

Client
Thorpe Marsh Green Energy Hub Ltd

Date
August 2024

Version
1.0

Thorpe Marsh Landfill (EPR/CP3091SC/V002)

Dust and Emission Management Plan (DEMP)

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Project name **Project Harrier Site Investigation SupportThorpe Marsh Landfill (EPR/CP3091SC/V002)**
Project no. **1620016237**
Recipient **Thorpe Marsh Green Energy Hub Ltd**
Document type **Report**
Version **1.01.0**
Date **2024/08/08**

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Issue and Revision Record

Rev	Date	Originator	Checker	Company Approver	Description
1.0	08/08/2024	KK	GH	JE	First issue to EA

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Doc ID Version 1.0

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Contents

1.	Introduction	3
1.1	Background	3
1.2	Site Description	4
1.3	Sensitive Receptors	5
1.4	Potential offsite sources	8
2.	Operations at Thorpe Marsh Landfill	9
2.1	Mobile Plant and Equipment	16
3.	Dust and Particulate (PM₁₀) Management	18
3.1	Responsibility for Implementation of the DEMP	18
3.2	Sources and Control of Fugitive Dust/Particulate Emissions	18
3.2.1	Sources	18
3.3	Other considerations	24
3.3.1	Water usage/availability	24
3.4	Visual Dust Monitoring	24
4.	Particulate Matter Monitoring	25
5.	Reporting and Complaints Response	26
5.1	Engagement with the Community	26
5.2	Reporting of Complaints	26
5.3	Summary	26

Table of Tables

Table 1-1: Nearby Sensitive Receptors	8
Table 2-1: Mobile Plant and Equipment	16
Table 3-1: Source-Pathway-Receptor Routes	20
Table 3-2: Measures that will be used on site to control dust/particulates (PM ₁₀) and other emissions	22

Table of Figures

Figure 1.1: Nearby Sensitive Receptors	6
Figure 1.2: Doncaster Windrose 2017 - 2022	7
Figure 2.1: Proposed Landfill Cell Layout	11
Figure 2.2: Proposed Cut to the Landfill Site	12
Figure 2.3: Proposed Fill to the Landfill Site	13
Figure 2.4: Proposed Drainage Strategy	14
Figure 2.5: Proposed BESS Layout	15

Appendices

Appendix 1

Location plans of dust and particulate suppression systems

Appendix 2

Daily Dust Monitoring Form

Appendix 3

Dust Complaint Form

1. Introduction

1.1 Background

Ramboll UK Limited (“Ramboll”) has produced this Dust Environment and Management Plan (DEMP) report for the Thorpe Marsh development project (the “site”) as part of our ongoing support to Thorpe Marsh Green Energy Hub Limited (“TMGEHL” or herein “the “Client”). The site is a landfill that is to be redeveloped into a Battery Energy Storage System (BESS).

Thorpe Marsh Landfill is a regulated waste disposal site covered by an Environmental Permit (Waste Management Licence (WML) number WD20D53, originally granted in 1977, now EPR/CP3091SC/V002). The permit allowed the disposal of predominantly pulverised fuel ash (PFA) as well as domestic, commercial and industrial wastes from the adjacent Thorpe Marsh Power Station, though only PFA will be disturbed as part of the earthworks.

The landfill was operated prior to the implementation of the 2001 Landfill Directive (LdD) and was designed as a ‘dilute and disperse’ land-raise landfill. The waste disposal cell was formed by the construction of a three sided, ‘U’ shaped bund using PFA. The early closure of the Power Station in 1994 resulted in the cell being only partially infilled and the landfill put into closure. However, the landfill’s environmental permit was not surrendered.

The current permit holder is HJ Banks and Company Ltd. A permit transfer application has been submitted (ref. EPR/CP3091SC/T002) to transfer the permit to Thorpe Marsh Green Energy Hub Limited. This transfer application is to be decided alongside the proposed permit variation application.

The proposed redevelopment of the landfill into a BESS will involve re-opening of the landfill to facilitate creation of a development platform using re-profiling of PFA from both the eastern and western arms of the ‘U’ shaped bund. There will be no import or export of waste from the site, and no waste treatment processes undertaken on the PFA. It will simply be a redistribution of existing waste within the site.

The total permit site area extends to approximately 61 Ha. This includes c.17 Ha of land to the west which is currently occupied by the Thorpe Marsh Nature Reserve and the eastern 44 Ha comprises the former Thorpe Marsh Power Station PFA landfill.

Access to the new landfill cell is through Ash Field Road towards the north-eastern edge of the cell.

The proposed installation and movement of PFA will create a new landfill cell within the area of the existing landfill. This is to allow for the construction of the BESS. It is estimated that approximately 600,000 m³ of PFA will be excavated and used to form the new landfill cell which will form the development platform for the planned BESS scheme. A key consideration for design and construction of the new landfill cell is minimising the import of off-site material. This will greatly reduce the potential impact of increased traffic on nearby receptors.

