

## GENERAL SPECIFICATIONS

All materials furnished shall conform to the itemized specifications attached hereto and to the applicable requirements of the Standard Specifications of the New York State Department of Transportation, dated January 3, 1978.

Materials shall be delivered in accordance with the itemized specifications on the order of the Superintendent of Highways, Town of Somers, in quantities as ordered.

Unit prices bid shall be exclusive of any sales, excise or other taxes for delivery to a tax exempt Municipality. Tax exempt certificate number 136007329 covers Highway purchases by the Town of Somers.

The Town of Somers reserves the right to purchase materials from other vendors as awarded by the State of New York Office of General Services, without notice to the vendor awarded the Town Bid.

All suppliers, submitting bids on items in non-conformance with the specifications or delivery time as stated, must submit them on a separate sheet of paper clearly stating the variance between their bid and the specifications. The bid will receive careful consideration if such deviations do not depart from the intent of this specification and are to the best interests of the Town of Somers.

Additional information on any of the items as given in the detailed specifications may be secured from the office of the Superintendent of Highways.

Each bid must be signed by a person authorized to do so and each bid must include a certificate of non-collusion and waiver of immunity agreement, as required by law.

Bidders are not to separate the notice and specifications from the proposal form, but must return the same complete.

Separate bids will be awarded for each item as listed in the proposal.

The Superintendent of Highways reserves the right to reject any or all bids, to accept any bid or waive any informality in the proposal as deemed advisable in the best interest of the Town of Somers.

### **PURCHASES – MUNICIPAL AND NOT FOR PROFIT ORGANIZATIONS**

The Town of Somers reserves the right to allow all municipal and not for profit organizations authorized under the General Municipal Laws of the State of New York, to purchase any goods and/or services awarded as a result of this RFP in accordance with the latest amendments to NYS GML 100 through 104. However, it is understood that the extension of such contracts are at the discretion of the vendor and the vendor is only bound to any contract between the Town of Somers and the vendor. Additionally, the Town reserves the right to purchase any goods or services included as part of this RFP from any means legally available to it at any time.

**The Highway Superintendent requires that a Material and Labor Payment Bond be furnished to the satisfaction of the Town before the start of work and before any materials are ordered.**

**The Superintendent also reserves the right to furnish a Performance Bond to the satisfaction of the Town.**

## ITEMIZED SPECIFICATIONS

### 1. LIQUID BITUMINOUS ASPHALT

Furnishing, heating, delivering and applying the following materials conforming to the material specifications of NYSDOT Section 702 anywhere in the Town of Somers, in truckload lots of not less than 500 gallons, as ordered.

Bids are to be submitted for each type of material listed on a per gallon basis, corrected to 60° F.

- a. Asphalt Emulsions - all grades 702-3001 thru 3601
- b. Cationic Asphalt Emulsions - all grades 702-4101
- c. Rapid Curing Asphalt Cutbacks - all grades 702-10 thru 16.
- d. Medium Curing Asphalt Cutbacks - all grades 702-20 thru 25.
- e. Penetration Grade Asphalt 702-03
- f. Special Asphalt Cutback - Rapid Curing
- g. Tack Coat Emulsion - Laid in Place - 407-0101 HFMS 2H

Asphalt materials are to be delivered from a plant with facilities for the storage, heating and distribution of bituminous materials. The plant must be located within 20 miles of the Town of Somers for F.O.B. only and must have been operated by the bidder at that location, for a period of at least one (1) year prior to the date of the bid. Trailer trucks and tank cars will not be considered a plant.

The availability of materials due to plant location will be taken into account in awarding the contract.

Each distributor truck shall be manned by at least two (2) men and equipped with proper spray bars adjustable over 8 feet in one (1) foot increments, hand hose, pouring pot, and two (2) squeegees. The successful bidder may be required to furnish an acceptable surety bond guaranteeing the faithful performance of the contract.

## 2. BITUMINOUS CONCRETE

Furnishing plant mix bituminous concrete conforming to the material specifications of N.Y. State D.O.T. section 403 as ordered.

Separate bid prices on a per ton basis, are to be submitted for:

- a. Bituminous concrete delivered to any point in the Town of Somers in truckload lots. Delivery shall be within 3 days of order
- b. Bituminous concrete loaded onto Town of Somers trucks at the bidder's plant.
- c. **WARM MIX ASPHALT SPECIFICATION**

### **DISCRIPTION**

Furnish Warm Mix Asphalt (WMA) produced below 275 degrees utilizing a HMA mix design in production status and an appropriate WMA Technology.

### **MATERIALS**

The provisions of 401-2 or 403-2, Materials, apply except where modified herein. WMA will consist of a HMA mix design in production status and appropriate WMA production process approved by Director, Materials Bureau.

Fabricate the HMA mix design as currently being produced, and the WMA mix design in the laboratory for single point mix verification. Also fabricate specimens for Moisture Susceptibility testing as outlined in the NYS DOT Materials Method 5.16 or Materials Method 5.13 regardless of aggregate sources. When fabricating WMA test specimens, be sure the design WMA additive is present, and the laboratory fabrication simulates the intended plant manufacture of the specific WMA technology utilized. Municipal personnel may be present during the fabrication of testing procedures. If the TSR of the WMA gyratory specimens is less than 80%, corrective action is required. When corrective action is necessary, any changes made to the design must be noted on the JMF, and all other volumetric and mechanical properties must be evaluated for compliance with requirements. After corrective action has been taken, retest the mixture according to this section.

The Performance-Graded Binder (PG Binder) intended for use with the WMA Production process must be treated with the additive at the design dosage and certified to meet the grading requirements outlined in the contract documents. If a process to sample treated PG Binder is not available at the Production facility, samples of PG Binder accompanied by the WMA Additive, mixing recommendations, and MSDS sheets must be submitted for acceptance testing. If multiple PG Binder sources will be utilized, then each source needs to conform to the specification with the design dosage of the Warm Mix additive.

