

ROAD DEPARTMENT FOR IONIA COUNTY

170 E. Riverside Drive • Ionia, Michigan 48846 • Phone (616) 527-1700 • Fax (616) 527-8848

Linda Pigue
Managing Director

INVITATION TO BID

Sealed bids will be received until **10:30 A.M. on Monday, March 3, 2025** at which time they will be publicly opened and read in the offices of the Ionia County Road Department of the County of Ionia, State of Michigan, located at 170 E. Riverside Drive, Ionia, MI 48846.

Contract# 25-20 Furnish & Place Chip Seal

It is the intent of the County of Ionia Board of Commissioners to contract for Furnishing and placement of Chip seal. The contractor shall certify that all services & materials meet current Michigan Department of Transportation specifications. All bids will meet or exceed the specifications established by the Ionia County Road Department of Ionia County and/or the Michigan Department of Transportation.

Additional information that will serve as the basis for bids can be found at www.ioniacountyroads.org on the "Doing Business" section, or at www.ioniacounty.org on the "Request for Proposals" section. Bids shall be mailed or delivered. **All bids must be submitted individually in sealed envelopes. Each document should distinctly specify the contract details for which their bid proposal is being submitted, along with the bidder's name and address.** Bids sent via fax or email will NOT be accepted.

The public Bid Opening is scheduled to occur at the Ionia County Road Department offices, situated at 170 E. Riverside Drive, Ionia, MI 48846, within the County of Ionia, State of Michigan. This event will commence at **10:30 A.M. on Monday, March 3, 2025**. Please be advised that late submissions will not be considered. All sealed bids should be directed to:

Ionia County Road Department
Attn: Cody Waite, Internal Coordinator
170 E. Riverside Drive
Ionia, Michigan 48846

The County of Ionia, its board members, its Road Department and The Michigan Department of Transportation reserve the right to reject any and all proposals or to waive irregularities therein, and to accept any proposals that they deem most beneficial and advantageous. In instances of error in the extension of prices in the bid or arithmetical error, the unit prices will govern. Upon the opening of bids, they will become the property of the County of Ionia and may be disclosed in accordance with the Freedom of Information Act. The expenses incurred in responding to this Bid Request will be the exclusive responsibility of the bidding firm.

INSTRUCTIONS TO BIDDERS

Sealed bids will be publicly opened at the offices of the Ionia County Road Department of the County of Ionia, State of Michigan, located at 170 E. Riverside Drive, Ionia, MI 48846.

Refer to the INVITATION TO BID for the exact timing and for the identification of the bids as related to furnishing materials, services, equipment, work and/or supplies with the terms, conditions, specifications, drawings, plans and special provisions as stated herein and hereto attached.

Normal practice is to open and read the bids then refer the file to staff for tabulation and analysis. During this period, bid files are closed and will remain closed until presented to the Ionia County Board of Commissioners. Notifications of award, pending award, or other outcome, will be made in writing. The bid tabulation will accompany the award, as is customary for item bid, or may be requested by phone at (616) 527-1700

1. Bids must be submitted on the bid form when provided. The bid shall be legibly prepared in ink or typed. The bidder must initial any erasures or alterations.
2. Specifications and plans should not be returned unless otherwise stated herein.
3. Bids shall be mailed or delivered. **All bids must be submitted individually in sealed envelopes. Each document should distinctly specify the contract details for which their bid proposal is being submitted, along with the bidder's name and address.** Bids sent via fax or email will NOT be accepted.
4. Bids will be accepted at the Ionia County Road Department office, on behalf of The County of Ionia, at any time during normal business hours. **Bids will not be accepted after the time designated for the opening of the bids.** The bidder shall assume full responsibility for delivery of bids prior to the appointed hour and shall assume the risk of late delivery or non-delivery regardless of the manner used for the transmission thereof.
5. It is Understood that The County of Ionia and The Michigan Department of Transportation, are governmental units and as such, are exempt from the payment of all State and Federal taxes, except as allowed by the regulatory agencies to be included in the cost of materials and services.
6. The bidder, as evidenced by the execution of the bid form, thereby declares that the bid is made without collusion with any other person, firm, or corporation and agrees to furnish all bid items in strict adherence with all Federal regulatory measures.
7. The County of Ionia, its board members, its Road Department and The Michigan Department of Transportation, reserve the right to reject any and all proposals or to waive irregularities therein, and to accept any proposals that they deem most beneficial and advantageous. In instances of error in the extension of prices in the bid or arithmetical error, the unit prices will govern.
8. Insurance Requirements: Upon request or notification of award, and prior to execution of the contract, the contractor shall have fourteen (14) days to submit a completed copy of their Certificate of Liability Insurance declaring the County of Ionia and the Michigan Department of Transportation as additional insured, not certificate holder, Contractor shall maintain current up- to-date insurance coverage during the term of the contract, failure to do so shall result in termination of said contract.

9. Indemnification: To the fullest extent permitted by law, the contractor shall save harmless and indemnify the County of Ionia, its board members, its Road Department, all officers, agents, and employees, and The Michigan Department of Transportation, against all claims, damages, losses and expenses including, but not limited to, attorneys' fees arising out of or resulting from the performance of this Contract including claims, damages, losses and expenses attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, but only to the extent caused by the fault, negligent acts, or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage loss or expense is caused in part by the parties indemnified hereunder. This obligation does not include an obligation to indemnify the parties, indemnified hereunder for their sole negligence and shall not be construed to negate or modify other rights or obligations of indemnity that otherwise exist as to the parties or persons described herein, arising out of and during the progress and to the completion of work all in accordance with Public Act 468 of 2012 and the 2020 Michigan Department of Transportation's Standard Specifications for Construction, Division 1, paragraph 1.07.10 with the following minimum requirements:

- A. CERTIFICATE HOLDER block shall read: "The County of Ionia, 101 W. Main Street, Ionia, Michigan 48846".
- B. Worker's Compensation Insurance: The contractor shall carry Worker's Compensation Insurance in accordance with Public Act 468 of 2012 and the 2020 Michigan Department of Transportation's Standard Specifications for Construction, Division 1, paragraph 1.07.10 with the following minimum requirements:
- C. Bodily Injury and Property Damage: The contractor, shall afford protection against all claims for damages to public or private property, and injuries to persons, arising out of and during the progress of the work, and to its completion and, where specified in the proposal, similar insurance to protect the owner of premises on or near which construction operations are to be performed.
- D. Bodily Injury and Property Damage Other Than Automobile: Unless otherwise specifically required by special provisions in the proposal, the minimum limits of property damage and bodily injury liability covering each contract will be:
- E. Bodily Injury and Property Damage Liability:

Each Occurrence.....	\$1,000,000
Aggregate	\$2,000,000

F. The insurance will include, but not be limited to coverage for:

- i. Underground damage to facilities due to drilling and excavating with mechanical equipment, and collapse or structural injury to structures due to blasting or explosion, excavation, tunneling, pile driving, cofferdam work, or building moving or demolition.
- ii. Bodily Injury Liability and Property Damage Liability Automobile. Unless otherwise specifically required by special provision, the minimum limits of bodily injury liability and property damage liability shall be:

G. Bodily Injury Liability:

Each Person..... \$500,000
Each Occurrence.....\$1,000,000

Property Damage Liability:

Each Occurrence.....\$1,000,000

Combined Single Limit for Bodily Injury and property Damage Liability:

Each Occurrence;.....\$2,000,000

H. Comprehensive General Liability Insurance: Naming the County of Ionia, its board members, its road department, all officers, agents, and employees, is required. This policy shall also include coverage for product liability and completed operations, and bodily or property damage due to perils of explosion, collapse and underground hazards (X, C, U). The completed certificate shall provide the name of the insurance company and its address, phone number, and fax number, in addition to the policy numbers, policy periods, policy descriptions, and signature of the insurance agent.

I. Owner's Protective Public Liability Insurance: In the alternative to the previous section, the contractor shall provide for and on behalf of The Michigan Department of Transportation, the County of Ionia, its board members, its road department, all officers, agents, and employees and any agencies specifically named, and their employees, a policy for Owner's Protective Public Liability Insurance. Such insurance shall provide coverage and limits the same as the Contractor's Public Liability Insurance.

