

DIVISION 2

CONCRETE REPAIR

2-1 DESCRIPTION:

The Contractor shall furnish all labor, materials, and equipment necessary to repair the existing concrete bulkhead as shown on the Drawings, as described in these Specifications and as described by the Owner.

2-2 MATERIALS:

- A. Concrete: All concrete shall be ready-mixed concrete mixed in accordance with ASTM C-94 and ACI 304-73 with a 28 day compressive strength of 3000 psi.
- B. Cement: All cement shall be Portland Type II cement in accordance with ASTM C-150 and shall be of one brand.
- C. Aggregate: All aggregate shall be in accordance with ASTM C-33 and ACI 211.1-74 and 304-73. All coarse aggregate shall be crushed stone or gravel and shall not exceed ¾ inch in size. All fine aggregate shall be natural sand.
- D. Water: All water used for mixing concrete shall be from a potable source.
- E. Epoxy bonding compounds:
 - 1) The epoxy bonding compound required for bonding the proposed concrete to existing concrete shall be Sikadur Hi-Mod as manufactured by the Sika Chemical Corporation or an equal approved by the Owner or Owner's Representative.
 - 2) The epoxy bonding compound required for bonding the proposed steel reinforcement to existing concrete shall be Sikadur Hi-mod Gel as manufactured by the Sika Chemical Corporation or an equal approved by the Engineer.
- F. Concrete Surface Sealer: The epoxy sealer for sealing all exposed concrete surfaces shall be Sikagard 619 Penetrating Sealer as manufactured by the Sika Chemical Company or an equal approved by the Engineer.
- G. Expansion Joint Material: The expansion joint material for all joint reconstruction sections shall be an ethylene vinyl acetate material as manufactured by Union Carbide Corporation or an approved equal.
- H. Soil Cement: The soil cement to be used to seal cracks in the existing concrete wall shall be Celtite #55 Terraset as manufactured by Celtite Incorporated or an equal approved by the Engineer.

2-3 PROPORTIONING:

- A. Each cubic yard of concrete shall contain a minimum of 6 bags of cement.
- B. Water cement ratio shall not exceed 6.0 gallons of water per bag of cement.
- C. The proportion of coarse aggregate to fine aggregate shall be such as to produce a concrete of the greatest workability and density.
- D. Concrete exposed to the air shall have an air entrainment of 6% +/- 1%.

- E. All epoxy adhesives, grouts and concrete surface sealers shall be mixed in accordance with the manufacturer's instructions.

2-4 PLACEMENT:

- A. All concrete shall be placed in a continuous operation. Concrete shall be discharged into forms within 1 ½ hours after the cement has been added to the water and aggregate.
- B. The Contractor shall place the concrete to the grades as shown on the Drawings.

2-5 PREPARATION OF EXISTING CONCRETE:

- A. Prior to the construction of forms the Contractor shall perform the following:
 - 1) Remove all loose and deteriorated concrete and dispose to an off-site location.
 - 2) Chip clean, then sandblast all exposed bonding surfaces of the existing concrete wall.
- B. After construction of the forms and immediately prior to placement of the proposed concrete, the Contractor shall coat all of the bonding surfaces between existing and proposed concrete with Sikadur Hi-mod, in accordance with the manufacturers instructions.

2-6 FORMS:

- A. Forms for concrete wall repair shall be constructed to produce a concrete alignment and elevation as specified on the drawings. The forms shall be sufficiently strong to carry the dead weight of the concrete without deflection and tight enough to prevent leakage of mortar. Forms shall be placed on both the landward and seaward faces of the concrete wall repair sections.
- B. Forms for gap sealing shall be undisturbed earth on the landward side of the concrete wall. The Contractor shall take whatever measures are necessary to prevent the loss of concrete through the existing gap being plugged and overboard.

2-7 DEWATERING:

- A. The Contactor shall completely dewater all wall repair forms prior to the application of bonding agents and pouring of the concrete.
- B. The Contractor shall dewater all gap sealing forms as feasible and necessary to facilitate the placement of concrete.

2-8 PARGING:

- A. Parge predampened walls where indicated with Type S or N mortar applied in two uniform coats to a total thickness of 3/4 inch. Scarify first parging coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.
- C. Damp cure parging for at least 24 hours and protect until cured.

2-9 CONCRETE FINISH:

- A. Concrete which will not be exposed to view in the completed work shall have a rough board finish.
- B. All concrete which will be exposed to view in the completed work shall have a wood float finish.

2-10 SURFACE SEALING:

- A. The Contractor shall seal all exposed concrete surfaces (existing and proposed) after the completion of all concrete repairs.
- B. The Contractor shall accomplish all surface sealing in the following manner:
 - 1) Clean all exposed concrete surfaces by sandblasting prior to application of the sealing agent.
 - 2) Apply two separate coats of surface sealer in strict accordance with the manufacturer's instructions to clean and dry exposed concrete surfaces.

2-11 MEASUREMENT:

No measurement for payment for this item of work will be made since the cost shall be included in the lump sum price bid.

END OF SECTION