

435

OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

FHWA REGION	STATE	FEDERAL PROJECT	
5	OHIO		

1
12

PLAN NO. 239

PART	COUNTY	ROUTE	SECTIONS	PROJECT TERMINII		NET LENGTH MILES	TOWNSHIP	CITY	VILLAGE
				BEGIN	END				
1	POR	US 224	(12.99)	12.99	13.52	0.53			
2	POR	SR 183	(0.00-0.54) (3.01-5.35)	0.00	7.61	7.07			

The Standard 1989 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. _____ and that detours will be provided by State forces. The closing to traffic of the highways will not be required on Parts No. 1 & 2 and provisions for the maintenance and safety of traffic will be as indicated in the proposal.

Approved
Date 1-8-90

William J. Sunkley
District Deputy Director of Transportation
B. D. Hanlon
Engineer of Bridges

JEM Approved
Date 1-16-90

Approved
Date _____
Engineer of Maintenance

Approved
Date 2-23-90 *James C. Longenecker*
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 2-26-90 *Bernard B. Hurst*
Director, Department of Transportation

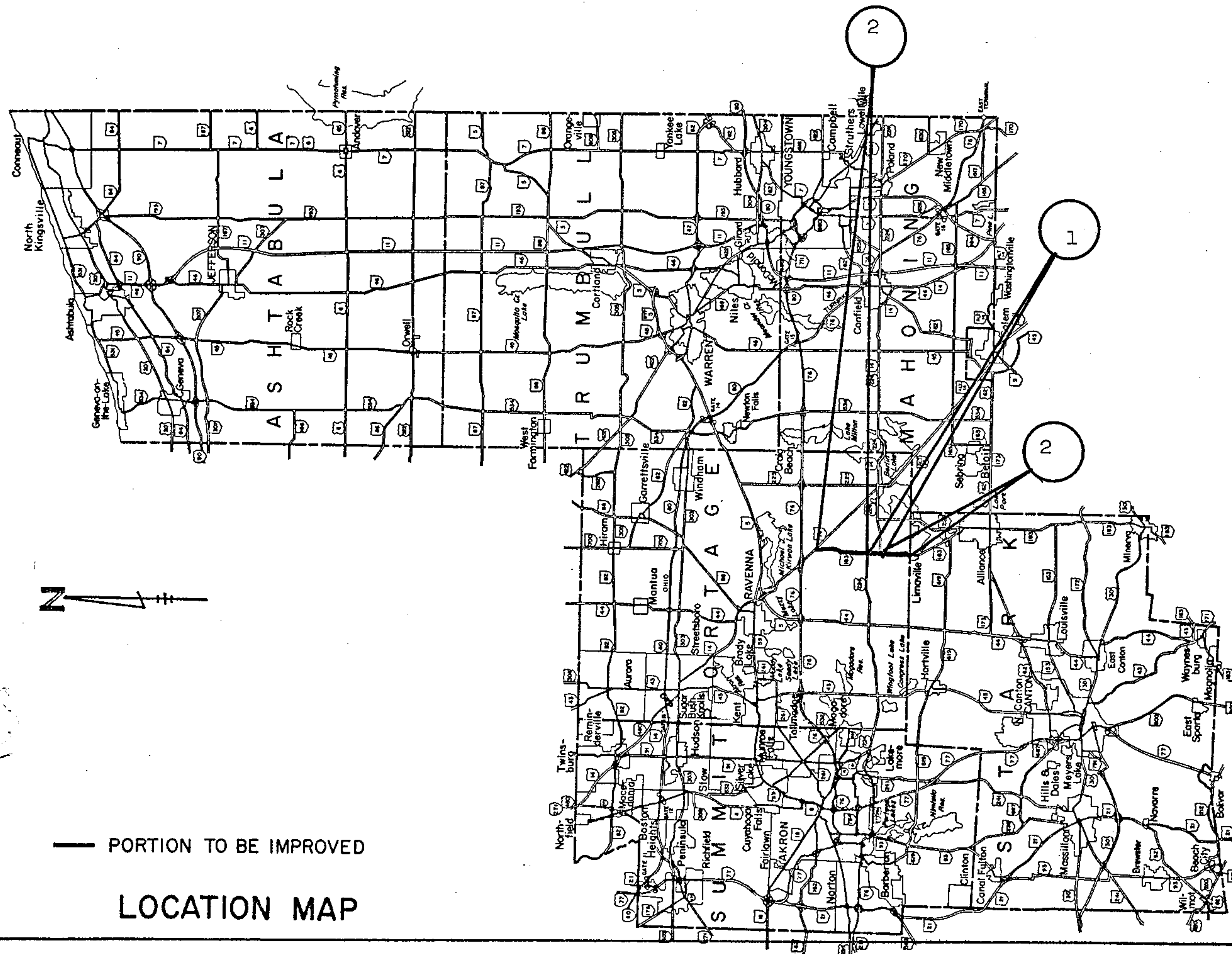
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

STANDARD DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
BP-5	10/ 1/87	847	10/17/83
MT 99.10	11/14/86	947	10/17/83
MT 99.20	4-29-88		
MT 97.10	4-29-88		
MT 97.11	10-4-89		

Sheets 10A and 11A been added



06-90

LOCATION MAP

GENERAL NOTES

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PLAN NO.
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ESTIMATED QUANTITIES:

SPECIFIC LOCATIONS AND USAGE OF ESTIMATED QUANTITIES SET UP ON THIS PLAN TO BE USED AS DIRECTED BY THE ENGINEER SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT. ESTIMATED QUANTITIES OF MATERIAL SHALL NOT BE ORDERED FOR DELIVERY TO THE PROJECT UNLESS AUTHORIZED BY THE ENGINEER.

TRAFFIC:

TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. THE LENGTH OF RESTRICTED TRAFFIC ZONES SHALL BE KEPT TO A MINIMUM CONSISTENT WITH THE SPECIFICATION REQUIREMENTS FOR PROTECTION OF COMPLETED COURSES.

RAILROAD CROSSINGS:

THE NEW SURFACE COURSE SHALL BE FEATHERED OR BUTT JOINTED TO MEET THE RAIL GRADES AS SPECIFIED.

ALIGNMENT AND PROFILE:

THE WORK PROPOSED BY THIS PROJECT IS FOR THE RESURFACING OF THE EXISTING PAVEMENT. THE ALIGNMENT OF THE EXISTING PAVEMENT WILL NOT BE CHANGED, AND THE PROFILE OF THE PROPOSED SURFACE WILL BE SIMILAR TO THAT OF THE EXISTING PAVEMENT EXCEPT THAT IT WILL BE RAISED AN AMOUNT EQUAL TO THE THICKNESS OF THE RESURFACING COURSE OR COURSES SPECIFIED IN THESE PLANS.

INTERMEDIATE COURSE, SPOT LEVELING AND PATCHING:

THIS MATERIAL SHALL BE PLACED IN A SEPARATE OPERATION WHERE AND AS DIRECTED BY THE ENGINEER.

TACK COAT:

407.04 PREPARATION OF SURFACE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL DIRT, VEGETATION, ETC. TO EXPOSE THE EXISTING PAVED SHOULDER AT NO ADDITIONAL COST TO THE STATE.

ASPHALT CONCRETE AC-20, DRIVEWAYS

This item of work shall consist of paving all existing driveways, 2" minimum aggregate or 1" minimum improved, a distance of 15 feet from the edge of the paved shoulder unless otherwise directed by the engineer. All grading, prime, tack, tools, equipment, material and incidentals required to layout and construct the driveways shall be included in the unit price bid for Item 404 Asphalt Concrete AC-20 for driveways.