10. Cancellation of Contract Provisions: The County of Ionia, its board members, its Road Department and The Michigan Department of Transportation shall have the right to cancel the contract for non-performance, should an inspection by the designated representative reveal that the contractor's work results in any non-acceptable maintenance condition of one or all specified areas. The designated representative at the time of the first circumstance shall call for a meeting with the contractor and issue a written warning of possible contract termination should the condition continue. If the condition should repeat for a second time, written notice of termination shall be sent.

11. Presumption upon Receipt of Bid: Submission of bid will be construed as a conclusive presumption that the contractor is thoroughly familiar with the bid requirements and specifications and that he/she understands and agrees to abide by each, and all stipulations and requirements contained therein.

12. The County of Ionia in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, disability, race, color, or national origin in consideration for an award." During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:
 - 1) **Compliance with Regulations:** The contractor shall comply with the regulations relative to non-discrimination in Federally assisted programs of the Department of Transportation, Title 49, code of Federal Regulations, Part 21 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
 - 2) **Non-discrimination:** The contractor, regarding the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulation, including employment. practices when the contractor covers a program set forth in Appendix B of the Regulations.
 - 3) **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to non-discrimination on the grounds of race, color, or national origin.
 - 4) **Information and Reports:** The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the County of Ionia to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the Michigan Department of Transportation, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information

Sanctions for Non-compliance: In the event of the contractor's non-compliance with the non-discrimination provisions of this contract, the County of Ionia shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

A. Withholding of payments to the contractor under the contract until the contractor complies and/or

B. Cancellation, termination, or suspension of the contract, in whole or in part

5) **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Ionia County Road Department may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Ionia County Road Department to enter into such litigation to protect the interests of the County, and, in addition, the contractor may request the Michigan Department of Transportation to enter into such litigation to protect the interests of the State and/or the United States to enter into such litigation to protect the interests of the United States.

13. Contractor and Contractor's Subcontractor: Neither the Contractor nor his/her subcontractors shall not discriminate against any employee or applicant for employment, to be employed in the performance of this contract, with respect to his/her hire, tenure, terms, conditions or privileges of employment because of his/her race, color, religion, national origin, or ancestry. Breach of this covenant may be regarded as a material breach of this contract.

**Specifications for
Contract# 25-20 Chip Seal and Fog Seal 2025**

It is the intent of the Ionia County Road Department (ICRD) to contract for Chip Sealing and Fog Sealing, and all necessary Traffic Control on county primary and local roads in Ionia County. There is also work on urban streets within Township villages.

This contract may be extended for 4 additional years with a negotiated increase for inflation.

This work shall be done in accordance with Sections 502, 505, and 812 of the MDOT 2020 Standard Specifications for Construction unless herein modified.

A. Description

The Contractor shall provide all materials, labor, and equipment necessary to perform Chip Seal and Fog Seal on multiple roads in Ionia County. This contract may be increased or decreased as needed by ICRD for each construction season.

B. Materials

Coarse slag aggregate for chip seals has already been purchased by the County and is available for use in 2025. Aggregate is located at 5 pit locations in the county (see Appendix "B").

Slag for future years may be required to be supplied by the Contractor. (Please note the separate line items on the attached bid sheet)

The Contractor is responsible to furnish all other materials meeting the requirements of the standard specifications and special provisions for items of work.

C. Construction

1. Maintaining Traffic

Maintenance of Traffic shall be done with traffic regulators according to MDOT Maintaining Traffic Typical 110-TR-NFW-2L and the Maintaining Traffic Special Provision (see Appendix "A").

Construction signs shall be moved and re-used for each roadway segment, at no additional cost to the project. Additional signing or maintaining traffic devices required to expedite the construction, with approval of the Engineer, shall be at the Contractor's expense.

"Loose Gravel" signs will be required after the work is complete and shall be placed at locations shown in the Maintaining Traffic Special Provision.

All applicable MDOT specifications and requirements shall be used at all times including (but not limited to): traffic control signs, loose gravel signs, number of rollers used, pilot car when needed, and same day sweeping. All associated equipment and any additional labor necessary will not be paid for separately but will be considered included in the project items.

2. **Chip Seal and Fog Seal**

See Appendix "A" for Special Provisions for chip seal and fog seal.

Once chip seal work is started on a segment, work shall be done in a continuous manner until completion.

Once fog seal work is started on a segment, work shall be done in a continuous manner until completion.

Cover monument boxes and utility manhole castings with heavy paper or similar material prior to chip sealing. Remove the protection after the application of fog seal. This work will not be paid for separately, but included in payment for Seal, Single Chip, Modified.

The entire existing HMA surface width (including paved shoulders and any HMA valley gutter) shall be chip sealed and fog sealed for the entire length. Work shall be done in accordance with the Special Provisions for Seal, Single Chip, Modified and Seal, Fog.

At all intersections with concrete curb and gutter, the limits of the proposed chip seal/ fog seal shall be to the edge of the concrete gutter. The Contractor is responsible to ensure that the gutter does not get covered and must collect excess chip seal aggregate in gutters and any on adjacent lawns. Intersections without concrete curb and gutter shall be chip/fog sealed to a point 6 feet from the edge of mainline pavement or the width of the approach as directed by the Engineer. Quantities for intersections have been included in the estimated quantities.

A separate item for **chip sealing on urban streets** (to be used within Township villages) has been included in the list of items. This item of Seal, Single Chip, Modified - Urban Locations shall include all additional work for covering structure castings, vacuuming excess stone from adjacent lawns within the village and slower production times.

Fog seal cannot be applied on the same day as the application of chip seal.

Overlap fog seal 1 foot at centerline (6 inches LT & RT). Additional width for fog seal overlap will not be paid for separately but is considered included in the pay limits, being the width of the HMA surface chip sealed.

3. **Pavement Marking**

Yellow, bidirectional reflective (Type 1), temporary raised pavement markers for chip seals (tabs) shall be placed for centerline markings prior to chip sealing. Place tabs at 50' intervals and double yellow tabs shall be placed in No Passing zones. All material and work is included in the Maintaining Traffic pay item. Permanent pavement markings are not included in this contract.

D. **Method of Payment**

All associated materials, labor, and equipment necessary to complete the work for each respective item as specified herein shall be paid for at the as bid unit price below. See Appendix "A" for special provisions.

<u>Pay Item</u>	<u>Pay Unit</u>
Maintaining Traffic (for entire project)	Lump Sum
Seal, Single Chip, Modified (ICRD to provide coarse aggregate)	Square Yard
Seal, Single Chip, Modified – Urban Location (ICRD to provide coarse aggregate)	Square Yard
Seal, Fog Seal, Single Chip, Modified (Contractor to provide coarse aggregate)	Square Yard
Seal, Single Chip, Modified – Urban Location (Contractor to provide coarse aggregate)	Square Yard
Seal, Fog	Square Yard

E. Locations and Quantities:

The anticipated locations identified at this time are shown in Appendix "B".

The contractor is to note that this is an As-Needed Contract and there does exist the potential to add, change, or delete locations and quantity to this contract if needed by the ICRD.

F. Schedule

The contractor shall notify the ICRD 48 hours prior to any work being performed and shall submit a schedule upon authorization.

In no case shall any work be commenced prior to receipt of formal notice of award by the Department, or as agreed upon by the Engineer.

All work associated with projects will begin no earlier than May 11 and be completed by September 15 of each given year.

After award and prior to the start of work, the Contractor must attend a preconstruction meeting with the Engineer. The Engineer will determine the day, time and place for the preconstruction meeting. The meeting will be conducted after project award. The named subcontractor(s) for Designated and/or Specialty Items, as shown in the Proposal, should attend the preconstruction meeting if such items materially affect the work schedule.

Failure to meet these deadlines will result in liquidated damages of \$500 per calendar day until the project is complete.

Questions concerning specifications may be directed to Cody Waite, at (616) 902-1101 or cwaite@ioniacountyroads.org.

