APPLICATION. THE FINISHED SURFACE OF THE REPAIRED SECTION SHOULD BE BROUGHT UP TO MATCH THE EXISTING SURFACE. THIS WORK SHALL BE PAID FOR AS ITEM SPECIAL ASPHALT INVERT REPAIR.

NOTE: THE CONNECTIONS WITH THE EXISTING CONDUIT SHALL BE MADE USING COUPLING BANDS AS PER 707.01



ESTIMATED QUANTITIES

ITEM 603	38	L.F.	42" CONDUIT TYPE A - 707.05 (0.109) TYPE C
ITEM 602	1.84	C.Y.	CONCRETE MASONRY
ITEM 601	9	C.Y.	DUMPED ROCK FILL, TYPE B
ITEM 202	38	L.F.	PIPE REMOVED, OVER 24"
ITEM SPECIAL	100	S.Y.	ASPHALT INVERT REPAIR

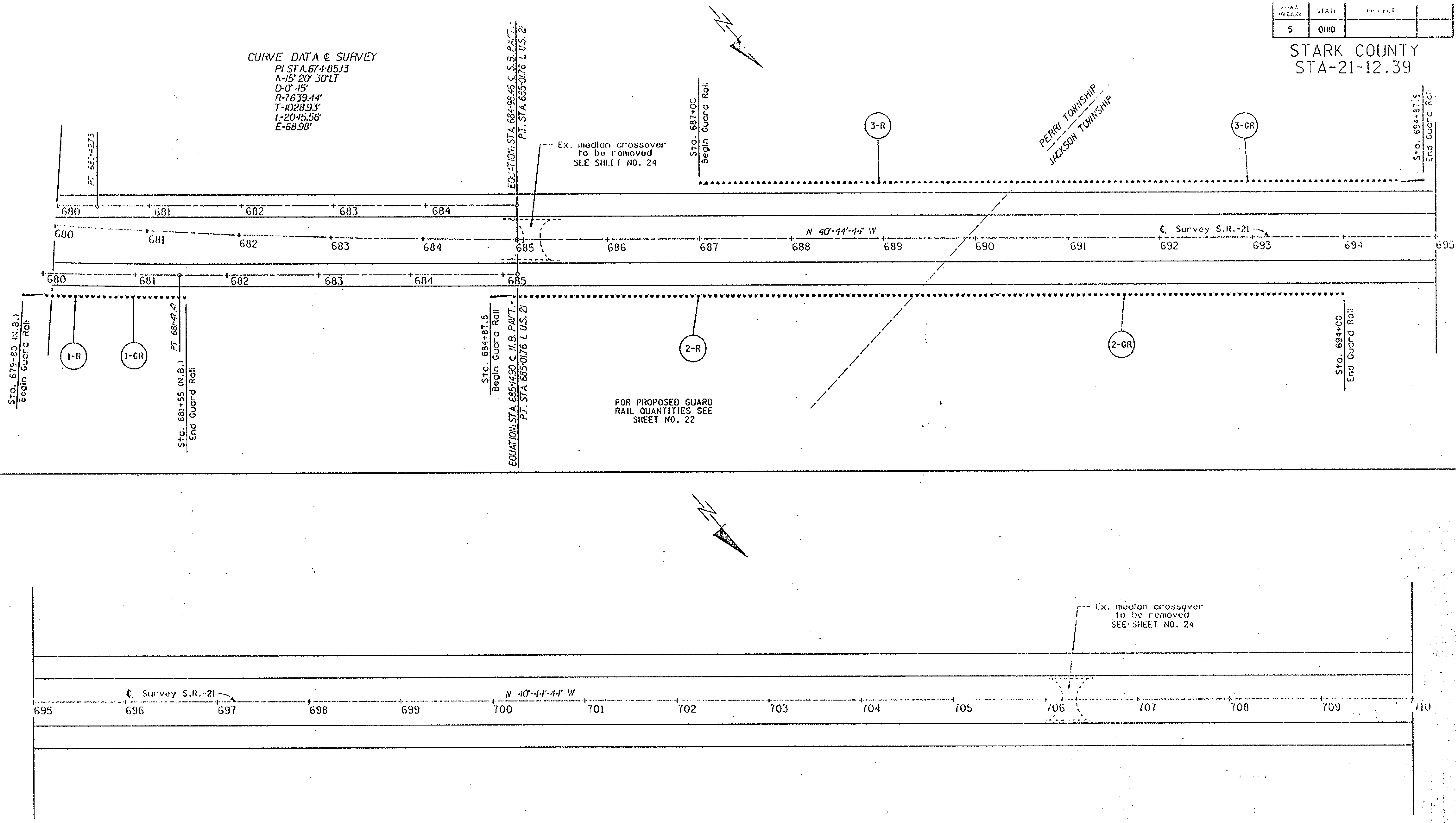
REVISED 4-2-90

CULVERT REPAIR STA. 1021+20


FHWA REGION
5
STATE
OHIO
PROJECT
36
117
STARK COUNTY
STA-21-12.39
MASSILLON
BEGIN WORK
Sta. 647+25
F-48 (9)
BEGIN PROJECT
Sta. 654+13.50
S.L.M. 12.39
Sta. 651+06.7 Begin Guard Rail
1-R
1-GR
100'
Pvm't. Transitions
106'-3"
Pvm't. Transitions
Sta. 658+19.2± End Guard Rail
Sta. 658+60.1± End Guard Rail
Sta. 658+81.4± End Guard Rail
CONRAIL RR
CHESSIE SYSTEM
RIVERSIDE AVE.
STRUCTURE NO. STA-21-1248 L&R
℄ Survey S.R.-21
N 25°24'17" W
Sta. 651+84.7 Begin Guard Rail
Corporation Line
2-R
2-GR
3-R
3-GR
Sta. 658+06.6± Begin Guard Rail
Sta. 659+22.2± End Guard Rail
TUSCARAWAS RIVER
MASSILLON
FOR PVM'T. TRANSITION DETAILS NOT SHOWN SEE SHEET NO. 17
℄ Thru Lanes
Edge of pavement
BRIDGE NO.
STA-21-12.48
125' G.R. Taper
Bridge Parapet
GUARD RAIL TAPER DETAIL
(Typical at all outside corners)
FOR MEDIAN GUARD RAIL DETAILS NOT SHOWN SEE ST'D. CONSTR. DWG. GR-6A
Sta. 665+40.9 (S.B.) Begin Guard Rail
4-GR
Sta. 666+56.6 (N.B.) End Guard Rail
1-D
FOR MEDIAN DRAINAGE DETAILS FROM STA. 665+90 TO STA. 667+00 SEE SHEET NO. 23
4-R
PC 668+15.40
5-R
CURVE DATA ℄ SURVEY
PI STA. 674+85.13
Δ-15°20'30"LT
D-0°45'
R-7639.44'
T-1028.93'
L-2045.56'
E-68.98'
5-GR
Sta. 674+28.4 (S.B.) End Guard Rail
CURVE DATA ℄ S.B. LANES
PI STA. 674+32.76
Δ-15°20'30"LT
D-0°15'
R-4583.66'
T-617.36'
L-1227.33'
Ex. median crossover to be removed SEE SHEET NO. 24
106'-3"
Pvm't. Transitions
Sta. 665+81.8 (S.B.) Begin Guard Rail
Sta. 666+03.1 (N.B.) Begin Guard Rail
RIVERSIDE AVE.
PC 669+20.14
6-R
FOR PROPOSED GUARD RAIL QUANTITIES SEE SHEET NO. 22
6-GR
Sta. 674+62.7 (N.B.) End Guard Rail
CURVE DATA ℄ N.B. LANES
PI STA. 675+37.50
Δ-15°20'30"LT
D-0°15'
R-4583.66'
T-617.36'
L-1227.33'

5	OHIO		

STARK COUNTY
STA-21-12.39



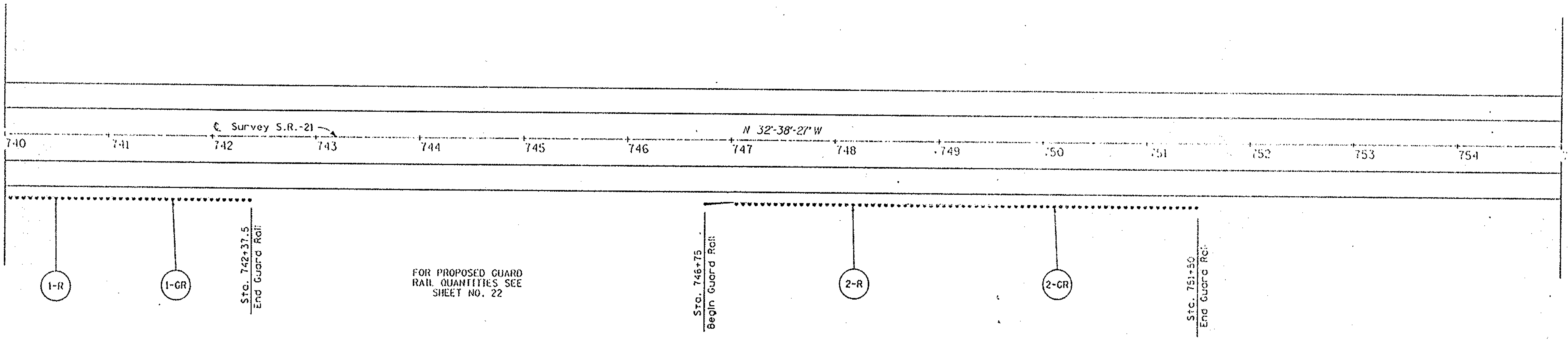
S.R.-21 PLAN STA. 680+00 TO STA. 710+00

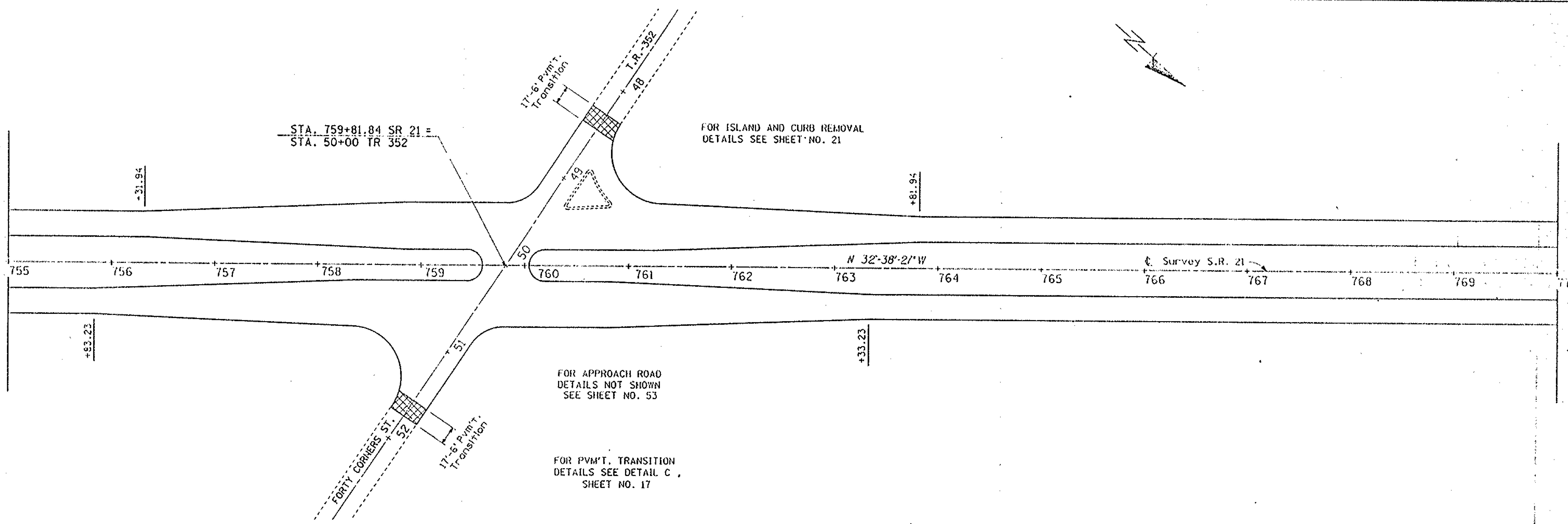
FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA-21-12.39

S.R.-21 PLAN STA. 710·00 TO STA. 740·00

STARK COUNTY
STA-21-12.39





FHWA REGION	STATE	PROJECT	
5	OHIO		

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STARK COUNTY
STA-21-12.39

FOR PROPOSED GUARD
RAIL QUANTITIES SEE
SHEET NO. 22

S.R.-21 PLAN STA. 770+00 TO STA. 800+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

41
117

STARK COUNTY
STA-21-12.39

FOR PROPOSED GUARD RAIL QUANTITIES SEE SHEET NO. 22

FHWA REGION	STATE	PROJECT	
5	OHIO		

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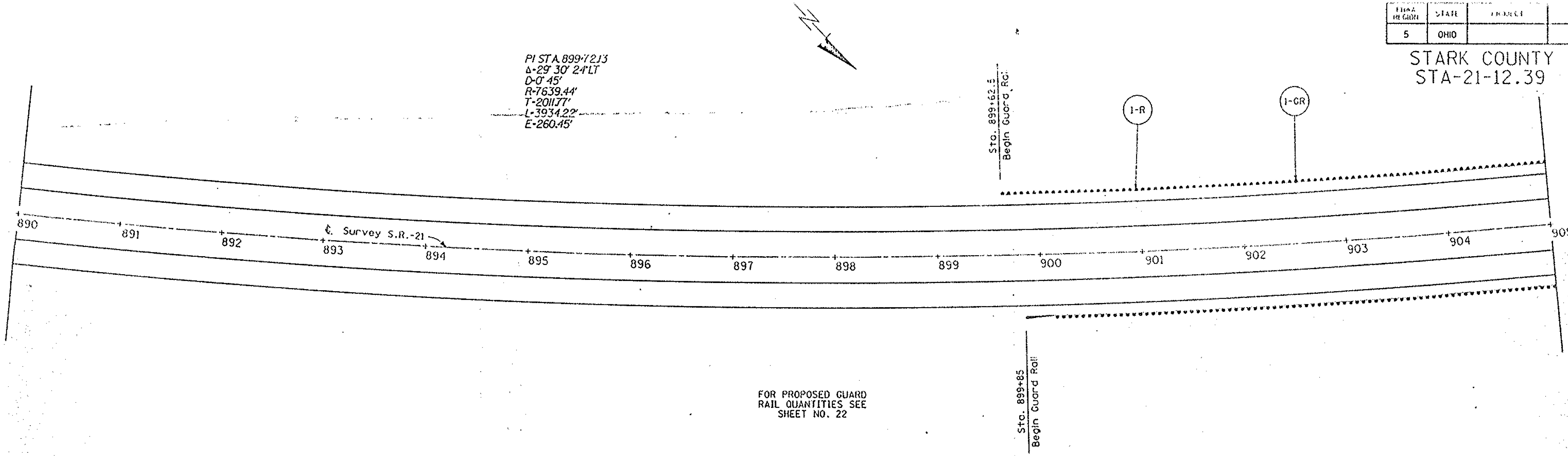
STARK COUNTY
STA-21-12.39

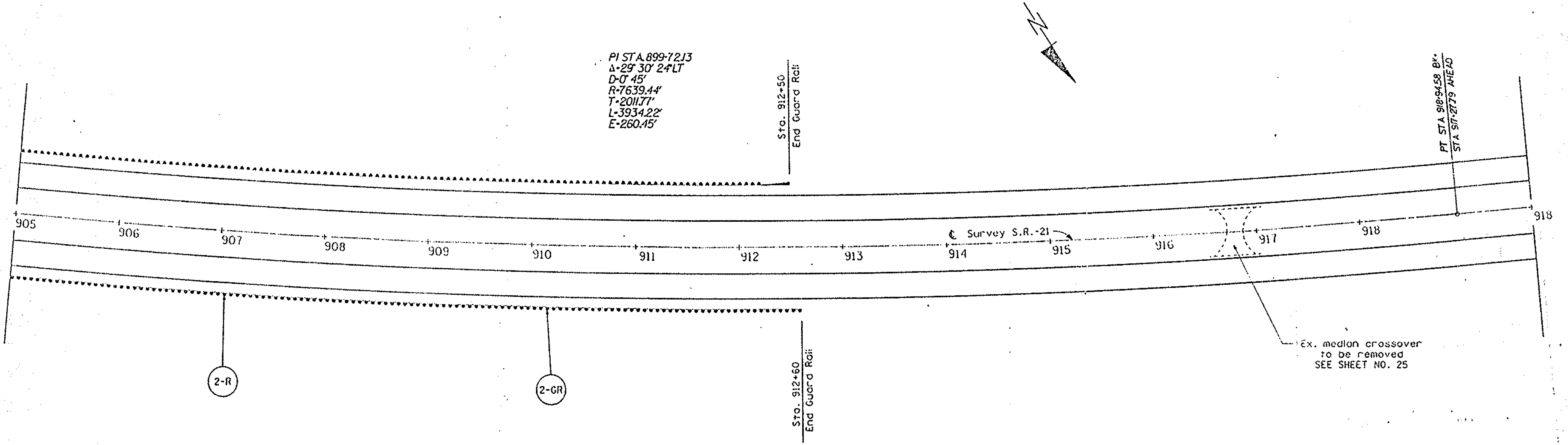
S.R.-21 PLAN STA. 860+00 TO STA. 890+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

44
117

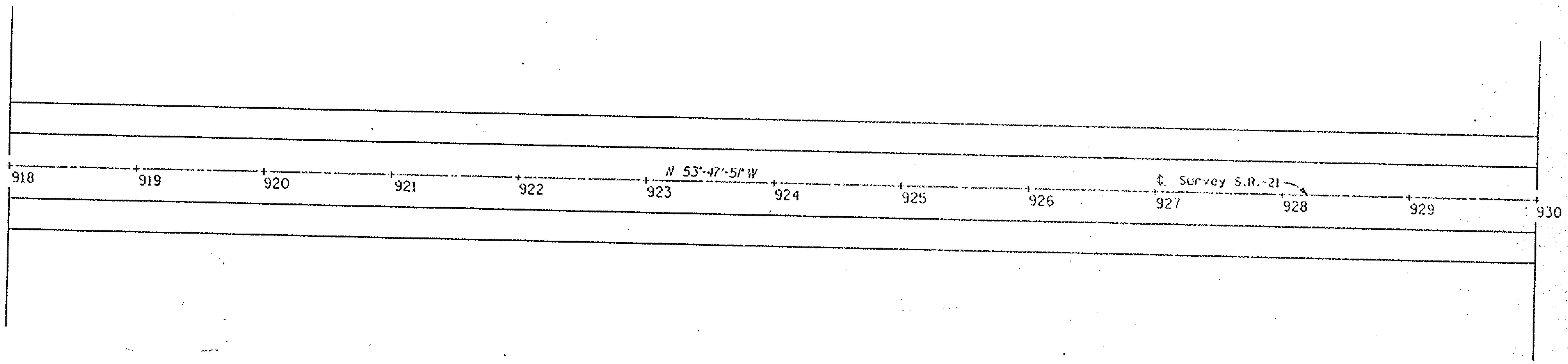
STARK COUNTY
STA-21-12.39



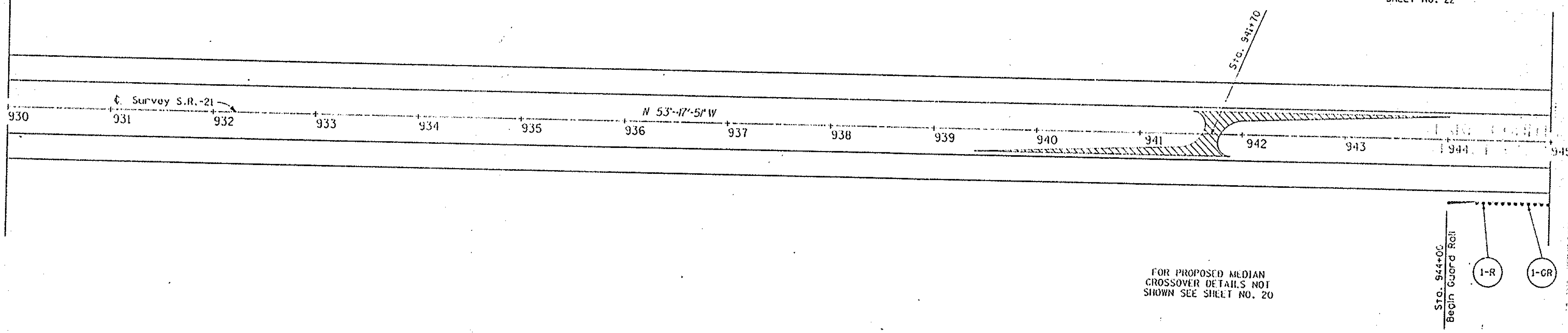


FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA-21-12.39



FOR PROPOSED GUARD RAIL QUANTITIES SEE SHEET NO. 22



FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA-21-12.39

S.R.-21 PLAN STA. 945+00 TO STA. 975+00

FHWA REGION	STATE	PROJECT
5	OHIO	

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STARK COUNTY
STA-21-12.39

S.R.-21 PLAN STA. 975+00 TO STA. 1005+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA-21-12.39

S.R.-21 PLAN STA. 1005+00 TO STA. 1035+00

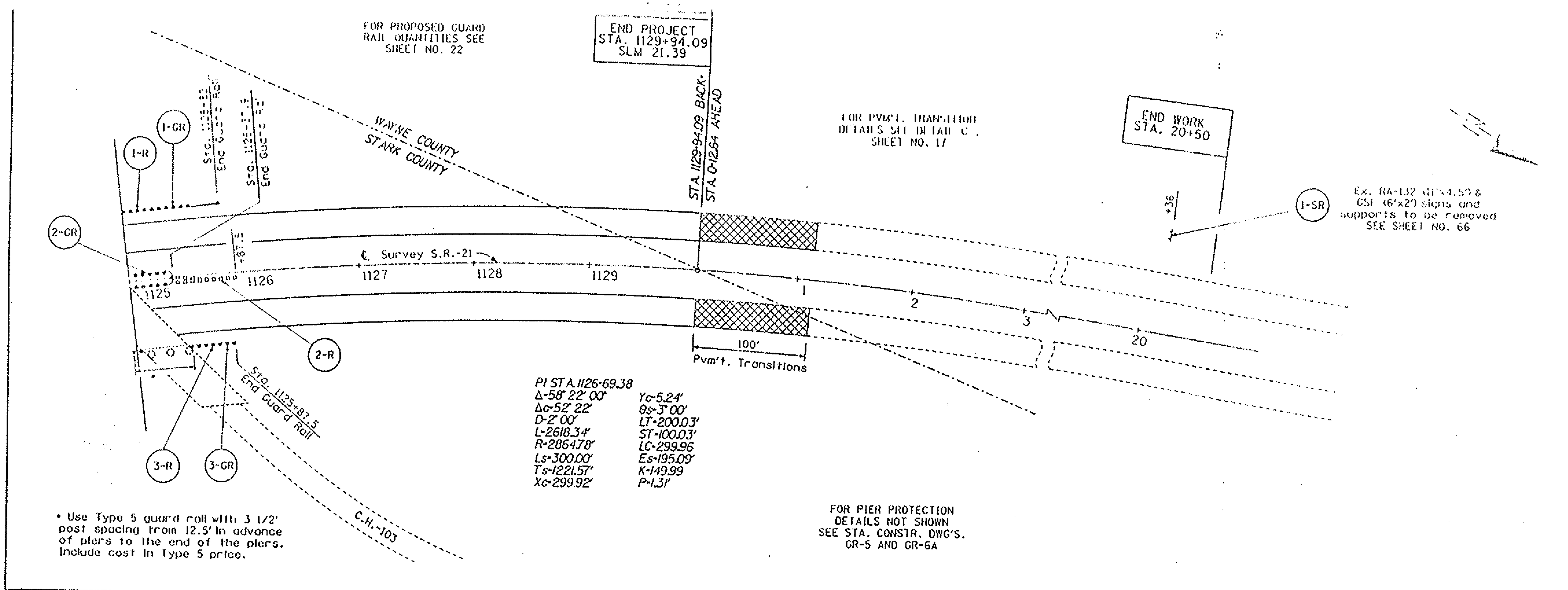
S.R.-21 PLAN STA. 1035+00 TO STA. 1065+00

S.R.-21 PLAN STA. 1065+00 TO STA. 1095+00

FHWA REGION
STATE
PROJECT
5
OHIO
51
117
STARK COUNTY
STA-21-12.39
FOR REST AREA REMOVAL DETAILS BEYOND PROPOSED BERMS SEE SHEET NO.'S 59-73
Sta. 1098+02.34
Ex. R-4-72 (6'x5.5') sign and supports to be removed SEE SHEET NO. 66
1-SR
Sta. 1100+87.5 Begin Guard Rail
Ex. RA-2-132 (11'x5') sign and supports to be removed SEE SHEET NO. 66
2-SR
2-R
Sta. 1104+00 End Ramp Taper
2-GR
Sta. 1106+00 End Guard Rail
Ex. median crossover to be removed SEE SHEET NO.26
℄ Survey S.R.-21
N 58°-09'-56" W
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
Ex. median crossover to be removed SEE SHEET NO.26
FOR BERM RESURFACING DETAILS OVER EXISTING REST AREA RAMPS SEE TYPICAL SECTION NO. 8 SHEET NO. 6
Sta. 1100+75 Begin Guard Rail
Sta. 1103+00 End Ramp Taper
1-R
1-GR
TS 1109+18.70
Sta. 1109+87.5 End Guard Rail
NOTE : The actual locations of guard rail adjacent to rest area accel and decel lanes shall be determined by the Engineer at the time of construction subject to the disposition of the existing concrete ramps at that time.
Sta. 1113+75 Begin Guard Rail
Sta. 1114+00
4-R
4-GR
Sta. 1119+50 End Guard Rail
C.H.-103
Sta. 1123+69.5 Begin Guard Rail
STRUCTURE NO. STA-21-2130
5-R
6-R
6-GR
℄ Survey S.R.-21
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
+12.5
5-GR
STA. 1124+65.67 SR 21= STA. 50+00 CH 103
SC 1112+18.70
Sta. 1113+50 Begin Guard Rail
3-R
3-GR
Sta. 1117+50 End Guard Rail
PI STA.1126+69.38
Δ=58° 22' 00"
Δc=52° 22'
D=2° 00'
L=2618.34'
R=2864.78'
Ls=300.00'
Ts=1750.69'
Xc=299.92'
Yc=5.24'
θs=3° 00'
LT=200.03'
ST=100.03'
LC=299.96
Es=195.09'
K=149.99
P=1.31'
Sta. 1123+74.5 Begin Guard Rail
Sta. 1123+93.4 Begin Guard Rail
7-R
7-GR
FOR PROPOSED MEDIAN CROSSOVER DETAILS NOT SHOWN SEE SHEET NO. 20
FOR PROPOSED GUARD RAIL QUANTITIES SEE SHEET NO. 22
FOR PIER PROTECTION DETAILS NOT SHOWN SEE STD. CONSTR. DWG'S. GR-5 AND GR-6A
• Use Type 5 guard rail with 3 1/2' post spacing from 12.5' in advance of piers to the end of the piers. Include cost in Type 5 price.
S.R.-21 PLAN STA. 1095+00 TO STA. 1125+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA-21-12.39



U.S.R. 21 & T.R. 352 APPROACH

FHWA REGION	STATE	PROJECT	
5	OHIO		53/117

STARK COUNTY
STA – 21 –12.39

S.R. 21 & T.R. 356 APPROACH

SCALE
0 10 20 40

* FOR CURB REMOVAL DETAILS SEE SHEET NO. 21

FOR PVM'T. TRANSITION DETAILS SEE DETAIL C SHEET NO. 17

S.R. 21 & T.R. 404 APPROACH

STARK COUNTY
STA – 21 – 12.39

* FOR CURB REMOVAL DETAILS SEE SHEET NO. 21

FOR PVM'T. TRANSITION DETAILS SEE DETAIL C SHEET NO. 17

S.R. 21 & C.H. 365 APPROACH

• FOR CURB REMOVAL DETAILS
SEE SHEET NO. 21

FOR PVM'T. TRANSITION DETAILS
SEE DETAIL C SHEET NO. 17.

S.R. 21 AND S.R. 93 INTERCHANGE

FHWA REGION	STATE	PROJECT	
5	OHIO		

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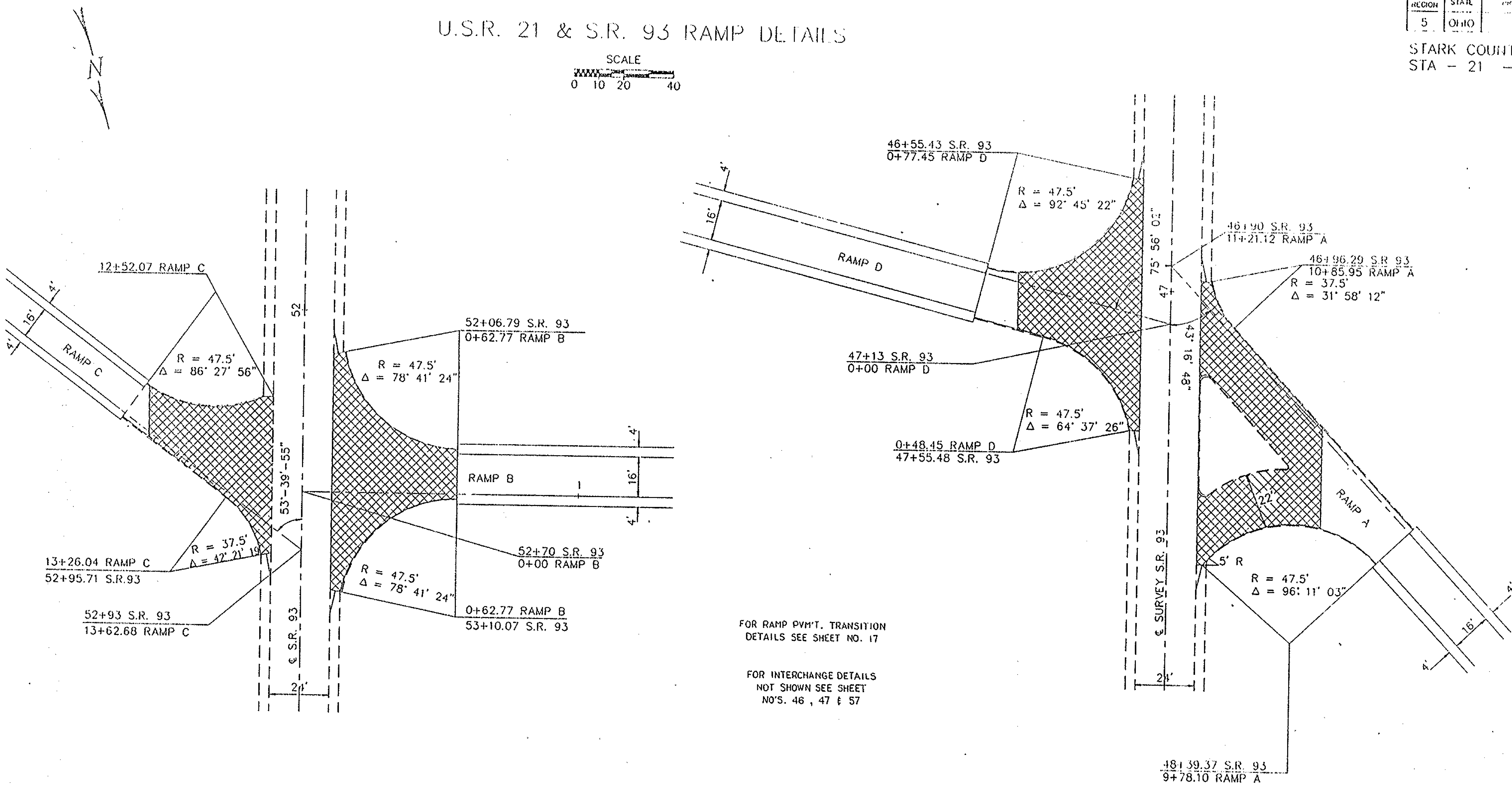
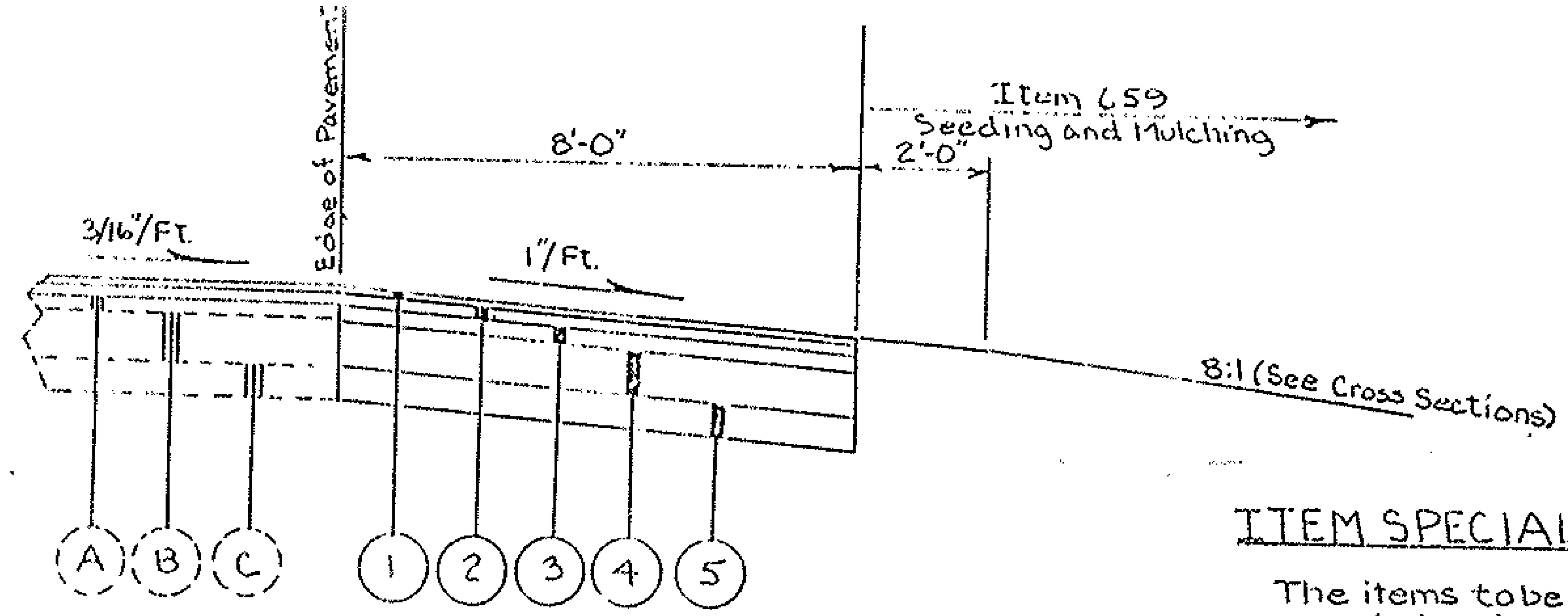
STARK COUNTY
STA-21-12.39

U.S.R. 21 & S.R. 93 RAMP DETAILS





REST AREA BERM REPLACEMENT

STATION 1074+50 TO STATION 1087+00 SOUTH BOUND
STATION 1096+75 TO STATION 1104+00 SOUTH BOUND
STATION 1072+29.42 TO STATION 1078+35.79 NORTH BOUND
STATION 1090+75 TO STATION 1103+00 NORTH BOUND

LEGEND

① ITEM 846 1¼" ASPHALT SURFACE COURSE, TYPE 1, AC-20
② ITEM 846 1¾" ASPHALT INTERMEDIATE COURSE, TYPE 2, AC-20
③ ITEM 301 3" BITUMINOUS AGGREGATE BASE, AC-20
④ ITEM 304 8½" AGGREGATE BASE
⑤ ITEM 310 6" SUBBASE, TYPE I

Ⓐ 2½" ASPHALT CONCRETE
Ⓑ 9" REINFORCED CONCRETE PAVEMENT
Ⓒ 6" SUBBASE

SEEDING

Quantities for seeding are calculated for the soil areas five (5) feet outside the work limits as shown on the cross sections.

ITEM SPECIAL, DRILLED WATER WELL ABANDONED

The existing concrete or stone slab well cover and pumping equipment shall be removed and disposed of. The casing shall be cut off at least one foot below the final finished grade. The well shall be filled from bottom to top with clean puddled clay or concrete.

The unit price bid per each for Item Special, Drilled Water Well Abandoned shall include payment for all labor, tools, materials and incidentals necessary to complete this item.

ITEM SPECIAL, ROADSIDE TOILET AND STORAGE UNIT REMOVED

The existing roadside toilet and storage unit shall be removed and disposed of. The above removal shall include all utility connections, concrete floor and concrete sidewalk leading from the parking lot. All pipes shall be plugged. The resultant area shall be regraded and filled if necessary to blend into the surrounding area. Care shall be taken not to remove or damage existing trees and shrubs.

The unit price bid per each for Item Special, Roadside Toilet and Storage Unit Removed shall include payment for all labor, tools, materials and incidentals necessary to complete this item.

ITEM SPECIAL, AEROBIC DIGESTION SEWAGE TREATMENT PLANT REMOVED

The existing sewage treatment plant shall be removed and disposed of. The removal shall include the contents of the tank, the tank, the chain link fence surrounding the tank, all utility connections and the plugging of all pipes both into and out of the tank. The area shall be backfilled and graded to blend into the surrounding area. Care shall be used not to remove or damage existing trees and shrubs.

The unit price bid per each for Item Special, Aerobic Digestion Sewage Treatment Plant Removed shall include payment for all labor, tools, materials and incidentals necessary to complete this item.

ITEM SPECIAL, REST AREA REMOVED AND RESTORED

The items to be removed under this Item are to be all items not specifically removed elsewhere in this plan.

All appurtances and foundations shall be removed including picnic tables and pads, grills and pads, phone booth pads, sidewalks, information boards and pads, lights and bases and any other items not considered to be a part of the area before the rest area was constructed. In addition to the above, all remaining light poles and bases shall be removed along the ramps. The aforementioned removals shall be made using care not to destroy trees and shrubs in the area. The electric facilities shall be removed to the metered pole. All removed items shall become the property of the Contractor and disposed of in accordance with Item 202.

The Lump Sum price bid for Item Special, Rest Area Removed shall include payment for all labor, tools, materials and incidentals necessary to complete this item.

Following the removal of the above items the area shall be restored using Item 203 Borrow to fill depressions left by pad, foundation and base removals; Item 654 Renovating Existing Soil; Item 659 Seeding and Mulching; Item 659 Commercial Fertilizer, Item 659 Agricultural Liming and Item 659 Water.

The following quantities are carried to the Sub-Summary for use in performing the above work:

Item Special, Rest Area Removed, Northbound	LUMP SUM
Item Special, Rest Area Removed, Southbound	LUMP SUM
Item 654 Renovating Existing Soil	180 M-Sq.Ft.
Item 659 Seeding and Mulching	20,000 Sq.Yd.
Item 659 Commercial Fertilizer	2 Ton
Item 659 Agricultural Liming	9 Ton
Item 659 Water	43 M-Gal.
Item 203 Borrow	50 Cu.Yd.

REMOVAL OF ITEMS BY OTHERS

The Project Engineer shall carefully survey the areas to make certain that only items remaining and not removed by others shall be paid for under this contract.

STA 1074+50 – STA 1087+00 – 1250.00 L.F
STA 1096+75 – STA 1104+00 – 725.00 L.F
STA 1072+29.42 – STA 1078+35.79 – 606.37 L.F
STA 1090+75 – STA 1103+00 – 1225.00 L.F
3806.37 L.F.

ITEM 846 - ASPHALT CONC. SURFACE COURSE, TYPE I, AC-20:

$Qty = 3806.37' \times 8' \times \frac{1.25''}{12} \div 27 = 117.48$ Use 117 cu yd.

ITEM 846 - ASPHALT CONCRETE SURFACE COURSE, TYPE 2, AC-20:

$Qty = 3806.37' \times 8' \times \frac{1.75''}{12} \div 27 = 164.47$ Use 164 Cu yd.

