01-02-2025

MLA 648

Morello Earthmoving Pty Ltd Open Cut Gypsum Pit Statement of Environmental Effects (SOEE)

Abstract

This document is an environmental assessment for Morello Earthmoving for the development of an open mining pit for gypsum 5km North of Mildura and 25.92 km East of Wentworth.
The total size of this mining lease is 2ha and the closest mine site is a minimum of 500m away from this proposed mine, therefore going through the **integrated development pathway** via Wentworth Shire Council (WSC). WSC and the Mining, Exploration & Geoscience (MEG) department have been consulted extensively to ensure a clear pathway to approval.

Morello Earthmoving has signed a Section 31 with the Barkindji people and has had a spotter check any sites with aboriginal heritage, none were found in the area.

This mine has a footprint of less than 2ha. This falls below the disturbance footprint in the test of significance for the lot size and therefore a BDAR is not required. Previous assessments carried out by Morello's and neighbouring mines have found no significant or threatened biodiversity. The land has mostly gypsum showing at the surface with very little topsoil. There are no trees, fallen wood or hollows in the proposal area.

Due to the unexpected closure of neighboring mines, Morello Earthmoving has come under very significant pressure to fulfilling orders on a national level. The economic impact of reduced crop yields is significant, and this proposed mine is urgently required to fulfill any shortfall due to the lack of alternatives. Morello's has shown over the previous 30years of mining that we are capable of safely mining and rehabilitating sites.

The rehabilitation goals for this mine site are to return it to the surrounding natural ecosystem, while the final landform will be to blend it into the natural contours of the surrounding low lying land.

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1. Introduction

1.1. Project Overview

Morello Earthmoving, proposes to develop a gypsum mine in south western New South Wales (NSW), known as Morello Earthmoving pit (MLA648). The new pit includes low scale mining, primary processing and rehabilitation of an irregular shaped gypsum deposits, known as the Arumpo Compound pit located approximately 6.5 kilometres (km) North, North west of Buronga and 10 km north of the town of Mildura.

Gypsum extracted from the pit will be processed 0.5km east from the pit. There is a simple screening and only by necessity a crush process. The finished product gets loaded onto B Doubles and will be transported by road to agricultural customers throughout NSW and Victoria. There is no waste or by products involved in the processing nor the extraction of gypsum, as the mining of gypsum ceases when the depth of the sand profile is reached, this contact is variable and unpredictable and is only discerned visually. Mining is performed on a customer/market demand basis. The primary customers are agricultural pastoralists of land that need gypsum to break up clay, the application of gypsum is conducted annually and the product helps to improve crop yield. The gypsum from these regions occurs naturally.

Figure 1 –Site location of proposed pit area for application with Arumpo Bentonite and Buronga Landfill to the south

1.2.Project Summary

Title Number	EL 9436– Held by Morello Earthmoving PTY LTD
Title application	MLA 648
Titleholder	Morello Earthmoving PTY LTD
Operator	Morello Earthmoving PTY LTD
Type	Mineralogical investigation and Mining
Scope	Exploration – • Mineralogical investigation: • Drilling to identify depth of resource • Drilling to identify extent of resource • Assay analysis of samples Mining-- • Mining of Gypsum • No waste product nor by products produced • No Blasting • Small scale extraction 29,000 cubic meters per annum
Location	Permission has been granted to mine in this exploration licence by the lease holder. The Buronga deposit is approximately 10km north of Mildura township and located in NSW, 25.92km east of Wentworth and 9km North or Buronga. The proposed exploration is to take place approximately 10km North of Mildura, 9km North of Buronga and approximately 25.92km west of Wentworth. The entire pit is located in LOT 6918 DP1000008.
Duration	Mining duration of approximately 6 years is anticipated. An application for 8 years is planned to ensure rehabilitation is also completed in the time frame.

1.3.Other Project Approvals

The Morello project requires a number of approvals in NSW.

- Development consent has been prepared to address specific requirements for the Wentworth Shire Council.
- The due diligence is inclusive of:
- Aboriginal heritage Barkindji people traditional owners for which Morello's has obtained a Section 31.
- AHIM site register showed that there were no aboriginal artefacts in Lot6198 DP 1000008, the proposed mining area which lies entirely within Lot 6198 DP1000008.
- An approval under the Commonwealth Environment protection and Biodiversity Conservation Act 1999 (EPBC Act) is required for the Morello project. Bio-diversity of flora and fauna and in particular any threatened and endangered species were not identified

1.4.Stakeholder Consultation

This section describes the consultation undertaken prior to and during the preparation of this SEE, including a summary of the outcomes of consultation and how they influenced the design and management of the program.

The level of consultation undertaken during the preparation of this SEE is consistent with the scale and potential impacts of the program.

