

# Review of Environmental Factors

SP0213 Carramar OCU

## 1 Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of SP0213 Carramar OCU. The REF was prepared under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), with Sydney Water both the proponent and determining authority.

The Sydney Water Project Manager is accountable for ensuring the proposal is carried out as described in this REF. Additional environmental impact assessment may be required if the scope of work or work methods described in this REF change significantly following determination.


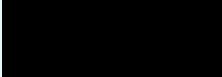
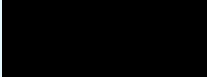
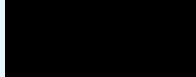
### Decision Statement

The main potential construction environmental impacts of the proposal include impacts to flora, soils, air quality, water and drainage. During operation, the main potential impacts include change to visual amenity and a reduction in odour issues. The proposal will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats. Therefore, a Species Impact Statement (SIS) and/or Biodiversity Development Assessment Report (BDAR) is not required.

Given the nature, scale and extent of impacts and implementation of the mitigation measures outlined in this REF, the proposal is unlikely to have a significant impact on the environment. Therefore, we do not require an Environmental Impact Statement (EIS) and the proposal may proceed.

### Certification

I certify that I have reviewed and endorsed this REF and, to the best of my knowledge, it is in accordance with the EP&A Act and the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation). The proposal has been considered against matters listed in section 171 (Appendix A) and the guidelines approved under section 170 of the EP&A Regulation. The REF considers how the proposal aligns with the principles of ecologically sustainable development (Appendix B). The information it contains is neither false nor misleading.

Prepared by:	Reviewed by:	Endorsed by:	Approved by:
 Andrea Glass REF author Sydney Water Date: 27/02/2024	 John Eames Environment Representative Sydney Water Date: 27/02/2024	 George Alam Project Manager Sydney Water Date: 01/03/2024	 Murray Johnson Environment and Heritage Manager Sydney Water Date: 22/03/2024

## 2 Proposal description

**Table 1** Description of proposal

Aspect	Detailed description
<p>Proposal need and objectives</p>	<p>To address complaints from the local community about odour issues, an Odour Control Unit (OCU) is to be constructed and installed at wastewater pumping station SP0213 (the proposal).</p> <p>The objectives of the proposal are to:</p> <ul style="list-style-type: none"> <li>• Reduce dissolved sulphide concentrations along the network to &lt;0.5 mg/L and hydrogen sulphide levels to &lt; 5 ppm in the Smithfield Cabramatta system.</li> <li>• Manage odours from the Cabramatta and Long Creek carriers.</li> <li>• Reduce concrete corrosion by hydrogen sulphide.</li> <li>• Minimise sewer life cycle costs.</li> </ul>
<p>Consideration of alternatives/options</p>	<p>A Do-Nothing option risks customer dissatisfaction with odour issues, further asset deterioration and potential asset failure. This would disrupt wastewater services to customers, potentially cause damage to the surrounding environment and have safety implications.</p>
<p>Proposal description and methodology</p>	<p>The proposal involves:</p> <ul style="list-style-type: none"> <li>• Access road upgrade</li> <li>• Vent shaft removal</li> <li>• New vent shaft and OCU installation.</li> </ul> <p>The proposal methodology:</p> <ul style="list-style-type: none"> <li>• Establish site, including clearing and potential vegetation trimming</li> <li>• Demolish existing ventshafts and seal off openings</li> <li>• Upgrade the road for truck access and column support footings for new ventshaft base</li> <li>• Construct a new OCU on elevated platform including a 20 metre tall DN500 ventshaft, pipework, supporting columns above ground and fence around OCU. Excavation and piling is needed for the OCU construction</li> <li>• Fencing the OCU, site demobilisation and restoration.</li> </ul> <p>Indicative plant and equipment for the proposal includes:</p> <ul style="list-style-type: none"> <li>• Air compressors</li> <li>• Backhoes</li> <li>• Compactor</li> <li>• Concrete agitator trucks, pumps and saws</li> <li>• Confined spaces safety equipment (e.g. gantry/davit)</li> <li>• Cranes</li> <li>• Excavators</li> </ul>

Aspect	Detailed description
	<ul style="list-style-type: none"> <li>• Generators</li> <li>• Hand tools</li> <li>• Jackhammers</li> <li>• Light vehicles</li> <li>• Piling rig</li> <li>• Site facilities and amenities</li> <li>• Skip bins</li> <li>• Storage containers</li> <li>• Tip trucks</li> <li>• Vacuum trucks</li> <li>• Welding equipment.</li> </ul>
Location and land ownership	<p>The proposal is in Carrawood Park at the end of Waterside Crescent, Carramar in the Fairfield Local Government Area. It is on:</p> <ul style="list-style-type: none"> <li>• Lot B DP 384873 (owned by Sydney Water)</li> <li>• Lot 35 DP 19311 (Council owned land that will be acquired by Sydney Water).</li> </ul>
Site establishment and access tracks	<p>Access into the pumping station will be through the secure gate and existing driveway along Waterside Crecent. The existing driveway to the proposal area will be upgraded for truck access.</p>
Ancillary facilities (compounds)	<p>During the design phase, the location of compounds could not be confirmed. The exact location of these will be chosen by the contractor and remain within the field assessment area, in consultation with the landowner(s) and approved by Sydney Water’s Project Manager as described in the mitigation measures in Section 6.</p>
Work hours	<p>Work and deliveries will be scheduled during standard daytime hours:</p> <ul style="list-style-type: none"> <li>• 7 am to 6 pm, Monday to Friday</li> <li>• 8 am to 1 pm, Saturdays.</li> </ul> <p>The proposal may require works outside these hours for investigation, construction and cut over works. This has been assessed and mitigation measures are provided in Section 6.</p>
Proposal timing	<p>Construction is expected to start mid 2024 and take approximately 3 months.</p>

