



Construction Environmental Management Plan



NSW Long Term
Train Support Facility
Turning Angle
(Hexham)



Application: SSI - MP 07_0171 (MOD 1)
October 2019

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Document Approval/ Sign Off

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1.0 Introduction

This Construction Environmental Management Plan (CEMP) has been prepared to specify the environmental mitigation measures to be implemented during the construction phase of the NSW Long Term Train Support Facility (TSF) Turning Angle, and to document the mechanisms for demonstrating compliance with the relevant approvals.

1.1 Project Description

The Hexham TSF Turning Angle (the Turning Angle) project is required to facilitate the economical turning of locomotives within the TSF footprint and mitigate impacts to the network operational schedules. The Turning Angle project, including construction, will consist of:

- Installation and operation of a new turning angle including new rail tracks and level crossings comprising:
 - Excavation/civil works for railway track foundation and ballast;
 - Approximately 1.5km of rail track and associated signal and turnout infrastructure comprising a single track straight of approximately 400m in length extending from the existing rail yard to the proposed turning angle;
 - A turning angle with two arcs approximately 250m in length and a straight of approximately 275m;
 - Two 85m straight single tracks at either end of the turning angle;
 - Four tangential turnouts; and
- Construction of vehicular access tracks and associated lighting;
- Installation of culverts within existing drainage channels, under the rail track and access tracks;
- Associated civil and stormwater works;
- Relocation of the site septic irrigation systems;
- Treatment of potential acid sulphate soil and encountered contamination.

1.2 Site Description

The Site has a total area of 255ha and is located at Hexham approximately 16km north-west of the Newcastle Central Business District.

The Site shares borders with the Main Northern Railway and Pacific Highway to the east and the New England Highway to the north. To the south and west rural properties and the Hexham Swamp Nature Reserve are adjacent. The Site is located within a predominantly industrial setting, with only a small number of residential dwellings within the local vicinity.

The Site's history as a coal handling facility has resulted in the southern portion of the site containing an abandoned rail loop corridor and coal washery reject (CWR). CWR is retained within vegetated stockpiles however it is also present extensively in sub surface deposits. Remediation completed during the construction of the Site infrastructure has resulted in excavated CWR and neutralised Potential Acid Sulphate Soil being stockpiled in the southern portion of the site

Brancourts Manufacturing and Processing Pty Ltd are currently licensed to use a portion of the site for a waste water treatment plant and effluent irrigation area under Environmental Protection Licence (EPL) 816. Effluent is irrigated over the above mentioned CWR stockpiles.

In 2015 construction of the Hexham Long Term Train Support Facility (TSF) was completed consisting of site infrastructure, associated civil works and remediation of site contamination.

1.3 Project Context

The TSF project was assessed and approved as State Significant Infrastructure (SSI) under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Site was approved by a delegate of the Minister for Planning and Infrastructure under MP07_0171 dated 10 October 2013. The Hexham TSF Turning Angle (the Turning Angle) Modification MP 07_0171 (SSI-6090) (the Approval) was approved on the 09 October 2019.

This Construction Environmental Management Plan (CEMP) has been developed and implemented as required by Schedule E, Condition E62 of the Approval.

The CEMP has been developed in compliance with the Guidelines for the Preparation of Environmental Management Plans (Department of Planning, 2004).

A matrix of the relevant conditions of approval is included as Appendix B and identifies where these conditions have been addressed in the CEMP.

This CEMP forms part of the Construction Tender Documentation as a minimum standard for construction. Any amended version of the CEMP prepared by the contractor must specifically reflect applicable conditions of the Approval, and reference applicable EPLs and their conditions.

1.4 CEMP Objectives

The objectives of this CEMP are:

- To minimise and control the impact of construction on the environment;
- Ensure compliance with all relevant legislation and project approvals;
- Minimise disruption/inconvenience to the community during construction;
- Equip all project staff and contractors with the appropriate training, equipment and delegations to implement their environmental obligations under this CEMP; and
- Provide mechanisms for identifying and managing environmental impacts arising from changes to construction.

2.0 Construction Activities

2.1 Construction Activities and Methodology

Construction will be undertaken in general accordance with the stages described below utilising the following equipment.

2.1.1 Enabling Works

To prepare the site for the commencement of construction the following activities will be undertaken:

- Dilapidation surveys of the Tarro Interchange;
- Completion of pre clearance surveys;
- Fencing constructed to delineate site boundaries, work areas and sensitive environment areas as required;
- Environmental and traffic management controls installed ahead of the commencement of civil works where required;
- Unloading and storage of rail infrastructure; and
- Removal of irrigation area infrastructure for relocation after civil earthworks (refer Annexure 2),

2.1.2 Mobilisation

Project mobilisation consisting of rail infrastructure procurement and site establishment is proposed to be finalised in January 2020. Procurement of rail infrastructure to align with the initial mobilisation dates will negate the need for a remobilisation of workforce and required plant upon completion of civil works.

2.1.3 Civil Stormwater

This stage of works includes all earthworks, stormwater and capping layer construction and has a programmed duration of 16 weeks. Stripping of topsoil, excavation, subgrade preparation and construction of formation rock fill will generally be performed utilising the following plant:

- Excavators 20-36 tonne
- Cat 730 dump trucks
- D6T Dozer
- Cat 725 water cart
- Smooth drum roller

Stormwater culverts (600 x 450 Reinforced Concrete Box Culverts – multi cell) will be 350LA rail load rated pre-cast units. Contractor allowance considers utilising single cell wide base slabs and crown units laid adjacent to one another. These will be laid over a nominal 300mm thick drainage layer (subject to subgrade conditions) and constructed simultaneously with formation construction.

Culverts and surface drainage will be progressively constructed with the bulk earthworks as required under the project approvals

2.1.4 Civil Earthworks

Subgrade will be trimmed, proof rolled with a Bidim A39 layer laid over the formation rock fill. Subgrade removal and replacement will be undertaken as required by the geotechnical inspections during the course of the works, with the first 180m of the turning angle identified as requiring replacement. The subgrade condition will be inspected and assessed at 300mm and 600mm depth for CBR, MDD and groundwater levels ahead of the main works face to minimise down time for unexpected conditions.

Spoil stockpiling and acid sulphate treatment/management will be undertaken by the Principal Contractor as co-ordinated by Aurizon who will be managing the validation of material neutralisation. All stockpiling will be undertaken in the nominated areas.

2.1.5 Rail Pavement and Formation

A composite Bidim A39/TX160 geogrid will separate the rock fill formation and the capping layer. The following additional plant will be used for placing the capping material:

- Padfoot roller
- Loader
- 140H grader
- Road registered water cart
- Backhoe

2.1.6 Track Works

Capping layer trim and compact will be completed prior to installation of ballast and track.

Interface management will be required for the areas at the tie in with the connecting turnout and near the Leg 2 works which adjoins neighbouring properties, maintaining access for third parties. It is anticipated that exclusion fencing will be sufficient for delineating the work areas from neighbouring land uses.

This stage of works encapsulates all activities that will be undertaken with Daracon's rail crew and has a duration of 6 weeks. Most of this work will be undertaken using in house resources; equipment utilised will be as follows:

- IT62H loader
- M316D high rail excavator
- 7 tonne high rail excavator
- Cat 730 dump truck
- Cat 247 rubber track loader
- Backhoe

Subcontract work elements will be tamping, mechanical installation of operating rodding assemblies and asphalt installation at level crossing.

2.1.7 Demobilisation

Following the commissioning of the Turning Angle, final works will be completed including landscaping and making good of access roads. As these works are completed the removal of the temporary construction facilities including the site compound, fencing, signage and temporary environmental controls will be undertaken where required.

The site of all ancillary facilities will be rehabilitated to at least their pre-construction condition, unless otherwise agreed between Aurizon and the landowner (where relevant).

Measures for rehabilitating areas disturbed by construction and that are not required for ongoing activities associated with construction (such as construction compounds and stockpile areas) are detailed in the Construction Waste and Spoil Management Plan (CWSMP).

Disturbed areas will be regraded to their original contours or to a landform that blends in to the surrounding landscape and does not adversely affect surface water runoff. These areas will be seeded and/or planted with locally endemic flora species and protected from sediment loss and erosion through the installation of controls in accordance with Landcom (2004) Managing Urban Stormwater: Soils and Construction (the Blue Book) and the identification and establishment of these areas as "no-go" zones.

Areas that are within or adjacent to EECs are acknowledged to be of particular importance and care will be taken to ensure locally endemic flora species are used in their revegetation and weed propagules are kept out of such areas in accordance with the Construction Fauna and Flora Management Plan.

