

Review of Environmental Factors

Multi-program - Category B

CWM Renewal T41-S01 Pine Avenue, Five Dock

1 Determination

This Review of Environmental Factors Multiprogram - Category B (Category B REF) is to be read in conjunction with the Review of Environmental Factors Multi-program pipeline and related infrastructure replacement, repair and upgrades (Multi-program REF) (May 2023). Together both documents assess the potential environmental impacts of CWM Renewal T41-S01 Pine Avenue, Five Dock. These documents were 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 Category B REF and Multi-program REF. Additional environmental impact assessment may be required if the scope of work or work methods described in either the Multi-program REF or this Category B REF change significantly following determination.

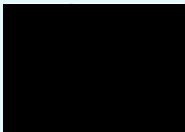


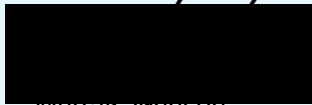
Decision Statement

The main potential construction environmental impacts of the proposal include impacts from noise, traffic and social impacts to receivers. 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 Category B REF and the Multi-program 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 information it contains is neither false nor misleading.

Prepared by:	Reviewed by:	Endorsed by:	Approved by:
 Sam Brandley Environmental Scientist Sydney Water Date: 28/01/2024	 John Eames Snr Environmental Scientist Sydney Water Date: 11/02/2025	 Mel Navarro Project Manager Sydney Water Date: 12/02/2025	 Murray Johnson Senior Manager Environment and Heritage Sydney Water Date: 10/03/2025

2 Proposal Summary

Table 1 Description of proposal

Aspect	Detailed description
Location	<p>The proposal is located in Five Dock on land managed by City of Canada Bay, zoned R2 Low Density Residential under Canada Bay Local Environmental Plan 2013.</p> <p>The site compound for the proposal is located near the intersection of The Drive and Nullawarra Ave, Concord. This site compound will already be established as it will be in use as part of critical watermain T41-S02 on Major Bay Road, Concord. The site compound will be used to house site amenities, site office, material storage and for spoil (refer to Figure 2). If the site compound has not be established prior to construction, then Category A standard mitigation measures regarding compound establishment must be adhered to.</p> <p>The proposal location and environmental constraints are shown on Figure 1a to Figure 1c, Figure 2 and Figure 3.</p>
Approved REF	<p>Review of Environmental Factors Multi-program pipeline and related infrastructure replacement, repair and upgrades (Multi-program REF) (May 2023)</p>
Proposal description	<p>The proposal is part of the Critical Watermain Renewal Works program program as detailed in the Multi-program REF.</p> <p>T41-S01 watermain renewal consists of approximately 500m of mostly 375mm Cast Iron Cement Lined (CICL main laid in 1965. The scope of work is to conventional lay approximately 500m of DN375 CICL main in the shoulder of the roadway of Pine Ave, Five Dock, between Lyons Road and Wareemba Street including the side street reconnection of 37m of 100mm-200mm PVC.</p> <p>A 1965 existing Cast Iron Cement Lined (CICL) main on the western side of Pine Ave grass verge will remain in situ and will be not removed.</p> <p>The new alignment will address operational requirements for growth, improve reliability of the water systems and reduce the risk of water main breaks in the future.</p>
Equipment	<p>The equipment list for the proposal includes:</p> <ul style="list-style-type: none">• Skip bins – marrel type bins in concord site compound• Air compressors• Generators• Concrete saws (demo saws)• Jackhammers (hand operated and excavator attachment)• Hand tools• Site facilities and amenities – mainly in concord site compound.

- Caravan and trailer mounted portaloos on Pine Ave.
- Storage containers – concord site compound
- Excavators (1x14t, 2x8t)
- Tipper truck (1x8t & 1xtruck & dog)
- Concrete agitator truck (as required for concrete pours)
- Vacuum truck
- Light vehicles (work utes and cars)
- Plate compactor
- Light towers / day makers (as required during night shift)
- Generators
- Road plates
- Shoring box
- Noise blankets
- Submersible dewatering pumps
- Street sweeper (1x)
- Pole holders

Proposal timing

The proposal is expected to occur during standard daytime construction hours and take approximately 5 months from July to November 2025. Generally, construction will occur during standard construction hours. Work outside standard hours will occur for the following scope for a total of 6 nights.

