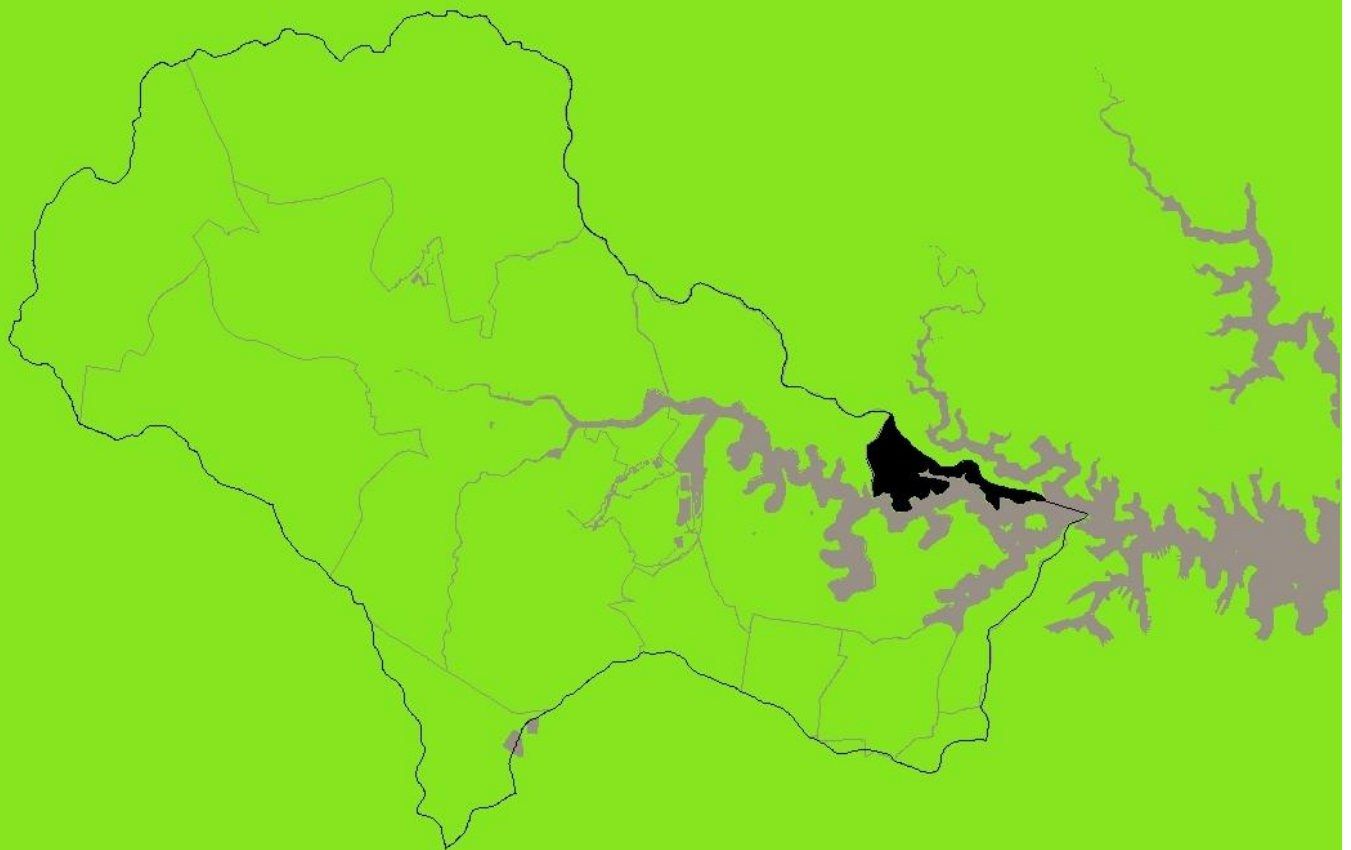


Hunters Hill LGA



9.8 Hunters Hill

9.8.1 General Description

The main sub-catchment area draining to the estuary within the Hunters Hill LGA is the Tarban Creek catchment which covers an area of approximately 226.5 ha. The Tarban Creek catchment is mainly residential with extensive open space along the upstream reaches of the creek, and Riverside Glade Reserve.

Other sub-catchment areas in the study area are located upstream and downstream of the Tarban Creek confluence with the river, while the remainder of the LGA drains into Lane Cove River.

Upstream of the Tarban Creek confluence approximately 60 ha of foreshore land drains to the river, in which land use comprises: residential, Riverside Girls High School, Bedlam Bay Regional Park, Gladesville Reserve and Betts Park.

Downstream of the Tarban Creek confluence approximately 64 ha of foreshore land drains to the river, in which land use is mainly residential with open space and recreational uses located within Fern Road Reserve, Pulpit Point Reserve, Francis Street Reserve, Weil Park, and Clarkes Point.

9.8.2 Stormwater and GPTs

Stormwater management within Hunters Hill LGA is reported in the Northern Sydney Regional Organisation of Councils (NSROC) statement of environment (SoE) reporting. Information relating to the number, type and locations of stormwater devices is not presented in NSROC's SoEs. Thirty one GPTs were reported in the LGA for 2008-09 (from which 2.5 tonnes of waste were collected) although this number includes GPTs that operate on inflows into both Lane Cove River and Parramatta River.

Table 9-40 summarises stormwater devices operated in the Hunters Hill LGA, although may not be complete.

Table 9-40. Hunters Hill LGA Stormwater Devices

Name	Location	Waterway
Sediment Ponds	Betts Park, Huntley Point	Parramatta River
Net Tech	George Street, Huntleys Cove	Tarban Creek
Interceptor	Manning Road, Huntleys Cove	Tarban Creek
Several Sediment Ponds	Huntleys Cove	Tarban Creek
Gross Pollutant Trap	Pulpit Point, Woolwich	Paramatta River
CDS Units, Stormwater Harvesting and Re-use	Clarke Point Sailing Club, Woolwich	Parramatta River

Fifty four stormwater outlets were identified which discharge directly into the estuary from the Hunters Hill LGA. A number of these outlets drain catchments which should be investigated to determine whether gross pollutant control is required or other stormwater management incentive may be warranted (Table 9-41).

Table 9-41. Stormwater Outlets draining potential GPT catchment locations

Waterway	Outlet_ID
Tarban Creek	Tarban_Creek_009
River_North	River_North_009
River_North	River_North_019
River_North	River_North_013
River_North	River_North_014
River_North	River_North_021
River_North	River_North_020
River_North	River_North_033

9.8.3 Seawalls

The Hunters Hill LGA contains approximately 2.2 km of seawalls of which 19 distinct sections of seawall were assessed (Table 9-42). Assessment details and management recommendations for high priority seawall sections are provided in Table 9-43.

