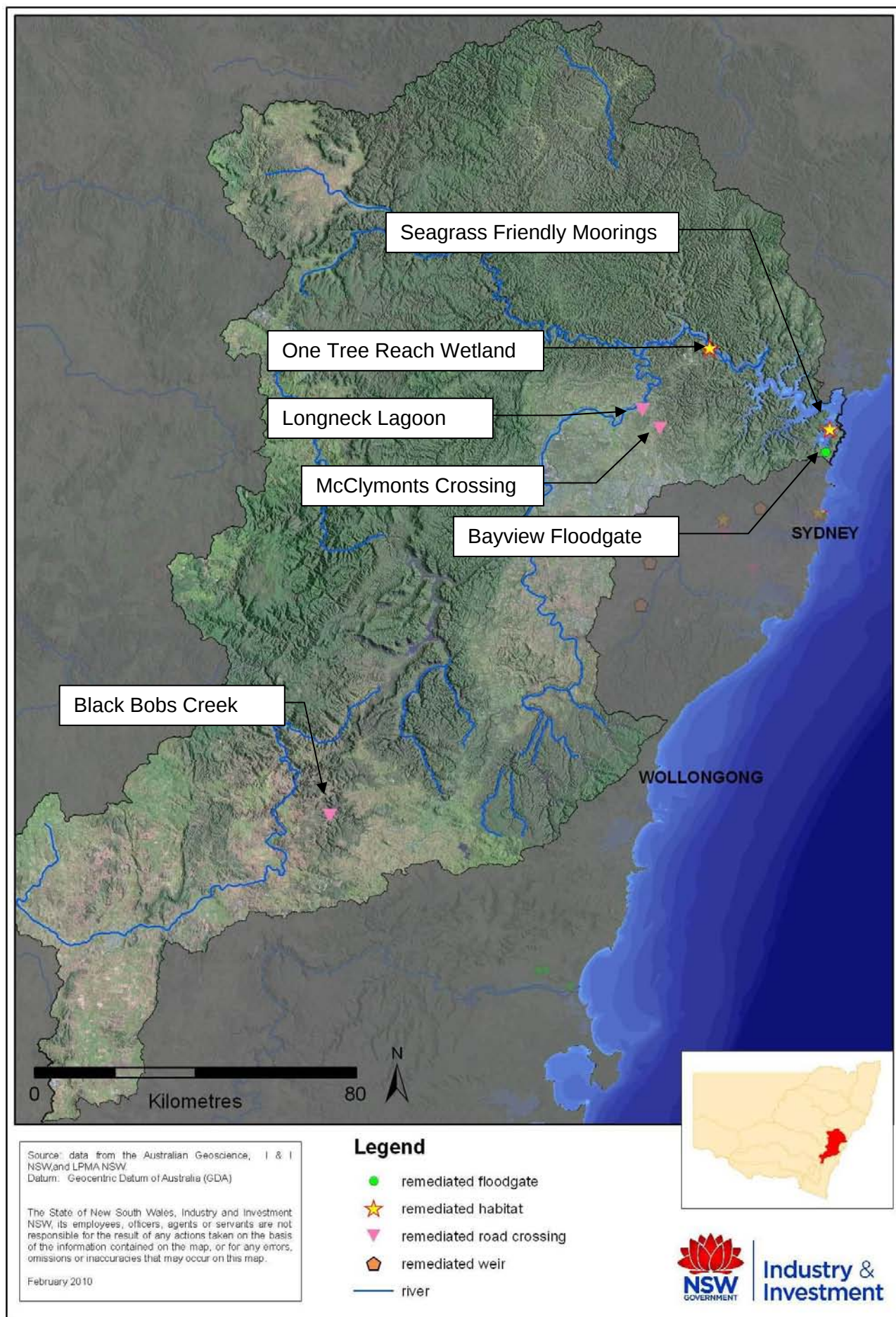
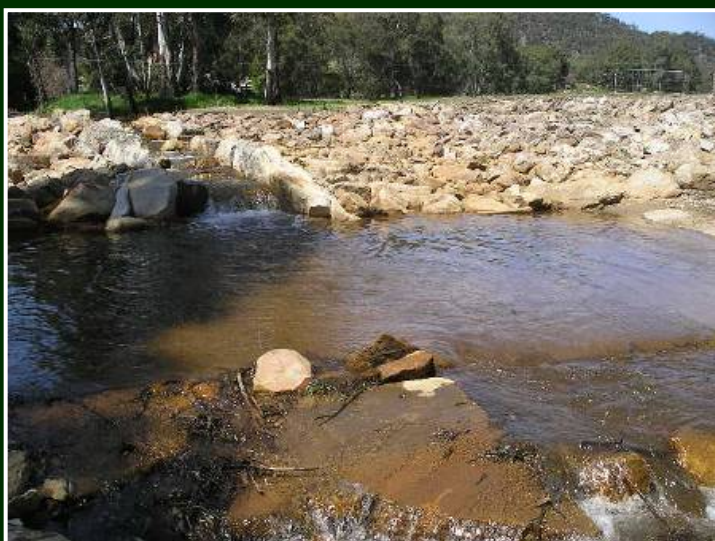