Bid Form
Contract #25-20 Chip Seal and Fog Seal

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
Maintaining Traffic	1	Lump Sum		
Seal, Single Chip, Modified <i>(ICRD to provide coarse aggregate)</i>	45,000	Syd		
Seal, Single Chip, Modified – Urban Location <i>(ICRD to provide coarse aggregate)</i>	30,590	Syd		
Seal, Single Chip, Modified <i>(Contractor to provide coarse aggregate)</i>		Syd		
Seal, Single Chip, Modified – Urban Location <i>(Contractor to provide coarse aggregate)</i>		Syd		
Seal, Fog		Syd		

Total: _____

 Authorized Signature

 Date

 Print Name / Title

 Phone Number

 Company Name

 Fax Number

 Address

 Cell Phone Number

 City, State, ZIP

 Email address

Appendix "A"

IONIA COUNTY ROAD DEPARTMENT

Contract # 25-20 Chip Seal and Fog Seal

SPECIAL PROVISION FOR SINGLE CHIP SEAL, MODIFIED

- a. Description.** This work consists of surface preparation and application of a single chip seal in accordance with section 505 of the Standard Specifications for Construction, the standard plans, and as specified herein.
- b. Materials.** Provide materials in accordance with subsection 505.02 of the Standard Specifications for Construction:
1. Asphalt Emulsion. Provide an asphalt emulsion meeting the requirements of CRS- 2M in Table 904-7 and 904-8 of the Standard Specifications for Construction.
 2. Coarse Aggregate for County segments. The coarse slag aggregate to be used by the Contractor for all chip seals on county road segments has already been purchased by Ionia County Road Department. The material (slag) is stored at 5 locations as shown on the Stockpile Location Map in Appendix "B".

Additional aggregate for county segments must be iron blast-furnace slag aggregate meeting the gradation and physical requirements of 34CS in Table 902-7 and 902-8 of the Standard Specifications for Construction. Cost for additional material will be negotiated if required.
 3. Coarse Aggregate for Township village segments. Provide aggregates meeting the gradation and physical requirements of 34CS or CS-Tin Table 902-7 and 902-8 of the Standard Specifications for Construction.

The Contractor is responsible for loading and hauling the County supplied coarse aggregate to each project location.

The Contractor will be required to document amount of coarse aggregate used per project location, in a manner approved by the Engineer.

All excess aggregate remains property of the Ionia County Road Department and must be returned to the stockpile location.

- c. Construction.** Ensure all construction is in accordance with subsection 505.03 of the Standard Specifications for Construction.
- d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Seal, Single Chip, Modified - (ICRD supplies aggregate).....	Square Yard
Seal, Single Chip, Modified Urban Locations - (ICRD supplies aggregate)	Square Yard
Seal, Single Chip, Modified - (contractor supplies aggregate).....	Square Yard
Seal, Single Chip, Modified Urban Locations - (contractor supplies aggregate).....	Square Yard

Seal, Single Chip, Modified includes all materials, equipment, labor for placement of a single application of asphalt emulsion and coarse aggregate. ICRD shall supply all supplied coarse aggregate shall be used.

Seal, Single Chip, Modified - Urban Locations includes all materials, equipment, labor for placement of a single application of asphalt emulsion and coarse aggregate to urban streets located within Township villages. ICRD shall supply all coarse aggregate used.

Seal, Single Chip, Modified includes all materials, equipment, labor for placement of a single application of asphalt emulsion and coarse aggregate. Contractor shall supply all coarse aggregate used.

Seal, Single Chip, Modified - Urban Locations includes all materials, equipment, labor for placement of a single application of asphalt emulsion and coarse aggregate to urban streets located within Township villages. Contractor shall supply all coarse aggregate used.

Payment also includes all materials sampling and testing, surface preparation, brooming, and documentation.

SPECIAL
PROVISION FOR
FOG SEAL

CFS:RAG

1 of 4

APPR:KPK:CJB:04-22-20

a. Description. This work consists of an application of a fog seal. A fog seal is a light application of a slow-setting emulsified asphalt diluted with water. Ensure all work and materials are in accordance with the standard specifications, except as modified herein.

b. Materials. Provide materials in accordance with subsection 904.03 of the Standard Specifications for Construction with the following alternative:

1. Asphalt Emulsion. Provide Cationic Quick Setting Emulsified Asphalt (CQSEA) meeting the requirements of Table 1.

Dilute asphalt emulsion, at a maximum of one part asphalt emulsion to one part water, at the emulsion plant.

c. Equipment. Use equipment that is safe, environmentally acceptable, and capable of producing a quality product.

1. Pressure Distributor. Ensure the pressure distributor has the following characteristics:
 - A. Has a ground speed computer-controlled device interconnected with the asphalt emulsion pump such that the specified application rate is supplied at any speed.
 - B. Is capable of maintaining the asphalt emulsion at the specified temperature.
 - C. Has spray bar nozzles capable of producing a uniform fan spray and with shutoff control that is instantaneous, with no dripping.
 - D. Is capable of maintaining the specified application rate within ± 0.015 gallons per square yard (gal/syd) for each load.
2. Miscellaneous. Provide a power broom and all necessary hand tools, thermometers, etc. Ensure distributors and power brooms are equipped with at least one visible approved flashing, rotating, or oscillating amber light.

d. Pre-Paving On-Site Meeting. A pre-paving meeting between the Engineer and Contractor will be held prior to beginning work. The agenda for this meeting will include a review of the following:

1. Work schedule,
2. Traffic control plan,
3. Equipment calibration and adjustments,
4. Condition of materials and equipment, and
5. Quality control plan job mix formula (JMF), Yield Check Methods, etc.).

- e. **Construction.** Place the longitudinal construction joint at the edge of metal of the driving lane; at a location requiring a minimal overlap onto the driving lane; or at a location requiring a minimal overlap of the new longitudinal joint resulting from milling and resurfacing.

Where corrugations are present longitudinal joints are to be constructed at the outside edge of the far side of the corrugation on the first pass. Place the longitudinal joint at the outside edge of the opposite side of the corrugation for the second application.

Fog seal cannot be applied on the same day as the application of chip seal.

Apply the fog seal only when the pavement and air temperature is 55 degrees Fahrenheit (F) or above. Do not apply the fog seal if there is threatening weather and temperatures are forecast to be below 32 degrees F within 24 hours from the time of application.

Use pressure sufficient to apply emulsion at a uniform rate, but without splattering or drilling from the spray bar. Adjust nozzle angle and spray bar height to ensure correct spray pattern.

Apply fog seal at a rate of 0.07 to 0.15 gallons of diluted material per square yard of pavement treated. Ensure the fog seal application results in a uniform coverage of emulsion just sufficient to flow into and seal the pavement pores, small cracks, and voids. The asphalt emulsion application rate, as determined by a yield check, must not exceed a tolerance of ± 0.015 gal/syd from the established JMF application rate.

If a condition is identified that causes an unsatisfactory fog seal, stop all production work and perform corrective action immediately at no additional cost to the contract. If there are adverse environmental conditions, provide the Engineer an action plan that clearly demonstrates how the fog seal operation will be adjusted for the actual environmental conditions.

Allow the Engineer access to all work in progress for the purpose of quality assurance review and testing.

- f. **Quality Control.** Establish, maintain, and follow an effective quality control system in accordance with current Department procedures. The quality control system must detail plans, procedures, and organization necessary to furnish and apply a fog seal that complies with the contract. Follow the quality control system until work is accepted.

Establish, maintain, and follow a Contractor Quality Control (CQC) plan sufficient to ensure that the warranty related treatment complies with the contract. The CQC plan must cover all fog seal operations. Submit a copy of the plan to the Engineer, at the preconstruction meeting, for approval. Follow the approved plan throughout the project.

Include the following information, at a minimum, in the CQC plan:

1. Materials to be used on the project.
2. Sampling and testing methods used to determine compliance with material specifications.
3. Equipment to be used on the project.
4. Calibration method used to determine compliance with the application rates.
5. Procedures for pavement preparation.

6. Controls implemented by the Contractor to ensure that the fog seal material is cured or set up satisfactorily before opening to traffic.
7. Procedures implemented by the Contractor for monitoring initial acceptance requirements.

g. Documentation. Provide the Engineer a daily report including the following information:

1. **Control section, project number, county, route, Engineer;**
2. **Date, air temperature, pavement temperature, humidity;**
3. **Asphalt emulsion temperature;**
4. **Beginning and ending stations;**
5. **JMF: application and dilution rates (asphalt emulsion);**
6. **Yield checks on asphalt emulsion (3 per day, minimum);**
7. **Length, width, total square yards; and**
8. **Contractor's signature.**

Provide asphalt emulsion documentation in accordance with current Department acceptance procedures.

h. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Seal, Fog	Square Yard

Seal, Fog includes placement of the asphalt emulsion including surface preparation, stationing, and documentation.