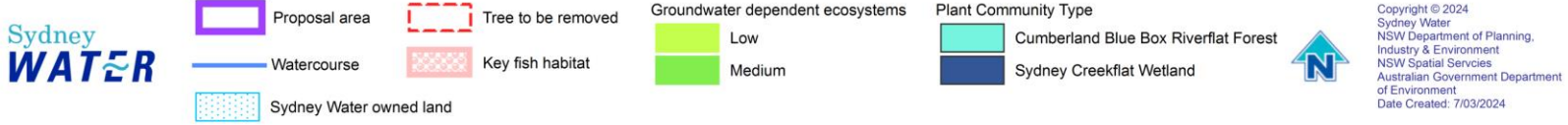
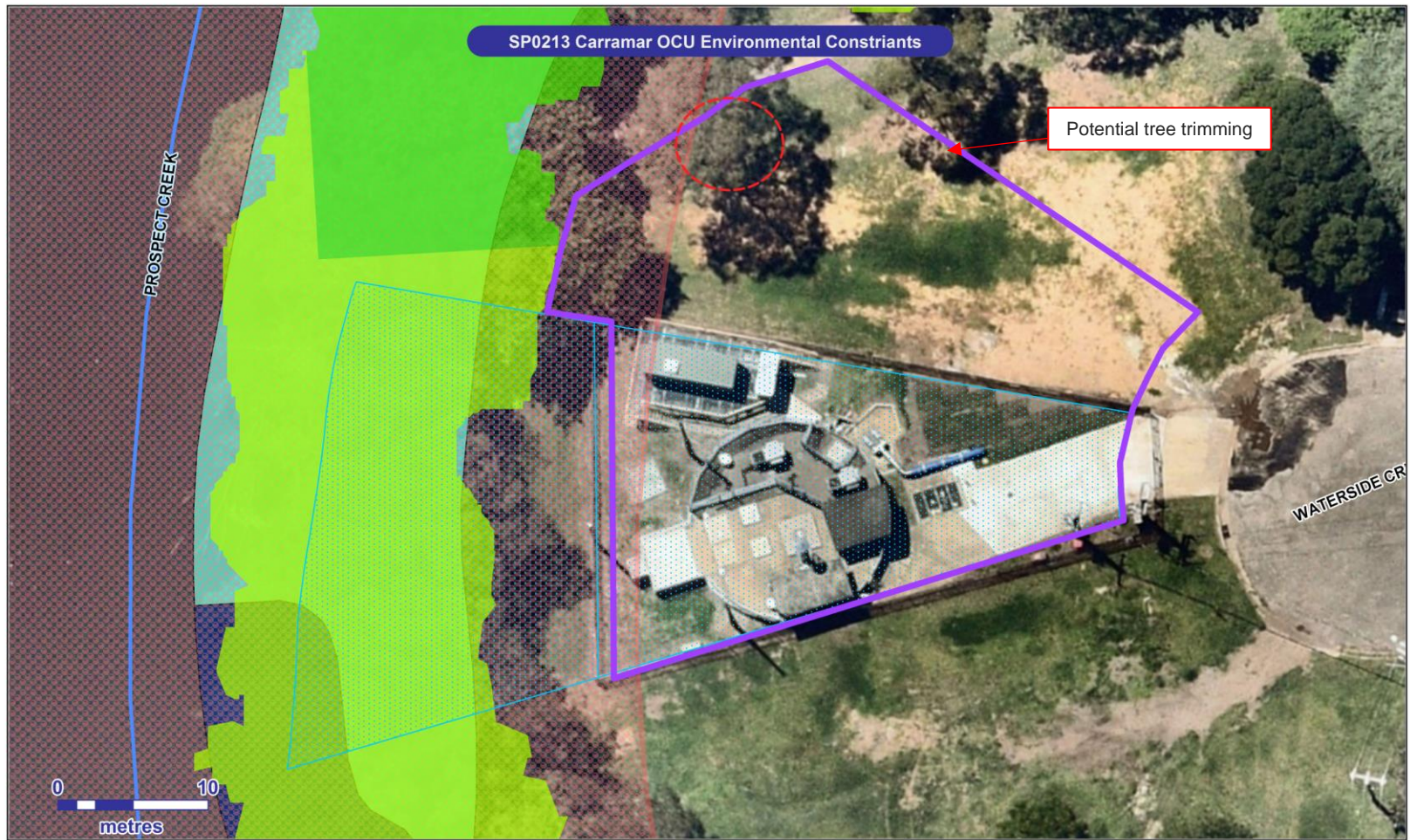


Figure 1 Location of proposal and environmental constraints



### 3 Consultation

#### Community and stakeholder consultation

Our approach to community and stakeholder consultation is guided by Sydney Water’s community and stakeholder engagement guidelines.

Stakeholder and community engagement is a planned process of initiating and maintaining relationships with external parties who have an interest in our activities. Community and stakeholder engagement:

- enables us to explain strategy, policy, proposals, proposal or programs
- gives the community and stakeholders the opportunity to share their knowledge, issues and concerns
- enables us to understand community and stakeholder views in our decision-making processes alongside safety, environment, economic, technical and operational factors.

The nature, scale and extent of the proposal’s potential impact has been evaluated in this REF. If our work impacts the community in some way, we will consult with affected groups throughout the proposal. This includes engaging the broader community and stakeholders during plan or strategy development or before making key decisions.

Consultation with Fairfield City Council is currently being undertaken to acquire Lot 35 DP 19311. We will also provide Fairfield City Council with reasonable notice when we would like to commence works. Fairfield City Council will be consulted about matters identified in environmental planning instruments (refer below). This includes public safety issues, temporary works on council land, and full or partial road closures of council managed roads.

#### Consultation required under State Environmental Planning Policies and other legislation

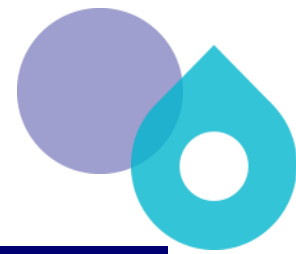
Sydney Water must consult with councils and other authorities for work in sensitive locations or where the work may impact other agencies’ infrastructure or land. This is specified in the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP).

No formal consultation was required under the TISEPP. Further detail is provided in Appendix C.

### 4 Legislative requirements

**Table 2** Environmental planning instruments relevant to the proposal

Environmental Planning Instrument	Relevance to proposal
Fairfield Local Environmental Plan 2013	The proposal is located on land zoned as Public Recreation (RE1).
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)	Section 2.126(6) of the TISEPP permits development by or on behalf of a public authority for sewerage reticulation system without consent on any land in a prescribed circumstance.  The proposal involves development of a sewerage reticulation system carried out by a public authority.



Environmental Planning Instrument	Relevance to proposal
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As Sydney Water is a public authority, the proposal is permissible without consent.

