



Energy Recovery Facility Facility, Redcar

Non-Technical Summary

December 2019

**Hartlepool Borough
Council, Civic Centre
Victoria Road
Hartlepool
TS24 8AY**

NON-TECHNICAL SUMMARY

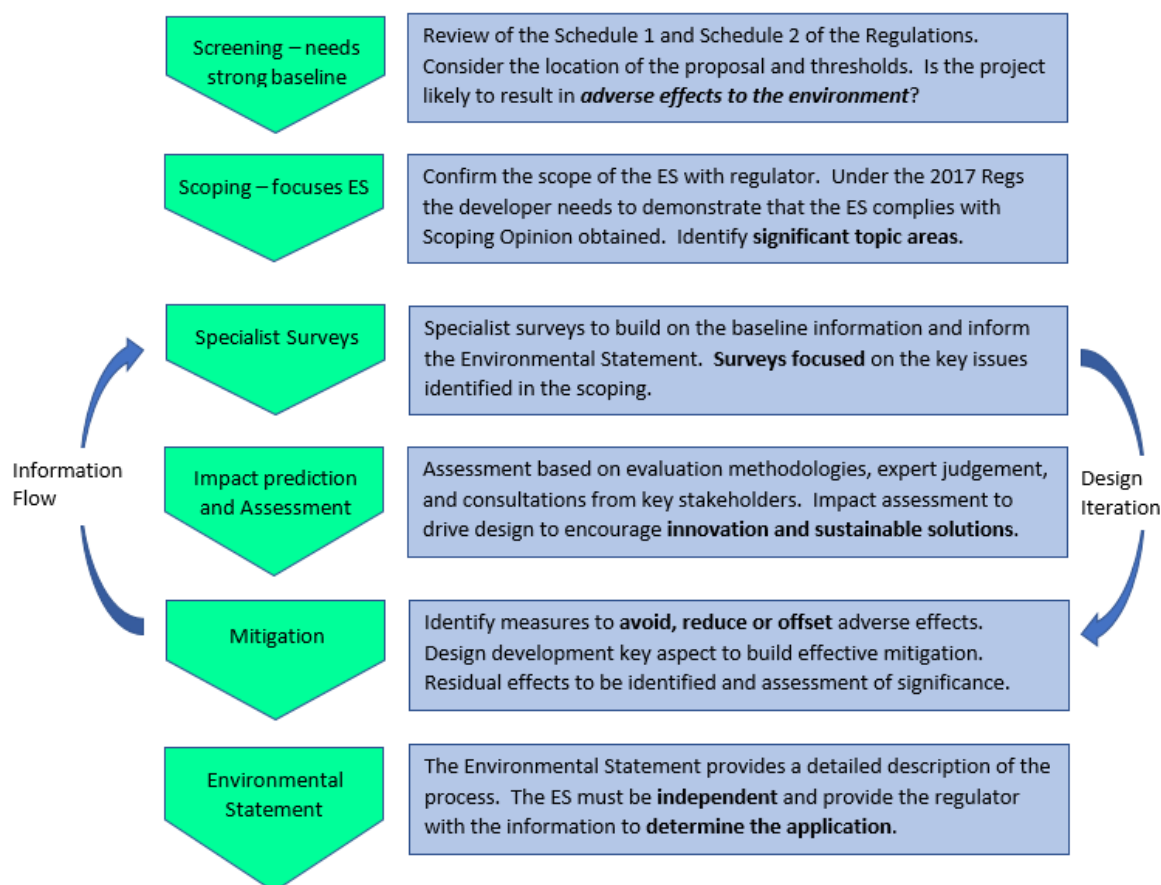
This is the **Non-Technical Summary** to support the Environmental Statement (ES) for the proposed Development of a site for a waste processing/treatment facility including an energy from waste plant on land east of John Boyle Road and west of Tees Dock Road South, Tees Eco Park (Grangetown Prairie), Grangetown.

