

626

JUL 15 1994

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

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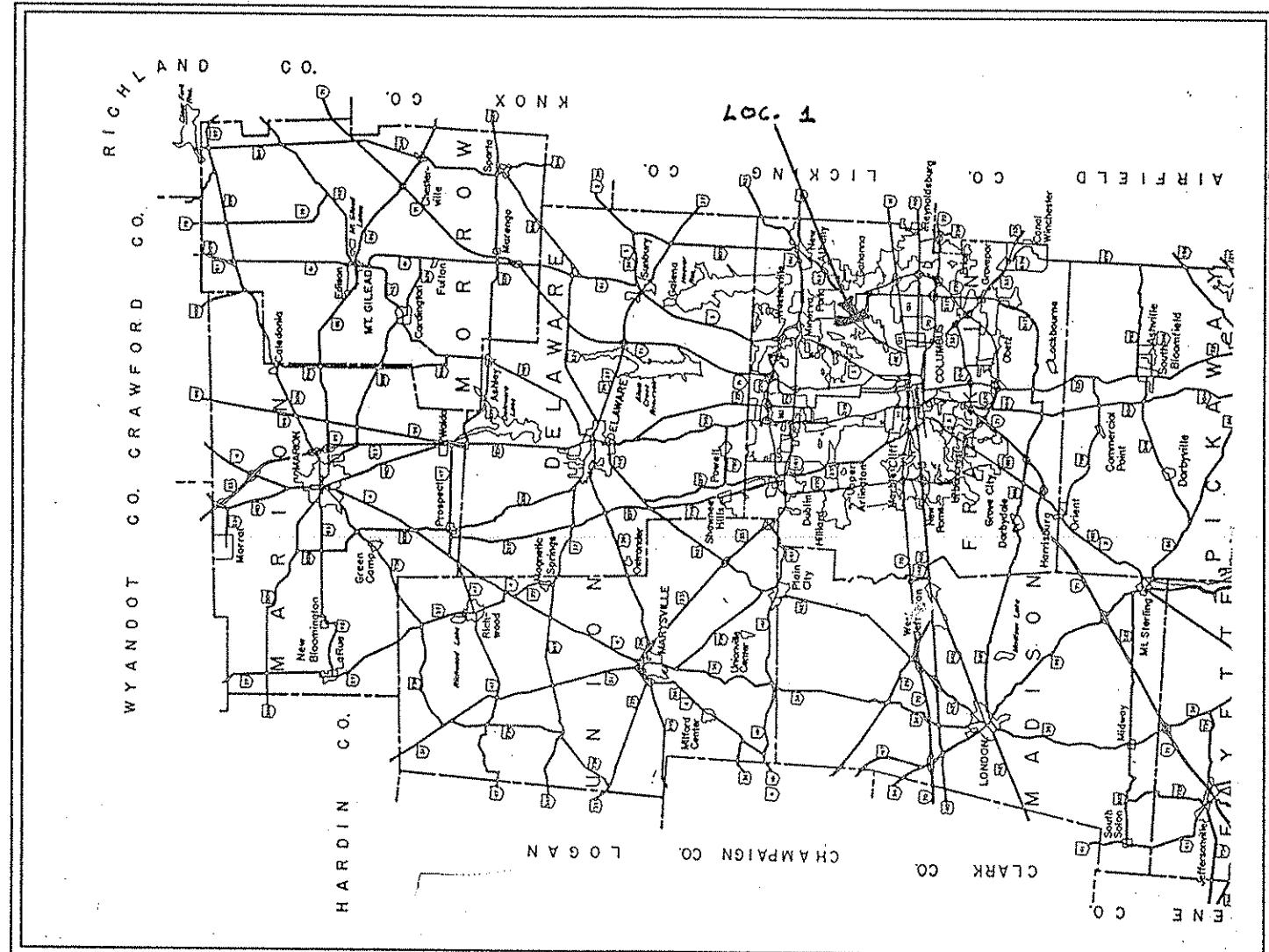
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LINE DATA

WORK LENGTH - VAR

PROJECT LENGTH - VAR

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



8/16/94

Project
Date of Letting _____ 19 Contract No. _____PLAN PREPARED
BY DISTRICT 6
TRAFFIC DEPARTMENT

SEAL

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
TC-35.10	8/29/84	MT-98.13	8/25/89
TC-71.10	9/10/91	MT-98.14	8/25/89
TC-72.20	2/26/82	MT-98.15	8/25/89
MT-95.30	10/10/88	MT-99.20	4/29/88
MT-95.31	10/10/88	MT-105.10	7/1/92
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PLAN NO. EPOXY-6-94

FRA IR-270-33.88

1994 SPECIFICATIONS

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

I hereby approve these plans and declare that no portion of these improvements will require the closing of the highways to traffic. Provisions for the maintenance and safety of traffic will be as indicated in the proposal.

