

4.8. Ngunguru

Maps of inundation depth and maximum current speed for Ngunguru are presented in Figures 40 – 45. Inundation from the South American tsunami at current MHWS is largely confined to narrow strips of land along the banks of the estuary, although there are indications of inundation further upstream. With sea level rise included, inundation around the estuary mouth increases, and more inundation along the inner bank of Ngunguru sand spit is evident. Maximum current velocities in the entrance of the estuary exceed 1 m s^{-1} , increasing the erosion risk.

The Tonga-Kermadec subduction zone $M_w 8.5$ event does not result in any significant inundation, except at the headland seaward of Whangaumu Bay. With sea level rise included, some limited inundation inside the estuary is apparent. By contrast, the TKSZ $M_w 9.0$ event causes significant inundation across Ngunguru sand spit and along both banks of the estuary. The settlements of Ngunguru and Whangaumu Bay are impacted, particularly those areas close to creeks entering the estuary. Predicted inundation is deeper and more extensive when sea level rise is included. Maximum current speeds in the estuary and over the sand spit exceed 2.5 m s^{-1} with a significant erosion risk.

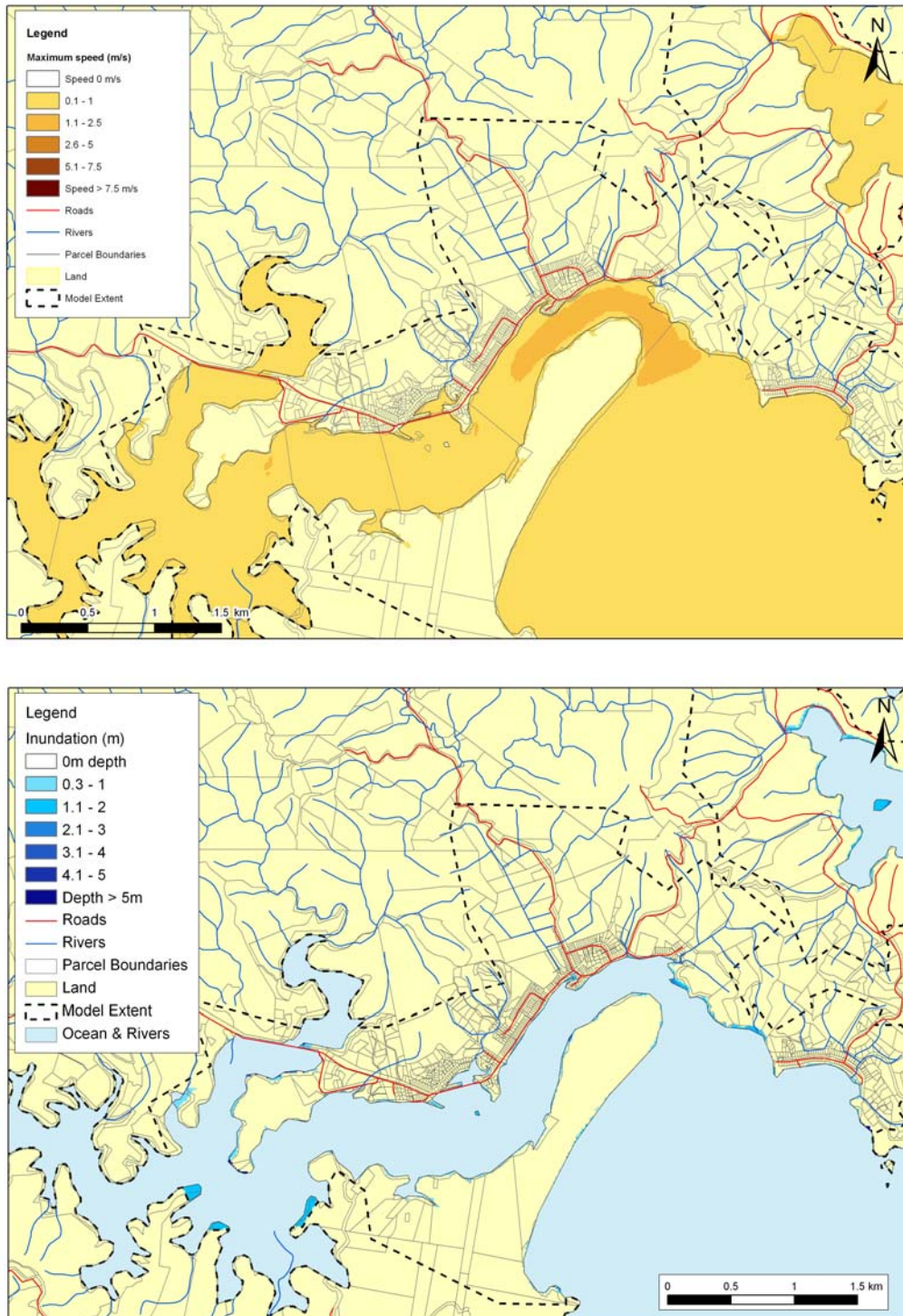


Figure 40: Ngunguru: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS (to extent of LIDAR).