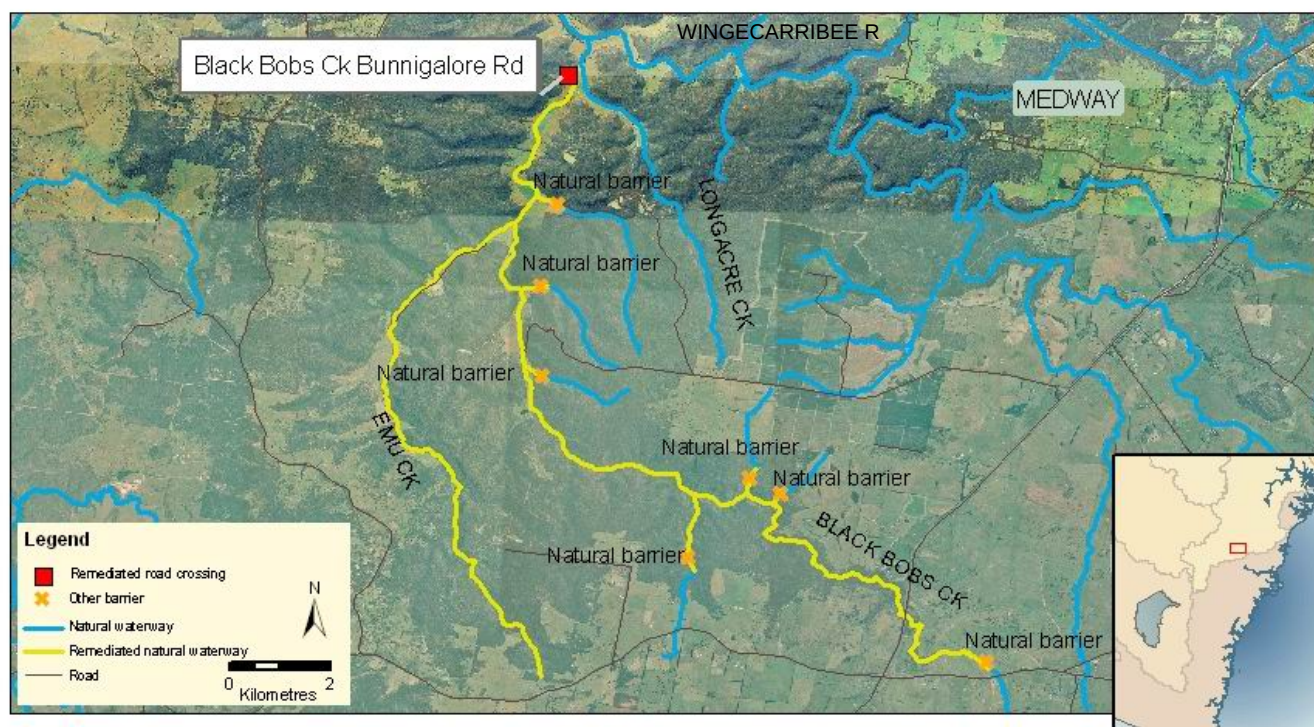


