OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

5001 (88)

(1/48)

PART	COUNTY	ROUTE	SECTIONS	PROJECT TERMINII BEGIN	PROJECT TERMINII END	NET LENGTH MILES	TOWNSHIP	CITY	VILLAGE
1	LOR	162	(6.19) 6.28	6.19	8.79	2.60			
2	MED	162	(0.00 - 1.45) (2.97 - 5.12)	0.00	12.54	11.51			
3	MED	162	(1.97) (2.56 - 2.74)	1.97	2.97	0.54			Spencer

PLAN NO. 36

LOR-162 (6.19)
MED-162 (0.00)

The Standard 1987 Specifications of the State of Ohio, Department of Transportation, including changes and Supplemental Specifications listed in the plans and proposal shall govern these improvements.

I hereby approve these plans and declare that the making of these improvements will require the closing of the highways to traffic on Parts No. 1, 2 & 3 and that detours will be provided by State forces. The closing to traffic of the highways will not be required on Parts No. _____ and provisions for the maintenance and safety of traffic will be as indicated in the proposal.

Approved Date 7/14/87 — Gary R. Cox, District Deputy Director of Transportation

JEM Approved Date 7-29-87 — Walter J. Jestings, Engineer of Bridges

Approved Date _____ — Engineer of Maintenance

Approved Date 1-13-88 — James R. Longeneker, Deputy Director, Operations

Approved Date _____ — Assistant Deputy Director, Program Development

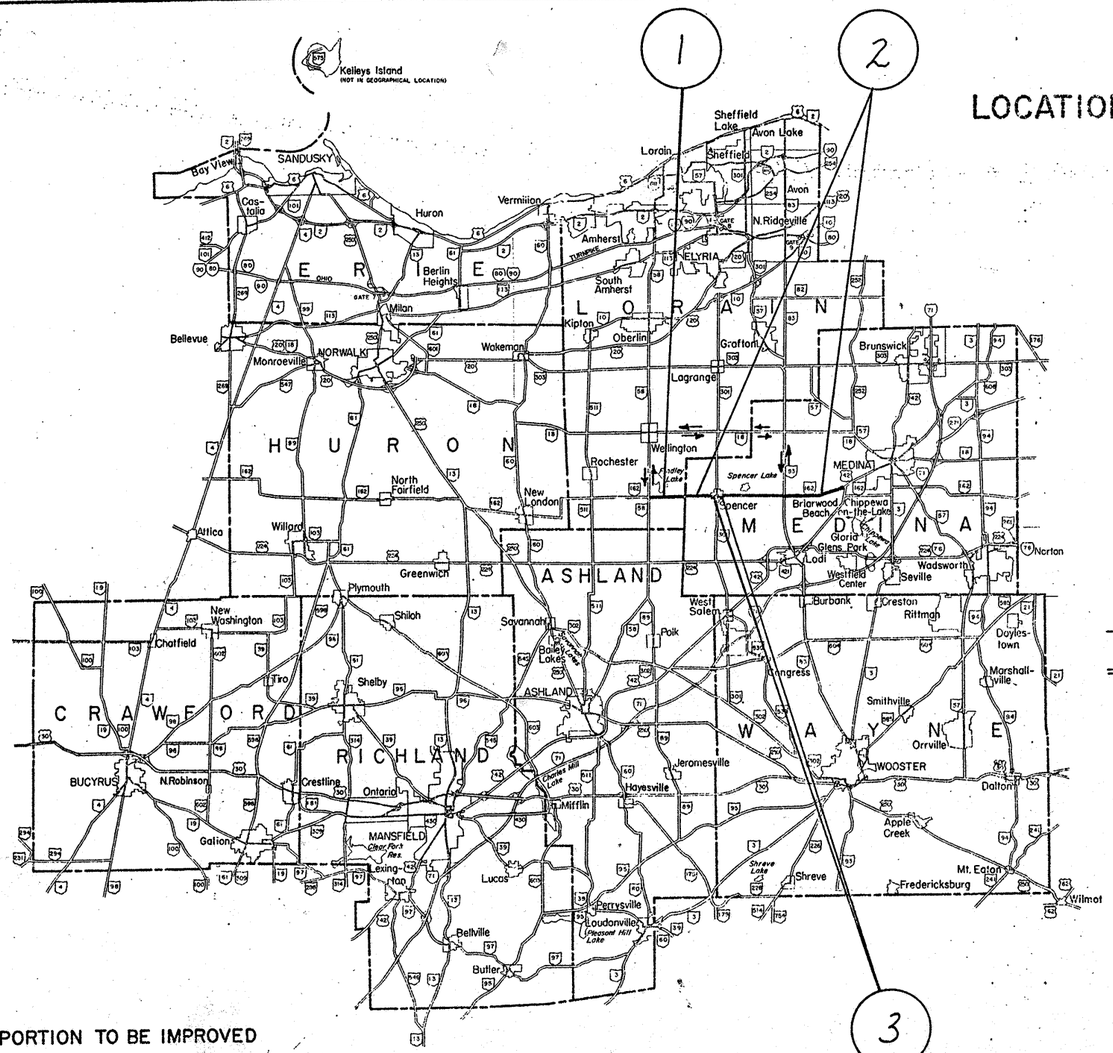
Approved Date _____ — Chief Engineer, Construction

Approved Date _____ — Chief Engineer, Design

Approved Date _____ — Assistant Director, Department of Transportation

Approved Date 1-14-88 — Bernard B. Hurst, Director, Department of Transportation

LOCATION MAP



DETOUR

PORTION TO BE IMPROVED

* MC-9A 01-11-85

* STANDARD DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
BP-5	01-11-85	SS-847	10-17-83
GR-1	01-11-85	SS-947	10-19-83
GR-2B	02-05-82	SS-824	10-08-82
GR-3	01-21-85	SS-845	02-25-86
GR-4	02-05-82	SS-953	08-21-80
GR-4A	01-30-84		
TC-71.10	04-09-79		
MT-99.10	11-14-86		
MT-99.20	11-14-86		
DBR-2-73	04-10-73		

DEPARTMENT OF TRANSPORTATION
GR-001 8-16-85

QUANTITIES			
Calc.		Chk'd.	
Date		Date	

FHWA REGION	STATE	PROJECT	
5	OHIO		

2/48

PLAN NO. 136

GENERAL SUMMARY

				QUANTITIES FROM SHEET NO.	PART 1	PART 2	PART 3 SPENCER	GRAND TOTAL PARTS 1-3	UNIT	ITEM	DESCRIPTION
				44	66	267		333	EACH	202	RAISED PAVEMENT MARKERS REMOVED FOR STORAGE
				8		36		36	LIN.FT.	202	BRIDGE RAIL REMOVED
				16,25	80	30		110	LIN.FT.	SPECIAL	CONCRETE BRIDGE RAIL REMOVED, AS PER PLAN
				8,16,25,37	700	1887.50		2587.50	LIN.FT.	202	GUARDRAIL REMOVED
				37		60		60	SQ.YD.	202	PAVEMENT REMOVED
				41		LUMP		LUMP	LUMP	202	PORTIONS OF STRUCTURE REMOVED, SUPERSTRUCTURE, AS PER PLAN
				41		12		12	CU.YD.	202	PORTIONS OF STRUCTURE REMOVED, ABUTMENT, AS PER PLAN
				23,24		115		115	SQ.YD.	202	PORTIONS OF STRUCTURE REMOVED, DECK EDGE, AS PER PLAN
				37		63		63	CU.YD.	203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
				8,16,25,37	850	279		1129	CU.YD.	203	EMBANKMENT, AS PER PLAN
				5,6,22	275	1230	57	1562	STA.	203	LINEAR GRADING
				5,6	572	2532	119	3223	CU.YD.	301	BITUMINOUS AGGREGATE BASE, AC-20
				4,5,6,22	1658	8054	378	10090	CU.YD.	402	ASPHALT CONCRETE, AC-20
				4,5,6	927	4444	216	5607	CU.YD.	404	ASPHALT CONCRETE AC-20, AS PER PLAN
				4	2240	10640	520	13400	GALLON	407	TACK COAT, AS PER PLAN
				9	50	100		150	CU.YD.	SPECIAL	PAVEMENT REPAIR
				4,11	1113	4727	100	5940	SQ.YD.	SPECIAL	PAVEMENT PLANING, BITUMINOUS, WITHOUT HEATING
				4	13000	57500	2700	73200	POUND	SPECIAL	CRACK SEALING, HOT APPLIED, E705.04
				41		21		21	CU.YD.	503	UNCLASSIFIED EXCAVATION
				15	1653			1653	POUND	509	REINFORCING STEEL
				15,41	96	88		184	EACH	510	DOWEL HOLES
				15,23,24	17	51		66	CU.YD.	511	CLASS "S" CONCRETE, SUPERSTRUCTURE
				41		10		10	CU.YD.	511	CLASS "S" CONCRETE, ABUTMENT, AS PER PLAN
				41		24		24	CU.YD.	511	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN
				11		72		72	LIN.FT.	516	VERTICAL EXTENSION OF STRUCTURE EXPANSION JOINTS, AS PER PLAN
				11		42		42	EACH	SPECIAL	KEYWAY DRAIN
				11		120		120	LIN.FT.	SPECIAL	STEEL DRIP STRIP REMOVED
				41		9		9	SQ.YD.	SPECIAL	SEALING CONCRETE SURFACES (EPOXY)
				16,25,41	137.50	462.50		600	LIN.FT.	517	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP, TYPE 2 STEEL POSTS AND BOLTS), AS PER PLAN.
				25		300		300	LIN.FT.	517	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP, TYPE 2 STEEL POSTS)
				41		11		11	CU.YD.	518	POROUS BACKFILL, AS PER PLAN
				11		40		40	SQ.FT.	519	PATCHING CONCRETE STRUCTURES, AS PER PLAN
				4		5		5	EACH	604	MONUMENT BOXES ADJUSTED TO GRADE
				8,25		100		100	LIN.FT.	517	GUARDRAIL WITH STEEL TUBULAR BACKUP, AS PER PLAN
				8,16,25,37	8	30		38	EACH	606	BRIDGE TERMINAL ASSEMBLY, STANDARD TYPE B
				8,25		100		100	LIN. FT.	517	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND STEEL POSTS), AS PER PLAN

DEPARTMENT OF TRANSPORTATION
GR-001 8-16-85

QUANTITIES			
Calc.		Chk'd.	
Date		Date	

FHWA REGION	STATE	PROJECT	
5	OHIO		

3
48

PLAN NO.
136

GENERAL SUMMARY

				QUANTITIES FROM SHEET NO.	PART 1	PART 2	PART 3 SPENCER	GRAND TOTAL PARTS 1-3	UNIT	ITEM	DESCRIPTION
				8,16,25,37	750	2875		3625	LIN.FT.	606	GUARDRAIL, TYPE 5
				8,16,25,37	8	28		36	EACH	606	ANCHOR ASSEMBLY, STANDARD TYPE "A"
				8,25		6		6	EACH	606	ANCHOR ASSEMBLY, STANDARD TYPE "T"
				8,16,25	991	3294		4285	LIN.FT.	SPECIAL	BERM RESHAPING BERMS
				37		108		108	SQ.YD.	611	REINFORCED CONCRETE APPROACH SLAB (T=12")
					LUMP	LUMP	LUMP	LUMP	LUMP	614	MAINTAINING TRAFFIC
				44,45	5.20	23.02	1.08	29.30	MILE	614	TEMPORARY CENTER LINES, CLASS II
				35,36		0.24		0.24	MILE	614	TEMPORARY CENTER LINES, SOLID DOUBLE, CLASS I
				35,36		80		80	LIN.FT.	614	TEMPORARY STOP LINES, CLASS I, 947.03, TYPE C
					10	26		36	EACH	614	WORK ZONE MARKING SIGNS
				34		1744		1744	EACH	614	TEMORARY RAISED PAVEMENT MARKERS, TYPE A
				5,6	6101	20258	1267	27626	SQ.YD.	617	SHOULDER PREPARATION
				5,6	508	1688	106	2302	CU.YD.	617	COMPACTED AGGREGATE, TYPE A
				5,6	12	41	3	56	M.GAL.	617	WATER
					LUMP	LUMP	LUMP	LUMP	LUMP	619	FIELD OFFICE
				44,45	2.60	11.51	0.54	14.65	MILE	621	CENTER LINES
				44,45	5.20	23.02	1.08	29.30	MILE	621	EDGE LINES
				35		930		930	LIN.FT.	622	TEMPORARY CONCRETE BARRIER, MODIFIED, AS PER PLAN
					LUMP	LUMP	LUMP	LUMP	LUMP	624	MOBILIZATION
				37		1308		1308	SQ.YD.	659	SEEDING AND MULCHING
				37		0.12		0.12	TON	659	COMMERCIAL FERTILIZER
				37		3		3	M.GAL.	659	WATER
				23,24,41		15187		15187	POUND	824	EPOXY COATED REINFORCING STEEL, EPOXY COATED
				41		6622		6622	POUND	824	EPOXY COATED REINFORCING STEEL, GRADE 60
				11		1406		1406	SQ.YD.	845	LATEX MODIFIED CONCRETE OVERLAY, (1 1/4" THICK), AS PER PLAN
				11		56		56	CU.YD.	845	LATEX MODIFIED CONCRETE OVERLAY, VARIABLE THICKNESS, AS PER PLAN
				11		4		4	CU.YD.	845	LATEX MODIFIED CONCRETE, FULL DEPTH REPAIR
				44	50	144		194	LIN.FT.	847	STOP LINES, 947.03, TYPE A1, INLAID
				44	1	1		2	EACH	847	RAILROAD SYMBOL MARKINGS, 947.03, TYPE A1, INLAID
				41		50		50	LIN. FT.	517	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP TYPE 2 STEEL POSTS AND BOLTS)

DEPARTMENT OF TRANSPORTATION
M&R707 REV. 9-1-83

STR-LOR-162 - 0667
0693

ASPHALT CONCRETE

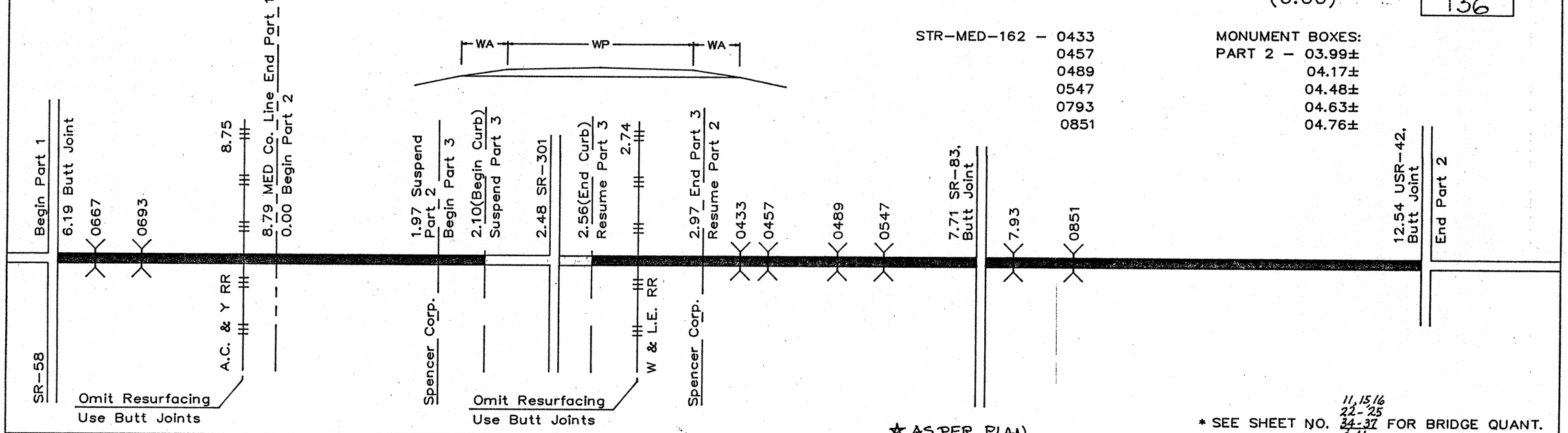
FHWA REGION	STATE	PROJECT	
5	OHIO		

4/48

LOR/MED - 162(6.19)/(0.00)

PLAN NO. 136

TYPICAL 1



STR-MED-162 - 0433
0457
0489
0547
0793
0851

MONUMENT BOXES:
PART 2 - 03.99±
04.17±
04.48±
04.63±
04.76±

★ AS PER PLAN

* SEE SHEET NO. 11, 15, 16, 22-25, 34-37 & 41 FOR BRIDGE QUANT.

PAVEMENT DATA

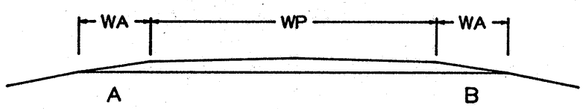
PART	ROUTE	LOG POINT TO LOG POINT	LENGTH MILES	LENGTH LIN. FT.	WP FEET	TYPICAL	EXISTING TYPE PAVEMENT	PAVEMENT AREA SQ. YDS.	PROPOSED PAVEMENT * ★ 407 TACK COAT @ 0.08 gal./s.y. GALS.		ASPHALT CONCRETE ITEM 402 AVE. THICK INCHES	ITEM 402 CU.YDS.	ITEM 404 THICK INCHES AVE.	ITEM 404 CU.YDS.	ITEM _____ THICK INCHES	ITEM _____ CU.YDS.	SPECIAL PAVEMENT PLANING, BITUM., WITHOUT HEATING SQ. YD.	604 MONUMENT BOXES ADJUSTED TO GRADE EACH	SPECIAL CRACK SEALING, HOT APPLIED, 705.04 LB.			
1	162	6.19 - 8.79	2.60	13728	18	1	404	27456														
							EA FOR INTER. AND DRIVES	544														
		TOTAL PART 1	2.60	13728				28000	2240		1 3/4"	1361	1"	778			200		13000			
2	162	0.00 - 1.97	1.97	10402	18	1		20804														
		2.97 - 5.09B	2.12	11194	20	1		24876														
		5.12A - 7.71	2.59	13675	18	1		27350														
		7.71 - 12.54	4.83	25502	20AV.	1		56671														
							EA FOR INTER. AND DRIVES	3299														
		TOTAL PART 2	11.51	60773				133000	10640		1 3/4"	6465	1"	3694			1000	5	57500			
3	162	1.97 - 2.10	0.13	686	18	1		1372														
		2.56 - 2.97	0.41	2165	20	1		4811														
							EA FOR INTER. AND DRIVES	317														
		TOTAL PART 3	0.54	2851				6500	520		1 3/4"	316	1"	181			100		2700			

DOT 1920

DEPARTMENT OF TRANSPORTATION
M & R 684 REV.9-1-79

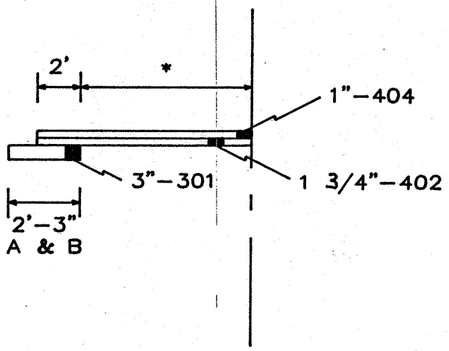
PAVED SHOULDERS

TYPICAL 1



TYPICAL 2 Sym.

* See Line Sheets For Existing Widths And Quantities



7.301 To Be Completed Prior To Placing 402 Leveling Course.

QUANTITIES			
Calc.		Chk'd.	
Date		Date	

FHWA REGION	STATE	PROJECT	
5	OHIO		

5
48

LOR/MED – 162(6.19)
(0.00)

PLAN NO. 136

* NOTES

1. ITEM 203 LINEAR GRADING:
This work shall consist of preparing a subgrade for the shoulder paving by excavating the existing shoulder material to the depth shown on the plan,or as directed by the Engineer to remove any unstable material and by shaping and compacting the subgrade. The unsound or broken edge of bituminous pavements shall first be trimmed to a line established by the Engineer. The existing shoulder then shall be excavated and the subgrade shaped and compacted. Compaction shall be carried out to the satisfaction of the Engineer by means of trench roller, 401.11. Areas graded in excess of depths specified or directed by the Engineer shall be backfilled to desired grade using 617 Compacted Aggregate at the Contractor's expense. Excavation material shall be diposed of as indicated in the plan.
   - ☒ a. Used to back up shoulders where required; the balance to be disposed as directed by the Engineer.
   - ☐ b. Disposed of by the Contractor at his own responsibility outside the limits of the right of way.
   - ☐ c. Wasted adjacent to the pavement and within the right of way as directed by the Engineer.
2. ITEM 402 ASPHALT CONCRETE:
Prior to placing a bituminous mixture for shoulder paving, the edge of the existing pavement, for the full depth of the trench, shall be coated with bituminous material in accordance with 401.12.
3. ITEM 301 BITUMINOUS AGGREGATE BASE
May be used in lieu of Item 402 Asphalt Concrete.
4. ITEM 617 COMPACTED AGGRGATE:
A quantity of Item 617 Compacted Aggregate has been provided for areas where the shoulders were low prior to grading and/or low areas caused by removal of unsuitable material.
5. ITEM 408 BITUMINOUS PRIME COAT:
After application of the Prime Coat, no further treatment shall be performed until so directed by the Engineer.
6. SHIELD: The Contractor shall provide a shield to prevent the spraying or drifting of liquid bituminous material onto the edge of the pavement or edge–lines. The attention of the Contractor is directed to 107.12 of the Specifications.

PAVED SHOULDER DATA

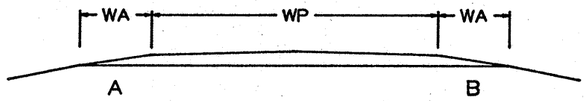
PART	ROUTE	LOG POINT TO LOG POINT	LENGTH MILES	LENGTH LIN.FT.	TYPICAL	PROPOSED WIDTH (FT.) A	B	C	D	SHOULDER AREA SQ.YDS.	203 LINEAR GRADING DEPTH INCHES 2" AVG.	203 LINEAR GRADING **STA.	402 ASPHALT CONCRETE AVG. THICK INCHES	402 ASPHALT CONCRETE CU.YDS.	301 BITUMINOUS AGGREGATE BASE AVG. THICK INCHES	301 BITUMINOUS AGGREGATE BASE CU.YDS.	408 PRIME Bit. Matl. @..... gal./s.y. GALS.	409 SEAL Bit. Matl. @..... gal./s.y. GALS.	409 SEAL Aggr. @..... c.y./s.y. CU.YDS.	617 COMPACTED AGGREGATE TYPE A 3" AVER. THICKNESS CU.YDS.	617 SHOULDER PREPARATION SQ.YDS.	617 WATER 2 gal/sq.yd. M, GALS.	COVER AGGREGATE @ 7 lbs./s.y. TON	404 ASPHALT CONCRETE 1" AVER. THICKNESS CU.YDS.	* NOTES
1	162	6.19 – 8.79	2.60	13728	2	2	2			6101			1 3/4"	297											169	
					2	2.25	2.25			(6864)		275			3"	572										1,7
					1	2	2			(6101)										508	6101				
		TOTAL PART 1	2.60	13728						6101		275		297		572				508	6101	12		169	
2	162	0.00 – 1.97	1.97	10402																					
		2.97 – 5.09B	2.12	11194																					
		5.12A – 12.54	7.42	39178																					
				60774	2	2	2			27011			1 3/4"	1313										750	
					2	2.25	2.25			(30387)		1215			3"	2532									1,7
					1	1.5	1.5			(20258)										1688	20258				
		TOTAL PART 2	11.51	60774						27011		1215		1313		2532				1688	20258	41		750	

BLR

DEPARTMENT OF TRANSPORTATION
M & R 684 REV.9-1-79

PAVED SHOULDERS

TYPICAL 1



QUANTITIES			
Calc.		Chk'd.	
Date		Date	

FHWA REGION	STATE	PROJECT	
5	OHIO		

6/48

LOR/MED – 162(6.19)
(0.00)

PLAN NO. 136

* NOTES

1. ITEM 203 LINEAR GRADING:
This work shall consist of preparing a subgrade for the shoulder paving by excavating the existing shoulder material to the depth shown on the plan,or as directed by the Engineer to remove any unstable material and by shaping and compacting the subgrade. The unsound or broken edge of bituminous pavements shall first be trimmed to a line established by the Engineer. The existing shoulder then shall be excavated and the subgrade shaped and compacted. Compaction shall be carried out to the satisfaction of the Engineer by means of trench roller, 401.11. Areas graded in excess of depths specified or directed by the Engineer shall be backfilled to desired grade using 617 Compacted Aggregate at the Contractor's expense. Excavation material shall be diposed of as indicated in the plan.
   - ☒ a. Used to back up shoulders where required; the balance to be disposed as directed by the Engineer.
   - ☐ b. Disposed of by the Contractor at his own responsibility outside the limits of the right of way.
   - ☐ c. Wasted adjacent to the pavement and within the right of way as directed by the Engineer.
2. ITEM 402 ASPHALT CONCRETE:
Prior to placing a bituminous mixture for shoulder paving, the edge of the existing pavement, for the full depth of the trench, shall be coated with bituminous material in accordance with 401.12.
3. ITEM 301 BITUMINOUS AGGREGATE BASE
May be used in lieu of Item 402 Asphalt Concrete.
4. ITEM 617 COMPACTED AGGRGATE:
A quantity of Item 617 Compacted Aggregate has been provided for areas where the shoulders were low prior to grading and/or low areas caused by removal of unsuitable material.
5. ITEM 408 BITUMINOUS PRIME COAT:
After application of the Prime Coat, no further treatment shall be performed until so directed by the Engineer.
6. SHIELD: The Contractor shall provide a shield to prevent the spraying or drifting of liquid bituminous material onto the edge of the pavement or edge–lines. The attention of the Contractor is directed to 107.12 of the Specifications.

