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Supporting Information for Construction Environmentally Relevant Activities: 11(a), 15(b), 19(b), 22(c), 28 and 62 Application
Jilalan Rail Yard Upgrade Project
Queensland Rail

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1. Introduction

QR Limited (QR) are proposing to upgrade and expand the existing facilities at the Jilalan Rail Yard, which will include a larger rail holding yard, additional provisioning facilities and an additional maintenance workshop together with bypass lines to allow through traffic to pass without entering the servicing facility, which currently occurs. The project, known as the Jilalan Rail Yard Upgrade Project (JRYUP), is located 3 km south east of Sarina and 35 km south of Mackay (refer Appendix A).

The Project is being carried out by Coal Stream Alliance (CSA), which is an alliance formed by QR consisting of QR, Macmahon Holdings Limited, MVM Rail, Connell Wagner, Hatch and Parsons Brinckerhoff.

The Jilalan Rail Yards were commissioned in 1971 for smaller head end power trains and have progressively been expanded to meet the increasing demands of coal exports. It is utilised by QR for maintaining and servicing coal trains operating on the Goonyella Rail System (refer Figure 1.1), which facilitates the transportation of coal to export terminal facilities at the Port of Hay Point.

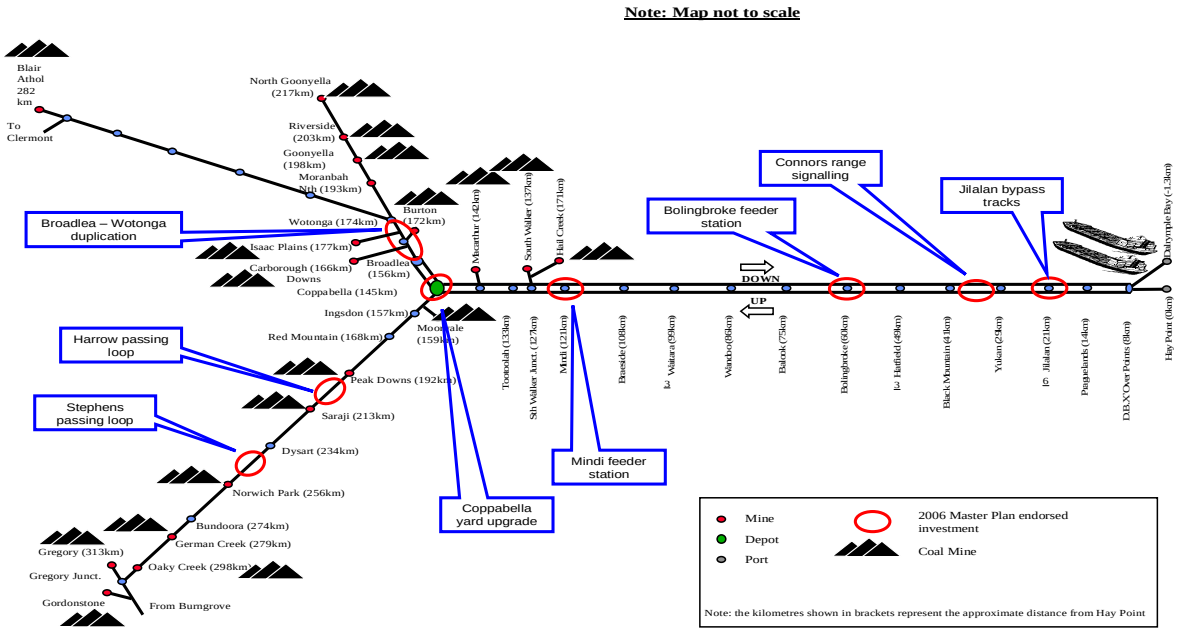

Figure 1.1 Overview of the Goonyella System

To meet the demands of current and future industry growth within the coal market, the Goonyella Rail System will require significant infrastructure developments. The upgrade at the Jilalan Rail Yard is proposed so that the Goonyella Rail System has the ability to cater for the increased number of trains expected to be operating in this system.

In May 2007, the JRYUP was declared a "significant project" under Section 26 of the *State Development and Public Works Organisation Act 1971* by the Queensland Coordinator-General.

As a result of the declaration, an EIS was required to assess the potential construction and operational impacts of the Project. The EIS report identifies the need to obtain other development approvals as required under State legislation prior to commencing construction.

The following information has been developed to support an application for development approval under the *Intergrated Planning Act 1999* for Environmentally Relevent Activities (ERAs) 11(a),19(b), 22(c), 28 and 62. The supporting information for ERA 15(b) is included as Appendix B. These ERAs relate specifically to the construction phase of the Project.

The purpose of the following information and the supporting information contained in the appendices is to describe the project, the receiving environment and the ERAs in terms of process details, associated waste and discharges, potential risks and management strategies.

2. Site description

2.1 Existing location

The existing Jilalan Rail Yard is located 3 km south east of Sarina, which is approximately 35 km south of Mackay on the central Queensland coast. The yard is approximately 20 km south of the Port of Hay Point and primarily centred within an area of cane production and dry land grazing (refer Appendix A).

The dominant land uses within the broader study area are agriculture (sugar and dry land grazing), forestry and fishing. The CSR Ethanol Distillery, Oonooie Facility is located within close proximity to the Project, which ferments molasses and grain to produce ethanol. It also produces fertiliser from waste generated by the Plane Creek Sugar Mill at Sarina. It is understood that cattle are also farmed on the property to the west of the rail, south of Oonooie Road. Figure 2.1 illustrates the existing land uses within and adjacent to the project area.

