1 INTRODUCTION

1.1 Introduction

Tellus Holdings Ltd (Tellus) is the proponent for the Sandy Ridge Facility (herein referred to as the 'Proposal' and/or the 'Facility'). The proponent is an infrastructure development company in the business of creating economic, social and environmental value from waste and clay resources. This dual revenue model involves mining kaolin clay in a thick, dry, remote location which is based on world's best practice near surface geological repositories. The voids created by mining are then used to store equipment, archives and waste using a multi barrier system as part of an overall safety case. The proponent plans to permanently isolate hazardous and intracble waste using environmentally sound management principles, that protect the environment and human health.

The proponent also supports the circular economy using long term storage by placing like-with-like materials for operational safety reasons and, to create opportunities for the future recovery of valuable materials. The proponent's business model mirrors international solutions operating in the United Kingdom, Europe and North America.

The proponent is developing the proposed Facility at Sandy Ridge in Western Australia (WA) located approximately 75 kilometres (km) north-east of Koolyanobbing, in the Shire of Coolgardie, within the Goldfields Region of WA (refer to Figure 1-1). This Public Environmental Review (PER) addresses a proposal to construct and operate an open-cut kaolin mine, storage and isolation facility for hazardous and intractable wastes.

There are two key aspects of the Proposal. The first involves mining kaolin primarily for export to Asia for ceramic clay and paint market. The second involves storing hazardous and intractable chemical wastes (approximately 99 % of the planned volume) and low level radioactive wastes (LLW), such as smoke detectors and sealed gauges (approximately 1 % of the planned volume) within the void spaces left from the mining operations.

This PER has been prepared to support the approval of the Proposal under Part IV of the *Environmental Protection Act 1986* (WA) (EP Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). The PER has been prepared to address the requirements set out in the final Environmental Scoping Document (ESD) for the Proposal issued by the WA Office of the Environmental Protection Authority (OEPA) on 27 May 2016 (refer to Appendix A.1). A cross reference of this PER against the ESD requirements are also contained within Appendix A.1.

The PER has also been prepared to address the requirements set out in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) (EPBC Regulations).

1.2 Proposal overview

The proponent is seeking environmental approval to construct and operate a dual revenue business. The first aspect of the dual revenue model relates to the mining, processing and export of kaolin. The second aspect relates to the emplacement and permanent isolation of hazardous, intractable

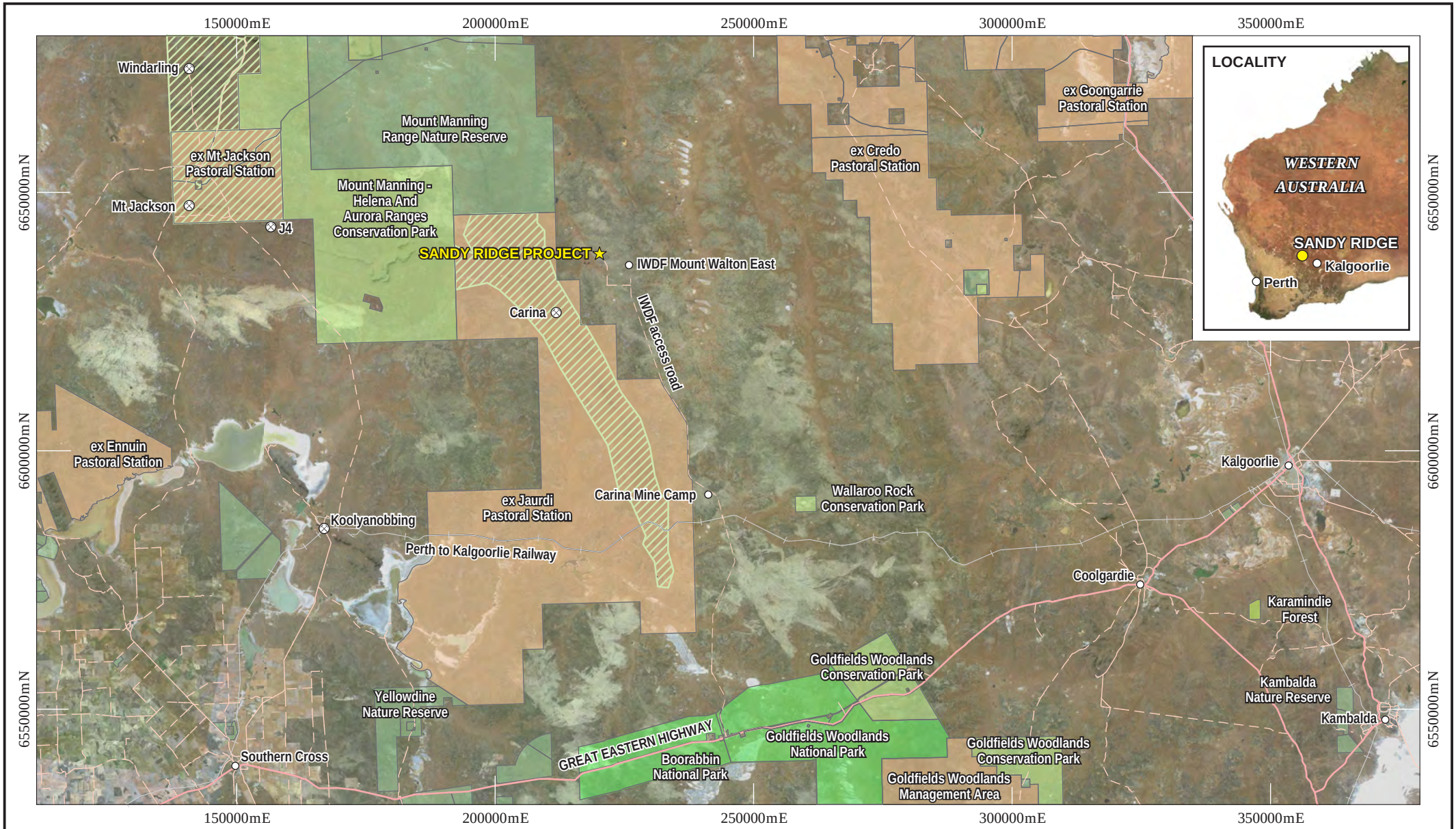
chemcical waste as well as LLW in the mine voids. The placement of these wastes in a near surface geological repository, based on international best practice techniques, would isolate the wastes from the biosphere over geological time.