PAVED SHOULDER DATA

PART	ROUTE	LOG POINT TO LOG POINT	LENGTH MILES	LENGTH LIN.FT.	TYPICAL	PROPOSED WIDTH (FT.) A	B	C	D	SHOULDER AREA SQ.YDS.	203 LINEAR GRADING DEPTH INCHES 2" AVG.	203 LINEAR GRADING **STA.	402 ASPHALT CONCRETE AVG. THICK INCHES	402 ASPHALT CONCRETE CU.YDS.	301 BITUMINOUS AGGREGATE BASE AVG. THICK INCHES 3"	301 BITUMINOUS AGGREGATE BASE CU.YDS.	408 PRIME Bit. Matl. @..... gal./s.y. GALS.	409 SEAL Bit. Matl. @..... gal./s.y. GALS.	409 SEAL Aggr. @..... c.y./s.y. CU.YDS.	617 COMPACTED AGGREGATE TYPE A 3" AVER. THICKNESS CU.YDS.	617 SHOULDER PREPARATION SQ.YDS.	617 WATER @ 2 gal./sq.yd. M. GALS.	COVER AGGREGATE @ 7 lbs./s.y. TON	404 ASPHALT CONCRETE 1" AVER. THICKNESS CU.YDS.	* NOTES
3	162	1.97 – 2.10	0.13	686																					
		2.56 – 2.97	0.41	2165																					
				2851	2	2	2			1267			1 3/4"	62										35	
					2	2.25	2.25			(1426)		57			3"	119									1,7
					1	2	2			(1267)										106	1267				
		TOTAL PART 3	0.54	2851						1267		57		62		119				106	1267	3		35	

SLR

DEPARTMENT OF TRANSPORTATION
M& R 712 REV. 9-1-83

LOR/MED – 162(6.19)/
(0.00)(5.12)

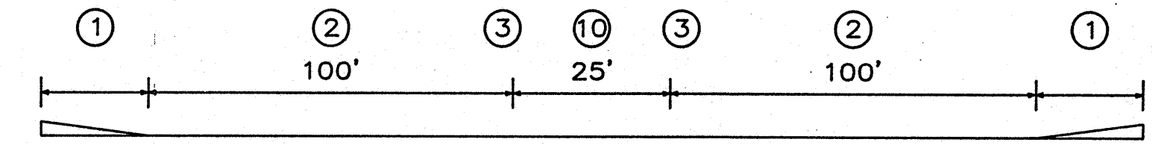
7/48

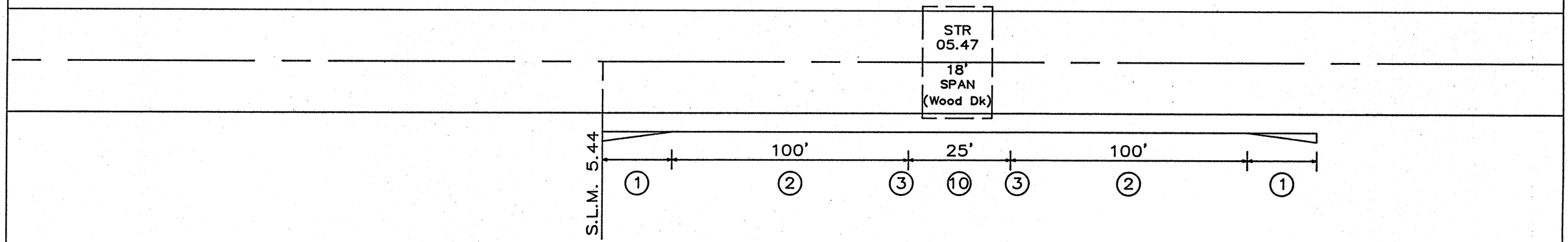
PLAN NO. 136

– GUARDRAIL LEGEND –

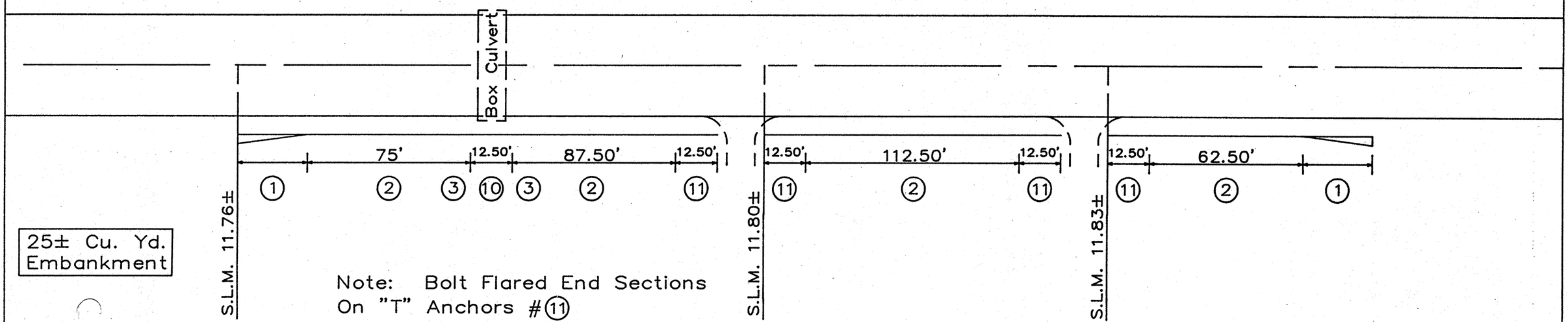
(1) Anchor Assemby, Type "A"
(2) Guardrail, Type 5
(3) Bridge Terminal Assembly, STANDARD TYPE B
(10) Railing (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND STEEL POSTS), AS PER PLAN
(11) Anchor Assembly, Type "T"

25± Cu. Yd. Embankment





See Sheet No. 8 for Summary of Quantities



25± Cu. Yd. Embankment

Note: Bolt Flared End Sections On "T" Anchors #(11)

DOT 1925

DEPARTMENT OF TRANSPORTATION
M&R 703 REV. 9-1-83

LOR/MED – 162(6.19)/(0.00)

FHWA REGION	STATE	PROJECT	
5	OHIO		

PLAN NO. 136

8/48

GUARDRAIL DATA

PART	ROUTE	STARTING LOG POINT	SIDE	ITEM 202 GUARDRAIL REMOVED			ITEM 606 GUARDRAIL					ANCHOR ASSEMBLY			GUARDRAIL CONNECTIONS TO BRIDGES		GUARD POSTS	9' GUARD RAIL POSTS	SPECIAL	202	517	606	606	203
				REMOVED	FOR STORAGE	FOR RE-USE	TYPE	GUARD RAIL	REBUILT	CURVED RAIL ELEMENTS		TYPE T (GR-4A)	SINGLE RAIL (GR-4)	BARRIER RAIL (GR-4)	TYPE				RESHAPING BERMS	BRIDGE RAIL REMOVED	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND STEEL POSTS AS PER PLAN)	BRIDGE TERMINAL ASSEMBLY STANDARD TYPE B	ANCHOR ASSEMBLY TYPE A	EMBANKMENT AS PER PLAN
										LENGTH	RADIUS													
				LIN.FT.	LIN.FT.	LIN.FT.		LIN.FT.	LIN.FT.	LIN.FT.	FT.	EACH	EACH	EACH		EACH	EACH	EACH	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	CU.YD.
2	162	05.44	LT	19.50			5	200											275	18	25	2	2	25
		05.44	RT	19.50			5	200											275	18	25	2	2	
2	162	11.76	RT	112.50			5	162.50				1							225		12.50	2	1	25
		11.80	RT	137.50			5	112.50				2							138					
		11.83	RT	62.50			5	62.50				1							100				1	
TOTAL (To General Summary)				351.50				737.50				4							1013	36	62.50	6	6	50

* NOTES:

1. ITEM 202 GUARDRAIL REMOVED: Guardrail, posts and miscellaneous hardware designated for removal become the property of the contractor and shall be disposed of. Payment for the above shall be included in the unit price bid for Item 202 Guardrail Removed.

2. ITEM 202 GUARDRAIL REMOVED FOR STORAGE: Guardrail, standard terminals, posts and miscellaneous hardware designated for salvage shall be stored _____ as directed by the Engineer for removal by State forces. All material not considered salvageable shall be disposed of by the Contractor as directed. Payment for the above shall be included in the unit price bid for Item 202 Guardrail Removed for Storage.

3. ITEM 202 GUARDRAIL REMOVED FOR RE-USE: Guardrail, posts, standard terminals and miscellaneous hardware designated for re-use shall be removed and stored for re-use as directed by the Engineer. This work will be paid in the unit price bid for Item 202 Guardrail Removed for Re-Use.

4. 9' GUARDRAIL POSTS: An estimated number of nine (9) foot long guardrail posts have been listed to be used as directed by the Engineer to obtain a reasonable line and elevation of the guardrail elements. Except for length, the posts shall meet the applicable requirements noted in Item 710. The unit price bid for this item shall be the difference for supplying the nine (9) foot long posts in lieu of the standard length guardrail posts included in the 606 guardrail bid items, and shall be paid as each, Item 606 9 ft. Guardrail Posts, As Per Plan. Standard length posts required to complete the various runs shall be included in the 606 guardrail bid items.

5. RESHAPING Berms: Berms at locations where existing guardrail is removed or where new guardrail is to be erected shall be reshaped as directed by the Engineer to insure a smooth surface free of all irregularities. Excess excavation shall be disposed of as directed by the Engineer. Payment for reshaping berms as described shall be included in the contract price bid per lineal foot for Item Special, Berm Reshaping.

6. CURVED RAIL ELEMENTS: Length of curved rail elements, where called for in a run, shall not be included in the total length of run shown in the guardrail or guardrail rebuilt columns. However, the curved rail element total shall be included with the guardrail or guardrail rebuilt totals on the general summary sheet.

DOT 1806

GENERAL NOTES

LOR-162(6.19)
MED-162(0.00)

9/48

PLAN NO. 136

ROUTINE MAINTENANCE:

Between the time that bids are taken and the start of construction, the maintaining agency may enter upon the project and perform routine maintenance such as crack sealing, patching, and berm and shoulder repair. The effects, if any, of the performance of routine maintenance shall be considered as inherent in work of the character provided for in the contract and the resulting conditions shall not be considered as differing materially from those existing at the time bids were taken.

INTERSECTIONS:

Rural-Intersections shall be paved to end of radii or as directed by the Engineer to provide a smooth transition between the two highways. Urban-Intersections shall be paved to back of crosswalks or as directed by the Engineer. Drives-Paved drives shall be resurfaced as directed by the Engineer. Care shall be taken to eliminate water pockets in curbed sections.

PAVED BERM AT INTERSECTIONS AND DRIVES:

Pavement and berm quantities are calculated through all intersections and drives. Any portion may be non-performed if so directed by the Engineer.

TACK MATERIAL:

The amount of tack material required to coat the existing pavement edges prior to 301 or 402 operations shall be included in the Unit Price Bid for Item 402, Asphalt Concrete or Item 301, Bituminous Aggregate Base.

ITEM 407, TACK COAT; AS PER PLAN

As per 407.05 the application rate shall be _.08__ gallons per square yard, a complete pavement surface coverage shall be required. Areas of tack stripped by construction equipment or traffic shall be recoated prior to placing asphalt concrete. Cover Aggregate, as required per 407.06, shall be considered incidental and all cost shall be included in the Unit Bid Price for Item 407, Tack Coat, AS PER PLAN.

ITEM 404; ASPHALT CONCRETE, AC-20, AS PER PLAN:

In addition to Item 401.12, the surface of feathered areas shall be uniformly coated with a 6" wide band of A.C. at the junction with the existing pavement, to be included within the cost if Item 404.

Under Item 401.15 (All cold joints on surface courses) shall be sealed by coating the vertical face. The coating of the finished surface with A.C., 6" wide will not be allowed.

PAVEMENT CONTROL:

An automatic screed control having a 30 foot minimum ski-arm shall be used for placing the 402 or 403 Pre-level and 404 course on existing pavement widths of 20 feet and over.

Special attention shall be given to superelevated curves. The superelevation shall be maintained and/or restored, if necessary, as directed by the Engineer.

ITEM SPECIAL, PAVEMENT PLANING, BITUMINOUS WITHOUT HEATING:

Planing is to be performed as directed and in areas designated by the Engineer. Removal of existing pavement surface may be required to eliminate adverse surface distortion which in the judgment of the Engineer cannot be satisfactorily corrected in the paving courses.

These areas may include material displaced by rutting or shoving, asphalt surface patches, concrete patches and transverse bumps at joints or joints with structures, adjoining pavements or railroads, etc.

BUTT JOINTS:

Butt joints shall not be cut and left open to traffic for a time period longer than three (3) days. If cut is not paved within three (3) days, it shall be filled in with a temporary asphalt concrete wedge, of sufficient length as directed by the Engineer.

Construction "Bump" signs (OW-62 and OW-143) shall be erected and maintained during the period that the cut for the butt joint is left open.

TRENCH FOR PAVED BERM:

Trench excavation for paved berm shall be performed only on one side of the pavement at a time. The open trench shall be adequately maintained and protected at all times with drums or barricades, with Type "C" steady burn lights attached after working hours.

Placement of proposed base material shall follow as closely as possible behind the excavation. The length of Paved Berm trench which is open at any one time shall be held to a minimum and shall at all times be subject to approval by the Engineer.

ITEM SPECIAL, PAVEMENT REPAIR:

This item of work shall consist of the removal of the existing pavement or paved berm which may be asphalt, brick, concrete or a combination of each, in areas exhibiting severe pavement failure.

The Engineer shall designate the locations and limits of the areas to be repaired. The repair areas shall be roughly rectangular in shape and cut or sawed to a neat line. The pavement shall be removed within the designated areas by methods which will not damage the adjacent pavement. The depth of removal, as directed by the Engineer, shall be sufficient to remove all deteriorated pavement (estimated depth may vary from 2" to maximum 12".) The materials so removed shall be disposed of in accordance with 203.05.

Replacement material shall be 402 or 301 material and shall be placed and compacted to finish flush with the adjacent pavement surface. The repair areas shall be painted with bituminous material (sides and bottom.) All compaction shall be achieved by mechanical methods to satisfaction of the Engineer, maximum lift thickness (3".)

Payment shall include all labor, equipment and materials necessary to complete the pavement repair. The following estimated quantity is provided in the Summary to be used as directed by the Engineer. Payment will be made at contract price per cubic yard, by ticket weight conversion, Item Special, Pavement Repair. 150 Cu. Yds.

GENERAL NOTES

LOR-162(6.19)
MED-162(0.00)

10/48

PLAN NO. 136

ITEM 202, RAISED PAVEMENT MARKERS REMOVED FOR STORAGE:

Raised pavement markers shall be removed in a manner that prevents damage to the castings. All depressions caused by removal of the markers shall be filled with compacted 404 to the level of existing road surface at the time they are removed. Removed markers are to be stored on the Right-of-Way within the project limits by the Contractor, as directed by the Engineer. All costs to be included in the contract price bid for Item 202 - Raised Pavement Markers Removed for Storage, As Per Plan.

UNDERGROUND UTILITIES:

Extreme caution should be exercised in areas with underground water lines, drains, cables, sewers or other utilities.

The Contractor is fully responsible for all damage inflicted on underground utilities in the placement of guardrail.

SEEDING OF DISTURBED AREAS:

All disturbed areas shall be fertilized, seeded, and mulched as per 659. The cost of this seeding work shall be included for payment in the respective 203 and 606 Plan Pay Items at each work site.

ITEM 203, EMBANKMENT, AS PER PLAN:

Embankment quantity has been provided in the plans to fill in the washouts of the bridge corners and areas for guardrail installation.

Areas where embankment materials are to be placed shall be scalped. The requirements for moisture, density control and benching shall be waived. The depth of layers in which the embankments are to be placed and their compaction shall, in lieu of the requirements of Item 203, conform to acceptable construction practices as determined by the Engineer. The method of measurement for embankment material furnished and placed shall be the number of cubic yards measured by loose volume in the carrier at the work site, in lieu of the requirements of 203.15. The amount of the earthwork required at each location shall be as directed by the Engineer.

Payment for all of the above shall be at the Unit Price Bid per cubic yard for Item 203, Embankment, as per plan, which shall include all labor, materials, and incidentals necessary to complete the above work.

GUARDRAIL PLACEMENT:

No hazard shall be left unprotected except for the actual time necessary to remove, grade, and reinstall guardrail in a continuous operation. The removal of all guardrail shall at all times be as directed by the Engineer. No guardrail shall be removed until the replacement material is on the site, ready for installation. Failure to comply with this requirement shall be deemed sufficient cause to order work suspended on this project until such time that the Engineer is assured of said compliance.

ITEM 604, CASTINGS ADJUSTED TO GRADE:

Any unit of this item may be nonperformed if so directed by the Engineer and the surface shall be feathered to meet the existing casting or inlet in a manner acceptable to the Engineer. All adjusting rings shall have the Engineer's prior approval before using.

Under Item 604.03, Adjustment to Grade, paragraph (a), the casting to be adjusted may or may not have an existing frame. The work shall consist of adjusting the existing casting or grate to the satisfaction of the Engineer. The Contractor is reminded to field check all adjustment to grade items prior to bidding, as no additional compensation will be granted for labor and material required to satisfactorily adjust castings without frames.

DEPARTMENT OF TRANSPORTATION
M&R 679 REV.9-1-79

BRIDGE DECK TREATMENT

QUANTITIES			
Calc.		Chk'd.	
Date		Date	

FHWA REGION	STATE	PROJECT	
5	OHIO		

11/48

PLAN NO. 136

BRIDGE DECK DATA

PART	COUNTY, ROUTE, BRIDGE NO.	LENGTH (BRIDGE LIMITS) LIN.FT.	WIDTH LIN.FT.	BRIDGE DECK AREA SQ.YDS.	EXISTING WEARING SURFACE SQ.YDS.	BRIDGE DECK REPAIR ☒ SS-845 LATEX MODIFIED CONCRETE ☐ SS-850 DENSE CONCRETE: 1-1/4" THICK OVERLAY, AS PER PLAN SQ.YDS.	BRIDGE DECK REPAIR: VARIABLE THICKNESS OVERLAY, AS PER PLAN CU.YDS.	BRIDGE DECK REPAIR: FULL-DEPTH REPAIR CU.YDS.	519 PATCHING CONCRETE STRUCTURES, AS PER PLAN SQ. FT.	SPECIAL: STEEL DRIP STRIP REMOVED LIN.FT.	SPECIAL: KEYWAY DRAIN EACH	DATE	% INCREASE OF ESTIMATED VARIABLE QUANTITY	516 VERT. EXT. OF STR. EXP. JOINTS AS PER PLAN LIN.FT.	ASPHALT CONCRETE: THICK INS.	ASPHALT CONCRETE: 404 CU.YDS.	EXISTING PAVEMENT WIDTH FT.	SPECIAL: PAVEMENT PLANING, BITUMINOUS, WITHOUT HEATING SQ. YD.	
1	LOR-162-0667	22.0	20.5	50	ASPHALT												18	450***	
1	LOR-162-0693	24.0	23.8	63	ASPHALT												18	463***	
	TOTAL PART 1			113														913	
2	MED-162-0433	92.5	36.0	370	CONCRETE	370	12	1	40		14	5-11-87	100%				20	756*	
2	MED-162-0457	126.0	36.0	504	CONCRETE	504	25	1				5-11-87	25%	72			20	756*	
2	MED-162-0489	73.0	36.0	292	CONCRETE	292	10	1			14	5-11-87	100%				20	800*	
2	MED-162-0547	NEW SUPERSTRUCTURE - SEE DETAILS IN PLAN															18		
2	MED-162-0793	60.0	36.0	240	ASPHALT	240	9	1		120	14	5-15-87	50%				20	933**	
2	MED-162-0851	14.5	23.8	38	ASPHALT												20	482***	
	TOTAL PART 2			1444		1406	56	4	40	120	42			72				3727	

* PLANE 100' ON EACH APPROACH

** PLANE 100' ON EACH APPROACH THE SAME TIME THE BRIDGE IS PLANED

*** PLANE A MAXIMUM OF 2" FROM THE BRIDGE FULL WIDTH AND 100' ON EACH APPROACH THE SAME TIME THE BRIDGE IS PLANED. REMOVE ALL DIRT AND LOOSE MATERIAL AND RESURFACE FULL WIDTH.

LOR-162-0667, LOR-162-0693, AND MED-162-0547 SHALL BE DETOURED.
SEE SHEET NO'S 30, 32-35 FOR TRAFFIC CONTROL DETAILS ON MED-162-0433 AND MED-162-0457
SEE SHEET NO'S 31-34, 36 FOR TRAFFIC CONTROL DETAILS ON MED-162-0489 AND MED-162-0793

☆ LOR-162-0667 & LOR-162-0693 SHALL NOT BE DETOURED AT THE SAME TIME

12/48

W10 x 26 Post

℄ Survey

W10 x 26 Post

See Sheet No's 14 & 15 for Section A-A & Section B-B

25'-Item 517

16'-0"

B

B

A

A

28'-0"

25'-0"

50'-Item 517

6'-3"

6'-3"

10' ± Typ.

1' Typ.

6'-3"

6'-3"

W10 x 26 Post

24'-0" F/F Rail

18' Pavement

W10 x 26 Post

PLAN VIEW

W502 Trim if required

1'-6" Wingwall Extension (Typ.)

5-0501 Equally Spaced. Dowel 9" (Typ.)

PROFILE

LOR-162-0667

13/48

W10 x 26 Post

℄ Survey

W10 x 26 Post

12'

12' ± Typ.

See Sheet No. 14 for Section C-C

C

C

C

C

25'-Item 517

18'-0"

37.5'-Item 517

1' Typ.

W10 x 26 Post

28'-0" F/F Rail

W10 x 26 Post

18' Pavement

PLAN VIEW

W503 (Trim if required)

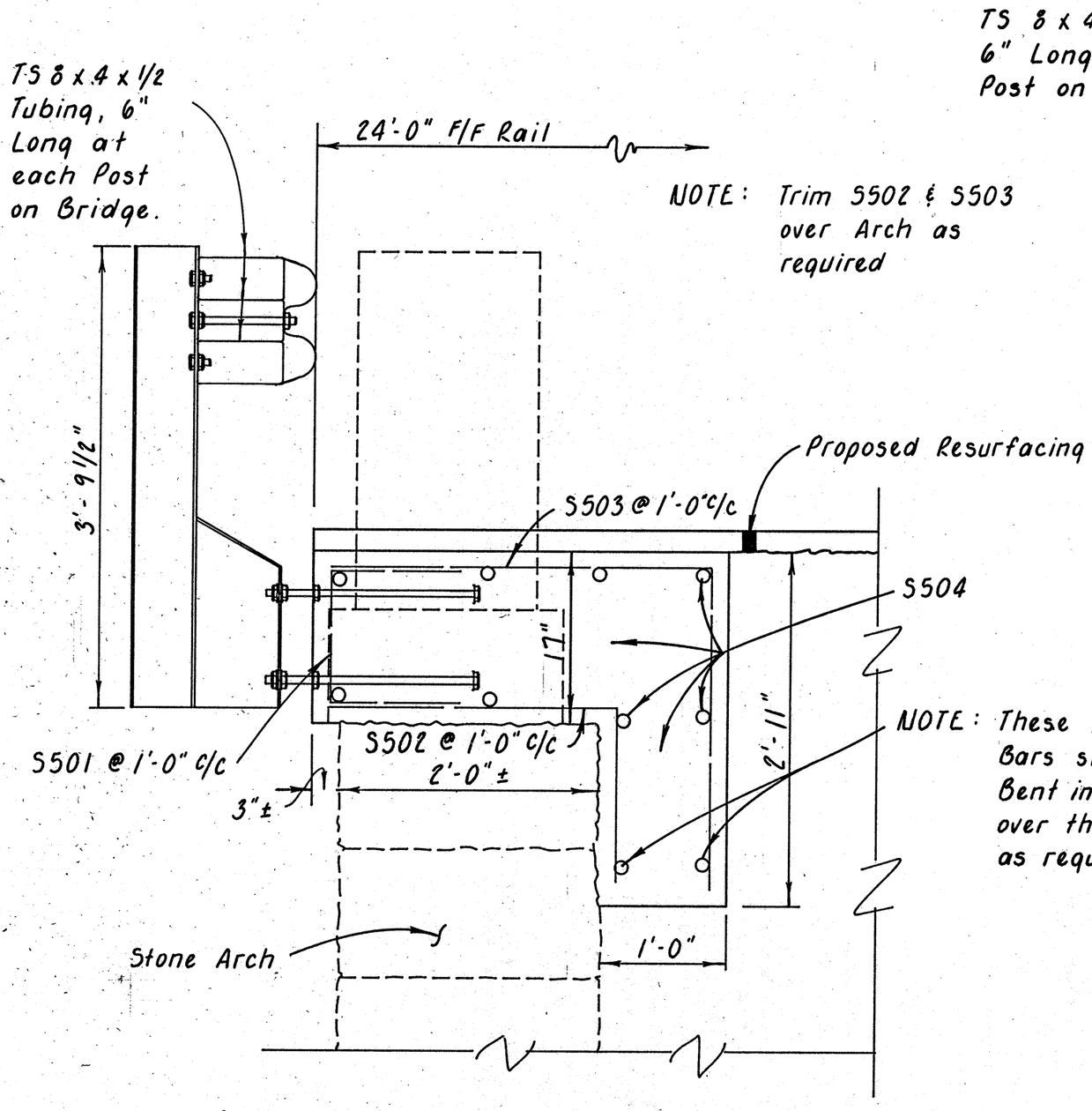
1'-6" Wingwall Extension (Typ.)

6-0501 Equally Spaced Dowel 9" (Typ.)

