

MICROFILMED
JUN 29 1988

DESIGN DESIGNATION

Current Year ADT (1988) = 19,050
 Design Year ADT (2008) = 26,670
 D H V (2008) = 3,200
 D (Directional Distribution) = Equal
 T (Percent B & C Trucks) = 32%
 V (Design Speed) = 70
 Legal Speed = 65
 Functional Classification = Interstate

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

MUS-70-(0.76)-(1.43)

LIC-70-28.93 IR-70-7(100)149

HOPEWELL AND SPRINGFIELD TOWNSHIP
MUSKINGUM AND LICKING COUNTY

MUS-70-(0.76)-(1.43)	OHIO
LIC-70-28.93	FHWA REGION 5
IR-70-7(100)149	FEDERAL PROJECT

1
49

LIMITED ACCESS

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

CONVENTIONAL SIGNS

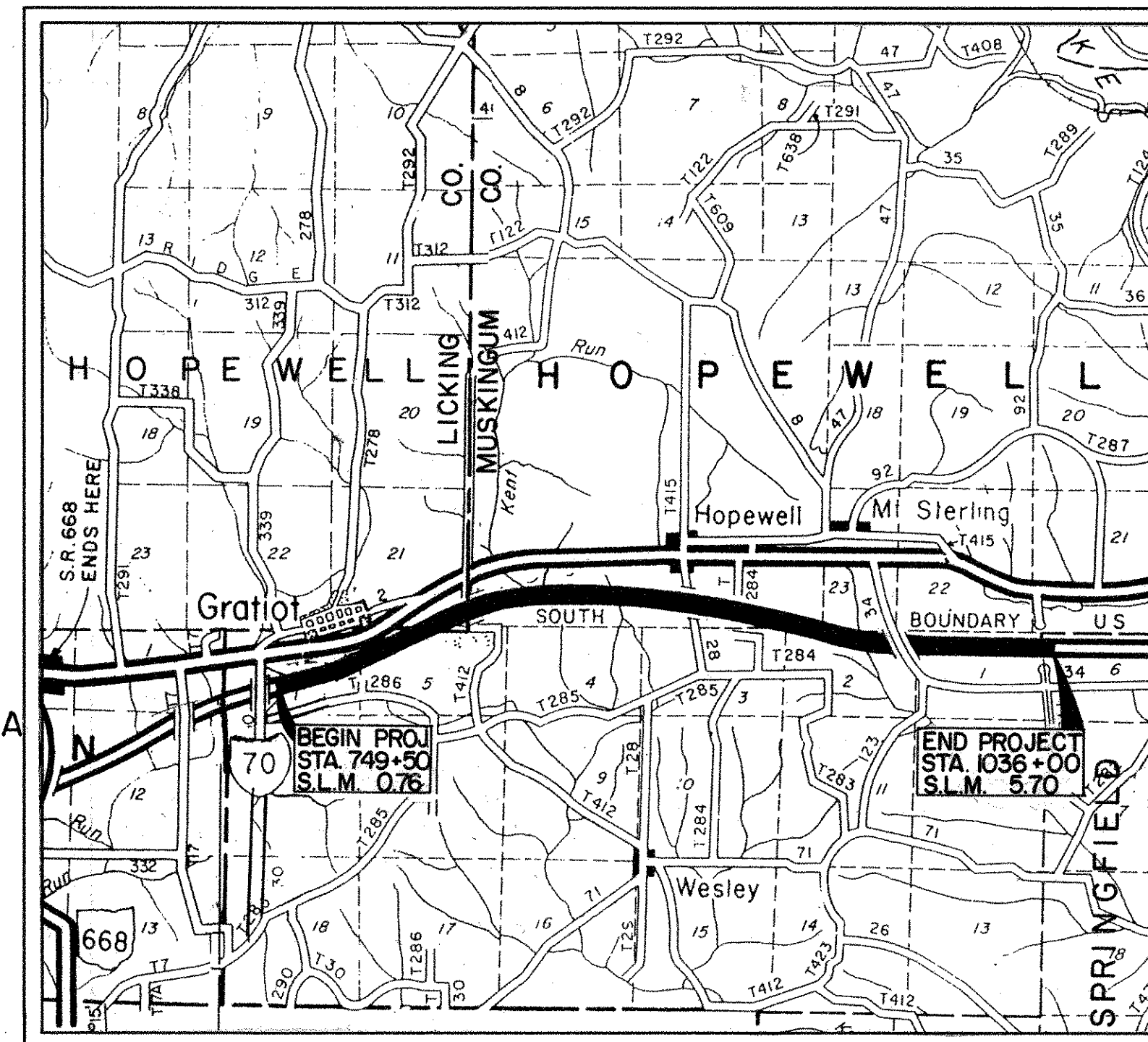
County Line _____ Limited Access (only) _____ LA _____
 Township Line _____ Right of Way (only) _____ RW _____
 Section Line _____ Limited Access & Right of Way _____ LA&RW _____
 Corporation Line _____ Existing Right of Way _____
 Fence Line (existing) $\frac{352}{x}$ (proposed) $\frac{353}{x}$ Property Line $\frac{P}{-}$ (in existing fence) $\frac{-xP}{x}$
 Center Line _____ Railroad _____ or _____
 Trees (to be removed) $\frac{X}{\text{tree symbol}}$ Guardrail (existing) $\frac{\text{triangle symbol}}{\text{triangle symbol}}$ (proposed) $\frac{\text{triangle symbol}}{\text{triangle symbol}}$
 Utility Poles: Telephone $\frac{\text{circle symbol}}{\text{circle symbol}}$, Power $\frac{\text{circle symbol}}{\text{circle symbol}}$, Light $\frac{\text{circle symbol}}{\text{circle symbol}}$ Detour $\frac{\text{arrow symbol}}{\text{arrow symbol}}$

INDEX OF SHEETS

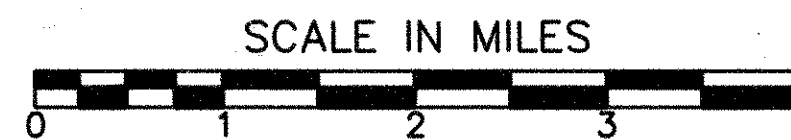
TITLE SHEET _____ 1	GENERAL SUMMARY _____ 21
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GENERAL NOTES _____ 14-18, 18A-C	STRUCTURES, OVER 20' _____ 33-41
TEMPORARY TRAFFIC CONTROL _____ 19-20	MAINTAINING TRAFFIC _____ 42-49

Shts. 33, 34, 37, 38, 39, 40, & 41
revised 8-1-88 WTF

D-5



LOCATION MAP



Portion to be Improved _____
 State & Federal Routes _____
 Other Roads _____

SCALES



LINE DATA

BEGIN PROJECT STA. 749+50.00
 END PROJECT STA. 1036+00.00
 NET LENGTH OF PROJECT 28,650.00 LIN.FT. or 5.426 MILES

BEGIN WORK STA. 1606+00.00
 STATION EQUATION 1614+79.71 BACK =
 748+00.00 AHEAD

END WORK STA. 1037+25.00
 NET LENGTH OF WORK 29,804.71 LIN.FT. or 5.645 MILES

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			
846	11-24-86	952	6-10-87
824	10-8-82	853	6-26-78
949	9-26-86	852	6-10-87
849	12-24-85		
847	10-17-83		
947	10-17-83		
850	2-25-86		
836	11-12-85		
956	6-26-78		

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS					
	GR-1	1-11-85	MC-4	7-26-76	TC-65.10 2-26-82
	GR-2B	2-5-82	MC-9	1-30-84	TC-65.11 4-5-82
BP-5	10-1-87	GR-3	1-21-85	MC-9A	1-11-85
		GR-4	2-5-82	MC-11	8-1-78
		GR-4A	1-30-84		
		GR-5	2-5-82	MT-99.10	11-14-86
		GR-6	2-5-82	MT-99.20	11-14-86
BR-1	5-29-79	GR-6A	2-5-82		
				SD-1-65	11-8-65
EXJ-2-81	4-2-84				
				TC-35.10	8-29-84
				TC-72.20	2-26-82

Plan Prepared By:
DISTRICT NO.5
OHIO DEPARTMENT OF
TRANSPORTATION

Approved John W. Hagan
Date 1-25-88 District Deputy Director
of Transportation

Approved B.D. Harkness
Date 3-1-88 Engineer, Bureau of Bridges and
Structural Design

Approved George E. Downing
Date 4-8-88 Chief Engineer, Planning & Design

Approved Bernard B. Hunt
Date 4-8-88 Director, Department of Transportation

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

Project MUS-70-(0.76)-(1.43)
LIC-70-28.93
Date of Letting _____ 19____ Contract No. _____

MICROFILMED
SEP 8 1988

MICROFILMED
JUN 29 1982

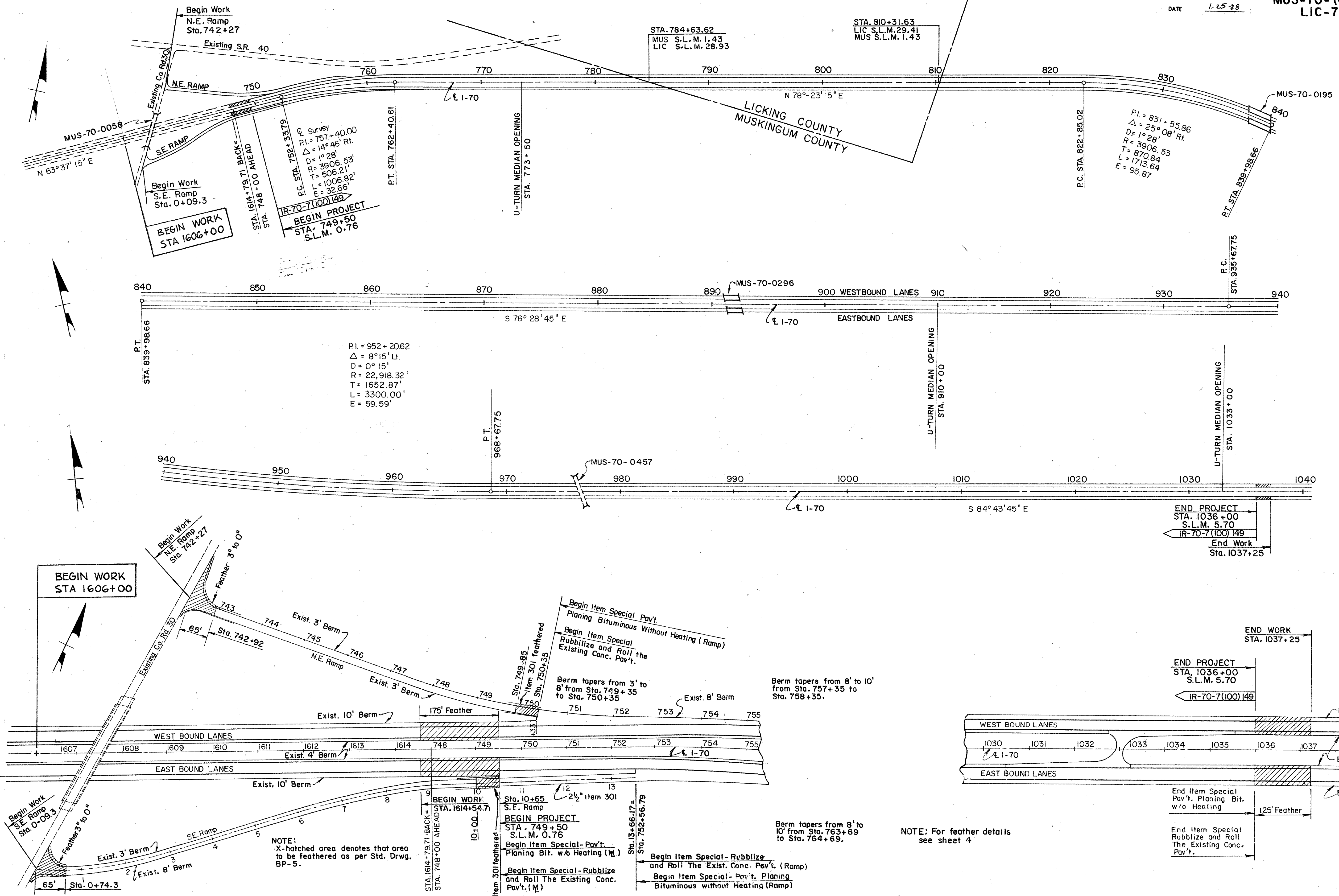
LOCATION PLAN

CALC. BY *D.M.*
DATE *1-15-88*
CHECK BY *km*
DATE *1-25-88*

FHWA REGION	STATE	PROJECT
5	OHIO	

2
49

MUS-70-(0.76)-(1.43)
LIC-70-28.93



BEGIN WORK
STA 1606+00

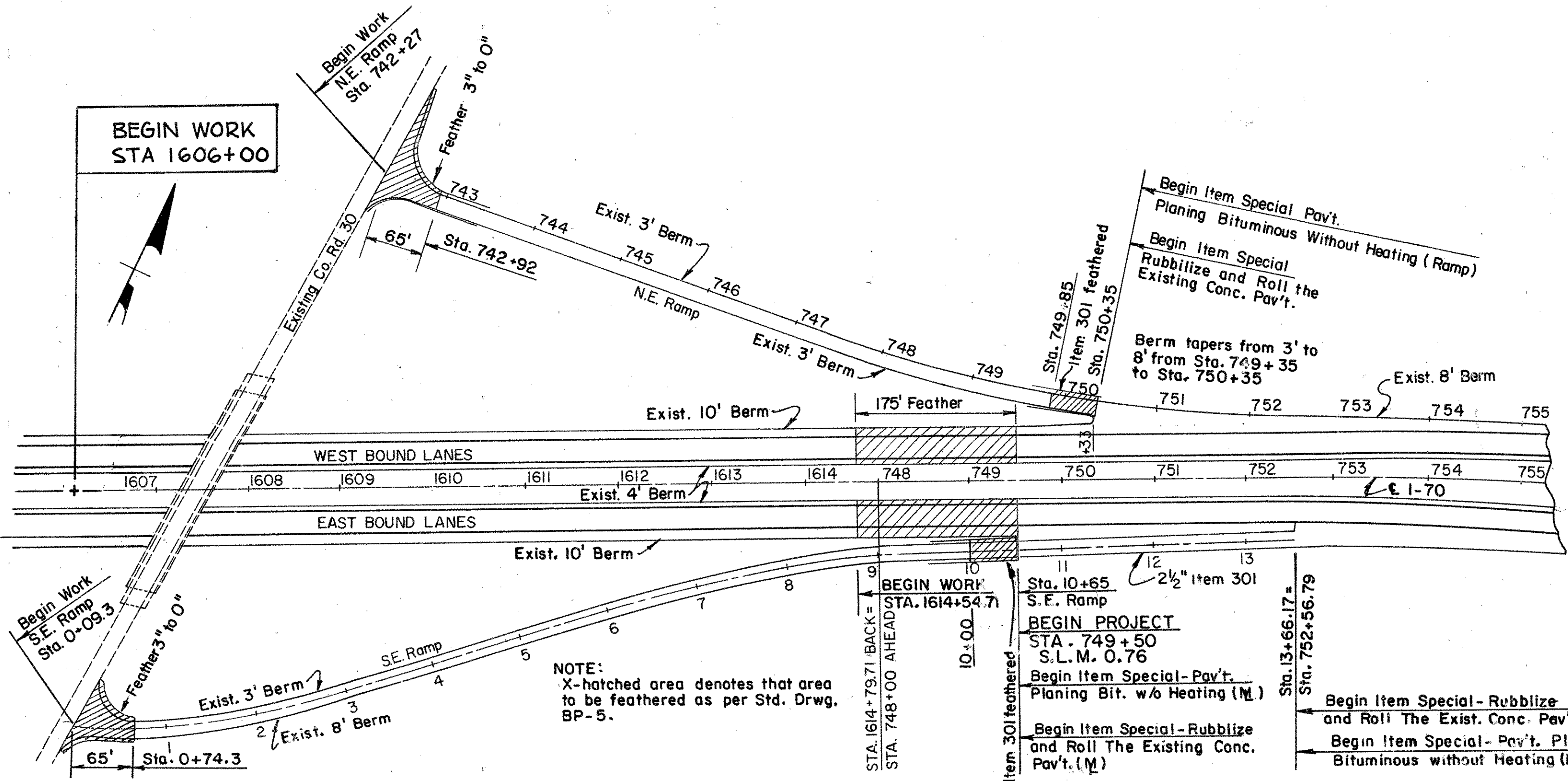
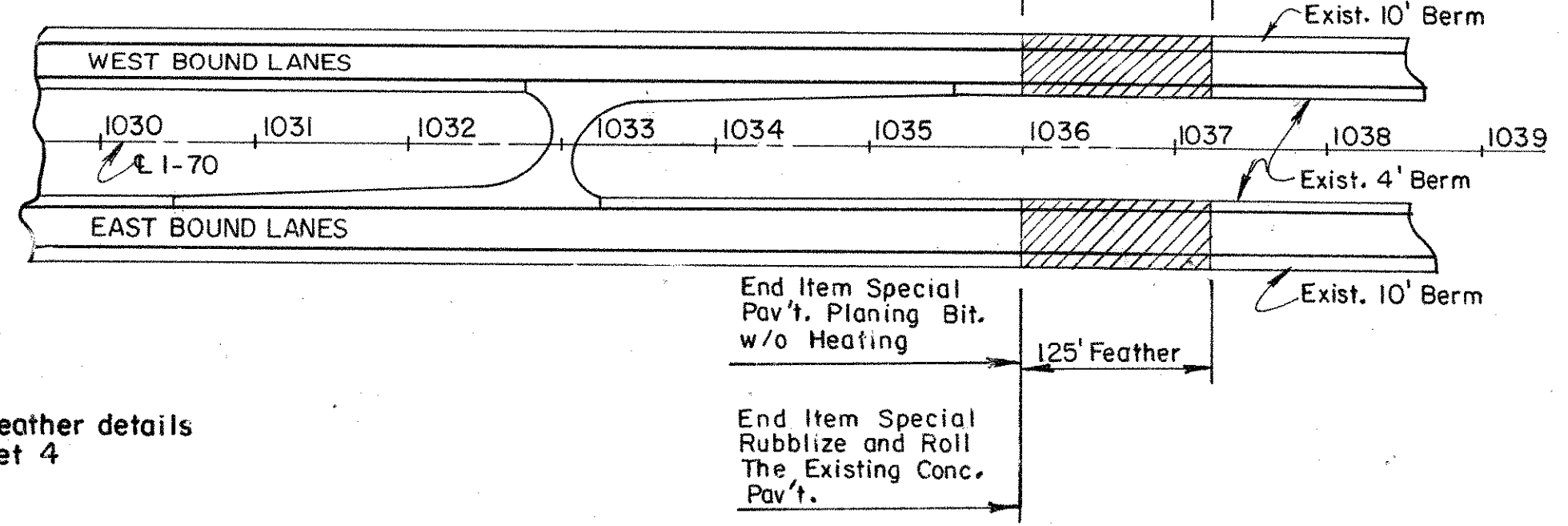
END PROJECT
STA. 1036+00
S.L.M. 5.70
IR-70-7(100)149
End Work
Sta. 1037+25

END PROJECT
STA. 1036+00
S.L.M. 5.70
IR-70-7(100)149

END WORK
STA. 1037+25

NOTE:
X-hatched area denotes that area to be feathered as per Std. Drwg. BP-5.

NOTE: For feather details see sheet 4



TYPICAL SECTIONS (Mainline)

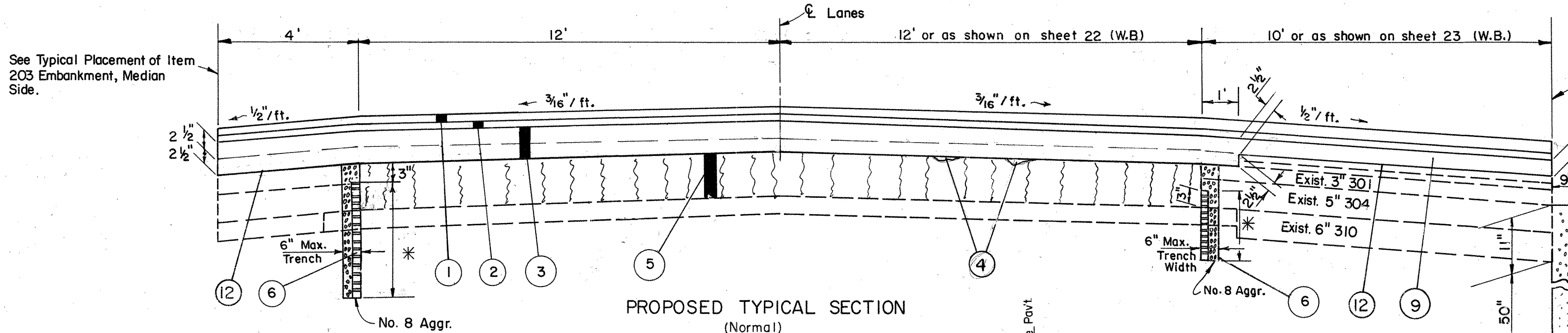
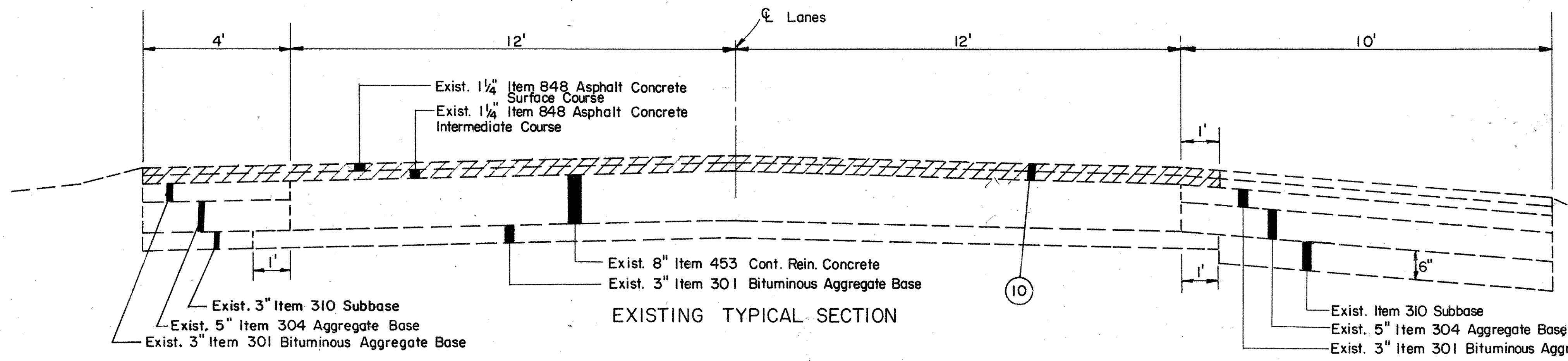
TYPE 846 ON 301

CALC. BY *DW*
 DATE *1-15-88*
 CHECK. BY *RW*
 DATE *1-25-88*

FHWA REGION	STATE	PROJECT	
5	OHIO		

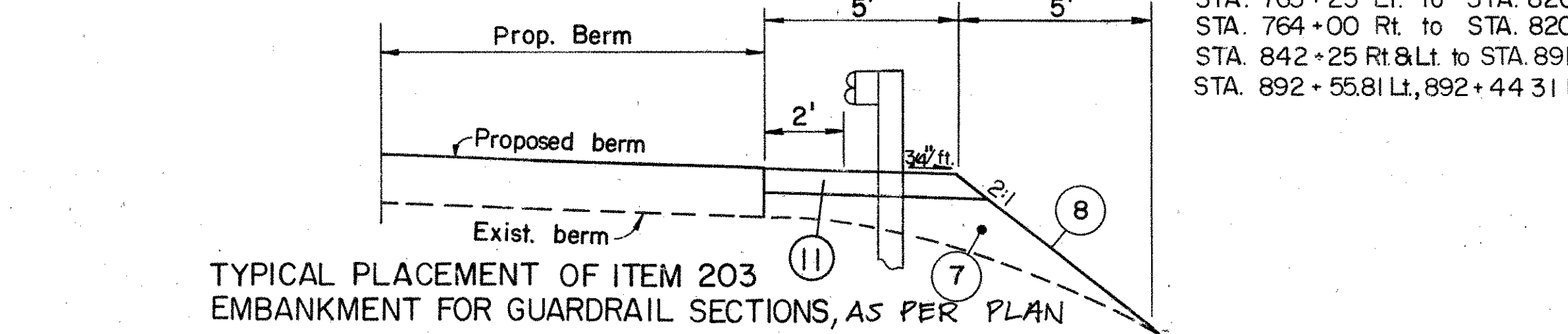
MUS-70-(0.76)-(1.43)
LIC-70-28.93

NOTE: X-hatched area denotes that area to be removed as per Item Special, Pavement Planing, Bituminous, Without Heating.

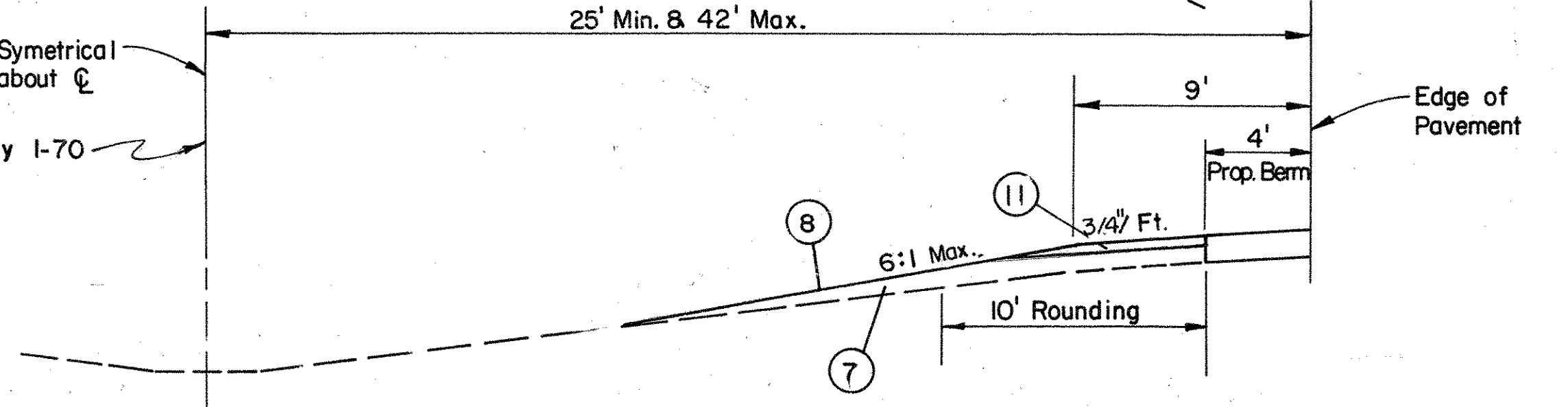


PROPOSED TYPICAL SECTION
(Normal)

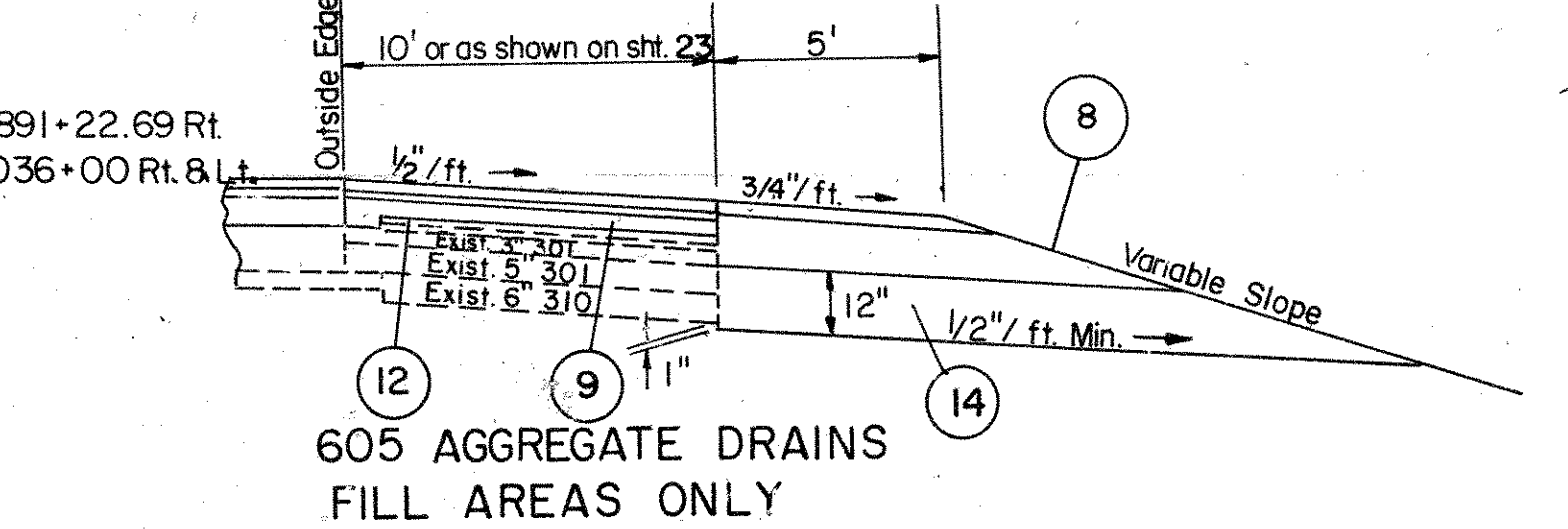
STA. 765+25 Lt. to STA. 820+75 Lt.
 STA. 764+00 Rt. to STA. 820+75 Rt.
 STA. 842+25 Rt. & Lt. to STA. 891+14.69 Lt., 891+22.69 Rt.
 STA. 892+55.81 Lt., 892+44.31 Rt. to STA. 1036+00 Rt. & Lt.



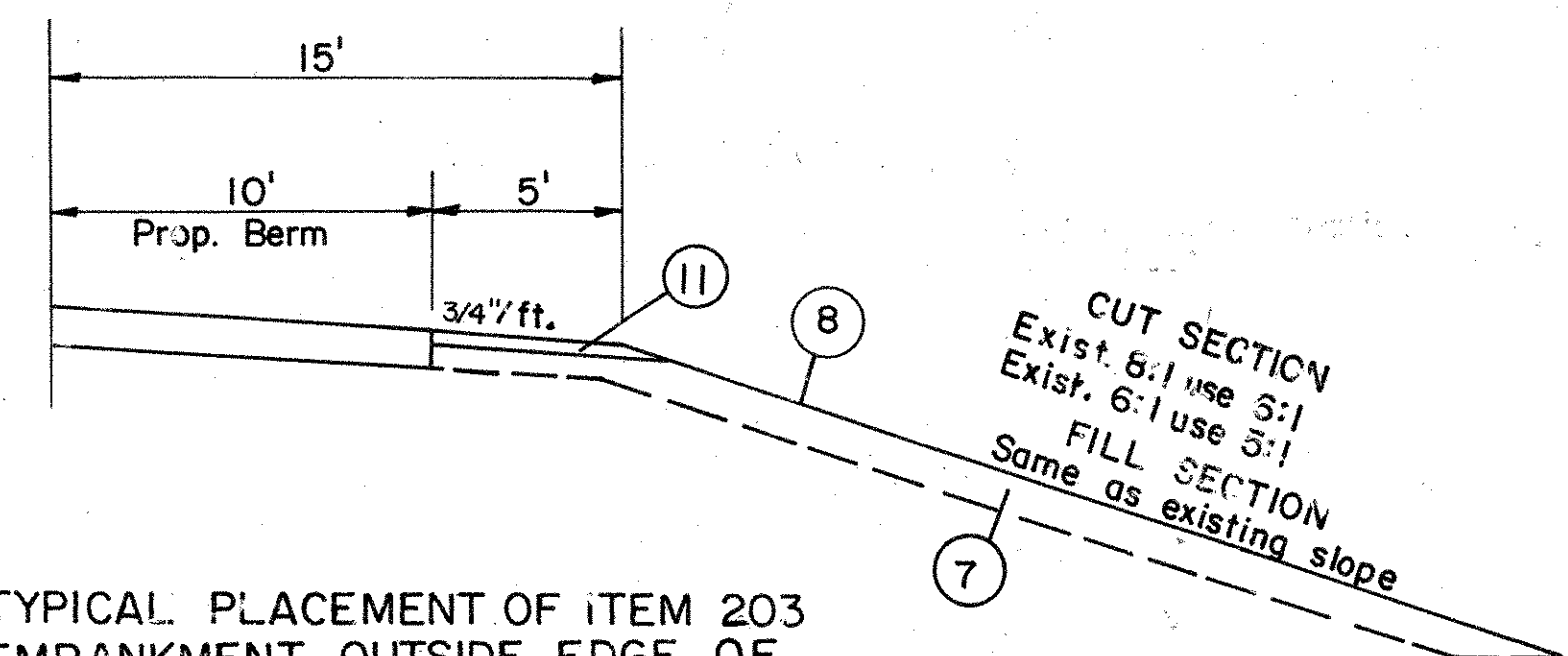
TYPICAL PLACEMENT OF ITEM 203 EMBANKMENT FOR GUARDRAIL SECTIONS, AS PER PLAN



TYPICAL PLACEMENT OF ITEM 203 EMBANKMENT, MEDIAN SIDE, AS PER PLAN



605 AGGREGATE DRAINS FILL AREAS ONLY



TYPICAL PLACEMENT OF ITEM 203 EMBANKMENT, OUTSIDE EDGE OF PAVEMENT, AS PER PLAN, FILL AREAS

See Typical Placement of Item 203 Embankment, Outside Edge of Pavement.

* NOTE: See Pavement Edge Drain Detail Sheet No. 25

NOTE: For stationing of 6" Deep Underdrains See Plan Sheet . 32
Fabric Wrap as per 605.03

LEGEND

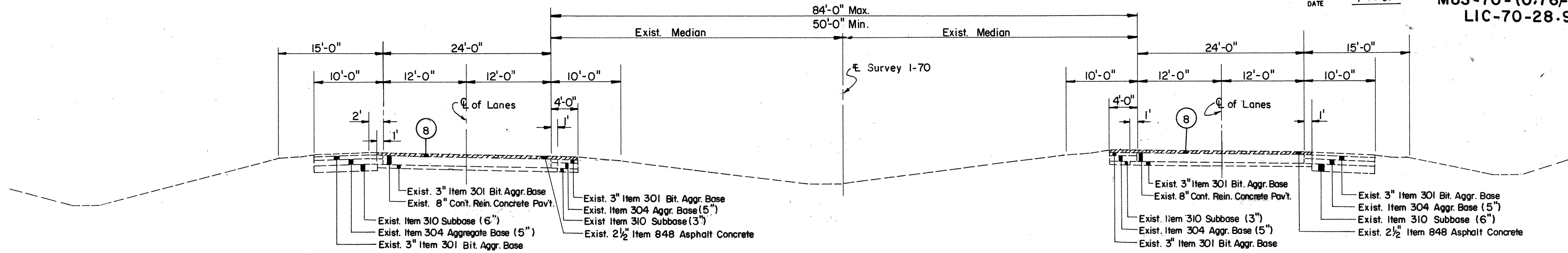
MARK	ITEM	DESCRIPTION
①	846	1 1/4" Asphalt Concrete Surface Course, Type 1, AC-20, As Per Plan (See General Note)
②	846	1 3/4" Asphalt Concrete Intermediate Course, Type 2, AC-20.
③	301	5" Bituminous Aggregate Base: AC-20. (Placed in two equal courses).
④	301	Bituminous Aggregate Base: AC-20, (See General Note)
⑤	Special	Rubblize and Roll The Existing Concrete Pavement. (See Proposal Note)
⑥	605	Pavement Edge Drains. (See Sheet 25)
⑦	203	Embankment, AS PER PLAN
⑧	659	Seeding and Mulching.
⑨	301	2 1/2" Bituminous Aggregate Base: AC-20
⑩	Special	Pavement Planing, Bituminous, Without Heating (See Proposal Notes)
⑪	617	4" Compacted Aggregate, Type A
⑫	407	Tack Coat, As Per Plan (See General Note)
⑬	605	5" Deep Pipe Underdrains, fabric wrapped
⑭	605	Aggregate Drain

TYPICAL SECTION

CALC. BY *D.M.*
 DATE *1-15-88*
 CHECK. BY *...*
 DATE *1-25-88*

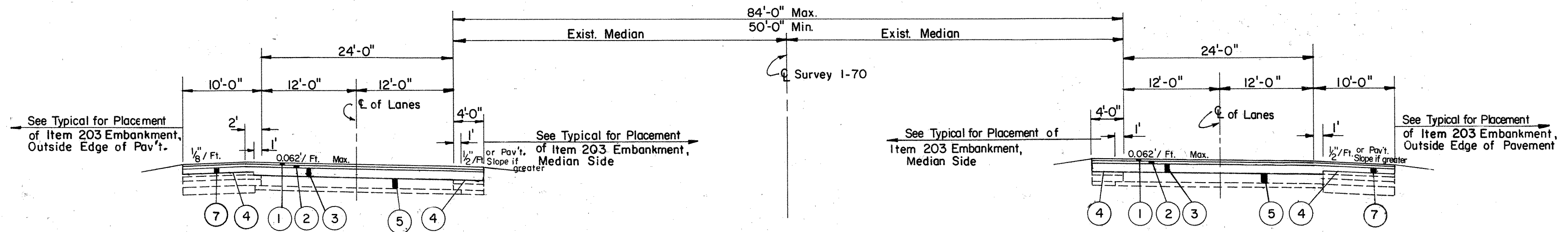
FHWA REGION	STATE	PROJECT
5	OHIO	

MUS-70-(0.76)-(1.43)
 LIC-70-28.93



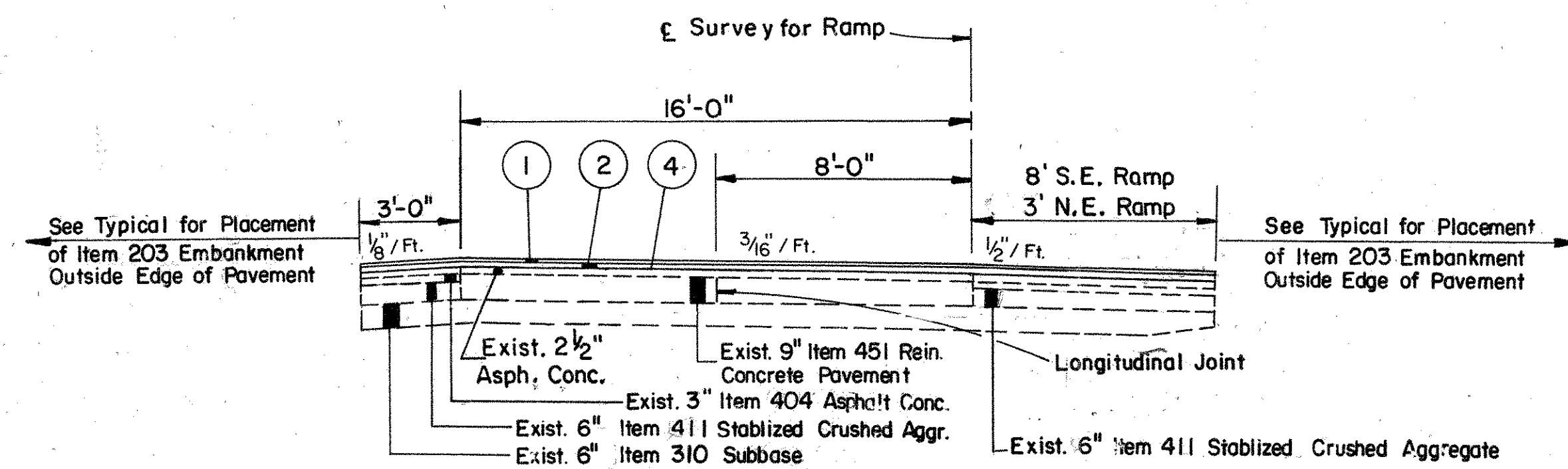
EXISTING MAIN LINE SUPERELEVATED SECTION

NOTE: X-Hatched area denotes that area to be removed as per Item Special, Pavement Planing, Bituminous, Without Heating.



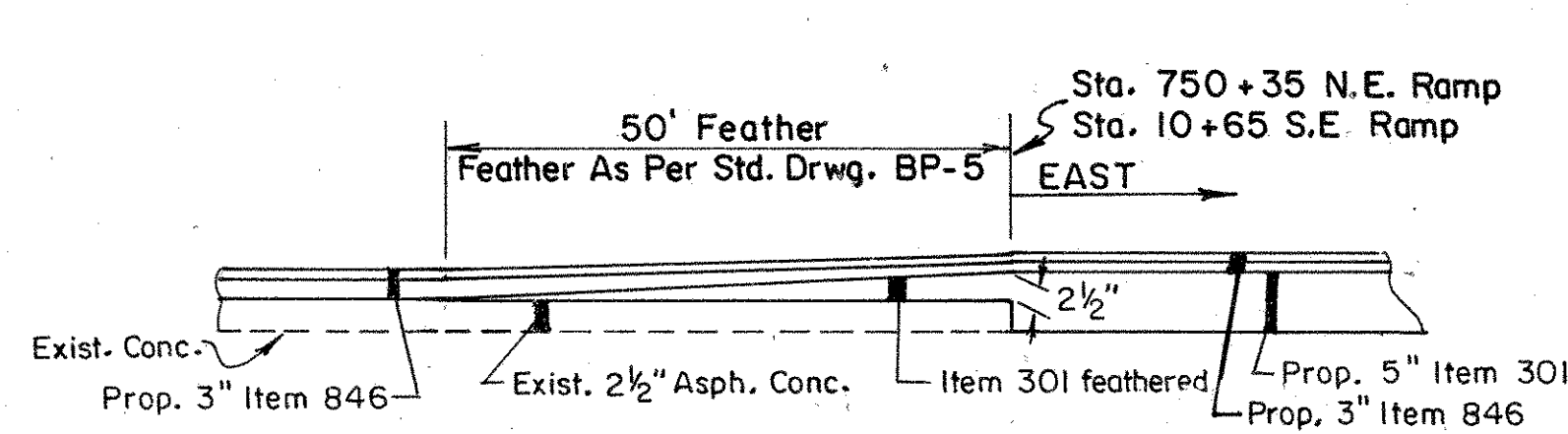
PROPOSED MAIN LINE SUPERELEVATED SECTION

STA. 749+50 Lt. to STA. 765+25 Lt.
 STA. 749+50 Rt. to STA. 764+00 Rt.
 STA. 820+75 Rt. & Lt. to STA. 837+76.12 Rt. & Lt.
 STA. 839+75.93 Rt. & Lt. to STA. 842+25 Rt. & Lt.

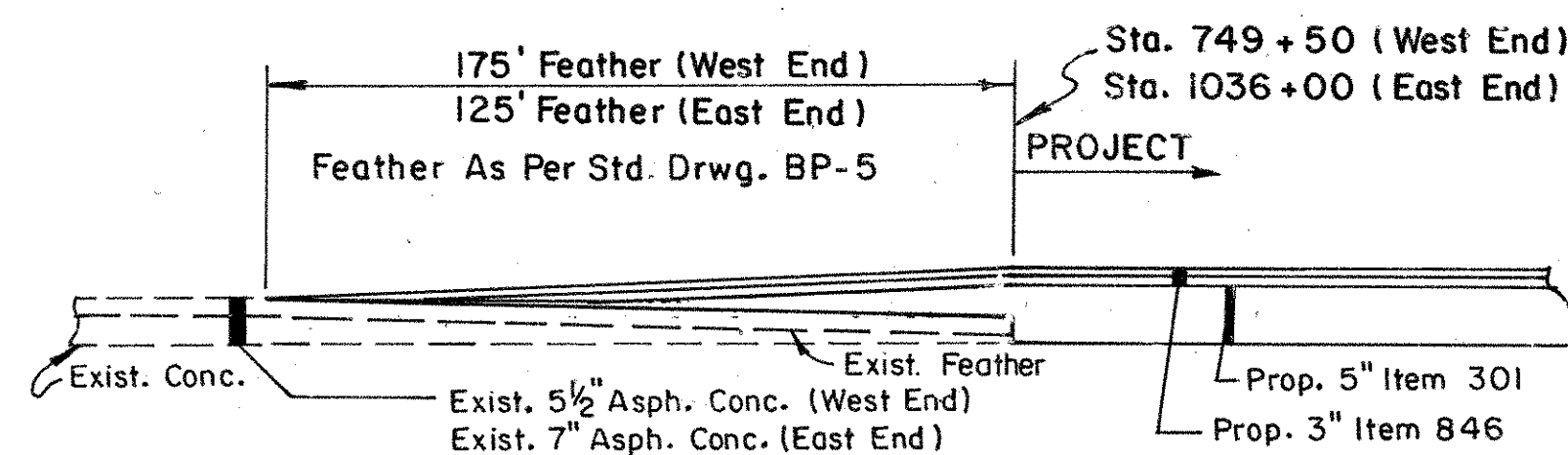


RAMP TYPICAL SECTION

MARK	ITEM	DESCRIPTION
①	846	1 1/4" Asphalt Concrete Surface Course, Type 1, AC-20, As Per Plan (See General Note)
②	846	1 3/4" Asphalt Concrete Intermediate Course, Type 2, AC-20.
③	301	5" Bituminous Aggregate Base AC-20 (To be placed in two equal courses)
④	407	Tack Coat, As Per Plan. (See General Note)
⑤	Special	Rubblize and Roll The Existing Concrete Pavement (See Proposal Note)
⑥	605	Pavement Edge Drains. (See Sheet 25)
⑦	301	2 1/2" Bituminous Aggregate Base AC-20 (See Proposal Note)
⑧	Special	Pavement Planing, Bituminous, Without Heating.



RAMP FEATHERS



MAIN LINE FEATHER

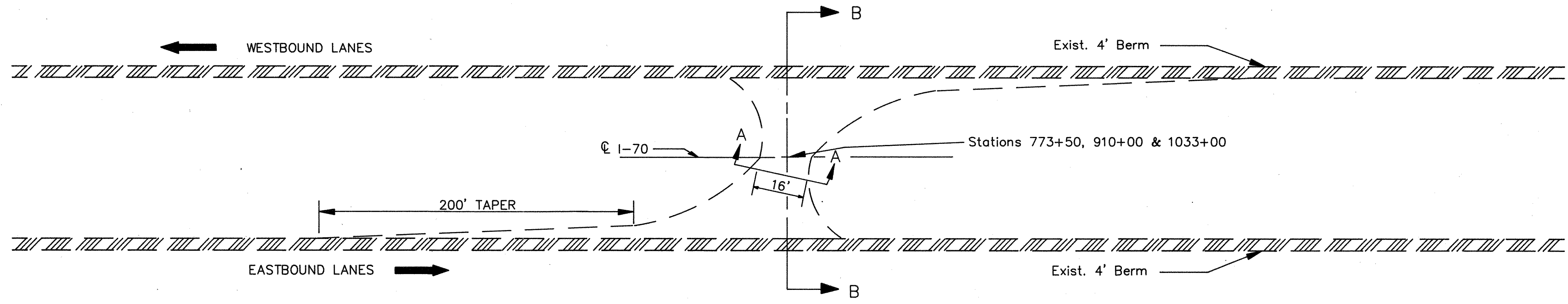
MEDIAN U-TURN DETAIL

CALC. BY *D. M.*
 DATE 1-15-88
 CHECK. BY *A.*
 DATE 1-5-88

FHWA REGION	STATE	PROJECT
5	OHIO	

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MUS-70-(0.76)-(1.43)
 LIC-70-28.93



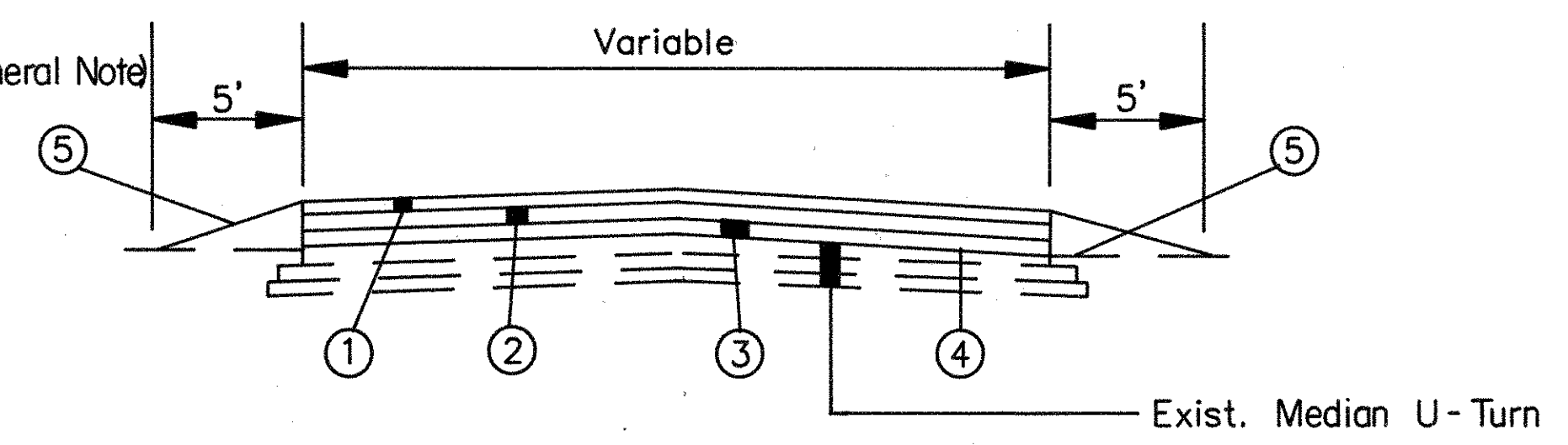
NOTE: X-hatched areas carried with M shoulders.

TYPICAL U - TURN MEDIAN OPENING

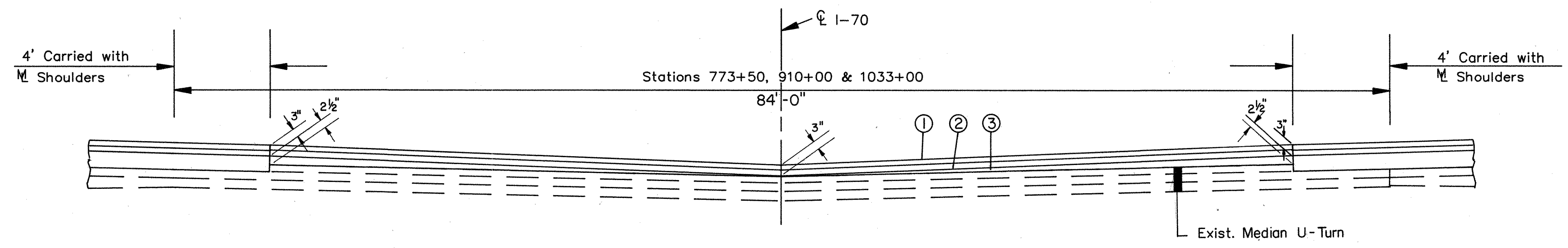
MARK ITEM LEGEND

- ① 846 1 1/4" Asphalt Concrete Surface Course, Type 1, AC-20, As Per Plan, (See General Note)
- ② 846 1 3/4" Asphalt Concrete Intermediate Course, Type 2, AC-20
- ③ 301 Var. Bituminous Aggregate Base; AC-20
- ④ 407 Tack Coat, As Per Plan
- ⑤ 203 Embankment (Quantity included with Mainline)

NOTE: In the area of the Median U-Turn Item
 846 Asphalt Conc. Intermediate Course, Type 2
 AC-20 may be used in lieu of Item 301 Bituminous
 Aggregate Base.



SECTION A-A



SECTION B-B

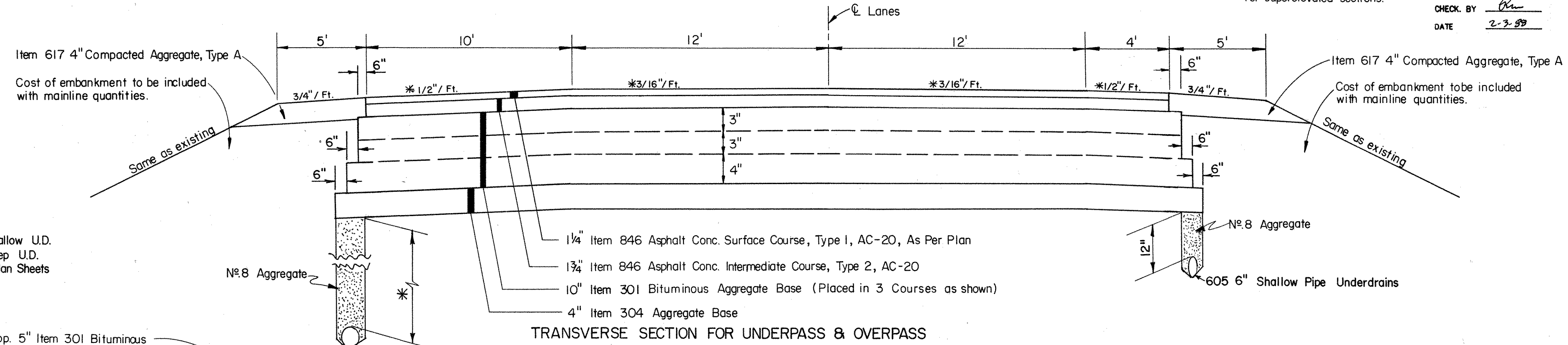
OVERPASS DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO		

CALC. BY D.M.
 DATE 1-15-88
 CHECK. BY [Signature]
 DATE 2-3-88

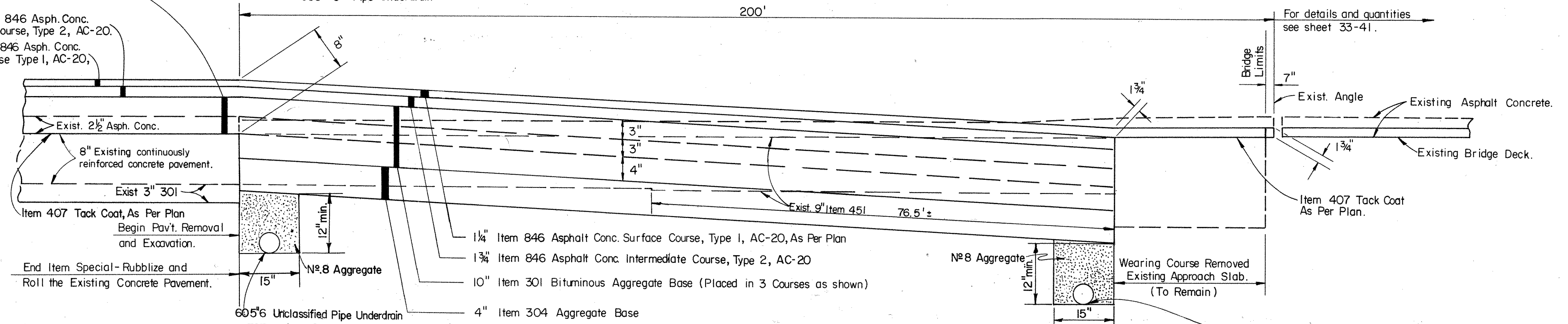
MUS-70-(0.76)-(1.43)
 LIC-70-28.93

*See slopes on sheet 4
For superelevated sections.



*NOTE:
12" Depth Shallow U.D.
55" Depth Deep U.D.
as shown on Plan Sheets

Prop. 5" Item 301 Bituminous
 Aggregate Base.
 Prop. 1 3/4" Item 846 Asph. Conc.
 Intermediate Course, Type 2, AC-20.
 Prop. 1 1/4" Item 846 Asph. Conc.
 Surface Course Type 1, AC-20,
 As Per Plan.

