4.11. Te Ngaire, Whangaroa

Maximum predicted inundation depth and water speed for Te Ngaire are presented in Figures 58-63. Inundation from the South American tsunami is extremely limited. Only a very small section at the east end of the beach is predicted to see any impact. Current speeds do not exceed 1 m s^{-1}. Very minor increases in extent and depth of inundation are predicted with the addition of sea level rise.

The TKSZ M_w8.5 scenario is predicted to flood a small area around the mouth of the Te Ngaere Stream. With the addition of sea level rise, the affected area is predicted to increase further upstream and cover the eastern end of the beach. Current velocities for both scenarios reach up 7.5 m s^{-1} between the eastern end of the beach and Dome Rock. The TKSZ M_w9.0 scenario is predicted to flood the entire of the Te Ngaire settlement, flooding the roads and inland areas up to 1 km from the shore with depths of up to 4 m at the western end of the beach and greater than 5 m at the eastern end. Sea level rise is predicted to increase the depth of the inundation, exceeding 5 m, but has no further impact on the extent of the flooding. Water speeds remain low across the beach but exceed 7.5 m s^{-1} along the river channel.

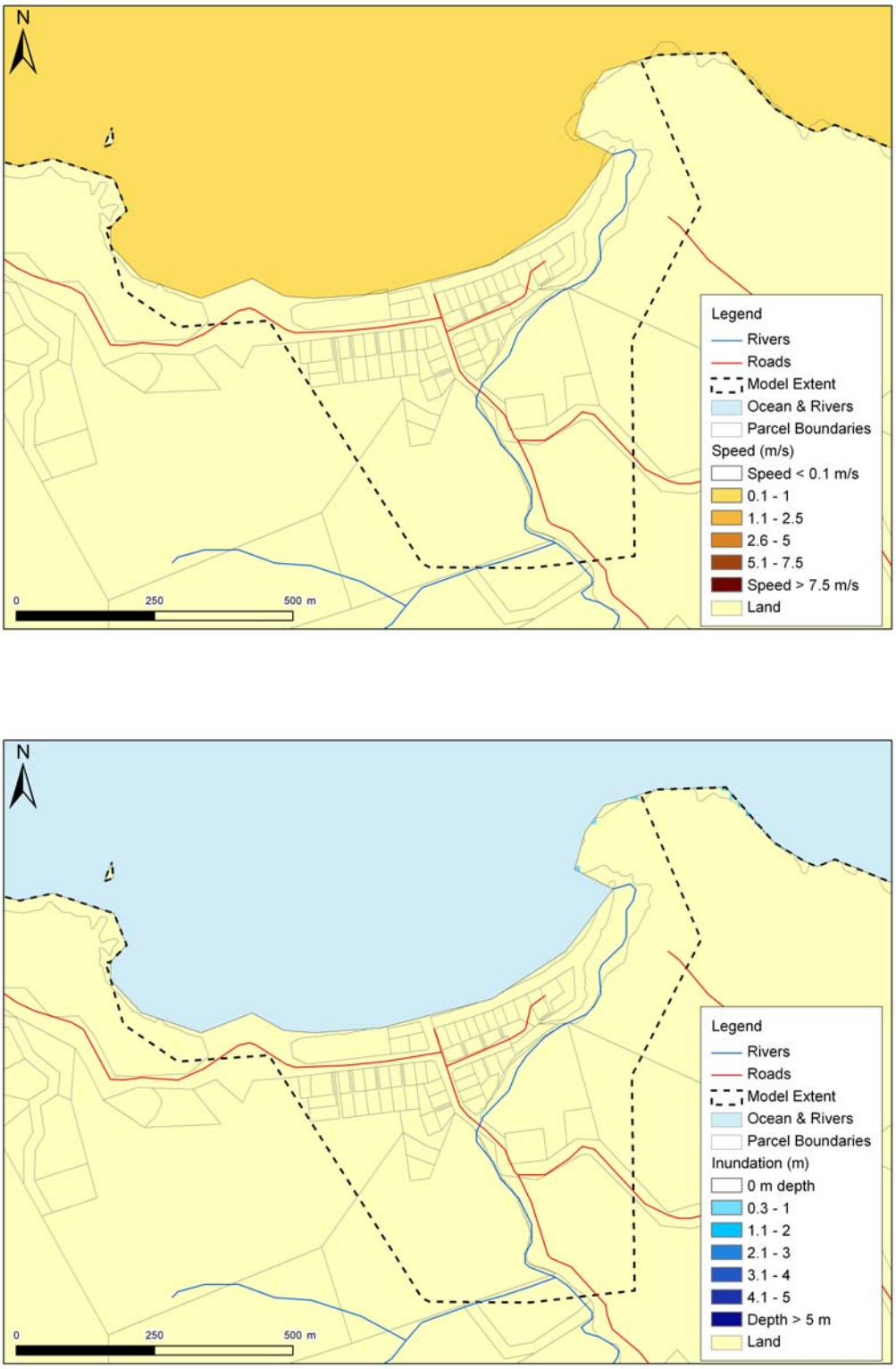

Figure 58: Te Ngaire, Whangaroa: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS (to extent of LiDAR).

