13. Draft Environmental Management Plan

This section provides a framework for an environmental management plan for potential impacts in regards to the Project (Rail) during construction and operation. The draft environmental management plan was developed in accordance with the requirements of the Terms of Reference (ToR) and a table cross-referencing these requirements is provided in Volume 4 Appendix C ToR Cross Reference Table.

This environmental management plan is a draft and will be refined during Project (Rail) planning and as design progresses. A final environmental management plan will need to incorporate conditions applied to the project through the EIS approval process.

13.1 Introduction

13.1.1 Project (Rail) Background

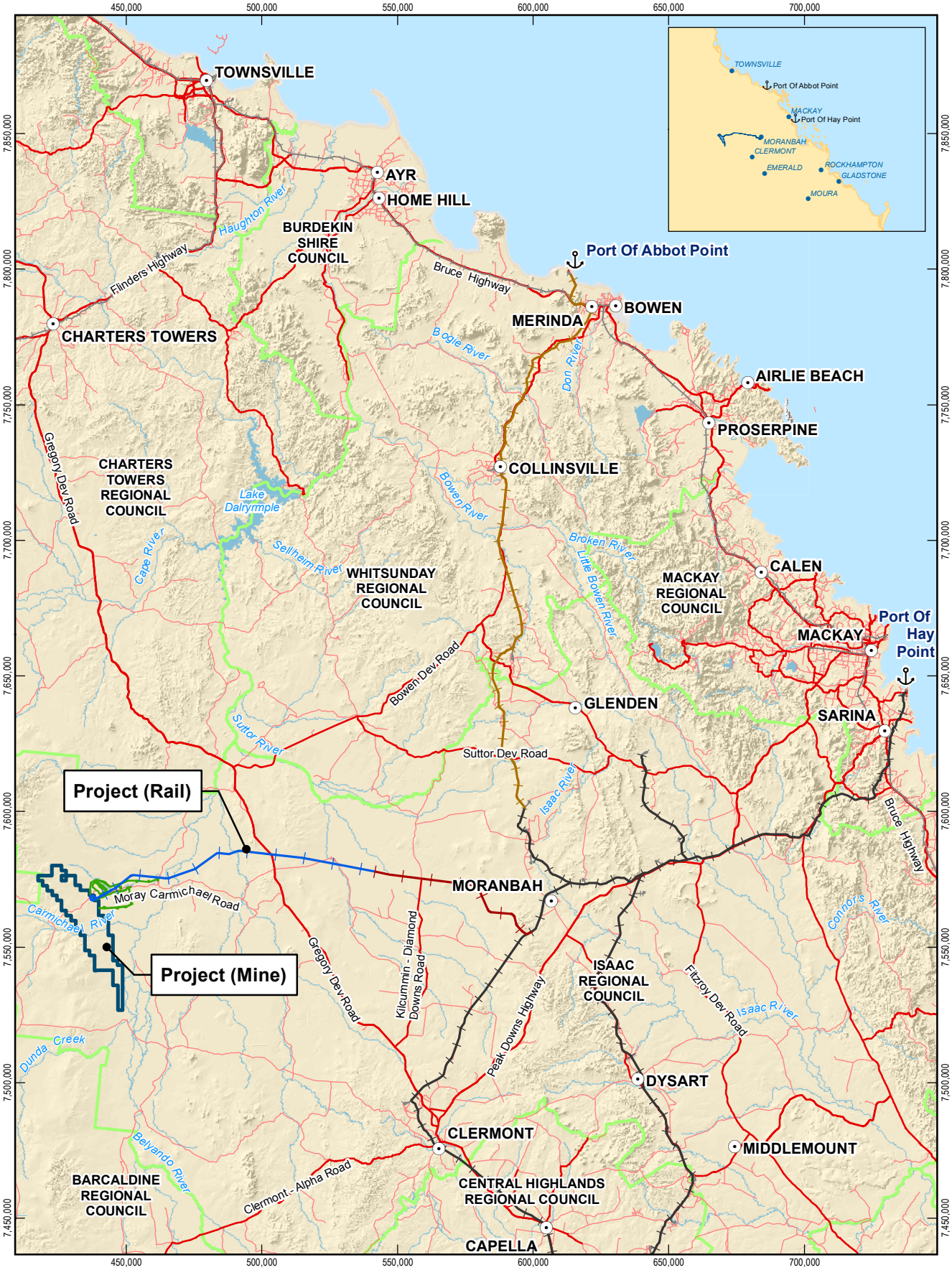
Adani is proposing to develop a 60 million tonne (product) per annum (Mtpa) thermal coal mine in the north Galilee Basin approximately 160 kilometres (km) north-west of the town of Clermont, Central Queensland. All coal will be railed via a privately owned rail line connecting to the existing QR National rail infrastructure, and shipped through coal terminal facilities at the Port of Abbot Point and the Port of Hay Point (Dudgeon Point expansion). The Carmichael Coal Mine and Rail Project (the Project) will have an operating life of approximately 90 years.

The Project comprises of two major components:

- The Project (Mine): a greenfield coal mine over EPC1690 and the eastern portion of EPC1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities (the Mine) and the Mine (offsite) infrastructure including:
  - A workers accommodation village and associated facilities
  - A permanent airport site
  - Water supply infrastructure
- The Project (Rail): a greenfield rail line connecting the Mine to the existing Goonyella and Newlands rail systems to provide for the export of coal via the Port of Hay Point (Dudgeon Point expansion) and the Port of Abbot Point, respectively; including:
  - Rail (west): a 120 km dual gauge portion from the Mine site running west to east to Diamond Creek
  - Rail (east): a 69 km narrow gauge portion running east from Diamond Creek connecting to the Goonyella rail system south of Moranbah

The Project has been declared a 'significant project' under the *State Development and Public Works Organisation Act 1971* (SDPWO Act) and as such, an Environmental Impact Statement (EIS) is required for the Project. The Project is also a 'controlled action' and requires assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Project EIS has been developed with the objective to ensure that all potential environmental, social and economic impacts of the Project are identified and assessed and that adverse impacts so identified are avoided or mitigated. Figure 13-1 illustrates the Project (Rail) location.



LEGEND

- Town
- Major Port
- Other Rail Network
- Goonyella System
- Newlands System
- State Road
- Local Road
- Watercourse
- Local Government Area
- Project (Rail)
- Rail (West)
- Rail (East)
- Project (Mine)
- Mine (Offsite)

1:2,000,000 (at A4)

0 10 20 30 40 50

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

N

Adani Mining Pty Ltd

Carmichael Coal Mine and Rail Project

Job Number 41-25215
Revision L
Date 05-09-2012

Project Location

Figure: 13-1

G:\41\25215\GIS\Maps\MXD\100_Planning\41-25215_117_rev_l.mxd Level 4, 201 Charlotte St Brisbane QLD 4000 T +61 7 3316 3000 F +61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data Source: © Commonwealth of Australia (Geoscience Australia): Town, Railways, Watercourses (2007); DERM: LGA, (2011), Hillshade (2009); DMR: State Roads (2008); Gassman/Hyder: Mine (Offsite) (2012); DME: EPC1690 (2010), EPC1080 (2011); Adani: Alignment Opt9 Rev3 (2012). Created by: BW, JVC

13.1.2 Project (Rail) Environmental Management Plan Overview and Structure

This draft Project (Rail) Environmental Management Plan (the Rail EMP) addresses the environmental management commitments for the construction and operational phase of the Project (Rail).

The Rail EMP has been developed as a stand-alone document. The Rail EMP:

- Builds on the commitments to environmental performance made in the Project EIS
- Provides a framework to protect the environmental values potentially affected by the Project (Rail)
- Sets out environmental management obligations for environmental authorities and permits to assist the authorities when developing project approvals

The EMP is intended to be a live overview document which will be developed in more detail as the Project (Rail) progresses into detailed design, construction and operation. It may also be updated to reflect changes in legislation. A Construction Environmental Management Plan (CEMP) and Operation Environmental Management Plan (OEMP) will be developed based on this EMP.

Following this introduction, the Rail EMP presents the information listed below:

Section 13.2 – Project Description

- Description of the Project (Rail) location
- Description of project components
- The proposed construction and operational activities relevant to the Project (Rail)

Section 13.3 – Environmental Management Framework

- Details of the management framework proposed to ensure environmental commitments are achieved and implemented relevant to the Project (Rail)

Section 13.4 – Environmental Values and Potential Environmental Impacts

- A description of the environmental values likely to be affected by the construction and operational phases of the Project (Rail)
- Potential environmental impacts identified for relevant project activities (elements/issues)

Section 13.5 – Management Plans

For each environmental aspect of construction and operation the management plans set out:

- Management objectives
- Performance criteria
- Implementation strategies
- Monitoring
- Reporting
- Corrective actions

13.2 Project Description

13.2.1 Project location

The Project (Rail) alignment is located within a 95 metre (m) wide corridor that runs from the terminal facilities within the boundary of the Mine to connect with the Wotonga Blair Athol Branch Railway of the existing QR National Goonyella Coal Rail System (Goonyella rail system), south of Moranbah. The alignment is approximately 189 km long and runs west to east (refer Figure 13-1).

The Project (Rail) traverses 11 leasehold lots and 10 freehold lots.

13.2.2 Project Components

The key components for the Project (Rail) include:

- Rolling stock
- Terminus facility
- Track (including earthworks and structures)
- Passing loops
- Maintenance facility (rolling stock and track)
- Signalling and communications

13.2.2.1 Rolling stock

The number of trains operating within the rail system reflects the production of coal from the Project (Mine). The operation of the Project (Rail) is in support of the Project (Mine) with an expected operational life of 90 years. Operational capacity of the Project (Rail) will increase from 25 Mtpa in the first year of operation, to 44 Mtpa in 2020, reaching a capacity of 60 Mtpa in 2022, in line with production from the Project (Mine). To accommodate other existing and/or proposed third party users, provision has been made for a maximum operational capacity of 100 Mtpa on Rail (west) by 2024.

To reach the nominal maximum coal transport rate of 100 Mtpa for Rail (west), an estimated 18 return trips each day is required (i.e. 36 trips) where the net load per train is 24,000 tonnes of coal (comprising trains of 240 wagons). For Rail (east), 60 Mtpa will be the maximum line capacity. It is estimated that 18 return trips will also take place each day (i.e. 36 trips) on this line with each train comprising 120 wagons and a net load of 16,072 tonnes of coal.

13.2.2.2 Terminus facility

Coal product is loaded on to the trains at the terminus facility, located within the Mine Infrastructure Area (MIA). The terminus consists of:

- A dual gauge reception line of 4.5 km length
- Dual gauge 4.5 km length departure line
- Train loading facility comprising a weighbridge and/or overload removal device
- Bad order siding

13.2.2.3 Tracks

The Project (Rail) will include track comprising both narrow and standard gauge along the length of the Project (Rail). Track will generally consist of:

- Ballast
- Sleepers
- Rail fixings
- Rail

Associated infrastructure will include bridges and culverts to provide access across watercourses, as well as over/under passes at stock routes and roads.

13.2.2.4 Passing loops

Five dual gauge passing loops, each 4.5 km in length, are proposed along Rail (west). Three narrow gauge passing loops, each 2.5 km in length are proposed along Rail (east).

Bad order sidings are required to allow maintenance activities to take place with minimal disruption to the rest of the line. Bad order sidings will be constructed at every second or third passing loop subject to further operational assessment.

13.2.2.5 Maintenance Facility

A Maintenance Facility will be located near the Mine comprising:

- Traffic and workshop tracks
- Locomotive Provisioning
- Locomotive and wagon maintenance
- Combined Locomotive and Wagon Wash Facility
- Storage areas for components
- Storage areas for diesel and other hazardous substances
- Administration and train crew depot

13.2.2.6 Signalling and communications

The signalling requirements for the Project (Rail) will consist of a series of remote control signalling (RCS) systems currently in use within Queensland.

13.2.3 Construction Activities

The construction program defines a number of stages and activities, consisting of:

- Site preparation: including site clearance, construction camp establishment, installation of temporary and permanent fencing, installation of drainage and water management controls and construction of site access
- Civil works: including bulk earthworks, black soil treatment, construction of cuts and embankments, installation of permanent drainage controls, construction of temporary haul roads, establishment of concrete batching plants, bridge and water course crossing construction
- Track works: including installation of the rail, signalling infrastructure and maintenance infrastructure

In addition, transportation of equipment, materials and workforce will also take place.

13.2.4 Operational Activities

Operational activities for the Project (Rail) include:

- Coal haulage, 24 hours per day, seven days per week throughout the year
- Track maintenance
- Locomotive and wagon maintenance
- Train washing
- Transportation of equipment, materials and workforce
- Material and equipment storage
- Storage and handling of diesel and other hazardous substances

13.3 Environmental Management Framework

This section provides details of the environmental management framework for the construction and operation of the Project (Rail). The purpose of the environmental management framework is to facilitate the implementation of environmental commitments included in the EIS.

