Hunter & Central Coast Development Corporation

Waterfront Promenade and Cottage Creek north

Project Review of Environmental Factors

November 2020

Hunter & Central Coast Development Corporation

Waterfront Promenade and Cottage Creek north

Review of Environmental Factors

November 2020

Prepared by Jacobs and Hunter & Central Coast Development Corporation

Document controls

Approval and authorisation

Title	Review of Environmental Factors
Client Name	Hunter & Central Coast Development Corporation
Document No.	IA210100_WFPCCN
Revision	R03_v00
Project Manager	Jacob Whiting
Authors	Kim Collings, Shay Riley-Lewis and Thomas Muddle
Signed:	
Dated:	23/11/2020

Document history and status

Document status	Date	Prepared by	Reviewed by
Rev 0 v02	03/10/19	Kim Collings	Thomas Muddle
Rev 01 v00	12/11/19	Kim Collings	Thomas Muddle
Rev 02 v00	04/12/19	Kim Collings	Vivira Samuel
Rev 03 v00	23/11/2020	Kim Collings/Shay Riley-Lewis	Thomas Muddle

Declaration

I, Valentina Misevska, acting Chief Executive of the Hunter and Central Coast Development Corporation, have examined and considered the Waterfront Promenade and Cottage Creek North Review of Environmental Factors in accordance with the provisions of s5.5 of the *Environmental Planning and Assessment Act 1979* and the *State Environmental Planning Policy (Infrastructure) 2007*, under which the works are permissible and determine that the proposed development may be carried out as development without consent, subject to compliance with the conditions to manage environmental impacts outlined within the REF.

Signed:  Date: 4 December 2020

Executive summary

The proposal

Hunter & Central Coast Development Corporation (HCCDC) proposes to landscape the Public Domain waterfront promenade and naturalise Cottage Creek north (the proposal). HCCDC is working towards the completion of the public domain within the Honeysuckle precinct. The proposal is located in the Newcastle local government area and would complement the development of adjacent land through connection with the existing waterfront promenade to the west and east of the proposal.

Key features of the proposal include:

- Landscaping of the Public Domain waterfront promenade next to Newcastle Harbour from Worth Place Park West to the Tree of Knowledge Park including:
  - A 4.5 metre wide shared path for the length of the proposal with a pedestrian bridge over Cottage Creek
  - Feature seating and edge barriers
  - Mass plantings and promenade trees with permeable material around trees
  - Softscape areas and paved areas along the promenade
  - A node in the floodway with a handrail
  - Sandstone block steps to the lower part of the rock seawall
  - Lighting
- Naturalisation from the top of the Cottage Creek drainage channel north from the Honeysuckle Drive road bridge to Newcastle Harbour including:
  - Removal of about the top 500 millimetres of the concrete channel walls and placement of sandstone blocks along the edge of the drainage channel
  - Tiered landscaping including grassed areas, mass plantings and trees next to Cottage creek
  - Pedestrian links to the waterfront promenade and Honeysuckle Drive
  - Feature seating
  - A drinking water fountain either side of Cottage Creek next to the waterfront promenade.
- Temporary diversion of the shared pedestrian and cyclist pathway
- Temporary ancillary facilities including site compounds and stockpile sites.

The proposal would be constructed in four stages, with stage 1 expected to commence in mid 2021 and stage 4 expected to be completed in 2023. Each stage is expected to take about four months to complete.

Need for the proposal

The proposal area is identified as part of an *Urban Renewal Corridor in the Hunter Regional Plan 2036* (DPE 2016). A key action identified for Urban Renewal Corridors by this plan is to "Concentrate growth in strategic centres, local centres and urban renewal corridors to support economic and population growth and a mix of uses". Undertaking the foreshore improvements removes a key constraint to the future development of the urban renewal corridor by the private sector and as such is considered to be aligned with the *Hunter Regional Plan 2036* (DPE 2016).

HCCDC has previously established high quality public domain and foreshore promenade at both ends of the proposal. A temporary foreshore access has been provided through the proposal area along the disused Throsby and Lee 4 and 5 wharves. The dilapidated nature of these existing wharf and coastal foreshore infrastructure has been structurally assessed on various occasions

and was considered to require substantial ongoing maintenance and repair to facilitate safe ongoing use for public access. The structures were found to not be structurally suitable to support future urban development in the area. HCCDC has commenced the demolition of these wharves and replacement with a stable, long term landform that would support the retention of the area for public access purposes (assessed separately). The proposal is therefore required to establish a high quality public promenade that provides foreshore access between the existing promenades to the east and west and new access ways along Cottage Creek.

Proposal objectives and development criteria

The proposal objectives are to:

- Provide a permanent, high quality public domain along the foreshore of Newcastle Harbour
- Connect Tree of Knowledge Park, Cottage Creek and Worth Place Park West by completing the harbourfront link at Honeysuckle
- Provide a suitable connection for pedestrians and cyclists along the harbourfront at Honeysuckle
- Complement the naturalisation of Cottage Creek being completed by Hunter Water to the south of Honeysuckle Drive
- Provide foreshore access along Cottage Creek between Honeysuckle Drive and the waterfront promenade
- Complement the future development potential of Honeysuckle West.

Options considered

The Throsby Basin Waterway and Foreshore Management activities (HDC 2017) committed to further assessment of a permanent public domain treatment but did not consider the permanent public domain works (the subject of this Review of Environmental Factors) as designs had not been adequately progressed at that time. The proposal objective builds on the Throsby Basin Waterway and Foreshore Management activities objectives (HDC 2017).

Two options were considered for the proposal including Option 1 - Do Nothing and Option 2 - Landscaping and Naturalisation works. The landscaping and naturalisation works option (Option 2) was progressed as it was considered to best meet the proposal objectives.

Statutory and planning framework

Clause 129 of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) permits development, on any land, for the purpose of a waterway and foreshore management to be carried out by or on behalf of a public authority without consent.

As the proposal meets the definitions of waterway and foreshore management as provided for by clauses 128 of the ISEPP, and is being carried out by HCCDC, it is permissible without consent under the ISEPP. Accordingly, it can be assessed under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and development consent is not required.

This review of environmental factors (REF) fulfils HCCDC's obligations to consider the environmental impacts of the proposal under section 5.5 of the EP&A Act, and has been prepared in accordance with the provisions of clause 228 of the *Environmental Planning and Assessment Regulation 2000*. This REF also addresses the relevant considerations of the *Biodiversity Conservation Act 2016*, *Fisheries Management Act 1994*, *Heritage Act 1977*, *National Parks and Wildlife Act 1974*, *Water Management Act 2000* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Community and stakeholder consultation

HCCDC have sought feedback since August 2017 on the Honeysuckle West delivery including the Public Domain, Cottage Creek, Waterfront Promenade, Worth Place Park West, Tree of Knowledge Park and Honeysuckle Drive road realignment. Engagement tools and activities have involved meetings with stakeholders, issue of the Honeysuckle Foreshore Public Domain Plan (HCCDC 2018) and media releases. Feedback has been recorded and considered during development of the landscape plans for the proposal.

HCCDC formally consulted with the City of Newcastle (council), State Emergency Services and the Subsidence Advisory NSW in accordance with clause 13, 15, 15AA and 16 of the ISEPP.

HCCDC will notify residents, the community and stakeholders of the construction commencement as required.

Environmental impacts

The proposal would have some adverse impacts predominantly during construction, and longer-term positive impacts during operation which would be managed by the implementation of mitigation measures and safeguards as described in **Section 7** of the REF. Identified impacts are summarised below.

Traffic and access

During construction, vehicles would be required to access the proposal area. All access would be via existing driveways off Honeysuckle Drive from Steel Street. No public vehicle access is provided to the foreshore promenade. Access to the broader road network to the west of Cottage Creek would be via Honeysuckle Drive and Hannell Street to Industrial Drive. Access from the east of Cottage Creek may require the use of Honeysuckle Drive, Steel Street and Hunter Street subject to the status of other proposals in the area.

No road closures or detours would be required for the proposal. The proposal would be carried out at the same time as other developments within the Honeysuckle Precinct and precinct planning to minimise traffic and transport impacts would be required.

Pedestrian access along the Newcastle foreshore and the pedestrian link connecting Honeysuckle Drive to the west are currently closed. These temporary shared pathway diversions would remain in place and be modified as required to maintain public safety during construction of the proposal.

During operation, the proposal would provide the missing shared path link for the Newcastle foreshore. It will allow pedestrians and cyclist to use the Newcastle foreshore to access the Honeysuckle Precinct and Newcastle Central Business District.

Noise and vibration

Potential exceedances of the noise management levels (NML) have been predicted for sensitive receivers (including residents and commercial properties) during all stages of construction. No sleep disturbance impacts are expected as works would be carried out during standard construction hours. Mitigation measures would be implemented to minimise noise impacts.

No adverse vibration impacts have been identified.

The existing use is for a passive recreation area. With usage remaining the same following construction no change in operational noise levels is expected to occur as a result of the proposal.

Hydrology, flooding and water quality

No discharges to Cottage Creek and Newcastle Harbour are anticipated as part of the proposal. Construction works have the potential to impact on surface water quality. The main risk would be from works within and near Cottage Creek. Sediment-laden runoff has the potential to impact surface water and may be generated during earthworks (including stripping of topsoil and excavation along the waterfront promenade and near Cottage Creek, particularly before or during

periods of heavy rainfall), as well as cutting within the concrete drainage channel. Erosion and sedimentation control measures are proposed to manage potential surface water quality issues.

The proposal may impact groundwater with the depth of excavation extending to 1.5mBGL. If during detailed design it is identified that groundwater will be impacted, consultation with WaterNSW would be required to confirm the need for an aquifer interference licence.

Construction activities would not be expected to impact on regional flooding behaviour. An operational flood assessment was carried out for the proposal considering the recommendations in the *Honeysuckle Redevelopment Area Flood Study* (BMT 2018). The flood assessment indicated that there would be negligible flood level changes, with peak flood level impacts that are largely contained within the proposal area. The assessment outlined that the proposal introduces a number of design elements (such as a new pedestrian bridge, handrails and seating) that have the potential to impede flow. A number of design considerations have been recommended to address these potential flood impacts associated with these introduced elements and have been included as mitigation measures. The proposed works within Cottage Creek would be expected to provide additional flow capacity provided the recommendations in BMT (2019) in relation to the new pedestrian bridge, handrails and seating are implemented.

Biodiversity

The proposal mainly comprises concreted surfaces including Cottage Creek which is a concreted channel. There are four planted trees (Swamp Oak (Casuarina glauca)) at the northern end of the proposal and a grassed area in the north west of the Tree of Knowledge Park. Vegetation would be removed and landscaped as per the landscape design.

All natural aquatic habitat and riparian features of Cottage Creek have been historically removed and replaced by a concrete channel. No aquatic plant species occur in or next to the channel and no mangrove trees remain.

There are no naturally occurring plant community types in the proposal area. The proposal would be unlikely to have a significant impact on terrestrial biodiversity due to the lack of habitat and absence of native species, other than common birds that are mobile and able to relocate.

Non-Aboriginal heritage

The proposal area does not contain any listed non-Aboriginal heritage items of local, state, national or world heritage significance and would therefore not directly impact on any registered or listed non-Aboriginal heritage items. No heritage values would be impacted by the proposal.

The majority of the proposal area dates to the twentieth century. This area is considered to have low to no potential for any significant archaeological relics to be exposed and no to low archaeological significance and research potential.

Tree of Knowledge Park comprises the only area located within the boundaries of former allotments and building footprints; dating from approximately the 1870s. However, no impacts are proposed in the Park area as its current use as a site compound and laydown area will continue.

Any unexpected heritage items or archaeological remains that are encountered during construction would be managed according to the mitigation measures provided.

The operation of the proposal would be unlikely impact on non-Aboriginal heritage items.

Aboriginal heritage

The proposal area does not appear on the National Heritage List, Commonwealth Heritage List, State Heritage Register and Register of Declared Aboriginal Places. There is a low likelihood of archaeological potential within the majority of the proposal area with the exception of a very small section of land in the north-west part of the proposal area bordering the Tree of Knowledge Park.

As there would be no ground penetrating works at the primary ancillary site (located in the Tree of Knowledge Park) no impacts to Aboriginal heritage would be expected.

A small portion of the proposed works would be located in an area with archaeological potential next to Cottage Creek north, north of Honeysuckle Drive road bridge. This area would be impacted by the works associated with the Honeysuckle Drive road realignment (assessed separately, HCCDC, 2019) and any Aboriginal items identified during these works would be managed according to the Aboriginal Heritage Impact Permit (AHIP) for the road realignment.

Subsequent Aboriginal heritage investigations undertaken by Umwelt (2020) on behalf of HWC and HCCDC, for the proposed Cottage Creek naturalisation works (subject of a separate REF), identified subsurface natural landform with Aboriginal artefacts at 1.5mBGL adjoining the proposal area. The investigation identified potential for this natural landform with potential archaeological deposits, to extend into the proposal area of Cottage Creek north. An Aboriginal cultural heritage assessment (ACHA) is currently being prepared specifically in relation to the naturalisation of Cottage Creek (Umwelt in prep).Therefore an Aboriginal Heritage Impact Permit (AHIP) will be required for the Cottage Creek North area of the proposal in accordance with Part 6 of the NP&W Act.

Operation of the proposal would not impact Aboriginal heritage.

Visual impacts

Visual impacts would occur during construction and operation. Construction impacts would include changed visual environment with the presence of construction plant, equipment and temporary ancillary sites within the proposal area.

Once the proposal is built, there would be permanent positive visual changes throughout the proposal area. The main visual changes would be due to the landscaping along the waterfront promenade and naturalisation of Cottage Creek north. The proposal has been designed to provide a Newcastle harbour connection consistent with the existing waterfront promenade at either end of the proposal and Cottage Creek south naturalisation works to be carried out by Hunter Water.

Socio-economic and property issues

The proposal would have some socio-economic, property and land use impacts during construction. During construction, impacts on the community and businesses may be associated with:

- Increased expenditure by construction workers on local goods and services, resulting in beneficial impacts for local businesses
- Local pedestrian and cyclist access changes and disruptions due to construction activities
- Increased noise, dust and construction traffic, impacting on amenity for residences and businesses closest to the construction work
- Loss of open spaces during construction.

During operation, the proposal would have a long term beneficial impact on the community by providing the missing link for the harbourfront connection in the Honeysuckle precinct.

Justification and conclusion

The *Greater Newcastle Metropolitan Plan 2036* (DPE 2018) sets out strategies and actions to drive sustainable growth across Cessnock City, Lake Macquarie City, Maitland City, Newcastle City and Port Stephens communities, which together make up Greater Newcastle. The proposal compliments and supports the disposal and development of adjacent underutilised land in Honeysuckle, and compliment the Cottage Creek south naturalisation works being carried out by Hunter Water. The proposal is therefore aligned with the key strategies of the *Greater Newcastle Metropolitan Plan 2036* (DPE 2018) which include:

- Reinforce the revitalisation of Newcastle City Centre and expand transformation along the waterside

- Respond to the changing land use needs of the new economy
- Improve resilience to natural hazards
- Prioritise the delivery of infill housing opportunities within existing urban areas
- Unlock housing supply through infrastructure coordination and delivery
- Integrate land use and transport planning.

The *Greater Newcastle Metropolitan Plan 2036* (DPE 2018) also helps to achieve the vision set in the *Hunter Regional Plan 2036* (DPE 2016) for the Hunter to be the leading regional economy in Australia with a vibrant new metropolitan city at its heart.

The proposal is consistent with the objectives of the *Hunter Regional Plan 2036* (DPE 2016) in relation to complimenting the development of urban renewal corridors.

While there would be some environmental impacts as a consequence of the proposal, they have been avoided or minimised wherever possible through design and site-specific safeguards. The beneficial effects are considered to significantly outweigh the mostly temporary adverse impacts and risks associated with the proposal.

The proposal is subject to assessment under Division 5.1 of the EP&A Act. This REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

The proposal would be unlikely to cause a significant impact on the environment. Therefore, it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act. A Species Impact Statement is not required. Consent from council is not required. In addition, the proposal is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999*. A referral to the Australian Department of the Environment and Energy is not required.

Contents

Appendices

1 Introduction

This chapter introduces the proposal and provides the context of the environmental assessment. In introducing the proposal, the objectives and proposal development history are detailed and the purpose of the report provided.

1.1 Proposal identification

Hunter & Central Coast Development Corporation (HCCDC) proposes to landscape the Public Domain waterfront promenade and naturalise Cottage Creek north (the proposal). HCCDC is working towards the completion of the public domain within the Honeysuckle precinct. The proposal is located in the Newcastle local government area and would complement the development of adjacent land through connection with the existing waterfront promenade to the west and east of the proposal.

Key features of the proposal include:

- Landscaping of the Public Domain waterfront promenade next to Newcastle Harbour from Worth Place Park West to the Tree of Knowledge Park including:
  - A 4.5 metre wide shared path for the length of the proposal with a pedestrian bridge over Cottage Creek
  - Feature seating and edge barriers
  - Mass plantings and promenade trees with permeable material around trees
  - Softscape areas and paved areas along the promenade
  - Floodway nodes to convey overland flow equipped with a handrail
  - Sandstone block steps to the lower part of the rock seawall
  - Lighting.
- Naturalisation from the top of the Cottage Creek drainage channel north from the Honeysuckle Drive road bridge to Newcastle Harbour including:
  - Removal of about the top 500 millimetres of the concrete channel and placement of sandstone blocks along the edge of the drainage channel
  - Tiered landscaping including grassed areas, mass plantings and trees and next to Cottage creek
  - Pedestrian links to the waterfront promenade and Honeysuckle Drive
  - Feature seating
  - A drinking water fountain either side of Cottage Creek next to the waterfront promenade.
- Temporary diversion of the shared pedestrian and cyclist pathway
- Temporary ancillary facilities including site compounds and stockpile sites.

The location and an overview of the proposal is shown in **Figure 1-1**. **Chapter 3** describes the proposal in more detail.

The proposal would be constructed in four stages, with stage 1 expected to commence in mid 2021 and stage 4 expected to be completed in 2023. Each stage is expected to take about four months to complete.

Proposal area Premise Ancillary site

0 50 100 m

1:4,000 at A4

Data sources

Jacobs 2018, Ausimage 2018
NSW Spatial Services 2018
MetroMap 2019

GDA94 MGA56

Figure 1.1 Proposal area

Date: 3/12/2019 Path: J:\IE\Projects\04_Eastern\IA210100\22_Spatial\GIS\Directory\Templates\Figures\Waterfront_Promenade_and_Cottage_Creek_North_REF\IA210100_GIS_F001_CottageCreek_REF_r3v1_Proposal_area_with_premise.mxd
Created by : XX | QA by : XX

For the purposes of this review of environmental factors (REF) the following definitions have been used:

- The 'proposal' refers to all the activities and ancillary sites associated with the waterfront promenade and Cottage Creek north proposed works
- The 'proposal area' refers to the area that would be directly impacted by the proposal. It includes the total proposal footprint, ancillary sites, and any other areas that would be temporarily disturbed. The proposal area is shown in **Figure 1-1**
- The 'study area' refers to the proposal area and the wider area that may be indirectly impacted by the proposal and has been defined for each specialist study.

1.2 Purpose of the report

This REF has been prepared by Jacobs on behalf of Hunter & Central Coast Development Corporation (HCCDC). For the purposes of these works, HCCDC is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of the REF is to describe the proposal, to document the likely impacts of the proposal on the environment, and to detail protective measures to be implemented.

The description of the proposed work and associated environmental impacts have been undertaken in the context of clause 228 of the *Environmental Planning and Assessment Regulation 2000*, the factors in *Is an EIS Required? Best Practice Guidelines for Part 5 of the Environmental Planning and Assessment Act 1979* (Is an EIS required? guidelines) (DUAP, 1995/1996), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the REF helps to fulfil the requirements of:

- Section 5.5 of the EP&A Act that HCCDC examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The significance of any impact on nationally listed biodiversity matters under the EPBC Act, including whether there is a real possibility that the activity may threaten long-term survival of these matters, and whether offsets are required and able to be secured
- The potential for the proposal to significantly impact any other matters of national environmental significance or Commonwealth land and the need to make a referral to the Australian Government Department of the Environment and Energy (DoEE) for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act.

2 Need and options considered

This chapter describes the need for the proposal in terms of its strategic setting and operational need. It identifies the various options considered and the selection of the preferred option for the proposal.

2.1 Strategic need for the proposal

HCCDC is constituted under the *Growth Centres (Development Corporations) Act 1974* and is charged with the responsibility of promoting, co-ordinating, managing and securing the orderly and economic development of land within the Hunter growth centre. HCCDC's primary role is to facilitate private sector investment in projects which contribute to economic growth, employment, residential, commercial and industrial opportunities in the Hunter Region Growth Centre. This is generally done by acquiring constrained, vacant or underutilised land and removing or addressing constraints that prevent investment by the private sector.

The cornerstone project in HCCDC's portfolio is the Honeysuckle Project. This project commenced at the end of the 20th century and has progressively contributed to Newcastle's revitalisation. The project aims to be a vibrant, innovative and high quality urban place for people to work, live and recreate in a way that contributes to the social and economic fabric of the city.

HCCDC is working towards the release of land at the western end of the Honeysuckle Precinct. The proposal would complement and support the disposal and development of adjacent underutilised land through connection with the existing waterfront promenade to the west and east, and compliment the Cottage Creek south naturalisation works being carried out by Hunter Water.

The *Greater Newcastle Metropolitan Plan 2036* (DPE 2018) sets out strategies and actions to drive sustainable growth across Cessnock City, Lake Macquarie City, Maitland City, Newcastle City and Port Stephens communities, which together make up Greater Newcastle. The proposal facilitates the future development of underutilised land in Honeysuckle and as such is aligned with the key strategies of the *Greater Newcastle Metropolitan Plan 2036* (DPE 2018) which include:

- Reinforce the revitalisation of Newcastle City Centre and expand transformation along the waterside
- Respond to the changing land use needs of the new economy
- Improve resilience to natural hazards
- Prioritise the delivery of infill housing opportunities within existing urban areas
- Unlock housing supply through infrastructure coordination and delivery
- Integrate land use and transport planning.

The *Greater Newcastle Metropolitan Plan 2036* (DPE 2018) also helps to achieve the vision set in the Hunter Regional Plan 2036 (DPE 2016) for the Hunter to be the leading regional economy in Australia with a vibrant new metropolitan city at its heart.

The proposal area is identified as part of an urban renewal corridor in the *Hunter Regional Plan 2036* (DPE, 2016). A key action identified for urban renewal corridors by this plan is to "concentrate growth in strategic centres, local centres and urban renewal corridors to support economic and population growth and a mix of uses".

As the proposal compliments the disposal and development of adjacent land within the urban renewal corridor by the private sector, it is considered to be aligned with the *Hunter Regional Plan 2036* (DPE, 2016).

2.2 Existing infrastructure

2.2.1 Waterfront Promenade

Foreshore management activities are currently being carried out within the Honeysuckle Precinct waterfront promenade, as described in the *Thorsby Basin Waterway and Foreshore Management Activities Review of Environmental Factors* (HDC, 2017). Activities being carried out for this include:

- Temporary diversion of shared pedestrian and cyclist pathway
- Temporary stockpiling of rock and fill material
- Installation of full height rock revetment at Lee 4, Lee 5 and Throsby wharves
- Demolition of Throsby and Lee 5 wharves behind the new rock revetment
- Reclamation of land behind the new revetment
- Extension of Cottage Creek storm water drain through the reclamation area to Newcastle Harbour
- Replacement of the temporary shared pedestrian and cycleway along the existing wharves until such time as a new public promenade is designed, approved and installed.

Construction works associated with this project is expected to be complete in 2023.

The proposal involves carrying out landscape works following completion of the foreshore management activities described above, as well as naturalisation works next to Cottage Creek north.

2.2.2 Cottage Creek drainage structure

Cottage Creek consists of a concrete drainage channel (the channel) that runs under Honeysuckle Drive extending to the Newcastle Harbour seawall in the north (refer to **Photo 2-1**). The drainage channel is about 75 years old (Lindsay Dynan 2018) and would have the concrete lid that extends from Honeysuckle Drive to Newcastle Harbour removed as part of the separately assessed Honeysuckle Drive road realignment (HCCDC 2019).

The drainage channel is proposed to be extended through the reclaimation area to Newcastle Harbour as part of the seperatly assessed Thorsby Basin Waterway and Foreshore Management activities (HDC 2017).

 h

Photo 2-1 Cottage Creek drainage channel (looking north from Cottage Creek south towards Newcastle Harbour) (Jacobs 2019)

2.2.3 Road network

Existing roads near proposal area include:

- Honeysuckle Drive: Honeysuckle Drive is located to the south of the proposal. This road consists of a single lane in each direction with an on road dedicated cycle path on either side, a road bridge over Cottage Creek, and road side parking near the Steel Street intersection. A potential

realignment and replacement of the road bridge over Cottage Creek to improve flood conveyance has been assessed separately (HCCDC 2019)

- Hannell Street: Forms part of a major arterial road running through the locality connecting the Hunter Valley and NSW North Coast to Newcastle and Lake Macquarie. North of Hunter Street, Stewart Avenue becomes Hannell Street. Stewart Avenue is a classified state road which forms part of the Pacific Highway. It has a signposted speed limit of 60 kilometres per hour and is crossed by the Newcastle Light Rail between Hunter Street and Honeysuckle Drive. On road cycle lanes are provided on each side of the road in the vicinity of Honeysuckle Drive
- Old Hannell Street: Located about 70 metres west of the Honeysuckle Drive and Hannell Street intersection. Old Hannell Street connects to Station Street which can be accessed from Hannell Street
- Steel Street: Honeysuckle Drive connects with Steel Street via a signalised T-intersection which allows for all turning movements out of Steel Street and left turn in only.

2.2.4 Pedestrian and cyclist facilities

To the west and east of the proposal a shared path runs parallel to Newcastle Harbour. This shared path forms part of the R6 regional cycling route which connects Newcastle City Centre to the University of Newcastle (Callaghan Campus) via Throsby Creek. To the east, this shared pathway joins the R1 regional cycling route which continues east to connect with the Bathers Way Loop.

The shared pedestrian and cyclist pathway located next to Newcastle Harbour was diverted as part of the Thorsby Basin Waterway and Foreshore Management Activities (HDC 2017). The diversion currently runs from the promenade next to Newcastle Harbour at the Tree of Knowledge Park, through the temporary off-street parking (described below) to Honeysuckle Drive north of Cottage Creek. The diversion continues to Worth Place where it connects to the existing Foreshore promenade.

2.2.5 Parking infrastructure

A temporary off-street commuter car park with about 356 car parking spaces is located south of the proposal, on the northern side of Honeysuckle Drive, on land owned by HCCDC (refer to **Figure 2-1**). This carpark provides paid all day parking. The proposal would not impact this car park.

Figure 2-1 Temporary commuter car park, Honeysuckle Drive (source: Google Maps November 2019)

2.3 Proposal objectives and development criteria

The proposal follows on from the separately assessed Throsby Basin Waterway and Foreshore Management works (HDC 2017). The objective of that project was to replace redundant, aging and maintenance intensive wharf infrastructure with a permanent, low maintenance foreshore access way in a manner that supports and maximises the future development potential of the Cottage Creek precinct in accordance with its current land zoning. The development criteria for the seawall works was based on the following objectives:

- Design that retains the mixed-use development area and public domain as per the current land zoning
- Design that de-risks the proposal site for future development
- Cost effective in relation to capital investment value and ongoing maintenance costs
- Constructability.

A high-level review of options for the Throsby Basin Waterway and Foreshore Management activities (HDC 2017) included:

- A do-nothing option
- Continued maintenance and repair option
- Various combinations of piling systems
- Full height rock revetment.

The full height rock revetment option was selected on the basis of it having the lowest capital and ongoing maintenance cost of all options that achieve that projects objectives.

The Throsby Basin Waterway and Foreshore Management activities (HDC 2017) committed to further assessment of a permanent public domain treatment but did not consider the permanent public domain works (the subject of this REF) as designs had not been adequately progressed at that time. The proposal objective builds on the Throsby Basin Waterway and Foreshore Management activities objectives and options analysis as described below.

2.3.1 Proposal objectives

The proposal objectives are to:

- Provide a permanent, high quality public domain along the foreshore of Newcastle Harbour
- Connect Tree of Knowledge Park, Cottage Creek and Worth Place Park West by completing the harbourfront link at Honeysuckle
- Provide a suitable connection for pedestrians and cyclists along the harbourfront at Honeysuckle
- Complement the naturalisation of Cottage Creek being completed by Hunter Water to the south of Honeysuckle Drive
- Provide foreshore access along Cottage Creek between Honeysuckle Drive and the waterfront promenade
- Complement the future development potential of Honeysuckle West.

2.4 Alternatives and options considered

2.4.1 Methodology for selection of preferred option

With the selection of the full-height rock revetment option for the Throsby Basin Foreshore and Waterway Management activities (HDC 2017) limited options were available for the provision of a permanent, high quality public domain along the foreshore of Newcastle Harbour. The assessment of options considered the proposal objectives outlined in **Section 2.3.1**.

Two options were considered during the development of the proposal including:

- Option 1 - Do nothing
- Option 2 - Landscaping of the Waterfront Promenade and naturalisation Cottage Creek north.

A description of the options is provided in **Section 2.4.2**.

2.4.2 Identified options

The following options were considered in the selection of the preferred option:

Option 1: Do nothing

This option includes maintaining the temporary treatment for the foreshore to be established as part of the Throsby Basin foreshore and Waterway Management works and Cottage Creek north formation.

Option 2: Landscaping of the Waterfront Promenade and naturalisation of Cottage Creek north

This option involves:

- Landscaping the Public Domain waterfront promenade next to Newcastle Harbour
- Naturalisation works from the top of the Cottage Creek concrete drainage channel from the Honeysuckle Drive road bridge north to Newcastle Harbour. The naturalisation works have been designed to complement the works proposed by Hunter Water for Cottage Creek south.

2.4.3 Analysis of options

Option 1 – Do nothing option would not address the strategic need for the proposal and would not fulfil the proposal objectives. Therefore, this option was not progressed.

Option 2 – Landscaping of the Waterfront Promenade and naturalisation Cottage Creek north meets the proposal objects by completing the harbourfront link at Honeysuckle, providing a suitable connection for pedestrians and cyclists, complementing the naturalisation of Cottage Creek south, and complementing future development within Honeysuckle West.

2.5 Preferred option

In the absence of an alternative viable option, Option 2 - Landscaping of the Waterfront Promenade and naturalisation Cottage Creek north is preferred.

2.6 Design refinements

Following consultation with council and Hunter Water the following design refinements were identified:

- The proposed sandstone blocks at the northern end of Cottage Creek, near the Newcastle Harbour's water edge will be removed
- A live seawall may also be included along the edge of Cottage Creek where the top 500 millimetres of the concrete channel walls are to be removed as part of the proposal.

3 Description of the proposal

This chapter describes the proposal and provides descriptions of existing conditions, the design parameters including major design features, the construction method and associated infrastructure and activities.

3.1 The proposal

The proposal is located in the Newcastle local government area and would complement the development of adjacent land through connection with the existing waterfront promenade to the west and east of the proposal.

Key features of the proposal include:

- Landscaping of the Public Domain waterfront promenade next to Newcastle Harbour from Worth Place Park West to the Tree of Knowledge Park including:
  - A 4.5 metre wide shared path for the length of the proposal with a pedestrian bridge over Cottage Creek
  - Feature seating and edge barriers
  - Mass plantings and promenade trees with permeable material around trees
  - Softscape areas and paved areas along the promenade
  - A node in the floodway with a handrail
  - Sandstone block steps to the lower part of the rock seawall
  - Lighting.
- Naturalisation from the top of the Cottage Creek drainage channel north from the Honeysuckle Drive road bridge to Newcastle Harbour including:
  - Removal of about the top 500 millimetres of the concrete channel and placement of sandstone blocks along the edge of the drainage channel
  - Tiered landscaping from the edge of the drainage channel including grassed areas, mass plantings and trees next to Cottage Creek
  - Pedestrian links to the waterfront promenade and Honeysuckle Drive
  - Feature seating
  - A drinking water fountain either side of Cottage Creek next to the waterfront promenade.
- Temporary diversion of the shared pedestrian and cyclist pathway
- Temporary ancillary facilities including site compounds and stockpile sites.

The location and an overview of the proposal is shown in **Figure 1-1**. **Chapter 3** describes the proposal in more detail.

The proposal would be constructed in four stages, with stage 1 expected to commence in mid 2021 and stage 4 expected to be completed in 2023. Each stage is expected to take about four months to complete.

3.2 Design

The following sections provide a description of the design criteria, major design features and engineering constraints of the proposal. These features have been based on the concept design and would be subject to refinement during detailed design.

3.2.1 Design criteria

The landscape design has been carried out in accordance with the following guidelines and standards:

- AS1428.1 2009 – Design for Access and Mobility
- Technical Manual: Honeysuckle Public Domain (Urbis 2018)
- AS/NZS 4663 Slip resistance
- City of Newcastle. Standard Drawing Register. AS300 Series – Landscape.

The adopted design criteria for the proposal are summarised in **Table 3-1**.

Table 3-1 Design criteria

Specification	Design criteria
Foreshore promenade	The width of the promenade would vary as following: • 8 metres east of Cottage Creek • 10 metres west of Cottage Creek • The foreshore promenade would also include soft landscape, foreshore edge, tree planting and a shared public pathway.
Shared path	Shared pathway about 4.5 metres wide.
Hard surface paving	• Permeable material (such as permeable pavers and / or a permeable grating system) for tree and furniture areas • Concrete paving for the waterfront paving edge and path • Granite pavers for the promenade paving • Bluestone paver or similar for the pedestrian laneway, to be integrated with private development pavement • Pre cast concrete edge blocks • Sandstone blocks for areas next to water.
Pedestrian bridge	• 4.5 metre wide pedestrian bridge. • The bridge would be clear span with a decorative balustrade and seating areas. • The height of the bridge would provide for the required floodway volume under the bridge. • The gradient of the bridge would not exceed 1:20 for the walkway.
Stormwater	• Surface drainage designed to fall towards Newcastle Harbour.
Cottage Creek	• Existing concrete channel sides to be cut down to about 500 millimetres • Sides of channel above RL 0.80 to be revegetated using a minimum 2 metre width of endemic macrophyte plantings.

3.2.2 Engineering constraints

The main issues and constraints considered by the proposal included:

- Proposed development sites: Land to the south of the proposal is planned for release and development by others
- Utilities: No utilities adjustments are required for the proposal (refer to **Section 3.5**). Connection to the existing electricity, water and telecommunications utilities at Worth Place Park West, Tree of Knowledge Park and near Cottage Creek would be required for the smart poles and drinking fountain
- Flood levels: The height of the footbridge next to Newcastle Harbour over Cottage Creek and the naturalisation works at the top of the Cottage Creek concrete channel (refer to **Section 2.4** and **Section 6.3**)

- Soils: The potential presence of contamination and acid sulphate soils (refer to **Section 6.5**)
- Traffic management: Other developments within the Honeysuckle Precinct (refer to **Section 6.2**)
- Proposal staging: Construction would commence when the Thorsby Basin Waterway and Foreshore Management Activities (HDC 2017) works have been completed and would need to be staged to cater for other developments with Honeysuckle West (refer to **Section 3.3** and **Section 6.2**).

3.2.3 Major design features

Major design feature 1 – Waterfront Promenade landscaping

The waterfront promenade landscaping would consist of:

- East of Cottage Creek the waterfront promenade would be about eight metres wide and include a 4.5 metre wide shared path and an additional 2.5 metre wide foreshore width to the top of the seawall adjoining the shared pathway. The promenade would be constructed using a range of feature paving materials and patterns generally outlined in the Technical Manual: Honeysuckle Public Domain (Urbis 2018)
- A pedestrian bridge over Cottage Creek with feature night lighting
- Feature seating and edge barriers
- Mass plantings and advanced size promenade trees with permeable material around trees
- Variable pavement finishes at the node drainage corridor interface to integrate with the adjoining private development site and surface finishes
- Softscape areas and paved areas along the promenade
- A node in the floodways with a handrail
- Sandstone block steps to provide waterside seating and access to the lower area of the rock seawall near the pedestrian bridge over Cottage Creek
- Pole mounted lighting.

Major design feature 2 – Cottage Creek naturalisation

The Cottage Creek naturalisation would consist of:

- The existing concrete deck over the drainage channel would be removed as part of the separately assessed Honeysuckle Drive road realignment (HCCDC 2019). The area next to the existing Cottage Creek north drainage channel (either side) would be landscaped to include mass planting, soft landscape areas, public access paths and open and shaded seating areas
- Removal of about the top 500 millimetres of the concrete channel and placement of sandstone blocks along the edge of the drainage channel
- Pedestrian links to the waterfront promenade and Honeysuckle Drive
- Feature furniture such as seating
- A drinking water fountain either side of Cottage Creek next to the waterfront promenade.

The landscape plan for the proposal is shown in **Appendix A**.

3.3 Construction activities

This section provides a summary of the likely construction methodology, work hours, plant and equipment and associated activities that would be used to construct the proposal. For the purpose of this REF, an indicative construction plan and methodology have been provided. Detailed construction plans, and methods would be confirmed following completion of the detailed design.

The actual construction method may vary from the description in this chapter due to factors such as identification of on-site conditions during pre-construction activities, ongoing design refinement and consultation with property owners.

An environmental management framework to manage and mitigate impacts is presented in **Chapter 7**. The final construction plan and methods chosen by the contractor would be required to be consistent with this framework.

3.3.1 Work methodology

Construction activities would be guided by a Construction Environmental Management Plan (CEMP) to ensure construction work is carried out to HCCDC specifications within the specified work area. Detailed work methodologies would be identified by the construction contractor and would be refined to respond to engineering and environmental constraints relevant to the proposal area. Before the start of each stage, the following general activities would be carried out:

- Installation of temporary safety barriers, fencing and signage around the proposed works area
- Temporary diversion of the shared pedestrian and cyclist pathway
- Establishment of ancillary sites
- Installation of temporary erosion and sediment controls
- Establishment of dedicated vehicle washdowns and/or concrete washouts if required.

At the end of the works temporary safety barriers, fencing, signage and temporary pedestrian and cyclist diversions would be removed.

The staging of construction would be sequenced so construction can be completed within the minimum possible timeframe. Staging would consider the other developments currently being carried out and planned in the Honeysuckle precinct (refer to **Section 6.11**).

3.3.2 Construction hours and duration

The works would be undertaken during standard construction hours only, being.

- Monday – Friday: 7am – 6pm
- Saturday: 8am – 1pm
- Sunday and public holidays: No work.

The typical construction stages and activities for the proposal include:

- Stage 1:
  - Lee 4 promenade: March – June 2021 (about four months)
- Stage 2:
  - Lee 5 promenade: March – June 2022 (about four months)
  - Cottage Creek: March – June 2022 (about four months)
- Stage 3:
  - Throsby promenade: March – June 2023 (about four months).

The final construction staging methodology would potentially be refined during detailed design, and in consideration of the timing of neighbouring land release. In general, promenade and Cottage Creek works are expected to be delivered prior to the opening of developments on immediately adjacent land HCCDC controlled land release areas.

3.3.3 Plant and equipment

An indicative list of plant and equipment that would typically be required is provided below. Additional equipment may be used and would be identified by the construction contractor.

- Excavator and backhoe
- Concrete saw
- Crane
- Pulveriser
- Generators
- Welder
- Loaders and trucks
- Concrete pump
- Concrete vibrators
- Concrete agitator trucks
- Soil stabiliser
- Light vehicles
- Sprinklers and water cart
- Temporary barriers and fencing
- Hand held power tools.

3.3.4 Earthworks

Earthwork material and estimated qualities would be confirmed as the landscape design is progressed. Materials would be sourced from local areas where practicable. **Section 3.3.5** provides an outline of estimate sources and quantities of materials to be used for the proposal including general fill and select material zone. It also describes how surplus material and water use would be managed.

3.3.5 Source and quantity of materials

The following bulk material estimates would be required for construction of the proposal:

- Imported fill – 1,639 metres cubed
- Concrete – 658 metres squared.

Other materials may also be required including water, rock, mulch, sandstone, wood and pavers.

The amount of water that would be required during construction is unknown at this stage as it would depend on material sources and methodologies applied by the contractor. Water for the work would be sourced from authorised off-site sources, including recycled or reused water.

3.3.6 Traffic management and access

This section outlines the likely changes to traffic during construction. Impacts on traffic would be kept to a minimum through the management measures outlined in **Section 6.2**.

Demolition, excavation and construction would all generate heavy vehicle traffic. The heavy vehicle routes for the incoming traffic would use Station Street and Honeysuckle Drive to access and exit the proposal.

Trucks would generally consist of articulated trucks. It is anticipated that the vast majority of truck movements to and from the site would be truck and dogs with only equipment being delivered or picked up with larger vehicles.

The construction traffic would involve:

- Heavy vehicles arriving and departing during standard construction hours only and avoiding peak periods to the extent feasible (without extending construction duration)
- Heavy vehicle generation: About four truck movements per hour, including 12.5 metre truck (large) movements outside the commuter peak periods with no more than two arrivals and departures in a given hour
- Construction workers vehicle traffic generation: by referring to the similar size mixed-used development construction arrangements, arrival of about 20 construction worker cars between 6:00am to 7:00am, and departure between 3:00pm to 6:00pm
- Trucks would not be permitted to park in any area that is not a work zone, including on existing streets in the area. The volume of trucks (two per hour) expected at the site would be coordinated by the contractors to not be required to wait for the previous truck to exit the site.

All truck movements would be undertaken in accordance with a code of conduct outlining driver expectations, and traffic control would be in communication with truck drivers to ensure they are not queuing on local streets. Deliveries and spoil removal would be planned to avoid queuing of trucks in or around the construction site.

The contractor will ensure that:

- All laden trucks entering or exiting the site have their loads covered
- Appropriate measures are in place to minimise the tracking of material onto the road by vehicles leaving the site
- All vehicles are managed to prevent parking or queuing on public roads around the site
- No trucks queue at the entrance to the site before 7am Monday to Friday and 8am Saturday
- All trucks adhere to the nominated haulage routes.

Any deliveries or pick up of machinery or other activities requiring temporary road closures will be undertaken with the required permits in place prior to activities commencing requiring that action.

The existing kerbside parking spaces on both sides of Honeysuckle have parking restriction during day time hours (generally 1P on weekdays and 4P weekends). Where possible parking onsite would be preferable to on-street parking and/or within the Tree of Knowledge Park primary ancillary site. HCCDC also controls land holdings to the south (the temporary commuter car park) of the proposal that could be made available for staff parking.

Existing temporary shared pathway diversions would remain in place and/or be modified as required to maintain public safety during construction of the proposal.

Traffic controllers may be present to assist with the direction of heavy vehicles to and from the site as well as the safe management of pedestrian movement during construction hours.

No road closures are currently envisaged as part of the construction and impacts on emergency and service vehicles would be minimal.

Traffic management, control and signage

Where possible, construction would be programmed to minimise impact on traffic using the local and regional road network.

Standard traffic management measures would be used to minimise traffic impacts (including for pedestrians and cyclist) expected during construction. These measures would be identified in the CEMP.

3.4 Ancillary facilities

Construction would require ancillary facilities including:

- AS1: Primary ancillary site located at Tree of Knowledge Park
- AS2: Secondary ancillary site located to the south of the waterfront promenade.

The location of the ancillary sites are shown in **Figure 1-1**. Typically, the activities required at these sites would include any of the following:

- Compound sites including site offices, sheds, workshops, storage areas and a first aid post
- Arrival and departure of office staff, workforce and daytime deliveries to compounds
- Plant storage, materials laydown and storage, stockpiling and construction parking
- Delivery of excavated material from site by tipper trucks
- General stockpile management and loading of final product into tipper trucks for delivery to site
- General delivery of other construction materials for storage
- Water truck tank loading areas
- Heavy vehicle turn around facilities
- Stockpile areas.

Access to the ancillary sites would be established to allow for heavy vehicles and turning movements. The ancillary sites would be kept secure with temporary fencing. Signs would be erected advising the general public of access restrictions and contact details in the event of emergency or incident.

The exact location and proposed use of ancillary sites would be confirmed by the construction contractor before the start of construction of each stage. Where amendments or additional ancillary facilities are identified during construction outside of the proposal area, the contractor would consult with HCCDC's lead environment advisor to confirm the suitability of the proposed amendment or additional facility, and whether any additional environmental assessment is required.

Following construction, the ancillary sites, work areas and stockpile areas would be removed, cleared of rubbish and materials and rehabilitated to their existing condition.

3.5 Public utility adjustment

The Thorsby Basin Waterway and Foreshore Management activities (HDC 2017) currently being carried out includes measures to protect and extend stormwater management utilities and assist in providing excess capacity in the event that upstream capacity restrictions are removed. As the proposal includes landscaping and creek naturalisation works no impacts to utilities are expected.

Connection to the existing electricity, water and telecommunications utilities at Worth Place Park West, Tree of Knowledge Park and near Cottage Creek would be required for the smart poles and drinking fountain.

3.6 Property acquisition

No property acquisition would be required as part of the proposal. The waterfront promenade and Cottage Creek north proposed works would be handed over to council and Hunter Water (respectively) for management when completed.

4 Statutory and planning framework

This chapter provides the statutory and planning framework for the proposal and considers the provisions of relevant state environmental planning policies, local environmental plans and other legislation.

The Proponent

HCCDC is constituted under the *Growth Centres (Development Corporations) Act 1974* and operates in accordance with its provisions. The provisions of the *Growth Centres (Development Corporations) Act 1974* with Section 8(1) state:

> *"Subject to this Act, the Environmental Planning and Assessment Act 1979 and any other relevant Act a development corporation may, for the purposes of this Act:… (j) cause any work to be done on or in relation to any land vested in the development corporation, or any other land with the consent of the person in whom it is vested, for the purpose of rendering it fit to be used for any purpose for which it may be used under any environmental planning instrument applying to the land".*

HCCDC is a NSW Government agency and in accordance with the *Interpretations Act 1987* Section 13A (4) and EP&A Act. Therefore, HCCDC is a Public Authority.

4.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulation provide the framework for assessing the environmental impacts of proposed developments in NSW. The EP&A Act allows for the creation of environmental planning instruments (EPIs) including Local Environmental Plans (LEPs) and State Environmental Planning Policies (SEPPs). Presented below is a discussion on the approval process under the EP&A Act and the relevance of specific EPIs. Also discussed below are other legislative requirements of relevance to the proposal.

As outlined in **Chapter 1**, HCCDC is the determining authority under Division 5.1 of the EP&A Act. This REF has been prepared by Jacobs on behalf of HCCDC. The purpose of the REF is to describe the proposal, to document the likely impacts of the proposal on the environment, and to detail protective measures to be implemented.

The description of the proposal and associated environmental impacts has been carried out in context of clause 228 of the *Environmental Planning and Assessment Regulation 2000* (summarised in **Appendix B**), the BC Act, the FM Act, and the EPBC Act. In doing so, the REF helps to fulfil the requirements of section 5.5 of the EP&A Act that HCCDC examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report (BDAR).

4.1.1 State Environmental Planning Policies

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across the State. Clause 129(1) of ISEPP provides that development for the purpose of waterway or foreshore management activities may be carried out by or on behalf of a public authority without consent on any land. For the purposes of this clause, waterway or foreshore management activities means:

> *(a) riparian corridor and bank management, including erosion control, bank stabilisation, resnagging, weed management, revegetation and the creation of foreshore access ways, and*
>
> *(b) instream management or dredging to rehabilitate aquatic habitat or to maintain or restore environmental flows or tidal flows for ecological purposes, and*
>
> *(c) coastal management and beach nourishment, including erosion control, dune or foreshore stabilisation works, headland management, weed management, revegetation activities and foreshore access ways, and*
>
> *(d) coastal protection works, and*
>
> *(e) salt interception schemes to improve water quality in surface freshwater systems, and*
>
> *(f) installation or upgrade of waterway gauging stations for water accounting purposes.*

Coastal protection works has the same meaning as the *Coastal Protection Act 1979*, and means activities or works to reduce the impact of coastal hazards on land adjacent to tidal waters and includes seawalls, revetments, groynes and beach nourishment.

The proposal falls within the definition for waterway or foreshore management activities on the basis that it is for the purpose of the creation of foreshore access ways and bank management. While the works to Cottage Creek involve works to an existing stormwater management system, the purpose is not for the collection, detention, harvesting, distribution or discharge of stormwater which is already satisfied by the existing system.

Under Division 25 Clause 129 of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP), development for the purposes of waterway and foreshore management is permissible without consent on any land. As identified above, the primary purpose of the proposal fits within the definition of waterway and foreshore management works and as such is permissible without consent.

Part 2, Division 1 of ISEPP establishes consultation requirements. Division 1 requires consultation with council where HCCDC forms the opinion that the proposal would impact on council related infrastructure or services, local heritage or flood liable land. The following provides a summary of how the proposal has the potential to impact Council related infrastructure and whether consultation is required:

- Stormwater: As the removal of about 500 millimetres from the top of the Cottage Creek drainage channel would not be expected to impact the current capacity of this stormwater management structures (refer to **Section 6.3**) the proposal would not have a substantial impact on stormwater management services provided by council
- Flooding: While the land is considered flood liable, the proposal would not be expected to result in a more than minor change to flood behaviour
- Traffic: **Section 6.2** summarises the traffic impact assessment which found that the proposal would be unlikely to generate traffic to an extent that would strain the capacity of the road network
- Water supply: No works on a public space under council's management or control, connection to and use of water from council owned water supply system and no impact on sewage systems provided by council has been proposed
- Roads and footpaths: Works to footpaths and impacts on roads for which council is the authority would be minor and inconsequential

- Heritage: **Section 6.7** confirms that local heritage items would be unlikely to be impacted.
- Although, no formal consultation with Council under Division 1 Clause 15 is considered necessary, consultation has been carried out as described in **Section 5**
- Clause 15AA requires consultation with State Emergency Services for works that may be carried out without development consent under a relevant provision were development is proposed within flood liable land. An ISEPP consultation letter was forwarded on 14 August 2019. A summary of consultation is provided in **Section 5.4**
- Division 1 of the ISEPP also establishes consultation requirements with other agencies. Of relevance to the proposal, Clause 16 (2) (i) requires consultation with the Subsidence Advisory NSW for development on land in a mine subsidence district. An ISEPP consultation letter was forwarded on 14 August 2019. A summary of consultation is provided in **Section 5.4**.

State Environmental Planning Policy (Three Ports) 2013

The proposal extents into land the subject of *State Environmental Planning Policy (Three Ports) 2013* and specifically the Lease Area. The works within the Lease Area are limited to waterway and foreshore management works. The *State Environmental Planning Policy (Three Ports) 2013* does not restrict the application of works for this purpose. Further, *State Environmental Planning Policy (Three Ports) 2013* does not operate to make works for the purpose of waterway and foreshore management State Significant Infrastructure.

State Environmental Planning Policy (State and Regional Development) 2011

Development is declared to be State significant infrastructure for the purposes of the Act if:

- the development on the land concerned is, by the operation of a State environmental planning policy, permissible without development consent under Part 4 of the Act, and
- the development is specified in Schedule 3.

Schedule 3 identifies general public authority developments were a significant impact is identified as likely. The assessments supporting this REF identify that no significant impacts are considered likely. There is no monetary threshold for works for the purposes of foreshore management activities to be considered State significant infrastructure.

State Environmental Planning Policy (Coastal Management) 2018

The *State Environmental Planning Policy (Coastal Management) 2018* updates and consolidates into one integrated policy the State Environmental Planning Policy 14 (Coastal Wetlands SEPP), State Environmental Planning Policy 26 (Littoral Rainforests SEPP) and State Environmental Planning Policy 71 (Coastal Protection SEPP), including clause 5.5 of the Standard Instrument – Principal Local Environmental Plan. These policies are now repealed.

State Environmental Planning Policy (Coastal Management) 2018 gives effect to the objectives of the *Coastal Management Act 2016* from a land use planning perspective, by specifying how development proposals are to be assessed if they fall within the coastal zone. The coastal zone is comprised of four coastal management areas as follows:

- Coastal wetlands and littoral rainforests area; areas which display the characteristics of coastal wetlands or littoral rainforests that were previously protected by SEPP 14 and SEPP 26;
- Coastal vulnerability area; areas subject to coastal hazards such as coastal erosion and tidal inundation;
- Coastal environment area; areas that are characterised by natural coastal features such as beaches, rock platforms, coastal lakes and lagoons and undeveloped headlands. Marine and estuarine waters are also included; and
- Coastal use area; land adjacent to coastal waters, estuaries and coastal lakes and lagoons.

The proposal area includes land mapped as Coastal Environment Area and Coastal Use Area. Importantly, *State Environmental Planning Policy (Coastal Management) 2018* does not operate in such a way to restrict the circumstances in which a public authority can undertake works for the purpose of waterway and foreshore management without consent in these areas.

State Environmental Planning Policy No. 55 – Remediation of Land

State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55) provides a State-wide approach to the remediation of contaminated land. The aim of SEPP 55 is to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment:

- By specifying when consent is required, and when it is not required, for a remediation work
- By specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular
- By requiring that a remediation work meet certain standards and notification requirements.

Under SEPP 55 remediation means removing, dispersing, destroying, reducing, mitigating or containing the contamination of any land, or eliminating or reducing any hazard arising from the contamination of any land. The proposed works to naturalise Cottage Creek, while not for the purpose of remediation, are considered likely to require ancillary environmental management works which would also meet this broad definition. SEPP 55 identifies two remediation categories being:

- Category 1 remediation works requiring consent
- Category 2 remediation works not requiring consent.
- Category 2 remediation works is defined under clause 14 of SEPP 55 as follows:
  - (a) a remediation work that is not a work of a kind described in clause 9 (a)–(f), or
  - (b) a remediation work (whether or not it is a work of a kind described in clause 9 (a)–(f)) that:
  - (i) by the terms of a remediation order, is required to be commenced before the expiry of the usual period under the Contaminated Land Management Act 1997 for lodgement of an appeal against the order, or
  - (ii) may be carried out without consent under another State environmental planning policy or a regional environmental plan (as referred to in clause 19 (4)), or
  - (iii) is carried out or to be carried out by or on behalf of the Director-General of the Department of Agriculture on land contaminated by the use of a cattle dip under a program implemented in accordance with the recommendations or advice of the Board of Tick Control under Part 2 of the Stock Diseases Act 1923, or
  - (iv) is carried out or to be carried out under the Public Land Remediation Program administered by the Broken Hill Environmental Lead Centre.

Clause 19(4) of SEPP 55 identifies that:

- If a provision of another State environmental planning policy or of a regional environmental plan, whether made before or after this Policy, permits a remediation work without development consent, a requirement in this Policy to obtain development consent to carry out the work does not prevail over that provision.
- The works proposed that generally align with the definition of remediation works are wholly ancillary to the purpose of Waterway and Foreshore Management works which includes Environmental Management Works defined as “works for the purpose of avoiding, reducing, minimising or managing the environmental effects of development (including effects on water, soil, air, biodiversity, traffic or amenity)”. On this basis the remediation works are considered permissible without consent through Clause 129 of ISEPP and Waterway and Foreshore Management Works.
- Category 1 remediation works is, amongst other triggers, defined as not being works to which clause 14 (b) applies. As clause 14(b) is considered to apply, the proposed works meeting the broad definition of remediation are not considered Category 1 remediation.
- Clause 15 of SEPP 55 specifies that Category 1 remediation work must be treated as such even if it is ancillary to development that may be carried out without consent. As the definition of Category 1 remediation works excludes works to which clause 14 (b) applies Clause 15 is not considered to operate to require consent.

Under clause 7(1) of SEPP 55, a consent authority must not consent to the carrying out of any development on land unless it has considered whether the land is contaminated and whether remediation is required. SEPP 55 also requires consideration of whether the land use is suitable for the intended use.

A number of contamination assessments have been undertaken throughout the Honeysuckle Precinct including where the proposal is located (refer to **Section 6.5**). The Site Audit Reports relevant to the proposal area considered it suitable for its intended use. The RAPs (JBS&G 2018, JBS&G 2019) include minimum requirements to be included in a remediation environmental management plan for the proposal area that when implemented would prevent off-site contamination impacts.

State Environmental Planning Policy (Urban Renewal) 2010

The State Environmental Planning Policy (Urban Renewal) 2010 allows the Director General and Minister for Planning to declare a site an 'urban renewal precinct' after appropriate studies to assess the suitability of the site have been completed. The proposal is located within a declared urban renewal precinct.

The SEPP (Urban Renewal) 2010 states that the consent authority must not grant development consent unless they are "satisfied that the proposed development is consistent with the objective of developing the potential precinct for the purposes of urban renewal" where development involves subdivision, or a capital expenditure over $5 million, and is not exempt or complying development. The proposal does not meet these criteria, therefore the provisions of SEPP (Urban Renewal) 2010 do not apply.