Table 9-42. Seawalls assessed within the Hunters Hill LGA

Asset Name	Locality	Condition	Length (m)	Existing Habitat
HUN_S01	Clarks Pt, Woolwich	Poor	543.9	Sessile invertebrates
HUN_S02	Clarks Pt, Woolwich	Poor	261.1	Sessile invertebrates
HUN_S03	Kellys Bush, Woolwich	Good	189.0	Sessile invertebrates
HUN_S04	Pulpit Pt. Woolwich	Poor	49.9	Sessile invertebrates, intertidal cavities
HUN_S05	Pulpit Pt. Woolwich	Poor	54.8	None obvious
HUN_S06	Pulpit Pt. Woolwich	Good	43.6	Sessile invertebrates, rocky shoreline
HUN_S07	Ferry St. Hunters Hill	Poor	52.7	Sessile invertebrates, rocky shoreline
HUN_S08	Tarban Creek	Poor	87.2	Sessile invertebrates
HUN_S09	Tarban Creek	Good	16.9	Sessile invertebrates
HUN_S10	Riverglade Reserve	Good	197.1	Sessile invertebrates
HUN_S11	Riverglade Reserve	Poor	307.2	Sessile invertebrates
HUN_S12	Gladesville Bridge	Poor	107.8	Rocky substrate
HUN_S13	Adjacent to Huntley's Pt.	Good	14.6	Sessile invertebrates
HUN_S14	William St. Henley	Failed	19.0	Rock platform
HUN_S15	Dick St. Henley	Poor	58.0	Sessile invertebrates, cavities
HUN_S16	Kelly St. Henley	Poor	22.9	Sessile invertebrates, sandy beach, large boulders
HUN_S17	Bedlam Bay	Poor	4.6	Sessile invertebrates, sandy beach
HUN_S18	Bedlam Bay	Good	123.2	Sessile invertebrates, sandy beach
HUN_S19	Bedlam Point	Good	20.4	Sessile invertebrates, rocky substrate
			2,174.0	

Table 9-43. High priority seawalls within the Hunters Hill LGA

Asset name	Length (m)	Cost range for traditional engineered seawall replacement ²⁷		Habitat Creation Option ²⁸
		(\$3,000/lineal m)	(\$5,000/lineal m)	

²⁷ The cost to install a new seawall or coastal revetment is dependent on a number of factors, including:

- The ground conditions at the site
- Materials required, material availability and whether existing materials can be reused
- Site access
- The required structure profile including slope, crest height and foundation depth
- Hydrodynamic conditions

In light of this variability, an indicative cost of \$3,000-\$5,000 per linear metre of seawall has been adopted for seawalls requiring replacement.

²⁸ Refer section 4.8.1 for explanation of treatments

Asset name	Length (m)	Cost range for traditional engineered seawall replacement ²⁷		Habitat Creation Option ²⁸
		(\$3,000/lineal m)	(\$5,000/lineal m)	
HUN_S01	543.9	\$1,631,755	\$2,719,592	Seawall surface treatment, sub-tidal cave habitat
HUN_S02	261.1	\$783,275	\$1,305,459	Seawall surface treatment, sub-tidal cave habitat
HUN_S04	49.9	\$149,798	\$249,663	Seawall surface treatment, sub-tidal cave habitat
HUN_S05	54.8	\$164,311	\$273,851	Rock pools, artificial reef habitat
HUN_S07	52.7	\$158,136	\$263,561	Seawall surface treatment, sub-tidal cave habitat
HUN_S08	87.2	\$261,702	\$436,170	Seawall surface treatment, sub-tidal cave habitat, artificial reef
HUN_S11	307.2	\$921,593	\$1,535,988	Potential step style treatment (i.e. Claydon Reserve)
HUN_S12	107.8	\$323,255	\$538,759	Seawall surface treatment, sub-tidal cave habitat
HUN_S14	19.0	\$50,618.86	\$84,364.76	Rock pools
HUN_S15	58.0	\$174,087	\$290,144	Artificial reef habitat
HUN_S16	22.9	\$68,619	\$114,364	Rock pools, artificial reef habitat
HUN_S17	4.6	\$13,913	\$23,188	Rock pools, artificial reef habitat

9.8.4 Facilities

Fifteen facilities were assessed within the Hunters Hill LGA (Table 9-44). Assessment details and management recommendations for high priority facilities are area provided in Table 9-45

Table 9-44. Facilities assessed within the Hunters Hill LGA

Asset	Locality	Facility Type	Condition
HUN_F01	Clarks Pt, Woolwich	Public concrete boat ramp	Good
HUN_F02	Kellys Bush, Woolwich	Timber landing and stairs	Poor
HUN_F03	Wharf Reserve, Hunters Hill	Informal dinghy storage	Good
HUN_F04	Ferry St. Hunters Hill	Formal dinghy storage	Excellent
HUN_F05	Ferry St. Hunters Hill	Informal dinghy storage facility	Good
HUN_F06	Ferry St. Hunters Hill	Formal & informal dinghy storage	Excellent
HUN_F07	Adjacent Gladesville Bridge	Timber landing & informal dinghy storage	Good
HUN_F08	De Milhau Rd. adj. Joeys Boat Shed	Informal dinghy storage facility	Good

Asset	Locality	Facility Type	Condition
HUN_F09	Riverglade Reserve	Steel truss footbridge	Good
HUN_F10	Riverglade Reserve	Wide timber slate jetty	Good
HUN_F11	East of Tarban Creek Bridge.	Informal dinghy storage	Good
HUN_F12	Betts Park	Informal dinghy storage	Good
HUN_F13	Gladesville Reserve	Informal dinghy storage	Good
HUN_F14	Walumatta Bay, Henley	Timber landing and ramp with informal dinghy storage	Failed
HUN_F15	Kelly St, Henley	Informal dinghy storage	Good
HUN_F16	Bedlam Bay	Steel lookout structure	Excellent

Table 9-45. High priority facilities within the Hunters Hill LGA

Asset Name	Asset Description
HUN_F14	<p>Description: Timber landing and ramp with informal dinghy storage beneath trees on rocky shoreline.</p> <p>Condition - Failed: Timber ramp has partly collapsed and is severely deteriorated. Landing has also deteriorated. No formal dinghy storage structure was observed. Vessels must be launched using failed timber ramp.</p> <p>Recommendations: It is recommended that dinghies are either relocated and ad-hoc structures removed or formal dinghy storage and launching facilities are installed.</p>
HUN_F02	<p>Description: Timber landing and stairs with steel connections supported by timber piles which appear to be embedded into rock. Stairs are 1.5m above rocky outcrops and water. Dinghies are tethered to structure and trees on foreshore.</p> <p>Condition - Poor: Deterioration of timber landing, stairs and piles was observed. Steel connections are corroding. Access to water is difficult as fouling of the lower sea stairs has occurred making them slippery. Bedrock is also exposed at low tide below the structure. No major assets are affected by this facility.</p> <p>Recommendations: The timber components that form the sea stairs have corroded and are slippery. The structure should be repaired or public access prevented.</p>

9.8.5 Estuarine Vegetation

Estuarine vegetation within the Hunters Hill LGA consists of small areas of saltmarsh, mangroves, Swamp-oak Forest and Coastal Sandstone Gully Forest and Ridgetop Woodland (Table 9-46). Estuarine vegetation is largely contained within Gladesville Reserve, Betts Park, Riverglade Reserve, and Kelly Bush Reserve.