2.2 Water Management

Groundwater is not expected to be intercepted during construction activities associated with the Turning Angle as detailed in:

- SSI-6090 Modification 1 - Environmental Assessment Report Revised June 2019 (Ethos Urban, June 2019).
- 2219583-REP-Geotechnical Investigation Report (GHD, November 2018).

If groundwater is intercepted a construction methodology has been developed for the construction of the rail formation and culverts within water, negating the need for significant pumping.

The overall strategy for managing groundwater is to utilise temporary storage tanks to store groundwater as required. Where possible, groundwater removed (dewatered) from active excavation areas may be returned to the ground (recharged) in adjacent areas by pumping. The prevailing climate and groundwater levels would determine the suitability of this method.

Dewatering of construction cells due to intercepted stormwater from discreet meteorological events will be undertaken as required. Water will be pumped into temporary holding tanks prior to utilisation in dust suppression or construction activities. If a beneficial reuse cannot be identified release into the existing site stormwater management system will also be permitted.

All water will undergo lab analysis to determine water quality meets performance criteria prior to reuse/release.

2.3 Remediation

Remediation will be carried out generally in accordance with the Site Management Plan (SMP) and Construction Contamination Management Plan (CCMP) with activities consisting of:

- Sampling, testing, neutralization and stockpiling of excavated PASS throughout the works area;
- Removal of stockpiles for disposal in appropriate licenced landfill facilities;
- Removal of asbestos containing soils, for disposal in appropriate licenced landfill facilities by a suitably licenced contractor in accordance with WorkCover requirements; and
- Excavation of hydrocarbon impacted soils for landfarming (where appropriate) or disposal to a suitably licenced landfill facility. Where remediated soils can comply with the relevant soil criteria they will be reconditioned and reused as fill onsite.

2.4 Indicative Timing and Scheduling

The project is expected to be completed over a nominal duration of 6 months from approval. The indicative schedule of construction activities is summarised in Table 1.

Table 1 - Indicative Construction Stages and Scheduling

Construction Phase	Activity	Indicative Schedule
Mobilisation	<ul style="list-style-type: none"> Tarro interchange dilapidation survey Delineation of sensitive areas Site establishment 	December 2019
Civil Earthworks	<ul style="list-style-type: none"> Clear and grub Strip topsoil Prepare and trim subgrade Boxcut spoil Replace topsoil and hydro mulch 	06 January 2020 to 30 April 2020
Remediation	<ul style="list-style-type: none"> PASS neutralisation 	06 January 2020 to 30 April 2020
Rail Pavement	<ul style="list-style-type: none"> Rock layer Structural layer Capping layer 	17 February 2020 to 03 April 2020
Civil Stormwater	<ul style="list-style-type: none"> Installation of box culverts 	06 March 2020 to 15 April 2020
Headwalls	<ul style="list-style-type: none"> Installation of box culverts 	23 March 2020 to 15 April 2020
Track Works	<ul style="list-style-type: none"> Placement of ballast Installation of sleepers and rail Installation of turnouts Tamping Construction of level crossing 	06 April 2020 to 12 May 2020
Demobilisation	<ul style="list-style-type: none"> Site clean-up and demobilisation 	13 May 2020 to 15 May 2020

2.5 Staffing and Hours

Staff numbers are likely to range from between 10 to 30 during the construction phases of the project. Work would be generally undertaken during standard construction work hours:

- 0700 to 1800 - Monday to Friday;
- 0800 to 1300 – Saturday;
- No work on Sundays or Public Holidays.

Construction activities (including the delivery of materials) outside of the prescribed construction hours may be undertaken in the following circumstances:

- (a) construction works where the cumulative air-borne noise generated is:
 - (i) no more than 5 dB(A) above the rating background level at any residence in accordance with the *Interim Construction Noise Guideline* (DECC, 2009); and
 - (ii) no more than the noise management levels specified in Table 3 of the *Interim Construction Noise Guideline* (DECC, 2009) at other sensitive receivers;
- (b) where a negotiated agreement has been reached with affected receivers as the prescribed noise and vibration levels cannot be achieved;
- (c) for the delivery of materials required outside these hours by the NSW Police Force, RMS or other authorities for safety reasons;
- (d) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or
- (e) works approved through an EPL (including rail possessions) and in accordance with an out-of-hours works procedure.

Any work proposed to be conducted outside of the standard work hours would be undertaken in accordance with the out-of-hours procedures.

3.0 Environmental Management

3.1 Safety, Health and Environmental Management Systems

The Aurizon Enterprise-wide Safety, Health and Environmental (SHE) Management System sets the direction across the enterprise and ensures that activities, which have the potential to affect the safety and health of people and /or the receiving natural environment, are planned, organised, implemented and checked in accordance with legislative requirements.

Aurizon's commitment to achieving best practice performance across all its operations as one of Australia's largest transport and logistics businesses is formalised in Aurizon's Enterprise-wide Environmental Policy (POL-08) and is given effect via Aurizon's Enterprise-wide Environmental Management Principle (ENV-PR1-001). A copy of these documents is included as Annexure 4.

This Aurizon Environment Principle sets out requirements for the Organisation to:

- Ensure mechanisms are established to achieve compliance with environmental laws, regulations, Board policies and, corporate directives/principles, applicable industry standards and codes; and
- enable effective management of environmental risks; and
- achieve continual improvement in environmental performance; and
- Give effect to the Environmental Policy.

3.2 Roles and Responsibilities

All staff and contractors have an obligation to implement the requirements of this CEMP. Specific responsibilities for administering, monitoring and reporting as required by this CEMP are detailed below in Table 2.

Table 2 Indicative Environmental Roles and Responsibilities

Position	Responsibility
Aurizon Communications Team	<ul style="list-style-type: none"> • Corporate governance of public communications.
Aurizon Project Manager	<ul style="list-style-type: none"> • Authorise environmental management activities as required by the CEMP; • Ensure adequate resources area available to implement the requirements of this CEMP; • Review audit outcomes and direct updates to CEMP as required; • Ensure the CEMP accurately reflects the construction activities; • Issue non-conformance reports; • Update ER on all construction and design related changes; • Closing out/ ensuring corrective action for non-conformances; and • Hold regular project team meetings (including the SEA).
Construction Manager (Daracon Pty Ltd)	<ul style="list-style-type: none"> • Facilitate ER access to site and implementation of this CEMP; • Maintain PC EMPs and ensure they are consistent with CEMP; • Ensure all project personnel are inducted to site; and • Ensure environmental impacts are minimised.
Environment Representative (ER)	<ul style="list-style-type: none"> • Principal point of advice in relation to project environmental performance; • Monitor the implementation and outcome of all environmental

Position	Responsibility
	<p>management plans and monitoring programs required under this approval and advise the Proponent upon the achievement of these plans and programs;</p> <ul style="list-style-type: none"> • Responsible for advising Aurizon on MCoA and other licences; • Ensure compliance with MCoA D5; • Approve/reject minor CEMP amendments; • Direct controls be implemented to mitigate environmental impacts; • Be consulted where community concerns exist regarding environmental performance.
<p>Senior Adviser Environment (Aurizon)</p>	<ul style="list-style-type: none"> • Manage, review and implement the CEMP; • Undertake environmental auditing and reporting; • Obtain relevant licences, permits and approvals; • Respond to environmental incidents; • Prepare environmental induction and toolbox talks; • Provide input and advice on SWMS; • Implement the Community Consultation Strategy (CCS); • Primary point of contact for community and regulatory authority liaison; • Liaise with stakeholder and government agencies; • Attend regular project team meetings;
<p>Site Environment Officer (Daracon Pty. Ltd.)</p>	<ul style="list-style-type: none"> • Day to day management of all onsite environmental aspects; • Undertake daily site inspections; • Provide advice to project personnel on environmental issues; • Include environmental controls in relevant SWMS; • Periodically carry out inductions/tool box talks where required; • Ensure all employees and sub-contractors and are adequately inducted and trained with all the requirements of this CEMP (including all sub-plans); • Attend regular project team meetings.
<p>Site Foreman (Daracon Pty Ltd)</p>	<ul style="list-style-type: none"> • Assist the Site Environment Officer to ensure the site-specific requirements of the CEMP are fulfilled on site; • Assist the Site Environment Officer to ensure all employees and sub-contractors and are adequately inducted and trained with all the requirements of this CEMP; • Co-ordinate storage of materials on site.
<p>Other Employees and Contractors</p>	<ul style="list-style-type: none"> • Attend all environmental training required; • Comply with the requirements of this CEMP; • Undertake all activities in accordance with agreed procedures and work methods; • Follow instructions of the ER/Site Environment Officer.