The Bruce Highway, a state controlled road and is located approximately 1 km west of the existing Goonyella Branch Line. The following roads are adjacent to and generally parallel to the site:

- Smyths Road
- Gurnetts Road

The following local roads cross the site:

- Smyths Road (level crossing)
- Armstrong Beach Road (bridge overpass)
- Oonooie Road (level crossing)

2.2 Sarina Shire Council Planning Scheme Zoning Map (May 2005)

The JRYUP traverses land under the jurisdiction of Sarina Shire Council (SSC). The *Sarina Shire Planning Scheme* is an IP Act-compliant planning scheme that commenced on 6 May 2005. The current planning scheme zoning is included as Appendix C.

2.3 Location of proposed works

The expansion of the Jilalan Rail Yard will generally be to the north, south and east of the existing yard and railway. A rail turning angle and Oonooie Road realignment works are the major exceptions, located on the western side of the existing rail line.

Construction is scheduled to commence in March 2008.

The lot and plan number are included as Table 2.1.

Table 2.1 Lot/plan details for ERAs 11(a), 15(b), 19(b), 28 and 62

ERA	Lot/Plan
11(a) - petroleum storage 60KL 28 - motor vehicle workshop	6 RP746880
15(b) - Sewage Treatment Plant (pumping station, wastewater treatment plant, effluent storage pond and effluent irrigation area) (refer Appendix B for further information on ERA 15(b) location)	1RP726644, road reserve, 4SP168447, 8 RP 741153, 6 RP746880
62 - concrete batching	6 RP74880 8 RP741153

ERA	Lot/Plan
19(b) - dredging material	8 RP741153 10 RP741154

ERA 22(c) involves a mobile screening and crushing plant. It is likely that this plant may change locations during construction. Therefore, all land parcels within the project area may be a potential location for ERA 22(c).

Appendix D shows the location of ERAs: 11(a), 19(a), 28 and 62.

The following sensitive areas are situated within approximately 1.25 km of the project's boundary:

- Watercourses – Elizabeth Creek, Freddy Creek, Plane Creek and Willy Creek
- Artificial wetland west of Goonyella Branch Line
- *Cycas* sp north of Elizabeth Creek adjacent to Gurnetts Road
- Llewellyn Bay catchment salt flats east of project area
- Sarina Golf Course
- CSR Ethanol Distillery, Oonooie Facility
- Private residential properties

The following sensitive areas are located within 500 m of the existing Jilalan Rail Yard and supporting works, these sensitive areas are the closest to the proposed construction ERAs:

- Water courses – Elizabeth Creek and Willy Creek
- Artificial wetland west of Goonyella Branch Line
- *Cycas* sp north of Elizabeth Creek adjacent to Gurnetts Road
- Private residential properties
- Sarina Golf Course

3. Proposed development and ERAs

3.1 Site improvements

The following site improvements are proposed to be carried out:

- An office complex would be constructed with a covered footpath between and surrounding the buildings.
- A bunded concreted parking space would be constructed for the purpose of the service vehicle when not in use.
- Wash down area would be concreted and would act as a bund if diesel spill is to occur (emergency spill kits and procedures would be in place for such events).
- Gardens would be planted surrounding the site office buildings to reduce the potential for erosion and sediment loss across the compound.
- The carpark area would be covered with a layer of gravel to minimise the potential for erosion during rain and high wind events.

3.2 ERA 11(a) – crude oil or petroleum product storage

The proposed installation of the fuel farm (ie temporary fuel storage tanks) and additional storage of petroleum products would serve as the main diesel supply for the plant and machinery used onsite during construction. The storage would be in the existing yard which would be accessible 24 hours per day, 7 days a week. The petroleum product and chemical storage areas would be located more than 30 m away from natural drainage lines and more than 100 m from surface waters. The proposed activity of petroleum products storage would occur for the duration of the construction phase, which is approximately 20 months commencing from March 2008 (refer Appendix D for the proposed location of the workshop during construction).

3.3 ERA 19(b) – dredging material

As part of the project, two new bypass lines have been proposed around the existing rail yard, and in addition, a proposed new wagon maintenance yard, with allowance for a future third bypass track. The provisioning lines will run generally parallel to the bypass lines.

The proposed bypass/provisioning lines will cross two major creek systems, Willy and Elizabeth Creeks. A permanent culvert structure is proposed for Elizabeth Creek to facilitate the Wagon Maintenance Lines, the Bypass and Provisioning Lines. This would consist of two 1,800 mm diameter (DN) reinforced concrete pipes that run parallel along the alignment of the existing creek invert. A permanent bridge structure would be used for Willy Creek to facilitate the Wagon Maintenance Lines, the Bypass and Provisioning Lines.

During high flow events, Elizabeth Creek currently floods south towards Willy Creek. To protect the proposed infrastructure and surrounding embankments, Elizabeth Creek flows unable to pass through the two 1800 mm diameter (DN) concrete pipes would be permanently diverted into Willy Creek. A high flow bypass channel would be constructed between Elizabeth and Willy Creeks to achieve the permanent diversion.

Wherever practical to do so, construction crossings would be integrated into permanent crossings. However, it would be necessary during construction to install temporary culverts to allow movement of plant within the project's area. Development approval to raise a waterway barrier under the *Intergrated Planning Act 1999* would be obtained prior to installation of the temporary culverts.

The proposed dredging activities occurring as part of the project would involve the removal of material, including a build up of sediment, from the beds of Willy and Elizabeth Creeks to allow the formation of culverts, bridge structures and the high flow bypass channel.