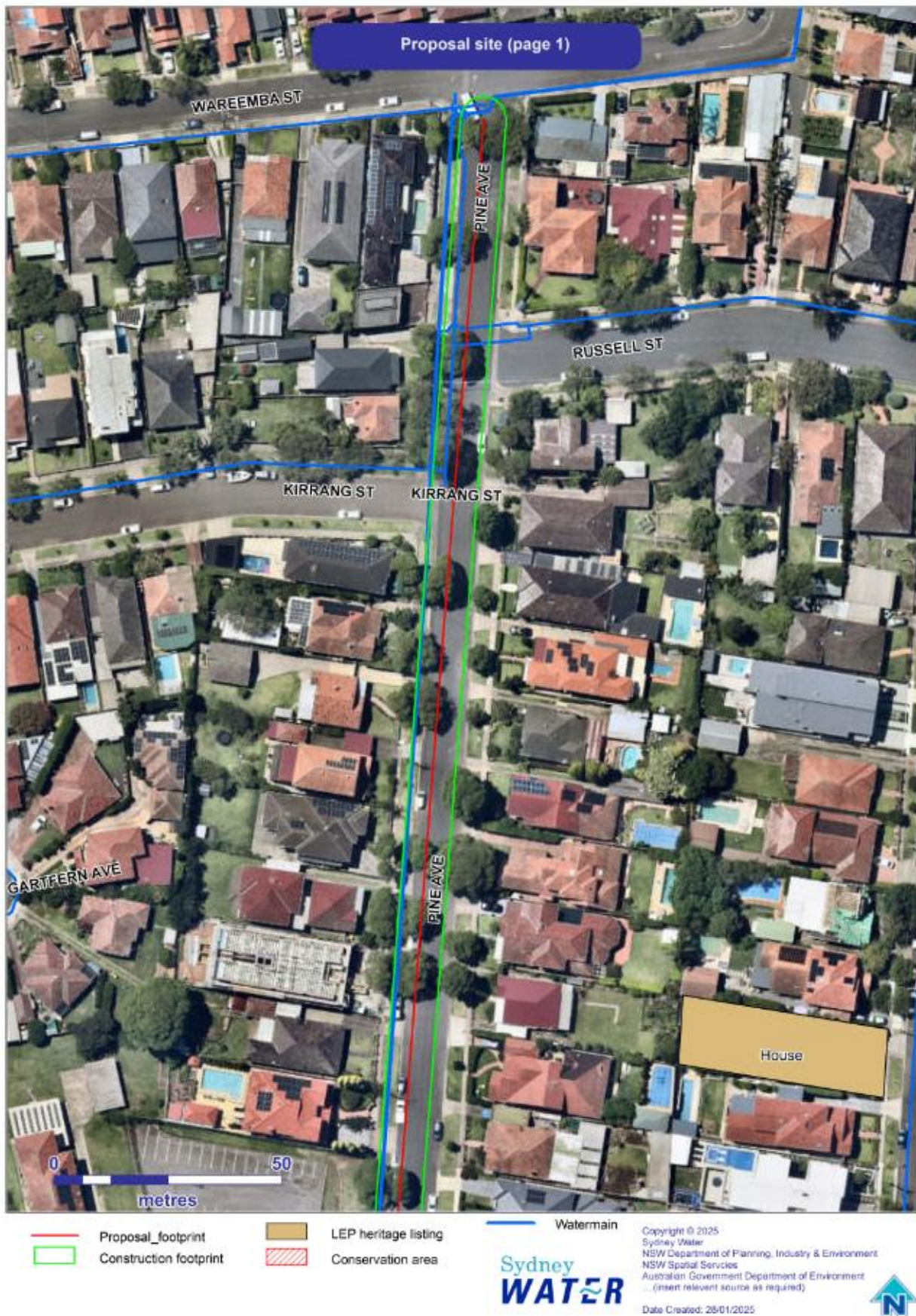


Figure 1a Location of proposal and environmental constraints



Figure 1b Location of proposal and environmental constraints

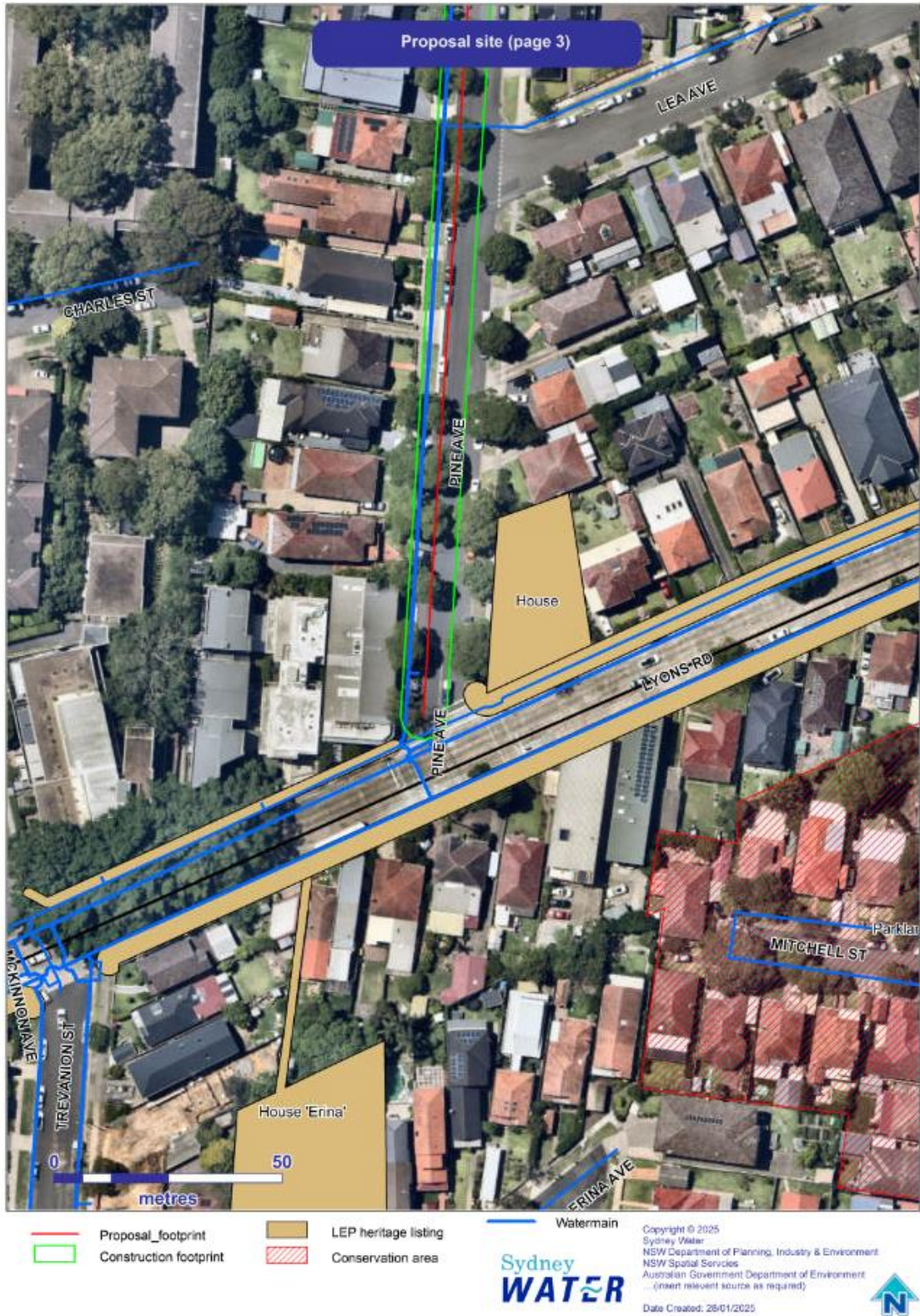


Figure 1c Location of proposal and environmental constraints

3 Consultation

Community and stakeholder consultation

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

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

Consultation 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 requirement is specified in the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP).

Consultation was required under sections 2.10(1)(e), and 2.10(1)(f), as the proposal involves excavation of, and installing structures on, a council owned footpath and council managed land. City of Canada Bay was notified with a formal TISEPP notification letter on the 17/01/2025, no response was received from Canada Bay Council within the 21 day response period. The TISEPP requirements have been met, however Sydney Waters community engagement team will continue to consult with Canada Bay Council regarding the proposal. Further detail is provided in Appendix B.

4 Legislative requirements

Table 2 outlines the additional legislative requirement beyond those already assessed in the Multi-program REF.

Table 2 Consideration of additional environmental legislation relevant to the proposal

Legislation	Additional considerations
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	<p>An Environmental Protection Licence (EPL) is required under Schedule 1 (Clause 42) of the POEO Act if the waste stored on-site exceeds the following limits:</p> <ul style="list-style-type: none">• More than 1,000 t of waste stored on the premise at any one time• More than 6,000 t of waste received per year from offsite• More than 5 t of hazardous waste, restricted solid waste, liquid waste or special waste stored on the premises at any one time. <p>During construction, excess spoil generated will be temporarily stored at the site compound. The contractor will ensure that the storage limits are not exceeded.</p>

5 Additional environmental impacts and mitigation measures

Table 3 list the additional environmental impacts that could result from the proposal and Table 4 outlines the additional mitigation measures. All other environmental impacts and mitigation measures identified in the Multi-program REF remain the same and will be incorporated into the Contractor's Construction Environmental Management Plan (CEMP).

Table 3 Environmental impacts table

Aspect	Additional impacts	Additional mitigation measures