1.2.1 Kaolin mining

The Proposal based on a maximum 40,000 tpa kaolin processing plant design, up to 2.9 million tonnes of kaolin clay needs to be mined (run of mine – ROM). From the ROM, up to 1.0 Mt of processed kaolin clay over 25 years could potentially be mostly exported to Asia. The kaolin would be transferred from Sandy Ridge to the domestic market or to Fremantle Port for export into the Asian market. The kaolin would be used mostly in the ceramic market (refer to Plate 1–1). Other potential uses include paint manufacturing or the development of fibre glass that is used in manufactured products like wind turbines.

Plate 1-1 Process from the proponents drilling, to bulk pilot, to producing ceramic grade products

All overburden (laterite, silcrete, yellow sand) and kaolin that is not acceptable for export would be returned to the mine voids (herein referred to as ‘cells’) for use in backfill around buried waste. Kaolin would also be used to cap the cell after it has been completely filled with waste materials.



Legend:
- Iron Ore Mine
- Rail
- Major Road
- Minor Road

DPaW Managed Lands:
- Conservation Park
- Former Leasehold
- National Park
- Nature Reserve
- Proposed Conservation and Mining Reserve
- State Forest

TELLUS

0 20km
Scale 1:1,000,000
MGA94 (Zone 51)
CAD Ref: g2294_PER_01_01.dgn
Date: Nov 2016 | Rev:1 | A4

Aurora environmental
Author: C. Dorrington | AE Ref: THO2014-003
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Sandy Ridge Facility
Regional location
Public Environmental Review

Figure:
1-1

1.2.2 Waste storage, recovery and isolation services

What is hazardous waste?

Hazardous waste in Australia is regulated by the states and territories, which variously describe these waste types as controlled, trackable, prescribed, listed or regulated wastes. Hazardous waste is waste that is a management problem by virtue of its toxicity or chemical or physical characteristics which make it difficult to dispose of or treat safely and which is not suitable for disposal in a Class I, II, III or IV landfill, but is suitable in a geological repository (Class V) like the proposed Sandy Ridge Facility.

Overview of waste storage, recovery and isolation services

For planning purposes, Tellus is assuming the Proposal would start at below 50,000 tpa, average 66,000 tpa over 25 years, but would have a licenced capacity of 100,000 tonnes per annum of Class IV and V Hazardous and Intractable wastes to accommodate for both a steady state growth over 25 years and a surge as a result of a one-off campaign style State Emergency Service infrastructure requirements. For example, man-made or natural disasters where significant volumes of materials need to be rapidly removed from communities, or one off campaign style transfer of significant mine dumps or tailing ponds from a large industrial customer.

The Facilities' primary objective is to provide customers with a licensed facility that safely allows for the storage, treatment, recovery and permanent isolation of bulk hazardous and intractable chemical waste materials. Some of these materials may be classified as dangerous or hazardous goods, such as those listed wastes under Schedule 1 of the National Environment Protection (Movement of Controlled Waste between States and Territories) or National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 (NEPM) 75.

The Facility may receive Naturally Occurring Radioactive Material (NORM) up to a low level radioactive waste level (LLW) of activity arising mainly from the mining, oil and gas and agricultural fertiliser, smelting industry. The proponent will be applying for a Licence (Controlled Action) to accept NORM up to a LLW level of activity and non-nuclear LLW such as medical isotopes, smoke detectors and sealed industrial sources. The proponent is assuming a LLW volume of approximately 1%.

Wastes would be accepted from within WA, other Australian states and territories and from Australia's Exclusive Economic Zone[2].

Australian's are one of the world's highest emitters of hazardous waste on a per capita basis. Most Australian industries and households produce hazardous waste.

[2] [2] Australia has an EEZ declared under the *Seas and Submerged Lands Act* Act on 1 August 1994. The inner limit of the EEZ is the outer limit of the territorial sea located 12 nautical miles seaward of the territorial sea baseline. The outer limit of the EEZ is 200 nautical miles from the baseline, except where it has been pulled back to take account of maritime delimitations or potential maritime delimitations with other countries. Except in the area of those delimitations, it is therefore 188 nautical miles wide.

The Facility would operate as a wholesale service provider that is predominantly focused on industrial generated hazardous waste. The Facility would not be open to the public (households). It could potentially receive household hazardous waste via reputable waste management companies that would collect hazardous waste from households and bring it to the Facility.