TACK COAT:

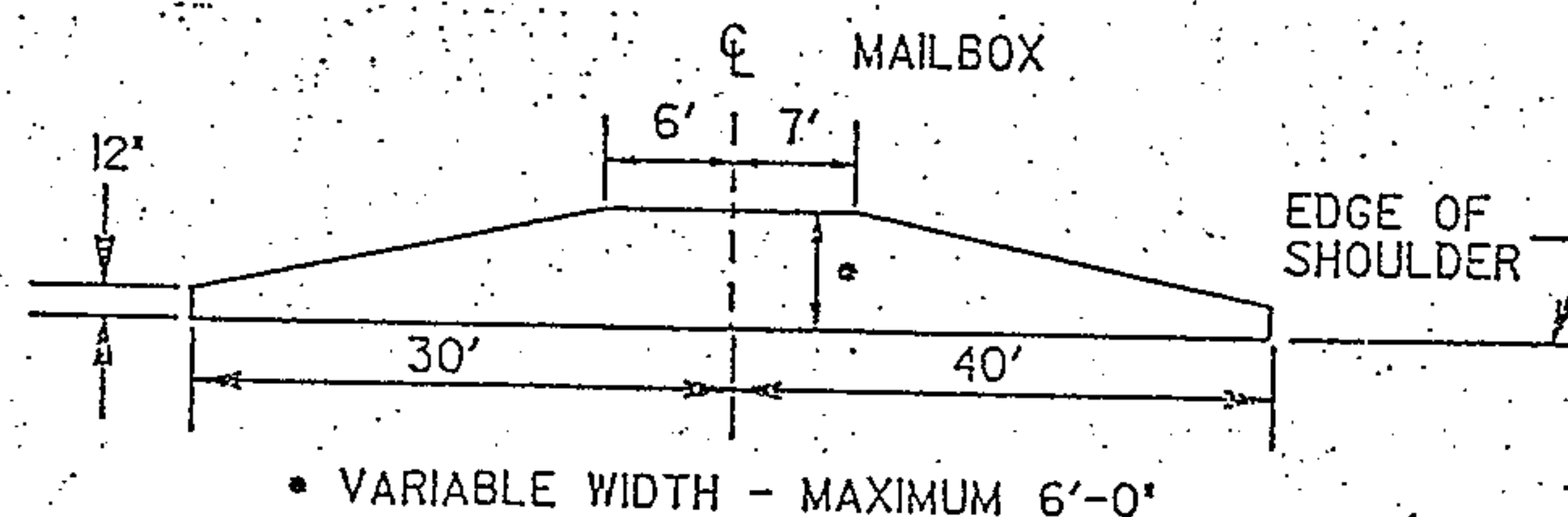
THE TACK COAT OPERATION SHALL BE AS DETERMINED AT A PRE-CONSTRUCTION CONFERENCE AS PER 407.05, AND APPLICATION RATES SHALL NOT EXCEED 0.10 GAL. PER SQ. YD.

PAVED MAILBOX APPROACHES:

ALL EXISTING MAILBOX APPROACHES SHALL BE PAVED WITH 404 ASPHALT CONCRETE AS PER TYPICAL SHOWN OR AS NEAR AS PRACTICABLE. AGGREGATE APPROACHES SHALL HAVE 2.0' MINIMUM THICKNESS; IMPROVED APPROACHES SHALL HAVE A 1.0' MINIMUM THICKNESS. THE CONTRACTOR HAS THE OPTION OF PAVING THE MAILBOX APPROACHES WITH EITHER THE PAVING OF THE DRIVEWAYS OR THE PAVING OF THE MAINLINE AND SHOULDERS. PAYMENT SHALL BE AS FOLLOWS:

1. SHOULD THE CONTRACTOR ELECT TO PAVE THE MAILBOX APPROACHES WITH THE DRIVEWAYS THEN ALL GRADING, PRIME, TACK, TOOLS, EQUIPMENT, MATERIAL AND INCIDENTALS REQUIRED TO LAYOUT AND CONSTRUCT THE MAILBOX APPROACHES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 404 ASPHALT CONCRETE AC-20 FOR DRIVEWAYS.

2. SHOULD THE CONTRACTOR ELECT TO PAVE THE MAILBOX APPROACHES WITH THE MAINLINE AND SHOULDERS THEN ALL GRADING, PRIME, TACK, TOOLS, EQUIPMENT, MATERIAL AND INCIDENTALS REQUIRED TO LAYOUT AND CONSTRUCT THE MAILBOX APPROACHES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 404 ASPHALT CONCRETE AC-20.



INTERSECTIONS:

INTERSECTIONS SHALL BE RESURFACED A MINIMUM OF 25 FT. BEYOND THE EDGELINE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ESTIMATED AVERAGE THICKNESS 1.25 INCHES. WHEN AGGREGATE INTERSECTIONS ARE ENCOUNTERED, THE AVERAGE THICKNESS SHALL BE 3.0 INCHES AND ANY GRADING OR PRIME NECESSARY TO ACCOMPLISH WORK SHALL BE INCLUDED IN THE COST OF ITEM OF 404.

PAVED SHOULDERS:

402/403/404 ASPHALT CONCRETE FOR SHOULDERS MAY BE PLACED IN THE SAME OPERATION AS ADJACENT PAVEMENT OVERLAY.

ITEM 404 ASPHALT CONCRETE AC-20 FOR DRIVEWAYS:

THIS ITEM OF WORK SHALL CONSIST OF PAVING ALL EXISTING DRIVEWAYS, 2" MIN. AGGREGATE OR 1" MIN. IMPROVED, A DISTANCE OF 10' FROM THE EDGE OF THE PAVED SHOULDER UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL GRADING, PRIME, TACK, TOOLS, EQUIPMENT, MATERIAL AND INCIDENTALS REQUIRED TO LAYOUT AND CONSTRUCT THE DRIVEWAYS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 404 ASPHALT CONCRETE AC-20 FOR DRIVEWAYS.

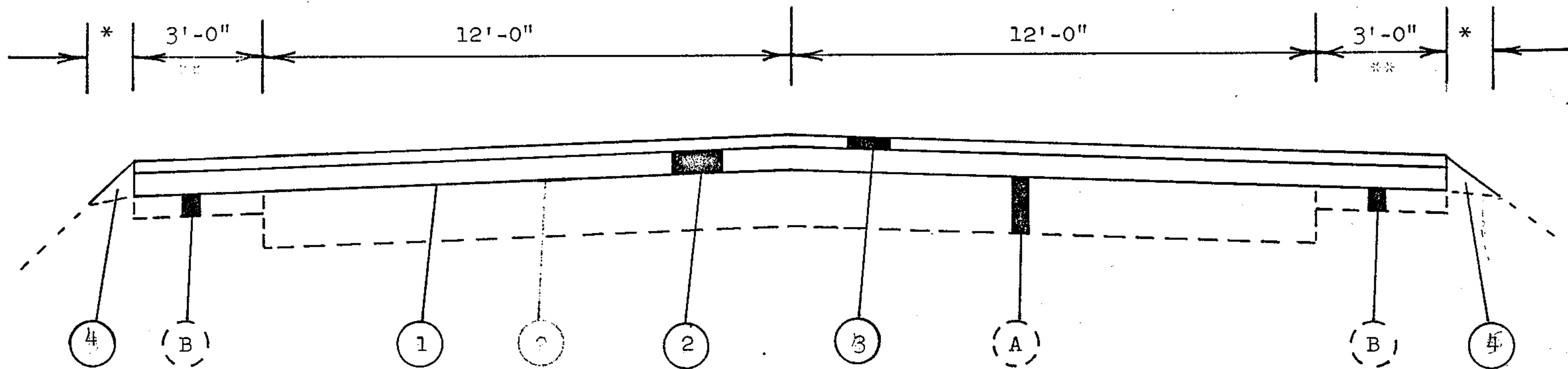
ITEM 407 TACK COAT, AS PER PLAN:

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

PART 1 POR US 224 SLM 12.99 to SLM 13.52

TYPICAL SECTION

* Minimum 1'-0"
unless otherwise
directed by the
engineer.



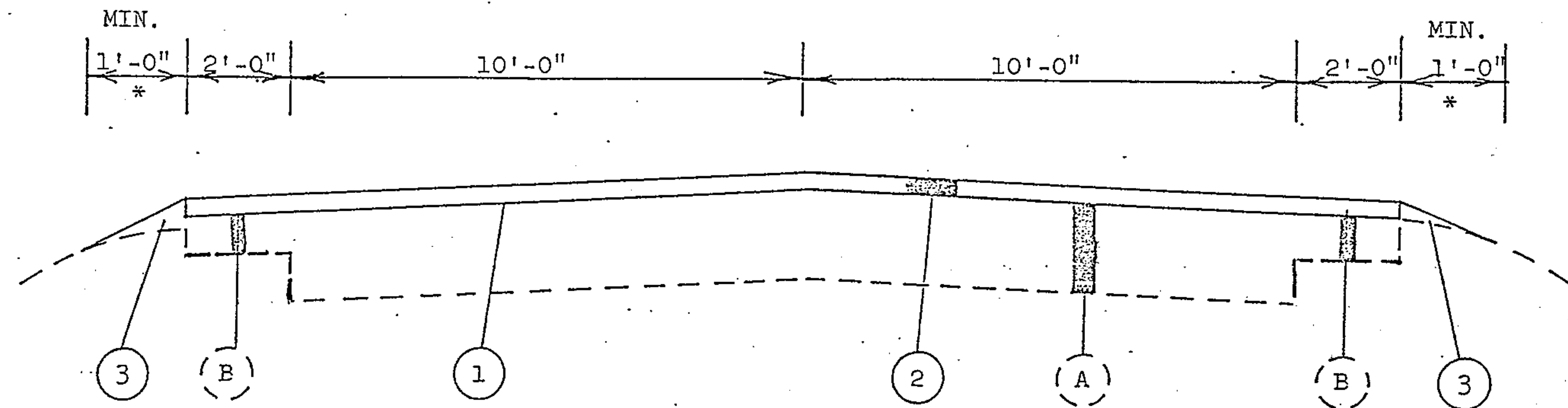
NO SCALE

LEGEND

(1)	407	Tack Coat
(1)	407	Tack Coat, As Per Plan
(2)	402 1.75" min.	Asphalt Concrete AC-20 (Estimated at 1.75 inches)
(3)	404 1.25"	Asphalt Concrete AC-20
(4)	617	Compacted Aggregate, Type A
(A)	404	Existing Pavement
(B)	404	Existing Paved Shoulder

