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MEETING MINUTES

Project Name/No.:	Brookfield BRF FLR(2)	
Meeting Location:	Kenway Corporation, Augusta, ME	
Meeting Date/Time:	July 29, 2014 1:00 PM – 2:00 PM	
Attendees:	Jake Marquis, Kenway Corporation Josh Olund, T.Y. Lin International	Joel Silk, Golder Associates
Prepared by:	Josh Olund, T.Y. Lin International	

A meeting was held between VTrans representatives (TY Lin International and Golder Associates) and Kenway Corporation to further discuss items identified in Pontoon Fabrication Non-conformance Report #2. This document summarizes discussions held.

The bending issue of the vertical pontoon wall between adjacent rafts was further described by Jake. This issue arises from a larger than anticipated fillet of resin forming on the inside corner of the vertical and horizontal walls. This resin rich fillet has a higher shrinkage behavior than the typical fiber reinforced portions and therefore the fillet 'pulls' the two walls together and reduces their opposing angle from 90^{o} to a slightly lesser value. The shrinkage distortion caused by the resin rich fillet results in the top of the vertical wall rotating inward uniformly by approximately 3/8" after releasing the vacuum. The bottom corner where the vertical and horizontal walls meet is not moving.

Jake went on to note that, through clamps near the top of the vertical wall and use of timber bracing, the vertical walls are brought back to near plumb, but the top of the vertical wall is still tipped in about 1/4" max midway between transverse stiffeners. With both pontoons 1 and 2 having similar distortions, a gap will be present when the two pontoons are paired to form a raft. This gap is planned to be filled as outlined in the NCR.

Jake noted that Kenway is looking in to a number of options to reduce the fillet size and initial shrinkage movement of the wall as well as looking in to the addition of FRP stiffeners instead of timber bracing to maintain tolerances. Josh noted that changes to fabrication need to be documented in a revised set of Fabrication Drawings and submitted for approval – this can occur concurrently with review of the NCR.

Jake also presented an idea to extend the cure time under vacuum to help maintain straightness during the initial shrinkage period. He noted pontoon 2 was held about 10-12 hours longer than pontoon 1 (due to work schedules) and resulted in slightly less shrinkage deformation

The 'match casting' procedure for the interface between pontoons 1 and 2 was discussed. This is accomplished by creating a putty mixture of resin and short fiber strands. This 'putty' will be prepackaged as noted in the NCR. Josh noted there is a concern over being able to completely fill the void between pontoons since the putty is gravity applied (poured) in to the void. A method to ensure complete coverage should be identified. Jake also noted he has inquired with vendors on strength properties of the 'putty'.

The lengths of pontoons 1 and 2 were discussed. These pontoons are slightly shorter than required by the project. The idea of hand-laying additional laminates to the end flanges in an effort to meet geometric requirements was discussed. Josh noted that the hand-laid plies would not result in added structural length and therefore the effort does not seem warranted. Josh reminded Jake of the overall floating span tolerance and suggested that this perhaps be met by increasing the lengths of the remaining 4 rafts by approximately 1/8" each.

Also during the meeting, Jake noted that Kenway is looking in to using a combination of spray-applied foam and prefabricated foam blocks to speed up the fabrication process. If a change is planned for implementation, VTrans should be made aware ahead of incorporation for concurrence.

Josh observed that the flanges of pontoon 1 (top flange primarily) was quite wavy and also does not seem to meet tolerance. Jake noted that the flange minimum thickness meets design and the flatness can be corrected using methods similar to the match casting process. Josh noted that the steel plates bolted to the FRP member should have uniform contact and that a previous concern had been raised in that a double nut may not have enough bolt grip – the thickened plates may worsen this concern.

Josh noted that all aspects of pontoon 1 and 2 which do not meet tolerance should be logged in their entirety in a single location. This includes global tolerances as well as more localized tolerances such as the flange flatness noted previously. Joel also noted pontoon 1 had a 'dry spot' in the corner of the hull flange (outer lip). This was repaired in accordance with Kenway's Quality Plan.

Josh noted that this meeting was a first step toward better understanding the issues at hand and what is being requested in NCR #2. Final decisions with regards to NCR #2 will be forthcoming.

This is my (Josh Olund's) account of the meeting. Please send comments/questions by July 31, 2014 to jolund@tylin.com or by calling 207-347-4339.