

28th October 2013

Ref: 6046Report

The Chief Executive Officer District Council of Yorke Peninsula PO Box 88 MINLATON SA 5575

ATTENTION: Mr. Roger Brooks

Dear Roger,

RE: REX MINERALS MINING LEASE PROPOSAL AND MANAGEMENT PLAN

You have requested that I provide the Council with an assessment of the above documentation which has been provided to the Council for the purposes of the public consultation requirements for approval of the project under the Mining Act 1971.

The documentation provided to Council is extensive and covers a wide range of issues, many of which require specialist assessment by the relevant Government Agencies, including the Department for Manufacturing, Innovation, Trade, Resources and Energy (DMITRE), Department of Environment, Water and Natural Resources (DENWR) and the South Australian Environment Protection Authority (EPA) amongst others.

I have endeavoured to break the application documents down into a readable summary to provide Council members with an understanding of the project, its potential impact and issues.

A summary table is provided at the end of the document which lists identified issues, detail as how to these issues may occur and Rex's response to how they are intended to be addressed.

In addition to the Mine Lease Proposal and Management Plan, there are two related Section 49 applications under the Development Act which will be dealt with separately. These relate to ore loading facilities at Ardrossan and to the re-alignment of the Yorke Highway away from the Mine site.

Summary of the Project

The Hillside (Hillside Mine) will be an open cut and underground mine producing a copper/gold concentrate and iron ore concentrate.

The concentrates will be transported via a 12km underground pipeline system to Port Ardrossan for filtration and shipping using the upgraded existing loading facility which is the subject of a separate Section 49 application under the Development Act (currently on public consultation).

The current schedule contemplates the commissioning for the Hillside Mine in late 2015 with full production capacity available in 2016.

The project will comprise the following main elements

- Open pit and underground operation
- Mineral processing plant and supporting mining infrastructure
- Mine waste rock and tailings storage facility

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- Highway diversions and road upgrades (subject to separate Section 49 applications now on public consultation)
- Upgrades to existing loading facility at Port Ardrossan and construction of filtration plant
- Water and concentrate pipelines between Ardrossan and mine site
- Electricity supply sourced via a new power line from Ardrossan substation to the mine site

The final open pit is planned to be approximately 2.4 km long (north to south), 1 km wide and 450 m deep. An underground operation will occur in 2 areas located to the north and south of the open pit.

The processing plant includes crushing, grinding and flotation and magnetic separation processes to make ore concentrates. Concentrates will be pumped to the port facility at Ardrossan as a slurry via an underground pipeline.

Additional features of the mine will include;

- ore stockpile areas,
- workshops,
- fuel storage and sheds,
- sewerage treatment systems,
- water supply dams,
- waste rock dumps (3 separate dumps to be established),
- a tailings dam,
- administration offices and
- a visitors' camp facility.

The tailings dam will permanently store the material (tailings) left once the copper, gold and iron ore have been removed in the process plant.

The waste rock dumps will have a proposed final height above the existing land surface ranging from approximately 20-45 m (North-eastern), 50-85 m (South-eastern) and 70-115 m (Western).

The open cut pit extends across the existing Yorke Highway which will require the closure of a 4.4 km section of the Highway.

An alternate highway to the south of the Hillside Mine site will be constructed prior to the Highway closure.

To avoid temporary road closures during operations a section of the St Vincent Highway will be moved to the east (closer to the coast).

Closure of one minor road located within the proposed mining lease will be required and will be the subject of an application to Council for road closure under the Roads opening and Closing Act.

Upgraded intersections and roads used to access the Hillside Mine have been designed to improve safety for road users and will be undertaken by Rex.

New infrastructure at Ardrossan will include;

- a filtration plant to wash the concentrates,
- storage sheds, water storage ponds and
- a seawater intake system.



Port options for Ardrossan include land to the south and east of Viterra bulk handling facilities with access to be taken from the BHP mine access road.

The existing ship loading facility be enclosed and upgraded to meet EPA requirements.

Ship movement at the port will increase by approximately 56 ships per annum.

A new power line will be constructed from the Ardrossan West substation to the port and along the western side of Yorke Highway to the Hillside mine site. Mine process water will be derived from ground water at the mine site, sea water intake at the port and recirculated water from the processing facility.

Fresh water is required at the port facility for rinsing salt from the concentrates prior to shipping.

Fresh water will be provided via a new SA Water pipeline to Ardrossan which will deliver an additional 1.5 GL per year for the Hillside Mine and approximately 0.5 GL will be delivered into the existing water supply network to augment water supply for Yorke Peninsula.

Pipelines containing concentrate, return water and fresh water will be constructed between the port facilities to the Hillside Mine, will be buried and located along the eastern side of Yorke Highway.

The mine will employ 605 direct full time jobs in the first 10 years with maximum of 725 at year 7 declining to 383 people at end (15 years).

During construction employment will range from 500 to 1000 people.

It is predicted that 60 to 80% of employees will live within 50km of mine.

It is predicted that there will be an additional 2.7 jobs (multiplier per mine employee) leading to an expected 1437 additional jobs over the life of the mine.

Rex anticipates that 70% of its workforce will be sourced from within the Yorke Region.

Associated Section 49 (Development Act 1993) applications

Section 49 Development Applications are required for the modifications to the existing Port Ardrossan ship loading facility and for the two new portions of road associated with the highway realignments.

Section 49 of the Development Act 1993 provides for the approval of Crown development and public infrastructure which includes development of public infrastructure (including roads and ports) undertaken by a person with State Government sponsorship.

The applications have been submitted to and will be assessed by the SA Development Assessment Commission (DAC) and are currently on public consultation until 15th November 2013.

The process provides for members of the public and Council to make formal submission on the applications.

There are two applications for;

 the realignment of the Yorke Highway and the upgrade and realignment of Pine Point Road



• the proposed upgrades to the existing conveyor infrastructure and all of the ship-loading facilities on the jetty at Port Ardrossan (this portion of the proposed works has been included in this MLP for information only, as the regulation of the named facilities is outside of the scope of this document).

Summary of predicted benefits (derived from Rex Mineral's documentation)

The Hillside Mine is expected to result in a significant range of benefits for the local and regional area and, more broadly, for the State of South Australia including;

- Social benefits include employment and training, community focussed initiatives, and improved infrastructure and services.
- Economic benefits include project expenditure and investment in infrastructure, taxes, royalty payments and salaries from created jobs and indirectly generated jobs.
- Rex will provide employment opportunities to the Narungga people and has lent support to the Connecting Aboriginal People with Mining Program developed through Skills for All, a Government of SA vocational education and training initiative.
- Rex will continue to support a wide range of community initiatives through its Community Sponsorship Program, initiated in early 2011.
- Over the life of the Hillside Mine, it is likely that the majority of Rex's workforce will become, or are already, permanent residents within a radius of 50 km of the Hillside Mine.
- The new water supply will serve as a significant long term benefit well beyond the requirements of the Hillside Mine for the community in Yorke Peninsula.
- The Hillside Mine may act as a stimulus to upgrade power supply to Yorke Peninsula before 2018. Discussions with state power agencies include the timing of planned upgrades and the opportunities to provide long term benefit with respect to improved power supplies for the Yorke Peninsula.
- Environmental benefits include best practice mine rehabilitation including increased area for native vegetation, provision of significant increase in environmental knowledge from collection of baseline data and improving the understanding of biodiversity, native vegetation and landscape values for the region.
- The development will provide opportunities for work experience and placement.
- There will be benefits to community organisations such as Landcare and CFS through volunteering by mine staff.
- The 2012 Community Sponsorship Program has supported more than 15 projects and is expected to continue throughout the operation of the Hillside Project.
- Direct positive impact on Yorke Peninsula, alongside the existing leading industries of agriculture and tourism. The Hillside Project will generate an estimated \$800 M in annual revenue, resulting in royalties paid to the Government of SA of up to \$30 M per annum.
- Total capital investment (e.g. project expenditure and investment in additional infrastructure) is approximated to be \$900 M.
- Increase in employment and wages from the Hillside Project will stimulate demand for other goods and services, potentially prompting further investment and profitability in other industries in the region.
- Increase spending in the region, it can be assumed that workers will spend part of their incomes on local goods Where practicable, Rex will procure goods and services for the Hillside Project from within the region in order to maximise the local economic benefit.

Ongoing operation

The Hillside Mine plan is to be assessed and reviewed at each project stage, namely during

- construction,
- operation (at five year intervals),
- rehabilitation works (progressively occurring during operations) and, closure.

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As part of its operations Rex has indicated that it will prepare the following additional plans, programmes and management strategies, which will be monitored as required (or as specified in the application documents).

- 1. Local Employment Management Plan
- 2. Local Business Development Plan.
- 3. Community Relations Management Plan
- 4. Communication Management Plan.
- 5. Traffic Management Plan
- 6. Emergency Response Management Plan
- 7. Regional Plan (to maximise regional business opportunities).
- 8. Air Quality Management Plan,
- 9. Waste Management Plan,
- 10. Native Vegetation Management Plan
- 11. Noise and Vibration Management Plan
- 12. Drill and Blast Management Plan
- 13. Soil Management plan
- 14. Pest plant and animal Management program
- 15. Waste and hazardous substance Management plan
- 16. Heritage Management Plan
- 17. Closure Plan

It will in addition undertake a Community satisfaction survey, implement a social investment program, prepare an accommodation strategy with an annual review against objectives, undertake continuous real time weather and dust monitoring program and a pest plant and animal management program.

Closure

At closure Rex will implement a closure plan that complies with legal obligations, reflects community expectations and delivers a sustainable outcome for the Hillside Mine site.

The final land use will result in a safe and stable environment that will involve a mix of agricultural pursuits and increased native vegetation patches with greater access to the coastal zone, enhancing tourism opportunities.

The open pit will remain but be partly backfilled.

Innovative uses for the void will be explored but have not been identified.

Remnant rock dumps will be contoured and replanted with native vegetation.

Potential end uses for the site are shown in figure 6.9.6 of the Mine Lease Proposal Management Plan which shows the vast majority of the land, including portions of the rock dumps being used for agricultural pursuits including (presumably) cropping on the flatter land not affected by mine activities and grazing on the disturbed land, areas of native vegetation and an undefined use for the pit, which is nominated as potential native fauna habitat.

Best Practice Mine Rehabilitation

Rex will rehabilitate the proposed ML and MPL areas to achieve a stable and sustainable landscape, consistent with prevailing conditions and surrounding natural landforms. Yorke Peninsula Council Special Council Meeting Agenda 5 Wednesday 6th November 2013



The closure principles that will guide the rehabilitation of areas including the residual open pit void disturbed by the Hillside Project will include:

- developing landforms that are consistent with the surrounding area and/or meet community expectations
- rehabilitating the site to an appropriate land use consistent with the standards identified for that land use
- protecting human health and safety
- reducing the need for long term monitoring and maintenance through design and construction of landforms that are geotechnically and geochemically stable
- ensuring visual amenity meets community expectations
- developing appropriate monitoring system and remedial action program.

Management for a Significant Environmental Benefit

Rex has identified opportunities for positive contribution to the environment, to ensure significant benefits for the removal of remnant native vegetation from the ML and MPL areas. In accordance with the *Native Vegetation Act 1991* (SA) and the Guidelines for a Native Vegetation Significant Environmental Benefit Policy for the Clearance of Native Vegetation Associated with the Minerals and Petroleum Industry (DWLBC 2005),

Offset activities may also be considered, such as:

- potential revegetation of;
 - waste rock dumps and other mine areas
 - the coastal land owned by Rex adjacent to Crown land and fringing the coastal cliffs
 - the extension of the vegetation present in some corners of the six-way intersection (contains the Muloowurtie Conservation Reserve)
- payment of money into the Native Vegetation Fund
- acquiring additional land, protecting and funding ongoing management of those areas (this may include monetary donations to organisations for conservation) and/or undertaking revegetation or restoration activities on that land to re-establish habitats
- supporting regionally based natural resource management projects with a biodiversity focus
- working with local government or other bodies to undertake environmental remediation or revegetation in areas under the control of such bodies
- other approved activities, as identified by the proponent that are likely to have a SEB.

Potential/Conceptual Final Land Use After Closure

Rex intends to implement a closure plan that not only complies with legal obligations, but also reflects community expectations and delivers a sustainable outcome for the Hillside Project site.

The site will be progressively rehabilitated (where practicable) to a safe and stable condition with a post-mining land use as agreed with stakeholders.

The CCG was engaged in the process of closure planning as part of the community engagement

processes undertaken. The CCG identified the following:

- the end land use should be designed so as to minimise the amount of disturbance to agricultural land and where practicable rehabilitate land back to a productive use
- the final landscape should be acceptable to the community
- backfilling of the open pit should be optimised to reduce the size and visual impact of the excavation

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• post-mining landscape should be rehabilitated.

It is envisaged that the final land use will involve a mix of agricultural pursuits and native vegetation.

During later stages of mining of the open pit limited backfilling of the pit void may be possible, however is unlikely to fill the entire void, and uses for the pit void on closure are being conceptualised.

Councils Road Base Quarry

The DCYP have previously accessed a parcel of land located west of Redding Road adjacent the Muloowurtie Conservation Reserve (parcel ID F216753A106) for the purposes of extracting road base material for road upgrades in the local area under s 294(7) of the Local Government Act.

Access to the road base material is being reviewed.