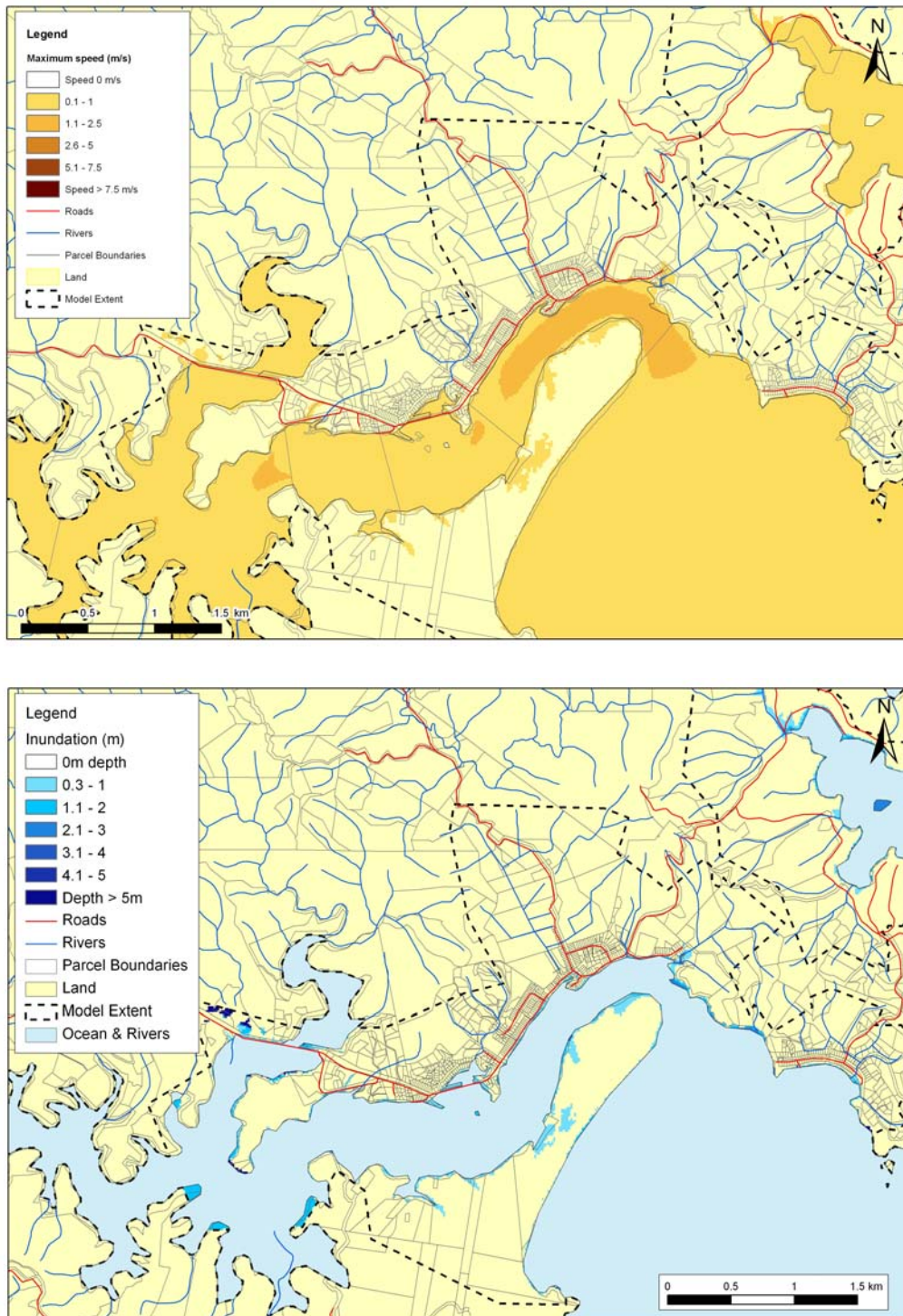


Figure 41: Ngunguru: Maximum inundation speed (upper) and depth (lower) plots for the South American tsunami scenario at MHWS + 50cm (to extent of LIDAR).