13.3.1 Environment and Sustainability Policy

Adani is committed to the protection of the environment and to the sustainable management of its operations and activities.

Adani operates within an established Health, Safety and Environment (HSE) Management System. This system has been developed to comply with relevant legislative standards for operation of coal mines within Queensland, and comprises an *Environment and Sustainability Policy* (Figure 13-2) and HSE Management Standards.

The HSE management system will guide environmental management for the Project (Rail) by providing a framework to prevent or minimise environmental harm, ensure compliance and promote continuous improvement. Key components of the system include:

- Responsibility, authority and commitment
- Planning, objectives and legal obligations
- Training and competence
- Documentation, document control and records
- Incidents and performance measurement
- Communication, consultation and involvement
- Emergency preparedness and response
- Reviews, audits and inspections

All contractors and staff involved in the Project (Rail) will be required to adhere to Adani's *Environment and Sustainability Policy* and the key components of the HSE management system as a minimum requirement.

13.3.2 Responsibilities, Authority and Commitment

Adani proposes to engage a suitable contractor for the construction phase (the Construction Contractor) of the Project (Rail). Adani may delegate key responsibilities relating to environmental management to the Construction Contractor via a contractual agreement.

Adani will retain overall responsibility for implementation of environmental commitments and delivery of environmental outcomes during the construction and operation of the Project (Rail).

Environment and Sustainability Policy

ADANI

Adani Mining Pty Ltd is an environmentally responsible company that is committed to protection of the environment and to the sustainable management of its operations and activities.

We will achieve this by:

- Promoting engagement, participation and a culture of innovation;
- Encouraging the efficient use of water and energy, recycling of materials, reduction of waste and prevention of pollution;
- Improving our management of greenhouse emissions and energy efficiency;
- Implementing and maintaining an Environmental Management System in accordance with AS/NZS ISO 14001;
- Meeting or exceeding environmental legislation and other criteria to which we subscribe;
- Completing regularly reviews of our environmental performance and identify and implement opportunities for improvement;
- Motivating and influencing our suppliers and subcontractors with our approach towards responsible environmental practice;
- Promoting initiatives, systems, values and behaviours that drive environmental sustainability;
- Displaying strong leadership in environment management internally and within the industries we operate.
- Provide a positive environmentally friendly working environment

We all have an accountability and responsibility to:

- Immediately report and remediate any damage, spills or loss of containment;
- Follow all environment and sustainability work practices, procedures, instructions and rules;
- Work in a manner which ensures minimal environmental impact;
- Encourage other employees to work in a responsible manner;
- Participate in training.

Jignesh Derasari
CEO – Adani Mining Pty Ltd

Date: 26/09/2011

13.3.2.1 Responsibilities - Construction

The responsibilities for the construction phase of the Project (Rail) will conform to Adani HSE Management Standards (i.e. *HSE-ST-01 Responsibility, Authority and Commitment*).

Generally accepted role descriptions have been used to define the roles of the Construction Contractor. Prior to the construction of the Project (Rail), these role descriptions will be refined.

Construction Manager (Construction Contractor)

- Responsible for the environmental performance during the construction phase, including a responsibility for the effective implementation of this EMP and Adani HSE Management Standards
- Required to develop and implement a project specific CEMP to the satisfaction of Adani, and report to Adani on the implementation of the CEMP
- Required to ensure that sufficient human, material and financial resources, including technical resources and support, are provided for the effective implementation of the EMP, CEMP and management of environmental aspects of the operations for which they are responsible
- Demonstrate visible and pro-active commitment to the environment at all levels

Project Superintendent (Construction Contractor)

- Responsible for ensuring that construction activities are conducted in accordance with this EMP, Adani HSE Management Standards and the CEMP
- Ensure that all personnel and sub-contractors understand their responsibilities and authorities relating to environmental issues.
- Demonstrate visible and pro-active commitment to the environment at all levels

Environmental Officer (Construction Contractor)

- Responsible for successful implementation of monitoring and reporting obligations
- Required to provide construction staff with advice on meeting their environmental responsibilities
- Provide environmental expertise and assistance as required

Project Superintendent (Adani)

- Adani will appoint a representative (e.g. Adani Project Superintendent) to be responsible for monitoring and reviewing the effective implementation of the EMP, CEMP and Adani HSE Management Standards by the Construction Contractor through environmental audits and reviews of environmental reports.

All Construction Personnel

- Responsible for the environmental implications of their own actions
- Have a duty to carry out their work in a manner which does not present a risk to themselves, to others or to the environment
- Have a duty of care to report all environmental issues they become aware of in a timely manner

13.3.2.2 Responsibility – Operation

The responsibilities for the operational aspect of the Project (Rail) will be in accordance with Adani's *HSE-ST-01 Responsibility, Authority and Commitment*.

Adani Chief Executive Officer

- Final responsibility for the environmental performance of all Project (Rail) operations.

Operations Manager (Rail)

- Responsible for the environmental performance of the operation, including a responsibility for the effective implementation of Adani's HSE Management Standards
- Identify, clearly define, document, keep up-to-date the responsibility and authority of all Adani personnel, as they relate to environmental issues
- Ensure that all Adani personnel understand their responsibilities and authorities relating to environmental issues
- Required to develop and implement a project specific OEMP
- Ensure that sufficient human, material and financial resources, including technical resources and support, are provided in their area of responsibility, for the effective management of environment-related aspects of the operations for which they are responsible
- Measurable HSE performance goals will form a part of personal objectives and performance appraisals of all managers
- Demonstrate visible and pro-active commitment to the environment at all levels

Line Managers (Adani)

- Responsible for the environmental performance of the operations reporting to them, and for ensuring the operations meet the requirements of this EMP and Adani's HSE Management Standards
- Measurable HSE performance goals will form a part of personal objectives and performance appraisals of all managers
- Demonstrate visible and pro-active commitment to the environment at all levels

Environmental Officers (Adani)

- Responsible for successful implementation of monitoring and reporting obligations
- Provide line management with advice on meeting their environmental responsibilities, and provide expertise and assistance as required

All Adani staff and contractors

- Responsible for the environmental impacts of their own actions and have a duty to carry out their work in a manner which does not present a risk to themselves, to others or to the environment
- Have a duty of care to report all environmental issues they become aware of in a timely manner

13.3.3 Legal Obligations and Compliance

13.3.3.1 Applicable Legislation

An overview of legislative requirements relevant to the Project (Rail) is included in Table 13-1. In addition to the legislation listed below, standards, policies and guidelines that are relevant to specific elements of the Project (Rail) are listed in the Management Plans in Section 13.5, where appropriate. Local laws may also be applicable for permitting.

A procedure will be established and maintained in accordance with Adani's HSE Management Standard *HSE-ST-02 Planning, Objectives and Legal Obligations* to ensure that:

- All amendments and changes (including new requirements) are identified
- All personnel who need to be aware of these changes are advised
- The appropriate action is taken

Table 13-1 Summary of Relevant Environmental Legislation

Title	Description
Commonwealth Legislation	
Environment Protection and Biodiversity Conservation (EPBC) Act 1999	The EPBC Act is the Commonwealth's principal piece of environmental legislation. The EPBC Act prescribes the Commonwealth Government's role in environmental assessment, biodiversity conservation and the management of protected areas. The act identifies six matters of national environmental significance. The act requires assessment and approval for any activity that has, or is likely to have, a significant impact on a matter of national environmental significance. The Project was declared a controlled action on 6 January 2011 due to the likely potential impacts on Matters of National Environmental Significance (NES) (EPBC Referral 2010/5736).
Native Title Act 1993	The *Commonwealth Native Title Act 1993* (NT Act) formalises the common law recognition of native title (i.e. rights and interests over land and water possessed by Indigenous people in Australia under their traditional laws and customs). The NT Act provides for the existence of native title rights and interests over land that is or has been subject to a pastoral lease, and possibly some other forms of leasehold tenure.
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	The purpose of the *Aboriginal and Torres Strait Islander Heritage Protection Act* is to preserve and protect areas and objects in Australia and in Australian waters which are of particular significance to Aboriginals in accordance with Aboriginal tradition.
Great Barrier Reef Marine Park Act 1975	The *Great Barrier Reef Marine Park Act* establishes a framework for the establishment, control, management and development of the Great Barrier Reef Marine Park (GBRMP). The GBRMP Act is administered by the Great Barrier Reef Marine Park Authority (GBRMPA).
Clean Energy Act 2011	The Clean Energy Future legislation will introduce a carbon pricing mechanism that has a broad coverage from commencement, encompassing the stationary energy sector, transport, industrial processes, non-legacy waste and fugitive emissions. The carbon pricing mechanism will commence on 1 July 2012, with a fixed price for the first three years, after which the carbon price will transition to a fully flexible price under an emissions trading scheme, with the price determined by the market.
National Greenhouse and Energy Reporting Act 2007	In the 2011-2012 reporting year, National Greenhouse and Energy Reporting Scheme (NGERS) applies to facilities that emit over 25,000

Title	Description
	t CO2-e per year or consume more than 100 TJ of energy or corporations that emit over 50,000 t CO_2-e per year or consume more than 200 TJ of energy. These thresholds relate to Scope 1 and Scope 2 emissions.
Energy Efficiency Opportunities Act 2006	The Energy Efficiency Opportunities (EEO) program requires businesses to identify, evaluate and publicly report cost effective energy saving opportunities. Participation in EEO is mandatory for corporations that use more than 0.5 PJ of energy per year.
Carbon Credits (Carbon Farming Initiative) Act 2011	The Carbon Farming Initiative (CFI) has been developed to give farmers, forest growers and landholders the ability to generate accredited domestic offsets for access to domestic voluntary and international carbon markets.
Queensland Legislation	
Environmental Protection Act 1994 (EP Act)	The EP Act places emphasis on managing Queensland's environment within the principles of ecologically sustainable development. The EP Act imposes a 'General Environmental Duty' on all individuals and organisations, requiring them to take all reasonable and practical measures to avoid environmental harm.
Environmental Protection Regulation 2008 (EP Reg)	Schedule 2 of the EP Reg lists 64 Environmental Relevant Activities (ERAs) including waste disposal and sewage treatment. The regulations also provide a regulatory regime for minor issues involving environmental nuisance such as noise.
Environmental Protection (Water) Policy 2009 (EPP Water)	The EPP Water prohibits the deposit or release of certain materials such as sediment, building waste, cement or concrete, rubbish and oil into a roadside gutter, stormwater drain or a watercourse or a place where it could be washed into these places. The policy also establishes environmental values and water quality objectives for surface waters of Queensland.
Environmental Protection (Noise) Policy 2008 (EPP Noise)	The EPP Noise sets acoustic quality objectives and deals with the evaluation procedure. Additionally the policy deals with abatement of unreasonable noise and is intended to provide measures for nuisance noise control.
Environmental Protection (Air) Policy 2008 (EPP Air)	The purpose of the EPP Air is to identify environmental values to be protected or enhanced, specifically air quality indicators, and provides a framework for decision-making. The project will be subject to obligations under the EPP Air.
Environmental Protection (Waste Management) Regulation 2000	In accordance with Section 4 of the *Environmental Protection (Waste Management) Regulation 2000*, the object of this regulation is to protect the environment by: 'Minimising the impact of waste on the environment including, in particular, the impact of waste so far as it directly affects human health; and Establishing an integrated framework for minimising and managing waste under the principles of ecologically sustainable development.'