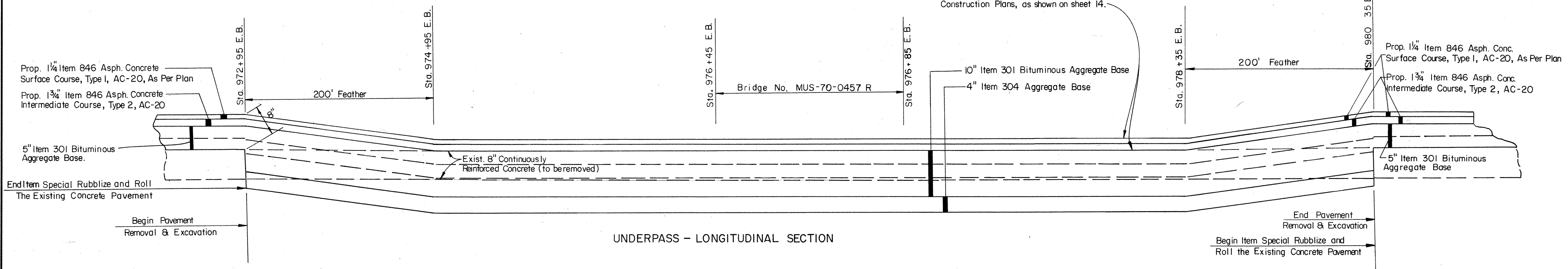


End Item Special-Rubblize and
 Roll the Existing Concrete Pavement.

OVERPASS - LONGITUDINAL SECTION

NOTE: Transverse Section
(See above)

NOTE: Profile grade to be 2 1/2" above existing concrete pavement.
 For elevations of existing concrete pavement see the original
 Construction Plans, as shown on sheet 14.



UNDERPASS - LONGITUDINAL SECTION

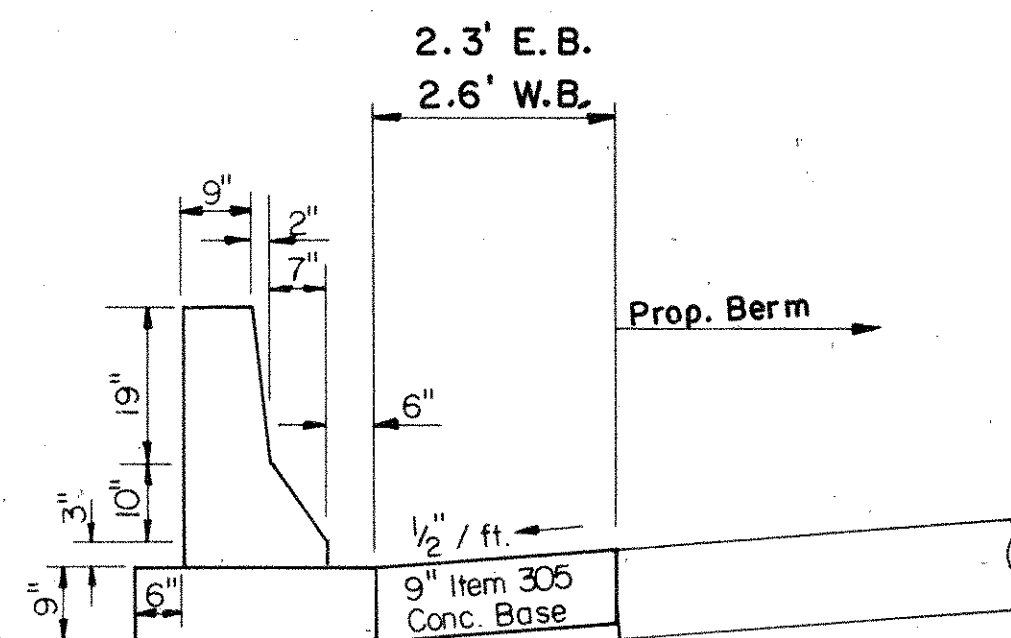
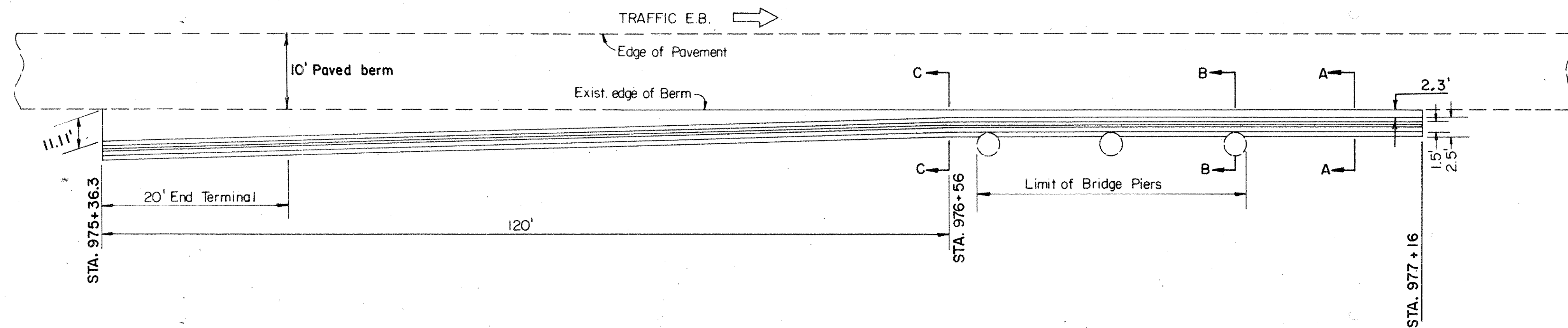
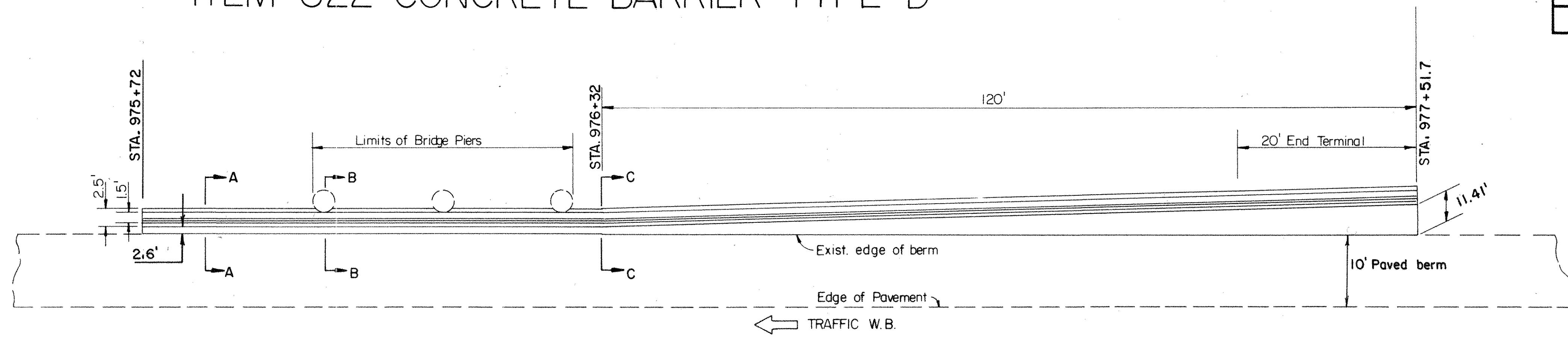
ITEM 622 CONCRETE BARRIER TYPE D

FHWA REGION	STATE	PROJECT
5	OHIO	

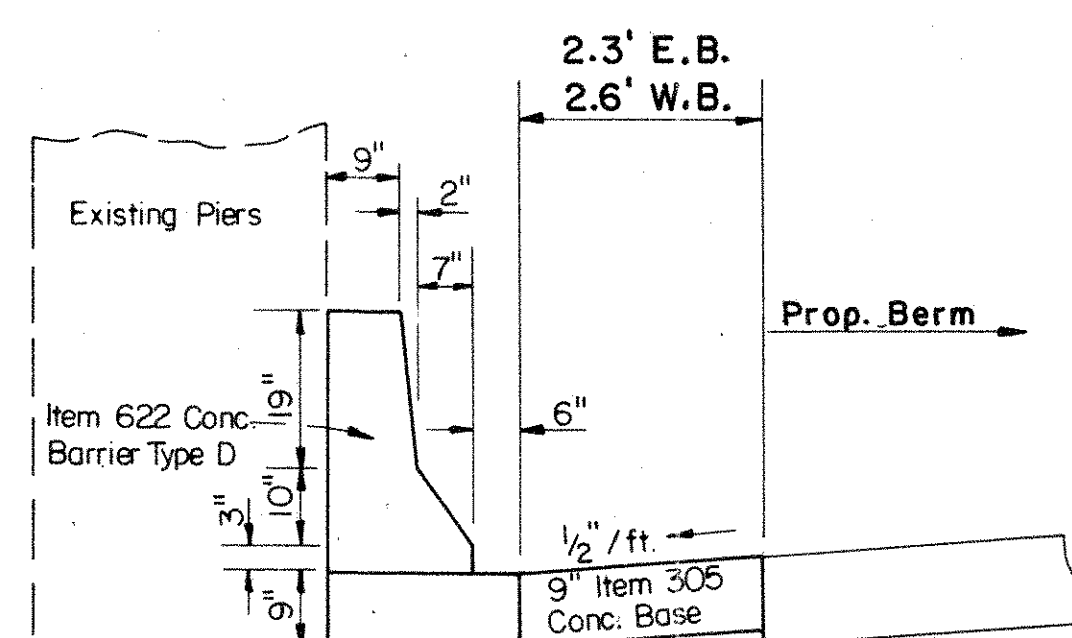
7
49

MUS-70-(0.76)-(1.43)
LIC-70-28.93

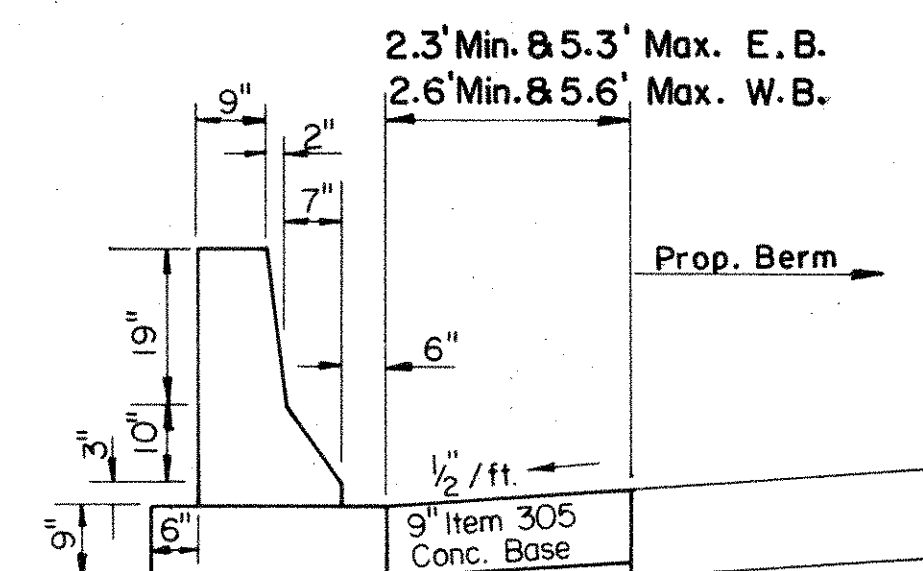
CALC. BY *D.M.*
DATE 1-15-88
CHECK. BY *[Signature]*
DATE 1-25-88



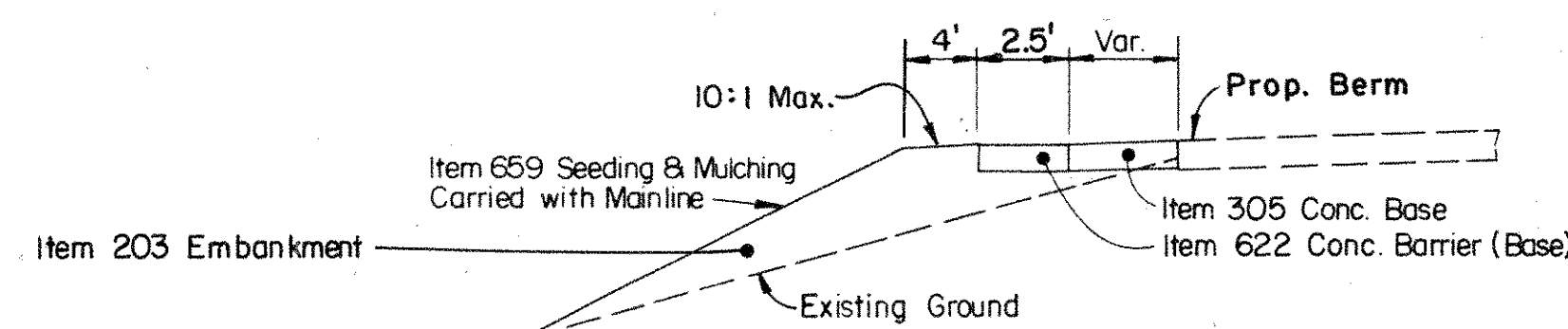
SECTION A-A



SECTION B-B



SECTION C-C



TYPICAL PLACEMENT OF ITEM 203 EMBANKMENT FOR ITEM 622 CONCRETE BARRIER TYPE D

ITEM 622 CONCRETE BARRIER TYPE D
Eastbound 180 L.F.
Westbound 180 L.F.
Total 360 L.F.

ITEM 305 CONCRETE BASE 9"
Eastbound 2.3' x 180' + 4.2' x 120' = 918 S.F. ÷ 9 = 102 S.Y.
Westbound 2.6' x 180' + 4.2' x 120' = 972 S.F. ÷ 9 = 108 S.Y.
Total 210 S.Y.

ITEM 203 EMBANKMENT, AS PER PLAN
Eastbound and Westbound
11 S.F. x 180' + 9.4 S.F. x 120' = 3108 G.F. ÷ 27 = 115 C.Y. x 2 = 230 C.Y.
Total 230 C.Y.

ITEM 203 EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION
Eastbound 1.7 S.F. x 60' ÷ 27 = 4 C.Y.
Westbound 2 S.F. x 60' ÷ 27 = 4 C.Y.
Total 8 C.Y.

QUANTITIES CARRIED TO GENERAL SUMMARY

ITEM 622 CONCRETE BARRIER TYPE D

GUARDRAIL DETAILS

CALC. BY D.M.
 DATE 1-15-88
 CHECK. BY _____
 DATE _____

FHWA REGION	STATE	PROJECT			
5	OHIO				8 49

MUS-70-(0.76)-(1.43)
LIC-70-28.93

GUARDRAIL FLARES:
 EXISTING MEDIAN AND OUTSIDE GUARDRAIL SHALL BE REMOVED AND NEW GUARDRAIL BUILT THE SAME DISTANCE FROM THE EDGE OF PAVEMENT TO THE FACE OF THE GUARDRAIL AS EXISTING.

ITEM 606 ANCHOR ASSEMBLY, STANDARD TYPE A:
 CARE SHALL BE EXERCISED WHEN REMOVING EXISTING GUARDRAIL FROM EXISTING CONCRETE ANCHOR. ANY CONCRETE ANCHOR CONSIDERED SALVAGEABLE BY THE PROJECT ENGINEER MAY BE REUSED.

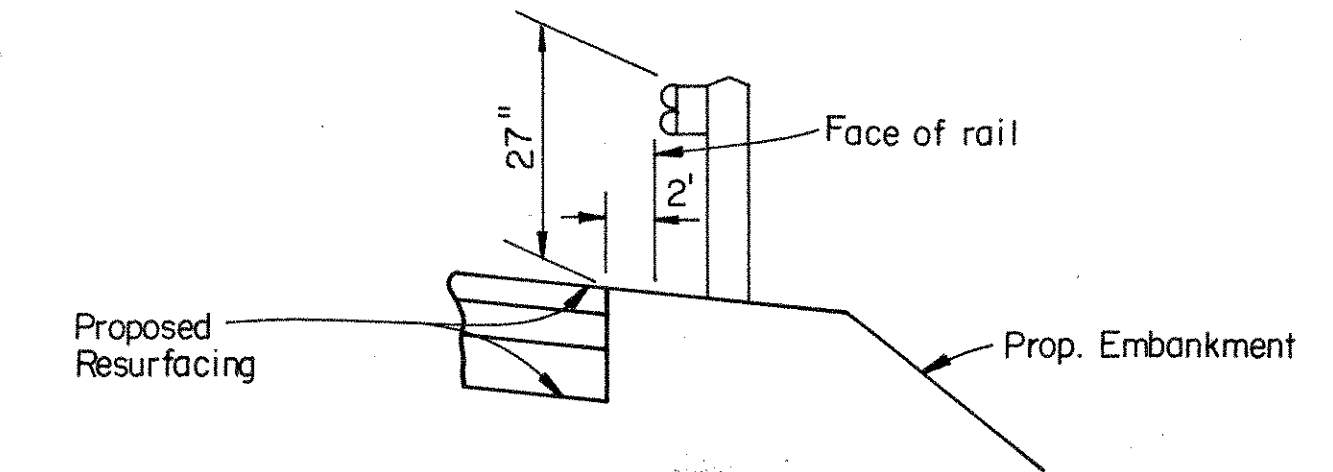
LOCATION OF GUARDRAIL:
 THE LOCATION OF GUARDRAIL RUNS ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

TAPER TO EXISTING BRIDGES:
 PROPOSED GUARDRAIL THAT HAS TO BE ADJUSTED TO MEET AN EXISTING BRIDGE SHALL BE TAPERED AT THE RATE OF 25 TO 1

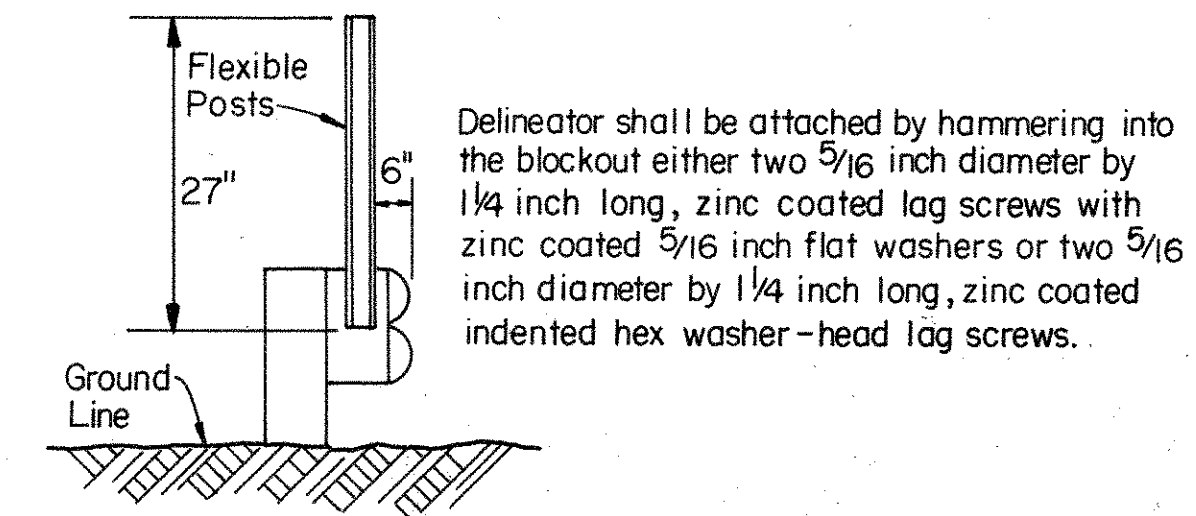
EXISTING DELINEATORS:
 ANY EXISTING DELINEATORS ATTACHED TO EXISTING BLOCKOUTS SHALL BE CAREFULLY REMOVED AND REPLACED AS SHOWN ON THIS SHEET. THE COST OF REMOVING AND REPLACING THE DELINEATORS SHALL BE INCIDENTAL TO ITEM 606 GUARDRAIL TYPE 5.

ITEM 202 GUARDRAIL REMOVED:
 ANY EXISTING GUARDRAIL REMOVED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED BY HIM.

BRIDGE APPROACH GUARDRAIL:
 BRIDGE APPROACH GUARDRAIL STATION AS SHOWN SHALL BE ADJUSTED BY THE PROJECT ENGINEER TO CONFORM TO STD. DRWG. GR-3, TYPE A.



TYPICAL PLACEMENT OF GUARDRAIL



TYPICAL DETAIL DELINEATOR REPLACEMENT

EXISTING STATION TO STATION (EASTBOUND)		202 GUARDRAIL REMOVED LIN.FT.	606 GUARDRAIL, TYPE 5 LIN.FT.	606 ANCHOR ASSEM., STANDARD, TYPE A EACH		606 BRIDGE TERMINAL ASSEM. EACH	606 GUARDRAIL, BARRIER DESIGN, TYPE 5 LIN.FT.	606 ANCHOR ASSEM., STANDARD, TYPE T EACH	SEE STANDARD DRAWING	PROPOSED STATION TO STATION (Same as existing except as noted)	
				Single	Barr.					A	FROM
751+89.5 RT.	756+77 RT.	487.5	450.0	1				1	GR-4 & GR-4A		
772+23.5 RT.	775+48.5 RT.	325.0	287.5	1				1	GR-4 & GR-4A		
781+71.4 RT.	793+46.4 RT.	1175.0	1137.5	1				1	GR-4 & GR-4A		
796+22 RT.	800+09.5 RT.	387.5	350.0	1				1	GR-4 & GR-4A		
820+20 RT.	828+57.5 RT.	837.5	800.0	1				1	GR-4 & GR-4A		
835+48.2 RT.	837+98.2 RT.	250.0	225.0	1				1	GR-3, GR-4, GR-5		
834+78 LT.	837+86 LT.	300.0	150.0		1		125.0		GR-3 & GR-4		
840+07 RT.	843+32 RT.	325.0	312.5			1		1	GR-3 & GR-4A		
848+52.5 RT.	861+02.5 RT.	1250.0	1212.5	1				1	GR-4 & GR-4A		
888+21.5 RT.	891+09 RT.	287.5	262.5	1		1			GR-3, GR-4, GR-5		
889+49.7 LT.	890+99.7 LT.	150.0	125.0	1		1			GR-3 & GR-4		
892+63.5 RT.	893+63.5 RT.	100.0	87.5			1		1	GR-3 & GR-4A		
897+59 RT.	900+96.5 RT.	337.5	300.0	1				1	GR-4, GR-4A, GR-5		
916+74 RT.	928+86.5 RT.	1212.5	1175.0	1				1	GR-4 & GR-4A		
933+24 RT.	949+49 RT.	1625.0	1587.5	1				1	GR-4, GR-4A, GR-5		
953+25 RT.	965+00 RT.	1175.0	1137.5	1				1	GR-4, GR-4A, GR-5		
975+78.5 RT.	977+53.5 RT.	175.0									
975+07.5 MED.	977+82.5 MED.	500.0	300.0						GR-4 GR-6A	975+73 MED.	977+17.5 MED.
984+71 RT.	1004+96 RT.	2025.0	1987.5	1				1	GR-4 & GR-4A		
1012+00 RT.	1017+00 RT.	500.0	462.5	1				1	GR-4, GR-4A, GR-5		
1028+12.5 RT.	1034+00 RT.	587.5	550.0	1				1	GR-4 & GR-4A		
SUB-TOTALS		14012.5	12900	16	1	6	125	15			

EXISTING STATION TO STATION (WESTBOUND)		202 GUARDRAIL REMOVED LIN.FT.	606 GUARDRAIL, TYPE 5 LIN.FT.	606 ANCHOR ASSEM., STANDARD, TYPE A EACH		606 BRIDGE TERMINAL ASSEM. EACH	606 GUARDRAIL, BARRIER DESIGN, TYPE 5 LIN.FT.	606 ANCHOR ASSEM., STANDARD, TYPE T EACH	SEE STANDARD DRAWING	606 Guardrail Post Installed Each	PROPOSED STATION TO STATION (Same as existing except as noted)	
				Single	Barr.						A	FROM
774+53 LT.	777+90.5 LT.	337.5	300.0	1				1	GR-4, GR-4A, GR-5			
787+50 LT.	801+75 LT.	1425.0	1437.5	1				1	GR-4, GR-4A, GR-5			
806+50 LT.	812+75 LT.	625.0	587.5	1				1	GR-4, GR-4A & GR-6A	6		
821+53 LT.	837+53 LT.	1600.0	1587.5			1		1	GR-3 & GR-4A			
839+44 LT.	842+19 LT.	275.0	250.0	1		1			GR-3, GR-4, GR-5			
839+60.5 RT.	842+23 RT.	262.5	237.5	1		1			GR-3 & GR-4			
862+50 LT.	867+62.5 LT.	512.5	475.0	1				1	GR-4, GR-4A, GR-5			
889+74 LT.	890+99 LT.	125.0	112.5			1		1	GR-3 & GR-4A			
892+38 LT.	894+13 LT.	175.0	150.0	1		1			GR-3 & GR-4			
892+47 RT.	894+72 RT.	225.0	200.0	1		1			GR-3 & GR-4			
937+50 LT.	949+75 LT.	1225.0	1187.5	1				1	GR-4 & GR-4A			
954+50 LT.	960+62.5 LT.	612.5	575.0	1				1	GR-4, GR-4A, GR-5			
962+63 LT.	967+25.5 LT.	462.5	425.0	1				1	GR-4 & GR-4A			
975+50 LT.	977+00 LT.	150.0										
983+00 LT.	989+12.5 LT.	612.5	575.0	1				1	GR-4 & GR-4A			
1001+00 LT.	1019+62.5 LT.	1862.5	1825.0	1				1	GR-4 & GR-4A			
1027+49 LT.	1034+49 LT.	700.0	662.5	1				1	GR-4, GR-4A, GR-5			
SUB-TOTALS		11187.5	10587.5	14		6		12		6		
GRAND-TOTALS		25200.0	23487.5	30	1	12	125	27		6		

CROSS - OVER & DETOUR MAP

CALC.
BY *[Signature]*
DATE 1-15-88

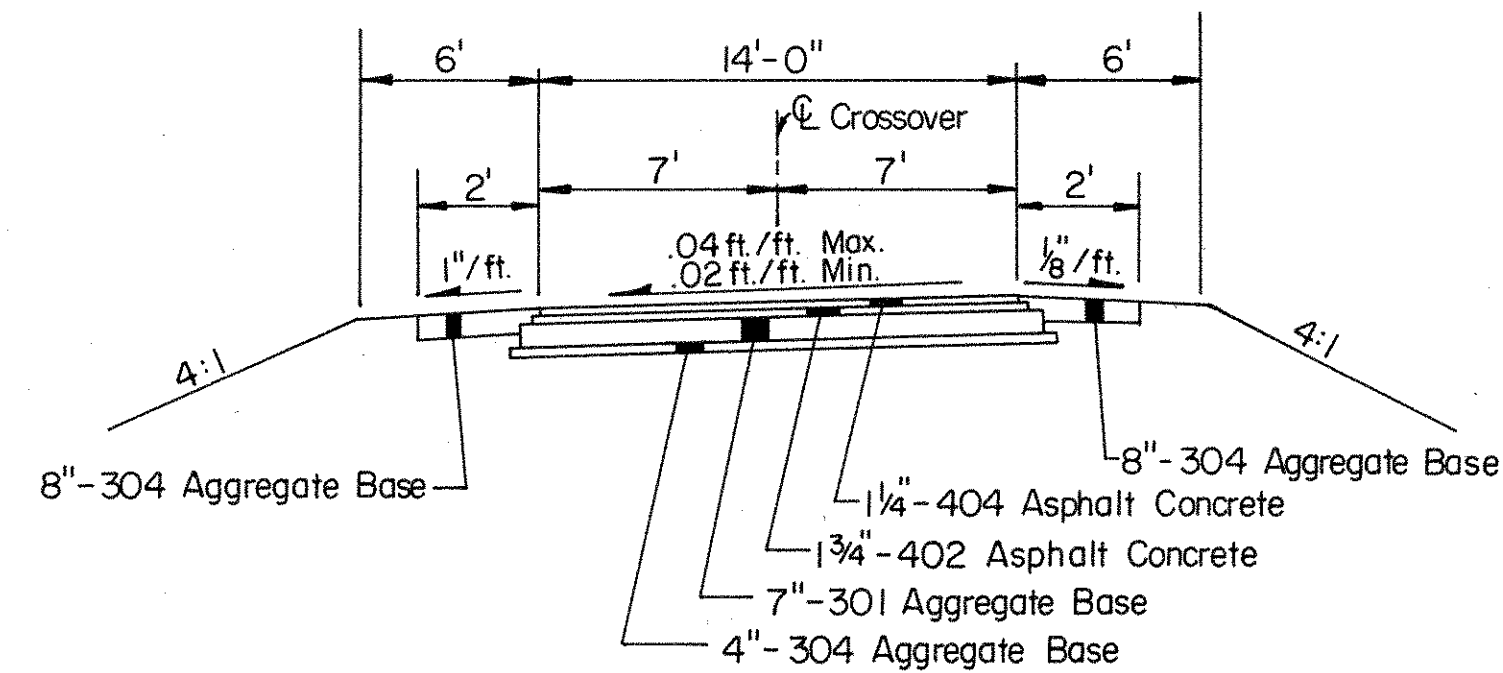
CHKD.
BY *[Signature]*
DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

9
49

MUS-70-(0.76)-(1.43)
LIC-70-28.93

TYPICAL SECTION OF CROSS - OVER



NOTE:
EARTHWORK WILL BE PAID FOR UNDER ITEM 615
TEMPORARY ROADS - LUMP SUM, PAVEMENT
WILL BE PAID FOR UNDER TEMPORARY PAVEMENT
CLASS "A" AS PER PLAN S.Y. TWO-FOOT SHOULDERS
WILL BE PAID FOR UNDER ITEM 304 - AGGREGATE
BASE C.Y.

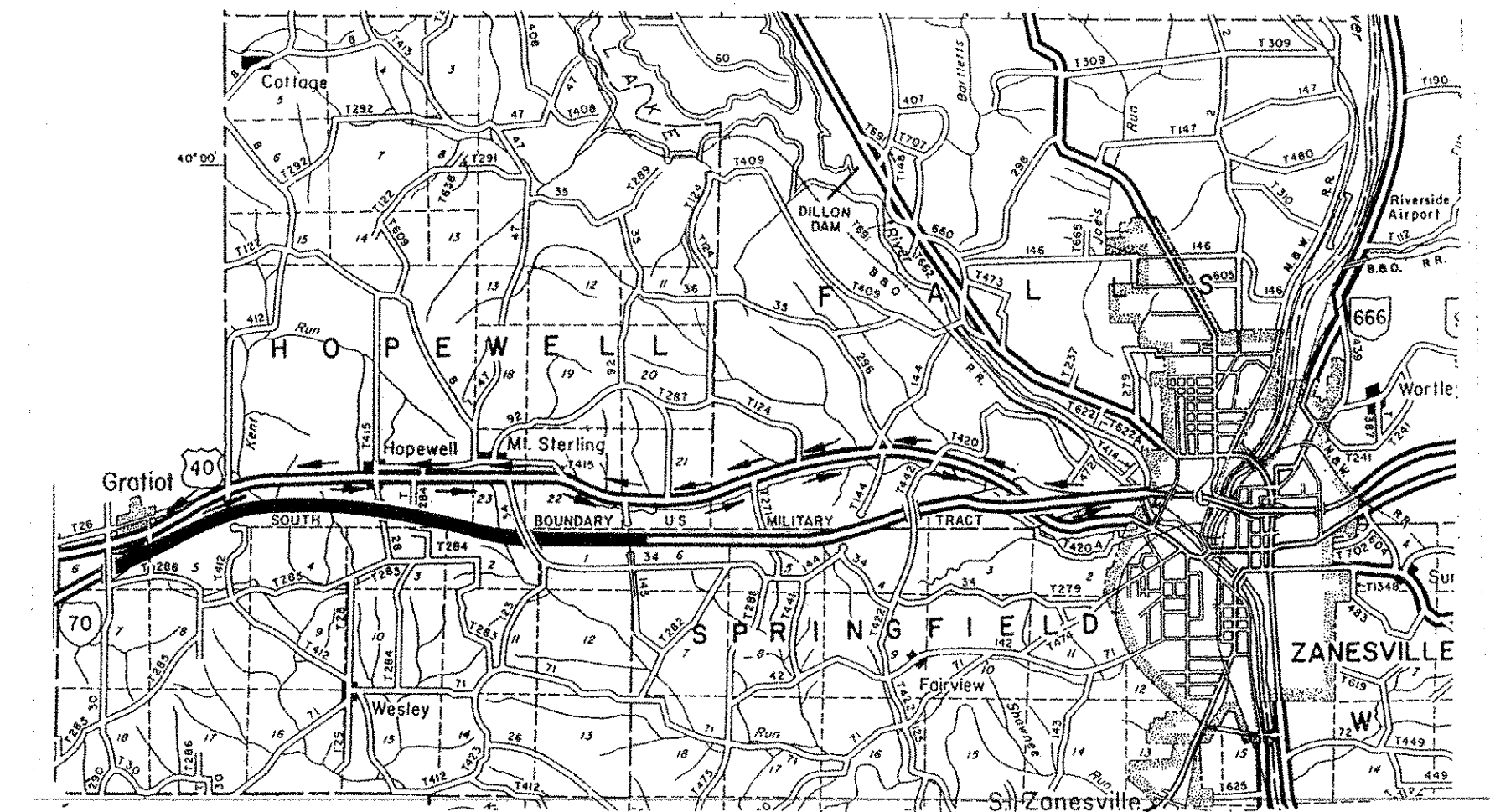
ESTIMATED QUANTITIES

ITEM 615 - TEMPORARY PAVEMENT, CLASS A, AS PER PLAN	3478 Sq.Yd.
ITEM 615 - TEMPORARY ROADS	Lump
ITEM 304 - AGGREGATE BASE	153 Cu.Yd.

The above quantities have been carried to the General Summary.

CROSS - OVER DETAIL NOTES

ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED AND REPLACED WITH APPROPRIATE MARKINGS AS DETAILED ON SHEETS 19&20. ALL MARKINGS WILL BE MAINTAINED DURING THE CLOSURE. THE TEMPORARY MARKINGS SHALL BE REMOVED IN ACCORDANCE WITH 621.134 AND ALL NECESSARY MARKINGS SHALL BE RETURNED TO THE FINISHED PORTION.



PROJECT

DETOUR MAP

PHASE 1: (MAINTAINING 2-WAY TRAFFIC) THE S.E. RAMP (ENTRANCE RAMP FROM C.R.30 TO I.R.70 E.B.) SHALL BE CLOSED.

PHASE 2: (MAINTAINING 2-WAY TRAFFIC) THE N.E. RAMP (EXIT RAMP FROM I.R.70 W.B. TO C.R.30) SHALL BE CLOSED.

TRAFFIC WILL BE DETOURED AS SHOWN ON THIS SHEET.
O.D.O.T. WILL BE RESPONSIBLE FOR CLOSING THE PERTINENT RAMPS.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING DISTRICT 5 TRAFFIC ENGINEER (Phone 614-323-4400) A MINIMUM OF TWO (2) WEEKS PRIOR TO MOVING TRAFFIC TO A TWO WAY OPERATION FOR PHASE 1 AND PHASE 2.

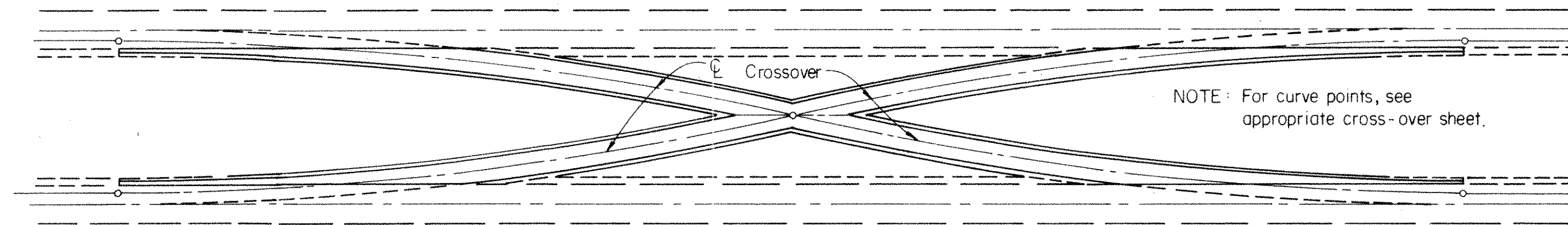
CROSS-OVER PAVEMENT DETAIL

CALC. BY *D.W.*
 DATE *1-15-88*
 CHECK. BY *RM*
 DATE *1-25-88*

FHWA REGION	STATE	PROJECT
5	OHIO	

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MUS-70-(0.76)-(1.43)
 LIC-70-28.93

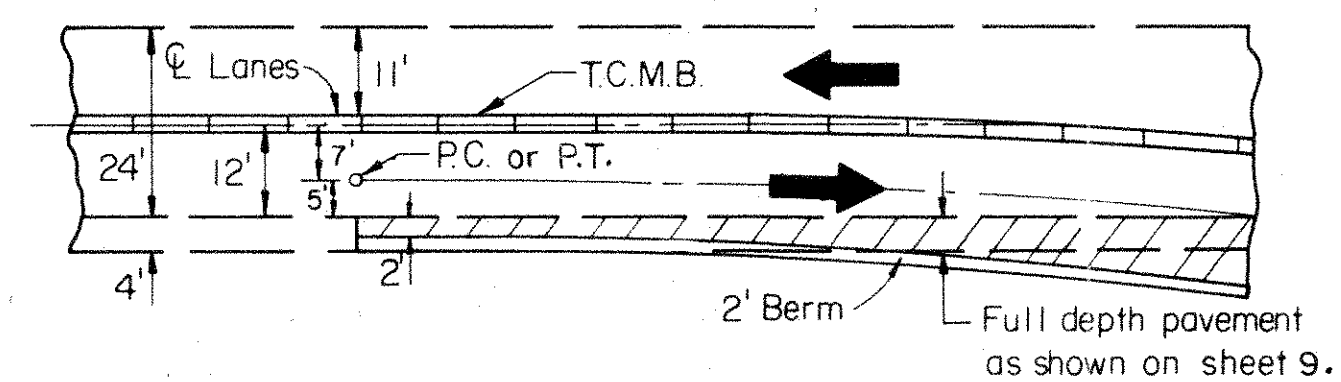


NOTE: For curve points, see appropriate cross-over sheet.

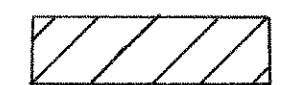
CROSS-OVER PAVEMENT DETAIL

		MEDIAN WIDTH	
		84'	50'
Dc = 3°	Δ	12°44'15"	10°10'07"
	L	424.58'	338.96'
	T	213.17'	169.93'

CROSSOVER GEOMETRICS



TYPICAL DETAIL AT P.C. or P.T.

 TEMPORARY PAVEMENT CLASS A AS PER PLAN

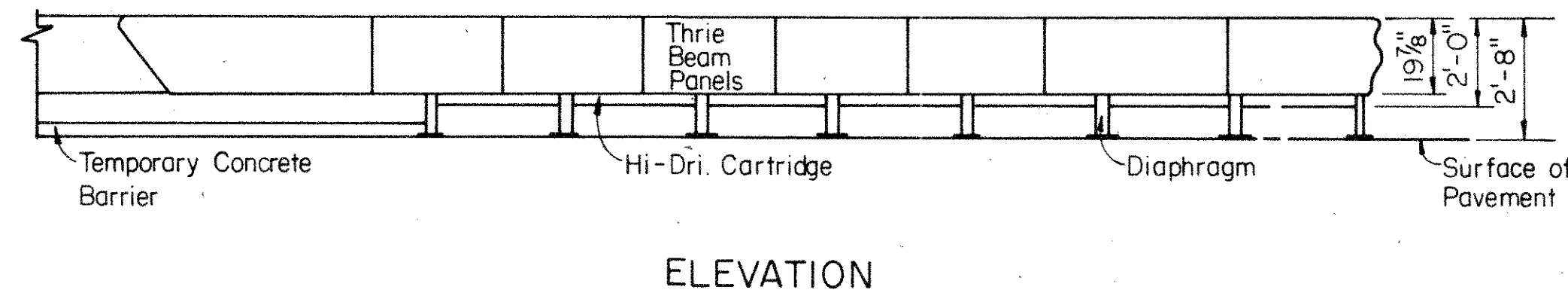
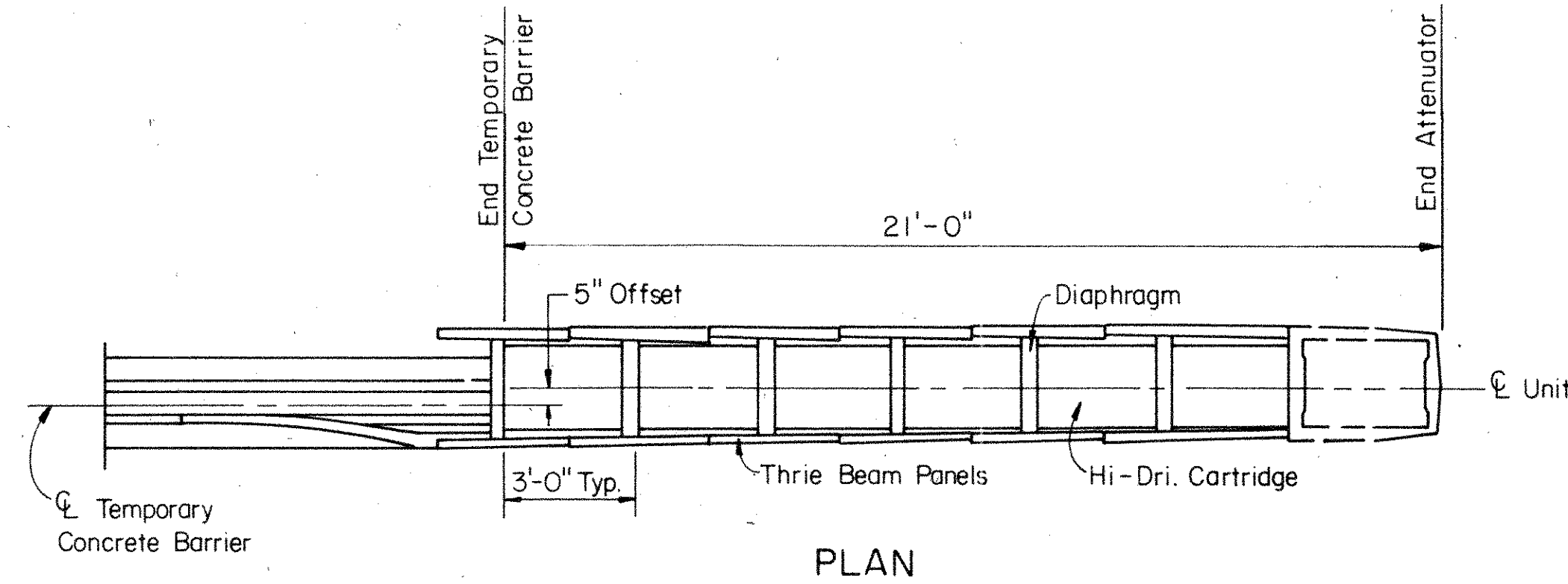
ATTENUATOR DETAIL

CALC. BY D.M.
 DATE 1-15-88
 CHECK BY B.M.
 DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

11
49

MUS-70-(0.76)-(1.43)
 LIC-70-28.93



ITEM SPECIAL - IMPACT ATTENUATOR G.R.E.A.T.

THIS WORK SHALL CONSIST OF PROVIDING, MAINTAINING, AND SUBSEQUENTLY REMOVING AN IMPACT ATTENUATOR UNIT AND ACCESSORIES SUPPLIED BY ENERGY ABSORPTION SYSTEMS INC., IBM PLAZA, CHICAGO, ILLINOIS 60611, PLACED IN ACCORDANCE WITH THE MANUFACTURE'S SPECIFICATIONS AND PLAN DETAIL SHEETS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, THICKNESS, AND TYPICAL SECTIONS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER.

WHEN THE ATTENUATOR FACILITIES ARE NO LONGER NEEDED IN ONE PHASE THEY SHALL BE REMOVED AND RESET AS SHOWN ON OTHER PHASES. THIS REMOVAL AND REPLACEMENT SHALL BE INCLUDED IN THE UNIT PRICE PER EACH. AFTER THE PROJECT HAS BEEN COMPLETED THE MATERIAL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

THE NOSE OF THE ATTENUATOR SHALL BE MARKED WITH THREE EVENLY SPACED 4" HORIZONTAL STRIPES OF WHITE REFLECTIVE MATERIAL. THE FENDER PANELS SHALL BE MARKED WITH WHITE REFLECTIVE MATERIAL IN TWO VERTICAL STRIPES 4" IN WIDTH. THE CENTER OF THE FIRST STRIPE SHALL BE LOCATED 8" FROM THE REAR EDGE OF EACH PANEL AND THE CENTER OF THE SECOND STRIPE SHALL BE LOCATED 2'-11" FROM THE REAR EDGE OF EACH PANEL. THE UNIT SHALL BE BI-DIRECTIONAL AND IS IDENTIFIED AS MODEL NUMBER 200200NF6Gcz WITH TRANSITION PANEL. IN ADDITION TO THE QUANTITIES LISTED IN THE GENERAL SUMMARY, AT LEAST ONE ADDITIONAL COMPLETE UNIT SHALL BE ON HAND AT ALL TIMES TO REPLACE DAMAGED UNITS. IN ANY CASE, WHEN A UNIT IS DAMAGED IT SHALL BE REPAIRED OR REPLACED WITHIN 12 HOURS. THIS ADDITIONAL ATTENUATOR WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER EACH INSTALLED AND REMOVED DEVICE UNDER THIS ITEM.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE ABOVE PURPOSE.

ITEM SPECIAL - IMPACT ATTENUATOR G.R.E.A.T.

2 EACH

ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN

CALC. BY Djm
 DATE 1-15-88
 CHECK. BY Rm
 DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

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MUS-70-(0.76)-(1.43)
 LIC-70-28.93

ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN:
 This work shall consist of the furnishing, installation, maintenance and subsequent removal of a 32" Temporary Concrete Barrier with an 18" minimum height glare screen (Design A) or a 50" Temporary Concrete Barrier (Design B) at the locations shown on the plans.

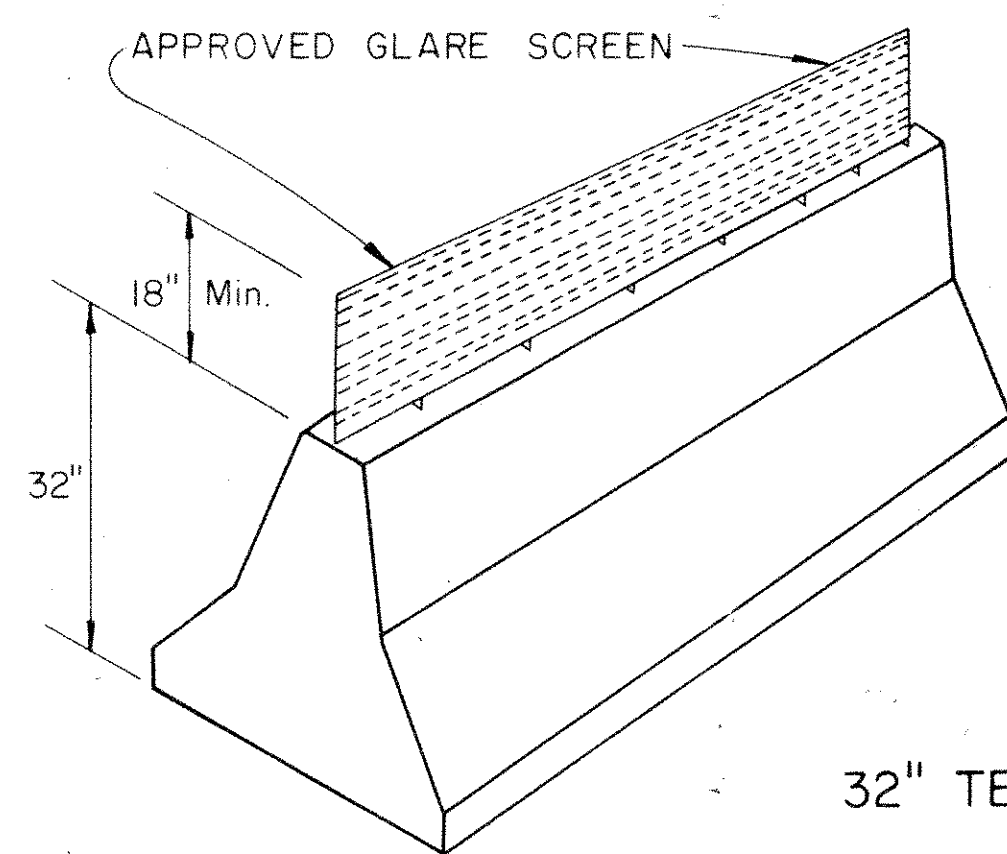
- DESIGN "A"**
 The Temporary Concrete Barrier "Design A" shall be constructed using one of the following systems or an approved equal.
1. SYRO GLAREFOIL
 Syro Steel Company
 1170 N. State Street
 Girdard, Ohio 44420
 (216) 545-4373
 2. CARSONITE MODULAR GLARE SCREEN
 Carsonite International
 2900 Lockheed Way
 Carson City, Nevada 89701
 (702) 883-5104 (800) 648-7974
 3. FORWARD GLARE SCREEN
 Proven Products, Inc.
 7560 S.W. Laview Drive
 Portland, Oregon 97219
 (503) 244-9185

Paddle or intermittent type glare screen shall be designed using a 20° cut-off angle based on tangent alignment. That spacing shall be used throughout the barrier length without regard to the barrier curvature.

Glare screen system attached to the 32" temporary concrete barrier shall be securely fastened using the hardware and procedures specified by the manufacturer.

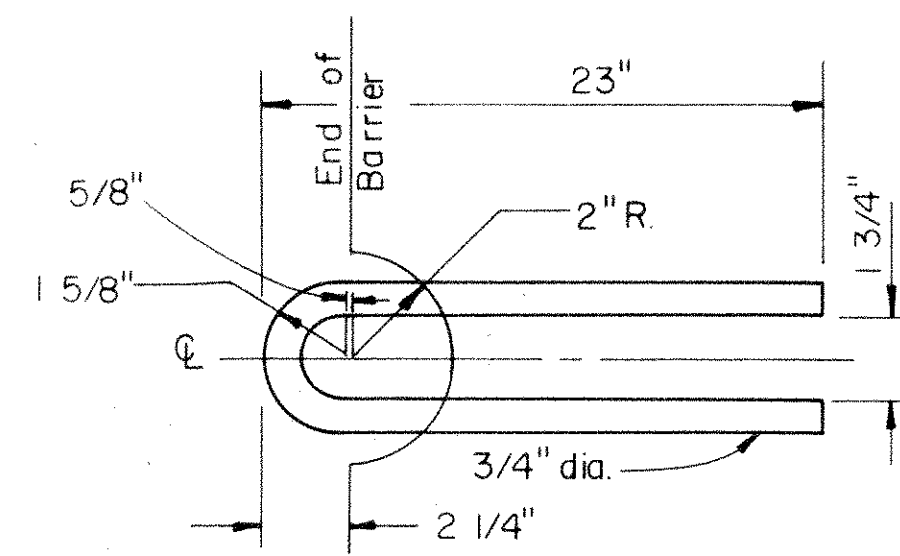
DESIGN "B"
 The Temporary Concrete Barrier Design "B" shall be constructed using a 50" design and reinforced as shown this sheet. When the temporary concrete barrier is no longer needed in one phase it shall be removed and reset as shown on the next phase. This removal and replacement shall be included in the original unit price as per Item 622. Payment shall include all labor, material and equipment necessary to perform the work and shall be paid for at the unit price bid per linear foot for "Item 622 Temporary Concrete Barrier, As Per Plan. The following quantity has been carried to the General Summary for the above purpose.

Item 622 Temporary Concrete Barrier, As Per Plan 1300 Lin. Ft.