Waste acceptance criteria

Waste Acceptance Criteria (WAC) have been established for the proposed Sandy Ridge Facility to determine waste types which can and cannot be accepted to achieve safe operation and environmental protection in the longer term at our facilities. The facility has been designed and is in a dry, 70 million year old, thick, stable host geological environment (clay bed) which can store and dispose of the majority of the NEPM 75 hazardous and intractable wastes types subject to them meeting strict WAC. These criteria have been developed following internationally recognised best practice and set out waste characteristics which would and would NOT be suitable for storage or disposal in a geological repository

In the first year of operation, about 42,500 tonnes per annum (tpa) of waste material would be disposed of at the Facility. This may increase up to 100,000 tpa (licensed amount), but likely to average 66,000 tpa over the life of the proposed Facility. Wastes would be accepted predominantly from within WA but also from across Australia and from Australian Exclusive Economic Zone.

Operations

Cells would be filled in layers with multiple sections in each layer containing wastes of similar characteristics. All space between the waste packages would be backfilled and compacted to minimise air or void space, and to ensure long term stability. Each layer would be compacted, until approximately 7 m below the ground surface. A thick capping layer of low permeability clay (referred to as a ‘seal’) would be installed to prevent water ingress into the cell. Following this, more compacted backfill and a domed kaolin cap would be situated on the top of the cell to shed any landing rainfall during a monitoring period. At completion of the monitoring period soil and topsoil are replaced to allow rehabilitation. The soil layers are also an integral part of the cap system, providing a ‘store-and-release’ function for rainwater.

During the waste storage or permanent isolation process, a roof canopy would be positioned over the cell to exclude rainfall prior to the seal being installed. There may be instances (for non-soluble waste types) where a cell may be filled with waste without a roof canopy. In addition, any potential stormwater surface flows would be diverted away from the cells by bund walls or levee banks.

The entire process of kaolin mining and waste emplacement is summarised in Plate 1-2.

Plate 1-2 Process of creating the kaolin open cut pit, filling it with waste materials, and then undertaking remediation and closure

1.2.3 Classes of disposal facilities

Domestic and commercial landfills are allowed to accept waste defined under the WA *Landfill Waste Classification and Waste Definitions* (Department of the Environment and Conservation, 1996). The Proposal is seeking approval to take Class IV and Class V wastes. The waste types permitted for disposal in WA are summarised in Table 1-1 and those that would be accepted at the Facility are highlighted in orange.

Table 1-1 Landfill classes and waste types in WA

Landfill class	Description	Waste type
Class I	Inert landfill	• Clean fill. • Type 1 Inert waste. • Contaminated solid wastes meeting waste acceptance criteria specified for Class I landfills (possibly with specific licence conditions). • Type 2 inert waste (with specific licence conditions). • Type 3 inert waste (subject to DEC* approval). • Type 1 special waste.
Class II	Putrescible landfill	• Clean fill. • Type 1 inert waste. • Putrescible wastes. • Contaminated solid waste meeting waste acceptance criteria specified for Class II landfills (possibly with specific licence conditions). • Type 2 inert wastes (with specific licence conditions). • Type 1 and Type 2 Special Wastes (for registered sites as approved under the Controlled Waste Regulations).
Class III	Putrescible landfill	• Clean fill. • Type 1 inert waste. • Putrescible wastes. • Contaminated solid waste meeting waste acceptance criteria specified for Class II or Class III landfills (possibly with specific licence conditions). • Type 2 inert wastes (with specific licence conditions). • Type 1 and Type 2 special wastes.
Class IV (prescribed premises Category 65)	Secure landfill	• Clean fill. • Type 1 inert waste. • Contaminated solid waste meeting criteria specified for Class II, Class III or Class IV landfills (possibly with specific licence conditions). • Type 2 inert wastes (with specific licence conditions). • Type 1 and Type 2 special wastes.
Class V (prescribed premises category 66)	Intractable landfill	• Intractable and other wastes in accordance with the approvals for the site.

Source: *Department of Environment, 1996*

**Department of Environment and Conservation*

Waste sources

Intractable Class V wastes are those problematic by virtue of their toxicity, chemical or physical characteristics which make them difficult to dispose of or treat safely, and which are not suitable for Class I to IV landfills (DEC, 1996 as amended 2009). The sources of intractable wastes vary. Industries that generate intractable wastes include:

- ***Mining*** – industrial sludges like arsenic and cyanide from the gold industry.
- ***Oil and gas sector*** – for example hydrocarbons in contaminated soil or from processing from upstream, midstream and downstream. Note: some waste from the oil and gas industry contains naturally occurring radioactive materials (NORMs). NORM containing scale and equipment would be accepted at the facility.
- ***Heavy industry*** – for example spent catalyst wastes (aluminium slag).
- ***Agriculture*** – for example pesticides.
- ***Government*** *(state emergency service)* – waste generated due to man-made or natural disasters that needs to be removed safely from the community by Government agencies; for example, asbestos.

Table 1-2 describes the hazardous and intractable wastes accepted on site (surface) and below ground in waste cells.

