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MOBILE CONCRETING SOLUTIONS


Mining Proposal Addendum

ISQ-QRY-PL-004

MCS INDEE SAND QUARRY

Environmental Group Site name	Indee Sand Environmental Group
Environmental Group Site code	S0231418
Lease	M45/1232 & L45/328
Company name	Mobile Concreting Solutions Pty Ltd L1/985 Wellington Street West Perth WA 6005 08 9200 1840 admin@mobileconcrete.com.au
Contact details	Alessia Bellin 0427 303 609 qms@mobileconcrete.com.au
Version #	7
Addendum to Mining Proposal revision 04 dated 12/09/2013 submitted by Mobile Concreting Solutions Pty Ltd	

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07	Minor changes to address DMIRS comments to rev06	Bellin	Van Der Sluys	Clarke	01/04/2019


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05	Addendum following DMIRS inspection on the 28/06/2016.	A. Bellin	R. Sweeney	R. Clarke	31/01/2017	
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1. INTRODUCTION

1.1 Mining Proposal Checklist


Q N o	Mining Proposal checklist	Y/N NA	Page No	Comments
PUBLIC AVAILABILITY				
1	Are you aware that this mining proposal is publicly available?	Y		
2	Is there any information in this mining proposal that should not be publicly available?	N		
3	If “No” to Q2, do you have any problem with the information contained in this mining proposal being publicly available?	N		
4	If “Yes” to Q2, has confidential information been submitted in a separate document/section?	NA		
5	Has the mining proposal been endorsed? See last page Checklist.	Y		
MINING PROPOSAL DETAILS				
6	Have you included the tenement number(s), site name, proposal overview and date in the title page?	Y		
7	Who authored the mining proposal? (Please include telephone number of author)	Alessia Bellin 0427 303 609		
8	State who to contact enquiries about the mining proposal	Alessia Bellin		
9	How many copies were submitted to DMIRS?	Hard copies = NA		
		Electronic = NA		
10	Does this mining proposal support a lease application?	N		
11	Has a geological resource statement been included (refer section 4.3.2 of mining proposal guidelines)?	N		

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12	Will more than 10 million tonnes of ore and waste be extracted per year? State total tonnage:	N		
13	Will more than two million tonnes of ore be processed be year? State total throughout.	N		300.000 tonnes per annum
14	Is the mining proposal located on pre-1899 Crown Grant lands? (not subject to the Mining Act)	N		
15	Is the mining proposal located on reserve land? If "Yes" state reserve types	N		
16	Will the mining proposal occur within or affect a Declared occupied townsite?	N		
17	Is the mining proposal within two km of the coastline or a Private Conservation Reserve?	N		
18	Is the mining proposal wholly or partially within a World Heritage Property, Biosphere Reserve, Heritage Site or Soil Reference Site.	N		
TENEMENT DETAILS				
19	Are all mining operations within granted or applied for tenement boundaries?	Y		Figure 2
20	Are you the tenement holder of all tenements?	Y		
21	If "No" at 20, do you have written authorisation from the tenement holder (s) to undertake the Mining proposal activities (Refer to section 4.2.1 of the Mining Proposal Guidelines)	NA		
22	Is "Yes" at 21, is a copy of the authorisation contained within the mining proposal?	NA		
23	Have you checked for compliance against tenement conditions?	Y		
LOCATION AND SITE LAYOUT PLANS				
24	Have you included location plans showing tenement boundaries and mining operations?	Y		Figure 2 and Figure 3

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25	Have you included site layout plans showing all mining operations and infrastructure in relation to tenement boundaries?	Y		Figure 3
26	Have you included Area of Disturbance Tables for all tenements impacted by mining operations?	Y		Table 2
ENVIRONMENTAL PROTECTION ACT				
27	Does the mining proposal require referral under part four or the MOU? If 'Yes' describe why in space below:	N		
28	Has the EPA set a level of assessment? If yes state:	NA		
29	Is a clearing permit required? If 'No' then explain why in space below?	Y		
30	If 'Yes' at Q29 then has a permit been applied for?	Y		Clearing Permit CPS 5640/2 for M45/1232 issued on 04/05/2017
31	Is a works approval required by the DWER?	Y		
32	Has a Works Approval been submitted to the DWER?	Y		Works Approval W5483/2013/01 for M45/1232 issued on 19/09/2013
33	Stakeholder Consultation - Have the following stakeholders been consulted? (use N/A if not relevant)	NA		NA for this addendum
	Shire?	NA		
	Pastoralist?	NA		
	DWER?	NA		
	Main Roads?	NA		
	Others? (specify):	NA		
ENVIRONMENTAL ASSESSMENT AND MANAGEMENT				
34	Is the mining proposal wholly or partially within DWER managed areas?	N		
35	If 'yes' at Q34 has DWER been consulted?	NA		
36	Is the mining proposal wholly or partially within a red book area or a bush forever site?	NA		

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37	Will the mining proposal impact upon a water resource area, water reserve, Declared or proposed catchment, groundwater protection area, significant lake or wetland?	Y		
38	Is a water or de-watering licence required?	N		
39	If 'Yes' at Q39 then has the licence(s) been applied for?	NA		
40	Does the mining proposal include a new tailings storage or changes to existing tailings storage?	NA		
41	Has AMD assessment been undertaken?	N		
42	Have flora and fauna checks been undertaken?	Y		Flora and Fauna survey undertaken in June 2012. Report attached as Appendix D of the Mining Proposal File No. EARS-PLA-38166
43	Are any rare species present?	N		
44	Has preliminary closure plan been included?	Y		MCP has been reviewed and submitted on 02/03/2017 (application ID 64428)
45	Do you acknowledge that the hard copies and the CD contain identical information? (this is important for DMIRS's electronic records system)	NA		

Corporate endorsement:

I hereby certify that to the best of my knowledge the above checklist accurately reflects the information contained within this Mining Proposal.


Name Richard Clarke

Signed 

Position Managing Director

Date 01/04/2019

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1.2 Summary and Commitments

In 2013 Mobile Concreting Solutions Pty Ltd (MCS) acquired graticular unit b703 of Exploration Lease E45/3390 from Last Crusade Pty Ltd, the current tenement holder of E45/3390. MCS has been granted a mining lease, M45/1232, to mine a section of this lease, Indee Sand Quarry, to supply sand to the many industrial and residential development projects in the region.

This document is an Addendum to the Mining Proposal EARS Reg ID 38166 submitted on the 11th September 2013 for Indee Sand – Mining Tenement M45/1232 and Miscellaneous Tenement L45/328. It has been prepared in accordance with the Guidelines for Mining Proposals in Western Australia (DOIR 2006) for assessment of the impacts of the proposed sand quarry on the surrounding environment.

1.3 Scope


On the 28th of June 2016, an audit was carried out at Indee Sand Quarry by the Department of Mining and Petroleum. The Inspector noticed that material stockpiling and a river access road had been established in the Southern portion of the Mining Tenement M45/1232. This was not approved under Mining Proposal Reg ID 38166 and Clearing Permit 5640/1.

The intent of this Addendum is to seek approval for the southern material stockpile area and the road train access road within the Mining Lease M45/1232.

1.4 Abbreviations

Abbreviation Definition	
AHIS	Aboriginal Heritage Inquiry System
ASRIS	Australian Soil Resource Information System
ASS	Acid Sulphate Soils
BoM	Bureau of Meteorology
DWER	Department of Water and Environmental Regulation
DPLH	Department of Planning, Lands and Heritage
DMIRS	Department of Mines, Industry Regulation and Safety
DRF	Declared Rare Flora
EPA	Environmental Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GSWA	Geological Survey of Western Australia
ha	hectare
IBRA	Interim Biogeographic Regionalisation for Australia
MCS	Mobile Concreting Solutions Pty Ltd
MRWA	Main Roads Western Australia
PEC	Priority Ecological Community
PDWSA	Public Drinking Water Source Area
TEC	Threatened Ecological Community

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2. BACKGROUND INFORMATION

2.1 Ownership

The owner of mining lease, M45/1232 is:

Mobile Concreting Solutions Pty Ltd
L1, 985 Wellington Street
West Perth WA 6005
Tel: (08) 9200 1840

Contact: Richard Clarke
Position: Managing Director
Mobile: +61 (0) 407 911 418
E-Mail: rlc@mobileconcrete.com.au

2.2 Location and Site Layout Plans

Mining lease M45/1232 (granted on 20 May 2013) is located within the Town of Port Hedland, approximately 47 km south-south-west of Port Hedland and approximately 21 km south of the Great Northern Highway and North West Coastal Highway intersection (Figure 1). It covers an area of approximately 320 hectares (ha). Indee Sand Quarry (the project area) is located within M45/1232 which is in the north eastern section of Exploration Lease E45/3390 (Figure 2). A Miscellaneous Licence L45/328 (with an area totalling 31 ha), is in the process of being granted to allow access from Great Northern Highway to the proposed mining tenement via an upgraded Indee Station access road.

Both the mining and miscellaneous leases are located within the Indee Pastoral Lease 3114/1197.

Pastoral facilities located on these leases include vehicle access tracks and windmills. There are no buildings on either lease. The access tracks to the site will be cut, graded and maintained as required.

Details of the proposed site layout for Indee Sand Quarry are given in Figure 3 and discussed in detail in Section 4.

In summary, development on the proposed site will consist of:


- A resource excavation area;
- A screening plant area;
- Stockpiles;
- A hard stand vehicle loading and parking facility;
- A chemical toilet;
- A site office and crib room;
- An access track from the Great Northern Highway.