PART 2 POR SR 183 SLM 0.00 to SLM 2.48
SLM 3.01 to SLM 7.61

TYPICAL SECTION

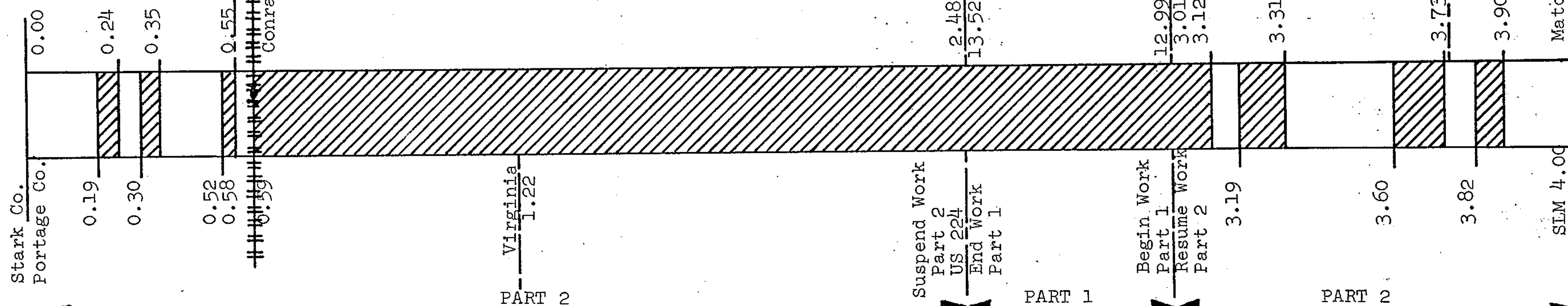


* Minimum width unless otherwise directed by the Engineer

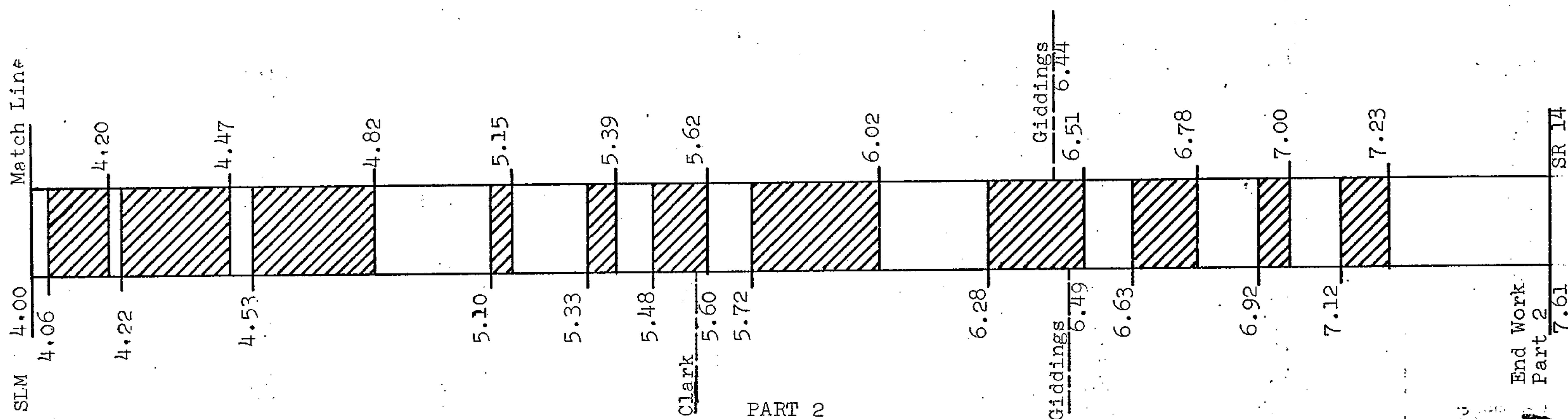
NO SCALE

- | | | |
|-----|----------------|-----------------------------|
| (1) | 407 | Tack Coat, As Per Plan |
| (2) | 404 1.25" AVG. | Asphalt Concrete AC-20 |
| (3) | 617 1.00" AVG. | Compacted Aggregate, Type A |

- | | | |
|-----|-----|-------------------|
| (A) | 404 | Existing Pavement |
| (B) | 404 | Existing Shoulder |



AREA TO BE RESURFACED



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SPOT TREATMENT WITH ASPHALT CONCRETE (404)														PLAN NO. 239 6 12		
GENERAL NOTES														ITEM 404 ASPHALT CONCRETE: Material has been provided to construct a 50' feather on each end of each spot being treated. All feathers shall have an asphalt cement coating 2 feet wide, as shown on BP-5.		
SPOT LOCATIONS: Areas to be spot treated will be marked by State Forces for identification with paint or other appropriate methods to indicate extent of work for purposes of bidding. SPOT TREATMENT: Mix material to be placed where and as directed by the Engineer. The resurfacing material for full and half width spot treatment shall be placed within regular lines in accordance with 401.13. At the ends, the material shall be feathered to meet the existing surface on a straight line at the limits of the tack coat application. The resurfacing material for spot treatment of areas less than a lane width may be placed as a drag patch. SHAPING AND GRADING: The preliminary shaping and grading for this contract shall be performed by State Forces.														TRAFFIC: Traffic shall be maintained at all times. The length of restricted traffic zones shall be kept to a minimum consistent with the specification requirements for protection of completed courses. TACK COAT: The tack coat preparation shall be as determined at a pre-construction conference as per 407.05, and application rates shall not exceed 0.10 gal. per sq. yd. The tack coat and cover aggregate shall be applied in conjunction with the placing of the resurfacing material at each spot treatment location. ALIGNMENT AND PROFILE: The work proposed by this project is for the spot patching of the existing pavement. The alignment of the existing pavement will not be changed, and the profile of the proposed surface will be similar to that of the existing pavement. SPREADING EQUIPMENT: The second paragraph of 401.10 shall apply.		
PAVEMENT DATA																
P A R T	ROUTE	LOG POINT TO LOG POINT	LENGTH		*	% SPOT T R E A T M E N T	NO. OF SPOTS	AREA IN SQ. YDS. TO BE SPOT TREATED	402	407	202	404	404	617		604
			MILES	LIN. FT.					ASPH CONC @ 1.75" AVG. THICK. CU. YD.	C TACK Bit. Matl. @ 0.075 gal./s.y. GAL.	RPM's Removed for Storage EACH	ASPH. CONC. @ 1.25" AVG. Thick. CU. YD.	ASPH. CONC. for Driveways CU. YD.	Compacted Aggregate Type A 2' per side AVG. THICK: INCH	CU. YD.	Monument Boxes Adjusted to Grade EACH
1	US 224	12.99 - 13.52	0.53	2799	30	100	1	9328	453	700		324		1.00	52	
		Extra Material						257	12	20		9			2	
	TOTAL	Part 1	0.53	2799				9585	465	720		333			54	
2	SR 183	0.00 - 0.58	0.58	3063	24	47	3	3838		288		133	20	1.00	38	
		0.59 - 2.48	1.89	9980	24	100	1	26611		1996		924	120	1.00	123	
		3.01 - 7.61	4.60	24288	24	49	15	31736		2380		1102		1.50	536	
		Extra Material						1159		86		41			16	
	TOTAL	Part 2	7.07	37331				63344		4750		2200	140		713	
	GRAND TOTAL		7.60	40130				72929	465	5470	50	2533	140		767	3

* WP includes 2' width for each shoulder for SLM 0.00 to SLM 2.48
 3' width for each shoulder for SLM 5.24 to SLM 7.00 and SLM 12.99 to SLM 13.52

SHEET 1 OF 3

COUNTY Portage ROUTE 183

Total This Route = Yellow: Solid 5.66, Yellow: Dash 5.85, White: Dash —
Equivalent Yellow 7.12