4.1.2 Local Environmental Plans

The Newcastle Local Environmental Plan 2012 (NLEP) applies to land within the Newcastle local government area. The proposal area is located within the RE1 Public Recreation land zoning including along the waterfront promenade, Cottage Creek north and the Tree of Knowledge Park where the primary ancillary site is to be located. Temporary work areas (including the secondary ancillary site) is located within the B4 Mixed Use zoning.

The impacts to land use are discussed in **Section 6.9.3**. As detailed in **Section 4.1.1**, the proposal is permitted without the consent of council under ISEPP, as ISEPP prevails over the NLEP. Therefore, the consent requirements of the NLEP do not apply and the proposal may be determined under Division 5.1 of the EP&A Act.

HCCDC consulted with council and Hunter Water during the landscape plan development. Details of this consultation is provided in **Chapter 5**.

4.2 Other relevant NSW legislation

4.2.1 Protection of the Environment Operations Act 1997 implications

The *Protection of the Environment Operations Act 1997* (POEO Act) is the primary legislation that regulates waste and pollution in New South Wales. This act contains requirements relevant to the works proposed by HCCDC. The following sections detail how the POEO Act relates to the proposal.

Waste

If material that meets the definition of 'waste' is received from off-site and applied to land associated with the proposal it would constitute a scheduled activity (according to Schedule1 (39)) under the POEO Act. Scheduled activities require an Environmental Protection Licence (EPL) and payment of a waste levy would apply. Exceptions include any waste that meets the requirements of a general or specific resource recovery order and exemption as detailed in Part 9 of the *Protection of the Environment Operations (Waste) Regulation 2014*. General exemptions are available in relation to excavated natural material and recovered aggregate.

According to Section 144 of the POEO Act a person who is the owner or occupier of any place and who uses the place, or causes or permits the place to be used as a waste facility without lawful authority is guilty of an offence. Lawful authority is generally demonstrated through obtaining an EPL that specifically addresses the proposed use or through notifying the EPA of the intention to establish

and operate an unscheduled waste facility. To be guilty of a waste related offence the material also has to be defined as waste.

No waste will be used in the proposal accept with lawful authority and in accordance with general or specific resource recovery exemptions. The proposal is therefore not considered to constitute a scheduled activity.

Pollution of water

A person who pollutes any waters is guilty of an offence under Part 5.3, Section 120 of the POEO Act. The definition of pollution of waters is broad and includes the introduction of any prescribed matter that does not comply with any standard prescribed in respect of that matter, into water. Schedule 5 of the *Protection of the Environment Operations (General) Regulation 2009* includes a list of specific substances (prescribed matter) which, if they are introduced onto or into waters, are automatically assumed to constitute pollution of waters. Prescribed matter includes soils, sand, stone and other inorganic matter.

It is a defence in proceedings against a person for an offence under Part 5.3 Section 122 of the POEO Act if the person establishes that:

- *the pollution was regulated by an environment protection licence held by the person or another person, and*
- *the conditions to which that licence was subject relating to the pollution of waters were not contravened.*

4.2.2 Biodiversity Conservation Act 2016

The BC Act sets out the environmental impact assessment framework for threatened species, threatened ecological communities and Areas of Outstanding Biodiversity Value (formerly critical habitat) for Part 5 activities (amongst other types of development).

Part 7 of the BC Act requires that the significance of the impact on threatened species, populations and endangered ecological communities listed under the BC Act or FM Act, are assessed using a five-part test. Where a significant impact is likely to occur, a species impact statement (SIS) or Biodiversity Assessment Report (BAR) must be prepared in accordance with the Director-General's requirements.

The biodiversity assessment carried out for the Honeysuckle West planning project (which includes the proposal area) is located in **Appendix C**. A summary of the potential biodiversity impacts for the proposal is summarised in **Section 6.3**. The proposal would not have a significant impact on threatened species, ecological communities or critical habitat and therefore a SIS has not been prepared.

4.2.3 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) is the primary legislation dealing with Aboriginal cultural heritage in NSW. Items of Aboriginal cultural heritage (Aboriginal objects) or Aboriginal places (declared under section 84) are protected and regulated under the NPW Act. Aboriginal objects are protected under section 86 of the Act. Under section 90(1) of the Act and the Director-General may issue an Aboriginal heritage impact permit (AHIP) for an activity which would harm an Aboriginal object.

Investigations of the proposal's potential to interact with or impact on items of heritage significance are documented in **Section 6.6**. No impacts to Aboriginal heritage are expected. An AHIP is required to be obtained for the proposed work within the Cottage Creek north area as described in **Section 6.6**.

4.2.4 Coastal Protection Act 1979

Under Section 38 of the *Coastal Protection Act 1979* a public authority shall not, without the concurrence of the Minister for Planning:

- Carry out any development in the coastal zone, or
- Grant any right or consent to a person:

- to use or occupy any part of the coastal zone, or
- to carry out any development in the coastal zone,

If, in the opinion of the Minister for Planning, as advised from time to time by the Minister to the public authority, the development or the use or occupation may, in any way:

- Be inconsistent with the principles of ecologically sustainable development, or
- Adversely affect the behaviour or be adversely affected by the behaviour of the sea or an arm of the sea or any bay, inlet, lagoon, lake, body of water, river, stream or watercourse, or
- Adversely affect any beach or dune or the bed, bank, shoreline, foreshore, margin or flood plain of the sea or an arm of the sea or any bay, inlet, lagoon, lake, body of water, river, stream or watercourse.

HCCDC has consulted with the Department of Planning, Industry and Environment in relation to concurrence requirements and received confirmation that Section 38 of the *Coastal Protection Act 1979* only applies in cases where the Minister has advised the public authority of the application of the section. The Minister has not issued that advice for the Hunter area, as such concurrence from the Minister for Planning is not required for the proposal.

4.2.5 Water Management Act 2000

An aquifer interference approval under Section 91 of the *Water Management Act 2000* (WM Act) would be required if groundwater is to be encountered. Under the WM Act, all activities that interfere with an aquifer require assessment and approval under the NSW Aquifer Interference Policy.

Consultation with the WaterNSW would be required if it is identified that groundwater is to be impacted to ensure that all applicable licences and/or approvals are obtained prior to construction (refer to **Section 6.3.3**).

4.2.6 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) aims to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. Approval is required under the FM Act to carry out dredging or reclamation work (Section 199), harm marine vegetation (Section 205) and block passage of fish (Section 219).

The proposal does not contain key fish habitat or marine vegetation. Cottage Creek drains into the Hunter River which is key fish habitat. Due to proximity, the proposal could indirectly impact fish passage, water quality and marine vegetation in the Hunter River. Management of water quality is discussed in **Section 6.3**.

Section 199 of the FM Act states that a public authority, before carrying out or authorising dredging work, must give the Minister written notice of the proposed works and consider matters raised by the Minister within 21 days of giving the notice. As the proposal does not involve dredging or reclamation works, notification under the FM Act would not be required.

Impacts to aquatic vegetation and fish passage are considered in **Section 6.4**. No significant impact to marine ecosystems are anticipated due to the proposal.

4.2.7 Heritage Act 1997

The *Heritage Act 1977* (Heritage Act) aims to provide for the identification, registration and conservation of items of State heritage significance.

The public waterfront promenade is to be constructed on recently installed rock associated with the new rock revetment. No heritage value would be expected to be impacted in this area.

4.2.8 Waste Avoidance and Resource Recovery 2001

The purpose of the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) is to develop and support the implementation of regional and local programs to meet the outcomes of a State-wide strategy for waste avoidance and resource recovery. It also aims to ‘minimise the consumption of natural resources and final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste’.

Waste generation and disposal reporting would be carried out during the construction of the proposal. Procedures would be implemented during construction to promote the objectives of the WARR Act (refer to **Section 6.10**).

4.2.9 Coal Mine Subsidence Compensation Act 2017

The *Coal Mine Subsidence Compensation Act 2017* (CMS Act) requires that certain development within mine subsidence districts must obtain approval from the Subsidence Advisory, to ensure new structures are built to an appropriate standard that reduces the risk of damage should subsidence occur.

The proposal is located within the Newcastle Mine Subsidence District, therefore the proposed work (constituting an improvement) requires approval under Section 21 of the CMS Act.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on matters of national environmental significance (MNES) or the environment of Commonwealth land.

Matters of national environmental significance (MNES) include:

- World heritage properties
- National heritage places
- Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)
- Nationally threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mining)
- A water resource, in relation to coal seam gas development and large coal mining development.

A search of the Australian Government Department of Environment and Energy's EP&BC Act Protected Matters Search Tool was carried out on 9 August 2019 for the proposal, with a 10 kilometre search area. The searches found:

- No World Heritage Properties
- No National Heritage Places
- One Wetland of International Importance
- No Commonwealth Marine Areas
- four listed Threatened Ecological Communities
- 79 listed Threatened Species
- 76 listed Migratory Species
- 98 Listed Marine Species
- 15 Whale or Other Cetaceans
- Two Commonwealth Listed Heritage places
- 16 areas of Commonwealth Land.

It is the responsibility of the proponent to determine whether the proposal, or action, has the potential to impact upon a MNES and constitute the need for a referral to the Commonwealth for determination. Based on the assessments carried out to inform this REF and the MNES summary in **Appendix B**, no significant impacts to MNES or Commonwealth places are considered likely. Accordingly, the proposal has not been referred to the Australian Government Department of the Environment under the EPBC Act.

4.4 Confirmation of statutory position

The proposal is categorised as development for the purpose of waterway and foreshore management and is being carried out by or on behalf of a public authority. Under clause 129 of the ISEPP the proposal is permissible without consent. The proposal is not State significant infrastructure or State significant development. Accordingly, the proposal can be assessed under Division 5.1 of the EP&A Act.

HCCDC is proponent and determining authority for the proposal. This REF facilitates HCCDC's obligation under clause 5.5 of the EP&A Act to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

HCCDC has formed the view that the proposal is not likely to significantly affect the environment and would not require the preparation of an Environmental Impact Statement (EIS).

5 Consultation

This chapter discusses the consultation undertaken to date for the proposal and the consultation proposed for the future.

5.1 Consultation strategy

Key stakeholders identified for the proposal include:

- City of Newcastle
- Hunter Water
- Subsidence Advisory NSW
- State Emergency Services
- Pedestrians and cyclists impacted by the proposal
- Residents, businesses and adjacent developments impacted by the proposal
- Utilities providers for water, telecommunication and electricity connections.

To ensure that proposal information is distributed in an effective and timely manner. A range of engagement tools and activities would be used to provide information to and receive feedback from stakeholders and the local community.

The following sections outline the consultation that has been carried out specifically for the proposal.

5.2 Community involvement

HCCDC is committed to consulting with the community on developments in the Honeysuckle Precinct.

HCCDC have sought feedback since August 2017 on the Honeysuckle West delivery including the Public Domain, Cottage Creek, Waterfront Promenade, Worth Place Park West, Tree of Knowledge Park and Honeysuckle Drive road realignment. Engagement tools and activities have involved meetings with stakeholders, issue of a Honeysuckle Foreshore Public Domain Plan (HCCDC 2018) and media releases.

The Honeysuckle Foreshore Public Domain Plan (HCCDC 2018) and media release in April 2019 detailed that the waterfront promenade and Cottage Creek north would be landscaped and naturalised. Feedback received was recorded by HCCDC and will be considered during development of the landscape design.

No other community consultation has been carried out for the proposal.

HCCDC will notify residents, the community and stakeholders of the construction commencement as required.

5.3 Aboriginal community involvement

HCCDC is committed to effective consultation with Aboriginal communities about its activities and the potential for impact on Aboriginal cultural heritage. The following Aboriginal heritage consultation has been carried out for the proposal and wider Honeysuckle West Precinct proposed works. Key consultation activities were carried out in:

- January 2019 - Project notification letter requesting knowledge holders for the proposal
- February 2019 - Advertisement and letter inviting registration of interest for the proposal
- March 2019 - Issue of the assessment methodology to registered Aboriginal stakeholders
- April 2019 - Meetings to discuss the assessment methodology with registered Aboriginal stakeholders
- August 2019 - An additional proposal update was provided to all registered Aboriginal stakeholders
- 2019 - For the Honeysuckle Drive Realignment Aboriginal Heritage Impact Permit

- July 2020 - For the Cottage Creek north and south Aboriginal heritage assessment (Umwelt, 2020).

No ground penetration works or disturbance to previously undisturbed land is proposed. Therefore, impacts to Aboriginal heritage items or places is considered unlikely. Regardless, HCCDC will continue to consult with the Aboriginal community as required by the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010).

5.4 ISEPP consultation

Clauses 13 to 16 of the ISEPP specify the requirements for consultation with councils and other public authorities for infrastructure development carried out by or on behalf of a public authority. Consultation is required in relation to specified development or development that connect with utilities as described in **Section 3.5**.

As the proposal has the potential to impact on flood liable land and is located in a Mine Subsidence District, consultation with State Emergency Services, the Subsidence Advisory NSW and council under clauses 15, 15AA and 16 of ISEPP are required. The determination of this REF will consider any responses received within 21 days.

Appendix D contains an ISEPP consultation checklist that documents how ISEPP consultation requirements have been considered. ISEPP letters were sent on 14 August 2019. The ISEPP letters provided information on the proposal and invited response with any issues or concerns.

Issues that have been raised as a result of this consultation are outlined below in **Table 5-1**.

In addition, written notice of the intention to undertake works will be given by HCCDC to the City of Newcastle prior to works commencing.

Table 5-1 Issues raised through ISEPP consultation

Agency	Issue raised	Response / where addressed in REF
Subsidence Advisory NSW	A response was received on 15 August 2019 in which Subsidence Advisory NSW indicated that they do not object to the proposed works.	Noted.
City of Newcastle	A response was received on 22 August 2019 in which council requested clarification on the intent of the letter. A response was received on 2 September 2019 in which council made the following comments: • Ownership and future maintenance of seawalls shall be by authorities other than council • The shared pathway linkage adjacent to Cottage Creek requires to be a minimum of 3 metres wide. Council also indicated that they look forward to receiving further detail on the proposed works as it becomes available.	A response was provided on 22 August 2019 outlining that the intent of the letter was to meet HCCDC's ISEPP obligations for the proposal. Noted The shared path next to Cottage Creek would be about 4.5 metres wide. HCCDC will continue to consult with council as required for the proposal.

5.5 Government agency and stakeholder involvement

HCCDC has consulted on an ongoing basis with key State and local government agencies as well as utility providers and adjacent development in relation to the Honeysuckle West delivery which includes the proposal. This consultation was designed to ensure issues and concerns were understood, documented and addressed, and that stakeholders had an opportunity to discuss any aspect of the proposed upgrade. Consultation has included phone calls, emails, letters and face-to-face meetings.

Various government agencies and stakeholders have been consulted including:

- City of Newcastle
- Roads and Maritime Services
- Department of Premier and Cabinet
- EPA
- Hunter Water
- Emergency Services, including the NSW State Emergency Services
- Transport NSW.

5.5.1 Other developments within the Honeysuckle Precinct

A number of other developments would be constructed at the same time as the proposal (refer to **Section 6.11**). The Honeysuckle Precinct Coordination Group (PCG) was formed on 7 March 2019 as a response to the many redevelopment activities being planned and carried out concurrently within the Honeysuckle Precinct. The PCG comprises representatives of the key organisations managing developments in the Honeysuckle Precinct and includes:

- HCCDC
- University of Newcastle
- Hunter Water
- Roads and Maritime Services
- Lindsay Dynan
- Miller Property Group
- City of Newcastle
- Keolis Downer
- ESS Australia
- DOMA
- BLOC
- Daracon

HCCDC will continue to consult with all developments in the Honeysuckle precinct to coordinate construction activities in an effort to manage cumulative impacts.

The PCG is aimed at coordinating construction activities to minimise disruption to all stakeholders in the area in relation to:

- Pedestrian, cycle and other wheeled movements
- Bus movements and stops
- Private vehicular movements
- Regular construction vehicle movements and access
- Intermittent major construction vehicle movements and access
- Road or footpath closures
- Comprehensive and regular community updates through various platforms
- Comprehensive and clear signage.

5.5.2 Utility providers

HCCDC has consulted with utilities providers about the proposed works within the Public Domain, Cottage Creek and Honeysuckle Precinct which includes the proposal. Utility providers will continue to be consulted in relation to the connection with the existing water, telecommunication and electricity utilities located at Worth Place Park West, Tree of Knowledge Park and Cottage Creek for the drinking fountain and lighting.

5.6 Ongoing or future consultation

HCCDC intends to continue to consult with council and agencies to meet statutory obligations. HCCDC will continue to consult with Hunter Water to ensure that the proposed Cottage Creek north naturalisation works complements the proposed Cottage Creek south naturalisation works being carried out by Hunter Water. HCCDC will also consult with utility providers for connections to water, telecommunications and electricity utilities as required.

Public display of the REF is not proposed. HCCDC will communicate the proposed works through existing consultation channels to residents, business and adjacent developments with potential to be affected by the proposal.

HCCDC has contractual connections to developers proposing works on land recently released to the market within the Honeysuckle precinct. These connections will facilitate coordination of works in the immediate vicinity of the proposal. HCCDC also has existing inter-agency relationships with Revitalise Newcastle and Transport for NSW. These agencies coordinate other construction works in the area for the Newcastle Interchange and other transport infrastructure. HCCDC will continue to consult with these stakeholders as required.

6 Environmental assessment

This section of the REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environment potentially impacted upon by the proposal are considered. This includes consideration of potential impacts on matters of national environmental significance under the EPBC Act, the factors specified in the guidelines Is an EIS required? (DUAP 1995/1996) as required under clause 228(1) of the *Environmental Planning and Assessment Regulation 2000* and the *Roads and Related Facilities EIS Guideline (DUAP 1996)*. The factors specified in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000* are also considered in **Appendix B**. Site-specific safeguards and management measures are provided to mitigate the identified potential impacts.

6.1 Noise and vibration

Potential noise and vibration impacts on sensitive receivers during construction and operation of the proposal have been assessed and are described below.

6.1.1 Methodology

The noise and vibration assessment has been prepared in accordance with the following:

- Interim Construction Noise Guideline (ICNG) (Department of Environment and Climate Change NSW (DECC), 2009)
- Australian Standard AS 2436-1981 Guide to noise control on construction, maintenance and demolition sites
- Road Noise Policy, NSW EPA, 2011 (RNP)
- Assessing Vibration: a technical guideline, NSW Environment Protection Authority, February 2006
- British Standard BS 6472:1992 Guide to evaluation of human exposure to vibration in buildings
- German Standard DIN 4150 – Part 3: Effects of vibration on structures, February 1999.

In summary, the methodology for the assessment included the following:

- Identifying noise and vibration sensitive receivers
- Review of available, relevant and recent noise monitoring data to establishing noise and vibration assessment criteria
- Prediction of construction and operational noise levels
- Assessing predicted noise and vibration levels against the relevant criteria to identify potential impacts
- Identify safeguards and management measures to be implemented to minimise impacts.

6.1.2 Existing Environment

Existing daytime and night time ambient noise levels near the proposal are generally influenced by traffic on Hannell Street and Honeysuckle Drive, transport activities associated with the Newcastle Light Rail and Newcastle Interchange and other developments within the Honeysuckle Precinct.

To assist in the description of the existing noise environment and assessment of potential impacts, the noise study area for the proposal was broken into four Noise Catchment Areas (NCAs) (refer to **Figure 6-1**). These NCAs were identified from a review of previous noise monitoring and is consistent with the NCAs identified for the Thorsby Basin Waterway and Foreshore Management activities (HDC 2017) currently being carried out by HCCDC.

Previous noise monitoring included long-term unattended background noise measurements conducted by GHD for the Wickham Transport Interchange and the Newcastle Light Rail, as well as monitoring conducted by Jacobs for the Carrington Rail Yard. The noise loggers used in these assessments were placed at the following locations (refer to **Figure 6-1**):

- L1 – 119 Lott Street, Carrington (Jacobs for Carrington Rail Yard noise assessment)
- L2 – 43A Station Street, Wickham (GHD for Wickham Transport Interchange)
- L3 – 754 Hunter Street, Newcastle West (GHD for Newcastle Light Rail)
- L4 – Rail corridor west of Queens Brewery (GHD for Newcastle Light Rail).

The noise data from the above mentioned noise logger locations conducted by Jacobs and GHD is considered to be suitable to use for this assessment.

Figure 6-1 Noise monitoring locations and NCAs

Table 6-1 provides a summary of the noise levels for daytime, evening and night-time periods as defined in the NSW EPA's ICNG.

Table 6-1 Unattended noise monitoring results

Location	Rating Background Level, RBL[2] dB(A)			Ambient noise level, L_{Aeq}[3] dB(A)		
	Day	Evening	Night	Day	Evening	Night
L1	46	45	44	56	50	49
L2	40	40	38	59	59	56
L3	51	49	42	58	57	52
L4	57	55	49	70	71	67

Note: All values expressed as dB(A) and rounded to nearest 1 dB(A);

Note 2: RBL The RBL is based on the LA90 descriptor which represents the lowest 10th percent of the background noise level for the period over all the days measured.

Note 3: L_{Aeq} Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.

Based on the NCAs shown in **Figure 6-1**, nearby sensitive receivers potentially affected by the proposal would include:

- NCA 1 - Carrington: Residencies along Denison Street and Wilson Street
- NCA 2 - Wickham: Residencies along both sides of Hannell Street, as well as side streets such as Dangar Street, Charles Street, Bishopsgate Street, Grey Street, Dickson Street and Throsby Street. A childcare centre along Grey Street may also be impacted
- NCA 3 - Newcastle West: Residential properties along Bellevue Street and Beresford Street, as well as along Hunter Street directly to the south of the proposal. The TAFE facility on Hunter Street may also be impacted
- NCA 4 - Honeysuckle: Residencies along Worth Place and Honeysuckle Drive east of Worth Place. A childcare centre on Honeysuckle Drive immediately north of the Honeysuckle light rail station may also be impacted.

6.1.3 Criteria

Construction noise criteria

The ICNG provides guidance for the assessment of construction noise. It establishes noise management levels according to the hours in which construction may take place. The ICNG recommended standard hours for construction are the same as those presented in **Section 3.3.2**.

The ICNG acknowledges that the following activities could be undertaken outside the recommended standard construction hours, assuming all feasible and reasonable mitigation measures are implemented to minimise the impacts to any surrounding sensitive land uses:

- The delivery of oversized plant or structures that police or other authorities determine requires special arrangements to transport along public roads
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours
- Public infrastructure works that shorten the length of the proposal and are supported by the affected community
- Works where a proponent demonstrates and justifies a need to operate outside the recommended standard construction hours
- Works which maintain noise levels at receivers to below the noise management levels outside of the recommended standard construction hours.

Activities outside these standard construction hours is also addressed by the ICNG with a strong justification required and a lower noise management level compared with standard hours.

The ICNG states that the potential for construction noise impacts can be assessed by comparing the predicted noise at the assessment locations with the noise management levels developed using guidance presented in the ICNG. Construction is considered to have the potential to cause a noise impact if the predicted noise exceeds the noise management levels.

Based on the ICNG guidance for establishing noise management levels for residential receivers and non-residential land uses and the noise data collected from each logger location (refer to **Table 6-1**) the project specific noise management levels for construction activities at surrounding receivers for the proposal are presented in **Table 6-2** below.

Table 6-2 Construction noise management levels (NMLs)

Receiver	ICNG standard hours Noise management level, L_{Aeq} - dB(A)	Highly affected noise management level, L_{Aeq} - dB(A)
Residential NCA 1	56	75
Residential NCA 2	50	75
Residential NCA 3	61	75
Residential NCA 4	67	75
Classrooms at school and other educational institutions	45 Internal (or 55 external)	n/a
All industrial premises	70	n/a
All offices and retail outlets	70	n/a

Construction traffic

The NSW EPA's RNP (RNP 2011) provides traffic noise target levels for residential receivers in the vicinity of existing roads. These levels are applied to construction works to identify potential construction traffic impacts and the subsequent need for reasonable and feasible mitigation measures.

The Application Notes for the RNP state that 'for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to not more than 2 dB above that of the noise level without the development. This limit applies wherever the noise level without the development is within 2 dB of, or exceeds, the relevant day or night noise assessment criterion.

Given the type and size of construction traffic expected for the proposal a relative increase criteria of not more than 2 dB(A) has been adopted for the assessment of construction traffic impacts associated with the proposal. If road traffic noise during the proposal's construction is not more than 2dB(A) of current levels then the objectives of the RNP are met and no specific mitigation measures are required.

Construction vibration criteria

Criteria for assessment of the effects of vibration on human comfort are set out in British Standard 6472 – 1992. Methods and criteria in that Standard are used to set "preferred" and "maximum" vibration levels in the document "Assessing Vibration: A Technical Guideline" (2006) produced by the EPA.

Acceptable values of human exposure to continuous vibration are dependent on the time of day and the activity taking place in the occupied space (e.g. workshop, office, residence or a vibration-critical area). Guidance on preferred values for continuous vibration is set out in **Table 6-3**.

Table 6-3 Criteria for exposure to continuous vibration

Place	Time	Peak Particle Velocity (mm/s)	
		Preferred	Maximum
Critical working areas (e.g. hospital operating theatres, precision laboratories)	Day or night-time	0.14	0.28
Residences	Daytime	0.28	0.56
	Night-time	0.20	0.40
Offices	Day or night-time	0.56	1.1
Workshops	Day or night-time	1.1	2.2

In the case of intermittent vibration, which is caused by plant such as rock breakers (for example crushing concrete), the criteria are expressed as a Vibration Dose Value (VDV) which is presented in **Table 6-4**.

Table 6-4 Acceptable vibration dose values for intermittent vibration (m/s1.75)

Location	Daytime		Night-time	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical working areas (e.g. hospital operating theatres, precision laboratories)	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Calculation of VDV requires knowledge of the number of events in the relevant time period.

Currently, there is no Australian Standard that sets the criteria for the assessment of building damage caused by vibration. Cosmetic damage criteria are provide in British Standard BS 7385.2 – 1993 Evaluation and measurement for vibration in buildings and German Standard DIN 4150-3: 1999-02 Structural Vibration – Part 3: Effects of vibration on structures. This assessment has applied the DIN 4150-3: 1999 criteria as they are more stringent. A nominal distance of 25 metres is generally used as a threshold for where vibration impacts may be experienced.

Operational criteria

There would be no change in the use of the area as a result of the proposal (remaining a passive recreation area) and considering that there would be no significant long-term periods of noise introduced following construction of the proposal, an operational assessment was deemed unnecessary and not required.

6.1.4 Potential Impacts

Construction noise impacts

The proposed construction hours would be carried out during standard working hours (refer to **Section 3.3.2**) and no work has been identified as required outside of the ICNG's recommended standard construction hours. Should out of hours works be required further assessment would be necessary.

The proposed construction activities and proposed noisy equipment for the proposal are listed in **Table 6-5**. The actual construction method may vary as a result of factors such as on-site conditions identified during construction activities and in response to contractor recommendations.

Table 6-5 Equipment sound power levels modelled for the noise assessment

Construction stage	Typical plant and equipment	Sound power level for individual plant/equipment, LAeq – dB(A)	Location of work
Stage 1 - Promenade works - Ancillary works	Loader Backhoe Excavator Truck & dog **TOTAL** Generators Crane Light vehicles **TOTAL**	109 97 104 105 **111** 103 99 103 **107**	Lee 4 Lee 4 Lee 4 Lee 4 **Lee 4** Ancillary Sites Ancillary Sites Ancillary Sites **Ancillary Sites**
Stage 2 - Creek works - Promenade works - Ancillary works	Concrete Saw Excavator Crane Rock Pulveriser Truck & Dog **TOTAL** Loader Backhoe Excavator Truck & Dog **TOTAL** Generators Crane Light Vehicles **TOTAL**	115 104 99 112 105 **117** 109 97 104 105 **111** 103 99 103 **107**	Cottage Creek Cottage Creek Cottage Creek Cottage Creek Cottage Creek **Cottage Creek** Lee 5 Lee 5 Lee 5 Lee 5 **Lee 5** Ancillary Sites Ancillary Sites Ancillary Sites **Ancillary Sites**
Stage 3 - Promenade Works - Ancillary Works	Loader Backhoe Excavator Truck & dog **TOTAL** Generators Crane Light vehicles **TOTAL**	109 97 104 105 **111** 103 99 103 **107**	Throsby Throsby Throsby Throsby **Throsby** Ancillary Sites Ancillary Sites Ancillary Sites **Ancillary Sites**

In addition to the noise sources listed above, other inputs used to develop the noise model are listed in **Table 6-6**.

Table 6-6 Inputs used to develop the noise model for the proposal

Model Input	Details
Topography	Terrain data were derived from NSW Land Property Information (LPI) 1m resolution bare earth Digital Elevation Model (DEM). The DEM was produced from a standard LiDAR survey conducted by LPI.
Buildings	Footprints for receiver and other buildings in the area surrounding works was determined from aerial photography. Heights and floor numbers were ascertained from Google Street view, or otherwise, assuming a building height of 3 meters per floor plus 2m for the roof.
Ground Absorption	Ground absorption values set over the study area as below, using guidance from Cadna/A Users Manual, (DataKustik Co, 2007): • Developed/Urban Area (i.e all locations on the map excluding the water): 0.55 • Water: 0.0
Noise Sources	Plant and equipment sound power levels were adopted based on an amalgam of noise levels obtained from the UK Department for Environmental Food and Rural Affairs (DEFRA) in addition to attended monitoring results contained within the Jacobs's noise database.
Meteorology	Neutral Conditions
Prediction Methods	The *Concawe* acoustic prediction algorithm was applied in the model.

The potential noise impacts from the proposal are summarised in **Table 6-7** and shown in **Figure 6.2** to **Figure 6.4** below. Construction of the proposal has been staged to coincide with construction of the surrounding developments (refer to **Section 3.3.2** and **Section 6.11.4**). Based on this, developments immediately adjacent to each stage of the proposal were not considered sensitive receivers for that stage of construction as they would not be operational (occupied) at the time. Specifically, during:

- Stage 1 (March – June 2021):
  - 21 Honeysuckle Drive and the University of Newcastle Honeysuckle Campus were considered operational and sensitive receivers
  - 35, 42 and 45 Honeysuckle Drive were not considered to be operational or sensitive receivers
- Stage 2 (March – June 2022):
  - 21 and 35 Honeysuckle Drive and the University of Newcastle Honeysuckle Campus were considered operational and sensitive receivers
  - 42 and 45 Honeysuckle Drive were not considered operational or sensitive receivers
- Stages 3 (March – June 2023):
  - All surrounding developments were considered operational and sensitive receivers.

Table 6-7 Predicted construction noise levels at residential receivers

Stage	NCA	Predicted range of construction noise levels at residential receivers LAeq – dB(A)	Standard hours			"Highly noise affected" LAeq – dB(A)		
			Noise management level dB(A)	Exceedance dB(A)	Compliance	Noise management level dB(A)	Exceedance dB(A)	Compliance
1	1	33 to 46	56	-	Yes	75	-	Yes
	2	**29 to 66**	**50**	**0 to 16**	**No**	75	-	Yes
	3	18 to 54	61	-	Yes	75	-	Yes
	4	**25 to 70**	**67**	**0 to 3**	**No**	75	-	Yes
2	1	40 to 52	56	-	Yes	75	-	Yes
	2	**29 to 66**	**50**	**0 to 16**	**No**	75	-	Yes
	3	**27 to 70-**	**61**	**0 to 9**	**No**	75	-	Yes
	4	**29 to 86**	**67**	**0 to 19**	**No**	**75**	**-**	**No**
3	1	35 to 49	56	-	Yes	75	-	Yes
	2	**29 to 66**	**50**	**0 to 16**	**No**	75	-	Yes
	3	19 to 57	61	-	Yes	75	-	Yes
	4	**25 to 72**	**67**	**0 to 5**	**No**	75	-	Yes

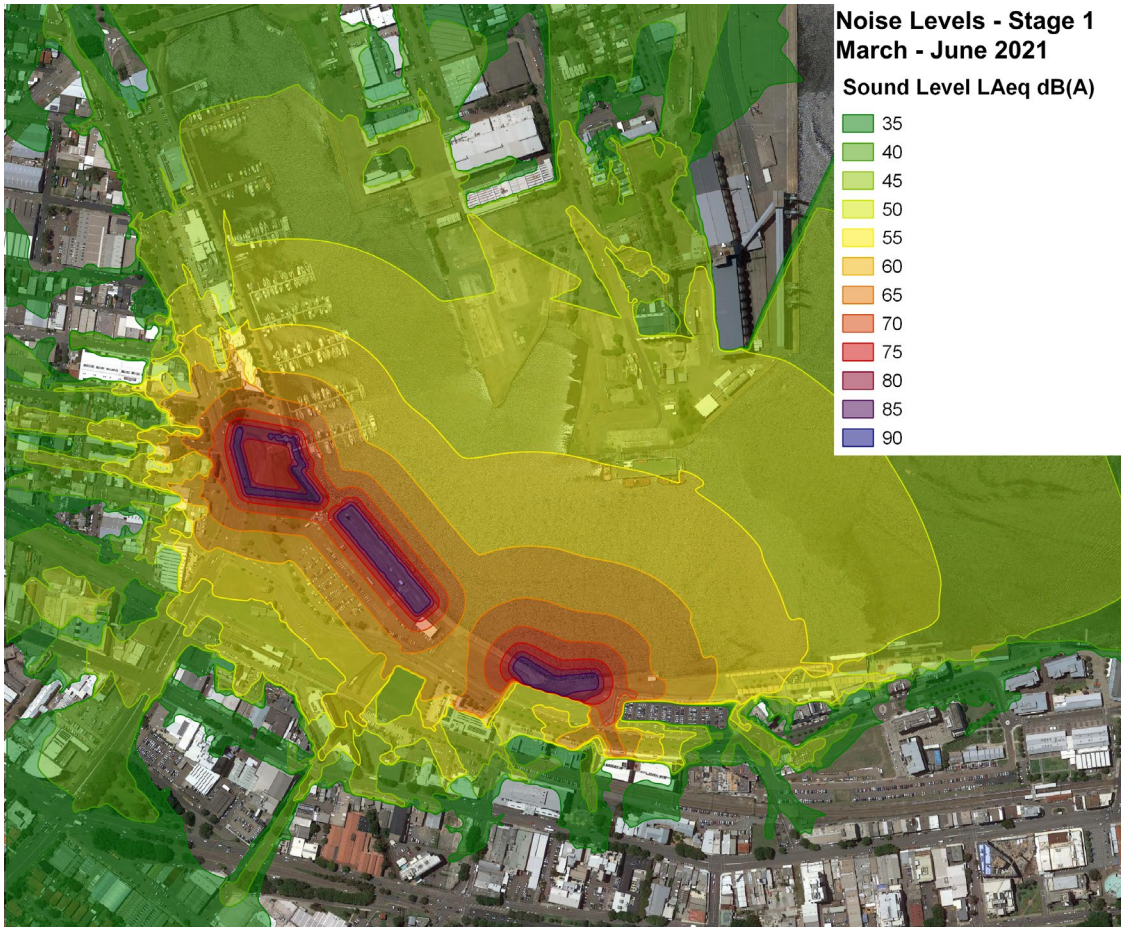


Figure 6-2 Stage 1 - Predicted noise impacts for the proposal

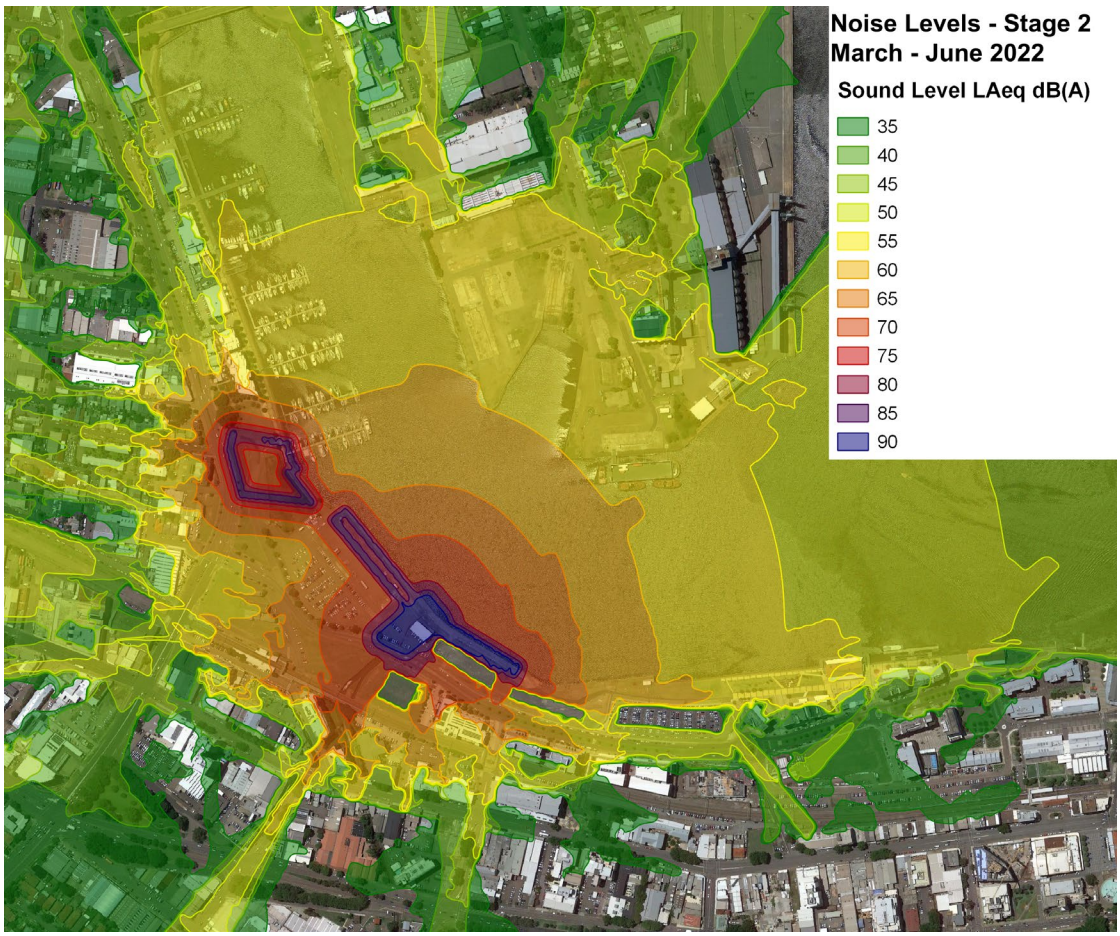


Figure 6-3 Stage 2 - Predicted noise impacts for the proposal

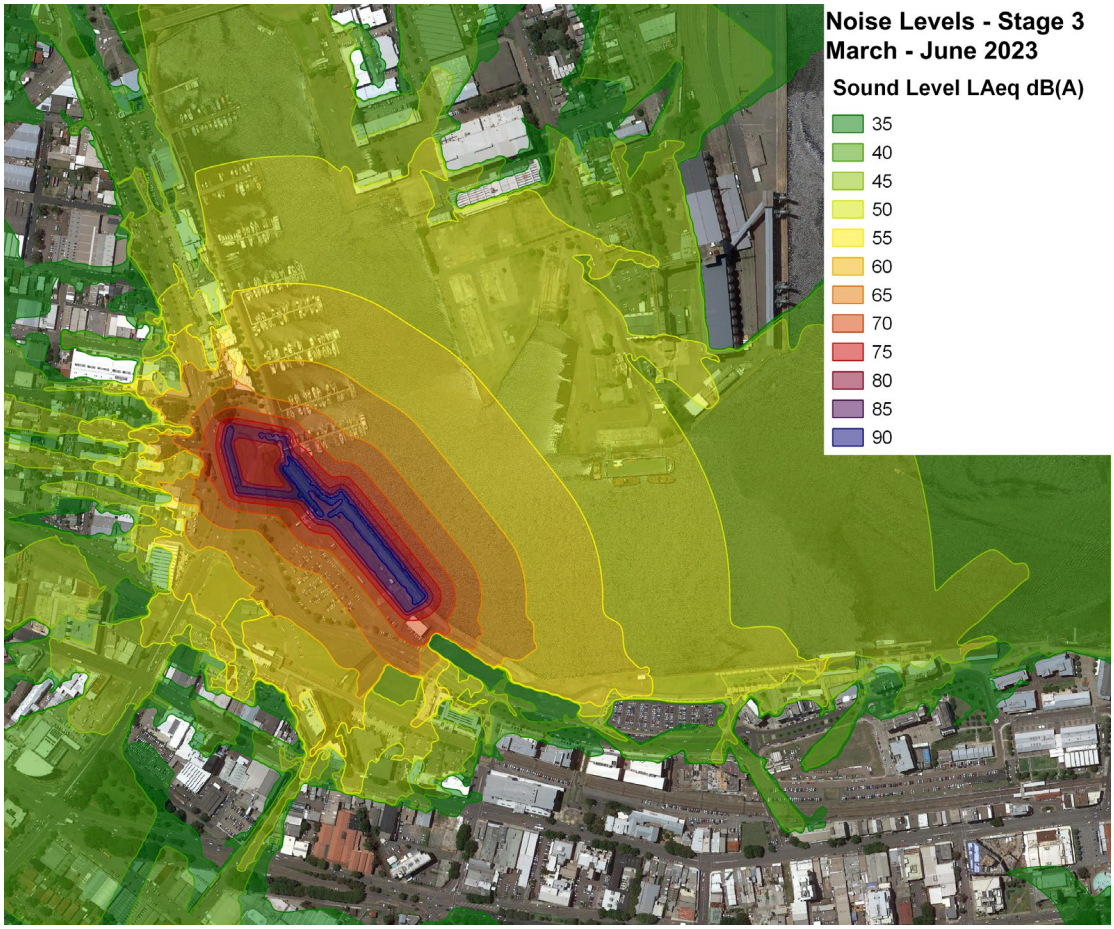


Figure 6-4 Stage 3 - Predicted noise impacts for the proposal

The locations of receivers that may experience noise impacts as a result of the proposal without mitigation are tabulated in **Table 6-8** below.

The noise assessment assumed that predicted noise exceedances would be experienced by receptors for the duration of construction. A conservative approach was used with a worst-case scenario applied which assumed all plant and equipment was used concurrently throughout all areas of the proposal area for each stage (for example in Stage 2, the Cottage Creek northeast works, the Lee 5 works and ancillary operations all occurring at the same time). For the noise model plant and equipment were positioned in areas considered to be worst-case for sensitive receivers. Therefore, as construction for the proposal is to be staged (refer to **Section 3.3.2**) it would be unlikely to occur during the actual construction itself and hence the actual noise levels would likely be lower than predicted.

Standard noise mitigation measures are recommended for implementation where feasible and reasonable. Mitigation measures will minimise impacts at the surrounding residential receivers. However, it is unlikely that implementation of all feasible and reasonable noise mitigation measures would reduce noise levels to below the construction noise criteria under all circumstances.

During Stage 2, the proposed Cottage creek works would provide the loudest noise source during construction of the proposal. A mitigation measure to reduce noise impacts during this stage would be to apply screening to the proposed concrete saw and rock pulverising activities. Under Appendix C of *AS 2436 (2010) Guide to noise and vibration control on construction, demolition and maintenance sites* even under the most conservative scenarios a noise reduction of 5 dB(A) from these activities could be achieved with screening. If screening is used, the maximum noise exceedance at a residential receiver in NCA 3 during Stage 2 (refer to **Table 6-7**) would potentially reduce from 9 dB(A) to 5 dB(A), while the maximum noise level at a commercial receiver in NCA 4 (refer to **Table 6-7**) would then be below the highly noise affected exceedance level.

Table 6-8 Predicted noise levels

Stage	NCA	Receivers and exceedance
Stage 1	**NCA 1**	Nil
	NCA 2	• Residential properties along Dangar Street, Bishopsgate Street, Grey Street, Dickson Street, Throsby Street and on the east side of Hannell Street (0 to 16 dB(A)) • Commercial properties on the west side of Hannell Street along Bishopsgate and Grey Street – 0 to 1 dB(A) • Childcare Centre on Grey Street – 0 to 4 dB(A) (external)
	NCA 3	Nil
	NCA 4	• Residential properties on Honeysuckle Drive between Cottage Creek and Worth Place – 0 to 3 dB(A) • Childcare Centre on Honeysuckle Drive – 0 to 9 dB(A) (external)
Stage 2	**NCA 1**	Nil
	NCA 2	• Residential properties along Dangar Street, Charles Street, Bishopsgate Street, Grey Street, Dickson Street, Throsby Street and on the east side of Hannell Street (0 to 16 dB(A)) • Commercial properties on the west side of Hannell Street along Bishopsgate Street and Grey Street – 0 to 2 dB(A)) • Childcare Centre on Grey Street – 0 to 7 dB(A) (external)
	NCA 3	• Residential properties along Bellevue Street, Beresford Street and Hunter Street – 0 to 9 dB(A)
	NCA 4	• Residential property on Honeysuckle Drive east of Cottage Creek – 0 to 19 dB(A) • Commercial receiver along the western extent of Honeysuckle Drive – 0 to 2 dB(A) • Childcare Centre on Honeysuckle Drive – 0 to 3 dB(A) (external)
Stage 3	**NCA 1**	Nil
	NCA 2	• Residential properties along Dangar Street, Charles Street, Bishopsgate Street, Grey Street, Dickson Street, Throsby Street and on the east side of Hannell Street (0 to 16 dB(A)) • Commercial properties on the west side of Hannell Street along Bishopsgate Street and Grey Street – 0 to 1 dB(A)) • Childcare Centre on Grey Street – 0 to 6 dB(A) (external)
	NCA 3	Nil
	NCA 4	• A residential property on Honeysuckle Drive northeast of Cottage Creek – 0 to 5 dB(A)

Additional noise mitigation will be required for those instances where there are “highly noise affected” receivers during Stage 2 works. The noise modelling indicates that 35 Honeysuckle Drive (Huntington) may be considered highly noise affected due its proximity to the proposed works at Lee 5. The noise model was based on a worse-case scenario with all noise producing equipment being used concurrently at the eastern end of Lee 5. Construction activities may not be positioned or used concurrently and a notable reduction in noise levels at this sensitive receiver could be expected in comparison to those predicted.

Regardless, where highly noise affected receivers are identified, all reasonable and feasible mitigations will be applied to reduce noise levels to the highest extent possible. Consultation with residents will also be required to outline duration and sound levels of the proposed activities, with respite periods for residents to be applied during the most noise sensitive times.

Construction road traffic noise

Construction traffic would have minimal impacts to the surrounding road network, which includes heavily trafficked roads such as Honeysuckle Drive, Hannell Street and Hunter Street. Peak construction traffic accessing the proposal area would not be expected to increase existing traffic noise by more than 2 dB. As the road traffic noise during the proposal’s construction is expected to be within 2dB(A) of current levels, the objectives of the RNP are met, and no specific mitigation measures are required.

Construction vibration

Potential vibration levels caused by construction have been assessed with consideration to structural damage and human comfort criteria. As the nearest receiver to the proposal site is about 35 metres away from the proposal, structural damage would be unlikely to occur during any of the vibration intensive activities and would be unlikely to be perceptible to humans.

Operation

The existing use is for passive recreation, with usage remaining the same following construction. Therefore, no change in operational noise levels is expected to occur as a result of the proposal.

6.1.5 Safeguards and management measures

Without mitigation, noise levels from some construction activities have been predicted to exceed the noise management levels (RBL + 10dBA) nominated in the guidelines at some surrounding receivers. Some receivers will be highly noise affected during Stage 2 whilst concrete sawing and rock pulverising activities are carried out.

This section details pre-construction and construction phase management and mitigation measures designed to reduce and control potential noise and vibration levels to where feasible to achieve the adopted noise and vibration management levels at nearest receivers. The measures recommended have been developed applying the predicted impacts, adjacent receivers and land use and duration of works.

The management measures have been informed from guidance provided in the ICNG which promotes principles of best management practice and community notification of likely noise impacts.

It will be important for the contractor to carry out all reasonable and feasible measures to reduce noise impacts and minimise impact potential through programming works to minimise duration and liaise with affected landowners and local communities throughout the construction program.

During construction, the predicted noise levels will be considered in establishing work site locations, construction techniques and on site practices. Safeguards and management measures for noise and vibration are presented in **Table 6-9**.

Table 6-9 Safeguards and management measures – Noise and vibration

Impact	Environmental safeguards	Responsibility	Timing
Noise and vibration	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in the *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) and identify: • All potential significant noise and vibration generating activities associated with the activity • Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.	Contractor	Pre-construction
Noise and vibration	All sensitive receivers (eg schools, local residents) likely to be affected will be notified at least 5 days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • The project • The construction period and construction hours • Contact information for project management staff • Complaint and incident reporting • How to obtain further information.	Contractor	Pre-construction
Noise and vibration	Construction noise and vibration management practices are to be communicated to all staff and contractors and be included during site inductions and daily tool-box talks. The tool-box talks should include as a minimum, the permitted hours of construction work, work site locations, site ingress/egress and the required noise management measures for each construction phase.	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Noise and vibration	Fixed and mobile construction plant and equipment will be located to maximise separation distance from nearest noise and vibration sensitive and residential receivers.	Contractor	Construction
Noise and vibration	Construction plant will be orientated away from nearest receivers and where feasible be located to take advantage of on-site buildings and structure with potential to impede noise propagation.	Contractor	Construction
Noise and vibration	Where possible and in compliance with occupational safety and health standards, reversing beepers on trucks will be replaced with low pitch non-tonal beepers (quackers). Alternatives to reversing beepers include the use of spotters and designing the delivery arrangements to reduce the need for reversing may assist in minimising the use of reversing beepers.	Contractor	Construction
Noise and vibration	Where practical, simultaneous operation of dominant noise generating plant will be managed to reduce noise impacts, such as operating at different times or increasing the distance between the plant.	Contractor	Construction
Noise and vibration	Where complaints are received, or noise monitoring verification indicates the need for further attenuation, consider the application of localised acoustic screening around noisy plant and activities.	Contractor	Construction
Noise and vibration	Ensure that all works comply with standard working hours.	Contractor	Construction
Noise and vibration	During Stage 2 concrete sawing and rock pulverising activities, an acoustic screen will be used.	Contractor	Construction
Noise and vibration	During Stage 2, all reasonable and feasible mitigations will be applied to reduce noise levels to the highest extent possible for highly noise affected receivers. Consultation with residents will	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
	be carried out to outline duration and sound levels of the proposed activities, with respite periods for residents to be applied during the most noise sensitive times.		

6.2 Traffic and transport

SECA solutions undertook a review of access and traffic impacts as part of a broader traffic impact assessment for the Honeysuckle West Precinct development which included the proposal. The findings of this review (SECA, 2019) are summarised as follows.

6.2.1 Existing environment

The existing road network surrounding the proposal area includes:

- Honeysuckle Drive: A two lane road with a sign posted speed limit of 50 km/h and direct access to the harbour foreshore. It provides an alternative east-west connection between Newcastle city centre and Hannell Street. On-street parking, bus stops, separated and shared on road cycle lanes on each side of the road are provided
- Worth Place: A short, north-south connecting road that provides access between Hunter Street and the foreshore promenade. North of Honeysuckle Drive, Worth Place consists of a two-way road providing permanent access to existing mixed use development carpark, construction access to the Lume apartment development and pedestrian access to the foreshore promenade. South of Honeysuckle Drive, Worth Place provides two way connection to Hunter Street via a left in and left out only intersection
- Steel Street: A north-south connecting road that also provides access between Honeysuckle Drive and Hunter Street. Its signalised intersection with Hunter Street accommodates all turning directions while the signalised intersection on Honeysuckle Drive offers accommodates all likely traffic movements associated with the development
- Hunter Street: An arterial road that runs east-west connecting Newcastle city centre to Stewart Avenue/Hannell Street. It is a two way road west of Worth Place with on-street parking allowed in the kerbside lane and several bus stops. West of Scott Street, Hunter Street has a sign posted speed limit of 60 km/h
- Stewart Avenue/Hannell Street: A major arterial road connecting the Hunter Valley and NSW North Coast to Newcastle and Lake Macquarie. It has a sign posted speed limit of 60 km/h and is divided by the light rail crossing between Hunter Street and Honeysuckle Drive. On-road cycle lanes are provided on each side of the road.

There are no public bus routes or bus stops in this location.

No public vehicle access is provided to the foreshore promenade. Access to the ancillary sites and proposal area would be provided by existing restricted access driveways of Honeysuckle Drive. Following completion of construction, maintenance access would be provided.

A shared path currently runs to the north and south of the proposal along Newcastle Harbour. This has been temporarily closed due to the Thorsby Basin Waterway and Foreshore Management activities (HDC 2017) and construction works associated with the Lume apartments on the corner of Honeysuckle Drive and Worth Place. Access between the shared pathway and Honeysuckle Drive is available at the western end of Worth Place Park West and southern end of Tree of Knowledge Park with connections to the south of Honeysuckle Drive linking the Newcastle Light Rail (Honeysuckle Stop) and Hunter Street. This temporary shared pathway diversion would remain in place for the duration of each stage of construction, and as required by other projects in this area, until the proposal has been completed. No additional diversions have been identified as a result of the proposal.

On street parking is time restricted (generally 1P on weekdays and 4P weekends) on all the streets surrounding the proposal. Honeysuckle Drive also has on street car parking spaces on the northern and southern side. Off-street all-day parking is available on HCCDC owned land and adjacent to the proposal.

6.2.2 Potential impacts

The construction traffic generation would likely be:

- Heavy vehicle generation: About four truck movements per hour, including 12.5 metre truck (large) movements outside the commuter peak periods
- Deliveries to the site would occur within the standard work hours only
- Construction workers vehicle traffic generation arrival of about 20 construction worker cars between 6:00am to 7:00am, and departure between 3:00pm to 6:00pm
- Trucks would not be permitted to park in any area that is not a work zone, including on existing streets in the area.

During construction there would be a requirement for construction vehicles to access the proposal area. All access to the proposal would be via existing driveways off Honeysuckle Drive from Steel Street. Access to the broader road network to the west of Cottage Creek would be via Honeysuckle Drive to Industrial Drive. Access from the east of Cottage Creek may require the use of Honeysuckle Drive, Steel Street and Hunter Street subject to the status of the proposed Honeysuckle Drive realignment project that has been assessed separately.

No road closures or detours would be required for these construction works, although the timeframe for these works may coincide with other developments in this area as described in **Section 6.11.4**. The impacts of these developments were assessed separately and have considered the construction traffic associated with the various construction projects along Honeysuckle Drive, including the proposed Public Domain works. The Honeysuckle Drive road realignment REF (HCCDC 2019) concluded that the surrounding roads and intersections provide adequate spare capacity to support the traffic associated with construction the proposal. Although no public road works have been identified as part of this proposal, should they be required a Road Occupancy Licence will need to be obtained.

The temporary shared pathway diversion already in place around the proposal area from the Tree of Knowledge Park to Worth Place Park West would remain in place and/or be modified as required to maintain public safety during construction of the proposal. As each stage of construction is progress the current detours and return of access to the Newcastle Harbour and connection with the existing shared path either side of the proposal will be assessed and implemented where possible.

As there are no public bus routes or bus stops in the proposal there would be no impacts to bus services associated with these works. These works do not impact upon the Newcastle Light Rail or the heavy rail services departing Newcastle Interchange. Emergency service access to the surrounding developments would not be impacted by construction.

Following completion of construction, the proposed works would not result in any changes to the existing road network and therefore would not have any impacts on its existing operation or efficiency. Recreation areas are not considered a generator of traffic in their own right, but rather provide a shared space to support the needs of the local community. The proposed works would extend the pedestrian promenade along Newcastle Foreshore providing improved continuity for pedestrians and cyclists, whilst also linking with proposed pedestrian links through the future land release areas to provide enhanced connectivity. As such, the proposed works would have a positive impact upon pedestrian and cyclist access.

6.2.3 Safeguards and management measures

Safeguards and management measures for traffic and transport are presented in **Table 6-10**.

Table 6-10 Safeguards and management measures – Traffic and transport

Impact	Environmental safeguards	Responsibility	Timing
Traffic and transport	A Traffic Management Plan (TMP) will be prepared and implemented as part of the CEMP. The TMP will include: • confirmation of haulage routes • site specific traffic control measures (including signage) to manage and regulate traffic movement including access to construction sites including entry and exit locations and measures to maintain pedestrian and cyclist access • requirements and methods to consult and inform the local community of impacts on the local road network • a response plan for any construction traffic incident • consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • monitoring, review and amendment mechanisms.	Contractor	Pre-construction
Traffic and transport	• Truck drivers will be provided with a code of conduct outlining driver expectations and would need to comply with broader traffic management plans for the overall development of the Honeysuckle West precinct • Deliveries and spoil removal will be planned to avoid queuing of trucks in or around the construction site.	Contractor	Pre-construction / Construction
Traffic and transport	All laden trucks entering or exiting the site have their loads covered.	Contractor	Construction
Traffic and transport	Appropriate measures are in place to minimise the tracking of material onto the road by vehicles leaving the site.	Contractor	Construction
Traffic and transport	All trucks adhere to the nominated haulage routes.	Contractor	Construction

6.3 Hydrology, flooding and water quality

The potential impacts of the proposal on hydrology and flooding are assessed in the *Waterfront Promenade and Cottage Creek North REF Flood Assessment* (BMT 2019) which is summarised below. A desktop assessment was carried out by Jacobs to assess the expected impacts to water quality and groundwater from the proposal.

