



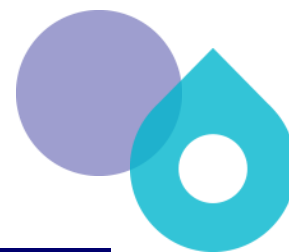
Appendix B Updated Management Measures

Table B-1 includes the management measures from the EIS. The measures have been updated to address issues raised in the submissions. The table also includes changes made during preparation of the Amendment Report. For new measures that are responses to submissions, cells are shaded orange and changes to existing measures are in red text. For new measures that have resulted from amendments, cells are shaded yellow and changes to existing measures are in green text.

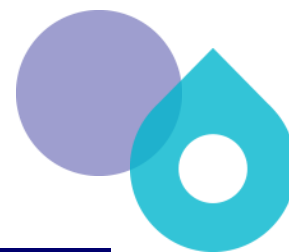
Where a reference is made to a report section, table or figure, these references are to the EIS, unless noted otherwise.

Table B-1 Updated management measures

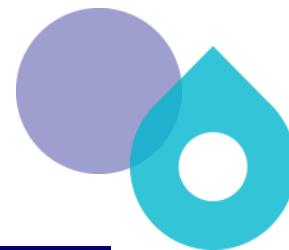
Reference	Impact	Management measure	Timing
General			
G01	Environmental management during construction	<p>Prepare and implement a Construction Environmental Management Plan (CEMP) consistent with <i>Environmental Management Plan Guideline – Guideline for Infrastructure Projects</i> (DPIE, 2020). The CEMP will include construction environmental management measures outlined in this table and may be divided into sub-plans. The CEMP must be endorsed by Sydney Water’s environmental representative and approved by Sydney Water’s project manager before construction activities commence.</p> <p>Induct all project staff and contractors into the CEMP requirements before they start site work on the project.</p>	<p>Prior to construction</p> <p>During construction</p>
G02	Environmental management during operation	<p>Operate the project in accordance with Sydney Water’s existing management systems (or equivalent contractor management systems), including:</p> <ul style="list-style-type: none"> • Asset Management System (ISO 55001) • Quality Management System (ISO 9001) • Health and Safety Management System (AS/NZ 4801) • Environmental Management System (ISO 14001) <p>Incorporate any ongoing operational measures from this table into the relevant existing management system.</p>	During operation
G03	Environmental management during early works	Prepare and implement an environmental work method statement(s) for low-impact early works. The work method statement must be endorsed by Sydney Water’s	Prior to construction



Reference	Impact	Management measure	Timing
		environmental representative and approved by Sydney Water's project manager before early works commence.	
G04	Environmental management during commissioning	Incorporate commissioning-related environmental management measures from this table into the project's commissioning management plan.	Post-construction and commissioning
G05	Environmental restoration of construction impacts	<p>Develop and implement a Rehabilitation Management Plan to restore pipeline work sites as soon as possible to pre-existing condition or as otherwise agreed with relevant landowner or council. This plan will also include the following:</p> <ul style="list-style-type: none">• Removing all equipment, materials and environmental controls from site.• Where like for like re-vegetation is not possible (for example to minimise risk to pipelines from tree roots), consider vegetation suited to the infrastructure requirements and environmental conditions.• Where street trees cannot be replaced like for like, consider other opportunities to reduce impacts to streetscape character and visual amenity.• Return disturbed areas to preconstruction ground level where practical.• Rehabilitate areas of native vegetation removal to the highest ecological condition possible.• In areas of native vegetation removal, reuse felled vegetation (logs and tree-hollows) and other habitat features such as rocks/boulders to increase the habitat values.• In areas of native vegetation removal, use locally sourced (local provenance) seed stock only. All species installed are to be locally indigenous and suitable and characteristic of the surrounding Plant Community Types (PCTs).• Where possible reuse stockpiled vegetation as part of rehabilitation works.• Where open trenching of waterways is required, enhance aquatic habitat and restore creeks to an improved state.	Post-construction and commissioning



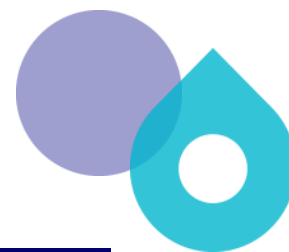
Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none">• In areas covered by the Phase 2 Aerotropolis DCP, consider tree planting provisions of the DCP in designing re-vegetation, including in relation to the risk of wildlife attraction.• Incorporate inputs from relevant experts in revegetation, ecology, geomorphology.• Approach to maintaining revegetated areas during their establishment phase.	
G06	Environmental management during construction	<p>Develop and implement construction site layout plans as part of the project's CEMP. Development of the plans should consider the following as a minimum:</p> <ul style="list-style-type: none">• For any locations with potential for flooding impacts (eg waterway crossings, compounds C1, C2, C3, C4, C8, C9, C14):• determining the existing flood risk at each location• locating stockpiles and equipment storage areas away from drainage pathways, and where possible in elevated positions or at alternative sites• locating site buildings outside the 1% AEP flood extent, where possible. If not possible, allow for flood waters to pass underneath buildings• maximise the offset distance between noisy plant and adjacent sensitive receivers, including directing noise-emitting plant away from sensitive receivers• show locations of waste storage and stockpiles of materials within each of the construction compounds (including contingency for unexpected volumes and longer-term storage of waste such as excess spoil if commercial arrangements for reuse or disposal are delayed).	<p>Detailed design</p> <p>Prior to construction</p> <p>During construction</p>
G07	Risk of brine pipeline failure	Undertake a detailed risk assessment of pipeline failures. If any further management measures are identified, incorporate these into the design or into the standard operating procedure for the pipelines as relevant.	Detailed design
G08	Inadequate communication and	Develop and implement a Community and Stakeholder Engagement Plan (CSEP) that will outline the following engagement activities:	Detailed design



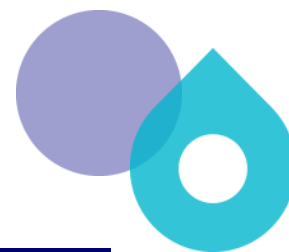
Reference	Impact	Management measure	Timing
	consultation during design and construction	<ul style="list-style-type: none">• ongoing consultation with landowners, stakeholders, local councils, businesses and other government agencies• notifications of construction impacts to impacted communities and how these will be managed, including significantly impacted residents near long-term compounds and pipeline tunnelling locations• regular project updates to nearby communities, including information on positive impacts and long-term project benefits• processes for community complaints and response management system• a dedicated 1800 toll free number for enquiries• a dedicated email address and website for the project• resident notifications regarding:<ul style="list-style-type: none">– start of construction– significant milestones– major detours, traffic disruptions and controls– after hours work• communication of key messages in a range of languages to reflect diversity of the community• vehicle management signs to communicate traffic changes to road users and communicate traffic management plans. <p>The CSEP will also outline the scope of ongoing community and stakeholder engagement that is appropriate and required when construction is completed.</p>	<p>Prior to construction</p> <p>During construction</p>



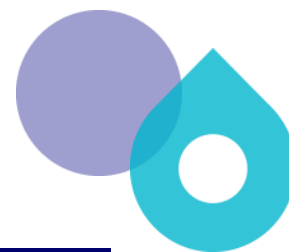
Reference	Impact	Management measure	Timing
G09	Customer complaints during construction	<p>Develop and implement a Complaints Management Record that will document the following information for each complaint and record it in Sydney Water's customer relationship systems:</p> <ul style="list-style-type: none">• date and time complaint received• type of communication (letter/email/phone call)• name, address and contact number of the complainant• nature of the complaint• action taken in response (including follow up with the complainant)• details on whether a resolution was reached• details on whether mediation was required/used• monitoring to confirm the complaint was resolved.	During construction
G10	Impacts to utilities	Continue to consult and coordinate with other major projects and utility providers that may be impacted during construction, or where cumulative impacts may occur.	Prior to construction During construction
G11	Work commencing without required legislative approvals	Obtain all relevant approvals required under legislation as outlined in Chapter 5.	Prior to construction During construction
G12	Impacts to waterways	Consult with DPI Fisheries during development of the CEMP, including the Biodiversity Management Plan, Soil and Water Management Plan and management measures at the Hinchinbrook Creek crossing.	Prior to construction
G13	Consultation with WaterNSW	Consult with WaterNSW during the development of relevant sections of the CEMP.	Prior to construction
G14	Impacts from bushfire	Incorporate the requirements of the Planning for Bush Fire Protection 2019 into the detailed design of the AWRC.	Detailed design



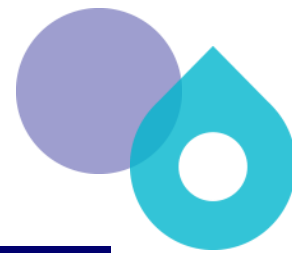
Reference	Impact	Management measure	Timing
G15	Consultation with Western Sydney Airport (WSA)	Consult with WSA regarding the final design of the AWRC and any changes in risks relating to wildlife strikes.	Detailed design
Strategic context			
SC01	Impact of land use zoning and population growth on project staging	Consult with DPIE, government departments, local councils, developers and landowners about the progress of development and land use zoning in the Upper South Creek servicing area to inform ongoing growth sensitivity analysis, project sizing and staging.	Ongoing
SC02	Impact of government water strategy and planning on decision to build environmental flows pipeline	Consult with DPIE (Water) NSW Government environmental flows working group on the details of the optimal treated water release location and approach and how this can be incorporated into the Greater Sydney Water Strategy and water sharing plans. This will inform Sydney Water's decision about whether to build the environmental flows pipeline.	Detailed design
SC03	Impacts on Western Sydney Parklands	Consult with Greater Sydney Parklands to ensure impacts on the parkland and rehabilitation of disturbed areas are appropriately managed, to coordinate any interactions between project infrastructure and future recreation or other facilities proposed in the Cecil Park precinct or as part of the Southern Parklands Framework.	Detailed design During construction



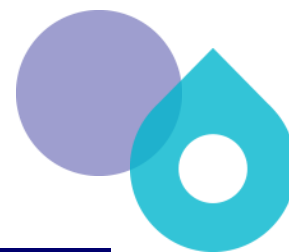
Reference	Impact	Management measure	Timing
Urban design			
UD01	Visual impact of AWRC site structures and parkland area	<p>Prepare an Urban Design and Landscaping Plan for the AWRC site aligning with the themes and principles outlined in Table 4-4 and consider the opportunities identified in Table 4-4 as the urban design progresses. This plan will also:</p> <ul style="list-style-type: none">• address constraints associated with bushfire, flooding, and airport safeguarding• incorporate vegetation management that considers the principles of Guidelines for Vegetation Management Plans on Waterfront Land (NSW Office of Water, DPI 2012) and the Western Sydney Aerotropolis Riparian Revegetation Strategy (once finalised) and the tree planting provisions of the Phase 2 Aerotropolis Development Control Plan (once finalised)• include architectural design to soften the industrial aesthetic.• consider integrating the heritage character of the site with the treatment and finishes of the new design.• consider the finalised version of the draft guideline 'Recognise Country – Draft Guidelines for development in the Aerotropolis'• incorporate inputs from relevant experts in architecture, landscape architecture, bushfire management, heritage, revegetation, ecology, wildlife hazard management and flooding.	Detailed design
UD02	Alignment of AWRC site urban design with NSW government aspiration for South Creek green spine	Consult with the DPIE teams responsible for place management and green spaces in preparing the Urban Design and Landscaping Plan to ensure the project aligns with the NSW government's vision for the green spine along South Creek.	Detailed design
Waterways			



