

4.3. Marsden Bay

Maps of predicted inundation depth and maximum water speed for Marsden Bay are presented in Figures 11-16. Inundation from the South American tsunami is evident in Marsden Bay and land to the east of the marina (Figure 11). Current speeds in Marsden Cove reach up to 1.5 m s^{-1} , reaching up to 3 m s^{-1} in the Whangarei Harbour channel. When sea level rise is included in the scenario (Figure 12), there is an increase in depth and in the extent to which the inundation reaches inland around the Marsden Cove Marina and land to the east of Marsden Cove.

The TKSZ M_w 8.5 scenario results in inundation on the east side of Marsden Bay (Figure 13). Current velocities in the channel reach 1.5 m s^{-1} . In Marsden Bay, the maximum current speed is 0.8 m s^{-1} . Sea level rise causes an increase in the extent and depth of the inundation east of the Marina (Figure 14).

The TKSZ M_w 9.0 scenario produces inundation throughout Marsden Cove; inundation extends over the land either side of the marina entrance (Figure 15). Current speeds reach up to 1.5 m s^{-1} in Marsden Bay and the harbour channel. Depth and extent of inundation increases when sea level rise is included in the modelled scenario (Figure 16).

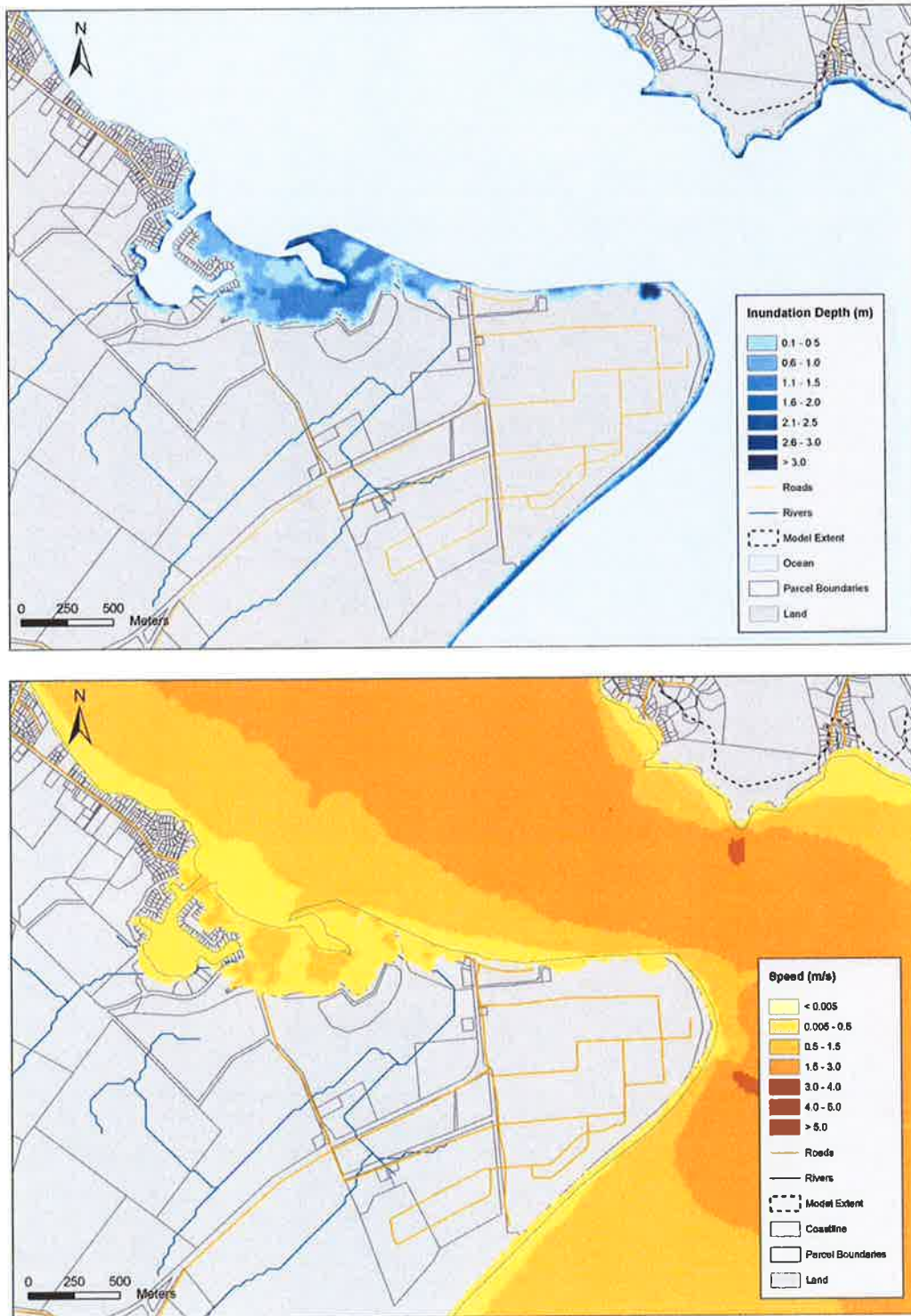


Figure 11: Marsden Bay: maximum inundation depth (upper) and speed (lower) plots for the South American tsunami scenario at MHWS (to extent of LIDAR) in Whangarei Harbour.