PROFILE

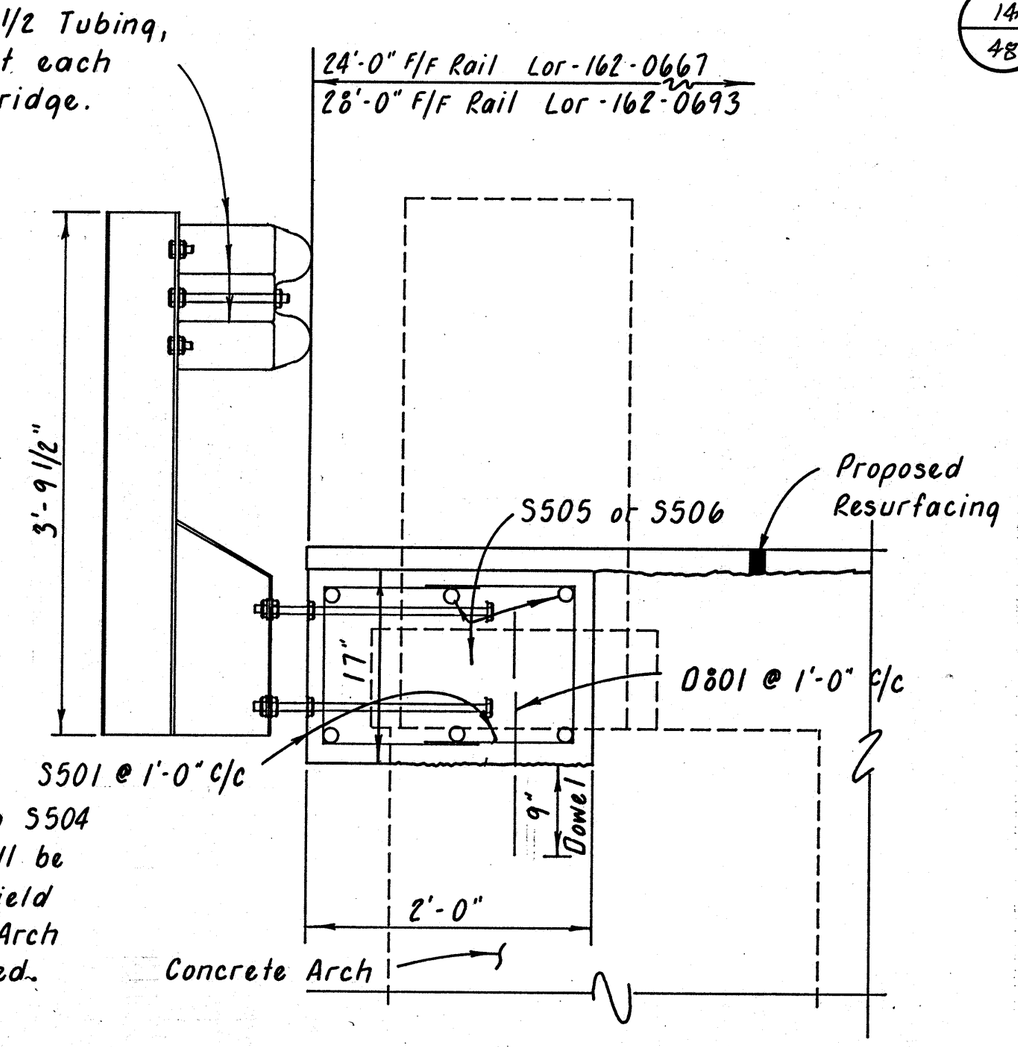
LOR - 162 - 0693

14/48



SECTION A-A

LOR - 162 - 0667



SECTION B-B

LOR - 162 - 0667

SECTION C-C

LOR - 162 - 0693

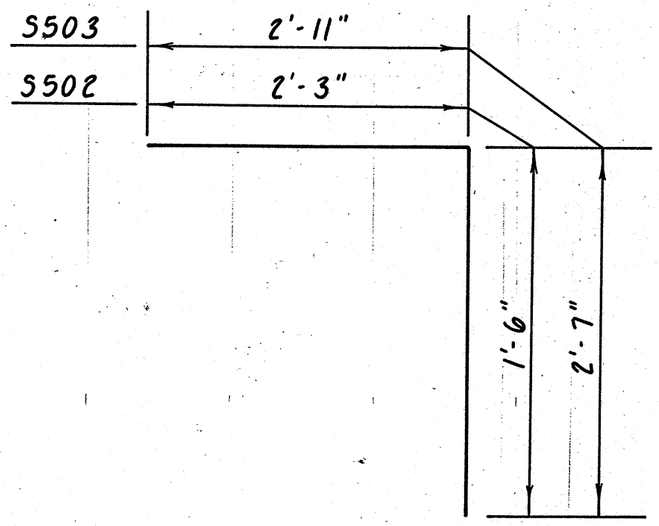
15/48

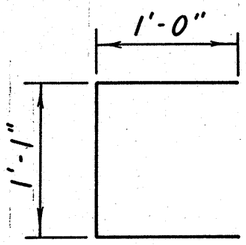
REINFORCING STEEL

MARK	NUMBER OF BARS				TOTAL NO.	LENGTH	SHAPE	WEIGHT
	LOR-162-0667		LOR-162-0693					
	LEFT	RIGHT	LEFT	RIGHT				
S501	32	28	36	36	132	2'-10"	B	390
S502		28			28	2'-8"	B	78
S503		28			28	5'-5"	B	158
S504		10			10	27'-6"	S	287
S505	6				6	15'-6"	S	97
S506			6	6	12	17'-6"	S	219
W502	2	2			4	9'-6"	S	40
W503			2	2	4	11'-9"	S	49
0501	10	10	12	12	44	2'-0"	S	92
0801	16		18	18	52	1'-9"	S	243
							TOTAL	1653 Lb

ESTIMATED QUANTITIES

ITEM	QUANTITY	UNIT	DESCRIPTION
509	1653	Lb.	Reinforcing Steel
510	96	Each	Dowel Holes
511	17	Cu. Yd.	Class S Concrete, Superstructure

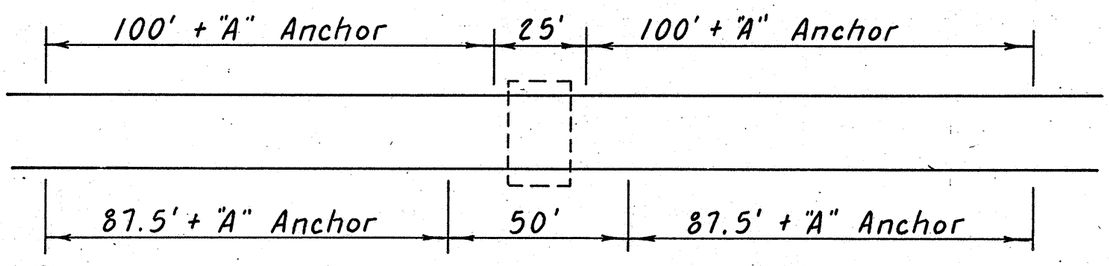




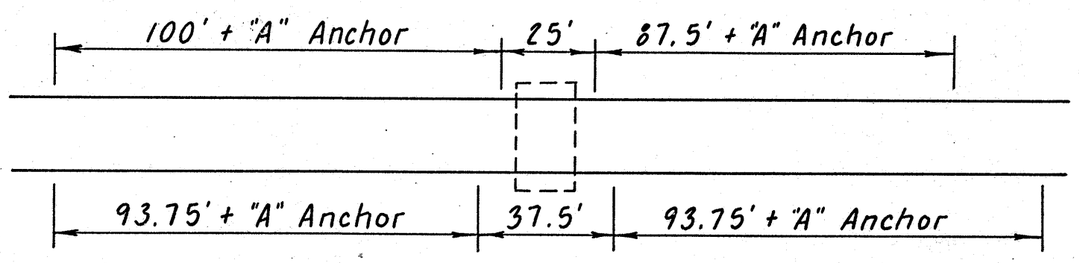
S501

ESTIMATED QUANTITIES

PART	BRIDGE NUMBER	SIDE	[illegible]	202	517	606	606	606	203	Special					
			CONCRETE BRIDGE RAILING REMOVED AS PER PLAN	GUARDRAIL REMOVED,	RAILING, (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP TYPE 2 STEEL POSTS AND BOLTS) AS PER PLAN	BRIDGE TERMINAL ASSEMBLY, STANDARD TYPE B	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, STANDARD TYPE A	Embankment, As Per Plan	[illegible]: Reshaping BERMS					
			LIN. FT.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	EACH	Cu. Yd.	Lin. Ft.					
1	LOR - 162 - 0667	L	16	162.5	25	2	200	2	150	260					
		R	28	162.5	50	2	175	2	150	235					
1	LOR - 162 - 0693	L	18	187.5	25	2	187.5	2	275	248					
		R	18	187.5	37.5	2	187.5	2	275	248					
	Total		80	700	137.5	8	750	8	850	991					

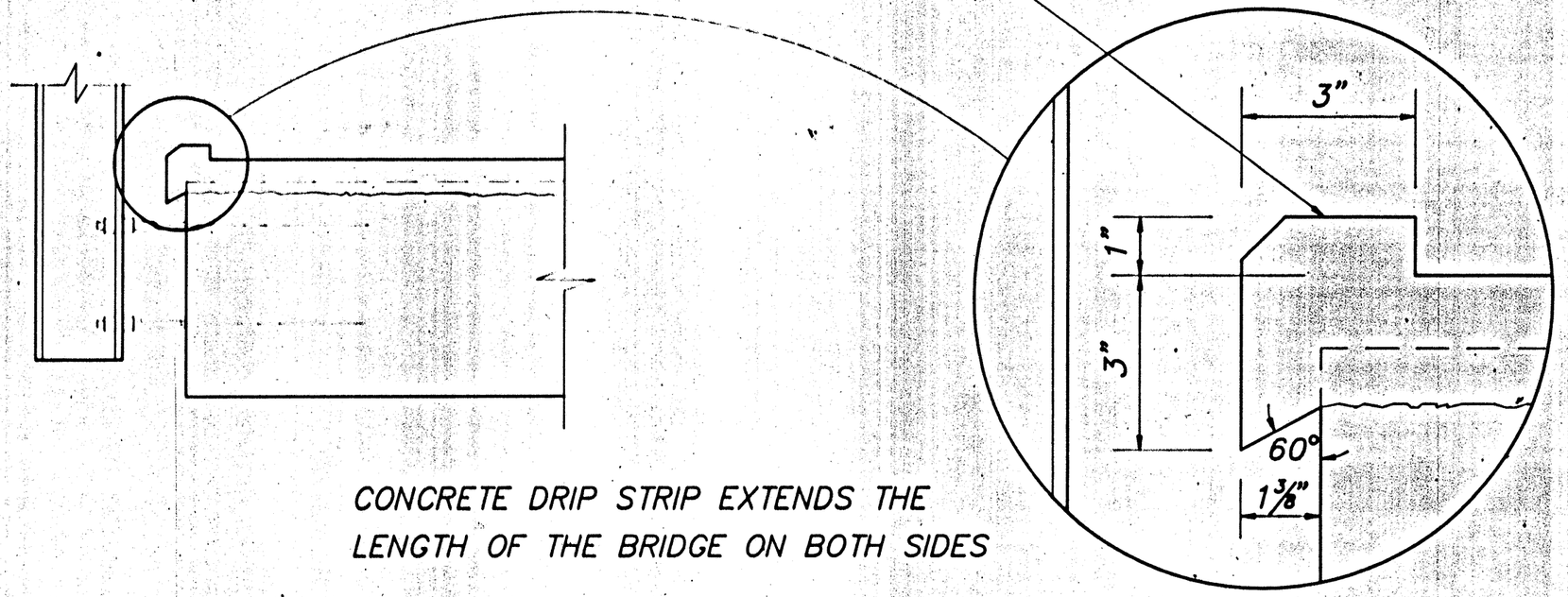


LOR-162-0667 See Sheet No. 12, 14, 15 for Additional Details



LOR-162-0693 See Sheet No. 13-15 for Additional Details

18" LONG CONCRETE HUMP TO BE CENTERED IN FRONT OF EACH GUARDRAIL POST



CONCRETE DRIP STRIP EXTENDS THE LENGTH OF THE BRIDGE ON BOTH SIDES

TYPICAL EDGE DETAIL FOR CONCRETE SLAB BRIDGE

LOR - 162 - 0667 & 0693
MEO - 162 - 0433, 0457, 0489 & 0793

GENERAL NOTES

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 OBSERVATION AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE ARE AVAILABLE UPON REQUEST AT THE DISTRICT 3 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, ASHLAND, OHIO.

CONTRACT BID PRICES SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

WORK LIMITATIONS :

NO CONCRETE DECK OVERLAYS SHALL BE PLACED BEFORE APRIL 15. THE CONTRACTOR SHALL SCHEDULE THE WORK SO THAT ALL DECK OVERLAYS ARE PLACED BEFORE OCTOBER 15. IF FOR SOME UNFORESEEN CIRCUMSTANCES THE DECK OVERLAYS OR PORTIONS OF DECK OVERLAY ARE NOT PLACED BY OCTOBER 15, REGARDLESS OF THE WORK REMAINING, THE FULL DEPTH REPAIRS SHALL BE COMPLETED AS PER 511 AND THE UNFINISHED DECK SHALL BE RESURFACED WITH ITEM 404 ASPHALT CONCRETE AND OPENED TO TRAFFIC. THE CONTRACTOR SHALL PLACE AND MAINTAIN AT HIS EXPENSE THE ASPHALT WEARING SURFACE UNTIL REMOVED AT HIS EXPENSE THE FOLLOWING SPRING WHEN THE DECK OVERLAY CAN BE PLACED AFTER APRIL 15.

TEMPORARY WEDGE

AFTER THE CONCRETE OVERLAY HAS BEEN PLACED AND BEFORE THE BRIDGE IS OPENED TO TRAFFIC A TEMPORARY WEDGE WILL BE INSTALLED TO MAINTAIN TRAFFIC IF THE PERMANENT ASPHALT IS NOT IN PLACE. THE TEMPORARY WEDGE WILL BE 404 ASPHALT CONCRETE BUILT AS PER STANDARD DRAWING BP-5, EXCEPT NO TACK COAT WILL BE REQUIRED. THE TEMPORARY WEDGE WILL BE FEATHERED AT ONE INCH PER TWENTY-FIVE FEET OR AS DIRECTED BY THE ENGINEER. THE TEMPORARY WEDGE WILL BE COMPLETELY REMOVED JUST BEFORE ANY NEW ROADWAY ASPHALT IS INSTALLED AND IN NO CASE SHALL TRAFFIC BE ALLOWED TO CROSS AN END DAM WITHOUT AN APPROVED TEMPORARY WEDGE.
PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "ITEM 614 - MAINTAINING TRAFFIC", WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

PLACING ASPHALT CONCRETE FEATHERING ON APPROACHES TO BRIDGES

SPECIAL CARE SHALLBE TAKEN, WHEN PLACING THE ASPHALT CONCRETE FEATHERING TO EFFECT A SMOOTH TRANSITION FROM THE EXISTING APPROACH PAVEMENT TO THE BRIDGE DECK. THE CONTRACTOR'S ATTENTION IS CALLED TO SECTION 404.16 OF THE CMS AND TO STANDARD DRAWING BP-5 DATED 1-11-85 FOR REQUIRED TOLERANCES.

ITEM 845 LATEX MODIFIED CONCRETE OVERLAY, AS PER PLAN

COARSE AGGREGATE SHALL BE LIMESTONE OR SLAG. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 845 LATEX MODIFIED CONCRETE OVERLAY, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK

ITEM SPECIAL, PAVEMENT PLANING, BITUMINOUS, WITHOUT HEATING

ALL ASPHALT, SEALS, AND WATERPROOFING SHALL BE PLANED FROM THE BRIDGE BEFORE ANY DECK OVERLAY WORK MAY BEGIN. THE CONCRETE DECK SHALL NOT BE SCARIFIED AT THE SAME TIME AS THE ASPHALT IS PLANED. THE ASPHALT ON THE BRIDGE SHALL NOT BE PLANED UNTIL THE CONTRACTOR IS READY TO BEGIN DECK WORK ON THE BRIDGE WITHIN THREE (3) DAYS.

FOR ALL PAVEMENT PLANING REQUIREMENTS SEE GENERAL NOTE ON SHEET NO. //

PAYMENT FOR ALL THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE YARD FOR ITEM SPECIAL, PAVEMENT PLANING BITUMINOUS WITHOUT HEATING. WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL, KEYWAY DRAIN

HOLES SHALL BE DRILLED IN THE ABUTMENT FOR KEYWAY DRAINS AS SHOWN IN DETAIL ON SHEET NO. 28. THE HOLES SHALL BE SPACED AT APPROXIMATELY FIVE (5) FOOT CENTERS AS DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL THE ABOVE SHALL BE AT THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL, KEYWAY DRAIN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

5001-3 REV.

GENERAL NOTES

136 (19/48)

DETOUR LIMITATIONS

THE CONTRACTOR MAY START AUGUST 1, 1988 OR SOONER DEPENDING UPON COMPLETION OF STRUCTURE LOR-18-12.29 LOCATED ON THE DETOUR ROUTE. THE DETOUR LENGTH SHALL BE LIMITED TO 60 DAYS, . FOR EACH ADDITIONAL CALENDER DAY THE DETOUR REMAINS IN EFFECT BEYOND THE ABOVE STATED DETOUR PERIOD, OR ANY OTHER AGREED UPON PERIOD DUE TO CONDITIONS BEYOND THE CONTRACTORS CONTROL, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES AS PER SECTION 108.07.

ITEM 202 PORTIONS OF STRUCTURES REMOVED, DECK EDGE, AS PER PLAN

THIS ITEM OF WORK SHALL BE USED TO REMOVE THE DECK EDGES AS PER DETAILS ON SHEET NO. 33 THE CONCRETE DECK EDGE SHALL BE REMOVED BY A HYDRAULIC SPLITTING METHOD. A LINE OF HOLES SHALL BE DRILLED ALONG THE REMOVAL LINE AND A HYDRAULIC SPLITTER USED AS PER THE MANUFACTURER'S RECOMMENDATIONS. THIRTY-FIVE (35) AND FIFTEEN (15) POUND JACK HAMMERS SHALL BE USED FOR THE FINAL FINISH WORK. A HOE RAM WILL NOT BE PERMITTED TO DO ANY OF THE WORK. CONCRETE SHALL BE REMOVED IN A MANNER THAT PREVENTS CUTTING, ELONGATING, OR DAMAGING OF THE EXISTING REINFORCING STEEL TO BE SALVAGED. IF EXISTING REINFORCING STEEL DESIGNATED FOR SALVAGE IS DAMAGED DURING REMOVAL OPERATIONS, DOWELLED REINFORCING STEEL MUST BE ADDED AT THE CONTRACTOR'S EXPENSE. CARE SHOULD ALSO BE TAKEN NOT TO CRACK THE PIERS OR ABUTMENTS DURING THE REMOVAL. IF DAMAGED, REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 202 PORTIONS OF STRUCTURES REMOVED, DECK EDGE, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL, CONCRETE BRIDGE RAILING REMOVED, AS PER PLAN

THIS ITEM SHALL CONSIST OF THE REMOVAL OF THE CONCRETE BRIDGE RAILING ON STRUCTURES LOR-162-0667 AND LOR-162-0693 AS DETAILED IN THE PLAN. CARE SHALL BE TAKEN NOT TO DAMAGE ANY PORTIONS OF THE EXISTING ARCHES TO BE SALVAGED. IF DAMAGE IS DONE TO THESE AREAS; THEY SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AS DIRECTED BY THE DISTRICT CONSTRUCTION ENGINEER.

THIS ITEM SHALL ALSO CONSIST OF THE REMOVAL OF THE EXISTING CONCRETE BRIDGE RAILING ON STRUCTURE MED-162-0851 DOWN TO THE TOP OF THE ADJACENT PAVEMENT SURFACE. THE REMAINING TOP SURFACE SHALL BE FINISHED TO A REASONABLY SMOOTH, NEAT LINE AND SLOPED TO PROVIDE POSITIVE DRAINAGE OF THE SURFACE. ALL EXPOSED STEEL SHALL BE CUT OR BURNED OFF FLUSH AT THE FINISHED SURFACE, AND THEN PAINTED WITH ZINC RICH PAINT. SUFFICIENT CARE SHALL BE EXERCISED BY THE CONTRACTOR TO LEAVE THE REMAINING CONCRETE DECK UNDAMAGED, AND IN CASE OF DAMAGE, THE REPAIR OR REPLACEMENT SHALL BE MADE AT THE CONTRACTORS EXPENSE.

A HOE RAM WILL NOT BE PERMITTED TO DO ANY OF THE ABOVE WORK. JACK HAMMERS SHALL NOT BE HEAVIER THAN THE NORMAL SIXTY (60) POUND CLASS; EXCEPT FINAL FINISH WORK SHALL BE LIMITED TO FIFTEEN (15) POUND CLASS HAMMERS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM SPECIAL CONCRETE BRIDGE RAILING REMOVED, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 203 EMBANKMENT, AS PER PLAN

EMBANKMENT QUANTITY HAS BEEN PROVIDED IN THE PLAN FOR INSTALLATION OF THE GUARDRAIL. EMBANKMENT SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

AREAS WHERE EMBANKMENT MATERIALS ARE TO BE PLACED SHALL BE SCALPED. THE REQUIREMENTS FOR MOISTURE, DENSITY CONTROL AND BENCHING SHALL BE WAIVED. THE DEPTH OF LAYERS IN WHICH THE EMBANKMENTS ARE PLACED AND THEIR COMPACTION SHALL, IN LIEU OF THE REQUIREMENTS OF ITEM 203, CONFORM TO ACCEPTABLE CONSTRUCTION PRACTICES AS DETERMINED BY THE ENGINEER. THE METHOD OF MEASURMENT FOR EMBANKMENT MATERIAL FURNISHED AND PLACED SHALL BE THE NUMBER OF CUBIC YARDS MEASURED BY LOOSE VOLUME IN THE CARRIER AT THE WORK SITE, IN LIEU OF THE REQUIREMENTS OF 203.15. THE AMOUNT OF THE EARTH WORK REQUIRED AT EACH LOCATION SHALL BE AS DIRECTED BY THE ENGINEER.

DISTURBED AREAS SHALL BE SEEDED, FERTILIZED AND WATERED AS PER ITEM 659 AS DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 203 EMBANKMENT AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

4/13

ITEM 516 VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL THE WORK REQUIRED TO INSTALL THE EXPANSION JOINT SEAL AS DETAILED IN THE PLAN.

THE STEEL EXTRUSION SHALL BE TYPE E WITH S300E NEOPRENE EXTRUSION AS MANUFACTURED BY WATSON BOWMAN ASSOCIATES, INC., 1280 NIAGARA STREET, BUFFALO, NEW YORK, 14213; OR APPROVED EQUAL AS NOTED BELOW.

THE STEEL EXTRUSION SHALL BE PROVIDED IN MAXIMUM LENGTHS POSSIBLE TO ALLOW FOR TRAFFIC MAINTENANCE AND SHALL BE WELDED TOGETHER TO FORM A WATERTIGHT JOINT. THE NEOPRENE EXTRUSION SHALL BE ONE CONTINUOUS PIECE. THE NEOPRENE SHALL NOT BE INSTALLED UNTIL ALL OTHER WORK IS COMPLETE UPON THE STRUCTURE. AN ADHESIVE SHALL BE USED TO FACILITATE PLACEMENT OF THE NEOPRENE EXTRUSION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

PHYSICAL PROPERTIES:

A. THE STEEL EXTRUSION SHALL CONFORM TO ASTM A242, A36 OR, A588.

B. ADHESIVES SHALL BE ONE-PART MOISTURE CURING POLYURETHANE AND HYDRO-CARBON MIXTURES AS DISTRIBUTED UNDER THE TRADE NAME BON-LASTIC BY WATSON BOWMAN ASSOCIATES, INC., OF BUFFALO, NEW YORK; OR AN APPROVED EQUIVALENT.

C. THE NEOPRENE EXTRUSION SHALL CONFORM TO THE PHYSICAL PROPERTIES SPECIFIED FOR AASHTO M220 EXCEPT FOR THE RECOVERY TEST. IT SHALL BE ONE CONTINUOUS PIECE FOR EACH JOINT.

D. SET SCREWS FOR FASTENING OF OPTIONAL SPLIT EXTRUSION SHALL BE STAINLESS STEEL.

THE D.S. BROWN COMPANY, P.O. BOX 158, NORTH BALTIMORE, OHIO 45872, WILL BE ACCEPTED AS ONE ALTERNATE. THE STEEL EXTRUSION SHALL BE TPE SS-E WITH NO. 300 SEAL. THE CONTRACTOR SHALL FURNISH MATERIAL SPECIFICATION, CERTIFIED MATERIAL TEST RESULTS, CERTIFICATION THAT THE PRODUCT MEETS SPECIFICATIONS, APPROPIATE INSTALLATION PROCEDURES NECESSARY TO ACCOM-MODATE ANY ALTERNATE DESIGN.

THE APPROVAL OF AN ALTERNATE JOINT SEAL DESIGN AND THE ISSUANCE OF REVISED PROJECT PLANS SHALL BE BASED ON THE UNDERSTANDING THAT SUCH PRO-JECT MODIFICATIONS WILL BE DONE WITHOUT COST TO THE STATE.

PAYMENT FOR ALL THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 516 VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 517 RAILING, (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP TYPE 2 STEEL POSTS AND BOLTS) AS PER PLAN

THE BRIDGE RAILING SHALL BE BUILT ON STRUCTURES LOR-162-0667 AND LOR-162-0693 AS PER STANDARD DRAWING DBR-2-73 AND DETAILS IN THE PLAN. THE TUBULAR BACKUP SHALL BE 8x4x1/2.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 517 RAILING, (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP TYPE 2 STEEL POSTS AND BOLTS) AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

517 RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS)

THE SINGLE DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP SHALL BE MOUNTED ON NEW TYPE 2 POSTS UTILIZING THE EXISTING GUARDRAIL ANCHOR BOLTS IN THE DECK FACIA. POSTS SHALL BE OF SUFFICIENT LENGTH TO OBTAIN A MINIMUM OF TWENTY-SEVEN (27) INCH GUARDRAIL HEIGHT ABOVE THE PROPOSED BRIDGE DECK SURFACE. FOR DETAIL SEE STANDARD DRAWING DBR-2-73.

THE PAY LENGTH FOR THIS ITEM SHALL BE MEASURED CENTER TO CENTER OF THE FIRST GUARDRAIL POST OFF EACH END OF THE BRIDGE.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 517 RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS) , WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 519 PATCHING CONCRETE STRUCTURES, AS PER PLAN

THIS ITEM SHALL BE USED TO REPAIR THE PIERS
WITHIN TWENTY-FOUR (24) HOURS BEFORE PLACING CONCRETE, THE EXISTING SURFACE AGAINST WHICH THE CONCRETE SHALL BE PLACED, AND EXISTING REINFORCING STEEL SHALL BE THOROUGHLY CLEANED BY SANDBLASTING. SANDBLASTING SHALL BE AT LEAST EQUAL TO SA2 "THOROUGH BLAST CLEANING" AS OUTLINED IN ASTM D-2200 OR SSPC-SP6. ALL LOOSE AND DETERIORATED CONCRETE AND CALCIUM CARBONATE DEPOSITS SHALL BE REMOVED WITH HAND TOOLS BEFORE SANDBLASTING.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE FOOT FOR ITEM 519 PATCHING CONCRETE STRUCTURES, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

GENERAL NOTES

ITEM 517, RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND STEEL POSTS), AS PER PLAN

THIS ITEM SHALL BE USED TO SPAN ACROSS SMALL BRIDGES WHEN CONSTRUCTION OF STANDARD BRIDGE RAILING IS IMPRACTICLE. STEEL TUBING SHALL BE USED AS A BACKUP FOR THE DEEP BEAM RAIL SPANNING THE STRUCTURE. THE POSTS ON EACH SIDE OF THE STRUCTURE SHALL BE ENCASED IN CONCRETE. THE SIZE OF THE TUBULAR BACKUP AND THE POSTS SHALL BE AS PER DETAILS ON SHEET NO.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT, MEASURED CENTER TO CENTER OF THE POSTS SPANNING THE STRUCTURE, FOR ITEM 517, RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND STEEL POSTS), AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL STEEL DRIP STRIP REMOVED

THE EXISTING STEEL DRIP STRIP SHALL BE REMOVED FROM STRUCTURE MED-162-0793 AS DIRECTED BY THE ENGINEER WITHOUT DAMAGING THE EXISTING CONCRETE DECK. IF DAMAGE IS DONE TO THE CONCRETE DECK; IT SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AS DIRECTED BY THE DISTRICT CONSTRUCTION ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM SPECIAL STEEL DRIP STRIP REMOVED WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

DEPARTMENT OF TRANSPORTATION

PAVED SHOULDERS

QUANTITIES			
Calc.		Chk'd.	
Date		Date	

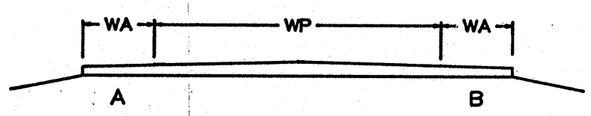
FHWA REGION	STATE	PROJECT	
5	OHIO		

MED-162

22/48

PLAN NO. 136

TYPICAL 1



NOTE: See Sheet No. 30, 31, 35, 36 for Additional Requirements

TYPICAL 2

ITEM 411 – STABILIZED CRUSHED AGGREGATE: Whenever 411 stabilizing crushed aggregate is stipulated, the first paragraph of 411.03 is waived and subgrade shall be to the satisfaction of the Engineer.