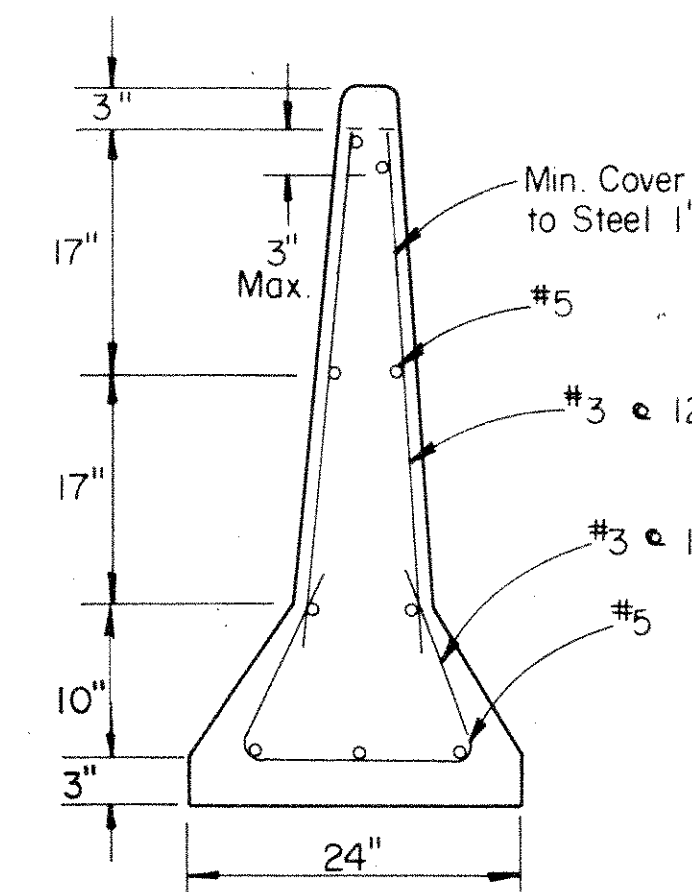


See MC-9A
 For Barrier Details

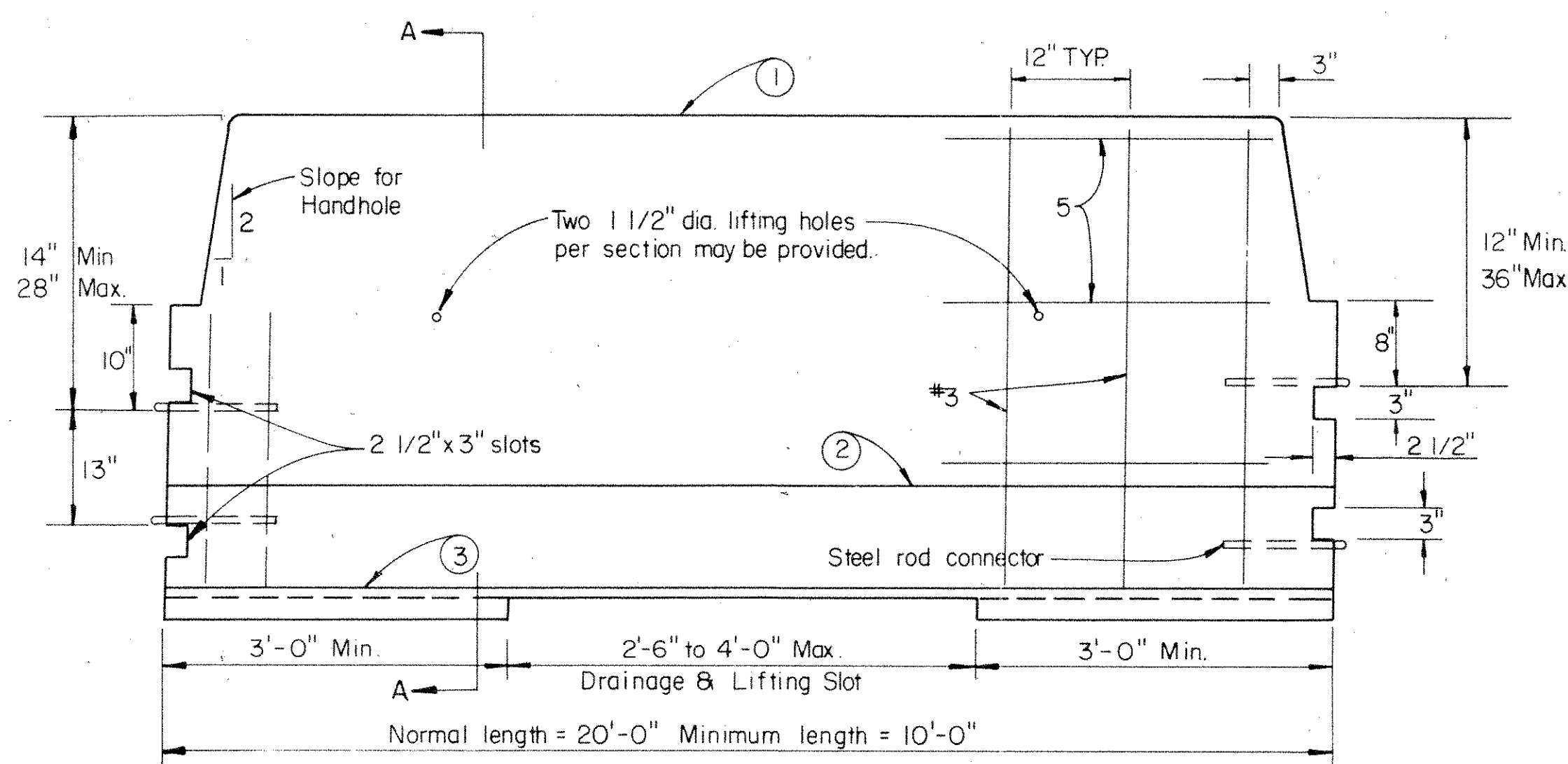
DESIGN "A"
 32" TEMPORARY CONCRETE BARRIER
 WITH GLARE SCREEN



STEEL ROD CONNECTOR

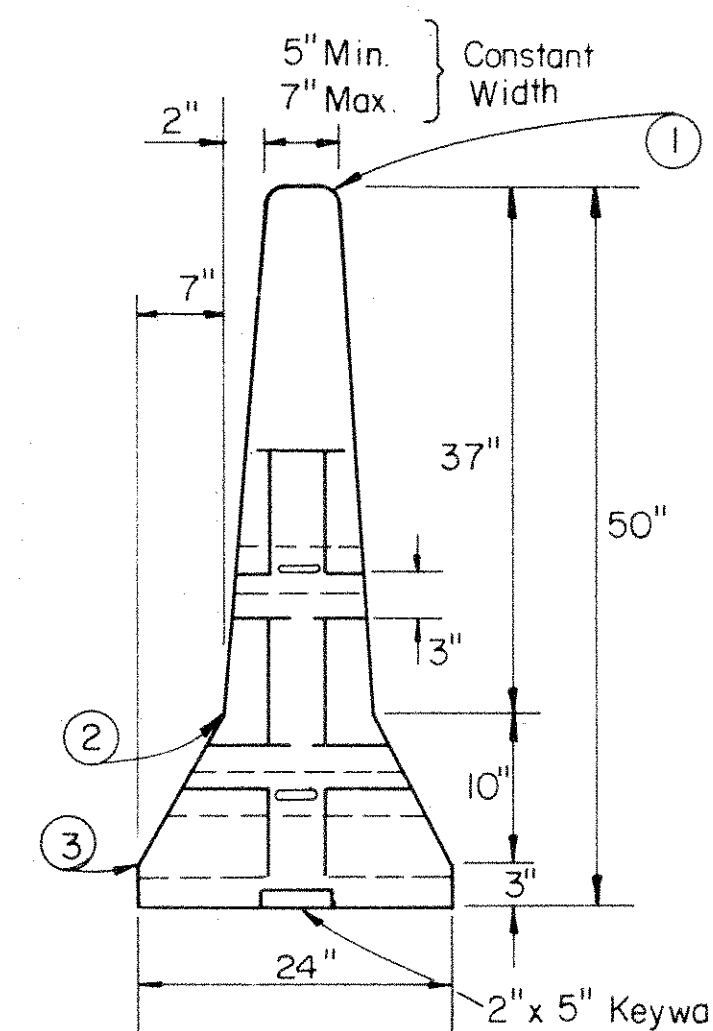


SECTION A-A



ELEVATION

DESIGN "B"
 50" TEMPORARY CONCRETE BARRIER



END

LEGEND

- ① 1" Radius and 3/4" Chamfer, all top and end corners.
- ② Permissible 10" Radius
- ③ Permissible 1" Radius

NOTES:

- 1) See MC-9 For PLAN VIEW
- 2) See MC-9A For CONNECTING PIN DETAIL & BASE RESTRAINT NOTE, DETAILS NOT SHOWN
- 3) See Item 622.02 & 622.04 O.D.O.T. C&M SPEC.

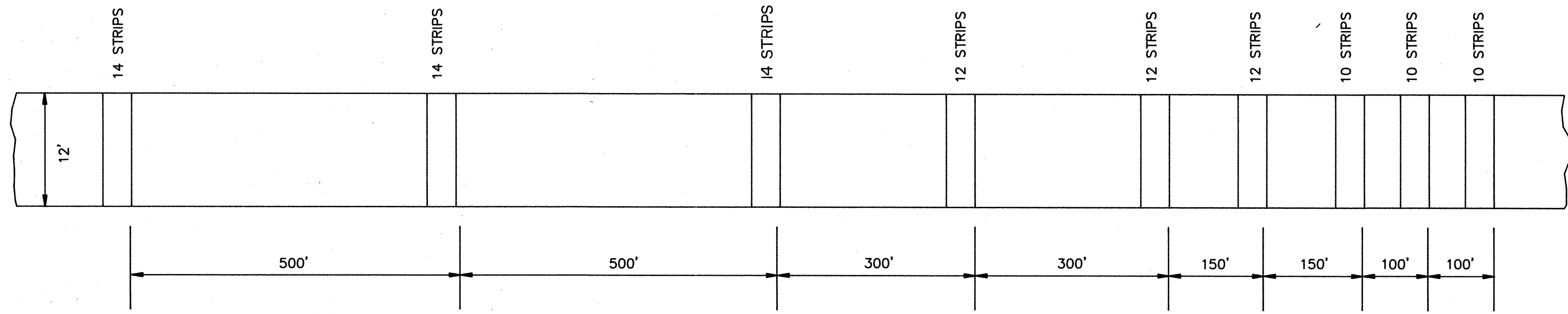
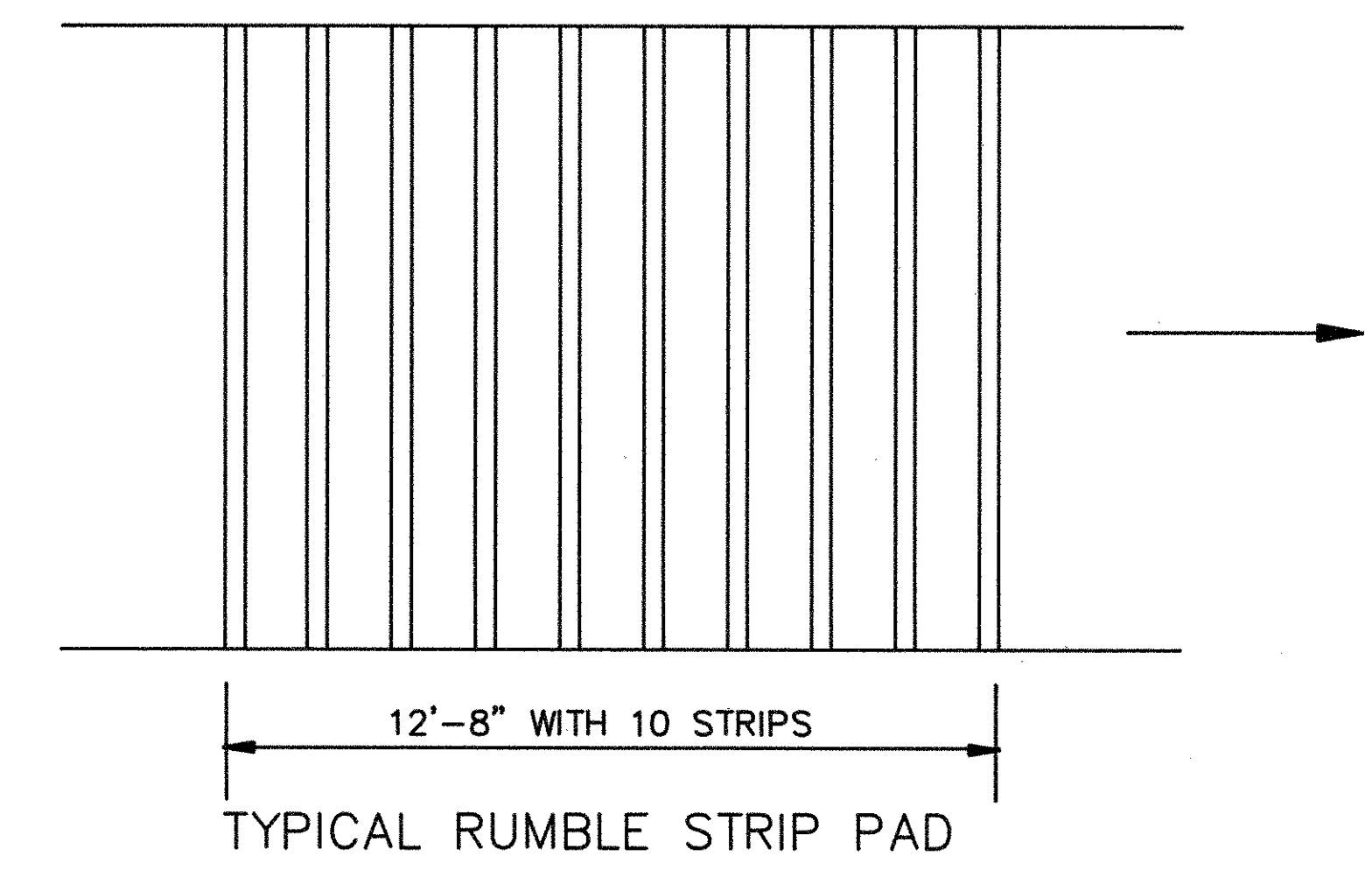
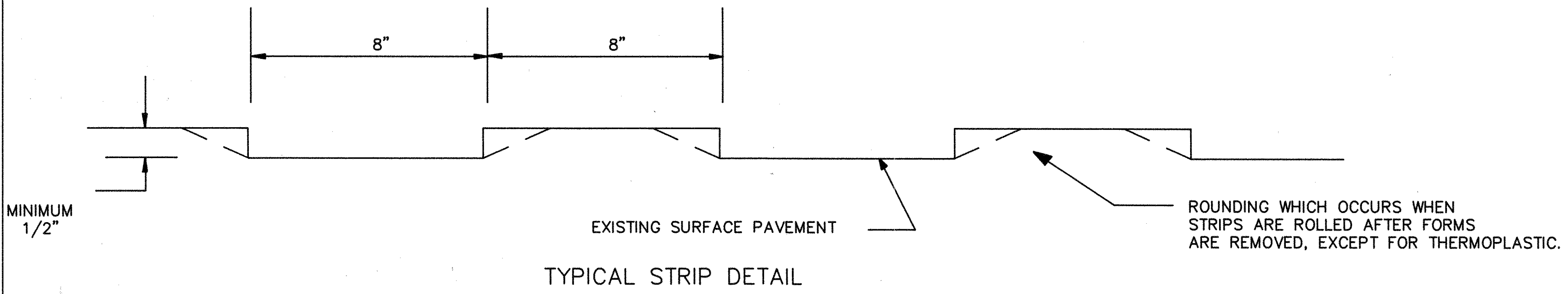
ITEM SPECIAL RUMBLE STRIPS

CALC. BY *D. J. [Signature]*
 DATE 1-15-88
 CHKD. BY *[Signature]*
 DATE 1-15-88

FHWA REGION	STATE	PROJECT
5	OHIO	

12-A
49

MUS-70-(0.76)-(1.43)
 LIC-70-28.93



TYPICAL PLACEMENT OF RUMBLE STRIPS

ITEM SPECIAL RUMBLE STRIPS

THIS ITEM SHALL CONSIST OF CONSTRUCTING RUMBLE STRIPS TO THE DIMENSIONS AND DETAILS SHOWN ON THIS SHEET AND THE DISPOSAL WHEN NO LONGER NEEDED.

THE METHOD OF MEASUREMENT WILL BE LINEAR FEET IN PLACE AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO PERFORM THE WORK AS DESCRIBED ABOVE.

ITEM SPECIAL RUMBLE STRIPS	1296 E.B.
	1296 W.B.
	2592 LIN.FT.

GENERAL NOTES

1. THE RUMBLE STRIP SHALL CONSIST OF PARRALLEL RAISED STRIPS 16 INCHES CENTER TO CENTER.
2. EACH STRIP SHALL HAVE A HEIGHT OF APPROXIMATELY 1/4 INCH AND A WIDTH OF 8 INCHES. CONSTRUCTION METHODS SHALL BE AS FOLLOWS:
 - A: ASPHALTIC CONCRETE STRIPS - SAND ASPHALT SHALL BE PLACED IN 1/2 INCH PLYWOOD FORMS AND THEN ROLLED DOWN TO 1/4 INCH AFTER REMOVING THE FORMS.
 - B: EPOXY STRIPS - MORTAR IS PLACED IN THE FORM, TROWELED, AND THEN LEVELED WITH A ROLLER.
 - C: THERMOPLASTIC STRIPS - LOCATIONS SHALL BE LAID OUT ON PAVEMENT USING REFERENCE POINTS AND/OR PREMARKING LINES. THERMOPLASTIC MATERIAL SHALL BE APPLIED BY THE EXTRUSION PROCESS USING A MANUAL APPLICATOR.

ROADWAY SURFACES SHALL BE ADEQUATELY PREPARED AND/OR PRIMED, AS REQUIRED, BEFORE INSTALLATION OF STRIPS. A CONSTRUCTION METHOD OTHER THAN THE ABOVE MUST BE APPROVED BY THE ENGINEER OF TRAFFIC PRIOR TO USE.

ITEM 614 ASPHALT CURB DIVIDER WITH DELINEATION

CALC. BY *D.W.*
 DATE 1-15-88
 CHKD. BY *...*
 DATE 1-15-88

FHWA REGION	STATE	PROJECT	
5	OHIO		

MUS-70-(0.76) - (1.43)
 LIC-70-28.93

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49

ITEM 614 ASPHALT CURB DIVIDER WITH DELINEATION

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE AN ASPHALT CURB DIVIDER USED TO SEPARATE OPPOSING LANES OF TRAFFIC WHEN A TWO (OR MORE) - LANE, TWO-WAY OPERATION IS USED IN A DIVIDED HIGHWAY WORK ZONE, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

DESIGN AND PLACEMENT OF ASPHALT CURB DIVIDER

THIS ITEM SHALL BE PLACED IN ACCORDANCE WITH FIGURE 1 AND SHALL BE CONSTRUCTED OF COMPACTED 404 ASPHALT CONCRETE. COMPACTION SHALL BE SUFFICIENT TO PRODUCE A SMOOTH TOP AND SIDES AND TO PRODUCE A DENSITY SATISFACTORY TO THE ENGINEER.

WHERE THE CURB DIVIDER IS TO BE CONSTRUCTED ON TOP OF A CONCRETE PAVEMENT WHICH WILL BE THE FINAL SURFACE, OR WHERE THE ENGINEER DETERMINES THE RESIDUAL STAINS FROM THE REMOVAL OF THE DIVIDER MAY CONFUSE TRAFFIC, THE CONTRACTOR SHALL PROVIDE A BOND BREAKER AND SURFACE PROTECTOR. THE PROTECTOR MAY BE TWO COATS OF SPRAYED CONCRETE CURING COMPOUND OR OTHER MATERIAL APPROVED BY THE ENGINEER WHICH WILL MINIMIZE STAINING.

WHERE THE CURB WILL INTERFERE WITH PAVEMENT DRAINAGE (e.g., SUPERELEVATED OR TRANSITION SECTIONS), PROVISIONS SHALL BE MADE TO PREVENT PONDING OF WATER ON THE PAVEMENT SURFACE. THIS MAY BE ACCOMPLISHED WITH TRANSVERSE DRAINAGE SLOTS OR ALTERNATE MEASURES APPROVED BY THE ENGINEER.

TUBULAR MARKERS OR PYLONS PROVIDED FOR TRAFFIC CONTROL SHALL BE EMBEDDED TO THE FULL DEPTH OF ASPHALT AND SECURED TO AVOID BEING WORKED LOOSE BY THE DRAFT FROM PASSING TRAFFIC. AS SHOWN IN FIGURE 1, A 4-INCH LENGTH OF PIPE ATTACHED TO A BASE PLATE MAY BE USED TO SECURE THE TUBULAR MARKER OR PYLON. ALTERNATE METHODS MAY BE USED BUT MUST BE APPROVED IN ADVANCE BY THE ENGINEER.

DELINEATION OF ASPHALT CURB DIVIDER

THE ENTIRE SURFACE OF THE CURB DIVIDER (TOP AND SIDES) SHALL BE PAINTED YELLOW AND REFLECTORIZED IN ACCORDANCE WITH ITEM 621.

TUBULAR MARKERS OR PYLONS SHALL BE SPACED AT 50-FOOT INTERVALS ALONG THE CENTERLINE OF THE CURB DIVIDER (FIGURE 2). THE TUBULAR MARKERS OR PYLONS SHALL BE AT LEAST 36 INCHES IN LENGTH AND SHALL HAVE A MINIMUM WIDTH OR DIAMETER OF 2 1/2 INCHES AT THE TOP. THE MARKERS OR PYLONS SHALL BE REFLECTORIZED BY A MINIMUM OF TWO 3-INCH WHITE BANDS PLACED NOT MORE THAN 2 INCHES FROM THE TOP, WITH A 3 TO 6-INCH SPACE BETWEEN THE BANDS.

YELLOW-DOUBLE FACED REFLECTORS SHALL BE MOUNTED VERTICALLY ON THE TOP OF THE CURB AS SHOWN IN FIGURE 2. THESE REFLECTORS SHALL HAVE AN APPROXIMATELY SQUARE SHAPE AND SHALL HAVE A MINIMUM OF 9 SQUARE INCHES OF REFLECTIVE SHEETING ON EACH SIDE, FACING TRAFFIC.

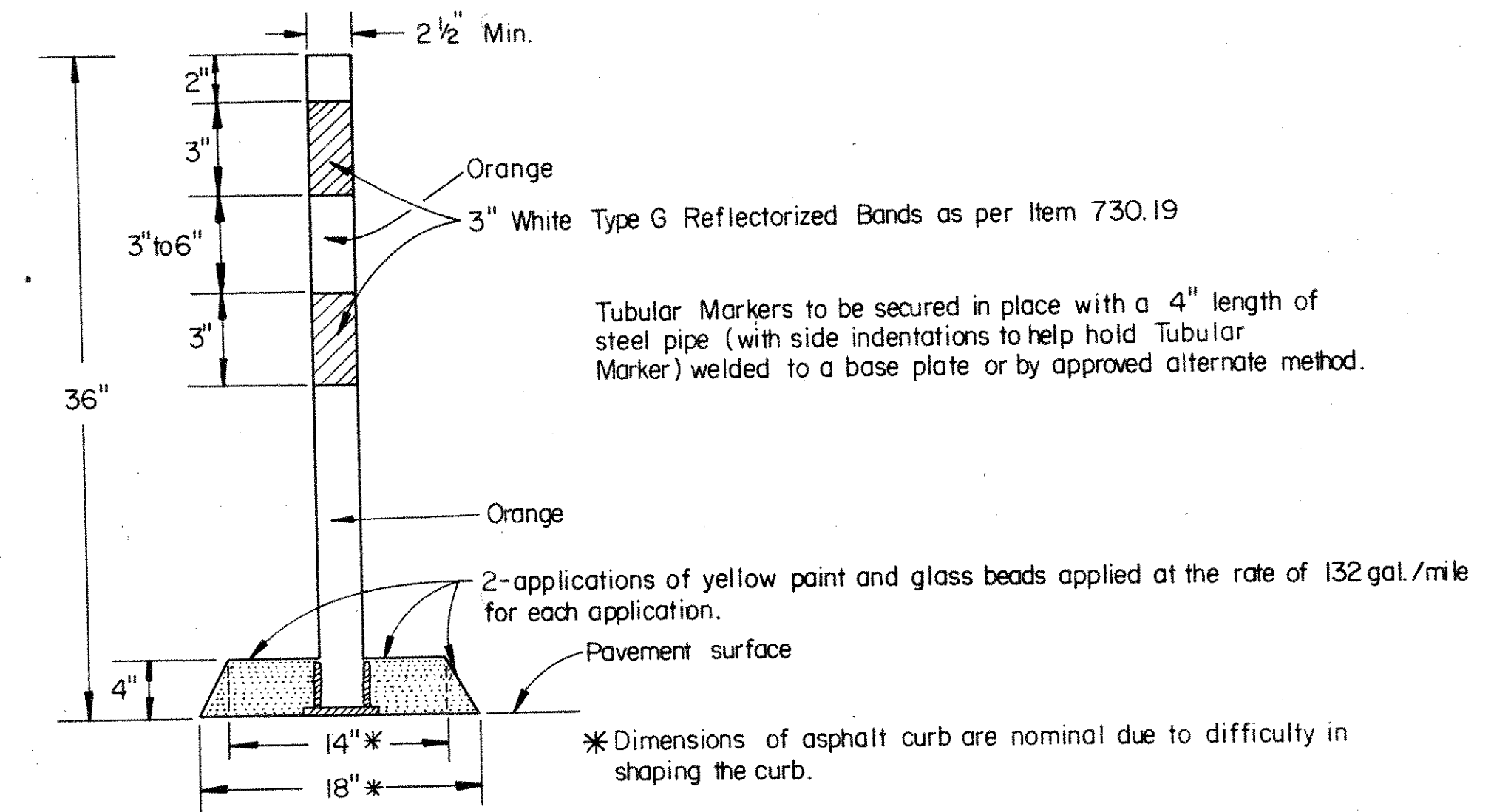
BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE MADE PER LINEAL FOOT OF ACCEPTED ITEM 614 ASPHALT CURB WITH DELINEATION, WHICH SHALL INCLUDE MATERIALS, EQUIPMENT AND LABOR TO PLACE, MAINTAIN AND SUBSEQUENTLY REMOVE THE DIVIDER. MAINTENANCE INCLUDES REPLACEMENT OF DAMAGED OR INEFFECTIVE PYLONS OR REFLECTORS.

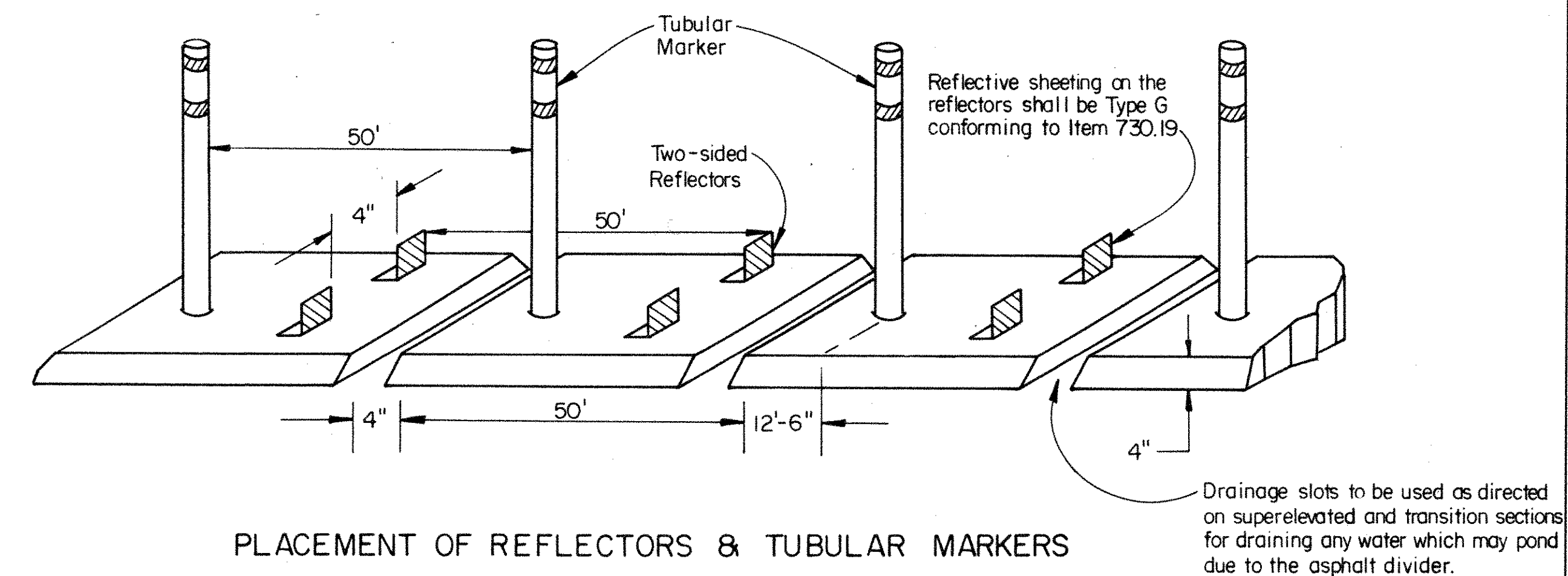
THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

ITEM 614 ASPHALT CURB DIVIDER WITH DELINEATION

31,138 E.B.
 31,138 W.B.
 62,276 LIN. FT.



TUBULAR MARKER INSTALLATION DETAIL **FIGURE 1**



PLACEMENT OF REFLECTORS & TUBULAR MARKERS ON ASPHALT CURB DIVIDERS **FIGURE 2**

GENERAL NOTES

CALC. BY *D.M.*
DATE *1-15-88*
CHKD. BY *R.M.*
DATE *1-25-88*

FHWA REGION	STATE	PROJECT	14
5	OHIO		49

MUS-70-(0.76)-(1.43)
LIC-70-28.93

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 400 SQ. FT. OF FLOOR SPACE. PAYMENT SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 619, FIELD OFFICE.

CONSTRUCTION PLAN

REFERENCE IS HEREBY MADE TO THE FOLLOWING DESIGNATED PLAN FOR FORMER CONSTRUCTION PROJECTS, PORTIONS OF WHICH COVER AREAS INCLUDED IN THIS PROPOSED IMPROVEMENT.

MUS-70-(0.78)(1.43) MUS-70-(0.79-1.43)
LIC-70-29.80 PROJ.780(66) LIC-70-28.93 PROJ.404(81)

COPIES OF THESE PLANS ARE ON FILE EITHER AT THE DISTRICT 5 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION OR AT THE OFFICE OF THE ADMINISTRATOR OF CONTRACT SALES COLUMBUS, OHIO.

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 5 OFFICE AS PROJECTS SHOWN ON THIS SHEET. THE PROPOSED ASPHALT CONCRETE OVERLAYS SHALL HAVE A UNIFORM THICKNESS OF APPROXIMATELY 9 INCHES.

CONTINGENCY QUANTITIES

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

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 AGGREGATE 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 0.10 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

ITEM 846 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AS PER PLAN

THE SURFACE OF THE LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE PAINTED SIX (6) INCHES WIDE WITH THE SAME BITUMINOUS MATERIAL USED IN THE 846 MIXTURE AS DIRECTED. APPLICATION RATE SHALL BE AT LEAST 0.25 GAL./ SQ. YD. THE COST OF THIS OPERATION IS TO BE INCLUDED IN THE COST OF ITEM 846 - ASPHALT CONCRETE SURFACE COURSE, TYPE I, AS PER PLAN

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC.

A QUANTITY OF ITEM 404 ASPHALT CONCRETE, AC-20 HAS BEEN INCLUDED IN THE PLANS TO REPAIR PAVEMENT OR BERMS DAMAGED WHEN MAINTAINING TRAFFIC AS DESCRIBED UNDER ITEM 614 MAINTAINING TRAFFIC.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE ABOVE PURPOSE.

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC. 100 CU.YD.

EXISTING PAVEMENT MARKINGS

ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED AND REPLACED WITH APPROPRIATE MARKINGS. ALL MARKINGS WILL BE MAINTAINED DURING THE CROSSOVER. THE TEMPORARY MARKINGS SHALL BE REMOVED IN ACCORDANCE WITH 621.134 AND ALL NECESSARY MARKINGS SHALL BE RETURNED TO THE FINISHED PORTION.

ITEM 301 BITUMINOUS AGGREGATE BASE

AFTER THE PAVEMENT HAS BEEN RUBBLIZED AND ROLLED ANY DEPRESSION RESULTING FROM THE RUBBLIZING OR COMPACTION EFFORT SHALL BE FILLED WITH ITEM 301 BITUMINOUS AGGREGATE BASE DURING THE INITIAL COURSE.

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO COMPLETE THE WORK AS DESCRIBED ABOVE.

NOTE: THIS IS AN ESTIMATED QUANTITY AND THE ENGINEER RESERVES THE RIGHT TO NON-PERFORM UP TO 100% OF THIS QUANTITY.

ITEM 301 BITUMINOUS AGGREGATE BASE 500 CU. YD.

ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN B.

THE CONTRACTOR SHALL INSTALL A TEMPORARY CONCRETE BARRIER, AS PER STANDARD DRAWING MC-9A, AT THE MEDIAN SIDE OF STRUCTURES. THE CONCRETE BARRIER SHALL BE PLACED AT THE DIRECTION OF THE PROJECT ENGINEER. THE APPROACH END OF THE TEMPORARY CONCRETE BARRIER SHALL HAVE A TAPERED END SECTION. THIS QUANTITY SHALL ALSO INCLUDE REMOVING AND REUSING THE TEMPORARY CONCRETE BARRIER AT UNPROTECTED BRIDGE PARAPETS WHEN MAINTAINING TRAFFIC DURING PHASE 2.

AFTER THE PROJECT HAS BEEN COMPLETED THE TEMPORARY CONCRETE BARRIER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED BY HIM. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE ABOVE PURPOSE.

ITEM 622 TEMPORARY CONCRETE BARRIER, AS PER PLAN B 200 LIN.FT.

ITEM 606 GUARDRAIL POSTS INSTALLED

THIS ITEM SHALL INCLUDE INSTALLING ADDITIONAL POSTS AS PER GR-6A. THE ADDITIONAL POSTS SHALL BE SPACED AT 3'-2 1/2" BETWEEN THE 6'-3" SPACING AS SHOWN ON GR-6-A. THE POSTS SHALL BEGIN AT STA.806+62.5 W.B. TO STA.807+00 W.B.

THE INSTALLED GUARDRAIL POSTS SHALL INCLUDE SPACER BLOCKS, BACK-UP PLATES, ALL NECESSARY HARDWARE, LABOR AND EQUIPMENT TO COMPLETE THIS ITEM.

BASIS FOR PAYMENT - PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR :

ITEM	UNIT	DESCRIPTION
606	EACH	GUARDRAIL POSTS INSTALLED

WATERING AND MOWING PERMANENT SEEDED AREAS

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

659 WATER 400 M GAL.
659 MOWING 740 M SQ. FT.

ITEM 659, SEEDING AND MULCHING

THE FOLLOWING QUANTITY WAS USED TO ESTIMATE THE AREAS FOR SEEDING AND MULCHING. THE FINAL AREA SHALL BE DETERMINED BY THE PROJECT ENGINEER.

327,300 SQ.YD.
THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.
ITEM 659 SEEDING AND MULCHING 327,300 SQ.YD.
ITEM 659 COMMERCIAL FERTILIZER 29.5 TON
ITEM 659 AGRICULTURAL LIMING 147.3 TON

ITEM 203 EMBANKMENT, AS PER PLAN

ITEM 203 EMBANKMENT SHALL CONSIST OF PLACING EMBANKMENT AT THE OUTSIDE EDGES OF THE PAVEMENT AS SHOWN ON SHEET 3. THE EXISTING SLOPES SHALL BE PREPARED AS REQUIRED AS PER ITEM 201, CLEARING AND GRUBBING AS PER PLAN.

ALL EMBANKMENT SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SPEC. 203.09, EXCEPT THAT REQUIREMENTS FOR MOISTURE, DENSITY CONTROL, AND BENCHING ARE HEREBY WAIVED FOR WIDENED SHOULDERS WHICH DO NOT SUPPORT ANY PORTION OF THE NEW PAVEMENT OR SHOULDER.

CARE SHALL BE EXERCISED WHEN PLACING EMBANKMENT AROUND EXISTING DELINEATORS AND DRAINAGE SYSTEMS. EMBANKMENT AROUND EXISTING DRAINAGE SYSTEMS SHALL BE PLACED AT THE DIRECTION OF THE PROJECT ENGINEER.

THE CONTRACTOR WILL PROVIDE STAKES AT 200' INTERVALS TO INSURE THAT SLOPES ARE CONSTRUCTED ACCORDING TO PLAN. COST OF THE STAKES TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 623 CONSTRUCTION LAYOUT STAKES.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY, AND IS AN ESTIMATED QUANTITY TO PERFORM THE WORK AS SHOWN ON SHEET 3, ITEM 203 EMBANKMENT, AS PER PLAN 21,000 CU.YD.

ITEM SPECIAL, LAW ENFORCEMENT OFFICER WITH PATROL CAR

IN ADDITION TO THE REQUIREMENTS OF ITEM 614, A UNIFORMED OFF DUTY STATE HIGHWAY PATROLMAN AND OFFICIAL PATROL CAR WITH EMERGENCY FLASHERS OPERATING, SHALL BE PROVIDED DURING ANY INTERMITTENT FIRST DAY SET-UP PERIOD AND LAST DAY TEARDOWN PERIOD. THIS REQUIREMENT DOES NOT PRECLUDE THE CONTRACTORS USE OF STATE HIGHWAY PATROLMAN FOR OTHER PURPOSES IN THE PROJECT AREA. HOWEVER WHERE SUCH USAGE IS AT THE OPTION OF THE CONTRACTOR, PAYMENT FOR THE STATE HIGHWAY PATROLMAN'S SERVICES INVOLVED SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC. INFORMATION REGARDING ARRANGEMENTS AND PAYMENTS BY THE CONTRACTORS FOR SPECIAL DUTY PATROL SERVICES MAY BE OBTAINED BY CONTACTING THE OHIO HIGHWAY PATROL, 660 EAST MAIN STREET, COLUMBUS, OHIO, TELEPHONE 466-2660. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

ITEM SPECIAL LAW ENFORCEMENT OFFICER WITH PATROL CAR 80 HOURS

ITEM 201 CLEARING AND GRUBBING, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ITEM 201, THE FOLLOWING REQUIREMENTS SHALL APPLY. THE EXISTING SLOPE AREAS WHERE EMBANKMENT IS TO BE MADE SHALL REQUIRE DISKING, OR A METHOD APPROVED BY THE ENGINEER, PRIOR TO PLACEMENT OF EMBANKMENT.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

ITEM 201 CLEARING AND GRUBBING, AS PER PLAN LUMP

GENERAL NOTES

CALC. BY Q.M.
 DATE 1-15-88
 CHECK. BY Rm
 DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

15
49

MUS-70-(0.76)-(1.43)
 LIC-70-28.93

FLUSHING AND REPAIRING OF UNDERDRAINS:

ALL EXISTING UNDERDRAINS SHALL BE FLUSHED WITH WATER TO DETERMINE IF THEY ARE FUNCTIONING PROPERLY AND IF NOT THE OBSTRUCTIONS ARE TO BE LOCATED AND REPAIRED.

THE FOLLOWING PROCEDURES AND METHODS OF PAYMENT ARE PROVIDED FOR THIS PURPOSE. A COPY OF THE ORIGINAL CONSTRUCTION PLANS SHOWING THE LOCATION OF THE UNDERDRAINS AND OUTLETS WILL BE ON FILE IN THE PROJECT OFFICE.

(1) ITEM SPECIAL - UNDERDRAIN OPENING - (EACH). THIS ITEM SHALL CONSIST OF EXPOSING THE FIRST TILE AT THE UPPER END OF AN UNDERDRAIN LINE OR A SUBSEQUENT INTERMEDIATE UNDERDRAIN OPENING AS PROVIDED HEREIN. EACH OPENING SHALL INCLUDE THE TRENCH EXCAVATION LENGTH-WISE OVER THE EXISTING TILE, REPLACING THE 6" TILE BROKEN IN MAKING THE OPENING AND BACKFILLED WITH No.8 AGGREGATE, ALL IN ACCORDANCE WITH SPECIFICATION SECTION 605. PAYMENT FOR THE OPERATIONS DESCRIBED ABOVE SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS INCIDENTAL TO COMPLETING THE ITEM INCLUDING A MAXIMUM OF 6 LIN.FT. OF 6" TILE AND SHALL BE MADE FOR "EACH" -- ITEM SPECIAL --UNDERDRAIN OPENING.

(2) ITEM SPECIAL - WATER - (M.GALS.). AFTER THE UNDERDRAIN OPENING HAS BEEN MADE AND THE EXPOSED TILE REMOVED, THE LINE SHALL BE FLUSHED WITH WATER USING A MINIMUM SIZE HOSE OF 2" AND A MAXIMUM VOLUME OF WATER CALCULATED AT 1 1/2 GALLONS PER LIN.FT. OF UNDERDRAIN LINE. THE FLUSHING OPERATION MAY BE STOPPED AT ANY TIME BY THE ENGINEER IF FIELD OBSERVATIONS SHOW THE LINE TO BE EITHER PLUGGED OR OPERATING EFFICIENTLY.

IN THE EVENT THE LINE IS FOUND TO BE PLUGGED OR FLOW RESTRICTED, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE RESTRICTION BY RODDING OR OTHER SIMILAR METHOD APPROVED BY THE ENGINEER. AN INTERMEDIATE UNDERDRAIN OPENING WILL BE PERMITTED AND PAID FOR PROVIDING IT IS NO CLOSER THAN 500 FEET TO THE INITIAL OPENING OR AT THE MID POINT OF THE LINE. NO INTERMEDIATE OPENING WILL BE PERMITTED IN A RUN LESS THAN 300'. THE COST OF RODDING THE LINE IS TO BE INCLUDED IN THE UNIT BID PRICE FOR WATER.

THE METHOD OF MEASUREMENT FOR THE ITEM SPECIAL -- WATER WILL BE IN ACCORDANCE WITH SPECIFICATION SECTION 616.03 AND PAYMENT WILL BE PER THOUSAND GALLONS (M.GALS.) USED.

(3) WHERE A SECTION OF TILE IS FOUND TO BE PLUGGED OR BROKEN, IT IS TO BE ISOLATED AS NOTED ABOVE BY RODDING. THIS SECTION SHALL BE REPLACED, AT APPROXIMATELY THE LINE GRADE, IN ITS ENTIRETY WITH 6" TILE IN ACCORDANCE WITH SPECIFICATION SECTION 605.03.

THE COST OF REMOVAL OF THE EXISTING TILE IS CONSIDERED TO BE INCIDENTAL TO THIS WORK AND EXTREME CARE IS TO BE EXERCISED IN NOT DAMAGING OR REMOVING ANY MORE TILE THAN NECESSARY.

MEASUREMENT AND PAYMENT FOR THIS WORK WILL BE AS PER SECTION 605.06 AND 605.07 RESPECTIVELY.

(4) AFTER ALL REPAIRS HAVE BEEN MADE TO A LINE A FINAL FLUSHING WILL BE PERFORMED TO ASCERTAIN THE LINE IS FUNCTIONING PROPERLY AFTER WHICH THE CLOSING OF THE INITIAL OPENING WILL BE PERMITTED.

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED IN THE SUMMARY FOR THIS WORK ON THE PARTS OF THIS PROJECT:
 THE FOLLOWING QUANTITIES ARE 100% STATE

ITEM SPECIAL	UNDERDRAIN OPENING	8	EACH
ITEM SPECIAL	WATER	12	M.GALS.
ITEM 605	6" UNCLASSIFIED PIPE UNDERDRAINS	48	LIN.FT.
ITEM 605	6" CONDUIT, TYPE F	40	LIN.FT.

ITEM 605 AGGREGATE DRAINS:

AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50') FOOT INTERVALS ON EACH SIDE OF CROWNED SECTIONS AND AT TWENTY-FIVE (25') INTERVALS ON THE LOW SIDE ONLY OF SUPERELEVATED SECTIONS, EXCEPT WHERE ITEM 605 PIPE UNDERDRAINS HAVE BEEN PROVIDED.

AGGREGATE DRAINS ADJACENT TO REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT SHALL BE PLACED AT EACH TRANSVERSE JOINT ON THE OUTSIDE EDGE OF NORMAL SECTIONS AND ON THE LOW SIDE OF SUPERELEVATED SECTIONS.

AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE. ~~ITEM 605 AGGREGATE DRAIN~~ - - - - 6000 LIN.FT.

EXISTING CONCRETE PAVEMENT REPAIRS:

THE CONTRACTOR IS HEREBY ADVISED THAT EXISTING CONCRETE PAVEMENT REPAIRS ARE WITHIN THE LIMITS OF THIS PROJECT. THESE CONCRETE REPAIRS HAVE BEEN FINISHED TO THE SAME ELEVATION AS THE EXISTING ASPHALT CONCRETE SURFACE. THESE CONCRETE REPAIRS NEED NOT BE PLAINED BUT SHALL REQUIRE ITEM SPECIAL RUBBLIZE AND ROLL THE EXISTING CONCRETE PAVEMENT. ALL THE WORK WITHIN THE AREA OF THE EXISTING REPAIR SHALL BE AS DIRECTED BY THE PROJECT ENGINEER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATE EXISTING REPAIRS EXPOSED AND EXISTING REPAIRS THAT HAVE BEEN RESURFACED.

ITEM 202 RAISED PAVEMENT MARKERS REMOVED FOR STORAGE:

WORK UNDER THIS ITEM SHALL BE AS OUTLINED IN SECTION 202.071 OF THE SPECIFICATIONS, EXCEPT THAT ALL REMOVED CASTINGS SHALL BE TAKEN BY THE CONTRACTOR TO THE STATE HIGHWAY PROJECT OFFICE FOR PICKUP BY STATE FORCES.

COST FOR ALL THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - RAISED PAVEMENT MARKERS REMOVED FOR STORAGE.

THE FOLLOWING QUANTITY HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR THE WORK DESCRIBED ABOVE.

ITEM 202 - RAISED PAVEMENT MARKERS REMOVED FOR STORAGE 790 EACH
 NOTE: This quantity includes 80 Each Raised Pavement Markers to be removed within the area of the temporary asphalt divider that is outside the work limits.

LOCATION OF GUARDRAIL:

THE LOCATION OF GUARDRAIL RUNS ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL:

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

207	TEMPORARY SEEDING AND MULCHING	65,460	SQ.YD.
207	STRAW OR HAY BALES	270	EACH
659	WATER	150	M.GAL.

CITY OF TEMPERA RAISED PAVEMENT MARKERS

FWHA REGION	STATE	PROJECT	17 49
5	OHIO		
MUS-70-(0.76)-(1.43)			
LIC-70-28.93			

CALC. BY	<i>J.M.</i>
DATE	1-15-88
CHECK BY	<i>Jim</i>
DATE	1-25-88

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

* CENTERED IN GAP

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

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

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

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

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

The following quantity has been carried to the General Summary

ITEM	UNIT	DESCRIPTION	QUANTITY
614	EACH	TEMPORARY RAISED PAVEMENT MARKERS	6900

STATIONING (FROM-TO) (SIDE)	SPACING	TYPE A			TYPE B			REMARKS (LINE TYPE)
		W	Y	Y/Y	W	Y	Y/Y	
PHASE 1 W.B.								
1596+00-1614+79.71B								
748+00A-1045+00	20'				318			1559 x 2 = 3118
0+00 - 6+77.92	10'				68	68		Crossover (West)
0+00 - 8+49.16	10'				85	23		Crossover (East)
Gore Area	5'				106			265' x 2 + 5 = 106
PHASE 2 E.B.								
1596+00 - 1614+79.71B								
748+00A-1045+00	20'				318			1559 x 2 = 3118
0+00 - 6+77.92	10'				68	22		Crossover (West)
0+00 - 8+49.16	10'				85	85		Crossover (East)
Replacement					44	10		
TOTALS					6692	208		
					6900			

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

614 TEMPORARY RAISED PAVEMENT MARKERS

STANDARD NO.

DESIGNED	DRAWN	CHECKED	DATE	REVISED
	<i>Autocad</i>		5-12-87	

MAINTENANCE OF TRAFFIC

CALC. BY	<i>J.M.</i>	FHWA REGION	STATE	PROJECT	18 49
DATE	1-15-88	5	OHIO		
CHECK. BY	<i>R.M.</i>	MUS-70-(0.76)-(1.43)			
DATE	1-25-88	LIC-70-28.93			

GENERAL

IN ADDITION TO THE REQUIREMENTS FOR MAINTAINING TRAFFIC AS INDICATED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND PERTINENT ITEMS OF SPECIFICATIONS, THE FOLLOWING REQUIREMENTS SHALL APPLY:

THE CONTRACTOR SHALL SUBMIT, IN WRITING, A SCHEDULE OF OPERATIONS TO THE DISTRICT DEPUTY DIRECTOR AND RECEIVE WRITTEN APPROVAL BEFORE WORK IS STARTED ON THE PROJECT.

ALL WORK SHALL BE COMPLETED ON THE CLOSED SECTION, AS DESCRIBED IN THE SEQUENCE OF OPERATIONS, BEFORE IT IS OPENED TO TRAFFIC UNLESS OTHERWISE DIRECTED.

THE CONTRACTOR SHALL ARRANGE OPERATIONS SO THAT NO WORK WHICH COULD DISRUPT THE NORMAL FLOW OF TRAFFIC SHALL BE PERFORMED ON THE PROJECT FROM NOVEMBER 15 TO MARCH 15. DURING THIS TIME (2) LANE TRAFFIC SHALL BE RETURNED TO BOTH EASTBOUND AND WESTBOUND LANES AND ALL TEMPORARY TRAFFIC CONTROL SHALL BE REMOVED AND PERMANENT MARKINGS IN PLACE.

A WATCHMAN SHALL BE ON THE PROJECT TWENTY-FOUR (24) HOURS PER DAY DURING THE TIME RESTRICTED TRAFFIC IS BEING MAINTAINED TO INSURE PROPER FUNCTIONING OF THE VARIOUS TRAFFIC CONTROL DEVICES. AND TO EFFECT REPAIRS AS NECESSARY.

THE CONTRACTOR SHALL ARRANGE OPERATIONS SO AS TO PREVENT ANY INTERFERENCE TO THE CONTINUOUS FLOW OF TRAFFIC. ALL VEHICLES, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE APPROVED BY THE ENGINEER. EXISTING SPEED LIMIT SIGN LEGENDS IN AREAS WHERE TRAFFIC IS RESTRICTED SHALL BE COVERED AND ADVISORY SPEED LIMITS BE PLACED. ANY OTHER CONFLICTING SIGNS SHALL BE COVERED AND TEMPORARY SIGNS ERECTED WHEN APPLICABLE. THE ENGINEER SHALL RECORD COVERED AND UNCOVERED SIGNS IN THE PROJECT DIARY.

BEFORE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF A PERSON OR PERSONS WHO CAN BE CONTACTED 24 HOURS A DAY BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ALL INTERESTED POLICE AGENCIES. THIS PERSON OR PERSONS SHALL BE RESPONSIBLE FOR REPLACING NECESSARY TRAFFIC CONTROL DEVICES IMMEDIATELY. THE STANDARD DEVICE FOR CLOSING ANY LANES TO TRAFFIC SHALL BE WEIGHTED, PROPERLY REFLECTORIZED PLASTIC.

CONES MAY BE USED IN DAYTIME IN LIEU OF DRUMS IF APPROVED BY THE ENGINEER. CONES MUST BE WEIGHTED TO INCREASE STABILITY BY DOUBLE STACKING, SANDBAGS OR AS APPROVED BY THE ENGINEER. METAL RINGS OF ANY TYPE OVER THE CONE WILL NOT BE PERMITTED.

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL REQUIRED TRAFFIC CONTROL DEVICES SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

THE CONTRACTOR MAY SUBMIT ALTERNATES TO THE ABOVE REQUIREMENTS PROVIDED THE INTENT OF THESE PROVISIONS ARE FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THEREFROM. NO ALTERNATE PLAN SHALL BE PLACED IN EFFECT UNTIL APPROVAL HAS BEEN GRANTED IN WRITING BY THE DIRECTOR.

ALL EXISTING CROSSOVERS WITHIN THE PROJECT LIMITS SHALL BE CLOSED TO TRAFFIC WHILE TWO-WAY TRAFFIC IS BEING MAINTAINED ON EITHER THE EASTBOUND OR WESTBOUND LANES OF I.R.-70. THE CONTRACTOR MAY USE CONCRETE BARRIER, SOIL WITH A MINIMUM HEIGHT OF 3' OR AN APPROVED METHOD TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN AND SUBSEQUENTLY REMOVE ALL BARRIERS, EMBANKMENT, ETC., NECESSARY TO CLOSE THESE CROSSOVERS. CONCRETE BARRIERS SHALL HAVE TAPERED ENDS.

PAYMENT FOR ALL OF THE ABOVE AND AS SHOWN ON SHEET 33 SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC.

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHT TIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE HIGHWAY. TO INSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

ITEM 625 - TEMPORARY LIGHTING, AS PER PLAN

THE CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTING FOR THE CROSSOVERS. THE APPROXIMATE STATION LIMITS ARE AS FOLLOWS:

LOCATION	FROM	TO
BEGIN PROJECT	STA. 1589+25	STA. 1596+00
END PROJECT	STA. 1045+00	STA. 1053+43

TEMPORARY LIGHTING SHALL PROVIDE AN AVERAGE INITIAL INTENSITY OF 1.2 FOOT-CANDLES AND SHALL BE INSTALLED BEFORE THE DESIGNATED AREAS ARE USED FOR THE MAINTENANCE OF TRAFFIC.

THE CONTRACTOR SHALL SUBMIT 4 SETS OF HIS PROPOSED DETAILED TEMPORARY LIGHTING PLANS TO THE DIRECTOR FOR REVIEW AND APPROVAL. THESE PLANS SHALL SHOW LOCATION OF POLES, LENGTH OF BRACKET ARMS, TYPE AND SIZE OF LUMINAIRES AND LAMPS, MOUNTING HEIGHT, POWER SOURCE, AND OTHER PERTINENT INFORMATION.

RECONDITIONED OR APPROVED USED MATERIALS MAY BE FURNISHED FOR THE TEMPORARY LIGHTING SYSTEM. CONSTRUCTION WILL BE WITH FIBERGLASS OR OTHER BREAKAWAY POLES AND UNDERGROUND ELECTRICAL FEEDS WITH PULL-AWAY CONNECTOR KITS (TYPE II AND III). MOUNTING HEIGHT FOR TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 27 FEET. THE TEMPORARY LIGHTING INSTALLATIONS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR WHEN NO LONGER NEEDED.

THE CONTRACTOR SHALL FURNISH ALL ELECTRICAL ENERGY, MATERIALS, LABOR AND EQUIPMENT NECESSARY TO INSTALL, OPERATE, MAINTAIN, AND REMOVE THE TEMPORARY LIGHTING.

THE LUMP SUM BID PRICE FOR ITEM 625 - TEMPORARY LIGHTING, AS PER PLAN SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO PROVIDE THE TEMPORARY LIGHTING AS SPECIFIED.

SEQUENCE OF CONSTRUCTION:

PHASE 1:

(1) CONSTRUCT TEMPORARY CROSSOVER PAVEMENTS FOR PHASE 1 AND PHASE 2 AS SHOWN ON SHEETS 19&20. CONSTRUCT AND INSTALL TEMPORARY CONCRETE BARRIER AND TEMPORARY ASPHALT DIVIDER AND PLACE TRAFFIC CONTROL DEVICES AND SIGNS FOR PHASE 1. (MAINTAINING ONE-WAY TRAFFIC). AFTER THE TEMPORARY DEVICES ARE IN PLACE MOVE TRAFFIC TO WESTBOUND LANES (2-WAY TRAFFIC).

(2) PLANE EXISTING EASTBOUND PAVEMENT AS SHOWN ON SHEET 3.

(3) INSTALL UNDERDRAINS.

(4) RUBBLIZE AND ROLL EASTBOUND LANES.

(5) PLACE ITEM 301 AND 846 INTERMEDIATE COURSE AS SHOWN ON SHEET 3.

(6) PLACE TEMPORARY EDGE LINES AS SHOWN ON SHEET 24.

(7) CONSTRUCT TEMPORARY ASPHALT DIVIDER AND RELATED WORK FOR PHASE 2.

NOTE: BRIDGE, BRIDGE APPROACHES, EMBANKMENT, 2 3/4" ITEM 617, GUARDRAIL, MEDIAN U-TURNS AND RELATED WORK SHALL BE DONE ANY TIME WHILE THE LANE IS CLOSED TO TRAFFIC.

PHASE 2:

PLACE THE TEMPORARY CONCRETE BARRIER, TRAFFIC CONTROL DEVICES AND SIGNS AND MOVE ALL TRAFFIC TO EASTBOUND LANES (SEE SHEET 20).

(2) THROUGH (4) SAME AS PHASE 1.

(5) PLACE ITEM 301 AND ITEM 846 COURSES AS SHOWN ON SHEET 3.

(6) PLACE TEMPORARY OR PERMANENT PAVEMENT MARKINGS. WORK IN THE EASTBOUND LANES TO BE COMPLETED BEFORE RESUMING WORK IN THE WESTBOUND LANES.

(7) REMOVE TEMPORARY CONCRETE BARRIER, TEMPORARY ASPHALT DIVIDER AND ALL TRAFFIC CONTROL DEVICES AND SIGNS PERTAINING TO TWO-WAY TRAFFIC OPERATION ON ONE SIDE OF A 4-LANE DIVIDED HIGHWAY. RESTORE WESTBOUND LANES TO A TWO-LANE, ONE-WAY OPERATION AND EASTBOUND LANES TO A TWO-LANE, ONE-WAY OPERATION.

(8) PLACE FINAL ITEM 846 SURFACE COURSE AND FINAL 1 1/4" ITEM 617 COMPACTED AGGREGATE IN THE EASTBOUND LANES WITH TRAFFIC MAINTAINED.

NOTE: BRIDGE, BRIDGE APPROACHES, EMBANKMENT, GUARDRAIL, MEDIAN U-TURNS AND ALL RELATED WORK SHALL BE DONE ANY TIME WHILE THE LANE IS CLOSED TO TRAFFIC. (1) THRU (6).

RAISED PAVEMENT MARKER GENERAL NOTES

MUS-70-(0.76)-(1.43)
LIC-70-28.93

DESCRIPTION

IN ACCORDANCE WITH THE LINES, SYMBOLS, AND DIMENSIONS SHOWN ON THE PLANS OR AS DESCRIBED HEREIN, THE WORK SHALL CONSIST OF FURNISHING AND INSTALLING PLOWABLE RAISED PAVEMENT MARKERS (HEREAFTER REFERRED TO AS RPMs), AND FURNISHING AND INSTALLING PRISMATIC RETRO-REFLECTORS.

THE CONTRACTOR SHALL FURNISH ALL MATERIALS, SERVICES, LABOR AND EQUIPMENT NECESSARY FOR THE REQUIRED PAVEMENT PREPARATION AND PLACEMENT OF RPMs AND PRISMATIC RETRO-REFLECTORS FOR EACH ITEM DESCRIBED HEREIN.

MATERIALS

THE RPM SHALL CONSIST OF TWO COMPONENTS. ONE COMPONENT IS A CASTING; THE OTHER COMPONENT IS A PRISMATIC RETRO-REFLECTOR. BOTH COMPONENTS OF THE RPM SHALL BE AS MANUFACTURED BY THE AMERACE CORPORATION, NILES, ILLINOIS OR AN APPROVED FUNCTIONAL EQUIVALENT.

