

DISPUTE REVIEW BOARD REPORT AND RECOMMENDATIONS

SH 13 Yampa River C-06-D Bridge Rehabilitation

Craig, CO

CDOT PROJECT NO. STA 0131-063

DISPUTE No. 1 –Delay and Contract Time - Merit

Hearing Date: January 23, 2018

Hearing Location: North Holly CDOT Office - 4670 Holly St, Denver, CO

Party Attendees: New Design Construction Company

Steve McWilliams – President

Rick Suer – Project Manager

Barry Ohlemeier – Project Manager

CDOT

Clint Moyer - Resident Engineer

Craig Black – Project Engineer (RockSol)

Pete Graham – Inspector (RockSol)

Bruce Tonilas – Schedule Support (HDR)

Laura Zamora – Area Engineer

Casey Hensley – Assistant Area Engineer

Roland Wagner – PEC Program Engineer

Leo F. Milan, Jr. – Senior Assistant Attorney General

Background

On March 3, 2015, New Design Construction Company (NDC) (Contractor) was awarded a Contract by CDOT for \$2,982,231.99 for the repair of existing bridge C-06-D over the Yampa River near Craig, CO. This bridge was identified as a scour critical bridge due to shallow foundations, which are scour susceptible, and an existing scour hole at Pier 3. The project was to transfer the load of the bridge from the shallow scour susceptible foundations to deep foundations that were designed to be founded below the design scour flow in underlying bedrock. The shallow foundations were then to be removed after the load transfer. Improvements included partial bridge deck replacement, bridge rail replacement, installation of new columns and caps at pier support locations, placement of riprap along embankment, guide bank reconstruction, guardrail, traffic control management, and signing and striping. A Notice to Proceed was issued on March 25, 2015 but work could not begin until after July 1, 2015. NDC began construction on July 27, 2015.

Section 8 of the Contract incorporates the Plans, the Standard Specifications for Road and Bridge Construction dated 2011 and any Special Provisions for this Project and Revised Standard Specifications.

NDC made multiple requests for the extension of Contract time, the last of which was submitted on November 30, 2016 and rejected by CDOT on December 22, 2016. NDC submitted a Request for Equitable Adjustment (REA) for an extension of Contract time on January 6, 2017 with supplemental information submitted on March 30, 2017. In April 2017, the Project Engineer (PE) found no merit in the REA except for 23 days for the early high water and 31 days for the Corps of Engineers (COE) permit impacts.

Since the parties were not able to settle the dispute, both parties requested a DRB Hearing on merit.

Joint Statement of the Dispute

COOT and New Design Construction (NDC) have initiated this Dispute Resolution Board (DRB) involving a bridge rehabilitation project south of Craig, Colorado on SH 13 over the Yampa River.

The project consisted of river caissons, encapsulating, reinforcing and stabilizing of existing pier walls and concrete deck work anticipated over two construction seasons July 2015 to November 2016. The project completion took longer than expected which was accepted on June 8, 2017, seven months past the contract completion date. CDOT and NDC disagree on responsibilities for the delay.

CDOT and NDC have agreed that early high water caused a cessation of work below the normal high water mark (NHM) due to flooding of the work area. CDOT acknowledged Force Majeure impacts of early high water as an excusable but non-compensable delay. NDC disagrees that CDOT granting 54 days for this event was sufficient.

NDC has taken the position that delays to the work preceding the flooding also was a factor for the project finishing late. CDOT agrees that delays prior to the occurrence of high water had a significant influence on project delays but does not agree that CDOT is culpable for the delays.

The scope of the dispute is \$107,500 of liquidated damages and \$441,768 of extra work and delay damages.

CDOT and NDC request a determination on the contract time portion of the dispute as a first step and, subject to such determination, evaluate the allowable compensation of the added costs as a second step to this process.

Pre-hearing Submittals

Both parties provided the DRB with Pre-hearing Submittals per Subsection 105.23(e) which included Position Papers and documentary evidence relevant to the issues. Both parties provided the DRB with their lists of attendees.

Summary of Contractor Presentation on Delay and Contract Time

NDC is asking for additional time for the following:

- Sonic ping testing of the caisson concrete and the excavation next to the caisson to investigate the concrete cover on the rebar. NDC's schedule expert made an analysis showing NDC was on time.
- Time to prepare the Project roadway for the winter shutdown and then to set the Project roadway back up in the spring.
- Time in the spring to complete Force Account work.

NDC referred to the Caisson Timeline (NDC Exhibit B1-2). NDC proposed raising the top of the caisson above the water but the design engineer said that was not acceptable. There was also a question before the work started on whether the caisson rebar was black bar or epoxy coated. While this was being settled the caisson drilling sub was delayed in coming to the project as scheduled.

The first issue centers on Caissons 4E and 4W which had to be completed in order to construct the new columns and pier cap. There was a problem with Caisson 4E which was poured on November 5, 2015 where there was some substandard concrete near the top of the caisson and the rebar cage was shifted to the side of the caisson. CDOT issued a Form 105 on January 12, 2016 (NDC Exhibit B35) that ordered some inspection and testing which is covered under Specification Section 105.16. NDC removed concrete on Caisson 4E to expose competent concrete and then poured a 4" cap. Sonic ping tests were then performed on the concrete and everything passed except for an area on Caisson 4E between 14 and 15 feet below the top of the concrete.