Experience elsewhere

I have been in contact with staff at Alexandrina Council regarding their experiences with the Terramin, owner-operated Angas Zinc Mine which is located on the outskirts of Strathalbyn. The mine was established in 2008 and was recently mothballed. It was projected to produce 400,000 tonnes of ore per annum.

The Council staff experience was they had little to do with the ongoing operation or management of the mine. They however put me in contact with a Council member of the Community Consultative Committee established as part of the mines initiation, ongoing operation and management.

This committee originally met monthly but became bi-monthly once the mine commenced operation.

Terramin provided minutes of the meetings to Council and information was provided to the senior staff of the Council by the Council members as it came to hand

Out the outset it was agreed that the Community Consultation Committee was a positive but frustrating experience. It was suggested that community members needed to have an understanding of mining and the specific mines operation and that the chairman of the Committee needed to be a 'strong' person.

Issues arising from the Committee included;

- A feeling that mine staff did not want to be involved. (i.e. they were caught between their responsibility to their employer and the community)
- Mine staff seemed to be rotated regularly so there was no continuity of contact or in resolution of issues.
- There was a high degree of frustration amongst community members and a feeling that Terramin largely ignored community concerns.
- Terramin seemed to have to be forced into taking action to resolve concerns and always seemed to have an excuse for why work/studies were not undertaken.



- There was a need to be 'vigilant' to ensure that issues were dealt with.
- Ongoing concern that Terramin's commitment to the local community was not as originally outlined (i.e. support for local community organisations, staff and company accessing goods locally).
- Most Terramin staff did not live locally so contributed little to the local community.

Issues relating to the mine included;

- Traffic noise (note all ore was shipped by road not by pipeline as proposed for Rex)
- Drag out of mud/dust onto the adjoining road (eventually resolved 'in time').
- Vibration from blasting affecting closest houses (note this mine is much closer to houses than the Rex mine).
- Issues with tailings dam, initially water levels were higher than the double liner. Took a couple of years to sort out.
- Concerns at final use of the mine site and tailings dam. The tailings dam was to be dried out (no idea how long that would take), be covered with a liner and then covered with a metre of fill and landscaped. Committee questioned having only 1 metre of fill above a liner and its ability to support any revegetation.
- Unknown potential for the mine processing plant to continue to process minerals from other mines in the region.

It was **strongly** reinforced that community consultation was imperative **before** the approval and/or operation of the mine, and it was considered that many of the communities concerns could be allayed by appropriate consultation, not only with the company, but also with the agencies assessing the development.

Despite the above, the representative felt that the mine made a positive contribution to the community.

Summary of Issues, predicted Impacts and Rex's response

There is a wide range of social and environmental issues canvassed in the extensive array of documentation provided with the Mine Lease application.

Much of the information is technically based and will be assessed by the relevant government Agencies, including the Environment Protection Authority, Department of Primary Industries, Coast Protection Board, Native Vegetation Management Authority, NRM Board amongst others.

Each of these bodies will, as required, be seeking further information for the applicant to enable them to properly assess the impacts of the various components of the development.

Unfortunately, much of this work will be happening in the background with reports provided to the DMITRE as part of his assessment of the project. I am not sure whether the Council will be provided either, copies of any requests for more information issued by the relevant assessing body, or their consultation reports, but I consider it imperative that these documents be provided to the Council who will, in effect, be a conduit to the local community.

I also consider it important given the understandable level of community interest in the project; that on completion of the consultation process the relevant government agencies and Yorke Peninsula Council 12 Special Council Meeting Agenda 8 Wednesday 6th November 2013



Rex, provide a simple to understand summary of the issues that have been identified by the relevant government and reporting agencies, how various impacts of the development may be managed, either by relevant conditions that may be imposed on the development, by on-going management and reporting policies and on-going community consultation for dissemination to the community.

I understand that Rex is proposing to undertake further community consultation and I would encourage that process to occur as soon as possible to try and allay the communities concerns about the development.

Because the mine will be developed over an extended period of time, part of Rex's response has to implement a series of management plans. They intend to review these on an ongoing basis over the life of the project and the associated closure and rehabilitation period and to report yearly to the relevant authorities, including Council as to how the various objectives of the Management Plan have been met, or, if not met, how procedures have been amended to deal with problems that have arisen.

This approach is not unique and allows Rex and the various government agencies to monitor the progress of the development, it impacts and to respond accordingly.



ISSUES FOR COUNCIL

1 Lack of information

Despite the extensive documentation provided by Rex, there are 17 Management Plans proposed to address specific issues, together with various programmes, strategies and surveys which Rex has identified to inform them (and presumably the local community) of the ongoing positive or negative impacts of the mine.

Some indication of the issues to be addressed by the various Management Plans, and some of Rex's proposed management initiatives can be found in the documents and have been included in the summary table.

The need for Management Plans to be prepared and amended during the course of the project is understood as impacts will vary as the mine develops, however it is important that these Plans and strategies are prepared with input from the community and with involvement of the relevant government agencies.

2 Expert Agency Input

In part the lack of information stems from the lack of independent assessment of the Plan.

Assessment of the technical issues arising from the development are being undertaken by DMITRE, DWENR and EPA amongst others.

The consultation process does not provide the Council or the wider community access to the assessment reports prepared by these agencies before the application is considered by DMITRE.

These reports in my view are critical to the communities understanding of the issues, what additional information the agencies may have required Rex to provide to address identified issues or shortcomings in the MLP and what if any conditions, including on-going reporting may be imposed on the development.

Given the expressed community concern at the lack of community consultation, and the communities apparent (and understandable) difficulty in understanding the detail provided in the MLP, I consider it would be desirable for the government agency reports, or at least a summary of the issues identified in those reports and any proposed conditions recommended to be included if an approval is granted, should be made available to the Council and community before a decision is made on the development.

Further, I would consider it desirable that additional consultation be carried out with the community before a decision is made on the development, that involves representatives of the relevant government agencies and Rex to answer any questions the community has in relation to the project and to detail how the project will be managed in accordance wit, or to achieve the outcomes in the MLP.

Similarly, the Council and Community should be informed of the content and details in the Program for Environment Protection and Rehabilitation, which needs to be prepared by Rex in the event that the mine is approved.

3 Impact on Council resources

Despite the experience at Alexandrina Council in relation to the Terramin Mine, the operation of the mine is likely to impose ongoing Council staff management; involvement and reporting on the project in reporting on the project which will put additional pressure on staff resources and potentially the Council budget.



In this regard Council will most likely be on the front line of dealing with any issues that arise from the mine which will have implications for Councils relationship with the local community (ie perceptions that the Council is not resolving issues or is "passing the buck", as is often the case the issue is one that rests with a government agency such as the EPA.)

The continued operation of the Community Consultative Committee is encouraged, not only as a means of providing a direct link between the mine operators and the community, but as a conduit to the Council.

Desirably, the Community Consultative Committee should be able to call on expert input from the EPA, DMITRE or other relevant government agencies as dictated by issues as they arise.

4 Social Investment Programme

I am not particularly familiar with operation of the Social Investment Programme operated by Rex to date. Experience at Alexandrina Council indicates that the social investment programme "lost steam' during the course of the operation of the mine.

I am not suggesting that Rex will not pursue this programme diligently and it is programme in my view is an important one given the potential impacts arising from a significantly increased permanent population in the locality but also more widely in the Council area.

In other situation where similar funds have been established, it has been on the basis of a certain amount of funding being made available each year; and in the case or recent landfill applications for example, the fund was based on the tonnage of waste received.

The social investment programme should be based on a yearly contribution from Rex based on a quantifiable output from the mine such as the tonnage of or mined or the tonnage of concentrate produced or exported.

Funding for projects from the social investment programme should be made by the community consultative group or a similar constituted body with Council input; and not by Rex alone.

4 Cumulative impact of development on the character of Yorke Peninsula

Yorke Peninsula is presently the target of 2 major development applications that have the potential to radically alter the landscape from its present rural character to one of an almost industrial quality.

Together with the Ceres Wind Farm and the Rex Mine proposal, and including the mining and industrial landscape which exists at Ardrossan already, approximately a quarter of the drive along the Yorke Highway from Ardrossan south almost to Port Vincent (if not beyond because of the visual impact of the wind farm towers) will be subject to a significant change to the character of the landscape.

Whilst the proponents of the Ceres Wind Farm do not consider the character of the landscape on Yorke Peninsula to be of high quality, it needs to be recognised that tourist travel to Yorke Peninsula to 'escape' and the rural landscape that presently exists along the Yorke Highway is part of that experience.

The Yorke Highway is the principle gateway to the Peninsula and to Innes National Park, which is the prime tourist destination.

Even with the best efforts at landscaping the visual impact of the rock dumps up to 100m in height along a 5 kilometre section of the re-aligned Yorke Highway will be significant, and particularly as these dumps will be worked almost continually for the life of the mine.



The visual impact of the rock dumps will be exacerbated in the early years of the mines establishment by the lack of mature vegetation along the re-aligned section of road and on the rock dumps themselves.

Recommendation

That Council advise DMITRE that it is not prepared to support the development at this time as it considers that the proposal lack sufficient information for the Council to be able to make a considered judgement of the application.

In particular Council requests that;

- 1 Reports from reporting agencies, and including any requests for more information or recommended conditions of approval be provided to Council, and the community, and both the Council and community be afforded additional time to consider and respond to those reports before the application is formally considered.
- 2 That prior to the application being formally considered, Rex be requested to undertake a further round of consultation with the local community; such consultation to involve staff of the various government reporting agencies; to enable the Council and community to be fully briefed on the potential impacts of the development and be confident of its ongoing management.

It is further recommended that Council negotiate with Rex regarding the ongoing funding and management of the social investment programme and the composition of the community consultative committee as discussed above.

Yours sincerely

Dttutchban

David Hutchison ACCESS PLANNING



Summary of Issues

The following table represents a summary of the issues identified by Rex and by the Community Consultative Committee, possible impacts arising from those issues and the means by which Rex intends to address the issues.

ISSUE	IMPACTS	REX RESPONSE
Employment		
Rex anticipates the mine will employ approximately 725 people at its peak The average workforce over the 15+-year mine life will be 532 people, will decrease to about 382 people as it reaches its estimated mine life of 15+ years. During the construction phase the employment numbers are expected to range between 500 and 1,000 people. Indirect employment, using a multiplier of 2.7, is expected to result in an additional 1,437 jobs on average over the life of the Project. Rex anticipates sourcing almost 70% of its workforce from within the region.	Increasing average wages in the region. Increased competition for jobs, possibly affecting local business. Increased demand for skilled workers. Improved job opportunities for local residents. Improved job training and education opportunities. Provision of work experience opportunities for local residents.	Rex will prepare and implement a Local Employment Management Plan, which will be monitored and updated over the life of the project. Rex will prepare and implement a Local Business Development Plan. Both plans will be subject to an annual review.
Population		
Project is expected to result in a total increase in population in the region of 642 people or 2.1%. It is expected that most will live within 50 kilometres of the mine site	Impact on housing and in particular holiday home availability. Increase in membership of local sporting clubs and volunteer organisations. Short-term impact on community cohesion as a result of new residents.	Rex will develop and implement a Community Relations Management Plan. (note this plan is intended to address a wide range of issues as generally identified below) Rex will develop and implement the Communication Management Plan. (note this plan is intended to address a range of issues as generally identified below) Both plans will be subject to an annual review.
Increase road safety incidents from	Greater movement of vehicles	Pox will dovelop and implement a
Increased traffic. Increased mental health Issues. Changes in lifestyle affecting health	around the region, particularly in towns, from mine activities and increased population, the risk of traffic accidents is exacerbated.	Traffic Management Plan which will include identifying traffic routes for mine activities, speed limits and school bus routes.
Vorko Ropinsula Council	Perceived or real impacts from the mine operation may lead to deterioration of mental health. Increased employment and business opportunity may lead to improved health and wellbeing.	Rex will ensure all company vehicles identification as a Rex vehicle, high visibility and display contact information in the event of inappropriate driving or an incident. A record will be kept of all complaints involving Rex staff.