ON

[illegible]

000 Por - 1 Sta. Cal. Line 1.00 2.00
Yellow: Solid 0.96 Dash 0.72 Yellow: Solid 0.44 Dash 1.00 Yellow: Solid 0.59 Dash 0.27
TOTAL YELLOW THIS PAGE: SOLID 1.99, DASH 1.99, EQUIVALENT LINE 2.49

TS-54

SHEET 2 OF 3

COUNTY Portage ROUTE 183

Equivalent Yellow

Total This Route = Yellow, Solid _____: Yellow, Dash _____

ON

[illegible]

Yellow: Solid 0.28 Dash 0.99 Yellow: Solid 0.87 Dash 0.88 Yellow: Solid 1.26 Dash 0.5
TOTAL YELLOW THIS PAGE: SOLID 2.45 DASH 2.44 FOURTEENTH TIME 2.04

TS-54

SHEET 3 OF 3

COUNTY Portage ROUTE 183

Equivalent Yellow

Total This Route = Yellow, Solid _____: Yellow, Dash _____

Q

[illegible]

Yellow: Solid 0.86 Dash 0.80 Yellow: Solid 0.36 Dash 0.62 Yellow: Solid Dash

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PLAN NO. 239

CO.	ROUTE	FROM		TO		621 QUANTITIES			PARTICIPATION	621 CENTER LINE
		S.L.M.		S.L.M.		CENTER LINE MILES				
		S.L.M.		S.L.M.		TOTAL	DASHED	SOLID		REMARKS
POR	US 224	12.99	US 224 @ SR 183	13.52	US 224 @ SR 183	.43	.44	.32		
	SR 183	0.00	Stark/Portage Co. Line	2.48	SR 183 @ US 224	2.68	1.90	2.20		
	SR 183	3.01	SR 183 @ US 224	7.61	SR 183 @ SR 14	4.30	2.68	3.63		
CENTER LINE TOTAL						7.41	5.02	6.15		

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

CO.	ROUTE	FROM		TO		WHITE EDGE LINE QUANTITIES				YELLOW EDGE LINE QUANTITIES				621 EDGE LINE REMARKS
		SLM		SLM		TOTAL MILES	HIGHWAY MILES	RAMP MILES	PART.	TOTAL MILES	HIGHWAY MILES	RAMP MILES	PART.	
POR	US 224	12.99	US 224 @ SR 183	13.52	US 224 @ SR 183	1.36	.53							
	SR 183	0.00	Stark/Portage Co. Line	2.48	SR 183 @ US 224	4.96	2.48							
	SR 183	3.01	SR 183 @ US 224	7.61	SR 183 @ SR 14	9.20	4.60							
EDGE LINE TOTAL						15.22	7.61							

CO.	ROUTE	FROM	TO	621 CHANNELIZING LINES		PARTITION	621 CHANNELIZING LINE
				S.L.M.	S.L.M.		
				621 CHANNELIZING LINES	621 CHANNELIZING LINES		REMARKS
CHANNELIZING LINE TOTAL							

847 AUXILIARY MARKING (947.03 TYPE A) INLAID

CO.	ROUTE	S.L.M.		TRANSVERSE LINES		STOP LINE	CROSSING LINES	PAVEMENT		LANE WIDTH	RAILROAD SYMBOL OR PAVEMENT	DOTTED LINES	REMARKS
		FROM	TO	WHITE LIN. FT.	BROWN LIN. FT.	24" LIN. FT.	WHITE LIN. FT.	EVEN	ODD	FEET EACH	FEET EACH	FEET	
POR.	SR 183 @ Conrail RR										2		
	SR 183 @ US 224					20							
	SR 183 @ SR 14					36							
AUXILIARY MARKING TOTALS						56					2		

INITIAL PAVEMENT MARKINGS FOR RESURFACED SECTIONS GENERAL NOTES

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

621 and 847 Materials

The materials used on this project shall either be 621 fast dry traffic paint or 847 thermoplastic material approved by prequalification.

The Contractor shall provide storage for all materials and shall transport materials to the site where used. Glass beads shall be kept dry during storage and prior to use.

The Laboratory will furnish the names of manufacturers and code numbers from its approved list of prequalified white and yellow paint upon request.

621 and 847 Special Equipment

The Contractor's striping shall be equipped with an odometer graduated to 1/100 of a mile. The Engineer shall 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 shall periodically check the odometer's operation to assure maintenance to 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/or 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 application equipment used to apply long line markings. The counters shall individually tabulate the amount of footage applied for each line, whether solid or dashed. The counters shall be a six digit type with a reset feature.

The Contractor shall use an accurate dashing mechanism, capable of being easily adjusted, to place lane or center line markings as specified in the plans or as directed by the Engineer.

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

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 striping 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 the quantity used.

847 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 quantity of less than 100 pounds of marking material 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 striping tanks.

The quantity of marking material used shall be determined by measuring the marking material before and after marking material is applied. The Contractor shall provide measurements whenever requested by the Engineer. The marking material application rate shall be determined by dividing the total pounds of thermoplastic material 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 shall be ascertained by the Engineer by observation and from information supplied by the Contractor as to quantity used.

INITIAL PAVEMENT MARKINGS FOR RESURFACED SECTIONS GENERAL NOTES

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PLAN NO. 239

621 Layout and Premarking

In accordance with 621.05 the Contractor shall "T" no-passing zones in accordance with a no-passing zone log provided by the Engineer.

847 Layout and Premarking

In addition to the requirements of 847.04, premarking for auxiliary markings shall be located from schematic forms provided by the Engineer.

Markings shall not be applied over existing markings except when applying initial permanent markings over temporary markings of fast-dry paint. Temporary markings other than fast-dry paint shall be removed and the surface prepared to the satisfaction of the Engineer before permanent markings are applied.

621 and 847 Auxiliary Pavement Marking

For this project, auxiliary markings shall be defined as: Stop lines, crosswalk lines, transverse lines, railroad and school symbol markings, lane arrows, word on pavement, curb and island markings, parking lot stall markings and dotted lines except when used to extend edge lines.

847 Material Application Temperature

The Contractor shall provide a calibrated temperature sensing device which will accurately measure the temperature of the extruded thermoplastic material when it makes contact with the pavement. A temperature of 400°F to 440°F at point of application to road surface must be maintained at all times.

847 Material Application Rates

In addition to the requirements of 847 the minimum application rates shall be as follows:

Pounds Per Mile of Line	Width of Line (Inches)			
	4	8	12	24
Solid Line	2340	4680	7020	14040
Dashed Line	585	1170	1755	3510

133 Pounds Per 100 Square Feet

947.02 Thermoplastic Pavement Markings

Glass beads intermixed or dropped on 947.02 thermoplastic pavement marking material shall meet the following specification:

Sieve No.	% Retained
16	3 Max
20	5 to 20
40	65 to 95
50	0 to 5
Refractive Index:	1.50 to 1.60
Roundness:	80% Min
Coating:	Adhesion Promoting

The application rate of drop-on beads shall be a uniform 25 pounds of beads for each 100 square feet of thermoplastic material surface area.

862 Raised Pavement Markers

This Contract may include sections of roadway where plowable prismatic raised pavement markers are to be installed in the pavement. Raised pavement marker placement for a resurfaced section shall begin after the permanent pavement marking for that resurfaced section is completed and dry.

