Review of Environmental Factors

West Pennant Hills Water Pumping Station - WP0129 High Voltage Renewal

1 Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of West Pennant Hills Water Pumping Station – WP0129 High Voltage (HV) Renewal. 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 noise, biodiversity and contaminated land and hazardous waste impacts. 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:
[redacted]			
Jennifer Shaw REF author Sydney Water Date: 08/07/2024	Grace Corrigan Environment Representative Sydney Water Date: 09/07/2024	Ian Blair Principal Project Manager Sydney Water Date: 12/07/2024	Murray Johnson Environment and Heritage Manager Sydney Water Date: 12/07/2024

2 Proposal description

Table 1 Description of proposal

Aspect	Detailed description
Proposal need and objectives	The proposal is part of the water pumping station renewals program. The West Pennant Hills Water Pumping Station (WP0129) supplies water to Dural South Reservoir (WS0288), which supplies drinking water to 54,800 people in Dural South Reservoir Zone. High voltage (HV) assets for WP0129 are at the end of, or have exceeded their service life. The objectives of the proposal are to: • renew WP0129 HV assets to improve the reliability of water supply to WS0288 • update switchgears to include remote capability, improve operator safety, and minimise future repair times.
Consideration of alternatives/options	A 'do nothing' approach would leave the HV assets at a high risk of failure. Failure of the assets could result in drinking water supply interruptions to many customers in the Dural South Reservoir Zone. The preferred option is to undertake the proposed HV asset renewal works. By adopting the preferred option, Sydney Water would meet the above objectives of the proposal. Within this, multiple options for the proposed new low voltage (LV) kiosk substation were explored during design development. The LV kiosk substation was agreed based on the following key constraints: • The location of existing underground services. • The kiosk would become an Ausgrid asset during operation and would need to be located close to the property fence for access and maintenance.
Proposal description and methodology	The proposal scope would include: • establishing site including a construction compound and parking area within Sydney Water property • clearing vegetation • constructing and installing new assets: – LV kiosk substation. This would involve excavating and concrete pouring for the foundation and installing a prefabricated Ausgrid kiosk (about 1.4 m (width) by 2.7 m (length) by 2.2 m (height)) – cable route via open trenching (about 36 m length, 1 m width and 1.5 m depth) – outdoor switchboard (LV metering, LV incomer, remote operating panel and Service Protection Device (SPD))

Aspect	Detailed description
	– cable from the new outdoor switchboard to LV switchboard using existing cable tray in the transformer yard. • decommissioning and removing: – redundant existing overhead wiring and associated equipment along the eastern side of the property – existing transformers in the transformer yard at the southern end of the property – existing HV switchgear in the HV switchroom at the southern end of the property. • demobilising and restoring site. Construction plant and equipment would include: • excavator (2 T) • crane • diesel generator • compactor • concrete agitator truck • concrete pump • concrete saw • site facilities and amenities • chainsaw • tip truck (2 T) • street sweeper • light vehicles • skip bins • hand tools • storage containers • vacuum truck • elevated work platform • forklift/telehandler. The proposal and construction footprint are shown in Figure 1.
Location and land ownership	WP0129 is located on Sydney Water property at 139A Victoria Road, West Pennant Hills (Lot A/ DP 389354), within the Hornsby local government area (LGA). The construction footprint would match the Sydney Water property boundary and is shown in Figure 1.
Site establishment and access tracks	Access to the site would be through the secure gate surrounding the property and existing driveway. The site compound and parking area would be located within the Sydney Water property boundary.
Ancillary facilities (compounds)	A construction compound would be required for typical construction activities such as use of site sheds, amenities, parking, materials laydown, and storage of spoil. The compound would be contained within Sydney Water property (refer to the construction footprint in Figure 1).
Work hours	Work and deliveries will be scheduled during standard construction hours:

Aspect	Detailed description
	• 7am to 6pm, Monday to Friday • 8am to 1pm, Saturdays. While most of the proposal is expected to occur during standard construction hours, electrical cutover and isolation works may need to be completed out of hours as dictated by Ausgrid requirements. This could be required out of hours evening and night, anytime between 6pm and 7am. It is anticipated that there would be a maximum of 3 out of hours work shifts required for the whole construction duration. This has been assessed in Section 5 and mitigation measures are provided in Section 6.
Proposal timing	Construction is expected to start late 2024 and take about 10 months.
Operational requirements	During operation, an access easement would be proposed for Ausgrid to access and maintenance their LV kiosk substation asset on Sydney Water property.