	Work requirements (shift work) may impact worker health. Increased wealth may improve lifestyle and increased population may lead to improvements in health services.	As part of employee conditions provide healthy meal choices to its workforce; facilitate regular health checks for workers. Rex will conduct drug and alcohol awareness programs that include detection activities. Rex will support community sporting and fitness programs and facilities. Rex will implement blasting controls and visual amenity improvement strategies to minimise impacts on the local community.
Community Services and Facilitie		
Impact on health and education services as a consequence of	Increased population may place pressure on health Services/facilities	Develop and implement the Communication Management Plan.
population increases. Increased demand for child care services. Effect of increased population on	Access to local and metropolitan health facilities may be restricted by limited public/community transport.	As part of an Emergency Response Management Plan, ensure (Rex's) on-site mine rescue team conduct joint training with local emergency services to increase capacity and coordination.
Effect of increased population on retail and commercial services	Increased population may place pressure on education services/facilities.	Develop and implement the Community Relations Management Plan.
Effect of increased population on cultural and leisure facilities	Increased population and greater transience and increased traffic may require increased police presence	Develop and implement the Local Business Development Plan.
	Local procurement of goods and services locally will benefit local businesses'	Rex expects that more than 50% of goods and services will be sourced in SA.
	Increased population will increase demand for goods and services.	Rex will undertake project expenditure reporting to confirm local spending.
	Increased population will assist local clubs, volunteer organisations.	Rex will invite regional Businesses to training and awareness sessions. To make them aware of business opportunities
	Increased population will put extra pressure on leisure facilities/	Rex will develop a Regional Plan to maximise regional business opportunities.
		Rex will undertake a Community satisfaction survey.
Intrastructure Impacts		
Effect of increased traffic volumes on roads associated with the mine on amenity tourism. Effect of increased population and mine activities on power and water	Road amendments required for the Project will enhance coastal views which may benefit tourism. Significant intersection upgrades will improve safety at and additional lanes will	Increased local traffic associated with rerouting the Yorke Highway will be managed through improved road constructing and intersections to DPTI requirements.
Effect of increased population		Develop and implement the
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and mine activities on waste management Improvements to infrastructure (ferry)	Non-mine-related traffic on a section of the rerouted Yorke Highway is estimated to increase more than 25-fold which will impact residents living along, and users of, this section of road. Road and intersection upgrades will improve road safety and have minimal impact on travel time. Power for the Project will be supplied primarily from the grid with some upgrading in transmission. The Project may affect system reliability. It was noted that "Power use will need to be managed so as to avoid overloading the system." Additional population will add demand to domestic power and water supplies, particularly if significant new housing construction occurs. Commercial and domestic waste produced will increase waste to landfill and the demand for waste removal and management. Rex will recycle bottles and cans, plastics (HDPE) and metal and arrange for their removal by private contractors. An accredited sewerage treatment plant will be constructed for Project generated sewerage. Rex is investigating the feasibility of high speed ferry service from Adelaide, which	Communication Management Plan. Develop and implement a Traffic Management Plan. Record details of all road users complaints and respond according to the Communication Management Plan. Rex Determine impacts via the Community satisfaction survey. Rex will continue the Social investment program to be measured annually against criteria.
Housing and Accommodation Im	nacts	
Increased population requirements for housing and accommodation.	Reduction in availability of housing and accommodation. Reduction in housing and accommodation affordability. Reduction in housing and accommodation quality.	Rex will develop and implement an Accommodation strategy with an annual review against objectives. Rex will ensure that employees and contractors are suitably accommodated in housing within local communities.
		Rex will provide a range of housing and accommodation options to provide affordability for existing and future residents.
Socio-Economic Impact on Land	Use	Poy will echedule construction
Reduction is aesthetic value from	in human health impacts at neighbouring sensitive receptors from dust impacts.	and mine operation to minimise areas of vegetation clearing and topsoil stripping as far as
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change in exiting land use		possible.
Change in land value and industry type	Human health impacts from the contamination of rainwater tanks with dust from the mining operation.	Trafficable and working areas designed to be as small as possible.
Disturbance of damage to nentage	Decrease in air quality resulting in public nuisance at neighbouring sensitive receptors from dust and odour.	Appropriately designed and approved sewerage treatment systems to minimise odour.
	Reduced native plant growth or abundance resulting from increased dust deposition. Reduced agricultural crop growth rates/yields from increased dust deposition on leaves.	Continuous real time weather and dust monitoring program to indicate requirements for mitigation activities and operational controls, restrictions and shut down procedures. Development and implementation of the Air Quality Management
	Degradation of marine environment from dust deposition.	Plan, Waste Management Plan, Native Vegetation Management Plan and Traffic Management Plan.
	the site post mine closure impacting surrounding receptors.	Operational vehicles kept to established and designated tracks, work zones and speed limits.
		Haul roads purpose constructed for heavy mobile plant.
		Plantings and embankments used as windbreaks to shield stockpiles and working areas from prevailing winds.
		Disturbed areas and stockpiles stabilised with physical and / or chemical binders until rehabilitation can be conducted.
		Roads sprayed with water and or sealant when required (including as per indicated by the real time dust monitoring).
		Permanent water sprays used; dust suppression measures instituted using water truck sprays.
		Blasting compliant with code of practice prevention and management of dust and NOx gases in surface blasting.
		Tailings surface not disturbed maintaining salt induced crusting.
Varka Baninaula Caunail		First-flush systems installed on community rainwater collection systems if required.



	On-going maintenance of dust control systems.
	On-going dust monitoring to demonstrate post closure compliance.
	Monitoring of rehabilitated surfaces to ensure stability of rehabilitated land.
	PM ₁₀ dust levels collected from sampling equipment to be sampled over a 24 hour period every six days to demonstrate compliance with NEPM 1998
	Annual testing of representative water tanks to ensure ongoing compliance with baseline water quality results from test work.
	All complaints will be logged in a register and records will show that all complaints received have been investigated, and the complaint addressed within an agreed timeframe.
	The Air Quality Management Plan will be reviewed if required.
	Dust deposition gauges at locations specified in the Air Quality Management Plan will be monitored monthly for total insoluble solids to demonstrate that the increase in deposited dust level remains below 2 g/m ₂ /month.
	An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP.
	Dust deposition gauges will be monitored monthly for total insoluble solids to demonstrate total insoluble solids remain below investigation limit of 4g/m ₂ /month annual average for monitoring applications.
	Once mining has commenced, at a time agreed with the regulators, samples of airborne dust will be collected and toxicological characterisation of the dust will be carried out to demonstrate that there are not significant levels of heavy metals in the dust composition.
Varko Bazinzula Council	Dust levels collected from sampling equipment at specified locations will be reported annually post closure until results show no increase from 21



		background levels.
Noise and Vibration		
Noise impacts	 Public nuisance impacts on surrounding residential receptors from noise emanating from; the mine site during construction increase in road traffic from road diversions the fixed plant the mine site during operation, inc blasting the mobile plant mine site during operation (including rehabilitation) 	background levels. Main impacts likely to be from mobile plant, solutions to include; Using off-site or other alternative processes that eliminate or lessen resulting noise Locating noisy equipment or processes so that their impact on neighbouring premises is minimised Ensuring that noise reduction devices such as mufflers are fitted and operating effectively. Shutting or throttling equipment down whenever it is not in actual use. Ensuring that equipment is not operated if maintenance or repairs would eliminate or significantly reduce a
		repairs would eliminate or significantly reduce a characteristic of noise resulting from its operation that is audible at noise-affected premises. Operating equipment and handle materials so as to minimise
		impact noise. Scheduling particularly noisy activities to commence after 9.00am where reasonable and practicable to do so. Locate/orientate plant away from
		noise-sensitive receptors where practical. Distribute the waste rock and stockpiles to assist with noise shielding.
		Purchase haul trucks with appropriate noise attenuation fitted. Measure the noise emissions from the chosen mobile plant models prior to purchase. Ensure fixed plant is maintained such that noise emissions do not increase above the specified levels over the lifespan
		Monitor mine real-time noise



		· · · · · ·
		emissions in context with audio, prevailing weather conditions and time of day. Modify operations to minimise noise impacts where practical
		Not mixing the operation of attenuated and non-attenuated haul trucks on the southern haul routes to minimise noise annoyance associated with alternating noise characteristics.
		Regularly liaise with the community to obtain feedback on the operational noise and any suggested improvements.
		Noise treatment installed at sensitive receptors if deemed an appropriate response to minimise long term annoyance.
		All noise complaints will be investigated and a response provided to the complainant within two working days.
		All noise complaints will be resolved and associated actions will be recorded in a data base.
		Monitoring of construction related noise levels shall be undertaken in response to a complaint where this is considered an appropriate response.
		Noise levels will be measured quarterly for seven consecutive days (24 hours a day), at selected sensitive receptors to the project components (to be determined in the Noise and Vibration Management Plan) which will demonstrate compliance with EPA noise goals.
Vibration impacts	Public nuisance impacts on surrounding residential receptors from vibration during construction and operation. Displacement of terrestrial native fauna and marine fauna due to noise and vibration from mine construction and	There are currently no statutory limits for vibration. However, the <i>Environment Protection Act 1993</i> includes vibration in the definition of 'noise', and as such, the General Environmental Duty applies.
	operation	Under common law, Rex or their contractors can be held liable if construction or operational activities result in vibration- induced damage to property.
		Rex will develop and implement a Noise and Vibration Management Plan to effectively manage issues of noise and vibration



		-
		Design and regulate blasting to minimise impact
		Maximum buffer and exclusion zones Implemented
		Regular monitoring and community consultation to be undertaken
Blasting	noise from blasting on nearby neighbours and road users. possibility of land tremors as a result of mining activity impact on stock and fauna impact on aerial spraying	Regular monitoring and community consultation to be undertaken Setting and maintaining blast clearance distances to ensure no risk to site personnel, the public or passing traffic. Realignment of both the St Vincent Highway and Yorke Highway to avoid the blast clearance zone. Implementation of a Drill and Blast Management Plan to ensure a tight control over blasting practices and restrictions to minimise potential impacts Ensuring ground vibration and air blast noise due to blasting operations are within Australian Standards. Notification to neighbouring sensitive receptors that may be directly affected by the blasting activities Rex will apply for an aviation exclusion zone directly over the pit so aircraft will not be allowed to fly within the blast exclusion zone. Notification signs on the road to notify passing vehicles that blasting occurs Where blast clearance zones encroach on neighbouring rural paddocks outside the mine lease, timely notification of blasting activities should be supplied including a clear plan indicating the blast location, proposed time and extent of blast clearance
		Consistent blast firing times where possible, preferably during
		the day for the open pit.
		vibration for all blasts have been measured at locations specified in the Drill and Blast Management Plan



		and are within the Australian
		All complaints related to blasting will be investigated, a response provided to the complainant within two working days and all complaints will be resolved and associated actions will be recorded in a data base.
		Blast records will demonstrate that air overpressure for all surface blasts have been measured at locations specified in the Drill and Blast Management Plan and are within the Australian Standard.
		All blasting complaints will be recorded, investigated and resolved within the agreed timeframe. Records demonstrate that landholders within the blast exclusion zone have been notified of blasting activities.
		Annual audit of blasting records (for each blast) to demonstrate that blasts have been undertaken in accordance with Australian Standards. All exceedances are reviewed and the cause recorded and rectified.
		Documentation to provide evidence that there is an aviation exclusion zone directly over the open pit and that local agricultural aircraft pilots have been notified of all blasts prior to occurrence.
Visual Amonity		
Mining operation detracting from	Reduction in visual amonity	Prominent built structures (office or
the landscape	from clearance of vegetation and excavations during	accommodation infrastructure designed to meet planning
Visual buffers detracting from the landscape	construction	requirements and principles; be screened with feature plantings of native vegetation where possible:
The location and space taken up by the overburden size and scale of waste rock dumps]	(temporary and permanent) causing a reduction in visual amenity during operation.	structures and buildings use non- reflective, natural coloured materials to reduce their visual impact.
Final post mine landscape	Nuisance to the public from light spill derived from mobile plant during construction and	Position and design WRDs to screen, where possible, activities and on-site infrastructure (process plant, offices
Light from mining operations on nearby residents and roadways	operation.	and other buildings) from public roads and residences (sensitive receptors).
	recreational value of area from increase in general solid waste and litter.	Design of the Yorke highway re- alignment to take into account the visual impact of the proposed mine to passing traffic by constructing
	Decrease in ambient air quality resulting in public nuisance at neighbouring sensitive receptors from dust. Reduced productivity resulting from shading of farm land by changed landscape.	new sections of the highway below the line of sight of the mine; establish vegetation corridors on the western side of the re-aligned Yorke Highway; establish vegetation corridors along road verges where adequate space exists (in consultation with DPTI and DCYP).
Yorke Peninsula Council	Displacement of native fauna from light spill from mining and	Maintain ocean views from the York



	associated infrastructure	Highway by positioning power lines on the western side of the road easement; plant low growing native shrubs on the eastern road easement. Designed fixed night lighting to achieve minimal light spillage in accordance with Australian standards. Minimise vegetation removal to maximise screening of construction and operations. Progressive rehabilitation of waste rock dumps by reducing slope, shaping and planting of grasses and native vegetation to blend in with the surrounding landscape. Broadcast seed with annual grasses to external faces of WRD lifts where practical to reduce the impact of changes in landscape colour. Construct and progressively rehabilitate the faces of the south- eastern and north-eastern WRD that are most visible from passing traffic
		and nearby settlements (Rogues Point and Pine Point) by year 5. Construct vegetated bunds (including topsoil ad subsoil stockpiles) and visual screens along roads surrounding the site and vegetate using a combination of grasses and low shrubs to reflect exiting landscape.
		Screen infrastructure and site operations and roads with feature plantings of screen trees in areas of high visibility.
		Select species selected for growth rate, density and robustness. In areas requiring a more immediate visual effect, advanced vegetation will be used.
		Where possible endemic native species will be used.
		Sculpture WRDs in such a way so as to soften the visual impact and reflect similar landforms on the Yorke Peninsula.
		Vegetate lower 10° slopes of the WRDs with grasses and where practical annual crops to reflect the largely cleared cropped landscape.
Yerko Desissula Coursil		Vegetate higher slopes graded to 15° and 20° with suitable native vegetation.