** One station equals 100 lin. ft. Station shall be measured along each edge of pavement.

* NOTES

1. ITEM 203 LINEAR GRADING:
This work shall consist of preparing a subgrade for the shoulder paving by excavating the existing shoulder material to the depth shown on the plan, or as directed by the Engineer to remove any unstable material and by shaping and compacting the subgrade. The unsound or broken edge of bituminous pavements shall first be trimmed to a line established by the Engineer. The existing shoulder then shall be excavated and the subgrade shaped and compacted. Compaction shall be carried out to the satisfaction of the Engineer by means of trench roller, 401.11. Areas graded in excess of depths specified or directed by the Engineer shall be backfilled to desired grade using 617 Compacted Aggregate at the Contractor's expense. Excavation material shall be diposed of as indicated in the plan.
   - ☒ a. Used to back up shoulders where required; the balance to be disposed as directed by the Engineer.
   - ☐ b. Disposed of by the Contractor at his own responsibility outside the limits of the right of way.
   - ☐ c. Wasted adjacent to the pavement and within the right of way as directed by the Engineer.
2. ITEM 402 ASPHALT CONCRETE:
Prior to placing a bituminous mixture for shoulder paving, the edge of the existing pavement, for the full depth of the trench, shall be coated with bituminous material in accordance with 401.12.
3. ITEM 301 BITUMINOUS AGGREGATE BASE
May be used in lieu of Item 402 Asphalt Concrete.
4. ITEM 617 COMPACTED AGGRGATE:
A quantity of Item 617 Compacted Aggregate has been provided for areas where the shoulders were low prior to grading and/or low areas caused by removal of unsuitable material.
5. ITEM 408 BITUMINOUS PRIME COAT:
After application of the Prime Coat, no further treatment shall be performed until so directed by the Engineer.
6. SHIELD: The Contractor shall provide a shield to prevent the spraying or drifting of liquid bituminous material onto the edge of the pavement or edge-lines. The attention of the Contractor is directed to 107.12 of the Specifications.

PAVED SHOULDER DATA

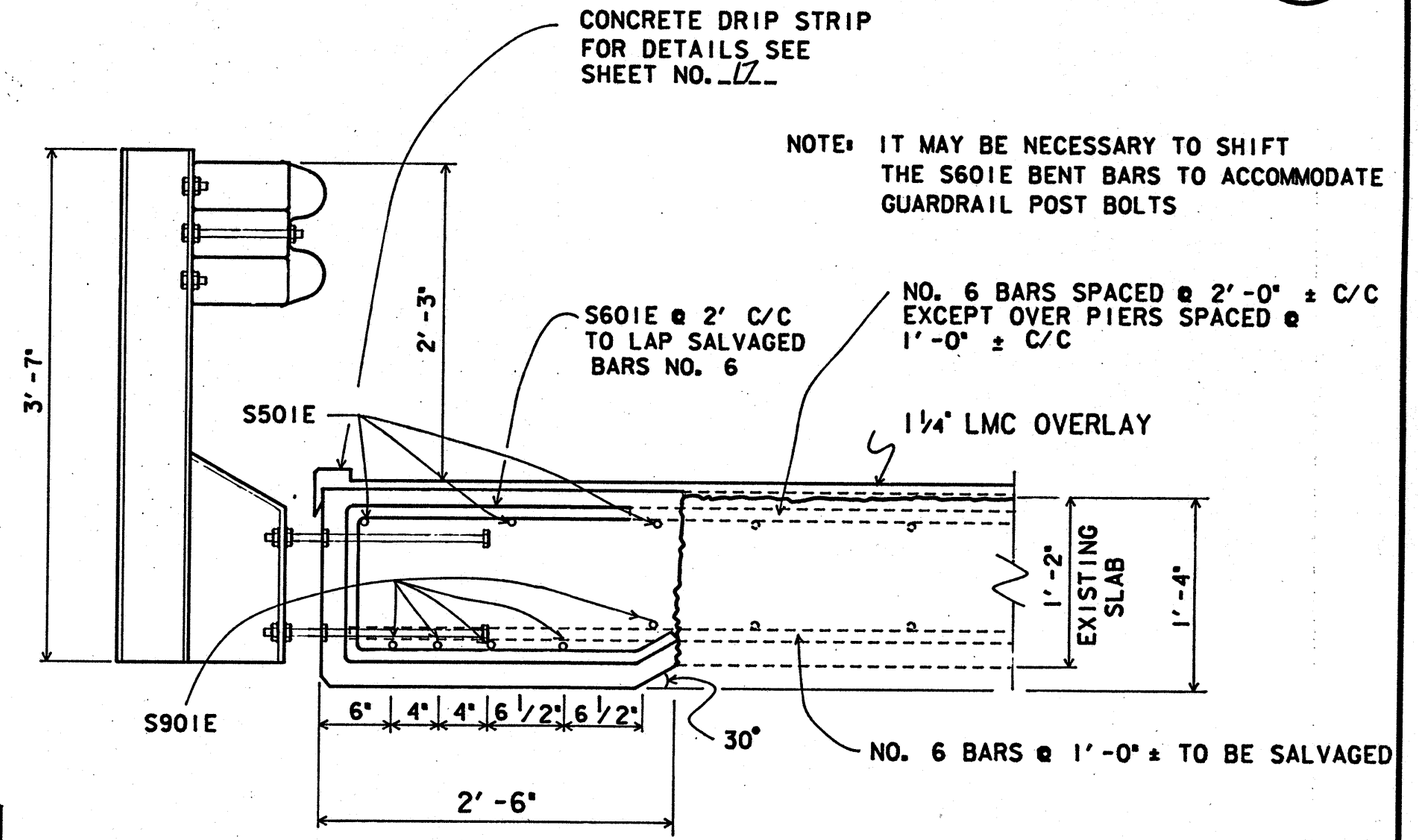
PART	ROUTE	LOG POINT TO LOG POINT	LENGTH MILES	LENGTH LIN.FT.	TYPICAL	PROPOSED WIDTH (FT.) A	B	C	D	SHOULDER AREA SQ.YDS.	203 LINEAR GRADING DEPTH INCHES	203 LINEAR GRADING **STA.	402 ASPHALT CONCRETE AVG. THICK INCHES	402 ASPHALT CONCRETE CU.YDS.	301 BITUMINOUS AGGREGATE BASE AVG. THICK INCHES	301 BITUMINOUS AGGREGATE BASE CU.YDS.	408 PRIME Bit. Matl. @.....gal./s.y. GALS.	409 SEAL Bit. Matl. @.....gal./s.y. GALS.	409 SEAL Aggr. @.....c.y./s.y. CU.YDS.	617 COMPACTED AGGREGATE AVER. THICKNESS CU.YDS.	617 SHOULDER PREPARATION SQ.YDS.	407 TACK COAT @ 0.10 gal./sq.yd. GALS.	407 COVER AGGREGATE @ 7 lbs./s.y. TON	404 ASPHALT CONCRETE AVER. THICKNESS CU.YDS.	* NOTES
2	162	4.31 TO 4.33	0.02	100	1	7	7			156	8	2	8	35											
2	162	4.35 TO 4.37	0.02	100	1	7	7			156	8	2	8	35											
2	162	4.55 TO 4.57	0.02	100	1	7	7			156	8	2	8	35											
2	162	4.59 TO 4.61	0.02	100	1	7	7			156	8	2	8	35											
2	162	4.87 TO 4.89	0.02	100	1	8	8			178	8	2	8	40											
2	162	4.90 TO 4.92	0.02	100	1	8	8			178	8	2	8	40											
2	162	7.91 TO 7.93	0.02	100	1	8				89	8	1	8	20											
2	162	7.92 TO 7.93	0.01	40	1		8			36	8	0.5	8	8											
2	162	7.94 TO 7.95	0.01	40	1		8			36	8	0.5	8	8											
2	162	7.94 TO 7.96	0.02	100	1	8				89	8	1	8	20											
		TOTAL		880						1230		15		276											

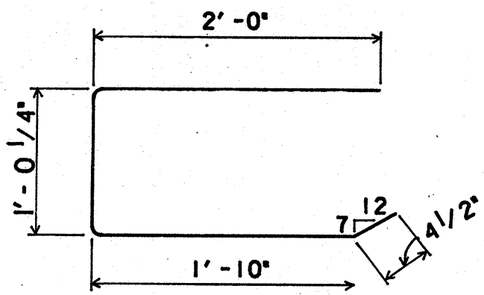
REINFORCING STEEL LIST

MARK	NUMBER	LENGTH	SHAPE	WEIGHT
S501E	24	24'-4"	S	609
S601E	94	4'-11"	B	694
S901E	40	26'-3"	S	3570
			TOTAL -	4873

ESTIMATED QUANTITIES

ITEM	QUANTITY	UNIT	DESCRIPTION
202	51	SQ. YD.	PORTIONS OF STRUCTURES REMOVED, DECK EDGE, AS PER PLAN
824	4873	LBS.	EPOXY COATED REINFORCING STEEL,
			EPOXY COATED
511	23	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE





S601E

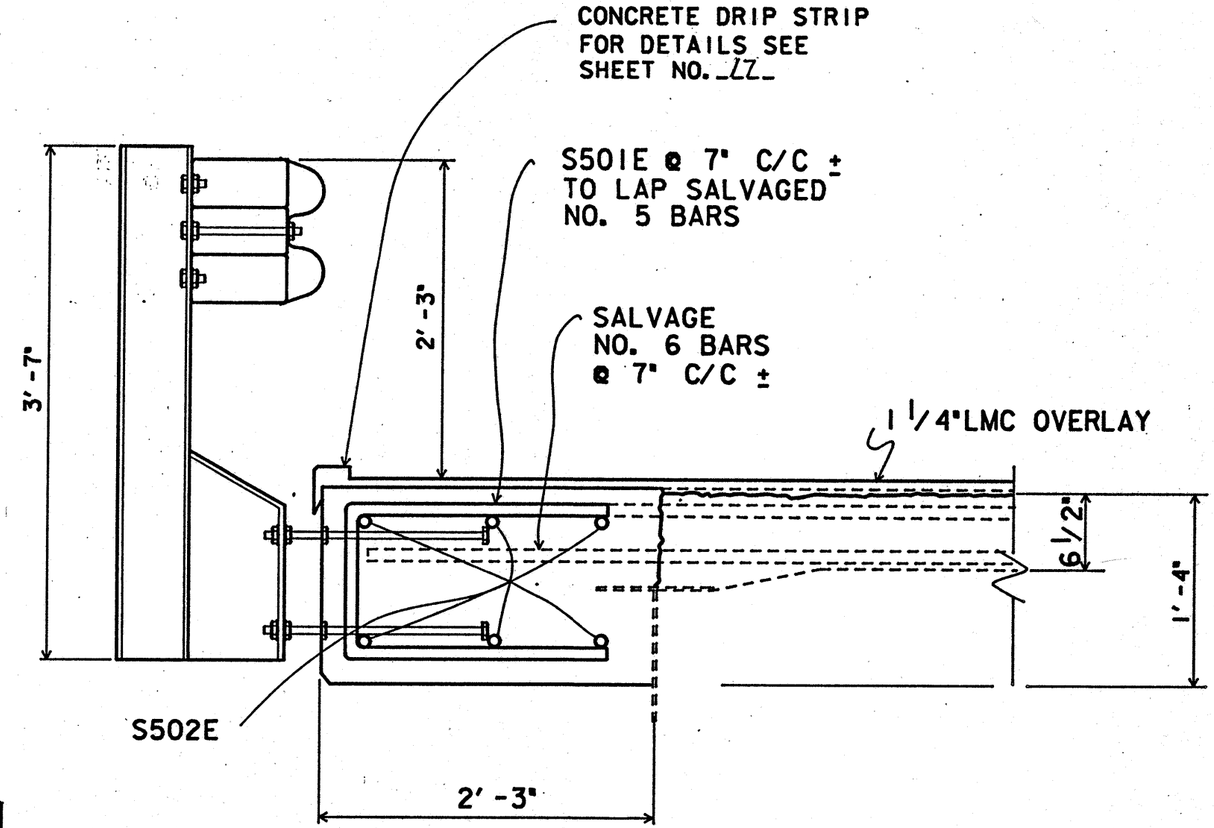
DECK EDGE REPLACEMENT
MED - 162 - 0433

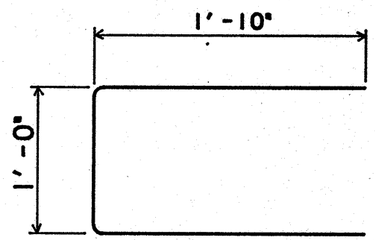
REINFORCING STEEL LIST

MARK	NUMBER	LENGTH	SHAPE	WEIGHT
S501E	440	4' -5"	B	2027
S502E	48	33' -3"	S	1665
			TOTAL -	3692

ESTIMATED QUANTITIES

ITEM	QUANTITY	UNIT	DESCRIPTION
202	64	SQ. YD.	PORTIONS OF STRUCTURES REMOVED,
			DECK EDGE, AS PER PLAN
824	3692	LBS.	REINFORCING STEEL
			EPOXY COATED
511	28	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE





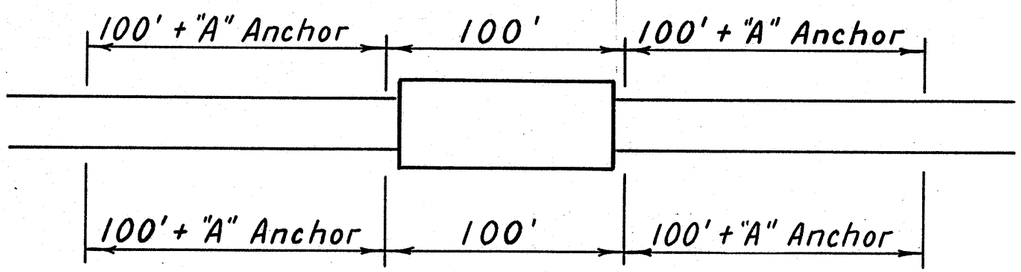
S501E

DECK EDGE REPLACEMENT
MED - 162 - 0457

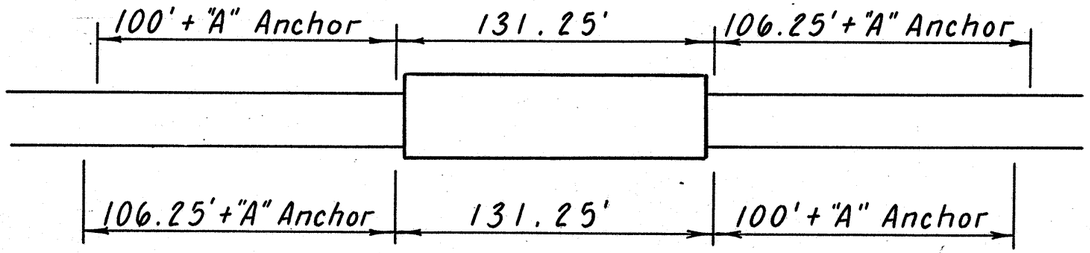
ESTIMATED QUANTITIES

Part	Bridge	Side	202 Guardrail Removed	SPECIAL Concrete Bridge Railing Removed, As Per Plan	* 517 Railing (Deep Beam Rail with Steel Tubular Backup Type 2 Steel Posts and Bolts)	517 Railing, (Deep Beam Rail with Steel Tubular Backup Type 2 Steel Posts) As Per Plan	517 RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND STEEL POSTS), As Per Plan	606 Bridge Terminal Assem., Standard Type B	606 Guardrail, Type 5	606 Anchor Assem., Standard Type A	606 Anchor Assem., Standard Type T	203 Embankment, As Per Plan	Special Reshaping BERMS		
			Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Each	Each	Cu. Yd.	Lin. Ft.		
2	Med-162-0433	L	175		100			2	200	2			260		
		R	175		100			2	200	2			260		
2	Med-162-0457	L	250		131.25			2	206.25	2			266		
		R	250		131.25			2	206.25	2			266		
2	Med-162-0489	L	175			81.25		2	206.25	2			266		
		R	175			81.25		2	206.25	2			266		
2	Med-162-0793	L	125			68.75		2	131.25	2			191		
		R	125			68.75		2	81.25		2		86		
2	Med-162 0851	L		15			18.75	2	106.25	2		8	166		
		R		15			18.75	2	193.75	2		8	254		
	Total		1,450	30	462.50	300.00	37.50	20	1,737.50	18	2	16	2281		

* AS PER PLAN

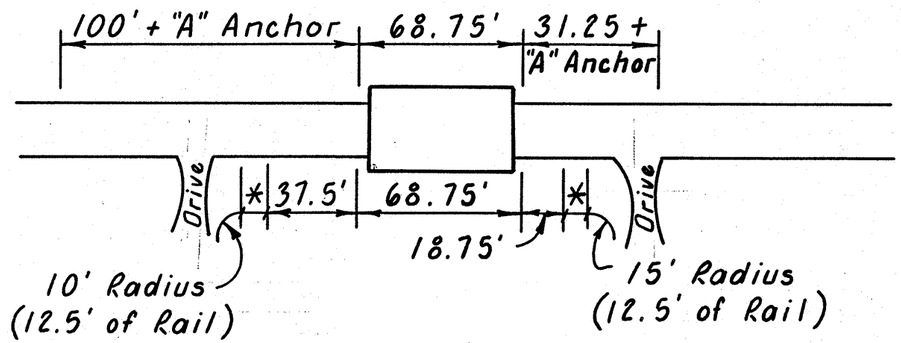


MEO - 162 - 0433



MEO - 162 - 0457

* Type T Anchor



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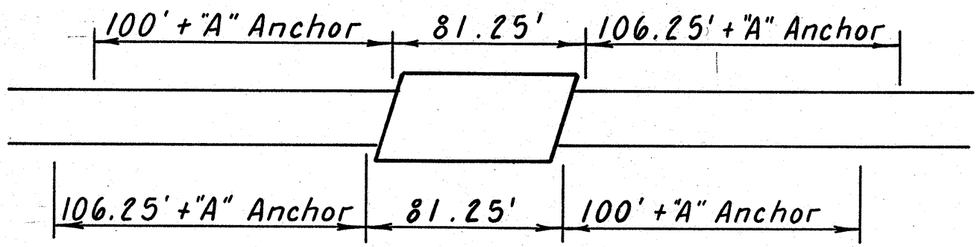

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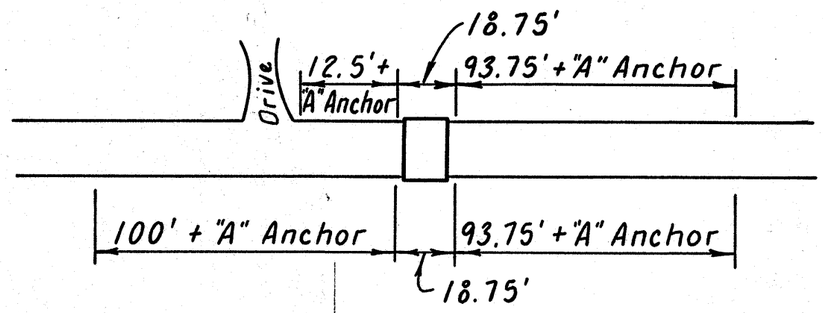
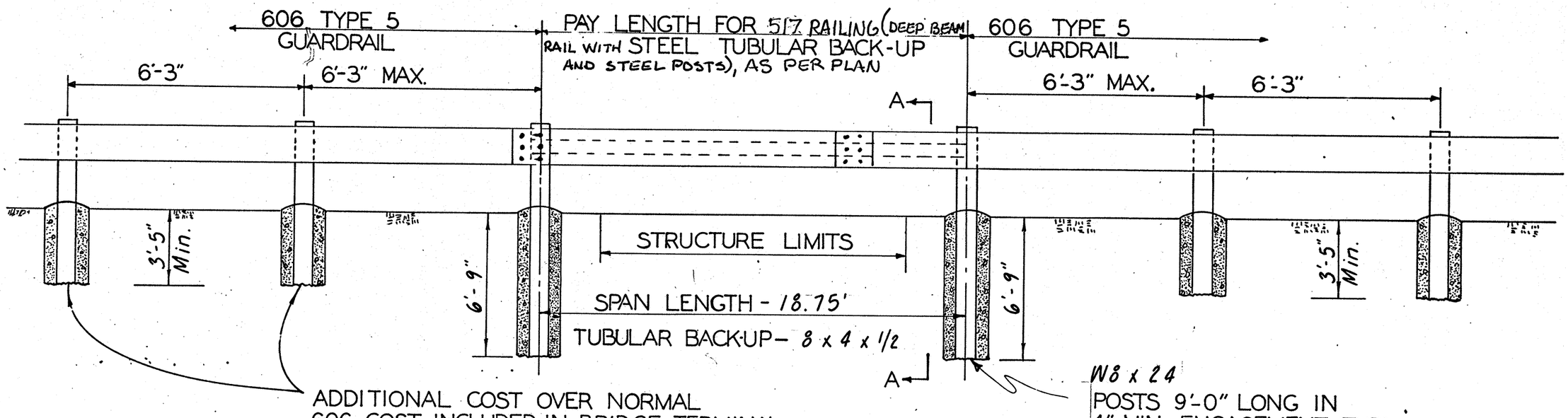
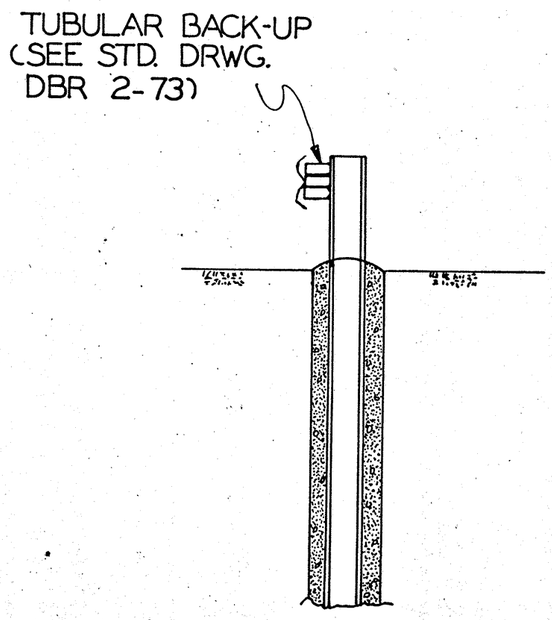


MEO - 162 - 0851

GUARDRAIL DETAILS
MEO - 162 - 0433, 0457, 0489, 0793 & 0851



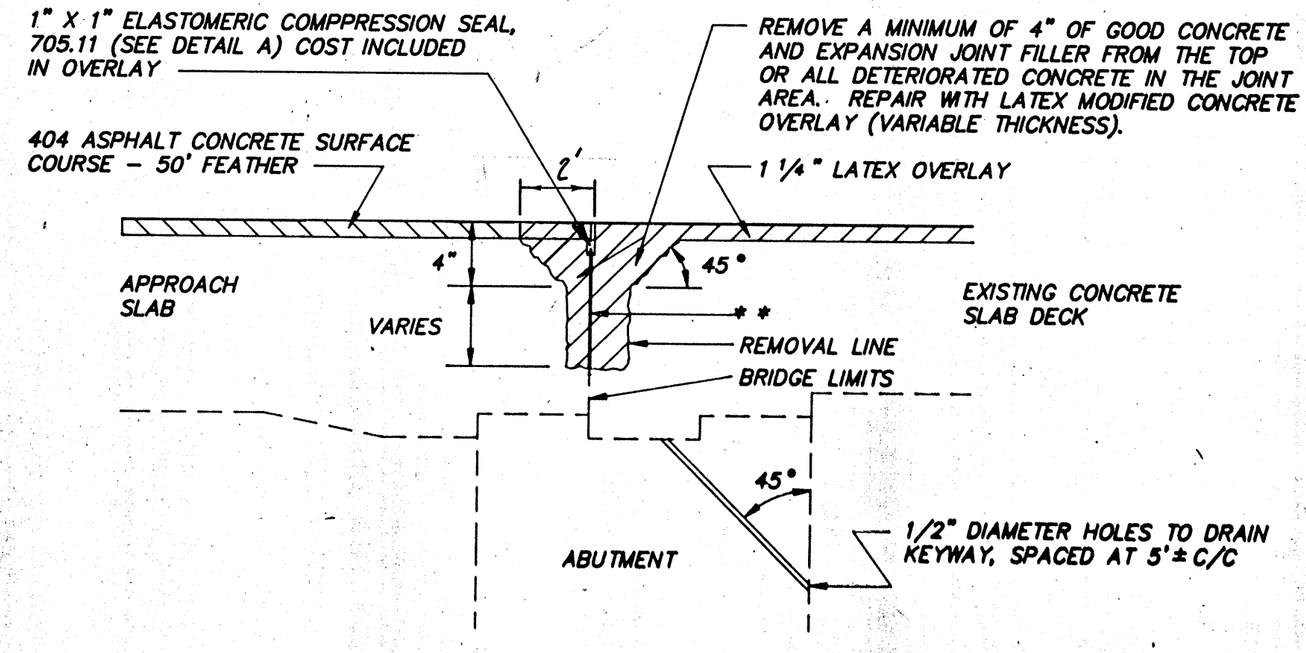


NOTE: IF UNABLE TO INSTALL A POST LENGTH GREATER THAN 7'-6" A SECOND POST (W6x25) SPACED AT 3'-3" SHALL BE ADDED AND ALSO ENCASED IN CONCRETE. COST TO BE INCLUDED IN TYPE B BRIDGE TERMINAL ASSEMBLY.