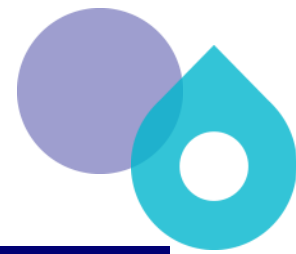
State Environmental Planning Policy (Biodiversity and Conservation) 2021	<p><b>Vegetation in non-rural areas (Chapter 2)</b></p> <p>The proposal is in an area or zone listed in subsection 2.3(1). However, subsection 2.4(1) states: ‘This Policy does not affect the provisions of any other SEPP...’, and as the works are permissible under the TISEPP, a council permit to clear vegetation under this SEPP is not required.</p> <p><b>Water catchments (Chapter 6)</b></p> <p>Chapter 6 of this SEPP applies as the proposal is within the Georges River Catchment, a regulated catchment area. Section 5 of this REF assessed potential environmental impacts on water quality and quantity, aquatic ecology, flooding, access, cultural heritage, flora and fauna, and scenic quality. The assessment confirmed that potential impacts are negligible/minimal and meet the requirements of part 6.2 of this SEPP.</p>
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State Environmental Planning Policy (Resilience and Hazards) 2021	<p><b>Coastal Management (Chapter 2)</b></p> <p>The works are on land to which Chapter 2 of this SEPP applies.</p> <p>The works are in an area mapped as Coastal Wetland Proximity Area, Coastal Environment Area and Coastal Use Area. According to section 2.8, 2.10 and 2.11 consent is not required.</p>
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**Table 3** Consideration of key environmental legislation

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
<i>Protection of the Environment Operations Act 1997</i>	The proposal is covered by an existing EPL 372 and meets the EPL compliance requirements. Temporary relaxation of the EPL 372 is not required during construction/ commissioning. A variation to EPL 372 is not required for operation.	N/A	N/A
<i>Biodiversity Conservation Act 2016 (BC Act) and Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	The proposal would remove one tree of <i>Eucalyptus amplifolia</i> (Cabbage Gum) which is associated with PCT 4024 remnant forest which has associated threatened ecological communities (BC Act and EPBC Act).	REF	Sydney Water





Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
	The removal of this tree would have a minor impact and requires offsetting.		Post-construction, Contractor
<i>Fisheries Management Act 1994</i>	The proposal area overlaps land mapped as Key Fish Habitat under this Act (Figure 1). As the works are within Sydney Water owned land and would be above the top of the bank, no notification to the Department of Primary Industries – Fisheries is required.	N/A	N/A



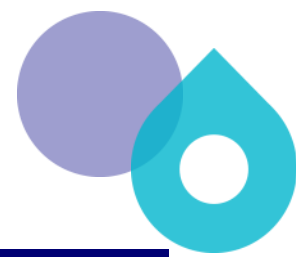
## 5 Environmental assessment

The environmental impacts checklist (SWEMS0019.01) was completed for the works which considers all environmental aspects. Table 4 includes only the potentially impacted aspects.

**Table 4** Key environmental aspects and potential impacts of construction and operation

Aspect	Potential impacts
<p><b>Topography, geology and soils</b></p>	<p>The topography of the proposal area is relatively flat, between about 7 metres and 5 metres AHD. There are no areas of significant erosion or acid sulphate soil risk within the proposal area. The proposal is in an area of known salinity hazard.</p> <p>The proposal would require excavation for the installation of the OCU. Excavation extent is to be confirmed in further detail design however it is anticipated to be shallow and minor.</p> <p>Piling for the OCU platform will be up to 12 metres deep. Piling would only disturb a minimal area for each pile and is not anticipated to have a significant impact on topography, geology and soils.</p> <p>Temporary hardstand may also be installed within the proposal area along existing grassed areas storage areas and laydown areas. These areas will be restored to pre-existing condition once construction is complete.</p> <p>Potential topography, geology and soils impacts would be managed by implementing the mitigation measures listed in Section 6.</p>
<p><b>Water and drainage</b></p>	<p>The closest watercourse to the proposal is Prospect Creek, which is a Key Fish Habitat. The proposal area is within a high flood risk precinct (Prospect Creek Floodplain Management Plan Review 2010, Bersher Consulting Pty Ltd).</p> <p>Groundwater is not anticipated to be intercepted by the shallow and minor excavations Groundwater may be intercepted during piling up to 12 metres below ground however no dewatering would occur.</p> <p>The proposal introduces additional hardstand into the area as the OCU will be designed to be above the 1 in 100 year flood level on a raised platform. These changes are anticipated to have only a minor impact on the surface water and drainage flows in the proposal area.</p> <p>The proposal will require temporary storage of fuels and/or chemicals for equipment and machinery operation during construction. Potential impacts include accidental leaks, spills and seepage into the soils, groundwater, or local stormwater system.</p> <p>Potential water and drainage impacts would be managed by implementing the mitigation measures listed in Section 6.</p>
<p><b>Flora and fauna</b></p>	<p>There are groundwater dependant ecosystems ranging from low to medium value and two plant community types (PCT 4024 Cumberland Blue Box Riverflat Forest and PCT 3972 Sydney Creekflat Wetland) mapped near the proposal.</p>





Aspect	Potential impacts
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The NSW BioNet Atlas database search returned records of 19 threatened flora species and 38 threatened fauna species listed under the BC Act within 10 kilometres of the proposal area.

A specialist assessment confirmed that the vegetation within the proposal area consists of grassland and PCT 4024 remnant forest. No threatened fauna was identified within the proposal area (Appendix D).

The proposal would remove one and trim one other *Eucalyptus amplifolia* (Cabbage Gum) from the identified PCT 4024 remnant forest which has associated threatened ecological communities (TEC). These TECs are River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions listed under the BC Act and River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria listed under the EPBC Act. The ecology assessment site survey confirmed that this community did not meet the EPBC listing criteria.

The BC Act Test of Significance undertaken confirms that the proposal would not have a significant impact on the River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions TEC (Appendix D).

The trees are within the grassland area and do not contain any habitat features that would be relied on by threatened fauna for roosting or breeding (Figure 1). The proposed works on the managed grassland are not expected to cause any adverse impact to any threatened fauna species their habitat. Excavations are minor, no groundwater is to be extracted and no impacts to Groundwater Dependent Ecosystems are anticipated.

No operational impacts to flora and fauna are anticipated.

Potential flora and fauna impacts would be managed by implementing the mitigation measures listed in Section 6.

**Heritage**

**Historic heritage**

There are no known historic heritage items within 200 metres of the proposal area.

