Appendix F
Mitigation measures table

EMM
creating opportunities

Table F.1 Mitigation measures table

ID	Mitigation measure
Waste management	
Management of waste that is received and processed through the IRRC	
WAS1	All waste will be managed in accordance with the requirements of the NSW *Protection of the Environment Operations Act 1997*, the NSW *Waste Avoidance and Resource Recovery Act 2001*, the *Standards for Managing Construction Waste in NSW* (EPA 2018) and relevant resource recovery orders and exemptions. This includes a two-stage inspection process to identify and reject any prohibited items.
WAS2	All wastes will be classified, stored and handled in accordance with the *Waste classification guidelines – part 1: classifying waste* (EPA 2014). Waste that is not classified as general solid waste (non-putrescible) will be rejected.
Management of waste that is produced by CWS employees and operations	
WAS3	Waste produced by CWS will be managed in accordance with the waste hierarchy, in order of preference: • reduce waste production • recover resources • dispose of waste appropriately. Construction waste produced as part of the IRRC construction will be recovered through the RRF to recover as much waste as possible.
WAS4	Designated bins will be provided for general waste produced by employees, to be disposed of via a third-party appropriately licenced waste collection service.
WAS5	Any small quantities of hazardous waste produced as part of CWS operations (for example oil) will be stored according to best practice, in clearly designated areas with appropriate secondary containment. Timely removal and disposal of these waste materials will be arranged through an appropriately licensed waste contractor.
General site management	
WAS6	Management staff will carry out regular inspections and informal checks to maintain overall site cleanliness and prevent the accumulation of rubbish and loose materials.
WAS7	All uncovered hardstand areas will be cleaned using a street sweeper twice weekly, reducing the potential for fines and debris to accumulate and enter the stormwater system.
Traffic and transport	
TRA01	A traffic management and traffic control plan will be prepared and implemented to address concurrent construction and operations, to ensure smooth operation of the site and workers safety.
TRA02	An operational traffic management plan will be prepared, which will include: • the implementation of a driver code of conduct to ensure that truck drivers adhere to the designated transport routes and implement safe driving practices, particularly when travelling on the residential section of Government Road • requirements that all vehicles loaded with material have effective load coverings for the duration of the trip to/from the site • measures to optimise traffic movements and minimise queuing • a complaint management system. A framework for the traffic management plan is provided in Chapter 7 of the traffic impact assessment (Appendix I.1 of the EIS).
Water and flooding	
Detailed design	
WAT01	Concrete hardstand will be established for all storage, equipment areas, processing and handling areas, to reduce suspended solids generation in stormwater runoff and prevent infiltration to soils and groundwater.

ID	Mitigation measure
WAT02	The detailed design will allow for rainfall from roof areas (clean stormwater) of the RRF to bypass the pre-treatment section of the water management basin and treatment plant to maximise effectiveness of the treatment plant as far as possible.
WAT03	As a minimum, oil and grease separators will be sized to treat first flush flows of all trafficable areas of the IRRC, prior to discharge to the Council drainage system.
WAT04	To minimise the potential for offsite flooding impacts up to and including 1% AEP event, the following will be incorporated into the detailed design: • finished ground levels at-grade and not materially higher than existing levels, in particular along the north-eastern corner of the IRRC at 10 Styles Street • retain permeable boundaries to the north and west of the IRRC (refer to site plan for locations), by using mesh-wire or chain-link fencing • maintain existing riparian corridor setbacks along watercourses.
WAT05	Install manual flood protection barriers at the entrance and exit of the RRF facility to a minimum of the 0.2% AEP event or approximately 13 mAHD.
Construction	
WAT06	Limit excavation depths to less than 3-m below ground level to avoid interception of the groundwater table. If groundwater is unexpectedly intercepted, a dewatering management plan will be prepared by an appropriately qualified consultant for implementation.
WAT07	Implement the following erosion and sediment controls: • Construction activities within 8 Styles Street (the existing RRF) will be conducted within the catchment of the existing water management basin so that all water is directed to, and treated in the basin. • Prepare and implement an erosion and sediment control plan in accordance with *Managing Urban Stormwater: Soils and Construction – Volume 1* (Landcom 2004) for all construction work outside of the water management basin catchment.
Operation	
WAT08	With the exception of 8 Styles Street (where all water reports to the water management basin), all waste storage and handling will be within covered areas, to minimise contact with rainfall/runoff.
WAT09	All uncovered hardstand areas will be cleaned using a street sweeper twice weekly, reducing the potential for fines and debris to accumulate and enter the stormwater system.
WAT10	Visual inspections and necessary maintenance of RRF water management basin, water treatment plant and stormwater quality controls will be undertaken at least monthly.
WAT11	Fuel and any hazardous chemicals required to support site operations will be stored and used in accordance with relevant Australian Standards and NSW Government guidelines for best practice storage, handling and spill management procedures for liquid chemicals: • Liquid Chemical Storage, Handling and Spill Management: Review of Best Practice Regulation (DEC 2005) • Storing and Handling Liquids: Environmental Protection: Participant's Manual (DECC 2007).
WAT12	Water use will be reduced by: • preferentially reusing treated runoff from the RRF yard area rather than rainwater, to enable the drawdown of the RRF water management basin and improve attenuation of flows during significant or prolonged rainfall events • utilising microbial disinfection and stockpile misters within the RRF yard to maximise water reuse • minimising potable water use as much as possible.