6.3.1 Methodology

The methodology for the flooding and hydrology assessment involved:

- Reviewing background information relevant to the proposal, including:
  - *Honeysuckle Redevelopment Area Flood Study* (BMT 2018)
  - *Honeysuckle Drive Road Realignment REF Flood Assessment* (BMT 2019)
- Assessing the proposal against the recommendations in the *Honeysuckle Redevelopment Area Flood Study* (BMT 2018)
- Reviewing available Geographic information system (GIS) data
- Identifying potential measures and strategies to mitigate hydrology and flooding impacts
- Providing a qualitative assessment of the expected impacts to groundwater and surface water quality from the proposal.

Refer to **Appendix E** for the flooding assessment carried out by BMT (2019).

6.3.2 Existing environment

The proposal is located next to Newcastle Harbour and Cottage Creek.

Hydrology

The proposal is located within the Cottage Creek catchment. This catchment is about eight square kilometres in size and drains to the Throsby Basin in Newcastle Harbour. The Cottage Creek catchment is dominated by urban development. The upper catchment is relatively steep, draining the ridgeline of Scenic Drive and Merewether Heights to flatter topography around National Park Street. The downstream end of the catchment is the commercial centre of Hunter Street and King Street, close to the proposal.

The proposal area is drained primarily by a network of subsurface stormwater pipes that discharge to either Cottage Creek or terminate directly at Newcastle Harbour. During major events, the conveyance capacity of the drainage network is exceeded, resulting in the excess flow being conveyed as overland flow, particularly along Honeysuckle Drive.

Water quality

Surface water quality within Cottage Creek in the proposal area is influenced by surrounding and upstream land uses and its state as a mostly channelised watercourse. Its catchment covers about 800 hectares of residential and commercial development in Newcastle (Willing and Partners 1984, in Newcastle City Council 2004).

The Newcastle Stormwater Management Plan 2004 (Newcastle City Council 2004) indicates from limited water quality sampling carried out at Cottage Creek at Wharf Road that:

- Dissolved oxygen concentrations appear normal
- Faecal coliforms and suspended solids rise during rainfall events
- There appear to be high nutrient levels (specifically phosphorus and nitrogen).

Newcastle Harbour is not located within the proposal area, but is the receiving water body for Cottage Creek. Seawater samples at locations throughout the Port of Newcastle carried out in 2016 and 2017 indicate that water is generally of good quality when considering pH, dissolved oxygen, total dissolved solids, turbidity, temperature, phosphates, nitrates, biological oxygen demand (BOD), faecal coliforms and conductivity (Jahan and Strezov 2017). The Port of Newcastle was also found to have high levels of copper, manganese, iron and lead when compared with a background sample. Furthermore faecal coliform levels were found to increase during low tide.

The Cottage Creek channel has been substantially modified. All natural aquatic habitat and riparian features of the creek have been historically removed and replaced by concrete walls and base. No aquatic plant species were observed in the channel during the site inspection and no mangroves remain (refer to **Section 6.4**).

Groundwater

The site is located in a low-lying area reclaimed from Newcastle Harbour and as such groundwater is likely to be tidal and saline. Given the presence of potential acid sulfate soils which may or may not have oxidised, groundwater has the potential to have acidic characteristics.

Thirteen registered bore wells are located within a one kilometre radius of the proposal. The wells are mainly for monitoring purposes, but some are for industrial and irrigation use, with one for domestic use. The depth to water ranges from about 1.2 to 2 metres below ground surface (bgs) (Ramboll 2018).

Previous investigations have identified that the groundwater has elevated levels of heavy metals (primarily lead and zinc), total petroleum hydrocarbons (TPHs) and polycyclic aromatic hydrocarbons (PAHs). These contaminants are associated with fill based soils historically used to level the proposal area and the former site use comprising petroleum storage and workshop facilities (Ramboll 2018).

Flooding

A flooding assessment for the Honeysuckle Precinct was carried out in 2018 by BMT (BMT 2018). This assessment considered a number of options associated with planned works in the precinct, with Alterative Configuration Option 1 identified as the preferred option to be used for development within the Honeysuckle Precinct. This assessment outlined the flood behaviour in the precinct as summarised below:

- Flooding in the Cottage Creek catchment is generally fast and a result of the capacity of the stormwater drainage network being exceeded
- Floodwaters recede quickly, however blockages of the stormwater network can prolong inundation in the area. Inundation typically occurs between Steel Street and Cottage Creek during a flood event, when peak flood flows are far in excess of the available drainage capacity of Cottage Creek flowing overland. Major flooding of Cottage Creek has previously occurred in 1988, 1990 and 2007(BMT 2018)
- The proposal area is also potentially subject to ocean derived flooding resulting from elevated water levels within Newcastle Harbour. Peak flood levels derived from local catchment flooding are often lower than those of the ocean flooding. As such, the design ocean flood level of 2.3 metres Australian Height Datum (AHD) is the critical flood condition throughout much of Honeysuckle.

6.3.3 Potential impacts

Construction

Surface water quality

As construction of the proposal would involve landscaping and general earthworks, there is potential for soils to be disturbed and sediment transported off site into stormwater drainage lines particularly during rainfall events. Construction activities with the potential to impact on local water quality include:

- Construction activities in and near stormwater drains
- General landscaping and earthworks, including stripping of topsoil and excavation works, particularly before or during periods of heavy rainfall
- Transportation and stockpiling of topsoil and movement of vehicles across exposed earth which has the potential to result in sediment entering drainage channels and Cottage Creek
- Excavation, transportation, stockpiling and reuse of contaminated material
- Accidental spills of fuels, oils or other chemicals from construction vehicles or equipment
- Concrete cutting of the drainage channel to remove the top 500 millimetres of the channel has the potential for materials and debris to fall into the water
- Construction of the pedestrian bridge over Cottage Creek has the potential for materials and debris to fall into the water

- Cleaning of concrete agitators, concrete truck washouts and vehicle washdowns have the potential to release sediment and alkaline run off into Cottage Creek and Newcastle Harbour and stain surrounding roads.

The above activities have the potential to release debris and contaminants (eg concrete, soil and chemicals from equipment) into Cottage Creek and Newcastle Harbour.

This could potentially impact aquatic organisms including smothering from fine particles, compromising water quality and altering water chemistry, physical damage, and also compromising sediment quality and sediment chemistry.

Construction would also generate a number of waste streams, which may include acid sulphate soils and contaminated materials (as detailed in **Section 6.5**), and without appropriate mitigation they have the potential to enter the adjacent marine environments. Marine debris can injure marine fauna, including avifauna through collision, entanglement or ingestion. Waste management procedures in accordance with the Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Marine Life (DoEE, 2018) would be used to adequately mitigate this risk.

Marine fauna would potentially be at risk from water quality impacts as a result of an unintended discharge of pollution in the form of site run-off, wastewater, hydrocarbons or chemicals. Standard management measures to manage water quality would be implemented to adequately mitigate these risks.

No discharges to Newcastle Harbour or Cottage Creek are anticipated as part of the proposal. Should discharges be required they must comply with the *Protection of the Environment Operations Act 1997*. It is noted that deposition of prescribed matter, which include stone, soil and sand, into water, is automatically assumed to constitute pollution of waters under the *Protection of the Environment Operations Act 1997* and arrangements for an EPL or other defence against prosecution for pollution of waters will be required prior to the commencement of construction.

Provided appropriate mitigation measures are implemented during construction, no adverse impacts to the water quality within Cottage Creek and the adjacent marine environment are anticipated.

Groundwater

Although there is expected to be minimal impact on groundwater quantity as deep excavations or groundwater extraction is not expect to occur, should groundwater be encountered it would need to be appropriately managed. If groundwater is encountered during excavations it would likely enter excavations that extends below the water table. Water inflow to excavations would likely to be from the aquifer up-hydraulic gradient (that is, the area to the south of the project with groundwater flow toward the Hunter River), and from Newcastle Harbour.

If groundwater is encountered it would be subject to the conditions of the Aquifer interference Policy and require an approval under Section 91 of the *Water Management Act 2000*. The volume of water may also need to be licensed.. Volumes of water take beyond a given threshold would require assessment and licensing, with inflow managed by pumping and responsible disposal. A water access license or exemption (if the extraction is expected to be less than 3ML of water per year (July to June)) may be required where dewatering activities are identified as required.

Groundwater quality impacts could potentially occur in the event that dangerous goods and hazardous substances are not stored or handled appropriately, enter surface water bodies and then the groundwater within the proposal area. Groundwater in this area would likely be contaminated. Extraction of contaminated groundwater has the potential to pollute surrounding areas (land and water) if not managed appropriately.

Provided appropriate mitigation measures are implemented during construction no adverse impacts to the water quality within Cottage Creek groundwater are anticipated.

Flooding

Construction activities would not be expected to impact on the regional flooding behaviour. Should coffer dams be required during the concrete cutting of the Cottage Creek drainage channel they would need to be readily removed from the channel in the event of a flood.

Flooding of the construction worksite could result in construction materials and equipment being washed away by floodwaters. Construction of the proposal also has the potential to temporarily alter the existing local flood behaviour.

Operation

Water quality

Operation of the proposal would not be expected to impact on downstream water quality. No increase in impervious surfaces or change of use is proposed and as such there is limited potential for increased run-off or changed run-off water quality associated with the operational stage of the proposal.

Flooding

The principal flooding consideration for the proposal is to maintain the flood conveyance function of the Cottage Creek channel and broader floodway. To do this the proposal would need to retain the Cottage Creek channel and nominated 50 metre floodway width to similar or below finished surface levels to the existing condition would enable mainstream flood to be conveyed to the Throsby Basin.

Based on the modelling that was carried out for the Honeysuckle Precinct where Alternative option 1 considered a relatively constrained Cottage Creek floodway, consisting of the Cottage Creek concrete channel with an adjacent floodplain level of 2.5 metres AHD downstream of Honeysuckle Drive (with the existing lid over the channel downstream of Honeysuckle Drive having been removed). The proposed Cottage Creek naturalisation works provides finished surface levels that are lower than the modelled levels for Alterative Configuration Option 1.

Where the new pedestrian bridge is to be located in the waterfront promenade over Cottage Creek the downstream tailwater condition in the harbour would dominate the flood levels as the concrete lid over the drainage channel would be removed as part of the Honeysuckle Drive road realignment works. BMT (2019) recommended that the new pedestrian bridge over Cottage Creek be elevated no lower than 1.3 metres AHD to avoid the structure becoming a potential constraint on the overall channel conveyance of Cottage Creek.

The proposal would also introduce elements such as handrails and seating to the landscape next to Cottage Creek, which could impediment overland flows during a flood event. The BMT (2019) assessment indicated that the proposed seating would reduce the effective width of the floodway by around 50 per cent. A number of design considerations have been recommended to address these potential flood impacts associated with these introduced elements and have been included as mitigation measures in **Section 6.3.4**. The proposed works within Cottage Creek would be expected to provide additional flow capacity provided the recommendations in BMT (2019) in relation to the new pedestrian bridge, handrails and seating are implemented.

6.3.4 Safeguards and management measures

Safeguards and management measures for hydrology, flooding and water quality are presented in **Table 6-11**.

Table 6-11 Safeguards and management measures – Hydrology and flooding

Impact	Environmental safeguards	Responsibility	Timing
Flooding	The placement of stockpiles will consider implications on drainage and overland flow. Stockpiles will not be located next to Cottage Creek. Stockpiles should be established with adequate protection from a PMF event.	Contractor	Construction
Flood	The CEMP would address flood management. It would include flood emergency preparation and response measure, including site protection measures to be implemented before and in the event of flooding. These flood management measures would be reviewed and coordinated with existing local flood plans and evacuation procedures.	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Flooding	• The Cottage Creek channel and nominated 50 metre floodway width will be maintained at a similar finished surface levels to the existing condition, to allow flood waters to be conveyed to the Throsby Basin • The new pedestrian bridge over Cottage Creek will be elevated no lower than 1.3 metres Australian Height Datum (AHD) to avoid the structure becoming a potential constraint on the overall channel conveyance of Cottage Creek.	HCCDC	Detailed design
Flooding	Additional considerations for the implementation of the proposed landscaping include (BMT 2019): • The proposed rockwork at the edge of the Cottage Creek channel will not protrude beyond the edge of the concrete wall beneath it, to not impact the existing channel capacity • The handrail edge barrier will not present a substantial impediment to flow. This will be achieved by having any solid base being flush with the adjacent finished surface levels • The composition of the structure between the handrail and ground surface (such as support railings or posts and any additional horizontal components) will be minimised and constitute no more than a 10% blockage to flow • Any additional horizontal components below the handrail will be a minimum of 150 mm above the finished ground surface.	HCCDC	Detailed design
Flooding	The following will be considered in the implementation of the handrails (BMT 2019): • The handrail edge barrier will not present a substantial impediment to flow, with any solid base being flush with the adjacent finished surface levels • The composition of the structure between the handrail and ground surface (such as support railings or posts and any additional horizontal components) will be minimised and constitute no more than a 10% blockage to flow • Any additional horizontal components below the handrail will be a minimum of 300 mm above the	HCCDC	Detailed design

Impact	Environmental safeguards	Responsibility	Timing
	finished ground surface across the Steel Street Floodway and a minimum of 150 mm above the finished ground surface across the two minor floodways.		
Flooding	The following will be considered in the implementation of the seating (BMT 2019): • The proposed seating be removed from the floodways • The proposed seating within the floodways will be a bench type with an open base, to allow overland flow to pass underneath the seating, with a minimum ground clearance of 300 mm within the Steel Street Floodway and a minimum of 150 mm within the two minor floodways • A modelling-based flood impact assessment is carried out to ensure that the proposed seating does not result in a significant reduction in the floodway conveyance capacity and associated adverse off-site flood impacts.		
Erosion and sedimentation	Soil and Water management measures will be implemented as part of the CEMP. The mitigation measures would be prepared and implemented in accordance with *The Blue Book - Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) and Roads and Maritime Services G38 specification (Soil and Water Management).	Contractor	Construction
Soil and water	A site specific Erosion and Sediment Control Plan/s (ESCP) will be prepared and implemented as part of the CEMP.	Contractor	Construction
Water quality	A spill management and response plan will be developed before construction and implemented through the works.	Contractor	Construction
Water quality	If any water to be discharged into Newcastle Harbour, it must comply with the *Protection of the Environment Operations Act 1997*.	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Water quality	Routine water quality observations including visual monitoring for plumes and gross pollutants will be conducted during construction. In the event of visible water quality issues being observed, works will cease until the water quality issue has been appropriately investigated to identify the cause and measures implemented to prevent reoccurrence.	Contractor	Construction
Contaminants entering receiving environments	Control measures to minimise the risk of water pollution will be implemented including: • Refuelling is to be undertaken away from the waterfront, drains and Cottage Creek. A high standard of spill prevention will be implemented • ehicle washdown and/or concrete truck washout areas would be appropriately lined/managed to keep stormwater out of the area, prevent wastewater entering waterways, prevent the polluting of land and/or staining the surrounding roads • Vehicles, equipment and plant will be properly maintained and regularly inspected for fluid leaks.	Contractor	Construction
Groundwater	Consult with WaterNSW to confirm the need for a Section 91 aquifer interference approval.	Contractor	Prior to construction

Other safeguards and management measures that would address surface water impacts are identified in **Section 6.5**.

6.4 Biodiversity

The potential impacts of the proposal on biodiversity are assessed in the *Honeysuckle West Planning Project – Biodiversity Assessment* (Jacobs 2019), provided in **Appendix C**. A summary of the assessment is provided below, together with safeguards and management measures to mitigate any negative impacts.

6.4.1 Methodology

Database review

The biodiversity assessment is based on a desktop review of existing information, survey of the proposal area and bat survey carried out for Cottage Creek bridge and covered channel. Government databases were also reviewed to identify potential threatened species, populations and ecological communities within the study area. Records within a 10 kilometre radius of the proposal were downloaded from the Office of Environment and Heritage (OEH) Atlas of NSW Wildlife and the DEE Protected Matters Search Tool (PMST). This biodiversity assessment assumed that all the vegetation in the proposal area would be removed. The following provides a summary of the methodology used in the biodiversity assessment (refer to **Appendix C**). The methodology for the biodiversity assessment involved:

- Identifying the occurrence, or likelihood of occurrence of threatened species, populations and communities listed under the BC Act and EPBC Act (including migratory species)
- Inspection of the planted and landscaped areas. A general floristic assessment was carried out on 6 March 2019, to identify and confirm the tree species present in the proposal area, as well identification of potential of any native Plant Community Types occurring. A targeted search for threatened plant species that may be present and a general survey to identify important habitat values for threatened fauna was also undertaken
- A bat survey carried out on 7 March 2019 targeting the Southern Myotis (*Myotis macropus*), Little Bent-wing Bat (*Miniopterus australis*) and also the Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*) listed as vulnerable under the BC Act
- An assessment of significance for threatened species and ecological communities positively identified during surveys and inspections or that were considered to have a moderate or high likelihood of occurring
- Identification of impacts and associated mitigation measures to reduce and manage impacts.

6.4.2 Existing environment

The proposal is located within the Hunter sub-region of the Sydney Basin Bioregion. There are no remnant native vegetation communities or naturally occurring plant community types present in the proposal area. Most of the proposal area has been cleared of vegetation and consists of cleared land. There are four planted trees (Swamp Oak (Casuarina glauca)) near Newcastle Harbour in the northern end of the proposal area and a landscaped area to the north west at Tree of Knowledge Park.

The trees (Swamp Oak (*Casuarina glauca*)) observed in the proposal area are not naturally occurring. Accordingly, a test of significance is not required and any impacts to these planted specimens was not considered.

The landscaped area at Tree of Knowledge Park is interspersed with weeds.

Cottage Creek is a highly modified waterway and comprises a constructed channel that drains towards Newcastle Harbour. The creek is tidal within the proposal area. All natural aquatic habitat and riparian features of the creek have been historically removed and replaced by concrete walls and base. There are no aquatic plant species occurring in the channel and no mangrove trees remain. The tunnel beneath Cottage Creek bridge and concrete channel contains limited habitat opportunities for any terrestrial species due to the high tidal fluctuations, light and exposure to wind and salt spray from Newcastle Harbour.

Habitat for native fauna is scarce and limited to the four planted trees and Cottage Creek as it may be used on occasion by shorebirds, including listed migratory bird species, as foraging habitat particularly at low tide. Only a limited amount of wide-ranging, urban-tolerant fauna species are likely to use the proposal area. During the biodiversity survey a small number of such species were observed including the Australian Magpie (*Gymnorhina tibicen*), Noisy Miner (*Manorina melanocephala*), Welcome Swallow (*Hirundo neoxena*) and Australian Raven (*Corvus coronoides*). One reptile Species the Common Garden Skink (*Lampropholis guichenoti*) was also observed. There was evidence of nest building by Welcome Swallows beneath the Cottage Creek bridge.

No microbats or evidence of their recent presence was observed under Cottage Creek bridge or within the drainage channel.

The Hunter River estuary area contains important habitat for many migratory shore bird species. The Hunter Estuary Wetlands (comprising Kooragang Wetlands and the Hunter Wetlands Centre) are one of only 12 wetlands protected in NSW under the international Ramsar convention. An assessment of the EPBC Protected Matters Search Tool identified listed migratory bird species occurring in the Hunter River estuary area. Important breeding and foraging habitat for these species such as tidal mudflats, mangroves, beaches, grass clearings and saltmarsh are abundant in the northern, undeveloped parts of the estuary. The southern shorelines of the estuary next to Newcastle city and the Honeysuckle precinct (including the proposal area) are highly developed and lack the favourable habitat features mentioned above. The shoreline of the proposal area consists entirely of man-made wharves and sea walls which are elevated above the waterline. There are no remnant mangrove or saltmarsh communities and the various open grass patches in proposal area are highly disturbed and frequented by people. For this reason, it was considered highly unlikely that any of the listed migratory species would frequent the proposal area. However, there is a low potential that some

shorebird species could visit the concrete drainage line of Cottage Creek (within the proposal area) on an occasional basis during foraging activity.

6.4.3 Potential impacts

Construction

The biodiversity assessment assumed that all vegetation would be removed as part of the proposal. The four trees in the proposal area would be removed as a result of the proposal. The removal of these trees may reduce a portion of low-quality habitat for some common, wide-ranging and urban tolerant bird species. Therefore, the proposal would be unlikely to have a significant impact on terrestrial biodiversity due to the lack of habitat and absence of native species, other than common birds that are mobile and able to relocate.

Whilst much of the proposal area contains no important habitat for any of the EPBC Act listed migratory shorebirds, the concrete drainage channel of Cottage Creek could theoretically provide a small, low quality area of potential foraging habitat. An assessment of significance for migratory shorebirds found that the proposal would not have significant impact to migratory shorebirds (refer to **Appendix C**).

As there was no evidence of bats using the Cottage Creek bridge and drainage channel, no specific management and mitigation measures are required to reduce the potential impact of redevelopment works on bats. As the bridge would be replaced and the concrete drainage channel cover removed as part of the Honeysuckle Drive road realignment works (assessed separately, HCCDC 2019) no impacts to bats are expected from the proposal.

Operation

No adverse biodiversity impacts would be expected from the proposal during operation. Potential water quality impacts are detailed in **Section 6.3.3** above.

The landscape master plan for the proposal would involve planting trees alongside the shared path and mass plantings near Cottage Creek. The proposal could potentially provide a net benefit for local biodiversity through revegetation of some parts of the proposal area.

Conclusion on significance of impacts

The proposal is not likely to significantly impact threatened species, populations or ecological communities or their habitats, within the meaning of the BC Act or FM Act and therefore a Species Impact Statement is not required.

The proposal is not likely to significantly impact threatened species, populations, ecological communities or migratory species, within the meaning of the EPBC Act.

6.4.4 Safeguards and management measures

Safeguards and management measures for biodiversity are presented in **Table 6-12**.

Table 6-12 Safeguards and management measures – Biodiversity

Impact	Environmental safeguards	Responsibility	Timing
Biodiversity	Flora and Fauna Management measures will be incorporated and implemented as part of the CEMP.	Contractor	Pre-construction

6.5 Topography, geology, soils and contamination

This section outlines the local topography, drainage, geology, soils and contamination and the potential impacts of the proposal, and safeguards to mitigate them.

6.5.1 Methodology

The contamination assessment for the proposal has been documented in a remedial action plan (RAP) by JBS&G Australia Pty Ltd (JBS&G 2018, JBS&G 2019) and Site Audit Reports by Ramboll (Ramboll 2018) for the Public Domain Corridor Cottage Creek Precinct. The outcomes of these studies as relevant to the proposal are summarised below.

6.5.2 Existing environment

Topography and drainage

The topography across the proposal and surrounding areas is relatively flat. The proposal area generally drains towards Newcastle Harbour.

Geology and soils

The proposal consists of reclaimed land that was previously used for rail and port related activities. As detailed in **Section 6.7.2**, the proposal area was originally developed as timber cargo wharves in the early 1900s and then used for rail and ship loading facilities and as a rail and shipping storage area until the 1990s. The proposal area is predominantly comprised of Quaternary aged gravels, sands, silts and clays. The geology of the area consists fluvial deposits overlying clay deposits and Permian aged bedrock of the Newcastle Coal measures, including sandstone, siltstone, claystone, coal and tuff (Ramboll 2018).

Acid sulfate soils

NSW Natural Resource Atlas designates the area within and around the proposal area as having a having a high risk of acid sulfate soils between one and three metres from the surface (Ramboll, 2018).

Given the historical use of the proposal area, it would be likely that these acid sulfate soils have already been exposed by prior activities, and that an acid condition may already exist.

Contamination

The proposal area was originally developed as timber cargo wharves in the early 1900s, used for rail and ship loading facilities and as a rail and shipping storage area until the 1990s. The site history is summarised in the Site Audit Reports and remediation plans (JBS&G 2018, JBS&G 2019, Ramboll 2018).

Historical investigations for the waterfront promenade and Cottage Creek north (Ramboll 2018) show that fill material was noted across the majority of the proposal area to a maximum recorded depth of four metres below ground surface (bgs). Fill materials were generally described as two distinct material types as follows (JBS&G 2018):

- Fill consisting of slag and crushed basalt with inclusions of sand. The material was described as being dark grey/black and present from the surface to a depth of 0.3 to 3.5 m bgs. The source of the material is unknown and was imported to site to raise the site surface levels for use as a wharf facility; and
- Fill comprising gravelly sands (yellow to brown) underlying the slag/crushed basalt fill materials to a maximum recorded depth of 4 m bgs. This material was most likely sourced from historical dredging of Newcastle Harbour based on the presence of seashells and alluvial materials observed within this fill type

The nearest surface water receptor to the proposal is Newcastle Harbour and Cottage Creek.

Previous investigations have identified that soils and groundwater within the proposal area have elevated levels of heavy metals (primarily lead and zinc), total petroleum hydrocarbons (TPHs) and polycyclic aromatic hydrocarbons (PAHs). These contaminants are associated with fill based soils historically used to level the proposal area and the former site use comprising petroleum storage and workshop facilities.

A remedial action plan was prepared in 2018 for the Cottage Creek Public Domain Corridors Newcastle NSW (JBS&G 2018), which includes the waterfront promenade and Cottage Creek north areas. The preferred option for the remediation of impacted fill materials across the Honeysuckle precinct is the onsite containment of materials by capping with suitable inert material. Remediation proposed comprises capping and containment with ongoing management with a Site Management Plan (SMP) and excavation and off-site removal or lawful reuse onsite of surplus materials (JBS&G 2018).

The Thorsby Basin Waterway and Foreshore Management activities (HDC 2017) involves replacing the rock revetment and backfilling with soil along the waterfront promenade area within the proposal. As the waterfront promenade landscaping works would occur on top of the Thorsby Basin Waterway and Foreshore Management Activities any remaining contamination would be managed in

accordance with the remedial action plan prepared in 2018 for the *Cottage Creek Public Domain Corridors Newcastle NSW* (JBS&G 2018).

The voluntary site audit report and statement for the Public Domain Corridor, Cottage Creek Precinct (Ramboll 2018) includes the waterfront promenade and Cottage Creek north areas within the proposal. This statement indicates that:

- The site is an irregular configuration and represents a land parcel to be developed for public recreation surrounding other infrastructure
- A RAP (JBS&G 2018) was prepared that draws on information from a number of reports to characterise the site. The characterisation has shown the site to comprise land reclaimed with dredged sands and filled in part with slags and basalt
- Soils are impacted with polycyclic aromatic hydrocarbons, heavy metals and asbestos. These may be due to historical activities, which include rail yards and ship loading activities
- Groundwater contamination by PAHs and metals was identified. Remediation of soil is required by capping during development. Further investigation of the contribution to groundwater contamination from soils is to be completed prior to remediation. Should soils be a contributing factor, the remediation strategy will require revision.

This report also confirmed that the proposal area would be suitable for public recreation uses subject to the implementation of the remediation action plan.

The Remedial Action Plan for Fig Tree Park (Stage 2) (JBS&G 2019) includes the Tree of Knowledge Park area in the north west section of the proposal area, which will be used as the primary ancillary site. The plan indicates that:

- The previous land uses included ship loading facilities with bulk petroleum storage facilities. The site has been subject to land reclamation with fill materials imported to site to achieve current site levels. The fill materials contain slag and are of unknown origin (potentially sourced from former BHP Newcastle Steelworks) and dredging sand from the Hunter River
- PAHs, heavy metals and potential asbestos impacted soils extend across the site
- The remediation plan, validation plan and site management plan describes how contaminated material should be managed on site including the preparation of a remediation environmental management plan
- It was considered that the site can be made suitable for the intended uses and that the risks posed by contamination can be managed in such a way as to be adequately protective of human health and the environment. This would be subject to the successful implementation of the measures described in the RAP and with consideration to the limitations presented in Section 11 of the plan.

A data gap assessment was carried out in August 2019 (JBS&G 2019a) for Honeysuckle Drive, Cottage Creek Public Domain Corridors and Fig Tree Park (Stage 2). The assessment confirmed the presence of contamination, and that the RAPs remain valid and when implemented each site would be suitable for the proposed development. This assessment is currently with the Site Auditor for review.

6.5.3 Potential impacts

Construction

Construction activities would have the following potential impacts on soils and contamination:

- **Topography:** The earthworks would result in a minor change to the topography of the proposal area. However, this change would be consistent with the existing topography and would not be expected to be substantial
- **Soil erosion and loss of topsoil:** This could result from the disturbance of the ground surface during site preparation, earthwork, excavation and other construction activities. Earth-moving activities could also expose loose soils and mobilise these materials
- **Exposure and oxidation of acid sulphate soils:** This could lead to the generation of acidic condition, or exacerbation of an existing acidic condition. The subsequent leaching of heavy metals from soils could contaminate water sources and the receiving environment. The acidic conditions would also have the potential to impact on man-made structures in these areas. The site audit report (Ramboll 2018) indicates that potential acid sulphate soils are present within soils

underlying the proposal area and will require management in the event of ground disturbance activities

- **Disturbance of contaminated soil:** Where contamination is present in the proposal area excavations would have the potential to disperse contaminated materials. Disturbance of potentially contaminated materials may also expose construction workers and/or the general public to these contaminants if appropriate controls are not put in place.

  Where remediation is required there is an elevated risk of encountering materials that will require additional management. This may include the potential for airborne emissions of odour and asbestos, encountering acid generating materials and the management including classification and off-site disposal of impacted materials not suitable for retention on within the premise.

  The RAPs (JBS&G 2018, JBS&G 2019) include minimum requirements to be included in a remediation environmental management plan to prevent off-site contamination impacts. Validation of the remedial works would be required to demonstrate that the remediation/management objectives have been achieved and to document the final condition of the site at the completion of works such that conclusions may be drawn on the end use suitability of the site for public recreation.

  As the ancillary sites are located on previously reclaimed and developed land, and no excavation or clearing activities will occur in these areas, no impacts to contamination is expected in these areas of the proposal

- **Spills and leaks:** There would also be potential for construction activities to result in contamination of soil and/or water due to leaks and spills of potentially contaminating materials.

The impacts outlined above would generally be temporary, and safeguards measures to reduce the impacts are summarised in **Section 6.5.4**.

Operation

During operation impacts to soils as a result of run-off and drainage would be unlikely due the urbanised nature of the proposal area. This potential impact would be managed through stabilisation of disturbed areas within the proposal area. Potential impacts to water quality have been included in **Section 6.3.3**.

6.5.4 Safeguards and management measures

Safeguards and management measures for impacts to topography, geology, soils and contamination are assessed in **Table 6-13**. Other safeguards and management measures that would address water quality impacts are identified in **Section 6.3.4**.

Table 6-13 Safeguards and mitigation measures – Topography, geology, soils and contamination

Impact	Environmental safeguards	Responsibility	Timing
Contaminated land	Contaminated Land Management measures will be prepared and implemented as part of the CEMP. Measures will provide details for dealing with: • Areas of known contamination (including asbestos) and management measures as outlined in the remedial action plans completed by JBS&G Australia Pty Ltd (JBS&G 2018, JBS&G 2019) and Site Auditor Statements completed by Ramboll Australia Pty Ltd (Ramboll 2018) • Unexpected contamination finds • Any land contamination caused by the proposal.	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Contaminated land	If potentially contaminated materials are suspected and/or encountered during construction, these will be managed by an unexpected finds protocol incorporated in the CEMP.	Contractor	Construction
Asbestos	An unexpected finds protocol and measures to manage any asbestos identified during construction activities will be included as part of the CEMP.	Contractor	Construction
Removal of excavated material	An in-situ waste classification will be carried out for any materials which are excavated and removed from the proposal area.	Contractor	Construction
Acid Sulfate Materials Management Plan	An Acid Sulfate Materials Management Plan will be prepared and implemented (as required) as part of the CEMP.	Contractor	Pre-construction
Accidental spill	A site specific emergency spill plan will be developed, and include spill management measures in accordance with relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities.	Contractor	Pre-construction

6.6 Aboriginal heritage

6.6.1 Methodology

Potential impacts on Aboriginal heritage during construction and operation of the proposal have been outlined in the *Aboriginal Cultural Heritage Report: Research design and testing methodology* (AMAC 2019). This report summarises that the following methodology was applied:

- Background research
- Aboriginal consultation
- Site inspection and cultural heritage mapping
- Report writing.

A summary of the assessment findings to date have been outlined in this report and is provided below, together with safeguards and management measures to mitigate any negative impacts.

The study area for this specialist study is an area larger than the proposal area, and is shown on **Figure 6-5**.

6.6.2 Existing environment

The proposal is located in the Awabakal Local Aboriginal Land Council area. Consultation with the Aboriginal community for the proposal and broader Honeysuckle West Precinct works has been carried out as detailed in **Section 5.3**.

With the exception of the Tree of Knowledge Park, the proposal area has been heavily disturbed and large parts have been subject to land reclamation, dredging of Cottage Creek, inundation from flooding, large scale building, development and demolition. Smaller sections have been subject to little or no disturbance.

An AHIMS search was conducted on 23 November 2020 to identify registered (known) Aboriginal sites or declared Aboriginal places near the proposal. This search returned 24 recorded Aboriginal sites. Of these 24 records, none are located near or within the proposal area.

Other searches found that the proposal area does not appear on the National Heritage List, Commonwealth Heritage List, State Heritage Register and Register of Declared Aboriginal Places.

Umwelt carried out an assessment of Aboriginal heritage impacts associated with the Honeysuckle Drive realignment (Umwelt 2019). HCCDC currently hold an Aboriginal Heritage Impact Permit (AHIP C0005353) in relation to the realignment of Honeysuckle Drive, including portions of the proposal area. . The AHIP area includes the small area next to Cottage Creek bridge where zone 2 next to Cottage Creek is located within the proposal area (refer **Figure 6-5** and **Appendix F**).

Background research and onsite inspections found:

- The presence of some original soil profile being intact
- Parts of the proposal area have nil potential to contain in situ Aboriginal objects and/or areas of archaeological potential
- Parts of the proposal area have been subject to relatively minor disturbance. These areas are representative of former coastal strips not subject to regular tidal inundation, and are located at the western end of the study area
- Some buried intact soil profiles may possibly have been part of a meandering and tidal-affected creek of the original watercourse channel and would have been possibly too wet to offer an attractive camping location to Aboriginal people in the past. When compared to more elevated and drier land situated upslope towards Hunter Street. Archaeological evidence may be present on this drier land.

For the purposes of the evaluation of archaeological potential, AMAC (2019) divided the Honeysuckle West development area into three zones as shown in **Figure 6-5** and as described in **Table 6-14** below, including:

- Zone 1: Minor Disturbance. Intact natural soil profiles. Not subject to daily tidal inundation, suitable for occupation. High Cultural Value.
- Zone 2: Moderate Disturbance. Intact soil profiles. Possibly due to daily tidal inundation, land unsuitable for occupation. Moderate Cultural Value.
- Zone 3: Major Disturbance (reclaimed land). No intact natural soil profiles. Below the pre-European settlement high water mark. Low Cultural Value.

Subsequent Aboriginal heritage investigations undertaken by Umwelt (2020) on behalf of HWC and HCCDC, for the proposed Cottage Creek naturalisation works (subject of a separate REF), identified subsurface natural landform with Aboriginal artefacts at 1.5mBGL adjoining the proposal area. The investigation identified potential for this natural landform with potential archaeological deposits, to extend into the proposal area of Cottage Creek north. An Aboriginal cultural heritage assessment (ACHA) is currently being prepared specifically in relation to the naturalisation of Cottage Creek (Umwelt in prep).Therefore an Aboriginal Heritage Impact Permit (AHIP) will be required for the Cottage Creek North area of the proposal in accordance with Part 6 of the NP&W Act as shown in Figure 6-5 below.

Figure 6-5: Aboriginal heritage archaeological potential

6.6.3 Potential impacts

Construction

No registered aboriginal items would be impacted by the proposal. The proposal would require excavations within archaeological potential zones 2 and 3 (refer to **Figure 6-5**). The following provides a summary of potential Aboriginal heritage impacts:

- The primary ancillary site (located in the Tree of Knowledge Park) is located in an area mapped as archaeological potential zone 2. As there would be no ground penetrating works within this ancillary site no impacts to Aboriginal heritage would be expected
- The secondary ancillary site is located within archaeological potential zone 3, an area of low archaeological potential. This area is also concrete sealed. As there would be no ground penetrating works at this ancillary site no impacts to Aboriginal heritage would not be expected
- Majority of the remaining works would be located next to Newcastle Harbour over the recently placed rock associated with the Thorsby Basin Waterway and Foreshore Management activities in an area identified as archaeological potential zone 3 (low archaeological potential). Therefore, impacts to Aboriginal heritage along the waterfront promenade would not be expected
- Naturalisation works next to Cottage Creek north are located in archaeological potential zone 2 and 3. Only a small portion of the naturalisation works is located in zone 2 (refer to **Figure 6-5**).

As noted in **Section 6.6.2** above, Umwelt (2019) assessed Aboriginal heritage impacts associated with the Honeysuckle Drive road realignment (HCCDC 2019) in which this area within zone 2 is included and would fall under the AHIP to be obtained for these works. As works associated with the Honeysuckle Drive realignment are expected to be completed in 2020, impacts to Aboriginal heritage were considered unlikely for the proposal as this zone 2 area would be impacted by the proposed works associated with the Honeysuckle Drive road realignment and any Aboriginal items identified during the road realignment works would be managed according to the AHIP for those works. As such, no further archaeological investigation is considered necessary for the proposal.

Operation

The operation of the proposal would not impact Aboriginal heritage.

Table 6-14 Archaeological potential zones, investigations required and recommendations (AMAC 2019)

Aspect	Zone 1	Zone 2	Zone 3
Location	This zone is located in the south western corner of the study area.	This zone occupies the north western corner of the study area and is heavily disturbed but thought to have been swampy mangrove land subject to periodic inundation .	This zone occupies the majority of the study area and consists entirely of reclaimed land.
Disturbance	Minor Disturbance	Moderate Disturbance	Heavily Disturbed (reclaimed land).
Cultural Value	High	Low Archaeological Potential	Nil Archaeological Potential
Aboriginal archaeological	There were no previously recorded Aboriginal archaeological sites in this zone of the study area. Two new Aboriginal archaeological sites were located.	There were no previously recorded Aboriginal archaeological sites in this zone of the study area and no new sites were located.	There were no recorded Aboriginal archaeological sites in this zone of the study area and no new sites were located or are expected to occur.
Further archaeological investigation	It is recommended that if this area is to be impacted by the proposal further archaeological investigation should take place in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).	It is recommended that if this area is to be impacted by the proposal further archaeological investigation should take place in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).	This zone requires no further archaeological action.
Recommendations	This zone should be subject to a program of systematic sub-surface testing to establish the nature and extent of any intact archaeological deposits. The results of this exercise should then form the basis of decisions for ongoing management and further action, if any. This may include preservation of parts of the area and/or salvage of remaining Aboriginal Features and objects under an AHIP.	This zone should be subject to test excavation to establish the nature of the soil profile with a view to establishing if the area was subject to daily tidal inundation or was swamp or marshland. If this land proves to have intact soil profiles that are representative of habitable areas the possibility for broad scale test excavation exists. This may also include preservation of parts of the area and/or salvage of remaining Aboriginal Features and objects under an AHIP.	-

6.6.4 Safeguards and management measures

Safeguards and management measures for Aboriginal heritage are presented in **Table 6-15**.

Table 6-15 Safeguards and management measures – Aboriginal heritage

Impact	Environmental safeguards	Responsibility	Timing
Aboriginal heritage	Work within the area of the Aboriginal Heritage Impact Permit (AHIP C0005353) in relation to the realignment of Honeysuckle Drive will be undertake in compliance with those AHIP conditions.	Contractor	Construction
Aboriginal heritage	An Aboriginal Heritage Impact Permit (AHIP) will be obtained for the Cottage Creek North area of the proposal in accordance with Part 6 of the NP&W Act.	HCCDC	Pre-construction
Aboriginal heritage	Consultation with registered Aboriginal stakeholder will continue as required by the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010).	HCCDC	Pre-construction
Aboriginal heritage	All personnel working on site will receive training to ensure awareness of requirements of the AHMP and relevant statutory responsibilities. Site-specific training will be given to personnel when working in the vicinity of identified Aboriginal heritage items.	Contractor	Pre-construction / construction
Aboriginal heritage	In the event that an Aboriginal object (or objects) or potential human skeletal remains is uncovered during the proposed works, ground disturbance works should cease within 20 metres of the object(s) and an archaeologist and registered Aboriginal parties for the area should be contacted. The archaeologist and Aboriginal parties will liaise with Heritage NSW to identify appropriate management strategies and permit requirements.	Contractor / HCCDC	Construction
Aboriginal heritage		HCCDC	Pre-construction

6.7 Non-Aboriginal heritage

A baseline Archaeology Assessment - Public Domain Works Cottage Creek Precinct Newcastle was carried out by AMAC (AMAC 2019a). *A Historical Archaeological Assessment Report* was also carried out by Umwelt for the Honeysuckle Drive road realignment (Umwelt 2019) and *Historical Archaeological Assessment Report Waterfront Promenade and Cottage Creek North* (Umwelt 2020a). The findings from these assessments as relevant to the proposal has been used to inform the assessment below.

6.7.1 Methodology

The AMCA (2019a) assessment comprised of:

- Background historical research, including a review of previous heritage assessments to identify the potential for archaeological and heritage items to be present within the proposal area
- A search of all available heritage registers was carried out on 26 June 2018 and 30 October 2018. This included the State Heritage Register (SHR), State Heritage Inventory (SHI), NSW Roads and Maritime Services Section 170 Heritage and Conservation Register, relevant LEPs, Register of National Estate (RNE), Commonwealth Heritage List (CHL), National Heritage List (NHL) and World Heritage List (WHL) to identify previously recorded non-Aboriginal heritage items in the proposal area, and the legislative obligations related to these items
- Compilation of a baseline archaeology assessment which summarises the research completed, archaeological potential, heritage significance and recommendations.

The Umwelt (2019a) assessment comprised of:

- Background historical research, including a review of previous heritage assessments to identify the potential for archaeological and heritage items to be present within the proposal area
- Compilation of a historical heritage assessment which summarises the research completed, archaeological potential, heritage significance and recommendations.

The Umwelt (2020a) assessment is provided in **Appendix G** and comprised of:

- Background historical research, including a review of previous heritage assessments and aerial photos to identify the potential for archaeological and heritage items to be present within the proposal area
- Archaeological monitoring results of Honeysuckle excavations
- Assessment of impact of the proposal and recommendations

6.7.2 Existing environment

Historical context

At the time of the European settlement of Newcastle, the eastern portion of the proposal area comprised areas below the high-water mark of Throsby Creek/Hunter River. The western portion of the proposal area was located on slightly elevated foreshore deposits.

Among the earliest developments east of Hannell Street were the Wickham School of Arts, Redman's Cordial Factory, Bullock Island Bridge and Ellis' Saw Mill and other light industrial and residential development.

The 1890s Water Board plans indicate no pre-twentieth century potential archaeological remains to be present along the proposed Hannell Street service corridor to the north.

To the west of Hannell Street several residences made up the earliest developments. The occupation of the site along the waterfront was largely industrial and commercial in nature, while the west side of Hannell Street was residential with some shops. Residential development grew steadily into the early part of the twentieth century until the council began to gradually purchase the individual lots. Reclamation was carried out along the waterfront by private individuals or companies, and the Department of Public Works. Development subsequently spread across the proposal area, particularly as reclamation made more land available. Several phases of redevelopment have occurred on the site. In some cases, this redevelopment is known to have involved the removal of earlier relics. However, in general, construction within the proposal area has involved deposition of fill.

Possession of the site was taken over by various government departments and bodies. Gradual demolition of the majority of buildings began on the lots after they were purchased by the government departments.

In 1910 the first part of No.5 Lee Wharf was built, with further extensions occurring until about the mid-twentieth century. The ownership of Lee Wharf and the resumed and the newly reclaimed land was retained by the State and Commonwealth Governments, divided among various departments, principally the Public Works Department, along the Wharf, and the Commissioner for Railways, to the south. The wharf and the land alongside it were used for shipping; principally loading and unloading vessels. Some of the buildings there were leased to private companies, while others were used by official bodies, such as the Water Police and the Fisheries Department.

In the late 1920s the northern part of the site was redeveloped. Three large sheds were built, at least one of which was a wool store. The Commonwealth Oil Refineries depot was also built, to the rear of the inflammable liquids berth, which also appears to have been constructed in early to mid-twentieth century.

In 1969 No.1 Throsby Wharf was completed, on the northern side of the Cottage Creek drain. A large cargo shed, and an extensive paved cargo handling area were constructed in association with the Wharf. This phase of construction appears to have involved the demolition of the row of buildings along Hannell Street, including the oil depot and the wool store.

Listed Heritage items

The proposal area is not located on any listed non-Aboriginal heritage items of local, state, national or world heritage significance. The proposal is surrounded by a number of non-Aboriginal heritage items listed as an item of local heritage significance under the NLEP and are described in **Table 6-16**. No listed heritage items are located within or next to the proposal (refer to **Table 6-16**).

The proposal is also located about 100 metres north of the Newcastle City Centre Heritage Conservation Area. This area has local heritage significance under the NLEP and contains a number of commercial and civic buildings which are reflective of Newcastle's history and development. The proposal would not impact this area.

Table 6-16 Listed heritage items within 50 metres of the proposal

Heritage item name	Register	Number	Significance	Location / Distance to the proposal
Former School of Arts	NLEP	I690	Local	22 Hannell Street / about 100 metres south west of the proposal
Signal Box - Wickham	NLEP	I684	Local	Hannell Street / over 100 metres south of the proposal
Wickham Railway station	NLEP	I683	Local	Hannell Street / over 100 metres south of the proposal and would now be located under the Newcastle Light Rail maintenance facility

Archaeological potential

The earliest development known on the site occurred in the 1870s, when the Bullock Island Bridge and Redman's Cordial Factory were constructed along with several residential buildings west of the old Hannell Street. Development subsequently spread across the site, particularly as reclamation made more land available. Several phases of redevelopment have occurred, through to c.1970. In some cases, this redevelopment is known to have involved the removal of earlier relics. However, in general, construction has involved deposition of fill, and relics therefore likely to be present.

Excavation on the neighbouring site to the east, and also partly on the site itself, has revealed fewer than expected relics of structures known to have been constructed after the reclamation of the area. However, features were found that were not indicated by the literature research carried out, in particular the wreck of a tug buried in the reclamation fill.

AMAC (2019a) indicated that the proposal area may therefore contain relics from the 1870s onwards of known activities and developments. It may also contain unknown features relating to the various phases of reclamation. There is a smaller potential for relics of activities that are unknown from the documentary sources, both from before and after reclamation.

The Umwelt (2019a) report also indicated that to the:

- East of Cottage Creek comprising of reclamation fill, there may be potential for unexpected finds to be located within the fill. However, it was noted that recent development (35 and 50 Honeysuckle Drive) to the east of the proposal did not expose any unexpected archaeological relics
- West of Cottage Creek the removal of the early to mid-twentieth century industrial complexes in the late twentieth century would have likely further disturbed any earlier archaeological remains that may have survived along the foreshore. If archaeological remains are exposed they would likely be disturbed and fragmentary. As such, the potential for archaeological remains to be exposed in this area was considered to be low, if at all.

Significance

The AMAC (2019a) report indicated that the proposal area would have potential to possess heritage significance at both a local and State level. As part of Newcastle Harbour, and the location of several early industries, it has played an important role in the cultural history of the area and of the State.

Umwelt (2020a) identified the western portion of the proposal area, Tree of Knowledge Park, had been subject to historical development from at least the 1880s. The remainder of the proposal area (the foreshore promenade area and Cottage Creek North) was part of Throsby Creek until twentieth century reclamation occurred. This area is considered to have low to no potential for any significant archaeological relics to be exposed and no to low archaeological significance and research potential.

6.7.3 Potential impacts

Construction

The proposal would not directly impact on any registered or listed non-Aboriginal heritage items. No heritage value would be impacted by the proposal.

Tree of Knowledge Park comprises the only area located within the boundaries of former allotments and building footprints; dating from approximately the 1870s. However, no impacts are proposed in the Park area as its current use as a site compound and laydown area will continue.

Any unexpected heritage items or archaeological remains that are encountered during construction would be managed in accordance with the mitigation measures outlined in **Section 6.7.4**.

Operation

The operation of the proposal would be unlikely to impact on non-Aboriginal heritage items.

6.7.4 Safeguards and management measures

Safeguards and management measures for non-Aboriginal heritage are presented in **Table 6-17**.

Table 6-17 Safeguards and management measures – Non-Aboriginal heritage

Impact	Environmental safeguards	Responsibility	Timing
Non-Aboriginal heritage	A Non-Aboriginal Heritage Management Plan (NAHMP) will be prepared and implemented as part of the CEMP. It will provide specific guidance on measures and controls to be implemented to avoid and mitigate impacts to Non-Aboriginal heritage. The NAHMP will be prepared in consultation with the Office of Environment and Heritage.	Contractor	Pre-construction
Non-Aboriginal heritage	Non-Aboriginal heritage awareness training will be provided for all contractors and personnel before the start of construction. This will provide an awareness of surrounding heritage items within the vicinity of the proposal and required management measures to ensure the understanding of the procedure to be implemented in the event of discovery of heritage materials, features or deposits, or the discovery of human remains.	Contractor	Pre-construction
Non-Aboriginal heritage	In the event that unexpected heritage items or archaeological deposits are encountered, works would cease immediately and an archaeologist would be contacted in order to make an assessment. Works will only re-commence with once clearance is received from the archaeologist.	Contractor	Construction

6.8 Landscape character and visual impacts

This section outlines the magnitude of the proposal on landscape character and visual amenity and safeguards to mitigate the impact.

6.8.1 Methodology

The methodology for the landscape character and visual assessment involved:

- Identifying locations where the proposal is viewed within and beyond the proposal area
- Describing the existing socio-economic environment in the study area
- Assessing potential impacts of the proposal's construction and operation on the landscape character and visual environment of the study area
- Identifying safeguards and management measures to avoid, minimise or mitigate potential landscape character and visual impacts identified in the assessment.

6.8.2 Existing environment

The proposal is located next to Newcastle Harbour along Lee 4, Lee 5 and Throsby wharves within an area which was formally used for commercial shipping. The existing landscape character of the proposal area is typical of an urban landscape including infrastructure land uses (footpaths and car parks), urban residential land uses (including both residential properties and businesses) and cleared

areas. The proposal is located in a business and commercial zone. The Public Domain consists of a large concrete hardstand area. Vegetation is limited to the north-western corner of the proposal and consists of about four trees.

Views of the proposal would be directly visible to:

- Pedestrians and cyclists who use the temporary shared pathway that traverses the proposal area along the waterfront
- Members of the public who use the temporary car park located next to the pathways on the northern and southern sides of Honeysuckle Drive
- Watercraft in Newcastle Harbour
- Vehicles and active transport users along Honeysuckle Drive have interrupted views of the proposal area due to the distance and trees that will be planted as part of the Honeysuckle Drive realignment proposal, along the southern boundary of the proposal area
- Vehicles and active transport users also have views to the proposed ancillary facilities from Hannell Street.

The view catchment for majority of the proposal would be generally contained within the Public Domain and properties looking down on to the Public Domain. Residential properties and the businesses at the Hannell Street / Honeysuckle Drive intersection within the proposal area would have views of the Public Domain.

6.8.3 Potential impacts

Construction impacts would be temporary. The proposal would not have a permanent effect on landscape character during construction.

Construction activities and equipment associated with construction would temporarily impact visual amenity. This would include temporary fencing, tree removal within the proposal area, waste generation and earthworks and road pavement works.

Once the proposal is built, there would be an improvement to the visual amenity throughout the proposal area. The main visual changes would be due to the landscaping along the waterfront promenade and naturalisation of Cottage Creek north. The proposal has been designed to provide enhancements to the community space and a harbourfront connection consistent with the existing waterfront promenade either end of the proposal and Cottage Creek south naturalisation works to be carried out by Hunter Water.

Shadowing from trees along the waterfront promenade and next to Cottage Creek, as well as impacts on views of Newcastle Harbour from nearby developments have been identified as a potential operational impacts. Shadowing would be expected to occur next to the proposal, as shown in **Figure 6-6** to **Figure 6-8**. As the waterfront promenade follows Newcastle Harbour's shoreline some shadowing of ground floor apartments in the morning would be expected. Winter morning sun shadow would be expected to have a greater shadow throw than in summer. Given the 10 metre setback for adjacent buildings from the development boundary (and waterfront promenade) most shadowing by 10.00am would be expected to occur in the building setback area.

Figure 6-6 Promenade 3pm Winter Shadow (provided by Terras Landscape Architects 2019)

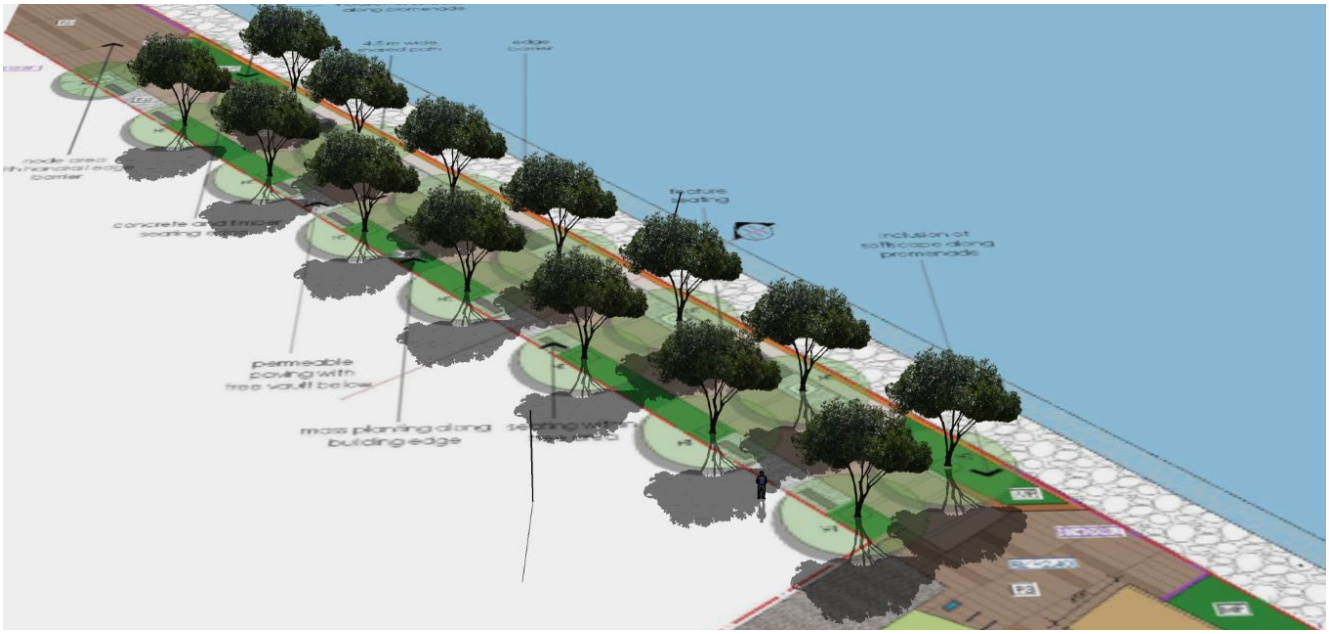


Figure 6-7 Promenade 10am Winter Shadow (provided by Terras Landscape Architects 2019)

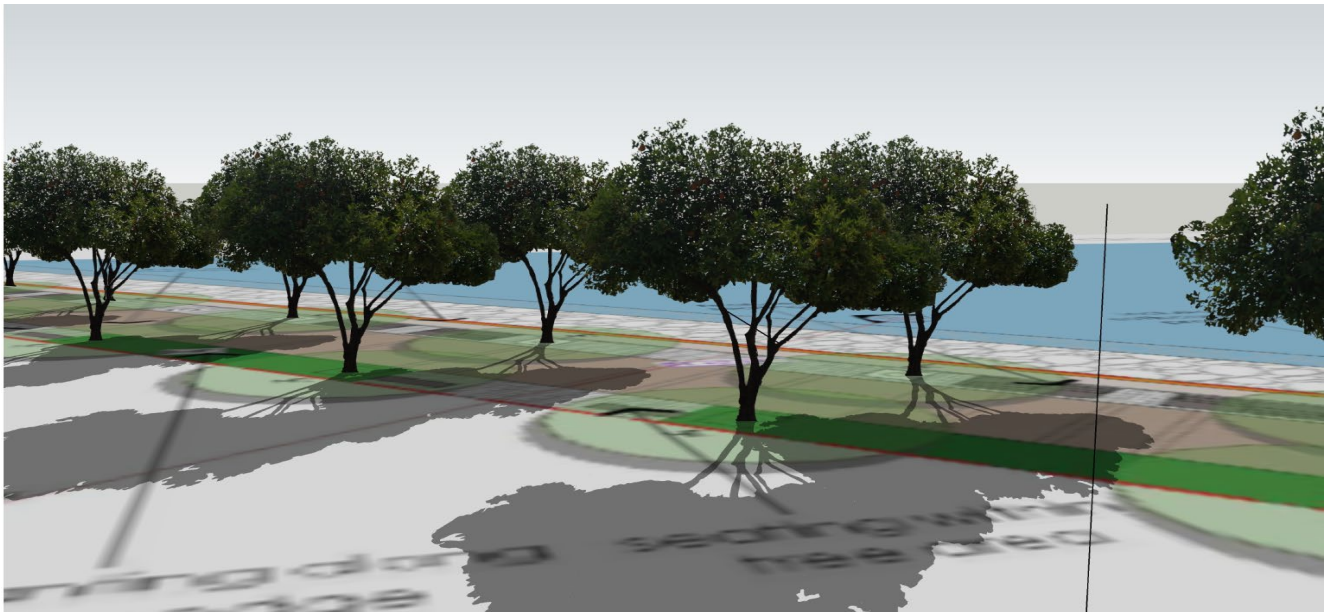


Figure 6-8 Promenade 10am Winter Shadow (provided by Terras Landscape Architects 2019)

Majority of the trees within the proposal consist of promenade trees (about 8 in height) and mass plantings consisting of shrub and groundcover (under about 1 metre). Taller nodal trees including Cook Island Pines (up to 30 metres) have been located where Cottage Creek and the waterfront promenade meet. Impacts from these taller trees are expected to include impacts to peripheral views from adjacent developments, with some shadowing in the early morning.

