



Illinois Department of Transportation

Division of Aeronautics

1 Langhorne Bond Drive / Capital Airport / Springfield, Illinois / 62707-8415

April 22, 2014

SUBJECT: Decatur Airport
Decatur, Illinois
Macon County
Illinois Project Number: DEC-4271
SBG Project Number: N/A
Contract No. DE075
Item No. 13A, April 25, 2014 Letting
Addendum B

NOTICE TO PROSPECTIVE BIDDERS

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

Reason for Addendum:

Clarification of Item AR800441-AR800442, Ultra-Thin Whitetopping (UTW) of the Special Provisions.
Added "Quality Control" and "Acceptance Testing", to the Construction Methods section of the Special Provision

To All Plan Holders:

Replace the Revised pages 16-19 of the Special Provisions issued as Addendum A with the attached pages 16-20.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Questions on this addendum may be directed to Barry Stolz, P.E. of Hanson Professional Services, Inc. at 314-942-5288.

**ITEM AR800441 – AR800442
ULTRA-THIN WHITETOPPING (UTW)**

GENERAL

These items of work consist of placing an Ultra-Thin Concrete Overlay within the specified limits as shown on the plans.

MATERIALS

Materials. Materials shall be according to the following Articles/Sections of the IDOT Standard Specifications.

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|---------------------------------------|-------------------------|
| a) Portland Cement Concrete (Note 1): | Article/Section 1020 |
| b) Synthetic Fibers (Note 2) | |
| c) Protective Coat: | Article/Section 1023.01 |

Note 1. Class PV concrete shall be used, except the cement factor for central mixed concrete shall be 6.05 cwt/cu yd (360 kg/cu m). A cement factor reduction according to Article 1020.05(b)(9) of the IDOT Standard Specifications will be permitted, but shall not exceed a maximum 0.30 cwt/cu yd (18 kg/cu m). CA 5 shall not be used and CA 7 may only be used for overlays that are a minimum of 4.5 in. (113 mm) thick. The Class PV concrete shall have a minimum flexural strength of 550 psi (3800 kPa) or a minimum compressive strength of 3000 psi (20,700 kPa) at 14 days. Slump requirement shall be waived unless slipform placement is used. The water/cementitious ratio shall not exceed for Class PV concrete with workability to be obtained through the use of high-range water reducer or other admixtures necessary to provide a satisfactory surface.

Note 2. Synthetic fibers shall be Type III according to ASTM C 1116. The synthetic fiber shall be a monofilament or bundled monofilament with a minimum length of 1.0 in. (25 mm) and a maximum length of 2 1/2 in. (63 mm), and shall have a maximum aspect ratio (length divided by the equivalent diameter of the fiber) of 150. The quantity of synthetic fiber(s) added to the concrete mixture shall be sufficient to have a residual strength ratio ($R_{150,3}$) of 20.0 percent according to Illinois Modified ASTM C 1609. The maximum dosage rate shall not exceed 5.0 lb/cu yd (3.0 kg/cu m), unless the manufacturer can demonstrate through a field demonstration that the concrete mixture will be workable and fiber clumping is not a problem as determined by the Resident Engineer.

The synthetic fibers shall be added to the concrete and mixed per the manufacturer's recommendation.

The Department will maintain an "Approved List of Synthetic Fibers", found on the Department website at this location: <http://www.dot.state.il.us/materials/syntheticfibers.pdf>, which will include the minimum required dosage rate. For the minimum required fiber dosage rate based on the Illinois Modified ASTM C 1609 test, a report prepared by an independent laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) for Portland Cement Concrete shall be provided.

As part of the mix design shop drawing submittal for review, the Contractor shall submit strength test results for the proposed mix design showing the proportions and flexural or compressive strength obtained from the concrete at 7 and 28 days. The mix design shall include copies of

test reports, including test dates, and a complete list of materials including type, brand, source, and amount of cement, flyash, ground slag, coarse aggregate, fine aggregate, water, and admixtures. The fineness modulus of the fine aggregate and the air content shall also be shown.

Should a change in sources be made, or admixtures added or deleted from the mix, a new mix design must be submitted to the Resident Engineer for approval.