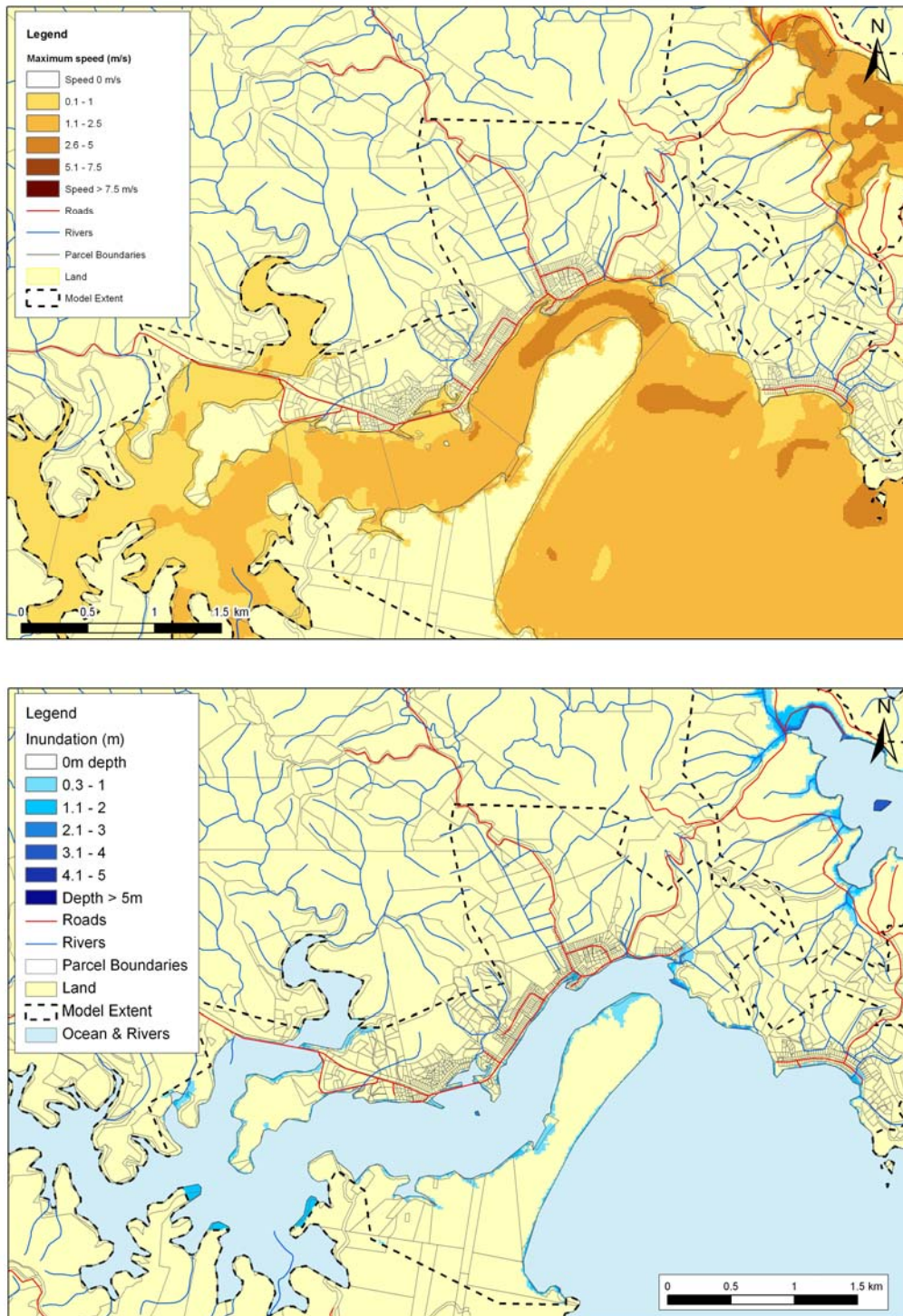


Figure 42: Ngunguru: Maximum inundation speed (upper) and depth (lower) plots for the $M_w 8.5$ Tonga-Kermadec subduction zone scenario at MHWS (to extent of LIDAR).

