

CHARLES STREET SQUARE UPGRADE

REVISED REVIEW OF ENVIRONMENTAL FACTORS

following public exhibition October 2020

January 2021



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Attachment 20	Lighting certification

GLOSSARY

AARD	Archaeological Assessment and Research Design
ACHAR	Aboriginal Cultural Heritage Assessment Report
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AIA	Aboriginal Impact Assessment
ASSMP	Acid Sulfate Soil Management Plan
ATR	Archaeological Technical Report
CEMP	Construction Environmental Management Plan
Council	City of Parramatta Council
CTPMP	Construction Traffic and Pedestrian Management Plan
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act, 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1997</i>
Infrastructure SEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
LEP	Local Environmental Plan
LGA	Local Government Area
PAD	Potential archaeological deposit
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy
SMM	Spackman Mossop Michaels
SoHI	Statement of Heritage Impact
SRZ	Structural Root Zone
TEC	Threatened ecological community
The proposal	Charles Street Square upgrade works (the subject of this REF)
TPZ	Tree Protection Zone

EXECUTIVE SUMMARY

The City of Parramatta (Council) is proposing to undertake a range of improvements to the Charles Street Square as part of its broader commitment to providing a high quality river foreshore along the Parramatta River. This Review of Environmental Factors (REF) has been prepared to describe the proposed works to Charles Street Square, document the potential impacts on the environment and identify any safeguards and management measures required to minimise potential impacts.

THE SITE

Charles Street Square is located north-east of the Parramatta CBD on the south-west bank of the Parramatta River in the vicinity of the Parramatta Ferry Wharf and Charles Street Weir (refer Figures 1 and 2). The existing square consists of a riverfront walkway and a small street level square, connected by a series of terraced walkways linked by ramps and stairs that do not meet current accessibility standards. A planted embankment that includes mature trees is situated between the riverfront and terraced walkways which provides landscape amenity to the square.

PROJECT OBJECTIVES

The project objectives for the Charles Street Square upgrade are:

- to create a memorable arrival and departure experience at a key gateway to Parramatta;
- to create inclusive, legible and safe connections between street and river for all users – pedestrians, cyclists and people with limited mobility;
- to retain and, where possible, expand the continuous level access along the riverfront promenade;
- to integrate the transport interchange function of the square into the experience of the place;
- to create a generous and comfortable public space that enhances the site's role as a natural meeting point for community, and enables a range of social settings and activities;
- to celebrate the special qualities of the site – its cultural and heritage values, the distinctive character of the landscape; and
- to create a resilient and sustainable public space that avoids or minimises impact on the environment wherever possible.

THE PROJECT

The Charles Street Square renewal aims to improve connections between the river and the city and along the riverfront for pedestrians, cyclists and people with limited mobility. The design concept seeks to create a memorable experience that celebrates the special qualities of this

unique point in the river. It responds to the surrounding landscape of escarpment, trees and parkland, the curving geometry of the river, the rich cultural heritage of the place, and the sense of arrival to create a welcoming space for locals and visitors alike.

The key elements of the project include:

- upgraded Riverfront Walk and provision of a new shade shelter;
- new River Amphitheatre incorporating terraced seating;
- new ramped walkways and connecting stairs;
- new garden terrace adjacent to 36 Charles Street (the Port Bar);
- new square at street level; and
- integration of public artwork.

The project also involves relocation of the existing Exeloo automated toilet to the upper square. As the toilet is located within the Charles Street road reserve (unformed) and not defined as 'road infrastructure facilities' or 'exempt development' under the *State Environmental Planning Policy (Infrastructure) 2007* (the Infrastructure SEPP), it cannot be assessed under Part 5 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act) and is subject to a separate Development Application.

STATUTORY FRAMEWORK

The proposal (excluding the public toilet) falls under clauses 65(3) and 68(4) of the Infrastructure SEPP. Clause 65(3) allows for a range of public domain improvements to be carried out by a council without development consent in public reserves. Clause 68(4) enables the ferry site office to be constructed by a public authority without development consent as it is ancillary to a public wharf. A number of other minor elements of the project can be considered exempt development but have been included in this REF for ease of interpretation, overall impact assessment and to avoid confusion.

Council is the proponent and the determining authority for the REF under Part 5 of the EP&A Act. The REF has been prepared in accordance with Clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). In doing so, the REF satisfies the requirements of Section 5.5 of the EP&A Act, which requires Council to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the activity.

CONSULTATION

Council has undertaken extensive consultation with the community, landowners and relevant government agencies regarding the project. This has included public exhibition of the REF from 14 September to 15 October 2020. Feedback received from consultation has been taken into consideration in the project design and in finalising this REF.

ENVIRONMENTAL IMPACTS

Detailed technical investigations have been carried out to assess, manage and minimise the proposal's potential impacts. The following outlines the proposal's key impacts to the environment and surrounding community. The safeguards and mitigation measures identified in this REF will help minimise any expected adverse impacts.

Heritage

The study area is located within an area of High Aboriginal Sensitivity. It is also an area of historical archaeological significance, with evidence of former historical structures likely to date from the 1820s through to the mid-twentieth century. However, the study area does not contain any heritage listed items.

While the project has endeavoured to minimise impacts on potential Aboriginal and historical archaeological resources, some impacts may still occur.

An Aboriginal archaeological excavation methodology and research design for the study area has been prepared with the aim of investigating the nature and extent of any subsurface Aboriginal archaeological potential within the impact zones of the proposed development. Aboriginal archaeological investigation within the study area will be undertaken under an approved Aboriginal Heritage Impact Permit (AHIP).

In terms of historical archaeology, the majority of the substantial excavations for the project will avoid the most significant area. Some small excavation work proposed by the development is likely to impact upon a twentieth century cottage fronting Charles Street. Most other areas with historically indicated structures are generally avoided by areas of excavation required for the development. However, a prudent approach will be adopted in the form of archaeological testing in the area prior to the development works proceeding.

Test excavations for historical archaeology will be coordinated with test excavations for Aboriginal archaeological resources.

A heritage interpretation plan will be adopted for the site to ensure the adequate integration of the heritage values present within the study area into the development of Charles Street Square. A draft interpretation plan has been prepared and will be refined through consultation with First Nations communities and other stakeholders before being finalised.

Contamination

There is some evidence of contamination on the site. However, the majority of the site is covered by hardstand materials and landscaped areas and the detected contaminants in the soil were located at depth. As the site will not be disturbed until commencement of redevelopment works, there is no immediate harm health risk to occupants of surrounding areas or to nearby pedestrians.

A Remedial Action Plan (RAP) has been prepared for the project. The remedial goal for this site is to remediate potential soil contamination to a level that does not present an unacceptable human health and ecological exposure risk.

The RAP indicates that the preferred option for managing the contamination is containment onsite by method of capping or excavation and offsite disposal. Provided that the recommendations of the RAP are implemented, it is concluded that the site can be made suitable for the proposed land use setting.

Flooding

The site, being the foreshore of the Parramatta River is flood prone, with the Parramatta River subject to periodic flooding, including flash flooding events following significant rainfall.

Modelling indicates that only minor changes to the flood depth, velocity and extents are expected as a result of the proposal and there are no changes in flood hazards in the properties surrounding the subject site. In addition, there are no changes in flood durations for all flood events for the proposed conditions.

As per Council's requirements the proposal will incorporate flood compatible finishes below the 1% AEP plus 500mm to allow for easy maintenance in the event of a very rare flood. Services such as power lines, telecoms and any electrical components sited below the 1% AEP + 500mm will also be waterproofed.

Biodiversity

The proposed projected artwork has the potential to indirectly impact nocturnal fauna which are likely to utilise the study area. Light levels of the proposed projected artwork are likely to reduce

the foraging activity of bats during operating hours and the flight path may be altered to avoid the illuminated area. Diurnal fauna such as birds may also roost in the vegetation on the northern bank during the night. The artificial lighting may deter roosting of diurnal fauna within the projection area. Additional roosting habitat is available along the escarpment vegetation and no threatened fauna species reliant on night time roosting would be impacted by the proposed projected artwork.

The timeframe for the projected artwork will be restricted to a maximum of three (3) hours nightly to limit the disturbance to foraging habitat for threatened microbats, nocturnal birds and diurnal species. The projected artwork will also incorporate lower lighting within the sequence so as to not illuminate the native vegetation at maximum brightness for the duration of the projection.

Other impacts to flora and fauna will be minimal.

Tree removal

The proposed upgrade works will necessitate the removal of four trees within the site. The proposal replaces the four trees and supplements them with additional tree plantings, to a total of 28 new trees proposed. The planting of new trees is considered to more than offset the loss of the four trees.

Tree protection measures will be implemented during construction to protect existing trees on site.

Construction impacts

The construction of the Charles Street Square upgrade works has the potential to result in minor amenity impacts on surrounding residential and commercial properties. These impacts may include construction traffic impacts, air quality and noise impacts as well as disruption to pedestrian and vehicular movements and the disruption of ferry services for limited periods of time, with replacement by buses. However, these impacts are anticipated to be temporary and minor and will be managed in accordance with a Construction Environmental Management Plan (CEMP) and Construction Traffic and Pedestrian Management Plan (CTPMP). The appointed construction contractor will update the preliminary versions of these reports attached to this REF, and these will be approved by Council prior to works commencing on site.

JUSTIFICATION AND CONCLUSION

The project will have the following key benefits:

- Improved pedestrian and cyclist connectivity between the river and the city, as well as along the river foreshore and to Parramatta Ferry Wharf;
- Improved public amenity through the provision of new street furniture, shelters, landscaping and tree planting;
- Improved accessibility for all users;
- Opportunities for outdoor public events and activities; and
- Celebration of the site's First Nations and European heritage through appropriate interpretation elements, including public art.

The REF concludes that proposal will be unlikely to cause a significant impact on the environment, subject to implementation of the recommended mitigation measures. Therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Section 5.7 of the EP&A Act. There will be no significant effect on threatened species, populations and ecological communities and a Biodiversity Development Assessment Report or Species Impact Statement are not required.

The proposal is also 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.

1. INTRODUCTION

The City of Parramatta (Council) is proposing to undertake a range of improvements to Charles Street Square as part of its broader commitment to providing a high quality river foreshore along the Parramatta River. The improvements have been identified in the concept design for the Charles Street Square Upgrade prepared by Spackman Mossop Michaels (SMM) which was endorsed by Council at its meeting of 11 May 2020. The key elements of the project include:

- upgraded Riverfront Walk and provision of a new shade shelter;
- new River Amphitheatre incorporating terraced seating;
- new ramped walkways and connecting stairs;
- new garden terrace adjacent to 36 Charles Street (the Port Bar);
- new square at street level; and
- integration of public artwork.

The approved concept has undergone further design development and a detailed description of the proposed works is provided in Section 3.

This Review of Environmental Factors (REF) has been prepared by MG Planning on behalf of Council to satisfy the assessment requirements under Part 5 of the EP&A Act. The purpose of the REF is to describe the proposed activity, document the potential impacts on the environment and identify any safeguards and management measures required to minimise potential impacts.

The City of Parramatta is the proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP & A Act). Part 5 of the EP&A Act requires that where an activity is proposed to be undertaken, the determining authority must consider “to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity”. This REF has been prepared to meet this obligation in accordance with the relevant provisions of the EP&A Act, clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) and other applicable environmental legislation. The findings of the REF also provide a basis for making the decision on whether an Environmental Impact Statement (EIS) is required in accordance with Section 5.7 of the EP & A Act.

The REF should be read in conjunction with the attachments listed below:

Attachment 1	Urban Design Report
Attachment 2	Landscape drawings

Attachment 3	Architectural drawings
Attachment 4	Draft Interpretation Plan
Attachment 5	Access Review Design Development Report
Attachment 6	Preliminary Construction Environmental Management Plan
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Attachment 16	Flood Impact Assessment
Attachment 17	Stormwater Management Report
Attachment 18	Biodiversity Impact Statement
Attachment 19	Arboricultural Impact Assessment
Attachment 20	Lighting certification

2 SITE ANALYSIS

2.1 Site location

Charles Street Square is located north-east of the Parramatta CBD on the south-west bank of the Parramatta River in the vicinity of the Parramatta Ferry Wharf and Charles Street Weir. The proposal location is shown in Figure 1 and an aerial of the site is shown in Figure 2.

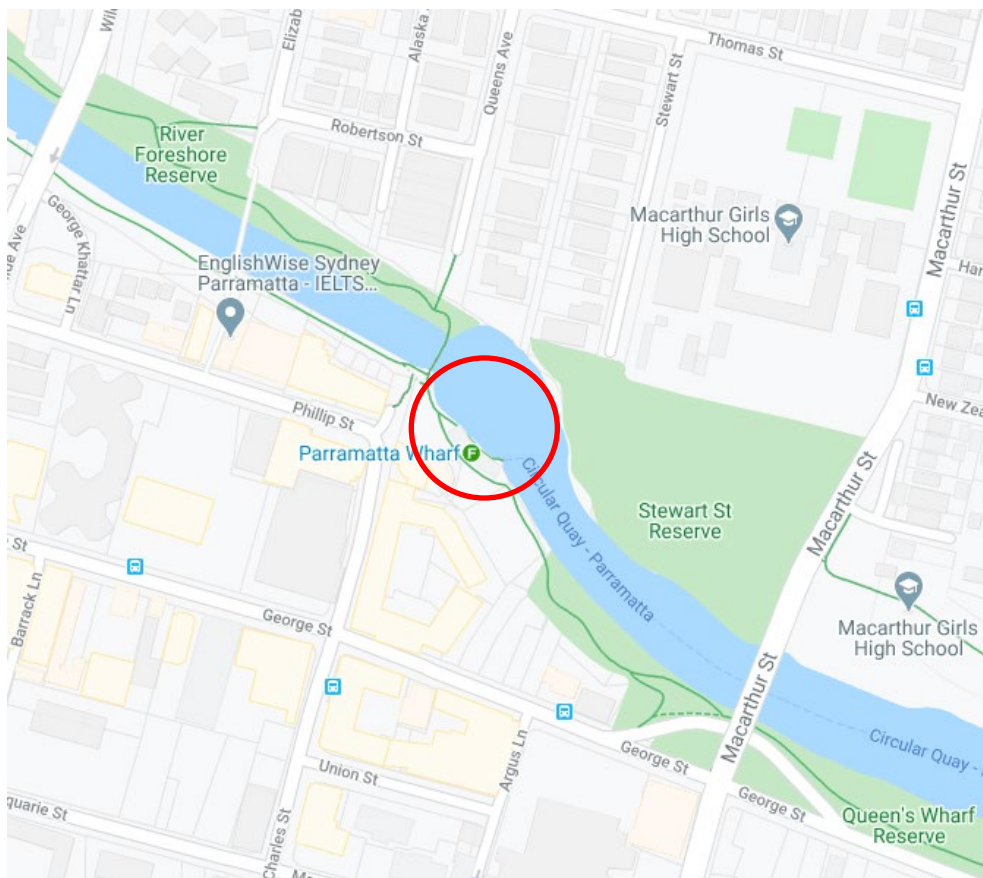


Figure 1: Location Plan

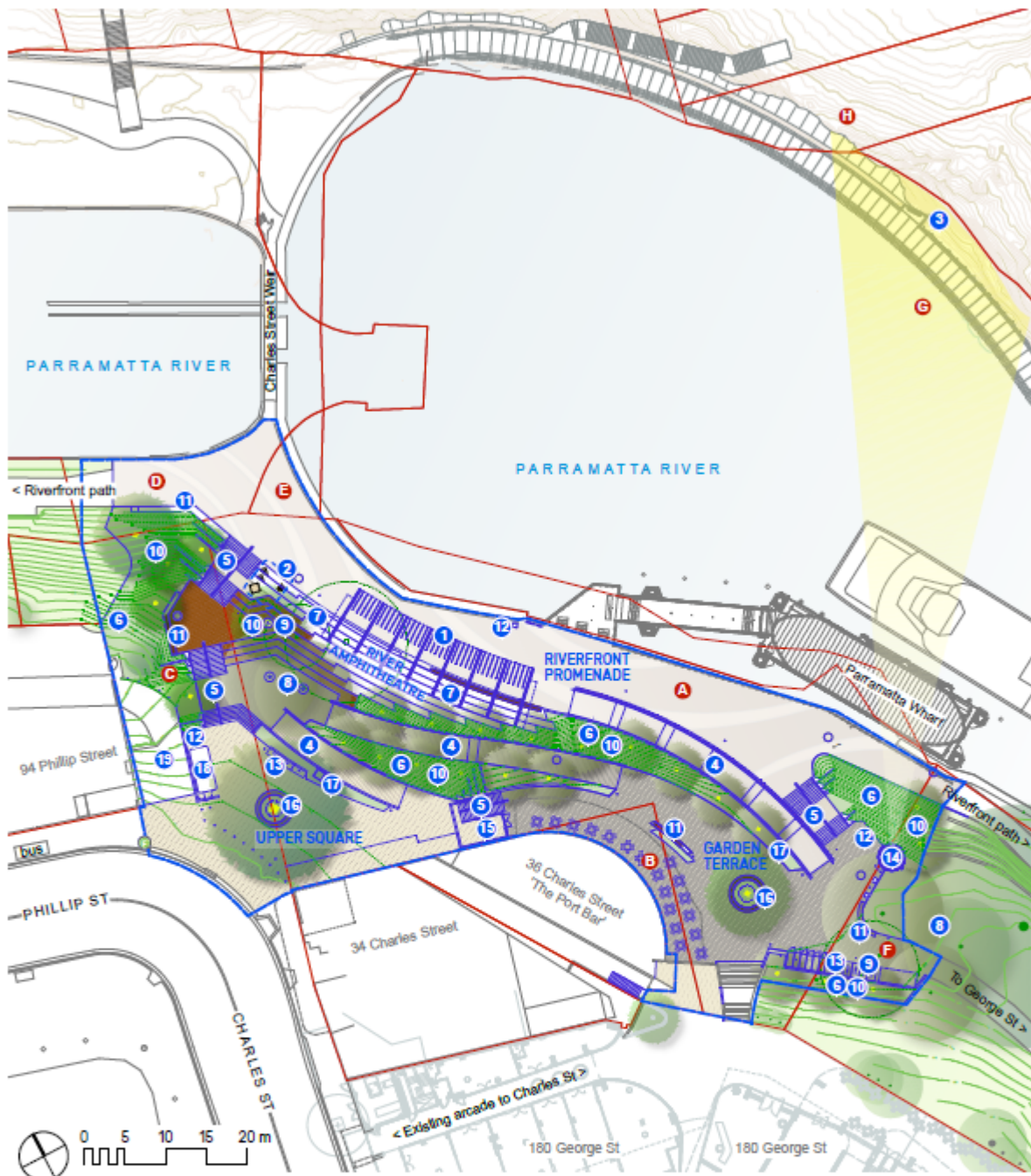


Figure 2: Aerial of site (www.nearmap.com)

2.2 Site description

The project site is shown outlined blue in Figure 3. Most of the site is a public reserve which is community land owned by Council. The site also encompasses an unmade section of Charles Street which is a public road owned by Council (refer 'C' in Figure 3). This is the site of the proposed amenities block which is subject to a separate development application however other landscape improvements within the public road are covered by this REF (refer discussion in Section 4.3.1).

The site is made up of a number of lots and DPs as well as the public road, as shown in Figure 3.



