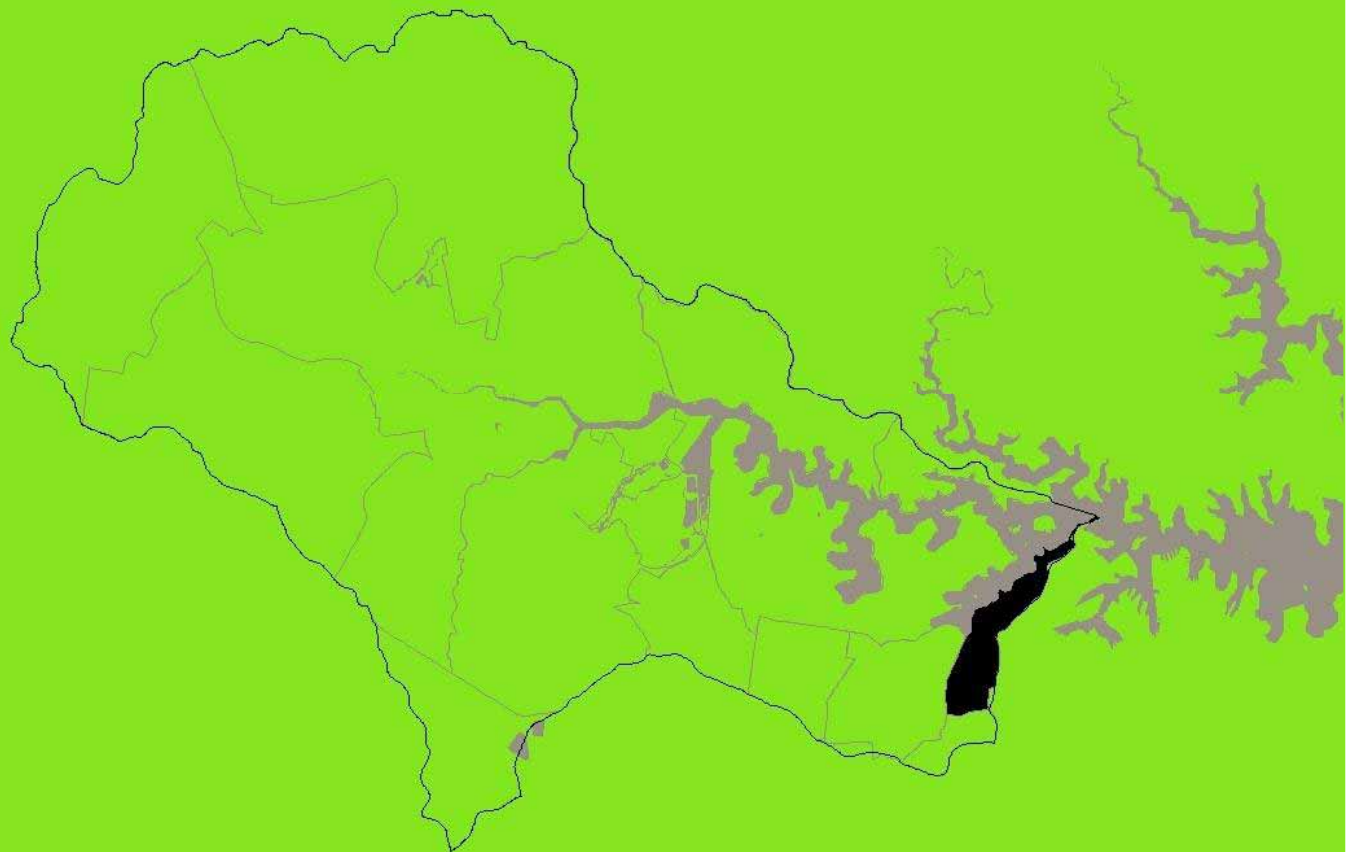


Leichhardt LGA



9.2 Leichhardt

9.2.1 General Description

Leichhardt LGA is described as one of the most urbanised LGAs in the lower Parramatta River catchment with up to 40% of its area covered with impervious surfaces (Woodlots and Wetlands 1999). Approximately 407 ha of the Leichhardt LGA drains to the study area, which includes the following sub-catchments:

- Hawthorne Canal (160 ha);
- Iron Cove Bay, downstream of Hawthorne Canal (32 ha); and
- River South, downstream of Iron Cove Bridge (215 ha)

Land use in these sub-catchment areas is primarily residential, with open space areas along the foreshore extending from Hawthorne Canal to the Iron Cove Bridge (including Leichhardt Park, King George Reserve, foreshore land associated with Callan Park / Rozelle Hospital, and Elkington Park). North of the bridge, public foreshore access is more intermittent with a high proportion of private property to the high tide mark.

9.2.2 Stormwater Management and GPTs

Council has installed a number of gross pollutant traps (GPTs) around the LGA to reduce the impact of litter on Sydney Harbour. There is a dedicated crew and eductor truck that empties the GPTs every three months or so. In addition they are responsible for the emptying of stormwater pits in roads on a proactive basis before and after storms where there are known to be flooding issues and reactively when a blockage or area of concern arises.

Council's SoE reporting indicates that there are 40 GPTs installed throughout the LGA, from which 144 tonnes of waste was collected in the 2007-08 reporting period, although these figures include sub-catchment areas outside of the study area (i.e. areas of Leichhardt LGA that drain to Snails Bay, Mort Bay, White Bay, and Rozelle Bay).