**Aboriginal heritage**

[REDACTED]

[REDACTED]

[REDACTED]

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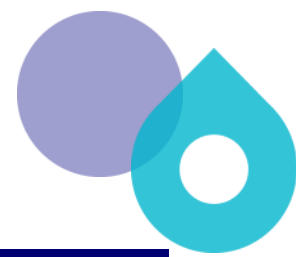
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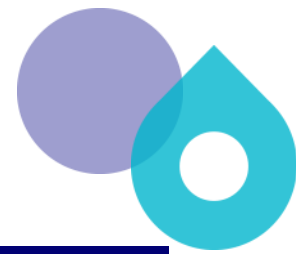


Aspect	Potential impacts
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<p><b>Noise and vibration</b></p>	<p><b>Noise</b></p> <p>The proposal is within a primarily recreational and residential setting. The existing noise environment is influenced by road traffic and recreational activities in the park. The works would generate noise and vibration during construction from excavation, piling and the operation of machinery and equipment. Construction would mostly occur during standard daytime hours, with some out of hours works such as investigations and cut over works. Construction is expected to take about 3 months to complete.</p> <p>Based on the risk profile of the works from Table 2 of the Draft Construction Noise Guideline (EPA, 2020), a quantitative noise assessment was performed for the proposal. The purpose of the noise assessment was to assess the predicted worst-case noise impacts. This identified recommended additional mitigation measures for impacted receivers at different distances from the works, which would guide community engagement for the proposal. The receivers that may be impacted by noise from the construction of the proposal include residents and recreational users of Carrawood Park. The nearest residential receivers are about 70 meters away to the west of the proposal area. The noise assessment was performed using the Transport for NSW Construction and Maintenance Noise Estimator.</p> <p>The assessment confirmed that the worst-case noise impacts would be up to 45 meters during the day and 120 meters out of standard hours. . Mitigation measures from the Transport for NSW Construction and Maintenance Noise Estimator are to be considered by the community team, and offered where appropriate and include:</p> <ul style="list-style-type: none"> <li>• N: Notification (e.g. letterbox drop)</li> <li>• RO: Respite Offer (e.g. work blocks of 2 hours with one hour breaks in between)</li> <li>• PC: Phone calls.</li> </ul> <p>Standard mitigation measures in Section 6 would also be implemented to manage potential noise impacts.</p> <p><b>Vibration</b></p> <p>Excavation and piling have the potential to cause vibration. The minimum working distances of 7 metres is recommended for light-framed structures (i.e. residential buildings made with wooden framing). All buildings are set back over 7 metres from the alignment, no vibration impacts are anticipated.</p>
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Aspect	Potential impacts
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**Air and energy**

The sensitive receivers which may be impacted by changes to air quality include the recreational users of Carrawood Park and residents near to the proposal area.

Dust and pollution impacts may result from:

- Dust generated during excavation
- Dust generated by up to 10 light vehicle movements per day and infrequent heavy vehicle movements travelling on disturbed/unsealed laydown areas or road verges
- Emissions from machinery, equipment and vehicles used during construction
- Odour from construction activities while accessing the wastewater system.

Nearby receivers may be affected by minor changes in air quality during construction. However, as the works are short-term, and relatively minor (small ground disturbance areas and low vehicle numbers) and the potential impacts are unlikely.

The proposal would require increased energy to operate the new OCU at SP0213 and this would marginally increase Sydney Water's total energy use. The proposal would be operated in accordance with energy use procedures that apply to Sydney Water's existing network.

Potential construction air quality impacts would be managed by implementing the mitigation measures listed in Section 6.

The operation of the new OCU would reduce existing and potential future odour issues.

**Waste and hazardous materials**

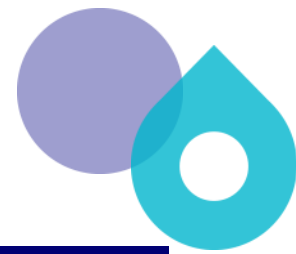
HazCentral identified lead paint and polychlorinated biphenyls within the proposal area on existing infrastructure. Although not recorded on site, it is assumed that asbestos may be present within some of the existing infrastructure, these areas are however not anticipated to be disturbed.

Waste streams likely to be generated during the proposal works include:

- Removed or redundant assets (e.g. corroded vent shaft)
- Excavation materials
- General construction waste
- Green waste from any vegetation trimming
- Contaminated material, if encountered.

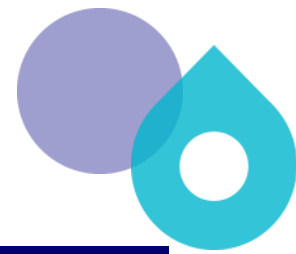
Where possible, it is preferred to reuse excavated materials from site as backfill instead of importing fill material. Where excavated materials cannot be reused as backfill, they would be classified and taken off-site for disposal at a licenced facility.





Aspect	Potential impacts
	<p>The mitigation measures in Section 6 would be implemented to manage potential impacts from waste and hazardous materials.</p> <p>No operational waste and hazardous materials impacts are anticipated.</p>
<b>Traffic and access</b>	<p>The proposal area can be accessed via Waterside Crescent, through a locked gate that can be opened by Sydney Water and Fairfield City Council. Waterside Crescent is a dead end road that is in a residential and recreational area, the traffic volumes along this road are anticipated to be low.</p> <p>The access road is narrow, with minimal room for larger vehicles such as trucks to manoeuvre within the road corridor, however, the trucks would be able to reverse into the existing Sydney Water site to turn around. A reverse-in, drive-out type arrangement may be implemented.</p> <p>Access to nearby residential properties and park would be maintained. The proposal is anticipated to generate up to 10 light vehicle movements per day and infrequent heavy vehicle movements. Most vehicle movements are anticipated to occur during works arrival and departure. Given the minimal increase in traffic volumes, no significant impact to existing traffic is anticipated for the proposal. Vehicles would park within the proposal area or along Waterside Crescent that is not accessible to the public for parking, therefore no parking impacts are anticipated.</p> <p>No operational traffic and access impacts are anticipated.</p> <p>The mitigation measures in Section 6 would be implemented to manage potential traffic and access impacts.</p>
<b>Social and visual</b>	<p>The proposal has the potential to cause social impacts associated with air quality and noise, which have been assessed above. Visual impacts associated with the construction activities are expected to be low, as the works are more than 70 metres from residents and there is existing vegetation in between. Nearby park users will see the construction works but as the works are contained within the proposal area and the works will last only 3 months, potential impacts are expected to be low.</p> <p>The OCU would be visible during operation, it would be of a similar height to SP0213 with a new ventshaft up to 20 metres tall. The new infrastructure would be immediately adjacent to, and would be in keeping with the existing elements of SP0213. The new ventshaft would be about 7 metres taller than existing 2 ventshafts that will be removed as part of this project. The new ventshaft is at least 70 metres from the nearest receiver on the other side of the river and is screened by existing trees. The proposal is unlikely to have any significant operational impact on visual amenity.</p> <p>The mitigation measures in Section 6 would be implemented to manage potential social and visual impacts.</p>