The principal construction activities are proposed to commence immediately following the wet season in March 2008. Subject to approval, the activity is expected to operate 24 hour per day, 7 days a week. The proposed dredging activity would only occur over a short duration during construction to facilitate the formation for culverts and bridge structures in Willy and Elizabeth Creeks (refer Appendix D for the proposed location of dredging activities during construction).

3.4 ERA 22(c) – screening and crushing materials

The proposed intention is to screen materials and utilise the rock removed to form and construct the rail yard upgrade. The material to be crushed and screened would be used exclusively on site as part of the cut and fill operations. The material would not be removed from the construction area, nor would it be sold on for commercial gain. Generally, the activity would be located within 400 m of the proposed workshop and within close proximity to the mobile concrete batching plant. It is proposed that the screening and crushing plant would have mobile capability. Therefore, all land parcels within the project area may be a potential location for ERA 22(c). Subject to approval, the activity is expected to operate 24 hour per day, 7 days a week. The proposed activity of screening and crushing materials would occur intermittently throughout the construction phase (refer Appendix D for the proposed location of screening and crushing activities during construction).

3.5 ERA 28 – motor vehicle workshop

A temporary motor vehicle workshop is proposed for the scheduled servicing and maintenance of construction vehicles and heavy construction plant and machinery, including 50 t dump trucks, road graders, 15 to 100 t excavators, rollers, loaders and 4WD vehicles.

The proposed workshop and associated bunding would not be permanent structures. The workshop would consist of shipping containers connected via an arch roofing system. The fuel farms and waste oil storage would be located in close proximity to the workshop. The workshop would store minor quantities of consumables like: WD40 (or equivalent), sealants, silicon, liquid nitrogen, degreaser, air conditioning gas. The workshop is proposed to operate 24 hours per day, 7 days a week. Workshop activities are expected to occur throughout the duration of the construction phase (refer Appendix D for the proposed location of the workshop during construction).

3.6 ERA 62 – concrete batching

The proposed batching of concrete would be used to supply concrete for project structures typically including slabs, footings and bridge decks. The concrete batching plant's location has been selected to reduce the distance required to transport the cement within the project's area. Cement would be moved throughout the project using standard road going agitator trucks. The plant would be mobile and is intended to operate 24 hours per day, 7 days a week. The proposed mobile concrete batching plant may operate intermittently (when required) throughout the construction phase (refer Appendix D for the proposed location of the mobile concrete batching plant during construction).

4. Details of construction ERAs

4.1 ERA 11(a) – details for storage of petroleum products

Petroleum products would be stored in 3 x 60,000 L above ground storage tanks, contained in separate fully self-bunded systems located along the eastern boundary of the existing rail yard. The tanks would be installed over concrete aprons with wastewater collection mechanisms to prevent soil contamination during decanting. Wastewater would be collected and disposed of by a liquid waste contractor.

The tanks would be in the existing yard which would be accessible 24 hours per day, 7 days a week. Refuelling would predominately occur at night to maximise plant productivity.

The location of the proposed fuel farms is detailed in Table 2.1. The fuel farms would be similar to the tanks illustrated in Photo 4.1.

Photo 4.1 Tanks similar to what would be used onsite

The specifications of the above ground storage tank (AGST) include the following:

- TRANSTANK Pty Ltd (or equivalent) – Class 1 and 2
- Built to AS 1692
- Only to be transported empty and in accordance with the ADG Code
- Not to be used for products with a flash point with the ADG Code
- To be installed on a flat, level surface in accordance with AS 1940
- Capacity – 60,000 L
- No discharge nozzle for light vehicle refuelling would be available

The AGSTs would be protected from vehicle impact through placement of barriers.

All oil drums would be located immediately adjacent to the eastern workshop wall. They would include: 5 x 200 L drums of oil; 3 x 400 L pods of oil and storage of approximately 1,200 L of waste oil in 4 x 300 L plastic tanks. This area would be bunded and have a roll-over section for forklift access. This area would be roofed and would also be fitted with a sump pump to facilitate recovery of spills. Wastewater would be collected and disposed by a licensed waste contractor.

It is proposed that 7,000 L of diesel and up to 600 L of oil would be stored on a service truck. The service truck would be stored in a fully bunded carpark located to the eastern side of the workshop. This carpark would serve as a wash down facility and would have a concrete apron as well as concrete bunding, with roll-over access for the service truck. There would be a sump for the recovery of spills and wastewater. Wastewater would be collected and disposed by a licensed contractor.

4.2 ERA 19(b) – details for operation of dredging activity

The proposed dredging activity would be carried out to aid in the construction of culverts and bridge structures in Willy and Elizabeth Creeks. The areas where proposed dredging activities have been identified are included in Table 2.1 and illustrated in Appendix D. The dredging activities would include the removal of bed material from Elizabeth and Willy Creeks. The material to be dredged from the project area is not expected to exceed 100,000 t/yr. The sediment would be composed predominately of oversize cobbles and clays and fines. It is not expected that this area would include ASS, however, ASS management is addressed in the soil management plan included as Appendix E. This plan would be implemented if ASS were identified. Subject to approval, dredging is likely to occur over 24 hours per day, 7 days a week and would commence immediately following the wet season in March 2008.

The plant and machinery that would be utilised for the site preparation/dredging would include the following:

- Large and small dozers/earthmover
- Rear dump truck
- Excavator
- Loader
- Backhoe
- Tip truck

All plant and machinery would be routinely maintained by the operator/owner to ensure that it is environmentally and operationally sound.

