

# Review of Environmental Factors

## Mt Pleasant Reservoir Roof Repair and Relining

### 1 Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of Mt Pleasant Reservoir Roof Repair and Relining. 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 potential construction environmental impact of the proposal is the impact to biodiversity, noise and air quality. During operation, no impacts are anticipated. 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: 13/02/2025	 Grace Corrigan Environment Representative Sydney Water Date: 26/02/2025	 Elena Zabolotskikh Project Manager Sydney Water Date: 12/03/2025	 Murray Johnson Environment and Heritage Senior Manager Sydney Water Date: 25/03/2025

## 2 Proposal description

**Table 1** Description of proposal

Aspect	Detailed description
Proposal need and objectives	<p>The roof of the Mt Pleasant Reservoir (WS0157) is in poor condition and needs to be repaired (the proposal). The proposal is part of the reservoir renewals program. This program is required to meet Sydney Water's commitment to ensure ongoing safety and security of water supply.</p> <p>WS0157 was constructed in 1961 and is located within the Illawarra North Distribution System, in Mt Pleasant Water Supply Zone and Cabbage Tree Creek catchment area.</p> <p>The objective of this proposal is to:</p> <ul style="list-style-type: none"><li>• protect public health and the environment</li><li>• ensure that the water quality is maintained</li><li>• improve the reliability and performance of the reservoir</li><li>• avoid internal corrosion of the walls, and roof failure</li><li>• optimise the service life and improve the safety of Mt Pleasant Reservoir (WS0157), including access to the reservoir</li><li>• meet the objectives of the Reservoir Decision Framework, identifying and refurbishing assets that satisfy the selection criteria.</li></ul>
Consideration of alternatives/options	<p>The following repair options were identified in an Option Review Report (November 2023):</p> <ul style="list-style-type: none"><li>• Option 1: do nothing</li><li>• Option 2: internal lining and minor repairs</li><li>• Option 3: minor repairs followed by internal lining and roof replacement</li><li>• Option 4: minor repairs followed by reservoir replacement (steel tank)</li><li>• Option 5: minor repairs followed by reservoir replacement (concrete tank).</li></ul> <p>The report identified Option 2: internal lining and minor repairs as the preferred option. This option is preferred as it would best meet the project objectives, extend the life of the reservoir the longest and be the most cost efficient option.</p>
Proposal description and methodology	<p>The proposal would involve the following scope of works (refer to Figure 1 for the site layout):</p> <ul style="list-style-type: none"><li>• Establishing site including site amenities, signage, installation of hardstand, driveway upgrade, excavations, and vegetation trimming and removal</li><li>• Installing a temporary tank and footings</li><li>• Dewatering of the reservoir and switch reservoir offline</li><li>• Repair existing roof infrastructure including columns</li></ul>

Aspect	Detailed description
	<ul style="list-style-type: none"> <li>• Removing of internal bitumen coating through manual scraping and surface abrasive blasting</li> <li>• Relining of internal walls</li> <li>• Installing a new stair tower</li> <li>• Recommissioning of WS0157</li> <li>• Demobilising site.</li> </ul> <p>Indicative list of plant and equipment for the proposal:</p> <ul style="list-style-type: none"> <li>• abrasive blasting equipment</li> <li>• air compressors</li> <li>• crane</li> <li>• generators</li> <li>• hand tools</li> <li>• light vehicles</li> <li>• scaffolds</li> <li>• scissor lift</li> <li>• skip bins</li> <li>• storage containers</li> <li>• tip trucks.</li> </ul>
Location and land ownership	WS0157 is located in Lot 1 DP 89415 (the site), which is on Parrish Avenue, Mount Pleasant. The land is owned by Sydney Water.
Site establishment and access tracks	Vehicle access to the site is via an access gate located off Parrish Avenue with a sealed driveway providing access from the street to the base of the reservoir. The driveway would be upgraded as part of this proposal to allow access for heavy vehicles.
Ancillary facilities (compounds)	Construction compound will likely be required to house site sheds, construction amenities and materials laydown. An indicative location for the compounds are shown on Figure 1.
Work hours	<p>Work and deliveries will be scheduled during standard daytime hours:</p> <ul style="list-style-type: none"> <li>• 7am to 6pm, Monday to Friday</li> <li>• 8am to 1pm, Saturdays.</li> </ul> <p>The proposal is not expected to require work outside these hours. However, Sydney Water's Project Manager can approve work outside of standard daytime hours. The approval process is described in the mitigation measures in Section 6.</p>
Proposal timing	Construction is expected to start mid 2025 and take about 8 months.