The Town reserves the right to suspend any mixture design when the mixture demonstrates unacceptable paving quality or exhibits properties that will affect the anticipated pavement performance.

The Quality Control requirements outlined in 401-3 shall apply with additional QC Plan revisions to address specific WMA process controls and are subject to approval by the Municipality. WMA Quality Control guidelines are available from the Materials Bureau.

A pre-construction meeting is required to review the provisions the specification and Quality control plan.

A mix design utilized as WMA will commence production under mix Verification Status as outline in MM 5.16 regardless of the HMA JMF status. The six 1-quart PGB samples obtained from the plant will be either modified PGB for use in WMA production, on the design PGB accompanied by the WMA modifier with design dosage rate, MADA, and manufacturer instructions on combining with PGB. Additional samples of PGB, loose mix and bulk samples may be required during production of WMA for research purposes will be the responsibility of the producer. An outline of additional sampling will be provided during the pre-construction meeting.

If Bidder does not own a blacktop plant, he must submit with his bid a letter from the plant owner stating the New York State DOT facility number and also certifying that they will furnish material to the bidder for the duration of this contract.

**Mileage clause does not apply to Laid in Place however the Town has the right to refuse Material if not suitable. In the F.O.B. category the Town has the right to go outside of the mileage limit if it is cost effective.**

- c. Laid in Place - shall be put down in desired thickness and compacted. Traffic control must be supplied by the bidder and any other necessary items; therefore, no Highway Department personnel will be needed.

Material Laid in Place must be placed by a self propelled paver capable of paving an 18' wide mat in one pass. The contractor must also use two rollers, with one of the rollers being a minimum 10 ton vibratory. Requirements of 402-3 Shall Apply as referenced by the compaction series specified in the item number.

Where the Town calls for a per SY price, the town will do all preparation work including placing a true & level course. The contractor will be responsible for placing either a 2" compacted overlay or a 1 1/2" compacted overlay. Where a 2" overlay is called for the Town expects to get a minimum of 9 sy per ton placed and where a 1 1/2" overlay is called for the Town expects a minimum of 12 sy per ton placed. The Town reserves the right to check load slips and hold the contractor to the stated yield factors.

#### **METHOD OF MEASUREMENT**

The WMA Production Adjustment will be measured as the number of tons of compacted mixture in the accepted work. In addition, the quality payment adjustments are applicable for all hot mix asphalt in accordance with these specifications herewith and the provision outlined in the contract documents.

#### **BASIS OF PAYMENT**

The unit price bid shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily produce Warm Mix Asphalt. Standard OGS asphalt price adjustment shall apply.

- d. Winter Mix must be loose and fresh. Aged stockpiles are not acceptable.

Bituminous concrete furnished shall be prepared in an approved plant located within 20 miles of the Town of Somers. The plant must have been operated by the bidder at that location for a period of at least one (1) year prior to the date of bid.

The availability of materials due to plant location will be taken into account in awarding the contract.

**Mileage Clause does not apply to Laid-in-Place. However the Town has the right to refuse material if not suitable. In the F.O.B category the Town has the right to go outside of the mileage limit if it is cost effective.**

Bids for bituminous concrete, F.O.B., are to specify the location of the bidder's plant and the mileage from the Town Garage at 250 Route 100, Somers, New York.

The successful bidder may be required to furnish an acceptable surety bond guaranteeing the faithful performance of the contract.

### **ITEMIZED SPECIFICATIONS**

#### **3A. CRUSHED BLUESTONE**

Crushed washed bluestone conforming to NYSDOT Material Specification 703-02, in the following size designations as listed in table 703-4 of the NYSDOT Standard Specifications:

1A ( 1/4" )  
1ST ( 3/8" )  
2 ( 3/4" )  
2A ( 1" )  
3 ( 1 1/2" )  
703-0201 (4" to 6" )  
620-03 (Lite Stone fill)  
(Medium Stone Fill)  
(Crusher Run)

The NYACK Quarry and the DUTCHESS Quarry are acceptable sources of crushed blue stone. All Quarry sources must be listed on the bid. The type of blue stone only, from an acceptable quarry, will be the major factor along with price in determining the best blue stone for Town of Somers use in the oil & chip program.

Separate bid prices on a per TON basis are to be submitted for Crushed Blue Stone delivered to any point in the Town of Somers in truckload lots. Delivery shall be within 3 days of order.

**NOTE: A certified weigh master's certificate on an accepted scale at the source will be required for each truckload delivered.**

### **3B. CRUSHED LIMESTONE**

Crushed limestone conforming to NYSDOT Material Specification 703-02, in the following size designations as listed in table 704-4 of the NYSDOT Standard Specifications:

- 2 (3/4")
- 3 (1 1/2")
- 703-0201 (4" to 6")
- 620-03 (Lite Stone Fill)
- (Medium Stone Fill)
- (Crusher Run)

### **3B. CRUSHED LIMESTONE CONT'D.**

Separate bid prices on a per TON basis are to be submitted for Crushed Limestone delivered to any point in the Town of Somers in truckload lots. Delivery shall be within 3 days of order.

**NOTE: A certified weigh master's certificate on an accepted scale at the source will be required for each truckload delivered.**

#### **4. COURSE WASHED DARK BROWN NYS SPECIFICATION WINTER SAND-**

Clean, washed, course, native sand consisting of clean sharp particles; excavated from a gravel bank (NOT FROM LONG ISLAND) suitable for use as an abrasive in winter sanding operations; conforming to NYSDOT ITEM 703.07.

#### **5. COURSE SCREENED DARK BROWN WINTER SAND -**

Screened course winter sand consisting of clean sharp particles with a maximum of 15% passing through a #100 mesh sieve. Sand shall be excavated from a gravel bank (NOT FROM LONG ISLAND) suitable for use as an abrasive in Winter sanding operations.