CHARLES STREET SQUARE UPGRADE

LOCATION AND SITE PLAN

JUNE 2020

KEY

- Riverfront promenade**
- 1 Wharf shelter
- 2 New public artwork-sculpture component
- 3 New public artwork-projection component
- 4 Ramped walkways
- 5 Stairs
- River Amphitheatre**
- 6 Floral garden
- 7 Terraced seating
- 8 Existing trees
- 9 Proposed tree removal
- 10 New trees

- Garden Terrace**
- 11 Bench seating
- 12 Drinking fountain
- 13 Bike parking
- 14 Ferry office
- 15 Store room (under)

- Public Square**
- 16 Feature tree & seating
- 17 Rain garden
- 18 Public toilets (existing, relocated)
- 19 Existing driveway

Lots

- A 38 Charles Street Lot 2, DP 869816
- B 36A Charles Street Lot 2, DP 869820
- C Charles St road reserve
- D 340A Church Street Lot 1, DP 1172250
- E 21 Charles Street Lot 2, DP 532539
- F 182C George Street Lot 1, DP 506760 (CBD Foreshore Reserve)
- G Lot 1, DP 532539 (Parramatta River)
- H Lot 22, DP 1346 (Stewart St Reserve)

Figure 3: Site plan

Charles Street Square is characterised by a significant level change (5.9 metres) from the city street level to the river foreshore. Transition between levels is achieved through a series of shared paths and stairs. Due to the level change between the city and the river, the shared paths are lengthy and do not provide direct access from the street to the ferry wharf, making navigation difficult.

The site is essentially comprised of three main levels:

1. upper tier generally at street level and including a large paved terrace at the western end of the site;
2. middle tier comprised of various paths, stairs and landscaped beds; and
3. lower tier comprising the foreshore shared pathway, ferry wharf and large shelter structure.

Other features of the site include an existing toilet block and various public artworks as well as several existing mature trees within the site which provide shade and amenity.

Key features of the site are shown in the photos below.



Photo 1: Looking east towards ferry wharf



Photo 2: Mid level view looking east along pedestrian ramp

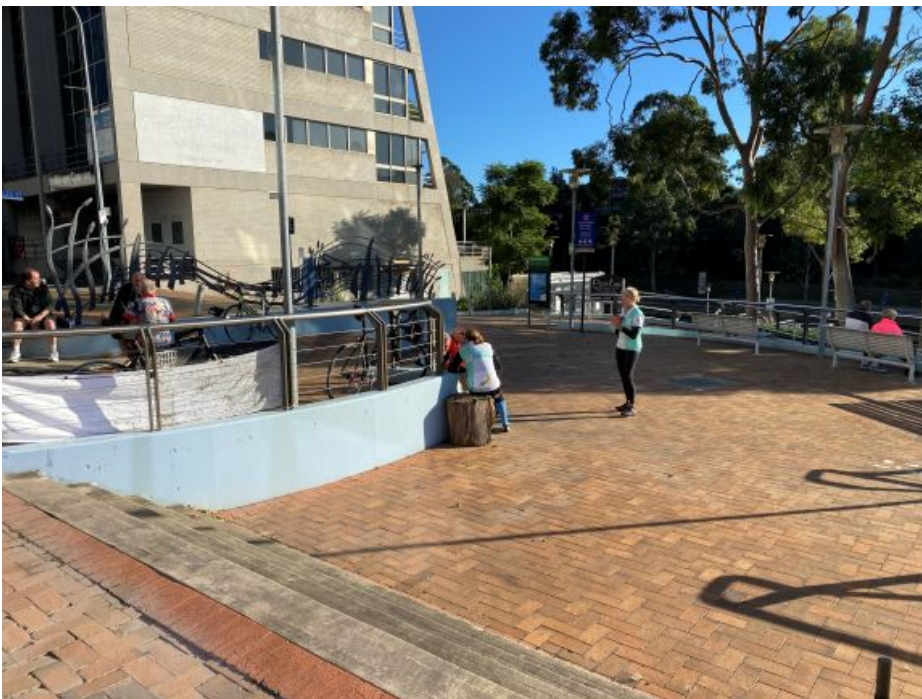


Photo 3: Upper paved terrace at western end of site



Photo 4: View taken from western end of site looking north



Photo 5: View taken from eastern end of site looking east



Photo 6: View looking east towards mid level café



Photo 7: Foreshore area adjacent to wharf

2.3 Surrounding area

The Charles Street Square site is located at the north-eastern end of the Parramatta CBD adjacent to the Parramatta River. To the south of the site is a mix of commercial and residential multi storey buildings, including a number of major developments currently under construction. To the north is Parramatta River and the recently upgraded Parramatta ferry wharf. On the other side of the river to the north is a steep partly vegetated riverbank with residential apartments above.

The foreshore reserve and pathway extends beyond the site to the west and east. There is also a commercial building with a basement carpark immediately adjoining the site to the west which fronts onto the foreshore reserve. There are two cafes that adjoin the site, the Riverside Deli Bar Cafe on the corner of Charles and Phillip Streets and the Port Bar in the centre of the site. The Port Bar awning and outdoor dining area extend over community land.

The surrounding area is experiencing considerable growth and change, with significant commercial and residential development activity occurring in close proximity to the site and the river foreshore.

An Escarpment Boardwalk is also currently being constructed by Council along the northern bank of the river. The boardwalk will deliver a missing pedestrian and cyclist link in the Parramatta Valley Cycleway, connecting Parramatta Park to Melrose Park through completely off-road facilities. It will also provide a new set of stairs up to Stewart Street and Macarthur Street to ensure safe and direct access for the public and local school students.

There are a number of heritage items in the vicinity of the site, including 'Harrisford' which is a state listed heritage item located at 182 George Street, and the Charles Street Weir located immediately to the west on the river.

Photos of the immediately surrounding area are provided below.



Photo 8: View north across river with Charles Street Weir in midground, Escarpment Boardwalk and Stewart Street Stairs under construction against the escarpment, and residential apartment buildings on top of the escarpment in the background

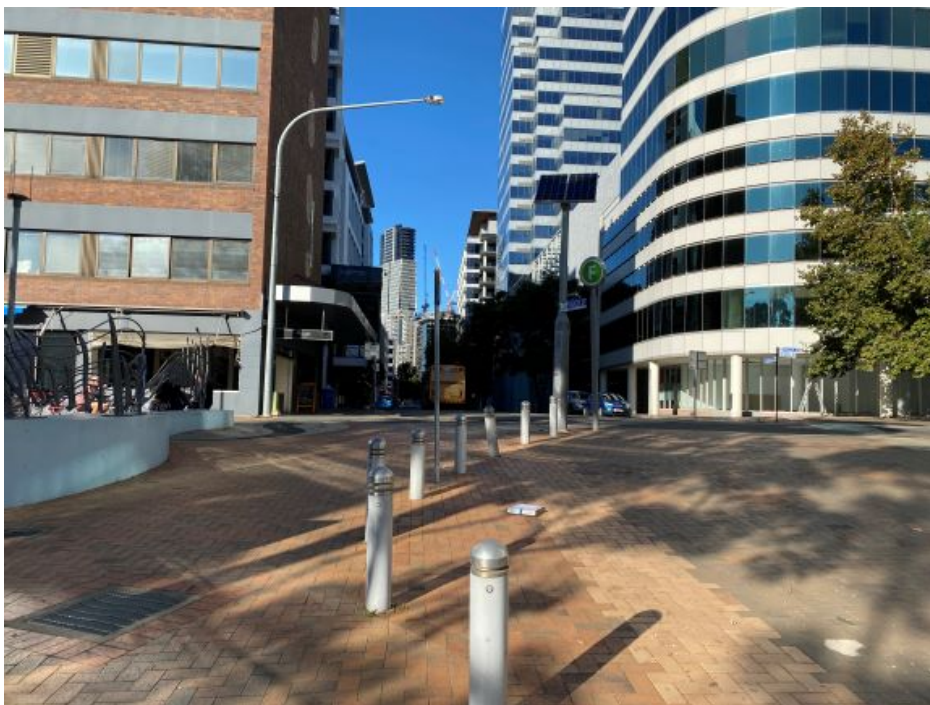


Photo 9: View from the road reserve within Charles Street Square south along Charles Street



Photo 10: View west showing 94 Phillip Street commercial building with basement car parking



Photo 11: Parramatta ferry wharf, renewed in 2019

3 PROJECT DESCRIPTION

3.1 Project justification

Council is committed to providing a high quality river foreshore along the Parramatta River. In 2015 it adopted the Parramatta City River Strategy, a plan for revitalizing the foreshore of the Parramatta River between Gasworks Bridge (Macarthur St) and Rings Bridge (O'Connell St). The Strategy aims to strengthen Parramatta's identity as the Central River City by upgrading the City River corridor, providing better spaces for walking, cycling and for hosting major events. The renewal of Charles Street Square is an integral component of the Strategy.

The City River Program of Works is a staged plan to deliver public domain improvements along the foreshore envisaged in the Parramatta City River Strategy through Council's own Delivery Program as well as development undertaken by others.

The renewal of Charles Street Square is a proposed public domain upgrade identified for delivery as part of the City River Program of Works. Construction of this key public domain project also represents a timely opportunity to support stimulus and recovery of the local economy disrupted by the Covid-19 pandemic. This project will employ local construction contractors and suppliers from the first half of 2021.



Figure 4: Excerpt from Parramatta City River Strategy – star identifies approximate location of site (Source: McGregor Coxall, 2015)

The Charles Street Square upgrade is guided by the Charles Street Square Strategy (Hassell, 2017), which explored design strategies for a revitalised Charles Street Square at Parramatta Quay. The Charles Street Square Strategy focussed on the role of Charles Street Square as a transport interchange and explored the role potential redevelopment of adjacent sites could play in enhancing visitor arrival and public amenity of Parramatta's river gateway.

3.2 Project overview and objectives

The Charles Street Square renewal aims to improve connections between the river and the city and along the riverfront for all users – pedestrians, cyclists and people with limited mobility. In doing so, the design concept seeks to create a memorable experience that celebrates the special qualities of this unique point in the river. It responds to the surrounding landscape of escarpment, trees and parkland, the curving geometry of the river, the rich cultural heritage of the place, and the sense of arrival to create a welcoming space for locals and visitors alike.

The key spatial components of the proposed upgrade are a generous riverfront promenade, a welcoming square at street level, a new garden terrace at mid-level and a river amphitheatre of terraced seating. These are connected by a series of stairs and ramped walkways that provide multiple clear, easy to understand and accessible connections between the riverfront and the city streets for pedestrians, cyclists and people with limited mobility. The new spaces that make up Charles Street Square have been designed for inclusivity and flexible use, including programmed events and activities, as well as everyday informal gatherings. A coordinated palette of public furniture – including multi-function light poles, bins, drinking fountains, and bike parking – reduce clutter and visually unify the public domain.

Flood resilience is fundamental to the design. It dictates the minimisation of flood obstructions, the provision of a clear and continuous path of evacuation, and easy to maintain, robust materials, finishes and detailing. Environmental sustainability measures include the use of recycled renewable and/or recyclable materials, the incorporation of rain gardens to capture and filter stormwater, and a focus on low-maintenance native plant species for drought tolerance and potential wildlife habitat creation.

The design objectives for the Charles Street Square upgrade are:

- to create a memorable arrival and departure experience at a key gateway to Parramatta;
- to create inclusive, legible and safe connections between street and river for all users – pedestrians, cyclists and people with limited mobility;
- to retain and, where possible, expand the continuous level access along the riverfront promenade;
- to integrate the transport interchange function of the square into the experience of the place;
- to create a generous and comfortable public space that enhances the site's role as a natural meeting point for community, and enables a range of social settings and activities;
- to celebrate the special qualities of the site – its cultural and heritage values, the distinctive character of the landscape; and

- to create a resilient and sustainable public space that avoids or minimises impact on the environment wherever possible.

3.3 Alternatives considered

Do nothing option

A 'do nothing' option was discounted at the outset as it would not be in accordance with the City's Parramatta River Strategy or its City River Program of Works, as discussed in Section 3.1. The existing Charles Street Square lacks those qualities that are commensurate with a high quality public domain in that:

- it exhibits limited visual and physical connectivity between the City and the River;
- the existing paths and ramps to the ferry wharf do not comply with current standards, and there are frequent conflicts between pedestrians and cyclists;
- there is a lack of delineation between public and private space, with the accessible path obscured by outdoor dining;
- it is characterised by general clutter and a lack of clear definition, leading to management issues such as vehicle usage of the public square; and
- it has not been adequately planned to take account of high hazard flooding.

Having regard to the above, it would not be appropriate to retain Charles Street Square in its current state particularly given broader aspirations for the interface between Parramatta CBD and the river.

Charles Street Square Strategy

The 2017 Charles Street Square Strategy developed three design options:

Option 1: Charles Street Steps

This design approach created a single landscaped stair that opened up the view corridor and transition between the City and the River. It provided a tall tree canopy to view the river underneath and provide shade and shelter.

Option 2: Phillip Street Extension

This approach reinforced the axis of the historic Phillip Street and set up a direct path of travel along the alignment with the new ferry wharf. All connections ran in an east-west direction to create clear paths of movement for pedestrians and cyclists.

Option 3: Terraced Bank

A terraced bank used extensive planting to soften the transition to the river along a series of ramps. This option returned the foreshore to a more natural condition and mediated the transition using a ramp rather than a lift.

The preferred option design adopted in the 2017 Strategy included:

- a single 'amphitheatre style' stair occupying almost the entire square, providing direct access and clear visual connections between the street and the river foreshore;
- tall trees integrated into the steps;
- a public lift to provide accessibility between the riverfront and the street;
- public toilets at the riverfront level;
- integration with a new street level promenade on the river side of the riverfront buildings along the southern side of the City River corridor; and
- ramped access between the riverfront and the upper level promenade to the west of Charles Street Square as well as to the east in front of 180 George Street.

Departure from 2017 Masterplan (Preferred Option)

The current Charles Street Square upgrade design by SMM has required a fundamental reconsideration of, and departure from, the 2017 Concept Master Plan as it was predicated on amalgamated redevelopment of the adjacent properties at 90 and 94 Phillip, and 34 and 36 Charles Street. As these amalgamations are long term propositions, the Charles Street Square upgrade is constrained by existing edge conditions, which require the retention of access to the adjacent properties.

The current proposal also achieves universal access between the riverfront and the city streets at Charles Street Square, removing the reliance on inclusion of a lift in the design. Locating a lift on this site was investigated and found to have a number of feasibility issues, particularly in relation to operating within an area subject to frequent flooding.

While the need to respond to existing site conditions has necessitated an essential redesign of the project, the underlying objectives and principles of both the 2015 Parramatta City River Strategy and the 2017 Charles Street Square Strategy and Concept Master Plan remain key drivers of the Charles Street Square upgrade.

Design options for public lift and ramped walkways

Based on the 2017 Concept Master Plan, the SMM concept design for the Charles Street Square upgrade considered two alternative options to provide access between the riverfront and the city streets: a public lift, and accessible ramped walkways. The design investigation concluded that a public passenger lift was not needed to fulfil the objective of universal access between the street level and the riverfront, and that the inclusion of a lift came with significant cost, ongoing operational risks, and need for additional flood protection measures. While a public lift would provide a quicker and more convenient way to navigate the total 5.9 metre height difference between the riverfront and the street level for those who are unable to use stairs, the lift could be expected to be regularly out of operation – for routine maintenance and servicing, for asset protection during a flood, and for maintenance and repairs after flooding. As such, the design team determined that an alternative accessible route would be necessary – either in addition to, or instead of, a public lift.

A ‘two-ramp’ option and a ‘three-ramp’ option were considered by the design team. While the ‘three-ramp’ option is longer than the ‘two-ramp’ option by approximately 10 metres, it was selected as it reduces the impact on view outlook from the lower level frontage of the Port Bar (36 Charles Street) and provides for an overall flatter walkway grade with half of the height gain achieved with 1:20 walkways instead of a 1:14 ramp.

Further discussion on the rationale for the overall proposal design and consideration of options is provided in the SMM Urban Design Report at Attachment 1.

3.4 Project description

Detailed plans illustrating the proposed development, design concept, materials and finishes, planting schedule, furniture and fixtures etc. have been prepared by SMM and are provided at Attachment 2. An Urban Design Report has also been prepared by SMM and is provided at Attachment 1.

Architectural plans of the proposed wharf shelter, ferry office and storeroom have been prepared by Lahz Nimmo and are provided at Attachment 3.

3.4.1 Demolition

The proposal will require demolition of all existing paving, structures, furniture and landscape within the site area with the exception of:

- the Exeloo toilet which is to be relocated on site;
- the public artwork by Ruth Downes which is to be salvaged and returned to the artist for relocation;
- four trees which will be retained and supplemented with additional tree planting;

- the driveway located at the western side of the site adjacent to the multi storey carpark;
- the balustrade along the foreshore associated with the ferry wharf; and
- the awning extending from the Port Bar (36 Charles St).

A demolition plan is included in the drawing set at Attachment 2.

3.4.2 Riverfront promenade

A widened riverfront promenade is to be provided to better accommodate all users along the river foreshore. The promenade has been expanded from a minimum width of 3.6 metres to 5.8 metres wide at its narrowest point, and a maximum width of about 12.9 metres compared to the existing maximum width of 10.9 metres. The extra width eases conflicts between pedestrians, cyclists and ferry passengers in this busy riverfront space.

While the riverside edge of the promenade remains unchanged, the 'landside' edge has been decluttered and reshaped as interlocking arcs that form a ramped walkway and stepped seating platforms that rise up from the riverfront to the new garden terrace and upper square. The reduction of clutter and simplified geometry of the riverfront creates identity and increases amenity while also removing existing obstacles to flood conveyance, particularly the existing stairs opposite the weir. The flood resilience of the riverfront space is strengthened by a restricted palette of robust materials, finishes and detailing, including concrete steps and seating platforms, heavy-duty structural steel framing for the shade shelter, in situ concrete paths with exposed aggregate finish, and steel balustrade at the ramped walkway.

3.4.3 Ramped walkways

The design provides for equitable access between the riverfront and the city streets with a series of three ramped walkways that function as shared paths for pedestrians, cyclists and people with limited mobility. Each of the ramped walkways is a generous 3 metres wide, and together they traverse an overall level change of 5.9 metres. The lower ramped walkway has a gradient of 1:14, while the middle and upper walkways have a gradient of 1:20.

3.4.4 River Amphitheatre

The River Amphitheatre is a series of curved seating terraces with capacity for over 400 people, stretched along the riverfront between Charles Street Weir and the ferry wharf. The lower levels of the seating terraces are constructed of concrete that can withstand regular flooding impacts; above the 10% AEP event level there is a small number of seating terraces constructed of timber. The structure of the terraces is generally founded on ground except for a small portion which forms the landing between the two upper ramped walkways. Here the construction is suspended concrete deck, which in association with generously-sized tree grates, enables the

preservation of soil profiles within the critical root zone of retained trees as well as ongoing inspections of the ground and trunk condition, as recommended in the arborist's report.

At the riverfront, a distinctive new shelter is integrated with the seating terraces of the River Amphitheatre, creating additional covered space to wait for the ferry or for riverfront events. As the shelter is located within the flood corridor, its structure is designed to withstand minimum 1% AEP flood velocities.

3.4.5 Garden Terrace

The Garden Terrace is a new mid-level space within Charles Street Square for outdoor dining and public seating within a garden setting. Located between the lower and middle ramped walkways, the Garden Terrace provides a generous respite space. It is located above the zone of frequent inundation at the riverfront and forms an expansive new public frontage for the lower level of the adjacent Port Bar (36 Charles Street).

The Garden Terrace includes facilities that are not possible to locate at the frequently inundated riverfront: a combined storage and electrical room, and a ferry office. The ferry office affords clear surveillance of the wharf for ferry staff, functions as a service point for ferry passengers, and houses projectors for the digital component of the new artwork.

3.4.6 Upper Square

At the upper level, the square has been updated to create a welcoming public space at the corner of Phillip and Charles Streets, with minimal clutter and clear views through the space down to the river.

Vehicular access to the square is controlled with the addition of bollards along the street edge of the square, while access to the carpark at 94 Phillip Street is maintained via the existing driveway. Controlled access for periodic maintenance and servicing of the adjacent property, 36 Charles St, is also provided.

The existing Exeloo automated toilet is relocated to the upper square (subject to a separate Development Application), providing fully accessible public amenities that are available 24/7.

3.4.7 Public artwork

A major new public artwork is proposed. The artwork will comprise both a static sculpture and digital content. The digital content will involve a light projection onto the rock face and vegetation of the escarpment on the northern bank of the river, above the Escarpment Boardwalk. The projected content comprises a collection of video artworks that respond to the people, geography, history and perceptions of Parramatta. The projection will be displayed for a 3 hour

period on a nightly basis and cover an area of up to 30 metres wide by 10 metres high on the northern escarpment. The content of the video artworks will be developed through the consultation process of the Charles Street Square Interpretation Plan and is envisaged to evolve over time.

