

**GENERAL NOTES**

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ITEM 516 - BARRIER SPLASH GUARD JOINT SEAL (PRECOMPRESSED BITUMEN IMPREGNATED FOAM)

THIS WORK SHALL CONSIST OF SEALING EXPANSION JOINTS IN THE PROPOSED CONCRETE BARRIER SPLASH GUARDS USING PRECOMPRESSED BITUMEN IMPREGNATED FOAM IN ACCORDANCE WITH THESE SPECIFICATIONS. THE WORK SHALL BE IN REASONABLY CLOSE CONFORMITY WITH THE PLANS, MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.

THE MATERIAL SHALL BE A PRECOMPRESSED BITUMEN IMPREGNATED FOAM JOINT SEALANT SUCH AS EMSEAL PCSA, PERMABAND 8100, ROYSTON UNIBAND OR AN APPROVED EQUAL. EMSEAL U.S.A. IS LOCATED AT 344 MILL ROAD, STAMFORD, CT 06903; PHONE: (203) 322-3828. PERMABAND IS AVAILABLE FROM PERMAQUICK (CANADA) LTD., 3043 UNIVERSAL DRIVE MISSISSAUGA, ONTARIO L4X2E2; PHONE: (416) 624-9444. ROYSTON IS LOCATED AT 128 FIRST STREET, PITTSBURGH, PA 15238; PHONE: (412) 828-1500.

ALL MATERIALS SHALL BE STORED AND INCORPORATED IN THE WORK AS RECOMMENDED BY THE MANUFACTURER. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT AT THE JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER ARE SURE THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF BARRIER SPLASH GUARD EXPANSION JOINT SEALING.

THE BARRIER SPLASH GUARD FACES TO WHICH THE SEAL MUST ADHERE SHALL BE SANDBLASTED CLEAN AND BE FREE OF FOREIGN MATERIAL SUCH AS DIRT, DUST, GREASE OR OIL, RELEASE AGENTS AND ANY OTHER MATERIAL DETRIMENTAL TO ADHESION OF THE SEALANT. BOTH SIDES OF SEAL SHALL BE COATED WITH ADHESIVE.

JOINT SEALS SHALL BE INSTALLED ONLY WHEN THE BARRIER SPLASH GUARD IS DRY AND ITS TEMPERATURE IS ABOVE 50 DEGREES F. THE CONCRETE SURFACES SHALL BE PRIMED AS RECOMMENDED BY THE MANUFACTURER. THE FOAM JOINT SEAL SHALL BE CUT TO FORM SCARFED JOINTS AS SOON AS IT IS REMOVED FROM THE PACKAGING AND THEN INSERTED INTO THE JOINT OPENING. THE SEAL FACE WITH THE SELF ADHESIVE BACKING SHALL BE PRESSED AGAINST ONE SIDE OF THE BARRIER SPLASH GUARD SO THAT THE FOAM IS HELD IN PLACE WHILE IT RECOVERS.

AT TEMPERATURES ABOVE 70 DEGREES F, THE MATERIAL WILL RECOVER IN A FEW HOURS. AT TEMPERATURES BELOW 70 DEGREES F, THE RECOVERY SHALL BE ACCELERATED BY HEATING THE MATERIAL BY OPEN FLAME, GAS BURNER, INFRA-RED LAMP OR HOT AIR BLOWER.

A CONTINUOUS LENGTH OF JOINT SEAL SHALL BE ACHIEVED BY JOINING INDIVIDUAL STRIPS ONLY BY MEANS OF SCARFED JOINTS CUT AT 45 DEGREES OR LESS RELATIVE TO THE SIDES OF THE JOINT. THE SCARFED EDGES MUST BE PUSHED WELL PAST ONE ANOTHER. THE SEAL SHALL NOT BE PULLED OR STRETCHED, SO THAT GAPS BETWEEN SUCCESSIVE LENGTHS ARE PREVENTED.

FOOTAGE UNDER THIS ITEM SHALL BE THE LINEAR FEET OF BITUMEN IMPREGNATED FOAM SEAL INSTALLED IN THE OPEN JOINTS THAT ARE COMPLETE, IN PLACE, AND ACCEPTED.

THE ACCEPTED QUANTITIES OF SEALED JOINTS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR PREPARING THE SURFACES, FURNISHING AND PLACING ALL MATERIALS, SUPPLYING THE MANUFACTURER'S REPRESENTATIVE AND ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THE JOINT SEAL ACCORDING TO SPECIFICATIONS.

ITEM 516 - POURED POLYURETHANE JOINT SEAL

I. DESCRIPTION: THIS WORK SHALL CONSIST OF SEALING JOINTS WITH POURED POLYURETHANE JOINT SEAL IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS, MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.