The total disturbance footprint of the Project Area is expected to be approximately 110.988 hectares.

2.3 Compliance with Legislation and Other Approvals

There are currently 24 conditions placed on Mining Lease M45/1232. A list of these conditions is given in Appendix A. MCS will comply with all conditions imposed on M45/1232 and the associated miscellaneous lease L45/328.

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Appendix B provides a list of legislation considered relevant to the project and the essential requirements of each Act with respect to this project.

Further approvals under Part V of the Environmental Protection Act 1986 will need to be obtained prior to construction and operation of the proposed sand quarry, these are described below.

2.3.1 Native Vegetation Clearing Permit

Clearing of vegetation will be necessary for the resource excavation area, processing plant, offices, crib room, chemical toilet, parking area and stockpile areas.

The proposed Indee Sand Quarry is consistent with a category of mineral activities that are defined as low impact under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

This type of operation would usually be exempt from obtaining a clearing permit however there are some designated areas where low impact mineral activities require a clearing permit. These designated areas include water supply areas and areas covered by the riparian vegetation of a wetland or water course.

Under Regulation 6 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, the Turner River is classified as a schedule 1 non-permitted area and therefore any clearing requires approval through a clearing permit. A clearing application will be lodged with the DMIRS's Native Vegetation Assessment Branch following the granting of the mining lease.


2.3.2 Works Approval and Licence to Operate

Quarrying operations are not Prescribed Premises under the Environmental Protection Regulations 1987, accordingly the quarry does not require a Works Approval. However, crushing and screening plants are Prescribed Premises and do require Works Approvals and Licences if the design capacity of the plant is 50,000 tonnes or more per year.

As this is the case, a Works Approval has been developed and submitted to the Department of Water and Environmental Regulation (DWER) for approval following the granting of the mining lease. An application for a Licence to Operate has also been submitted.

- Works Approval Number W8583/2013/1 issued on 19/09/2013
- Environmental Licence L8850/2014/1 issued on 08/01/2015

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3. EXISTING ENVIRONMENT

3.1 Regional Setting

The proposed project is located within the Town of Port Hedland, in the Pilbara region of Western Australia. The Project Area is approximately 47 km south-south-west of Port Hedland and is situated to the East of the Turner River (Figure 1). A section of the river passes through M45/1232. The Great Northern Highway runs through the south western region of the mining tenement M45/1232 adjacent to the river.

3.2 Climate

The Pilbara region has a tropical arid climate with two main seasons; a hot wet summer (October to April) and a mild dry winter (May to September). The region is characterised by highly variable, but generally low rainfall and high year-round temperatures. During the summer, high temperatures over the inland Pilbara generate a heat low (Van Vreeswyk et al, 2004). This and the influence of coastal sea breezes drive strong northerly and north-westerly winds. The winter months are characterised by easterly and south-easterly winds associated with high pressure systems to the south (Van Vreeswyk et al, 2004). Tropical cyclones often track southwest along the Pilbara coast during the summer months, or turn inland bringing destructive winds, widespread rain and flooding (Payne and Tille, 1992).

The closest Bureau of Meteorology (BoM) weather station to the Project Area is located at the Port Hedland airport which is approximately 35 km to the north east.

Based on 69 years of data, the mean maximum daily temperature at Port Hedland airport is 33.3°C and the mean minimum daily temperature is 19.5°C. Based on 69 years of data, the mean annual rainfall is 315.5 mm. Although there is high inter-annual variability, generally, the wettest month is February with a mean rainfall of 90.8 mm and the driest month is October with an mean rainfall of 1 mm (BoM, 2017).

3.3 Geology

Mining lease M45/1232 is located upon the Pilbara Coastal Plain which has characteristically low relief and is crossed by a series of ephemeral rivers that flow from the inland ranges to the Indian Ocean (Kendrick and Stanley, 2001). The basement rock consists of fractured and weathered granites and greenstones which are overlain by Quaternary clay and sand with some gravel (GSWA, 1983). The upper 12 m to 16 m of the alluvium typically consists of a layer of clayey sand or sandy clay (Haig, 2009).


3.4 Land Systems

Surveys of rangelands within the Pilbara (Van Vreeswyk et al., 2004) were undertaken on behalf of the Western Australian Department of Agriculture and Food over a number of years. Land was surveyed to provide a comprehensive description of the biophysical resources of the region along with an evaluation of the condition of the soils and vegetation. The area studied by Van Vreeswyk et al. (2004) extends from Onslow in the south to the northern end of the 80 Mile Beach, south of Broome. Van Vreeswyk et al. (2004) defined a series of land systems and described the different landform components within each.

According to Van Vreeswyk et al., (2004) the Project Area is located within the following three land systems and a River Bed Land Unit:

- Uaroo Land System

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- River Land System
- Mallina Land System.

The River Land System is characterized by active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft Spinifex grasslands; whilst the Uaroo Land System is characterized by broad sandy plains supporting shrubby hard and soft Spinifex grasslands. The Mallina Land System in the eastern region of the Project Area is characterised by sandy surfaced alluvial plains supporting soft Spinifex (and occasionally hard Spinifex) grasslands.

All systems are relatively poorly represented in the region, with the Uaroo Land System occupying 4.2%, the River Land System 2.3% and the Mallina Land System 1.3% of the total Pilbara Region survey area (Van Vreeswyk et al., 2004).

3.5 Soils

A search was performed on the Australian Soil Resource Information System (ASRIS) on the 23rd November 2011 to check soil types and the probability of Acid Sulphate Soils (ASS) within the Project Area.

The search results showed that there is a Low Probability/Very Low Confidence of ASS within the Project Area. The area within and adjacent to the Turner River has an Extremely Low Probability/Very Low Confidence of ASS (CSIRO, 2011).


The ASRIS described the soils within the Project Area as 'sandy loams' within and adjacent to the Turner River and as 'sandy or silty clay loams' to 'loamy or clayey sands' throughout the remainder of the area with patches of 'sandy clay loams' (CSIRO, 2011).

The soil types associated with each land system and landform as described by Van Vreeswyk et al. (2004) are listed in Table 1 below.

Table 1. Soil types associated with Uaroo, River and Mallina Land Systems

Land System	Landform	Soil
Uaroo	Low hills	Stony soils
	Low rises	Red shallow sands and red sandy earths
	Pebbly plains	Red shallow sandy soils, red shallow sands, red sandy earths and calcareous shallow earths
	Sandy/loamy plains	Red sandy earths, red deep sands and red loamy earths
	Calcrete plains	Calcareous shallow loams and red deep sandy duplex soils
	Tracts receiving sheet flow	Red deep sandy duplex soils, red deep sands and red sandy earths
River	Sandy levees and sand sheets	Mostly red deep sands, with red sandy earths, red loamy earths and some river bed soils
	Upper terraces	Red deep sands

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	Flood plains and lower terraces	Deep red/brown non-cracking clays and red loamy earths
	Stony plains	Red shallow loams and red shallow sands
	Minor and major channels	River bed soils
Mallina	Stony rises and low hills	Stony soils and red shallow loams
	Calcrete plains	Calcareous shallow loams
	Sandy surfaced alluvial plains with occasional claypans	Red sandy earths, red deep sandy duplex soils, red loamy earths and red/brown non-cracking clays
	Gilgai plains	Self-mulching cracking clays and red/brown non-cracking clays
	Stony plains	Red loamy earths and red sandy earths
	Sand plains	Red sandy earths
	Drainage tracts, river terraces, banks and channels	Red sandy earths with minor loamy red earths and channels with river bed soils

(Source: Van Vreeswyk et al., 2004)

3.6 Hydrology

The Project Area is located within the Indian Ocean Catchment Division and is bordered to the East by the Turner River Catchment and to the West by the Yule River Catchment (Landgate, 2011). The mining lease encompasses part of the Turner River. The Turner River is ephemeral (Kendrick and Stanley, 2001) and flows into the Indian Ocean. Cyclonic activity causes the river to flood periodically (BoM, 2011) which deposits a large amount of alluvial material upon the Pilbara Coastal Plain (Haig, 2009).

The Shallow Lower Turner River Alluvial Aquifer occurs in Quaternary sediments and is unconfined (Haig, 2009). The alluvium receives a significant recharge approximately every two years (Haig, 2009).


Previous studies indicate that fresh groundwater moves in a northerly, north-easterly and northwesterly direction suggesting that groundwater recharge is associated with the major tributaries of the Turner River; Turner River East and Turner River West (Haig, 2009).

There is very little flood information available for this area. Flood level information obtained from the Pincunah Gauging Station (Stn No. 709010) which is located approximately 60 km upstream of the Project Area shows peaks of between 3.5 m (2003) and 4.0 m (1999) during heavy rainfall events (DOW, 2012). The proposed pit and associated infrastructure are located on fairly flat ground with virtually no height difference between the eastern and western boundaries of the mining tenement.

Figure 4 shows contours at 5 m intervals for the mining tenement.

The Project Area does not include and is not in close proximity to any wetlands listed as Ramsar wetlands (DSEWPaC, 2011). Wetlands of National Significance are located approximately 35 km to the east-north-east of the Project Area in a system known as the Leslie (Port Hedland) Saltfields system (PIL04WA) (DSEWPaC, 2011).

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3.7 Flora and Vegetation Associations

The Interim Biogeographic Regionalisation for Australia (IBRA) categorises the Australian continent into regions of similar geology, landform, vegetation, fauna and climate, referred to as bioregions (DEWHA, 2006).

The Project Area is located within the Pilbara bioregion which is characterised by vast coastal plains and inland mountain ranges with cliffs and deep gorges (Basting et al, 2008). Vegetation is predominantly mulga low woodlands or snappy gum over bunch and hummock grasses.