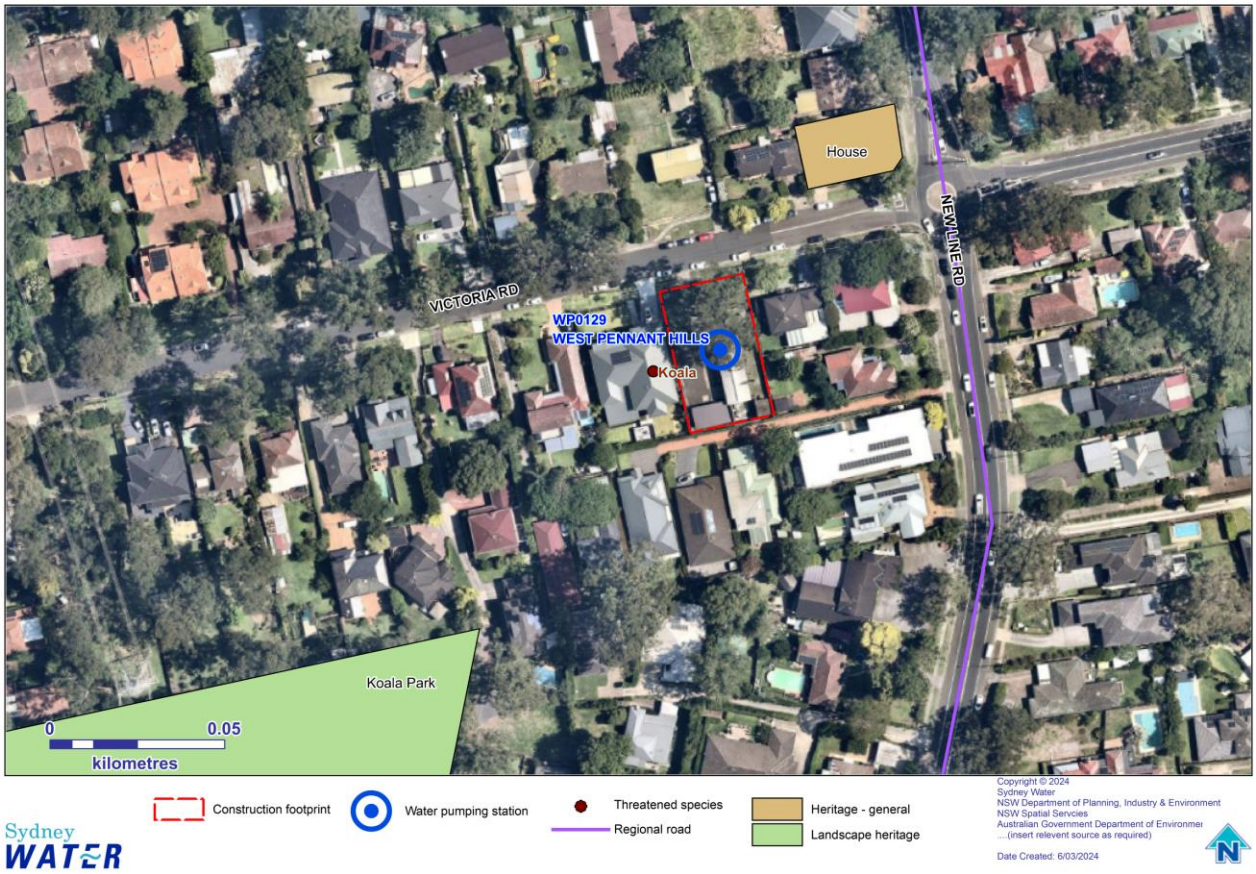

Figure 1 Location of proposal and environmental constraints

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. Hornsby Shire Council will be consulted about matters identified in environmental planning instruments (refer Section 4 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
Hornsby Local Environmental Plan 2013 (Hornsby LEP)	The proposal is located on land zoned R2 - Low Density Residential. The proposal would also be located within 50 m of a local heritage house listed in Schedule 5 of the Hornsby LEP (ID 790). Potential impacts are addressed in Section 5.
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)	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. The Standard Instrument

Environmental Planning Instrument	Relevance to proposal
	definition of water reticulation systems includes pumping stations. The proposal involves development for the purpose of a water reticulation system and is in land zoned R2 – Low Density Residential. As Sydney Water is a public authority, the proposal is permissible without consent.
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BCSEPP)	**Vegetation in non-rural areas (Chapter 2)** The proposal is in an area and 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. **Koala Habitat protection (Chapter 4)** Chapter 4 of this SEPP applies as the proposal is in in the Hornsby LGA. Hornsby Shire Council does not have an approved Koala Plan of Management. However, as the proposal does not require development consent, the development assessment process described in Section 4.9 of the BCSEPP does not apply. Regardless, a Koala (*Phascolarctos cinereus*) sighting was recorded near the proposal. Flora and fauna impacts, including potential impacts to koala, are assessed in Section 5. **Water catchments (Chapter 6)** Chapter 6 of this SEPP applies as the proposal is within the Hawkesbury-Nepean Catchment, a regulated catchment area. Section 5 assesses 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 and meet the requirements of part 6.2 of the SEPP.

Table 3 Consideration of key environmental legislation

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
Biodiversity Conservation Act 2016 (BC Act)	There is a registered Koala (*Phascolarctos cinereus*) sighting in the property adjacent	REF	

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	to the proposal. Koala are listed as Endangered under the BC Act and EPBC Act. The proposal is unlikely to have a significant impact on this species or habitat. Potential impacts can be managed through implementation of the environmental mitigation measures in Section 6.		During construction, contractor
Biosecurity Act 2015 (Biosecurity Act)	The object of the Biosecurity Act is to provide a framework for the prevention, elimination and minimisation of biosecurity risks. A Juvenile Broadleaf Privet (*Ligustrum lucidum*) has been identified within the construction footprint and will be removed as per the general biosecurity duty.	N/A	During construction, contractor
Protection of the Environmental Operations Act 1997 (POEO Act)	The POEO Act is the main piece of NSW legislation covering pollution and waste management. The proposal is not a scheduled activity under the POEO Act. There is a requirement under Part 5.7 of the POEO Act to immediately report any pollution incidents to the relevant authority where material harm to the environment is caused or threatened. The definition of material harm and the relevant authorities are identified in Part 5.7 of the POEO Act. The Contractor is responsible for immediately reporting such incidents in accordance with SWEMS0009 Responding to incidents with an environmental impact.	N/A	During construction

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
Topography, geology and soils	The proposal would be undertaken in an area that has been previously disturbed. The site is relatively flat and not mapped as potentially unstable. Geotechnical investigations were undertaken for the proposal in the location of the LV kiosk substation to investigate the ground bearing capacity. The Geotechnical Interpretive Report (Confluence Water, 2023a) indicated that the site is predominantly underlain by Glenorie Erosional landscape, which is characterised as having a high risk of soil erosion. A Soil Characterisation Report was also prepared (Confluence Water, 2023b) for the proposal. The report assessed samples taken from areas of proposed ground disturbance for the LV kiosk substation and new cable route within the Sydney Water property boundary. The report identified non-friable Asbestos Containing Material (ACM) at sampling location HA2 (refer to Figure 2) at a depth of 0.2 m below ground level (bgl). Classification and management of contaminated fill material is discussed below under Waste and hazardous materials. As described in Table 1, ground disturbing activities required for construction of the proposal include tree removal (including stump removal), excavation for the LV kiosk substation foundation and open trenching to install the new cable route. Potential impacts from excavation or ground disturbance associated with this proposal include: • soil erosion and generation of sediment laden run-off from excavation and soil material stockpiles • inadvertent transfer of soil off-site by work vehicles • mismanagement of contaminated soil during excavation. However, impacts can be managed and mitigated with the application of environmental mitigation measures outlined in Section 6 including preparation of a Contamination Management Plan.
Water and drainage	There are no mapped waterways within 100 m of the proposal and the proposal is not located within a flood planning area. The proposal would not impact on the scenic quality of any specific areas, as outlined in Chapter 6 of the BCSEPP. The proposed construction activities involve excavation of soils, temporary soil stockpiles and the potential storage of fuels and chemicals. These proposed activities have the potential to impact on water quality due to increased erosion and sedimentation from exposed soil and stockpiles. Poor site management has the potential to increase sediment runoff to stormwater, causing turbidity and enhanced sedimentation. Additionally, fuel and chemical spills within the construction footprint during construction could potentially enter stormwater drains and eventually waterways, particularly during high rain events. Implementation of environmental mitigation measures outlined in Section 6 would minimise risk and potential water and drainage impacts.

