Net Zero Teesside

Deposit for Recovery Permit Application (EPR/ZP3827SK/A001) Impact Assessment

Net Zero Teesside Power Limited

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Quality information

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Glossary

Acronym	Definition
CCGT	Closed Circuit Gas Turbine
CCTV	Closed Circuit Television
CCUS	Carbon Capture Use and Storage
CEMP	Construction Environmental Management Plan
CO_2	Carbon Dioxide
CQA	Construction Quality Assurance
CSM	Conceptual Site Model
DCO	Development Consent Order
DfR	Deposit for Recovery
EA	Environment Agency
EPR	Environmental Permitting Regulations
ESSD	Environmental Setting and Site Design
HRA	Hydrogeological Risk Assessment
HV	High Voltage
LEP	Local Enforcement Position
MAGIC	Multi Agency Geographic Information for the Countryside
MWe	Mega Watt electrical
NISP	Nationally Significant Infrastructure Project
NVZ	Nitrate Vulnerable Zone
NWL	Northumbrian Water Limited
NZT	Net Zero Teesside
NZTPL	Net Zero Teesside Power Limited
PCC	Post Combustion Capture
SAC	Special Area of Conservation
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
STDC	South Tees Development Corporation
WFD	Water Framework Directive
WMP	Water Management Plan
WRP	Waste Recovery Plan

1. Introduction

1.1 Report Context

AECOM Limited (AECOM) has been commissioned by Net Zero Teesside Power Limited ('NZTPL'), referred to as 'the Operator', to prepare the application for an environmental permit for a Deposit from Recovery (DfR) operation during the construction phase of the Net Zero Teesside Project.

This document is the Qualitative Environmental Risk Assessment which is being prepared to support the environmental permit application for a DfR activity and should be read in conjunction with other supporting application information.

This report summarises the Impact Assessment which has been prepared in accordance with the EA methodology for "Environmental Risk Assessments for Permits" and details the potential impacts of the use of excavated and imported material to refill, level and raise the Site.

1.2 Background

Net Zero Teesside (NZT) is a low carbon electricity generating station, which forms part a proposed Carbon Capture, Utilisation and Storage (CCUS) project located in Redcar, Teesside. It will be the UK's first commercial scale, full chain CCUS project and has recently (Feb 2024) received a Development Consent Order (DCO). It is a Nationally Significant Infrastructure Project (NISP) which includes the construction and operation of a new gas-fired electricity generating station with post-combustion carbon capture (PCC) and CO_2 compression plant. It has a gross electrical output of up to 860 MWe and associated connections for natural gas, water, electricity and to a CO_2 pipeline network for the capture and storage of CO_2.

Prior to the construction of the facility, the land on which the PCC installation will be developed was subject to remediation by the landowner, South Tees Development Corporation (STDC). This involved the excavation, treatment and redeposit of excavated waste at the Site under:

a. Planning approval R/2021/1048/FFM, with Remediation Verification Report submitted under R/2024/0817/CD; and
b. A Local Enforcement Position (LEP) issued by the Environment Agency (EA) (reference STDC/NZT/LEP, issued on the 19th June 2023 and extended on the 25th June 2024). .

The STDC remediation involved the following works:

- demolition of existing structures within the Teesworks site: principally the former raw materials handling facility, sinter plant and conveyor systems;
- excavation of an agreed thickness of the made ground to remove unsuitable/contaminated materials including removal and crushing of derelict underground structures and obstructions within that depth;
- targeted removal of deeper underground structures as requested by the Applicants; and
- crushing and grading of suitable material to form a geotechnical material complaint with requirements in the Highways Spec series 600
- testing followed by placement and compaction of suitable material to form appropriate platform levels for development.

The LEP permitted the redeposit of up to 1,252,000 m^3 of excavated remediated waste in order to provide for the reclamation or improvement to land as detailed in the submitted Waste Recovery Plan (WRP)[1] (. The STDC works associated with this LEP and WRP were completed in October 2024, creating the development platform on which the PCC Facility will be built.

1.3 Proposed Recovery Operations

Following completion and validation /verification of the remediation works, NZT Power will lease the Site, and the construction of the facility is anticipated to commence with a construction schedule lasting approximately 4 years.

[1] Atkins, Land West of Warrenby Waste Recovery Plan, ref: LWWX-ATK-EEI-NZTXX-RP-EN-000001, 16 May 2023

The construction of the facility is expected to involve a number of works which will generate a volume of excavated material comprising previously remediated and redeposited materials. There are opportunities to recover previously remediated excavated materials to deliver defined aspects of the construction scheme which in turn will reduce the volume of excavated material sent for off-site disposal and reduce the need for the import of virgin material. It is understood that such material reuse must be completed under a Deposit for Recovery (DfR) permit.

The Operator intends to reuse excavated material from construction earthworks to refill, level and raise the Site and reduce the volume of excavated material being taken off site for disposal, thus reducing the number of vehicle movements required and the associated carbon impact. There is also the potential to reuse excavated material from pipeline and cable construction within the installation boundary to refill pipeline and cable excavations.

There is also the potential need to treat excavated material either through screening and/or crushing operations to ensure geotechnical suitability prior to its reuse on site and these waste treatment operations are also included as part of this application.

2. Impact Evaluation

2.1 Introduction

This section outlines the approach taken to evaluate the risks to the environment and to human health associated with the DfR operation. The impact evaluation process has made reference to the appropriate guidance within Environment Agency Guidance “Risk Assessments for your Environmental Permit”

2.2 Impact Evaluation Methodology

The evaluation methodology used involves three stages:

1. Source characterisation, to identify the potential hazards and risks associated with the DfR operation. This is covered in detail in Section 0 below, but broadly covers:
    a. Point source emissions to air, land and water;
    b. Fugitive emissions to air, land and water;
    c. Odour emissions; and
    d. Noise and vibration.
2. Receptor evaluation, to review the receptors which could be impacted by the hazards and risks from the DfR operation. This is discussed in more detail in Section 4 below, but broadly covers:
    a. Residential, commercial and industrial human receptors;
    b. Habitat receptors associated with designated and other sensitive sites; and
    c. Location related receptors associated with site geology, hydrogeology and hydrology.
3. Risk assessment which evaluates the hazards and risks in terms of the probability of occurrence and the severity of the impact on the identified receptors. The risk assessment also summarises the management plan approach that will be used to mitigate the identified risks.

3. Source Characterisation

3.1 Emissions to Air, Water and Land

Assessments take into account environmental as well as health and safety hazards and the main areas of consideration are:

- Point source emissions to air, land and water;
- Fugitive emissions to air, land and water;
- Odour emissions;
- Noise and vibration
- Abnormal events and accidents;
- Fire;; and
- Climate risk assessment.

The considerations of each source are discussed in the sections to follow with supporting information presented in Appendices as follows:

- Appendix A: Fugitive Emissions Risk Assessment.
- Appendix B: Accident, Abnormal Operations and Fire Risk Assessment.
- Application Section 8, Hydrogeological Risk Assessment (EPR-ZP3827SK-HRA-R01).

3.1.1 Point Source Releases to Air

There are no point source releases to air associated with the DfR operation and no further consideration is required within this assessment.

3.1.2 Point Source Releases to Water

3.1.2.1 Surface Water

There are no point source releases to surface water associated with the DfR operation and no further consideration is required within this assessment.

3.1.2.2 Groundwater

There are no point source releases to ground water associated with the planned work. An assessment on the anticipated impact of proposed works on groundwater has been completed through a review of the hydrogeological risk assessment (HRA) for the site -see Application Part 8.

3.1.2.3 Sewer

There will be no new point source discharges to the foul sewer during the construction works.

3.1.3 Fugitive Releases to Air

The following activities at Site have been identified as potential release sources:

- Windblown dust from vehicle movements;
- Exhaust emissions from plant and equipment;
- Loading and unloading of mobile plant or material import/export vehicles;
- Screening and crushing of site won waste materials to form a material compliant with that required for deposition and reuse;
- Dust during construction works;
- Windblown dust and particulates from roads and surfaces; and
- Windblown dust from material storage/stockpiling and handling areas.

3.1.4 Litter

Due to the nature of the work and the waste being used for the DfR operation, there will be a negligible risk of litter being generated and litter has been assessed as part of the fugitive risk assessment (Appendix A)

3.1.5 Mud and Debris

The potential for mud and debris at the Site have been evaluated and the following potential sources noted:

- Material delivery and export vehicles movements; and
- Material offloading and deposition operations.

3.1.6 Fugitive Releases to Water

The potential for fugitive releases to water (surface water, ground water and sewer) and land at the Site have been evaluated and the following potential sources noted:

- Leak from handling, storage and use of potentially polluting substances, Products and Materials
- Oils storage and fuel lines;
- Surface run-off from construction area surfaces, pavements roads and hardstanding; and
- Firewater.

This has been assessed as part of the fugitive risk assessment (Appendix A).

3.1.7 Odour

There are no expected odour emissions from the DfR operation. No further consideration of odour releases will be required in this report.

3.2 Noise and Vibration

The following potential noise and vibration at the site have been identified as potential release sources for the current operations:

- Vehicle movements associated with the delivery of material to the Site;
- Vehicle movements associated with the removal of waste materials from the Site;
- Onsite mobile plant operations; and
- Crushing and screening of material.

3.3 Accidents and Abnormal Incidents

The following abnormal operations and emergency situations have been identified for the operations:

- waste types and inadequate waste acceptance procedures.
- transfer of substances from site infrastructure including vessels overfilling and emptying of vessels and containers.
- failure of containment (for example, containment failure).
- failure to contain firefighting water.
- Vandalism and arson;
- Extreme weather conditions such as flooding or very high winds;
- accessibility of control equipment in emergency situations.
- operator error.
- security breach.
- Major vehicle accident;
- Inappropriate waste deposition.