Title	Description
Waste Reduction and Recycling Act 2011	The legislation establishes a framework for waste management and resource recovery practices in Queensland. The purpose of this legislation is to promote waste avoidance and reduction and to encourage resource recovery and efficiency.
Waste Reduction and Recycling Regulation 2011	The *Waste Reduction and Recycling Regulation 2011* provide details on regulated waste and trigger values for waste types.
Sustainable Planning Act 2009 (SP Act)	The SP Act provides a framework for development assessment and approval in Queensland, bringing together requirements of a range of legislation.
Water Act 2000 (Water Act)	The Water Act has been developed to fulfil Queensland's responsibilities under the 1994 Water Resources Policy of the Council of Australian Government (COAG). It aims to address legislative requirements for the majority of Queensland's non-tidal waters. The Water Act sets out the law on rights in surface and groundwater, the control of works with respect to surface and groundwater conservation and protection, irrigation, water supply, drainage and flood control. The Water Act may require the Project Owner to obtain the relevant approval/licence for any works taking or interfering with water, including stream diversions.
Fisheries Act 1994	This Act regulates activities such as fishing, development in fish habitat areas, and damage to and destruction of marine plants in Queensland.
Aboriginal Cultural Heritage Act 2003	The Aboriginal Cultural Heritage Act 2003 establishes a 'cultural heritage duty of care', which requires that a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage.
Queensland Heritage Act 1992	The *Queensland Heritage Act 1992* provides for the conservation and protection of places and items of historical and/or non-Indigenous cultural heritage, i.e. all places that derive from the post-settlement history of Queensland. Under this Act, places and items must be entered into a Queensland Heritage Register in order to be protected. Substantial penalties may apply for damage to a place or items that have been entered on the Register.
Nature Conservation Act 1992 (NC Act) *Nature Conservation (Protected Plants) Conservation Plan 2000* *Nature Conservation (Wildlife Management) Regulation 2006*	The objective of the NC Act is to conserve nature which is to be achieved by an integrated and comprehensive conservation strategy for the whole of Queensland, involving amongst other things the protection of native wildlife and its habitat. The *Nature Conservation (Protected Plants) Conservation Plan 2000* identifies protected plants including those listed as least concern (almost all native plants within Queensland) as requiring a clearing permit from the Department of Natural Resources and Mines DNRM) prior to removal. This Conservation Plan outlines how clearing permits, licences and exemptions can be issued to take protected plants. Under the *Nature Conservation (Wildlife Management) Regulation*,

Title	Description
	any activity that will tamper with (i.e. remove, damage, impair or degrade) the confirmed breeding place of a native animal (i.e. Endangered, Vulnerable, Near Threatened and Least Concern wildlife) requires a Damage Mitigation Permit (DMP) or Species Management Programme (SMP) in order to be conducted legally. This permit will need to be held by fauna spotters involved in vegetation clearing activities.
Vegetation Management Act 1999 (VM Act)	The purpose of the VM Act is to regulate the broad scale clearing of vegetation, preserve remnant endangered regional ecosystems, vegetation in areas of high nature conservation value, areas vulnerable to land degradation and regrowth vegetation. The VM Act also aims to prevent degradation, maintain or increase biodiversity, maintain ecological processes and allow for ecologically sustainable land use. The VM Act is administered by DNRM.
Forestry Act 1959	The purpose of the *Forestry Act 1959* is to provide for forest reservations, the management, silvicultural treatment and protection of State forests, and the sale and disposal of forest products and quarry material, the property of the Crown on State forests, timber reserves and on other lands; and for other purposes. The Act is administered by the DNRM.
Land Title Act 1994	The objective of the *Land Act 1994* requires land administered under the Act to be managed for the benefit of the people of Queensland on the basis of the following seven principles: sustainability, evaluation, development, community purpose, protection, consultation and administration.
Land Protection (Pest and Stock Route Management) Act 2002	The purpose of the Land Protection (Pest and Stock Route Management) Act 2002 is to provide for pest management and for land and stock route network management.
Transport Infrastructure Act 1994	The overall objective of the *Transport Infrastructure* Act, consistent with the objectives of the *Transport Planning and Coordination Act 1994*, is to provide a regime that allows for, and encourages, effective integrated planning and efficient management of a system of transport infrastructure.
State Development and Public Works Organisation Act 1971 (SDPWO Act)	The SDPWO Act provides for state planning and development through a coordinated system of public works organisation for environmental assessment and for related purposes.
Land Title Act 1994	The objective of the *Land Act 1994* requires land administered under the Act to be managed for the benefit of the people of Queensland on the basis of the following seven principles: sustainability, evaluation, development, community purpose, protection, consultation and administration.
Work Health and Safety Act 2011	The Work Health and Safety Act regulate dangerous goods and major hazard facilities within Queensland. A licence for storage and handling of hazardous materials, particularly dangerous goods and combustible liquids may be required for the Project. This licence is administered by the Department of Community Safety (DCS) and will

Title	Description
	be required for the storage and handling of fuel and other chemicals in quantities listed under the WHS Act.
Transport Operations (Rail Safety) Act 2010	The objective of the Transport Operations (Rail Safety) Act 2011 is to: • provide for improvement of the safe carrying out of railway operations; • provide for the management of risks associated with railway operations; • make special provision for the control of particular risks arising from railway operations; and • promote public confidence in the safety of transport of passengers or freight by rail
Strategic Cropping Land Act 2011	In terms of planning and approvals, this legislation provides for the adoption of state planning policy that will implement cropping zones within Queensland, provide strategic cropping land (SCL) criteria and the assessment process for proponents.

13.3.3.2 Licences, Permits and Approvals

Adani will ensure that they hold all licenses, permits and approvals relevant to the Project (Rail) and that these are kept up to date. To ensure this occurs Adani will maintain a register of all licenses, permits and approvals for the Project (Rail).

Adani must also ensure compliance of the Project (Rail) with the conditions placed on these licences, permits and approvals.

A summary of potential Project (Rail) approvals is provided in Table 13-2. All staff and contractors will be required to comply with the conditions of the approvals, licences and permits.

Table 13-2 Summary of Potential Project Approvals

Permit/Approval/Licence Relevant Legislation	Why it applies	Administrating Authority
Project (Rail)		
EPBC Referral Decision *Environmental Protection and Biodiversity Conservation Act 1999*	The Project has been declared a "controlled action" on 6 January 2011 due to the likely potential impacts on Matters of NES.	DSEWPaC
EPBC Project Approval *Environmental Protection and Biodiversity Conservation Act 1999*	Approval required from Commonwealth Minister. EIS provide information for DSEWPaC decision making	DSEWPaC
Declaration of *'significant project'* *State Development and Public Works Organisation Act 1971*	Declared as a *'significant project'* by the Office of the CG on 26 November 2010. The Project will have significant strategic significance, infrastructure impacts and employment opportunities. The Project requires an EIS under a bilateral agreement with DSEWPaC.	Office of the CG
Right to Negotiate (RTN) *Native Title Act 1993*	Some dealings in land are subject to the right to negotiate process before they can proceed. Most often this process applies to the grant of mining tenements.	DNRM
Indigenous Land Use Agreement (ILUA) *Native Title Act 1993*	Required for the purposes of allowing development of the Project on land where native title exists or has not been supressed. An ILUA is currently being negotiated by Adani.	DNRM
Native Title Agreement *Aboriginal Cultural Heritage Act 2003*	Applies to the Project, a Native Title Agreement is currently being negotiated.	DEHP and Native Title Claimants
Cultural Heritage Management Plan (CHMP) *Aboriginal Cultural Heritage Act 2003*	CHMPs for the Project have been approved.	DEHP and Native Title claimants

Permit/Approval/Licence Relevant Legislation	Why it applies	Administrating Authority
Resource Entitlements (for State Resources) and Land Owners Consent *Sustainable Planning Act 2009* *Land Act 1994* *Transport Infrastructure Act 1994* *Water Act 2000*	Land subject to a lease, land owned by the Crown, land that is a road (local government road or a state controlled road) requires an evidence of an allocation of an entitlement to the resource.	DNRM IRC DTMR
Permit to Clear Protected Plants *Nature Conservation Act 1992*	A licence, permit or authority is required to 'take' protected plants. This permit may apply for the Project.	DEHP
Damage Mitigation Permit (DMP) *Nature Conservation Act* *Nature Conservation (Wildlife) Regulation 2006*	Any activity that will 'tamper' (i.e. remove, damage, impair, degrade, etc) with the confirmed breeding place of a native animal (that is endangered, vulnerable, near threatened and least concern wildlife) requires authorisation.	DEHP
Species Management Programme *Nature Conservation Act 1992*	For larger impacts upon species protected under the NC Act, particularly where potential breeding places of endangered, vulnerable, near threatened or least concern species, or Essential Habitat for these species, is involved, a Species Management Program (SMP) may be required instead of the abovementioned DMP.	DEHP
Operational works approval for taking or interfering with water from a watercourse, lake or spring *Water Act 2000*	Applies to Project (Rail) activities that are likely to interfere with watercourses traversing the Project Area.	DNRM
Belyando Shire Council Local Law No. 21 (Roads) 2007 *Local Government Act 2009*	An application to alter or improve a local government road under a local government road (roads). This permit is likely to relate to construction works to be carried out for the Project within local government controlled roads.	IRC

Permit/Approval/Licence Relevant Legislation	Why it applies	Administrating Authority
Belyando Shire Council Local Law No. 44 (Use of Explosives) *Local Government Act 2009*	A permit is required in order to set up or carry out blasting operations and/or explosives. This permit may be required during the construction stage in the unlikely or limited cases where blasting is necessary for construction of the Project (Rail).	IRC
Belyando Shire Council Local Law No. 45 (Extraordinary Traffic) *Local Government Act 2009*	A permit is required to drive "extraordinary traffic" on a road or bridge, whether concrete, bitumen, metalled, gravelled, or any prepared or formed surface. "Extraordinary vehicles" include haulage vehicles and those that are conveying and carrying goods and being of exceptional weight and nature. This permit is likely to be required during the construction stage of the Project (Rail).	IRC
Oversized load permits *Transport Infrastructure Act 1994*	For heavy machinery and oversized loads to be transported on the road network.	DTMR
Operational Works Development Application for Clearing of Native Vegetation *Vegetation Management Act 1999*	Applies to clearing of native vegetation for the purposes of constructing the proposed Project (Rail).	DNRM
Property Vegetation Management Plan (PVMP) and Property Map of Assessable Vegetation (PMAV) *Vegetation Management Act 1999*	The PVMP and PMAV may be required for the Project (Rail) and will be submitted as part of the operational works application for clearing of native vegetation.	DNRM
Riverine Protection Permit *Water Act 2000*	Required for works that involve destruction of vegetation, excavation or placement of fill within watercourses.	DNRM

Permit/Approval/Licence Relevant Legislation	Why it applies	Administrating Authority
Environmental Protection Act 1994 Environmentally Relevant Activities: ERA 8 – Chemical Storage ERA 50 – Bulk Materials Handling ERA 63 – Sewage Treatment ERA 21 – Motor Vehicle Workshop Operation ERA 43 – Concrete Batching	Establishment and operation of environmentally relevant activities requires a permit under the EP Act. These ERAs will be approved as part of the Project (Rail) Environmental Authority (EA).	DEHP
Infrastructure Facility of Significance *State Development and Public Works Organisation Act 1971*	Adani may apply for an IFS declaration. If granted, the declaration will allow compulsory acquisition of land within the Project (Rail) corridor.	DSDIP
Community Infrastructure Designation *Sustainable Planning Act 2009*	Adani may apply for a CID. CID designation provides exemptions under the *Planning Scheme for the Belyando Shire 2008*. This designation is usually obtained prior to any other State approvals.	DTMR
Material Change of Use Development Application (MCU DA) for Railway Activity *Sustainable Planning Act 2009*	If a CID is not granted for the Project (Rail) corridor, a MCU DA can be applied for in accordance with the *Planning Scheme for the Belyando Shire 2008.*	IRC
Material Change of Use Development Application for Construction Camps *Sustainable Planning Act 2009*	Establishment of a new use within the Belyando Shire requires a MCU DA assessable against the provisions of the *Planning Scheme for the Belyando Shire 2008.*	IRC
Development Application for Reconfiguration of a Lot *Sustainable Planning Act 2009*	If a new easement (s) or change of property boundary is required for the Project (Rail).	IRC

Permit/Approval/Licence Relevant Legislation	Why it applies	Administrating Authority
Rail Feasibility Investigator's Authority *Transport Infrastructure Act 1994*	Adani was granted a rail feasibility investigator's authority (subject to conditions) on 21 May 2012. This authority will allow entry to the Project (Rail) corridor and enable Adani to undertake required land investigations to determine the suitability of land for rail corridor construction.	DTMR
A permit to work within or interfere with State Controlled Roads (SCRs) *Transport Infrastructure Act 1994*	Ancillary works and encroachments must not be constructed, maintained, operated or conducted on SCRs, or on SCRs in a specified district, without the written approval of the chief executive. This is likely to be applicable for the Project (Rail) as it crosses SCRs.	DTMR
Common Areas Declaration *Transport Infrastructure Act 1994*	Declaration of a common area is required where a relevant road (SCR) interrupts the route of a future railway land (Section 249, TI Act).	DTMR
Road Corridor Permit (RCP)_ *Transport Infrastructure Act 1994*	An RCP to construct, maintain, operate or conduct ancillary works and encroachments on a SCR is required for the Project (Rail).	DTMR
Operational works approval for constructing or raising waterway barrier works *Fisheries Act 1994*	The Project will entail construction of waterway crossings that are defined as 'waterway barrier works'.	DSDIP
Sales Permit for quarry material and/or timber *Forestry Act 1959*	A sales permit may be required for use of forest products or quarry material taken from the Project (Rail) corridor.	DNRM

13.3.4 Objectives and Targets

Adani has developed environmental objectives and targets (performance criteria) for the Project (Rail) that are specific to the environmental values to be protected and the potential environmental impacts on these values. The environmental values are described in Section 13.4.

The objectives and targets are contained in each of the Management Plans in Section 13.5. These objectives and targets have been developed in accordance with Adani's HSE Management Standard *HSE-ST-02 Planning, Objectives and Legal Obligations.* They aim to be:

- Specific to the Project
- Quantified and measurable
- Realistic and achievable
- Focused on continual HSE improvement
- Consistent with, and related to, Adani's *Environment and Sustainability Policy* and Adani HSE Management Standards
- Periodically reviewed and, if required, revised

The processes proposed to monitor the implementation of these objectives and targets are further described in 13.3.12.2.