The bioregion is further divided into 4 subregions. The Project Area is located within the Roebourne Subregion, described by Kendrick and Stanley (2001) as: *“Quaternary alluvial and older colluvial coastal and sub-coastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of Acacia stellaticeps or A. pyrifolia and A. inaequilatera. Uplands are dominated by TrioDPLH hummock grasslands. Ephemeral drainage lines support Eucalyptus victrix or Corymbia hamersleyana woodlands”*.

Beard (1975) mapped the rangeland region of Western Australia at a scale of 1:1 000 000 based on the climate, geology, physiographic, soils and vegetation types present. The mapping completed by Beard (1975) provides the basis for the IBRA bioregions. According to the Beard mapping, the Project Area is located within the Pilbara region, Fortescue Botanical District of the Eremaean Botanical Province (Beard, 1975). The vegetation of this province is typically open and frequently dominated by spinifex, wattles and occasional eucalypts (Beard, 1975).

For this mining proposal several database searches were conducted, as follows below.

A Department of Sustainability, Environment, Water Population and Communities (DSEWPaC) Protected Matters search was generated with a 10 km buffer from the centre of the Project Area on the 22nd November 2011. A copy of the EPBC Act Protected Matters Report is included in Appendix C.

The search revealed that one listed invasive weed species, Buffel grass (*Cenchrus ciliaris*) was likely to inhabit the area. Weed species are classified by the Environmental Weed Strategy of Western Australia with ratings based according to their potential unwanted impact on the biodiversity of natural ecosystems (CALM, 1999). According to this classification, Buffel Grass has a weed rating of ‘High’.

A search of the DWER databases (Threatened (Declared Rare) Flora database, the Western Australian Herbarium Specimen database and the DWER Declared Rare and Priority Flora List) determined that no threatened, but eight priority species have previously been recorded within a 20 km radius of the Project Area.

A search of the DWER Threatened Ecological Communities database identified that no Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) have been recorded within 20 km of the Project Area.

These DWER search results are presented in Appendix C.


A Level 1 Flora and Vegetation survey was undertaken in June 2012 by Astron. A discussion of the findings from the survey is given in Section 5.3. A copy of this report is included in Appendix D.

3.8 Fauna

Several database searches were conducted for fauna. The results are given in Appendix C, with specific details provided below.

A search of the DWER Threatened Fauna database within 20 km of the proposed survey area identified one Schedule 4 species listed under the Wildlife Conservation Act 1950, Woma (*Aspidites ramsayi*), and three Priority 4 species: Australian Bustard (*Ardeotis australis*), Ghost Bat (*Macroderma gigas*) and Western Pebble-mound Mouse (*Pseudomys chapmani*) all of which had previously been recorded in the vicinity of the project area.

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The EPBC Protected Matters Search (DSEWPaC 2011) revealed four conservation significant species which could potentially inhabit the project area. These include the Northern Quoll (*Dasyurus hallucatus*), Mulgara (*Dasyercus cristicauda*), Pilbara Leaf-nosed Bat (*Rhinonictis aurantia*) and the Greater Bilby (*Macrotis lagotis*) (DSEWPaC, 2011).

Three listed invasive mammal species were identified and include the Domestic Cat (*Felis catus*), the Wild Pig (*Suss crofa*), and the European Fox (*Vulpes vulpes*).

Eight migratory bird species listed under the EPBC Act were identified, with their typical habitat preferences likely to occur within the proposed project area.

These results are given in Appendix C.

3.9 Conservation Reserves

The Roebourne IBRA sub-region contains one National Park (Millstream-Chichester National Park), the Cane River/Mount Minnie/Barlee Range Conservation Park and several island nature reserves (Kendrick and Stanley, 2001). The Project Area does not occur within or immediately adjacent to any gazetted conservation areas.

The Project Area is not located within a Proclaimed Water Reserve but is within the vicinity of two Public Drinking Water Source Areas (PDWSA) (DoW, 2011): the Turner River Water Reserve, which is located downstream of the project area and the Yule River Water Reserve, which is immediately west of the project area. The Turner River Water Reserve has an Unassigned Priority listing (DoW, 2011), whilst the Turner River Water Reserve is a Priority 1 Reserve as listed by the Department of Water (Waters and Rivers Commission, 2000). A Priority 1 area is classified as follows:

“Priority 1 (P1) classification areas are defined to ensure that there is no degradation of the water source. P1 areas are Declared over land where the provision of the highest quality public drinking water is the prime beneficial land use. P1 areas would typically include land under public ownership, i.e. Crown land. P1 areas are managed in accordance with the principle of risk avoidance therefore land development is generally not permitted”.

3.10 Native Title

There is one Native Title Claimant Group within the project area (NNTT, 2011). This Claim was made by the Kariyarra People (WAD6169/98) (WC99/3) who are represented by the Kimberley Land Council Aboriginal Corporation and the Yamatji Marlpa Aboriginal Corporation.


Negotiations between MCS and the Kariyarra People have been completed and an agreement was reached on the 22nd of March 2013.

3.11 Aboriginal Heritage Sites

A Department of Planning, Lands and Heritage (DIA) search was generated for the Project Area through the Aboriginal Heritage Inquiry System (AHIS) to identify any Aboriginal Heritage Sites (DIA, 2011). No known sites were identified within this search.

An assessment was undertaken for the proposed sand extraction and associated clearing activities in accordance with the Cultural Heritage Due Diligence Guidelines (DIA, 2011). According to the Heritage Assessment Matrix given in these guidelines, there is a moderate residual risk associated with the proposed Indee Sand Quarry. The Cultural Heritage Due Diligence Guidelines determine that for a moderate level of risk, reference to the AHIS is required and consultation with the DPLH is recommended.


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The DPLH have confirmed that there are no known registered sites within the proposed Project Area. A copy of the DPLH search together with the confirmation letter from the DPLH is given in Appendix E.

Further heritage surveys will be undertaken within the project area as discussed in Section 5.9.

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4. PROJECT DESCRIPTION


4.1 Area of Disturbance

The proposed project is located within the Town of Port Hedland, in the Pilbara region of Western Australia. The An approximate layout of the proposed operations is provided in Figure 3 and the disturbance footprint for the project area is presented in Table 2.

Table 2. Area of Disturbance for the MCS Indee Sand Quarry

Mine activity	Previous approved area (Ha)	New proposed area (Ha)	Total (Ha)
Tenement M45/1232			
Stockpile 2 + stockpile loading area 2 (previously stockpile 1) Product Stockpiles Cleared Vegetation Stockpiles Topsoil Stockpiles	12.0000	0.0000	12.0000
Stockpile 2 extension	0.0000	1.4860	1.4860
Stockpiles 1 + stockpile loading area 1	0.0000	5.2330	5.2330
Screening plant area Hard stand vehicle loading	0.1000	0.0000	0.1000
Resource excavation area	72.0000	0.0000	72.0000
Infrastructure Office, ablutions, parking areas and hydrocarbon storage area	0.6000	0.0000	0.6000
Pit Haul Road 1	1.8800	0.0000	1.8800
Pit Haul Road 2	0.0000	0.3060	0.3060
Pit Haul Road 3	0.0000	1.0080	1.0080
Road Train Haul Road 1	4.4200	0.0000	4.4200
Road Train Haul Road 2	0.0000	1.9550	1.9550
Total Tenement Mine Activity Area	91.0000	9.9880	100.9880
Tenement L45/328			
Access Road	10.0000	0.0000	10.0000
Total Tenement Mine Activity Area	10.0000	0.0000	10.0000
TOTAL MINE ACTIVITY AREA	101.0000	9.9880	110.9880

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4.2 Mining Operations

MCS has established and operates a sand quarry operation within the project area. At this stage the mine is expected to continue for the full period of the tenement lease, which is 19 years.

The establishment phase has involved:

- Land clearing,
- Construction of a hard stand area,
- Establishment of a screening plant;
- Access to the project area will be via the Great Northern Highway onto an upgraded existing

Indee Station road (L45/328). Short spur tracks will be formed within the Project Area servicing the quarry, stockpile and office areas. The existing station track crossing the river will be upgraded but will remain at the existing level, thus not impeding water flows. No excavation of material will be undertaken during the wet season or when the river is flowing.

During the operational phase, sand extraction from the river bed has and will be undertaken on a campaign basis dependent on both the demand for product and river flows. No sand extraction will occur when the river is flowing. Operations are planned during daylight hours only.

Sand is excavated using one excavator, one front end loader, dump trucks / moxies and screened using a Sandvik 300 screening plant prior to stockpiling. It is envisaged that mining will occur to a depth of between 1–2 m and on average 80,000 - 300,000 tonnes of sand will be screened each year. Excavation depths will be modified if groundwater is intersected. An area of approximately 2.5 ha will be operational at any one time during a campaign. Figure 5 shows the breakdown of the pit area in approximate 2.5 ha blocks. **As far as is reasonably practicable** mining will commence in the northern region of the pit and will move in a southerly direction towards the centre of the pit. Once all sand has been removed in the northern region of the pit area, extraction of sand will commence in the southern section of the pit moving in a northerly direction towards the centre of the pit. The central pit area will be the last to be mined.

By adopting this method, it will be possible to determine the sustainability of the operation by monitoring the amount of bed load which replenishes the mined out area.

MCS will not extract any material below the bedload zone of the river during any mining campaign within each 2.5 ha block. Once the bedload zone of the extraction block has been reached, no further extraction will take place until the bedload has been replenished during flood events.


