





Impact on Peak Flow Velocity

Difference mapping was also generated to quantify increases in peak flow velocities that could arise as a consequence of the proposed cut and fill scenario.

The velocity difference map that was generated for the maximum design 100 year recurrence flood is presented in **Figure 4**. It shows that the proposed cut and fill scenario will increase peak flow velocities within the Riverstone West Precinct and across small areas to the south and west of the Precinct.

The maximum velocity increase is predicted to be about 0.1 m/s, which occurs in the vicinity of the southern boundary of the Precinct near Garfield Road West. However, this increase is located within the Precinct adjacent to the development footprint.

At other locations outside of the Precinct, increases in flow velocity will be less than or equal to 0.05 m/s (*refer Figure 4*). These increases are considered to be very minor and are unlikely to manifest as any measurable change in flood behaviour or flood hazard.

2. Flood Scenario 2 – Design 100 Year Recurrence Flood with a 5 Year Recurrence Tailwater Level

The flood investigations also considered the potential for the proposed cut and fill scenario to adversely impact on flood characteristics (*i.e., peak flood level and peak flow velocity*) in a design 100 year recurrence flood with a 5 year recurrence Hawkesbury River tailwater level. This was undertaken to ensure that consideration was given to major flooding of Eastern Creek where relatively minor flooding of the Hawkesbury River occurred. The results from this additional analysis are outlined in the following.

Impact on Peak Flood Level

A flood level difference map was generated to show the predicted increase in peak flood levels for this scenario under post-cut/fill conditions based on Revision 12 of the ILP. The flood level difference map is presented as **Figure 5** and shows the location and magnitude of predicted changes in peak flood level.

As shown, some minor increases in flood level will occur across a very localised area within the precinct.

However, the proposed cut and fill scenario will not result in any increases in peak flood level across adjacent properties. That is, no off-site increases in peak flood level are predicted for this scenario. Rather, peak flood levels are expected to decrease by up to about 60 mm across areas to the west of the precinct.

Impact on Peak Flow Velocity

A velocity difference map was also generated to show the predicted increase in peak flow velocities under post-cut/fill conditions for this flood scenario.

The velocity difference map is presented as **Figure 6** and shows the location and magnitude of predicted changes in peak flow velocity. It shows that the proposed cut and fill will increase peak flow velocities across areas within the Riverstone West Precinct.

The maximum increase in flow velocity is predicted to be about 0.6 m/s. This is predicted to occur within Lot 11 DP 816720 on the eastern overbank of Eastern Creek near the southern

FIGURE 4