Seagrasses previously mapped within the waterways adjacent the Hunters Hill LGA were not evident from either of boat and land based field investigations, or only seaweed was found (i.e. 316 m² not evident, and 62.6 m² containing seaweed).

There are limited habitat areas within the Hunters Hill LGA for seagrass to subsist, with most of the foreshore exposed to the Parramatta River (and subject to wind and wave energy). Within Tarban Creek, much of the potential habitat is located amongst privately owned foreshore frontages and associated jetties, moorings and subsequent watercraft traffic.

Table 9-46. Estuarine vegetation within the Hunters Hill LGA

Community	Landward Migration (ha)		Total (ha)
	Limited	Potential	
Mangrove	0.30	0.90	1.20
Saltmarsh	<0.01	<0.01	<0.02
Swamp-oak Floodplain Forest	0.07	0.63	0.70
Coastal Sandstone Gully Forest	5.00	5.00	10.00
Coastal Sandstone Ridgetop Woodland	1.10	0.30	1.40

The majority of mangroves in the LGA are located in Tarban Creek, which have some potential for landward migration. Mangroves within the upper tidal reach of the creek are suffering from dense vine growth which is smothering leaves, limiting photosynthesis, and causing die back in some trees.

Saltmarsh in the LGA is located along the foreshore of Gladesville Reserve, and is impacted by dinghy storage, introduced grass and weed species, and emerging young mangroves.

Hunters Hill Council has undertaken a number of bushland rehabilitation and water quality control projects within the Tarban Creek catchment, and has recently commissioned the preparation of a number of Estuary Vegetation Rehabilitation and Management Plans which include Betts Park and Gladesville Reserve.

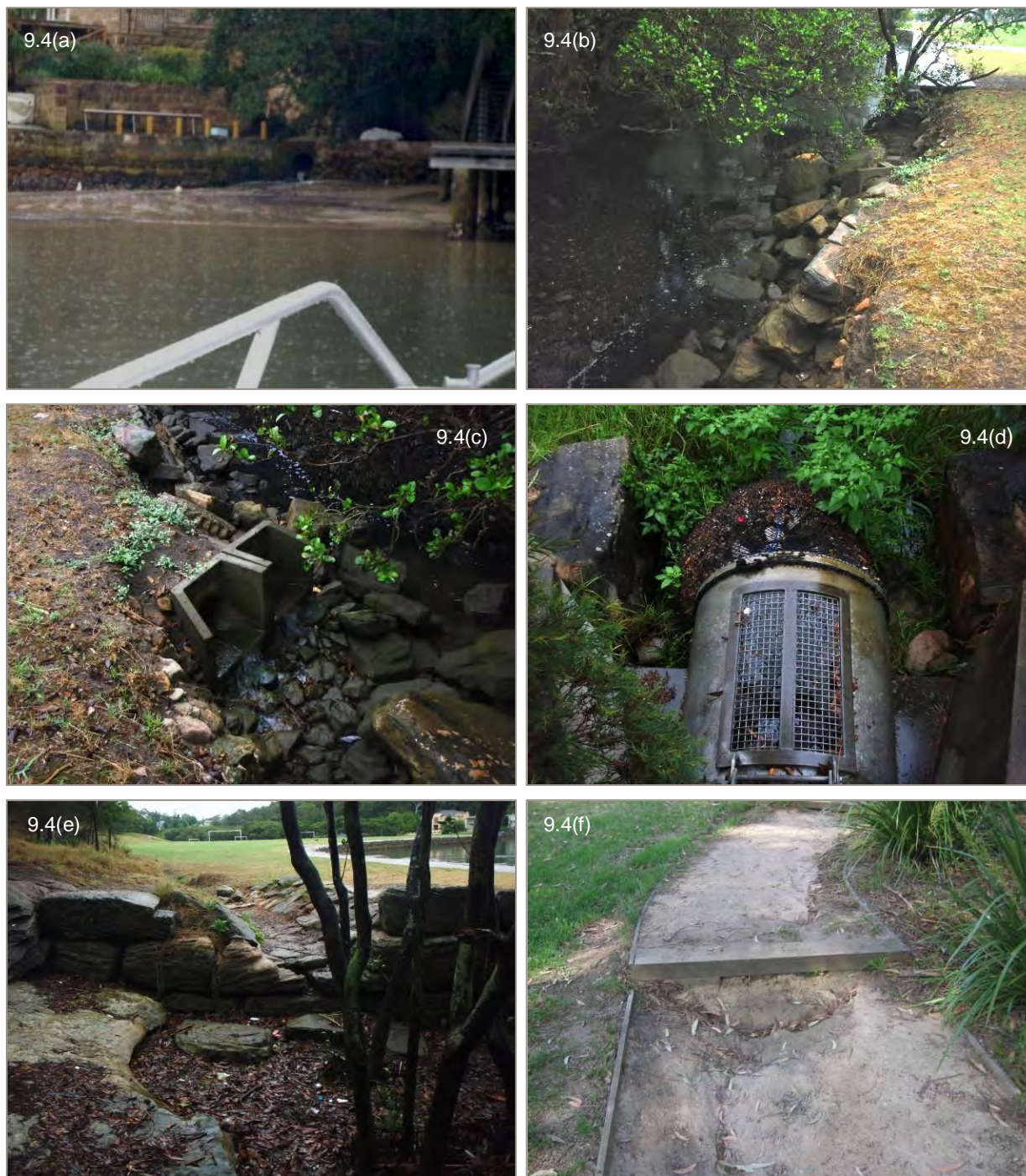
9.8.6 Management Recommendations

Stormwater:

- Review of Tarban Creek catchment and additional areas of gross pollutant trapping considered, e.g. leaf litter entering creek from drainage under Jolie Parade Reserve, quality of flows from unmapped stormwater outlets in seawall HUN_S11, and a (mapped) inflow downstream of Joeys Boat Shed (*Photo 9.4(a)*);
- Minor repairs to southern bank of Tarban Creek (upstream of pedestrian bridge) (*Photo 9.4(b)*) and small inflows which appear to be a potential source of sediments through erosion (*Photo 9.4(c)*);
- A number of inflows to Tarban Creek from the southern side of Riverglade Reserve are not evident on GIS layers provided by Council, which should be updated;
- Nettech located on (unmapped) drainage inflow to constructed wetlands burgeoning with gross pollutants, erosion evident around surrounding rip rap with landscaping mulch and soils entering wetland (*Photo 9.4(d)*);
- Flows within wetland appear to potentially be short circuiting through patchily distributed wetland plants (i.e. forming preferential flow paths through non-vegetated areas of wetland. The weir (under pathway) has a gradual slope which directs the majority of flow through a smaller section of the weir which is also encouraging preferential flows. Minor remediation works (i.e. weeding, supplementary planting, stabilisation of batters around Nettech and reassessment and potential modification of weir design, would serve to improve water quality treatment in wetland, and in turn, improve water quality discharging to Tarban Creek;
- Manage inflows and organic material entering Tarban Creek from swale in the south western area of open space in Riverglade Reserve (*Photo 9.4(e)*);
- Repairs to pedestrian stairs in Gladesville Reserve which are eroding and a source of sediments to Parramatta River (*Photo 9.4(f)*).