It is anticipated that consultation between the local community and regulatory agencies will continue during the public exhibition of this SEE and the assessment of the proposal by the NSW Government.

Morello Earthmoving consults with MEG on a regular basis regarding its exploration and mining operations in south-west NSW. Issues that have been discussed include:

- Mining titles;
- the design of the mining program;
- key environmental assessment issues including flora, fauna and Aboriginal cultural heritage; and native title
- Program site rehabilitation.

Local Government

The Program site is located in the Wentworth Shire Local Government Area. Morello Earthmoving consults with the Wentworth Shire Council on a regular basis.

Local Community

Morello Earthmoving maintains a website www.morellogypsum.com.au for the general public to keep up to date with Morello Earthmoving's existing/approved operations.

The web domain is a source of information including products, projects and operations and contact details. The website also provides information on the environmental management and performance of Morello Earthmoving's existing/approved operations.

Morello Earthmoving also post adverts in the local newspaper, Sunraysia Daily, advertising the mining lease application and calling for any local feedback. To date, none has been given.

Morello will continue to work closely with stakeholders throughout the project's final design and management to ensure it meets their reasonable expectations. Morello will seek to undertake further consultation activities to complement the Environmental statement approval process and complete the detailed engagement exercises with the individual stakeholders and groups identified.

Aboriginal Community

Morello Earthmoving consults with the local Aboriginal community, regarding its exploration and mining operations in south-west NSW. Morello Earthmoving consulted with Aboriginal community group members of the Barkindji traditional owners whom are the native title holders of LOT6918 DP1000008 in which the entire mine lies. Sign off of a Section 31 will occur shortly.
Wentworth Local Aboriginal Land Council, Barkindji Nations, have been made aware of EL7175 exploration area (including this mine site). In addition, representatives from the, Barkindji Nations, had been invited to perform Aboriginal cultural heritage field surveys, which were conducted 4th September 2023, no heritage items were found.

Surrounding Leaseholders

Morello Earthmoving consults with surrounding leaseholders on a regular basis regarding its exploration and mining operations. Morello Earthmoving staff and representatives have undertaken one-on-one meetings with Larmon (Sunsalt) as well as engaged in telephone correspondence with surrounding leaseholders that would potentially be directly affected by the program. Upon advertisement of this mine with MEG no issues were raised by the surrounding leaseholders. Morello Earthmoving would continue to consult with surrounding leaseholders during this application and the future mining program.

Infrastructure Authorities

The program would not impact on infrastructure (e.g. electricity transmission lines, telecommunications, pipelines) and therefore no consultation was undertaken with infrastructure authorities.

Community Complaints/Conflict Management

The Morello Earthmoving office is manned during business hours for community consultation and any questions or concerns they may have regarding Morello Earthmoving's operations. The office would continue to be available for community members to contact Morello Earthmoving during the work program. Morello Earthmoving would respond to issues raised by community members.

1.5.Project Justification

Morello Earthmoving have been helping shape the community of Mildura, Buronga and Wentworth for over 50 years, in several different capacities and injected agriculture, construction, support and infrastructure in these communities. Ron Morello has helped with infrastructure, construction and agriculture within the areas for over 25 years.

There is an immediate impact that is associated directly with the gypsum mining aspect of the business namely there is employment of 5 of the 16 people that are employed by the company at any one time.
There is an attraction to NSW gypsum due to its low salt content as this minimizes the adverse side effects of salinity, which is a rising concern in the arid environment.

Ore extracted from the pit area will be distributed to customers in the most efficient, economically and environmentally sustainable process.

The mining would commence upon receipt of the necessary approvals from DA, MEG and the Barkindji agreement.

The program would benefit current and future generations through the creation of employment and the potential development (mining) of the gypsum deposits.

2. Site and Surrounds

2.1. Project Location

The project area is located in the Murray basin in South-western NSW, near Buronga town and Mildura town. The Arumpo road connects the project to the Sturt Highway, south of the project area, at Buronga. The Sturt Hwy links Buronga to Mildura, and Swan Hill to the east. The project area and surrounding land is zoned for primary production under RU1 Wentworth local environment plan 2011. In which extractive industries are permissible by consent.
Land uses in and surrounding the project area are primarily agricultural, and include sheep grazing, citrus, grapes, olives and some grain crops (further to the south).

The proposed site is located approximately 8km to the North of Buronga.
The site runs beside an already existing haul road and has an access track already running to the mining area, further reducing the disturbed footprint.

Neighbouring properties

There is a neighboring Montmorilinite processing and storage facility located within 2km from the mine site Morello also have one operational pit which is more than 100m to the South of the current application ML 1679

2.2. Topography/landform

The topography is gently sloping and reasonably flat. There are no rocky outcrops or other distinctive landforms in or around the proposed mine site. The Mourquong Basin is located to the west, approximately 1200m from the southern boundary.