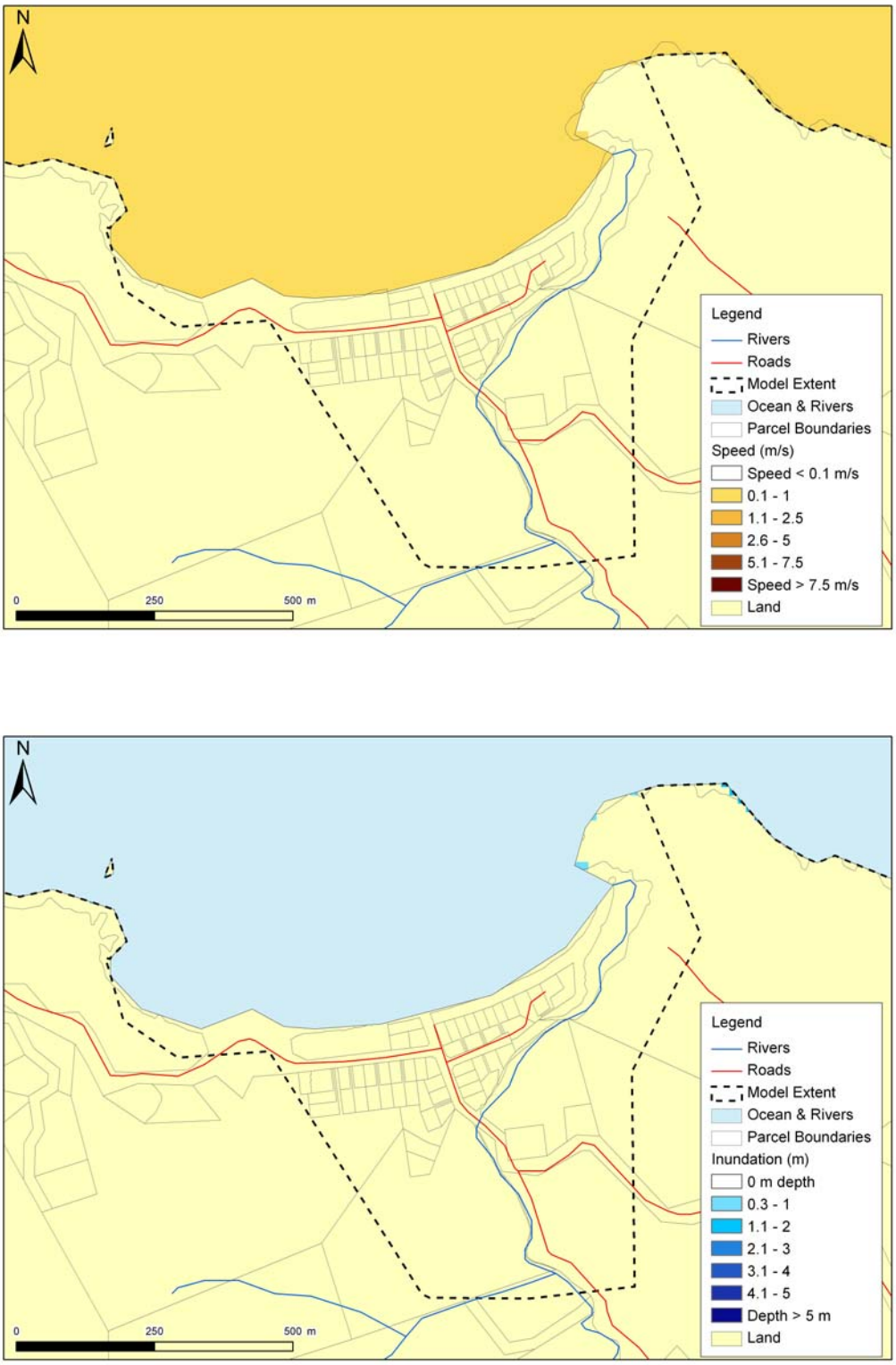

Figure 59: **Te Ngaire, Whangaroa: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS + 50cm (to extent of LiDAR).**

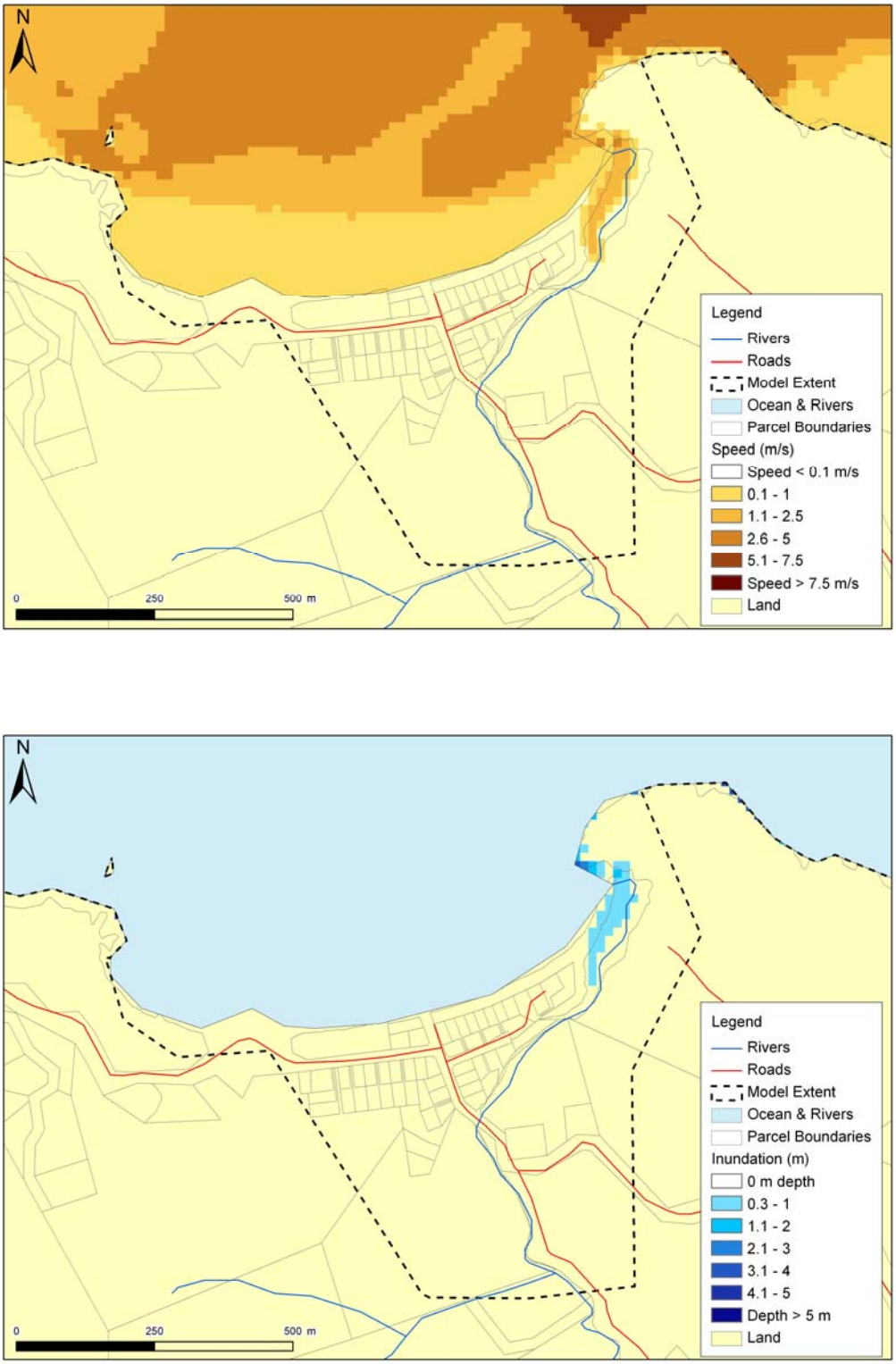

Figure 60: **Te Ngaire, Whangaroa: Maximum inundation speed (upper) and depth (lower) plots for the Mw8.5 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LiDAR).**