13.3.5 Training and Competence

The Construction Contractor and Adani will ensure that all employees and subcontractors involved with the Project (Rail) receive environmental training appropriate to their role. The provision of training will be in accordance with Adani HSE Management Standard *HSE-ST-03 - Training and Competence.*

All staff, sub-contractors and visitors to the site will be required to attend the induction program, which will include environmental awareness and obligations. The induction program will include:

- Overview of relevant policies
- Duty of care and duty to notify
- Incident response and reporting
- Environmental awareness
- Key environmental management requirements such as spill management (as a minimum those requirements relevant to their role and responsibilities)

As part of the HSE management system, a training needs assessment and training plan will be developed for the project. This plan will identify training requirements for each role within the Project (Rail) and will include environmental and cultural heritage awareness training areas such as:

- Spill avoidance and response
- Incident response
- Incident investigation, reporting and follow-up
- Compliance and General Environmental Duty
- Cultural heritage awareness training

- Environmental auditing
- Emergency response
- Task specific training

A Training Register will be maintained to record training attendance and currency of training for each staff, contractor and visitor.

13.3.6 Communication

Adani *Environment and Sustainability Policy* and this EMP will be adequately communicated to all construction and operational personnel. The Construction Contractor and Adani will ensure that the general intent, scope and relevance of these documents are understood.

Environmental issues for the Project (Rail) will be communicated by the following methods.

- Environmental induction programs and training
- Daily toolbox meetings
- Risk workshops
- Management meetings
- Noticeboards
- Environmental reports

The effectiveness of the communication will be assessed in third party environmental audits as measured through awareness of staff and subcontractors and compliance with day to day site environmental management requirements.

A Communication Plan will be developed for the construction and operational of the Project (Rail) and will be meet the requirements of Adani HSE Management Standard *HSE-ST-07 Communication, Consultation and Involvement*.

The Communication Plan will outline the responsibilities and protocols for internal and external communication, including communication with relevant authorities, the media and the public. The Communication Plan will link to other procedures such as the Incident Management Procedure or Complaint Management Procedures.

13.3.7 Documentation, Document Control and Records

The Construction Contractor and Adani will ensure that an adequate document control system is in place to ensure that only current documentation is in use. The document control and records management system will meet the requirements of Adani HSE Management Standard *HSE-ST-04 Documentation, Document Control and Records*.

Records collected as part of environmental management activities will be retained by the Construction Contractor and Adani for the legally required period of time. Environmental records include but may not be limited to:

- Site inspection checklists
- Environmental audit reports

- Training records
- Monitoring data
- Complaints and associated records of communication
- Meeting minutes

During construction, the Construction Contractor will make these records available to Adani or any relevant authorities and their representatives on request. During the operational phase, Adani will make these records available to any relevant authorities and their representatives on request and where justified and in accordance with legislation.

13.3.8 Project Management Integration

When determining a suitable Construction Contractor, Adani will take into account the track record of a prospective tenderer in relation to compliance with environmental legislation and their proposed environmental management systems. Contracts will include environmental performance requirements.

The Construction Contractor and its sub-contractors will be required to develop and implement a construction project specific CEMP and procedures relevant to the construction phase to achieve compliance with this EMP.

During operation, Adani will develop and implement a project specific OEMP and procedures relevant to the operational phase to achieve compliance with this EMP.

The mitigation and management measures listed in this EMP will be integrated in other project documentation such as work method statements and work instructions to ensure that environmental management is integrated in overall project management (construction) and operation of the Project (Rail).

13.3.9 Emergency Preparedness and Response

The Construction Contractor and Adani will ensure that all staff and sub-contractors have adequate competence and training to respond to environmental emergencies. The Construction Contractor and Adani will establish emergency response teams for the construction and operational phase respectively that has received special training in emergency response including use of emergency response equipment.

An Emergency Response Plan will be developed and implemented to address incidents such as:

- Environmental spills e.g. fuel, coal or other hazardous substances
- Vehicle collisions
- Train derailment / collision
- Fire
- Flood
- Cyclones

The Emergency Response Plan will include emergency procedures and emergency contact details relevant to the Project (Rail) prior to commencement of construction works and operation. The emergency response plan will be developed as part of the project documentation for construction and

operation and will reference this EMP where applicable. The Emergency Response Plan will also link to the Incident Management Procedure (see Section 13.3.10).

13.3.10 Incident Management

Adani will ensure that all environmental incidents are identified, reported and thoroughly investigated, and that the appropriate corrective action, aimed at preventing recurrence of the incident, is taken. Incident management will meet the requirements of Adani HSE Management Standard *HSE-ST-06 Incident Management and Performance Measurement.*

In the event of an incident, the Construction Contractor and Adani will immediately take appropriate action to minimise any adverse environmental impact and promptly report details of the incident to relevant agencies. The Construction Contractor and Adani must carry out any lawful instruction received from the authorised representatives of relevant agencies.

The investigation of incidents will include a process for identifying all the contributing factors of the incident. The investigations will be carried out by competent persons with the appropriate involvement of relevant personnel and their representatives. The level of detail of these investigations will be appropriate to the actual or potential seriousness of the event.

Prioritised corrective or preventative actions, aimed at preventing recurrence of similar events, will be implemented. Procedures will be established and maintained to ensure the follow-up and completion of corrective actions. Corrective actions following incidents will be communicated to all staff as applicable.

An Incident Register will be developed and maintained, recording all environmental near-misses and incidents.

Additional procedures will be developed for specific environmental incidents, such as spills of hazardous substances and injury or death of native wildlife.

The incident management procedure will be communicated to all staff and contractors during environmental inductions and displayed at all site offices/crib rooms. Contact names and numbers will be updated as required.

13.3.11 Complaints

All internal and external complaints related to environmental aspects of the construction and operation of the Project (Rail) will be recorded, acknowledged, considered and responded to as soon as is practicable. Complaints and concerns will be treated as incidents and investigated accordingly.

Complaints management procedures will be established for the construction and operational phases. This will entail the development and maintenance of a Complaints Register that will include:

- Responding to all complaints within agreed timeframes
- Investigating all complaints within agreed timeframes
- Follow-up with complainant on outcomes of investigation and proposed mitigation measures (where applicable)
- Implementing corrective and preventative actions as required
- Regular review of complaints to identify any trends which may require further corrective actions

13.3.12 Inspections, Monitoring, and Audits

13.3.12.1 Environmental Inspections

Environmental inspection processes will meet the requirements of Adani HSE Management Standard *HSE-ST-18 Reviews, Audits and Inspections.*

Site inspections to verify compliance with the EMP, permits and approvals and other environmental performance requirements will be undertaken and documented for the construction and operational phases. Site inspection checklists will be developed for the construction and operational phases.

Where inspections determine that the existing measures are not effective, corrective and preventative measures will be implemented.

13.3.12.2 Environmental Monitoring

Environmental monitoring programs will be developed for the construction and operational phases of the Project (Rail). These monitoring programs will address the commitments and approval, permit and licensing conditions (when available) included in this EMP and cover areas such as flora and fauna, water and air quality and noise (refer Section 13.5). The monitoring programs will set out the monitoring objectives: parameters, criteria, location, frequency, procedure, recording, reporting and corrective action.

Monitoring activities will be conducted by a person who is suitably trained and qualified. Monitoring will be carried out in accordance with relevant guidelines. All monitoring equipment will be maintained and calibrated in accordance with manufacturers' instructions to ensure reliability of equipment and data.

The results of the monitoring programs will be interpreted and reviewed regularly. Results will be reported to relevant authorities within agreed timeframes as determined in approval conditions.

13.3.12.3 Environmental Audits

The environmental auditing process will meet the requirements of Adani HSE Management Standard *HSE-ST-18 Reviews, Audits and Inspections.*

Audits to verify compliance with all applicable environmental requirements will be conducted at appropriate intervals. Audits will cover all aspects of the HSE Management System. This will include verifying compliance with at least the following requirements:

- The EMP relevant to construction or operation
- Adani HSE Management Standards
- Adani Mining HSE Compliance Guidelines
- Applicable legislative and approval requirements
- Other applicable environmental requirements (e.g. specific site or operation procedures)

Audits will be conducted by competent auditors independent of the operations being audited. The audit results, conclusions and corrective actions required will be communicated to those responsible for implementing the corrective actions.

An audit report will be prepared to summarise the findings of the audits and any corrective and preventive actions. The environmental audit reports will be made available to relevant environmental authorities as required by conditions of approvals.

13.3.12.4 Non-Conformance and Corrective Action

Procedures will be developed for managing non-conformances with this EMP or legislative requirements identified during site inspection, environmental audits and through other mechanisms, such as the complaints register. The procedures will include:

- Classification of non-conformances
- Investigation requirements (including root-cause analysis)
- Identification and implementation of corrective and preventative actions
- Assigning adequate resources and timelines for completion of corrective and preventative actions
- Reporting requirements
- Development and maintenance of an Non-Conformance Register
- Closing out of non-conformances
- Regular review of status of non-conformances

Adani will conduct a monthly review of all non-conformances that have not been closed-out.

13.3.13 Environmental Reporting

13.3.13.1 Internal Reporting

The Construction Contractor will be required to report any environmental incidents or breaches of the approval conditions immediately to an Adani key representative. Where there is an obligation to report to relevant authorities, this must also occur within the applicable timeframes and Adani representatives notified. Reporting will be undertaken in accordance with the Communications Plan.

During construction, the Construction Contractor will be required to prepare and submit a monthly report to Adani which will include the site inspection records, monitoring results, training undertaken, initiatives, incident records and details of any corrective and preventive actions taken where non-conformances had been identified and all non-conformances that have not been closed-out.

During operation, the Environmental Officer will prepare a monthly report for Adani senior management which will include the site inspection records, monitoring results, training undertaken, initiatives, incident records and details of any corrective and preventive actions taken where non-conformances had been identified and all non-conformances that have not been closed-out.

All staff and contractors will be required to report any environmental incidents (including complaints) or breaches of the approval conditions immediately to their supervisors who will then involve the Environmental Officer and implement further actions.

13.3.13.2 External Reporting

Reporting will be undertaken in accordance with the Communications Plan. Adani aims to provide timely, relevant and appropriately presented information to government authorities, the local community and the general public on the environmental performance of the Project (Rail). Reporting commitments under the environmental approval conditions and other legislation will be complied with and may include:

- Monitoring results as required by authorities
- Progress reports as required in approval conditions

- Annual Returns as required under the EP Act (operation only)
- Any significant environmental incidents or serious breaches of the approval conditions will be reported to the relevant authorities in a timely manner and in accordance with legislative requirements.

13.3.14 Review and Continuous Improvement

Adani will regularly review and update this EMP and all elements of the HSE Management System. The review will take into account the following:

- Changes in legislative requirements (including conditions of approvals)
- Environmental performance , findings of environmental audits and inspections
- Outcomes of agency consultation
- Outcomes of consultation with communities and resolution of complaints
- Changes in external and internal policies, standards and guidelines

The review will ensure the continuing suitability, adequacy and effectiveness of the EMP and the HSE Management System. The review will include assessing opportunities for improvement.

13.4 Existing Environmental Values and Potential Impacts

This section describes the environmental values likely to be affected by the construction and operational phases of the Project (Rail).

13.4.1 Existing Environmental Values

The following environmental values have been identified to be impacted on by the Project (Rail):

- **Ecology**
  - Matters of NES
  - Regional ecosystems
  - Regrowth vegetation
  - Threatened fauna and flora species
- **Water Resources**
  - Aquatic ecosystems
  - Farm supply and stockwater
  - Aesthetic enjoyment
- **Soil**
  - Topography
  - Soil Quality
  - Good Quality Agricultural Soils
  - Strategic Cropping Land management area

- **Air**
  - The qualities of the air environment that are conducive to protecting the health and biodiversity of ecosystems and human health and wellbeing
  - The qualities of the air environment that are conducive to protecting the aesthetics of the environment, including the appearance of buildings, structures and other property
  - The qualities of the air environment that are conducive to protecting agricultural use of the environment.
- **Noise and Vibration**
  - The qualities of the acoustic environment conducive to protecting the health and biodiversity of ecosystems and human health and wellbeing (EPP Noise).