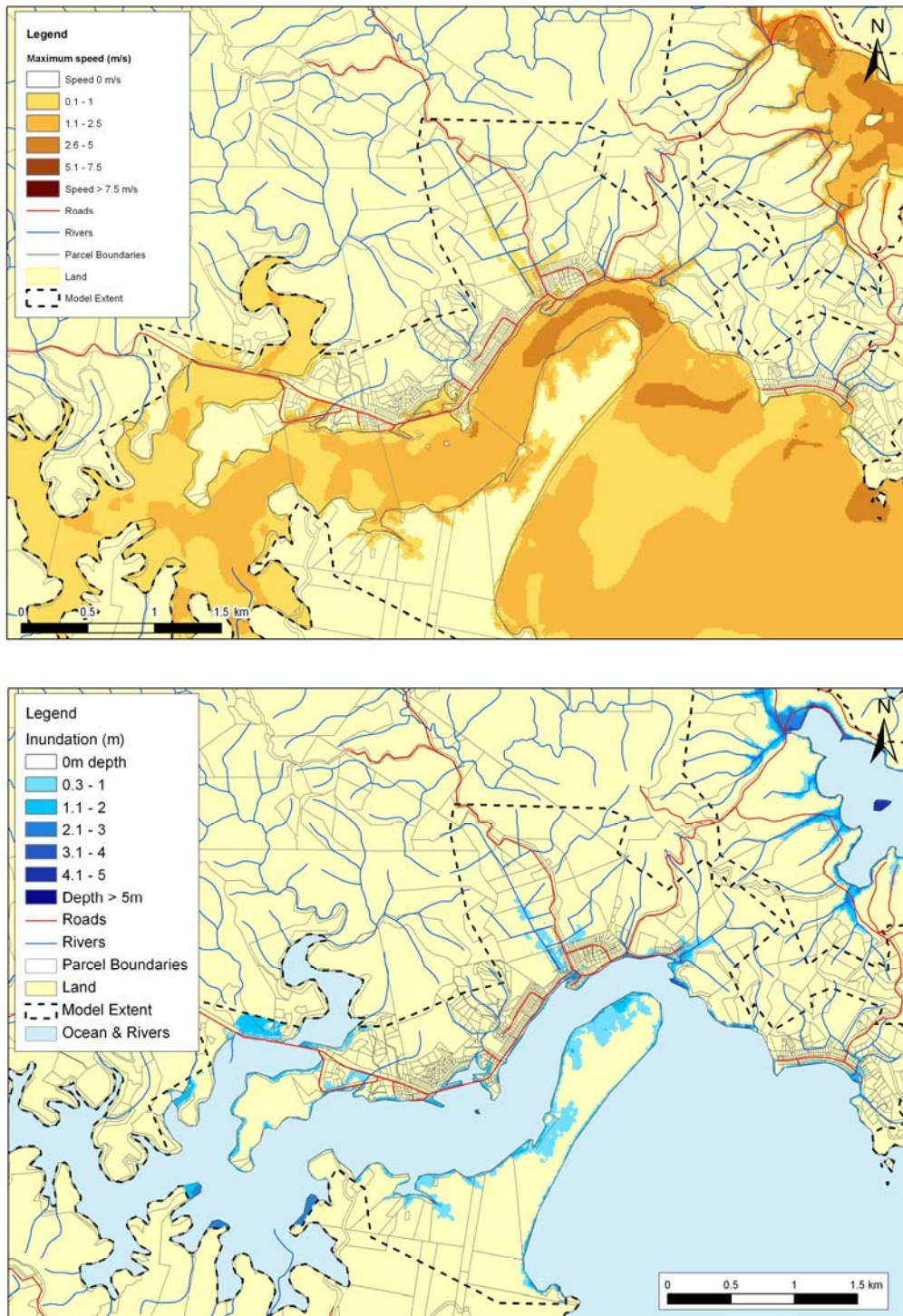


Figure 43: Ngunguru: Maximum inundation speed (upper) and depth (lower) plots for the $M_w 8.5$ Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LIDAR).

