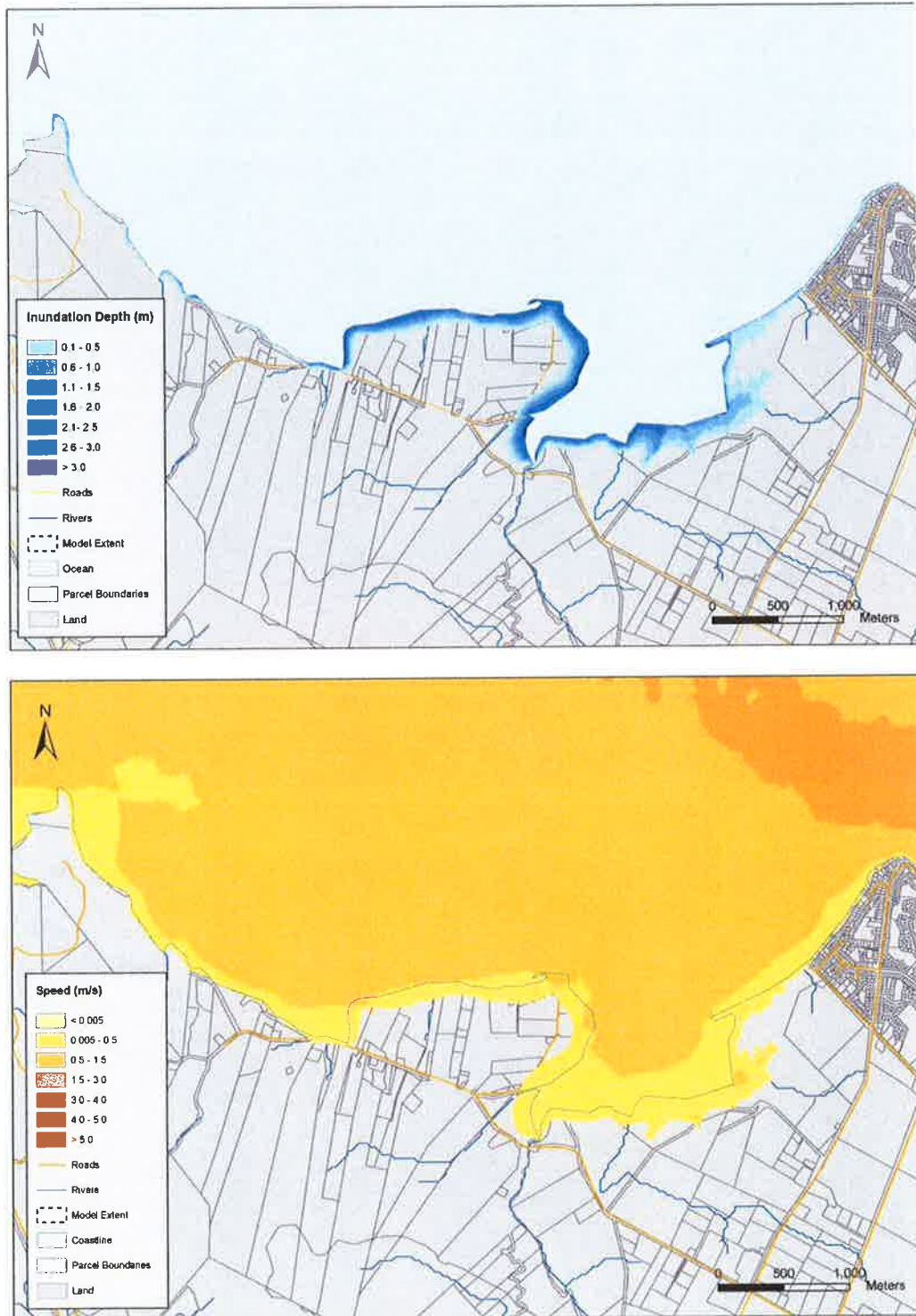


#### 4.4. Takahiwai

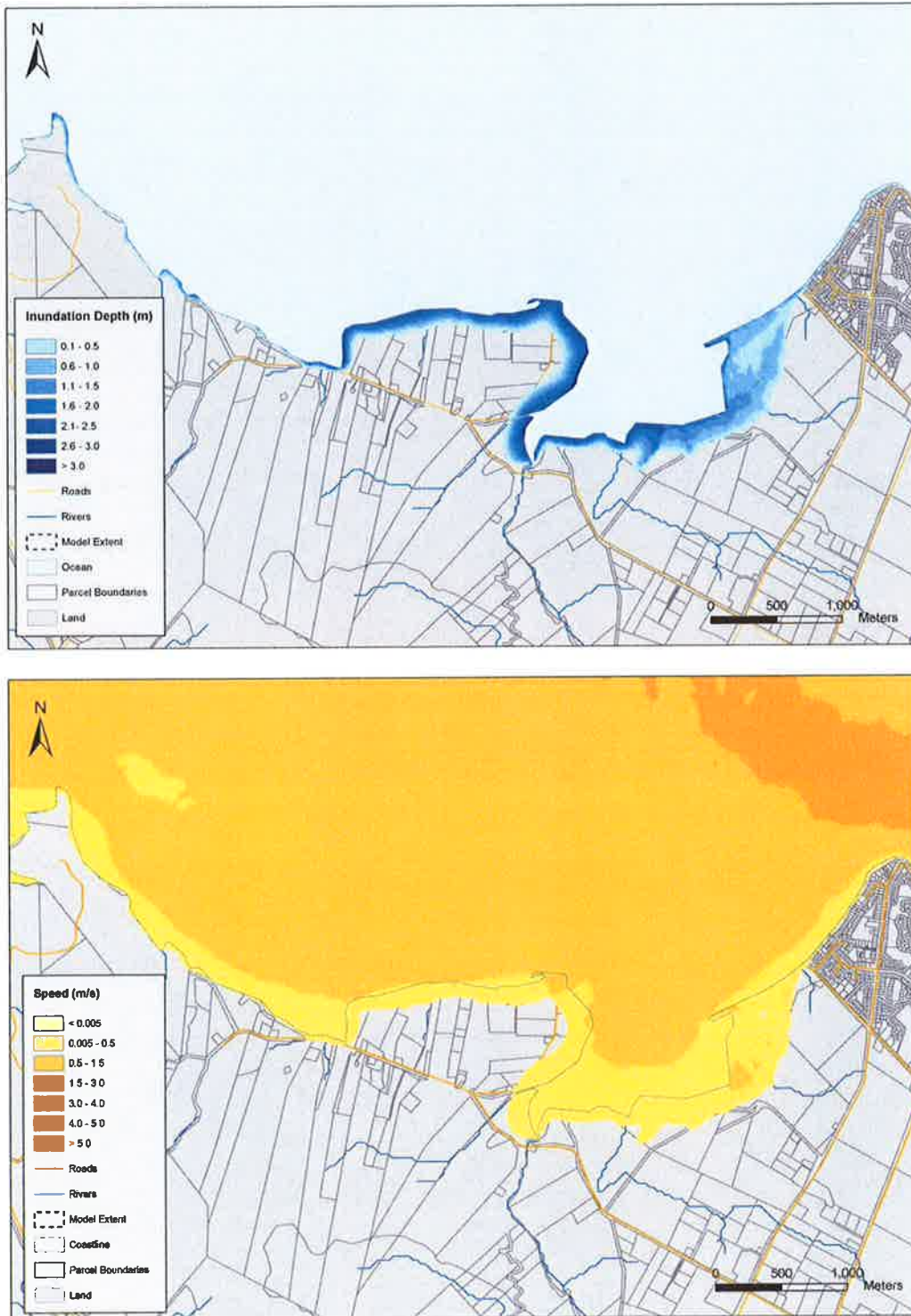
Maps of predicted inundation depth and maximum water speed for Takahiwai and the bay at 1729445E, 6033707N (location b in Figure 4) are presented in Figures 17 - 22. Inundation from the South American tsunami is evident in both bays (Figure 17). Current speeds in Takahiwai Bay and the bay at 1729445E, 6033707N reach up to  $1.5 \text{ m s}^{-1}$ , and  $3 \text{ m s}^{-1}$  in the harbour between One Tree Point and Manganese Point. When sea level rise is included in the scenario, inundation reaches further inland and is deeper (Figure 18).