Construction Office Copy
R. G. Gandy

Approved
Date 8/16/94
District Deputy Director
of Transportation

Approved
Date 8/16/94
Deputy Director of operations

Approved
Date 8/16/94
Director, Department of Transportation

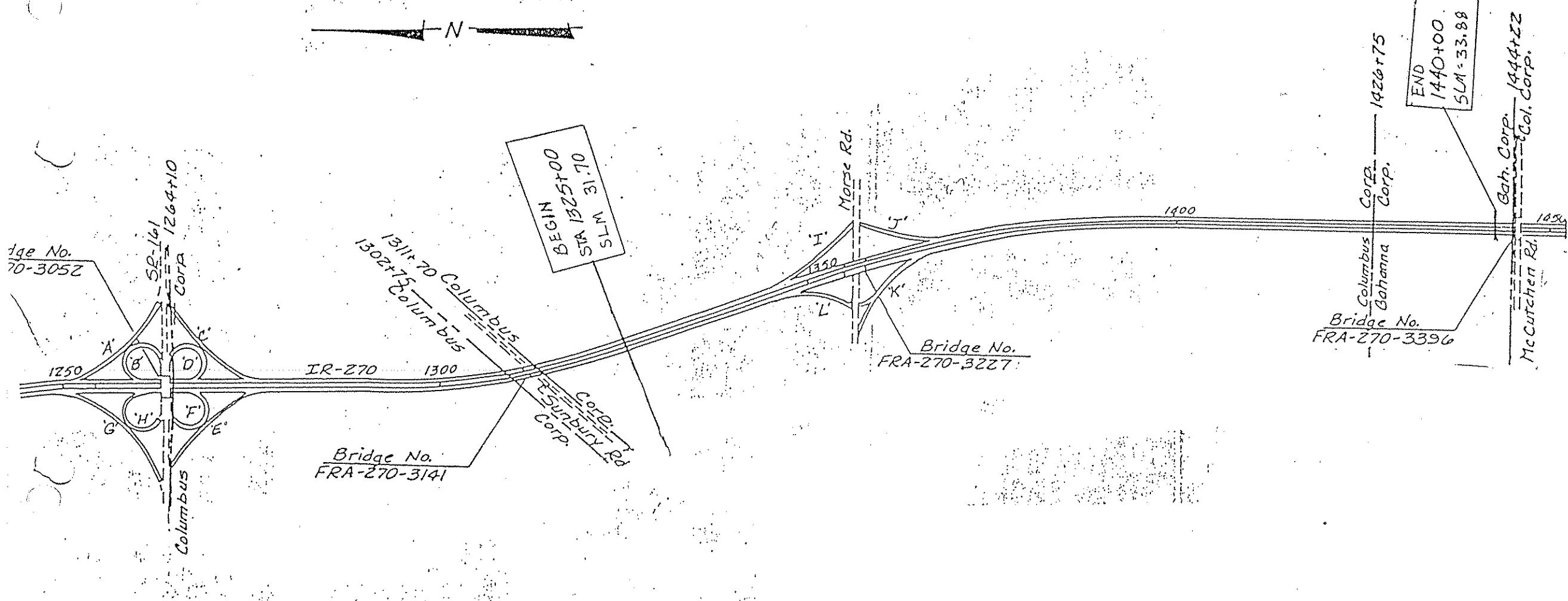
Approved
Date _____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