3.3 Approval and Licensing Requirements

The relevant conditions of the Approval and Statements of Commitment and where they are addressed in this CEMP are included in Annexure 5 and 6 respectively. Relevant legislation, approvals and licences that apply to the Site and must be complied with are detailed in Table 3.

Aurizon also holds a number of legally binding agreements, contracts and licences with a range of other entities that have interests on land within or adjoining the Site. These are briefly summarised in Table 4.

Table 3 - Relevant legislation, approvals and licences

Legislation	Relevance to the Project	Approval Body
<i>Environmental Planning and Assessment Act 1979</i>	State Significant Infrastructure Approval MO07_0171 MOD 1	Department of Planning, Industry and Environment
<i>Protection of the Environment and Operations Act 1997</i>	Relevant legislation and regulation pertaining to pollution and waste management.	NSW Environment Protection Agency
<i>Roads Act 1993</i>	Approval for work within the road reserve of NEH and Woodlands Close required under Section 138 of the Act.	Road and Maritime Services (RMS) and Newcastle City Council (NCC)
<i>Water Management Act 2000</i>	Groundwater licences for extraction of water if required.	Office of Environment and Heritage (OEH)
<i>Local Government Act 1993</i>	Work within the road reserve of Woodlands Close under Section 68 of the Act. Sewerage system licence under Section 68 of the Act.	Newcastle City Council (NCC)
<i>Conveyancing Act 1919</i>	Creation of easements for utilities (water/electricity/telecomm) under Section 88B of the Act.	Department of Lands and Property Information
<i>Dangerous Goods Act</i>	Notice to Store dangerous goods required.	WorkCover

Table 4 - Agreements

Legislation	Relevance to the Project
Jemena Gas	Protection works for the 500mm gas pipeline.
ARTC	Track possessions for rail connections.
HWC	Connection to HWC 200mm water main. Water usage agreement. Trunk water main protection
Brancourts and EPA	Lease deed permitting use of irrigation under EPL 816.
Brancourts and HWC	Brancourts effluent and water supply lines protection
Ausgrid	11kV connection, poles and 3 x kiosks.
Optus	Underground fibre-optic protection.
Telstra	Telecommunications connection
EESG	Bio Banking Certificate (Transaction #201607-TF-156)

3.4 Management Plans

The requirement for environmental management plans required by conditions of the Approval are detailed in Table 5 below.

Where management measures are required to be developed to maintain compliance with the Approval but the development of a specific management plan is not stipulated these management strategies have been included in the CEMP.

Table 5 - Management Plans

Construction Plan	CEMP Section	Approval Condition
Compliance Monitoring and Reporting Program	Section 5 and Annexure 5	D5
Soil and Water Management Plan	N/A	C9
Air Quality Management Plan		E62(e - i)
Flood Emergency Management Plan	N/A	C15
Surface and Groundwater Monitoring Program	N/A	C19
Community Communication Strategy	N/A	D1 & E62(g)
Green and Golden Bell Frog Management Plan	Fauna and Flora management Plan	
Traffic Access Management Plan	N/A	E63(a)
Flora and Fauna Management Plan	N/A	E63(b)
Noise and Vibration Management Plan	N/A	E63(c)
Stormwater Management Plan	N/A	E63(d)
Heritage Management Plan	N/A	E63(e)
Contamination Management Plan	N/A	E63(f)
Construction Waste and Spoil Management Plan		E62(e - ii)
Site Management Plan	N/A	E63(f)

3.5 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) has been reviewed during through the development and implementation of this Turning Angle CEMP with reference to the enterprise Safety Risk Management Principle (PRI/0014/COR), Aurizon corporate environmental policies and standards and the Aurizon

Enterprise Risk Management Framework (RMT/DIR/0001). The ERA has been developed in compliance with Condition E62(e) (i-iv) of the Approval.

In line with the Aurizon Change Management Standard (05-STD-001-COM), the risk assessment will be reviewed in the following circumstances:

- Upgrade, replacement or decommissioning of old plant or equipment;
- change to business as usual activities or construction methodology; and
- following major environmental incidents.

No change, replacement or alteration of any plant or construction methodology is permitted if this change increases or is likely to substantially increase, the risk of environmental harm.

The project environmental risk assessments has been included in Annexure 6.

4.0 Consultation

Consultation was undertaken with regulatory bodies during the Turning Angle environmental assessment process following receipt of the Secretaries Environmental Assessment Requirements (SEARs). Consultation sought to ensure that the regulatory bodies considered that the SEARs were adequate and no additional assessment considerations were required.

Consultation with adjacent landholders was undertaken during development of the Preliminary Environmental Assessment Report and prior to submission of the final Environmental Assessment report. During the final round of consultation relevant specialists' reports were provided to the landholders outlining the findings of the Environmental Assessment.

Stakeholders and their feedback is detailed below::

- Adjacent landholders
 - Flooding impacts
 - Construction noise
 - Traffic/access
- Department of Planning and Environment
 - No response provided
- DPI Fisheries
 - Internal feedback on the SEARs
- Natural Resource Access Regulator
 - No response provided
- Hunter Development Corporation
 - No response provided
- Local Land Services
 - No response provided
- Newcastle City Council
 - No response provided
- Office of Environment and Heritage – Heritage Division
 - Was not consulted during development of SEARs. No comment other than to confirm that heritage is considered in the Environmental Assessment.
- Office of Environment and Heritage – Conservation and Regional Delivery Division
 - Responded with copy of SEARs
- Roads and Maritime Services
 - No response provided
- NSW Environment Protection Authority
 - No response provided

Following public exhibition of the Environmental Assessment a range of issues were raised by the stakeholders as listed below. These issues were addressed as part of the State Significant Infrastructure MP07_0171 Modification: Response to Submissions (Ethos Urban, 13 August 2019) report.

- Australian Rail Track Corporation
 - Access impacts associated with construction activities

- Department of Industry – Lands and Water and Department of Primary Industries
 - No issues
- Environment Protection Authority
 - Recommendation to assess the project against Protection of the Environment Operations Act 1997 Schedule 1 amendments made of the 05 July 2019.
- Biodiversity Conservation Division
 - No issues
- Transport Assessments Division
 - Construction noise
 - Operation traffic
- Roads and Maritime Services
 - Aurizon to consider the concept design for the propose M1 Pacific Motorway extension
- City of Newcastle
 - Flooding and stormwater
 - Onsite stormwater system
 - Biodiversity
 - Bushfire

No submissions were received from members of the public. Issues raised by relevant regulatory departments were determined to be adequately addressed in the Turning Angle Environmental Assessment with additional clarification provided in the Response to Submissions report as required (Annexure 3). No amendments to the Turning Angle proposals were required in response to any of the received submissions.

5.0 Compliance

5.1 CEMP Amendments

The CEMP may be amended from time to time as per issue or following review at regular intervals.

The ER has authority to approve/reject minor amendments to this CEMP. Minor amendments are changes that do not have a detrimental effect on the environment or increase the risk profile.

Major changes to the CEMP will be reviewed by the ER and forwarded to the Director General for Approval.

5.2 Consistency Review

Proposed changes to the scope of the Turning Angle Project shall be subject to a Consistency Review as permitted by Condition B7 of the Approval.

The consistency review shall be undertaken by Aurizon and issued to the ER for approval prior to work occurring. If the ER deems that the scope and impact of the proposed modification is inconsistent with the approved SSI then a modification to the Infrastructure Approval will be required to be sought from the DPI&E.

5.3 Environmental Monitoring

The timing, frequency, locations and responsibilities for the proposed monitoring programs are specified in the respective sub-plans and summarised in Table 8 below.

If an Environment Protection Licence (EPL) is obtained for water discharge, specific requirements for the publication of monitoring results in accordance with section 66(6) POEO Act apply. In summary, this provision requires that:

- Licensees must publish or make available monitoring data that relates to pollution within 14 days of obtaining the data and/or receiving a specific request for a copy of the data;
- Must make the monitoring data related to pollution available in a prominent position on the website; and
- The data to be published or provided is limited to data that relates to pollutants generated, discharged or emitted from the licensed premises.

5.4 Compliance Tracking Program

Compliance reporting will be undertaken in compliance with Condition D5 of the Approval and Compliance Reporting Post Approval Requirements (DP&E, June 2018). The compliance reporting program is detailed in Table 6 below with the Turning Angle conditions of approval compliance tracker included in Annexure 5.