Table 1: Cationic Quick Setting Emulsified Asphalt (CQSEA)

	Requirements
	CQSEA
Viscosity, Saybolt Furol, AASHTO T59/ASTM D7496:	
At 25 °C, sec	20-100
Storage Stability Test, AASHTO T59/ASTM D6930, 24 hr,% Difference, max	1
Particle Charge Test, AASHTO T59/ASTM D7402 (a)	Positive
Sieve Test, AASHTO T59/ASTM D6933, % max (Distilled Water)	0.10
Residue, min	60
Tests on Distillation Residue:	
Penetration, 25 °C, 100 g, 5 sec, dmm, AASHTO T49/ASTM D5/D5M	40-90
Ductility, 25 °C, 5 cm/min, cm, min, AASHTO T51/ASTM D113	40
Solubility in Trichloroethylene, % min, AASHTO T44/ASTM D2042	97.5
Ash Content,% max, ASTM D128	2
a. If Particle Charge Test is inconclusive, material having a maximum pH of 6.7 is acceptable.	

**IONIA COUNTY ROAD DEPARTMENT
SPECIAL PROVISION FOR
MAINTAINING TRAFFIC**

a. Description.

This project consists of treating multiple roadway segments with chip seal and fog seal at locations throughout Ionia County as listed included in the contract documents.

b. General.

The Contractor shall maintain traffic in accordance with the standard specifications and as specified herein.

Work in the roadway will be utilizing traffic regulators, which shall be the responsibility of the Contractor. The Contractor shall be responsible for all construction signing and shall maintain through traffic and local access to residences at all times.

A single lane closure and traffic regulators, according to MOOT Maintaining Traffic Typical No. 110-TR-NFW-2L shall be used to maintain traffic.

The Contractor is responsible to move advance signing and traffic control devices throughout the project for each roadway segment as necessary, at no additional cost to the project.

A pilot car will be required when necessary per MDOT specifications, at no additional cost to the project.

The Contractor shall coordinate this work with any other contractors or County performing work within the Construction Influence Area or adjoining areas to avoid conflicts in the maintenance of traffic, construction signing or the orderly progress of contract work.

c. Construction Influence Area (CIA)

The Construction Influence Area for this project shall consist of the width of the road right of way, and the width of the right of way on intersecting roads, from a point where advance construction warning signing begins to a point where it ends.

d. Traffic Restrictions

Only one traffic regulator sequence shall be in place at one time unless approved by Engineer.

The maximum length of lane closure shall be limited to 1 mile unless otherwise approved by the Engineer.

A speed reduction will be used. The work zone speed limit shall be set to 45 miles per hour (mph).

A minimum of one 10 foot lane of traffic shall be maintained at all times, by a method approved by the Engineer. Each evening a two lane roadway shall be opened for traffic.

A minimum of two principal traffic regulators shall be used at each lane closure. Additional secondary traffic regulators may be required to control traffic at intersections within the lane closure. The Contractor is responsible for maintaining traffic safety within the work zone.

Lane closures and work on weekends must be approved by the Engineer.

No work will be conducted the following holiday periods unless otherwise approved by the Engineer:

Holiday	Start Date and Time	End Date and Time
Memorial Day	3:00 p.m. Friday, May 23	8:00 a.m. Tuesday, May 27
Independence Day	3:00 p.m. Thursday, July 3	8:00 a.m. Monday, July 7
Labor Day	3:00 p.m. Friday, August 1	8:00 a.m. Tuesday, September 2

e. Traffic Control Devices.

Prior to chip sealing, yellow, bidirectional reflective (Type 1), temporary raised pavement markers for chip seals (tabs) shall be placed for centerline markings. Place tabs at 50' intervals and double yellow tabs shall be placed in No Passing zones. Tabs are included in the Maintaining Traffic pay item.

Place WB-7 ("LOOSE GRAVEL") signs with W13-1P (ADVISORY SPEED 35 MPH) per subsection 505.03.D of the Standard Specifications for Construction.

All signs, barricades and other traffic control devices shall be in accordance with the 2011 Michigan Manual on Uniform Traffic Control Devices (MMUTCD) and Special Detail WZD-125-E.

Temporary traffic control devices shall be maintained properly as specified in the standard specifications.

Fabrication, installation, and removal of temporary signs shall be the responsibility of the Contractor and shall be included in the Maintaining Traffic pay item.

Signing shall be placed in accordance with MDOT Maintaining Traffic Typical 101-GEN-SPACING_CHARTS, 102-GEN-NOTES, and 110-TR NFW-2L.

f. Measurement and Payment.

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Maintaining Traffic	Lump Sum

Maintaining Traffic includes all materials, labor, and equipment to place reflective raised pavement markers and all necessary traffic control devices.

It shall be the Contractor's responsibility to furnish, install, maintain, move and remove all traffic control devices necessary for maintaining traffic within the CIA.

DISTANCE BETWEEN TRAFFIC SIGNS, "D"

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
D (FEET)	250	300	350	400	450	500	550	600	650	700	750

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE, "B"

"B" LENGTHS	SPEED*, MPH (PRIOR TO WORK AREA)											
	20	25	30	35	40	45	50	55	60	65	70	75
B (FEET)	33	50	83	132	181	230	279	329	411	476	542	625

* POSTED SPEED, OFF-PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.

MINIMUM MERGING TAPER LENGTH, "L" (FEET)

OFFSET (FEET)	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
1	11	15	21	27	45	50	55	60	65	70	75
2	21	30	41	54	90	100	110	120	130	140	150
3	32	45	62	80	135	150	165	180	195	210	225
4	42	60	82	107	180	200	220	240	260	280	300
5	53	75	103	134	225	250	275	300	325	350	375
6	63	90	123	160	270	300	330	360	390	420	450
7	73	105	143	187	315	350	385	420	455	490	525
8	84	120	164	214	360	400	440	480	520	560	600
9	94	135	184	240	405	450	495	540	585	630	675
10	105	150	205	267	450	500	550	600	650	700	750
11	115	165	225	294	495	550	605	660	715	770	825
12	125	180	245	320	540	600	660	720	780	840	900
13	136	195	266	347	585	650	715	780	845	910	975
14	146	210	286	374	630	700	770	840	910	980	1050
15	157	225	307	400	675	750	825	900	975	1050	1125

NOT TO SCALE



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 101-GEN-SPACING-CHARTS

"B", "D" AND "L" TABLES
CHANNELIZING DEVICE SPACING,
SIGN BORDER KEY, AND ROLL-AHEAD SPACING

DATE: MAY 2021
SHEET:

1 OF 3

FILE: 101-GEN-SPACING-CHARTS.dgn

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" = $\frac{W \times S^2}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

"L" = W X S WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER
 S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA
 W = WIDTH OF OFFSET

TYPES OF TAPERS

UPSTREAM TAPERS

- MERGING TAPER
- SHIFTING TAPER
- SHOULDER TAPER
- 2 TO 1 LANE ROAD TAPER

TAPER LENGTH

- L - MINIMUM
- 1/2 L - MINIMUM
- 1/3 L - MINIMUM
- 100' - MAXIMUM

DOWNSTREAM TAPERS
 (USE IS RECOMMENDED)

100' (PER LANE)

MAXIMUM SPACING FOR CHANNELIZING DEVICES

WORK ZONE SPEED LIMIT	DRUM AND 42" DEVICE SPACING (FT)		NIGHTTIME 42" DEVICE SPACING (FT)	
	TAPER	TANGENT	TAPER	TANGENT
< 45 MPH	1 x SPEED LIMIT	2 x SPEED LIMIT	25 FEET	50 FEET
≥ 45 MPH	50 FEET	100 FEET	25 FEET	50 FEET

SIGN OUTLINE KEY

DASHED OUTLINES INDICATE A SIGN THAT EXISTS ON SITE, AND NEEDS TO BE COVERED.



SOLID OUTLINES INDICATE A SIGN THAT IS TO BE PLACED ON THE PROJECT



NOT TO SCALE

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	"B", "D" AND "L" TABLES CHANNELIZING DEVICE SPACING SIGN BORDER KEY AND ROLL-AHEAD SPACING	DATE: MAY 2021
		NO: 101-GEN-SPACING-CHARTS		SHEET: 2 OF 3

FILE: 101-GEN-SPACING-CHARTS.dgn

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES - TEST LEVEL 2

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5.5 TONS (STATIONARY)	40 MPH OR LESS	25 FT

* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 4,410 POUND IMPACT VEHICLE WEIGHT.