2.3. Climate

The project area is semi-arid, characterised by hot dry summers and cold winters. Climatic data from the Bureau of Meteorology's (BoM) weather station at Balranald town indicates that monthly mean minimum temperature ranges from 4.3°C to 16.7°C and the monthly mean maximum temperature ranges from 15.4°C to 32.3°C. The median annual rainfall is 324.8 mm. Rainfall generally occurs throughout the year with the highest median rainfall over spring and the lowest median rainfall over summer.

2.4. Geology/Soils

The proposed site lies within the Murray Basin geological province. Surface Quaternary material covers the majority of the Murray basin area and it is characterized by almost no rock outcrops, Cunningham et.al 1.1 (1981). This geological province consists of gently undulating plains and dunes with soils of Aeolian origin. The Quaternary Aeolian sandy soils at the surface are most likely classified as calcareous red earths being predominately red in colour and sandy to sandy loam in texture. The profile gradually becomes finer at depth. Texture is governed by position in the landscape and the profile changes to clay at depth.

The license area lies within the Greater Murray Basin. "The Murray basin is located in the south west of New South Wales extending west and south into South Australia and Victoria, respectively. Strictly speaking the Murray Basin references to a widespread thin sequence of Cainozoic consolidated and unconsolidated sediments. However, geographically the basin overlies a number of basement depressions that contain Palaeozoic and Mesozoic sediments.

Within New South Wales the Murray Basin unconformably overlies and onlaps the Proterozoic sequences of Willyama and Broken Hill Blocks in the northwest. It unconformably overlies metasediments of the Kanmantoo Fold Belt in the west, and stronglyfoldedandpartiallymetamorphosedOrdoviciantoDevonianLachlanfoldbelt to the south. To the north the Cainozoic Murray Basin sequence overlies the Palaeozoic Darling Basin and its intrabasins. "(MinViewNSW)

Local Geology of the area surrounding the mine site comprises sediments of up to 500m in thickness overlying Pre-Tertiary bedrock.

These sediments consist of surface Aeolian sands and alluvial clays of Pliocene age to approx.100m over Mioceneto Oligoceneage limestone, fossiliferous clays and Marls. Interbedded carbonaceous clays silts and sands occur below this depth.

Undifferentiated alluvial deposits overlie the Lowan Sand group consisting of unconsolidated fine to medium sand and Aeolian dunes; the underlying Yamba formation saline lake deposits are in turn under lain by Woorinen formation, consisting of siliceous silty sands, calcareous clays, sandy clays and Aeolian dune deposits.

Within the dune system mineralization is complex, with pure Gypsite grading to fine sandy beds, both of tenin juxta position due to erosional contacts.The site is slightly elevated dune ridge, which follows a North South strike. Field reconnaissance indicated that a resource of variable grade gypsite (copi) could potentially exist at several locations within the area covered by EL 7175 as downwind dune formations from dry lakebeds.

The mine area is a playa of Aeolian dunes which consists of:
0 - 150mm: Dune sands with common seed content
150 - 2750mm: Dune sands with interbedded lenticular Gypsum banding.

Mining will be concentrated on partially eroded Aeolian dune system. The dune systems occurs as a low ridge along the eastern, downwind side of the largest playa or lake bed in the license area. The dune system occurs to 3m+ above the lake bed level, no below ground excavation or mining will be conducted.

2.5. Hydrogeology

The Murray Basin is a large closed groundwater basin with regional aquifer systems, confining layers and permeability barriers to ground water flow. Locally in the vicinity of the project area, there is limited recharge from direct rainfall and some limited recharge from surface water systems, with most recharge to the area occurring via through flow from the east.

Consistent with topographic gradients, hydraulic gradients are very gentle in the central and western Murray Basin, and the broad flow direction in all aquifers is from east to west. However, the basement structure influences the groundwater flow direction in the project area causing a slightly north northwest trend in flow. This is most pronounced in the deeper Olney Formation. The horizontal hydraulic conductivity in both the Shepparton Formation and Loxton Parilla Sands is variable, due to the depositional environments and volume of clay; continual lateral flow through formations is not common. There is an upwards hydraulic gradient from the Olney Formation and Geera Clay to the Loxton Parilla Sands and Shepparton Formation based on pressure head differences observed on site and reported in the literature. Heads in the Shepparton Formation and Loxton Parilla Sands are mostly similar, although results of hydrogeological pumping and injection trials indicate that the two units are poorly connected and therefore vertical flow is limited. Groundwater quality within the Murray Basin is variable, with fresher water near the basin margins to the east. Quality becomes poorer in a westerly direction (down gradient) and within the project area is typically highly saline. Salts originate from the marine depositional environment and are enhanced by low precipitation and high evaporation rates as well as long ground water residence times.