#### **6. COURSE WASHED LONG ISLAND SAND -**

Shall be course, cleaned and washed sand consisting of clean sharp particles with a maximum of 15% passing through a #100 mesh sieve. Sand shall be suitable for use as an abrasive in Winter sanding operations.

For ALL SAND ITEMS, separate bid prices, on a per cubic yard basis are to be furnished for:

- a. Sand delivered to stockpile at any point in the Town of Somers, in truckload lots, as ordered. Delivery to be made within 72 hours of receipt of telephone order. Bidder must be able to deliver 400 tons per day if required.

#### **BIDS MUST STATE THE QUARRY SOURCE OF THE SAND TO BE FURNISHED**

THE SUPERINTENDENT OF HIGHWAYS RESERVES THE RIGHT TO ACCEPT ANY BID IN THE WHOLE OR IN PART AND TO REJECT ANY OR ALL BIDS, AS HE CONSIDERS TO BE IN THE BEST INTEREST OF THE TOWN OF SOMERS.

A LETTER GUARANTEEING AVAILABILITY OF 5000 TO 12000 TONS OF SAND during the bid period must be furnished by the bidder from his source of supply. The name and address of the source of sand must be included in the letter. The Town of Somers reserves the right to visit the sand source of supply before any sand bids are awarded. The availability of sand due to plant or quarry location will be taken into account in awarding the sand contract.

NOTE: A CERTIFIED WEIGHMASTER'S CERTIFICATE ON AN ACCEPTED SCALE AT THE SOURCE WILL BE REQUIRED FOR EACH TRUCK-LOAD DELIVERED.

## 7. WASHED GRAVEL

To be bid on a per TON BASIS DELIVERED AND F.O.B. consisting of clean, sharp, durable fragments of stone of uniform quality, thoroughly washed, clean and graded, with a minimum of 75% fractured particles, in the following gradations:

	<u>Sieve Size</u>	<u>% Passing</u>
3/8" Size	1/2"	100
	1/4"	90 - 100
	1/8"	0 - 15
3/4" Size	1 1/2"	100
	1 "	88 - 92
	3/4"	60 - 64
	3/8"	10 - 22
	#4	0 - 2

NOTE: A CERTIFIED WEIGHMASTER'S CERTIFICATE ON AN ACCEPTED SCALE AT THE SOURCE WILL BE REQUIRED FOR EACH TRUCKLOAD DELIVERED.



**8A. RUN OF BANK GRAVEL-**

Run of Bank Gravel suitable for sub base material of road bed or parking lot with maximum acceptable stone size of 6 inches.

**8B. PROCESSED RUN OF BANK GRAVEL**

Conforming to NYSDOT Specification 304-02 with maximum size stone of 1 inch.

For the following gravel items, separate bid prices, on A PER C.Y. AND PER TON basis, are to be furnished for both delivered and F.O.B.

All bidders must specify source location of Item #4 with their bid. Failure to do so will be considered a deviation from specifications.

**9A. COMMERCIAL ITEM #4 SHOULDER STONE - 3/4" TRAP ROCK (BLUE)**

Conforming to NYSDOT Specifications with maximum stone size of 1 inch.

**9B COMMERCIAL ITEM #4 SHOULDER STONE - 3/4" LIMESTONE (WHITE)**

Conforming to NYSDOT Specifications with maximum stone size of 1 inch.

NOTE: A certified weigh master's certificate on an accepted scale at the source will be required for each truckload delivered.

## **10A. GUIDE RAIL**

Guide Rail Installation -

Corrugated box beam and guide rail materials meeting Galvanized Specifications

Corrugated box beam and guide rail materials meeting Mayari Specifications

All Guide Rail bidders must be able to furnish complete layout and design.

Guide Rail bidders must be able to furnish all materials and maintain sufficient stock so that guide rail materials will be delivered within 5 days after receipt of order. All materials to conform to NYSDOT Specifications Section 606 and Standard Sheet 606.6 12 gauge and 606-3R1 12 gauge.

Installation of Guide Rail, Posts, and Anchors must be done as per New York State Specifications.

Guide Rail bidders must include a \$5000.00 bid bond to guarantee delivery of material and performance of work.

**B. Corrugated "W" Beam Type Guide Rail length - 13' 6 1/2" Punched 6'3" - Materials meeting Galvanized Specifications Materials meeting Mayari Specifications.**

11. Liquid Calcium Chloride with Corrosion Inhibitor  
Non Corrosive "Corguard"

- a. Liquid Calcium Chloride (32% solution) with Corrosion Inhibitor  
which shall contain the following:

Calcium Chloride 32% + or - 1%  
Alkali Chloride (as NaCl) 2% Maximum  
Magnesium (as Mg) 0.01% Maximum

The bidder shall have employees experienced in the winter use of Liquid Calcium Chloride and the assembly, operation and maintenance of application equipment.

The bidder shall have distribution trucks equipped with pumps and hand hoses for the unloading and spraying of Liquid CaCl as required by the Town of Somers.

The bidder shall have all necessary equipment for the installation and maintenance of a salt-abrasives wetting facility and, in the event of a breakdown, shall have replacement parts in stock and shall repair and return the unit to service within 24 hours.

The bidder shall include with the bid a letter from the manufacturer certifying to the Town of Somers that the bidder is an authorized distributor, and that Liquid CACI shall be available in sufficient quantity to meet bid requirements for the bid period specified.

The bidder shall have storage facilities within a 60 mile radius of the Town of Somers to assure service during severe weather conditions.

Delivery shall be in truck load lots of 1000 gals. or more and shall be made within 24 hours of request for delivery.

Each delivery truck or distributor shall be equipped with an approved liquid meter to accurately determine amounts delivered.

The 32% Liquid CaCl with Corrosion Inhibitor shall be provided by the manufacturer in a true solution and shall not be reconstituted from flake Calcium Chloride.