Topography, geology and soils	<p>The pipeline works has the potential to impact topography, geology and soils from excavation and other ground disturbance. There are no Acid Sulfate Soils (ASS), contaminated land or saline soil mapped within the pipeline works area or compound site. The ground will be restored to existing levels once works are complete.</p> <p>This site compound will already be established as it will be in use as part of critical watermain T41-S02 on Major Bay Road, Concord. The contractor must ensure the waste storage receiving and storage limits (refer to Table 2) are not exceed, otherwise an EPL would be required. It is assumed that the storage limits would not be triggered. No additional ground disturbance would occur at the site compound and any stockpiles on site would be managed in accordance with mitigation measures outlined in the Multi-program REF.</p>	No additional mitigation measures
Water and drainage	<p>The proposal has the potential to impact waterways from spills and off-site sedimentation. There are no waterways within 500 m of the proposed alignment or site compound.</p> <p>The deepest excavation for the proposal will be about 1 m. Given that the maximum excavation depth is 1 m, there is a possibility of encountering groundwater during excavation activities with the volume being likely minor. Should groundwater be encountered, the mitigation measures outlined in the Multi-program REF should be followed.</p> <p>During pressure testing of new pipeline, water would be discharged into nearby stormwater drains at a total volume of 0.045 ML. There is potential for local water quality to be adversely affected during discharged. However, due to the small volumes of water discharged this impact would be appropriately mitigated through mitigation measures outlined in Multi-program REF.</p>	No additional mitigation measures
Flora and fauna	<p>Pipeline works</p> <p>The pipeline will involve conventional laying in the roadway of Pine Ave between Lyons Road and</p>	No additional mitigation measures

Wareemba Street. There are no native vegetation communities or threatened flora species within or adjacent to the pipeline alignment.

Grey-headed Flying Fox (*Pteropus poliocephalus*) Vulnerable (BC Act & EPBC Act) is recorded 50 m east of the pipeline alignment along Lea Avenue. There are no known Grey-headed Flying Fox camps within 10 km of the proposal. Street trees along Pine Avenue may provide suitable foraging habitat for the species. The pipeline works have the potential to impact Grey-headed Flying-fox through lighting at night and loud noises. The potential noise impacts (as detailed below) would be temporary and would be managed in accordance with mitigation measures outlined in the Multi-program REF and additional measures in Table 4.