The final design of the public artwork will be subject to a separate assessment process to be undertaken by Council. The sculptural components (bronze figure and plinth) and projected imagery are not included in this REF and are to be further developed before being subject to environmental assessment. The projection system and its housing are considered in this REF.

3.4.8 Planting

The proposed planting builds on the existing palette of mixed native and exotic species found on site and along the river corridor, which contributes to the unique landscape character of the area.

The planting design aims to address:

- the landscape experience;
- environmental comfort;
- opportunities for cultural interpretation;
- opportunities for habitat creation and biodiversity enhancement; and
- a minimal maintenance regime.

A total of 28 new trees is proposed. The tree planting scheme aims to restore the landscape character of the site, connect to the landscape character of the adjacent riverside parklands, and create a distinctive identity for the square that enhances the sense of arrival.

A plan showing the planting design is provided at Attachment 2 (Plan No L-DD-102).

3.4.9 Interpretation

A draft Interpretation Plan has been prepared as part of the Charles Street Square upgrade, a copy of which is provided at Attachment 4. Pending elaboration and refinement through consultation with First Nations communities and other stakeholders, initial opportunities under consideration include:

- dual place naming for Parramatta Quay, prominently displayed on the shade shelter at the riverfront;
- inclusion of locally occurring and/or culturally significant native plant species in the planting design;
- focus on local Aboriginal stories in the video component of the new art work;

- embedded graphics and/or text in the precast concrete of the River Amphitheatre;
- engraved graphics and/or text in the timber seat around the fig tree at the upper square, as a gesture of 'welcome'; and
- text and image based information incorporated with more conventional signage infrastructure

Potential interpretation themes for exploration include: a place of meeting (of people, of salt and fresh water); Aboriginal stories connected to this place on the river; and the dynamic landscape experience of flood.

Further discussion on the draft Interpretation Plan is provided at Section 6.2.

3.4.10 Materials and public furniture

Details of public furniture and materials are provided in the plans at Attachment 2 (Plan Nos L-DD-103, L-DD-104, L-DD-105).

3.4.11 Accessibility

An Access Review Design Development report has been prepared by Morris Goding Access Consulting to provide advice and strategies to maximise the provision of universal access within the public domain (refer Attachment 5). It considers current Codes, Standards and applicable guidelines along with universal and inclusive design principles. The report identifies accessibility design requirements for all key elements in the public domain (pathways, handrails, tactile ground surface indicators, luminance contrast, furniture, fixtures and fittings) and includes a design checklist to guide detailed design.

The proposal will be designed in accordance with the recommendations of the Access Review Design Development report.

3.5 Construction

3.5.1 Construction overview

A preliminary Construction Environmental Management Plan (CEMP) has been prepared by Alliance Geotechnical and is provided at Attachment 6. The preliminary CEMP provides the overall framework to guide the construction work and includes a range of measures to minimise construction impacts, including:

- the proposed methods for access to and egress from the site for construction vehicles;
- the proposed method for traffic management during construction;
- the proposed method of pedestrian management surrounding the site;

- the proposed areas within the site to be used for the storage of materials and waste containers during the construction period;
- the proposed method/device to remove loose material from all vehicles and/or machinery before entering;
- protection of existing vegetation and trees;
- erosion and sediment control;
- dust suppression measures and stockpile protection; and
- location of existing water, power and drainage services for temporary connection to site accommodation, as well as relocation if necessary.

Waste generated from excavation work would be taken to a licensed off-site disposal facility (refer discussion in Section 6.11).

The final CEMP will be prepared by the construction contractor once the construction methodology finalised. The detailed CEMP will be thoroughly tested to demonstrate that environmental impacts can be adequately mitigated.

Construction hours will generally be as follows:

- Monday to Friday, 7am to 5pm
- Saturday, 8am to 5pm

Council will endeavour to complete all works during the designated construction hours however there may be certain aspects of the project that require after hours work. Any requests for after hours work will be documented and submitted to Council for approval prior to commencement.

It should be noted that on 8 April 2020 the *Environmental Planning and Assessment (COVID-19 Development – Infrastructure Construction Work Days) Order 2020* was made by the Minister for Planning and Public Spaces to allow construction hours of infrastructure projects to be extended to weekend and public holidays. Construction works may be undertaken in accordance with the hours specified in this Order for as long as it is in place.

The construction phase of the project is expected to take approximately 12 months to complete.

3.5.2 Construction traffic

In addition to the preliminary CEMP, a preliminary Construction Traffic and Pedestrian Management Plan (CTPMP) has also been prepared and is provided at Attachment 7. The preliminary CTPMP provides an overview of existing conditions and proposed construction

activities and sets out a range of measures to manage pedestrian, cyclist and traffic movements during construction. As with the CEMP, the construction contractor will be required to prepare the final CTPMP having regard to the recommended measures in the preliminary CTPMP. Council’s approval of the final CTPMP will be required prior to construction commencing.

3.5.3 Civil engineering works

The proposed civil engineering works required for the project are shown in the plans prepared by Northrop provided at Attachment 8. The plans address:

- Sediment and erosion control (Plan Nos C2.01 and C2.11)
- Bulk earthworks (Plan No C3.01)
- Siteworks and stormwater management (Plan No C4.01)
- Utility services (Plan Nos C5.01, C5.11, C5.12 and C5.13)

The proposal will require cut and fill. Approximate bulk earthwork values are as follows:

Hardstand removal	174m ³
Export material (after hardstand removed)	172m ³
Import material (to bulk level)	992m ³

4. LEGISLATIVE AND PLANNING FRAMEWORK

The proposed activity is subject to the following NSW legislation and statutory planning instruments:

- EP&A Act
- EP&A Regulation
- *National Parks and Wildlife Act 1974*
- *Biodiversity Conservation Act 2016*
- *Fisheries Management Act 1994*
- *Heritage Act 1977*
- *State Environmental Planning Policy (Infrastructure) 2007*
- *State Environmental Planning Policy No. 55 – Remediation of Land*
- *State Environmental Planning Policy (Coastal Management) 2018*
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*
- *Environment Protection and Biodiversity Conservation Act 1999*

An assessment of the proposed works against the following legislation and policies is also included in this chapter for completeness.

- Parramatta Local Environmental Plan 2011
- Community Land Plan of Management 2014
- Water Management Act 2000
- Local Government Act 1993
- Public Tree Protection During Works Policy
- Public Art Policy
- Contaminated Land Policy/Council Asbestos Management Policy
- Floodplain Risk Management Policy
- Corporate Sustainability Policy

4.1 Environmental Planning and Assessment Act 1979

An assessment of compliance against the objects of the EP&A Act is provided in Table 1 below.

Table 1: Compliance with 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 upgrade of the Charles Street Square will promote the social and economic welfare of the community through the provision of high quality and accessible public open space along the Parramatta River foreshore and to Parramatta Wharf.
1.3(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment	Relevant economic, environmental and social considerations have informed the preparation of this REF and therefore ensured that these matters are integral to decision-making about environmental planning and assessment.
1.3(c) to promote the orderly and economic use and development of land	The development will provide for the economic use of the land for public purposes, providing improved useability, accessibility and amenity along the river foreshore and to Parramatta Wharf.
1.3(d) to promote the delivery and maintenance of affordable housing,	Not applicable
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	The proposal will not adversely impact threatened animals or plants, ecological communities or their habitats, as discussed in Section 6.5.
1.3(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)	The proposal will have minimal impact upon Aboriginal and non-Aboriginal heritage items. The heritage values of the site will be appropriately considered in an interpretation plan.
1.3(g) to promote good design and amenity of the built environment	The proposed upgrade of the Charles Street Square will deliver a high quality public domain, significantly improving the amenity of the site.

Object	Comment
1.3(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants	All proposed structures will be properly constructed in accordance with relevant legislation and adopted standards.
1.3(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	The project has been developed in consultation with Transport for NSW and other agency stakeholders, as discussed in Chapter 5.
1.3(j) to provide increased opportunity for community participation in environmental planning and assessment.	The project has been the subject of extensive consultation with the community, as discussed in Section 5. This REF has been publicly exhibited.

The proposal is therefore consistent with the objects of the *Environmental Planning and Assessment Act 1979* as applicable.

As the proposed public domain works (excluding the public toilet relocation) do not require development consent by virtue of the provisions of the Infrastructure SEPP (refer discussion in Section 4.3.1), the project is being assessed under Part 5 of the EP&A Act. Section 5.5 of the EP&A Act requires that a determining authority must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. The determining authority must take into account the requirements of Section 5.5 and the matters outlined in clause 228 of the EP&A Regulation.

4.2 Environmental Planning and Assessment Regulation 2000

Clause 228 of the EP&A Regulation details those factors that must be taken into account concerning the impact of an activity on the environment. Table 2 provides an assessment of the Clause 228 factors in relation to the proposed upgrade works.

Table 2: Consideration of Clause 228 factors

Clause 228 Factor	Impact
a. any impact on a community	During construction, there would be potential impacts on the community through increased traffic, noise, dust and visual impacts and temporary replacement of ferry services with buses to facilitate construction staging. These potential impacts would be minor and temporary and managed through the mitigation measures summarised in Section 7.

Clause 228 Factor	Impact
	Once operational, the proposal will result in the provision of high quality public domain designed to enhance the amenity of the Parramatta River foreshore and provide safe, accessible and connected walking and cycling opportunities in this important location.
b. any transformation of a locality	The proposal will transform the useability, accessibility and amenity of the public domain in this location in a positive way for the community and the place.
c. any environmental impact on the ecosystems of the locality	There will be negligible impact on ecosystems in the locality.
d. any reduction of the aesthetic, recreational, scientific or other environmental quality	<p>The proposed activity will result in some short-term amenity impacts during construction. All these issues are expected to be minor in nature.</p> <p>In the longer term, the proposal will have a positive impact. The proposed improvements, including the provision of new landscaping, pathways, park furniture, heritage interpretation and artwork, will enhance the aesthetic, recreational and environmental quality of the locality.</p>
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 proposed works will not impact on heritage items located in the vicinity. As noted above, the proposed works are expected to enhance the attractiveness and amenity of the area. The infrastructure will not block views to heritage items/conservation areas and will otherwise not result in any adverse impacts. Appropriate heritage interpretation will be provided.
f. any impact on the habitat of protected fauna (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)	Negligible 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	Negligible impact
h. any long-term effects on the environment	Long terms effects on the environment will be positive. The proposed works will result in improved amenity, safety, legibility, functionality and accessibility.
i. any degradation of the quality of the environment	There may be minor impacts to the quality of the environment during construction. Appropriate mitigation measures will be put in place during construction to ensure any environmental impacts are minimised. Once constructed, the quality of the environment will be improved as a result of the proposal.
j. any risk to the safety of the environment	<p>Part of the site is subject to risks from flooding. The proposal has been designed to minimise risks and any further risks from flooding will be managed through the implementation of appropriate mitigation measures as discussed in Section 6.4.</p> <p>Risks associated with construction can be suitably managed during that phase by the implementation of standard construction management measures as set out in the CEMP (Attachment 6).</p>
k. any reduction in the range of beneficial uses of the environment	The proposed works will not reduce the range of beneficial uses of the environment within the locality.

Clause 228 Factor	Impact
l. any pollution of the environment	Short term and minor environmental impacts associated with construction are possible however these impacts can be readily mitigated through the construction environment management plan and other safeguards as recommended in REF.
m. any environmental problems associated with the disposal of waste	Waste arising from demolition and/or excavation will be managed in accordance with the waste management measures set out in the CEMP (Attachment 6). Operational waste will be managed in accordance with the City's usual waste management practices for public domain areas.
n. any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	The proposed activity will not increase demands on resources that are likely to be in short supply.
o. any cumulative environmental effect with other existing or likely future activities	As discussed in Section 6.13, there may be localised cumulative increase in noise, traffic and dust associated with construction activities around the site. These impacts are however expected to be minor and temporary in nature.
p. any impact on coastal processes and coastal hazards, including those under projected climate change conditions	The proposed activity is not in a coastal location and would not affect coastal processes or hazards.

4.3 Environmental Planning Instruments

4.3.1 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (the Infrastructure SEPP) seeks to facilitate the effective delivery of infrastructure across the State. It sets out the planning approval pathways for infrastructure carried out by public authorities.

As set out below, most of the proposed upgrade works are categorised as 'development without consent' under the Infrastructure SEPP. Some works could potentially proceed as "exempt development" under the Infrastructure SEPP but they have been included in the package of works for assessment in this REF for ease of interpretation, cumulative impact assessment and to avoid confusion.

The proposed relocation of the public amenities block onto that part of the site located within the Charles Street road reservation requires a separate development application (DA) to Council.

Development without consent

Clause 65(3), Division 12 of the Infrastructure SEPP states that development for any of the following purposes may be carried out by or on behalf of a council without consent on a public reserve under the control of or vested in the council:

- roads, pedestrian pathways, cycleways, single storey car parks, ticketing facilities, viewing platforms and pedestrian bridges;
- recreation areas and recreation facilities (outdoor), but not including grandstands;
- visitor information centres, information boards and other information facilities;
- lighting, if light spill and artificial sky glow is minimised in accordance with the Lighting for Roads and Public Spaces Standard;
- landscaping, including landscape structures or features (such as art work) and irrigation systems;
- amenities for people using the reserve, including toilets and change rooms;
- food preparation and related facilities for people using the reserve;
- maintenance depots;
- portable lifeguard towers;
- environmental management works; and
- demolition of buildings (other than any building that is, or is part of, a State or local heritage item or is within a heritage conservation area).

Most of the proposed works are located within the public reserve and fall under this clause and can therefore be carried out without development consent.

The proposed ferry site office is also classified as development without consent under the Infrastructure SEPP. Under clause 68(4) of the Infrastructure SEPP, development for the purpose of wharf or boating facilities may be carried out by or on behalf of a public authority without consent on any land. Wharf or boating facilities are defined under the *Standard Instrument – Principal Local Environmental Plan* and mean -

... a wharf or any of the following facilities associated with a wharf or boating that are not port facilities—

- (a) facilities for the embarkation or disembarkation of passengers onto or from any vessels, including public ferry wharves,*
- (b) facilities for the loading or unloading of freight onto or from vessels and associated receipt, land transport and storage facilities,*
- (c) wharves for commercial fishing operations,*
- (d) refuelling, launching, berthing, mooring, storage or maintenance facilities for any vessel,*
- (e) sea walls or training walls,*
- (f) administration buildings, communication, security and power supply facilities, roads, rail lines, pipelines, fencing, lighting or car parks*

A staff room/kiosk to support the ferry wharf operations is considered ancillary to development for the purpose of a wharf and may therefore be carried out as development without consent.

Exempt development

Clause 66 of the Infrastructure SEPP states that the construction or maintenance of the following activities is exempt development:

- walking tracks, raised walking paths (including boardwalks), ramps, stairways or gates;
- bicycle-related storage facilities, including bicycle racks and other bicycle parking facilities (except for bicycle paths);
- handrail barriers or vehicle barriers;
- ticketing machines or park entry booths;
- viewing platforms with an area not exceeding 100m²;
- sporting facilities, including goal posts, sight screens and fences, if the visual impact of the development on surrounding land uses is minimal;
- play equipment if adequate safety measures (including soft landing surfaces) are provided and, in the case of the construction of such equipment, so long as the equipment is situated at least 1.2m away from any fence;
- seats, picnic tables, barbecues, bins (including frames and screening), shelters or shade structures; and
- portable lifeguard towers if the footprint of the tower covers an area no greater than 20 square metres.

As such, some of the proposed works can be carried out as exempt development subject to meeting specified criteria under the Infrastructure SEPP. However, as noted above, while some of the proposed works could potentially proceed as exempt development, they have been included in the package of works for assessment in this REF for ease of interpretation, cumulative impact assessment and to avoid confusion.

Works within Charles Street Road Reserve

Part of the Charles Street Square upgrade works will be located within the unmade public road. Works being undertaken within the road reserve include the installation of a public amenities block. Under clause 97(1) of the Infrastructure SEPP, landscaping, pedestrian and cycle paths, street furniture and lighting in the area of the public road are exempt development. However, the proposed public amenities are not covered by the Infrastructure SEPP. A separate development application (DA) to Council is therefore required to secure planning approval for the public amenities.

4.3.2 State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55)

SEPP 55 provides a State-wide planning approach to the remediation of contaminated land by considering whether the land is contaminated and, if it is contaminated, whether it can be made suitable for the proposed purpose.

A Detailed Site Investigation has been carried out for the proposal by Allied Geotechnical and a Remedial Action Plan prepared. Copies of these documents are provided at Attachment 9 and Attachment 10 respectively. Based on the assessments undertaken for the investigation, Allied Geotechnical concluded that the site can be made suitable for the proposed redevelopment subject to supplementary assessment and subsequent remediation. A detailed discussion of the investigation findings is provided in Section 6.7.

4.3.3 State Environmental Planning Policy (Coastal Management) 2018

The Coastal Management SEPP defines the coastal zone and establishes state-level planning priorities and development controls to guide decision-making for development within the coastal zone. The coastal zone is comprised of four distinct coastal management areas - coastal wetlands and littoral rainforests area, coastal vulnerability area, coastal environment area and coastal use area.

Under the Coastal Management SEPP, the site is located within the coastal environment area, as shown in Figure 5.



Figure 5: Extent of coastal environment area under Coastal Management SEPP

Under clause 13 of the Coastal Management SEPP, development consent must not be granted to development within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:

- the integrity and resilience of the biophysical, hydrological and ecological environment;
- coastal environmental values and natural coastal processes;
- the water quality of the marine estate, in particular, the cumulative impacts of the proposed development on any specified sensitive coastal lakes;
- marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms;
- existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public;
- Aboriginal cultural heritage, practices and places; and
- the use of the surf zone.

Chapter 6 of this REF provides a detailed assessment of the potential impact of the proposal on the biophysical, hydrological and ecological environment as well as on the cultural significance of the site and surrounds. The assessment demonstrates that the proposal would not result in

adverse impacts on the environment and recommends appropriate safeguards and management measures to ensure the environmental values of the site are protected.

4.3.4 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP) requires certain approvals from either Council or the Native Vegetation Panel prior to clearing of certain vegetation.

Clause 8 of the Vegetation SEPP states that an authority to clear vegetation under this policy is not required if it is a clearing authorised under s60(O) of the *Local Land Services Act 2013*.

There are various categories of clearing specified in section 60O of the Local Land Services Act that are excluded from the requirement to obtain approval under the Vegetation SEPP, including clearing of vegetation that is ancillary to an activity within the meaning of Part 5 of the EP&A Act. The proposed removal of trees is ancillary to the proposal and therefore does not require consent under the Vegetation SEPP. Further discussion on tree removal is provided in Section 6.6 of this REF.

4.3.4 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (Deemed SEPP)

The site is located within the designated hydrological catchment of the Sydney Harbour and the Foreshores and Waterways Area and is subject to the provisions of the above *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (Sydney Harbour REP) which is now a deemed SEPP. The Planning Principles for the Sydney Harbour Catchment and Foreshores and Waterways Area must be considered and where possible achieved in the carrying out of development within the catchment. The key relevant principles include:

- increase, maintain and improve public access to and along the foreshore;
- maintain, protect and enhance the unique visual qualities of Sydney Harbour and its islands and foreshores;
- protect and improve hydrological, ecological and geomorphologic processes;
- consider cumulative impacts of development within the catchment; and
- improve water quality of urban runoff.

The proposal is consistent with these principles as it will significantly improve access to and along the Parramatta River foreshore and enhance the visual amenity of the area. It will also improve water quality through the introduction of water sensitive urban design (WSUD) measures and will not adversely impact on hydrological, ecological or geomorphologic processes.

An assessment of the proposal in relation to the matters for consideration listed in Division 2 at clauses 21-27 of the Sydney Harbour SREP is provided in Table 3.