The location of GPTs reported in various SoEs by Council are listed in Table 9-1, although these represent only a small proportion of the total GPTs operated in the Leichhardt LGA.

Table 9-1. Gross Pollutant Traps identified within the Leichhardt LGA

Gross Pollutant Trap	Location	Waterway
CDS unit	Dawn Fraser Swimming Pool, Balmain	River South
Nettech	Leichhardt Park, downstream of Hawthorne Canal	Iron Cove Bay
Pollution Reduction Trap	King Georges Park, Leichhardt	Iron Cove Bay
Gross Pollutant Trap	Francis St, Leichhardt	Hawthorne Canal

Fifty nine stormwater outlets were identified which discharge directly to the lower reaches of Hawthorne Canal, Iron Cove Bay, and Parramatta River. Stormwater outlets that should be investigated to determine whether gross pollution control, or other stormwater incentives, may be warranted are listed in Table 9-2.

Table 9-2. Potential GPT sites upstream of stormwater outlet in the in Leichhardt LGA

Outlet_ID	Reason
Hawthorne_Canal_005	1500mm box culvert in 28 ha catchment
Hawthorne_Canal_008	Larger of two pipes in large catchment (approx. 46 ha)
Hawthorne_Canal_009	Smaller of two pipes in large catchment (approx. 46 ha)
Hawthorne_Canal_011	Large pipe in 14.7 ha catchment
Iron_Cove_002	600mm pipe 8 ha catchment, seagrass historically, but not evident

Outlet_ID	Reason
Iron_Cove_004	Seagrass no longer evident at outlet
Iron_Cove_005	Seagrass no longer evident at outlet
Iron_Cove_006	Seagrass no longer evident at outlet 900mm diam, one of three pipes in approximately 12 ha catchment
Iron_Cove_007	650mm diam, one of three pipes in approximately 12 ha catchment
Iron_Cove_008	800mm diam, one of three pipes in approximately 12 ha catchment
Iron_Cove_010	1050mm diam, approximately 12 ha catchment
Iron_Cove_016	Seagrass impacts evident
Iron_Cove_021	450mm diam, 1 of 4 pipes in 30 ha catchment
River_South_006	650mm diam, in 8 ha catchment
River_South_010	600mm diam, in 5 ha catchment
River_South_012	600mm diam, in 4 ha catchment

9.2.3 Seawalls

The Leichhardt LGA contains approximately 3.2 km of seawalls in the study area which were assessed as 17 separate sections. Ten were found to be in poor condition, four good, one excellent and two with some form of major defect (Table 9-3).

Table 9-3. Seawalls assessed within the Leichhardt LGA

Asset Name	Locality	Length (m)	Condition
LEI_S01	Birchgrove Point	127.9	Poor
LEI_S02	Birchgrove Point adjacent the ferry wharf	80.5	Good
LEI_S03	Birchgrove, adj. Dawn Fraser Baths	137.7	Good
LEI_S04	Elkington Park, Birchgrove	3.9	Poor
LEI_S05	Paringa Reserve, Balmain	201.5	Poor
LEI_S06	Adjacent to Balmain High School	116.3	Good
LEI_S07	Balmain Cove	84.4	Excellent
LEI_S08	Balmain Cove to Iron Cove Bridge	471.9	Poor
LEI_S09	King George Park south of Iron Cove Bridge	36.2	Poor
LEI_S10	King George Park south of Iron Cove Bridge	305.1	Good
LEI_S11	Rozelle Hospital	121.8	Failed
LEI_S12	Rozelle Hospital	65.3	Failed
LEI_S13	Rozelle Hospital	61.5	Poor
LEI_S14	Rozelle Hospital	205.5	Poor
LEI_S15	Rozelle Hospital	239.1	Poor
LEI_S16	Leichhardt Park	871.5	Poor
LEI_S17	Adj. City West Link	64.0	Poor
		3,194.0	

Seawalls in poor or failed condition which were prioritised as most suitable for habitat creation, as part of future replacement or repairs) are outlined in Table 9-4 and field assessment details appended to this section (Appendix 1).

Table 9-4. High priority seawalls within the Leichhardt LGA

Asset	Length (m)	Cost range for traditional engineered seawall replacement ¹⁶		Habitat Creation Option ¹⁷
		(\$3,000/lineal m)	(\$5,000/lineal m)	
LEI_S08	471.9	\$1,415,744.22	\$2,359,573.71	Seawall surface treatment or sub-tidal cave habitat
LEI_S09	36.2	\$108,710.38	\$181,183.97	Rock pool
LEI_S11	121.8	\$365,270.12	\$608,783.54	Low profile sill (or step type seawall)
LEI_S13	61.5	\$184,420.90	\$307,368.16	Low profile sill, or artificial reef habitat
LEI_S14	206	\$618,000	\$1,030,000	Sub-tidal cave habitat
LEI_S15	27.9	\$383,773.06	\$639,621.77	Sub-tidal cave habitat
LEI_S16	871.5	\$2,614,441.13	\$4,357,401.88	Sub-tidal cave habitat, or artificial reef habitat
LEI_S01	127.9	\$383,773.06	\$639,621.77	Sub-tidal cave habitat, or rock pool
LEI_S12	65.3	\$195,756.33	\$326,260.56	Low profile sill (or step type seawall)

The sections of seawall from LEI_11 to, and including, LEI_15 were previously investigated as part of a saltmarsh feasibility study conducted in 2007 (Earth Tech). Of particular relevance to this study, is the recommendation to incorporate intertidal habitat into the design of repair and/or replacement of seawalls at this location. An extract from the Earth Tech report (2007) is appended to this section (Appendix 1).