TYPICAL DETAILS FOR ITEM 517 RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND STEEL POSTS), AS PER PLAN -SPANNING A STRUCTURE

MEO-162-0851

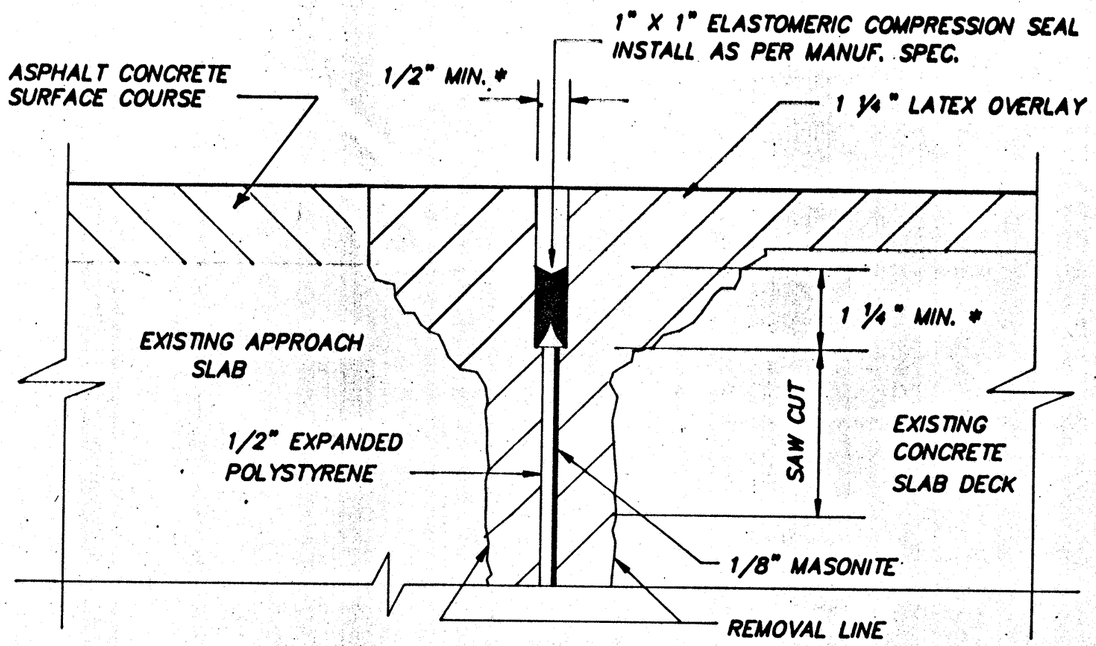
DES



TYPICAL JOINT REPAIR DETAIL FOR CONCRETE SLAB DECK

* DIMENSIONS SHOWN ARE FOR WATSON BOWMAN WB-1000. USE WB-1000 OR APPROVED EQUAL AS PER 705.11.

* * GLUE 1/2" EXPANDED POLYSTYRENE TO 1/8" MASONITE. INSTALL TOTAL DEPTH OF REPAIRED AREA. SAW OUT ENOUGH MASONITE AND POLYSTYRENE TO INSTALL THE COMPRESSION SEAL AFTER THE JOINT HAS BEEN REPAIRED.



DETAIL "A"

MEO-162-0433, 0489 & 0793

JOINT NORMAL THROUGH ROADWAY

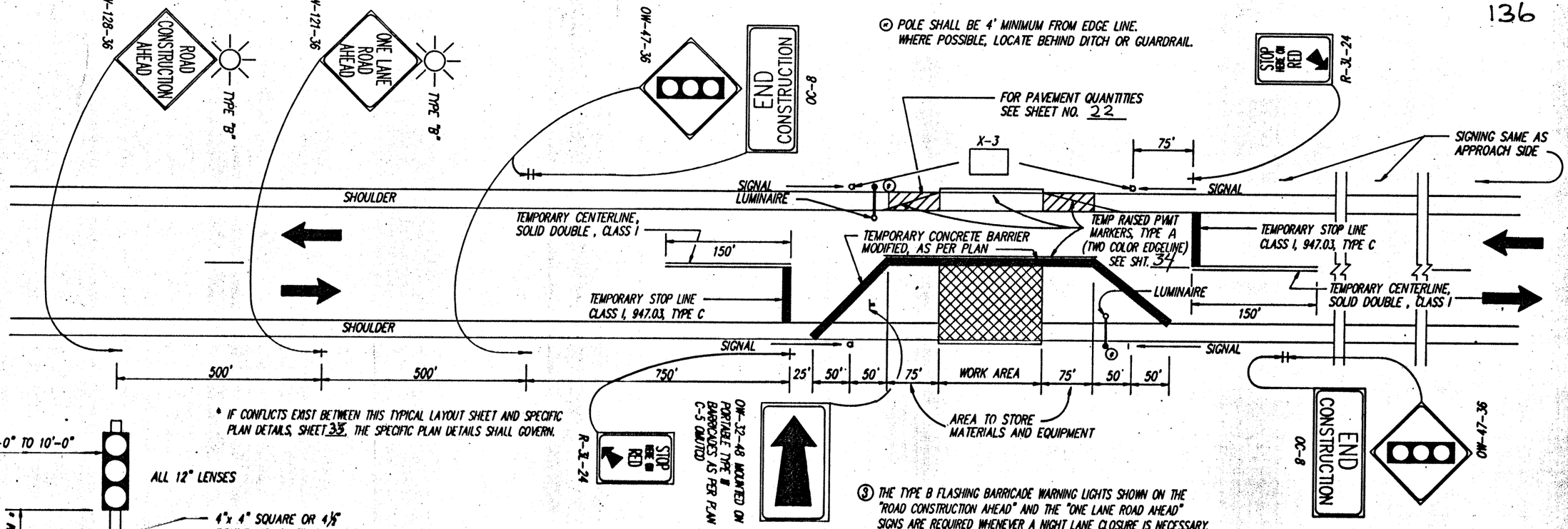
EDGE OF DECK EXPANSION JOINT AT

NOTE: THE CONTRACTOR AT HIS OPTION MAY SPLIT THE STEEL EXTRUSIONS TO FACILITATE PLACEMENT OF THE STRIP SEAL.

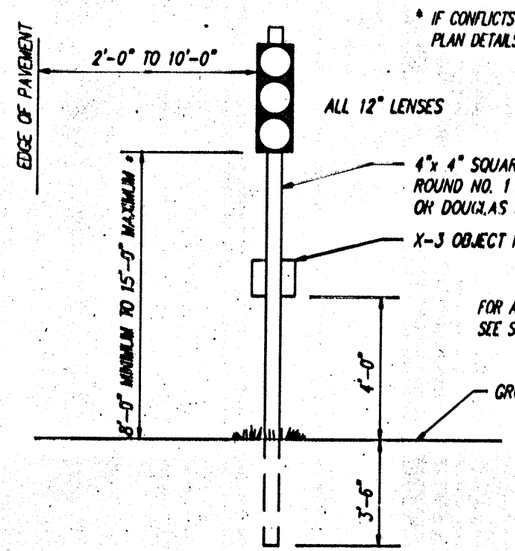
JOINT DETAILS EXPANSION

MED - 191 - 0451

PS #8A

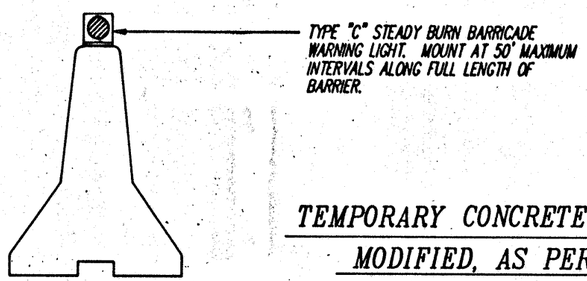


* IF CONFLICTS EXIST BETWEEN THIS TYPICAL LAYOUT SHEET AND SPECIFIC PLAN DETAILS, SHEET 35, THE SPECIFIC PLAN DETAILS SHALL GOVERN.



TYPICAL POLE SUPPORTED SIGNAL

* ABOVE GRADE OF ROADWAY CENTER LINE



TEMPORARY CONCRETE BARRIER MODIFIED, AS PER PLAN

① THE MAXIMUM LENGTH OF WORK AREA FOR ONE-WAY TRAFFIC SIGNAL CONTROL IS DETERMINED BY THE CAPACITY REQUIRED TO HANDLE THE PEAK HOUR DEMAND. PRACTICAL MAXIMUM LENGTH OF WORK AREA AND STORAGE AREA IS 400 FEET.

② A TWO-PHASE CONTROLLER WITH CABINET, CAPABLE OF BEING SET WITH THE FOLLOWING SPLITS SHALL BE FURNISHED.
CYCLE LENGTH 70 SECONDS

	GREEN	AMBER	RED
PHASE A	20	5	10
PHASE B	20	5	10

THE ABOVE TIMING MAY BE CHANGED WITH APPROVAL OF THE ENGINEER. THE SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 6 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. IN ADDITION, ALL TRAFFIC SIGNALS AND EQUIPMENT USED IN THIS TRAFFIC SIGNAL INSTALLATION, SUCH AS SIGNAL CABLE AND SIGNAL HEADS, SHALL BE IN CONFORMANCE WITH SPECIFICATIONS 632 AND 732. HOWEVER, THE PERFORMANCE TEST PROVISION NOTED IN SPECIFICATION 632.27, PARAGRAPH 6, AND THE WORKING DRAWING REQUIREMENTS OF 632.03 ARE WAIVED. THE CONTROLLER, FLASHERS, LOAD SWITCHES, CONFLICT MONITOR, AND OTHER CONTROLLER ACCESSORIES SHALL COMPLY WITH SPECIFICATIONS 633 AND 733, EXCEPT THAT THE REQUIREMENTS OF 633.03 AND 633.05 ARE WAIVED, AS WELL AS THE REQUIREMENTS OF 733.01 FOR EXPANSIBLE THREE DIAL UNITS AND TWELVE CIRCUITS FOR PRETIMED CONTROLLERS. USED EQUIPMENT MEETING CURRENT O.D.O.T. SPECIFICATIONS IS ACCEPTABLE.

CONFLICT MONITORS SHALL BE FURNISHED AT ALL LOCATIONS UNLESS AN ELECTROMECHANICAL PRETIMED CONTROLLER WITH CAM SHAFT IS PROVIDED.

WHEN THE SIGNAL IS CHANGED TO A FLASH CONDITION EITHER MANUALLY OR AUTOMATICALLY, RED SHALL BE FLASHED TO BOTH APPROACHES.

③ THE TYPE B 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.

④ ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY BOTH ENDS OF THE WORK AREA AT NIGHT SHALL BE PROVIDED BY USING 150 WATT MINIMUM HIGH PRESSURE SODIUM LUMINAIRES OR 250 WATT MINIMUM MERCURY VAPOR LUMINAIRES. THE LUMINAIRES SHALL BE LOCATED ADJACENT TO ONE SIGNAL FOR EACH DIRECTION OF TRAFFIC AS SHOWN ABOVE. THE MOUNTING HEIGHT FOR THE LUMINAIRES SHALL BE A MINIMUM OF 27 FEET ABOVE THE PAVEMENT AND MOUNTED ON A SUPPORT OF ADEQUATE STRENGTH TO PROVIDE A SATISFACTORY INSTALLATION. THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE A MINIMUM OF 15 FEET ABOVE THE PAVEMENT. THE LUMINAIRE ARMS SHALL BE OF SUFFICIENT LENGTH TO EXTEND TO THE EDGE OF THE PAVEMENT.

⑤ TEMPORARY CENTERLINE: SOLID, DOUBLE, AS SHOWN ABOVE, SHALL BE INSTALLED AND MAINTAINED WHERE NO PASSING LINES ARE NOT ALREADY IN PLACE. 12" STOP LINES SHALL ALSO BE INSTALLED. TEMPORARY RAISED PAVEMENT MARKERS, TYPE A (TWO COLOR EDGELINE) (WHITE/YELLOW) SHALL BE USED AS SHOWN. **EXISTING CONFLICTING PAVEMENT MARKINGS BETWEEN THE WORK AREA AND THE STOP LINE, AND ON THE EXISTING PAVEMENT ADJACENT TO THE WIDENING SHALL BE REMOVED.** IF RAISED PAVEMENT MARKERS ARE EXISTING ALONG THE EDGE LINE, THE REFLECTORS SHALL BE REMOVED ALONG THE TEMPORARY PAVEMENT.

AFTER COMPLETION OF THE WORK, TEMPORARY MARKINGS SHALL BE REMOVED IN ACCORDANCE WITH 621.134 AND THE ORIGINAL MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS SHALL BE RESTORED.

⑥ THE HORIZONTAL OR VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE LOCATION OF THE ADVANCE WARNING SIGNS (THE DISTANCES SHOWN FOR ADVANCE WARNING SIGN SPACING

(NOTE NO. 6 CONTINUED IN NEXT COLUMN)

ARE MINIMUMS). THE VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE HEIGHT OF THE SIGNAL HEADS WITHIN THE RANGE SPECIFIED IN THE TYPICAL POLE SUPPORTED SIGNAL DETAIL.

⑦ THE TEMPORARY CONCRETE BARRIER, AS PER PLAN, SHALL BE PLACED AS SHOWN ABOVE AND ON SHEET NO. 35 BEFORE ANY BRIDGE WORK IS STARTED. THE BARRIER SHALL COMPLETELY CLOSE THE ROADWAY & SHOULDER AS SHOWN. PROVISIONS SHALL BE MADE BY THE CONTRACTOR TO GET ACCESS TO THE WORK AREA. THE BARRIER SECTIONS SHALL BE TIED TOGETHER WITH CONNECTING PINS IN ACCORDANCE WITH STANDARD DRAWING MC-9A OR AS SHOWN ON SHEET D IF ATTACHED. TONGUE AND GROOVE SECTIONS WILL NOT BE PERMITTED ON THIS PROJECT.

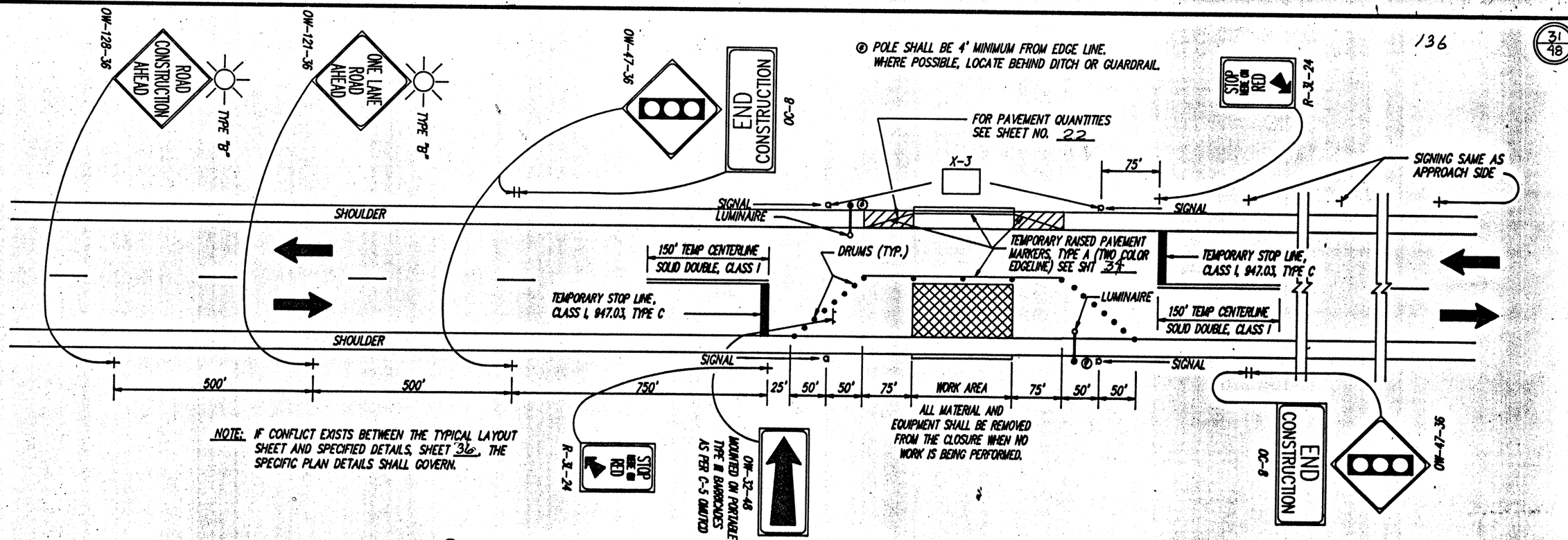
⑧ PAYMENT FOR ALL OF THE ABOVE, EXCEPT THE TEMPORARY CONCRETE BARRIER, AS PER PLAN, AND OTHER ITEMS ITEMIZED SEPERATELY SHALL BE INCUDED IN ITEM 614 MAINTAINING TRAFFIC. PAYMENT FOR THE TEMPORARY CONCRETE BARRIER, AS PER PLAN, SHALL BE THE NUMBER OF LINEAR FEET PROVIDED AS PER ITEM 622.08, WHICH SHALL INCLUDE ALL COSTS OF PROVIDING, MAINTAINING, REPOSITIONING THE BARRIER SECTIONS FOR ALL CONSTRUCTION PHASES, AND SUBSEQUENTLY REMOVING THE TEMPORARY BARRIER.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

SIGNALIZED CLOSING OF ONE LANE OF A TWO LANE HIGHWAY

MEO-162-0433 & 0457 (A)

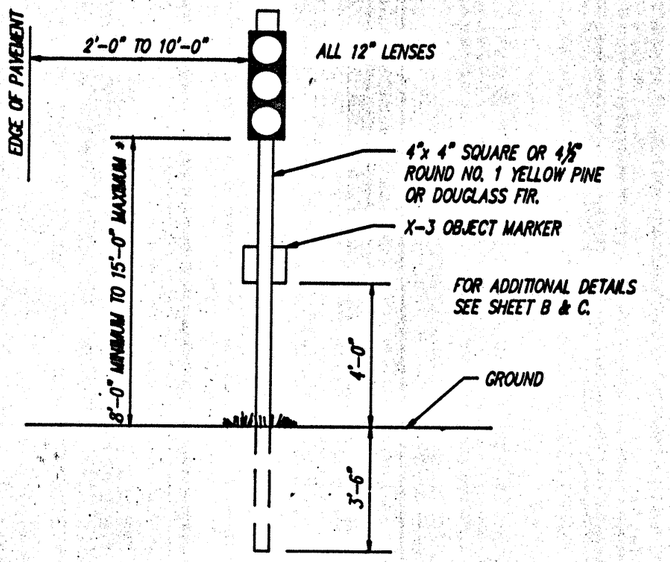
DRAWN	REV. 5-87
CN	STANDARD NO 03-02A1



NOTE: IF CONFLICT EXISTS BETWEEN THE TYPICAL LAYOUT SHEET AND SPECIFIED DETAILS, SHEET 36, THE SPECIFIC PLAN DETAILS SHALL GOVERN.

ALL MATERIAL AND EQUIPMENT SHALL BE REMOVED FROM THE CLOSURE WHEN NO WORK IS BEING PERFORMED.

⑥ POLE SHALL BE 4' MINIMUM FROM EDGE LINE. WHERE POSSIBLE, LOCATE BEHIND DITCH OR GUARDRAIL.



TYPICAL POLE SUPPORTED SIGNAL

* ABOVE GRADE OF ROADWAY CENTER LINE

① THE MAXIMUM LENGTH OF WORK AREA FOR ONE-WAY TRAFFIC SIGNAL CONTROL IS DETERMINED BY THE CAPACITY REQUIRED TO HANDLE THE PEAK HOUR DEMAND. PRACTICAL MAXIMUM LENGTH OF WORK AREA IS 400 FEET.

② A TWO-PHASE CONTROLLER WITH CABINET, CAPABLE OF BEING SET WITH THE FOLLOWING SPLITS SHALL BE FURNISHED.
CYCLE LENGTH 70 SECONDS

	GREEN	AMBER	RED
PHASE A	20	5	10
PHASE B	20	5	10

THE ABOVE TIMING MAY BE CHANGED WITH APPROVAL OF THE ENGINEER. THE SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 6 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. IN ADDITION, ALL TRAFFIC SIGNALS AND EQUIPMENT USED IN THIS TRAFFIC SIGNAL INSTALLATION, SUCH AS SIGNAL CABLE AND SIGNAL HEADS, SHALL BE IN CONFORMANCE WITH SPECIFICATIONS 632 AND 732. HOWEVER, THE PERFORMANCE TEST PROVISION NOTED IN SPECIFICATION 632.27, PARAGRAPH 6, AND THE WORKING DRAWING REQUIREMENTS OF 632.03 ARE WAIVED. THE CONTROLLER, FLASHERS, LOAD SWITCHES, CONFLICT MONITOR, AND OTHER CONTROLLER ACCESSORIES SHALL COMPLY WITH SPECIFICATIONS 633 AND 733 EXCEPT THAT THE REQUIREMENTS OF 633.03 AND 633.05 ARE WAIVED, AS WELL AS THE REQUIREMENTS OF 733.01 FOR EXPANSIBLE THREE DIAL UNITS AND TWELVE CIRCUITS FOR PRETIMED CONTROLLERS. USED EQUIPMENT MEETING CURRENT O.D.O.T. SPECIFICATIONS IS ACCEPTABLE.

CONFLICT MONITORS SHALL BE FURNISHED AT ALL LOCATIONS UNLESS AN ELECTROMECHANICAL PRETIMED CONTROLLER WITH CAM SHAFT IS PROVIDED.

WHEN THE SIGNAL IS CHANGED TO A FLASH CONDITION EITHER MANUALLY OR AUTOMATICALLY, RED SHALL BE FLASHED TO BOTH APPROACHES.

③ DRUMS SHALL BE SPACED A MAXIMUM OF 50' CENTER TO CENTER ALONG THE CLOSURE. DRUMS ON THE ADVANCE AND RETURN TAPERS SHALL BE SPACED AT 10' CENTER TO CENTER.

④ ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY BOTH ENDS OF THE WORK AREA AT NIGHT SHALL BE PROVIDED BY USING 150 WATT MINIMUM HIGH PRESSURE SODIUM LUMINAIRES OR 250 WATT MINIMUM MERCURY VAPOR LUMINAIRES. THE LUMINAIRES SHALL BE LOCATED ADJACENT TO ONE SIGNAL FOR EACH DIRECTION OF TRAFFIC AS SHOWN ABOVE. THE MOUNTING HEIGHT FOR THE LUMINAIRES SHALL BE A MINIMUM OF 27 FEET ABOVE THE PAVEMENT AND MOUNTED ON A SUPPORT OF ADEQUATE STRENGTH TO PROVIDE A SATISFACTORY INSTALLATION. THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE A MINIMUM OF 15 FEET ABOVE THE PAVEMENT. THE LUMINAIRE ARMS SHALL BE OF SUFFICIENT LENGTH TO EXTEND TO THE EDGE OF THE PAVEMENT.

⑤ TEMPORARY CENTERLINE: SOLID, DOUBLE, AS SHOWN ABOVE, SHALL BE INSTALLED AND MAINTAINED WHERE NO PASSING LINES ARE NOT ALREADY IN PLACE. 12" STOP LINES SHALL ALSO BE INSTALLED. TEMPORARY RAISED PAVEMENT MARKERS, TYPE A (TWO COLOR EDGE LINE) (WHITE/YELLOW) SHALL BE USED.

EXISTING CONFLICTING PAVEMENT MARKINGS BETWEEN THE WORK AREA AND THE STOP LINE, AND ON THE EXISTING PAVEMENT ADJACENT TO THE WIDENING SHALL BE REMOVED. IF RAISED PAVEMENT MARKERS ARE EXISTING ALONG THE EDGE LINE, THE REFLECTORS SHALL BE REMOVED ALONG THE TEMPORARY PAVEMENT.

AFTER COMPLETION OF THE WORK, TEMPORARY MARKINGS SHALL BE REMOVED IN ACCORDANCE WITH 621.134 AND THE ORIGINAL MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS SHALL BE RESTORED.

⑥ THE TYPE B 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.

⑦ TYPE C STEADY BURN BARRICADE WARNING LIGHTS SHALL BE ERECTED ON THE DRUMS FOR NIGHT LANE CLOSURES. THE MAXIMUM SPACING SHALL BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS DESCRIBED IN NOTE 3.

⑧ THE HORIZONTAL OR VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE LOCATION OF THE ADVANCE WARNING SIGNS (THE DISTANCES SHOWN FOR ADVANCE WARNING SIGN SPACING ARE MINIMUMS). THE VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE HEIGHT OF THE SIGNAL HEADS WITHIN THE RANGE SPECIFIED IN THE TYPICAL POLE SUPPORTED SIGNAL DETAIL.

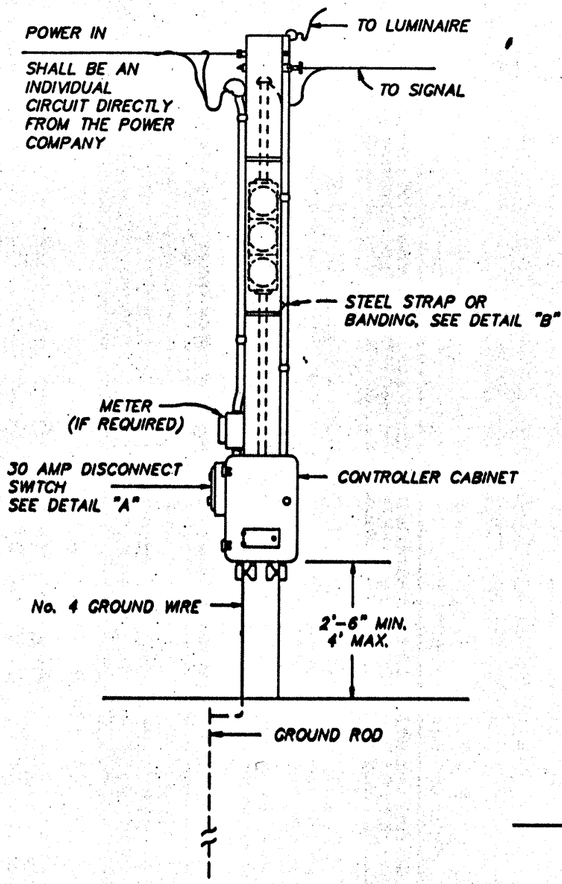
⑨ PAYMENT FOR ALL OF THE ABOVE, UNLESS ITEMIZED SEPARATELY, SHALL BE INCLUDED IN ITEM 614 - MAINTAINING TRAFFIC.