APPENDIX C: HAWKESBURY - NEPEAN CMA SITE SUMMARIES



FISHWAY BED CONTROLS, BLACK BOBS CREEK

Bunnigalore Road, Wingecarribee Catchment



Remediation Works

- Works form part of overall stream rehabilitation project covering a 6km reach.
- Works include bed control structures, riparian fencing, alternate watering points, and erosion control works.
- Bed control structures were constructed with partial width modified rock ramp fishways incorporated. 4 road crossings were addressed as part of the works (a total of 9 fishway structures were built).
- Works completed in October 2007.

Remediation Benefits

- Improved fish access to 29 km of habitat.
- Macquarie Perch (Endangered) have previously been recorded from adjacent Wingecarribee Creek.

Project Costs

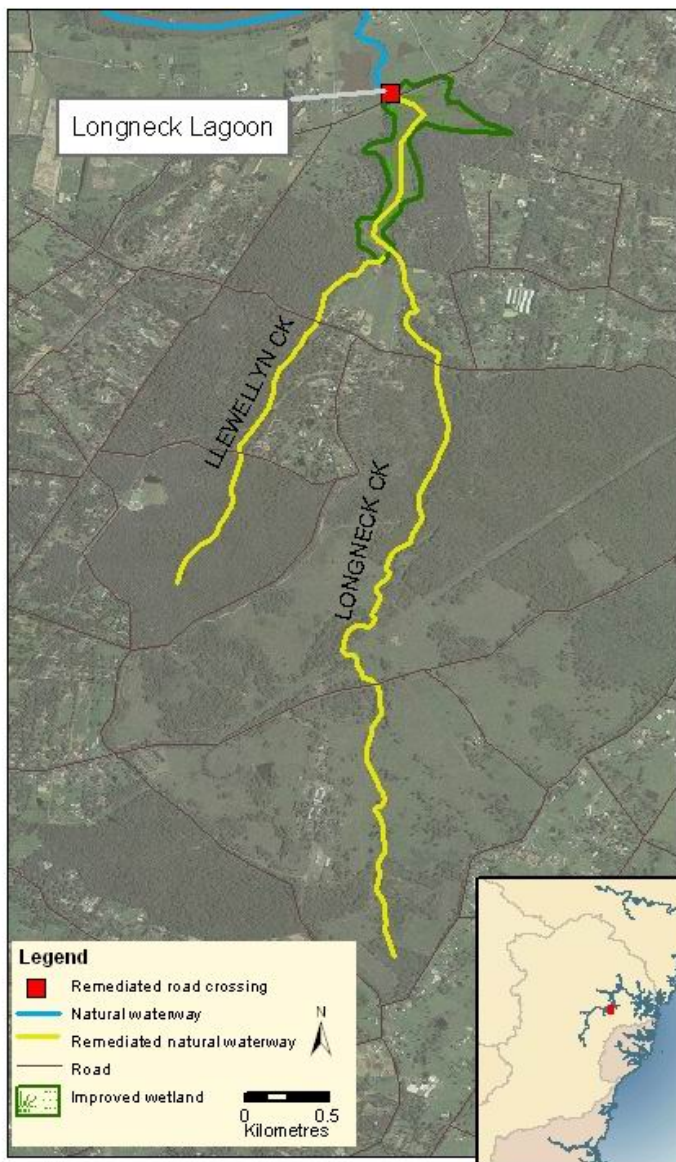
- Total project cost = \$327,330.
Roads component = \$167,706.

Partners

- HNCMA (project managers), SCA (Sydney Catchment Authority), landholder.

PARTIAL WIDTH ROCK RAMP FISHWAY, LONGNECK CREEK

Cattai Road, Hawkesbury Catchment



Remediation Works

- Modification to existing weir structure to allow greater control of water levels within the lagoon.
- Construction of partial width rock ramp fishway to facilitate upstream migration.
- Provision of baffles in road culvert and "constriction chamber" on downstream side of culvert to improve water levels.
- Structure located on Crown Land (NPWS reserve).
- Works completed July 2008.

