



Application for works approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works approval number W6335

Applicant Cougar Sands

DWER file number DER2019/000576

Premises Cougar Sand Supplies
Lot 1001 Lake Clifton Road
Lake Clifton

Part of Lot 1001 on Deposited Plan 66023
Certificate of Title Volume 2764 Folio 126

As defined by the coordinates and Premises map attached to
the issued Works Approval

Date of report 13 May 2020

Status of Report Final

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1. Definitions

Key terms relevant to this decision report and their associated definitions are listed in **Table 1**.

Table 1: Definitions

Term	Definition
Applicant	Cougar Sand Supplies
Category / categories	Categories of prescribed premises as set out in Schedule 1 of the EP Regulations.
Decision Report	refers to this document.
Delegated Officer	An officer delegated under section 20 of the EP Act.
Department	The department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the <i>Public Sector Management Act 1994</i> and is responsible for the administration of the <i>Environmental Protection Act 1986</i> along with other legislation.
Emission	has the same meaning given to that term under the EP Act.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Minister	the Minister responsible for the EP Act and associated regulations
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
Prescribed premises	This has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	As described in <i>Guidance Statement: Risk Assessment</i>
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>
Works Approval Holder	Cougar Sand Supplies

2. Purpose and scope of assessment

The Applicant has applied for a works approval to recycle inert materials and construct an inert waste landfill at the Cougar Sand Supplies facility, located at Lot 1001, Old Bunbury Road, Lake Clifton. The site is located approximately 95 kilometres south of the Perth CBD and 32 kilometres south of the Mandurah town centre. The Premises covers an area approximately 45 hectares.

The site has been used for extractive industry for over 20 years. The Applicant extracts sand onsite and retains an Extractive Industries Licence and planning consent from the Shire of Waroona (the Shire) for this activity. The excavation of the quarry has provided a void, a portion of which will be used to place materials that cannot be recycled.

The Applicant initially applied for categories 13, 61A and 70 Works Approval in October 2019. The Applicant was advised by DWER in November 2019 that the activities proposed to be undertaken on site triggered the requirements for category 13 (crushing of building material), category 62 (solid waste depot), category 63 (class 1 inert landfill), and category 70 (screening).

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Works Approval Application and Supporting documentation.	24 October 2019
Response to Request for Further Information	15 November 2019
Updated prescribed premises boundary provided by Applicant.	17 November 2019
Email correspondence received from Landform Research asking for category 63 to be added to the Works Approval Application.	17 November 2019

3. Overview of existing Premises

The site is currently occupied by Cougar Sand Supplies for sand extraction and operates Monday to Saturday 6:30am to 5pm, excluding public holidays. Sand is excavated and screened prior to being removed from site and sold. No complaints have been received by the Department since sand extraction activities began at the Premises. Table 3 outlines the prescribed premises categories that apply to the Works Approval Application with a location plan shown in Figure 1 and a Site Plan shown in Figure 2.

Figure 1: Location Plan



Table 3: Classification of Premises and assessed design capacity

Category	Description	Assessed production or design capacity or throughput
Category 13	Crushing of building material: Premises on which waste building or demolition material (for example, bricks, stones or concrete) is crushed or cleaned.	25,000 tonnes per annual year period (combined total)
Category 62	Solid waste depot: Premises on which waste is stored, or sorted, pending final disposal or re-use.	
Category 63	Class I inert landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time) is accepted for burial.	
Category 70	Screening, etc. of material: premises on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	

4. Description of proposed activities

4.1 Waste acceptance

The applicant plans to continue to operate as a sand extraction quarry, recycle up to 25,000 tonnes of inert materials per year and construct an inert waste landfill. The waste material accepted at the Premises will be sourced from development, construction and demolition sites, or other such activities. The inert material will consist of sand, clay, soils and clean non-putrescible material or rubble suitable for inert fill.

The fill will comply with Type 1 Inert Waste, as defined in *Landfill Waste Classification and Waste Definitions 1996 (amended 2019)*. Inert waste must contain <0.5% organic or putrescible wastes. Sand, brick and other material will be crushed and recovered for usable construction materials or fill. Tyres and asbestos are not proposed to be accepted at the Premises. These waste types are discussed further in non-conforming wastes in Sections 5.3 and 5.4.

A summary of the inert wastes accepted at the Premises are shown below in Table 4.

Table 4: Accepted waste streams

Waste Stream	Waste Type as defined in the <i>Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)</i> .
Clean Fill	<ul style="list-style-type: none"> Raw excavated natural material such as clay, gravel, sand, soil or rock fines that has been excavated or removed from the earth in areas that have not been subject to potentially contaminating land uses including industrial, commercial, mining or intensive agricultural activities
Inert Waste Type 1	<ul style="list-style-type: none"> Raw excavated natural material such as clay, gravel, sand, soil or rock fines (excluding contaminated soils); Rocks/soils arising from the excavation of a site (excluding contaminated soils) which has been previously developed or used; Building and demolition waste (e.g. bricks, concrete and associated unavoidable small quantities of paper, plastics, glass, metal and timber¹ that should be recovered), being material resulting from the demolition, erection, construction, refurbishment or alteration of buildings or from the construction, repair or alteration of infrastructure-type development such as roads, bridges, dams, tunnels, railways, and airports, and which is not mixed with any other type of waste (specifically green and food waste), and does not contain any asbestos or PFAS. Asphalt waste (e.g. resulting from road construction and waterproofing works).
Class I Solid Waste	<ul style="list-style-type: none"> Contaminated solid waste meeting acceptance criteria for Class I Landfills as defined in the <i>Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)</i>.

