ITEM SPECIAL – STRUCTURE, MISC.: SEALING CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN:

A. DESCRIPTION

THIS ITEM SHALL CONSIST OF THE LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE APPLICATION OF SEALER TO NEW CONCRETE WEARING SURFACE CONSTRUCTION JOINTS IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND THE MANUFACTURER'S RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.

THIS WORK ITEM SHALL NOT BE PERFORMED DURING THE PERIOD BEGINNING NOVEMBER 1ST AND ENDING MARCH 1ST.

B. MATERIALS

THE MATERIAL USED FOR TREATING THE CONSTRUCTION JOINTS SHALL BE A LOW VISCOSITY, NON–FUMING, HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) RESIN CONFORMING TO THE FOLLOWING:

1. VISCOSITY SHALL BE LESS THAN 25 CPS (BROOKFIELD VISCOMETER, MODEL RVT WITH UL ADAPTER OR MODEL LVF, #1 SPINDLE AND UL ADAPTER AT 25 DEGREES CELSIUS (77 DEGREES FAHRENHEIT) ASTM D 1824)
2. DENSITY SHALL BE GREATER THAN 1.0 KG/L (8.4 LBS/GAL) AT 25 DEGREES CELSIUS (77 DEGREES FAHRENHEIT) ASTM D 2849)
3. FLASH POINT SHALL BE GREATER THAN 93 DEGREES CELSIUS (200 DEGREES FAHRENHEIT) (PENSKY–MARTENS CC) ASTM D 93)
4. VAPOR PRESSURE SHALL BE LESS THAN 1.0 MM HG AT 25 DEGREES CELSIUS (77 DEGREES FAHRENHEIT) (ASTM D 323)
5. TG (DSL) SHALL BE GREATER THAN 58 DEGREES CELSIUS (135 DEGREES FAHRENHEIT) (ASTM D 3418)
6. SHELF LIFE SHALL BE 1 YEAR MINIMUM AT MANUFACTURER'S RECOMMENDED ENVIRONMENTAL CONSIDERATIONS.
7. GEL TIME SHALL BE GREATER THAN 40 MINUTES – 100 G MASS (ASTM D 2471) (THIN FILM)
8. PERCENT SOLIDS SHALL BE GREATER THAN 90% BY WEIGHT
9. BOND STRENGTH SHALL BE GREATER THAN 1500 PSI (ASTM 882)

THE RESIN MAY BE OBTAINED FROM ONE OF THE FOLLOWING SUPPLIERS:

3M COMPANY
3M CENTER
ST. PAUL, MN 55144–1000
PHONE: 1–612–733–7119

SIKA CORPORATION
201 POLITO AVENUE
LYNDHURST, NJ 07071
PHONE: 1–201–933–8800

ADHESIVE ENGINEERING COMPANY
CONCRESIVE 2075
1411 INDUSTRIAL ROAD
SAN CARLOS, CA 94070
PHONE: 1–415–592–7900

TRANSPO INDUSTRIES, INC.
20 JONES STREET
NEW ROCHELLE, NY 10801
PHONE: 1–914–636–1000

A COMPATIBLE PROMOTOR/INITIATOR SYSTEM CAPABLE OF PROVIDING THE SAME PHYSICAL QUALITIES OF THE HARDENED RESIN AS IF PROMOTED/INITIATED WITH 2% COBALT NAPHTHANATE (6%) AND 2% CUMENE HYDROPEROXIDE SHALL ALSO BE PROVIDED. MATERIALS SHALL BE STORED AT 18–27 DEGREES CELSIUS (65–80 DEGREES FAHRENHEIT). THE SYSTEM SHALL PROVIDE A RESIN SET TIME OF NOT LESS THAN 40 MINUTES TO NOT MORE THAN 1–1/2 HOURS AT THE TIME AND TEMPERATURE OF APPLICATION. THE GEL TIME SHALL BE ADJUSTED TO COMPENSATE FOR THE CHANGE IN TEMPERATURE THROUGHOUT THE DAY. THE TEMPERATURE OF THE SURFACES TO BE TREATED MAY RANGE FROM 10 DEGREES CELSIUS (50 DEGREES FAHRENHEIT) TO 50 DEGREES CELSIUS (120 DEGREES FAHRENHEIT). THE CONTRACTOR SHALL ARRANGE TO HAVE A TECHNICAL REPRESENTATIVE ON SITE TO PROVIDE MIXING PROPORTIONS, EQUIPMENT SUITABILITY, AND SAFETY ADVICE TO THE CONTRACTOR AND ENGINEER. ANY CONFLICT BETWEEN THESE PROVISIONS AND REPRESENTATIVE'S ADVICE SHALL BE RESOLVED AT THE JOB SITE. THE TECHNICAL REPRESENTATIVE SHALL REMAIN AT THE JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER AGREE THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF THE APPLICATION OF THE SEALER.