The **Environmental Statement** provides the summary of the Environmental Impact Assessment (EIA). EIA is a tool for identification, examining and assessing the predicted impacts and effects of a proposed development on the environment. The ES provides:

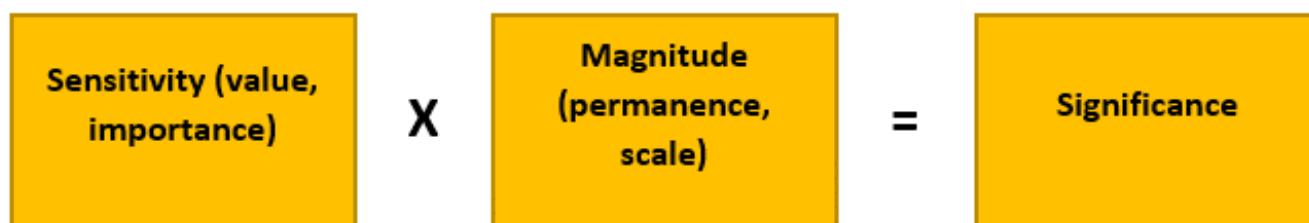
- a description of the development, including any alternatives considered;
- a description of the existing environment at the site and the surrounding areas;
- a prediction of the potential impacts on the existing human, physical and natural environment (environmental topic areas) and assessment of subsequent effects;
- a description of the mitigation measures that will be implemented to remove, avoid or reduce predicted effects.

The EIA has been subject to a Screening and Scoping Opinion from Redcar and Cleveland Borough Council in 2019. This process decides if an EIA is required (screening) and then helps to focus the content of the ES on topic areas that are identified as most important (scoping). This will make sure that the mitigation will manage the effects of greatest importance and aim to reduce environment impacts. The process is described in the flow diagram.

The scheme is considered to be a Schedule 1 project and a voluntary Environmental Statement has been submitted to support the **Outline Planning** application. Impact Assessment aims to determine the **significance** of impacts through a combination of the **sensitivity** or **value** of the baseline conditions, as well as the **magnitude** of the potential impacts. The professional bodies (e.g. Landscape Institute, Chartered Institute for Ecology and Environmental Management) for certain topic areas will have their own assessment guidelines for impact assessment. Impacts and mitigation are described in the following sections.



For the purposes of this Scheme, the significant effect was determined by establishing the sensitivity of the 'receptors' and the magnitude of the effects. Receptors are specific locations or groups of locations that will experience effects. Receptors may also be specific features such as wildlife habitat, footpaths, waterways, listed buildings, etc. The effect predicted to occur is the change from the baseline situation. Each environmental subject covered in the ES explains what the particular receptors relevant to its own assessment are, and how they have been identified. Determination of significance is shown below.



Alternatives

Changes in waste management policies, and the need to replace existing waste disposal contracts, led to the preparation of a revised Joint Waste Management Strategy for the Tees Valley boroughs. This provides a strategy until 2035.

A comprehensive Outline Business Case (OBC) was then developed by the Tees Valley Authorities and considered several options with regards to long-term waste treatment including:

- Further contract extension (beyond 2025) for the existing EfW contract;
- New build energy recovery facility;
- New build refuse derived fuel facility; and
- Utilise third party energy recovery facility capacity.

To support the development of the OBC, an appraisal of locations for a new facility has been undertaken to provide an evidence-based analysis of potential locations.

A site identification and selection process were undertaken to support the development of an OBC for the new energy recovery facility forming part of the preferred option. An appraisal took place of potential locations across the five Tees Valley Authorities' combined administrative area using a systematic, evidence-based analysis. The initial long list included 176 sites, which were initially screened to confirm three sites. The Proposed Development was selected from these three short-listed sites.

The Preferred Option

The proposed development will comprise of a Waste processing/treatment facility including an Energy Recovery Facility (ERF) capable of processing up to 450,000 tonnes of municipal solid waste (MSW) waste per annum, generating 35MW of electricity to export to the national grid.

The development covers a 10-hectare site and will include the main building, where the reception and treatment of all residual waste will take place.

Hard and soft landscaping will form part of the design of the site. Hard landscaping will be used for access roads, walkways and parking areas. Soft landscaping will include grass and vegetation, the full details to be dealt with by reserved matters.