Aspect	Potential impacts
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<b>Cumulative and future trends</b>	Sydney Water is not aware of any planned or future work that will overlap with these works being performed. Development applications currently (February 2024) active or determined in the last six months for the suburb of Carramar relate to localised residential developments and changes to existing buildings. Any cumulative amenity impacts (e.g. noise, dust, traffic) would be minimal.
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## 6 Environmental mitigation measures

Table 5 Mitigation measures

### Mitigation measures

#### General

Sydney Water's Project Manager (after consultation with the environmental and community representatives and affected landowners) can approve temporary ancillary construction facilities (such as compounds and access tracks), without additional environmental assessment or approval if the facilities:

- limit proximity to sensitive receivers
- do not disrupt property access
- have no impact to known items of non-Aboriginal and Aboriginal heritage
- are outside high risk areas for Aboriginal heritage
- use existing cleared areas and existing access tracks
- have no impacts to remnant native vegetation or key habitat features
- have no disturbance to waterways
- do not require additional mitigation measures beyond those included in the EIA
- do not disturb contaminated land or acid sulfate soils
- will be rehabilitated at the end of construction.

The Delivery Contractor must demonstrate in writing how the proposed ancillary facilities meet these principles. Any facilities that do not meet these principles will require additional environmental impact assessment.

The agreed location of these facilities must be shown on the CEMP site plan and appropriate environmental controls installed.

The Delivery Contractor should consider/must conduct pre-mobilisation and post-demobilisation soil sampling on compound sites to confirm no residual impacts.

Should the proposal change from the EIA, no further environmental assessment is required provided the change:

- remains within the site and has no net additional environmental impact or
- is outside the site but:
  - reduces impacts to biodiversity, heritage or human amenity or
  - avoids engineering (for example, geological, topographical) constraints and
  - after consultation with any potentially affected landowners and relevant agencies.

The Delivery Contractor must demonstrate in writing how the changes meet these requirements, for approval by Sydney Water's Project Manager in consultation with the environmental and community representatives.

Prepare a Construction Environmental Management Plan (CEMP) addressing the requirements of this environmental assessment. The CEMP should specify licence, approval and notification requirements. Prior to the start of work, all project staff and contractors will be inducted in the CEMP.

The CEMP must be readily available on site and include a site plan which shows:

- go/no go areas including locations of lay-down and storage areas for materials and equipment
- location of environmental controls (such as erosion and sediment controls, fences or other measures to protect vegetation or fauna, spill kits)
- location and full extent of any vegetation disturbance.

To ensure compliance with legislative requirements for incident management (eg *Protection of the Environment Operations Act 1997*), Follow [SWEMS0009](#) and attach [SWEMS0009](#) to the CEMP.

## Mitigation measures

Complaints to be managed in accordance with Sydney Water's Complaints Procedure and relevant Community Engagement Plan.

## Topography, geology and soils

Prevent sediment moving offsite in accordance with Managing Urban Stormwater, Soils and Construction, Volume 1 and 2A (Landcom 2004 and DECC 2008), including, but not limited to:

- divert surface runoff away from disturbed soil and stockpiles
- install sediment and erosion controls before construction starts
- reuse topsoil where possible and stockpile separately
- inspect controls at least weekly and immediately after rainfall
- rectify damaged controls immediately
- remove controls once surfaces have been stabilised, including removing trapped sediment in drainage lines.

Minimise ground disturbance and stabilise disturbed areas progressively.

Delivery Contractor to ensure imported material is Virgin Excavated Natural Materials (VENM) or meets a relevant NSW EPA Resource Recovery Order and Resource Recovery Exemption, or is a commercially supplied material that is not waste.

If using materials that are subject to a NSW EPA Resource Recovery Order/Exemption the Delivery Contractor must ensure the conditions in that Order/Exemption are strictly adhered to.

Stop work in the immediate vicinity of suspected contamination. Indicators of contamination include discoloured soil, anthropogenic material within fill, asbestos, chemical or petrol odours and leachate. Contain disturbed material on an impermeable surface and cordon areas off. Notify the Sydney Water Project Manager and the Environmental Representative (who will contact Property Portfolio Environmental team) to agree on proposed management approach.

Stop work during heavy rainfall or in waterlogged conditions when there is a risk of sediment loss off site.

Sweep up any sediment/soil transferred off site at least daily, or before rainfall.

Eliminate ponding and erosion by restoring natural landforms to the pre-works condition.

Adopt appropriate soil salinity mitigation measures in accordance with [Western Sydney Salinity Code of Practice](#) (Western Sydney Regional Organisation of Councils, 2003). This may include:

- stabilising existing areas of erosion
- minimising water use on site
- avoiding rotation and vertical displacement of the original soil profile
- backfilling excavations deeper than one metre in the same order, or treating or using this material as fill at depths more than one metre from the finished level.

## Water and drainage

Bund open maintenance holes if there is a risk of wastewater spills.

Bund potential contaminants and store on robust waterproof membrane, away from drainage lines.

## Mitigation measures

Keep functioning aquatic spill kit on site for clean-up of accidental chemical/fuel spills. Keep the spill kits stocked and located for easy access.

Locate portable site amenities, chemical storage and stockpiles of erodible materials away from watercourses, drainage lines and flood prone areas.

Keep stockpiles to a minimum and ensure adequate contingency measures are in place to prevent sedimentation of waterways in the event of a large flood event.

If the potential for intercepting groundwater is identified after the REF is determined, Sydney Water will obtain a groundwater Water Supply Works Approval. Where dewatering is >3ML per water year (from 1 July), Sydney Water will also obtain a Water Access Licence from NRAR. The Delivery Contractor is responsible for:

- providing expert hydrogeological technical information to obtain the approvals
- preparing a Dewatering Management Plan
- complying with the conditions of the approvals (such as protecting water quality; minimising aquifer extraction volumes, monitoring extraction with flow meters and recording volumes).

Minimise groundwater ingress during detailed design. As part of the CEMP, prepare a Dewatering Management Plan for groundwater dewatering. This should include elements such as how water quality will be protected and how extraction volumes will be monitored.