4.2.1 Daily planned activities

The following are potential activities which may be carried out from day to day:

- Visual monitoring for plumes or excess runoff occurring to the downstream waters.
- Any spoil material and soil should be stockpiled away from natural drainage areas and covered so that dust or soil does not enter the aquatic environment.
- Minimise heavy machinery within fragile or erosion-prone areas.
- All sediment and erosion control devices would be regularly monitored and maintained.
- Stabilise disturbed areas of soil (where possible) as soon as practical, to minimise soil erosion and downstream sedimentation.
- Dust suppression measures would be implemented throughout the construction process to minimise dust deposition on waterways and wetland habitats within the project area.

4.2.2 Periodical planned activities

The following are potential activities which may be carried out periodically:

- Water quality monitoring and event-based monitoring of waters at the site and downstream to be undertaken during construction in accordance with the Construction Environmental Management Plan (CEMP) included as Appendix F. Water quality monitoring would help protect the existing water quality of the receiving and downstream waters.
- Implement mechanisms to slow and/or prevent overland runoff. Such mechanisms may include the planting of vegetation and/or the installation of artificial structures (ie geofabric and bunds).

4.2.3 Details of instream sediment, erosion control and spoil management

The following are potential activities which may be carried out to manage instream sediment, erosion and spoil associated with the dredging activities:

- Bulk earthworks, including subsequent extraction and filling activities, would be undertaken during the dry season (May-October) to minimise the impacts of adverse seasonal and climatic conditions (including flooding).
- The installation of temporary bunding or sediment traps would prevent excess sediment from entering the aquatic environment.
- Where a waterway has a continuous flow all year round, control measures may be implemented to reduce the impacts to downstream water quality, for example floatation curtains.
- The significant wetland (identified as Site K in the EIS) and adjacent vegetation are located within 1 km of the proposed dredging works and controls as outlined in the CEMP should minimise any potential impacts.
- Maximise the areas of vegetation within the project area. Wetland communities and riparian zones are natural buffer zones removing sediment and other pollutants.
- Stockpile materials and soils away from natural drainage areas.
- The outer banks of stream bends are often particularly unstable and prone to erosion, therefore access or disturbance to these areas should be minimised during construction works.
- Minimise heavy machinery within fragile or erosion-prone areas.
- Establish and implement a water quality monitoring programme within the vicinity of the affected creeks and their downstream environs.
- Specific controls in relation to dredging are identified in the CEMP included as Appendix F.

4.3 ERA 22(c) – details for operation of screening and crushing plant

The location(s) of the proposed screening and crushing plant have not been detailed in Table 2.1, as the plant would be mobile. The rock would be removed using an excavator fitted with a rock breaker. The rock would then be loaded into the screening plant with a front end loader, this would occur onsite at the location of works. Generally the material would be crushed through a primary jaw and secondary cone. It may then be mixed with water in a pug mill. The rock would be removed using semi and tandem road registered trucks. The rock would be crushed and screened to an aggregate of less than 50 mm in order to construct pavement and the outer verge. Depending on availability of machinery, the crushing and screening activities may be carried out using a combined machine or by two different machines.

The following outline the main details with respect to the amounts and type of rock to be screened and the plant to be used:

- Up to approximately 500,000 t of material may be crushed and screened during the project.
- The material to be screened is conglomerate.
- The design capacity of the plant to be used for the screening of materials is approximately 2,000 t/shift.
- Operational hours applied to this activity would be 24 hours a day, 7 days per week.

No stormwater drains would be affected as a result of the activity, and drainage upgrades would be occurring concurrently to the crushing and screening. All materials would be stored within the area until needed and appropriate controls would be implemented to minimise impacts to water and air quality.

4.4 ERA 28 – details for operation of a temporary motor vehicle workshop

The location of the proposed temporary motor vehicle workshop is detailed in Table 2.1 and illustrated in Appendix D. The motor vehicle workshop and service vehicle parking area would be used for the purpose of maintaining construction vehicles, plant and machinery during construction. Approximately three diesel fitters would be working in the workshop at any given time.

The planned activities expected to be carried out in association with the workshop operations are described below.

4.4.1 Daily planned activities

The proposed daily planned activities for the motor vehicle workshop include:

- All heavy plant would be fuelled and greased on a daily basis. Backhoes, excavators, graders and rollers etc would be refuelled on site.
- Major servicing of plant would take place approximately every 250 hrs; this generally includes the replacement of all filters (air, water, oil, hydraulic) and the replacement or topping up of fluids.
- Most plant repairs would take place at the workshop with the exclusion of major repairs. Items such as engine or transmission change-outs would normally occur at an off-site workshop.
- Fuel delivery would be by a fuel service truck.
- Fuel spill prevention involving the use of fast-fill connectors that seals off both male and female ends when disconnected would be incorporated.
- Mechanical checks of plant and equipment – the operator and/or mechanical tradesperson would undertake mechanical inspections of the equipment daily to check for oil leaks, damage, and other mechanical issues. The air filters may be cleaned and some washing down undertaken if the working conditions are dusty, wet, or causing seed or other organic matter to build up within engine bays and radiators.
- Repairs of minor defects may be undertaken in the field. Works would vary depending on the nature of the identified defect.
- The main fuel tanks would be located approximately within a 300 m radius of the proposed motor vehicle workshop included as Appendix D.