A risk assessment is included in Appendix B.

3.4 Fire Risk

In addition to the above abnormal operations and emergency situations, specific considerations have been given to the fire risk. The following has been considered in accordance with the EA guidance however, given the site is handling waste materials that are non-combustible, a number of these will be not applicable/negligible:

- arson and vandalism.
- self-combustion which will be negligible for the restoration materials being imported.
- plant and equipment failure.
- electrical faults.
- naked lights.
- discarded smoking materials.
- hot works.
- industrial heaters.
- hot exhausts.
- reaction between incompatible materials which will be unlikely given the materials being accepted.
- activities at neighbouring sites which will be negligible given the site location.
- sparks from loading buckets which is unlikely to apply.
- hot loads deposited at the site which will be unlikely for the materials being accepted .
- ignition sources.
- leaks and spills.
- build-up of combustible materials which is unlikely given the materials being accepted.
- hot and dry weather conditions.

The risk assessment is included with the assessment in Appendix B.

3.5 Climate Impact

A review of the climate change impacts has been completed in accordance with Environment Agency guidance) considering:

- Extreme rainfall events and flooding;
- Heat waves;
- Drought;
- Rise in sea levels;
- Storms; and
- Wildfires.

4. Receptor Evaluation

4.1 Introduction

The approximate centre of the PCC Site is at national grid reference NZ 57000 25400 and the Tod Point area is centred at NZ 57068, 23840. The address and postcode is Net Zero Teesside CCUS Project, Redcar, Cleveland, TS10 5QW. The location of the Site is attached in Figures ESSD1 and ESSD2.

Potential receptors which could be impacted by the DfR operations include:

- Residential, commercial and industrial human receptors;
- Habitat receptors associated with designated and other sensitive sites; and
- Location related receptors associated with site geology, hydrogeology and hydrology.

4.2 Human Receptors

A range of potentially sensitive human receptors have been considered as detailed below and these are shown on a receptor plan (Figure ESSD4). There are no residential receptors within 500 m of thePCC Site or 630m of Tod Point. The town of Dormanstown is located approximately 1.4 km southeast of the Site and 0.625 km east of Tod Point, whilst Redcar is situated approximately 1.8 km to the east of the Site and 2.2 km northeast of Tod Point.

Industrial and Commercial receptors in the vicinity of the Site include:

- To the northwest of the PCC Site, there is an area of the decommissioned former iron-making plant within the Redcar steelworks. The operational Redcar Bulk Terminal is beyond, on the south bank of the River Tees;
- To the south lies the Northumbrian Water Ltd (NWL) Bran Sands sewage treatment plant, operational land of PD Ports Teesport and the Wilton International industrial complex; and
- West of the PCC Site, on the north bank of the River Tees, similar industrial complexes are present (at Seal Sands).

In line with EA guidance receptor sensitivity is considered as:

- High sensitivity receptors would generally be residential properties, commercial properties such as pubs and hotels, schools, care homes and hospitals;
- Moderate sensitivity receptors would be commercial and industrial workplaces; and
- Low sensitivity would be footpaths, roads.

4.3 Habitat Receptors

4.3.1 Designated Sites

A search was completed for sites within at least 5km radius of the Site. In summary:

- Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI) and Ramsar site (approximately 240 m north of the PCC Site and 1.22km northeast of Tod Point).
- South Gare and Coatham Sands SSSI (within 500m of the PCC site boundary).
- Seal Sands SSSI (approximately 2.9 km west of the PCC Site and 3.8 km northeast of Tod Point).
- Seaton Dunes and Common SSSI (2.9 km north west of the PCC Site).
- Redcar Rocks SSSI (3 km east of the PCC Site).
- Tees and Hartlepool Foreshore and Wetlands SSSI (4.1 km south west of the PCC Site).

Local Wildlife Sites Coatham Marsh and Eston Pumping Station are also located within 5km of the Site. The environmental receptor plan is shown in Figure ESSD3.

4.3.2 Other Sensitive Locations

There are no addition sensitive locations in or around the Site.

4.4 Locality Based Receptors

4.4.1 Geological Considerations

In respect of designing appropriate controls and mitigation measures for the Site, geological features on the site need to be considered. The main issues are:

- the installation site is underlain by urban and non-agricultural soils giving the soils a Low resource value and a negligible impact value.
- Ground levels at the installation site generally slope from the south of the area to the north, towards the North Sea coastline.
- The centre of the Site is slightly undulated with minor changes in ground levels.
- Artificial Ground is widespread across the installation site and is associated with the long historical industrial use of the Site. Slag rich made ground which is a by-product of the Teesworks site former use for production of iron and steel, was placed to re-develop and raise the Site and wider area (including on the dunes to the north) from the mudflats and marshland.
- Natural deposits comprising Tidal Flat Deposits were identified immediately underlying the Made Ground, these natural deposits were hard to distinguish from Blown Sand deposits which are also indicated as being present on geological mapping.
- Glacial Till or occasionally Glaciolacustrine Deposits of varying thicknesses were identified below the Tidal Flat Deposits, where present the Glaciolacustrine Deposits were underlain by Glacial Till.
- Depth to bedrock is varies between 15 and 21.8 m below the current ground level and consists of the Redcar, Penarth and Mercia Mudstone Group, with the depth generally increasing towards the north.

4.4.2 Hydrogeological Considerations

The EA Groundwater Protection Policy adopts aquifer designations consistent with the Water Framework Directive (WFD).

According to this system and Defra's interactive MAGiC online map, the bedrock aquifer designations are present at the site:

- Redcar Mudstone Formation and the Penarth Group are classified as Secondary (Undifferentiated) Aquifers;
- Mercia Mudstone Group is mudstone classified as a Secondary B Aquifer;
- Sherwood Sandstone Group is classified as a Principal Aquifer, described as "layers of sedimentary rock deposit that have high intergranular and / or fracture permeability; meaning they usually provide a high level of water storage. They may support water supply and / or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifers".

The superficial aquifer designation at the Site are:

- Blown Sand and Tidal Flat Deposits (sand and silt) strata underlying and within close vicinity to the Site are classified as Secondary A Aquifers. Approximately 0.95km to the west of the Site and 1.5km to the east, the Tidal Flat Deposits and the Blown Sands are designated as Secondary Undifferentiated Aquifers; and
- Glacio-lacustrine deposits and Till (Diamicton) are classified as Unproductive.

Made Ground is not designated as an aquifer.

Environment Agency (EA) Groundwater Maps show that the Site falls outside any Groundwater Source Protection Zones (SPZ). The closest SPZ (SPZ3) is over 9km to the north-west of the Site.

The Site is also not located in a Nitrate Vulnerability Zone (NVZ), a drinking water protection zone; nor a groundwater or surface water safeguard zone.

4.4.3 Hydrological Considerations

The River Tees flows approximately 1.6 km to the west of the Site boundary. The River Tees is tidal at the location, with the normal tidal limit approximately 14 km upstream (at the Tees Barrage).

The North Sea is located approximately 0.7 km to the north of the PCC Site.

Several watercourses are present within the vicinity of the Site. The Fleet, is a watercourse which flows south-westerly from Coatham Marsh Nature Reserve, between the PCC Site and Tod Point, to discharge to Dabholm Gut. It is culverted as it flows south-westerly past Tod Point and located approximately 60m west of this part of the Site. Dabholm Gut is an artificial drainage channel located approximately 0.8km west of Tod Point and discharges westwards to the River Tees. Two other watercourses discharge to Dabholm Gut, The Mill Race and Dabholm Beck, located approximately 270m to the south-east and 320m to the south-west of Tod Point respectively. No surface water abstractions were identified from these water courses downstream of the Site[16].

4.4.4 Air Quality

The site does not lie within, or in close proximity to, a declared Air Quality Management Area (AQMA). The nearest AQMA is approximately 19 kilometres (km) to the southeast of the Proposed Development site, in Staithes, and is designated for the exceedance of the 24-hour PM10 limit value.

5. Hydrogeological Risk Assessment

5.1 Method

The risk assessment has been undertaken in line with EA guidance 'Groundwater risk assessments for your environmental permit'[2] and followed a tiered approach as outlined below:

- Tier 1 – qualitative risk screening. The Tier 1 screening can be found in Table 5-1 of the HRA (EPR-ZP3827SK-HRA-R01, Application Part 8), where plausible pathways have between identified, these receptors and pathways will be taken forward to Tier 2.
- Tier 2 - generic quantitative risk assessment (GQRA) to identify contaminants of concern in soil leachate that exceed compliance limits without considering migration and attenuation in the unsaturated and saturated zones. The GQRA can be found in Section 6 of the HRA (EPR-ZP3827SK-HRA-R01, Application Part 8).
- Tier 3 – detailed quantitative risk assessment (DQRA). The DQRA can be found in Section 7 of the HRA (EPR-ZP3827SK-HRA-R01, Application Part 8).

5.2 Risk Assessment Conclusions

For the contaminants of concern within the reused Made Ground material that were subject to DQRA there is no predicted input to groundwater at concentrations above MRV at each individual source or cumulatively for the PCC Site. Likewise, concentrations of the modelled determinands are not predicted to exceed the EQS at the high water mark receptor. This is assuming that the leached concentration from all sources reach the 95th percentile concentration over a modelled time period of up to 10000 years.