Contractors transporting materials to the facility will be required to have all loads within a covered truck, covered by an impermeable tarpaulin or other appropriate covering, managed in such a way that there is no loss of dust, sand, light waste or other materials.

Loads will be tipped on to the floor of the quarry. The operator will then visually check the waste to see if it aligns with the documentation and check for deleterious materials such as timber or asbestos containing material. Any loads that are found not to match the delivery documentation or contain non-conforming materials will be loaded back on the truck and removed from site.

Accepted waste will be sorted by inert material type as they are delivered to the Premises. The sorted material will be placed into separate stockpiles i.e. bitumen, concrete, brick, soil or mixed materials.

As the excavation and placement of inert fill continues the location of the raw materials stockpiles will change over time based on the quarry excavations and the landfilling area expanding. Where possible they will be located as far from the dwelling to the south west as is

operationally possible. The volume of stockpiles will be maintained at less than four metres in height and contain less than 4,000 tonnes at any point in time.

The mobile plant will consist of a mobile crusher together with screens and stackers to sort the products into various sizes. The units fit together linked by conveyors as needed to sort the inert materials. The crusher will be fed by a loader, which will collect the raw materials from the receival stockpiles. The mobile plant will be located on the floor of the pit, below the natural ground level.

A receival register will be maintained for all materials received at the Premises. The level of detail on each waste stream will depend on the nature, volume and homogeneity of the fill. For example, large volumes of waste from a consistent industrial process or location might be able to be visually assessed. On the other hand, variable fill streams that have the potential to contain non-conforming waste streams may require regular proof of compliance obtained from an independent source.

Waste receival records will include the following:

- Date;
- Source of waste;
- Name of "owner" of waste;
- Plate number of the truck and name of contractor;
- Nature of the original material, type, composition
- Proof of, and referencing, of waste that has been, or is, required to be independently assessed; and
- Volume/tonnes of waste material.

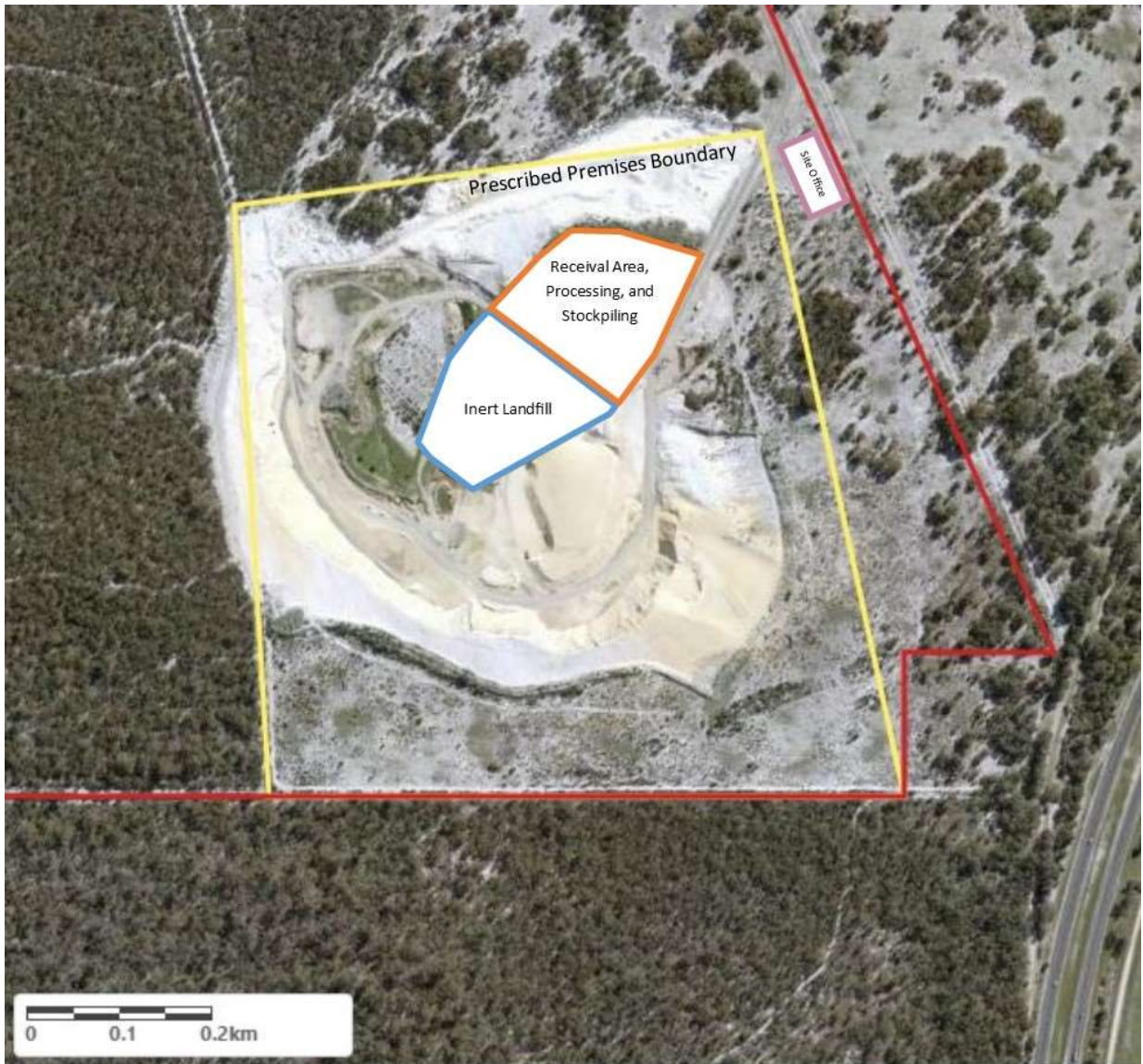
When there is doubt on the source, type and compliance of the waste, stream testing will be required. The onus on testing will be on the "owner" of the fill to demonstrate compliance to the criteria. Compliance will be required to the standards listed in *Landfill Waste Classification and Waste Definitions 1996 (amended 2019)*.