4.4.2 Periodical planned activities

Periodical planned activities for the motor vehicle workshop include:

- All diesel powered machinery has engine oil and hydraulic oil changes at approximately 250 engine hour intervals. It has been assumed that the equipment would be operating for approximately 35-45 hr/week. This work involves removing the oil from the machine and disposing into a waste oil compartment of the service truck, disposing oil filters to the contaminated waste bin on the service truck, and re-filtering the engine with new oil (where possible).
- Spill precautions include placing spill trays beneath the equipment to minimise the risk of spillage, and use of purpose built facilities to temporarily store and transport waste oils etc.
- Backhoes, excavators, graders and rollers would be serviced on site.
- Cutting edges, bucket teeth, ripper boots and other equipment require changing when they wear out. The works may include oxy acetylene cutting, electric welding, and mechanical installation works, and they would be generally changed at the work site.

4.4.3 Reactive mobile activities

The reactive mobile activities that could potentially be carried out in relation to plant and construction equipment would be undertaken via the site service vehicle. The activities that could be undertaken are as follows:

- Breakdown repairs – breakdowns may involve a wide range of unplanned mechanical or accidental damage.
- Burst hydraulic hoses – a relatively common event around construction equipment. Spill management procedures would be followed to clean up oil spillage. Equipment may usually be patched and moved clear of sensitive areas before stopping for final repair. It is important to note that preventative maintenance inspections would reduce unplanned hose failures.

- Mechanical component failure – often occurs in such a manner that immediately disables the equipment and forces repairs to be undertaken *in situ*. The CEMP audits will be to ascertain if sensitive areas are at risk, and if so, refer back to the protective measures to be implemented. It is important to note that planned maintenance activities would reduce the incidence of unplanned failures.
- Tyre failures – tyres should not wear to the point that they are at risk of failing in an unplanned manner, but tyres can sustain side-wall damage or penetrating damage from rocks and sticks. Again the equipment can usually be moved to a less sensitive area if necessary, unless the tyre failed quickly.

4.5 ERA 62 – details for operation of a mobile concrete batching plant

The proposed plant is expected to operate 24 hours per day with a design capacity of 30 m^3/hr. It would be a mobile unit that is mounted on a trailer and would take up the equivalent of three standard semi trailers.

Aggregate would be stored in stockpiles of around 300 m^3. Stockpiles of aggregates would be contained within a sediment control fence (enclosed within at least three sides at all times). Stockpile heights would be at least 0.5 m below the tops of the fence and at least 0.5 m inside the open ends of the enclosures. Dust generated from this activity would be controlled via watering and covers.

The proposed location of the plant is on the eastern side of the existing Jilalan Rail Yard, approximately 300 m from the proposed wagon workshop, as indicated in Appendix D.

The cement would be transported using standard road going agitator trucks of up 7 m^3 bowl capacity. Spill procedures are outlined in the spill response procedure included as Appendix G. Vehicles would be serviced offsite and where onsite refuelling is required this would be conducted at the fuel compound or by a mobile service vehicle as per ERA 11(a) and 28 permit requirements.

4.6 Process details

4.6.1 Emergency response procedure

A detailed Emergency Response Plan has been developed which also details routine operation and maintenance tasks as well as safety requirements (refer Appendix H). In the event of an emergency, the procedures outlined in this plan would be followed.

Spill kits would be kept onsite near the fuel farm, workshop and within the service vehicle in order to allow for an immediate response should a spill occur. Anyone who may be required to operate a spill kit must undergo training so they are competent in the event of a spill or release of contaminants. Storage and refuelling occurring on bunded pads at all times would also limit the potential for spills contaminating the environment.

Should a spill or release of contaminants occur, the EPA Pollution Hotline shall be notified on 1300 130 372 as soon as practicable after becoming aware of any incident that is not in accordance with conditions set by the administering authority (for all ERAs).

4.6.2 Material balances and MSDS

Due to the limited size of the potential ERAs (ie 11(a), 19(a), 22(c), 28 and 62) no specific material balances or process flow diagrams have been prepared. Material Safety Data Sheets (MSDS) would be provided once the specific petroleum product and/or chemical/s have been confirmed for use. All products would fit within relevant Australian Standards AS19:40 – 'Storage and Handling of Flammable and Combustible Liquids' and the *Fuel Quality Standards Act*, 2000 and storage facilities would comply with local government requirements as per the Sarina Shire Council's 'Storage of Flammable and Combustible Liquids Licence'.

5. Environmental impacts and mitigation measures

5.1 Noise and vibration

Construction noise levels would generally depend upon the number of plant items and equipment operating at any one time and at any number of locations relative to the receiver(s). A receiver would therefore experience a range of values representing “minimum” and “maximum” construction noise emissions.

Existing noise sources within the area are generated from the trains running along the Goonyella Rail System, the existing Jilalan Rail Yard and existing roads, including the Bruce Highway.

Noise mitigation strategies are outlined in a noise management sub-plan contained in the CEMP included as Appendix F. The sub-plan details specific noise and vibration controls, corrective actions and reporting requirements.

Noise characteristics associated with individual ERAs

ERA 11(a) Crude oil or petroleum product storage

It is not anticipated that the fuel farm and associated petroleum products storage would contribute to the noise levels expected to be carried out onsite as part of construction phase.

ERA 19(b) Dredging material

Noise generated from the dredging activities has the potential to impact on nearby residents and/or wildlife. Expected noise sources arising from the activity include, but are not necessarily limited to:

- Noise generated by earthmoving equipment or extractive machinery or vehicular movements occurring during dredging activities
- Repairs and maintenance to equipment (eg refuelling and repairs in situ)

Both potential noise and vibration impacts would be minimised through the implementation of control measures as outlined in the CEMP. Therefore, both noise and vibration generated from dredging activities are unlikely to significantly impact the receiving environment.