Equipment. Equipment shall be according to Article 420.03 of the IDOT Standard Specifications, except the mechanical saw used for cutting joints shall be equipped with an upcutting blade and a restricting skid plate to prevent spalling of the finished saw cut.

CONSTRUCTION METHODS

Preparation of Existing Pavement Surface

The area to be overlaid shall be milled as shown on the plans. This process is to be followed by a final cleaning with compressed air free of contaminants such as compressor oil. The prepared surface shall meet the approval of the Resident Engineer prior to proceeding with the work.

If concrete placement does not follow within 24-hours of final cleaning the area shall be re-cleaned by either high-pressure washer and/or compressed air as necessary to the satisfaction of the Resident Engineer. Surface areas inadvertently contaminated by oil, concrete laitance or other substances shall be re-cleaned and allowed to dry prior to placement of the concrete overlay. Paving will not be permitted over standing water on the pavement surface.

If surface temperatures of the existing bituminous pavement exceed 110 degrees F, a light water misting of the surface shall be applied a few minutes prior to paving to promote cooling of the asphalt surface. Paving will not be permitted over standing water on the pavement surface.

(It is the intent of the specification that the existing bituminous surface has a clean absorptive surface prior to concrete placement. It is imperative that the surface be clean to promote adhesion of the concrete overlay to the existing bituminous surface. It is the intent that the surface be dry, or very close to dry, at time of placement of the concrete except in case of excessive temperatures.)

Forms

Wood or steel forms of a height equal to the proposed pavement thickness will be allowed. Shims or wedges will be permitted upon approval of the Resident Engineer to raise the form to the specified elevation. Forms shall be sufficiently braced to prevent movement during placing and finishing operations. Grades shall be set to maintain drainage to surface water inlets.

Concrete Placement and Consolidation

Concrete hauling and mixing trucks may be operated on the cleaned surface as long as they do not contaminate the surface with dirt or oil. Contaminated areas shall be cleaned and allowed to dry as detailed in the section "Preparation of Existing Pavement Surface." Concrete shall be deposited in place within 90 minutes of the time water is added to the mixture. Placement of the concrete shall be a continuous operation throughout each pour.

Concrete shall be placed, struck-off, consolidated, and finished to plan grade with a vibrating screed, laser screed, vibrating strike off, roller screed or by hand-finishing methods when approved. When hand-finishing methods are used, internal vibration of the concrete mixture shall be required to ensure proper consolidation and adequate adhesion to the existing bituminous surface.

Finishing

After the concrete has been struck-off and consolidated, a bull float may be used to remove any high or low spots. Bull float use shall be confined to the minimum possible. A final skid-resistant texture shall be made using a rough broom struck perpendicular to the direction of expected traffic.

Curing

After the concrete has been finished, the pavement shall be cured using a uniform layer of white-pigmented curing compound meeting requirements of ASTM C 309, *Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete*. Curing compound is to be applied at rate of not less than one and one-half (1-1/2) gallons per 150 square-feet of pavement surface. (Care should be taken not to overspray areas adjacent to the overlay if additional lanes are planned lest removal be required.)

Joint Sawing

Sawing of joints shall commence as soon as the concrete will support the weight of an “early-entry” concrete saw without disturbing the final finish.

Distance between joints in the Ultra-Thin Concrete resurfacing must not exceed the maximum joint spacing shown on the plans. Spacing of the joints may be reduced to allow for contraction joints to intercept pavement perforations such as manholes and inlets.

Depth of sawcut shall be as shown on the plans, or as according to the recommendations of the “early-entry” saw manufacturer. Once initiated, joint sawing should be continued until all joints are sawn.

Joint Sealing and Filling

Filling of saw cut joints is not required on Ultra-Thin Whitetopping.

Opening to Traffic

The pavement may be opened to traffic according to Article 420.13 of the IDOT Standard Specifications, except curing may be discontinued and the pavement opened to traffic when a minimum flexural strength of 550 psi (3800 kPa) or a minimum compressive strength of 3000 psi (20,700 kPa) is attained.

Quality Control

Quality control testing is the responsibility of the contractor and must be performed by qualified testing personnel approved by the Engineer. The proportioning technician shall be PCC Level II certified by the testing firm must perform his or her duties on a full time basis whenever concrete

is produced for an IDOT Division of Aeronautics project.