A complaints register will be maintained for any issues that may be raised by adjoining land holders or the general public. The proposed infrastructure and equipment are outlined in Table 5 below and the site layout is shown in Figure 2.

Table 5: Proposed infrastructure and equipment

Ref	Infrastructure or Equipment	Site Layout Plan reference (Figure 1)
1	Bulldozer - Bulldozer equivalent to D11 is to be used on site for pushing, track rolling, and reinstatement and movement of sand and for use in land restoration as required.	N/A – Mobile Equipment
2	Water Tanker - A 10 000 L water truck or similar is to be used for dust suppression on the access road and working floors as required.	N/A – Mobile Equipment
3	Excavator - An excavator is proposed to be used to move and sort materials.	N/A – Mobile Equipment
4	Loaders - Loaders (Cat 980 or similar) are to be used for the movement of recycling materials, sand, loading road trucks and feeding crushing and screening plant. At times there are likely to be two loaders on site.	N/A – Mobile Equipment
5	Rock Breaker - A rock breaker is not proposed to be used but may be required occasionally to break large rock.	Receival Area, Processing, and Stockpiling
6	Mobile Crushing and Screening Plant - Mobile screening plants are to be used for the preparation of various grades of recycled materials and to separate sand from other materials. Screening plant is powered remotely by a generator.	N/A – Mobile Equipment
7	Mobile Fuel Tanker – Used to refuel vehicles, generator and mobile plant.	N/A – Mobile Equipment
8	Semi-trailer trucks, truck and trailer combinations	N/A – Mobile Equipment
	Other activities	
9	Site Office	Site Office
10	Non-conforming waste bins	Receival Area, Processing, and Stockpiling
11	Sprinklers/misters	N/A – Mobile Equipment

Figure 2: Site Plan



The co-ordinates of prescribed premises boundary are shown in Table 6 below.

Table 6: Prescribed premises boundary co-ordinates

Co-ordinates	
380213.0 E	6367416.0 N
379681.2 E	6366681.8 N
380379.4 E	6366690.8 N
379635.1 E	6367327.9 N

4.2 Legislative context and other approvals

Approvals relevant to the Premises are outlined in the Table 7 below.

Table 7: Summary of emissions and applicant controls

Legislation	Number	Approval
Planning and Development Act 2005	TP1157	Local government planning approval. Extractive Industry approval.
	TP1157	
	TP1480	Local government planning approval. Inert Landfill approval.
Water Licence	GWL66656(3)	Licence to take water

4.3 Non-conforming waste

As the site will source materials from construction and demolition sites, there is a risk of that waste brought to the site may contain asbestos and other non-conforming materials. Non-conforming wastes will be identified visually upon entry to the site and during the tipping and sorting process. Where possible, non-conforming wastes will be separated from the inert material and stored onsite prior to appropriate disposal offsite.

4.4 Asbestos

Asbestos management will be undertaken in accordance with the Applicants asbestos management plan. The acceptance and screening protocols are outlined below:

All loads will be required to have documentation relating to the source, signed by the responsible manager/operator of the source site, documenting materials contained within the load, date, time and for demolition sites, the dates of construction. Materials will be required, at source, to have been identified and sorted prior to arriving on site, as being free from asbestos.

Where the waste originates from a building constructed before 1990 or there is uncertainty over this issue, the risks associated with asbestos in the load must be established in line with the Risk Classification Matrix below.

Risk Classification Matrix			
Material Type	Type of load		
	Commercial	Public, utes, cars and trailers*	Skip bins
Clean Concrete (without formwork)	Low	High	High
Clean Brick	Low	High	High
Clean Bitumen / Asphalt	Low	High	High
Mixed Construction waste	High	High	High
Mixed Demolition waste	High	High	High

* if it is possible to view the entire load of incoming C & D material (eg a small trailer with a shallow load, then consideration may be given to classifying these loads as low risk

(Risk Matrix Classification adapted from WorkSafe Victoria 2006 and WMAA 2009)

All loads will be visual inspected prior to tipping with any non-conforming loads or loads containing visible asbestos containing materials rejected and instructed to leave the site

immediately without tipping.

Accepted loads from these sites deemed to be high risk will be given particular inspection attention. The materials will be unloaded and spread on the ground to enable a detailed examination to be carried out. Loads spread on the ground will be spread to a depth of 300mm and turned as necessary. Turning and disturbance is however to be minimised to reduce the potential for grinding or breaking of the materials

If the dumped load is found to be non-conforming or containing visible asbestos containing materials that cannot be readily sorted by hand, the load will be rejected.