	Shape waste rock dumps and position haul roads to reduce direct light spill were practical.
	Construct earthen bunds and or vegetation screens along necessary section of haul roads that have direct line of sight to sensitive receptors where practical.
	Provide window blinds if required to the most impacted receptors.
	Limit night lighting in none active work and accommodation areas and use on an "as needs" basis where it can be safely applied.
	Reduce reflective properties of the surfaces around process plant and night illuminated work areas to reduce reflection.
	Purpose built temporary solid waste storage repositories to store waste for waste removal to appropriately licenced waste disposal facilities.
	Site inspections and responsible waste handling procedures to control the potential visual impact of solid waste at the mine site during construction and operation and including accommodation, maintenance and office areas.
	Monitoring and training of staff and contractors in waste management, to not directing light towards residences where possible and to consider the impact of activities on visual amenity of near neighbours and road users.
	Maintenance program for visual screens including tree screens through regular inspections, and replantings as required in accordance with the NVMP.
	Undertake on-going community consultation to ensure landforms and visual amenity are in accordance the approved outcomes.
	Record community complaints in regards to visual amenity and respond in accordance with the Communications Management Plan.
	Undertake a Community perceptions survey to assess acceptance of visual amenity changes during operation. Record community complaints in regards to visual amenity and respond in accordance with the Communications Management Plan. Record community complaints
Vorke Peningula Council	relating to light spill and respond in 27



		accordance with the Communications Management Plan.
		Undertake a post closure community perceptions survey to assess acceptance of integration into surrounding landscape.
		Assess community acceptance by visitation numbers to viewing points post closure.
Soil/Land Disturbance (ML)		
Decreased soil quantity. Decreased soil quality;	Decreased soil quantity available for rehabilitation from erosion of soil stockpiles and exposed	A soil management plan will be developed to include recovery of as much topsoil as practicable and to control land clearance
topsoil quality	Decreased soil quality from compaction during mining activities	The design of fuel, oil and chemical storage facilities and transfer points and associated retaining bunds will be in accordance with Australian Standards.
	Decreased soil quality through the degradation of viable native seed due to long term Stockpiling	Tailings, concentrate and process water pipelines and spill bunds will be constructed to the appropriate Australian Standards.
	Decreased soil quality due to build-up of weed seed in the topsoil stockpile from long term Storage	All topsoil removed will be stripped and stockpiled prior to construction of the mine pit.
	Decreased soil quality due to build-up of salt from dust	Ripping of compacted soil during site rehabilitation
	from mixing with saline subsoils	Trafficable and working areas will be sealed with compacted material or read base to minimize the generation
	contamination from spills of fuel, oil or a hazardous	of potentially contaminated dust.
	cnemical Decreased soil quality due to potentially contaminated airborne dust emanating from the mining operation.	A soli management plan will be implemented prior to any land clearance. The management plan will describe how soil will be sorted according to quality and designated end use and provide maps of designated stockniles for each soil
	Decreased soil quality due to contamination from discharge of tailings	group. The soil management plan will describe measures on how to strip soil and prevent soil loss from mishandling or erosion.
	Soil or water contamination due to incorrect waste disposal (The impact relates to waste disposal and is therefore addressed in Section 8.3.5).	Staff inductions and training will reinforce the importance of keeping vehicles and people on established and designated tracks, work zones and to operate within designated
	Increased sediment loads in downstream surface water flows causing contamination to	speed limits.
	the surrounding environment (from erosion and revegetated as soon as practicable, in
	by surface water run-off resulting in contamination to	accordance with a soil management plan Soil stockpiles will be vegetated with
	surrounding environment.	annual or perennial species, which will be maintained until the soil is required for rehabilitation
Yorke Peninsula Gouncil	poor topsoil quality resulting in	28



	low establishment of native vegetation and agricultural pasture at closure	Soil stockpiles stabilised with physical and/or chemical binders to minimise erosion until rehabilitation can be conducted
	Instability of final landforms post closure leading to the erosion of soil.	Windbreaks will be incorporated in the mine plan to minimise the loss of soil from wind erosion. Windbreaks will consist of vegetation barriers and vegetated embankments. The design of these barriers will include biodiversity and amenity considerations
		Surface water flow will be directed away from cleared areas and around soil stockpiles.
		Contour banks, engineered drains and sumps will be used to trap any soil erosion as near to the source as practicable.
		Progressive rehabilitation program to reduce the length of time soil is stored
		Remediation of topsoil prior to use for rehabilitation
		A pest plant and animal management program will be developed and implemented by trained and well equipped professionals; including management of the soil stockpiles.
		Saline soil will be stored separately (as per the soil management plan) and runoff directed away from topsoil to prevent leachate (salt water) from contaminating clean soil.
		Dust suppression with saline water will not occur on revegetated areas
		Water from the sewerage treatment plants and SA Water mains water will be used as a fresh water source for dust suppression of topsoil and subsoil stockpiles.
		Salt contaminated soil (where saline dust suppression occurred) will be appropriately removed or remediated after the cessation of mining activities.
		A waste and hazardous substance management plan will be developed to minimise the risk of spillage from mishandling of chemicals and hydrocarbons. This will address storage, handling, clean-up and emergency response procedures
Yorko Ropinsulo Council		All hydrocarbons, chemicals, process waters, concentrate and other substances that can potentially contaminate soil will be restricted to a designated "dirty zone" and contained



	within confined areas constructed to meet the Australian Standards or better
	All spills of fuel, oil or hazardous chemical that occur outside the confined or bunded areas will be reported and remediated as soon as practicable as per EPA requirements
	Spill kits incorporating absorbent matting will be placed in strategic locations on the Mine lease.
	Hydrocarbon waste bins will facilitate collection and removal of contaminated soils or absorbent materials
	All potentially contaminated soil will be remediated. If remediation is not appropriate the contaminated soil will be disposed of in the TSF
	To minimise the risk of soil contamination, all hazardous waste material will be removed from site as soon as practicable in accordance with relevant EPA guidelines.
	Vehicles and equipment will be maintained to Australian Standards to prevent leakages from developing
	Areas that are at risk of contamination will be inspected regularly to ensure good housekeeping.
	AQMP will include water used as a dust suppression measure on haul roads, ROM and low grade stockpiles and WRDs to minimise the risk of potentially contaminated airborne dust.
	Crushing facilities will have a dedicated dust extraction filter system installed, whilst conveyors will be suppressed using a water sprinkler system.
	Rehabilitation of waste rock dumps will consist of pushing back the batters to three slope angles of 20°, 15° and 10° each with a 5 m back-sloping berm at each change of slope. The steeper slopes will be covered with a mix of topsoil and rock to minimise erosion
	Contour banks, engineered drains and sumps will be built to control the flow of water over long surfaces to minimise the loss of soil through erosion.
Varka Ropinsula Caupali	Drought tolerant native vegetation will be included in the mix of vegetation particularly on slopes to prevent the



		risk of soil loss through wind erosion during a drought
		Grazing pressures will be controlled by the site manager utilising appropriate fencing and stock management practices until relinquishment Pest plant and animal control program will continue to run until mine
		relinquishment.
Native Flora		
Area is largely cleared of native vegetation. Impact of mine activities on native vegetation	Required land clearance due to placement of mine infrastructure, causing loss of density and/or diversity of native vegetation. Required land clearance due to placement of mine infrastructure, causing significant impact on threatened species. Unauthorised land clearance from saline over spray from dust suppression, causing loss of density and/or diversity of native vegetation Unauthorised land clearance from manual clearance, causing loss of density and/or diversity of native Vegetation. Unauthorised land clearance from uncontrolled fires emanating from the Hillside Project area of activity, causing loss of density and/or diversity of native vegetation Reduced native plant growth or abundance resulting from increased dust deposition resulting from	Minimise clearing impacts through strategic placement of mine infrastructure Areas of high habitat significance and condition avoided where practicable Staged clearing and progressive rehabilitation Clearly marked areas for any native vegetation removal during construction and operation Native Vegetation Management Plan, incorporating the Hillside Project life of mine, including rehabilitation/revegetation and closure Significant Environmental Benefit accounting system established Clearance procedure, where permission must be sought for any vegetation removal on site Best practice progressive rehabilitation program prepared and implemented Induction of new staff and contractors – vegetation management Cleared and compacted areas to be ripped to assist vegetation
	mining operations Introduction of new pest plant and animal species and plant pathogens in the proposed ML area Sustained increase in abundance of existing pest plant and animal species in the proposed ML area Increased sediment loads in downstream surface water flows causing contamination to the surrounding environment.	establishment Audits of contractor operations, including environmental management procedures Minimise over spraying of areas to address potential issues with salt build-up Areas that are cleared, compacted or where saline water was applied will have impacted ground cover removed and remediated Strategically placed stockpiles used
Vorke Peninsula Council	Contamination of surface water run-off	as physical darriers for sensitive areas



	Inundation of areas of remnant vegetation due to changes in the natural water flow resulting in a reduction in abundance of native flora Disruption of downstream water flows resulting in loss of abundance of native flora Reduced groundwater quantity available for native vegetation as a result of mine dewatering Ecosystem and landscape function not reinstated to pre- mining conditions. Insufficient topsoil quantity and poor topsoil quality resulting in low establishment of native vegetation and agricultural pasture on rehabilitated sites	Ensure revegetation is undertaken in accordance with the approved NVMP. Rex will undertake; An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP. An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP. An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP. An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP. An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP. An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP. An annual survey of the native vegetation will show that all clearance of native vegetation is authorised under the Native Vegetation Act when compared with baseline survey presented in the approved NVMP. Rex will ensure that An independent suitably qualified and experienced expert certifies that representative test sites on rehabilitated areas have achieved or by trends may be confidently predicted to reach and pass sustainability thresholds as defined by Ecosystem Function
Native Fauna		, maryoloi
Impacts on Native Fauna	Loss of fauna from land clearing during construction Significant impacts to species of conservation significance. Fauna injuries and/or deaths from collisions/interactions with mining infrastructure and vehicles (including fauna entrapment in open voids and collisions with fauna) associated with the Project Isolation of fauna populations due to presence of the mine acting as a barrier to fauna movement	Clearly marked areas for any native vegetation removal during construction and operation Minimise clearing impacts through strategic placement of mine infrastructure Areas of high habitat significance and condition avoided where practicable Design informed by baseline studies Use of low powered lighting (as low as possible), restricted to working areas Lighting aimed away from native vegetation patches, with downwards orientation to avoid light spillage
Yorke Peninsula Council	Displacement of native fauna	with ballies of shields to direct light 32



	from light spill from Hillside mining and associated infrastructure Fauna injuries and/or deaths from interactions with the TSF (including fauna entrapment and bird death) associated with the Project Displacement of terrestrial native fauna and marine fauna due to noise and vibration from mine construction and operation. Disturbance to native fauna (terrestrial and marine) due to blasting activities. Increase in and/or introduction of pest plants and animals from activities associated with the Project resulting in reduction in flora and fauna species Final landforms at closure unsafe for fauna and could cause entrapment of fauna. Ecosystem and landscape function not reinstated to pre- mining conditions Discharge of water after closure from leakage through the capping layer, embankment and base (affecting fauna)	below the horizontal plane and reduce light spillDistribute the waste rock to assist with light shielding.Staged clearing and progressive rehabilitationNative Vegetation Management Plan (including strategies for native fauna)- SEB accounting system establishedClearance procedure, where permission must be sought for any vegetation removal on sitePre-clearance fauna surveys conducted prior to any vegetation removalRelocation of faunaProvision of alternative habitat such as bat roosting boxes if trees with hollows are being removedOngoing fauna surveys (in particular bats and birds)Regular monitoring of artificially wet areasFixed speed limit on site of 40km/hourPerimeter fencing maintained to prevent fauna entering site and becoming trapped/injured.All native fauna deaths or injuries on- site will be reported and an investigation will be undertaken to demonstrate it could not have reasonable been prevented
		investigation will be undertaken to demonstrate it could not have reasonably been prevented Opportunistic observations of any conservation significant species recorded (fauna database) and collated annually for changes in populations and locations frequented within the ML.
Pest Plants and Animals		
Introduction and/or increase in abundance of pest animal species are potentially derived from: • Attraction to mine site/domestic waste as a food source • Provision of preferred habitats	Introduction of new pest plant and animal species and plant pathogens in the proposed ML area. Sustained increase in abundance of existing pest	Vehicle wash down and brush down stations at the entrance to site Site surface water designed to minimise surface water ponding, which can attract pest plants and animals
tnrougn clearance or creation of habitat	prant and animal species in the proposed ML area.	Fencing of the mining operation
Food and human attractants	Competition or predation by	Buses transporting employees to and
Yorke Peninsula Council	pest plants and animals with	trom site, decreasing vehicle 33