¹⁶ 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.

¹⁷ Refer section 4.8.1 for explanation of treatments

9.2.4 Foreshore Facilities

Ten foreshore facilities were assessed within the Leichhardt LGA (Table 9-5). Assessment details and management recommendations are provided for selected facilities in order of prioritisation Table 9-6.

Table 9-5. Facilities assessed within the Leichhardt LGA

Asset Name	Asset Description	Facility Type	Condition
LEI_F01	Birchgrove Point	Two level, timber lookout structure	Good
LEI_F02	Cove Street, Birchgrove	Timber wharf with sea stairs, and informal dinghy storage	Good
LEI_F03	Adjacent Dawn Fraser Baths	Formal dinghy storage	Good
LEI_F04	Adjacent Dawn Fraser Baths	Public aluminium frame gangway with timber slates and floating pontoon	Excellent
LEI_F05	Dawn Fraser Baths	Swimming baths	Excellent
LEI_F06	Longview Street, Balmain	Informal dinghy storage	Good
LEI_F07	King George Park	Informal dinghy storage	Good
LEI_F08	Leichhardt Park	Timber wharf structure with landing and sea stairs	Good
LEI_F09	Leichhardt Park	New steel gangway with steel mesh walkway extending to a floating pontoon	Excellent
LEI_F10	Adjacent City West Link	Concrete two lane boat ramp	Failed

Table 9-6. Management recommendations for foreshore facilities in the Leichhardt LGA

Asset Name	Recommendation	Priority
LEI_F10	Concrete that forms ramp is cracked and weathered with aggregates and steel reinforcement exposed. The boat ramp requires modification to extend the toe beyond low tide level. If this does not occur it is recommended that the boat ramp be decommissioned.	1
LEI_F01	Stairs on land have collapsed and require replacement. It is recommended that a more detailed investigation be undertaken to determine the extent of deterioration of the timber components that form the structure.	2
LEI_F02	Sea stairs are fouled making access to the water difficult. Access should be formalised or restricted to ameliorate the hazard observed. Provision of formalised dinghy storage is also recommended.	3
LEI_F03	Formal dinghy storage is provided however some dinghies are informally tethered at the site. It is recommended that dinghies are either relocated and ad-hoc structures removed or formal dinghy storage and launching facilities are installed.	4
LEI_F06	Formalised dinghy storage and water access required	5
LEI_F07	Formalised dinghy storage required	6

9.2.5 Foreshore Reserves

Leichhardt LGA (in the study area) contains approximately 23.2 ha of public parks and reserves which avails approximately 2 km of waterfrontage available for public access, but excludes the following:

- State Government land associated with Rozelle Hospital (Callan Park);
- Other foreshore land which provide public access but are not associated with parks or reserves; and
- Other parks or reserves which do not have waterfrontage.

Table 9-7 provides a summary of foreshore reserves and associated infrastructure in the study area for Leichhardt LGA.

Foreshore land associated with Rozelle Hospital is publicly accessible and provides an important foreshore link with Leichhardt Park to the south and King George Park to the north.

Table 9-7. Foreshore reserves and parks in Leichhardt LGA

Name	Waterway	Area (ha)	Shore Length (m)	Category	River Boundary	Water Access	Use (Low, Moderate, Heavy)	Facilities	Paths
Cove Street Park	River South	1.0	20	Passive	Medium block vertical sandstone seawall:	Sea stairs	Low	Timber wharf with sea stairs supported by timber piles: LEI_F02	No
Elkington Park	River South	3.0	480	Passive	Rock shelf, seawall: LEI_S04	Nil	Moderate	Picnic, swimming pool, amenities, benches, play equipment. LEI_F04-F05	No
King George Park	Iron Cove Bay	4.6	360	Active, Passive	Seawall: LEI_S16-S17	Nil	Moderate	Playground, playing field, netball courts, benches, amenities	Cycle path
Leichhardt Park	Iron Cove Bay	14.2	868	Active	Seawall: LEI_S09-S10	Ramp from sailing club, jetty, boat ramp near City West	Heavy	Playground, playing fields, pool, sailing club, amenities, car park, kiosk, jetty, benches, boat ramp: LEI_F09-10	Path
Paringa Reserve	River South	0.4	240	Passive	Seawall: LEI_S05	Wharf	Moderate	Benches	No

9.2.6 Estuarine Vegetation

Most of the foreshore along the Leichhardt LGA (within the study area) contains seawalls with only small areas of natural shoreline (e.g. between Callan Point and King George Park). As such, there is limited habitat area for mangroves and saltmarsh.

Earth Tech (2007) conducted a saltmarsh feasibility study for Leichhardt City Council in which a number of small areas of saltmarsh were identified. Most were found in depressions formed from collapsing areas of seawall, and isolated plants found growing within cracks of seawalls fronting Leichhardt Park.

The largest and most significant area under revegetation in the LGA (approximately 1.2 ha, which includes the slopes of King Georges Park) is the remnant but highly degraded bushland area found on land currently controlled by the Sydney Harbour Foreshore Authority at Callan Park, Rozelle.

Seagrasses previously mapped (West et al 2004 and West and Williams 2008) were investigated during field inspections for this study. The results area are summarised in Table 9-8. Of particular interest is the location of *Zostera* (with *Halophila* subdominant) located within the Dawn Fraser Baths. Based on observations of seagrass patches during field investigations for this study, the seagrass growing within the pool is the best example of seagrass growth found within the entire study area.