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES - TEST LEVEL 3

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5 TONS (MOBILE)	45 MPH	100 FT
	50-55 MPH	150 FT
	60-75 MPH	175 FT
12 TONS (STATIONARY)	45 MPH	25 FT
	50-55 MPH	25 FT
	60-75 MPH	50 FT

* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 10,000 POUND IMPACT VEHICLE WEIGHT.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 101-GEN-SPACING-CHARTS

"B", "D" AND "L" TABLES
CHANNELIZING DEVICE SPACING
SIGN BORDER KEY AND ROLL AHEAD SPACING

DATE: MAY 2021

SHEET:

3 OF 3

THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL

GENERAL NOTES

- G1: SEE GEN-SPACING-CHARTS FOR COMMON VALUES INCLUDING:
D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
ROLL AHEAD DISTANCE
- G2: DISTANCE BETWEEN SIGNS, "D", THE VALUES FOR WHICH ARE SHOWN IN TYPICAL GEN-KEY ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- G3: ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING MUST MEET NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP 350) TEST LEVEL 3, OR MANUAL FOR ASSESSING 5-FT-HARDWARE (MASH) T-3 AS WELL AS THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
- G4: DO NOT STORE EQUIPMENT, MATERIALS OR PERFORM WORK IN ESTABLISHED BUFFER AREAS.
- G5: ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR TRAFFIC PATTERNS FOR WORK LESS THAN THREE DAYS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

SIGN NOTES

- S1: ALL NON-APPLICABLE SIGNING WITHIN THE CJA MUST BE MODIFIED TO FIT CONDITIONS, COVERED, OR REMOVED. FOR GUIDANCE SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, SECTIONS 6.01.09 AND 6.01.10.
- S2: R5-18b SIGNS ARE ONLY REQUIRED ON FREEWAY PROJECTS WITH A DURATION OF 15 DAYS OR LONGER OR NON-FREEWAY PROJECTS WITH A DURATION OF 90 DAYS OR LONGER. TO APPLY THIS TYPICAL WITHOUT R5-18b SIGNS, REMOVE THE SIGNS AND CONSOLIDATE THE SEQUENCE AS APPROPRIATE.
- S3: R5-18c IS ONLY REQUIRED IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. OMIT THIS SIGN IN SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE.
- S4: ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEFORE THE W20-5 SIGNS.
- S5: PLACE ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE WORK ZONE SPEED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK ZONE, OR AFTER EACH ENTRANCE RAMP THAT COMES ONTO THE FREEWAY WHERE THE REDUCED SPEED IS IN EFFECT. PLACE ADDITIONAL SPEED LIMIT SIGNS AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS ARE MORE THAN 2 MILES APART. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, PLACE ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED BEYOND THE LIMITS OF THE WORK AREA AS INDICATED. IF PERMANENT SIGNS DISPLAYING THE CORRECT SPEED LIMIT ARE POSTED, OMIT ALL W3-5b AND R2-1 SIGNS AND REDUCE SPACING ACCORDINGLY.
- S6: FABRICATE SPECIAL SIGNS IN ACCORDANCE WITH CURRENT SIGNING DESIGN STANDARDS.
- S7: PLACE ADDITIONAL R8-3 SIGNS AT A MAXIMUM 500' SPACING THROUGHOUT THE WORK ZONE.
- S8: WHEN SPEED LIMIT SIGNS CANNOT BE PLACED SIDE BY SIDE AS SHOWN, PLACE THEM "D" DISTANCE APART.
- S9: STOP SIGNS NOT REQUIRED IF SIGNALS ARE ON 4-WAY FLASHING RED. STOP AHEAD SIGNS ARE NOT REQUIRED IF THERE IS ADEQUATE VISIBILITY OF THE STOP SIGN OR IF SIGNALS ARE BEING USED TO CONTROL TRAFFIC.
- S10: PLACE REDUCED SPEED ZONE AHEAD SIGN (W3-5b) HERE WHEN USING A SPEED REDUCTION IN THIS DIRECTION.
- S11: THE NUMBER OF W1-6 SHIFT SIGNS TO PLACE FOR A SHIFT IS AS FOLLOWS:
SHIFTS 4FT OR LESS, PLACE ONE W1-6(R/L)
SHIFTS 5FT TO 12FT, PLACE TWO W1-6(R/L)
SHIFTS MORE THAN 12FT, PLACE THREE OR MORE W1-6(R/L) SIGNS DEPENDING UPON LENGTH OF SHIFT AND AS PER THE ENGINEER.
- S12: PLACE R2-1 SIGNS AS DETAILED IN NOTE S9 WHEN THERE IS A SPEED REDUCTION IN THIS DIRECTION.

TRAFFIC REGULATOR NOTES

- TR1: TRAFFIC REGULATORS MUST FOLLOW ALL THE REQUIREMENTS IN THE STANDARD SPECIFICATIONS, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS, THE CURRENT VERSIONS OF THE TRAFFIC REGULATOR'S INSTRUCTION MANUAL AND THE VIDEO "HOW TO SAFELY REGULATE TRAFFIC IN MICHIGAN". THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS IS DETERMINED BY THE ROADWAY ADT, GEOMETRICS, AND AS DIRECTED BY THE ENGINEER.
- TR2: PROVIDE APPROPRIATE BALLOON LIGHTING TO SUFFICIENTLY ILLUMINATE TRAFFIC REGULATOR'S STATIONS WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS.
- TR3: PROVIDE EITHER A STOP/SLOW AHEAD OR A RED/YELLOW LENS AHEAD, MEETING THE REQUIREMENTS OF THE MUTCD.

TEMPORARY TRAFFIC CONTROL DEVICE NOTES

- TC01: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD NOT EXCEED 1.6 TIMES THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 50 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TAPERS ARE NOT TO EXCEED 25 FEET AT NIGHT.
- TC02: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TANGENT SHOULD NOT EXCEED TWICE THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 100 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TANGENTS ARE NOT TO EXCEED 50 FEET AT NIGHT.
- TC03: TYPE III BARRICADES MUST BE LIGHTED FOR OVERNIGHT CLOSURES.
- TC04: WHEN THE HAUL ROAD IS NOT IN USE, PLACE LIGHTED TYPE III BARRICADES WITH "ROAD CLOSED" EXTENDING COMPLETELY ACROSS THE HAUL ROAD.
- TC05: USE OBJECT MARKER SIGNS IN LIEU OF THE TYPE B HIGH INTENSITY LIGHT SHOWN IN THE STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER (R-53, AND R-126) WHEN USED WITH A TEMPORARY SIGNAL SYSTEM. THE OBJECT MARKERS MUST BE A MINIMUM OF 12 INCHES IN WIDTH AND 36 INCHES IN HEIGHT AND HAVE ORANGE AND WHITE RETROREFLECTIVE SHEETING. THE RETROREFLECTIVE SHEETING MUST HAVE ALTERNATING DIAGONAL ORANGE AND WHITE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION VEHICULAR TRAFFIC IS TO PASS.
- TC06: PLACE LIGHTED ARROW PANELS AS CLOSE TO THE BEGINNING OF TAPERS AS PRACTICAL, BUT NOT IN A MANNER THAT WILL OBSCURE OR CONFUSE APPROACHING MOTORISTS WHEN PHYSICAL LIMITATIONS RESTRICT PLACEMENT. IN CURBED SECTIONS, IF ARROW BOARD CANNOT BE PLACED BEHIND CURB, PLACE ARROW BOARD IN THE CLOSED LANE AS CLOSE TO THE BEGINNING OF TAPER AS POSSIBLE.
- TC07: ADDITIONAL TYPE III BARRICADES MAY BE REQUIRED TO COMPLETELY CLOSE OFF ROAD FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
- TC08: WHERE THE SHIFTED SECTION IS SHORTER THAN 600 FEET, A DOUBLE REVERSE CURVE SIGN (W2-1) CAN BE USED INSTEAD OF THE FIRST REVERSE CURVE SIGN, AND THE SECOND REVERSE CURVE SIGN CAN BE OMITTED.
- TC09: RUMBLE STRIPS ARE TO BE PLACED AS SPECIFIED IN THE CONTRACT. IF NOT SPECIFIED IN THE CONTRACT, PLACE RUMBLE STRIPS AS SHOWN, AND IN ACCORDANCE WITH THE RUMBLE STRIP MANUFACTURER'S RECOMMENDATIONS. AN ARRAY OF RUMBLE STRIPS CONTAINS THREE RUMBLE STRIPS. PLACE THE RUMBLE STRIPS IN THE ARRAY AT A CONSISTENT DISTANCE, BETWEEN 10' AND 20' APART.
- TC10: SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, PORTABLE CHANGEABLE MESSAGE SIGN GUIDELINES FOR RECOVERED AND CORRECT PCMS MESSAGING, STAGGER PCMS THAT ARE ON OPPOSING SIDES OF THE ROAD 1000 FEET FROM EACH OTHER.