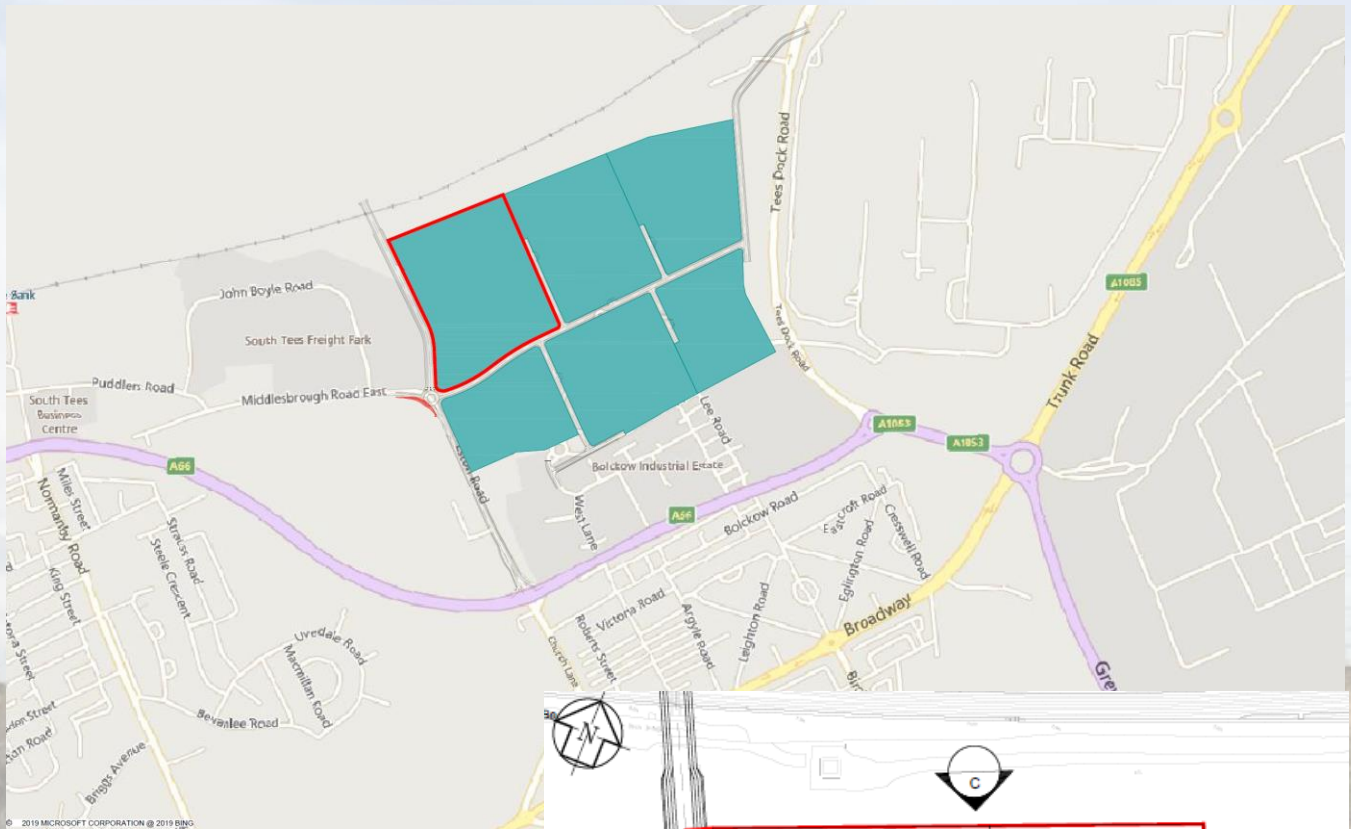


Figure 1 Location Plan

