Review of Environmental Factors Multi-program - Category B

SW 212 06/26

Camden Gravity Main Renewals Project – SP0120 and SP0484 rising mains.

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) (August 2025). Together both documents assess the potential environmental impacts of the Camden Gravity Main Renewals Project – SP0120 and SP0484 rising mains ('the proposal'). 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 to biodiversity, noise and vibration, air quality, access, and social/visual amenity. During operation, the main potential impacts are associated with visual amenity, related to permanent tree removal. 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:
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Kye Linsley REF author Sydney Water Date: 22/05/2026	John Eames Senior Env Scientist Sydney Water Date: 22/05/2026	Tam Huynh Project Manager Company Date: 22/05/2026	Elissa Howie A/Snr Mgr Env & Heritage Sydney Water Date: 28 May 2026

2 Proposal Summary

Table 1 Description of proposal

Aspect	Detailed description
Location	The proposal is located in the suburb of Camden in the Camden Council Local Government Area (LGA), NSW. The proposal is located between Argyle Street to the north and Chellaston Street to the south. It spans across 4 reserves from north to south, including: • Rotary Cowpasture Reserve, consisting of a large grassy area and 9 softball diamonds and a sports shed used by multiple softball clubs • Wetlands Reserve, dominated by dense vegetation • Kings Bush Reserve, dominated by dense vegetation on either side of the shared user path • John Peat Reserve, consisting of a grassy area including a car park, public toilets, barbeques, picnic tables and the Chellaston playground. The proposal is on land zoned as Public Recreation (RE1) under the Camden Local Environmental Plan (LEP) 2010. The land is owned by Camden Council. The adjacent land is primarily zoned as Low Density Residential (R2) and as Primary Production (RU1). The Nepean River runs adjacent to the proposal, located about 20 m away at the closest point. A shared user pathway also runs through each of the reserves and is a key section of the Nepean River Cycleway. **Works on rising main associated with SP0484** The northernmost part of the SP0484 rising main works are in Rotary Cowpasture Reserve. The works traverse southwest along the reserve, adjacent to an informal dirt pedestrian pathway that leads through the Wetlands Reserve. The alignment then traverses west into Kings Bush Reserve, and then south towards the cleared grassy area in John Peat Reserve, directly east of Chellaston Playground. Refer to Figure 1 and Figure 2. **Works on rising main associated with SP0120** The northernmost part of the SP0120 rising main works are in Kings Bush Reserve, traversing a largely vegetated woodlands area, adjacent to a shared user pathway. The southern portion extends into a cleared grassy area in John Peat Reserve, directly east of Chellaston Playground. Refer to Figure 3 and Figure 4.
Approved REF	Review of Environmental Factors Multi-program pipeline and related infrastructure replacement, repair and upgrades (Multi-program REF) (August 2025).
Proposal description	The proposal is a rising main renewal as detailed in the Multi-program REF (August, 2025).

Aspect	Detailed description

	The proposal involves renewing the gravity sections of 2 wastewater rising mains from the high point to the discharge maintenance hole (MH) (asset 1146281) through a Cured-in Place Pipe (CIPP) relining method. This will require installing a 290 m above-ground temporary polyethylene (PE) bypass system, extending from Pit 1 (SP0120) through to an additional MH (asset 11006867), to allow continuous wastewater services during construction.
	
	The 2 sections undergoing relining works include:
	
	• SP0484 rising main (asset 9197921), which is about 500 m of DN500 pipeline (refer to Figure 1 and Figure 2)
	• SP0120 rising main (asset 3895396), which is about 233 m of DN450 pipeline (refer to Figure 3 and Figure 4).
	
	The scope of works includes:
	
	Site establishment
	
	• set up 2 temporary compound areas for plant and equipment (refer to Figure 1), located in:
	  ○ John Peat Reserve, directly west of Chellaston Playground and next to the Chellaston Street carpark
	  ○ Rotary Cowpasture Reserve directly south of the southernmost softball field
	• install protective fencing, Work Health Safety Environment Quality (WHSEQ) signage, and traffic control measures.
	
	Access tracks
	
	• conduct vegetation trimming and tree removal for access tracks (with a maximum width of 4 m); aligning with pre-existing pathways and cleared areas wherever possible to minimise impact
	• remove tree stump fence posts located by the southern entryway to Rotary Cowpasture Reserve
	• place geofabric with a layer of natural DBG20 (Dense Graded Base, 20mm nominal size) along the temporary constructed access tracks.
	
	SP0484 rising main renewal
	
	• excavate:
	  ○ five pits (measuring a maximum of 4m x 2.5 m x 2.6m) required for underground pipeline access
	  ○ two pits (measuring a maximum of 3 m x 1.5 m x 1.2 m) to trench the temporary PE bypass system under the western branch of the shared user footpath (measuring 15 m x 1 m x 1.2 m)
	• install cut-ins and a temporary PE bypass system

Aspect	Detailed description

	• tanker any residual wastewater at SP0120 and Pit 1 if required when connecting the temporary bypass system
	• excavate and remove existing concrete thrust blocks and deteriorated pipework bends (via excavation pits) and replace with new Ductile Iron Cement Lined (DICL) bends and supporting concrete thrust blocks
	• conduct cleaning, CCTV, and relining works for DN500 pipeline via excavation pits.
	Figure 1 shows the works required for SP0484 rising main.
	