Discharge all water in accordance with Sydney Water's Water Quality Management During Operational Activities Policy (D0001667) including erosion controls, discharge rate, dechlorination, monitoring. Re-use potable / groundwater water where possible.

If wastewater bypass is required:

- pressure test hoses before, and monitor during bypass
- monitor wastewater flows to ensure critical flows are not reached
- stop bypass if leaks occur
- bund access chambers
- contain wastewater spills and pump back to wastewater system or disposal tanker.

Store all chemicals and fuels in accordance with relevant Australian Standards and Safety Data Sheets. Record stored chemicals on site register. Ensure bunded areas have 110% capacity of the largest chemical container, or an additional 25% capacity of the total volume stored within (whichever is greater). Tightly secure chemicals and fuels in vehicles. Clearly label all chemicals.

Conduct refuelling, fuel decanting and vehicle maintenance in compounds where possible. If field refuelling is necessary, designate an area away from waterways and drainage lines with functioning spill kits close by.

No wash down of equipment permitted onsite.

Ensure equipment is leak free. Repair oil/fuel leaks immediately or remove from site and replace with a leak-free item.

## Flora and fauna

Provided it is essential for delivering the project, Sydney Water's Project Manager can approve the following vegetation removal and tree trimming, without additional environmental assessment (but only after consultation with

## Mitigation measures

the Environmental and Community Representatives and affected landowners). Sydney Water considers vegetation removal in these circumstances has minimal environmental impact.

- Any minor:
  - vegetation trimming or
  - removal of exotic vegetation or
  - removal of planted native vegetation
  - where the vegetation is not a threatened species (including a characteristic species of a threatened community or population), heritage listed, in declared critical habitat or in a declared area of outstanding biodiversity value.
- Any removal of remnant vegetation where there is no net change to environmental impact (eg a different area of vegetation is removed but the total area is the same or less than assessed in the EIA).

Written explanation of the application of this clause (including justification of the need for trimming or removal and any proposed revegetation) should be provided when seeking Project Manager approval. Any impacts to native vegetation and trees must be offset in accordance with the Biodiversity Offset Guideline ([SWEMS0019.13](#)).

Physically delineate vegetation to be cleared and/or protected on site and install appropriate signage prior to works commencing.

Adjust methodology (eg avoid area, hand excavate, implement exclusion fencing) to protect sensitive areas where possible (such as mature trees, known threatened species, populations or ecological communities).

Inspect vegetation for potential fauna prior to clearing or trimming. If fauna is present, or ecological assessment has determined high likelihood of native fauna presence (including hollow bearing trees), engage WIRES or a licenced ecologist to inspect and relocate fauna before works.

If native fauna is encountered on site, stop work and allow the fauna to move away unharassed. Engage WIRES or a licenced ecologist if assistance is required to move fauna.

If any threatened species (flora or fauna) is discovered during the works, stop work immediately and notify the Sydney Water Project Manager. Work will only recommence once the impact on the species has been assessed and appropriate control measures implemented.

If any damage occurs to vegetation outside of the site (as shown in the CEMP), notify the Sydney Water Project Manager and Environmental Representative so that appropriate remediation strategies can be developed.

Manage biosecurity in accordance with:

- *Biosecurity Act 2015* (see NSW Weedwise), including reporting new weed infestations or invasive pests
- Contemporary bush regeneration practices, including disposal of sealed bagged weeds to a licenced waste disposal facility.
- Record Pesticides and Herbicides use in accordance with [SWEMS0017](#).

Bag all plant parts and excavated topsoil that may be infested with weed propagules and dispose at a licensed waste disposal facility.

Approved clearing area to be delineated using fluorescent flagging tape/bunting or similar.

Trimming of the foliage of trees containing habitat features would require a pre-clearing inspection by a suitably qualified ecologist/spotter-catcher.

If clearing of native vegetation is required outside the Proposal Area, these areas will require additional assessment by an ecologist for potential threatened flora, and threatened fauna species and their habitats.

## Mitigation measures

Whilst no priority weeds were identified on site, a number of weeds were identified including: *Cardiospermum grandiflorum* (Balloon Vine), *Senecio madagascariensis* (Fireweed), *Solanum nigrum* (Black-berry Nightshade) and *Alternanthera philoxeroides* (Alligator Weed). These weeds within the Proposal Area need to be managed in line with recommendations from NSW WeedWise and removed and disposed of at a registered waste management facility.

- All equipment and plant machinery to be appropriately cleaned before the start of works.
- If herbicide is to be used, this must be applied by a person trained to do so and that has a certificate of competency, or a statement of attainment issued by a registered training organisation. Herbicide will only be used in accordance with the label/permit.
- Weed management and biosecurity plan/protocols with appropriate mitigation measures will be established and implemented to avoid spread and establishment of weeds.

## Heritage

Do not make publicly available or publish, in any form, Aboriginal heritage information on sites / potential archaeological deposits, particularly regarding location.

Repeat the basic AHIMS search if it is older than 12 months. Conduct additional assessment if new sites are registered and could be impacted by the works.

If any Aboriginal object or non-Aboriginal relic is found, cease all excavation or disturbance in the area and notify Sydney Water Project Manager in accordance with [SWEMS0009](#).

## Noise and vibration

Works must comply with the EPA Construction Noise Guideline (Draft, 2021), including scheduling work and deliveries during standard daytime working hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturday. No work to be scheduled on Sunday nights or public holidays. Any proposed work outside of these hours must be justified.

The Proposal will also be carried out in accordance with Sydney Water's Noise Management Procedure.

All reasonable and feasible noise mitigation measures should be justified, documented and implemented on-site to mitigate noise impacts.

Incorporate standard daytime hours noise management mitigation measures into the CEMP, including but not limited to:

- Identify and consult with the potentially affected residents prior to commencement of works. This should:
  - describe the nature of works, the expected noise impacts, approved hours of work, duration, complaints handling and contact details
  - determine need for, and appropriate timing of respite periods (eg times identified by the community that are less sensitive to noise such as mid-morning or mid-afternoon for works near residences).
- Implement a noise complaints handling procedure.
- Do not warm-up plant or machinery near residential dwellings before the nominated working hours.
- Select appropriate plant for each task, to minimise the noise impact (eg all stationary and mobile plant will be fitted with residential type silencers).
- Do not use engine brakes when entering or leaving the work site(s) or within work areas.
- Regularly inspect and maintain equipment in good working order.
- Arrange work sites where possible to minimise noise (eg generators away from sensitive receivers, site set up to minimise use of vehicle reversing alarms, site amenities and/ or entrances away from noise sensitive receivers).