For the contaminants of concern assessed for Tod Point, there is no predicted input to groundwater at concentrations above MRV at the source, based on the 95th percentile concentrations Likewise, The concentrations of the modelled determinands are not predicted to exceed the EQS at the Fleet receptor. A number of PAH and metal determinands are not predicted to reach the receptors within a time period of 10,000 years.

Whilst none of the models predict input to groundwater at the sources above MRV, or exceedance of EQS at surface water receptor compliance point, a Remedial Options Appraisal (ROA) has been undertaken to consider if potential options to further manage the recovered material are reasonable and feasible. This assessment shows that the options involving recovery of material beneath a low / impermeable cover system or over a lower permeability layer are not considered feasible or reasonable. The excavation option is not considered reasonable. Overall, the recovery of material without further mitigation following testing is the option that can be described as both reasonable and feasible.

[2] Environment Agency. Risk assessments for your environmental permit. (online) available at: https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit [accessed October 2024]

6. Risk Assessment of Fugitive Releases

6.1 Methodology

The risk assessment (see Appendix A) has been completed by considering each of the hazards identified in section 3 above in terms of:

- Frequency of occurrence;
- Nature and quantity of substance released;
- Pathways and receptors involved;
- Environmental consequence(s) of the event;
- Overall risk and its significance to the environment; and
- Control and mitigation measures needed to prevent or reduce the risk.

6.2 Scoring Mechanism

The risk assessment methodology has been developed using a scoring mechanism, whereby scores are assigned to:

- The probability of the hazard occurring without the use of protective measures;
- The consequences of the hazard to the environment or human health; and
- The effectiveness of the control/mitigation used to prevent the hazard occurring.
- The scoring system used for the assessment is shown in Table 1 below.

Table 1 Risk Assessment Scoring System

Frequency of Occurrence		
Frequency	***Comment***	***Score***
Never	Incident occurs once every 100 to 10,000 years	1
Very Unlikely	Incident occurs once every 10 to 100 years	2
Unlikely	Incident occurs once every 1 to 10 years	3
Somewhat Unlikely	Incident occurs at least once per year	4
Fairly Probable	Incident occurs at least once per month	5
Probable	Incident occurs at least once per week	6
Consequence of Hazard to Environment or to Human Health		
Consequence	***Comment***	***Score***
Minor	• Onsite nuisance only no outside complaint • No breach of permit	1
Noticeable	• Nuisance noticeable off-site • Potential for 1 – 2 complaints • Reportable breach of permit • Minor plant damage • Health and safety ‘near miss’	2
Significant	• Severe sustained nuisance • Significant plant damage • Injury requiring on-site medical treatment • Major breach of environmental permit • Numerous public complaints	3
Severe	• Hospital treatment required for injured persons	4

	• Site evacuation required (partial or full) • Partial plant shutdown required • Replacement of part of plant • Hazardous substance release to water course with ½-mile effect • Off-site emergency services involved	
Major	• Hospitalisation of injured persons • Public warning and off-site emergency plan implemented • Serious toxic effect on local protected habitat • Widespread but temporary damage to land • Significant fish kill over a 5-mile range • Regulatory prosecution likely	5
Catastrophic	• Significant contamination of land and/or water sources requiring significant remediation.	6
Effectiveness of Mitigation		
Mitigation Factor	***Comment***	***Score***
Not Present	• No mitigation in place	1
Ineffective	• Some minor controls in place but mitigation not achieved	2
Partly effective	• Basic controls in place and hazard partly mitigated but significant residual risk remains	3
Effective	• Basic controls in place and hazard mitigated to an acceptable level although moderate level of residual risk may exist	4
Very effective	• Processes fully controlled (basic/advanced) and hazard mitigated to recognised standard. Some minor residual risk may remain	5
Entirely effective	• Processes fully controlled to level in excess of recognised standards. Hazard mitigation entirely effective and no residual risk remains	6

6.3 Potential Hazards

A list of potential hazards has been developed from the issues identified in section 3 and these are shown in Table 2 along with the anticipated pathways and receptors.

Table 2 Potential Fugitive Emissions Hazards

Potential Hazard	Pathway	Receptor
Releases To Air		
Dust emissions from vehicle movements	• Air	• Public • Workers
Exhaust emissions from Plant and equipment	• Air	• Public • Workers
Dust, particulates, and litter during loading and unloading of vehicles and mobile plant	• Air	• Public • Workers
Windblown dust from external roads, pathways and other construction area surfaces	• Air	• Public • Workers
Windblown dust from material storage, stockpiles and handling	• Air	• Public • Workers
Windblown material from general construction activities	• Air	• Public • Workers

Potential Hazard	Pathway	Receptor
Windblown emissions from processing oversize materials through screener or crusher	• Air	• Public • Workers
Releases To Land or Water		
Spillage of waste and materials during deposition of the waste	• Water • Land	• Surface water • Groundwater
Leak, spills or overflows during handling, storage and use of potentially polluting substances, products or materials	• Water • Land	• Surface water • Groundwater
Leak, spills or overflows from oil storage and fuel lines	• Water • Land	• Surface water • Groundwater
Contaminated surface run-off	• Water • Land	• Surface water • Groundwater
Nuisance		
Mud/litter carried into highway	• Water	• Public
Pest and scavengers	• Land	• Public • Workers
Seed dispersal of noxious plants or weeds	• Land	• Public • Workers
Odour		
Odour from receipt and handling of waste materials	• Air	• Public • Workers
Noise and Vibration		
Noise and vibration from the screener and crusher being used on site	• Air	• Public • Workers
Noise from vehicles delivering/exporting material	• Air	• Public • Workers
Noise from on-site mobile plant movements	• Air	• Public • Workers

6.4 Risk Reduction and Management

6.4.1 Controls and Mitigations

The controls and mitigations to be employed at the site are defined in the CEMP and its associated appendices and summarised in Table 3 below.

Table 3 Fugitive Emission Controls and Mitigations

Potential Hazard	Controls and Mitigations
Releases to Air	
Dust emissions from vehicle movements	• Ensure that roads and pedestrian access routes are kept clean. • Locate haul roads as far away as practicable from sensitive receptors, although both sites are very restricted and are in close proximity to sensitive receptors; • Wet cleaning of any large scale concrete hard standing will be undertaken. Dry sweeping will be restricted to small areas only;

	• Haul road condition will be inspected at least weekly and repaired as soon as possible if damage is identified; • Install site speed limit of 5 mph across all areas; • Vehicles carrying friable materials to the site must be sheeted or enclosed; • Apply water to site roads (including haul roads) using bowsers at an appropriate rate to effectively suppress dust. • Maintain unpaved roads and verges in a compacted condition; • Provide easily cleaned hard standings for vehicles; • If necessary, provide and ensure the use of wheel wash facilities near the site exit to dislodge accumulated dust and mud prior to vehicles exiting the work site • Wheel wash facilities must be contained, bunded with treatment/recycling to minimise water usage. Wastewater must be taken away from site as liquid waste in line with Waste Duty of Care as no foul water network on site during construction phase
Exhaust emissions from Plant and equipment	• The need for all equipment must be identified. Potential suppliers are identified and contacted. Implement BPM; • Select and procure plant and equipment with the least potential for dust and other pollutant emissions, allowing for economic constraints and practicability; • Use plant and equipment powered by mains electricity or battery power whenever practicable; • Use low emission fuels such as ultra-low sulphur fuels for all non-road mobile machinery; • Using plant fitted with catalysts, diesel particulate filters and similar devices as listed by the Energy Saving Trust for non-road mobile machinery; • Ensure that no vehicle or equipment emitting visible black smoke from its exhaust system other than during ignition is used on any construction site or public highway; • Ensure that combustion engines are not left running unnecessarily; and • Ensure that all vehicle and equipment engines and exhaust systems are maintained so that exhaust emissions do not breach statutory limits set for vehicle/equipment type and mode of operation. • All vehicles and equipment are to be maintained in accordance with manufacturers' specifications and statutory requirements.
Dust, particulates, and litter during loading and unloading of vehicles and mobile plant	• All friable loads arriving at/exporting from the site will be fully covered to minimise the potential for material becoming airborne. • Minimisation of drop heights during loading/unloading of materials. • Materials will be offloaded into designated stockpiles or tipping area at point of placement. • Site will be equipped with equipment which can be used to suppress dust and particulates. • Site operators and drivers will be fully trained. • Regular housekeeping.
Windblown dust from external roads, pathways and other construction area surfaces	• A hard surfaced access road will access the PCC Site and Tod Point. • Locate haul roads as far away as practicable from sensitive receptors, although both sites are very restricted and are in close proximity to sensitive receptors; • Haul road condition will be inspected at least weekly and repaired as soon as possible if damage is identified; • Maintain unpaved roads and verges in a compacted condition; • Provide easily cleaned hard standings for vehicles; • If necessary, provide and ensure the use of wheel wash facilities near the site exit to dislodge accumulated dust and mud prior to vehicles exiting the work site • Wheel wash facilities must be contained, bunded with treatment/recycling to minimise water usage. Wastewater