Trees would be spaced at about 10 metres intervals in a double row configuration (refer to **Figure 6-9**). Canopies would be expected to have a three to four metre gap between trees. This spacing and configuration would impact the current uninterrupted views of Newcastle Harbour. Double row tree configurations (plantings) would need to be spaced in a perpendicular arrangement (between tree pairs) to achieve a reasonable view of Newcastle Harbour for ground and first floor occupants of adjacent developments currently under construction or proposed. Ground level views would be expected to improve as the trees grow with views under canopies available.

Figure 6-9 First floor apartment view 10am Winter (provided by Terras Landscape Architects 2019)

Overall, the proposal is considered to be in keeping with the scale and bulk of existing Honeysuckle Precinct in the proposal area. The visual changes are expected to have an overall positive impact on public open space through greening and shade similar to existing foreshore areas to the east and west of the proposal.

6.8.4 Safeguards and management measures

Safeguards and management measures for landscape character and visual impacts are presented in **Table 6-18**.

Table 6-18 Safeguards and management measures – Landscape character and visual impacts

Impact	Environmental safeguards	Responsibility	Timing
Visual impact of construction work sites	The construction work sites, including construction areas and ancillary facilities (such as storage compounds and offices) will be managed to minimise visual impacts. This will include appropriate storage of equipment, parking, stockpile screening and arrangements for the storage and removal of rubbish and waste materials.	Contractor	Construction
Views	Double row tree configurations (plantings) will need to be spaced in a perpendicular arrangement (between tree pairs) to achieve limited views of Newcastle Harbour for first floor occupants.	Design and contractor	HCCDC and Construction

6.9 Socio-economic, property and land use

The potential impacts of the proposal on the socio-economic environment, property and land use are assessed in this section, together with identification of measures to avoid, manage or mitigate potential impacts.

6.9.1 Methodology

The methodology for the socio-economic and land use assessment involved:

- Scoping of the potential socio-economic issues for the proposal and identification of communities likely to be affected by the proposal
- Describing the existing socio-economic environment in the study area
- Assessing potential impacts of the proposal's construction and operation on the socio-economic environment of the study area
- Identifying safeguards and management measures to avoid, minimise or mitigate potential socio-economic impacts identified in the assessment.

The study area for the assessment includes residents and businesses that are likely to be affected by the proposal construction and operation. The study area has been identified as including the Australian Bureau of Statistics (ABS) Statistical Area Level (Newcastle).

6.9.2 Existing environment

The proposal is located in an urban area within the Newcastle LGA. The LGA covers over 186 square kilometres. The NLEP zoning for the proposal is provided in **Section 4.1.2**.

Land uses surrounding the proposal area is mixed purpose and includes:

- Residential and businesses on Honeysuckle Drive
- Other development sites along Honeysuckle Drive
- The Newcastle Light Rail corridor
- The temporary commuter car park
- Open space to the south of Honeysuckle Drive
- Existing wharf and coastal foreshore infrastructure.

The Honeysuckle Redevelopment Area has been managed for redevelopment by HCCDC (formerly Hunter Development Corporation) since the early 2000s as outlined in **Chapter 2**. The proposal compliments the development of adjacent land in this area.

Social infrastructure

Social infrastructure refers to community facilities, services and network which help individuals, families, groups and communities meet their social needs, maximise their potential for development and enhance community well-being. Social infrastructure located close to the proposal includes the:

- Newcastle Interchange and Newcastle Light Rail
- Honeysuckle entertainment precinct
- Newcastle Marina and Yacht Club
- Local hotels and restaurants and businesses
- Open space including shared paths, foreshore access and parks
- Temporary commuter car parking (about 356 spaces) and on road car parking spaces along Honeysuckle Drive.

6.9.3 Potential impacts

Construction

The proposal has the potential to generate socio-economic impacts during the construction period. The potential impacts have been summarised below.

- **Land use and property:** The proposal would not adversely impact on land use or property as the proposal would be contained within land owned by HCCDC. No property acquisitions or adjustment would be required
- **Businesses and residents:** There would be temporary noise impacts during construction. There is also potential for air quality impacts during construction. These impacts have the potential to affect sensitive receivers located near the proposal. Potential noise impacts are discussed in **Section 6.1** and potential air quality impacts are discussed in **Section 6.10**. There would also be temporary impacts on visual amenity for during construction (refer to **Section 6.8**)
- **Traffic, parking access and connectivity:** Construction would require temporary cyclist and pedestrian changes. During these periods cyclists and pedestrians may experience detours. Pedestrian access along the Newcastle Foreshore and the pedestrian link connecting Honeysuckle Drive to the west are currently closed, with closures and existing detours to remain in place for the duration of works. Pedestrians north west of the proposal would be detoured around the Tree of Knowledge Park to a shared path on the eastern side of Hannell Street to connect to Honeysuckle Drive. As each stage of construction is progress the current detours and return of access to the Newcastle Harbour and connection with the existing shared path either side of the proposal will be assessed and implemented where possible. Potential traffic, transport and access impacts are discussed further in **Section 6.2**
- **Social infrastructure:** There is currently no access to social infrastructure such as the waterfront promenade as the pedestrian access along the Newcastle Foreshore and the pedestrian link connecting Honeysuckle Drive to the west are currently closed and diverted. Refer to the dot point above
- **Community values:** During construction, the proposal would impact positively on local employment. This would be through the creation of direct construction related employment opportunities and indirect employment opportunities in businesses and industries that support the construction work. Therefore, increased employment opportunities locally may assist in supporting improved social and economic outcomes for some individuals

  Communities in the locality have been subject to construction impacts from other transport and urban development projects in the area, including the Newcastle Light Rail and Interchange, other Honeysuckle precinct developments, local road upgrades and SuperCars. Construction of the proposal would prolong the duration of construction impacts in this area, potentially contributing to construction fatigue for some residents and workers. This may compound anxiety and frustration for some residents, and workers and others who access the proposal area regularly. This effect is often termed ‘construction fatigue’

- **Utilities:** As detailed in **Section 3.5** no impacts to utilities are expected. Connection to the existing electricity, water and telecommunications utilities at Worth Place Park West, Tree of Knowledge Park and near Cottage Creek would be required for the smart poles and drinking fountain.

Operation

The proposal has the potential for wider regional and local socio-economic benefits. These benefits would apply in the medium to longer term through extending the pedestrian promenade along Newcastle Foreshore, providing improved continuity for pedestrians and cyclists whilst also linking with proposed pedestrian links through the future land release areas to provide enhanced connectivity. As such, the proposed works would have a positive impact upon pedestrian and cyclist access.

The proposal would extend the pedestrian promenade along Newcastle Foreshore providing improved continuity for pedestrians and cyclists, whilst also linking with proposed pedestrian links through the future land release areas to provide enhanced connectivity. As such, the proposal would have a positive impact upon pedestrian and cyclist access.

6.9.4 Safeguards and management measures

Safeguards and management measures for socio-economic and land use impacts are presented in **Table 6-19**. Other safeguards and management measures that would address socio-economic impacts are identified in **Section 6.2** (Traffic and transport), **Section 6.1** (Noise and vibration) and **Section 6.10** (Landscape character and visual amenity).

Table 6-19 Safeguards and management measures – Landscape character and visual impacts

Impact	Environmental safeguards	Responsibility	Timing
Socio-economic	A Communication Plan will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction. The Communication Plan will include (as a minimum): • Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions • Contact name and number for complaints.	Contractor	Pre-construction
Interruptions to utility services	The construction contractor will inform residents before any interruptions to utility services that may be experienced during utility adjustments in accordance with the Community Plan.	Construction contractor	Construction

6.10 Other impacts

6.10.1 Existing environment and potential impacts

A description of the existing environment and potential impacts for air quality and waste are presented in **Table 6-20**.

Table 6-20 Existing environment and potential impacts - Other impacts

Environmental factor	Existing environment	Potential impacts
Air quality and greenhouse gas	Ambient air quality around the proposal area is influenced by local sources, as well as regional influences arising from agriculture and mining. The main air pollutants from motor vehicles are carbon monoxide (CO), nitrogen dioxide (NO_2) and fine particles (PM_{10}, ie particulate matter with equivalent aerodynamic diameters of less than 10 microns), whereas deposited dust and particulate matter are the primary pollutants associated with regional influences.	During construction the proposal may create air quality impacts. These impacts would be dependent on atmospheric conditions. The proposal would have potential to generate dust from landscaping and earthworks, stockpiles and the use of imported fill. Levels of air borne dust would be expected to be low level and unlikely to cause concern to sensitive receivers provided the mitigation measures provided in **Section 7.2** are implemented. Construction equipment and plant would emit exhaust fumes and would have a small impact on local air quality. Operation of the proposal would be unlikely to change the existing air quality environment.
Waste	The proposal area currently generates minimal waste. Waste sources are limited to foreshore litter and litter within Cottage Creek.	Construction would generate the following waste streams including: • Construction wastes created from the landscaping and naturalisation works including removal of about the top 500 millimetres of the drainage channel and surplus excavated materials • Excess fill material from any excavation of soils and fill embankments during construction • Oil, grease and other liquid wastes from the maintenance of construction plant and equipment • General wastes and sewage from the potable ablutions and first aid facilities • Waste from maintaining plant and equipment, including liquid wastes • Packaging materials from items delivered to site, such as pallets, crates, cartons, plastics and wrapping materials • Potential contaminated material or acid sulfate soils unearthed during construction (refer to **Section 6.5.4**). All waste would be managed in accordance with the waste management plan included in the CEMP, and disposed of by a licensed contractor to an appropriately licensed facility. For an assessment of contaminated waste impacts, refer to **Section 6.5**.

Environmental factor	Existing environment	Potential impacts
		The waste associated with the operation of the proposal would not be expected to change from the existing environment. The quantities of each type of waste would be defined during detailed design.

6.10.2 Safeguards and management measures

Safeguards and management measures for potential air quality and waste impacts are presented in **Table 6-21**.

Table 6-21 Safeguards and management measures – Other impacts

Impact	Environmental safeguards	Responsibility	Timing
Air quality	An Air Quality Management Plan will be prepared and implemented as part of the CEMP. The measures will include, but not be limited to: • Potential sources of air pollution • Air quality management objectives consistent with any relevant published EPA and/or OEH guidelines • Mitigation and suppression measures to be implemented • Methods to manage work during strong winds or other adverse weather conditions.	Contractor	Pre-construction
Waste	A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to: • Measures to avoid and minimise waste associated with the project • Classification of wastes and management options (re-use, recycle, stockpile, disposal) • Statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions • Procedures for storage, transport and disposal • Procedures to avoid waste entering Cottage Creek and Newcastle Harbour (in accordance with the *Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Marine Life* (DoEE, 2018)) • Monitoring, record keeping and reporting.	Contractor	Pre-construction
Hazards and risk management	A Hazard and Risk Management Plan (HRMP) will be prepared and implemented as part of the CEMP. The HRMP will include, but not be limited to: • Details of hazards and risks associated with the activity • Measures to be implemented during construction to minimise these risks • Record keeping arrangements, including information on the materials present on the site,	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
	material safety data sheets, and personnel trained and authorised to use such materials • A monitoring program to assess performance in managing the identified risks • Contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations. The HRMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and EPA or OEH publications.		

6.11 Cumulative impacts

Cumulative impacts have the potential to arise from the interaction of individual elements within the proposal and the additive effects of the proposal with other external projects. HCCDC is required, under clause 228(2) of the *Environmental Planning and Assessment Regulation 2000*, to take into account potential cumulative impacts as a result of the proposal.

6.11.1 Study area

The study area used for the assessment of cumulative impacts has been defined by identifying other developments or activities that are under way now, or are likely to commence during the proposal's scheduled construction timeframe within the Honeysuckle Precinct. Construction work would be expected to start in 2021 and be constructed in four stages as described in **Section 3.3.1**.

6.11.2 Methodology

Locally occurring developments that could interact with the proposal were identified through a desktop search of publicly available information on the Department of Planning, Industry and Environment's (DPIE) major project register, City of Newcastle website and through the Revitalising Newcastle Website. The desktop search was carried out on 18 September 2019 and supplemented with information as provided by HCCDC. Developments, such as minor alterations to dwellings, were not included due to the limited nature and extent of the developments and, therefore, minimal interaction with the proposal.

Developments identified as having potential for cumulative impacts include:

- Various commercial and mixed-use developments along Honeysuckle Drive and the University of Newcastle (UoN) City Campus Development
- Hunter Water's proposed naturalisation of Cottage Creek south
- Newcastle Super cars.

The Throsby Basin Waterway and Foreshore Management activities (HDC 2017) currently being carried and the Honeysuckle Drive realignment (HCCDC 2019) would be completed prior to the proposal commencing.

6.11.3 Broader program of work

The broader program of works for developments occurring in the vicinity of the proposal are provided in the section below.

6.11.4 Other projects and developments

A search of DPIE's major projects register and the council development application register was carried out on 18 September 2019 and supplemented with information as provided by HCCDC and from developer websites. Projects with the potential to occur simultaneously with the proposal include:

- University of Newcastle Honeysuckle City Campus Development, expected to be operational in early 2021
- 35 Honeysuckle Drive (Huntington) – Comprising an eight storey mixed use development of commercial and residential, expected to be operational in mid 2021
- 42 Honeysuckle Drive – Comprising 140 room hotel, expected to operational at the end of 2022
- 45 Honeysuckle Drive (Horizon) – Comprising an eight storey mixed use development of commercial and residential, expected to be operational at the end of 2022
- Hunter Water's proposed naturalisation of Cottage Creek south (dates not known at present).

Note: The Honeysuckle Drive road realignment (HCCDC 2019), Thorsby Basin Waterway Foreshore Management works (HCD 2017) and the 21 Honeysuckle Drive development are expected to be completed prior to construction of the proposal commencing.

6.11.5 Potential impacts

Construction specific cumulative effects would most likely occur where construction works overlap in terms of timing and/or location. Cumulative effects from construction activities usually relate to noise and vibration, traffic and access, visual amenity and air quality impacts. The scale of the impacts largely depends on the type of work, its duration, and the sensitivity of surrounding land uses. Based on the findings of the specialist studies summarised in the preceding sections, cumulative construction impacts may include contributions to:

- Increases in construction vehicle traffic on local roads resulting in noise and air quality impacts on sensitive receivers (refer to **Section 6.2.2**)
- Noise impacts associated with multiple construction works (refer to **Section 6.1.4**)
- Loss of mature trees, including impacts to about four mature trees (refer to **Section 6.4.3**)
- Changes to visual amenity of the area (refer to **Section 6.8.3**)
- Extended periods of disruptions related to construction, which would be magnified by other developments associated with the other urban renewal projects within the Honeysuckle West precinct.

As described above, projects would overlap in terms of construction timing and would have cumulative impacts on road users, pedestrians, cyclists and residents. Where projects follow progressively and are concentrated in a general locality, there may be a cumulative effect associated with an overall increased duration of disturbance on sensitive receivers, particularly residents. This is potentially a key issue for the proposal due to the staging of the construction program and the concentration of a number of other development projects in close proximity, particularly those already or planned to occur within the Honeysuckle West precinct.

During construction, community concerns about impacts on amenity from construction activities may be intensified when considered with impacts of other projects under construction or planned to be concurrently constructed in and around the area. There may be particular concern about these effects extending over a number of years.

During operation, the proposal would have a positive cumulative impact by providing the missing harbourfront link and complementing adjacent development.

The likely cumulative impacts of the proposal, other projects and developments during construction and operation are summarised in **Table 6-22**.

Table 6-22 Cumulative impacts

Environmental factor	Construction	Operation
Traffic and transport	Impacts would occur as a result of the proposal and other development around Newcastle within a similar time period. There is potential for more impacts on the road network than those specifically associated with the proposal. Impacts would primarily be a result of an increase in construction-related traffic. Potential cumulative impacts would include: • Increased travelling time on the road network • Reduced traffic speeds on the road network • Increased construction traffic volumes on the road network.	The proposal would complement the development of adjacent land through connection with the existing waterfront promenade to the west and east of the proposal. Following completion of construction, the proposed works would not result in any changes to the existing road network and therefore would not have any impacts on its existing operation or efficiency.
Noise	As a result of the proposal and other projects and developments proposed within the area within a similar time period, there is potential for greater impacts on local amenity than those that were identified for the proposal in isolation. Potential cumulative impacts would include increased noise impacting on amenity for residences and businesses closest to construction works.	No operational impacts are expected.
Social economic impacts	Multiple construction activities over an extended period would likely result in 'construction fatigue' for local residents, pedestrians and road users.	The proposal would have a positive cumulative impact by providing the missing harbourfront link for pedestrians and cyclists.
Landscape character and visual amenity	Multiple construction activities would have a cumulative impact on visual amenity. Earthworks, ancillary facilities and construction machinery would be highly visible during construction.	The proposal would complement the development of adjacent land through connection with the existing waterfront promenade to the west and east of the proposal.

6.11.6 Safeguards and management measures

Safeguards and management measures for potential cumulative impacts are proved in **Table 6-23**.

Table 6-23 Safeguards and management measures for cumulative impacts

Impact	Environmental safeguards	Responsibility	Timing
Cumulative impacts from construction of multiple projects	• HCCDC will continue to be actively engaged in coordinating the various infrastructure and land-use developments occurring in the area • Coordination with surrounding projects in construction at the time of the proposal will be carried out to inform the establishment of safest pedestrian and cyclist traffic diversions. This will also assist in returning the waterfront access and minimising diversions as each stage of construction is completed.	HCCDC	Pre-construction and Construction

7 Environmental management

This chapter describes how the proposal will be managed to reduce potential environmental impacts throughout detailed design, construction and operation. A framework for managing the potential impacts is provided. A summary of site-specific environmental safeguards is provided and the licence and/or approval requirements required prior to construction are also listed.

7.1 Environmental management plans (or system)

A number of safeguards and management measures have been identified in the REF in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these safeguards and management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Construction Environmental Management Plan (CEMP) will be prepared to describe the safeguards and management measures identified. The CEMP will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements.

7.2 Summary of safeguards and management measures

Environmental safeguards and management measures outlined in this REF will be incorporated into the detailed design phase of the proposal and during construction and operation of the proposal, should it proceed. These safeguards and management measures will minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in **Table 7-1**.

Table 7-1: Summary of safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
General	A CEMP will be prepared and submitted for review and endorsement of Hunter and Central Coast Development Corporation prior to commencement of the activity. As a minimum, the CEMP will address the following: • Any requirements associated with statutory approvals • Details of how the project will implement the identified safeguards outlined in the REF • Issue-specific environmental management plans • Roles and responsibilities • Communication requirements • Induction and training requirements • Procedures for monitoring and evaluating environmental performance, and for corrective action • Reporting requirements and record-keeping • Procedures for emergency and incident management	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
	• Procedures for audit and review. The endorsed CEMP will be implemented during the undertaking of the activity.		
General	All businesses, residential properties and other key stakeholders (eg schools, local councils) affected by the activity will be notified at least five days prior to commencement of the activity.	Contractor	Pre-construction
General	All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. This will include up-front site induction and regular "toolbox" style briefings. Site-specific training will be provided to personnel engaged in activities or areas of higher risk such as areas of heritage sensitivity and working in or over water.	Contractor	Pre-construction
Noise and vibration	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in the *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) and identify: • All potential significant noise and vibration generating activities associated with the activity • A monitoring program to assess performance against relevant noise and vibration criteria • Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Noise and vibration	All sensitive receivers (eg schools, local residents) likely to be affected will be notified at least 5 days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • The project • The construction period and construction hours • Contact information for project management staff • Complaint and incident reporting • How to obtain further information.	Contractor	Pre-construction
Noise and vibration	Construction noise and vibration management practices are to be provided to all staff and contractors and be included during site inductions and daily tool-box talks. The tool-box talks should include as a minimum, the permitted hours of construction work, work site locations, site ingress/egress and the required noise management measures for each construction phase.	Contractor	Pre-construction
Noise and vibration	Fixed and mobile construction plant and equipment will be located to maximise separation distance from nearest noise and vibration sensitive and residential receivers.	Contractor	Construction
Noise and vibration	Construction plant will be orientated away from nearest receivers and where feasible be located to take advantage of on-site buildings and structure with potential to impede noise propagation.	Contractor	Construction
Noise and vibration	Where possible and in compliance with occupational safety and health standards, reversing beepers on trucks will be replaced with low pitch non-tonal beepers (quackers). Alternatives to reversing beepers include the use of spotters and designing the delivery arrangements to reduce the need for reversing may assist in minimising the use of reversing beepers.	Contractor	Construction
Noise and vibration	Where practical, simultaneous operation of dominant noise generating plant will be managed to reduce noise impacts, such as operating at different times or increasing the distance between the plant.	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Noise and vibration	Where complaints are received, or noise monitoring verification indicates the need for further attenuation, consider the application of localised acoustic screening around noisy plant and activities.	Contractor	Construction
Noise and vibration	Ensure that all works comply with standard working hours.	Contractor	Construction
Noise and vibration	During Stage 2 concrete sawing and rock pulverising activities an acoustic screen will be used.	Contractor	Construction
Noise and vibration	During Stage 2, all reasonable and feasible mitigations will be applied to reduce noise levels to the highest extent possible for highly noise affected receivers. Consultation with residents will be carried out to outline duration and sound levels of the proposed activities, with respite periods for residents to be applied during the most noise sensitive times.	Contractor	Construction
Traffic and transport	A Traffic Management Plan (TMP) will be prepared and implemented as part of the CEMP. The TMP will include: • confirmation of haulage routes • measures to maintain access to local roads and properties • site specific traffic control measures (including signage) to manage and regulate traffic movement • measures to maintain pedestrian and cyclist access • requirements and methods to consult and inform the local community of impacts on the local road network • access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads. • a response plan for any construction traffic incident • consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • monitoring, review and amendment mechanisms.	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Traffic and transport	• Truck drivers will be provided with a code of conduct outlining driver expectations and would need to comply with broader traffic management plans for the overall development of the Honeysuckle West precinct • Deliveries and spoil removal will be planned to avoid queuing of trucks in or around the construction site.	Contractor	Pre-construction / Construction
Traffic and transport	All laden trucks entering or exiting the site have their loads covered.	Contractor	Construction
Traffic and transport	Appropriate measures are in place to minimise the tracking of material onto the road by vehicles leaving the site.	Contractor	Construction
Traffic and transport	All trucks adhere to the nominated haulage routes.	Contractor	Construction
Flooding	The placement of stockpiles will consider implications on drainage and overland flow. Stockpiles will not be located next to Cottage Creek. Stockpiles should be established with adequate protection from a PMF event.	Contractor	Construction
Flood	The CEMP would address flood management. It would include flood emergency preparation and response measure, including site protection measures to be implemented before and in the event of flooding. These flood management measures would be reviewed and coordinated with existing local flood plans and evacuation procedures.	Contractor	Construction
Flooding	• The Cottage Creek channel and nominated 50 metre floodway width will be maintained at a similar finished surface levels to the existing condition, to allow flood waters to be conveyed to the Throsby Basin • The new pedestrian bridge over Cottage Creek will be elevated no lower than 1.3 metres Australian Height Datum (AHD) to avoid the structure becoming a potential constraint on the overall channel conveyance of Cottage Creek.	HCCDC	Detailed design
Flooding	Additional considerations for the implementation of the proposed landscaping include (BMT 2019):	HCCDC	Detailed design

Impact	Environmental safeguards	Responsibility	Timing
	• The proposed rockwork at the edge of the Cottage Creek channel will not protrude beyond the edge of the concrete wall beneath it, to not impact the existing channel capacity • The handrail edge barrier will not present a substantial impediment to flow. This will be achieved by having any solid base being flush with the adjacent finished surface levels • The composition of the structure between the handrail and ground surface (such as support railings or posts and any additional horizontal components) will be minimised and constitute no more than a 10% blockage to flow • Any additional horizontal components below the handrail will be a minimum of 150 mm above the finished ground surface.		
Flooding	The following will be considered in the implementation of the handrails (BMT 2019): • The handrail edge barrier will not present a substantial impediment to flow, with any solid base being flush with the adjacent finished surface levels • The composition of the structure between the handrail and ground surface (such as support railings or posts and any additional horizontal components) will be minimised and constitute no more than a 10% blockage to flow • Any additional horizontal components below the handrail will be a minimum of 300 mm above the finished ground surface across the Steel Street Floodway and a minimum of 150 mm above the finished ground surface across the two minor floodways.	HCCDC	Detailed design
Flooding	The following will be considered in the implementation of the seating (BMT 2019): • The proposed seating be removed from the floodways • The proposed seating within the floodways will be a bench type with an open base, to allow overland flow to pass underneath the seating, with a minimum ground		

Impact	Environmental safeguards	Responsibility	Timing
	clearance of 300 mm within the Steel Street Floodway and a minimum of 150 mm within the two minor floodways • A modelling-based flood impact assessment is carried out to ensure that the proposed seating does not result in a significant reduction in the floodway conveyance capacity and associated adverse off-site flood impacts.		
Erosion and sedimentation	Soil and Water management measures will be implemented as part of the CEMP. The mitigation measures would be prepared and implemented in accordance with *The Blue Book - Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) and Roads and Maritime Services G38 specification (Soil and Water Management).	Contractor	Construction
Soil and water	A site specific Erosion and Sediment Control Plan/s (ESCP) will be prepared and implemented as part of the CEMP.	Contractor	Construction
Water quality	A spill management and response plan will be developed before construction and implemented through the works.	Contractor	Construction
Water quality	If any water to be discharged into Newcastle Harbour, it must comply with the *Protection of the Environment Operations Act 1997*.	Contractor	Construction
Water quality	Routine water quality observations including visual monitoring for plumes and gross pollutants will be conducted during construction. In the event of visible water quality issues being observed, works will cease until the water quality issue has been appropriately investigated to identify the cause and measures implemented to prevent reoccurrence.	Contractor	Construction
Contaminants entering receiving environments	Control measures to minimise the risk of water pollution will be implemented including: • Refuelling is to be undertaken away from the waterfront, drains and Cottage Creek. A high standard of spill prevention will be implemented • Vehicle washdowns and/or concrete truck washouts would be appropriately lined/managed to keep stormwater out of the area,	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
	prevent wastewater entering waterways, prevent the pollution o land and/or staining the surrounding roads • Vehicles, equipment and plant will be properly maintained and regularly inspected for fluid leaks.		
Groundwater	Consult with WaterNSW to confirm the need for a water access license or exemption (if the extraction is less than 3ML of water per year (July to June)) where dewatering activities are identified as required.	Contractor	Construction
Biodiversity	Flora and Fauna Management measures will be incorporated and implemented as part of the CEMP.	Contractor	Pre-construction
Contaminated land	Contaminated Land Management measures will be prepared and implemented as part of the CEMP. Measures will provide details for dealing with: • Areas of known contamination (including asbestos) and management measures as outlined in the remedial action plans completed by JBS&G Australia Pty Ltd (JBS&G 2018, JBS&G 2019) and Site Auditor Statements completed by Ramboll Australia Pty Ltd (Ramboll 2018) • Unexpected contamination finds • Any land contamination caused by the proposal.	Contractor	Pre-construction
Contaminated land	If potentially contaminated materials are suspected and/or encountered during construction, these will be managed by an unexpected finds protocol incorporated in the CEMP.	Contractor	Construction
Asbestos	An unexpected finds protocol and measures to manage any asbestos identified during construction activities will be included as part of the CEMP.	Contractor	Construction
Removal of excavated material	An in-situ waste classification will be carried out for any materials which are excavated and removed from the proposal area.	Contractor	Construction
Acid Sulfate Materials Management Plan	An Acid Sulfate Materials Management Plan will be prepared and implemented (as required) as part of the CEMP.	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Accidental spill	A site specific emergency spill plan will be developed, and include spill management measures in accordance with relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities.	Contractor	Pre-construction
Aboriginal heritage	Work within the area of the Aboriginal Heritage Impact Permit (AHIP C0005353) in relation to the realignment of Honeysuckle Drive will be undertake in compliance with those AHIP conditions.	Contractor	Construction
Aboriginal heritage	An Aboriginal Heritage Impact Permit (AHIP) will be obtained for the Cottage Creek North area of the proposal in accordance with Part 6 of the NP&W Act.	HCCDC	Pre-construction
Aboriginal heritage	Consultation with registered Aboriginal stakeholder will continue as required by the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010).	HCCDC	Pre-construction
Aboriginal heritage	All personnel working on site will receive training to ensure awareness of requirements of the AHMP and relevant statutory responsibilities. Site-specific training will be given to personnel when working in the vicinity of identified Aboriginal heritage items.	Contractor	Pre-construction / construction
Aboriginal heritage	In the event that an Aboriginal object (or objects) or potential human skeletal remains is uncovered during the proposed works, ground disturbance works should cease within 20 metres of the object(s) and an archaeologist and registered Aboriginal parties for the area should be contacted. The archaeologist and Aboriginal parties will liaise with Heritage NSW to identify appropriate management strategies and permit requirements. .	Contractor / HCCDC	Construction
Non-Aboriginal heritage	A Non-Aboriginal Heritage Management Plan (NAHMP) will be prepared and implemented as part of the CEMP. It will provide specific	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
	guidance on measures and controls to be implemented to avoid and mitigate impacts to Non-Aboriginal heritage. The NAHMP will be prepared in consultation with the Office of Environment and Heritage.		
Non-Aboriginal heritage	Non-Aboriginal heritage awareness training will be provided for all contractors and personnel before the start of construction. This will provide an awareness of surrounding heritage items within the vicinity of the proposal and required management measures to ensure the understanding of the procedure to be implemented in the event of discovery of heritage materials, features or deposits, or the discovery of human remains.	Contractor	Pre-construction
Non-Aboriginal heritage	In the event that unexpected heritage items or archaeological deposits are encountered, works would cease immediately and an archaeologist would be contacted in order to make an assessment. Works will only re-commence with once clearance is received from the archaeologist.	Contractor	Construction
Visual impact of construction work sites	The construction work sites, including construction areas and ancillary facilities (such as storage compounds and offices) will be managed to minimise visual impacts. This will include appropriate storage of equipment, parking, stockpile screening and arrangements for the storage and removal of rubbish and waste materials.	Contractor	Construction
Views	Double row tree configurations (plantings) will need to be spaced in a perpendicular arrangement (between tree pairs) to achieve limited views of Newcastle Harbour for ground and first floor occupants.	Design and contractor	HCCDC and Construction
Socio-economic	A Communication Plan will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction. The CP will include (as a minimum):	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
	• Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions • Contact name and number for complaints.		
Interruptions to utility services	The construction contractor will inform residents before any interruptions to utility services that may be experienced during utility adjustments in accordance with the Community Plan.	Construction contractor	Construction
Air quality	An Air Quality Management Plan will be prepared and implemented as part of the CEMP. The measures will include, but not be limited to: • Potential sources of air pollution • Air quality management objectives consistent with any relevant published EPA and/or OEH guidelines • Mitigation and suppression measures to be implemented • Methods to manage work during strong winds or other adverse weather conditions.	Contractor	Pre-construction
Waste	A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to: • Measures to avoid and minimise waste associated with the project • Classification of wastes and management options (re-use, recycle, stockpile, disposal) • Statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions • Procedures for storage, transport and disposal • Procedures to avoid waste entering Cottage Creek and Newcastle Harbour (in accordance with the *Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Marine Life* (DoEE, 2018)) • Monitoring, record keeping and reporting.	Contractor	Pre-construction
Hazards and risk management	A Hazard and Risk Management Plan (HRMP) will be prepared and implemented as part of the CEMP. The	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
	HRMP will include, but not be limited to: • Details of hazards and risks associated with the activity • Measures to be implemented during construction to minimise these risks • Record keeping arrangements, including information on the materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials • A monitoring program to assess performance in managing the identified risks • Contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations. The HRMP will be prepared in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and EPA or OEH publications.		

7.3 Licensing and approvals

Licences and approvals required for the proposal are listed in **Table 7-2**.

Table 7-2 Summary of licensing and approvals required

Instrument	Requirement	Timing
National Parks and Wildlife Act 1974 (s90)	An Aboriginal heritage impact permit (AHIP) must be obtained for work within the identified Cottage Creek North curtilage of the proposal area.	Prior to start of the activity.
Coal Mine Subsidence Compensation Act 2017	Section 22 approval to alter or erect improvements within a mine subsidence district from the Subsidence Advisory NSW.	Prior to start of the activity.
Roads Act 1993	Should works on public roads be required a Road Occupancy Licence will need to be obtained.	
Water Management Act 2000	Consult with WaterNSW to confirm the need for a Section 91 aquifer interference approval.	Prior to start of the activity.

8 Conclusion

This chapter provides the justification for the proposal taking into account its biophysical, social and economic impacts, the suitability of the site and whether or not the proposal is in the public interest. The proposal is also considered in the context of the objectives of the EP&A Act, including the principles of ecologically sustainable development as defined in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

8.1 Justification

HCCDC is working towards the release of land at the western end of the Honeysuckle Precinct. The proposal would complement the development of adjacent land through connection with the existing waterfront promenade to the west and east of the proposal. The proposal would establish a high quality public domain promenade that provides foreshore access between the existing promenades to the east and west and new access ways along Cottage Creek.

The proposal area is identified as part of an urban renewal corridor in the *Hunter Regional Plan 2036* (DPE 2016). A key action identified for urban renewal corridors by this plan is to "Concentrate growth in strategic centres, local centres and urban renewal corridors to support economic and population growth and a mix of uses". As the proposal would complement the development of adjacent within the urban renewal corridor by the private sector it is considered to be aligned with the *Hunter Regional Plan 2036* (DPE, 2016).

While there would be some environmental impacts as a consequence of the proposal such as amenity impacts, noise and vibration, they have been avoided or minimised wherever possible through design and site-specific safeguards. The beneficial effects of the proposal in providing the missing Newcastle harbour foreshore link and complementing the development of adjacent land is considered to outweigh the mostly temporary adverse construction impacts and risks associated with the proposal.

8.1.1 Social factors

As documented in **Section 6.9**, the proposal would have some minor short-term negative social impacts as a result of the disturbance and change that would occur during construction. The combined effect of construction noise and general disturbance caused by construction activity, construction traffic and machinery movements would result in a general loss of amenity for residents, road users, workers and others who live near the proposal and those who visit the proposal area on a regular basis.

However, the long-term effect would be an overall social benefit, by providing the missing link for the harbourfront connection to the west and east of the proposal and complementing the development of adjacent land.

8.1.2 Biophysical factors

The proposal has limited potential to impact ecology due to the lack of habitat or terrestrial species using the area. The construction of the proposal would require clearing of up to four trees. Habitat that would be impacted by the removal of this vegetation is limited due to its disturbed nature. However, as discussed in **Section 6.4**, the overall area of vegetation clearing and therefore impacts to biodiversity would be relatively minor.

The proposal could potentially provide a net benefit for local biodiversity through revegetation of some parts of the proposal area

8.1.3 Economic factors

HCCDC is working towards the release of land at the western end of the Honeysuckle Precinct. The proposal would connect with the existing waterfront promenade to the west and east of the proposal and complement the development of adjacent land. Development of this adjacent land would provide a positive economic benefit for the Honeysuckle Precinct and broader Newcastle region.

The proposal would potentially deliver long-term economic benefits through facilitating private developer investment in the precinct.

8.1.4 Public interest

The public interest is best served through the equitable distribution of resources, and investment in public infrastructure that fulfils the needs of the majority. The proposal represents a cost-efficient investment in public infrastructure that would maximise the long-term social and economic benefits, while minimising the long-term negative impacts on communities and the environment. By providing the missing Newcastle harbour foreshore link, the proposal would better enable the movement of people through the Honeysuckle precinct.

Although the proposal, would result in some short-term inconvenience and impacts on amenity these would be outweighed by the long-term benefits once the proposal is operational.

As a result, the proposal is considered to be in the public interest.

8.2 Objects of the EP&A Act

The objects of the EP&A Act, and how these are addressed in the proposal, are presented in **Table 8-1**.

Table 8-1 Consideration of Objects of the EP&A Act

Object	Comment
1.3 (a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	The proposal would provide the missing Newcastle harbour foreshore link for pedestrians and cyclists, and compliment the disposal and development of adjacent land. The proposal landscape design, impacts, safeguards and management measures detailed in this REF allow for the proper management, development and conservation of natural and other resources. The proposal is considered to have long term positive social and economic benefits with limited environmental impacts during construction.
1.3 (b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.	Ecologically sustainable development is considered in **Sections 8.2.1** to **8.2.4**. In summary the proposal: • Would benefit future generations by providing the missing Newcastle harbour foreshore link and complementing the adjacent development and naturalisation of Cottage Creek south • Has considered environmental and social issues in the option process and incorporated the value upon environmental resources (improved valuation, pricing and incentive mechanisms).
1.3 (c) To promote the orderly and economic use and development of land.	A key object of HCCDC and the proposal is to facilitate the orderly and economic use and development of land. The proposal adds the missing Newcastle harbour foreshore link to complement future development of the precinct and may assist in facilitating private developer investment in the precinct. The proposal area is also currently under utilised due to its current state. The proposal would assist in improving the proposal areas use by providing a suitable public recreation area that is in keeping with the Newcastle foreshore amenity.
1.3 (d) To promote the delivery and maintenance of affordable housing.	Not relevant to the proposal.

Object	Comment
1.3 (e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	Impacts to native animals and plants, including threatened species, populations and ecological communities and their habitats were considered in **Section 6.4**. All natural aquatic habitat and riparian features of Cottage Creek have been historically removed and replaced by a concrete channel. There are no aquatic plant species occurring in the channel and no mangrove trees remain. There are no naturally occurring terrestrial plant community types in the proposal area. The proposal would impact about four mature trees. The proposal would be unlikely to have a significant impact to any threatened species, population or ecological community.
1.3 (f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	The proposal would not directly impact on any listed non-Aboriginal or Aboriginal heritage items. An AHIP will be obtained for the potential Aboriginal archaeology within the Cottage Creek north portion of the proposal. The presence of relics is likely as detailed in Sections 6.6 and 6.7.
1.3 (g) To promote good design and amenity of the built environment.	Not relevant to the proposal.
1.3 (h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	Not relevant to the proposal.
1.3 (i) To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State.	Not relevant to the proposal.
1.3 (j) To provide increased opportunity for community participation in environmental planning and assessment.	The proposal development process has involved consultation with relevant stakeholders. Consultation carried out and proposed is outlined in **Chapter 5**.

8.2.1 The precautionary principle

This principle states: “if there are threats of serious or irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation”.

The proposal has sought to take a precautionary approach to minimising environmental impact. This has been applied through the development of a range of environmental safeguards to address the impacts identified in **Chapter 7**. These safeguards would be implemented during construction of the proposal.

No safeguards have been postponed as a result of lack of scientific certainty. The selected construction contractor would be required to prepare environmental management documentation before commencing construction. No mitigation measures or management mechanisms would be postponed as a result of a lack of information.

8.2.2 Intergenerational equity

The principle states: “the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations”.

The proposal would benefit future generations by providing the missing Newcastle Harbour link and complimenting the disposal and development of land next to the proposal and Hunter Water’s naturalisation of Cottage Creek south. Implementation of the safeguards contained in this REF would ensure that the health, diversity and productivity of the environment is maintained for the benefit of future generations.

It is acknowledged that the proposal may have some adverse impact on the current generation, generally through temporary construction impacts. However, these are not considered to be of a nature or extent that would disadvantage future generations.

8.2.3 Conservation of biological diversity and ecological integrity

This principle states: “the diversity of genes, species, populations and communities, as well as the ecosystems and habitats to which they belong, must be maintained and improved to ensure their survival”.

An assessment of the existing local environment has been carried out to identify and manage any potential impact of the proposal on local biodiversity. The proposal is located in an area that has previously been modified as a result of urban development. The potential impact of the proposal on biodiversity would be limited to the loss of about four trees and clearing of grassed areas within the proposal area.

The proposal would not significantly fragment or isolate any existing large patches of vegetation and would not compromise biological diversity or ecological integrity. No significant impact to flora and fauna species has been identified.

8.2.4 Improved valuation, pricing and incentive mechanisms

This principle is defined as:

Improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Environmental and social issues were considered in the strategic planning and establishment of the need for the proposal, and in consideration of various proposal options. The value placed on environmental resources is evident in the extent of the planning and environmental investigations, and in the design of the proposed mitigation measures and safeguards.

Implementation of these mitigation measures and safeguards would result in an economic cost to HCCDC, which would be included in both the capital and maintenance cost of the proposal.

8.3 Conclusion

The proposal is subject to assessment under Division 5.1 of the EP&A Act. The REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

This has included consideration (where relevant) of conservation agreements and plans of management under the NPW Act, joint management and biobanking agreements under the BC Act, wilderness areas, critical habitat, impacts on threatened species, populations and ecological

communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the Federal EPBC Act.

The proposal as described in the REF best meets the project objectives but would still result in some impacts on biodiversity, traffic, noise and amenity. Safeguards and management measures as detailed in this REF would ameliorate or minimise these expected impacts. The proposal would also improve the pedestrian and cyclist connectivity, the visual amenity and entrance to the Honeysuckle Precinct and compliments the development of land next to the proposal. On balance the proposal is considered justified and the following conclusions are made.

Significance of impact under NSW legislation

The proposal would be unlikely to cause a significant impact on the environment. Therefore, it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. A Species Impact Statement is not required. The proposal is subject to assessment under Division 5.1 of the EP&A Act. Consent from council is not required.

Significance of impact under Australian legislation

The proposal is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999*. A referral to the Australian Department of the Environment is not required.

9 References

AMAC 2019. *Aboriginal Cultural Heritage Report: Research design and testing methodology*, Archaeological Management & Consulting Group and Streat Archaeological Services, March 2019.

AMAC 2019a. AMAC 2019, *Baseline Archaeological Assessment – Honeysuckle Foreshore, Newcastle*, Archaeological Management & Consulting Group, 2019.

BMT 2018. *Honeysuckle Redevelopment Area Flood Study*, BMT WBM Pty Ltd, September 2018.

BMT 2019. *Honeysuckle Drive Road Realignment REF Flood Assessment*, BMT Eastern Australia, July 2019.

DECCW 2010. *Aboriginal cultural heritage consultation requirements for proponents 2010*, Department of Climate Change and Water, April 2010

DoEE 2018, *Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Marine Life,* Department of the Environment and Energy

DPE 2018. *Greater Newcastle Metropolitan Plan 2036, NSW Department of Planning, 2018*

DPE 2016. *Hunter Regional Plan 2036,* Department of Planning and Environment, 2016 (*https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/Hunter/Hunter-regional-plan*).

GHD 2018, HDC Honeysuckle Dr Realignment design Report, GHD, June 2018.

HDC 2017, *Thorsby Basin Waterway and Foreshore Management works*, Hunter Development Corporation September 2017

HCCDC 2018, *Honeysuckle Foreshore Public Domain Plan, Hunter and Central Coast Development Corporation, January 2019* (*https://www.hccdc.nsw.gov.au/plan-new-honeysuckle-public-domain*)

HCCDC 2019, *Honeysuckle Drive Road Realignment Review of Environmental Factors*, Hunter and Central Coast Development Corporation, September 2019

Jacobs 2019. *Honeysuckle West Planning Project – Biodiversity Assessment* Jacobs April 2019.

Jahan S and Strezov V (2017) Water quality assessment of Australian ports using water quality evaluation indices. PLoS One 12(12): e0189284. Accessed July 2017 at . https://doi.org/10.1371/journal.pone.0189284

JBS&G 2018. *Remedial Action Plan, Cottage Creek Public Domain Corridors Newcastle NSW ,* JBS&G Australia Pty Ltd, September 2018.

JBS&G 2019. *Remediation Action Plan, Fig Tree Park (Stage 2), Newcastle NSW ,* JBS&G Australia Pty Ltd, January 2019.

LD 2018. *Cottage Creek Road Bridge – Honeysuckle Drove Pre- Feasibility Engineering Report*, Lindsay Dynan Consulting Engineers Pty Limited, 2018

Newcastle City Council 2004. *Stormwater Management Plan*. Accessed July 2019 at *https://www.newcastle.nsw.gov.au/getmedia/a80e8204-ffa5-4184-a64e-c98244223e67/stormwater_management_plan.aspx*.

Ramboll 2018. *Site Audit Report Public Domain Corridor, Cottage Creek Precinct*, Ramboll Australia Pty Ltd, December 2018.

Ramboll 2018a. *Site Audit Report Realignment of Honeysuckle Drive*, Ramboll Australia Pty Ltd, December 2018.

Newcastle City Council 2004. Newcastle Stormwater Management Plan 2004, Newcastle City Council, June 2005

Umwelt 2019. *Aboriginal Cultural Heritage Assessment Report*, Honeysuckle Drive Realignment, Newcastle, Umwelt August 2019

Umwelt 2019a. *A Historical Archaeological Assessment Report*, Honeysuckle Drive Realignment Umwelt , August 2019

Umwelt 2020. *Aboriginal Cultural Heritage Assessment, Cottage Creek Naturalisation*.
Umwelt 2020a. *Historical Archaeological Assessment Report Waterfront Promenade and Cottage Creek North, November 2020*

Umwelt 2020b *Aboriginal Archaeological Due Diligence Assessment – Waterfront Promenade*, 23rd November 2020.

Urbis 2018, Technical Manual: Honeysuckle Public Domain, Urbis

Terms and acronyms used in this REF

Term / Acronym	Description
AHIP	Aboriginal Heritage Impact Permit
AS	Australian Standard
CBD	Central Business District
CEMP	Construction environmental management plan
DPI - Water	The former NSW Office of Water (now part of the Department of Planning, Industry and Environment
DPIE	NSW Department of Planning, Industry and Environment
DoEE	Australian Government Department of the Environment and Energy
EIA	Environmental impact assessment
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW). Provides the legislative framework for land use planning and development assessment in NSW.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
ESD	Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
FM Act	*Fisheries Management Act 1994* (NSW)
HCCDC	Hunter & Central Coast Development Corporation
Heritage Act	*Heritage Act 1977* (NSW)
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
km/h	Kilometres per hour
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act.
m	metres
NES	Matters of national environmental significance under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
OEH	The former NSW Office of Environment and Heritage (now part of DPIE)
%	Percentage

Term / Acronym	Description
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
WM Act	*Water Management Act 2000*

Appendix A

Landscape plan

sheet index

DRAWING NUMBER	SHEET NAME	REV. No.	REV. DATE
12629.5 CC L00	landscape cover Page	C	01/11/19
12629.5 CC L01	master plan: extent of works	C	01/11/19
12629.5 CC L02	Stage 2 layout: part 1	C	01/11/19
12629.5 CC L03	Stage 2 layout: part 2	C	01/11/19
12629.5 CC L04	Stage 2 layout: part 3	C	01/11/19
12629.5 CC L05	Promenade - East of cottage creek	C	01/11/19
12629.5 CC L06	Promenade & Cottage creek north	C	01/11/19
12629.5 CC L07	Promenade- west of Cottage creek 1	C	01/11/19
12629.5 CC L08	Promenade- west of Cottage creek 2	C	01/11/19
12629.5 CC L09	Promenade- west of Cottage creek 3	C	01/11/19
12629.5 CC L10	Promenade section: east of cottage creek	C	01/11/19
12629.5 CC L11	Promenade section: west of cottage creek	C	01/11/19
12629.5 CC L12	Planting palette	C	01/11/19
12629.5 CC L13	Material palette	C	01/11/19
12629.5 CC L14	Landscape street furnitures	C	01/11/19

landscape document

Hunter & Central Coast Development Corporation

Honeysuckle West Public Domain Stage 2

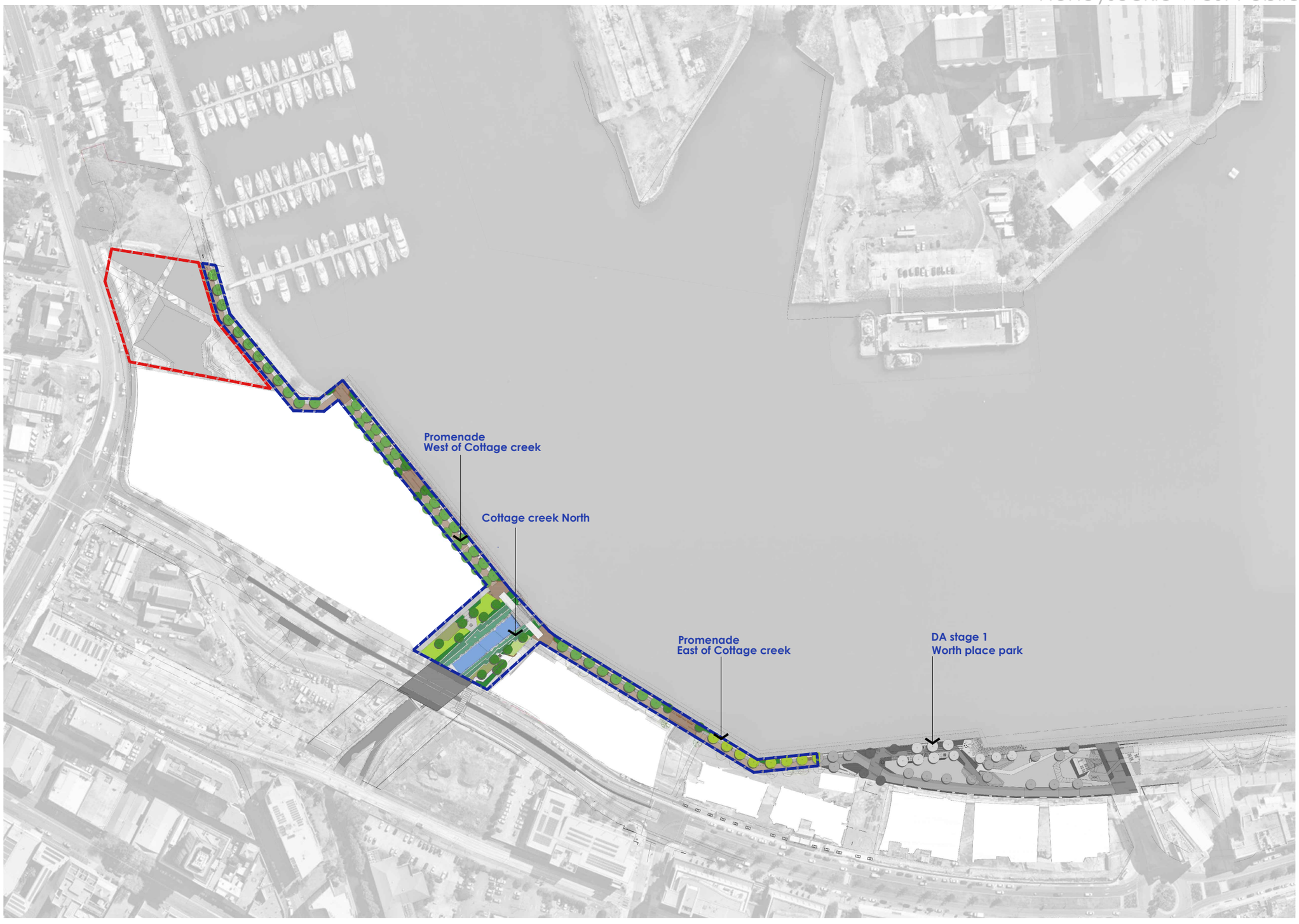
Honeysuckle Drive, Newcastle

terras landscape architects

landscape document stage 2

Honeysuckle West Public Domain

L01



LEGEND

Site extent promenade & Cottage creek north

Future public domain

C 01/11/19 revisions

REV DATE COMMENTS

PROJECT:

Honeysuckle West Public Domain
Site extent: Stage 2

SITE:

Honeysuckle Drive
Newcastle West

CLIENT:

Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:2500

JOB NUMBER: 12629.5
PHASE: DA
DWG No: L01
REV: C

01 MASTER PLAN
extent of works

north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L02

LEGEND

- PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- PAVEMENT TYPE 3 NODE PAVING
- PAVEMENT TYPE 4: PERMEABLE PAVING: TREE AND FURNITURE AREA
- PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- NEW TURF
- MASS PLANTING
- NATIVE GRASS
- SALT MARSH PLANTING
- WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

02 STAGE 2 LAYOUT: Part 1
east of cottage creek & cottage creek north

north

C 01/11/19 revisions
REV DATE COMMENTS

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:800

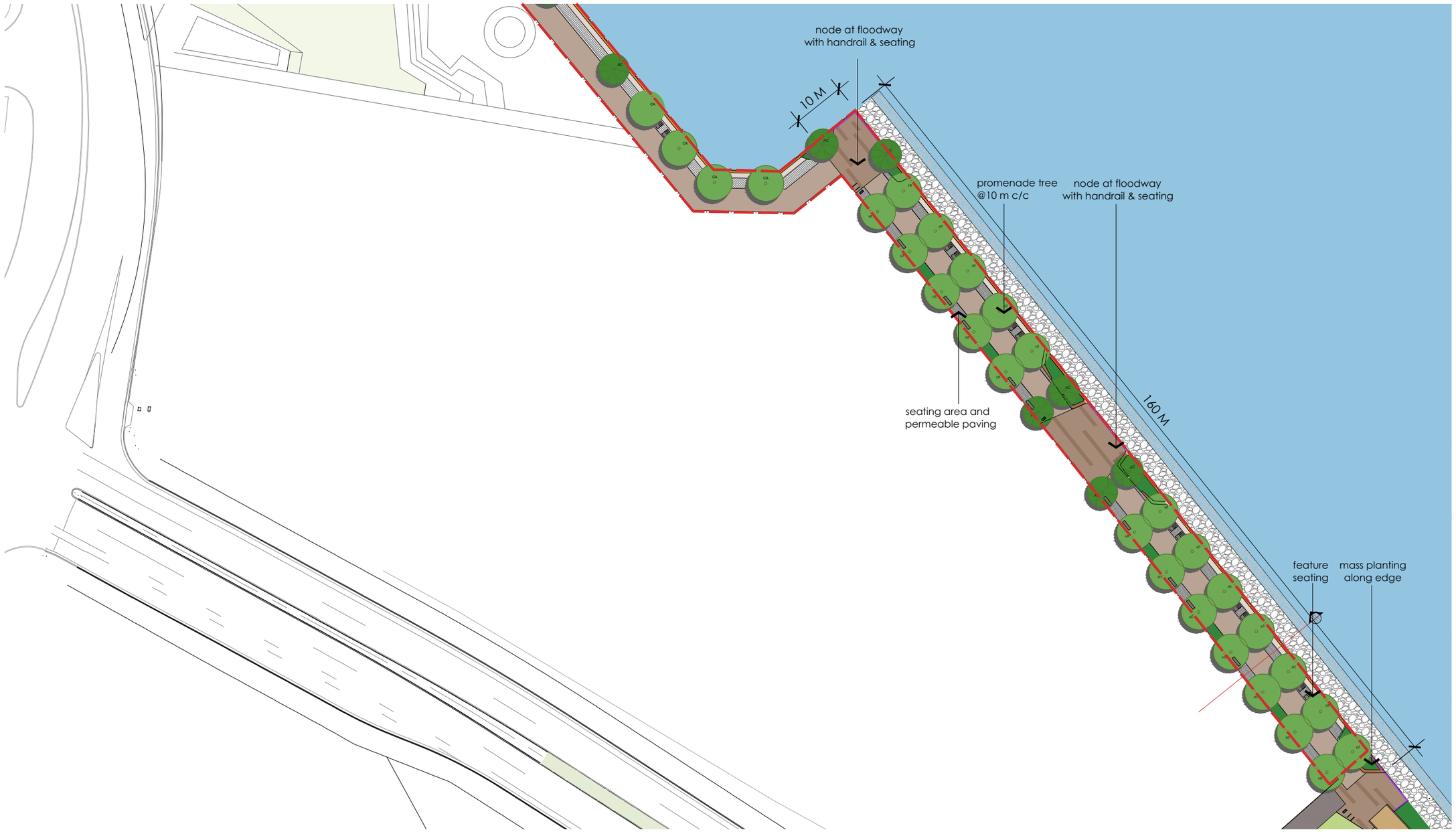
JOB NUMBER: **12629.5**
PHASE: **DA**
DWG No: **L02**
REV: **C**