2.6. Water Resources / Drainage

The Murray Basin is a large closed groundwater basin with regional aquifer systems, confining layers and permeability barriers to groundwater flow. Locally in the vicinity of the project area, there is limited recharge from direct rainfall and some limited recharge from surface water systems, with most recharge to the area occurring via through flow from the east.

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The Mourquong Basin is located approximately 1200 metres west of the proposed gypsum site. There are no creeks or major drainage features in the immediate vicinity of the site.

2.7. Landownership and land use

Land ownership in and near the project area includes Western Lands Lease (WLL), Crown land, freehold and other land tenures. Outside Buronga town, properties are typically large rural landholdings, and homesteads and dwellings are sparsely located.

The mining areas are wholly within Lot 6918, DP 1000008. This is in the County of Wentworth and Parish of GOL GOL this land is part of a natural saline basin. The land is crown land under the RU1 zoning for primary production under the Wentworth environment plan 2011.

Land uses in and around the project area are primarily agricultural, citrus, grapes, olives, avocado some grain crops and includes sheep grazing.

3. Detail of proposed activity / Project description

3.1. Background to operation

The Morello mine Project MLA648 will have a life of approximately 8 years, including mining, backfilling of all overburden material, and rehabilitation of pit and access track.

Operations will commence at the site in Year 1. No new roads will be needed. The operational phase would include drilling to determine depth and extents, mining and associated ore extraction, processing and transport activities. This would include completion of backfilling overburden into the pits. Rehabilitation will be an ongoing during the mining phases, but after the final mining it is expected that rehabilitation will take 2 - 4 years, this includes rehabilitation of the access track, as the window of opportunity for growth and rainfall only occurs in a single period per year it takes time for rehabilitated areas to take to the land and grow to a substantial level.

3.2. Background to developer

Morello Earthmoving have been helping shape the community of Mildura, Buronga and Wentworth for over 50 years, in several different capacities and injected agriculture, construction, support and infrastructure in these communities. Ron Morello has helped with infrastructure, construction and agriculture within the areas for over 30 years.

Morello earthmoving have over 30 years' experience in mining and extractive industry, all products sourced are processed at the Morello processing plant 8km north of Buronga and 10km North of Mildura

Morello Earthmoving has operated many mining and quarry sites over the past 25 years, from the initial start up to full operation and final closure including rehabilitation. Morello Earthmoving specializes in Excavations, road construction, building plateaus, subdivisions, machinery hire, transport and mining. Morello Earthmoving currently holds several mining and extractive industry leases so we can service many and varied customer requirement Morello Earthmoving has successfully rehabilitated the areas for end land use purposes, i.e., grazing in general.

3.3. Project Schedule

Operations will commence within the first year of approval. The access track will need to be fully developed. This will be a single lane track using the existing topography and old workings to be redeveloped. The mining is sequenced into different operational phasesThe entire operation would include mining of the phases and associated ore extraction, rehabilitation of the phases this could be approximately 2 years in duration.

3.4. Material to be won

The material to be won is Gypsum. There is limited overburden but this material has significant importance as a seed store of native seed for rehabilitation.

The topsoil will be stored on site and utilized in the rehabilitation process in a progressive manner. The gypsum will be stockpiled on site or loaded directly into trucks and then transported to Morello Earthmoving Compound for processing. The mining area of pit is 2 hectares. As operations are small and extraction is small there will be no more than 2Ha of disturbed area at any one time this includes cleared and dug area. By doing this it minimises erosion, air pollution and keeps the rehabilitation process succinct with the mining progression.

3.5. The size of extraction

Attached (Appendix 2) is a surveyed plan with the co-ordinates of the mining area. All stockpiling and access tracks will be within the mining area with exception of one access track to get to the site area. All mining will be performed with the least impact to the environment.

3.6. Methods of extraction

Extraction of the Gypsum will take place using an excavator and loaded onto trucks by the means of a wheel loader or excavator. Mining will be from North - South with one exposed face working the face from east to west. The area of stripping pre mining kept to a minimum it will be mapped out so there is not excessive exposure of the gypsum, this reduces the dust levels. The profile (digging face and floor) of the deposit will be examined and tested for quality as mining progresses. Using this process we will be able to quantify the grade of usable material. The average depth of the extraction will be 4 meters which will be determined by the quality of the deposit. There will be one access track to the pit all other tracks will be confined to the mining footprint.
Using these mining methods allow for less stripping, gypsum exposure, which will help with reduced dust levels and less damage to the environment.