Noise and vibration mitigation strategies are outlined in a noise and vibration management sub-plan included in the CEMP (refer Appendix F). The sub-plan details specific noise and vibration controls, corrective actions and reporting requirements.

ERA 22(c) Screening and crushing materials

Noise generated from the screening and crushing activities has the potential to impact on nearby residents and/or wildlife. Expected noise sources arising from the operation include, but are not necessarily limited to:

- Noise generated by screening and crushing plant or vehicular movements occurring during screening and crushing activities
- Repairs and maintenance to equipment (eg refuelling and repairs in situ)

Both potential noise and vibration impacts would be minimised through the implementation of control measures as outlined in the CEMP. Therefore, both noise and vibration generated from screening and crushing activities are unlikely to significantly impact the receiving environment.

Noise and vibration mitigation strategies are outlined in a noise and vibration management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific noise and vibration controls, corrective actions and reporting requirements.

ERA 28 Motor vehicle workshop

Noise generated from the workshop activities has the potential to impact on nearby residents and/or wildlife. Expected noise sources arising from the operation of the motor vehicle workshop include, but are not necessarily limited to:

- Machinery and vehicle operation
- Vehicle exhaust noise
- Reverse alarm sound
- Repair and manipulation of equipment, including vehicle metal parts
- Hammering, compressors, lifting tools, cutting etc.

Both potential noise and vibration impacts would be minimised through the implementation of control measures as outlined in the CEMP. Therefore, both noise and vibration generated from the motor vehicle workshop activities are unlikely to significantly impact the receiving environment.

Noise and vibration mitigation strategies are outlined in a noise and vibration management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific noise and vibration controls, corrective actions and reporting requirements.

ERA 62 Concrete batching

Noise generated from the concrete batching activities has the potential to impact on nearby residents and/or wildlife. Expected noise sources arising from the operation include, but are not necessarily limited to:

- Loading and unloading procedures
- Machinery and vehicle operation
- Vehicle exhaust noise
- Concrete batching equipment

Both potential noise and vibration impacts would be minimised through the implementation of control measures as outlined in the CEMP. Therefore both noise and vibration generated from concrete batching are unlikely to significantly impact the receiving environment.

Noise and vibration mitigation strategies are outlined in a noise and vibration management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific noise and vibration controls, corrective actions and reporting requirements.

5.2 Air

The construction phase of the project has the potential to generate dust emissions. Vehicle exhaust emissions may also contribute to local air quality impacts. Air quality management strategies have been established in order to mitigate and manage the potential impacts of construction activities on the degradation of local air quality.

Activities which may lead to elevated levels of dust as a result of the construction during the project typically include, but are not limited to:

- Clearing of vegetation and topsoil
- The demolition of dwellings and/or buildings and the removal of construction material
- Excavation and transport of materials
- Loading and unloading of trucks
- Movement or queuing of construction vehicles
- Re-entrainment of deposited dust by vehicle movements
- Wind erosion of stockpiles and unsealed roads
- Concrete batching

- Screening and crushing activities
- Dredging activities

Air quality measures are outlined in an air quality management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific dust control measures, corrective actions and reporting requirements.

Air quality issues associated with individual ERAs

ERA 11(a) Crude oil or petroleum product storage

As the fuel storage facilities proposed to be used for this activity are fully enclosed storage tanks it is not anticipated that air quality would be impacted due to their installation and operation.

ERA 19(b) Dredging material

This activity is potentially a dust generating activity due to the removal of material from water courses within the project. Exhaust emissions from the plant may also slightly contribute to local air quality impacts.

However, it is unlikely that dust generated from dredging activities would significantly impact the local air quality and nearby receivers, given that emissions to atmosphere would be controlled through the CEMP.

Air quality management strategies are outlined in an air quality management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific air quality controls, corrective actions and reporting requirements.

ERA 22(c) Screening and crushing materials

This activity has the potential to generate dust. Exhaust emissions from the plant may slightly contribute to the local air quality impacts.

It is unlikely that dust generated from screening and crushing activities would significantly impact the local air quality and nearby receivers, given that dust emissions would be controlled through the CEMP.

Air quality management strategies are outlined in an air quality management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific air quality controls, corrective actions and reporting requirements.

ERA 28 Motor vehicle workshop

Potential air quality issues associated with the proposed workshop include vehicle exhaust emissions and dust generated from vehicle movement to and from the workshop area. However, the position and location of the workshop has been selected to reduce potential impacts on local air quality and nearby receivers.

It is unlikely that dust and vehicle exhaust emissions generated from the workshop activities would significantly impact the local air quality and nearby receivers, given that dust and emissions would be controlled through the CEMP.

Air quality management strategies are outlined in an air quality management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific air quality controls, corrective actions and reporting requirements.

ERA 62 Concrete batching

Concrete batching has the potential to generate dust emissions and impact on local air quality and nearby receivers. However, the position and location of the plant has been selected to reduce potential impacts on residential properties.

It is unlikely that dust generated from the concrete batching would significantly impact the local air quality and nearby receivers, given that dust issues would be controlled through the CEMP.

Air quality management strategies are outlined in an air quality management sub-plan contained in the CEMP (refer Appendix F). The sub-plan details specific air quality controls, corrective actions and reporting requirements.

5.3 Surface water, groundwater and stormwater

The project has the potential to impact on the water quality through increased erosion, sedimentation and contamination during construction.