Seawalls and facilities:

- As per recommendations in preceding Sections: 9.7.2 – 9.7.3.



Estuarine vegetation:

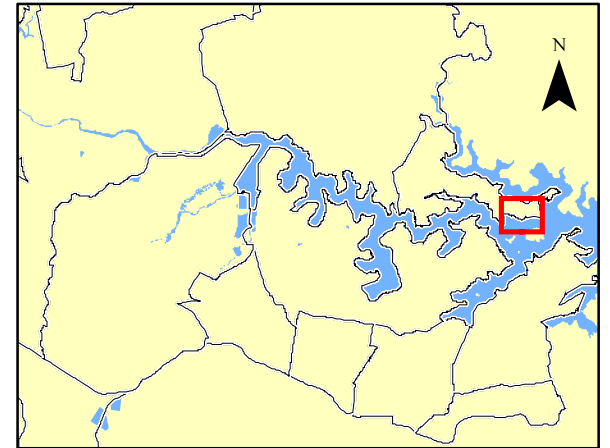
- Targeted vine control within the upper tidal reach of Tarban Creek;
- Removal of young Phoenix palms, Coral trees and Green Cestrum within the upper tidal reach of Tarban Creek;
- Provision of formalised dinghy storage in Gladesville Reserve (*Photo 9.4(g)*);
- Control of emerging mangrove saplings in saltmarsh located within Gladesville Reserve (*Photo 9.4(h)*);
- Ongoing monitoring and management of Alligator Weed in Betts Park;

- Gradual removal of large Camphor Laurels in Betts Park and replacement with native species; and
- Small amounts of saltmarsh occurring within the LGA with limited potential for landward migration may provide propagative material for future saltmarsh restoration or rehabilitation projects.





SITE LOCATION



Seawall condition

- Excellent
- Good
- Poor
- Failed

Natural foreshore erosion

- Facilities

- Stormwater outlets

- Potential GPT site

- Existing GPT

- Stormwater drainage

- Estuarine mangrove

- Coastal saltmarsh (EEC)

- Swamp-oak floodplain forest (EEC)

- Turpentine-ironbark forest (EEC)

- Coastal sandstone communities

- Seagrass

- Seagrass not evident

- Foreshore reserve

Source:

Seagrass base plan: Industry & Investment NSW (2003)

Seagrass ground truthed: AECOM (2009)

Vegetation base mapping: SMCMA (2007)

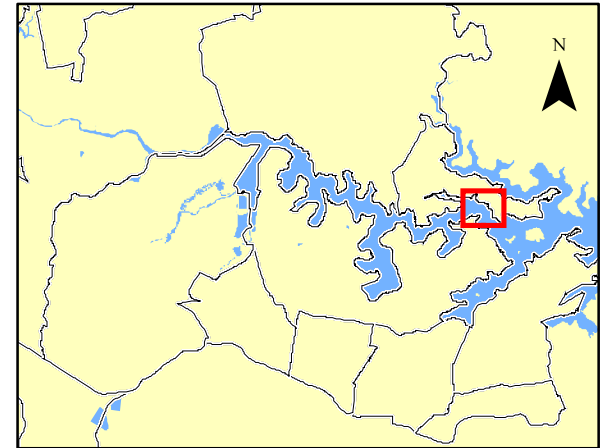
Other: refer study section 8.0 (2010)

Coordinate System:

GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Excellent
- Good
- Poor
- Failed

Natural foreshore erosion

- Facilities

- Stormwater outlets

- Potential GPT site

- Existing GPT

- Stormwater drainage

- Estuarine mangrove

- Coastal saltmarsh (EEC)

- Swamp-oak floodplain forest (EEC)

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Vegetation base mapping: SMCMA (2007)

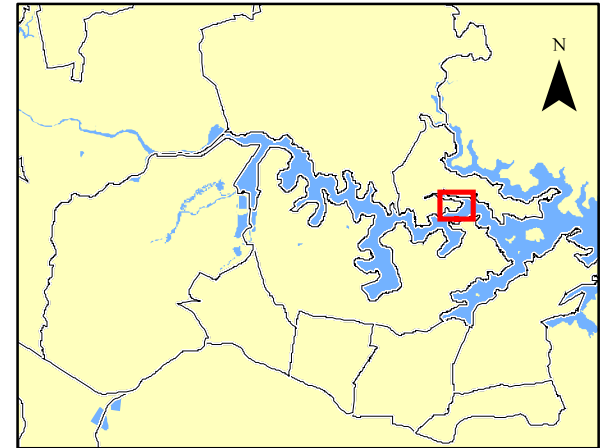
Other: refer study section 8.0 (2010)

Coordinate System:

GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Excellent
- Good
- Poor
- Failed

Natural foreshore erosion

- Facilities

- Stormwater outlets

- Potential GPT site

- Existing GPT

- Stormwater drainage

- Estuarine mangrove

- Coastal saltmarsh (EEC)

- Swamp-oak floodplain forest (EEC)

- Turpentine-ironbark forest (EEC)

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- Seagrass

- Seagrass not evident

- Foreshore reserve

Source:

Seagrass base plan: Industry & Investment NSW (2003)

Seagrass ground truthed: AECOM (2009)

Vegetation base mapping: SMCMA (2007)

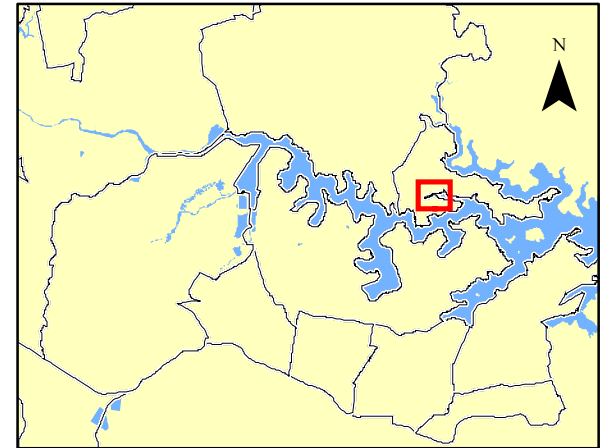
Other: refer study section 8.0 (2010)

Coordinate System:

GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Excellent
- Good
- Poor
- Failed

Natural foreshore erosion

Facilities

Stormwater outlets

Potential GPT site

Existing GPT

Stormwater drainage

Estuarine mangrove

Coastal saltmarsh (EEC)

Swamp-oak floodplain forest (EEC)

Turpentine-ironbark forest (EEC)

Coastal sandstone communities

Seagrass

Seagrass not evident

Foreshore reserve

Source:

Seagrass base plan: Industry & Investment NSW (2003)

Seagrass ground truthed: AECOM (2009)

Vegetation base mapping: SMCMA (2007)