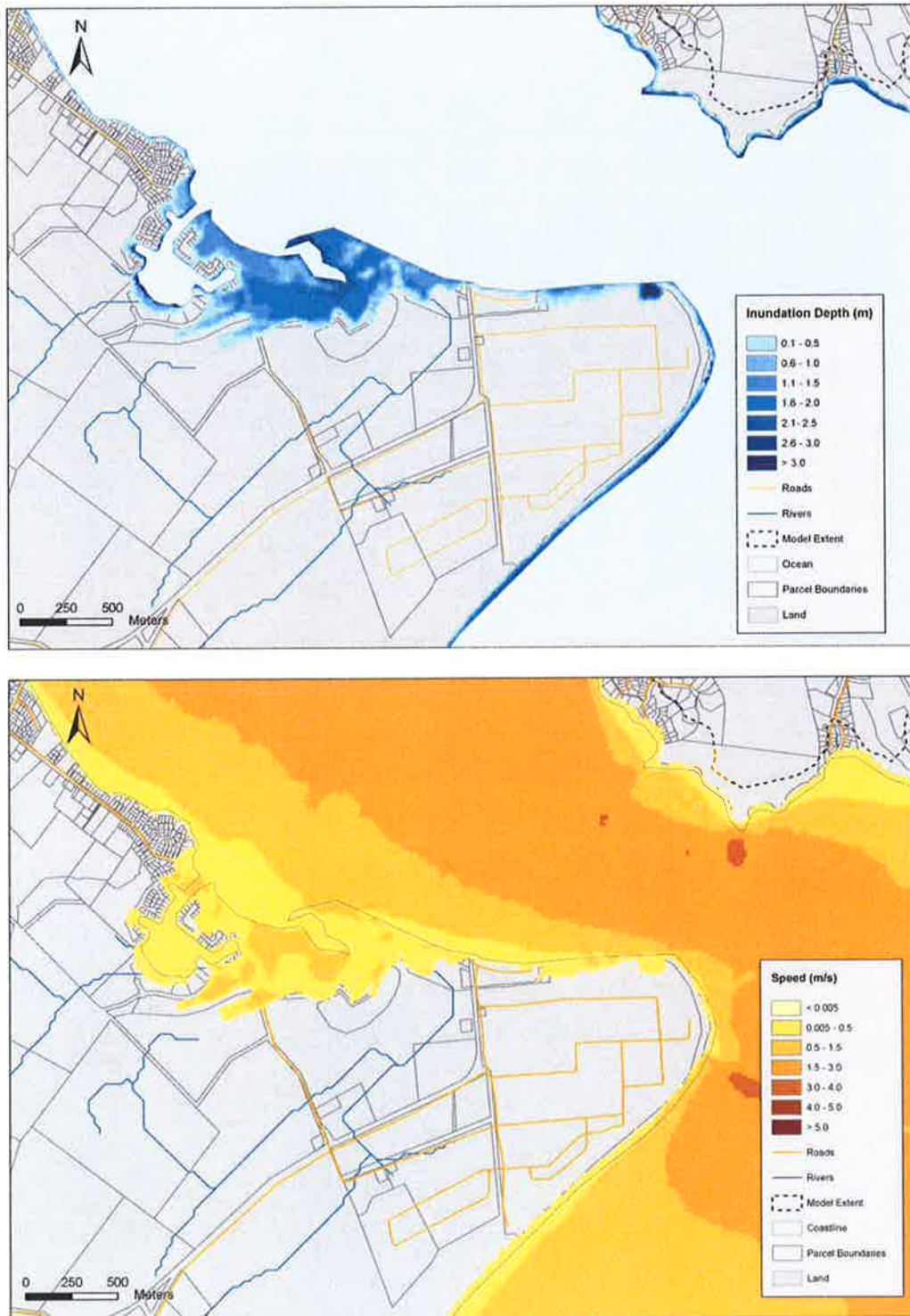


Figure 12: Marsden Bay: maximum inundation depth (upper) and speed (lower) plots for the South American tsunami scenario at MHWS + 50cm (to extent of LIDAR) in Whangarei Harbour.