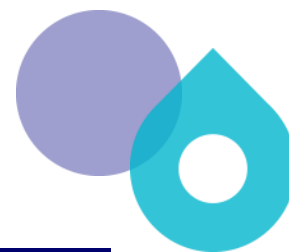
Reference	Impact	Management measure	Timing
WW01	Impacts on geomorphology from construction in waterways (general)	Design and implement construction methodologies for works in waterways to appropriately manage site-specific geomorphic conditions in each waterway (for example dispersive soils in South Creek), seeking inputs from a qualified geomorphologist where needed.	Detailed design During construction
WW02	Instream works temporarily change the flow of water resulting in erosion and changes to hydraulic conditions and the geomorphology of a waterway	<ul style="list-style-type: none">Minimise the duration of instream works and where practical, conduct instream work during periods of low flow.Minimise the 'wet area' impacted during the installation of trenched crossings.	During construction
WW03	Use of equipment and machinery in waterways reduces bank and bed stability and leads to resuspension of sediment	Whenever possible: <ul style="list-style-type: none">operate equipment on land or from a floating barge to minimise disturbance to the banks and bed of the water bodyuse temporary crossing structures or other practices to cross watercourses with steep and/or highly erodible banks and beds.limit machinery fording of the watercourse to a one-time event (ie over and back).	During construction
WW04	Clearing of riparian vegetation and excavation activities within and adjacent to waterways causes erosion and	Isolate works in waterways using booms, silt curtains or similar to contain suspended sediment.	During construction



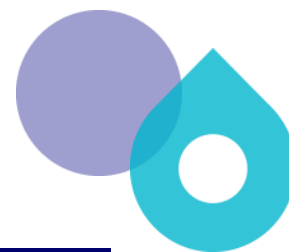
Reference	Impact	Management measure	Timing
	sedimentation of waterways, impacting downstream geomorphology		
WW05	Construction in waterways reduces bed and bank stability and geomorphology of channel is altered by gradient change (slumping)	Undertake the following measures: <ul style="list-style-type: none">• Store materials excavated from the trench above the top of bank until the materials can be backfilled into the trench. The top 10 to 50 cm of channel substrate should be stored separately and replaced during backfilling, where practical or material of the same quality should be used.• Restore bed and banks of the watercourse or water body to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient should be restored. Consider principles in relevant policy and guidelines including Fish Habitat Conservation and Management (DPI, 2013a) and Why do fish need to cross the road? (Fairfull and Witheridge, 2003).	During construction
WW06	Construction in waterways reduces bed and bank stability	When using an isolated construction method such as a coffer dam, do not remove the isolation method until all works, including backfilling, contouring and stabilisation have taken place.	During construction
WW07	Construction in waterways reduces bank stability	If replacement rock reinforcement or armouring is required to stabilise eroding or exposed areas, ensure that appropriately sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank and natural stream alignment.	Detailed design During construction



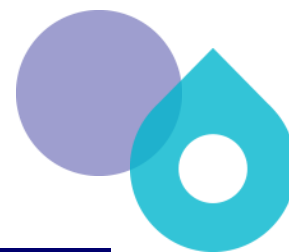
Reference	Impact	Management measure	Timing
WW08	Geomorphology and aquatic ecology impacts of trenchless construction on waterways, including frac-outs and streambed slumping	<p>Ensure pipeline designed to sufficient depth to avoid streambed slumping, incision and erosion.</p> <p>Determine failure-threshold criteria to indicate when a trenchless crossing method has failed, and construction works will be stopped. Examples of failure-threshold criteria may include:</p> <ul style="list-style-type: none">• an in-water frac-out that cannot be contained or mitigated• streambed slumping• schedule delays resulting from unexpected equipment failure or weather.	Detailed design During construction
WW09	Geomorphology impacts of trenchless construction on waterways (general)	Determine an alternative crossing method (eg contingency crossing plan) in the event the trenchless crossing method is not successful.	Detailed design During construction
WW10	Tunnelling of waterways reduces bank stability and cause erosion and sedimentation	Locate the entry and exit points back from the channel, beyond the top of bank to allow containment of any sediment or other substances above the top of bank. Restore entry and exit points to pre-construction conditions.	During construction
WW11	Removal of riparian vegetation reduces bank stability at Warragamba River release	Consider riparian planting and natural bank stabilisation measures in the detailed design phase.	Detailed design



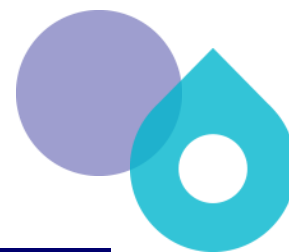
Reference	Impact	Management measure	Timing
WW12	Release of treated water causes erosion of the bank or bed of Warragamba River	Ensure that the erosion control and armouring extends sufficiently into the river waterways . Confirm the existing substrate prior to construction to determine the likelihood of erosion as well as the scale of time over which erosion can be expected to occur. If non-cohesive substrate or easily eroded substrate is identified, instream works may be required for protection of the riverbed.	Detailed design
WW13	Impacts to bank stability from construction and operation of release structures	Implement subsurface drainage controls, where appropriate, to maintain groundwater and surface water interactions and to maintain the stability of any reclaimed land. The type and location of subsurface drainage controls should be determined through onsite investigation with considerations for: subsurface flow potential, erodibility of backfill materials, and degree of slope.	Detailed design During construction
WW14	Impacts to aquatic ecology and fish passage	Design and install coffer dams and temporary in-stream structures associated with open trenching in accordance with the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013a).	Detailed design During construction
WW15	Aquatic ecology impacts of trenched construction on waterways from flow modification and erosion and sedimentation	Temporary in-stream structures should be installed during low-flow periods, and measures established in the CEMP about how high flow events will be managed to limit erosion of the structures and associated sedimentation of downstream waterways.	Detailed design During construction



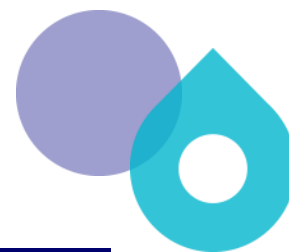
Reference	Impact	Management measure	Timing
WW16	Aquatic ecology impacts of trenched construction on waterways, including impacts to fish and water quality	For dewatering of temporary in-stream structures: <ul style="list-style-type: none">• notify NSW DPI seven days prior to any dewatering activities in order to organise potential fish rescue activities. A separate s.37 permit may be required from NSW DPI to relocate fish.• pump water a minimum of 30 m away from the waterway so it preferentially does not re-enter the waterway. If water is to re-enter the waterway, ANZECC water quality guidelines (or Wianamatta -South Creek Water Quality Objectives) the waterway objectives need to be adhered to.	During construction
WW17	Impacts on fish migration	Where practical, open trenching of waterways, particularly Kemps Creek and South Creek are to be avoided between late April and early June, and late October to late December, to minimise disruption of downstream and upstream Australian Bass migration.	During construction
WW18	Disturbance to vegetated riparian zone impacts at AWRC site	Establish a vegetated riparian zone (VRZ) on the AWRC site (40 m from South Creek and wetland areas and 30 m from Kemps Creek) and apply an offset where operational areas of the AWRC encroach on this, in accordance with the principles of Guideline for Controlled Activities on Waterfront Land (NSW Office of Water , DPI 2012), Guidelines for controlled activities on waterfront land - Riparian corridors (NRAR 2018) and airport safeguarding constraints .	Post construction
WW19	Aquatic ecology impacts of outlet structures (South Creek, Nepean River, Warragamba River)	Design release structures considering the principles in Guidelines for Outlet Structures on Waterfront Land (NSW Office of Water DPI, 2012).	During detailed design



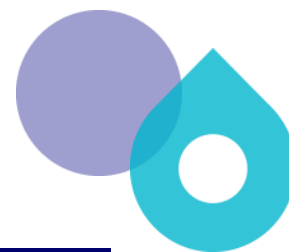
Reference	Impact	Management measure	Timing
WW20	Mixing of waterway releases	Consider opportunities, where practical, to improve mixing and dilution of releases (for example investigating options for submerging release structures). The feasibility/acceptance of alternative options would need to be assessed against a number of key considerations including (but not limited to) engineering requirements, operations and maintenance risk, geomorphology and energy dissipation requirements.	During detailed design
WW21	Impacts on South Creek from wet weather releases during low flows	Investigate whether there are any scenarios where treated water releases to South Creek could occur when creek flows are low and still increasing in response to rainfall. If necessary and where feasible, identify opportunities to minimise releases while flows are still increasing in South Creek.	Detailed design
WW21A	Impacts to waterways and riparian vegetation	Where reasonable and practical, incorporate recommendations in the 'Guidelines for controlled activities on waterfront land' (DPI 2012) and 'Guidelines for controlled activities on waterfront land – Riparian corridors' (NRAR 2018).	Detailed design During construction
WW21B	Impacts to aquatic ecology from low salinity levels in treated water releases	Confirm the need to re-mineralise treated water releases to the Nepean River during detailed design. Consideration is to be given to existing conductivity levels locally and within the catchment and ANZG (2018) and ANZECC (2000) guideline values.	Detailed design
	Geomorphology impacts of building release structures	This impact is appropriately managed by other measures in this 'Waterways' section of the table, including WW01-7.	Detailed design During construction
	Erosion and sedimentation of waterways	This impact is appropriately managed by measures in the 'Surface water' section of this table.	Prior to construction During construction



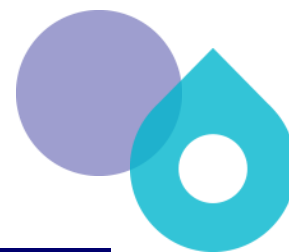
Reference	Impact	Management measure	Timing
	Spoil transport from stockpiles into waterways	This impact is appropriately managed by measures in the 'Surface water' section of this table.	During construction
	Geomorphology and aquatic ecology impacts of trenchless construction on waterways associated with groundwater interaction	This impact is appropriately managed by measures in the 'Surface water' section of this table.	Detailed design
Terrestrial biodiversity			
TB01	Biodiversity impacts	<p>Prepare and implement a Biodiversity Management Plan as part of the project's CEMP. The plan will include:</p> <ul style="list-style-type: none">• identification of no go zones and physical delineation of vegetation to be cleared and/or protected on site, including installation of appropriate signage prior to works commencing• construction phase terrestrial biodiversity measures from this table• roles and responsibilities• monitoring and auditing requirements (including recording areas and locations of vegetation removed and revegetation)• measures to prevent the spread of weeds, pathogens and to manage biosecurity.	<p>Prior to construction</p> <p>During construction</p>
TB02	Removal of native vegetation and fauna habitats,	Vegetation trimming or removal is not to proceed without written authorisation from the Sydney Water Project Manager or delegate.	<p>Prior to construction</p> <p>During construction</p>