The bidder shall provide upon request, the names and telephone of three accounts similar to the Town of Somers to be used as references as to the dependability and proficiency of the bidder.

b. Liquid Calcium Chloride (34% solution) with Corrosion Inhibitor which shall contain the following:

Calcium Chloride 34% + or - 1%  
Alkali Chloride (as NaCl) 2% Maximum  
Magnesium (as Mg) 0.01% Maximum

The bid price shall include delivery and application of Liquid Calcium Chloride with Corrosion Inhibitor to any site in the Town of Somers.

The bidder shall have employees experienced in the application procedures, application rates, and judgment of the site conditions.

The bidder shall have distribution trucks with variable width spray bars equipped with nozzles providing overlapping spray pattern and developing a minimum pressure of 70 lbs. P.S.I. at the spray bar.

The bidder shall include with the bid a letter from the manufacturer certifying to the Town of Somers that the bidder is an authorized distributor and that Liquid Calcium Chloride with Corrosion Inhibitor will be available in sufficient quantity to meet bid requirements for the bid period as specified.

The bidder shall provide, upon request, the names and telephone number of three accounts similar to the Town of Somers to be used as references as to the dependability and proficiency of the bidder.

Each delivery truck or distributor shall be equipped with an approved liquid meter to accurately determine amounts delivered.

12. Liquid Magnesium Chloride with Corrosion Inhibitor.

Non Corrosive "Ice-Stop CI"

- a. Liquid Magnesium Chloride (25% solution) with Corrosion Inhibitor which Shall contain the following:

Magnesium Chloride	25% + or - 1%
Sulfate	2% Maximum
Sodium	.5% Maximum
Potassium	.4% Maximum
Iron	6 ppm
Corrosion Inhibitor	1000 ppm
Specific Gravity	1.250
Bulk Density	10.5 lbs/gallon

Optimum Eutectic temperature shall meet or exceed - 30° F.

Product will be of superior quality, stay in suspension without agitation and not demonstrate a propensity to precipitate out solids.

Product shall not create an exothermic reaction thereby causing concrete surfaces and structures to spall and deteriorate.

The bidder shall have employees experienced in the winter use of Liquid Magnesium Chloride with corrosion inhibitor.

The bidder shall have distribution trucks equipped with pumps and hand hoses for the unloading and spraying of Liquid MgCl as required by the Town of Somers.

The bidder shall include with the bid a letter from the manufacturer certifying to the Town of Somers that the bidder is an authorized distributor, and that Liquid MgCl with corrosion inhibitor shall be available in sufficient quantity to meet bid requirements for the bid period specified.

The bidder shall have storage facilities within a 60 mile radius of the Town of Somers to assure service during severe weather conditions.

Delivery shall be in truck load lots of 1000 gals. Or more and shall be made within 24 hours of request for delivery.

Each delivery truck or distributor shall be equipped with an approved liquid meter to accurately determine amounts delivered.

The 25% Liquid MgCl with Corrosion Inhibitor shall be provided by the manufacturer in a true solution and shall not be reconstituted from flake Magnesium Chloride.

The bidder shall provide upon request, the names and telephone numbers of three accounts similar to the Town of Somers to be used as references as to the dependability and proficiency of the bidder. The bidder shall have distribution trucks with variable width spray bars equipped with nozzles providing overlapping spray pattern and developing a minimum pressure of 70 lbs. P.S.I. at the spray bar.

### 13. CALIBER M-2000

Active Ingredients: Caliber  
Magnesium Chloride

Inorganic Salts: NaCl (Sodium Chloride) <1.0%  
CaCl<sub>2</sub> (Calcium Chloride) <1.0%  
MgCl<sub>2</sub> (Magnesium Chloride) 25%

Organic Constituent: Caliber 12% Performance enhancer  
Reduces Corrosion  
Lowers cutectic point (Freeze Point)

Trace Constituents: (ppm)

Arsenic	2.6	Cyanide	<0.005
Barium	<0.5	Lead	<0.5
Cadmium	<0.005	Mercury	<0.02
Chromium	<0.008	Phosphorus	0.11
Copper	<0.1	Selenium	<0.2
Zinc	0.8		

Specific Gravity: 1.31+/-0.02

Weight per Gallon: 10.5 lbs per US gal

Total Solids: 36%

Total Ash: (450°C, 1 hour)

Is this product on the Pacific Northwest States (PNS) approved list? Yes

Price shall include delivery to Town of Somers Highway Department Storage Tanks.

### 14 30% Envirobrine Solution (by weight)

Consisting of:

54% calcium chloride

34% sodium chloride

10% magnesium chloride

2% potassium chloride

Corrosion inhibited Envirobrine shall include a no phosphate organic corrosion inhibitor that when added to the Envirobrine solution reduces the corrosion of the mix by a minimum of 50%

Minimum delivery quantity of 1000 gallons

ITEM 1 – 30% ENVIROBRINE DELIVERED TO A TANK

ITEM 2 - 30% CORROSION INHIBITED ENVIROBRINE DELIVERED TO A TANK

**15a. SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE**

Furnishing and delivering round, smooth interior corrugated, solid, and perforated polyethylene storm sewer pipe conforming to the requirements of AASHTO M-294, to any point in the Town of Somers, as ordered

Nominal Diameter

- 6 inch
- 12 inch
- 15 inch
- 18 inch
- 24 inch
- 30 inch
- 36 inch

Pipe shall be furnished in 20 foot lengths as ordered.

Couplers are to be furnished at a price equal to one (1) foot of the corresponding diameter pipe.

Delivery is to be within 14 days of order, for orders of 100 linear feet or more.

Plastic Roll Pipe – 4”, 6” and 8” sizes

**15b. CULVERT PIPE – PRICE PER FOOT**

1. Corrugated aluminum culvert pipe in 20 ft. lengths with collars and bolts for same:
  - 6” 18 gauge, 12” 16 gauge, 15” 16 gauge, 18” 16 gauge,
  - 24” 14 gauge, 36” 12 gauge, 42” 12 gauge, 48” 12 gauge ,
  - 54” 12 gauge, 60” 12 gauge.