Table 3: Sydney Harbour Catchment SREP – Assessment against matters for consideration

Division 2 matter	Comment
Clause 21: biodiversity, ecology and environment protection	Chapter 6 describes the ecological and other environmental impacts associated with the proposal. With the implementation of the environmental management measures, impacts would be minimised and/or managed.
Clause 22: public access to, and use of, foreshores and waterways	The proposal will greatly improve public access to and use of the Parramatta River foreshore. There may be some disruption to public access during construction but this will be temporary and appropriately managed through measures outlined in CEMP at Attachment 6.
Clause 23: maintenance of a working harbour	Not applicable
Clause 24: interrelationship of waterway and foreshore uses	The proposal will improve the interrelationship between waterway and foreshore uses, particularly associated with use of the ferry wharf.
Clause 25: foreshores and waterways scenic quality	The proposal will greatly improve the scenic quality of the foreshore in this area through the upgrade of landscaping, additional trees, and improved finishes.
Clause 26: maintenance, protection and enhancement of views	Careful consideration has been given to protecting views to and from the river during design development. Enhancement of views to the river has been achieved through the removal of visual and physical obstacles such as steps, railings, walls, extraneous signage and commercial rubbish enclosures. Maintenance of viewlines has driven the design of the new shade structure and the planting strategy, where high-branching, elevated canopy trees have been selected in preference to low-habit shrubs.
Clause 27: boat storage facilities	Not applicable

There are no other relevant State Environmental Planning Policies applying to the site.

4.3.5 Parramatta Local Environmental Plan 2011

The Parramatta Local Environmental Plan 2011 (LEP 2011) applies to the site of the proposal. Under LEP 2011 the site is zoned part RE1 Public Recreation, part B4 Mixed Use and part W2 Recreational Waterway as shown in Figure 6.

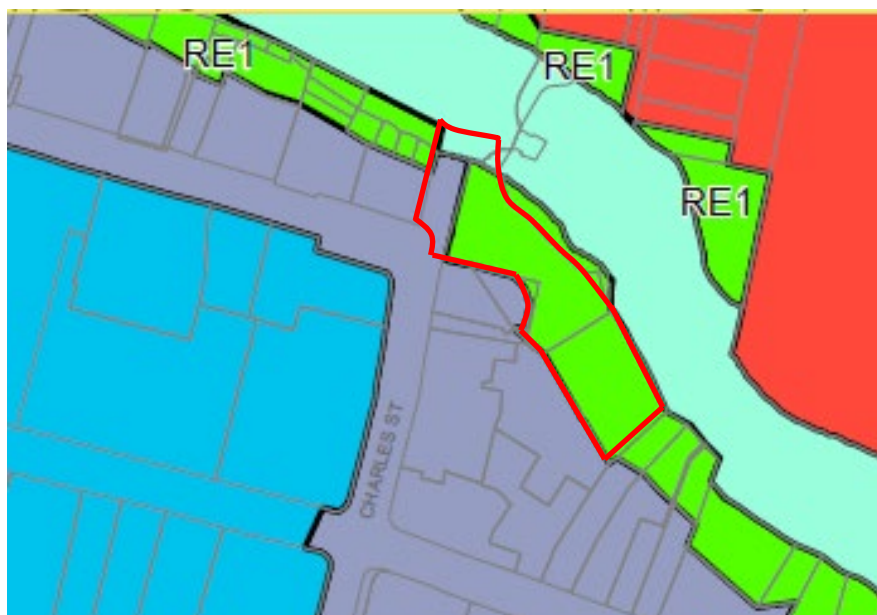


Figure 6: Zoning under LEP 2011

The proposal aligns with relevant zone objectives, as shown in Table 4.

Table 4: Alignment of proposal with zone objectives

Zone	Zone objectives	Proposal alignment
RE1 Public Recreation	<ul style="list-style-type: none"> To enable land to be used for public open space or recreational purposes. To provide a range of recreational settings and activities and compatible land uses. To protect and enhance the natural environment for recreational purposes. To conserve, enhance and promote the natural assets and cultural heritage significance of Parramatta Park. To create a riverfront recreational opportunity that enables a high quality relationship between the built and natural environment. 	<ul style="list-style-type: none"> Enhances use of foreshore for public open space purposes Creates a high quality public domain interface between the Parramatta CBD and river foreshore Enhances the recreational setting of the river
B4 Mixed Use	<ul style="list-style-type: none"> To provide a mixture of compatible land uses. To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling. 	<ul style="list-style-type: none"> Provides for an activated, vibrant and sustainable public space Improves the public domain and pedestrian access and linkages, including connection to the ferry at Parramatta Wharf.

	<ul style="list-style-type: none"> • To encourage development that contributes to an active, vibrant and sustainable neighbourhood. • To create opportunities to improve the public domain and pedestrian links. • To support the higher order Zone B3 Commercial Core while providing for the daily commercial needs of the locality. • To protect and enhance the unique qualities and character of special areas within the Parramatta City Centre. 	<ul style="list-style-type: none"> • Enhances the setting of the northern end of the Parramatta CBD • Improves cycle access between the riverfront and the city.
W2 Recreational Waterways	<ul style="list-style-type: none"> • To protect the ecological, scenic and recreation values of recreational waterways. • To allow for water-based recreation and related uses. • To provide for sustainable fishing industries and recreational fishing. • To enable works associated with the rehabilitation of land towards its natural state. 	<ul style="list-style-type: none"> • Significantly improves the scenic and recreation values of this part of Parramatta River and does not adversely impact on ecological values • Rehabilitates the site via remediation of contamination and establishment of native and endemic planting.

As discussed in Section 4.3.1, the proposal is development without consent under the Infrastructure SEPP and therefore development consent is not required under LEP 2011. Notwithstanding, an assessment of the proposal against key provisions in the LEP 2011 is provided in Table 5.

Table 5: Assessment against key provisions in LEP 2011

PROVISION	ASSESSMENT
5.10 Heritage conservation	A detailed discussion of the impact of the proposal on Aboriginal and Non-Aboriginal heritage as well as historical archaeology is provided in Sections 6.1 – 6.3. While no major potential adverse impacts have been identified, minor impacts may occur. Appropriate mitigation measures and safeguards are proposed to ensure any impacts are minimised.
5.12 Infrastructure development and use of existing buildings of the Crown	The Infrastructure SEPP is relied upon to allow the proposal to be assessed as development that can occur without development consent (excluding the relocation of the public toilet).
6.1 Acid sulfate soils	The site of the proposal is located on Class 4 Acid Sulfate Soils. Excavation below 2m is generally not proposed. A mitigation measure will be put in place to require the preparation of an Acid Sulfate Soil Management Plan if excavation below 2m is needed. Refer discussion in Section 6.7 for further details.

6.2 Earthworks	<p>Some earthworks will be required to facilitate regrading of the site, as shown on the Bulk Earthworks plan at Attachment 8 (Plan No C3.01). The proposed development takes into consideration a balance of cut and fill volumes to minimise loss of floodplain storage and maintain flow conveyance during flood events.</p> <p>Appropriate geotechnical and civil engineering measures will be implemented to minimise impacts on existing drainage patterns and soil stability (refer Geotechnical Investigation Report at Attachment 11 and Civil Engineering Drawings at Attachment 8). The works will improve accessibility and amenity. Removal of contaminated material will be undertaken in accordance with the Remedial Action Plan. The excavated material will be removed and disposed of in accordance with the relevant EPA guidelines and other legislative requirements. The likelihood of disturbing relics has been assessed (refer Sections 6.1-6.3) and appropriate mitigation measures identified.</p>
6.3 Flood planning	Flooding is addressed in Section 6.4. Minor adverse impacts are anticipated subject to adoption of recommended mitigation measures.
6.4 Biodiversity protection	Biodiversity impact is addressed in Section 6.5. No adverse impacts are anticipated subject to adoption of recommended mitigation measures.

4.4 Other NSW Legislation

4.4.1 Local Government Act 1993

The *Local Government Act 1993* requires a Plan of Management to be prepared for all public land that is classified as ‘community’ land under that Act. Charles Street Square is classified as ‘community’ land and therefore requires that a Plan of Management be in place to guide its management and use.

There is no specific Plan of Management in place for Charles Street Square. Rather, its use and management are guided by the provisions of the generic Parramatta Community Land Plan of Management (2014).

The management of community land is governed by the categorisation of the land. The categories of community-classified land in the Community Land Plan of Management are “Natural Area”, “Park”, “Sportsground” and “General Community Use” and each park or reserve is categorised accordingly. Charles Street Square is part of the area described as *CBD Foreshore Reserve South* and is categorised as ‘general community use’ as shown in Figure 7.

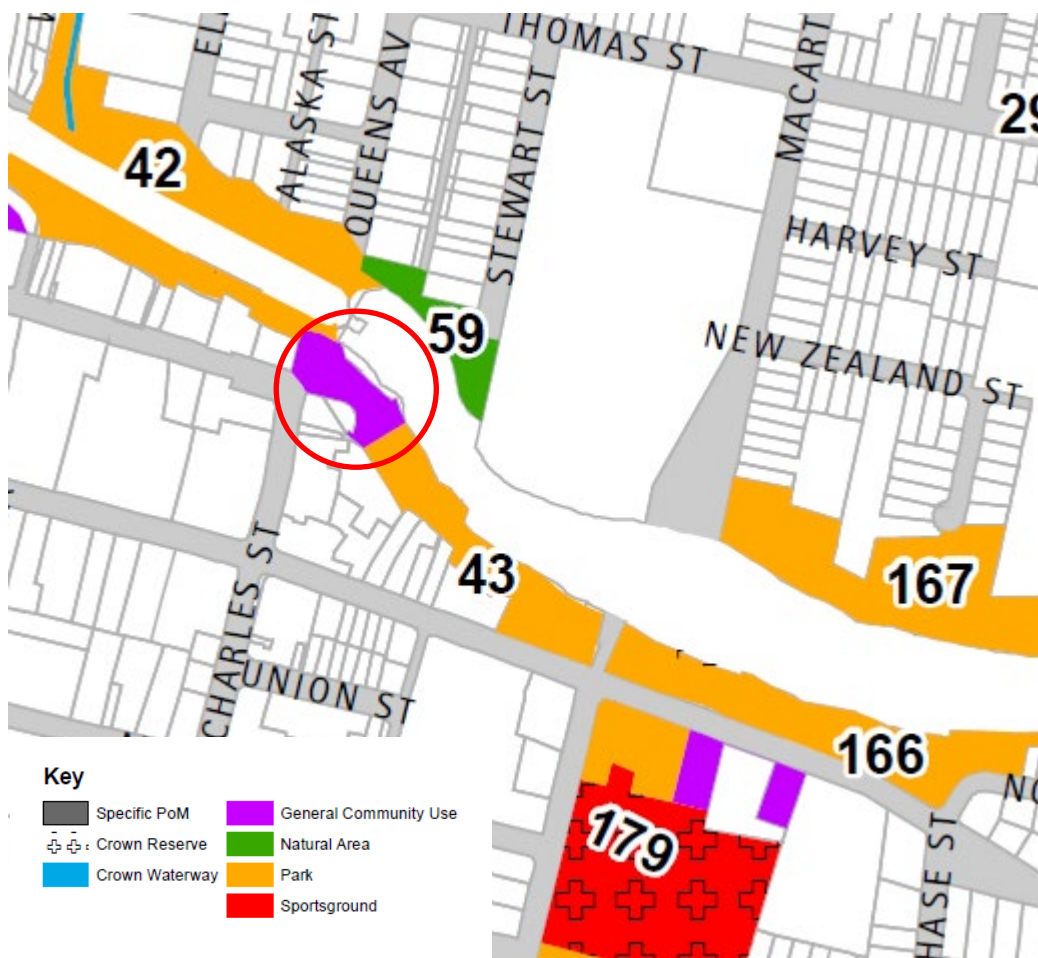


Figure 7: Excerpt from Plan of Management Land Category Maps (site circled red).

Community land is required to be managed in accordance with the core objectives applying to relevant land category as prescribed by the LG Act. The core objectives for land categorised as general community use are:

- *To promote, encourage and provide for the use of the land, and to provide facilities on the land, to meet the current and future needs of the local community and of the wider public:*
 - *in relation to public recreation and the physical, cultural, social and intellectual welfare or development of individual members of the public, and*
 - *in relation to purposes for which a lease, licence or other estate may be granted in respect of the land (other than the provision of public utilities and works associated with or ancillary to public utilities).*

The proposed upgrade is consistent with the core objectives for general community use land in that it will promote and encourage use of the land by the public for recreation purposes.

The Parramatta Community Land Plan of Management also sets out development and activities that may be carried out in the different land categories. The development and uses allowed on General Community Use land are shown in Table 6. The Charles Street Square upgrade is consistent with the permissible development and uses as shown in the table.

Table 6: Allowable uses under Plan of Management

Category	Purpose/use	Development	Compliance
General Community Use	<ul style="list-style-type: none"> • Gathering/meeting of groups for a range of cultural, social or recreational purposes including: <ul style="list-style-type: none"> - Casual or informal recreational use - Cultural / social / educational / recreational meetings - Private / public functions - Concerts and performances (including film and stage) - Exhibitions / fairs / parades / tradeshows / auctions e.g. antiques, art - Workshops / training classes - Childcare (including before / after school care and vacation care) - Regular organised group use e.g. scouts / guides - Educational / information resource centres e.g. libraries 	<ul style="list-style-type: none"> • Multi-purpose buildings including community centres and halls to facilitate community use and enjoyment • Landscaping and other structural improvements to improve access, amenity and aesthetics • Building improvements to cater for the needs of particular user groups e.g. stage facilities 	<p><u>Purpose/use</u></p> <p>Proposal will provide areas for</p> <ul style="list-style-type: none"> • Casual or informal use • Concerts and performances • Visitor services - Charles Street Square will provide a meeting point and be part of regular tours of the river corridor run by the City of Parramatta. <p><u>Development</u></p> <ul style="list-style-type: none"> • Proposal involves landscaping and structural improvements to improve access, amenity and aesthetics.

4.4.2 Water Management Act 2000

Under Section 91E of the Water Management Act it is an offence to undertake a controlled activity in, on or under land waterfront land (that is, land within 40 metres of the bed of any river) except with an approval from the Office of Water. A controlled activity includes the carrying out of works. However, a public authority, including a council, is exempt from this requirement as set out under Clause 41 of the *Water Management (General) Regulation 2018*.

4.4.3 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act), administered by the Aboriginal Heritage Planning Section of the Environment, Energy and Science (EES) division of the NSW Department of Planning, Industry and Environment (DPIE) (formerly known as the Office of Environment and Heritage), is the primary legislation that provides statutory protection for all 'Aboriginal objects' (Part 6, Section 90) and 'Aboriginal places' (Part 6, Section 84) within NSW.

The NPW Act establishes penalties for 'harm' to Aboriginal objects and declared Aboriginal places, as well as defences and exemptions for harm. One of the main defences against the harming of Aboriginal objects and cultural material is to seek an Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the NPW Act. Under this section, disturbance to Aboriginal objects can be undertaken in accordance with the requirements of an approved AHIP.

A Section 90 application for an AHIP is required to allow for potential impact to Aboriginal archaeological deposits within the site. Further details are provided in Section 6.1 of this REF.

4.4.5 Biodiversity Conservation Act 2016

The purpose of the *Biodiversity Conservation Act 2016* (BC Act) is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. Section 1.7 of the EP&A Act is subject to the provisions of Part 7 of the BC Act and Part 7A of the Fisheries Management Act, which relate to the operation of this Act in connection with the terrestrial and aquatic environment. Combined, these acts list a number of factors to be taken into account when deciding if there is the likelihood of a significant impact on threatened species, populations and their habitat or on ecological communities. If there is a chance of an impact, then an assessment of significance would be required to determine the significance of the impact.

Impacts to threatened species and threatened ecological communities listed under the BC Act are required to be assessed in accordance with Section 7.3 of the BC Act, known as 'tests of significance'. For works assessed under Part 5 of the EP&A Act, if the proposal is likely to have a significant impact on a threatened species or ecological community, the proponent may choose to undertake a Species Impact Statement (SIS) or a Biodiversity Development Assessment Report (BDAR).

An assessment of the proposed development in accordance with the BC Act is provided in the Biodiversity Impact Statement at Attachment 18 and discussed in Section 6.5 of this REF. The Biodiversity Impact Statement found that the proposal is unlikely to have a significant impact on a threatened species or ecological community and therefore a SIS or BDAR is not required.

4.4.6 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) is the principal piece of legislation protecting aquatic habitat in NSW. The FM Act aims to conserve fish stocks, key fish habitat, aquatic vegetation, and threatened species, populations and communities. Threatened aquatic species, populations and communities are listed under Schedules 4, 4A and 5 of the FM Act, while key threatening processes are listed under Schedule 6. As a public authority, Council must give the Minister responsible for the FM Act written notice of the proposed work under Section 199 if they occur in areas mapped as key fish habitat (KFH) and have:

- direct or indirect impact to marine vegetation;
- require dredging or excavation of the bed or bank;
- block fish passage; or
- involve land reclamation.

The area around Parramatta Wharf is mapped as Key Fish Habitat (KFH). There would be no impact to marine vegetation, so a permit to Harm Marine Vegetation under Part 7 of the FM Act is not required. No excavation of the bed or bank is proposed, so a permit for dredging and/or reclamation is not required.

4.4.7 Heritage Act 1977

The purpose of the *Heritage Act 1977* is to conserve the environmental heritage of the State. The Heritage Act protects heritage, but historical archaeological remains are additionally protected from being moved or excavated through the operation of the 'relics' provisions. These protect unidentified 'relics' which may form part of the State's environmental heritage, but which have not been listed on the State Heritage Register or protected by an Interim Heritage Order. An archaeological site is an area of land which is the location of one or more archaeological 'relics'.

Section 139 of the Heritage Act contain provisions for '*Excavation permit [being] required in certain cases*' to '*disturb or excavate land*'. Such permits are issued under Sections 140 and 141 of the Heritage Act, or under Sections 60 and 63 of the Heritage Act, in cases where 'relics' are situated within sites or places listed on the State Heritage Register. Section 139 prohibits the excavating or disturbing of land leading to a relic being discovered, exposed, moved, damaged or destroyed. To 'excavate and disturb land' in the context of the Heritage Act is an action associated with the activity of digging or unearthing.

The Charles Street Square study area is not listed on the NSW State Heritage Register. However, any relics present on the study area are subject to the requirements of Section 139 of the Heritage Act.

A Section 140 application for an excavation permit is required in relation to potential relics on the site. Further details are provided in Section 6.3 of this REF.

4.5 Commonwealth Legislation

Approval of the Federal Minister for the Environment is required for any actions that may have a significant impact on matters of National Environmental Significance, except in circumstances which are set out in the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act). Approval from the Commonwealth is in addition to any approvals under NSW legislation.

Matters of national environmental significance under Part 3, Division 1 of the EPBC Act include:

- World heritage sites;
- National heritage places;
- Wetlands of international significance (Ramsar wetlands);
- Nationally threatened species and ecological communities;
- Migratory species;
- Commonwealth marine areas; and
- Nuclear actions, including uranium mining.

A search of matters of national environmental significance (MNES) under the EPBC Act was undertaken on 21 May 2020 using the Department of Agriculture, Water and Environment's Protected Matters Search Tool (<https://www.environment.gov.au/epbc/protected-matters-search-tool>). A significance assessment in accordance with the EPBC Act was undertaken for Grey-headed flying Fox. It was determined that the proposal is unlikely to have a significant impact on this species or any other MNES in accordance with the EPBC Act.

The search indicated that no other MNES exist on the subject site or would be impacted upon as a result of the proposed activity. A referral under the EPBC Act is not required for this activity.

4.6 Council policies

4.6.1 Public Tree Protection During Works Policy

Council's Public Tree Protection During Works Policy provides that:

- Council is committed to protecting the ongoing health of the City's trees when road or other construction works are undertaken on Council owned or managed land;
- All public trees located in proximity to works being undertaken on Council owned or managed land are to be protected for the duration of works; and
- Tree protection zones and tree protection measures are to be implemented in accordance with AS 4970-2009 *Protection of Trees on Development Sites* prior to the commencement of works undertaken on Council owned or managed land.