Regular use by locals and visitors does not appear to be impacting on seagrass growth, which forms dense growth in the shallower areas of the pool either side of the main entry and exit point for pool users (from the shallow end of the pool). Frequent use of the entry / exit point prevents seagrass establishing at this location.



Aerial photograph (2009): Dawn Fraser Baths, arrow showing shallow entry point with seagrass growth either side

It is also likely that seagrass is disturbed from activities in the deeper sections of the pool, such as dive bombing, jumping into the water and landing on the pool bed. However, it would appear that the current situation provides a good example of both ecological and public recreation co-existence.

Table 9-8. Seagrass habitat within the Leichhardt LGA

Habitat / status	Location	Area (m ²)
Not evident	Iron Cove Bay, downstream of Hawthorne Canal	1,769.1
Zostera	Iron Cove Bay, Callan Point	807.2
Not evident	Iron Cove Bay, new development east shoreline	259.0
Not evident	Iron Cove Bay, new development east shoreline	19.0
Zostera and Halophila	River, in Dawn Fraser Baths	185.4
Zostera and Halophila	River, in Dawn Fraser Baths	237.3
Halophila	Iron Cove Bay, Leichhardt Park	47.8
Halophila	Iron Cove Bay, Leichhardt Park	350.9
Halophila	Iron Cove Bay, Leichhardt Park	369.6
Halophila	Iron Cove Bay, Leichhardt Park	84.6
Halophila	Iron Cove Bay, Leichhardt Park	358.8
Halophila and Zostera	Iron Cove Bay, Rozelle Hospital	2,167.4
Not evident	Iron Cove Bay, Rozelle Hospital	106.9
Not evident	Iron Cove Bay, Rozelle Hospital	69.1
Not evident	Iron Cove Bay, Rozelle Hospital	40.9
Not evident	Iron Cove Bay, Rozelle Hospital	92.0
Halophila and Zostera	Iron Cove Bay, Rozelle Hospital	1,028.9
Halophila and Zostera	Iron Cove Bay, Callan Point	81.7
Halophila and Zostera	Iron Cove Bay, Callan Point	28.6
Halophila and Zostera	Iron Cove Bay, Callan Point	395.7
Unable to verify	River, adjacent Dawn Fraser Baths	299.1
		8,799.0

9.2.7 LGA Management Summary Recommendations

Stormwater Management:

- Leichhardt Council in conjunction with Sydney Harbour Foreshore Authority, NSW Health, Sydney Water, Ashfield and City of Canada Bay Councils should undertake a critical review of existing stormwater management practices to determine:
 - the efficacy of maintenance regimes of existing GPTs on stormwater systems draining to Iron Cove Bay, and
 - where additional gross pollutant trapping is required. This should include a review of current street sweeping activities in catchment areas draining to Iron Cove Bay – given that the dominant gross pollutant evident is leaf litter (refer Section 7.4.5.1).
- Update Council's GIS layer to incorporate stormwater drainage associated with Concord Repatriation Hospital, which are currently absent for the project dataset (although location of outlets mapped from field observations); and
- Undertake more comprehensive data collection and SoE reporting in terms of waste collected from GPTs within the LGA (refer Section 3.9.2).

Asset Management:

As per recommendations in preceding Section 9.1.2 (Seawalls) and Section 9.1.3 (Foreshore Facilities), and including:

- Consultation with the Sydney Harbour Foreshore Authority and State Government in relation to the future development of Rozelle Hospital and any proposed replacement of seawalls intended for the length of foreshore between Callan Point and Leichhardt Park; and

- Incorporation of interpretational signage (seagrass habitat), viewing points or platforms, into design of future replacement of seawalls associated with foreshore reserves (e.g. Leichhardt Park) and other public used vantage points where ecological values of the estuary could be appreciated (e.g. LEI_F01, LEI_S01, and concept developed by Earth Tech for Callan Park- Appendix 1a).

Seagrass:

Management of seagrass hinges on improving water quality flowing into Iron Cove Bay, particularly reducing the volume of organic material smothering seagrass habitat and suspended solids which limit light penetration through the water to the seabed.

Additional management options include the installation of seagrass friendly moorings, use of mesh decking on jetties, the provision of formalised launching areas for dinghies, surf skis, etc, and educational programs.

The protected habitat for seagrass within the Dawn Fraser pool suggests that the physical structure of the pool provides a localised shelter for seagrass, which may offer design considerations for future seagrass rehabilitation or restoration projects.

Areas where seagrass friendly moorings should be considered are listed in and shown on Figure 9.1(b).

Table 9-9. Potential seagrass friendly mooring locations adjacent to the Leichhardt LGA

Priority	Habitat present	Area (m ²)	Location
1	Previously mapped, none evident	1,769.1	Iron Cove Bay, downstream of Hawthorne Canal
2	Zostera, mostly seaweed	807.2	Iron Cove Bay, Callan Point
3	Previously mapped, none evident, seaweed only	259.0	Iron Cove Bay, new development east shoreline
4	Previously mapped, none evident, seaweed only	19.0	Iron Cove Bay, new development east shoreline

Saltmarsh:

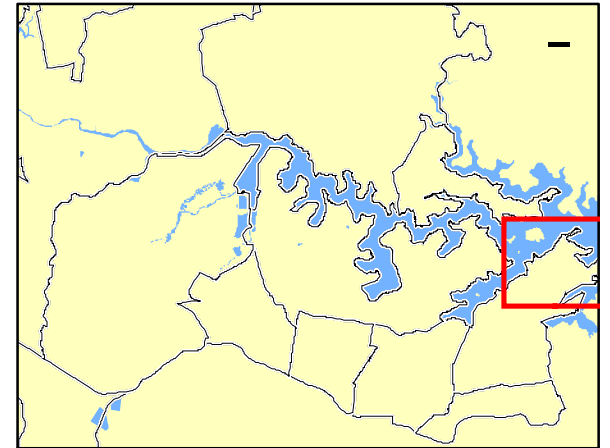
Few opportunities currently remain for intertidal vegetation such as saltmarsh to be created within the Leichhardt LGA without intrusive excavation and potential disturbance of fill of unknown materials. Much of the open space adjacent the foreshore (south of Iron Cove Bridge) may become more suitable for intertidal habitat, either naturally or through management intervention. This potential should be factored into future:

- (a) Design of either repair or replacement of seawalls, and
- (b) Land use planning and land management of the area's existing open space.

Isolated saltmarsh plants identified by Earth Tech (2007) could be used as propagative material or as transplants for future saltmarsh restoration or rehabilitation projects (within the Leichhardt LGA or collaboratively with other Councils in LGAs with viable habitat replacement or rehabilitation project areas).



SITE LOCATION



Seawall Condition

- Excellent
- Good
- Poor
- Failed

- Stormwater outlet
- Potential GPT site
- Existing GPT
- Facilities
- Moorings

Seagrass & moorings

- High priority
- Medium priority
- Low priority
- Seagrass, no moorings

Vegetation Communities

- Coastal sandstone communities
- Swamp-oak floodplain forest (EEC)
- Estuarine mangrove
- Coastal saltmarsh (EEC)
- Sydney turpentine-ironbark forest (EEC)
- Foreshore parks and reserves

Source:

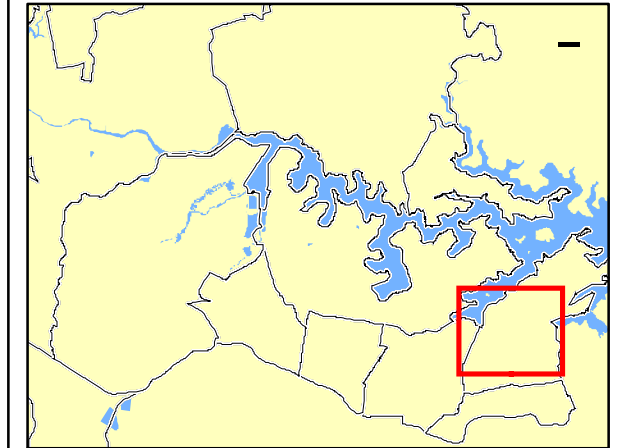
Seagrass base plan: Industry & Investment NSW (2003)
Seagrass ground truthed: AECOM (2009)
Vegetation base mapping: SMCMA (2007)
Other: refer study section 8.0 (2010)

Coordinate System:

GDA94 MGA Zone 56



SITE LOCATION



Seawall Condition

- Excellent
- Good
- Poor
- Failed

- Stormwater outlet
- Potential GPT site
- Existing GPT
- Facilities
- Moorings

Seagrass & moorings

- High priority
- Medium priority
- Low priority
- Seagrass, no moorings
- Foreshore reserve

Vegetation Communities

- Coastal sandstone communities
- Swamp-oak floodplain forest (EEC)
- Estuarine mangrove
- Coastal saltmarsh (EEC)
- Sydney turpentine-ironbark forest (EEC)

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 1(a): Callan Park Concept Plan (Earth Tech 2007)




LEICHHARDT SALTMARSH FEASIBILITY STUDY

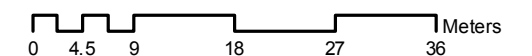
Concept Plan

Client: Leichhardt Municipal Council

Project no: 100122

Date: 5 December 2007

-  Potential saltmarsh areas
-  Potential pathway location
-  Bay run



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While every effort has been made to ensure the correctness of data supplied at the time of its production, Earth Tech does not warrant that the information or plans do not contain errors and Earth Tech shall in no way be liable for any loss, damage or injury as a result of any such errors.



Existing bush track
link to pathway



Existing seawall (left), seawall with pathway incorporated (right)



Heritage area, potential
interpretative signage



Picnic area, and
Casuarinas retained



Existing seawall (left), tiered seawall with saltmarsh incorporated (right)

AREA 1

AREA 2

Appendix 1(b): 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 - LEI_S08

Date	4/08/09	Locality	Rozelle, Iron Cove Bay	Level (AHD)	0.82m	LGA	Leichhardt
Time	13:35			Tide	Low-Mid		



Co-Ords (MGA)

Start

E 330552

N 6252044

End

E 330147

N 6251829

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

The seawall comprises a vertical grouted large sandstone block seawall, crest was 2m above WL at time of insp. Numerous sections along the wall have been capped with concrete along the crest and face. A number of sections have newly installed, grouted medium size sandstone blocks near the crest associated with developments along foreshore. Old sandstone blocks are present at the toe of the wall at discrete locations.

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

Exposed old sandstone blocks along bottom of wall are slumping. Concrete capping is showing signs of surface weathering and has in many places begun to crack and has fallen away from the old sandstone wall. Major undermining is present at discrete locations.

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

Assets

A chain safety fence runs along the entire length of the structure preventing access to water and differentiating the wall edge. The old Balmain Power Station Pump House 'A' building is located directly above the seawall.