THE CONTRACTOR - FURNISHED CASTINGS SHALL BE EITHER STIMSONITE MODEL 96 OR STIMSONITE MODE 96 LP (low profile), TWO WAY PLOWABLE RPM CASTINGS.

THE CONTRACTOR - FURNISHED PRISMATIC RETRO-REFLECTORS SHALL BE EITHER STIMSONITE MODEL 944P REFLECTORS OR STIMSONITE MODEL 944SB REFLECTORS OR EQUIVALENTS.

A ONE-WAY RPM IS EQUIPPED WITH A PRISMATIC RETRO-REFLECTOR WHICH RETRO-REFLECTS LIGHT IN ONE DIRECTION ONLY. A TWO-WAY RPM IS EQUIPPED WITH A PRISMATIC RETRO-REFLECTOR WHICH RETRO-REFLECTS LIGHT IN TWO OPPOSING DIRECTIONS.

THE CASTING ADHESIVE USED TO BOND THE RPM TO THE PAVEMENT SHALL BE A TWO-COMPONENT STANDARD SET EPOXY MEETING THE REQUIREMENTS SHOWN IN AASHTO M-237, TYPE IV, TABLE 3.

THE REFLECTOR ADHESIVE USED BY THE CONTRACTOR TO BOND THE PRISMATIC RETRO-REFLECTOR TO CASTINGS SHALL BE EITHER: MACCO, LN-602 (Liquid Nails), A WATERPROOF SYNTHETIC RUBBER AND RESIN BASED ADHESIVE, MANUFACTURED BY SCM GLIDDEN-DURKEE, DIVISION OF SCM CORPORATION, MACCO ADHESIVES GROUP, WICKLIFFE, OHIO 44092; OR FRANKLIN PANEL AND METAL FRAMING ADHESIVE, A SOLVENT MASTIC OF RUBBER, RESIN, AND REINFORCING INERT MATERIAL DISSOLVED OR DISPERSED IN FLAMMABLE SOLVENT, MANUFACTURED BY FRANKLIN CHEMICAL INDUSTRIES, INC., GENERAL OFFICES, 2020 BRUCK ST., P.O. BOX 07802, COLUMBUS, OHIO 43207 OR AN APPROVED FUNCTIONAL EQUIVALENT. ALL MATERIALS ARE TO BE CONTRACTOR FURNISHED.

TESTING AND CERTIFICATION

THE REQUIREMENT OF TESTING AND CERTIFICATION SHALL APPLY TO ALL MATERIALS FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL FURNISH TO THE ENGINEER CERTIFIED TEST DATA OF THE MATERIALS' PHYSICAL CHARACTERISTICS AND CERTIFICATION THAT THE MATERIALS WERE MANUFACTURED AND ASSEMBLED IN ACCORDANCE WITH APPLICABLE DEPARTMENT SPECIFICATIONS. THE RESULTS OF ALL FACTORY QUALITY CONTROL INSPECTION OF THE PRISMATIC RETRO-REFLECTORS TO CASTING BOND SHALL BE INCLUDED IN THE PHYSICAL CHARACTERISTICS DATA.

IN ADDITION TO THE REQUIREMENTS OF 106.03, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER NO LATER THAN TWO WEEKS PRIOR TO STARTING WORK ON THIS ITEM, CERTIFIED TEST DATA THAT THE PRISMATIC RETRO-REFLECTORS MEET THE FOLLOWING REQUIREMENTS.

THE CERTIFIED TEST DATA FOR THE PRISMATIC RETRO-REFLECTORS SHALL BE OBTAINED BY AN INDEPENDENT TEST LABORATORY.

1. BRIGHTNESS REQUIREMENTS:

A. DEFINITIONS

HORIZONTAL ENTRANCE ANGLE SHALL MEAN THE ANGLE IN THE HORIZONTAL PLANE BETWEEN THE DIRECTION OF ENTRANCE LIGHT AND THE NORMAL TO THE LEADING EDGE OF THE REFLECTORS. DIVERGENCE ANGLE SHALL MEAN THE ANGLE AT THE REFLECTOR BETWEEN OBSERVER'S LINE OF SIGHT AND THE DIRECTION OF THE LIGHT ENTRANCE ON THE REFLECTOR.

B. OPTICAL PERFORMANCE

1. STEEL WOOL ABRASION PROCEDURE
FROM A 1" DIAMETER FLAT PAD USING #3 COARSE STEEL WOOL PER FEDERAL SPECIFICATION FF-W-1825. PLACE THE STEEL WOOL PAD ON THE REFLECTOR LENS. APPLY A LOAD OF 50 POUNDS AND RUB THE ENTIRE LENS SURFACE 100 TIMES. (NOTE: ON TWO COLOR UNITS THE RED LENS SHOULD NOT BE ABRADED.)

2. REFLECTIVE BRILLIANCE

AFTER ABRADING THE LENS SURFACE, USING THE FOREGOING STEEL WOOL ABRASION PROCEDURE, THE REFLECTIVE BRILLIANCE OF EACH CRYSTAL (WHITE) REFLECTING SURFACE AT 0.2° DIVERGENCE ANGLE SHALL NOT BE LESS THAN THE FOLLOWING WHEN THE ENTRANCE LIGHT IS PARALLEL TO THE BASE OF THE REFLECTOR.

HORIZONTAL ENTRANCE ANGLE	REFLECTIVE BRILLIANCE CANDLEPOWER/FT. C
0°	3.0
20°	1.2

FOR YELLOW RELECTORS, THE REFLECTIVE BRILLIANCE SHALL BE 60% OF THE VALUE FOR CRYSTAL (WHITE). FOR RED REFLECTORS, THE REFLECTIVE BRILLIANCE SHALL BE 25% OF THE VALUE FOR CRYSTAL (WHITE).

3. OPTICAL TESTING PROCEDURE

A MINIMUM SAMPLE OF 30 REFLECTORS OF EACH COLOR FOR EACH PROJECT SHALL BE TESTED. THE REFLECTOR TO BE TESTED SHALL BE LOCATED WITH THE CENTER OF THE REFLECTING FACE AT A DISTANCE OF 5 FEET FROM A UNIFORMLY BRIGHT LIGHT SOURCE HAVING AN EFFECTIVE DIAMETER OF 0.28 INCHES.

THE PHOTOCCELL WIDTH SHALL BE AN ANGULAR RING .37" I. D. - .47" O. D. IT SHALL BE SHIELDED TO ELIMINATE STRAY LIGHT. THE DISTANCE FROM LIGHT SOURCE CENTER TO THE PHOTOCCELL CENTER SHALL BE 0.21" INCHES. IF A TEST DISTANCE OF OTHER THAN 5 FEET IS USED, THE SOURCE AND RECEIVER DIMENSIONS AND THE DISTANCE BETWEEN SOURCE AND RECEIVER SHALL BE MODIFIED IN PROPORTION TO THE TEST DISTANCE. FAILURE OF MORE THAN 4% OF THE REFLECTING FACES SHALL BE UNACCEPTABLE.

II. SEAL TEST REQUIREMENTS

A SAMPLE OF 50 UNITS SHALL BE SUBMERGED IN WATER AT ROOM TEMPERATURE AND SUBJECTED TO A VACUUM OF 5 INCHES GAGE FOR FIVE MINUTES. AFTER RESTORING ATMOSPHERIC PRESSURE THE UNITS SHALL BE LEFT SUBMERGED FOR AN ADDITIONAL FIVE MINUTES. WHEN EXAMINED FOR WATER INTAKE, FAILURE OF MORE THAN ONE UNIT SHALL BE CAUSE FOR REJECTION OF THE SHIPMENT.

III. HEAT RESISTANCE TEST REQUIREMENTS

THREE REFLECTORS SHALL BE TESTED FOR FOUR HOURS IN A CIRCULATING AIR OVEN AT 175°F PLUS OR MNUS 5°F. THE TEST SPECIMENS SHALL BE PLACED IN A HORIZONTAL POSITION ON A GRID OR PERFORATED SHELF PERMITTING FREE AIR CIRCULATION. AT THE CONCLUSION OF THE TEST THE SAMPLES SHALL BE REMOVED FROM THE OVEN AND PERMITTED TO COOL IN AIR TO ROOM TEMPERATURE. THE SAMPLES AFTER EXPOSURE TO HEAT SHALL SHOW NO SIGNIFICANT CHANGE IN SHAPE AND GENERAL APPEARANCE WHEN COMPARED WITH CORRESPONDING UNEXPOSED CONTROL STANDARDS. THERE SHALL BE NO FAILURES.

IV. STRENGTH TESTING PROCEDURE AND REQUIREMENTS

A RANDOM SAMPLE OF THREE REFLECTORS SHALL BE SELECTED FOR TEST PURPOSES.

CENTER THE REFLECTOR BASE DOWN OVER THE OPEN END OF A HOLLOW METAL CYLINDER 1 IN. (2.5 cm) HIGH, 3 IN. (7.6 cm) I.D., 3.5 IN. (8.9 cm) O.D. APPLY A LOAD TO THE TOP OF THE REFLECTOR THROUGH A 1 IN. (2.5 cm) DIAMETER BY 1 IN. (2.5 cm) HIGH METAL PLUG CENTERED ON THE TOP OF THE REFLECTOR. RATE OF LOADING SHALL BE 0.2 IN. (0.5 cm) PER MINUTE. FAILURE SHALL CONSTITUTE EITHER BREAKAGE OR SIGNIFICANT DEFORMATION OF THE REFLECTOR AT ANY LOAD OF LESS THAN 2000 LBS. (909 kg)

V. IMPACT AND TEMPERATURE CYCLING TESTS

(NOTE: ON TWO COLOR UNITS, THE RED LENS SHOULD NOT BE SUBJECTED TO IMPACT TEST).

A. SAMPLING

A RANDOM SAMPLE OF REFLECTORS TO PROVIDE 20 LENSES FOR EACH TEST (40 TOTAL) SHALL BE SELECTED FROM EACH LOT.

B. IMPACT TESTING

CONDITION THE REFLECTORS IN A CONVECTION OVEN AT 130° DEGREES F FOR ONE HOUR. WHILE AT THE ELEVATED TEMPERATURE, IMPACT THE REFLECTIVE FACE BY ALLOWING A 1.42 LBS. (0.644 kg) DART FITTED WITH A 0.25 IN. (0.64cm) RADIUS SPHERICAL HEAD TO DROP 18 IN. (45.7 cm) PERPENDICULARLY ONTO THE CENTER OF THE REFLECTIVE SURFACE. CRACKS IN THE IMPACT AREA SHALL BE GENERALLY CONCENTRIC IN APPEARANCE. THERE SHALL BE NO MORE THAN TWO RADIAL CRACKS LONGER THAN 0.25 IN. (0.64 cm). THERE SHALL BE NO RADIAL CRACKS EXTENDING TO THE EDGE OF THE GLASS.

C. TEMPERATURE CYCLING

SUBJECT SAMPLES TO THREE CYCLES OF 140° DEGREES F (60 C) FOR 4 HOURS FOLLOWED BY 20 DEGRRES F (-7 C) FOR 4 HOURS. THERE SHALL BE NO CRACKING OR DELAMINATION FOLLOWING TEMPERATURE CYCLING.

D. TOLERANCE

IN EITHER THE IMPACT OR TEMPERATURE TEST, IF 90% (18 LENSES) OF THE TEST SAMPLES MEET THE ABOVE REQUIREMENTS, THE LOT SHALL BE ACCEPTABLE. FAILURE OF FOUR LENSES OF THE SAMPLE SHALL BE CAUSE FOR REJECTION OF THE LOT. FAILURE OF THREE LENSES SHALL NECESSITATE A RESAMPLE OF 20 ADDITIONAL LENSES. FAILURE OF MORE THAN ONE LENS OF THE RESAMPLE SHALL BE CAUSE FOR REJECTION OF THE LOT.

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER, NO LATER THAN TWO WEEKS PRIOR TO STARTING WORK ON THIS ITEM, CERTIFIED TEST DATA FOR THE CASTING ADHESIVE TO BE ATTAINED IN COMPLIANCE WITH AASHTO M237, TYPE IV AND IN ACCORDANCE WITH 101.061 A QUART SAMPLE OF EACH COMPONENT A & B SHALL BE FORWARDED TO THE BUREAU OF TESTS, 1600 W. BROAD ST., COLUMBUS, OHIO 43215.

THE CONTRACTOR SHALL FURNISH THE ENGINEER A ONE TUBE SAMPLE OF THE REFLECTOR ADHESIVE TO BE USED ON THE PROJECT.

FOR REFLECTOR ADHESIVES OTHER THAN MACCO, LN-602 (LIQUID NAILS) OR FRANKLIN PANEL AND METAL FRAMING ADHESIVE, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER, NO LATER THAN TWO WEEKS PRIOR TO STARTING WORK ON THIS ITEM, A CERTIFICATE OF ANALYSIS CONTAINING THE CERTIFIED FORMULATION OF THE SYNTHETIC RUBBER AND RESIN BASED REFLECTOR ADHESIVE. THE CERTIFIED FORMULATION SHALL BE FOR EACH MATERIAL THE ACTUAL PERCENT BY WEIGHT. A CERTIFIED FORMULATION WILL BE REQUIRED ONCE FOR EACH RPM PROJECT.

PAVEMENT PREPARATION

THE CONTRACTOR SHALL CLEAN AND PREPARE THE PAVEMENT TO WHICH THE RPM CASTING IS TO BE BONDED, TO THE SATISFACTION OF THE ENGINEER, SUCH THAT AT THE TIME OF RPM INSTALLATION THE PAVEMENT SHALL BE FREE OF DIRT, DUST, OIL, GREASE, MOISTURE, CURING COMPOUND, LOOSE OR UNSOUND LAYERS OR ANY OTHER MATERIAL WHICH WOULD INTERFERE WITH PROPER BONDING OF THE RPM TO THE PAVEMENT.

LAYOUT

BEFORE BEGINNING RPM CASTING INSTALLATION, THE CONTRACTOR SHALL ACCURATELY AND ADEQUATELY LAY OUT, BY REFERENCE POINTS, THE LOCATION OF ALL RPMs.

RPMs SHALL NOT BE PLACED ON PAVEMENT SURFACES THAT SHOW VISIBLE EVIDENCE OF CRACKING, CHECKING, SPALLING, OR FAILURE OF UNDERLYING BASE MATERIAL.

RPMs SHALL NOT BE PLACED WITHIN ONE FOOT OF ACTIVE SIGNAL DETECTOR LOOP WIRES. THE CONTRACTOR SHALL EXERCISE EXTREME CARE SO THAT DETECTOR LEADIN CABLES WILL NOT BE CUT. RPMs SHALL NOT BE PLACED DIRECTLY OVER PAVEMENT MARKINGS EXCEPT WHERE THE PAVEMENT MARKINGS DEVIATE VISIBLY FROM THEIR CORRECT ALIGNMENT, AND THEN ONLY WITH THE APPROVAL OF THE ENGINEER. RPMs SHALL NOT BE PLACED AT A PAVEMENT CONSTRUCTION JOINT OR WITHIN AN INTERSECTION OF A DRIVEWAY OR PUBLIC STREET AS A RESULT OF TYPICAL RPM SPACING.

RAISED PAVEMENT MARKER GENERAL NOTES

MUS-70-(0.76)-(1.43)
LIC-70-28.93

IF DURING THE PRE-INSTALLATION LAYOUT OPERATIONS, IT IS DETERMINED THAT A RPM WOULD BE PLACED AT A POINT WITH ONE OF THE AFOREMENTIONED CONDITIONS, THE AFFECTED RPM SHALL BE RELOCATED LONGITUDINALLY A SUFFICIENT DISTANCE TO A POINT APPROVED BY THE ENGINEER. THE DISTANCE THE RPM MAY BE RELOCATED SHALL NOT EXCEED 10% OF THE TYPICAL RPM SPACING. WHERE IT WOULD BE NECESSARY TO RELOCATE THE RPM A DISTANCE GREATER THAN 10% OF THE TYPICAL RPM SPACING, THE AFFECTED RPM SHALL NOT BE INSTALLED.

DISCONTINUITIES, INTERRUPTIONS OR GAPS IN THE STANDARD RPM SPACING TO AVOID INSTALLATION IN BRIDGE DECK SURFACES SHALL NOT BE PERMITTED. WHEN THE TYPICAL RPM SPACINGS WOULD REQUIRE AN RPM TO BE INSTALLED ON A BRIDGE DECK NEAR THE BRIDGE ENDDAM, THE SUBJECT RPM SHALL BE RELOCATED TO THE APPROACH SLAB. THIS PROCEDURE SHALL BE WAIVED FOR ALL BRIDGE DECK MOUNTED RPMs WHOSE TYPICAL LOCATIONS ARE SEPARATED FROM THE BRIDGE ENDDAM BY A DISTANCE EXCEEDING 10% OF THE TYPICAL RPM SPACING.

WHEN PLACING RPMs AT AN EXISTING RPM INSTALLATION, THE NEW LOCATION OF EACH RPM SHALL BE NOT MORE THAN ONE FOOT LONGITUDINALLY IN EITHER DIRECTION FROM THE DAMAGED OR MISSING CASTING LOCATION. UNLESS THE DOWNSTREAM TRAFFIC LOCATION HAS SUPERIOR PAVEMENT QUALITY TO THE UPSTREAM TRAFFIC LOCATION, THE PREFERRED LOCATION SHALL BE THE UPSTREAM LOCATION.

DAMAGED CASTINGS WITH PRISMATIC RETRO-REFLECTORS STILL INTACT SHALL BE REPLACED AS DETERMINED BY THE ENGINEER.

PLACEMENT OF RPMs

AT THE TIME OF PLACEMENT IN THE PAVEMENT, THE RPM CASTING SHALL BE FREE OF DIRT, DUST, OIL, GREASE, RUST, MOISTURE OR ANY FOREIGN MATTER WHICH WILL IMPAIR ADHESION TO THE PAVEMENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CLEAN EACH CONTAMINATED CASTING BY SAND BLASTING OR OTHER ACCEPTABLE PROCEDURES APPROVED BY THE ENGINEER TO REMOVE ALL SUCH FOREIGN MATTER PRIOR TO INSTALLATION.

THE PAVEMENT SURFACE TEMPERATURE AT THE TIME OF RPM PLACEMENT SHALL BE NOT LESS THAN 50 F. THE AMBIENT AIR TEMPERATURE SHALL BE NOT LESS THAN 50 F. RPMs SHALL NOT BE INSTALLED IF THE PAVEMENT SURFACE IS VISIBLY WET.

THE CONTRACTOR SHALL KEEP TRAFFIC OFF NEWLY INSTALLED RPMs UNTIL THE EPOXY IS DRY BUT NOT LESS THAN THE MINIMUM PERIOD SPECIFIED IN THE FOLLOWING TABLE.

AMBIENT AIR TEMPERATURE F	MINIMUM PERIOD (Minutes) PROTECTED FROM TRAFFIC
100	15
90	20
80	25
70	30
60	35
50(no application below 50 F).	45

DURING PERIODS OF HIGH AMBIENT RELATIVE HUMIDITY, EPOXY MAY REQUIRE A LONGER DRYING TIME THAN INDICATED ABOVE.

RPMs SHALL BE INSTALLED BY INSERTING THE TWO KEELS ON THE CASTING INTO PARALLEL SLOTS CUT INTO THE PAVEMENT, THE RPM CASTINGS SHALL BE INSTALLED WITHIN 10 DAYS AFTER THE SLOTS ARE CUT INTO THE PAVEMENT.

THE CASTING ADHESIVE SHALL BE MIXED BY COMBINING COMPONENTS A (EPOXY) AND B (HARDENER) IN A RATIO OF 1:1 BY VOLUME. THE CASTING ADHESIVE REQUIRES THAT THE MIXING OPERATION AND PLACING OF THE RPMs BE DONE RAPIDLY. ANY MIXED BATCH THAT BECOMES SO VISCOUS THAT IT CANNOT BE READILY EXTRUDED FROM UNDER THE RPM WITH LIGHT PRESSURE SHALL NOT BE USED. THE CASTING ADHESIVE SHALL BE MAINTAINED AT 60 DEGREE F TO 80 DEGREE F BEFORE MIXING. ANY HEATING OF THE CASTING ADHESIVE SHALL BE BY THE APPLICATION OF INDIRECT HEAT. THE ADHESIVE SHALL NOT BE HEATED ABOVE 120 DEGREE F.

BEFORE APPLYING THE CASTING ADHESIVE, THE SLOTS SHALL BE BRUSHED OR BLOWN CLEAN OF LOOSE MATERIAL AND SHALL BE DRY. THE CLEANED SLOTS SHALL BE FILLED WITH CASTING ADHESIVE. SUFFICIENT EPOXY SHALL BE PLACED IN BETWEEN THE SLOTS TO INSURE THAT ALL VOIDS BENEATH AND AROUND THE CASTING ARE FILLED SO AS TO CREATE A WATERTIGHT SEAL AROUND THE CASTING. THE KEELS OF THE CASTING SHALL BE PLACED INTO THE SLOTS IN SUCH A MANNER AS TO ASSURE THAT THE TIPS OF THE RPM SNOWPLOW DEFLECTING SURFACES ARE BELOW THE PAVEMENT SURFACE AND THAT THE FOUR LUGS ON THE KEELS OF THE CASTING ARE IN CONTACT WITH THE PAVEMENT.

THE CONTRACTOR MAY ATTACH THE PRISMATIC RETRO-REFLECTORS TO NEW CASTINGS WHICH DO NOT INCLUDE A RETRO-REFLECTOR ALREADY FACTORY ATTACHED BY AMERACE CORPORATION AT ANY TIME PRIOR TO THE INSERTION OF THE CASTING INTO THE PAVEMENT SLOTS. OTHERWISE, THE PRISMATIC RETRO-REFLECTOR SHALL NOT BE ATTACHED TO A NEW CASTING UNTIL AFTER THE EPOXY ADHESIVE IN THE PAVEMENT SLOTS HAS PROPERLY HARDENED. IN EITHER OPERATION, THE FOLLOWING PRISMATIC RETRO-REFLECTOR ATTACHMENT PROCEDURE SHALL BE USED. THE RPM CASTING SHALL BE RID OF DIRT, DUST, OIL, GREASE, RUST, MOISTURE OR ANY FOREIGN MATTER (INCLUDING DAMAGED REFLECTORS OR PARTS THEREOF) WHICH WILL IMPAIR ADHESION OF THE PRISMATIC RETRO-REFLECTOR TO THE CASTING. SANDBLASTING SHALL BE UTILIZED TO RID THE RECESSED PRISMATIC RETRO-REFLECTOR ATTACHMENT AREA OF THE CASTING OF FOREIGN MATTER. IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT IN WRITING TO THE DIRECTOR, NOT LATER THAN THE PROJECT PRE-CONSTRUCTION CONFERENCE, AN ALTERNATE METHOD FOR REMOVING ALL FOREIGN MATTER FROM THE RECESSED PRISMATIC RETRO-REFLECTOR ATTACHMENT AREA OF THE CASTING PROVIDED THE INTENT OF THE ABOVE PROVISIONS IS FOLLOWED. NO ALTERNATE METHOD SHALL BE USED UNTIL APPROVAL HAS BEEN GRANTED, IN WRITING, BY THE DIRECTOR. AS A CONDITION OF APPROVAL A DEMONSTRATION OF THE CONTRACTOR'S PROPOSED ALTERNATE METHOD MAY BE REQUIRED.

REFLECTOR ADHESIVE SHALL BE UNIFORMLY APPLIED IN A SINGLE BEAD ACROSS THE RECESSED PRISMATIC RETRO-REFLECTOR ATTACHMENT AREA OF THE RPM CASTING AT THE RATE OF ONE (1) OUNCE MINIMUM (BY WEIGHT) PER THREE (3) PRISMATIC RETRO-REFLECTORS ATTACHED. THE PRISMATIC RETRO-REFLECTOR SHALL BE INSERTED INTO THE RECESSED ATTACHMENT AREA AND PRESSED INTO PLACE UNTIL A SMALL AMOUNT OF REFLECTOR ADHESIVE SQUEEZES OUT ON ALL SIDES AND BOND HAS BEEN MADE WITH THE CASTING. THE CONTRACTOR SHALL PRESS THE PRISMATIC RETRO-REFLECTOR INTO PLACE BY THE APPLICATION OF A LOAD OF NOT LESS THAN 100 POUNDS OR BY A PROCEDURE ACCEPTABLE TO THE ENGINEER. ADHESIVE MATERIAL SHALL NOT BE PERMITTED ON THE REFLECTIVE SURFACE OF THE PRISMATIC RETRO-REFLECTOR. THE PAVEMENT SURFACE TEMPERATURE AND THE AMBIENT AIR TEMPERATURE SHALL BE AT OR ABOVE 40 F AT THE TIME OF APPLICATION OF THE PRISMATIC RETRO-REFLECTOR. THE CONTRACTOR SHALL NOT ATTACH THE PRISMATIC RETRO-REFLECTOR TO THE CASTING WHEN RAIN OVER THE WORK SITE IS IMMINENT.

PLACEMENT TOLERANCES

RPMs INSTALLED AT THE DOUBLE YELLOW CENTER LINE SHALL BE CENTERED BETWEEN THE TWO MARKED LINES. RPMs INSTALLED ALONG AN EDGE OR CHANNELIZING LINE SHALL BE PLACED SO THAT THE NEAR EDGE OF THE MARKER CASTING IS NO MORE THAN 1 INCH FROM THE NEAR EDGE OF THE MARKED LINE. RPMs INSTALLED ALONG A LANE LINE OR DASHED YELLOW CENTER LINE SHALL BE PLACED BETWEEN AND IN LINE WITH THE DASHES.

REPLACEMENT OF PRISMATIC RETRO-REFLECTORS

DAMAGED OR MISSING PRISMATIC RETRO-REFLECTORS WITHIN THE EXISTING MARKER INSTALLATIONS WHERE THE CASTING REMAINS INTACT SHALL BE REPLACED WITH THE REFLECTOR TYPE SHOWN ON THE DETAILS IN THE PLAN. DAMAGED REFLECTORS INCLUDE THOSE THAT ARE LOOSE OR HAVE BEEN BROKEN, CHIPPED, CRACKED OR HAVE OTHERWISE LOST THEIR RETRO-REFLECTIVE PROPERTIES AS DETERMINED BY THE ENGINEER. THE LOCATION OF EXISTING RPMs THAT REQUIRE THE REPLACEMENT OF DAMAGED OR MISSING RETRO-REFLECTORS SHALL BE DETERMINED BY THE ENGINEER.

SOME EXISTING CASTINGS HAVE REMNANTS OF THE OLD RETRO-REFLECTORS OR CONTAIN ENTIRE RETRO-REFLECTORS THAT ARE NOT SERVICEABLE. WHEN REPLACING RETRO-REFLECTORS IN SUCH CASTINGS, THE WORK SHALL INCLUDE REMOVING WHATEVER REMAINS OF THE OLD RETRO-REFLECTOR.

THE ATTACHMENT PROCEDURE FOR REPLACING PRISMATIC RETRO-REFLECTORS WITHIN EXISTING RPM INSTALLATIONS SHALL BE AS DESCRIBED IN THE NOTE TITLED PLACEMENT OF RPMs, WITH THE ADDITIONAL REQUIREMENT THAT THE REFLECTOR ATTACHMENT AREA OF THE CASTING BE SAND BLASTED IMMEDIATELY PRIOR TO REFLECTOR ATTACHMENT.

RPM SUPPLEMENT MARKING DESCRIPTIONS

CHANNELIZING LINES: RPMs WHICH ARE USED IN CHANNELIZING LINE APPLICATIONS SHALL HAVE ONE-WAY PRISMATIC RETRO-REFLECTORS FACING TRAFFIC WHICH SHALL BE WHITE IN COLOR TO MATCH THE CHANNELIZING LINE COLOR.

LANE LINES: RPMs WHICH ARE USED IN LANE LINE APPLICATIONS SHALL HAVE TWO-WAY PRISMATIC RETRO-REFLECTORS, WHITE FACING TRAFFIC AND RED FACING THE THE OPPOSITE DIRECTION.

FREEWAY AND EXPRESSWAY LANE LINE REFLECTORS: RPMs USED IN FREEWAY AND EXPRESSWAY LANE LINE APPLICATIONS SHALL HAVE ONE-WAY PRISMATIC RETRO-REFLECTORS, WHITE FACING TRAFFIC, EXCEPT AS NOTED BELOW.

AT FREEWAY AND EXPRESSWAY INTERCHANGES TWO-WAY PRISMATIC RETRO-REFLECTORS, WHITE FACING TRAFFIC AND RED FACING THE OPPOSITE DIRECTION, SHALL BE PLACED FOR 1600 FEET UPSTREAM MEASURED FROM THE PHYSICAL GORE OF THE FIRST DECELERATION LANE IN THE INTERCHANGE. WHERE SUBSEQUENT DECELERATION LANES ARE PRESENT, TWO-WAY WHITE/RED REFLECTORS CONTINUE THROUGH THE INTERCHANGE, TO THE PHYSICAL GORE OF THE LAST DECELERATION LANE IN THE INTERCHANGE. WHERE THERE ARE NO SUBSEQUENT DECELERATION LANES AT THE INTERCHANGE THE PLACEMENT OF ONE-WAY WHITE RETRO-REFLECTORS SHALL RESUME AS REQUIRED IN THE PLAN.

ON THE EXPRESSWAY MAINLINE APPROACHES TO AT-GRADE INTERSECTIONS, TWO-WAY PRISMATIC RETRO-REFLECTORS, WHITE FACING TRAFFIC AND RED FACING THE OPPOSITE DIRECTION SHALL BE PLACED FOR 1600 FEET UPSTREAM FROM THE INTERSECTION.

EDGE LINES: RPMs WHICH ARE USED IN EDGE LINE APPLICATIONS SHALL HAVE ONE-WAY PRISMATIC RETRO-REFLECTORS WHICH MATCH THE EDGE LINE COLOR (WHITE FACING TRAFFIC FOR RIGHT EDGE LINES; YELLOW FACING TRAFFIC FOR LEFT EDGE LINES).

CENTER LINES: RPMs WHICH ARE USED IN CENTER LINE APPLICATIONS SHALL HAVE TWO-WAY PRISMATIC RETRO-REFLECTORS, WHICH SHALL BE YELLOW TO MATCH THE CENTER LINE COLOR. IN LIEU OF THE REQUIREMENTS OF TC 65.10 THE TYPICAL SPACING FOR CENTER LINE RPMs ON TWO-LANE, TWO-WAY ROADWAYS SHALL BE 80'. OTHER CENTER LINE RPM SPACINGS SPECIFIED IN TC 65.11, TC 65.12 AND TC 65.13 SHALL CONTINUE TO APPLY.

METHOD OF MEASUREMENT

THE NUMBER OF RPMs WILL BE THE ACTUAL NUMBER FURNISHED COMPLETE WITH PRISMATIC RETRO-REFLECTOR IN PLACE, AND ACCEPTED, IN THE UNITS DESIGNATED, INCLUDING LAYOUT, PREMARKING, SURFACE PREPARATION, AND THE FURNISHING AND APPLICATION OF ALL REQUIRED ADHESIVES. THE NUMBER OF PRISMATIC RETRO-REFLECTORS WILL BE THE ACTUAL NUMBER CONTRACTOR SUPPLIED COMPLETE IN PLACE ON EXISTING RPM CASTINGS IN THE PAVEMENT AND ACCEPTED IN THE UNITS DESIGNATED INCLUDING CASTING PREPARATION AND THE FURNISHING AND APPLICATION OF ALL REQUIRED ADHESIVES.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE FOR :

ITEM	UNIT	DESCRIPTION
SPECIAL	EACH	RAISED PAVEMENT MARKER
SPECIAL	EACH	RAISED PAVEMENT MARKER CASTING- INSTALLATION ONLY
SPECIAL	EACH	PRISMATIC RETRO-REFLECTOR

RAISED PAVEMENT MARKER GENERAL NOTES

CALC. BY _____ DATE _____	OHIO	18-C 49
CHKD. BY _____ DATE _____	FHWA REGION 5	

MUS-70-(0.76)-(1.43)
LIC-70-28.93

ITEM 614 MAINTAINING TRAFFIC

NORMAL DIRECTIONAL TRAFFIC SHALL BE MAINTAINED ON THE ROADWAY AT ALL TIMES DURING THE CONSTRUCTION PERIOD IN ACCORDANCE WITH SHEETS 45-47 OF THIS CONTRACT AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS APPROVED BY THE ENGINEER.

614 MAINTAINING TRAFFIC, ALTERNATE METHODS

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

DUST CONTROL

THE CONTRACTOR SHALL PROVIDE A POSITIVE AND EFFECTIVE MEANS FOR REMOVAL OF SOLID RESIDUE RESULTING FROM THE DRY SAW BLADE CUTTING OF RAISED PAVEMENT MARKER CASTING SLOTS IN THE PAVEMENT. THE RESIDUE SHALL BE REMOVED BY VACUUM OR OTHER EFFECTIVE MEANS.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE ABOVE PURPOSE.

ONE WAY "WHITE"	844 EACH
TWO WAY "WHITE & RED"	20 EACH
ONE WAY "YELLOW"	10 EACH
<hr/>	
TOTAL	874 EACH

ITEM SPECIAL RAISED PAVEMENT MARKER 874 EACH

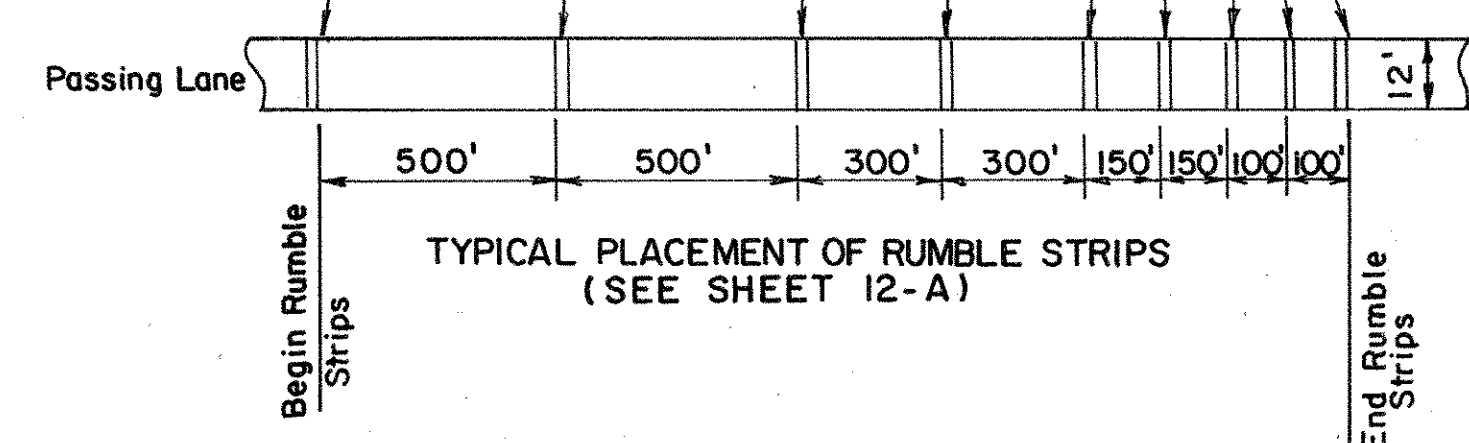
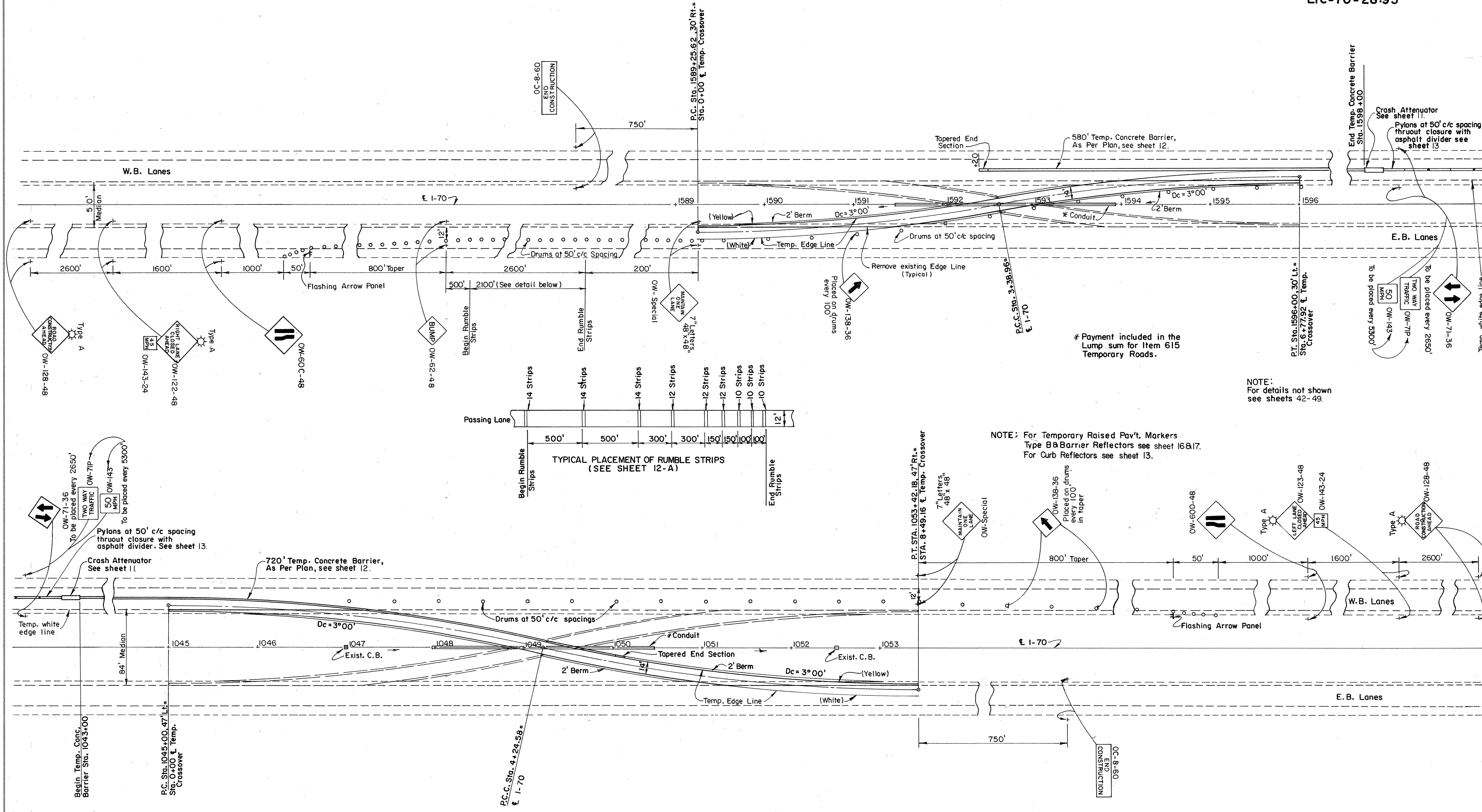
CROSSOVER DETAIL PHASE I

CALC. BY J.M.
 DATE 1-15-88
 CHECK. BY PL
 DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

19
49

MUS-70-(0.76)-(1.43)
 LIC-70-28.93



* Payment included in the Lump sum for Item 615 Temporary Roads.

NOTE: For details not shown see sheets 42-49.

NOTE: For Temporary Raised Pav't. Markers Type B&B Barrier Reflectors see sheet 16&17. For Curb Reflectors see sheet 13.

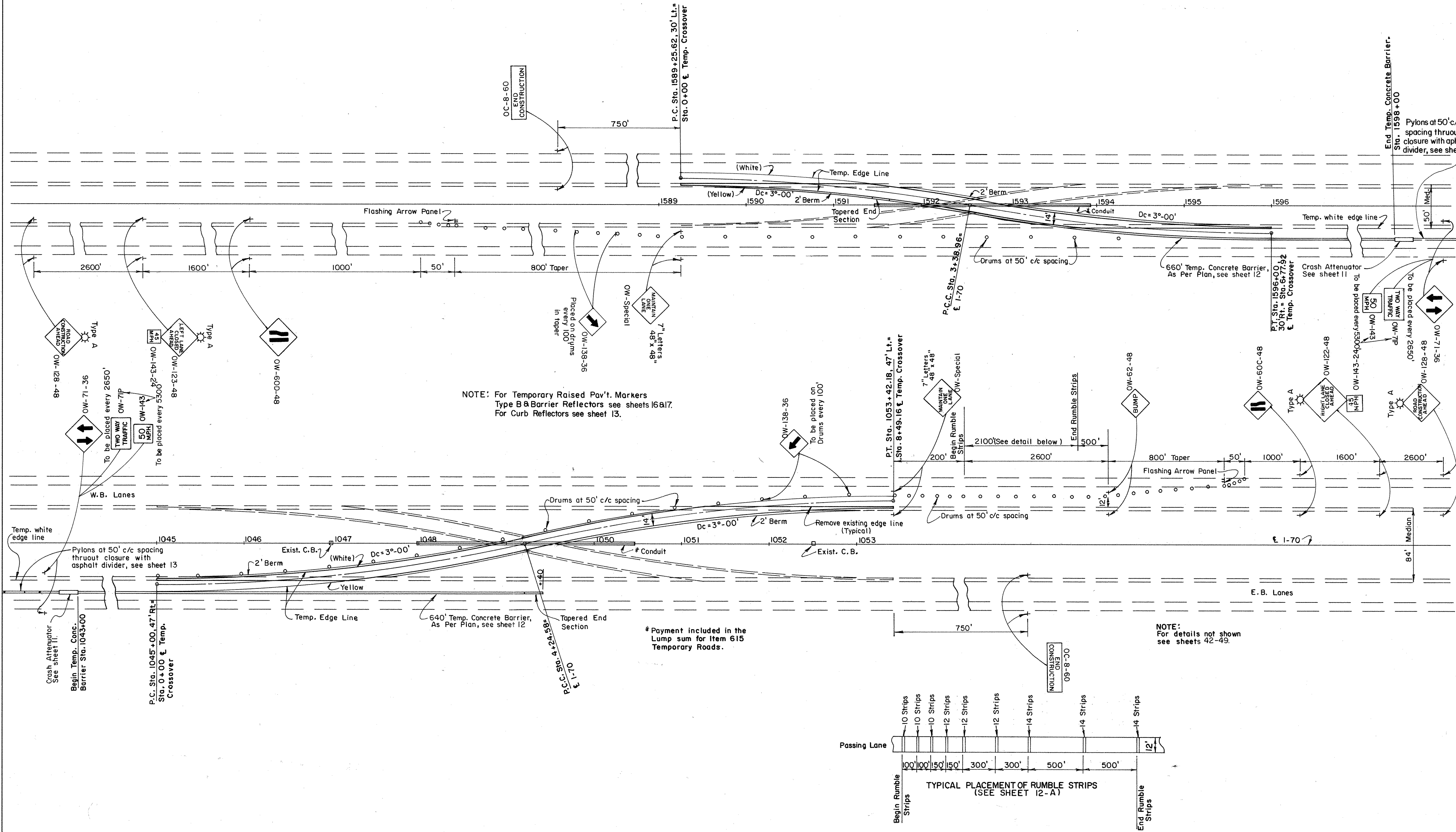
CROSSOVER DETAILS PHASE 2

FHWA REGION	STATE	PROJECT
5	OHIO	

20
49

CALC. BY D.M.
DATE 1-15-88
CHECK. BY R.M.
DATE 1-25-88

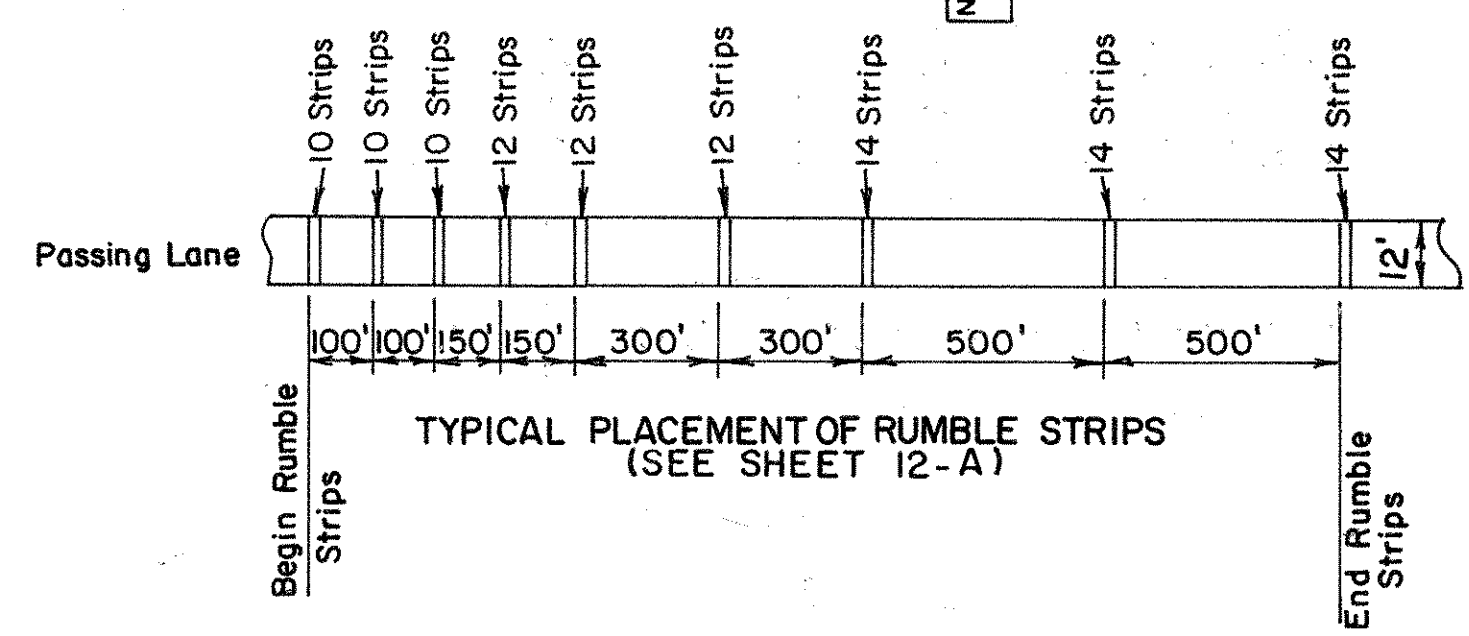
MUS-70-(0.76)-(1.43)
LIC-70-28.93



NOTE: For Temporary Raised Pav't. Markers
Type B & Barrier Reflectors see sheets 16&17.
For Curb Reflectors see sheet 13.

* Payment included in the
Lump sum for Item 615
Temporary Roads.

NOTE:
For details not shown
see sheets 42-49.



MICROFILMED
JUN 29 1992

GENERAL SUMMARY

CALC. BY D.M.
DATE 1-15-88
CHECK BY HW
DATE 1-25-88

CALC. BY <u>D.M.</u>	MUS-70-(0.76)-(1.43)	OHIO
DATE <u>1-15-88</u>	LIC-70-28.93	FHWA REGION 5
CHECK BY <u>HW</u>		FEDERAL PROJECT
DATE <u>1-25-88</u>		

21
49

ITEM	SHEET NUMBER																		TOTAL 100% STATE	TOTAL STATE FEDERAL	ITEM	GRAND TOTAL	UNIT	DESCRIPTION
	7	8	9	11	12	13	14	15	17	18	22	23	24	16	32	100% STATE	12-A	18-C						
202							790												790	202	790	EACH	RAISED PAVEMENT MARKERS REMOVED FOR STORAGE ROADWAY	
201						LUMP													LUMP	201	LUMP		CLEARING AND GRUBBING, AS PER PLAN	
202		25,200																	25,200	202	25,200	LIN.FT.	GUARDRAIL REMOVED	
202										5695									5,695	202	5,695	SQ.YD.	PAVEMENT REMOVED	
202										534									534	202	534	SQ.YD.	WEARING COURSE REMOVED	
203	8									482	1554								2,044	203	2,044	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
203	230					21,000													21,230	203	21,230	CU.YD.	EMBANKMENT, AS PER PLAN	
203										5695	4421								10,116	203	10,116	SQ.YD.	SUBGRADE COMPACTION	
404						100													100	404	100	CU.YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	
606		23,487.5																	23,487.5	606	23,487.5	LIN.FT.	GUARDRAIL, TYPE 5	
606		30																	30	606	30	EACH	ANCHOR ASSEMBLY, TYPE A	
606		1																	1	606	1	EACH	ANCHOR ASSEMBLY, BARRIER DESIGN, TYPE A	
606		12																	12	606	12	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE A	
606		125																	125	606	125	LIN.FT.	GUARDRAIL, BARRIER DESIGN, TYPE 5	
606		27																	27	606	27	EACH	ANCHOR ASSEMBLY, TYPE T	
606		6																	6	606	6	EACH	GUARDRAIL POSTS INSTALLED	
604															33				33	604	33	EACH	CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN DRAINAGE	
603															3241				3241	603	3241	LIN.FT.	4" CONDUIT, TYPE E 707.19	
603															956				956	603	956	LIN.FT.	6" CONDUIT, TYPE E 707.19	
603															570	40		40	570	603	610	LIN.FT.	6" CONDUIT, TYPE F	
603															320				320	603	320	LIN.FT.	8" CONDUIT, TYPE F	
605															959				959	605	959	LIN.FT.	6" UNCLASSIFIED PIPE UNDERDRAINS, FABRIC WRAPPED	
605															25,102				25,102	605	25,102	LIN.FT.	6" DEEP PIPE UNDERDRAINS, FABRIC WRAPPED	
605															44,006				44,006	605	44,006	LIN.FT.	12" PAVEMENT EDGE DRAINS, AS PER PLAN	
605															48,178				48,178	605	48,178	LIN.FT.	18" PAVEMENT EDGE DRAINS, AS PER PLAN	
605						6,000									6,000				6,000	605	6,000	LIN.FT.	AGGREGATE DRAINS	
SPECIAL																8			8	SPECIAL	8	EACH	UNDERDRAIN OPENING	
SPECIAL																12			12	SPECIAL	12	M.GAL.	WATER	
605															48				48	605	48	LIN.FT.	6" UNCLASSIFIED PIPE UNDERDRAINS	
605															2843				2843	605	2843	LIN.FT.	6" SHALLOW PIPE UNDERDRAIN FABRIC WRAPPED	
605															5265				5265	605	5265	LIN.FT.	12" ADVANEDGE PANEL EDGE DRAIN	
659						327,300									327,300				327,300	659	327,300	SQ.YD.	SEEDING AND MULCHING EROSION CONTROL	
659						29.5									29.5				29.5	659	29.5	TON	COMMERCIAL FERTILIZER	
659						147.3									147.3				147.3	659	147.3	TON	AGRICULTURAL LIMING	
659						740									740				740	659	740	MSQFT.	MOWING	
207						270									270				270	207	270	EACH	STRAW OR HAYBALES	
207						65,460									65,460				65,460	207	65,460	SQ.YD.	TEMPORARY SEEDING AND MULCHING	
659						400									150				550	659	550	M.GAL.	WATER	
407										847	8,157				9,004				9,004	407	9,004	GAL.	TACK COAT, AS PER PLAN PAVEMENT	
617															8,762				8,762	617	8,762	CU.YD.	COMPACTED AGGREGATE TYPE A	
846										559.7	3,124				8,721				8,721	846	8,721	CU.YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20, AS PER PLAN	
846										7,810	4,373				12,183				12,183	846	12,183	CU.YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20	
301						500				22,352	8,782				31,634				31,634	301	31,634	CU.YD.	BITUMINOUS AGGREGATE BASE AC-20	
SPEC.										148,192	30,124				178,316				178,316	SPEC.	178,316	SQ.YD.	PAVEMENT PLANING, BITUMINOUS, WITHOUT HEATING (SEE PROPOSAL NOTE)	
SPEC.										148,192					148,192				148,192	SPEC.	148,192	SQ.YD.	RUBBLIZE AND ROLL THE EXISTING CONCRETE PAVEMENT (SEE PROPOSAL NOTE)	
304			153							633	492				1,278				1,278	304	1,278	CU.YD.	AGGREGATE BASE	
305	210														210				210	305	210	SQ.YD.	9" CONCRETE BASE TRAFFIC	
614							6,900								6,900				6,900	614	6,900	EACH	TEMPORARY RAISED PAVEMENT MARKERS TYPE B	
614														115					115	614	115	EACH	BARRIER REFLECTORS, TYPE B	
SPEC.															2,592				2,592	SPEC.	2,592	LIN.FT.	RUMBLE STRIPS	
614												70			70				70	614	70	LIN.FT.	TEMPORARY STOP LINE, CLASS I	
614												48.66			48.66				48.66	614	48.66	MILE	TEMPORARY EDGE LINE, CLASS I	
614												1,740			1,740				1,740	614	1,740	LIN.FT.	TEMPORARY CHANNELIZING LINE, CLASS I	
614												17.7			17.7				17.7	614	17.7	MILE	TEMPORARY LANF LINE, CLASS II	
615			3,478												3,478				3,478	615	3,478	SQ.YD.	TEMPORARY PAVEMENT, CLASS A, AS PER PLAN	
615			LUMP												LUMP				LUMP	615	LUMP		TEMPORARY ROADS	
621												12.64			12.64				12.64	621	12.64	MILE	LANE LINE	
621												25.87			25.87				25.87	621	25.87	MILE	EDGE LINE	
622	360														360				360	622	360	LIN.FT.	CONCRETE BARRIER, TYPE D	
622					1,300										1,300				1,300	622	1,300	LIN.FT.	TEMPORARY CONCRETE BARRIER, AS PER PLAN A	
622						200									200				200	622	200	LIN.FT.	TEMPORARY CONCRETE BARRIER, AS PER PLAN B	
625															LUMP				LUMP	625	LUMP		TEMPORARY LIGHTING, AS PER PLAN	
847												205			205				205	847	205	LIN.FT.	TRANSVERSE LINES 947.02	
847												1,250			1,250				1,250	847	1,250	LIN.FT.	CHANNELIZING LINE 947.02	
847												70			70				70	847	70	LIN.FT.	STOP LINE 947.02	
SPEC.				2											2				2	SPEC.	2	EACH	IMPACT ATTENUATOR G.R.E.A.T. SYSTEM, MODEL NO. 200200NF66CZ	
614						62,276									62,276				62,276	614	62,276	LIN.FT.	ASPHALT CURB DIVIDER WITH DELINEATION	
Special															874				874	Special	874	Each	RAISED PAVEMENT MARKERS	
SPEC.						80									80				80	SPEC.	80	HOURS	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
614															LUMP				LUMP	614	LUMP</			

PAVEMENT DATA TABLE

* AS PER PLAN

CALC. BY Q.W.
DATE 1-15-88
CHKD. BY R.
DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