ITEM	SHEET NUMBERS A	B	C	D		I	J	K	ITEM	QUANT	UNIT	DESCRIPTION
202			402				142		202	544	Lin.Ft.	Pipe Removed, 24" and Under
202		2006	3684	2169		1964	3684	1939	202	15,446	Sq.Yd.	Pavement Removed
202			1930				1930		202	3,860	Sq.Ft.	Sidewalk Removed
202			1855				1855		202	3,710	Lin.Ft.	Curb Removed
202							1		202	1	Each	Manhole Removed
202			4				2		202	6	Each	Catch Basin Removed
Spec.	LUMP								Spec.	LUMP	Lump	Rest Area Removed, Northbound
Spec.	LUMP								Spec.	LUMP	Lump	Rest Area Removed, Southbound
Spec.	2								Spec.	2	Each	Drilled Well Abandoned
Spec.	2								Spec.	2	Each	Roadside Toilet And Storage Unit Removed
Spec.	2								Spec.	2	Each	Aerobic Digestion Sewage Treatment Plant Removed
203			3398				2050		203	5,448	Cu.Yd.	Excavation Not Including Embankment Construction
203	50								203	50	Cu.Yd.	Borrow
203			2458				2450		203	4,908	Cu.Yd.	Embankment
301		45		91		93		54	301	283	Cu.Yd.	Bituminous Aggregate Base; AC-20
304		128		257		263		152	304	800	Cu.Yd.	Aggregate Base
310		90		182		185		108	310	565	Cu.Yd.	Subbase, Type I
654	180								654	180	M.Sq.Ft.	Renovating Existing Soil
659	20000		15670				13799		659	49,469	Sq.Yd.	Seeding And Mulching
659	2		1.41				1.24		659	4.65	Ton	Commercial Fertilizer
659	9								659	9	Ton	Agricultural Liming
659	43		34				30		659	107	M.Gal.	Water

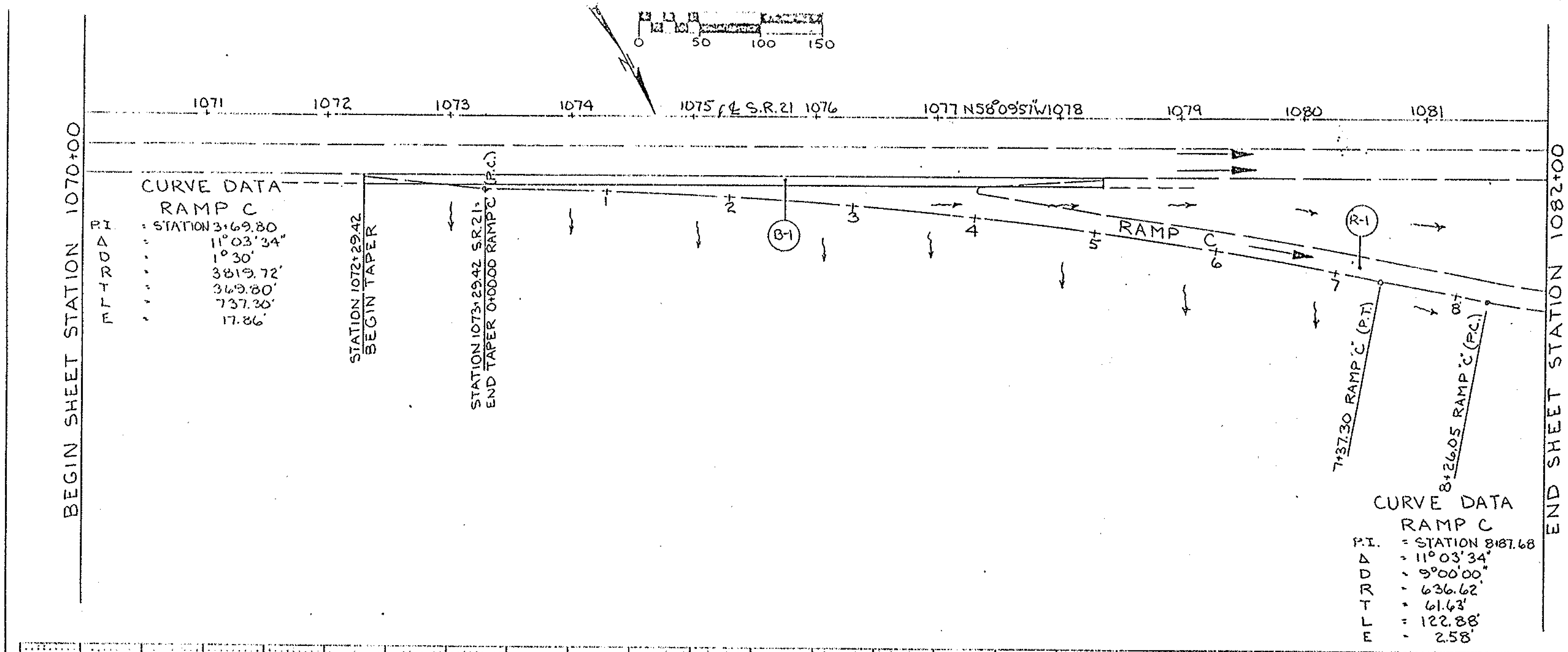
REST AREA, TYPICAL SECTION, GENERAL NOTES AND SUB-SUMMARY

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

60/117

STA-21-12.39

B/O



ESTIMATED QUANTITIES										
MARK	STATION		202 Pav't Reinf.			301 Bit. Ag. Base	304 Aggre. Base	310 Subbase		
	FROM	TO	S.Y.			C.Y.	C.Y.	C.Y.		
R-1	-1+00.00	9+48.93	2006							
B-1	1072+29.42	1078+35.79				44.92	127.26	89.83		
TOTALS			2006			45	128	90		

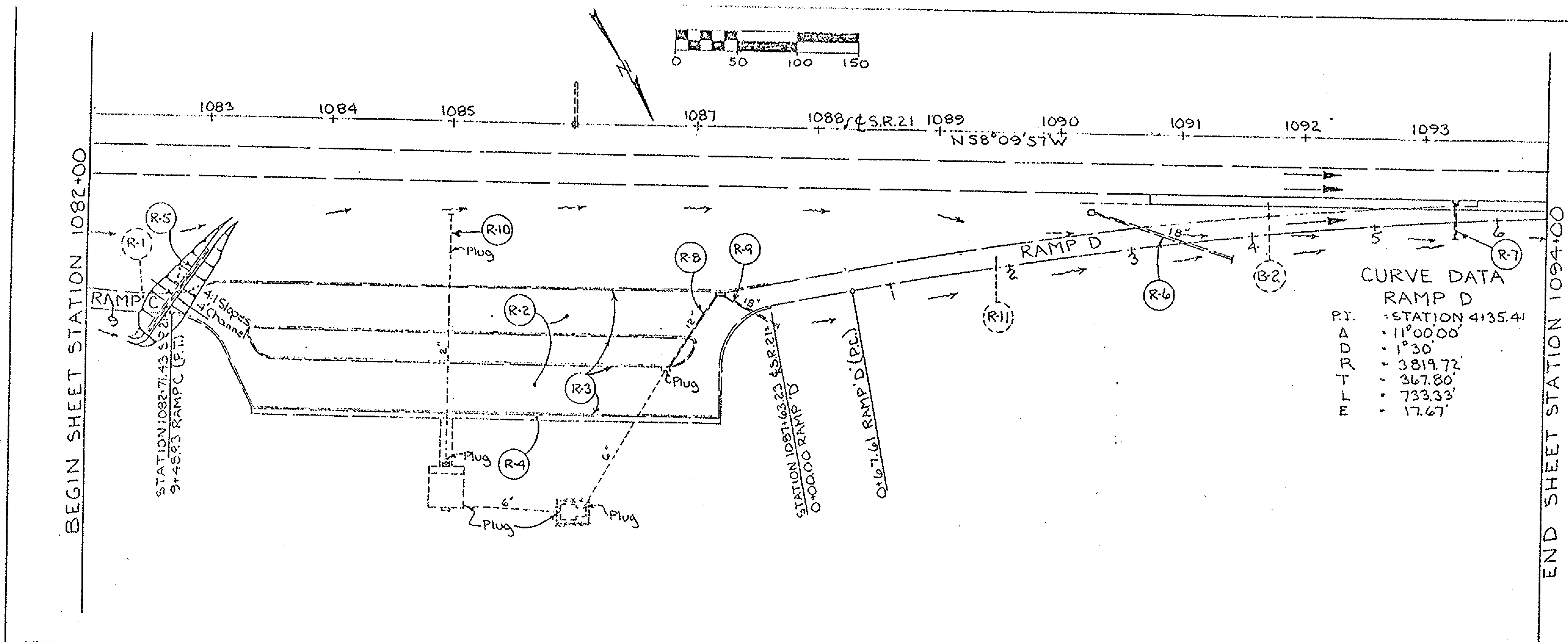
REST AREA AND RAMP PROFILES

OUTSIDE EDGE OF PAVEMENT PROFILE (S.R.21)

NORTH BOUND REST AREA STATION 1070+00 TO STATION 1082+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

STA-21-12.39



ESTIMATED QUANTITIES

MARK	STATION FROM	STATION TO	202 Pav't. Rem'd S.Y.	202 Curb Rem'd L.F.	202 S.W. Rem'd S.F.	202 Pipe Rem'd L.F.	202 C.B. Rem'd Each
R-2	Parking Area		3684				
R-3	Parking Area			1855			
R-4	Parking Area				1930		
R-5	1082+50	1083+00				86	
R-6	1090+25	1091+42				122	1
R-7	1093+25					36	1
R-8	1086+81	1087+20				72	1
R-9	1087+20	1087+70				54	1
R-10	1085+00					30	
TOTALS			3684	1855	1930	402	4

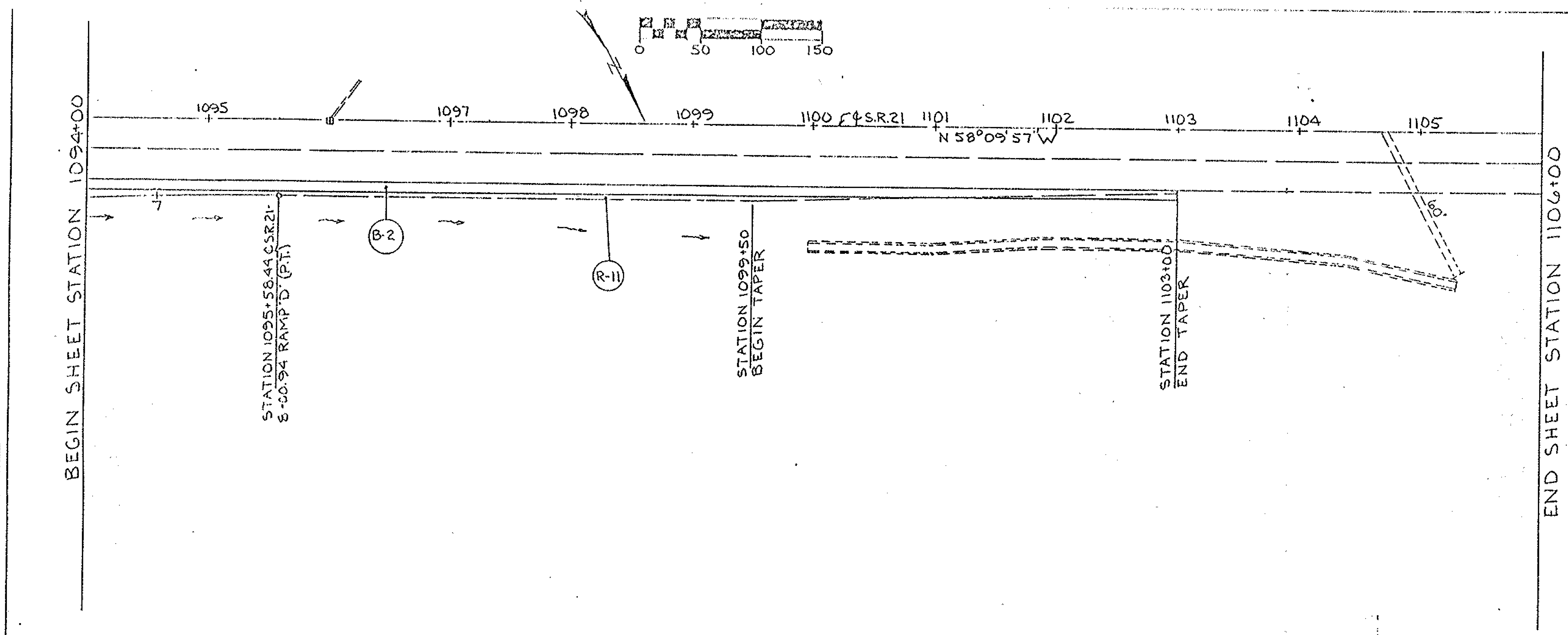
NORTH BOUND REST AREA STATION 1082+00 TO: STATION 1094+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

62/117

STA-21-12.39

D/O



ESTIMATED QUANTITIES										
MARK	STATION		202 Pav't Rem'd			301 Bit. Ag. Base	304 Aggre. Base	310 Subbase		
	FROM	TO	S.Y.			C.Y.	C.Y.	C.Y.		
R-11	0+00.00 D	1103+00	2169							
B-2	1090+75	1103+00				90.74	257.10	181.48		
TOTALS			2169			91	257	182		

NORTH BOUND REST AREA STATION 1094+00 TO STATION 1106+00

PLATE 3-FULL CROSS SECTION-FULL LINE

REST AREA CROSS SECTIONS STATION 1072+00 TO 1081+00 RIGHT SIDE

PLATE 3-FULL CROSS SECTION

REST AREA CROSS SECTIONS STATION 1082+00 TO 1086+00 RIGHT SIDE

REST AREA CROSS SECTIONS STATION 1087+00 TO 1093+00 RIGHT SIDE

PLATE 3-FULL CROSS SECTION

REST AREA CROSS SECTIONS STATION 1094+00 TO 1103+00 RIGHT SIDE

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

STA-21-12.39

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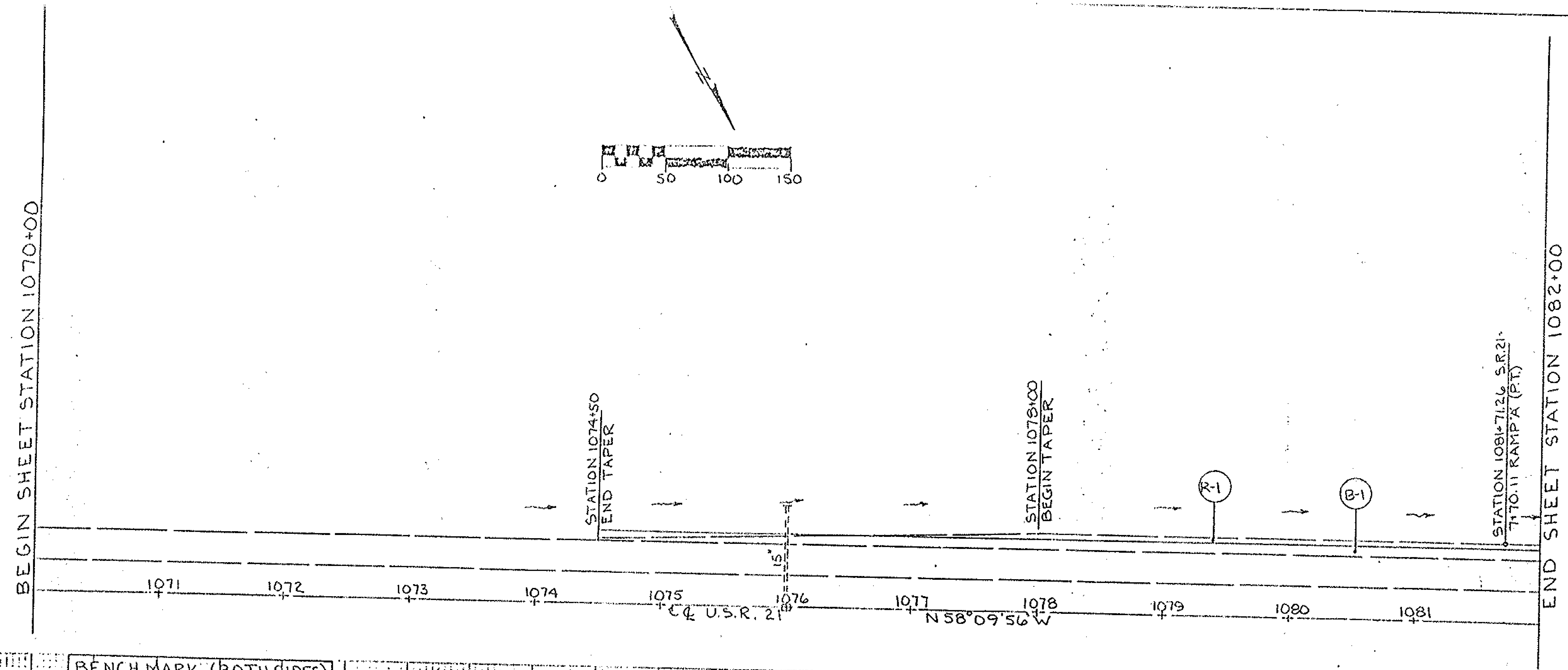
ESTIMATED QUANTITIES

MARK	STATION FROM	STATION TO	202 Pavt Remd S.Y.			301 Bit.Ag. Base C.Y.	304 Aggre. Base C.Y.	310 Subbase C.Y.		
R-1	1074+50	0+00.00"A"	1964							
B-1	1074+50	1087+00				92.59	262.35	185.19		
TOTALS			1964			93	263	185		



SOUTH BOUND REST AREA STATION 1070+00 TO STATION 1082+00

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

68
117

STA-21-12.39

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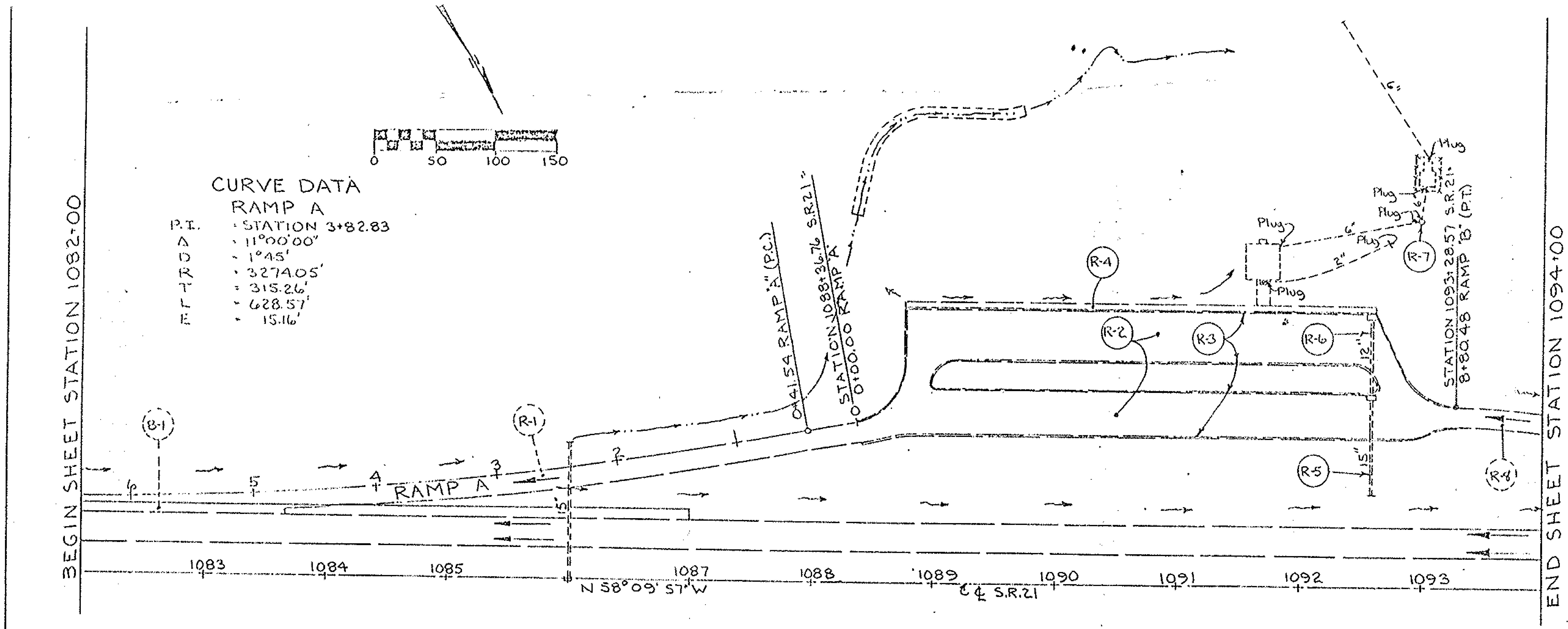
ESTIMATED QUANTITIES										
MARK	STATION		202	202	202	202	202	202		
	FROM	TO	Pav't Rem'd S.Y.	Curb Rem'd L.F.	S.W. Rem'd S.F.	Pipe Rem'd L.F.	C.B. Rem'd, Each	M.H. Rem'd. Each		
R-2	Rest Area		3684							
R-3	Rest Area			1855						
R-4	1088+77.22	1092+63.22			1930					
R-5	1092+60					80	1			
R-6	1092+60					62	1			
R-7	1093+00							1		
TOTALS			3684	1855	1930	142	2	1		



SOUTH BOUND REST AREA STATION 1082+00 TO STATION 1094+00

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

69/117

STA-21-12.39

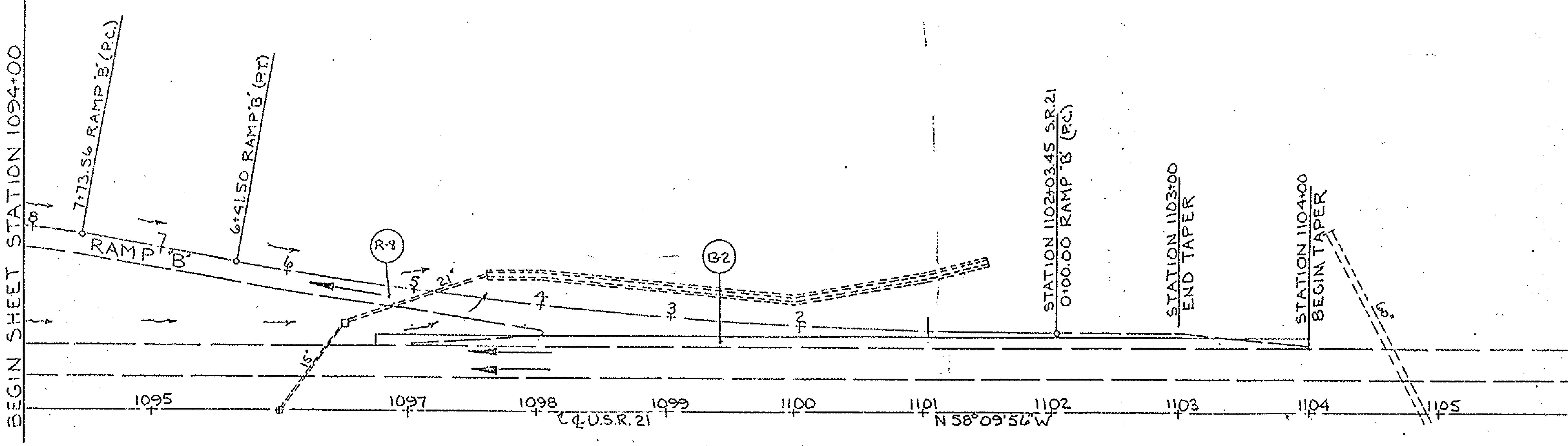
K/O

CURVE DATA
RAMP B

P.I. - STATION 8+27.14
Δ - 9°37'21"
D - 9°00'00"
R - 636.62'
T - 53.38'
L - 106.92'
E - 2.25'

CURVE DATA
RAMP B

P.I. - STATION 3+21.50
Δ - 9°37'21"
D - 1°30'
R - 3819.72'
T - 321.50'
L - 641.50'
E = 13.52'



ESTIMATED QUANTITIES										
MARK	STATION		202		301	304	310			
	FROM	TO	Pav't Rem'd S.Y.		Bit.Ag. Base C.Y.	Aggre Base C.Y.	Subbase C.Y.			
R-8	8+80.48B	1104+00	1939							
B-2	1096+75	1104+00			53.70	152.16	107.41			
TOTALS			1939		54	152	108			

SOUTH BOUND REST AREA STATION 1094+00 TO STATION 1106+00

FHWA REGION	STATE	PROJECT	SHEET	
5	OHIO			70 / 117

STA-71-[illegible]

PLATE 3 FULL CROSS SECTION

REST AREA CROSS SECTIONS STATION 1074+00 TO 1084+00 [illegible]

PLATE 3-FULL CROSS SECTION
REST AREA CROSS SECTIONS STATION 1085+00 TO 1090+00 LEFT

REST AREA CROSS SECTIONS STATION 1091+00 TO 1096+00 LEFT SIDE

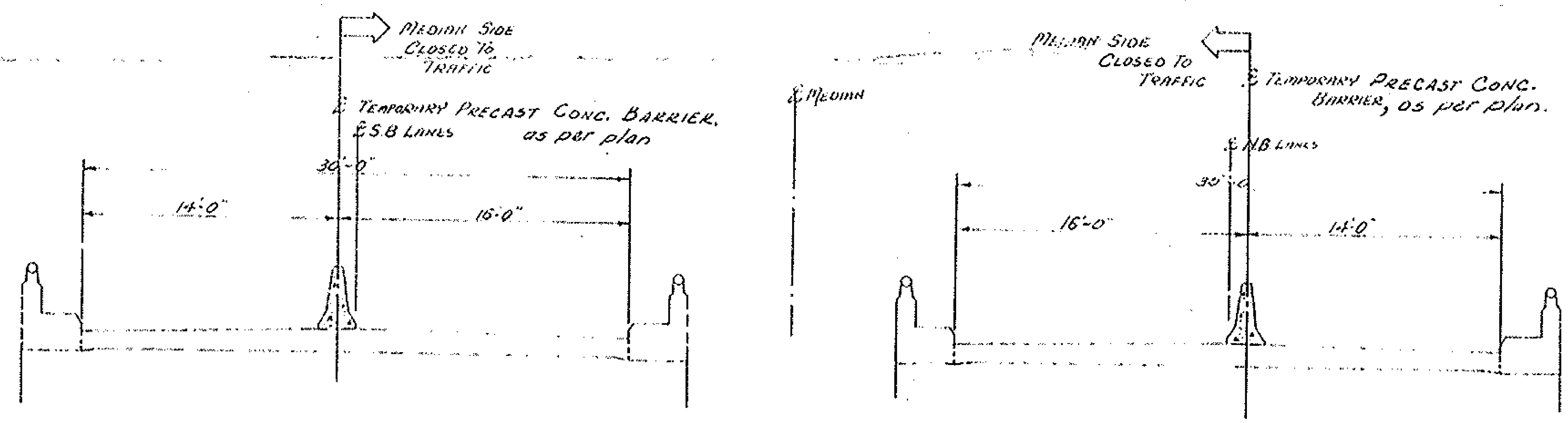
PLATE 3-FULL CROSS SECTION-FULL LINE

REST AREA CROSS SECTIONS STATION 1097+00 TO 1104+00 LEFT SIDE

TRAFFIC CONTROL FOR BRIDGE WORK AT STA-21-12.48 MEDIAN SIDE

FHWA REGION	STATE	PROJECT
5	OHIO	

STARK COUNTY
STA-21-12.39



ESTIMATED QUANTITIES

ITEM 622 TEMPORARY PRECAST CONCRETE BARRIER, as per plan 1930 Lin. Ft.

ITEM 622 TEMPORARY PRECAST CONCRETE BARRIER 835 Lin. Ft.

QUANTITIES CARRIED TO GENERAL SUMMARY

NOTE: See details on sht 116 for item 622 Temporary Precast Concrete Barrier, As Per Plan

TRAFFIC CONTROL FOR BRIDGE WORK AT STA-21-12.48 OUTSIDE AREA

FOR DETAILS NOT SHOWN - SEE TRAFFIC CONTROL STANDARD SHEET No 100 - CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY

ESTIMATED QUANTITIES

ITEM 622 TEMPORARY PRECAST CONC. BARRIER, as per plan — 1430 Lin. Ft.

ITEM 622 TEMPORARY PRECAST CONC. BARRIER — 818 Lin. Ft.

QUANTITIES CARRIED GENERAL SUMMARY

NOTE: See details on sht 116 for item 622 Temporary Precast Concrete Barrier, As Per Plan

TRAFFIC CONTROL FOR BRIDGE WORK ON STA-21-16.44- OUTSIDE AREA

STARK COUNTY
STA-21-12.39

TEMPORARY PAVEMENT-TYPICAL DETAIL-A

~ CODE ~

1. ITEM 846 1¼" ASPHALT SURFACE COURSE, TYPE 1, AC-20
2. ITEM 301 7½" BITUMINOUS AGGREGATE BASE
3. ITEM 304 4" AGGREGATE BASE
4. ITEM 617 2" TO 0" COMPACTED AGGREGATE
5. ITEM 407 TACK COAT

(A) EXISTING MAIN LINE PAVEMENT
(B) EXISTING BERM

~ ESTIMATED QUANTITIES ~

ITEM 622	TEMPORARY PRECAST CONC. BARRIER +	240 Lin. Ft.
ITEM 846	ASPHALT SURFACE COURSE, TYPE 1, AC-20	14 Cu. Yds.
ITEM 301	BITUMINOUS AGGREGATE BASE, AC-20	84 Cu. Yds.
ITEM 407	TACK COAT	41 Gals.
ITEM 304	AGGREGATE BASE	45 Cu. Yds.
ITEM 617	COMPACTED AGGREGATE	4 Cu. Yds.
*ITEM 614	TEMPORARY EDGE LINES, CLASS I	0.91 Mile*
*ITEM 621	REMOVAL OF PAVEMENT MARKINGS	7200 Lin. Ft.*
ITEM 622	TEMPORARY PRECAST CONC. BARRIER	660 LIN FT.

QUANTITIES CARRIED TO GENERAL SUMMARY
* QUANTITIES CARRIED TO TRAFFIC CONTROL SUMMARY *
+ AS PER PLAN

Note: See details on Sht. 116 for Item 622 Temporary Precast Concrete Barrier, As Per Plan.

TRAFFIC CONTROL - BRIDGE NO. STA-21-16.44- OUTSIDE AREA

TRAFFIC CONTROL FOR BRIDGE WORK ON STA-21-1644-MEDIAN SIDE

TEMPORARY PAVEMENT - TYPICAL DETAIL: A

~ CODE ~

1. ITEM 846 ~ 1¼" ASPHALT SURFACE COURSE, TYPE 1, AC-20
2. ITEM 201 - 2½" BITUMINOUS AGGREGATE BASE
3. ITEM 304 4" AGGREGATE BASE
4. ITEM 617 2" TO 0" COMPACTED AGGREGATE
5. ITEM 407 TACK COAT

(A) EXISTING MAIN LINE PAVEMENT
(B) EXISTING BERM

~ESTIMATED QUANTITIES~

ITEM 622	TEMPORARY PRECAST CONC. BARRIER †	240 LIN FT
* ITEM 614	TEMPORARY EDGE LINES, CLASS I	* 0.89 MILE
* ITEM 621	REMOVAL OF PAVEMENT MARKINGS	* 7050 LIN FT
ITEM 846	ASPHALT SURFACE COURSE, TYPE 1, AC-20	14 CU YDS
ITEM 301	BITUMINOUS AGGREGATE BASE, AC 20	84 CU YDS
ITEM 407	TACK COAT	41 GALS.
ITEM 304	AGGREGATE BASE	45 CU YDS
ITEM 617	COMPACTED AGGREGATE	2 CU YDS
ITEM 622	TEMPORARY PRECAST CONC. BARRIER	660 LIN FT

QUANTITIES CARRIED TO GENERAL SUMMARY
* QUANTITIES CARRIED TO TRAFFIC CONTROL SUMMARY *
† AS PER PLAN

Note: See details on sht 116 for Item 622, Temporary Precast Conc. Barrier, As Per Plan.

TRAFFIC CONTROL - BRIDGE NO. STA-21-16.44 - MEDIAN SIDE

TRAFFIC CONTROL SUMMARY

CALC. BY I.A.K. DATE 10-87 / CHKD. BY I.I.H. DATE 10-87	REGION 5	STATE OHIO	PROJECT
		STARK COUNTY STA-21-12.39	78/117

ITEM	24	19	76	77	79	80	81	107	108	ITEM EXT.	ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION
														PAVEMENT MARKING
621					35.72	1.35				00100	621	37.07	Mile	Edge Lines
621					18.10	0.25				10008	621	18.35	Mile	Lane Lines
621					326	626				30100	621	952	Lin. Ft.	Channelizing Lines
621					44	352				40100	621	396	Lin. Ft.	Stop Lines
621					210	210				60100	621	420	Lin. Ft.	Transverse Lines
621					210					64000	621	210	Lin. Ft.	Curb Marking
621			7,200	7,050						92000	621	14250	Lin. Ft.	Removal of Pavement Markings
614			0.91	0.89	71.43	2.71				22000	614	75.94	Mile	Temporary Edge Lines, Class I
614					36.07					20400	614	36.07	Mile	Temporary Lane Lines, Class II
614					652	638				28000	614	1,290	LIN FT.	Temporary Gore Markings, Class II
614					88	704				26000	614	792	LIN FT.	Temporary Stop Lines, Class I
614						614				23000	614	814	LIN FT.	Temporary Channelizing Lines, Class I
614						12				12460	614	12	Each	Work Zone Marking Signs
614								108		13300	614	108	Each	Barrier Reflector, Type B
														DELINEATORS
620		52					270			10300	620	322	Each	Delineator, Type C, Flexible Post Mounted
620							4			11000	620	4	Each	Delineator, Type C, Bracket Mounted
620		3					8			15300	620	11	Each	Delineator, Type D, Flexible Post Mounted
620	88									40300	620	88	Each	Reflector, Type D
802								313	101	00100	802	414	Each	Barrier Reflector, Type A
802								28		00200	802	28	Each	Barrier Reflector, Type B
														SIGNS AND SIGN SUPPORTS
630							6			84900	630	6	Each	Removal Of Ground Mounted Sign And Disposal
630							2			85400	630	2	Each	Removal Of Ground Mounted Major Sign And Disposal
630							6			86002	630	6	Each	Removal Of Ground Mounted Post Support And Disposal
630							10			86102	630	10	Each	Removal Of Ground Mounted Beam Support And Disposal
630	330									02100	630	330	Lin. Ft.	Ground Mounted Supports, No. 2 Post

REVISED 4-11-90
REVISED 6-7-89

PAVEMENT MARKING SUB-SUMMARY

BY T.A.B. DATE 10-87 CHKD. BY L.L.K. DATE 11-87

STARK COUNTY
STA - 21 - 12.39
F - 48 (9)

OHIO FHWA REGION 5 FEDERAL PROJECT

79/117

PAVEMENT	LOCATION AND STATION FROM	TO	SIDE	621 4" EDGE LINES YELLOW	621 4" EDGE LINES WHITE	621 4" LANE LINES WHITE	621 8" CHANNELIZING LINES WHITE	621 24" TRANSVERSE LINES WHITE	621 24" STOP LINES	621 CURB MARKING YELLOW		614 TEMPORARY EDGE LINES CLASS I YELLOW	614 TEMPORARY EDGE LINES CLASS I WHITE	614 TEMPORARY LANE LINES CLASS II WHITE	614 TEMPORARY GORE MARKING CLASS II	614 TEMPORARY STOP LINES CLASS I	614 TEMPORARY CHANNELIZING LINES CLASS I WHITE
				UN. FT.	UN. FT.	UN. FT.	UN. FT.	UN. FT.	UN. FT.	UN. FT.		UN. FT.	UN. FT.	UN. FT.	UN. FT.	UN. FT.	UN. FT.
NB	652+13.5	664+56.2	LT.	1242.70								2485.40					
NB	664+56.2	685+14.9	LT.	2058.70								4117.40					
STATION EQUATION: STA 685+14.90 NB CL U.S.R. 21= STA 685+01.76 CL U.S.R. 21																	
NB	685+01.76	755+83.23	LT.	7081.47								14162.94					
NB	755+83.23	758+97.11	LT.	313.88								627.76					
NB	758+97.11	759+36.59	LT.	45.00								90.00					
NB	760+16.67	760+59.09	LT.	55.00								110.00					
NB	760+59.09	868+88.37	LT.	10829.28								21658.56					
NB	868+88.37	871+62.67	LT.	274.30								548.60					
NB	871+62.67	871+99.77	LT.	45.00								90.00					
NB	872+65.04	872+89.38	LT.	55.00								110.00					
NB	872+89.38	1013+00	LT.	14010.62								28021.24					
NB	1013+00	1013+23	LT.	60.00								120.00					
NB	1013+87	1014+15	LT.	50.00								100.00					
NB	1014+15	1038+95.70	LT.	2480.70								4961.40					
NB	1038+95.7	1042+34	LT.	338.30								676.60					
NB	1042+34	1042+70	LT.	45.00								90.00					
NB	1043+34.46	1043+76.5	LT.	55.00								110.00					
NB	1043+76.5	1129+94.09	LT.	8617.59								17235.18					
STATION EQUATION STA 1129+94.09 (BACK) U.S.R. 21= STA 0+12.64 (AHEAD) U.S.R. 21																	
NB	0+12.64	1+12.64	LT.	100.00								200.00					
SB	652+13.5	664+56.2	RT.	1242.70								2485.40					
SB	664+56.2	684+98.46	RT.	2042.26								4084.52					
STATION EQUATION: STA 684+98.46 SB CL U.S.R. 21= STA 685+01.76 CL U.S.R. 21																	
SB	685+01.76	756+31.94	RT.	7130.18								14260.36					
SB	756+31.94	758+97.11	RT.	265.17								530.34					
SB	758+97.11	759+36.59	RT.	55.00								110.00					
SB	760+16.67	760+59.09	RT.	45.00								90.00					
SB	760+59.09	868+88.37	RT.	10829.28								21658.56					
SB	868+88.36	871+62.67	RT.	274.31								548.62					
SB	871+62.67	871+99.77	RT.	55.00								110.00					
SB	872+65.04	872+89.38	RT.	45.00								90.00					
SB	872+89.38	1012+85	RT.	13995.62								27991.24					
SB	1012+85	1013+23	RT.	50.00								100.00					
SB	1013+87	1014+15	RT.	60.00								120.00					
SB	1014+15	1039+49.82	RT.	2534.82								5069.64					
SB	1039+49.82	1042+34	RT.	284.18								568.36					
SB	1042+34	1042+70	RT.	55.00								110.00					
SB	1043+34.46	1043+76.5	RT.	45.00								90.00					
SB	1043+76.5	1047+03.52	RT.	327.02								654.04					
SB	1047+03.52	1129+94.09	RT.	8290.57								16581.14					
STATION EQUATION: STA 1129+94.09 (BACK) U.S.R. 21= STA 0+12.64 (AHEAD) U.S.R. 21																	
SB	0+12.64	1+12.64	RT.	100.00								200.00					
NB	652+13.5	664+56.2	RT.		1242.70								2485.40				
NB	664+56.2	685+14.90	RT.		2058.70								4117.40				
STATION EQUATION: STA 685+14.90 NB CL U.S.R. 21= STA 685+01.76 CL U.S.R. 21																	
NB	685+01.76	758+47.23	RT.		7345.47								14690.94				
NB	759+65.13	872+11.37	RT.		11246.24								22492.48				
NB	872+97.68	957+50	RT.		8452.32								16904.64				
NB	965+50	980+83.53	RT.		1533.53								3067.06				
NB	993+40	1012+24.87	RT.		1884.87								3769.74				
NB	1013+42.80	1042+02.39	RT.		2859.59								5719.18				
NB	1043+03.32	1129+94.09	RT.		8690.77								17381.54				
STATION EQUATION: STA 1129+94.09 (BACK) U.S.R. 21= STA 0+12.64 (AHEAD) U.S.R. 21																	
NB	0+12.64	1+12.64	RT.		100.00								200.00				
SB	652+13.5	664+56.2	LT.		1242.70								2485.40				
SB	664+56.2	684+98.46	LT.		2042.26								4084.52				
STATION EQUATION: STA 684+98.46 SB CL U.S.R. 21= STA 685+01.76 CL U.S.R. 21																	
SB	685+01.76	759+98.61	LT.		7496.85								14993.70				
SB	761+14.38	871+48.06	LT.		11033.68								22067.36				
SB	872+38.60	955+55	LT.		8316.40								16632.80				
SB	964+50.65	979+75	LT.		1524.35								3048.70				
SB	987+75	1013+69.95	LT.		2594.95								5189.90				
SB	1014+85.73	1043+11.91	LT.		2826.18								5652.36				
SB	1044+20.49	1129+94.09	LT.		8573.60								17147.20				
STATION EQUATION: STA 1129+94.09 (BACK) U.S.R. 21= STA 0+12.64 (AHEAD) U.S.R. 21																	
SB	0+12.64	1+12.64	LT.		100.00								200.00				
SB	652+13.50	664+56.20	CL			1242.70								2485.40			
SB	664+56.2	684+98.46	CL			2042.26								4084.52			
STATION EQUATION: STA 684+98.46 SB CL U.S.R. 21= STA 685+01.76 CL U.S.R. 21																	
SB	685+01.76	759+39.59	CL			7437.83								14875.66			
SB	760+16.67	871+99.77	CL			8573.60								22366.20			
SB	872+65.04	1013+23	CL			14057.96								28115.92			
SB	1013+87	1042+70	CL			2883.00								5766.00			
SB	1043+34.46	1129+94.09	CL			8659.63								17319.26			
STATION EQUATION: STA 1129+94.09 (BACK) U.S.R. 21 = STA 0+12.64 (AHEAD) U.S.R. 21																	
SB	0+12.64	1+12.64	CL			100.00								200.00			
NB	652+13.50	664+56.20	CL			1242.70								2485.40			
NB	664+56.20	685+14.90	CL			2058.70								4117.40			
STATION EQUATION: STA 685+14.90 NB CL U.S.R. 21 =STA 685+01.76 CL U.S.R. 21																	
NB	685+01.76	759+39.59	CL			7437.83								14875.66			
NB	760+16.67	871+99.77	CL			11183.10								22366.20			
NB	872+65.04	1013+23	CL			14057.96								28115.92			
NB	1013+87	1042+70	CL			2883.00								5766.00			
NB	1043+34.46	1129+94.09	CL			8659.63								17319.26			
STATION EQUATION: STA 1129+94.09 (BACK) U.S.R. 21= STA 0+12.64 (AHEAD) U.S.R. 21																	
NB	0+12.64	1+12.64	CL			100.00								200.00			
	S.R. 93 & U.S.R. 21 INTERCHANGE																
RAMP A																	
RAMP A	9+78.10(A)	0+00(A)	BL		978.10								1956.20				
RAMP A	983+89(USR21)	987+75(USR21)	BL		386.00								772.00				
RAMP A	9+78.10(A)	4+14(A)	LT.	564.10								1128.20					
RAMP A	979+75(USR21)	981+37.97(USR21)	LT.				325.94								651.88		
RAMP A	979+75(USR21)	981+37.97(USR21)	LT.					210.00									
RAMP A	981+37.97(USR21)	984+57.90(USR21)	LT.			319.93											
RAMP A	10+89.03		BL						44.00							88.00	
RAMP A	CONCRETE ISLAND									210.00							
SUB	TOTALS			UN.FT.	UN.FT.	UN.FT.	UN.FT.	UN.FT.	UN.FT.	UN.FT.		UN.FT.	UN.FT.	UN.FT.	UN.FT.	UN.FT.	
				96,047.75	92,529.26	95,549.33	325.94	210.00	44.00	210.00		192,095.50	185,058.52	190,458.80	651.88	88.00	
				MILES		MILES	UN.FT.	UN.FT.	UN.FT.	UN.FT.		MILES		MILES	UN.FT.	UN.FT.	
TOTALS TO TRAFFIC CONTROL SUMMARY				35.72		18.10	325.94	210.00	44.00	210.00		71.43		36.07	651.88	88.00	