	SP0120 rising main renewal
	• excavate:
	  ○ three pits (measuring a maximum of 5 m x 1.5 m x 2.5 m) required for underground pipeline access
	  ○ one temporary access pit (2 m x 1.5 m 2.5 m) required to drain flow from line.
	• install cut-ins
	• tanker any residual wastewater at the temporary access pit
	• conduct cleaning, CCTV, and relining works for DN450 pipeline via excavation pits.
	Figure 2 shows the works required for SP0120 rising main.
	
	Site de-establishment:
	• conduct post-installation CCTV inspection and performance testing
	• remove temporary PE bypass system
	• recommission gravity wastewater main
	• backfill, restore, and clean site to return to its original condition
	• remove geofabric and DBG20
	• restore tree stump fence posts (if possible)
	• demobilise from site.
	
	The following equipment will be used:
	• confined spaces safety equipment (e.g. gantry/davit, gas monitors)
	• skip bins
	• large air compressors

Aspect	Detailed description
	• generators • demo and chainsaw saws • road saw • excavators • tool trucks • tippers • jackhammers • hand tools • wacker packer • rigid trucks for backfill deliveries • sediment tank • PE pipe welding equipment • site facilities and amenities • storage containers • street sweepers • light vehicles • compactors (i.e. plate) • cranes • vacuum trucks / tankers • shoring • barriers – concrete / water filled • traffic control vehicles / setup equipment • lining equipment & trucks • boiler truck • high pressure cleaning trucks (i.e. jet truck / recycler) • CCTV van and equipment • barrel / trailer mounted/ hydraulic winches • concrete agitator trucks • concrete line pump • skid steer • compaction roller

Aspect	Detailed description
	• pressure testing equipment (water cart) • boring machine. All tankered wastewater can be reintroduced to the system via the discharge MH (Asset 1146281). The renewal works for both SP0484 and SP0120 rising mains will be carried out sequentially and site establishment and demobilisation activities will only occur once. The temporary bypass system will be installed for the end section of the SP0484 works and will continue being used throughout the SP0120 works. Access to the site will be via Chellaston Street and Argyle Street, and through the pre-existing and new access tracks. No private property access is required.
Proposal timing	The proposal will mainly occur during standard daytime construction hours and take about 22 weeks to complete. Nighttime work is estimated to take place over 2 shifts during shutdown and recommissioning of SP0120. No work is expected to take place on Sundays or on public holidays. The proposal is planned to start in March 2027.