Aspect	Potential impacts
	Geotechnical investigations (borehole depth of 3 m) undertaken for the proposal did not encounter groundwater in the location of the proposed LV kiosk substation. During construction, excavations on site would be above 3 m and are not anticipated to interact with any groundwater or impact on water quantity. During operation, the proposed LV kiosk substation concrete footing design includes an oil containment bund. As such, the risk of spills to the environment would be minor. No other impacts during operation are anticipated.
Flora and fauna	There are no mapped native vegetation communities within 500 m of the proposal. However, there is native vegetation within the Sydney Water property. An arborist assessment was undertaken on 1 May 2024 (Canopy Consulting, 2024). The proposal would require 4 trees to be removed, as the HV kiosk and earthworks would have major, unmitigable encroachments on their Tree Protection Zones and Structural Root Zones. The arborist also identified a Juvenile Broadleaf Privet (*Ligustrum lucidum*) at the north-western side of the Sydney Water property boundary (Figure 3, labelled T1). This is an exotic species listed as a serious environmental weed. As per the NSW Biosecurity Act general biosecurity duty, this tree would also be removed as part of the proposal. As such, 5 trees would be removed. The remaining 4 trees observed on site will be retained and protected. Details of the trees to be removed are included below: • T1 – Juvenile Broadleaf Privet (*Ligustrum lucidum*), exotic species, identified as an environmental weed. • T3 – Mature Bhutan Cypress (*Cupressus torulosa*), exotic species. • T4 – Mature Sydney Blue Gum (*Eucalyptus saligna*), native species. • T5 – Mature Sydney Blue Gum (*Eucalyptus saligna*), native species. • T8 – Mature Willow-leaved Hakea (*Hakea salicifolia*), native species, identified as dead or hazardous/ irreversible decline. Refer to Figure 3, Photo 1 and Photo 2 for the locations of each tree. No trees were observed to have hollow bearing parts, capable of supporting large fauna. No statutory offsetting applies to the proposal however, Sydney Water provides non-statutory offsets for impacts to biodiversity in accordance with the Biodiversity Offset Guide (Sydney Water, 2024). Removal of locally native trees would be offset using a multiplier of 3:1. Given that 2 locally native trees (*Eucalyptus* sp.) would be removed for the proposal, this will require an offset of 6 locally native trees. In addition, given that 1 exotic tree (Mature Bhutan Cypress) would be removed, this will require an offset of 1 tree. Dead trees with no habitat features and environmental weeds do not require offsetting. As such, the Willow-leaved Hakea and Broadleaf Privet will not be offset. A Koala (*Phascolarctos cinereus*) sighting in the adjacent property was recorded as recently as 2021 (accuracy 10 m). While the Sydney Blue Gum (*Eucalyptus saligna*) is listed as a Koala use tree species in Schedule 3 of the BCSEPP, it is unlikely that the vegetation being removed on Sydney Water property would be preferred habitat due to its fragmented nature, and more highly connected vegetation in the nearby Koala Park (native wildlife park) about 100 m south-east of the proposal, and Cumberland State Forest further south-east. The remaining trees to be removed for the proposal are not

Aspect	Potential impacts
	listed as Koala use tree species. As such, the removal of vegetation for the proposal is unlikely to have a significant impact on Koala. With implementation of the environmental mitigation measures in Section 6 and the minor nature of the proposed work in a previously disturbed area, it is unlikely that the proposal would result in a significant impact to flora and fauna.
Heritage	There is a local heritage house listed on the Hornsby LEP (ID 790) located about 40 m north-east from the proposed works. Direct impacts to the heritage item are not anticipated. Indirect vibration impacts to the heritage listed house from the proposal are not anticipated as vibration intensive equipment would not be used. A basic search of the Aboriginal Heritage Information Management System (AHIMS) register carried out on 28 February 2024 did not identify any AHIMS sites within 200 m of the proposal. The proposal is within a previously disturbed area and impacts to Aboriginal cultural heritage during construction and operation are not anticipated.
Noise and vibration	The likelihood of noise impact from the proposal was reviewed against risk factors (based on Table 2 of the EPA's 2020 Draft Construction Noise Guideline). The review indicated that the construction noise impact would be medium-high risk and therefore a quantitative noise impact assessment was undertaken. The Transport for NSW (TfNSW) Construction and Maintenance noise estimator tool (TfNSW, 2022) was used for the assessment. The purpose of the noise assessment is to assess the predicted worst-case noise impacts to surrounding receivers. Quantifying these impacts will assist in identifying how many receivers may be impacted at different times and during different activities. Where receivers are predicted to experience noise impacts, recommended mitigation measures at different noise impact levels have been identified, which will guide the community engagement for the sites. *Existing environment* The proposal is located within a low-density residential area. There are residential receivers directly adjacent to and surrounding the proposal. The nearest non-residential receiver is a preschool (Adventures Preschool and Long Day Care) about 60 m south-east of the proposal. *Construction noise impacts* Potential construction noise impacts from the proposal are summarised below: • Construction would occur at a single location for about 10 months, surrounded by residential receivers. The majority of the construction would occur during standard construction hours. • Up to 3 consecutive out of hours evening and night shifts may be required any time over the 10 months, between 6pm and 7am for electrical cutover and isolation works.

Aspect	Potential impacts

- The use of noisy/annoying equipment such as excavators, concrete saws, chainsaws, generators etc. would be required.
- About 5 light vehicles, one 2 T tip truck and one forklift/telehandler movement to and from site each day are expected.
- About 3 to 4 deliveries per day are expected at the beginning of construction, with one to 2 additional deliveries required during the remainder of the construction period.

Work may be required up to 3 nights in one week, pending weather, community engagement outcomes, and any other unforeseen events. However, out of hours work would be avoided where possible and is unlikely to be required.

The assessment was performed based on the following inputs:

- Background noise levels of 45 dB(A) during the day and 35 dB(A) at night.
- Noisiest plant chosen was a concrete saw during the day (Activity 1) and a generator at night (Activity 2).
- Nearest line of sight receivers are residences located directly adjacent to/surrounding all sides of the proposal. The nearest residential receivers with no line of sight are located directly behind the nearest line of sight receivers.

Results from the assessment are summarised below and in Appendix D:

- The noisiest activity is the use of a concrete saw at during standard construction hours, which may be required to remove a small existing concrete slab on site.
- Residents with line of sight are anticipated to be highly affected (greater than 30 dB(A) above background levels) within 35 m, during standard construction hours (Figure 4).
- The noisiest activity during the evening and night would be the use of a generator for the electrical cutover and isolation works. This may be required 24/7 for up to 3 days.
- Residents within 10 m are predicted to experience noise levels of 75 dB(A) or greater (highly affected) during evening and night work (Figure 5).