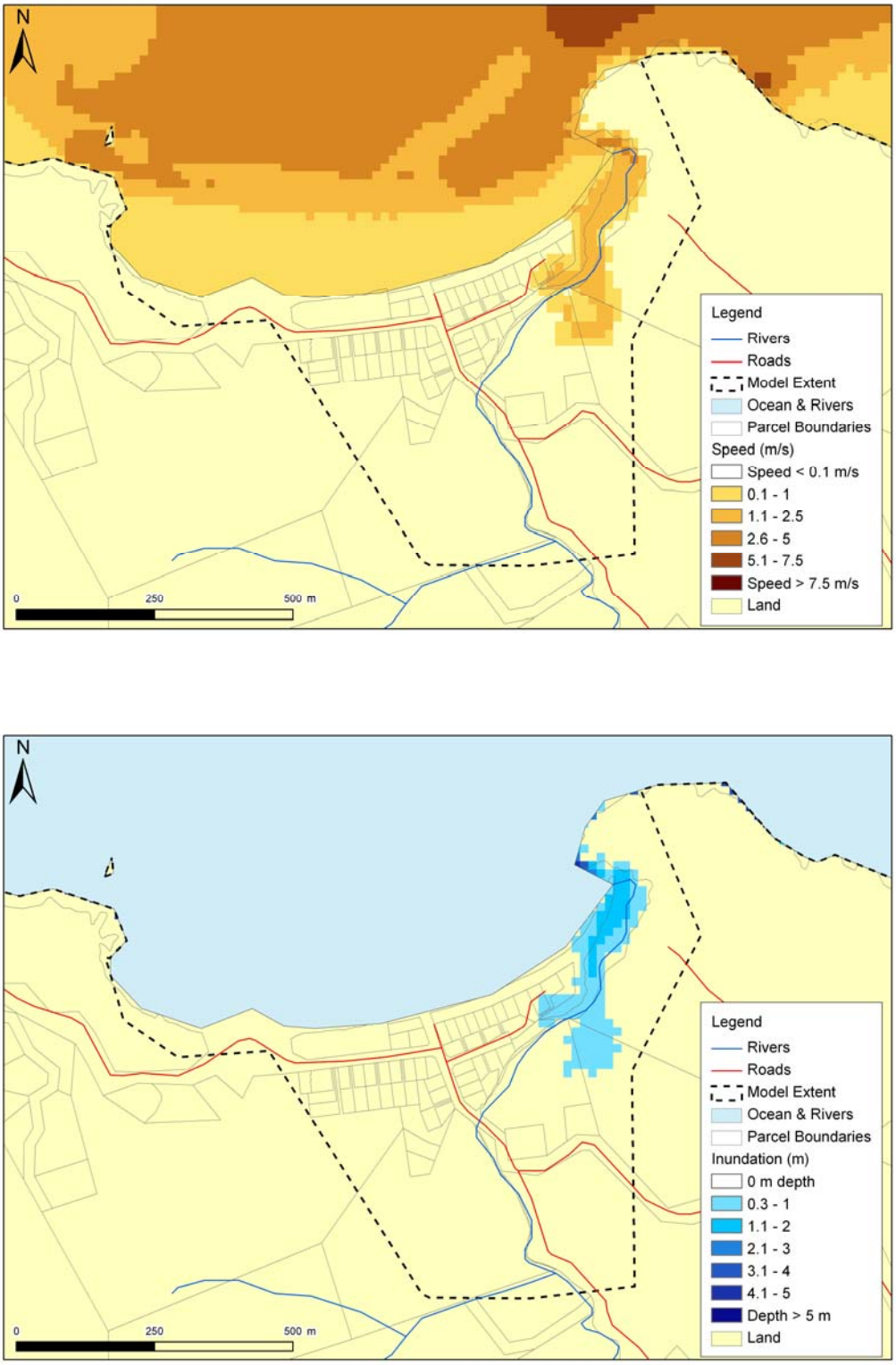

Figure 61: **Te Ngaire, Whangaroa: Maximum inundation speed (upper) and depth (lower) plots for the Mw8.5 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LiDAR).**