Inspections and audits against the conditions of Approval and management plan requirements will be undertaken by the ER in consultation with the DPI&E. Aurizon will also undertake inspections and audits of the works as per Table 6 with frequency and scheduling dependent on construction activities and project environmental performance.

Table 6 - Compliance Reporting Table

Compliance Report/Inspection	Phase	Timing	Minimum Frequency
Pre-construction Compliance Report	Pre-construction	Report to be submitted to the Planning Secretary prior to construction	Single report only
Construction Compliance Report	Construction	Monthly	Monthly
Pre-Operational Compliance Report	Pre-Operation	Report to be submitted to the Planning Secretary prior to operation	Single report only
Operational Compliance Report	Operation	Annual for duration of operation	Annual
Post Decommissioning Compliance Report	Decommissioning	Report to be submitted to the Planning Secretary within 12 weeks of completion of decommissioning	Single report only
Inspection	Construction and Decommissioning	TBD based on site activities	Weekly
Internal audit	Construction	TBD based on site activities	Once during construction

5.5 Reporting Requirements

Environmental reporting will be incorporated into the Contractors Monthly Progress Report addressing the following:

- Description and response to all incidents of non-compliance with the CEMP;
- All near-miss environmental incidents;
- Status of any Environmental Improvement Notices;
- Summary of results of environmental inspections and audits;
- Consultation actions and feedback;
- Opportunities for improvement of the CEMP; and
- Any other relevant issues.

5.6 Document Control and Record Management

Requirements for the identification, collection, indexing, access, filing, storage, maintenance and disposition of environmental documents and records are defined in Aurizon Document Control Arrangements and Information Management Principle (PRI-0006-COR). This principle provides direction for ensuring all information remains current, valid, endorsed and readily available to all employees and other stakeholders where applicable.

This principle requires as a minimum that documents / management systems:

- Provide clear accountability and ownership of all specific information;
- are capable of applying appropriate security, document retention, review scheduling and subsequent updating of all information as it relates to the EMS; and
- Are accessible and controlled by all relevant stakeholders.

Environmental documentation associated with the Site is summarised in Table 7. Environmental records must be kept for a minimum period of 5 years in an electronic format.

All environmental records must be available for presentation to the regulator upon request.

Table 7 - Document Control and Record Management

Record Type	Location
Environmental Awareness Training	LMS
Spill Management Training	LMS
Contaminated Site Notification	NSW EPA
Waste Tracking Certificates	EPA Online System
Site Inspection Checklists	Local Records
Emergency Drills	Local Records
Incidents and Investigation Correspondence	SHEM
Sewage System Maintenance Record	ERE
Environmental Audits	Intranet
Environmental Reports	Intranet
Environmental Risk Assessment	Intranet
CEMP	Intranet
Environmental / Safety Meeting Minutes / Communications	Local Records
Inductions	Local Records

5.7 Corrective Actions

Identified non-conformances with this CEMP, legislative or other requirement will be managed in accordance with BSEMS-STD25 Operational Non Conformance & Incident Reporting. This procedure requires that:

- The reporting of non-conformances is promoted as a desired behaviour;
- Aurizon's Safety, Health and Environment Management system (SHEM) is the key tool by which environmental hazards, incidents and non-conformances are reported;

- the reporting of non-conformances include the identification and documentation of all the factors and underlying causes that contributed to the incident, the controls that were intended to prevent it and analysis of any failures in the controls; and
- Information gathered from non-conformances is reported to improve performance and systems and manage risk.

Records of all non-conformances will be kept in accordance with document control procedures and communicated to relevant parties.

Corrective and preventative actions arising from non-conformances will be managed in accordance with BSEMS-STD05 Effectiveness of Corrective & Preventative Actions. This document requires that:

- All actions or activities identified to further mitigate or reduce an operation risk exposure have been given specific timeframes and accountabilities for their effective implementation;
- a systematic review of the effectiveness of such activities is undertaken at appropriate timeframes proportionate to the level of risk exposure;
- governance of the effective implementation of the preventative actions identified must be completed through systematic organisational hierarchy sign-off process;
- a systematic process to ensure unresolved activities identified to reduce risk exposure are escalated to appropriate organisational levels to ensure resolution; and
- Audit processes external from the business unit are also used to review the effectiveness of risk mitigation actions.

Records of all corrective and preventative actions will be kept in accordance with document control procedures and communicated to relevant parties.

Table 8 Summary Monitoring Frequencies

	Activity	Area	Resource	Responsibility	Frequency	Reported to
General	Daily Environmental Inspection	All	Site Report / Diary	Daracon Environmental Manager / Foreman	Daily	Site Environmental Officer
	Weekly Environmental Inspection	All	Weekly Site Environmental Inspection Checklist	Daracon Environmental Manager	Weekly	Senior Adviser Environment / Project Manager (or delegate)
Air Quality	Visual monitoring of air quality impacts	Active construction sites	Daily Site Report (Foreman's Diary)	Foreman / Daracon Environmental Manager	Daily	Site Environmental Officer
	Prevailing wind conditions and weather forecasts	All	Weather forecast website (5-7 day look ahead) Site Report / Diary	Daracon Environmental Manager	Daily	Foreman / Site Environmental Officer
Flora and Fauna	Pre-clearing Inspection	All areas of vegetation clearance	Permit to Clear Vegetation	Daracon Environmental Manager / Project Ecologist	Prior to each clearing event	Senior Adviser Environment (or delegate)
	Vegetation clearing	All areas of vegetation clearance		Daracon Environmental Manager / Project Ecologist	Presence during vegetation clearing	Senior Adviser Environment (or delegate)
	Weed monitoring and treatment	All	Weed Management Procedure	Daracon Environmental Manager	Weekly monitoring and treatment as necessary	Senior Adviser Environment (or delegate)
Noise and Vibration	Attended Noise Monitoring	Monitoring Locations A-D	CNVMP	Daracon Environmental Manager	As required	Senior Adviser Environment
	Attended Vibration Monitoring	At source of complaint	CNVMP	Daracon Environmental Manager	As required	Senior Adviser Environment

	Activity	Area	Resource	Responsibility	Frequency	Reported to
	Complaint Monitoring	At location of complaint	Complaints Management System	Environment Manager	As required	Senior Adviser Environment
European Heritage	Routine inspections of areas of known Historic Heritage	Recorded areas of Historic Heritage	Weekly Site Environmental Inspection Checklist	Daracon Environmental Manager / Foreman	As required	Facilities Coordinator (or delegate)
	Targeted inspections when disturbing areas of known Historic Heritage	Recorded areas of Historic Heritage	Site Report / Diary	Excavation Director	Daily during excavations within recorded areas of Historic Heritage	Facilities Coordinator (or delegate)
Traffic	Inspect traffic routes and protection measures within the Project Area	At interface with public roads	Site Report / Diary	Foreman (or delegate)	As required	Project Manager / Site Environmental Officer
Waste	Waste Management and Disposal	All	Site Report (Diary) and/or Weekly Site Environmental Inspection Checklist	Daracon Environmental Manager	Weekly	Senior Adviser Environment (or delegate)
PASS/ASS	Monitoring disturbed soil and excavations for ASS/PASS	Refer SMP CCMP		Daracon Environmental Manager	Refer SMP CCMP	Construction Manager (or delegate)
	Monitoring Treatment or PASS/ASS	Refer SMP CCMP		Daracon Environmental Manager /Engineer	Refer SMP CCMP	Construction Manager (or delegate)
	Monitoring of leachate ponds from PASS treatment areas	pH and pond capacity		Daracon Environmental Manager /Engineer	Only when treatment area is in use. As needed when water is present, and after rainfall	Senior Adviser Environment (or delegate)
	Monitoring of groundwater levels	Groundwater level relative to adopted dry level conditions		Daracon Environmental Manager	As per SGWMP	Senior Adviser Environment (or delegate)

	Activity	Area	Resource	Responsibility	Frequency	Reported to
Surface Water	Surface water monitoring	Refer SGMP	Field measurement Lab Analysis SGMP	Daracon Environmental Manager	As per SGWMP	Senior Adviser Environment (or delegate) Publicly available for monitoring related to the EPL in accordance with EPA requirements (EPA, 2012) if required.
	Groundwater Monitoring Program	Refer SGMP	SGMP	Daracon Environmental Manager	As per SGWMP	Senior Adviser Environment (or delegate) Publicly available for monitoring related to the EPL in accordance with EPA requirements (EPA, 2012)
Groundwater	Inspection of Monitoring Bores	Refer SGMP	Site Diary or Weekly Site Environmental Inspection Checklist	Daracon Environmental Manager	As per SGWMP	Senior Adviser Environment (or delegate)

Note: these are minimum monitoring requirements. In the event of incident or complaint, specific monitoring may be required.

