Review of Environmental Factors

Thickened Sludge Pumps Upgrade at Riverstone WRRF

1 Determination

This Review of Environmental Factors (REF) assesses potential environmental impacts of the proposal to upgrade the thickened sludge pumps at Riverstone Wastewater Resource Recovery Facility (WRRF). 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 are typical construction impacts such as noise. During operation, no impacts are anticipated. The proposal will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats. Therefore, a Species Impact Statement (SIS) and/or Biodiversity Development Assessment Report (BDAR) is not required.

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

Certification

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

Prepared by:	Reviewed by:	Endorsed by:	Approved by:
[redacted]			
Florence Jeong A/Senior Environmental Scientist Sydney Water Date: 9 October 2023	Veronica Ku Lead Environmental Scientist Sydney Water Date: 12 October 2023	Steven Liew Project Manager Sydney Water Date: 13 October 2023	Elissa Howie A/Environment and Heritage Manager Sydney Water Date: 13 October 2023

2 Proposal description

Table 1 Description of proposal

Aspect	Detailed description
Proposal need and objectives	The thickened sludge pumps at Riverstone WRRF have a very narrow operating range and require significant operator intervention to restore the system if a fault occurred. Upsizing the thickened sludge pumps to a unit with higher hydraulic capacity and head would allow the system to have a much greater range of operation. The objective of the proposal is to upgrade the thickened sludge pumps at the site to improve the solid processing system throughput and reliability. The proposal would also enable the site to cater for the current and forecasted future loads.
Consideration of alternatives/options	A 'do-nothing' option would have a number of consequences for both Sydney Water and customers. These include: • Mixed liquor accumulates in the bioreactors upstream of the pump station. This will eventually lead to clarifier failure and solids to overflow to the tertiary filters. • Over dilution of the thickened sludge results in inadequate digestion and an unstable biosolids product that fails to meet the biosolids guideline. • Overflow of sludge to the environment from the thickened sludge pump station as it cannot keep up with the throughput, resulting in an environmental incident and clean-up costs. For these reasons, the 'do-nothing' approach was not considered further as it will likely result in harm to the environment and a breach of Sydney Water's Operating Licence. By adopting the preferred option to upgrade the thickened sludge pumps, the compliance and environmental risks will be mitigated.
Proposal description and methodology	The proposal involves the upgrade of the thickened sludge pumps and associated equipment at Riverstone WRRF. The scope of works will be entirely contained within the existing thickened sludge building with the exception of installation of variable speed drives (VSDs) in the switchroom and limited traffic movements within the WRRF for deliveries. The scope of work includes: • removal of existing 3 kW thickened sludge pumps, hoppers and chutes • demolition of existing concrete plinths and construct new plinths to suit size of new pumps • installation of two new 7.5kW pumps, hoppers and chutes • installation of new reclaimed effluent dilution lines including isolation valves and modification of reclaimed effluent pipework

Aspect	Detailed description
	• replacement of existing ABB WaterMaster flowmeters with new Krohne flowmeters suitable for sludge application • installation of new Pressure Indicating Transmitters (PITs) on the pump discharge side • replacement of existing VSDs and circuit breakers to suit the requirements of the new pump motors • replacement of existing electrical cables to supply new pump motors and instrumentation • review cable connection points and cable runs from supply points • PLC/SCADA control systems integration for new pumps, VSDs, and instruments • installation of a manually operated overhead monorail (rated capacity 1000 kg) including beam and chain block for lifting of new pumps during maintenance • testing, commissioning and proof of performance (POP) testing. The following types of equipment and materials will generally be used: • 2 x cavity pumps • 2 x Krohne magflow meters • 2 x PIT's • approximately 10 x small bore stainless steel valve for PIT's • electrical VSD's and associated equipment for switchboard modification • cable tray / Unistrut • mobile lifting equipment (counterbalance lifter) • chain block • small hand tools • concrete saw • formwork • welder
Location and land ownership	The Riverstone WRRF is located within Lot 1 DP 594977 and on 108 Bandon Road, Vineyard NSW 2765. The Riverstone WRRF lies within the Blacktown Local Government Area (LGA) and is owned and managed by Sydney Water. Refer to Figure 1 for location map.
Site establishment and access tracks	Access to the Riverstone WRRF will be from Bandon Road on the northern boundary of the Riverstone WRRF. Site access and parking will be via the existing access tracks and carpark within the Riverstone WRRF.
Ancillary facilities (compounds)	Construction compound will likely be required to house site sheds, construction amenities and materials laydown. The existing site compound at the WRRF will be used as a compound for the proposal.