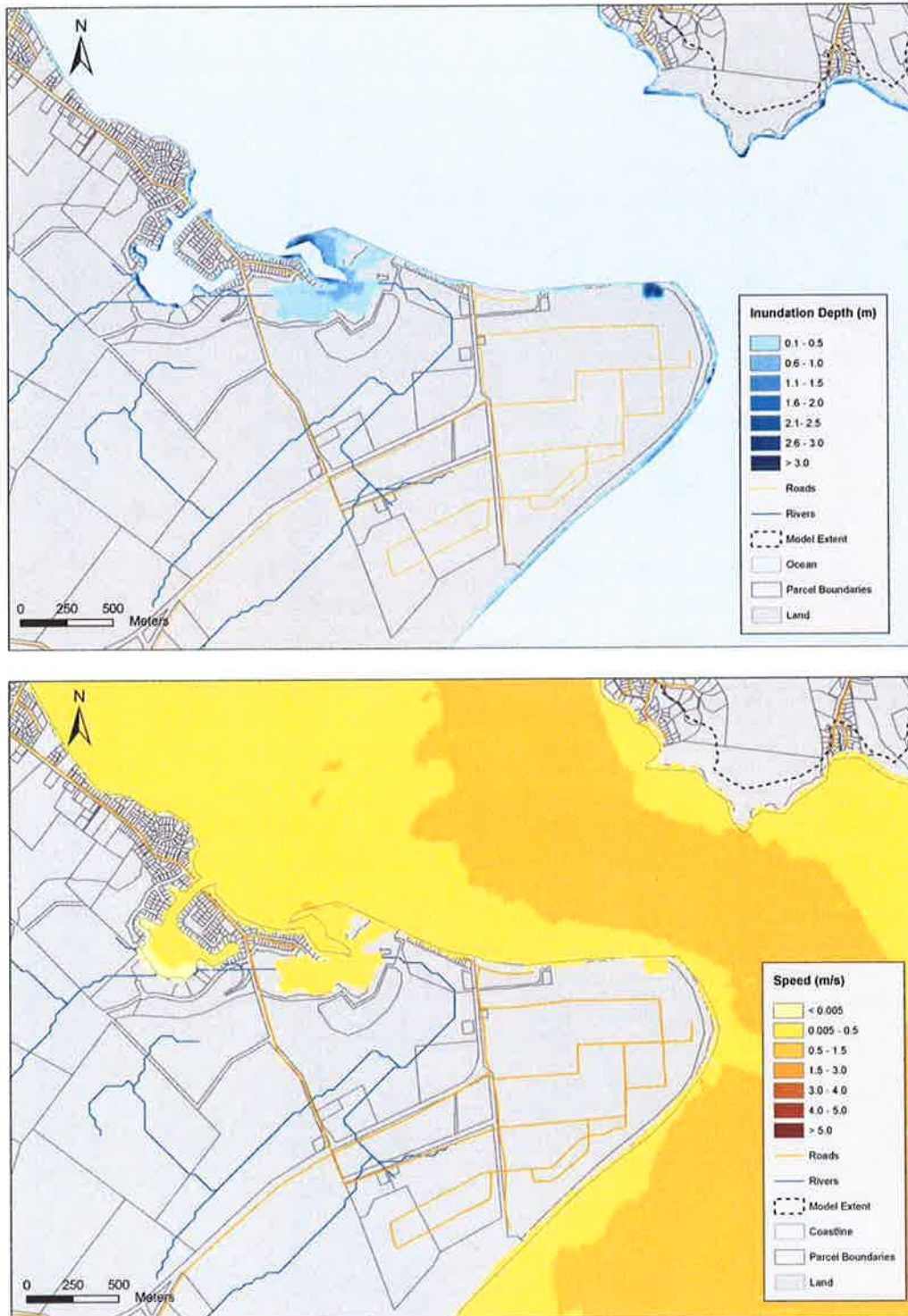


Figure 13: Marsden Bay: maximum inundation depth (upper) and speed (lower) plots for the M_w 8.5 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LIDAR) in Whangarei Harbour.