Where materials are uncertain, testing may be conducted of the materials to determine their nature. Testing takes a period of time and normally will not be undertaken, with the materials being classified as at risk and treated accordingly.

All identified asbestos containing material will be documented and stored in accordance with guidelines prior to appropriate offsite disposal.

5. Emission sources, receptors and pathways

5.1 Emissions

The potential for emissions to impact on sensitive receptors has been assessed in accordance with the Department's Risk Framework. The key emissions during premises construction which have been considered in this report are dust and noise from equipment placement, equipment testing and vehicle movements across the site. It is noted that emissions and discharges arising from the sand extraction is not considered within the scope of this works approval.

The Applicant has proposed measures to assist in controlling these emissions, where necessary. The Applicant control measures are outlined in Section 6.5 and have been considered when undertaking the risk assessment detailed in Section 7.

Following completion and compliance with this works approval, a category 13 (crushing of building material), category 62 (solid waste depot), category 63 (class I inert landfill), and category 70 (screening) prescribed premises licence under Part V of the EP Act will be required to authorise emissions associated with the operation of the Premises i.e. Crushing, screening, sorting and landfilling activities. A risk assessment for the operational phase has been included in this Decision Report, however licence conditions will not be finalised until DWER assesses the licence application. The key emissions considered in during premises operation are dust from crushing, screening and landfilling activities.

5.2 Environmental Siting

5.2.1 Potential receptors and environmental aspects

Risk is assessed as a combination of emission sources, the proximity and sensitivity of receptors to those emission sources and any pathways that can allow the emission to reach and potentially harm the receptor. The table below provides a summary of human and environmental receptors in proximity to the premises which have a potential to be impacted from site activities, and the risk assessment in Section 7 considers these receptors in the context of emissions and potential pathways.

Table 8: Distance to receptors

Human receptors	Distance from activity or prescribed premises
Residential Properties	The nearest residential property is located 860m north of the Premises as measured from the prescribed premises boundary to the residential building.
Drawpoints	There is one licensed water bore within 1 km of the Premises. This bore is licensed and operated by Cougar Sand Supplies for the abstraction of approximately 1,500kL per year. This water is used for dust suppression. Harvey River Basin Bore Site ID 20017004, Bore 6130943. (Licence GWL 66656(3)).
Environmental receptors	Distance from activity / prescribed premises
Ramsar Wetlands	The Peel-Yalgorup Ramsar site is located 2,100m west and northeast of the prescribed premises boundary. The Peel-Yalgorup Ramsar Site is the most important area for water birds and waders in Southwest Australia, regularly supporting over 20,000 individuals. The system supports a regionally important estuarine fishery. The area is used extensively for recreational purposes.
Important Wetlands	The Yalgorup Lake System important wetland is located 2,700m west of the prescribed premises boundary. The Peel-Harvey Estuary important wetland is located 2,200m north of the prescribed premises boundary.
Geomorphic Wetlands	The Yalgorup Lake System geomorphic wetland is located 2,700m west of the prescribed premises boundary. A multiple use geomorphic wetland is located 200m east of the prescribed premises boundary. A Resource Enhancement geomorphic wetland is located 650m east of the prescribed premises boundary A conservation geomorphic wetland is located 670m northeast of the prescribed premises boundary
Parks and Wildlife Managed Lands and Waters	The Myalup State Forest is located to the immediate south of the prescribed premises boundary and to the immediate west of Lot 1001.
Waterways Conservation Areas	The Peel Inlet Management Area is located to the immediate east of lot 1001 and 80 metres east of the premises boundary.

Peel Harvey EPP	The site is located within the Peel Harvey Environmental Protection Policy area. This policy protects the estuary by setting environmental quality objectives and outlines the means by which they are to be achieved and maintained to prevent further degradation.
Green Growth	There are eight green growth regionally significant natural areas located within 1km of the Premises. The nearest is located to the immediate west of the Premises with the western portion of Lot 1001 located within this natural green growth area.
Threatened Ecological Communities	<p>The Premises lies within a designated area for the critically endangered Stromatolite like freshwater microbialite community of coastal brackish lakes.</p> <p>The Premises lies within a designated area for the critically endangered Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain.</p> <p>The Premises lies within a designated area for the endangered Banksia dominated woodlands of the Swan Coastal Plain Region.</p> <p>The Premises lies within a designated area for the Priority 1 Elongate Fluvial Delta System - Peel-Harvey inlet.</p>
RIWI Act proclaimed groundwater areas	The site and surrounding areas sit within the South West Coastal proclaimed groundwater area.
Environmental aspects	Distance from activity / prescribed premises
Acid Sulfate Soil	<p>The northeastern portion of the Premises lies within a moderate to low risk area for acid sulfate soils.</p> <p>A high to moderate risk area for acid sulfate soils exists 500m north of the site.</p>

5.2.1 Rainfall and temperature

Average annual rainfall at the Premises is recorded as 874.9mm per year. The average maximum temperature is recorded as 23.3 degrees Celsius with the average minimum being 14.7 degrees Celsius.

5.2.2 Geology

The former Department of Mines and Petroleum (DMP), currently known as the Department of Mines and Industry Resource Safety (DMIRS) Geological Survey 1:50,000 geological map series identifies that superficial soils at the Site as the Spearwood Dune System. Geological mapping shows that the site lies at the interface of two sand units. The western portion of the Premises is underlain by pale and olive-yellow sands, medium to coarse-grained sub-angular quartz moderately sorted of residual origin modified by marine inundation. The eastern portion of the Premises is underlain by white to pale grey sand at surface yellow at depth fine to medium-grained moderately sorted subangular to subrounded minor heavy minerals of eolian origin.