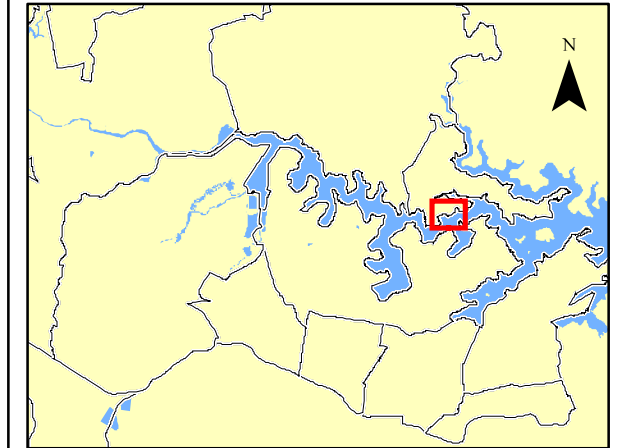
Other: refer study section 8.0 (2010)

Coordinate System:

GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Excellent
- Good
- Poor
- Failed
- Natural foreshore erosion
- Facilities
- Stormwater outlets
- Potential GPT site
- Existing GPT
- Stormwater drainage
- Estuarine mangrove
- Coastal saltmarsh (EEC)
- Swamp-oak floodplain forest (EEC)
- Turpentine-ironbark forest (EEC)
- Coastal sandstone communities
- Seagrass
- Seagrass not evident
- Foreshore reserve

Source:

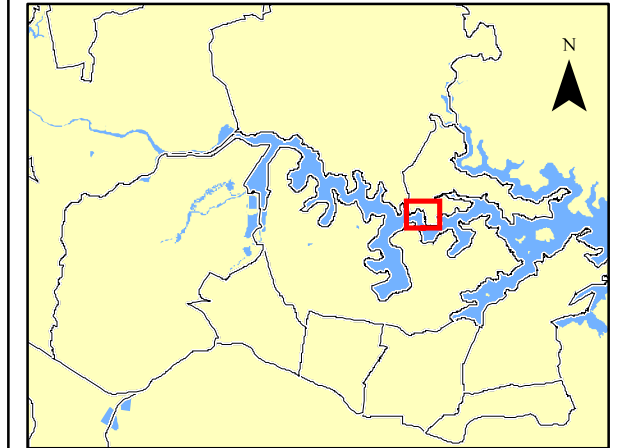
Seagrass base plan: Industry & Investment NSW (2003)
 Seagrass ground truthed: AECOM (2009)
 Vegetation base mapping: SMCMA (2007)
 Other: refer study section 8.0 (2010)

Coordinate System:

GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Excellent
- Good
- Poor
- Failed

Natural foreshore erosion

- Facilities

- Stormwater outlets

- Potential GPT site

- Existing GPT

- Stormwater drainage

- Estuarine mangrove

- Coastal saltmarsh (EEC)

- Swamp-oak floodplain forest (EEC)

- Turpentine-ironbark forest (EEC)

- Coastal sandstone communities

- Seagrass

- Seagrass not evident

- Foreshore reserve

Source:

Seagrass base plan: Industry & Investment NSW (2003)

Seagrass ground truthed: AECOM (2009)

Vegetation base mapping: SMCMA (2007)

Other: refer study section 8.0 (2010)

Coordinate System:

GDA94 MGA Zone 56

Appendix 7: Field Assessment Sheets for Priority Sites

SITES IN ORDER OF PRIORITY

All assessment sites are detailed within the project GIS database.

ABBREVIATIONS

Level: metres AHD (m)

Co-ords (MGA): Coordinates Map Grid of Australia

E: easting

N: northing

Condition:

Excellent	<ul style="list-style-type: none">• No defects observed• Structure is functioning as intended
Good	<ul style="list-style-type: none">• Minor defects observed• Generally good condition• Structure is functioning as intended
Poor	<ul style="list-style-type: none">• Major defects observed• Structure is at risk of failure without remedial action• Reduced functionality
Failed	<ul style="list-style-type: none">• Major defects observed• Structure is no longer functioning as intended• Structure has collapsed

Seawall Inspection Record - HUN_S01

Date	<u>5/08/09</u>	Locality	<u>Clarkes Point, River North</u>	Level	<u>0.80m</u>	LGA	<u>Hunters Hill</u>
Time	<u>14:35</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E 331042
N 6253968

End

E 330825
N 6253769

Seawall Details (Slope, Material, Const. Method, Type):

Vertical large grouted sandstone block seawall. The crest was approx. 1.5m above the water level at time of inspection. An old abandoned boat ramp is located at the southern section of the structure.

Condition Assessment (Slope, Crest, Toe, Backfill):

Numerous block failures of the crest were observed with blocks fallen into water below. Surface weathering of the sandstone blocks and sinkholes behind structure crest were also observed.

Excellent
Good
Poor
Failed

X

Assets:

General public access is available with no barrier to differentiate the wall edge. Access to the water is possible using the old abandoned boat ramp which is mossy and slippery.

Comments:

Abandoned boat ramp is located at (WP 225 330950, 6253785). Photos HUN_S01-01 to HUN_S01-22

Photo 1

Typical section of seawall showing failure of blocks at crest, surface weathering and loss of grout material.

Photo 2

Slumping of sandstone blocks.



Seawall Inspection Record - HUN_S02

Date 5/08/09 Locality Clarkes Point, River North Level 0.80m LGA Hunters Hill
Time 14:15 People Low-Mid



Co-Ords (MGA)

Start
E 330825
N 6253769

End
E 330609
N 6253786

Seawall Details (Slope, Material, Const. Method, Type):

Vertical large grouted sandstone block seawall. The crest was approx. 1.5m above the water level at time of inspection. A punt operates from the eastern extent of the wall to Cockatoo Island

Condition Assessment (Slope, Crest, Toe, Backfill):

Numerous block failures of the crest were observed with blocks fallen into water below.
Surface weathering of the sandstone blocks and sinkholes behind structure crest were also observed. Western section is in better condition.

Excellent
Good
Poor
Failed

X

Assets

General public access is available with no barrier to differentiate the wall edge. Access to the water is possible using ramp associated with the punt.

Comments:

Photos HUN_S02-01 to HUN_S02-06

Photo 1

Typical section of seawall showing failure of blocks at crest, surface weathering and loss of grout material.