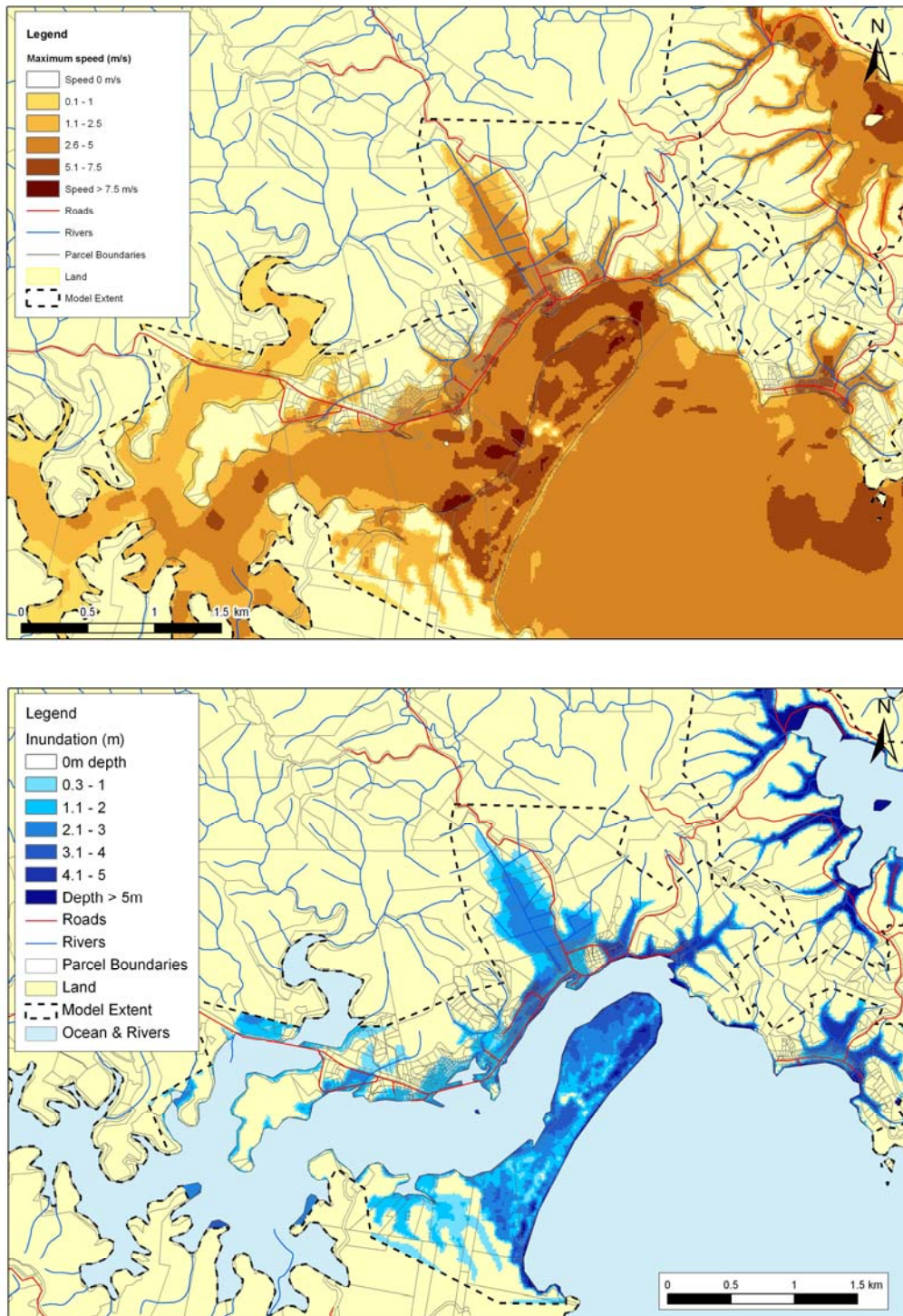


Figure 44: Ngunguru: Maximum inundation speed (upper) and depth (lower) plots for the $M_w 9.0$ Tonga-Kermadec subduction zone scenario at MHWS (to extent of LIDAR).