AC-STA21PM1

PAVEMENT MARKING SUB-SUMMARY

PAVEMENT MARKING SUB-SUMMARY

DATE 10-87 CHKD. BY L.L.H. DATE 11-87

STARK COUNTY
STA -21 -12.39
F - 48 (9)

FHWA REGION 5 FEDERAL PROJECT

PAVEMENT	LOCATION AND STATION FROM	TO	SIDE	621 4" EDGE LINES YELLOW	621 4" EDGE LINES WHITE	621 4" LANE LINES WHITE	621 8" CHANNELIZING LINES WHITE	621 24" TRANSVERSE LINES WHITE	621 24" STOP LINES	614 TEMPORARY EDGE LINES CLASS I YELLOW	614 TEMPORARY EDGE LINES CLASS I WHITE	614 WORK ZONE MARKING SIGNS	614 TEMPORARY GORE MARKING CLASS II	614 TEMPORARY STOP LINES CLASS II	614 TEMPORARY CHANNELIZING LINES CLASS II WHITE
				LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	LIN. FT.
STARK - 21 - 12.39															
S.R. 93 & U.S.R. 21 INTERCHANGE															
RAMP BI	0+62.77	5+22.26	BL		459.49						918.98				
RAMP BI	980+83.53(USR21)	993+40(USR21)	BL		1256.47						2512.94				
RAMP BI	0+62.77	3+78.73	LT.	315.96						631.92					
RAMP BI	3+78.73	5+22.26	LT.				143.53								287.06
RAMP BI	980+83.53	986+63.53	LT.			580.00									
RAMP CI	957+50	962+35.62	RT.		485.62						971.24				
RAMP CI	0+00(C)	12+52.07(C)	BL		1252.07						2504.14				
RAMP CI	3+14.38(C)	12+52.07(C)	LT.	937.69						1875.38					
RAMP CI	963+90.54	965+50	RT.				318.92								
RAMP CI	963+90.54	965+50	RT.					210.00					637.84		
RAMP CI	963+90.54	961+10.54	RT.			280.00									
RAMP CI	13+35.31		BL						48.00					96.00	
RAMP DI	955+55	962+84.74	LT.		729.74						1459.48				
RAMP DI	10+69.59	0+77.45	BL		992.14						1984.28				
RAMP DI	9+62.62	7+99.33	RT.				163.29								326.58
RAMP DI	963+91.71	959+51.71	LT.			440.00									
RAMP DI	7+99.33	0+77.45	RT.	721.88						1443.76					
U.S.R. 21 & TR 352															
TR-352	49+16.69		CL						38.00					76.00	
TR-352	50+83.31		CL						38.00					76.00	
U.S.R.21&TR356&TR365															
TR-356	48+75.77		CL						38.00					76.00	
TR-356	47+29.91		CL						38.00					76.00	
U.S.R.21&TR404&TR364															
TR-404	49+17.80		CL						38.00					76.00	
TR-404	50+82.20		CL						38.00					76.00	
U.S.R.21 & CH 365															
CH-365	49+22.80		CL						38.00					76.00	
CH-365	50+77.20		CL						38.00					76.00	
SUB	TOTALS			LIN.FT. 1975.53	LIN.FT. 5175.53	LIN.FT. 1300.00	LIN.FT. 625.74	LIN.FT. 210.00	LIN.FT. 352.00	LIN.FT. 3951.06	LIN.FT. 10351.06	EACH 12	LIN.FT. 637.84	LIN.FT. 704.00	LIN.FT. 613.64
* TOTALS TO TRAFFIC CONTROL SUMMARY				MILES 1.35		MILES 0.25	LIN.FT. 625.74	LIN.FT. 210.00	LIN.FT. 352.00	MILES 2.71		EACH 12	LIN.FT. 637.84	LIN.FT. 704.00	LIN.FT. 613.64

AC=STA21PM2

PAVEMENT MARKING SUB-SUMMARY

DELINEATOR AND SIGN TABLES

CALC. BY	T.A.K. DATE 10-87
CHKD. BY	L.L.H. DATE 10-87

REGION	STATE	PROJECT
5	OHIO	

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STARK COUNTY
STA-21-12.39

DELINEATOR TABLE

LOCATION AND STATION FROM	TO	SIDE	SPACING C/C FEET	ITEM 620 DELINEATOR TYPE C COLORLESS Flexible Post Mounted EACH	TYPE C COLORLESS Bracket Mounted EACH	TYPE D YELLOW Flexible Post Mounted EACH
S.R.-21						
649+20	657+20	Lt.	400'	3		
661+20	665+20	Lt.	400'		2	
669+20	757+20	Lt.	400'	23		
761+20	869+20	Lt.	400'	28		
873+20	917+20	Lt.	400'	12		
STATION EQUATION : Sta.918+94.64 Back = Sta. 917+27.79 Ahead						
919+55	955+55	Lt.	400'	10		
647+15	655+15	Rt.	400'	3		
659+15	663+15	Rt.	400'		2	
667+15	755+15	Rt.	400'	23		
763+15	871+15	Rt.	400'	28		
875+15	915+15	Rt.	400'	11		
STATION EQUATION : Sta. 918+94.64 Back = Sta. 917+27.79 Ahead						
917+50	957+55	Rt.	400'	11		
959+50	961+50	Rt.	200'	2		
962+60		Rt.		1		
957+55	961+55	Lt.	200'	3		
962+65		Lt.		1		
966+50	978+50	Lt.	400'	4		
966+00	978+00	Rt.	400'	4		
981+15		Rt.		1		
981+90		Rt.		1		
983+40	993+40	Rt.	200'	6		
982+65		Lt.		1		
983+75	987+75	Lt.	200'	3		
991+75	1011+75	Lt.	400'	6		
1015+75	1039+75	Lt.	400'	7		
1044+00		Lt.		1		
1047+75	1127+75	Lt.	400'	21		
997+40	1009+40	Rt.	400'	4		
1013+40	1041+40	Rt.	400'	8		

LOCATION AND STATION FROM	TO	SIDE	SPACING C/C FEET	ITEM 620 DELINEATOR TYPE C COLORLESS Flexible Post Mounted EACH	TYPE C COLORLESS Bracket Mounted EACH	TYPE D YELLOW Flexible Post Mounted EACH
1045+40	1129+40	Rt.	400'	22		
S.R.-21 AND S.R.-93 INTERCHANGE						
Ramp A :						
2+35(A)	4+75(A)	Rt.	120'	2		
4+75(A)		Lt.				1
STATION EQUATION : Sta. 4+14.25 Back = Sta. 5+51.82 Ahead						
6+15(A)		Lt.				1
6+15(A)	10+15(A)	Rt.	200'	3		
Ramp B :						
1+05(B)	3+30(B)	Lt.	75'			4
3+30(B)	4+80(B)	Rt.	75'	3		
Ramp C :						
0+25(C)	3+55(C)	Rt.	110'	3		
3+55(C)		Lt.				1
STATION EQUATION : Sta. 3+50.55 Back = Sta. 4+00.12 Ahead						
4+65(C)		Lt.				1
4+65(C)	12+65(C)	Rt.	200'	5		
Ramp D :						
1+60(D)	7+60(D)	Rt.	200'	4		
8+70(D)	9+80(D)	Rt.	110'	2		
QUANTITIES CARRIED TO TRAFFIC CONTROL SUMMARY				270	4	8

GROUND MOUNTED SIGN AND SUPPORT REMOVAL TABLE

PLAN REF. NO.	QUANTITY FROM SHEET NO.	LOCATION AND STATION	SIDE	SIGN CODE NUMBER	SIGN SIZE	ITEM 630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	ITEM 630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	ITEM 630 REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL EACH	ITEM 630 REMOVAL OF GROUND MOUNTED BEAM SUPPORT AND DISPOSAL EACH
		S.R.-21 :							
1-SR	48	1025+00	Rt.	---	---				2
1-SR	50	1072+00	Rt.	---	---				2
2-SR		1083+70	Lt.	R-2-48	48"x48"	1	2		
3-SR		1088+50	Lt.	W-49R-36	36"x36"	1	1		
4-SR		1088+50	Rt.	W-49R-36	36"x36"	1	1		
5-SR	50	1093+40	Rt.	R-2-48	48"x48"	1	2		
1-SR	51	1097+75	Lt.	RA-4-72	6'x5.5'	1			2
2-SR	51	1103+00	Lt.	RA-2-132	11'x5'			1	2
1-SR	52	20+36 + -	Lt.	RA-1-132	11'x4.5'			1	2
				GSF-1	6'x2'	1			
QUANTITIES CARRIED TO TRAFFIC CONTROL SUMMARY						6	6	2	10


FHWA REGION | STATE | PROJECT
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STARK COUNTY
STA - 21 - 12.39
BEGIN WORK STA. 647+25
F-48(9)
Begin Project Sta. 654+13.50 SLM 12.39
STRUCTURE NO. STA-21-1246 L&R
N25°24'17"W
RIVERSIDE AVE.
PC 664+56.20
652+18.5
Corporation Line
MASSILLON
4" Yellow Edge Lines
4" White Edge Lines
4" White Lane Lines
TUSCARAWAS RIVER
CURVE DATA ℄ SURVEY
PI STA.674+85.13
Δ-15° 20' 30"LT
D-0° 45'
R-7639.44'
T-1028.93'
L-2045.56'
E-68.98'
CURVE DATA ℄ S.B. LANES
PI STA.674+32.76
Δ-15° 20' 30"LT
D-0° 15'
R-4583.66'
T-617.36'
L-1227.33'
PC 668+15.40
PC 669+20.14
RIVERSIDE AVE.
4" White Edge Lines
4" White Lane Lines
4" Yellow Edge Lines
CURVE DATA ℄ N.B. LANES
PI STA.675+37.50
Δ-15° 20' 30"LT
D-0° 15'
R-4583.66'
T-617.36'
L-1227.33'

FHWA REGION	STATE	PROJECT	
5	OHIO		

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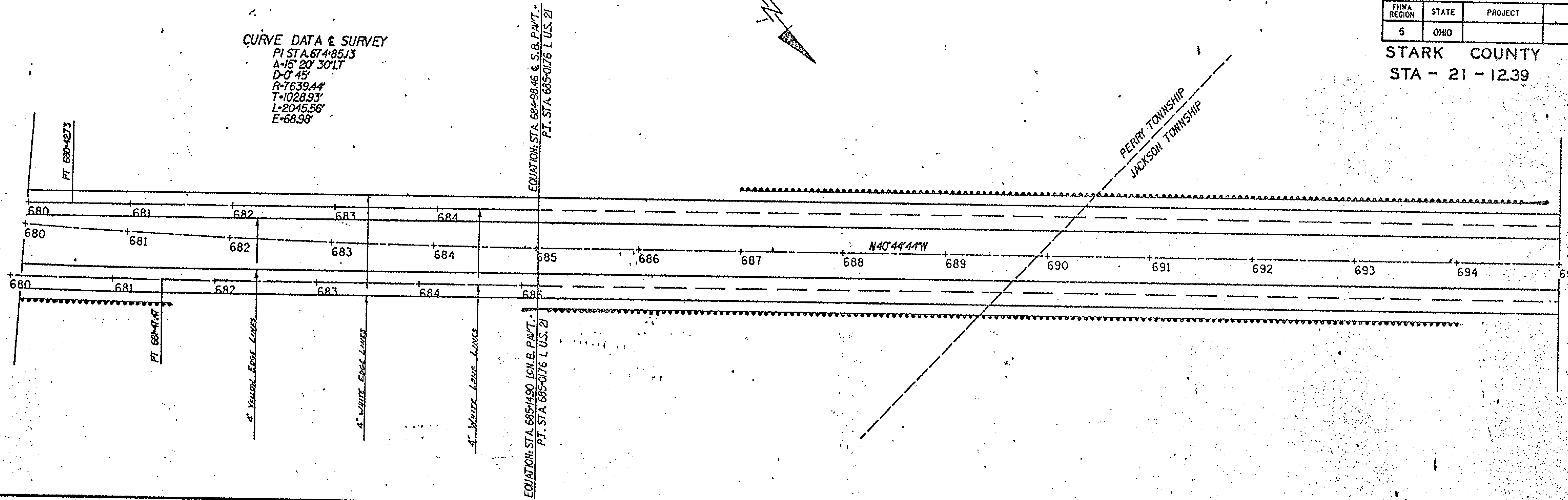
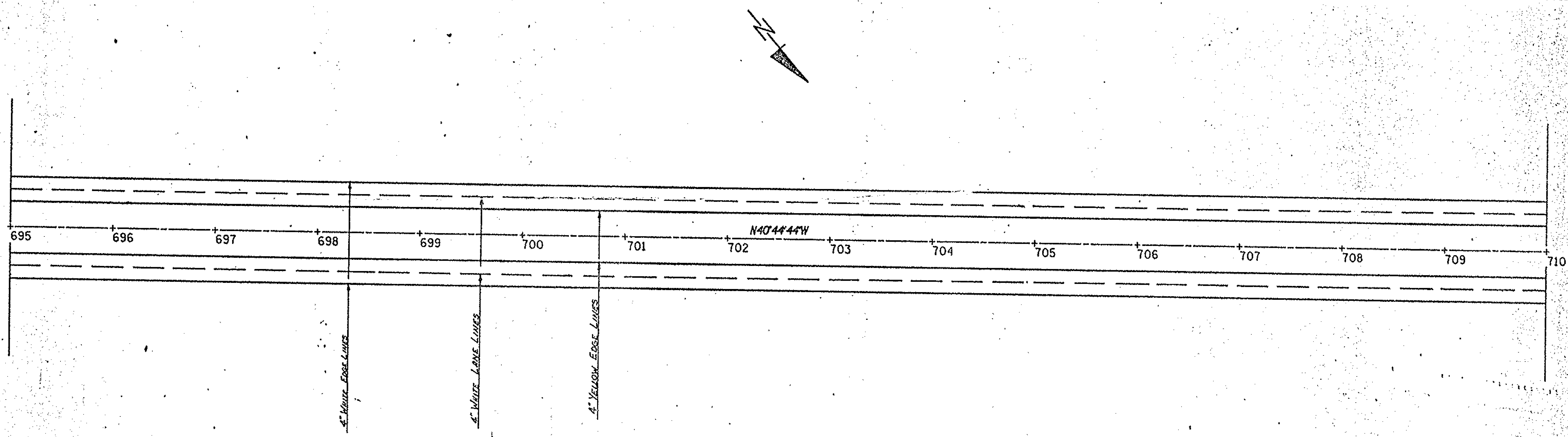
STARK COUNTY
STA - 21 - 12.39





FHWA REGION	STATE	PROJECT	
5	OHIO		

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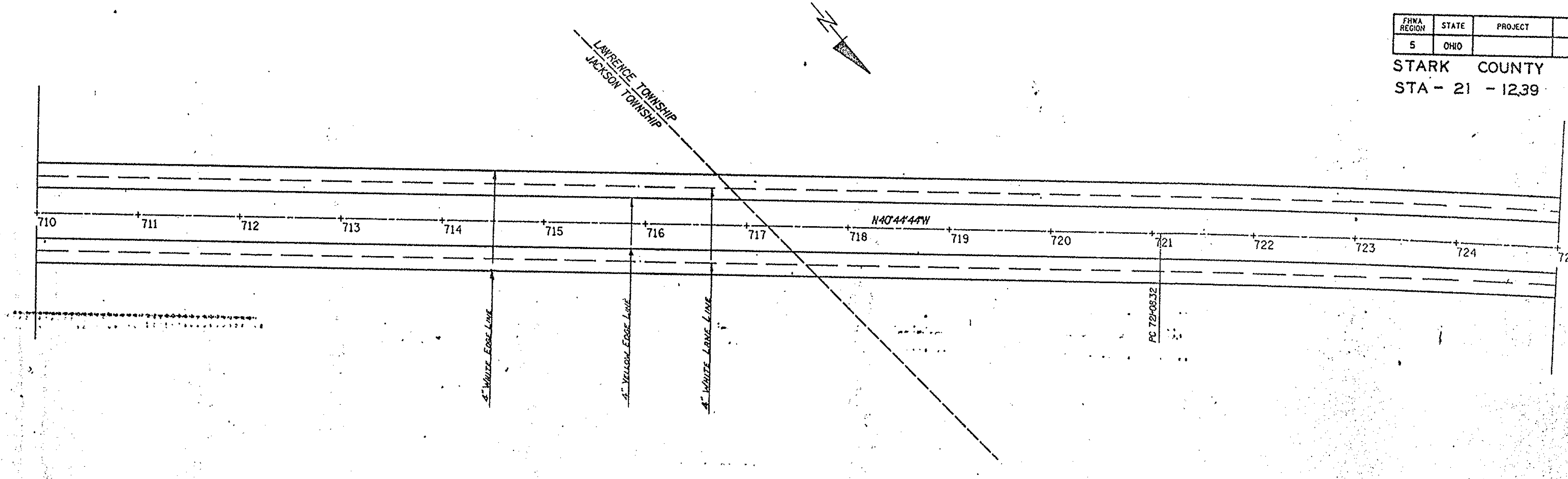
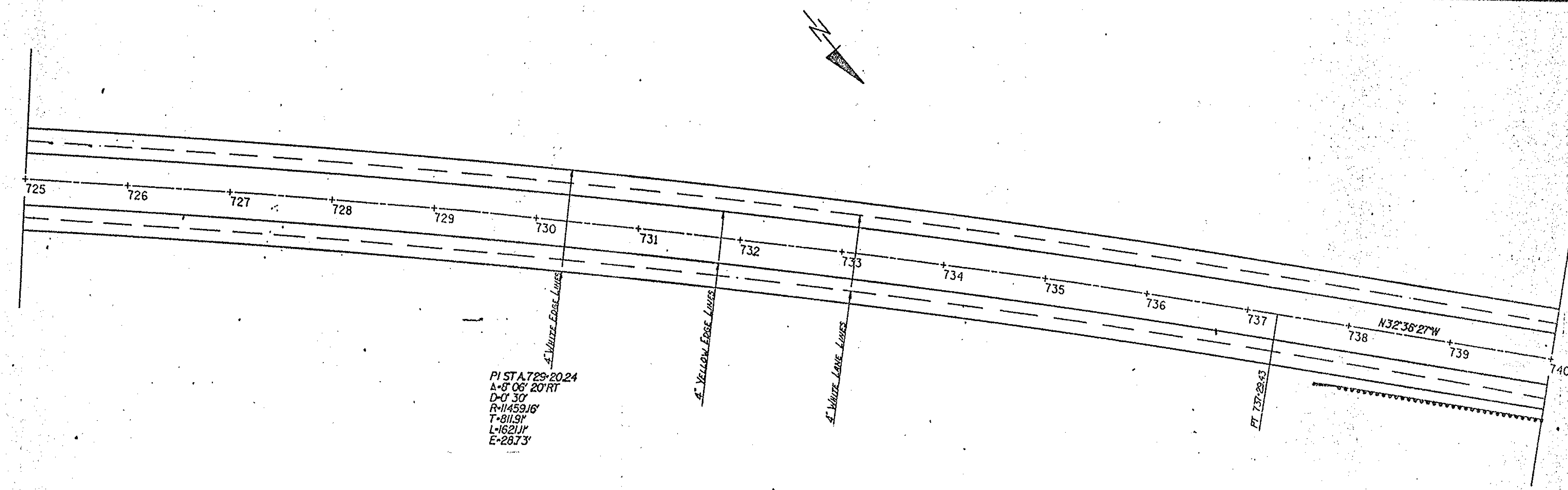
STARK COUNTY
STA - 21 - 12.39





PLAN - STA. 740+00 TO STA. 770+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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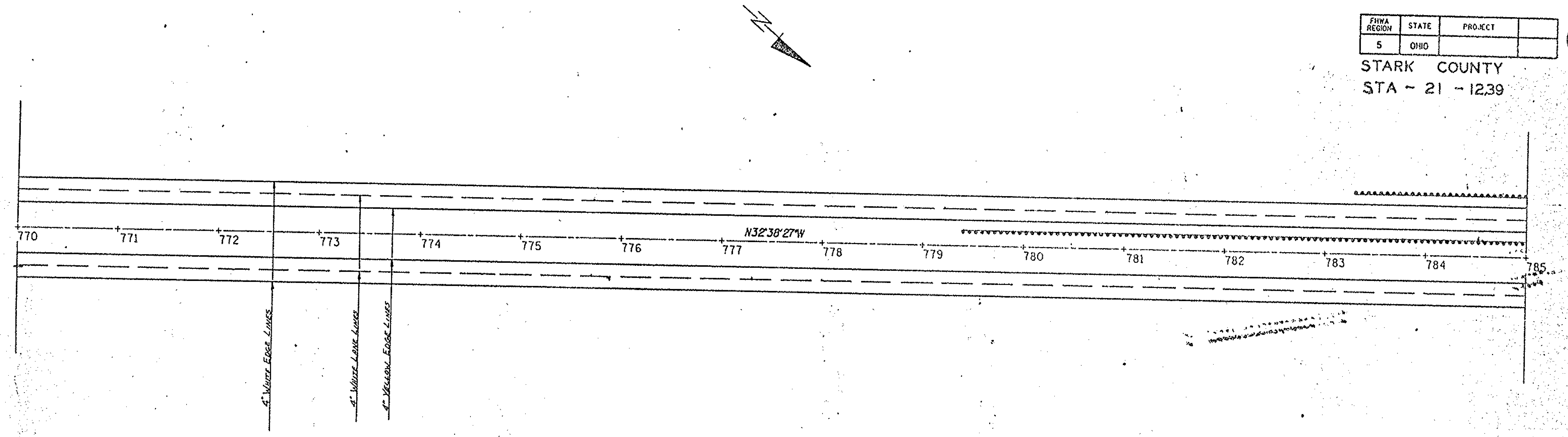
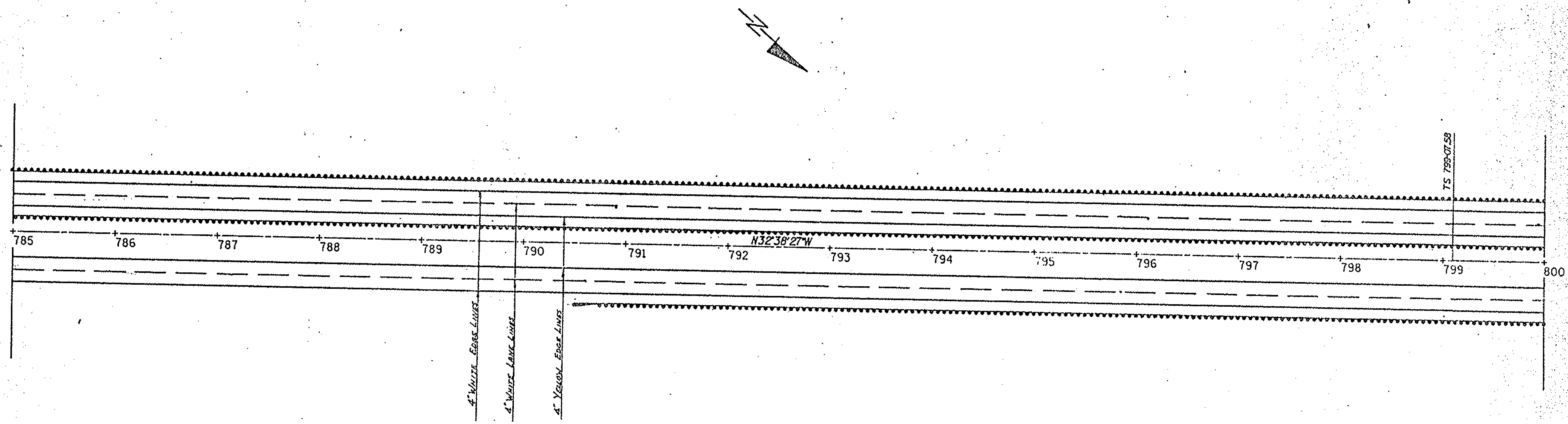
STARK COUNTY

STA ~ 21 ~ 12.39





PLAN STA 770+00 TO STA 800+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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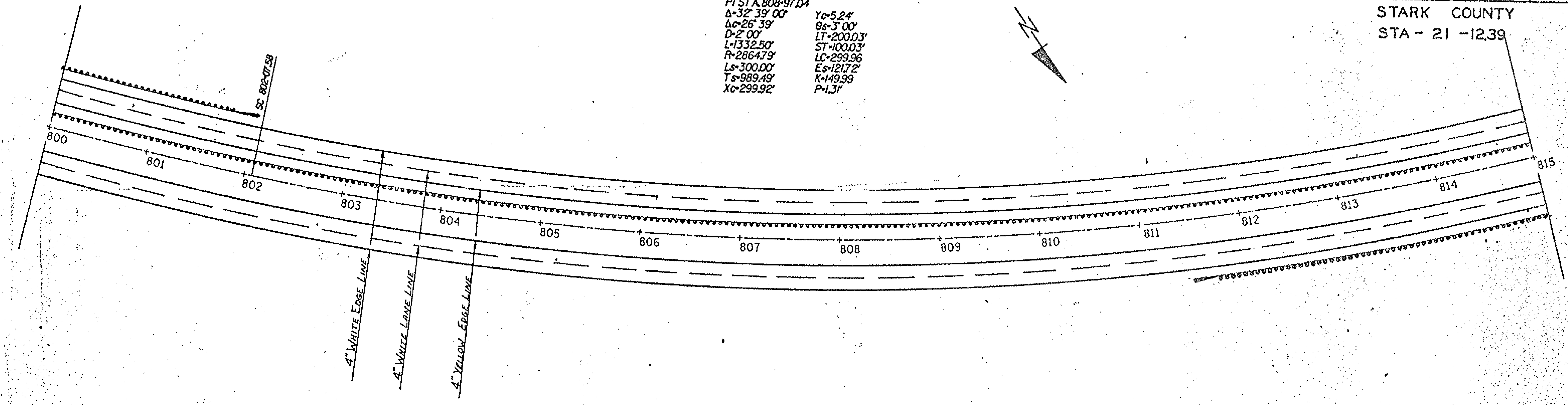
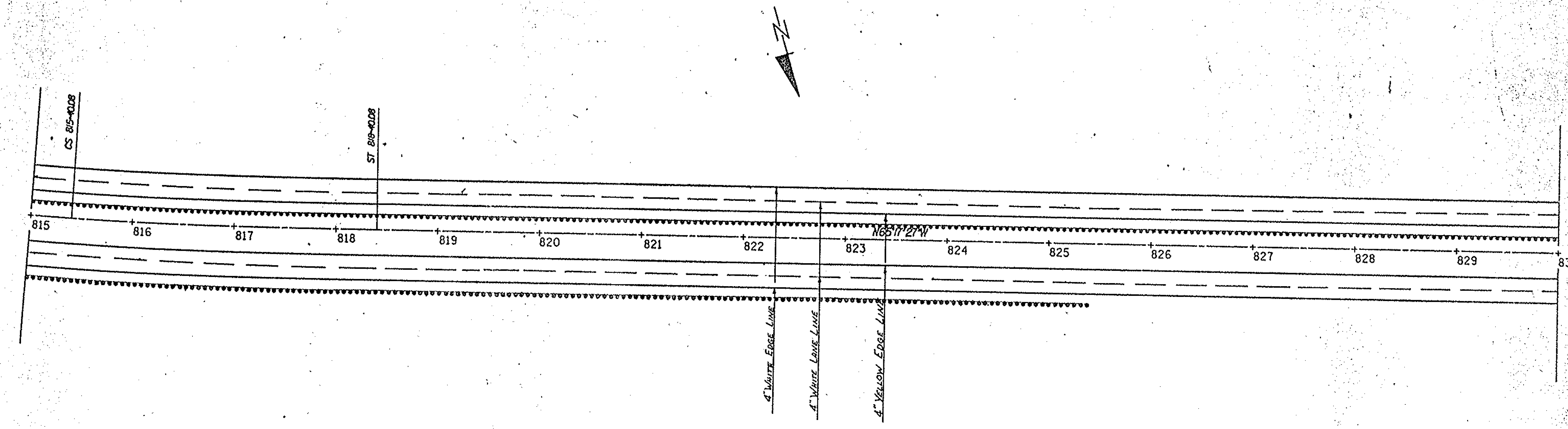
STARK COUNTY
STA - 21 - 12.39





PLAN STA 800+00 TO STA 830+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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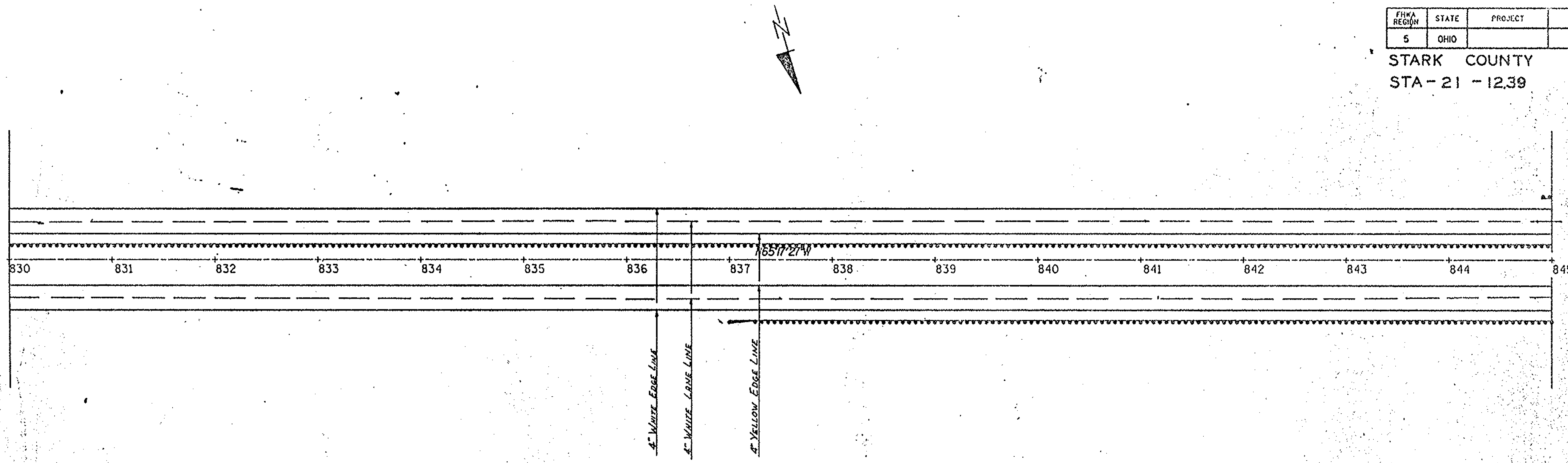
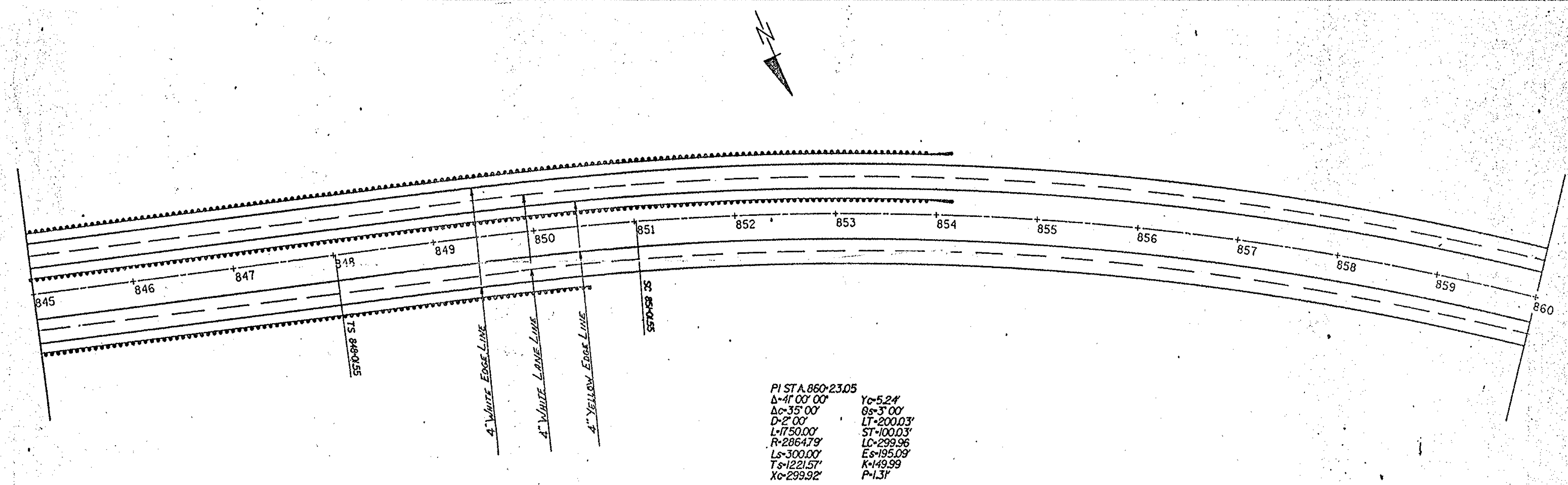
STARK COUNTY
STA - 21 - 12.39





PLAN STA. 830+00 TO STA. 860+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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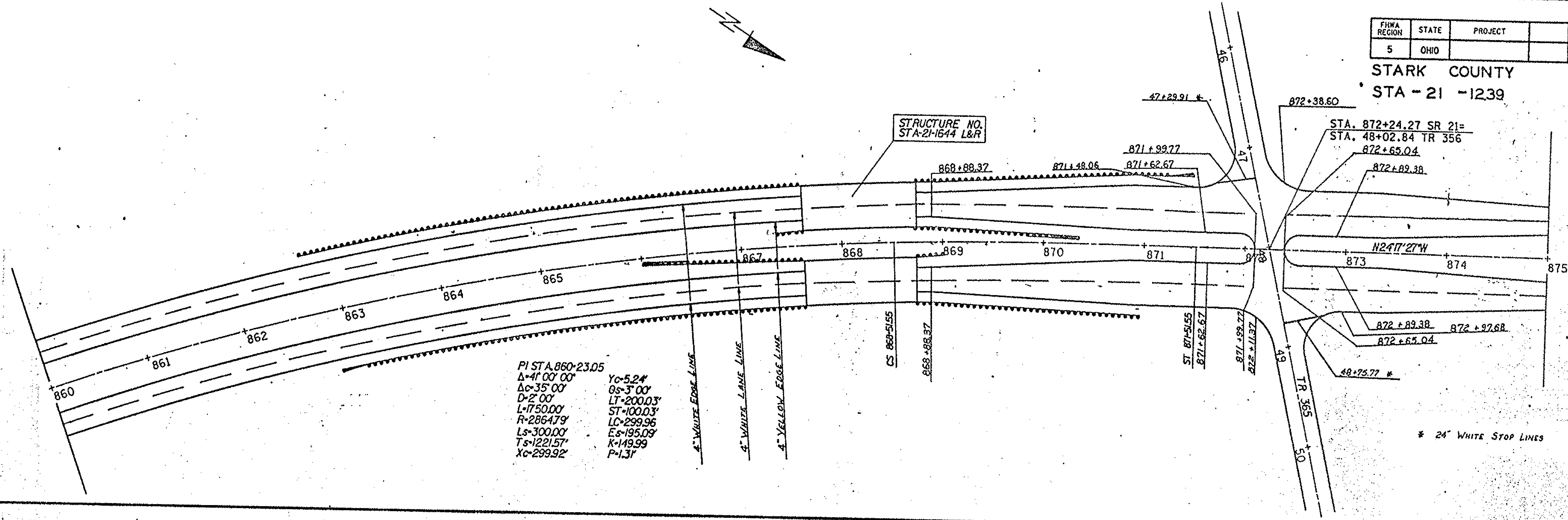
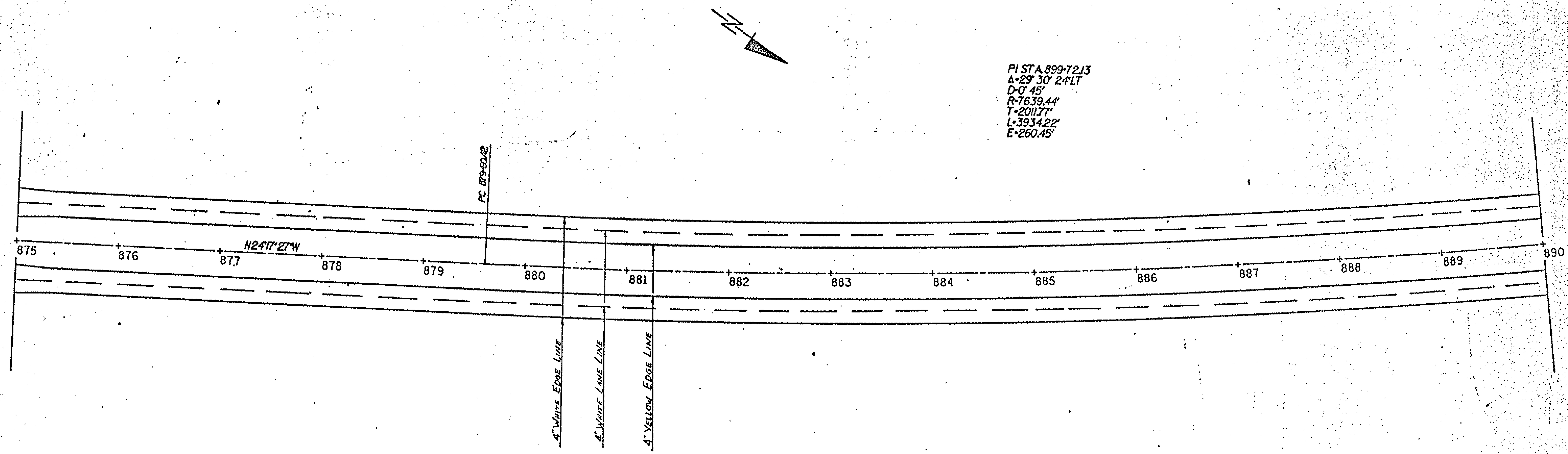
STARK COUNTY