After removal of vegetation and limited topsoil in the proposed new landfill area, PFA from the eastern and western U-shaped bund will be deposited in 225 mm thick layers and compacted to reduce future settlement/infiltration. Final landfill elevations will vary between approximately 7.0

m Above Ordnance Datum (AOD) and 15.1 m AOD, with the development platform having a general sloping surface towards the south-west to aid surface water run-off.

Infrastructure related to the BESS development will be installed inside and on top of the engineering layer such as roads, cable conduits, battery unit foundations and other infrastructure elements. A switchyard / substation and welfare area are constructed on top of the landfill. Given the likely loadings of the switchyard / substation, the foundations may need to be piled. A piling risk assessment will form part of the detailed design and construction quality assurance (CQA) works following permit issue and prior to any works commencing. Management of pile arisings will also be addressed in the detailed design works.

A surface drainage system consisting of rock-filled trenches, land drains, piping and attenuation basins will collect rainfall towards the discharge point. Primary drains with a length of approximately 2,200 m and secondary drains with a length of approximately 13,000 m total will be installed to transport rainwater to the attenuation basins. The construction activities for the preparation of the BESS platform and infrastructure are anticipated to take in the region of 12 months to complete.

The landfill plot is unsurfaced and is mostly covered by naturally regenerating grassland and some small areas of scrub / woodland. The outer flanks were spread with a thin layer of topsoil historically and there are isolated areas of hard standing and surfaced roads.

The proposed redevelopment has the potential to generate dust emissions during the removal of vegetation and topsoil, the cut and fill of the existing PFA bund to create a new landfill area, and the construction of BESS infrastructure which may require piling. There will be exhaust emissions from the equipment used to construct the reprofiled landfill cell and BESS infrastructure. The Environment Agency (EA) site officer for the application (Ref: EPR/CP3091SC/V002) has requested a dust emissions management plan (DEMP) as part of the permit variation application.

1.2 Site Description

The site is located to the west of the former Thorpe Marsh Power Station (which was active between 1963 and 1994), approximately 6 km north of Doncaster town centre. The approximate centre of the site is at National Grid Reference 459480, 409490.

The site topography is dominated by the deposited PFA that rises above the surrounding ground. The site levels vary between approximately 0 m AOD in the south of the site (i.e., similar to surrounding ground level) to 24 m AOD at the top of the bund.

The surrounding land use comprises predominantly agricultural land, including the following:

- To the north, the existing Network Rail freight line with agricultural fields and minor roads beyond. Approximately 0.9 km from the northern boundary is the village of Thorpe-in-Balne.
- To the east, the former Thorpe Marsh (coal-fired) Power Station site (now demolished) and the existing National Grid 400 kV Thorpe Marsh Substation (approx. 470m). Further to the east, Thorpe Bank (road), the River Don (approx. 1km), agricultural fields, and the River Dun Navigation. Approximately 1.5 km from the eastern boundary is the village of Barnby Dun.
- To the south, the Ea Beck, agricultural fields and Fordstead Lane (road). Approximately 2 km from the southern boundary is the village of Arksey. The raised Ea Beck is present approximately 90 m south and it is flanked by levees. Beyond the Ea Beck there is a further

ground level drain located from approximately 20 m with a network of drains in the wider agricultural land.

- To the west, the (Yorkshire Wildlife Trust managed) Thorpe Marsh Nature Reserve (with Thorpmere Pond present) followed by agricultural fields and another Network Rail line beyond. Approximately 4.75 km from the western boundary are the towns of Adwick-le-Street and Carcroft.

The site is located in the City of Doncaster Council (CDC) area and is not located within an Air Quality Management Area (AQMA). The closest AQMA is AQMA No. 1 located approximately 5 km south-west of the site and declared by CDC for exceedances of the annual mean NO₂ national air quality objective (NAQO).

A planning application (23/00537/FULM) has been submitted to CDC for the reclamation work to create the BESS and determination is awaited.

This document is the management plan to control dust and emissions during the works required to create the platform and infrastructure required for the BESS i.e. relating to the landfill reprofiling only. Whilst the reprofiling of the PFA will constitute a non-hazardous landfill for the purposes of environmental permitting, in essence, the work is a construction project with the potential to impact on the amenity of nearby sensitive receptors. The DEMP is intended for the use of the staff involved in the construction works and will form part of the Environmental Management System which also includes a Construction Environmental Management Plan (CEMP).

1.3 Sensitive Receptors

Receptors sensitive to dust emissions within 1 km of the site includes residential properties such as those at Sickle Croft Farm, Winteringham Farm, Ash Tree Farm, Almholme Farm which are also surrounded by agricultural land. There are also several residential properties located in Thorpe in Balne which are within 1km of the site where landfill activities will take place. Properties in Barnby Dun to the east are over 1 km away from the landfill activities and therefore outside of the potential zone of influence for dust impacts.

Within the site boundary there are two public footpaths, which could be impacted by dust. There are no hospitals, schools or elderly housing within 1 km of the site. Locations of sensitive receptors are shown in Figure 1.1.

In addition to human health receptors, Thorpe Marsh Nature Reserve is located directly west of the site.