Tree protection measures for the proposal are detailed in the *Arboricultural Impact Assessment Report & Tree Protection Plan and Specification* prepared by Moore Trees Attachment 19). All public trees to be retained on site will be protected in accordance with these measures. These measures include those set out in AS 4970-2009.

Further discussion on tree protection is provided in Section 6.6 of this REF.

4.6.2 Public Art Policy

Council's Public Art Policy states that in the implementation of the public art program, priority will be given to development of site specific artworks that interpret and articulate the heritage, culture and identity of the site and the city.

As noted in Section 3.4.7, the upgrade of Charles Street Square will include major new public artwork that will respond to the people, geography, history and perceptions of Parramatta. The content of the video artworks will be developed through the consultation process of the Charles Street Square Interpretation Plan.

4.6.3 Contaminated Land Policy/Asbestos Management Policy

Council's Contaminated Land Policy forms the basis for the management of land, which is either contaminated or potentially contaminated in the Parramatta LGA. Amongst other matters, the Policy relevantly commits Council to ensuring that appropriate consideration of land contamination issues is made in the assessment of applications by Council concerning zoning, development proposals or any other planning related application by way of measures including:

- Identifying the presence of, or the potential for contamination on the relevant land;
- Considering the outcomes of any land contamination study or other report known to Council in respect of the relevant land;
- Considering any remediation or abatement that has occurred on the relevant land; and
- Applying the laws and requirements relating to contaminated land (including the CLM Act and SEPP 55).

Council's Asbestos Management Policy outlines the Council's commitment and responsibilities in relation to safely managing asbestos and general advice contained within Council's Asbestos Management Guidelines.

The proposal complies with both the Contaminated Land Policy and Asbestos Management Plan. A Detailed Site Investigation for the proposal has been undertaken by Allied Geotechnical (refer Attachment 9). In response to the recommendations of the Detailed Site Investigation, a Remedial Action Plan (RAP) has also been prepared and is provided at Attachment 10. The remedial goal for this site is to remediate potential soil contamination (where identified) to a level that does not present an unacceptable human health and ecological exposure risk, based on the proposed land use setting.

Further detail on contamination is provided at Section 6.7 of this REF.

4.6.4 Floodplain Risk Management Policy

Council's Floodplain Risk Management Policy applies the flood management principles of the NSW Government at a local level. The Policy establishes Parramatta City Council's strategic approach to floodplain risk management for the whole Parramatta LGA. Details about specific flood management rules are described in separate documents, specifically Parramatta LEP 2011 and Parramatta DCP 2011.

Northrop was engaged to prepare a Flood Impact Assessment, a copy of which is provided at Attachment 16. The Flood Impact Assessment was prepared having regard to the requirements of Council's Floodplain Risk Management Policy as well as provisions contained in LEP 2011 and DCP 2011. In summary, the Flood Impact Assessment found that only minor changes to the flood depth, velocity and extents are expected as a result of the proposal and there are no changes in flood hazards in the properties surrounding the subject site. In addition, there are no changes in flood durations for all flood events for the proposed conditions. Further detail is provided in Section 6.4 of this REF.

4.6.5 Corporate Sustainability Operational Policy

Council's Corporate Sustainability Policy applies to all aspects of Council's activities undertaken by staff and contractors at the Council. Council staff and contractors must commit to properly considering short and long term sustainability impacts in decision-making and operational activities, and implementing systems and processes that support ongoing improvement across the pillars of environmental, economic and social sustainability.

Council requires suppliers and service providers to help meet sustainability obligations and commitments. Contractors are therefore required to:

- Comply with all applicable environmental protection legislation;
- Understand the environmental and social impacts of their services and/or products and the choices available for minimising those impacts;
- Be proactive in helping to improve Council's performance in line with the Policy;
- Comply with any specific instructions provided for the relevant contract;
- Report all pollution incidents to Council in a timely manner;
- Use competent and trained staff;
- Ensure appropriate risk management measures are in place at all times.

The construction contractor will be required to comply with Council's Corporate Sustainability Operational Policy as set out in the final CEMP.

5. CONSULTATION

5.1 Stage 1 public exhibition – concept design

The draft concept design for the Charles Street Square Upgrade was placed on public exhibition from 25 February to 16 March 2020. A broad range of communication and engagement activities were undertaken during the exhibition period:

- Council's engagement portal 'OurSay' with project information and an on-line survey;
- Three Community drop-in sessions with onsite display boards at Parramatta Wharf and Centenary Square markets;
- A key stakeholder briefing to adjacent property owners; and
- Distribution of project brochures at community sessions, on-line, and through displays at the Parramatta Library, Customer Service Centre and Heritage Centre.

These engagement activities were further promoted through:

- Material on Council's website;
- Advertisements and promotion in the Parramatta Advertiser, Auburn Review, Northern District Times and Hills Shire Times;
- Posters on site promoting exhibition and submission details;
- Approximately 1,000 postcards distributed by hand, at Council facilities and via Our Welcome programs for new Parramatta Square tenancies;
- Direct mail to 2,200 tenants and landowners;
- Social media promotion through Facebook, Twitter and LinkedIn; and
- Generating media coverage via media release and liaison.

Overall, it is estimated that more than 880,000 people across the LGA and beyond saw the opportunity to provide input to the Charles Street Square project.

As a result of this communications and engagement program, eight (8) email responses were received from business/adjoining landowners (3); residents (3); and utilities (2) - Sydney Water and Endeavour Energy. 115 online survey responses were completed via the engagement portal. The community also provided responses via social media and by sharing their views at community drop-ins.

Stakeholders expressed their existing perceptions of Charles Street Square, with 82% of contributions rating their current experience of the square as only 'ok' or 'poor'. A clear majority of submissions expressed a view that the square was in need of an upgrade. Overall, community submissions about the planned improvements were generally positive, and many expressed enthusiasm.

In response to public and stakeholder feedback, the concept plan for the site was refined as follows:

- More shade and shelter
 - An enlarged riverfront shelter provides 43% more weatherproof area.
 - Four additional tall trunked trees
- More green landscaping
 - Together with the additional trees, increased garden planting areas (extra 150m²) in the centre of the site and on the garden terrace
 - Reduction in hard surfaces is reduced as a result, including reduction in the extent of concrete terracing
- A legible customer service point
 - The ferry office now incorporates a service window for customer interaction
- Access refinements
 - Minor adjustments to ramps to improve clear width of the riverfront walk and a small reduction in the overall travel distance between street level and the riverfront.
 - Double handrails to all stairs better assist people travelling in both directions.
- Extension of refurbishments
 - The project now incorporates an adjacent area of public space connecting the Garden Terrace to the existing arcade, the proposed colonnade of 180 George Street and 36 Charles Street.
- Measures to support a well maintained space
 - Minor adjustments to ramp geometry to ensure the swept path of maintenance equipment can be accommodated.
 - Small retaining walls within lower level garden beds to reduce scouring and improve flood resilience of landscaping.

Suggestions not incorporated into the design and an explanation for their non-inclusion include:

- A request for a children's playground - there is a recently upgraded playground a four-minute walk away on the northern riverbank;

- Measures to reduce flooding of the site - whilst it is beyond the scope of the project to reduce the river's flood levels, the project has been designed to be resilient to flooding, utilising robust design and materials and locating more vulnerable infrastructure to higher levels; and
- New food and beverage outlets - this public domain project facilitates opportunity for existing and proposed adjacent businesses to provide outdoor dining.

In addition to the above, concerns were raised during the exhibition regarding commercial waste and private vehicles occupying the square, impacting amenity and access. The concept design incorporates bollards to enable greater control of vehicle access, and no provision for commercial waste storage within public land.

No further changes were recommended to the proposal arising from issues raised in submissions.

5.2 Stage 2 – Public exhibition of REF

The draft REF was placed on public exhibition from 14 September to 15 October 2020. In response to the exhibition, four submissions from the community and two submissions from utility providers were received. Table 7 identifies the issues raised and Council's response.

Table 7: REF Exhibition – Issues raised and Council's responses

Respondent	Issue	Response
Endeavour Energy	<ul style="list-style-type: none"> • No concerns raised with proposal, but noting the subject site includes low voltage cables, high voltage cables and lighting assets, the project is subject to Endeavour Energy's usual process for application for connection of load, Easement Management and Network Access. 	<ul style="list-style-type: none"> • Council will continue to liaise directly with Endeavour Energy in relation to works on or near their assets in the project site. Council has appointed ASP 3 designers to facilitate design and approvals, where required. • Final requirements of design and construction will be incorporated into the proposal.
Sydney Water	<ul style="list-style-type: none"> • Sydney Water has internally identified the Parramatta River as a Key Fish Habitat. This has not been explicitly identified in the REF document. 	<ul style="list-style-type: none"> • The fish habitat status of the River is acknowledged in the Biodiversity Impact Statement which states: <i>The area around Parramatta Wharf is mapped as Key Fish Habitat (KFH). There would be no impact to marine vegetation, so a permit to Harm Marine Vegetation under Part 7 of the FM Act is not required.</i>

Respondent	Issue	Response
		<p><i>No excavation of the bed or bank is proposed, so a permit for Dredging &/or Reclamation is not required.</i></p> <ul style="list-style-type: none"> Nonetheless, measures will be implemented to protect existing site trees and manage sediment impacts on the adjacent Parramatta River.
Sydney Water	<ul style="list-style-type: none"> There are several critical wastewater assets that run through the proposed development site. Overall, Sydney Water strongly recommends continued consultations with Parramatta Council to discuss designs and constraints which will benefit the project. 	<ul style="list-style-type: none"> Council is liaising directly with Sydney Water in relation to works on or near their assets in the project site. Council has appointed a Water Services Coordinator to facilitate design and approvals, where required. Final requirements of design and construction will be incorporated into the proposal.
Community respondent #2	<ul style="list-style-type: none"> This area was already quite busy prior to the constructions and upgrades in the area. Now with the closure of the George Street underpass at the Gasworks bridge closed, less parking/turns and an expected increase in traffic, this has not been acknowledged. 	<ul style="list-style-type: none"> Traffic generated by the construction phase of the works will be managed in accordance with the requirements of the CTPMP, including planning for off site parking of construction workers. The project design does not impact existing parking within the city.
Community respondent #4	<ul style="list-style-type: none"> Only three new bike hoops have been provided. There should be a total of 12-15 bike hoops across the different parts of the project. 	<ul style="list-style-type: none"> The REF proposal illustrated 8 parking hoops, 3 at the upper square and 5 at the garden terrace. The design has now been amended to provide for 3 hoops at upper square and 9 at the garden terrace for a total of 12 hoops. This will provide parking for 24 bikes.
Community respondent #4	<ul style="list-style-type: none"> Traffic plan identifies alternative pedestrian route but not cyclist route. There needs to be an off road route for cyclists on the footpaths by converting to shared paths. 	<ul style="list-style-type: none"> The project is committed to implementing the mitigation as per the CTPMP, which states: <p><i>Pending the contractor's methodology, the entirety of Charles Street Square may be used for the construction site. During the construction at Charles Street Square, Pedestrian and Cyclist alternate routes will need to be identified to allow access to the Riverfront Walk and Parramatta Wharf.</i></p>

Respondent	Issue	Response
		<p><i>At some time during the construction period, the verge at the corner of Charles Street and Phillip Street will be worked on. Pedestrians will need to be diverted to the other side of the roads during this construction stage.</i></p> <p><i>The Riverfront Walk will also require works to be completed. During this time, pedestrians and cyclists will need to be diverted up to the roads and around Charles Street Square prior to heading back to the Riverfront Walk. The contractor is required to undertake detailed planning of this phase which will include liaison with Transport for New South Wales and adjacent landholders.</i></p> <p><i>The contractor is to detail how pedestrians and cyclists will access the Port Bar. It has been advised by the City of Parramatta Council that the public toilets will not be operational for the duration of the works and therefore not need to be accessible to the public</i></p> <p><i>The contractor will need to detail these detours on a temporary traffic management plan for the city of Parramatta Council Traffic Committee approval.</i></p>
<p>Late Submission from the owner of an adjacent property</p>	<ul style="list-style-type: none"> • Council's proposed instalment of bollards, time conditions on our Right of Carriageway (ROW -Lot 1 DP869820) and the further instalment of a 'no parking sign' would impede upon our existing rights, severely limit usage of the right, impact upon our day-to-day operations and site accessibility. 	<ul style="list-style-type: none"> • The design incorporates a removable bollard that will enable permissible use of the easement by the owner, whilst protecting the square from general vehicular access.

Respondent	Issue	Response
Late Submission from the owner of an adjacent property	<ul style="list-style-type: none"> A stated intention that the owner construct their works on their adjacent property concurrently with the upgrade 	<ul style="list-style-type: none"> An offer for a focussed discussion on this with Council's team leading construction delivery, to explore coordination scenarios, has been made

It is considered that the issues raised in submissions have been adequately addressed and no further changes are recommended to the REF proposal arising from issues raised in submissions.

5.3 Stakeholder consultation

In addition to community consultation, key stakeholders were consulted during design development to provide input and feedback. Consultation with stakeholders involved the following:

- Transport for NSW, authority for the Parramatta Ferry Wharf and project funding partner, has endorsed the equitable access solution of ramped walkways.
- Consultation with Transdev Sydney Ferries (formerly Harbour City Ferries) has occurred and will continue to ensure the design integrates the operational requirements of the Wharf precinct.
- The City of Parramatta's Access Advisory Committee support the access solution proposed in the concept design that addresses issues raised by the committee on an earlier scheme.
- Engagement with key utility owners, including Endeavour Energy and Sydney Water has identified risks and requirements.
- Consultation with Emergency Services, including NSW Police, NSW Ambulance and Fire and Rescue NSW.
- The local member, Dr Geoff Lee, was briefed on the proposal and project progress.
- The concept design has been informed by consultation with Councillors at workshops held in April, June and September 2019.
- Several meetings have been held with owners of the following adjacent properties:
 - 90 and 94 Phillip Street
 - 34 Charles Street (multiple strata owners)
 - 36 Charles Street (Port Bar)
 - 180 George Street (Meriton)

The meetings were held to understand key issues, opportunities and constraints. The design will continue to be refined to respond to existing operational requirements and to accommodate possible future change or redevelopment.

- Consultation with artists whose existing artworks are impacted by the renewal has been undertaken.
- Consultation with Aboriginal community members and organisations to understand cultural values and to provide opportunity for input in the development of cultural heritage management options, in accordance with statutory requirements for Aboriginal Archaeology.

Consultation with the above key stakeholders will continue as required.

5.4 Infrastructure SEPP Consultation

Part 2, Division 1 of the Infrastructure SEPP sets out consultation requirements with respect to matters dealt with under the SEPP. As the works are being undertaken by the City, the requirements relating to consultation with the relevant council, as set out in clauses 13-15, do not apply.

Clause 16 of the Infrastructure SEPP requires that consultation with certain public authorities, other than the council, be undertaken as follows:

16(2) ...

(a) development adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 11 of that Act—the Office of Environment and Heritage,

(b) development on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone—the Office of Environment and Heritage,

(c) development adjacent to an aquatic reserve or a marine park declared under the Marine Estate Management Act 2014—the Department of Industry,

(d) development in the foreshore area within the meaning of the Sydney Harbour Foreshore Authority Act 1998—the Sydney Harbour Foreshore Authority,

(e) development comprising a fixed or floating structure in or over navigable waters—Roads and Maritime Services,

(f) development for the purposes of a health services facility, correctional centre or group home, or for residential purposes, in an area that is bush fire prone land (as defined by the Act)—the NSW Rural Fire Service,

(g) development that may 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—the Director of the Observatory,

(h) development on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument—the Secretary of the Commonwealth Department of Defence,

(i) development on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961—the Mine Subsidence Board.

As none of these circumstances apply in this instance, consultation with public authorities is not required under the Infrastructure SEPP.

5.5 Future consultation

Project communications will continue, including on-site hoardings detailing the project and providing project team contact details. This will complement regular updates to stakeholders who have registered during previous consultation processes, as well as a regularly updated, dedicated web page on the City of Parramatta website. Navigational signage (changes to pedestrian access etc.) will also be incorporated as required.

Pre-construction planning and liaison with stakeholders throughout construction will mitigate the potential impact on stakeholders and members of the public.

6. ENVIRONMENTAL ASSESSMENT

The following is a detailed description of the potential environmental impacts associated with the proposed upgrade of Charles Street Square. Site-specific safeguards and management measures are provided to mitigate the identified potential impacts.

6.1 Aboriginal heritage

Curio Projects Pty Ltd was commissioned by Council to prepare a Statement of Heritage Impact (SoHI) for the Charles Street Square upgrade. A copy of the SoHI is provided at Attachment 12.

The SoHI summarises the heritage impacts for the Charles St Square Development that may occur to the following in the vicinity of the development:

- Aboriginal objects;
- Historical archaeological 'relics'; and
- Heritage listed items in the vicinity of the development.

The impact of the proposal on heritage listed items and historical archaeological 'relics' is discussed in Sections 6.2 and 6.3 respectively. The following is a discussion of the impact of the proposal on Aboriginal heritage.

An Aboriginal Cultural Heritage Assessment Report (ACHAR) and accompanying Aboriginal Archaeological Technical Report (ATR) have been prepared by Curio Projects and are provided at Attachments 13 and 14. The reports present an assessment of Aboriginal archaeological potential across the study area. The findings of these reports are detailed in the SoHI (Attachment 12) and summarised below.

Part of the study area is mapped within the extent of the Parramatta Sand Body which is significant on a State level due to its high potential for stratified archaeological material, thought to occur up to depths of 1.5m to 2m below the ground surface. The study area has been assessed to have moderate to high potential for a Potential Archaeological Deposit (PAD) associated with the Parramatta Sand Body in this area of the southern foreshore of the Parramatta River.

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database, administered by OEH, centred on the study area with a buffer of 1km, was undertaken on 4 April 2019 and returned 87 results. There were no sites identified directly within the study

area, however the closest registered site was located only c.40m to the south and consisted of an artefact site (#45-6-2648, Charles/George 1). The extent of the Aboriginal PAD within the study area relates to the demonstrated archaeological landscape in the immediate vicinity of the study area, i.e. it is considered to be a potential extension of the archaeological landscape of nearby AHIMS sites (Site 45-6-2648 (Charles/George 1) and Site 45-6-2673 (RTA-G1)).

Development activities with the potential to impact Aboriginal sites and/or potential archaeology are those that extend below the ground surface within the zone of mapped Aboriginal archaeological potential. These development impacts include:

- cutting and filling to achieve required levels;
- installation of new traffic bollards at the corner of Charles and Phillip Streets;
- local trenching for new and amended services (e.g. electrical conduits, stormwater lines and pits);
- other minor excavation for site features such as light pole footings, bike hoops, signage etc; and
- planting of new trees and general landscaping.

Below ground impacts of the development are generally confined to the western side of the study area, with minimal to no below ground impacts proposed for the southeastern extent of the area. Below ground impacts are considered to have potential to impact on the extent of the PAD associated with AHIMS site 45-6-2648 (Charles/George 1).

Curio Projects have been working closely with SMM and Council to minimise below ground impacts, however, some impacts may still occur. Remaining areas of the study area with potential to contain Parramatta Sand Body that may be impacted will require appropriate Aboriginal archaeological management.

The ATR for the project (Attachment 14) develops and presents an Aboriginal archaeological excavation methodology and research design for the study area with the aim of investigating the nature and extent of any subsurface Aboriginal archaeological potential within the impact zones of the proposed development. Aboriginal archaeological investigation within the study area would be undertaken under an approved Aboriginal Heritage Impact Permit (AHIP). An AHIP for the project was submitted in August 2020.

It should be noted that a historical archaeological deposit has the potential to be present across the study area, and would overlay the potential remnant soil profiles with the potential to contain in situ Aboriginal archaeological deposits, and will require investigation/removal in accordance

with a S140 consent (NSW Heritage Act), prior to the commencement of any Aboriginal test excavation. Discussion on historical archaeology is provided in Section 6.3.