STA - 21 - 12.39





PLAN STA 860+00 TO STA 890+00

PLAN STA. 890+00 TO STA. 918+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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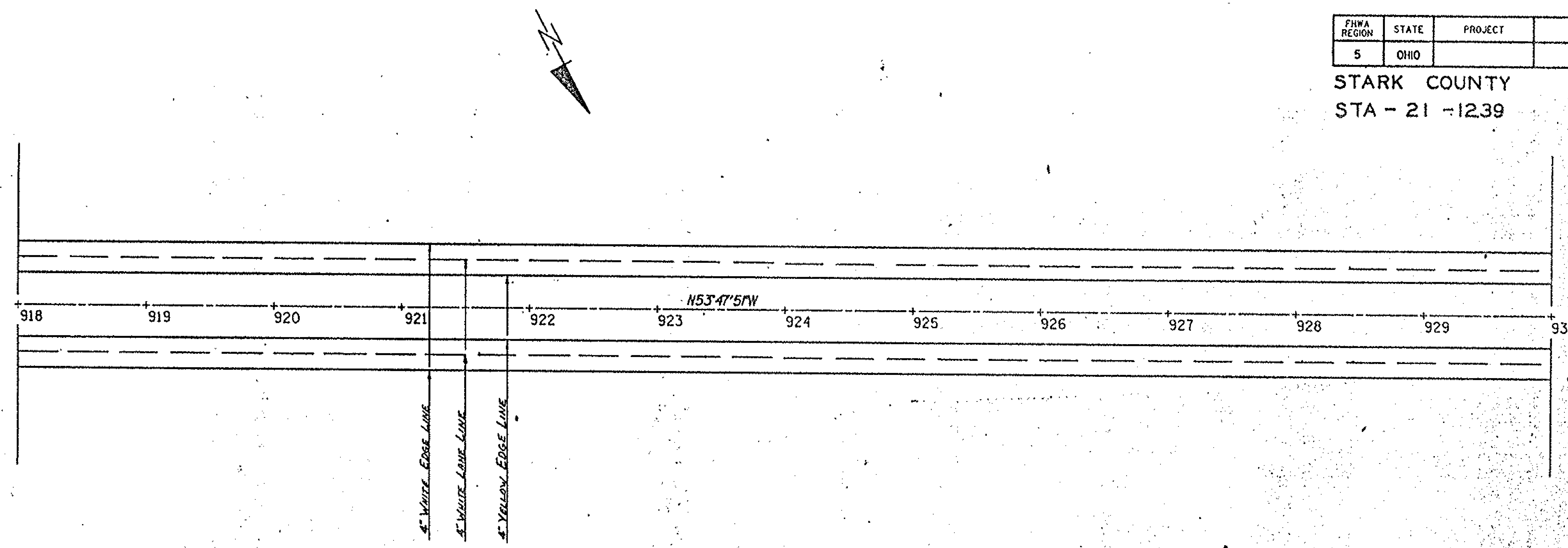
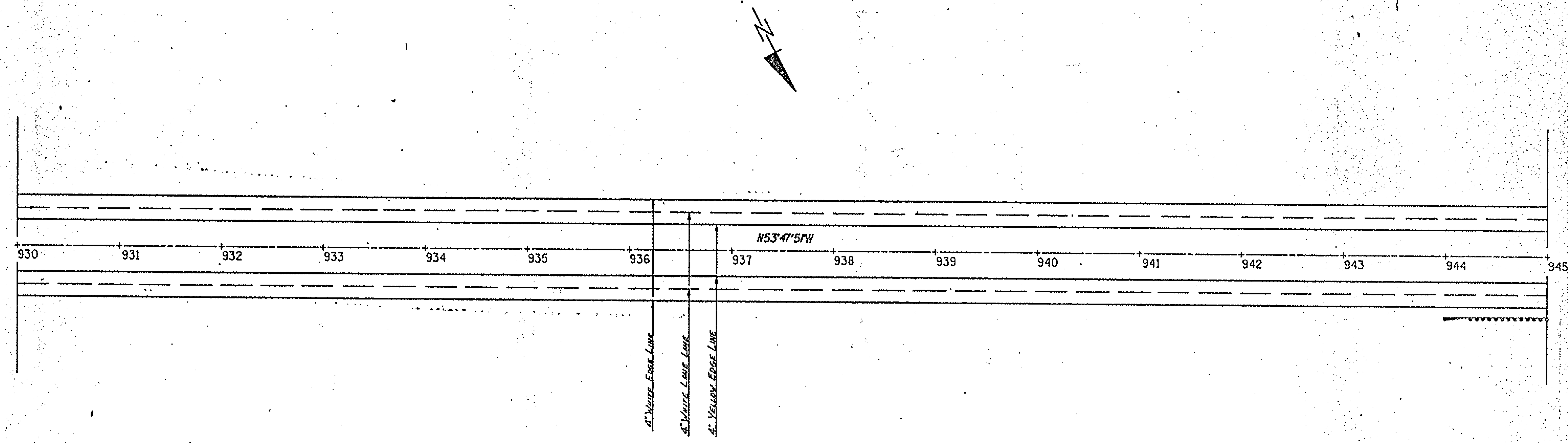
STARK COUNTY
STA - 21 - 12.39





PLAN STA. 918+00 TO STA. 945+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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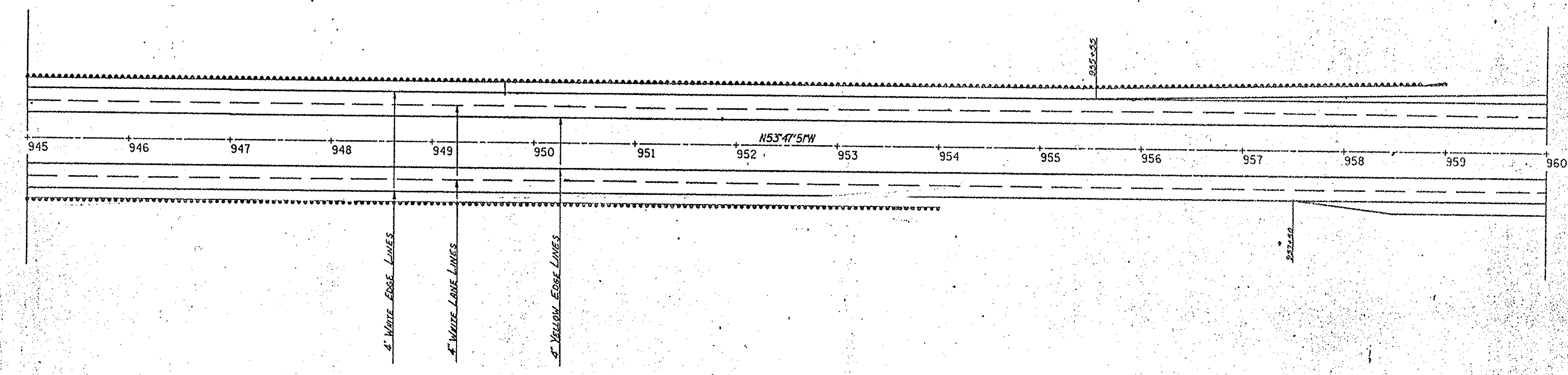
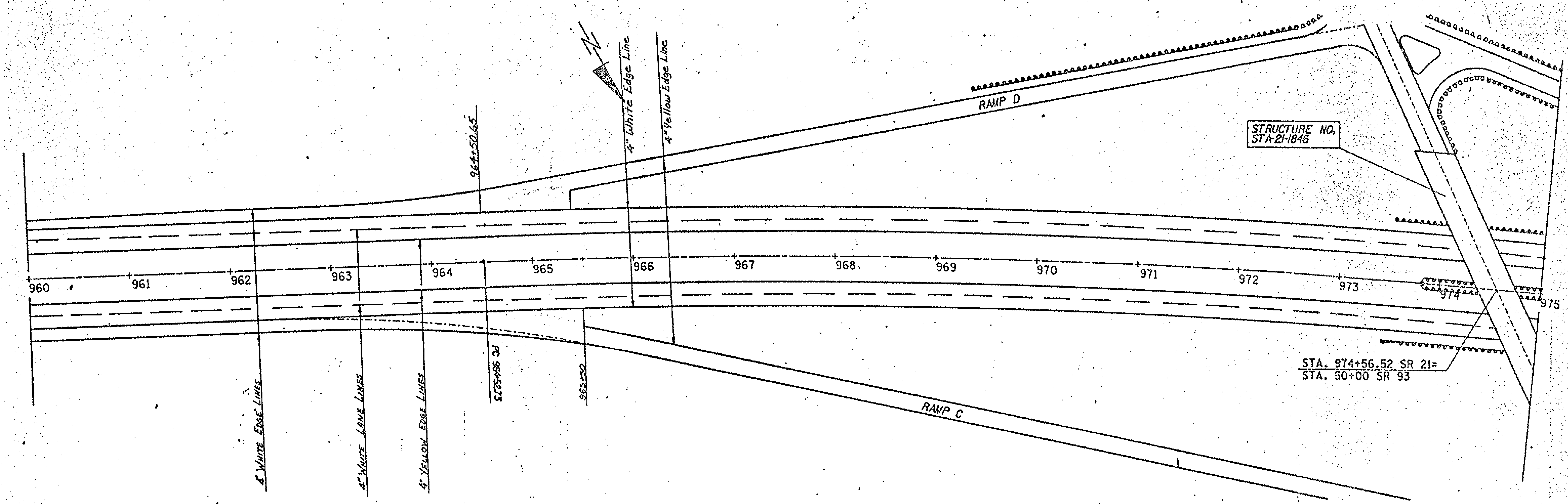
STARK COUNTY
STA - 21 - 12.39

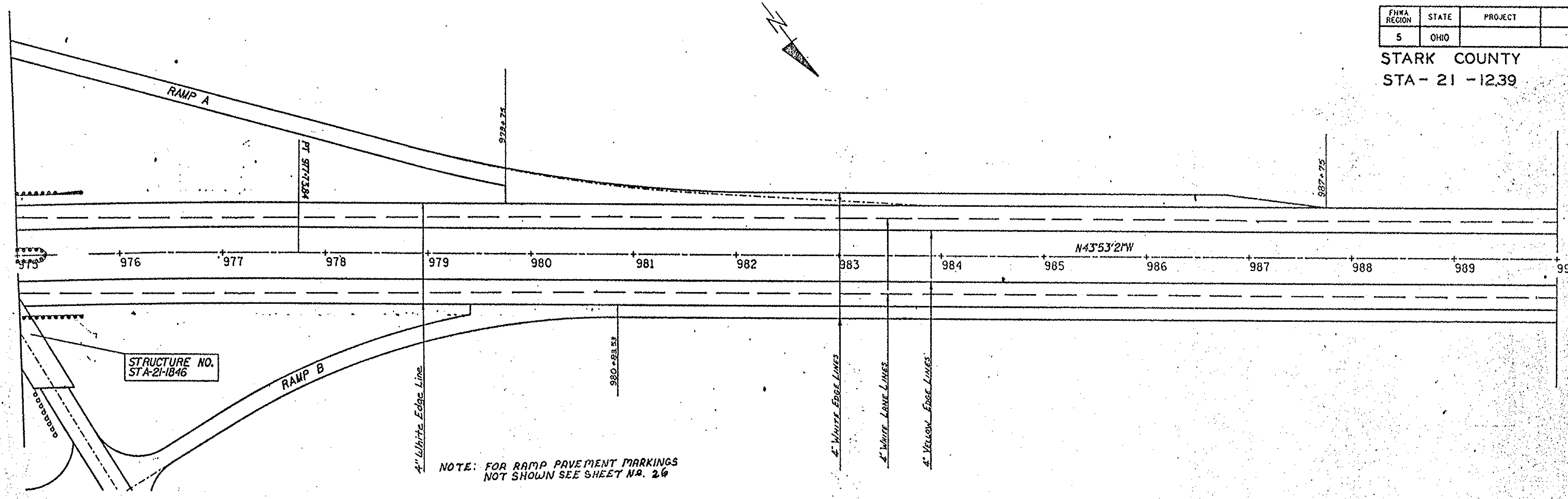


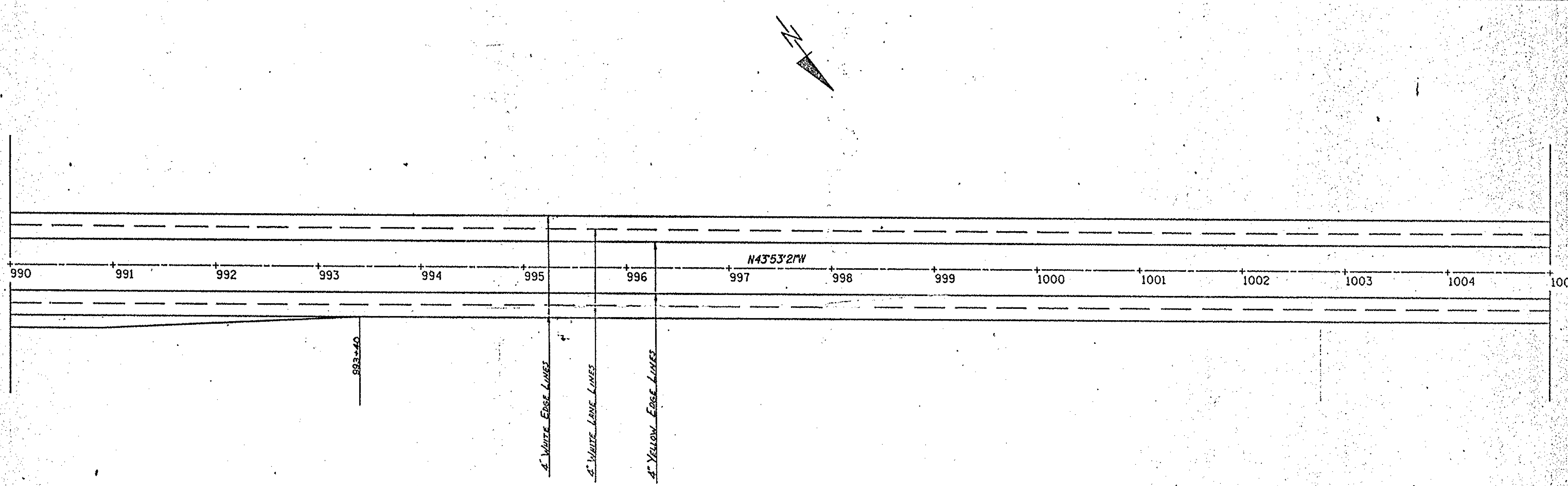


PLAN STA. 945+00 TO STA. 975+00

FHWA REGION	STATE	PROJECT		93/117
5	OHIO			

STARK COUNTY
STA- 21 -12.39

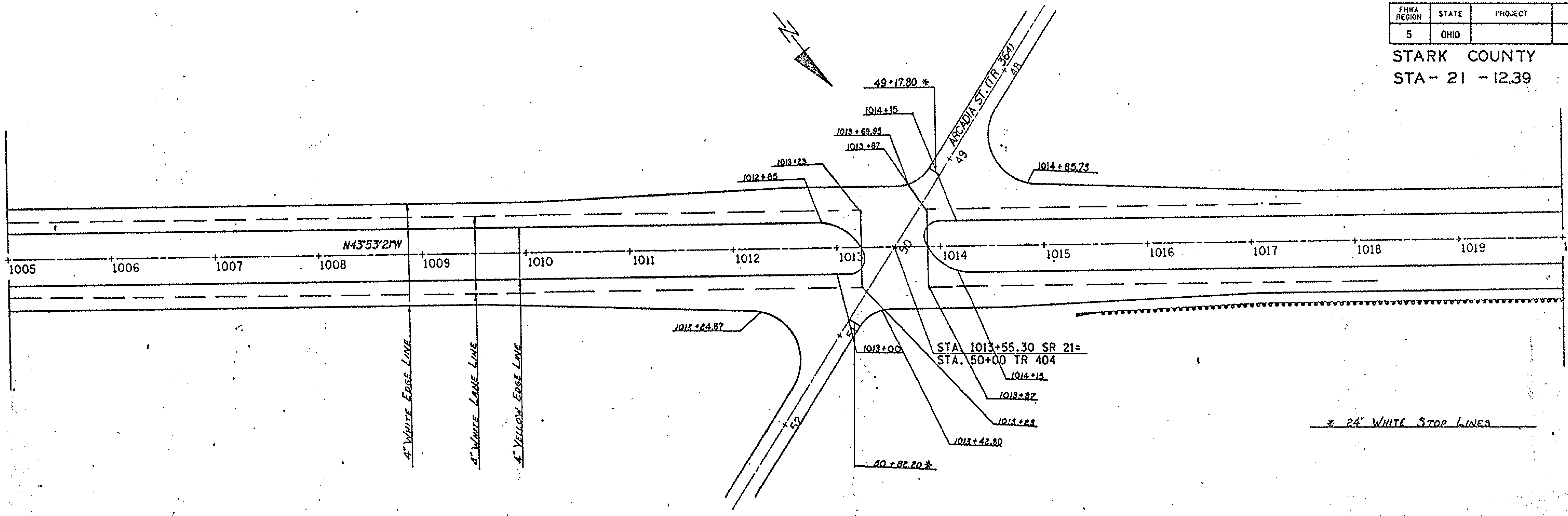


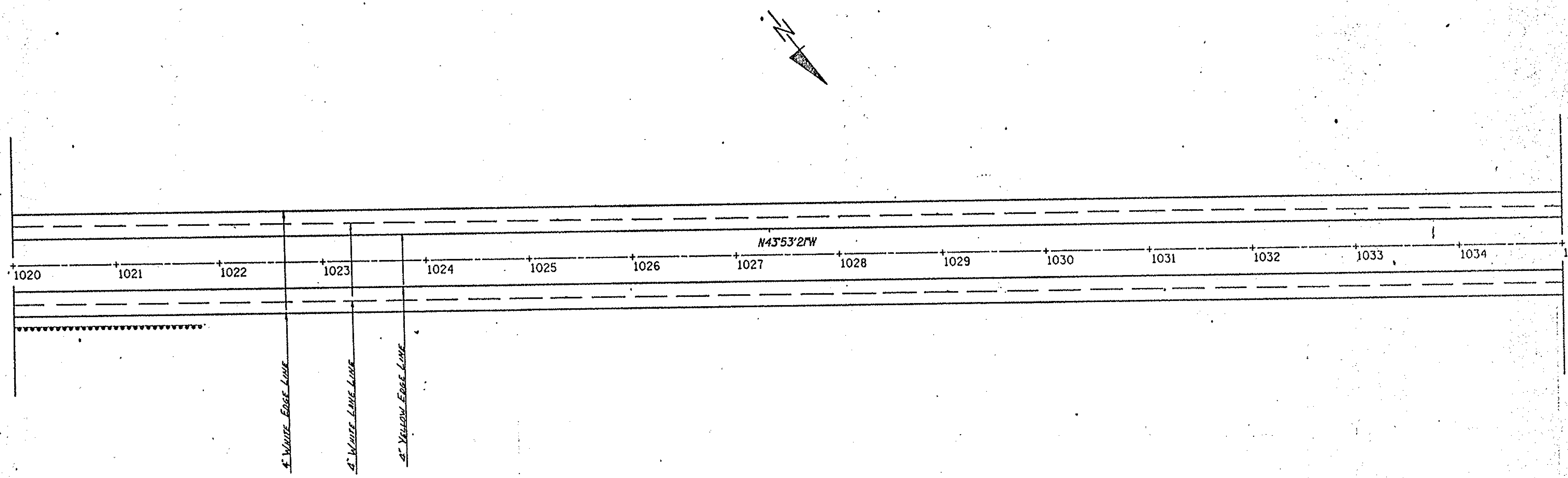


PLAN STA. 975+00 TO STA. 1005+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA- 21 -12.39





PLAN STA. 1035+00 TO STA. 1065+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA- 21 -12.39

PLAN STA. 1065+00 TO STA. 1095+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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STARK COUNTY
STA - 21 - 12.39

PLAN STA. 1095+00 TO STA. 1125+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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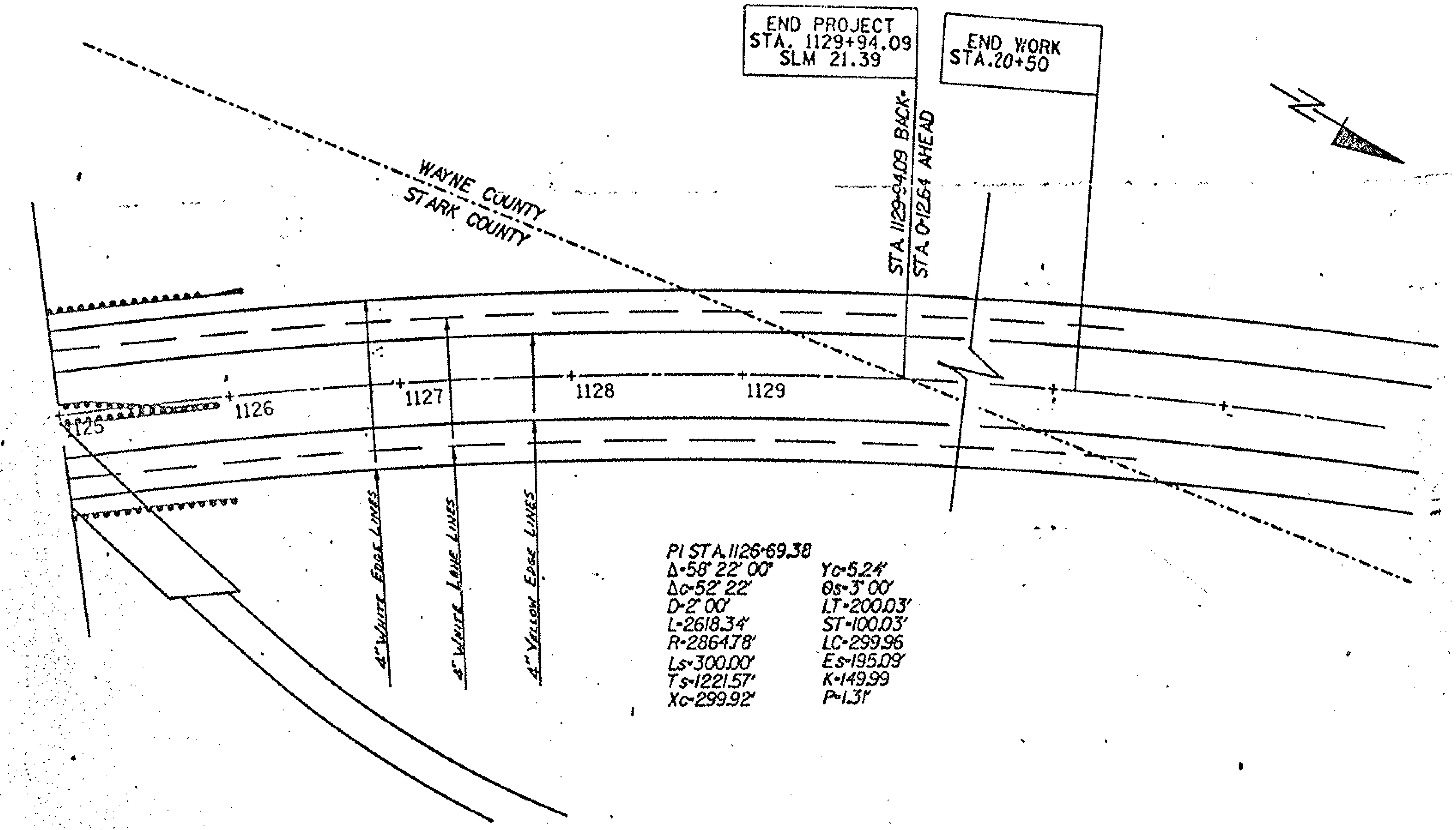
STARK COUNTY
STA - 21 - 12.39



PLAN STA. 1125+00 TO STA. 3+00

S.R. 21 AND S.R. 93 INTERCHANGE

FHWA REGION	STATE	PROJECT		
5	OHIO			

STARK COUNTY
STA-21-12.39

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA- 21 - 12.39

GENERAL NOTES:

1. The taper length (L) shall be in accordance with Section 7F-17 of the OMUTCD. The location of the transition taper and location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment. In order to determine the minimum number of channelizing devices for the transition taper see Table 7-5 OMUTCD. For a 55 MPH prevailing speed and a 12 ft. lane, not less than thirteen (13) drums or barricades shall be used to form the lane transition taper in advance of the work area. Not less than five (5) drums or barricades shall be used to form the taper on the shoulder. Drums or barricades shall be spaced approximately 50' to 60' center to center for the first 1000 feet of the work area and at a maximum of 100 to 120 feet for the balance of the work area. Cones may be substituted for barricades or drums for short term lane closures during daylight hours only.

2. The major standard level warning sign sizes may be used on divided streets or highways that are not classified as freeways or expressways.

3. When work is being performed in the lane adjacent to the median on a divided highway an OW-123-48 sign(s) shall be substituted for the OW-122-48 sign(s) and an OW-60D-48 sign(s) shall be substituted for the OW-60C sign(s).

4. The work vehicle shown at the beginning of the work area shall be in place and unoccupied whenever workers are in the work area. This work vehicle shall be removed from the pavement whenever workers are not in the work area. Other protective devices may be used in lieu of the work vehicle shown when approved by the Engineer. The vehicle shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of ¼ mile.

5. The flashing arrow panel shall meet requirements contained in TC-35.10.

6. Type C steady burning barricade warning lights shall be erected on all drums or barricades for night lane closures.

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

7. Type A flashing barricade warning lights shown on the "Road Work Ahead" and the "Right Lane Closed Ahead" signs are required whenever a night lane closure is necessary.

8. Some work area locations may require more than just static or conventional signs to enhance communication with the driver. At these locations Portable Changeable Message Signs (PCMS) units are recommended. These devices should be located approximately 2000-4000 ft. in advance of a lane closure or other point of required action. See Section 7G-8.1, OMUTCD for further guidance on use of PCMS units.

OHIO DEPARTMENT OF TRANSPORTATION

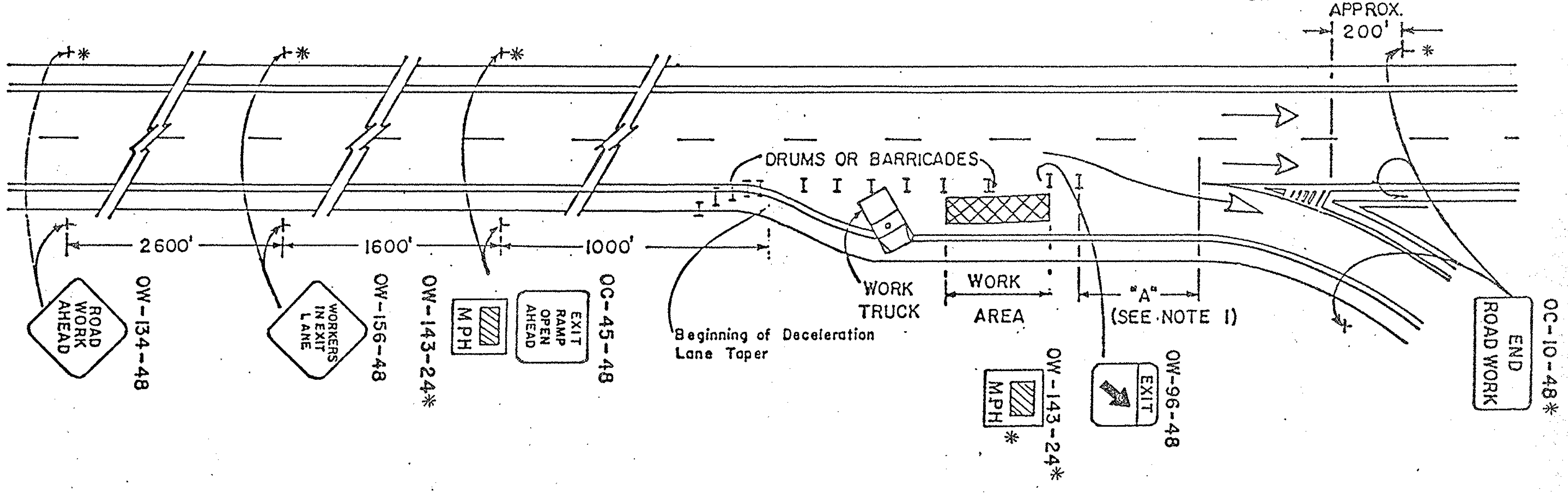
CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY.

DATE 2/82

Rev. EEF 9/84

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA - 21 - 12.39



* OPTIONAL SIGN As Directed By THE ENGINEER.

GENERAL NOTES.

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL ONLY APPLY WHEN THE DISTANCE "A" IS GREATER THAN 100'. WHEN DISTANCE "A" IS LESS THAN 100', THE RAMP SHALL BE CLOSED. WHEN THE RAMP IS CLOSED, THE TRAFFIC CONTROL SHALL INCLUDE DETOUR SIGNING FOR EXIT RAMP CLOSURES IN ACCORDANCE WITH OMUTCD.

2. DRUMS OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS.

3. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES.

4. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMEN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER.

5. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

6. FOR NIGHT CLOSURES, EACH OF THE FIRST TWO SIGNS IN THE SEQUENCE (ROAD WORK AHEAD AND WORKERS IN EXIT LANE) IS REQUIRED TO BE SUPPLEMENTED BY A TYPE A FLASHING BARRICADE WARNING LIGHT.

7. WORK VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE A MINIMUM OF 1/4 MILE.

OHIO DEPARTMENT OF TRANSPORTATION

LANE CLOSURE IN DECELERATION LANE

DATE 8-3-79

Rev. EEF 9/84

FED. RD. DIVISION	STATE	PROJECT	
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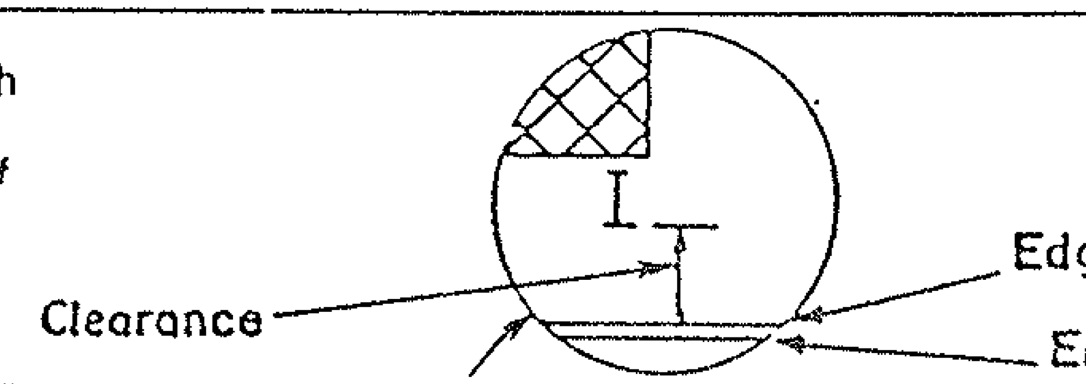
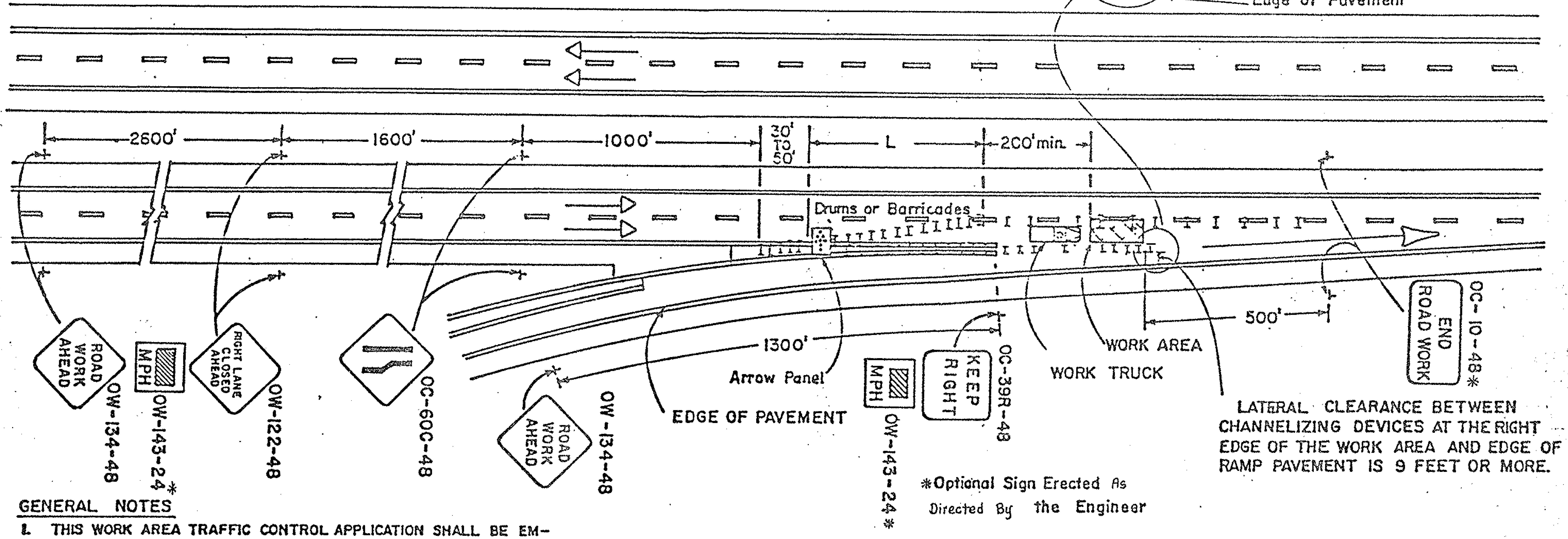
STARK COUNTY
STA - 21 - 12.39

10. For night closures, each of the first two signs in the sequence (ROAD WORK AHEAD and RIGHT LANE CLOSED AHEAD) is required to be supplemented by a Type A flashing barricade warning light.

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





GENERAL NOTES

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL BE EMPLOYED WHEN THE LATERAL CLEARANCE BETWEEN THE CHANNELIZING DEVICES AT THE RIGHT EDGE OF THE WORK AREA AND THE EDGE OF THE RAMP PAVEMENT IS 9 FEET OR MORE.
WHEN THE CLEARANCE IS LESS THAN 9 FEET, THE TRAFFIC CONTROL ON "LANE CLOSURE AT ENTRANCE RAMP: PLAN B" SHOULD BE USED, OR THE RAMP SHOULD BE CLOSED, OR ALLOWING RAMP TRAFFIC TO USE THE BERM SHOULD BE CONSIDERED PROVIDED THE OPERATION IS "SHORT" IN DURATION. WHEN THE RAMP IS CLOSED, APPROPRIATE DETOUR SIGNS SHALL BE PROVIDED.

2. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER.
DRUMS OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS.

3. RAMP SIGNS SHALL BE DUAL MOUNTED ON MULTILANE RAMPS.

4. THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH TC-35.10

5. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMAN ARE NOT IN THE WORK AREA.
OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED IMPACT ATTENUATOR MAY BE EMPLOYED.

6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES.

7. TAPER F RMULAE:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.
$L = WS^2/60$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED
W = WIDTH OF OFFSET.

8. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

OHIO DEPARTMENT OF TRANSPORTATION	DATE
LANE CLOSURE AT ENTRANCE RAMP: PLAN A	8-3-79

Rev. EEF 9/84

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

STARK COUNTY
STA - 21 -12.39

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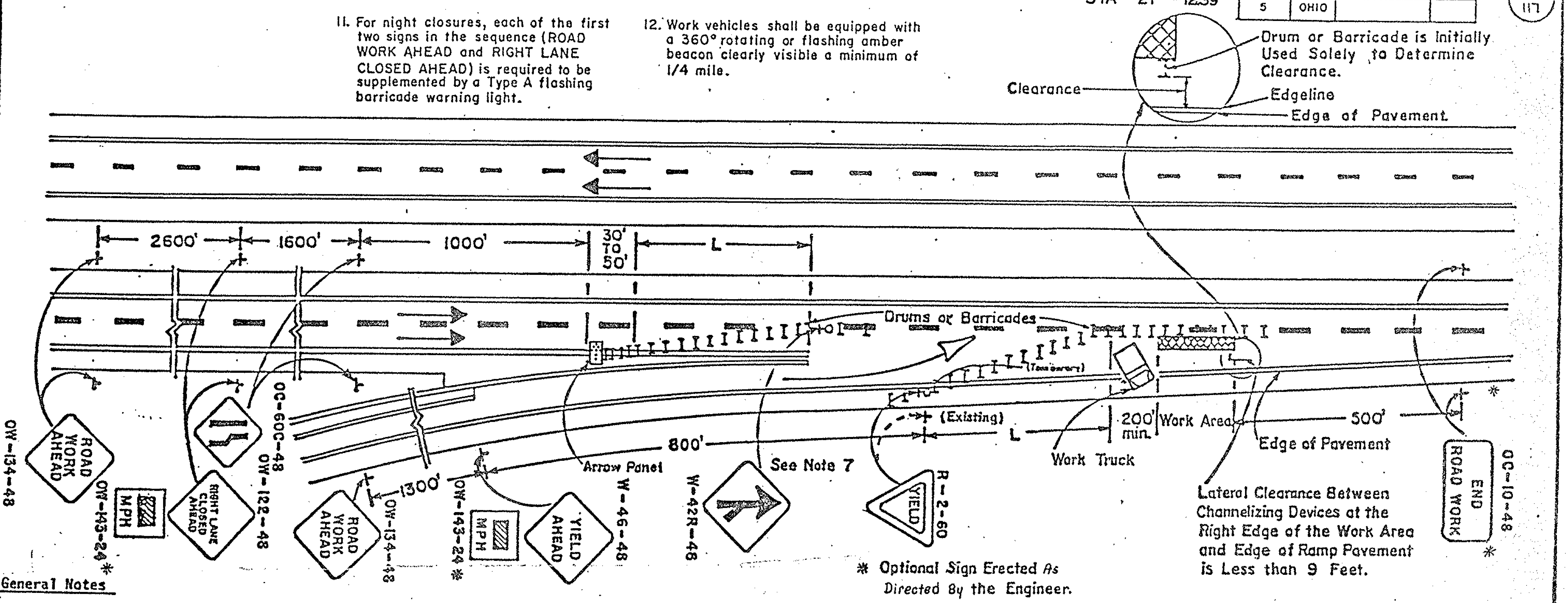
11. For night closures, each of the first two signs in the sequence (ROAD WORK AHEAD and RIGHT LANE CLOSED AHEAD) is required to be supplemented by a Type A flashing barricade warning light.

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



* Optional Sign Erected As Directed By the Engineer.

General Notes

1. This work area traffic control application shall be employed when the lateral clearance between channelizing devices at the right edge of the work area and the edge of the ramp pavement is less than 9 feet. When the clearance is more than 9 feet, the traffic control on "Lane Closure at Entrance Ramp: Plan A" should be used, or the ramp should be closed. When the ramp is closed, appropriate detour signs shall be provided.

2. Thirteen (13) drums or barricades shall be used to form the lane transition taper in advance of the work area. Five (5) channelizing devices shall be used to form the taper on the shoulder. Drums or barricades shall be spaced at 50 foot centers. Cones may be substituted for barricades or drums for the lane closures during daylight hours.

3. Ramp signs shall be dual mounted on multi-lane ramps. When the ramp is not long enough to allow placement as specified above, the signs may be spaced proportionately within the space available as determined by the Engineer (a 200' minimum spacing must be maintained).

4. The flashing arrow panel shall be in accordance with TC-35.10.

5. The work truck shown at the beginning of the work area shall be in place and unoccupied whenever men are working within the work area. This truck shall be moved from the pavement whenever workmen are not in the work area. Other protective devices may be used in lieu of work truck shown when approved by the Engineer.

6. Type C steady burning barricade warning lights shall be erected on all drums or barricades for night lane closures.

7. It may be necessary to move the location of an existing Yield condition. In these cases, the permanent R-2 sign installation shall be covered and the temporary installation shall be mounted upon a drive post which shall be banded to a drum with stainless steel strapping material or other techniques subject to the approval of the Engineer.

8. Taper Formulae:

$L = S \times W$ for Speeds of 45 or more.
$L = WS^2/60$ for Speeds 40 or less.

Where:

L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85 percentile speed.
W = Width of offset.

9. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

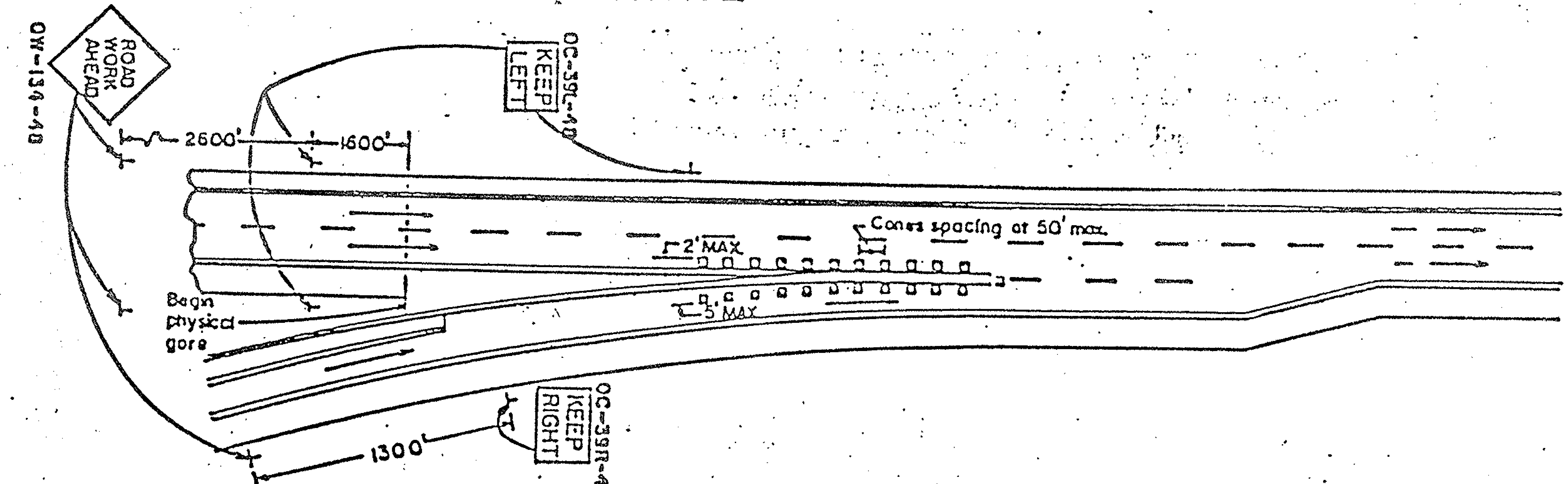
OHIO DEPARTMENT OF TRANSPORTATION

LANE CLOSURE AT ENTRANCE RAMP PLAN B

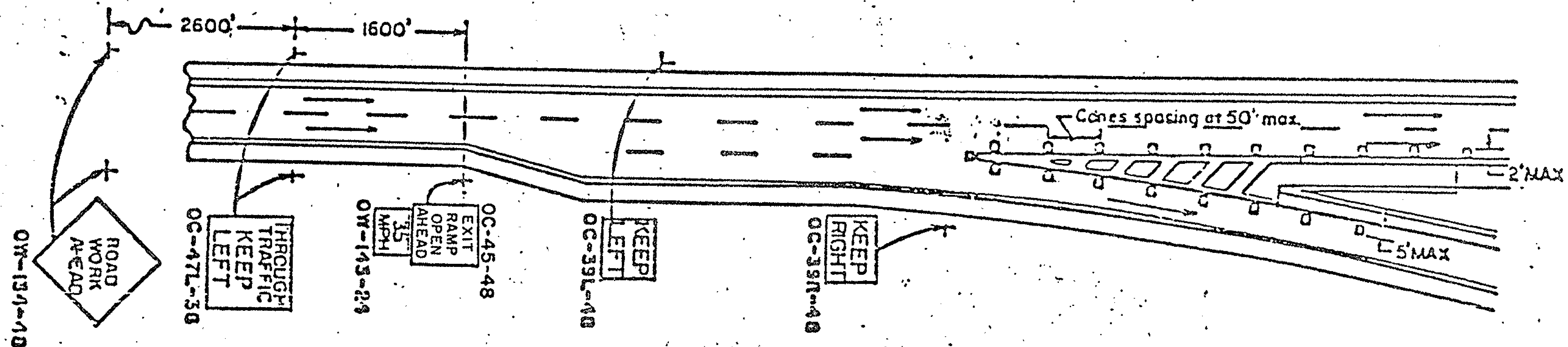
DATE 3-3-79

Rev. EEF 9/84

ENTRANCE GORE TRAFFIC CONTROL



EXIT GORE TRAFFIC CONTROL



GENERAL NOTES

1. THE SPACING BETWEEN SIGNS SHOWN ON THIS DETAIL MAY BE ADJUSTED (INCREASED OR DECREASED) WITH THE APPROVAL OF THE ENGINEER TO POSITION THEM NO CLOSER THAN 200 FEET TO EXISTING SIGNS WHICH MUST REMAIN IN USE.
2. AT AN ISOLATED ENTRANCE GORE AREA, A FLASHING ARROW PANEL CONFORMING TO THE REQUIREMENTS OF TC 35.10 MAY BE SUBSTITUTED FOR THE ADVANCE OC-39-48 SIGNS.
3. AT AN INTERCHANGE WHERE BOTH EXITS AND ENTRANCES ARE MARKED WITH TRAFFIC CONTROL IN PLACE AT THE SAME TIME, THE OW-134-48 SIGN ON THE ENTRANCE RAMP IS NOT REQUIRED.

DAYTIME USE ONLY

OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL FOR WORK IN GORE AREAS	DATE
DR	CK

10. For night closures, each of the first two signs in the sequence (ROAD WORK AHEAD and RIGHT LANE CLOSED AHEAD) is required to be supplemented by a Type A flashing barricade warning light.

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

FED. RD. DIVISION	STATE	PROJECT	
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STARK COUNTY
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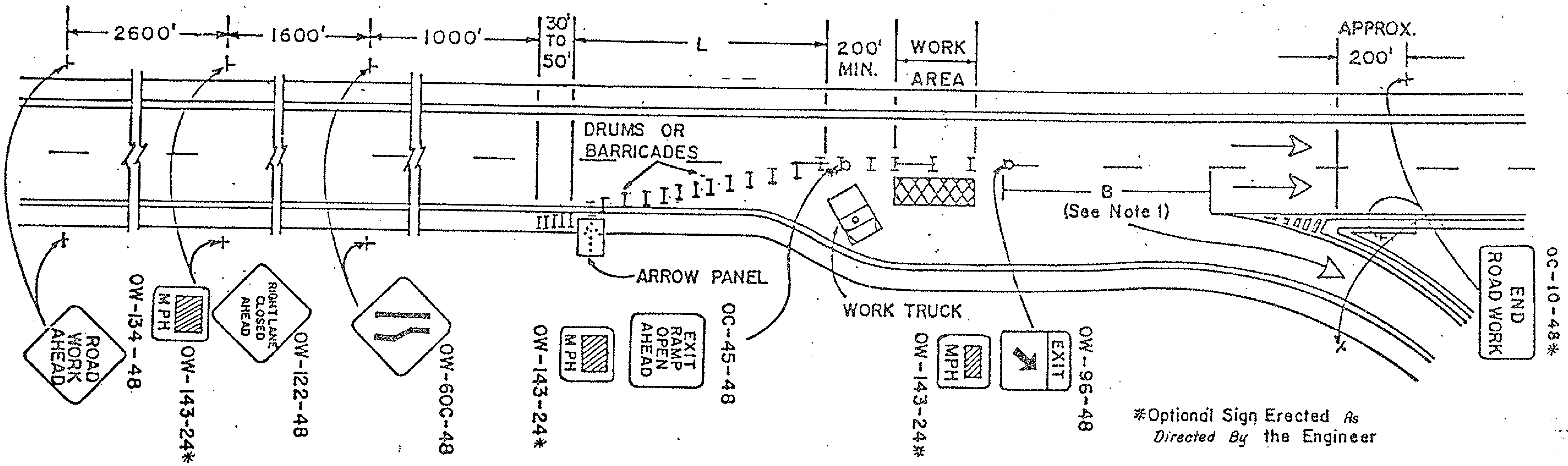

*Optional Sign Erected As Directed By the Engineer

GENERAL NOTES

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL ONLY BE USED WHEN THE DISTANCE "B" IS 100 FEET OR GREATER. WHEN "B" IS LESS THAN 100 FEET, THE TRAFFIC CONTROL SHOWN ON THE "LANE CLOSURE AT EXIT GORE" DETAIL SHOULD BE USED, OR THE EXIT SHOULD BE CLOSED, OR THE TRAFFIC CONTROL ON THIS DRAWING MAY BE USED WITH APPROVAL OF THE ENGINEER. WHEN THE EXIT IS CLOSED, APPROPRIATE DETOUR SIGNS SHALL BE PROVIDED.

2. WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY, REFER TO THE TYPICAL WORK AREA TRAFFIC CONTROL SHOWN IN FIGURE C-21 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

3. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMEN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER.

4. THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH TC-35.10.

5. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS.

6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES.

7. TAPER FORMULAE:

   $L = S \times W$ FOR SPEEDS OF 45 OR MORE
   $L = WS^2/60$ FOR SPEEDS OF 40 OR LESS.

   WHERE:

   L = MINIMUM LENGTH OF TAPER.
   S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
   W = WIDTH OF OFFSET.

8. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

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

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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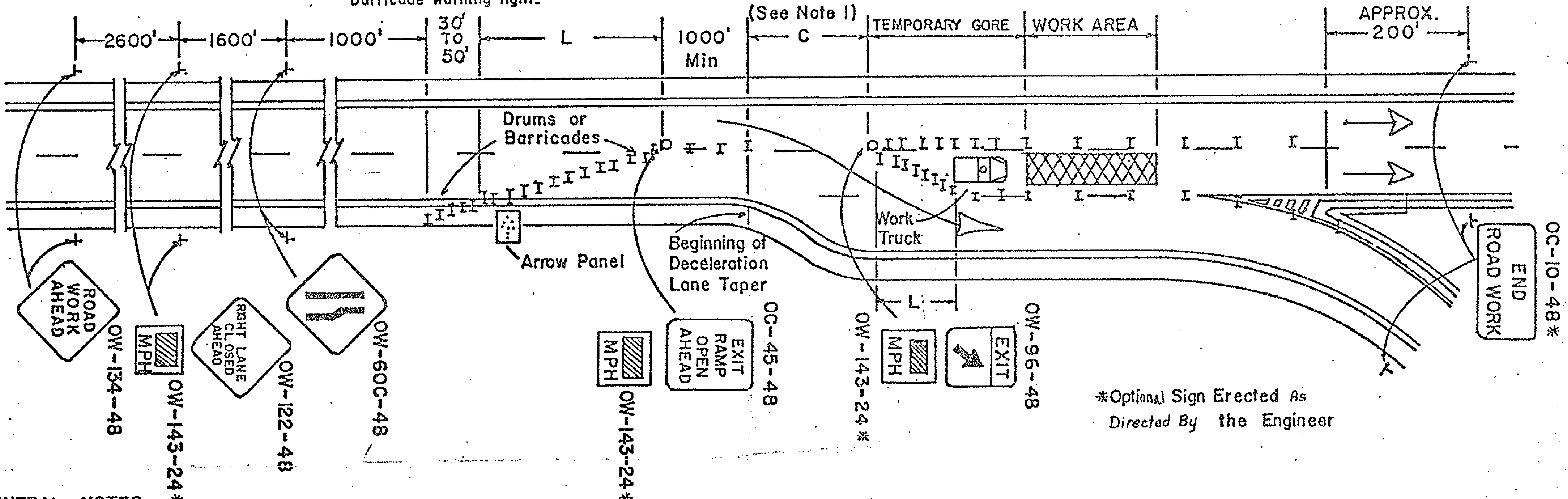
STARK COUNTY
STA- 21 - 12.39

11. For night closures, each of the first two signs in the sequence (ROAD WORK AHEAD and RIGHT LANE CLOSED AHEAD) is required to be supplemented by a Type A flashing barricade warning light.

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



GENERAL NOTES

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL ONLY BE USED WHEN THE DISTANCE "C" IS 100 FEET OR GREATER. WHEN "C" IS LESS THAN 100 FEET, THE TRAFFIC CONTROL SHOWN ON THE "LANE CLOSURE BEFORE EXIT GORE" DETAIL SHOULD BE USED, OR THE EXIT SHOULD BE CLOSED, OR THE TRAFFIC CONTROL ON THIS DRAWING MAY BE USED WITH APPROVAL OF THE ENGINEER. WHEN THE EXIT IS CLOSED, APPROPRIATE DETOUR SIGNS SHALL BE PROVIDED.

2. WHEN WORK IS BEING PERFORMED IN ONLY THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY, REFER TO THE TYPICAL WORK AREA TRAFFIC CONTROL SHOWN IN FIGURE C-21 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

3. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMEN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED IMPACT ATTENUATOR MAY BE EMPLOYED.

4. THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH TC-35.10

5. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS.

6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES.

7. TAPER FORMULAE:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.
$L = WS^2/60$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
W = WIDTH OF OFFSET.

8. WHEN CREATING A TEMPORARY GORE, CHANNELIZING DEVICES SHOULD BE SPACED 25' CENTER TO CENTER SO AS TO CREATE A "SOLID GORE" EFFECT.

9. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

OHIO DEPARTMENT OF TRANSPORTATION	
LANE CLOSURE AT EXIT GORE	DATE 8-3-79

7K-4

Rev. EEF 9/84

614 BARRIER REFLECTORS

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING BARRIER REFLECTORS (TYPE A) ON GALVANIZED STEEL GUARDRAIL AND/OR BARRIER REFLECTORS (TYPE B) ON CONCRETE BARRIERS IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.

MATERIAL

THE BARRIER REFLECTOR SHALL BE AS MANUFACTURED BY STIMSONITE, REFLEXITE OR AN APPROVED FUNCTIONAL EQUIVALENT AS DESCRIBED BELOW:

STIMSONITE- MODEL 965 (WHITE & YELLOW) OR
REFLEXITE- MODEL 650 (WHITE & YELLOW)

THE ADHESIVE SHALL BE FRANKLIN PANEL AND METAL FRAMING ADHESIVE AS MANUFACTURED BY FRANKLIN CHEMICAL INDUSTRIES, PR-365 AS MANUFACTURED BY PRODUCTS RESEARCH AND CHEMICAL CORPORATION OR AN APPROVED EQUAL.

ALL ADHESIVES SHALL HAVE A SHELF LIFE OF 6 MONTHS AT 75 DEGREES F STORAGE MINIMUM GUARANTEED.

LAYOUT

THE CONTRACTOR SHALL LAYOUT ALL LOCATIONS TO ASSURE PROPER PLACEMENT. THE LAYOUT SHALL BE APPROVED BY THE ENGINEER BEFORE INSTALLATIONS ARE STARTED. THE LAYOUT SHALL BE INCIDENTAL TO THE INSTALLATION OPERATION.

INSTALLATION

1) ON CONCRETE BARRIERS THE HEIGHT OF THE TOP OF THE REFLECTOR SHALL BE 26 INCHES ABOVE THE NEAR EDGE OF PAVEMENT, BUT IN NO CASE SHALL THE TOP OF THE REFLECTOR BE LESS THAN 3 INCHES BELOW THE TOP OF THE CONCRETE BARRIER. ATTACHMENT SHALL BE BY THE ABOVE REFERENCED ADHESIVE AND APPLIED PER MANUFACTURER'S RECOMMENDATION.

2) GUARDRAIL REFLECTORS SHALL BE INSTALLED WITHIN THE CONCAVE SURFACE OF THE GUARDRAIL. ATTACHMENT MAY BE BY BRACKET WHICH FITS UNDER THE HEAD OF THE CENTER GUARDRAIL BOLT OR BY THE ABOVE REFERENCED ADHESIVE AND APPLIED PER MANUFACTURER'S RECOMMENDATION.

3) THE ABOVE REFERENCED ADHESIVE SHALL BE FLASHED WHEN APPLIED TO ACHIEVE MAXIMUM BONDING STRENGTH.

4) WHEN MOUNTED ON A FLAT SURFACE, THE REFLECTOR SHOULD BE TILTED UPWARD FROM THE VERTICAL OR PLUMB POSITION 2-3 DEGREES TO FACILITATE "RAIN WASHING" OF THE REFLECTOR FACE.

5) TWO-LANE HIGHWAY - WHITE UNITS SHALL BE PLACED ON THE RIGHT SIDE OF APPROACHING TRAFFIC.

FOUR-LANE DIVIDED HIGHWAY - WHITE UNITS SHALL BE PLACED ON THE RIGHT SIDE OF APPROACHING TRAFFIC AND YELLOW ON THE LEFT.

BASIS OF PAYMENT

BASIS OF PAYMENT SHALL BE AT THE UNIT PRICE BID FOR EACH REFLECTOR AND SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK.

ITEM	UNIT	DESCRIPTION
614	EACH	BARRIER REFLECTOR, TYPE A
614	EACH	BARRIER REFLECTOR, TYPE B

ITEM 620 BARRIER REFLECTORS, AS PER PLAN ARE THE SAME AS ABOVE, BUT THEY ARE MOUNTED ON THE PERMANENT STEEL GUARD RAIL AND BRIDGE PARAPETS.

STATIONING (FROM-TO) (SIDE)	SPACING	TYPE A		TYPE B RURAL		TYPE B CITY				REMARKS
		W	Y	W	Y	W	Y			
656+75 TO 658+75	25'				9					SEE SHT. 74
658+75 TO 667+50	50'				18					SEE SHT. 74
657+00 TO 665+70	50'				18					SEE SHT. 74
665+70 TO 667+70	25'				9					SEE SHT. 74
656+93 TO 658+93	25'			9						SEE SHT. 75
658+93 TO 667+93	50'			18						SEE SHT. 75
657+00 TO 665+70	50'			18						SEE SHT. 75
665+70 TO 667+70	25'			9						SEE SHT. 75
TOTALS				54	54					
				108						
ITEM 620	BARRIER REFLECTORS, AS PER PLAN									
651+06.7 TO 674+28.4	100'	18		7						
651+84.7 TO 674+62.7	100'	17		7						
658+06.6 TO 666+56.6	100'		3		7					
658+06.6 TO 666+56.6	100'		3		7					
679+80 TO 681+55	100'	3								
684+87.5 TO 694+00	100'	11								
687+00 TO 694+87.5	100'	9								
737+75 TO 742+37.5	100'	6								
746+75 TO 751+50	100'	6								
779+46 TO 854+15	100'		76							
783+30 TO 801+92.5	100'	20								
790+50 TO 800+00	100'	11								
811+50 TO 825+37.5	100'	15								
837+00 TO 849+50	100'	14								
844+91.5 TO 854+16.5	100'	11								
862+65 TO 871+52.5	100'	10								
862+90 TO 871+15	100'	10								
867+65 TO 870+34	100'		4							
866+02.5 TO 868+71.5	100'		4							
899+62.5 TO 912+50	100'	14								
899+85 TO 912+60	100'	14								
944+00 TO 954+00	100'	11								
945+00 TO 959+00	100'	15								
973+48 TO 975+60.5	100'	4								
973+53 TO 975+65.5	100'	4								
TOTALS		223	90	14	14					
		313		28						

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

614 BARRIER REFLECTORS

DESIGNED	DRAWN	CHECKED	DATE	REVISED
			5-12-87	

620 BARRIER REFLECTORS, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING BARRIER REFLECTORS (TYPE A) ON GALVANIZED STEEL GUARDRAIL AND/OR BARRIER REFLECTORS (TYPE B) ON CONCRETE BARRIERS IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.

MATERIAL

THE BARRIER REFLECTOR SHALL BE AS MANUFACTURED BY STIMSONITE, REFLEXITE OR AN APPROVED FUNCTIONAL EQUIVALENT AS DESCRIBED BELOW:

STIMSONITE- MODEL 965 (WHITE & YELLOW) OR
REFLEXITE- MODEL 650 (WHITE & YELLOW)

THE ADHESIVE SHALL BE FRANKLIN PANEL AND METAL FRAMING ADHESIVE AS MANUFACTURED BY FRANKLIN CHEMICAL INDUSTRIES, PR-365 AS MANUFACTURED BY PRODUCTS RESEARCH AND CHEMICAL CORPORATION OR AN APPROVED EQUAL.

ALL ADHESIVES SHALL HAVE A SHELF LIFE OF 6 MONTHS AT 75 DEGREES F STORAGE MINIMUM GUARANTEED.

LAYOUT

THE CONTRACTOR SHALL LAYOUT ALL LOCATIONS TO ASSURE PROPER PLACEMENT. THE LAYOUT SHALL BE APPROVED BY THE ENGINEER BEFORE INSTALLATIONS ARE STARTED. THE LAYOUT SHALL BE INCIDENTAL TO THE INSTALLATION OPERATION.

INSTALLATION

1) ON CONCRETE BARRIERS THE HEIGHT OF THE TOP OF THE REFLECTOR SHALL BE 26 INCHES ABOVE THE NEAR EDGE OF PAVEMENT, BUT IN NO CASE SHALL THE TOP OF THE REFLECTOR BE LESS THAN 3 INCHES BELOW THE TOP OF THE CONCRETE BARRIER. ATTACHMENT SHALL BE BY THE ABOVE REFERENCED ADHESIVE AND APPLIED PER MANUFACTURER'S RECOMMENDATION.

2) GUARDRAIL REFLECTORS SHALL BE INSTALLED WITHIN THE CONCAVE SURFACE OF THE GUARDRAIL. ATTACHMENT MAY BE BY BRACKET WHICH FITS UNDER THE HEAD OF THE CENTER GUARDRAIL BOLT OR BY THE ABOVE REFERENCED ADHESIVE AND APPLIED PER MANUFACTURER'S RECOMMENDATION.

3) THE ABOVE REFERENCED ADHESIVE SHALL BE FLASHED WHEN APPLIED TO ACHIEVE MAXIMUM BONDING STRENGTH.

4) WHEN MOUNTED ON A FLAT SURFACE, THE REFLECTOR SHOULD BE TILTED UPWARD FROM THE VERTICAL OR PLUMB POSITION 2-3 DEGREES TO FACILITATE "RAIN WASHING" OF THE REFLECTOR FACE.

5) TWO-LANE HIGHWAY - WHITE UNITS SHALL BE PLACED ON THE RIGHT SIDE OF APPROACHING TRAFFIC.

FOUR-LANE DIVIDED HIGHWAY - WHITE UNITS SHALL BE PLACED ON THE RIGHT SIDE OF APPROACHING TRAFFIC AND YELLOW ON THE LEFT.

BASIS OF PAYMENT

BASIS OF PAYMENT SHALL BE AT THE UNIT PRICE BID FOR EACH REFLECTOR AND SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK.

ITEM	UNIT	DESCRIPTION
614	EACH	BARRIER REFLECTOR, TYPE A
614	EACH	BARRIER REFLECTOR, TYPE B

A: BARR-REF

STATIONING (FROM-TO) (SIDE)	SPACING	TYPE A		TYPE B		TYPE B				REMARKS
		W	Y	W	Y	W	Y			
973+84.3 TO 975+28.8	100'		3							
973+84.3 TO 975+28.8	100'		3							
46+53.4 TO 4+05	100'	6								RAMP D
48+39.4 TO 8+78	100'		3							RAMP A
46+96.3 TO 7+88	100'	4								RAMP A
1015+30 TO 1021+80	100'	8								
1041+00 TO 48+45	100'	4								
48+45 TO 1046+00	100'	4								
1049+12.5 TO 1054+00	100'	6								
51+42 TO 1057+50	100'	16								
1100+75 TO 1109+87.5	100'	11								
1100+87.5 TO 1106+00	100'	7								
1113+50 TO 1117+50	100'	5								
1113+75 TO 1119+50	100'	7								
1123+93.4 TO 1125+37.9	100'		3							
1123+93.4 TO 1125+37.9	100'		3							
1123+69.5 TO 1125+82	100'	4								
1123+74.5 TO 1125+87.5	100'	4								
TOTALS		86	15							
		101								

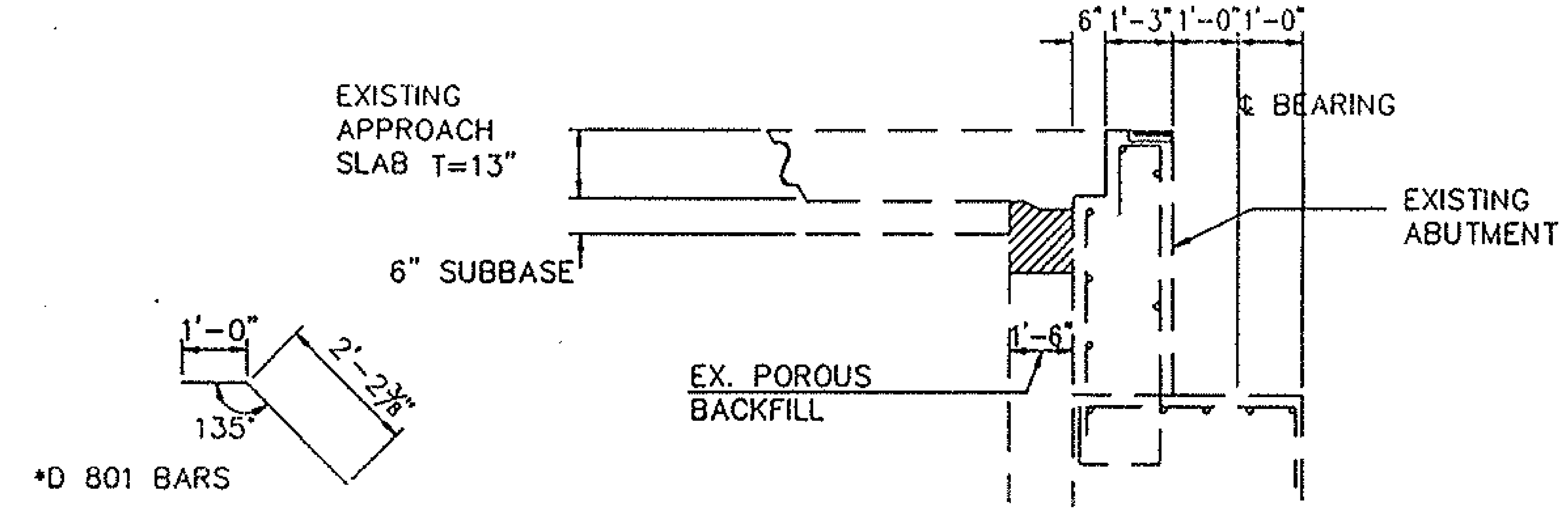
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

620 BARRIER REFLECTORS AS PER PLAN

DESIGNED	DRAWN	CHECKED	DATE	REVISED
			5-12-87	

APPROACH SLAB DETAILS

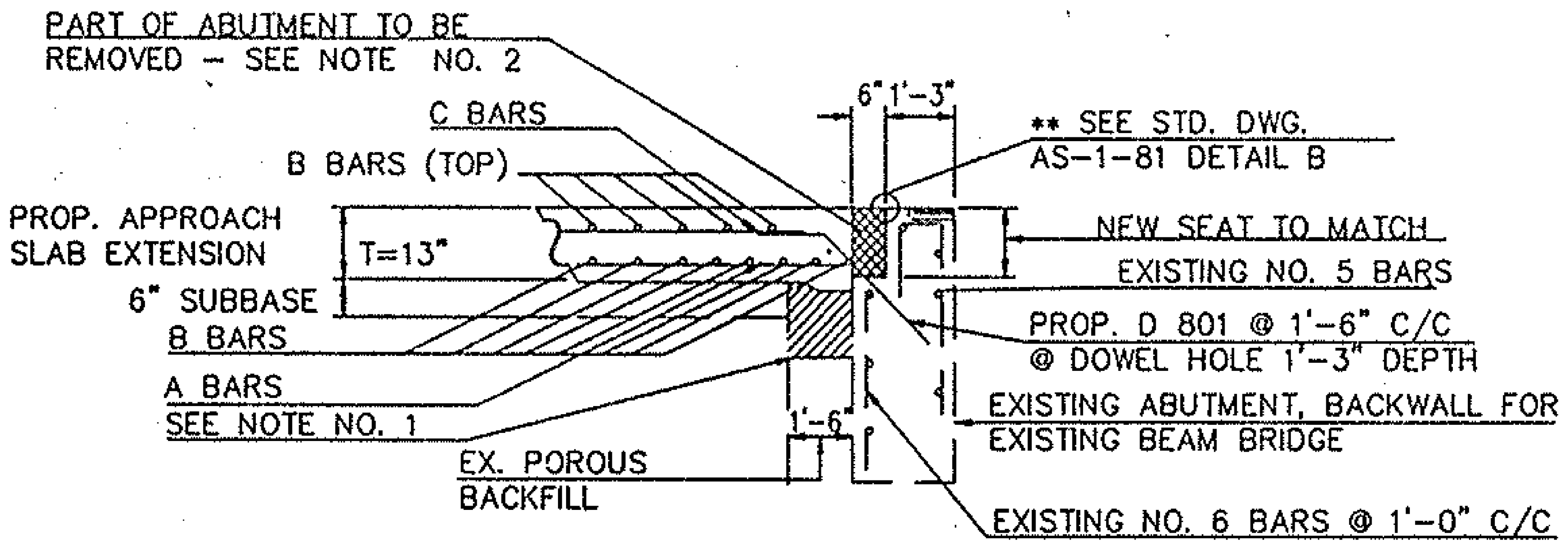
STARK COUNTY
STA – 21 – 12.39



SECTION A–A (NORMAL TO ℄ BEARING)

TYPICAL ALL ABUTMENTS
(AT EXISTING APPROACH SLABS, STEEL BEAM BRIDGE SHOWN)

* THE D 801 BARS SHOWN SHALL BE USED IN PLACE OF THE D 801 BARS SHOWN ON STANDARD DRAWING AS–1–81. THE D 801 BARS SHALL BE PLACED IN DOWEL HOLES AND ANCHORED WITH A NON-SHRINKING EPOXY MORTAR, AS PER SUPPLEMENTAL SPECIFICATION 852 & 952***. THE COST OF THE EPOXY MORTAR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 510, DOWEL HOLES. ALL "A", "B", AND "C" BARS COST SHALL BE INCLUDED IN ITEM 611 REINFORCED CONCRETE APPROACH SLABS, ~~MODIFIED~~ AS PER PLAN, T=13".

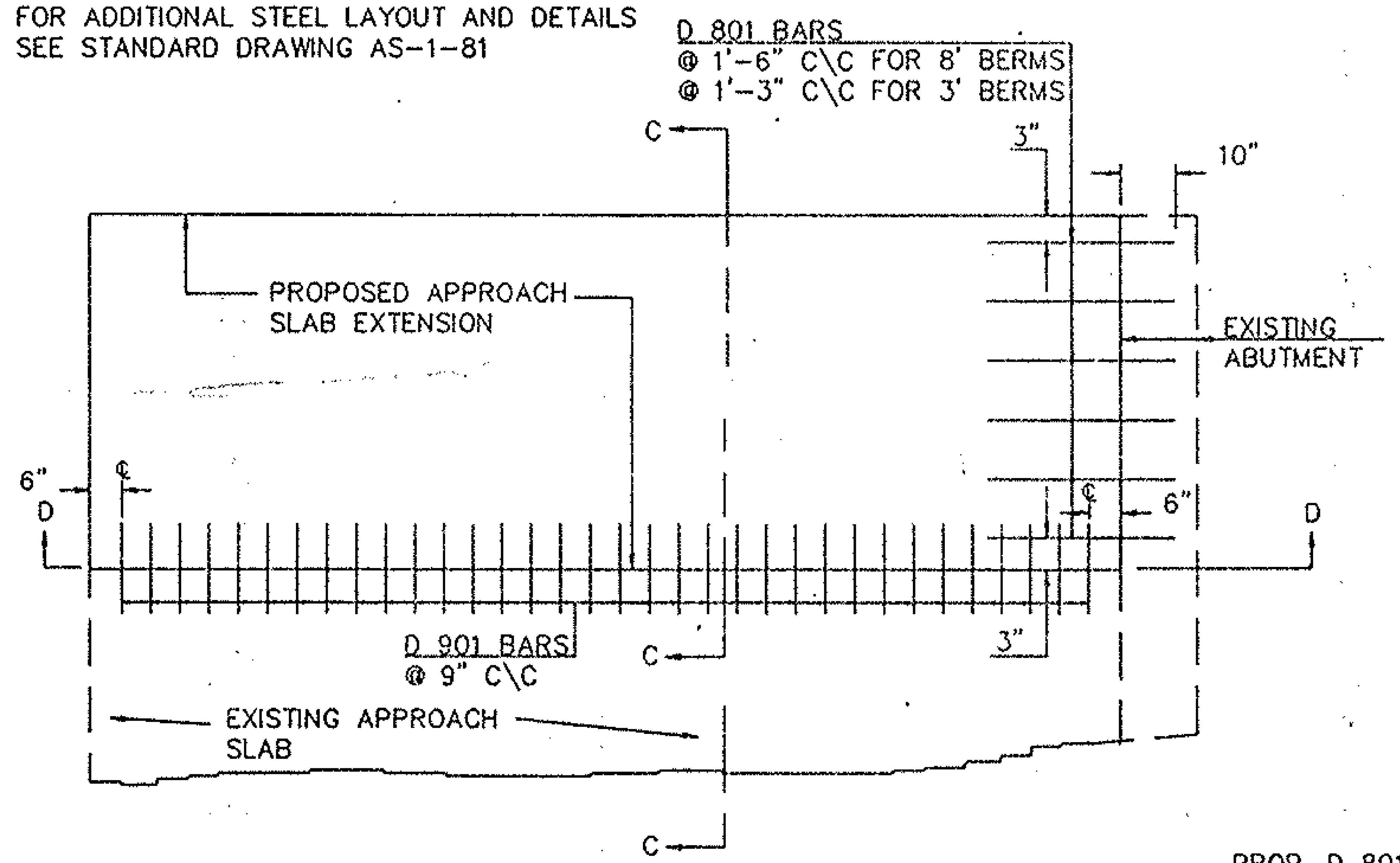


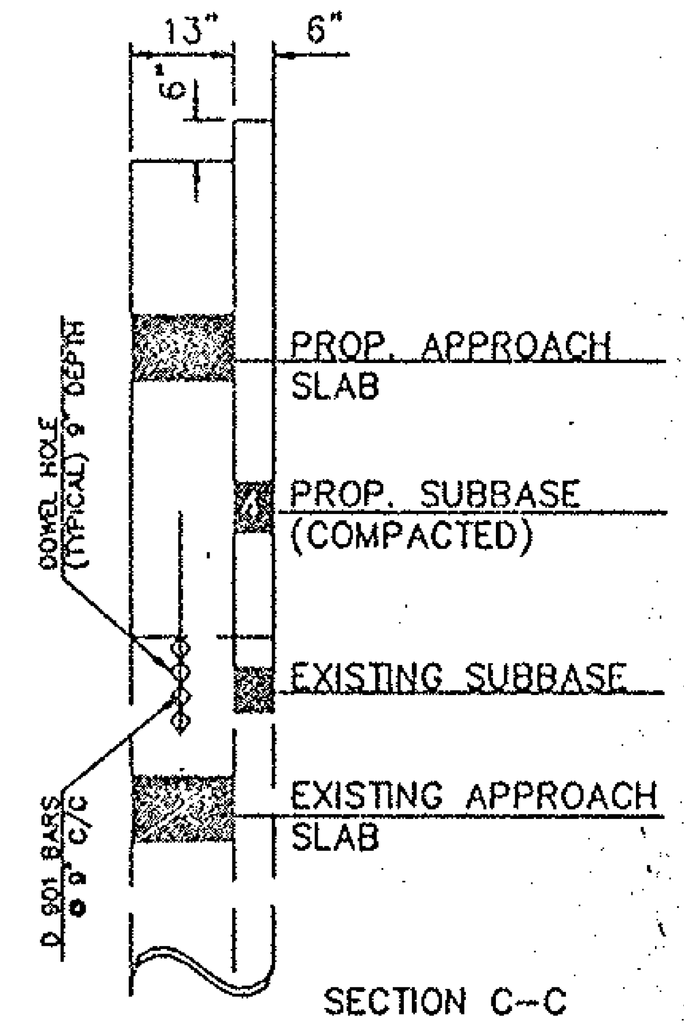
SECTION B–B

(NORMAL TO ℄ BEARING)
TYPICAL ALL ABUTMENTS
(AT EXISTING BERMS, STEEL BEAM BRIDGE SHOWN)

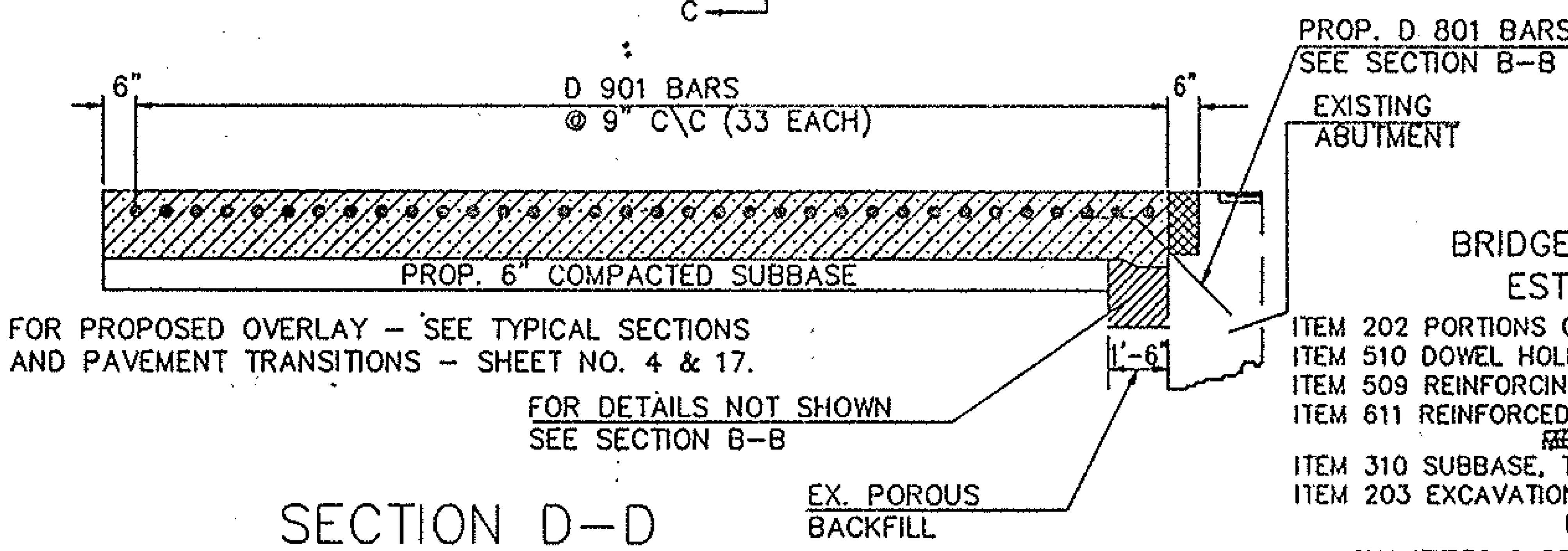
** COST OF PERFORMED ELASTOMERIC JOINT SEALER AND TYPE A WEATHERPROFING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 611 – REINFORCED CONCRETE APPROACH SLAB, ~~MODIFIED~~ AS PER PLAN, T=13".

FOR ADDITIONAL STEEL LAYOUT AND DETAILS SEE STANDARD DRAWING AS–1–81





SECTION C–C



FOR PROPOSED OVERLAY – SEE TYPICAL SECTIONS AND PAVEMENT TRANSITIONS – SHEET NO. 4 & 17.

SECTION D–D

BRIDGE NO. STA–21–1248 L/R ESTIMATED QUANTITIES

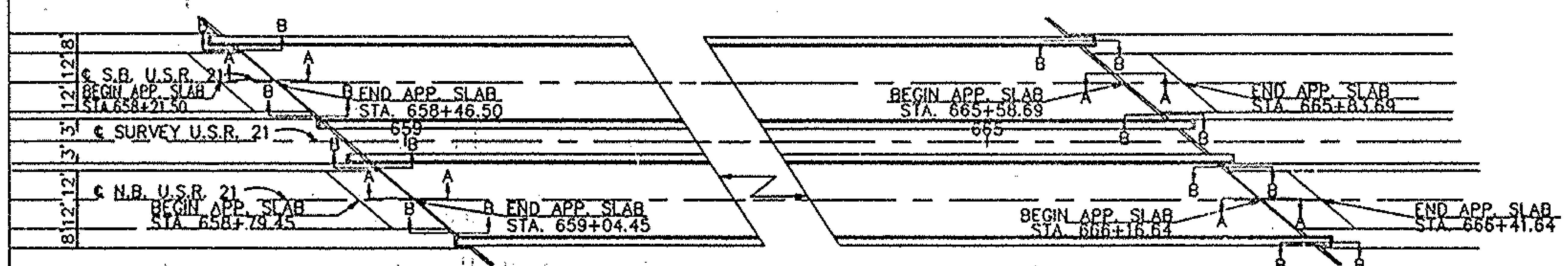
ITEM 202 PORTIONS OF STRUCTURES REMOVED	LUMP LUMP
ITEM 510 DOWEL HOLES	300 EACH
ITEM 509 REINFORCING STEEL	1652 POUNDS
ITEM 611 REINFORCED CONCRETE APPROACH SLABS, ~~MODIFIED~~ AS PER PLAN, T=13".	122 SQ. YDS
ITEM 310 SUBBASE, TYPE II	21 CU. YDS
ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	95 CU. YDS

QUANTITIES CARRIED TO GENERAL SUMMARY

NOTE NO. 1: BEFORE PLACING PROP. APPROACH SLAB EXTENSIONS OR BACKFILL FOR ABUTMENT REPAIR, ANY CONTAMINATED POROUS BACKFILL SHALL BE REPLACED WITH NEW POROUS BACKFILL. THE COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 611 – REINFORCED CONCRETE APPROACH SLABS, ~~MODIFIED~~ AS PER PLAN, T=13".

NOTE NO. 2: THE EXISTING APPROACH SLAB WILL REMAIN SEATED INTO THE EXISTING ABUTMENT AS SHOWN. THE EXISTING ABUTMENT IN THE AREA OF THE EXISTING BERMS SHALL BE NEATLY REMOVED AS SHOWN ON SECTION B–B, BY THE CONTRACTOR. THE TOTAL COST OF EQUIPMENT AND LABOR SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 202 – PORTIONS OF STRUCTURES REMOVED. THE EXISTING NO. 6 BARS THAT WILL BE EXPOSED SHALL EITHER BE NEATLY CUT OFF AT THE SEAT OR CLEANED AND LEFT IN PLACE.