Location of proposal and environmental constraints

Figure 1 Camden SP0484 – North



Figure 2 Camden SP0484 - South

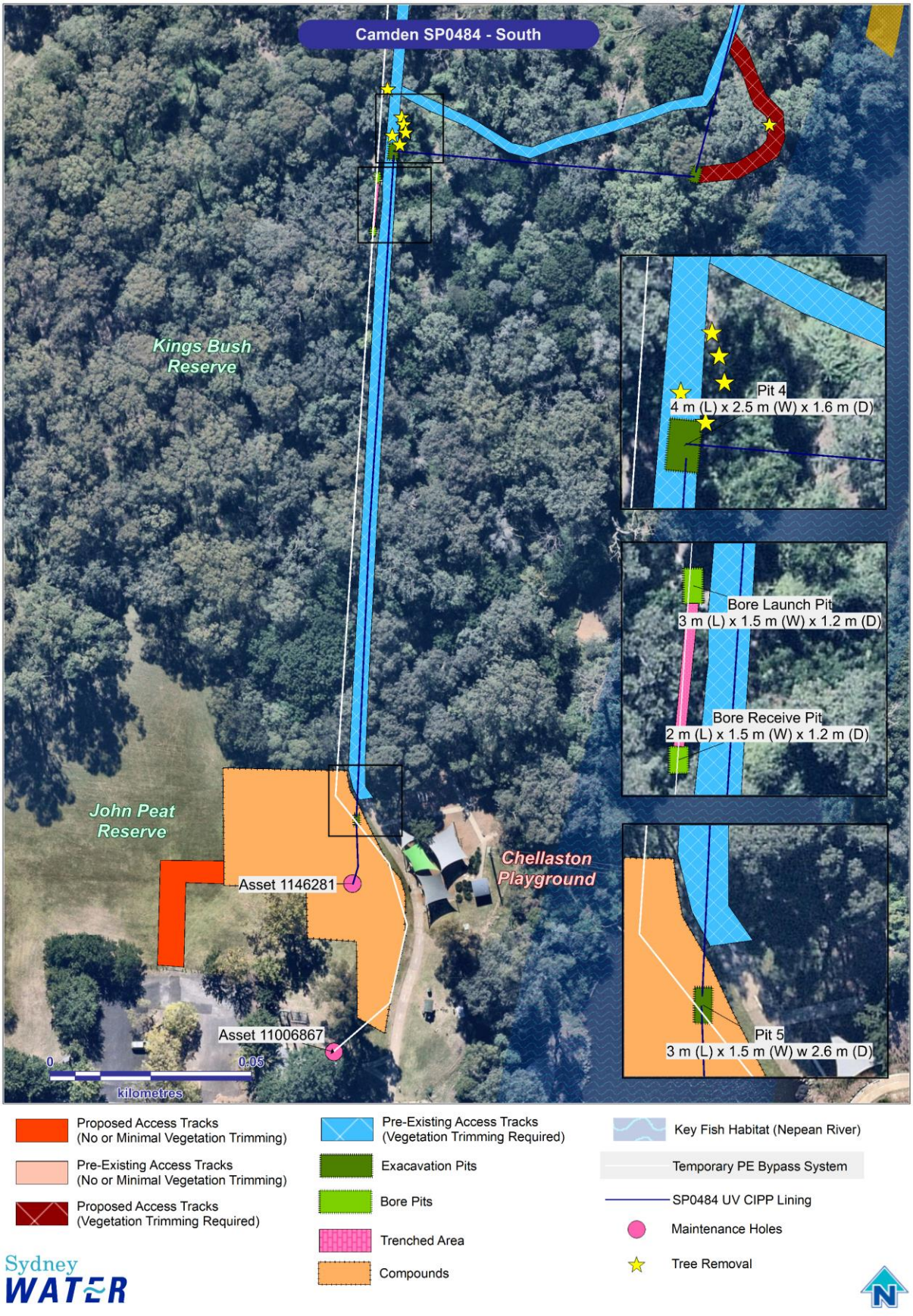


Figure 3 Camden SP0120 - North



Figure 4 Camden SP0120 - South



3 Consultation

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).

West Region Delivery Team (WRDT) is currently consulting with Camden Council on the proposal, including the location of works, compounds, access requirements, replacement tree planting and biodiversity offsets. WRDT will establish an agreement with Council before starting works on Council land.

Notification of the proposed works will be given to all softball clubs that use the softball diamonds and sports shed located in Rotary Cowpasture Reserve. WRDT is currently in the process of consulting with the softball clubs. WRDT and Sydney Water will follow best practice in notifying the community of the works.

4 Legislative requirements

Legislative requirements further to those identified in the Multi-program REF (August 2025) include:

- Section 171A of the Environmental Planning and Assessment Regulation 2021.

Section 171A checklist has been included in Appendix B.

5 Additional environmental impacts and mitigation measures

The tables below list the additional environmental impacts that could result from the proposal and 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	The area has been disturbed during construction of the existing assets. There are no acid sulfate soils, potential salinity, or contamination mapped within or nearby the site. Potentially unstable areas have been identified along the adjacent Nepean River but are at least 30 m away from the proposal and separated by permanent fencing. Excavation is required for both SP484 and SP120 rising mains to enable works. For SP0484 rising main, 5 excavation pits and 2 bore pits will be excavated. These pits are of various dimensions and are not expected to be greater than 4 m long, 2.5 m wide, and 2.6 m deep. A trench measuring 15 m long, 1 m wide, and 1.2 m deep will also be excavated between the bore pits to allow the temporary PE bypass system to traverse beneath the shared user pathway. See Figure 1	Manage potential impacts in accordance with mitigation measures in the Multi-program REF (August 2025) and the following additional mitigation measures: • A sedimentation and erosion control plan is to be prepared as part of the CEMP by the contractor and approved by Sydney Water prior to works.

Aspect	Additional impacts	Additional mitigation measures
	and Figure 2 for the expected dimensions of each excavation. For SP0120 rising main, 3 excavation pits and one temporary access pit will be excavated. These pits are of various dimensions and are not expected to be greater than 5 m long, 1.5 m wide, and 2.6 m deep. See Figure 3 and Figure 4 for the expected dimensions of each excavation. During excavation, soil will be temporarily stockpiled adjacent to the work area and later used for backfilling. Given the shallow excavation depths, the proposal is unlikely to generate large amounts of soils or impact the stability of the area. Ground disturbance may occur during the establishment of new access tracks and compounds, especially during tree removal activities. Since this will mainly be done in previously disturbed areas (i.e. grassy clearings or informal dirt pathways) this impact is likely to be minor. Geofabric and DBG20 will also be placed to minimise potential for erosion or sedimentation. Following construction, the site will be returned to previous conditions, including removal of geofabric and DBG20 and restoration of disturbed ground. Potential impacts to topography, geology, and soils are expected to be minor, as works are relatively small scale and localised.	
Water and drainage	The proposal is located within the Hawkesbury-Nepean catchment area, in a location adjacent to the Nepean River, less than 20 m east at the closest point. It is considered Key Fish Habitat. However, no works will take place inside the watercourse. Ground disturbance from excavation may result in low levels of soil erosion and sedimentation. Tree removal and vegetation trimming may also result in low levels of dust generation. These activities have the potential to cause short-term impacts to the river's water quality; however, this is expected to be minor given the temporary nature of excavation, the distance from the watercourse for most of the works, and the natural barrier created by riparian vegetation. The works do not involve deep excavation and are not expected to interact with groundwater or require dewatering.	Mitigation measures in the overarching Multi-program REF (August 2025) will be implemented to manage potential impacts.