CDOT issued a Form 105 on December 11, 2015 (NDC Exhibit B35) that ordered NDC to excavate around the caisson to allow inspection of the caisson concrete and rebar cover. CDOT then sent an email on February 16, 2016 (NDC Exhibit B39). The trenching work was stopped when NDC felt the work was not safe. After discussions between NDC and CDOT and its engineers, CDOT directed that NDC perform pull tests on the vertical caisson rebar. It took some time to arrange for the pull tests and prepare the caisson for the test. The test required that the pull test show that the rebar was acceptable if it would achieve 80% of the rebar yield strength. All three rebar tests passed.

Specification Section 105.16 is clear that this inspection and testing should be paid for as extra work. CDOT paid some portion of the work but would not agree to more time. CDOT did not follow the spec concerning water in the caisson and the PE delayed in determining the amount of concrete overpour for the caisson concrete. NDC Exhibit A65 is the As-built Schedule and summarizes the delay. Digging the trench, exposing the caisson concrete and performing testing took 34 days. Caisson 4E was a problem and the water pumps were clogged with coal. Water removal was discussed three days before the caisson was drilled.

The Project was late in completing but NDC employed new innovative construction techniques like the platform for Wall 2 to overcome the problems due to the early high water in the Yampa River. NDC was within three days of completing the work in the water at Pier 4 when the Yampa went above normal flows. The caisson testing delayed the Project 37 days and pushed the Project into the 2016-2017 winter. NDC disagrees with CDOT not allowing time to shut the Project down for the winter and preparing to open the Project in the spring. NDC was not responsible for the early high water.

NDC had the highway open for Memorial Day on May 25, 2017 but had to perform some extra Force Account work after the weekend. The work platform that was needed for the Force Account work was not available from Structures, Inc. since another contractor was using it but released it for NDC to work over the weekend.

NDC has chosen not to get into the COE permit issue and is not asking for more time than what CDOT has offered. NDC questions whether the permit allowed the cofferdam to remain in the river beyond April 30, 2016. The high water came before the date for no work in the river. If NDC could have worked in the river to April 30, 2016, column 4E would have been complete. The actual removal of the cofferdam took seven days which also included some finish earthwork.

The Weekly Progress Meeting Minutes of April 7, 2016 (NDC Exhibit B83) discussed the high water and various work arounds. The river monitor which was a few miles away showed 6,000 c.f.s. flow but the cofferdam elevation was calculated based on 2,000 c.f.s. There was a phone call with COE personnel who were very hostile and pulled the permit. NDC performed a survey of the river after the water went down at COE's request. The reissue of the COE permit delayed the start of the work until after Labor Day. CDOT was the permit holder. CDOT and NDC tried to keep the Project on path. All that was needed was three days in April 2016 to get the work up out of the water.

Summary of CDOT Presentation on Delay and Contract Time

At the start of the hearing, CDOT handed out a PowerPoint presentation which had not been seen before by NDC. NDC reviewed the handout and was agreeable to using it for the hearing.

Project Special Provision – Commencement and Completion of Work states, *No work shall be done within the limits of Yampa River except from August 1st through April 30th*. CDOT's position is that there are three main "root causes" for the Project delay.

- Slow progress of the work as shown in the schedule analysis. Late starts and finishes pushed the project into winter. NDC's Method Statements showed work was anticipated in the winter.
- Quality issues at the caissons for Pier 4. The cofferdams also relate to this issue.
- Force Majeure – early high water event. This was out of the control of NDC.

It took three submittals from NDC to get an approved Baseline Schedule and many of the review comments were not corrected between submittals. The Baseline schedule showed NDC understood the work restrictions for work in the river. The Baseline Schedule had problems with constraints that affected the schedule float. The August 25, 2015 Schedule Update showed NDC was missing Critical Path items during a time when the weather was good. The September 25, 2015 Schedule Update showed several Critical Path items with negative float. The October 25, 2015 Schedule Update showed Pier 4 caissons were drilled on November 3-4, 2015 while the Baseline Schedule showed them being done on October 13-14 with no float. The November 25, 2015 Schedule Update showed many activities with negative float and NDC stated ... *it has become evident that NDC is going to need to make some changes in order to get the cofferdam work out of the water before the end of April*. The December 25, 2015 Schedule Update showed a substantial lack of progress on critical activities. Despite NDC's commitment to add resources, NDC did not meet any of the Critical Path dates in the update. A later update showed that nothing was critical in February which was not the case.

Based on CDOT's review of the December 25, 2015 Schedule Update, CDOT issued Form 105-14 that requested NDC to submit a compliant schedule. CDOT and NDC exchanged numerous comments and NDC submitted its consultant schedule which had been changed to a P6 format from the Microsoft Project format that NDC initially submitted. The consultant converted the schedule back to Microsoft Project but there were two important points regarding the new consultant schedule:

- The delay analysis ignored any delay before the caisson problems.
- The November 2015 update showed 18 days of negative slack (float). When the cofferdam constraints were removed, the Project Completion Date was February 23, 2017, or 70 days behind schedule.

