ITEM #0601097A – VARIABLE DEPTH PATCH

Description: Work under this item shall consist of removing loose, deteriorated concrete, and concrete overlaying hollow areas, and applying a cementitious mortar to these areas as well as spalled and scaled areas as shown on the plans, as directed by the Engineer, and in accordance with these specifications.

Materials: The cementitious mortar shall be one of the following, or an approved equal:

5 Star Structural Concrete V/O
Manufactured by: Five Star Products, Inc.
750 Commerce Drive
Fairfield, CT 06825

Re-crete 20 Minute Set
Manufactured by: Dayton Superior Specialty Chemical Corp.
4226 Kansas Avenue
Kansas City, KS 66016

Emaco S88 CI
Manufactured by: BASF Building Systems
889 Valley Park Drive
Shakopee, MN 55379

The single component zinc-rich shall conform to Federal Specification TT-P-641, Type 1, and shall be brush applied in two coats.

Certification: A Materials Certificate shall be required in accordance with Article 1.06.07, certifying the conformance of this material to the requirements set forth in this specification.

Construction Methods: Before any concrete is removed, the Engineer shall perform an inspection to determine the exact limits and locations of all areas to be repaired.

The perimeter of each deteriorated area shall be squared up to a minimum of 1/2-inch deep by chiseling or sawcutting. Care shall be taken not to cut existing reinforcing.

Loose and deteriorated concrete and hollow areas shall be chipped away back to sound concrete. The exposed concrete surfaces shall be thoroughly sandblasted and vacuumed immediately prior to applying the mortar.

All surfaces of exposed concrete and reinforcing steel shall be free of oil, solvent, grease, dirt, dust, bitumen, rust, loose particles, and foreign matter. Prior to sandblasting of concrete and steel surfaces, all petroleum contamination on these surfaces shall be removed by an appropriate solvent or detergent cleaning operations.

All compressed air equipment used in cleaning shall have properly sized and designed oil separators, attached and functional, to assure the delivery of oil-free air at the nozzle.

Particular care shall be taken where reinforcing steel is uncovered, not to damage the steel or its bond in the surrounding concrete. Pneumatic tools shall not be placed in directed contact with reinforcing steel. Maximum 15 lb. size hammers shall be used for general chipping and removal. Exposed reinforcing steel shall be sandblasted in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale.

All exposed blast-cleaned reinforcing steel shall be coated with two coats of the single component zinc-rich primer, brush applied (Note: the second coat shall only be applied after the first has dried). Applications of the zinc primer shall be in accordance with the manufacturer's printed instructions.

If the existing reinforcing steel is severely corroded or damaged, the Engineer all be notified immediately.
Adequate measures shall be taken by the Contractor to prevent concrete chips, tools and materials from entering into adjacent roadway lanes or dropping to areas below the structure. When using sandblasting equipment, all work shall be shielded for the protection of the public. All debris shall be promptly swept up, removed and satisfactorily disposed of by the Contractor from the site.

All mixing and application of the mortar shall be done in strict accordance with the printed instructions supplied by the manufacturer and as directed by the Engineer.

At the time of mortar application, the concrete surfaces against which this material is to be placed shall be sound, tight and thoroughly roughened by the removal and sandblasting procedures specified above. The exposed concrete surfaces shall be dampened with fresh water (saturated surface dry) immediately prior to placement of the mortar. The minimum ambient and patched area surface temperatures shall be 45° F and rising at the tie of mortar application.

The mortar shall be packed into the substrate, filling all pores and voids, then forced against the edges of the repair, working toward the center. After filling the voids, the mortar shall be compacted and the surfaces truck off with a steel trowel to match the original contour of the existing concrete.

A fine spray mist of water shall be used to aid the cure of the patches by preventing the surface from drying for a minimum of 2 hours.

Cured patches shall be sounded by the Engineer to detect the presence of any hollow spots. Such spots shall be removed and replaced by the Contractor at his own expense until an acceptable patch is in place.

Method of Measurement: This work will be measured for payment by the actual number of cubic feet of cementitious mortar incorporated into the completed and accepted work.

Basis of Payment: This work will be paid for at the contract unit price per cubic foot for "Variable Depth Patch", complete in place, which price shall include removal of loose and deteriorated concrete, sawcutting or chiseling, sandblasting, disposal of removed concrete and preparation materials, zinc primer on the reinforcing steel, and all materials, equipment, tools, labor and work incidental thereto.