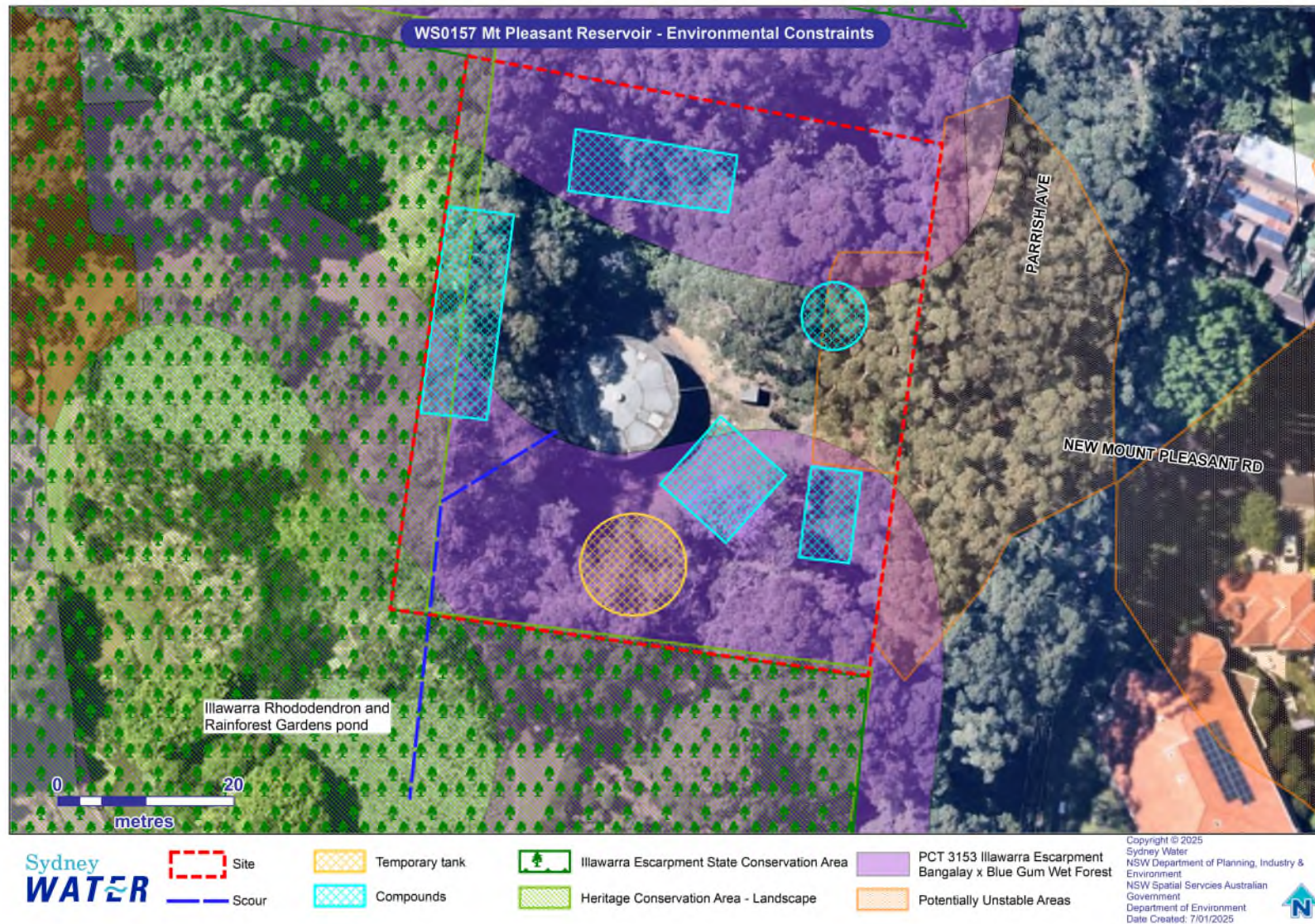


Figure 1 Location of proposal and environmental constraints



### 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.

We will also provide local councils with reasonable notice when we would like to commence works. Wollongong 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). Further detail is provided in Appendix C.