Also where the river channel is dry, excavation will not occur within 0.5m above the level of the water table at the time of mining. If the river is not completely dry, excavation will occur observing a minimum width buffer of five metres on either side of the excavation area.

Excavation areas will be ramped to allow fauna egress and will also be set at a distance of three meters from the drip line of any significant vegetation within the river bed. As a rule, trees in excess of 150 mm diameter will not be cleared when procuring material or establishing access to the excavation area. Excavations will not be undertaken within five metres of the river bank in order to avoid erosion which may undermine the bank.

The excavations will be undertaken in a manner which enables the river bed excavation to be concave rather than a trapezoidal drain with vertical sides. This greater surface area will reduce water flow velocity, thereby limiting the degree of erosion on the riverbanks.

On completion of each 2.5 ha excavation, the sides of the excavation pit will be recontoured to remove any steep batters and to allow safe access / egress by people and fauna. No standing water will be left in the excavations.

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The excavation pits will be continually excavated and refilled by natural material transported during river flows. Surveys should be undertaken prior to and post mining operations to calculate the type and amount of bed load replenishment.

An annual monitoring plan will be implemented which will address changes in bed elevation, widening of the channel and surrounding ecology. The results of the monitoring will be reported annually.

A total of four permanent photographic monitoring points have been set up from the middle of the river bed in 500 metres intervals, South to North or Upstream to Downstream to capture changes in the river and surrounding environment throughout the life of the mine.

The GPS coordinates of the 4 locations are:

Table 3. Permanent photographic monitoring points GPS coordinates


Monitoring Point 1 0658630 E 7703000 N	Monitoring Point 2 0658588 E 7703500 N
Monitoring Point 3 0658533 E 7704000 N	Monitoring Point 4 0658297 E 7704500 N

Water may be required for use in dust suppression. If required, water will be trucked to site in water tankers. If any water is to be sourced from site, an application for a licence under the Rights in Water and Irrigation Act 1914 will be lodged with Department of Water and Environmental Regulations (DWER) to access water for this purpose. Approval from DMIRS will also be required for this licence.

Below pictures taken on 29th March 2019, approx. 4 days after Tropical Cyclone Veronica which caused significant flooding/flows in the Turner River, including our previously mined areas.

All previously extracted areas have been completely replenished. Water still flowing at the time of the pictures being taken.


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Monitoring point 1



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Monitoring point 2




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Monitoring point 3



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Monitoring point 4



4.3 Processing

Processing will be limited to screening of the extracted sandy material. It is envisaged an average of 80,000 – 300,000 tonnes of material will be screened annually using the Sandvik 300 screening plant.


Shingle material separated from the sand will be stockpiled and crushed for use as low grade aggregate material.

No process wastewater will be created by extracting sand from the Turner River. No tailings or other process wastes will result from the Indee Sand Quarry operation.

4.4 Support Facilities

There will be a small office, crib room and portable toilets on site, but no permanent structures or housing will be located on the tenement. A hardstand area will be necessary for parking vehicles. A self bunded sea container will

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be used as a workshop for any emergency servicing of vehicles on site and will house approximately 80 L of oils and service fluids for on site maintenance.

4.5 Workforce


Approximately three employees are required at the site during site activities and will commute from neighbouring towns on a daily basis. However, if a temporary camp is required in the future, necessary government approvals will be sought.

4.6 Resource Requirements and Regional Infrastructure

There are very limited infrastructure requirements for this project. Essentially, all supplies including fuel and water will be trucked in as required. All power will be supplied by on-site generators. On site machinery will be refuelled within a suitably bunded, contained area, as required.

Power to run the crushing plant and on-site office will be supplied by a fully enclosed 20 kVa generator. This generator set will run from diesel fuel supplied directly from the fuel tanker.

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5. ENVIRONMENTAL IMPACTS AND MANAGEMENT

Environmental impacts will occur as a result of clearing of land for stockpiles and facilities and potential hydrocarbon contamination from diesel spills associated with the operation of the crushing and screening plant.

General environmental management practices for the proposed project will include:

- confining the Project Area and all staff to the approved disturbance footprint as described in this mining proposal;
- management of erosion around Turner River;
- training of site personnel (via environmental and safety site inductions, and tool box meetings) outlining the environmental values and risks relevant to the Indee Sand Quarry activities, and the management of these risks and associated environmental impacts.

5.1 Land Clearing

Indee sand quarry requires a total disturbance of approximately 111 ha of native vegetation; this includes excavation area, screening plant, stockpiles, haul roads, and associated infrastructures.

This proposal to extend the mine requires an additional 9.988 hectares of cleared land. The total clearing of land required for the project will be 100.98 hectares.

The additional 9.988 hectares of land is for a stockpile area on the southern side of the Lease (5.233 ha), the extension of the stockpile located in the northern part of the Lease (1.486 ha), 2 haul roads to and from each stockpile and the excavation area (a total of 1.314 ha) an additional road train haul road to connect the two stockpiles.

A clearing permit amendment has been lodged with the Native Vegetation Assessment Branch of DMIRS for the clearing of approximately 9.988 ha of native vegetation.

As a rule, trees in excess of 150 mm diameter will not be cleared when procuring material or establishing access to the excavation area. Clearing will proceed from the cleared area towards the uncleared areas to allow any fauna remaining within the area to escape.

Where it is available, cleared vegetation will be 'paddock dumped' to a maximum height of 2 m along the eastern boundary of the infrastructure area to be used as potential faunal habitats. If there is no evidence of fauna using these stockpiles at the end of the project, the material will be used in rehabilitation of the infrastructure area.


The pit layout (excavation blocks) and heritage survey included in the "Mining Proposal Indee Sand Quarry Mining Tenement M45/1232 and Miscellaneous Tenement L45/328" lodged in September 2013 remain unchanged.

Clearing Requirements are communicated to all personnel working on Site and they are part of the QHSE Induction.

All clearing has to be approved by the Registered Manager in writing and the following information have to be recorded:

- Location where the clearing occurred;
- Date that the area was cleared;
- Size of the area cleared;
- Purpose for which clearing was undertaken.

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Where it is available, cleared vegetation will be ‘paddock dumped’ to a maximum height of 2m along the eastern boundary of the infrastructure area to be used as potential faunal habitats. If there is no evidence of fauna using these stockpiles at the end of the project, the material will be used in rehabilitation of the infrastructure area.

5.2 Hydrology

Resource extraction will occur within the bed of the Turner River. The Turner River, Turner River East and Turner River West are ephemeral rivers, and as such sand extraction activities associated with this proposal will be undertaken when the Turner River is dry and not flowing.

MCS will monitor weather reports to ensure demobilisation is undertaken prior to any cyclonic events. During cyclonic / thunderstorm events, large quantities of runoff will flow towards natural drainage channels. As sand will be extracted from the river bed on a campaign basis during the dry season, every effort will be made to ensure sand product stockpiles are removed from the project area prior to the onset of the wet season. If product stockpiles are to remain on site during significant rainfall events, earthen bunds will be created around the stockpiles to protect against overland flow from higher and upstream areas. Earthen bunds will also be created around the topsoil and vegetation stockpiles ‘paddock dumped’ on the eastern boundary of the project area to prevent washaways during periods of high rainfall. It would be expected that the sediment load during flooding events from the operations area would be insignificant compared with the sediment load from the surrounding environment. As there is no waste generated by the operational processes, water runoff to these natural channels should not create any unwanted environmental issues.

On advice from DWER Karratha, a bed and banks permit will not be required for this project as there is no requirement to divert or take water from the watercourse in this area.

Any bank erosion, gullies or other erosion features will be reinstated with compacted sand, erosion control banks, fabric, drift fences, or rock and rip-rap as necessary to prevent erosion.

5.3 Flora and Fauna

Clearing of vegetation from the area for the facilities and resource excavation area will cause a loss of approximately 111 ha of native vegetation.


A Level 1 Flora and Vegetation survey was undertaken in the project area in early June 2012 (Astron 2012). As a result of this survey, the original location of the infrastructure (comprising the stockpiles, screening plant and associated operations buildings) was moved further north out of the tall closed shrubland into the open woodland and hummock grasslands to reduce the amount of native vegetation needing to be cleared.

Two Priority 1 species, *Abutilon pritzelianum* and *Heliotropium muticum*, were found within the Indee Sand Quarry lease area. *A. pritzelianum* was found in three different vegetation associations, while *H. muticum* was found in two different vegetation associations. According to FloraBase (DWER 2012) there are other populations of *A. pritzelianum* further south near Carnarvon as well as near Onslow. Other populations of *H. muticum* have been found in the Port Hedland and Karratha regions (DWER 2012).

The project area falls within the Pilbara IBRA bioregion and Roebourne subregion. According to the Beard mapping, the project area is located within the Pilbara region, Fortescue Botanical District of the Eremaean Botanical Province (Beard, 1975). Shepherd (2009) reports that approximately 100% of the pre-European vegetation still exists in this bioregion. Given this information, the proposed Indee Sand Quarry should not have a significant impact on the remnant native vegetation in the area.

Three non-native plant species were identified within the proposed project area during the survey.

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These species, *Aerva javanica, *Cenchrus ciliaris and *Cynodon dactylon, are rated as having a 'High' ecological impact and 'Rapid' level of invasiveness in the Invasive Plant Prioritisation Process (DWER 2011a) and are considered a threat to biodiversity. The almost total lack of introduced flora species along this section of the river and outer river banks and plains is significant. This is considered to be highly unusual for riparian vegetation and indicates the relatively pristine nature of the vegetation here, hence the few populations found here need to be controlled to prevent further spread into the clean vegetation within the lease area. Management on site will involve spraying or hand pulling of the weeds. Weed management will be covered in the site induction.