5.8 Communication and Training

5.8.1 Training

Prior to commencing work on site, all staff and contractors must attend a site induction. Site inductions will include:

- Overview of the requirements of this CEMP including the Community Communications Strategy (CCS);
- Legal requirements;
- Environmental responsibilities;
- Environmental incident reporting, management and emergency response;
- Maps of environmentally sensitive areas;
- Site environmental control; and
- Reporting.

5.8.2 Communications

The contents and requirements of this CEMP and its supporting management plans will be routinely communicated to project personnel and management to ensure all staff remain up-to-date with environmental issues. Communication will be delivered by:

- Incident and hazard reports, safety alerts and advices, public distribution lists;
- Senior Leadership Team meetings;
- SHEM database;
- Site Workplace Health Safety & Environment Committees;
- Live Run;
- Daily pre-start meetings, site safety meetings, toolbox talks, safety interactions; and
- Aurizon intranet sites, newsletters.

Communications as they relate to safety and environmental matters will be communicated verbally. Where immediate behavioural change is required communication must be made within 24 hours. Important information must be delivered within 72 hours. Where an employee is absent the communication must be made at their next shift.

External environmental communication may be conducted via media releases, community meetings and newsletters. Evidence of communications having been delivered will be retained in an electronic format.

The Site Foreman will conduct tool box meetings with all site staff and sub-contractors to address environmental hazards, controls and responsibilities relevant to the day's activities.

5.9 Complaints

All responses to community and regulatory complaints and inquiries will be undertaken in compliance with the Community Consultation Strategy.

6.0 Document Review

The CEMP and supporting management plans will be routinely reviewed to promote continual improvement in compliance with BSEMS-STD04 Governance & Internal Control Arrangements. The review will be conducted following changes in scope of the SSI or a reportable incident and can be completed by the SAE.

The review should as a minimum consider the following:

- Regulatory agency comments;
- completed consistency reviews;
- audit findings;
- environmental monitoring records;
- complaints received;
- incident and corrective actions;
- changes in organisational structure and operational procedures; and
- Changes in legislation and standards.

The ER will review any proposed updates to the CEMP. The ER has authority to approve/reject minor amendments to this CEMP. Minor amendments are changes that do not have a detrimental effect on the environment or increase the risk profile. Major changes to the CEMP will require the Director-General's approval.

Continual improvement of the CEMP will be achieved by the continual evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement. The continual improvement process will:

- Identify areas of opportunity for improvement of environmental management which leads to improved environmental performance;
- Determine causes of non-conformances and deficiencies;
- Develop and implement a plan of corrective and preventative action to address non-conformances and deficiencies;
- Verify the effectiveness of the corrective and preventative actions; and
- Document any changes in procedures resulting from process improvement.

7.0 Incidents

Aurizon is committed to effectively managing all environmental incidents via the Enterprise-wide framework *RD/SAF/0012/COM/Guide001 Incident Management Framework*. This guidance document sets out the minimum requirements for Aurizon's businesses for incident notification, injury management, incident investigations and reporting.

All environmental incidents will be managed via the SHEM system. The SHEM system provides an electronic system for recording, reporting, monitoring and close-out of all environmental incidents.

7.1 Notifiable Incidents

Where a *Pollution Incident* has been assessed as having potential or actual *Material Harm* to the environment as per S147 POEO Act 1997 immediate notification of relevant authorities is required. The terms *Pollution Incident* and *Material Harm* are defined as follows:

- *Pollution Incident*
"Pollution Incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It does not include an incident or set of circumstances involving only the emission of any noise."
 - *Material Harm*
 - "i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or*
 - (ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.*
- (2) It does not matter that harm to the environment is caused only in the premises where the pollution incident occurs."*

Where a notifiable environmental incident occurs the initial notification process will be undertaken with reference to the Aurizon 4.PRO 001.NSW, NSW Coal Operations: Pollution Incident Notification Guideline (the Guideline).

The Guideline details the requirements for undertaking immediate notification of regulatory authorities in NSW where a Pollution Incident which has caused or has the potential to cause Material Harm to the environment has been identified.

As required by Condition D6 of the Approval all incident notifications made to the DPI&E must be made to compliance@planning.nsw.gov.au and include the location, extent and nature of the incident.

The Principal Contractor representative onsite will report all suspected environmental incidents to the Aurizon PM/Senior Adviser Environment immediately. Confirmation of an incident as being notifiable and subsequent regulatory notification will be undertaken by the Aurizon PM/Senior Adviser Environment in consultation with the ER.

7.1.1 Emergency

Environmental incidents will be managed and responded in accordance with the Site Emergency Response Management Plan (SERP) included in Annexure 7 and to be displayed in the Site Office and lunch rooms.

The SERP details the Site's key personnel, their responsibility and the actions required to address a variety of environmental incidents onsite. The SERP also identifies the location of key resources required to

effectively respond to an onsite emergency. In the event of an environmental emergency, initial contact is to be made with the Senior Adviser Environment and Project Manager as soon as possible.

Relevant contacts for an emergency are shown in Table 9 below.

Table 9 Emergency Contacts

Organisation	Contact Name	Phone
Daracon Environment Manager	TBC	TBC
Daracon Project Manager	Greg Taylor	0417 413 572
Daracon Construction Manager	TBC	TBC
Aurizon Project Manager	Julian Bailey	0423 149 488
Aurizon Environmental Manager	Mark Harris	07 3019 8507
Aurizon Senior Adviser Environment	Harry Egan	0438 136 697
Environmental Representative	TBA	TBA
Fire, ambulance, police	-	000
DPI&E	TBA	02 6575 3405
Environment Protection Authority	-	131 555
Newcastle City Council	-	4974 2000
Roads and Maritime Services	-	1800 679 289
ARTC	ARTC Train Transit Manager	0439 598 718
Hunter Water	24 hour Emergency Contact	1300 657 000
Jemena Gas	Emergency Gary Taunton	131 909 0402 059 751
Telstra	-	132 203
Ausgrid	-	131 388

7.2 Incident Investigation

For all notifiable incidents an Event Manager is to be nominated. The Event Manager will coordinate all phases of Incident Management in consultation with the ER. Any incident response phase actions must take priority over any initial investigative actions.

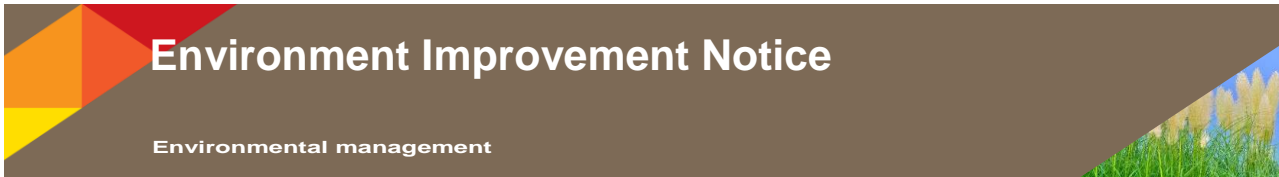
To mitigate against the loss of evidence, advance planning and coordination by the Event Manager with an Incident Commander or local management representatives shall be necessary.

Immediately following the notification of an incident, the nominated Event Manager is responsible for ensuring the appropriate and immediate response activity is enacted.

8.0 References

- SSI-6090 Modification 1 - Environmental Assessment Report Revised (Ethos Urban, June 2019) (the EA)
- ADW Johnson (2013) Environmental Assessment, NSW Train Support Facility, 16th November 2012, Project No. 37417.
- JBA (2013) Preferred Project Report and Response to Submissions Project Application (MP07_0171), June 2013, ref: 12599.
- Catchment & Creeks Pty Ltd (2012) Sediment Control – A Field Guide for Construction Site Managers, April 2012, V4.
- EPA (2012) Requirements for publishing pollution monitoring data.