These predicted noise impacts using the noise estimator tool represent a conservative approach, as they assume use of a concrete saw every day shift and up to 3 evening and night shifts using a power generator.

It should be noted that the noisiest activities (e.g. concrete cutting, excavations and vegetation removal) during standard hours are likely to only be required up to 4 to 5 weeks of the 10 month construction period, for 70-80% of each shift during these 4-5 weeks.

Appropriate mitigation measures have been identified to reduce the risk of construction noise impacts. This includes community engagement, noise barriers around the generator and opting for smaller equipment. If works are to extend beyond the 3 consecutive out of hours work shifts, consultation and agreement with the community may be carried out to determine the number of nights per week works can be

Aspect	Potential impacts
	undertaken. *Operational noise impacts* Operational noise impacts as a result of the proposal are not anticipated. *Construction vibration impacts* Vibration intensive plant and equipment are not required for construction of the proposal. Vibration generated during the works would be negligible and no impacts are anticipated. *Operational vibration impacts* Operational vibration impacts as a result of the proposal are not anticipated.
Air and energy	The proposal would potentially result in minor and temporary air quality impacts from dust generated during excavation works, and emissions from vehicles and equipment on site. Odour impacts are not anticipated. Potential sensitive receivers of air quality impacts include the neighbouring residents surrounding the proposal. Due to the small number of emission sources during construction, the proposal is unlikely to have a significant impact on air quality with implementation of the environmental mitigation measures in Section 6. No air quality impacts are anticipated during operation.
Waste and hazardous materials	During construction, the proposed work has the potential to generate the following types of waste: • green waste from vegetation clearing • excess excavated spoil and contaminated material • general construction waste including decommissioned electrical equipment • concrete washout waste from concrete pouring activities • domestic waste including food scraps, plastic and paper containers generated by site construction personnel. The proposal is not anticipated to generate large volumes of waste. Where possible, it is preferred to reuse suitable excavated materials from site to backfill excavations. The CEMP would identify all potential waste streams associated with the work and outline method of reuse, recycling or disposal of waste at appropriately licensed facilities. The CEMP would also include other onsite management practices such as keeping areas free of rubbish. During operation, the proposal is not anticipated to result in a change to waste generation or management. As discussed above, ACM was identified in the fill material on site. The Soil Characterisation Report (Confluence Water, 2023b) pre-classified the fill on site as

Aspect	Potential impacts
	'Special Waste (asbestos) – General Solid Waste (non-putrescible) containing asbestos' to a depth of 0.7 m bgl. Soils at depths greater than 0.7 m bgl may be classified as Virgin Excavated Natural Material (VENM). A site-specific Contamination Management Plan will be prepared as part of the Construction Environmental Management Plan (CEMP) for management and disposal of the ACM. The HazCentral database also identified WP0129 and associated buildings as containing the following hazardous building materials (HBM): • asbestos • lead based paint • synthetic mineral fibres • polychlorinated biphenyls (PCB). Proposed works within the LV switchroom and HV switchroom have the potential to impact this HBM and will need to be managed in line with the environmental mitigation measures in Section 6.
Traffic and access	The proposed works including the construction compound are located on Sydney Water property and would be accessed using the existing driveway at the front of the property. Vehicles and equipment would also be parked inside the Sydney Water property boundary. Occasionally, work vehicles may need to park on Victoria Road. This is unlikely to have a significant impact as there is adequate on-street parking and this would mainly occur during the day. The site would be accessed via Victoria Road which is a local road managed by Hornsby Shire Council. Existing traffic volumes on this road are likely to be mostly low volumes of local residential traffic. The proposal is unlikely to significantly alter the traffic volumes in the area as larger equipment would mobilise and demobilise from site infrequently and up to about 5 small work vehicles would travel to and from site daily. During operation, Ausgrid would occasionally need access to the property for maintenance of their LV kiosk substation. This is likely to be done through an easement agreement between Ausgrid and Sydney Water.
Social and visual	Social impacts relating to noise, vibration, traffic and parking are assessed above. The existing water pumping station is visible from Victoria Road and adjacent properties, with views partially blocked by vegetation and fencing surrounding the property. Receivers surrounding the proposal would experience minor temporary and localised visual impacts from construction activities and equipment. This includes the use of lighting towers during night works. However, night works would be infrequent, and lights would be directed away from the neighbouring properties where possible (e.g. pointing down). The proposal is located on private property and construction would not be visible from any public spaces (other than public roads). Taller equipment such as cranes and EWPs may be visible from further away however, these would not be used for the entire construction duration.

Aspect	Potential impacts
	Operational visual impacts would include tree removal at the front of the property and installation of a new structure, which would be visible from Victoria Road (i.e. the LV kiosk substation). Immediately surrounding receivers would be impacted as 5 trees would be removed, including 2 large trees which provide most of the canopy cover at the site. The pumping station and the new LV kiosk would be very visible to surrounding neighbours. Vegetation offsetting on site was considered, but is unlikely to be possible due to the introduction of new underground infrastructure (i.e. new underground cabling). However, impacts would be minor as the new LV kiosk is a small structure, consistent with the current land use and few receivers would be impacted (only surrounding neighbours and users of Victoria Road).
Cumulative and future trends	A search of the DPE's Major Projects website was conducted on 6 March 2024 and identified two approved projects within 10 km of the proposal: • Upgrades to Carlingford West Public School and Cumberland High School (Carlingford, NSW) - 183 Pennant Hills Road and 57-73 Felton Street, about 6.3 km south of the proposal • Loreto Normanhurst School Redevelopment (Normanhurst, NSW) - 4, 6, 14, 16, 30-62, 24-28 Mount Pleasant Avenue, 89 And 91-93 Pennant Hills Road, about 6.3 to 6.4 km north east of the proposal. Due to the minor and localised nature of these proposed works and the distance between the proposal and the above major projects, it is unlikely that cumulative amenity impacts such as noise, air quality, and traffic would occur at a local or regional scale. It should be noted that Ausgrid are likely to undertake works to install a new cable route for HV cable reticulation, that would eventually connect to the proposed LV kiosk substation at the same time as the proposal. Ongoing coordination with Ausgrid during construction would be required to minimise cumulative impacts and coordinate the electrical cutover and isolation works.