Water quality management strategies are outlined the following documents included in the CEMP:

- Water quality management sub-plan (refer Appendix F)
- Petroleum, chemicals and hazardous materials management sub-plan (refer Appendix F)
- Erosion and sediment control management sub-plan (refer Appendix F)

Stormwater management measures are included in these environmental management sub-plans. These sub-plans detail specific water quality controls, corrective actions and reporting requirements.

The CEMP also outlines a water quality monitoring programme that would be implemented prior to construction and during construction. Base line monitoring is scheduled to commence in mid November 2007 and would occur at monthly intervals prior to construction. This data would be compared against the construction water quality results to identify potential impacts and the need to implement corrective actions outlined in the CEMP.

In addition, the following plans have been developed to minimise potential impacts:

- Spill response plan (refer Appendix G)
- Soil management plan (refer Appendix E)

Surface water, groundwater and stormwater issues associated with individual ERAs

ERA 11(a) Crude oil or petroleum product storage

Potential impacts to surface water, groundwater and stormwater from activities associated with the operation of the petroleum storage facility include, but are not necessarily limited to:

- Reduced water quality
- Contamination of groundwater
- Impacts on aquatic ecology
- Contaminated stormwater runoff

It is however unlikely that water quality would be impacted, given the water quality management strategies outlined in the water quality management sub-plan, the petroleum, chemicals and hazardous materials management sub-plan and the erosion and sediment control management sub-plan included in the CEMP (refer Appendix F). These sub-plans detail specific water quality controls, corrective actions and reporting requirements. In addition, the following plans have been developed to minimise potential water quality impacts:

- Spill response plan (refer Appendix G)
- Soil management plan (refer Appendix E)

ERA 19(b) Dredging material

Potential impacts to surface water, groundwater and stormwater from activities associated with the dredging include, but are not necessarily limited to:

- Increased sedimentation to downstream environment
- Reduced water quality
- Impacts on aquatic ecology
- Contaminated stormwater runoff

It is however unlikely that water quality would be impacted, given that water quality management strategies outlined in the water quality management sub-plan, the petroleum, chemicals and hazardous materials management sub-plan and the erosion and sediment control management sub-plan included in the CEMP (refer Appendix F). These sub-plans detail specific water quality controls, corrective actions and reporting requirements. In addition, the following plans have been developed to minimise potential water quality impacts:

- Spill response plan (refer Appendix G)
- Soil management plan (refer Appendix E)

ERA 22(c) Screening and crushing materials

Potential impacts to surface water, groundwater and stormwater from activities associated with screening and crushing include, but are not necessarily limited to:

- Reduced water quality
- Impacts on aquatic ecology
- Contaminated stormwater runoff

No stormwater drains would be affected as a result of the activity, and drainage upgrades would be occurring concurrently to the crushing and screening activity. All material would be stored within the screening and crushing area until needed. Appropriate controls would be implemented to minimise impacts to water quality.

It is however unlikely that water quality would be impacted given that water quality management strategies outlined in the water quality management sub-plan, the petroleum, chemicals and hazardous materials management sub-plan and the erosion and sediment control management sub-plan included in the CEMP (refer Appendix F). These sub-plans detail specific water quality controls, corrective actions and reporting requirements. In addition, the following plans have been developed to minimise potential water quality impacts:

- Spill response plan (refer Appendix G)
- Soil management plan (refer Appendix E)

ERA 28 Motor vehicle workshop

Potential impacts to surface water, groundwater and stormwater from activities associated with the operation of a motor vehicle workshop include, but are not necessarily limited to:

- Leaching of oils and fuel into groundwater
- Contamination of creeks through inappropriately stored chemicals and fuel products
- Contaminated stormwater runoff particularly from first flush after heavy rainfall events
- Untreated stormwater runoff entering drains and water bodies

Operational procedures would be implemented to mitigate potential hazards associated with vehicle workshops. Measures include:

- Storing petroleum products in fully bunded above ground fuel farm(s) and storing similar chemicals together
- Any fuelling is to occur on a bunded pad
- Mobile repair/breakdown activities would be conducted away from waterways and drainage lines with the service vehicle to carry a spill kit in preparation of a possible fuel or chemical leak

It is however unlikely that water quality would be impacted given that water quality management strategies outlined in the water quality management sub-plan, the petroleum, chemicals and hazardous materials management sub-plan and the erosion and sediment control management sub-plan included in the CEMP (refer Appendix F). These sub-plans detail specific water quality controls, corrective actions and reporting requirements. In addition, the following plans have been developed to minimise potential water quality impacts:

- Spill response plan (refer Appendix G)
- Soil management plan (refer Appendix E)

ERA 62 Concrete batching

Potential impacts to surface water, groundwater and stormwater from activities associated with the batching of concrete include, but are not necessarily limited to:

- Reduced water quality
- Impacts on aquatic ecology
- Contaminated stormwater runoff

Willy and Elizabeth Creeks are located approximately 200 m south of the proposed activity. No stormwater drains would be affected as a result of the activity, and drainage upgrades would be occurring concurrently to the concrete batching. All aggregates would be stockpiled with appropriate controls to minimise impacts to water quality.