ID	Mitigation measure
WAT13	Develop and document flood emergency management protocols and procedures in a Flood Management Plan (FMP) (or equivalent), including: • site management and protocols in the event of flood events that could impact construction and operational activities • suitable early warning/prediction measures and communication protocols • site preparedness activities and procedures • triggers for closure, evacuation and recovery • emergency response and support.
WAT14	The IRRC will be connected to the regional potable water and sewer systems. No trade waste will be discharged to the sewer system, only wastewater produced from the site amenities.
Air quality and greenhouse gas	
AQ1	Implementation of best practice air quality mitigation measures will be continued for the IRRC, including: • applying water sprays to the mobile yard equipment during crushing and screening • dampening concrete stockpiles prior to crushing commencing • using misting sprays and dust extraction in the processing sheds • utilising dust suppressants (e.g. light water spray/sprinklers) on stockpiles • storing waste and recovered material in designated bunkers with three-sided walls • regular cleaning/sweeping of paved surfaces • minimising material drop heights during truck unloading and loading operations • covering all loads for incoming and outgoing trucks • restricting vehicle speed on site to 10 km/h.
AQ2	The following measures will be implemented to manage diesel combustion emissions: • consider and prioritise low emissions as part of procurement of new plant and equipment • all plant and equipment will be regularly serviced and maintained to meet manufacturers emissions specifications • idling of trucks, plant and equipment onsite will be minimised wherever practicable.

ID	Mitigation measure
Noise and vibration	
NV1	Good practice noise and vibration mitigation and management will be implemented throughout construction and operation activities, as follows: • regularly reinforcing (such as at toolbox talks) the need to minimise noise and vibration • regularly identifying noisy activities and adopting improvement techniques • avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby residents • developing routes for the delivery of materials and parking of vehicles to minimise noise • where possible, avoiding the use of equipment that generates impulsive noise • minimising the movement of materials and plant and unnecessary metal-on-metal contact • minimising truck movements • scheduling respite periods during intensive construction works as determined through consultation with potentially affected neighbours (e.g. a daily respite period for a minimum of one hour at midday) • choosing quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks • using temporary noise barriers (in the form of plywood hoarding or similar) to shield intensive construction noise activities from residences • operating plant and equipment in the quietest and most efficient manner • regularly inspecting and maintaining plant and equipment to minimise noise and vibration level increases, to ensure that all noise and vibration reduction devices are operating effectively • scheduling activities to minimise impacts by undertaking all possible work during hours that will least adversely affect sensitive receivers and by avoiding conflicts with other scheduled events • scheduling work to coincide with non-sensitive periods • scheduling noisy activities to coincide with high levels of neighbourhood noise so that noise from the activities is partially masked and not as intrusive • optimising the number of deliveries to the site by amalgamating loads where possible and scheduling arrivals within designated hours • including contract conditions that include penalties for non-compliance with reasonable instructions by the principal to minimise noise or arrange suitable scheduling.
NV2	Noise monitoring will be undertaken at locations representative of the nearest residential receivers on at least an annual basis to determine compliance with the relevant operational noise limits or in response to noise complaints.
NV3	Safe-working distances outlined in Transport Infrastructure Development Corporation's *Construction Noise Strategy (Rail Projects)* (TIDC 2007) will be followed to manage potential for vibration impacts. If construction activities are to be conducted within the relevant safe working distances outlined, vibration monitoring will be conducted to validate vibration predictions and ensure levels from individual plant and equipment are not excessive at nearby structures. Monitoring will include the measurement of peak particle velocity (PPV) across three orthogonal axes using a vibration monitor equipped with a tri-axial geophone. The geophone will be positioned either at the base of the structure of concern or along the primary transmission path between the construction activity and the structure.
Contamination and soils	
CON1	Characterisation sampling of the recycled aggregate will be conducted prior to commencement of ground disturbing works to assess whether there is a risk of exposure to asbestos for construction workers during site improvement works or potential future intrusive maintenance workers.
CON2	The presence of fill material will be assessed in areas of excavation (for example for stormwater and fire safety infrastructure) prior to commencement of ground disturbing work. If identified, sampling and analysis will be undertaken to assess whether there is potential risk of exposure to contamination for construction workers during site improvement works or potential future instructive maintenances works.
CON3	If contamination is identified, a contamination management plan will be prepared for implementation during construction. In the event that residual contamination is present at the completion of the works, a long-term environmental management plan may be required.