Table 1-2 Hazardous wastes accepted on site (surface) and below ground in waste cells

Hazardous and intractable wastes (NEPM 75)	Accepted on site (surface storage)[2]	Accepted below ground in waste cells[2]
Hazardous and intractable wastes (NEPM 75) subject to meeting the characteristics criteria below (examples of acceptable wastes on next slides)	✓	✓
• Liquid and sludges	✓	×[1]
• Explosive wastes	✓	×[1]
• Flammable liquids or solids	✓	×[1]
• Self-combusting wastes or wastes that can generate a gas-air mixture which is toxic or explosive	✓	×[1]
• Highly corrosive or oxidizing	✓	×
• Gases	×	×
• **Clinical waste** *such as infectious hospital waste and body parts*	×	×
• **Municipal Solid waste** *such as putrescible household and commercial waste*	×	×
• Putrescible wastes *which rot such as household rubbish*	×	×
• Uncertified waste *which can not be identified or has not undergone characterisation testing*	×	×
• Reacts with the repository geology *such as dissolving it or producing a gas*	×	×

[1]*Normally excluded unless modified before disposal or during disposal so the operational or post closure safety of the waste cell and facility is not compromised.*
[2] ✓ = accepted, × = not accepted. ×[1]= normally excluded but possibly suitable[3]
[3] Classification of Radioactive Waste – ARPANSA RPS20

Radioactive waste classification

The Facility would be a world's best practice facility for the storage (retrievable) and permanent isolation (non-retrievable) of chemical waste. However, some wastes also contain levels of naturally occurring radioactive material.

Almost everything in nature has some small amount of natural radioactivity and processing concentrates it. At Sandy Ridge the acceptance criteria identify NORM up to Low Level Waste (LLW) activity content[3] and other LLW such as medical isotopes, smoke detectors, sealed gauges as suitable for storage and disposal in accordance with the safety case (see Table 1-3).

[2] *Classification of Radioactive Waste – RPS20, ARPANSA*

Table 1-3 NORM and LLR wastes accepted on site (surface) and below ground in waste cells

Radioactive wastes[2] (✓ = accepted, ✗ = not accepted)	Accepted on site (surface storage)	Accepted below ground in waste cells
Naturally Occurring Radioactive Material (NORM) ***up to LLW activity levels*** *such as oil and gas industry scale*	✓	✓
Low level Waste (LLW) *such as smoke detectors, exit signs, industrial gauges and medical isotopes*	✓	✓
Intermediate level (ILW) and high level waste (ILW) *such as reprocessed spent nuclear fuel and components with high levels of radioactivity*	✗	✗
Nuclear waste *from power generation and defense use*	✗	✗

[1] *Classification of Radioactive Waste – ARPANSA RPS20*

Nuclear waste storage or disposal services would not be provided at the proposed Sandy Ridge Facility. The Sandy Ridge Project has not been nominated as a potential National Radioactive Waste Management Facility. No such nomination is planned and no such nomination would be accepted should it be made by any other party.

Radioactive waste generated in Australia generally falls within the very short lived waste (VSLW), very low level waste (VLLW), and LLW or intermediate level waste (ILW) classifications.

The Australian classification scheme for disposal of radioactive waste is based on the safety of disposal pathways, taking into account the radioactivity level and the time it would take for the radioactivity to decay (its half-life).

As such, it does not include quantitative values of allowable activity content for each significant radionuclide. Radioactive waste classification within Australia is described in Figure 1-2.