THE PROMOTER AND INITIATOR, IF SUPPLIED SEPARATE FROM THE RESIN, SHALL NOT CONTACT EACH OTHER DIRECTLY. CONTAINERS OF PROMOTERS OR INITIATORS SHALL NOT BE STORED TOGETHER IN A MANNER THAT WILL ALLOW LEAKAGE OR SPILLAGE FROM ONE TO CONTACT THE CONTAINERS OR MATERIAL OF EACH OTHER.

BEFORE USING THE MATERIAL THE CONTRACTOR SHALL SUBMIT TO ODOT'S BUREAU OF TESTING COPIES OF THE MANUFACTURER'S CERTIFIED TEST DATA SHOWING THAT THE MATERIAL COMPLIES WITH THE QUALITATIVE AND QUANTITATIVE REQUIREMENTS OF THE SPECIFICATION. THE TEST DATA SHALL BE DEVELOPED BY AN INDEPENDENT APPROVED TESTING LABORATORY, AND SHALL INCLUDE THE BRAND NAME OF THE MATERIAL, NAME OF THE MANUFACTURER, NUMBER OF THE LOT TESTED AND DATE OF MANUFACTURE. WHEN THE MATERIAL HAS BEEN APPROVED BY THE DIRECTOR, FURTHER TESTING BY THE MANUFACTURER WILL NOT BE REQUIRED UNLESS THE FORMULATION OF MANUFACTURING PROCESS HAS BEEN CHANGED, IN WHICH CASE NEW CERTIFIED TEST RESULTS WILL BE REQUIRED. THE MANUFACTURER SHALL CERTIFY THAT THE FORMULATION IS THE SAME AS THAT FOR WHICH DATA HAS BEEN SUBMITTED. THE STATE RESERVES THE RIGHT TO SAMPLE AND TEST DELIVERED LOTS FOR COMPLIANCE.

C. APPLICATION

APPLICATION OF THE CONSTRUCTION JOINT SEALER MATERIAL SHALL BE IN STRICT ACCORDANCE WITH THE SUPPLIER'S CURRENT PUBLISHED INSTRUCTIONS AND/OR SPECIFIC INSTRUCTIONS OF THE MANUFACTURER'S TECHNICAL REPRESENTATIVE AND AS FOLLOWS. THE CONSTRUCTION JOINT AREA TO BE TREATED SHALL REMAIN DRY FOR A MINIMUM OF 8 HOURS AND ABOVE 10 DEGREES CELSIUS (50 DEGREES FAHRENHEIT) PRIOR TO APPLICATION. CONSTRUCTION JOINTS SHALL BE DIRECTLY SEALED WITH HMWM RESIN APPLIED WITH PLASTIC SQUEEZE BOTTLES, CAULKING OR OTHER EQUIPMENT CAPABLE OF DELIVERING A NARROW RESIN STREAM AND APPROVED BY THE ENGINEER. ADDITIONAL APPLICATION OF MATERIAL TO THE CONSTRUCTION JOINT AREA CAN BE ANTICIPATED IF THE INITIAL APPLICATION DISSIPATES FULLY INTO THE CONSTRUCTION JOINT. IN THESE AREAS, A SECOND COAT WILL BE REQUIRED AFTER THE FIRST COAT HAS STARTED TO CURE.

THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PREVENT ANY RESIN FROM FLOWING INTO LANES OPEN TO TRAFFIC.

CLEANING AND FLUSHING OF EQUIPMENT, TOOLS, ETC. SHALL BE DONE WITH AN APPROPRIATE SOLVENT, AS APPROVED BY THE ENGINEER. IN SUCH A MANNER TO MINIMIZE PERSONAL AND ENVIRONMENTAL HAZARDS. WORKMEN SHOULD BE ADVISED THE RESIN WILL SOFTEN GUM RUBBER SOLES, AND A FACE–MASK SHOULD BE USED TO PROTECT FROM ACCIDENTAL SPLASHES. CLOTHING AND LEATHER SATURATED WITH RESIN WILL HARDEN AND BECOME USELESS.

A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER OR SUPPLIER MUST BE PRESENT ON SITE PRIOR TO STARTING APPLICATION.

E. RESTRICTIONS

TRAFFIC AND EQUIPMENT SHALL NOT BE PERMITTED ON THE SEALED CONSTRUCTION JOINTS UNTIL THE HMWM IS TACK FREE AND A MINIMUM OF 6 HOURS HAVE ELAPSED SINCE APPLICATION. THE RESIN SHALL BE PROTECTED FROM MOISTURE FOR NOT LESS THAN 4 HOURS AFTER PLACEMENT. BARRELS ARE NOT CONSIDERED EQUIPMENT.

F. METHOD OF MEASUREMENT

SEALING CONCRETE CONSTRUCTION JOINTS WITH HMWM RESIN SHALL BE MEASURED AS THE ACTUAL LENGTH IN LINEAR FOOT OF CONSTRUCTION JOINT SEALED.

G. BASIS OF PAYMENT

ACCEPTED QUANTITIES OF SEALING NEW CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN SHALL BE PAID FOR AT THE UNIT PRICE BID PER LINEAR FOOT WHICH PRICE AND PAVEMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, APPLICATION OF THE RESIN, PROVIDING MANUFACTURER'S TECHNICAL REPRESENTATIVE, PROTECTION OF WATERWAYS AND TRAFFIC BELOW BRIDGE, CLEAN UP AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

PAYMENT SHALL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
SPECIAL	LINEAR FOOT	STRUCTURE, MISC.: SEALING CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN

ITEM 848 – MICRO–SILICA MODIFIED CONCRETE OVERLAY USING HYDRO–DEMOLITION (2¼ INCH THICK), AS PER PLAN

ITEM 848 – SURFACE PREPARATION USING HYDRO–DEMOLITION, AS PER PLAN

ITEM 848 – MICRO–SILICA MODIFIED CONCRETE OVERLAY USING (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN

ITEM 848 – FULL DEPTH REPAIR, AS PER PLAN

ITEM 848 – EXISTING CONCRETE OVERLAY REMOVED (1¼ INCH LMC), AS PER PLAN

THESE ITEMS SHALL BE PERFORMED AS PER SUPPLEMENTAL SPECIFICATION: 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRO–DEMOLITION" WITH THE FOLLOWING REVISIONS.

(SEE 848.18) THE REMOVAL OPERATIONS SHALL NOT BEGIN IF SUSTAINED RAINS (5 HOURS OF MORE WITH BREAKS BETWEEN SHOWERS LESS THAN 1½ HOURS) ARE PREDICTED WITHIN 48 HOURS OF COMMENCEMENT.

(SEE 848.21) THE FINAL SOUNDING MAY TAKE PLACE WITHIN 24 HOURS OF A RAIN, AND THE DECK DOES NOT HAVE TO BE COMPLETELY DRY. THE HAND CHIPPING ITEM, IF INCLUDED IN THE PLANS, IS FOR THE PURPOSE OF CHIPPING AREAS WHERE THE HYDRO–DEMOLITION MACHINE DOES NOT HAVE ACCESS. IF THE DESIRED DEPTH IS ACHIEVED BY HYDRO–DEMOLISION, NO FURTHER REMOVAL IS NECESSARY. HAND CHIPPING IS REQUIRED ON THE BACKWALL TOPS.