Fencing providing protection	native vegetation, revegetated	movement to and from the site
from predators.	pursuits	All internal access roads will be sealed around the process area.
		Implementation of a pest plants and animals management plan to ensure all control and management strategies are implemented
		Liaise with the relevant government agencies on appropriate measures to control and monitor pest plant and animals and to align with regional control program objectives
		An active program of weed spraying, as necessary, will be implemented during operations focusing on declared weeds. Weed spraying will be undertaken prior to seed set
		A program of baiting and warren fumigation of declared pest species (namely rabbits, foxes and snails) will be implemented, if required. Baiting in late summer or autumn is the optimum time to bait as rabbits and foxes are more likely to take bait when alternative food is scarce or not available
		Training of employees and contractors in regards to the spread of pest plants and animals will occur through the site induction process
		Vehicles operating on unsealed roads will go through a tyre wash before exiting the proposed ML.
		Cleaning will be conducted in a designated area
		The topsoil stockpiles will be managed to control or prevent pest plant infestations and minimise the likelihood of pest plant introduction or increased distribution during re- spreading of topsoil
		Regular pest plant and animal inspections will be conducted focusing on areas with a high potential for, or susceptibility to, pest plant and animal invasion
		All waste on-site will be contained to isolate pests
		All imported material such as construction material, landscaping material, infrastructure materials, ground disturbing equipment etc. will be purchased from the suppliers, who certify that they are weed free.
Vertre Designation Coursell		Rex will undertake annual pest plant and animal survey shows at



		permanent transects located throughout the ML no new pest plant and animal species and plant pathogens in the proposed ML when compared to control sites or baseline data. Rex will undertake annual pest plant and animal survey shows at permanent transects located throughout the ML no sustained increase in abundance of existing pest plant and animal species in the proposed ML when compared to control sites or baseline data Post closure pest plant and animal
		monitoring at EFA transects located on rehabilitated sites throughout the ML will show no increase in pest plant and animal species when compared to analogue sites or baseline data.
Coastal and Marine Environmen	nt	
Flora and fauna contained within the marine environment as sensitive receptors, which have the potential to be impacted by the Hillside Project.	Marine environment which could be affected include air, water and soil with impacts resulting from; air quality, noise and vibration, blasting activities, surface water runoff, groundwater and radiation	Issues dealt with in the summaries above.
Heritage		
	Disturbance or damage to aboriginal objects, sites or remains from mining activities. Disturbance to geological monuments from blasting activities.	Site inductions of employees, contractors and subcontractors to ensure they have an understanding of Rex's obligations under the Aboriginal Heritage Act in relation to avoiding disturbance, damage and interference to any Aboriginal site, object or remains within the land. A cultural awareness and heritage management training program available to employees, contractors and subcontractors to facilitate basic cultural awareness in consultation with Narungga Heritage. Rex Narungga Aboriginal Heritage Collaborative Agreement to account for construction, operation (including rehabilitation) and mine closure and to ensure agreed heritage management procedures are in place. The development and implementation of a Heritage Management Plan that meets the provision of the agreement to ensure heritage sites and objects
		are avoided, salvaged and/or protected or authorisation under the relevant legislation is obtained to disturb the object, site or remains. Identify zones that are of high sensitivity (for example near the coast, water courses and rock



		outcrops) and avoid or undertake surveys and follow established protocols if any objects or items are identified.
		Establish specific protocol to be followed by all those on site, including contractors, consultants and visitors in the event of a suspected indigenous site, objects or burial discovery.
		Site heritage surveys conducted and records kept of any objects, site or remains discovered related to Aboriginal heritage including location, date and time when reported to the NNAC and relevant government agencies.
		Implementation of authorisation process to disturb Aboriginal heritage under the Aboriginal Heritage Act.
		Earthworks associated with mining activity in areas of potential sensitivity are undertaken in accordance with the Heritage Management Plan.
Surface Water		
Impact of high rainfall event on design of mine infrastructure	There is the potential for the contamination of surface water run-off to occur within the	Surface water flow which interacts with site infrastructure will be temporarily contained and
Impact on surface water quality	proposed ML.	directed to the process plant
Impact on water dependant	T I	waste dams. Upstream.
ecosystems	The major sources of potential contaminants include;	uncontaminated run-off will be
Impact on flow regimes and	 hydrocarbons (from 	diverted around mine
sunace/ground interactions	workshop, fuel farm and maintenance areas)	for containment and treatment.
	 other chemicals (from processing operations, pesticides) 	Surface water flow will be directed away from cleared areas to decrease erosion potential.
	 waste (this has been 	
	addressed under waste disposal	Mine design to consider drainage where possible and include
	 salinity from dust suppression using mine 	contour banks.
	water (high salinity) or potential overflow of on-site water storage ponds	Install a system of catch drains and sediment ponds to contain
	leaching of saline soils in	Tun-on nom waste rock dumps.
	the VVRDS during rainfall events	Construction of a system of internal drains that captures run-
	acidic drainage (resulting	off from other areas disturbed by
	from oxidation of acid forming rock material) has the potential to mobilise	mining activities and directs it to one or more sedimentation ponds
	certain metals.	WRDs to be designed to minimise
	and it contains a variety of	
	copper minerals All the	Progressive rehabilitation of
	except atacamite (dissolved	waste rock dumps as permitted by the mine plan in order to
Yorke Peninsula Council	copper ions) are	stabilise waste dump slopes and 36



	and the second and a line stability	
	environmentally stable.	reduce erosion potential.
	TSF overflow	Installation of hur diamond
		Installation of bunding and
	Increased sediment loads in	diversion drains at potential flood
	downstream surface water	zones.
	tiows causing contamination to	
	the surrounding environment.	Installation of clay lined oxide
	Contamination of surface water	stockpile pad.
	run-off with mine hydrocarbons	
	and process chemicals causing	In the event of process or
	contamination to the	management failure occurring all
	surrounding environment.	potentially contaminated surface
		water will report to the open pit
	Increased salinity of surface	
	water run-off resulting in salt	Mining schedule design and
	scald of sall deposition	waste generation accounts for
	of the environment downstream	known PAF (Potentially Acid
	of the mine site	Forming) rock.
	Acid mine drainage transported	Implementation of a surface water
	by surface water run-off	management plan.
	resulting in contamination to	
	surrounding environment.	Inspection and maintenance of
	Discolved arms in its	sediment and erosion control
	Dissolved copper ions	intrastructure.
	transported by surface water	
	to surrounding environment	Contour banks and formed drains
		inspected and maintained
	Inundation of public roads	
	affecting road users due to	Implementation of a hydrocarbon
	changes in the natural surface	and chemical management plan,
	water flow.	including appropriate use of
		bunding and storage, of spill kits,
	Inundation of agricultural land	the use of hardstand areas where
	affecting surrounding land	hydrocarbons are transferred and
	natural surface water flow	appropriate disposal procedures.
	resulting in loss of crop.	
		For workshop and plant areas
	Inundation of areas of remnant	concrete lined sumps or oily water
	vegetation due to changes in	separators will be installed.
	the natural water flow resulting	
	in a reduction in abundance of	Dust control utilising saline water
	native flora.	to be contained to the internally
	Diaruption of downstream water	draining 'dirty area'
	flows resulting in loss of	
	abundance of native flora	Release of clean water from
		sedimentation ponds
	Decreased soil quantity	
	available for rehabilitation from	PAF rock encapsulated in acid
	erosion of soil stockpiles and	consuming materials (ACM) to
	exposed land	minimise potential for ARD.
	Soil or water contamination due	Oxide and low grade ore will be
	to incorrect waste disposal.	stockpiled on raised constructed
		clay pads to prevent any
		percolation of water through the
		stockpiles entering the underlying
		soil. All water runoff collected in
		surrounding drains.
		Design of final landforms to
		reduce erosion potential
Yorke Peninsula Council		



		Revegetation of final landforms to reduce erosion potential.
		Run-off from the final WRDs would be directed to a series of self-draining catch dams and/or silt traps to contain sediment.
		Water management infrastructure used during operations will be decommissioned and removed if it was not required to sustain the post closure hydrological regime.
		Monitoring of surface water quality from the site (and remediation is required) until such time as it can be shown that the water quality of water released from the site has stabilised to a level no worse than the receiving environment.
Groundwater		
Possibility of water seepage from the mine into groundwater in surrounding areas.	Inappropriate abandonment of drill holes and decommissioned water wells leading to the contamination of groundwater.	Backfilling and abandoning drill holes and decommissioned water wells in accordance with DMITRE and DEWNR requirements.
Impact of mining on water quality including groundwater and water in the open pit.	Contamination of groundwater from in pit and underground mining activities.	Maintaining a net hydraulic gradient toward the pit.
Inflow of sea water into the pit.	Contamination of groundwater from reinjection of water from dewatering.	Spill control and management. Management of all explosives lubricants, fuels in the pit and
	Seawater ingress impacting groundwater quality.	relevant legislation.
	Reduced groundwater quantity available for native vegetation as a result of mine dewatering.	All waste disposed of in accordance with the Waste Management Plan.
	Discharge of contaminated water by excessive leakage through the embankment or	Pumping water from the pit floor for use in processing.
	Offsite movement of contaminated groundwater	Water quality tested prior to reinjection to ensure that it meets acceptance criteria
	Inflow of sea water into the pit post mine closure leading to	If required, water will be treated prior to reinjection to ensure that it meets acceptance criteria.
	environmental damage Reduction in groundwater quality for potential future users	Backfilling and abandoning drill holes and decommissioned water
		and DEWNR requirements. Maintaining a net hydraulic gradient toward the pit after lease relinquishment.
		Rex notes that.
Yorke Peninsula Council		The groundwater quality is 38



Tailings Storage Facility (ML)Concern at the management of the tailings facility.Impact of chemicals including the evaporation of toxic chemicals.Odour impactsLeakage from the Tailings Storage Facility impacting on the sea.Discharge of solids from toxing damage to third party property, reduced public safety and flooding.Maintaining a net hydraulic gradient toward the pit (the groundwater modelling indicates that any seepage from the TSF will move towards the open pit as it is within the zone of influence of the cone of depression).Discharge of solids from overfiling or overtopping of the storage.Discharge of solids due to flooding.Discharge of solids due to flooding.Discharge of contaminated water by discharge for contaminated water by excessive leakage through the embankment or base.Discharge of solids after closure as possible as a result of abreachDischarge of solids after closure as a result of flooding.Discharge of solids after closure as a result of flooding.			 poor, and similar to seawater in much of the site. There are no current environmental or agricultural users of the groundwater. The future potential uses are limited to industrial without significant treatment e.g. desalinisation. During operations and on closure, there will be a net hydraulic gradient in the aquifer toward the pit, precluding the offsite movement of groundwater and any contaminants.
 Learner at the manugeritent of the large of solids from fialure, italings date to pipeline failure. Discharge of solids from fialure or excess deformation of the embankment (embankment embankment.) Leakage from the Tailings Storage Facility impacting on the sea. Discharge of solids from other to storage. Discharge of solids from attement) causing damage to third party property, reduced public safety and flooding. Discharge of solids due to flooding. Discharge of contaminated water for tailings or return water pipeline failure. Discharge of contaminated water by excessive leakage from the TSF spillway to pare manument or base. Fauna injuries and/or deaths from interactions with the TSF has been design to ensure minimum 600mm freeboard and accounts for 1:100 year rainfall. Discharge of solids after closure as a result of aforcanic of the embankment. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of flooding. Discharge of solids after closure as a result of pretical progret o	I allings Storage Facility (ML)	Discharge of colide from the	Mointoining a not hydroylia
closure as a result of a breach contaminated water for reuse in	Concern at the management of the tailings facility. Impact of chemicals including the evaporation of toxic chemicals. Odour impacts Leakage from the Tailings Storage Facility impacting on the sea.	Discharge of solids from the tailings due to pipeline failure. Discharge of solids from failure or excess deformation of the embankment (embankment instability and settlement) causing damage to third party property, reduced public safety and flooding of surrounding low lying areas. Discharge of solids from overfilling or overtopping of the storage. Discharge of contaminated water from tailings or return water pipeline failure. Discharge of contaminated water by discharge through the spillway. Discharge of contaminated water by excessive leakage through the embankment or base. Fauna injuries and/or deaths from interactions with the TSF (including fauna entrapment and bird death) Discharge of solids after closure as possible as a result of failure or excess deformation of the embankment. Discharge of solids after closure as a result of flooding.	Maintaining a net hydraulic gradient toward the pit (the groundwater modelling indicates that any seepage from the TSF will move towards the open pit as it is within the zone of influence of the cone of depression). Design of TSF to withstand a magnitude 6 earthquake with epicentre in St Vincent Gulf. The TSF has been designed to ANCOLD standards. All designs internally to be peer reviewed The TSF is located at a minimum 900m distance from the pit crest, The TSF has been design to ensure minimum 600mm freeboard and accounts for 1:100 year rainfall. Design of the TSF spillway to PMP 1:10,000 ARI flood capacity Design ensures that at closure minimal water is retained on TSF TSF design incorporates barriers to prevent seepage below the tailings and drainage for effective removal of leachate on top of seepage barrier WRD designed to maintain stable slopes The design of pit incorporates collection of potentially
		closure as a result of a breach	contaminated water for reuse in



	of the capping layer (which may	process water system
	include erosion damage at the	process water system
	spillway).	The mine site will be fenced
	Discharge of water after closure from leakage through the capping layer, embankment and base.	Test work has been completed to characterise tailings to determine the amount of PAF materials in the TSF tailings
		Instrumentation of the pipeline to indicate if a leak has occurred in the internal lining
		Bunding of pipelines to contain spills
		Management and control of the TSF tailings beach which includes monitoring of slurry rheology and surveillance of the achieved beach slope
		The placement of erosion resistant material at the toe of the embankment if necessary
		Flattening of the downstream slope during rehabilitation to prevent rill erosion
		Covering of the constructed clay base with a thin layer of waste rock or sand to prevent cracking of the base layer during construction prior to commissioning
		The inclusion of a seepage collection system below the confining embankment and at the base of the valley
		Monitoring of seepage to determine efficiency of drainage from TSF
		Construction of TSF will be controlled and audited by suitably qualified engineer to ensure that construction meets design criteria
		Tailings entering the TSF will be thickened to minimise the amount of water requiring reclaiming from the TSF (target solids content within the range of 54% to 58% at discharge)
		Monitoring of operations to ensure slope stability
Vorko Popincula Council		Uncontaminated water will be



	separated from potentially contaminated water (catchment diversion drains etc.)
	In the event of process or management failure occurring all potentially contaminated surface water will report to the open pit
	Monitoring / surveillance of the water balance and pond level
	Monitoring of internal water levels (decant well) in the post closure period
	Topsoil and Subsoil Management Plan implemented
	PAF rock encapsulated in ACR to minimise potential for ARD
	The overall closure shape will tie in with the overall WRD closure surface (a flat plain like structure sloping gently to the west (slope of 1%) to allow adequate drainage)
	Allowance for a suitably sized spillway and outlet channel (designed to cater of a PMP flood event) between the TSF western embankment crest and the WRD
	The water quality in the TSF will be checked to ensure that it is of similar or better than that in the open pit receiving environment prior to any water being pumped.
	At mine completion the TSF will drain through the underdrainage blanket system to the DSCP.
	The tailings surface will be capped with a low water flux cover system consisting of a waste rock layer covered with topsoil and revegetated (topsoil stripped from within the impoundment area at the time of construction will have been stockpiled for this purpose)
	The closure capping has been designed and incorporates a capillary break
Vorte Baningula Council	Maintaining a net hydraulic gradient toward the pit