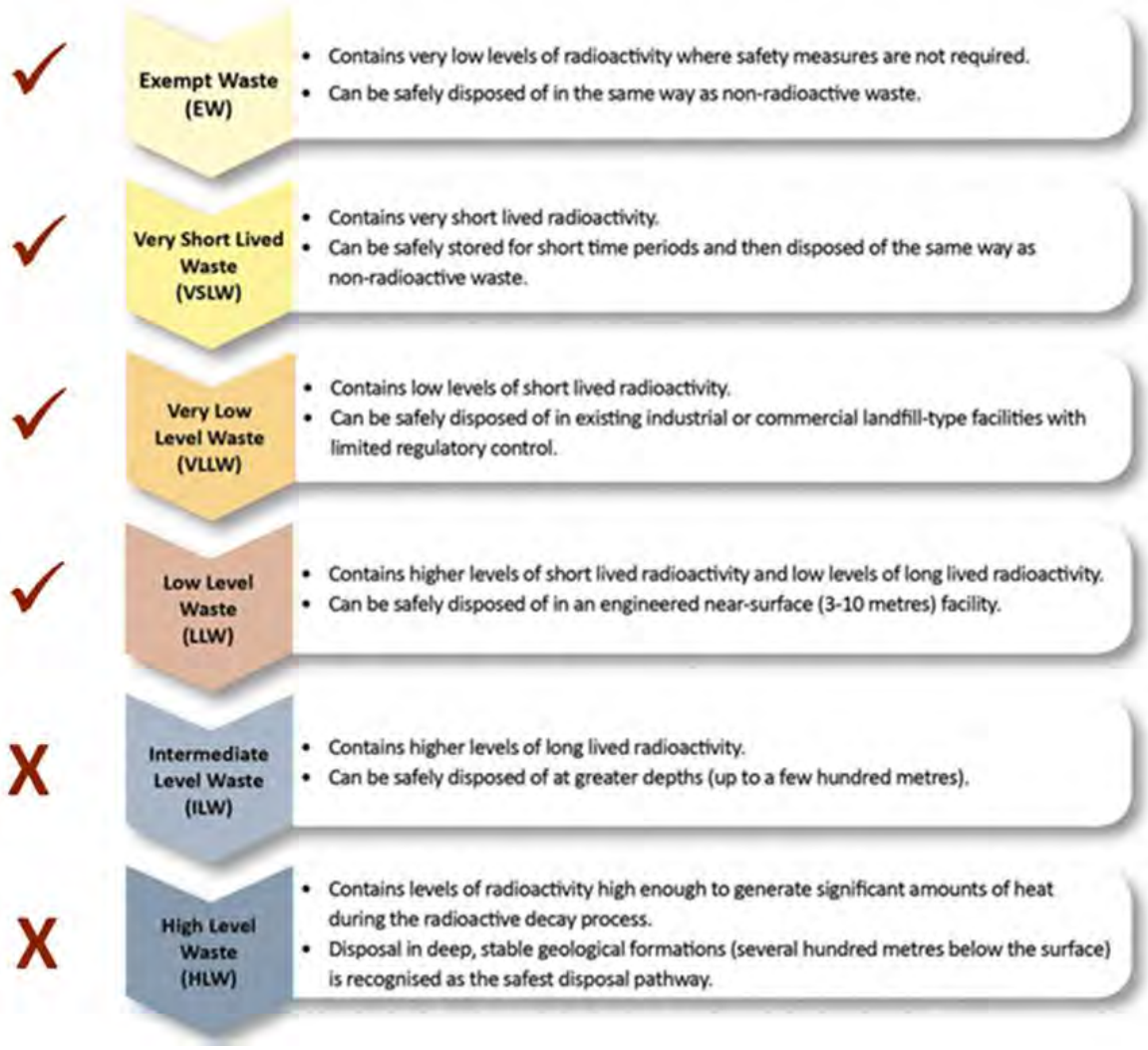


Figure 1-2 Radioactive waste classification

All wastes would be securely stored or isolated by taking advantage of the location's natural geologically thick, flat and extensive kaolin barrier. This includes an extensive kaolin bed (kaolinised granite), approximately 70 million years old.

The kaolin and overlying silcrete layer are laterally extensive at approximately 160 km long and approximately 20 km wide and flat. The weathering profile is approximately 40 m to 50 m deep and, there is no credible risk of water ingress or contamination leaving the site (see Section 9.2.9 for more information).

1.2.4 Key characteristics of the Proposal

In accordance with *Environmental Assessment Guideline for Defining the Key Characteristics of a Proposal (EAG1)* (Environmental Protection Agency [EPA], 2012), the key characteristics of the Proposal are defined in Table 1-2.

Table 1-4 Key characteristics of the Proposal

Summary of the Proposal		
Proposal title	Sandy Ridge Facility.	
Proponent name	Tellus Holdings Ltd.	
Short description	The Proposal is to develop a kaolin open cut mine and use the voids resulting from mining for the secure storage and isolation of hazardous, intractable waste and LLW using an international best practice storage and isolation safety case. The Proposal is located approximately 75 km north-east of Koolyanobbing, WA (Figure 1-1).	
PHYSICAL ELEMENTS		
Element	**Location**	**Proposed Extent Authorised**
Pits/Cells	Figure 1-3	Clearing no more than 202.3 hectares (ha) within 1004.2 ha proposed development envelope.
Mine infrastructure	Figure 1-3	Clearing no more than 17.2 ha within 1004.2 ha proposed development envelope.
Accommodation camp	Figure 1-3	Clearing no more than 2.5 ha within 1004.2 ha proposed development envelope.
Class II Landfill	Figure 1-3	Clearing no more than 0.25 ha within 1004.2 ha proposed development envelope.
Future technology park	Figure 1-3	Clearing no more than 4 ha within 1004.2 ha proposed development envelope.
Access roads	Figure 1-4	Clearing no more than 22.2 ha within 1004.2 ha proposed development envelope.
Water pipeline	Figure 5-1	Clearing no more than 27.6 ha within 1004.2 ha proposed development envelope.
Total disturbed area		Clearing no more than 276.05 ha within 1004.2 ha proposed development envelope.
OPERATIONAL ELEMENTS		
Element	**Location**	**Proposed Extent Authorised**
Ore Processing	Kaolin Plant, Figure 1-3, coordinates: 220800mE, 6637520mN	Processing of no more than 290,000 tpa of ore.
Class IV and Class V waste disposal	Pits/Cells, Figure 1-3 coordinates: 219920mE, 6638195mN	Disposal of no more than 100,000 tpa[4] Average amount per annum 66,000 tonnes (t) Maximum amount disposed 2,500,000 t over a 25 year period.
Class II Landfill for waste generated on the site	Class II Landfill, Figure 1-3 coordinates: 218507mE, 6637370mN	Disposal of no more than 500 tpa.
Water Use	Water Tanks, coordinates: 220770mE, 6637430mN	0.18 gigalitres per annum sourced from water tanks onsite that are supplied via a water pipeline from the Polaris/Mineral Resources Carina Iron Ore Mine.

[4] *The exact volumes of hazardous and LLW wastes can not be defined at this stage of project development. Subject to planning approval, there would be more certainty with respect to potential waste volumes.*

1.3 Proposal location

The Proposal is located approximately 75 km north-east of Koolyanobbing, in the Shire of Coolgardie, within the Goldfields Region of WA (refer to Figure 1-1).

The 'proposed development envelope', defined as the maximum area of ground disturbed during both construction and operation of the Proposal, is shown on Figure 1-3. The proposed development envelope would be accessed from the Great Eastern Highway via:

- A 95 km length of road to the Mount Walton East Intractable Waste Disposal Facility (IWDF) (Crown Reserve No. 44102), commonly known as the 'IWDF Access Road', that extends northward from Great Eastern Highway.
- A 4.5 km length of private road (commonly known as Mount Dimer Road) that travels west to join the IWDF Access Road.
- 5.3 km of new road that would be constructed in a northwards direction from Mount Dimer Road into the proposed development envelope (refer to Figure 1-4).