3.7. Types and forms of onsite processing

There is no in pit/onsite procession. Gypsum is transported 1km east via an internal dirt road to the processing plant. All material will be transported to the Morello processing compound on Arumpo road. Once the material has been screened it is loaded onto trucks and transported to the clients. Oversize is crushed and rescreened.

3.8. Access to and from site

Access to and from the site is via established roads and tracks and through a side gate to the Morello crushing compound, The main service track runs from the eastern boundary of DP 1000008 right across to the western boundary in a meandering fashion The only thoroughfare is that of MEE Quarries road which intercepts the track at the boundary line, vehicle warning and give way signs are installed as a part of the traffic management. The Morello crushing compound is situated on the Arumpo Road, this is the main sealed road with clear access to the Silver City Highway. The large existing track west of the proposed site are those previously constructed by salt mining. The other existing tracks within the proposed area are those previously constructed by other mining and used by other quarry operators in the Basin.

The material removed from the site will be transported via the existing access road as detailed above, to the site where the material will be screened and processed.

There will no need of a new road to access the new mining area although the last 40m will be on a flood plain, road base will need to be introduced to allow for a firm base for trucks it will be a single lane with 1/2 passing shoulders. The road will be rehabilitated once mining ceases.

3.9. Hours of operation

The pit will be worked between the hours of 7.30am and 5.00pm on an as needs basis. It is expected that the pit will be worked all year round. There will be times of the year that no mining operations will take place.

3.10. Rate of extraction

The rate of extraction will be a maximum of 29,000 cubic meters per annum for the life of the mine (up to 8 years). The extraction rates per month may vary depending on customer demand.

3.11. Life expectancy of the pit

It is expected that the pit will have a working life of approximately 6 years depending on the quantity, quality and consistency of the mined product. The depth of the deposit across the site will vary depending on topography and dune development, drilling and sampling of the resource will quantify this.

4. Environmental Impact

4.1. Assessment approach

As with any resource project, the economic viability of mining is inherently sensitive to market conditions and commodity prices. Such sensitivities and costs may affect critical aspects of the Morello project; for example of the overall pit design, and pit dimensions (width and length). Other factors which affect the economic viability include product extent, grade, pricing and market conditions. Accordingly, there may be a need for ongoing design modifications.

4.2. Air Pollution

This will be minimal. The extraction and loading process may generate some dust. The small-scale nature of the operation and the distance from residential development will ensure that any dust generated onsite will not pose an air pollution problem. All loads transported from the site will be covered with tarpaulins to minimize dust creation during transport. The stripping will be kept to a minimum.

4.3. Water Pollution

The contribution of runoff from the site to any drainage channel will be negligible. A large rainfall event would have to occur before surface runoff over the pit would potentially have an impact on the nearby Mourquong basin. Given that this basin is utilized as a drainage disposal site the small amount of runoff should have a minimal impact on the basin. No toxic materials (such as fuel or lubricants) will be stored on the site. No sewerage facilities will be established at the site the potential risk of water pollution will be negligible.

After discussions with Crown Lands, no water runoff is allowed. A natural bund will be created as the mining lease does not run to the extents of the dune and the pit floor will be slightly lower than the surrounding area. A small ramp will be created to drive in and

out of the mine preventing any run off.

4.4. Noise Level Controls

Equipment used for the extraction, loading and carting of the gypsum will be the main source of noise from the site. The pit will be worked during the hours proposed above and given the distance from residential dwellings noise pollution is unlikely to have a significant impact.

4.5. Dust Level Controls

Topsoil and vegetation will be stripped sparingly and as required to protect the soil surface from erosion. The topsoil in which the seed is stored is located in the top 0-100mm. This material will be mounded onsite out of the pit area and then returned to the pit floor and battered edges when mining is completed in the region. Any topsoil will be bunded to prevent excess run off.
The return of this seed store to the site is part of the rehabilitation phase to help in revegetation of the site and its return to the pre-mining condition. As the mining area contains noxious weed these will need to be removed. As the topsoil cover is not sufficient in places there will be a need for introduction of seed where necessary. The areas will be cross felled, this will help anchor the soil and reduce the probability of soil erosion from wind or water. All topsoil will be stored on site to ensure seed viability is maintained.

The mounds will not be excessively high to reduce wind blowing the stockpile. All stockpiles are to be kept on the mine sites footprint. On high wind days, work will stop to prevent excess product loss and drop in air quality.
Roads and ramps will be wet with a water cart at the quarry managers discretion to reduce dust and keep good visibility on all access roads.

This will help minimize wind speeds and provide some protection from wind erosion across the pit.

Any seeds introduced will be locally sourced and suited to the site.

4.6. Flora/Fauna Biodiversity

The following habitat types were noted on site within the application area:
There are three main types; Salt Plain, Open Mallee, and Mining Area.