The proposal will not directly impact on land administered under the *National Parks and Wildlife Act 1974*. However, the proposal area is adjacent to the Illawarra Escarpment State Conservation Area which is an area reserved under the *National Parks and Wildlife Act 1974*. In accordance with section 2.15(2)(a) of the TISEPP, the Department of Planning and Environment (National Parks & Wildlife Service – NPWS) were notified about the proposal on 11 April 2024. NPWS enquired about the anticipated dates and times of the proposal on 11 April 2024. When provided with more information, NPWS requested that the proposal:

- consider the NPWS guideline: *Development adjacent to National Parks and Wildlife Services land* (DPIE, 2020)
- obtain consent to discharge water into their land once this REF is approved in line with clause 13(2) of the National Parks Wildlife Regulation 2019.




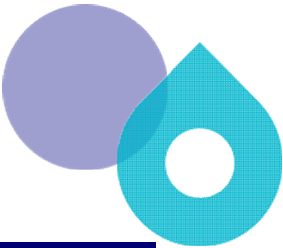
## 4 Legislative requirements

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

Environmental Planning Instrument	Relevance to proposal
Wollongong Local Environmental Plan 2009	The proposal is located on land zoned Low Density Residential (R2).
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)	<p>Section 2.159 of the TISEPP permits development by or on behalf of a public authority for water reticulation systems without consent on any land.</p> <p>Section 2.158 of the TISEPP defines that water reticulation systems also include water supply reservoirs.</p> <p>As Sydney Water is a public authority, the proposal is permissible without consent.</p>
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP)	<p><b>Vegetation in non-rural areas (Chapter 2)</b></p> <p>The proposal is in an area and/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 the BCSEPP is not required.</p> <p><b>Koala Habitat Protection (2020 and 2021) (Chapters 3 and 4)</b></p> <p>The proposal site is on land zoned Koala Habitat Protection, under section 4.4 of the BC SEPP. As the proposal is undertaken per Part 5 of the EP&amp;A Act, and the site is less than 1 hectare, Chapter 4 of the BCSEPP is not applicable.</p>

**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> (POEO Act)	<p>An Environmental Protection Licence (EPL) does not apply to the proposal.</p> <p>Chapter 5 of the POEO Act defines different types of pollution incidents. Part 5.7 of the POEO Act specifies the duty to notify harm to the environment where there is actual or potential environmental harm. Should one of these incidents occur during construction, the response and investigation to the incident would follow SWEMS0009 - Responding to incidents with an environmental impact.</p>	NA	NA

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
<i>Biodiversity Conservation Act 2016</i> (BC Act)	<p>No threatened species, ecological communities or their habitats listed under the BC Act are anticipated to be impacted by the proposal.</p> <p>Tree removal will be required for the proposed work and will be managed in accordance with the mitigation measures in Section 6.</p>	NA	NA
National Parks Wildlife Regulation 2019	Consent to discharge water into NPWS land (via an existing scour, see Figure 1) is required in line with clause 13(2) of the regulation.	Consent	Post REF approval