The location of the proposed development envelope was specifically chosen for its natural characteristics that meet the requirement for a near surface geological repository for hazardous intractable waste. These include:

- Quality kaolin mineral resource.
- Semi-arid climate.
- Geologically stable.
- Natural geological barriers.
- No regional aquifer.
- No surface water receptors.
- No flooding.
- Low erosion rates.
- No heritage values.
- Flat topography.

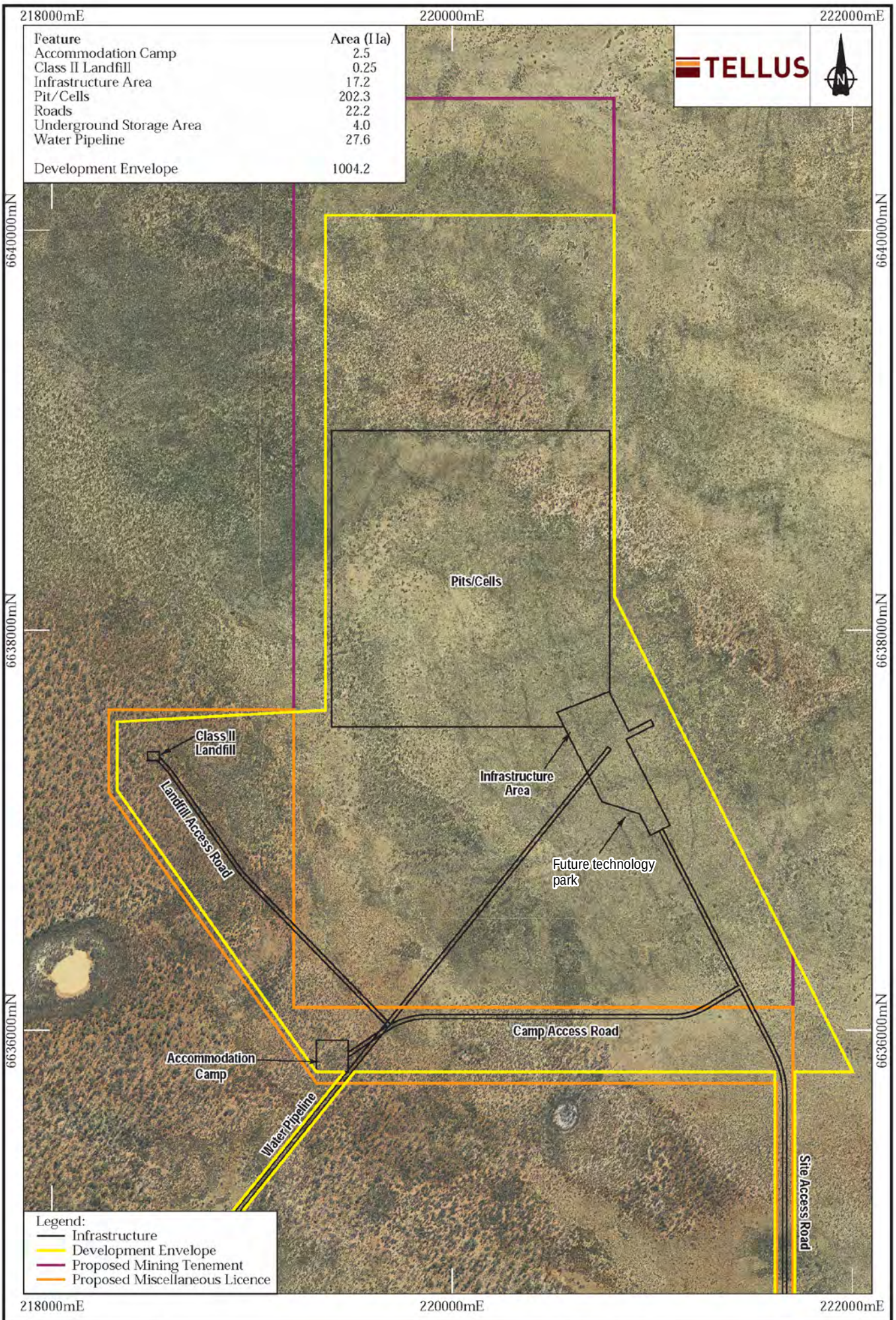
Site characteristics satisfy the International Atomic Energy Association (IAEA) requirements for a near surface geological repository for intractable and hazardous waste storage, recovery and isolation purposes.

There are no sensitive receptors within 5 km of the proposed Facility. The location of the Proposal is remote. The nearest neighbour to the proposed development envelope is the Mount Walton East IWDF Camp (approximately 6 km to the east), which is only temporarily operational during disposal campaigns and has no permanent residents.

The nearest permanent residents are located at the Carina Iron Ore Mine Accommodation Village (approximately 52 km to the south). These residents are only permanent while the mine is operational; the mine life was estimated to be 10 years in 2010 (Polaris Metals NL, 2010).

The proposed development envelope is on Crown land. It is not regarded as having any current or future value for mining (of minerals other than kaolin), nor is it regarded as valuable for agricultural or cultural purposes.