## 16a. PRECAST CATCH BASINS

The dimensions for both Connecticut "Type A" 36" sump catch basin and Connecticut "Type B" 48" sump catch basin are as follows:

Inside dimension	44" x 33"
Outside (sump & top)	56" x 45"
Top unit height	8"
Wall thickness and bottom slab	
Height	6"
Knockout thickness	1" to 1½"

Catch basins shall be delivered to any site in the Town of Somers within 3 days after a telephone order.



## 16b. LARGE KNOCKOUT PRECAST CATCH BASINS

Each catch basin shall consist of a precast concrete sump unit (bottom and sides). Bid prices shall include transportation and delivery to any site in the Town of Somers.

Precast concrete shall conform to the materials specifications of the New York State D.O.T.

The dimensions for both "Type A" 36" sump catch basin and "Type B" 48" catch basin are as follows:

Outside (sump)	42" x 60"
Inside	30" x 48"

Wall Thickness and bottom Slab height	6"
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Knockout thickness	1" – 2"
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The dimensions for "Type C" 24" sump are as follows:

Outside (sump)	36" x 36" x 30"
Inside	24" x 24" x 24"

Wall Thickness and bottom Slab height	Min. 4"
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Knockout Dimension	Min. 18"
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Knockout thickness	1" – 2"
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### **\*NEW ITEM**

12" or 24" Sump Bottom to be used for Sediment Sump Bottom. Shall be used with 36" Riser with knockout on top

Catch basins shall be delivered to any site in the Town of Somers within 3 days after a telephone order.

All bids will include prices for catch basins and shall include delivery to the Somers Highway Garage or jobsite within the Town of Somers.

## **16c. FRAMES & GRATES**

Grates and Frames shall be fabricated of structural grade steel conforming to ASTM designation A7, A36 or A283.

All grates and frames shall be designed for AASHTO H-20 Loading.

Cast iron grates to fit above basins, Type A & B with 6" and 8" curb inlets with a grate size of 21<sup>3</sup>/<sub>4</sub>" x 47<sup>3</sup>/<sub>4</sub>". Also grate for same catch basin without curb inlet with grate size of 30 x 49<sup>1</sup>/<sub>4</sub>". Type C grate dimension is 24" x 24."

Concrete catch basin tops are to be constructed with 4000 P>S.I. @28 days concrete. Tops are to be reinforced with No. 3 rod and are to include grates. Tops are to measure 56 <sup>3</sup>/<sub>4</sub> x 45 <sup>3</sup>/<sub>8</sub>" OD.

All bids will include prices for flat and curb back frames and grates and delivery to the Somers Highway Garage or jobsite within the Town of Somers.

## **17. READY MIX CONCRETE**

Ready Mix Concrete delivered wherever designated in the Town of Somers – 2500 lbs., and 3,000 lbs., in not less than 6 cu. Yd. loads.

All above materials to conform to New York State Department of Public Works Specifications.

## **18. REFLECTORIZED YELLOW & WHITE PAVEMENT MARKING PAINT**

Paint shall meet all N.Y.S.D.O.T. specifications as set forth in specification Reference: SPEC – 359 DATED December 4, 1989. Paint shall be specifically designed for use as a traffic marking paint Latex Solvent Based, Quick drying. Low VOC for Westchester County, New York. Applied at 15 miles, 300 lf per gallon per 4” strip, drying time 10 minutes or less. Glass spheres should be applied at a rate of 6 pounds per gallon. All paint materials shall meet VOC requirements for New York State. Application air temperature shall be 50 degrees and rising.

**GENERAL:** Paint shall be applied with atomizing spray type machine. Applied marking shall have a clean-cut edge, true and smooth alignment and a uniform thickness of 15 mils + or – 1 mil. Any obvious detours from a smooth flow of the lines during application as determined by the Town of Somers or its representative shall be moved and repainted by the contractor at his own expense. Glass spheres shall be applied uniformly over and into the wet paint film at a rate of 6 lbs. per gallon of paint. Bid price shall include the cost of all labor, materials and equipment required to PERFORM the work to the approval of the Town of Somers. Paint shall be applied by a truck mounted spray machine; no walk type machine shall be acceptable for Long Line Work. Paint shall be applied at the specified rate of application. Truck cab must accommodate two persons, so as to allow Driver of mobile paint truck plus Town of Somers employee to sit in cab of truck to direct driver as to application of paint onto Town of Somers roads.

**EQUIPMENT:** Shall paint a straight and true line. Shall be able to paint a minimum of 20.0 miles per day of double center land line. Shall be able to apply all road patterns.

Driver of Mobile Paint Truck shall have a minimum of 3 years experience. Operator shall have a minimum of 2 years experience.

**INSURANCE:** A copy of Contractors Liability Insurance is required to be submitted with the bid forms. Minimum amounts and limits as per Contractors Liability Insurance page attached as per the bid proposal.

**19. EPOXY REFLECTORIZED PAVEMENT MARKINGS (20 MILS)**

**DESCRIPTION:** Under this work the contractor shall furnish and apply epoxy reflectORIZED pavement markings at the locations and in accordance with the patterns indicated on the plans, or as ordered by the Engineer, and in accordance with these specifications.

The epoxy marking material shall be hot-applied by spray methods onto bituminous and Portland cement concrete pavement surfaces. Following an application of glass beads and upon curing, the resultant epoxy marking shall be an adherent reflectORIZED stripe of the specified thickness and width that is capable of resisting deformation by traffic.

**MATERIALS REQUIREMENTS:**

**A. White and Yellow ReflectORIZED Epoxy**

**1.0 Epoxy Composition Requirements:**

The epoxy resin composition shall be specifically formulated for use a pavement marking material and for hot-spray application at elevated temperatures. The type and amounts of epoxy resins and curing agents shall be at the option of the manufacturer, providing the other composition and physical requirements of this specification are met.