## 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
<b>Topography, geology and soils</b>	<p>The site is on land which slopes down to the south east, from about 230 to 219 metres Australian Height Datum. There are potentially unstable areas in the eastern areas of the site. No areas of salinity or acid sulfate soils were identified within the site. There is a low risk of encountering contaminated soils.</p> <p>Minor excavation up to 0.5 metres deep would be required to install hardstand for construction compounds, the temporary tank and shallow trenching. The impact from the excavations would be minor and localised with implementation of mitigation measures. Local topography would not be substantially altered during construction and operation.</p> <p>There is the potential for soil to become contaminated through accidental chemical or fuel spills and leaks from construction plant and equipment, and maintenance activities during operation.</p> <p>Potential topography, geology and soil impacts will be managed by implementing the mitigation measures listed in Section 6.</p>
<b>Water and drainage</b>	<p>The nearest waterway is an unnamed tributary of Cabbage Tree Creek, about 85 metres south of the site.</p> <p>Before repairing the reservoir roof, the water in the reservoir would be reduced to a low level through customer use of water. The remaining water would then be dewatered into the environment via an existing scour into Illawarra Rhododendron and Rainforest Gardens. Water will be discharged in accordance with Sydney Water's discharge protocol and the pending NPWS consent to prevent any water quality impacts.</p> <p>The proposal would introduce temporary structures within the site. The increase in impervious surfaces and structures may alter surface water flow and drainage patterns within the site. The minor change in surface water flows and drainage patterns is not anticipated to have a significant impact. Groundwater is not anticipated to be found during construction works due to shallow excavation depths for construction. No flooding risk is anticipated.</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, nearby waterway or local stormwater system. Minimal wastewater is expected to be generated during construction. Any fuels and chemicals required to be stored on site will be securely bunded.</p> <p>Potential impacts to water and drainage will be managed by implementing the mitigation measures listed in Section 6.</p>



Aspect	Potential impacts
<b>Flora and fauna</b>	<p>There are no groundwater dependent ecosystems or threatened flora and fauna species sighting records within 200 metres of the site. The site is within bushfire prone land.</p> <p>There is one Plant Community Type (PCT) mapped within the site: PCT 3153 Illawarra Escarpment Bangalay x Blue Gum Wet Forest. PCT 3153 does not have any associated Threatened Ecological Communities.</p> <p>An Arboricultural Impact Assessment was completed by Canopy Consulting to assess the impacts to trees within the site due to the proposal, refer to Appendix D. There are 39 trees within the site, of which 19 require removal, refer to Figure 2.</p> <p>Most (18) of the trees would be removed due to construction activities significantly encroaching on the tree protection zone. One tree is to be removed as it is not stable and may collapse.</p> <p>The removal of the trees is required for the installation of the temporary tank, facilitate access and functionality of the crane and establishment of construction compounds. The location of the temporary tank was chosen as it is the closest location for connecting to WS0157. This would reduce the amount of trenching required for the installation of assets within the site, compared to other locations. Trimming may occur within the site to allow for construction activities.</p> <p>Due to the removal of the trees, offsetting in line with the Sydney Water Biodiversity Offset Guideline (2025) would be undertaken. Of the 19 trees, 5 are locally native and would be offset with a 2:1 multiplier, the remaining 14 trees (8 non-locally native and 6 exotic) would be offset 1:1.</p> <p>The site is adjacent to the Illawarra Escarpment State Conservation Area. Construction works for the proposal, including the removal or trimming of vegetation, would not occur in the conservation area. There may however be indirect impacts to nearby fauna from construction noise.</p> <p>Potential impacts to threatened flora habitat are anticipated due to the loss of vegetation. This vegetation removal would cause potential reduction of habitat for threatened fauna. Given the small scale of impact and few nearby sightings, this is not anticipated to have a significant impact to potential habitat.</p> <p>With the implementation of mitigation measures in Section 6 and the minor nature of the proposed works, it is unlikely that the proposal would result in a significant biodiversity impact or bushfire increase risk.</p>

## Heritage


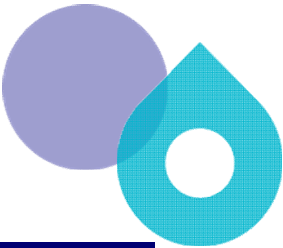
### Non-Aboriginal heritage

Illawarra Escarpment Landscape Area is a local heritage item adjacent to the site. The heritage item is located outside of the site and would not be directly impacted.

The scour discharge would go through the heritage item (Illawarra Escarpment Landscape Area) into the Illawarra Rhododendron and Rainforest Gardens. This is unlikely to have an impact on the heritage item or value. Potential impacts to heritage will be managed by implementing the mitigation measures listed in Section 6.