The TKSZ  $M_w$  8.5 scenario results in inundation between Mangawhati Point and One Tree Point (Figure 19). Current velocities in the bay at 1729445E, 6033707N and Takahiwai reach  $1.5 \text{ m s}^{-1}$ . Sea level rise causes an increase in the extent and depth of the inundation inland along the coast (Figure 20).

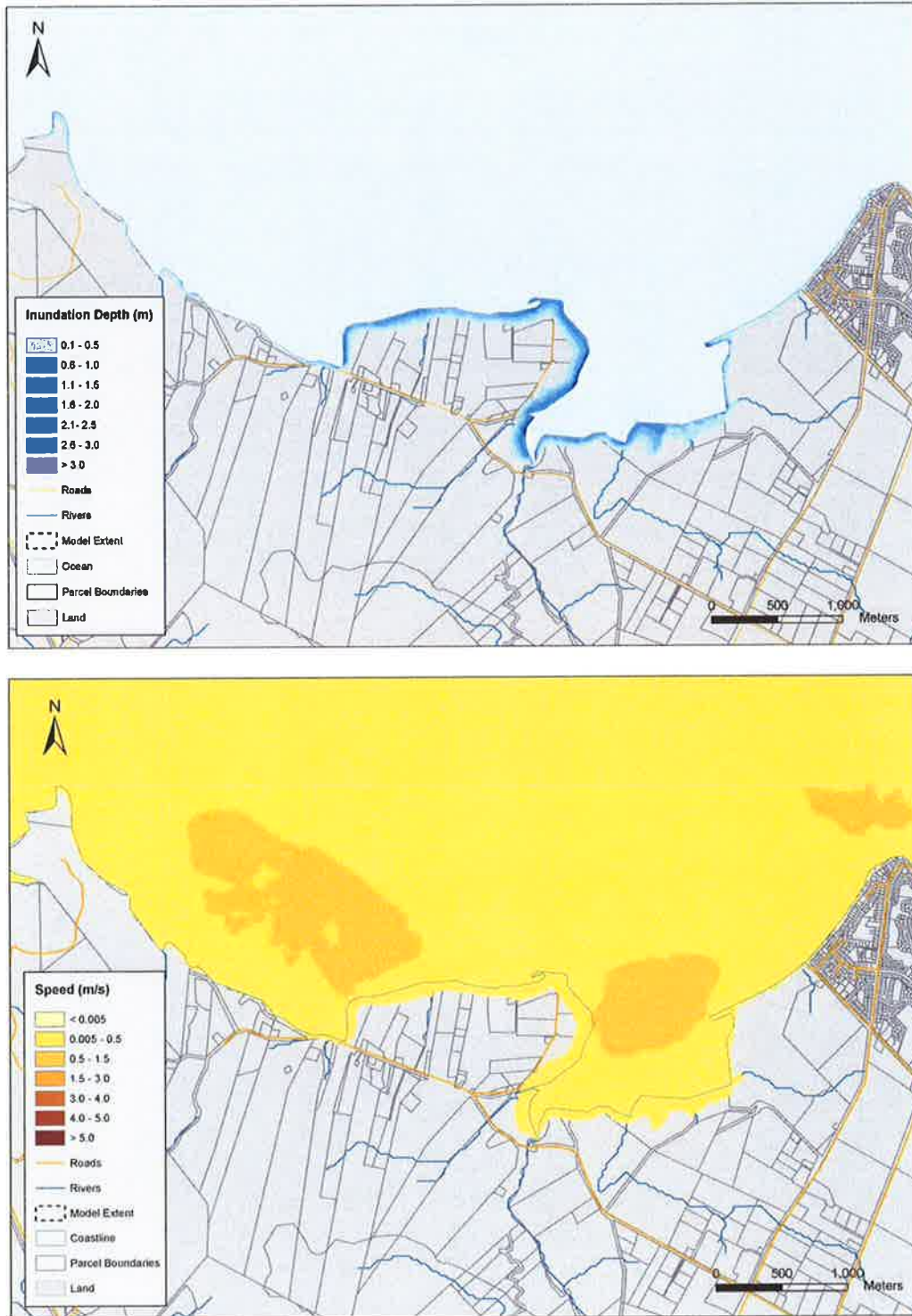
The TKSZ  $M_w$  9.0 scenario produces inundation along the coastline between Mangawhati Point and One Tree Point (Figure 21). Current speeds reach up to  $1.5 \text{ m s}^{-1}$  in the bay at 1729445E, 6033707N and Takahiwai. Depth and extent of inundation increase when sea level rise is included in the scenario, particularly at the eastern side of the bay at 1729445E, 6033707N (Figure 22).