The epoxy marking material shall be a two-component (Part A and Part B), 100% solids type system formulated and designed to provide a simple volumetric mixing ratio (e.g. two volumes of Part A to one volume of Part B).

Component A of both white and yellow shall conform to the following requirements:

**% BY WIEGHT**

**WHITE:**

**YELLOW:**

**Pigments <sup>1</sup> Titanium Dioxide – 18% Min.  
(ASTM D476, Type II)**

**Med. Chrome Yellow – 23% Min.  
(ASTM D211, Type III)**

**Epoxy Resin 75% Min., 82% Max.**

**70% Min., 77% Max.**

- (1) The entire pigment composition shall consist of either titanium dioxide or medium chrome yellow. No extender pigments are permitted. The white pigment upon analysis shall contain a minimum of 16.5% TiO<sub>2</sub> (100% purity). The yellow pigment upon analysis shall contain a minimum of 20% PbCrO<sub>4</sub>.

## **19. CONT'D. EPOXY REFLECTORIZED PAVEMENT MARKINGS (20 MILS)**

**Epoxy Content – WPE (Component A) – The epoxy content of the epoxy resin will be tested in accordance with ASTM D1652 and calculated as the weight per epoxy equivalent (WPE) for both white and yellow. The epoxy content will be determined on a pigment free basis. The epoxy content (WPE) shall meet a target value provided by the manufacturer and approved by the Director, Materials Bureau. A  $\pm 50$  tolerance will be applied to the target value to establish the acceptance range.**

**Amine Value (Component B) – The amine value of the curing agent shall be tested in accordance with ASTM D2074\* to determine its total amine value. The total amine value shall meet a target value provided by the manufacturer and approved by the Director, Materials Bureau. A  $\pm 50$  tolerance will be applied to the target value to establish the acceptance range.**

**\*The manufacturer may specify an alternate test method for determining the amine value subject to the approval of the Director, Materials Bureau.**

**Toxicity – Upon heating to application temperature, the material shall not exude fumes which are toxic or injurious to persons or property.**

### **2.0 Physical Properties of Mixed Composition:**

**Unless otherwise noted, all samples are to be prepared and tested at an ambient temperature of  $73 \pm 5^{\circ}$  F.**

**a. Color: The white epoxy composition when applied at a wet film thickness of  $15 \pm 1$  mils and allowed to cure, shall be a reasonable visual match to Munsell Book Notation PB 9/1 (ASTM D1535).**

**The yellow epoxy composition when applied at a wet film thickness of  $15 \pm 1$  mils and allowed to cure, shall be a reasonable visual match to Munsell Book Notation 10YR 8/14 (ASTM D1535).**

**b. Directional Reflectance – The White epoxy composition (without glass spheres) shall have a daylight directional reflectance of not less than 84% relative to a magnesium oxide standard when tested in accordance with Method 6121 of Federal Test Method Standard No. 141.**

**The yellow epoxy composition (without glass spheres) shall have a daylight directional reflectance of not less than 55% relative to a magnesium oxide standard when tested in accordance with Method 6121 of Federal Test Method Standard No. 141.**

**c. Drying Time (Laboratory) - The epoxy composition, when mixed in the proper ratio and applied at a  $15 \pm 1$  mil wet film thickness, and dressed with glass spheres at a rate of 25#/gal, shall exhibit a no-track condition in 30 minutes or less (ASTM D711).**

**A Bird Applicator or any other doctor blade shall be used to produce a uniform film thickness.**

**d. Drying Time (Field) – When installed at 77°F, at a wet film thickness of 20±1 mils and reflectorized with glass spheres, the composition shall dry to “no-tracking” in approximately 10 minutes, and after 30 minutes shall show no damaging effect from traffic. Dry to “no-tracking” shall be considered as the condition where no visual deposition of the epoxy marking to the pavement surface is observed when viewed from a distance of 100 feet, after a passenger car is passed over the line.**

**e. Abrasion Resistance –The wear index of the composition shall not exceed 82, when tested in accordance with ASTM C501, using a CS-17 wheel and under a load of 1000 grams for 1000 cycles.**

**f. Tensile Strength – The tensile strength of the epoxy composition shall not be less than 6000 psi when tested in accordance with ASTM D638, using a Type IV specimen (0.125± 0.010 inch thick). Tests shall be conducted at an ambient temperature of 75±5°F. The testing machine shall operate at a speed of 0.20” per minute.**

**The total conditioning or curing period, from the time the epoxy composition is first mixed to the time of testing, shall not be less than 72 hours nor more than 96 hours.**

**Test specimens for tensile strength determinations will be prepared as follows:**

**A 1/8” thick sheet of epoxy material is cast from a reservoir-type mold, fabricated from polytetrafluorethylene (PTEE), 1/8” deep x 10” x 10”. Prior to casting the mold is sprayed with a suitable release agent (NOTE 1). A sufficient amount of epoxy composition is mixed in the proper proportions (A:B) and poured level with the top of the mold. Care should be taken so as not to decrease or exceed the 1/8” thickness.**

**After a period of 1 to 4 hours, the material will have set into a semi-rigid sheet that is flexible enough to die-cut yet rigid enough to retain its shape. While the material is in this “plastic” state, five (5) specimens shall be die-cut and then placed on a flat, smooth, PTEE surface for the completion of the specified conditioning period.**

**g. Compressive Strength – The compressive strength of the epoxy composition shall not be less than 12,000 psi when tested in accordance with ASTM D695 except that a compression tool shall not be necessary. The test specimen shall be a right cylinder (0.50” diameter by 1.0” length). Tests shall be conducted at an ambient temperature of 75±5°F.**

**The total conditioning or curing period, from the time the epoxy composition is first mixed to the time of testing shall not be less than 72 hours nor more than 96 hours.**