(SEE 848.23) FULL DEPTH REPAIR IS NOT REQUIRED IF LESS THAN ONE HALF OR THE DECK ORIGINAL CONCRETE THICKNESS IS SOUND.

(SEE 848.29) THE WET CURE TIME IS REDUCED FROM 72 HOURS TO 24 HOURS OR UNTIL A BEAM BREAK OF 600 PSI IS ACHIEVED, WHICHEVER IS GREATER. AFTER THE 24 HOUR WET CURE, THE FINISHED OVERLAY SURFACE SHALL BE CURED BY SPRAYING A UNIFORM APPLICATION OF CURING MATERIAL 705.07, TYPE I OR ID, AS PER CMS 511.14 METHOD (B) MEMBRANE CURING. IF THE CURING COMPOUND CAN NOT BE PLACED WITHIN THE SAME SHORT TERM CLOSURE PERIOD AS THE OVERLAY, THE CONTRACTOR MAY ALLOW TRAFFIC ONTO THE OVERLAY, AND SHALL, AT THE NEXT AVAILABLE SHORT TERM CLOSURE PERIOD, APPLY THE MEMBRANE CURING COMPOUND.

(SEE 848.29) TRAFFIC WILL NOT BE PERMITTED ON THE FINISHED OVERLAY SURFACE UNTIL AFTER THE COMPLETION OF THE 24 HOUR WET CURE, AND AFTER TWO TEST BEAMS HAVE ATTAINED AN AVERAGE MODULUS OF RUPTURE OF 600 PSI (4.2 MPa).

(SEE 848.30) THE OVERLAY SURFACE EVAPORATION RATE REQUIREMENTS ARE IN EFFECT FROM 9:30 AM TO 11:00 PM. THEY ARE NOT IN EFFECT FROM 11:00 PM TO 9:30 AM.

(SEE 848.30) OVERLAYS MAY BE PLACED AFTER OCTOBER 15, BUT NO OVERLAY SHALL BE PLACED AFTER NOVEMBER 13.

(SEE 848.31) FOR EACH PHASE, THE CONTRACTOR SHALL PROVIDE ENOUGH MATERIAL FOR TWO BEAM BREAKS EACH AT 12 HOURS, 24 HOURS, 36 HOURS, AND 48 HOURS. PERFORM THE BEAM BREAK TESTS AND DOCUMENT THE TIME OF THE POUR, THE TIME OF THE BEAM BREAK TESTS, AND THE MODULUS OF RUPTURE FOR EACH BEAM UNTIL THE MODULI OF RUPTURE OF TWO TESTS IS NOT LESS THAN 650 PSI (4.5 MPa). (TRAFFIC IS ALLOWED ON THE OVERLAY AT 600 PSI (4.2 MPa).

ALL OTHER REQUIREMENTS OF SS 848 REMAIN IN EFFECT.

ITEM 517 – RAILING (THRIE BEAM RAIL), MISC.: BRIDGE RETROFIT RAILING

THIS ITEM BRIDGE RETROFIT RAILING SHALL BE PLACED ON BOTH EXISTING SAFETY CURB PARAPETS. THRIE BEAM SECTIONS, BLOCK OUTS, AND SUPPORT BRACKET ASSEMBLIES SHALL BE DIMENSIONED AS SHOWN ON STANDARD DRAWING TBR–91M. RETROFIT AS PER SECTION B–B WITH 2'–0" SAFETY CURB DETAIL. THIS REQUIRES THE USE OF 6"x 8" WOOD BLOCKS AND TS 12x6x.25. THESE BLOCK OUTS SHALL BE INCLUDED FOR PAYMENT IN ITEM 517, RAILING.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W–BEAM RAIL SPLICE" AS SHOWN ON STANDARD CONSTRUCTION DRAWING GR–1.1M. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

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DESIGNED J.P.R. | DRAWN I.A.S. | REVIEWED J.E.A. | DATE 7/8/00
CHECKED I.A.S. | REVISED J.C.B. | STRUCTURE FILE NUMBER 4300459

GENERAL NOTES
BRIDGE NO. LAK–91–0455
OVER S.R. 2

LAK–91–4.55