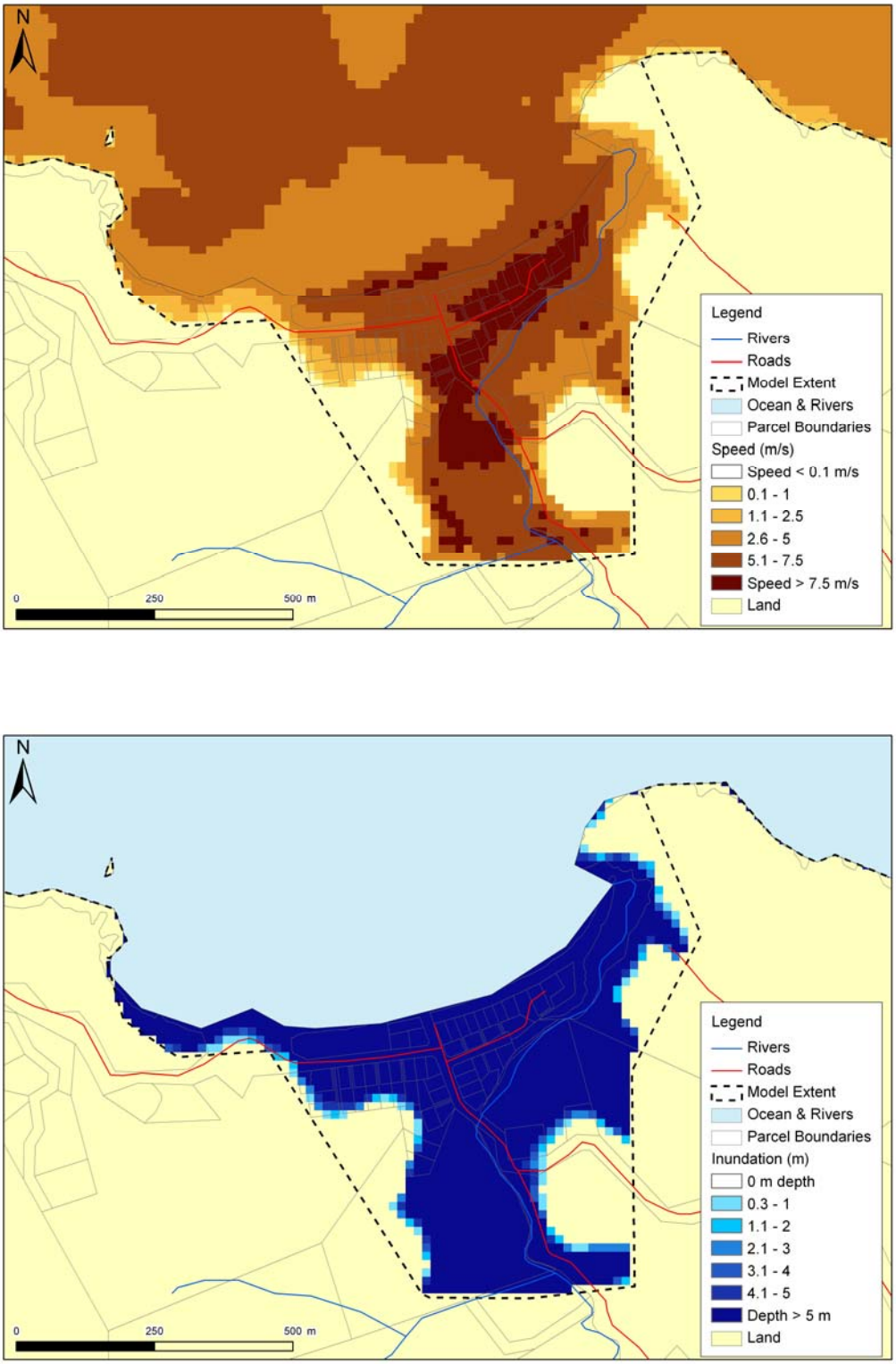

Figure 62: **Te Ngaire, Whangaroa: Maximum inundation speed (upper) and depth (lower) plots for the Mw9.0 Tonga-Kermadec subduction zone scenario at MHWS (to extent of LiDAR).**