Aspect	Additional impacts	Additional mitigation measures
	The temporary bypass system will be placed above an existing culvert, which passes beneath the shared-user path at the edge of Kings Bush Reserve. A site visit conducted on 13 January 2026, following recent rainfall, observed that the culvert was dry and moderately vegetated, indicating that it is not regularly conveying flows. No invasive works are required where the temporary bypass system crosses over the culvert, therefore the proposal is not expected to adversely affect drainage function or receiving environments. Given the temporary and localised extent of the works, impacts to water and drainage are expected to be minor. Impacts can be adequately managed under the safeguards in the overarching multi-program REF.	
Flora and fauna	A biodiversity survey was undertaken on 13 January 2026, and the associated Biodiversity Assessment Report (BAR) is in Appendix D. The survey identified that remnant native vegetation is present in 2 Plant Community Types (PCT) located within the study area: • Cumberland Red Gum Riverflat Forest (PCT 4025) • Cumberland Bangalay x Blue Gum Riverflat Forest (PCT 3145). To establish the access tracks and compounds, the proposal requires 0.03 ha of vegetation clearing (within PCT 3145) and the removal of about 17 locally native trees, including: • one Blackthorn (*Bursaria Spinosa*) • three Coast myall (*Acacia binervia*) • five Lightwood (*Acacia implexa*) • three Chinaberry (*Melia azedarach*) • five native trees of unknown species, including a few trees consisting of clusters of leafless branch stems and a tree covered in vines. Wherever possible, the proposal has been planned to follow pre-existing cleared areas (i.e. shared user paths or grassy clearings) to limit impacts to vegetation and trees. All areas of PCTs within the study area conformed to threatened ecological communities (TECs) listed under	Manage potential impacts in accordance with mitigation measures in the Multi-program REF (August 2025) and the following additional mitigation measures: • Offset removed trees and vegetation 3:1 in accordance with Sydney Water's Biodiversity Offset Guide. • Engage a licenced ecologist to inspect vegetation for potential fauna prior to tree/vegetation trimming and removal and relocate fauna before works. • Minimise vegetation clearance and disturbance. Where possible, limit clearing to trimming rather than the removal of whole plants tie-back and trim rather than removal.

Aspect	Additional impacts	Additional mitigation measures
	the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) namely: • BC Act: River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions • EPBC Act: River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria. During the survey, one threatened flora species was observed and recorded in the study area: the Camden White Gum (*Eucalyptus benthamii*), which is listed as Critically Endangered under both the BC Act and EPBC Act. There were 2 trees identified within the impact area and these must be avoided during vegetation trimming, tree removal, and construction works. Another 2 threatened flora species were identified as having a moderate likelihood of occurrence in the study area: • Spiked Rice-flower (*Pimelea spicata*) • Rufous Pomaderris (*Pomaderris brunnea*). Ten threatened fauna species were also assessed as having a moderate or higher likelihood of occurrence in the study area, including: • Little Lorikeet (*Parvipsitta pusilla*) • Eastern False Pipistrelle (*Falsistrellus tasmaniensis*) • Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*) • Little Bent-winged Bat (*Miniopterus australis*) • Grey-headed Flying-fox (*Pteropus poliocephalus*) • Powerful Owl (*Ninox strenua*) • Cumberland Plain Land Snail (*Meridolum corneovirens*) • Southern Myotis (*Myotis Macropus*) • Yellow-bellied Sheathtail-Bat (*Saccolaimus flaviventris*) • Greater Broad-nosed Bat (*Scoteanax rueppellii*).	• Physically delineate vegetation to be cleared and/or protected on site and install appropriate signage prior to works commencing. • Trees to be removed will be identified and marked prior to works. • Avoid any impacts to Camden White Gum trees in the work zone, these should be identified and protection zones established prior to works commencing (refer to figure 4-1 in Appendix D for details). • Adjust methodology (e.g. avoid area, hand excavate, implement exclusion fencing) to protect sensitive areas where possible. • Prioritise use of existing access tracks, cleared areas, and managed mown lawn areas.