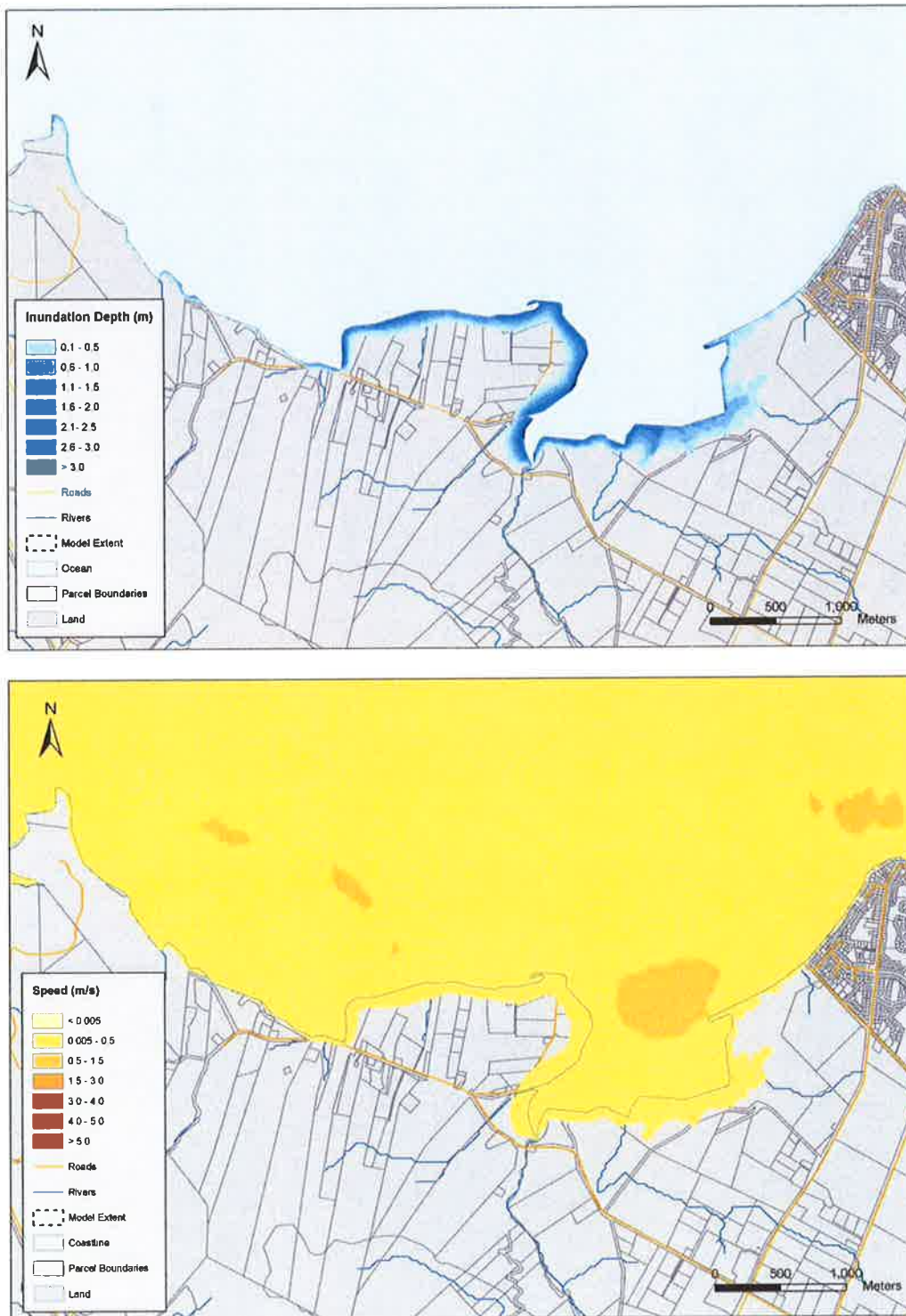
**Figure 17: Takahiwai: Maximum inundation depth (upper) and speed (lower) plots for the South American tsunami scenario at MHWS (to extent of LIDAR) in the Whangarei Harbour.**



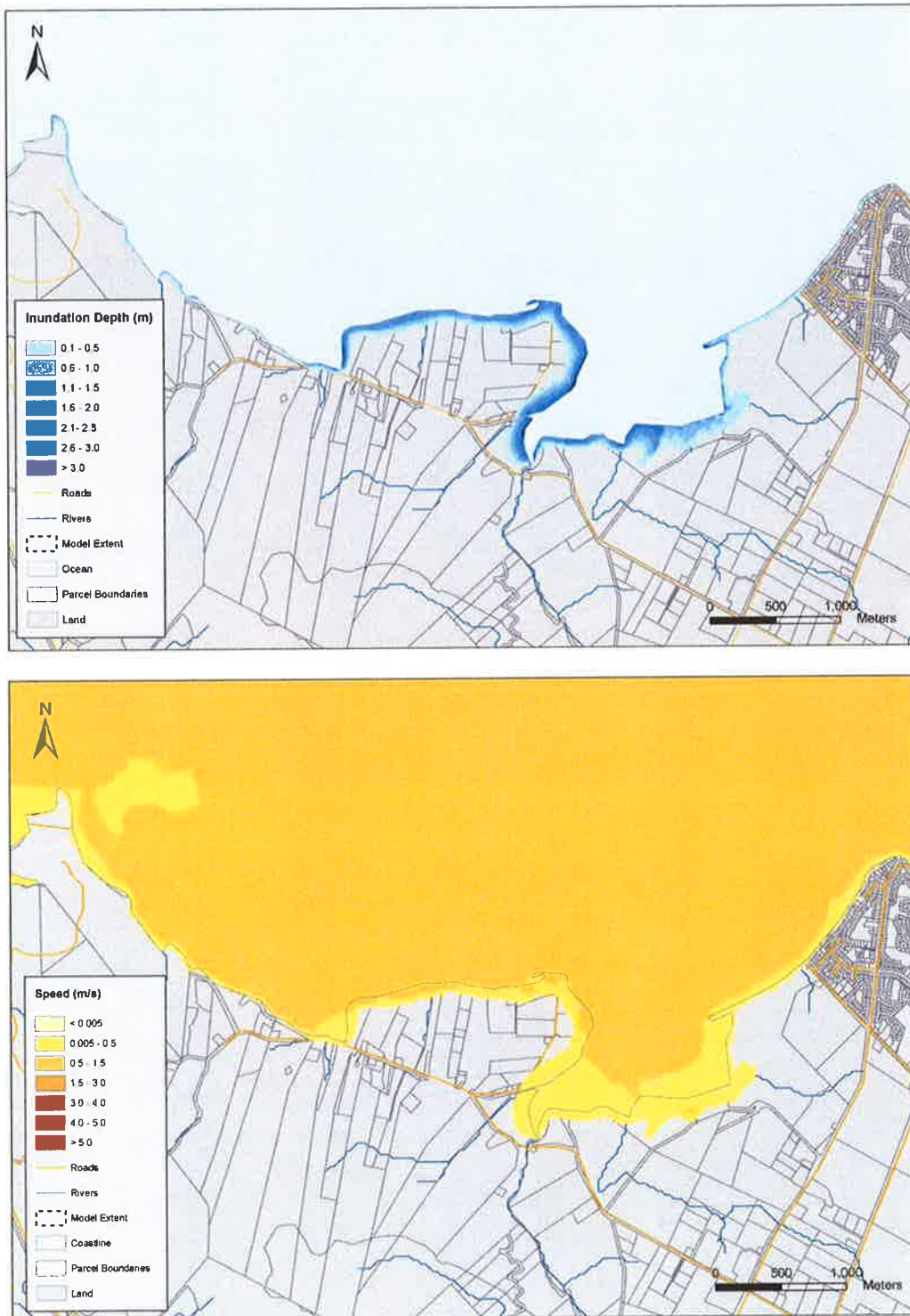