The consultant used daily reports to develop the as-built schedule rather than the data that was submitted in NDC's schedule Updates. Activity durations were used from similar activities that were from less impacted periods and disregarded the slippage early in the Project. The consultant developed a new schedule and added logic to their non-impacted schedule. Using a data date of February 12, 2016, the consultant said the Project could be completed by November 18, 2016. The consultants schedule analysis was a highly subjective analysis that:

- Ignored delays before the caisson problem
- Attributed all the delays to CDOT
- Ignored project schedules
- Created a “but for” analysis that predetermined delays
- Selected portions of the work to as-built
- Used comparative durations instead of actuals
- “Added logic” achieved substantial completion by the contract completion date (CDOT only recognizes final completion)
- Did not account for 70 days of delay that NDC's schedule showed in November 2015

NDC's consultant stated, *After all the time and effort that was spent on investigating this caisson at the request of CDOT's engineers, there was no change or repair made to the caisson.* This is not correct. CDOT spent considerable time and money to find a solution to NDC's admitted significant deficiencies on the Pier 4 caissons and settled to pay for a deficient product. CDOT could have directed NDC to abandon the caisson and pay for a new design for the pier. CDOT presented Drawdown Summaries to show how NDC missed their original projections. CDOT said the caisson operation was a learning experience for NDC. Caisson 4E was the first and worst caisson and caisson 4W had issues but not as bad as 4E. Four of the other caissons were higher and drier. The geotechnical reports were accurate based on what was seen during the drilling of the caissons.

Specification Section 503.05 calls for a caisson rebar support system that is concentric and prevents the cage from racking or displacing. Specification Section 503.06 discusses the caisson casing removal with regard to concrete voids, the intrusion of water, caisson hole sloughing and rebar displacement. NDC used the wet hole method but could not get the casing socketed. The pumps clogged which slowed down the operations and there was lack of communications with the crane that was on the bridge deck. The casing was not removed vertically and caused the rebar cage to rack so that the cage was about 5” out of plumb. (CDOT had pictures of the caisson.) The casing kicked out which indicated there was probably lateral rebar cage movement down in the caisson. NDC tried to pull the cage over as much as they could which is not a good practice. The work was completed without good lighting for work that was completed after dark. The cofferdam did not stop water flow. The other pier caissons used flow fill to help seat and seal the caisson casing.

CDOT showed pictures of the top of caisson 4E. There was also a question of what the concrete and rebar condition was below where the trench was dug. CDOT notified NDC of corrective action but it took NDC 23 days to uncover the caisson for inspection. NDC was not proactive and was the main contributor to the caisson problem.

The original schedule showed six caissons being poured from October 14-26. It took 16 days for 4 caissons. There were problems with the water in the cofferdam. NDC discussed the cofferdam work with AMEC (CDOT designer) since the top of the cofferdam was 2½” low for April water flows. NDC added a membrane to the cofferdam but it was still filling. The other caissons used flow fill to help stop the water flow during caisson drilling which was discussed with NDC in October well before the problems with 4E. Caisson 4E was poured on November 5, 2015. On December 4, 2015 NDC started to uncover the top of the caisson. Repair work was not started until January 8, 2016. About 7 1/2” of concrete on the top of 4E was removed for the sonic testing but this did not show what the exterior concrete of the caisson looked like. CDOT tried to feel where the top of the concrete was located at the rebar cage. They discussed abandoning the caisson but AMEC said this would have required a major redesign of the rest of the pier and would take some time. The three pull tests all passed. CDOT decided that the caisson did not meet spec requirements but that CDOT would live with the corrected work.

CDOT went over the construction of the cofferdams. CDOT paid AMEC to evaluate the cofferdams to ensure they would resist normal high water but they were too low.

Starting on April 8, 2016, the river flow was higher than the normal flow. The flows continued above normal until about April 23. After the survey was done after the high water went down, it was estimated that 485 CY was lost from the cofferdams and another 116 CY from the banks. COE did not issue a notice of violation.

Delays to the Project were under the control of NDC. The caisson work that required inspection was due to problems NDC had in completing the caissons. The inspections indicated that repairs were required. CDOT relied on Project First and proceeded from January to March under trust. CDOT paid for part of the testing and the review of the cofferdam design. Specification Section 108.08(c) covers delays and CDOT believes that some of the delay was excusable but non-compensable. CDOT acknowledged the early high water in April as a force majeure. CDOT held the COE permit and acknowledged a delay while the COE reviewed the permit as a result of the overtopping of the cofferdams during the high water. General Condition No. 9 of the COE permit states, *The activity must be constructed to withstand expected high flows.* The cofferdams were not constructed for the high water flows. The permit also required the stabilization of soils but the high water removed some fines from the cofferdams. The Contract stated, *No work shall be done within the limits of Yampa River except from August 1st through April 30th.*

But for the high water, Column 4E could probably have been poured by April 30, 2016. The Project was 70 days behind schedule and there could have been concurrent delay with the COE permit issue. CDOT tried to work with NDC. NDC said they could work in the river in July 2016 but the Contract did not allow work in the river until after August 1. NDC did survey the cofferdams after the high water at the request of the COE.

In keeping with Project First, CDOT was willing to grant an additional 59 days of time. The early high water prevented NDC from working in the river from April 8 to April 30, 2015 (23 days), the COE permit delayed NDC from working in the river from August 1 to 31, 2016 (31 days) and NDC could not work over the Labor Day weekend (5 Days).

Contractor Rebuttal

NDC discussed the delay issues with CDOT through April 2016 and NDC's revised schedule showed Project Completion in May 2017. NDC's project manager and superintendent both quit due the schedule issues with CDOT. NDC gained time in the second half of the schedule and gained two months from improved activity durations. The whole schedule needs to be looked at.