Underlying the sands are limestone and shell beds at depth.

Site observations show that geology beneath the Premises is typically grey sand overburden up to 300mm thick over leached white silica sand of several metres. This overlies a yellow brown weakly ferricrete horizon that varies in depth depending on the elevation of the sand above the water table. The majority of the sand is deep yellow earthy sand that contains small amounts of clay (2 – 3%) and coatings of sesqui-oxides.

5.2.3 Hydrogeology

Groundwater studies in the Peel Harvey Region indicate that groundwater beneath the site lies approximately 1.0 – 1.5m Australian Height Datum (AHD). The Premises lies in the vicinity of a groundwater divide between Lake Clifton to the west and the Harvey River to the east. Site specific investigations to confirm distance to ground water levels and ground water flow direction beneath the Premises have not been undertaken.

5.3 Landfill engineering and design

The Applicant proposes the following landfill design and construction.

- A 3 m separation distance is proposed to be maintained at all times between the landfill floor and the highest annual groundwater level. In order for this to be achieved site specific investigations are required to determine groundwater levels and flow direction beneath the Premises.
- The placement of fill will be supervised by the operator/land holder in accordance with all Approvals and Conditions and subject to engineering specifications for the thicknesses of the lifts, the materials that can be used, and the compaction required.
- Engineering and geotechnical testing will be carried out under the supervision of a consultant geotechnical engineer. The site testing results will be retained.
- The fill will be placed in horizontal layers, compacted by traffic and track rolling in 0.3 – 0.5m lifts.
- Back fill material is to be sand, clay, soils and clean non putrescible material, or rubble suitable for inert fill. The fill will comply with Type 1 Inert Waste, as defined in Landfill Waste Classification and Waste Definitions 1996 (as amended). Inert waste must contain <0.5% organic or putrescible wastes (Amended Waste Classifications, 2005).
- It is anticipated that a final cover of sand some 1 – 2 metres thick will be placed over the fill. Once complete the fill will be seeded with local native vegetation as an interim cover to stabilise the site prior to recreation or some future land use, dependent on any future land zoning.

5.4 Pathways

5.4.1 Groundwater

Depth to groundwater is currently unknown beneath the site, however, is considered to be shallow, between 3-5 metres below ground level. The Premises lies in the vicinity of a groundwater divide between Lake Clifton to the west and the Harvey River to the east. Groundwater either flows to the west or the northeast towards the Peel-Yalgorup Ramsar wetlands. The Premises is located within the Peel Harvey Environmental Protection Policy area. This policy protects the estuary by setting environmental quality objectives and outlines the means by which they are to be achieved and maintained to prevent further degradation.

As previously outlined in the landfill design, the Applicant has proposed that a 3 m separation distance be maintained at all times between the landfill floor and the highest annual groundwater

level. Site specific investigations would be required in order to confirm distance to ground water level from the base of the excavation and ground water flow direction beneath the Premises.

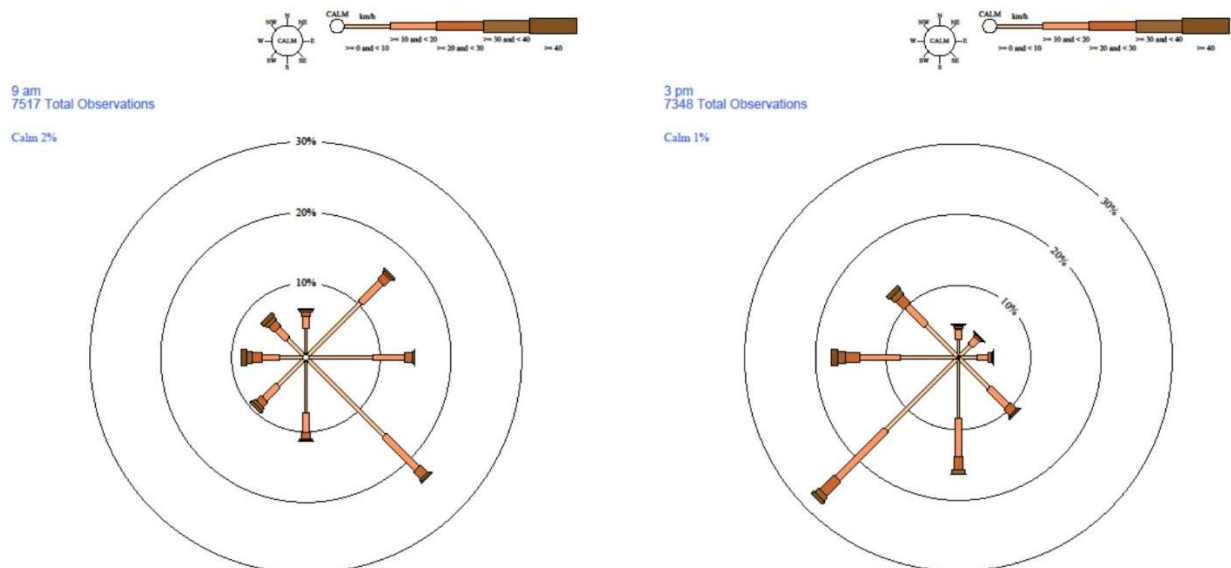
Based on the shallow groundwater and the highly permeable geology beneath the site, the groundwater pathway is considered to be complete and will be carried through to the risk assessment.