**Figure 18: Takahiwai: Maximum inundation depth (upper) and speed (lower) plots for the South American tsunami scenario at MHWS + 50cm (to extent of LIDAR) in the Whangarei Harbour.**



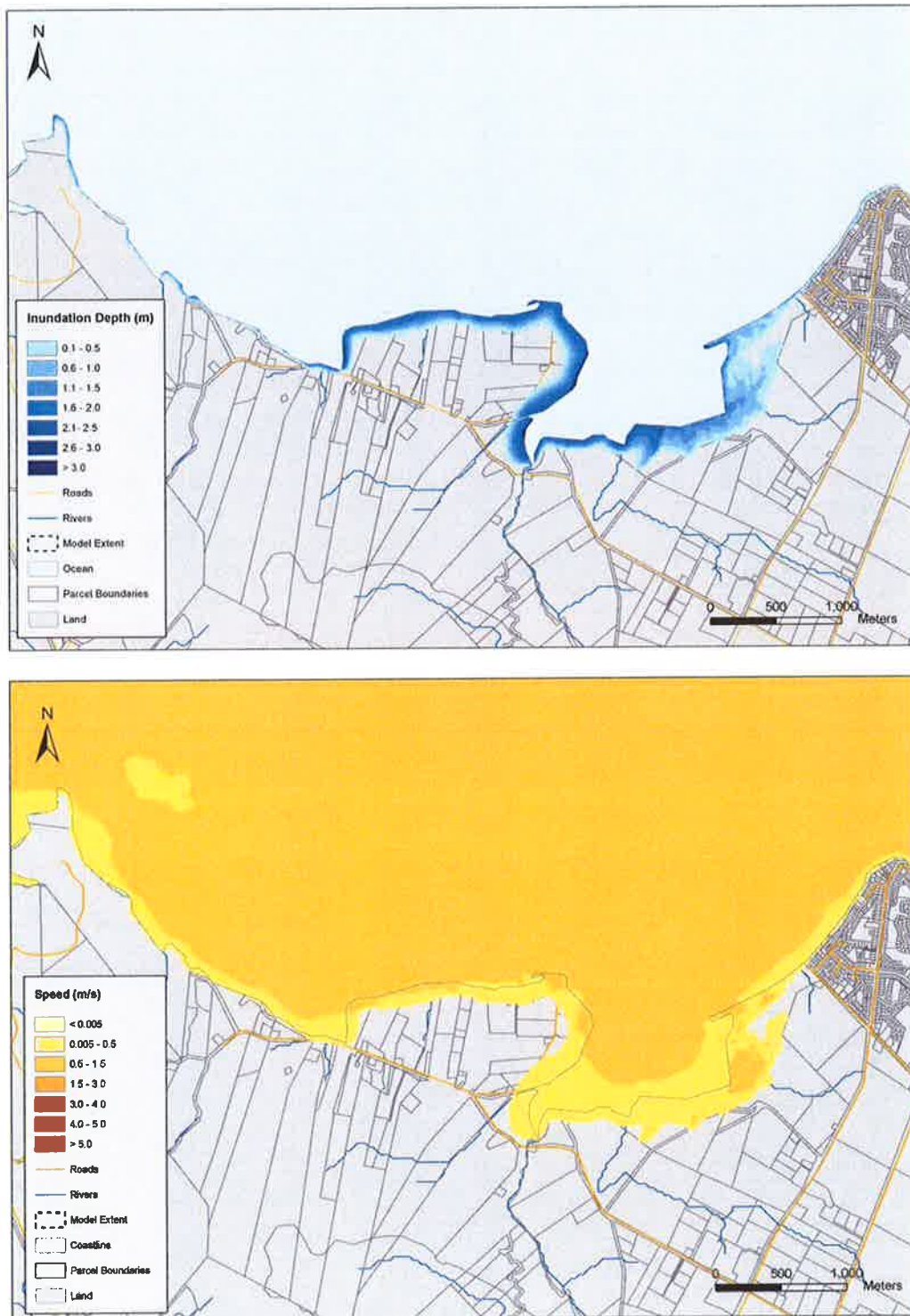
**Figure 19: Takahiwai: Maximum inundation depth (upper) and speed (lower) plots for the  $M_w$  8.5 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LIDAR) in Whangarei Harbour.**



**Figure 20: Takahiwai: 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 21: Takahiwai: 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 22: Takahiwai: 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.**