DIVISION ADMINISTRATOR _____ DATE _____

SCHEMATIC PLAN

2
16

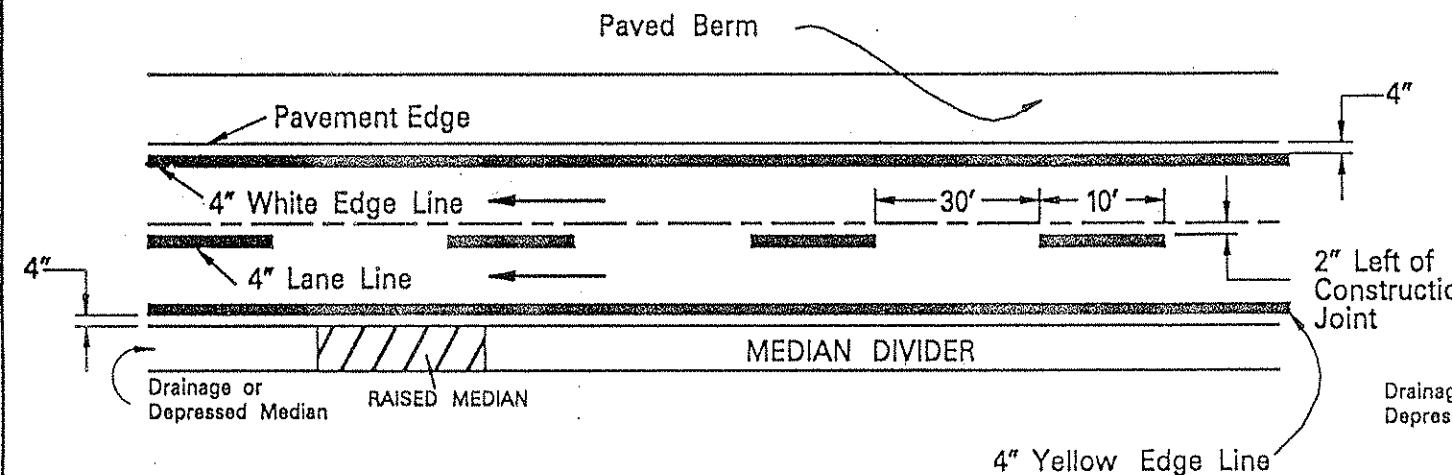


FED RD DIVISION	STATE	PROJECT	
5	OHIO		

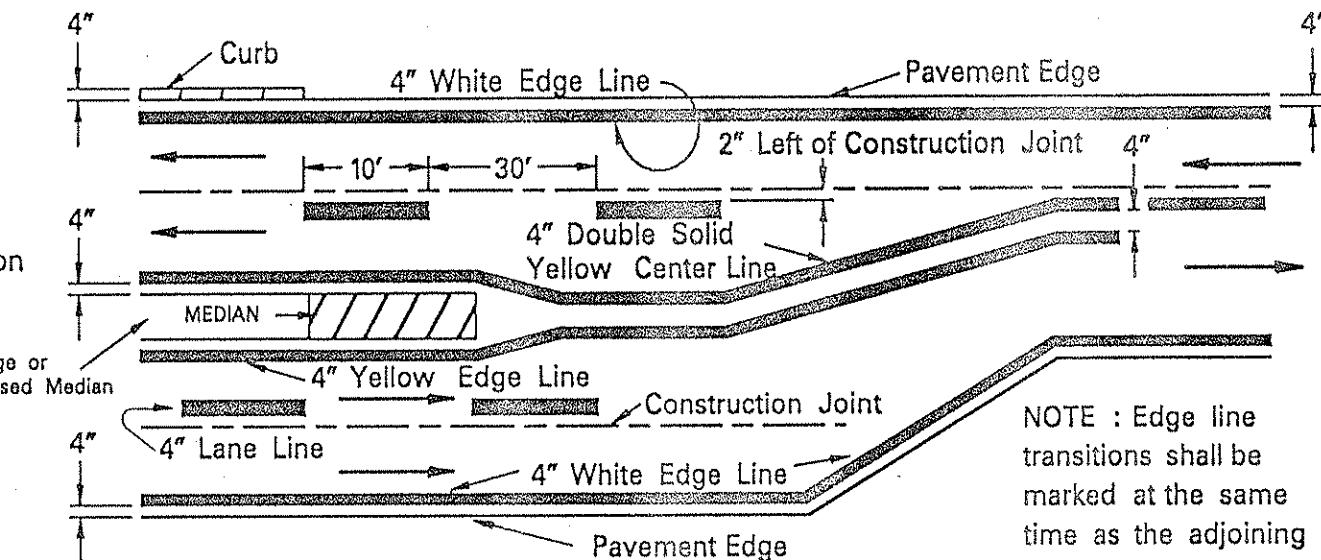
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PLAN NO.: E-6-94

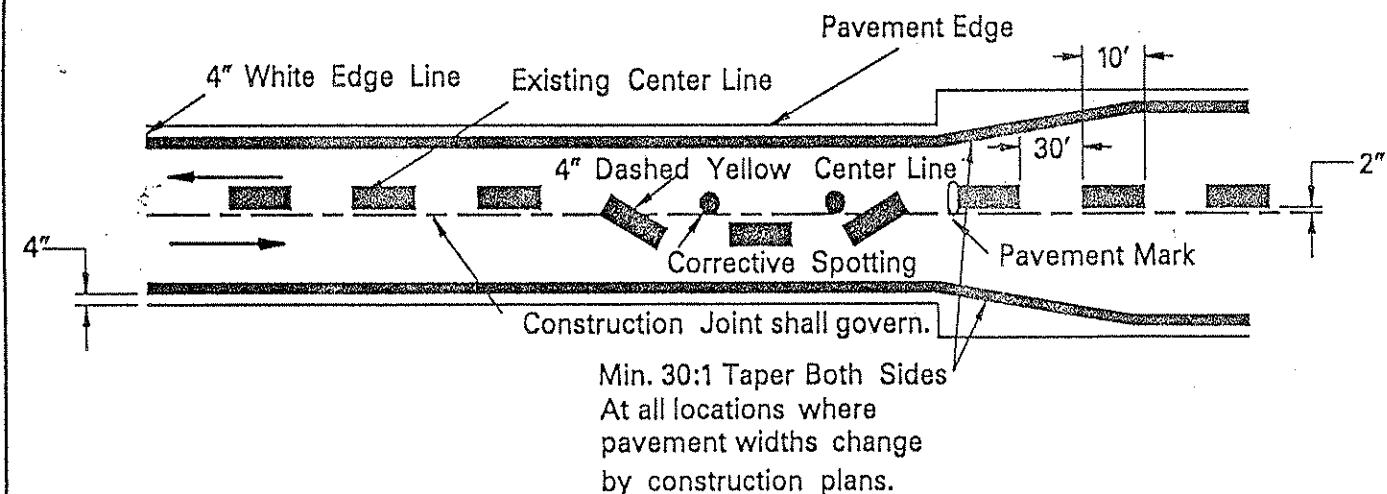
FREEWAY & EXPRESSWAY MAINLINE MARKINGS



MULTILANE DIVIDED & UNDIVIDED HIGHWAY MARKINGS



TWO LANE MARKINGS



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 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
9-86
9-91

EPOXY GENERAL NOTES

In addition to the requirements of 640 the following shall apply:

FINAL ACCEPTANCE

Final acceptance of approved completed markings shall be May 1, 1995

Pavement markings which are unacceptable, or become unacceptable prior to final acceptance as determined by the Engineer, for causes such as, but not limited to, improper application, non-uniform retroreflectivity, non-retroreflectivity or loss of adhesion to the pavement, shall be replaced by the Contractor with markings conforming to these specifications and requirements at his expense, without delay or the Contractor may request that the unacceptable work be non-performed. The Contractor will receive no payment for unacceptable work which is non-performed.