Aspect	Detailed description
	An indicative location for the compound is shown on **Figure 1**.
Work hours	Work and deliveries will be scheduled during standard daytime hours: • 7 am to 6 pm, Monday to Friday • 8 am to 1 pm, Saturdays. The proposal is not expected to require work outside these hours. However, Sydney Water's Project Manager can approve work outside of standard daytime hours. The approval process is described in the mitigation measures in Section 6.
Proposal timing	Construction is expected to start October 2023 and take about six weeks to complete per pump. As two pumps will be replaced, the total work duration will be about 12 weeks.
Operational requirements	There will be no interruption to the operational system of the pumps during construction as the pumps will be upgraded one at a time.

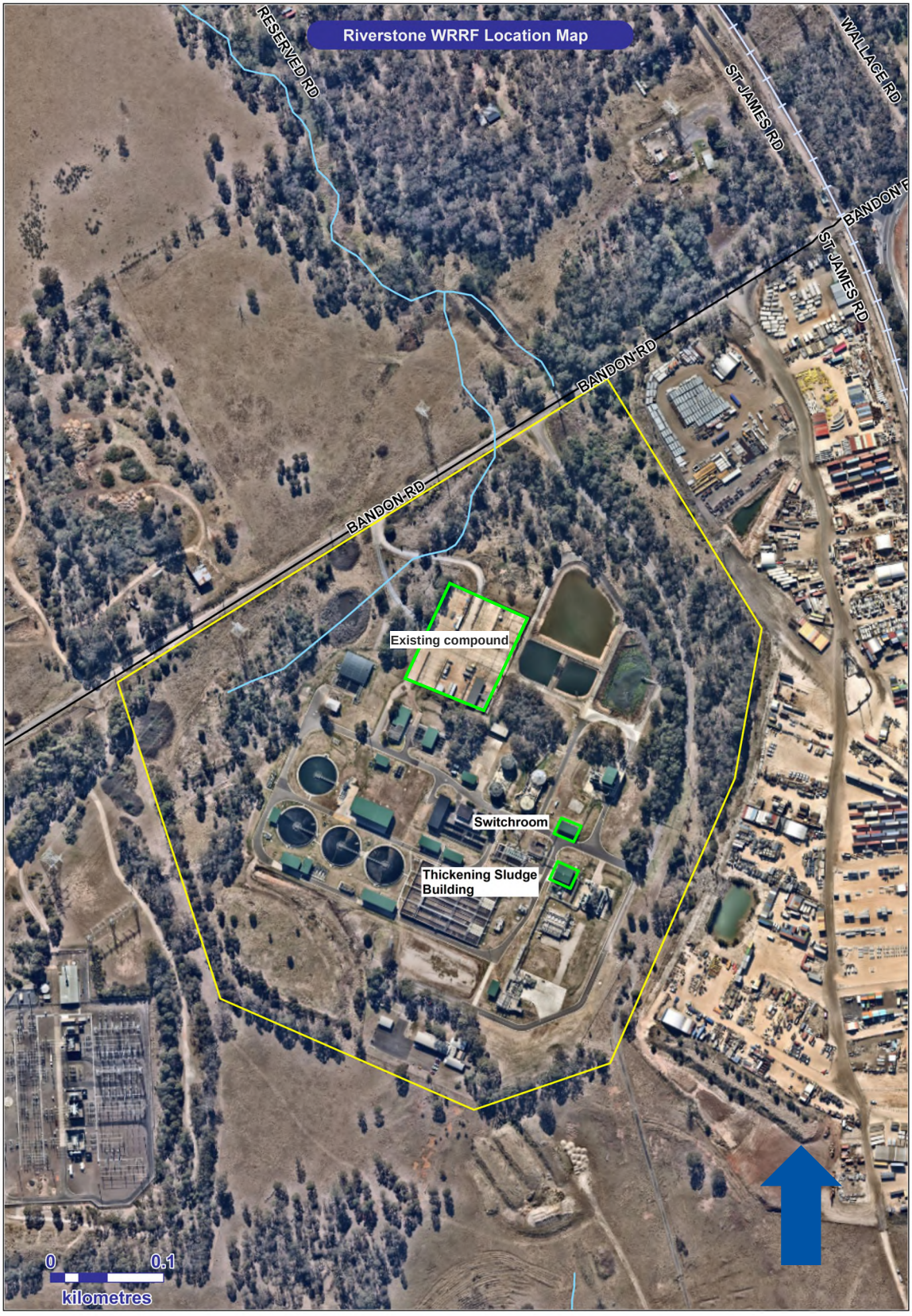

Figure 1 Location of proposal (all works contained within the existing thickening sludge building with exception of VSD installation at the switchroom. Riverstone WRRF boundary indicated by yellow line)