ID	Mitigation measure
CON4	Surplus soil requiring off-site disposal will be assessed, classified and appropriately disposed to an EPA-approved facility.
SOIL1	Prior to commencement of construction, a primary Erosion and Sediment Control Plan (ESCP) will be developed in consultation with the construction contractors to manage soil disturbance, prevent erosion, and control sediment runoff. The ESCP will include relevant plans (drawings) and will be prepared in accordance with the Protection of the Environment Operations Act 1997 and best practice guidance, including the Blue Book (*Managing Urban Stormwater: Soils and Construction – Volume 1,* Landcom 2004) and IECA Best Practice Erosion and Sediment Control Guidelines (2008). Key principals of the plan will include: • Minimise Disturbance: Construction activities such as excavation will be staged to limit the area and duration of exposed soils. Exposed surfaces will be promptly stabilised using temporary covers, mulch, or geotextiles. • Manage Stormwater: 'Clean' runoff from undisturbed areas will be diverted around construction zones where possible, while 'dirty' runoff will be directed through sediment control structures. • Sediment Controls: On-site sediment controls, including silt fences (specifically along the north of the project site to prevent runoff into the creek) and sandbags will be established close to disturbance sources to prevent off-site sedimentation. Where necessary, water captured on site will be treated (e.g. via gypsum flocculation) before discharge or reuse for dust suppression. • Stockpile and Access Management: Construction stockpiles will be located away from watercourses and removed/material reused as quickly as possible. • Dust and Air Quality: Water carts and load covers will be used to suppress dust and minimise air-borne soil loss during dry or windy periods. • Monitoring and Maintenance: Controls will be inspected daily and after rainfall events. Any failures will be repaired immediately, and the plan will be updated as site conditions evolve. Training and Awareness: All site personnel will receive induction and task-specific training on erosion and sedimentation risks, control measures, and incident response procedures.
Fire and incident management	
F01	The Operation & Management Plan, which identifies methods of combustible waste material management and storage, will be updated to incorporate the IRRC expansion. The plan will be reviewed annually or upon material changes to the storage and handling of combustible material. Stockpiles will be managed in accordance with *Fire Safety in Waste Facilities Guidelines* (Fire & Rescue NSW 2020). Stockpile height will be limited to 4 m for combustible materials and 6 m for non-combustible materials. The maximum internal stockpiles size of combustible material will be 1,000 m^3.
F02	Fire management and containment measures will be expanded for the IRRC and will meet the requirements of the *Fire Safety in Waste Facilities Guidelines* (Fire & Rescue NSW 2020) – including fire hydrants, automatic fire sprinklers, fire detection and alarm, smoke hazard management, fire water run-off containment and firefighting intervention measures.
F03	A fire safety procedure will be prepared and implemented for the IRRC. This will include: • The provision of an Emergency Services information package in accordance with guidelines, which will be stored at the site office. • An Annual Fire Safety Statement will be prepared that details the statutory fire safety measures in accordance with the *Environmental Planning and Assessment Regulation 2021.* • Fire drills at appropriate intervals, to be coordinated with the fire service where applicable. • Training of key personnel at a registered training organization, including first response firefighting.
F04	Pollution control equipment including spill kits and booms will be kept on site and readily accessible.
Hazardous or offensive development	
HOD1	The type and quantity of hazardous materials stored on site will not exceed the threshold in *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* (Applying SEPP 33) (Department of Planning 2011a) for dangerous goods. If storage quantities increase, a preliminary hazard assessment will be conducted by an appropriately qualified consultant.