The arid and remote nature of the location, absence of a nearby population, and site characteristics (discussed further in Section 2.3) make the proposed development envelope ideal for the long term storage and permanent isolation of intractable, hazardous and low-level radioactive waste.



Feature	Area (Ha)
Accommodation Camp	2.5
Class II Landfill	0.25
Infrastructure Area	17.2
Pit/Cells	202.3
Roads	22.2
Underground Storage Area	4.0
Water Pipeline	27.6
Development Envelope	1004.2

0 400m
Scale 1:25,000
MGA94 (Zone 51)
CAD Ref: g2294_PER_01_02.dgn
Date: November 2016 | Rev: G | A4

Author: C. Dorrington | AE Ref: TI IO2014-003
Drawn: CAD Resources - www.cadresources.com.au
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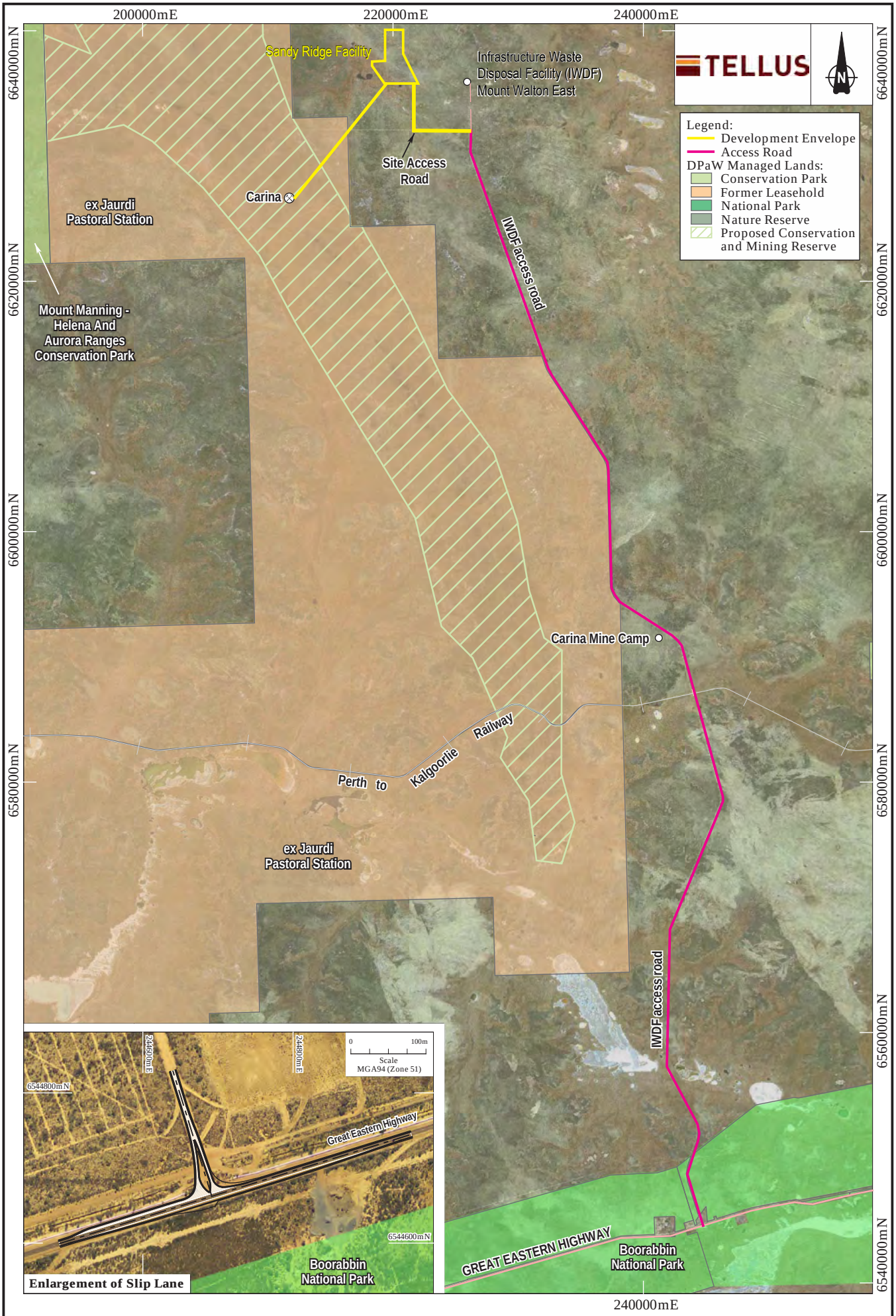
Sandy Ridge Facility

Proposed development envelope

Public Environmental Review

Figure:

1-3



0 5km

Scale 1:400,000
MGA94 (Zone 51)

CAD Ref: g2294_PER_01_03.dgn

Date: November 2016 | Rev:1 | A4

Aurora environmental

Author: C. Dorrington | AE Ref: THO2014-003

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Sandy Ridge Facility

Access to Sandy Ridge

Public Environmental Review

Figure:

1-4

1.4 The proponent

The proponent is an infrastructure development company in the business of creating economic, social and environmental value from waste, clay and salt resources. This dual revenue model involves mining the commodities kaolin clay and rock salt in thick dry remote beds which creates world's best practice geological repositories. The voids created by mining are then used to store equipment, archives or waste using a multi barrier system as part of an overall safety case.

