

SECTION 03932

CONCRETE SLOPE PROTECTION REPAIR

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Prepare and place concrete slope protection and cutoff wall where required.

1.2 RELATED SECTIONS

- A. Section 02226: Remove Concrete Slope Protection
- B. Section 02721: Untreated Base Course
- C. Section 03055: Portland Cement Concrete
- D. Section 03211: Reinforcing Steel and Welded Wire
- E. Section 03310: Structural Concrete
- F. Section 03390: Concrete Curing

1.3 REFERENCES

- A. ASTM C 578: Rigid, Cellular Polystyrene Thermal Insulation.
- B. ASTM D 412: Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
- C. Federal Specification TT-S-00120C.
- D. Federal Specification TT-S-00230C.

1.4 SUBMITTALS

- A. For each lot of materials supplied, submit certificates of compliance and sealant material test results.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Portland Cement Concrete: Concrete Class A(AE). Refer to Section 03055.
- B. Cement: Refer to Section 03055.
- C. Reinforcing Steel: Refer to Section 03211.
- D. Backer Rod: Refer to Section 03211.
- E. Rigid Plastic Foam: Type 9, Density of 2 lbs/ft³.
- F. Sealant Material
 - 1. Applied cold and curable under field conditions.
 - 2. Polyurethane based, gun grade.
 - 3. Elastomeric, non-sag seal.
 - 4. Bonds tightly to concrete sides and joints.
 - 5. Physical properties when cured 21 days at 73 degrees F as follows.

Table 1

Property	Value	Method
Modulus of elasticity at 100 percent elongation	132 psi	ASTM D 412
Hardness	40 ± 5	Shore A
Elongation (at break)	450 percent	ASTM D 412
Recovery	Greater than 90 percent	
Tensile strength	190 psi	ASTM D 412
Adhesive in peel	20 lbs/inch	TT-S-00230C
Adhesive in loss	0 percent	TT-S-00230C
Service range	-40 degrees F to 150 degrees F	
Initial cure, tack free (depending on temperature and humidity)	6 to 8 hours	
Final cure	5 to 8 days	
Staining characteristics	Non-staining	
Federal Specification	Type II Class A	TT-S-00120C

PART 3 EXECUTION

3.1 PREPARATION

- A. Prepare the subgrade of the area to be paved:
 - 1. Smooth and shape the berms and slopes. Excavate cutoff walls where required.
 - 2. Fill depressions with untreated base course material, grade and compact.
 - 3. Firmly compact the subgrade.
 - 4. Thoroughly sprinkle the surface with water prior to placing the concrete. The Engineer will approve all surfaces before concrete is placed.

3.2 PLACING CONCRETE

- A. Place concrete slope protection within 7 days after removing concrete slope protection. Refer to Section 03055 and Section 03310.
- B. Make concrete consistency such that concrete may be placed on the slopes without deformation.
- C. Complete all scoring as indicated on the plans.
- D. Stop placing concrete if it is not feasible to complete the entire slope protection during one placement. Use a construction joint located in a scoring, or at the junction of the slope and the abutment.

3.3 FINISHING AND CURING CONCRETE

- A. Use a floated surface finish. Refer to Section 03310, Part 3, article, "Concrete Surface Finishing Procedures."
- B. Cure following Section 03390.

3.4 SEALING JOINTS AND CLOSURES

- A. Place the backing rod and sealant when the concrete has properly cured.
 - 1. Concrete surfaces in the grooves must be clean and dry when backing and sealant are placed.
 - 2. Completely remove curing compounds, oil, grease, dirt, and any other foreign materials from concrete surfaces in the grooves by sandblasting.

- B. Place the sealant with hand or power operated caulking guns after placing the backing rod.
 - 1. Start the placement at one side and proceed to the other side on horizontal grooves and from top to bottom on vertical grooves.
 - 2. Tool the sealant using a concave pointing tool with soap solution.

- C. Place rigid plastic foam material (styrofoam), 1 inch thick against the surface of all structural members prior to placing the concrete slope protection.
 - 1. Anchor the rigid plastic foam in place with a compatible adhesive.
 - 2. Recess the rigid plastic foam in the joints so a groove is formed above the styrofoam filler.
 - 3. Fill the groove with sealant above the styrofoam so the joint is sealed over completely.
 - 4. Place sealant when the ambient air temperature is at least 50 degrees F and rising.

END OF SECTION