	must be taken away from site as liquid waste in line with Waste Duty of Care as no foul water network on site during construction phase. • Speed restrictions of 5mph will be imposed for all vehicles driving on the site, in order to minimise emissions of dust from internal road surfaces. • Internal surfaces will be subject to routine inspection and maintenance – any accumulation of materials is removed promptly. • Water suppression to abate dust emissions will be available for use during dry periods.
Windblown dust from material storage, stockpiles and handling	• Store aggregates, sand and spoil with adequate protection from the wind and, where practicable, within buildings; • Maintain slopes of stockpiles, tips and mounds at an angle not greater than the natural angle of repose and avoid creating sharp changes of shape; • Balfour Beatty will aim to minimise any double handling of soils and other friable materials; • Minimise the amount of excavated material stockpiled and dampen the surfaces of stockpiles of dry friable materials by controlled application of water sprays or, alternatively, shroud or screen stockpiles; and • Maintain handling areas to reduce the risk of dust emissions. Static misting systems, bowsers and other watering methods, shall be employed as necessary to reduce or prevent dust emissions. Drop heights will be minimised during placement of materials into the stockpiles.
Windblown material from general construction activities	• Do not burn any waste or materials • Ensure that equipment likely to generate excessive quantities of dust is enclosed, shielded or here appropriate fitted with dust extractors, filters or scrubbers, which shall be maintained in accordance with manufacturers' specifications • Minimise the number of material handling operations • Minimisation of drop heights during placement of materials and when loading vehicles • Cutting and grinding operations to use equipment and techniques which suppress and reduce dust emissions • Where appropriate, erect and maintain wind breaks, netting screens or semi-permeable fences to reduce dust emissions from working areas and/or to screen sensitive locations • Use water sprays to control dust generated during construction of earthworks • Screen buildings and structures with debris screens/sheets • Shield and apply wet suppression for spoil/waste chutes • Cover waste skips etc • Avoid long-term storage of construction debris on site. Where this is anticipated as necessary, screen storage areas from the wind; and • Fully sheet or cover all loads of construction waste prior to removal from the site
Windblown emissions from processing oversize materials through screener and/or crusher	• Stockpiles will be positioned to minimise wind-whipping as far as possible. • Crushing and screening will take place on a campaign basis by mobile enclosed mechanical crusher and/or screener. • Drop heights will be minimised when material is being loaded into and discharged from the screener or crusher.
Releases To Land or Water	
Spillage of waste and materials during deposition of the waste	• High standards of housekeeping will be maintained across the site.

Leak, spills or overflows during handling, storage and use of potentially polluting substances, products or materials	• All Deliveries must be recorded. Unloading must only take place in designated areas and must not be accepted without the correct delivery note. Special care must be taken with liquid, gasses and other hazardous materials. Deliveries should always be supervised. • Tanks and containers should be labelled with the nature and volume of their contents and the levels must be checked prior to delivery to prevent any overspills or overtopping of tanks. • Any tank should be stored in a safe location to prevent accidents (vehicle collisions, forklift turning, construction impacts etc) and will be provided with safety measures (barriers, bollards etc). • Hand refuelling points will be isolated from the surface water system using ramps, roll-over bunds or stepped access • A clearly marked spill kit with adequate quantities of appropriate absorbent materials (including booms, granules, matting, and disposal bags) will be located across site • Loading and unloading areas will be designated, marked and isolated from the surface water drainage system; • The routes used for the movement of materials on site will be identified • Deliveries of oil will be supervised; if a spill occurs it will be contained and reported immediately. It will not be hosed down • Automatic cut-off valves will be fitted to delivery pipes to prevent overfilling
Leak, spills or overflows from oil storage and fuel lines	• Site fuel lines will be in an accessible position above the ground where possible. Underground pipes and tanks may be subject to damage and corrosion. Where a fuel line must be laid underground, it should be corrosion resistant and placed in a protective sleeve or a duct with open grating covers for inspection purposes. • When not in use, stores, fuel bowsers, tanks, drums and associated pipework and valves will be secured • Above ground storage tanks, drums and containers will be sited on an impermeable base within a bund. The bund will be constructed of a material impermeable to the liquid stored and capable of holding 110% of the largest container or 25% of the total capacity of all tanks, whichever is greater • Drums and other liquid containers and un-bunded static combustion engine plant will be provided with impermeable drip trays when in use and sited away from moving plant and vehicles • Above ground storage tanks will also be sited at least 20 m from water course or drain where possible and comply with the Oil Storage Regulations (section 3.1) • The use of appropriately sized tanks or containers which will not leak or corrode, ensuring that they are clearly labelled with their contents, substance and volume • Ensure that tanks, pipework, valves and bunds are inspected and maintained regularly • Inspect areas where potentially polluting liquids and water-soluble materials are stored and mobile fuel bowsers at least once a week and after prolonged periods (less than one week) of heavy precipitation • Yard areas used for storage, handling and manufacturing will where possible be roofed to reduce the volume of contaminated drainage for disposal and drained to the foul sewer • At the end of each shift the material will be taken back to the working compound • Chemicals, including paints, fuels and oils will not be left on scaffolding • Spill kits will be available to deal with any leaks. These will be positioned at refuelling zones, on the mobile refuelling bowser and one each item of plant. • Refuelling zones will be designated and will be established in a safe, level hardstanding area at least

	20m of a watercourse, ditch or drainage channel. Refuelling areas will be secured with lockable Heras fencing at all times. • Where plant can't access the refuelling area: a) Fuel will be brought to the plant in a towable double-skinned (110% bund capacity) bowser. b) Refuelling will take place on a safe and level location at least 10 from any watercourse, ditch or drainage channel. c) Drip trays will be used during refuelling.
Contaminated surface run-off	• Materials deposited on Site will be contained so material cannot reach any surrounding water courses. • Follow best practice guidance as provided in CIRIA C811 Environmental good practice on site guide 5th edition guide for drainage and prevention of silt pollution. • Effluent resulting from discharge of refuelling areas must not be discharged to any surface water drainage system. • All wash waters from mobile pressure washers must be contained and disposed of to licensed facility by a licensed carrier. • Even if described as bio-degradable, detergents must not be discharged to surface water drains, or through interceptors.
Nuisance	
Mud/litter carried into highway	• High standards of housekeeping will be maintained across the site.. • If necessary, provide and ensure the use of wheel wash facilities near the site exit to dislodge accumulated dust and mud prior to vehicles exiting the work site • Wheel wash facilities must be contained, bunded with treatment/recycling to minimise water usage. Wastewater must be taken away from site as liquid waste in line with Waste Duty of Care as no foul water network on site during construction • Cover waste skips etc
Pest and scavengers	• Use of registered pest control contractors and rodenticide will be considered if required.
Seed dispersal of noxious plants or weeds	• Robust waste acceptance procedures • Quarantine and rejection of such material • Implement CEMP Appendix C8 – Invasive Non-Native Species Management Plan
Odour	
Odour from receipt and handling of waste materials	• The risk of odour from the incoming waste types is minimal, however, malodorous waste will be rejected • Where odour is detected the following actions should be taken as appropriate: d) Removal of the source of the odour e) Spraying with an approved oxidising agent f) Apply filters onto the offending plant where necessary g) Application of an odour guard/masking agent
Noise and Vibration	
Noise and vibration from the crusher being used on site	• Situate as far as possible from noise sensitive receptors • Staff training will include raising employee awareness with respect to normal plant operational noise levels and actions to be taken to rectify any faults. • During periods of downtime, all plant will be switched off. • Site plant will be maintained in line with manufacturer's recommendations this includes checking for deterioration of plant condition (e.g. bearings becoming worn). Repairs will be undertaken as appropriate to rectify any identified defects.
Noise from vehicles delivering/collecting waste	• Reversing will be minimised where possible • Engines will be switched off when not in use.

Noise from on-site mobile plant and equipment	• Noisy plant or equipment shall be situated as far as possible from noise sensitive receptors • Vehicles and mechanical plant shall be fitted with exhaust silencers, maintained in good working order and operated in such a manner as to minimise noise emissions • Machines in intermittent use shall be shut down or throttled down to a minimum when not in use • Compressors shall be fitted with properly lined and sealed acoustic covers which shall be kept closed whenever in use. • Pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers • Equipment which breaks concrete by bending, bursting or “nibbling” shall be used in preference to percussive tools • Equipment powered by mains electricity shall be used in preference to equipment powered by a generator or locally generated electricity, where practicable • Plant and equipment maintenance shall be carried out in such a way in order to minimise unnecessary noise or vibration except in the case of an emergency • Care shall be taken to reduce noise when loading and unloading vehicles or dismantling scaffolding or moving materials etc.

6.4.2 Monitoring

Site monitoring arrangements include:

- Daily site inspections to assess odour, noise, fugitive emissions, housekeeping and security; corrective action will be undertaken as necessary;
- Noise levels will be monitored in relation to workplace safety levels as appropriate;
- Periodic sampling and testing of clean surface water, prior to its discharge ; and
- The complaint procedure for the site will record any complaints associated with the site - should complaints be received consideration will be given to boundary monitoring as appropriate.

6.5 Conclusion

The proposed controls and mitigation measures will be in place to reduce the impact of the Site on the surrounding area and local receptors.

7. Abnormal Operations, Accident & Fire Risk

7.1 Introduction

This section of the impact assessment considers the specific issues around abnormal operations, potential accidents and potential fire hazards as required by the relevant EA Guidance.

7.2 Methodology

The risk assessment (see Appendix B) has been completed by considering each of the hazards identified in section 3 relating to above in terms of:

- Frequency of occurrence;
- Nature and quantity of substance released;
- Pathways and receptors involved;
- Environmental consequence(s) of the event;
- Overall risk and its significance to the environment; and
- Control and mitigation measures needed to prevent or reduce the risk.

7.3 Scoring Mechanism

The risk assessment methodology has been developed using a scoring mechanism, whereby scores are assigned to:

- The probability of the hazard occurring without the use of protective measures;
- The consequences of the hazard to the environment or human health; and
- The effectiveness of the control/mitigation used to prevent the hazard occurring.

The scoring system used for the assessment is shown in Table 1 above.

7.4 Potential Hazards

A list of potential hazards has been developed from the issues identified in section 3 and these are shown in Table 4 along with the anticipated pathways and receptors.