For full details of the proposed Aboriginal archaeological investigation methodology, including sampling strategy, field methods and research design, reference should be made to Section 5.2 of the ATR.

Aboriginal community consultation

A formal process of Aboriginal Community Consultation has been undertaken for the Charles Street Square Upgrade project (in accordance with OEH Consultation Guidelines), including the preparation of the ACHAR (Attachment 13) prepared in accordance with OEH Guidelines Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW.

Stage 1 of the consultation process identified 17 Registered Aboriginal Parties for the project. Consultation with the Registered Aboriginal Parties provided several relevant comments regarding potential impact to intangible heritage values associated with the study area. In particular, the area is significant to the Darug people due to the connection of sites and evidence for continued occupation and that there are likely to be other significant connections to the study area in the context of its surrounding landscape.

Potential impact to Aboriginal cultural heritage values are proposed to be mitigated through Aboriginal archaeological investigation and heritage interpretation initiatives (refer discussion on interpretation plan in Section 6.2). The intangible Aboriginal heritage values (social and cultural) of the site will be addressed through the interpretation plan which, in close consultation with representatives of First Nations communities, will explore interpretation initiatives to celebrate and communicate the significance of the site and landscape to the local Aboriginal community.

6.1.1 Mitigation measures

The following mitigation measures will be undertaken:

1. Archaeological test excavation will be undertaken in accordance with the requirements set out in Section 5 of the *Aboriginal Archaeological Technical Report Charles Street Square Upgrade* (Curio Projects, May 2020).
2. Archaeological test excavation for Aboriginal archaeological will be undertaken in coordination with any excavation for historical archaeology on the site.
3. The Aboriginal archaeological investigation will be undertaken in accordance with the approved AHIP.

4. The intangible Aboriginal heritage values (social and cultural) of the site will be addressed through the interpretation plan which, in close consultation with representatives of First Nations communities, will explore interpretation initiatives to celebrate and communicate the significance of the site and landscape to the local Aboriginal community.

6.2 Non-Aboriginal Heritage

The key heritage items within the vicinity of the site are as follows:

- World heritage listings - Old Government House and Domain, Parramatta is one of 11 sites that, together, make up the 'Australian Convict Sites World Heritage Listing' on in UNESCO's *Memory of the World Register* and the *National Heritage Register*. The Charles Street Square study area is located approximately 1.2km southeast of Old Government House, and c.800m from the World Heritage site boundary, and identified as being 'sensitive' to the Old Government House (Figure 8). 'Sensitive' in this case is defined as - *Development may have some impact but **not a significant impact** on the World and National Heritage values of the OGH.*
- State heritage listings - While there are no statutory heritage listings on the State Heritage Register (SHR) within the Charles Street Square study area, there are seventeen (17) SHR listings in proximity (refer Figure 9). The closest SHR listing to the subject site is 'Harrisford' house and potential archaeological site, located at 182 George Street, located c.150m southwest.
- Local heritage listings - In addition to the SHR, several locally listed heritage items are located in the vicinity of the study area (refer Figure 10), including:
 - Charles Street Weir – Parramatta River (LEP #I733)
 - Harrisford (and potential archaeological site) – 182 George Street (LEP #I00248)33
 - Newlands Archaeological Site – 9 Thomas Street (LEP #A3)
 - Office (and potential archaeological site) – 68A and 70 Phillip Street (LEP #I740)

There are no registered heritage items located within the study area itself. The closest locally listed heritage item to the study area is the Charles Street Weir.

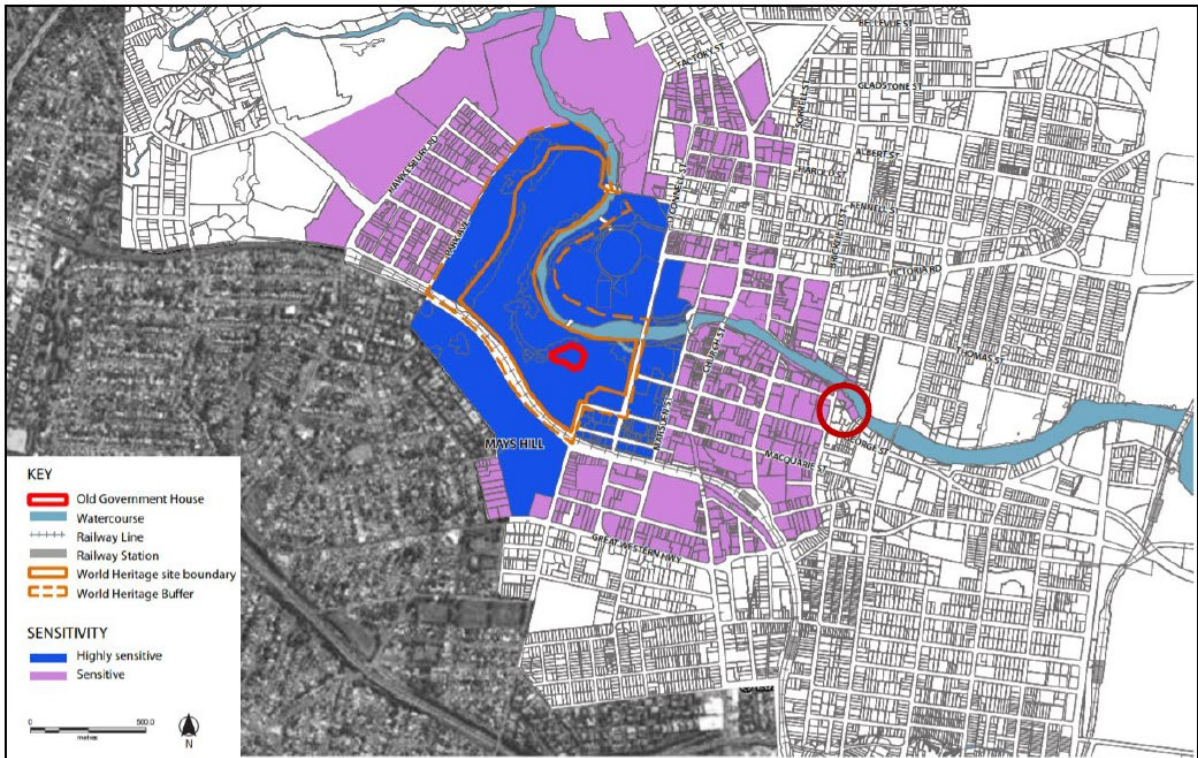


Figure 8: Map of Sensitive Areas in relation to Old Government House Site and Domain with study area-indicated in red circle (Source: SoHI, Attachment 12)

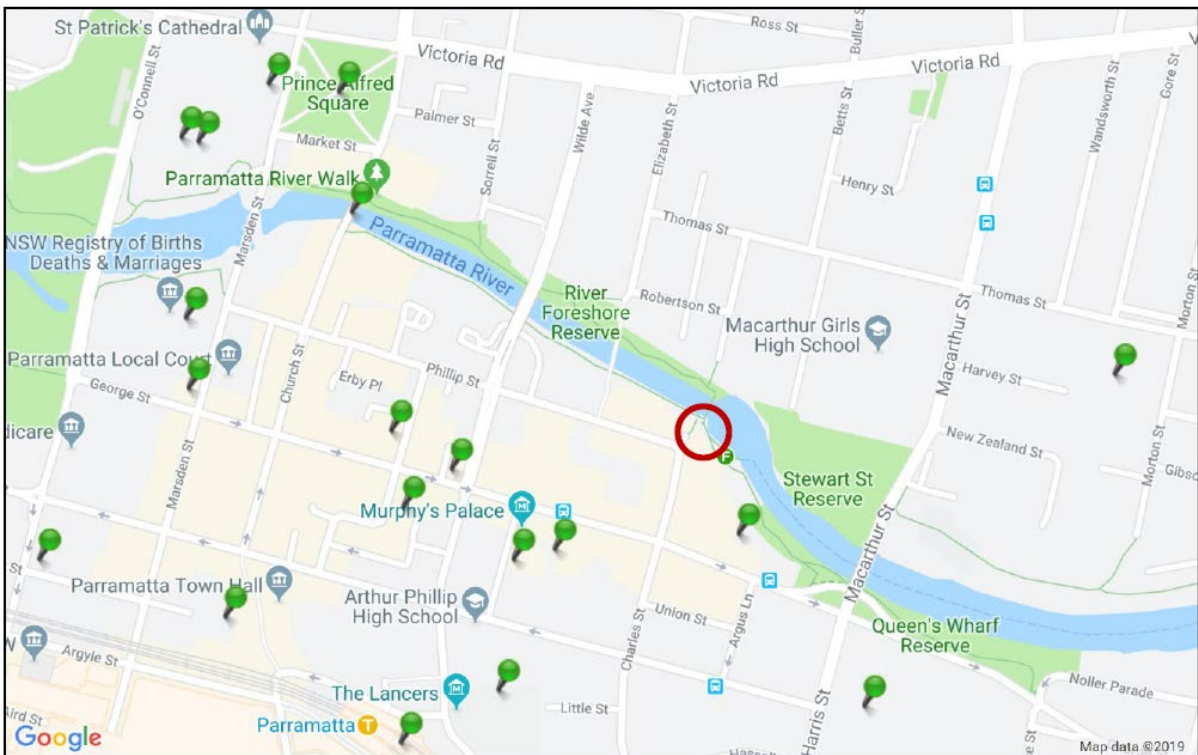


Figure 9: Heritage Register listings in proximity to Charles Street Square study area-indicated in red (Source: SoHI, Attachment 12)

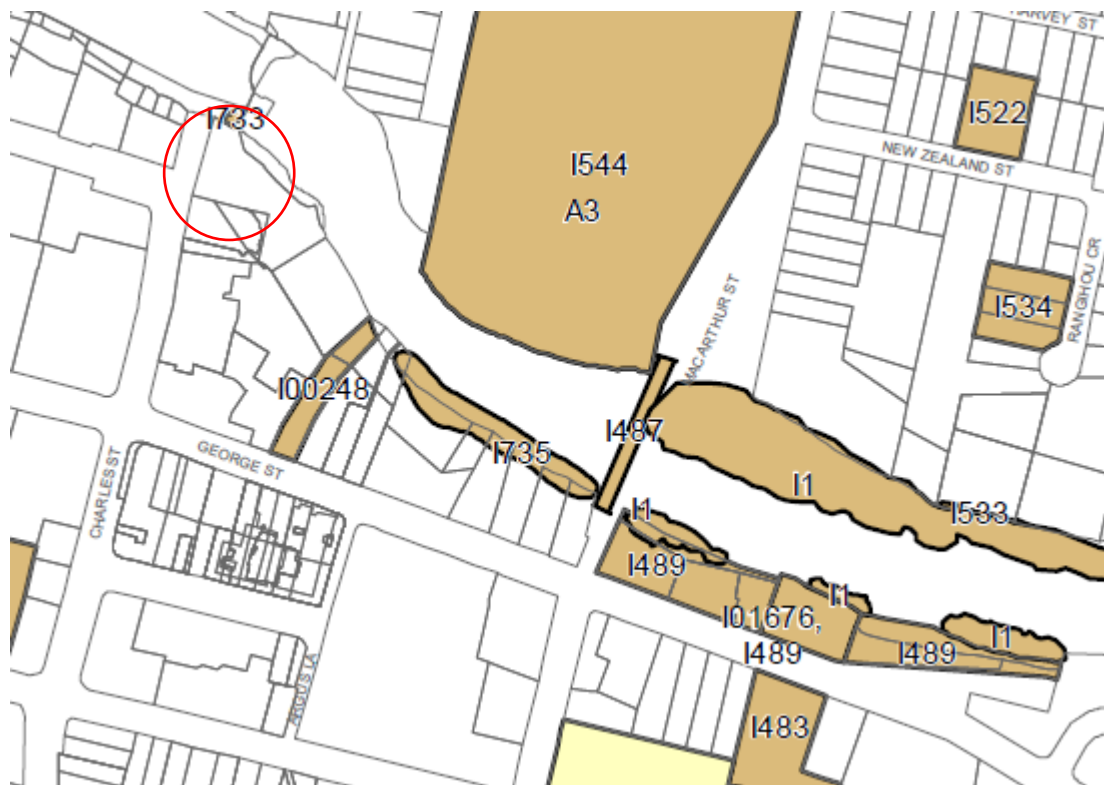


Figure 10: Local heritage items in vicinity of site under PLEP 2011 (study area circled red)

The subject site does not contain any heritage items, and therefore will present no physical impact to any heritage fabric. The only potential impacts identified in the SoHI relate to visual impact. The SoHI notes as follows:

The proposed development does not include construction of any substantial buildings or structures (neither of substantial height, nor bulk) that would present any visual heritage impact in its locational context along the southern bank of the Parramatta River. The low scale development proposed is consistent with the existing surrounds and River foreshore in this location, and will not be visible from the Parramatta Park World Heritage Site, nor from Harrisford House.

The proposed works will serve to enhance the shoreline in this location, both with respect to public access, as well as cohesion and aesthetic improvement of the public domain and its connection to surrounding facilities and existing elements (i.e. Parramatta Wharf, Charles and Phillip Streets, Port Bar etc).

The proposed development will maintain and enhance the existing visual (and physical) connection with Charles Street Weir (the closest heritage listed item to the study area), commensurate with existing view lines and character. The improvement of the public domain in this location will in fact facilitate a minor positive impact to the setting of the

Charles Street Weir. The proposed new landscaping and gardens along the south/eastern part of the study area will serve to further connect the development into the landscape setting and context of the River foreshore.

The SoHI concludes that the proposed development will present a positive visual heritage impact, enhancing the setting of the Parramatta River foreshore and landscape in this location, with neutral visual impact to any surrounding heritage items. No adverse impacts on heritage items are anticipated.

Heritage Interpretation Plan

A draft Interpretation Plan has been prepared for the site by Curio Projects, a copy of which is provided at Attachment 4. The purpose of the interpretation plan is to ensure the adequate integration of the heritage values present within the study area into the development of Charles Street Square.

The final Interpretation Plan will integrate with the overall design, acknowledging a major artwork has already been commissioned (subject to separate REF). It will also have regard to any existing artwork retained within adjacent areas. The final Interpretation Plan will also consider the wider heritage context of the study area along the Parramatta River foreshore, especially in relation to existing interpretative elements and artworks outside of the study area, and the historical themes and stories that are already being told in the area.

Curio Projects has noted that colonial history has been covered quite extensively in the nearby Milnes and Stonehouse artworks and the proposed major artwork. Curio Projects therefore recommends that the proposed Aboriginal interpretation of the site be further developed in close consultation with the local Aboriginal community.

6.2.1 Mitigation measures

The following mitigation measures will be undertaken:

5. The final interpretation plan for the site will be submitted for review and to the satisfaction of Council.
6. The final interpretation plan will specify the location, type, materials, finishes and contents of the interpretation devices proposed.
7. The final interpretation plan is to be prepared by a suitably experienced heritage interpretation specialist.
8. The final interpretation plan will be prepared in consultation with First Nations as well as representatives of other communities.

6.3 Historical archaeology

An Archaeological Assessment and Research Design (AARD) has been prepared by Curio Projects to assess the historic archaeological impacts of the project. A copy of the AARD is provided at Attachment 15 and the following is a summary of the report.

The Charles Street Square study area topography and the subsequent modifications that occurred during the historical period, both contribute to the potential survival of archaeological resources. Historically, it is understood that the study area during both the nineteenth and twentieth centuries generally consisted of open space that extended along the northern boundary and gently sloped down to the river. Additional historic evidence also identifies that floods and subsequent river scour affected this northern area of the study area in the late nineteenth century. These events may have required the introduction of fill for land reclamation.

The remainder of the site has seen low scale domestic development from at least the 1820s and possibly earlier. The history of the site suggests that structural development was focused on the Charles Street frontage, from the earliest period of demonstrated occupation (i.e. 1823), with the corner of Charles and Phillip Streets an area of particular activity from the early nineteenth through to the mid twentieth centuries. In this location, the two primary phases of occupation are:

- Thomas Barber from the early nineteenth century, before 1823 to the 1870s;
- later phases of occupation from the early- to mid-twentieth century, from the 1920s to the 1950s.

There is also potential for 1804-1814 archaeological remains to survive in the south-east portion of the study area.

Archaeological remains associated with this occupation may potentially be present in the form of building footings, artefact deposits, former surfaces (both internal and external), and deeper subsurface features such as wells, cisterns and cesspits. An historically attested water main (c. 1920s) is also known to be present, running through the upper level of the site.

The potential historical archaeological resources have been assessed, in accordance with the NSW Heritage Significance Criteria, as potentially having State heritage significance (in the case of Barbers' and Owen's occupation), and Local heritage significance for the remainder of the site. Potential archaeological remains are therefore defined as 'relics' in accordance with the *Heritage Act 1977*.

The archaeological assessment indicates that the majority of the substantial excavations will avoid the most significant known historical structure (i.e. the house of Barber, c1820s to 1870s). Some small excavation work proposed by the development is likely to impact upon the northern most twentieth century cottage fronting Charles Street. Most other areas with historically indicated structures are generally avoided by areas of excavation required for the development.

However, the installation of the required storm water system for the project, as well as the large tree pit proposed for the transplanted mature fig tree in the Upper Square, have the potential to intersect with the footprints of the Barber house and the twentieth century structures. Therefore, while historical archaeological potential for the site has largely been established as low to moderate, the potential significance of the Barber occupation in this area will warrant a prudent approach to the potential impact in the form of archaeological testing in the area prior to the development works proceeding.

6.3.1 Mitigation measures

The following mitigation measures will be undertaken:

9. An application will be made to Heritage NSW for an excavation permit, issued under Section 140 of the NSW Heritage Act.
10. The *Charles Street Square Archaeological Assessment and Research Design* (Curio Projects, June 2020) is a supporting document to that permit application.
11. The permit should allow for test excavation in accordance with the Archaeological Research Design and Excavation Methodology set out in the *Charles Street Square Archaeological Assessment and Research Design* (Curio Projects, June 2020)
12. Any test excavation for historical archaeology will be undertaken in coordination with test excavation for Aboriginal archaeology
13. Inclusion of the information generated from investigation of archaeological resources will be explored as part of a public interpretation strategy.

6.4 Flooding and stormwater

Northrop was engaged to prepare a Flood Impact Assessment as well as a Stormwater Management Report for the proposal. Copies of these reports are provided at Attachment 16 and Attachment 17 respectively. The Stormwater Management Report is to be read in conjunction with the civil drawings at Attachment 8.

The subject site topography is steep and falls to the north, from approximately RL7.90 at Charles St to RL1.80, directly discharging to the Parramatta River. There are multiple outlets from the piped drainage network into Parramatta River

Flooding

The flood impact assessment involved the following steps:

- Desktop review of previous investigations/flood studies including the Upper Parramatta River Catchment Floodplain Risk Management Study and Plan (Bewsher Consulting, 2003) and Lower Parramatta River Floodplain Risk Management Study – Flood Study (SKM, 2005);
- Setup of a two-dimensional TUFLOW hydraulic model for both the existing and the proposed conditions to assess flooding behaviour during both scenarios; and
- Comparison of the results for the existing and proposed scenarios to review the development impact on the existing flood behaviour across the floodplain, the subject site and adjacent properties.

A description of the modelling and results is provided in the Flood Impact Assessment at Attachment 16.

The modelling indicates that only minor changes to the flood depth, velocity and extents are expected as a result of the proposal and there are no changes in flood hazards in the properties surrounding the subject site. In addition, there are no changes in flood durations for all flood events for the proposed conditions.

As per Council's requirements the proposal is to incorporate flood compatible finishes below the 1% AEP plus 500mm (the Flood Planning Level) to allow for easy maintenance in the event of a very rare flood. Services such as power lines, telecoms and any electrical components sited below the 1% AEP + 500mm will need to be waterproofed.