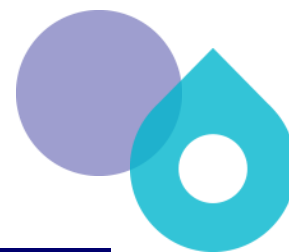
Reference	Impact	Management measure	Timing
	including threatened species		
TB03	Removal of native vegetation and fauna habitats, including threatened species	Minimise vegetation clearance and disturbance, including impacts to standing dead trees and riparian zones. Where possible, limit clearing to trimming rather than the removal of whole plants.	Prior to construction During construction
TB04	Removal of native vegetation and fauna habitats, including threatened species	Adjust construction methodology (for example avoid area, hand excavate, implement exclusion fencing) to protect sensitive areas where possible (such as mature trees, known threatened species, populations or ecological communities).	Prior to construction During construction
TB05	Removal of native vegetation and fauna habitats, including threatened species	Protect trees in accordance with the requirements of Australian Standard 4970-2009 for the Protection of Trees on Development Sites. Engage a qualified arborist where roots >50mm are impacted within the Tree Protection Zone.	Prior to construction During construction
TB06	Impacts to fauna	Engage qualified ecologists to undertake pre-clearance inspections (including fauna relocation) of vegetation for potential fauna prior to clearing or trimming, including the banks of larger watercourses to be impacted. Habitat trees are to be soft felled in the presence of a qualified ecologist. Undertake daily inspections of open pits and trenches to monitor for trapped fauna.	Prior to construction During construction
TB07	Impacts to fauna - microbats	Where practicable do not undertake works that impact directly on potential microbat habitat at Warragamba River during breeding season (November to February).	During construction



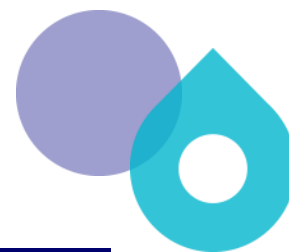
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TB08	Impact to vegetation outside impact area	If any damage occurs to vegetation outside of the impact area stop work in that area and notify the Sydney Water Project Manager or delegate.	During construction
TB09	Impacts on the habitat of threatened species associated with human made structures at the Warragamba environmental flows release structure.	Install passive roost exclusion measures over the vertical shaft as follows: <ul style="list-style-type: none"> • Install during either spring (March to May) or autumn (September to October). • Undertake repeated stag watching surveys prior to installation of exclusion measures to confirm the presence of microbats within the habitat, and to determine when all bats have left the potential roost. • Once all bats have exited the habitat, install a permanent cap over the opening of the shaft using material such as spray polyurethane foam or foam concrete seals (used for capping mine shafts / adits). • Undertake repeat stag watching post installation of the exclusion measures to confirm the successful exclusion of microbats. 	Prior to construction
TB10	Residual impacts to biodiversity	Prepare a Biodiversity Offset Strategy in accordance with the NSW Biodiversity Offset Scheme to address the species and ecosystem credit requirements outlined in section 9.1.10 the 'Upper South Creek Advanced Water Recycling Centre project amendments: Biodiversity Assessment' , (Biosis, November 2021).	Prior to construction
TB11	Impact on mineral or extractive resources	Consult with Regional NSW in the event that a Biodiversity Stewardship Site(s) is proposed.	Prior to construction
	Inadvertent impacts on grey-headed flying fox habitat or vegetation near the environmental flows release structure	This impact is appropriately managed by measures in the 'Noise and vibration' and 'Landscape character and visual' sections of this table.	Prior to construction During construction



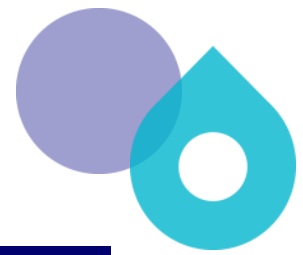
Reference	Impact	Management measure	Timing
Surface water			
SW01	Construction surface water impacts	<p>Prepare and implement a Soil and Water Management Plan as part of the project's CEMP. The plan will include:</p> <ul style="list-style-type: none">• construction phase surface water, groundwater, contaminated land and soils and waterways management measures from this table• roles and responsibilities• monitoring and auditing requirements	Detailed design During construction
SW02	Increased runoff, reduced infiltration and pollutant loading to South Creek, including exacerbated downstream flooding conditions	<p>Design, install and maintain stormwater management measures on the AWRC site (including a range of Water Sensitive Urban Design measures) to ensure:</p> <ul style="list-style-type: none">• operational releases to South Creek achieve DPE EES water quality and flow objectives (Western Sydney Planning Partnership, 2020) for South Creek and by considering pollution load reduction stormwater quality and flow targets in Penrith City Council DCP (2014) the draft Western Sydney Aerotropolis DCP – Phase 2 (October 2021)• operational efficiency of installed measures• post-development peak flows do not exceed pre-development peak flows for the 50%, 5% and 1% AEP storm events.	Detailed design During construction During operation
SW03	Increased runoff may exacerbate flooding conditions in South Creek downstream of AWRC	Progressively construct operational stormwater management measures for potential use and contribution to stormwater management during construction, if practical.	Detailed design During construction



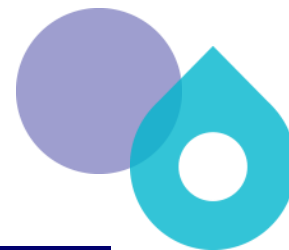
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SW04	Excessive irrigation of the green space area on AWRC site may lead to localised increases in saline groundwater levels and saturated saline soils	Develop and implement an irrigation procedure that as a minimum: <ul style="list-style-type: none">identifies an irrigation rate that considers the local deficit between rainfall and evapotranspiration identified in the Surface Water Impact Assessment (Aurecon Arup 2021) to avoid salinisationavoids watering areas without vegetation coveris tailored to address the ultimate landscape and site design.	Detailed design During operation
SW05	Sediment laden and contaminated surface runoff, including releases from sedimentation basins, entering waterways	Implement and maintain sediment and erosion control measures and install sedimentation basins in appropriate locations that consider the construction phase stormwater quality targets in the draft Western Sydney Aerotropolis DCP – Phase 2 (October 2021) (PO1 in section 4.3.2 and PO1-PO5 in section 9.6.2) and considering the guidance in Managing Urban Stormwater, Soils and Construction Volume 1, 4th Edition (Landcom, 2004). Management measures will be developed considering the guidance provided in the project's Surface Water Impact Assessment (Aurecon, Arup, 2021d).	Prior to construction During construction
SW06	Spills of chemicals, fuels and partially treated wastewater on the AWRC site mean contaminants may enter waterways	Store chemicals, fuels and oils in bunded areas on the AWRC site.	During operation



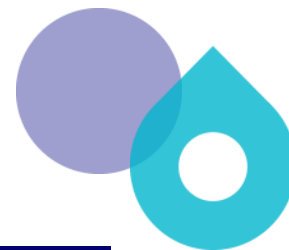
Reference	Impact	Management measure	Timing
SW07	Spills of chemicals, fuels and partially treated wastewater on the site mean contaminants may enter waterways	Develop and implement the following as part of the CEMP: <ul style="list-style-type: none">• spill response procedure in accordance with Australian Spill Control Industry Standard for Spill Response Kits (ASCIS 2695)• vehicle, plant and equipment maintenance and refuelling procedure.	During construction
	Discharges occurring via scour valves to waterways	This impact is appropriately managed by measure G02 in this table.	During operation
	Stockpiles and excavations with acid sulfate soils (ASS)	This impact is appropriately managed by measures in the 'Surface water' and 'Contaminated land and soils' sections of this table and applies to compound C14 and brine pipeline construction near Georges River and Prospect Creek.	During construction
	Saline groundwater encountered during excavation may enter surface water	This impact is appropriately managed by measures in the 'Groundwater' section of this table.	During construction
	Contaminated surface runoff from stockpiles entering waterways	This impact is appropriately managed by measures in the 'General management' section of this table and in the 'Groundwater' section of this table.	During construction
	Contaminated waste material entering waterways	This impact is appropriately managed by measures in the 'Waste-General' management' section of this table.	During construction



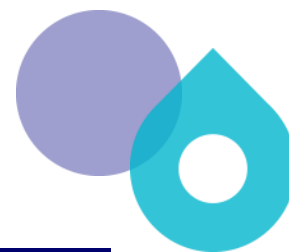
Reference	Impact	Management measure	Timing
	Water required for construction activities such as dust suppression may impact local or regional water resources	This impact is appropriately managed by other measures in the 'Surface water' section of this table.	During construction
	Overtopping of coffer dams during higher river flow events may mobilise sediments	This impact is appropriately managed by measures in the 'Waterways' section of this table.	During construction
	Drilling fluid escaping to the surface enters surface water runoff	This impact is appropriately managed by measures in the 'Groundwater' section of this table.	During construction
	Disruption of surface water connectivity where waterway crossings constructed by tunnelling	This impact is appropriately managed by measures in the 'Groundwater' section of this table.	During construction



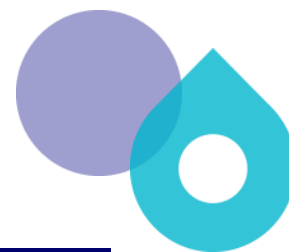
Reference	Impact	Management measure	Timing
	Vegetation removal on or near watercourses may cause bank damage and expose soil surfaces	This impact is appropriately managed by measures in the 'Terrestrial biodiversity' and 'Waterways' sections of this table.	During construction
	Temporary obstruction and interference of normal drainage channels during trenching causing upstream ponding and sedimentation	This impact is appropriately managed by measures in the 'Waterways' section of this table.	During construction
	Water leaking from the pipelines during operation	This impact is appropriately managed by measure G02 in this table.	During operation
Flooding			
FL01	Working on or near flood-prone land	<p>Develop and implement a construction and operational flood preparedness procedure in consultation with NSW SES, Wollondilly Shire Council and Penrith City Council and in accordance with the Flood Impact study in Appendix L. As a minimum, this will include:</p> <ul style="list-style-type: none">• monitoring procedures for rainfall and flood warnings (Flood Watch, Early Warning Network)• actions to be completed prior, during and post flood events	<p>Prior to construction</p> <p>During construction</p> <p>During operation</p>