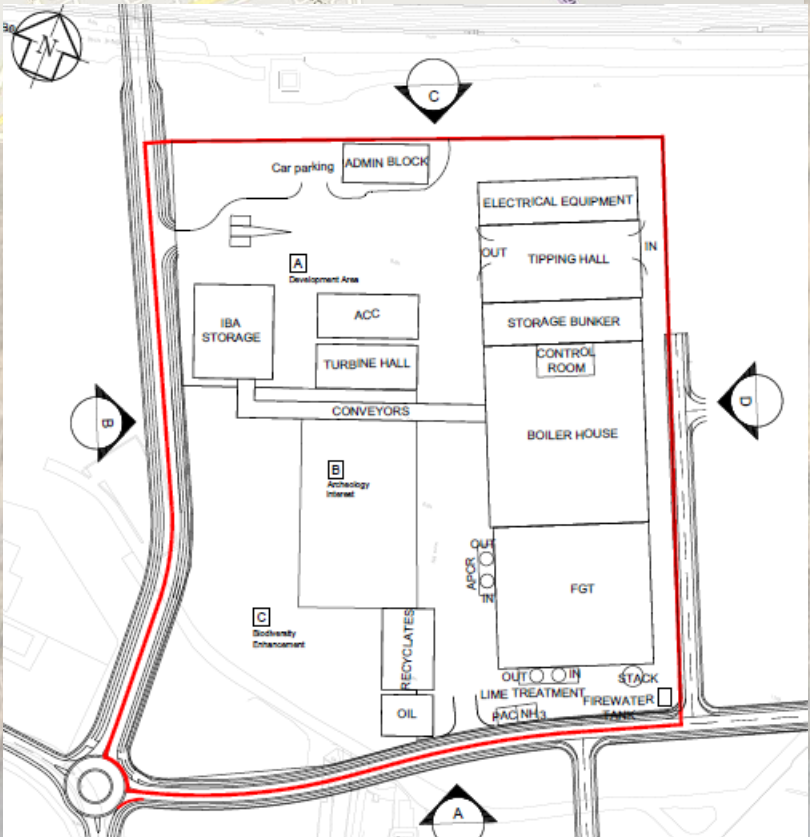
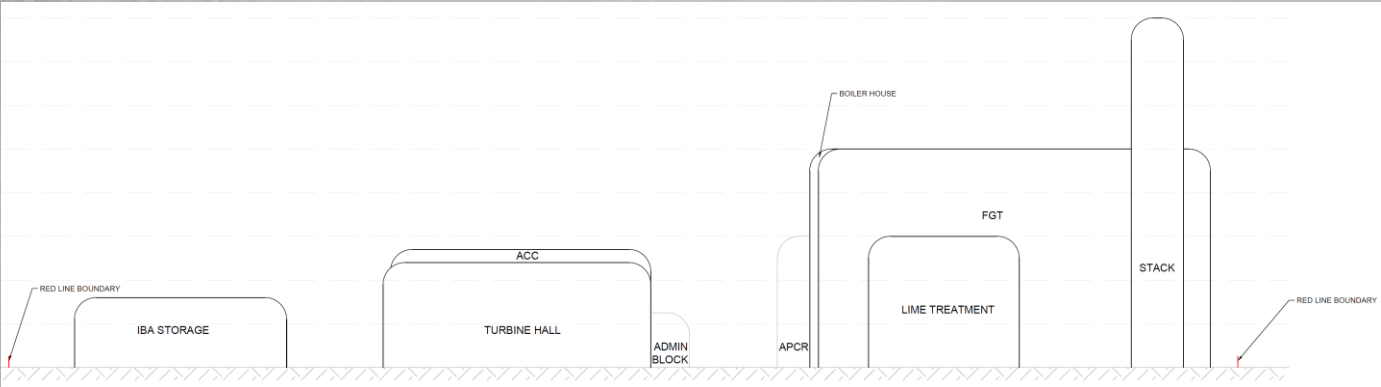