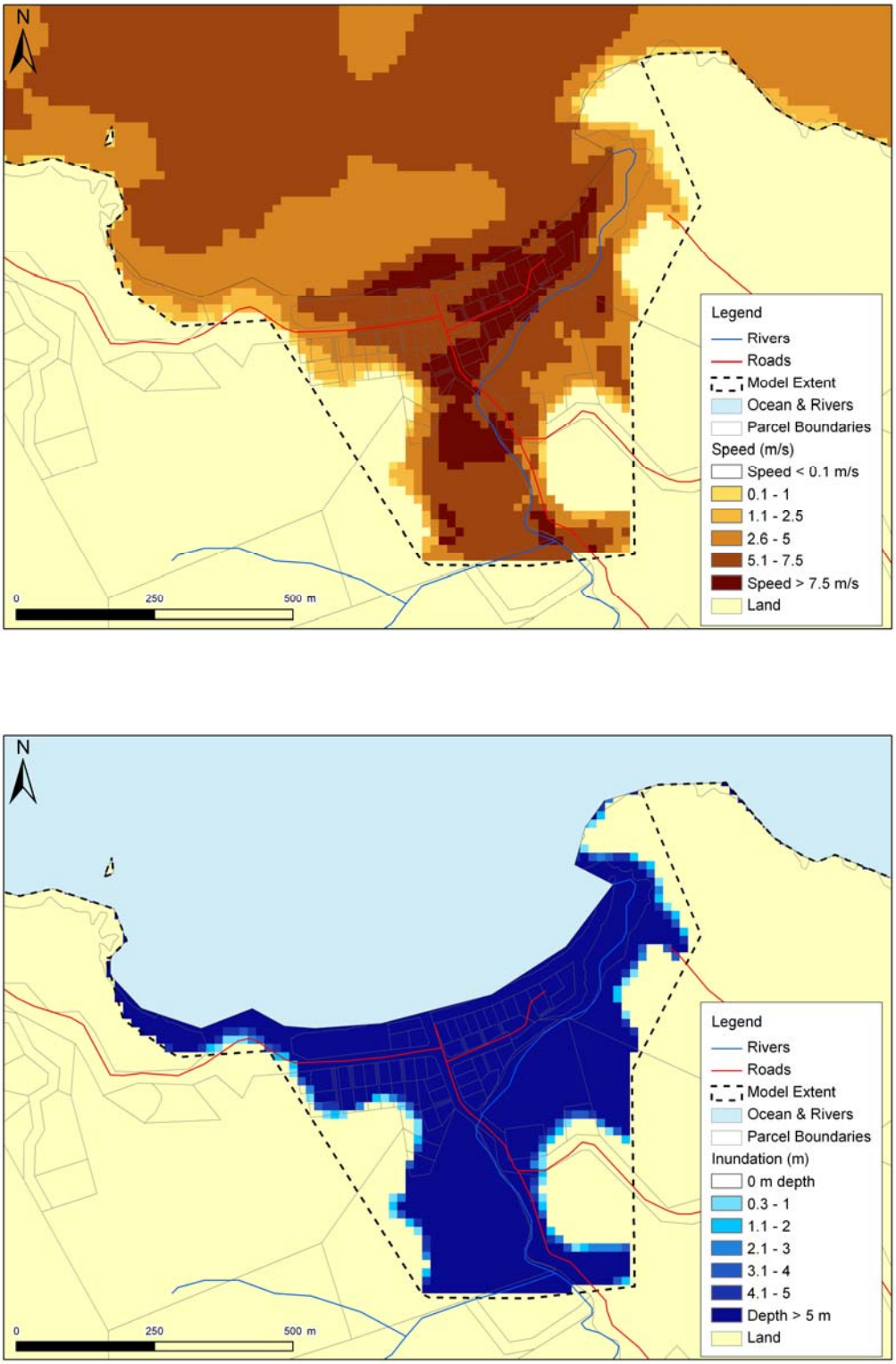

Figure 63: **Te Ngaire, Whangaroa: Maximum inundation speed (upper) and depth (lower) plots for the Mw9.0 Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LiDAR).**