Annexure 1 - Forms and Checklists

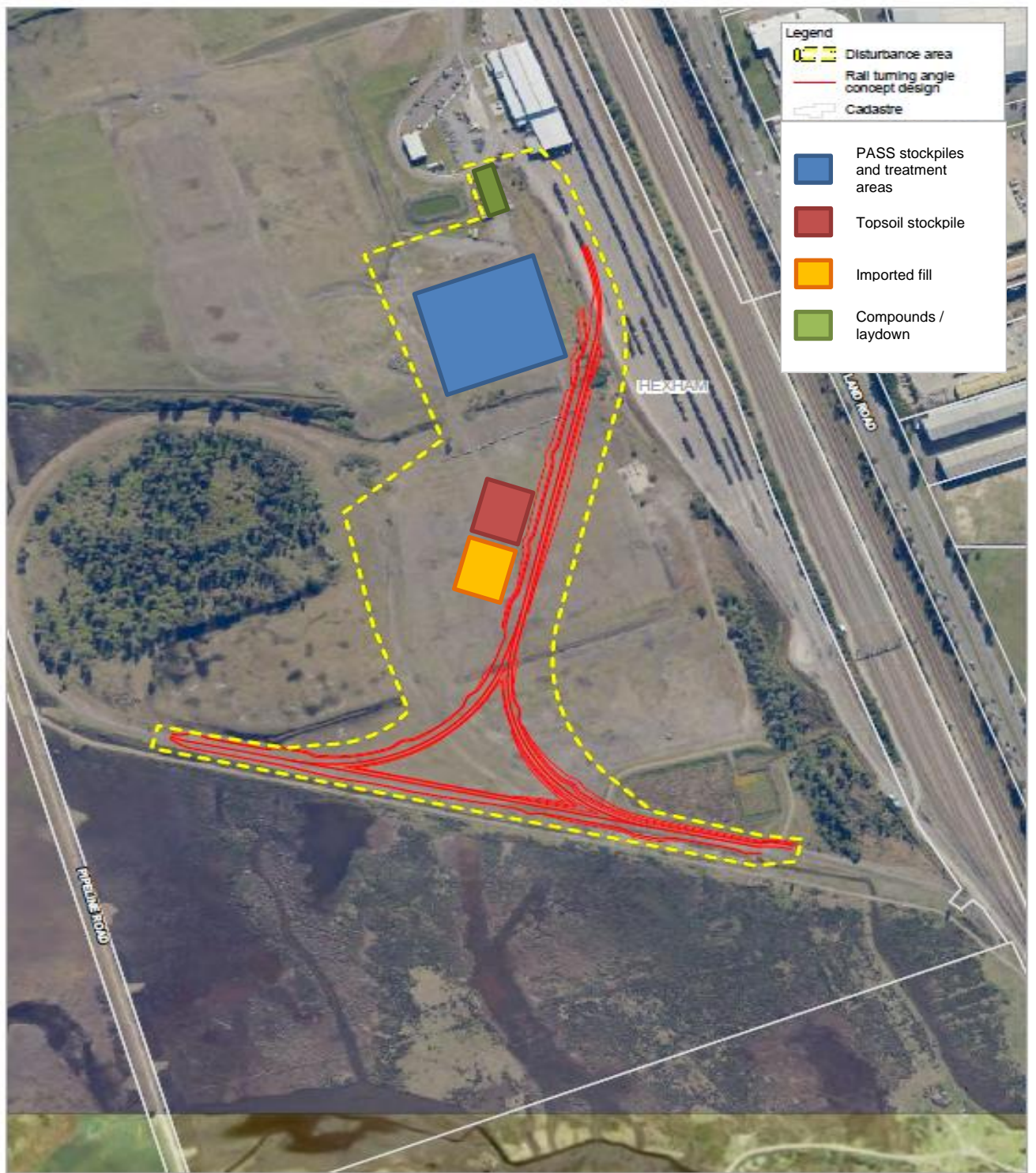


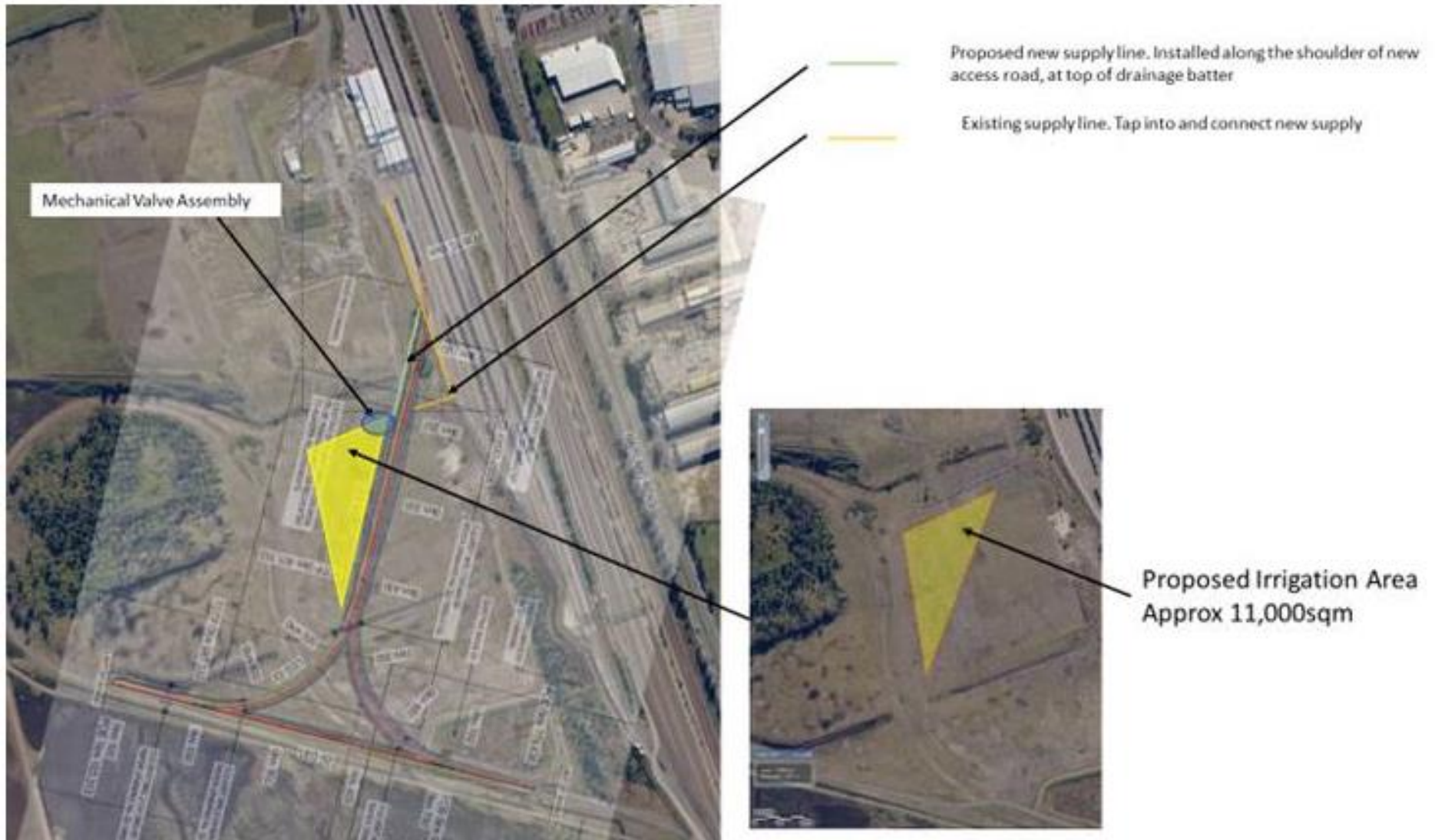
Environment Improvement Notice

Environmental management

Name of employee reporting		Date of incident:	
Work Section / Division / Group		Time of Incident	
Employees Contact Details	Ph: Email:		
Details of Incident			
Location (attached site plan if required):		Size of area affected:	
		Type of land affected (i.e. creek, tailings, soil, ballast etc.)	
Type of incident (spill, fire etc.):		Is the incident contained?	
Materials involved:			
Quantity:			
List any offsite impacts?			
Details of threat (actual/potential) to surrounding environment:			
Immediate action taken:			
Who was immediately notified (i.e. EPA, NCC, fire):			
Further action required (e.g. additional notifications, review of CEMP, toolbox, clean up etc.):			
Issue resolved:	Print name:	Signed:	
	Position:	Date:	
Logged in SHEM Event:	Name:	Date:	