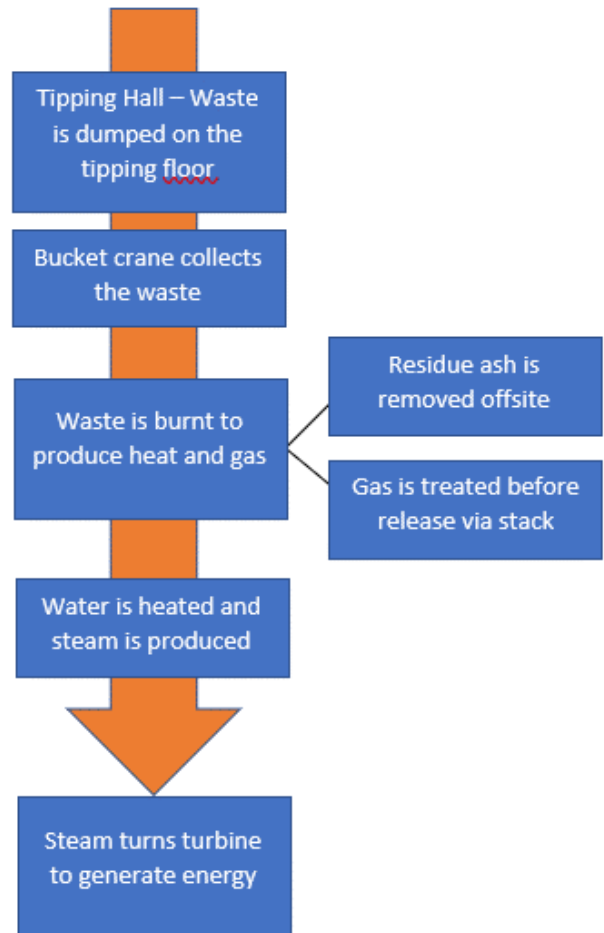
Figure 2 Site Layout and Elevation A



The Process

Waste from the households of the Tees Valley and from other cities in the North East will be collected and sent to the facility. The waste will be incinerated (burnt) under controlled conditions using the best practice processes to produce steam. The steam drives a turbine that will generate electricity. A summary of the process is set out below:

- MSW is transported by road to the ERF facility;
- Waste is transferred to the ERF tipping hall and into the reception bunker;
- Waste is subject to a combustion process where it is mixed with air (oxidised) at a high temperature to produce heat;
- Heat is used to boil water to create steam;
- The steam is then used to generate electricity through the movement of turbines, which takes place in the turbine hall. The electricity is distributed to the national grid;
- State of the art air pollution control equipment cleans the gases, and a baghouse controls the emissions. This takes place in the air-cooling condenser and flue gas treatment building and released via the stack. Emissions are continuously monitored;
- Remaining ash is processed, and metals are recovered for recycling.
- Residual material is beneficially reused. That which cannot be reused is disposed of at landfill.



Tipping Hall - The tipping hall is where the waste is delivered. Heavy Goods Vehicles (HGVs) and refuse collection vehicles (RCV) will enter the building and discharge their loads. The tipping hall shall be totally enclosed with roll-up doors to control the release of dust, odours and emissions. These will be controlled by continuously drawing air from the refuse pit for the combustion units i.e. the negative air pressure will retain any odours in the building rather than let them out. The tipping floor will be concrete, suitable for HGVs and RCVs, and the floor will be sloped to the bunded pit to contain any spillage.

Boiler Hall - The boiler hall is where the waste feedstock combusts in a furnace, releasing heat. The hot gases which are generated pass through the boiler, which contains steam and water. As the combustion gases from the furnace pass through the boiler, they are cooled to a temperature suitable for the flue gas cleaning system. Fuel oil is required to safely start and shutdown the plant but once operating temperatures are reached, waste can be burned without the need for any auxiliary fuel.

Turbine Hall - The steam generated by the boilers passes through a condensing steam turbine-generator.

Flue Gas Treatment Building - The flue gas treatment (FGT) building houses air pollution control (APC) equipment which cleans any gases prior to being discharged to atmosphere.

Air Cooled Condenser - Steam is exhausted at low pressure from the turbine into an air-cooled condenser which condenses the steam back into water. The water is then pumped back into the boiler. The heat lost by the steam when it condenses is transferred to the atmosphere. The air-cooled condenser has fans which draw air across the condenser tubes, so there is no visible plume.

Stack - Once cleaned, the flue-gases from the boilers are discharged to atmosphere via a stack. Stack height being between 70 and 80 metres.

Fuel Oil - A fuel oil storage tank, with a secondary containment, will be provided. An HGV unloading area adjacent to the road will also be provided. This area will be bunded.

Fire Fighting Water Tank - A fire protection water storage tank will be provided on site.

Standby Diesel Generator - In case of a power interruption or outage, a standby diesel generator is provided. The generator and the diesel engine will be mounted on a steel base frame. The diesel generator shall be enclosed.

Air Cooled Condenser Building - The air-cooled condenser condenses the steam exhausting the steam turbine, pulling a vacuum for power generation. Condensed water is returned to the boilers.

Incinerator Bottom Ash (IBA) Building - the 'clinker' that is left after the waste is burned (this is typically, is 20% by weight of the waste being burned) will be stored ahead of further recycling.