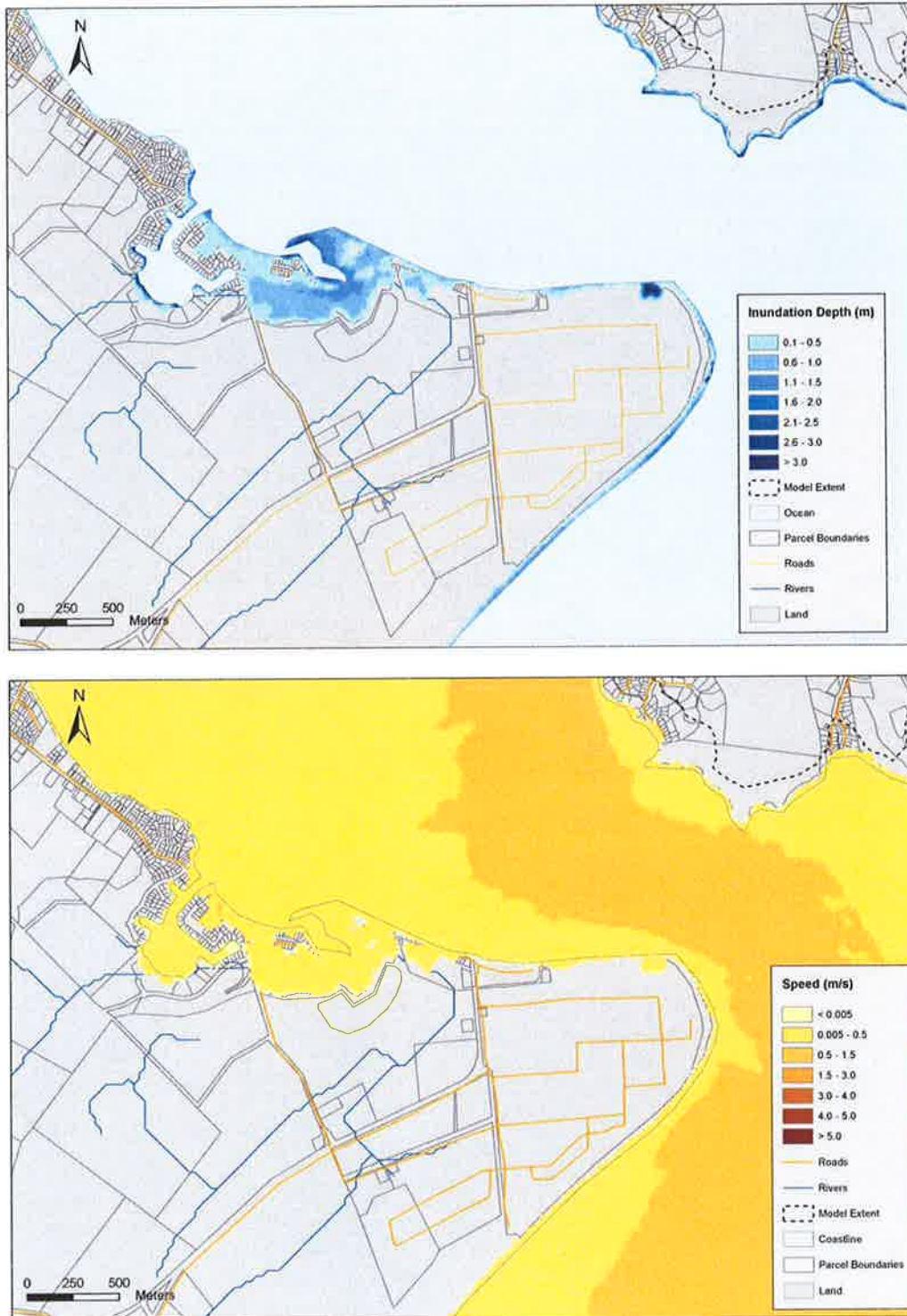


Figure 14: Marsden Bay: maximum inundation depth (upper) and speed (lower) plots for the M_w 8.5 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LIDAR) in Whangarei Harbour.