Annexure 2 - Site and Ancillary Features





Annexure 3 – Response to Submissions Report

Annexure 4 – Environmental Principle and Policy

Annexure 5 – Compliance Tracking Program: Conditions of Approval

Annexure 6 – Environmental Risk Assessment

1. IDENTIFY AND DESCRIBE			2. ASSESS AND EVALUATE					3. CONTROL AND MONITOR				
Risk No.	List Activity or Aspect and Hazard – e.g. What is it that has potential to cause harm?	Risk What is the risk associated with the hazard? (The Risk Of)+(Due To)+(Resulting In)	Existing Controls What existing precautionary controls do I currently have in place and how effective are they? Confirm the Hierarchy of Control (HOC) and justify Consider the following in order: 1. Regulations 2. Codes of Practice 3. International / Australian or Industry Standard	Justifications Explain why this arrangement of controls was chosen. (also see Section 6.2 below)	Risk Evaluation			Proposed Controls Are there additional precautionary controls options I can apply to minimise the risk? (Apply the proposed Hierarchy of Control and justify)	Justifications Explain why this arrangement of controls was chosen. (also see Section 6.2 below)	Accountable Officer Who will implement the proposed controls?	Due Date When are the proposed controls due?	Date for next review To monitor control effectiveness.
					C	L	Level of Risk					
							Extreme					
							High					
							Moderate					
							Low					
1	Traffic and Access	<p>A) Noise and vibration emissions from light and heavy vehicle access impacting sensitive receivers.</p> <p>B) Improper use of access by 3rd parties and or impacts to private landholders.</p> <p>C) Impacts to infrastructure from vehicle movements.</p>	<p>Elimination</p> <p>A) Site access will be limited to the constructed permanent access road off the Tarro Interchange and be generally consistent with existing vehicle movements</p> <p>B) Aurizon employees and contractors will not be required to utilise third party access routes on a regular basis.</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>A) Access roads will be maintained as required.</p> <p>B) All deliveries (oil, fuel etc.) are to access the site using designated access and be unloaded in designated bunded areas.</p> <p>Administration</p> <p>A) Construction staff on-site at any one time will not exceed 15..</p> <p>A) Heavy vehicles must stand down and give way to light vehicles at all times on shared access roads.</p> <p>A) Traffic is to be managed in a manner that meets the noise and vibration management performance criteria as</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>	1	3	L	<p>Elimination Not applied</p> <p>Substitution Not applied</p> <p>Isolation Not applied</p> <p>Engineering Not applied</p> <p>Administration Not applied</p> <p>PPE Not applied</p> <p>Control Effectiveness: SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor		02/12/2020

			<p>detailed in the CTMP and CNVMP.</p> <p>A) All deliveries and heavy vehicles will access the Site during daytime hours (0700 to 1800) Monday – Friday and 0800 to 1300 Saturday where practical.</p> <p>A) Vehicle movements restricted to 40 km/h.</p> <p>A) All construction staff and contractors will be required to complete an induction communicating key elements of this traffic management plan prior to accessing the site.</p> <p>B) All delivery / waste / material collection vehicles are to contact Aurizon’s site superintendent or delegate prior to arrival.</p> <p>B) Upon completion of delivery / collection, all vehicles are to proceed to the turning loop and exit site access gate at the entry point.</p> <p>B) Aurizon employees and contractors utilising third party access routes are to give right-of way to surrounding landowners where practicable.</p> <p>B) Third parties requiring access to provided routes are to obey Aurizon’s traffic control mechanisms whilst on Aurizon property.</p> <p>B) Changes to traffic management regimes and potential hazards shall be communicated to all relevant third parties as soon as practicable after they have been identified.</p> <p>B) All contractor light vehicles will be park in the existing TSF light vehicle car park area when not in use.</p> <p>A/B/C) Construction Environmental Management Plan, Construction Traffic Management Plan, Noise and Vibration Management Plan.</p> <p>C) Tarro Interchange dilapidation surveys.</p> <p>PPE</p> <p>Not applied.</p> <p><u>Control Effectiveness:</u></p> <p>SE</p>								
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2	Construction Noise and Vibration	A) Vibration and noise impacts to sensitive receivers originating from construction activities exceeding performance criteria.	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>A) Equipment is well maintained and operated per manufacturers requirements.</p> <p>A) Equipment fit with noise control fittings where practical.</p> <p>A) Vehicles to be fitted with "broadband" reversing alarms (Quackers) to reduce offensive noise.</p> <p>Administration</p> <p>A) Minimise number of plant operating at any one time.</p> <p>A) Machinery turned off when not in use.</p> <p>A) Community liaison (agreements where applicable) with local communities and affected residents.</p> <p>A) Respite periods for noisy activities (in accordance with regulatory guidelines)</p> <p>A) Implementing management measures where regenerated noise is found to be excessive and agreements are not in place.</p> <p>A) Monitoring will be undertaken in response to noise and vibration complaints or as directed by the EPA in accordance with AS2659 – 1-1998, at the relevant receivers.</p> <p>A) Where an exceedance of adopted</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected:</p> <p>NIL</p>	2	2	L	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor		02/12/2020
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			<p>noise or vibration criteria is identified, additional management measures are to be investigated and implemented.</p> <p>A) Corrective actions are to be handled in accordance the CEMP and NVMP.</p> <p>A) Establish and maintain complaints management system.</p> <p>A) Building condition reports on potentially impacted structures (Tarro Interchange).</p> <p>A) Construction will occur during daytime hours (0700 to 1800) Monday – Friday and 0800 to 1300 Saturday where practical. Outside of these hours an Out of Hours Work Protocol will be required to be approved.</p> <p>A) Construction Environmental Management Plan and Noise and Vibration Management Plan.</p> <p>PPE</p> <p>Not applied.</p> <p>Control Effectiveness:</p> <p>SE</p>								
3	<p>Incident</p> <p>Note: To satisfy Condition 62(e)(iv) of MP07_0171</p>	<p>A) Spill of hazardous material or uncontrolled release to the environment during construction activities.</p>	<p>Elimination</p> <p>A) No major servicing, mechanical repairs conducted onsite.</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>A) Emergency stops are provided within the Provisioning Facility and DIL trucks to provide a means of isolation and shutdown of plant, if an issue is observed.</p> <p>Engineering</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered</p>	4	2	M	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	<p>Project Manager and Principal Contractor</p>	02/12/2020

			<p>A) Dangerous goods (fuels, oils, lubricants etc.) stored in designated storage areas).</p> <p>A) All fuel storage, handling and delivery system/vehicles are complaint with <i>AS1940 Storage and handling of flammable and combustible liquids</i> where applicable.</p> <p>A) All surface water runoff from the Turning Angle project area reports to the surface water management system (Basin 3).</p> <p>A) Hoses, connections and dry-break Banlaw fittings are to be maintained in good working order.</p> <p>Administration</p> <p>A) All fuel supply contractors are to provide Aurizon with a fuelling risk assessment for approval prior to operating on-site.</p> <p>A) All personnel undertaking provisioning activities are to be suitably qualified and trained.</p> <p>A) Civil equipment provisioning is undertaken in accordance with relevant operational instructions and procedures in designated locations.</p> <p>A) Liquid spills are to be cleaned using dry methods and immediately reported to the Project Manager and Senior Adviser Environment.</p> <p>A) Site Emergency Response Plan (SERP) 16-PLA-0001-HEX.</p> <p>A) Spill containment tubs placed to capture minor leakage from connections.</p> <p>A) Construction Environmental Management Plan and Soil and Water Management Plan. Site Management Plan for management of unidentified contamination.</p> <p>A) Aurizon Incident Management Framework RD SAF 0012 Guide 001.</p>	but rejected: NIL							
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			<p>A) SDSs for all chemicals in-use are to be available for review as required.</p> <p>PPE</p> <p>A) Hydrocarbon spill kits are to be maintained on-site and vehicles, fully stocked, in readily accessible locations.</p> <p>Control Effectiveness:</p> <p>SE</p>								
4	<p>Management of surface and groundwater quality</p> <p>Note: To satisfy Condition 62(e)(iv) of MP07_0171</p>	<p>A) Spills from provisioning activities or hazardous material storage reporting to soil, surface and or groundwater resulting in environmental impact.</p> <p>B) Failure of septic treatment plant resulting in untreated effluent being irrigated to surface.</p>	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Engineering</p> <p>A All excavations have been designed to be above the existing groundwater level..</p> <p>Administration</p> <p>A/B) Surface and groundwater quality performance criteria included in the Soil and Water Management Plan.</p> <p>A/B) Routine inspections and maintenance of site and surface water infrastructure undertaken.</p> <p>A/B) Surface and groundwater monitoring program and reporting requirements as per SWMP.</p> <p>B) Routine monitoring of water quality within the septic plant undertaken to</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected:</p> <p>NIL</p>	2	2	L	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor	02/12/2020