CENTER LINE EQUIVALENT SOLID LINE

The equivalent solid line quantities (taken from the District no-passing zone log) are provided for the convenience of the Contractor to estimate the approximate quantity of center line pavement marking material needed. These equivalent solid line quantities are not to be utilized for pay quantities or as a basis of payment for delivered materials.

MAINTENANCE OF TRAFFIC

Traffic shall be maintained in accordance with this plan, 614, and the OMUTCD

The flashing arrow panel, including caution bar mode, shall not be used on two lane, two way roadways.

Description. This work shall consist of furnishing and applying epoxy pavement markings in accordance with 641, 740 and the additional requirements described herein.

Equipment. Equipment for applying the epoxy pavement marking shall be capable of mixing the components in proportions recommended by the manufacturer and applying glass beads at the time of line placement. The marking equipment used shall be capable of applying epoxy material at the specified thickness. The Contractor shall provide a calibrated measuring device acceptable to the Engineer to measure the epoxy resin in the stripper tanks.

In general, the applying equipment shall be mobile, truck mounted and self contained pavement marking machine, specifically designed to spray apply the epoxy binder and reflective glass spheres in continuous and skip line patterns. The applying equipment shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. In addition, the truck mounted unit shall be provided with accessories to allow for the marking of legends, symbols, crosswalks, and other special patterns.

The Engineer and the Material Manufacturer together may approve the use of a portable applicator in lieu of truck mounted accessories for use in applying special marking only, provided such equipment can demonstrate satisfactory application of reflectorized markings in accordance with these specifications.

The mobile applicator shall include the following features:

1. The mobile applicator shall provide individual material reservoirs, or space, for the storage of Part A and Part B of the binder.
2. The applicator shall be equipped with heating equipment of sufficient capacity to maintain the individual binder components at the manufacturer's recommended temperature and produce the required amount of heat at the mixing head & gun tip and maintain those temperatures with the tolerances recommended by the binder manufacturer for spray application.
3. The applicator shall be equipped with adequate individual tanks for the storage and dispensing of Size I and Size II glass spheres and black aggregate.

Region	STATE	PROJECT
5	Ohio	
Plan No.		E-6-94

4. The applicator shall be equipped with individual dispensers for the simultaneous application of Size I and Size II glass spheres respectively. Each dispenser shall be capable of applying spheres at a minimum rate of 20 pounds per gallon of the binder. The applied combined total of both sizes of beads should be a minimum of 25 lbs./gal. - 12 to 13 lbs. of each size.
5. The applicator shall be equipped with individual metering devices or pressure gauges, on the proportioning pumps (one indicator per pump) as well as stroke counters to monitor gallon usage. All such devices shall be visible to the Engineer.
6. The applicator shall be equipped with all the necessary spray equipment, mixers, compressors and other appurtenances to allow for the placement of reflectorized pavement marking system in a simultaneous sequence of operations.
7. Each application equipment must have minimum of a 24" long static mixer unit as manufactured by Kenics Company or equal for proper mixing of the two components.
8. Each mobile applicator must be equipped with a completely enclosed flush and purge system to clean the lines and the guns without exuding any of the solution into the environment.

Application. Clean the surface to remove all debris, laitance and any other contaminants that may hinder the adhesion of the system to the surface. Whenever grinding, scarifying, sandblasting, shot blasting or other operations are performed, the debris generated must be contained through vacuum type equipment or equivalent and the work shall be conducted in such a manner that the finished pavement surface is not damaged or left in a pattern that will mislead or misdirect the motorist. When these operations are completed, the pavement surface shall first be power broomed and then blown off with compressed air to remove residue and debris resulting from the cleaning work. All such debris must be properly contained especially when removing yellow paint lines and disposed of in the appropriate manner.

Removal and cleaning work shall be conducted in such a manner as to control and minimize airborne dust, and similar debris so as to prevent a hazard to motor vehicle operation or nuisance to property.

Care shall be taken on bituminous and portland cement concrete surfaces when performing removal and cleaning work to prevent damage to transverse and longitudinal joint sealers.

1. **Limits of Work:** Cleaning and surface preparation work shall be confined to the surface area specified for the application of pavement marking materials; or the surface area of existing pavement markings that are specified for removal on the plans, or as directed by the Engineer.

Surface preparation work includes cleaning for lines or cleaning for letters and symbols. Lines will be meant to include: Solid lines; broken lines; dotted lines; channelizing lines; barrier lines; stop lines; crosswalk lines and crossbars.

When lines are cleaned, the area of preparation will be the width of the new pavement marking, or existing line, plus one (1) inch on each side. When letters and symbols are cleaned the area of preparation will be sufficiently large to accommodate the new marking, or to remove the existing marking. No new markings, lines, crossbars or symbols shall be applied on any pavement that has not been properly prepared as per this specification.