Table 4 Potential Abnormal Operations and Accident

Potential Hazard	Pathway	Receptor
Abnormal and Emergency Situations		
Flooding	• Water	• Surface/groundwater
Spillage or overfill during transfer of substances	• Water	• Surface/groundwater
Site security breach: • Entry by intruders • Vandalism • Damage to equipment • Theft • Fly-tipping • Arson	• Land • Water	• Surface/groundwater • Public • Workers
Major vehicle accident – leading to a significant loss of waste	• Air • Water • Land	• Public • Workers
Waste types and Inadequate waste acceptance procedures	• Water • Land	• Public • Workers

Potential Hazard	Pathway	Receptor
Failure of containment	• Water • Land • Air	• Surface/groundwater • Workers
No access to emergency equipment	• Air • Water • Land	• Staff • Public • Surface/groundwater
Operator Error	• Air • Water • Land	• Surface/groundwater • Public • Workers
Mains service failure	• Air • Water	• Staff • Public
Failure of plant and equipment	• Air • Water • Land	• Surface/groundwater • Public • Workers
Very high winds	• Air	• Public • Workers
Fire	• Air • Water • Land	• Surface/groundwater • Public • Workers
Fire Risks		
Arson and Vandalism	• Air	• Public • Workers • Infrastructure
Self-combustion	• Air • Water • Land	• Workers • Public • Surface/groundwater
Equipment or plant faults	• Air • Water • Land	• Workers • Public • Surface/groundwater
Electrical faults	• Air • Water • Land	• Workers • Public • Surface/groundwater
Naked lights or flames	• Air • Water • Land	• Workers • Public • Surface/groundwater
Discarded smoking materials	• Air • Water • Land	• Workers • Public • Surface/groundwater
Hot works	• Air • Water • Land	• Workers • Public • Surface/groundwater
Industrial heaters	• Air • Land	• Workers • Surface/groundwater
Hot exhausts	• Air • Water • Land	• Workers • Public • Surface/groundwater
Reactions between incompatible materials	• Air • Water • Land	• Workers • Public • Surface/groundwater
Activities at neighbouring sites	• Air • Water • Land	• Workers • Public • Surface/groundwater
Sparks from loading bucket shovels	• Air • Water • Land	• Workers • Public • Surface/groundwater
Hot loads being deposited on site	• Air • Water	• Workers • Public

Potential Hazard	Pathway	Receptor
	• Land	• Surface/groundwater
Ignition sources	• Air • Water • Land	• Workers • Public • Surface/groundwater
Batteries	• Air • Water • Land	• Workers • Public • Surface/groundwater
Leaks and spills	• Air • Water • Land	• Workers • Public • Surface/groundwater
Build-up of combustible material	• Air • Water • Land	• Workers • Public • Surface/groundwater
Hot dry weather	• Air • Water • Land	• Workers • Public • Surface/groundwater

7.5 Risk Reduction and Management

7.5.1 Controls and Mitigation

The controls and mitigations that will be employed at the site are summarised in Table 5 below. These are supported by site operating procedures and management plan as appropriate.

Table 5 Hazardous Events

Potential Hazard	Controls and Mitigations
Abnormal Emergency Situations	
Flooding	• The Site has been identified as a Flood Zone 1 which is defined as "land having a less than 1 in 1,000 (less than 0.1%) annual probability of river or sea flooding". • Regular monitoring of weather conditions. • Topsoil and other construction materials will be stored outside of the 1% AEP (1 in 100) floodplain extent and only moved to the temporary works areas immediately prior to use. • The Construction Laydown Area site office and supervisor will be notified of any potential flood occurring by use of the Flood line Warnings Direct service. • A Flood Risk Management Action Plan/Method Statement will be prepared by the appointed contractor, providing details of the response to an impending flood and including: a) a 24-hour availability and ability to mobilise staff in the event of a flood warning; b) the removal of all plant, machinery, and material capable of being mobilised in a flood for the duration of any holiday closedown period; c) details of the evacuation and site closedown procedures; and d) arrangements for removing any potentially hazardous material and anything capable of becoming entrained in floodwaters, from the temporary works area.
Spillage or overfill during transfer of substances	• The fuel tank will be equipped with a level indicator and level will be checked prior to filling and all deliveries will be supervised.
Site security breach	• Site will be secured by a perimeter fence with 24/7 monitored access • CCTV covering the Site
Major vehicle accident – leading to a significant loss of waste	• Site speed restrictions will be in place and compliance with highway speed restrictions. • Approved carriers (i.e. trained hauliers). • Material clean-up arrangements will be in place. • Road vehicles will be robust and designed to withstand high speed collisions that may occur on public highways.

Potential Hazard	Controls and Mitigations
	• Suitable barriers to prevent moving vehicles damaging equipment will be used where appropriate.
Inadequate waste acceptance procedures	• Waste acceptance protocol will be in place – this will be kept under reviewed and updated as necessary. The current version will be available at the site. • All incoming loads will be checked against the details provided on the waste transfer documentation. • Clear and legible labelling of waste • All incoming loads and site won material will be visually inspected at the point of discharge/off-loading. • Non-permitted waste identified will be quarantined and transfer arranged to a suitably licensed facility. • Only those fully trained on waste acceptance will be involved in the waste acceptance process • Sampling of material will be undertaken on material generated on site or brought to the Site • Good record management including site placement records, waste transfer notes, record of the quality of waste, forms on waste information and rejections and correspondence, waste characterisation and site log/diary
Failure of containment	• Storage tanks will be suitable for the storage of fuel. They will be provided with suitable containment equivalent to 110% tank capacity. • Containment will be inspected for accumulation of material or damage to integrity – repairs will be completed as required. • Tanks will be emptied in the event that a leak is detected, and repairs will be completed
No access to emergency equipment	• Emergency spill kits, fire extinguishers and access to water supplies in the event of an emergency will be available from site office and designated locations.
Operator Error	• Provision of appropriate operator training • Technically competent person or nominated deputy available at site • Internal operational control procedures • Strict compliance with site management system
Mains Service Failure	• Construction phase activities – power supply will be via site generators – back-ups will be sourced if required.
Failure of plant and equipment	• Plant will be subject to a first use check on a daily basis to facilitate defect detection and reporting. • Inspection and maintenance of equipment in use.
Very high winds	• Dust suppression when needed • Activity will cease if winds are too high
Fire	• A fire plan will be in place at the Site. • Access to water and fire suppression equipment will be available on Site.
Fire Risks	
Arson and Vandalism	• Site will be secured by a perimeter fence and lockable gates. • Site monitored by CCTV, 24 hrs per day, 7 days per week
Self-combustion	• Given the nature of the wastes accepted there is a very low potential for self-combustion to occur. • Waste acceptance procedures will ensure that no combustible wastes with potential for self-combustion are accepted.
Equipment or plant faults	• Plant/equipment will be designed in accordance with relevant design and fabrication standards. • Preventative maintenance will include regular inspection and maintenance regimes. • Local fire extinguishers will be provided where identified in the fire risk assessment. • Mobile plant will be subject to a first use check on a daily basis to facilitate defect detection and reporting.
Electrical faults	• Plant/equipment will be designed in accordance with relevant design and fabrication standards. • Preventative maintenance will include regular inspection and maintenance regimes. • Portable appliances will be subject to PAT testing at least annually;

Potential Hazard	Controls and Mitigations
	• Fixed wiring systems will be installed and maintained in accordance with the Wiring Regulations and will be subject to routine examination and testing by competent persons every 5 years. • Local fire extinguishers will be provided where identified in the fire risk assessment.
Naked lights or flames	• No naked lights or flames will be permitted on site apart from those which are used in permitted hot works (see below). • No burning permitted on site
Discarded smoking materials	• Smoking will take place only at designated smoking areas which will be equipped with suitable receptacles for extinguishing and disposal of smoking materials.
Hot works	• All hot works must be undertaken in accordance with hot works procedure including: a. A permit-to-work system. b. Provision of fire extinguishers at point of hot works. c. Combustible material will be removed from the area prior to works being undertaken or shielded if they can't be removed. • A fire watch will be present during hot works and for minimum 30 minutes after such works have ceased.
Industrial heaters	• The site will use small wall heaters in the office areas, and these will be subject to routine inspection and PAT testing.
Hot exhausts	• Risk from hot exhausts is low given the nature of the waste accepted. • Storage areas for mobile plant will be located away from waste stockpiles. • Checks will be undertaken when plant is parked to ensure no combustible material (e.g. packaging) has become trapped under/near hot exhausts.
Reactions between incompatible materials	• Given the nature of the wastes accepted there is a very low potential for incompatible reactions to occur. • Waste acceptance procedures will ensure that no combustible wastes with potential for incompatible reactions are accepted.
Activities at neighbouring sites	• Area around the site is largely unoccupied industrial land associated with the previous iron/steel works..
Sparks from loading bucket shovels	• Given the nature of the wastes accepted there is a negligible potential for combustion to occur. • Waste acceptance procedures will ensure that no combustible materials are present in the wastes that are accepted.
Hot loads being deposited on site	• Given the nature of the wastes accepted there is a very low potential for self-combustion to occur. • Waste acceptance procedures will ensure that no combustible wastes with potential for developing hot spots are accepted.
Ignition sources	• No naked flames, heaters or other ignition sources will be permitted within 10m of potentially flammable materials.
Batteries	• No batteries or ELV will be accepted at the site.
Leaks and spills	• Lubricants for maintenance will be stored on containment pallets in designated storage areas. • Bulk storage tanks for fuels will be of a proprietary design, equipped with level alarms, overfill protection and containment. They will be subject to integrity checks as part of the wider planned preventative maintenance schedule. • Mobile plant will be subject to routine maintenance in line with manufacturer's recommendations as well as pre-use checks. • Housekeeping standards will be monitored and maintained as part of the site inspection, • Emergency spill kits will be located on site and will be used in accordance with the site spill procedures.
Build-up of combustible material	• Lubricants for maintenance will be stored on containment pallets in designated storage areas. • Housekeeping standards will be monitored and maintained as part of the site inspection.
Hot dry weather	• No combustible wastes will be accepted.

