

EXHIBIT B

TECHNICAL PROVISIONS



GENERAL

The method of measurement and payment for various items comprising the completed work follows: Payment for items shall be compensation in full for furnishing all overhead, materials, labor, tools, equipment, and appurtenances necessary to complete the work in good, neat and satisfactory manner as indicated in the plans, or as specified herein with all connections, testing and related work completed. Each item, fixture, piece of equipment, etc., shall be complete with all necessary connection and appurtenances for the satisfactory use of and/or operation of said item. No additional payment will be made for work related to each item unless specifically noted or specified. Measurement will be in place for completed work with no allowances for waste.

No separate payment shall be made for CLEAN UP. The cost of this work shall be included in related items of work for which payment is provided. The Contractor shall repair any damage incurred during construction to park grounds and replace damaged vegetation in kind at no additional expense to the city.

Measurement and payment for all pay items in the proposal shall be as indicated on the bid form, and/or as specified herein:

All references to ADOT specifications herein, shall be in accordance to Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, Edition 2008.

ITEMS OF WORK

1. Replace Deck Joint Assemblies

Description

This work shall consist of furnishing and installing a new deck joint assembly including seals, anchorage system and hardware in conformity with the project plans and the requirements of these specifications. For joints with partial joint replacement - elastomer seal for the entire width of the bridge shall be replaced with one single unit and including sidewalk where necessary.

This work shall also consist of removal of the concrete at expansion joints as shown herein, and satisfactory disposal of the removed concrete. This work shall include removal of the existing deck joint assembly and reusing the existing reinforcing steel projecting into removal areas.

High-early strength concrete shall be in accordance with Section 601 of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition.

Materials

Portland cement concrete shall conform to the respective physical and chemical requirements of AASHTO M85-84 (ASTM C 150) and Section 1006 of ADOT Specifications for Portland Cement Concrete.

The minimum compressive strength of the concrete shall be 4,500 psi. This compressive strength shall be the minimum at the time traffic is allowed on the repaired section of the joint.

Rural Road Bridge: Elastomer seals shall be of the strip seal type and shall conform to the requirements of Section 1011-5 of the ADOT Standard Specifications.

Mill Avenue Bridge: Elastomer seals shall be of the compression seal type and shall conform to the requirements of Section 1011-5 of the ADOT Standard specifications. The deck joint assembly shall be as shown herein and in the drawings.

Construction Requirements – Concrete Removal

Reinforcing steel projecting into the removal area shall be thoroughly cleaned, straightened, and incorporated into new construction. Reinforcing steel to be reused in the new construction that is damaged or destroyed by the **CONTRACTOR** shall be repaired or replaced by the **CONTRACTOR** at their expense.

Dimensions and details relative to the existing structure have been taken from existing plans and are subject to construction variations. It shall be the **CONTRACTOR**'s responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction.

Where new concrete is to join existing concrete, the existing concrete shall be saw cut approximately one-inch deep to a true line with straight vertical edges free from irregularities.

The surface of the existing concrete shall be coated prior to the new concrete being placed with an ADOT approved adhesive specifically formulated for bonding new concrete to old concrete. The ADOT approved product list can be found at <http://azdot.gov/FPD/ATRC/apl.asp>.

Concrete removal operation shall include removing the existing bolts partially or in whole as needed and removal of asphalt and temporary plates to facilitate placement of new expansion joint assembly.

Concrete removal operations shall be performed without damage to any portion that is to remain in place. All damage to the existing concrete which is to remain in place, shall be repaired to a condition equal to that existing prior to the beginning of removal operations. The repairing of existing concrete damaged by the **CONTRACTOR**'s operation shall be at their expense, and to the satisfaction of the City engineer.

Concrete designated to be removed shall either, be removed from the job site and disposed of at a site secured by the **CONTRACTOR** or disposed at a landfill approved by the City engineer. The

CONTRACTOR shall capture all concrete from falling into the river, and shall be considered incidental to this pay item.

Construction Requirements – High Early Strength Concrete

Sampling and testing for compressive strength and acceptance for compressive strength will be in accordance with the requirements of ADOT Specification Section 1006-7 except as modified herein.

Contractor shall take a minimum of five (5) concrete specimens per expansion joint for compression test. The test cylinders / specimens shall be modeled and tested per section 1006 of ADOT standard specifications. The test specimens shall remain with the units they represent and shall be subject to the same curing as the units until the time of testing. Two cylinders shall be tested after 24 hours; two cylinders shall be tested at two days, and the remaining one cylinder shall be tested as determined by the City Engineer or discard the specimen at 28 days. If their strength after 24 hours meets or exceeds the compressive strength of 4500 psi, the City Engineer will accept the specimens. Specimens shall be tested in a laboratory designated by the City Engineer. Compensation for testing is included in the unit price of High-Early Strength concrete.

If the two day results does not meet the compressive strength criteria, the Contractor shall schedule and pay for two cores to be taken and tested from the area of concrete represented by the specimens. If the test results matches or exceeds 95% of the required compressive strength, the City Engineer will accept the concrete. If the test results fail to meet 95% of 4500 psi and the concrete is permitted to remain in place, the concrete will be paid at 55% of the contract price. If the test results of concrete are below 3500 psi, then Contractor shall remove all of the concrete represented by the cylinders and replace with new concrete. All additional coring and testing will be at the expense of the Contractor.

Slump of the High-Early Strength concrete shall be in the range of 3 to 4 inches. Slump shall be determined in accordance with AASHTO T 119.