The connection at Lyons Road could potentially fall within the drip zone of a large non-native street tree. The excavation depth will be shallow and within a narrow corridor. There is the potential that the construction activities may disturb some roots, however, due to the small excavation required impacts are expected to be minimal. Standard root protection mitigation measures would be followed.

Compound site

The proposed compound site is located within a cleared area, free of any native vegetation. PCT 3263 (Sydney Turpentine Ironbark Forest) is located approximately located 150 m south east of the compound site and has associated with a threatened ecological community (listed under the BC Act and EPBC Act). This vegetation community would not be directly or indirectly impacted.

This site compound will also be used as part of the critical watermain T41-S02 project on Major Bay Road, Concord.

Heritage

Aboriginal heritage

No Aboriginal heritage items are within 500 m of the proposal site or site compound. The proposed alignment is within the road reserve, which has been subject to previous disturbances to the soil profile. The likelihood of encountering Aboriginal heritage items is low.

Non-Aboriginal heritage

The following heritage items are mapped within 100 m of the proposed pipeline:

- House that is mapped under *Canada Bay Local Environmental Plan 2013* (ID I320), located on the

No additional mitigation measures.

corner of Pine Avenue and Lyons Road (approximately 30 m east of the pipeline). The proposed alignment is entirely situated within the designated road reserve and does not extend into the curtilage of the local heritage item. As such, the proposal will not have any direct or indirect impact on the heritage item.

- The proposed alignment is situated within the designated National Heritage area of Sydney Cultural Crescent Rock Art, which is currently under assessment. However, since the proposal site falls within the road reserve, no impacts are expected.

The site compound is located within:

- Dame Eadith Walker Hospital Group (item number I444), listed under the *Canada Bay Local Environmental Plan 2013*.
- Dame Eadith Walker Convalescent Hospital (SHR:144), listed on the State Heritage Register

The site compound is located 650 m west of the historical structure within a cleared area approximately 15 m from Nullawarra Avenue. The compound would not involve any alternation to the heritage item and would only be temporary of nature. The area use would be restored post construction. As such, direct and indirect impacts are not anticipated. This compound site will be used as part of critical watermain T41-S02 project on Major Bay Road, Concord and approved for use by City of Canada Bay.

In accordance with standard exemption 21 under section 57(2) of the Heritage Act 1977, temporary structures may be established for more than 90 calendar days. The existing public access to the state heritage item will be maintained at all times.

Noise and vibration



Pipeline works

The proposal is located in a low density residential area with the existing noise environment characterised by traffic along Pine Avenue, residential activities and natural sounds. The nearest sensitive receivers are residences along Pine Avenue that are about 15 m from the proposal site and have a direct line of sight. Additionally, a Childcare Centre is located 15 m from the proposal site.

The Transport for NSW Construction and Maintenance Noise Estimator (TfNSW, 2022) was used to assess potential noise impacts. The noise management levels

See Table 4.

Refer to Figure 4 and Figure 5, along with the corresponding assessment findings in this section.



(NMLs) were established using the Rating Background Level (RBL) for the R3 representative environment defined in the noise estimator. This level best reflects the surrounding traffic volumes and noise catchment, which is characterised mainly by residential activities. The selected ground type used for the assessment was for 'developed settlements' (urban and suburban). The background noise levels for the assessment were:

- Day – 50 dBA
- Evening – 45 dBA
- Night – 40 dBA

The distance based assessment assessed the noisiest plant as concrete saw during standard construction hours and concluded:



- Sensitive receivers within 60m may experience moderately intrusive noise levels (20-30 dBA > background)
- Sensitive receivers within 35m may experience highly intrusive (>30 dBA > background).

Work outside standard hours will occur for a total of 6 nights:

- Connection works for a total of 2 nights on Lyons Rd & Pine Ave intersection.
- Night shift works for upfront connections. Four connections required in total. First 2 connections to be completed concurrently for a total of 2 nights. Similarly, second 2 connections to be completed concurrently for a total of 2 nights.
- Construction of scour pit near Wareemba St

The predicted worst case noise impacts for the construction of the proposal is for works outside standard construction hours, which includes the following noisy works:

- Saw cutting of road surface (demo saw, jackhammers) – to be completed at start of shift when required (8:00pm – 10:00pm)
- Excavation and pipe laying (excavators, tipper trucks) – throughout the shift (8:00pm – 5:00am)
- Compaction and restoration (plate compactors, excavators, tipper trucks) throughout the shift (8:00pm – 5:00am)



The distance-based assessment assessed the noisiest plant as concrete saw during out of hours night works and conclude that with a direct line of sight:

- Sensitive receivers within 240m may experience clearly audible noise levels (10-20 dBA > background)
- Sensitive receivers within 105m may experience moderately intrusive noise levels (20-30 dBA > background)
- Sensitive receivers within 35m may experience highly intrusive (>30 dBA> background).

Noise impacts behind a substantial barrier concluded:

- Sensitive receivers within 105m may experience clearly audible noise levels (10-20 dBA > background)
- Sensitive receivers within 35m may experience moderately intrusive noise levels (20-30 dBA > background)
- Sensitive receivers within 15 m may experience highly intrusive (>30 dBA> background).