7.5.2 Monitoring and Recording

Site monitoring and emergency arrangements include:

- Daily site inspections to assess operational maintenance of waste materials, including waste stockpiling and housekeeping.
- Visual checks will be undertaken on all waste loads during acceptance checks to identify the presence of unauthorised waste or that it may not be suitable for acceptance at the site. If it is uncertain whether the waste can be accepted the Site Manager or another Technically Competent Person will be contacted and asked to verify whether the waste can be accepted.
- Waste will be sampled in line with the Waste Acceptance Protocol to ensure the materials placed on the Site meet the required engineering properties.
- Keeping an up-to-date record of all accidents, incidents, near misses, changes to procedures, abnormal events, and the findings of maintenance inspections.
- Investigating accidents, incidents, near misses and abnormal events and recording actions taken to prevent a reoccurrence.

7.5.3 Emergency Plan

The site will maintain an Emergency Plan as part of the Construction Environmental Management Plan (CEMP),

7.6 Conclusion

The proposed controls and mitigation measures that will be in place will reduce the likelihood and impact of an accident or fire at the Site on the surrounding area and local receptors.

The risk assessment with identified controls and mitigation as detailed in Appendix B should meet the requirements of the relevant EA/BREF guidance

8. Climate Change Risk Assessment

8.1 Introduction

The Environment Agency's "*Adapting to Climate Change: Risk Assessment for Your Environmental Permit*" guidance identified that a climate change risk assessment should be completed for a bespoke installation which Is expected to operate for more than 5 years.

The guidance also outlines the general approach to completing the risk assessment which comprises:

a. Complete a screening assessment which is normally completed at the time of application – this is summarised in section 10.2 below.;

b. Where the screening score is greater than 5 then a full risk assessment is required – this involves completion of the relevant EA climate change risk assessment worksheet associated with the river basin area in which the site is located.

c. Identification of the controls and management measures that will be applied for potentially any significant risks that may be identified. These are discussed in Section 10.3below.

8.2 Screening Assessment

The screening assessment is summarised in Table 6 below.

Table 6. EA Screening Assessment

Category	Screening Questions	Score	Site Score
1. Timescales	***How long will a permit be required for the facility?***		
	a. 5 years or less (no need to complete rest of screening and no requirement for a risk assessment)	0	✓
	b. <20 years operation	1	
	c. Until between 2040 and 2060 (between 20 – 40 years from now.	3	
	d. Until 2060 or beyond (>40 years from now)	5	
2. Flooding	***What is your site's risk of flooding from the sea?***		
	a. Not in a flood-risk zone	0	
	b. Very low or low	1	✓
	c. Medium	3	
	d. High	5	
3. Water Use	***If you use water for your site operations or fire prevention, what is the source of the water.***		
	a. Water not required	0	
	b. Mains water	1	✓
	c. Surface water or groundwater abstraction	5	
TOTAL SCORE			**2**

The screening assessment shows that a full climate change risk assessment is not required.

8.3 Climate Adaption Controls and Management Measures

8.3.1 Introduction

The Environment Agency's "*Adapting to Climate Change: Risk Assessment for Your Environmental Permit*" guidance requires that climate change adaption is integrated into the Management System and should take into consideration the issues specific to the site as well as having the flexibility to adapt to reflect the outputs of any reviews.

When developing these measures, consideration was given to the EA guidance for "*Landfill for Hazardous and Non-hazardous Waste: examples for your adapting to climate change risk assessment*" which identifies the sector specific potential impacts and associated mitigation measures to consider when preparing the climate change risk assessment and developing the relevant adaption controls and management measures.

In general, NZTPL will aim to manage the risk through control measures to address the climate hazard and its effect on operations or environmental impact. There are currently no plans to:

- transfer the risk, such as by taking out insurance; or
- to change the site processes which may terminate the risk.

These options will be kept under consideration when the climate change risk assessment is subject to its review although it should be noted that the Operators adaptive capacity to mitigate the potential impacts through soft or hard changes will depend upon financial resources, human resources, technical resources and internal organisational capabilities.

Climate management controls are summarised in Table 7 below and will be incorporated into the CEMP.

Table 7. Climate Change Management

Variable	Potential Impact	Control Mitigation
Increase in Daily Maximum Temperature	Increase in odour, dust and pests	• Access road is hard surfaced so low dust potential. • Internal roads/surfaces will be monitored, and dust suppression employed if necessary. • Works will be managed in accordance with the Waste Recovery Plan (WRP) and CEMP. • No biodegradable wastes will be accepted, and waste will be accepted in accordance with Waste Acceptance Procedure. • All incoming/outgoing loads of material will be sheeted.
	Potential overheating, freezing or failure of critical equipment	• Planned preventative maintenance schedule for all plant and equipment developed based on manufacturers recommendations. Frequency of maintenance can be increased if it is deemed that the integrity of plant, pipework and fittings are being affected by increases the temperatures being reached. • Use of insulation on exposed pipework could be put in place to prevent freezing/non-functioning or equipment or rupture of pipes. • Mobile plant will be stored on hardstanding to minimise the risk of becoming iced to base.
	Increased risk of hot waste	• No combustible wastes accepted, and waste will be accepted in accordance with Waste Acceptance Procedure.
Daily Extreme Rainfall	Overloading of surface water management systems.	• Site is at low risk of flooding. • Drainage system will be designed appropriately.
	Flooding of site/access roads	• Site is at low risk of flooding.
Sea Level Rise	Tidal flooding	• Site is at low risk of flooding.
River Flow Changes	Impact on discharges	• Site is at low risk of flooding • Impact on surface water management will be monitored.

Appendix A Fugitive Release Impact Assessment

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
1. Releases to Air								
Dust emissions from vehicle movements	• Air	• Public • Workers	5	2	10	• Ensure that roads and pedestrian access routes are kept clean. • Locate haul roads as far away as practicable from sensitive receptors, although both sites are very restricted and are in close proximity to sensitive receptors; • Wet cleaning of any large scale concrete hard standing will be undertaken. Dry sweeping will be restricted to small areas only; • Haul road condition will be inspected at least weekly and repaired as soon as possible if damage is identified; • Install site speed limit of 5 mph across all areas; • Vehicles carrying friable materials to the site must be sheeted or enclosed; • Apply water to site roads (including haul roads) using bowsers at an appropriate rate to effectively suppress dust. • Maintain unpaved roads and verges in a compacted condition; • Provide easily cleaned hard standings for vehicles; • If necessary, provide and ensure the use of wheel wash facilities near the site exit to dislodge accumulated dust and mud prior to vehicles exiting the work site • Wheel wash facilities must be contained, bunded with treatment/recycling to minimise water usage. Wastewater must be taken away from site as liquid waste in line with Waste Duty of Care as no foul water network on site during construction phase	5	2
Exhaust emissions from Plant and equipment	• Air	• Public • Workers	5	2	10	• The need for all equipment must be identified. Potential suppliers are identified and contacted. Implement BPM; • Select and procure plant and equipment with the least potential for dust and other pollutant emissions, allowing for economic constraints and practicability; • Use plant and equipment powered by mains electricity or battery power whenever practicable; • Use low emission fuels such as ultra-low sulphur fuels for all non-road mobile machinery;	5	2

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
						• Using plant fitted with catalysts, diesel particulate filters and similar devices as listed by the Energy Saving Trust for non-road mobile machinery; • Ensure that no vehicle or equipment emitting visible black smoke from its exhaust system other than during ignition is used on any construction site or public highway; • Ensure that combustion engines are not left running unnecessarily; and • Ensure that all vehicle and equipment engines and exhaust systems are maintained so that exhaust emissions do not breach statutory limits set for vehicle/equipment type and mode of operation. • All vehicles and equipment are to be maintained in accordance with manufacturers' specifications and statutory requirements.		
Dust, particulates, and litter during loading and unloading of vehicles and mobile plant	• Air	• Public • Workers	5	2	10	• The need for all equipment must be identified. Potential suppliers are identified and contacted. Implement BPM; • Select and procure plant and equipment with the least potential for dust and other pollutant emissions, allowing for economic constraints and practicability; • Use plant and equipment powered by mains electricity or battery power whenever practicable; • Use low emission fuels such as ultra-low sulphur fuels for all non-road mobile machinery; • Using plant fitted with catalysts, diesel particulate filters and similar devices as listed by the Energy Saving Trust for non-road mobile machinery; • Ensure that no vehicle or equipment emitting visible black smoke from its exhaust system other than during ignition is used on any construction site or public highway; • Ensure that combustion engines are not left running unnecessarily; and • Ensure that all vehicle and equipment engines and exhaust systems are maintained so that exhaust emissions do not breach statutory limits set for vehicle/equipment type and mode of operation. • All vehicles and equipment are to be maintained in accordance with manufacturers' specifications and statutory requirements.	5	2