		A legal encumbrance will be in place stating the land management practices for the area of the TSF All remaining surface water infrastructure will become responsibility of the landowner
Public Safety (ML)		
Public Safety (ML) Impact of the mine and mine operation on public safety.	Injury and/or death to members of the public through unauthorised access to the mine site. Reduced public safety from fire originating from the mine site resulting in injury and/or death. Increased vehicle accidents as a result of dragout carried from mine entrances onto public roads. Increased traffic incidents at the mine entry and exit point from the Hillside Project. Reduced public safety and damage to third party property (including stock) from fly rock Discharge of solids from failure or excess deformation of the embankment (embankment instability and settlement) causing damage to third party property, reduced public safety and flooding of surrounding low lying areas. Injury and/or death to members of the public due to access vertical openings and unsafe final landforms.	The mine site will be enclosed by a security fence which complies with AS1725-2003 standards.Boom gates to be installed at the main entrance whilst all other perimeter gates within the security fence will be lockedInstallation of adequate warning signs.The surface explosives magazine will be fenced in a separate security compound and restricted to authorised persons holding SafeWork SA Blasting permits or permits to handle explosives.Maintain adequate on-site site security including cameras and fence controls.Regular inspections and maintenance of the site fence and signage.Regular auditing of the magazine records and non-cuttable keys are used to ensure all explosives, detonators and magazine keys are accounted for.Regular monitoring of areas or infrastructure/structures posing safety risks and the provision of timely notification of mining progress to the community and any other relevant stakeholders where management of public safety is required.Maintain good community relations to assist in reporting of trespassers.On mine closure access to the open cut will be minimised by
Vorko Bopingula Cauncil		around the entire pit with relevant signage.



Traffic (ML)Increased numbers of heavy vehicles will impact upon the safety of other road usersIncreased public nuisance resulting from oversize vehicles using Highways during constructionDesign the plant and other components to remain within DPTI load size limits where possibleIncreased light vehicle traffic will impact upon the safety of other road usersIncreased traffic incidents as a result of increased vehicles on roads [including on school hus routes pearDesign the plant and other components to remain within DPTI load size limits where possible	1
Increased numbers of heavy vehicles will impact upon the safety of other road usersIncreased public nuisance resulting from oversize vehicles using Highways during constructionDesign the plant and other components to remain within DPTI load size limits where possibleIncreased light vehicle traffic will impact upon the safety of other road usersIncreased traffic incidents as a result of increased vehicles on roads [including on school bus routes pearDesign the plant and other components to remain within DPTI load size limits where possible	
vehicles on roads [including comply with Australian road	
will impact upon the amenity of local residents ML].	
Increased light vehicle numbers will cause traffic congestion on the highways and local roads as a result of the workforce driving to	
and from work Increased vehicle traffic will speed the mine entry and exit point	n
up deterioration of local roadsfrom the Hillside Project.Seal minor roads that will experience significant increases in vehicle numbers in consultati with DCYPIncreased vehicle traffic have a negative impact tourism in the regionPublic nuisance due to changes in road network resulting from roadSeal minor roads that will experience significant increases in vehicle numbers in consultation	s ion
diversions and closures. Seal internal roads to decrease any potential drag out from Increased traffic incidents at the Highway entry and exit	ţ
point for the transport of extractive material.Install rumble grids at all site entrances to minimise sedimen carry-over onto external roads	t
impacting on amenity and implemented implemented	
Public nuisance impacts on surrounding residential receptors from noise emanating from increase in	f
road traffic from road diversions required for the Hillside Project. Schedule delivery of oversize loads to minimise disruption to local traffic	
Public road damage due to the increase of traffic to and from the mining operations. Schedule deliveries to minimise heavy vehicle operation during peak traffic periods and at night	∍ t
Increased native animal Regular road safety training and mortality as a result of more collisions with vehicles.	d
Utilisation of street sweepers to remove carryover sediment from public roads as required) M



		Signage and publication of road changes and detours
		closures
Waste Disposal (ML)		
Public Health, safety and amenity impacts resulting from the management and disposal of waste	Soil or water contamination due to incorrect waste disposal	All waste and recyclables will be disposed of at off-site facilities; all landfill facilities used by Hillside will be EPA approved facilities.
	Contamination due to incorrect management of sewage plants	Waste disposal will be incorporated in Rex's Environmental Management System (EMS).
	Incorrect tyre storage which can cause fires and present a fire hazard	An approved sewage facility will be constructed to approved standards and effluent will be
	to incorrect storage of hazardous waste substances (i.e.	disposal contractor when required.
	batteries)	management plan.
	Attraction of pest animals to waste stored on-site	Ensure appropriate litter and rubbish bins/skips are available on site.
	Reduction in aesthetic and recreational value of area from increase in general solid waste and litter	6. Ensure rubbish bins and recyclable waste is removed by contractors as regularly as possible to minimise the risk of
	Waste remaining onsite at closure resulting in loss of land capability to future	soil contamination and pest attraction.
	user.	7. On-site hazardous wastes such as waste oils and used car batteries will be stored as per EPA bunding guidelines (EPA 2010) prior to disposal.
		8. Used tyres requiring disposal will be stored as per EPA guidelines (EPA 2010) and the South Australian Fires services guidelines.
		Monthly site inspections will be undertaken by the Rex environmental department to ensure correct storage of all waste awaiting disposal and a regular turnaround of waste.
		Waste tracking forms will be required for all waste removed from site.
		Ensure the contractor who is transporting waste to the EPA



		approved facility takes all reasonable and practicable steps to cover, contain or secure the waste and ensures that it remains on or in the vehicle throughout the course of transportation; and ensure that the vehicle being used to transport the waste is designed an sufficiently well maintained so as to prevent the spillage or leakage of the waste.
Adjacent Land Use (ML)		
Impacts on land use adjacent to the Hillside mine Impact on Aerial spraying	Blast exclusion zone restricting access to adjacent land user for normal faming activities and	Design blasts to limit blast exclusion zone as much as feasible.
Impact on farm productivity ([stock and yield] shading from changed landscape and blasting)	aerial spraying. Interference with grain transport and machinery movements on adjacent	Consult with DPTI and DCYP to design road changes to take into consideration agricultural related traffic/machinery/stock movement.
machinery movement	Reduced access to land parcels as a consequence of blast exclusion zone and road changes.	Design new fencing and internal roads to ensure adequate access to land parcels for landowners farmingland within the proposed ML.
	Decrease in land available for agriculture. Reduced productivity	Design shape, slope and height of WRD to minimise hours of shading of agricultural land where practical.
	Inconvenience to adjoining landowners.	Blasting schedule to reflect needs of neighbouring land uses and where possible minimise number of blasts and blast at a consistent time.
	Disturbance to livestock on neighbouring properties as a result of blasting activities	Setting and maintaining blast exclusion area to ensure risk to landowner or public (road users) is mitigated.
	Impact on agricultural aircrafts flying over the clearance zone during a blast.	Notification of near landowners in advance of blasts using an agreed notification protocol. Where blast clearance zones
	growth rates/yields from increased dust deposition on leaves.	paddocks inside the mine lease, a clear plan indicating the blast location, proposed time and extent of blast clearance area
	Decreased soil quality due to potentially contaminated airborne dust emanating from the mining operation.	should be provided to facilitate planning and timing of agricultural activities within the exclusion zone.
Vorko Ropinsula Council	Introduction of new pest plant and animal species and plant pathogens in the	Implementation of a Drill and Blast Management plan.



	proposed ML area. Sustained increase in abundance of existing pest plant and animal species in the proposed ML area.	Implement a Communication Management Plan to establish clear communication with nearby landowners of activities that may impact on adjacent land use.
	Fires damaging to agricultural crops and native vegetation	Minimise areas excluded from agriculture during operation by maintain agricultural land use on all areas not required for direct mining activity.
	Reduced land available to agriculture post closure.	Using agricultural crops as a key rehabilitation and stabilisation vegetation cover during operation.
		Progressive rehabilitation to include returning land to agricultural land use as soon as practical.
		Conduct crop trials to monitor productivity from rehabilitation methods.
		Implement a Native Vegetation Management Plan to enhance conservation land use in adjacent areas.
		Maintain fire breaks around the site and implement a Fire Management Plan.
		Land access and compensation agreement and waiver of exempt land status in place.
		Implementation of a flight exclusion zone immediately above the open pit.
Protection of Third Party Property	(MI)	Maximise area available to agricultural pursuits post mining by rehabilitating the land to a level of productivity similar to surrounding agricultural land.
Protection of Third Party Property		
Fire management during periods of high bushfire risk.	Uncontrolled fires from mining operation resulting in damage to third party property	fire equipment including fire pump, booster box and hydrants to be established throughout the processing plant, workshops and offices
	Public road damage due to the increase of traffic to and from the mining operations Reduced public safety and damage to third party property (including stock)	installation of the slurry pipeline from the mine to the port facility to significantly decrease the number of heavy vehicle road traffic
Yorke Peninsula Council	from fly rock.	the portion of unsealed road between the T-junction with the ₄₆



	Structural damage to roads and houses caused by blast activities.	Yorke Highway and the mine entrance will be sealed
	Discharge of solids from failure or excess deformation of the embankment (embankment instability and settlement)	buses will transport employees to and from site to reduce the amount of light vehicles on the road.
	causing damage to third party property, reduced public safety and flooding of surrounding low lying areas.	Implementation of a Fire Control Management Plan and Mine Emergency Response Plan incorporating the CFS guidelines and the State Emergency
	Incorrect tyre storage which	Management Plan
	can present a file hazard.	an appropriately trained onsite Emergency Response Team will be formed
		implement specific procedures for hot work
		onsite water trucks and earthmoving equipment will be setup so they can respond to surface fires as required
		dry chemical fire extinguishers will be fitted to all vehicles
		regular slashing and if required, control burns in conjunction with the CFS
		maintain expansive fire breaks around the site
		regular fire hazard inspections
		regular maintenance of fire equipment
		designated smoking areas away from high fire risk areas
		on-going training with the CFS
		no fire risk operations on catastrophic days as per State Government regulations
Radiation (ML)		
Radiation levels and their management at the Hillside site.	Human health impacts resulting from inhalation of increased levels of	Identify through assaying drill core samples concentration and distribution of radioactive
materials in ore, concentrate.	radionuclide dusts.	materials within the deposit.
waste material and tailings to	Adverse health impacts on	Design waste stockpiles and TSF
ensure that employees are not	grazing animals from	to sufficiently encapsulate any
exposed to excess radiation and	ingestion of radionuclide	residual high level radioactive
that radioactive materials do not	dusts	materials.