Remediation Benefits

- Improved access to 8 km of habitat including access to a 22 ha wetland.
- Improved water levels control within lagoon to better manage salvinia infestation.

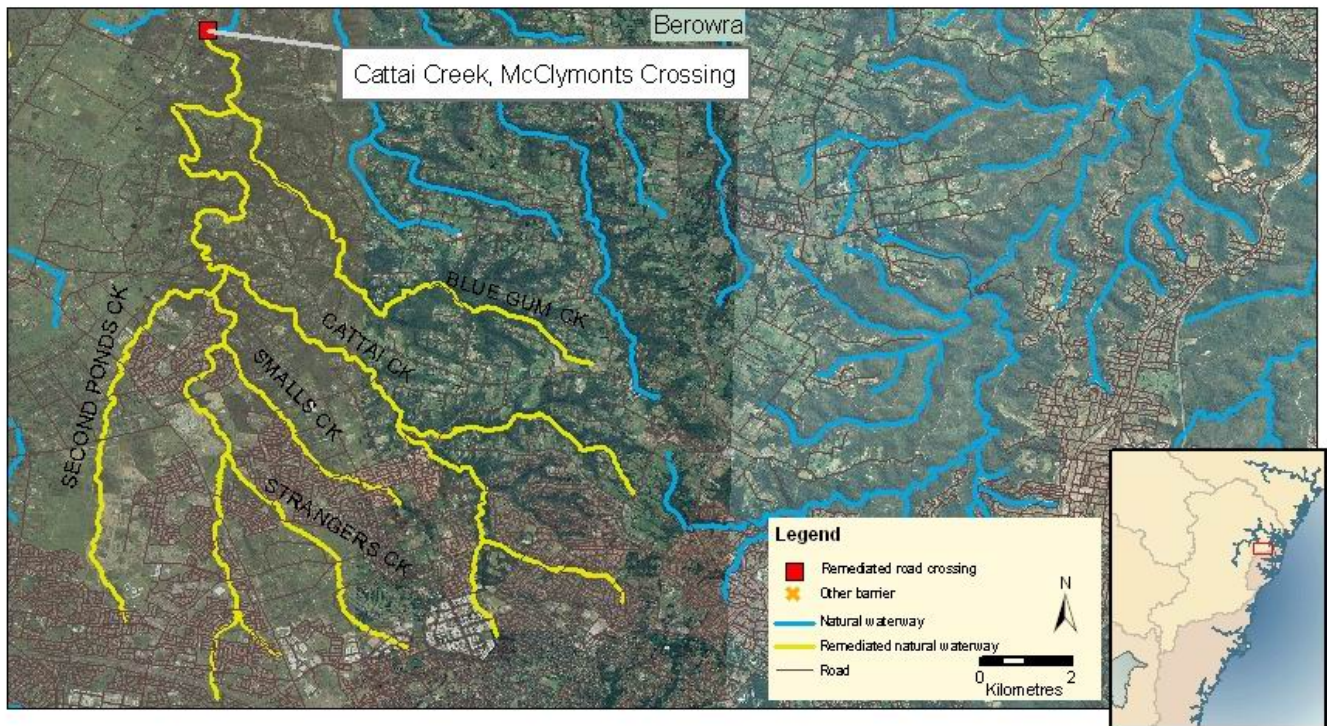
Project Costs

- Total cost of works - \$172,794.
- Preliminary works and design - \$33,018.

Partners

- NPWS (project managers), HNCMA (funding), Hawkesbury City Council.

IMPROVED CULVERTS AND FISHWAY, CATTAI CREEK McClymonts Road, Hawkesbury Catchment



Remediation Works

- Modification of existing causeway, requiring retention of upstream pool and overcoming head differential.
- Installation of 3 box culverts into causeway with low-flow cell in central box culvert.
- Installation of baffles with vertical slots through low flow box culvert to retain water levels.
- Structure located on Crown Land.
- Works completed in summer 2009.