The proponent plans to permanently isolate hazardous waste using environmentally sound management principles that protect the environment and human health. The proponent also supports the circular economy using long term storage by placing like-with-like materials for operational safety reasons and to create opportunities for the future recovery of valuable materials. The proponent' business model mirrors international solutions operating in the United Kingdom, Europe and North America. The proponent is developing the proposed Sandy Ridge Facility in WA and the proposed Chandler Facility in the Northern Territory (NT) which has been awarded Major Project Status by the NT Government.

The company details are as follows:

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Tel: +61 2 8257 3395
ABN 97 138 119 829

The key contact for the Proposal is:

Mr Richard Phillips
Environment and Approvals Manager
Suite 2, Level 10
151 Castlereagh Street
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Email: info@tellusholdings.com

1.5 Environmental record of the proponent

The proponent incorporated in 2009 and has offices and two proposals currently undergoing environmental assessment and planning approvals. The first at Sandt Ridge in WA and the second at Chandler in the Northern Territory. The proponent is not currently, nor has the company ever been, subject to any proceedings under a Commonwealth, State or Territory law in relation to the protection of the environment or the conservation and sustainable use of natural resources.

1.6 Overview of this Public Environmental Review

The purpose of the PER is to support approval for the Proposal under the EP Act and the EPBC Act (Cth). The PER has been prepared to address the requirements set out in the ESD that was accepted by the WA OEPA on 27 May 2016 under Part IV of the EP Act.

1.6.1 PER objectives

The objectives of the PER, and reference to these objectives within the document, are listed in Table 1-3.

Table 1-5 Objectives of the PER

No.	Description	Document reference
1	Place this Proposal in the context of the local and regional environment.	Section 1.3 and Chapter 9
2	Adequately describe all components of the Proposal, so that the Minister for Environment (State and Federal) can consider approval of a well-defined Proposal.	Chapter 5
3	Provide the basis of the Proponent's environmental management program, which shows that the environmental impacts resulting from the Proposal, including cumulative impact, are minimised and can be acceptably managed.	Chapter 12
4	Communicate clearly with stakeholders (including the public and government agencies), so that the EPA can obtain informed comment to assist in providing advice to government.	Chapter 6
5	Provide a document which clearly sets out the reasons why the Proposal should be judged by the EPA and the Minister for Environment (State and Federal) to be environmentally acceptable.	Chapter 13

1.6.2 Report structure

This PER is presented in the following chapters:

Chapter 1: **Introduction** – this chapter introduces the Proposal, the proponent and location of the Proposal. The purpose, scope, objectives and structure of the document are described. The location of information required by Schedule 4 of Environment Protection and Biodiversity Conservation Regulations 2000 is described.

Chapter 2: **Proposal Alternatives, Justification and Benefits** – this chapter outlines the alternative options considered and the justification for the Proposal. The potential benefits to WA and Australia are also outlined in this chapter.

Chapter 3: **Environmental Assessment Process** – this chapter describes the State and Commonwealth environmental assessment processes and the status of approvals for the Proposal.

Chapter 4: **Legislative Framework** – this chapter provides an overview of the environmental approvals required for the Proposal. A list of the relevant environmental legislation, regulations, conventions, treaties, policies, guidelines and code of practices that are relevant to the implementation of the Proposal is provided.

Chapter 5: **Proposal Definition** – this chapter provides a comprehensive description of the Proposal. Construction and operation of the Proposal is also discussed.

Chapter 6: **Stakeholder Consultation and Engagement** – this chapter documents the stakeholder engagement and consultation program undertaken by The proponent during the preparation of the ESD and PER. The focus of engagement was to seek feedback from key decision making authorities and stakeholders with respect to the potential environmental and social aspects that a) should be considered during the environmental impact assessment process and b) addressed in the PER.

Chapter 7: **Environmental Factors and Principles** – this chapter lists the key environmental factors outlined in the ESD. A discussion of the application of the EPA's *Environmental Assessment Guideline for Environmental Principles, Factors and Objectives* is also provided.

Chapter 8: **Environmental Risk Assessment** – this chapter provides a risk assessment of the potential environmental impacts associated with construction and operation of the Proposal.

Chapter 9: **Existing Environment** - This chapter describes the existing environment of the proposed development envelope (and vicinity) for each of the key environmental factors outlined in the ESD.

Chapter 10: **Assessment of Key Environmental Factors** – this chapter describes the existing environment of the proposed development envelope and provides an environmental impact assessment for each of the key environmental factors outlined in the ESD. For each key environmental factor, proposed mitigation/management measures to avoid or reduce potential impacts are provided. The predicted environmental outcome is provided for each key environmental factor assessed.

Chapter 11 **Assessment of Other Environmental Factors** – this chapter assesses other environmental factors considered relevant to the Proposal. These environmental factors include amenity (in relation to noise, dust and visual impacts) as well as the water source and viability of the water source for the Proposal. Cumulative impacts are assessed, as is the controlled nuclear action.

Chapter 12 **Management Framework** – this chapter outlines the environmental management program that would be implemented during both construction and operation of the Proposal. This chapter provides a commitment to the continued protection of the environment.

Chapter 13: **Justification and Conclusion** – this chapter provides the justification for the Proposal and concludes the assessment of key environmental factors and the environmental assessment process for the Proposal.

Chapter 14: **PER Technical Team** – this chapter provides a list of the team involved in the preparation of the PER.

Chapter 15: **References** – this chapter provides references for scientific statements made in the PER.

The appendices are labelled with the prefix 'A' and are located in Volume VI.