Aspect	Potential impacts
	<p><b>Aboriginal heritage</b></p> <p>No known Aboriginal heritage items are within 200 metres of the site. The proposal is within 200 metres of a high-risk area (waterways) for finding unexpected archaeological items. However, the likelihood of encountering previously unknown archaeological items is considered low due to previous disturbance of the site.</p>
<p><b>Noise and vibration</b></p>	<p><b>Noise</b></p> <p>The proposal is within a semi-rural setting, with the closest residential receiver 25 meters east of the site. The existing noise environment is influenced by infrequent road traffic. The works would generate noise during construction from the operation of machinery and equipment. Works are proposed to be carried out over 5 shifts per week (i.e. Monday through Friday 7am to 6pm). Construction would occur during standard daytime hours and is expected to take about 8 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 site. The noise assessment was performed using the Transport for NSW Construction and Maintenance Noise Estimator. The modelled scenarios comprised of the following inputs:</p> <ul style="list-style-type: none"> <li>• Representative noise environment – R2</li> <li>• Distance based noisiest plant – abrasive blasting</li> <li>• Line of sight to the receiver – Yes.</li> </ul> <p>The worst-case noise impacts during the day is up to 110 metres, as shown in Figure 3. The noisiest works would be the abrasive blasting, this would occur within the reservoir and would occur intermittently over about 31 days. The abrasive blasting would predominantly be located within the reservoir, therefore the line of sight assessment has been a conservative assumption. Noisy works would impact the same receivers throughout construction. The figure displays the predicted level of noise intrusiveness at different distances. The level of noise intrusiveness has different recommended mitigation measures, these 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><b>Vibration</b></p> <p>It is anticipated that the works would involve minor vibratory activities such as the use of an abrasive blaster. There are no structures adjacent to the reservoir that may be impacted by the minor vibratory activities. No vibration impacts are anticipated.</p>

Aspect	Potential impacts
<b>Air and energy</b>	<p>The sensitive receivers which may be impacted by changes to air quality are the residents nearest to site. The closest receiver is about 25 metres east of the site boundary.</p> <p>Dust and pollution impacts may result from:</p> <ul style="list-style-type: none"> <li>• dust generated during excavation</li> <li>• dust generated by construction vehicles travelling on disturbed/ unsealed access routes or on unsealed laydown areas or road verges</li> <li>• emissions from machinery, equipment and vehicles used during construction.</li> </ul> <p>No odour issues are expected during construction due to the low risk of encountering acid sulfate soils or any other contamination. Odour is typically not generated during construction of drinking water assets.</p> <p>The proposal would require minor excavation works and has limited nearby sensitive receivers. Air quality impacts from dust generation are considered to be negligible.</p> <p>The proposal would require increased energy for the construction and operation of the proposal 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.</p> <p>Potential construction air quality impacts would be managed by implementing the mitigation measures listed in Section 6.</p>
<b>Waste and hazardous materials</b>	<p>HazCentral identified asbestos, lead paint and polychlorinated biphenyls within the site, including WS0157. Before construction starts the structure would be inspected for these hazardous materials to confirm their location and appropriate removal of the materials.</p> <p>Construction waste streams are anticipated to include:</p> <ul style="list-style-type: none"> <li>• Redundant assets</li> <li>• Domestic waste</li> <li>• Contaminated materials (mentioned above)</li> <li>• Excavated soil</li> <li>• Green waste.</li> </ul> <p>Waste will be stored in separate skip bins or delineated areas within the compound or taken directly off-site to a facility licenced to accept the waste. Recycling or re-use of waste streams such as green waste and concrete is encouraged where possible.</p> <p>Waste and hazardous materials would be managed by implementing the mitigation measures listed in Section 6.</p>