Remediation Benefits

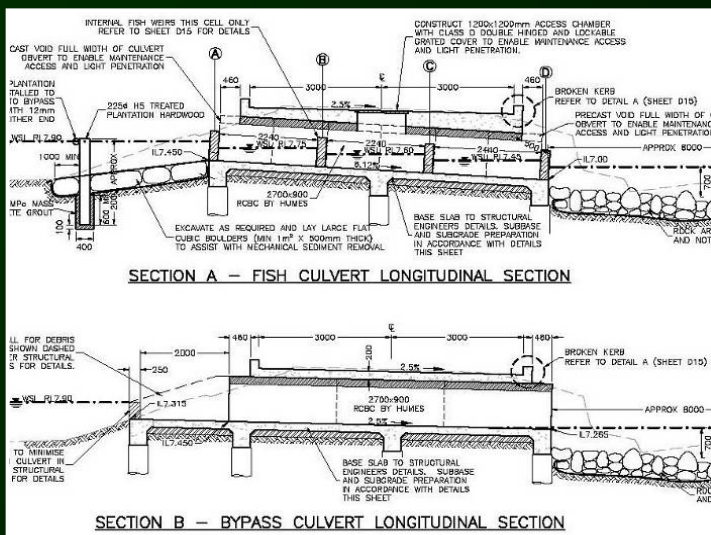
- Improved fish access to 75 km of habitat.
- Retention of water levels upstream of the crossing.

Project Costs

- Total cost of works - \$488,500.
- Preliminary works and design - \$88,740.

Partners

- The Hills Shire Council (project managers), HNCMA (funding).



AUTO-TIDAL FLOODGATE, CAHILL CREEK
Bayview Golf Club, Pittwater Road, Hawkesbury Catchment



Remediation Works

- Installation of auto-tidal floodgate to allow greater tidal exchange within lagoon.
- Negotiation with Bayview Golf Club, Pittwater Council, RTA to develop a management plan for the structure.
- Auto-tidal gate seen as a “prototype” or trial for improving odour issues within the system.
- Structure located on Crown Land (RTA road).
- Works completed September 2009.

Remediation Benefits

- Improved access to 3 km of wetland habitat.
- Improved tidal flushing within the lagoon to improve odour issues in upper reaches.

Project Costs

- Total cost of works - \$14,374

Partners

- Bayview Golf Club, Pittwater Council, RTA.

SEAGRASS FRIENDLY MOORINGS, PITTWATER ESTUARY

Various locations, Pittwater Estuary



Remediation Works

- Replacement of 34 block and chain moorings with seagrass friendly moorings.
- Expression of Interest process offered a free seagrass friendly mooring and annual maintenance for 3 years.
- Four year monitoring program to compare seagrass growth at seagrass friendly and traditional moorings.
- Works completed November 2009.

Remediation Benefits

- Seagrass recolonisation around boat moorings (estimated at 1 ha).
- Improved public awareness of seagrass friendly moorings and seagrass habitats.