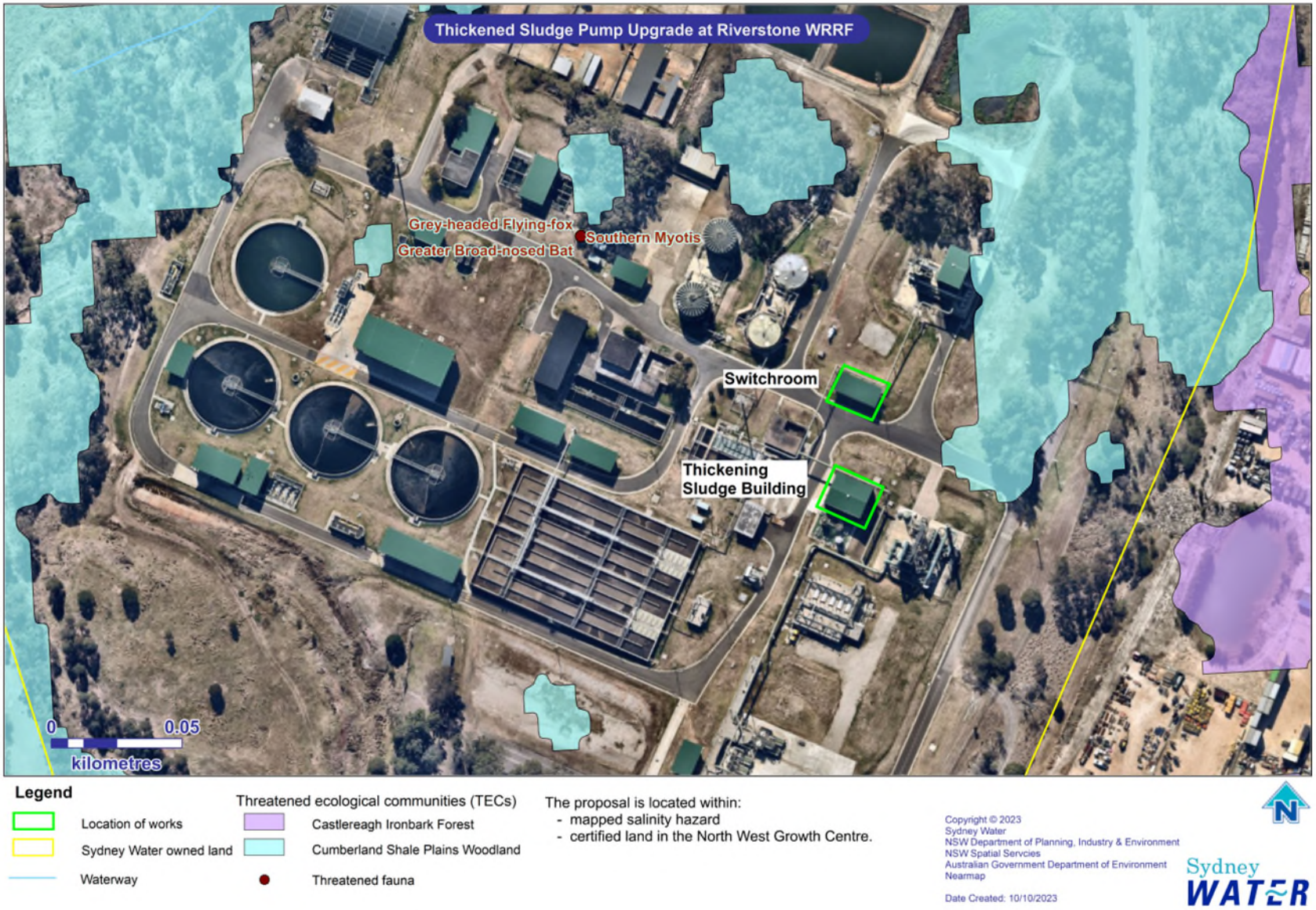

Figure 2 Environmental constraints map

3 Consultation

Community and stakeholder 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 is specified in the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP). A review against these requirements indicated that no formal consultation is required under the TISEPP (Appendix B).

The nature, scale and extent of the proposal's potential impact has been evaluated in this REF. The project is unlikely to impact or interact with the community due to the scale of the works and the location of works being contained within the treatment plant boundary. Community and stakeholder engagement will be guided by the overarching Communications and Engagement Plan North Region (CW28583-DM-PLA-0016) which sets out how stakeholders would be engaged, if necessary. The Project Management Plan also identifies key stakeholders (internal and external) for this proposal. If our work impacts the community in some way, we will consult with affected groups. This includes engaging the broader community and stakeholders before making key decisions.

4 Legislative requirements

There are Minister's Conditions of Approval relevant to Riverstone WRRF (a 2008 approval for the operation of water related services for North West Growth Area Release Precincts (MP07_0125)). The approval included amplification of Riverstone WRRF including upgrades to the wastewater pumping station and WRRF from 2 ML/d to 14.2 ML/d. The approval also identified that the ultimate treatment capacity (35.4 ML/d by 2045) would be subject to separate environmental assessment. Five modifications to the approval have been approved since the original project approval. The last modification in 2017 approved the adoption of Sydney Water's certified management systems in lieu of project specific Operational Environmental Management Plans (OEMPs), to manage environmental risks and provide a consistent approach to managing Sydney Water's assets.

The proposal is not inconsistent with the approved activity. The Conditions of Approval (CoA) and CoA for subsequent modifications have been reviewed. The proposal does not affect our ability to comply with the CoA. Given the relatively minor scope of the proposal, it is not considered necessary to notify the Department of Planning and Environment of this proposal.

Table 2 Environmental planning instruments relevant to the proposal