High-Early Strength concrete shall be cured by white-pigmented membrane curing compound. The curing compound shall contain finely divided white pigmented, premixed for immediate use without alteration. When applied to concrete at the specified rate of application, the compound shall exhibit a day light reflectance of not less than 60 percent of that of magnesium oxide. The curing compound shall be of a consistency suitable for spraying, shall be relatively nontoxic, and shall adhere satisfactorily to a vertical or horizontal surface of damp concrete when applied immediately after the disappearance of surface water sheen.

Haul time for High-Early Strength concrete shall begin when the delivery ticket is stamped. The delivery ticket shall be stamped no later than 5 minutes after the addition of the mixing water to the cement and aggregates, or after the addition of the cement to the aggregate when the mixer drum contains residual water or the combined aggregates contain free moisture in excess of 2 percent by mass (weight). Haul time shall end when truck is emptied for incorporation of the concrete into the work. For concrete mixed in jobsite stationary mixers, the stamped delivery ticket may be waived, but a method of verifying the haul time shall be established to the satisfaction of the City Engineer.

Concrete transported in truck mixers or truck agitators shall be delivered to the site of the work in a plastic and workable condition, satisfactory for placement in the work without the addition of water or water and cement prior to discharging.

The maximum haul time for concrete transported in truck mixes or truck agitators shall be according to the following:

<u>Concrete Temperature at point of Discharge (°F)</u>	<u>Haul Time</u>
50 °F to 64 °F	1 hour 15 minutes
65 °F to 110 °F	45 minutes

Construction Requirements- Deck Joint Assemblies

Deck joint assemblies shall consist of elastomer and metal assemblies, which are anchored to the concrete at the joint. Contractor shall verify all dimensions of the deck joint assembly prior to manufacturing. The sizes and dimensions shown in the plans are taken from existing drawings and are subject to variations from the field conditions.

The seals shall be installed by suitable hand or machine tools and thoroughly secured in place. The seals shall be installed in a compressed condition and shall at all times be below the level of the deck surface as shown herein. The seals shall be one continuous piece for the full width of the bridge. The continuous piece for installation shall have not more than one manufacturer's splice within its length. If the splice is torn or damaged, the seal shall be replaced with a new one meeting the requirements as herein specified. Joints shall be clean and free of foreign material immediately prior to installation of the seals. Any damage to the steel edge members or any anchoring devices while placing the joint system shall be replaced with new material. The completed assembly shall be in planned position, shall satisfactorily resist the intrusion of foreign material and water and shall provide bump free passage of traffic.

Method of Measurement

Replace Deck Joint Assemblies will be measured by the linear foot. Measurement will be made along the centerline of the joint and at the surface of the roadway or sidewalk for the limits shown on the plans. Measurement will be to the nearest linear foot. No measurement will be made for that portion of the deck joint assembly required by plan details to extend through the face-of-barrier, such being considered incidental to the sealing of the joint.

Basis of Payment:

The accepted quantities of the Replace Deck Joint Assemblies measured as provided above, will be paid for at the contract unit price per linear foot for concrete removal, High-Early Strength Concrete or Elastomeric Concrete, furnishing and installing Deck Joint Assemblies complete in place, including the seal, anchorage system, galvanizing, equipment, and labor. The contract price paid for

replacing deck joint assemblies shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals to remove and replace the expansion joint complete in place as shown herein. The cost to replace the joint seal for the entire width of joint shall be considered incidental to the Replace Deck Joint Assemblies.

The contract price paid for High-Early Strength concrete and Elastomeric concrete shall include full compensation for all independent lab tests for compressive strengths and incidentals for all work involved in furnishing, placing, and curing concrete and transporting and erecting false work, forms to provide an expansion joint complete in place as shown herein.

2. Replace Expansion Joint Seal

Description:

This work shall consist of removing and replacing the existing neoprene / elastomer seals at locations shown in the drawings. The Contractor shall verify the sizes and dimensions of the Seal in field prior to manufacturing. The work also involves cleaning the joint between the joint openings and proper disposal of the foreign material at a site approved by the city.

Materials:

Elastomer seals shall be of strip seal type for Rural Road Bridge and compression seal type for Mill Avenue Bridge (SB) and shall conform to the requirements of Section 1011-5 of the ADOT Standard Specifications.

Construction Requirements:

The seals shall be installed by suitable hand or machine tools and thoroughly secured in place. The seals shall be installed in a compressed condition and shall at all times be below the level of the deck surface as shown herein. The seals shall be one continuous piece for the full width of the bridge. The continuous piece for installation shall have not more than one manufacturer's splice within its length. If the splice is torn or damaged, the seal shall be replaced with a new one meeting the requirements as herein specified. Joints shall be clean and free of foreign material immediately prior to installation of the seals. Any damage to the steel edge members or any anchoring devices while placing the joint system shall be replaced with new material.

The completed assembly shall be in planned position, shall satisfactorily resist the intrusion of foreign material and water and shall provide bump free passage of traffic.

Method of Measurement:

Replace Expansion Joint Seal will be measured by the linear foot. Measurement will be made along the centerline of the joint and at the surface of the roadway from face-of-barrier to face-of-barrier. Measurement will be to the nearest linear foot. No measurement will be made for that portion of the deck joint assembly required by plan details to extend through the face-of-barrier, such being considered incidental to the sealing of the joint.

Basis of Payment:

The accepted quantities of the Replace Expansion Joint Seal, measured as provided above, will be paid for at the contract unit price per linear foot for removing, furnishing and installing the seal complete in place, including all equipment, and labor.