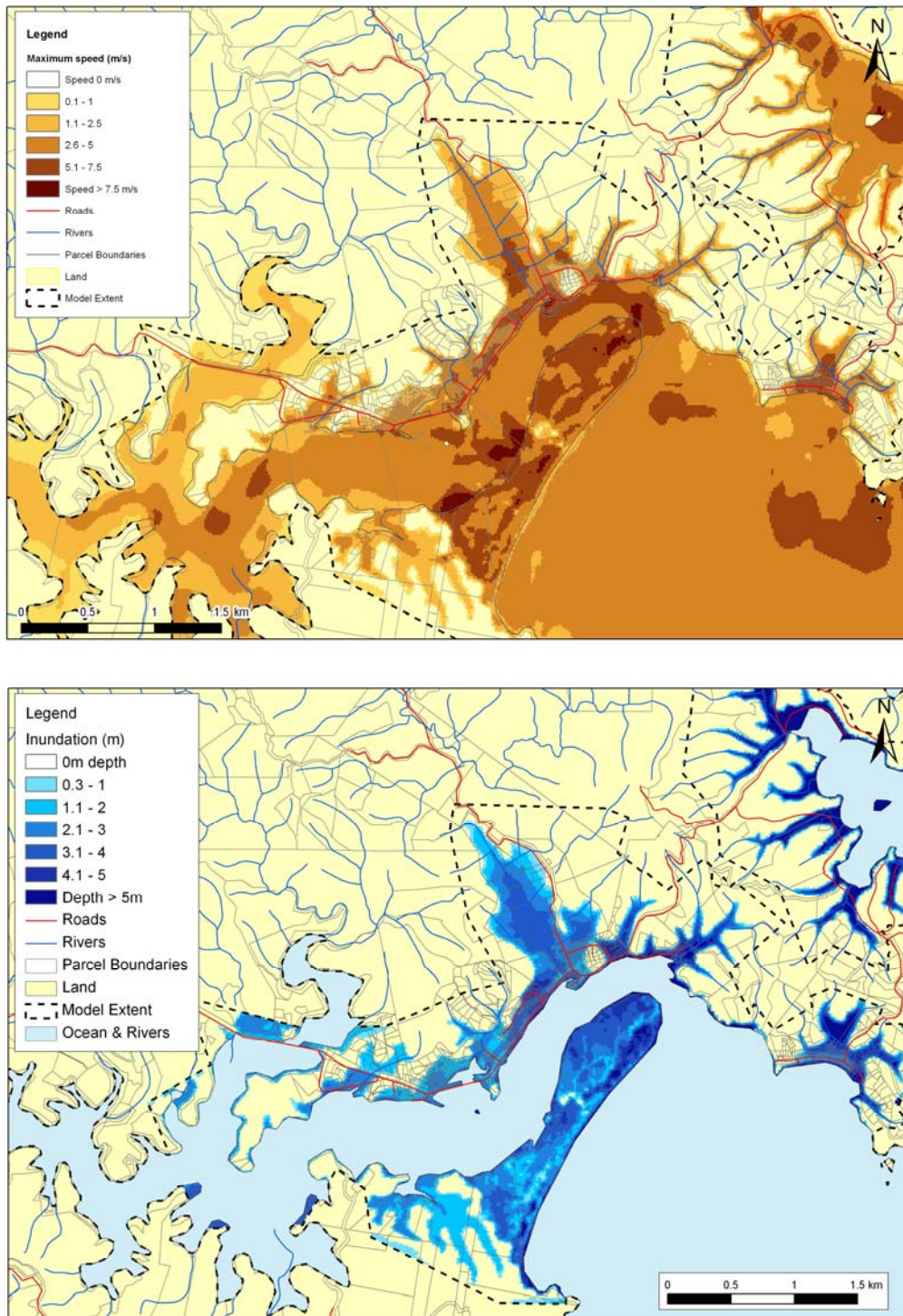


Figure 45: Ngunguru: Maximum inundation speed (upper) and depth (lower) plots for the $M_w 9.0$ Tonga-Kermadec subduction zone scenario at MHWS + 50cm (to extent of LIDAR).