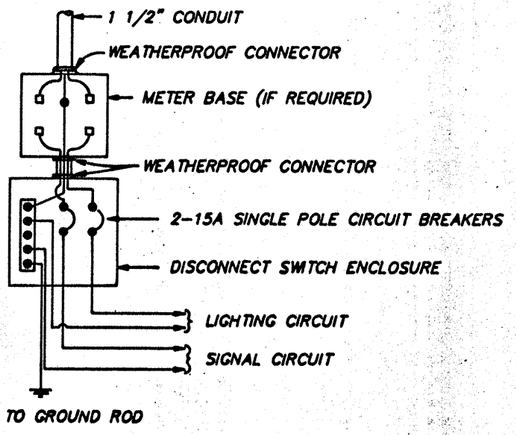
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

SIGNALIZED CLOSING OF ONE LANE OF A TWO LANE HIGHWAY - (A)

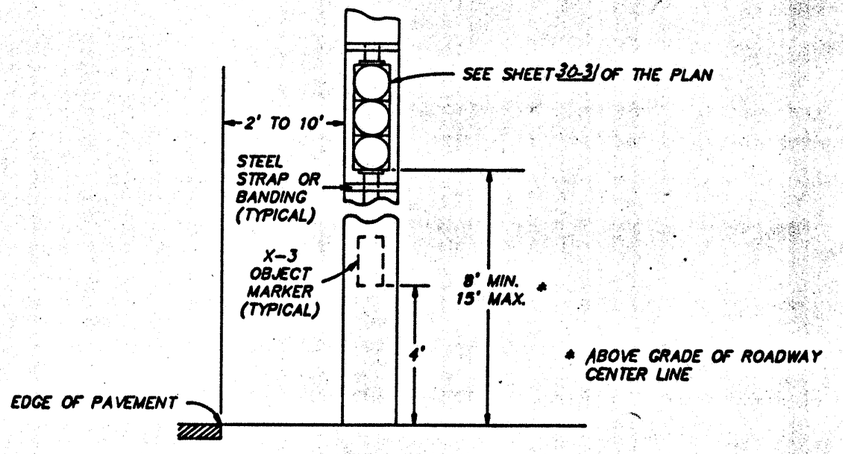
MEO-162-0489 0793

CN	DRAWN	REV. 6-87
		STANDARD NO. D3-02A



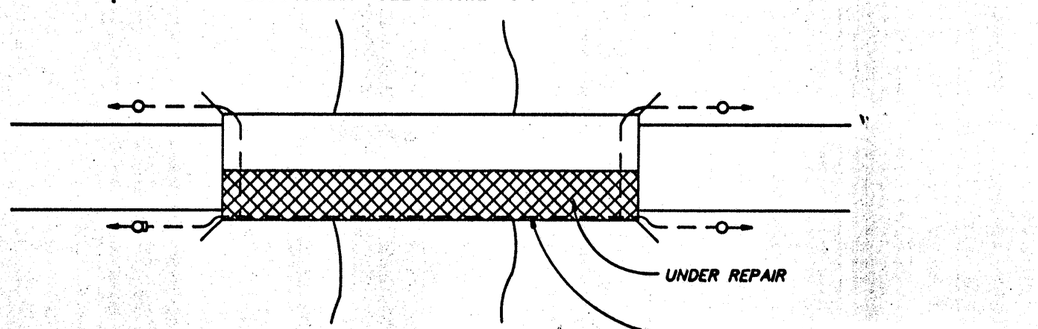


DETAIL "A"



DETAIL "B"

ON BRIDGE PROJECT CABLE MAY ALSO BE ROUTED UNDER BRIDGE IF PROPERLY SUPPORTED. SEE DETAIL "C".



DETAIL "C"

TYPICAL SERVICE, LUMINAIRE, SIGNAL HEAD AND CONTROLLER CABINET INSTALLATION

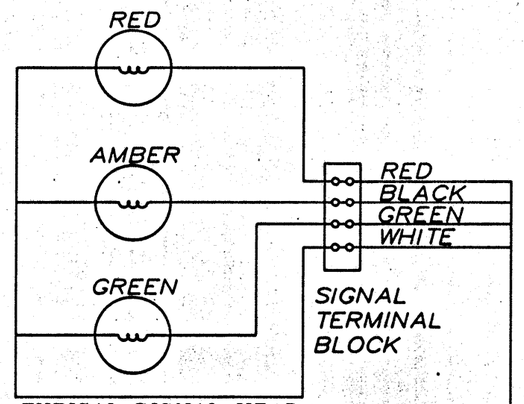
MEO-162-0433, 0457, 0489 & 0793

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

SIGNALIZED CLOSING OF ONE LANE OF A TWO LANE HIGHWAY (B)

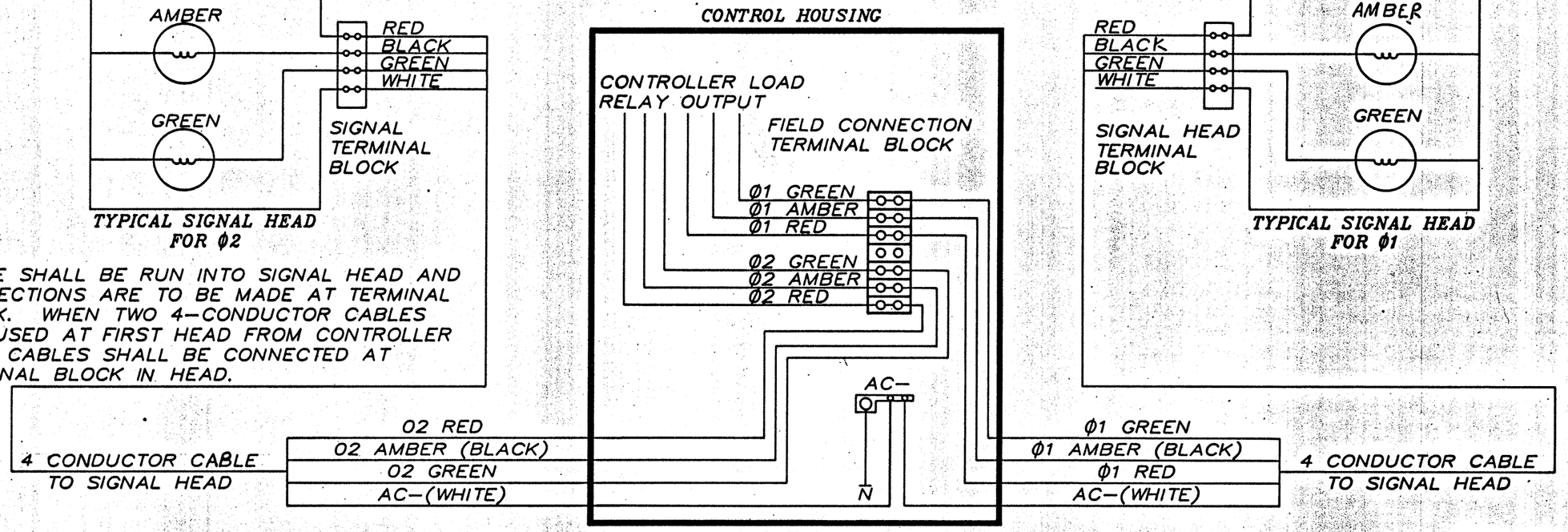
CN	DRAWN	REV: 5/87
		STANDARD NO. D3-028

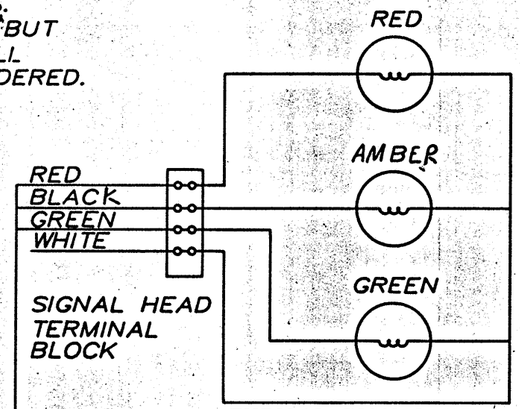
CABLE SHALL BE 4–CONDUCTOR No. 14 COPPER SIGNAL CABLE, COLOR CODED AND STRANDED. ALL ELECTRICAL CONNECTIONS TO BE MADE AT TERMINAL BLOCKS USING TERMINAL LOCK FORKS. SPLICES IN SIGNAL CABLE SHOULD BE AVOIDED BUT IF NECESSARY SPLICE KITS SHALL BE USED. ALL CONNECTIONS AT SPLICE POINTS SHALL BE SOLDERED.



TYPICAL SIGNAL HEAD FOR Ø2

CABLE SHALL BE RUN INTO SIGNAL HEAD AND CONNECTIONS ARE TO BE MADE AT TERMINAL BLOCK. WHEN TWO 4–CONDUCTOR CABLES ARE USED AT FIRST HEAD FROM CONTROLLER BOTH CABLES SHALL BE CONNECTED AT TERMINAL BLOCK IN HEAD.





TYPICAL SIGNAL HEAD FOR Ø1

TYPICAL SIGNAL HEAD HOOK–UP

MEO-162-0433, 0457, 0489 0793

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

SIGNALIZED CLOSING OF ONE LANE OF A TWO LANE HIGHWAY (C)

CN	DRAWN	REV: 5/87

STANDARD NO. 03-02C

614 TEMPORARY RAISED PAVEMENT MARKERS

136 (34/48)

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

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

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

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

SPECIFIC INTENSITY

INCIDENCE ANGLE (DEGREES)	TYPE A WHITE	TYPE A YELLOW
0	1.0	0.6
20	0.4	0.24
45	–	–

	TYPE B WHITE	TYPE B YELLOW
0	3.0	1.8
20	1.2	0.72
45	0.3	0.2

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

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

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

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

1) THE UNITS SHALL BE A HIGH VISIBILITY YELLOW OR WHITE COLOR WHICH WILL NOT DEGRADE SUBSTANTIALLY DUE TO TRAFFIC WEAR AND WHICH WILL MATCH THE COLOR OF THE REFLECTOR.

2) WHEN VIEWED FROM ABOVE, THE UNITS SHALL HAVE A VISIBLE AREA OF NOT LESS THAN 14 SQUARE INCHES.

3) WHEN VIEWED FROM THE FRONT, PARALLEL TO THE PAVEMENT, AS FROM APPROACHING TRAFFIC, THE UNIT SHALL HAVE A WIDTH OF APPROXIMATELY 4 INCHES AND A VISIBLE AREA OF NOT LESS THAN 1.5 SQUARE INCHES.

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

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

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

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

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

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

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

♦ CENTERED IN GAP

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

LINE	TYPE	SPACING
EDGE LINE	A	5' C/C
LANE LINE	A	40 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	40 3.33' C/C 30' GAP (40' CYCLE)
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A	5' C/C
EDGE LINE (TWO COLOR) (WHITE/YELLOW)	A	BACK TO BACK 5' C/C

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

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

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

ITEM	UNIT	DESCRIPTION
614	EACH	TEMPORARY RAISED PAVEMENT MARKERS, TYPE A

STATIONING (FROM-TO) (SIDE)	SPACING	TYPE A W	TYPE A Y	TYPE A Y/Y	TYPE B W	TYPE B Y	TYPE B Y/Y	REMARKS (LINE TYPE)
PHASE A								
LINE 1 = 300	5	61	61					EDGE LINE
LINE 2 = 250	5	51	51					EDGE LINE
PHASE B								
LINE 1 = 300	5	61	61					EDGE LINE
LINE 2 = 250	5	51	51					EDGE LINE
PHASE A								
LINE 1 = 330	5	67	67					EDGE LINE
LINE 2 = 280	5	57	57					EDGE LINE
PHASE B								
LINE 1 = 330	5	67	67					EDGE LINE
LINE 2 = 280	5	57	57					EDGE LINE
PHASE A								
LINE 1 = 280	5	57	57					EDGE LINE
LINE 2 = 230	5	47	47					EDGE LINE
PHASE B								
LINE 1 = 280	5	57	57					EDGE LINE
LINE 2 = 230	5	47	47					EDGE LINE
PHASE A								
LINE 1 = 260	5	53	53					EDGE LINE
LINE 2 = 210	5	43	43					EDGE LINE
PHASE B								
LINE 1 = 260	5	53	53					EDGE LINE
LINE 2 = 210	5	43	43					EDGE LINE
TOTALS		872	872					
		1744						

MEO-162-0433 MEO-162-0457 MEO-162-0489 MEO-162-0793

MEO - 162 - 0433, 0457, 0489 & 0793

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

614 TEMPORARY RAISED PAVEMENT MARKERS

STANDARD NO. D3-2D

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
	Autocad				-

FHWA REGION	STATE	PROJECT	
5	OHIO		

136

35/48

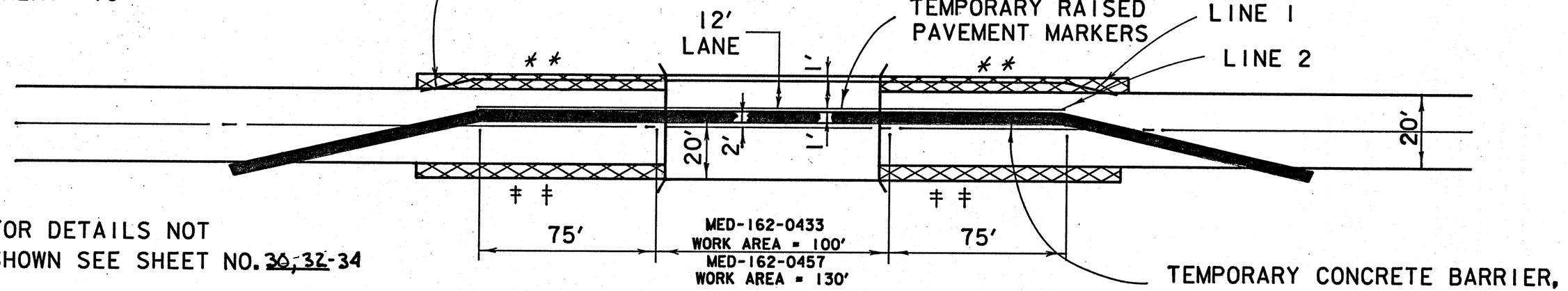
STRUCTURE: MED - 162 - 0433
EXISTING STRUCTURE WIDTH: 36'
CLOSE: 20'
OVERLAY: 18'

STRUCTURE: MED - 162 - 0457
EXISTING STRUCTURE WIDTH: 36'
CLOSE: 20'
OVERLAY: 18'

**SHOULDER WIDENING SHALL BE IN PLACE BEFORE ANY BRIDGE WORK IS DONE.

‡‡SHOULDER WIDENING SHALL BE PLACED AFTER PLANING AND PRIOR TO EXPOSING TO TRAFFIC.

FOR PAVEMENT QUANTITIES SEE SHEET NO. 22



FOR DETAILS NOT SHOWN SEE SHEET NO. 30, 32-34

PHASE A SHOWN

PHASE B SIMILAR

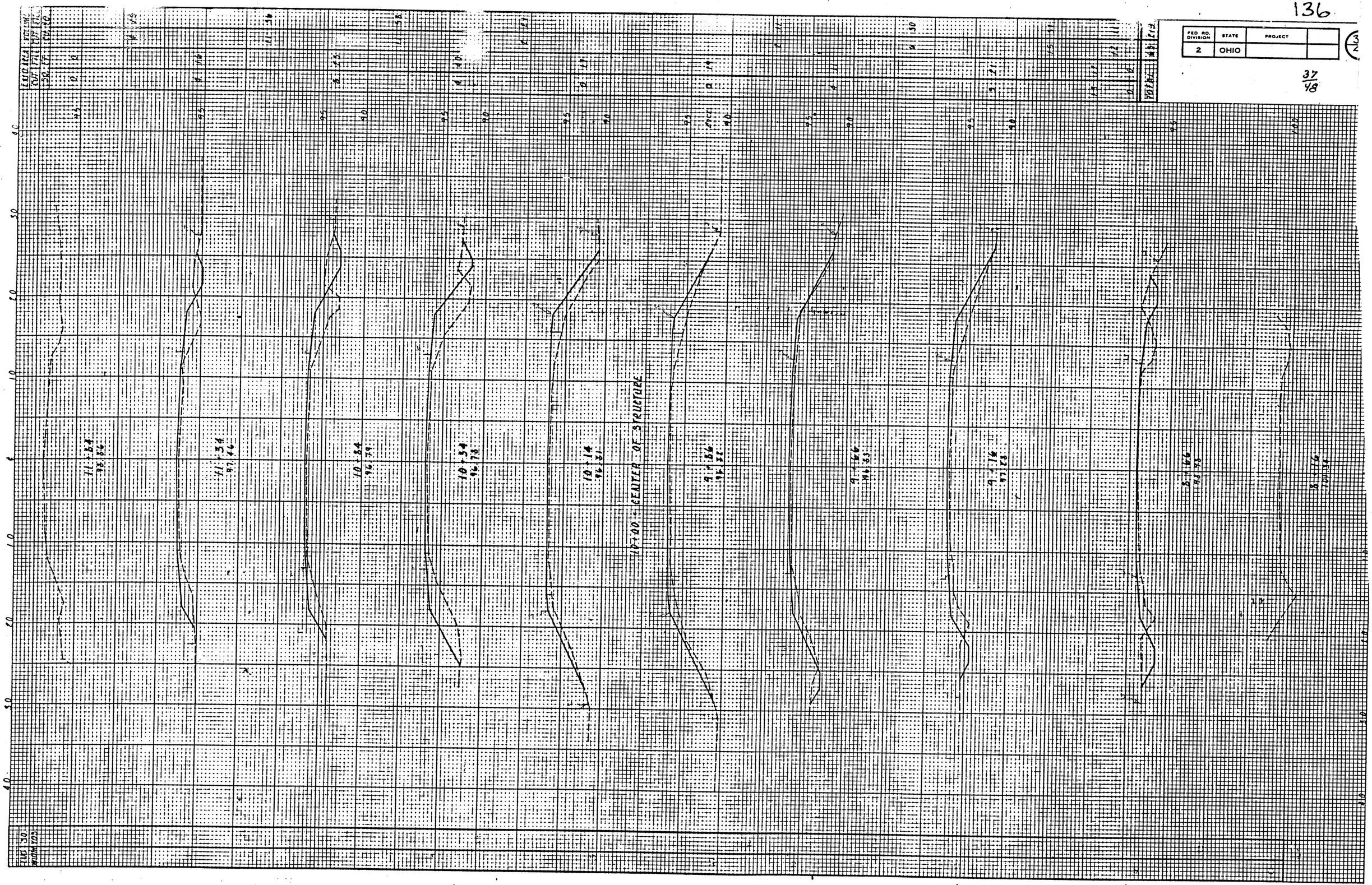
ESTIMATED QUANTITIES

ITEM	QUANTITY		TOTAL QUANTITY	UNIT	DESCRIPTION
	MED-162-0433	MED-162-0457			
614	0.06	0.06	0.12	MILE	TEMPORARY CENTERLINES, SOLID DOUBLE, CLASS I
614	20	20	40	LIN. FT.	TEMPORARY STOP LINES, CLASS I, 947.03, TYPE C
622	450	480	930	LIN. FT.	TEMPORARY CONCRETE BARRIER, MODIFIED, AS PER PLAN

136

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

37
48



FHWA REGION	STATE	PROJECT	
5	OHIO		

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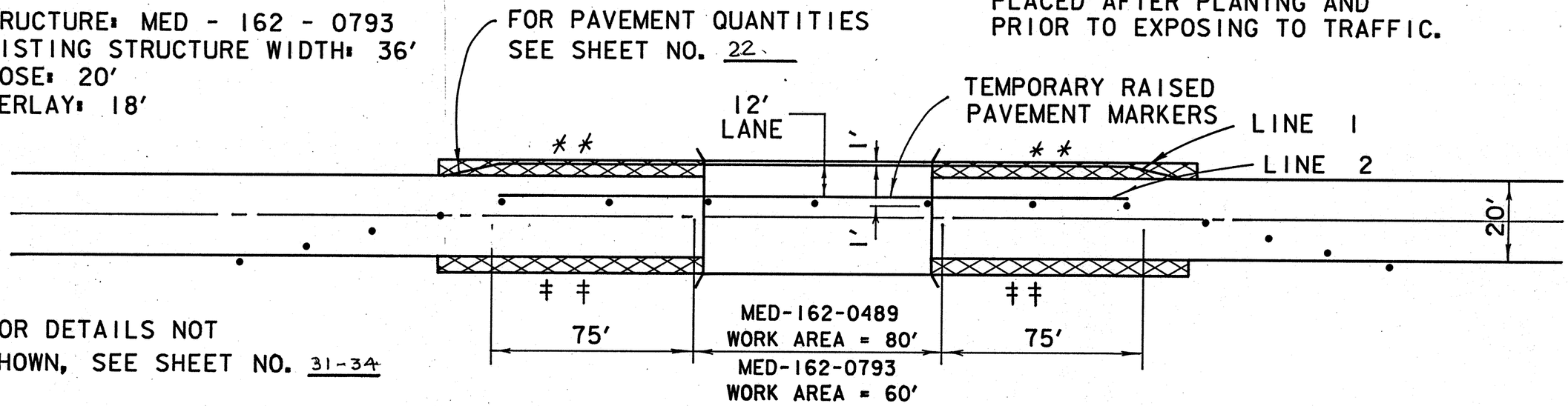
STRUCTURE: MED - 162 - 0489
EXISTING STRUCTURE WIDTH: 36'
CLOSE: 20'
OVERLAY: 18'

STRUCTURE: MED - 162 - 0793
EXISTING STRUCTURE WIDTH: 36'
CLOSE: 20'
OVERLAY: 18'

**SHOULDER WIDENING SHALL BE IN PLACE BEFORE ANY BRIDGE WORK IS DONE.

‡‡ SHOULDER WIDENING SHALL BE PLACED AFTER PLANING AND PRIOR TO EXPOSING TO TRAFFIC.



FOR DETAILS NOT SHOWN, SEE SHEET NO. 31-34

PHASE A SHOWN
PHASE B SIMILAR

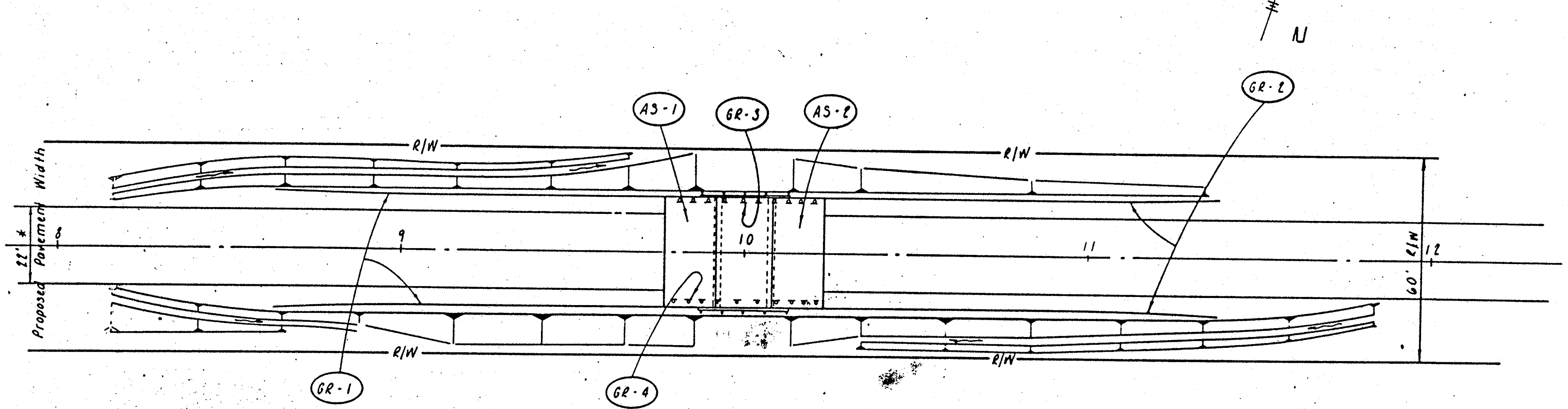
ESTIMATED QUANTITIES

ITEM	QUANTITY		TOTAL QUANTITY	UNIT	DESCRIPTION
	MED-162-0489	MED-162-0793			
614	0.06	0.06	0.12	MILE	TEMPORARY CENTERLINES, SOLID DOUBLE, CLASS I
614	20	20	40	LIN. FT.	TEMPORARY STOP LINES, CLASS I, 947.03, TYPE C

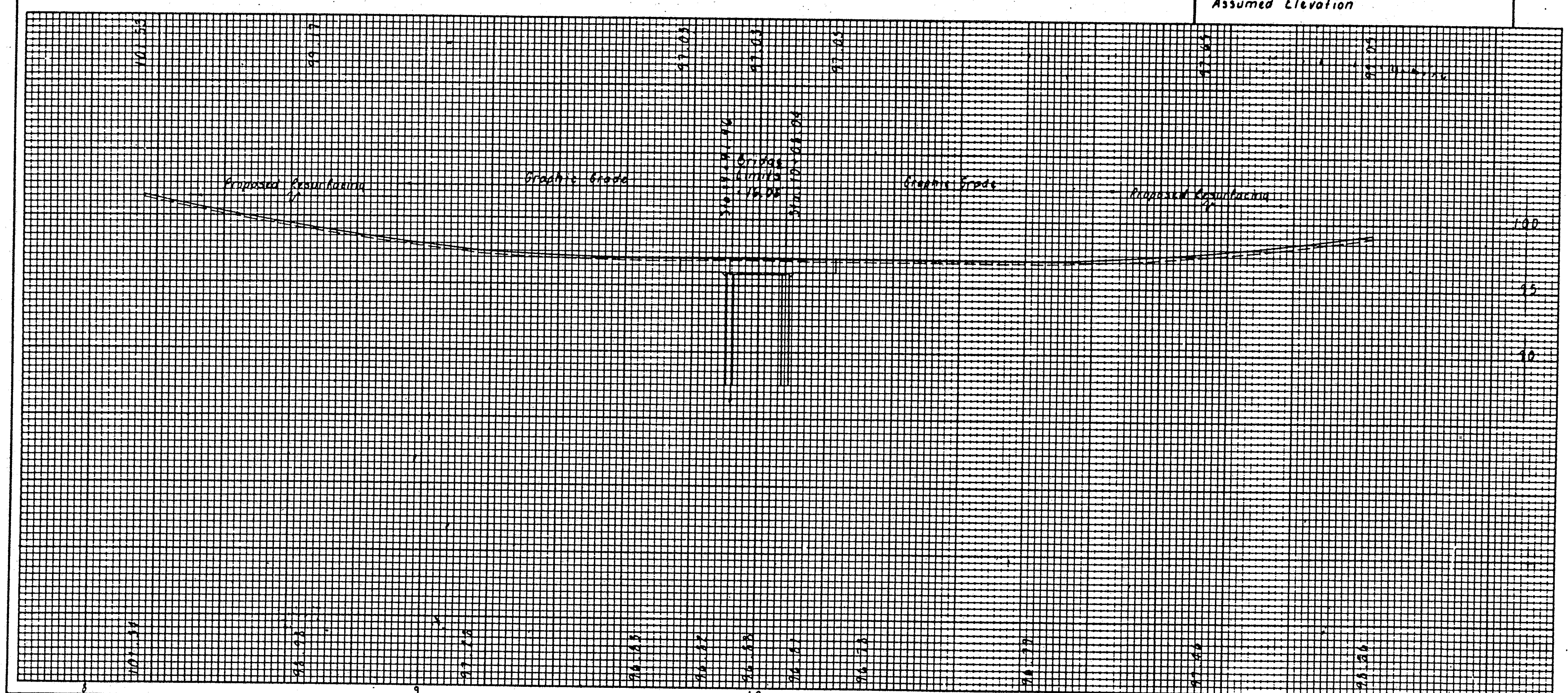
Calc. By : KW 3-87
Chk'd. By : JR 4-87

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

* Existing Pavement Width - 18'
See Sheet No's ______
For Widening Details.