22
49

MUS-70-(0.76)-(1.43)
LIC-70-28.93

STATION TO STATION I-70	W.P. FEET	LENGTH LIN. FEET	PAVEMENT AREA SQ. YD.	407 TACK COAT at 0.10 Gal./S.Y. GAL.	* 846		SPECIAL PAVEMENT PLANING BITUMINOUS SQ.YD.	SPECIAL RUBBLIZE & ROLL THE EXISTING CONCRETE PAVEMENT SQ.YD.	301 BITUMINOUS AGGREGATE BASE 5" OR AS SHOWN CU.YD.	202 Pavement Removed (Including Asphalt Surface) SQ.YD.	304 AGGREGATE BASE 4" CU.YD.	203 EXCAVATION SUBGRADE COMPACTION SQ.YD.	202 WEARING COURSE REMOVED SQ.YD.	See Sheet		
					ASPH.CONC SURFACE COURSE, TYPE 1 AC-20 1 1/2" CU.YD.	846 ASPH.CONC. INTERMEDIATE COURSE, TYPE 2 AC-20 1 3/4" CU.YD.										
1614+54.71E.B.-1614+79.71E.B. 748+00E.B.-749+50E.B.	24	175.0	466.7	47	1/8 Ave 8.1	1/8 Ave 11.3			1 1/2 Ave 16.2					4		
749+50E.B.-835+95.17E.B.	24	8645.17	23,053.8				800.5	1120.7	23,053.8	23,053.8	3201.9					
835+95.17E.B.-837+95.17E.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
837+95.17E.B.-839+93.82E.B.		199.81			BRIDGE LIMITS FOR DETAILS		SEE SHEET 33-41									
839+93.82E.B.-841+93.82E.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
841+93.82E.B.-889+35.54E.B.	24	4741.72	12,644.6		439.0	614.7	12,644.6	12,644.6	1756.2							
899+35.54E.B.-891+35.54E.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
891+35.54E.B.-892+56.00E.B.		121.62			BRIDGE LIMITS FOR DETAILS		SEE SHEET 33-41									
892+56.00E.B.-894+56.00E.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
894+56.00E.B.-972+95E.B.	24	7839.0	20,904.0		725.8	1016.2	20,904.0	20,904.0	2903.3							
972+95E.B.-980+35E.B.	24	740.0	1973.3		68.5	95.9			10" 548.1	1973.3		219.2	275.0	1973.3		6
980+35E.B.-1036+00E.B.	24	5565.0	14,840.0		515.3	721.4	14,840.0	14,840.0	2061.1							
1036+00E.B.-1037+25E.B.	24	125.0	333.3	33	1/8 Ave 5.8	1/8 Ave 8.1			1 1/2 Ave 11.6						4	
0+09.3-0+74.3 S.E.RAMP	16'+Rad.	65.0	320.0	32	1/8 Ave 5.6	1/8 Ave 7.8										
0+74.3-10+00 S.E.RAMP	16	925.7	1645.7	165	57.1	80.0										
10+00-10+65 S.E.RAMP	16	65.0	115.6	12	4.0	5.6			1 1/2 Ave 4.0						4	
10+65-13+66.17 S.E.RAMP	31 Ave.	301.17	1037.4	104	36.0	50.4			2 1/2 Ave 72.0							
752+56.79E.B.-764+69E.B.	12.5 Ave.	1212.21	1683.6		58.4	81.8	1683.6	1683.6	233.8							
SUB-TOTALS				421	2798.1	3904.3	73,126.0	73,126.0	11,325.0	3833.7		426.0	378.2	3833.7	266.8	
1614+54.71W.B.-1614+79.71W.B. 748+00W.B.-749+50W.B.	24	175.0	466.7	47	1/8 Ave 8.1	1/8 Ave 11.3			1 1/2 Ave 16.2						4	
749+50W.B.-835+58.23W.B.	24	8608.23	22,955.3		797.1	1115.9	22,955.3	22,955.3	3188.2							
835+58.23W.B.-837+58.23W.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
837+58.23W.B.-839+56.88W.B.		199.81			BRIDGE LIMITS FOR DETAILS		SEE SHEET 33-41									
839+56.88W.B.-841+56.88W.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
841+56.88W.B.-889+03W.B.	24	4746.12	12,656.3		439.5	615.2	12,656.3	12,656.3	1757.8							
889+03W.B.-891+03W.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
891+03W.B.-892+42.96W.B.		141.12			BRIDGE LIMITS FOR DETAILS		SEE SHEET 33-41									
892+42.96W.B.-894+42.96W.B.	24	200.0	533.3	7	18.5	22.6			10" 1292	465.1		51.7	25.8	465.1	66.7	6
894+42.96W.B.-1036+00W.B.	24	14,157.04	37,752.1		1310.8	1835.2	37,752.1	37,752.1	5243.3							
1036+00W.B.-1037+25W.B.	24	125.0	333.3	33	1/8 Ave 5.8	1/8 Ave 8.1			1 1/2 Ave 11.6						4	
742+27.02-742+92.02N.E.RMP.	16'+Rad.	65.0	328.0	33	1/8 Ave 5.7	1/8 Ave 8.0										
742+92.02N.E.-749+85N.E.	16	692.98	1232.0	123	42.8	59.9										
749+85N.E.-750+35N.E.	16	50.0	88.9	9	3.1	4.3			1 1/2 Ave. 3.1						4	
750+35N.E.-755+03N.E.	25.5 Ave.	468.0	1326.0		46.0	64.5	1326.0	1326.0	184.2							
755+03W.B.-757+35W.B.	12	232.0	309.3		10.7	15.0	309.3	309.3	43.0							
757+35W.B.-758+35W.B.	6 Ave.	100.0	66.7		2.3	3.2	66.7	66.7	9.3							
SUB-TOTALS				273	2745.9	3831.0	75,065.7	75,065.7	10,973.5	1860.4		206.8	103.2	1860.4	266.8	
MED.U-TURN STA.733+50	See sheet 5		506.7	51	17.6	24.6			17.6 1 1/2 Ave.							
MED.U-TURN STA.910+00	See sheet 5		506.7	51	17.6	24.6			17.6							
MED.U-TURN STA.1033+00	See sheet 5		506.7	51	17.6	24.6			17.6							
TOTALS				847	5596.8	7809.1	148,191.7	148,191.7	22,351.3	5694.1		632.8	481.4	5694.1	533.6	

SHOULDER DATA TABLE

CALC. BY *Q.W.* CHKD. BY *R.K.*
DATE 1-15-84 DATE 1-15-84

MUS-70-(0.76)-(1.43)
LIC-70-28.93

FHWA REGION	STATE	PROJECT			
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*AS PER PLAN

*AS PER PLAN

STATION TO STATION I-70	EXISTING				AREA SQ. YDS.	*407 TACK COAT at 0.10 Gal./S.Y. GAL.	*846 ASPH.CONC. SURFACE COURSE, TYPE 1 AC-20 1 1/2" CU.YD.	846 ASPH.CONC. INTERMEDIATE COURSE, TYPE 2 AC-20 1 3/4" CU.YD.	SPECIAL PAVEMENT PLANNING BITUMINOUS SQ.YD.	617 COMPACTED AGGREGATE TYPE A (6"x4" Ave.) CU.YD.	301 BITUMINOUS AGGREGATE BASE AS SHOWN CU.YD.	304 AGGREGATE BASE CU.YD.	203 EXCAVATION SUBGRADE COMPACTION CU.YD.	See Sheet	
	LT. SIDE		RT. SIDE												
	W.B. FEET	LIN. FEET	W.B. FEET	LIN. FEET											
1614+54.71E.B.-1614+79.71E.B. 748+00E.B.-749+50E.B.	4	175.0			77.8	8	1/2 Ave1.4	1/2 Ave1.9		13.0	1 1/2 Ave2.7			4	
749+50E.B.-835+90.38E.B.	4	8640.38			3840.2	384	133.3	186.7	3840.2	640.0	5" 533.4				
835+90.38E.B.-837+90.38E.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
837+90.38E.B.-839+89.03E.B.		199.81					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
839+89.03E.B.-841+89.03E.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
841+89.03E.B.-889+32.36E.B.	4	4743.3			2108.1	211	73.2	102.5	2108.1	351.4	5" 292.9				
889+32.36E.B.-891+32.36E.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
891+32.36E.B.-892+52.82E.B.		121.62					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
892+52.82E.B.-894+52.82E.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
894+52.82E.B.-972+95E.B.	4	7842.18			3485.4	348	121.0	169.4	3485.4	580.9	5" 484.1				
972+95E.B.-980+35E.B.	4	740.0			328.9		11.4	16		54.8	10" 107.4	50.2	63.0	452.2	6
980+35E.B.-1036+00E.B.	4	5665.0			2473.3	247	85.9	120.2	2473.3	412.2	5" 343.5				
1036+00E.B.-1037+25E.B.	4	125.0			55.6	6	1/2 Ave1.0	1/2 Ave1.4		9.3	1 1/2 Ave1.9			4	
1614+54.71E.B.-1614+79.71E.B. 748+00E.B.-749+50E.B.		10	175.0	194.4	19		1/2 Ave3.4	1/2 Ave4.7		13.0	1 1/2 Ave6.7			4	
RADIUS	3	60			20.0	2	0.7	1.0		4.4					
0+74.3S.E.RAMP-10+00S.E.RAMP	3	925.7			308.6	31	10.7	15.0		68.6					
10+00S.E.RAMP-10+65S.E.RAMP	3	65			21.7	2	0.8	1.1		4.8	1 1/2 Ave0.8			4	
RADIUS		8	90		80.0	8	2.8	3.9		6.7					
0+74.3S.E.RAMP-10+00S.E.RAMP		8	925.7	822.8	72		28.6	40.0		68.6					
10+00S.E.RAMP-10+65S.E.RAMP		8	65	57.8	5		2.0	2.8		4.8	1 1/2 Ave2.0			4	
10+65S.E.RAMP-13+66.17S.E.RAMP		8	501.17	267.7	23		9.3	13.0		22.3	2 1/2 Ave18.6				
752+56.79E.B.-763+69E.B.		8	1112.2	988.6	87		34.3	48.1	123.6	82.4	2 1/2 & 5 77.3				
763+69E.B.-764+69E.B.		9 Ave	100.0	100.0	9		3.5	4.9	11.1	7.4	2 1/2 & 5 7.7				
764+69E.B.-836+00.98E.B.		10	7131.98	7924.4	713		275.2	385.2	792.4	528.3	2 1/2 & 5 605.3				
836+00.98E.B.-838+00.98E.B.		10	200.0	222.2			7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
838+00.98E.B.-839+99.63E.B.		199.81					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
839+99.63E.B.-841+99.63E.B.		10	200.0	222.2			7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
841+99.63E.B.-889+39.44E.B.		10	4739.8	5266.5	474		182.9	256.0	526.6	351.1	2 1/2 & 5 Ave402.3				
889+39.44E.B.-891+39.44E.B.		10	200.0	222.2			7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
891+39.44E.B.-892+59.9E.B.		121.62					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
892+59.9E.B.-894+59.9E.B.		10	200.0	222.2			7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
894+59.9E.B.-972+95E.B.		10	7835.1	8705.7	871		302.3	423.2	870.6	560.4	2 1/2 & 5 Ave665				
972+95 - 980+35		10	740.0	822.2			28.5	40.0		54.8	10" 244.4	105.1	367.7	945.6	6
980+35E.B.-1036+00E.B.		10	5665.0	6183.3	557		214.7	300.6	618.3	412.2	2 1/2 & 5 Ave472.3				
1036+00E.B.-1037+25E.B.		10	125.0	138.9	14		1/2 Ave2.4	1/2 Ave3.4		9.3	1 1/2 Ave4.8			4	
SUB-TOTALS					4091		1572.5	2201.4	14,849.6	4,399.1	4,360.6	323.3	991.9	2909.0	

STATION TO STATION I-70	EXISTING				AREA SQ. YDS.	*407 TACK COAT at 0.10 Gal./S.Y. GAL.	*846 ASPH.CONC. SURFACE COURSE, TYPE 1 AC-20 1 1/2" CU.YD.	846 ASPH.CONC. INTERMEDIATE COURSE, TYPE 2 AC-20 1 3/4" CU.YD.	SPECIAL PAVEMENT PLANNING BITUMINOUS SQ.YD.	617 COMPACTED AGGREGATE TYPE A (6"x4" Ave.) CU.YD.	301 BITUMINOUS AGGREGATE BASE AS SHOWN CU.YD.	304 AGGREGATE BASE CU.YD.	203 EXCAVATION SUBGRADE COMPACTION CU.YD.	See Sheet	
	LT. SIDE		RT. SIDE												
	W.B. FEET	LIN. FEET	W.B. FEET	LIN. FEET											
1614+54.71W.B.-1614+79.71W.B. 748+00W.B.-749+50W.B.	4	175.0			77.8	8	1/2 Ave1.4	1/2 Ave1.9		13.0	1 1/2 Ave2.7			4	
749+50W.B.-835+63.02W.B.	4	8613.02	3828.0	383			132.9	186.1	3828.0	638.0	5" 531.7				
835+63.02W.B.-837+63.02W.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
837+63.02W.B.-839+61.67W.B.		199.81					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
839+61.67W.B.-841+61.67W.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
841+61.67W.B.-889+06.18W.B.	4	4744.51	2108.7	211			73.2	102.5	2108.7	351.4	5" 292.9				
889+06.18W.B.-891+06.18W.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
891+06.18W.B.-892+46.14W.B.		141.12					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
892+46.14W.B.-894+46.14W.B.	4	200.0			88.9		3.1	4.3		14.8	10" 29.0	13.6	45.4	122.2	6
894+46.14W.B.-1036+00W.B.	4	14153.86	6290.6	629			218.4	305.8	6290.6	1048.4	5" 873.7				
1036+00W.B.-1037+25W.B.	4	125.0			55.6	6	1/2 Ave1.0	1/2 Ave1.4		9.3	1 1/2 Ave1.9			4	
RADIUS	3	50.0			16.7	2	1/2 Ave0.3	1/2 Ave0.4		3.7					
742+92N.E.RMP.-749+85N.E.RMP.	3	693.0			231.0	23	8.0	11.2		51.3					
749+85N.E.RMP.-750+35N.E.RMP.	3	50			16.7	2	0.6	0.8		3.7	1 1/2 Ave0.6				
1614+54.71W.B.-1614+79.71W.B. 748+00W.B.-749+50W.B.	10	175.0			194.4	19	1/2 Ave3.4	1/2 Ave4.7		13.0	1 1/2 Ave6.7				
749+50W.B.-750+33W.B.	12	83.0			110.7	11	3.8	5.4		6.1	2 1/2 Ave7.7				
RADIUS	3	140			46.7	5	1/2 Ave0.8	1/2 Ave1.1		10.4					
743+00N.E.-749+35N.E.	3	635.0			211.7	21	7.4	10.3		47.0					
749+35N.E.-749+85N.E.	4.3 Ave	50.0			23.9	2	0.8	1.2		3.7					
749+85N.E.-750+35N.E.	6.8 Ave	50.0			37.8	4	1.3	1.8		3.7	1 1/2 Ave1.3			4	
750+35W.B.-757+35W.B.	8	700.0			622.2	54	21.6	30.2	77.8	51.9	2 1/2 & 5 48.6				
757+35W.B.-758+35W.B.	9	100.0			100.0	9	3.5	4.9	11.1	7.4	2 1/2 & 5 7.7				
758+35W.B.-835+52.42W.B.	10	7717.42			8574.9	772	297.7	416.8	857.5	571.7	2 1/2 & 5 655.0				
835+52.42W.B.-837+52.42W.B.	10	200.0			222.2		7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
837+52.42W.B.-839+51.07W.B.		199.81					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
839+51.07W.B.-841+51.07W.B.	10	200.0			222.2		7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
841+51.07W.B.-888+99.10W.B.	10	4748.03			5275.6	475	183.2	256.5	527.6	351.7	2 1/2 & 5 403.0				
888+99.10W.B.-890+99.10W.B.	10	200.0			222.2		7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
890+99.10W.B.-892+39.06W.B.		141.12					BRIDGE LIMITS FOR DETAILS SEE SHEET			33-41					
892+39.06W.B.-894+39.06W.B.	10	200.0			222.2		7.7	10.8		14.8	10" 66.1	28.4	94.9	255.6	6
894+39.06W.B.-1036+00W.B.	10	14160.94			15734.4	1416	546.3	764.9	1573.4	1049.0	2 1/2 & 5 1202.0				
1036+00W.B.-1037+25W.B.	10	125.0			138.9	14	1/2 Ave2.4	1/2 Ave3.4		9.3	1 1/2 Ave4.8			4	
SUB-TOTALS							4066	1,551.2	2,171.7	15,274.7	4,362.1	4,420.7	1,680	561.2	1511.2
SUB-TOTALS							4,091	1,572.5	2,201.4	14,849.6	4,399.1	4,360.6	323.3	991.9	2909.0
TOTALS							8157	3,123.7	4,373.1	30,124.3	8,761.2	8,781.3	491.3	1,553.1	4,420.2

ITEM 605 PAVEMENT EDGE DRAIN

CALC. BY: *RS*
 DATE: 1-14-88
 CHKD. BY: *RM*
 DATE: 2-3-88

FHWA REGION	STATE	PROJECT
5	OHIO	

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MUS-70-(0.76-1.43)
 LIC-70-28.93

12", 18" - 605 PAVEMENT EDGE DRAIN, AS PER PLAN.

ALTERNATE "A"

DESCRIPTION: THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A PAVEMENT EDGE DRAIN IN ACCORDANCE WITH THESE SPECIFICATIONS, AS SHOWN ON THE PLANS AND AS DIRECTED BY THE PROJECT ENGINEER.

MATERIALS: THE EDGE DRAIN SHALL BE EITHER THE MONSANTO DRAINAGE MAT (MDM) SYSTEM'S (HYDRAWAY) AS PRODUCED BY MONSANTO COMPANY OF ST. LOUIS, MISSOURI.

OR THE ADVANEDGE EDGE DRAIN PANEL AS PRODUCED BY THE ADVANCED DRAINAGE SYSTEM INC. OF COLUMBUS, OHIO. THE ADVANEDGE DRAIN PANEL SHALL BE AN ALTERNATE TO THE MDM SYSTEM ON THE OUTSIDE EDGE OF THE PAVEMENT ONLY. (NOTE OF EXCEPTION) THE ADVANEDGE EDGE DRAIN PANEL OF A 12"x1" (NOMINAL) PERFORATED CORRUGATED POLYETHYLENE PANEL WRAPPED WITH A NON-WOVEN, HEAT-BONDED, POLYETHYLENE GEOTEXTILE AS SPECIFIED BY ADVANEDGE DRAINAGE SYSTEM INC.

THE PANEL SHALL BE MANUFACTURED FROM POLYETHYLENE COMPOUNDS CONFORMING TO GRADES P14, P23, P24, P33, OR P34 AS DEFINED IN ASTM D1248. CLASS "C" PIGMENTS MUST BE USED.

THE PANEL SHALL CONSIST OF TWO PARALLEL CORRUGATED FACE WITH NOMINAL 3/4" RADIUS JOINING ENDS. SPACING BETWEEN THE CORRUGATED FACES IS MAINTAINED BY PILLARS LOCATED AT 4" CENTERS.

PERFORATIONS SHALL OCCUR IN EVERY CORRUGATION FACES WITH IN FOUR ROWS PER FACE. PERFORATIONS ARE SLOTS. TOTAL OPEN AREA OF THE SLOTS MUST EXCEED 5 SQUARE INCHES PER FOOT.

CONSTRUCTION:

THE MDM OR ADVANEDGE DRAIN PANEL SHALL BE INSTALLED AFTER THE PLANING OF THE EXISTING BITUMINOUS PAVEMENT AND BEFORE ANY RUBBLIZING OF THE EXISTING CONCRETE PAVEMENT BEGINS.

THE TRENCH WIDTH SHALL BE AS SHOWN ON THE PLANS AND BACKFILL WITH No. 8 AGGREGATE.

COST OF THE No. 8 AGGREGATE INCLUDING MATERIALS AND INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 605 PAVEMENT EDGE DRAINS.

THE BACKFILLING OPERATION SHALL BE DONE SIMULTANEOUSLY WITH THE INSTALLATION OF THE MDM AND/OR ADVANEDGE SYSTEM TO HOLD THE MAT OR PANEL FLUSH AGAINST THE TRENCH WALL. THE CONTRACTOR SHALL USE EXTREME CARE WHEN TRENCHING TO ENSURE THAT THE EXCAVATED TRENCH MATERIAL DOES NOT FALL BACK INTO THE TRENCH. THE EXCAVATED MATERIAL SHALL BE REMOVED AND DISPOSED OF.

SPLICING OF THE MDM SHALL BE DONE PRIOR TO PLACING IT IN THE TRENCH BY USE OF THE KIT FURNISHED BY THE MANUFACTURE AND IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. ALL MATERIAL REQUIRED FOR THE SPLICES WILL BE SUPPLIED IN THE KIT, BUT ANY EQUIPMENT REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR.

THE ADVANEDGE EDGE DRAIN PANEL SHALL BE CONNECTED BY USING EXTERNAL SPLIT COUPLINGS WITH RETAINING PINS MANUFACTURED BY THE PANEL MANUFACTURER. JOINTS RELYING ON TEMPORARY FASTENING MEANS SUCH AS TAPE ON STAPLES SHALL BE PERMITTED ONLY BY THE AUTHORITY OF THE PROJECT ENGINEER.

THE OUTLET FITTING (STANDARD AND TEE OUTLETS) AND END CAPS SHALL BE FURNISHED BY THE MANUFACTURER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE EDGE DRAINS SHALL BE OUTLETTED AS SHOWN AND INSTALLED AS PER ITEM 603. THE LOCATIONS OF THE UNDERDRAIN OUTLETS AS SHOWN ARE SUBJECT TO ADJUSTMENT AND SHALL BE DETERMINED BY THE PROJECT ENGINEER. ADDITIONAL PRODUCT INFORMATION AND INSTALLATION INSTRUCTIONS FOR THE MDM SYSTEM MAY BE OBTAINED BY CONTACTING JOHN JONES MANAGER COMMERCIAL DEVELOPMENT, ENGINEERED PRODUCTS DIVISION, MONSANTO CO., ST. LOUIS, MO. 63167, TELEPHONE (800) 325-4330 AND FOR THE ADVANEDGE DRAIN PANEL BY CONTACTING ADVANCED DRAINAGE SYSTEM'S INC., 1481 ST., RT. 142 SE, BOX 648, LONDON, OHIO, 43140 TELEPHONE (800) 237-8823.

THE CONTRACTOR SHALL NOT BEGIN INSTALLATION OF THE MDM OR ADVANCED DRAINAGE SYSTEM'S REPRESENTATIVE OF EITHER COMPANY IS PRESENT.

METHOD OF MEASUREMENT: COMPLETED AND ACCEPTED UNDERDRAINS (MDM SYSTEM AND/OR ADVANEDGE PANEL) WILL BE MEASURED BY THE LINEAR FOOT INSTALLED IN PLACE.

BASIS OF PAYMENT: WORK COMPLETED AND ACCEPTED UNDER THIS ITEM AND MEASURED WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR ITEM 605 PAVEMENT EDGE DRAINS WHICH PRICE SHALL BE FULL COMPENSATION FOR EXCAVATION AND BACKFILL; FOR FURNISHING MATERIALS; INCLUDING MATERIAL FOR SPLICES AND OUTLET FITTINGS; AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

ALTERNATE "B"

DESCRIPTION: THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A 4" PIPE UNDERDRAIN, AS PER PLAN AND IN ACCORDANCE WITH ITEM 605 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

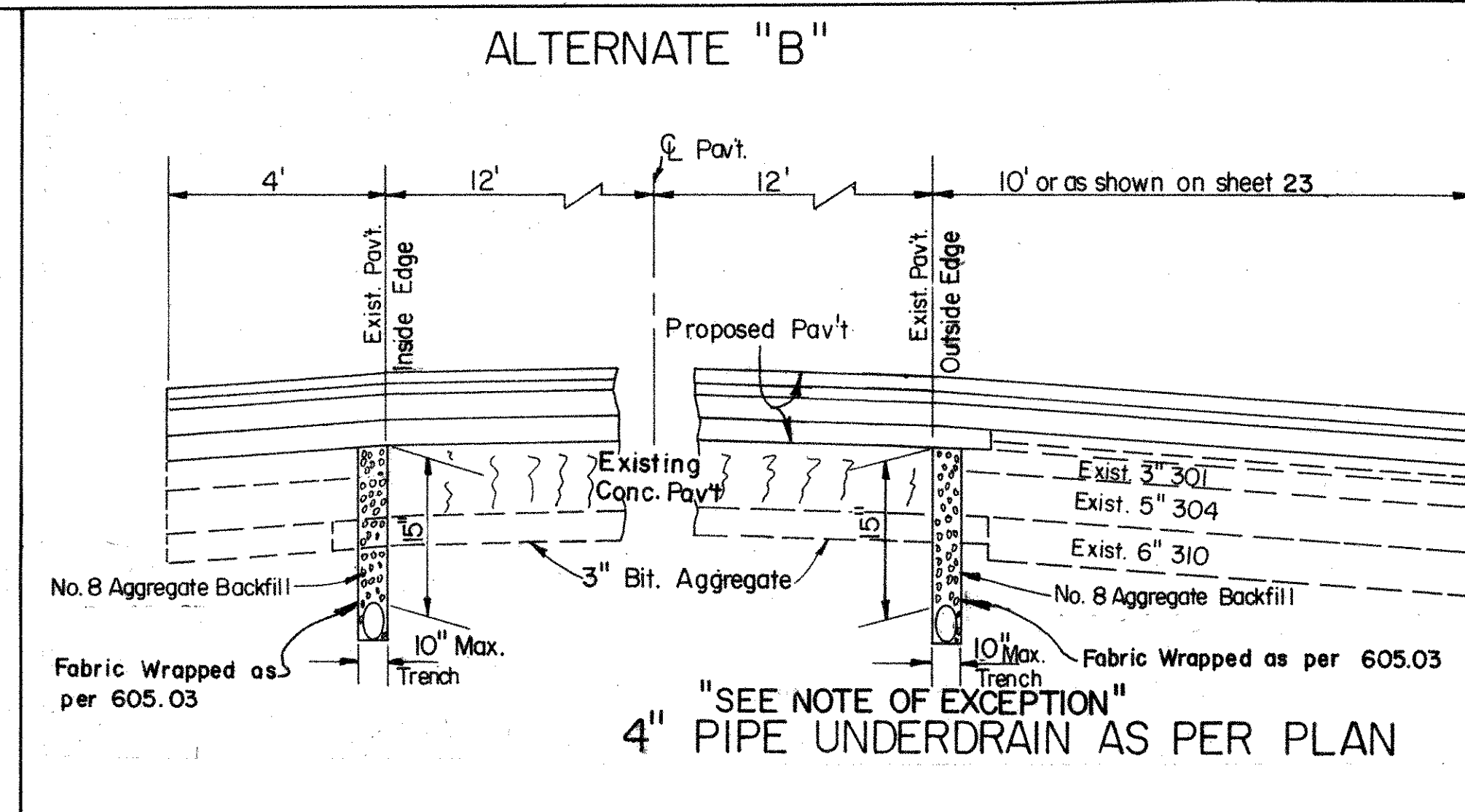
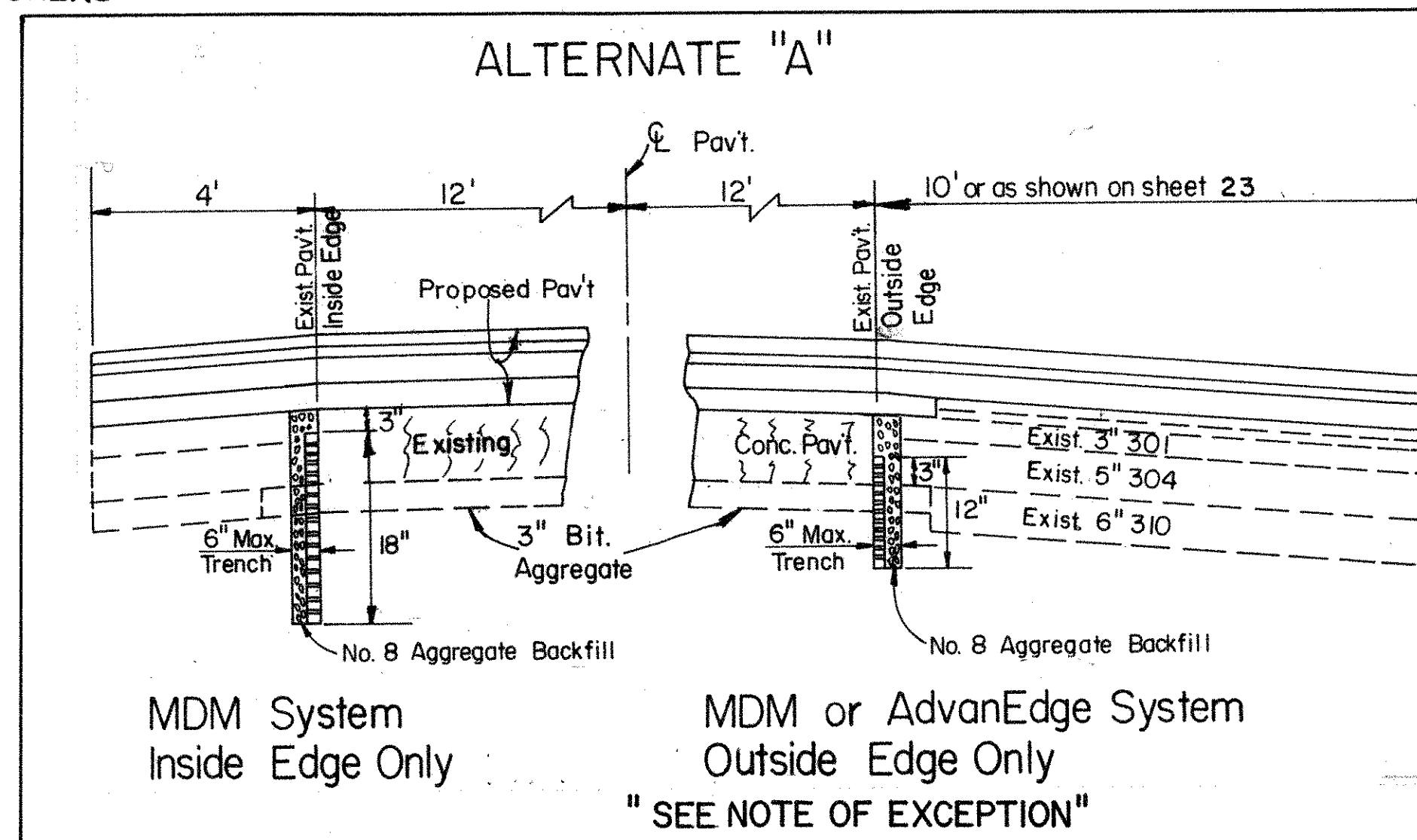
CONSTRUCTION: THE CONSTRUCTION PHASE SHALL BE THE SAME AS FOR ALTERNATE "A".

METHOD OF MEASUREMENT AND BASIS OF PAVEMENT WILL BE THE SAME AS FOR ALTERNATE "A".

NOTE OF EXCEPTION:

THE 12" ADVANEDGE DRAIN PANEL SHALL BE USED ON THE OUTSIDE EDGE OF THE EASTBOUND LANE ONLY, BEGINNING AT STA. 783+10 AND ENDING AT STA. 835+80.

THE CONSTRUCTION PHASE SHALL BE THE SAME AS FOR ALTERNATE "A".



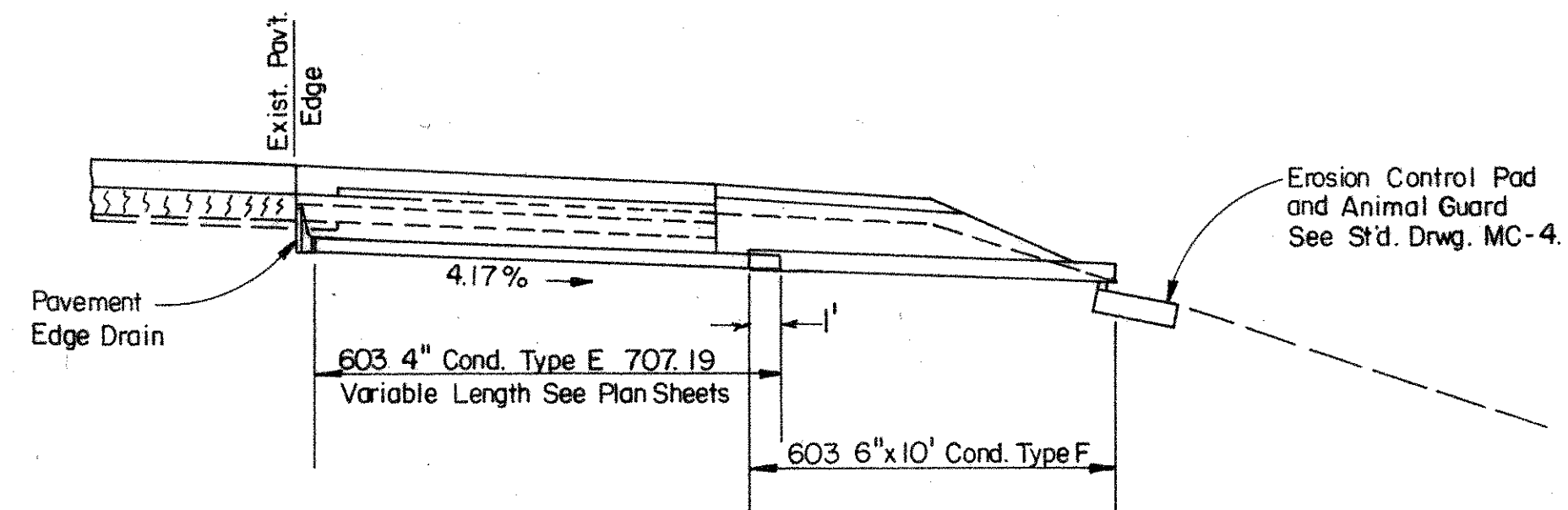
PAVEMENT EDGE DRAIN DETAILS

CALC. BY *RGL*
 DATE 1-14-88
 CHKD. BY *R*
 DATE 2-2-88

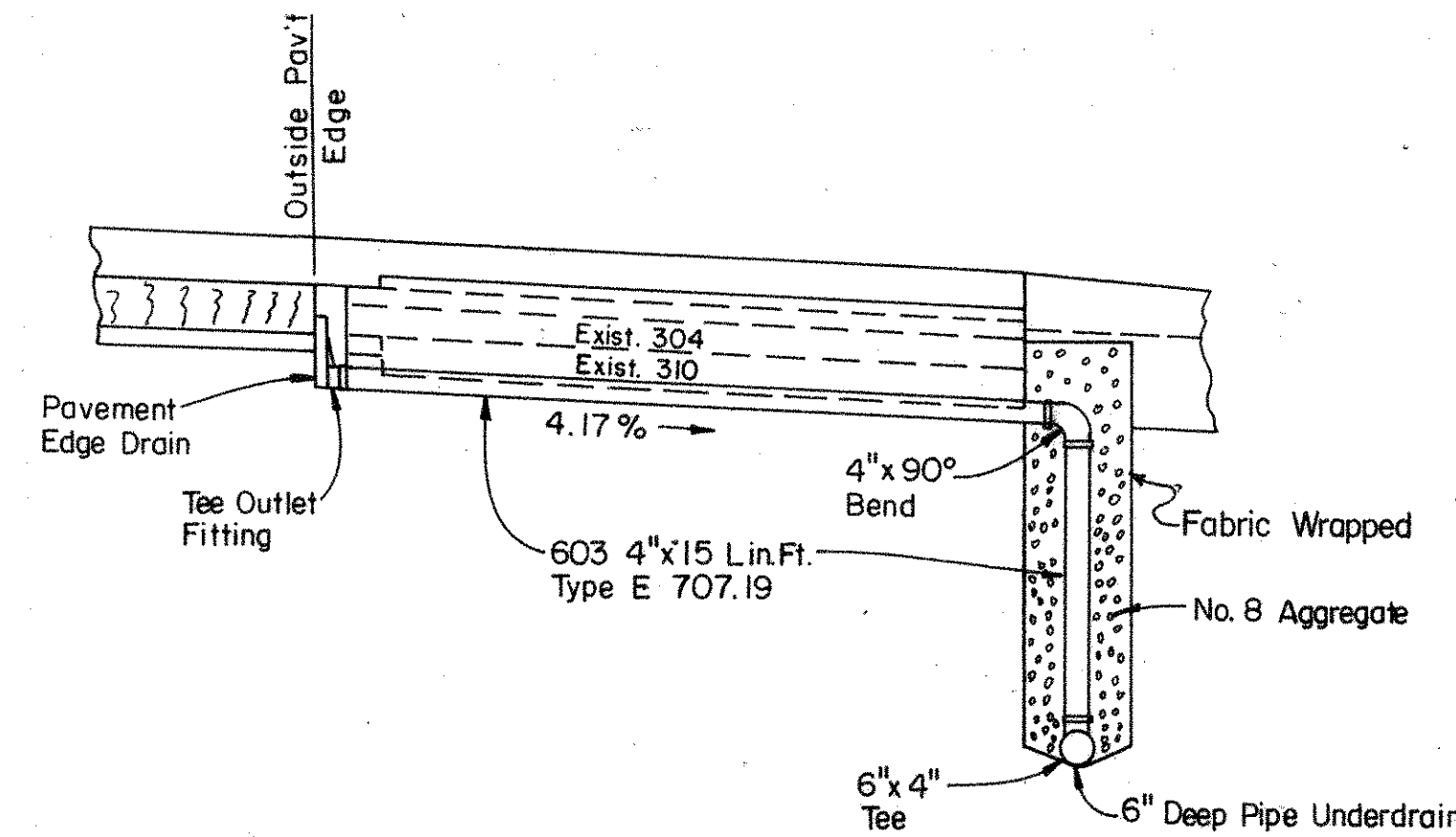
FHWA REGION	STATE	PROJECT
5	OHIO	

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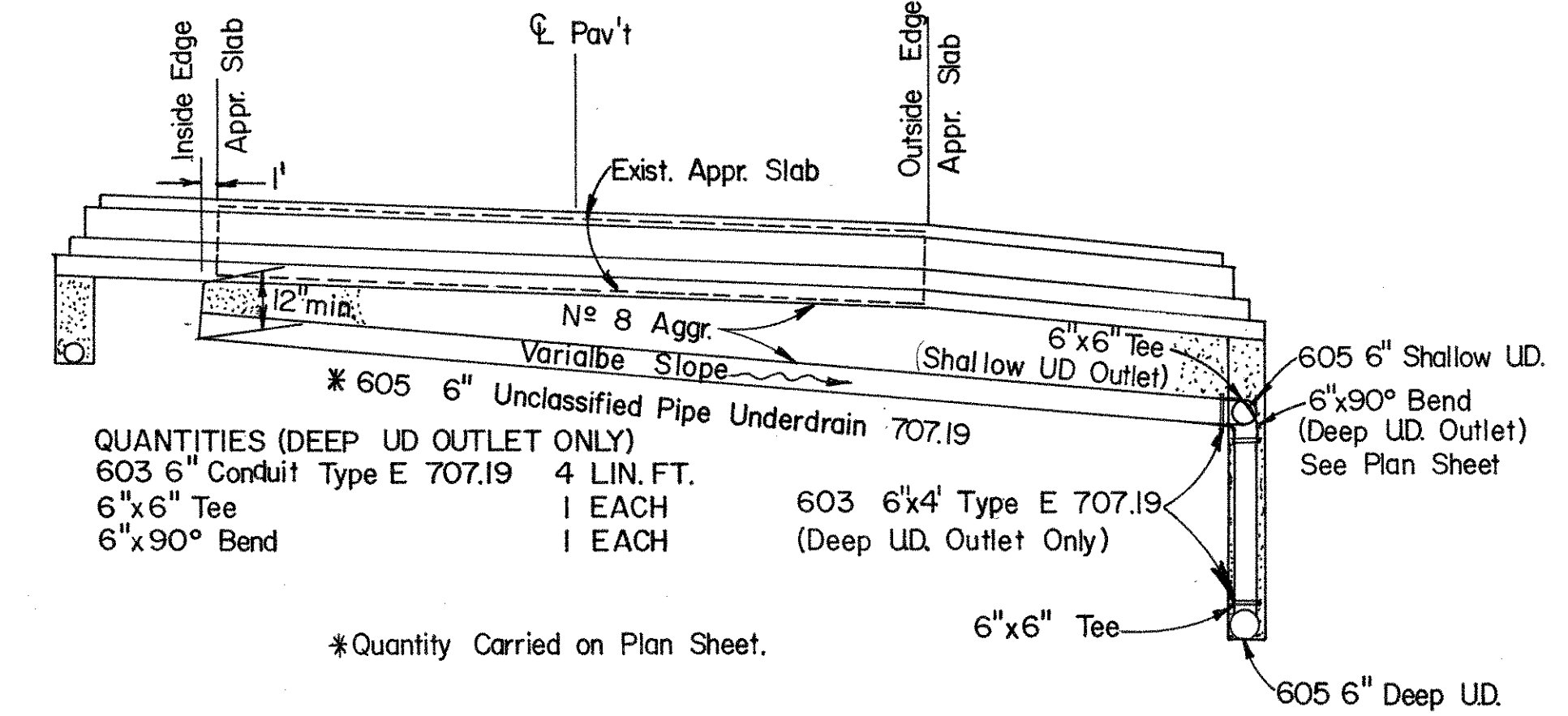
MUS-70-(0.76-1.43)
 LIC-70-28.93



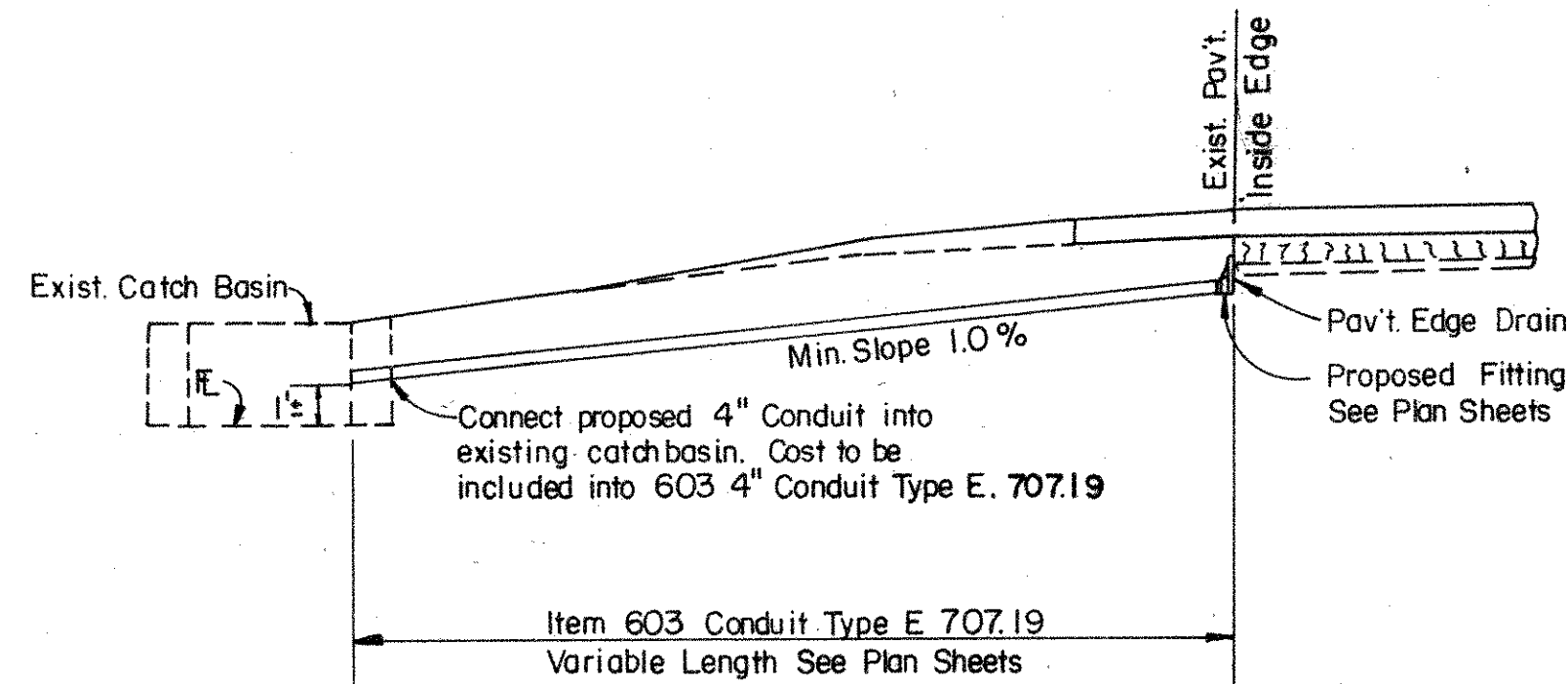
TYPICAL OUTLET FOR PAVEMENT EDGE DRAINS



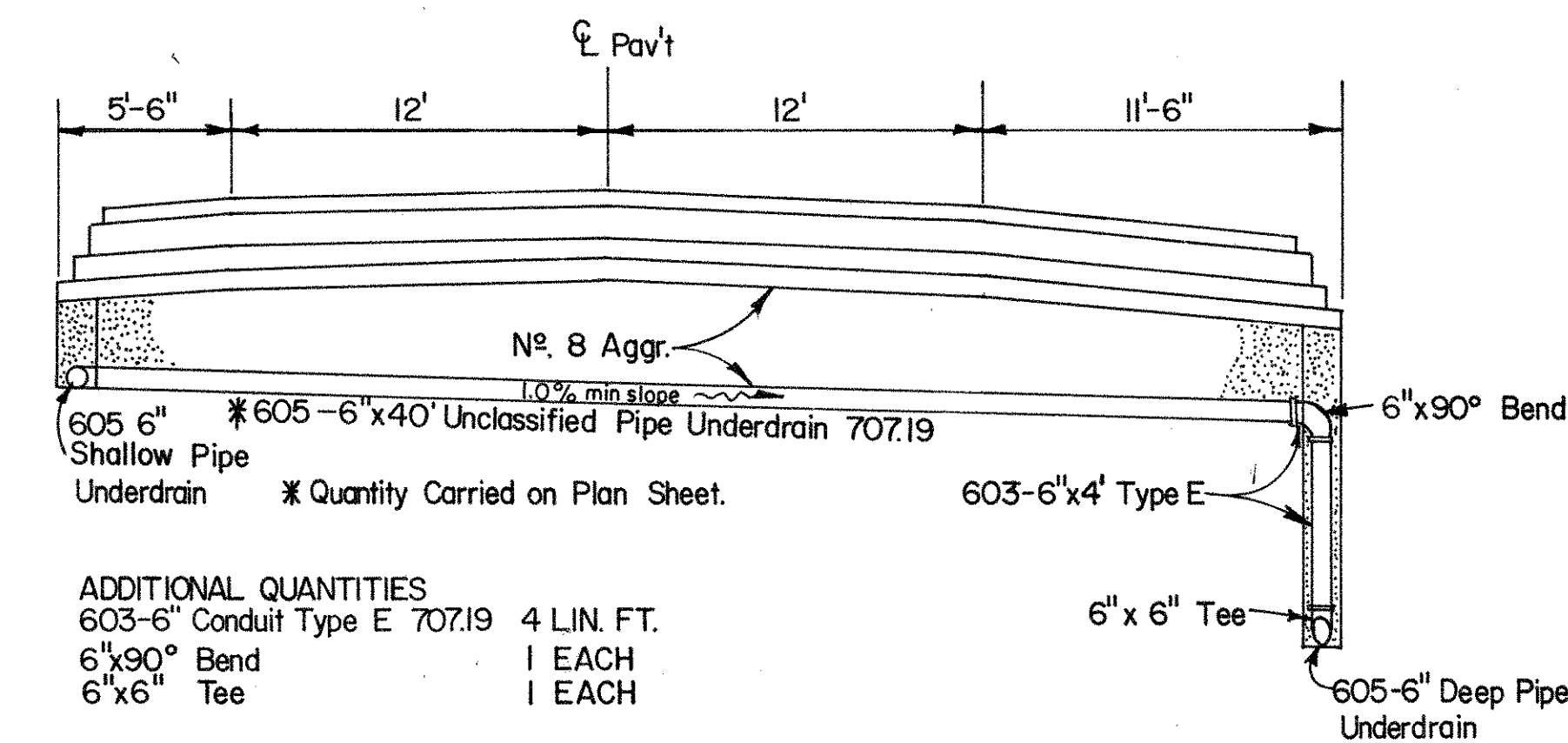
SPECIAL OUTLET CONNECTION



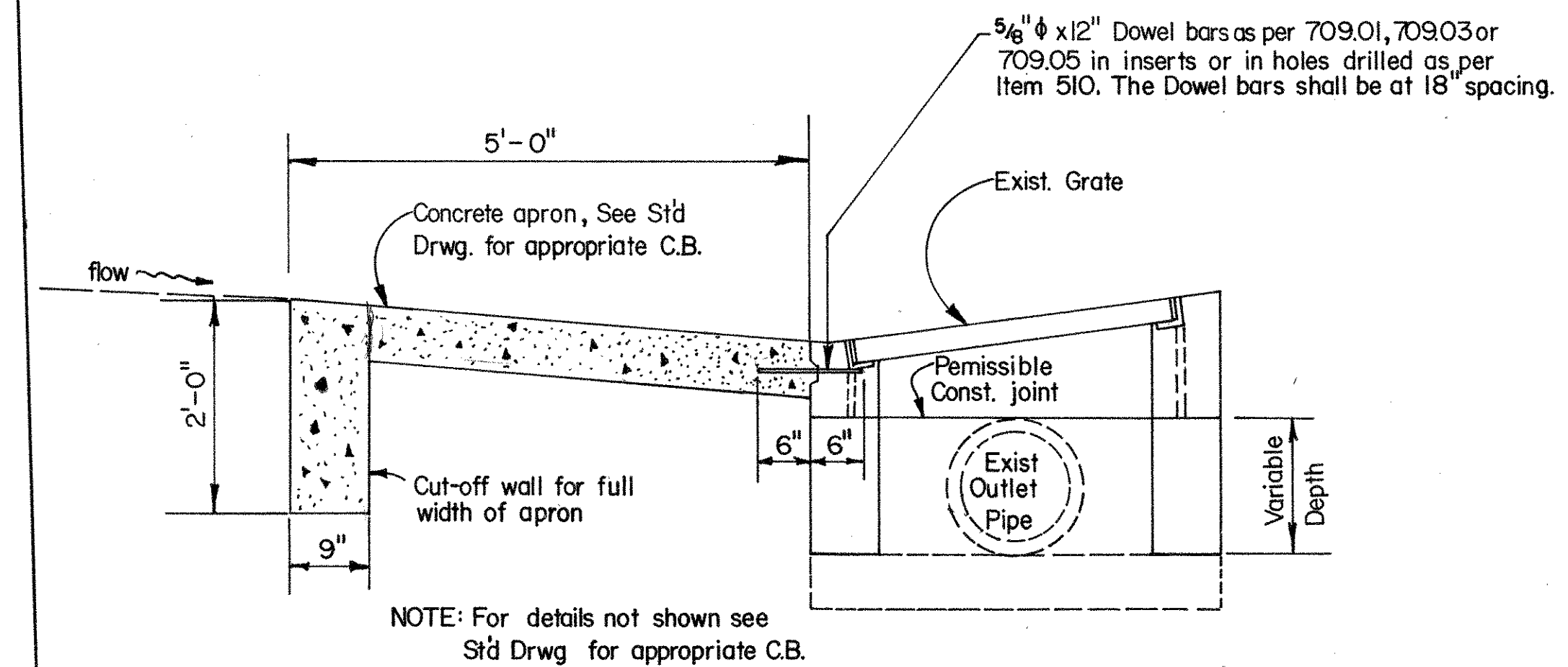
SPECIAL OUTLET IV DETAIL



TYPICAL EDGE DRAIN OUTLET INTO CATCH BASIN



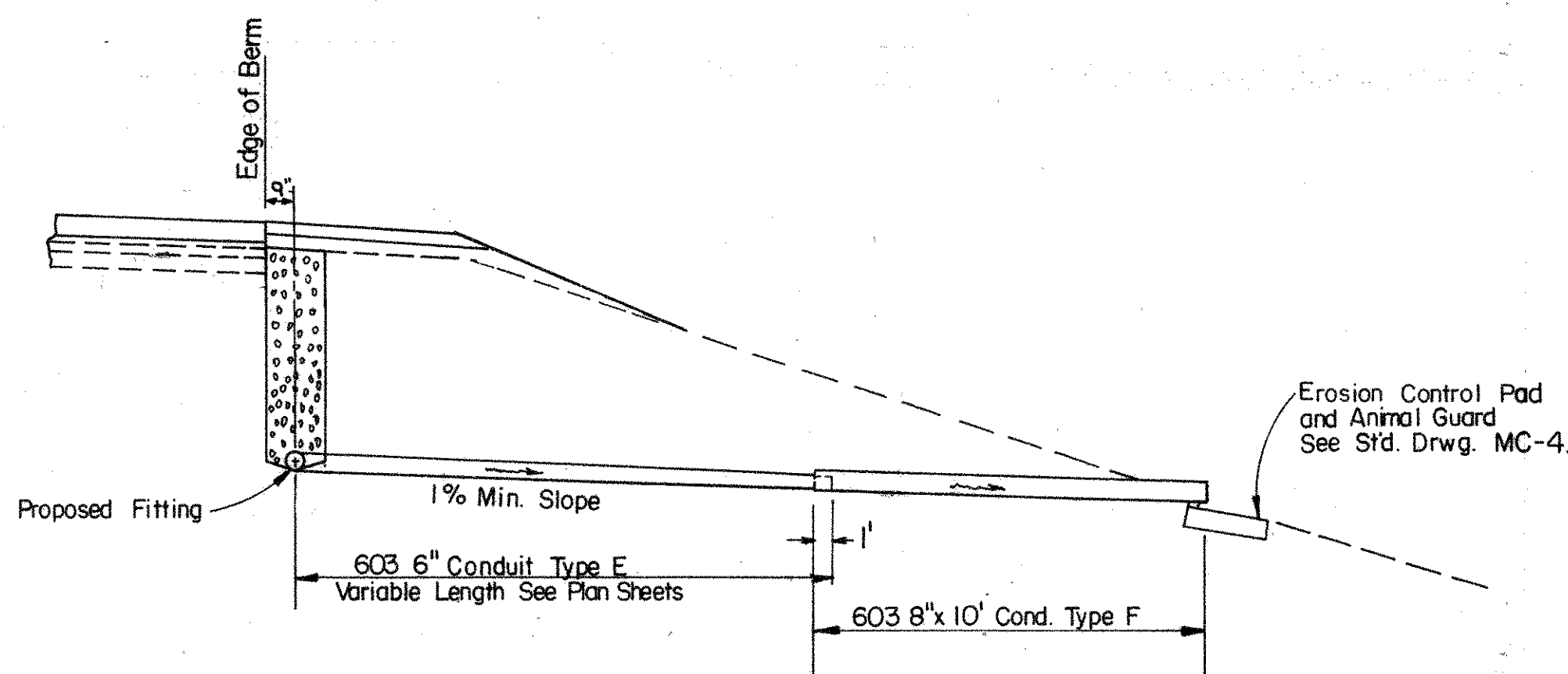
SPECIAL OUTLET II DETAIL



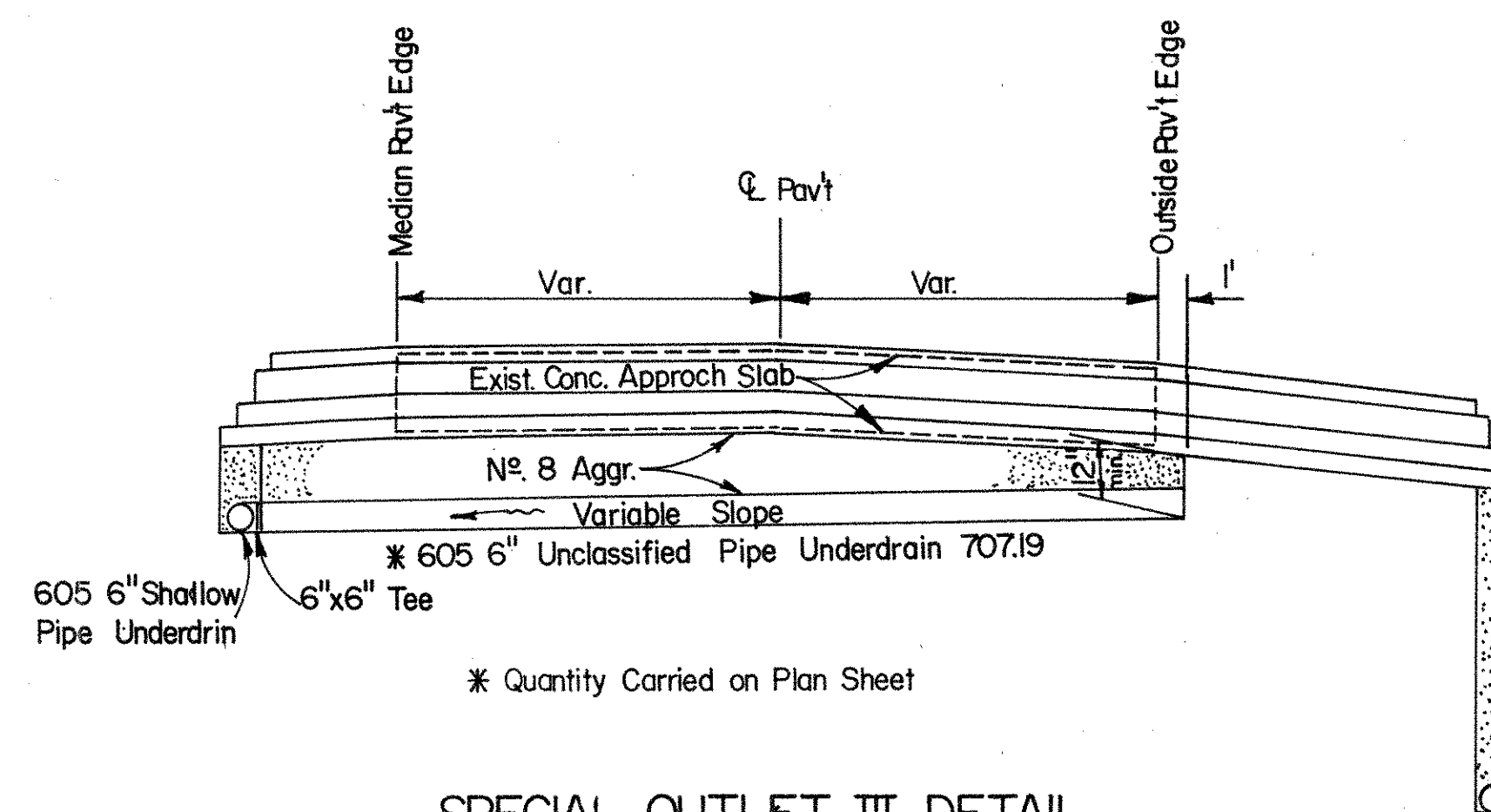
CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN

The requirements of Item 604 shall govern the reconstruction of the existing Catch Basin. The removal and disposal of the existing concrete apron and the subsequent replacement of the existing concrete apron as shown here and in the Std Drwg. for the pertinent Catch Basin.