13.4.2 Potential Environmental Impacts – Construction

Potential environmental impacts relating to construction activities are listed in Table 13-3 together with the relevant management plans where mitigation measures for these impacts have been addressed:

- Land clearance for site preparation
- Earthworks and excavation and where required, pneumatic rock-breaking
- Top soil and soil/gravel/crushed rock handling (stockpiling, loading, dumping)
- Leveling and grading of disturbed soil surfaces
- Placement of ballast
- Laying of concrete sleepers and rail
- Construction and administrative vehicles travelling over unsealed sections of road or localised unconsolidated surfaces
- Wind erosion of unconsolidated surfaces such as unstable/uncovered cleared land and stockpiles

Table 13-3 Potential Environmental Impacts – Construction

Construction Activity	Potential Environmental Impact	Management Sub Plans
Clearing of land	• Dust generation	Air Quality Management Plan
	• Greenhouse gas emissions and non-renewable resource use (fuel)	Greenhouse Gas Emissions and Energy Management Plan
	• Mobilisation of sediments and pollutants	Erosion and Sediment Control Management Plan Hazardous Substances Management Plan
	• Loss of catchment area and alteration of flows • Direct disturbances to water resources	Water Quality Management Plan
	• Generation of waste	Waste and Resource Management

Construction Activity	Potential Environmental Impact	Management Sub Plans
	◗ Excess spoil	Plan
	◗ Loss of vegetation and fauna habitat (including loss of roosting, foraging and breeding areas) ◗ Habitat fragmentation ◗ Habitat degradation	Native Flora and Fauna Management Plan
	◗ Fauna mortality	Traffic Management Plan Native Flora and Fauna Management Plan
Civil works	◗ Disturbance (noise) to sleep, social activities, work activities ◗ Disturbance (noise) to livestock and native fauna	Noise and Vibration Management Plan Native Flora and Fauna Management Plan
Operation of plant and equipment	◗ Generation of waste oils and emissions to air	Waste and Resource Management Plan Air Quality Management Plan
Fuel consumption	◗ Greenhouse gas emissions and non-renewable resource use	Greenhouse Gas Emissions and Energy Management Plan
Pile driving and equipment use	◗ Discomfort (vibration) to human beings	Noise and Vibration Management Plan
Transport of construction workers	◗ Light/medium vehicle movements to camp ◗ Heavy vehicle (bus) movements to camp	Traffic Management Plan
Transport of heavy equipment	◗ Heavy equipment and machinery delivery to construction site	Traffic Management Plan
Dewatering	◗ Temporary alteration of groundwater regime	Water Quality Management Plan
Disturbance of surface watercourses	◗ Loss of habitat for terrestrial species ◗ Degradation of aquatic habitat ◗ Degradation of riparian zone	Water Quality Management Plan Erosion and Sediment Control Management Plan Native Flora and Fauna Management Plan
Changes to land use and tenure of Project area	◗ Sterilisation of Good Quality Agricultural Land	Noise and Vibration Management Plan

Construction Activity	Potential Environmental Impact	Management Sub Plans
General construction activities	◗ Generation of construction waste, including regulated waste ◗ Generation of waste water ◗ Generation of waste oils ◗ Introduction of weeds and feral species	Waste and Resource Management Plan Weed and Pest Management Plan
	◗ Flooding and overland flows during construction activities ◗ Use of water during construction activities	Water Quality Management Plan Erosion and Sediment Control Management Plan
	◗ Changes in the landscape character for the Project (Rail)	Lighting and Visual Amenity Management Plan
	◗ Increased fire risk from increase in ignition sources	Bushfire Management Plan

13.4.3 Potential Environmental Impacts – Operation

Table 13-4 outlines potential environmental impacts from the Project (Rail) relating to operational activities and the associated management plans.

Table 13-4 Potential Environmental Impacts – Operation

Operational Activity	Potential Environmental Impact	Management Plan
Rail Movements	◗ Exhaust emissions	◗ Air Quality Management Plan ◗ Greenhouse Gas Emissions and Energy Management Plan
	◗ Noise and vibration	◗ Noise and Vibration Management Plan
	◗ Impacts at road crossings ◗ Impacts on existing rail operations	◗ Traffic Management Plan
	◗ Dust generation ◗ Fugitive coal dust emissions	◗ Air Quality Management Plan ◗ Greenhouse Gas Emissions and Energy Management Plan
	◗ Creation of linear barrier to movement ◗ Fauna mortality	◗ Native Flora and Fauna Management Plan

Operational Activity	Potential Environmental Impact	Management Plan
Maintenance Activities	◗ Movement of workers and equipment for maintenance	◗ Traffic Management Plan
	◗ Change/interruption to river/creek flows	◗ Native Flora and Fauna Management Plan
	◗ Plant and Equipment Waste ◗ Putrescible waste ◗ Commercial Waste ◗ Wastewater	◗ Waste and Resource Management Plan
Disturbance of surface watercourses and waterbodies	◗ Degradation of water quality ◗ Increased/exacerbated flooding ◗ Altered drainage patterns (reduced inflows/outflows)	◗ Water Quality Management Plan
	◗ Scouring and geomorphological changes	◗ Erosion and Sediment Control Management Plan
Introduction of weeds and feral pest species	◗ Reduction in resource availability ◗ Increased competition with native species for resources ◗ Habitat degradation	◗ Weed and Pest Management Plan

13.5 Management Plans

The following specific Management Plans have been developed to provide practical measures to prevent or minimise environmental impacts on existing environmental values. The structure of the management plans for each element has been developed to meet the requirements of the TOR for the Project EIS. The structure of the plans is shown in Table 13-5. The environmental element, i.e. the aspect of construction and operation requiring management consideration (as it affects environmental values) is discussed in Table 13-3 and Table 13-4 for construction and operation of the Project (Rail), respectively.

Table 13-5 Structure of Management Plans

Element	Description of Content
Management Objective	The operational policy or management objective that applies to the element
Performance Criteria	Measurable performance criteria (outcomes) for each element of the operation
Implementation Strategies	The strategies, tasks or action program that would be implemented to achieve the performance criteria.
Monitoring and Auditing	The monitoring requirements to measure actual performance

Element	Description of Content
Reporting	Format, timing and responsibility for reporting and auditing of monitoring results
Corrective action	The action (options) to be implemented in case a performance requirement is not reached ad the person(s) responsible for the action (including staff authority and responsibility management structure

Through this EMP, the Project (Rail) EIS commitments to environmental performance can be conditioned through regulatory controls. Therefore, the EMP is a relevant document for project approvals, environmental authorities and permits, and may be referenced by them.

The following management plans are included in this section:

- Lighting And Visual Amenity Management Plan (refer Section 13.5.1)
- Soils, erosion and Sediment Control Management Plan (refer Section 13.5.2)
- Native Flora and Fauna Management Plan (refer Section 13.5.3)
- Weed and Pest Management Plan (refer Section 13.5.4)
- Water Quality Management Plan (refer Section 13.5.5)
- Air Quality Management Plan (refer Section 13.5.6)
- Bushfire Management Plan (refer Section 13.5.6)
- Greenhouse Gas Emissions and Energy Management Plan (refer Section 13.5.8)
- Noise and Vibration Management Plan (refer Section 13.5.9)
- Traffic Management Plan (refer Section 13.5.11)
- Waste and Resource Management Plan (refer Section 13.5.12)
- Hazardous Substances Management Plan (refer Section 13.5.12)

13.5.1 Lighting and Visual Amenity Management Plan

13.5.1.1 Management Objective

- Avoid or reduce potential adverse effects on landscape character and visual receptors.

13.5.1.2 Performance Criteria

- Full compliance with lighting and visual amenity approval conditions.

13.5.1.3 Implementation Strategies

Construction

- Temporary hoardings, barriers, traffic management and signage will be removed when no longer required
- Materials and machinery will be stored tidily during the works
- Security lighting will be minimised and positioned to reduce additional sky glow
- Night time activities will be limited, particularly in close proximity to sensitive receivers
- Lighting used during night works will be designed such that the site is not over-lit unnecessarily and light spillage is minimised
- Directional lighting will be used and shields provided to minimise spill outside the working area where sensitive receptors may be affected.
- Roads providing access to the site and work areas will be regularly inspected and maintained to minimise dust and mud and subsequent localised impacts on visual amenity
- Temporary infrastructure sites and non-operational areas will be rehabilitated progressively
- Measures in relation to dust management will also address visual amenity impacts

Operation

- Designated access points to the rail corridor will be established to minimise direct access and therefore disturbance to properties
- Vegetation will be planted around maintenance facilities and adjacent to the Project (Rail) corridor in sensitive locations as agreed with landholders
- Light pollution at maintenance facilities and other facilities operated at night will be managed and reductions achieved through:
  - Appropriate luminaires will be specified to reduce light spill, sky glow and glare
  - Sensitive placement and specification of lighting will be considered to minimise any potential increase in light pollution within the natural environment or at sensitive receptors

13.5.1.4 Monitoring

- Housekeeping practices will be inspected, especially tidiness of access roads and worksites
- Off-site impacts of lighting will be inspected regularly, especially light spill and sky glow
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

13.5.1.5 Reporting

- In the event of a complaint, reporting to the complainant and relevant environmental authorities will follow the complaints management procedure outline in Section 13.3.11

13.5.1.6 Corrective Action

- Any hoardings, barriers, traffic management and signage will be removed when no longer required
- Lighting will be repositioned or redesigned if found to spill off-site excessively
- Vegetation screening will be established as required and agreed with landholders
- All lighting complaints will be managed in accordance with the complaints procedure (Section 13.3.11)

13.5.2 Soils, Erosion and Sediment Control Management Plan

13.5.2.1 Management Objective

- Prevent the degradation of aquatic and terrestrial habitats from erosion and increased sediment load by minimising the disturbance to creek banks and by controlling site runoff from all areas disturbed during construction activities.
- Prevent loss of soil resources

13.5.2.2 Performance Criteria

- Discharges to water do not cause degradation compared to upstream water quality and water quality objectives
- Erosion and sediment controls in place prior to works commencing for all sites during the wet season

13.5.2.3 Implementation Strategies

Construction and Operation

- Ensure all temporary and permanent erosion and sediment control devices are functional prior to commencement of railway construction and operation. Maintain and repair all devices throughout the Project's life
- Vehicle movements will be limited to designated access tracks wherever safe and practical

Construction

- Develop a comprehensive Erosion and Sediment Control Plan (ESCP) prior to construction commencing in accordance with *International Erosion Control Association, Best Practice Erosion and Sediment Control Guideline, 2008* (IECA, 2008). The ESCP will focus on all aspects of construction and provide the required performance criteria for all controls to be implemented across the Project. The ESCP will be referred to when developing all onsite detailed ESCPs and will include (but not be limited to):
  - Requirement to construct across watercourses during dry periods (as far as possible) to limit localised erosion at construction areas
  - Requirement to clearly identify areas for land clearing and earthworks on construction plans and on the ground to avoid unnecessary disturbance to areas outside the construction area

  - Installation and maintenance standards for sediment fences and other sediment control devices, in particular for areas near earthworks, watercourses and key stormwater flow paths
  - Locating any soil or mulch stockpiles away from watercourses and key stormwater flow paths to limit potential for transport of these substances into the watercourses via runoff
  - Rehabilitation and/or requirements to protect/stabilise exposed earth areas from water or wind erosion
  - Stabilisation of creek banks disturbed during construction
  - Monitoring requirements for the purposes of detecting changes in water quality downstream of the construction area
  - Treatment and management requirements for odic, dispersive and aggressive soils
  - Inspection requirements to maintain the effectiveness of installed control mechanisms, including frequency and corrective actions to be undertaken in the event that erosion control mechanisms are not operating appropriately.
- Install perimeter catch drains around major temporary construction laydown areas and accommodation camps to prevent offsite upslope clean water from entering the site and bunding and basins downslope to confine dirty water within the site and out on the low flow channel. Design and management of the installation of such controls will be in accordance with IECA guidelines (IECA 2008).
- Stockpiling of soil in the bed and banks of watercourses will not be permitted except for major watercourse crossings, where temporary stockpiling outside the low flow channel will be allowed if required.
- Rehabilitation of any disturbed ground due to temporary construction infrastructure will be conducted progressively as soon as construction activities are complete in any area.
- Existing riparian vegetation will be retained as far as is practicable.
- Land clearing activities will, where possible, seek to avoid alteration to drainage paths such that the impacts to water quality and downstream flows are minimised to the greatest extent possible.
- If temporary stream or channel diversion are required to facilitate activities in wet periods, stream flow will be maintained where practicable to provide connectivity between aquatic habitats and facilitate aquatic fauna passage.
- Temporarily disturbed areas will be stabilised as soon as practical by mulching and/or reinstating topsoil and subsoil and compacting replaced soils.
- The integrity of topsoil resources associated with construction and temporary disturbances will be maintained as near to pre-disturbance conditions as possible, which may require the addition of ameliorants.
- Any bare ground associated with temporary infrastructure (e.g. construction camps) will be re-vegetated in line with pre clearing conditions, such as suitable pasture or native vegetation immediately after the completion of the construction Project (Rail).
- Stripped topsoil will be set aside for use in reinstatement where properties allow. Topsoil stockpiles will be managed to maintain soil fertility and other soil properties.

13.5.2.4 Monitoring

Construction and Operation

- The condition of erosion and sediment control structures will be inspected daily and immediately after a significant rain event

Construction

- The construction site and its perimeter will be regularly inspected for signs of erosion
- Downstream waterways will be inspected for signs for increased turbidity and sedimentation

Operation

- Following significant rain events, the rail corridor will be inspected for signs of erosion and sediment mobilisation

13.5.2.5 Reporting

Construction

- Monthly reporting by the Construction Contractor to Adani on non-conformances, incidents and site inspections

Operation

- Monthly reporting by the Operation Manager to Adani on non-conformances, incidents and site inspections

13.5.2.6 Corrective action

Construction

- Erosion and sediment controls will be maintained and repaired in order to achieve required efficiency
- Rehabilitation of any disturbed ground due to temporary construction infrastructure or unintended accidental damage to any other areas to be retained.