## Mitigation measures

- Use natural landforms/ mounds or site sheds as noise barriers.

Schedule noisy activities around times of surrounding high background noise (local road traffic or when other noise sources are active).

As works beyond standard daytime hours may occur (beyond those identified in this REF), the Delivery Contractor would:

- Justify the need for out of hours work (OOHW) and why it is not possible to carry out the works during standard daytime hours
- Consider potential noise impacts and implement the relevant standard daytime hours mitigation measures, follow Sydney Water's Noise Management Code of Behaviour (SWEMS0056.01) and document all reasonable and feasible management measures to be implemented
- Identify additional community notification requirements and outcomes of targeted community consultation
- Seek approval from the Sydney Water Project Manager in consultation with the environment and communications representatives.

## Air and energy

Use alternatives to fossil fuels where practical and cost-effective.

Track energy use as per [SWEMS0015.28 Contractor NGER template](#).

Minimise the potential for odours (eg minimise the number of open access chambers, close maintenance holes overnight.)

Ensure odour control measures are available and ready to use during the works.

Maintain equipment in good working order, comply with the clean air regulations of the *Protection of the Environment Operations Act 1997*, have appropriate exhaust pollution controls, and meet Australian Standards for exhaust emissions.

Switch off vehicles/machinery when not in use.

Implement measures to prevent offsite dust impacts, for example:

- Water exposed areas (using non-potable water source where possible such as water from excavation pits).
- Cover exposed areas with tarpaulins or geotextile fabric.
- Modify or cease work in windy conditions.
- Modify site layout (place stockpiles away from sensitive receivers).
- Vegetate exposed areas using appropriate seeding.

Cover all transported waste.

## Waste generation

Manage waste in accordance with relevant legislation and maintain records to show compliance eg waste register, transport and disposal records. Record and submit [SWEMS0015.27 Contractor Waste Report](#).

Provide adequate bins for general waste, hazardous waste and recyclable materials.

Minimise stockpile size and ensure delineation between different stockpiled materials.

## Mitigation measures

Minimise the generation of waste and sort waste streams to maximise reuse/recycling in accordance with the legislative requirements.

Manage waste and excess spoil in accordance with the NSW EPA Resource Recovery Orders and Exemptions (if applicable) and / or Waste Classification Guidelines. Where materials are not suitable or cannot be reused onsite or offsite, recycle where appropriate. Recycle soils at a licensed soil recycling facility or dispose at an appropriately licenced landfill facility.

Prevent pollutants from escaping including by covering skip bins.

Dispose excess vegetation (non-weed) that cannot be used for site stabilisation at an appropriate green waste disposal facility.

If fibro or other asbestos containing material is identified, restrict access and follow Sydney Water's Asbestos Management – Minor Works procedure, Document Number 746607 and SafeWork NSW requirements. Contact Sydney Water Project Manager (who will consult with Property Portfolio Environmental team [propertyenvironmental@sydneywater.com.au](mailto:propertyenvironmental@sydneywater.com.au)).

Manage lead paint in accordance with the WHS Regulation (2017) Part 7.2 and the Australian Standard Lead Paint Management Guidelines. Consult with Property Portfolio Environmental team where works involve removal of lead-based paint. Develop a Lead Management Plan if required.

Review existing hazardous building materials (HBM) report and implement relevant mitigation measures. Conduct hazardous materials survey prior to commencement where works could impact hazardous materials not surveyed in previous HBM assessments.

## Traffic and access

Develop management measure to minimise traffic impacts near residential properties, schools and businesses by consulting with them (eg no major materials deliveries at school drop off or pick up times etc).

Manage sites to allow people to move safely past the works, including alternative pedestrian, bicycle, pram and wheelchair access.

Consult with the relevant traffic authority about managing impacts to pedestrian traffic, signposting, meters, parking, line-marking or if traffic control or pavement restoration is required.

Erect signs to inform road users of the proposed works and any temporary road closures.

Ensure work vehicles do not obstruct vehicular or pedestrian traffic, or private driveway, public facility or business access unless necessary and only if appropriate notification has been provided.

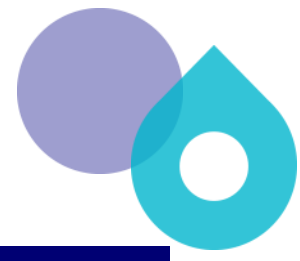
## Social and visual

Undertake works in accordance with Sydney Water Communications policies and requirements including:

- Notify impacted residents and businesses.
- Erect signs to inform the public on nature of work.
- Treat community enquiries appropriately.

Minimise visual impacts (eg retain existing vegetation where possible).

Direct artificial light away from sensitive receivers where possible (ie residents, fauna or roadways).



## Mitigation measures

Maintain work areas in a clean and tidy condition.



## Appendix A – Section 171 checklist

Section 171 checklist	REF finding
Any environmental impact on a community	There may be minor impacts on the community from loss of flora, air quality, visual amenity and minor changes in water and drainage patterns. However, there will be environmental improvements by reducing the existing odour issues and providing a reliable wastewater service to the local community.
Any transformation of a locality	The proposal would introduce new infrastructure adjacent to SP0213. The proposal may have minor visual impacts although it is not anticipated to have a significant impact on the locality and would provide a reliable wastewater system.
Any environmental impact on the ecosystems of the locality	The proposal will not result in any significant environmental impacts to ecosystems of the locality. The proposal will lead to environmental improvements by reducing the existing odour issues and ensuring a reliable wastewater service to collect and treat wastewater, minimising any impacts on the ecosystem.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	The proposal will not significantly reduce the aesthetic, recreational, scientific or other environmental quality or value of the locality. The proposal would introduce new infrastructure in the locality, this would however reduce the existing odour issues and provide a reliable wastewater service to the local community.
Any effect upon a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or any other special value for present or future generations	The proposal will not have any significant effect upon a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or any other special value for present or future generations. The proposal would introduce new infrastructure at the site, however this would reduce the existing odour issues and provide a reliable wastewater service to the local community.
Any impact on the habitat of any protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i> )	The proposal will not have any impact on the habitat of protected animals.
Any endangering of any species of animal or plant or other form of life, whether living on land, in water or in the air	The proposal will not be endangering any species of animal, plant or other form of life, whether living on land, in water or in the air.
Any long-term effects on the environment	The proposal may have long-term impacts on the environment though the introduction of new additional infrastructure, but will have a long-term benefit by reducing odour issues and providing a reliable and modern wastewater service for the area.
Any degradation of the quality of the environment	The proposal will not cause the degradation of the quality of the environment.
Any risk to the safety of the environment	The proposal will not increase risk to the safety of the environment.