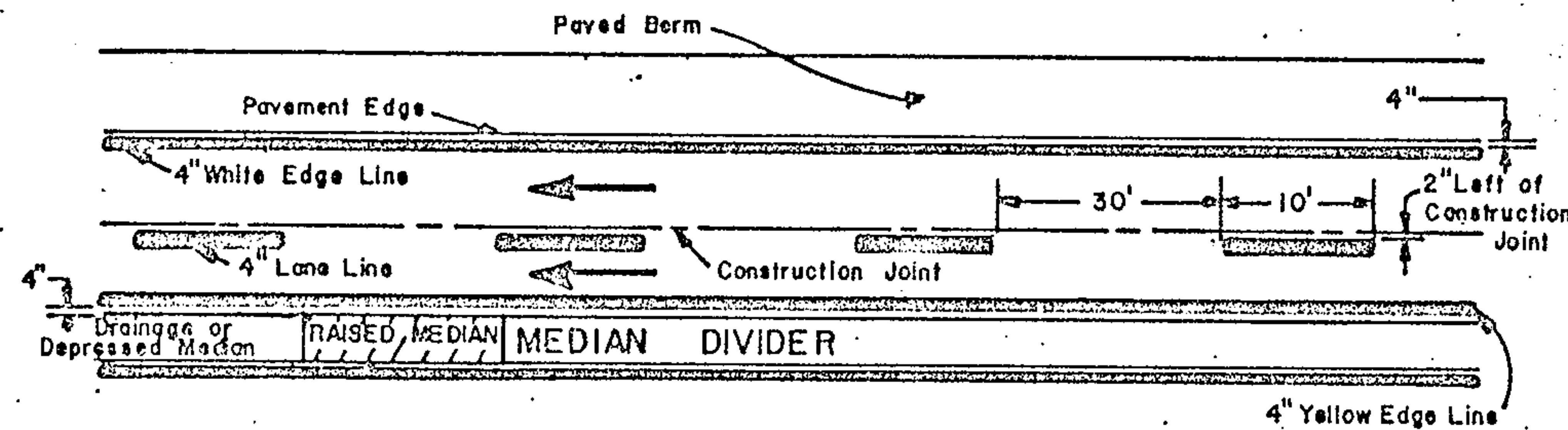
PAVEMENT MARKING TYPICAL DETAILS

FED. RD. DIV.	STATE	PROJECT
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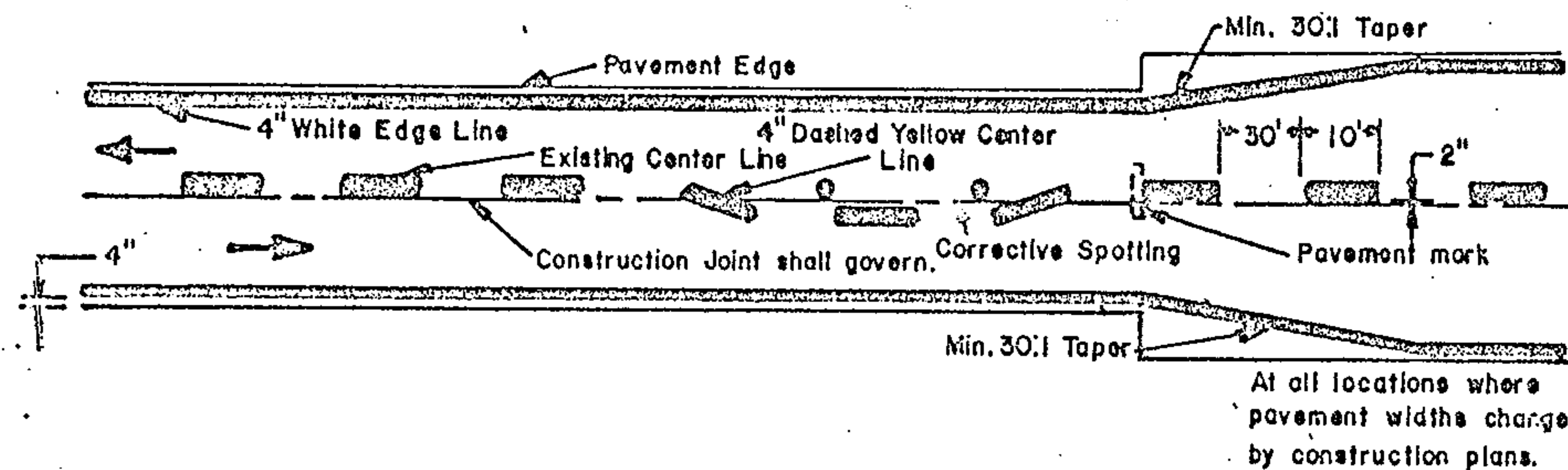
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PLAN NO. 239

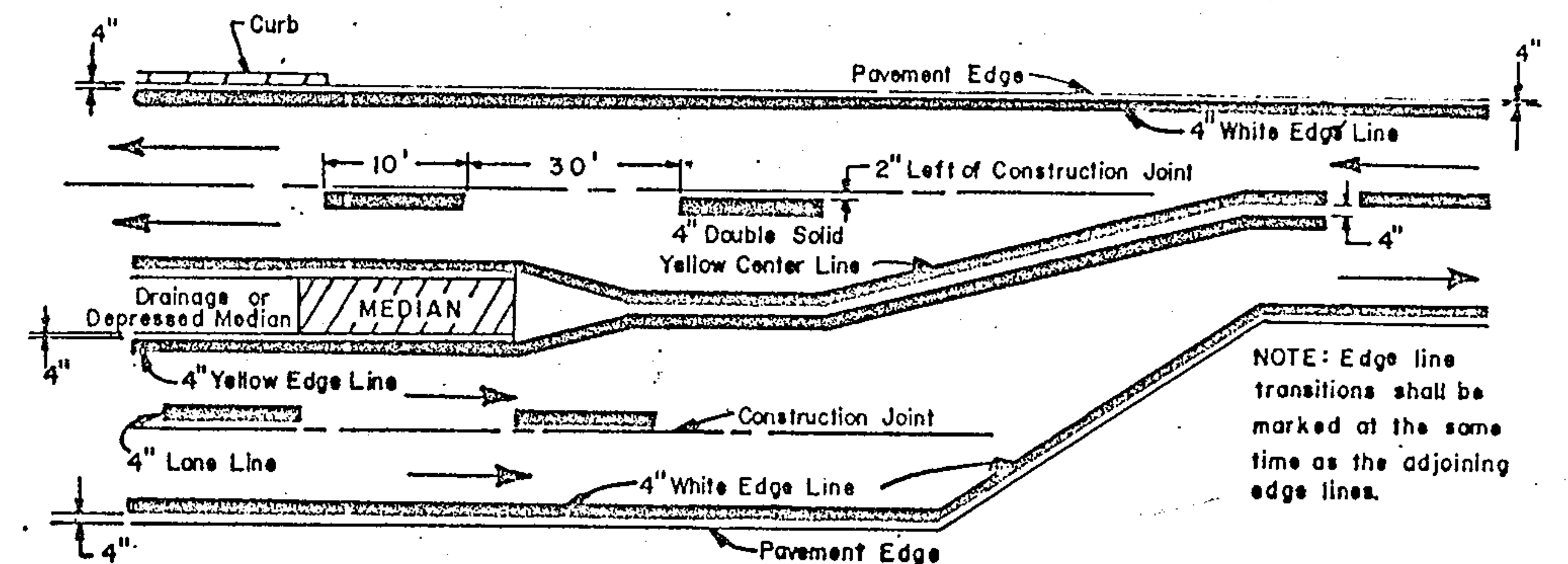
FREEWAY & EXPRESSWAY MAINLINE MARKINGS



TWO LANE MARKINGS



MULTILANE DIVIDED & UNDIVIDED HIGHWAY MARKINGS



NOTES:

1. THE DISTANCE FROM THE PAVEMENT EDGE TO THE NEAR SIDE EDGE OF THE EDGELINE MAY BE INCREASED WITH THE APPROVAL OF THE ENGINEER IN ORDER TO MAINTAIN UNIFORM LANE WIDTH.
2. SEE TC 72.20 FOR ENTRANCE AND EXIT RAMP MARKINGS.
3. The cycle length for dashed lines shall be 40 feet plus or minus 6 inches. The minimum length of dash shall be sufficiently long to maintain a 3:1 ratio between length of gap and length of dash.