(1) The salt plain/pan area; and access road will be constructed through the plain.
The predominant plant species is Enchylaenatomentosa , Ruby Saltbush

(2) The open mallee /grass lands; these areas will not be excavated. Higher plain area mallee area that will not be disturbed,

Nitrariabillardierei, Nitre Bush, Dillon Bush

Dissocarpusparadoxus, Cannonball Burr

Sclerolaenaobliquicuspis, Limestone Bindii, Limestone Copperburr

Enchylaenatomentosa, Ruby Saltbush

Myoporumplatycarpum> ,Sugarwood, False Sandalwood

Zygophyllumaurantiacum> , Shrubby Twinleaf (probably)

Hordeumleporinum, grass cover

(3) The areas of mining – modified vegetation, containing noxious weeds.

Flora present in the mining area is as follows:

Callitisverrucosa; Onion weed (AsphodelusFistuosus); Spear Grass (Stipa spp.); Twin leaf (Zygophylliumglaucum); Poverty Bush (Sclerolaemalimbata); Mallee (Eucalyptus socialis).

Figure 9.Baren landscape of the mining area, gypsum at surface seen as white patches

Some noxious weeds which will be removed for optimum rehabilitation following re seeding, for example Tobacco Bush. The rehabilitation of this area will return it to a former glory, and will present better than present.

The majority of the proposed extraction of the site has previously been cleared of larger tree species for probably fence posts and other routine agricultural purposes. The site is considered to have minimal habitat value for native Flora fauna species.

Images below of the proposed mining area.

Figure 10. Image of mining area typical habitat

There is predominantly a grass and herbaceous understory present. The shape and location of the pit has been designed to minimize disturbance to flora. The site has been modified by past generations and is covered with tobacco bush which has been deemed noxious by the department of lands. There are areas of site that display evidence of previous mineral extraction which have been poorly rehabilitated.

Evidence of rabbits was also noted, there is evidence of fresh rabbit activity with dung, scratching and warrens. No other fauna was observed onsite.

Figure 11.Rabbit warrens

In the background is Mallee scrub, minor dead trees are present with possible animal habitats. These dead trees in the foreground will be moved to the clump of trees, or will be mined around it there is high frequency.

The most suitable local species for replanting within the area are the plants that were found in the untouched habitat of the western region, they include:

Austrasia sabra, Sclerolaena, diacantha, Maireanapyamidata, Atriplexvesicaria, Disphymaclavellatum, Frankeniapessilis, Eucalyptus gracilis, Nitrariabillardieri.

Nitrariabillardierei,Nitre Bush, Dillon Bush

Dissocarpusparadoxus, Cannonball Burr

Sclerolaenaobliquicuspis, Limestone Bindii, Limestone Copperburr

Enchylaenatomentosa, Ruby Saltbush

Myoporumplatycarpum> ,Sugarwood, False Sandalwood

Zygophyllumaurantiacum> , Shrubby Twinleaf (probably)

Hordeumleporinum, grass cover

4.7. BioNET Due diligence

As part of the Due Diligence process a search of the BIOAtlas, Atlas of NSW wildlife revealed the following threatened species, see below. The exploration area is larger than the pit area and encompasses the pit area. A neighbouring dune was assessed as part of a BDAR.

Kingdom	Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Hylidae	*Litoriaraniformis*	Southern Bell Frog	E1,P	V	1	
Animalia	Reptilia	Pythonidae	*Morelia spilota*	Carpet & Diamond Pythons	P		1	
Animalia	Aves	Anatidae	*Stictonetta naevosa*	Freckled Duck	V,P		1	
Animalia	Aves	Ardeidae	*Nycticoraxc aledonicus*	Nankeen Night Heron	P		1	
Animalia	Aves	Accipitridae	*Circus assimilis*	Spotted Harrier	V,P		2	
Animalia	Aves	Rallidae	*Tribonyx ventralis*	Black-tailed Native-hen	P		4	
Animalia	Aves	Recurvirostridae	*Recurvirostrano vaehollandiae*	Red-necked Avocet	P		2	
Animalia	Aves	Rostratulidae	*Rostratula australis*	Australian Painted Snipe	E1,P	E	2	
Animalia	Aves	Scolopacidae	*Calidrisfer ruginea*	Curlew Sandpiper	E1,P	CE,C,J,K	1	
Animalia	Aves	Petroicidae	*Melanodryas cucullatacuc ullata*	Hooded Robin (south-eastern form)	V,P		1	
Animalia	Mammalia	Dasyuridae	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	1	
Plantae	Flora	Santalaceae	*Santalummu rrayanum*	Bitter Quandong	E1,P		2	

Table 1 : Note: V-vulnerable, E1 – Endangered (Schedule 1 –Part 1) under threatened species conservation Act 1995, and the national parks and Wildlife Act 1974.