Each structure will need to be designed to withstand flooding during the Flood Planning Level and full immersion conditions, with consideration to waterborne debris, hydrostatic and hydrodynamic forces, flotation and scour. Certification that the proposed structures can withstand the forces of floodwater, debris and buoyancy up to and including a 1% AEP flood level plus a freeboard of 500mm will be provided prior to commencement of construction works.

The proposed ferry kiosk will have a transient use and is not considered a 'habitable' room as defined by the Floodplain Development Manual and therefore no minimum floor level applies to this structure. To comply with this definition, valuable items including important records and valuable possessions are not to be stored within the kiosk below the Flood Planning Level.

A Site Emergency Flood Response Plan will be required where the site is affected by the 1% AEP flood level. An Emergency Flood Response Plan will reduce the risk to life by educating operators on the flood risk prior the onset of very rare to extreme rainfall, outlining evacuation and response procedures and by identifying areas of refuge.

Failure during more extreme events should also be taken into consideration whereby the proposed development should not create floating debris that may cause damage to other assets further downstream.

Stormwater

The proposed stormwater drainage layout proposes to retain the existing in-ground stormwater network where feasible and adjust surface levels where necessary to finish flush with proposed surface levels. Additional grated inlet pits and trench drains are proposed at newly formed low points and subsurface drainage will be incorporated in the design and connected to the nearest downstream drainage pits.

There is a reduction in impervious area of approximately 10% in the post-development scenario compared to pre-development and considering the proximity to downstream receiving waters and height relationship to neighbouring properties, there is no need to provide an OSD facility for this development.

Due to the nature of this development there are no specific water quality reduction targets stipulated in the DCP. However, WSUD principles have been adopted in the design through the inclusion of two raingardens and passive irrigation measures where impervious surface runoff is directed through landscaped areas. Where impervious runoff is directed to the in-ground pit and pipe system, pits will be fitted with trash racks to provide primary treatment prior to discharging into Parramatta River.

6.4.1 Mitigation measures

The following mitigation measures will be undertaken:

14. The proposal will incorporate flood compatible finishes below the 1% AEP plus 500mm to allow for easy maintenance in the event of a very rare flood.
15. Services such as power lines, telecoms and any electrical components sited below the 1% AEP + 500mm will be waterproofed.
16. The storage of goods and valuable items will be required at a level above the 1% AEP flood level plus freeboard. The ferry kiosk will not be used for the storage of valuable items below this level.

17. Certification will be required to confirm that the proposed structures can withstand the forces of floodwater, debris and buoyancy up to and including a 1% AEP flood level plus a freeboard of 500mm.
18. Each structure will need to be designed to withstand flooding below the Flood Planning Level and full immersion conditions, with consideration to waterborne debris, hydrostatic and hydro-dynamic forces, flotation and scour.
19. A Site Emergency Flood Response Plan will be prepared prior to commencement of construction. The Emergency Flood Response Plan will detail evacuation and response procedures and identify areas of refuge. The Emergency Flood Response Plan will provide appropriate measures that apply during construction and post construction.

6.5 Biodiversity

Eco Logical Australia Pty Ltd (ELA) was engaged by City of Parramatta to prepare a Biodiversity Impact Statement, a copy of which is provided at Attachment 18. The key findings are outlined below.

Vegetation on the southern river bank within the proposed redevelopment area consists of a mixture of native and exotic plantings. The northern bank consists of a mixture of remnant and regenerated native vegetation as well as weeds and degraded vegetation.

Two threatened ecological communities (TECs) have been previously identified within the study area:

- *River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* – listed as an Endangered Ecological Community (EEC) under the NSW *Biodiversity Conservation Act 2016* (BC Act); and
- *Shale Sandstone Transition Forest in the Sydney Basin Bioregion* – listed as a Critically Endangered Ecological Community (CEEC) under the BC Act and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) Act.

These communities are located on the northern bank and will not be directly impacted by the proposed works.

Suitable habitat was not identified within the study area for any threatened flora species due to the high level of modification of the southern bank and high level of weed incursion and disturbance on the northern bank. Potential habitat was identified for the following threatened fauna species:

- *Artamus cyanopterus cyanopterus* (Dusky Woodswallow)
- *Ninox connivens* (Barking Owl)
- *Ninox strenua* (Powerful Owl)
- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
- *Miniopterus australis* (Little Bent-wing Bat)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)
- *Mormopterus norfolkensis* (Eastern Coastal Free-tailed Bat)
- *Myotis macropus* (Southern Myotis)
- *Pteropus poliocephalus* (Grey-headed Flying-Fox)
- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail-bat)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat)

The proposed works will have no direct impacts on native vegetation communities, including the two TECs identified in the study area and mangrove areas.

Four trees are proposed to be removed. These trees are not significant with respect to fauna and represent marginal foraging habitat for Grey-headed Flying-fox. They are semi mature and are unlikely to provide roosting or breeding habitat such as hollows. Considering the isolated nature and urbanised context of the vegetation, no other threatened species are likely to frequently utilise these resources for foraging.

The proposed projected artwork has the potential to indirectly impact nocturnal fauna which are likely to utilise the study area. Considering the light levels of the proposed projected artwork may be as high as 254 lux, the foraging activity of bats is likely to be substantially reduced during operating hours and the flight path may be altered to avoid the illuminated area. Diurnal fauna such as birds may also roost in the vegetation on the northern bank during the night. The artificial lighting may deter roosting of diurnal fauna within the projection area. Additional roosting habitat is available along the escarpment vegetation and no threatened fauna species reliant on night time roosting would be impacted by the proposed projected artwork. The Biodiversity Impact Statement makes a number of recommendations to mitigate the impact of the lighting.

Conclusion on significance of impacts

Tests of significance (5-part tests) in accordance with Section 7.3 of the BC Act were undertaken for Grey-headed Flying-fox and microchiropteran bats. It was determined that the proposal is unlikely to have a significant impact on any threatened species or ecological community listed

under the BC Act. Therefore, a Species Impact Statement (SIS) or Biodiversity Development Assessment Report (BDAR) is not required.

A significance assessment in accordance with the EPBC Act was undertaken for Grey-headed flying Fox. It was determined that the proposal is unlikely to have a significant impact on this species or any other 'Matters of National Environmental Significance' (MNES) in accordance with the EPBC Act.

6.5.1 Mitigation measures

The following mitigation measures will be undertaken:

20. Stockpiles and areas for storage of construction materials will be located away from the drainage lines and Parramatta River to minimise risk of pollution and adverse impact to aquatic ecosystems.
21. Landscape plantings will include locally occurring species to enhance habitat for native fauna.
22. The timeframe for the projected artwork will be restricted to a maximum of 3 hours nightly to limit the disturbance to foraging habitat for threatened microbats, nocturnal birds and diurnal species.
23. The projected artwork will incorporate lower lighting within the sequence so as to not illuminate the native vegetation at maximum brightness for the duration of the projection.

The Biodiversity Impact Statement also recommends mitigation measures to protect existing trees on site and prevent sediment impacts to the adjacent Parramatta River. These measures are addressed elsewhere in this chapter.

6.6 Tree removal

An Arboricultural Impact Assessment (AIA) and Tree Protection Plan and Specification have been prepared by Moore Trees. A copy of the report is provided at Attachment 19.

The AIA report assessed 14 trees, 8 of which were actually located within the subject site. The remaining 6 trees are located outside of the site and have not been considered for the purposes of this REF.

All the site trees have been planted within the last approximately 30 years.

A list of the trees located within the site and their respective tree retention values are shown in Table 8. The tree location plan is provided at Figure 12.

Table 8: Site trees and values

Tree No	Species	Tree retention value
1	Jacaranda (<i>Jacaranda mimosifolia</i>)	Medium
2	Sydney Red Gum (<i>Angophora costata</i>)	High
3	Sydney Red Gum (<i>Angophora costata</i>)	High
4	Sydney Red Gum (<i>Angophora costata</i>)	High
5	Sydney Red Gum (<i>Angophora costata</i>)	High
8	Brushbox (<i>Lophostemon confertus</i>)	High
13	Spotted gum (<i>Corymbia maculata</i>)	High
15	Spotted gum (<i>Corymbia maculata</i>)	Medium

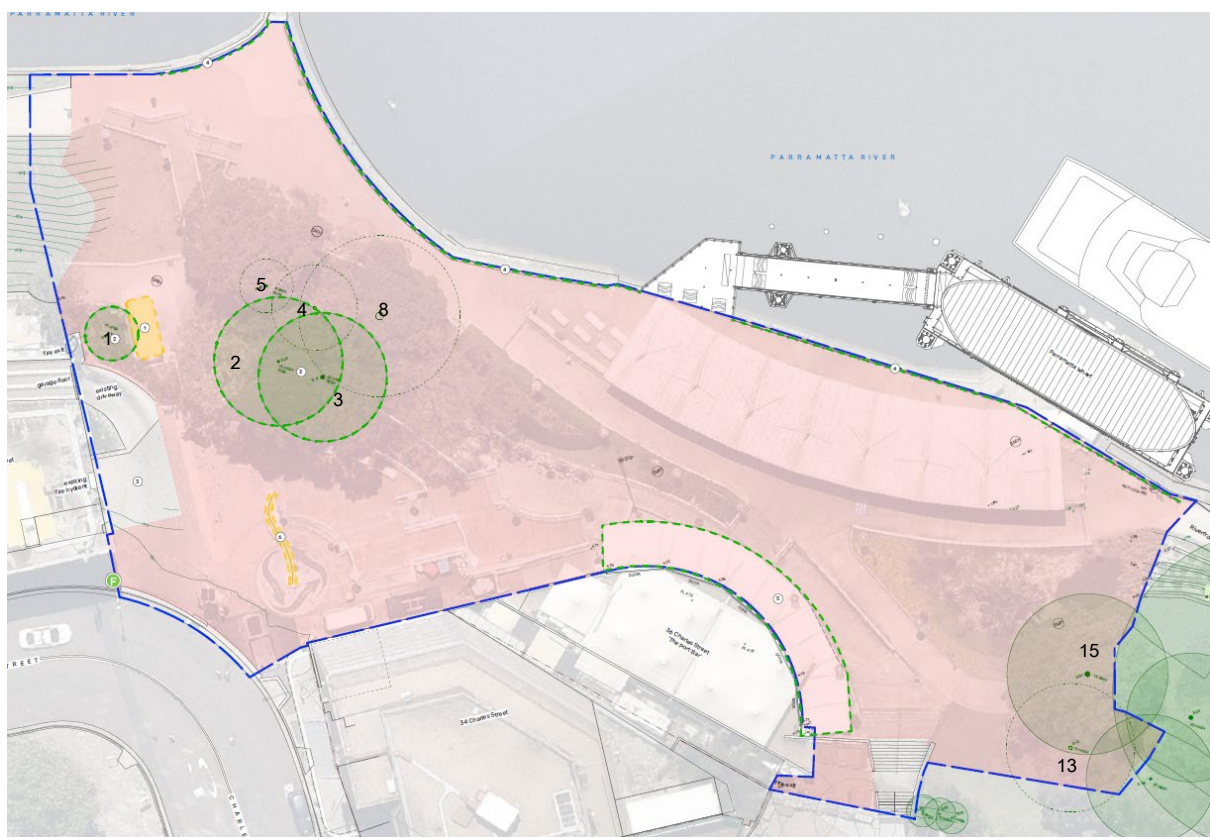


Figure 12: Trees identified within the site

The proposed upgrade works will necessitate the removal of four trees within the site - Tree Nos 4, 5, 8 and 13. Trees 4, 5, and 8 are located on a steep embankment, and the levels of the new seating terraces adversely impact the structural root zones (SRZ) of these trees. The levels around each of these trees' SRZs could not be retained without having very high terraces with balustrades which would not enable a welcoming geometry for the seating terraces and would further intrude into the flood conveyance corridor. Tree 13 conflicts with the siting of the required numbers of bike lockers, bike racks and bike hire spaces. Requiring a relatively level area, there

is no other suitable location for bike parking at the Garden Terrace, particularly as bike parking at the riverfront is not feasible due to flood risk.

The planting proposal replaces the four trees and supplements them with additional tree plantings, to a total of 28 new trees proposed. The planting of new trees is considered to more than offset the loss of the four trees.

The AIA report recommends tree protection measures to be implemented during construction to protect existing trees on site. All construction works will need be undertaken in accordance with these measures.

6.6.1 Mitigation measures

The following mitigation measures will be undertaken:

24. The tree protection measures detailed in Sections 4 and 5 of the *Arboricultural Impact Assessment Report & Tree Protection Plan and Specification* prepared by Moore Trees (June 202) will be implemented during the construction of the works to prevent inadvertent impacts on trees proposed for retention. These measures include, but are not limited to:
 - a. Trees to be retained will be required to be fenced for protection. Fencing will comprise chain mesh fencing with a minimum height of 1.8 metres and incorporate appropriate signage.
 - b. All tree protection works will be carried out before the start of demolition or building work.
 - c. Trunk protection will be provided to Trees 2 and 3 in accordance with the measures set out in Section 5.3 of the Arboricultural Impact Assessment Report.
 - d. Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) will be determined in accordance with the TPZ and SRZ methodology set out in Appendix 5 to the Arboricultural Impact Assessment Report.
25. Any pruning of existing trees will be undertaken in accordance with AS 4373-2007 *Pruning of Amenity Trees*.

6.7 Contamination and acid sulfate soils

Alliance Geotechnical Pty Ltd was engaged to undertake a Detailed Site Investigation for the proposal, a copy of which is provided at Attachment 9. The Detailed Site Investigation followed the completion of a Stage 1 Preliminary Site Investigation which identified one area of environmental concern (AEC) within the site.

The purpose of the Detailed Site Investigation was to:

- assess the potential for contamination to be present on the site as a result of past and current land use activities;
- provide advice on whether the site would be suitable (in the context of land contamination) for the proposed land use setting; and
- provide recommendations for further investigation, management and/or remediation (if warranted).

Allied Geotechnical undertook the following scope of works:

- a desktop review of relevant information;
- a site walkover to understand current site conditions;
- the preparation of a Sampling and Analysis Quality Plan;
- an intrusive site investigation to establish ground conditions and collection of representative soil samples;
- laboratory analysis of selected samples; and
- an assessment of the contamination status of the site and recommendation of any further remedial requirements associated with the redevelopment of the site (if necessary).

The conclusions of the Detailed Site Investigation were as follows:

- the detected concentrations of identified contaminants of potential concern in the soils assessed are considered unlikely to present:
 - an unacceptable inhalation / vapour intrusion human health exposure risk, or
 - an unacceptable petroleum management limit risk;
- there were detected concentrations of benzo(a)pyrene TEQ in a number of the soil samples which present a direct contact human health exposure risk if exposed to skin or airways during excavation;
- asbestos was detected in several soil samples and is considered to present an unacceptable human health exposure risk during the future intrusive/redevelopment works if unmanaged; and
- Ecological Investigation Levels were exceeded for Copper and Zinc at several sampling locations. This may present an unacceptable ecological exposure risk during the future intrusive/redevelopment works.

The majority of the site is covered by hardstand materials and landscaped areas and the detected contaminants in the soil were located at depth. As the site will not be disturbed until

commencement of redevelopment works, the Detailed Site Investigation indicates there is no immediate harm health risk to occupants of surrounding areas or to nearby pedestrians.

The Detailed Site Investigation concludes that the site can be made suitable for the proposed redevelopment pending supplementary contamination assessment and subsequent remediation of the exceedances of the adopted site assessment criteria.

In response to the recommendations of the Detailed Site Investigation, a Remedial Action Plan (RAP) has been prepared and is provided at Attachment 10. The remedial goal for this site is to remediate potential soil contamination (where identified) to a level that does not present an unacceptable human health and ecological exposure risk, based on the proposed land use setting.

The RAP indicates that the preferred option for managing the contamination is containment onsite by method of capping or excavation and offsite disposal. It is noted that in the event of substantial unexpected finds encountered during remediation / bulk earthworks, the preferred remedial option may be altered to include the treatment of soil materials for beneficial re-use on site (where applicable), including:

- excavate and spread for raking/picking; and
- in-situ raking and picking/screening.

The RAP includes a number of recommendations to ensure the remedial goal can be achieved. These have been included as mitigation measures in Section 6.7.1 below. Subject to adherence to the mitigation measures, Allied Geotechnical concludes that the site can be made suitable for the proposed land use setting.

Acid sulfate soils

As noted in Section 4.3.5, the site is located within Class 4 Acid Sulfate Soils under Parramatta LEP 2011 and would require the preparation of an Acid Sulfate Soil Management Plan if excavation is proposed below 2m.

The Detailed Site Investigation also noted that acid sulfate soils may be present on the site and further investigation should be undertaken for any soil proposed for excavation / disposal at or below 2m below ground level.

No excavation below 2m is proposed however a mitigation measure is proposed requiring the preparation of an Acid Sulfate Soil Management Plan in the event that it is determined that excavation below 2m is required.

6.7.1 Mitigation measures

The following mitigation measures will be undertaken:

26. The strategies, methodologies and measures set out in the *Remedial Action Plan Charles Street Square* prepared by Alliance Geotechnical Pty Ltd (22 June 2020) will be implemented.
27. Remediation, monitoring and validation works will be undertaken by a suitably experienced and EPA licensed environmental consultant.
28. An addendum to the RAP will be prepared should newly identified unacceptable land contamination risks be identified during supplementary assessment works.
29. Prior to any removal of soils from site for offsite disposal during remedial works, a waste classification for soils to be disposed will be prepared by a suitably experienced environmental consultant.
30. A long-term environmental management plan (EMP) will be prepared that documents all areas where residual contamination is still present on the site and all capping and isolation measures that are required. Any provisions contained in the long-term EMP will be legally enforceable and will be publicly notified.
31. If excavation below 2 metres is proposed, an Acid Sulfate Soil Management Plan will be prepared. The Acid Sulfate Soil Management Plan will be submitted to Council approval prior to commencing excavation work.

6.8 Lighting

New lighting is intended to improve safety and wayfinding throughout the square. Public domain lighting will comprise pole top lights in multi-function light poles which will also provide feature lighting to existing and new signature trees. Additional architectural feature lighting will be provided on the shade structure.

Lighting in the public domain as proposed needs to comply with the *Lighting for Roads and Public Spaces Standard* (AS/NZS 1158:2007) as set out in clause 65(3)(iv) of the Infrastructure SEPP.

Northrop Engineers has undertaken an assessment of the proposed lighting and certified that it will comply with the requirements of AS/NZS 1158.3.1:2005 *Lighting for Roads and Public*

Spaces Sub-Category P2, P7 and P9 and AS/NZS 4282:2019 *Control of the obtrusive effects of outdoor lighting*. A copy of the certification is provided at Attachment 20.

As noted in Section 3.4.7, the proposed public artwork will comprise both a static sculpture and digital content. The digital content will involve a light projection onto the rock face and vegetation of the escarpment on the northern bank of the river, above the Escarpment Boardwalk. The projected content will feature a collection of video artworks that respond to the people, geography, history and perceptions of Parramatta. The projection will be displayed for a 3 hour period on a nightly basis up until 11pm and cover an area of up to 30 metres wide by 10 metres high on the northern escarpment.

As noted in Section 6.5 relating to biodiversity impacts, the proposed projected artwork has the potential to indirectly impact nocturnal fauna which are likely to utilise the study area. It is proposed that the projected artwork will incorporate lower lighting within the sequence so as to not illuminate the native vegetation at maximum brightness for the duration of the projection. The Biodiversity Impact Statement (Attachment 18) also recommends that the projection be displayed for a maximum 3 hour period. Mitigation measures have been included in Section 6.5.1 to ensure adverse impacts on fauna due to lighting are minimised.

Provided that the art projection occurs during pre-curfew times, defined as before 11pm in AS/NZS 4282:2019 – *Control of obtrusive effect of lighting*, then any impact on nearby residents will also be minimal.

6.8.1 Mitigation measures

The following mitigation measures will be undertaken:

32. Lighting in the public domain will comply with the *Lighting for Roads and Public Spaces Standard* (AS/NZS 1158:2007) and *Control of obtrusive effect of lighting* (AS/NZS 4282:2019).
33. The artwork light projection will be displayed for a maximum three (3) hours to no later than 11pm nightly.