Bench Mark : R.R. Spike in Power Pole
Sta. 8 + 58±, 24± Right
Assumed Elevation



659	Water	M-Gal										2.83						2.83
659	Commercial Fertilizer	Ton										0.12						0.12
659	Seeding and Mulching	Sq. Yd.										1,308						1,308
203	Embankment, AS PER PLAN	Cu. Yd.										213						213
611	Reinforced Concrete Approach Slabs (T=12")	Sq. Yd.				54	54											108
203	Excavation not Including Embankment Construction	Cu. Yd.										63						63
606	Anchor Assembly, Standard Type A	Each	2	2														4
606	Bridge Terminal Assembly, Standard Type B	Each	2	2														4
606	Guardrail, Type 5	Lin. Ft.	200	200														400
202	Pavement Removed	Sq. Yd.				30	30											60
202	Guardrail Removed	Lin. Ft.							42	44								86
	Side		L&R	L&R		L&R	L&R		L	R								
	Station Limits		8+62.5 to 9+87.5	10+12.5 to 11+37.5		9+77 to 9+92	10+08 to 10+23		9+79.5 to 10+21.5	9+77.5 to 10+21.5		8+16 to 11+84						Totals
	Reference No.		GR-1	GR-2		AS-1	AS-2		GR-3	GR-4								

GENERAL NOTES

MED-162-0547

FHWA REGION	STATE	PROJECT	
5	OHIO		

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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 OBSERVATION AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE DO NOT EXIST.

CONTRACT BID PRICES SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

STREAM POLLUTION

THE CONTRACTOR SHALL MAKE PROVISIONS DURING THE BRIDGE REPAIR OPERATION NOT TO ALLOW ANY MATERIALS, EQUIPMENT, ETC., TO FALL INTO OR ENTER THE WATER. MATERIALS MAY BE ALLOWED TO FALL ONTO THE STREAM BANK IF ALL OF THESE MATERIALS ARE REMOVED THE SAME DAY.

ALL WASTE MATERIAL FROM THE STRUCTURE OR APPROACHES SHALL BE DISPOSED OF BY THE CONTRACTOR, BUT IN NO CASE SHALL THE CONTRACTOR OR HIS AGENT USE THE MATERIALS AS FILL AT ANY LOCATION ALONG THE STREAM. THE COST TO COMPLY WITH ALL OF THE ABOVE SHALL BE INCLUDED IN THE RESPECTIVE BID ITEMS.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN TEN (10) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE CROSS SECTIONS, OR TO THE RIGHT-OF-WAY LINE, IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE WORK LIMITS.

ITEM 202 PORTIONS OF STRUCTURES REMOVED, ABUTMENT, AS PER PLAN

THIS ITEM OF WORK SHALL BE USED TO REMOVE THE TOP OF THE ABUTMENT BACKWALL AS PER DETAILS ON SHEET NO. 42 . A HOE RAM WILL NOT BE PERMITTED TO DO ANY OF THE WORK.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 202 PORTIONS OF STRUCTURES REMOVED, ABUTMENT, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 518 POROUS BACKFILL, AS PER PLAN

POROUS BACKFILL SHALL BE INSTALLED AS PER DETAILS IN THE PLAN. THE AGGREGATE SHALL BE NO.57 CRUSHED GRAVEL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518 POROUS BACKFILL, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES (EPOXY)

THE DECK EDGE SHALL BE SEALED USING AN EPOXY SEALER. SEE THE DETAILS ON SHEET NO. 43 FOR AREAS TO BE SEALED. SEE THE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

GENERAL NOTES

ITEM 511 – CLASS S CONCRETE, AS PER PLAN

IN LIEU OF THE PROPORTIONING SPECIFIED IN 499.03 AND 511.02, THE FOLLOWING TABLE SHALL BE USED TO ESTABLISH THE QUANTITIES PER CUBIC YARD FOR CONCRETE. THE COARSE AGGREGATE SHALL BE LIMESTONE.

QUANTITIES PER CUBIC YARD (USING NO. 8 LIMESTONE)

AGGREGATE			CEMENT	WATER/
FINE (LB)	COARSE (LB)	TOTAL (LB)	CONTENT (LB)	CEMENT RATIO
1591	1127	2718	715	0.40

AIR CONTENT – 8% PLUS OR MINUS 2%

HIGH RANGE WATER REDUCER (SUPERPLASTICIZER) MAY BE USED AT THE OPTION OF THE CONTRACTOR IF REQUIRED FOR PLACEMENT. THE DOSAGE RATE WILL BE DETERMINED BY THE CONTRACTOR BASED ON THE MANUFACTURER'S RECOMMENDATION TO ACHIEVE THE DESIRED WORKABILITY LEVEL.

HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM C-494 TYPE F AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

TYPE A OR D CHEMICAL ADMIXTURE CONFORMING TO 705.12, ASTM C-494 AND NOT CONTAINING CALCIUM CHLORIDE SHALL BE ADDED TO THE CONCRETE AT THE PLANT.

ALL ADDITIVES, INCLUDING AIR ENTRAINMENT, SHALL BE MANUFACTURED BY THE SAME COMPANY AND CERTIFIED AS COMPATIBLE BY THE MANUFACTURING COMPANY.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTICIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1-1/2" PLUS OR MINUS 1/2". THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6" PLUS OR MINUS 1". THE CONTACTOR SHALL FURNISH A VOLUMERIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINED AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINED AIR CONTENT AND MINIMUM STRENOTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

ALL INITIAL TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THESE TESTS SHALL BE PERFORMED BY A COMPETENT CONCRETE TECHNICIAN. THIS INFORMATION SHALL BE PROVIDED TO THE PROJECT ENGINEER. THE PROJECT ENGINEER SHALL MAKE ONLY THE FINAL TESTS AS THE CONCRETE IS PLACED ON THE DECK.

THE CONTRACTOR SHALL MAKE ONE OR MORE TRIAL BATCHES OF THE SUPERPLASTICIZED DENSE CONCRETE OF THE SIZE TO BE HAULED AT LEAST FOUR DAYS BEFORE THE DECK IS TO BE PLACED. HE SHALL CAST ONE OR MORE TEST SLABS, E.G. 8 FT. LONG X A WIDTH WHICH IS WIDE ENOUGH TO ACCOMODATE HIS TINING EQUIPMENT X 4 INCHES THICK, FOR TEXTURING ACCORDING TO 511.16 AND SHALL PREPARE OTHER SAMPLES AND SPECIMENS AS DIRECTED BY THE PROJECT ENGINEER. THE CONTRACTOR SHALL FURNISH THE REQUIRED MATERIALS AND SAMPLES WITHOUT CHARGE TO THE STATE AS PER 106.03. THE PROJECT ENGINEER SHALL BE NOTIFIED SEVEN (7) DAYS IN ADVANCE OF THE TEST BATCH PREPARATION AND HE WILL CONDUCT ALL OF THE REQUIRED TESTS.

CURING:

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE A WATER CURING. BY THE CONTINUOUS SPRINKLING METHOD ONLY. SUPPLEMENTAL SPECIFICATION 836 CONCRETE CURING MEMBRANE SHALL NOT BE USED FOR THIS ITEM.

PLACEMENT:

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY THE AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY, AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT *AT NIGHT*.

IF PACEMENT OF THE CLASS S CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST FIFTEEN (15) CALENDER DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

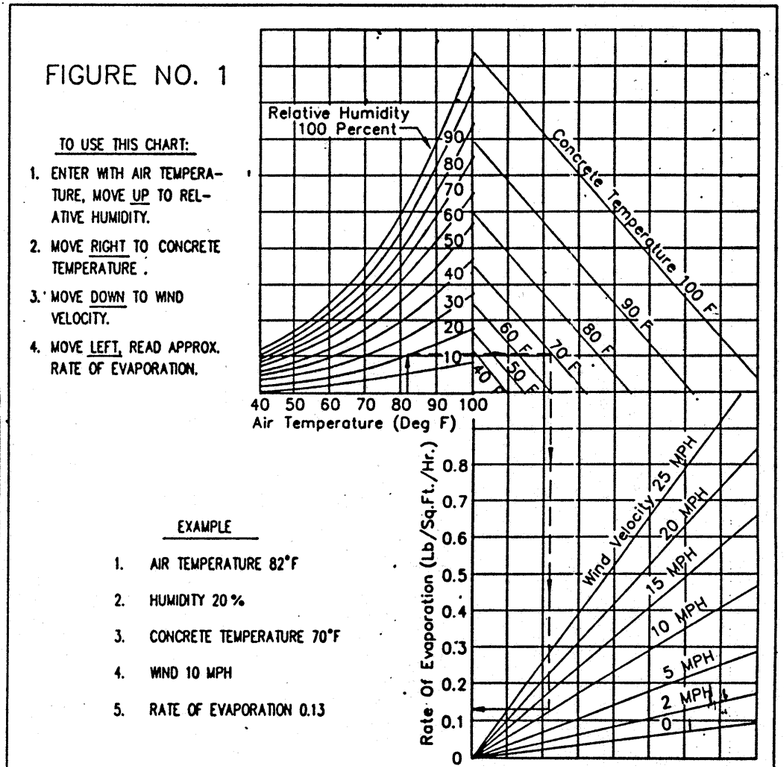
ALL OTHER PROVISIONS OF 511 SHALL REMAIN IN EFFECT.

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

ITEM	UNIT	DESCRIPTION
511	CU.YD.	CLASS S CONCRETE, ABUTMENT, AS PER PLAN
511	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN

* FOR SUPERSTRUCTURE AND ABUTMENTS

FIGURE NO. 1



TO USE THIS CHART:

1. ENTER WITH AIR TEMPERATURE, MOVE UP TO RELATIVE HUMIDITY.
2. MOVE RIGHT TO CONCRETE TEMPERATURE.
3. MOVE DOWN TO WIND VELOCITY.
4. MOVE LEFT, READ APPROX. RATE OF EVAPORATION.

EXAMPLE

1. AIR TEMPERATURE 82°F
2. HUMIDITY 20%
3. CONCRETE TEMPERATURE 70°F
4. WIND 10 MPH
5. RATE OF EVAPORATION 0.13

MEO - 162 - 0547 LATEST REVISION – 3 - 87

Calc by : KW. 1/87
Chk'd by : JR 4-87

FHWA REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	OHIO		41	128

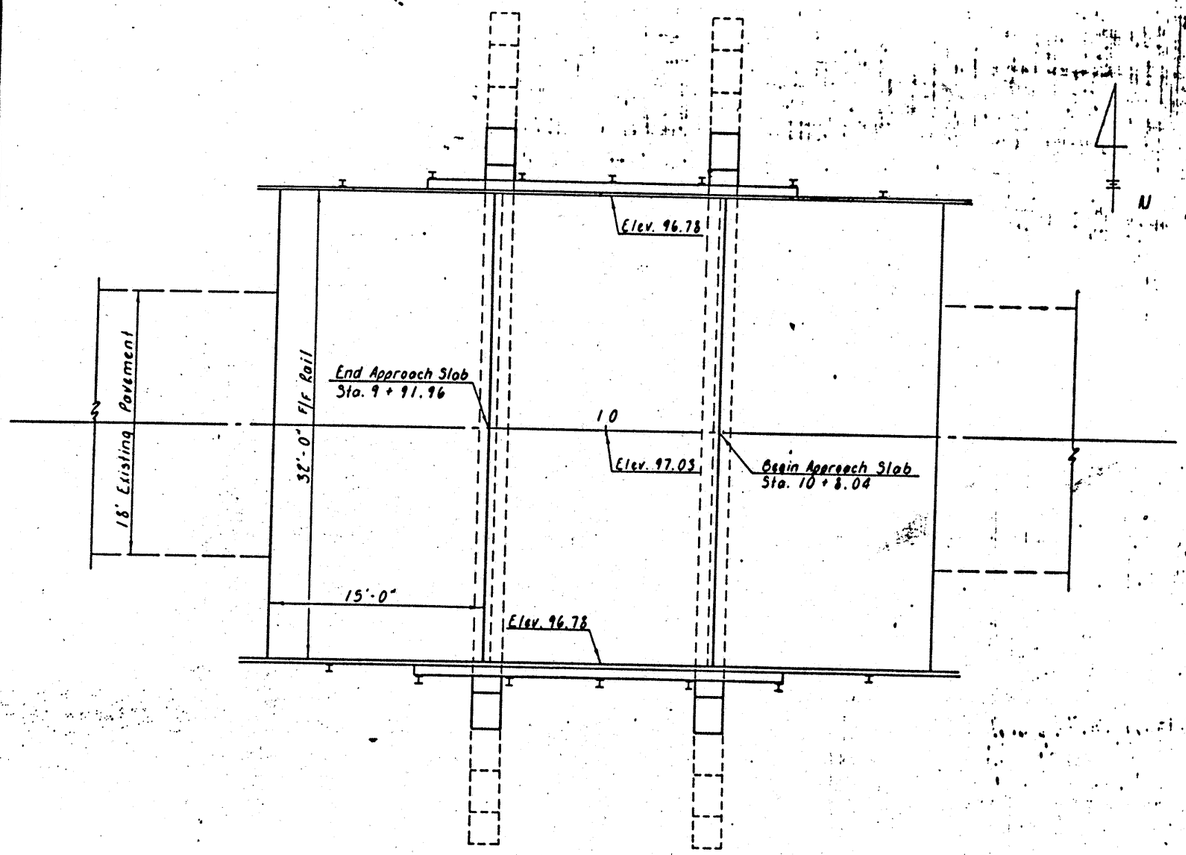
Reference shall be made to Standard Drawings
BS-1-81 Dated 11-27-81
BSR-2-73 Dated 4-10-73
SB-2-73 Dated 4-10-73
and to Supplemental Specifications :
824 Dated 10-8-82

Design Specifications : This Structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1983, including the 1984 and 1985 Interim Specifications and the Ohio "Supplement to these Specifications."

Design Data : Design Loading - H S20-44 and the Interstate Alternate Loading
Concrete Class "S" Unit Stress 1500 P.S.I.
Reinforcing Steel - ASTM A615, A616 or A617 Grade 60 Unit Stress 24,000 P.S.I.

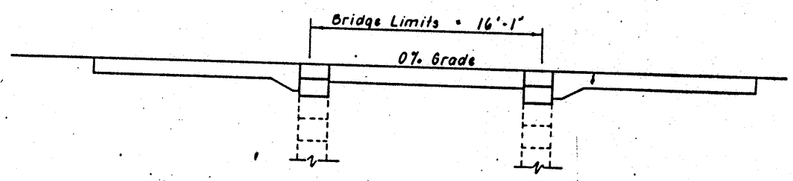
Deck Protection Method : Epoxy Coated Reinforcing Steel, both Mats. 2½" clearance of Top Reinforcing from Surface of Deck.

Monolithic Wearing Surface : Is assumed, for Design Purposes, to be 1" thick.



GENERAL PLAN

Bench Mark : R.R. Spike in Power Pole
Sta. 8+58±, 28± Right
Elevation 100.00 Assumed



GENERAL ELEVATION

* NOTE : Unclassified Excavation shall be used for placement of Porous Backfill & for installation of Approach Slabs not covered under Pavement Removal.

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	SUPER.
202	Lump	Lump	Portions of Structure Removed, Superstructure		Lump
202	12	Cu. Yd.	Portions of Structure Removed, Abutment, As Per Plan	12	
503	21	Cu. Yd.	Unclassified Excavation *	21	
510	88	Each	Dowel Holes	88	
511	10	Cu. Yd.	Class S Concrete, Abutment, As Per Plan	10	
511	24	Cu. Yd.	Class S Concrete, Superstructure, As Per Plan		24
517	50	Lin. Ft.	Railing (Deep Beam Rail with Steel Tubular Backup, Type 6 Posts and Bolts)		50
518	11	Cu. Yd.	Porous Backfill, As Per Plan	11	
824	6622	Lb.	Epoxy Coated Reinforcing Steel, Grade 60	1979	4643
Special	9	Sq. Yd.	Sealing of Concrete Surfaces (Epoxy)		9

EXISTING STRUCTURE

TYPE : Single Span Steel Beam on Concrete Substructure
SPAN : 14'-6" c/c Bearings
ROADWAY : 24'-6"
SKEW : 0°
LOADING : Unknown
WEARING SURFACE : Asphalt
APPROACH SLABS : None
DATE BUILT : Unknown

PROPOSED STRUCTURE

TYPE : Single Span Reinforced Concrete Structure on Existing Substr.
SPAN : 13'-7"
ROADWAY : 32'-0"
SKEW : 0°
LOADING : HS-20-44 (Slab Only)
WEARING SURFACE : Concrete
APPROACH SLABS : 15' Long x 32' Wide

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

GENERAL PLAN, ELEVATION AND ESTIMATED QUANTITIES

MED-162-0547

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
KW 2-87	MGA 2-87	JR 4-87	[illegible]	5-87	

FHWA REGION	STATE	PROJECT	
5	OHIO		

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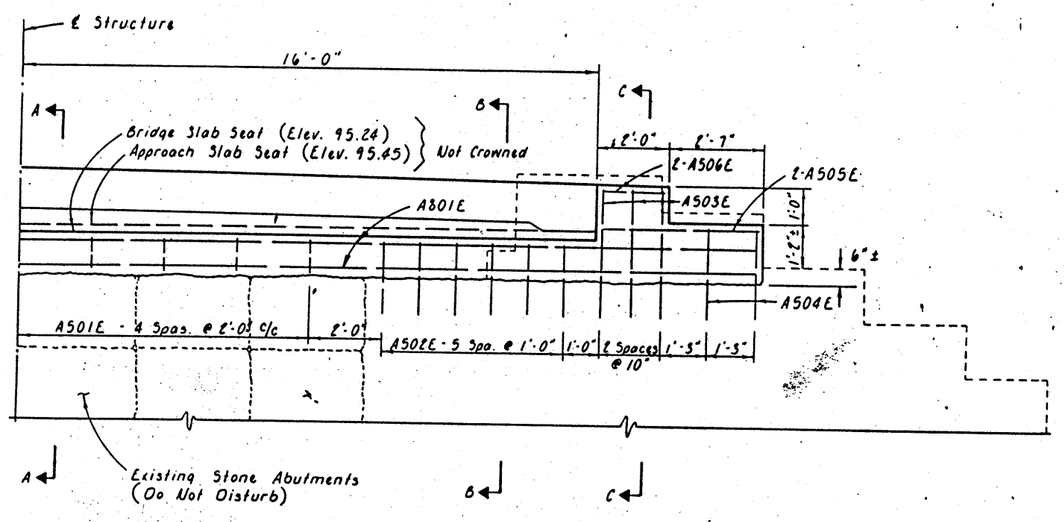
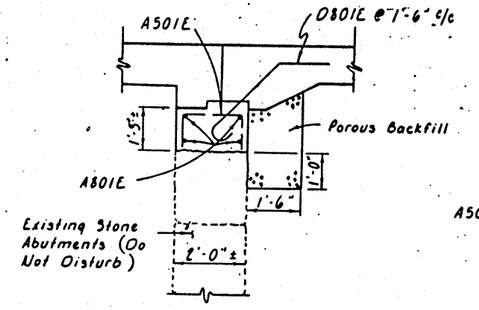
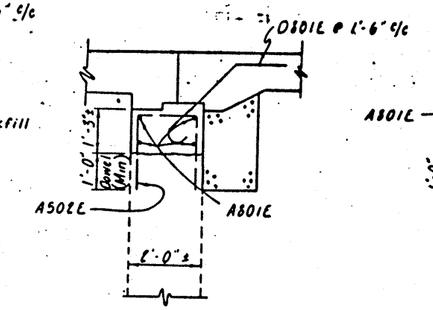
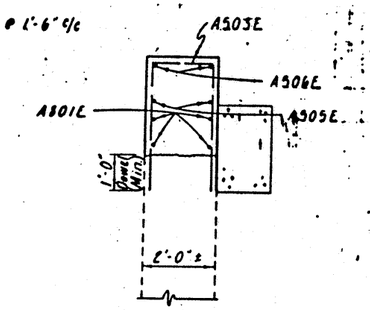




SECTION A-A



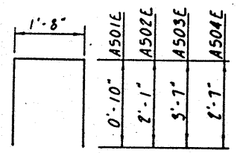
SECTION B-B

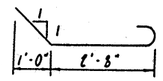


SECTION C-C

ITEM 824 - EPOXY COATED REINFORCING STEEL

MARK	NO.	LENGTH	SHAPE	WEIGHT
A501E	18	3'-1"	B	58
A502E	24	5'-7"	B	140
A503E	12	8'-7"	B	107
A504E	8	6'-7"	B	55
A505E	8	4'-5"	S	35
A506E	8	1'-8"	S	14
A801E	16	23'-0"	S	983
O801E	44	5'-0"	B	587
			Total	1979 Lb





O801E

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

ABUTMENT DETAILS

MEO-162-0547

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
KW 2-87	MGA 2-87	JR 4-87	[illegible]	5-87	...

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FHWA REGION	STATE	PROJECT	
5	OHIO		

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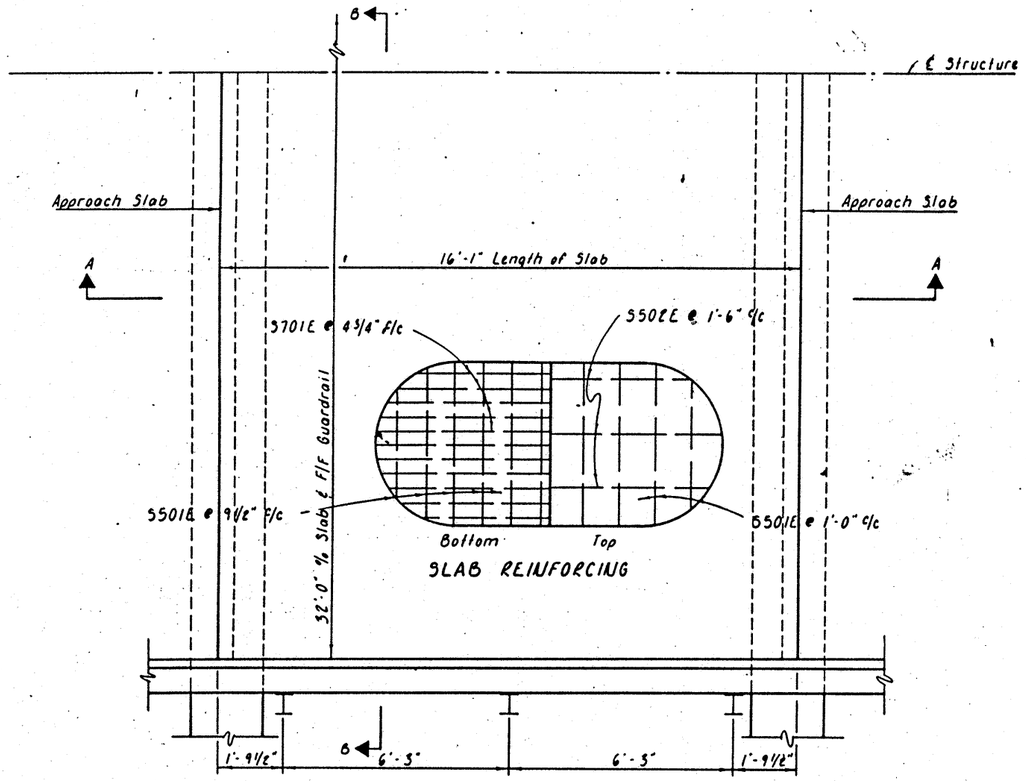
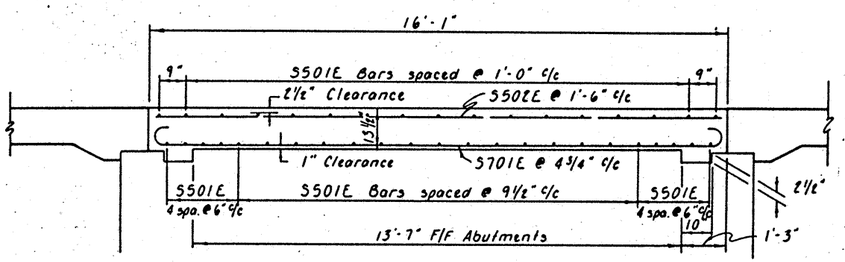
Reinforcing Steel at the option of the Contractor, the S501E Bars may be furnished in pairs lapped thirty diameters. Determination of the Pay Quantity will be according to the number and length of Bars shown on the Project Plans.