Aspect	Additional impacts	Additional mitigation measures
	These flora and fauna species were not observed in the study area during the survey. A Test of Significance and Assessment of Significance was completed for flora, fauna, and TECs under the BC Act and EPBC Act respectively. These found that the proposal is not expected to result in a significant impact on the identified flora and fauna species. This is due to the localised nature of the works, because vegetation being impacted is sub-optimal for habitat and not considered important for survival, and is unlikely to lead to long-term decreases or impact recovery of the species. Refer to Appendix D for more detail. Sydney Water's Biodiversity Offset Guide requires our contractors to offset tree removal and vegetation clearance with a 3:1 ratio. For this proposal, 51 trees and 0.09 ha of vegetation will need to be replanted. This will likely take place in sites as close to the impacted area as possible. The project will not have a significantly adverse impact on threatened ecological communities or species such that local occurrence is likely to be placed at risk of extinction, on any habitat of a threatened species or ecological community provided mitigation measures are implemented.	
Heritage	**Aboriginal heritage** A basic Aboriginal Heritage Information Management System (AHIMS) search has identified that there are no recorded Aboriginal sites or places within 200 m of the proposal. Despite being close to the Nepean River, the proposal is not expected to have any impact on Aboriginal heritage, as the works are within an existing waste wastewater corridor that disturbed when the original wastewater infrastructure was built. A review of Geoscience Australia's Commonwealth Historical Aerial Photo (HAP) Collection confirms that the site has been largely disturbed since 1949. Based on the aerials, Rotary Cowpasture Reserve is assumed to have been previously used for agriculture, and John Peat Reserve appears largely cleared. Both Kings Bush Reserve and Wetlands Reserve appear densely vegetated; however, tree and vegetation removal	Mitigation measures in the overarching Multi-program REF (August 2025) will be implemented to manage potential impacts.

Aspect	Additional impacts	Additional mitigation measures
	activities have taken place since then to construct the concrete shared-user path and the connecting dirt tracks. Completion of Sydney Water's Aboriginal Heritage Due Diligence 'Quick Check' has determined that the works may proceed with caution. Refer to Appendix D. **Non-Aboriginal heritage** There are no non-Aboriginal heritage items close to the proposal. The closest item is the Camden Heritage Conservation Area, which is located about 150 m from the proposal at its closest point. No impacts to non-Aboriginal heritage are expected. Standard heritage mitigation measures outlined in the Multi-Program REF, including implementation of the Sydney Water Unexpected Heritage Finds Procedure, will be adopted for the duration of the works.	
Noise and vibration	Works are in multiple reserves used for public recreation. Facilities used by the public include the shared user pathway, toilets, barbecues and picnic tables, Chellaston Playground, and softball diamonds. The proposal will take place in the vicinity of residential properties, including those located along Chellaston Street, Forrest Cresent, and Alpha Road. The closest residential sensitive receiver (42 Chellaston Street) is about 40 m east of the Chellaston Street carpark access track and 70 m southeast of the southern compound. Most residential sensitive receivers, however, are located further away from the works on the eastern side of Kings Bush Reserve, at least 150 m away from the construction footprint. The existing noise environment is influenced by recreational park users and traffic using nearby roads. 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 This identified the proposal as Risk Level 1 (Low) because most of the works will take place during standard construction hours, use of noisy machinery will be occasional, and no rock breaking will be required. Other considerations included that the surrounding residential areas are low density and that noisy works (i.e. excavation) will primarily take place further away from	Mitigation measures in the overarching Multi-program REF (August 2025) will be implemented to manage potential impacts.

Aspect	Additional impacts	Additional mitigation measures
	sensitive receivers and/or is separated by a dense vegetation barrier. While residents and recreational users may be temporarily impacted by construction noise (i.e., excavation), the potential impacts will be minor due to works progressing along the alignment, and because sensitive receivers closest to the proposal will mainly be temporary visitors. Impacts to individual sensitive receivers will be temporary and minor. For the duration of the works, sensitive receivers (including residents of Chellaston Street, users of Chellaston Playground, and softball teams) may be impacted by noise occurring from the construction compounds. This noise is unlikely to occur outside of standard daytime hours and will not include noisier activities. Noting that works are planned to occur outside of softball season, the noise impacts to softball teams will be limited. Noise impacts to other recreational users will also be limited, as no construction will occur on Sundays or public holidays (when the site is busiest), and construction on Saturdays will be restricted to a few hours. Potential impacts can be managed through the implementation of identified safeguards. Vibration is not expected to be a significant issue due to the distance to the closest residential receiver and the minor nature of excavation. Vibration can be managed by implementation of safeguards in the Multi-program REF.	
Air and energy	There is potential for low level, short-term and localised impacts to air quality from construction vehicle emissions, and dust caused by ground disturbance, tree removal, and vegetation clearing. Sensitive receivers include nearby residents and recreational users in the nature reserves, Chellaston Playground, and the softball fields. Potential dust emissions from these activities can be adequately managed by implementing the safeguards in the Multi-Program REF, impacts to air quality and energy use are expected to be minor. There will be no operational air quality or odour impacts.	Mitigation measures in the overarching Multi-program REF (August 2025) will be implemented to manage potential impacts.
Waste and hazardous materials	Waste generated by the works will mainly be vegetation waste and surplus spoil from excavations.	Mitigation measures in the overarching Multi-program REF (August 2025) will be