2. **Removal of Concrete Curing Compounds:** On new portland cement concrete pavements, cleaning operations shall not begin until a minimum of 30 days after the placement of concrete. The extent of the blasting work shall be to clean and prepare the concrete surface such that:

- a. There is not visible evidence of curing compound on the concrete surface.
- b. There are no heavy puddled deposits of curing compound in the valleys of the textured concrete surface.
- c. All remaining curing compound is intact; all loose and flaking material is removed.
- d. The peaks of the textured pavement surface are rounded in profile and free of sharp edges and irregularities.
- e. The extent of the removal should be as such to insure the laitance is removed on both old as well as new concrete.

3. **Removal of Existing Pavement Markings:** Existing pavement marking shall be cleaned for the purpose of:

- a. Preparing the pavement surface for the application of new pavement marking in the same location as the existing markings.

b. To remove existing markings that are in good condition which, if allowed to remain, will interfere with or otherwise conflict with newly applied marking patterns.

It shall be understood that in this context cleaning means the removal of an existing marking. It is not intended that all deteriorated existing pavement marking be removed. Example: If a new marking is applied to an unmarked "gap" in a broken line and the existing broken line pattern is deteriorated, as determined by the Engineer, to the extent that it is not misleading or confusing to the motorist, the existing markings may not require removal.

Pavement markings shall be cleaned to the extent that 95% to 100% of the existing marking is removed. Removal operations shall be conducted in such a manner that no more than moderate color and/or surface texture change results on the surrounding pavement surface.

Epoxy marking material shall be applied only when the surface is clean and dry and when the pavement and air temperature are above 50F. (*For applications at temperatures below 50F, the epoxy manufacturer must be contacted for approval.*) The Contractor shall transfer the entire contents of each material container to the stinger tanks. The material shall be thoroughly mixed at all times during application. Epoxy marking material, plus resin, shall be applied uniformly to the surface to be marked at the following rates:

Gallons per Mile of Line	Width of Line (Inches) (Thickness of 20 mils)				
	4	6	8	12	24
Solid Line	22	33	44	66	132
Dashed Line	5.5	8.5	11	17	34
Dotted Line	7.3	11	14.6	22	44
Symbols, Words	1 gallon per 80 square feet				

Thinning shall not be permitted.

Glass beads shall be applied to the uncured epoxy material in sufficient quantity so that the beads completely fill the epoxy film from the film-pavement interface to the top surface of the film to the extent that there are loose beads on the surface of the uncured line. The rate of application shall not be less than 25 pounds (3 kg) of glass beads per gallon (liter) of epoxy material applied.

If the epoxy marking does not dry to a no-tracking condition consistently and shows a cyclical soft spot, the Contractor shall cease marking application until the problem is corrected.

Certification of Compliance: The material manufacturer shall furnish a notarized certification that the material complies with the provisions of this specification. It shall not be inferred that the provisions of a certification of compliance waives state inspection, sampling, or testing.

Laboratory Samples: Promptly after execution of the contract, the contractor shall notify the engineer of the sources of material he expects to use. The material manufacturer shall furnish samples of the epoxy materials as may be required by the engineer, a minimum of ten days before the date of intended use of these materials.

Infrared Spectra: A copy of the infrared spectra of each component on each lot number shall be applied by the manufacturer along with the certification papers. This infrared spectra will be on record with the Department to serve as a quality control measure for the future supply of this system to the State.

Qualifying a Manufacturer: The manufacturer must have expertise reinforced with history in this particular field to qualify such as:

- Must have completed and passed the service test in accordance with Supplement 1047.
- Verifiable installations
- Ample production capacity
- Proper facility
- Compliance with EPA regulations
- A verifiable QC Program

Qualifying a Contractor: In order for an installer of such pavement marking material to be approved, the following document must be submitted:

A certificate from a pre-approved manufacturer of such Epoxy pavement marking materials, certifying that such a contractor has functional, appropriate equipment to install the Epoxy pavement marking material stated with the technology in this specification and he has and continues to be successful at performing this type of work.

Re-Applying: The re-application shall be applied over the existing binder with the proper surface prep as stated in 641.05. The rates of re-application shall be as follows:

Line Width	Wet-Film Thickness	Binder	Reflectorized Spheres
4"	10 mils	481 ft./gal. 10.97 gal./mile	25 lbs./gal. 274.25 lbs./mile

Method of Measurement: In addition to the requirements of 641.12, the following shall apply:

- a. The Contractor must submit certified documents from the manufacturer of the amount of gallons and pounds of beads shipped for the particular project.

In the field, the Contractor shall furnish a calibrated measuring device to be used to measure the quantity of materials used such as **stroke counters** mounted on the dispensing pumps. Stroke counter reading must be taken at the beginning and end of each day by the state authorized inspector.

Caution must be taken while re-circulating the material to turn off the stroke counter on the pump. (Using the "dipping the tank" method is not sufficient.)

The rate of application of materials shall be verified by comparing the amount of materials used with the computed amount needed for each section. Where short sections are involved and it is not practical or feasible to determine the quantities used on each and every short section, such sections may, by agreement between the Engineer and Contractor, be grouped together to verify the quantities used.

Basis of Payment: For the number of miles of line applied, grouped into each band, the Contractor will be paid the contract price, adjusted in accord with the following schedule:

Band 1	100% of contract unit price
Band 2	90% of contract unit price
Band 3	80% of contract unit price
Band 4	Re-apply

Performance Requirements: The system shall provide effective delineation on concrete as well as asphalt pavement for the specified period and provide the following Initial Retroreflectivity Requirements.:

	Specific Luminance (millicandela / square foot / foot candle) - Mirolux-12
White line, symbols and legends	250 min.
Yellow line	175 min.