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L03



LEGEND

- PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- PAVEMENT TYPE 3 NODE PAVING
- PAVEMENT TYPE 4: PERMEABLE PAVING; TREE AND FURNITURE AREA
- PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- NEW TURF
- MASS PLANTING
- NATIVE GRASS
- SALT MARSH PLANTING
- WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

03 STAGE 2 LAYOUT: Part 2
west of cottage creek

north

REV	DATE	COMMENTS
C	01/11/19	revisions

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:800

JOB NUMBER: **12629.5**
PHASE: **DA**
DWG No: **L03**
REV: **C**

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L04

04 STAGE 2 LAYOUT: Part 3
west of cottage creek

LEGEND

- PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- PAVEMENT TYPE 3 NODE PAVING
- PAVEMENT TYPE 4: PERMEABLE PAVING: TREE AND FURNITURE AREA
- PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- NEW TURF
- MASS PLANTING
- NATIVE GRASS
- SALT MARSH PLANTING
- WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

REV	DATE	COMMENTS
C	01/11/19	revisions

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:800

JOB NUMBER: 12629.5
PHASE: DA
DWG No: L04
REV: C

north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L05

LEGEND

- P1 PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- P2 PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- P3 PAVEMENT TYPE 3 NODE PAVING
- P4 PAVEMENT TYPE 4: PERMEABLE PAVING: TREE AND FURNITURE AREA
- P5 PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- T1 NEW TURF
- MP MASS PLANTING
- NG NATIVE GRASS
- SM SALT MARSH PLANTING
- WG WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

REV	DATE	COMMENTS
C	01/11/19	revisions

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:400

JOB NUMBER: **12629.5**
PHASE: **DA**
DWG No: **L05**
REV: **C**

05 Promenade- East of Cottage creek
concept layout

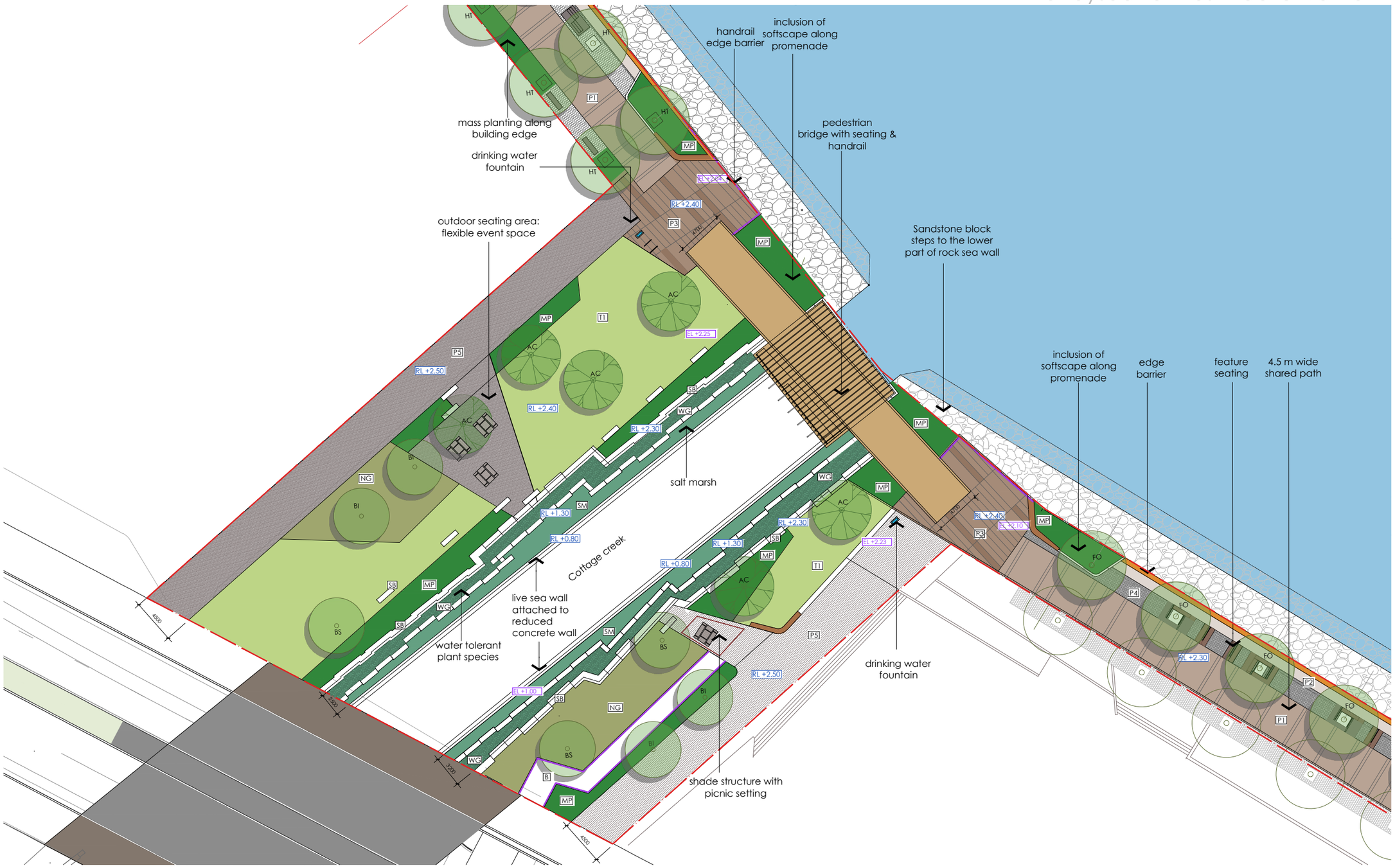
north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L06



LEGEND

- P1 PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- P2 PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- P3 PAVEMENT TYPE 3 NODE PAVING
- P4 PAVEMENT TYPE 4: PERMEABLE PAVING: TREE AND FURNITURE AREA
- P5 PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- T1 NEW TURF
- MP MASS PLANTING
- NG NATIVE GRASS
- SM SALT MARSH PLANTING
- WG WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT
- B FRP BOARDWALK

C 01/11/19 revisions

REV DATE COMMENTS

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:400

JOB NUMBER: 12629.5
PHASE: DA
DWG No: L06
REV: C

06 Promenade and Cottage creek north
concept layout

north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L07

LEGEND

- P1 PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- P2 PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- P3 PAVEMENT TYPE 3 NODE PAVING
- P4 PAVEMENT TYPE 4: PERMEABLE PAVING: TREE AND FURNITURE AREA
- PS PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- TT NEW TURF
- MP MASS PLANTING
- NG NATIVE GRASS
- SM SALT MARSH PLANTING
- WG WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

REV	DATE	COMMENTS
C	01/11/19	revisions

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN:	DATE:	SCALE:
MA/ SR	01/11/19	1:400

JOB NUMBER:	PHASE:	DWG No:	REV:
12629.5	DA	L07	C

07 Promenade- West of Cottage creek :1
concept layout

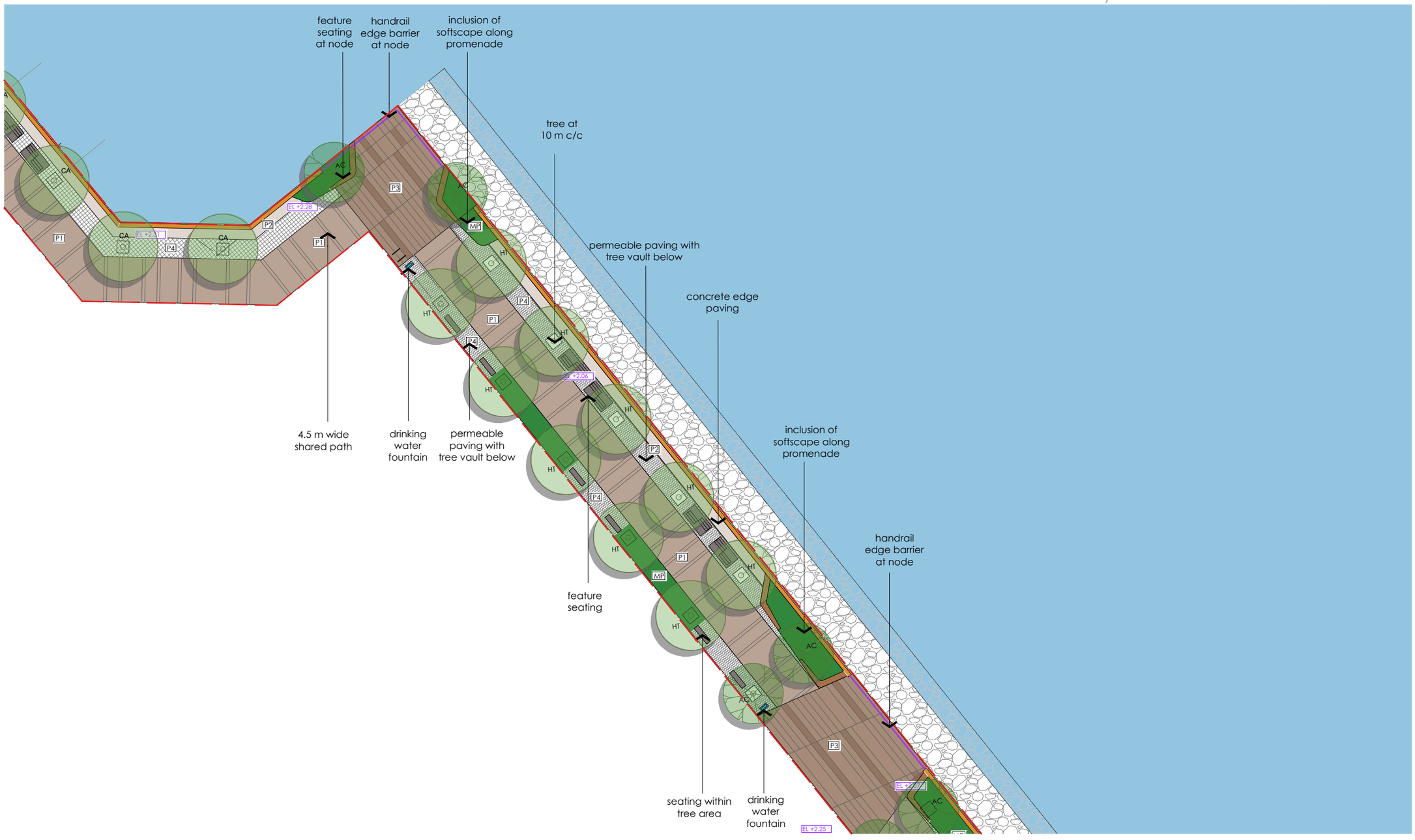
north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L08



LEGEND

- P1 PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- P2 PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- P3 PAVEMENT TYPE 3 NODE PAVING
- P4 PAVEMENT TYPE 4: PERMEABLE PAVING: TREE AND FURNITURE AREA
- P5 PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- TT NEW TURF
- MP MASS PLANTING
- NG NATIVE GRASS
- SM SALT MARSH PLANTING
- WG WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

REV	DATE	COMMENTS
C	01/11/19	revisions

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:400

JOB NUMBER: **12629.5**
PHASE: **DA**
DWG No: **L08**
REV: **C**

08 Promenade- West of Cottage creek : 2
concept layout

north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

landscape document stage 2

Honeysuckle West Public Domain

L09

09 Promenade- West of Cottage creek : 3
concept layout

LEGEND

- P1 PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- P2 PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- P3 PAVEMENT TYPE 3 NODE PAVING
- P4 PAVEMENT TYPE 4: PERMEABLE PAVING: TREE AND FURNITURE AREA
- P5 PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- TT NEW TURF
- MP MASS PLANTING
- NG NATIVE GRASS
- SM SALT MARSH PLANTING
- WG WATER TOLERANT NATIVE GRASS PLANTING
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

REV	DATE	COMMENTS
C	01/11/19	revisions

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

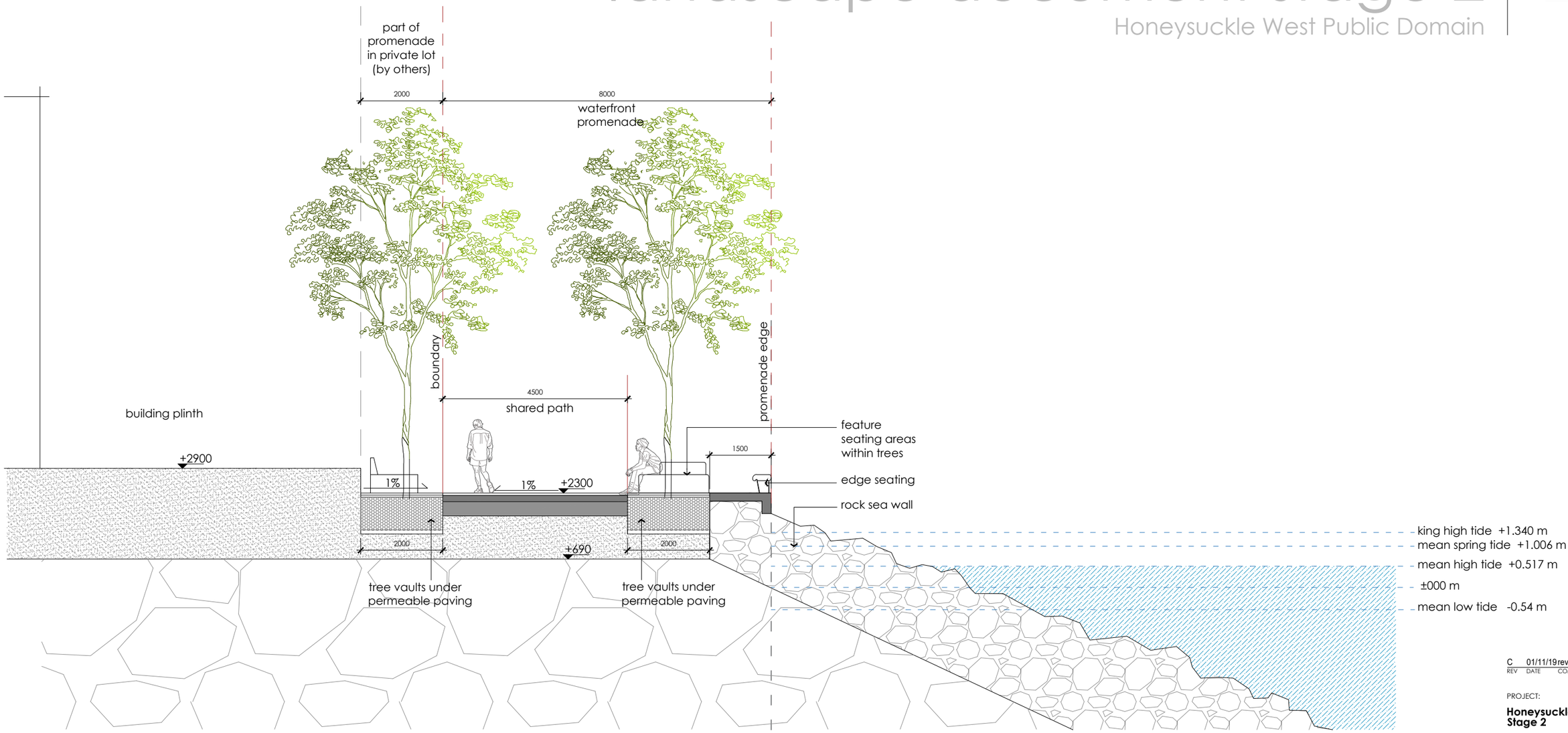
CLIENT:
Hunter & Central Coast Development Corporation

DRAWN:	DATE:	SCALE:
MA/ SR	01/11/19	1:400

JOB NUMBER:	PHASE:	DWG No:	REV:
12629.5	DA	L09	C

north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069



10
L10
PROMENADE AT EAST OF COTTAGE CREEK
SECTION

C 01/11/19 revisions
REV DATE COMMENTS

PROJECT:
Honeysuckle West Public Domain Stage 2

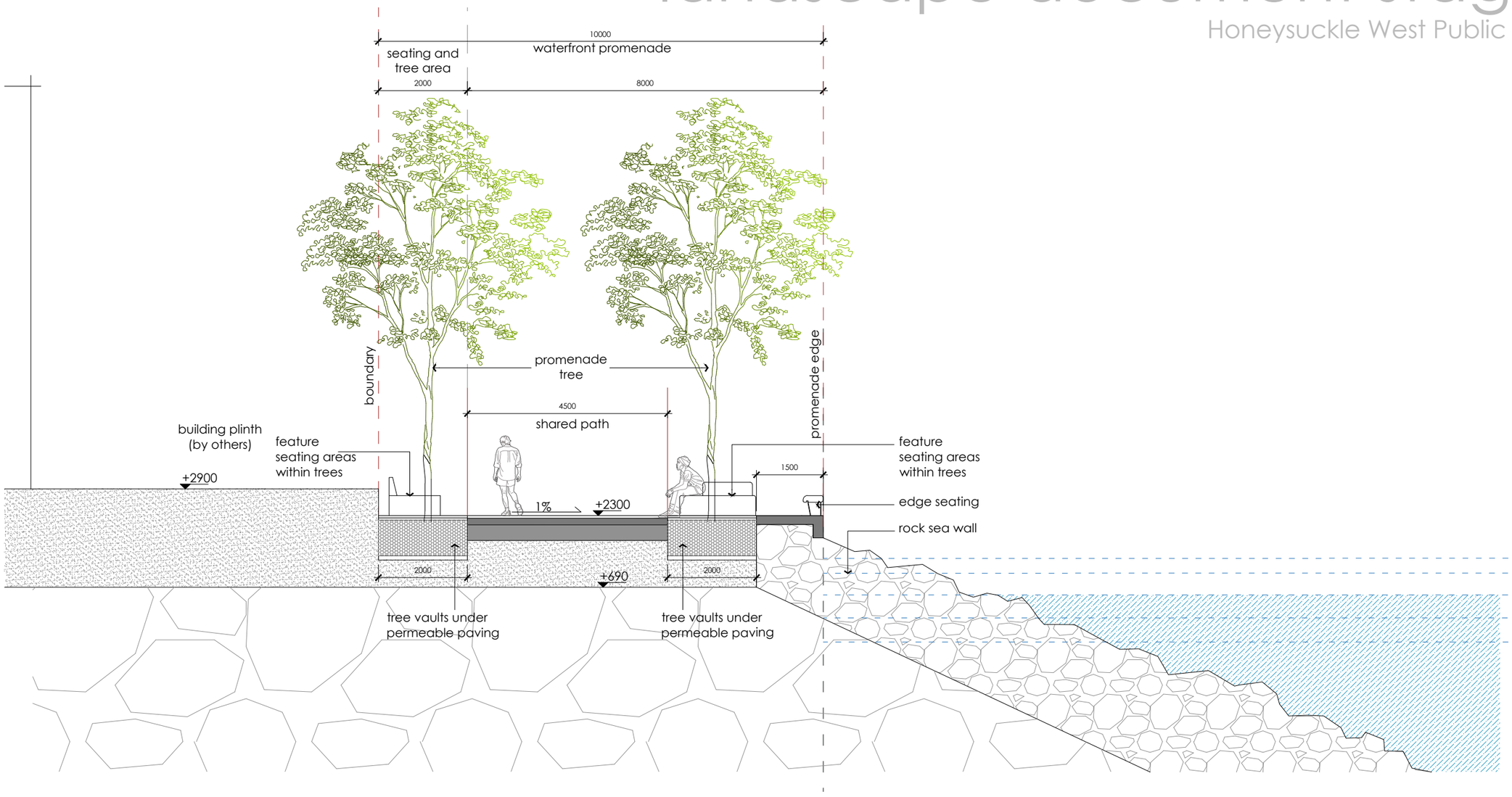
SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:100
JOB NUMBER: **12629.5**
PHASE: **DA**
DWG No: **L10**
REV: **C**

north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069



11 / L11 PROMENADE AT WORTH PLACE PARK WEST
SECTION

C 01/11/19 revisions
REV DATE COMMENTS

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

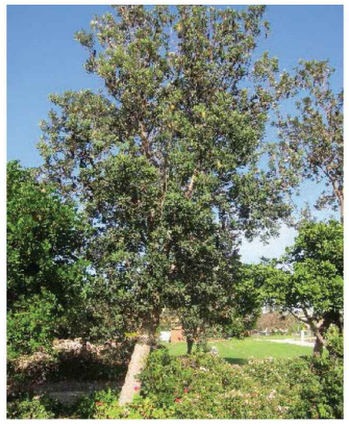
DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:100

JOB NUMBER: **12629.5**
PHASE: **DA**
DWG No: **L11**
REV: **C**

north

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

Araucaria columnaris



Banksia serrata

Hibiscus tiliaceus

Cupaniopsis anacardioides

Ficus obliqua

Banksia integrifolia

Lomandra longifolia

Myoporum parvifolium

Dietes iridioides

Plant schedule

Honeysuckle West Public Domain

Trees

No.	Botanical Name	Common Name	Height	Width
01	*Araucaria columnaris*	Cook Pines	30 m	07 m
02	*Cupaniopsis anacardioides*	Tuckeroo Tree	08 m	07 m
03	*Hibiscus tiliaceus*	Coast Cottonwood	08 m	04 m
04	*Ficus obliqua*	Small-leaved fig	10m	05 m
06	*Banksia serrata*	Old man Banksia	10 m	05 m
07	*Fraxinus pennsylvanica*	Red Ash	15 m	08 m

Shrub and groundcover

09	*Lomandra longifolia*	Mat rush	0.7 m
10	*Trachelospermum jasminoides*	Star jasmine	0.3 m
11	*Myoporum parvifolium*	Creeping boobialla	0.3 m
12	*Dietes iridioides*	Dietes	0.4 m

C 01/11/19 revisions
REV DATE COMMENTS

PROJECT:
Honeysuckle West Public Domain Stage 2

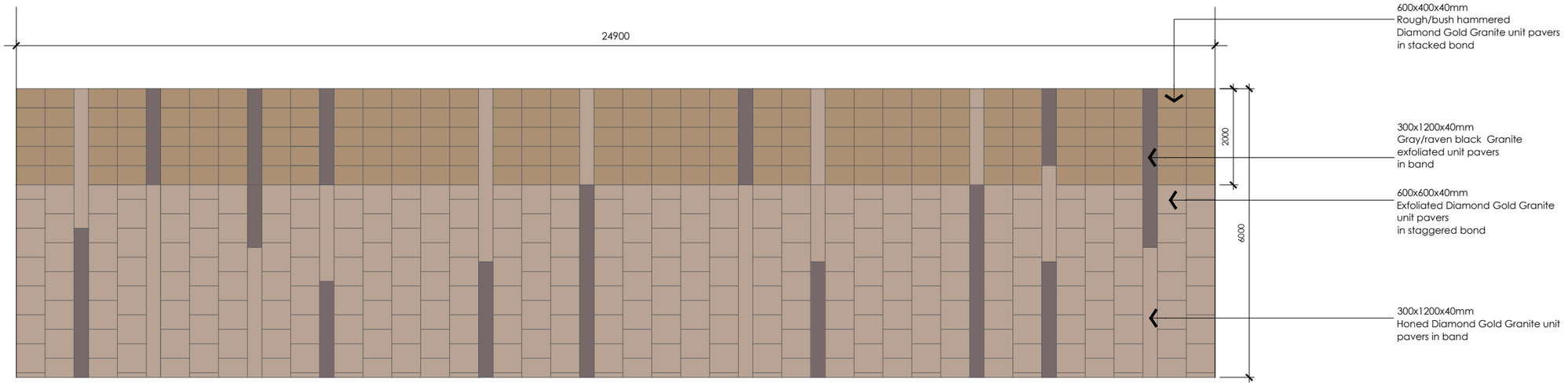
SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:100

JOB NUMBER: **12629.5**
PHASE: **DA**
DWG No: **L12**
REV: **C**

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069



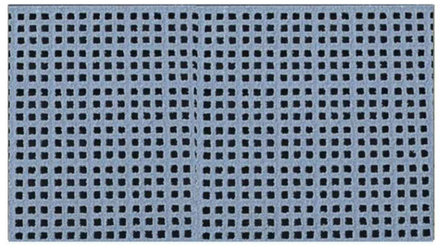
12 Paving pattern Tier 1: shared promenade

Unit

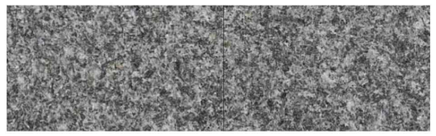
P1- in Tier 1 paving
Material: diamond gold granite unit paver
Size: 600x300x40, 600X600X40
400x300x40mm
Finish: exfoliated finish/
bush hammered finish
Pattern: staggered stretcher bond

P2
Waterfront edge: insitu concrete/ coloured concrete Solutions (CCS) :
Colour/Size: paperbark coloured full body oxide colour 20mm river gravel
Finish: honed

P3- in Tier 2 paving
Node base paving: insitu concrete/ coloured concrete solutions (CCS) :
Colour/Size: kalgoorlie full body oxide colour 20mm river gravel
Finish: honed



P4
Material: Enginnered FRP grating
Size: as area
Finish: anti slip surface
Location: over tree planting vaults



Long bands- in Tier 1 and 2
Material: raven black/ gray granite unit paver
Size: 600x300x40mm
Finish: exfoliated finish
Pattern: long band

C 01/11/19 revisions
REV DATE COMMENTS

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

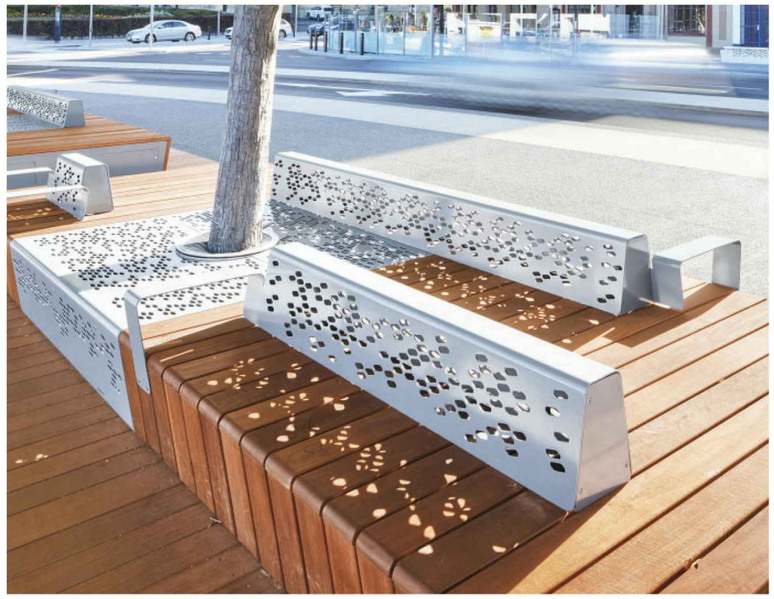
CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:100

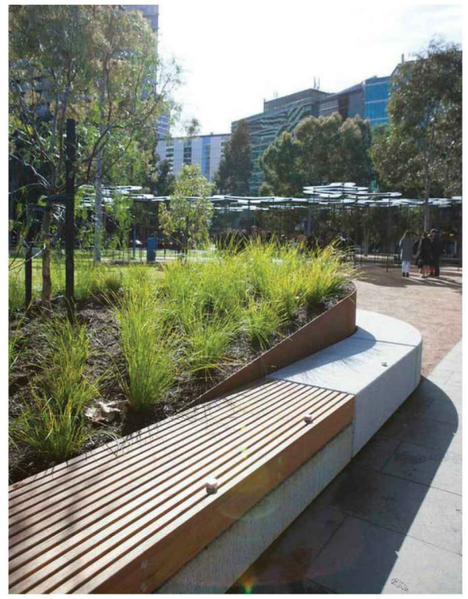
JOB NUMBER: 12629.5
PHASE: DA
DWG No: L13
REV: C

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

feature seating within promenade: seasoned hardwood timber and perforated metal: alignment will be adjusted as per actual location

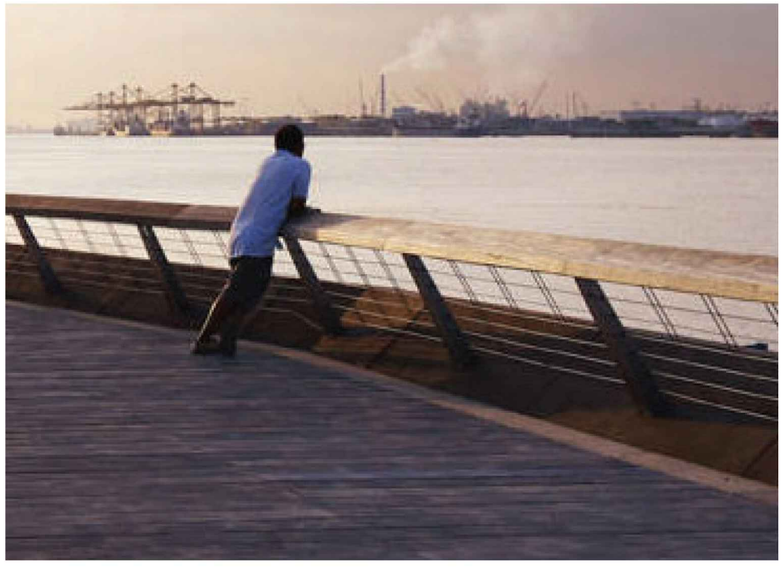


feature seating within promenade: seasoned hardwood timber and perforated metal: alignment will be adjusted as per actual location



concrete and timber seating edges

edge barrier: concrete and perforated metal



handrail and railing at node areas

C 01/11/19 revisions
REV DATE COMMENTS

PROJECT:
Honeysuckle West Public Domain Stage 2

SITE:
Honeysuckle Drive Newcastle West

CLIENT:
Hunter & Central Coast Development Corporation

DRAWN: MA/ SR
DATE: 01/11/19
SCALE: 1:100

JOB NUMBER: 12629.5
PHASE: DA
DWG No: L14
REV: C

terras landscape architects
412 KING STREET NEWCASTLE NSW AUSTRALIA 2300
TERRAS.COM.AU PH: 49 294 926 FAX: 49 263 069

Appendix B

Consideration of clause 228(2) factors and matters of national environmental significance

Clause 228(2) Checklist

In addition to the requirements of the *Is an EIS required?* guideline (DUAP 1995/1996) as detailed in the REF, the following factors, listed in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000*, have also been considered to assess the likely impacts of the proposal on the natural and built environment.

Factor	Impact
a. Any environmental impact on a community? Construction of the proposal would result in some short-term negative impacts such as visual amenity, traffic, noise and air emission impacts. These could impact negatively on the local community as described in this REF. Potential visual amenity impact during construction would include the placement and movement of construction vehicles and stockpile areas within the proposal area. Potential traffic impact during construction would include an increase in the volume of heavy vehicles and pedestrian and cyclist detours. Construction noise would be generated from construction plant and vehicles. Air quality impacts would result from dust and vehicle emissions. These impacts would likely occur for the duration of each stage of construction. No road closures or detours would be required for these construction works, although the timeframe for these works may coincide with other developments in the area as described in **Section 6.11.4**. The impacts of these proposed works have been assessed separately and have considered the construction traffic associated with the various construction projects within Honeysuckle. The primary long-term positive impact of the proposal would be the extension of the pedestrian promenade along Newcastle Foreshore providing improved continuity for pedestrians and cyclists, whilst also linking with proposed pedestrian links through the future land release areas to provide enhanced connectivity. As such, the proposed works would have a positive impact upon pedestrian and cyclist access.	Short-term, negative Short-term, negative Long-term, positive
b. Any transformation of a locality? Construction of the proposal would temporarily impact the existing locality, predominantly through a negative visual impact, associated with the placement and movement of construction plant and equipment and stockpile areas. In the longer term, the proposal would positively impact the transformation of the locality as the proposal would provide the missing Newcastle harbourfront link and complementing with adjacent development.	Short term, negative Long term, positive
c. Any environmental impact on the ecosystems of the locality? About four mature planted street trees would be removed as part of the proposal (refer to **Section 6.4**). The proposal would be unlikely to have a significant impact on terrestrial biodiversity due to the lack of habitat and absence of native species, other than common birds that are readily able to relocate. The concrete drainage line of Cottage Creek could provide small, low quality area of potential foraging habitat. An assessment of significance for migratory shorebirds found that the proposal would not have a significant impact to migratory shorebirds. Mitigation measures to manage impacts to these species are summarised in **Section 6.4.4**.	Long-term, negative

Factor	Impact
The proposal would be unlikely to have a significant impact on any threatened species, populations, ecological communities or migratory species (**Section 6.4**). The proposal would be unlikely to have any long term impacts on any aquatic ecosystems, habitats or species provided the mitigation measures in this REF are implemented. The landscape plan for the proposal would involve planting trees alongside the shared path and mass plantings near Cottage Creek north. The proposal could potentially provide a net benefit for local biodiversity through revegetation of some parts of the proposal area.	Long-term, positive
d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? During construction, the proposal would have the potential to create a reduction in the overall aesthetic quality of the proposal area due to equipment associated with the construction worksite, dust and noise generation as well as traffic and access disruption. However, impacts would be minimised as far as practicable through the implementation of safeguards outlined in **Section 6.8.4**. No recreational or scientific qualities of the proposal area are anticipated to be impacted during the construction or operation of the proposal.	Short-term, negative
e. Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? The proposal would not directly impact on any listed non-Aboriginal and Aboriginal heritage items. An AHIP will be obtained for the potential Aboriginal archaeology within the Cottage Creek north portion of the proposal. The presence of relics on the site is likely as detailed in **Sections 6.6 and 6.7.**	Long-term, negative
f. Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act* 1974)? The removal of the four existing mature street trees within the proposal area may reduce a portion of low-quality habitat for some common, wide-ranging and urban tolerant bird species. However the proposal would be unlikely to have a significant impact on terrestrial biodiversity due to the lack of habitat and absence of native species, other than common birds that are readily able to relocate. The concrete drainage line of Cottage Creek could provide small, low quality area of potential foraging habitat. An assessment of significance for migratory shorebirds found that the proposal would not have a significant impact to migratory shorebirds. Mitigation measures to manage impacts to these species are summarised in **Section 6.4.4**. The proposal would have no long term impacts on any aquatic ecosystems, habitats or species.	Nil impact
g. Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The proposal is not anticipated to endanger any species of animal, plant or other form of life. Biodiversity impacts associated with the proposal would	Nil impact

Factor	Impact
be mitigated through the implementation of safeguards outlined in **Section 6.4.4**. There is potential for impacts to water quality with works proposed next to and within Cottage Creek north associated with the concrete channel cutting and adjacent landscaping, as outlined in **Section 6.3**. No discharges to Newcastle Harbour are anticipated as part of the proposal. The ancillary sites are located near Cottage Creek and Newcastle Harbour and therefore have the potential to impact water quality through the release of contaminants into. There would be minimal impact expected on groundwater quantity as no groundwater extraction would be required for construction of the proposal. Provided appropriate mitigation measures are implemented during construction no adverse impacts to the water quality within Cottage Creek, the adjacent marine environment and groundwater have been anticipated.	Short-term, negative
h. Any long-term effects on the environment? The proposal would have an overall minor negative long term impact on the existing environment through permanent clearance of about four trees.	Short-term, negative
i. Any degradation of the quality of the environment? The proposal has the potential to degrade the quality of the environment through accidental spills and erosion and sediment during construction. An Erosion and Sediment Control Plan and spill prevention and response procedures would be implemented to mitigate the impact.	Short-term, negative
j. Any risk to the safety of the environment? The construction phase has the potential to temporarily decrease safety due to construction work and the movement of construction plant.	Short-term, negative
k. Any reduction in the range of beneficial uses of the environment? In the long-term, the proposal would be consistent with future uses and there would be no reduction in the range of beneficial uses of the environment that do not exist.	Nil
l. Any pollution of the environment? The proposal would have the potential to result in some minor negative short-term water pollution risks including from sediments, soil nutrients, waste, and spillage of fuels and chemicals. Management of water quality impacts would be carried out in accordance with the safeguards and management measures outlined in **Chapter 7**. Short-term noise and air quality impacts (dust and exhaust emissions) would be expected during the construction of the proposal. Management of noise and air quality impacts would be carried out in accordance with the safeguards and management measures summarised in **Chapter 7**. The operation of the proposal would be unlikely to alter the air quality, water quality and noise emissions from the existing conditions.	Short-term, negative
m. Any environmental problems associated with the disposal of waste? Contaminated waste may occur as a result of the proposal. Contamination would be managed via the CEMP and RAP requirements. Ancillary sites would be managed in a way that minimise waste on site and manage excess materials.	Short-term, negative

Factor	Impact
Waste associated with the proposal would be managed in accordance with the *Waste Avoidance and Resource Recovery Act 2001* and recycled where possible. Issues associated with the disposal of waste are not expected.	
n. Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The proposal would require a number of resources as described in **Chapter 3**. None of these resources are or are likely to become in short supply as a result of the proposal. Resource use management measures are provided which would include reuse and recycling when feasible (refer to **Section 6.10**).	Nil impact
o. Any cumulative environmental effect with other existing or likely future activities? Construction of the proposal may overlap with other local development within the Newcastle local government area. There would be potential for short-term cumulative impacts when construction occurs simultaneously. Cumulative impact as a result of concurrent development would be managed according to safeguards outlined in the REF. Cumulative effects from construction activities would include noise, traffic and access, visual amenity and air quality impacts. Based on the findings of the specialist studies summarised in the preceding sections, cumulative construction impacts may include contributions to: • Increases in construction vehicle traffic on local roads causing noise/vibration and air quality impacts on sensitive receivers • Noise impacts associated with multiple construction works • Loss of mature trees, including impacts to about four mature trees • Changes to visual amenity of the area • Extended periods of disruptions related to construction, which would be magnified by other developments associated with the other urban renewal projects within the Honeysuckle West precinct. There are a number of projects that would overlap in terms of construction timing and would have cumulative impacts on road users, pedestrians, cyclists and residents (refer to **Section 6.11**). There is potential for construction fatigue due to the length of the construction program and the concentration of a number of other development projects in close proximity, particularly those already or planned to occur within the Honeysuckle West precinct.	Short-term, negative
p. Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposal is located in the coastal zone but would not result in any impact on coastal processes and coastal hazards.	Nil impact

Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of the Environment.

A referral is not required for proposed actions that may affect nationally listed threatened species, populations, endangered ecological communities and migratory species. Impacts on these matters are still assessed as part of the REF in accordance with Australian Government significant impact criteria and taking into account relevant guidelines and policies.

Factor	Impact
a. Any impact on a World Heritage property? There would be no impact to World Heritage properties by the proposal.	Nil
b. Any impact on a National Heritage place? There would be no impact to National Heritage places by the proposal.	Nil
c. Any impact on a wetland of international importance? Hunter Estuary Wetlands is of international importance and is located within 10 kilometres of the proposal but is upstream and outside of the possible range of influence of the proposal. The proposal would not have any impact on a wetland of international importance.	Nil
d. Any impact on a listed threatened species or communities? There would be no impact to Commonwealth listed threatened species or communities.	Nil
e. Any impacts on listed migratory species? The proposal would not significantly impact any listed migratory species.	Nil
f. Any impact on a Commonwealth marine area? There would be no impact to Commonwealth marine areas by the proposal.	Nil
g. Does the proposal involve a nuclear action (including uranium mining)? The proposal does not involve a nuclear action (including uranium mining).	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? The proposal does not involve any impact on Commonwealth land.	Nil

Appendix C

Biodiversity

710 Hunter Street
Newcastle West NSW 2302 Australia
PO Box 2147 Dangar NSW 2309
Australia
T +61 2 4979 2600
F +61 2 4979 2666
www.jacobs.com

April 11, 2019

Attention: Jacob Whiting

Subject: HCCDC, Honeysuckle West Planning Project - Biodiversity Assessment

Dear Jacob,

This memorandum presents the findings of a survey to record the flora and fauna present within the Honeysuckle West planning project study area in Newcastle West (refer to **Figure 1**). The study area included the Throsby development site to the north of Honeysuckle Drive, Wickham development site to the south of Honeysuckle Drive, Honeysuckle Drive realignment and proposed Public Domain locations along the Newcastle Harbour foreshore.

Proposal description

Hunter Central Coast Development Corporation (HCCDC) proposes to carry out the following works as part of the Honeysuckle West planning project (the proposal). The following provides a description of the components of the project.

- Honeysuckle Drive realignment between Hannell Street and Steel Street to improve flood conveyance
- Public Domain activities including landscaping works at:
  - Worth Place Park West (WPPW)
  - Cottage Creek north and south (excluding Hunter Water's naturalisation works)
  - Lee 4 & 5 promenades
  - Tree of Knowledge Park
- Subdivision of the Thorsby development site to the north of Honeysuckle Drive and Wickham development site to the south of Honeysuckle Drive and Public Domain lots.

The proposal is located in the Newcastle Local Government Area (LGA) and would support the release and development of adjacent land. The area surveyed for the proposal is shown in **Figure 1** and is noted as the study area.

Biodiversity study area
Tree
Tree - not impacted
No tree

1 *Lagunaria patersonia*
2 *Melaleuca quinquenervia*
3 *Melaleuca quinquenervia*
4 *Eucalyptus grandis*
5 *Casuarina glauca*
6 *Casuarina glauca*
7 *Casuarina glauca*
8 *Agonis flexuosa*
9 *Melaleuca quinquenervia*
10 *Melaleuca quinquenervia*
11 *Melaleuca quinquenervia*
12 *Eucalyptus botryoides*
13 *Casuarina glauca*
14 *Callistemon citrinus*
15 *Tristaniopsis laurina*
16 *Melaleuca quinquenervia*
17 *Eucalyptus robusta*
18 *Lagunaria patersonia*
19 *Vitex trifolia purpurea*
20 *Callistemon citrinus*
21 *Eucalyptus robusta*
22 *Casuarina glauca*
23 *Casuarina glauca*
24 *Eucalyptus grandis*
25 *Callistemon citrinus*
26 *Sannantha pluriflora*
27 *Callistemon citrinus*
28 *Flindersia australis*
29 *Flindersia australis*
30 *Flindersia australis*
31 *Flindersia australis*
32 *Flindersia australis*
33 *Flindersia australis*
34 *Flindersia australis*
35 *Casuarina glauca*
36 *Casuarina glauca*
37 *Casuarina glauca*
38 *Casuarina glauca*
39 *Cupaniopsis anacardioides*
40 *Araucaria heterophylla*
41 *Araucaria heterophylla*
42 *Araucaria heterophylla*
43 *Araucaria heterophylla*
44 *Araucaria heterophylla*
45 *Araucaria heterophylla*
46 *Araucaria heterophylla*
47 *Syzygium paniculatum*
48 *Syzygium paniculatum*
49 *Syzygium paniculatum*
50 *Syzygium paniculatum*
51 *Syzygium paniculatum*
52 *Syzygium paniculatum*
53 *Syzygium paniculatum*
54 *Unknown species (exotic planting)*
55 *Unknown species (exotic planting)*

0 50 100 m
1:3,500 at A4

Data sources

Jacobs 2018
Ausimage 2018
NSW Spatial Services 2018
Near Map 2019
GDA94 MGA56

Figure 1 Study Area and Tree Survey

Methodology

This report assesses the potential impacts to biodiversity within the study area for the proposal. Removal of all vegetation (mostly planted street trees) in the study area was assumed for the purposes of this assessment. The proposed Honeysuckle Drive road realignment will also involve the replacement of the bridge deck over Cottage Creek from the southern side of Honeysuckle Drive to the seawall and as such a bat survey was completed.

The aims of the biodiversity assessment were to:

- Identify the occurrence, or likelihood of occurrence of threatened species, populations and communities listed under the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (including migratory species) within the area subject to the proposed activity.
- Assess the significance of potential impacts to threatened biodiversity from the proposed activity with reference to Commonwealth and State legislation.

A survey of the study area was carried out by an ecologist on Wednesday 6 March 2019. There are no native plant species communities remaining in the study area and therefore the survey within the study area involved an inspection of the planted and landscaped areas to identify and confirm the tree species present in the study area, as well a search for any threatened plant species that may be present and a general survey to identify important habitat values for threatened fauna was also undertaken.

An inspection was conducted by ecologists under the Cottage Creek bridge on 7 March 2019 at low tide (3:30pm) from 3:30pm to 4:30pm within the intent of searching for roosting microbats and to determine the suitability of the man-made structure as a potential roosting habitat. Weather conditions for the survey consisted of mostly clear skies with a temperature of 27°C and wind speed of approximately 25km/hr from the NE (BOM 2019).

The bat survey targeted the possibly presence of Southern Myotis (*Myotis macropus*), Little Bent-wing Bat (*Miniopterus australis*) and the Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*) which are each a cave-roosting species, each listed as vulnerable under the *Biodiversity Conservation Act 2016* (BC Act). Each of these species have been recorded roosting in mines as well as man-made structures, such as culverts, tunnels. bridges, and buildings. A search of the Office of Environment and Heritage (OEH) Bionet Atlas was also undertaken and revealed several previous records of these species occurring in the locality of Newcastle Harbour and Kooragang Island.

Existing environment

No naturally occurring plant community types are present in the study area. The study area currently consists of cleared lands with planted trees, landscaped areas throughout and interdispersed with exotic weeds. Cottage Creek is a constructed channel and drains below Honeysuckle Drive to Newcastle Harbour. This creek is tidal within the study area. A description of these environments is provided below.

Cleared areas

Most of the study area consists of cleared land and concreted ground surfaces, including the sealed Honeysuckle Drive, an adjacent commuter carpark, public access paths, old asphalt pads remaining from previous developments, and areas next to the foreshore (refer to **Photo 1**, **2**, **3** and **4**). Beyond these spaces are numerous vacant patches which contain a mix of bare dirt, exotic grasses and exotic shrubs. The characteristic flora species in these areas are all exotic and include; Rhodes Grass (*Chloris gayana*), Kikuyu Grass (*Pennisetum clandestinum*), Johnson Grass (*Sorghum halepense*), Red Natal Grass (*Melinis repens*) Galenia (*Galenia pubescens*), Farmers Friend (*Bidens pilosa*), Paddy's Lucerne (*Sida rhombifolia*) and Castor Oil Plant (*Ricinus communis*). Occasional patches of disturbance tolerant native grass species also occur such as Couch Grass (*Cynodon dactylon*) and Button grass (*Dactyloctenium radulans*).

These areas are of low ecological value and offer no important habitat features for fauna.

Photo 1. Facing north-west into the northern portion of the study area. This area is cleared with exotic groundcover vegetation and asphalt areas. Tree of Knowledge park is adjacent to the northern boundary.

Photo 2. Facing east along the shoreline of the study area. This area is cleared of native vegetation apart from occasional *Casuarina glauca* trees growing through gaps in asphalt.

Photo 3. Facing north-west toward the center of the study area. This area is cleared of native vegetation and contains asphalt and gravel with occasional exotic grass patches.

Photo 4. Facing east toward the eastern portion of the study area. This area is cleared of native vegetation and contains asphalt and gravel with occasional exotic grass patches.

Landscaped areas

The study area has been re-developed numerous times during recent decades and remnants of some of the associated landscaping for these previous projects remain (refer to **Photo 5** & **6**). This is most obvious in the centre of the site where a long row of planted street trees grows between the northern edge of Honeysuckle Drive and the southern edge of the commuter carpark (refer to **Photo 5**). These trees are a mix of exotic and native species and are mostly mature in age. A full tree list is provided in **Figure 1**.

Most of the tree species in this row are commonly planted as street trees and are either from outside Australia or are not endemic to this area of New South Wales. However, three of the species, Broad-leaved Paperbark (*Melaleuca quinquenervia*), Swamp Mahogany (*Eucalyptus robusta*) and Swamp Oak (*Casuarina glauca*) are native to the Hunter coast and would likely have occurred around the banks of the Hunter River prior to the development of Newcastle Harbour and construction of Honeysuckle wharves.

There are also several small Swamp Oak trees regenerating in some previously cleared sections of the study area.

The median strip and footpath in the eastern portion of the study area contains numerous Norfolk Island Pine (*Araucaria heterophylla*) and Magenta Lilly Pilly (*Syzygium paniculatum*), which were planted as street trees. The Magenta Lilly Pilly is native to the Hunter region however only occurs in littoral rainforests. This species is listed as threatened under state and commonwealth legislation and is discussed in more detail below.

Apart from the 55 planted trees mapped across the study area, there is no other existing canopy or understorey vegetation.

Photo 5. Facing south-east through the center of the study area. A thin strip of numerous planted trees (native and exotic) exist along the edge of the existing commuter carpark.

Photo 6. Facing west through the center of the study area. Occasional planted trees occur along edges of Honeysuckle Drive. Ground layer is mostly bare, with numerous patches of exotic grasses.

Cottage Creek

Cottage Creek is a highly modified waterway which carries water from urban areas of Newcastle to its northern opening into Newcastle harbour. The section of this creek within the study area comprises an open concrete channel in the southern portion (refer to **Photo 7**) and a concrete tunnel running through the northern portion beneath Honeysuckle Drive to Newcastle Harbour sea wall (Cottage Creek Bridge) (refer to **Photo 8**). All natural aquatic habitat and riparian features of the creek have been historically removed and replaced by concrete walls and base. There are no aquatic plant species occurring in the channel and no Mangrove trees remain.

No evidence was identified to suggest that the under-structure of Cottage Creek bridge is being used by microbat species for roosting or breeding and the site is considered of low suitability due to the high tidal fluctuations and exposure to wind, light and salt spray from Newcastle Harbour.

The riparian areas adjacent to the creek edges are predominantly cleared and contain only exotic grasses and numerous small shrubs (refer to **Photo 7**). There are no remnants of any native vegetation communities and no habitat features for native fauna species within the creek. The aquatic environment of Cottage Creek, may be used on occasion by shorebirds, including listed migratory bird species, as foraging habitat particularly at low tide.

Photo 7. Facing north along Cottage creek. The creek channel is fully concreted and creek edges lack vegetation apart from various exotic grasses and groundcover species.

Photo 8. Facing north beneath the Cottage Creek Bridge and Honeysuckle Drive. This tunnel was surveyed for potentially occurring microchiropteran bats. Note: high tide mark is in line with oysters.

Discussion

General Environment

The study area is located within a highly disturbed area which has been exposed to a long history of industrial and commercial development. There are no significant natural features remaining and no remnant native vegetation occurring within the study area. Habitat for native fauna is scarce and is only available within the numerous mature trees which have been planted as part of previous landscaping projects. Only a limited amount of wide-ranging, urban-tolerant fauna species are likely to use the study area. During the survey a small number of such species were observed including the Australian Magpie, Noisy Miner, Welcome Swallow and Australian Raven. One reptile species

the Common Garden Skink (*Lampropholis guichenoti*) was also observed. There was evidence of nest building by Welcome Swallows beneath the Cottage Creek bridge.

The tree survey recorded seven Magenta Lilly Pilly (*Syzygium paniculatum)* trees planted as street trees along the footpath of an eastern portion of Honeysuckle Drive (in front of the Hunter Water offices). This species is listed as Endangered under the BC Act and Vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). This species occurs naturally in littoral rainforest along the NSW coast with grey soils over sandstone. The specimens observed in the study area are not naturally occurring and there is no habitat for this species within the study area or locality. Therefore, a test of significance is not required and any impacts to these planted specimens is not considered significant.

Microchiropteran Bats

No microbats or evidence of their recent presence was observed under Cottage Creek bridge and roosting opportunities for bats were found to be limited. All tight spaces identified including concrete cracks, holes and joins were mostly shallow and were exposed to possible inundation from sea water as well as wind. The environment under the bridge does not exhibit favourable cave-like features, in that it is well lit, windy, cold and subject to tide and wave action.

Migratory Birds

The Hunter River estuary area contains important habitat for many migratory shore bird species. The Hunter Estuary wetlands (including Kooragang Wetlands, Stockton Sandspit and the Hunter Wetlands Centre) are one of only 12 wetlands protected in NSW under the international Ramsar convention. An assessment of the EPBC Protected Matters Search Tool reveals a total of 21 listed migratory bird species occurring in the Hunter River estuary area, including 11 vulnerable species and 3 endangered species. Important breeding and foraging habitat for these species such as tidal mudflats, mangroves, beaches, grass clearings and saltmarsh are abundant in the northern, undeveloped parts of the estuary. The southern shorelines of the estuary adjacent to Newcastle city and the Honeysuckle precinct (including the study area) are highly developed and lack the favourable habitat features mentioned above. The shoreline of the study area consists entirely of man-made wharves and sea walls which are elevated above the waterline. There are no remnant mangrove or saltmarsh communities and the various open grass patches in study area are highly disturbed and frequented by people, pet dogs as well as traffic using Honeysuckle Drive and the commuter carparks. For this reason, it is considered highly unlikely that any of the listed migratory species would frequent the study area. There is a low potential that some shorebird species could visit the concrete drainage line of Cottage Creek (within the study area) on an occasional basis during foraging activity. The proposed upgrades and re-naturalisation of Cottage Creek would likely benefit any such species. An assessment of significance for the listed migratory birds is provided in **Appendix A**.

Summary

Development of the study area is unlikely to have any significant impacts to native flora and fauna species (threatened or otherwise). The study area does not contain important habitat for any native fauna groups. The removal of existing mature street trees along Honeysuckle Drive may reduce a portion of low-quality habitat for some common, wide-ranging and urban tolerant bird species. However, it is understood that the proposal will involve planting of native trees as well as habitat enhancements around Cottage Creek. The proposal could potentially provide a net benefit for local biodiversity through revegetation of some parts of the study area as well as the naturalisation of Cottage Creek.

Whilst much of the study area contains no important habitat for any of the EPBC Act listed migratory shorebirds, the concrete drainage line of Cottage Creek could theoretically provide a small, low quality area of potential foraging habitat. An assessment of significance for migratory shorebirds (**Appendix A**) found that the proposed development would not have significant impacts to any of the 21 listed migratory shorebirds.

Due to the presence of microbat records in the locality and recent discoveries of bats roosting under wharves, an assessment of bat presence and potential habitat was undertaken at Cottage Creek. The purpose of this assessment was to determine if microbats are currently roosting under Cottage Creek bridge and examine its suitability as future breeding or non-breeding roosting habitat.

Database searches revealed that three microbat species, the Southern Myotis, Eastern Bentwing-bat and Little Bentwing-bat are commonly reported around Newcastle Harbour and therefore may indeed forage along the Hunter River. A review of known roost locations and roost habitat requirements for these species has demonstrated that habitat underneath Cottage Creek bridge is unlikely to be suitable as an important breeding or non-breeding roost for these species.

No microbats or evidence of their recent presence was observed under Cottage Creek bridge and roosting opportunities for bats were found to be limited. All tight spaces identified including concrete cracks, holes and joins were mostly shallow and were exposed to possible inundation from sea water as well as wind. The environment under the bridge does not exhibit any favourable, terrestrial cave-like features, in that it is well lit, windy, cold and subject to tide and wave action.

Management measures

Considering the surveys undertaken as part of this assessment did not find any evidence of bats using the bridge tunnel, no specific management and mitigation measures are required at this stage to reduce the potential impact of redevelopment works on bats. However, although unlikely, it is still not possible to totally discount bats occurring under the bridge at a later stage and it is recommended that all staff working on the project would be educated on how to identify a microbat if encountered through an induction.

In the event that a bat roost is identified during any part of the works, then an unexpected finds procedure (**Appendix B**) should be adopted. The procedure would involve stopping work. At this point an appropriately experienced bat ecologist should be engaged to provide advice on work methods and timing to minimise impacts on the bats.

References

Churchill, S. (1998) Australian Bats. New Holland, Sydney.

Department of Environment and Climate Change (2008), Descriptions for NSW (Mitchell) Landscapes Version 2 (2002) Department of Environment and Climate Change, Sydney.

Hoye, G., & Spence, J. (2004). The large bent-wing bat Miniopterus schreibersii in urban environments: a survivor. Urban Wildlife: more than meets the eye, 138-47.