RAMP NOTES

- RP01: WHEN CONDITIONS ALLOW, R5-1 SIGNS MUST BE REMOVED OR COVERED AND CHANNELIZING DEVICES MUST BE POSITIONED TO ENABLE RAMP TRAFFIC TO DIVERGE IN A FREE MANNER.
- RP02: STOP AND YIELD CONDITIONS SHOULD BE AVOIDED WHENEVER PRACTICAL. WHEN CONDITIONS WARRANT, R1-1 SIGNS MAY BE USED IN PLACE OF R1-2 SIGNS. WHEN R-1 SIGNS ARE USED, W3-1 SIGNS MUST BE USED IN PLACE OF W3-2 SIGNS. CONSIDERATION SHOULD BE GIVEN TO CLOSING THE RAMP TO COMPLETE WORK TO ALLOW AN ADEQUATE MERGE DISTANCE. WORK SHOULD BE EXPEDITED TO AVOID THE STOP AND/OR YIELD CONDITIONS.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

102-GEN-NOTES

TRAFFIC TYPICALS
NOTE SHEET

DATE: MAY 2022
SHEET:

1 OF 2

THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL

SIGNAL NOTES

- SIG1: EXISTING SIGNAL MUST BE EITHER 4-WAY FLASHING RED, BAGGED, OR TURNED OFF.
- SIG2: SIGNAL IS IN OPERATION.
- SIG3: DELINEATE THE WORK ZONE AREA WITH 28 INCH CONES FOR DAYTIME WORK, OR 42 INCH CHANNELIZING DEVICES FOR NIGHTTIME WORK.
- SIG4: THE CONTRACTOR MUST HAVE A DESIGNATED SPOTTER IF THE AERIAL BUCKET TRUCK IS LOCATED OVER ACTIVE TRAVEL LANES.
- SIG5: THE LOWEST POINT OF THE BUCKET MAY NOT TRAVEL BELOW 14 FOOT VERTICAL CLEARANCE. THE CONTRACTOR MUST UTILIZE AN ALTERNATE SET UP, OR PLACE THE INTERSECTION IN A 4 WAY STOP IF THE 14 FOOT VERTICAL CLEARANCE IS COMPROMISED. USE TRAFFIC REGULATORS TO CONTROL TRAFFIC THROUGH THE INTERSECTION WHEN TRAFFIC IS PLACED IN A 4 WAY STOP.
- SIG6: DELINEATE THE TRUCK WITH CHANNELIZING DEVICES. THE POSITION OF THE TRUCK MAY BE MOVED TO FACILITATE WORK.

MAINTENANCE AND SURVEYING NOTES

- MS1: WHENEVER STOPPING SIGHT DISTANCE EXISTS TO THE REAR, THE SHADOW VEHICLES SHOULD MAINTAIN THE RECOMMENDED DISTANCE FROM THE WORK AREA AND PROCEED AT THE SAME SPEED. THE SHADOW VEHICLE SHOULD SLOW DOWN AND TRAVEL AT A FURTHER DISTANCE TO PROVIDE ADEQUATE SIGHT DISTANCE IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES.
- MS2: WORKERS OUTSIDE OF VEHICLES SHOULD WORK WITHIN 150' OF WORK VEHICLES WITH AN ACTIVATED BEACON, BETWEEN THE "BEGIN WORK CONVOY" SIGN AND THE "END WORK CONVOY" SIGN, OR BETWEEN THE "WORK ZONE BEGINS" AND "END ROAD AHEAD" SIGN.
- MS3: WORK OR SHADOW VEHICLES WITH OR WITHOUT A TMA MAY BE USED TO SEPARATE THE WORK SPACE FROM TRAFFIC. IF USED, THE VEHICLES SHOULD BE PARKED ACCORDING TO THE ROLL AHEAD DISTANCE TABLES.
- MS4: WORK AND SHADOW VEHICLES SHALL BE APPROPRIATELY EQUIPPED WITH AN ACTIVATED AMBER BEACON.
- MS5: WHEN WORKERS ARE OUTSIDE THEIR VEHICLES IN AN EXISTING LANE WHILE A MOBILE OPERATION IS OCCURRING DURING THE NIGHTTIME HOURS, CHANNELIZING DEVICES TO DELINEATE OPEN OR CLOSED LANES AT 50 FT SPACING MUST BE USED. AN EXAMPLE OF AN OPERATION (BUT NOT LIMITED TO) IS THE LAYOUT OF CONCRETE PATCHES.
- MS6: W21-6 AND W20-1 SIGNS MAY BE SUBSTITUTED AS DETERMINED BY THE TYPE OF WORK TAKING PLACE AS PER THE ENGINEER.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 102-GEN-NOTES

TRAFFIC TYPICALS
NOTE SHEET

DATE: MAY 2022
SHEET:

FILE: 102-GEN-NOTES.dgn

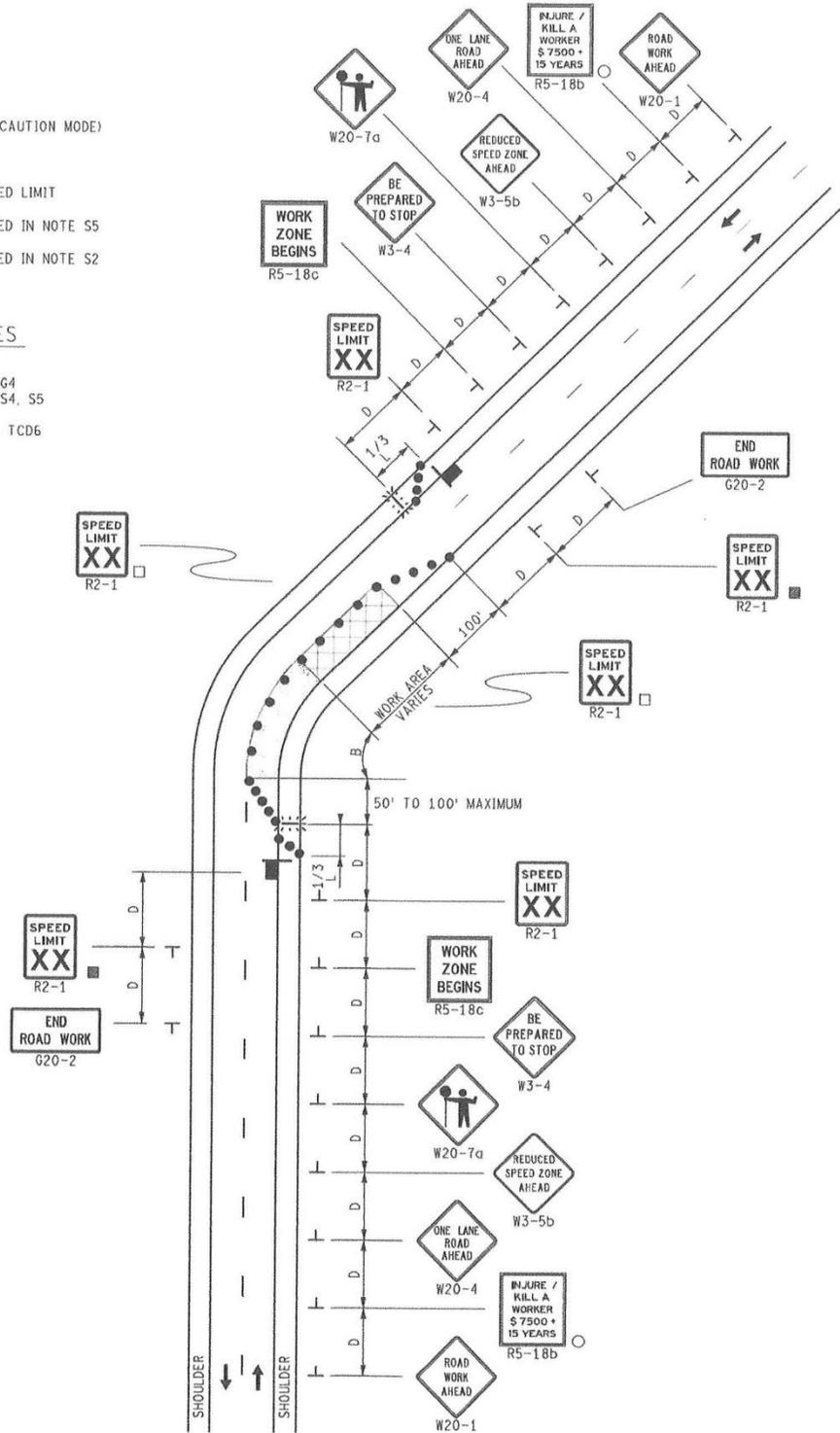
2 OF 2

KEY

- ▬ TRAFFIC REGULATOR
- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2

STANDARD NOTES
(SEE GEN-NOTES)