OHIO DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING
TYPICAL DETAILS

DATE
11/80

JDL: CDR:1

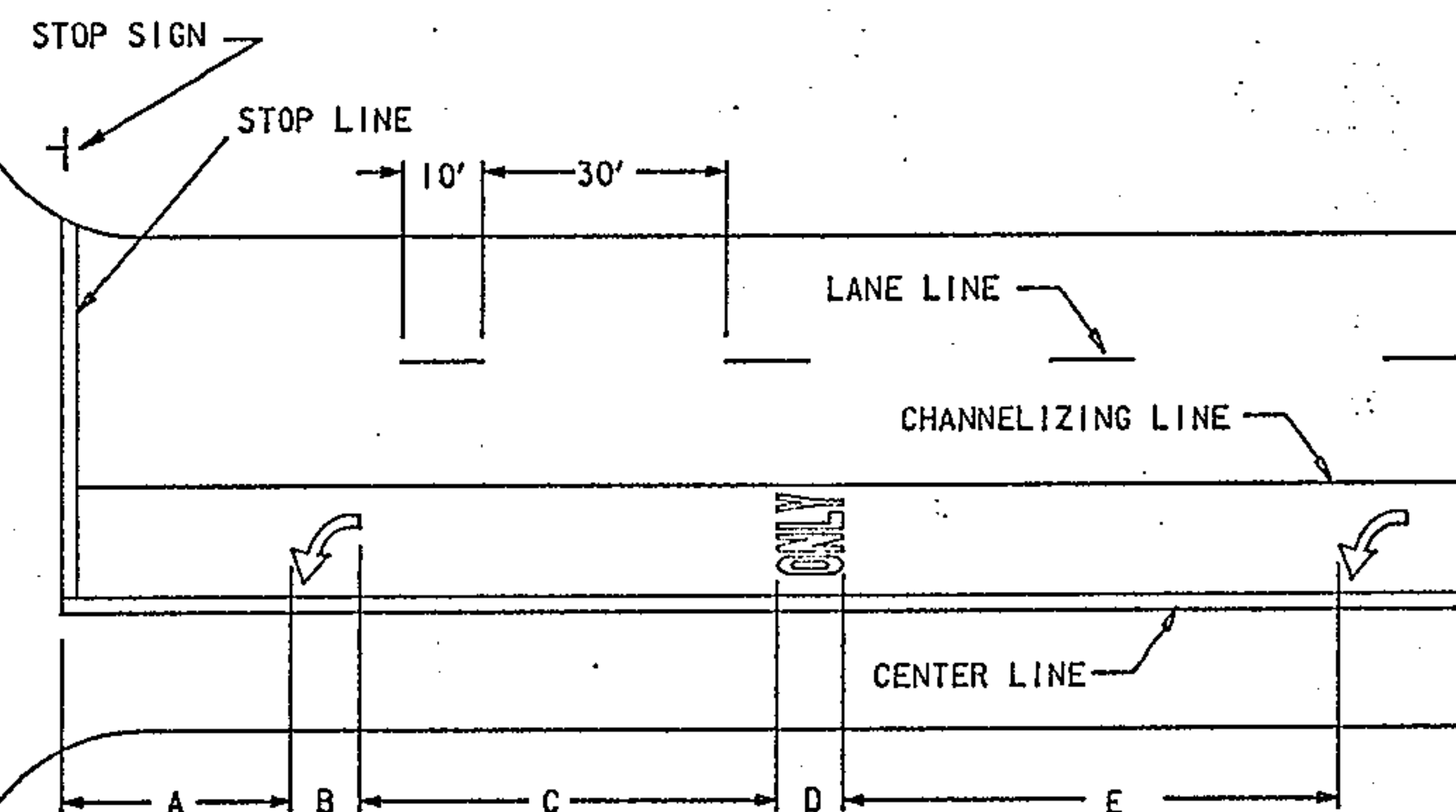