Payment for the above work shall be included in the price bid for each catch basin under Item 604 Catch Basin Reconstructed to Grade as per plan and shall constitute full compensation for furnishing all material, labor, tools and equipment, and all incidentals.



6" DEEP PIPE UNDERDRAIN OUTLET



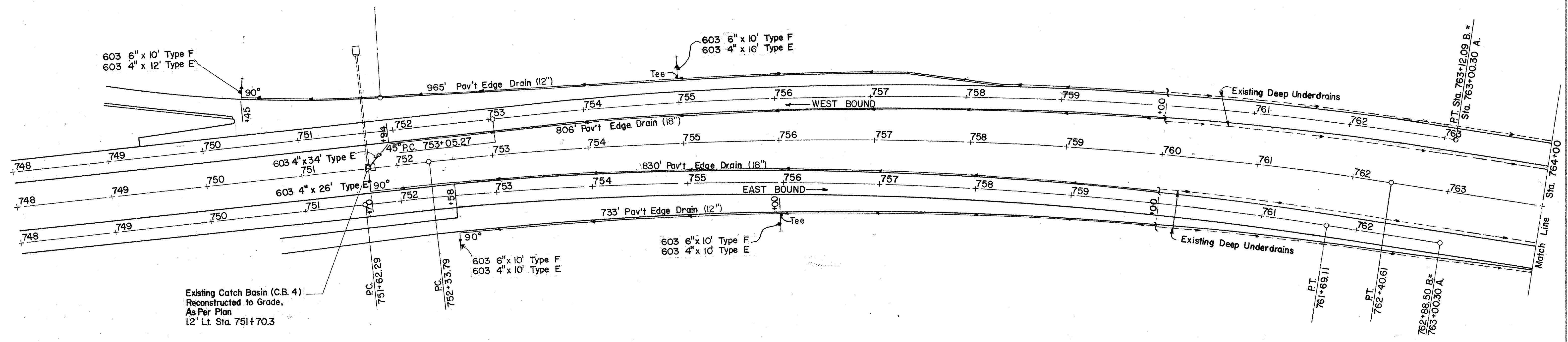
SPECIAL OUTLET III DETAIL

CALC. BY RSJ
 DATE 1-14-88
 CHECK. BY RS
 DATE 2-3-88

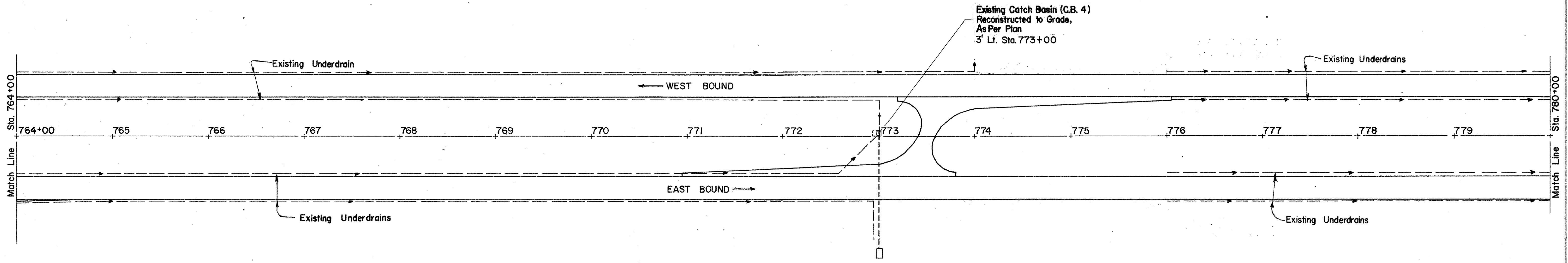
FHWA REGION	STATE	PROJECT
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MUS-70-(0.76)-(1.43)
 LIC-70-28.93

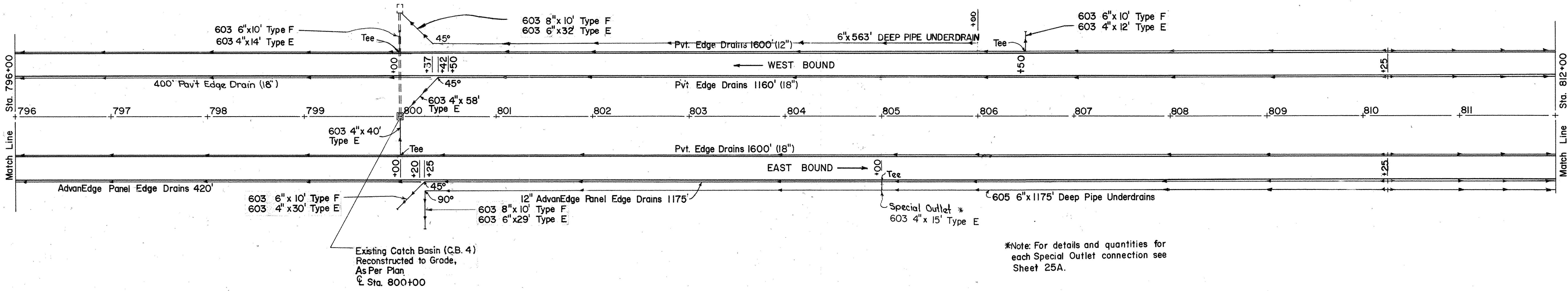
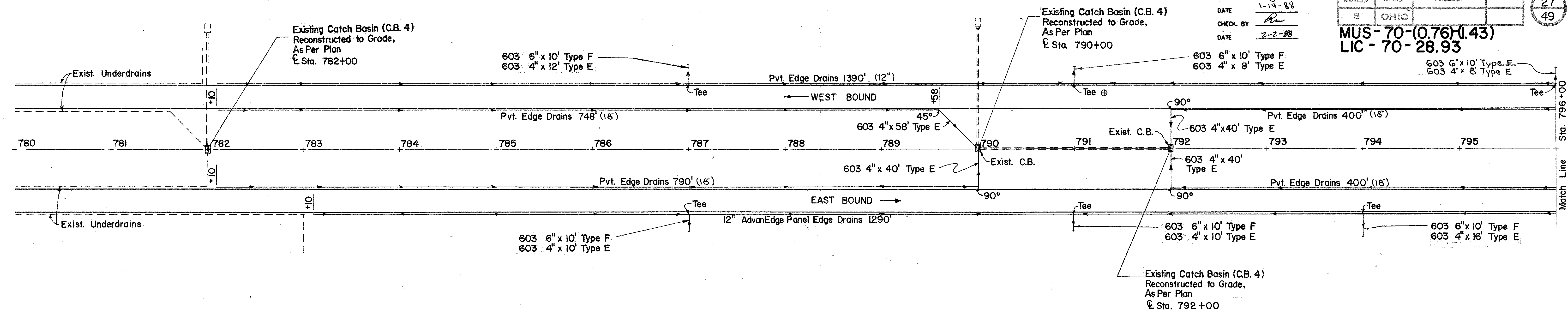


NOTE: For quantities see sheet No. 32.



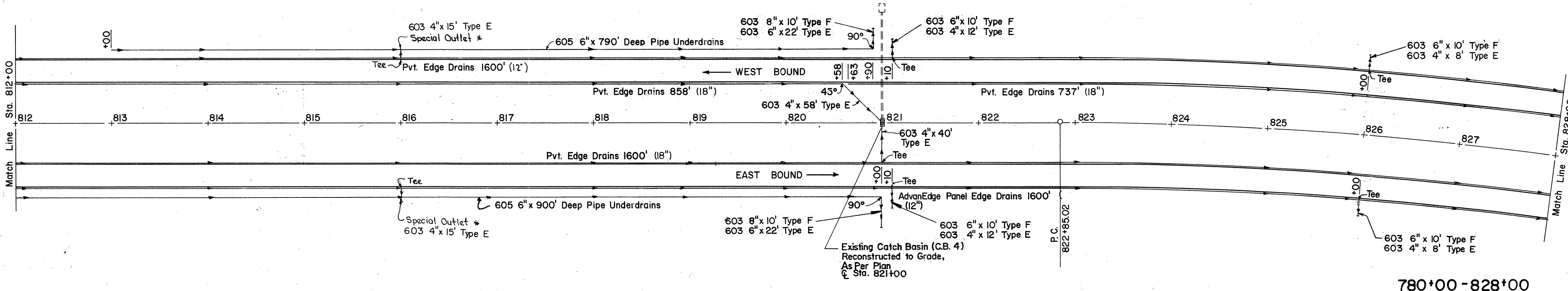
748+00 - 780+00

CALC. BY *RSP*
DATE 1-14-88
CHECK BY *Rm*
DATE 2-2-88



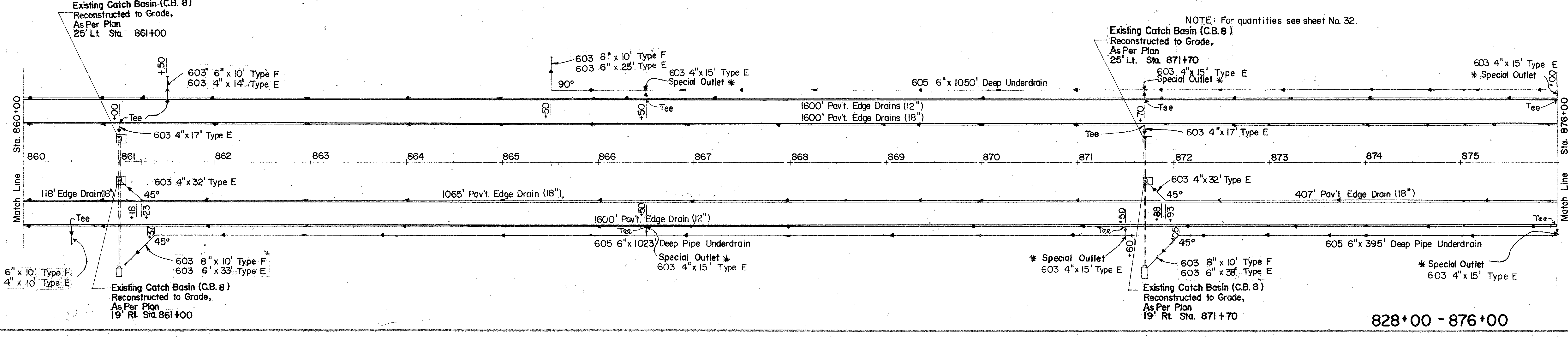
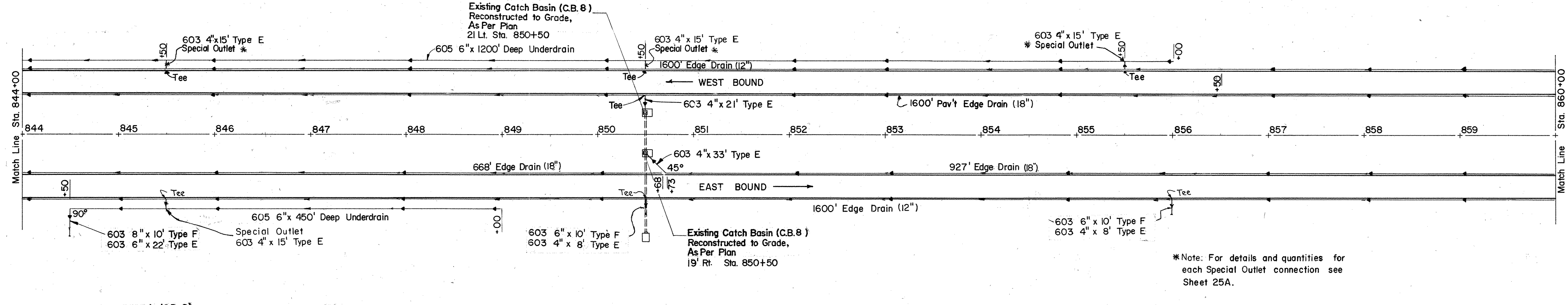
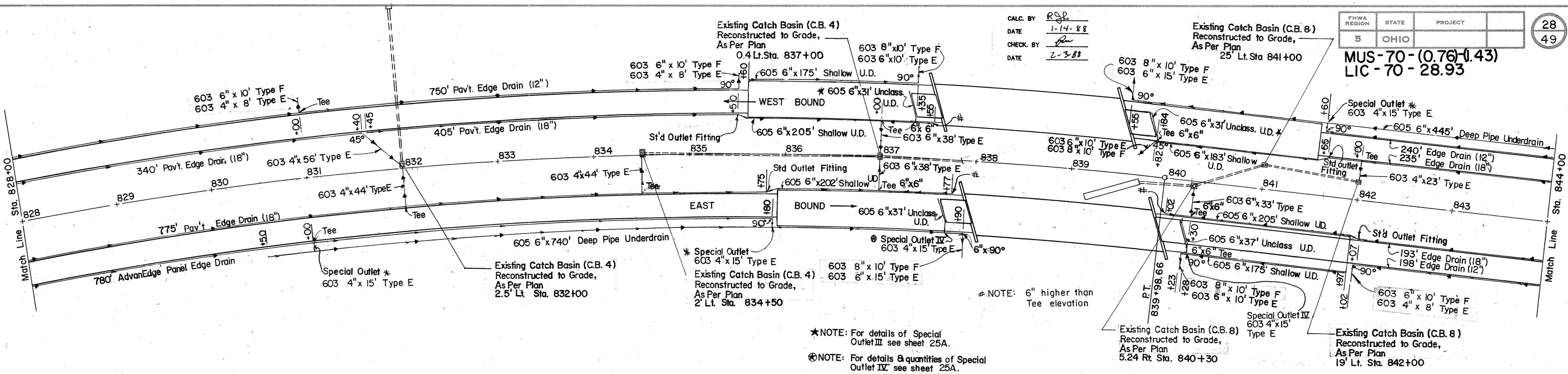
*Note: For details and quantities for each Special Outlet connection see Sheet 25A.

NOTE: For quantities see sheet No. 32.



MUS-70-(0.76)-(1.43)
LIC-70-28.93

CALC. BY RSP
DATE 1-14-88
CHECK BY RW
DATE 2-3-88



*NOTE: For details of Special Outlet III see sheet 25A.
⊗NOTE: For details & quantities of Special Outlet IV see sheet 25A.

*Note: For details and quantities for each Special Outlet connection see Sheet 25A.

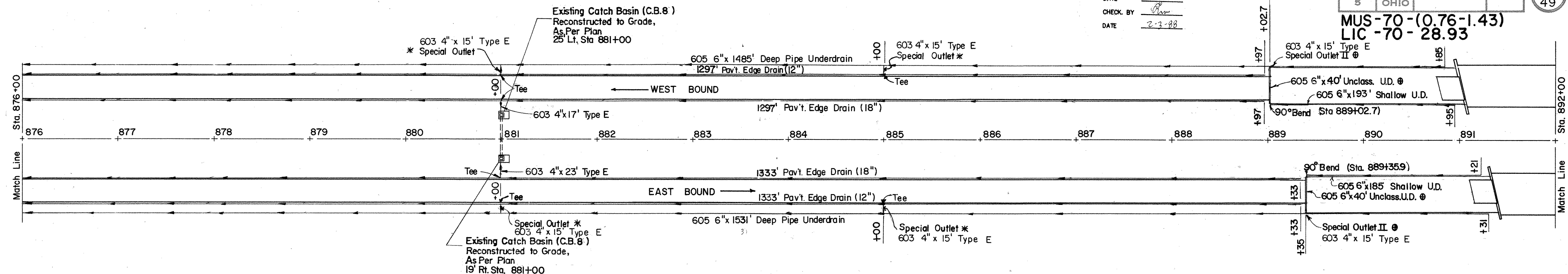
NOTE: For quantities see sheet No. 32.

CALC. BY *R.G.L.*
 DATE 1-15-88
 CHECK BY *...*
 DATE 2-3-88

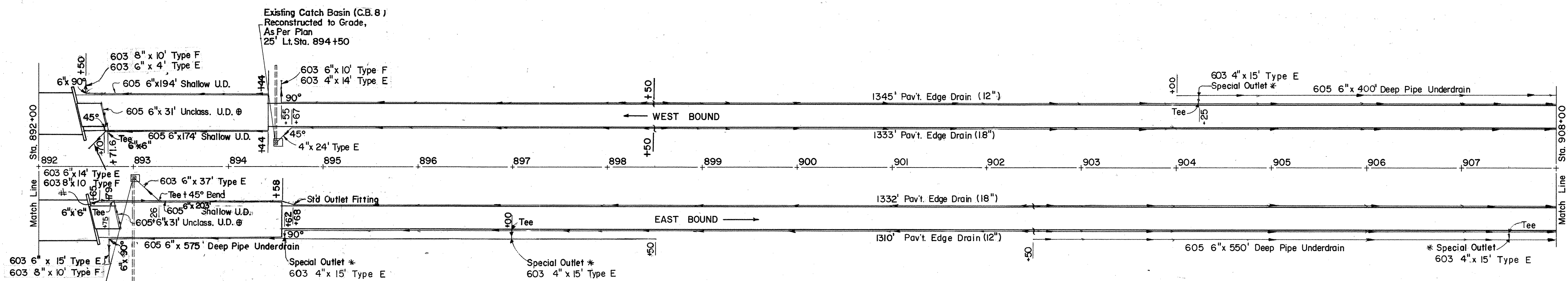
FHWA REGION	STATE	PROJECT
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MUS-70-(0.76-1.43)
 LIC-70-28.93

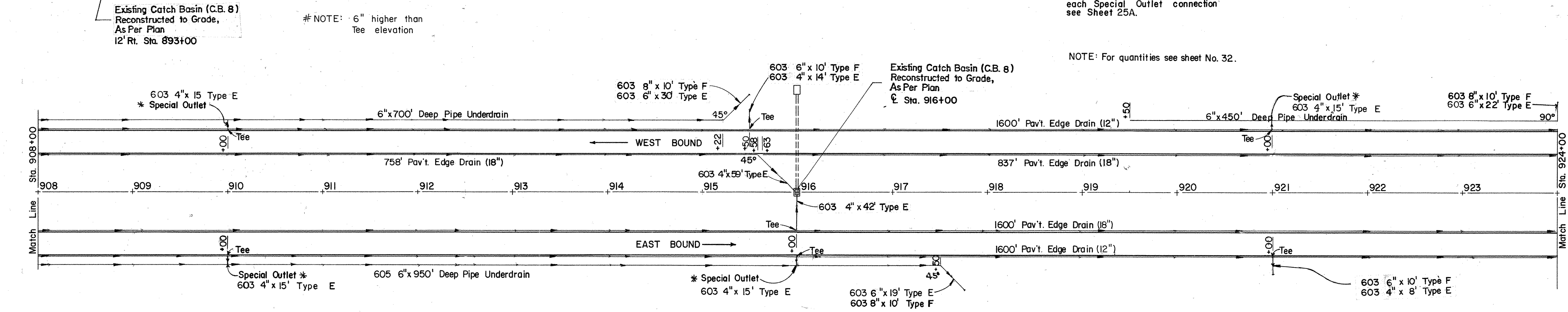


⊕ NOTE: For details of Special Outlet III see sheet 25A



* Note: For details and quantities for each Special Outlet connection see Sheet 25A.

NOTE: For quantities see sheet No. 32.



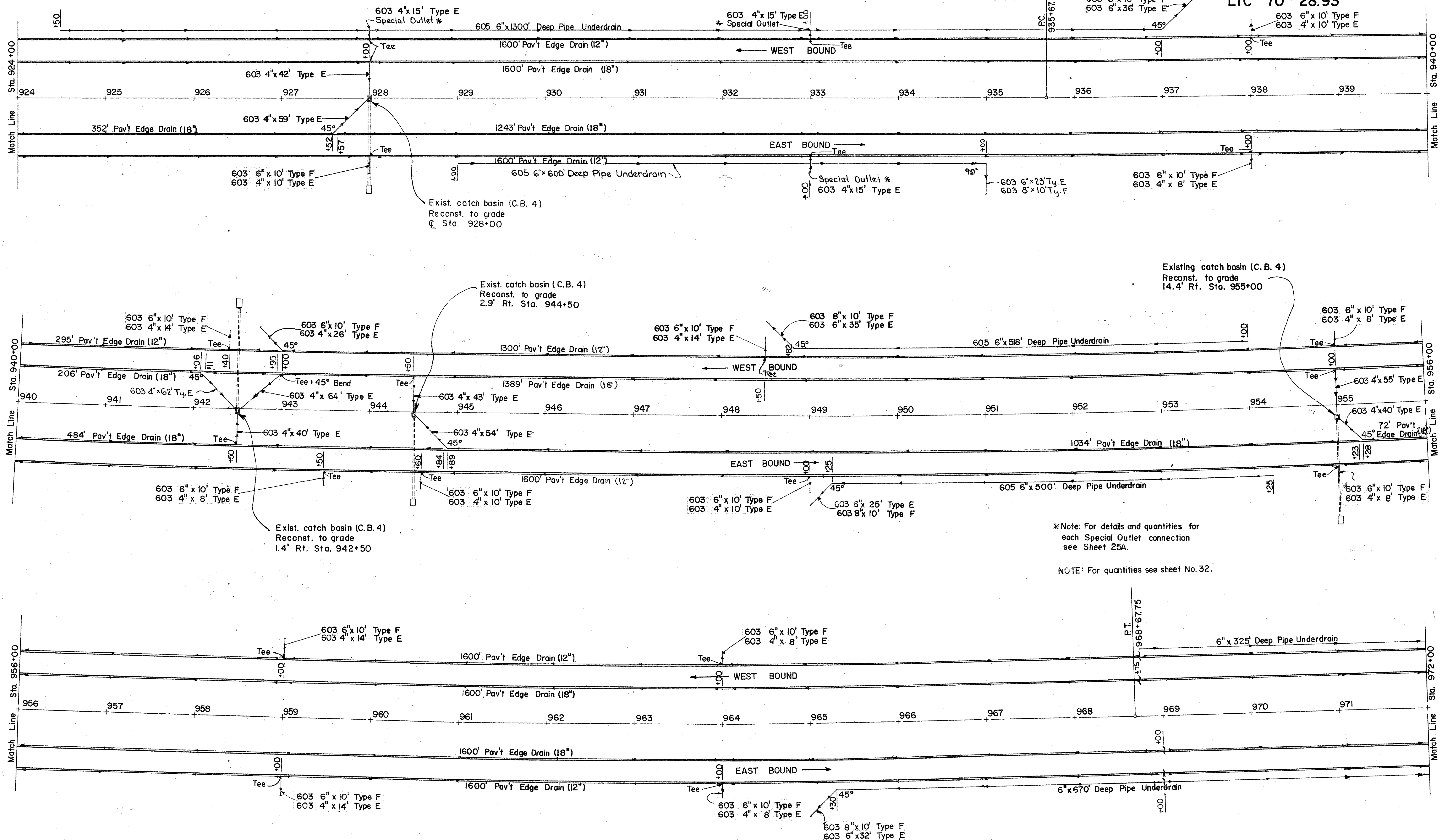
876+00 - 924+00

CALC. BY RJL
 DATE 1-14-88
 CHECK. BY RW
 DATE 2-3-88

FHWA REGION	STATE	PROJECT
5	OHIO	

30
49

MUS-70-(0.76)(1.43)
 LIC-70-28.93



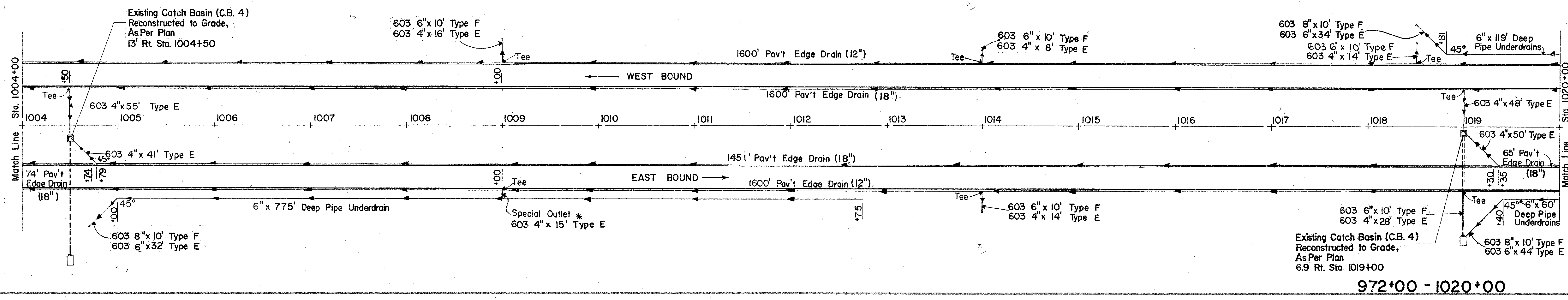
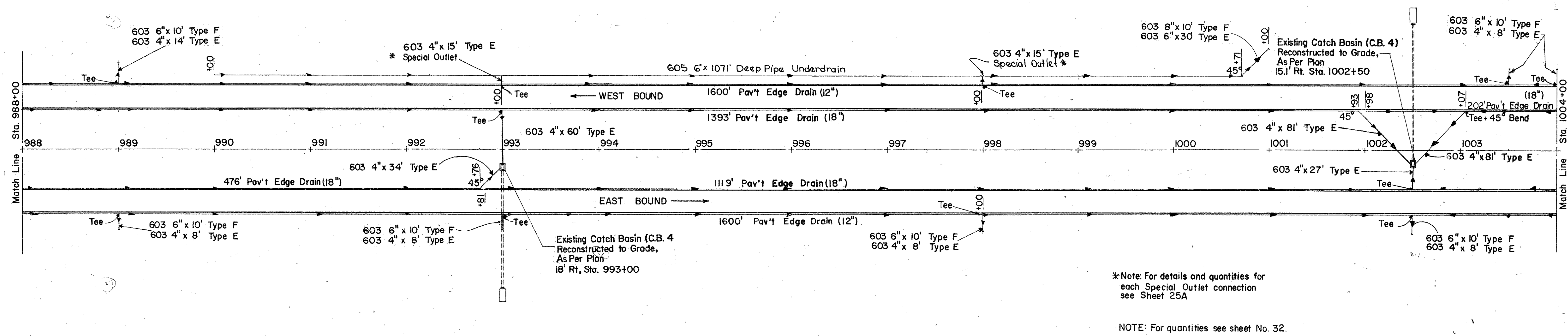
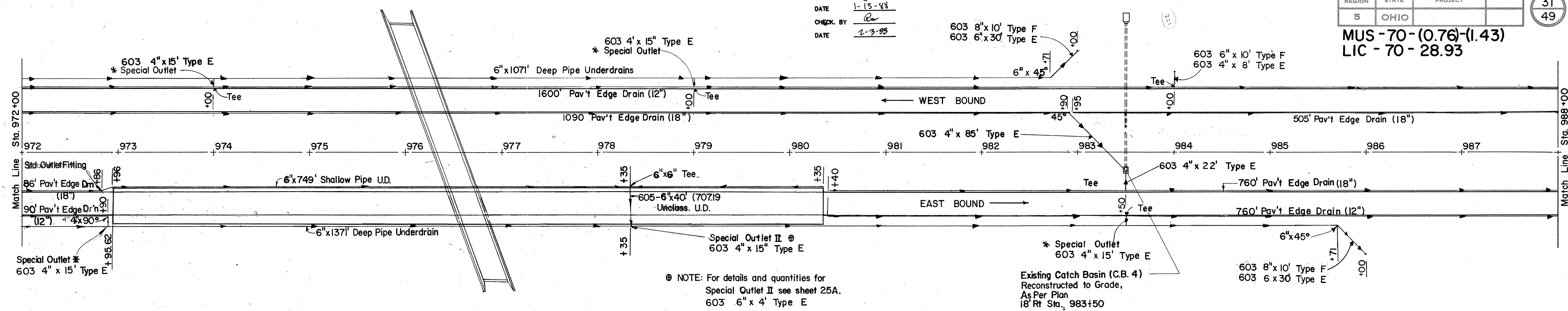
*Note: For details and quantities for each Special Outlet connection see Sheet 25A.
 NOTE: For quantities see sheet No. 32.

FHWA REGION	STATE	PROJECT
5	OHIO	

31
49

MUS-70-(0.76)-(1.43)
LIC-70-28.93

CALC. BY *RSL*
DATE 1-15-88
CHECK. BY *AW*
DATE 2-3-88

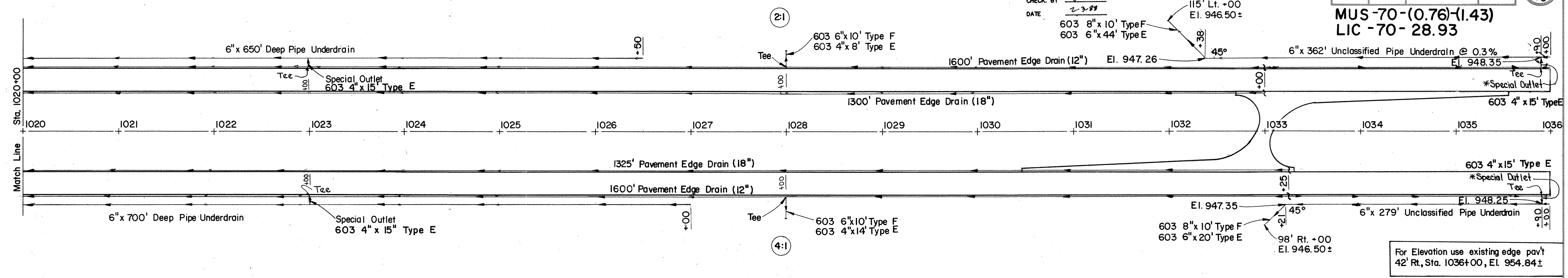


CALC. BY Rgl
 DATE 1-15-88
 CHECK BY [Signature]
 DATE 2-2-88

FHWA REGION	STATE	PROJECT
5	OHIO	

32
49

MUS-70-(0.76)-(1.43)
 LIC-70-28.93



For Elevation use existing edge pav't
 42' Rt., Sta. 1036+00, El. 954.84±

*Note: For details and quantities for each Special Outlet connection see Sheet 25A.

NOTE: For quantities see this sheet.

DRAINAGE SUMMARY

SHEET NO.	STATION	605 6" SHALLOW PIPE UNDER-DRAIN FABRIC WRAPPED LIN. FT.	605 6" UNCLASSIFIED PIPE UNDER DRAINS FABRIC WRAPPED LIN. FT.	605 PAVE-MENT EDGE DRAINS LIN. FT.	605 6" DEEP PIPE UNDER DRAINS FABRIC WRAPPED LIN. FT.	603 4" CONDUIT TYPE E 707.19 LIN. FT.	603 6" CONDUIT TYPE E 707.19 LIN. FT.	603 6" CONDUIT TYPE F LIN. FT.	603 8" CONDUIT TYPE F LIN. FT.	MDM SYSTEM			BENDS AND BRANCHES				604 CATCH BASIN RECONSTRUCTED TO GRADE AS PER PLAN EACH	605 12" AdvanEdge Panel Edge Drain LIN. FT.		
										STAND. OUTLET FITTING EACH	STAND. TEE FITTING EACH	END CAP EACH	EACH						EACH	
													4" x 45	4" x 90	6" x 45	6" x 90				
26	748+00 TO 764+00			1698	1636		108		40	3	2	4	1	3				1		
26	764+00 TO 780+00																			
27	780+00 TO 796+00			1390	2338		242		60	4	6	4	1	3				3	1290	
27	796+00 TO 812+00			1600	3160	1738	169	61	30	2	4	2	2	1	1		1	1	1595	
27	812+00 TO 828+00			1600	3195	1690	168	44	40	1	7	1	1	2	2		2	1	1600	
28	828+00 TO 844+00	1145	136	1188	1948	1185	236	173	30	9	5	1	1	8	3	7	1	5	6	780
28	844+00 TO 860+00			3200	3195	1650	130	22	20	1	7	1	1	4	4			1	2	
28	860+00 TO 876+00			3200	3190	2468	212	96	20	2	10	2	2	6	6		2		4	
29	876+00 TO 892+00	378	80	2630	2630	3016	100				6	2	-	4	4	2		4	2	
29	892+00 TO 908+00	571	62	2655	2665	1525	98	70	10	4	3	-	1	5	4	3	2	2	2	
29	908+00 TO 924+00			3200	3195	2100	183	71	20	1	7	1	1	4	4		2	1	1	
30	924+00 TO 940+00			3200	3195	1900	174	59	30	1	7	1	1	3	3		1	1	1	
30	940+00 TO 956+00			3195	3185	1018	456	60	80	4	10	4	4				2		3	
30	956+00 TO 972+00			3200	3200	995	44	32	40		4						1		-	
31	972+00 TO 988+00	749	40	2450	2441	2442	175	64	10	3	5	3	1	5	4	2	2	1	1	
31	988+00 TO 1004+00			3200	3190	1071	375	30	70	2	12	2	3	2	2		1		2	
31	1004+00 TO 1020+00			3200	3190	954	289	110	50	2	8	2	2	1	1		3		2	
32	1020+00 TO 1036+00		641	3200	2625	1350	82	64	20		6	2		4	4		2		-	
TOTALS		2843	959	44006	43878	25102	3241	956	570	39	109	33	22	55	42	14	20	18	33	5265

TOTALS CARRIED TO GENERAL SUMMARY

MICROFILMED
JUN 29 1988
JUN 30 1988

BRIDGE NOTES

CALC. BY: R.P.
DATE: 1-15-88
CHECK. BY: [Signature]
DATE: 1-25-88

FHWA REGION	STATE	PROJECT	
5	OHIO		

33
49

MUS-70-(0.76)(1.43)
LIC-70-28.93

REFERENCE

DETAILED DRAWINGS OF THE EXISTING STRUCTURE MAY BE INSPECTED IN THE DISTRICT 5 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, NEWARK, OHIO.

REMOVED MATERIALS

ALL REMOVED MATERIALS EXCEPT AS NOTED ELSEWHERE IN THE PLANS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY HIM FROM THE JOB SITE.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05 AND 105.02.

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

AREAS OF WORK

THE GENERAL AREAS OF WORK AS INDICATED ON THE DETAIL SHEETS ARE:

REMOVALS:

1. REMOVE ASPHALT WEARING COURSE, BRIDGE RAILINGS, PARAPETS AND PORTIONS OF EXISTING DECK
2. REMOVE ENDS OF BEAMS AS SHOWN

CONSTRUCTION:

1. INSTALL EXPANSION JOINTS AND PARAPETS
2. PATCH CONCRETE DECKS
3. OVERLAY BRIDGE DECKS

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 ADDITIONAL 3,000 LBS. IS INCLUDED IN ITEM 824 FOR THIS PURPOSE.

ESTIMATED QUANTITIES

AN ESTIMATED AMOUNT OF THE FOLLOWING QUANTITIES HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR BIDDING PURPOSES, BUT FINAL QUANTITIES SHALL BE DETERMINED BY ACTUAL FIELD MEASUREMENTS AT THE COMPLETION OF THE WORK.

	0195L	0195R	0296L	0296R		TOTAL
ITEM 850 SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VARIABLE THICKNESS)	2 (35)	2 (35)	2 (25)	2 (21)		8 (116) C.Y.
ITEM 850 FULL DEPTH REPAIR	3 (3)	3 (3)	3 (3)	3 (3)		7 (12) C.Y.

ITEM 202 ALUMINUM BRIDGE RAILING REMOVED FOR STORAGE

CARE SHALL BE TAKEN NOT TO DAMAGE THE ALUMINUM RAIL. IT SHALL BE CAREFULLY REMOVED AND NEATLY STORED ON THE JOB SITE FOR REMOVAL BY STATE FORCES.

PAYMENT SHALL BE PER LINEAR FOOT ITEM 202 ALUMINUM BRIDGE RAILING REMOVED FOR STORAGE.

MUS-70-0195L	382 LIN. FT.
MUS-70-0195R	382 LIN. FT.
MUS-70-0296L	266 LIN. FT.
MUS-70-0296R	227 LIN. FT.

REINFORCING STEEL SAMPLES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

REMOVAL OF CONCRETE PARAPETS AND EDGES

CONCRETE REMOVALS ON PARAPETS & EDGES SHALL BE DONE BY THE USE OF 40 - 65 LB. CLASS JACK HAMMERS ONLY. NO OTHER METHOD SHALL BE USED UNLESS APPROVED BY THE DISTRICT 5 CONSTRUCTION ENGINEER.

PROTECTION OF TRAFFIC UNDER OVERHEAD STRUCTURES: MUS-70-0296 L & R

PRIOR TO ANY CONCRETE REMOVALS OF THE SUPERSTRUCTURES THE CONTRACTOR SHALL PROVIDE A PLATFORM OF SUITABLE STRENGTH AT THE UNDERSIDE OF THE DECK TO PROTECT PEDESTRIAN AND VEHICULAR TRAFFIC DURING WORK BEING DONE ON THE OVERHEAD STRUCTURE. THE DESIGN AND PLACEMENT OF THE PLATFORM SHALL BE APPROVED BY THE DISTRICT 5 CONSTRUCTION ENGINEER AND SHALL REMAIN IN PLACE UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN ITEM 614 MAINTAINING TRAFFIC.

ITEM 516 RESET ROCKERS: MUS-70-0195/0296

ROCKERS DESIGNATED BY THE ENGINEER SHALL BE RESET. PAYMENT SHALL BE ^{FOR} PER 44 EACH - LUMP SUM FOR ITEM 516 RESET ROCKERS. THIS INCLUDES RAISING & LOWERING OF THE BEAMS.

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

BR-1	DATED	5-29-79
EXJ-2-81	DATED	4-2-84R
SD-1-65	DATED	11-8-65
GR-1	DATED	1-11-85
GR-3	DATED	1-21-85
GR-2B	DATED	2-5-82

AND TO SUPPLEMENTAL SPECIFICATIONS:

824	DATED	10-8-82
850	DATED	2-25-86
849	DATED	12-24-85
949	DATED	9-26-86
852	DATED	6-10-87
853	DATED	6-26-78
952	DATED	6-10-87
956	DATED	6-26-78

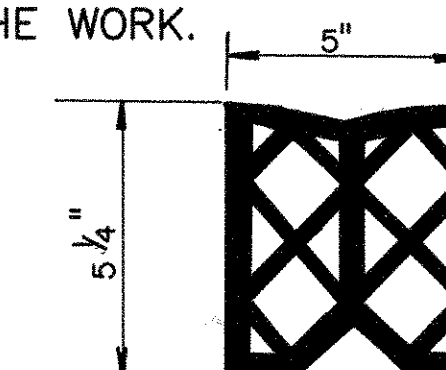
ITEM SPECIAL CUTTING BEAMS: MUS-70-0195/0296

THE ENDS OF THE BEAMS SHALL BE CUT AS SHOWN IN THE FOLLOWING TABLE. AFTER CUTTING, THE BEAMS ENDS SHALL BE CLEANED AND PAINTED AS PER 514.03. PAYMENT SHALL BE PER LUMP SUM FOR ITEM SPECIAL CUTTING BEAMS. PAINT SHALL CONFORM TO 708.09 (GREEN) AND SHALL BE INCLUDED FOR PAYMENT IN ITEM AMOUNT TO BE CUT OFF OF BEAM ENDS SPECIAL-CUTTING BEAMS.

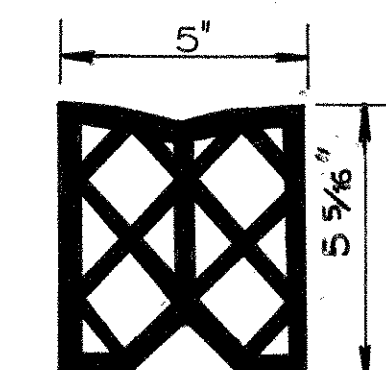
BRIDGE NO.	OUTSIDE BEAM	BEAM 2	BEAM 3	BEAM 4	INSIDE BEAM
0195L					
FWD.ABUT.	1/2"	1 1/2"	2 1/2"	2 1/2"	1 1/2"
REAR ABUT.	1"	1 1/2"	1 1/2"	1 1/4"	1 1/4"
0195R					
FWD.ABUT.	1 1/2"	1"	1"	1/4"	1/2"
REAR ABUT.	1"	2"	2 1/2"	2"	1 1/2"
0296L					
FWD.ABUT.	2 1/2"	2 1/2"	2 1/2"	2 1/4"	2 1/4"
REAR ABUT.	1 1/2"	1 1/2"	1 3/4"	1 1/2"	1 1/4"
0296R					
FWD.ABUT.	2 1/4"	2 1/2"	2 1/4"	1 3/4"	2"
REAR FWD.	1"	1 1/4"	1 1/2"	1 1/4"	1"

ITEM 516 MODIFICATION OF STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC COMPRESSION SEAL, 5-INCH WIDTH, AS PER PLAN.

THIS ITEM SHALL INCLUDE ALL THE WORK AND MATERIALS NECESSARY TO MODIFY AND ENCLOSE THE EXPANSION JOINTS. REMOVAL OF EXISTING CONCRETE AND STEEL CURB PLATES SHALL BE IN ACCORDANCE WITH 202.03. THE PROPOSED SUPERSTRUCTURE EXPANSION JOINT AND BARS SHALL BE FURNISHED IN MAXIMUM LENGTHS POSSIBLE TO ALLOW FOR TRAFFIC MAINTENANCE AND SHALL BE BUTT WELDED TOGETHER TO FORM A WATERTIGHT JOINT. THE COMPRESSION SEALS SHALL NOT BE INSTALLED UNTIL ALL OTHER WORK HAS BEEN COMPLETED ON THE BRIDGE. MATERIALS: STEEL PLATE BARS AND ANGLES SHALL CONFORM TO ASTM A36 OR A588. THE COMPRESSION SEAL SHALL BE AS PER STD. DWG. EXJ-2-81. SPLICE OR JOINT IN COMPRESSION SEAL: COMPRESSION SEAL FOR BRIDGE DECK JOINTS SHALL BE FURNISHED IN ONE CONTINUOUS PIECE UNLESS A SHOP FABRICATED SPLICE, FIELD SPLICE OR FIELD JOINT IS APPROVED BY THE DIRECTOR. 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. THE COMPRESSION SEAL SHALL BE AS 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 OR AN APPROVED ALTERNATE. MEASUREMENT FOR PAY PURPOSES SHALL BE BASED ON THE LINEAR FEET OF SEALED JOINT SYSTEM MEASURED HORIZONTALLY ALONG THE BACK OF THE STEEL RETAINER AND BETWEEN THE FACE OF THE EXISTING SAFETY CURB AND EXISTING PARAPET FACADE. PAYMENT SHALL BE MADE PER LINEAR FOOT FOR ITEM 516, MODIFICATION OF STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC COMPRESSION SEAL 5" WIDTH, AS PER PLAN, WHICH SHALL INCLUDE ALL REMOVALS, CONCRETE, STEEL BARS, ANGLES, COMPRESSION SEAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.



WJ-500
WATSON-BOWMAN & ACME CORP.



CV-5000
D.S. BROWN COMPANY

COMPRESSION SEALS

REV. B-1-88

BRIDGE NOTES

GENERAL SUMMARY (BRIDGE)

CALC. BY R.D.
DATE 1-15-88
CHECK BY Phm
DATE 1-25-88

STATE	PROJECT
OHIO	

MUS - 70 - (0.76)(1.43)
LIC - 70 - 28.93

ITEM	SHEET NUMBERS										BRIDGE NUMBERS				ITEM	QUANT.	UNIT	DESCRIPTION						
	33	34	35	36	37	38	39	40	41					BRIDGE NOTES					0195L	0195R	0296L	0296R		
																		4483	3972	23816				
202					191											54	54	44	39	202	191	Cu. Yd.	PORTIONS OF STRUCTURES REMOVED, SUPERSTRUCTURE	
202					326											83	83	80	80	202	326	Lin. Ft.	PORTIONS OF EXPANSION JOINTS REMOVED, AS PER PLAN	
202					2812											851	851	597	513	202	2812	Sq. Yd.	WEARING COURSE REMOVED	
202	1259															382	382	266	227	202	1257	Lin. Ft.	ALUMINUM BRIDGE RAILING REMOVED FOR STORAGE	
510					876											312	312	126	126	510	876	Each	DOWEL HOLES	
511		44			(20)	152	20									51	60	51-60	37-43	33-38	511	201	Cu. Yd.	CLASS 'S' CONCRETE, SUPERSTRUCTURE
516	LUMP															12	LUMP	LUMP	LUMP	LUMP	516	LUMP	EACH	RESET ROCKERS AS PER PLAN
516								359.66								9150	9150	8833	8833	516	359.66	Lin. Ft.	MODIFICATION OF STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC COMPRESSION SEALS, 5-INCH	
824	3000				19732	20684	1084									3000	6466	6466	4689	4147	824	24,768	Pound	EPOXY COATED REINFORCING STEEL, GRADE 60 3 1/2" WIDTH, AS PER PLAN
850					2884											6178	873	873	612	526	850	2884	Sq. Yd.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (1 1/2" THICK) (SEE PROPOSAL NOTE 5)
850	116															35	35	25	21	850	116	Cu. Yd.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VAR. THICKNESS) (SEE PROPOSAL NOTE)	
850	(12)	7														3-2	3-2	3-2	3-1	850	12-7	Cu. Yd.	FULL DEPTH REPAIR (SEE PROPOSAL NOTE 3)	
850					LUMP											LUMP				850	LUMP		TEST SLAB (SEE PROPOSAL NOTE)	
513					1159		7540									1900	1900	1870	1870	513	7540	Pound	STRUCTURAL STEEL, AS PER PLAN	
SPEC.					(1137)											351	345	345	241	206	SPEC.	(1137)	Sq. Yd.	SEALING OF CONCRETE SURFACES (EPOXY) (SEE PROPOSAL NOTE)
SPEC.	LUMP															Lump	Lump	Lump	Lump	SPEC.	Lump	1159	CUTTING BEAMS AS PER PLAN	
518					36											10	10	8	8	518	36	Each	VERTICAL EXTENSION OF DOWNPOUT, AS PER PLAN	
518					36											10	10	8	8	518	36	Each	VERTICAL EXTENSION OF SCUPPER, AS PER PLAN	
850	2															2				850	2	Cu. Yd.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VAR. THICKNESS) AS PER PLAN (MUS-70-0195L) (SEE PROPOSAL NOTES)	
850	2																2			850	2	Cu. Yd.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VAR. THICKNESS) AS PER PLAN (MUS-70-0195R) (SEE PROPOSAL NOTES)	
850	2																	2		850	2	Cu. Yd.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VAR. THICKNESS) AS PER PLAN (MUS-70-0296L) (SEE PROPOSAL NOTES)	
850	2																		2	850	2	Cu. Yd.	SUPERPLASTICIZED DENSE CONCRETE OVERLAY (VAR. THICKNESS) AS PER PLAN (MUS-70-0296R) (SEE PROPOSAL NOTES)	

BRIDGE DECK CONDITION SURVEY

BRIDGE N°	Deck Area Sq. Yd.	Sounded			Unsound Areas Sq. Yd.	Factor	Est. Plan Quantity Sq. Yd.	%
		Method	Date	Area				
MUS-70-0195L	873	Cored	2-16-88	873	40	1.25	50	5
MUS-70-0195R	873	Cored	2-17-88	873	40	1.25	50	5
MUS-70-0296L	612	Cored	2-16-88	612	25	1.25	31	5
MUS-70-0296R	526	Cored	2-17-88	526	21	1.25	26	5

MICROFILMED
JUN 30 1982

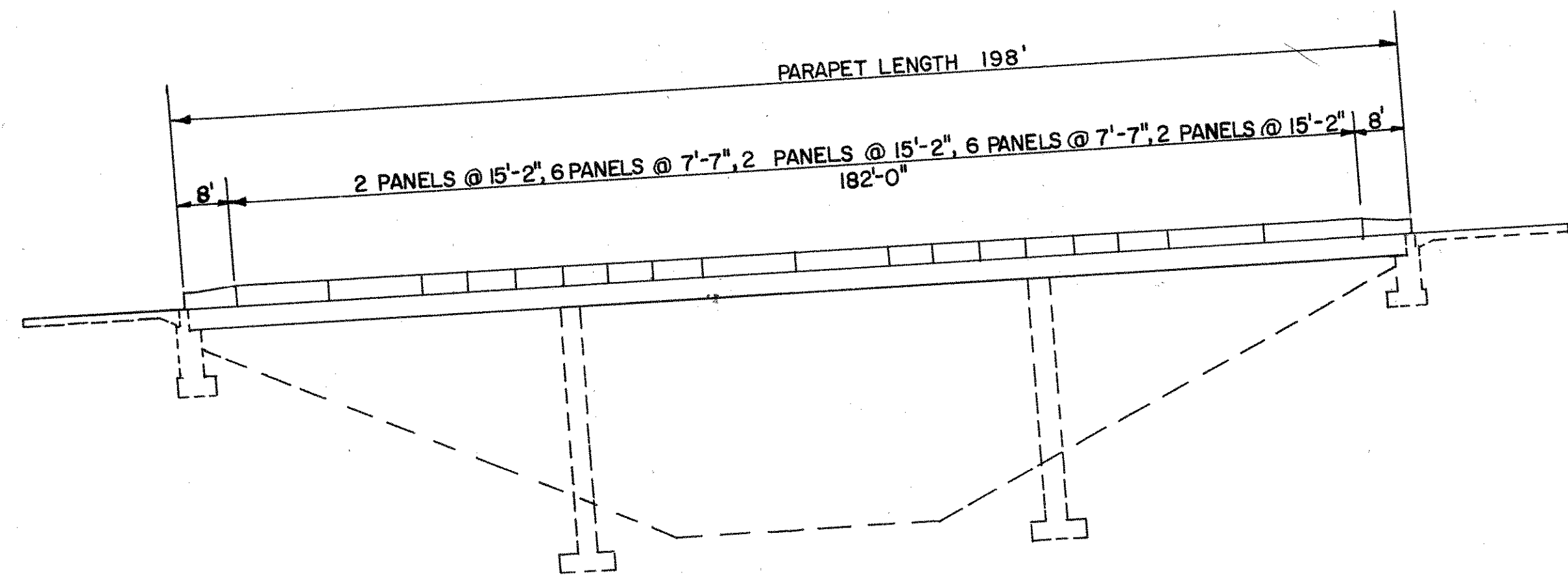
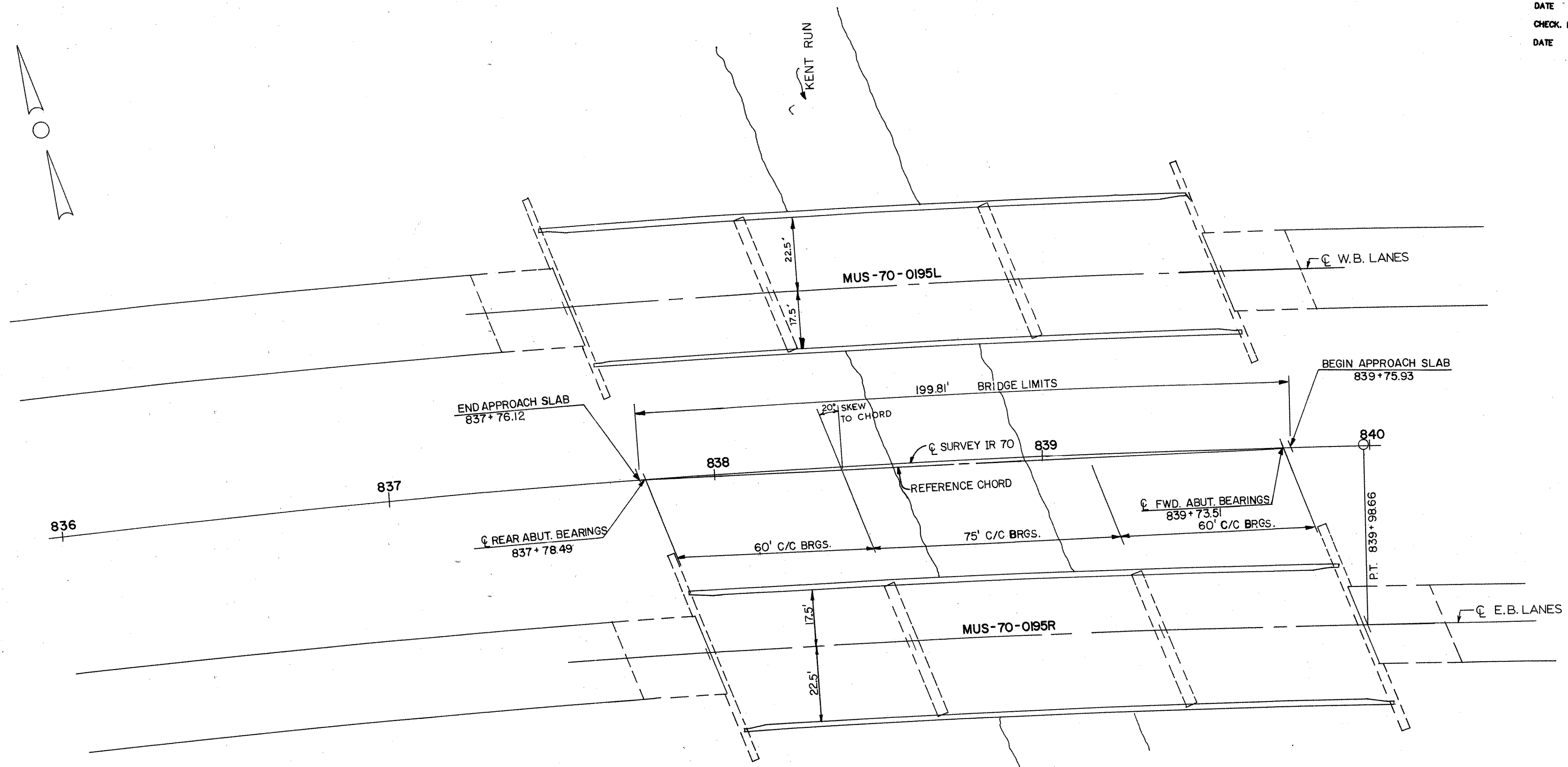
CALC. BY R.D.
DATE 1-15-88
CHECK. BY R.D.
DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

35
49

MUS-70-(0.76)(1.43)
LIC-70-28.93

P.I. = 831+55.86
Δ = 25° 8' RT
D = 1° 28'
R = 3906.53'
T = 870.84'
L = 1713.64'
E = 9587'

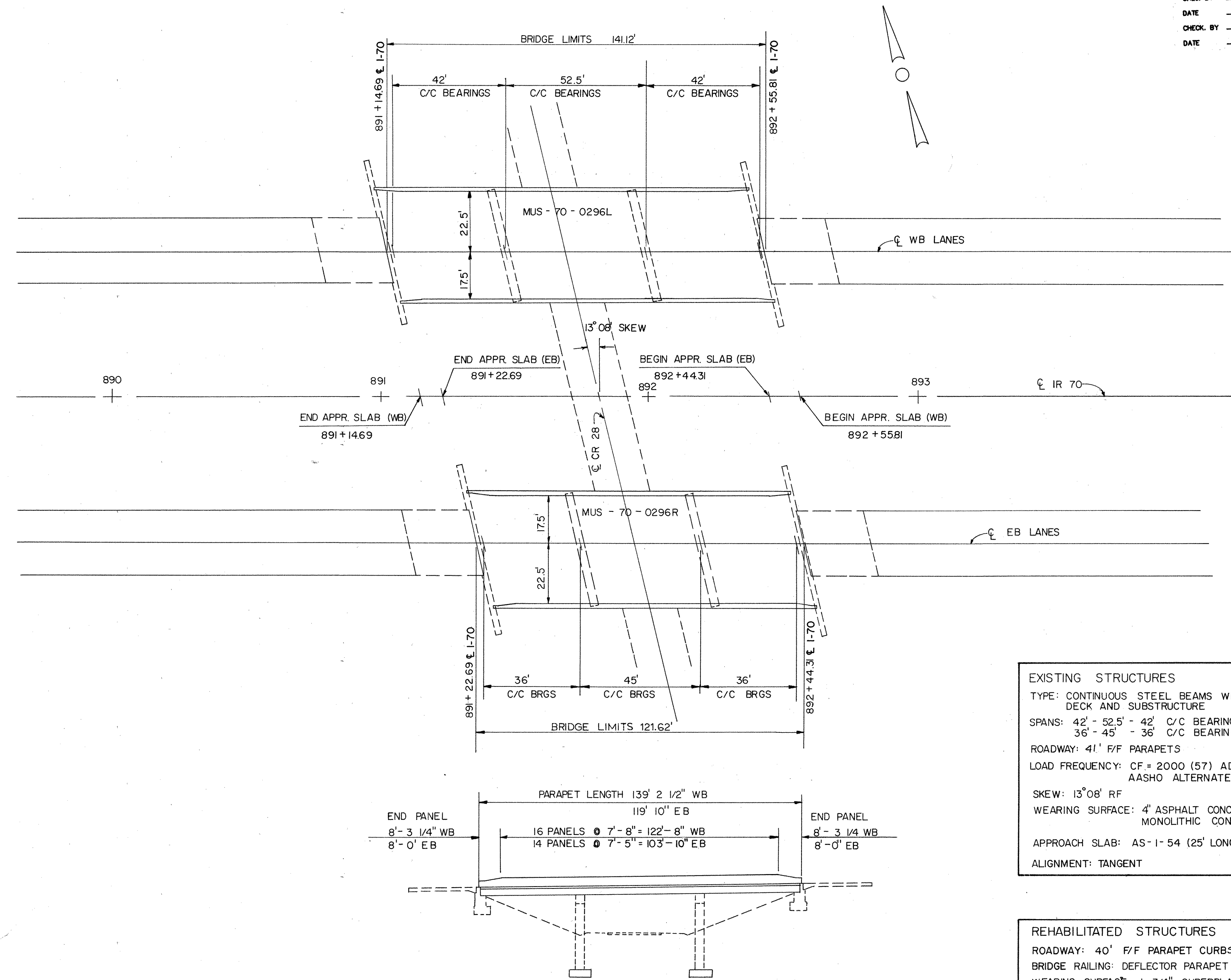


EXISTING STRUCTURES
 TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
 SPANS: 60'-75'-60' C/C BRGS.
 ROADWAY: 39'-0" F/F OF CURBS
 LOAD FREQUENCY: CF = 2000(57) ADEQUATE FOR AASHO ALTERNATE LOADING
 SKEW: 20° R.F.
 WEARING SURFACE: 4" ASPH CONC. & 1" MONOLITHIC CONC.
 APPROACH SLABS: AS-1-54 (25' LONG)
 ALIGNMENT: 1° 28' CURVE RIGHT
 SUPERELEVATION: 0.062 FT/FT.