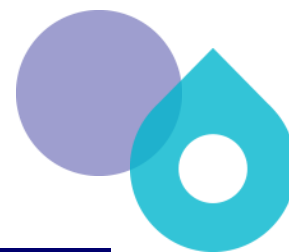
Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none">identifying evacuation routes, rescue procedures and steps to resume normal operations.reporting requirements and corrective actions	
	Construction activities near waterways have potential to change local flooding conditions	This impact is appropriately managed by measure G06 in this table.	Prior to construction During construction
	Coffer dams and flow barriers at Warragamba River and Nepean River have potential to change flooding conditions.	This impact is appropriately managed by measure G06 and the 'Waterways' section in this table.	During construction
Groundwater			
GW01	Drawdown of groundwater from dewatering activities - general	Identify appropriate trench/shaft support systems (for example sheet piling) in areas with higher hydraulic conductivity and storage properties to minimise groundwater drawdown. This includes all areas mapped as Quarternary alluvial sediments/deposits (Mid-Nepean hydrogeological landscape (HGL), Mulgoa HGL, Upper South Creek HGL, Upper South Creek (Variant A) HGL and Moorebank HGL).	Detailed design During construction



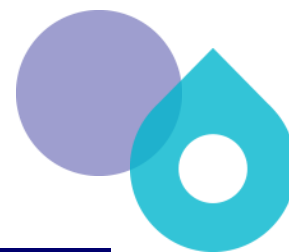
Reference	Impact	Management measure	Timing
GW02	Drawdown of groundwater - AWRC	<p>Monitor baseline groundwater levels at the AWRC site and levels in South Creek, by:</p> <ul style="list-style-type: none">installing two additional groundwater monitoring wells mid-way between the South Creek and the north western boundary of the site. These will be a shallow and a deep well targeting the upper alluvial aquifer and the residual soil profile.installing a level gauge at South Creek. <p>Continuous loggers will be installed to monitor water levels. Results will be used to establish baseline conditions, verify the existing surface water and groundwater connectivity and assist in developing a risk-based approach to managing groundwater impacts at the site.</p>	<p>Prior to construction</p> <p>During construction</p>
GW03	Drawdown of groundwater and impact to South Creek - AWRC	<p>Develop a risk-based approach to managing drawdowns and impacts to South Creek during construction at the AWRC. This approach should include:</p> <ul style="list-style-type: none">Monitoring the difference in elevation between South Creek and groundwater levels.Identify trigger values and associated management measures to take should groundwater levels fall below the water level in South Creek. Management measures should be commensurate with the potential risk of impact to South Creek and nearby GDEs.	<p>Prior to construction</p> <p>During construction</p>
GW04	Drawdown of groundwater from tunnelling construction	<p>Determine the most appropriate trenchless construction techniques to minimise groundwater drawdown, for example 'key' the launch and reception shafts into underlying material with relatively low permeability (eg competent bedrock) to reduce the amount of groundwater entering through the floor and inadvertently scouring the stream bed to the depth of the pipe.</p>	<p>Detailed design</p>



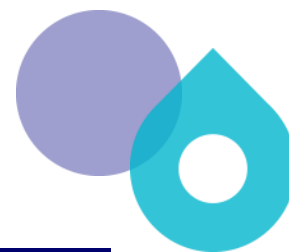
Reference	Impact	Management measure	Timing
GW05	Increased hydraulic connection between aquifers	<p>Develop options to minimise the potential of increased hydraulic connection between aquifers during pipeline trenching. This will include consideration of the following:</p> <ul style="list-style-type: none">• Installation of permanent vertical cut-offs within the trench to prevent the lateral migration of groundwater along the alignment of the pipelines.• Horizontal trench cut-offs where perched aquifers are encountered, to prevent lateral migration and dewatering of the system. Maintenance of the perched layers may also be achieved through backfilling to prevent vertical migration.	Detailed design
GW06	Mobilisation and migration of saline or contaminated groundwater	Adopt a staged approach to dewatering by dewatering in discrete, smaller areas that align with the construction schedule.	During construction
GW07	Mobilisation and migration of saline or contaminated groundwater	Construct adjacent recharge trenches to maintain saturation in high risk areas. If the extent of the drawdown is likely to include an area with existing contamination, consider constructing recharge trenches to limit the cone of depression and create a hydraulic barrier that could prevent the migration of contaminants.	During construction
GW08	<p>Disposal of saline or contaminated groundwater.</p> <p>Disposal of contaminated hydrostatic test water.</p> <p>Disposal of contaminated runoff</p>	<p>Develop and implement a dewatering procedure that identifies how extracted groundwater and contaminated runoff will be managed. Including requirements for storage, transport, testing and disposal. Disposal options to be considered include:</p> <ul style="list-style-type: none">• discharge to land• discharge to stormwater or waterway in accordance with Sydney Water's Water Quality Management During Operational Activities (D0001667) and any relevant conditions of the project's Environment Protection Licence• discharge to the wastewater system in accordance with Sydney Water discharge criteria• tanker by a licensed waste contractor and dispose off-site to an appropriately licensed facility.	<p>Prior to construction</p> <p>During construction</p>



Reference	Impact	Management measure	Timing
GW09	Frac-outs and groundwater seepage during tunnelling construction	<p>Undertake a risk assessment at trenchless crossings to determine the likelihood of 'frac-outs' and need for any design changes or additional management measures, including consideration of:</p> <ul style="list-style-type: none">refining the design to intersect more competent rock and avoid any preferential pathways such as fault lines, fractures, unconsolidated materialcasing at the entry / exit points where there are unconsolidated materials, reduced ground cover and reduced bearing pressurethe need for and location of drill pressure relief wells to provide a pathway for controlled release of drilling fluid pressuresgeotechnical conditions at each tunnelling site and the maximum allowable drilling fluid pressures.	Detailed design
GW10	Frac-outs and groundwater seepage during tunnelling construction	<p>Develop a Drilling Fluid Management procedure to avoid impacts, including:</p> <ul style="list-style-type: none">potential risk for 'frac-outs' at tunnelled crossingsapproach to identify and manage frac-outscontain and monitor drilling fluid at entry/exit points until it can be transported to a licensed waste facilityreuse and/or disposal of drilling fluids by appropriately qualified personnel to a licensed facilityprioritising the use of fluids that reduce the risk of seepage into groundwater from boreholes.	Prior to construction During construction
GW11	Tunnelling beneath Warragamba Pipelines, Upper Canal and waterways	<p>As part of geotechnical program, investigate:</p> <ul style="list-style-type: none">groundwater levels along tunnelled section of environmental flows pipeline. Identify any additional measures required to prevent groundwater seepage into the Warragamba Pipelines Corridor and the Upper Canal.potential surface water - groundwater linkages around watercourses. If needed, consider options to avoid disrupting the connectivity.	Detailed design



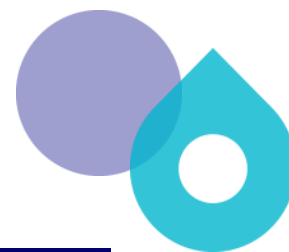
Reference	Impact	Management measure	Timing
GW12	Dewatering and drawdowns during maintenance activities at AWRC site	Consider the inclusion of vertical and horizontal drainage layers and 'chimneys' with coarse filter material to achieve desired drawdowns against the underground structures more quickly and reduce the amount of dewatering required.	Detailed design
GW13	Dewatering and drawdowns during maintenance activities at AWRC site	Adopt a staged approach to dewatering by dewatering in discrete, smaller areas that align more closely to the maintenance schedule.	During operation
GW14	Drawdown of groundwater from dewatering activities - general	Ensure the approach to managing dewatering is consistent with the requirements set out in the NSW Government guideline ' <i>Minimum requirements for building site groundwater investigations and reporting</i> ' (DPIE, 2021)	Detailed design Prior to construction During construction
Contaminated land and soils			
CLS01	Disturbance of saline soils, acid sulfate soils (ASS), contamination and sodic soils	<p>Review soil sampling and areas of environmental concern identified for the project as part of the Soils and Contaminated Land Impact Assessment (Aurecon Arup, 2021). Where detailed design indicates soils will be disturbed, develop and implement a soil sampling program to assess excavated soils for salinity, acid sulfate soils (ASS), contamination and sodicity. If identified:</p> <ul style="list-style-type: none">Saline soils will be managed in accordance with NSW Department of Primary Industries (2014) Salinity Training Handbook and NSW guidelines for salinity management.Develop an ASS management plan (ASSMP) in accordance with the NSW ASSMAC (1998) guidelines and consideration of the Department of Agriculture and	Detailed design Prior to construction During construction



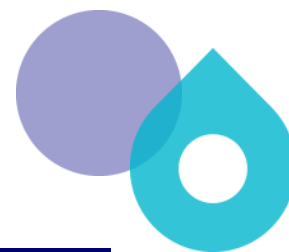
Reference	Impact	Management measure	Timing
		<p>Water Resources 'National Acid Sulfate Soils guidance: National acid sulfate soils sampling and identification methods manual, that includes:</p> <ul style="list-style-type: none"> – identification of ASS locations – handling and storage procedure to avoid and minimise exposure of stockpiles – where stockpiles are exposed, treat exposed areas with lime <ul style="list-style-type: none"> • Excavation of sodic soils will be avoided if possible. If not possible to avoid excavation, they will not be reused within the project for landscaping or surface rehabilitation <p>Undertake Prepare a Sampling and Analysis Quality Plan prior to implementation of any soil sampling investigations in accordance with ASC NEPM (2013), Sampling Design Guidelines (NSW EPA, 1995), Consultants Reporting on Contaminated Land, (NSW EPA, 2020) and Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020).</p>	
CLS02	Demolition of structures that may contain asbestos containing material	Undertake a pre-demolition destructive hazardous material survey of any buildings and structures within the AWRC site to confirm hazardous materials and estimate types and volumes.	Prior to construction During construction
CLS03	Disturbance of contaminated soils during construction	Develop and implement a remedial action plan for AECs, if the soil sampling program or pre-demolition destructive hazardous material survey identifies this is required. Prepare this in accordance with the ASC NEPM (2013) and Consultants Reporting on Contaminated Land, (NSW EPA, 2020).	Prior to construction During construction
CLS04	Disturbance and excavation of unexpected contaminated soils	<p>Develop and implement an unexpected finds procedure that will include:</p> <ul style="list-style-type: none"> • stop work in area suspected of contamination • inspection and verification of the area by a contaminated lands practitioner • collection of soil samples and analysis for chemicals of potential concern (COPC) identified by the inspection 	Prior to construction During construction