II. MATERIAL: THE MATERIAL FOR THIS ITEM IS A TWO-PART, COLD APPLIED, CHEMICALLY CURING, SELF LEVELING, ELASTOMERIC, POLYURETHANE JOINT SEALANT. IT SHALL BE "FX-551" AS MANUFACTURED BY FOX INDUSTRIES INCORPORATED, "UREXPAN NR-200" AS MANUFACTURED BY PECORA CORPORATION OR AN APPROVED EQUAL. ALL MATERIALS SHALL BE STORED AND INCORPORATED IN THE WORK AS SPECIFIED BY THE MANUFACTURER.

III. APPLICATION: POLYURETHANE JOINT SEAL SHALL BE POURED OVER THE FULL LENGTH OF THE BITUMEN IMPREGNATED FOAM SEAL PREVIOUSLY INSTALLED IN THE BARRIER SPLASH GUARD EXPANSION JOINTS AND SHALL BE APPLIED ONLY WHEN THE BARRIER SPLASH GUARD IS DRY AND ITS TEMPERATURE IS ABOVE 50 DEGREES F. THE POURED JOINT SEALER SHALL ACT AS A SECOND SEAL ON TOP OF THE BITUMEN IMPREGNATED FOAM JOINT SEAL. THE INSTALLED AND CURED MATERIAL SHALL BE THE DEPTH OF THE CHAMFER AND SHALL BE BONDED TO THE CONCRETE SIDES OF THE JOINT. ANY UNBONDED SECTION SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. DAMS AS REQUIRED TO CONTAIN THE POURED SEALER SHALL BE INCIDENTAL TO THIS ITEM OF WORK. POLYURETHANE JOINT SEAL SHALL BE POURED WITHIN 24 HOURS AFTER THE PRECOMPRESSED BITUMEN IMPREGNATED FOAM HAS BEEN INSTALLED, AND THE JOINT SHALL NOT BE ALLOWED TO BECOME CONTAMINATED IN THE INTERIM BETWEEN THESE OPERATIONS.

IV. METHOD OF MEASUREMENT: FOOTAGE UNDER THIS ITEM SHALL BE THE LINEAR FEET OF URETHANE JOINT SEAL POURED OVER THE FOAM JOINT SEAL THAT IS COMPLETE, IN PLACE AND ACCEPTED.

V. BASIS OF PAYMENT: THE ACCEPTED QUANTITIES OF POURED POLYURETHANE JOINT SEAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR PREPARING THE SURFACES, FURNISHING AND PLACING ALL MATERIALS AND ALL OTHER MATERIAL, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THE JOINT SEAL ACCORDING TO SPECIFICATIONS. PAYMENT WILL BE MADE UNDER:

ITEM	DESCRIPTION	UNIT
516	POURED POLYURETHANE JOINT SEAL	LINEAR FOOT

ITEM SPECIAL - LOW PRESSURE EPOXY INJECTING DELAMINATED CONCRETE

THIS WORK SHALL CONSIST OF LOW-PRESSURE EPOXY INJECTION OF DELAMINATED BOTTOM COVER CONCRETE OF BRIDGE DECKS IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS AS DIRECTED BY THE ENGINEER.

THE INJECTION RESIN SHALL BE SIKADUR 52 INJECTION RESIN, DURALCRETE LV, POLY-CARB MARK-10 INJECTION RESIN OR THERMAL-CHEM INJECTION RESIN PRODUCT NO. 2. THE BONDER SHALL BE THERMAL-CHEM BONDER PRODUCT NO. 4, POLY-CARB MARK 8 NON-SAG EPOXY BONDER, DURAL CRETE GEL, OR SIKADUR HI-MOD GEL (SIKADUR 31). ALL MATERIAL SHALL BE STORED AND INCORPORATED IN THE WORK AS RECOMMENDED BY THE MANUFACTURER. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT AT THE JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER ARE SURE THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF EPOXY PRESSURE GROUTING.

PORTS SHALL BE INSTALLED IN CLEAN HOLES VACUUM-DRILLED (TO PREVENT FINES FROM BEING IMPACTED INTO THE CRACK), 3 INCHES DEEP IN THE DECK BOTTOM SO THAT THE EPOXY WILL PENETRATE THE HOLLOW PLANE. THE FIRST PORT SHALL BE LOCATED NEAR THE EDGE OF THE OUTLINED UNSOUND AREA. ADDITIONAL PORTS SHALL BE PLACED AT DISTANCES SLIGHTLY GREATER THAN THE DISTANCE FROM THE FIRST PORT TO THE VOID EDGE. PORT PLACEMENT MUST ENSURE THAT THE GROUT FACE REACHES THE EDGE OF THE VOID BEFORE REACHING THE NEXT PORT. PORTS AND VISIBLE CRACKS SHALL BE SEALED WITH BONDER TO PREVENT EMISSION OF INJECTION RESIN. THE BONDER SHALL CURE 24 HOURS PRIOR TO INJECTION OF EPOXY RESIN.