NOTE NO. 3: THE PROPOSED D 901 BARS SHALL BE ANCHORED IN THE PROPOSED DOWEL HOLES WITH A NON-SHRINKING EPOXY MORTAR, AS PER SUPPLEMENTAL SPECIFICATIONS 852, 952 *** THE COST OF THE EPOXY MORTAR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 510, DOWEL HOLES. THE PROPOSED DOWEL HOLES SHALL BE DRILLED USING AN ELECTRIC OR HYDRAULIC DRILL. AFTER DRILLING THE PROPOSED HOLES, THEY SHALL BE CLEANED TO INSURE THE HOLES ARE FREE OF DUST AND DIRT. A PORTION OF EPOXY MORTAR SHALL THEN BE INSERTED INTO THE PROPOSED HOLE BEFORE INSERTING THE D 901 BAR TO ENSURE A POSITIVE FIT.



BRIDGE NO. STA–21–1248 L/R

STRUCTURE NUMBER	LOCATION	MARK BAR NUMBER	NUMBER REQUIRED	LENGTH	SPACING	POUNDS PER FOOT	POUNDS
			EACH	LIN. FT.			
1248	SB BACK MEDIAN	D–801	3	3'–2⅜"	1'–3"C/C	2.670	26
1248	SB BACK OUTSIDE	D–801	6	3'–2⅜"	1'–6"C/C	2.670	51
1248	SB AHEAD MEDIAN	D–801	3	3'–2⅜"	1'–3"C/C	2.670	26
1248	SB AHEAD OUTSIDE	D–801	6	3'–2⅜"	1'–6"C/C	2.670	51
1248	NB BACK MEDIAN	D–801	3	3'–2⅜"	1'–3"C/C	2.670	26
1248	NB BACK OUTSIDE	D–801	6	3'–2⅜"	1'–6"C/C	2.670	51
1248	NB AHEAD MEDIAN	D–801	3	3'–2⅜"	1'–3"C/C	2.670	26
1248	NB AHEAD OUTSIDE	D–801	6	3'–2⅜"	1'–6"C/C	2.670	51
1248	SB BACK MEDIAN	D–901	33	1'–6"	9"C/C	3.400	168
1248	SB BACK OUTSIDE	D–901	33	1'–6"	9"C/C	3.400	168
1248	SB AHEAD MEDIAN	D–901	33	1'–6"	9"C/C	3.400	168
1248	SB AHEAD OUTSIDE	D–901	33	1'–6"	9"C/C	3.400	168
1248	NB BACK MEDIAN	D–901	33	1'–6"	9"C/C	3.400	168
1248	NB BACK OUTSIDE	D–901	33	1'–6"	9"C/C	3.400	168
1248	NB AHEAD MEDIAN	D–901	33	1'–6"	9"C/C	3.400	168
1248	NB AHEAD OUTSIDE	D–901	33	1'–6"	9"C/C	3.400	168
SUB–TOTAL							1652

*** OR SS 853 & 956

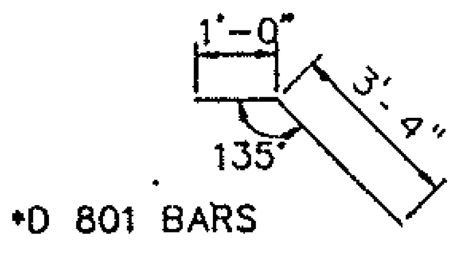
ITEM 611 REINFORCED CONCRETE APPROACH SLABS (~~MODIFIED~~ AS PER PLAN)

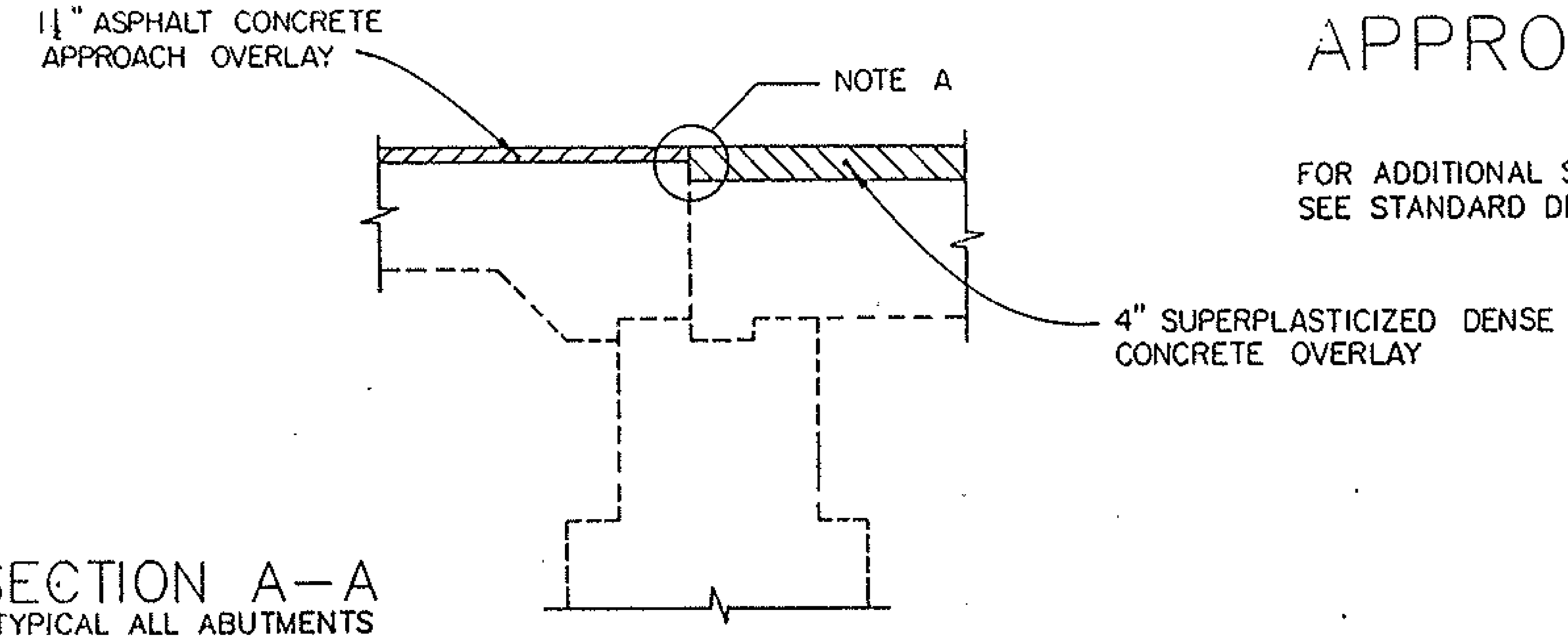
STRUCTURE NUMBER	LOCATION	QUANTITY
		SQ. YDS.
1248	SB BACK MEDIAN	8.33
1248	SB BACK OUTSIDE	22.22
1248	SB AHEAD MEDIAN	8.33
1248	SB BACK MEDIAN	22.22
1248	NB BACK MEDIAN	8.33
1248	NB BACK OUTSIDE	22.22
1248	NB AHEAD MEDIAN	8.33
1248	NB AHEAD OUTSIDE	22.22
SUB–TOTAL		122

APPROACH SLAB DETAILS

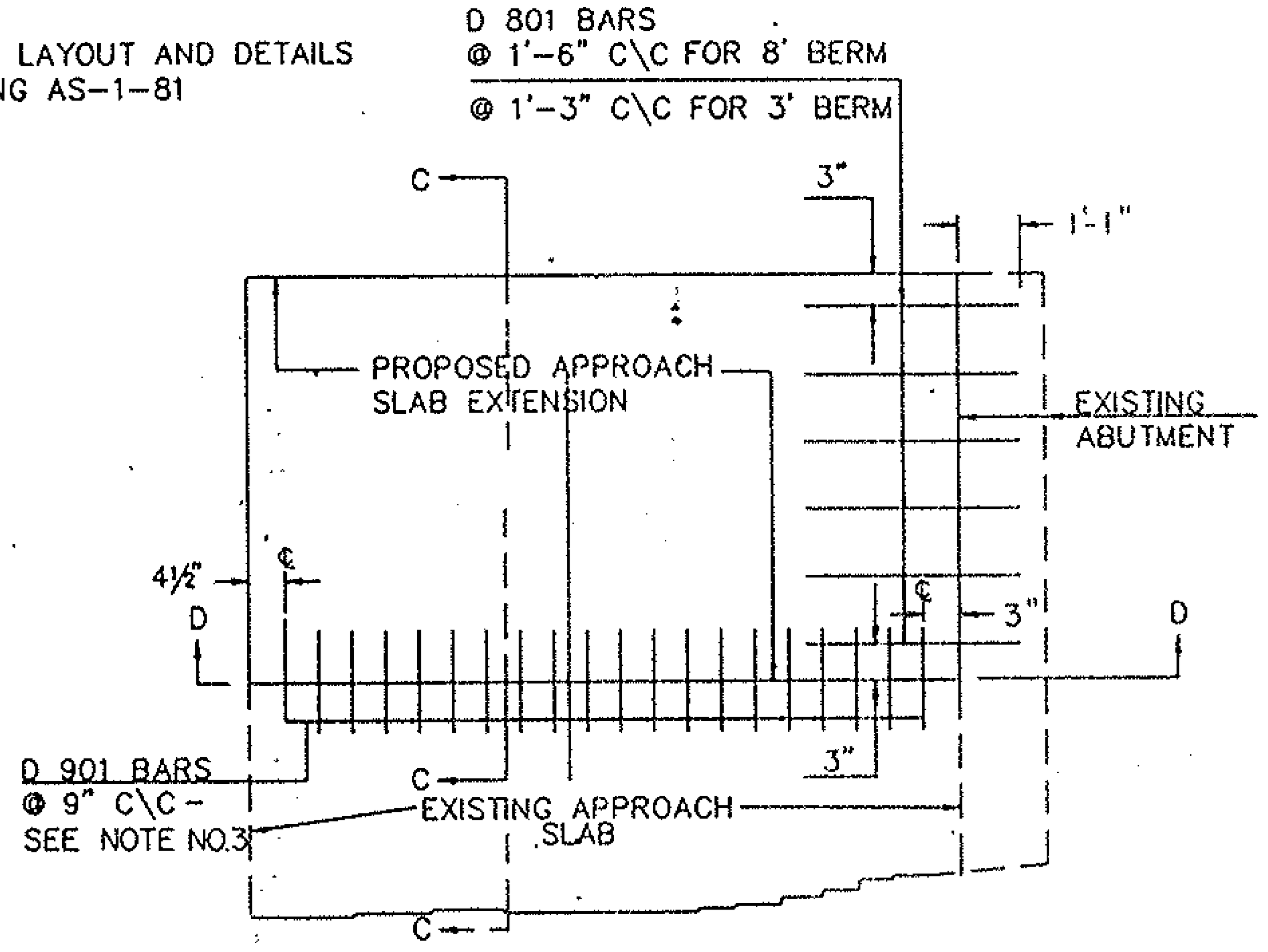
STARK COUNTY
STA – 21 – 12.39

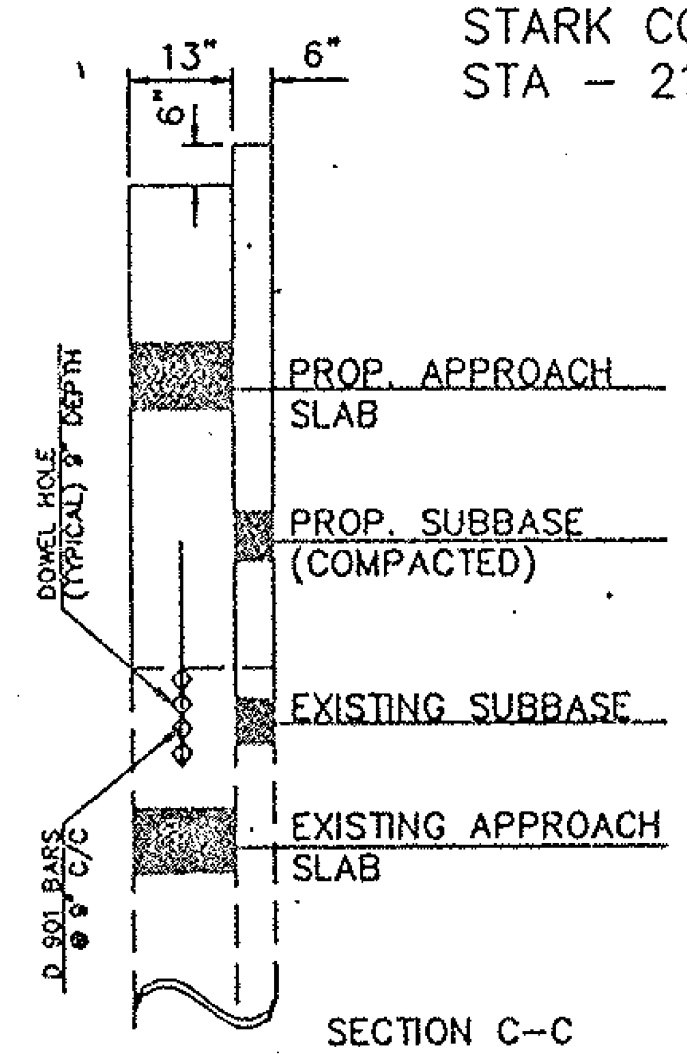
FOR ADDITIONAL STEEL LAYOUT AND DETAILS SEE STANDARD DRAWING AS-1-81





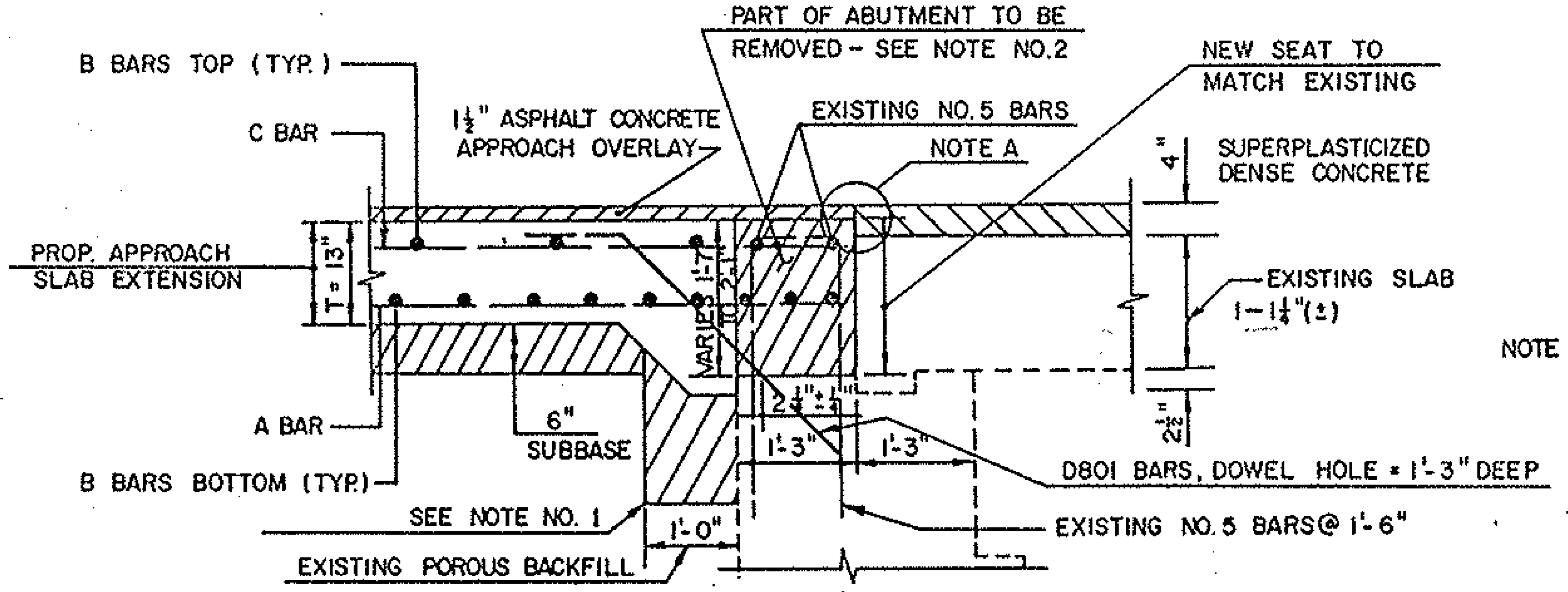
SECTION A–A
TYPICAL ALL ABUTMENTS
(AT EXISTING APPROACH SLABS)





SECTION C–C

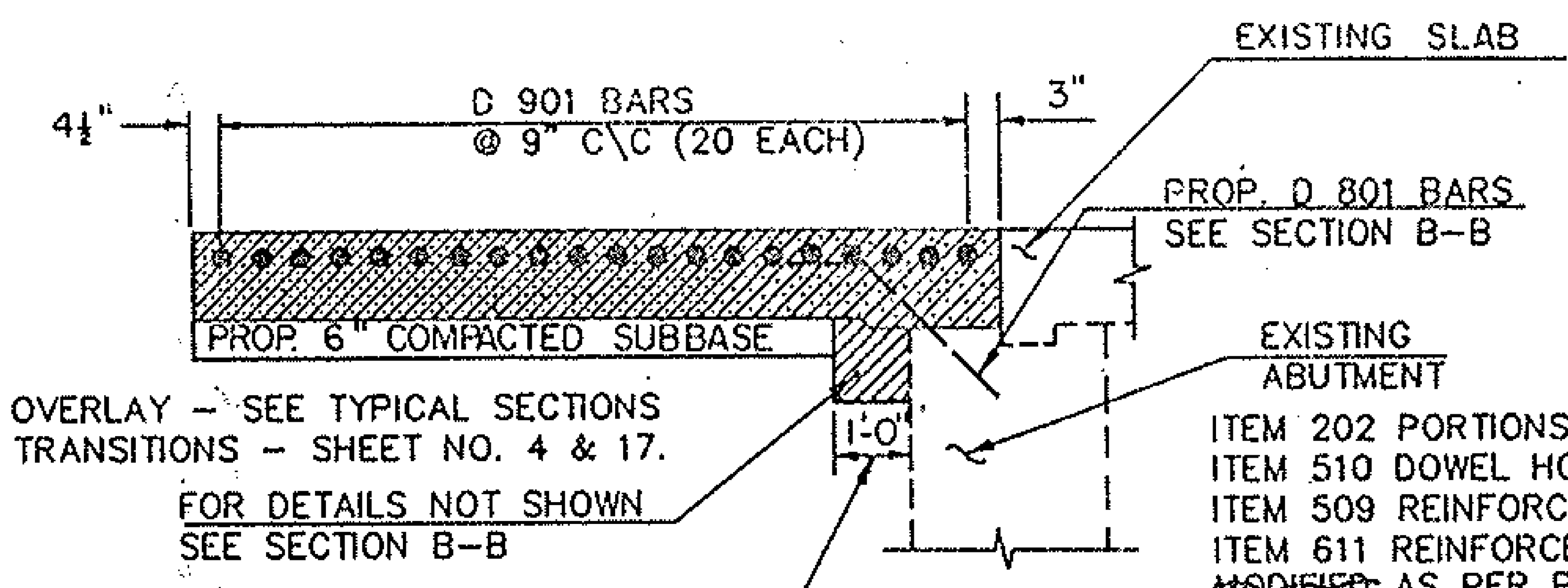
• THE D 801 BARS SHOWN SHALL BE USED IN PLACE OF THE D 801 BARS SHOWN ON STANDARD DRAWING AS-1-81. THE D 801 BARS SHALL BE PLACED IN DOWEL HOLES AND ANCHORED WITH A NON-SHRINKING EPOXY MORTAR, AS PER SUPPLEMENTAL SPECIFICATIONS 852 AND 952.*** THE COST OF THE EPOXY MORTAR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 510, DOWEL HOLES. ALL "A", "B", AND "C" BARS COST SHALL BE INCLUDED IN ITEM 611 REINFORCED CONCRETE APPROACH SLABS, MODIFIED AS PER PLAN, T=13".



NOTE A: SEE STD. DWG. AS-1-81 ; DETAIL C

SECTION B–B
TYPICAL ALL ABUTMENTS
(AT EXISTING BERMS)

** COST OF PERFORMED ELASTOMERIC JOINT SEALER AND TYPE A WATERPROOFING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 611 – REINFORCED CONCRETE APPROACH SLAB, MODIFIED AS PER PLAN, T=13".



FOR PROPOSED OVERLAY – SEE TYPICAL SECTIONS AND PAVEMENT TRANSITIONS – SHEET NO. 4 & 17.

SECTION D–D

BRIDGE NO. STA-21-1644L/R
ESTIMATED QUANTITIES

ITEM 202 PORTIONS OF STRUCTURES REMOVED	LUMP LUMP
ITEM 510 DOWEL HOLES	196 EACH
ITEM 509 REINFORCING STEEL	1232 POUNDS
ITEM 611 REINFORCED CONCRETE APPROACH SLABS, ~~MODIFIED~~ AS PER PLAN, T=13".	73 SQ. YDS.
ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	39 CU. YDS.
ITEM 310 SUBBASE , TYPE II	13 CU. YDS.

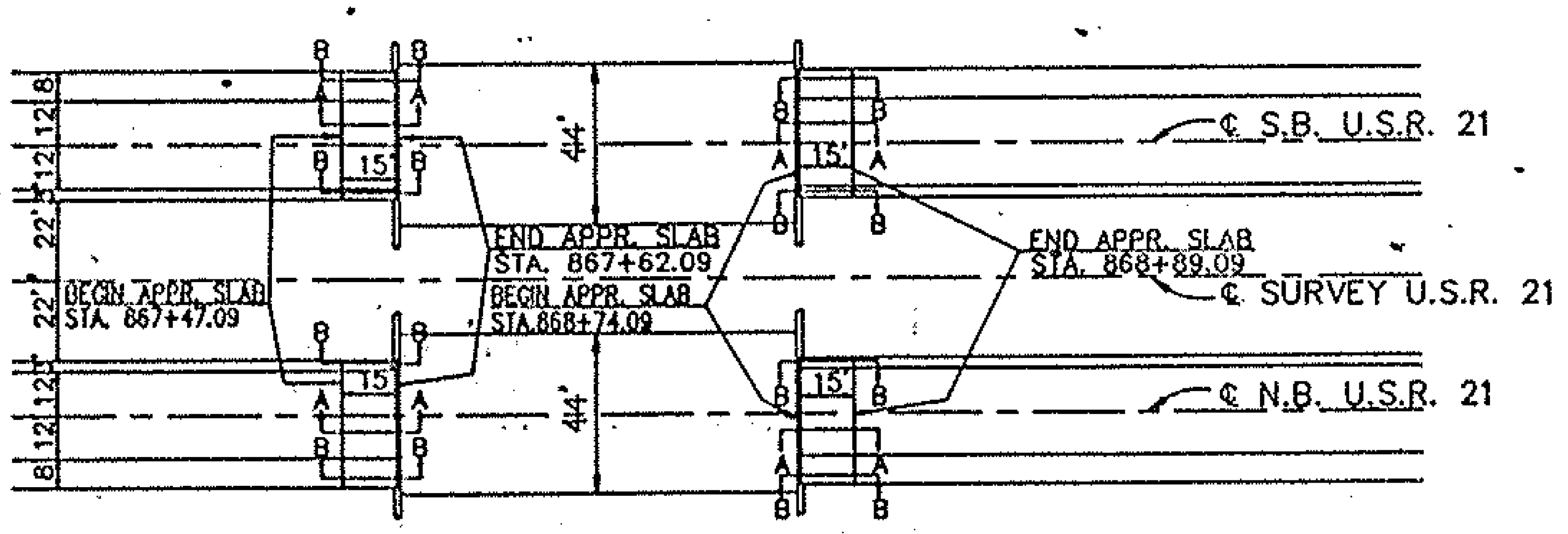
QUANTITIES CARRIED TO GENERAL SUMMARY

NOTE NO. 1: BEFORE PLACING PROP. APPROACH SLAB EXTENSIONS OR BACKFILL FOR ABUTMENT REPAIR, ANY CONTAMINATED POROUS BACKFILL SHALL BE REPLACED WITH NEW POROUS BACKFILL. THE COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 611 – REINFORCED CONCRETE APPROACH SLABS, MODIFIED AS PER PLAN, T=13".

NOTE NO. 2: THE EXISTING APPROACH SLAB WILL REMAIN SEATED INTO THE EXISTING ABUTMENT AS SHOWN. THE EXISTING ABUTMENT IN THE AREA OF THE EXISTING BERMS SHALL BE NEATLY REMOVED AS SHOWN ON SECTION B-B, BY THE CONTRACTOR. THE TOTAL COST OF EQUIPMENT AND LABOR SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 202 – PORTIONS OF STRUCTURES REMOVED. THE EXISTING NO. 5 BARS THAT WILL BE EXPOSED SHALL EITHER BE NEATLY CUT OFF AT THE SEAT OR CLEANED AND LEFT IN PLACE.

NOTE NO. 3: THE PROPOSED D 901 BARS SHALL BE ANCHORED IN THE PROPOSED DOWEL HOLES WITH A NON-SHRINKING EPOXY MORTAR, AS PER SUPPLEMENTAL SPECIFICATIONS 852 & 952.*** THE COST OF THE EPOXY MORTAR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 510, DOWEL HOLES. THE PROPOSED DOWEL HOLES SHALL BE DRILLED USING AN ELECTRIC OR HYDRAULIC DRILL. AFTER DRILLING THE PROPOSED HOLES, THEY SHALL BE CLEANED TO INSURE THE HOLES ARE FREE OF DUST AND DIRT. A PORTION OF EPOXY MORTAR SHALL THEN BE INSERTED INTO THE PROPOSED HOLE BEFORE INSERTING THE D 901 BAR TO ENSURE A POSITIVE FIT.

*** OR SS 853 & 956



BRIDGE NO. STA-21-1644

STRUCTURE NUMBER	LOCATION	MARK BAR NUMBER	NUMBER REQUIRED	LENGTH	SPACING*	POUNDS PER FOOT	POUNDS
			EACH	LIN. FT.			
1644	SB BACK MEDIAN	D-801	3	4'-4"	1'-3"C/C	2.670	35
1644	SB BACK OUTSIDE	D-801	6	4'-4"	1'-6"C/C	2.670	69
1644	SB AHEAD MEDIAN	D-801	3	4'-4"	1'-3"C/C	2.670	35
1644	SB AHEAD OUTSIDE	D-801	6	4'-4"	1'-6"C/C	2.670	69
1644	NB BACK MEDIAN	D-801	3	4'-4"	1'-3"C/C	2.670	35
1644	NB BACK OUTSIDE	D-801	6	4'-4"	1'-6"C/C	2.670	69
1644	NB AHEAD MEDIAN	D-801	3	4'-4"	1'-3"C/C	2.670	35
1644	NB AHEAD OUTSIDE	D-801	6	4'-4"	1'-6"C/C	2.670	69
1644	SB BACK MEDIAN	D-901	20	1'-6"	9"C/C	3.400	102
1644	SB BACK OUTSIDE	D-901	20	1'-6"	9"C/C	3.400	102
1644	SB AHEAD MEDIAN	D-901	20	1'-6"	9"C/C	3.400	102
1644	SB AHEAD OUTSIDE	D-901	20	1'-6"	9"C/C	3.400	102
1644	NB BACK MEDIAN	D-901	20	1'-6"	9"C/C	3.400	102
1644	NB BACK OUTSIDE	D-901	20	1'-6"	9"C/C	3.400	102
1644	NB AHEAD MEDIAN	D-901	20	1'-6"	9"C/C	3.400	102
1644	NB AHEAD OUTSIDE	D-901	20	1'-6"	9"C/C	3.400	102
SUB-TOTAL							1232

ITEM 611 REINFORCED CONCRETE APPROACH SLABS (~~MODIFIED~~ AS PER PLAN)		
STRUCTURE NUMBER	LOCATION	QUANTITY
		SQ. YDS.
1644	SB BACK MEDIAN	5.00
1644	SB BACK OUTSIDE	13.33
1644	SB AHEAD MEDIAN	5.00
1644	SB BACK MEDIAN	13.33
1644	NB BACK MEDIAN	5.00
1644	NB BACK OUTSIDE	13.33
1644	NB AHEAD MEDIAN	5.00
1644	NB AHEAD OUTSIDE	13.33
SUB-TOTAL		73

	BY	DATE	FHWA REGION	STATE	PROJECT
DETAILED	T.A.K.	10-87	5	OHIO	
DETAILS CHECKED	L.L.H.	11-87			
DETAILS REVISED					

STARK COUNTY
STA-21-1239

STRUCTURE STA.662+31.57 STA-21-1248 L/R

PLAN

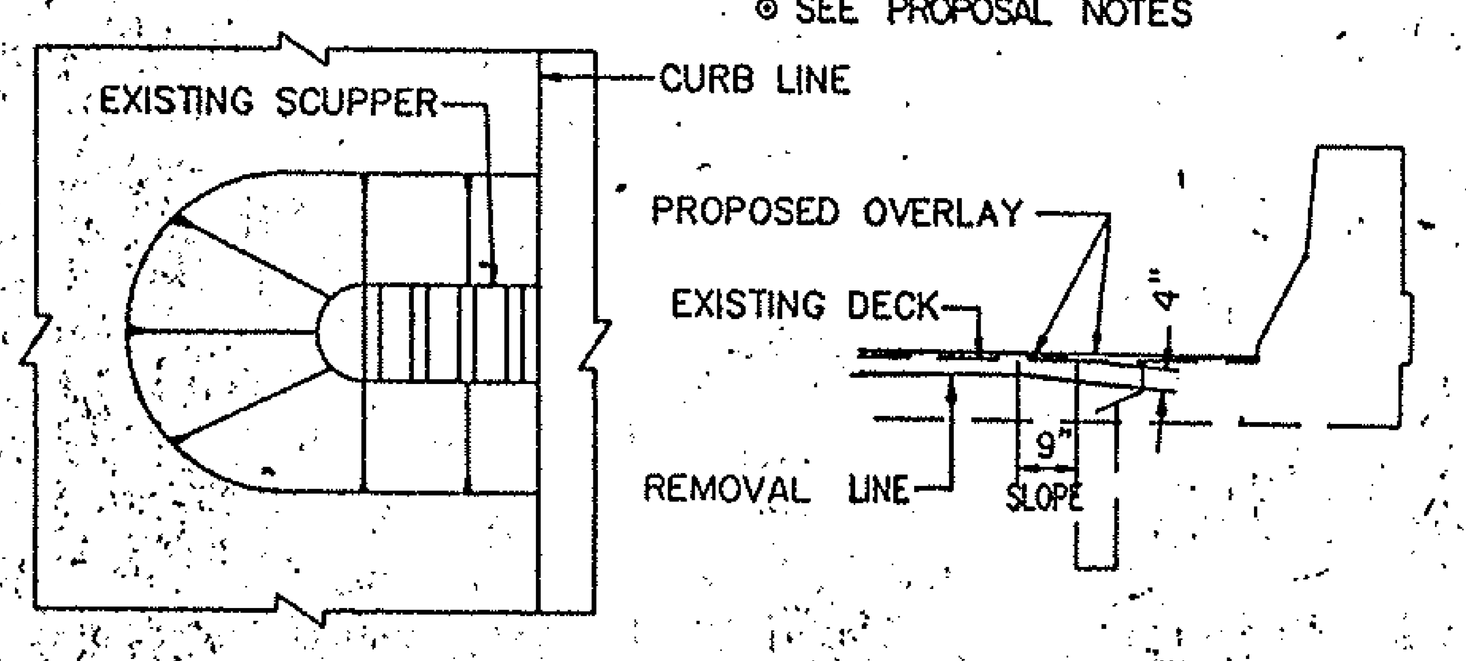
ESTIMATED QUANTITIES
(SOUTHBOUND)
LEFT BRIDGE (STA-21-1248L)

	ITEM 850 SUPERPLASTICIZED DENSE CONC. OVERLAY (4 " THICK)⊗	2585 SQ. YDS.
	ITEM 850 SUPERPLASTICIZED DENSE CONC. OVERLAY (VAR. THICKNESS)⊗	18 CU. YDS.
***	ITEM SPEC. SEALING CONC. SURFACES (SEE PROPOSAL NOTE)	1258 SQ. YDS.
	ITEM 850 FULL DEPTH REPAIR⊗	6 CU. YDS.
	ITEM 202 WEARING COURSE REMOVED	2375 SQ. YDS.

ESTIMATED QUANTITIES
(NORTHBOUND)
RIGHT BRIDGE (STA-21-1248R)

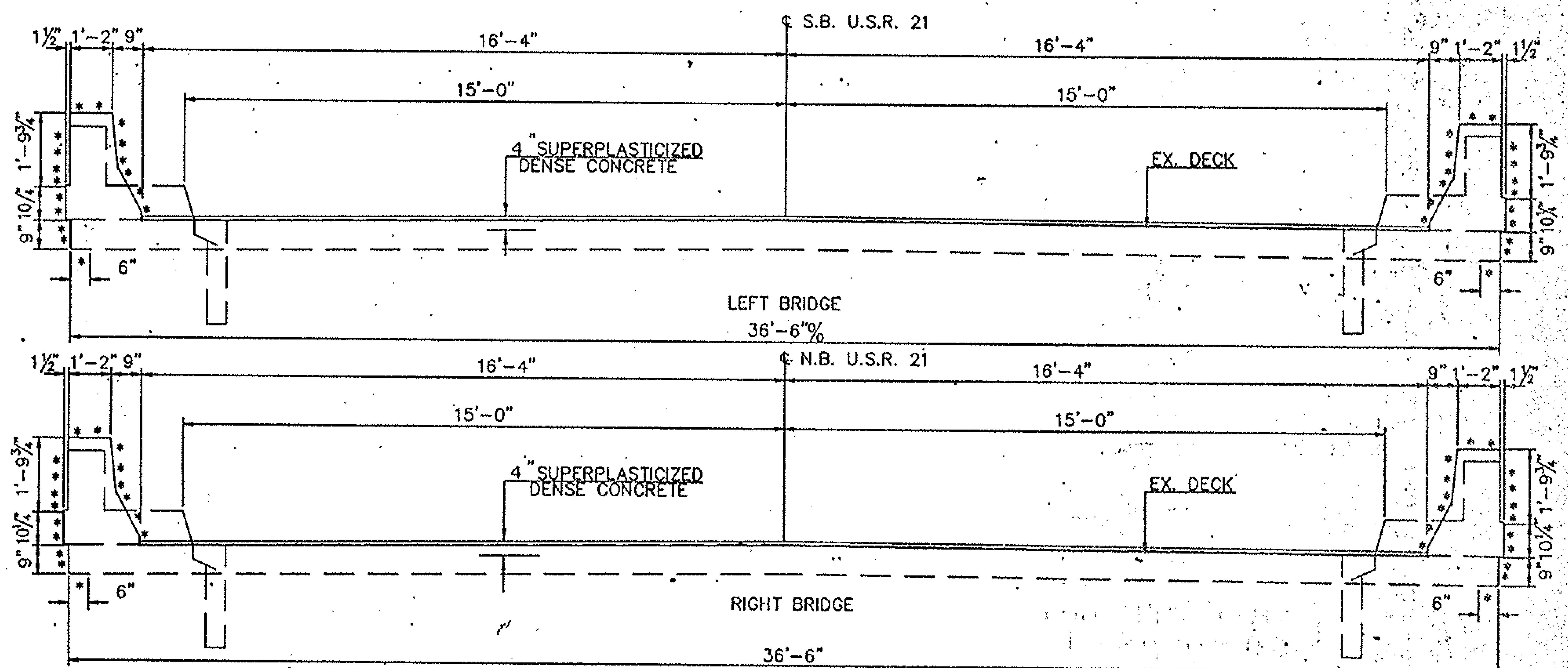
	ITEM 850 SUPERPLASTICIZED DENSE CONC. OVERLAY (4 " THICK)⊗	2585 SQ. YDS.
	ITEM 850 SUPERPLASTICIZED DENSE CONC. OVERLAY (VAR. THICKNESS)⊗	18 CU. YDS.
***	ITEM SPEC. SEALING CONC. SURFACES (SEE PROPOSAL NOTE)	1258 SQ. YDS.
	ITEM 850 FULL DEPTH REPAIR ⊗	7 CU. YDS.
	ITEM 202 WEARING COURSE REMOVED	2375 SQ. YDS.

⊗ SEE PROPOSAL NOTES



PLAN VIEW

TYPICAL OVERLAY DETAIL AT SCUPPERS



BRIDGE DECK SECTIONS

NOTE: IF REMAINING BULB ANGLE BECOMES LOOSE OR IF UNSOUND CONCRETE EXISTS UNDERNEATH THE BULB ANGLE, THE CONTRACTOR SHALL REMOVE THE ENTIRE BULB ANGLE AT NO ADDITIONAL EXPENSE TO THE STATE.

ITEM SPECIAL SEALING OF CONCRETE SURFACES: PARAPET CONCRETE SURFACES AND EDGE OF SLABS SHALL BE SEALED, SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

STA21BR3

BRIDGE NOTES

STARK COUNTY
STA – 21 – 12.39

EXISTING STRUCTURE TO BE ALTERED WIDENED OR REPAIRED

EXISTING STRUCTURE VERIFICATION: DETAILS AND DEMENSIONS 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 THEY SHALL BE CONSIDERED TENTATIVE AND APPPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05 AND 513.02 (DELETE THE REFERENCE TO 513.02 IF STRUCTURAL STEEL IS NOT INVOLVED.)

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

MAINTENANCE OF TRAFFIC

REFER TO THE ROADWAY MAINTENANCE OF TRAFFIC NOTES AND DETAILS OF THESE PLANS FOR PROVISIONS AFFECTING THE TRAFFIC TO BE MAINTAINED DURING CONSTRUCTION.

BRIDGE IDENTIFICATION SIGNS (BR. NO. STA-21-1248 L/R)

THE EXISTING BRIDGE IDENTIFICATION SIGNS SHALL BE REMOVED FOR RE-ERECTION BY THE CONTRACTOR. AFTER THE EXISTING BRIDGE CURB, PARAPET AND RAILING HAVE BEEN REMOVED AND NEW CURB AND PARAPET INSTALLED, THE CONTRACTOR SHALL ATTACH THE SALVAGED SIGNS TO THE NEW PARAPET IN A MANNER ACCEPTABLE TO AND AT LOCATIONS DETERMINED BY THE ENGINEER. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 511.

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81	DATE	11-27-81
BR-1	DATE	5-29-79

AND TO SUPPLEMENTAL SPECIFICATIONS:

SS 836	DATE	11-12-85
SS 850	DATE	5-31-88

DESIGN SPECIFICATIONS

THIS STRUCTURE COMFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAYS AND TRANSPORTATION OFFICALS IN 1989 AND TO THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN STRESSES

CONCRETE CLASS S – UNIT STRESS 1500 P.S.I. (SUPERSTRUCTURE)
REINFORCING STEEL ASTM A615,A616,A617
GRADE 60 – UNIT STRESS 24,000 P.S.I.
GRADE 40 – UNIT STRESS 20,000 P.S.I.

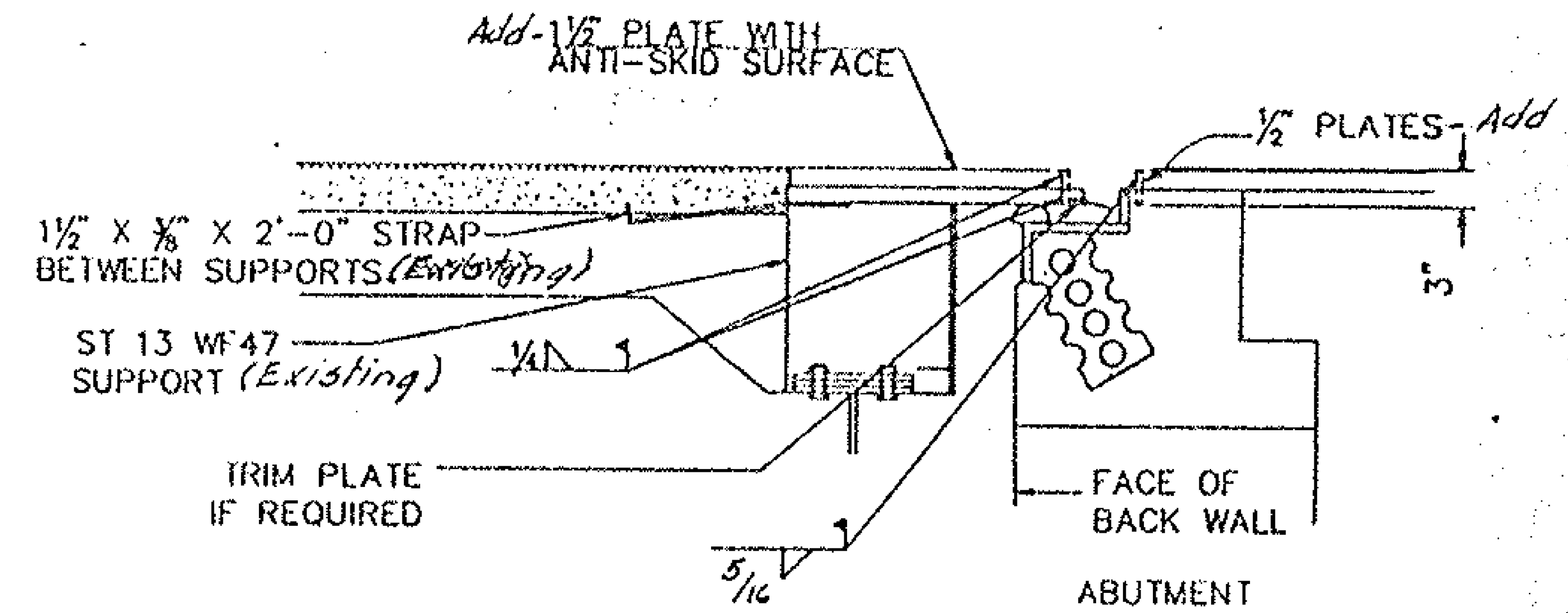
EXISTING STRUCTURE PLANS may be examined at the ODOT District 4 office, 705 Oakwood Street, Ravenna, Ohio, or the ODOT Central Office at 25 South Front Street, Columbus, Ohio.