Air Pollution Control Residue (APCr) Silos - Fine material that is captured by the bag filters in the FGT is transported to the APCr silos before being removed from site in road tankers.

Powdered Activated Carbon (PAC) - is added to the flue gas in the FGT to remove dioxins, furans, mercury etc.

Lime Tank - Lime is used to remove these acidic pollutants from the flue gas as part of environmental management systems to minimise the impact of these activities on air quality.

Ammonia (NH₃) Storage Tank - Ammonia is Injected to the boiler to reduce NO_x levels to EA permitted levels. Some plants use urea instead (same as Adblue, used in diesel cars).

Administration Building - Will provide office facilities associated with the operation of the site and welfare facilities for employees and visitors.

Electrical Equipment Building - Containing the electrical equipment associated with the operation of the facility.

Car Parking - Designated staff and visitor car parking.



Environmental Effects

The site is adjacent to the settlements of South Bank and Grangetown on the south bank of the River Tees, at NZ 544 213. It comprises a rectangular plot measuring c.10 hectares, bound to the north by the main Middlesbrough to Redcar railway line, to the east by the site of Lackenby steel works, to the south by industrial units and beyond them the A66 road and to the west by various industrial units.

The existing environment is a brownfield location and has a long history of industrial uses. Surface material and soils across the area are proposed to be excavated to a depth of approximately 2.5m, processed, and re-used as part of the site construction (except for the area containing the historic blast furnace archaeological feature). Following scoping the topic areas that are reviewed in the EA are summarised in Table 1.

Table 1: Scoping of environmental topic areas

Topic	Reasoning
Heritage	The site has a rich history of industrial heritage.
Flood and Drainage Risk	The Scheme has the potential to affect water resources and water quality during construction.
Ecology and Nature Conservation	The Scheme may affect habitats and associated species by the loss of habitat and disturbance during construction.
Landscape and Visual Amenity	The changed coastline as a result of the Scheme has the potential to affect the landscape, townscape and visual amenity.
Soils, Geology and Hydro-Geology	Soils are scoped out of the EIA based on the lack of impact to either SSSI designated features.
Construction: Air Quality, Noise and Vibration	The Scheme has the potential to affect Air Quality during construction and operation.
Construction: Traffic and Transport	The Scheme has the potential to affect traffic and transport during construction.

The following sections describe the environmental baseline, the predicted effects of the work and how the impacts have been reduced through the design and mitigation that will be implemented.

Summary of Environmental Effects

Industrial Heritage

The structures and plant of the steel complex have all been removed and the site presently comprises concrete surfaces which retain a number of features related to the previous use of the site. The remaining bases of the Bessemer Blast furnaces within the development plots are of significance in relation to the development of the iron and steel industry on Teesside is high. The image shows the former blast furnaces

Mitigation: The surviving bases of the late 19th and 20th century blast furnaces will be retained on site. The features will be incorporated into the retained areas for ecology to preserve these features.



Flood and Drainage Risk

A Flood Risk Assessment and Drainage Risk Assessment was completed. The proposed development site is located in Flood Zone 1 (Low Risk of Flooding - Land having a less than 1 in 1,000 annual probability of river or sea flooding). There is a mixture of hard and more permeable surfaces existing on site as a consequence of the former uses.

Mitigation: In order to ensure that flood risk is not increased offsite, surface water runoff must be managed on site. It is recommended to fully attenuate surface water on site so that flood risk downstream can be effectively managed. This will be achieved by creating ponds on site to temporarily store surface water during heavy rain. This attenuation ponds will be designed to contribute to biodiversity.



Ecology and Nature Conservation

No protected species (e.g. Great Crested Newts, Badgers or Water Voles) were recorded on site. A Screening Assessment for impact on the European Sites Habitat Regulations Assessment – HRA)

has been completed. There are no Likely Significant Effect (LSE) attributable to the project. Although the plot is a former industrial area that has remained vacant for 20-years it shows an interesting variety of plants that reflect the disturbed nature of the soils.

The poor quality soils on the former industrial site have established a grassland habitat on the brownfield site which is important for species such as butterflies. These species are only found on such habitats.