5.4.1 Geology

Geology beneath the Premises is typically grey sand overburden up to 300mm thick over leached white silica sand of several metres. This overlies a yellow brown weakly ferricrete horizon that varies in depth.

5.4.2 Air

As dust, noise and odour are considered potential emissions, the prevailing wind direction has been considered. The following wind rose depict the 9am and 3pm average wind conditions. These observations were taken from the Halls Head weather station located approximately 30km north of the premises. It is important to note that these wind roses show historical wind speed and wind direction data for the chosen weather station and should not be used to predict future data.



Source: Bureau of Meteorology

These pathways have been considered in the risk assessment table in Section 7.

5.5 Applicant controls

5.5.1 Proposed applicant controls

The Applicant has proposed the following management controls as part of the application:

Table 9: Summary of emissions and applicant controls

Source	Emission (as identified above)	Proposed controls
<p>Equipment Mobilisation and placement, waste acceptance, sand extraction, crushing of material, screening, vehicle movements, stockpiling, earthworks.</p>	<p>Dust</p>	<p>All crushers, screens, rock breakers and stockpiles are to be equipped with water sprays, misters, or enclosed. Stockpiles will be wetted down depending on the nature of the materials to be processed.</p> <p>Visual inspections will be undertaken to ensure that fugitive emissions of dust are being adequately controlled. Where fugitive dust releases are identified their source will be investigated and all reasonable and practicable measures implemented to prevent or minimise the release.</p> <p>A water cart will be maintained on site for dust suppression as required.</p> <p>Trucks bringing material to the site will be covered as necessary to prevent dust.</p> <p>All access roads are sealed and are to be maintained.</p> <p>Stockpiles are only permitted to be 4m high and be located on the floor of the excavation.</p>

Source	Emission (as identified above)	Proposed controls
Equipment Mobilisation and placement, waste acceptance, sand extraction, crushing of material, screening, vehicle movements, stockpiling, earthworks.	Noise	<p>Maintain all plant in good condition with efficient mufflers and noise shielding.</p> <p>Crusher, screener, processing and compacting will only be undertaken between “day-time” hours (7am to 5pm, Mon – Sat).</p> <p>Crushing, screening and land filling activities are to be undertaken on the floor of the existing pit, below the natural ground level.</p> <p>Implement a site code outlining requirements for operators and drivers for noise management.</p> <p>Shut down equipment when not in use.</p> <p>Fit warning lights, rather than audible sirens or beepers, on mobile equipment wherever possible.</p>
Waste acceptance, crushing of material, screening, stockpiling, earthworks.	Leachate	<p>The fill will comply with Type 1 Inert Waste, as defined in <i>Landfill Waste Classification and Waste Definitions 1996 (amended 2019)</i>.</p> <p>No putrescible waste is to be accepted at the Premises.</p> <p>Inert waste must contain <0.5% organic or putrescible wastes. Sand, brick and other material will be crushed and recovered for usable construction materials or fill.</p> <p>The inert fill will be placed a minimum of 3 metres above the highest observed water table.</p>
Waste acceptance, storage and landfilling of inert waste.	Odour	No putrescible waste is to be accepted at the Premises.

Source	Emission (as identified above)	Proposed controls
Waste acceptance, storage and landfilling of inert waste.	Windblown waste	<p>Trucks bringing material to the site will be covered as necessary to prevent windblown waste and litter.</p> <p>Litter will be collected periodically from the buffers and local roads and taken to an approved landfill site.</p> <p>A perimeter fence is present on site and will be monitored and maintained on a regular basis.</p>
Refuelling Activities	Spills	<p>There will be no onsite fuel storage. Plant and equipment will be refuelled on site from a mobile tank or tanker.</p> <p>Mobile refuelling staff are trained in re-fuelling duties including spill management.</p> <p>Fuel spills >5 litres are to be recorded, investigated and remediated. A record is to be kept of incidents with DWER, and Shire of Waroona notified within 24 hours of an incident.</p>
Waste acceptance, sand extraction, crushing of material, screening, vehicle movements, stockpiling, earthworks.	Fire	<p>The existing pit and access roads form a natural firebreak and the access road will also assist. Maintain perimeter fire breaks as required.</p> <p>Water available on site can be used for firefighting.</p> <p>Inert fill must contain less than 0.5% putrescible material, which is at lower risk of containing combustible material.</p> <p>Restrict vehicles to operational area, particularly on high fire risk days and use diesel rather than petrol powered vehicles.</p> <p>Ensure fire risk is addressed and maintained through the site Safety Management Procedures.</p> <p>Provide an emergency muster area, communications and worker induction and training.</p> <p>Secure the site from unauthorised access</p>

Source	Emission (as identified above)	Proposed controls
Acceptance of waste	Asbestos	No asbestos is proposed to be accepted at the Premises. Asbestos management and sampling requirements are outlined in Section 5.4 and Section 6.5.2.

5.5.2 Environmental monitoring and sampling

Groundwater Monitoring Bores:

- Groundwater flow at the site is currently unknown as the site lies on a groundwater divide. The Applicant proposes to install groundwater monitoring bores on the eastern side of the property near the access road and to the west of the proposed fill.
- Water from the bore on site and the proposed monitoring bores will be sampled every six months and forwarded to DWER and Shire of Waroona as required by any licence or development approval.