THE RESIN SHALL BE INJECTED ONLY WHEN THE DECK IS DRY AND ITS TEMPERATURE IS ABOVE 50 DEGREES F.

THE EPOXY INJECTION EQUIPMENT SHALL BE CAPABLE OF INJECTING THE MATERIAL INTO THE PORTS AT LOW PRESSURES OF 14 TO 20 PSI. THE INJECTION EQUIPMENT SHALL BE CAPABLE OF METERING, MIXING AND INJECTING THE EPOXY RESIN ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

THE INJECTION SHALL COMMENCE AT THE EDGE OF THE DELAMINATION AND CONTINUE UNTIL THE EPOXY RESIN APPEARS AT THE NEXT PORT. MOST INCOMPLETELY FILLED VOIDS ARE CAUSED BY THE OPERATOR STOPPING THE INJECTION PROCESS PREMATURELY; THEREFORE, A STEADY, LOW PRESSURE SHALL BE MAINTAINED ON THE EPOXY UNTIL A STEADY CLEAR FLOW APPEARS AT THE NEXT PORT. THEN THE INJECTION NOZZLE IS REMOVED, THE PORT CLOSED AND THE INJECTION CONTINUED FROM PORT TO PORT UNTIL THE VOID IS COMPLETELY FILLED. SINCE THE GROUT FACE IS MOVING UNDER VISCOUS FLOW CONDITIONS WHICH ARE GOVERNED BY FLUID SURFACE FRICTION, THE INJECTION PROCESS IS SLOW. REGARDLESS, INJECTION PRESSURE SHALL BE 20 PSI MAXIMUM SO THAT BOTTOM COVER CONCRETE IS NOT BLOWN OFF. PROGRESS OF THE EPOXY SHALL BE CHECKED WITH A TAPPING HAMMER.

THE OUTLINED INJECTED VOIDS SHALL BE SOUNDED WITH A HAMMER BY THE ENGINEER. ANY REMAINING UNSOUND AREAS SHALL BE PORTED AND REINJECTED AT NO ADDITIONAL COST TO THE STATE. ALL EQUIPMENT, LABOR AND MATERIALS REQUIRED BY THE ENGINEER TO ACCOMPLISH THIS WORK SHALL BE SUPPLIED BY THE CONTRACTOR.

THE FOOTAGE UNDER THIS ITEM SHALL BE THE NUMBER OF SQUARE FEET OF DELAMINATED DECK BOTTOM CONCRETE THAT ARE SATISFACTORILY LOW-PRESSURE EPOXY INJECTED AND ACCEPTED.

THE ACCEPTED QUANTITIES OF LOW PRESSURE EPOXY INJECTED CONCRETE WILL BE PAID FOR AT THE CONTRACT UNIT BID PRICE PER SQUARE FOOT, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING ALL MATERIALS, SOUNDING THE INJECTED AREAS, SUPPLYING THE MANUFACTURER'S REPRESENTATIVE AND ALL OTHER MATERIAL, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THIS WORK ACCORDING TO SPECIFICATIONS.

THIS ITEM IS A CONTINGENCY QUANTITY. IF NO VOIDS ARE FOUND, THIS ITEM SHALL NOT BE PERFORMED.

ITEM SPECIAL - CONCRETE REPAIR BY EPOXY INJECTION

THIS WORK SHALL CONSIST OF THE REPAIR OF CRACKS OR FRACTURES IN CONCRETE BY MEANS OF AN EPOXY INJECTION SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS OR AS DIRECTED BY THE ENGINEER.

SEE THE PROPOSAL NOTE "CONCRETE REPAIR BY EPOXY INJECTION" FOR MATERIALS, APPROVALS, PROCEDURES, METHOD OF MEASUREMENT, AND PAYMENT. AREAS TO BE REPAIRED UNDER THIS ITEM SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

ITEM 601 - CRUSHED AGGREGATE SLOPE PROTECTION

THIS ITEM SHALL CONSIST OF THE INSTALLATION OF CRUSHED AGGREGATE SLOPE PROTECTION, ITEM 601.05, AS REQUIRED TO RESTORE THE ABUTMENT SLOPE PROTECTION AT EACH ABUTMENT TO ITS ORIGINAL CONDITION. THE CRUSHED AGGREGATE SLOPE PROTECTION SHALL BE INSTALLED AT LOCATIONS WHERE THE ORIGINAL PROTECTION HAS ERODED AWAY AS DIRECTED BY THE ENGINEER. THE FOLLOWING ALLOWANCE OF CRUSHED AGGREGATE SLOPE PROTECTION HAS BEEN CARRIED OVER TO THE ESTIMATED QUANTITIES ON SHEET 5/75:

ITEM	DESCRIPTION	QUANTITY
601	CRUSHED AGGREGATE SLOPE PROTECTION	28 SQ.YARDS

ITEM SPECIAL - ABUTMENT EMBANKMENT DRAINAGE REPAIRS

THE DRAINAGE DITCH AT THE TOE OF THE ABUTMENT EMBANKMENT SLOPE SHALL BE CLEANED OF ALL DEBRIS AND REGRADED TO PROVIDE POSITIVE DRAINAGE TO THE EXISTING CATCH BASIN SOUTH OF THE BRIDGE ABUTMENT (TYPICAL FOR EACH ABUTMENT). LIMITS OF THE DITCH RESTORATION SHALL EXTEND FROM 20 FEET NORTH OF THE CENTERLINE OF THE NORTH COLUMN OF THE PIER CLOSEST TO THE ABUTMENT, TO THE EXISTING CATCH BASIN LOCATED APPROXIMATELY 45 FEET SOUTH OF THE CENTERLINE OF THE SOUTH COLUMN OF THE SAME PIER. THE DRAINAGE DITCH SHALL BE 7'-0" WIDE AT THE TOP WITH SIDE SLOPES OF ONE-TO-ONE. IN ADDITION, 3'-0" X 3'-0" X 4 INCH THICK CONCRETE PADS SHALL BE PLACED IN THE BOTTOM OF THE DRAINAGE DITCH, CENTERED DIRECTLY UNDER THE LAST SCUPPER FROM THE END OF THE BRIDGE ON EACH SIDE OF THE BRIDGE AT EACH ABUTMENT (TOTAL OF FOUR PADS).

PAYMENT FOR THIS WORK, INCLUDING ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED TO FURNISH AND INSTALL THE ABUTMENT EMBANKMENT DRAINAGE REPAIRS, SHALL BE PER LUMP SUM FOR ITEM SPECIAL - ABUTMENT EMBANKMENT DRAINAGE REPAIRS.

ITEM 607 - FENCE, TYPE CL, AS PER PLAN

THIS ITEM INCLUDES THE FURNISHING OF ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE FENCING. CHAIN LINK FENCE SHALL CONFORM TO CMS 710.03 UNLESS NOTED OTHERWISE. TENSION BANDS SHALL BE A MINIMUM OF 12 GAUGE STEEL BY 7/8 INCHES WIDE ASSEMBLED WITH 5/16 INCH DIAMETER BY 1-1/4 INCH GALVANIZED OR CADMIUM PLATED BOLTS. ONE TENSION BAND SHALL BE REQUIRED FOR EACH FOOT OF FABRIC HEIGHT. FENCE POSTS AND ANCHOR BOLTS SHALL BE PERPENDICULAR TO GRADE. RAILS SHALL BE PARALLEL TO GRADE. THE FABRIC AND RAILS SHALL BE FREE TO EXPAND OR CONTRACT ACROSS BRIDGE EXPANSION JOINTS. MATERIALS AND WORKMANSHIP SHALL MEET THE REQUIREMENTS OF ITEM 607 EXCEPT THAT ALUMINUM ALLOY POSTS SHALL NOT BE USED. FABRIC TIES SHALL BE SPACED 14 INCH C/C MAXIMUM ON LINE OR END POSTS AND 24 INCH C/C MAXIMUM ON ALL RAILS. ALL POSTS AND PIPE SIZES ARE NOTED IN TERMS OF THE NOMINAL INSIDE DIAMETER OF STANDARD WEIGHT PIPE, SCHEDULE 40. STRETCHER BARS AND MISCELLANEOUS HARDWARE SHALL BE THAT OF THE CHAIN LINK FENCE INDUSTRY STANDARD. BASE PLATES AND MISCELLANEOUS BRACKETS FOR STEEL POSTS MAY BE OF ANY COMMERCIAL WELDABLE STEEL HAVING A YIELD STRENGTH OF 33,000 P.S.I. ALUMINUM ALLOY FABRIC (AASHTO M-181, TYPE III) SHALL BE USED. POSTS SHALL HAVE A YIELD STRESS OF 30 K.S.I. SEE SHT. 9/75.

Burgess & Niple, Limited  
Engineers and Architects

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**STRUCTURE GENERAL NOTES**

BRIDGE NO. LAK - 44 - 0510  
JACKSON STREET OVER S.R. 44

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
SJS	JLP		WAC	WAC 12/89	