Mitigation: Although the proposed development will result in the loss of these habitats an area will be

developed with the plot to mitigate for the loss through creating areas of brownfield grassland that will provide the foodplants for butterflies and other insects. Ponds will be created to provide breeding habitat for frogs and dragonflies.

Landscape and Visual Amenity

The landscape baseline assessment highlights the varied and changing nature of the landscape character within the Study Area, with some sensitive rural landscapes such as the Eston Hills immediately adjacent to the lowland areas of the Tees Valley with its industrial and large-scale development.

Mitigation: The Energy from Waste facility will be designed to set the building into context with adjacent uses and to provide a contemporary and attractive environment with both landscape and biodiversity benefits.



Soils, Geology and Hydro-Geology

The former industrial site shows poor drainage and there are areas of standing water. Soils across the site are proposed to be excavated to a depth of approximately 2.5m, processed, and re-used as part of the site construction. It is possible that potentially contaminated soils could be encountered during these activities. Excavated soils would be chemically tested and screened against assessment criteria to demonstrate the soils are suitable for use prior to re-placement on site. The potential for cross-contamination as a result of soil movements would be mitigated through the development of a Materials Management Plan. During future piling activities associated with future site redevelopment, groundwater quality of the aquifer units may be affected where there is potential to generate links between the potentially contaminated shallow soils and groundwater.



Mitigation: The work would be undertaken in accordance with EA guidance. Therefore, any effects on groundwater quality are likely to be of minor to moderate magnitude of change, and the level of effect would be deemed to be no greater than slight, and not significant.

Construction Impacts

Air Quality, Traffic and baseline Noise assessments have been completed as part of the studies to support this scheme.

During construction a Construction Environmental Management Plan (CEMP) will include management procedures to complete the works on site to prevent disturbance and adverse environmental impacts.

- Work to be carried out during daytime hours, avoiding early morning and night work.
- Deliveries will occur during daytime hours and in accordance with times specified by the Local Planning Authority.
- Vehicles only to run when required, avoiding idling. Diesel generators only to be used when operation is essential.
- Staff will be available on site to discuss any concerns that the public may have regarding construction activities.

During operation the facility will work 24 hours per day, with three shifts. Deliveries of waste will occur during 08:00 – 16:00. Agreements will be made with the Local Planning Authority to reduce any impacts on the traffic network.

Provision will be made for electric cars on site for workers to use.