Comments:

Beneath the Iron Cove Bridge there is a small section of grout mattress. Construction adjacent to the mattress prevented a detailed inspection however it appeared to be in good condition.

Photo 1

Northern part of wall showing slumping of old sandstone blocks and new blocks along crest.



Photo 2

Undermining of seawall and concrete capping of wall face and crest.



Seawall Inspection Record - LEI_S09

Date	<u>4/08/09</u>	Locality	<u>Rozelle (King George Park), Iron Cove Bay</u>	Level	<u>0.82m</u>	LGA	<u>Leichhardt</u>
Time	<u>14:03</u>			People	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E	<u>330094</u>
N	<u>6251783</u>

End

E	<u>330072</u>
N	<u>6251755</u>

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

Vertical concrete seawall with a cement capping. The crest was approx. 1.5m above the water level at time of inspection. The wall appears to be founded on bedrock. A safety fence and public footpath run along the crest of the wall.

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

Concrete has been lost from the vertical face of the wall. The concrete is showing signs of severe surface weathering with aggregates visible. Major horizontal and vertical cracks are also present. The safety fence has significantly corroded and has collapsed in some places.

Excellent
Good
Poor
Failed

X

Assets

The safety fence is present for only half the length of the wall. No major assets are located on or near the seawall.

Comments:

During the inspection public access to the parkland beyond this structure was being blocked by workers from the adjacent construction site. It is unclear whether this was a discrete event. Photos LEI_S09-01 to LEI_S09-03.

Photo 1

View of NE extent of wall showing weathering and cracking of concrete. No safety fence present.



Photo 2

SW extent of seawall showing concrete cracking and failure of safety fence.



Seawall Inspection Record - LEI_S11

Date	31/08/09	Locality	Callan Park, Iron Cove Bay	Level	0.87m	LGA	Leichhardt
Time	8:27			Tide	Mid		



Co-Ords (MGA)

Start

E	329758
N	6251610

End

E	329699
N	6251506

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

Medium sized concrete block revetment founded on bedrock. Rubble material is present at the toe. An abandoned sandstone block structure is located at the north extent of the structure.

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

The structure has failed at its northern extent with a large cavity present behind the wall. The rest of the revetment is slumping and is undermined at the toe particularly at the southern extent.

Excellent
Good
Poor
Failed

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

Assets:

The revetment is accessible to the public via a footpath which runs along its length. The blocks are collapsing and slippery. No other structures are supported by the revetment.

Comments:

Photos LEI_S11-01 to LEI_S11-08.

Photo 1

Failure of revetment at northern extent.

Photo 2

Slumping and movement of blocks at southern extent.



Seawall Inspection Record - LEI_S13

Date	<u>31/08/09</u>	Locality	<u>Callan Park, Iron Cove Bay</u>	Level	<u>0.87m</u>	LGA	<u>Leichhardt</u>
Time	<u>8:34</u>			Tide	<u>Mid</u>		



Co-Ords (MGA)

Start

E	<u>329722</u>
N	<u>6251462</u>

End

E	<u>329712</u>
N	<u>6251407</u>

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

Medium concrete block revetment, the crest was approx. 1.5m above the water level at time of inspection.

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

Surface weathering with aggregate exposed and slumping due to loss of fine material was observed. Sinkholes and erosion of earth behind structure was observed indicating inundation and/or exposure to wash during periods of elevated water levels.

Excellent
Good
Poor
Failed

X

Assets

The seawall is accessible to the public via a footpath which runs along its length. The crest is collapsing into the void behind. No other structures are supported by the seawall.

Comments:

Photos LEI_S13-01 to LEI_S13-03.

Photo 1

Typical view of revetment.



Photo 2

Surface weathering and slumping of concrete blocks and erosion of earth beyond crest.



Seawall Inspection Record - LEI_S14

Date	<u>31/08/09</u>	Locality	<u>Callan Park, Iron Cove bay</u>	Level	<u>0.87m</u>	LGA	<u>Leichhardt</u>
Time	<u>8:36</u>			Tide	<u>Mid</u>		



Co-Ords (MGA)

Start

E	<u>329712</u>
N	<u>6251407</u>

End

E	<u>329554</u>
N	<u>6251298</u>

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

Medium sandstone block revetment, the crest was 1.5m above water level at time of inspection. A number of blocks have been replaced with medium sized concrete blocks. The crest has a concrete capping. An open stormwater outlet channel is located mid-way along the revetment.

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

The revetment has failed at its southern extent where it joins LEI_S15 with a large cavity present behind the wall. Surface weathering of sandstone blocks & slumping due to loss of fine material was also observed. Sinkholes & erosion of earth behind structure indicates inundation and/or exposure to wash during periods of elevated water levels.

Excellent
Good
Poor
Failed

X

Assets

The revetment is accessible to the public via a footpath which runs along its length. The structure makes up the opening of the open storm water outlet.

Comments:

Photos LEI_S14-01 to LEI_S14-10.

Photo 1

Typical view of revetment showing surface weathering, slumping and erosion of earth beyond crest.



Photo 2

Failure of structure at southern extent.