GENERAL: G1, G2, G3, G4
 SIGNING: S1, S2, S3, S4, S5
 TRAF REG: TR1, TR2
 DEVICES: TCD1, TCD2, TCD6



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

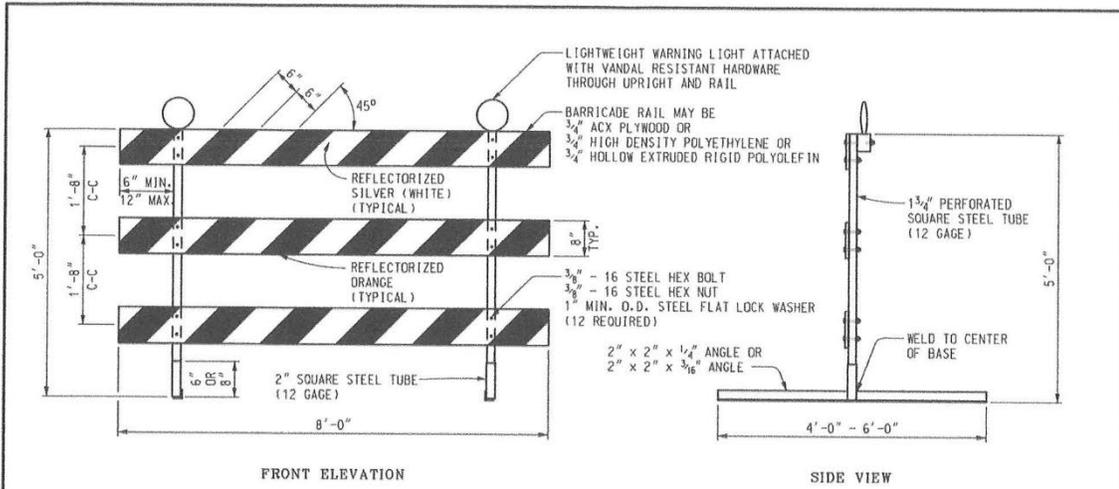
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**LANE CLOSURE
 UTILIZING TRAFFIC REGULATORS
 ON A 2-LANE UNDIVIDED ROADWAY**

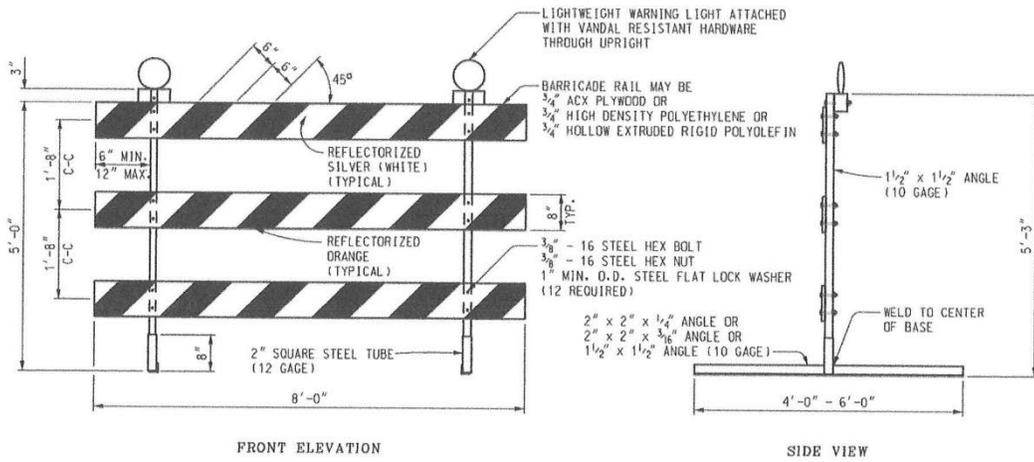
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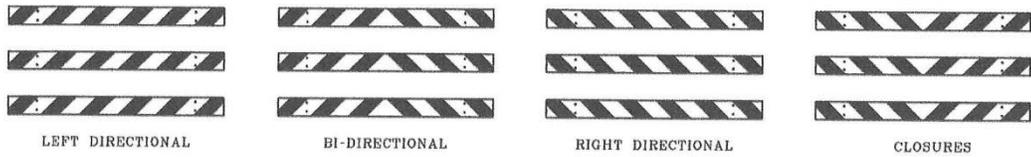
1 OF 1



FRONT ELEVATION SIDE VIEW
PERFORATED SQUARE STEEL TUBE OPTION



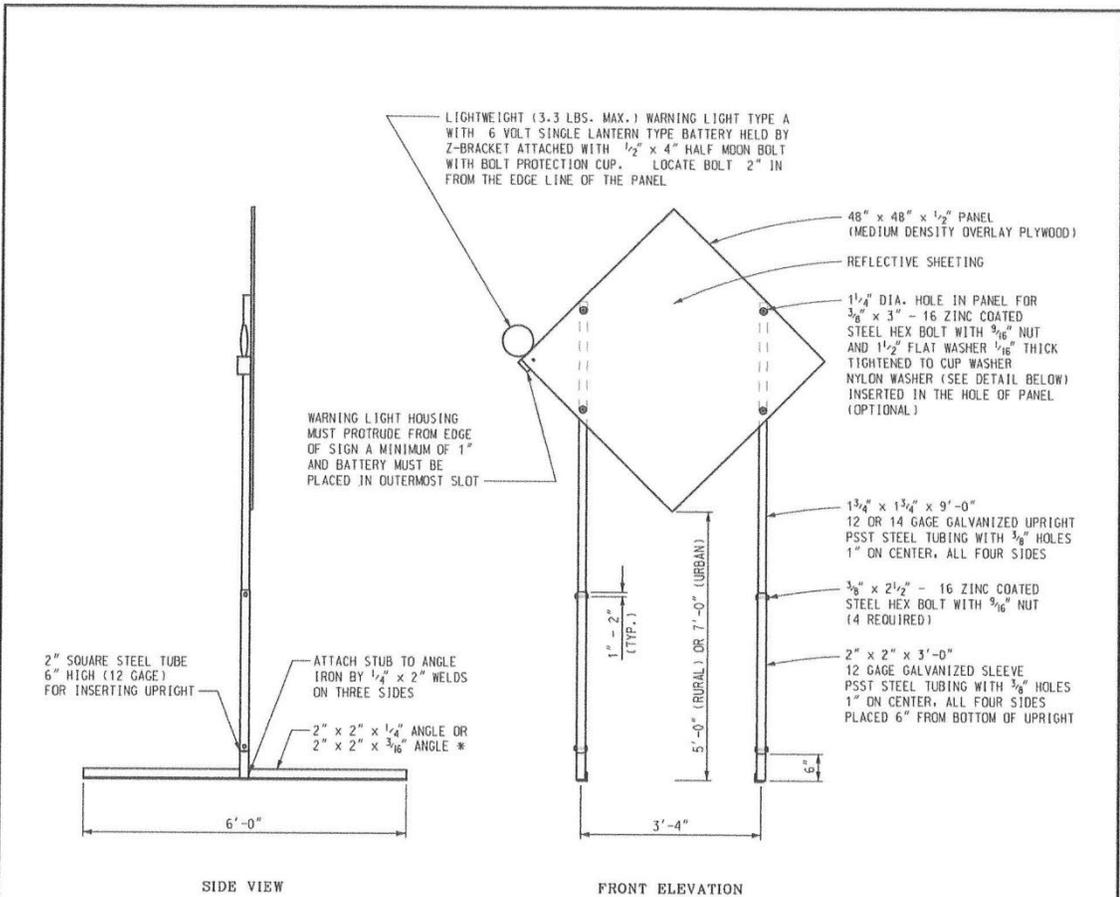
FRONT ELEVATION SIDE VIEW
ANGLE IRON OPTION



BARRICADE RAIL SHEETING OPTIONS
TYPE III BARRICADES

Other Type III Barricades meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm

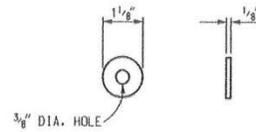
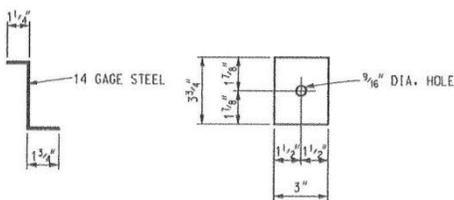
	DEPARTMENT DIRECTOR Paul C. Ajegba	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF FIELD SERVICES SPECIAL DETAIL FOR	
	PREPARED BY OPERATIONS FIELD SERVICES	APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES	Temporary Traffic Control Devices
DRAWN BY: ECH	APPROVED BY: _____ (SPECIAL DETAIL) DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT	6/16/22 PLAN DATE	WZD-125-E SHEET 1 OF 3
CHECKED BY: MWB		F.H.W.A. APPROVAL	



TEMPORARY SIGN SUPPORT

(WARNING LIGHT PLACED ON SIDE CLOSEST TO TRAFFIC)

* SIGN STAND IS BALLASTED WITH FOUR OR MORE 35 LB SANDBAGS. A MINIMUM OF ONE ON EACH END.
UPRIGHTS SHALL NOT EXTEND ABOVE THE SIGN PANEL.

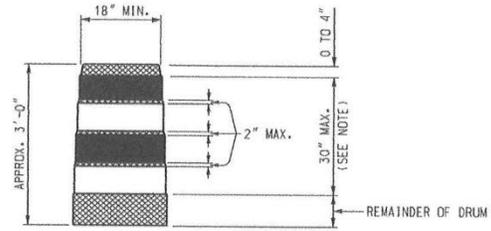


Other temporary sign supports meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF FIELD SERVICES SPECIAL DETAIL	SPECIAL DETAIL F.H.W.A. APPROVAL	6/16/22 PLAN DATE	WZD-125-E	SHEET 2 OF 3
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NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



- REFLECTORIZED ORANGE
- REFLECTORIZED WHITE
- ▨ NON REFLECTORIZED ORANGE

NOTE:
 DRUMS SHALL HAVE AT LEAST 4 HORIZONTAL REFLECTORIZED STRIPES (2 ORANGE AND 2 WHITE) OF 6" UNIFORM WIDTH, ALTERNATING IN COLOR WITH THE TOPMOST REFLECTORIZED STRIPE BEING ORANGE. NON REFLECTORIZED SPACES BETWEEN THE HORIZONTAL REFLECTORIZED ORANGE AND WHITE STRIPES SHALL BE ORANGE IN COLOR AND EQUAL IN WIDTH.

PLASTIC DRUM

NOTES:

2" PERFORATED SQUARE STEEL TUBES MAY BE USED TO FABRICATE THE HORIZONTAL BASE OF THE TYPE III BARRICADE.

WARNING LIGHTS SHALL BE PLACED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ALL OTHER PROVISIONS IN THE CONTRACT ON TYPE III BARRICADES.

SEE ROAD STANDARD PLANS R-113-SERIES FOR TEMPORARY CROSSOVERS FOR DIVIDED ROADWAY, AND R-126-SERIES FOR TYPICAL LOCATION AND SPACING OF PLASTIC DRUMS FOR PLACEMENT OF TEMPORARY CONCRETE BARRIER.

SIGNS, BARRICADES, AND PLASTIC DRUMS SHALL BE FACED WITH PRESSURE-SENSITIVE REFLECTIVE SHEETING ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

SANDBAGS SHALL BE USED WHEN SUPPLEMENTAL WEIGHTS ARE REQUIRED TO ACHIEVE STABILITY OF THE BARRICADE. THE SANDBAGS SHALL BE PLACED SO THEY WILL NOT COVER OR OBSTRUCT ANY REFLECTIVE PORTION OF THE TRAFFIC CONTROL DEVICE.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF FIELD SERVICES SPECIAL DETAIL

(SPECIAL DETAIL)
 F.H.V.A. APPROVAL

6/16/22
 PLAN DATE

WZD-125-E

SHEET
 3 OF 3

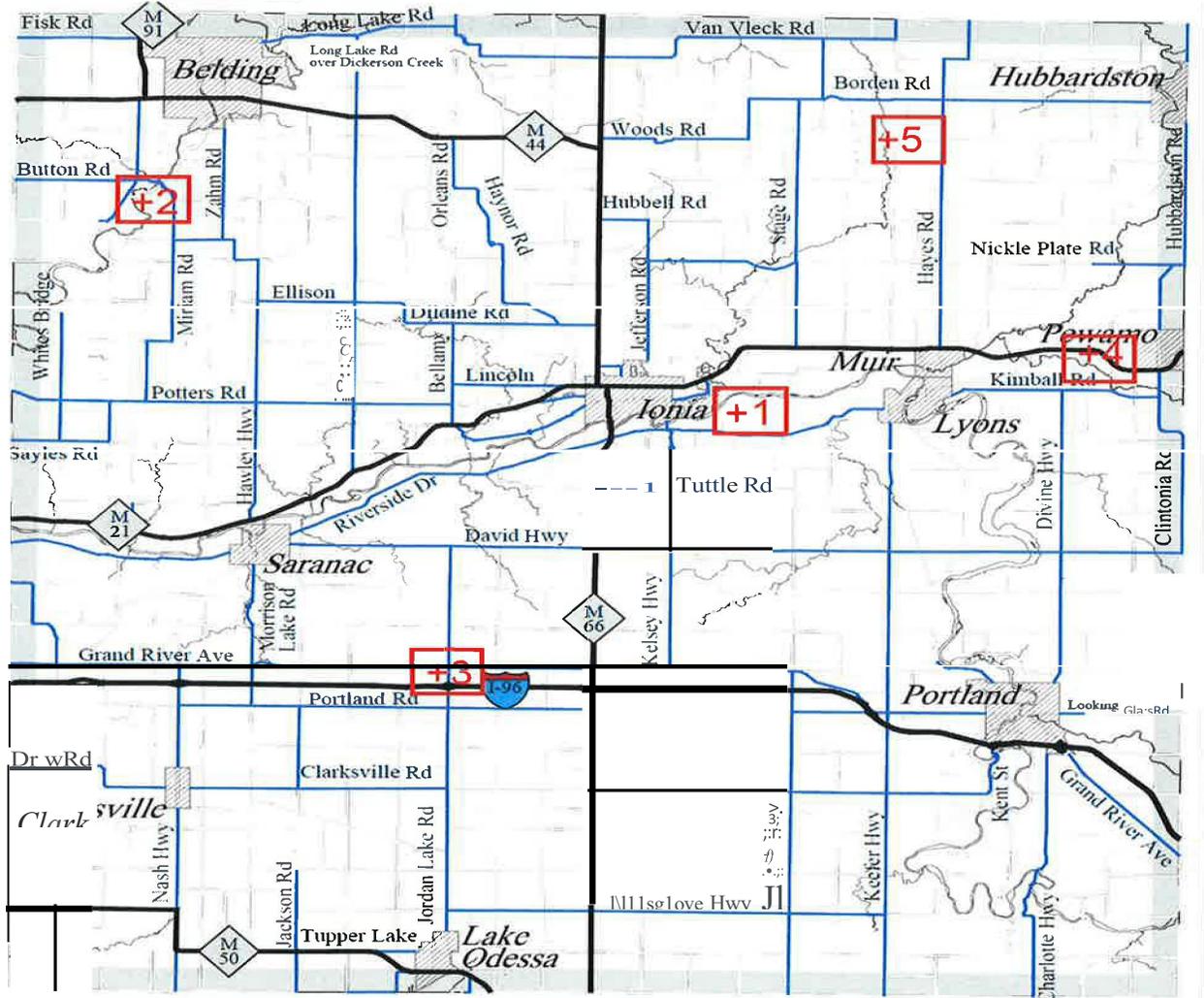
NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

APPENDIX "B"

IONIA COUNTY ROAD DEPARTMENT

Contract # 25-20 Chip Seal and Fog Seal Stockpile Locations.

STOCKPILE LOCATIONS



ID	Location
1	Bugbee
2	Ingalls
3	Jordan Lake Garage
4	M-21
5	Olmstead