As the search area for BioNET is larger than the pit, it has encompassed an area to the south which has more water holes, and this is where the sightings of the Southern Bell frog was noted and the AVES.

Walking over the areas there seems there is no Bitter Quandong in the mining area. OEH Buronga office were engaged, upon initial viewing the mining area has been extensively modified is unlikely to contain endangered species.

4.8. Archaeological Assessment

The Office of Environment & Heritage was consulted as to the proposed Extractive Industry impact on any Aboriginal Heritage / sites. The Due Diligence process, search was conducted by the Office of Environment & Heritage and follows the Due diligence Code of Practice for the Protection of Aboriginal Objects in NSW. The results concluded that there are no aboriginal sites are in this area. AHIMS search results LOT6918 DP 1000008, see Appendix 1. The Barkindji Traditional owners have performed an Archelogical survey over the area and a section 31 is near completion and signed off.

4.9. Historical Significance

Heritage commission national Estate register has no listing for any feature of historical significance in the development area. There are listed heritage sites outside Lot 6918 DP1000008. It can be assumed that any items of heritage significance that may have been present have been either removed or destroyed by previous land holders or operations on the site.

4.10. Native Title

The NNTT was consulted, and it was found that the is native title over the area. The native title party/traditional owners are the Barkindji people.

The lot number 6918 and DP 1000008 is wholly a non exclusive area for the Barkindji Traditional Owners. The application area is wholly in this area.

Morellos is completing a Section 31 which will be uploaded to the planning portal.

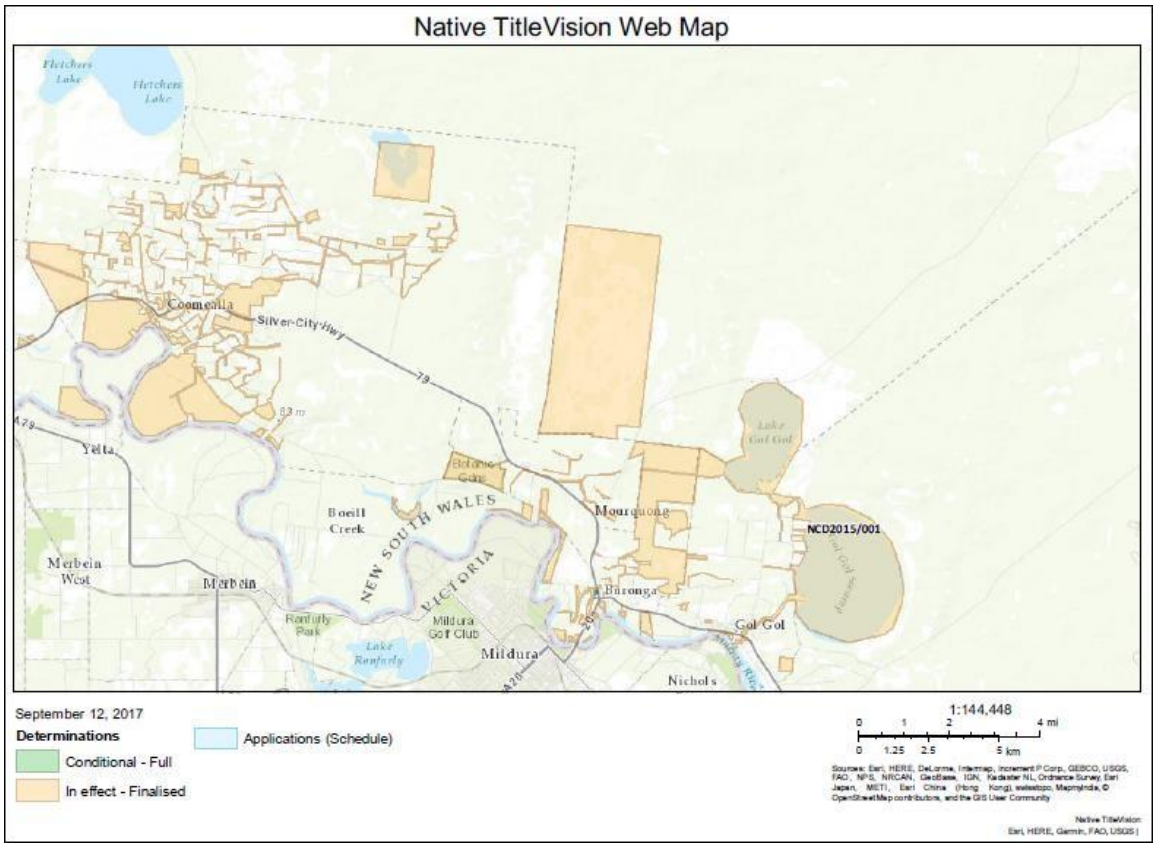

Figure 13. Native title area in Orange (Barkindji traditional Owners), Lot 6918 DP1000008 can be clearly seen

4.11. Aboriginal Heritage

An AHIM assessment of the LOT 6918 DP 1000008 was completed and it was found that there were no artifacts nor aboriginal sites in the mining area (AHIM attached, Appendix 1) As the areas is under native title NTS Corp and the Barkindji have undertaken the aboriginal heritage survey on behalf of Morello Earthmoving. Nothing was found.