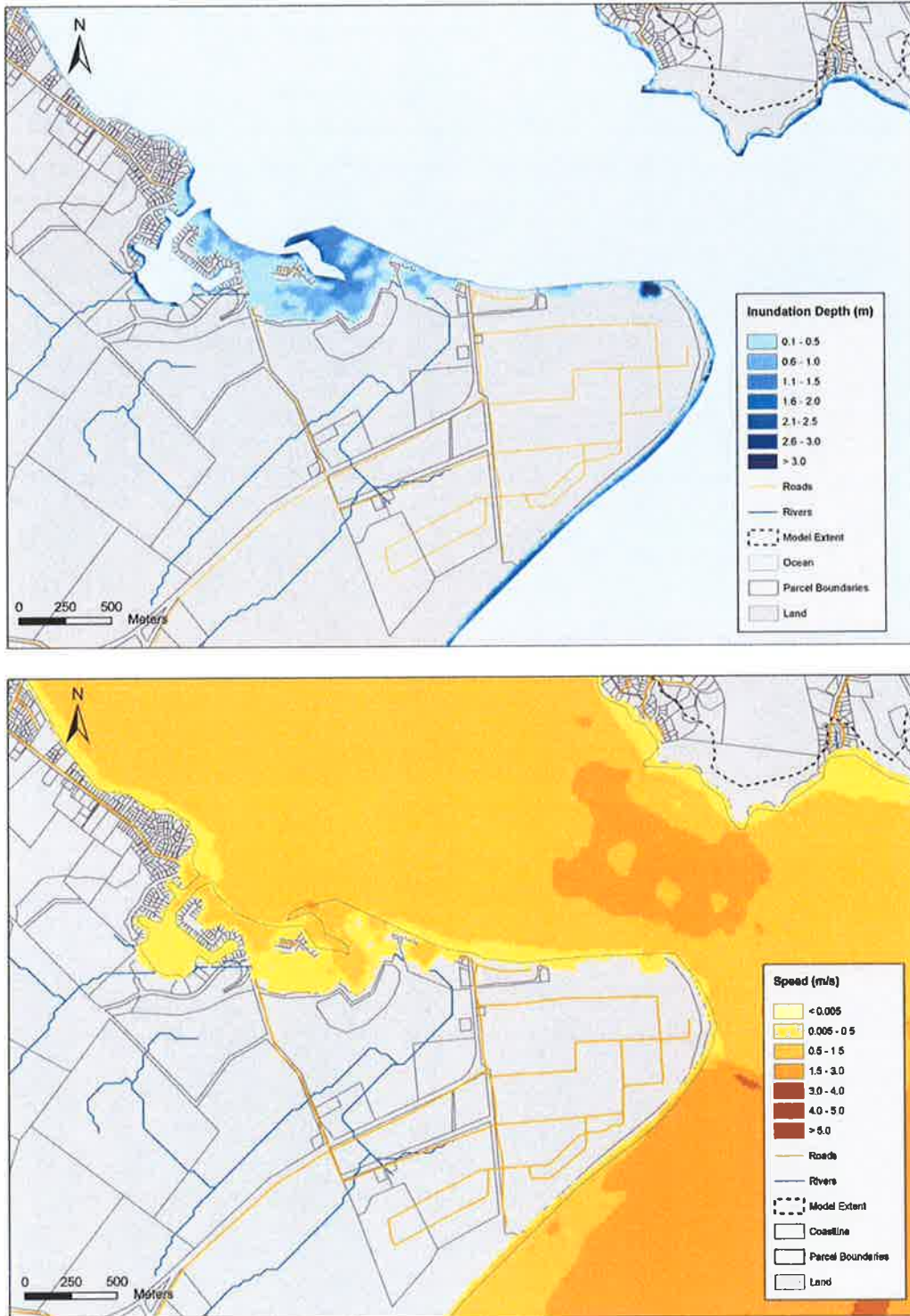


Figure 15: Marsden Bay: maximum inundation depth (upper) and speed (lower) plots for the M_w 9.0 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LIDAR) in Whangarei Harbour.