Employment and Social Impact

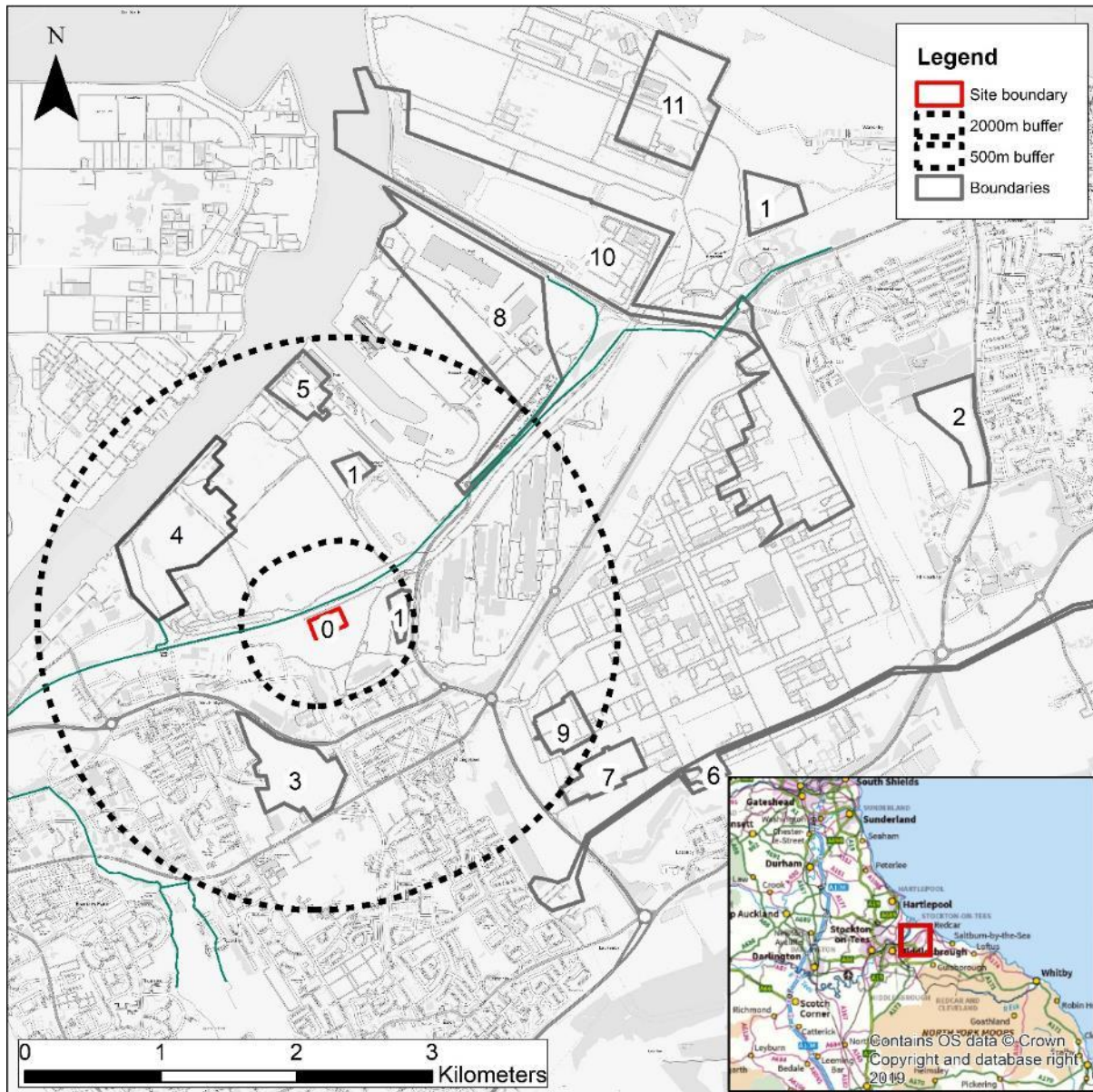
The project aims to create over 40 permanent jobs for the local area when operational. The facility will be operational 24 hours a day and over 365 days a year.

During construction it is projected that 300 construction jobs would be created with a construction period of 36 – months. The Facility will provide an important boost to the regeneration of the region and provide a positive solution for the management of municipal solid waste.

Cumulative Impacts

The effects which result from two or more projects (inter-project effects) have been assessed through identifying the major infrastructure projects listed on the Redcar and Cleveland Borough Planning Authority and Planning Inspectorate website that could have potential in-combination effects. These developments are shown below.

Cumulative impacts have been considered as part of the Habitat Regulations Screening.



1	Soil Storage facilities	7	Teesside Combined Cycle Power Plant (CCPP)
2	Kirkleatham Lane	8	Northern Gateway Container Terminal
3	Land at Low Grange Farm South Bank	9	Peak African Minerals Ltd.
4	Able South Bank	10	York Potash Port and Materials Handling Facilities
5	Biomass Power Station	11	Tees Cluster Carbon Capture and Usage
6	Dogger Bank Wind Farm		

Abbreviations:



CA	Conservation Area
CEMP	Construction Environmental Management Plan
CWS	County Wildlife Site
DBA	Desk Based Assessment
DPD	Development Planning Document
EA	Environment Agency
EC	European Community
EfW	Energy from Waste
ERF	Energy Recovery Facility
EIA	Environmental Impact Assessment
ES	Environmental Statement
FRA	Flood Risk Assessment
GIS	Geographical Information System
HBC	Hartlepool Borough Council
HGV	Heavy Goods Vehicle
HRA	Habitat Regulations Assessment
IEMA	Institute of Environmental Management and Assessment
MSW	Municipal Solid Waste
NGR	National Grid Reference
NPPF	National Planning Policy Framework
Ramsar	Intergovernmental Convention on Wetlands, signed in Ramsar, Iran, in 1971
SAC	Special Area of Conservation, protected under the EU Habitats Directive
SPA	Special Protection Area for birds, protected under the EU Habitats Directive
SSSI	Site of Special Scientific Interest
WFD	Water Framework Directive

Further information regarding this Scheme is available from:

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