4.12. Non-Indigenous Heritage

A non-indigenous (or historic) heritage assessment of the Morello Project was undertaken by Landscape in accordance with the relevant legislation, policies, and guidelines. The non-Indigenous heritage assessment did not identify any historic heritage sites or values within and within proximity to the project area with potential to be impacted by the Morello Gypsum.

4.13. Visual Controls

The proposed development will have a low visual impact as it is screened by native vegetation, Mallee scrub). The site cannot be viewed from the nearest public roadway, (Arumpo Road).

An assessment of potential visual impacts of this project was undertaken by MGC. The assessment considered potential visual impacts associated with:

(1) temporary changes to the landscape as a result of vegetation removal,

(2) overburden stockpiling, landform modification, modification to natural drainage patterns. and

(3) permanent changes to the landscape as a result of the development of the final landforms that would remain post mining. The visual assessment considered potential visual impacts of the project on surrounding sensitive receivers, such as Buronga town, rural residences, and road users.

The assessment was based on visual inspections from roadways Arumpo Road generally, visual and lighting impacts were considered to be negligible to low based on the distances between viewpoints and mining operations, and screening provided by existing vegetation. The visibility of the project was not intrusive and unable to be seen from the town or roadway.

5. Description of Rehabilitation

5.1 Proposed End Land Use

It is proposed that the site be returned as near as possible to an acceptable extent that can be used by the landowner. The site was used for grazing in the past, but most recently will be left to return to native ecosystem.

5.2 Techniques for proposed rehabilitation

Rehabilitation will be progressive throughout the life of the pit. The worked out areas will be levelled to remove any slope faces, this will also minimize potential erosion.

The base of the worked-out areas will be cross ripped/felled to allow for rapid water penetration and the collection of windblown seeds, this should create suitable micro habitats for the germination of windblown and soil store seed. The technique involves the ripping of the site in one direction, then again at the right angles to the direction of the slope. Cross ripping leaves the surface in a rough profile; this reduces wind velocity over the surfaces, reducing wind erosion.

The ground cover vegetation will only be cleared at the time that the area is to be excavated, this will retain vegetation across the excavation site for a maximum amount of time and will help contribute to a reduction in wind velocity across the site and thereby reduce wind erosion.

It will also result in the minimum amount of area being worked at one time. By only having one working face at a time will also reduce the amount of disturbance to the site at any given time. Trees will be preserved on the margin of the site. The shape and size

of the pit area has been positioned to minimize removal of trees. Where the above techniques are unsuccessful in revegetating the site other procedure such as direct seeding of the site will be carried out. There are areas of disturbed ground within the boundaries of the selected site. This area will be rehabilitated as a part of the overall rehabilitation of the site after extraction of material.

5.3 Schedule of Rehabilitation

Rehabilitation will be progressive throughout the life of the pit. As areas are no longer mined, they will be rehabilitated. The mining will work from South to North and as there area is mined and progresses Northward the rehabilitation will commence following mining this enables the rehabilitated area to no longer be disturbed allowing rehabilitation to seed and flower without disruption. Morello Earthmoving state that the information presented in this Environmental and Rehabilitation Plan is accurate to the best of its knowledge. The amounts will vary dependent of Gypsum demand the less mined the less rehabilitated and vice versa.

5.4 Monitoring and auditing

Rehabilitation will be monitored as per the Mining Act with annual inspections and management plans, with detailed surveys. The Mining Act requires a security deposit against all disturbances which will not be handed back until the natural ecosystem has been established.

6 Justification and Conclusion

There is a sound and broadly based justification for this 2ha site. It would provide a secure supply gypsum to current agricultural clients and thus provide a social and economic benefit to the region, NSW and broader Australian community and would provide substantial stimulus to a region in need and with few equivalent economic opportunities. Most of the land would be progressively rehabilitated to enable future use for grazing or other uses. The land will be restored with native vegetation communities to re-establish a fauna. Enhanced outcomes would result from greater investment, employment and the use of leading practices to recover the gypsum efficiently, while minimising potential environmental and social impacts. The benefits of this small pit largely outweigh its costs and it is considered to be in the public's interest.

7. Due Diligence

The purpose of this Statement of Environmental Effects is to provide an assessment of the potential impacts of the proposal and background information.