It was difficult to understand what CDOT wanted in the schedules from the August 2015 Baseline to the September 2105 update. NDC could not get CDOT schedule approval. CDOT said the rejection was based on the Schedule Spec. NDC requested a conference to discuss the schedule. Although a conference was set up, it was later cancelled. NDC finally hired a schedule consultant so NDC could get paid. NDC sent CDOT a letter dated November 18, 2016 (NDC Exhibit L41) formally requesting a schedule review meeting in accordance with Specification Section 108.03(b).

NDC said they had worked on a much more complex project on Vail Pass and were not required to show the schedule detail that was required by CDOT on the SH 13 Project. What CDOT wanted was beyond the Spec requirements. There was no milestone date for work in the river. The Special Provision – Commencement and Completion of the Work only states when work cannot be done in the river but says nothing about leaving something in the river during that time. Project Special Provision – Revision of Section 208: Water Control states, *In no instance shall construction activities or equipment be allowed to work in the river except for dates outlined in the Commencement and Completion of the Work or as approved by the Engineer.* Specification Section 101.92 defines Work as *The furnishing of all labor, materials, equipment, and incidentals necessary to successfully complete the project according to all duties and obligations imposed by the Contract.* The COE permit allowed a period of 12 weeks for work in the river below the high water mark. NDC finally had to make an Open Records Request to get the COE permit. The COE permit was part of the Contract.

NDC tried to complete the work in the river per the Contract but the high water prevented them from working until after August 1, 2016. They had many meetings on the high water during the

shutdown but COE disagreed. They had 150 days of delay but are only asking for 37 days. There is no reason work could not have started in July 2016 on 4E. COE overreached and retaliated which caused significant disruption.

CDOT has a wet caisson spec and the PE directed the concrete overpour. They modified the process but the pumps plugged with coal from the caisson drilling. CDOT said NDC was not prepared. Everyone on the job was doing the best they could under the circumstances and it was a learning experience for all. The spec requires a concrete overpour of 1.5 caisson diameters which was not done.

The schedule showed a caisson duration of one day but NDC drilled a pilot shaft to determine the actual depth and then reamed out the hole and poured concrete the next day.

CDOT said there was negative float at some point in time but who gets to use the float first? A lot of time was used on the front end. NDC complied with the testing that CDOT requested. CDOT said that NDC's caisson planning was inadequate but there is no "perfect job". What is the statute of adequacy for a caisson and what are the requirements for caisson repair? The work was not perfect but it was adequate. The caisson is an important element of the bridge – if it's not done right, the job is not done. It took time to sort out what was required to use the caisson.

CDOT Rebuttal

Concerning the adequacy of the caisson, per the spec, the caisson could have been rejected and abandoned. CDOT went to the designer who decided he could live with the caisson with repairs. If the caisson was abandoned, the new caisson would have to be moved three caisson diameters which would have then required a complete redesign of the pier. CDOT looked for every way they could to accept the caisson. The hammer test showed the concrete inside the rebar cage was OK except for one anomaly.

The wet caisson spec requires a 25% increase in cement in the concrete. This causes the concrete to set up faster. By pulling the rebar cage over after all the time that had been spent, there was a question of rebar bond but the pull tests showed the rebar was OK. The caisson concrete with the voids and honeycomb could be accepted if the concrete was removed to where there was sound concrete and then repoured.

The issues surrounding the COE permit are not clear. The cofferdams could remain in the river as long as they withstood normal high water. The cofferdams were overtopped before the normal high water level as was shown on the CDOT graph. The COE said this violated the permit. NDC wanted to work in July 2016 but the contract did not allow work in the river until August 1. The COE did not give the new permit until the end of August 2016.

The Contract was a Completion Date contract. Per the spec, once the completion date is passed, the time changes to calendar days. NDC's scheduling consultant changed to the P6 scheduling program. The spec says the schedule program cannot be changed and NDC started with

Microsoft Project. The CDOT comments on the schedules were per the spec. The NDC constraints were not approved by CDOT.

It appeared that NDC was having problems in getting to an acceptable schedule. CDOT then met with NDC at the job and they sat down and “rolled up their sleeves” and got a Baseline Schedule. There was no milestone in the schedule for April 30.

Float is discussed in the spec but ownership means nothing when the float is negative and negative float needs to be analyzed.

CDOT said the Contractor needed to follow the specs on the caissons. The spec does not state who manages or directs concrete overpour. They tried to continually measure the height of the concrete below any water in the casing. When the caisson casing was pulled out, the concrete spilled out into the hole around the caisson and the pictures of the rebar cage showed how the rebar moved when the casing was removed. These were a cause of concern and an indication that there could be a problem with the caisson. The caisson drilling showed that the geology bores were accurate.