Environmental Planning Instrument	Relevance to proposal
Blacktown Local Environmental Plan 2015 (Blacktown LEP)	The proposal is located on land zoned SP2: Infrastructure.
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP)	Section 2.126 (2) of the TISEPP permits development by or on behalf of a public authority for sewage treatment plants without consent on any land in a prescribed zone.

Environmental Planning Instrument	Relevance to proposal
	The proposal involves upgrade of a sewage treatment plant and is in land zoned SP2: Infrastructure, which is considered a prescribed zone. As Sydney Water is a public authority, the proposal is permissible without consent.
SEPP (Precincts – Central River City) 2021	The Riverstone WRRF is located within the North Growth Centre in 'certified land' as referred in Section 3.12 of this SEPP. Offsets are not required for vegetation removal in 'certified land' and the proposal will not involve any clearing of vegetation.

Table 3 Consideration of key environmental legislation

Legislation	Relevance to proposal	Permit or approval	Timing and responsibility
Protection of the Environment Operations Act 1997 (POEO Act)	The proposal is covered by an existing EPL 1796 and meets the EPL compliance requirements. Temporary relaxation of the EPL 1796 is not required during construction / commissioning. A variation to EPL 1796 is not required for operation. Any pollution incidents which occur during construction must be reported and managed in accordance with SWEMS0009: Responding to incidents with an environmental impact.	N/A	N/A
National Parks and Wildlife Act 1974 (NPW Act)	The proposal will be undertaken in previously disturbed areas within the Riverstone WRRF. Therefore, the likelihood of disturbing unidentified Aboriginal heritage sites is considered low. The impacts to Aboriginal heritage are assessed in Section 5.	N/A	N/A
Water Act 1912 / Water Management Act 2000	The proposal will not encounter groundwater during construction. As such, a Water Access Licence (WAL) or a Water Supply Works Approval (WSWA) under the Act will not be required.	N/A	N/A

5 Environmental assessment

The environmental impacts checklist (SWEMS0019.01) was completed for the works which considers all environmental aspects. Table 4 includes only the potentially impacted aspects. Figure 2 shows the environmental constraints map for the proposal.