It is however unlikely that water quality would be impacted given that water quality management strategies outlined in the water quality management sub-plan, the petroleum, chemicals and hazardous materials management sub-plan and the erosion and sediment control management sub-plan included in the CEMP (refer Appendix F). These sub-plans detail specific water quality controls, corrective actions and reporting requirements. In addition, the following plans have been developed to minimise potential water quality impacts:

- Spill response plan (refer Appendix G)
- Soil management plan (refer Appendix E)

5.4 Land

Potential impacts identified in the concept design for the construction of the project, relating to land (topography, geology and soils), include, but are not necessarily limited to:

- Disturbance of dispersive, erosion prone surface and subsurface soils
- Increased risk of soil erosion
- Soil excavation
- Filling, realignment/diversion and works within creeks, drainage lines and wetland areas
- Vegetation clearing
- Construction of rail embankments
- Installation of culverts and modification/construction of surface drainage infrastructure
- Construction of workshop and provisioning sheds

It is not intended that contaminants associated with ERAs 11a, 19a, 22c, 28, and 62 would be released to land. Mitigation strategies have been included in the CEMP to minimise impacts to land. A soil management plan has also been developed with the intent of managing spoil and Acid Sulphate Soils (ASS). This document is included in Appendix E.

5.5 Acid sulphate soils

The EIS did not identify ASS within close proximity of the proposed ERAs and it is unlikely that ERAs 11(a), 15(b), 22(c), 28 and 62 would pose a risk, as these activities are not associated with major soil disturbance. ERA 19(b) may pose a risk as the proposed dredging would be in Willy and Elizabeth Creeks, which were not extensively tested for ASS as part of the EIS. To manage ASS within the project area a soil management plan has been developed (refer Appendix E). It contains mitigations measures should ASS be identified during the dredging activities.

5.6 Waste generation

Waste associated with individual construction ERAs would be managed through the construction waste management sub-plan as part of the CEMP. This sub-plan embraces the waste management hierarchy outlined in the *Environmental Protection (Waste Management) Policy 2000.*

Waste collection practices would be implemented to prevent the site from becoming contaminated by oil or chemical spills during the operation of the ERAs. These procedures are outlined in the management plans.

Regulated waste associated with the ERAs would be removed by a licensed waste contractor, disposed of at a licensed waste facility and documented in accordance with EPA waste tracking requirements. Waste tracking documentation would be retained on file as a record of appropriate and legal disposal. These records would form part of a regular environmental management audit process for the site as outlined in the CEMP.

Waste management issues associated with individual ERAs

ERA 11(a) Crude oil or petroleum product storage

- The expected rates of waste oil generated would be approximately 1,000 L per month. This oil would be stored in drums and held in a bund and then removed by a licensed waste contractor.
- Regulated waste from the diesel storage facility would be managed in accordance with the CEMP.

ERA 19(b) Dredging material

- Should contaminated soil be identified during the dredging activity, appropriate disposal permits for the disposal of contaminated soil from site would be obtained in accordance with Section 424 of the EP Act.
- Spoil associated with the dredging activity would be managed according to the waste management sub-plan of the CEMP and the soil management plan.

ERA 22(c) Screening and crushing materials

- It is not expected that any waste is to be generated as a direct result of the screening and crushing activities.
- All materials that are produced as a result of the activity shall be re-used on site within the project area for pavement and outer verge construction. General waste not specific to this activity would be disposed of in accordance with the CEMP.

ERA 28 Motor vehicle workshop

Wastes expected to be generated from the vehicle workshop would vary and may include the following:

- Oil – 1,000 L/month
- Filters – 5 m^3/month
- Scrap metals – 2 t/month
- Used oily filters
- Oily rags and cotton waste
- Used spill kit materials
- Used hydraulic hoses
- Engine parts and other mechanical components
- Spent oil and coolant
- Grey water from service truck parking bay
- Spilled fuel and/or oil (from service truck parking bay if spill occurs)
- Scrap metal (et worn out cutting edges, bucket teeth and hammer moils, worn out bearings and housings, mild steel cut offs etc)
- Spare and used tyres
- General workshop consumables – WD40, sealants, silicon, liquid nitrogen, degreaser, air-conditioning gas etc.

All waste products would be stored within designated areas of the workshop depending on their origin prior to collection by a licensed waste contractor. For example, oil waste could be sold to an oil recycler; filters washed by a filter washing firm and reused if possible; and scrap metal sold to a scrap metal merchant.

ERA 62 Concrete batching

- It is not expected that any waste is to be generated as a direct result of the concrete batching
- It is intended that concrete produced as a result of this activity would be used in footings, bridge decks and slabs within the project area. If possible, any waste concrete would be used onsite.
- General waste not specific to this activity would be disposed in accordance with the CEMP.

6. Complaint response

Any complaints that arise from the operation of a construction ERA would be recorded on an issues management proforma which is contained in the Communication and Consultation Management Plan (refer Appendix I). The plan details the issues management procedure to be followed for the project. The procedure assigns responsibilities and provides a flow diagram that is to be followed for identified issues. The proforma includes the following information:

- Time, date, name and contact details of the complainant
- Reasons for the complaint
- Status of issue
- Risk classification
- Preferred actions
- Any actions taken

This information would be recorded and made available to the EPA or other administering authority upon request.

7. Conclusion

This document has provided a detailed description of the proposed construction ERAs for the project. Due to the nature of ERA 15(b), supporting information has been included separately as an appendix to this document (refer Appendix B).

This document has included a thorough description of the receiving environment and the potential impacts associated with the operation of the proposed ERAs. Mitigation strategies have also been provided. These strategies are mostly in the form of stand alone documents which are also included in the appendices of this document (refer Appendices E to I).

If approved, these ERAs will be used to provide the necessary activities to enable the successful expansion of the existing Jilalan Rail Yard. The EIS identified the expansion of the yard as an integral infrastructure need to help meet the demands of current and future industry growth within the coal market.