The proportioning technician shall perform the duties as outlined in the Division of Highways latest Manual of Instructions for Concrete Proportioning and Testing and as outlined as follows. These duties as outlined are not necessarily all inclusive and may include other duties as required by the specifications, special provisions, etc.

If a QC or QA test for slump, air content, or mix temperature fails to meet the requirements of the specifications the contractor shall reject the batch. In the case of a failing test of the air content, the contractor may make adjustments to the concrete to bring the air content into compliance with the specification. Adjustments are subject to the time limitations of 1 hour from time of batching when the concrete is transported in mixer trucks. Time limitations shall be increased by 30 minutes when the concrete mixture contains a retarding admixture. When concrete has been rejected due to failing test results, the contractor shall continue to run tests for the failed test parameter until at least 3 consecutive passing tests are achieved. This testing is in addition to the normal QC and QA testing.

A. Duties of the Proportioning Technician:

- 1.) Check and maintain shipment tickets of each material used in the manufacture of the concrete. These tickets are to be given to the Resident Engineer for each day's production of concrete. The aggregates shall indicate the quality on the ticket and a statement that the coarse aggregate is a non "D" cracking (freeze-thaw rated by IDOT) aggregate. In lieu of having these statements on each ticket, the contractor may use the Division's Aggregate Certification of Compliance form, or supply the Resident Engineer with a certification letter indicating the stone quality and statement of non "D" cracking compliance.
- 2.) Inspect and maintain proper storage of all aggregates and materials daily.
- 3.) Perform at least one (1) sieve analysis for each aggregate daily.
- 4.) Inspect all weighing or measuring devices daily.
- 5.) Twice daily check the actual weighing or measuring of aggregates, cement, water, and admixtures for conformance to adjusted batch proportions. Record data on Form AER-4, Concrete Plant Production, Mix Verification, and calculate the water/cement (or water/cementitious material) ratio.
- 6.) See that the volume of the batch does not exceed the allowable capacity of the mixer and that the proper mixing time is used.
- 7.) Make at least two (2) moisture tests of each aggregate daily and correct batch weights as required.
- 8.) Adjust the dosage rates of the admixtures as required to meet concrete temperature changes and paving conditions.
- 9.) Complete AER M-7, Concrete Air, Slump and Quantity, and Form AER-4, Concrete Plant Production, Mix Verification for each day's production and deliver same to the Resident Engineer at the end of the day for which the data pertains. Provide to the

Resident Engineer load tickets for all aggregates, cement, and admixtures used in the mix.

The Resident Engineer will also be required to visit the plant twice daily on a random basis to record actual batch weights and complete Form AER-4, Concrete Plant Production, Mix Verification. Forms AER-4, AER -7, and AER -12 shall be submitted to the R.E. on a daily basis and then faxed by the R.E. to the Division of Aeronautics daily. (FAX is (217) 558-1328)

Acceptance Testing

Acceptance of the final pavement is based on the strength of cylinders taken at random during the time of construction. The pavement shall be divided into Lots of 1200 cubic yards with sublots of 300 cubic yards each. The final subplot of the project shall be separated into an additional subplot if the concrete quantity is greater than or equal to 150.0 cubic yards. Otherwise, this remaining quantity shall be incorporated into the previous subplot.

One random sample (two cylinders) shall be obtained from each subplot for testing at 14 days to determine pavement strength to open to traffic. At the time a subplot sample is taken, one (1) slump and one (1) air test shall be taken.

In addition to the above described sample frequency, three (3) and seven (7) day tests shall be taken. The Engineer may require additional tests to maintain Quality Control.

Lots and sublots shall not be separated by mix design or day of paving if the project is using more than one mix design. The grouping of Lots and sublots is to be done solely by the quantity of cubic yards poured on the project.

BASIS OF PAYMENT

Payment will be made at the contract unit price per cubic yard for the accepted quantity of concrete (with fibers) delivered and placed. Preparation of existing base and concrete forming, placement, consolidation, finishing and curing will be measured to the nearest square yard. These prices shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete these items.

Payment will be made under:

Item AR800441 Ultra-Thin White Topping 3" - Concrete with Fibers, Delivered - per cubic yard.
Item AR800442 Ultra-Thin White Topping 3" - Concrete Placement - per square yard.

END OF ITEM AR800441 – AR800442