Discussions by Parties

1. NDC said their schedule consultant converted the schedule to P6 for his analysis but then changed the schedule back to Microsoft Project. Even after the redo, CDOT never accepted the schedule. Steve McWilliams suggested to Bruce Tonilas that John Unbewust be called on the schedule but he said no. NDC’s payments were being held up and it affected their cash flow. Bruce said he made comments on the schedule that were not corrected and no attention was paid to the Critical Path. Steve said the spec permitted a scheduling conference and CDOT’s refusal was a breach of contract. Bruce said Specification Section 105.14 describes PE authority. CDOT and their schedule consultant did meet with NDC.
2. NDC said CDOT directed them to dig the trench at caisson 4E but NDC stopped due to safety concerns. NDC chipped the concrete to show the honeycombed and pillowed concrete but shoring would have been required for NDC to go deeper. NDC exposed the rebar and repaired the concrete and then backfilled the hole with BZ concrete. The pull tests passed at 80% of the rebar yield (50,000 lbs. for 15 minutes).
3. NDC said the P6 schedule was used so their consultant could analyze the schedule and show acceleration. Bruce said the real delay was early in the Project but NDC did pick up schedule in the end. NDC said they accelerated due to the circumstances and spent money to do so once they could start work again.
4. CDOT said there were problems at Caisson 4E but questioned why NDC waited so long to investigate and repair the work. 4E was on the Critical Path. NDC said CDOT directed them to uncover 4E on December 11, 2015. At the time, NDC was doing other work. In retrospect, NDC should have started earlier but it was wintertime and the holidays were

approaching. They spent seven to eight days on chipping concrete. NDC said CDOT then directed them on February 16, 2016 to do more uncovering which is part of their time request. It was a mad dash to determine the pull test, get the equipment, prepare the concrete and then perform the pull test.

5. CDOT said there was maybe two months of acceleration to finally uncover and repair the concrete and install the trolley system from the deck. No work could be done on the deck until everything under the deck was done. The bridge designer allowed some load transfer changes so work could start early on the deck. NDC said they met with CDOT and showed them a schedule with a July 27, 2017 completion date. NDC finished on May 25 or June 8, 2017 depending on the extra work.

DRB Questions

1. **To Both:** Explain the winter shut down delay and why the difference between NDC and CDOT?

NDC said they stopped working in the river on November 24, 2016 and CDOT started the winter shutdown on December 3, 2016. The bridge was in a one lane configuration with traffic lights controlling the traffic. NDC had to remove the temporary barrier and restripe the roadway for two way traffic which took nine days. NDC did not want the winter shutdown. NDC took seven days to startup in the spring from February 27 to March 6, 2017.

CDOT said they needed people on site while the winter shutdown and startup work was being done and charged days per the Contract. CDOT did not charge time from December 3, 2016 to February 27, 2017. Time was charged from November 19, 2016 to December 3, 2016. CDOT said that NDC had safety concerns if the roadway was left in the one way condition during the winter. NDC worked the previous winter but the work was different. CDOT did not allow any days for the winter shutdown traffic realignment work.

2. **To Both:** Where does the COE Permit appear in the Contract?

CDOT said there is a reference to the COE 404 Permit in the Revision of Section 208 – Water Control which states, *All Contractor activities must be constructed to withstand high flows and must not restrict or impede the passage of flows.* CDOT Environmental considered a 12 week period of high flows. CDOT then added the provision of no work in the river except from August 1 to April 30.

3. **To Both:** Was the approved Baseline Schedule in Microsoft Project?

Both said it was in Microsoft Project.

4. **To CDOT:** Explain the time calculation on the Force Majeure slide on Page 19 of the CDOT handout that states 59 days were given to NDC.

April 4th - April 30th: 24 days.
August: 31 days and Labor Day weekend: 35 days

CDOT could not give an answer but sent an email to the DRB and all parties on January 30, 2018 with the following:

April - April 8 to April 30 -- 23 Days
August - August 1 to August 31 -- 31 Days
Labor Day -- 5 Days
TOTAL = 59 Days

5. **To Both:** Summarize the total delay days you have requested or approved.

NDC: Sonic ping test on caisson 4E	3 days
Caisson 4E investigating and testing	34 days
Prepare for winter shutdown	9 days
Startup after winter shutdown	7 days
Structural coating force account	<u>4 days</u>
TOTAL	57 days

CDOT: When a completion date is not met, the specs say time will be charged on a calendar day basis. The Project Completion Date was November 18, 2016 but the work was completed on June 8, 2017. CMO 009 granted a time extension of 146 days as follows:

Early high water	23 days
Winter shutdown	87 days
COE Permit issues + Labor Day	<u>36 days</u>
Total	146 days

The CDOT analysis results in the Contract Completion Date being extended 146 calendar days from November 18, 2016 to April 13, 2017.

6. **To Both:** Explain the parties' differences on the work that was performed after May 25, 2017.

NDC: The roadway was paved, striped and put into its final alignment on May 25, 2017. An operation continued for an extra work item of structural concrete coating on June 2, 3 and 4, 2017 due to the unavailability of an under bridge access platform until then. NDC considers the project complete as of May 25, 2017 but for the extra work item.

CDOT: The Contract does not recognize substantial completion but only Final Completion which was June 8, 2017. The coating was not extra work.

In CMO 008, CDOT changed the type of coating to latex rather than what was in the Contract and said the work would be done force account. NDC and CDOT argued over the costs so CDOT paid the original contract amount.

Findings

1. CDOT said during the hearing that there were delays early in the Project when NDC could have taken advantage of the good weather but those delays were not enumerated. By Contract, NDC could have started work July 1, 2015 but chose not to start work until July 27, 2015. NDC said that a question on the use of black rebar versus epoxy coated rebar delayed the start of the caisson work. This delay is not understood. Plan Sheet No. 33 – General Information in the General Notes states, *ALL REINFORCING STEEL SHALL BE EPOXY COATED UNLESS OTHERWISE NOTED. “N” DENOTES DENOTES NON COATED REINFORCING STEEL.* The rebar for the caissons as shown on Plan Sheet No. 42 does not have the “N” designation. Some early delays are enumerated in NDC Exhibit B1 – Caisson 4E Timeline but appear to be related to the epoxy rebar question, caisson lengths and the availability of the caisson drilling subcontractor since the original caisson drilling start was delayed due to weather and other issues.