The noise contours are displayed in Figure 4 and Figure 5

These figures include recommended mitigation measures at different distances from residential receivers, as identified by the noise estimator tool. These are to be considered by the community team and offered where appropriate and include:

- N: Notification (e.g. letterbox drop)
- R1: Respite Period 1 (work up to three nights a week and six nights a month, with at least a week between the blocks of three shifts. This schedule does not require community consultation)
- R2: Respite Period 2 (work up to two nights a week and six nights a month, with at least a week between the blocks of two shifts. This schedule does not require community consultation)
- RO: Respite Offer (eg work blocks of three hours with one hour breaks in between)
- DR: Duration Respite (completing the works over more nights a week than R1 or R2 following community engagement and support of the work schedule)

- SN: Specific notification (eg door knock)
- PC: Phone calls

This desktop assessment of potential impacts provides a conservative estimate of the noise levels associated with the proposal at any given period, the construction plant and equipment are assumed to operate at maximum sound levels only for brief stages. Additionally, it is highly unlikely that all construction equipment would be operating at maximum sound levels at any one time. As such, it should be noted that the predicted noise levels are highly conservative and actual noise levels are likely to be lower.

Out of hours works will only occur for a total of 6 nights. During this period, receivers may experience increased noise levels. However, through the implementation of the outlined mitigation measures, potential noise impacts would be minor and short term.

Vibration may be experienced during the use of excavator for ground disturbing activities. However, sensitive receivers are outside the minimum working distance for vibration intensive equipment and vibration impacts are considered negligible.

Air and energy	The proposal has the potential to impact air quality and energy consumption, primarily due to dust generated from open excavations and emissions resulting from fuel use. However, given the short duration of the project and its limited footprint, any impacts on air quality are expected to be minimal. These impacts will be effectively managed through the implementation of appropriate mitigation measures referenced in the Multi-Program REF (May, 2023), which will include dust control measures to minimise dust generation.	No additional mitigation measures
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Waste and hazardous materials	The primary waste streams generated by the proposal consist of road base, fill material, and soil. The compound may serve as a temporary stockpiling area before waste categorisation and off-site disposal. Excavated spoil will be reused for backfilling, and no hazardous materials are anticipated within the alignment. Any potential impacts associated with waste management will be effectively addressed through the implementation of appropriate mitigation measures outlined in the Multi-program REF (May, 2023).	No additional mitigation measures
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Traffic and access	The proposed alignment would be conventionally laid in the roadway shoulder of Pine Avenue. Pine Avenue is a	No additional mitigation measures
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local road, managed by Council and Lyon Road is classified as a state road managed by Transport for NSW. Some construction will take place during the night and traffic will be managed in accordance with Council's approved Traffic Management Plan.

The proposed alignment requires excavation along Pine Avenue, which will temporarily disrupt access and may result in traffic delays. Partial road closures are required with single direction detours at Lyons Road and Pine Avenue intersection and Wareemba Street and Pine Avenue intersection. Alternative routes will be available to minimise disruptions and traffic impacts. Works will be done at night and will be short in duration to reduce impacts to traffic.

Residents along Pine Avenue will have access to their properties temporarily restricted by excavation for pipeline works. As excavation works move along the along the alignment at a rate of 10-12m per shift residents will only be impacted for approximately 1 night. Overall traffic impacts would be temporary, short in duration and managed by an accredited traffic control company. Potential impacts would be further minimised through the implementation of mitigations measures reference in the Multi-program REF (May, 2023).

Social and visual	<p>Temporary social impacts related to amenity issues such as noise and vibration are assessed above.</p> <p>Temporary visual impacts would be experienced during construction of the proposal due to the presence of construction equipment, excavation of the road, and use of the compound area. These temporary visual impacts would be confined to the proposal footprint and only impact adjacent receivers.</p> <p>The pipeline will reduce use of the parking lane along Pine Avenue for the duration of the proposal. The works are short in duration and the parking lane will be restored once works are complete.</p> <p>These impacts will be effectively managed through the implementation of appropriate mitigation measures referenced in the Multi-Program REF (May, 2024).</p>	No additional mitigation measures.
Cumulative and future trends	<p>The Major Projects Planning Portal and City of Canada Bay Development Tracker websites were searched in January 2025. There are no major projects in the locality of the proposal that would result in a significant impact. No Development Applications were identified within 1km of the proposal.</p>	No additional mitigation measures.



The site compound will also be utilised for the critical watermain T41-S02 project on Major Bay Road. During construction, there may be cumulative traffic and noise impacts resulting from increased vehicle traffic and operational activities at the site compound. However, the site compound will be used primarily for site amenities and the stockpiling of excess spoil with movements being short term and temporary of nature. Significant cumulative impacts are not expected.

The proposal area and surrounding area is not mapped as fire prone land. The works will not change the topography of the land and the area will be restored to existing levels once the works are complete. No increase to fire or flood risk expected from the works.