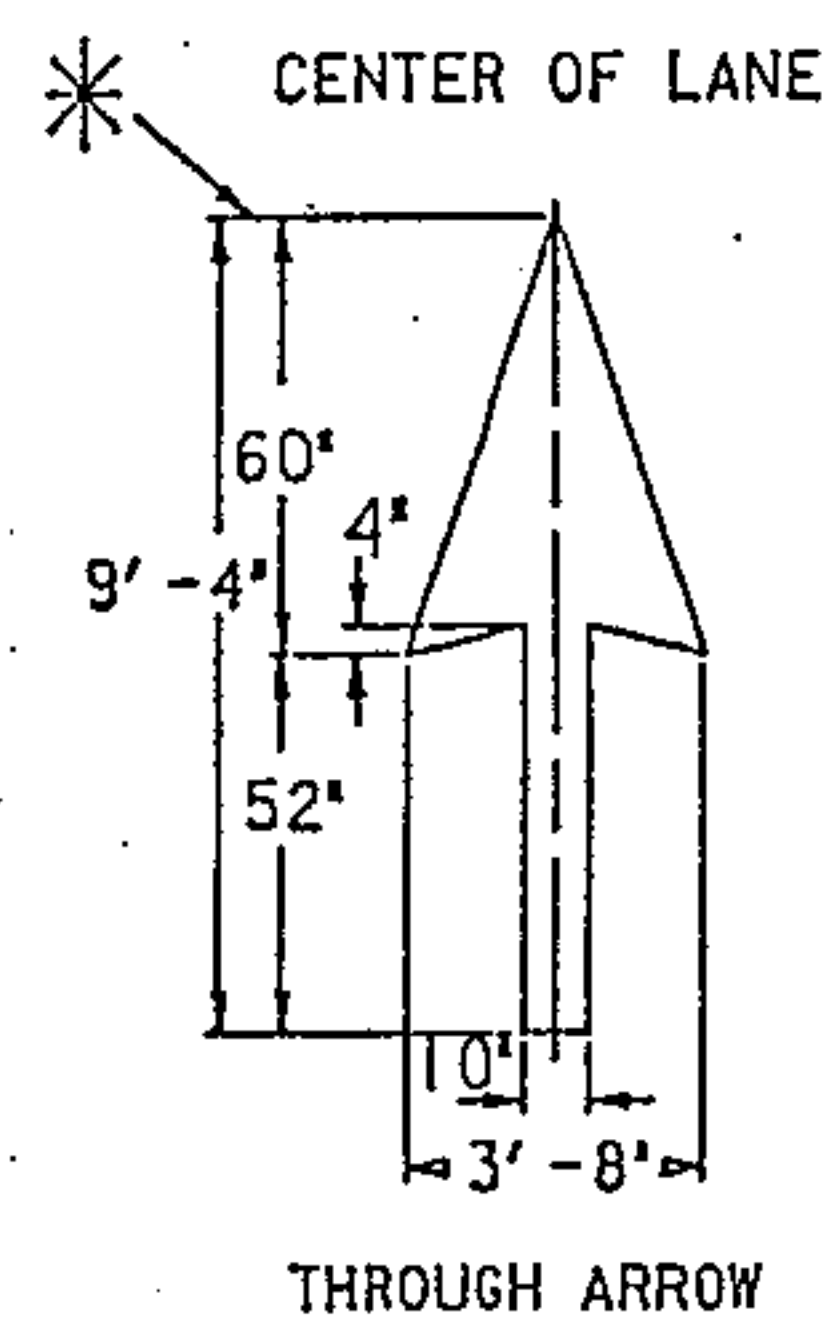
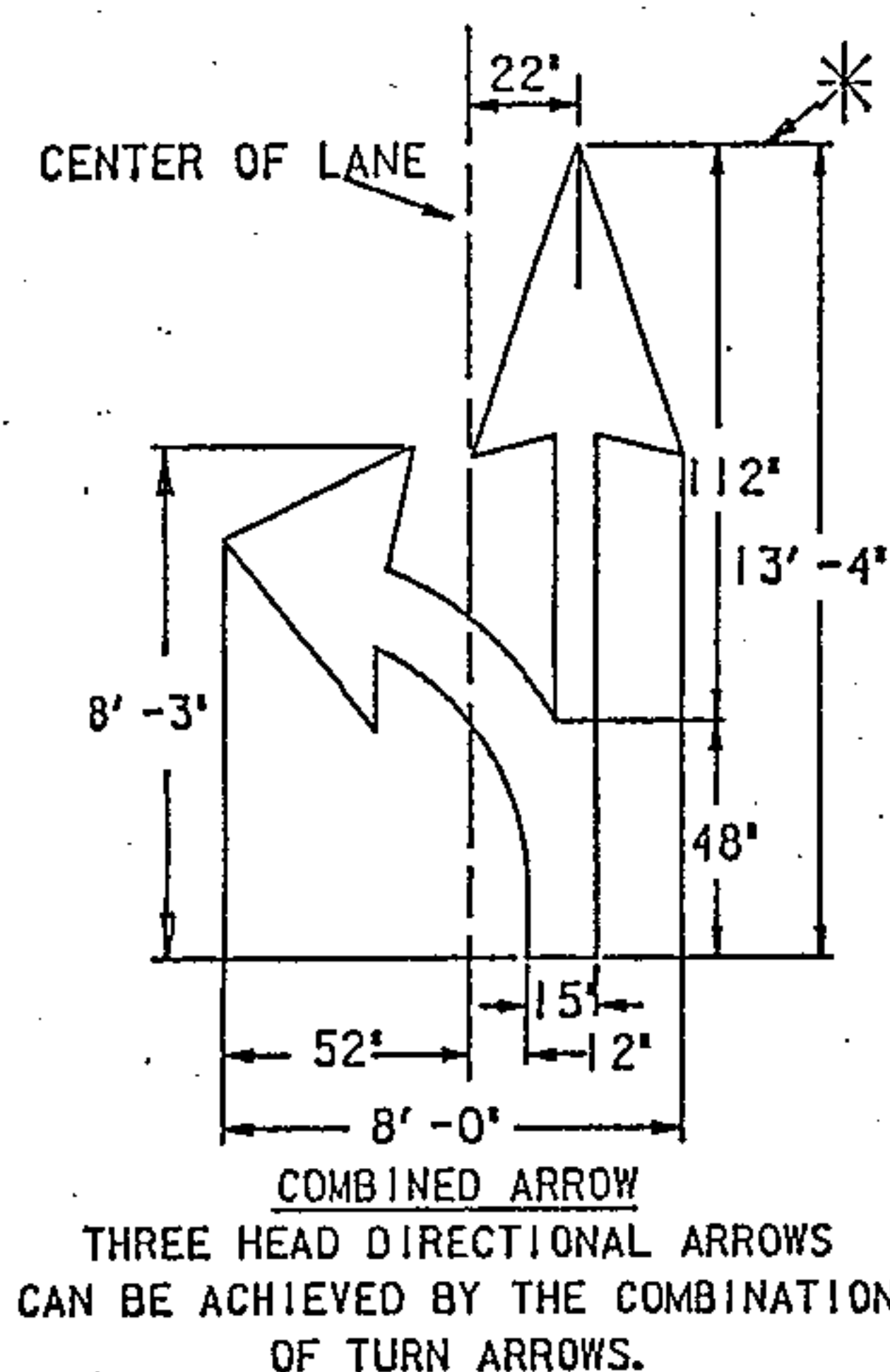
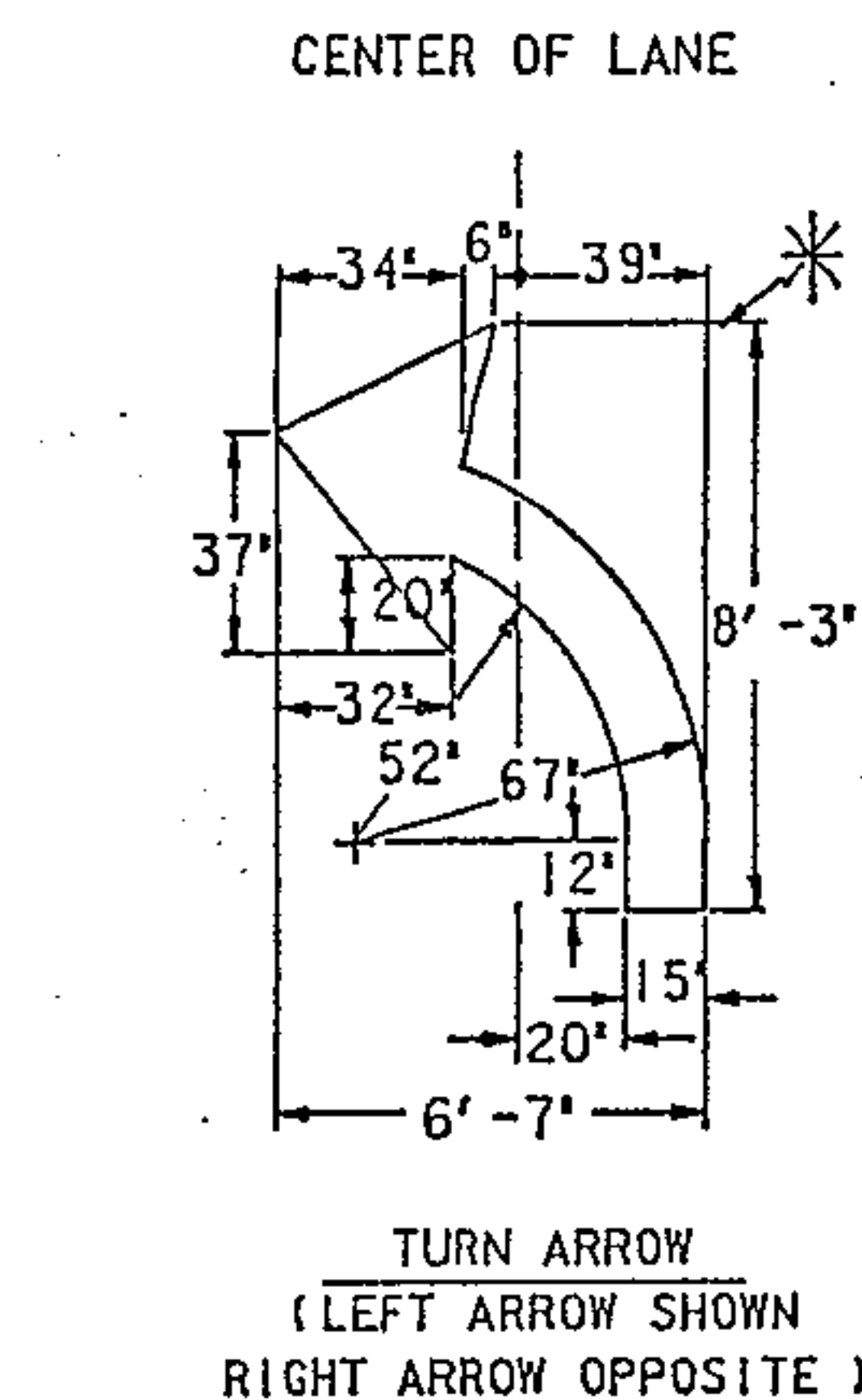
9/86