Basis of Payment: Payment for accepted quantities complete in place will be made at the contract prices, or prices adjusted in accordance with 641.11 for:

Item	Unit	Description
Special	Mile	Edge line
Special	Mile	Lane line
Special	Mile	Center line
Special	Linear Foot	Channelizing line
Special	Linear Foot	Stop line
Special	Linear Foot	Crosswalk line
Special	Linear Foot	Transverse line
Special	Linear Foot	Curb marking
Special	Square foot	Island marking
Special	Each	Handicap symbol marking
Special	Each	Railroad symbol marking
Special	Each	School symbol marking, _____ - in.
Special	Linear Foot	Parking lot stall marking
Special	Each	Lane arrow
Special	Each	Word on pavement, _____ - in
Special	Linear Foot	Dotted line, _____ - in
Special	Linear Foot, Square Foot, of each	Removal of pavement marking
Special	Lump sum	Two-way radio equipment

Epoxy Material. Material supplied shall be a two part epoxy system capable of being applied at ambient temperature down to 50F. The material shall be capable of retaining reflective glass beads of the drop-on or spray-on type.

Epoxy shall comply of the following requirements:

1. **The epoxy shall be formulated as a Long Life Pavement Marking System free of any peroxides, and/or TMPTA (Tri-methylol propane tri-acrylate) and other such multi-functional monomers. The epoxy should be designed to provide simple volumetric mixing ratio of its components (such as 2:1).**
2. **Viscosity:** The viscosity of the Part A White shall be 19,000-20,000 cP and Part A Yellow shall be 25,000-26,000 cP and the viscosity of the Part B shall be 1,950-2,050 cP. At the point of application the viscosities shall be within 10% of each other.
3. **Weight:** The weight of Part A shall be White 11.8 lbs./gal. \pm 0.2 lbs./gal. and Yellow 12.8 lbs./gal. \pm 0.2 lbs./gal. The weight of Part B shall be 9.6 lbs./gal. \pm 0.2 lbs./gal.
4. **Epoxide Number:** The epoxide number of the epoxy resin shall be 0.51 \pm 0.05 as determined by ASTM D-1652 for both white and yellow Component A on a pigment free basis.
5. **Amine Number:** The amine number of the curing agent (component B) shall be 375 \pm 50 as per ASTM D-2074.
6. **Toxicity:** Upon heating to application temperature, the material shall not exude fumes which are toxic or injurious to persons or property. Upon curing the materials should be completely inert with all components fully reacted and environmentally safe.
7. **Drying Time (Laboratory):** The pavement marking material, when mixed in the proper ratio and applied at the appropriately prescribed wet film thickness at 75°F \pm 2°F and with the proper saturation of glass spheres, shall exhibit no tracking time when tested according to ASTM D-711 as follows:
 - a. 45-50 minutes.

8. **Drying Time (Field):** The pavement marking material shall have a setting time to a no-tracking condition of not more than 35 minutes at $75^{\circ}\text{F} \pm 2^{\circ}\text{F}$. The line must be protected from tracking during the setting period by one or more of the following methods: (1) coning off the wet line from traffic, (2) use of convoy of moving vehicles to prevent traffic crossing the wet line, and (3) saturation of the line with glass beads to prevent tracking.

9. **Curing:** The pavement marking material shall be capable of fully curing under the constant surface temperature condition of 45°F or above.

10. **Adhesion to Pavement (Concrete and Asphalt):** The cured pavement marking materials, when tested according to ACI Method 503, shall have such a higher degree of adhesion to the specified concrete (compressive strength, 4,000 psi minimum) or asphalt surface such that there shall be a 100% failure in the substrate in the performance of this test. The prepared specimens shall be conditioned at room temperature ($75^{\circ}\text{F} \pm 2^{\circ}\text{F}$) for a minimum of 24 hours and a maximum of 72 hours prior to the performance of the test indicated.

11. **Hardness:** The pavement marking materials, when tested according to ASTM D-224-75, shall have a Shore D Hardness of between 70 and 90. Samples shall be allowed to cure at room temperature ($75^{\circ}\text{F} \pm 2^{\circ}\text{F}$) for a minimum of 24 hours and a maximum of 72 hours prior to performing the indicated test.

12. **Tensile Strength:** When tested according to ASTM D-638, the epoxy pavement marking materials shall have a tensile strength of not less than 5,000 pounds per square inch. The Type IV specimens shall be cast in a suitable mold and pulled at a rate of $1/4^{\prime\prime}$ per minute by a suitable dynamic testing machine. The samples shall be allowed to cure at room temperature ($75^{\circ}\text{F} \pm 2^{\circ}\text{F}$) for a minimum of 24 hours and a maximum of 72 hours prior to performing the indicated tests.

13. **Compressive Resistance:** When tested according to ASTM D-695, the catalyzed epoxy pavement marking materials shall have a compressive strength of not less than 12,000 pounds per square inch. The cast sample shall be conditioned at room temperature ($75^{\circ}\text{F} \pm 2^{\circ}\text{F}$) for a minimum of 72 hours before performing the indicated tests. The rate of compression of these samples shall be no more than $1/4^{\prime\prime}$ per minute.