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

Aspect	Potential impacts
Topography, geology and soils	The proposal will be confined to the existing thickening sludge building and switchroom. The existing site compound will be used for the proposal. No ground disturbance is required for the removal of existing concrete plinths before replacing the pumps. The potential for offsite erosion and sedimentation impact from this activity is negligible and localised with the implementation of mitigation measures.
Water and drainage	An unnamed creek is located about 300 m north-west of the proposal. This unnamed creek is a disturbed waterway and a smaller tributary of Eastern Creek. The proposal will be confined to the existing buildings and no impact to this waterway is expected. The Riverstone WRRF is located in a Low Flood Risk Precinct (Blacktown LEP, 2015). The likelihood of a large flood event during construction is low, given the proposal is located above the 1% AEP flood event and will be contained to the existing buildings. The proposal may require temporary storage of fuels and/or chemicals for equipment and machinery operation during construction. Potential impacts include accidental leaks, spills and seepage into soils, groundwater or local stormwater system. Potential impacts will be managed by implementing the mitigation measures in Section 6.
Flora and fauna	There are patches of threatened ecological communities (TECs) located within the WRRF. However, no vegetation removal or trimming is required and the proposal will be confined to the existing buildings. No threatened flora species was identified within the proposal site. Three threatened fauna species, including Southern Myotis, Grey-headed Flying Fox and Greater Broad-nosed Bat, were recorded about 100 m to the west of the proposal. However, no impact to these species are anticipated as all works are confined to the existing buildings and no habitat removal is to occur.
Heritage	**Aboriginal heritage** A basic search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 4 October 2023. One registered AHIMS site [redacted]. The proposal would occur within the operational area of the Riverstone WRRF, which is subject to historical disturbance by the construction of

Aspect	Potential impacts
	the Riverstone WRRF. The presence of unidentified Aboriginal objects within the proposal area is unlikely. **Non-Aboriginal heritage** The proposal would not impact any listed heritage items.
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 low risk and therefore, a qualitative noise impact assessment was undertaken. The proposal is located in a rural landscape, surrounded with industrial sites and vegetated areas. The nearest residential properties are located about 320 m east of the Riverstone WRRF across Riverstone Parade. During construction, there is likely to be a minor increase in noise and vibration associated with the use of equipment. Concrete plinths will be demolished using a concrete saw, which may elevate noise levels. However, these activities will be undertaken intermittently and during standard daytime hours. The majority of works will also be undertaken within the existing thickening sludge building and switchroom. Although some sensitive receivers may experience short-term noise impacts, the overall noise impact is not expected to be significant, and can be managed through standard mitigation measures. No changes to operational noise are expected, as the proposal largely involves upgrade of the existing pumps contained within an existing building.
Air and energy	The proposal is located within an industrial setting. There is potential for minor and localised air quality impacts during construction from: • dust generated during concrete cutting • emissions from construction machinery, equipment and vehicles • odour from construction work including vehicle exhaust and fuel intensive machinery. There will be minimal air quality impacts during construction due to the nature of the works and the distance to nearest sensitive receivers. Impacts on air quality and odour are expected to be temporary and will be minimised by implementing the mitigation measures listed in Section 6. There will be additional energy use through fuel consumption in vehicles and machinery. This is anticipated to have only a minimal impact due to the limited extent of the proposal. During operation, there will be no changes to background odour at nearby receivers. The proposal will not result in any permanent or