Operation

- Catch drains will be installed at appropriate locations to direct water away from the rail corridor embankment and into surrounding drainage lines
- Diversion drains installed will be kept clear and free of debris

13.5.3 Native Flora and Fauna Management Plan

13.5.3.1 Management Objective

- Minimise losses and disturbance to wildlife, or the ability of wildlife to traverse habitat corridors, in particular riparian vegetation and at watercourses

13.5.3.2 Performance Criteria

- No vegetation clearing outside the specified, pre-approved boundaries where practicable and in allowance for safe construction working

- Vegetation clearance to be preceded by final searches for specially protected species and their relocation as appropriate
- No injury or death of wildlife
- Appropriate signage to keep construction workers outside retained habitat areas

13.5.3.3 Implementation Strategies

Construction and Operation

- Locations and designs for fauna crossings will be identified during detailed design. Crossings will be provided at stream crossings and will allow for movement of native animals occurring in the area.

Co-located Construction

- For conservation significant fauna species considered as having the potential to occur within the construction area, relocation techniques specific to each will be implemented
- Following clearing, rehabilitation will occur in areas no longer required as track construction progresses to facilitate fauna passage around the construction footprint
- Laydown areas, access tracks and other facilities will be located within previously disturbed/degraded and/or cleared areas or within areas of non-remnant vegetation as far as possible
- The construction footprint will be reduced in environmentally sensitive areas, particularly at river and creek crossings where safe to do so. Construction within rivers and creeks will be undertaken in the drier periods, as far as is practicable, to avoid impacts to fish passage
- Clear, on-ground demarcation of areas to be cleared adjacent to watercourse crossing locations will be undertaken prior to clearing to avoid accidental clearing or stockpiling of cleared vegetation in sensitive areas
- Site inductions for all staff will include education sessions regarding the local fauna that may be present on the site and protocols to be undertaken if fauna are encountered
- Temporary fencing will be erected around high value habitats to be retained to exclude construction works
- Vegetation clearing in sensitive habitat areas will be undertaken in the presence of a qualified fauna spotter-catcher. Pre-demarcated habitat features will be thoroughly checked by fauna spotter-catcher prior to clearing. Provisions for the relocation of fauna should be made prior to the commencement of clearing
- Habitat features such as hollows and log piles will be salvaged, where possible, and placed in nearby (retained) habitat areas. Where this is not possible, the loss of habitat features will be supplemented in adjacent habitat areas with artificial habitat (for example, nest boxes)
- If any pits/trenches are to remain open after daily site works have been completed, they will be fenced, covered, or fauna ramps should be put in place to provide a potential means of escape for trapped fauna
- Watercourse areas will be restored and rehabilitated to improve connectivity and enhance provision of suitable habitat for native animals present in the area

Operation

- Rail infrastructure will be appropriately fenced to restrict livestock movement within the rail corridor. Consideration will be given to not using barbed wire on the top strand of wire fences
- Fauna passage structures will be regularly checked and maintained and, where ineffective, will be modified
- Operations staff and maintenance personnel will be required to move within the operational footprint and make use of existing access and tracks at all times

13.5.3.4 Monitoring

Construction and Operation

- Incidents of fauna strike and mortality will be monitored during construction and operation
- The condition of all fencing will be inspected regularly to determine maintenance requirements
- A monitoring program will be developed and implemented to examine the success of crossings for fauna species
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Construction

- Work areas will be inspected daily prior to commencement and fauna present will be relocated or moved

Operation

- A monitoring program will be developed and implemented for the rehabilitated aquatic habitats and riparian areas to check the success of the rehabilitation

13.5.3.5 Reporting

Construction and Operation

- Incidents involving animal strike or injury will be managed and reported as an incident in accordance with the incident management procedure (see Section 13.3.10)

Construction

- Monthly reporting by the Construction Contractor to Adani on non-conformances, incidents (including deaths and injury of wildlife) and site inspections

Operation

- Monthly reporting by the Operation Manager to Adani on non-conformances, incidents (including deaths and injury of wildlife) and site inspections

13.5.3.6 Corrective Actions

Operation and Construction

- Fences will be repaired as required

- Additional watering, fertilising or replanting of rehabilitated areas will be considered in areas where rehabilitation planting has not been successful
- Fauna crossings will be modified or enhanced as necessary to improve effectiveness

13.5.4 Weed and Pest Management Plan

13.5.4.1 Management Objective

- Minimise the potential for introducing and/or spreading weed species or plant disease.
- Minimise the potential for introducing and spreading pest and feral species

13.5.4.2 Performance Criteria

- No increase in level of weed and pest infestation as a result of construction and operational activities for the Project (Rail)

13.5.4.3 Implementation Strategies

Construction and Operation - Weed and Pest Management

- A weed survey will be conducted prior to construction works commencing
- A weed management program will be developed for the construction and operational phases to ensure that weed infestation of disturbed areas is kept at a minimum.
- Vegetation and topsoil containing declared weeds will not be reused on site
- Temporary and permanent washdowns will be installed prior to construction commencing
- Vehicle inspections and a weed hygiene declaration will be required for vehicles and all earthmoving equipment coming onto the site
- Disturbed topsoil and vegetative material will be returned as close as possible to the original sites in order to limit the potential spread of weeds and pathogens
- No animals will be allowed to be brought to the construction site
- Weeds will not be reused in revegetation and will be destroyed/disposed offsite at a licensed facility
- The management of vegetation waste (in a manner that minimises potential for spread of weeds) and disposal of food scraps (minimise to potential to attract pest animals) is in accordance with the Waste and Resource Management Plan in Section 13.5.11)

13.5.4.4 Monitoring

Construction

- All earth moving equipment entering the construction site will require a weed hygiene declaration and will be inspected to confirm they are free from soil and weeds
- Disturbed areas will be inspected for weeds on a monthly basis
- Rehabilitated temporary construction laydown areas and work camps will be inspected for weeds as part of ongoing rehabilitation inspections
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Operation

- The rail corridor will be regularly inspected for presence of weeds

13.5.4.5 Reporting

Construction

- Significant incidence of weed infestation or non-compliance with weed hygiene requirements will be included in monthly reporting by the Construction Contractor to Adani on non-conformances, incidents and site inspections

Operation

- Significant incidence of weed infestation or non-compliance with weed hygiene requirements will be included in monthly reporting by the Operation Manager to Adani on non-conformances, incidents and site inspections

13.5.4.6 Corrective Actions

Construction and Operation

- Weed management programs will be implemented as appropriate
- Weeds will be controlled as part of rehabilitation/restoration activities

Construction

- Earth moving equipment found to be contaminated with weed from off-site sources will not be allowed to enter the construction site

13.5.5 Water Management Plan

13.5.5.1 Management Objective

- Minimise the environmental impacts on surface water and groundwater from the Project (Rail)

13.5.5.2 Performance Criteria

- Compliance with performance criteria relating to erosion (Section 13.5.2.2) and sedimentation and hazardous substances (Section 13.5.12.2)
- No degradation of water quality downstream relative to upstream values

13.5.5.3 Implementation Strategies

Construction and Operation

- Erosion and sediment controls relevant to construction activities will be implemented and managed in accordance with the Erosion and Sediment Control Management Plan (see Section 13.5.2)
- The transport, storage and handling of hazardous substances will be managed in accordance with the Hazardous Substances Management Plan (see Section 13.5.12)
- Avoid and minimise human and vehicle access to river and creek bed and banks

Construction

- All water required for the construction phase (for earthworks, dust suppression, concrete batching plants, potable water, etc.) will be imported to all construction sites, and not be sourced from the rivers and creeks without application for , and receipt of appropriate permits and/or licences
- All construction camp stormwater captured on site will be reused for irrigation, dust suppression or discharged via a sediment basin
- Waste water from concrete batching plants will be captured and stored and together with wash down water recycled where possible
- Refuelling or servicing of vehicles and plant will not be permitted within the low flow channel
- The low flow channel and any culverts will be kept clear of debris
- A detailed scour assessment will be conducted to determine the appropriate depth of cover or scour protection measures to be adopted at each crossing
- Any boring or similar activity required during construction of the Project (Rail) will utilise drilling fluids and chemicals that are environmentally neutral and biodegradable
- Dewatering requirements (if any) will be identified during detailed design. If major drawdown of the alluvial aquifer is identified, a groundwater monitoring program will be developed and implemented
- Further investigations, including detailed identification and consideration of all afflux affected property and asset owners, will be conducted in order to determine afflux levels appropriately. A hydrological/hydraulic report will be prepared to determine drainage structure dimension requirements.

Operation

- A water supply management plan will be developed pre-construction and implemented to address water usage, treatment of the recycled water and compliance with the requirements of the *Queensland Recycled Water Management Plan and Validation Guidelines*

13.5.5.4 Monitoring

Construction and Operation

- The potential for flooding will be monitored daily following heavy rain events and in accordance with the BOM flood warning system. Staff will be notified and equipment and materials removed from flood prone areas if required.
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Construction

- Visual inspections of raw water storage dam and waterways in the vicinity of the construction sites for signs of contamination (e.g. oily sheen, discolouration) will be conducted regularly

Operation

- Operational controls not required

13.5.5.5 Reporting

Construction

- Monthly reporting by the Construction Contractor to Adani on non-conformances (including complaints), incidents, site inspections and outcomes from monitoring and audits undertaken

Operation

- Monthly reporting by the Operation Manager to Adani on non-conformances (including complaints), incidents and site inspections

13.5.5.6 Corrective Actions

13.5.6 Air Quality Management Plan

13.5.6.1 Management Objective

- Prevent or minimise any air quality impacts at the location of sensitive receptors during construction and operation of the Project (Rail)

13.5.6.2 Performance Criteria

Construction and Operation

- Negligible air and dust impacts to sensitive receptors
- No non-compliance with approval conditions

13.5.6.3 Implementation Strategies

Construction and Operation

- Vehicles, plant and equipment will be regularly serviced and comply with manufacturers' specifications

Construction

- Watering of construction site and access roads will be undertaken as required to control dust using water sprays
- Avoid movement or handling, or increase wetting, of soil material on days of very high winds in close proximity to downwind sensitive receptors
- Any long term (longer than 4 weeks) soil stockpiles will be covered, stabilised and/or moistened as required to prevent generation of dust particulates

Operation

- The load-out facility will be designed to load wagons to the designed tolerance only and loading will be visually supervised. Overloading of wagons will be avoided
- Train speed will be optimised based on wagon class and coal supply (maximum loaded train speed of 80 km/h and unloaded train speed of 100 km/h)
- Control measures to mitigate the emission of dust from loaded and unloaded coal trains will be put in place in accordance with the recommendations stated in the QR Network (2010) *Coal Dust Management Plan*

- Electronically Controlled Pneumatic (ECP) braking will be considered for all new rolling stock
- Coal dust will periodically be removed from ballast and tracks
- The coal train operators will maintain clear and regular communication with community groups, councils, forums and individuals by listening to and discussing issues. Information on train-related coal dust mitigation initiatives being undertaken will be provided to the appropriate forums.
- Wagon washing will be considered to reduce coal dust emissions from empty wagons on the return trip to mine

13.5.6.4 Monitoring

Construction and Operation

- Ongoing visual inspections for excessive emissions from combustion engines (e.g. black smoke)
- Ongoing visual inspections for excessive dust emissions
- All complaints relating to air quality (including dust emissions) will be recorded and managed in accordance with the complaints management procedure (see Section 13.3.11)
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Operation

- Coal loading activities will be supervised
- Regular inspections of the rail alignment and surrounding areas for coal dust
- A dust monitoring program will be developed for selected areas
- Visual inspection for coal fires on trains

13.5.6.5 Reporting

Construction

- Monthly reporting by the Construction Contractor to Adani on non-conformances (including complaints), incidents and site inspections

Operation

- Monthly reporting by the Operation Manager to Adani on non-conformances (including complaints), incidents and site inspections
- Regular communication with community groups, councils, forums and individuals by listening to and discussing issues. Information on train-related coal dust mitigation initiatives being undertaken will be provided to the appropriate forums.

13.5.6.6 Corrective Actions

Construction and Operation

- Any mechanical issues relating to excessive smoke plumes from mobile or stationary combustion engines will be rectified immediately

- Any complaints will be managed in accordance with complaints management procedure (see Section 13.3.11)

Construction

- Water spray will be used during construction when excessive dust generation is observed or activity will be rescheduled if emissions are caused by high winds

Operation

- If overloading is found to be a potential cause of coal dust emissions, load out procedures will be amended and supervision increased
- Treatment of coal surface when in wagons (veneering) will be considered to minimise coal dust emissions during transport
- Any reports on coal fires will be investigated immediately

13.5.7 Bushfire Management Plan

13.5.7.1 Management Objective

- Fire hazards during the construction and operation of the Project (Rail) will be minimised
- Adequate fire fighting capabilities will be provided in terms of equipment and trained staff.