Seawall Inspection Record - LEI_S15

Date	<u>31/08/09</u>	Locality	<u>Callan Park, Iron Cove Bay</u>	Level	<u>0.87m</u>	LGA	<u>Leichhardt</u>
Time	<u>8:39</u>			Tide	<u>Mid</u>		



Co-Ords (MGA)

Start

E	<u>329554</u>
N	<u>6251298</u>

End

E	<u>329351</u>
N	<u>6251178</u>

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

Medium sandstone block revetment with a disused concrete footpath along the crest. A vertical concrete retaining wall with drainage has been installed along the crest to increase the height of the structure. A number of blocks have been replaced with medium sized concrete blocks.

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

The structure has failed at its northern extent where it meets seawall LEI_S14. The rest of the structure, surface weathering of sandstone blocks & slumping due to loss of fine material was observed. The concrete retaining wall is leaning towards the water in some places with minor cracking observed.

Excellent
Good
Poor
Failed

X

Assets

The revetment is accessible to the public via a footpath which runs along its length. No other structure are supported by the seawall.

Comments:

Photos LEI_S15-01 to LEI_S15-14.

Photo 1

Failure of structure at northern extent.



Photo 2

Typical view of structure showing weathering and slumping of sandstone blocks and leaning concrete retaining wall.



Seawall Inspection Record - LEI_S16

Date	<u>31/07/09</u>	Locality	<u>Lilyfield (Leichhardt Park), Iron Cove Bay</u>	Level	<u>0.64m</u>	LGA	<u>Leichhardt</u>
Time	<u>9:26</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start

E 329324

N 6251171

End

E 328979

N 6250476

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

Medium size sandstone block grouted revetment with old concrete footpath crest backed by a newer vertical medium size grouted sandstone block wall 1m high. Sandstone sea stairs are present mid-way along the structure.

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

Loss of grout from both sloping and vertical sections. Block failures and sever undermining of adjacent footpath are also present. The newer vertical sandstone blocks have began to weather indicating that a low-grade sandstone may have been used. The old concrete footpath between the two sandstone section is cracking in many places.

Excellent

Good

Poor

Failed

X

Assets

Use of the old footpath along the crest of the sloping sandstone wall was observed. Failures beneath footpath were observed. No major assets are located along the seawall.

Comments:

Localised failures are at (0329059,6250716). Photos LEI_S16-01 to LEI_S16-15.

Photo 1

Typical view of revetment and wall.



Photo 2

Block failure of newer vertical sandstone wall beneath footpath.



Seawall Inspection Record - LEI_S01

Date Time	<u>31/07/09</u> <u>8:25</u>	Locality	<u>Birchgrove, River South</u>	Level Tide	<u>0.75m</u> <u>Low-Mid</u>	LGA	<u>Leichhardt</u>
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Co-Ords (MGA)

Start

E 332146
N 6253315

End

E 332237
N 6253340

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

Vertical seawall with large grouted sandstone blocks. The crest was approx. 2.5m above the water level at time of inspection with newer concrete capping. Seawall appears to be founded on rock.

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

Large crack at SW corner extending from crest to toe. Large sinkhole behind seawall crest at NE corner.
Surface weathering of sandstone blocks and concrete capping with aggregate exposed also observed.

Excellent
Good
Poor
Failed

X

Assets

No pedestrian safety barrier along crest of seawall. A timber lookout structure extends over the wall and water mid-way along seawall.

Comments:

Timber lookout structure inspection record provided in LEI_F01. An old disused boat ramp is at the site between LEI_S01 and LEI_S02 which is accessible to the public. Photos LEI_S01-01 to LEI_S01-10.

Photo 1

Block failure at SW corner



Photo 2

NE corner, temporary safety fence installed beyond crest to prevent public access to sinkhole.



Seawall Inspection Record - LEI_S12

Date	31/08/09	Locality	Callan Park, Iron Cove Bay	Level	0.87m	LGA	Leichhardt
Time	8:30			Tide	Mid		



Co-Ords (MGA)

Start

E	329699
N	6251506

End

E	329722
N	6251462

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

Large sandstone block vertical seawall founded on bedrock. The crest was approx. 1.5m above the water level at time of inspection.

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

The structure has failed at its northern and southern extents with the blocks that make up the crest dislodged and erosion of material from behind. The rest of the revetment is slumping and is undermined at the toe.

Excellent
Good
Poor
Failed

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

Assets

The seawall is accessible to the public via a footpath which runs along its length. No other structures are supported by the seawall.

Comments:

Photos LEI_S12-01 to LEI_S12-09.

Photo 1

Failure of seawall at northern extent.

Photo 2

Failure of seawall at southern extent.



Facility Inspection Record - LEI_F10

Date	1/09/09	Locality	Adj. City West Link	Level	0.87m	LGA	Leichhardt
Time	9:02			Tide	Mid		



Co-Ords (MGA)

Start

E 328935

N 6250395

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

Concrete two lane boat ramp. No formal trailer parking is provided. Boat ramp is adjacent to seawall LEI_S17.

Condition Assessment:

Concrete that forms ramp is cracked and weathered with aggregates and steel reinforcement exposed.

Excellent

Good

Poor

Failed

X

Issues

Water is very shallow making launching/retrieval difficult. A large amount of debris was also observed on the ramp.

Comments:

Adjacent seawall (LEI_S17) and Hawthorne Canal are in poor condition.

Photo 1

View of boat ramp.

Photo 2

Weathering of concrete with aggregate and reinforcement exposed.



Facility Inspection Record - LEI_F01

Date	31/07/09	Locality	Birchgrove Point	Level	0.64m	LGA	Leichhardt
Time	9:00			Tide	Low		



Co-Ords (MGA)

Start

E 332219

N 6253319

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

Two level, timber, lookout structure. Upper landing is supported by timber piles on the land and in water, lower landing is supported by seawall and timber piles in water. Access is from adjacent public park via timber stairs which also connect the two landing. Both landings have timber safety rails.