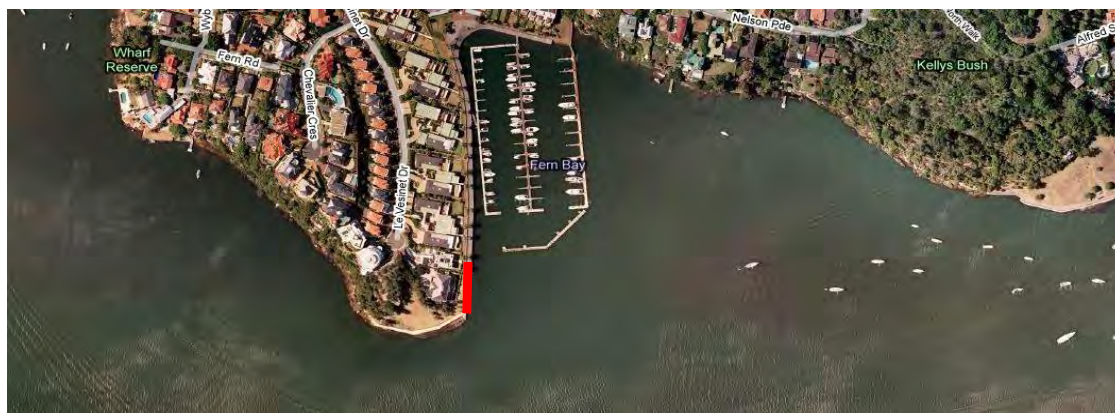
Photo 2

Western section of the seawall leading to boat ramp is in better condition than the rest of the structure



Seawall Inspection Record - HUN_S04

Date	<u>5/08/09</u>	Locality	<u>Pulpit Point, River North</u>	Level	<u>0.49m</u>	LGA	<u>Hunters Hill</u>
Time	<u>12:54</u>			Tide	<u>Low</u>		



Co-Ords (MGA)	
Start	
E	<u>329945</u>
N	<u>6253602</u>
End	
E	<u>329944</u>
N	<u>6253552</u>

Seawall Details (Slope, Material, Const. Method, Type):
<u>Medium size grouted sandstone block seawall with one layer of newer blocks along crest associated with development of the foreshore. The crest was approx. 2m above the water level at time of inspection.</u>

Condition Assessment (Slope, Crest, Toe, Backfill):	Excellent	<input type="checkbox"/>
<u>Grout is missing from the lower blocks with extensive slumping and cavities observed. A number of localised block failures at the seawall toe were also observed. The newer, top layer is in good condition with grouting present.</u>	Good	<input type="checkbox"/>
	Poor	<input checked="" type="checkbox"/>
	Failed	<input type="checkbox"/>

Assets
<u>General public access is available via adjacent park although there is no formalised footpath or barrier differentiating the wall edge. No significant assets are located on or near the structure.</u>

Comments:
<u>The structure continues beneath the private marina located at Fern Bay. Photos HUN_S04-01 to HUN_S04-05</u>

Photo 1
Typical view of seawall.



Photo 2
Block failure at toe and loss of grout and clumping of lower, older sandstone blocks.



Seawall Inspection Record - HUN_S05

Date	<u>5/08/09</u>	Locality	<u>Pulpit Point, River North</u>	Level	<u>0.49m</u>	LGA	<u>Hunters Hill</u>
Time	<u>12:50</u>			People	<u>Low</u>		



Co-Ords (MGA)

Start

E 329944
N 6253552

End

E 329896
N 6253537

Seawall Details (Slope, Material, Const. Method, Type):

Relatively new stepped wire mesh gabion basket vertical stepped seawall, five baskets wide at toe to one wide at crest. Gabions are filled with what appears to be sandstone, 150-200mm in diameter. A concrete footpath and timber fence is located directly behind the gabion crest.

Condition Assessment (Slope, Crest, Toe, Backfill):

A number of gabion units that make up the toe have failed and have lost fill material. The vertical face component of the structure is in good condition. If the toe continues to deteriorate, the structural integrity of the entire gabion wall may be threatened.

Excellent
Good
Poor
Failed

X

Assets

Safety fence prevents public access to gabion wall. No other major assets are supported by this structure.

Comments:

Photos HUN_S05-01 to HUN_S05-06.

Photo 1

General view of gabion wall.

Photo 2

Loss of material from gabion baskets at toe.



Seawall Inspection Record - HUN_S07

Date	<u>5/08/09</u>	Locality	<u>Hunters Hill, River North</u>	Level	<u>0.69m</u>	LGA	<u>Hunters Hill</u>
Time	<u>12:21</u>			People	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E 329248

N 6254188

End

E 329204

N 6254200

Seawall Details (Slope, Material, Const. Method, Type):

At the western extent the structure is a vertical medium sized grouted sandstone block seawall. The crest was approx. 2.5m above the WL at time of insp. The eastern extent is vertical concrete wall which may be capping an older sandstone block seawall as per the western extent. A set of medium sandstone block sea stairs is located mid-way along the structure and are associated with an historic ferry facility.

Condition Assessment (Slope, Crest, Toe, Backfill):

Sandstone blocks are missing grout and are showing severe signs of surface weathering and slumping. Localised block failures were also observed. Surface weathering and cracking of the concrete section of the structure was observed. The sea stairs have lost grout material and are severely weathered.

Excellent

Good

Poor

Failed

X

Assets

A steel safety fence is present along the entire length of the structure. Sea stairs appear to be launch site for adjacent dinghy storage facilities (HUN_F04 and HUN_F05).

Comments:

Two dingy storage facilities are located beyond the crest of this structure (HUN_F04 and HUN_F05) and this inspection report should be read in conjunction with the inspection reports for these facilities. The old ferry wharf shelter structure is also located beyond the crest, however, this was not inspected as part of this project. Photos HUN_S07-01 to HUN_S07-07

Photo 1

Sandstone block section of seawall and sandstone sea stairs showing loss of grout, weathering and block failures.



Photo 2

Concrete section of structure showing surface weathering and cracking.



Seawall Inspection Record - HUN_S08

Date	<u>5/08/09</u>	Locality	<u>Tarban Creek Bridge, Tarban Creek</u>	Level	<u>0.69m</u>	LGA	<u>Hunters Hill</u>
Time	<u>11:45</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E	<u>328431</u>
N	<u>6254376</u>

End

E	<u>328353</u>
N	<u>6254388</u>

Seawall Details (Slope, Material, Const. Method, Type):

Vertical medium size block grouted sandstone seawall. A section to the east of the bridge buttress has been replaced.

Condition Assessment (Slope, Crest, Toe, Backfill):

Older sections of the seawall are missing grout and are showing signs of weathering and slumping. Localised block failures were also noted. The new section of wall is in very good condition.

Excellent
Good
Poor
Failed

X

Assets

Although the area is public space the area is heavily vegetated and access to the wall from the road is difficult.
No major assets are supported by the structure.

Comments:

Photos HUN_S08-01 to HUN_S08-05.

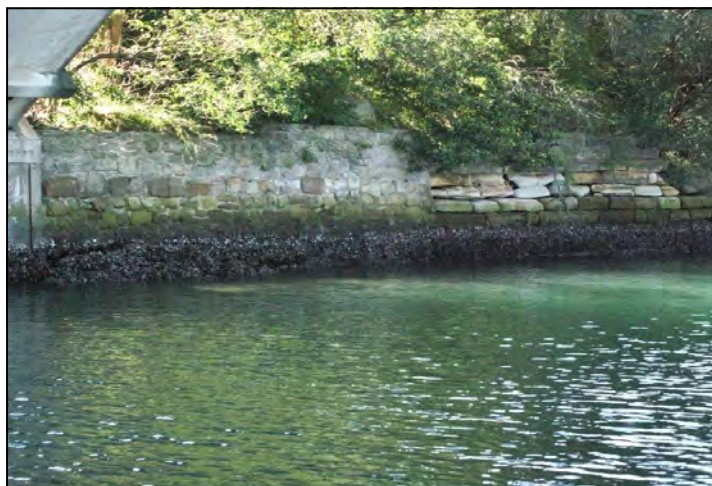
Photo 1

Sandstone block seawall on western side of Tarban Creek Bridge.
Cracking and loss of grout was observed.