The results of the EPBC Protected Matters Search (DSEWPaC, 2011) identified four conservation significant mammal species as having the potential to inhabit the project area. No targeted, on ground fauna surveys have been undertaken in the project area to determine the presence or absence of these conservation significant fauna species. If present, the proposed Indee Sand Quarry activities would be unlikely to have a significant impact on these species, as the habitats present are not restricted to the project area and do not provide critical linkages for species dispersal and movement.

During the flora and vegetation survey, diggings were found throughout the tenement and photos of *Introduced, non-native species these diggings were taken. It has since been confirmed (J. Dell, Principal Environmental Officer, OEPA pers. comm., 6 July 2012) that these diggings are not those of the Greater Bilby (Macrotis lagotis), but of a reptile species.

No deep excavations will be undertaken, and subsequently the risk of fauna entrapment is minimal.

5.4 Topsoil and Soil Profiles

The project area falls within the bed, banks and flood plain of the Turner River. Van Vreeswyk et al. (2004) mapped the soils within the project area as those found within the River, the Uaroo and the Mallina Land Systems. All these systems are formed due to the hydrological properties of the river (Van Vreeswyk et al. 2004). The river is prone to flooding (BoM, 2011) and because of this it is likely that there will only be a small amount of topsoil present within the areas to be excavated for sand, if any at all. Where it is found and needs to be removed, topsoil will be 'paddock dumped' to a maximum height of 2 m along the eastern boundary of the infrastructure area. Earthen bunds will be created around these stockpiles to divert water away from the stockpiles.

5.5 Waste Products

General rubbish will be stored in closed rubbish bins on site and removed as necessary for disposal at an appropriately licensed facility. Sewage from the toilets located on site will be pumped out and disposed of by a licensed waste contractor to an appropriately licensed facility.

Hydrocarbon waste management is discussed in Section 5.6 below.


No other industrial waste products or toxic materials will be generated by this excavation/screening operation.

5.6 Hydrocarbons Management

Fuel for heavy machines and the generator will be trucked to site. Running repairs to site based operational equipment will be undertaken in the sea container workshop.

Refuelling and service maintenance activities to be done on site, and subsequent management of wastes, will include the following:

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- Refuelling of site machines will occur within an appropriately banded, contained area, where management measures to mitigate the risk of spills will be put in place.
- The generator used for the office and amenities power will be self banded and will be located in an appropriately banded, contained area. It will be refuelled manually in situ.
- Emergency servicing on site will take place either within the sea container workshop area or within a suitably banded, contained area.
- Any waste oils or oil filters are to be stored within the sea container workshop in suitably marked bins and transported and disposed of off-site by a licensed waste contractor on a regular basis.
- All hydrocarbons (including hydrocarbon contaminated wastes) will be removed from site at the end of each sand extraction campaign and prior to any significant rainfall events.

Standard spill management procedures will be in place to control, contain and clean up any spillage immediately and undertake any necessary reporting. This will involve removal of all contaminated soil from the spill site which will be disposed of in accordance with Landfill Waste Classification and Waste Definitions 1996, Environmental Protection (Controlled Waste) Regulations 2004 and Environmental Protection (Unauthorised Discharges) Regulations 2004.

Spill kits will be on site near the refuelling and workshop areas and staff will be trained in their use.

5.7 Dangerous Goods and Hazardous Substances

No explosives, chemicals or pesticides will be stored on site. No more than 2 litres (L) of chemicals for use in the toilet will be stored on site. These chemicals will be contained and stored appropriately. Approximately 80 L of oils and service fluids will be stored on site for emergency servicing of equipment. All hydrocarbons and waste oils will be stored within the sea container workshop.

Consideration of flood levels will be taken into account when determining the location and height above ground of the chemical toilet. The toilet will be maintained regularly in accordance with manufacturer's instructions. Effluent from the chemical toilet will not be disposed of within the tenement area but will be transported off site and disposed of by a licensed contractor.

5.8 Atmospheric Pollution and Noise

The small scale of this operation means that exhaust emissions and other discharges are expected to be of negligible impact to the environment. Plant machinery on site is likely to be limited to one front end loader, one excavator, trucks and a screening plant.


Machinery used on site will be serviced regularly off site in accordance with the manufacturer's recommendations to maintain efficiency and minimise emissions. Atmospheric pollution is therefore not seen as a major concern.

The creation of stockpiles of sand and topsoil may result in dust. If dust does occur, then it will be managed via the application of sprayed water brought in from Port Hedland for this purpose.

Odour emissions will be confined to the single chemical toilet on site. The toilet will be maintained and emptied regularly in accordance with manufacturer's instructions. Effluent from the chemical toilet will not be disposed of within the tenement area but will be transported off site. As the toilet will be regularly maintained, odour emissions associated with this proposal are of minor concern.

The lease is not near inhabited areas or publicly used recreational facilities, hence members of the public will not be affected by the operations. The screening plant will be operated to comply with the Environmental Protection (Noise) Regulations 1997. Modern equipment will be used to limit noise generation and planned maintenance schedules will be implemented to ensure equipment is operating in an efficient manner.

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5.9 Heritage

Consultation with the DPLH has been undertaken and it has been confirmed that there are no known registered heritage sites within the proposed project area (Appendix E).

Aboriginal Archaeological and Ethnographic Surveys of the proposed project area will be undertaken in conjunction with representatives of the Kariyarra People to determine whether any unrecorded sites of Aboriginal heritage significance are located within the project area.

Disturbance of earth around any known heritage site may uncover material or artefacts that contain heritage significance. Management procedures will be put in place to ensure that materials of importance are identified so works can be suspended immediately in order to seek professional advice. Aboriginal heritage issues will be included in the site induction for personnel.

5.10 Community and Land Use

Port Hedland is the town closest to the proposed Indee Sand Quarry. Port Hedland has a population of over 16,800 people (ABS 2014) which has been increasing to support the iron ore mining industry and the production of solar salt, both of which are exported through the expanding port at Port Hedland. The Great Northern Highway is the major transportation route leading both south and west from Port Hedland.

The Indee Sand Quarry will provide necessary construction material for the residential and industrial developments whilst having low environmental and aesthetic impacts. Personnel working within the proposed sand quarry will be accommodated at Port Hedland.

The project area is a part of the Indee Pastoral Station. Consultation with the Station owner has been undertaken and permission has been granted to use the existing Station roads for access to the project area (Appendix F). MCS will ensure that station tracks, fences and gates that may be impacted by the development will be reinstated to the satisfaction of the pastoralist. The proposed activities are located approximately 412 m from the Carowenhyna Well located on Indee Station.

Section 20 of the Mining Act 1978 requires written consent from the pastoralist prior to ground disturbing activities within 400 m of a dam, well or bore. A letter of consent has been obtained from the pastoralist due to close proximity to this well and is attached in Appendix F.

Main Roads Western Australia (MRWA) has no objection to the upgrade / construction of the proposed access road off Great Northern Highway subject to a number of conditions relating to road design and construction, which need to be approved prior to any construction taking place (Appendix F). MCS has contracted a Design Engineering Company who is in consultation with MRWA to ascertain exactly what is required for the road/ intersection upgrades. MCS will commit to complying with MRWA requirements.

A submission for approval of site buildings (offices, crib room, ablutions) will be lodged with the Town of Port Hedland.

The project area falls within the Proposed Rail Corridor – FNA 10120. The proposed activities will not interfere with or restrict any rail route investigation activities being undertaken by the rail line proponent.

5.11 Summary of Impacts and Management

A summary of identified potential environmental impacts and related MCS management commitments is given in Table 4.

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Table 4. MCS Indee Sand Quarry Commitments Summary


Environmental Impacts	MCS Management Commitment Implementation
Compliance with Legislation	MCS will comply with all tenement conditions for M45/1232 and L45/328. MCS will comply with all legislation relevant to the project.
Inductions	MCS will provide all employees working on site with an induction into the environmental values and risks relevant to the Indee Sand Quarry activities and the management of the associated environmental impacts. This will include Aboriginal Heritage issues. This induction will be supervised and audited annually by MCS's Health Safety and Environment representative. The environmental induction for the site will include: <ul style="list-style-type: none"> • the requirements of the Aboriginal Heritage Act 1972; • the identification of cultural sites and materials and the actions to be taken • if any site or artefact is discovered; • access restrictions; • weeds; • flora and vegetation; • fauna management; • spill response; • waste management; • hydrocarbon management
Native Vegetation Clearing	Clearing will be undertaken in accordance with the Clearing Permit. Trees in excess of 150 mm diameter will not be cleared when procuring material or establishing access to the excavation area.