Aspect	Potential impacts
<b>Traffic and access</b>	<p>The site is accessed via a locked gate from a driveway off Parrish Avenue, a local road managed by Wollongong City Council. Parrish Avenue is a dead-end road that terminates about 80 metres north of the site and has no bus routes, bus stops, or formalised footpaths. Parrish Avenue services the site and residential properties therefore traffic volumes along this road are anticipated to be low.</p> <p>At peak construction, up to 12 light vehicles and some infrequent heavy vehicles per shift would access the site. There should be sufficient space within the site for plant, equipment, and vehicle parking. However, if parking outside the site is required, access to nearby residential properties and existing Sydney Water assets would be maintained. It is not expected that any traffic control would be required.</p> <p>Traffic and access would be managed by implementing the mitigation measures listed in Section 6.</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 construction activities are expected to be low, as all the works are partially screened by the retained vegetation, is consistent with the existing use of the site and impacts a limited number of receivers.</p> <p>The impacts to visual amenity during operation would be limited. The new roof would be like for like and the additional infrastructure, such as the new staircase, would be consistent with the existing site. The retained vegetation would screen the additional infrastructure in the site and would not be visible by any nearby residents.</p> <p>With the implementation of the mitigation measures in Section 6, minor social and visual impacts are anticipated during the construction of the proposal.</p>
<b>Cumulative and future trends</b>	<p>WS0157 is an operational site, as such there could be multiple activities that may take place at the same time within the site.</p> <p>Sydney Water is not aware of any planned or future work that will overlap with these works being performed. Development applications currently (February 2025) active or determined in the last 6 months for the suburb of Mount Pleasant relate to localised residential developments and changes to existing buildings.</p> <p>Overall, potential impacts of the proposed works are expected to be minor and localised, and unlikely to make a significant contribution to any cumulative environmental impact on a local or regional scale.</p>