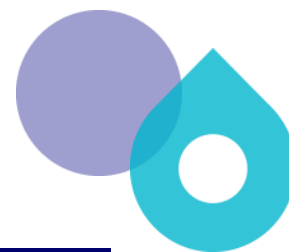
Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none">management, risk assessment or remedial action based on the type, extent, waste implications and significance of the COPCrequirement to notify the NSW EPA under section 60 of the CLM Actremediation in accordance with remedial action plan	
CLS05	Importing contaminated fill material to the AWRC site	Develop and implement a procedure to manage the importation of Virgin Excavated Natural Material, Excavated Natural Material or materials covered by any resource recovery orders or exemptions under the <i>Protection of the Environment Operations Act 1997</i> , the <i>Protection of the Environment Operations Waste Regulation (2014)</i> for use as fill material on the AWRC site. Prepare this in accordance with any relevant EPA guidelines and the ASC NEPM 2013.	Prior to construction During construction
	Contaminated runoff from the operation of vehicles, machinery, spills and leaks entering waterways	This impact is appropriately managed by measures in the 'Surface water' section of this table.	During construction
	Salt mobilisation in soils from excessive irrigation at the AWRC	This impact is appropriately managed by measures in the 'Surface water' section of this table.	During operation
	Erosion of soils from operational releases	This impact is appropriately managed by measures in the 'Surface water' section of this table.	During operation



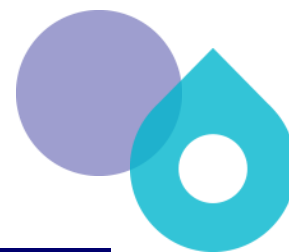
Reference	Impact	Management measure	Timing
	Generation of contaminated waste streams	This impact is appropriately managed by measures in the 'Waste management' section of this table.	
	Use of saline groundwater from dewatering operations	This impact is appropriately managed by measures in the 'Groundwater' section of this table.	During construction
	Increased erosion and sedimentation of waterways from vegetation removal	This impact is appropriately managed by measures in the 'Surface water' section of this table.	Prior to construction During construction
Aboriginal heritage			
AH01	Impact to Aboriginal sites / Potential Archaeological Deposits (PADs)	Explore opportunities to avoid or further reduce the identified potential impacts to Aboriginal items where practical.	Detailed design
AH02	Impacts to Aboriginal heritage, including unexpected finds	Develop and implement a Heritage Management Plan as part of the CEMP. This will include: <ul style="list-style-type: none">• roles and responsibilities• construction phase Aboriginal heritage and non-Aboriginal heritage measures from this table• an unexpected finds procedure for managing any items of potential Aboriginal archaeological, cultural heritage, or non-Aboriginal heritage significance identified during construction	Prior to construction During construction



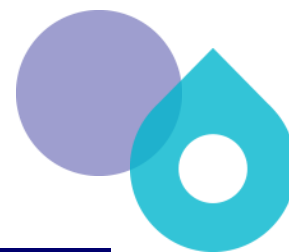
Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none">• inducting all construction site staff (before they start work) on known Aboriginal and non-Aboriginal heritage items in the impact area and measures to be implemented during construction to avoid impacts. Inductions will include:<ul style="list-style-type: none">– briefing on the heritage sensitivity of the site– management measures– guidance on identifying unexpected finds– obligations under the Heritage Act 1977.	
AH03	Impact to Aboriginal sites / PADs of moderate Aboriginal heritage significance	<p>Undertake archaeological salvage in accordance with an approved Salvage Excavation Methodology, where ground disturbance is proposed within the following sites:</p> <ul style="list-style-type: none">• Baines Creek Wallacia PAD 1• Bents Basin Road Wallacia PAD 1• Wallacia Weir PAD 1• Oaky Creek Elizabeth Drive PAD 1• Elizabeth Drive/Adams Road AFT 1• TNR AFT 15• Elizabeth Drive AFT 1• Elizabeth Drive AFT 3• Elizabeth Precinct PAD 03• Fleurs1 Fleurs Radio Telescope (including duplicate recordings M12 A4 and South Creek East (SCE))• P-CP7• P-CP12• PAD-OS-5 <p>Coordinate this program with non-Aboriginal heritage salvage excavation, in locations where salvage is required for both.</p>	Prior to construction



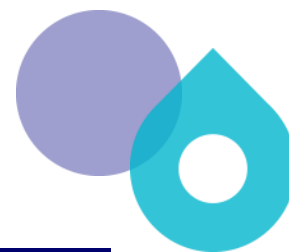
Reference	Impact	Management measure	Timing
AH04	Impacts to sites with existing AHIPs	Construction activities undertaken in the following sites will be in accordance with the existing AHIP conditions: <ul style="list-style-type: none"> GLC1 (including Artefact Scatter PAD 2023-846) IFSC 7 Cecil Park 	During construction
AH05	Unexpected finds – Human skeletal remains	In the event that construction activity reveals possible human skeletal material (remains) an unexpected finds human skeletal remains procedure will be implemented in accordance with the Skeletal Remains – Guidelines for the Management of Human Skeletal Remains under the <i>Heritage Act 1977</i> (NSW Heritage Office 1998) and the Aboriginal Cultural Heritage Standards and Guidelines Kit (NPWS 1997).	During construction
AH06	Impacts to sites in impact area	Implement management measures in Table 6 and section 11 of the Aboriginal Cultural Heritage Assessment Report in Appendix O of the EIS.	Prior to construction During construction
Non-Aboriginal heritage			
NAH01	Impacts to built heritage – Cabravale Memorial Park	<p>Establish a 'heritage protection zone' around key features of the Cabravale Memorial Park. This will include:-</p> <ul style="list-style-type: none"> no-go zones and fencing around the Bandstand, 170mm Minenwerfer and Vietnam War Comradeship memorial where possible, using existing roads and access tracks. Where this is not possible and driving directly over grassed areas is required, applying surface material to the ground cover to spread loads and prevent destruction of these areas remediating any damage to the landscape upon completion of the work. 	Prior to construction
NAH02	Impacts to built heritage - Upper Canal and Liverpool Offtake Reservoir	Construction activities in proximity to the Upper Canal and Warragamba Pipelines will be undertaken in accordance with WaterNSW 'Guideline for Development Adjacent to the Upper Canal and Warragamba Pipelines'. This will include: <ul style="list-style-type: none"> dilapidation survey prior to any construction work commencing 	Detailed design Prior to construction



Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none"> monitoring of vibration and ground movement during tunnelling construction. 	
NAH03	Impacts to built heritage – Fleurs Radio Telescope Site	Prior to the removal of identified historic elements related to the Fleurs Radio Telescope site, photographic archival recording will be undertaken by an experienced heritage consultant and in accordance with the Photographic Recording of Heritage Items using Film or Digital Capture, NSW Heritage Office, 2006.	Prior to construction
NAH04	Impacts to built heritage at AWRC site	<p>Prepare a Heritage Interpretation Framework for the project, incorporating the retention of Aboriginal and non-Aboriginal heritage features at the AWRC site where practical. The framework will include consideration of:</p> <ul style="list-style-type: none"> incorporating historic features into the AWRC design interpretive public art and soundscapes retention and interpretive use of the two parabolic antennas creation of a heritage display of historic material in the AWRC preparation of digital interpretive resources related to the history of the site preparation of an oral history of the Fleurs Field Station. 	<p>Detailed design</p> <p>During operation</p>
NAH05	Impacts to Potential Archaeological Sites (PAS) of moderate to high significance	<p>Manage ground disturbance (excavation) in the following PAS areas of moderate to high significance by:</p> <ul style="list-style-type: none"> avoiding disturbance where practical where disturbance cannot be avoided, complete archaeological testing in accordance with the Archaeological Research Design and Excavation Methodology (ARDEM) in Appendix P complete archaeological salvage and archival recording where this is recommended in archaeological testing. The sites of moderate to high significance are: Blaxland's Farm Blaxland's Gardens 	<p>Detailed design</p> <p>Prior to construction</p> <p>During construction</p>



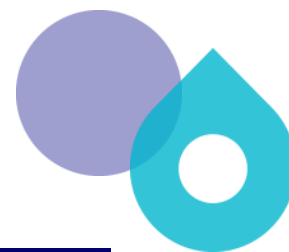
Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none"> Blaxland's Crossing McMaster Field Station Upper Canal Lennox Reserve Lansvale Park <p>Coordinate this program with Aboriginal heritage salvage excavation, in locations where salvage is required for both.</p>	
NAH06	Impacts to PAS of low significance	<p>Manage disturbance in the following PAS areas of low significance through an unexpected finds procedure:</p> <ul style="list-style-type: none"> McGarvie-Smith Farm Exeter House and Farm Fleurs Radiophysics Field Station. 	<p>Detailed design</p> <p>Prior to construction</p> <p>During construction</p>
NAH07	Accidental impact to non-Aboriginal heritage item.	Any accidental damage to heritage items is to be treated as an incident, with appropriate recording and notification.	During construction
NAH08	WaterNSW not informed of unexpected finds	Advise WaterNSW of any unexpected heritage items found on WaterNSW land.	During construction
	Impact to non-Aboriginal heritage – unexpected finds	This impact is appropriately managed by measures in the 'Aboriginal heritage' section of this table.	Prior to construction
	Contractors do not understand heritage obligations	This impact is appropriately managed by measures in the 'Aboriginal heritage' section of this table.	During construction



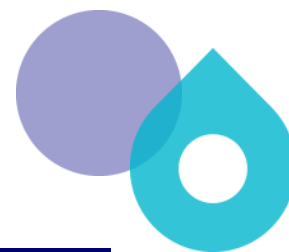
Reference	Impact	Management measure	Timing
	Impact to heritage character or landscape from above-ground structures on AWRC site	This impact is appropriately managed by measures in the 'Urban design' section of this table.	Detailed design
Air quality			
AQ01	Operational NO ₂ emissions	Cogeneration equipment selection will include consideration of engines with the lowest level of NO ₂ generation per unit of energy production as far as practical.	Detailed design
AQ02	Construction dust	<p>Include the following measures in the project's CEMP:</p> <ul style="list-style-type: none">• Maintain equipment in good working order to comply with the Clean Air Regulations of the Protection of the Environment Operations Act 1997, having appropriate exhaust pollution controls, and meeting Australian Standards for exhaust emissions.• Water exposed areas using a non-drinking water source, where possible.• Cover exposed areas, where possible (for example with tarpaulins or geotextile fabric).• Modify or cease dust-generating work in windy conditions.• When designing site layout, consider opportunities to maximise distance of dust-generating activities from sensitive receivers.	<p>Prior to construction</p> <p>During construction</p>
AQ03	Operational odour emissions	Manage odour complaints in accordance with Sydney Water's existing management system processes.	During operation