Figure 2 Soil sampling locations (Confluence Water, 2023)

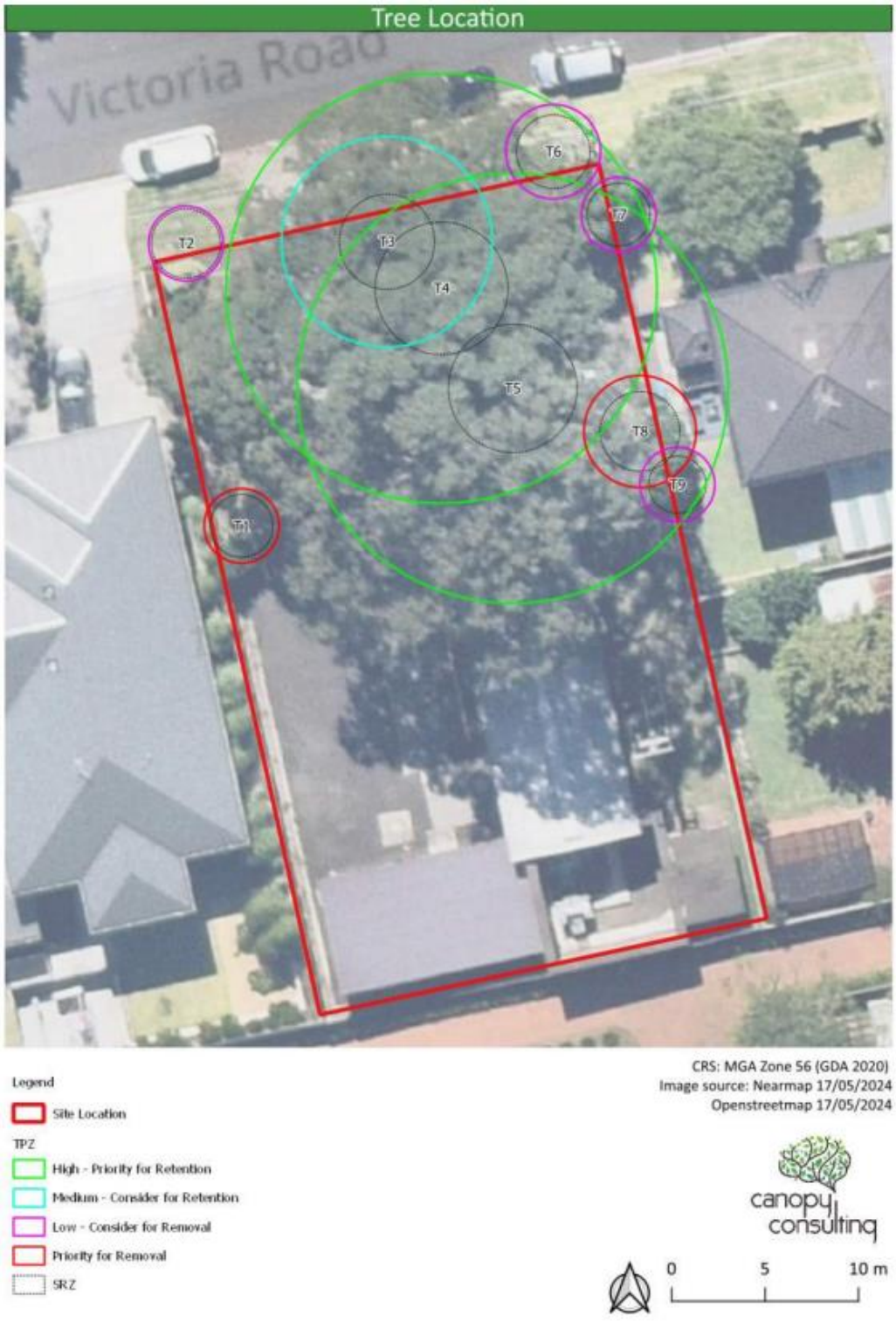

Figure 3 Location of trees assessed by arborist (Canopy Consulting, 2024)