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Excavations	<p>Excavation areas will be set at a distance of three meters from the drip-line of any significant vegetation within the river bed.</p> <p>Excavations will not be undertaken within five meters of the river bank to prevent erosion.</p> <p>Excavations will be ramped to allow fauna egress.</p> <p>Excavations will be concave in shape rather than trapezoidal to increase the surface area of the excavation and hence reduce flow velocities when the river is flowing.</p> <p>No material will be extracted below the bedload zone of the river. Once the bedload zone of the river in the extraction block has been reached, no further extraction will take place until the bedload has been replenished during flood events.</p> <p>Where the river channel is dry, excavation will not occur within 0.5m above the level of the water table at the time of mining. If the river is not completely dry, excavation will not occur below the low flow water level. Minimum width buffer on either side of the excavation area should separate it from the low-flow channel and the adjacent channel bank.</p> <p>An annual monitoring plan will be implemented which will address changes in bed elevation, widening of the channel and surrounding ecology. The results of the monitoring will be reported annually. Permanent photographic monitoring points will be established upstream, downstream and within the extraction area, to capture changes in the river and surrounding environment throughout the life of the mine.</p>
Erosion and Flood Management	<p>Any bank erosion, gullies, or other erosion features will be reinstated with compacted sand, erosion control banks, fabric, drift fences, rock and rip-rap as necessary to prevent erosion.</p> <p>Stockpiles will not be left within the channel bed at the end of each extracting campaign to avoid water flow obstruction and increased water turbidity.</p> <p>Bunds will be created around any remaining product stockpiles as well as the 'paddock dumped' topsoil and vegetation stockpiles prior to significant rainfall events to protect against overland flow from higher and upstream areas.</p>
Flora, Vegetation and Weed Management	<p>Include an awareness of the values of the surrounding flora and vegetation and weed management in site induction.</p> <p>Buffel grass (<i>Cenchrus ciliaris</i>) management will be limited to ensuring it is kept out of the crib and vehicle parking areas.</p> <p>Removal of Kapok Bush (<i>Aerva javanica</i>) plants to prevent further spread of the weeds to the project area.</p>
Fauna Management	<p>Staff will be informed of fauna management requirements in their site induction.</p> <p>After each excavation, the external embankments will be recontoured to remove any steep batters and to allow safe access/egress by people and fauna.</p>

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Waste Management	<p>No waste products or toxic materials will be generated by this excavation / screening operation.</p> <p>No fuels or oils will be disposed of on the lease.</p> <p>If any fuels, oils or servicing chemicals are needed for urgent repairs, they will be kept on the lease within the sea container workshop. Any waste hydrocarbon produced due to an urgent repair or service will be stored in appropriately labelled bins within the sea container workshop until they are transported off-site and disposed of by a licensed contractor.</p>
Hydrocarbons Management	<p>Fuel for vehicles and equipment will be sourced in Port Hedland and transported to the site as required. There will be no storage of diesel or other fuels in the project area, other than for generator operation.</p> <p>Service maintenance activities necessary on site will occur within a sea container workshop or within an appropriately bunded, contained area.</p> <p>Refuelling of fixed plant will be carried out directly from the fuel truck.</p> <p>The generator used for the office and amenities power will be self bunded and will be located in a lined bunded area. It will be refuelled manually <i>in situ</i>.</p> <p>Light Vehicles will be refuelled in Port Hedland.</p> <p>No routine servicing will be carried out on site.</p> <p>No fuels or oils will be disposed of on the lease.</p> <p>Standard spill management procedures will be in place to control, contain and clean-up any spillage immediately. This will involve removal of all contaminated soil from the spill site.</p>
Atmospheric and Noise Pollution	<p>The material is river washed sand and dust is therefore not expected to be a problem. However, dust suppression via a water cart will be implemented if dust becomes problematic.</p> <p>The lease is not near any inhabited area nor any publically used recreation facility so no members of the public will be affected by the works. The screening plant will be operated to comply with the Environmental Protection (Noise) Regulations 1997.</p>
Aboriginal Heritage	<p>The provisions of the <i>Aboriginal Heritage Act</i> 1972 and in particular Section 17 of this Act will be adhered to during its operations.</p> <p>All operators will be made aware that should any midden, artefact, skeletal or other potential heritage site or material be found during operations, work that may impact such a site or material will stop immediately and professional advice will be sought.</p> <p>Any Aboriginal Heritage site or artefacts discovered during the works will be reported to the Department of Planning, Lands and Heritage immediately.</p>
European Heritage	<p>Any items of European heritage found on the lease will be reported to the local Heritage Commission or to the WA Museum and professional advice will be sought.</p>

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Social Impact Management	<p>Station tracks, fences and gates which may be impacted by the development will be reinstated to the satisfaction of the pastoralist.</p> <p>Communication with key stakeholders will be undertaken.</p> <p>MCS will commit to complying with Main Roads WA requirements in regard to road / intersection upgrades.</p> <p>Shire approvals for site buildings will be obtained prior to installation on site.</p> <p>The proposed Indee Sand Quarry activities will not interfere with or restrict any rail route investigation activities in the proposed rail corridor as depicted by FNA 10120 being undertaken by the rail line proponent.</p>
Groundwater	<p>Excavation depths will be modified to suit if groundwater is intersected.</p> <p>There is no requirement for water for processing operations.</p> <p>Water for human purposes will be trucked from Port Hedland.</p> <p>A 5C Licence to Extract Water will be applied for through DWER if required and DMIRS will be notified.</p>
Explosives	No explosives will be used or stored on site.
Decommissioning, Rehabilitation and Revegetation	<p>The pit / river bed shall be recontoured to remove any steep batters and to allow safe access/egress by people and fauna. No standing water shall be left in any excavation, Slope of final land similar to pre-mining landform River bank where access is obtained to the pit area is to be reinstated.</p> <p>More information are available in the Mine Closure Plan.</p>


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6. MINE CLOSURE PLAN

The first revision of the Mine Closure Plan for small mining operations detailing rehabilitation and Decommissioning of the project area after sand extraction, has been submitted to DMIRS on the 2nd of March 2017 (application ID 64428).


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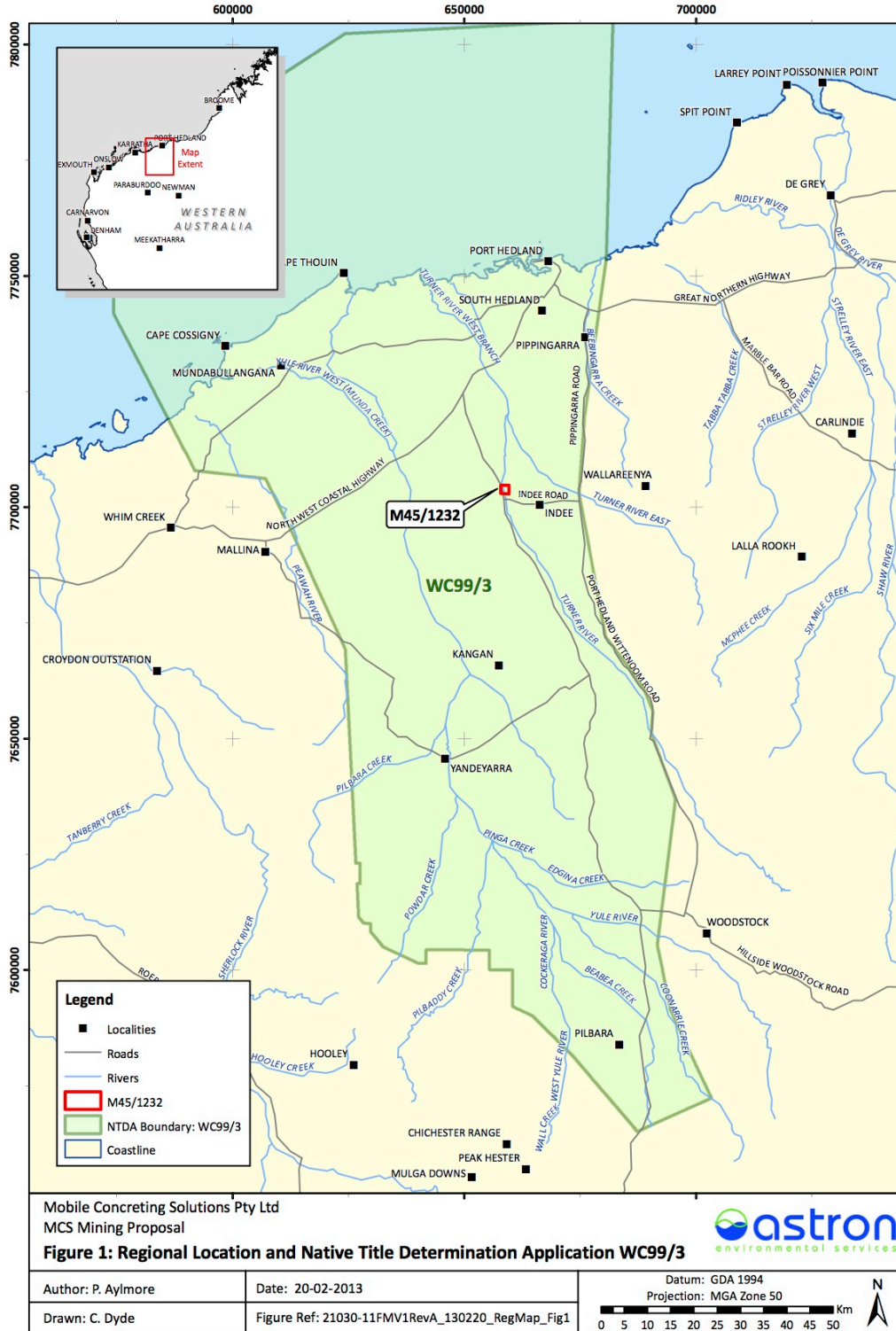
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FIGURE 1: Regional Location and Native Title Determination Application WC99/3