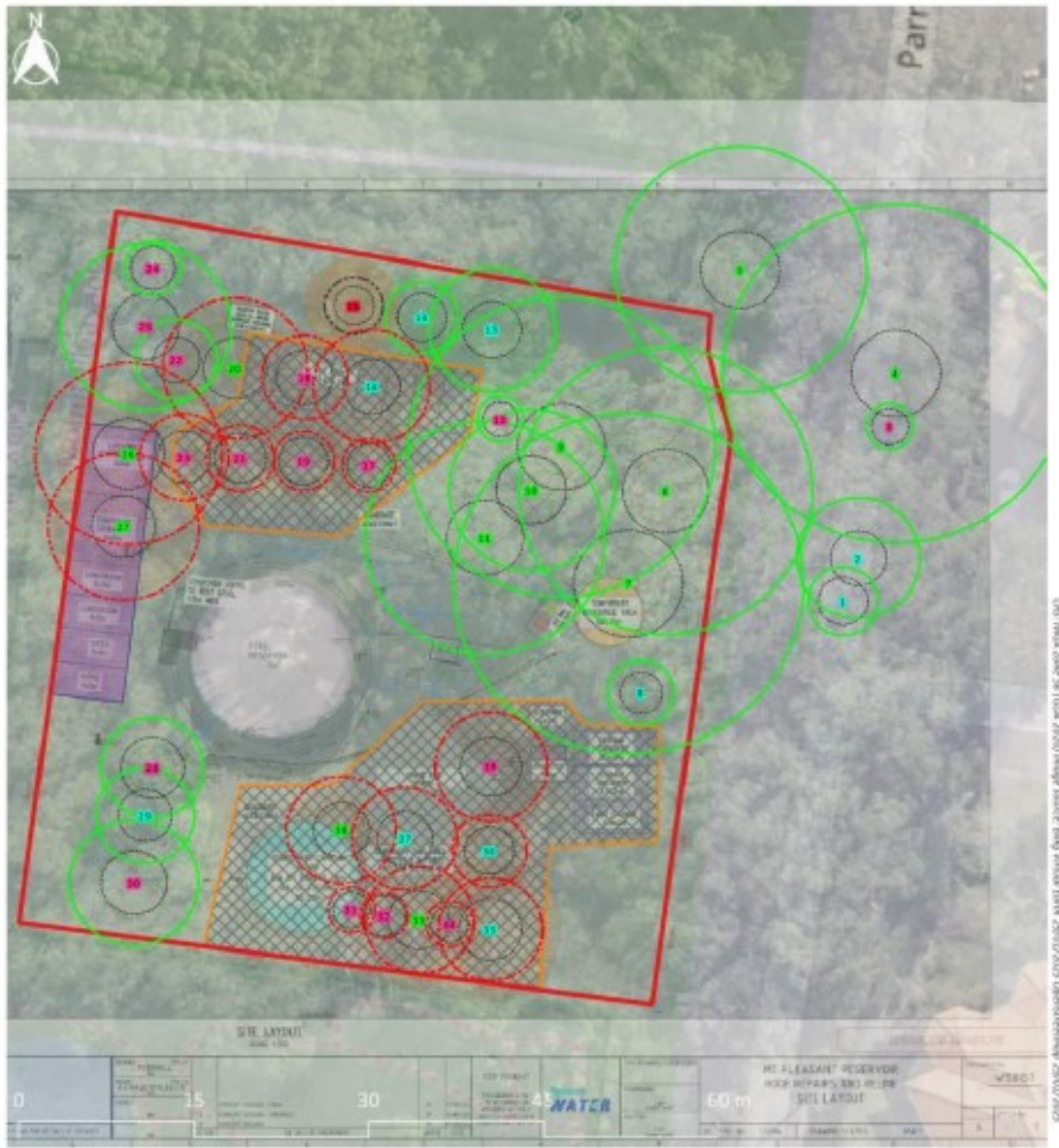


Figure 2 Vegetation impacts of the proposal (Canopy Consulting, 2025)





Figure 3 Potential noise impacts from the proposal

## 6 Environmental mitigation measures

**Table 5** Mitigation measures

### Mitigation measures

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 safeguards 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.

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

- remains within the site for the EIA and has no net additional environmental impact or
- is outside the site for the EIA 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:

- no go areas (e.g. PCTs and boundaries of the site 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.

Prepare an Incident Management Plan (IMP) outlining actions and responsibilities for:

- predicted/onset of heavy rain during works
- spills
- unexpected finds (e.g. heritage and contamination)
- other potential incidents relevant to the scope of works.



## Mitigation measures

All site personnel must be inducted into the IMP.

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

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

Assign single person with accountability for coordinating communication and information flow across contractors and consultants and provide the contact details of this person in the EWMS and/or CEMP.

The CEMP must consider the NPWS guideline: *Development adjacent to National Parks and Wildlife Services land* (DPIE, 2020)

Consent to discharge water into NPWS land (via an existing scour, see Figure 1) is required in line with clause 13(2) of the regulation. Consent conditions given by NPWS must be adhered to.

## 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 Contamination and Hazardous Materials 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.

## Water and drainage

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

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



## Mitigation measures

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 >3 ML per water year (from 1 July), Sydney Water will also obtain a Water Access Licence from DCCEEW. 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).

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.

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.

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 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 vegetationwhere 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 (e.g. 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](#)).

Offset residual impacts to native vegetation and trees in accordance with the Biodiversity Offset Guideline ([SWEMS0019.13](#)).

Of the 19 trees, 5 are locally native and would be offset with a 2:1 multiplier, the remaining 14 trees (8 non-locally native and 6 exotic) would be offset 1:1.

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

Protect trees in accordance with the requirements of Australian Standard 4970-2009 for the Protection of Trees on Development Sites. Do not damage tree roots unless absolutely necessary, and engage a qualified arborist where roots >50 mm are impacted within the Tree Protection Zone.

## Mitigation measures

Inspect vegetation for potential fauna prior to clearing or trimming. If fauna is present, 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 assessed areas for the proposal (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](#).

In TOBAN, activities involving general purpose hot works (that are not essential/emergency works) require an exemption. Exemption requests are to be submitted to [CDResiliencePrograms@sydneywater.com.au](mailto:CDResiliencePrograms@sydneywater.com.au) or [CustomerHub.DutyManager@sydneywater.com.au](mailto:CustomerHub.DutyManager@sydneywater.com.au). Staff and contractors must not contact local RFS directly to seek their own exemption.