ITEM 821 - EPOXY COATED REINFORCING STEEL

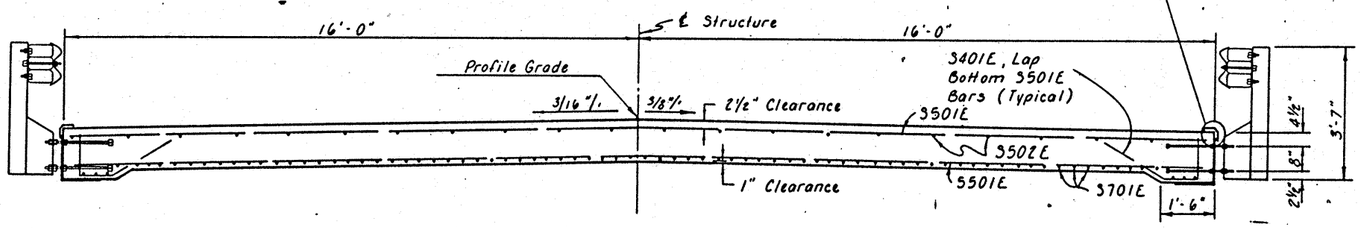
MARK	NO.	LENGTH	SHAPE	WEIGHT
S401E	46	4'-0"	6	123
S501E	40	31'-6"	3	1314
S502E	22	15'-7"	3	358
S701E	80	17'-5"	6	2848
			Total	4643 Lb.



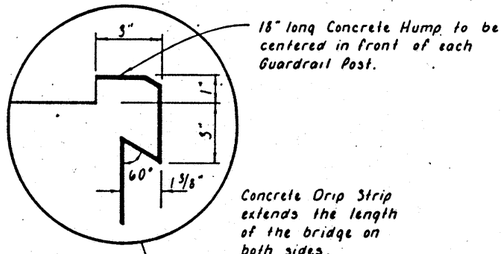
PART PLAN

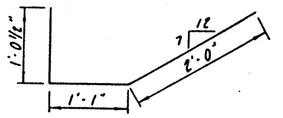


SECTION A-A

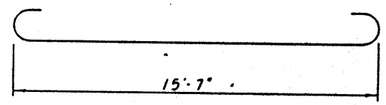


SECTION B-B

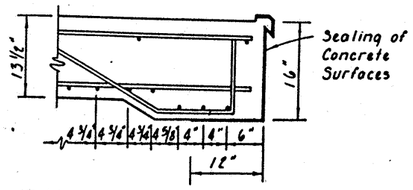




S401E



S701E



TYPICAL EDGE DETAIL

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

SUPERSTRUCTURE DETAILS

MEO-162-0547

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
KW 2/87	MGA 2-87	JR 4-87	[illegible]	5-87	

136

PAGE 2

ALL QUANTITIES CARRIED TO GENERAL SUMMARY

PAVEMENT MARKING SUB-SUMMARY

QUANTITIES			
Calc.		Chk'd.	
Date		Date	

PLAN NO.

FHWA REGION	STATE	PROJECT	
5	OHIO		

45/48

LOR/MED 162 (6.19)/(0.00)

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	621 QUANTITIES CENTER LINE MILES TOTAL	DASHED	SOLID	PARTICIPATION	621 CENTER LINE REMARKS
MED	S.R. 162	2.56	EAST CURB	2.97	EAST CORP.	0.41		0.359		PART III (VILLAGE)
					SUB TOTAL	14.24		11.693		
CENTER LINE TOTAL					GRAND TOTAL	14.65		12.052		

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	621 QUANTITIES 4" LANE LINE MILES TOTAL	DASHED	SOLID	PARTICIPATION	621 LANE LINE REMARKS
LANE LINE TOTAL										

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	WHITE EDGE LINE QUANTITIES TOTAL MILES	HWY. MILES	RAMP MILES	PART.	YELLOW EDGE LINE QUANTITIES TOTAL	HWY.	RAMP	PART.	621 EDGE LINE REMARKS
MED	S.R. 162	2.56	EAST CURB	2.97	EAST CORP.	0.82	0.41							PART III (VILLAGE)
					SUB TOTAL	28.48	14.24							
EDGE LINE TOTAL					GRAND TOTAL	29.30	14.65							

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	621 QUANTITIES 8" CHANNELIZING LINES MILES	LIN. FT.	PARTICIPATION	621 CHANNELIZING LINE REMARKS
CHANNELIZING LINE TOTAL									

847 AUXILIARY MARKING (947.03 TYPE A1) INLAID

CO.	ROUTE	S.L.M. FROM	S.L.M. TO	24" TRANSVERSE LINES WHITE LIN. FT.	24" TRANSVERSE LINES YELLOW LIN. FT.	STOP LINES 24" LIN. FT.	12" CROSS-WALK LINES WHITE LIN. FT.	WORD ON PAVEMENT ONLY EACH	WORD ON PAVEMENT SCHOOL EACH	LANE ARROWS TURN LEFT EACH	LANE ARROWS TURN RIGHT EACH	LANE ARROWS THRU EACH	LANE ARROWS COMB. EACH	R.R. SYMBOL ON PAV'T. EACH	——" DOTTED LINES WHITE LIN. FT.	——" DOTTED LINES YELLOW LIN. FT.	REMARKS
MED	S.R. 162	2.56	2.97			0		0	0					0			PART III (VILLAGE)
AUXILIARY MARKING TOTALS																	

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ALL QUANTITIES CARRIED TO GENERAL SUMMARY

PAVEMENT MARKING SUB-SUMMARY

QUANTITIES			
Calc.		Chk'd.	
Date		Date	

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LOR/MED 162 (6.19)/(0.00)

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	621 QUANTITIES CENTER LINE MILES TOTAL	DASHED	SOLID	202 RAISED PAVEMENT MARKERS REMOVED FOR STORAGE EA.	621 CENTER LINE REMARKS
LOR	S.R. 162	6.19	S.R. 58	8.79	LOR/MED CO. LINE	2.60		1.565	66	PART I
MED	S.R. 162	0.00	LOR/MED CO. LINE	1.97	SPENCER CORP.	1.97		1.560	-0-	PART II
MED	S.R. 162	2.97	SPENCER E. CORP.	12.54	U.S.R. 42 (12.54)	9.54		8.440	267	PART II (CONT.)
MED	S.R. 162	1.97	SPENCER W. CORP.	2.10	SPENCER E. CORP.	0.13		0.128	-0-	PART III (VILLAGE)
CENTER LINE TOTAL					SUBTOTAL	14.24		11.693	333	

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	621 QUANTITIES 4" LANE LINE MILES TOTAL	DASHED	SOLID	PARTICIPATION	621 LANE LINE REMARKS
LANE LINE TOTAL										

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	WHITE EDGE LINE QUANTITIES TOTAL MILES	HWY. MILES	RAMP MILES	PART.	YELLOW EDGE LINE QUANTITIES TOTAL	HWY.	RAMP	PART.	621 EDGE LINE REMARKS
LOR	S.R. 162	6.19	S.R. 58	8.79	LOR/MED CO. LINE	5.20	2.60							PART I 9' Lanes-(All Parts)
MED	S.R. 162	0.00	LOR/MED CO. LINE	1.97	SPENCER CORP.	3.94	1.97							PART II
MED	S.R. 162	2.97	SPENCER E. CORP.	12.54	U.S.R. 42 (12.54)	19.08	9.54							PART II (CONT.)
MED	S.R. 162	1.97	SPENCER W. CORP.	2.10	SPENCER E. CORP.	0.26	0.13							PART III (VILLAGE)
EDGE LINE TOTAL					SUBTOTAL	28.48	14.24							

CO.	ROUTE	FROM S.L.M.	FROM	TO S.L.M.	TO	621 QUANTITIES 8" CHANNELIZING LINES MILES	LIN. FT.	PARTICIPATION	621 CHANNELIZING LINE REMARKS
CHANNELIZING LINE TOTAL									

847 AUXILIARY MARKING (947.03 TYPE A1) INLAID

CO.	ROUTE	S.L.M. FROM	S.L.M. TO	24" TRANSVERSE LINES WHITE LIN. FT.	24" TRANSVERSE LINES YELLOW LIN. FT.	STOP LINES 24" LIN. FT.	12" CROSS-WALK LINES WHITE LIN. FT.	WORD ON PAVEMENT ONLY EACH	WORD ON PAVEMENT SCHOOL EACH	LANE ARROWS TURN LEFT EACH	LANE ARROWS TURN RIGHT EACH	LANE ARROWS THRU EACH	LANE ARROWS COMB. EACH	R.R. SYMBOL ON PAV'T. EACH	——" DOTTED LINES WHITE LIN. FT.	——" DOTTED LINES YELLOW LIN. FT.	REMARKS
LOR	S.R. 162	6.19	8.79			50								1			PART I
MED	S.R. 162	0.00	1.97			20								1			PART II
MED	S.R. 162	2.97	12.54			124								0			PART II (CONT.)
MED	S.R. 162	1.97	2.10			0								0			PART III (VILLAGE)
AUXILIARY MARKING TOTALS						194								2			

PAVEMENT MARKING TYPICAL DETAILS

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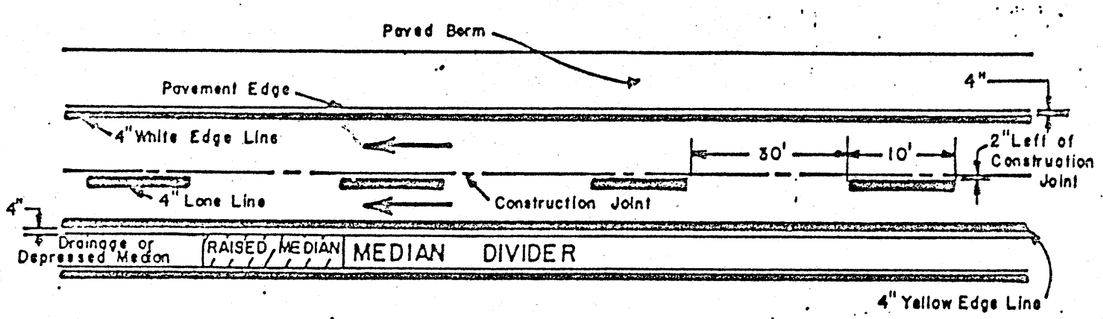
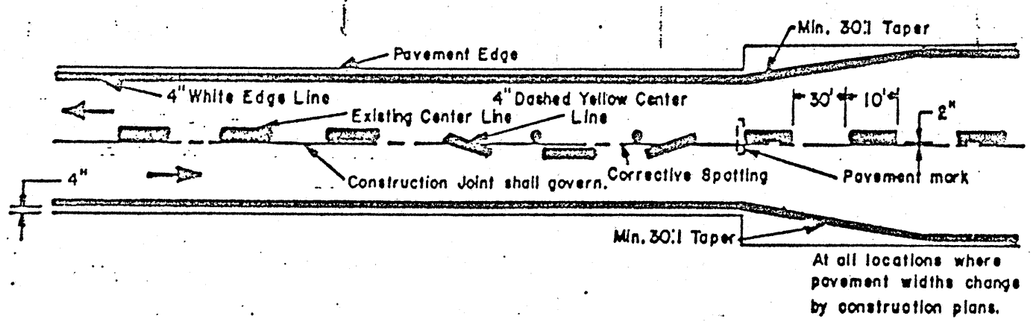
LOR-162(6.19)
MED-162(0.00)

FREEWAY & EXPRESSWAY MAINLINE MARKINGS

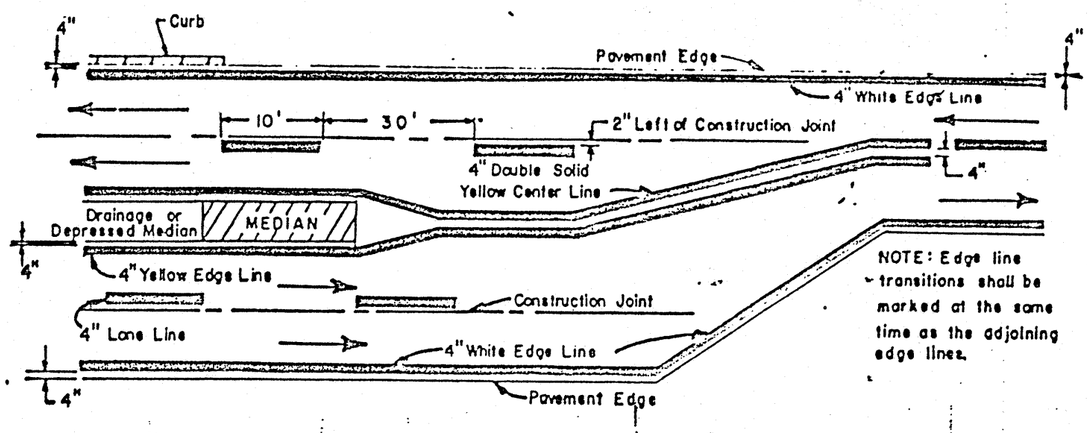


TWO LANE MARKINGS



At all locations where pavement widths change by construction plans.

MULTILANE DIVIDED & UNDIVIDED HIGHWAY MARKINGS



NOTE: Edge line transitions shall be marked at the same time as the adjoining edge lines.

NOTES:

1. THE DISTANCE FROM THE PAVEMENT EDGE TO THE NEARSIDE 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.

DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING TYPICAL DETAILS

DATE 11/80

JDL CDR

12/81

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PLAN NO. 136

INITIAL PAVEMENT MARKINGS FOR RESURFACED SECTIONS

GENERAL NOTES

In addition to the requirements of 621 and 847 the following shall apply:

621 Materials

Glass beads shall be kept dry during storage and prior to use.

621 SPECIAL EQUIPMENT

The Contractor's striper shall be equipped with an odometer graduated to 1/100 of a mile. The Engineer will determine the degree of accuracy of the Contractor's odometer and establish an adjustment factor as may be required to accurately determine the pay item quantities. The Engineer will periodically check the odometer's operation to assure maintenance of accurate measurements.

Failure of the odometer to function properly shall be cause to stop the work until the odometer is made to function properly. On short projects the Engineer may approve alternate methods to accurately measure the length of the various types of markings applied. If measurement of the work has to be done by the Department, the cost of the Department labor and equipment plus 10 percent shall be deducted from payment due the Contractor for the work. When measuring lane, edge and center line marking the odometer shall be started at the first marked line and remain in operation, until the end of the section being marked, where it shall be shut off and the reading of the odometer recorded.

Electrical foot counters shall be provided and installed in the striper. The counters shall individually tabulate the amount of footage applied by each striping gun on the center line carriage and lane line carriage, whether solid or dashed. The counters shall be 6 digit type with a reset feature.

The pavement marking equipment shall be equipped with a pressure regulated air jet which shall remove all debris from the pavement in advance of the applicator gun. The air jet shall operate when marking material is being applied and shall be synchronized with marking material application or remain "on" at all times.

The Contractor shall use an accurate dashing mechanism, capable of being easily adjusted

Provision for the above special equipment by the Contractor shall be incidental to the application.

847 LAYOUT AND PREMARKING

In addition to the requirements of 847 premarking for auxiliary markings shall be located from schematic forms provided at the pre-construction conference.

621 MATERIAL QUANTITY MEASUREMENT

The quantity of marking material or glass beads per unit of measurement will be computed by the Engineer at the end of each day's work. A day's applied mileage of less than 2 miles may be included in the next day's applied markings for the purpose of computing marking material and bead application rates.

The Contractor shall provide a calibrated measuring device acceptable to the Engineer for measuring material in the striper tanks.

The quantity of marking material used shall be determined by measuring the marking material in the tanks before and after marking material is applied. The Contractor shall cooperate with the Engineer in providing measurements whenever requested. The marking material application rate shall be determined by dividing the total gallons used by the appropriate marking length as determined from the foot counter as described within the Special Equipment Section of these notes. Any determination of pay deduction resulting from shortages in marking quantities shall be based on the measurements obtained by this method. The amount of glass beads applied will be ascertained by the Engineer by observation and from information supplied by the Contractor as to quantity used.

847 AUXILIARY PAVEMENT MARKING

For this project auxiliary markings shall be defined as: stop lines, crosswalk lines, transverse lines, railroad symbol markings, lane arrows, word on pavement and dotted lines except when used to extend edge lines.

STANDARD CONSTRUCTION DRAWING TC 71.10

The dimensions shown on Standard Construction Drawing TC 71.10 are nominal. Letters, numerals and symbols conforming to the requirements of section 3B-17 of the 1978 National Manual On Uniform Traffic Control Devices may also be used. Any of the following standards for letters, numeral or symbol dimensioning may be used: A.) Standard dimensions shown on this detail or B.) Standard dimensions (either metric or their hard converted English unit equivalents) in accord with the 1977 Metric Edition Standard Alphabets For Highway Signs and Pavement Marking with Errata or C.) Standard dimensions shown in figures 3-17, 3-18, 7-2, 7-3, 8-2 or 9-6 of the 1978 National Manual On Uniform Traffic Contol Devices.

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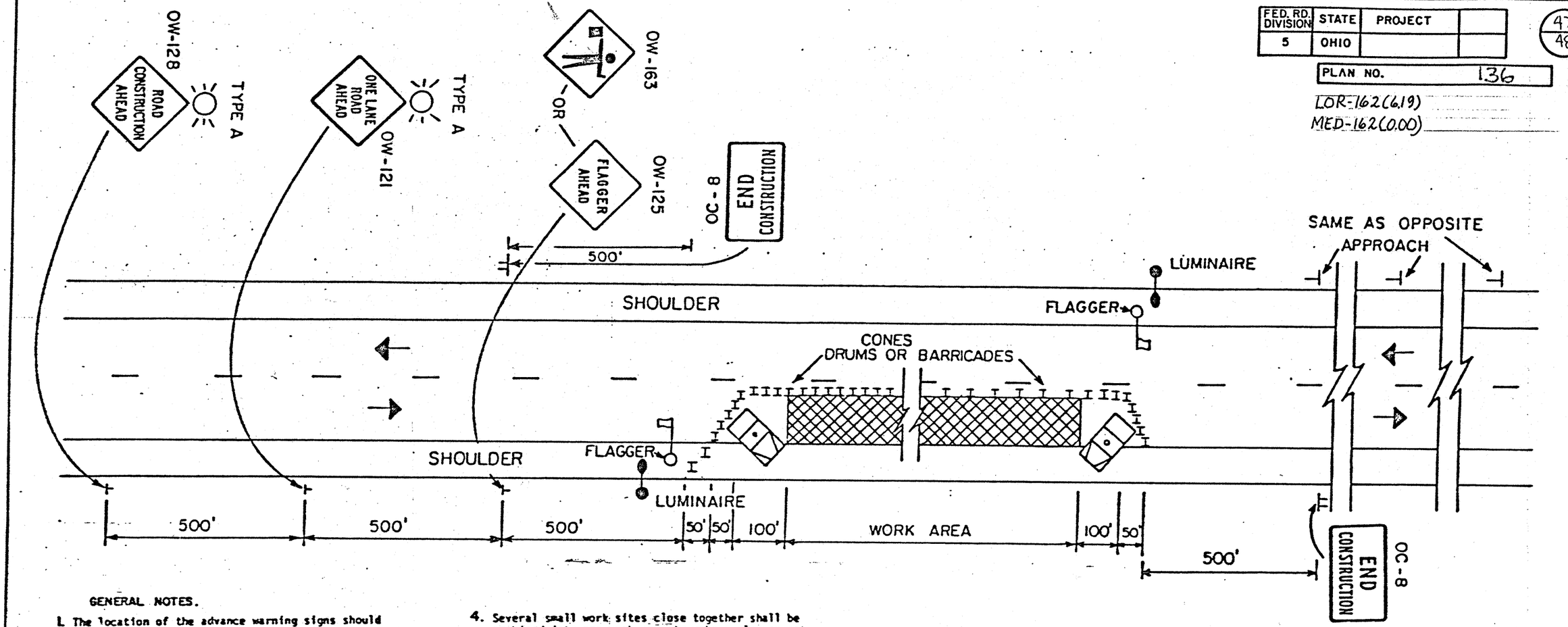
PLAN NO. 136

LOR-162(6.19)
MED-162(0.00)



GENERAL NOTES.

1. The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment. The distances shown are minimums.

2. Flaggers shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall communicate with each other at all times as described in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) in Section 7H: Control of Traffic Through Work Areas.

3. Cones drums or barricades shall be spaced at approximately 50' to 60' center to center for the first 1000 feet of the work area and at a maximum of 100' to 120' center to center for the balance of the work area. Cones, drums or barricades on the advance and return tapers shall be spaced at 10' center to center. Cones may be substituted for barricades or drums for lane closures during daylight hours only.

4. Several small work sites close together shall be combined into one work area to make a closure not more than 2000 feet long including tapers. Closures of more than 2000 feet may be approved by the Engineer. The minimum length between closures shall be 2000 feet. Only one side of the road shall be closed in any one work area.

5. The work vehicles shown at the beginning and end of the work area shall be in place and unoccupied whenever workers are in the work area. These work vehicles 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 vehicles shown when approved by the Engineer. The vehicles shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of a ½ mile.

6. 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.

7. Type C steady burning barricade warning lights shall be erected on drums or barricades for night lane closures. The maximum spacing shall be identical to the channelizing device spacing requirements described in Note 3.

8. Adequate area illumination to clearly identify the flagger station at night for long term operations shall be provided by using 150 watt minimum high pressure sodium luminaires or 250 watt minimum mercury luminaires. Luminaires shall be located adjacent to one flagger station for each direction of traffic as shown above. The mounting height for temporary luminaires shall be a minimum of 27 feet above the pavement and the overhead conductor clearance shall be 20 feet above the pavement.

OHIO DEPARTMENT OF TRANSPORTATION

FLAGGERS CLOSING 1 LANE OF A 2 LANE HIGHWAY

DATE 12/82

7G-1

Rev EEF 9/84

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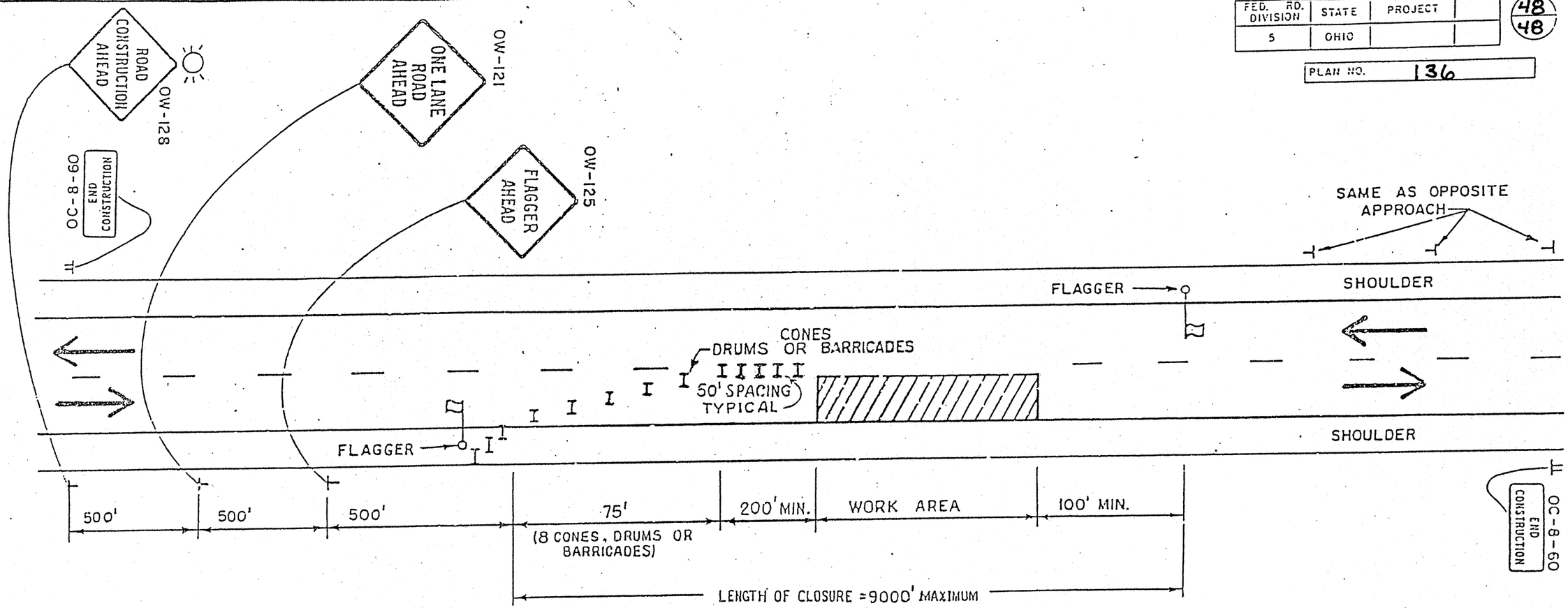

GENERAL NOTES

1. FLAGGERS SHALL BE USED TO CONTROL TRAFFIC CONTINUOUSLY FOR AS LONG AS ONE LANE OPERATION IS IN EFFECT. FLAGGERS SHALL BE ABLE TO COMMUNICATE WITH EACH OTHER AT ALL TIMES EITHER VERBALLY OR BY MEANS OF RADIO OR FIELD TELEPHONES. FLAGGER STATIONS SHALL BE ADEQUATELY ILLUMINATED FOR NIGHT TIME OPERATIONS BY USE OF A 175 WATT MINIMUM LUMINAIRE.

2. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.

3. WHEN THE AMBIENT TEMPERATURE EXCEEDS 80 DEGREES F, THE ENGINEER MAY INCREASE THE LENGTH OF CLOSURE TO ALLOW FOR SUFFICIENT COOLING OF THE NEW PAVEMENT.

   THE ENGINEER MAY SHORTEN THE MAXIMUM ALLOWABLE LENGTH OF CLOSURE TO RELIEVE EXCESSIVE TRAFFIC BACKUPS.

   ALL TRAFFIC CONTROL SIGNS, CHANNELIZING DEVICES, AND FLAGGERS SHALL BE MOVED FORWARD BEFORE THE CLOSURE REACHES THE MAXIMUM ALLOWABLE LENGTH. ONLY ONE SIDE OF THE ROAD SHALL BE CLOSED AT ANY TIME IN A WORK AREA.

4. THE TYPE B HIGH INTENSITY BARRICADE WARNING LIGHT SHOWN ON THE ROAD CONSTRUCTION AHEAD SIGN IS REQUIRED WHENEVER NIGHT LANE CLOSURE IS NECESSARY.

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

6. THE ADVANCE WARNING SIGNS "OW-128" "OW-121" AND "OW-125" SHALL BE MOVED BACK AS REQUIRED BY THE QUEUING OF STOPPED VEHICLES.

7. WITHIN THE LENGTH OF CLOSURE, PROVISION SHALL BE MADE TO CONTROL TRAFFIC ENTERING FROM INTERSECTING STREETS AND MAJOR DRIVES AS NECESSARY TO PREVENT WRONG WAY MOVEMENTS AND TO KEEP VEHICLES OFF OF NEW PAVEMENT NOT READY FOR TRAFFIC.

REV. 4/87

OHIO DEPARTMENT OF TRANSPORTATION		
FLAGGERS CLOSING 1 LANE OF A 2 LANE HIGHWAY		DATE 12/80
PAVING OPERATIONS		
CR	CX	

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