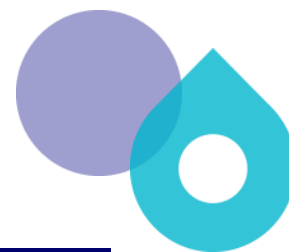
Reference	Impact	Management measure	Timing
Noise and vibration			
NV01	Excessive noise generated during construction	<p>Prepare a Construction Noise and Vibration Management Plan (CNVMP) as part of the project's CEMP. This will include:</p> <ul style="list-style-type: none">• roles and responsibilities• noise sensitive receiver locations• construction phase noise and vibration management measures from this table• monitoring methodology• community engagement.	<p>Prior to construction</p> <p>During construction</p>
NV02	Noise during out of hours work (OOHW)	<p>Schedule construction works for standard construction hours, where possible. If it is not possible to restrict the works to the day period, then they are to be completed as early as possible in each work shift. Provide appropriate respite to affected receivers in accordance with the Interim Construction Noise Guideline (ICNG).</p>	<p>During construction</p>
NV03	Equipment selection during construction generates excessive noise	<p>Select equipment to minimise noise emissions. For example:</p> <ul style="list-style-type: none">• Select equipment with lower noise emissions than alternative equipment.• Use electric/ hydraulic equipment where possible.• Use the minimum size and power requirement to complete a task.	<p>Prior to construction</p> <p>During construction</p>



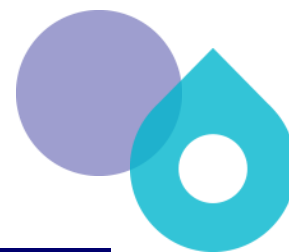
Reference	Impact	Management measure	Timing
NV04	Inefficient operation and maintenance of equipment resulting in noise impacts	Regularly train workers and contractors (such as at toolbox talks) to use equipment in ways to minimise noise, including: <ul style="list-style-type: none">• Site managers to periodically check the site and nearby residences for noise problems so that solutions can be quickly applied.• Avoid the use of radios or stereos outdoors.• Avoid the overuse of public address systems.• Avoid shouting and minimise talking loudly and slamming vehicle doors.• Turn off all plant and equipment when not in use.• Maintain and monitor equipment to ensure proper and efficient operation.• Aligning with Sydney Water's Noise Management Code of Behaviour (SWEMS0056.01)	During construction
NV05	Inefficient use of construction vehicle reverse beepers	Implement and use non-tonal reversing beepers (or an equivalent mechanism) on all construction vehicles and mobile plant, where possible. Consider the use of ambient sensitive alarms that adjust output relative to the ambient noise level.	During construction
NV06	OOHW results in sleep disturbance of sensitive receivers	Consult with residents that will be impacted by OOHW about measures to manage impacts in accordance with the ICNG, including considering alternative accommodation. This includes residents near long term pipeline tunnelling compounds at Bents Basin Road and Lansvale Park.	Prior to construction During construction
NV07	Vibration from construction equipment results in impacts to structures	Investigate opportunities for using alternatives to vibration generating equipment where vibration impacts have the potential to occur, including the WaterNSW Upper Canal.	Prior to construction During construction



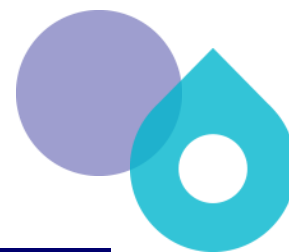
Reference	Impact	Management measure	Timing
NV08	Vibration from construction equipment results in impacts to structures	Undertake in-situ vibration monitoring to confirm vibration levels and assess potential impacts where minimum vibration impact distances cannot be achieved. Where the monitoring identifies exceedances in the relevant criteria, or where impacts are identified, additional management measures will be identified and implemented to appropriately manage impacts.	During construction
NV09	Vibration from construction equipment results in impacts to structures	Complete dilapidation and condition surveys on infrastructure and structures at risk from being damaged by vibration during construction, including heritage items.	Detailed design Prior to construction During construction
NV10	Operation noise impacts	Investigate opportunities to reduce the operational noise from the project, particularly at the AWRC. This will include: <ul style="list-style-type: none">• pump selection with reduced noise levels• barriers and enclosures around noisy equipment to comply with AS 2436-2010• building materials.	Detailed design
	Placement of construction equipment results in noise impacts	This impact is appropriately managed by measure G06 in this table.	Prior to construction
	OOHW truck movements results in noise impacts	This impact is appropriately managed by measures in the 'Traffic and transport' section of this table.	Prior to construction During construction



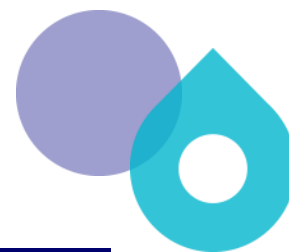
Reference	Impact	Management measure	Timing
	Significant long-term noise and vibration impacts from pipeline tunnelling	This impact is appropriately managed by measure G08 in this table.	Prior to construction During construction
	Construction traffic on local roads results in noise impacts	This impact is appropriately managed by measures in the 'Traffic and transport' section of this table	Prior to construction During construction
	Cumulative impacts from other major projects	This impact is appropriately managed by measure G10 in this table.	Prior to construction During construction
Landscape character and visual			
LCV01	Visual impact of construction areas	Consider opportunities to install temporary screens/ hoarding with finishes to minimise visibility of construction areas and to minimise noise impacts to surrounding sensitive receivers. As a minimum, install temporary screens at compounds C7 from viewpoint (VP) 12, C6 from VP13, C5 from VP17, C2 from VP18, C3 from VP20, C9 from VP23, C10 from VP25, C13 from VP27 Cabravale Leisure Centre users, C14 from VP28, C15 from VP29.	Detailed design During construction



Reference	Impact	Management measure	Timing
LCV02	Light pollution impacting sensitive receivers and biodiversity	Ensure lighting for construction night-work and operations is in accordance with AS4282-1997 <i>Control of the obtrusive effect of outdoor lighting to minimise light spill</i> . Design and implement lighting at AWRC site to reduce light spill towards residential receptors for VP1-5 and VP7-10 and in accordance with NASF Guideline E – Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports.	Detailed design During construction During operation
	Visual impact of AWRC	This impact is appropriately managed by measure G05 in this table.	During operation
	Visual impact of construction compounds	This impact is appropriately managed by measure G05 in this table.	During construction
	Visual impact of AWRC	This impact is appropriately managed by the 'Urban design' section in this table.	Detailed design
	Visual impact from treated water and brine pipeline from tree removal or inappropriate rehabilitation	This impact is appropriately managed by measures in G05 and the 'Biodiversity' section of this table	During construction
Traffic and transport			
TT01	Traffic related impacts to traffic exceeding the	Prepare Site Specific Construction Traffic Management Plans (SSCTMP) in consultation with relevant local councils, bus companies, Bicycle NSW, Western Sydney Cycling Network , impacted residents and businesses, TfNSW and in	Detailed design Prior to construction



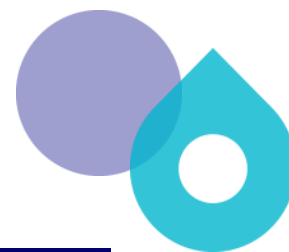
Reference	Impact	Management measure	Timing
	estimated capacity on certain links	<p>accordance with relevant guidelines and the Framework Construction Traffic Management Plan (CTMP) (Appendix U). Each SSCTMP will outline:</p> <ul style="list-style-type: none">• staging and timing of construction for each area of the project• any changes to traffic conditions, including road closures or diversions• identification of haulage routes• safe alternative routes for pedestrians, cyclists and other active transport in accordance with relevant safety standards• parking arrangements for construction workers• construction access points• measures to minimise impacts on public transport network, including bus stops• opportunities to reduce road traffic noise, including restricting heavy vehicle movements to standard construction hours• measures to minimise impacts to businesses• measures to outline construction interface management with the M12 Motorway project. <p>In addition to the above, SSCTMP will include:</p> <ul style="list-style-type: none">• Signage at key locations across the local influence area including Wallacia, and Luddenham to ensure the visitor experience is made as clear and easy as possible. Signage mitigation will also be required throughout busier areas where facilities are clustered together and subject to frequent access such as:<ul style="list-style-type: none">– Luddenham Main Street (the Old Northern Road) in Luddenham– Elizabeth Drive in Luddenham and Kemps Creek– Liverpool Road North in Bonnyrigg– St Johns Road, Cabramatta Road and Bartley Street in Cabramatta• Specific consideration of the highly urbanised setting in Cabramatta within the local influence area. This includes planning parking changes to reduce	During construction



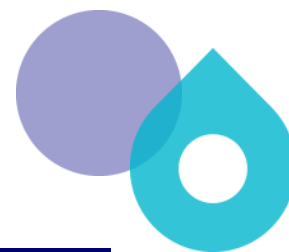
Reference	Impact	Management measure	Timing
potential impacts and planning traffic diversions in consultation with Fairfield Council.			
TT02	Congestion related to traffic exceeding the estimated capacity on certain links	Finalise the Framework CTMP to guide the development of the SSCTMPs.	Prior to construction
TT03	Cumulative impacts to the road network	Investigate opportunities to minimise cumulative impacts along Clifton Avenue and Elizabeth Drive with the M12 Motorway project. Measures outlined in TT01 will also help minimise cumulative impacts from the project on the traffic network.	Detailed design During construction
TT04	Cumulative impacts to the road network	Prioritise the use of arterial and sub-arterial roads over collector and local roads, especially during AM and PM peaks, for construction haulage routes. This will include planning traffic routes to minimise impacts to sensitive receivers on local roads.	Prior to construction During construction
TT05	Operational traffic from the AWRC impacting the traffic network	Where possible, schedule operational deliveries and other operational vehicle movements outside of peak traffic movements on Elizabeth Drive to minimise queuing on Clifton Avenue.	During operation
TT06	Impacted access to the Cabravale Diggers Club	Consult with the Cabravale Diggers Club and ensure emergency access off Bartley Street for the Club is maintained and included in the SSCTMPs.	Prior to construction During construction
Human health			



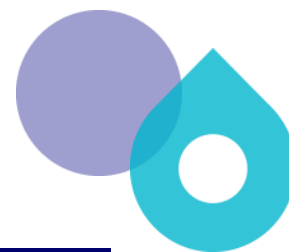
Reference	Impact	Management measure	Timing
HIA01	Explosion or spillage of methanol during transport	Complete a detailed route evaluation for methanol transport to the AWRC in accordance with HIPAP 11 – Route Selection.	Detailed design During operation
HIA02	Impact to human health – AWRC site	In accordance with the NSW Work Health and Safety Regulations 2011: <ul style="list-style-type: none"> • Store Class 8 substances in accordance with AS 3780-2008. • Prepare a manifest of the hazardous chemicals exceeding manifest quantities. • Prepare an emergency plan that will be provided to NSW Fire and Rescue. • Display warning placards regarding quantities of hazardous chemicals at any entrance where emergency services may enter the workplace. 	Detailed design During operation
HIA03	Construction bushfire hazard	No hot works will be undertaken if the Fire Danger Rating is very high or above. Measures to manage bushfire hazard and risk during construction will be included as part of the CEMP, and will comply with the Rural Fire Service's exemptions and approvals for working during a Total Fire Ban.	During construction
HIA04	Construction bushfire hazard	All works in bushfire prone areas will be stopped and workers evacuated from the area during Fire Danger Rating of extreme or above.	During construction
HIA045	Impact to human health – AWRC site	Ensure adequate capacity in the AWRC stormwater system to contain water used for firefighting for testing prior to disposal, if required.	Detailed design During operation
Socio-economics			
SELU01	Access to employment	Develop an Australian Industry Participation (AIP) Plan including consideration of the following: <ul style="list-style-type: none"> • Where practical training to meet minimum competency requirements. • Measures to maximise local procurement and employment. 	Prior to construction During construction