ESTIMATED QUANTITIES

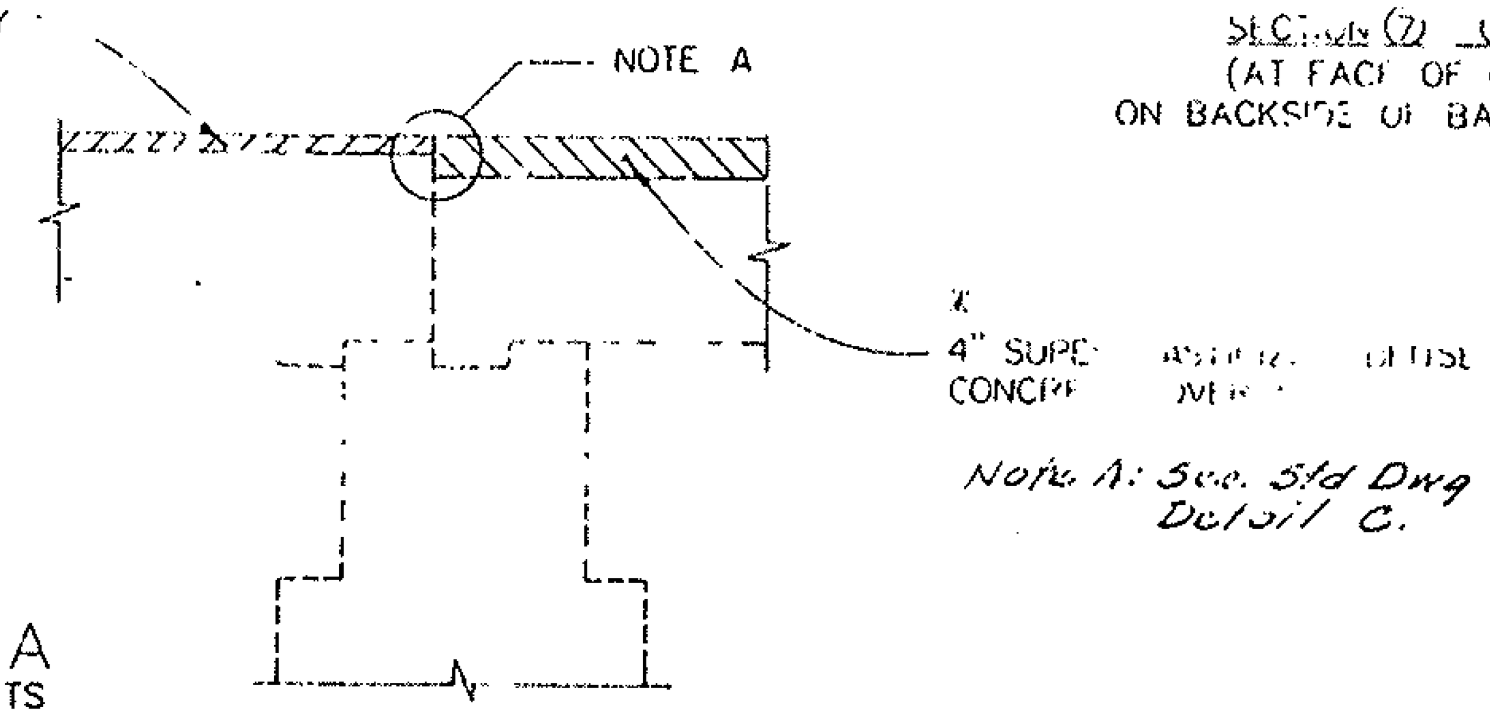
ITEM	DESCRIPTION	SUB-TOTAL STA-21-1248 LEFT/RIGHT		SUB-TOTAL STA-21-1644 LEFT/RIGHT		GRAND-TOTAL		ITEM EXT.
		QUANTITY	UNIT	QUANTITY	UNIT	QUANTITY	UNIT	
202	WEARING COURSE REMOVED	4750	SQ.YD.	1096	SQ.YD.	5846	SQ.YD.	23500
850	TEST SLAB	LUMP	SUM			LUMP	SUM	40000
850	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (4" THICK)*	5170	SQ.YD.	1096	SQ.YD.	6266	SQ.YD.	14001
850	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VARIABLE THICKNESS)* STA-21-1248L	18	CU.YD.			18	CU.YD.	20001
SPECIAL	SEALING CONCRETE SURFACES (SEE PROPOSAL NOTE)	2516	SQ.YD.	104	SQ.YD.	2620	SQ.YD.	512 67500
SPECIAL	STEEL DRIP STRIP	----	-----	448	LIN.FT.	448	LIN.FT.	518 22300
516	VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN	218	LIN.FT.	----	------	218	LIN.FT.	11801
511	CONCRETE SUPERSTRUCTURE, AS PER PLAN	401	CU.YD.			401	CU.YD.	34401
850	FULL DEPTH REPAIR *	13	CU.YD.	4	CU.YD.	17	CU.YD.	30001
SPECIAL	PARAPET MODIFICATIONS AT EXPANSION JOINTS	8	EACH	----	------	8	EACH	516 15000
**519	PATCHING CONCRETE STRUCTURES	---	-----	550	SQ.FT.	550	SQ.FT.	11100
202	PORTIONS OF STRUCTURES REMOVED	LUMP	SUM			LUMP	SUM	11200
850	SUPERPLASTICIZED DENSE CONC. OVERLAY (VARIABLE THICKNESS)* STA-21-1248R	18	CU.YD.			18	CU.YD.	20001
850	SUPERPLASTICIZED DENSE CONC. OVERLAY (VARIABLE THICKNESS)* STA-21-1644L			4	CU.YD.	4	CU.YD.	20001
850	SUPERPLASTICIZED DENSE CONC. OVERLAY (VARIABLE THICKNESS)* STA-21-1644R			4	CU.YD.	4	CU.YD.	20001
509	EPOXY COATED REINFORCING STEEL, GRADE 60	54,828	LB.			54,828	LB.	15800

* AS PER PLAN (SEE PROPOSAL NOTE)
** 50% FEDERAL PARTICIPATION

APPROACH SLAB DETAILS

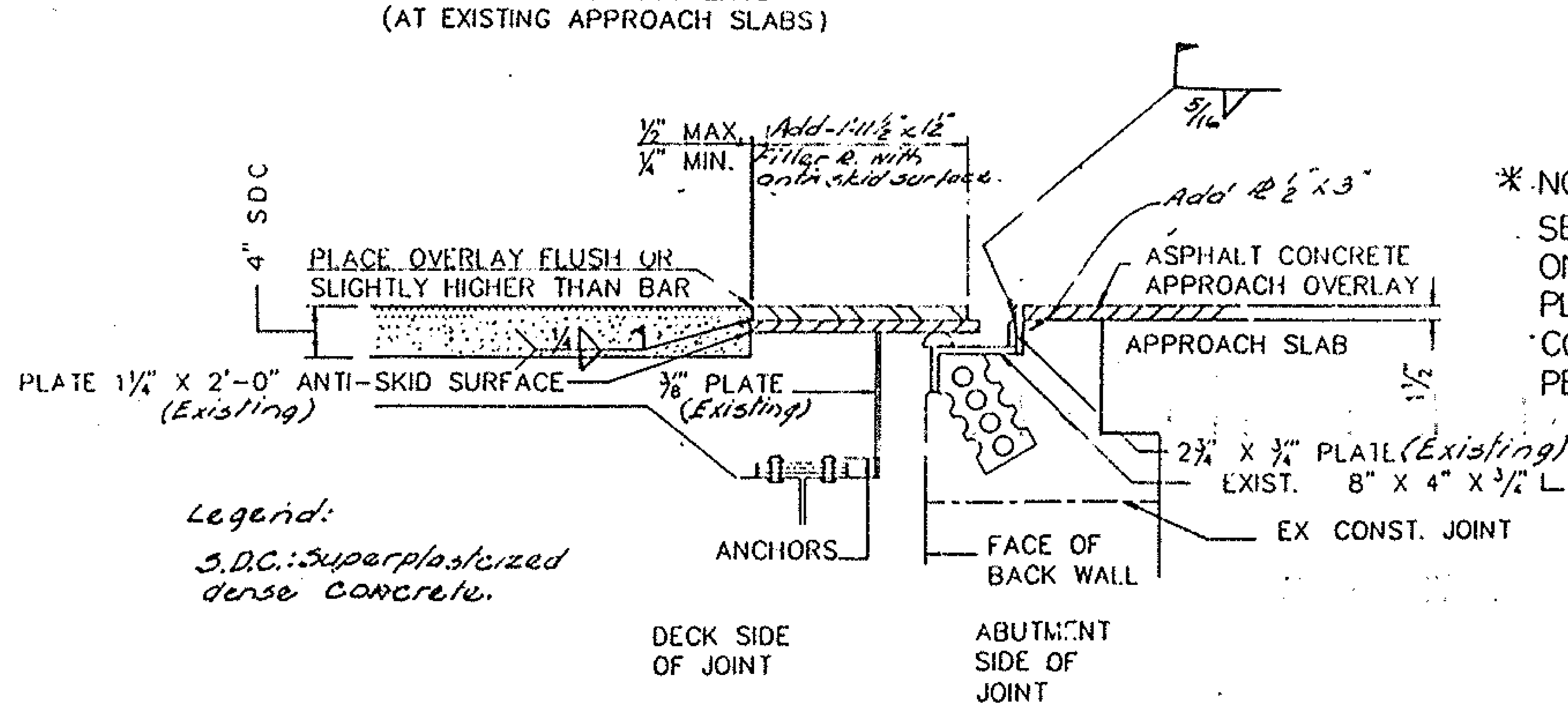


SECTION ⑦ – ⑦
(AT FACE OF CURB; ON BACKSIDE OF BAR OR ANGLE



Note A: See Std Dwg AS-1-81 Detail C.

SECTION A–A
TYPICAL ALL ABUTMENTS
(AT EXISTING APPROACH SLABS)



Legend:
S.D.C.: Superplasticized dense concrete.

SECTION ⑦ – ⑦

* NOTE:
SEE SHEET 117 FOR NOTE ON ITEM 850-SUPER-PLASTICIZED DENSE CONCRETE OVERLAY, AS PER PLAN.

REVISED 4-11-90
REVISED 4-2-90
REVISED 6-7-89

BRIDGE NOTES

EXISTING STRUCTURE TO BE ALTERED WIDENED OR REPAIRED

EXISTING STRUCTURE VERIFICATION: DETAILS AND DEMENSIONS 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 THEY SHALL BE CONSIDERED TENTATIVE AND APPPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05 AND 513.02 (DELETE THE REFERENCE TO 513.02 IF STRUCTURAL STEEL IS NOT INVOLVED.)

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

MAINTENANCE OF TRAFFIC

REFER TO THE ROADWAY MAINTENANCE OF TRAFFIC NOTES AND DETAILS OF THESE PLANS FOR PROVISIONS AFFECTING THE TRAFFIC TO BE MAINTAINED DURING CONSTRUCTION.

BRIDGE IDENTIFICATION SIGNS (BR. NO. STA-21-1248 L/R)

THE EXISTING BRIDGE IDENTIFICATION SIGNS SHALL BE REMOVED FOR RE-ERECTION BY THE CONTRACTOR. AFTER THE EXISTING BRIDGE RAILING HAS BEEN FACED THE CONTRACTOR SHALL ATTACH THE THE SALVAGED SIGNS TO THE RAILING IN A MANNER ACCEPTABLE TO AND AT LOCATIONS DETERMINED BY THE ENGINEER: PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 517, RAILING FACED AS PER PLAN

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81	DATE	11-27-81
BR-1	DATE	5-29-79

AND TO SUPPLEMENTAL SPECIFICATIONS:

SS 824	DATE	10-8-82	SS852	DATE	6-10-87
SS 836	DATE	11-12-85	SS952	DATE	6-10-87
SS 853	DATE	6-26-78			
SS 850	DATE	2-25-86			
SS 956	DATE	6-26-78			

DESIGN SPECIFICATIONS

THIS STRUCTURE COMFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAYS AND TRANSPORTATION OFFICALS IN 1983, AND INCLUDING '84,'85,'86 AND '87 INTERIM SPECIFICATIONS, AND TO THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN STRESSES.

CONCRETE CLASS S – UNIT STRESS 1500 P.S.I. (SUPERSTRUCTURE)
REINFORCING STEEL ASTM A615,A616,A617
GRADE 60 – UNIT STRESS 24,000 P.S.I.
GRADE 40 – UNIT STRESS 20,000 P.S.I.

REPLACEMENT OF EXISTING REINFORCING STEEL

ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY THE CONTRACTOR'S CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST. ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW STEEL. AN ALLOWANCE OF 10 POUNDS IS INCLUDED WITH THE EPOXY COATED REINFORCING STEEL FOR THIS PURPOSE.

ITEM 517 – RAILING, FACED AS PER PLAN

THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING ALUMINUM RAILING AND STACK IT NEATLY ALONG THE RIGHT-OF-WAY FOR SUBSEQUENT PICK UP AND STORAGE BY STATE FORCES. A PORTION OF THE CONCRETE SAFETY CURB SHALL BE REMOVED.

1 IN. DIAMETER HOLES, 6 IN. DEEP (MIN.), SHALL BE DRILLED AT 15 IN. C/C AS SHOWN ON THE PLANS. THE HOLES SHALL BE THOROUGHLY CLEANED OF ALL DUST AND DELETERIOUS MATERIAL. THE GROUT SHALL CONSIST OF CEMENT AND WATER USING TYPE I, TYPE III OR SHRINKAGE COMPENSATING CEMENT. CLEAN HOLES SHALL BE THOROUGHLY SATURATED WITH WATER FOR A MINIMUM OF 5 MINUTES PRIOR TO PLACING GROUT. IMMEDIATELY PRIOR TO GROUTING, ALL FREE STANDING WATER SHALL BE REMOVED FROM HOLES. AFTER INITIAL MIXING, THINNING OR RETEMPERING OF GROUT WITH EXTRA WATER SHALL NOT BE ALLOWED. HARDENED OR SET GROUT WHICH HAS BECOME TOO STIFF OR DRY TO PROVIDE A GOOD BOND SHALL BE DISCARDED. DOWELS SHALL NOT BE INSTALLED IF THE MEAN AIR OR GROUT TEMPERATURE IS LESS THAN 45°F. FURTHERMORE, AFTER PLACING, THE FRESH GROUT SHALL BE MAINTAINED AT A TEMPERATURE OF NOT LESS THAN 45°F FOR 72 HOURS, AND AT NOT LESS THAN 40°F FOR AN ADDITIONAL 4 DAYS. THE TEMPERATURE OF THE MIXED GROUT, IMMEDIATELY BEFORE PLACING, SHALL NOT BE LESS THAN 50°F NOR MORE THAN 90°F. THE CEMENT GROUT SHALL BE CURED CONTINUOUSLY WITH WET RAGS FOR A MINIMUM PERIOD OF 3 DAYS WITHOUT DISTURBING THE DOWELS. GROUT ANCHORING USING EPOXY AS PER SS 853 AND SS 956 OR POLYESTER/VINYL-ESTER RESIN AS PER SS 852 AND SS 952 MAY BE USED IN LIEU OF THE ABOVE REQUIREMENTS WITH THE EXCEPTION THAT THE HOLE SIZE SHALL REMAIN AT 1 IN. DIAMETER.

ALL LOOSE AND UNSOUND CONCRETE IN THE AREA OF THE PARAPET TO BE FACED SHALL BE REMOVED. ALL REMAINING SOUND CONCRETE ON THE TOP AND ROADWAY SIDE OF THE EXISTING PARAPET SHALL BE MACHINE SCARIFIED 1/4 IN. DEEP. THE MINIMUM THICKNESS OF THE PROPOSED FACING SHALL BE 4 IN. ALL REINFORCING STEEL SHALL BE EPOXY COATED AS PER SS 824. EPOXY COATED REINFORCING STEEL WHICH IS DAMAGED DUE TO CUTTING, BENDING OR FOR ANY OTHER REASON SHALL BE REPAIRED AS PER SS 824. CONCRETE COVER FOR ALL REINFORCING STEEL SHALL BE 2 IN. THE CONCRETE SURFACES TO BE FACED SHALL BE THOROUGHLY DRENCHED WITH CLEAN WATER AND ALLOWED TO DRY TO A DAMP CONDITION JUST BEFORE THE CONCRETE IS PLACED.

THE EXISTING DEFLECTION JOINTS SHALL BE EXTENDED COMPLETELY THROUGH THE PROPOSED FACING AND SHALL BE MADE BY FORMING OR SAWCUTTING THE HARDENED CONCRETE WITHIN 3 DAYS AFTER IT IS PLACED. THE 1/4 IN. JOINTS SHALL BE SEALED 3/4 IN. DEEP (MIN.) WITH AN IMPREGNATED, PRECOMPRESSED, EXPANDING FOAM SEALANT TAPE KNOWN AS WILL-SEAL AS MANUFACTURED BY ILLBRUCK/USA INC., MINNEAPOLIS, MINNESOTA; A LOW DENSITY CLOSED CELL, CROSS-LINKED ETHYLENE VINYL ACETATE FOAM KNOWN AS EVAZOTE 50 AS MANUFACTURED BY E-POXY INDUSTRIES, INC., RAVENA, NEW YORK OR E.V.A. AS MANUFACTURED BY THERMAL-CHEM INC., ELK GROVE, ILLINOIS; OR AN APPROVED EQUAL.

DESIGN STRESSES: CONCRETE CLASS S – UNIT STRESS 1,500 P.S.I.
REINFORCING STEEL ASTM A615, A616 OR A617

GRADE 60 – UNIT STRESS 24,000 P.S.I.

THIS WORK SHALL INCLUDE THE FURNISHING OF ALL LABOR, EQUIPMENT AND MATERIALS CONSISTING OF CONCRETE, REINFORCING STEEL, JOINT SEALANT, GROUT AND INCIDENTALS NECESSARY TO ACCOMPLISH THE ABOVE MENTIONED REMOVALS AND WORK TO FACE THE EXISTING PARAPET AND PROVIDE NEW PARAPET ENDS. PAYMENT WILL BE MADE AT THE PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
517	LIN. FT.	RAILING, FACED AS PER PLAN

⊙ AS PER PLAN (SEE PROPOSAL NOTES)

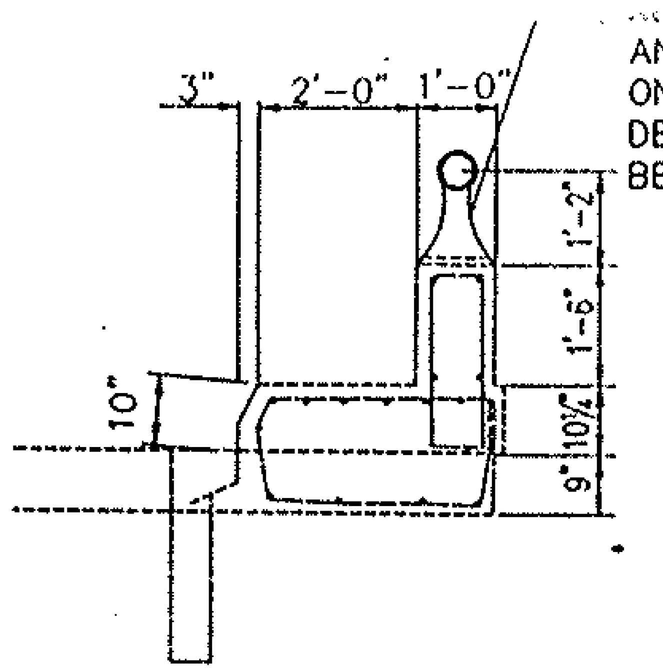
ESTIMATED QUANTITIES

* 50% FEDERAL PARTICIPATION

ITEM	DESCRIPTION	SUB-TOTAL STA-21-1248 LEFT/RIGHT		SUB-TOTAL STA-21-1644 LEFT/RIGHT		GRAND TOTAL	
		QUANTITY	UNIT	QUANTITY	UNIT	QUANTITY	UNIT
202	WEARING COURSE REMOVED	4750	SQ.YD.	1096	SQ.YD.	5846	SQ.YD.
850	TEST SLAB	LUMP				LUMP	
850	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (4 " THICK) ⊙	5170	SQ.YD.	1096	SQ.YD.	6266	SQ.YD.
850	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VARIABLE THICKNESS) ⊙ STA-21-1248 L	18	CU.YD.			18	CU.YD.
SPECIAL.	SEALING CONCRETE SURFACES (SEE PROPOSAL NOTE)	2516	SQ.YD.	104	SQ.YD.	2620	SQ.YD.
SPECIAL.	STEEL DRIP STRIP,	---	----	448	LIN.FT.	448	LIN.FT.
516	VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC STRIP SEALS. TYPE A, AS PER PLAN	218	LIN.FT.	---	----	218	LIN.FT.
850	FULL DEPTH REPAIR ⊙	13	CU.YD.	4	CU.YD.	17	CU.YD.
SPECIAL	PARAPET MODIFICATIONS AT EXPANSION JOINTS,	8	EACH	----	----	8	EACH
* 519	PATCHING CONCRETE STRUCTURES	---	----	550	SQ.FT.	550	SQ.FT.
517	RAILING, FACED AS PER PLAN	2883	LIN. FT.			2883	LIN.FT.
850	SUPERPLASTICIZED DENSE CONC. OVERLAY (VARIABLE THICKNESS) ⊙ STA-21-1248 R	18	CU. YD.			18	CU.YD.
850	SUPERPLASTICIZED DENSE CONC. OVERLAY (VARIABLE THICKNESS) ⊙ STA-21-1644L			4	CU.YD.	4	CU.YD.
850	SUPERPLASTICIZED DENSE CONC. OVERLAY (VARIABLE THICKNESS) ⊙ STA-21-1644R			4	CU.YD.	4	CU.YD.

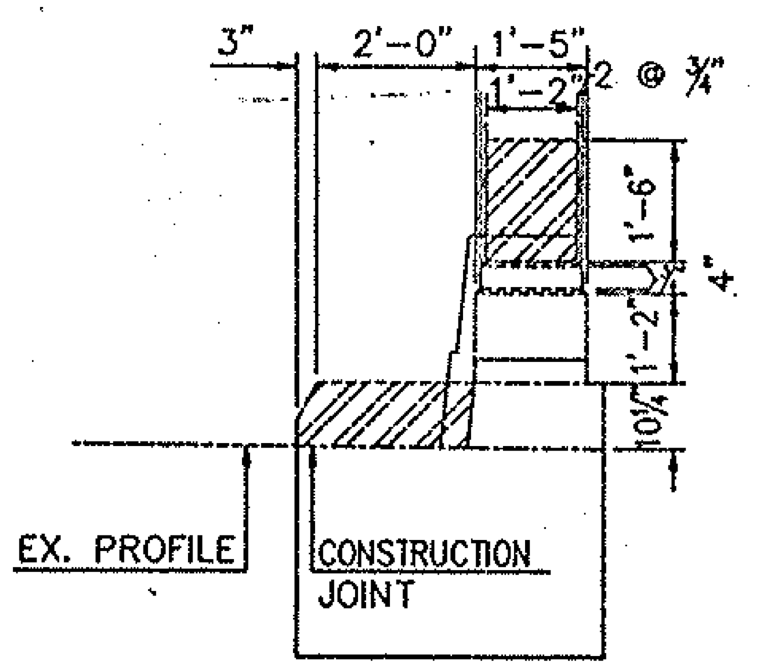
NOTE: SEE SHEET 115 FOR NOTE ON ITEM 850 - SUPER-PLASTICIZED DENSE CONCRETE OVERLAY, AS PER PLAN.

PARAPET DETAILS

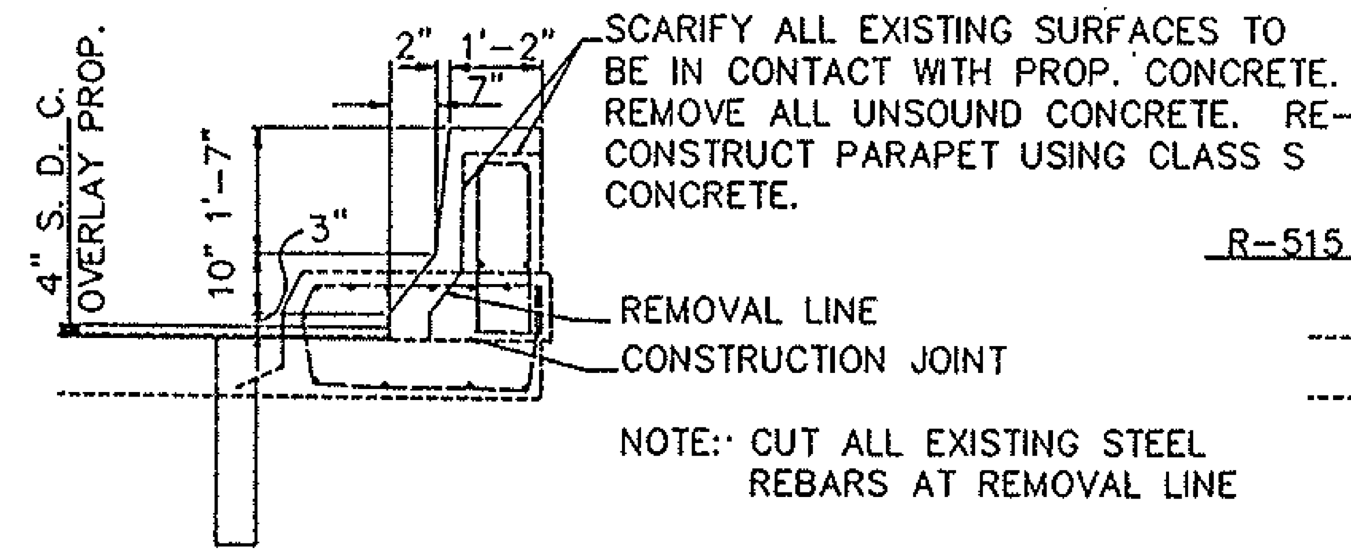


EXISTING ALUMINUM RAILING, TYPE "B"
WITH CONCRETE PARAPET AND SAFETY CURB

BRIDGE NO. STA-21-1248
(LEFT SIDE OPPOSITE HAND)

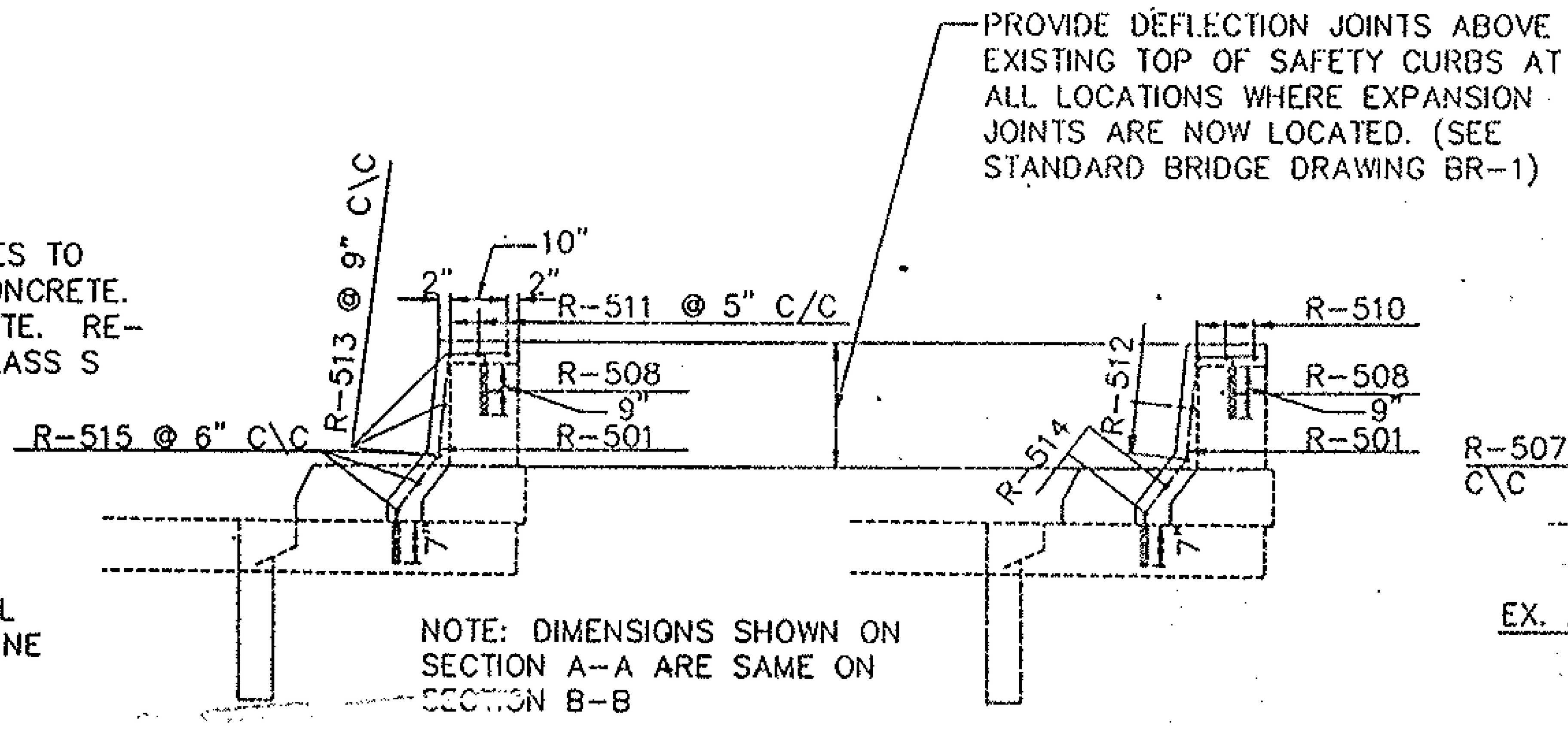


EXISTING END PARAPET
(TYP. @ ALL CORNERS)



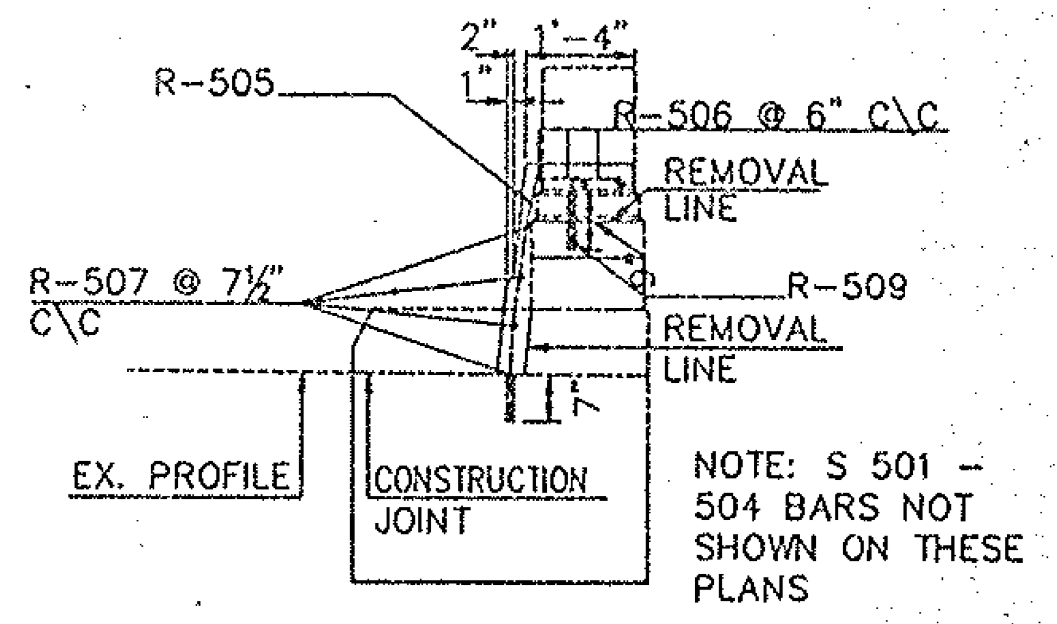
PROPOSED CONCRETE PARAPET FACING
OVER EXISTING CONCRETE PARAPET

BRIDGE NO. STA-21-1248 L/R
(LEFT SIDE OPPOSITE HAND)



SECTION A-A
(LEFT SIDE OPPOSITE HAND)

SECTION B-B
(TYP. @ ALL CORNERS)



SECTION C-C
(TYP. @ ALL CORNERS)

R-501 BARS, R-505 BARS AND R-508 BARS @ 18" C/C-INSTALLATION SHALL BE 6" FROM BOTH SIDES OF DEFLECTIONS JOINTS. PROPOSED HOLES SHALL BE DRILLED WITH AN ELECTRIC OR HYDRAULIC DRILL. AFTER DRILLING THE HOLES SHALL BE CLEANED TO ENSURE THEY ARE FREE OF DUST AND DIRT. A PORTION OF EPOXY MORTAR SHALL THEN BE INSERTED INTO THE HOLE, BEFORE INSERTING THE R-508 BAR TO ENSURE A POSITIVE FIT. THE COST OF THE EPOXY MORTAR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 517, RAILING, FACED AS PER PLAN.

BRIDGE NO. STA-21-1248 L/R

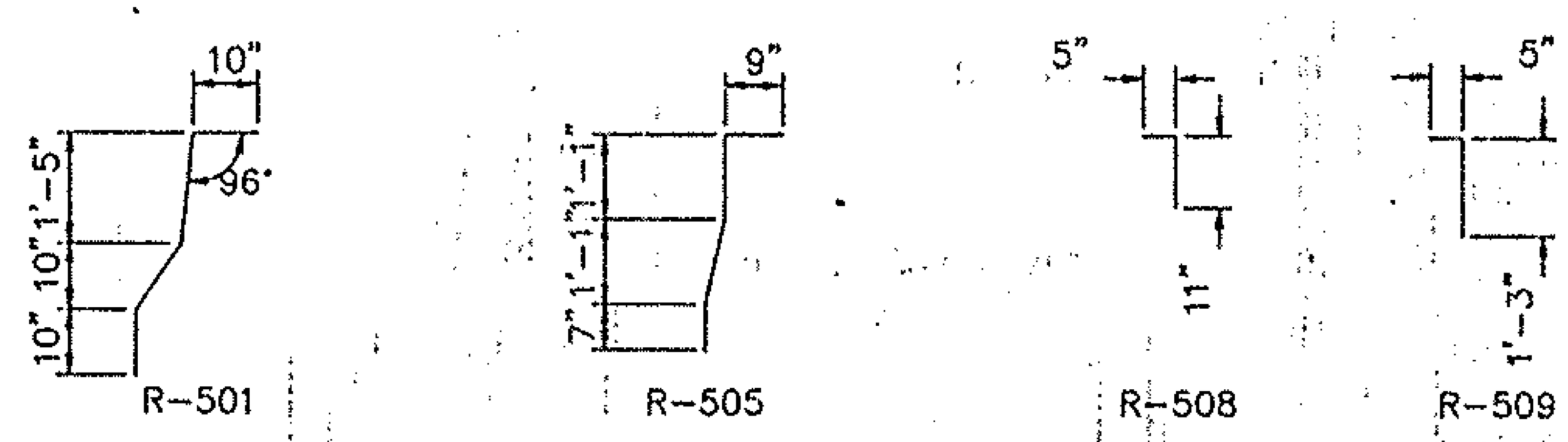
TRANSITION SECTION

TRANSITION SECTION

ESTIMATED QUANTITIES

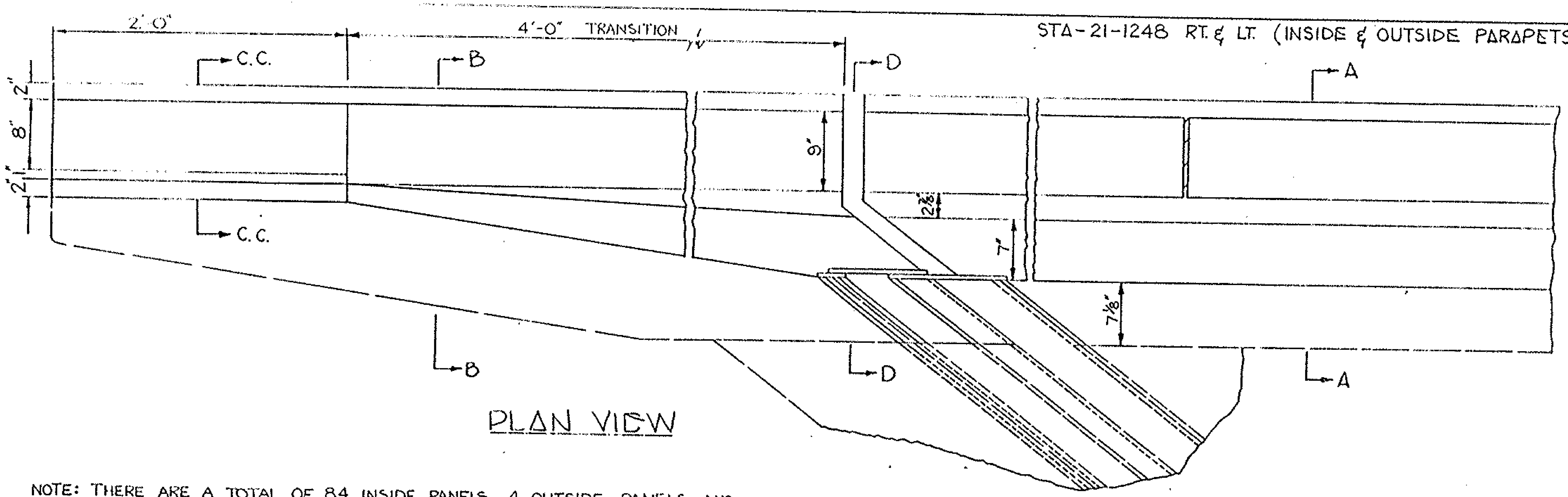
ITEM 517-RAILING, FACED AS PER PLAN 2883 LIN. FT.

STEEL LIST					
BAR NO.	LENGTH	QUANTITY	POUNDS PER FOOT	BENDS OR STR.	WEIGHT POUNDS
R-501	3'-11"	2304	1.043	BENT	9412.11
R-502	5'-5"	24	1.043	STR.	135.59
R-503	5'-5"	16	1.043	STR.	90.39
R-504	5'-5"	16	1.043	STR.	90.39
R-505	3'-6"	16	1.043	BENT	58.41
R-506	3'-5"	24	1.043	STR.	85.53
R-507	3'-5"	24	1.043	STR.	85.53
R-508	1'-2½"	2320	1.043	BENT	2883.55
R-509	1'-6½"	32	1.043	BENT	51.46
R-510	13'-1½"	24	1.043	STR.	328.55
R-511	15'-2½"	504	1.043	STR.	7994.60
R-512	13'-1½"	16	1.043	STR.	219.03
R-513	15'-2½"	336	1.043	STR.	5329.73
R-514	30'-0"	192	1.043	STR.	6007.68
R-515	27'-6½"	8	1.043	STR.	229.81
SUB-TOTALS					33002.28



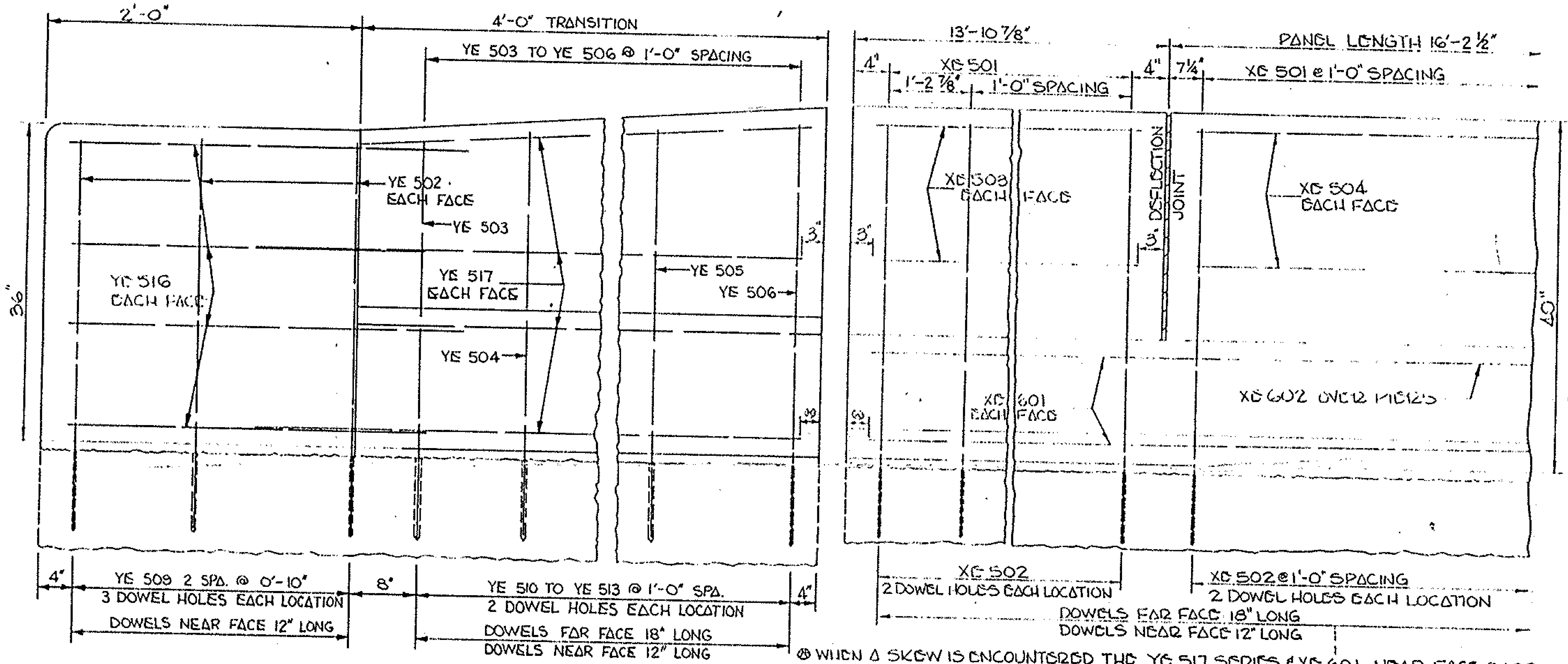
STEEL BENDING DETAILS

STA-21-1248 RT. & LT. (INSIDE & OUTSIDE PARAPETS)



PLAN VIEW

NOTE: THERE ARE A TOTAL OF 84 INSIDE PANELS, 4 OUTSIDE PANELS, AND 4 END SECTIONS EACH SIDE (RT. & LT.).