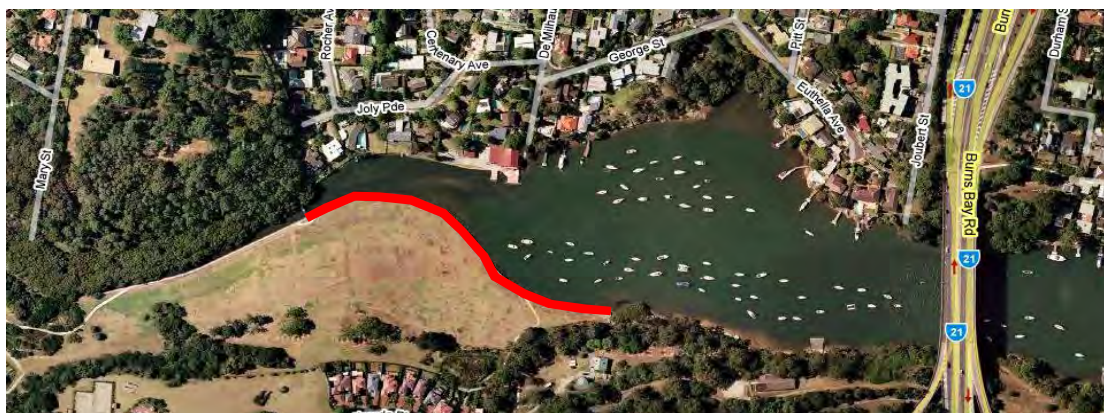
Photo 2

Sandstone block seawall on eastern side of Tarban Creek Bridge showing newer section and older deteriorated section.



Seawall Inspection Record - HUN_S11

Date	<u>5/08/09</u>	Locality	<u>Huntleys Cove, Tarban Creek</u>	Level	<u>0.88m</u>	LGA	<u>Hunters Hill</u>
Time	<u>10:41</u>			Tide	<u>Mid</u>		



Co-Ords (MGA)

Start

E	<u>327811</u>
N	<u>6254395</u>

End

E	<u>328075</u>
N	<u>6254308</u>

Seawall Details (Slope, Material, Const. Method, Type):

Vertical medium to small sized grouted sandstone block seawall. The crest was approx. 1.5m above the water level at time of inspection.

Gabion baskets have been trenched into the muddy seabed at the toe. A public concrete footpath runs along the length of the wall.

Condition Assessment (Slope, Crest, Toe, Backfill):

Majority of grout material has been lost from the structure leading to loss of fines from behind and slumping of both the vertical face of the wall and the concrete footpath beyond. Significant weathering of the sandstone blocks was also observed.

Excellent	<input type="checkbox"/>
Good	<input type="checkbox"/>
Poor	<input checked="" type="checkbox"/>
Failed	<input type="checkbox"/>

Assets

Public footpath is cracked and slumping. No other assets are supported by the structure.

Comments:

The footpath beyond the wall crest is cracking and many defects were marked with crosses at location (WP 206 327942, 6254391).

Photos HUN_S11-01 to HUN_S11-10.

Photo 1

Typical view of structure showing loss of grout and slumping of sandstone blocks.



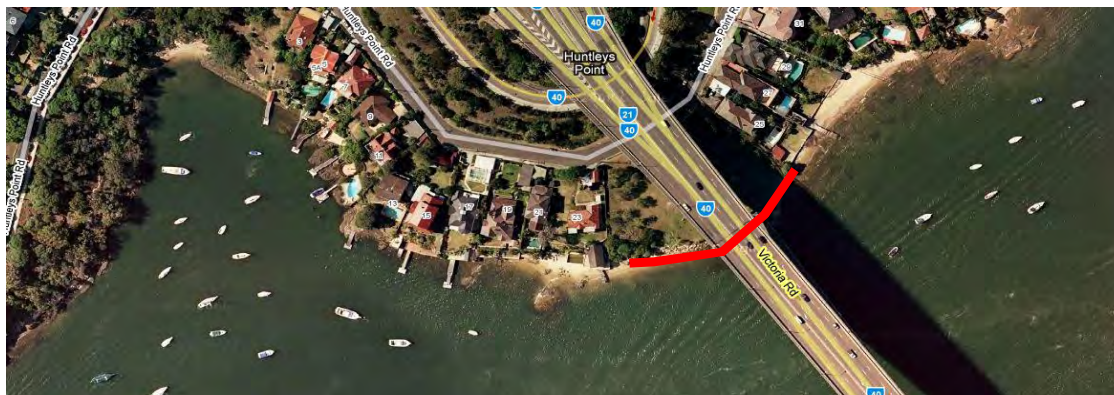
Photo 2

Slumping and cracking of public footpath with marked defects shown.



Seawall Inspection Record - HUN_S12

Date	<u>5/08/09</u>	Locality	<u>Huntleys Point (Gladesville Bridge), River North</u>	Level	<u>0.80m</u>	LGA	<u>Hunters Hill</u>
Time	<u>14:53</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E	<u>328558</u>
N	<u>6253971</u>

End

E	<u>328497</u>
N	<u>6253919</u>

Seawall Details (Slope, Material, Const. Method, Type):

Eastern side of bridge is medium size specially placed sandstone revetment with small section of gabion baskets. The western side of bridge is an ad-hoc, poorly sorted, sandstone boulder revetment with a natural sandy shoreline in front.

Condition Assessment (Slope, Crest, Toe, Backfill):

The sandstone block revetment and gabion baskets on the eastern side of the bridge are in a good condition. The sandstone boulder revetment on western side has failed with material from original structure strewn on the sandy beach in front.

Excellent	<input type="checkbox"/>
Good	<input type="checkbox"/>
Poor	<input checked="" type="checkbox"/>
Failed	<input type="checkbox"/>

Assets

Public access is available via landscaped parkland beyond structure crest. No assets are supported by this structure.

Comments:

Photos HUN_S12-01 to HUN_S12-08.

Photo 1

Eastern extent of structure showing specially placed sandstone revetment and gabion baskets.



Photo 2

Ad-hoc poorly sorted sandstone boulder revetment. Structure has collapsed with material strewn across sandy shoreline.



Seawall Inspection Record - HUN_S14

Date 5/08/09 Locality Henley, River North Level 1.10 LGA Hunters Hill
Time 15:54 Tide Mid



Co-Ords (MGA)

Start

E 327738
N 6253521

End

E 327723
N 6253511

Seawall Details (Slope, Material, Const. Method, Type):

Small section of vertical medium sized sandstone block seawall founded on bedrock

Condition Assessment (Slope, Crest, Toe, Backfill):

Wall has partially collapsed and appears to be abandoned.