NDC Exhibit B1 and the associated emails also indicate that there was a delay while the engineer determined the caisson lengths which resulted in the caisson lengths shown on Plan Sheet No. 35 being revised.

Based on the foregoing discussion and since the epoxy rebar issue was not discussed in any great detail in the Pre-hearing Submittals or at the hearing, the DRB cannot understand why there should be a delay due to the type of rebar for the caissons. Likewise, the caisson length issue was not discussed in any great detail in the Pre-hearing Submittals or at the hearing. Accordingly, the DRB cannot make a determination on any delay associated with the caisson length issue.

2. The problems associated with the drilling and pouring of Caisson 4E are the result of NDC’s lack of understanding of caisson construction in areas with flowing water, inadequate planning for such construction and questionable operations once the construction started. From the emails contained in NDC Exhibit B where NDC asked to raise the top of the caisson, it appears NDC had some concerns with the caisson construction.

It should be noted that Caisson 4E was the first of the six caissons to be constructed. Some of the problems continued on the construction of Caisson 4W but to a much lesser degree. The remaining four caissons were constructed without the same major difficulties that were experienced on Caissons 4E and 4W but the construction methods were changed by using a

flow fill material to help seat the caisson casing and CMP sections were used to provide a workable excavation in the material between the river bottom and the top of the caisson.

During the hearing, CDOT said the flow fill seal was discussed with NDC in October which was prior to Caisson 4 E construction.

The pictures that were submitted in both parties' Pre-hearing submittals, some of which were shown in the hearing, clearly show that the top of caissons 4E and 4W did not meet the Contract requirements and that corrective work was definitely required. On December 11, 2015, CDOT issued a Form 105 (NDC Exhibit B 35) with the subject "Inspection of Caissons and Plan for Repair as Necessary" to which NDC replied on December 14, 2015, *New Design Construction will be providing the required plan, methods and schedule as stated above.* CDOT directed NDC to do some concrete removal for further concrete inspection and ultimately directed NDC to perform Echo/Pulse Echo Type NDT on the concrete (CDOT Form 10 - #12 dated January 12, 2016) (NDC Exhibit B 36). After considerable discussion between the parties, it was also decided to perform a pull test on the rebar (NDC Exhibit B52). Both tests passed.

At the hearing NDC stated that CDOT paid for some of the testing and NDC took the position that they should also receive time for the testing per Specification Section 105.16 - Inspection and Testing of Work which states, *If the work thus exposed or examined proves acceptable, the uncovering, removing, or restoring the work will be paid for as extra work.* Specification Section 104.03 - Extra Work makes no mention of time.

Specification Section 105.17 – Removable of Unacceptable Work and Unauthorized Work states, *Unacceptable work is work that does not conform to the requirements of the Contract. Unacceptable work, resulting from any cause, found to exist prior to the final acceptance of the work, shall be removed and replaced in an acceptable manner at the Contractor's expense.*

Specification Section 105.03 - Conformity to the Contract states, *All work performed and all materials furnished shall conform to the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown in the Contract. ...When the Engineer finds that the materials furnished, the work performed, or the finished product does not conform with the Contract but that reasonably acceptable work has been produced, the Engineer will determine the extent the work will be accepted and remain in place. If accepted the Engineer will ... (3) in lieu of a price reduction, permit correction or replacement of the finished product provided the correction or replacement does not adversely affect the work.*

Specification Section 108.08(c) – Delay defines Delay as follows:

1. ***Excusable Delay:*** *A delay that was beyond the Contractor's control and not caused by the Contractor's fault or negligence, and for which a contract time extension may be granted.*

2. ***Nonexcusable Delay: A delay that was reasonably foreseeable or within the control of the Contractor*** (emphasis added) *for which no monetary compensation or contract time extension will be granted.*

The following discusses the delay in starting repair work on Caissons 4E and 4W. NDC's Schedule Update of October 25, 2015 showed Pier 4 was on the Critical Path and showed negative float. Although Caisson 4E was placed on November 5, 2015, the correction and inspection work was not started until December 9, 2015 and continued until January 5, 2016 as shown on NDC As-Built Schedule (NDC Exhibit A 65). It should be noted that per Specification Section 108.08 that NDC was not allowed to work the Thanksgiving Day Holiday November 24-27, 2015), the three day Christmas Holiday (December 24-26, 2015) and the New Year's Day Holiday

(December 31, 2015 – January 2, 2016). Nothing was presented in the Pre-hearing Submittals or during the hearing that indicated NDC was nonresponsive during the period the testing was discussed and performed. CDOT pointed out on its Slide 39 that *Five months from initial caisson completion, to final backfill, is inexcusable, per 108.08*. CDOT could not understand why NDC delayed so long in exposing Caissons 4E and 4W to determine what might have to be done to the caissons.

NDC stated during the hearing that they were within three days of having the work done that would have had them out of the river when the high water came early an April 8, 2016. It appears to the DRB that if NDC would have immediately looked into the inspection and uncovering of Caissons 4E as soon as they were aware of obvious problems instead of waiting 33 days (November 6 to December 8, 2015) since NDC knew Caisson 4E was on the Critical Path and assuming all other conditions and operations remained the same, NDC could have been out of the river when the high water came.