14. **Abrasion Resistance:** The abrasion resistance shall be evaluated on a Taber Abrader with a 1,000 gram load and CS-17 wheels. The duration of the test shall be 1,000 cycles. The wear index shall be calculated based on ASTM test method C-501 and the wear index for the catalyzed material shall not be more than 100 mg. The tests shall be run on cured samples of material which have been applied at a film thickness of 20 ± 0.5 mil to code S-16 stainless steel plates. The samples shall be allowed to cure at $75^{\circ}\text{F} \pm 2^{\circ}\text{F}$ for a minimum of 24 hours and a maximum of 72 hours prior to performing the indicated tests.

15. **Impact Strength:**

- Sample preparation:** Properly mixed material shall be applied on a minimum of 28 day old clean concrete and shall be allowed to cure for 72 hours at $75^{\circ}\text{F} \pm 2^{\circ}\text{F}$. Film thickness of the material shall be at the appropriately prescribed thickness.
- Testing:** At a temperature of $75^{\circ}\text{F} \pm 2^{\circ}\text{F}$, a two pound round steel ball shall be dropped from the height of 4 feet on the cured sample. No cracking or chipping of the material shall take place.

16. **Color:** The mixed epoxy compound, both white and yellow, must be applied to 2 sets of $3^{\prime\prime} \times 6^{\prime\prime}$ aluminum panels at 20 ± 1 mil in thickness, one set with no glass spheres and one set with glass spheres as specified in this specification section 633.03.04, paragraph B (*must ensure 50/50 distribution of Size I and Size II spheres for this will impact the results of this test*) and expose the prepared samples in a Q.U.V. Environmental Testing Chamber, as described in ASTM G-53, and they shall conform to the following requirements. (The test shall be conducted for 75 hours at 50°C (122°F), for hours humidity and 4 hours U.V., in alternating cycles. The prepared panels shall be cured at 77°F for 72 hours prior to exposure.) The color of the white epoxy material shall not be darker than Federal Standard No. 595A-17855. The color of the yellow epoxy material shall be reasonably close to Federal Standard No. 595A-13415.

17. **Accelerated Life-Cycle Aging Test:** The material must not show any evidence of blistering, bubbling, or delaminating when submitted to test method ATR-931. (Independent test laboratories such as PSI can be contacted to perform ATR-931. PSI, Cleveland Office, (216) 447-1335, Contact - Mr. Jim McCue.)

740.10 **Glass Beads.** In addition to the requirements of 740.10, the following shall apply:

Inspection shall be done at the project site. Random samples shall be obtained from material delivered to the project site, or at other locations designated by the laboratory.

Glass beads for epoxy marking material shall conform to the following:

The glass spheres shall have the following gradation when tested in accordance with ASTM D-1214:

SIZE I		SIZE II	
U.S. Standard Sieve No.	% Retained	U.S. Standard Sieve No.	% Retained
10	0	20	0-5
12	0-5	30	5-20
14	5-20	50	30-75
16	40-80	80	9-32
18	10-40	Pan	0-10
20	0-5		
Pan	0-2		

Both Size I and Size II reflective spheres shall be simultaneously dispensed through individual dispensing guns on the wet material respectively and the combined application of both sizes shall be at a minimum rate of 25 lbs./gal. with each size ranging between 12-13 lbs./gal. and the beads shall conform to the following requirements:

The glass spheres shall be colorless, clean, transparent, free from milkiness or excessive air bubbles, and essentially clean from surface scarring or scratching.

Size I and Size II glass beads shall be spherical in shape and at least 70% shall be true spheres. Size I spheres shall be tested for roundness according to the procedural directives of the Materials Bureau. Size II spheres shall be tested in accordance with ASTM D-1155.

The refractive index of the spheres shall be a minimum of 1.50 as determined by the liquid immersion method at 25°C. The silica content of the glass spheres shall not be less than 60%.

The glass spheres, Size I shall be coated with a silane-type adherence coating to enhance its embedment in, and adherence to the applied binder film. The coated beads shall emit a yellow-green fluorescence when tested by the Dansyl Chloride test procedure. Size II glass spheres shall be treated with a moisture proof coating. Both types of glass beads shall show no tendency to absorb moisture in storage and shall remain free of clusters and lumps. They shall flow freely from dispensing equipment at any time when surface and atmosphere conditions are satisfactory for marking operations. The moisture-resistance of the glass spheres shall be determined on the basis of the following test:

Place two pounds (2 lbs.) of spheres in a washed cotton bag, having a thread count of 50 per square inch (warp and woof) and immerse the bag in a container of water for 30 seconds. Remove the bag and force excess water from the sample by squeezing the bag. Suspend and allow to drain for two hours at room temperature (70-72°F). Then mix the sample in the bag shaking thoroughly. Transfer a sample slowly to clean, dry glass funnel having a stem 4" in length, with a 3/8" inside diameter stem entrance opening and a minimum exit opening of 1/4". The entire sample shall flow freely through the funnel without stoppage. When first introduced into the funnel, if the spheres clog, it is permissible to lightly tap the funnel to initiate the flow.