Condition Assessment:

Stairs on land have collapsed and require replacement. The rest of the structure including timber piles is in a good condition

Excellent
Good
Poor
Failed

X

Issues:

Collapsed stairs are a hazard for pedestrians. Structure is supported by vertical sandstone seawall (LEI_S01).

Comments:

Photos LEI_F01-01 to LEI_F01-03

Photo 1

View of structure.

Photo 2

Collapsed stairs.



Facility Inspection Record - LEI_F02

Date	<u>4/08/09</u>	Locality	<u>Birchgrove , at the end of Cove St</u>	Level	<u>0.71m</u>	LGA	<u>Leichhardt</u>
Time	<u>11:35</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E 331470

N 6252920

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

Timber wharf with sea stairs supported by timber piles and medium block vertical sandstone seawall which extends to the south. The crest was approx. 2.5m above the water level at time of inspection. A vertical concrete seawall extends 50m to the north. A small public park accessible from Cove St. has a number of dinghies tethered to a formal steel storage structure and others informally tethered to signs and trees

Condition Assessment:

Generally good. Timber piles are thinning and are off vertical. Grout is missing from blocks beneath wharf and are slumping. Sandstone has also weathered creating voids. Some maintenance has been carried out to the south of the wharf with sandstone blocks replaced and grout added. Concrete section to the north is in good condition.

Excellent

Good

Poor

Failed

X

Issues:

Stairs were approx. 1m above water level at time of inspection and are fouled making access to water difficult.
No public safety barrier along crest of seawall.

Comments:

Photos LEI_F02-01 to LEI_F02-04

Photo 1

Timber wharf facility showing dinghy storage at public park and vertical sandstone seawall



Photo 2

Timber sea stairs and pile. Vertical concrete seawall is also shown in background



Facility Inspection Record - LEI_F03

Date 4/08/09 Locality Birchgrove , adj. to Dawn Fraser Baths Level 0.53m LGA Leichhardt
Time 12:10 Tide Low



Co-Ords (MGA)

Start

E 331149

N 6252630

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

Formal dinghy storage comprising of steel rack which dinghies are tethered too. Some dinghies are informally tethered to side of rack.

Timber and steel steps from Punch St have recently been constructed. Landscaping has also recently been completed.

A small beach to the NE provides access to water at low tide

Condition Assessment:

Steel rack is in good condition

Excellent

Good

Poor

Failed

X

Issues:

No formal access to beach is provided for launching dinghies. At high tide dinghies must be launched from rocks.

Comments:

Vegetation clearing has recently been undertaken and it is likely that further landscaping will take place in the future

Photos LEI_F03-01 to LEI_F03-04

Photo 1

Storage rack and access from street. Dinghies are launched from adjacent beach



Photo 2

Access to beach



Facility Inspection Record

- LEI_F06

Date	4/08/09	Locality	Balmain High School off Longview St	Level	0.53m	LGA	Leichhardt
Time	12:50			Tide	Low		



Co-Ords (MGA)

Start

E 330652
N 6252171

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

Informal dinghy storage, unclear whether land is public or private.

Condition Assessment:

Dinghies are tethered to a steel fence which is in a good condition.

Excellent
Good
Poor
Failed

X

Issues:

No formal access to the water, dinghies must be launched by climbing down a vertical sandstone seawall.

Comments:

Photos LEI_F06-01 and LEI_F06-02

Photo 1

View of informal storage facility.

Photo 2

Dinghies tethered to steel fence.



Facility Inspection Record - LEI_F07

Date 4/08/09 Locality King George Park south of Iron Cove Bridge Level 0.82m LGA Leichhardt
Time 14:10 Tide Low-Mid



Co-Ords (MGA)

Start

E 329833

N 6251568

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

Informal dinghy storage with dinghies tethered to trees along natural rocky/sandy natural shoreline.

Condition Assessment:

No formal storage structure present.

Excellent

Good

Poor

FailedIs

X

Issues:

Dinghies are launched from rocky/sandy shoreline.

Comments:

Photo LEI_F07-01.

Photo 1

View of informal storage facility.

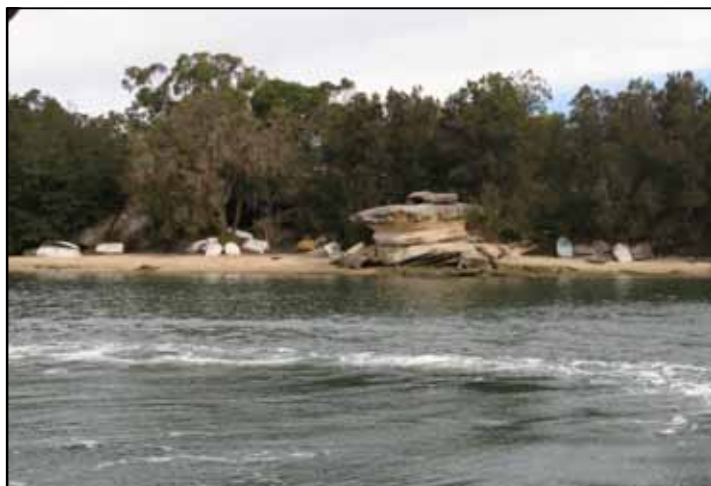


Photo 2

Dinghies tethered to trees on shoreline.