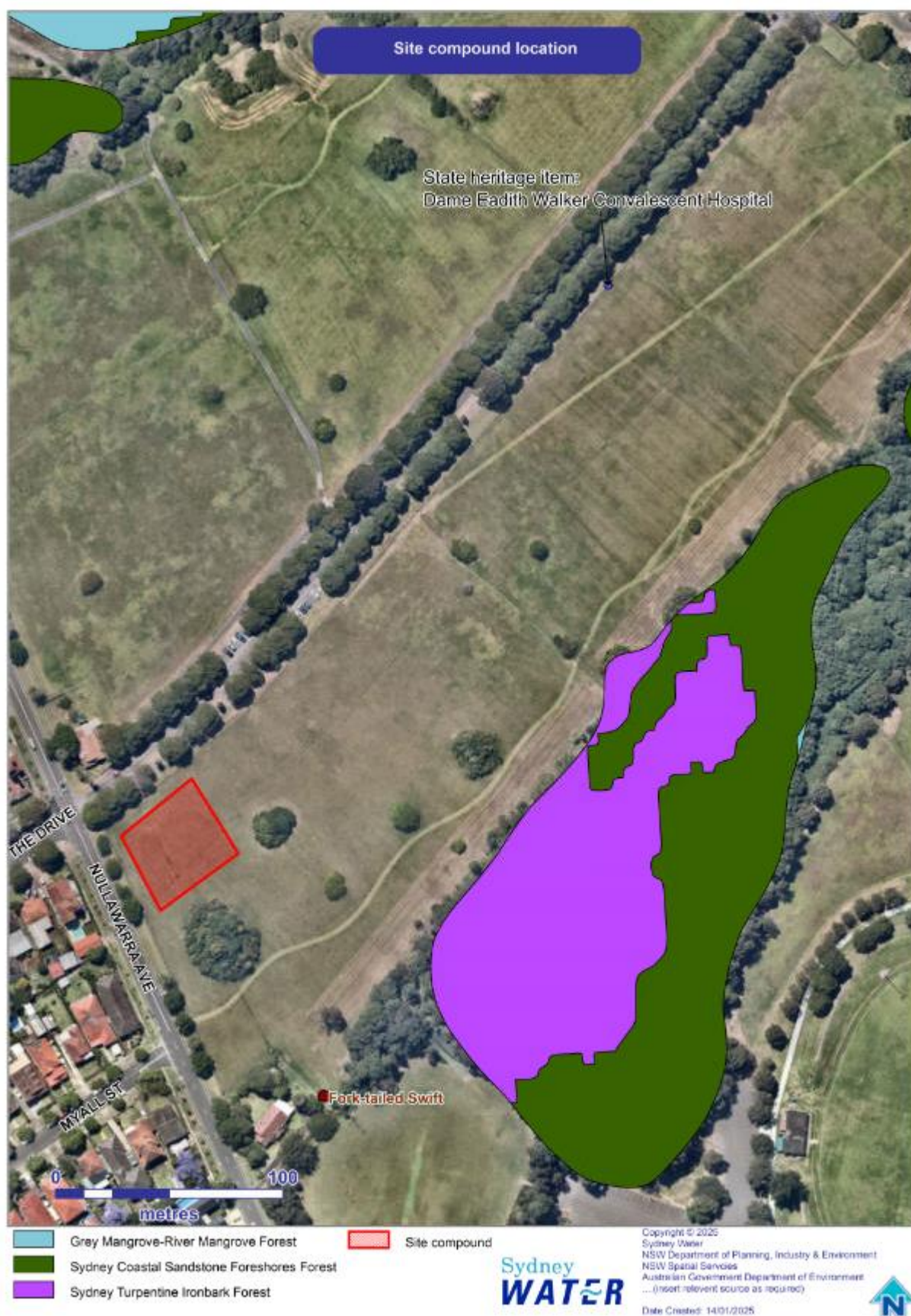


Figure 2 Site compound location

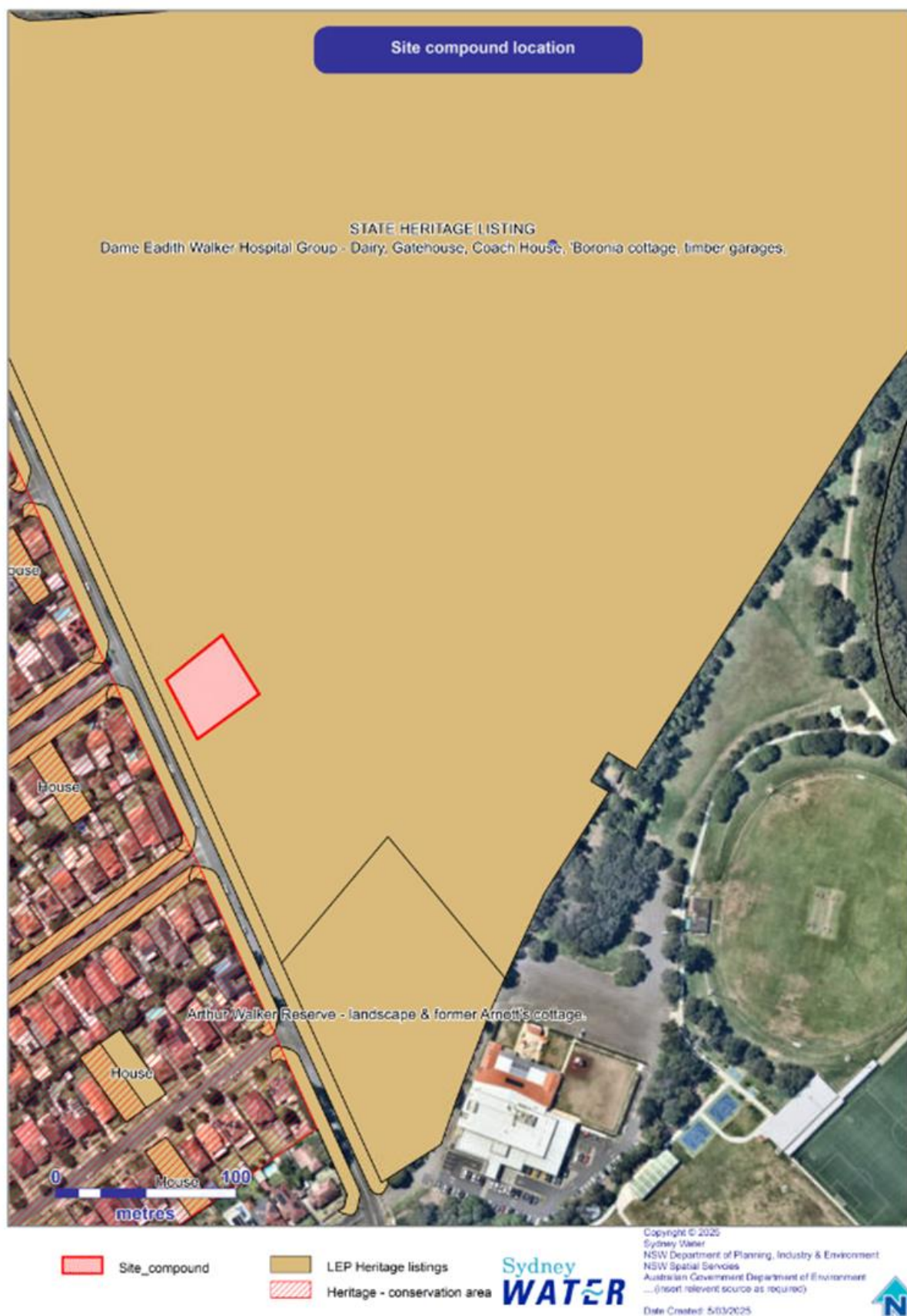


Figure 3 Site compound location (heritage)