have any effect on the local		
community	Negative health impacts on	Scheduling of pit and processing
	hative fauna resulting from	activities to ensure that radiation
	indestion of radionuclide	sufficiently small quantities to
	dusts.	minimise the concentrations
		carried through into concentrate
	Damage to marine flora and	and waste streams including the
	fauna as a result of	TSF.
	increased deposition of	Implementation of Padiation
		Management Plan for radioactive
	Human health risks post	materials if required
	closure if residual	
	radioactive material is not	Implementation of Air Quality
	suitably mixed and	Management Plan.
	waste stockpiles and TSF.	
Miscellaneous purposes Licences	s (Ardrossan Processing and	Loading facilities
Air Quality (MPLs)		
Impact on the community	Decrease in ambient air	Elevated Arrium haul road to
corridor and impacting grain	health impacts at	provide a physical barrier between concentrate dewatering
handling operations at the port.	neighbouring sensitive	and storage facility and grain
0 1 1	receptors from dust and	storage bunkers (port facility
Impact on community and	particulates generated by	option 1).
environment of dust generated by	the port operation.	Concentrate bandling abod
construction of the pipeline	Contamination of grain at	designed to maintain negative
	Viterra storage facility with	pressure.
Impact on grain handling	base metals in dust	
	gnerated by concentrate	Exhaust ventilation from storage
Potential [dust] contamination of	nandling operations at the	sned designed with a bagnouse
grain stored at the viteria facility	port facility	treatment facility.
Harm to the marine environment	Reduced native plant growth	Closed conveyors used to
[derived from dust from port	or abundance resulting from	transport concentrate to ship
facility	Increased dust and	loading point.
	arising from port operations	Dust extractor filters located on
	(option 1)	conveyor transfer points.
	Decrease in ambient air	Air Quality Management Plan
	nuisance at neighbouring	implemented.
	sensitive receptors from	Traffic Management Plan
	dust and particulates	implemented.
	generated by pipeline	Maintain maistern at D
	Installation	Maintain moisture at Dust
	Decrease in ambient air	concentrate at all times.
	quality resulting in public	
	nuisance at neighbouring	Operational vehicles kept to
	sensitive receptors from	established and designated
	port operation	limits
	Degradation of marine	Unsealed trafficable and external
	environment and negative	working areas sealed with
	fauna from concentrate	base
	dust and particulates	
Yorke Peninsula Council	· ·	48



	generated from the port operations entering the ocean.	Roads sprayed with water and or sealant when required as specified by Air Quality Management Plan. Disturbed areas stabilised with physical and / or chemical binders until rehabilitation can be Soil disturbance minimised as far as possible during pipeline installation. Rehabilitation of disturbed land to be undertaken immediately after pipeline construction is completed On-going maintenance of dust control systems.
Noise and Vibration (MPLs)		
Noise and Vibration (MPLs) Impact to nearby residents and communities from noise generated by mining activities.	Public nuisance impacts on surrounding residential receptors from noise during construction at the port Facility Public nuisance impacts on surrounding residential receptors from noise during operation at the port Facility Public nuisance impacts on surrounding residential receptors from vibration during construction at the port facility Public nuisance impacts on surrounding residential receptors from vibration during operation at the port facility Displacement of terrestrial native fauna and disturbance to marine fauna from noise and vibration at	 Model the expected noise impact and determine the level of noise mitigation required Specify a maximum sound power for mobile plant to be located on the port facility site Specify a maximum sound power for conveyers and pumps Use of low noise conveyer systems Broadband noise reversing alarms fitted to permanent site vehicles e.g. front end loaders Ensure mobile plant (eg loaders) operate inside the enclosed area, with access doors shut whenever possible Ensure fixed plant is maintained such that noise and vibration emissions do not increase above the specified levels over the lifespan
Visual Amenity (MPLs)		
Impact on views from the Yorke Highway	Reduction in visual amenity from clearance of vegetation and excavations during construction Built infrastructure reducing visual amenity	Minimal vegetation removal to maximise screening during construction. Prominent built structures (filtration building and office infrastructure required in the vicinity of the port) designed to
	Nuisance to the public from light spill during construction and operation	reflect DCYP planning principles and screened where practical. Structures and buildings will use
Yorke Peninsula Council	45	



	Reduction in visual amenity from increase in general solid waste and litter at the port Decrease in ambient air quality resulting in public nuisance at neighbouring sensitive receptors from dust emanating from Hillside. Remaining built infrastructure reducing visual amenity	non-reflective, natural coloured materials to reduce their visual impact. Burying pipelines below the surface within the corridor. Maintain ocean views from the Yorke Highway by positioning power lines on the western side of the road easement. Fixed night lighting designed to achieve minimal light spillage by using luminaries and light sources that efficiently direct the light where required, thereby minimising energy and light wastage (or spill). Purpose built temporary solid waste storage repositories to store waste for waste removal to appropriately licenced waste disposal facilities. Site inspections and responsible waste handling procedures to control the potential visual impact of solid waste at the mine site during construction and operation and including accommodation, maintenance and office areas. Decommission and remove all infrastructure that has no further beneficial use and reinstate the landscape to original condition.
		infrastructure and any visual
Soil/land Dicturkence (MDL a)		
Potential for soil erosion	Soil loss and land disturbance from the construction of the slurry and raw water pipeline Reduced soil quality due to soil contamination from leakage of the slurry and salt water pipeline Soil loss from modifications of the Port facility (option one only)	The pipeline corridor will be designed to ensure that the soil is removed in layers to separate topsoil from subsoil and returned to the same location it was excavated from. This soil will be stockpiled at a small height to limit wind and water erosion The slurry solids concentration and pipe size have been selected to prevent early pipe wear and Blockage
Vorka Paningula Council	stockpiles through erosion (option one only) Decreased soil quality due to build-up of weed seed in	A leak detection system will be implemented between the HDPE liner and steel liner, with the steel liner acting as a bund



	the topsoil stockpile from long term storage (option one only) Reduced soil quality from the build-up of contaminated dust from the filtration plant and conveyor belt	I he steel pipeline thickness is engineered to provide a safe pressure envelope to allow for pressure surges caused by power outages and accidental mainline valve closure and normal operation slurry hydraulic gradients
	Land surface not properly stabilised post closure	The topsoil bund at the port will be no more than three meters high (option one)
		Dust at the port will be controlled through enclosed conveyor belts encompassing dust extraction filters at transfer points or through existing loading tunnels depending on the option selected
		Erosion of natural gullies and creek lines will be minimised through the use of directional drilling under these features along service or pipeline corridors.
		Slurry concentrate will be pumped through the pipeline at the safe operating velocity of 1.52 m/s depending upon the concentration by weight
		All topsoil removed as part of the pipeline construction will be re- spread as soon as possible during the constructing of the pipelines.
		A vehicle access track to service the pipelines will be ripped and returned to the original land use post mining, unless the landowner requests to retain the access track
		A pipeline leak detection system will be in place to spot leaks, predict their location and issue warnings to operators. The proposed system will detect a leakage between the HDPE liner and the steel pipe triggering an immediate shutdown to prevent wear and damage to the outer steel pipeline and before any release to the surrounding environment
Varka Baningula Council		During the construction of the pipelines an environmental observer appointed by Rex will be assigned to ensure that the



Native Flora (MPLs) Pest plant and animal control program will continue to run until licence relinquishment. Loss of native vegetation, note site for the development is cleared of vegetation and subject to impacts from existing industry Required land clearance due to placement of ative vegetation. Clearly marked areas for any native vegetation native vegetation. Unauthorised land clearance for manual clearance from manual clearance from manual clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation. Clearly marked areas for any native vegetation native vegetation manual clearance from manual clearance from manual clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation. Native Vegetation fire of mine, including rehabilitation/revegetation and closure SEB accounting system established Clearance procedure, where permission must be sought for any vegetation removal Induction of new staff and contractors – vegetation management will be incorporated into mine site induction or new staff and contractors – vegetation			 contractors comply with the Legislative and Project environmental standards. The topsoil bund will be sown with an approved seed mix and once established, the vegetation cover will be maintained until the soil is required for rehabilitation (option 1). Implementation of a weed management plan to control weed infestation on the topsoil stockpile bund (option 1). Pre-stripping and stockpiling of topsoil will occur prior for the option 1 at the port facility. The pipeline corridor will be reintroduced into the landowner's agricultural rotation as soon as practicable. The port site will be reintroduced into the agricultural rotation as soon as practicable or as per the landowners requirements (option 1)
Native Flora (MPLs)Required land clearance due to placement of infrastructure, causing loss of density and/or diversity of native vegetation.Clearly marked areas for any native vegetation removal during construction activities.Unauthorised land clearance, causing loss of density and/or diversity of native vegetation.Clearly marked areas for any native vegetation memoval during construction activities.Unauthorised land clearance, causing loss of density and/or diversity of native vegetation.Native Vegetation Management Plan, incorporating the Hillside Project life of mine, including rehabilitation/revegetation and closureUnauthorised land clearance from manual clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.SEB accounting system establishedUnauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.Clearance procedure, where permission must be sought for any vegetation removalReduced native plant growth or abundance resulting fromInduction of new staff and contractors – vegetation management will be incorporated into mine site induction orocedures			Pest plant and animal control program will continue to run until licence relinquishment.
Native Flora (MPLs)Loss of native vegetation, note site for the development is cleared of vegetation and subject to impacts from existing industryRequired land clearance due to placement of infrastructure, causing loss of density and/or diversity of 			Hardstands will be the same or better standard than previous hardstands (options 2 & 3)
Loss of native vegetation, note site for the development is cleared of vegetation and subject to impacts from existing industryRequired land clearance due to placement of infrastructure, causing loss of density and/or diversity of native vegetation.Clearly marked areas for any native vegetation removal during construction activities.Unauthorised land clearance, causing loss of density and/or diversity of native vegetation.Native Vegetation Management Plan, incorporating the Hillside Project life of mine, including rehabilitation/revegetation and clearance, causing loss of density and/or diversity of native vegetation.Unauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.Clearly marked areas for any native vegetation and clearstructure, causing loss of density and/or diversity of native vegetation.Unauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.Clearance procedure, where permission must be sought for any vegetation removalInduction of new staff and contractors – vegetation management will be incorporated into mine site induction or abundance resulting from to abundance resulting fromInduction of new staff and contractors – vegetation	Native Flora (MPLs)		
native vegetation.Native Vegetation Management Plan, incorporating the Hillside Project life of mine, including rehabilitation/revegetation and clearance, causing loss of density and/or diversity of native vegetation.Native Vegetation Management Plan, incorporating the Hillside Project life of mine, including rehabilitation/revegetation and closureUnauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.SEB accounting system establishedUnauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.Clearance procedure, where permission must be sought for any vegetation removalReduced native plant growth or abundance resulting fromInduction of new staff and contractors – vegetation management will be incorporated into mine site induction procedures	Loss of native vegetation, note site for the development is cleared of vegetation and subject to impacts from existing industry	Required land clearance due to placement of infrastructure, causing loss of density and/or diversity of	Clearly marked areas for any native vegetation removal during construction activities.
density and/or diversity of native vegetation.SEB accounting system establishedUnauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.Clearance procedure, where permission must be sought for any vegetation removalInduction of new staff and contractors – vegetation management will be incorporated into mine site induction or abundance resulting fromInduction of new staff and contractors – vegetation management will be incorporated into mine site induction		native vegetation. Unauthorised land clearance from manual clearance, causing loss of	Native Vegetation Management Plan, incorporating the Hillside Project life of mine, including rehabilitation/revegetation and closure
Unauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or diversity of native vegetation.Clearance procedure, where permission must be sought for any vegetation removalInduction of new staff and contractors – vegetation management will be incorporated into mine site induction or abundance resulting fromInduction of new staff and contractors – vegetation management will be incorporated into mine site induction		density and/or diversity of native vegetation.	SEB accounting system established
diversity of native vegetation.Induction of new staff and contractors – vegetation management will be incorporated into mine site inductionReduced native plant growth or abundance resulting frominto mine site induction procedures		Unauthorised land clearance from uncontrolled fires emanating from the areas of activity, causing loss of density and/or	Clearance procedure, where permission must be sought for any vegetation removal
or abundance resulting from procedures		diversity of native vegetation. Reduced native plant growth	Induction of new staff and contractors – vegetation management will be incorporated into mine site induction
Yorke Peninsula Council 52	Yorke Peninsula Council	or abundance resulting from increased dust and	procedures



	particulate deposition arising from port operations (option 1)	Audits of contractor operations, including environmental management procedures
	Introduction of new and sustained increase in pest plants and animal species (
Native Fauna (MPLs)	-	
industrial nature of the port location in particular the Arrium facility means that the land is pre-cleared and there are existing noise, vibration and light sources.	Loss of fauna from land clearances during construction	Clearly marked areas for any native vegetation removal during construction and operation
	Significant impacts to species of conservation significance	Minimise clearing impacts through strategic placement of infrastructure
	Fauna injuries and/or deaths from collisions with infrastructure and vehicles at the port facility	Areas of high habitat significance and condition avoided
		Design informed by baseline studies
	of the infrastructure acting as a barrier to fauna movement	Use of low powered lighting (as low as possible), restricted to working areas during construction
	Displacement of native fauna from light spill from the port facility	Lighting aimed away from native vegetation patches, with downwards orientation to avoid light spillage with baffles or shields to direct light below the barizontal plane and reduce light
	Displacement of native fauna as a result as a result of prolonged noise and vibration exposure above	spill.
	background noise and vibration levels generated from the port facility and	Plan – SEB accounting system established
	associated infrastructure	Native Fauna Management Plan
	Increase in and/or introduction of weeds, plant pathogens and/or pests causing land degradation	Clearance procedure, where permission must be sought for any vegetation removal on site
	and competition for resources, resulting in reduction in flora and fauna species from activities	Pre-clearance fauna surveys conducted prior to any vegetation removal
	associated with the corridor and port facility	Relocation of fauna
	Final landforms at closure unsafe for fauna and could cause entrapment of fauna.	Provision of alternative habitat such as bat roosting boxes if trees with hollows are being removed
		Ongoing fauna surveys (in particular bats and birds)
		Regular monitoring of artificially wet areas
		Fixed speed limit on site of <40



		km/hour
		Employee awareness through site induction.
		Perimeter fencing maintained to prevent fauna entering site and becoming trapped/injured
Pests Plants and Animals (MPLs)		
	Introduction of new pest plant and animal species and plant pathogens within the pipeline system and port facility area	The bulk earthworks design at the port facility aims to achieve equal cut to fill as to minimise disturbance of the existing ground and movement of soils where possible.
	Sustained increase in abundance of existing pest plant and animal species within the pipeline system and port facility area	Site surface water design to minimise surface water ponding, which can attract pest plants and animals.
	Competition or predation by pest plants and animals with	Fencing of Rex's port facility for the Hillside Project
	closure	Transporting the slurry concentrate through the pipeline resulting in little vehicle movement to and from the port facility.
		Regular pest plant and animal inspections will be conducted focusing on areas with a high potential for, or susceptibility to, pest plant and animal invasion.
		Opportunistic weed spot spraying, if necessary, will be implemented at the port facility focusing on declared weeds.
		Training of employees and contractors in regards to the spread of weeds will occur through the site induction process
		All waste on-site will be contained to isolate pests
		All imported material such as construction material, landscaping material, infrastructure materials and ground disturbing equipment, will be purchased from the suppliers guaranteeing them weed free. All imported construction materials will be inspected for potential weeds prior to entering the site
Coastal and Marine Environment	(MPLs)	
introduction of marine pests Yorke Peninsula Council	Entrainment or entrapment of marine organisms	Conveyor system entirely enclosed 54
On a stal. O sum still Ma stillers. A manual s	50	