Based on the foregoing discussion, the DRB finds that the delay caused due to the non-conformity of the caissons, including the testing, was due to inadequate planning and execution by NDC which was within the control of NDC. Accordingly, NDC's request for additional time of 37 days for the sonic testing, exposing the concrete for inspection and repair and the rebar pull tests is without merit.

3. NDC did not address the time issue for the early high water that prevented NDC from continuing work in the river; however this was a time extension that was addressed by CDOT and was used in CDOT's calculation for the total time extension. CDOT stated the early high water was a Force Majeure event from April 8 to April 30, 2015, a total of 23 days. **The DRB agrees with the time extension offered by CDOT.**
4. During the hearing, NDC said they chose not to get into the COE permit issue and is not asking for more time than what CDOT has offered. However this was a time extension that was addressed by CDOT and was used in CDOT's calculation for the total time extension. CDOT stated the issues concerning the COE permit was a Force Majeure event from August 1, to August 31, 2016 (31 days) and added the time NDC could not work over the Labor Day

weekend (5days), for a total of 36 days. **The DRB agrees with the time extension offered by CDOT.**

5. The parties discussed their positions on the winter shutdown in the answers to DRB Question 1 above. NDC's REA requested a 102 day time extension for the winter shutdown. CDOT Response to REA (NDC Exhibit J) under Section E - Winter Shutdown Impacts, stated it issued Form 105 #34 on November 28, 2016 agreeing to suspend time during the winter from December 3, 2016 until March 1, 2017. CDOT went on to state:

During the discussions about safety concerns and a possible winter shutdown, NDC did not identify, or request, additional time or cost for the winter shutdown. In fact, CDOT assumed that the winter shutdown and time suspension would benefit NDC by eliminating the need to work during the winter at reduced rates of productivity and by not charging time during that period.

In their December 2, 2016 job progress narrative, NDC stated:

Due to previous delays on the project, NDC worked later into the work season than anticipated. This has resulted in the need for NDC to provide provisions for concrete pours during colder weather.

And:

These winter weather precautions added extra work and cost to the concrete activities during this schedule update period.

CDOT interpreted these statements as addressing work that was performed by NDC to complete and button up the Project before the agreed winter shutdown and not work that was made necessary because of the winter shutdown.

CDOT's position and response to this allegation are as follows:

Regarding the request for 102 additional calendar days, this request is denied. The time was suspended; therefore, no additional time is justified.

Regarding the request for five days of delay for the reinstallation of traffic control devices, this is dependent on a determination of responsibility for other alleged delay issues in the REA. If no CDOT responsibility can be determined, then this request is denied.

NDC's As-Built Schedule (NDC Exhibit A 65) shows that the Prep for Winter Alignment was completed on November 23, 2016 which was the day before the Thanksgiving Holiday. However, in response to DRB Question 1 above, NDC said it took them nine days to prepare for the winter shutdown which is confirmed in the following statement in the NDC Position Paper, *NDC has added days for the winter shutdown activities showing November 24, 2016*

*as the end of construction **but for** (emphasis added) the winter shutdown alignment activities.* Also, during the hearing, both parties stated the Project work resumed on February 27, 2017 when NDC began work on traffic control to begin work on March 6, 2017.

Finding 3 above, discusses the delays due to the caisson problems. Had NDC acted promptly when the caisson problem was first known, NDC would have been out of the river at the time of the high water and, more than likely, the winter shutdown would not have been required. **Accordingly, the DRB finds that the time to set up for the winter shutdown and the time to prepare the Project for work in the spring is NDC's responsibility.**

6. NDC's As-Built Schedule shows the paving was completed on May 25, 2017. During the hearing, NDC said they were done with everything but the Force Account Structural Coating work by May 25, 2017 and the highway was open for the Memorial Day weekend. It should be noted that per Specification Section 108.08 that NDC was not allowed to work the Memorial Day Holiday (May 27-29, 2017). NDC's position is that the Force Account Structural Coating work is extra work and that they should not be charged time to complete the work.

CDOT said CMO 008, signed by CDOT on May 18, 2017, merely changed Contract Item 601-40300 – Structural Concrete Coating (Elastomeric Polymer spray-applied membrane coating) to Sherwin-Williams D.O.T. Texture Acrylic Coating which was to be done on a Force Account Basis. As was noted during the hearing, NDC and CDOT argued over the costs so CDOT paid the original contract amount.

NDC said they were delayed in completing the coating because the work platform that was needed was not available. NDC's Position Paper states, *CDOT continued time count after the roadway was paved, striped and put into its final alignment on May 25, 2017. A weekend operation continued for an extra work item of structural concrete coating on June 2, 3 and 4, 2017 due to the unavailability of an under bridge access platform until then. NDC considers the project complete as of May 25, 2017 but for the extra work item.*

Specification Section 108.08 (c) states:

*Delays in delivery of materials or fabrication scheduling resulting from late ordering, financial considerations, or other causes that could have been foreseen or prevented will be considered nonexcusable delays. However, delays caused by fuel shortage or delay in delivery of materials to the Contractor due to some unusual market condition caused by industry-wide strike, national disaster, **area-wide shortage** (emphasis added), or other reasons beyond the control of the Contractor which prevent procurement of materials or fuel within the allowable contract time limits will be considered excusable delays.*

There is nothing in the Pre-hearing Submittals or that was presented in the hearing to indicate when the concrete that needed to be coated was ready to receive the coating. Also, there is nothing in the Pre-hearing Submittals or that was presented in the hearing to indicate what was done from June 5 to 8, 2017 that delayed the acceptance of the Project. **Accordingly, if the coating could have been completed on or before the completion of the roadway paving and related work, but for the work platform availability, the DRB finds that time should be extended from May 25, 2017 until June 4, 2017 in accordance with the area-wide shortage discussed in Specification Section 108.08(c) above. The DRB does not have the information to comment on the period from June 5 to 8, 2017.**

The DRB finds that there is no merit in NDC's position that the coating work was extra work.