6.9 Public safety

Crime prevention and public safety at Charles Street Square is an important consideration. Accordingly, the design has been informed by the principles of Crime Prevention through Environmental Design (CPTED), that is, surveillance, access control, territorial enforcement and space management. The Urban Design Report prepared by SMM (Attachment 1) includes an assessment of the design with respect to these principles, which is summarised below.

Surveillance

The design provides high levels of both passive and technical surveillance throughout the public space to increase personal safety and deter crime. Passive surveillance has been achieved by maintaining clear sightlines along paths of travel and through the various spaces that make up the square. The landscape design provides an inviting character to the square, while avoiding the creation of spaces to hide or opportunities for entrapment. The setting aside of an earlier option which proposed a passenger lift in the public domain has assisted to remove surveillance and entrapment issues, while the relocation of the 24/7 toilets to within clear view of the street has improved the passive surveillance of this facility.

Electronic surveillance is incorporated into the design to cover critical areas of wharf operation. In addition, provision in the design has been made for easy future roll-out of additional CCTV within the site in the future, co-located on multi-functional light poles. Effective night time surveillance of the public spaces is also facilitated by public lighting.

Access control

The Charles Street Square upgrade achieves effective access control by providing:

- multiple attractive spaces that encourage people to gather in the square – at the riverfront, the River Amphitheatre, the Garden Terrace, and the upper square;
- clear circulation spaces that encourage pedestrians to access the various public gathering spaces; and
- controlled access to internal areas – the store room and ferry office have lockable doors and are restricted to ferry and Council staff only.

Territorial reinforcement

The principle of territorial reinforcement aims to reduce opportunities for crime and increase risk to criminals by encouraging the sense of community ownership of a space. Territorial reinforcement of Charles Street Square as a public space is achieved through:

- A welcoming design that encourages people to gather in the square and that provides universal access and environmental comfort;
- Clear delineation of the boundary between public and private space; and
- Restricted vehicular access to the square reinforces the space as a place for people and public activity.

Space management

Linked to the principle of territorial reinforcement, space management ensures that space is appropriately utilised and well cared for. The design aims to minimise the need for, and facilitate the ease of, maintenance through:

- The choice of durable materials and finishes that can withstand the inevitable wear-and-tear of public use with minimal maintenance;
- Consistent application of a restricted suite of public domain furniture that facilitates efficient maintenance and repair by limiting the range of spare parts required; and
- Ease of access to all parts of the square for maintenance staff and equipment.

6.9.1 Mitigation measures

No mitigation measures are required.

6.10 Construction impacts

The construction of the Charles Street Square upgrade works has the potential to result in minor amenity impacts on surrounding residential and commercial properties and foreshore reserve users. These impacts may include construction traffic impacts, air quality and noise impacts as well as disruption to pedestrian and vehicular movements and the disruption of ferry services for limited periods of time, with replacement by buses. However, these impacts are anticipated to be temporary and minor and will be managed in accordance with the detailed CEMP, as discussed in Section 3.5. The preliminary CEMP at Attachment 6 and the preliminary CTPMP at Attachment 7 have identified a range of management measures to address construction impacts, including:

- the proposed methods for access to and egress from the site for construction vehicles;
- environmental work method statements outlining specific environmental controls required during specific construction activities (such as sediment and erosion control devices, exclusion fencing etc);
- the proposed method for traffic and pedestrian management during construction;
- noise management and construction work hours;
- the proposed areas within the site to be used for the storage of construction materials and waste containers during the construction period;
- the proposed method/device to remove loose material from all vehicles and/or machinery before entering the road reserve;
- erosion and sediment control; and
- dust suppression measures and stockpile protection.

Appropriate construction management measures will be refined through the detailed CEMP which will be prepared by the construction contractor and approved by Council prior to works commencing. The contractor will also be required to refine the CTPMP.

All construction activities will be required to be carried out in accordance with the provisions of the approved CEMP and CTPMP.

6.10.1 Mitigation measures

The following mitigation measures will be undertaken:

34. A detailed Construction Environmental Management Plan (CEMP) will be prepared by the construction contractor and submitted for the review and satisfaction of Council prior to the commencement of construction works.
35. The detailed CEMP will have regard to the objectives and strategies in the preliminary CEMP prepared by Alliance Geotechnical and provided at Attachment 6 to this REF.
36. The CEMP will include a detailed Erosion and Sediment Control Plan.
37. Construction hours will generally be as follows:
 - Monday to Friday, 7am to 5pm.
 - Saturday, 8am to 5pm.Construction hours may be varied in accordance with the *Environmental Planning and Assessment (Covid-19 Development – Infrastructure Construction Work Days) Order 2020*.
38. Surrounding residents and businesses will be notified a minimum of 7 days prior to the commencement of demolition/construction works.
39. A detailed Construction Traffic and Pedestrian Management Plan (CTPMP) will be prepared by the construction contractor and submitted for the review and satisfaction of Council prior to the commencement of construction works.
40. The detailed CTPMP will have regard to the recommended traffic and pedestrian management measures in the preliminary CTPMP prepared by Northrop and provided at Attachment 7 to this REF.
41. All construction activities will be carried out in accordance with the provisions of the approved CEMP and CTPMP.

6.11 Waste

The construction of the proposed development will generate the most amount of waste from demolition of structures and from excavating spoil. The following waste types are likely to be present:

- general demolition waste, including waste concrete, bricks, timber, potential low-level asbestos contaminated materials;
- metal and glass;
- surplus materials used during site establishment, such as safety fencing and barriers possibly including plastics and metal;
- general construction waste, such as excess concrete, redundant pieces of pipe/fittings, broken bricks timber, paper, plastic and metal; and
- domestic waste, including food scraps, aluminium cans, glass bottles, plastic and paper containers, and putrescibles waste generated by site construction staff.

All construction waste is to be managed in accordance with the measures set out in the preliminary CEMP (Attachment 6). The preliminary CEMP identifies a range of actions to ensure demolition and construction waste is minimised and appropriately managed, including:

- suitable excavated spoil will be re-used on site for backfilling, landscaping and other uses wherever possible;
- where spoil is unsuitable for re-use on-site, opportunities for off-site re-use will be investigated;
- where neither of the two options above is feasible, spoil will be classified according to the Waste Classification Guidelines (EPA 2014) and disposed of at an appropriately licensed facility. Suitable spoil storage areas along the project alignment will be identified during the detailed design stage;
- all spoil will be classified and stored separately to avoid contamination;
- spoil storage areas will be located to minimise the potential for migration into the river during high rainfall/flooding events; and
- Any potentially re-useable or recyclable materials and fittings will be removed and stored safely and securely.

Operational waste will be managed in accordance with the Council's usual waste management practices for public domain areas.

6.11.1 Mitigation measures

The following mitigation measures will be undertaken:

42. Measures to minimise and manage construction waste will be identified in a Waste Management Plan as part of the detailed CEMP.

6.12 Social and economic impacts

It is considered that the proposed upgrade works will have positive social impacts, resulting in improved access, safety, circulation and amenity of the public reserve and Parramatta wharf to meet the needs of local residents and workers as well as visitors to the area. In addition, the community's appreciation of the heritage significance of the public square will be enhanced through the implementation of the interpretation plan that will provide for meaningful celebration of the Aboriginal and historical significance of Parramatta Wharf and Charles Street Square.

In terms of economic impacts, the upgrade works proposed will improve public domain amenity and contribute to increased patronage of the foreshore and local businesses adjacent to the square. The upgrade will improve the visitor experience of arriving or departing by Ferry, encouraging visitors to spend more time at the Quay and enticing them to explore more of the city and foreshore.

6.11.1 Mitigation measures

The following mitigation measures will be undertaken:

43. Surrounding residents and businesses will be notified a minimum of 7 days prior to the commencement of demolition/construction works.
44. Signage and appropriate diversion routes for pedestrians and cyclists will be implemented during construction.

6.13 Cumulative Impacts

Under Clause 228 of the EP&A Regulation 2000, any cumulative environmental effect with other existing or likely future activities must be considered when assessing the impact of an activity for the purposes of Part 5 of the EP&A Act.

There are a number of major construction projects occurring in the vicinity of the site, as shown in Table 9.

Table 9: Status of significant projects planned or underway in the vicinity of the proposal

Project	Current status
Escarpment boardwalk project	Construction underway and likely to be completed before construction of the Charles Street Square upgrade commences.
180 George St Parramatta residential apartments	Construction commenced, due for completion June 2022.

Project	Current status
36 Charles St Port Bar upgrade	DA lodged August 2020. Construction may occur concurrently.
90-94 Phillip St Parramatta Planning Proposal	Under consideration.

Construction impacts

There is likely to be some minor cumulative impacts during construction due to the current redevelopment underway at 180 George Street and possibly works to the Port Bar. The City's appointed contractor will liaise with the developers of 180 George Street and Port Bar (if under construction) to manage the interface of construction of the improvements in proximity to these sites.

Operational impacts

Once operational, the proposal is unlikely to generate any substantial cumulative impacts.

6.13.1 Mitigation measures

The following mitigation measures will be undertaken:

45. The City's appointed contractor will liaise with the developers of 180 George Street and Port Bar (if under construction) to manage the interface of construction of the improvements in proximity to these sites.

7. MITIGATION MEASURES AND CONCLUSION

This report constitutes a Review of Environmental Factors (REF) and forms the environmental assessment required under Part 5 of the EP&A Act for the proposed Charles Street Square upgrade.

The aim of this report has been:

- to describe the proposed development;
- to illustrate that the proposed development complies with the intent of relevant statutory and policy documents;
- to provide an assessment of the likely environmental effects of the proposed development; and
- to detail mitigation measures to minimise potential impacts on the environment.

The REF concludes that proposal will be unlikely to cause a significant impact on the environment, subject to implementation of the recommended mitigation measures. 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 Biodiversity Development Assessment Report or Species Impact Statement is not required.

The proposal is also 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.

The proposal is consistent with the zoning of the site and all relevant provisions contained within the Infrastructure SEPP. The assessment contained herein concludes that there are no significant environmental constraints on the site that preclude the upgrade works and that the proposed development will not result in any significant adverse environmental impacts. Accordingly, it is considered that an EIS is not required.

As discussed in Chapter 6, the proposed activity is not anticipated to generate any significant environmental impacts subject to the implementation of appropriate mitigation measures. The safeguards identified in Table 10 will be implemented to ensure any impacts arising from the proposal are minimised.

Table 10: Mitigation measures

No	Issue	Mitigation measure	Timing
1	Aboriginal heritage	Archaeological test excavation will be undertaken in accordance with the requirements set out in Section 5 of the <i>Aboriginal Archaeological Technical Report Charles Street Square Upgrade</i> (Curio Projects, May 2020).	Prior to commencement of demolition
2	Aboriginal heritage	Archaeological test excavation for Aboriginal archaeological will be undertaken in coordination with any excavation for historical archaeology on the site.	Prior to commencement of text excavation for historical archaeology
3	Aboriginal heritage	The Aboriginal archaeological investigation will be undertaken in accordance with the approved AHIP.	Prior to the commencement of works
4	Interpretation plan	The intangible Aboriginal heritage values (social and cultural) of the site will be addressed through the interpretation plan which, in close consultation with representatives of First Nations communities, will explore interpretation initiatives to celebrate and communicate the significance of the site and landscape to the local Aboriginal community.	Prior to operation
5	Interpretation plan	The final interpretation plan for the site will be submitted for review and to the satisfaction of Council.	Prior to operation
6	Interpretation plan	The final interpretation plan will specify the location, type, materials, finishes and contents of the interpretation devices proposed.	Prior to operation
7	Interpretation plan	The final interpretation plan is to be prepared by a suitably experienced heritage interpretation specialist.	Prior to operation
8	Interpretation plan	The final interpretation plan will be prepared in consultation with First Nations as well as representatives of other communities.	Prior to operation
9	Historical archaeology	An application will be made to Heritage NSW for an excavation permit, issued under Section 140 of the NSW Heritage Act.	Prior to commencement of excavation on site

No	Issue	Mitigation measure	Timing
10	Historical archaeology	The <i>Charles Street Square Archaeological Assessment and Research Design</i> (Curio Projects, June 2020) is a supporting document to that permit application.	Prior to commencement of excavation on site
11	Historical archaeology	The permit should allow for test excavation in accordance with the Archaeological Research Design and Excavation Methodology set out in the <i>Charles Street Square Archaeological Assessment and Research Design</i> (Curio Projects, June 2020).	Prior to commencement of excavation on site
12	Historical archaeology	Any test excavation for historical archaeology will be undertaken in coordination with test excavation for Aboriginal archaeology.	Prior to commencement of excavation on site
13	Historical archaeology/ Interpretation Plan	Inclusion of the information generated from investigation of archaeological will be explored as part of a public interpretation strategy.	Prior to operation
14	Flooding	The proposal will incorporate flood compatible finishes below the 1% AEP plus 500mm to allow for easy maintenance in the event of a very rare flood.	Detailed design
15	Flooding	Services such as power lines, telecoms and any electrical components sited below the 1% AEP + 500mm will be waterproofed.	During construction
16	Flooding	The storage of goods and valuable items will be required at a level above the 1% AEP flood level plus freeboard. The ferry kiosk will not to be used for the storage of valuable items below this level.	During operation
17	Flooding	Certification will be provided to confirm that the proposed structures can withstand the forces of floodwater, debris and buoyancy up to and including a 1% AEP flood level plus a freeboard of 500mm	Design certification to be provided prior to commencement of construction works
18	Flooding	Each structure will need to be designed to withstand flooding below the Flood Planning Level and full immersion conditions, with consideration to waterborne debris, hydrostatic and hydro-dynamic forces, flotation and scour.	Detailed design

No	Issue	Mitigation measure	Timing
19	Flooding	A Site Emergency Flood Response Plan will be prepared prior to commencement of construction. The Emergency Flood Response Plan will detail evacuation and response procedures and identify areas of refuge. The Emergency Flood Response Plan will provide appropriate measures that apply during construction and post construction.	Prior to commencement of construction
20	Biodiversity	Stockpiles and areas for storage of construction materials will be located away from the drainage lines and Parramatta River to minimise risk of pollution and adverse impact to aquatic ecosystems.	During demolition/ construction
21	Biodiversity	Landscape plantings will include locally occurring species to enhance habitat for native fauna.	Detailed design
22	Biodiversity	The timeframe for the projected artwork will be restricted to a maximum of three (3) hours nightly to limit the disturbance to foraging habitat for threatened microbats, nocturnal birds and diurnal species.	Operation
23	Biodiversity	The projected artwork will incorporate lower lighting within the sequence so as to not illuminate the native vegetation at maximum brightness for the duration of the projection.	Operation

No	Issue	Mitigation measure	Timing
24	Trees	<p>The tree protection measures detailed in Sections 4 and 5 of the <i>Arboricultural Impact Assessment Report & Tree Protection Plan and Specification</i> prepared by Moore Trees (June 2020) will be implemented during the construction of the works to prevent inadvertent impacts on trees proposed for retention. These measures include, but are not limited to:</p> <ol style="list-style-type: none"> a. Trees to be retained will be required to be fenced for protection. Fencing will comprise chain mesh fencing with a minimum height of 1.8 metres and incorporate appropriate signage; b. All tree protection works will be carried out before the start of demolition or building work. c. Trunk protection will be provided to Trees 2; and 3 in accordance with the measures set out in Section 5.3 of the Arboricultural Impact Assessment Report; d. Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) will be determined in accordance with the TPZ and SRZ methodology set out in Appendix 5 to the Arboricultural Impact Assessment Report. 	Prior to commencement of works
25	Trees	Any pruning of existing trees will be undertaken in accordance with AS 4373-2007 <i>Pruning of Amenity Trees</i> .	Prior to and during construction
26	Contamination	The strategies, methodologies and measures set out in the <i>Remedial Action Plan Charles Street Square</i> prepared by Alliance Geotechnical Pty Ltd (22 June 2020) will be implemented.	Prior to and during construction
27	Contamination	Remediation, monitoring and validation works will be undertaken by a suitably experienced and EPA licensed environmental consultant.	Prior to, during and post construction
28	Contamination	An addendum to the RAP will be prepared should newly identified unacceptable land contamination risks be identified during supplementary assessment works.	Upon identification of new risk

No	Issue	Mitigation measure	Timing
29	Contamination	Prior to any removal of soils from site for offsite disposal during remedial works, a waste classification for soils to be disposed will be prepared by a suitably experienced environmental consultant.	Prior to any removal of soils from site.
30	Contamination	A long-term environmental management plan (EMP) will be prepared that documents all areas where residual contamination is still present on the site and all capping and isolation measures that are required. Any provisions contained in the long-term EMP will be legally enforceable and will be publicly notified.	Prior to operation
31	Acid Sulfate Soils	If excavation below two (2) metres is proposed, an Acid Sulfate Soil Management Plan will be prepared. The Acid Sulfate Soil Management Plan will be submitted for Council approval prior to commencing excavation work.	Prior to any excavation below two (2) metres
32	Lighting	Lighting in the public domain will comply with the <i>Lighting for Roads and Public Spaces Standard</i> (AS/NZS 1158:2007) and <i>Control of obtrusive effect of lighting</i> (AS/NZS 4282:2019).	Detailed design/ during operation
33	Lighting	The artwork light projection will be displayed for a maximum of three (3) hours to no later than 11pm nightly.	During operation
34	Construction	A detailed Construction Environmental Management Plan (CEMP) will be prepared by the construction contractor and submitted for the review and satisfaction of Council prior to the commencement of construction works.	Prior to commencement of any works on site
35	Construction	The detailed CEMP will have regard to the objectives and strategies in the preliminary CEMP prepared by Alliance Geotechnical and provided at Attachment 6 to this REF.	During preparation of detailed CEMP
36	Construction	The CEMP will include a detailed Erosion and Sediment Control Plan	Prior to commencement of any works on site

No	Issue	Mitigation measure	Timing
37	Construction	<p>Construction hours will generally be as follows:</p> <ul style="list-style-type: none"> Monday to Friday, 7am to 5pm. Saturday, 8am to 5pm. <p>Construction hours may be varied in accordance with the <i>Environmental Planning and Assessment (Covid-19 Development – Infrastructure Construction Work Days) Order 2020</i>.</p>	During construction
38	Construction	Surrounding residents and businesses will be notified a minimum of 7 days prior to the commencement of demolition/construction works.	Prior to construction
39	Construction	A detailed Construction Traffic and Pedestrian Management Plan (CTPMP) will be prepared by the construction contractor and submitted for the review and satisfaction of Council prior to the commencement of construction works.	Prior to commencement of any works on site
40	Construction	The detailed CTPMP will have regard to the recommended traffic and pedestrian management measures in the preliminary CTPMP prepared by Northrop and provided at Attachment 7 to this REF.	During preparation of detailed CTPMP
41	Construction	All construction activities will be carried out in accordance with the provisions of the approved CEMP and CTPMP.	During demolition and construction
42	Waste	Measures to manage construction waste will be identified in as Waste Management Plan as part of the detailed CEMP.	During preparation of detailed CEMP
43	Social	Surrounding residents and businesses will be notified a minimum of 7 days prior to the commencement of demolition/construction works.	Prior to construction
44	Social	Signage and appropriate diversion routes for pedestrians and cyclists will be implemented during construction.	Prior to/during construction in accordance with construction staging

No	Issue	Mitigation measure	Timing
45	Cumulative impacts	The City's appointed contractor will liaise with the developers of 180 George Street and Port Bar (if under construction) to manage the interface of construction of the improvements in proximity to these sites.	Prior to commencement of activities on site and ongoing during construction
46	Accessibility	The proposal will be designed in accordance with the recommendations of the Charles Street Square Access Review Design Development report prepared by Morris Goding Access Consultants (27 May 2020).	Detailed design

8. CERTIFICATION

This REF provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposal.



Nicola Gibson

Director

MG Planning Pty Ltd

Date: 13 January 2021

I have examined this review of environmental factors and accept it on behalf of the City of Parramatta Council.



John Warburton

Executive Director City Assets & Operations

City of Parramatta

Date: 4 February 2021