

RECOMMENDATION

Recommendation of Dispute Review Board

Dispute No.: 101
Hearing Date: April 25, 2000

District: 7
Contractor: Hubbard Construction Co.
SPN: 10190-3432, I-4, Segment 5

DISPUTE

The deck of the westbound I-4 bridge over Park Road was poured on the morning of April 23, 1999. Hubbard began pumping concrete at 1:40 a.m. After approximately 50 cubic yards of the deck was in place, the Bidwell screed was started at the east end, working west. For some reason the Bidwell was not screeding the deck as it should have, leaving ridges and depressions (1/8 inch to 1/4 inch high/low) so after progressing 20 feet, the Bidwell was brought back to the east end and began rescreeding. The Bidwell then dug into the deck approximately 1/2 inch, so the rescreeding operation was halted and the height of the Bidwell was adjusted. The pour continued and by the time adjustments were completed, the freshly deposited concrete was approximately 50 feet ahead of the Bidwell. At this point, Hubbard decided to leave the first 20 feet of the deck to be hand finished as he felt he may lose the concrete that had been pumped, but not screeded. The concrete finishers filled in and hand floated this area. When the Bidwell began screeding again, the same ridges and depressions noted above occurred. Hubbard then began spraying water on the fresh concrete in an attempt to get the Bidwell to roll up a bead of grout in front of the rollers as is normal during a screeding operation. This continued throughout the placement.

From Station 1312+70 to Station 1312+95, the finish was worse than in other areas. The depressions increased to over 1/2 inch depth, with several measuring 1 inch in depth. This concrete was deposited on the deck at approximately 3:00 a.m. Hubbard again had to move the screed ahead and leave the area with the deep depression as he would lose the concrete west of Sta. 1312+95 which had been pumped into place, but not screeded. During this period the work bridge was disabled for approximately 1 hour, preventing Hubbard from hand filling and finishing this area.

Concrete pumping was completed at 6:00 a.m. At 7:30 a.m., Hubbard began at the east end of the deck using 2 powered paddle floats in conjunction with a pressure sprayer applying water to remove the ridges and depressions. The paddle floats worked the area with the deep depressions between 9:00 a.m. and 9:45 a.m. and completed the west end of the deck at 10:30 a.m. Curing compound application began at the east end at 8:20 a.m. and was completed at 10:30 a.m.

The Department expressed its concern by letter on the date of the pour. On May 19, 1999, the Department notified Hubbard that the top of the deck must be removed and replaced to a depth 1 inch below the top reinforcing steel. Hubbard contends that the deck was basically satisfactory and is seeking reimbursement for the cost involved in the partial removal and replacement of the deck.

CONTRACTOR'S POSITION

Hubbard's initial position was set forth in their letter dated May 11, 1999. They stated that due to the sticky nature of the concrete mix, there were several areas where individual pieces of aggregate were either rolled or dragged by the roller on the Bidwell screed. Other than this, the deck was properly consolidated. They did have to use power trowels to complete the finishing and sealing of the surface, but they did not feel this has been detrimental to the work. The water used in their opinion was minimal.

"It is our position that no remedial work is required at this time. If as you state the upper surface is not up to strength, the grooving operation should bear this out. Until that time we know of no test that can prove or disprove your concerns."

After being informed by the Department on May 19, 1999, that the deck was unacceptable and the top portion had to be removed, Hubbard had their concrete supplier take a core from the deck. The result of a petrographic examination of this core was furnished to the Department on June 11, 1999. The report stated that the quality of concrete in the Park Road bridge deck was as designed with the exception of a 3 mm layer on the surface. The report recommended remedial work as follows:

1. Grind the Park Road deck below the 3 mm surface.
2. Groove the bridge deck as specified.
3. Apply a penetrating hardener.

DEPARTMENT'S POSITION

The Department contends that finishing of the concrete on the westbound Park Road bridge deck failed to meet the requirement of the specification to the extent that the durability of the deck surface would be adversely affected. The surface of the deck after screeding with the Bidwell was left irregular with an excessive amount of voided areas 3/4 inch to 1 inch deep. The attempts to correct these three defects consisted of spraying the concrete with large amounts of water and utilizing power paddle floats to work up grout after the concrete had taken its initial set. A few days after the pour, the Department took cores from the top section of the deck and the condition of a core taken at one of the holes confirmed their suspicions about the filling of the voids.

On May 19, 1999, the Department directed Hubbard to remove the top portion of the deck, citing the above deficiencies and Hubbard's failure to provide an acceptable repair procedure.

RECOMMENDATION:

Sub-article 400-7.15.3 Screeding in the 1994 Supplement to the Standard Specifications states *"The machine shall leave the surface of the concrete true to grade and crown and free of irregularities. The addition of water to the concrete surface to assist in finishing operations will not be permitted unless otherwise authorized by the Engineer. If the Engineer permits water to be added to the concrete surface, the only acceptable method of application will be approved power driven spray equipment producing a fog spray."*

The third paragraph of Article 5-3 Conformity of Work with Plans in the Standard Specifications states *"In the event the Engineer finds the materials or the finished product in which the materials are used, or the work performed are not in reasonable conformity with the plans and specifications and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor."*

It is obvious from the testimony and material presented that the Bidwell screed did not leave the surface of the concrete true to grade and crown and free of irregularities. It also appears that a considerable amount of water was added to the deck in order to correct this problem and that some of the finishing occurred after the concrete had taken it's initial set.

The Board feels that the above facts are reason enough for the Department to be concerned about the durability of the deck and require that corrective action be taken. Therefore, based on these facts, and the information provided by both parties, the Board finds that the Contractor is not entitled to compensation for replacement of a portion of the bridge deck.

Dolph Hanson, Chairman; Frank Proch, Member; Keith Richardson, Member

SIGNED FOR AND WITH CONCURRENCE OF ALL MEMBERS.



Dolph Hanson, Chairman