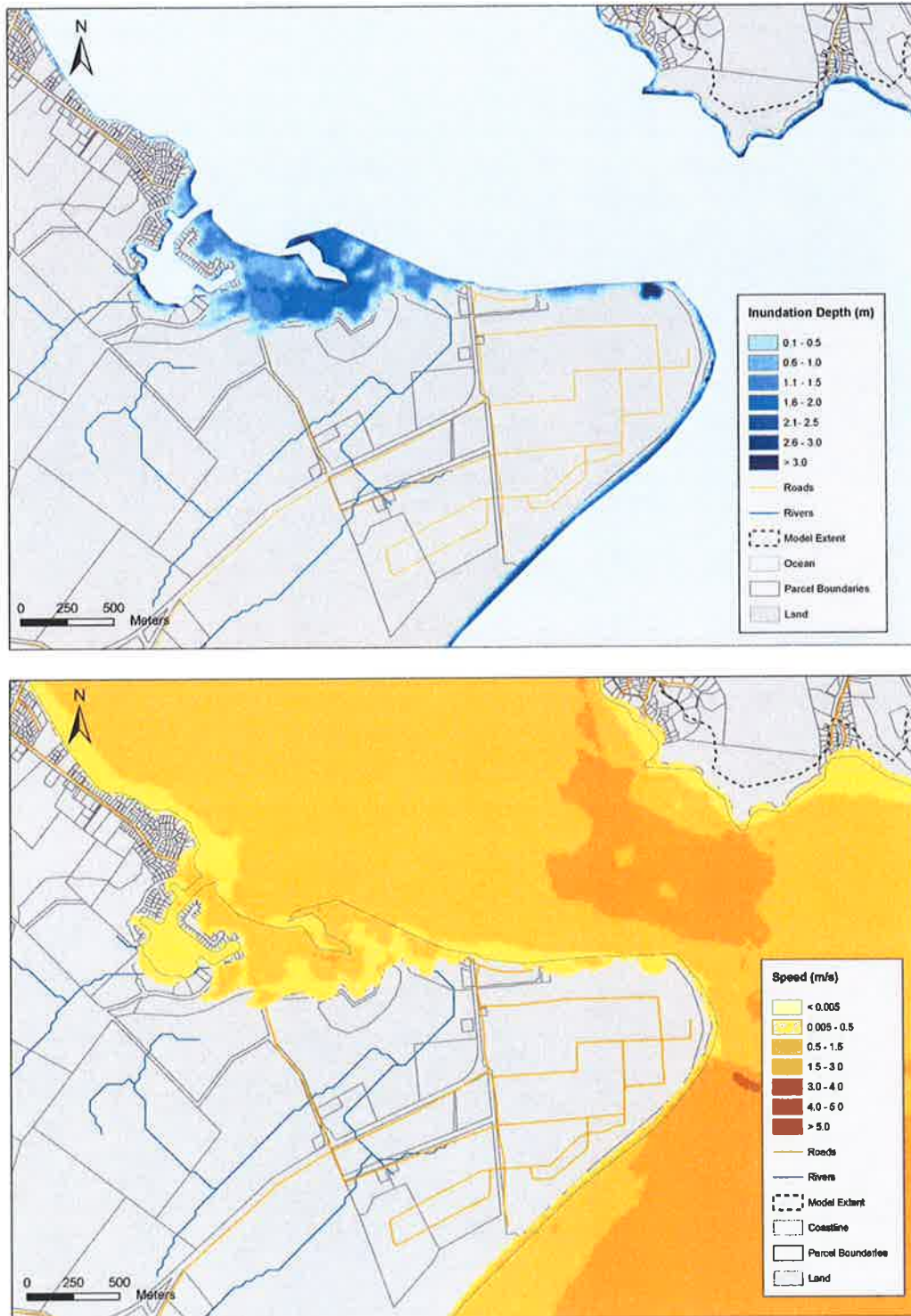


Figure 16: Marsden Bay: maximum inundation depth (upper) and speed (lower) plots for the M_w 9.0 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LIDAR) in Whangarei Harbour.