Jacobs, 2017. Lee Wharf and Throsby Seawall Upgrade Terrestrial Ecology and MicroBat Assessment Report v.0.2. Jacobs Group Newcastle

Law B and Urquhart CA (2000). Diet of the large-footed myotis Myotis macropus at a forest stream roost in northern New South Wales. Australian Mammalogy 22: 121-124.

NSW National Parks and Wildlife Service (2002), Landscapes (Mitchell) of NSW, NSW National Parks and Wildlife Service, Hurstville

Strahan, R (Ed.) (1995). The mammals of Australia. New Holland Pub Pty Limited.

Thackway, R & Cresswell, ID 1995, An Interim Biogeographic Regionalisation of Australia, Australian Nature Conservation Agency, Canberra.

Appendix A: EPBC Act Assessment of Significance - Migratory Birds

An assessment of the EPBC Protected Matters Search Tool reveals a total of 21 listed migratory bird species occurring in the Hunter River estuary area, including 11 vulnerable species and 3 endangered species. The study area does not contain important habitat for any of these species and the proposed development (action) is unlikely to impact these species directly or indirectly.

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- Substantially modify (including fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species

The channelised section of Cottage Creek near Honeysuckle Drive is not considered an important area of habitat

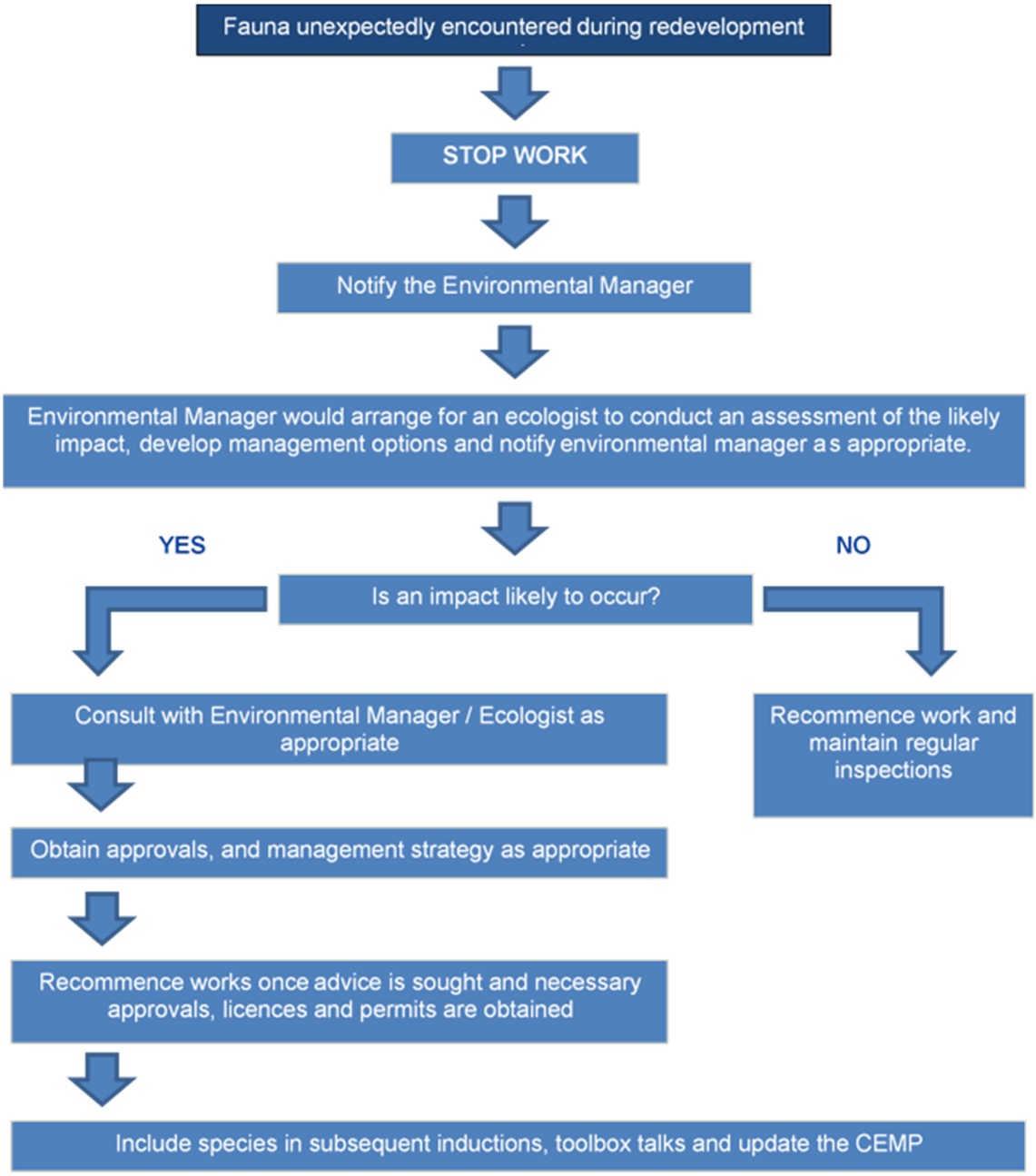
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for a migratory species; or

The channelised section of Cottage Creek near Honeysuckle Drive is not considered an important area of habitat

- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

There is no evidence to indicate that the channelised section of Cottage Creek near Honeysuckle Drive supports habitat for an ecologically significant portion of a population of a migratory species.

Appendix B: Unexpected Finds Procedure



Appendix D

Statutory consultation checklists

Infrastructure SEPP

Council related infrastructure or services

Issue	Potential impact	Yes / No	If 'yes' consult with	ISEPP clause
Stormwater	Are the works likely to have a *substantial* impact on the stormwater management services which are provided by council?	No	Local council	ISEPP cl.13(1)(a)
Traffic	Are the works likely to generate traffic to an extent that will *strain* the existing road system in a local government area?	No	-	ISEPP cl.13(1)(b)
Sewerage system	Will the works involve connection to a council owned sewerage system? If so, will this connection have a *substantial* impact on the capacity of any part of the system?	No	-	ISEPP cl.13(1)(c)
Water usage	Will the works involve connection to a council owned water supply system? If so, will this require the use of a *substantial* volume of water?	No	-	ISEPP cl.13(1)(d)
Temporary structures	Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a *minor* or *inconsequential* disruption to pedestrian or vehicular flow?	Yes	Local council	ISEPP cl.13(1)(e)
Road & footpath excavation	Will the works involve more than *minor* or *inconsequential* excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	No	Local council	ISEPP cl.13(1)(f)

Local heritage items

Issue	Potential impact	Yes / No	If 'yes' consult with	ISEPP clause
Local heritage	Is there is a local heritage item (that is not also a State heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the item/area are more than *minor* or *inconsequential*?	No		ISEPP cl.14

Flood liable land

Issue	Potential impact	Yes / No	If 'yes' consult with	ISEPP clause
Flood liable land	Are the works located on flood liable land? If so, will the works change flood patterns to more than a *minor* extent?	Yes	Local council SES	ISEPP cl.15

Public authorities other than councils

Issue	Potential impact	Yes / No	If 'yes' consult with	ISEPP clause
National parks and reserves	Are the works adjacent to a national park or nature reserve, or other area reserved under the *National Parks and Wildlife Act 1974*?	No	OEH	ISEPP cl.16(2)(a)
Marine parks	Are the works adjacent to a declared marine park under the *Marine Parks Act 1997*?	No	DPI	ISEPP cl.16(2)(b)
Aquatic reserves	Are the works adjacent to a declared aquatic reserve under the *Fisheries Management Act 1994*?	No	OEH	ISEPP cl.16(2)(c)
Sydney Harbour foreshore	Are the works in the Sydney Harbour Foreshore Area as defined by the *Sydney Harbour Foreshore Authority Act 1998*?	No	DPI	ISEPP cl.16(2)(d)
Bush fire prone land	Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional centre or group home in bush fire prone land?	No	Rural Fire Service	ISEPP cl.16(2)(f)
Artificial light	Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	No	Director of the Siding Spring Observatory	ISEPP cl.16(2)(g)
Defence communications buffer land	Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhardt LEP 2012, Narrandera LEP 2013 and Urana LEP 2011.	No	Secretary of the Commonwealth Department of Defence	ISEPP cl. 16(2)(h)

Issue	Potential impact	Yes / No	If 'yes' consult with	ISEPP clause
Mine subsidence land	Are the works on land in a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017 No 37	Yes	Subsidence Advisory NSW	cl. 16(2)(i)

Appendix E

Flooding

BMT Eastern Australia Pty Ltd
126 Belford Street
Broadmeadow NSW 2292
Australia
PO Box 266
Broadmeadow NSW 2292

Tel: +61 2 4940 8882
Fax: +61 2 4940 8887

ABN 54 010 830 421

www.bmt.org

Our Ref: DXW: L.N21159.004.docx

16 August 2019

Jacobs
Level 7, 117 Pacific Highway
North Sydney
NSW 2060

Attention: Kim Collings

Dear Kim

RE: WATERFRONT PROMENADE AND COTTAGE CREEK NORTH REF FLOODING ASSESSMENT

BMT was requested to undertake a flooding assessment to support the REF of the Waterfront Promenade and Cottage Creek North, which forms part of the broader Newcastle West Public Domain redevelopment. The Terras Landscape Architects (20190724 Honeysuckle drive Stage 2 draft) plans were provided by Jacobs. The plans have been assessed against the recommendations in the Honeysuckle Redevelopment Area Flood Study (R.N20778.001.13, dated September 2018).

The principal flooding consideration for the development of Cottage Creek North is to maintain the flood conveyance function of the Cottage Creek channel and broader floodway identified in Figure 6-2 of the Honeysuckle Redevelopment Area Flood Study report. Retaining the Cottage Creek channel and nominated 50 m floodway width at similar finished surface levels to the existing condition enables mainstream flood to be conveyed to the Throsby Basin. It is the principal floodway servicing the upstream Cottage Creek catchment and conveys most of the flood flows during storm events.

To accommodate uncertainty regarding the ultimate configuration of the future Cottage Creek open space the flood modelling assessments for the Honeysuckle Redevelopment Area Flood Study adopted a conservative approach. Alternative Configuration Option 1 considered a relatively constrained Cottage Creek floodway, consisting principally of the Cottage Creek concrete channel with an adjacent floodplain level of 2.5 m AHD downstream of Honeysuckle Drive (with the existing lid over the channel downstream of Honeysuckle Drive having been removed). The extent of the Cottage Creek Floodway is presented in Figure 1, in the context of the proposed landscaping plans. The plans indicate that the proposed naturalisation works within the Cottage Creek floodway provide finished surface levels that are lower than the modelled levels for Alternative Configuration Option 1.

With the existing lid having been removed and returned to an open channel configuration downstream of Honeysuckle Drive (which forms part of separate works not included as part of this REF), a bridge crossing of Cottage Creek will be required to provide continuity of pedestrian movement along the seawall alignment (as indicated in Figure 1). At this location the downstream tailwater condition in the harbour dominates the resultant flood levels. However, it is recommended that the obvert of the structure be elevated no lower than 1.3 m AHD to avoid the structure becoming a potential constraint on the overall channel conveyance of Cottage Creek.

.

Title:
Cottage Creek Floodway

Figure: 1

Rev: A

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

N

0 10 20m

Approx. Scale

BMT
www.bmt.org

Filepath: K:\N21159_Honeysuckle_West\MapInfo\Workspaces\DRG_003_190815_Cottage_Creek.wor

Additional considerations for the implementation of the proposed landscaping include:

- The proposed rockwork at the edge of the Cottage Creek channel should not protrude beyond the edge of the concrete wall beneath it, to not impact the existing channel capacity
- The handrail edge barrier should not present a significant impediment to flow, with any solid base being flush with the adjacent finished surface levels
- The composition of the structure between the handrail and ground surface (such as support railings or posts and any additional horizontal components) should be minimised and constitute no more than a 10% blockage to flow
- Any additional horizontal components below the handrail should be a minimum of 150 mm above the finished ground surface.

The principal flooding consideration for the development of the Waterfront Promenade is to maintain the flood conveyance function of the Steel Street Floodway identified in Figure 6-2 of the Honeysuckle Redevelopment Area Flood Study report. The extent of the Steel Street Floodway is presented in Figure 2, in the context of the proposed landscaping plans. There are also two minor floodways located between Cottage Creek and the Tree of Knowledge Park. These are presented in Figure 3, in the context of the proposed landscaping plans.

The plans indicate that the finished surface levels have been set at or below the previously adopted 2.3 m AHD modelled for Alternative Configuration Option 1 in the Honeysuckle Redevelopment Area Flood Study. The only potential impediments to flow identified in the plans are the proposed handrail barriers and seating.

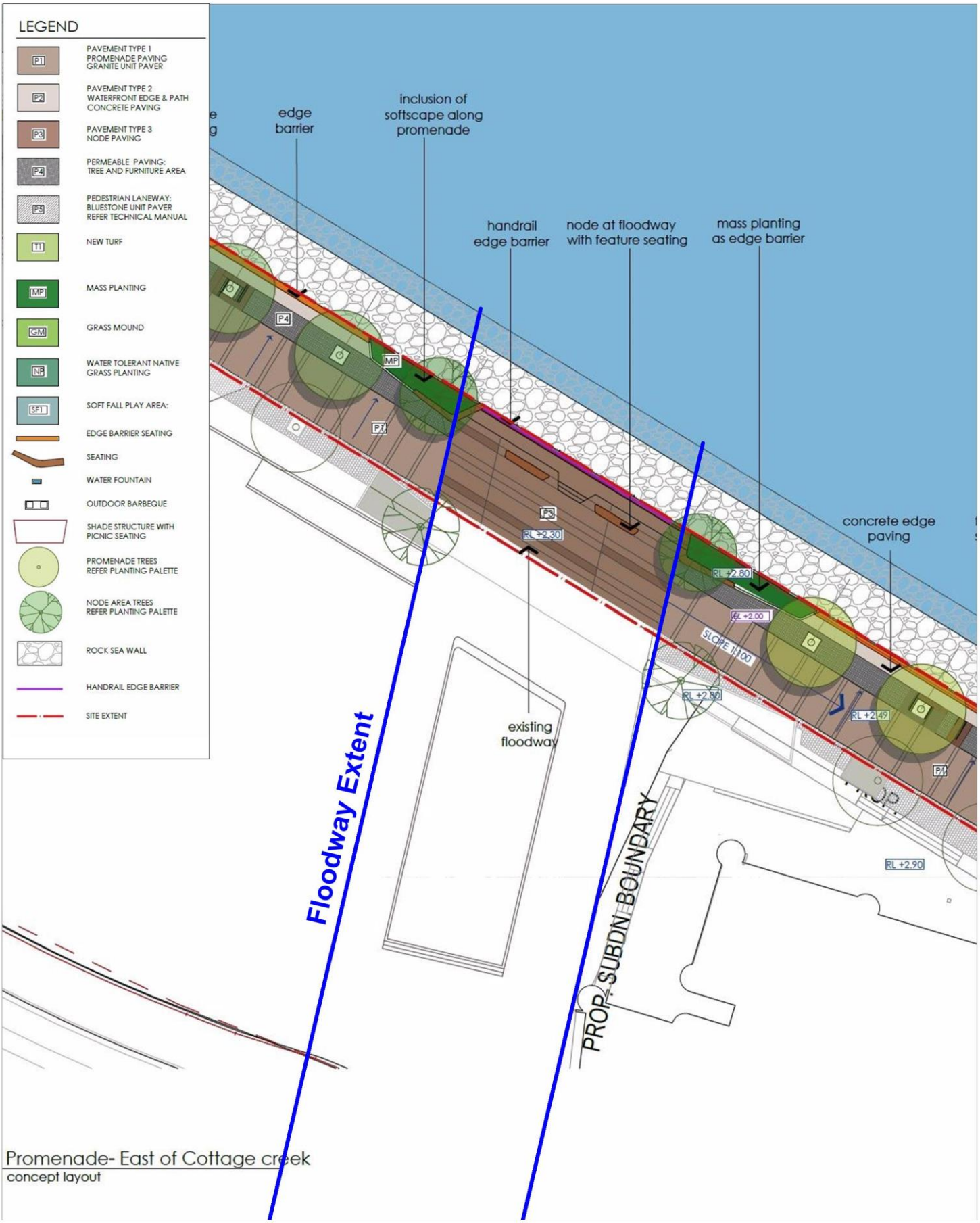
The following should be considered in the implementation of the handrails:

- The handrail edge barrier should not present a significant impediment to flow, with any solid base being flush with the adjacent finished surface levels
- The composition of the structure between the handrail and ground surface (such as support railings or posts and any additional horizontal components) should be minimised and constitute no more than a 10% blockage to flow
- Any additional horizontal components below the handrail should be a minimum of 300 mm above the finished ground surface across the Steel Street Floodway and a minimum of 150 mm above the finished ground surface across the two minor floodways

The proposed seating will reduce the effective width of the floodways by around 50%. It is recommended that one of the following is undertaken to ensure that the seating does not adversely impact flooding:

- The proposed seating be removed from the floodways
- The proposed seating within the floodways should be a bench type with an open base, to allow overland flow to pass underneath the seating, with a minimum ground clearance of 300 mm within the Steel Street Floodway and a minimum of 150 mm within the two minor floodways

A modelling-based flood impact assessment is undertaken to ensure that the proposed seating does not result in a significant reduction in the floodway conveyance capacity and associated adverse off-site flood impacts.



Title:

Steel Street Floodway

Figure: 2

Rev: A

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

N

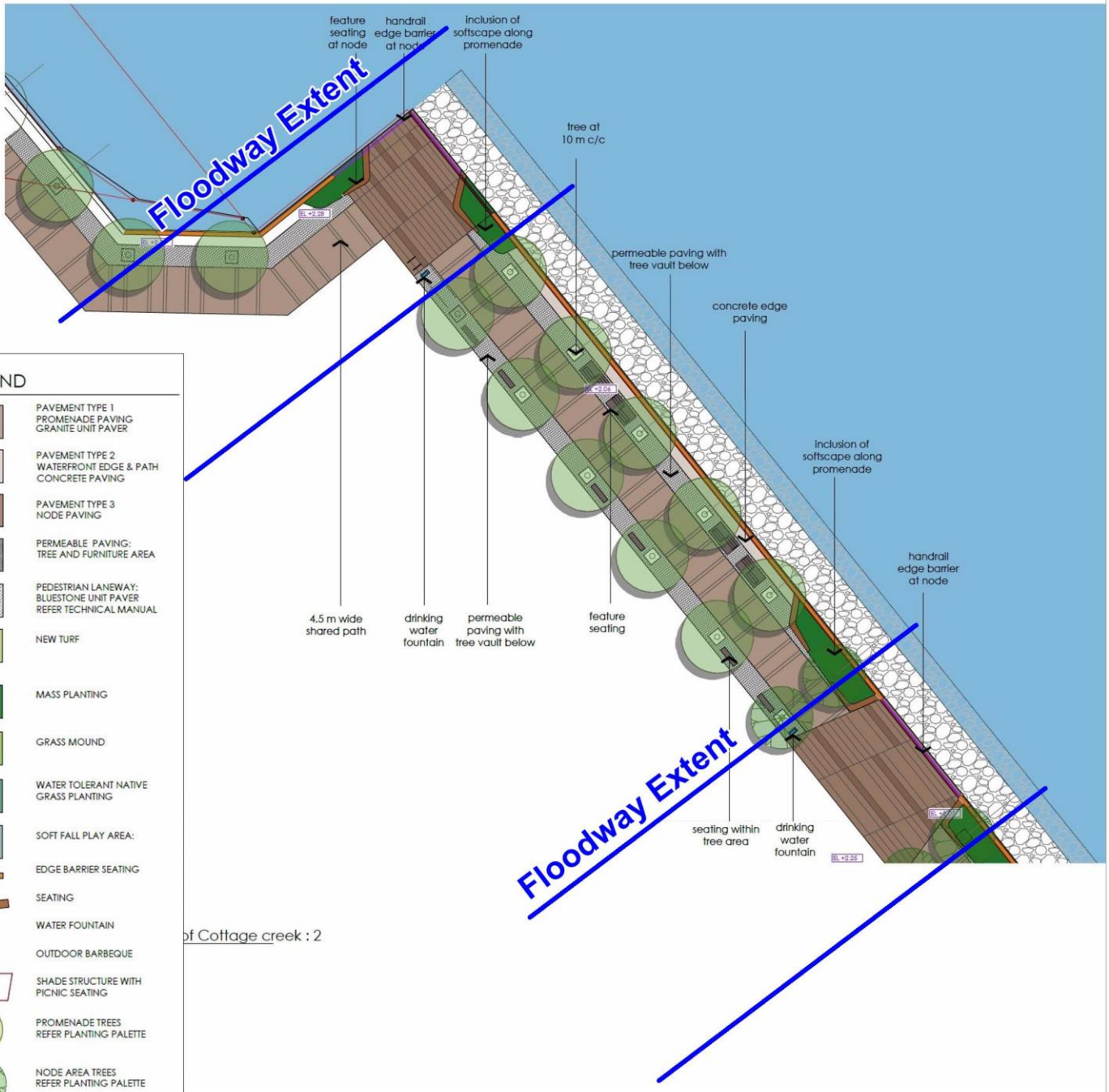
0 10 20m

Approx. Scale

BMT

www.bmt.org

Filepath: K:\N21159_Honeysuckle_West\MapInfo\Workspaces\DRG_004_190815_Steel_Street.wor



LEGEND

- P1 PAVEMENT TYPE 1 PROMENADE PAVING GRANITE UNIT PAVER
- P2 PAVEMENT TYPE 2 WATERFRONT EDGE & PATH CONCRETE PAVING
- P3 PAVEMENT TYPE 3 NODE PAVING
- P4 PERMEABLE PAVING: TREE AND FURNITURE AREA
- P5 PEDESTRIAN LANEWAY: BLUESTONE UNIT PAVER REFER TECHNICAL MANUAL
- T1 NEW TURF
- MP MASS PLANTING
- GM GRASS MOUND
- NP WATER TOLERANT NATIVE GRASS PLANTING
- SF1 SOFT FALL PLAY AREA:
- EDGE BARRIER SEATING
- SEATING
- WATER FOUNTAIN
- OUTDOOR BARBEQUE
- SHADE STRUCTURE WITH PICNIC SEATING
- PROMENADE TREES REFER PLANTING PALETTE
- NODE AREA TREES REFER PLANTING PALETTE
- ROCK SEA WALL
- HANDRAIL EDGE BARRIER
- SITE EXTENT

of Cottage creek : 2

Title:
Waterfront Promenade

Figure: 3

Rev: A

N

0 10 20m

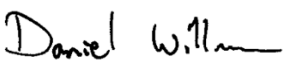
Approx. Scale

BMT
www.bmt.org

Filepath: K:\N21159_Honeysuckle_West\MapInfo\Workspaces\DRG_005_190815_Promenade.wor

We trust that this report satisfies your requirements. If you have any further questions regarding any aspect of this report then please do not hesitate to contact the undersigned.

Yours Faithfully
BMT



Daniel Williams
Newcastle Team Leader
NSW Flood Lead

Appendix F

Aboriginal Heritage

umwelt
Environmental & Social Consultants

Inspired People
Dedicated Team
Quality Outcomes

Our Ref: 4657/R04/NR/24112020

24 November 2020

Jacob Whiting
Hunter Central Coast Development Corporation

E|jacob@essaustralia.com.au

Dear Jacob

Re: Aboriginal Archaeological Due Diligence Assessment – Waterfront Promenade

Hunter and Central Coast Development Corporation (HCCDC) is responsible for the planning and delivery of economic and urban development in the Hunter and Central Coast regions. The urban renewal of the Honeysuckle area is a signature project for HCCDC. A key component of the Honeysuckle renewal is the proposed landscaping of the Public Domain waterfront promenade and naturalisation of Cottage Creek north (the proposal).

HCCDC is undertaking a review of environmental factors (REF) to fulfil their obligations to consider the environmental impacts of the proposal under Section 5.5 of the *Environmental Protection and Assessment Act 1979* (the EP&A Act). As will be discussed further in this letter, an Aboriginal cultural heritage assessment (ACHA) is being prepared specifically in relation to the naturalisation of Cottage Creek (Umwelt in prep). In addition, HCCDC currently hold an Aboriginal Heritage Impact Permit (AHIP C0005353) in relation to the realignment of Honeysuckle Drive, including portions of the proposal area. HCCDC has commissioned Umwelt to prepare this letter to assess the potential for harm to Aboriginal objects in the portion of the REF area outside the area assessed under the ACHA and that subject to AHIP C0005353. This area is herein referred to as the assessment area, as shown in **Plate 1**.

Newcastle | Orange | Sydney | Canberra | Brisbane | Perth

T| 1300 793 267
E| info@umwelt.com.au

www.umwelt.com.au

Umwelt (Australia) Pty Limited
ABN 18 059 519 041

Plate 1 Location of the Assessment Area (shown in black). Note also the Cottage Creek North ACHA area (red hatching) and the AHIP C0005353 Area (yellow hatching)

1.0 Proposal Description

The key features of the proposal that are considered in this assessment include:

- Landscaping of the Public Domain waterfront promenade next to Newcastle Harbour from Worth Place Park West to the Tree of Knowledge Park including:
    - A 4.5 metre-wide shared path for the length of the proposal with a pedestrian bridge over Cottage Creek
    - Feature seating and edge barriers
    - Mass plantings and promenade trees with permeable material around trees
    - Softscape areas and paved areas along the promenade
    - A node in the floodway with a handrail
    - Sandstone block steps to the lower part of the rock seawall
    - Lighting
- Pedestrian links to the waterfront promenade and Honeysuckle Drive
- Temporary diversion of the shared pedestrian and cyclist pathway
- Temporary ancillary facilities including site compounds and stockpile sites.

Additional works assessed under the REF include works associated with the naturalisation of Cottage Creek however, as discussed previously these are subject to a separate ACHA (Umwelt in prep).

2.0 Background Information

In 2009 a Due Diligence Aboriginal Archaeological Assessment was prepared for a large portion of the Honeysuckle area, including the proposal area, then known as the Cottage Creek Precinct and the area known as the Wickham Urban Village Development (AMAC 2009). The 2009 report was amended and updated in 2019 (AMAC 2019) to address current HCCDC proposed development areas; including the proposal area.

AMAC (2019) mapped three different zones of archaeological potential and provided management recommendations linked to these zonings. These were as follows.

- Zone 1 – High or moderate to high archaeological potential. Within this zone AMAC (2019) recommended the completion of a detailed ACHA prior to the completion detailed sub-surface archaeological testing that may lead to a requirement for further salvage excavations.
- Zone 2 – Moderate archaeological potential. Within this zone AMAC (2019) recommended the completion of a detailed ACHA but considered that test and salvage excavation would not be warranted unless new information came to light during the completion of the ACHA.
- Zone 3 – Low archaeological potential. Within this zone AMAC (2019) recommended the completion of a detailed ACHA but considered that test and salvage excavation would not be warranted unless new information came to light during the completion of the ACHA.

In assessing archaeological potential, AMAC (2019) considered the original landform context of the Honeysuckle area. Prior to substantial land reclamation, the former shoreline of the Hunter River/Throsby Creek was much further landward than its current location. AMAC (2019) mapped the former location of the shoreline during the 1890s and identified that much of the Honeysuckle area (including the majority of the current assessment area) was located within the former channel of Throsby Creek. The modern landforms were created by ongoing land reclamation and therefore have little to no potential to contain intact Aboriginal archaeological deposits. AMAC (2019) therefore assigned these areas as Zone 3 (low archaeological potential). Areas on the edge of the former shoreline considered unsuitable for occupation and subject to tidal influence were assessed as Zone 2 (moderate archaeological potential). Only those areas with the potential for intact natural land surfaces suitable for occupation and outside the area of tidal influence were assessed as Zone 1 (high archaeological potential).

Plate 2 shows the extent of the assessment area with reference to the zones of archaeological potential identified by AMAC (2019). This shows that the majority of the assessment area is within Zone 3, with the exception of a very small area in the north-western portion (bordering what is commonly known as Tree of Knowledge Park).

An AHIMS search conducted on 23 November 2020 identified that there are no recorded sites within the proposal area (refer to **Attachment 1**).

Plate 2 Assessment Area with reference to AMAC 2019 zonings (orange = Zone 3, green = Zone 2, blue = Zone 1)

As previously discussed, AHIP C0005353 was issued in relation to works associated with the realignment of Honeysuckle Drive. In accordance with the conditions of the AHIP, a surface collection was undertaken within the portions of the AHIP C0005353 area that did not have a road or paved surface.

The key component of the archaeological salvage works conducted under AHIP C0005353 was the completion of archaeological excavations within the alignment of infrastructure installation that required disturbance below the depths of current fill deposits. In order to determine whether such deposits were present, mechanical excavation of fill was undertaken at 24 locations across the AHIP area. Mechanical excavation was continued until natural deposits were identified or the depth of project works had been reached. In general terms, the distribution of pits where natural soils were identified correlates closely with the areas of mapped shoreline based on 1887 historical mapping. Artefacts were found within all natural deposits, with highest densities of artefacts found in association with pebble-rich, coarse deposits considered to represent shoreline wash deposits. These artefacts would have been deposited by Aboriginal people camping along the shoreline but also would have been moved, redeposited, and in some cases, concentrated by tidal patterns and changes in flow events within Cottage Creek and Throsby Creek. Further analysis is required to confirm the nature of these deposits and provide more detailed consideration of their integrity, including the completion of detailed artefact recording.

The excavations conducted under AHIP C0005353 demonstrate that there is likely to be a substantial coverage of fill across the assessment area comprising a minimum of 0.6 metres in depth and extending substantially deeper in proximity to the Hunter River.

2.1 Evaluation of the Assessment Area

Previous archaeological evaluations have identified that the majority of the assessment area comprises reclaimed land that has low archaeological potential. The exception to this is a very small section of land in the north-western part of the assessment area (bordering what is commonly known as Tree of Knowledge Park). AMAC (2019) assessed this area as having moderate archaeological potential. Based on the available information, it is not proposed to revise this assessment, noting that it relates to the potential for natural deposits to be present below the depth of fill.

In relation to the potential impacts of the proposal on Aboriginal objects, given that the majority of the proposed works are located in areas of low archaeological potential, there is low likelihood that the works will result in harm to Aboriginal objects. Within the area of moderate archaeological potential, it is understood that works associated with the proposal will comprise use of the area as a construction compound/laydown area only. The assessment of archaeological potential in this area relates to the potential for intact soil profiles to be present at depth. Recent excavations conducted under AHIP C0005353 have demonstrated that there is a minimum of 0.6 metres of fill across this area. Therefore, provided that works associated with the construction compound/laydown area do not extend below the depth of fill, there is low likelihood that these works will result in harm to Aboriginal objects.

3.0 Recommendations

The following recommendations are made with reference to the requirements of the *National Parks and Wildlife Act 1974*, the *National Parks and Wildlife Regulation 2019*, the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales and the information presented in this assessment. It is noted that these recommendations are provided from an archaeological perspective only and do not address Aboriginal cultural values.

- HCCDC should ensure that any parties involved in the proposed works are aware that it is an offence under Section 86 of the NPW Act to harm or desecrate an Aboriginal object unless that harm or desecration is the subject of an Aboriginal Heritage Impact Permit.
- The proposed works may proceed without any further archaeological investigation providing that the works are carried out as described in this assessment and are limited to the assessment area. It is emphasised that this recommendation does not apply to the Cottage Creek naturalisation works, which have been assessed separately.
- In the event that an Aboriginal object (or objects) or potential human skeletal remains is uncovered during the proposed works, ground disturbance works should cease within 20 metres of the object(s) and an archaeologist and registered Aboriginal parties for the area should be contacted. The archaeologist and Aboriginal parties will liaise with Heritage NSW to identify appropriate management strategies and permit requirements.

Should you wish to discuss any aspect of this assessment, please do not hesitate to contact me on 0427 125 685.

Yours sincerely

Nicola Roche
Manager, Cultural Heritage

4.0 References

Archaeological Management and Consulting Group & Streat Archaeological Services (AMAC). 2019. Due Diligence Aboriginal Archaeological Assessment Honeysuckle Public Doman Works and Remaining Honeysuckle Lands, Newcastle, NSW. Report to Hunter and Central Coast Development Corporation.

Umwelt (Australia) Pty Ltd. 2019. Aboriginal Cultural Heritage Assessment Report Honeysuckle Drive Realignment, Newcastle. Report to Hunter and Central Coast Development Corporation.

Umwelt (Australia) Pty Ltd. In prep. Honeysuckle Drive Realignment – Works Conducted under AHIP C0005353. Report to Hunter and Central Coast Development Corporation.

ATTACHMENT 1

AHIMS Search

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 4657

Client Service ID : 551594

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0544	700 Hunter Street	AGD	56	384250	6356020	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Dominic Steele Archaeological Consulting					**Permits**		
38-4-0559	The Broadwalk- Newcastle 1	AGD	56	385000	6356250	Open site	Valid	Potential Archaeological Deposit (PAD) : 0		98887
	Contact	**Recorders**	Mary Dallas Consulting Archaeologists (MDCA)					**Permits**	1298,2043,2453	
38-4-0525	Catholic Education Site	AGD	56	385680	6355710	Open site	Valid	Artefact : -	Open Camp Site	100771
	Contact	**Recorders**	Margrit Koettig					**Permits**		
38-4-0796	200 Hunter Street PAD	AGD	56	385787	6356006	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact T Russell	**Recorders**	Mrs.Angela Besant					**Permits**	2045,2049	
38-4-1084	Newcastle CBD PAD	AGD	56	385850	6355900	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Ms.Meaghan Russell					**Permits**	3008,4225,4248,4557	
38-4-0454	Yirannaii;	AGD	56	386150	6355450	Open site	Valid	Aboriginal Ceremony and Dreaming : -	Natural Mythological (Ritual)	1333
	Contact	**Recorders**	Warren Bluff					**Permits**		
38-4-1020	Coutts Sailors Home PAD1	AGD	56	386358	6355971	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact T Russell	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users					**Permits**	2734	
38-4-1695	11-15 Watt St IF 1	AGD	56	386381	6356080	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Benjamin Streat					**Permits**	3814,3966	
38-4-2006	Newcastle Interchange Artefact Reburial 1 (NI AR 1)	GDA	56	383373	6356793	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Artefact - Cultural Heritage Management - Pyrmont,Ms.Alyce Haast					**Permits**		
38-4-1716	Wickham Transport Interchange PAD	GDA	56	383426	6356757	Open site	Partially Destroyed	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Artefact - Cultural Heritage Management - Pyrmont,Artefact - Cultural Heritage Ma					**Permits**	3809,4025,4220,4238,4589	
38-4-2037	10 Dangar Street PAD	GDA	56	384036	6356478	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Umwelt (Australia) Pty Limited - Individual users,Mr.Ashley O'Sullivan					**Permits**		
38-4-2019	Wickham PAD 1	GDA	56	384068	6356550	Open site	Destroyed	Potential Archaeological Deposit (PAD) : 1		

Report generated by AHIMS Web Service on 23/11/2020 for Nicola Roche for the following area at Datum :GDA, Zone : 56, Eastings : 383200 - 386500, Northings : 6355350 - 6357000 with a Buffer of 0 meters. Additional Info : Arch assessment. Number of Aboriginal sites and Aboriginal objects found is 37

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 4657

Client Service ID : 551594

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Eco Logical Australia Pty Ltd - Sydney - Individual users,Eco Logical Australia - Mu(					**Permits**	4505,4589	
34-4-0071	RPS Hannell St Pad 1	GDA	56	384090	6356541	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Jeremy Hill					**Permits**		
38-4-1795	38 Hannell St Newcastle (PAD) Artefact Scatter	GDA	56	384090	6356541	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Extent Heritage Pty Ltd - Pyrmont - Individual users,Doctor.Tessa Bryant					**Permits**	4122,4589	
38-4-1804	Isolated Find 1-Rail	GDA	56	384145	6356435	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Mr.Ben Slack					**Permits**	4025	
38-4-1223	Wickham UFCCALE OS1	GDA	56	384166	6356333	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Streat Archaeological Services					**Permits**	4025,4548,4549	
38-4-1222	Cottage Creek OSI	GDA	56	384250	6356324	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Streat Archaeological Services					**Permits**	3970,4025,4548,4549	
38-4-0952	Bellevue Hotel PAD	GDA	56	384264	6356219	Open site	Valid	Potential Archaeological Deposit (PAD) : -		99845,99874
	Contact Searle	**Recorders**	Umwelt (Australia) Pty Limited - Individual users,Mr.Dominic Steele,Mrs.Amanda (					**Permits**	2382	
38-4-0772	710 Hunter Street Newcastle PAD	GDA	56	384312	6356244	Open site	Valid	Shell : -, Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Jim Wheeler					**Permits**	1981	
38-4-0851	710 Hunter St Newcastle, PAD	GDA	56	384312	6356244	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact S Scanlon	**Recorders**	Jim Wheeler,Umwelt (Australia) Pty Limited - Individual users,Mrs.Amanda Crick					**Permits**		
38-4-0832	Empire Hotel PAD	GDA	56	384406	6356139	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact T Russell	**Recorders**	Jim Wheeler,Umwelt (Australia) Pty Limited - Individual users,Mrs.Amanda Crick					**Permits**	2128,4166	
38-4-0831	Palais Royale	GDA	56	384422	6356195	Open site	Valid	Potential Archaeological Deposit (PAD) : -, Artefact : 5534, Shell : -		102256
	Contact T Russell	**Recorders**	University of Newcastle,Jim Wheeler,Umwelt (Australia) Pty Limited - Individual u:					**Permits**	2127,2593,3098,3502	
38-4-1816	Isolated Find 4 -Rail	GDA	56	384514	6356211	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**		
38-4-1815	Isolated Find 5 - Rail	GDA	56	384520	6356214	Open site	Destroyed	Artefact : -		

Report generated by AHIMS Web Service on 23/11/2020 for Nicola Roche for the following area at Datum :GDA, Zone : 56, Eastings : 383200 - 386500, Northings : 6355350 - 6357000 with a Buffer of 0 meters. Additional Info : Arch assessment. Number of Aboriginal sites and Aboriginal objects found is 37

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 4657

Client Service ID : 551594

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**		
38-4-1803	Isolated Find 3-Rail	GDA	56	384525	6356208	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**	3970	
38-4-1805	Isolated Find 2-Rail	GDA	56	384525	6356208	Open site	Valid	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Mr.Ben Slack					**Permits**	3970	
38-4-1812	Isolated Find 6 - Rail	GDA	56	384542	6356203	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**		
38-4-1814	Isolated Find 8 -Rail	GDA	56	384545	6356199	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**		
38-4-1813	Isolated Find 7 - Rail	GDA	56	384549	6356205	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**		
38-4-1817	Artefact Scatter 1 –Rail	GDA	56	384553	6356198	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**		
38-4-1818	Isolated Find 9 - Rail	GDA	56	384565	6356195	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,Ms.Cheng-Yen Loo					**Permits**		
38-4-1968	UoN1A-1	GDA	56	384823	6356217	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Guringai Tribal Link Aboriginal Corporation,Mrs.Tracey Howie					**Permits**	4499,4512	
38-4-2008	Artifact scatter	GDA	56	384966	6356262	Closed site	Valid	Artefact : -		
	Contact	**Recorders**	Guringai Tribal Link Aboriginal Corporation,Guringai Tribal Link Aboriginal Corpoı					**Permits**		
38-4-2024	UoN PAD1	GDA	56	384967	6356210	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Curio Projects Pty Ltd,Miss.Sam Cooling					**Permits**	4512	
38-4-1642	409 Hunter Street Newcastle Fill duplicate of 409 Hunter Street Newcastle Insitu	GDA	56	385099	6356088	Open site	Valid	Artefact : -, Shell : -		104055,104056
	Contact	**Recorders**	Mr.Benjamin Streat					**Permits**	3920,4186,4390,4393,4602	
38-4-1960	Newcastle Signal Box IF	GDA	56	386076	6356240	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	RPS Australia East Pty Ltd - Hamilton,RPS Australia East Pty Ltd - Hamilton,RPS Au					**Permits**		
38-4-1632	TA1 Newcastle	GDA	56	386378	6356088	Open site	Destroyed	Artefact : -		
	Contact	**Recorders**	Umwelt (Australia) Pty Limited - Individual users,Miss.Nicola Roche					**Permits**	3683	

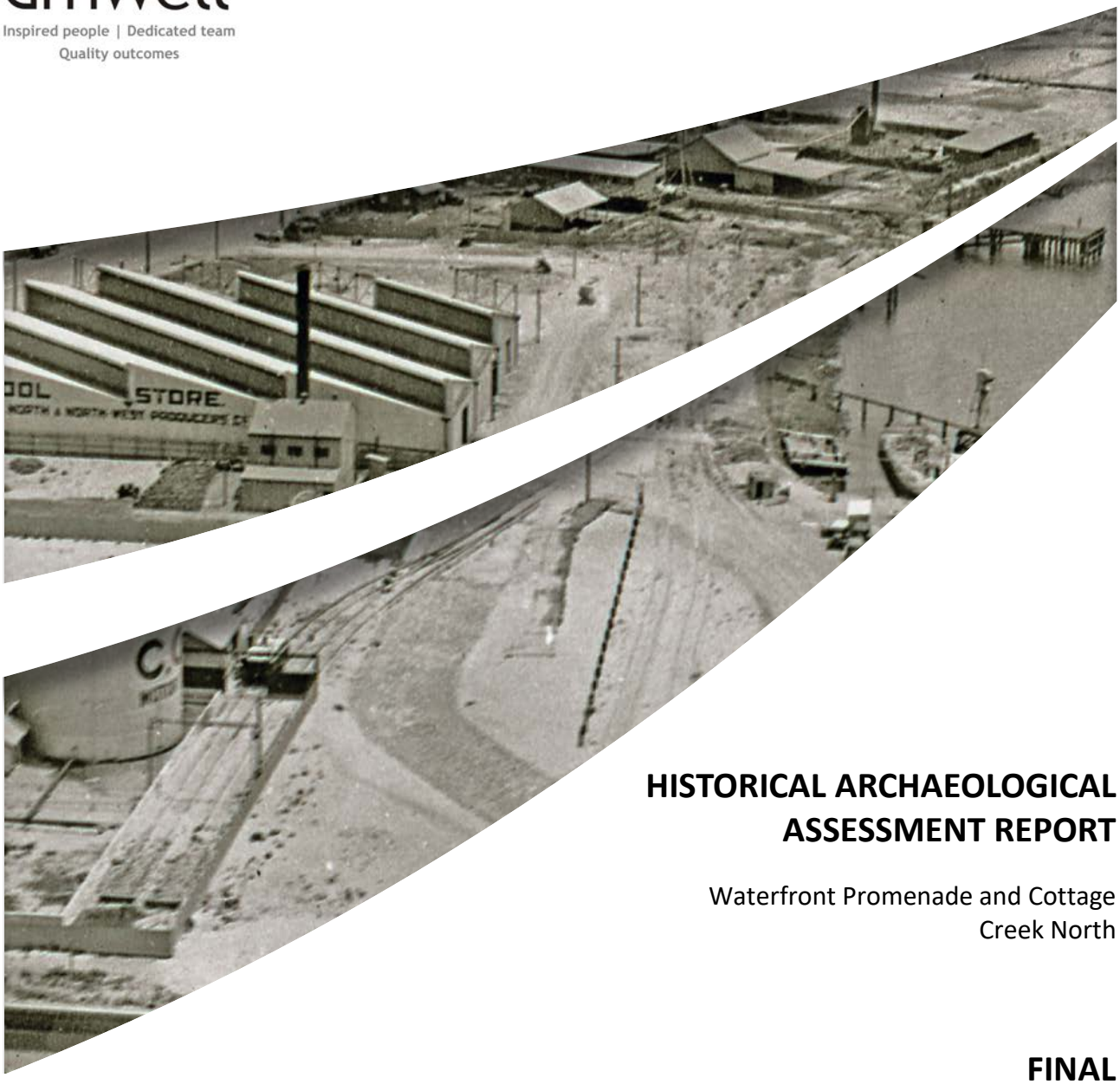
Report generated by AHIMS Web Service on 23/11/2020 for Nicola Roche for the following area at Datum :GDA, Zone : 56, Eastings : 383200 - 386500, Northings : 6355350 - 6357000 with a Buffer of 0 meters. Additional Info : Arch assessment. Number of Aboriginal sites and Aboriginal objects found is 37

Appendix G

Non-Aboriginal Heritage

umwelt

Inspired people | Dedicated team
Quality outcomes



HISTORICAL ARCHAEOLOGICAL ASSESSMENT REPORT

Waterfront Promenade and Cottage
Creek North

FINAL

November 2020

HISTORICAL ARCHAEOLOGICAL ASSESSMENT REPORT

Waterfront Promenade and Cottage Creek North

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Hunter and Central Coast Development Corporation (HCCDC)

Project Director:	Nicola Roche
Project Manager:	Nicola Roche
Technical Director:	Tim Adams
Technical Manager:	Tim Adams
Report No.	4657/R05
Date:	November 2020

Newcastle

75 York Street
Teralba NSW 2284

T| 1300 793 267
E| info@umwelt.com.au

www.umwelt.com.au

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Cover Image: John Reids Wool Store, Wickham, NSW, nd **(**Hunter Living Histories, University of Newcastle)

Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
1	Tim Adams	17 November 2020	Tim Adams	17 November 2020
2	Tim Adams	19 November 2020	Tim Adams	19 November 2020

Table of Contents

Figures

Plates

1.0 Introduction

Hunter and Central Coast Development Corporation (HCCDC) is responsible for the planning and delivery of economic and urban development in the Hunter and Central Coast regions. The urban renewal of the Honeysuckle area is a signature project for HCCDC. A key component of the Honeysuckle renewal is the proposed landscaping of the Public Domain waterfront promenade and naturalisation of Cottage Creek north (the proposal. Refer to **Figure 1.1**).

HCCDC is undertaking a review of environmental factors (REF) to fulfil their obligations to consider the environmental impacts of the proposal under section 5.5 of the *Environmental Protection and Assessment Act 1979* (the EP&A Act). HCCDC has commissioned Umwelt to prepare this Historical (non-Aboriginal) Archaeological Assessment to inform the REF.

1.1 Proposal Description

The key features of the proposal include:

- Landscaping of the Public Domain waterfront promenade next to Newcastle Harbour from Worth Place Park West to the Tree of Knowledge Park including:
    - A 4.5 metre-wide shared path for the length of the proposal with a pedestrian bridge over Cottage Creek
    - Feature seating and edge barriers
    - Mass plantings and promenade trees with permeable material around trees
    - Softscape areas and paved areas along the promenade
    - A node in the floodway with a handrail
    - Sandstone block steps to the lower part of the rock seawall
    - Lighting
- Naturalisation from the top of the Cottage Creek drainage channel north from the Honeysuckle Drive road bridge to Newcastle Harbour including:
    - Removal of about the top 500 millimetres of the concrete channel walls and placement of sandstone blocks along the edge of the drainage channel
    - Tiered landscaping including grassed areas, mass plantings and trees next to Cottage creek
    - Pedestrian links to the waterfront promenade and Honeysuckle Drive
    - Feature seating
    - A drinking water fountain either side of Cottage Creek next to the waterfront promenade.
    - Temporary diversion of the shared pedestrian and cyclist pathway
    - Temporary ancillary facilities including site compounds and stockpile sites.

For further details refer to the *Waterfront Promenade and Cottage Creek north Project Review of Environmental Factors (Jacobs and Hunter & Central Coast Development Corporation 2020).*

It is noted that although within the proposal area, for the purposes of this assessment and the REF, Tree of Knowledge Park will be used as a construction compound/laydown area (consistent with its current use).

1.2 Methodology

This archaeological report has been prepared in accordance with *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Burra Charter) (2013) and the best practice standards set out by Heritage, Community Engagement, Department of Premier and Cabinet (Heritage NSW) including *Assessing Significance for Historical Archaeological Sites and 'Relics'* (Heritage Council, 2009).

Only historical (non-Aboriginal) archaeology is considered in this assessment. Aboriginal Cultural Heritage and archaeology is considered separately (refer to Jacobs and Hunter & Central Coast Development Corporation 2020).

1.2.1 Honeysuckle Archaeological Reports

This archaeological assessment focuses on the proposal area itself. Previous reports have investigated the history and archaeological potential of the wider Honeysuckle area. This report draws from these previous reports; in particular:

- *Baseline Archaeological Assessment Cottage Creek Precinct And Wickham Urban Village Newcastle NSW* (AMAC 2009)
- *Baseline Archaeological Assessment – Honeysuckle Foreshore, Newcastle* (AMAC 2019).
- *Historical Archaeological Assessment Report – Honeysuckle Drive Realignment, Newcastle* (Umwelt 2019).

The Historical Archaeological Assessment Report – Honeysuckle Drive Realignment resulted in an endorsed exception for the proposed realignment works (endorsed 3 December 2019). The portion of the Honeysuckle Drive Realignment proposal area to the west of Cottage Creek) has a history of development and use dating from the 1870s. The endorsed exception was as a result of the potential for intact archaeological remains to be exposed in the deeper excavations associated with the service corridors (Umwelt 2019).

Image Source: Nearmao (April 2020)
Data Source: Hunter Development Corporation (2020)

0 50 100 200m
1:4 000

FIGURE 1.1

Proposal Area

File Name (A4): R05/4657_011.dgn
20140214 9.05

2.0 Statutory Context

The following section provides an overview of the legislative framework relating to the protection and management of historic heritage in NSW. The management and conservation of non-Aboriginal heritage items, relics, archaeological sites and places is subject to a range of statutory provisions in the NSW state government legislation.

The relevant non-statutory archaeological listings are also discussed and any items affected by these provisions within or in the vicinity of the proposal area are identified.

2.1 The Heritage Act 1977 (NSW)

The *Heritage Act 1977* (Heritage Act) affords automatic statutory protection to items of heritage significance which form part of the heritage record of NSW (except where these provisions are suspended by other prevailing legislation). The Heritage Act defines a heritage item as a place, building, work, 'relic', moveable object or precinct.

The Heritage Act defines a 'relic' as any deposit, object or material evidence that:

- relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and
- is of State or local heritage significance.

The Heritage Council of NSW (Heritage Council), appointed by the Minister, is responsible for heritage in NSW, as constituted under the Heritage Act. The Heritage Council is a cross-section of heritage experts with Heritage NSW being the operational arm of the Heritage Council.

Heritage NSW provides guidelines for conducting assessments of heritage significance, including *Assessing Heritage Significance* (2001) and *Statements of Heritage Impact* (1996, revised 2002). The criteria for heritage significance assessments presented within these guidelines is summarily addressed in **Section 5.0** of this report. The proposal area is not a listed heritage item and does not contain any listed heritage items, and the visual inspection of it confirmed that it is not itself necessarily of heritage significance; a comprehensive assessment of heritage significance for the proposal area has therefore not been undertaken, except in terms of archaeological significance.

2.1.1 Relics Provision of the Heritage Act 1977 (NSW)

As discussed, the Heritage Act affords automatic statutory protection to 'relics' which form part of archaeological deposits (except where these provisions are suspended by other prevailing legislation).

Heritage NSW provides guidelines for conducting assessments of heritage significance. In 2001 the Heritage Council issued the *Revised Assessing Significance* guidelines and in 2009 the *Assessing Significance for Historical Archaeological Sites and 'Relics'* which outline specific criteria for addressing the significance of an item or archaeological site.

2.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that consideration be given to environmental impacts – including heritage – as part of the land use planning process, and the provisions of the EP&A Act allow for the implementation of Local Environmental Plans (LEPs).

Part 5 Clause 5.10 of the Newcastle LEP 2012 provides the statutory framework for heritage conservation including the conservation of:

- the environmental heritage of Newcastle
- heritage significance of heritage items and heritage conservation areas
- archaeological sites, and
- Aboriginal objects and Aboriginal places of heritage significance.

2.3 The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance (2013)

The *Burra Charter* is a set of best practice principles and procedures for heritage investigation and conservation. The Charter was developed by the Australian group of the international professional organisation for conservation; International Council for Monuments and Sites (ICOMOS). Although it is not a statutory document, the Burra Charter provides a best practice standard for heritage management in NSW and Australia. The policies and legislative guidelines of the Heritage Council and Heritage NSW are consistent with and guided by the Burra Charter.

2.4 Historical Archaeology non-Statutory Listings

2.4.1 Newcastle Archaeological Management Plan 1997

The *Newcastle Archaeological Management Plan* (AMP – Suters Architects 1997) was prepared to give an indication of the nature and extent of historical archaeological resources in central Newcastle and to provide a framework to ensure historical archaeological resources are recognised and integrated into the urban planning framework. Although non-statutory, the AMP 1997 is a planning tool that provides an overview of areas that require the consideration of archaeological issues in conjunction with any development applications.

The AMP 1997 identified nine archaeological precincts within Newcastle that define areas 'in which a common pattern of development has occurred, and may be expected to contain an archaeological resource of some cohesive characteristic' (Suters 1997:40).

The eastern half of the proposal area is located within Precinct 8 Harbour Foreshore 1860 described as being:

> *The land north of Hunter Street being the original Harbour Foreshore. This includes the previously identified Honeysuckle Point, and that narrow strip of land controlled by the AA Company. Associated with the development of the railways, coal loading, wharfage and industry (Suters Architects 1997)*

However, the proposal area is not indicated as being within or part of an indicative archaeological site. The western half of the proposal area is outside (to the west of) the AMP 1997 study area.

2.4.2 Draft Newcastle Archaeological Management Plan Review 2013

At present the AMP Review is a draft working document, however, as stated by Council (2015) the AMP 1997 and the Review 2013 should both be utilised and are both identified as the current operative documents. The 2013 Review has been consulted to identify whether there are any additional considerations relevant to the proposal area.

The proposal area partially falls within AMP Review Inventory Nos. 2176280 and 2176281 (refer to **Plate 2.1**). **Table 2.1** summarises the AMP Review assessment of the potential archaeological resource of inventory nos. 2176280 and 2176281.

The AMP Review classified the wider area as having the potential to contain locally significant historical archaeological remains, and as having been subject to little disturbance over time. Historical mapping (such as the 1890s Hunter District Water Board plans) included in the AMP Review shows that pre-twentieth century development was only present in the Tree of Knowledge Park portion of the proposal area.

Table 2.1 AMP Review Inventory No. 2176280 and 2176281

Inventory No. and Location	Penal Settlement 1801 to 1821	Town Development 1820s to 1853	Railway and Port Infrastructure	Urban Development 1853
2176280 Blocks bounded by Hannell Street, Stewart Avenue, the Hunter River, Cottage Creek and the Railway Line. (Area comprises the land adjacent to the harbour west of Cottage Creek to Tree of Knowledge Park) Note the reclaimed land west of Cottage Creek is not part of the inventory. The reclaimed wharf area is discounted from the inventory listing.	-	-	Wharfage under construction in the 1890s. Railway and port infrastructure. Reclamation an extension of the scheme designed by E O Moriarty. State significance.	Block was first developed in the 1860s. The block was mostly residential, with some industry. Local significance.

Inventory No. and Location	Penal Settlement 1801 to 1821	Town Development 1820s to 1853	Railway and Port Infrastructure	Urban Development 1853
2176281 Blocks bounded by the Hunter River, Worth, Hunter and Bellevue Streets, Railway Line and Cottage Creek, including parts of adjacent streets (Honeysuckle Drive, Hunter and Worth Streets). (Area comprises the land adjacent to the harbour east of Cottage Creek to Worth Place)	The Government Farm or Commandant's Farm was located at Cottage Creek. State significance. **Note** not considered to be within proposal area.	Block was on the fringe of Newcastle from the 1820s to the 1850s. Dangar's Newcastle Meat Preserving Works. Presbyterian and Catholic Cemetery. State significance. **Note** not considered to be within proposal area.	Honeysuckle Point Station (**note** not within proposal area). Lee Wharf , constructed in 1910. Reclamation an extension of the scheme designed by E O Moriarty. Railway and port infrastructure. State significance.	Block was rapidly developed in the 1860s. Partly residential, but also has some commercial and industrial premises. Local significance.