WORD AND SYMBOL MARKING DETAILS

FED RD DIVISION	STATE	PROJECT
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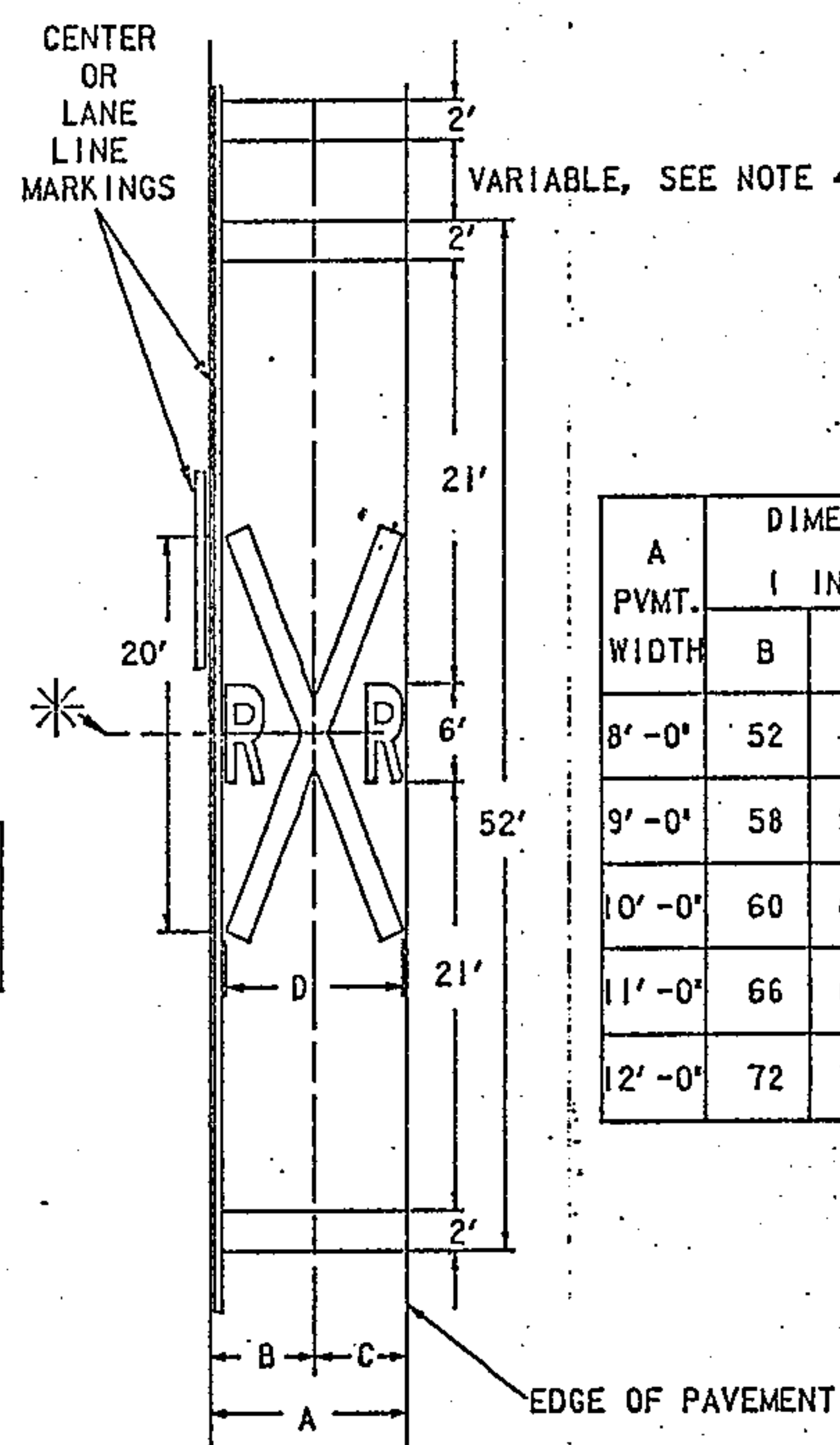
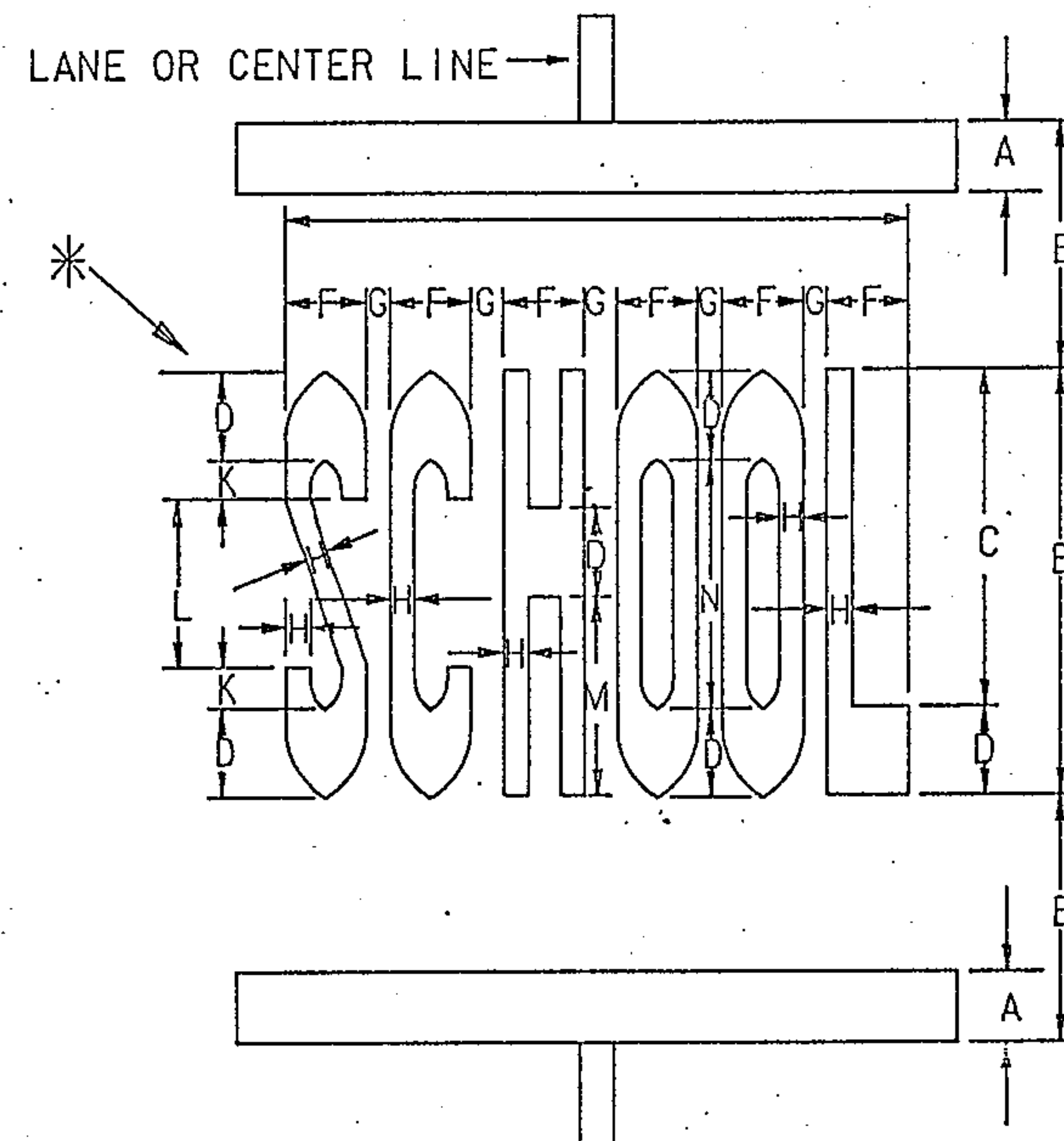
PLAN NO. 239



NOTE:
STOP BAR LOCATED MIN. 40' FROM
AT LEAST ONE SIGNAL HEAD WHICH APPLIES
TO THAT APPROACH

TYPE	DIMENSIONS (FEET)				
	A	B	C	D	E
RURAL	30 MIN.	8.25	32-80	8	32-60
URBAN	10 MIN.	8.25	32-80	6	24-60

TYPE	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
RURAL	16	96	76	20	150	20	6	6	8	9	38	45	56
URBAN	16	72	57	15	148	18	8	4.50	9	6.75	28.50	33.75	42



A PVMT. WIDTH	DIMENSIONS (INCHES)		
	B	C	D
8'-0"	52	44	84
9'-0"	58	50	96
10'-0"	60	60	96
11'-0"	66	66	96
12'-0"	72	72	120

NOTES

- PAVEMENT MARKING FOR WORDS, SYMBOLS, ARROWS AND TRANSVERSE LINES FOR WORD 'SCHOOL' OR THE RAILROAD SYMBOL SHALL BE WHITE REFLECTIVE MATERIAL.
- TWO TRANSVERSE LINES SHALL BE INCLUDED IN THE PAYMENT FOR EACH WORD 'SCHOOL'. THREE TRANSVERSE LINES SHALL BE INCLUDED IN THE PAYMENT FOR EACH RAILROAD SYMBOL.
- ON MULTI-LANE APPROACHES, THE TRANSVERSE LINES USED WITH THE RAILROAD SYMBOLS SHALL EXTEND ACROSS ALL APPROACH LANES AND SYMBOLS SHALL BE PLACED IN EACH APPROACH LANE.
- FOR THE RAILROAD SYMBOL, NO PORTION OF ONE TRANSVERSE LINE SHALL BE CLOSER THAN 30 FEET FROM THE NEAREST RAILROAD TRACK RAIL AND THE LINE MAY BE EITHER PARALLEL TO THE TRACK OR PERPENDICULAR TO THE CENTERLINE OF THE ROADWAY. THE OTHER TWO TRANSVERSE LINES AND THE RAILROAD SYMBOL SHALL BE LOCATED FROM THE STATION REFERENCE POINT SHOWN IN THE PLANS.
- ON MULTI-LANE APPROACHES, THE TRANSVERSE LINES USED WITH THE WORD 'SCHOOL' SHALL EXTEND ACROSS ALL APPROACH LANES WITH A SINGLE WORD 'SCHOOL' CENTERED ACROSS THE APPROACH LANES. ON TWO LANE ROADWAYS, THE TRANSVERSE LINES SHALL EXTEND ACROSS THE ROADWAY WITH THE WORD 'SCHOOL' CENTERED ACROSS THE ROADWAY. CENTER OR LANE LINES SHALL NOT PASS THROUGH THE 'SCHOOL' MARKING.
- THE STOP LINE SHOULD BE PLACED WHERE CROSS-CORNER VISION IS MAXIMUM, IN NO CASE MORE THAN 30 FEET OR LESS THAN 4 FEET FROM NEAREST EDGE OF THE INTERSECTING ROADWAY. FOR NORMAL INTERSECTIONS A MAXIMUM DISTANCE OF 10 FEET IS RECOMMENDED.
- IF A MARKED CROSSWALK IS PRESENT THE STOP LINE SHOULD BE PLACED 4 FEET IN ADVANCE OF AND PARALLEL TO THE NEAREST CROSSWALK.
- ANY OF THE FOLLOWING STANDARDS FOR LETTER (EXCEPT 'R'), NUMERAL OR SYMBOL DIMENSIONING MAY BE USED:

A.) STANDARD DIMENSIONS SHOWN ON THIS DETAIL (NOMINAL)

B.) STANDARD DIMENSIONS IN ACCORDANCE WITH THE 1977 METRIC EDITION STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING WITH ERRATA.

C.) STANDARD DIMENSIONS CONFORMING TO REQUIREMENTS OF SECTION 38-17 OR AS SHOWN IN FIGURES 3-17, 3-18, 7-2, 7-3, 8-2 OR 9-6 OF THE 1978 NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

** THE LETTER 'R' DIMENSIONS SHALL BE AS SHOWN ON THIS SHEET AND IN THE NMUTCD SECTION 8-2.

* INDICATES STATION REFERENCE POINT

TYPE	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
RURAL	96	94	20	6	2	6	20	56	45	76	32	36
URBAN	72	90	18	8	2	4.50	15	42	33.75	57	24	27

$$\frac{12}{12}$$
[illegible]