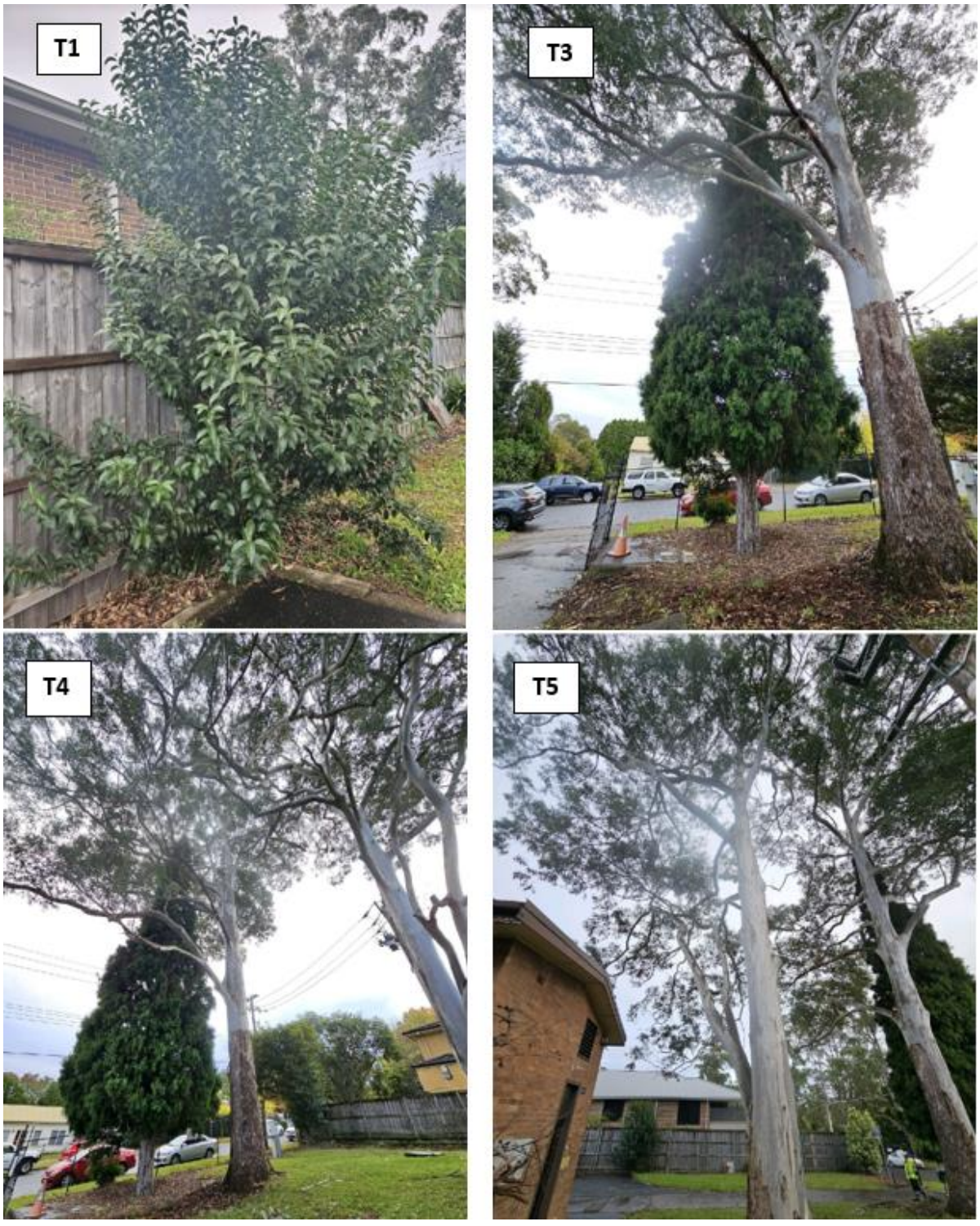

Photo 1 Trees to be removed (1 of 2)

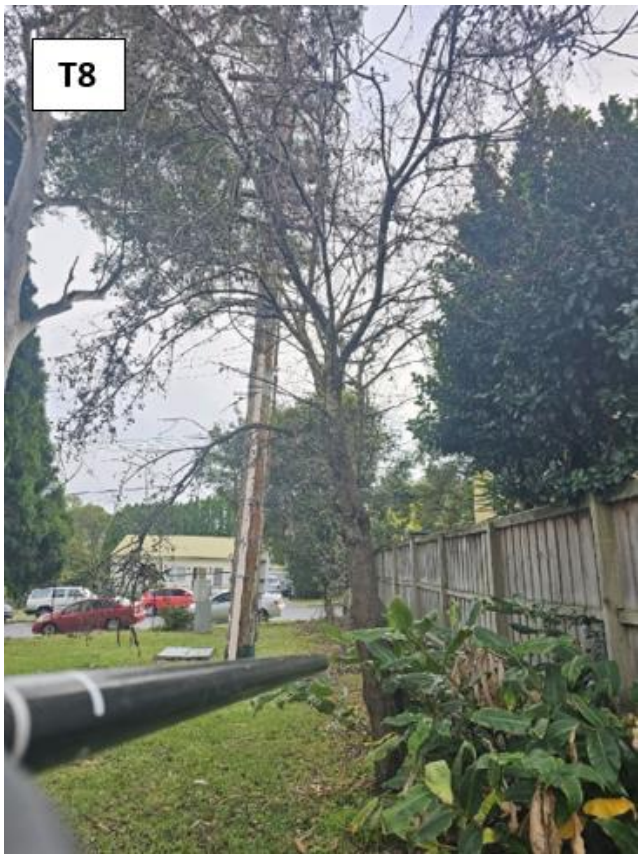

Photo 2 Trees to be removed (2 of 2)