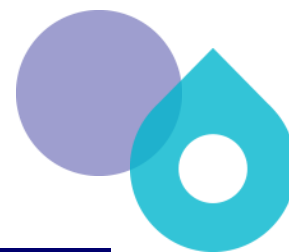
Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none">Measures to increase employment in the long-term unemployed or underrepresented groups in the workforce.Working with local apprenticeship programs.	
SELU02	Negative impacts on commercial operations and businesses	Implement measures for ongoing consultation with the business community including minimum notification periods for works close to business or commercial operations and a means for receiving feedback to reduce impacts to business operation.	Prior to construction During construction
SELU03	Negative impacts on commercial operations and businesses	Where business visibility is impacted by construction activities, provide signage to maintain visibility and wayfinding of businesses and access to businesses during construction.	During construction
SELU04	Interruptions to social infrastructure	Consult and work with local councils during the construction period to minimise impacts to social infrastructure and local events, such as memorials and festivals etc. This includes timing construction activities to minimise impacts to events: <ul style="list-style-type: none">at Luddenham Showgroundat Cabravale Memorial Parkon public holidays and school holidays.	Prior to construction During construction
SELU05	Interruptions to social educational and community infrastructure facilities	Consult with: <ul style="list-style-type: none">Educational facilities such as child-care centres and schools to discuss timing and duration of construction. Construction activities should be timed in consideration of exam periods (i.e. NAPLAN and HSC) and school events to minimise impacts.Community facilities and places of worship to understand potential impacts during times of worship and events/activities including amenity impacts and potential access impacts.	Prior to construction During construction



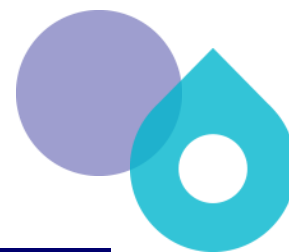
Reference	Impact	Management measure	Timing
SELU06	Interruptions to social infrastructure	<p>Investigate further ways to mitigate potential impacts associated with construction, in particular the location of construction compounds and additional construction areas at the following locations:</p> <ul style="list-style-type: none">• Fowler Reserve, Wallacia• Western Sydney Parklands, Kemps Creek and Cecil Hills• Cabravale Memorial Park Leisure Centre, Cabramatta and nearby businesses and places of worship including the Shaolin Temple Foundation/Ukrainian Association of Cabramatta, the German-Austrian Club, the Kin Fu Ma Zu Association and Chinese Temple, the Thai Christian Fellowship and the Slavic Church• Lennox Reserve, Lansvale• Lansvale Reserve, Lansvale.	Detailed design
SELU07	Interruptions to emergency services	Continue consultation with emergency services that use the local influence area to understand access requirements so that access can be maintained during construction. This includes consultation with the SES, RFS, Ambulance and Police.	Prior to construction During construction During operation
SELU08	Severance of the community due to construction activities	Investigate opportunities for overcoming physical segregation caused by construction works with a focus on minimising impacts to commonly used active transport routes, enabling community members to access services on the other side of trenches. For example, maintaining access to Cabravale Memorial Park for nearby users.	Prior to construction During construction
SELU09	Community cohesion / Health and Wellbeing / Personal and Property Rights / Fears and	<p>Ensure community and stakeholder management includes:</p> <ul style="list-style-type: none">• Education and information sharing around perceived impacts of the AWRC, especially regarding water quality and human health to demonstrate low impacts, as well as positive impacts associated with support for existing and future quality of life.	Prior to construction During operation



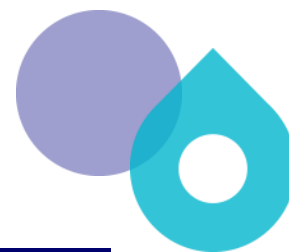
Reference	Impact	Management measure	Timing
	Aspirations / Culture	<ul style="list-style-type: none"> Targeted engagement with vulnerable groups, including families, young and ageing populations to minimise real and perceived impacts, including in languages relevant to the local community. Publishing and display of findings from monitoring and management processes transparently for the community. 	
SELU10	Appropriate signage for AWRC access	Sydney Water will provide adequate wayfinding around the AWRC site for the workforce and community.	During operation
	Community cohesion impacts	This impact is appropriately managed by measure G08 in this table.	Prior to construction During construction
	Personal property impacts	This impact is appropriately managed by measure G05 and G08 in this table.	Prior to construction During construction Post construction
	Access, movement and connectivity	This impact is appropriately managed by measures in the 'Traffic and transport' section of this table.	Prior to construction During construction
Sustainability			
SU01	Project not achieving sustainable outcomes	<ul style="list-style-type: none"> Develop a Sustainability Management Plan that outlines how the project will embed and continually improve sustainability throughout the project. This plan will outline: <ul style="list-style-type: none"> the IS rating process, including timeframes for achieving a project IS rating roles and responsibilities relating to sustainability how sustainability objectives will be embedded into the construction and operation of the project 	Detailed design During construction



Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none">how, and if, the future aspirations of Sydney Water can be accommodated and implemented in the project.	
SU02	Project not achieving sustainable outcomes	<p>Investigate opportunities to:</p> <ul style="list-style-type: none">procure recycled or reused materials where the options exist, and comparable performance can be achievedreduce material quantities, where possible, while maintaining the design performanceimplement passive design measures at the AWRC such as optimum solar orientation, shading and natural ventilation to reduce demand for heating and cooling of occupied site buildingsimplement alternative technologies to reduce nitrous oxide emissions from operation of the AWRC.	Detailed design During construction During operation
SU03	Project not achieving sustainable outcomes	Implement the initiatives identified in the Sustainability Initiatives Register in section 12.1.	Detailed design During construction During operation
SU04	Energy requirements for project exceed energy generated	Supplement 50% of Stage 1 project electricity use with renewable energy generation. If this cannot be achieved through renewable energy generation, investigate other options such as purchasing large scale generation certificates (LGCs) or entering into a power purchasing agreement where electricity is sourced from off-site renewable energy.	Detailed design During operation
Waste management			
W01	Generation and management of all construction waste	<p>Develop and implement a Waste Management Plan as part of the project's CEMP. This plan will include:</p> <ul style="list-style-type: none">opportunities to minimise the generation of spoil including suitability for re-use within the project	Detailed design During construction



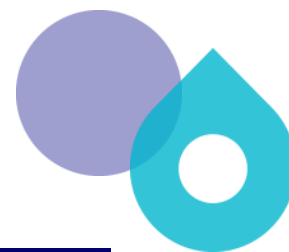
Reference	Impact	Management measure	Timing
	streams, including liquid waste	<ul style="list-style-type: none">• targets for different waste streams with disposal being the least preferred approach, including diverting 75% of spoil from landfill (eg through offsite reuse), recycling rates of 80% for construction and demolition waste and reuse of stormwater for construction activities• classification of all waste generated by the project in accordance with the EPA waste classification guidelines• site specific measures (in accordance with the compound locations) for waste segregation, storage, handling, collection and transport according to their waste classification, including for liquid wastes• instructions on clear signage to be provided at construction compounds to encourage correct recycling and reduce contamination.• measures to ensure safe storage and transport of waste materials and avoid or minimise any risk of waste or contaminated materials creating dust or other impacts to the community or surrounding sensitive environments• regular monitoring and auditing to assess the performance of waste management activities against the determined targets• training and awareness for all construction personnel• a record keeping system on site so that waste tracking systems can be maintained. This should include the use of the NSW EPA's online waste tracking system where required. Keep records of receipts to prove that waste diversion and recycling targets have been met.	
W02	Generation and management of Special Waste	<p>Develop and implement a procedure for managing special waste in accordance with legislative and policy requirements. This should include as a minimum:</p> <ul style="list-style-type: none">• review contaminated spoil volumes identified in the Waste Impact Assessment (Aurecon Arup 2021). Confirm volumes of soils contaminated with ACM as detailed design develops.• identify lawful offsite storage and disposal options (including those listed in the Waste Impact Assessment (Aurecon Arup 2021))	During construction



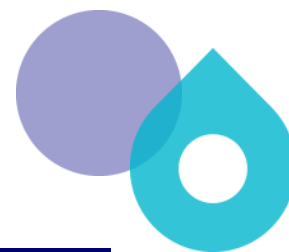
Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none"> if asbestos waste is transported off site, ensure appropriate containment methods are in place including, as a minimum, wrapping asbestos sheets and wetting down soil contaminated with ACM. ensure transportation of asbestos waste by appropriately qualified personnel. 	
W03	Generation and management of hazardous waste from the AWRC and pipeline construction	Store, manage and dispose of hazardous wastes in accordance with legislative and policy requirements, including disposal by a licensed contractor and at a lawful disposal facility.	During construction
W04	Generation and management of General Solid Waste (putrescible)	Investigate opportunities to divert food waste from landfill. This could include the provision of site waste facilities such as bins to separate food waste at source.	Detailed design During construction During operation
	Generation and management of operational waste streams	This impact is appropriately managed by measure G02 in this table.	During operation
Airport operations			
AO01	Contribution of AWRC site to increased risk of wildlife strikes by aircraft	Investigate opportunities for additional design measures at the AWRC site to manage potential wildlife populations. These will include: <ul style="list-style-type: none"> covering large (100 m²) open bodies of still water exclusionary devices enclosing waste receptacle areas 	Detailed design Construction



Reference	Impact	Management measure	Timing
		<ul style="list-style-type: none">• selection of landscaping plant species that are less attractive to wildlife as a food and shelter source• steepening the slopes of basins to deter wildlife. <p>Implement feasible design opportunities to deter wildlife that present a risk of wildlife strikes by aircraft.</p>	
AO02	Contribution of AWRC site to increased risk of wildlife strikes by aircraft	<p>Prepare and implement a Wildlife Management Plan for the AWRC site. This plan will include:</p> <ul style="list-style-type: none">• wildlife monitoring surveys• regular wildlife hazard assessments• wildlife awareness and management training for AWRC operational staff• implementation of activities to reduce hazardous bird populations• adoption of wildlife deterrent technologies to reduce hazardous bird populations• performance indicators to evaluate implementation and compliance to consent conditions• a review process to regularly assess implementation against performance indicators, identify gaps, and ensure currency• roles and responsibilities for plan implementation and review. <p>The Wildlife Management Plan will be developed in consultation with Western Sydney International Airport and DPI Agriculture.</p>	During operation
AO03	Impact to operation of Western Sydney International Airport	Assess consistency of any changes to the location and size of structures, or plume estimations, with Western Sydney International Airport OLS and CASA plume rise assessments outlined in this EIS.	Detailed design
AO04	Impact to operation of Western Sydney International Airport	Assess consistency of any design changes to the AWRC with the Avisure Wildlife Hazard Assessment in the EIS. If required, an updated risk assessment will be	Detailed design