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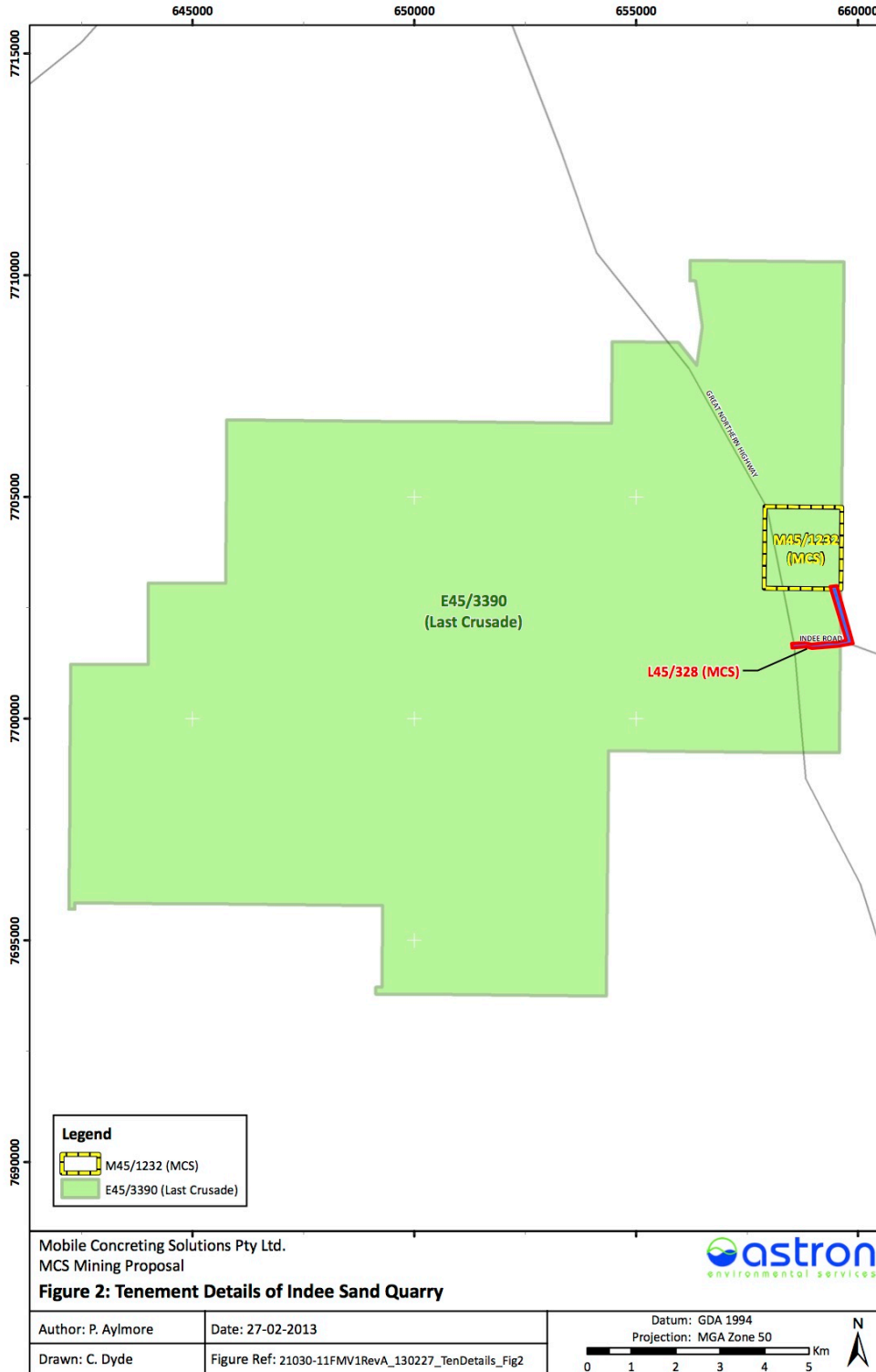
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FIGURE 2: Tenement Details of Indee Sand Quarry



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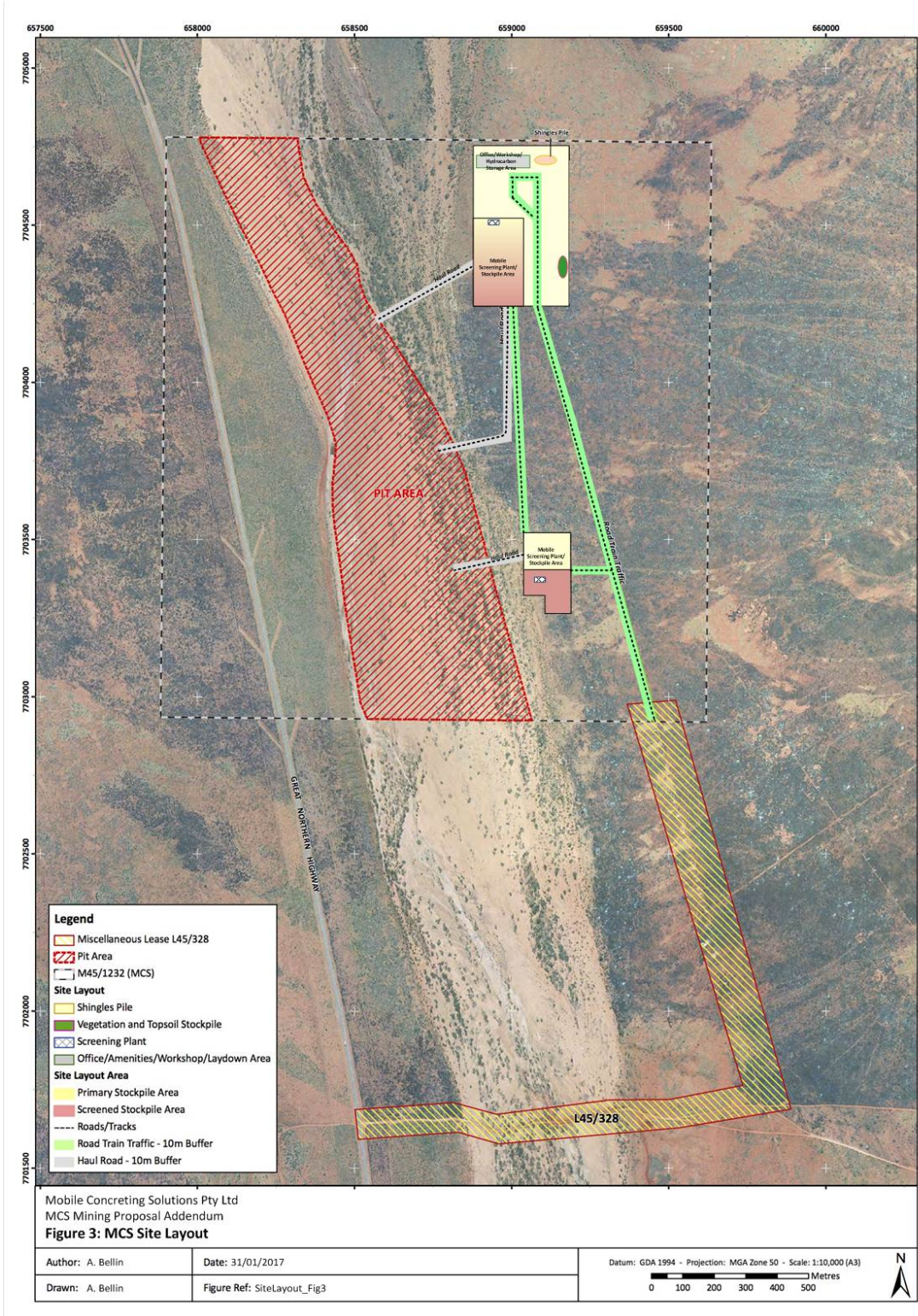
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FIGURE 3: Proposed Site Layout



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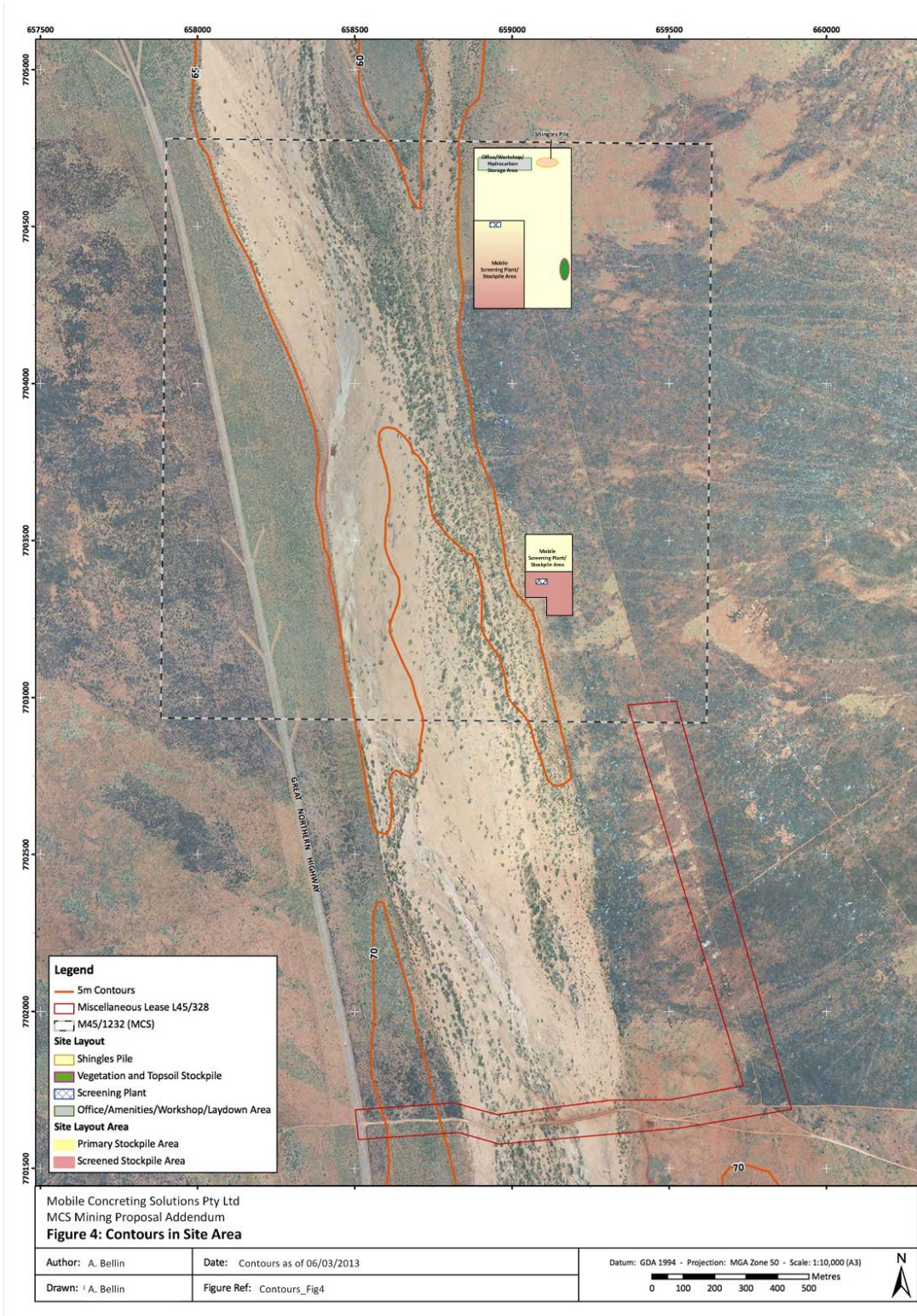