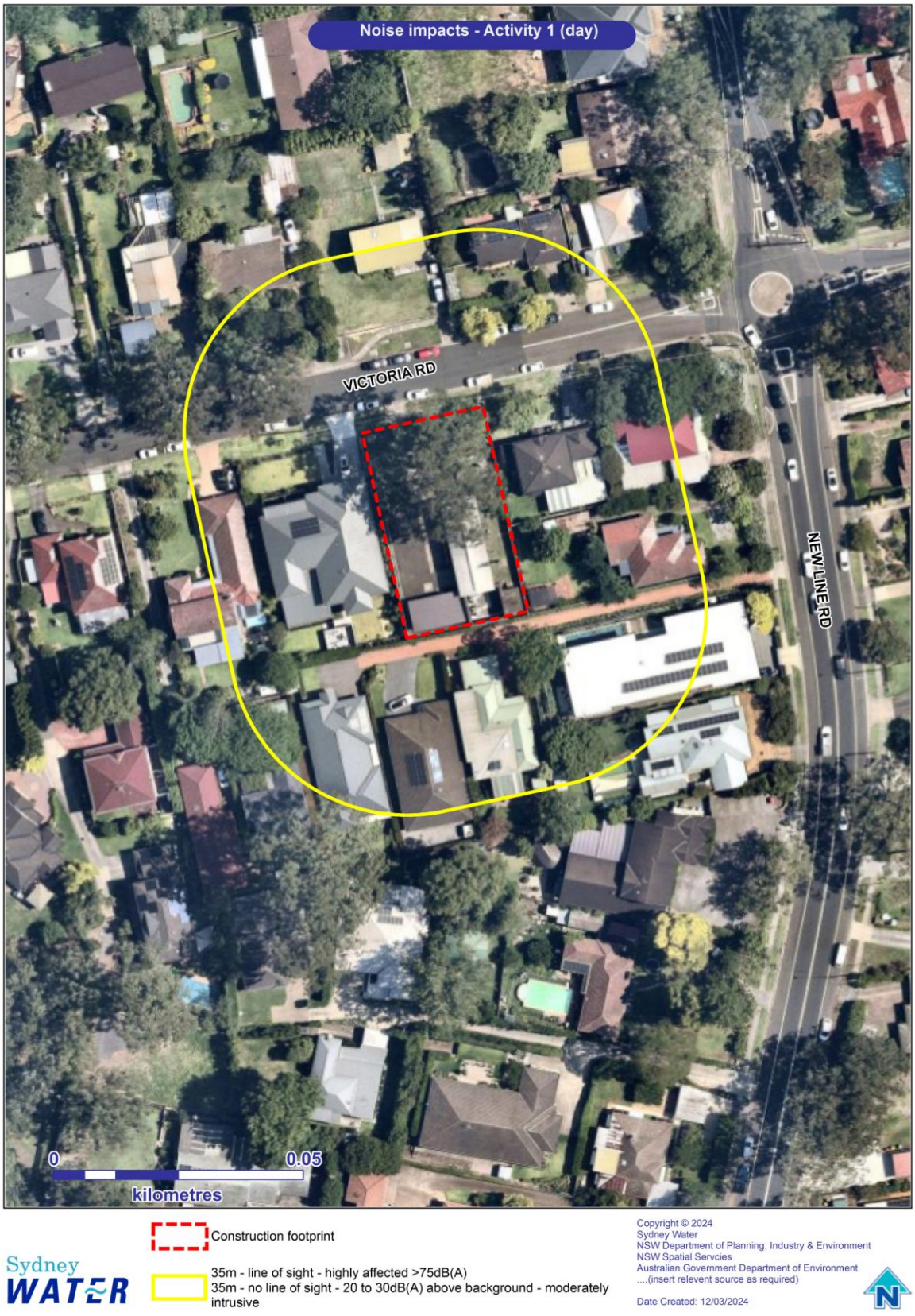

Figure 4 Potential noise impacts during standard construction hours

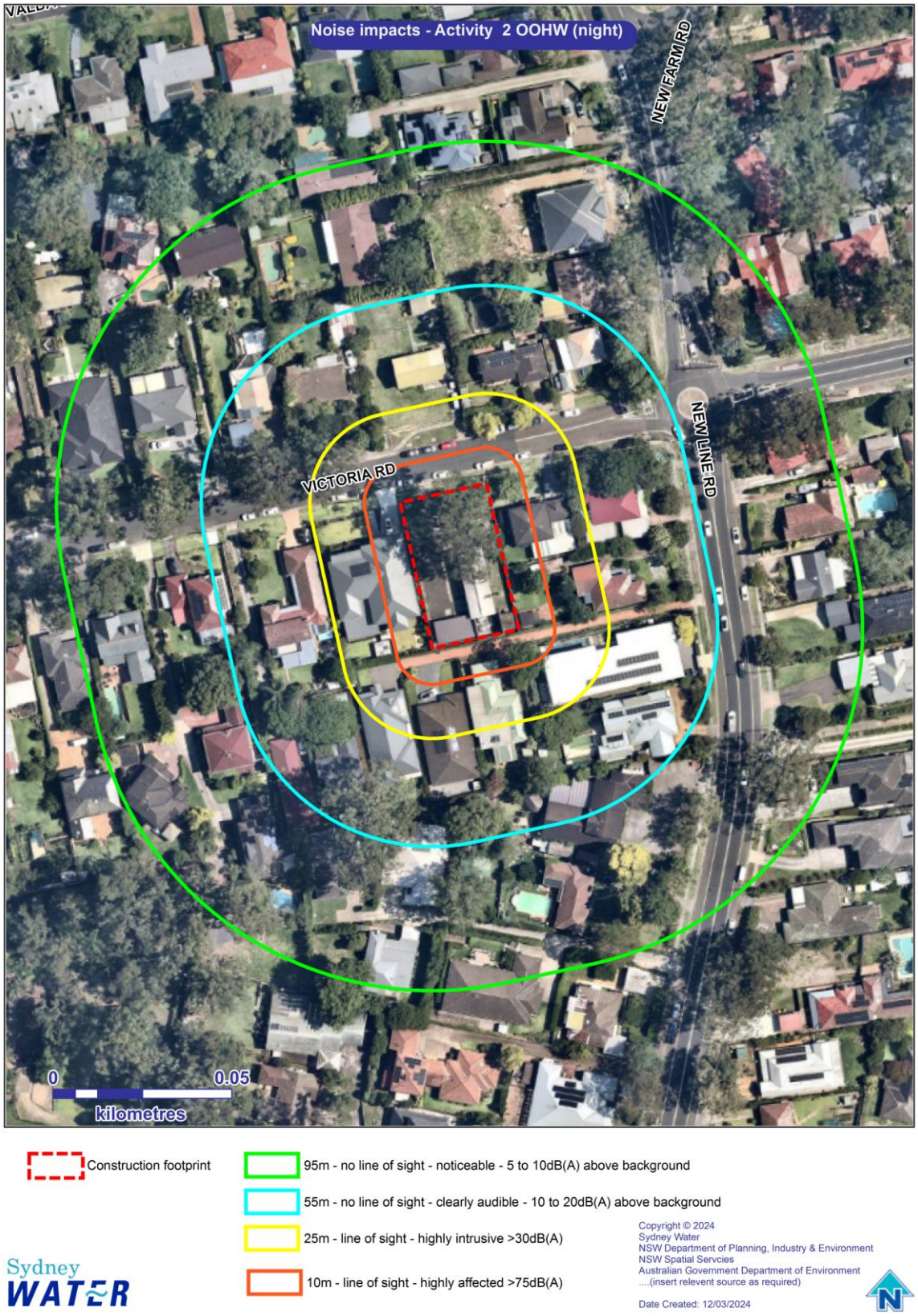

Figure 5 Potential noise impacts during out of hours work

6 Environmental mitigation measures

Table 5 Mitigation measures

Mitigation measures
General
Should the proposal change from the EIA, no further environmental assessment is required provided the change: • remains within the construction footprint for the EIA and has no net additional environmental impact or • is outside the construction footprint 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: • go/no go areas and boundaries of the work area 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. 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.
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.

Mitigation measures

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.

An asbestos management plan (AMP) must be prepared by the Delivery Contractor and endorsed by Sydney Water, outlining management strategies to handle and remediate identified asbestos onsite. The project-specific AMP must detail the mitigation measures, controls, and disposal requirements for asbestos-impacted fill soil materials onsite. The level of supervision for the asbestos removal works (i.e. Class A or Class B) should be determined by a Licensed Asbestos Assessor (LAA) based on the type of asbestos reported. An asbestos clearance certificate is to be issued by a LAA upon completion of removal works to provide evidence that no visual ACM remains within the excavation extent.

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.

Water and drainage

Keep functioning 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.

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 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).

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.

Conduct any equipment wash down within a designated washout area.

Mitigation measures

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 within the construction footprint, 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 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 (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 Sydney Water Biodiversity Offset Guide (SWEMS0019.13).

If any damage occurs to vegetation not approved in this REF (and as shown in the CEMP), notify the Sydney Water Project Manager and Environmental Representative so that appropriate remediation strategies can be developed.

Offset residual impacts to native vegetation and trees in accordance with the Biodiversity Offset Guide (SWEMS0019.13).
If offsetting cannot occur on site, the Contractor shall consult with relevant local councils for areas where offsetting may be conducted.

If revegetation is the chosen offset strategy, the following arborist recommendations should be considered:

Trees should be replaced with a tree of like habit and indigenous to the local government area where possible. They should be planted as near as practicable to the location of the removed tree, grown to maturity and replaced if the planting fails to survive and thrive.

Suggested species for replacement include:

- *Backhousia myrtifolia* (Grey Myrtle)
- *Elaeocarpus reticulatus* (Blueberry Ash)
- *Glochidion ferdinandi* (Cheese Tree)
- *Syzygium smithii* (Common Lilly Pilly)
- *Tristaniopsis laurina* (Water Gum)
- *Eucalyptus saligna* (Sydney Blue Gum)
- *Syncarpia glomulifera* (Turpentine).