seepage from lined process water ponds and seawater storage ponds into the marine environment	through the seawater intake system Degradation of marine environment and negative impact on marine flora and fauna from concentrate dust and particulates generated from the port operations entering the ocean. Damage to marine flora and fauna from stormwater run- off contaminated by chemical and hydrocarbons Damage to marine flora and fauna from stormwater run- off contaminated by chemical and hydrocarbons Damage to marine flora and fauna from stormwater run- off contaminated by overflow of process water ponds impacting the marine environment Increased sediment loads in downstream surface water flows causing smothering of marine flora and fauna	Minimal disturbance of sea floor for intake support structure Sea water intake located 1.5 m above sea floor Screened intake to minimise impact on larger organisms Sea water intake velocities limited to 0.15 m/s to minimise entrainment of marine organisms as per agreed EPA standards At closure all lined process water and seawater storage dams will be removed and rehabilitated. Include marine environment awareness in employee inductions Cover placed over seawater intake screens when not in use to stop build-up of any growth on screens
Heritage (MPLs)		
No non-indigenous cultural heritage sites are located within the proposed corridor MPL One geological monument is located approximately 4 km south of Ardrossan and is within the proposed MPL (in the road verge on the western side of Yorke Highway).	Disturbance and damage of Aboriginal objects, sites and remains during construction of port infrastructure (option 1) Disturbance and damage of Aboriginal objects, sites and remains during construction of the corridor	The pipeline and infrastructure is located in previously disturbed land which has been cultivated. The port facilities is located on land previously used for industrial purposes, away from the coastal area where Aboriginal objects and sites are more likely to be found. Site inductions of employees, contractors and subcontractors to ensure they have an understanding of Rex's obligations under the Aboriginal Heritage Act in relation to avoiding disturbance, damage and interference to any Aboriginal site, object or remain within the land. A cultural awareness and heritage management training program available to employees, contractors to facilitate basic cultural awareness in consultation with Narungga Heritage. The development and implementation of a Heritage Management Plan that meets the provision of the agreement to



Surrace water (MPLs)Increased sediment loads during construction of the corridor causing impact on afjacent agricultural LandWashing site is entirely bundedContamination of surface run-off during construction of the corridor causing impact on adjacent agricultural landWashing site is entirely bundedContamination of surface run-off during construction of the corridor causing impact on adjacent agricultural landEntire washing, filtration and storage sheds constructed on concrete and enclosed in a bunded area to prevent spillage outside of operations area.Damage to marine flora and fauna from stormwater run- off contaminated by chemical and hydrocarbons spills impacting the marine environmentSurface water flow will be directed away from cleared areas to decrease erosion potentialDamage to marine flora and fauna from stormwater run- off contaminated by overflow of process water ponds impacting the marine environmentInspections and maintenance of surface water bundingIncreased sediment loads in downstream surface water flows causing smothering of marine flora and fauna impacting the marine environmentInspections and maintenance of surface water bundingNonitoring the two port ponds water level.Staff trained containment and spill repose kits in strategic locationsNonitoring the two port ponds water level.All drains at port are appropriately designed and complement existing infrastructureSoil or water contamination due to incorrect waste disposalStoff trainal andforms to reduce erosion potential			ensure heritage sites and objects are avoided, salvaged and/or protected or authorisation under the relevant legislation is obtained to disturb the object, site or remains. Site heritage surveys conducted and records kept of any objects, site or remains discovered related to Aboriginal heritage including location, date and time when reported to the NNAC and relevant government agencies. Implementation of authorisation process to disturb Aboriginal heritage under the Aboriginal Heritage Act.
Vashing site is entirely bunded during construction of the corridor causing impact on adjacent agricultural Land Contamination of surface run-off during construction of the corridor causing impact on adjacent agricultural land Damage to marine flora and fauna from stormwater run- off contaminated by chemical and hydrocarbons spills impacting the marine environment Damage to marine flora and fauna from stormwater run- off contaminated by overflow of process water ponds impacting the marine environment Increased sediment loads in downstream surface water flows causing smothering of marine flora and fauna impacting the marine environment Soil contaminated by solution and chemical spills mapacting the marine environment Staff trained in oil and chemical spill management disposal marine flora and fauna impacting the marine environment Soil contamination and leakage of the slurry and salt water pipeline Soil or water contamination due to incorrect waste disposal	Surface water (MPLs)		
Tatina from stormwater run- off contaminated by overflow of process water ponds impacting the marine environmentsurface water formed sediment trapsIncreased sediment loads in downstream surface water flows causing smothering of marine flora and fauna impacting the marine environmentStaff trained in oil and chemical spill managementIncreased sediment loads in downstream surface water flows causing smothering of marine flora and fauna impacting the marine environmentInstall appropriate containment and spill repose kits in strategic locationsNonitoring the two port ponds water level.Monitoring the two port ponds water level.Reduced soil quality due to soil contamination and leakage of the slurry and salt water pipelineAll drains at port are appropriately designed and complement existing infrastructureSoil or water contamination due to incorrect waste disposalDesign of final landforms to reduce erosion potentialYorke Peninsula CouncilVorke Peninsula CouncilStaff trained in oil and chemical spill management		Increased sediment loads during construction of the corridor causing impact on adjacent agricultural Land Contamination of surface run-off during construction of the corridor causing impact on adjacent agricultural land Damage to marine flora and fauna from stormwater run- off contaminated by chemical and hydrocarbons spills impacting the marine environment Damage to marine flora and fauna form stormwater run-	Washing site is entirely bunded Entire washing, filtration and storage sheds constructed on concrete and enclosed in a bunded area to prevent spillage outside of operations area. Conveyor washing system installed on tail drum with wash water collection system which directs water and concentrate back to filtration system. Surface water flow will be directed away from cleared areas to decrease erosion potential Inspections and maintenance of
ponted implacting the matriceseduntent httpsenvironmentStaff trained in oil and chemical spill managementIncreased sediment loads in downstream surface water flows causing smothering of marine flora and fauna impacting the marine environmentInstall appropriate containment and spill repose kits in strategic locationsReduced soil quality due to soil contamination and leakage of the slurry and salt water pipelineMonitoring the two port ponds water level.Soil or water contamination due to incorrect waste disposalAll drains at port are appropriately designed and complement existing infrastructureYorke Peninsula CouncilSoil or water contamination disposalDesign of final landforms to reduce erosion potential		fauna from stormwater run- off contaminated by overflow of process water ponds impacting the marine	surface water bunding Inspections and maintenance of sediment trans
Staff trained in oil and chemical spill managementIncreased sediment loads in downstream surface water flows causing smothering of marine flora and fauna impacting the marine environmentInstall appropriate containment and spill repose kits in strategic locationsReduced soil quality due to soil contamination and leakage of the slurry and salt water pipelineMonitoring the two port ponds water level.Soil or water contamination due to incorrect waste disposalAll drains at port are appropriately designed and complement existing infrastructureYorke Peninsula CouncilYorke Peninsula Council56		environment	seument naps
marine flora and fauna impacting the marine environmentmarine flora and fauna impacting the marine environmentand spill repose kits in strategic locationsReduced soil quality due to soil contamination and leakage of the slurry and salt water pipelineMonitoring the two port ponds water level.Soil or water contamination due to incorrect waste disposalAll drains at port are appropriately designed and complement existing infrastructureYorke Peninsula CouncilYorke Peninsula Council56		Increased sediment loads in downstream surface water flows causing smothering of	Staff trained in oil and chemical spill management
Reduced soil quality due to soil contamination and leakage of the slurry and salt water pipeline Soil or water contamination due to incorrect waste disposal Soil contamination due to incorrect waste disposal Soil or water contamination		marine flora and fauna impacting the marine environment	and spill repose kits in strategic locations
Soil or water contamination due to incorrect waste disposal Yorke Peninsula Council Existing infrastructure Design of final landforms to reduce erosion potential 56		Reduced soil quality due to soil contamination and leakage of the slurry and salt water pipeline	Monitoring the two port ponds water level. All drains at port are appropriately designed and complement
Yorke Peninsula Council 56		Soil or water contamination due to incorrect waste disposal	existing infrastructure Design of final landforms to reduce erosion potential
	Yorke Peninsula Council	1	56



	Increased sediment loads in downstream water flows	
	from not properly stabilised land surfaces and/or	
	flooding of adjacent areas	
	from poorly maintained or insufficient drainage.	
Groundwater (MPLs)		
	Contamination of	Both the raw water pond and
	seepage from the raw water	lined with a 2 mm HDPE liner.
	and process water pumping	
	eventual discharge into the	The HDPE liners are maintained.
	marine environment	Spill control and management.
	Reduced soil quality due to	Management of all fuels in
	soil contamination from	accordance with relevant
	salt water pipeline	
Public Safety (MPLs)	Poduood public ocfety	The part site will be appleaded by a
	during construction of the	security fence which complies
	slurry pipeline due to fall	with AS1725-2003 standards.
	nazards into the open trench	Boom gates to be installed at the
	Reduced public safety from	main entrance whilst all other
	fire originating from the site resulting in injury and/or	perimeter gates within the security fence will be locked
	death.	
	Increased traffic accidents	installation of adequate warning signs.
	while entering and leaving	
	pipeline and infrastructure	including cameras and fence
	construction.	controls.
	Increased traffic incidents at	Regular inspections and
	the entry and exit point of the port facility (option 1)	maintenance of the site fence and
	Increased traffic incidents at the entry and exit point of	Regular monitoring of areas or infrastructure/structures posing
	the port facility (option 2).	safety risks and the provision of
	Reduced public safety and	timely notification of mining
	increased vehicle accidents	any other relevant stakeholders
	as a result of dragout onto public roads.	where management of public safety is required.
		Maintain and discussion 11
	Unsate final landforms resulting in reduced public	Maintain good community relations to assist in reporting of
	safety	trespassers.
		Rehabilitation of open trench for
		pipelines
		Maintain restricted access at Port
Traffic (MPLs)		



Impact of increase traffic in the locality	Increased traffic accidents while entering and leaving the Yorke Highway during pipeline and infrastructure construction. Increased traffic incidents at the entry and exit point of the port facility (option 1) Increased traffic incidents at the entry and exit point of the port facility (option 2) Traffic congestion and public nuisance at the access to the grain storage facility during peak use periods Reduced public safety and increased vehicle accidents as a result of dragout onto public roads.	 Option 1- Intersection to comply with Australian road design criteria in consultation with DPTI 2. Option 2 - Construct entrance to port facility to in accordance with Viterra's Traffic Management Plan New entrances and roads sealed to reduce dragout Designated entry and exit points for construction of pipeline to meet with DPTI and DCYP safety Requirements Provide minimal car parking space and transport staff to/from port by bus Traffic Management Plan implemented Regular road safety training and briefings for all staff and contractors Stop signs and security gates at entry and exit points of port site (options 1 and 2) Stop signs and traffic control procedures in place in the corridor for vehicles entering public roads during construction and operation
		Utilisation of street sweepers to remove carryover sediment from public roads as required
Adjacent Land Use (MPLs)		
Impact on grain handling Impact of concentrate pipeline on farm land and the road verge	Agricultural land disturbed by the installation of the pipeline. Reduced access to	Pipeline will be buried to sufficient depth to allow normal agricultural activities to occur once constructed.
Impact of new power lines crossing their land	agricultural land resulting from power lines on farm land.	Pipeline trench will be designed to follow within approximately 3 to 5 meters of existing fence lines unless otherwise agreed by with
	Reduced land available for agriculture during operation (option 1 only). Interruption to loading capacity of other port users during construction.	landowner. Design and location of new power line from Ardrossan west to the port will be a sufficient distance inside land boundary to allow access to farm machinery for normal farm activity
Yorke Peninsula Council	Contamination of grain at Viterra storage facility with base metals in dust	Minimise areas excluded from agriculture during operation by 58



	generated by concentrate handling operations at the port facility.	maintain agricultural land use on all areas not required for direct mining activity (option 1 only).
	Introduction and/or increase in existing weeds during construction and operations. Traffic congestion and public nuisance at the access to the grain storage facility during peak use	Agreements will be in place with Port owner and operator (Viterra) and other affected users for the port ship loading facility to allow sufficient time for upgrading of conveyer and ship loading facility.
	periods.	installation and construction of power lines to fit with period of low farming activity where possible.
		Land access and compensation agreement and waiver of exempt land status in place.
Protection of Third Party Property	y (MPLs)	
Possible impact of fire on adjoining land uses	Fire in the concentrate shed resulting in damage to third	Site isolated from surrounding infrastructure
		Fire equipment including fire pump, and hydrants to be established throughout the port facility.
		Fire deluge system on concentrate shed conveyors Implementation of Fire Control Management Plan
		Maintain expansive fire breaks around the site
		Regular maintenance of fire equipment
		Staff appropriately trained on the use of all fire equipment
		Regular fire hazard inspections
		Fire risk evaluation included on all JSA's and SWP's for all operational and maintenance tasks carried out
		Designated smoking area away from high risk fire areas.