ID	Mitigation measure
Bushfire	
B1	Asset protection zones (APZ): • A minimum 12 m APZ will be maintained along the northern and eastern lot boundaries as identified in the landscape plan (refer Appendix I.9). • Negotiations with the landowners / managers to the east will be sought to ensure the APZ along this boundary is maintained. • The APZs will be maintained while the site continues to be used as a waste management facility.
B2	Construction materials: • Any fencing and gates installed for the project will be made of non-combustible material only. • Where fitted, screens will be made of corrosion-resistant steel, bronze or aluminium. The frame will be made from metal with metal fixings. • All above-ground water service pipes external to the building will be metal, including and up to any taps.
B3	Access: • Safe access will be provided to the northern and eastern bushland interface that supports capacity for fully loaded (23-tonne) firefighting vehicles. • A turning point will be established for firefighting vehicles accessing the northern boundary in accordance with Appendix 3 of PBP 2019. • A vehicle turning head will be established in accordance with Appendix 3 of PBP 2019 at the end of the access track to the eastern grassland interface to allow for the safe access and egress of firefighting vehicles. • Turning points / heads will be kept clear of obstruction. • Traffic management devices (sliding gates) at entry points will not impede firefighting vehicles.
B4	The Bushfire Emergency Management and Evacuation Plan will be implemented for construction and operational activities and will be reviewed at least annually.
Aboriginal cultural heritage	
AH1	In the event that unexpected Aboriginal objects, sites or places (or potential Aboriginal objects, sites or places) are discovered during construction, all works in the vicinity of the find will cease and contact with a heritage professional undertaken to inform next steps.
AH2	If human skeletal material is discovered, the *NSW Coroners Act 2009* requires that all works cease, and the NSW Police and the NSW Coroner's Office be contacted. For Aboriginal finds, the current DECCW guidelines for managing the unexpected discovery of Aboriginal objects, sites and/or human remains will be implemented.
AH3	CWS will develop an Aboriginal employment scheme or participation plan as guided and informed by the RAPs to facilitate employment opportunities and engagement with the local Aboriginal community.
Historical heritage	
HH1	In the event that unexpected historical relics (or potential historical relics) are discovered during construction, all works in the vicinity will cease and the proponent will determine the subsequent course of action in consultation with a heritage professional and/or the relevant State government agency as appropriate.
Social	
SOC1	A complaints management procedure will be implemented throughout construction and operation, to provide a 24-hour point of contact for the community.
SOC2	A procurement policy to maintain the positive social impact in the local and regional area will be followed. A draft procurement policy is provided in Attachment C of the social impact assessment (Appendix I.8 of the EIS), which includes clear prioritisation of local suppliers and providers.
SOC3	An employment plan will be prepared and implement an employment plan, which will include measures to: • provide clear information about employment opportunities available during construction and operation • upskill workers and provide opportunities for long-term unemployed or underemployed workers • develop an Aboriginal employment scheme or participation plan.

ID	Mitigation measure
SOC4	• Consider and integrate the *Crime Prevention Through Environmental Design* (Cessnock Council 2010) principles in detailed design, such as security signage, CCTV systems and security lighting.
Visual	
V01	Lighting will be directed inwards and downwards within the site.
V02	Landscaped areas will be planted and maintained in accordance with the landscape plan (Appendix I.9 of the EIS).
V03	The proposed new processing shed will be clad in sage green, dark green and sand randomised paneling to match the existing RRF exterior.