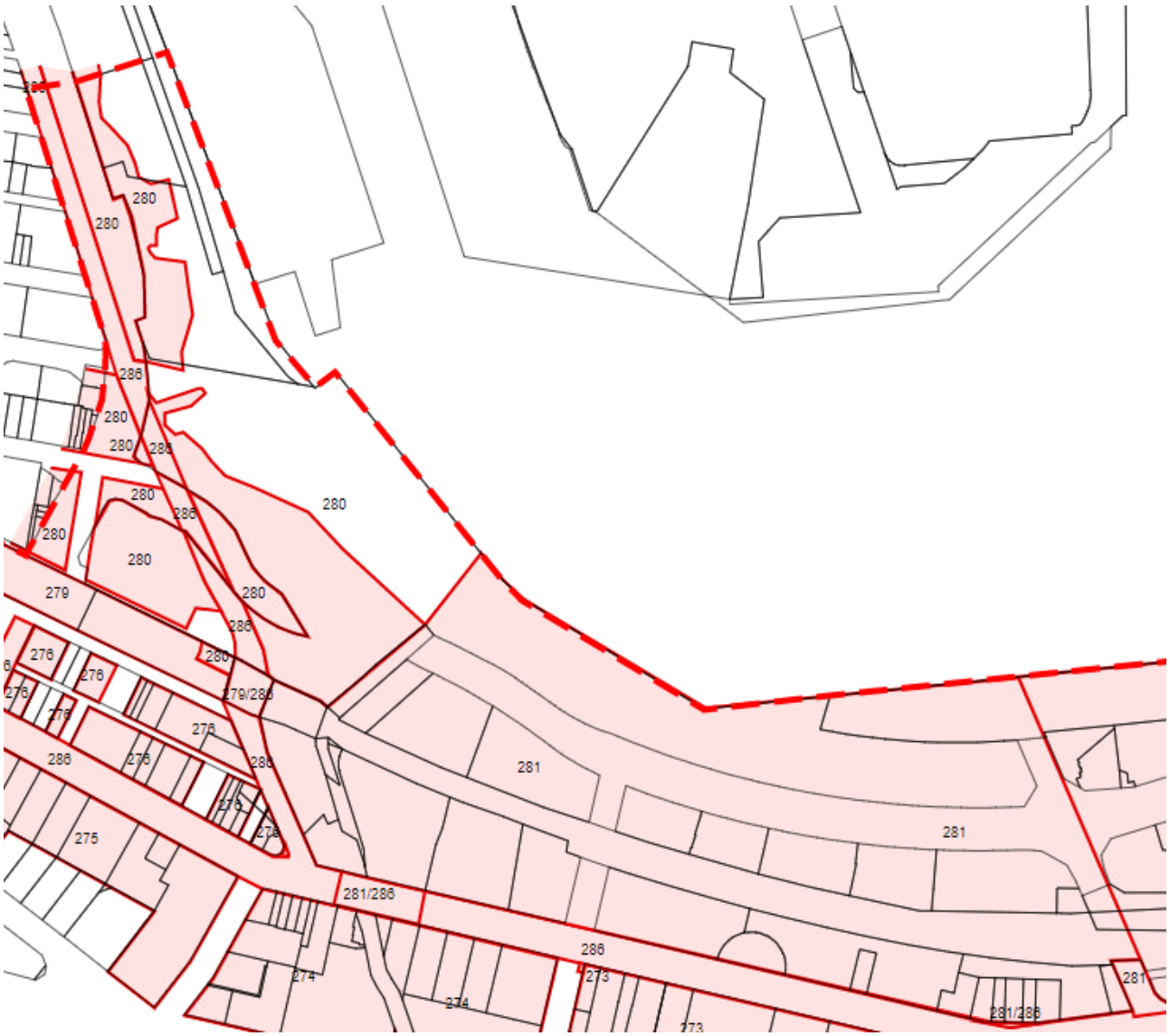


Plate 2.1 Detail of AMP Review Inventory of Archaeological Sites Map

Detail shows the waterfront area from Worth Place (right of image). The proposal area is partially within Inventory No. 2176280 (the Tree of Knowledge Park area top left of image) and Inventory No. 2176281 (Cottage Creek North and the east boardwalk area)

3.0 Historical Context

The proposal area forms part of a landscape that was used by the traditional Aboriginal owners for many thousands of years prior to European contact and continues to be highly valued by Aboriginal people today. The occupation of the Newcastle area (known to the Awabakal as Mulubinba) by Aboriginal people is demonstrated by the presence of a range of archaeological sites that include evidence of varying levels of occupation and utilisation of different landscapes and resources within the Newcastle area. Following non-Aboriginal settlement, there are records of Aboriginal people interacting with the non-Aboriginal population in the early period of settlement but subsequent records are relatively rare until the modern period (Umwelt 2014).

Following an initial short lived attempt to establish a permanent settlement in the Newcastle area, the non-Aboriginal settlement of Newcastle essentially commenced in 1804 with the establishment of the penal settlement.

3.1.1 Settlement (1804-1823)

The penal settlement at Newcastle was founded under the administration of Lieutenant Charles Menzies with 34 Irish prisoners; exiled by Governor King for their role in the Battle of Vinegar Hill of 1804. The expedition to found the new settlement left Sydney on 28 March 1804. Menzies named the new settlement Kingstown, but Governor King's own choice, Newcastle, prevailed. At its peak in 1821 the population of the penal settlement was more than 1100.

The penal settlement was laid out in a similar fashion to a military encampment; comprising two lines of tents or huts along the main street (George Street – now Watt Street) from the wharf to the more substantially constructed Commandant's House. By 1813-1814 the layout of the settlement had expanded into an irregular grid of four or five parallel streets with cross streets and a number of administrative/institutional buildings built in positions separated from the irregular grid, including the Church, Flagstaff, Gaol, Hospital and Surgeon's House (Higginbotham 2013:28).

The penal settlement was closed in 1823 in favour of a penal colony at Port Macquarie (Turner 1997:14).

3.1.2 Newcastle's Government Town (1823 to 1853)

In 1823 assistant surveyor Henry Dangar laid out the Newcastle town plan, the core of which makes up the current Newcastle central business district. Dangar imposed a regular grid plan on the disorganised settlement of 1804 to 1823. Existing streets were realigned and renamed. Three new principal streets were established aligned east to west along the ridgelines and named after governors Hunter and King, and the existing Christ Church. The intersecting cross streets were named after engineers contributing to the discovery of steam: James Watt, Matthew Bolton, Thomas Newcomen, James Wolfe, and Thomas Perkin. In laying out the town plan the intention was to prepare the town for its role as a port to service the rapidly developing Hunter Valley (Turner 1997:12).

3.1.3 Development and Expansion (1853 - 1900s)

The population of Newcastle remained very low until the 1850s, with the commercial and industrial development of the area hampered by inefficient land transport (Suters 1997:2/2) and the Australian Agricultural Company's (AA Co) monopoly over land and the coal industry.

However with the lifting of the monopoly, some of the A.A. Co's surplus land was made available for subdivision and development. The first subdivision in the early 1850s included the extension of Hunter Street, then known as Blane Street and named after the deputy governor of the A.A. Co. New coal mines and their associated villages also began to appear. The mines began to ship their coal through the Port of Newcastle, contributing to its development and fostering commerce in Newcastle itself.

The A.A. Co had been chartered by the British Parliament in 1824 and established itself in Newcastle soon after. The A.A Co was instrumental in the growth of the Newcastle area, operating the mines and owning most of the land. The large A.A. Co Estate grant specifically prohibited subdivision until the 1850s when the urban development of the area essentially commenced. Until 1847 the A.A. Co was guaranteed a monopoly on the mining operations and their land in Newcastle was therefore left undeveloped for any commercial or residential use, essentially defining the early boundaries of Newcastle.

3.2 Honeysuckle

At the time of the European settlement of the area, Honeysuckle Point (to the north-east of the proposal area) was a low-lying promontory surrounded by tidal flats. To the north-west of Honeysuckle Point was Bullock Island, divided from the mainland by Throsby Creek (AMAC 2009:20).

Cottage Creek, originally known as Swamp Creek, to the west of Honeysuckle Point was one of the early sources of water for the Newcastle area. As part of the penal settlement of Newcastle the Government Farm (or Commandant's Farm) was established in the area of Honeysuckle Point and Cottage Creek. A track (now Hunter Street) went from Newcastle to Maitland with a branch (now Hannell Street) to farms in the Wickham area. Although there is a reference to 'the village of Wickham' as early as 1840, the area remained sparsely populated (AMAC 2009:21 & Higginbotham 2013). During the early and mid-1840s the government dedicated one acre of land along Cottage Creek, near the former Government Farm, for use as a Roman Catholic cemetery with an adjoining acre dedicated as a Presbyterian Burial ground in 1845 (Umwelt 2016). The former cemeteries were located at what is now 700 Hunter Street; to the south of the proposal area on the southern side of the rail corridor. At this time 38 acres at Honeysuckle Point were purchased by the Catholic Church for the establishment of a school; which was never built (AMAC 2009:21).

The A.A. Co's land, on the eastern side of Honeysuckle Point, provided access to Newcastle Harbour. By the late 1850s, the Company had an office and workshops, an iron store, a lumber room, staithes, and the accountant's residence on this land. The school land, on the western side of the Point, was subdivided and developed for both residential and industrial purposes and a number of wharves were also built. Businesses established on Honeysuckle Point included the Dangar's meat-canning works in 1849. The Dangars Newcastle Meat Preserving Company at Honey Suckle Point was one of the early successful local businesses in West Newcastle. The company flourished until approximately 1853 producing canned beef and mutton for export to the United Kingdom and for provision aboard Royal Navy Ships (Umwelt 2016). Other businesses included Archibald Rogers Iron and Brass Foundry and General Iron Works (1856), a small shipbuilding yard, and Newcastle's first soap and candle factory; established in the 1860s by F. Nainby (AMAC 2009:21).

After the A.A. Co started selling off their land on the south side of Blane (now Hunter) Street in 1853, development and urban expansion of western Newcastle began. The wharf construction program, the dredging of the harbour and the reclamation of the foreshore hastened the development of the area during the mid-nineteenth century (Umwelt 2016). The area of Wickham became important in the late 1860s as it was close to the city, harbour and railway line, and could be used for factories and industrial development. The sale of small allotments from the late 1860s allowed workers in local industries to settle, creating the village of Wickham. Stores, churches, hotels, schools, bakeries and a post office were established in the town (AMAC 2009:22).

The dirt tracks through the area were essentially the early transport routes throughout the Lower Hunter between Newcastle and Maitland. By 1853 the decision was made to construct a railway between the two towns. In 1854 construction on the Great North Railway (GNR) began with the first stage between Honeysuckle Point Station (located to the west of the location of the former Civic Station), Newcastle and East Maitland opened by Governor Sir William Denison on 30 May 1857. By 1858 the Newcastle line was expanded east to Watt Street in central Newcastle reflecting the urban expansion with the town's population growing from 1,534 in 1856 to 7,810 in 1861 (Umwelt 2016). Approaching Honeysuckle Point, the rail line ran along an embankment and Honeysuckle Station was built on land resumed on Honeysuckle Point. The buildings constructed at the station included a group of workshops and became known as the Locomotive Branch. In 1870, the Existing Lines Branch later called the Permanent Way or Per Way Branch, established separate workshops at Honeysuckle (AMAC 2009:22).

As Newcastle developed into a major port, and as shipping and other transport and methods of cargo loading changed, substantial works were carried out on the harbour, including at Honeysuckle, altering the shape of the coast. The construction of the Dyke, at Bullock Island, began in the 1860s, and a coal-loading wharf was built there in the 1870s. In approximately 1870 a bridge was built across Throsby Creek to Bullock Island (refer to **Section 3.4**).

In 1868 small allotments of land were put up for sale, and these became the small village of Wickham. Industries then began to move to the area, among the earliest being Hutchinson's soap and candle factory, and Robert Campbell's sawmill. By approximately 1872 the population of Wickham had grown to 700 and many of the men were employed in the local industries. The construction of the railway increased the importance of Hannell Street and the southern end of the street became the commercial centre of Wickham from about the 1870s. The Municipality of Wickham was formed in 1871 (AMAC 2009:22).

In approximately 1890, the creation of the Basin, between the Dyke and Bullock Island, began. The work involved the dredging of the sea floor in the area of the Basin, and removal of rock at the harbour entrance. The dredged silt was used as fill, in order to reclaim areas of Carrington and Honeysuckle. By 1896 the area to the south of the railway embankment had been reclaimed. In 1910 the first part of Lee Wharf was built. This entailed the removal of the northern part of Honeysuckle Point. The Wharf extended west as far as Bullock Island Bridge. It appears that the initial construction of Lee Wharf did not involve the filling and reclamation of the area to the south, and that water continued to flow through this area at high tide (AMAC 2009:23).

In the late 1920s Lee Wharf was extended 540 feet to the west. In the late 1930s it was extended another 100 feet, with a low level wharf for another 460 feet (AMAC 2009:24). The ownership of Lee Wharf and the resumed and the newly reclaimed land was retained by the State and Commonwealth Governments, divided among various departments, principally the Public Works Department, along the Wharf, and the Commissioner for Railways, to the south. The wharf and the land alongside it were used for shipping; principally loading and unloading vessels. Some of the buildings there were leased to private companies, while others were used by official bodies, such as the Water Police and the Fisheries Department.

In the 1930s, the growth of the Honeysuckle Point railway workshops ceased, after the workshops at Chullora in south-west Sydney were expanded. However, until the 1950s, the Per Way Workshops continued to take on contracts for other government departments, such as Public Works (AMAC 2009:24).

A further extension to the western end of Lee Wharf began in 1937 with the construction of 100 feet of timber wharf and 460 feet of concrete wharf. The work was completed in 1941. Repairs carried out after World War II included re-decking the Wharf with concrete, and driving in piles to support the structure. In 1958 the foundry at the railway workshops was closed down, and several of the operations were moved to Cardiff. In the late 1970s most of the Per Way Workshop buildings were demolished. Remaining buildings

on the Workshop's site continued to be used by the Railways until the early 1990s, primarily for storage and minor maintenance (AMAC 2009:25).

3.3 Proposal Area

As discussed, previous reports have investigated the history and archaeological potential of the Honeysuckle area. This discussion focuses on the proposal area and draws from the previous reports; in particular:

- Baseline Archaeological Assessment Cottage Creek Precinct And Wickham Urban Village Newcastle NSW (AMAC 2009)
- Baseline Archaeological Assessment – Honeysuckle Foreshore, Newcastle (AMAC 2019).
- Historical Archaeological Assessment Report – Honeysuckle Drive Realignment, Newcastle (Umwelt 2019).

If required, the 2019 AMAC report should be referred to for further details on land titles and Newcastle rates records information regarding owners and occupiers of the various allotments discussed in this section both within and adjacent to the proposal area.

3.3.1 Hunter District Water Board Plans

In the 1890s the Hunter District Water Board commissioned the Survey Section of the Land Department to produce a series of large scale plans of urban Newcastle, for planning purposes. The first plans were produced in 1894 and show detailed footprints of buildings present at the time. Some of the plans were later revised to reflect an approximately 1920 footprint (Russell Rigby 2019). These plans are specifically referred to and utilised in this section as likely the most accurate indication of the former nature of the proposal area following sub-division.

While the structures and other improvements shown on these plans are an indication of some of the first development that occurred in the proposal area it is noted that the majority of the proposal area in the 1890s was within Throsby Creek with the exception of the Tree of Knowledge park area (refer to **Plate 3.1**). By the time the plan was revised in 1922 reclamation had transformed the area into harbourside wharfage (refer to **Plate 3.2**). **Figures 3.1** and **3.2** provide overlays of the Water Board Plans and the proposal area.

As a result of the majority of the harbourside proposal area being within Throsby Creek until reclaimed, the discussion below focuses on the Tree of Knowledge park area.

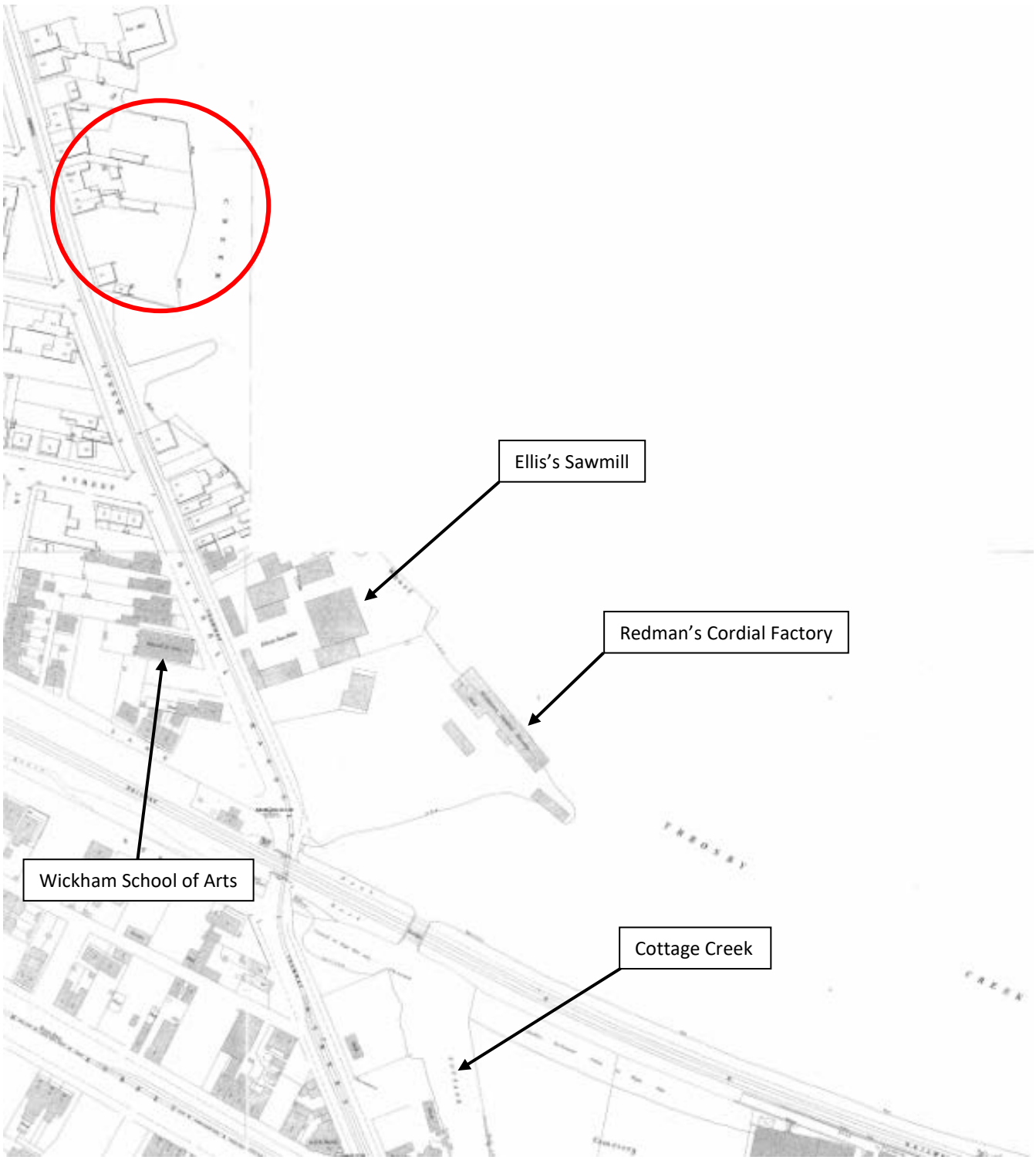


Plate 3.1 Detail of 1896 Hunter District Water Board Plan

With the exception of the Tree of Knowledge Park area (circled red) the entire Public Domain proposal area is within Throsby Creek in the 1890s (refer to **Figure 3.1** for an overlay of the entire proposal area)

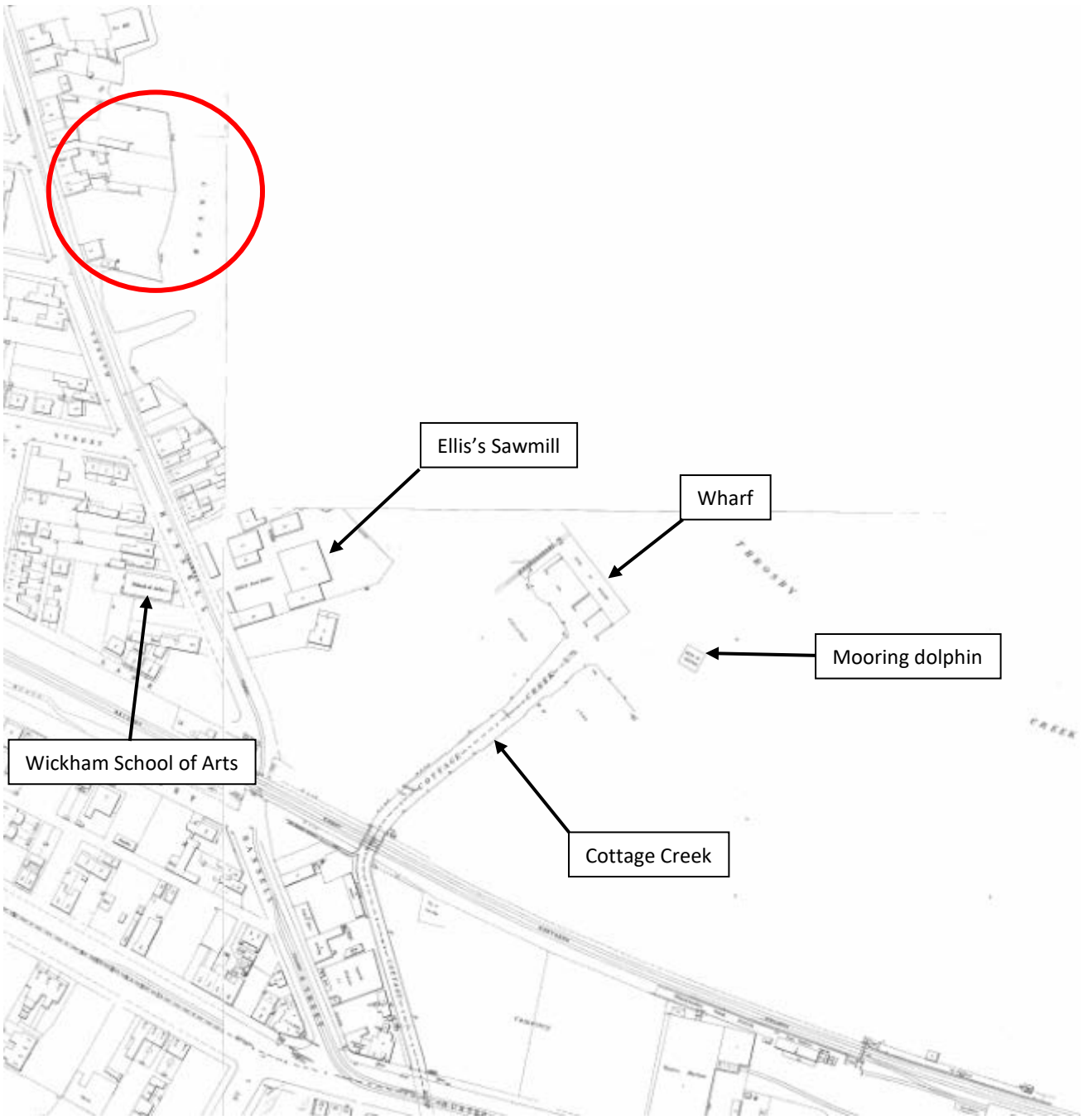
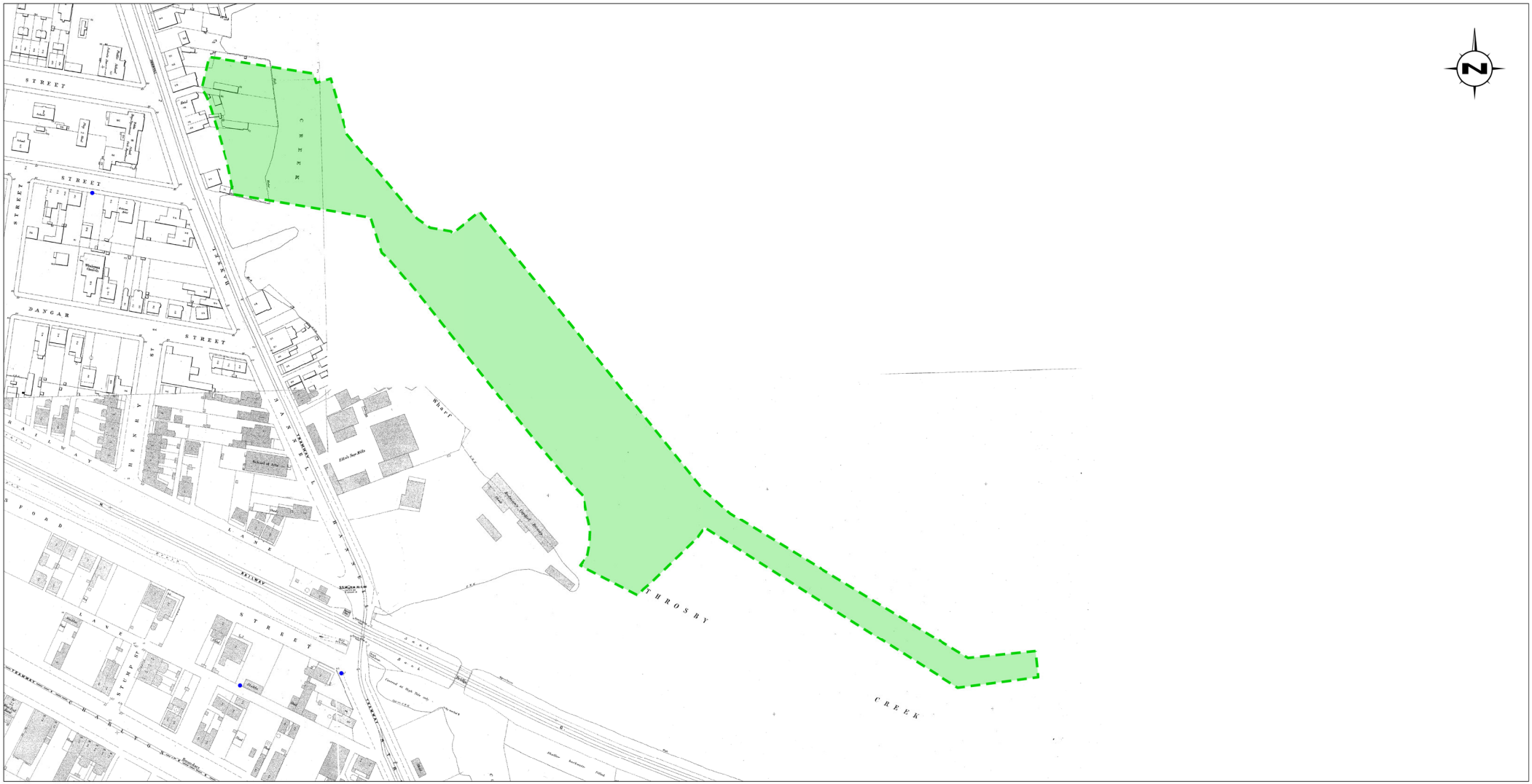


Plate 3.2 Detail of revised (1922 dated) Hunter District Water Board Plan

Plan shows area to east of Cottage Creek as being in the process of being reclaimed and formed, with the line of the reclaimed wharf area and the mooring dolphins within the proposal area. Approximate Tree of Knowledge Park area circled red. Refer to **Figure 3.2** for an overlay of the entire proposal area



Legend

Proposal Area

FIGURE 3.1

1896 Water Board Plan and Proposal Area

Legend

Proposal Area

FIGURE 3.2

1922 Water Board Plan and Proposal Area

3.3.2 Early Grants

The area now known as Tree of Knowledge Park was originally part of Francis Mitchell's 1840 crown grant (Allotment 168); consisting of 20 acres (refer to **Plate 3.3**). In 1854 Mitchell sold his 20 acres to William Henry White (or Whyte) of Newcastle and the land became known as Whyte's paddock. The property was subdivided by 1878. Richard Tasker Furlong was granted the 20 acres (Allotment 169) adjacent to Mitchell's grant. However, the sale of Furlong's allotment was cancelled and the 20 acres were sold by the NSW Sheriff to Thomas Black in 1843. Black sold the property to Henry Dangar. In 1848 Dangar opened a meat canning factory on the property he bought from Black. Following his death it was inherited by his fourth son, Albert Augustus Dangar. Dangar appears to have begun to subdivide and sell the property in the 1870s (AMAC 2019). The factory is thought to have been located at 684 Hunter Street, on the south side of the former heavy rail corridor.

3.3.3 Tree of Knowledge Park

The area of Tree of Knowledge Park was purchased by Charles Sweetland in 1885 from White (or Whyte). An 1880s dated plan shows two buildings labelled "Soap Works" likely being on Sweetland's property and a number of smaller buildings immediately to the north (refer to **Plate 3.4**). Sweetland's property was transferred to James Russell in 1886. J. Russell and Co. was the largest general engineering company in the district in the 1890s. In 1892 the Company employed 180 people, although this was reduced to 85 by 1895 as a result of the depression. In 1911 the property was transferred to the Bank of NSW. To the east and to the south of Sweetland's allotment were two lots reserved for Wickham market. One consisted of 1 rood 16 ½ perches, and the other of 2 roods 15¼ perches. The reserves are reported as being dedicated on the 15th January 1886, but were never developed as a market (AMAC 2019).

By the time of the 1896 Water Board Plan (refer to **Plate 3.1**), the larger of the two Soap Works buildings, as shown in the 1880 plan, has been demolished, but the neighbouring (to north) buildings remain. There has been some further construction of buildings facing Hannell Street with outbuildings to the rear. These buildings appear to remain through into the 1920s and include a Hotel fronting onto Hannell Street (refer to **Plate 3.5** showing a detail of the Tree of Knowledge Park portion of the proposal area in 1896 and at the time of the 1922 revised plan). It is noted that only the outbuildings of the structures fronting Hannell Street are within the proposal area; the outbuildings likely include cesspits / provies.

The area to the south developed as an area of light industrial enterprises along the foreshore such as Ellis' Sawmill and Redman's Cordial Factory (refer to **Plates 3.1** to **3.2** and **Plates 3.6** to **3.7**). The cordial factory had likely ceased operation and been demolished in the 1920s. The Commonwealth Oil Refineries depot was constructed in the former area of the cordial factory. The sawmill appears to have been in use until at the latest 1928 when John Reid's Wool Store opened in the same location (refer to **Plates 3.8** to **3.10**).

The Tree of Knowledge Park area, to the north of John Reid's Wool Store, has buildings facing Hannell Street with light industrial type outbuildings to the rear into the 1920s (refer to **Plate 3.9**). The smaller of the two Soap Works buildings, as shown in the 1880 and 1896 plans, appears to still be extant facing Hannell Street (refer to **Plate 3.9**). By 1938 all the structures within the Tree of Knowledge Park area have been demolished with the exception of what appears to be the smaller of the two Soap Works buildings and an associated shed to the rear which likely remain extant until after 1938 (refer to **Plates 3.11** and **3.12**).

In 1925 a wharf for the discharge of inflammable liquids was constructed on the Wickham side of Cottage Creek. The wharf provided unloading facilities for The Atlantic Oil Company which established a large oil terminal in the Wickham area. Tankers berthed at the wharf and fuel was pumped to the oil terminal (Port of Newcastle 2014).

By approximately the 1930s the waterfront area had been completely redeveloped with the expanding program of reclamation and extensive industrial redevelopment which included the construction of the inflammable liquids berth, the adjacent Commonwealth Oil Refineries depot (Tank Farm) and John Reids Wool Store. By the 1950s all the buildings within the Tree of Knowledge Park area have been demolished (refer to **Plates 3.13** to **3.15**).

In 1969 No.1 Throsby Wharf was completed, on the northern side of the Cottage Creek drain. Development along Hannell Street such as the inflammable liquids berth, Commonwealth Oil Refineries depot and Wool Stores appear to have been demolished for the construction of the wharf (refer to **Plate 3.16** and **3.17**). A large cargo shed (measuring 434 ft. by 120 ft.), and an extensive paved cargo handling area (wharf apron) were also constructed behind the new wharf in the area of the former inflammable liquids berth, Commonwealth Oil Refineries depot and Wool Stores. Two lines of rail tracks and facility for a 26-ton travelling crane were also constructed (AMAC 2019 and Port of Newcastle 2014).

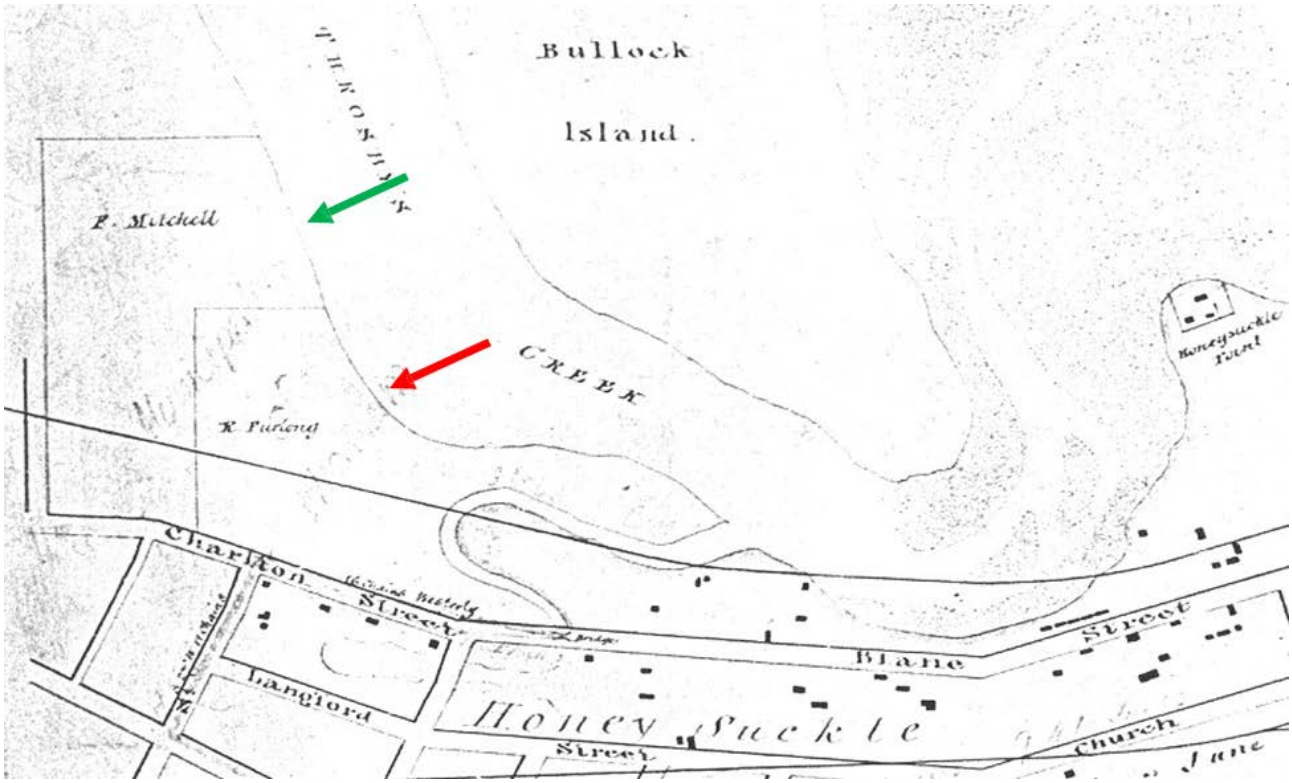


Plate 3.3 Detail of 1857 Plan of the City of Newcastle

Green arrow indicates Mitchell's grant. Red arrow indicates Furlong's grant to the west of Cottage Creek

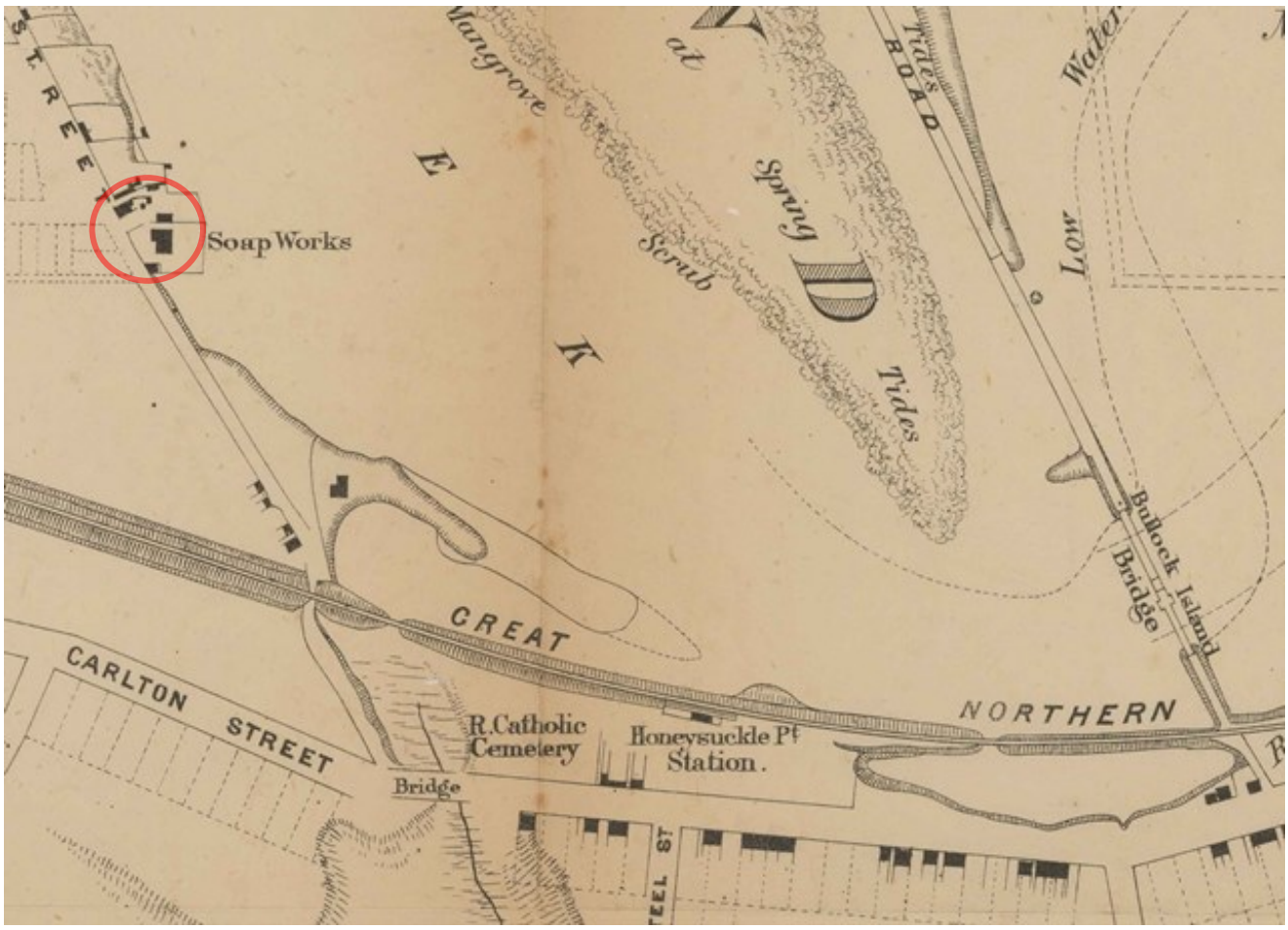


Plate 3.4 Detail of R.C. Knaggs & Co. 1880 Plan of the Port of Newcastle

Plan shows the Soap Works within the Tree of Knowledge Park area (circle red) at the north (west) end of the proposal area and the Bullock Island Bridge at the east end of the area.

Plate 3.5 Detail of 1896s Hunter District Water Board Plan (left) and revised 1922 plan (right)

Green shaded area indicates the proposal area at this point (approximate Tree of Knowledge Park). Note that only the outbuildings of the structures fronting Hannell Street are within the proposal area. The hotel is shaded blue. There is no change to the structures as planned. Refer to **Figures 3.1** and **3.2** for overlays of the whole proposal area.

Plate 3.6 Redman's Cordial Manufactory

Plate 3.7 Approximately 1890 dated photograph of Ellis's Sawmill

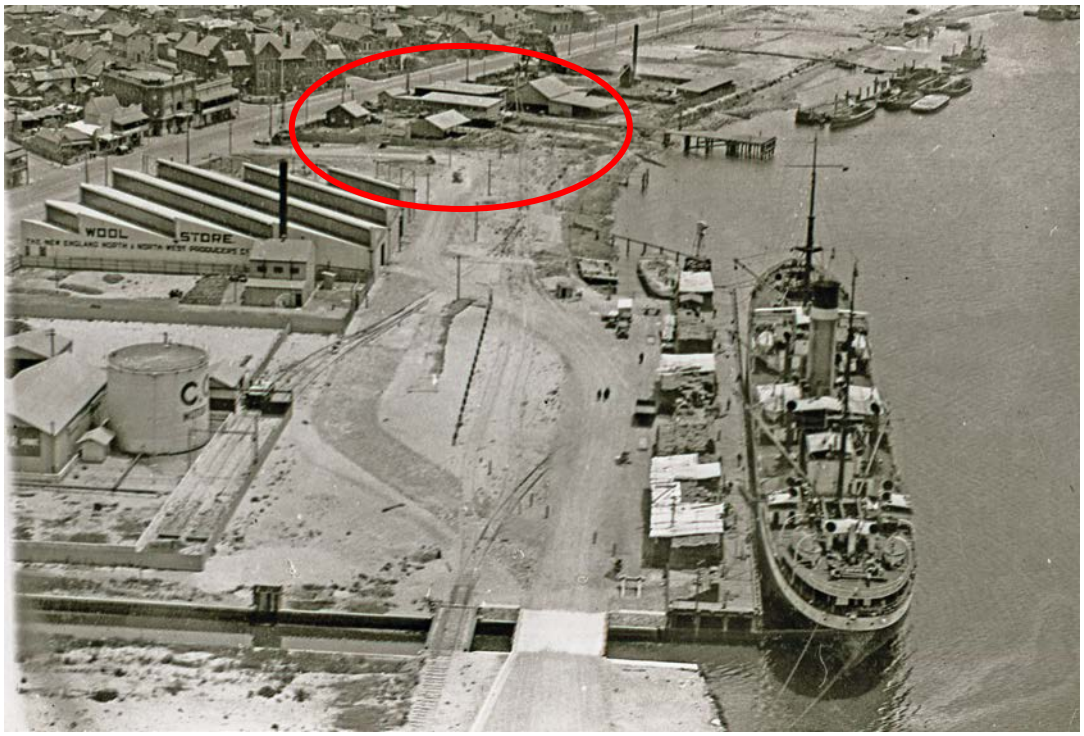


Plate 3.8 Pre-1938 photograph showing the Honeysuckle foreshore

Cottage Creek is at the bottom of the photograph with the Commonwealth Oil Refineries depot adjacent to it. The saw-tooth roofed building in John Reid's Wool Store. The Tree of Knowledge Park area is shown at the top of the photograph (circled).

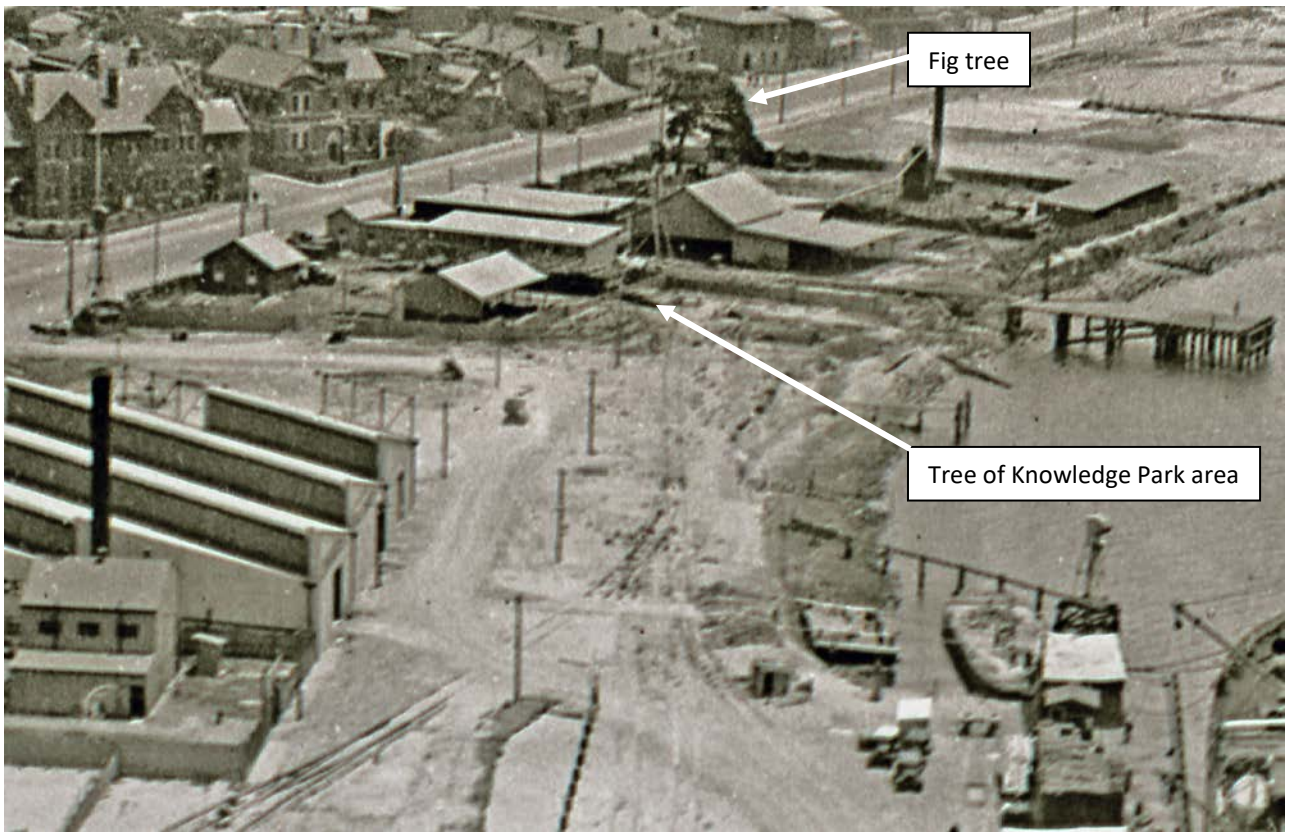


Plate 3.9 Detail of pre-1938 photograph showing the Honeysuckle foreshore

Detail shows the structures present within the Tree of Knowledge Park area fronting Hannell Street with larger shed like structures to the rear centre of photograph). John Reid's Wool Store is at bottom left of the photograph. The reclaimed shoreline is unformed with rail lines, timber wharf structures and moorings. Note the extant mature fig tree to the north of the proposal area.

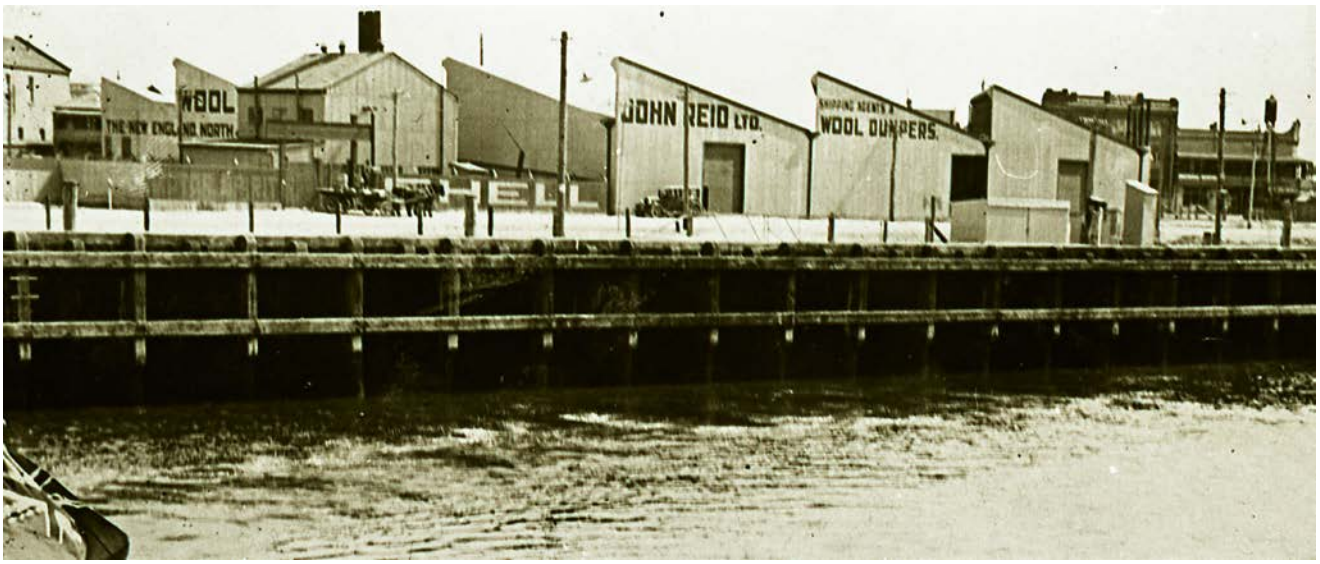


Plate 3.10 John Reids Wool Store, Newcastle, nd

Photograph shows the timber construction of the wharf

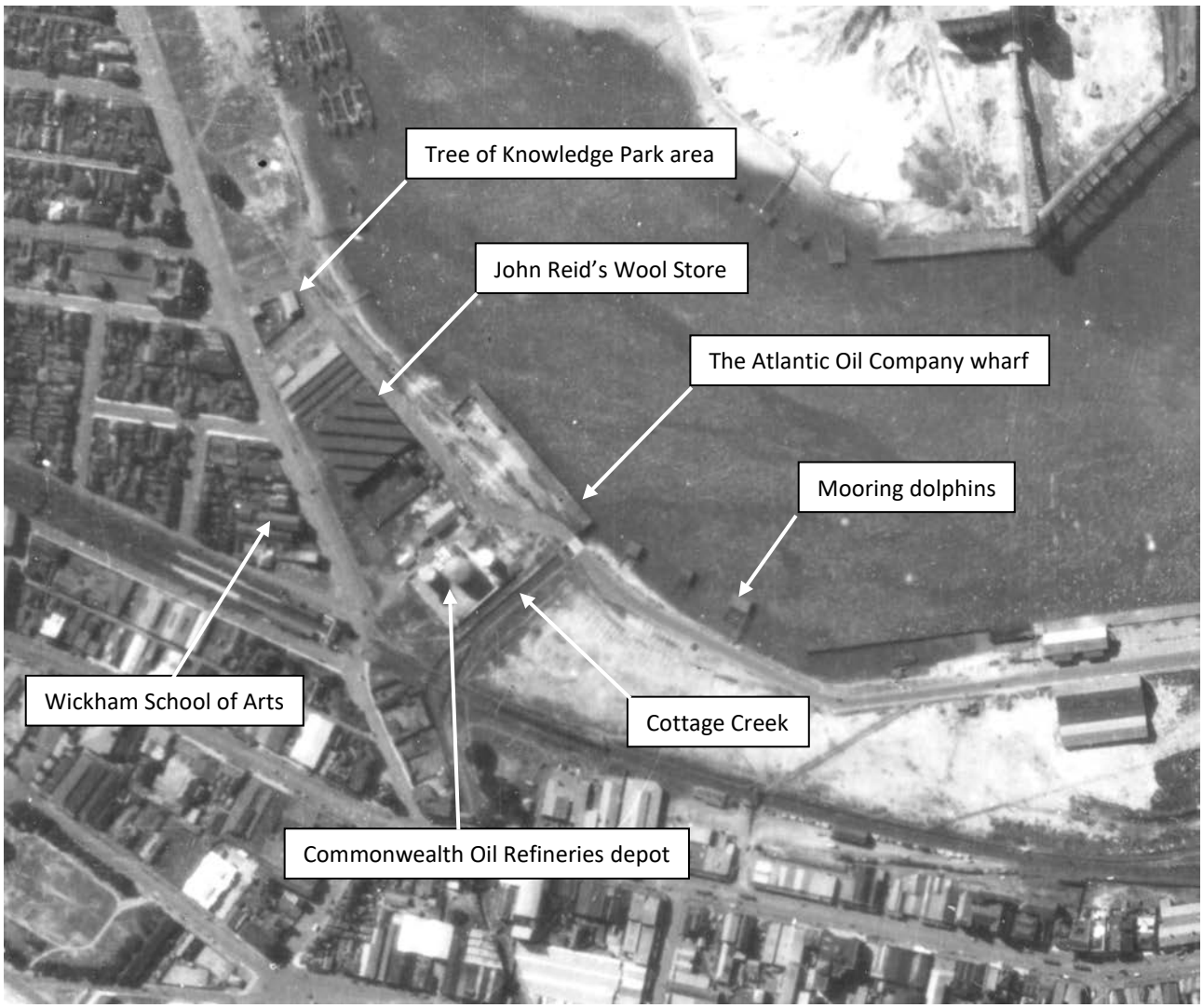


Plate 3.11 1938 Aerial photograph of the Honeysuckle Foreshore area

Shows the extending reclamation east of Cottage Creek and the extensive development west of Cottage Creek

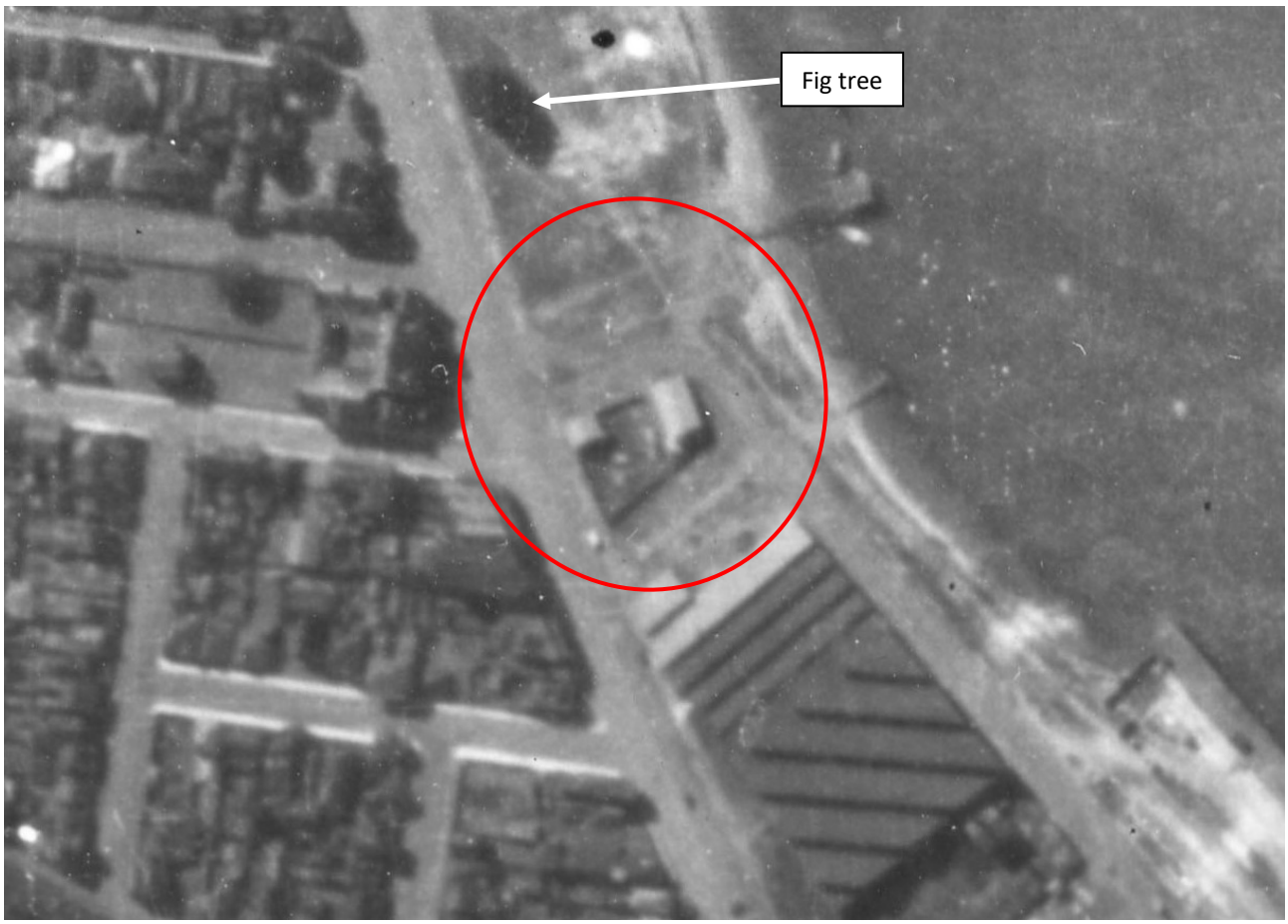


Plate 3.12 Detail of 1938 aerial photograph of the Honeysuckle Foreshore area

Shows the Tree of Knowledge Park area (circled red), with the majority of buildings now demolished, to the north of Reid's wool store. Note the fig tree to the north of the proposal area