## **EPOXY REFLECTORIZED PAVEMENT MARKINGS (20 MILS) CONT'D.**

**Test specimens for compressive strength determinations will be prepared as follows:**

**Five molds will be prepared from ½" I.D., 1/16" wall thickness acrylic tubing, cut in 1 ½" lengths. After spraying the inside of the mold with a suitable release agent (NOTE 1), the cylindrical tubes are placed in a vertical position on a PTEE sheet base. A sufficient amount of epoxy composition is thoroughly mixed in the proper proportions (A:B) and poured into the mold to a depth of approximately 1 ¼". After a minimum of 72 hours curing, the specimens are removed from the molds and machined to a length of 1"±.002".**

**h. Hardness – The epoxy composition when tested in accordance with ASTM D2240 shall have a Shore D Hardness of between 75 and 100. Samples shall be allowed to cure for not less than 72 hours nor more than 96 hours prior to testing.**

**i. Infrared Spectrophotometer Analysis – Samples of both Component A and Component B shall be analyzed by infrared spectrography to verify that the materials submitted for use are of an identical formulation as originally accepted by the Materials Bureau for the Department's "Approved List" of materials. Significant deviations, as determined by comparison with acceptable formulations, shall not be allowed.**

**NOTE 1: "Release a Gen B-15-1", as manufactured by General Mills Inc. (Specialty Products Division) Minneapolis, Minnesota, or equal.**

### **B. Reflective Glass Spheres**

**Reflective glass spheres for drop-on application 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. They shall be spherical in shape and at least 70% of the glass beads shall be true spheres when tested in accordance with ASTM D1155.**

**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 crushing resistance of the spheres shall be as follows: A 40 lb. dead weight, for 20 to 30 mesh spheres shall be the average resistance when tested in accordance with ASTM D1213.**

## **EPOXY REFLECTORIZED PAVEMENT MARKINGS (20 MILS CONT'D.)**

The glass spheres shall have the following grading when tested in accordance with ASTM D1214.

<b>U.S. Standard Sieve</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Passing #20; Retained #30</b>	<b>5%</b>	<b>20%</b>
<b>Passing #30; Retained #50</b>	<b>30%</b>	<b>75%</b>
<b>Passing #50; Retained #80</b>	<b>9%</b>	<b>32%</b>
<b>Passing #80</b>	<b>0%</b>	<b>10%</b>

The glass spheres shall be treated with a moisture-proof coating. They shall show no tendency to absorb moisture in storage and shall remain free of clusters and hard 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 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 by shaking thoroughly. Transfer a sample slowly to a 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.

## **EPOXY APPLICATING EQUIPMENT**

Applicating equipment for the placement of epoxy reflectorized pavement markings shall be approved by the Director (Materials Bureau), prior to the start of work.

At any time throughout the duration of the project, the Contractor shall provide free access to his epoxy applicating equipment for inspection by the Engineer or his authorized representative.

In general, the applicating equipment shall be a mobile, truck mounted and self contained pavement marking machine, specifically designed to apply epoxy resin materials and reflective glass spheres in continuous and skip-line patterns. The applicating 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 may approve the use of a portable applicator in lieu of truck mounted accessories, for use in applying special markings only, provided such equipment can demonstrate satisfactory application of reflectorized epoxy markings in accordance with these specifications.**

**The applicator shall be capable of installing up to 20,000 lineal feet of epoxy reflectorized pavement markings in an eight hour day and shall include the following features:**

- 1. The applicator shall provide individual material reservoirs, or space, for the storage of Part A and Part B of the epoxy resin composition; for the storage of water (NOTE 2); and for the storage of reflective glass spheres.**
- 2. The applicator shall be equipped with heating equipment of sufficient capacity to maintain the individual epoxy resin components at the manufacturer's recommended temperature for spray application and for heating water to a temperature of approximately 140°F (NOTE 2).**
- 3. The applicator shall be equipped with glass bead dispensing equipment and and be capable of applying the spheres at the rate of 20-25 pounds per gallon of epoxy resin composition (minimum 18.7 lbs/100 as of marking).**
- 4. The applicator shall be quipped with metering devices or pressure gauges, on the proportioning pumps. Metering devices or pressure gauges shall be visible to the Engineer.**
- 5. The applicator shall be equipped with all the necessary spray equipment, mixers, compressors, and other appurtenances to allow for the placement of epoxy reflectorized pavement markings in a simultaneous sequence of the operations as described in Construction Details, D. Application of Epoxy Reflectorized Pavement Markings.**

**NOTE 2: The equipment requirements for water will only apply when the manufacturer of the epoxy material recommends the use of water.**

## **CONSTRUCTION DETAILS:**

### **A. General**

**All pavement markings and patterns shall be placed as shown on the plans and in accordance with the New York Stat Manual of Traffic Control Devices.**

**Before any pavement marking work is begun, a schedule of operations shall be submitted for the approval of the Engineer.**

**At least five (5) days prior to starting striping the Contractor shall provide the Engineer with the epoxy manufacturer's written instructions for use. These instructions shall include but not be limited to: mixing ratios, application temperatures, and recommendations for use of water spray.**

**When pavement markings are applied under traffic, the Contractor shall provide all necessary flags, markers, signs, etc. in accordance with the MUTCD to maintain and protect traffic, and to protect marking operations and the markings until thoroughly set.**

**The application of pavement markings shall be done in the general direction of traffic. Striping against the direction of traffic flow shall not be allowed.**

**The Contractor shall be responsible for removing, to the satisfaction of the Engineer, tracking marks, spilled epoxy or epoxy markings applied in unauthorized areas.**

**When necessary, the Contractor shall establish marking line points at 30' intervals throughout the length of the pavement or as directed by the Engineer.**

**The hot water spray shall not be used in conjunction with marking applications on any pavement surface, or on any existing durable type marking, unless specifically recommended by the manufacturer of the epoxy material.**

#### **B. Atmospheric Conditions**

**Epoxy pavement markings shall only be applied during conditions of dry weather and on substantially dry pavement surfaces. At the time of installation the pavement surface temperature shall be a minimum of 50°F and rising. The Engineer shall be the sole determiner as to when atmospheric conditions and pavement surface conditions are such to produce satisfactory results.**