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
Windblown dust from external roads, pathways and other construction area surfaces	• Air	• Public • Workers	5	2	10	• The need for all equipment must be identified. Potential suppliers are identified and contacted. Implement BPM; • Select and procure plant and equipment with the least potential for dust and other pollutant emissions, allowing for economic constraints and practicability; • Use plant and equipment powered by mains electricity or battery power whenever practicable; • Use low emission fuels such as ultra-low sulphur fuels for all non-road mobile machinery; • Using plant fitted with catalysts, diesel particulate filters and similar devices as listed by the Energy Saving Trust for non-road mobile machinery; • Ensure that no vehicle or equipment emitting visible black smoke from its exhaust system other than during ignition is used on any construction site or public highway; • Ensure that combustion engines are not left running unnecessarily; and • Ensure that all vehicle and equipment engines and exhaust systems are maintained so that exhaust emissions do not breach statutory limits set for vehicle/equipment type and mode of operation. • All vehicles and equipment are to be maintained in accordance with manufacturers' specifications and statutory requirements.	5	2
Windblown dust from material storage, stockpiles and handling	• Air	• Public • Workers	6	2	12	• Store aggregates, sand and spoil with adequate protection from the wind and, where practicable, within buildings; • Maintain slopes of stockpiles, tips and mounds at an angle not greater than the natural angle of repose and avoid creating sharp changes of shape; • Balfour Beatty will aim to minimise any double handling of soils and other friable materials; • Minimise the amount of excavated material stockpiled and dampen the surfaces of stockpiles of dry friable materials by controlled application of water sprays or, alternatively, shroud or screen stockpiles; and • Maintain handling areas to reduce the risk of dust emissions. Static misting systems, bowsers and other watering methods, shall be employed as necessary to reduce or prevent dust	5	2.4

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
						emissions. Drop heights will be minimised during placement of materials into the stockpiles.		
Windblown material from general construction activities	• Air	• Public • Workers	6	2	12	• Do not burn any waste or materials • Ensure that equipment likely to generate excessive quantities of dust is enclosed, shielded or here appropriate fitted with dust extractors, filters or scrubbers, which shall be maintained in accordance with manufacturers' specifications • Minimise the number of material handling operations • Minimisation of drop heights during placement of materials and when loading vehicles • Cutting and grinding operations to use equipment and techniques which suppress and reduce dust emissions • Where appropriate, erect and maintain wind breaks, netting screens or semi-permeable fences to reduce dust emissions from working areas and/or to screen sensitive locations • Use water sprays to control dust generated during construction of earthworks • Screen buildings and structures with debris screens/sheets • Shield and apply wet suppression for spoil/waste chutes • Cover waste skips etc • Avoid long-term storage of construction debris on site. Where this is anticipated as necessary, screen storage areas from the wind; and Fully sheet or cover all loads of construction waste prior to removal from the site	5	2.4
Windblown emissions from processing oversize materials through crusher	• Air	• Public • Workers	5	2	10	• Stockpiles will be positioned to minimise wind-whipping as far as possible. • Crushing and screening will take place on a campaign basis by mobile enclosed mechanical crusher and/or screener. • Drop heights will be minimised when material is being loaded into and discharged from the screener or crusher.	5	2
2. Releases To Land or Water								
Spillage of waste and materials during	• Water • Land	• Surface water • Groundwater	4	2	8	• High standards of housekeeping will be maintained across the site.	5	1.6

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
deposition of the waste								
Leak, spills or overflows during handling, storage and use of potentially polluting substances, products or materials	• Water • Land	• Surface water • Groundwater	4	2	8	• All Deliveries must be recorded. Unloading must only take place in designated areas and must not be accepted without the correct delivery note. Special care must be taken with liquid, gasses and other hazardous materials. Deliveries should always be supervised. • Tanks and containers should be labelled with the nature and volume of their contents and the levels must be checked prior to delivery to prevent any overspills or overtopping of tanks. • Any tank should be stored in a safe location to prevent accidents (vehicle collisions, forklift turning, construction impacts etc) and will be provided with safety measures (barriers, bollards etc). • Hand refuelling points will be isolated from the surface water system using ramps, roll-over bunds or stepped access • A clearly marked spill kit with adequate quantities of appropriate absorbent materials (including booms, granules, matting, and disposal bags) will be located across site • Loading and unloading areas will be designated, marked and isolated from the surface water drainage system; • The routes used for the movement of materials on site will be identified • Deliveries of oil will be supervised; if a spill occurs it will be contained and reported immediately. It will not be hosed down • Automatic cut-off valves will be fitted to delivery pipes to prevent overfilling	5	1.6
Leak, spills or overflows from oil storage and fuel lines	• Water • Land	• Surface water • Groundwater	4	2	8	• Site fuel lines will be in an accessible position above the ground where possible. Underground pipes and tanks may be subject to damage and corrosion. Where a fuel line must be laid underground, it should be corrosion resistant and placed in a protective sleeve or a duct with open grating covers for inspection purposes. • When not in use, stores, fuel bowsers, tanks, drums and associated pipework and valves will be secured • Above ground storage tanks, drums and containers will be sited on an impermeable base within a bund. The bund will	5	1.6

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
						be constructed of a material impermeable to the liquid stored and capable of holding 110% of the largest container or 25% of the total capacity of all tanks, whichever is greater • Drums and other liquid containers and un-bunded static combustion engine plant will be provided with impermeable drip trays when in use and sited away from moving plant and vehicles • Above ground storage tanks will also be sited at least 20 m from water course or drain where possible and comply with the Oil Storage Regulations (section 3.1) • The use of appropriately sized tanks or containers which will not leak or corrode, ensuring that they are clearly labelled with their contents, substance and volume • Ensure that tanks, pipework, valves and bunds are inspected and maintained regularly • Inspect areas where potentially polluting liquids and water-soluble materials are stored and mobile fuel bowsers at least once a week and after prolonged periods (less than one week) of heavy precipitation • Yard areas used for storage, handling and manufacturing will where possible be roofed to reduce the volume of contaminated drainage for disposal and drained to the foul sewer • At the end of each shift the material will be taken back to the working compound • Chemicals, including paints, fuels and oils will not be left on scaffolding • Spill kits will be available to deal with any leaks. These will be positioned at refuelling zones, on the mobile refuelling bowser and one each item of plant. • Refuelling zones will be designated and will be established in a safe, level hardstanding area at least 20m of a watercourse, ditch or drainage channel. Refuelling areas will be secured with lockable Heras fencing at all times. • Where plant can't access the refuelling area: a) Fuel will be brought to the plant in a towable double-skinned (110% bund capacity) bowser.		

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
						b) Refuelling will take place on a safe and level location at least 10 from any watercourse, ditch or drainage channel. c) Drip trays will be used during refuelling.		
Contaminated surface run-off	• Water • Land	• Surface water • Groundwater	2	2	4	• Materials deposited on Site will be contained so material cannot reach any surrounding water courses. • Follow best practice guidance as provided in CIRIA C811 Environmental good practice on site guide 5th edition guide for drainage and prevention of silt pollution. • Effluent resulting from discharge of refuelling areas must not be discharged to any surface water drainage system. • All wash waters from mobile pressure washers must be contained and disposed of to licensed facility by a licensed carrier. • Even if described as bio-degradable, detergents must not be discharged to surface water drains, or through interceptors	5	0.8
3. Nuisance								
Mud/litter carried into highway	• Water	• Public	5	2	10	• High standards of housekeeping will be maintained across the site.. • If necessary, provide and ensure the use of wheel wash facilities near the site exit to dislodge accumulated dust and mud prior to vehicles exiting the work site • Wheel wash facilities must be contained, bunded with treatment/recycling to minimise water usage. Wastewater must be taken away from site as liquid waste in line with Waste Duty of Care as no foul water network on site during construction • Cover waste skips etc	5	2
Pest and scavengers	• Land	• Public • Workers	2	1	2	• Use of registered pest control contractors and rodenticide will be considered if required.	5	0.4
Seed dispersal of noxious plants or weeds	• Land	• Public • Workers	2	1	2	• Robust waste acceptance procedures • Quarantine and rejection of such material • Implement CEMP Appendix C8 – Invasive Non-Native Species Management Plan	5	0.4

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
4. ***Odour***								
Odour from receipt and handling of waste materials	• Air	• Public • Workers	2	1	2	• The risk of odour from the incoming waste types is minimal, however, malodorous waste will be rejected • Where odour is detected the following actions should be taken as appropriate: a) Removal of the source of the odour b) Spraying with an approved oxidising agent c) Apply filters onto the offending plant where necessary d) Application of an odour guard/masking agent	5	0.4
5. Noise								
Noise and vibration from the crusher being used on site	• Air	• Public • Workers	6	3	18	• Situate as far as possible from noise sensitive receptors • Staff training will include raising employee awareness with respect to normal plant operational noise levels and actions to be taken to rectify any faults. • During periods of downtime, all plant will be switched off. • Site plant will be maintained in line with manufacturer's recommendations this includes checking for deterioration of plant condition (e.g. bearings becoming worn). Repairs will be undertaken as appropriate to rectify any identified defects.	5	3.7
Noise from vehicles delivering/collecting waste and other materials	• Air	• Public • Workers	6	3	18	• Reversing will be minimised where possible • Engines will be switched off when not in use.	5	3.7
Noise from on-site mobile plant and equipment	• Air	• Public • Workers	6	3	18	• Noisy plant or equipment shall be situated as far as possible from noise sensitive receptors • Vehicles and mechanical plant shall be fitted with exhaust silencers, maintained in good working order and operated in such a manner as to minimise noise emissions • Machines in intermittent use shall be shut down or throttled down to a minimum when not in use • Compressors shall be fitted with properly lined and sealed acoustic covers which shall be kept closed whenever in use.	5	3.7

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
						• Pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers • Equipment which breaks concrete by bending, bursting or “nibbling” shall be used in preference to percussive tools • Equipment powered by mains electricity shall be used in preference to equipment powered by a generator or locally generated electricity, where practicable • Plant and equipment maintenance shall be carried out in such a way in order to minimise unnecessary noise or vibration except in the case of an emergency • Care shall be taken to reduce noise when loading and unloading vehicles or dismantling scaffolding or moving materials etc.		