⊛ WHEN A SKEW IS ENCOUNTERED THE YE 517 SERIES & XE 601, NEAR FACE BARS, SHALL BE ADJUSTED AT THE LAP JOINT TO MEET THE 3" CLEARANCE.

NOTE: ALL DOWEL HOLES ARE 9" DEEP.

PROFILE VIEW

ITEM 511 CONCRETE SUPERSTRUCTURE, AS PER PLAN

DESCRIPTION

THIS ITEM SHALL BE USED TO RECONSTRUCT EXISTING PARAPETS USING CLASS S CONCRETE AS DETAILED ON SHEET NUMBER 116. ALL COSTS OF REMOVAL SHALL BE INCLUDED UNDER ITEM 202 PORTIONS OF STRUCTURES REMOVED.

REMOVAL OF CONCRETE

IN ADDITION TO THE REMOVAL AREAS AS SHOWN ON THE STRUCTURE MODIFICATION DETAILS ALL LOOSE, SOFT, HONEYCOMBED AND DISINTERGRATED CONCRETE PLUS 1/4" DEPTH OF SOUND CONCRETE SHALL BE REMOVED. AFTER COMPLETION OF THE REMOVAL OPERATION, THE ENGINEER SHALL SOUND THE REMAINING CONCRETE TO ENSURE THAT ONLY SOUND CONCRETE REMAINS. ALL WORK SHALL BE DONE IN SUCH A MANNER AS NOT TO DAMAGE OR SHATTER THE CONCRETE THAT IS TO REMAIN AND PREVENT THE REINFORCING STEEL THAT IS TO REMAIN FROM BEING CUT, ELONGATED OR DAMAGED IN ANY WAY. CONCRETE MAY BE REMOVED BY CHIPPING OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 35 POUND CLASS.

SURFACE PREPARATION

NOT MORE THAN 24 HOURS PRIOR TO PLACING THE NEW WALL, ALL SURFACES TO WHICH THE WALL IS TO BOND, INCLUDING EXPOSED REINFORCING AND STRUCTURAL STEEL, SHALL BE CLEANED BY ABRASIVE BLASTING OR AN APPROVED METHOD OF WATER BLASTING. THESE SURFACES 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 DETRIMENTAL TO ACHIEVING AN ADEQUATE BOND

REINFORCING STEEL

ALL COSTS OF LABOR AND MATERIAL NECESSARY TO CUT THE EXISTING NUMBER 5 REBARS AS SHOWN ON THE PROPOSED PARAPET DETAILS SHALL BE INCLUDED UNDER THIS ITEM OF WORK. ALL OTHER STEEL SHALL BE EPOXY COATED AND WILL BE PAID FOR SEPARATELY UNDER ITEM 509 EPOXY COATED REINFORCING STEEL, GRADE 60.

METHOD OF MEASUREMENT

THE FINAL AMOUNT SHALL BE THE ACTUAL NUMBER OF CUBIC YARDS COMPLETE IN PLACE

MISCELLANEOUS NOTES

REMOVE VERTICAL LEG OF BULB ANGLE, IF REMAINING BULB ANGLE BECOMES LOOSE, IS DAMAGED OR IF UNSOUND CONCRETE EXISTS UNDERNEATH THE BULB ANGLE THE CONTRACTOR SHALL REMOVE THE ENTIRE BULB ANGLE. COST OF THE ABOVE WORK SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 202 PORTIONS OF STRUCTURES REMOVED.

INSTALL DEFLECTION JOINTS AS PER STANDARD CONSTRUCTION DRAWING BR-1. SPACING SHALL BE AS SHOWN ON THIS SHEET (DIMENSION E) WHICH PROVIDES FOR A DEFLECTION JOINT IN THE NEGATIVE MOMENT REGION OVER PIERS.

TYPE A TERMINAL END SHOES SHALL BE FASTENED TO THE PROPOSED RETROFITTED PARAPET WITH 7/8" DIAMETER HEX HEAD BOLTS THROUGH THE PARAPET WITH 3" BY 3" BY 1/2" PLATE WASHERS AND HEX HEAD NUTS ON BACK OF PARAPET. (SEE GR-3)

TRANSVERSE EXTENSION OF STRUCTURAL STEEL EXPANSION JOINTS

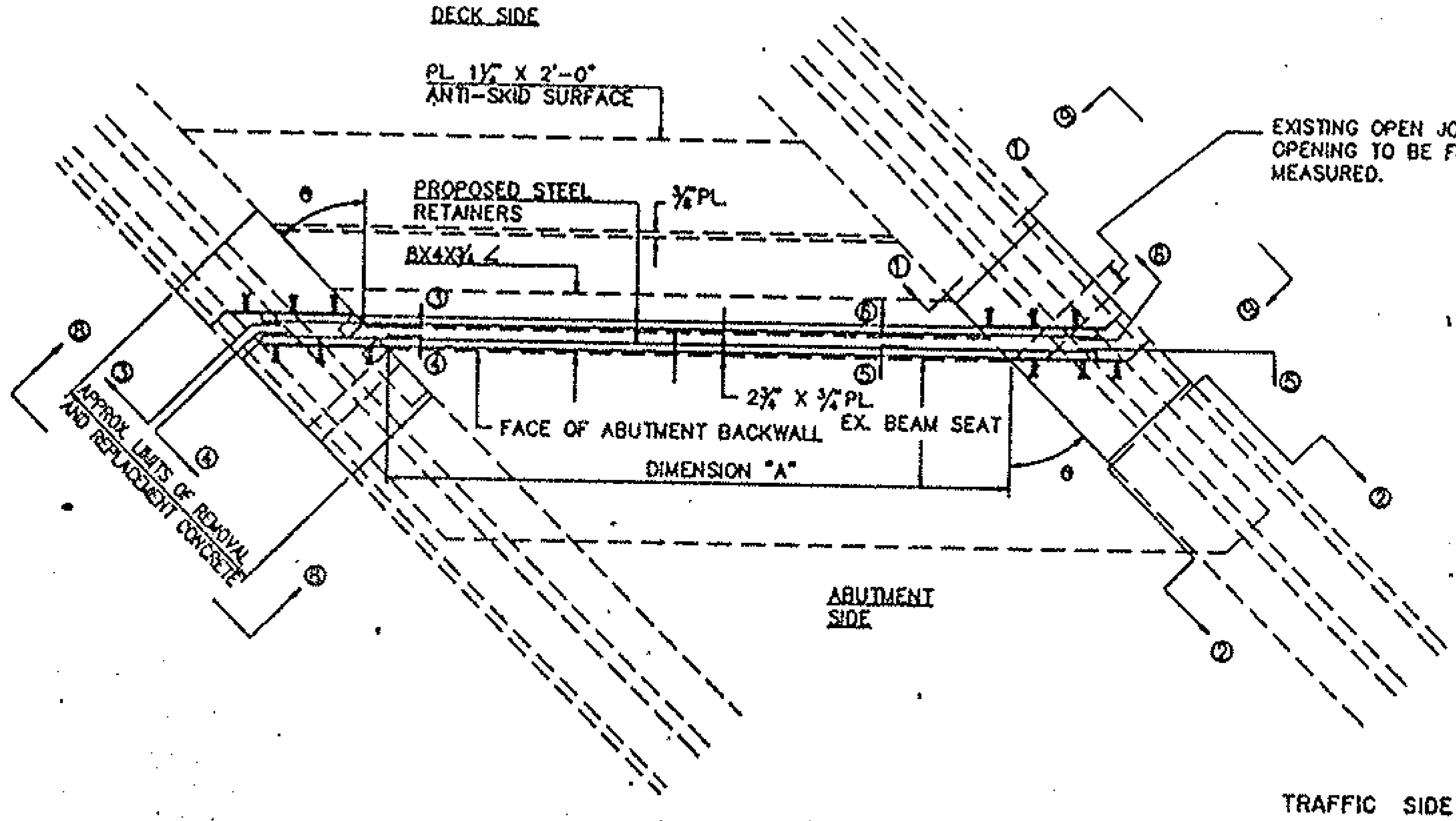
THE NEW CONCRETE BARRIER SAFETY SHAPE WILL RESULT IN A WIDER CLEAR ZONE WIDTH THAN THE EXISTING CURB AND PARAPET WALL. THIS WILL OCCUR ON ALL STRUCTURES GETTING THE NEW SAFETY SHAPE. AS A RESULT THE STRUCTURAL STEEL EXPANSION JOINTS SHALL BE EXTENDED TRANSVERSELY TO THE NEW CURB PLATES AS SHOWN IN PROPOSED SECTIONS D-D AND E-E, SHEET Nº 116. THE COSTS OF LABOR, MATERIALS AND INCIDENTALS TO PERFORM THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 516 HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN.

THE ¾" DOWEL BARS SHALL CONFORM TO STANDARDS AS PER SECTIONS 709.01 709.03 709.05 & 709.13 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS. GROUT SHALL MEET THE REQUIREMENTS OF ASTM C-881, TYPE 1, GRADE 3, CLASS A, B, OR C.

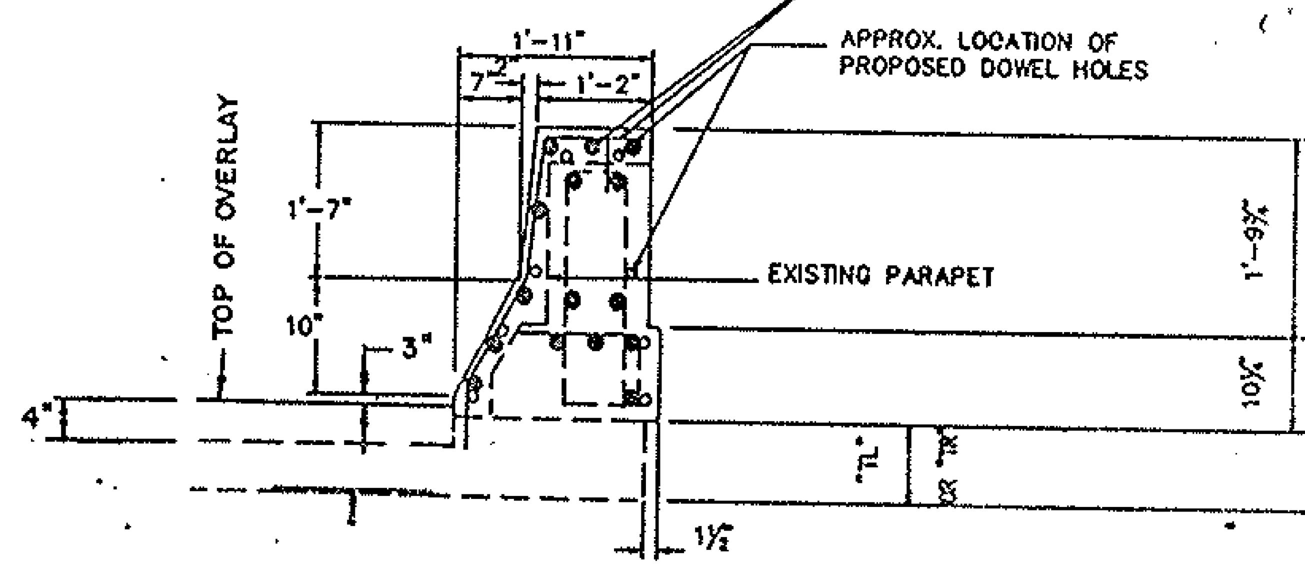
All existing railings and posts shall be designated salvageable materials. These materials shall be disposed of as per Items 202.02 and 202.03 and payment shall be included in the contract price for Item 202, Portions of structures removed.

These salvageable materials shall be removed from the site by State forces and delivered to the District 4 Maintenance Yard at 705 Oakwood Street, Ravenna, Ohio, 44266.

REVISED 4-2-90

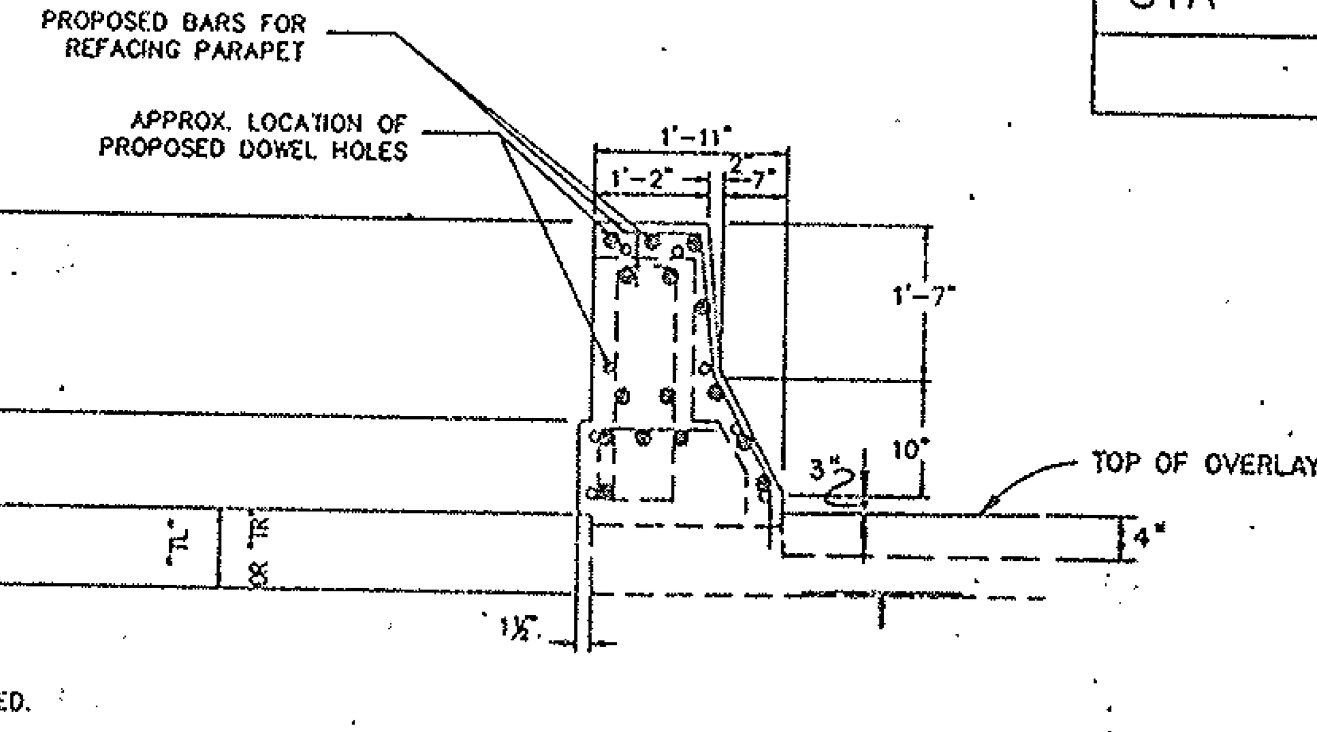


PLAN AT ABUTMENT
(TYPE A EXPANSION JOINT MODIFICATION)



SECTION ① - ①

NOTE: ALL EXISTING VERTICAL BARS FROM REMOVAL AREAS SHALL BE PRESERVED.
ALL VERTICAL AND HORIZONTAL BARS ARE NO. 5'S.



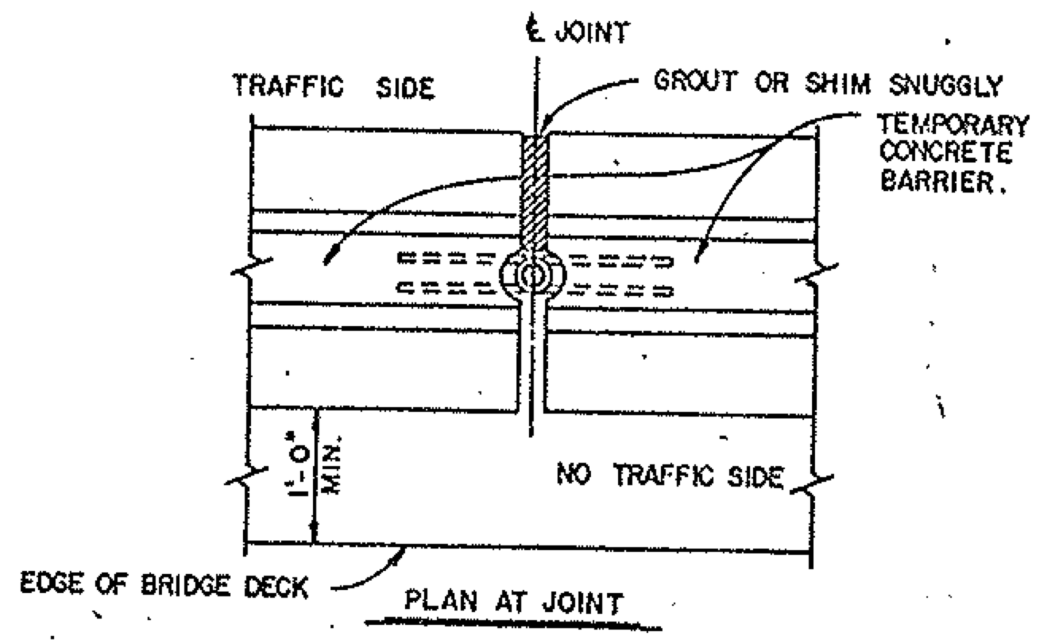
SECTION ② - ②

BRIDGE DECK SURFACE PREPARATION:

A. THE BRIDGE DECK SURFACE AREA ON WHICH THE PRECAST CONCRETE BARRIERS WILL REST, SHALL BE CLEARED OF ALL LOOSE SAND, GRAVEL, DIRT AND DEBRIS.

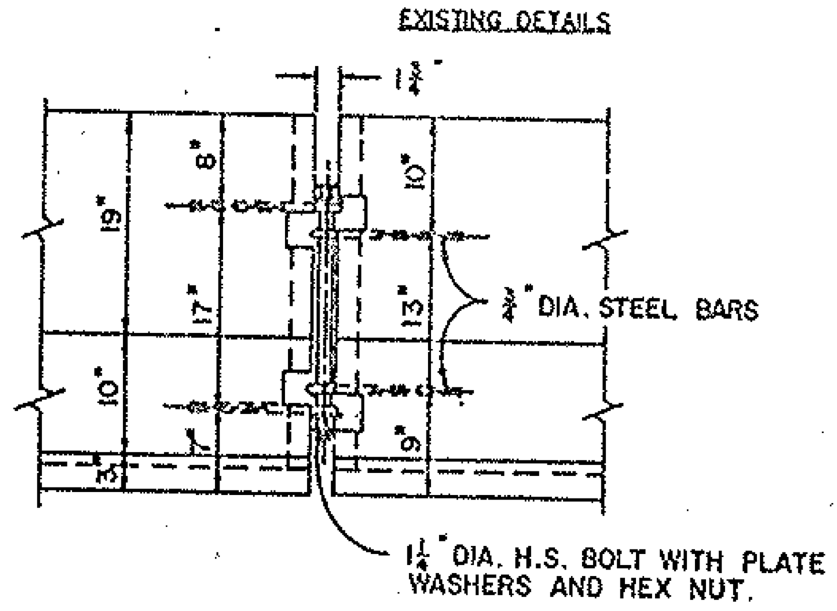
B. ANY IRREGULARITIES IN THE BRIDGE DECK AREA, UNLESS JUDGED BY THE ENGINEER TO BE INCONSEQUENTIAL, SHALL BE LEVELED WITH GROUT AND/ OR ASPHALT.

C. ASPHALT ROLL ROOFING SHALL BE PLACED ON THOSE BRIDGE DECK AREAS, AS JUDGED BY THE ENGINEER, TO HAVE A SURFACE ROUGHNESS WHICH WOULD INHIBIT FRICTION CONTACT BETWEEN BARRIER SEGMENT AND DECK.



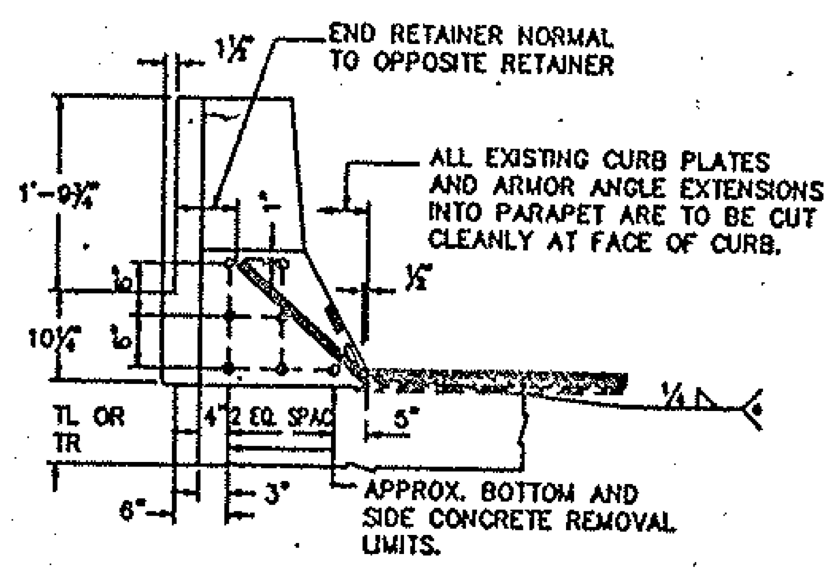
PLAN AT JOINT

EXISTING DETAILS



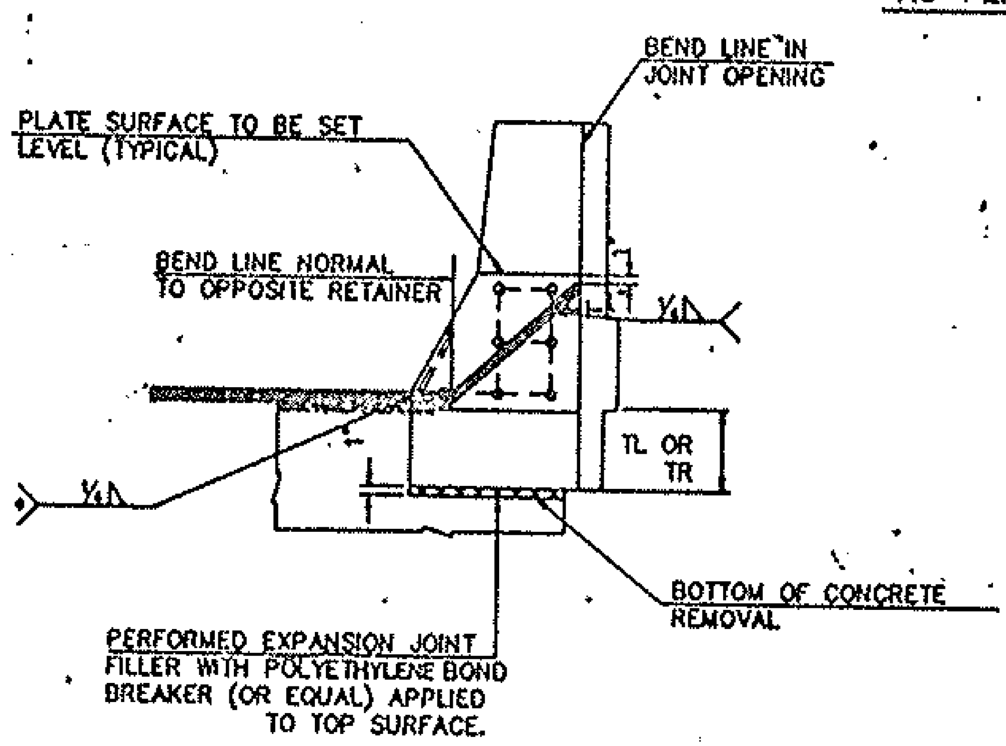
ELEVATION AT JOINT

DETAILS - TEMPORARY PRECAST CONCRETE BARRIER - AS PER PLAN

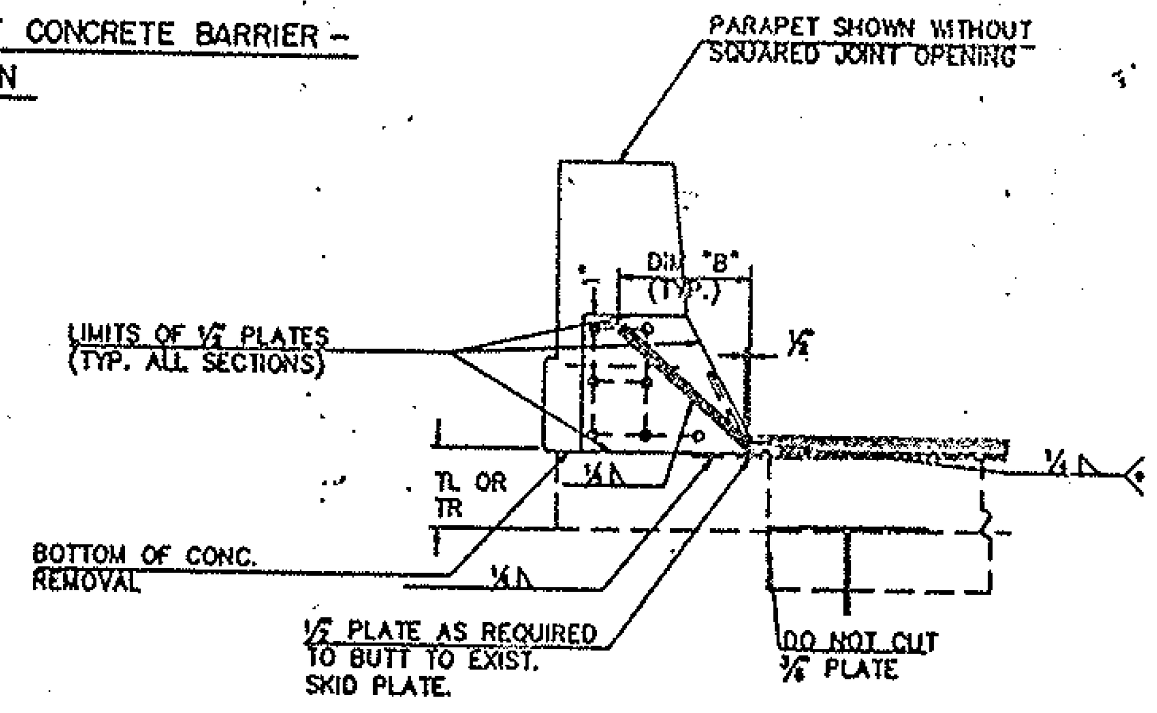


SECTION ③ - ③
(PARAPET AND PLATE DIMENSIONS SHOWN ABOVE ARE TYPICAL FOR ALL SECTIONS.)

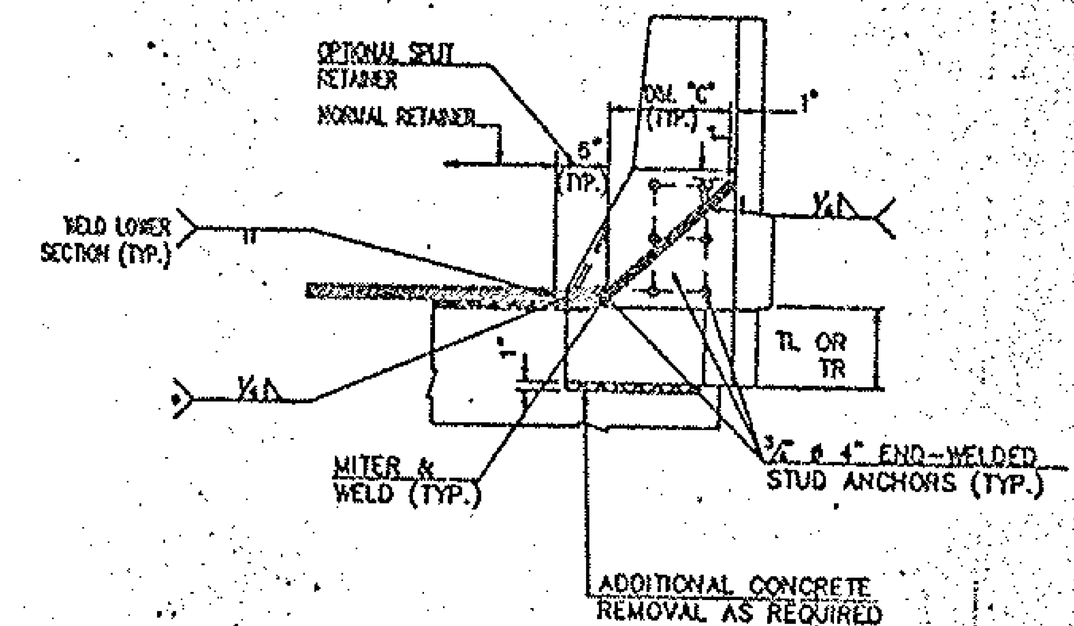
• OPPOSITE SIDE OF RETAINER



SECTION ④ - ④



SECTION ⑤ - ⑤



SECTION ⑥ - ⑥

NOTES

TL - INDICATES THICKNESS LEFT SIDE OF BRIDGE
TR - INDICATES THICKNESS RIGHT SIDE OF BRIDGE
FOR SECTION ⑦ - ⑦, VEIWS ⑧ - ⑧ AND ⑨ - ⑨, SEE SHEET 3/3.
FOR DIMENSIONS, ANGLES AND RELATED DATA, SEE TABLE A, SHEET 3/3.
FOR ADDITIONAL DETAIL NOTES, SEE SHEET 1/3.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

2/3

EXPANSION JOINT MODIFICATION DETAILS FOR STRIP SEALS TYPE A

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

STA-21-1239

FHWA REGION 5

FEDERAL PROJECT

117 / 117

ITEM 516- VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC STRIP SEALS, MODIFICATION TYPE A, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL THE WORK REQUIRED TO REMOVE EXISTING VERTICAL EXTENSION BARS, IF ANY ARE PRESENT, TRIM EXISTING TOP ANGLE IF NECESSARY, AND THE FURINISHING, FABRICATION AND INSTALLATION OF ALL ANCHOR PLATES, STUDS, STEEL PLATE BARS, STEEL RETAINERS AND ELASTOMERIC STRIP SEAL GLANDS AS PER DETAILS SHOWN ON THE PLANS.

THE STEEL RETAINERS SHALL BE FURNISHED IN MAXIMUM LENGTHS POSSIBLE TO ALLOW FOR TRAFFIC MAINTENANCE AND SHALL BE BUTT WELDED TOGETHER TO FORM A WATERTIGHT JOINT. THE STRIP SEAL GLAND SHALL NOT BE INSTALLED UNTIL ALL OTHER WORK HAS BEEN COMPLETED ON THE BRIDGE.

MATERIALS: THE STEEL RETAINERS, ANCHOR PLATES AND STEEL PLATE BARS SHALL CONFORM TO ASTM A36 OR A588.

THE PREFORMED STRIP SEAL GLAND SHALL BE EXTRUDED POLYCHLOROPRENE MATERIAL MEETING THE REQUIREMENTS OF ASTM D2628. DUE TO THE CONFIGURATIONS OF THE STRIP SEAL, THE RECOVERY TESTS ARE NOT APPLICABLE. PHYSICAL PROPERTIES SHALL MEET THE REQUIREMENTS SPECIFIED ON THIS SHEET.

EACH LOT STRIP SEAL GLANDS SHALL BE TESTED BY THE MANUFACTURER OR AN ACCREDITED LABORATORY TO ENSURE COMPLIANCE WITH THESE PROVISIONS. TWO CERTIFIED COPIES OF THE QUALIFICATION TEST DATA INDICATING THAT THE TESTED MATERIALS COMPLY WITH THESE PROVISIONS SHALL BE SUBMITTED TO THE TESTING LABORATORY.

EACH STRIP SEAL GLAND DESIGN, SHAPE, WIDTH, DEPTH AND THICKNESS SHALL BE APPROVED BY THE DIRECTOR. MATERIAL ACCEPTANCE WILL BE BASED UPON LABORATORY EVALUATION OF CERTIFIED TEST DATA AND THE TE-30 FIELD INSPECTION REPORT.

LUBRICANT- ADHESIVE USED TO INSTALL THE PREFORMED STRIP SEALS SHALL BE A POLYURETHANE AND HYDROCARBON SOLVENT MIXTURE AS SPECIFIED BY THE SEAL MANUFACTURER (UNLESS OTHERWISE APPROVED BY THE DIRECTOR). IT SHALL HAVE SUITABLE CONSISTENCY AT THE TEMPERATURE AT WHICH THE SEALS ARE INSTALLED AND SHALL BE COMPATIBLE WITH THE STEEL RETAINERS.

SPLICE OR JOINT IN SEAL GLAND: SEAL GLANDS FOR BRIDGE DECK JOINTS SHALL BE FURNISHED IN ONE CONTINOUS PIECE UNLESS A SHOP FABRICATED SPLICE, FIELD SPLICE OR FIELD BUTT JOINT IS INDICATED ON THE PLANS OR APPROVED BY THE DIRECTOR.

COMPLETED SPLICES SHALL HAVE NO OFFSETS ON EXTERIOR SURFACES, AND AFTER INSTALLATION, THERE SHALL BE NO EVIDENCE OF BOND FAILURE AT THE SPLICES.

FOR OTHER THAN STRAIGHT SEALS WITHOUT INTERMEDIATE SPLICES, SEAL GLANDS SHALL BE SHOP FABRICATED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. SHOP DRAWING DIMENSIONS FOR EXISTING JOINTS OR FOR JOINTS WHICH ARE BEING MODIFIED SHALL BE BASED ON FIELD MEASUREMENTS PROVIDED BY THE CONTRACTOR.

PREPARATION FOR INSTALLATION: TO AVOID THE SUBSEQUENT CONTAMINATION OF THE PREPARED SURFACES, ALL SURFACES OF ELASTOMERIC STRIP SEAL GLANDS SHALL BE CLEANED WITH METHYL ETHYL KETONE (MEK), TOLUENE (T) OR OTHER APPROVED SOLVENT USING CLEAN DISPOSABLE CLOTHS.

THE BONDING SURFACES OF THE STEEL RETAINERS (THE INTERIOR OF THE ANCHOR GROOVES) SHALL BE PREPARED TO GRADE Sa 3, ASTM D2200. PREPARATION SHALL BE ACCOMPLISHED NOT MORE THAN 24 HOURS PRIOR TO ADHESIVE BONDING.

INSTALLATION: IMMEDIATELY PRIOR TO APPLICATION OF LUBRICANT-ADHESIVE, BONDING SURFACES SHALL BE CLEAN, DRY AND WARMER THAN 45 DEGREES F, AND THEY SHALL BE MAINTAINED AT OR ABOVE THIS TEMRERATURE UNTIL THE ADHESIVE HAS CURED. LUBRICANT-ADHESIVE SHALL BE APPLIED LIBERALLY TO BOTH STEEL AND ELASTOMERIC BONDING SURFACES USING A STIFF BRUSH IF NECESSARY TO ACHIEVE A COMPLETE AND RELATIVELY UNIFORM COATING. THEN THE BULBED EDGES OF THE ELASTOMERIC SEAL SHALL BE INSERTED INTO THE ANCHOR GROOVES. AFTER INSTALLATION, EXCESS LUBRICANT-ADHESIVE SHALL BE REMOVED FROM THE EXPOSED SEAL SURFACES.

SEAL GLANDS SHALL BE INSTALLED WITH EQUIPMENT DESIGNED OR SPECIFICALLY ADAPTED FOR THE INSTALLATION OF ELASTOMERIC JOINT SEAL GLANDS. THIS EQUIPMENT SHALL NOT ELONGATE THE SEAL GLAND OR CAUSE STRUCTURAL DAMAGE TO THE COMPLETED INSTALLATION.

THE STEEL RETAINERS AND ELASTOMERIC STRIP SEAL GLANDS SHALL BE MANUFACTURED BY THE WATSON BOWMAN AND ACME CORPORATION, 95 PINEVIEW DRIVE, AMHERST, NEW YORK 14120; THE D. S. BROWN COMPANY, P.O. BOX 158, NORTH BALTIMORE, OHIO 45872, STRUCTURAL ACCESSORIES INC., TERRYVILLE, CT 06786 OR AN APPROVED ALTERNATE.

PHYSICAL PROPERTIES OF SEAL ELEMENT

PROPERTY	REQUIREMENT	ASTM METHOD
TENSILE STRENGTH, MIN. P.S.I.	2000	D412
ELONGATION AT BREAK, MIN. PERCENT	250	D412
HARDNESS, TYPE A DUROMETER	50 MIN. 65 MAX.	D2240 (MODIFIED)
OVEN AGING, 70 HR. AT 212 DEGREES F		
TENSILE STRENGTH, LOSS, MAX.	20 PERCENT	
ELONGATION, LOSS, MAX.	20 PERCENT	D573
HARDNESS, TYPE A DUROMETER (POINTS CHANGE)	0 TO +10	
OZONE RESISTANCE		
20 PERCENT STRAIN, 300 PPHM IN AIR AT 104 DEGREES F (WIPED WITH TOLUENE TO REMOVE SURFACE CONTAMINATION)	NO CRACKS	D1149

MEASUREMENT FOR PAY PURPOSES SHALL BE BASED ON THE LINEAR FEET OF SEALED JOINT SYSTEM, MEASURED HORIZONALLY ALONG THE BACK OF THE STEEL RETAINER AND BETWEEN THE OUTER LIMITS OF THE FABRICATED JOINT, FURNISHED AND PLACE, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE JOINT IN PLACE.

PAYMENT SHALL BE MADE PER LINEAR FOOT FOR ITEM 516 VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC STRIP SEALS, MODIFICATION TYPE A, AS PER PLAN.

Item 850 - Superplasticized Dense Concrete Overlay, As Per Plan

These items shall conform to the requirements of Supplemental Specification 850 except as follows:

In lieu of the conventional 1/4 inch deck scarification, a max. 2 inch thickness of reinforced concrete shall be removed from the entire bridge deck. Deck removal below the 2 inch depth shall be at the direction of the Engineer and shall be paid for under Item 850 - Superplasticized Dense Concrete Overlay (Variable thickness), As Per Plan or Item 850 - Full Depth Repair, As Per Plan. At the option of the Contractor deck removal may be accomplished by the use of hydrodemolition equipment in accordance with the Proposal Note entitled *"Concrete Bridge Deck Surface Preparation Using Hydrodemolition". The cost of any Superplasticized Dense Concrete Overlay (Variable thickness), As Per Plan resulting from unapproved deck removal in excess of the specified 2 inch thickness shall be borne by the Contractor.

* OPTIONAL

The 4-inch max. thickness overlay shall replace the 2 inch reinforced concrete deck removal and extend 1 1/2 inches above the surface of the original reinforced concrete bridge deck.

NOTE: The depth of the deck Scarification Shall be controlled by the depth of the top of the existing reinforcing Steel if this depth is less than 2"

REVISED 6-7-89

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

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NOTES
FOR EXPANSION JOINT
AND PARAPET
MODIFICATIONS
FOR STRIP SEALS

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

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