Aspect	Potential impacts
	operational impacts upon air quality. The proposal is expected to improve the overall odour profile by mitigating the overflow of sludge to the environment if the existing pumps were retained.
Waste and hazardous materials	The proposal will generate a small volume of general wastes. The waste will be classified according to the Waste Classification Guideline (NSW EPA, 2014) and be disposed of at an appropriately licensed facility. The HazCentral database does not identify the switchroom or thickening sludge building as containing any hazardous building materials (HBM). The switchroom was built after 2016 and the thickening sludge building was built in 2019-2020 and are unlikely to contain HBM. If HBM is identified, works, including for the management of waste, should be managed using the mitigation measures in Section 6. During operation, the proposal will generate minimal waste from routine maintenance activities.
Traffic and access	Access to the Riverstone WRRF is via Bandon Road. No new access tracks will be required and the existing compound will be used for the proposal. On-site parking will be used for the construction workforce of about 10 people. Given that the proposal only requires small number of vehicles, the impact of construction vehicles on surrounding road network performance is considered negligible. Any impacts will be short-term and temporary and will be managed with the implementation of the mitigation measures in Section 6.
Social and visual	The proposal is surrounded by industrial sites and vegetation. The proposal will include no additional disturbance outside of the Riverstone WRRF boundary. The proposal will result in minimal impacts to noise, traffic, access and air quality. Therefore, the proposal is unlikely to socially impact the closest residential properties, located approximately 320 m east of the proposal. The proposal is not expected to alter the visual character of the surrounding environment as all works will occur within the existing buildings. It is unlikely to be visually disruptive during construction to the viewshed of the nearest residential properties or private vehicles travelling along Bandon Road.
Cumulative and future trends	The NWPGA Package 4a project (Project 1) is planned within the Riverstone WRRF and may co-incide with this project. Given this proposal is short-term and temporary, the potential for cumulative impact is expected to be manageable.

Aspect	Potential impacts
	The risk of impacting day-to-day operation of the plant during construction will be minimised through ongoing engagement with the plant team.

6 Environmental mitigation measures

Table 5 Mitigation measures

Mitigation Measures
General
Sydney Water's Project Manager (after consultation with the environmental and community representatives and affected landowners) can approve temporary ancillary construction facilities (such as access tracks), without additional environmental assessment or approval if the facilities meet the following principles: • limit proximity to sensitive receivers • no disruption to property access • no impact to known items of non-Aboriginal and Aboriginal heritage • outside high risk areas for Aboriginal heritage • use existing cleared areas and existing access tracks • no impacts to remnant native vegetation or key habitat features • no disturbance to waterways • no disturbance of contaminated land or acid sulfate soils • will be rehabilitated at the end of construction. The Contractor must demonstrate in writing how the proposed ancillary facilities meet these principles. Any facilities that do not meet these principles will require additional environmental impact assessment. The agreed location of these facilities must be shown on the EWMS/CEMP site plan and appropriate environmental controls installed.
Should the proposal change from the REF, no further environmental assessment is required provided the change: • remains within the assessment/study area for the REF and has no net additional environmental impact or • is outside the assessment/study area for the REF, but o reduces impacts to biodiversity, heritage or human amenity or o avoids engineering (for example, geological, topographical) constraints and o after consultation with any potentially affected landowners and relevant agencies. 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.
Prepare an Incident Management Plan/EWMS/CEMP outlining actions and responsibilities during: • predicted/onset of heavy rain during works • spills • unexpected finds (e.g. heritage and contamination)

Mitigation Measures
• other potential incidents relevant to the scope of works. All site personnel must be inducted into this document.
To ensure compliance with legislative requirements for incident management (e.g. *Protection of the Environment Operations Act 1997)*, Sydney Water's employees and contractors will follow SWEMS0009. Attach SWEMS0009 to the CEMP/EWMS.
Promptly notify the Project Manager, Community Relations Representative (Program Delivery) and Environmental Representative (Program Delivery) of any complaints.
Assign single person with accountability for coordinating communication and information flow across contractors and consultants and provide the contact details of this person in the EWMS and/or CEMP.
Aboriginal heritage
Do not make publicly available or publish, in any form, Aboriginal heritage information on sites / potential archaeological deposits, particularly regarding location.
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.
All access to the sites are to occur via existing roads.
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.
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 Environmental Services) to agree on proposed management approach.
Stop work during heavy rainfall or in waterlogged conditions when there is a risk of sediment loss off site.
Water and drainage