Project Costs

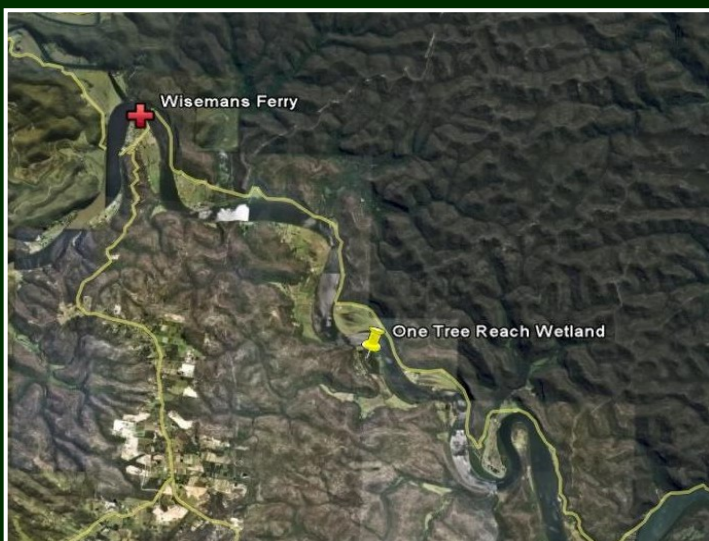
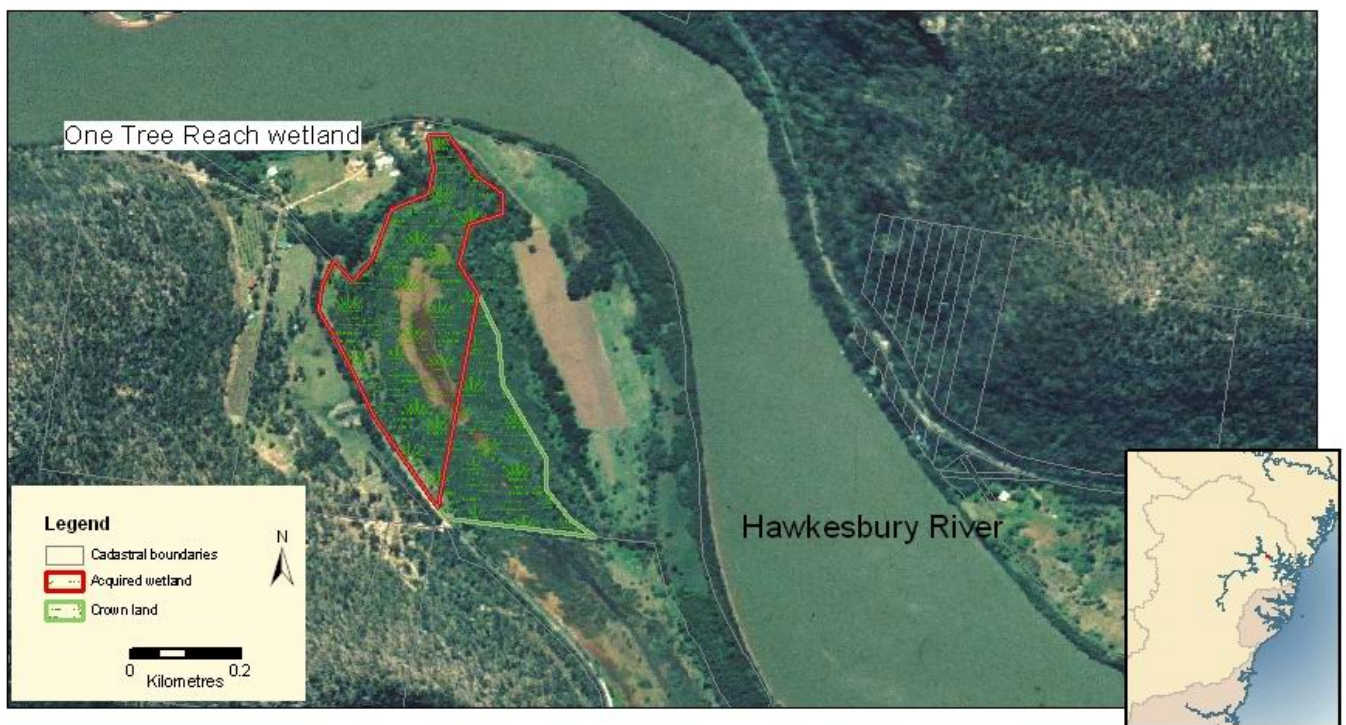
- Total cost of works - \$134,215.
- Total cost per structure - \$2,450 (includes \$600 maintenance).

Partners

- HNCMA (project managers), NSW Maritime, Pittwater Council, University of Newcastle.

ONE TREE REACH WETLAND, HAWKESBURY RIVER

Singleton Road, Hawkesbury Catchment



Remediation Works

- Purchase of property possessing off channel brackish wetland.
- Acquired property will enhance existing conservation management programs already being undertaken on adjacent Crown Land including Swamp Mahogany habitat.
- Wetland possesses freshwater and brackish sections with some estuarine (including mangroves), brackish and freshwater vegetation present.

Remediation Benefits

- Improved management and conservation of a 2 ha freshwater wetland and surrounding property (9 ha).
- Property purchased summer 2009.

Project Costs

- Total cost of purchase - \$190,000.

Partners

- Hornsby Shire Council (project managers).