Dust:

- Personal dust monitoring assessments have been proposed by the Applicant. It is a requirement by the Department of Mines, Industry Regulation and Safety (DMIRS) to undertake personal dust monitoring to ensure dust levels comply with health guidelines for sand extraction and screening operations.

Asbestos

- Monitoring of stockpiles will be undertaken to the requirements of the Department of Environment Regulation Guideline, *Guidelines for Managing Asbestos at Construction and Demolition Waste Recycling Facilities (2012)*.
- Site operatives must undertake visual inspections whilst the facility is operational to ensure that fugitive emissions of dust are being adequately controlled and are not being carried outside of the premises. Where fugitive dust releases are identified their source must be investigated and all reasonable and practicable measures implemented to prevent or minimise the release.
- Static monitors combined with short term monitors and a reporting system are proposed to monitor for airborne asbestos fibres. An air quality monitoring and reporting strategy must be developed by a person suitably experienced in dust/asbestos sampling and exposure assessment and any associated analysis be undertaken by a laboratory accredited by NATA for this purpose.
- Sampling of road base and screened sand products must occur at a minimum rate of 40 locations per 4000 tonnes or 14 samples per 1000 m³ of product.
- Provision is made in the guideline to reduce the sampling frequency once a site has demonstrated that they can effectively manage any risk from asbestos. The following criteria will be used to consider and determine a reduction in product sampling frequencies.
 1. Activities at the premises have been validated through a DWER inspection or audit to comply with these guidelines;
 2. DWER has confirmed through an inspection or audit that the conditions of the Part V licence are being met;
 3. DWER has not undertaken any enforcement action in relation to the activities at

- the premises in the last 6 months;
4. Product testing has demonstrated that the product specification has been consistently achieved at the premises for a continuous 6 month period;
 5. The presence of mitigating factors such as best practice management measures, high control of source material or use of the product for low risk purposes;
 6. The quantity of waste processed in the last 6 months and the different sources/types of material processed at the premises; and
 7. DoH has agreed to the reduction in product sampling rate at the premises.
- All records required to be made by these guidelines must be available on site but may be stored electronically. Records must be made available for inspection by officers from WorkSafe, DoH and DWER on request.

6. Risk assessment

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 10 below, consistent with the *Guidance Statement: Risk Assessments*. Risk ratings have been assessed for each key emission source and take into account potential source-pathway-receptor linkages. The mitigation measures / controls proposed by the Applicant have been considered in determining the risk rating. It should be noted that the current risk ratings are considered to be of a conservative nature and will be updated with site specific information and monitoring results, prior to the licence being issued.

The works approval that accompanies this report authorises construction and time-limited operations. A licence is required to operate the premises following the time-limited operational phase authorised under the works approval.

The conditions in the issued Works Approval, as outlined in Table 12 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

6.1 Risk assessment – construction and time limited operations

Table 10: Identification of emissions, pathway and receptors during construction and time-limited operations

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Equipment placement; Waste acceptance; Crushing and screening; Vehicle movements; and Stockpiling.	Dust	Air/windborne pathway causing impacts to health and amenity of closest human receptors located 860m north from the premises.	As described in Section 5.5	Minor	Possible	Medium	<p>The minor construction works (equipment placement) are not expected to generate significant dust emissions. No dust complaints have been received for the Premises.</p> <p>The proposed controls are expected to be sufficient at mitigating dust emissions.</p>	<p>Infrastructure and Equipment: Condition 4</p> <p>Dust Management Condition 11-13</p>
	Noise	Air/windborne pathway causing impacts to health and amenity of closest human receptors located 860m north from the premises.	As described in Section 5.5	Major	Possible	High	<p>There are residential receptors located down-prevailing wind of the Premises. While the applicant controls are likely to manage the risk, there are new processes occurring at the site that may result in additional noise emissions above and beyond the current extractive industries operations. These emissions have the potential to exceed the <i>Environmental Protection (Noise) Regulations 1997</i>.</p> <p>As such, the Delegated Officer considers that, additional regulatory controls are required to validate noise emissions and to reinforce Applicant controls.</p>	<p>Infrastructure and Equipment: Condition 4</p> <p>Noise Validation Condition 21-24</p>

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Equipment placement; Waste acceptance; Sand extraction; Crushing and screening; Vehicle movements; and Stockpiling.	Leachate / Contaminated stormwater	Transported via seepage to groundwater impacting water quality from the licensed groundwater abstraction bore located on the Premise.	As described in Section 5.5	Moderate	Possible	Medium	Based on inert nature of waste, the leachate generated is unlikely to be significantly contaminated. The Delegated Officer considers that the Applicant's proposed controls are likely to be sufficient at mitigating leachate emissions. Regulatory controls are required to reinforce Applicant controls.	Infrastructure and Equipment: Condition 4 Waste Acceptance: Condition 5 and 6 Stockpile Management Condition 10 Input and Output Monitoring: Condition 8 and 9 Groundwater Condition 25-28
		Transported via seepage to groundwater causing degradation to groundwater quality beneath the Premises. The Premises lies within the Peel Harvey Environmental Protection Policy area. The Peel Inlet Management Area, and the South West Coastal proclaimed groundwater area.						
	Leachate / Contaminated stormwater	Transported via seepage to groundwater causing degradation to groundwater quality at offsite locations. These locations include Ramsar wetlands, important wetlands, and geomorphic wetlands.	As described in Section 5.5	Moderate	Unlikely	Medium		