Aspect	Additional impacts	Additional mitigation measures
	Spoil from the excavation will be reused as backfill following the works where feasible. Any excess spoil will be classified in accordance with the Classification Guidelines (EPA, 2014) and disposed of at an appropriately licensed offsite facility. The impact of waste generated by the works is expected to be minor. No hazardous materials will be used or stored on site and mitigation measures can adequately manage the potential impacts from unexpected contamination finds.	implemented to manage potential impacts.
Traffic and access	The site is located between Chellaston Street to the south and Argyle Street to the north, which are Local and Regional roads respectively. Access to the proposal will primarily be via these roads, a combination of pre-existing and new access tracks will also be used to conduct works. Refer to Figure 1 and Figure 2 for access tracks for SP0484 rising main, and Figure 3 and Figure 4 for access tracks for SP0120 rising main. Workers, equipment, and machinery will be brought to the site via light and heavy vehicles. It is expected that there will be about 10 construction workers on site at a time. Plant and equipment will be stored in the compound areas. Any vehicles unable to be parked in compounds will be parked in carparks near Chellaston Playground and Rotary Cowpasture Reserve or along nearby residential streets. The availability of street parking on nearby roads is considered able to accommodate worker vehicles during construction, due to the lower density of housing surrounding the site. The existing traffic environment at the site is comprised of relatively low traffic volumes on surrounding streets, mostly from residents and recreational area users. The shared-user paths have a moderate level of use from pedestrians and cyclists. During weekends, school holidays, and softball season (October to March), traffic and visitation levels are expected to rise due to increased use of the area. During construction, public access will still be granted to the reserves, carparks, and public amenities (i.e. toilets, picnic tables, barbecues, etc.). Traffic controls (i.e. detour signage) and ATF fencing will be used to prevent public access to compounds and construction works. Any vehicle or plant movement outside the compounds will be escorted by traffic controllers.	Mitigation measures in the overarching Multi-program REF (August 2025) will be implemented to manage potential impacts.

Aspect	Additional impacts	Additional mitigation measures
	No road closures will be necessary, however, concrete sections of the shared user path will be temporarily closed during installation and trenching of the temporary PE bypass system. This closure will remain in place for only a few days during standard construction hours. Other longer closures will also be required for the dirt tracks attached to the shared user path due to proximity to excavation pits. Pedestrians will still be able to walk around the reserves during this time by taking alternative routes along the shared user path or walking across the grassy cleared areas. Cyclists will need to temporarily dismount from their bicycles and take alternate routes to avoid the closures. None of the reserves will become completely inaccessible from the closures, as there are multiple paths providing access to each. Given the small number of workers and vehicles, and the staged nature of the works, traffic and access impacts resulting from the proposal will be minor. Since construction will primarily take place outside of softball season and will have limited weekend work (only Saturday morning), disruptions to visitors will be minimised. By implementing the mitigation measures, potential traffic and access impacts are expected to be minor.	
Social and visual	The potential social impacts of noise, vibration, traffic, and access are assessed above. Excavation and the above-ground temporary PE bypass system have the potential to have a minor temporary impact on visual amenity during construction. To limit this impact, the disturbed ground will be restored at the completion of works and the bypass system will be removed as soon as it is no longer required. Plant and equipment will also cause temporary visual impacts during construction. Vehicles and large machinery (i.e. excavators) will be parked in compound areas, or nearby streets if necessary (i.e. Chellaston Street). Plant and equipment will be visible for the duration of works to nearby receivers; however, due to the modified landscape and comparatively large size of the nature reserves, this impact will be minor. ATF fencing with feet and clamps will enclose compound areas and traffic controls will be used during construction works and movement of plant/equipment. This will	Mitigation measures in the overarching Multi-program REF (August 2025) will be implemented to manage potential impacts.

Aspect	Additional impacts	Additional mitigation measures
	minimise the risk associated with having compounds in proximity to recreational areas, especially those used by children (i.e. Chellaston Playground). Once construction is complete, the wastewater infrastructure will not be visible as it will be underground. No new above-ground structures are proposed. The tree removal will cause a permanent impact during operation, as offset planting is unlikely to be done in the same location. To limit this visual impact, offset planting will occur in the same general area, as close to the removal site as possible. Vegetation trimming will cause a temporary operational impact, since the vegetation will quickly regrow. Overall, removing 17 trees and trimming 0.03 ha of vegetation throughout a densely vegetated natural area is expected to cause minor visual impacts. Most construction works will occur within standard construction hours. Nighttime work is estimated to only take place over 2 shifts (0.5 weeks). No works will take place on Sundays or Public Holidays, and construction will primarily take place outside of softball season. Although the proposal works will likely occur across school holidays, this impact will be minor since the public will have continued access to public amenities. By implementing the mitigation measures, potential social and visual impacts are expected to be minor.	
Cumulative and future trends	No other known Sydney Water projects or other development are occurring in the area. Works are minor, localised, and not anticipated to substantially contribute to any cumulative environmental impact at either a local or regional scale.	Mitigation measures in the overarching Multi-program REF (August 2025) will be implemented to manage potential impacts.