Appendix B Abnormal Operations and Accidents

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
Abnormal Emergency Situations								
Flooding	• Water	• Surface or groundwater	2	2	4	• The Site has been identified as a Flood Zone 1 which is defined as "land having a less than 1 in 1,000 (less than 0.1%) annual probability of river or sea flooding". • Regular monitoring of weather conditions. • Topsoil and other construction materials will be stored outside of the 1% AEP (1 in 100) floodplain extent and only moved to the temporary works areas immediately prior to use. • The Construction Laydown Area site office and supervisor will be notified of any potential flood occurring by use of the Flood line Warnings Direct service. • A Flood Risk Management Action Plan/Method Statement will be prepared by the appointed contractor, providing details of the response to an impending flood and including: a) a 24-hour availability and ability to mobilise staff in the event of a flood warning; b) the removal of all plant, machinery, and material capable of being mobilised in a flood for the duration of any holiday closedown period; c) details of the evacuation and site closedown procedures; and d) arrangements for removing any potentially hazardous material and anything capable of becoming entrained in floodwaters, from the temporary works area.	6	0.67
Spillage or overfill during transfer of substances	• Water	• Surface/groundwater	3	3	9	• The fuel tank will be equipped with a level indicator and level will be checked prior to filling and all deliveries will be supervised.	5	1.8
Site security breach: • Entry by intruders • Vandalism • Damage to equipment	• Land • Water	• Surface or groundwater • Public • Workers	3	3	9	• Site will be secured by a perimeter fence with 24/7 monitored access • CCTV covering the Site	5	1.8

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
• Theft • Fly-tipping • Arson								
Major vehicle accident – leading to a significant loss of waste	• Air • Water • Land	• Public • Workers	3	4	12	• Site speed restrictions will be in place and compliance with highway speed restrictions. • Approved carriers (i.e. trained hauliers employed by WCA). • Material clean-up arrangements will be in place. • Road vehicles will be robust and designed to withstand high speed collisions that may occur on public highways. • Suitable barriers to prevent moving vehicles damaging equipment will be used where appropriate.	5	2.4
Waste types and Inadequate waste acceptance procedures	• Water • Land	• Public • Workers	3	3	9	• Waste acceptance protocol will be in place • All incoming loads will be checked against the details provided on the waste transfer documentation. • Clear and legible labelling of waste • All incoming loads and site won materials will be visually inspected at the point of discharge/off-loading. • Non-permitted waste identified will be quarantined and transfer arranged to a suitably licensed facility. • Only those fully trained on waste acceptance will be involved in the waste acceptance process • Sampling of material will be undertaken on material generated on site or brought to the Site • Good record management including site placement records, waste transfer notes, record of the quality of waste, forms on waste information and rejections and correspondence, waste characterisation and site log/diary	5	1.8
Failure of containment	• Water • Land • Air	• Surface/groundwater • Workers	2	4	8	• Storage tanks will be suitable for the storage of fuel. They will be provided with suitable containment equivalent to 110% tank capacity. • Containment will be inspected for accumulation of material or damage to integrity – repairs will be completed as required. • Tanks will be emptied in the event that a leak is detected, and repairs will be completed	5	1.6

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
No access to emergency equipment	• Air • Water • Land	• Staff • Public • Surface/groundwater	2	4	8	• Emergency spill kits, fire extinguishers and access to water supplies in the event of an emergency will be available from site office and designated locations.	5	1.6
Operator Error	• Air • Water • Land	• Surface/groundwater • Public • Workers	5	3	15	• Provision of appropriate operator training • Technically competent person or nominated deputy available at site • Internal operational control procedures • Strict compliance with site management system	5	3
Mains service failure	• Air • Water	• Staff • Public	2	1	2	• Construction phase activities – power supply will be via site generators – back-ups will be sourced if required.	5	0.4
Failure of plant and equipment	• Air • Water • Land	• Surface or groundwater • Public • Workers	3	3	9	• Plant is subject to a first use check on a daily basis to facilitate defect detection and reporting. • Inspection and maintenance of equipment in use.	5	1.8
Very high winds	• Air	• Public • Workers	3	3	9	• Dust suppression when needed • Activity will cease if winds are too high	5	1.8
Fire	• Air • Water • Land	• Surface or groundwater • Public • Workers	2	3	12	• A fire plan will be in place at the Site. • Access to water and fire suppression equipment will be available on Site	2	2.4
Fire Risks								
Arson and Vandalism	• Air	• Public • Workers • Infrastructure	3	3	9	• Site will be secured by a perimeter fence and lockable gates. • Site monitored by CCTV, 24 hrs per day, 7 days per week	5	1.8
Self-combustion	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	5	15	• Given the nature of the wastes accepted there is a very low potential for self-combustion to occur. • Waste acceptance procedures will ensure that no combustible wastes with potential for self-combustion are accepted.	6	2.5

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
Equipment or plant faults	• Air • Water • Land	• Workers • Public • Surface/groundwater	4	3	12	• Plant/equipment will be designed in accordance with relevant design and fabrication standards. • Preventative maintenance will include regular inspection and maintenance regimes. • Local fire extinguishers will be provided where identified in the fire risk assessment. • Mobile plant will be subject to a first use check on a daily basis to facilitate defect detection and reporting.	5	2.4
Electrical faults	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	4	12	• Plant/equipment will be designed in accordance with relevant design and fabrication standards. • Preventative maintenance will include regular inspection and maintenance regimes. • Portable appliances will be subject to PAT testing at least annually; • Fixed wiring systems will be installed and maintained in accordance with the Wiring Regulations and will be subject to routine examination and testing by competent persons every 5 years. • Local fire extinguishers will be provided where identified in the fire risk assessment.	5	2.4
Naked lights or flames	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	5	15	• No naked lights or flames will be permitted on site apart from those which are used in permitted hot works (see below).	5	3.0
Discarded smoking materials	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	5	15	• Smoking will take place only at designated smoking areas which will be equipped with suitable receptacles for extinguishing and disposal of smoking materials.	5	3.0
Hot works	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	5	15	• All hot works must be undertaken in accordance with hot works procedure including: a. A permit-to-work system. b. Provision of fire extinguishers at point of hot works. c. Combustible material will be removed from the area prior to works being undertaken or shielded if they can't be removed. • A fire watch will be present during hot works and for minimum 30 minutes after such works have ceased.	5	3.0
Industrial heaters	• Air • Land	• Workers • Surface/groundwater	2	4	8	• The site will use small wall heaters in the office areas, and these will be subject to routine inspection and PAT testing.	5	1.6

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
Hot exhausts	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	5	15	• Risk from hot exhausts is low given the nature of the waste accepted. • Storage areas for mobile plant will be located away from waste stockpiles. • Checks will be undertaken when plant is parked to ensure no combustible material (e.g. packaging) has become trapped under/near hot exhausts.	5	3.0
Reactions between incompatible materials	• Air • Water • Land	• Workers • Public • Surface/groundwater	2	4	8	• Given the nature of the wastes accepted there is a very low potential for incompatible reactions to occur. • Waste acceptance procedures will ensure that no combustible wastes with potential for incompatible reactions are accepted.	6	1.3
Activities at neighbouring sites	• Air • Water • Land	• Workers • Public • Surface/groundwater	2	5	10	• Area around the site is largely unoccupied industrial land associated with the previous iron/steel works..	6	1.7
Sparks from loading bucket shovels	• Air • Water • Land	• Workers • Public • Surface/groundwater	2	5	10	• Given the nature of the wastes accepted there is a negligible potential for combustion to occur. • Waste acceptance procedures will ensure that no combustible materials are present in the wastes that are accepted.	6	1.7
Hot loads being deposited on site	• Air • Water • Land	• Workers • Public • Surface/groundwater	2	5	10	• Given the nature of the wastes accepted there is a very low potential for self-combustion to occur. • Waste acceptance procedures will ensure that no combustible wastes with potential for developing hot spots are accepted.	6	1.7
Ignition sources	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	5	15	• No naked flames, heaters or other ignition sources will be permitted within 10m of potentially flammable materials.	5	3.0
Batteries	• Air • Water • Land	• Workers • Public • Surface/groundwater	2	4	8	• No batteries or ELV will be accepted at the site.	6	1.3
Leaks and spills	• Air • Water • Land	• Workers • Public • Surface/groundwater	3	5	15	• Lubricants for maintenance will be stored on containment pallets in designated storage areas. • Bulk storage tanks for fuels will be of a proprietary design, equipped with level alarms, overfill protection and containment. They will be subject to integrity checks as part of the wider planned preventative maintenance schedule.	5	3.0

Hazardous Event			Risk Assessment			Controls and Mitigations	Mitigation Factor	Residual Risk
Event	Pathway	Receptor	Probability	Consequence	Risk			
						• Mobile plant will be subject to routine maintenance in line with manufacturer's recommendations as well as pre-use checks. • Housekeeping standards will be monitored and maintained as part of the site inspection, • Emergency spill kits will be located on site and will be used in accordance with the site spill procedures.		
Build-up of combustible material	• Air • Water • Land	• Workers • Public • Surface/groundwater	2	4	8	• Lubricants for maintenance will be stored on containment pallets in designated storage areas. • Housekeeping standards will be monitored and maintained as part of the site inspection.	5	1.6
Hot dry weather	• Air • Water • Land	• Workers • Public • Surface/groundwater	2	4	8	• No combustible wastes will be accepted.	5	1.6