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
	Odour	Air/windborne pathway causing impacts to health and amenity of closest human receptors located 860m north from the premises.	As described in Section 5.5	Slight	Unlikely	Low	While there are residential receptors located down-prevailing wind of the premises, the inert nature of the waste material is not likely to generate large amounts of odour. On this basis the Delegated Officer considers that the Applicant's proposed odour mitigation controls are likely to be sufficient at mitigating odour emissions. Regulatory controls are required to reinforce Applicant controls.	Waste Acceptance: Condition 5 and 6 Input and Output Monitoring: Condition 8 and 9 Stockpile Management Condition 10
Equipment placement; Waste acceptance; Sand extraction; Crushing and screening; Vehicle movements; and Stockpiling.	Windblown Waste	Air/windborne pathway causing impacts to health and amenity of closest human receptors located 860m north from the premises.	As described in Section 5.5	Minor	Possible	Low	The Premises activities are, by nature, not likely to generate large amounts of windblown waste. On this basis the Delegated Officer considers that the Applicant's proposed windblown waste mitigation controls are likely to be sufficient at mitigating windblown waste emissions. Regulatory controls are required to reinforce Applicant controls.	Windblown Waste Condition 14

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
	Asbestos	Air/windborne pathway causing impacts to health and amenity of closest human receptors located 860m north from the premises.	As described in Section 5.5	Severe	Rare	High	Asbestos may cause high level health impacts to humans, however as asbestos is not accepted at the Premises this event may only occur in exceptional circumstances. Regulatory controls are required to reinforce Applicant controls.	Waste Acceptance: Condition 5 and 6 Input and Output Monitoring: Condition 8 and 9 Stockpile Management Condition 10 Dust Management Condition 11-13 Product Testing Condition 15-19
Fugitive emissions from fire event	Fire smoke and water, ash	Air/windborne pathway causing impacts to health and amenity of closest human receptors located 860 m north from the premises. Transported via seepage to groundwater causing degradation to groundwater quality beneath the Premises.	As described in Section.5	Moderate	Unlikely	Medium	Fire (smoke) may cause low level impacts to health and amenity. The landfill is unlined with shallow groundwater present beneath the site. The Premises lies within the Peel Harvey Environmental Protection Policy area, the Peel Inlet Management Area, the South West Coastal proclaimed groundwater area and is in proximity to RAMSAR and important wetlands. Regulatory controls are required to reinforce Applicant controls.	Fire Management Condition 29

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017).

7. Consultation

Table 21: Summary of consultation

DWER consulted with the following organisations or companies as DWER considered they may have a direct interest in the subject matter of the application and invited comment on the proposal.

Method	Comments received	DWER response
Application advertised on DWER website (7 January 2020)	None received	N/A
Local Government Authority advised of proposal (7 January 2020)	None received	N/A

8. Conclusion

Based on the assessment in this decision report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

8.1 Determination of Works Approval Time limited operation conditions

The conditions in the issued Works Approval have been determined in accordance with the Guidance Statement: Setting Conditions.

Table 12 provides a summary of the conditions to be applied to this works approval.

Table 12: Summary of conditions to be applied

Condition Ref	Grounds
Site works and commissioning Conditions 1 to 3	These conditions are valid, risk-based and contain appropriate controls for site works, vehicle movements and commissioning.
Time limited operation Conditions 4 to 35	These conditions are valid, risk-based and contain appropriate controls for equipment testing and time limited operations.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the works approval under the EP Act.

Tracey Hassell
A/Manager Waste Industries
INDUSTRY REGULATION

An officer delegated by the CEO under section 20 of the EP Act

Appendix 1: Key documents

	Document title	Availability
1.	Works Approval W6335/2020/1 – Cougar Sands application form and supporting documentation	DWER records (A1834649)
2.	DEC, December 2012. Guidelines for managing asbestos at construction and demolition waste recycling facilities. Department of Environment and Conservation, Perth.	<p>Accessed at www.dwer.wa.gov.au</p>
3.	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	
4.	DWER, May 2016. <i>Guidance Statement: Publication of Annual Audit Compliance Reports</i> . Department of Water and Environmental Regulation, Perth.	
5.	DWER, August 2016. <i>Guidance Statement: Licence Duration</i> . Department of Water and Environmental Regulation, Perth.	
6.	DWER, September 2016. <i>Guidance Statement: Environmental Standards</i> . Department of Water and Environmental Regulation, Perth.	
7.	DWER, November 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Water and Environmental Regulation, Perth.	
8.	DWER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Water and Environmental Regulation, Perth.	
9.	DWER, June 2019. <i>Guideline: Decision Making</i> . Department of Water and Environmental Regulation, Perth.	
10.	DWER, June 2019. <i>Guideline: Industry Regulation Guide to Licensing</i> . Department of Water and Environmental Regulation, Perth.	
11.	DWER, June 2019. <i>Guideline: Odour Emissions</i> . Department of Water and Environmental Regulation, Perth.	
12.	DWER, December 2019. Landfill Waste Classification and Waste Definitions 1996 (as amended 2019). Department of Water and Environmental Regulation, Perth.	
13.	Environmental Protection (Peel Inlet-Harvey Estuary) Policy Approval Order 1992.	