13.5.7.2 Performance Criteria

Construction and Operation

- No uncontrolled fires attributable to the construction and operation of the Project (Rail)

13.5.7.3 Implementation Strategies

Construction and Operation

- Protocols and actions for preventing accidentally-lit fires will be developed
- Areas of high fuel loads will be identified and managed to minimise fuel load adjacent to the railway line
- Protocols will include increased controls during times of high or extreme fire danger
- Ecological considerations in relation to fire frequency will be incorporated into the development of this plan and response procedures will be developed.
- Consultation will be undertaken with Queensland Fire and Rescue Services (QFRS)
- Adequate resources will be provided for fire fighting equipment
- Staff will be educated in relation to bushfire prevention, including management of cigarettes and other sources of ignition (such as welding) during project inductions
- Staff will be trained in procedures for hot work activities (such as welding) and any other activities with high risk of starting fires

Construction

- Vegetation will be cleared in all working areas

- Fire breaks will be established and maintained around areas identified as being potential sources of bushfire risk
- Bushfire response will be included in the site emergency management plan and fire fighting capability will be maintained at the construction site
- Smoking will only be allowed in designated smoking areas and bins will be provided
- Clearing of the construction footprint immediately adjacent to the work front will be considered to reduce fire risk associated with hot work activities such as welding. Hot Work activities will be undertaken in open, cleared areas in areas of lower fire risk and with adequate fire prevention controls in place.
- Workfronts will be provided with adequate fire fighting equipment (water cart) and training

Operation

- Fire breaks will be established and adequately maintained adjacent to the rail line

13.5.7.4 Monitoring

- The condition of the fire break will be regularly inspected
- Fire fighting capabilities in terms of adequacy of equipment and trained staff will be regularly reviewed.
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Construction and Operation

- The bushfire risk will be monitored daily during the fire season by accessing the Bureau of Meteorology's (BOM's) outlook of the Fire Danger Ratings (FDR). The FDR and an associated action plan will be communicated to all staff every morning prior to works commencing and staff will be informed of any special procedures or restrictions in response to high or extreme FDRs.
- The project area will be surveyed visually for any signs of bushfire on a daily basis

13.5.7.5 Reporting

Construction and Operation

- In the event of a bushfire, emergency notifications will occur in accordance with the Emergency management Plan, including communication with QFRS and Queensland Police Services (QPS) on road closures
- Monthly reporting on incidents, near-misses and site inspections

Construction

- Any bushfires detected by project personnel in the project area will be reported to the construction manager and QFRS immediately
- Monthly reporting by the Construction Contractor to Adani on non-conformances (including complaints), incidents and site inspections

Operation

- Any bushfires detected by project personnel in the project area will be reported to the operations manager and QFRS immediately
- Monthly reporting by the Operation Manager to Adani on non-conformances (including complaints), incidents and site inspections

13.5.7.6 Corrective Actions

- Investigate and reprimand any non-compliances.
- Should bushfire threaten the construction sites and access roads, warnings will be provided to all staff and contractors
- If a bushfire is detected within the project area or in its surrounds, fire fighting procedures as outlined in the Emergency Management Plan will be implemented

13.5.8 Greenhouse Gas Emissions and Energy Management Plan

13.5.8.1 Management Objective

- Minimise greenhouse gas emissions, energy costs and energy consumption during construction and operation of the Project (Rail)

13.5.8.2 Performance Criteria

Construction and Operation

- Greenhouse gas (GHG) emissions and energy use is minimised

13.5.8.3 Implementation Strategies

Construction and Operation

- Development of a procurement strategy to identify equipment, plant and machinery, and other Project (Rail) resources that contribute to reduced GHG emissions

Construction

- Reuse of materials onsite will be considered, where possible, to reduce transport distances and heavy vehicle trips to any offsite disposal area

Operation

- The use of anti-idling engine management software to balance energy demand and fuel consumption will be considered for the operation of the locomotives
- The opportunity to use onsite renewables such as photovoltaic or biofuel powered generators will be investigated
- Greenhouse gas emissions and energy use will be reviewed regularly and opportunities to reduce will be investigated
- Energy efficiency measures will be continually investigated

13.5.8.4 Monitoring

Construction and Operation

- Greenhouse gas emissions and energy consumption will be measured and recorded in accordance with current legislative requirements
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Operation

- Regular energy audits and reviews of railway operations will be conducted to identify possible energy efficiency improvement opportunities

13.5.8.5 Reporting

Construction and Operation

- Fuel consumption, energy use and GHG emissions will form part of the reporting requirements to Adani senior management
- Greenhouse gas emissions and energy consumption will be reported to relevant authorities in accordance with current legislative requirements

13.5.8.6 Corrective Actions

- Increases in GHG emissions or a reduction of energy efficiency will be further investigated and measures implemented, where possible

13.5.9 Noise and Vibration Management Plan

13.5.9.1 Management Objective

- No adverse noise impacts on sensitive receptors attributable to the construction and operation of the Project (Rail)

13.5.9.2 Performance Criteria

Construction and Operation

- No complaints regarding excessive noise or vibration
- Any noise and vibration complaint is addressed within specified time frames

13.5.9.3 Implementation Strategies

Construction - Civil Works and Track Construction

- Locate mobile plant (e.g. compressors, generators), concrete batching plants and construction camps as far as practicable away from the nearest potential sensitive receptors
- Construction activities generating noise above ambient levels in the vicinity of the nearest noise sensitive places within 2 km of the Project (Rail) will, wherever possible and practicable, be confined to general work hours of 6:30 am – 6.30 pm

- Where it is necessary for such activities to be carried out outside standard day-time working hours, potentially impacted receptors will be notified at least one week in advance of the activities. The notification will include:
  - The schedule of construction and maintenance activities (the proposed times)
  - The reasons for construction and maintenance activities being carried out outside standard day-time working hours
  - Likely timeframes of construction and maintenance activities (the proposed dates)
  - Access routes for workers and equipment
  - Nature of construction and maintenance activities
- Due to the potential for sleep disturbance, impact pile driving will only be undertaken during the general building work hours listed above
- Principal noise sources (e.g. exhausts) will be directed away from noise-sensitive places as far as possible
- Equipment utilised will be maintained and operated as per manufacturers' specifications
- The use of audible warning devices will be used within operational health and safety constraints
- Co-ordination of loading/unloading of material activities will be within standard day-time working hours wherever practicably possible
- Once the exact location of blasting is known the distance to any potential receptors will be used for the charge mass estimate. Blast monitoring will be undertaken to assess compliance, determine the site constants and confirm the predictions. The blast design will ensure that the airblast overpressure and ground vibration limits are met at sensitive receptors.
- Blasting will be undertaken only during standard day-time work hours

Operation - Train Movement

- Appropriate use of other audible warning devices will be included within driver training
- Equipment will be maintained regularly to facilitate operation within acceptable sound and vibration limits set out in EPP (Noise)
- Unnecessary revving and idling of engines will be avoided
- Review further noise modelling as the Project (Rail) design progresses and develop additional controls as appropriate. Although control measures would not be expected to be required, such measures may include installation of noise barriers and construction of embankments to deflect noise.

13.5.9.4 Monitoring

Construction and Operation

- All noise complaints will be recorded, acknowledged, considered and responded to as soon as is practicable
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Construction

- Pre-construction building and infrastructure surveys will be conducted on properties potentially susceptible to vibration damage from construction of the railway
- Where there are structures in close proximity to the construction activities, vibration levels will be monitored to prevent sustained vibration levels causing unacceptable loading
- Airblast overpressure monitoring will be conducted during the initial blasts to assist with the optimisation of the blast parameters and confirmation of predictions

Operation

- A noise monitoring program will be developed and implemented to monitor potential operation rail noise in the vicinity of the Project (Rail) in the event of a complaint being received

13.5.9.5 Reporting

Construction

- Monthly reporting by the Construction Contractor to Adani on non-conformances (including complaints), incidents and site inspections

Operation

- Monthly reporting by the Operation Manager to Adani on non-conformances (including complaints), incidents and site inspections

13.5.9.6 Corrective Actions

Construction and Operation

- Noise complaints will be managed in accordance with the complaints management procedure (see Section 13.3.11)

Construction

- Based on the results of the airblast overpressure monitoring, maximum instantaneous charge (MIC) and stemming height together with other blast parameters will be modified to achieve the airblast criteria

Operation

- If complaint-related monitoring data indicate excessive noise, further appropriate control measures will be developed as appropriate

13.5.10 Traffic Management Plan

13.5.10.1 Management Objective

- Minimise traffic impacts during the operational and construction stages of the Project (Rail), including:
  - Use of identified road segments on the road network for access by heavy vehicles for the delivery of plant and material
  - Disruption to traffic due to road/lane closures brought about by construction activities at road crossings

– Increase in travel time to existing road users due to road works and increase in heavy vehicle movement

13.5.10.2 Performance Criteria

- No significant delays of traffic due to construction or operational activities of the Project (Rail) beyond those predicted

13.5.10.3 Implementation Strategies

Construction

- A construction Traffic Management Plan (TMP) will be developed prior to construction commencing. The TMP will include following mitigation measures:
  - A community information awareness program will be implemented for the construction phase of the Project (Rail). This program will be initiated prior to construction commencing and throughout the entire construction period to ensure that local residents are aware of the construction activities, with particular regard to construction traffic issues. The awareness program will identify communication protocols for community feedback on issues relating to construction vehicle driver behaviour and construction-related matters.
  - The Department of Transport and Main Roads (DTMR), Isaac Regional Council (IRC) and the Queensland Police service will be consulted with regards to identifying mitigation measures to address increases in traffic levels of over five per cent on Gregory Developmental Road and Kilcummin Diamond Downs Road during the construction period
  - DTMR and IRC will be consulted with regards to ensuring that general signposting of construction access roads are appropriate and provide adequate warning of heavy vehicle and construction activity
  - Signposted and non-signposted speed restrictions will be reviewed along the road network and where necessary, additional signposting of speed limitations will be provided
  - Construction activity warning notices will be distributed to advise local road users of scheduled construction activities
  - Advance notice of road/lane closures and advice on alternative routes will be provided
  - Appropriate traffic control and warning signs will be provided for areas identified to have existing potential safety risks
  - The transportation of construction materials will be managed to maximise vehicle loads and minimise vehicle movements
  - Whenever practical, the use of internal and haulage access roads will be promoted rather than public roads by construction vehicles
  - Project induction training will be provided to truck and vehicle operators
- Mitigation measures for potential impacts of the construction traffic on public transport operations will also be addressed as part of the construction TMP
- Buses will be used to move construction workers from the airport to the temporary construction camps wherever possible
- Safety induction to staff and contract workers will include awareness regarding traffic rules
- Drivers will be trained in safe driving of the vehicle and fatigue management strategies

Operation

- Train speeds at 'at grade' crossings will restricted based on the outputs of risk assessments
- Installation of signage and controls (as appropriate) at all crossings
- Consult with IRC, DTMR and landholders in regard to stock holding yards to manage and regulate movement of stock across the Project (Rail)

13.5.10.4 Monitoring

Construction and Operation

- All traffic related incidents will be recorded and managed in accordance with the incident management system developed for the Project (Rail) (see Section 13.3.10)
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Construction

- A traffic monitoring program will be developed and implemented as part of the construction TMP

13.5.10.5 Reporting

Construction and Operation

- All traffic related incidents will be reported in accordance with the incident management system
- Emergency services will be notified in case of any accidents
- Traffic monitoring results and traffic statistics will be reported to Adani in monthly reports

Construction

- Monthly reporting by the Construction Contractor to Adani on non-conformances, incidents (including vehicle accidents) and near-misses

Operation

- Monthly reporting by the Operation Manager to Adani on non-conformances, incidents (including vehicle accidents) and near-misses

13.5.10.6 Corrective Actions

Construction and Operation

- If traffic monitoring indicates significant increases in traffic, mitigation measures will be implemented such as rescheduling site or transport activities or community notices
- Incident investigations may identify the need for additional corrective actions

13.5.11 Waste and Resources Management Plan

13.5.11.1 Management Objective

- Manage all wastes generated by the Project (Rail) in accordance with following waste management hierarchy:
  - Waste avoidance

- Re-use
- Recycling
- Energy recovery
- Treatment
- Disposal

13.5.11.2 Performance Criteria

- All waste is disposed of so as to minimise impacts to the environment
- Waste disposal to landfill is kept at a minimum
- No littering as a result of the Project (Rail)