6 Conclusion

This Category B REF outlines potential environmental impacts associated with biodiversity, noise and vibration, air quality, access, and social/visual amenity as part of the Camden Gravity Main Renewal Project – S0120 and SP0484 rising mains. Any additional environmental impacts are considered minor 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

The aspects of the Section 171 checklist relevant to the proposal that may differ from the Multi-program REF (August 2025) are considered in the table below. All other aspects of the Section 171 checklist remain as per that reported in the Multi-program REF.

Section 171 checklist	REF finding
Any environmental impact on a community	There may be temporary and minor impacts on the community associated with noise, air quality, access, and social/visual amenity. Impacts to the community are considered minor due to construction being temporary, exposure to each sensitive receiver being short, and that most of the works will take place during standard construction hours. Minor permanent visual impacts associated with tree removal, and temporary visual impacts associated with vegetation clearing is expected. These impacts will be mitigated in accordance with Sydney Water's Biodiversity Offset Guide.
Any transformation of a locality	The proposal requires temporary construction works and vegetation clearing. The proposal will not alter the locality, as they are temporary and involve no permanent structures. Tree removals and vegetation clearing will have minor permanent impacts. Replacement trees and vegetation will be planted in an appropriate site nearby; however, this is unlikely to transform the use or character of the locality, as it will remain consistent with the existing vegetated area.
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. There may be temporary aesthetic and recreational impacts due to the presence of construction works, plant and equipment, and vegetation clearing, and minor permanent impacts due to tree removal. Impacts during construction will be temporary, as the area will be restored once the works are complete; and impacts during operation will be minor, as all removed trees and vegetation will be offset 3:1.

Appendix B – Section 171A checklist

Section 171A of the EP&A Regulation imposes additional requirements on a determining authority to take into account certain matters under Part 6.2 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BCSEPP) for a proposal in a 'regulated catchment'. The regulated catchments are defined under the BCSEPP, and include the:

- Sydney Drinking Water Catchment
- Sydney Harbour Catchment
- Georges River Catchment
- Hawkesbury-Nepean Catchment.

As the proposal is within the Hawkesbury-Nepean catchment, the requirements of Section 171(A) are applicable guidelines for the proposal and are considered in the table below:

Section 171A checklist **(Development in regulated catchments)**	**REF finding**
BCSEPP – Section 6.6(1) - Water quality and quantity In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider the following:	
(a) whether the development will have a neutral or beneficial effect on the quality of water entering a waterway	Not applicable. No water released in waterway.
(b) whether the development will have an adverse impact on water flow in a natural waterbody	Not applicable. Proposal will have no impact on water flow.
(c) whether the development will increase the amount of stormwater run-off from a site	Not applicable.
(d) whether the development will incorporate on-site stormwater retention, infiltration or reuse	Not applicable.
(e) the impact of the development on the level and quality of the water table	Not applicable.
(f) the cumulative environmental impact of the development on the regulated catchment	The proposal will have a positive impact on the environment by ensuring an efficient and working wastewater service in the region.
(g) whether the development makes adequate provision to protect the quality and quantity of ground water	Not applicable. No groundwater will be interacted with.
BCSEPP – Section 6.6(2) - Water quality and quantity Development consent must not be granted to development on land in a regulated catchment unless the consent authority is satisfied the development ensures:	

(a) the effect on the quality of water entering a natural waterbody will be as close as possible to neutral or beneficial	Not applicable. Water will not be released into a natural waterbody.
(b) the impact on water flow in a natural waterbody will be minimised	Not applicable. Proposal will have no impact on water flow.
BCSEPP – Section 6.7(1) - Aquatic Ecology In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider the following:	
(a) whether the development will have a direct, indirect or cumulative adverse impact on terrestrial, aquatic or migratory animals or vegetation	The proposal requires vegetation clearing and tree removal within the impact area. No work is required in watercourses or waterbodies, so aquatic vegetation will not be impacted. Direct, indirect or cumulative adverse impacts to terrestrial, aquatic or migratory animals or vegetation of the locality will not be significant. Vegetation clearing and tree removal will be offset 3:1.
(b) whether the development involves the clearing of riparian vegetation and, if so, whether the development will require: (i) a controlled activity approval under the Water Management Act 2000, or (ii) a permit under the Fisheries Management Act 1994	Clearing is required in the riparian zone. These impacts will be offset in accordance with the Sydney Water Biodiversity Offset Guideline. Sydney Water is exempt from the need to obtain a controlled activity approval under the *Water Management Act 2000*. A permit under the FM Act is not required for the proposal.
(a) Whether the development will minimise or avoid: (i) the erosion of land abutting a natural waterbody, or (ii) the sedimentation of a natural waterbody	Mitigation measures to minimise the potential for sediment impacts are discussed in Table 3 and the Multi-program REF (August 2025).
(b) whether the development will have an adverse impact on wetlands that are not in the coastal wetlands and littoral rainforests area	The proposal will have minor vegetation clearing and tree removal in the Wetlands Reserve in Camden. This area is not in the coastal wetlands and littoral rainforest area. The vegetation clearing and tree removal will be offset in accordance with the Sydney Water Biodiversity Offset Guideline, which will limit long-term impacts to the site.
(c) whether the development includes adequate safeguards and rehabilitation measures to protect aquatic ecology	Aquatic ecology is not expected to be interacted with and/or impacted. Mitigation measures are discussed in Table 3 and the Multi-program REF (August 2025).