7. Standard Special Provision: Revision of Section 108 – Project Schedule adds a new Specification Section 108.03 that clearly defines what is required for an acceptable schedule, schedule updates and schedule revisions. Revised Specification Section 108.08(b) states, *The Contractor's selection and use of a particular scheduling software cannot be changed after the first schedule submittal.* Specification Section 108.08(d) – Extension of Contract Time discusses delays and schedule requirements. Specification Section 108.08(b) - Completion Date Contract states, *If all work under the Contract is not completed on or before the specified completion date, contract time will be assessed for each additional calendar day in accordance with subsection 108.8 (a) 2.* Subsection 108.08 (a)2 – Calendar Day Contract defines how time will be charged as follows:

*When the work is on a calendar day basis, one calendar day of contract time will be assessed for each calendar day from the date that Contract time starts including Saturdays, Sundays, and holidays. **Less than full time charges may be made on those days when conditions, which are beyond the control of and unknown to the Contractor, make it impossible to prosecute the work on items controlling the completion of the work with full, normal efficiency** (emphasis added). *Less than full time charges may be allowed for inclement weather only when the Engineer directs the Contractor not to work for the safety of the traveling public. When less than full time charges are to be assessed, the following procedures will be followed: One whole day of contract time will be assessed for each calendar day on which the work is prosecuted during six hours or more of the Contractor's daily working schedule; one-half day will be assessed for each calendar day on which the work is prosecuted for at least two hours but less than six hours of the day; contract time will not be assessed when the work is prosecuted for less than two hours.**

There was nothing in the Pre-hearing submittals or presented at the hearing that showed how CDOT charged time per the above requirements.

Based on the Pre-hearing submittals and the schedule information that was presented at the hearing, there is no way for the DRB to properly analyze the delays by using the schedules

that were contained in the Pre-hearing Submittals. NDC did not demonstrate delays to the schedule as required in Specification Sections 108.03(i) and 108.08(d)(4) and attempted to change the scheduling software to analyze and demonstrate its delays. NDC's REA only requests days for each delay it said it encountered. Likewise, CDOT and its consultant looked at the number of days that it agreed delayed the work beyond the control of the NDC. **Accordingly, the DRB's Recommendations will be based on only individual delays and not the required schedule analysis and assume that the delays affected the Critical Path if they could have been analyzed.**

Recommendations:

1. As discussed in Finding 1 above, the DRB cannot make a determination on any delay associated with the caisson length issue. CDOT and NDC should have further discussions concerning the caisson length issue, in order for a satisfactory determination to be made as to the merit of NDC's claim of being delayed in starting the caisson drilling awaiting directions from the designer on the caisson lengths.
2. As discussed in Finding 1 above, the reason for the epoxy rebar issue is not clear to the DRB. CDOT and NDC should have further discussions concerning this issue, in order for a satisfactory determination to be made as to the merit of NDC's claim of being delayed in starting the caisson drilling.
3. As discussed in Finding 2 above, the additional 37 days requested by NDC for the caisson inspection, testing and repairs has not been justified and is without merit.
4. As discussed in Finding 3 above, the High Water Force Majeure time extension of 23 days is considered by the DRB to be appropriate.
5. As discussed in Finding 4 above, the COE Permit Force Majeure time extension of 36 days is considered by the DRB to be appropriate.
6. As discussed in Finding 5 above, the winter shutdown period occurred from December 3, 2016 thru February 27, 2017, so it is appropriate that time was suspended during this period. The traffic control and preparation activities preceding and succeeding the winter shutdown were necessary to safely implement the shutdown, and were the responsibility of NDC. Therefore, there is no merit to NDC's request for 16 days to perform this work.
7. As discussed in Finding 6 above, there is no merit in NDC's position that the coating work was extra work. However, the DRB recommends that CDOT add a time extension of 10 days from May 26 – June 4, 2017 due to the non-availability of the work platform. CDOT and NDC should have further discussions concerning the additional four days from June 5 – 8, 2017 in order for a satisfactory determination to be made as to whether a time extension should be granted for these days.

8. As discussed in Finding 7 above, CDOT and NDC should review the days charged by CDOT after November 18, 2016 to make sure the days comply with the requirements of Specification Section 108.8(a)2.
9. Should CDOT and NDC not be able to resolve the possible delays or time counts discussed in Findings 1, 2, 7 and 8, the parties may request that the DRB review these delay and time issues in greater depth provided the parties submit additional adequate information for the DRB to review.

Respectfully submitted this 16th day of February 2018.



Thomas Stratford



Champney A. McNair, Jr.



W. H. Hinton II