Section 171 checklist	REF finding
Any reduction in the range of beneficial uses of the environment	The proposal reduce the amount of available space for recreation. This would however not significantly reduce the range of beneficial uses of the environment.
Any pollution of the environment	Environmental mitigation measures will reduce the existing odour issues and mitigate the potential for the proposal to pollute the environment. No pollution of the environment is expected.
Any environmental problems associated with the disposal of waste	Waste disposal will be in accordance with the environmental mitigation measures, and no environmental problems associated with the disposal of waste are expected.
Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	The proposal will not increase demand on resources, that are, or are likely to become, in short supply.
Any cumulative environmental effect with other existing or likely future activities	The proposal will not have any cumulative environmental effect with other existing or likely future activities.
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	The proposal will not have any impact on coastal processes or hazards, and coastal processes and coastal hazards will not have any impact on the proposal.
Any applicable local strategic planning statements, regional strategic plans or district strategic plans made under the EP&A Act, Division 3.1	There are no applicable strategic planning statements or plans.
Any other relevant environmental factors.	The proposal has been assessed against the factors listed above, and there are no other relevant environmental factors to consider.

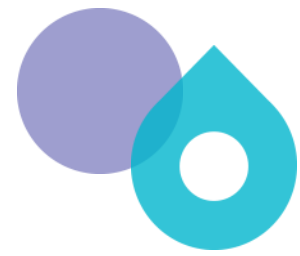


## Appendix B – Consideration of principles of ecologically sustainable development (ESD)

Principle	Proposal alignment
<p><b>Precautionary principle</b> - <i>if there are threats of serious or irreversible environmental damage, lack of scientific uncertainty should not be a reason for postponing measures to prevent environmental degradation. Public and private decisions should be guided by careful evaluation to avoid serious or irreversible damage to the environment where practicable, and an assessment of the risk-weighted consequences of various options.</i></p>	<p>The proposal will not result in serious or irreversible environmental damage and mitigation measures have been designed to reduce scientific uncertainty relating to the proposal.</p>
<p><b>Inter-generational equity</b> - <i>the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.</i></p>	<p>The proposal will help to meet the needs of future generations by providing a reliable wastewater service with improvements in odour issues.</p>
<p><b>Conservation of biological diversity and ecological integrity</b> - <i>conservation of the biological diversity and ecological integrity should be a fundamental consideration in environmental planning and decision-making processes.</i></p>	<p>The proposal will not significantly impact on biological diversity or impact ecological integrity. The proposal would remove one tree from Carrawood Park (<i>Eucalyptus amplifolia</i>), this would have a minor impact and be offset with the planting of 3 trees.</p>
<p><b>Improved valuation, pricing and incentive mechanisms</b> - <i>environmental factors should be included in the valuation of assets and services, such as 'polluter pays', the users of goods and services should pay prices based on the full life cycle costs (including use of natural resources and ultimate disposal of waste) and environmental goals</i></p>	<p>The proposal will provide cost efficient use of resources and provide optimum outcomes for the community and environment.</p>

## Appendix C – Consideration of TISEPP consultation

TISEPP section	Yes	No
<b>Section 2.10, council related infrastructure or services – consultation with council</b>		
Will the work:		
Potentially have a substantial impact on stormwater management services provided by council?		X
Be likely to generate traffic that will strain the capacity of the road system in the LGA?		X
Connect to, and have a substantial impact on, the capacity of a council owned sewerage system?		X
Connect to, and use a substantial volume of water from a council owned water supply system?		X
Require temporary structures on, or enclose, a public space under council's control that will disrupt pedestrian or vehicular traffic that is not minor or inconsequential?		X
Excavate a road, or a footpath adjacent to a road, for which the council is the roads authority, that is not minor or inconsequential?		X
<b>Section 2.11, local heritage – consultation with council</b>		
Is the work likely to affect the heritage significance of a local heritage item, or of a heritage conservation area (not also a State heritage item) more than a minor or inconsequential amount?		X
<b>Section 2.12, flood liable land – consultation with council</b>		
Will the work be on flood liable land (land that is susceptible to flooding by the probable maximum flood event) and will works alter flood patterns other than to a minor extent?		X
<b>Section 2.13, flood liable land – consultation with State Emergency Services</b>		
Will the work be on flood liable land (land that is susceptible to flooding by the probable maximum flood event) and undertaken under a relevant provision*, but not the carrying out of minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance? * (e) Div.14 (Public admin buildings), (g) Div.16 (Research/ monitoring stations), (i) Div.20 (Stormwater systems)?		X
<b>Section 2.14, development with impacts on certain land within the coastal zone– council consultation</b>		
Is the work on land mapped as coastal vulnerability area and inconsistent with a certified coastal management program?		X
<b>Section 2.15, consultation with public authorities other than councils</b>		
Will the proposal be on land adjacent to land reserved under the <i>National Parks and Wildlife Act 1974</i> or land acquired under Part 11 of that Act? <i>If so, consult with DPE (NPWS).</i>		X
Will the proposal be on land in Zone C1 National Parks and Nature Reserves or on a land use zone that is equivalent to that zone? <i>If so, consult with DPE (NPWS).</i>		X
Will the proposal include a fixed or floating structure in or over navigable waters? <i>If so, consult TfNSW.</i>		X
Will the proposal be on land in a mine subsidence district within the meaning of the <i>Coal Mine Subsidence Compensation Act 2017</i> ? <i>If so, consult with Subsidence Advisory NSW.</i>		X
Will the proposal be on land in a Western City operational area specified in the <i>Western Parkland City Authority Act 2018</i> , Schedule 2 and have a capital investment value of \$30 million or more? <i>If so, consult the Western Parkland City Authority.</i>		X
Will the proposal clear native vegetation on land that is not subject land (ie non-certified land)? <i>If so, notify DPE at least 21 days prior to work commencing. (Requirement under s3.24 Chapter 3 Sydney Region Growth Centres - of the SEPP (Precincts – Central River City) 2021).</i>		X



## Appendix D – Biodiversity Memorandum

SW 54 03/24

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