13.5.11.3 Implementation Strategies

Construction and Operation

- A project procurement plan will be developed and outline requirements to avoid the purchase of excess materials which may be wasted
- Dedicated waste storage areas will be established at all construction and operation sites. Waste storage areas will include areas for segregation of wastes and secure, contained storages for hazardous and putrescible wastes. Waste storage areas will be clearly signed and located so as to be at low risk of interaction with vehicles and equipment.
- As soon as waste receptacles are full, these will be removed and empty receptacles provided
- All rubbish and other refuse that may potentially attract pest animals (i.e. food scraps) will be separated and stored in allocated waste containers with lids. The waste collected by a licensed contractor regularly for disposal at a licensed facility
- Non-recyclables will be taken offsite for disposal by a licensed contractor for disposal at a licensed facility
- All waste suitable for recycling will be stored in a dedicated area for periodic collection by a licensed contractor
- Any transfers of waste will take place in accordance with legislated docket tracking systems that ensure waste reaches the appropriate destination. Only licensed contractors and drivers will be utilised. Any transporters will be expected to meet legislative requirements for spill control and be equipped with emergency equipment.
- Induction training will include waste management, such as waste disposal and segregation practices
- Materials will be reused or recycled where possible. This may include:
  - Timber will be reused on site where possible, or recycled on or offsite
  - Concrete sleepers will be crushed and recycled
  - Ballast will be removed and cleaned off site for reuse. Any ballast not reused will be sent for recycling.
  - Waste concrete will be crushed and recycled where possible
  - Suitable steel off cuts or scrap metal will be recycled

  - Cabling will be recycled
  - Recyclable packaging material
- Vehicle and machinery components will be purchased in bulk and/or with minimal packaging to reduce packaging waste
- Sewage will be treated on-site with a package sewage treatment plant. Grey water will be treated on-site prior and irrigated. Site specific wastewater management plans will be developed and implemented to ensure compliance with effluent treatment and discharges requirements.
- Surface water runoff of sediment-laden water will be managed in accordance with the Erosion and Sediment Control Management Plan (see Section 13.5.2)
- Waste containing hazardous substances, including lead acid batteries and waste oils, are managed in accordance with the Hazardous Substances Management Plan (Section 13.5.12)

Construction

- Recycling bins will be provided around the construction camps. Recyclable materials such as glass, aluminium, plastic and paper will then be taken offsite for recycling
- Where practicable, tyres will be repaired and reused; otherwise tyres will be stored in a designated area free of flammable material awaiting disposal
- Where practicable, engine air filters will be recycled off-site by a local contractor, or otherwise disposed of at a local waste disposal facility
- Generation of spoil will be minimised where possible and reused as backfill or to widen embankments
- Spoil that cannot be reused onsite will be moved to an approved landfill site. Spoil will be tested in accordance with the relevant legislation prior to disposal and stockpiled within the project area
- Cleared vegetation that is weed free will be mulched, chipped and stockpiled for rehabilitation and revegetation works on-site
- Vegetation that cannot be reused will be transported to a processing facility for chipping, mulching or composting

Operation

- Procurement processes for administrative and office facilities will be managed to reduce excess or inappropriate office materials. Internal practices will include recycling office stationary, cartridges and computer waste.
- Use of electronic documents, double sided printing and reuse of non-confidential printed material will be encouraged to minimise waste paper
- Recycling bins will be provided around site offices. Recyclable materials such as glass, aluminium, plastic and paper will be taken off site for recycling at regional recycling facilities
- Waste computer equipment including monitors, keyboards and printer cartridges will be stored within office areas for collection by a licensed contractor for recycling

13.5.11.4 Monitoring

- All waste storage areas will be regularly inspected for condition of storage area, containment and appropriateness of storage (e.g. waste segregation)
- The Site Waste Register will be regularly reviewed to identify general volume trends and waste reduction opportunities
- Untreated sewage tanks and pipes will be monitored regularly for leaks
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12**.** The construction sites will be inspected regularly for littering

13.5.11.5 Reporting

Construction and Operation

- Annual reporting of Project (Rail) waste emissions to land, air and water will be conducted in accordance with the National Pollutant Inventory Guide (DSEWPaC 2011) managed by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC).
- Adani and their contractors will meet all reporting requirements for trackable waste to the Deparment of Environment and Heritage Protection (DEHP)

Construction

- All contractors will be required to regularly report to Adani on waste management, including quantities/volumes of waste to landfill, recycled and regulated waste
- Monthly reporting by the Construction Contractor to Adani on non-conformances, incidents and site inspections

Operation

- Monthly reporting by the Operation Manager to Adani on non-conformances, incidents and site inspections

13.5.11.6 Corrective Actions

- Any inappropriately stored substances will be removed immediately and moved to proper storage areas. All staff and contractors will be reminded of their obligations with regards to waste management.
- Any litter will be removed immediately and disposed of appropriately
- If waste management practices, including littering, are identified as not adequate, Adani will investigate options to improve the performance. This may include awareness training, provision of additional storage containers, and better labelling.

13.5.12 Hazardous Substances Management Plan

13.5.12.1 Management Objective

- Prevent release of contaminants into soil, groundwater or surface water as a result of construction and operation activities

13.5.12.2 Performance Criteria

- No incident resulting from inappropriate storage and handling of hazardous substances, including no release of hazardous substances to land, water or air

13.5.12.3 Implementation Strategies

Construction and Operation

- Standard operating procedures for storing, handling, refuelling and using fuels, oils and other chemicals will be developed and all staff will be trained accordingly

Transport

- Dangerous goods and hazardous substances will be transported in accordance with the Australian Code for Transport of Dangerous Goods by Road and Rails (ADG)
- Drivers will be trained in safe driving of the vehicle and fatigue management strategies

Storage

- Laydown areas for vehicles and machinery and storage areas for chemicals, oils and fuels will be contained in appropriately designed facilities
- Chemicals, oils, fluids and other hazardous substances will be stored in accordance with the specifications of the material safety data sheet (MSDS), as appropriate. MSDS will be available at appropriate locations where these substances are stored or used.
- Laydown and storage areas will not be placed in the vicinity of creeks or rivers or close-by to sensitive receptors (i.e. groundwater bores) or near trafficked areas
- Chemical storage areas will be suitably bunded and constructed to minimise the potential for leaks
- Diesel will be stored in above ground tanks and day tank storage systems
- Design and construction of fuel storage tanks will comply with *AS 1692-2006 Steel tanks for flammable and combustible liquids*. These tanks will be installed on impervious surfaces and fully bunded. There will be no pipes through the bunds and valves at the outlet pipe from the bund will be locked in a closed position.
- The storage of diesel will comply with the requirements of *AS 1940 The Storage and Handling of Flammable and Combustible Liquids*
- Build-up of electrostatic charges will be prevented by bonding and grounding
- Fire fighting and spill response systems will be provided. On-site emergency response teams will be trained to undertake the necessary actions to address fire and other incidents that may arise with areas used for storage of diesel.
- Oils will be stored in above ground tanks and will be fully bunded

- Acetylene bottles will not be stored near sources of ignition, oxidising agents, poisons, flammable liquids or combustible materials. Emergency response procedures will be developed and implemented for leaks from cylinders.
- Aluminium sulfate will be transported in bulk containers and stored in a dry well-ventilated bunded area and away from alkalis and most metals
- Sodium hypochlorite will be transported in bulk containers by road and stored in a secured, bunded, cool, dry, well-ventilated area and away from incompatible materials
- All tanks will be maintained regularly to ensure safe and effective operation
- Only minimum required quantities of hazardous substances will be stored at the sites

Handling/Transfer

- A spill response plan will be prepared and incorporated into an incident response plan, including requirements for spills to be reported, contained and cleaned
- All spills will be cleaned-up as soon as safe, weather and access permitting
- Spill kits will be available and accessible to assist with spill management and clean up
- Any contaminated soil and clean-up materials will be collected and placed in a labelled container for disposal off-site through by licensed contractor
- First aid, spill response and fire fighting equipment will be available with each fuel truck and drivers will be trained in spill response
- Portable petroleum-product fuel containers will comply with the requirements under *AS/NZS 2901:2001 Fuel containers - Portable - Plastic and metal*.
- Mobile fuel trucks of 12,000 L capacity will be used to refuel equipment that is operating on the site. These trucks will be fitted with automatic shut off valves and will comply with requirements of the Australian Dangerous Goods Code (ADG) Code.
- Activities involving oils will be undertaken on a hard stand area, and drip trays will be provided during transfer operations. Controls and management procedures will adopted for servicing of machinery
- All tank transfer operations will be on impervious surfaces with a spill collection system
- Refuelling tanks will be provided at the maintenance area. These storages will be placed above ground and will comply with the requirements of *AS 1940 The Storage and Handling of Flammable and Combustible Liquids*. Dedicated refuelling areas will be constructed adjacent to the refuelling tanks with impervious surfaces and containment using rollover bunds with a drainage sump in one corner.
- Refuelling will only occur at designated sites away from watercourse and sensitive receptors. Booms and spill kits will be on-site at refuelling facilities. All machinery will have its own designated spill kit
- Spillages will be prevented from entering drains or water courses and absorbent material will be placed on spillages which will be collected for disposal and any contaminated soil removed for treatment and disposal.
- Dosing of aluminium sulfate at the water treatment plant will be automated to minimise risk of human contact and accidental release

- Dosing of sodium hypochlorite at the water and wastewater treatment plants will be automated to minimise risk of human contact and accidental release
- Machinery and equipment will be maintained in accordance with manufacturer requirements and regularly maintained to minimise breakdown and decrease risk of contamination

Hazardous Waste

- Wastewater will be managed in accordance with the Waste and Resources Management Plan (Section 13.5.11)
- Waste products such as oil and water separator waste, sludges and residues will be contained within impermeable, sealed and bunded areas
- Lead acid vehicle batteries will be stored on-site in a designated area within weatherproof battery storage containers. Other dry or gel cell batteries will be stored in dedicated containers within a battery storage area for collection and recycling or disposal by a licensed contractor.
- Engine oil or fuel filters will be crushed and evacuated of oil. Filters will be stored in clearly labelled bunded filter ponds for collection and recycling by a licensed contractor
- Hydrocarbon wastes such as waste oils, fuels, lubricants and hydraulic fluids generated from the maintenance of light vehicles, plant and equipment will be stored in approved containers and conditions onsite prior to removal offsite for treatment and disposal by a licensed waste management contractor at a licensed waste management facility. Those substances listed in the Schedule 1 of the *Waste Reduction and Recycling Regulations 2011* will be disposed of in accordance with regulatory requirements.
- Oily water generated at interceptors or in the event of a spill involving oil or diesel will be treated to separate oil from water. The separated water will be directed for evaporation or reused on-site for dust suppression. Spilled oil will be removed by a licensed vacuum truck contractor and disposed of at a licensed facility. Oil drums will be drained of all remaining product and stored on-site within a bunded facility for collection by a licensed contractor and recycler.
- Decanted hydrocarbons from interceptors will be stored in sealed tanks and will be removed by a licensed vacuum truck contractor and disposed of at a licensed facility. Other waste oils and liquids, including water/sludge mixtures from interceptor pits and grease traps, surplus solvents and surplus sealants, will be stored in designated containers within a dedicated bunded area for collection by a licensed contractor and recycled off-site in accordance with MSDS regulatory requirements.
- Other miscellaneous oil/hydrocarbon wastes will be stored in designated bins for collection by a licensed contractor for energy recovery and/or disposal. Coolants will be stored in a separate tank for collection and reconditioning by suppliers.

Operation

- Only low residue, biodegradable pesticides such as glyphosate will be used
- Pesticides will be used by licensed operators

13.5.12.4 Monitoring

Construction and Operation

- Inspections of the project area will be conducted regularly for signs of soil contamination (e.g. staining, odour)
- Storage areas will be regularly inspected to assess condition and appropriateness of storage
- All bunded areas will be inspected regularly and each time before and after a rain event to assess capacity of bunds
- The condition of spill kits will be regularly inspected
- All vehicles, plant and machinery will be routinely inspected and maintained to ensure they are not at risk or leaking or spilling contaminants
- Environmental inspections, monitoring and audits will be undertaken in accordance with procedures outlined in Section 13.3.12

Operation

- Inspections of the rail corridor for coal spillages and soil contamination (e.g. Staining, odour) will be conducted regularly

13.5.12.5 Reporting

Construction

- All contract and Adani personnel to report all spills to Environmental Officers and/or Supervisors
- Monthly reporting by the Construction Contractor to Adani on non-conformances, incidents and site inspections

Operation

- All personnel to report all spills to Environmental Officers and/or Supervisors
- Monthly reporting by the Operation Manager to Adani on non-conformances, incidents and site inspections

13.5.12.6 Corrective Actions

Construction and Operation

- Any inappropriately stored substances will be removed immediately and moved to an appropriate storage area
- If spillages occur during transfer operations, the activity will be ceased immediately and the affected area will be clean-up as soon as it is safe to do so
- Storage and refuelling areas will be repaired as required
- Bunds or other containment areas will be cleaned of debris and liquids found inside
- The contents of spill kits will be replaced if found missing or damaged
- Any water found inside a bunded area will be assessed visually prior to release to stormwater. Hydrocarbon contaminated water (as identified by oily sheen, odour or other evidence) will be

retained in bunds and will be managed in accordance with the Waste and Resources Management Plan (Section 13.5.11).

Operation

- Any major spills of coal adjacent to the rail line will be cleaned-up in accordance with the incident response procedures

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