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FIGURE 4: Contours in Site Area




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APPENDIX A: M45/1232 Tenement Condition


Cond No	Version	Condition	Start Date	End Date
1	1	Survey.	20/05/2013	
2	1	All surface holes drilled for the purpose of exploration are to be capped, filled or otherwise made safe immediately after completion.	20/05/2013	
3	1	All disturbances to the surface of the land made as a result of exploration, including costeans, drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Mines, Industry Regulation and Safety (DMIRS). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DMIRS.	20/05/2013	
4	1	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.	20/05/2013	
5	1	Unless the written approval of the Environmental Officer, DMIRS is first obtained, the use of drilling rigs, scrapers, graders, bulldozers, backhoes or other mechanised equipment for surface disturbance or the excavation of costeans is prohibited. Following approval, all topsoil being removed ahead of mining operations and separately stockpiled for replacement after backfilling and/or completion of operations.	20/05/2013	
6	1	The Lessee notifying the holder of any underlying pastoral or grazing lease by telephone or in person, or by registered post if contact cannot be made, prior to undertaking airborne geophysical surveys or any ground disturbing activities utilising equipment such as scrapers, graders, bulldozers, backhoes, drilling rigs; water carting equipment or other mechanised equipment.	20/05/2013	
7	1	The Lessee or transferee, as the case may be, shall within thirty (30) days of receiving written notification of:- <ul style="list-style-type: none"> • the grant of the Lease; or • registration of a transfer introducing a new Lessee; advise, by registered post, the holder of any underlying pastoral or grazing lease details of the grant or transfer.	20/05/2013	
8	1	The lessee submitting a plan of proposed operations and measures to safeguard the environment to the Executive Director, Environment Division, DMIRS for his assessment and written approval prior to commencing any developmental or productive mining or construction activity.	20/05/2013	

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9	1	The rights of ingress to and egress from Miscellaneous Licence 45/324 being at all times preserved to the licensee and no interference with the purpose or installations connected to the licence.	20/05/2013	
10	1	No excavation, excepting shafts, approaching closer to the Great Northern Highway, Highway verge or the road reserve than a distance equal to twice the depth of the excavation and mining on the Great Northern Highway or Highway verge being confined to below a depth of 30 metres from the natural surface.	20/05/2013	
11	1	No activities being carried out within the proposed railway corridor (designated FNA 10120) that interfere with or restrict any rail route investigation activities being undertaken by the rail line proponent.	20/05/2013	
12	1	The construction and operation of the project and measures to protect the environment to be carried out in accordance with the document titled: <ul style="list-style-type: none"> • (Reg ID 38166) "Indee Sand Quarry - Mining Tenement 45/1232 and Miscellaneous Licence 45/328 - Mining Proposal" dated 11 September 2013 signed by Richard Clarke and retained on Department of Mines, Industry Regulation and Safety File No. EARS-PLA-38166; • Reg ID 38166) "Mine Closure Plan for small operations - Indee Sand - 45/1232 and L45/328" dated 11 September 2013 signed by Richard Clarke and retained on Department of Mines, Industry Regulation and Safety File No. EARS-MPMLA-38166 Where a difference exists between the above document(s) and the following conditions, then the following conditions shall prevail.	12/11/2013	
13	1	Any alteration or expansion of operations within the lease boundaries beyond that outlined in the above document(s) not commencing until a plan of operations and a programme to safeguard the environment are submitted to the Executive Director, Environment Division, DMIRS for his assessment and until his written approval to proceed has been obtained.	12/11/2013	
14	1	The development and operation of the project being carried out in such a manner so as to create the minimum practicable disturbance to the existing vegetation and natural landform.	12/11/2013	
15	1	All topsoil and vegetation being removed ahead of all mining operations and being stockpiled appropriately for later respreading or immediately respread as rehabilitation progresses.	12/11/2013	
16	1	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Executive Director, Environment Division, DMIRS.	12/11/2013	
17	1	All rubbish and scrap is to be progressively disposed of in a suitable manner.	12/11/2013	
18	1	The lessee taking all reasonable measures to prevent or minimise the generation of dust from all materials handling operations, stockpiles, open areas and transport activities.	12/11/2013	

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19	1	The Lessee submitting to the Executive Director, Environment Division, DMIRS, a brief annual report outlining the project operations, mine site environmental management and rehabilitation work undertaken in the previous 12 months and the proposed operations, environmental management plans and rehabilitation programmes for the next 12 months. This report to be submitted each year in: November.	12/11/2013	
20	1	All activities being carried out in such a manner so as to not have a detrimental effect on the natural water flow through the lease and surrounding areas to the satisfaction of the Environmental Officer, DMIRS.	12/11/2013	
21	1	A Mine Closure Plan is to be submitted in the Annual Environmental Reporting month specified in tenement conditions in the year specified below, unless otherwise directed by an Environmental Officer, DMIRS. The Mine Closure Plan is to be prepared in accordance with the "Guidelines for Preparing Mine Closure Plans" available on DMIRS's website: 2016	12/11/2013	
22	1	All activities being carried out in such a manner so as to not have a detrimental effect on the natural water flow through the lease and surrounding areas to the satisfaction of the Environmental Officer, DMIRS.	12/11/2013	
23	1	A monitoring program should be established in order to monitor changes in river bed elevation, river behaviour and surrounding vegetation. Extraction quantities should be periodically reviewed in light of the results of the monitoring program. The results must be reported in the Annual Environment Report.	12/11/2013	
24	1	Sand and gravel mining should not remove more sediment than the river system can replenish.	12/11/2013	

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APPENDIX B: Legislation Relevant to the Project

The Legislation Relevant to the Project was listed in the Appendix B of the "Indee Sand Quarry - Mining Tenement 45/1232 and Miscellaneous Licence 45/328 - Mining Proposal" dated 11 September 2013 and retained on Department of Mines, Industry Regulation and Safety File No. EARS-PLA-38166.

The content remains unchanged.

APPENDIX C. Results of Database Searches

The search results were attached as Appendix C of the "Indee Sand Quarry - Mining Tenement 45/1232 and Miscellaneous Licence 45/328 - Mining Proposal" dated 11 September 2013 and retained on Department of Mines, Industry Regulation and Safety File No. EARS-PLA-38166.

The content remains unchanged.

APPENDIX D. Flora and Vegetation Survey Report

A Flora and Fauna survey was undertaken in June 2012.


The report was attached as Appendix D of the "Indee Sand Quarry - Mining Tenement 45/1232 and Miscellaneous Licence 45/328 - Mining Proposal" dated 11 September 2013 and retained on Department of Mines, Industry Regulation and Safety File No. EARS-PLA-38166.

APPENDIX E. Results of DPLH Database Search and Letter from DIA

The DPLH Database search results were attached as Appendix E of the "Indee Sand Quarry - Mining Tenement 45/1232 and Miscellaneous Licence 45/328 - Mining Proposal" dated 11 September 2013 and retained on Department of Mines, Industry Regulation and Safety File No. EARS-PLA-38166.

The content remains unchanged.

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APPENDIX F. Letters from MRWA and Station Owner

Both the letter from MRWA and Indee Station Owner have not changed since the submission of the "Indee Sand Quarry - Mining Tenement 45/1232 and Miscellaneous Licence 45/328 - Mining Proposal" dated 11 September 2013 and retained on Department of Mines, Industry Regulation and Safety File No. EARS-PLA-38166. The were attached to the Proposal as Appendix F.

APPENDIX G. Mine Closure Plan for M45/1232 and L45/328

MCS submitted the Mine Closure plan in 2013 - Reg ID 38166 "Mine Closure Plan for small operations - Indee Sand - 45/1232 and L45/328" dated 11 September 2013 signed by Richard Clarke and retained on Department of Mines, Industry Regulation and Safety File No. EARS-MPMLA-38166

The Mine Closure plan submitted in 2013 was reviewed early this year and submitted for approval to DMIRS on the 2nd of March 2017 (EARS application ID 64428).

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