## Heritage

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 Draft Construction Noise Guideline (EPA, 2020), 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 SWEMS0056 and Noise Policy for Industry (EPA, 2017).

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 safeguards 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 (e.g. 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 (e.g. all stationary and mobile plant will be fitted with residential type silencers).

## Mitigation measures

- 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 (e.g. 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).
- 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).

If works beyond standard daytime hours are needed, the Delivery Contractor would:

- consider potential noise impacts and implement the relevant standard daytime hours safeguards, 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](#).

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).
- Modify or cease work in windy conditions.

Cover all transported waste.

## Waste and hazardous materials

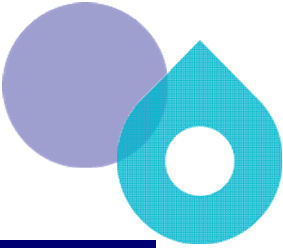
Manage waste in accordance with relevant legislation and maintain records to show compliance e.g. waste register, transport and disposal records. Record and submit [SWEMS0015.27 Contractor Waste Report](#).

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

Minimise stockpile size and ensure delineation between different stockpiled materials.

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



## Mitigation measures

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 the Contamination and Hazardous Materials team).

Manage lead paint in accordance with the WHS Regulation (2017) Part 7.2 and the Australian Standard Lead Paint Management Guidelines. Consult with the Contamination and Hazardous Materials 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 safeguards. Conduct hazardous materials survey prior to commencement where works could impact hazardous materials not surveyed in previous HBM assessments.

## Traffic and access

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.

Restore work sites to pre-existing condition or better.

Minimise visual impacts (e.g. retain existing vegetation where possible).

Maintain work areas in a clean and tidy condition.

## Cumulative impacts

Liaise with operational staff of WS0157 about overlapping work to minimise potential cumulative impacts.



## Appendix A – Section 171 checklist

Section 171 checklist	REF finding
Any environmental impact on a community	There will be impacts on the community from noise and air quality impacts. There will be environmental improvements by providing a reliable water service to the local community.
Any transformation of a locality	The proposal will not result in the transformation of a locality.
Any environmental impact on the ecosystems of the locality	The proposal would involve vegetation removal within the site, this would not result in significant environmental impacts to ecosystems of the locality. There would be environmental improvements by ensuring a reliable water service, 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.
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 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. No direct impacts to any known heritage items are expected.
Any impact on the habitat of any protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i> )	The proposal would involve vegetation removal within the site, this would not result in a significant 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 endanger any species.
Any long-term effects on the environment	The proposal would involve vegetation removal within the site. This will not have any long-term impacts on the environment but will have a long-term benefit by providing a reliable and modern water 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.
Any reduction in the range of beneficial uses of the environment	The proposal will not reduce the range of beneficial uses of the environment.

## Section 171 checklist

## REF finding

Any pollution of the environment

Environmental mitigation measures will 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 may have minor and localised 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

The proposal is part of the reservoir renewals program. This program is required to meet Sydney Water's commitment to ensure ongoing safety and security of water supply.

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.

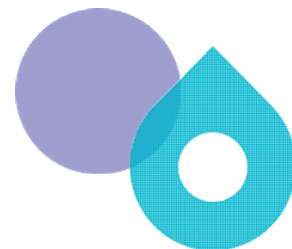
## Appendix B – Consideration of principles of ecologically sustainable development (ESD)

Principle	Proposal alignment
<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>	The proposal would require vegetation removal within the site. The vegetation is not associated with any threatened ecological communities and will be offset in accordance with the Sydney Water Biodiversity Offset Guideline. This will not result in serious or irreversible environmental damage and mitigation measures have been designed to reduce scientific uncertainty relating to the proposal.
<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>	The proposal will help to meet the needs of future generations by providing a reliable water service.
<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>	The proposal would require vegetation removal. The vegetation is not associated with any threatened ecological communities and will be offset in accordance with the Sydney Water Biodiversity Offset Guideline. This will not significantly impact on biological diversity or impact ecological integrity.
<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>	The proposal will provide cost efficient use of resources and provide optimum outcomes for the community and environment.

## 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 – Arboricultural Impact Assessment

