

3.4 Hydrology

3.4.1 Construction

The Brunswick River and Marshalls Creek have extensive floodplains, and it was a requirement that the Upgrade did not impact the flood levels upstream or downstream for flood events up to and including the 1 in 100 year flood event. A long history of flood events at Billinudgel and Ocean Shores/New Brighton had raised the community's concern with regard to this issue, particularly as flooding of Billinudgel occurs regularly.

Hydrological modelling was undertaken to ensure that the design would not worsen the flooding in the area. Presentations were made by the project engineers in charge of this aspect of the design to the Community Liaison Group (CLG) during the early stages of the construction phase. Considerable concern was expressed with regard to the data used to calibrate the computer model and, following a later flood event, confirmation as to what height a 1 in 100 year event represented.

A significant flood event in June 2005 allowed the model prepared for the project to be more accurately calibrated. This event resulted in some small-scale changes to increase the stream cross-section in the Marshalls Creek Overflow. The model confirmed that the town's flooding issues were predominantly due to the railway culvert, and the town being located within the Marshalls Creek floodplain. Whilst not necessarily providing the residents with reassurance with regard to future events, it helped explain the locally complex flood behaviour, and validated the designers' opinion that the design would not impact the flood levels upstream or downstream of the Upgrade.

During the construction phase fill was required to be placed within the floodplain in order to provide access for the large piling rigs. The potential for consequent upstream flooding was highlighted and, whilst reassured by modelling that this was not the case, a commitment was made by Abigroup to remove the fill progressively. No flooding resulted from the construction activities.

3.4.2 Operation

The design engineers are confident that the project will not worsen the flooding upstream or downstream of the Upgrade.

Some localised flooding has been associated with roadworks undertaken in Riverview Crescent behind the Ferry Reserve Caravan Park. Abigroup have since made some alterations to the drainage system, and Byron Shire Council is awaiting further rainfall events to confirm that this has addressed the problem.

3.4.3 Learnings

Good communication is required to address such issues to the point where the community feels confident with the advice being provided. Having the specialists available to both present and answer questions on several occasions was important, and lead to a satisfactory outcome for all involved.