#### **C. Surface Preparation**

**The Contractor shall clean the pavement or existing durable marking to the satisfaction of the Engineer.**

**Surface cleaning and preparation work shall be performed only in the area of the epoxy markings application.**

**At the time of application ALL pavement surfaces and existing durable markings shall be free of oil, dirt, dust, grease and similar foreign materials. The cost of cleaning these contaminants shall be included in the bid price of this item.**

**In addition, concrete curing compounds on new Portland cement concrete surfaces; and existing painted pavement markings on both concrete and bituminous pavement surfaces shall be cleaned and paid for in accordance with Section 635, Cleaning and preparation of pavement Surfaces for Pavement Markings.**

#### **D. Application of Epoxy Reflectorized Pavement Markings**

**Epoxy reflectorized pavement markings shall be placed at the widths and patterns designated on the Contract Plans.**

**Marking operations shall not begin until applicable surface preparation work is completed, and approved by the Engineer.**

**Epoxy pavement markings shall be applied at a minimum uniform wet thickness of 20 mils.**

**Reflective glass spheres shall be applied at the rate of 20 to 25 pounds per gallon of epoxy resin (minimum, 18.7 lbs/100 sf of marking).**

**Using the epoxy application equipment the pavement markings shall be applied in the following manner, as a simultaneous operation (NOTE 3):**

- 1. If required, the pavement surface is treated with a hot-water blast, applied at a temperature of approximately 140°F and at a pressure of 1000 psi, minimum.**
- 2. The treated surface is air-blasted to remove dirt, residues and if applicable, free-water.**
- 3. The epoxy resin, mixed and heated in accordance with the manufacturer's recommendations, is hot-sprayed onto the pavement surface.**
- 4. Reflective glass spheres are injected into or dropped onto the liquid epoxy marking.**

**NOTE 3: If a water spray is not required, the marking application shall consist of simultaneously air-blasting the pavement, spraying epoxy resin and applying glass spheres, only (steps numbered 2, 3 and 4).**

**When used, the intent of the water spray is to slightly dampen the pavement surface. Care shall be taken to avoid excess water as this may adversely affect the adhesion of the marking to the pavement.**

#### **E. Defective Epoxy Pavement Markings**

**Epoxy reflectorized pavement markings which after application and curing are determined by the Engineer to be defective and not in conformance with this specification shall be repaired. Repair of defective markings shall be the**

responsibility of the Contractor and shall be performed to the satisfaction of the Engineer as follows:

1. **Insufficient film thickness (less than 20 mils) and line width; insufficient glass bead coverage or inadequate glass bead retention.**

**Repair Method:** Prepare the surface of the defective epoxy marking by grinding or blast cleaning. No other cleaning methods will be allowed. Surface preparation shall be performed to the extent that a substantial amount of the reflective glass spheres are removed and a roughened epoxy marking surface remains.

**Immediately after surface preparation remove loose particles and foreign debris by brooming or blasting with compressed air.**

**Repair shall be made by re-striping over the cleaned surface, in accordance with the requirements of this specification and at a full 20 mil minimum line thickness.**

2. **Uncured or discolored epoxy (brown patches) <sup>1</sup> ; insufficient bond to pavement surface (or existing durable marking).**

**<sup>1</sup> Uncured epoxy shall be defined as applied material that fails to cure (dry) in accordance with the requirements of this specification: MATERIALS, A., 2.0 paragraph c. Drying Time (Field); or applied material that fails to cure (dry) within a reasonable time period under actual field conditions, as defined by the Engineer.**

**Discoloration (brown patches) shall be defined as localized areas or patches of brown or grayish colored epoxy marking material. These areas often occur in a cyclic pattern and also, often are not visible until several days or weeks after markings are applied.**

**Repair Method:** The defective epoxy marking shall be completely removed and cleaned to the underlying pavement surface in accordance with the requirements of Section 635 – Cleaning and Preparation of Pavement Surfaces.

**The extent of removal shall be the defective area plus any adjacent epoxy pavement marking material extending one foot in any direction.**

**After surface preparation work is complete, repair shall be made by re-applying epoxy over the cleaned pavement surface in accordance with the requirements of this specification.**

**Other defects are not noted above, but determined by the Engineer to need repair, shall be repaired or replaced as directed by and to the satisfaction of the Engineer.**

**All work in conjunction with the repair or replacement of defective epoxy reflectorized pavement markings shall be performed by the Contractor at no additional cost to the State.**

#### **METHOD OF MEASUREMENT**

**Pavement striping will be measured in linear feet along the centerline of the pavement stripe and will be based on a 4" wide stripe. Measurement for striping with a width greater or less than the basic 4", as shown on the plans or directed by the Engineer, will be made by the following method:**

**Plan Width of Striping 4" (inches) X Linear Feet**

**6 Foot Painted Lines**

20. GRADER BLADES, Snow Plow Blades on a Per Pound Basis

GRADER BLADES – 5/8” Thick 8” Wide For:

(1) #11 Caterpillar Grader

SNOW PLOW BLADES – 5/8” x 6”, 5/8” x 8”, 3/4” x 8”, 1” x 8”

CARBIDE BLADES

ALL STANDARD HIGHWAY PUNCH

21. PAVEMENT RECYCLING: Old Pavement ground, shaped, graded and compacted and necessary additives reground or mixed in. SEE ATTACHED PACKET

22. HEAT SCARIFYING: This item shall be part of a multi-step process of asphalt surface rehabilitation that consists of softening the existing flexible pavement with heat and thoroughly stirring, spinning or tumbling the mixture, applying an asphalt plasticizing or softening agent, reshaping and compacting the scarified surface and installing a surface treatment or overlay. SEE ATTACHED PACKET.

23. PAVER PLACED SURFACE TREATMENT – SEE ATTACHED PACKET

24. SIGNS AND POSTS – SEE ATTACHED PACKET