Reference	Impact	Management measure	Timing
		completed to identify any additional management measures to be incorporated into the detailed design and the Wildlife Management Plan.	
	AWRC lighting impacting the operation of Western Sydney International Airport	This impact is appropriately managed by measures in the 'Landscape character and visual' section of this table.	Detailed design During operation
Utilities			
U01	Impacts to TfNSW assets during construction	Prepare and submit civil plans for road crossings to TfNSW to support any required approvals under the Roads Act 1993.	Detailed design
U02	Impacts to utilities and services during construction	Identify any existing utilities that may be at risk of impact from construction. Once identified, complete dilapidation surveys to establish a pre-construction condition assessment of the assets.	Detailed design Prior to construction During construction
U03	Impacts to utilities and services during construction	Repair any utilities that have been directly impacted from project construction activities.	During construction
U04	Impacts to utilities and services during construction	Complete Dial Before You Dig (DBYD) searches of existing services during detailed design and prior to construction. Where required, sensitive services or those critical to the design will be accurately located to AS5488 Quality Level A by potholing. Sydney Water will continue to consult with relevant utility agencies and organisations during detailed design and construction planning.	Detailed design Prior to construction During construction



Reference	Impact	Management measure	Timing
U05	Inappropriate design leading to impacts on WaterNSW land or infrastructure	Consult with WaterNSW during detailed design of infrastructure on WaterNSW land or that will directly affect WaterNSW infrastructure.	Detailed design
U06	Potential lack of coordination of environmental flow releases	Collaborate with WaterNSW to develop and agree operational protocols for releasing environmental flows to the Nepean River associated with coordinating the project's treated water releases and WaterNSW dam releases.	Prior to operation
U07	Lack of consent prior to accessing to the WaterNSW Pipelines corridor, Upper Canal or Warragamba sites	Sydney Water will comply with the 'Sydney Water and WaterNSW Access Protocol' regarding any required access to WaterNSW land, including the WaterNSW Pipelines corridor, Upper Canal or Warragamba sites.	Detailed design Prior to construction During construction
	Impacts to WaterNSW assets during construction	This impact is appropriately managed by 'Non-Aboriginal heritage' section of this table.	Prior to construction During construction During operation
	Impacts to WaterNSW and TfNSW assets during construction	This impact is appropriately managed by measure G10 in this table.	Detailed design Prior to construction During construction

Figure B-2 Updated project waterways monitoring

Reference	Monitoring	Monitoring requirement	Timing
Baseline and post-commissioning water quality and aquatic ecology monitoring of waterways			
WW22	Baseline water quality and ecology monitoring program	Continue baseline monitoring program outlined in section 8.2.2 until project starts operating. Complete a report documenting results and analysis at completion of monitoring program. Monitoring results from construction or commissioning phases to be analysed separately to avoid skewing baseline results.	Prior to construction During construction
WW23	Post-commissioning water quality and aquatic ecology monitoring program	Continue water quality, macrophyte and fish surveys outlined in section 8.2.2 for two years post-commissioning. Increase the frequency of sampling at a site, if blue-green algae is identified (amber or red alert level). Complete a report documenting results and analysis at completion of monitoring program.	During operation
WW24	Penrith Weir pool and monitoring of water quality and biological parameters	Include an additional monitoring point to the programs outlined in WW22 and WW23 at the Penrith Weir pool (at the bar at the mouth of Glenbrook Creek). Inclusion of this additional point will fill a gap in the current monitoring program and enable a longitudinal assessment of potential change driven by AWRC releases and enable Sydney Water to investigate any ecological changes that occur in the Penrith Weir pool and in particular the Glenbrook Creek bar.	Prior to construction During construction During operation
Monitoring of flow related impacts in waterways			



Reference	Monitoring	Monitoring requirement	Timing
WW25	Bank erosion and condition monitoring on Nepean River upstream of Wallacia Weir to Bents Basin	<p>Develop and implement a baseline and impact monitoring program of bed and banks prior to the commencement of operational releases.</p> <p>The monitoring program design and reporting will be by a qualified geomorphologist.</p> <p>The baseline monitoring will include an analysis of historical aerial photos to understand historical and potential future geomorphological changes.</p> <p>Following commencement of releases, the monitoring should be undertaken at six monthly intervals for the first two years. After this, monitoring should be undertaken after three, four, six, eight and ten years. Monitoring should also be undertaken following three flood events greater than 20% Annual Exceedance Probability (AEP) (1 in 5 year flood).</p> <p>The monitoring will include a report documenting the results and analysis, including identifying changes that can be attributed to the treated water releases.</p> <p>Monitoring will include appropriate methods to establish potential impacts from the project including consideration of the following approaches:</p> <ul style="list-style-type: none">• for the riverbed – cross sectional survey. The cross section must be made accurately to a fixed point, with redundancy to cope with disturbance (intentional or otherwise).• for riverbanks – riverbank fixed photo-points at strategic locations, cross section surveys at strategic locations, drone-monitoring baseline survey (topographic and imagery data) for some representative sections of each reach. It is recommended that the baseline survey include a detailed visual inspection by an experienced geomorphologist of the reach between Bents Basin and Wallacia Weir to identify priority site locations for future monitoring.	<p>During construction</p> <p>During operation</p>

Reference	Monitoring	Monitoring requirement	Timing
WW26	Bank erosion and condition monitoring at each release structure	Undertake baseline and impact monitoring of the structure condition and bank conditions for at least 100m upstream and downstream of each release structure location. The inspections should be undertaken at six monthly intervals for a minimum of 2 years with further review at this time to determine the need for any on-going monitoring. Monitoring methods described in WW25 can be adopted. Should any erosion or sedimentation issues associated with the releases be identified a risk assessment should be completed. This may identify the need for specific remediation measures. Field survey of any erosion sites should be added to the six-monthly monitoring program.	During operation
WW27	Pipeline crossing of waterways	Undertake baseline monitoring at each crossing location. Following construction, undertake impact monitoring of the waterway bed and bank conditions, at the open trench crossing locations. The inspections should be undertaken at six monthly intervals, or after an event of about 1 in 20 year ARI, for a minimum of two years with further review at this time to determine the need for any on-going monitoring. The monitoring should include inspection of the waterway bed and bank conditions at the crossing location and for at least 100 m upstream and downstream for open trench crossings and 20 m for tunnelled crossings. Should any erosion or sedimentation issues associated with the releases be identified a risk assessment should be completed. This may identify the need for specific remediation measures. Field survey of any erosion sites should be added to the six-monthly monitoring program.	During operation
WW28	Bank and erosion monitoring on South Creek at the Warragamba pipeline crossing	Undertake baseline and impact monitoring of bed and bank condition along the channel 500 m upstream and downstream of the Warragamba pipeline crossing. The monitoring is to be consistent with WW25 and will seek to identify any geomorphological changes that can be attributed to the releases. Surveys can be undertaken by visual inspection. If impacts observed, further inspection by topographic survey or imagery analysis will be completed. Monitoring is recommended to be undertaken for two years following bed and bank stabilisation works are undertaken by the responsible agency.	During operation



Reference	Monitoring	Monitoring requirement	Timing
WW29	Changes to wetted perimeter near Glenbrook Creek	Include monitoring of vegetation extent and species composition at the bar at the mouth of Glenbrook Creek as part of the monitoring programs outlined in WW23. A baseline survey is also required prior to works commencing.	Prior to construction During construction During operation
Long term monitoring of release streams and ambient water quality			
WW30	Monitoring of treated water releases - general	Analysis of water quality in the final release stream(s) is to be undertaken consistent with the monitoring requirements of the EPL for St Marys AWTP and Penrith WRP. Monitoring locations will be selected to allow for monitoring of representative samples from the AWRC release streams and will account for any mixing of different treated water streams. Daily monitoring of release volumes is to be undertaken using a calibrated flow meter. Monitoring and reporting requirements will be finalised with the EPA during the EPL application process.	During operation
WW31	South Creek treated water release monitoring	Monitoring of the water quality of the wet weather release stream will take place when releases to South Creek commence and the release occurs for longer than two hours. Monitoring indicators, sampling locations and reporting requirements would be in accordance with an EPL issued by the EPA. Hourly monitoring of the release volumes should also be undertaken during a release event, using a suitable calibrated flow meter. All indicators are to be analysed by a NATA accredited laboratory.	During operation



Reference	Monitoring	Monitoring requirement	Timing
WW32	South Creek ambient water quality monitoring	<p>Monitoring of the water quality of the receiving waters of South Creek is to be undertaken daily when releases occur to South Creek that are longer than two hours in duration. Two monitoring locations are to be sampled, one upstream and one downstream of the release location. The upstream site will act as a background site with the downstream site used to determine the level of impacts from the releases. Monitoring indicators, sampling locations and reporting requirements would be in accordance with an EPL issued by the EPA.</p> <p>As this sampling will be weather dependent, trigger rainfall conditions that are expected to initiate releases to South Creek are to be identified. Procedures will be developed that allow for early notification of expected rainfall events that may exceed the modelled trigger conditions to allow for timely sampling to be undertaken in accordance with planned releases. All indicators are to be analysed by a NATA accredited laboratory.</p>	During operation
WW33	Nepean River and Warragamba River treated water release monitoring	<p>Monitoring of the water quality of the wet weather release stream will take place when releases to Nepean River and Warragamba River commence and the release occurs for longer than two hours. Monitoring indicators, sampling locations and reporting requirements would be in accordance with an EPL issued by the EPA. Hourly monitoring of the release volumes should also be undertaken during a release event, using a suitable calibrated flow meter. All indicators are to be analysed by a NATA accredited laboratory.</p>	During operation
WW34	Nepean River and Warragamba River ambient water monitoring	<p>Monitoring of the water quality of the receiving waters of Nepean River and Warragamba is to be undertaken at a frequency consistent with the current STSIMP. Two monitoring locations are to be sampled, one upstream and one downstream of each release location. The upstream site will act as a background site with the downstream site used to determine the level of impacts from the releases. Monitoring indicators, procedures and reporting requirements are to be consistent with the STSIMP. All indicators are to be analysed by a NATA accredited laboratory.</p>	During operation