Mitigation Measures
Use appropriate controls to avoid potential sedimentation to waterbodies.
Keep functioning spill kit on site for clean-up of accidental chemical/fuel spills and aquatic spill kit on site for clean-up of accidental chemical/fuel spills in mapped key fish habitat. 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.
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.
Flora and fauna
No vegetation clearing or trimming is permitted for the proposed works.
If native fauna is encountered on site, stop work and allow the fauna to move away unharassed. Engage WIRES or a licenced ecologist if assistance is required to move fauna.
If any damage occurs to vegetation, notify the Sydney Water Project Manager and Environmental Representative so that appropriate remediation strategies can be developed.
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 provided.
Air and energy
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.
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.
Manage waste and excess spoil in accordance with the NSW EPA Resource Recovery Orders and Exemptions (if applicable) and / or Waste Classification Guidelines. Where materials are not suitable or cannot be reused onsite or offsite, recycle soils at a licensed soil recycling facility or dispose at an appropriately licenced landfill facility.
If fibro or other asbestos containing material is identified, restrict access and follow Sydney Water's Asbestos Management – Minor Works procedure, Document Number 746607 and SafeWork NSW

Mitigation Measures
requirements. Contact Sydney Water Project Manager (who will consult with Property Portfolio Environmental team propertyenvironmental@sydneywater.com.au).
Noise and vibration
Works must comply with the Construction Noise Guideline (Draft, 2021), including scheduling work and deliveries during standard daytime working hours of 7am to 6pm Monday to Friday and 8am to 1pm Saturday. No work to be scheduled on Sunday nights or public holidays.

Incorporate standard daytime hours noise management safeguards into the EWMS/CEMP, including but not limited to:
• identify and consult with the potentially affected residents prior to the commencement:
  o describe the nature of works; the expected noise impacts; approved hours of work; duration, complaints handling and contact details
  o 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
• plant or machinery will not be permitted to warm-up near residential dwellings before the nominated working hours
• appropriate plant will be selected for each task, to minimise the noise impact (e.g. all stationary and mobile plant will be fitted with residential type silencers)
• engine brakes will not be used 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).

Traffic and access
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.).
Social and visual
Work sites will be restored to pre-existing condition or better.
Maintain work areas in a clean and tidy condition.
Undertake works in accordance with Sydney Water Communications policies and requirements including:

Mitigation Measures
• notify impacted residents and businesses • erect signs to inform the public on the nature of work • personnel treat community enquires appropriately.

Appendix A – Section 171 checklist

Section 171 checklist	REF finding
Any environmental impact on a community	There may be short-term impacts on the community from typical construction impacts such as noise. However, the proposal will be confined to the operational areas of the Riverstone WRRF and will mostly be located inside existing buildings. The closest residential receivers are located about 320 m east of the Riverstone WRRF. There will be environmental improvements by providing a reliable wastewater 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 proposal will lead to environmental improvements by ensuring a reliable wastewater service to collect and treat wastewater, minimising any impacts on the ecosystem.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality	The proposal will not 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.
Any impact on the habitat of any protected animals (within the meaning of the *Biodiversity Conservation Act 2016*)	The proposal will not have any impact on the habitat of protected animals.
Any endangering of any species of animal or plant or other form of life, whether living on land, in water or in the air	The proposal will not be endangering any species of animal, plant or other form of life, whether living on land, in water or in the air.
Any long-term effects on the environment	The proposal will not have any long-term impacts on the environment but will have a long-term benefit by providing a reliable and modern wastewater service for the area.
Any degradation of the quality of the environment	The proposal will not cause the degradation of the quality of the environment.
Any risk to the safety of the environment	The proposal will not increase risk to the safety of the environment.

Section 171 checklist	REF finding
Any reduction in the range of beneficial uses of the environment	The proposal 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	There is a potential to encounter HBM and it is suspected that the existing switchroom may contain HBM. These items (if encountered) will be removed and disposed of in accordance with relevant legislation and standards. Waste disposal will be in accordance with the environmental mitigation measures, and no environmental problems associated with the disposal of waste are expected.
Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	The proposal will not increase demand on resources, that are, or are likely to become, in short supply.
Any cumulative environmental effect with other existing or likely future activities	The proposal will not have any cumulative environmental effect with other existing or likely future activities.
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	Due to the distance of the proposal from the coast, 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 an upgrade 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 wastewater service by removing the current bottleneck in the solids stream process.
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. The proposal will be entirely within the operational area of the Riverstone WRRF and will have no vegetation impact. By restoring capacity constraints of the sludge pumps, overflows into the environment that result in deterioration of the biological diversity and ecological integrity, will be minimised.
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 service reliability and cater for growth. The proposal will minimise more costly rehabilitation solutions if the constraints are addressed in the immediate future.

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