			<p>monitor operational processes.</p> <p>PPE</p> <p>Not applied.</p> <p>Control Effectiveness:</p> <p>SE</p>								
5	<p>Flooding</p>	<p>A) Inadequate response to flood emergency resulting in damage to equipment or harm to the environment.</p>	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>A) The facility has been designed to house all water sensitive equipment above the 1 in 50 year event flood level.</p> <p>Administration</p> <p>A) Flood Emergency Management Plan.</p> <p>PPE</p> <p>Not applied.</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>	3	2	M	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	<p>Project Manager and Principal Contractor</p>	02/12/2020
6	<p>Waste management</p>	<p>A) Improper waste management and disposal resulting in regulatory non-compliances or harm to the</p>	<p>Elimination</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form</p>	3	2	M	<p>Elimination</p> <p>Not applied</p>	<p>Guidance: Risk are subject to ongoing due</p>	<p>Project Manager and Principal Contractor</p>	02/12/2020

<p>Note: To satisfy Condition 62(e)(ii) of MP07_0171</p>	<p>environment.</p>	<p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>A) All waste water, sludge and hazardous material tanks are to be stored in a bunded area prior to removal offsite by a licenced waste contractor.</p> <p>A) If required all tanks are to be pumped out in identified bunded areas.</p> <p>Administration</p> <p>A) All waste is to be removed by a licenced waste contractor and disposed of at a licenced facility.</p> <p>A) Cardboard, paper and commingled waste recycling receptacles available in key work areas.</p> <p>A) Hydrocarbon receptacles (for oily rags and oil filters) available onsite.</p> <p>A) All waste classified in accordance with the Waste Classification Guidelines (DECCW 2009).</p> <p>A) Metals / steel / aluminium components recycled where feasible.</p> <p>A) Waste oil filters collected in dedicated hydrocarbon receptacles for off-site reprocessing and re-use.</p> <p>A) National waste management contractor engaged and utilised for all</p>	<p>part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>			<p>Substitution Not applied</p> <p>Isolation Not applied</p> <p>Engineering Not applied</p> <p>Administration Not applied</p> <p>PPE Not applied</p> <p>Control Effectiveness: SE</p>	<p>diligence in accordance with the authorised implementation and review timeframes.</p>			
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			waste management. A) Spoil and Waste Management Plan. PPE Not applied. Control Effectiveness: SE								
7	Spoil management Note: To satisfy Condition 62(e)(iii) of MP07_0171	A) Conducting earthworks in an improper manner resulting in regulatory non-compliances, impacts to landholders or harm to the environment.	Elimination Not applied Substitution Not applied Isolation Not applied Engineering A) Detailed design has identified project footprint, excavation area and likely excavation volumes (14 000m ³). A) All PASS contained and neutralised within bunded area. Administration A) Generalised construction methodology and soil handling procedures detailed in the CEMP and supporting management plans. A) Spoil characterisation and validation methodology for identified PASS and unidentified contamination detailed in the Site Management Plans and Acid Sulphate Soil Management Plan.	Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk. All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control. Controls considered but rejected: NIL	3	2	M	Elimination Not applied Substitution Not applied Isolation Not applied Engineering Not applied Administration Not applied PPE Not applied Control Effectiveness: SE	Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.	Project Manager and Principal Contractor	02/12/2020

			<p>A) Stockpile location area identified in the CEMP Annexure 2 with all stockpiles restricted to no greater than 2 meters in height.</p> <p>A) Management of stockpiles detailed in the SMP/ASSMP and Spoil and Waste Management Plan</p> <p>A) Rehabilitation requirements for disturbed areas specified in the FFMP.</p> <p>PPE</p> <p>Not applied.</p> <p><u>Control Effectiveness:</u></p> <p>SE</p>								
8	Community	A) Onsite construction activities resulting in impacts to community members.	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>A) Community complaints management system in place as detailed in the Community Consultation Strategy.</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>	2	2	L	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p><u>Control Effectiveness:</u></p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor/Senior Adviser Environment	02/12/2020

			<p>PPE</p> <p>Not applied.</p> <p><u>Control Effectiveness:</u></p> <p>SE</p>								
9	Heritage	A) Construction activities resulting in impacts to unidentified Aboriginal and non-Aboriginal heritage items.	<p>Elimination</p> <p>A) Survey of the Site undertaken as part of the Turning Angle EA did not identify any artefacts within the vicinity of the project area.</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>A) Aurizon Cultural Heritage Tool Box Talk and unexpected finds protocol.</p> <p>A) CHMP and CNIHMP</p> <p>PPE</p> <p>Not applied.</p> <p><u>Control Effectiveness:</u></p> <p>SE</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>	1	1	L	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p><u>Control Effectiveness:</u></p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor/Senior Adviser Environment	02/12/2020

10	Historical site contamination	A) Disturbance of historical site contamination from ground disturbance works resulting in impacts to the environment.	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>A) Site Management Plan is in place and details process on how to identify and managed contamination.</p> <p>A) Completed field investigations undertaken as part of the Turning Angle environmental approval indicate no gross pollution present.</p> <p>PPE</p> <p>Not applied.</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>	3	3	M	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor/Senior Adviser Environment		02/12/2020
11	Air Quality Note: To satisfy Condition 62(e)(i) of MP07_0171	<p>A) Construction activities resulting in the emissions of dust which impact sensitive receivers.</p> <p>B) Construction activities resulting in diesel emissions impacting sensitive receivers and the environment.</p>	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p>	2	2	L	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor		02/12/2020

			<p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>B) Equipment is well maintained and operated as per manufactures requirements.</p> <p>B) Machinery is turned off when not in use.</p> <p>A) All truck on public roads to be covered with tracking of mud and deposit on public roads offsite not permitted.</p> <p>Administration</p> <p>A) Modify or cease operational activities during high wind periods that result in dust generation.</p> <p>A) No burning of materials onsite permitted at any time.</p> <p>B) NPI and GHG reporting is undertaken as required.</p> <p>A) Access roads are well maintained with unsealed roads watered as required.</p> <p>A) Vehicle movements are restricted to 40 km/h onsite.</p> <p>A/B) Aurizon Complaints Log is in place to record and respond to complaints. Incidents will be managed through SHEM.</p> <p>A) Air quality monitoring as per the AQMP.</p> <p>A) Stockpiles and disturbed areas managed as per SWMP with disturbance revegetated as per the requirements of the FFMP.</p>	<p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>		<p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p>Control Effectiveness:</p> <p>SE</p>				
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			<p>A) Induct personnel on air quality issues and safeguards</p> <p>PPE</p> <p>Not applied.</p> <p>Control Effectiveness:</p> <p>SE</p>								
12	Biodiversity	A) Construction activities resulting in impacts to site biodiversity.	<p>Elimination</p> <p>A) No offsets retained onsite due to the retirement of offsite Bio Banking Credits.</p> <p>A) Where fauna species are located and require removal from Site, Hunter Wildlife Rescue (Native Animal Trust Fund) or equivalent are to be contacted as required.</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>A) No EEC within the project are. Where required EEC will be delineated to prevent impact</p> <p>Engineering</p> <p>A) Rehabilitation of native vegetation areas impacted by approved site activities are to be undertaken immediately following the completion of works, where practicable.</p> <p>A) Areas subject to rehabilitation due to clearing during the construction phase of the project are to be maintained throughout the operational lifetime of the facility using prescribed species.</p> <p>A) Ongoing management of all</p>	<p>Guidance: The selected HOC is justified on the basis that the controls form part of the accepted safe system of work for the known operating environment and have valid potential to minimise the identified risk.</p> <p>All credible control options were considered within the hierarchy of control (HOC) as applicable to the accountable sphere of control.</p> <p>Controls considered but rejected: NIL</p>	2	2	L	<p>Elimination</p> <p>Not applied</p> <p>Substitution</p> <p>Not applied</p> <p>Isolation</p> <p>Not applied</p> <p>Engineering</p> <p>Not applied</p> <p>Administration</p> <p>Not applied</p> <p>PPE</p> <p>Not applied</p> <p>Control Effectiveness:</p> <p>SE</p>	<p>Guidance: Risk Controls are subject to ongoing due diligence in accordance with the authorised implementation and review timeframes.</p>	Project Manager and Principal Contractor	02/12/2020

			<p>rehabilitation areas are to include management of weeds, fencing, stock management and placement of coarse woody debris to create habitat for fauna.</p> <p>Administration</p> <p>A) Operational staff and contractors are to be made aware of areas of significant vegetation areas during Site inductions, where relevant.</p> <p>A) Weed identification and removal undertaken by a suitably qualified individual as per approved Weed Management Plan.</p> <p>A) Fauna and Flora Management Plan</p> <p>PPE</p> <p>Not applied.</p> <p><u>Control Effectiveness:</u></p> <p>SE</p>								
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Annexure 7 – SERP