Trees should be sourced from a reputable nursery with stock grown to NATSPEC and Australian Standard AS 2303:2018 *Tree Stock for Landscape Use criteria*.

Trees should be a minimum of 100L pot size at the time of planting.

The trees should be planted and mulched with suitably composted, natural, hardwood mulch.

Mitigation measures

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

Protect trees in accordance with the Program Delivery Guidance Standard 9.3 Biodiversity Management (ENV-GS-003).

The Delivery Contractor will engage a suitably qualified ecologist to 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 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.

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.

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).
- Cover exposed areas with tarpaulins or geotextile fabric.
- Modify or cease work in windy conditions.
- 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 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.

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.

Mitigation measures

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).

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.

Heritage

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
- 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).
- 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 (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

Mitigation measures

- 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.

If **night works are needed (beyond those identified in this REF),** the Delivery Contractor would:

- justify the need for night works
- consider potential noise impacts and implement the relevant standard daytime and out of hours safeguards and document consideration of all reasonable and feasible management measures
- identify community notification requirements (i.e. for scheduled night work (not emergency works))
- notify all potentially impacted residents and sensitive noise receivers not less than one week prior to commencing night work

Additional consultation with residential receivers will be undertaken prior to construction and a Community Engagement Advisor will be assigned to the project.

Notification must be undertaken in accordance with Table 5 of Appendix D of this REF. Notification may consist of using a variable message sign, letterbox drop (or equivalent), web site / social media or a combination to distribute information detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification should be a minimum of five working days prior to the start of works.

Specific notifications, letterbox drops (or equivalent) to receivers within 25 m no later than five working days ahead of Activity 2 must be undertaken in accordance with Table 5 of Appendix D of this REF. The specific notification provides additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops.

Where appropriate, phone calls detailing relevant information will be made to highly affected receivers, who have provided their contact details, within seven calendar days of construction start. Phone calls must be undertaken in accordance with Table 5 of Appendix D of this REF. Where the resident cannot be telephoned then an alternative form of engagement should be used.

Duration respite should be considered in accordance with Table 5 of Appendix D of this REF. In this instance and where it can be strongly justified, it may be beneficial to increase the work duration, number of evenings or nights worked through duration respite so that the project can be completed more quickly.

Consider less vibration intensive methodologies where practicable and use only the necessary sized and powered equipment.

Traffic and access

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

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

Mitigation measures

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 (e.g. minimise vegetation trimming where possible).

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

Maintain work areas in a clean and tidy condition.

Cumulative impacts

Ongoing communication with Ausgrid for their works adjacent to this proposal will be required throughout construction to look for opportunities to minimise cumulative impacts and coordinate electrical cutover and isolation works.

7 References

Canopy Consulting 2024, Arboricultural Impact Assessment & Tree Protection Management Plan WP0129 Pumping Station Version 1, 28 May.

Confluence Water 2023a, WP0129 West Pennant Hills Geotechnical Interpretive Report, 27 October.

Confluence Water 2023b, WP0129 West Pennant Hills HV Renewal – Soil Characterisation Report, 23 September.

Sydney Water 2021, Biodiversity Offset Guide, 16 March.

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Appendix A – Section 171 checklist

Section 171 checklist	REF finding
Any environmental impact on a community	There may be short-term noise and visual amenity impacts on the community associated with construction activities. 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 will not result in environmental impacts to ecosystems of the locality. The construction footprint is on land previously disturbed for installation of above and below-ground infrastructure, and biodiversity impacts would be minimal. The proposal will lead to environmental improvements by ensuring a reliable drinking water service.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	The proposal will not 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. As discussed in Section 5, the proposal is located in a previously disturbed area and no cultural or historic heritage impacts are anticipated.
Any impact on the habitat of any protected animals (within the meaning of the *Biodiversity Conservation Act 2016*)	No threatened species or critical habitat have been recorded within the construction footprint. However, some native vegetation (3 trees) would be impacted. As assessed in Section 5, impacts are not anticipated to be significant and would be managed through the environmental mitigation measures included in Section 6.
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 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.

Section 171 checklist	REF finding
Any reduction in the range of beneficial uses of the environment	The proposal will not reduce the range of beneficial uses of the environment.
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 temporary cumulative environmental effects with other future activities during construction. However, this would be managed through the environmental mitigation measures included in Section 6.
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, as the proposal forms part of a renewals program.
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
Precautionary principle - *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.*	The proposal will not result in serious or irreversible environmental damage and there is no scientific uncertainty relating to the proposal.
Inter-generational equity - *the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*	The proposal will help to meet the needs of future generations by providing a reliable water service.
Conservation of biological diversity and ecological integrity - *conservation of the biological diversity and ecological integrity should be a fundamental consideration in environmental planning and decision-making processes.*	The proposal will not significantly impact on biological diversity or impact ecological integrity. Vegetation removal and trimming would be minor.
Improved valuation, pricing and incentive mechanisms - *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*	The proposal will provide cost efficient use of resources and provide optimum outcomes for the community and environment by improving the reliability of water supply to customers and allowing for remote operation of assets.

Appendix C – Consideration of TISEPP consultation

TISEPP section	Yes	No
Section 2.10, council related infrastructure or services – consultation with council		
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
Section 2.11, local heritage – consultation with council		
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
Section 2.12, flood liable land – consultation with council		
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
Section 2.13, flood liable land – consultation with State Emergency Services		
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
Section 2.14, development with impacts on certain land within the coastal zone– council consultation		
Is the work on land mapped as coastal vulnerability area and inconsistent with a certified coastal management program?		X
Section 2.15, consultation with public authorities other than councils		
Will the proposal be on land adjacent to land reserved under the *National Parks and Wildlife Act 1974* or land acquired under Part 11 of that Act*? If so, consult with DPE (NPWS).*		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? *If so, consult with DPE (NPWS).*		X
Will the proposal include a fixed or floating structure in or over navigable waters? *If so, consult TfNSW.*		X
Will the proposal be on land in a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017*? *If so, consult with Subsidence Advisory NSW.*		X
Will the proposal be on land in a Western City operational area specified in *the Western Parkland City Authority Act 2018,* Schedule 2 and have a capital investment value of $30 million or more? *If so, consult the Western Parkland City Authority*.		X
Will the proposal clear native vegetation on land that is not subject land (i.e. non-certified land)? *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).*		X