REHABILITATED STRUCTURES
 ROADWAY: 40' F/F OF PARAPET CURBS
 BRIDGE RAILING: DEFLECTOR PARAPET TYPE
 WEARING SURFACE: 1 3/4" SUPERPLASTICIZED DENSE CONCRETE OVERLAY

CALC. BY R.D.
 DATE 1-15-88
 CHECK. BY [Signature]
 DATE 1-25-88

MUS - 70 - (0.76)(1.43)
 LIC - 70 - 28.93



EXISTING STRUCTURES

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

SPANS: 42' - 52.5' - 42' C/C BEARINGS (WB)
 36' - 45' - 36' C/C BEARINGS (EB)

ROADWAY: 41' F/F PARAPETS

LOAD FREQUENCY: CF = 2000 (57) ADEQUATE FOR AASHO ALTERNATE LOADING

SKEW: 13°08' RF

WEARING SURFACE: 4" ASPHALT CONCRETE & 1" MONOLITHIC CONCRETE

APPROACH SLAB: AS-1-54 (25' LONG)

ALIGNMENT: TANGENT

REHABILITATED STRUCTURES

ROADWAY: 40' F/F PARAPET CURBS

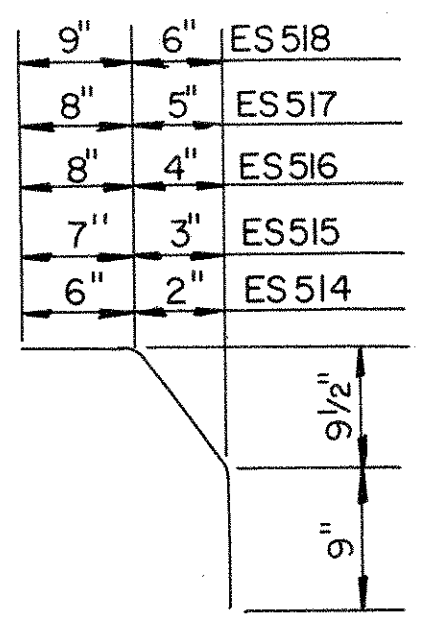
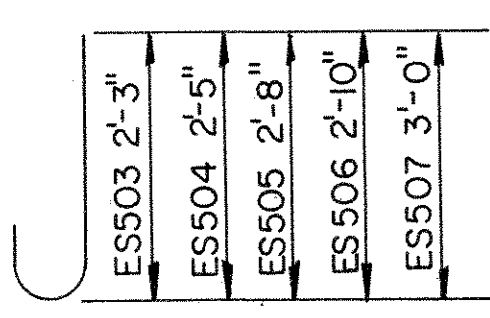
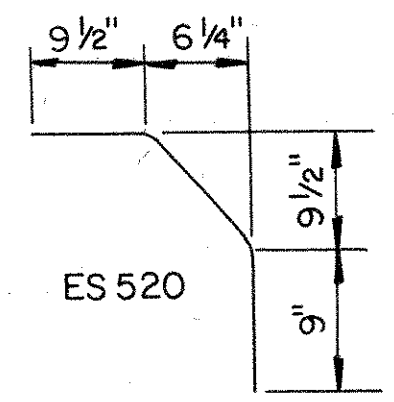
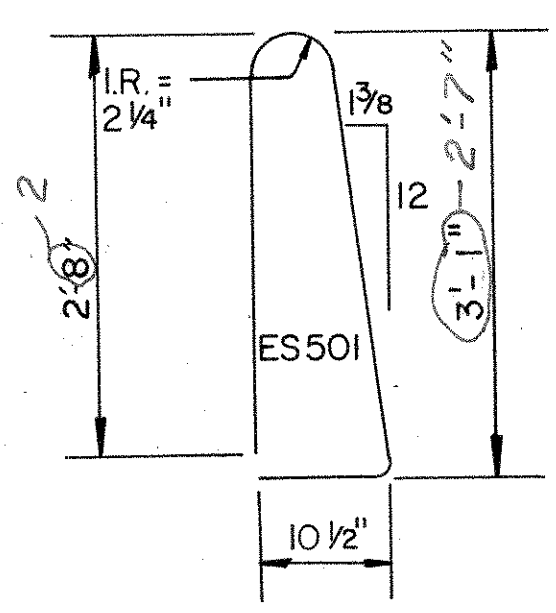
BRIDGE RAILING: DEFLECTOR PARAPET TYPE

WEARING SURFACE: 1 3/4" SUPERPLASTICIZED DENSE CONCRETE OVERLAY

CALC. BY R.D.
DATE 1-15-88
CHECK. BY R.D.
DATE 1-25-88

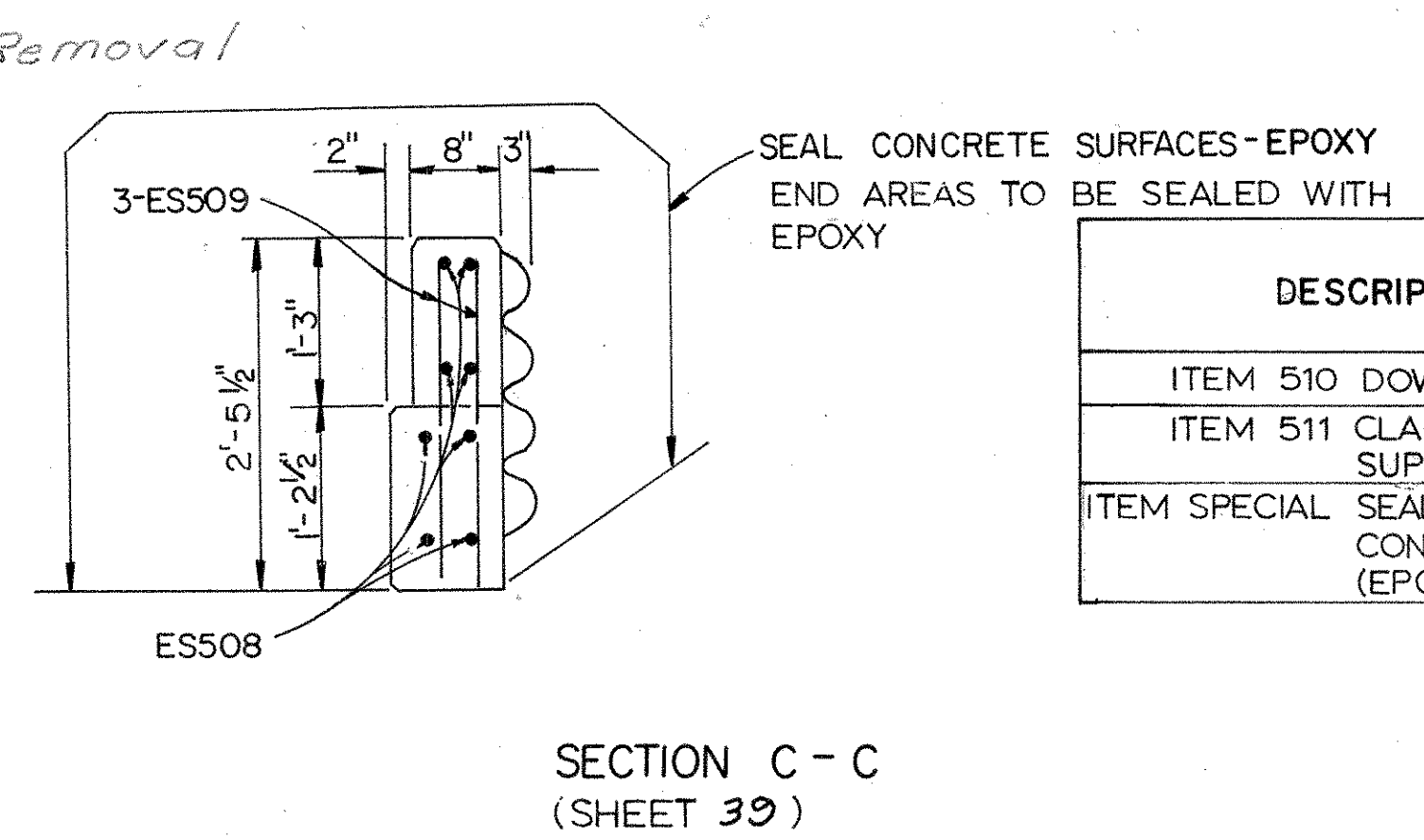
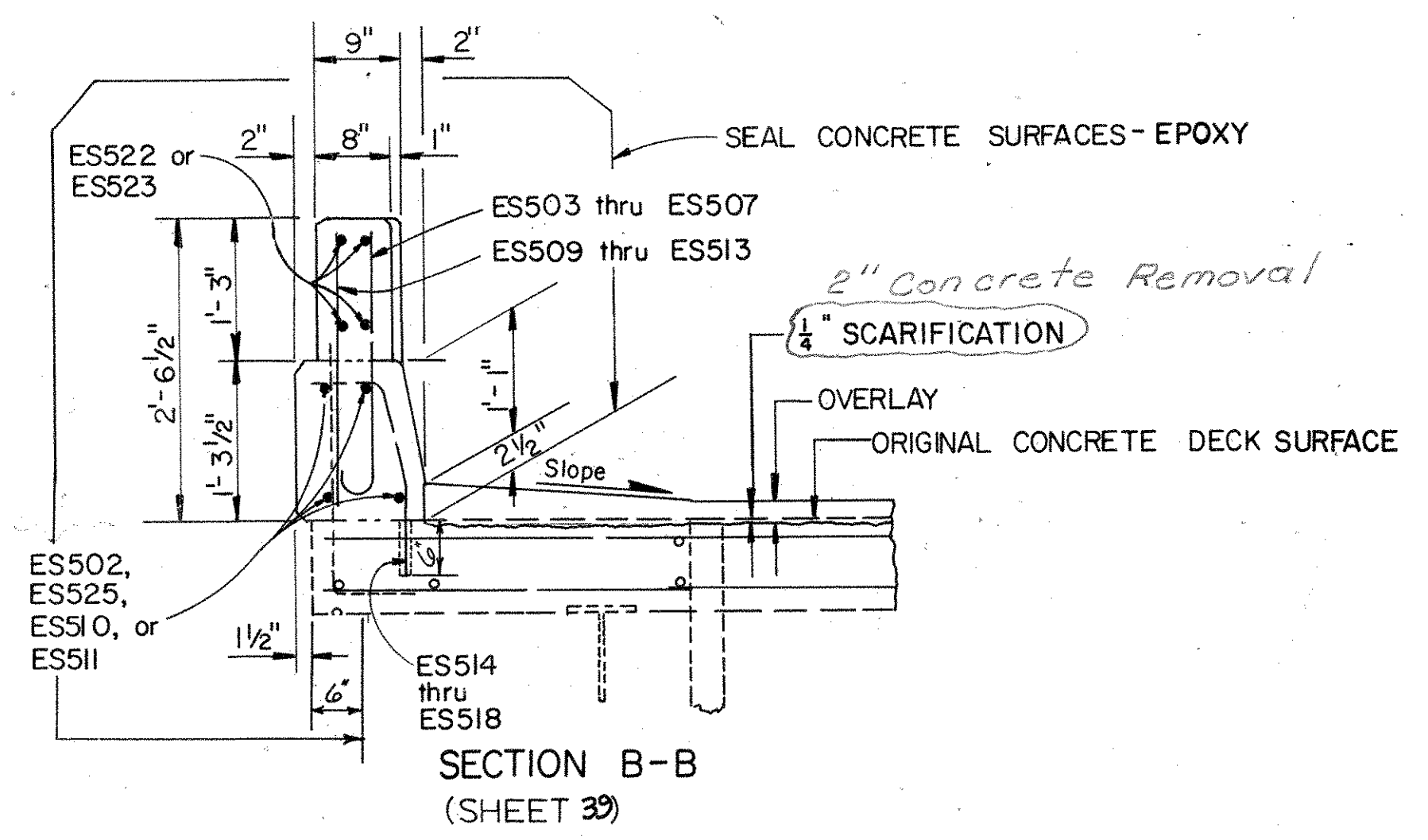
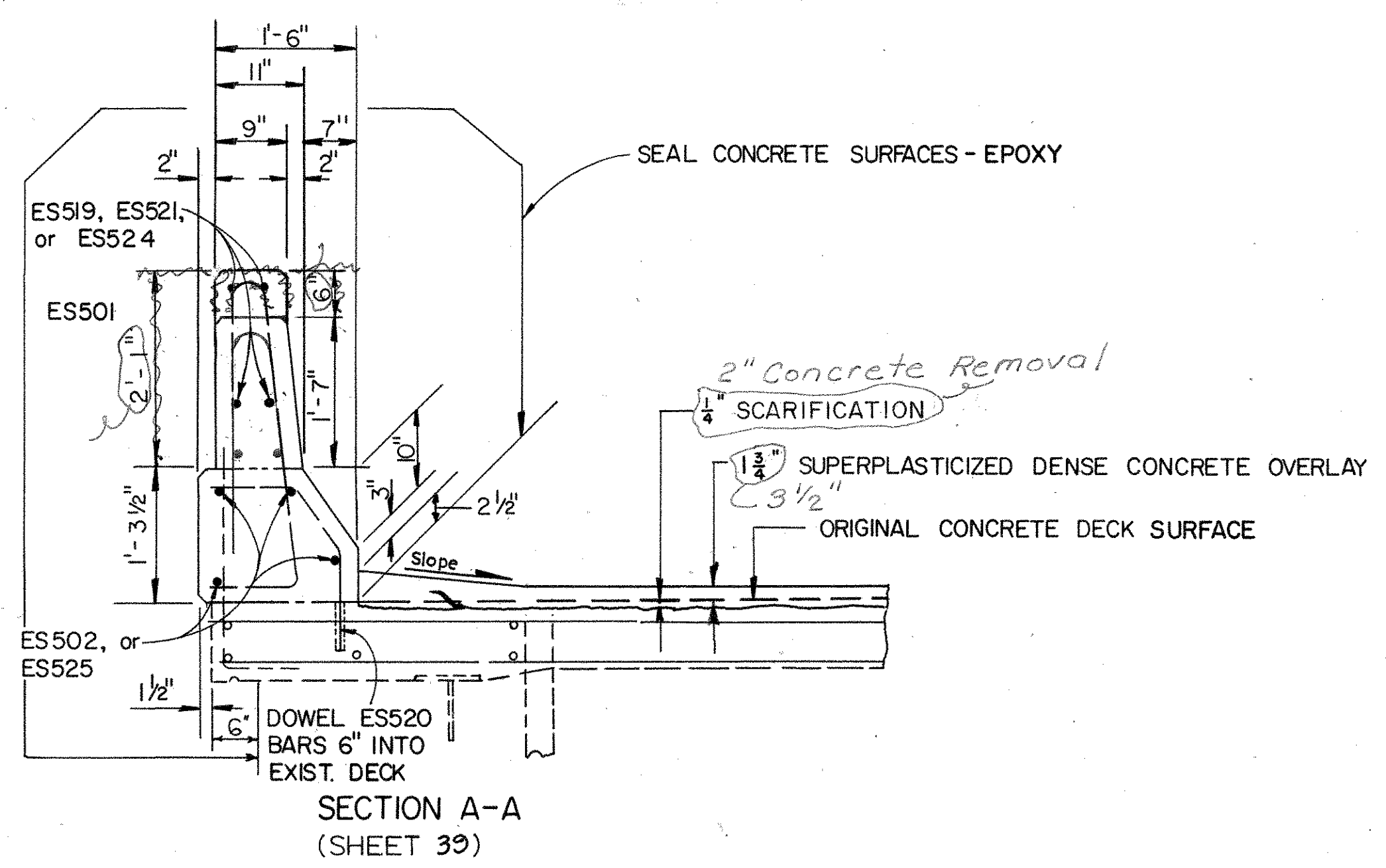
FHWA REGION	STATE	PROJECT
5	OHIO	

MUS - 70 - (0.76) (1.43)
LIC - 70 - 28.93



BENDING DIAGRAMS

NOTE: BAR MARK WITH THE PREFIX 'E'
DENOTES AN EPOXY COATED REBAR.



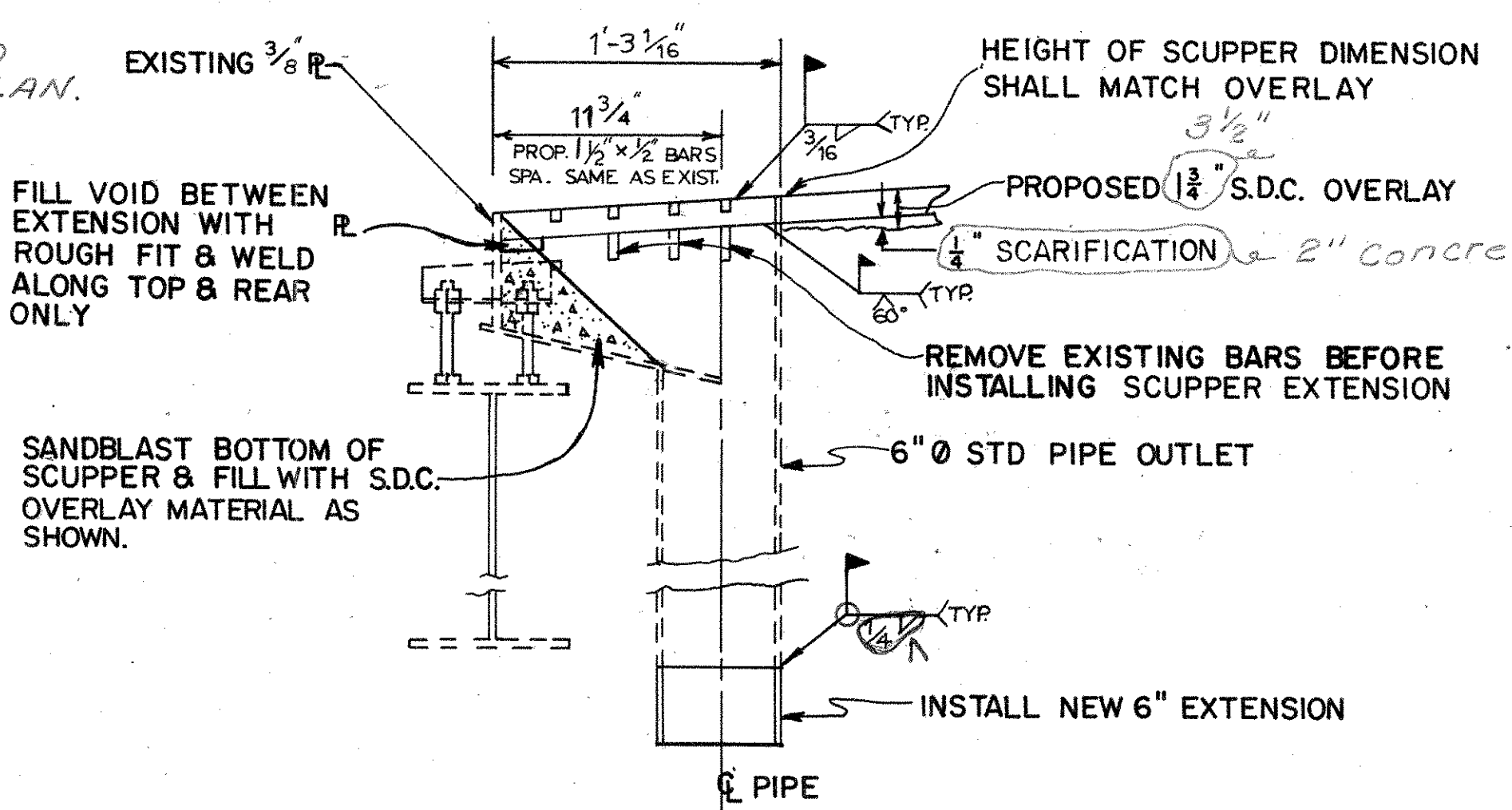
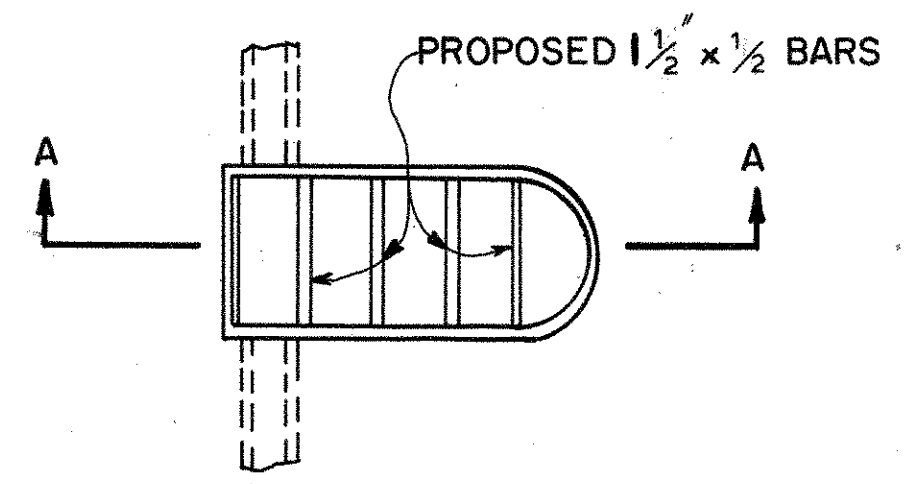
ITEM 518-VERTICAL EXTENSION OF DOWNSPOUTS, AS PER PLAN

DOWNSPOUT EXTENSION SHALL BE 3/8" THICK WROUGHT IRON OR GALVANIZED STEEL PIPE. JOINT CONNECTIONS SHALL BE WELDED AS REQUIRED BY 513.17. GALVANIZING SHALL BE IN ACCORDANCE WITH 711.02. ALL MATERIALS, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK SHALL BE PAID FOR UNDER ITEM 518 VERTICAL EXTENSION OF DOWNSPOUTS, AS PER PLAN. PAINTING OF THE VERTICAL EXTENSION AND DAMAGED AREAS SHALL BE INCLUDED IN ITEM 518 CONTRACTORS EXPENSE. CLEANED AND PAINTED AS PER 514.03. PAINT SHALL CONFORM TO 703.09 (GREEN). PAINTING OF THE DOWNSPOUTS SHALL BE INCLUDED IN ITEM 518 - VERTICAL EXTENSION OF DOWNSPOUTS, AS PER PLAN.

ITEM 518-VERTICAL EXTENSION OF SCUPPERS, AS PER PLAN

WORK PERFORMED UNDER THIS ITEM SHALL CONSIST OF THE FURNISHINGS AND INSTALLATION OF VERTICAL EXTENSIONS TO EXISTING SCUPPERS IN THE BRIDGE DECKS AS DETAILED ABOVE AND IN ACCORDANCE WITH SECTION 518.06 OF THE SPECIFICATIONS AND REPLACING ANY CONCRETE REMOVED FOR INSTALLATION OF THE VERTICAL EXTENSION OF SCUPPERS. ACTUAL DIMENSION OF THE EXTENSIONS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. THE EXTENSIONS SHALL BE WELDED TO THE EXISTING SCUPPERS BEFORE THE DECK IS OVERLAYED. THE MATERIAL UTILIZED FOR THE EXTENSIONS MAY BE WELDABLE GRADE OF LOW OR MILD CARBON STEEL AVAILABLE COMMERCIALY. THIS MATERIAL IS TO BE EXCLUDED FROM THE REQUIREMENTS OF GALVANIZING ACCORDING TO 711.02 AND FROM THE MILL TEST REPORTS ACCORDING TO 501.07. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 518-VERTICAL EXTENSIONS OF SCUPPERS, AS PER PLAN.

DESCRIPTION	Br. N° MUS70 0195 L	Br. N° MUS70 0195 R	Br. N° MUS70 0296 L	Br. N° MUS70 0296 R	TOTAL
ITEM 518 VERTICAL EXTENSION OF DOWNSPOUTS, AS PER PLAN	10	10	8	8	36
ITEM 518 VERTICAL EXTENSION OF SCUPPERS, AS PER PLAN	10	10	8	8	36



SECTION A-A
TYPE I SCUPPER
VERTICAL EXTENSION OF SCUPPER & DOWNSPOUT

DESCRIPTION	Br. N° 0195L	Br. N° 0195R	Br. N° 0296L	Br. N° 0296R	UNIT
ITEM 510 DOWEL HOLES	312	312	126	126	EACH
ITEM 511 CLASS 'S' CONCRETE, SUPERSTRUCTURE	60 ₄₆	60 ₄₆	43 ₃₂	38 ₂₈	CU. YD.
ITEM SPECIAL SEALING OF CONCRETE SURFACES (EPOXY)	345 ₃₅₁	345 ₃₅₁	241 ₂₄₆	206 ₂₄₁	SQ. YD.

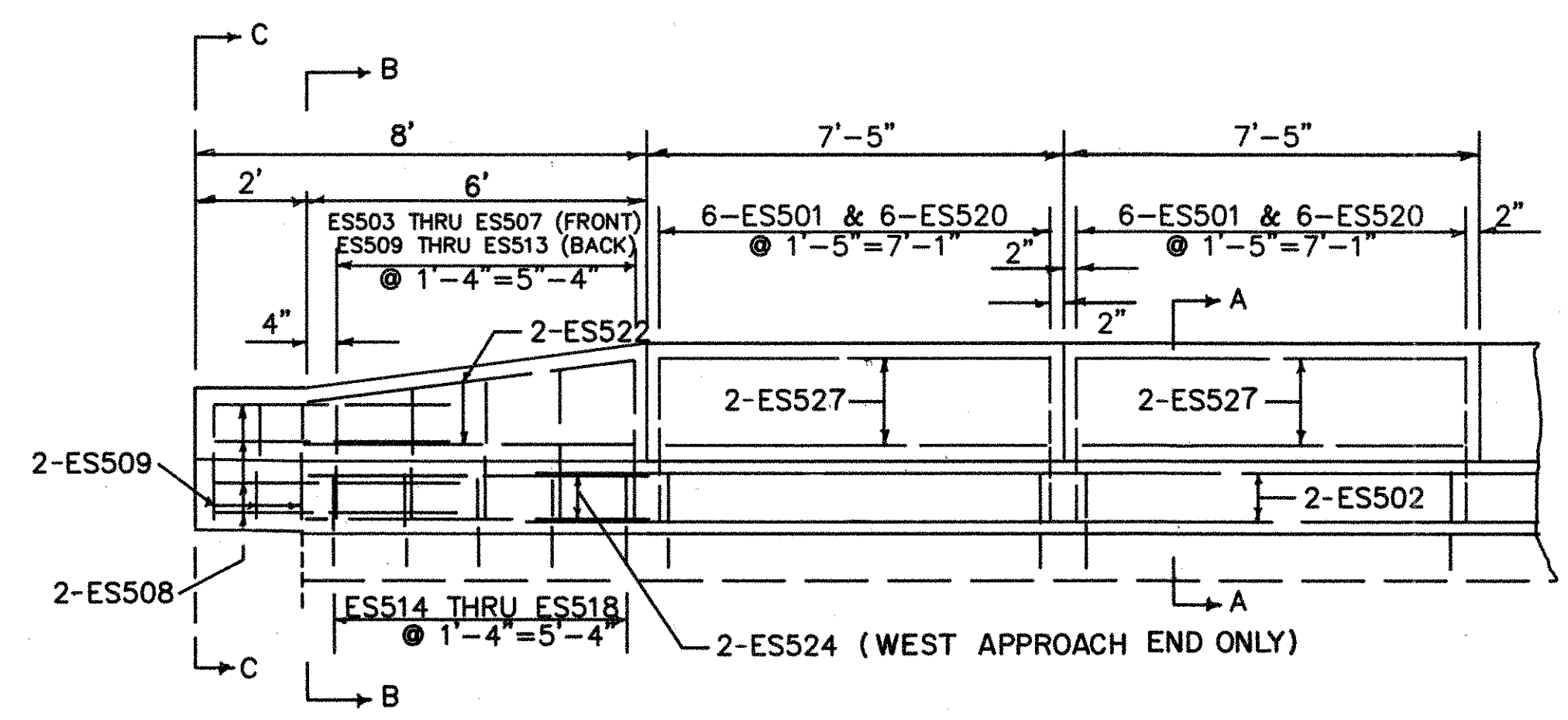
MICROFILMED
 30mm

FHWA REGION	STATE	PROJECT	
			39 49

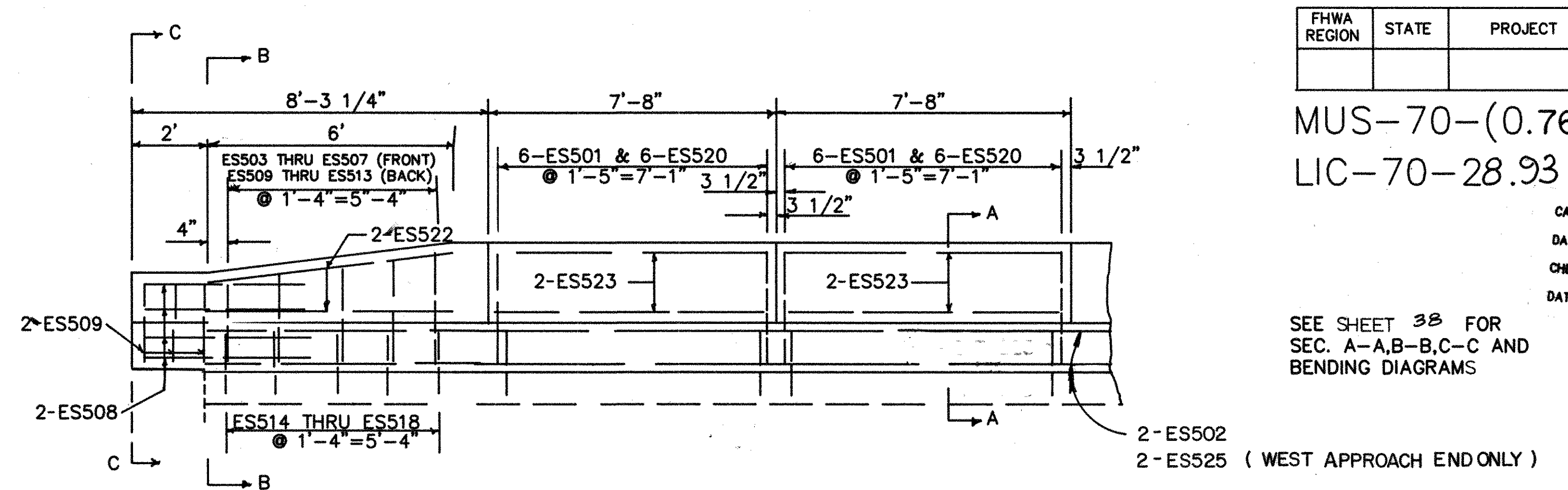
MUS-70-(0.76)(1.43)
 LIC-70-28.93

CALC. BY: R.D.
 DATE: 1-15-88
 CHECK BY: R.
 DATE: 1-25-88

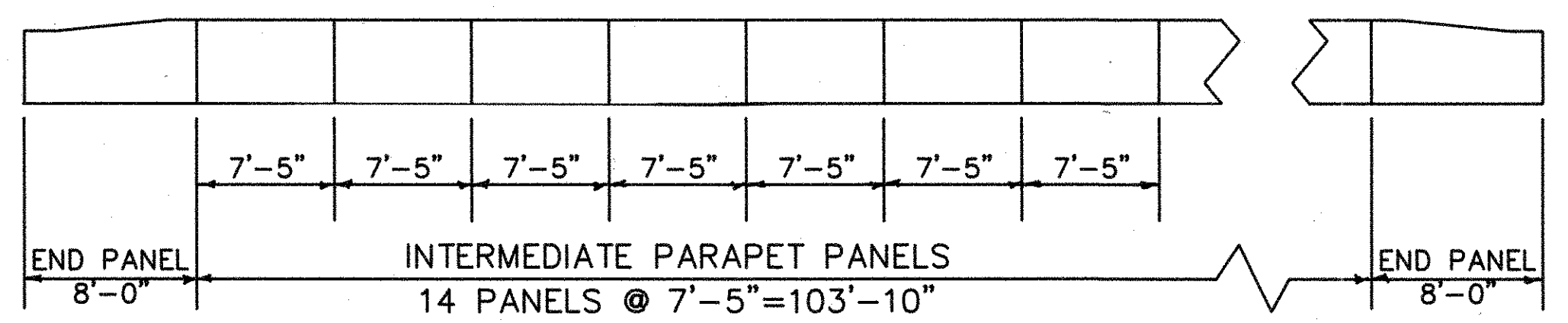
SEE SHEET 38 FOR
 SEC. A-A, B-B, C-C AND
 BENDING DIAGRAMS



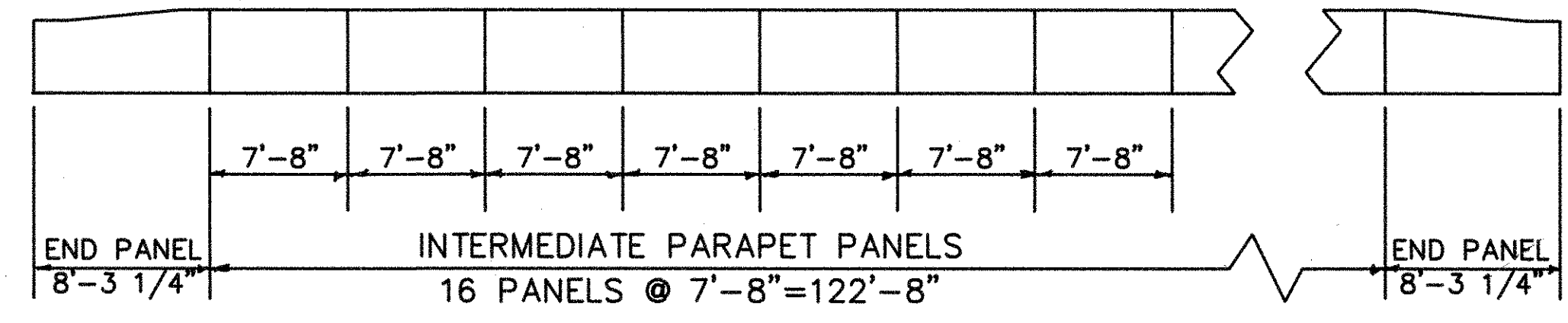
ELEVATION TYPICAL PARAPET REINFORCING
 BRIDGE No. MUS-70-0296R



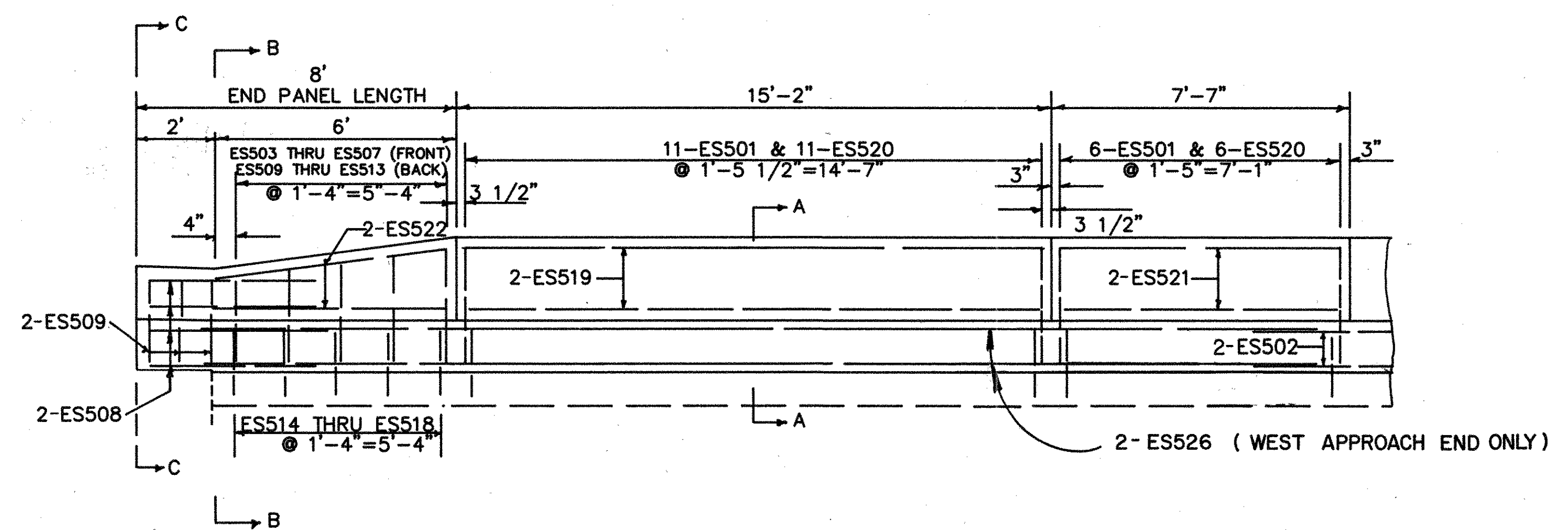
ELEVATION TYPICAL PARAPET REINFORCING
 BRIDGE No. MUS-70-0296 L



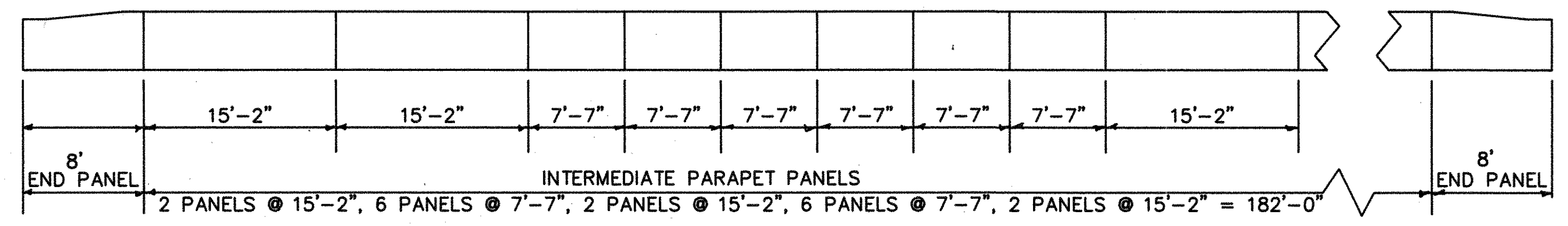
TYPICAL STEEL LAYOUT AND JOINT SPACING
 BRIDGE RAILING DEFLECTOR PARAPET
 TYPE BRIDGE No. MUS-70-0296 R



TYPICAL STEEL LAYOUT AND JOINT SPACING
 BRIDGE RAILING DEFLECTOR PARAPET
 TYPE BRIDGE No. MUS-70-0296 L



ELEVATION TYPICAL PARAPET REINFORCING
 BRIDGE No. MUS-70-0195 L & R



TYPICAL STEEL LAYOUT AND JOINT SPACING
 BRIDGE RAILING DEFLECTOR PARAPET
 TYPE BRIDGE No. MUS-70-0195 L & R

QUANTITIES FOR 4 PARAPETS, BRIDGE
 No. 0195 L. & R. EPOXY COATED REINFORCING
 STEEL BAR SCHEDULE

MARK	No. Req'd.		LENGTH	SHAPE	WEIGHT	
	L	R			L	R
ES501	276	276	6'-8"	BT.	1919	1919
ES502	48	48	30'-0"	ST.	1502	1502
ES503	4	4	2'-10"	BT.	12	12
ES504	4	4	3'-0"	BT.	13	13
ES505	4	4	3'-3"	BT.	14	14
ES506	4	4	3'-5"	BT.	14	14
ES507	4	4	3'-8"	BT.	15	15
ES508	32	32	4'-4"	ST.	145	145
ES509	28	28	2'-2"	ST.	63	63
ES510	4	4	2'-5"	ST.	10	10
ES511	4	4	2'-7"	ST.	11	11
ES512	4	4	2'-9"	ST.	11	11
ES513	4	4	3'-0"	ST.	13	13
ES514	4	4	1'-11"	BT.	8	8
ES515	4	4	2'-0"	BT.	8	8
ES516	4	4	2'-1"	BT.	9	9
ES517	4	4	2'-1"	BT.	9	9
ES518	4	4	2'-2"	BT.	9	9
ES519	48	48	14'-10"	ST.	743	743
ES520	276	276	2'-5"	BT.	696	696
ES521	96	96	7'-3"	ST.	726	726
ES522	16	16	6'-0"	ST.	100	100
ES526	8	8	17'-4"	ST.	145	145
TOTAL					6195	6195

QUANTITIES FOR 4 PARAPETS, BRIDGE
 No. 0296 L. & R. EPOXY COATED REINFORCING
 STEEL BAR SCHEDULE

MARK	No. Req'd.		LENGTH	SHAPE	WEIGHT	
	L	R			L	R
ES501	192	168	6'-8"	BT.	1335	1168
ES502	32	24	30'-0"	ST.	1001	751
ES503	4	4	2'-10"	BT.	12	12
ES504	4	4	3'-0"	BT.	13	13
ES505	4	4	3'-3"	BT.	14	14
ES506	4	4	3'-5"	BT.	14	14
ES507	4	4	3'-8"	BT.	15	15
ES508	32	32	4'-4"	ST.	145	145
ES509	28	28	2'-2"	ST.	63	63
ES510	4	4	2'-5"	ST.	10	10
ES511	4	4	2'-7"	ST.	11	11
ES512	4	4	2'-9"	ST.	11	11
ES513	4	4	3'-0"	ST.	13	13
ES514	4	4	1'-11"	BT.	8	8
ES515	4	4	2'-0"	BT.	8	8
ES516	4	4	2'-1"	BT.	9	9
ES517	4	4	2'-1"	BT.	9	9
ES518	4	4	2'-2"	BT.	9	9
ES520	192	168	2'-5"	BT.	484	423
ES523	128		7'-4"	ST.	979	
ES524		8	29'-2"	ST.		243
ES525	8		18'-7"	ST.	155	
ES522	16	16	6'-0"	ST.	100	100
ES527		112	7'-1"	ST.		827
TOTAL					4418	3876

5907

4217

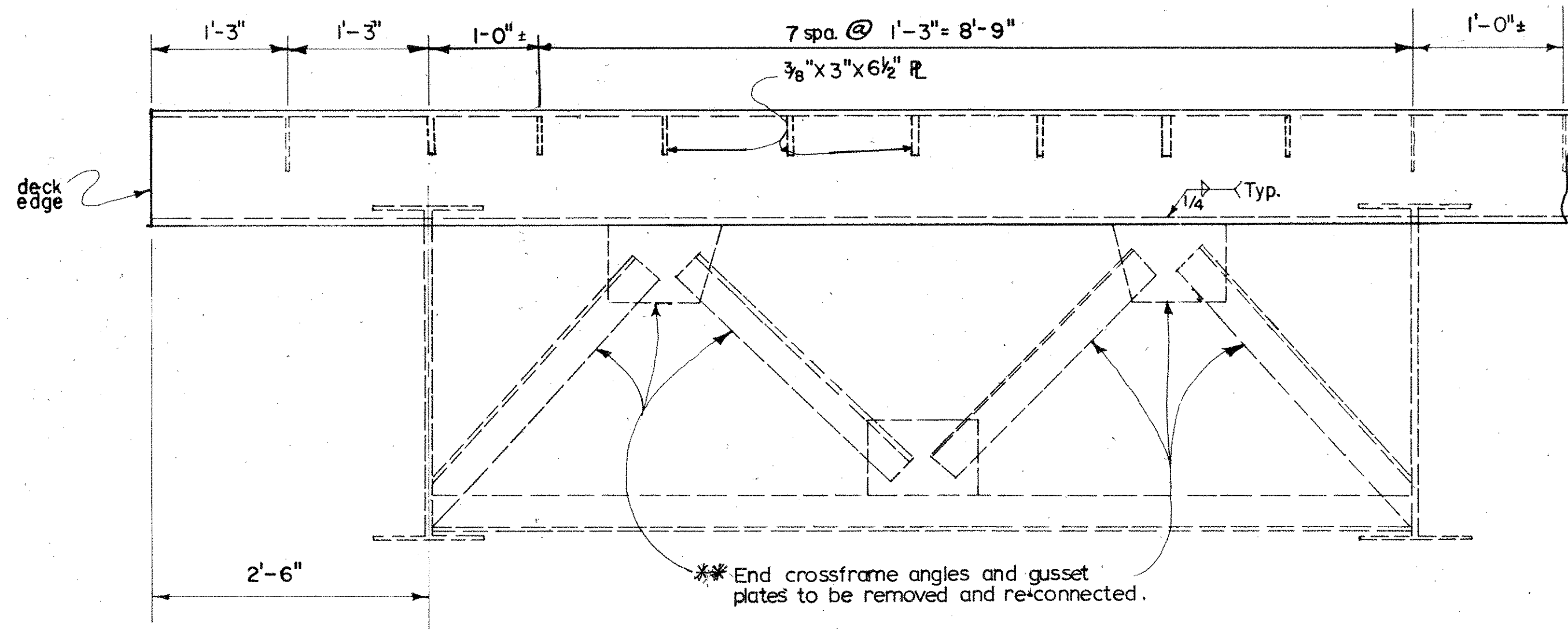
REV. 8-1-88

** Existing end crossframe angles and gusset plates shall be removed and re-connected to allow new expansion joint armor to be installed. Any cutting of the crossframes or gusset plates shall be as directed by the Engineer to ensure proper installation of the expansion joint armor. An estimated amount of 7,540 pounds of Item 513-Structural Steel, As Per Plan has been included in the General Summary for replacement of any crossframes or gusset plates deemed necessary by the Engineer. New steel shall be field painted according to 514.05. Finish paint shall be 708.08. All labor, materials, equipment and incidentals necessary to complete this work shall be included with Item 513-Structural Steel, As Per Plan for payment.

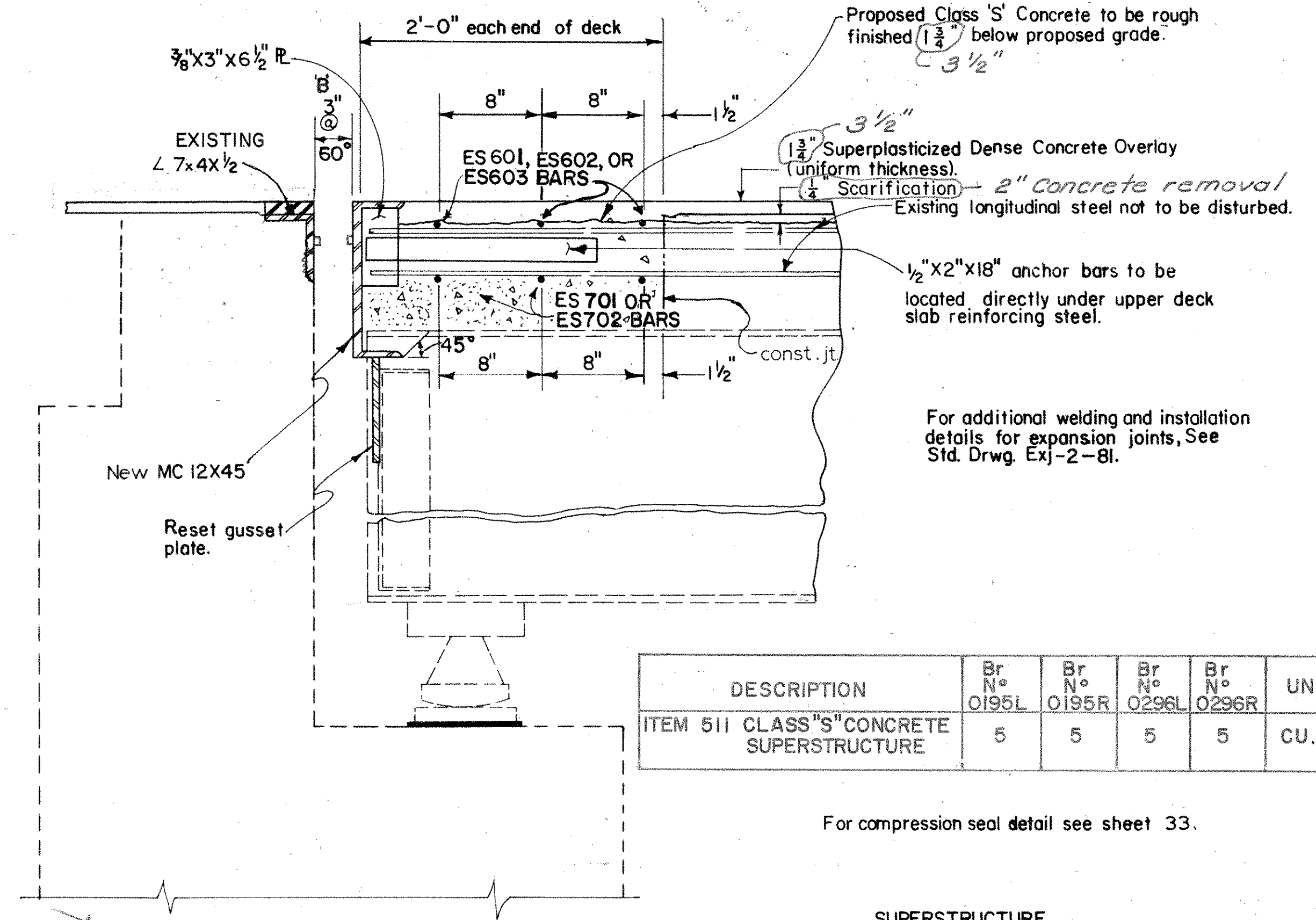
CALC. BY R.D.
DATE 1-15-88
CHECK. BY Rm
DATE 1-25-88

FHWA REGION	STATE	PROJECT
5	OHIO	

MUS-70-(0.76)(1.43)
LIC-70-28.93



END CROSSFRAME AND STRUCTURAL EXPANSION JOINT DETAIL



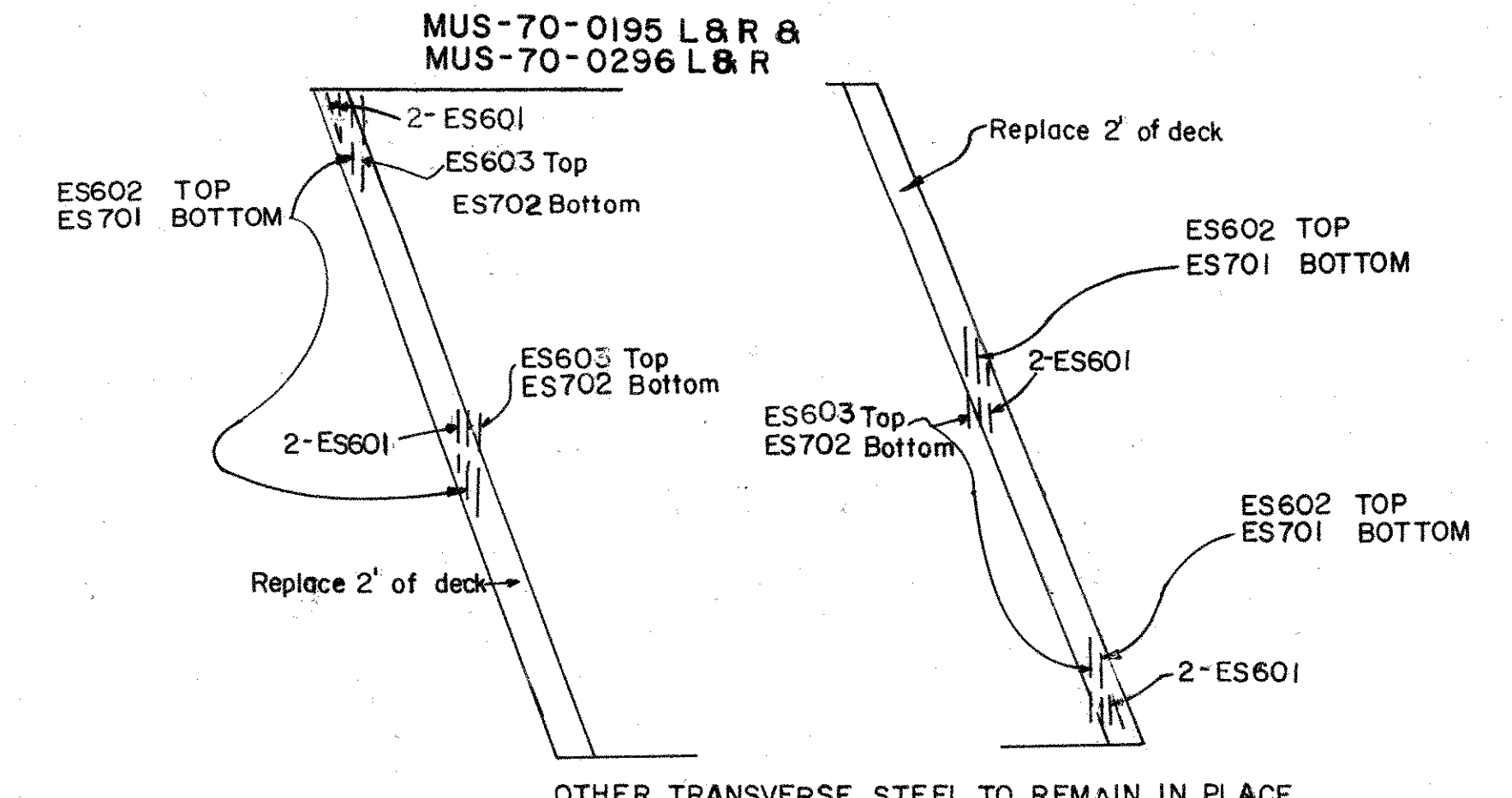
SECTION ON C AT ABUTMENT

DESCRIPTION	Br N° 0195L	Br N° 0195R	Br N° 0296L	Br N° 0296R	UNIT
ITEM 511 CLASS "S" CONCRETE SUPERSTRUCTURE	5	5	5	5	CU. YD.