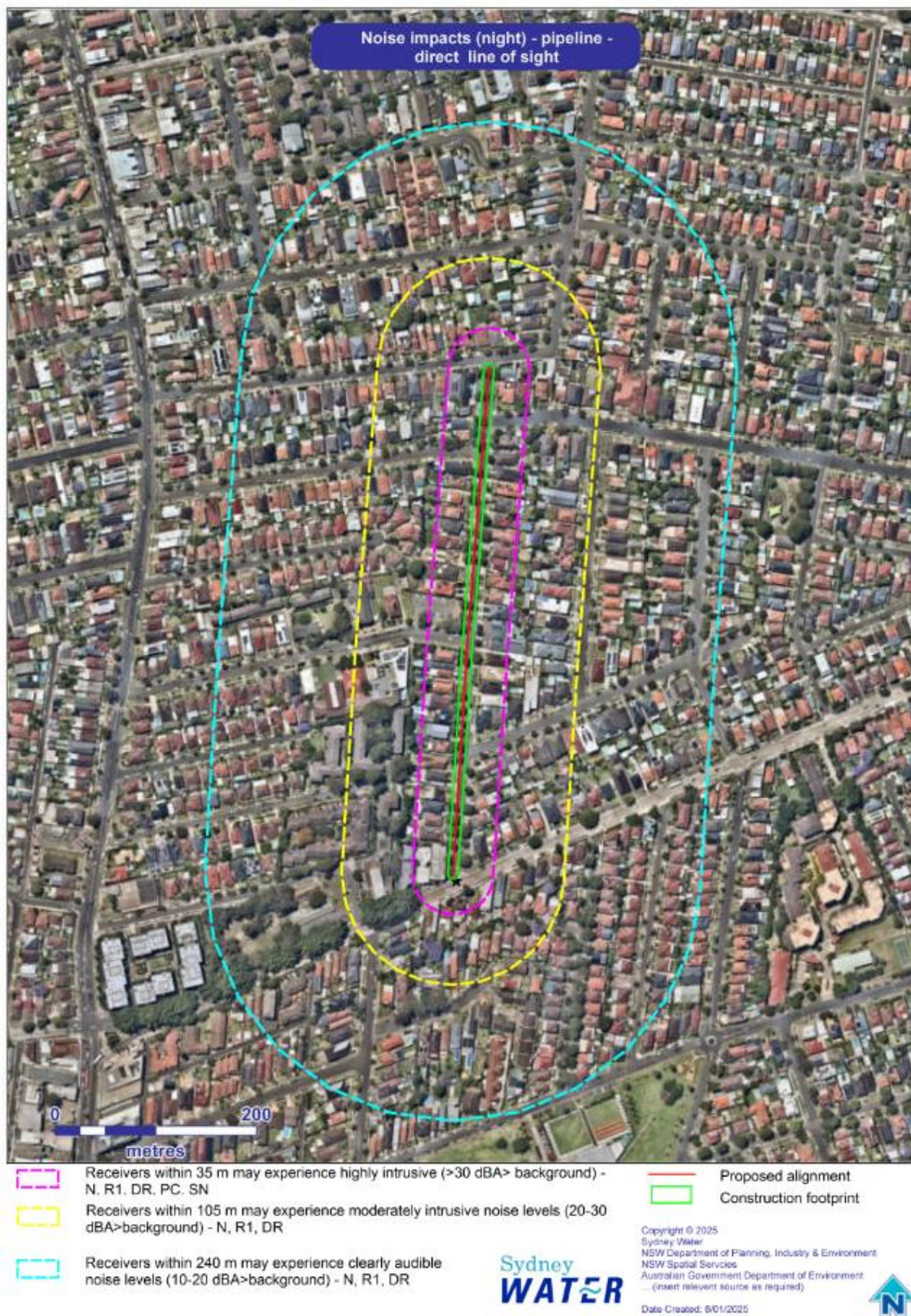


Figure 4 Noise impacts (night) – pipeline – direct line of sight

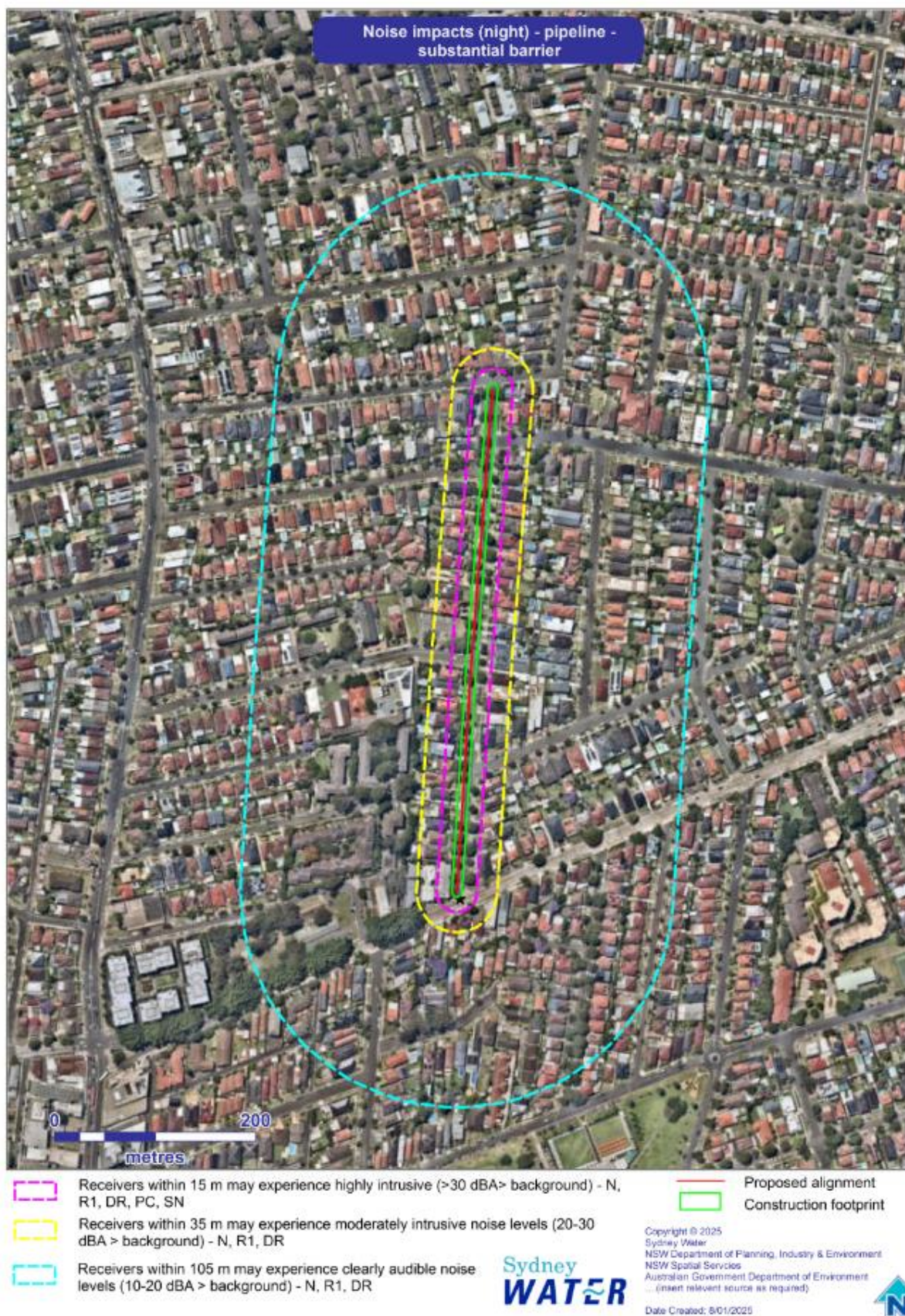


Figure 5 Noise impacts (night) – pipeline – behind substantial barrier

Table 4 Environmental mitigation measures

Environmental mitigation measures	
General	
1.1	<p>Should the methodology change from the EIA, no further environmental assessment is required provided the change:</p> <ul style="list-style-type: none">• remains within the construction footprint for the REF and has no net additional environmental impact or• is outside the construction footprint for the REF but:<ul style="list-style-type: none">- 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. <p>The 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.</p>
1.2	<p>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 Environmental Works Method Statement and/or CEMP.</p>
Noise and vibration	
2.1	<p>All noisiest work (use of concrete saw) should be completed before midnight</p>
2.2	<p>Consider less vibration intensive methodologies where practicable and use only the necessary sized and powered equipment.</p>
2.3	<p>Refer to Figures 3 & 4, along with the corresponding assessment findings (section 5).</p>

6 Conclusion

This Category B REF outlines potential environmental impacts associated with noise and traffic and social impacts to receivers as part of the CWM Renewal T41-S01 Pine Avenue, Five Dock. Any additional environmental impacts are considered negligible and potential impacts can be mitigated through implementation of the measures outlined in this Category B REF and the Multi-program REF. The proposal is not likely to significantly impact the environment.



Appendix A – Section 171 checklist

There are no requirements in addition to those considered in the Multi-program REF.

Appendix B – 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 <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