Excellent
Good
Poor
Failed

X

Assets

Access to foreshore is accessible from William Street. No assets are in the vicinity of the structure.

Comments:

Photo HUN_S14-01 and HUN_S14-02.

Photo 1

View of seawall.

Photo 2

Loss of grout, weathering and failure of sandstone blocks.



Seawall Inspection Record - HUN_S15

Date	5/08/09	Locality	Henley, River North	Level	1.10m	LGA	Hunters Hill
Time	16:00			Tide	Mid		



Co-Ords (MGA)

Start

E 327359
N 6253499

End

E 327353
N 6253506

Seawall Details (Slope, Material, Const. Method, Type):

Appears to be old abutment which consists of revetments on sides and a vertical seawall at the front. The entire structure is made from medium sized sandstone blocks with the front face having some grouting present. A 200mm layer of concrete capping has been placed around the crest as has a strip of asphalt at the front face. The crest was approx. 1.5m above the water level at time of inspection.

Condition Assessment (Slope, Crest, Toe, Backfill):

Vertical sandstone block wall that forms front face of structure is missing grout material, a number of block failures were also observed. The revetments on each side of the structure are slumping due to a loss of fine material from behind. Large sinkholes and cracking of concrete capping at crest further confirm the loss of fine material.

Excellent
Good
Poor
Failed

X

Assets

There is no safety rail or structure to differentiate the wall edge. Large sinkholes are being used to hold fishing rods. No other assets are supported by the structure.

Comments:

Photos HUN_S15-01 and HUN_S15-04.

Photo 1

Eastern view of structure. Block failures on front vertical face is shown.



Photo 2

Western section of structure showing extent of slumping of revetment component.



Seawall Inspection Record - HUN_S16

Date	6/08/09	Locality	Bedlam Bay, River North	Level	0.89m	LGA	Hunters Hill
Time	11:54			Tide	Mid		



Co-Ords (MGA)

Start

E 327284
N 6253809

End

E 327280
N 6253828

Seawall Details (Slope, Material, Const. Method, Type):

Vertical medium size grouted sandstone block seawall founded on bedrock. Sea stairs have been carved into the bedrock. Public baths that were once here have been abandoned. Timber piles remain but do not support any structure or asset. A steel safety fence runs along the majority of the structure.

Condition Assessment (Slope, Crest, Toe, Backfill):

Sandstone seawall has failed in some locations with blocks strewn across bedrock. At other location all grout is missing with surface weathering and large cavities evident while grout has been replaced at discrete locations long the wall. Steel safety fence is corroding. Timber piles are showing signs of deterioration.

Excellent
Good
Poor
Failed

X

Assets

Public access to water is available via carved sea stairs which are mossy and weathered. No major assets are supported by the structure.

Comments:

Dinghies are being stored atop the wall and are discussed in Inspection Record HUN_F15. Photos HUN_S16-01 to HUN_S16-04.

Photo 1

View of structure.

Photo 2

Block failure of seawall.



Seawall Inspection Record - HUN_S17

Date 6/08/09 Locality Bedlam Bay, River North Level 0.89m LGA Hunters Hill
Time 11:57 Tide Mid



Co-Ords (MGA)

Start

E 327257

N 6253926

End

E 327256

N 6253930

Seawall Details (Slope, Material, Const. Method, Type):

Vertical medium sized sandstone block seawall.

Condition Assessment (Slope, Crest, Toe, Backfill):

Numerous blocks have collapsed and fallen into water below. No grouting was observed. Surface weathering and slumping also evident.

Excellent

Good

Poor

Failed

X

Assets

Structure is located within a public park however access to wall is difficult as the land beyond the wall is heavily vegetated. No other assets are supported by the structure.

Comments:

Photos HUN_S17-01 and HUN_S17-02.

Photo 1

View of structure.

Photo 2

Block failure of seawall.



Facility Inspection Record

- HUN_F14

Date	5/08/09	Locality	Walumatta Bay, Henley	Level	0.80m	LGA	Hunters Hill
Time	15:45			Tide	Low-Mid		



Co-Ords (MGA)

Start

E 327712
N 6253795

Facility Details (Usage, Material, Const. Method, Type):

Timber landing and ramp with informal dinghy storage beneath trees on rocky shoreline.

Condition Assessment:

Timber ramp has partly collapsed and is severely deteriorated. Landing has also deteriorated. No formal dinghy storage structure was observed.

Excellent
Good
Poor
Failed

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

Assets:

Vessels must be launched using failed timber ramp.

Comments:

Photo HUN_F14-01 to HUN_F14-03.

Photo 1

View of dinghy storage area showing deterioration of timber ramp.

Photo 2

Dinghies on timber landing tethered to trees.



Facility Inspection Record

- HUN_F02

Date	<u>5/08/09</u>	Locality	<u>Kellys Bush, Woolwich</u>	Level	<u>0.49m</u>	LGA	<u>Hunters Hill</u>
Time	<u>14:06</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start

E 330428

N 6253693

Facility Details (Usage, Material, Const. Method, Type):

Timber landing and stairs with steel connections supported by timber piles which appear to be embedded into rock. Stairs are 1.5m above rocky outcrops and water. Dinghies are tethered to structure and trees on foreshore.

Condition Assessment:

Deterioration of timber landing, stairs and piles was observed. Steel connections are corroding.

Excellent

Good

Poor

Failed

X

Assets:

Access to water is difficult as fouling of the lower sea stairs has occurred making them slippery. Bedrock is also exposed at low tide below the structure. No major assets are affected by this facility.

Comments:

Structure abuts seawall (HUN_S03). Photos HUN_F02-01 to HUN_F02-03

Photo 1

View of structure and adjacent seawall (HUN_S03).

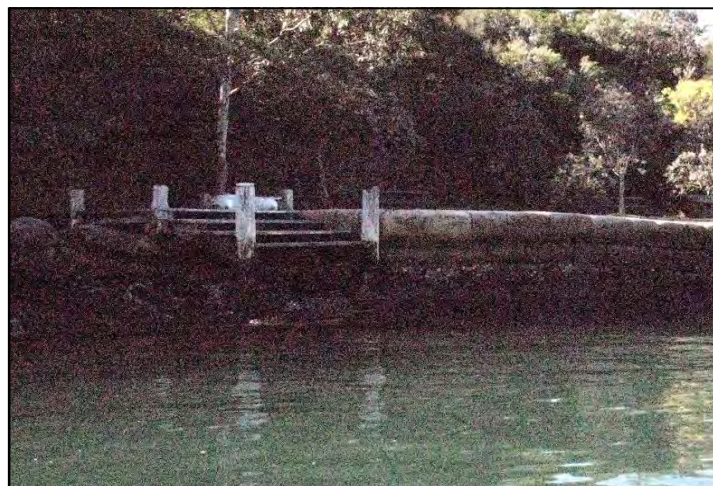


Photo 2

View of structure showing deterioration of timber piles.