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

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EDGE LINE SUB-SUMMARY

PLAN NO. : E-6-94

10.81 mile

CAD EPOXY-EL

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

LANE LINE SUB-SUMMARY

PLAN NO. : E-6-94

8.87 mile

CAD EPOXY-LL

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

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CHANNELIZING & TRANSVERSE SUB-SUMMARY

PLAN NO. : E-6-94

CAD EPOXY-CH

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

REMOVAL SUB-SUMMARY

PLAN NO. : E-6-94

FHWA REGION	STATE	PROJECT	
5	OHIO		

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GENERAL SUMMARY

PLAN NO. E-6-94

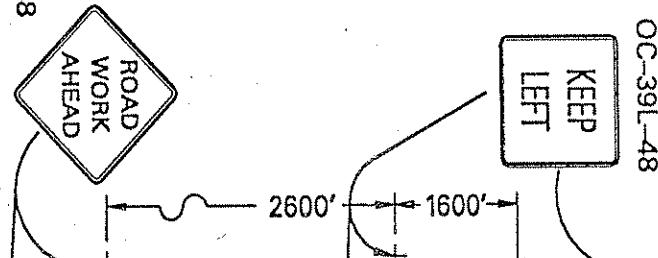
SHEET NUMBER	ITEM	ITEM EXT.	TOTAL QUAN.	UNIT	DESCRIPTION				
11	12	13	14		690	80000	10.81	1 mile	Pavement Marking Misc.: Edgeline
510.81									
8.87					690	80.000	8.87	1 mile	Pavement Marking Misc.: Lane line
					690	80010	1551	Lin. Ft.	Pavement Marking Misc.: Chan. Line
					690	80010	758	Lin. Ft.	Pavement Marking Misc.: Transverse Line
					644	30000	106239	LIN. FT.	Removal of Pavement Marking
					642	20.000		LUMP	Two-way Radio Equipment
					624	10000		LUMP	MOBILIZATION
					614	11000		LUMP	MAINTAINING TRAFFIC

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

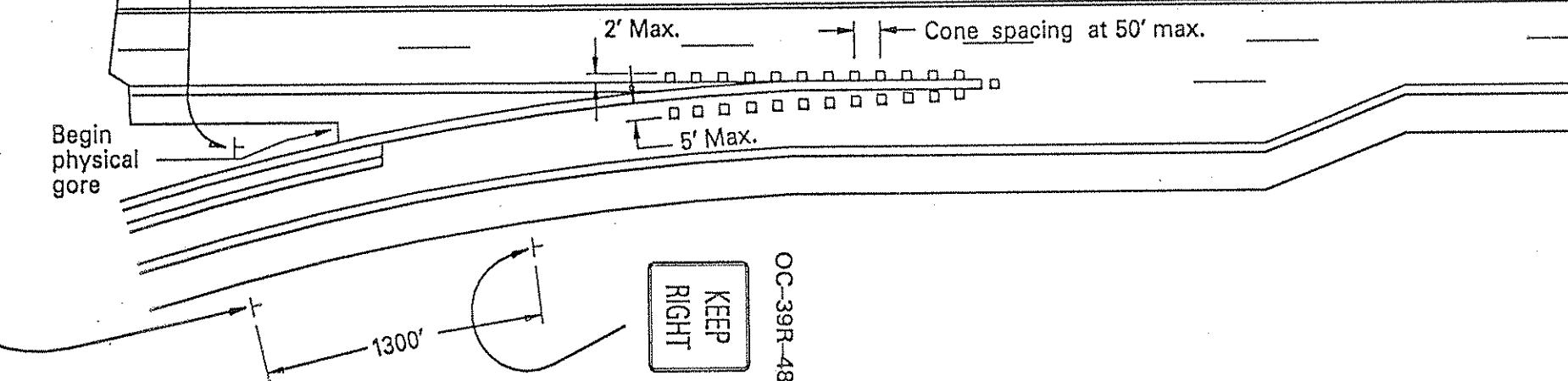
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PLAN NO.: E-6-94

OW-134-48



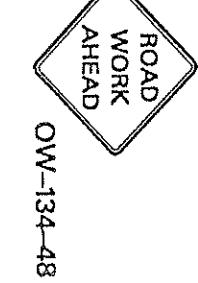
ENTRANCE GORE TRAFFIC CONTROL



GENERAL NOTES:

1. The requirements of the Traffic Control for Long Line Pavement Marking Operations SCD MT-99.20 shall apply in lieu of this detail where edge lines and/or channelizing lines are sprayed in moving operations separate from any other work.
2. Where the work in the gore area requires more positive traffic control or overnight work area protection, SCD MT - 98.14, MT - 98.15 should be employed.
3. The spacing between signs shown on this detail may be adjusted (increased or decreased) with the approval of the Engineer to position them no closer than 200 feet to existing signs which must remain in use.
4. At any isolated entrance gore area, a flashing arrow panel conforming to requirements in section 7G-8 of the OMUTCD and SCD TC-35.10 may be substituted for the advance OC-39-48 signs.
5. At an interchange where both exits and entrances are marked with traffic control in place at the same time, the OW-134-48 sign on the entrance ramp is not required.
6. For night closures, the OW-134-48 and the OC-47L-36 signs shall be lighted using type A flashing warning lights. Drums and steady burn lights shall be used in lieu of cones for night closures.

OW-134-48



EXIT GORE TRAFFIC CONTROL

Ohio Department of Transportation	DATE
Traffic Control for	1 - 81
Work In Gore Areas	10 - 85
(Pavement Marking)	9 - 88
	9 - 91

7H-2 MODIFIED