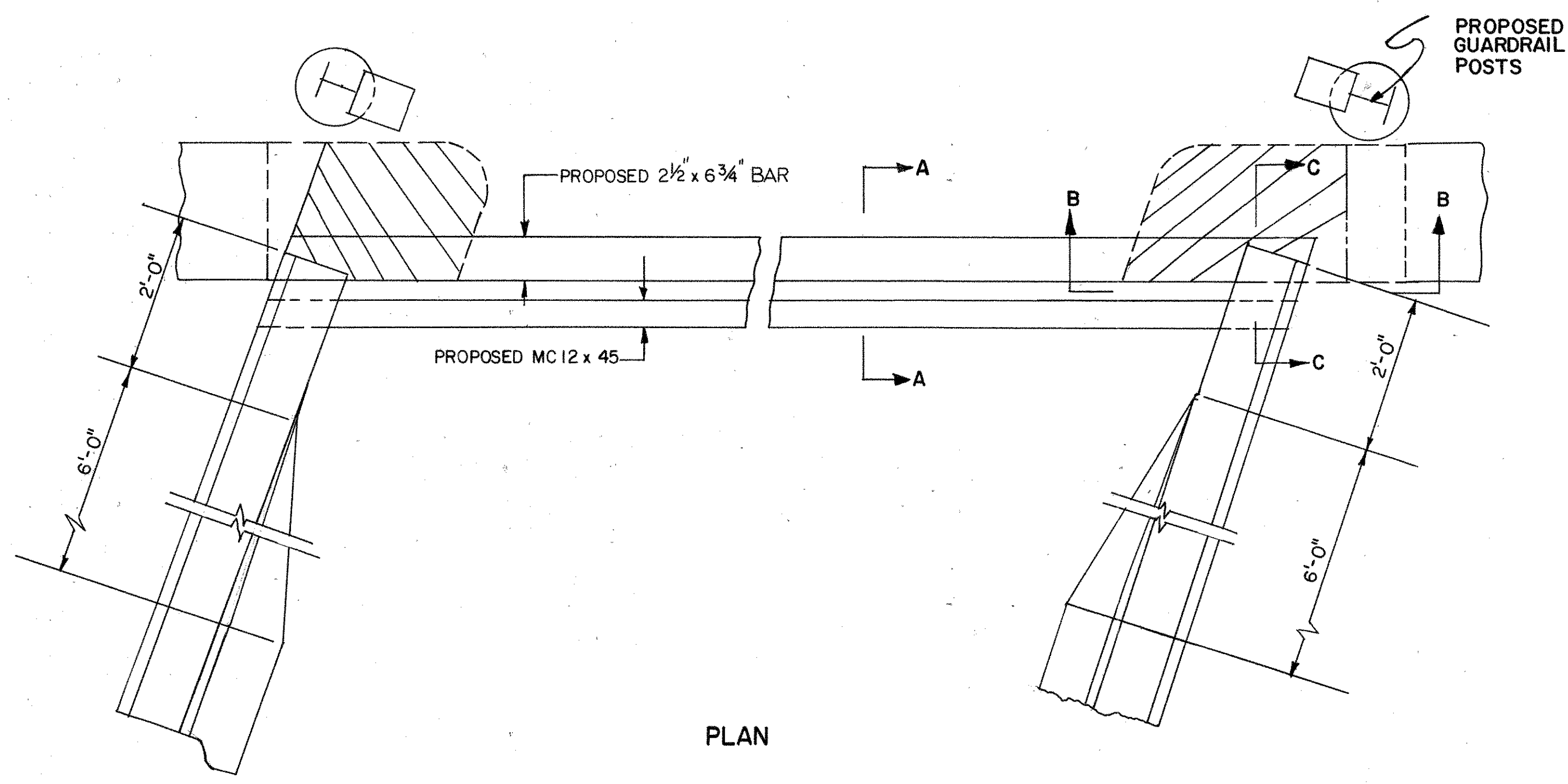
For compression seal detail see sheet 33.

SUPERSTRUCTURE EPOXY COATED REINFORCING STEEL BAR SCHEDULE

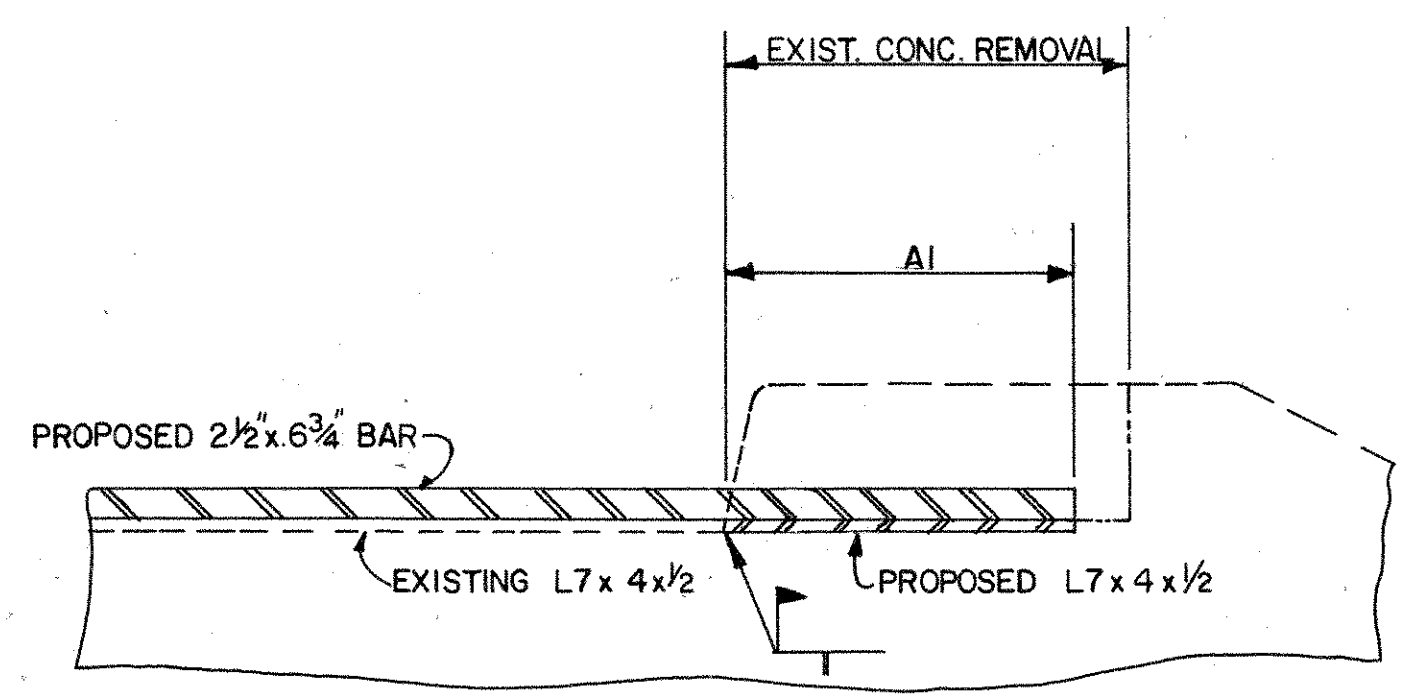
BRIDGE NO	MARK	NO. REQ'D	SHAPE	LENGTH	WEIGHT
	0296 L&R				
	0195 L&R				
	ES 601	48	ST.	4'-1"	294
	ES 602	16	ST.	6'-0"	144
	ES 603	16	ST.	7'-1"	190
	ES 701	16	ST.	6'-0"	196
	ES 702	16	ST.	7'-1"	260
(FOR 4 BRIDGES)					TOTAL 1084



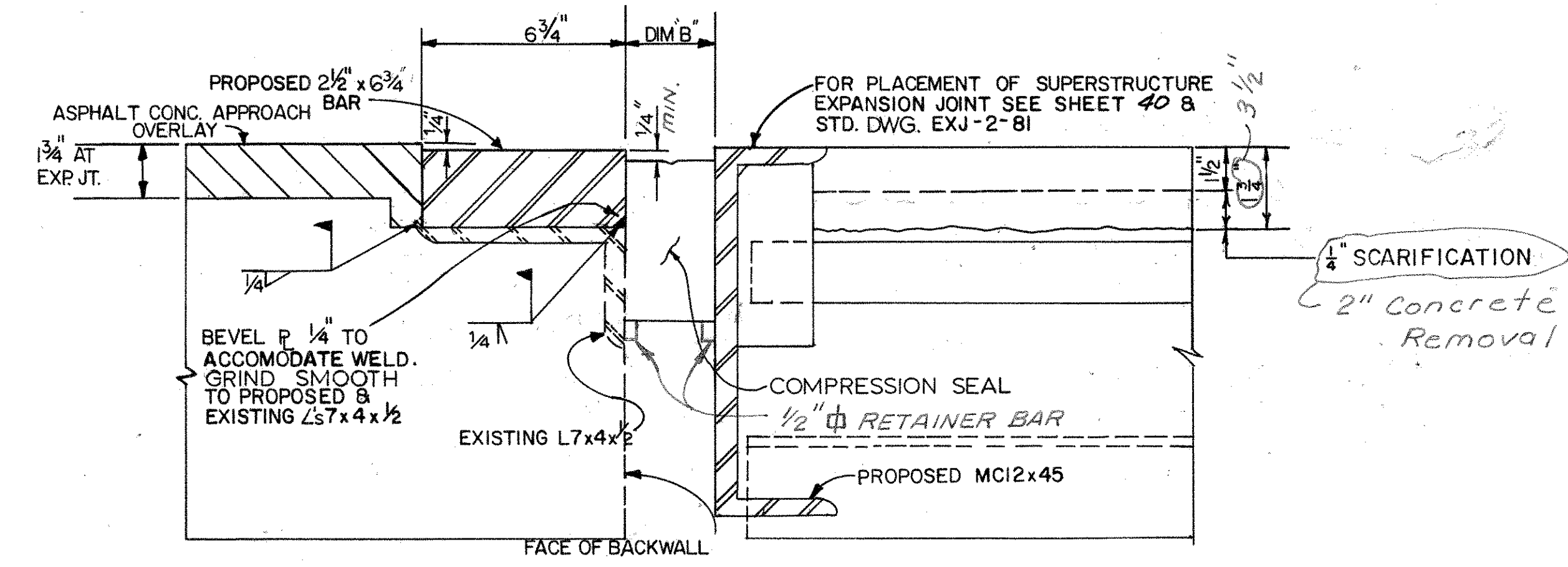
OTHER TRANSVERSE STEEL TO REMAIN IN PLACE



PLAN

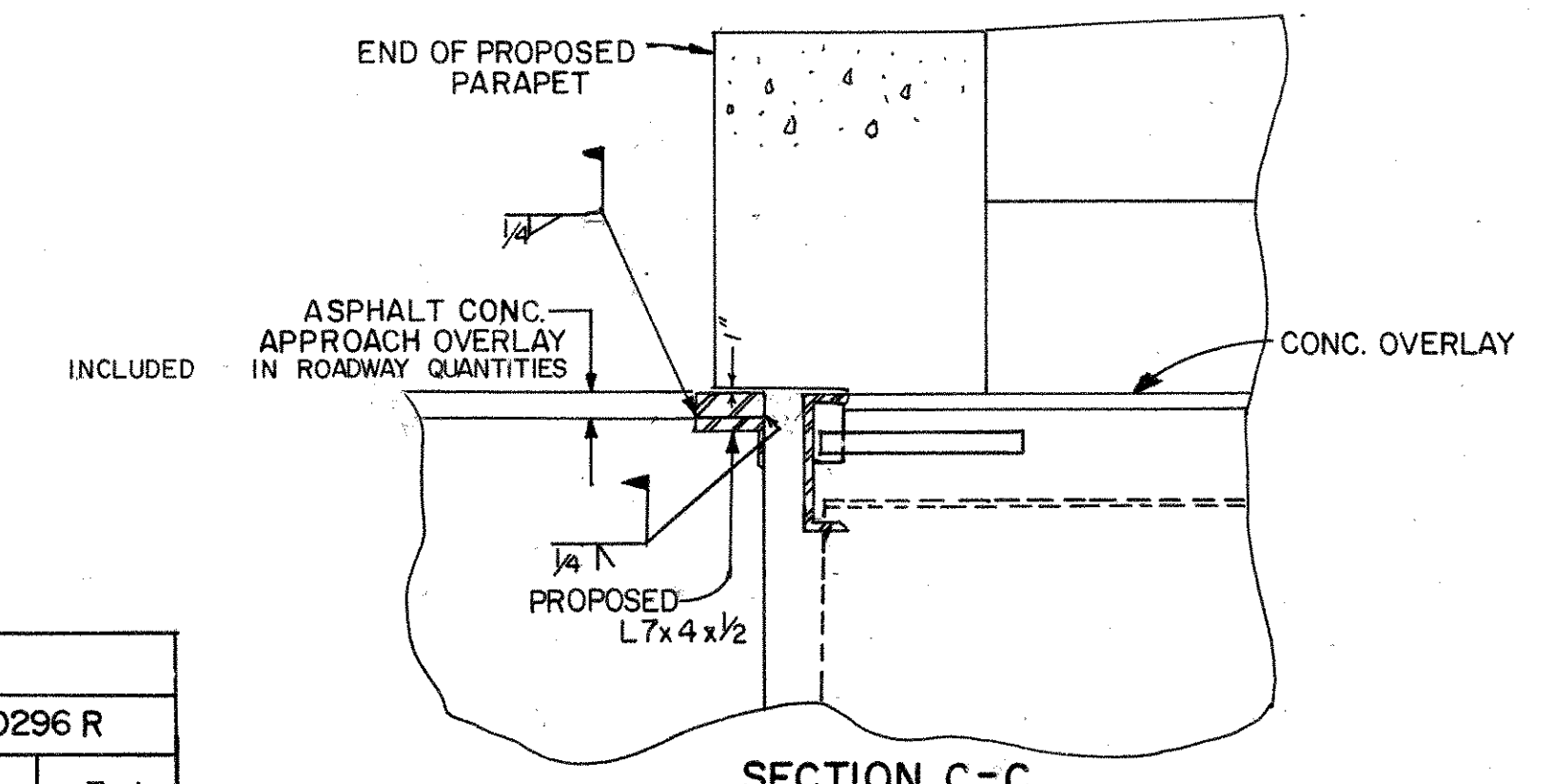


SECTION B-B



SECTION A-A

FOR NOTES PERTAINING TO EXPANSION JOINT MODIFICATION DETAILS SEE SHEET 33.



SECTION C-C

BRIDGE NUMBER	ANGLE LT. RR. ABUT.	ANGLE RT. RR. ABUT.	ANGLE LT. FWD. ABUT.	ANGLE RT. FWD. ABUT.	DIM. AI	EXPANSION JOINT PAY LENGTH
MUS-70-0194 L & R	20°	20°	20°	20°	2'-7"	183'-0"
MUS-70-0296 L & R	13° 8'	13° 8'	13° 8'	13° 8'	2'-6"	176'-8"

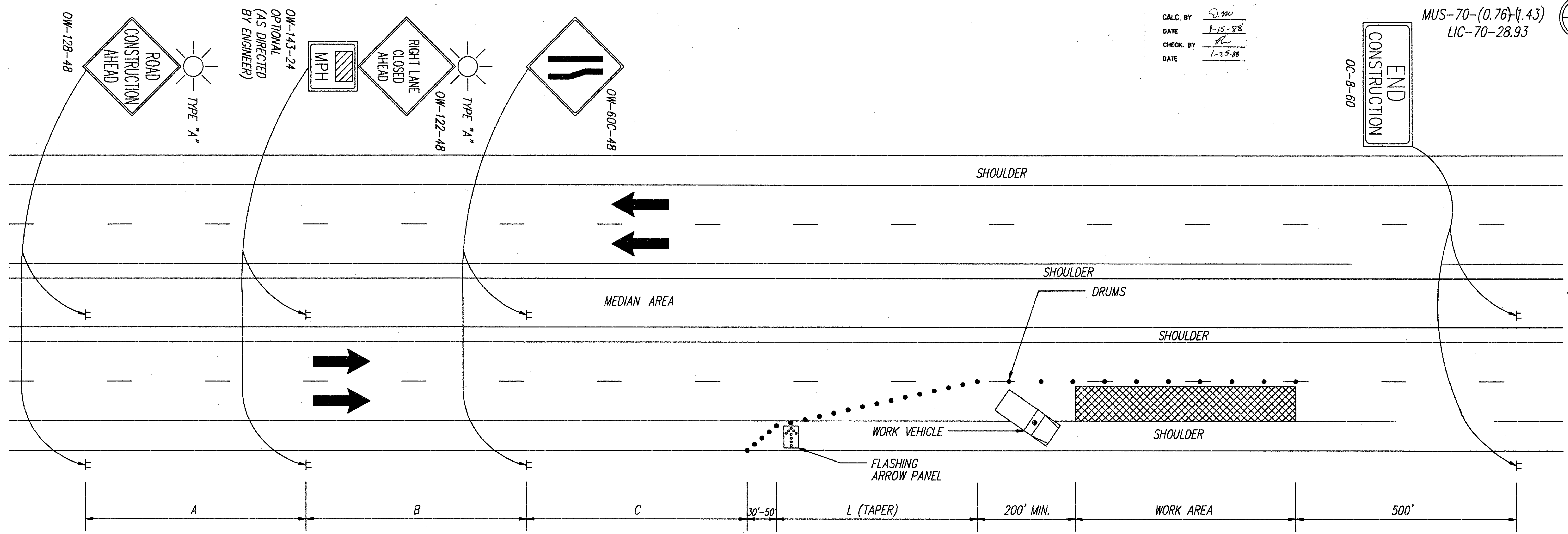
AMBIENT TEMP F°	DIMENSION "B"					
	0195 L & R		0296 L		0296 R	
	Rear	Fwd.	Rear	Fwd.	Rear	Fwd.
90	2 5/8"	2 7/8"	2 3/4"	2 7/8"	2 3/4"	2 7/8"
80	2 7/8"	2 7/8"	2 7/8"	2 7/8"	2 7/8"	3"
70	2 7/8"	3"	2 7/8"	3"	2 7/8"	3"
60	3"	3"	3"	3"	3"	3"
50	3 1/8"	3"	3 1/8"	3"	3 1/8"	3"
40	3 1/8"	3 1/8"	3 1/8"	3 1/8"	3 1/8"	3"
30	3 3/8"	3 1/8"	3 1/4"	3 1/8"	3 1/4"	3 1/8"

EXPANSION JOINT DETAILS

ESTIMATED LENGTH: CONTRACTOR SHALL VERIFY ACTUAL LENGTH NEEDED
LEGEND: RR ~ REAR
FWD ~ FORWARD

CALC. BY D.M.
 DATE 1-15-88
 CHECK. BY R.W.
 DATE 1-25-88

MUS-70-(0.76)-(1.43)
 LIC-70-28.93



- ① THE TAPER LENGTH (L) SHALL BE IN ACCORDANCE WITH SECTION 7F-17 OF THE OMTCD. 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 OMTCD. FOR A 45-65 MPH PREVAILING SPEED AND A 12 FT. LANE, NOT LESS THAN THIRTEEN (13) DRUMS SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. NOT LESS THAN FIVE (5) DRUMS SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS SHALL BE SPACED APPROXIMATELY 50' 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.
- ② THE MAJOR STANDARD LEVEL (36") WARNING SIGNS 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-600-48 SIGN(S) SHALL BE SUBSTITUTED FOR THE OW-600-48 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 FOR A MINIMUM OF ONE-QUARTER (1/4) MILE. A TRUCK MOUNTED IMPACT ATTENUATOR MAY BE EMPLOYED.
- ⑤ THE FLASHING ARROW PANEL SHALL MEET THE REQUIREMENTS OF STANDARD DRAWING TC-35.10.
- ⑥ TYPE "C" STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS FOR NIGHT LANE CLOSURES. THE MAXIMUM SPACING SHALL BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS DESCRIBED IN NOTE 1.
- ⑦ THE TYPE "A" FLASHING BARRICADE WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND THE "ONE LANE ROAD AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.

- ⑧ THE OC-8 SIGNS ARE ONLY REQUIRED FOR LANE CLOSURES OF MORE THAN ONE DAY AND MAY BE OMITTED IF IT FALLS WITHIN THE LIMITS OF A CONSTRUCTION PROJECT.
- ⑨ 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 FEET IN ADVANCE OF A LANE CLOSURE OR OTHER POINT OF REQUIRED ACTION. SEE SECTION 7G-8.1, OMTCD FOR FURTHER GUIDANCE ON USE OF PCMS UNITS. THESE UNITS, IF REQUIRED, WILL BE SPECIFICALLY CALLED FOR IN THE PLANS AND PAID FOR SEPARATELY.
- ⑩ PAYMENT FOR ALL OF THE ABOVE, UNLESS ITEMIZED SEPARATELY, SHALL BE INCLUDED IN "ITEM 614 - MAINTAINING TRAFFIC".

MINIMUM DISTANCE	A	B	C
	FEET	FEET	FEET
MAJOR STANDARD	500	500	500
URBAN FREEWAY AND EXPRESSWAY	500 to 1000	500 to 1000	500 to 1000
RURAL FREEWAY AND EXPRESSWAY	2600	1600	1000

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
 DISTRICT FIVE

**CLOSING ONE LANE
 of a
 FOUR-LANE DIVIDED HIGHWAY**

REV. 10/87	DRAWN	DATE 12/82 STANDARD DRAWING D3-4
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** IO. For night closures, each of the first two signs in the sequence (ROAD CONSTRUCTION AHEAD and RIGHT LANE CLOSED AHEAD) is required to be supplemented by a Type A flashing barricade warning light.

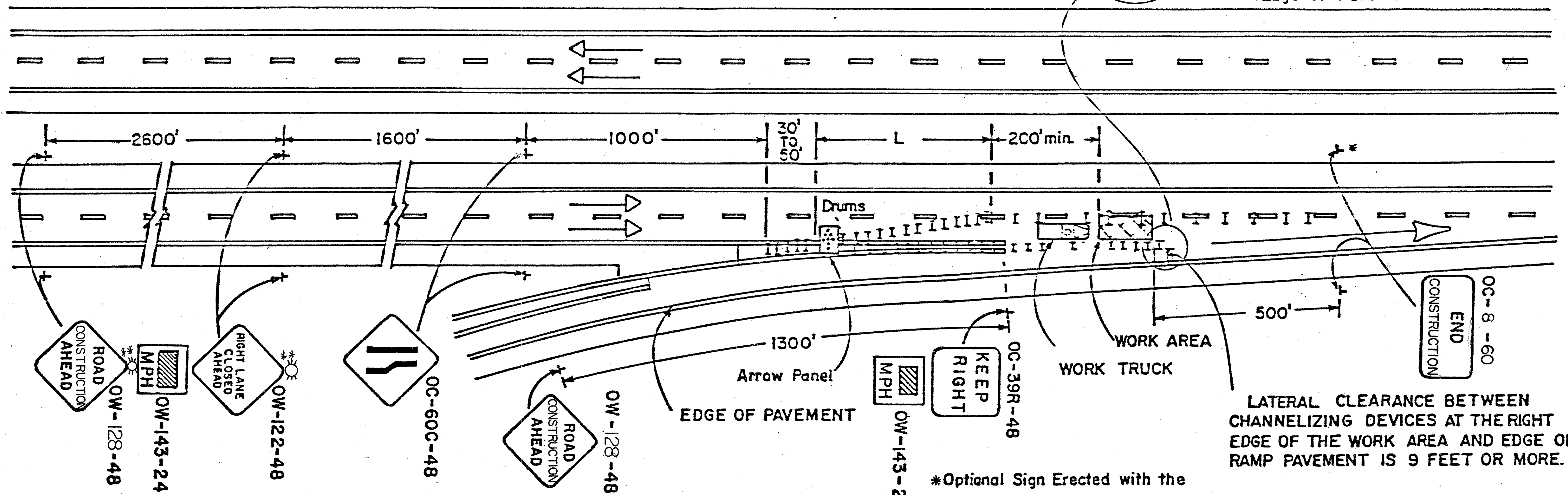
⊕ II. Work vehicles shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of 1/4 mile.

CALC. BY *D.M.*
DATE 1-15-88
CHECK. BY *R.W.*
DATE 1-25-88

FED. RD. DIVISION	STATE	PROJECT
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PLAN NO. MUS-70-(0.76)-(1.43)
LIC-70-2893



LATERAL CLEARANCE BETWEEN CHANNELIZING DEVICES AT THE RIGHT EDGE OF THE WORK AREA AND EDGE OF RAMP PAVEMENT IS 9 FEET OR MORE.

*Optional Sign Erected with the Approval of the Engineer

GENERAL NOTES

- 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.
- THIRTEEN (13) DRUMS 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 SHALL BE SPACED AT 50 FOOT CENTERS.
- RAMP SIGNS SHALL BE DUAL MOUNTED ON MULTILANE RAMPS.

- THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH *Std. Drwg. TC-35.10*
- 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. ⊕
- 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.
 $L = W^2 / 60$ 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.

- 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 A	DATE 8-3-79

CALC. BY Q.W.
 DATE 1-15-88
 CHECK BY flw
 DATE 1-25-88

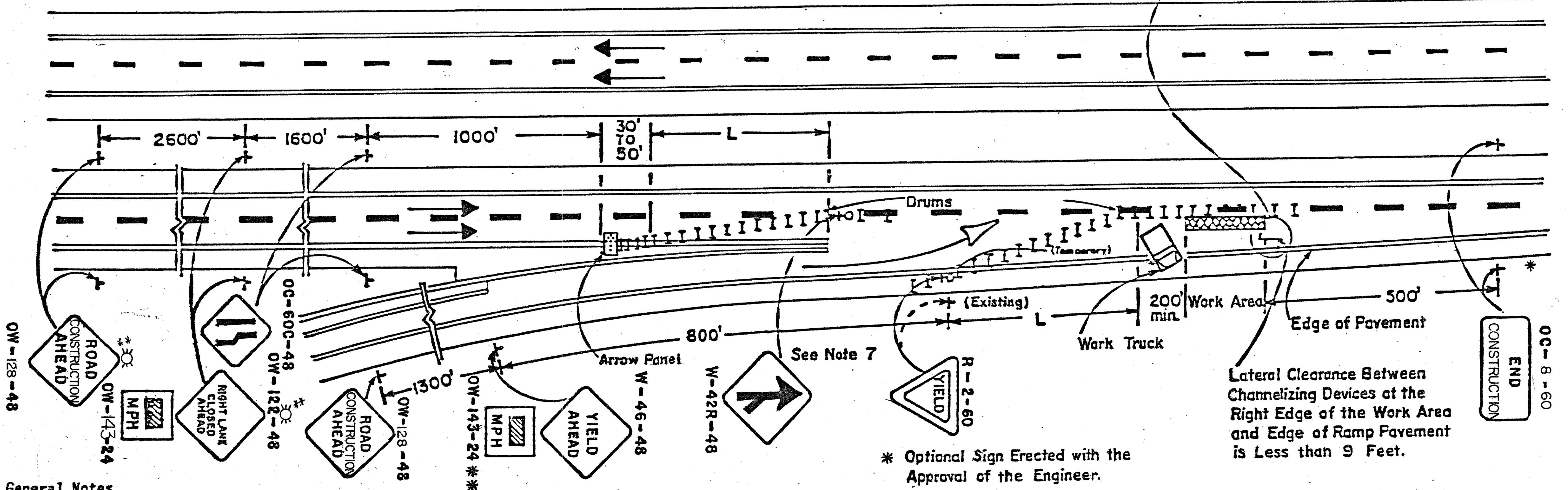
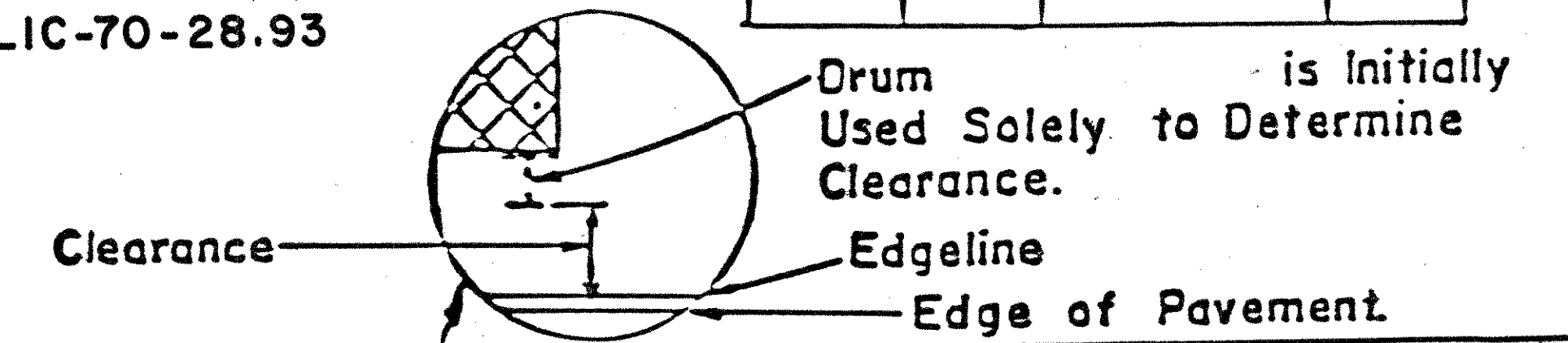
PLAN NO. _____
 MUS-70-(0.76)-(1.43)
 LIC-70-28.93

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

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49

** 11. For night closures, each of the first two signs in the sequence (ROAD CONSTRUCTION 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 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 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 shall be spaced at 50 foot centers.
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 propor-

- tionately 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 *Std. Drawg. 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 for night lane closures.

* Optional Sign Erected with the Approval of the Engineer.

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

⊛ II. For night closures, each of the first two signs in the sequence (ROAD CONSTRUCTION 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.

MUS-70-(0.76)-(1.43)

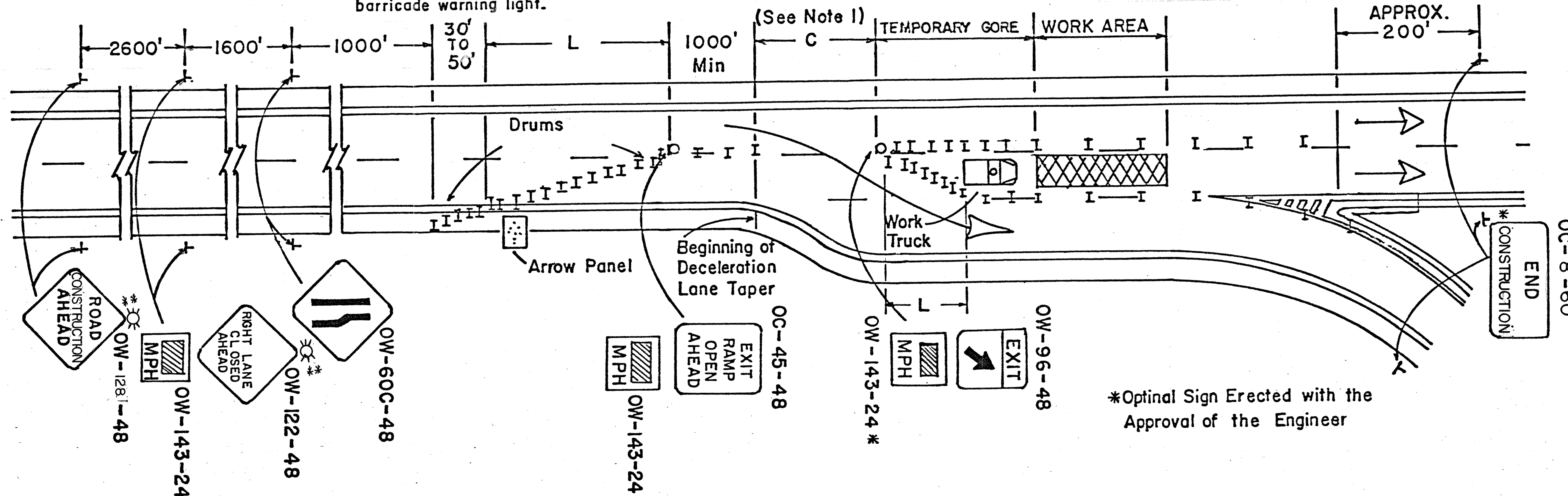
LIC-70-28.93

CALC. BY: *D.M.*
 DATE: 1-15-88
 CHECK BY: *AW*
 DATE: 1-25-88

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

45
49

PLAN NO.



*Optimal Sign Erected with the Approval of the Engineer

GENERAL NOTES

- 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.
- 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.
- 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.⊕
- THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH *Std. Drwg. TC-35.10.*
- THIRTEEN (13) DRUMS 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 SHALL BE SPACED AT 50 FOOT CENTERS.
- TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS FOR NIGHT LANE CLOSURES.
- 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.
- WHEN CREATING A TEMPORARY GORE, CHANNELIZING DEVICES SHOULD BE SPACED 25' CENTER TO CENTER SO AS TO CREATE A "SOLID GORE" EFFECT.
- 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

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

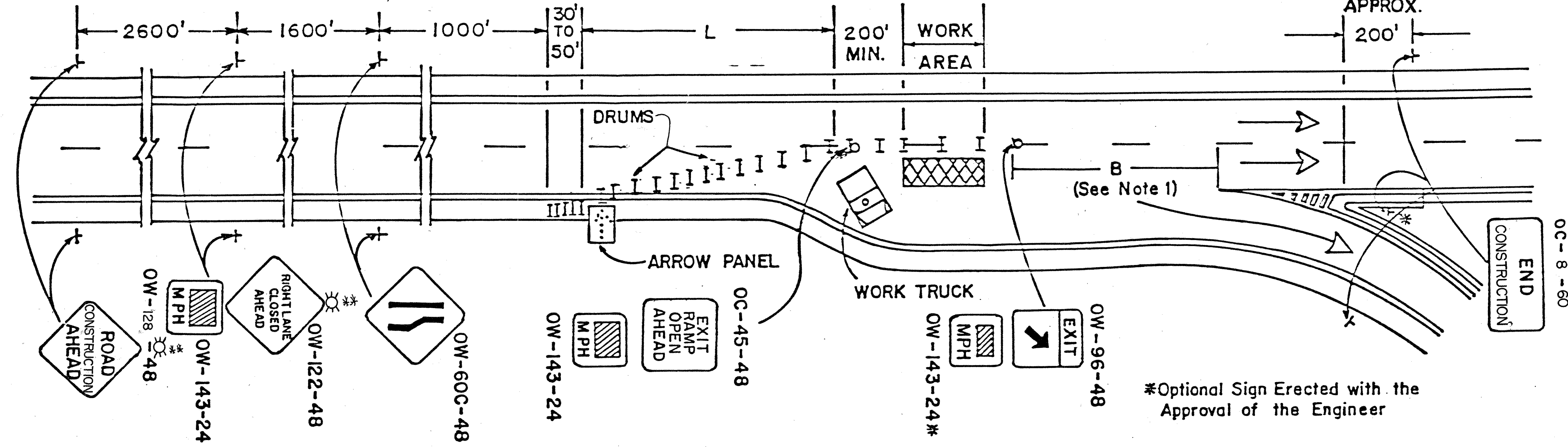
⊕ 11. Work vehicles shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of 1/4 mile.

CALC. BY *QW*
 DATE *1-15-88*
 CHECK. BY *AW*
 DATE *1-25-88*

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

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PLAN NO. **MUS-70-(0.76)-(1.43)**
LIC-70-28.93



*Optional Sign Erected with the Approval of 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 *Std. Drawg. 12-35110*.
5. THIRTEEN (13) DRUMS 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 SHALL BE SPACED AT 50 FOOT CENTERS.
6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS 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.

BUREAU OF TRAFFIC CONTROL OHIO DEPARTMENT OF TRANSPORTATION	
LANE CLOSURE BEFORE EXIT GORE	
DATE	3-3-79
OR	CK -

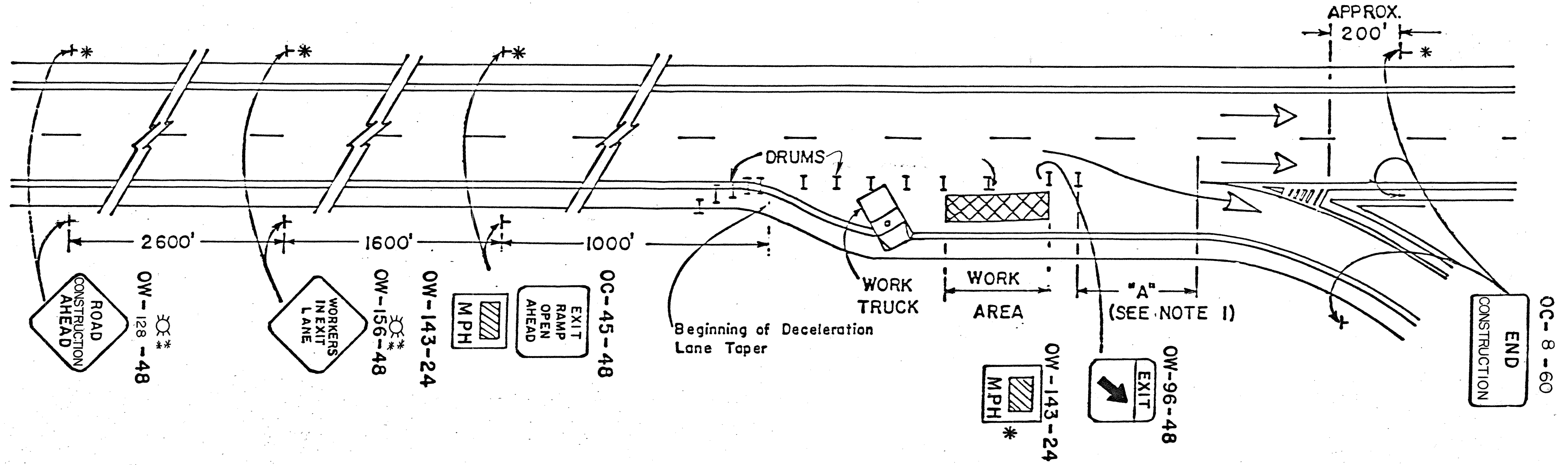
CALC. BY *D.W.*
 DATE *1-15-98*
 CHECK. BY *R.W.*
 DATE *1-25-98*

MUS-70-(0.76)(1.43)
 LIC-70-28.93

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

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PLAN NO.



* OPTIONAL SIGN ERECTED WITH THE APPROVAL OF 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 O MUTCD.
2. DRUMS SHALL BE SPACED AT 50 FOOT CENTERS.
3. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON ALL DRUMS 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 CONST. 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

CALC. BY D.M.
 DATE 1-15-88
 CHECK. BY Rin
 DATE 1-25-88

MUS-70-(0.76)-(1.43)
 LIC-70-28.93

FED. RD. DIVISION	STATE	PROJECT	
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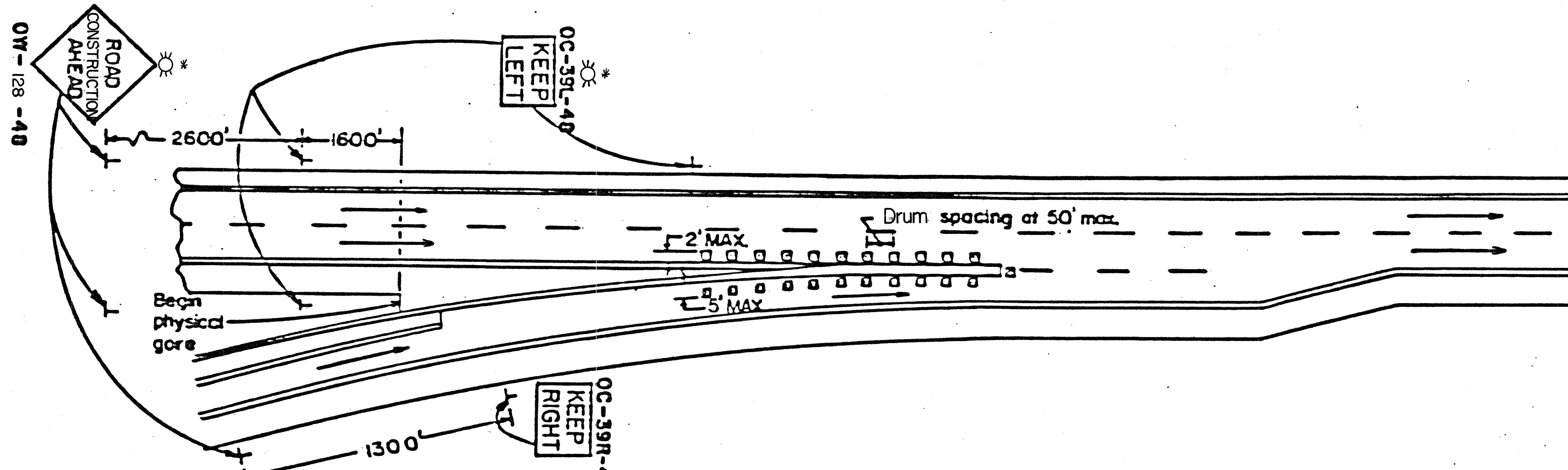
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PLAN NO. _____

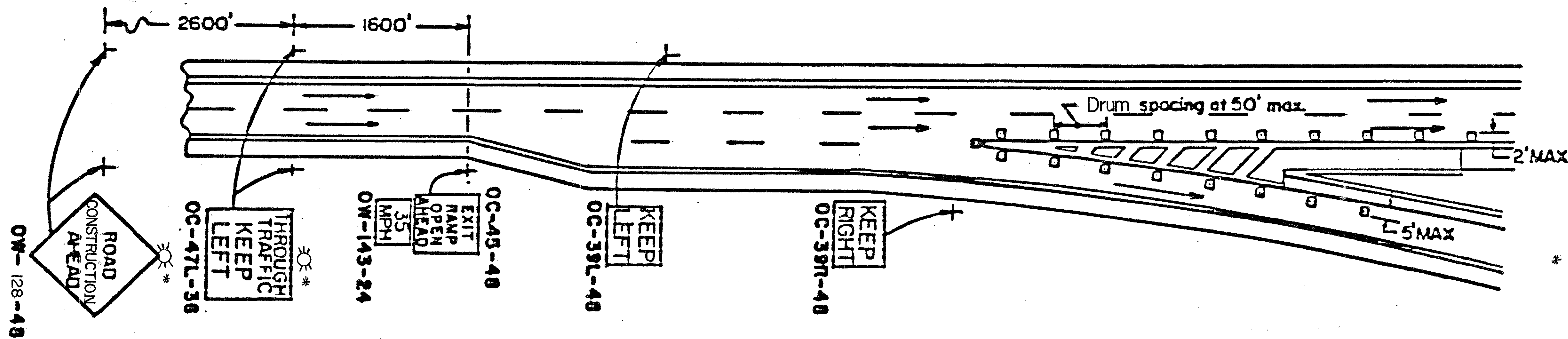
GENERAL NOTE

1. THE REQUIREMENTS OF THE "TRAFFIC CONTROL FOR LONG LINE PAVEMENT MARKING OPERATIONS" *Std. Drawg. MT-99.20* SHALL APPLY IN LIEU OF THIS DETAIL WHERE EDGE LINES AND/OR CHANNELIZING LINES ARE SPRAYED IN MOVING OPERATIONS SEPARATE FROM ANY OTHER WORK.
2. WHERE THE WORK IN THE GORE AREA REQUIRES MORE POSITIVE TRAFFIC CONTROL OR OVERNIGHT WORK AREA PROTECTION, THE TRAFFIC CONTROL FOR "LANE CLOSURE AT THE ENTRANCE RAMP" OR "LANE CLOSURE AT EXIT GORE" SHOULD BE EMPLOYED. SEE SHEET 43-45
3. 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.
4. AT AN ISOLATED ENTRANCE GORE AREA, A FLASHING ARROW PANEL CONFORMING TO REQUIREMENTS IN *Std. Drawg. 70-35.10* MAY BE SUBSTITUTED FOR THE ADVANCE OC-39-48 SIGNS.
5. AT AN INTERCHANGE WHERE BOTH EXITS AND ENTRANCES ARE MARKED WITH TRAFFIC CONTROL IN PLACE AT THE SAME TIME, THE OW-128-48 SIGN ON THE ENTRANCE RAMP IS NOT REQUIRED.
- * 6. FOR NIGHT CLOSURES. SIGNS SHALL BE LIGHTED USING TYPE A FLASHING BARRICADE WARNING LIGHT.

ENTRANCE GORE TRAFFIC CONTROL



EXIT GORE TRAFFIC CONTROL



OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL FOR WORK IN GORE AREAS	DATE 1/81
OR JDL cx.CDR	

PAVEMENT MARKING TYPICAL DETAILS

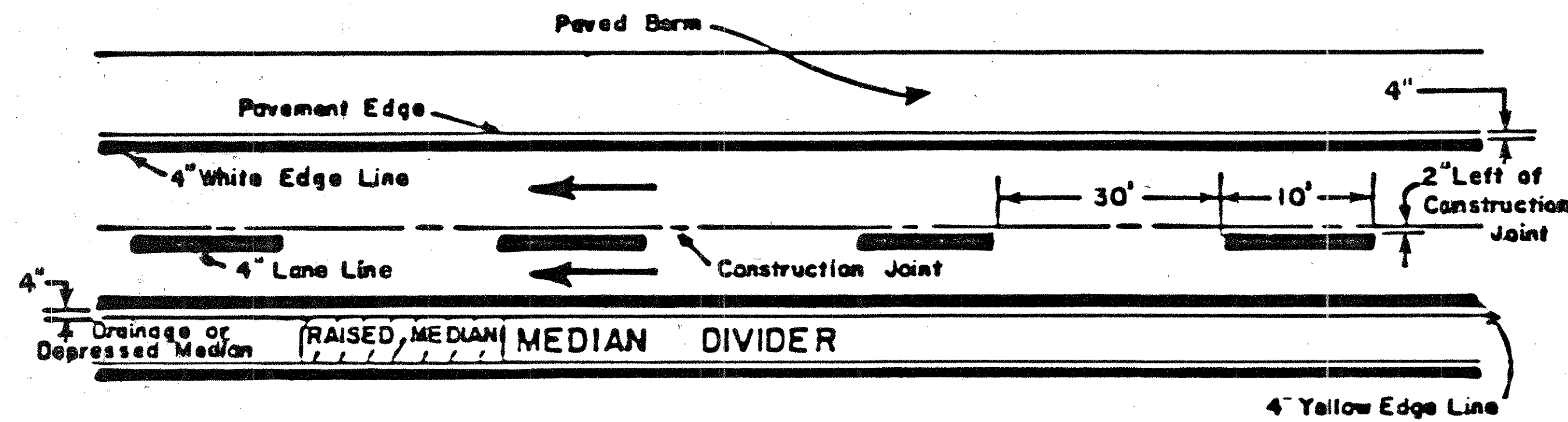
FED. RD DIV.	STATE	PROJECT
5	OHIO	

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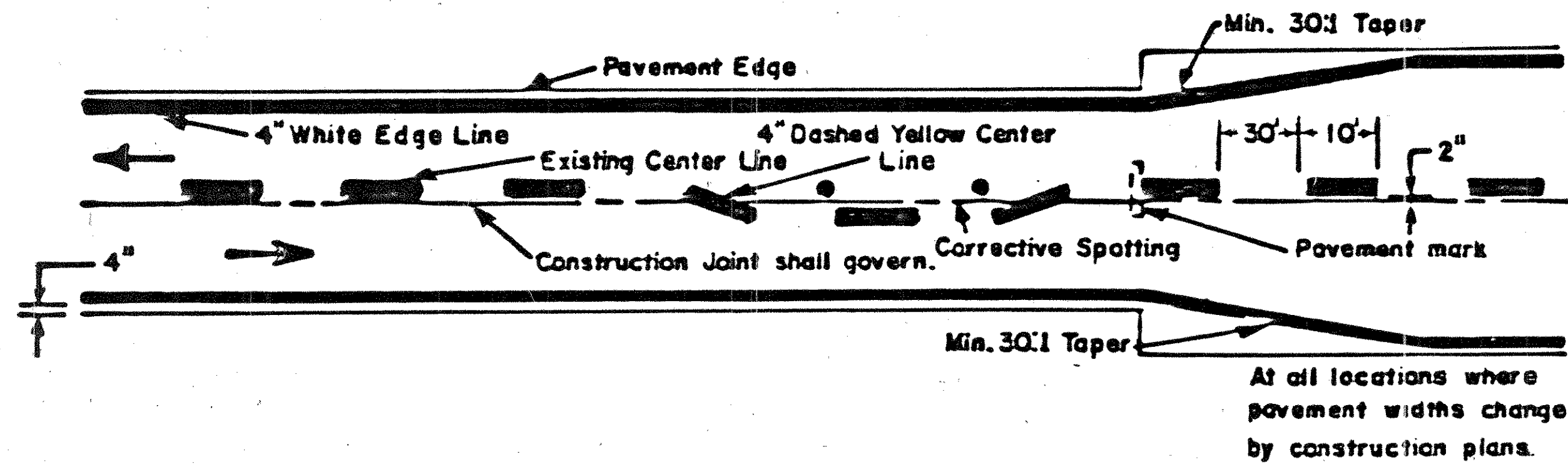
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DATE: 1-25-88

MUS-70(0.76)-(1.43)
LIC-70-28.93

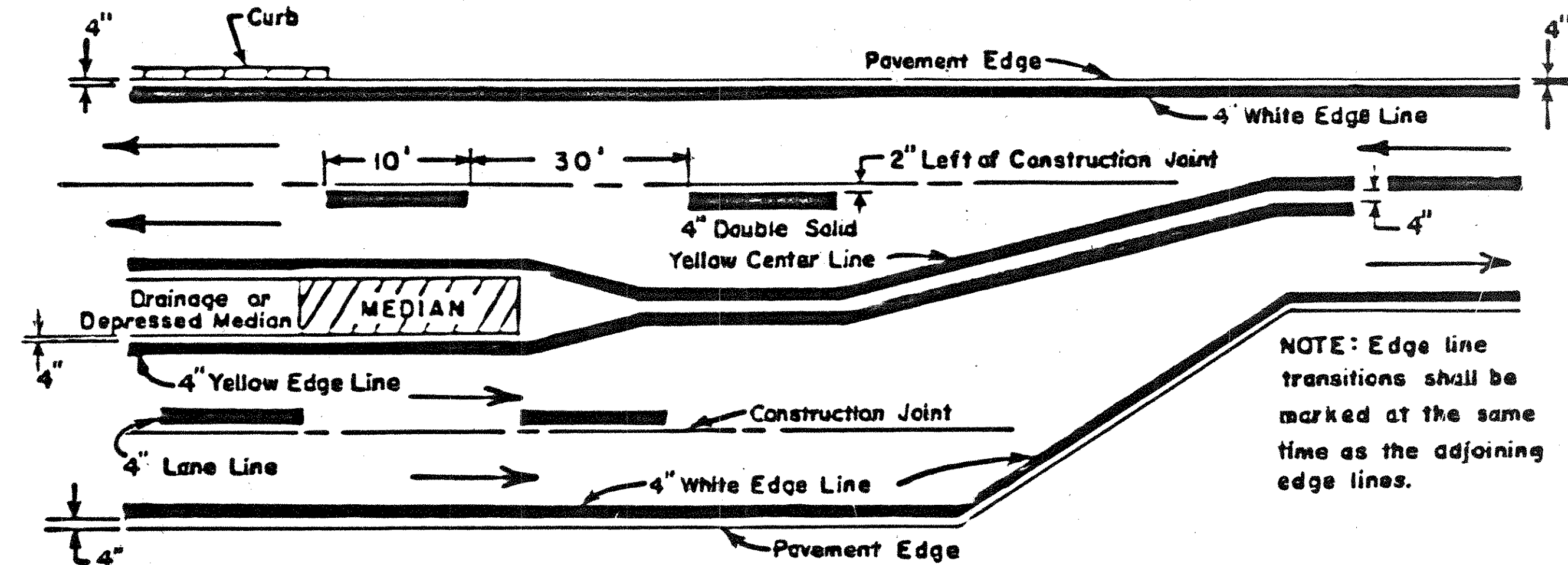
FREEWAY & EXPRESSWAY MAINLINE MARKINGS



TWO LANE MARKINGS



MULTILANE DIVIDED & UNDIVIDED HIGHWAY MARKINGS



NOTES:

1. THE DISTANCE FROM THE PAVEMENT EDGE TO THE NEAR SIDE EDGE OF THE EDGELINE MAY BE INCREASED WITH THE APPROVAL OF THE ENGINEER IN ORDER TO MAINTAIN UNIFORM LANE WIDTH.
2. SEE TC 72.20 FOR PAVEMENT ENTRANCE AND EXIT RAMP TERMINALS.

OHIO DEPARTMENT OF TRANSPORTATION	
PAVEMENT MARKING TYPICAL DETAILS	DATE 11/80
JDL - CDR	

12/81