(d) if the development site adjoins a natural waterbody, whether additional measures are required to ensure a neutral or beneficial effect on the water quality of the waterbody	Not applicable. No works required inside a natural waterbody.
BCSEPP – Section 6.7(2) - Aquatic Ecology Development consent must not be granted to development on land in a regulated catchment unless the consent authority is satisfied of the following	
(a) the direct, indirect or cumulative adverse impact on terrestrial, aquatic or migratory animals or vegetation will be kept to the minimum necessary for the carrying out of the development	Aquatic ecology is not expected to be interacted with and/or impacted. Mitigation measures are discussed in Table 3 and the Multi-program REF (August 2025).
(b) the development will not have a direct, indirect or cumulative adverse impact on aquatic reserves	Not applicable.
(c) if a controlled activity approval under the Water Management Act 2000 or a permit under the Fisheries Management Act 1994 is required in relation to the clearing of riparian vegetation—the approval or permit has been obtained	Sydney Water is exempt from the need to obtain a controlled activity approval under *the Water Management Act 2000*. A permit under the FM Act is not required for the proposal.
(d) the erosion of land abutting a natural waterbody or the sedimentation of a natural waterbody will be minimised	Mitigation measures to minimise the potential for sediment impacts are discussed in Table 3 and the Multi-program REF (August 2025).
(e) the adverse impact on wetlands that are not in the coastal wetlands and littoral rainforests area will be minimised	The proposal will have minor vegetation clearing and tree removal in the Wetlands Reserve in Camden. This area is not in the coastal wetlands and littoral rainforest area. The vegetation clearing and tree removal will be offset in accordance with the Sydney Water Biodiversity Offset Guideline, which will limit long-term impacts to the site.
BCSEPP – Section 6.8(1) – Flooding	
(a) In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider the likely impact of the development on periodic flooding that benefits wetlands and other riverine ecosystems	Not applicable. The proposal will not impact flood behaviour. After construction, all infrastructure will be located underground and the site will be restored to pre-construction conditions,
BCSEPP – Section 6.8(2) – Flooding Development consent must not be granted to development on flood liable land in a regulated catchment unless the consent authority is satisfied the development will not	

(a) if there is a flood, result in a release of pollutants that may have an adverse impact on the water quality of a natural waterbody, or	Not applicable. The proposal will not impact flood behaviour. After construction, all infrastructure will be located underground and the site will be restored to pre-construction conditions, During construction, mitigation measures outlined in the Multi-program REF (August 2025) will help to prevent adverse impacts on water quality.
(b) have an adverse impact on the natural recession of floodwaters into wetlands and other riverine ecosystems	Not applicable. The proposal will not impact flood behaviour.
BCSEPP – Section 6.9(1) - Recreation and public access In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider:	
(a) the likely impact of the development on recreational land uses in the regulated catchment	The proposal is located on land zoned as recreational, across 4 reserves in Camden. The proposal will be managed to ensure that access to recreational land (and its facilities) are maintained where possible during construction. Some recreational land will be restricted from public access during construction (i.e., sections of grassy clearings where the compound zones will sit) and the shared-user pathway and dirt tracks may require temporary closures; however, at no point, will access to the reserves and facilities be closed off entirely. There will be no permanent impacts on recreational land. The impact has been addressed in Table 3 and has mitigation measures listed under the Multi-program REF (August 2025).
(b) whether the development will maintain or improve public access to and around foreshores without adverse impact on natural waterbodies, watercourses, wetlands or riparian vegetation	Not applicable.
BCSEPP – Section 6.9(2) - Recreation and public access Development consent must not be granted to development on land in a regulated catchment unless the consent authority is satisfied of the following:	
(a) the development will maintain or improve public access to and from natural waterbodies for recreational purposes, including fishing, swimming and boating, without adverse impact on natural waterbodies, watercourses, wetlands or riparian vegetation	The proposal is located adjacent to a watercourse (i.e., the Nepean River) but will not restrict access to it for the public.

(b) new or existing points of public access between natural waterbodies and the site of the development will be stable and safe	Not applicable.
(c) if land forming part of the foreshore of a natural waterbody will be made available for public access as a result of the development but is not in public ownership—public access to and use of the land will be safeguarded	Not applicable.

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 (ie 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

Appendix D – Biodiversity Assessment Report

Appendix E – Aboriginal Heritage Due Diligence Assessment