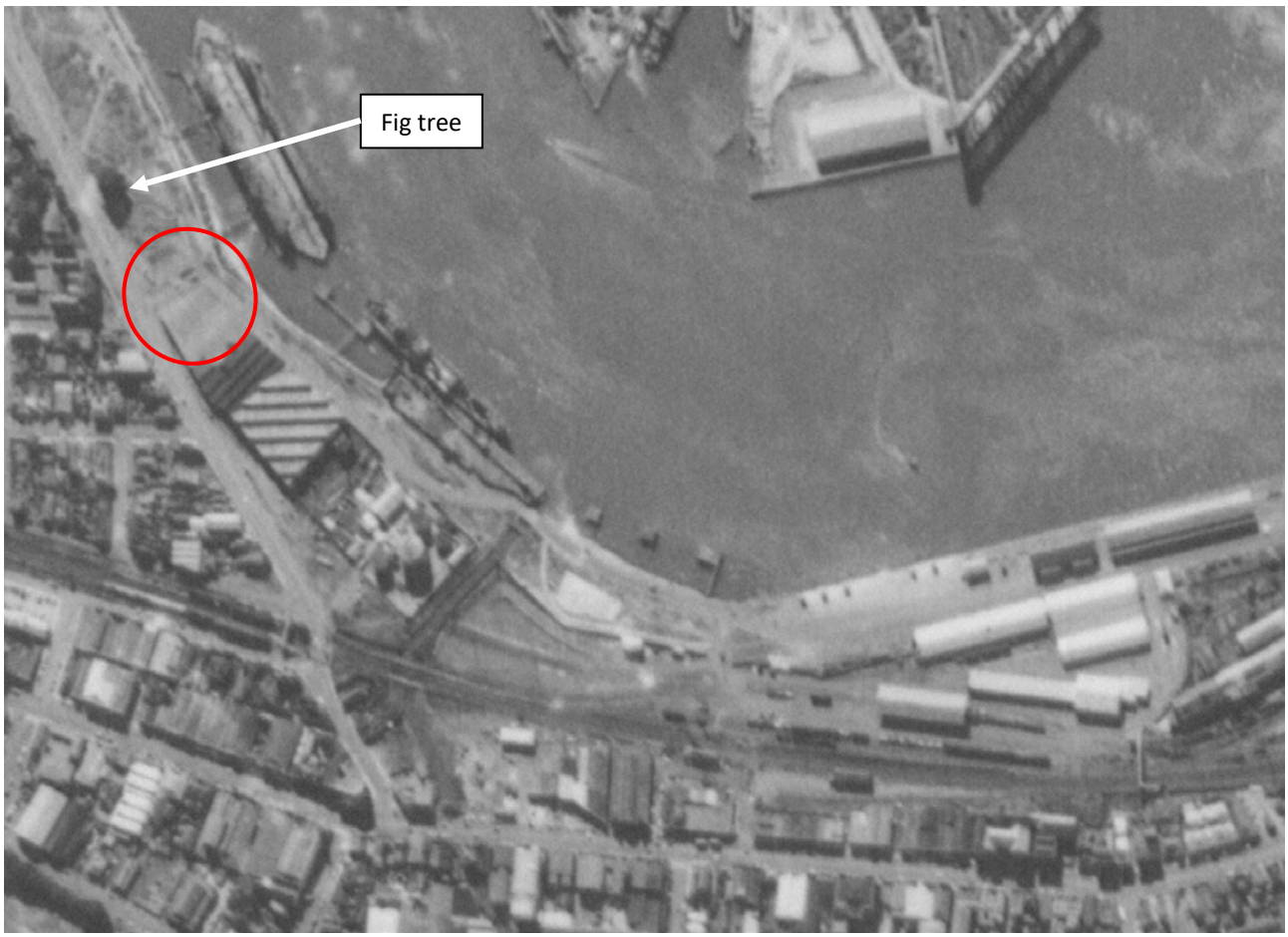


Plate 3.13 1954 Aerial Photograph

Photograph shows the buildings within the Tree of Knowledge Park area (red circle) as having been demolished by the 1950s. The reclaimed wharf area is extending from the east. Note the fig tree to the north of the proposal area

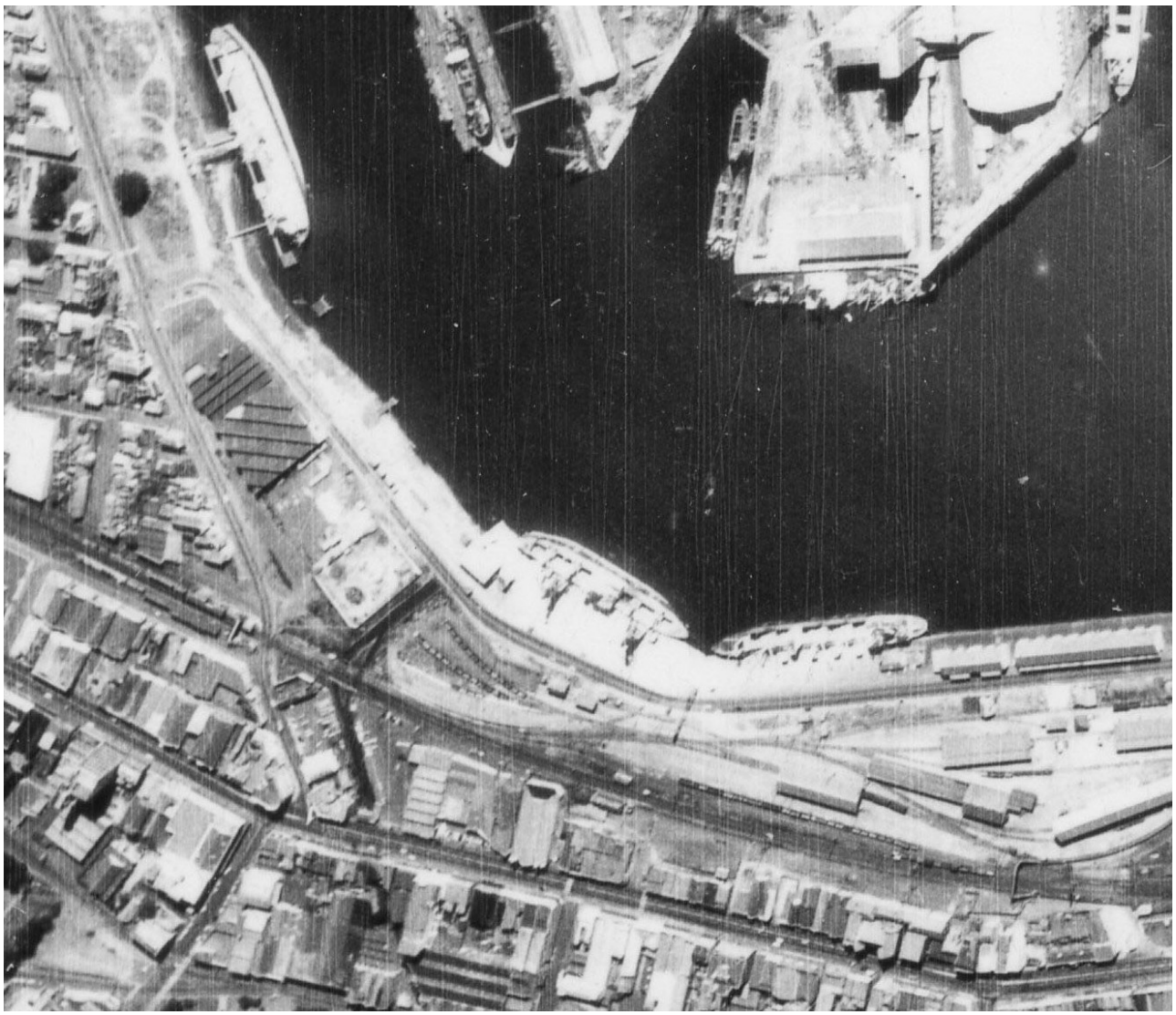


Plate 3.14 1966 Aerial Photograph of Honeysuckle

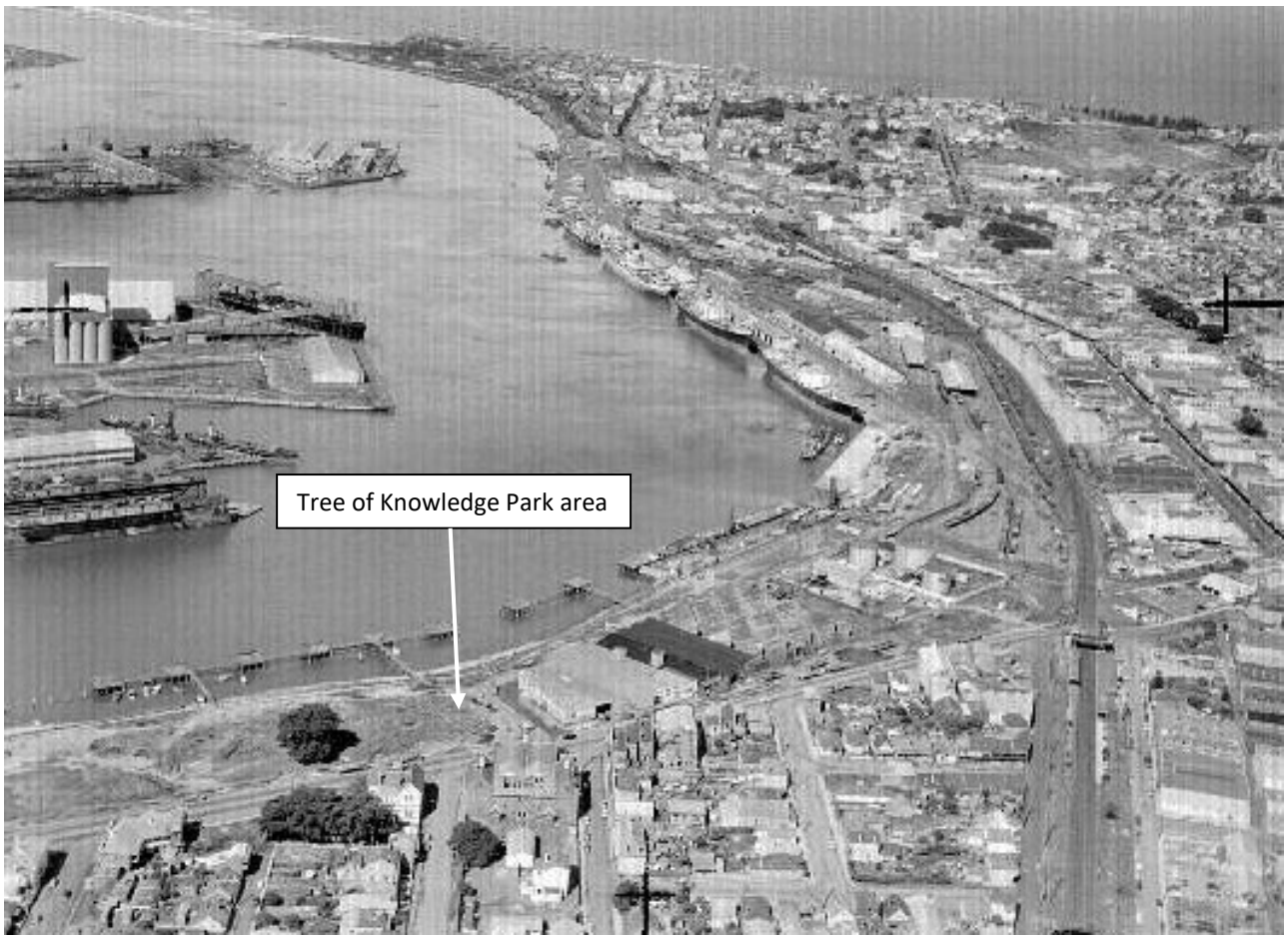


Plate 3.15 Looking East over Newcastle Harbour and Nobbys Head nd

Shows the Honeysuckle area including Tree of Knowledge Park. Note the fig tree to the north of the proposal area

Plate 3.16 1975 Aerial Photograph

Shows the large cargo shed and wharf apron area

Plate 3.17 1994 Aerial

Shows the large cargo shed and wharf apron area. Tree of Knowledge park area has formalised access into Honeysuckle from Hannell Street. Note Hannell Street is yet to be re-aligned and the fig tree to the north of the proposal area

3.4 Reclamation and Bullock Island Causeway

When Europeans first arrived to establish the convict station at Newcastle in 1801, the south side of the harbour was a series of tidal mudflats, with the harbour dotted with small islands and meandering channels. To the west, near Honeysuckle Point a creek, later named Throsby's Creek, ran between the shoreline and one of the larger islands, initially named by the surveyor Barrallier as Chapman Island. The island was thickly timbered with honeysuckle trees and a dense understorey of ferns and ground cover. The edges were defined by a think mangrove scrub and mudflats at low tide. By 1844 the island had been renamed Bullock Island.

In 1848 some of the island was subdivided and sold for building allotments, however development was slow due to the isolation and the terrain. As the port of Newcastle grew in the 1840s, especially as coal exports began to rise following the end of the A.A. Co monopoly, the first schemes to develop the waterfront of Bullock Island were mooted. As early as 1854 Mr J Woolston Ellis, Civil Engineer put forward the idea of building wharves along the eastern foreshore. Although nothing was done at this time, the appointment of Edward Moriarty as Engineer- Surveyor responsible for Hunter River improvements saw Ellis' idea revisited and Moriarty recommended a ballast embankment be built along the eastern side

sandbanks to provide new reclaimed land for wharves. Work began in 1861 with piles of ballast placed at intervals along the sandbank to show the line of the proposed reclamation and by 1863 a full line of ballast ran down the eastern side. The new embankment was named The Dyke. Despite the promising start, work soon slowed as there was no berth at Bullock Island for ships and so ballast was transferred from points at Stockton and the city by lighters to be dumped. With up to 40 ships in the port at any one time, most for coal loading, the priority was given to improve existing wharves rather than building new ones.

As more collieries opened in the Newcastle area, the pressure on the loading facilities encouraged the development of Bullock Island. In 1866 the Newcastle Wallsend Coal Company secured a strip of land to develop wharves, and later the same year the NSW government awarded tenders for the construction of two ballast jetties. In 1867 Lambton Colliery also purchased waterfront land for wharf construction. In October 1870 the government provided funds for the construction of a bridge across Throsby Creek to the island. The first pile was driven in April 1871 and by mid-year a pedestrian bridge had been constructed. Although this connected the island, it was not a trafficable bridge and pressure remained for a proper connection, which was completed as a road bridge with centre draw in 1873. The bridge, known as Carrington Bridge, ran from Worth Place across Throsby Creek to Denison Street.

From 1873 work began in earnest on the development of the Dyke, with a coal loading wharf constructed by the government. As work was underway the government also announced in 1875 that a branch line to the Great Northern Railway would be built to connect Bullock Island to the main port, with a bridge to be erected across Throsby Creek. Work progressed quickly once the tenders were awarded. The first pile was driven in October 1875 by Messrs J & M Burley. The 200 foot timber bridge was completed within three months. It crossed Throsby Creek in line with Cowper Street, taking the tracks from a branch line at Wickham across Throsby Creek to an embankment and on to the Dyke (refer to **Plate 3.18** to **3.19**). With new steam cranes being added to the Dyke, ships could be loaded directly from trains on the wharf.

In September 1888 the Carrington Bridge was deemed unsafe for heavy traffic with carts having to divert to a second bridge at Church Street, Wickham. The following year £22,000 was placed on government estimates for a replacement bridge, however it was to be another 11 years before any new bridge was built. After major repairs the Carrington Bridge reopened to traffic in April 1893.

In 1899, the NSW government advertised a tender for the construction of a new bridge across Throsby Creek to replace the repaired road bridge. Residents hoped for an iron bridge, but the tender was for a timber bridge only on iron piers. The tender was awarded to the Sheddon Bros, who began work on the new bridge in mid-1899. In January 1900 the old bridge was closed and the new one opened in August 1900 (refer to **Plate 3.20**).

In 1910 a new overhead rail bridge was built between the Dyke and Cowper Street at the northern end of Bullock Island. This was converted for tram traffic in 1911 and soon became the government's preferred access to the island. Despite local protest, a decision was then made to close the Carrington Bridge at Denison Street. On 1 March 1913 the Carrington Bridge was closed to traffic and by June it had been completely removed and the channel dredged.

Evidence of the causeway associated with the former Carrington Bridge was exposed during Light Rail works within the roadway of Worth Place close to the intersection of Honeysuckle Drive (refer to **Section 4.2.7**). The Newcastle Archaeological Management Plan (NAMP – Suters 1997) discusses 'the long earth or rubble approach embankments or causeways across shallow tidal water at each end of the bridge' and suggests 'the southern approach causeway and remnant timber piles might still exist beneath fill in the railway yards, in line with Worth Place'.

It is noted that Bullock Island Causeway is to the east (outside) of the proposal area.

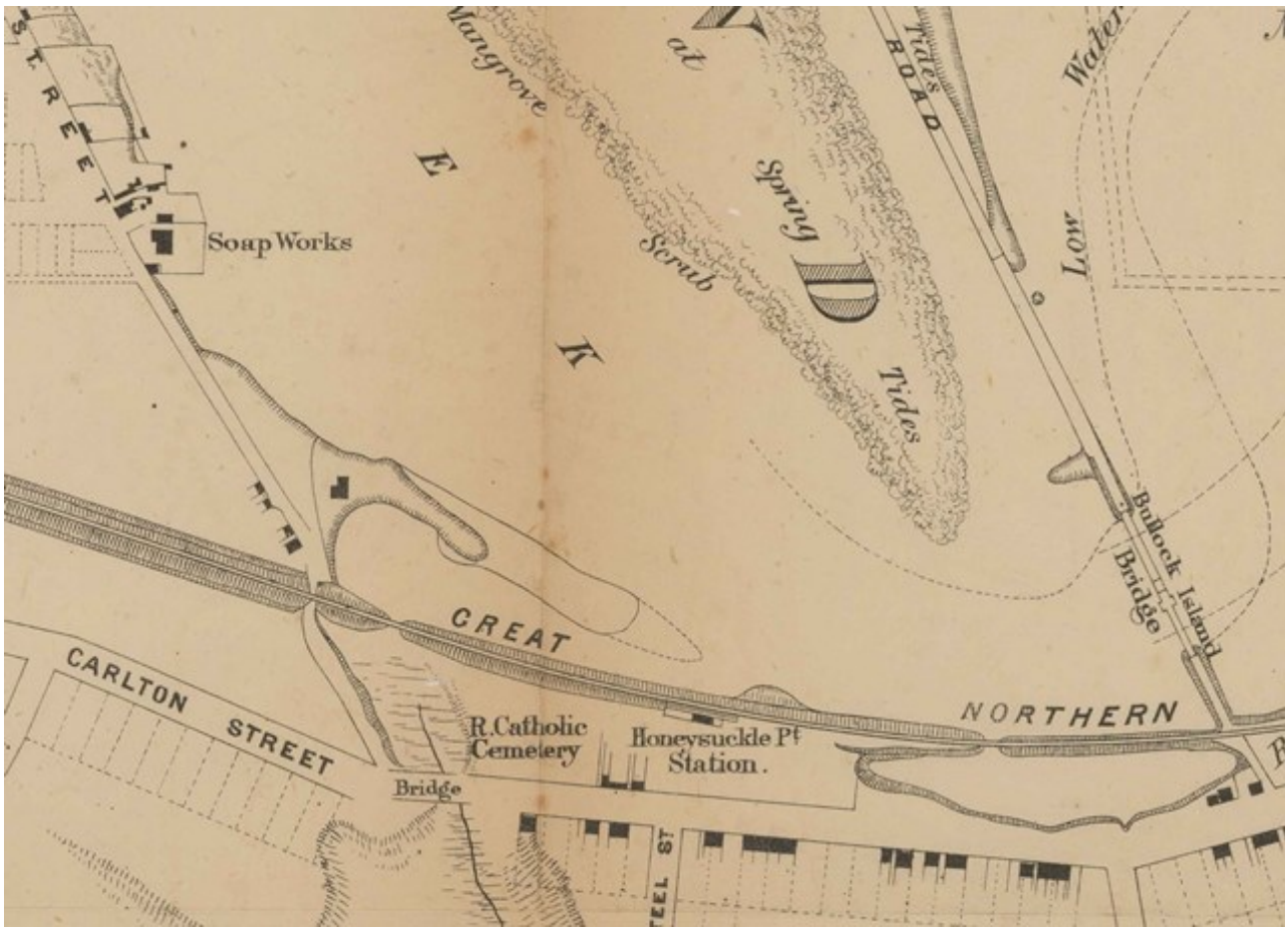


Plate 3.18 Detail of R.C. Knaggs & Co. 1880 Plan of the Port of Newcastle

Plan shows the Bullock Island Bridge at the east end of the area and the Soap Works (within the Tree of Knowledge Park area) at the north (west) end of the proposal area.

Plate 3.19 View of the causeway approach to the old Bullock Island bridge in c1896

© Newcastle Cultural Collections

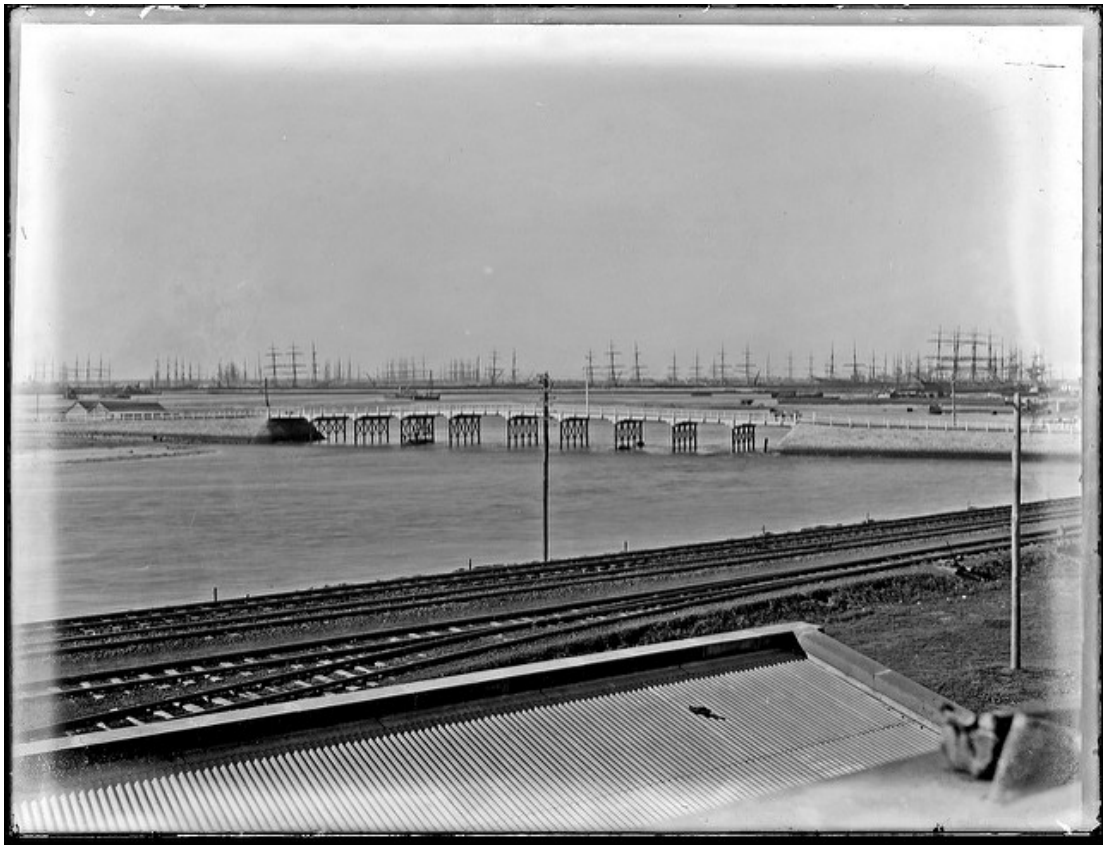


Plate 3.20 View of the new Bullock Island bridge across Throsby Creek in 1900

The new bridge was timber on iron piers

© Newcastle Cultural Collections

4.0 Analysis of Evidence

This section discusses the nature and extent of the proposal area's potential historical archaeological resources through an analysis of the historical information relating to the development and use of the area discussed in **Section 3.0** and an inspection of the current conditions of the proposal area. Both observed and documented evidence are utilised to gain an understanding of any disturbance that may have occurred to the potential below-ground archaeological resource of the proposal area.

Historical archaeology in Australia generally relates to the study of the past using physical evidence in conjunction with historical sources. Historical archaeology is generally defined as comprising the period since European arrival in Australia in 1788. An archaeological resource is the physical evidence of the past and may comprise sub-surface evidence including building foundations, occupation deposits, features and artefacts. Archaeological resources are irreplaceable and have the potential to contribute to our knowledge and understanding of early history using information that is unavailable from other sources (Heritage Office, DUAP 1996:2).

The historical archaeological potential of the proposal area is the likelihood that there may be physical evidence relating to the early development and occupation of the proposal area beneath the current footprint of the site.

4.1 General Site Description

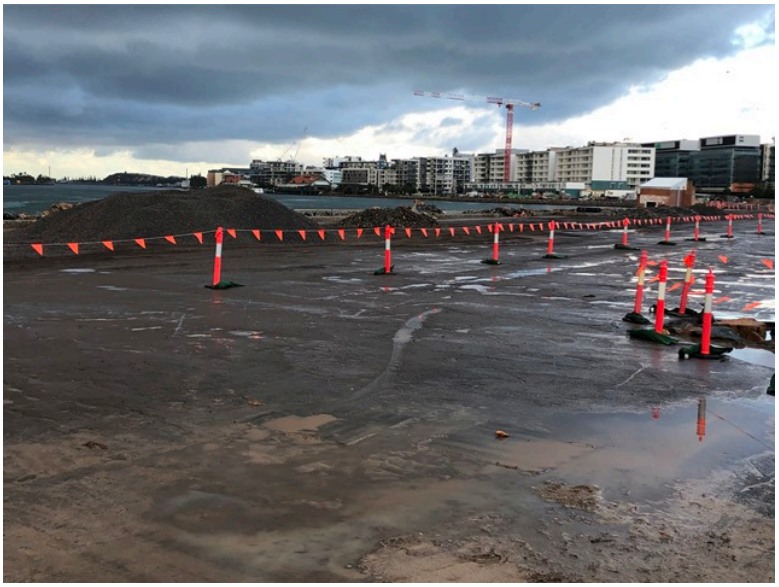
The proposal area extends along the Honeysuckle waterfront for approximately 550 metres and in general comprises hardstand areas. Tree of Knowledge Park has been landscaped, however it is currently used as a construction compound/laydown area. Cottage Creek is a highly modified waterway and comprises a constructed channel that drains towards Newcastle Harbour.

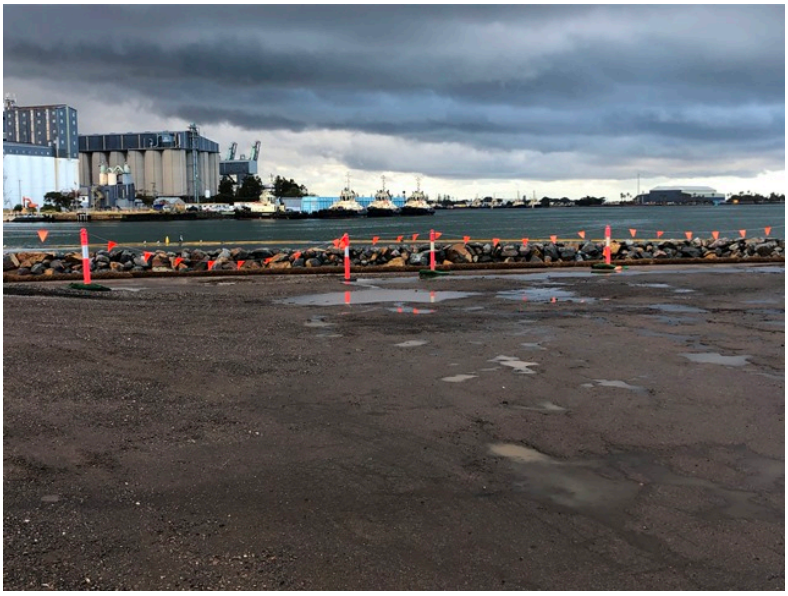
Refer to **Table 4.1** for photographs of the proposal area. The photographs are ordered from west to east; commencing at Tree of Knowledge Park area and finishing at Worth Place Park West.

Table 4.1 Proposal Area Site Photographs

Description	Photograph
View to northwest within Tree of Knowledge Park area – currently the Robson site compound for the re-alignment of Honeysuckle Drive works. Note the mature fig tree centre rear.	

Description	Photograph
View to north within Tree of Knowledge Park area – currently the Robson site compound for the re-alignment of Honeysuckle Drive works. Note the mature fig tree left rear.	
View to north along east boundary of Tree of Knowledge Park area (currently the Robson site compound for the re-alignment of Honeysuckle Drive works) and the current shared pathway / foreshore promenade. Note the mature fig tree centre rear.	
View to east of east corner of Tree of Knowledge Park area (currently the Robson site compound for the re-alignment of Honeysuckle Drive works).	

Description	Photograph
View to south along the current shared pathway / foreshore promenade. Tree of Knowledge Park area on right.	
View to north along the current shared pathway / foreshore promenade. Tree of Knowledge Park area on left. Note the mature fig tree centre rear.	
View to south east across former wharf apron area. Proposed foreshore promenade will run along the side of the harbour.	

Description	Photograph
View to northeast across former wharf apron area. Proposed foreshore promenade will run along the side of the harbour; adjacent to rock wall centre of photograph.	
View to southeast across former wharf apron area. Proposed foreshore promenade will run along the side of the harbour; adjacent to rock wall.	
View northwest along current Honeysuckle Drive; the proposed Cottage Creek north area.	

Description	Photograph
View to north across former wharf area. Proposed foreshore promenade will run along the side of the harbour; adjacent to rock wall.	
View to north across former wharf area. Proposed foreshore promenade will run along the side of the harbour; adjacent to rock wall.	
View to west across Worth Pace Park West. Mature fig at west extent of proposal area shown with arrow. Note Worth Pace Park West are in foreground is not within the proposal area.	

4.2 Relevant Studies and Reports

A number of archaeological studies and investigations have been undertaken both of the proposal area itself and in the vicinity of the proposal area. The more relevant archaeological reports/investigations are summarised briefly below, in particular those sites in the immediate vicinity of the proposal area with a similar history of development.

4.2.1 Honeysuckle Baseline Archaeological Assessments

In 2009 a Baseline Archaeological Assessment was prepared for a large portion of the Honeysuckle area, including the proposal area, then known as Cottage Creek Precinct and the area known as the Wickham Urban Village Development (AMAC 2009). The 2009 report was amended and updated in 2019 as the Baseline Archaeological Assessment – Honeysuckle Foreshore, Newcastle (AMAC 2019) to present new research and address current HCCDC proposed development areas; including the proposal area.

The 2019 assessment identified potential for archaeological remains ranging from 'high local significance to unknown significance'. Depending on the eventual proposed development impacts, the report recommended:

- Tree of Knowledge Park area - monitoring and test excavation
- Foreshore promenade areas – monitoring
- Cottage Creek North – monitoring
- Worth Place Park – monitoring and test excavation (in Worth Place)

4.2.2 42 Honeysuckle Drive Newcastle

In 2017 an *Archaeological Impact Assessment: Historical Archaeological Management Plan* (AMAC 2017) was prepared for 42 Honeysuckle Drive Newcastle; immediately adjacent to the proposal area on the south side of Honeysuckle Drive.

The report identified low archaeological potential for early twentieth century rail infrastructure, moderate potential for natural features associated with the original Cottage and Throsby creek lines and unknown potential for unexpected material that may have been buried during reclamation (AMAC 2017). The report recommended monitoring of excavation associated with the project.

4.2.3 Honeysuckle Temporary Carpark Worth Place

In 2011 archaeological monitoring was undertaken at 50 Honeysuckle Drive to the east of the proposal area across as part of construction of the temporary carpark (AMAC 2011).

The archaeological monitoring of excavation undertaken as part of the carpark construction exposed multiple concrete piers with metallic vertical reinforcements that would have functioned as footings for various industrial buildings constructed in the twentieth century. No evidence for former railway lines were exposed suggesting the rail lines were likely to have been positioned to the south of the site potentially beneath current Honeysuckle Drive (AMAC 2011:25).

All footings were recorded as part of the archaeological monitoring works and removed prior to the carpark being constructed. The archaeological monitoring report prepared following the 2011 archaeological works recommended:

> *Future works in this vicinity should initially be carried out under an archaeological exception, being however mindful of factors like the Leo discovery or other unexpected relics of a local or higher significance at the interface of natural sea bed and fills (AMAC 2011:26).*

Note that no evidence of Aboriginal cultural material was found.

Refer to **Section 4.2.7** for details relating to the discovery of the Leo.

4.2.4 50 Honeysuckle Drive – Heritage Assessment

Recent archaeological assessment (Umwelt 2017) found that, due to previous archaeological investigations and modern disturbances, the 50 Honeysuckle Drive site no longer has the potential for evidence of the post 1940s constructed sheds assessed as having low local significance in the 2009 baseline archaeological assessment. It was noted that no evidence of abandoned ocean vessels such as the Leo or other maritime features were identified during archaeological monitoring; although if present these could have been located at a greater depth than the excavation undertaken as part of the carpark construction.

The 50 Honeysuckle Drive Project area is also reported to have been excavated to depths of 500 millimetres in 2005 as part of the removal of contaminated material. No evidence of sub-surface remains are reported (SJB Planning 2016).

During the two previous archaeological sub-surface investigations no evidence of Aboriginal cultural material was found.

4.2.5 35 Honeysuckle Drive Heritage Assessment

Archaeological assessment of 35 Honeysuckle Drive (to the east of the proposal area) identified that prior to land reclamation the site consisted of the channel of Throsby Creek. The assessment considered that there was a high potential for rail lines (still visible) to be present however; these were considered to comprise ‘works’ and not ‘relics’ under the Heritage Act. The assessment concluded that there was low to no potential for any significant archaeological relics to be exposed (Umwelt 2018).

4.2.6 Newcastle Bus Interchange

Archaeological assessment of the Newcastle Bus Interchange site (854 Hunter Street), approximately 200 metres to the south-west on the south side of the heavy rail corridor, identified that the site had the potential to contain the remains of a former Horse Bazaar and associated cooperage, as well as late domestic occupation and the former Newcastle Co-operative Store, all of which dated from the 1880s (Artefact 2017). The Horse Bazaar and cooperage were associated with a State listed Brewery, located adjacent.

It is noted that despite the assessment of any potential archaeological remains associated with the history of development of the site as being of potential local significance (Artefact 2017), an application for an historical archaeological excavation permit (s140) for 854 Hunter Street was refused by Heritage NSW (then the Heritage Division).

The Heritage Division determined that:

> *The Archaeological Assessment supplied with the S140 Application has not, in the Delegate's mind, demonstrated the above locations would contain archaeological relics with research potential which would meet the threshold of local heritage significance requiring management under s139 of the Act (*Heritage NSW (then Heritage Division) 2018)

4.2.7 Archaeological Investigations in the Vicinity of the Project Area

Newcastle Light Rail Project (Umwelt 2020)

The Newcastle Light Rail project included archaeological investigation of the area impacted by the light rail construction over a distance of approximately 2.7 kilometres from Stewart Avenue in Wickham to Telford Street in East Newcastle.

The only potential archaeological remains exposed within the Wickham Stabling and Maintenance Facility area located the immediate south of the proposal area comprised a small area of sandstone packing and a section of sandstone kerb and gutter. The sandstone packing material may have originated from the demolition of the structures formerly located along Station Street in the vicinity of the Wickham School of Arts, and the curved section of sandstone kerbing was likely a section of the south side of Station Street.

A small section of the face of the embankment wall of the former Bullock Island Bridge causeway was exposed within Worth Place to the east of the proposal area indicating the bridge's embankment is still present within reclamation fill beneath Worth Place. The reclamation fill was over 1 metre in depth in this location.

Approximately 62 metres of the structural remains of the former Honeysuckle Station was exposed within and immediately adjacent to the former heavy rail corridor to the south-east of the proposal area.

Plate 4.1 Bullock Island Bridge causeway

View looks north along Worth Place towards the harbour

Lee Wharf Project Stage 3 (Buildings A3-6), Honeysuckle Precinct

In 2006 archaeological monitoring and recording of bulk excavations for Lee Wharf Project Stage 3 (Buildings A3-6), Honeysuckle Precinct (17 to 19 Honeysuckle Drive), located to the east of Worth Place and the proposal area, exposed the remains of an iron-hulled vessel and the potential remains of a bow of another boat in reclamation fill (AMAC 2007:1) (refer to **Plate 4.2**).

The iron hulled vessel comprised the remains of the Leo; a side-wheel paddle-steamer constructed in 1871 in Bristol, England brought to Australia by the Newcastle Co-operative Steam Tug Co. Ltd in 1875 where it worked until approximately 1917 as a tug boat for larger ships in and out of the port, a hulk for transporting dredgeate for reclamation and finally as reclamation fill itself for the development of Honeysuckle Point. In addition several other pre-reclamation maritime features were uncovered: the remains of a pre-land reclamation seawall, a timber 'pontoon' structure, and two mooring bollards. Features that post-dated the reclamation phase of the site included large concrete footings with a span of rail way track, water, gas and stormwater service pipes, and a zigzag trench that was likely a WWII air raid shelter (AMAC 2012a).

No evidence of Bullock Island Bridge was exposed. The report suggests that the bridge's embankment / causeway was demolished to construct a sea wall (AMAC 2012a).

Note that no evidence of Aboriginal cultural material was found.

Plate 4.2 Exterior view of the vessel Leo

Lots 12 and 4/24 Lee Wharf, Newcastle Archaeological Monitoring Program Final Report

In 2004 archaeological investigation of Lee Wharf Park located either side of Honeysuckle Drive to the east of the proposal area exposed the remains of several buildings relating to the Civic Railway Workshops dating to post 1883 and rail tracks dating to the same period and function. No remains associated with nineteenth century Honeysuckle Point settlement (including the Bishop's Settlement of 1840 to 1854) were found. The remains of the buildings comprised concrete footings with brick superstructure and timber piles (GML 2006).

Note that no evidence of Aboriginal cultural material was found.

Archaeological Monitoring Lot 22 Honeysuckle Drive

In 2003 archaeological monitoring was undertaken during the excavation and remediation of contaminated land at Lot 22 Honeysuckle Drive; to the immediate south-east of the proposal area. A large drainage sump, a number of concrete footings and the remains of a single line of railway sleepers were exposed in the area which was a former rail marshalling area (Umwelt 2004).

Note that no evidence of Aboriginal cultural material was found.

Archaeological Monitoring – Lee Wharf Development

In 2005 archaeological test excavation was undertaken on the south side of Honeysuckle Drive over 600 metres to the east of the proposal area. The investigative works exposed a concrete structure, concrete blocks, a sandstock brick structure, a ceramic pipe service, a pit of refuse building material and three alignments of railway sleepers (AMAC 2012b). Note that this area was within the former Bishops Settlement area and contained remains dated to that time in addition to the later rail workshops period.

Several stone objects of local tuff, including a large core were exposed and several concentrated areas of the remains of two of the edible shellfish species were found: the Sydney cockle and Hercules whelk. Given historical artefacts were also among the deposits where these were found, it was considered possible that the shellfish were consumed and discarded by Europeans and that the few visible tuff objects were the result of downward movement from overlying imported fills (AMAC 2012b:101). Note that the location and history of use of this site differs from the proposal area.

4.3 Potential Disturbance/Alterations to the Proposal Area

The potential for a site to contain an archaeological resource is determined not only by the nature and extent of the historical development and occupation of the area, but also by the nature and extent of any disturbance to the site. In assessing archaeological potential, it is important to understand the level of potential disturbance to the archaeological resource. Existing below-ground disturbance may preclude the potential for historical archaeological remains in that particular location. While it is not possible to accurately determine the extent of disturbance due to the lack of subsurface visibility, it is possible to make a number of informed observations.

4.3.1 Landscape Context

As discussed, the majority of the proposal area (including the Foreshore promenade areas and Cottage Creek North) formerly comprised areas below the high water mark of Throsby Creek/Hunter River. The western portion of the proposal area, Tree of Knowledge Park, would have been located on slightly elevated foreshore deposits (sandy dunes/shorelines), with a history of non-Aboriginal development and use dating from approximately the 1870s to 1880s.

4.3.2 Historical Development

The western portion of the proposal area, Tree of Knowledge Park, has been subject to historical development from at least the 1880s with the presence of a soap factory with other buildings being added fronting Hannell Street (including a Hotel). These are likely to have been both residential and commercial. The rear of the properties appear to have had outbuildings and sheds constructed. By the 1830s the majority of the structures had been demolished. By the 1950s all buildings were demolished and the land remained vacant; with the exception of road access to Honeysuckle and the later Tree of Knowledge Park.

The remainder of the proposal area (the foreshore promenade area and Cottage Creek North) was part of Throsby Creek until twentieth century reclamation occurred. Following which it was associated with the wharfage.

4.4 Potential Historical Archaeological Remains

An intact historical archaeological resource can potentially consist of building foundations, occupation deposits containing cultural material (artefacts) associated with former structures and cut features (wells/cisterns, cesspits/privies and refuse pits). Historical archaeological remains can yield information about the historical development and occupation of the area.

The potential for an intact archaeological resource to be present within the proposal area will depend on the level and methods of demolition of the earlier structures and the method of construction of the later buildings that replaced them, in addition to any historic cut and fill episodes that may have occurred.

4.4.1 Pre-1870s Newcastle

The proposal area is over 1.5 kilometres to the west of the boundaries of the 1804 penal settlement and the area of the original Newcastle town plan. In addition, the proposal area is over 1 kilometre west of any known use and development of Government Town period of Newcastle (to 1853) and to the west of the Government Farm (or Commandant's Farm) established in the area of Honeysuckle Point. With the Wickham area becoming important in the late 1860s as it was close to the city, harbour and railway line, the area surrounding the proposal area is likely to have commenced historical use and development in the 1870s.

There is no known potential historical archaeological resource associated with the proposal area related to pre-1870s Newcastle.

4.4.2 1870 to Twentieth Century Development and Use

As discussed, post 1870 development mainly comprised light industrial enterprises along the foreshore such as Ellis' Sawmill, Redman's Cordial Factory and the Soap Works in addition to smaller scale retail, commercial and domestic dwellings.

In general, with the exception of the Tree of Knowledge Park area, the pre-twentieth century development was all outside the proposal area; the majority of which was part of Throsby Creek until twentieth century reclamation occurred.

4.4.3 Twentieth Century Development and Use

As reclamation occurred the use of the proposal area (excluding Tree of Knowledge Park) became associated with reclamation processes, wharfage and the formalised extension of Cottage Creek North.

In the early to mid-twentieth century construction of larger industrial complexes such as the inflammable liquids berth, Commonwealth Oil Refineries depot and Reid's wool store occurred. The construction of the Commonwealth Oil Refineries depot in particular is expected to have involved major disturbance in and around its building footprint.

These larger industrial complexes were demolished in the late twentieth century when a large cargo shed and extensive paved cargo handling area were constructed in association with the No.1 Throsby Wharf (which was completed in 1969).

The area was again changed in the late twentieth century when the large cargo shed was demolished and Hannell Street re-aligned resulting in the current footprint of Honeysuckle Drive and adjacent carparks.

It is also noted that HCCDC has recently completed the rebuilding of the harbour seawalls along the north boundary of the proposal area; including the removal of twentieth century harbour walls.

4.4.4 Unexpected Finds

As discussed, the majority of the proposal area was part of Throsby Creek until twentieth century reclamation occurred. Although difficult to predict there may be potential for unexpected finds within reclamation fill or at the interface with the natural bed of Throsby Creek. The proposal area was one of the last portions of reclamation that was undertaken along Throsby Creek. Evidence from the Lee Wharf Project Stage 3 site to the east of the proposal area (refer to **Section 4.2.7**) area indicates that there may be potential for unexpected remains such as the Leo or other items deposited as part of the fill or temporary retaining walls.

However, it is noted that the proposal area is in general a narrow strip of land along the edge of the harbour and as such it is considered unlikely for an unexpected find such as the Leo to be present.

Noting also that subsequent development at 50 and 35 Honeysuckle Drive (on the north side of Honeysuckle Drive) has not exposed any remains such as the Leo.

4.5 Impact Assessment

As discussed in **Section 1.1** the proposal comprises:

- Landscaping of the Public Domain waterfront promenade
- Naturalisation from the top of the Cottage Creek drainage channel north
- Temporary ancillary facilities including site compounds and stockpile sites

The foreshore promenade includes soft landscape, foreshore edge, tree planting and a shared public pathway. The Cottage Creek North area would be landscaped to include mass planting, soft landscape areas, public access paths and open and shaded seating areas. These areas are considered to have low to no potential for any significant archaeological relics to be exposed and the works themselves will not include major below ground earthworks.

No utilities adjustments are required for the proposal. Connection to the existing electricity, water and telecommunications utilities at Worth Place Park West, Tree of Knowledge Park and near Cottage Creek would be required for the smart poles and drinking fountain. Surface drainage has been designed to fall towards Newcastle Harbour.

It is noted that Tree of Knowledge Park is proposed for use as a temporary ancillary facilities. It currently functions as a site compound and laydown area. This use will continue as part of the proposal. As such no impacts are envisaged for any below ground archaeological remains that may be present within the Park.

5.0 Significance

5.1 Introduction

An assessment of significance is undertaken to explain why a particular place is important and to enable appropriate site management to be determined.

The Australian ICOMOS Burra Charter 1999 (the Burra Charter) defines cultural significance as meaning 'aesthetic, historic, scientific or social value for past, present or future generations' (Article 1.2). The Burra Charter was written to explain the basic principles and procedures that should be followed in looking after important places. Cultural significance is defined as being present in the 'fabric, setting, use, associations, meanings, records, related places and related objects'. The fabric of a place refers to its physical material and can include built elements, sub-surface remains and natural material (Australia ICOMOS 2013).

5.2 Basis of Heritage Significance Assessment

The NSW Heritage Manual (1996) published by the then NSW Heritage Office and Department of Urban Affairs and Planning, sets out a detailed process for conducting assessments of heritage significance. The manual provides a set of specific criteria for assessing the significance of an item, including guidelines for inclusion and exclusion.

The Heritage Council of NSW recognises four levels of significance for heritage in NSW: Local, State, National and World. An item has local heritage significance when it is important to the local area. An item has state heritage significance when it is important in NSW. Most heritage in NSW is of local significance.

The seven criteria defined by Heritage NSW and used by the NSW Heritage Council as an assessment format within NSW are outlined below:

- Criterion (a) an item is important in the course, or pattern, of NSW's cultural or natural history
- Criterion (b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history
- Criterion (c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW
- Criterion (d) an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons
- Criterion (e) an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history
- Criterion (f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history
- Criterion (g) an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments.

5.2.1 Archaeological Significance

As a component of the holistic concept of significance, archaeological significance has traditionally been described as a measure by which a site may contribute knowledge, not available from other sources, to current research themes in historical archaeology and related disciplines (Bickford & Sullivan 1984 19-26). Archaeological significance has traditionally been linked to archaeological research potential in that 'a site or resource is said to be scientifically significant when its further study may be expected to help answer questions…that is scientific significance is defined as research potential (Bickford & Sullivan 1984 23-24).

Following Bickford and Sullivan's work on archaeological significance (Bickford & Sullivan 1984) the following questions are generally used as a guide to assessing the significance of an archaeological site in terms of its research potential (Criterion (e) of the NSW Heritage assessment criteria):

- can the site contribute knowledge that no other resource can?
- can the site contribute knowledge that no other site can?
- is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

In 2009 the Heritage Council of NSW endorsed the Heritage Branch Department for Planning (now Heritage NSW) guideline Assessing Significance for Historical Archaeological Sites and 'Relics' which considers a broader approach to archaeological significance rather than a focus on the research potential of an archaeological site only.

The following significance assessment is based upon the broader questions detailed in the 2009 endorsed guidelines.

5.3 Archaeological Significance Assessment

5.3.1 Archaeological Research Potential (NSW Heritage Criterion E)

Archaeological research potential is the ability of archaeological evidence, through analysis and interpretation, to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site and its 'relics'. Archaeological deposits and features can provide evidence of the history and settlement of NSW unavailable from other sources, such as historical documentation. Archaeological investigation can provide information regarding technologies, economic and social conditions, taste and style. Archaeological features and deposits can provide primary evidence about the way of life of previous generations. The investigation, analysis and interpretation of the potential archaeological remains can contribute information about the nature of the development and occupation of an area and thus provide a better understanding of the social, economic and cultural history of Newcastle.

However, research potential of a particular site and its ability to answer research questions is dependent on a high level of intactness in the archaeological resource. The development of the majority of the proposal area dates to the twentieth century; once the reclamation of the Honeysuckle wharfage area was complete. While the harbour and its associated history of reclamation and industry is an important part of Newcastle's history, there is little to no potential for any earlier late nineteenth century archaeological relics (noting there are no proposed impacts to the Tree of Knowledge Park area).

As discussed in **Section 4.2.6**, a recent application for an historical archaeological excavation permit for 854 Hunter Street (Newcastle Bus Interchange) was refused by Heritage NSW (then the NSW Heritage Division).

Supporting documentation identified that the site had the potential to contain the remains of a former Horse Bazaar and associated cooperage, as well as domestic occupation and the former Newcastle Co-operative Store, all of which dated from the late 1880s (Artefact 2017). The Horse Bazaar and cooperage were associated with a State listed Brewery, located adjacent.

As such, any remains associated with the twentieth century use of the proposal area would, in general, have low archaeological significance and research potential.

5.3.2 Associations with Individuals, Events or Groups of Historical Importance (NSW Heritage Criteria A, B & D)

The proposal area is associated with the modification and changing nature of the foreshore to create the Port of Newcastle. This process of reclamation commenced in 1855 when Edward Orpen Moriarty was appointed Engineer-Surveyor responsible for Hunter River improvements. However, it is unlikely that any historical archaeological resource surviving within the proposal area would provide strong evidence of this association.

While a study of the social values of the proposal area has not been undertaken during the preparation of this report it would be considered unlikely that any historical archaeological remains that may survive would have a strong association with any previous or contemporary particular community or group. The proposal area does have associations with the growth and development of industry along the harbour foreshore and the owners and workers associated with this industry who would have contributed to the social, cultural and economic life of later nineteenth and early twentieth century Newcastle. However, it is unlikely that any historical archaeological resource surviving within the proposal area would provide strong evidence of this association.

5.3.3 Aesthetic or Technical Significance (NSW Heritage Criterion C)

As it is considered unlikely that historical archaeological 'relics' will be exposed during the proposed works this criterion is not expected to be met.

5.3.4 Ability to Demonstrate the Past Through Archaeological Remains (NSW Heritage Criteria A, C, F & G)

Intact meaningful and understandable archaeological remains are not expected to be exposed. This criterion is not expected to be met.

5.4 Statement of Significance

Newcastle, founded as a penal colony, is Australia's third oldest urban settlement in NSW. The eastern capital cities of Sydney, Hobart and Brisbane, as well as smaller centres like Port Macquarie, were also founded as penal colonies. However, the proposal area is located outside the original convict and early town areas of Newcastle and any archaeological resource that may be present is very unlikely to contain evidence of the earliest period of European settlement and exploitation of Newcastle.

The process of land reclamation, development of the port and the construction of the railway contributed to the rise of industrial, residential, retail and commercial enterprises and essentially led to the creation of Newcastle in the mid to late nineteenth century. The proposal area is located within a wider part of Newcastle the development and use of which grew from the 1870s. However, with the exception of the Tree of Knowledge Park area (noting no impacts are proposed for the Park as part of the proposal) the

development of the majority of the proposal area dates to the twentieth century; once the reclamation of the Honeysuckle wharfage area was complete.

6.0 Conclusions and Recommendations

6.1 Conclusions

The majority of the proposal area dates to the twentieth century; once the reclamation of the Honeysuckle wharfage area was complete. This area is considered to have low to no potential for any significant archaeological relics to be exposed and no to low archaeological significance and research potential.

Tree of Knowledge Park comprises the only area located within the boundaries of former allotments and building footprints; dating from approximately the 1870s. However, no impacts are proposed in the Park area as its current use as a site compound and laydown area will continue.

As such, no further historical (non-Aboriginal) archaeological management or mitigation measures are required for the Waterfront Promenade and Cottage Creek North works with the exception of the recommendations in **Section 6.2**.

6.2 Recommendations

On-site contractors will be provided with a briefing regarding the works, the significance of the area, archaeological 'relics', Aboriginal objects and the statutory obligations that apply to their discovery.

If future works are planned for Tree for Knowledge Park, the potential for the works to impact archaeological remains within the Park area should be assessed.

If any archaeological remains with the potential to be 'relics' as defined by the Heritage Act are exposed all works will cease immediately and a suitably qualified archaeologist will be notified and consulted with, in accordance with section 146 of the Heritage Act, to determine an appropriate course of action prior to the recommencement of work.

Archaeological 'relics' are defined by the Heritage Act as any deposit, object or material evidence that:

- relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement; and
- is of State or local heritage significance'.

In the unlikely event potential archaeological relics are exposed that are assessed by a suitably qualified archaeologist to meet the threshold of local heritage significance requiring management under s139 of the Act, and impact to the remains cannot be avoided, Heritage NSW should be notified in accordance with section 146 of the Heritage Act and consulted with in terms of appropriate management.

In the event that any Aboriginal objects are identified within the area of works, works within the immediate vicinity of the Aboriginal object should cease and the objects should be managed in accordance with the requirements of the Aboriginal Cultural Heritage Assessment (and/or the provisions of any AHIP).

7.0 References

AMAC 2007 Test Excavations and Archaeological Assessment of Maritime Relic Lee Wharf C, Honeysuckle Precinct, Newcastle, N.S.W.

AMAC 2009 Baseline Archaeological Assessment Cottage Creek Precinct And Wickham Urban Village Newcastle NSW

AMAC 2011 Final Archaeological Report Archaeological Monitoring Honeysuckle Temporary Carpark Worth Place, Honeysuckle Newcastle.

AMAC 2012a. Final Archaeological Report Lee Wharf Stage 3 (a) Honeysuckle Precinct, Newcastle NSW.

AMAC 2012b. Final Archaeological Report Lee Wharf Development: Square-about and Lot 24 Honeysuckle Drive Newcastle, NSW

AMAC 2017. Archaeological Impact Assessment: Historical Archaeological Management Plan 42 Honeysuckle Drive Newcastle

AMAC 2019 Baseline Archaeological Assessment – Honeysuckle Foreshore, Newcastle

Artefact 2017. Newcastle Bus Interchange Historical Archaeological Assessment and Research Design

Bickford, A and S Sullivan 1984. Assessing the Research Significance of Historic Sites, in Sullivan S and S Bowdler (eds)

Godden Mackay Logan (GML) 2006. Lots 12 and 4/24 Lee Wharf, Newcastle Archaeological Monitoring Program Final report

Heritage Office, Department of Urban Affairs and Planning 1996. Archaeological Assessments

Heritage Branch, Department of Planning 2009. Assessing Significance for Historical Archaeological Sites and 'Relics'

Heritage NSW (then Heritage Division) 2018. Refusal of Application for an Excavation Permit – for the proposed construction on the Newcastle Bus Interchange at 854 Hunter Street, Newcastle (Newcastle City Council LGA). Letter to Transport for NSW 03 May 2018.

Higginbotham E. 2013 Newcastle Archaeological Management Plan Review – Draft document.

Jacobs and Hunter & Central Coast Development Corporation 2020. Waterfront Promenade and Cottage Creek north Project Review of Environmental Factors

Port of Newcastle and EJE Architecture 2014 Heritage and Conservation Register

Russell Rigby 2019 The Hunter District Water Board Plans of the 1890s A Presentation to the Hunter Living Histories Initiative. https://hunterlivinghistories.com/2019/06/07/hdwb/**.** Accessed 8 August 2019.

SJB Planning 2016. Request for Secretary's Environmental Assessment Requirements 21 Honeysuckle Drive, Newcastle

Suters Architects and Planners, Lavelle, S., C and MJ Doring Pty Ltd and Turner, J, 1997. Newcastle Archaeological Management Plan prepared for Newcastle City Council

Turner, J 1997. A Pictorial History of Newcastle.

Umwelt (Australia) Pty Ltd. 2004. Archaeological Monitoring of Remediation Works at Lot 22 Honeysuckle Drive, Newcastle

Umwelt (Australia) Pty Ltd. 2014. Aboriginal Cultural Heritage and Archaeological Assessment, 9 Watt Street, Newcastle, NSW. Report prepared for Thirdi Property Pty Ltd

Umwelt (Australia) Pty Ltd. 2016. Historic Archaeological Assessment Former Empire Hotel Site, Newcastle NSW. Report prepared on behalf of the Trustees of the Catholic Church

Umwelt (Australia) Pty Ltd 2017. 50 Honeysuckle Drive – Heritage Assessment. Prepared for The Doma Group

Umwelt (Australia) Pty Ltd 2018. 35 Honeysuckle Drive – Heritage Assessment. Prepared for The Doma Group

Umwelt 2019. Historical Archaeological Assessment Report – Honeysuckle Drive Realignment, Newcastle

Umwelt 2020. Archaeological Report Newcastle Light Rail Project

umwelt
Environmental & Social Consultants

Newcastle | Perth | Canberra | Brisbane | Sydney | Orange

T| 1300 793 267 E| info@umwelt.com.au www.umwelt.com.au