The receptors described are locations that may be affected by dust emissions during the reprofiling and infrastructure works. Human receptors include locations where people spend time and where property may be impacted by dust. Ecological receptors are habitats that might be sensitive to dust; this includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats). Likely effects associated with dust emissions are highly dependent on local meteorological conditions and mitigation measures implemented at source.

Analysis of wind data observed at Doncaster Sheffield Airport meteorological station (2017-2022) indicated the prevailing wind direction is south/south-westerly (Figure 1.2). It is considered that the areas most consistently affected by dust would be to the north-east and east north-east of the site.

Due to the closure of Doncaster Sheffield airport, the latest meteorological data available for this location was recorded in 2022. Doncaster Sheffield airport is considered the most representative meteorological station for the site due to its close proximity (located approximately 12 km south-east of the site), similar topology, surrounding terrain and site exposure.

Downwind receptors to the north-east and east north-east of the site include Sickle Croft Farm, Ash tree farm, Winteringham Farm and Thorpe in Balne and Barnby Dun. However, dust emissions from the construction activities to be undertaken in the landfill are unlikely to result in significant impacts on human sensitive receptors beyond 250 m.

Dust emissions from construction activities are unlikely to result in significant impacts on ecologically sensitive receptors beyond 50 m.



Figure 1.1: Nearby Sensitive Receptors

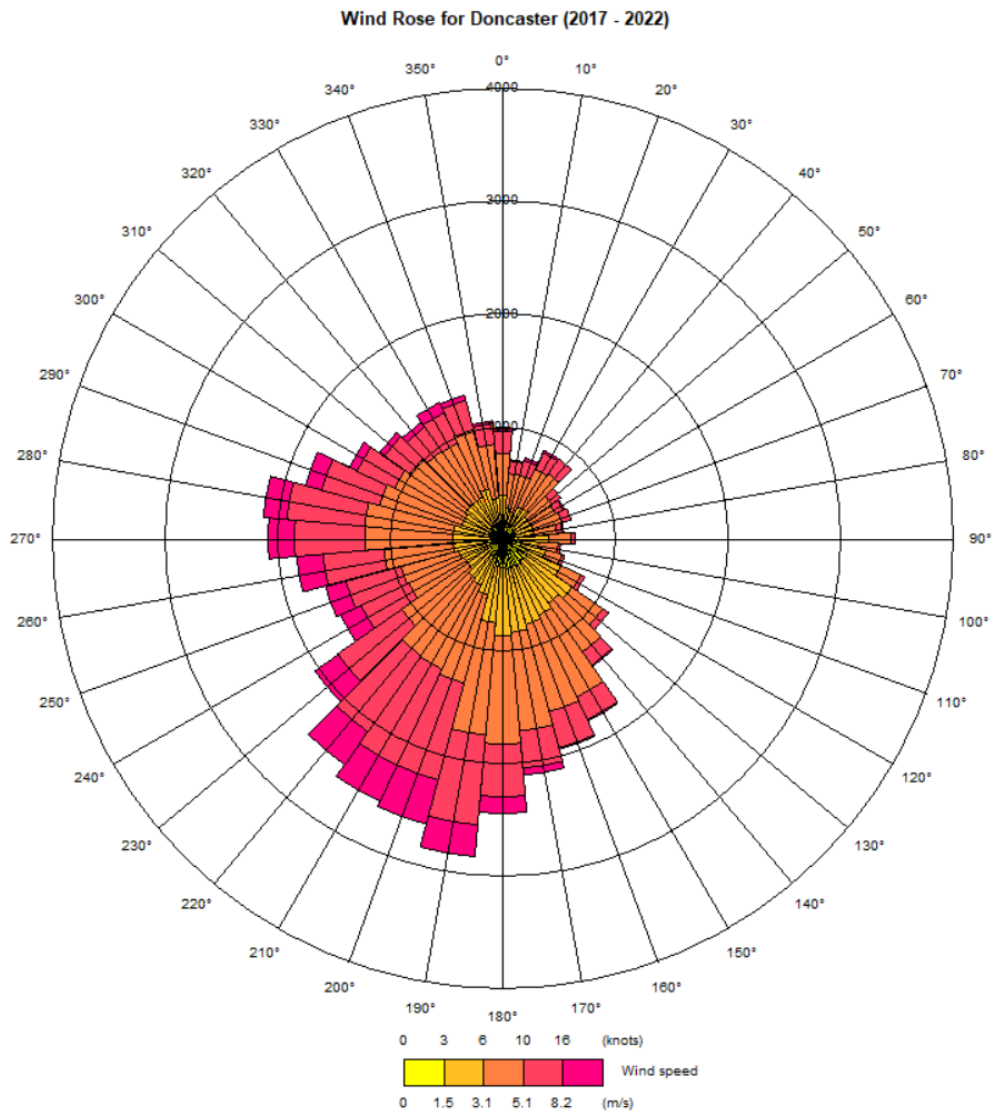


Figure 1.2: Doncaster Windrose 2017 - 2022

The nearby sensitive receptors are shown in Table 1-1 with the distances to the site boundary.

Table 1-1: Nearby Sensitive Receptors

Boundary	Closest Property	Approximate Distance to site boundary (m)	Potential to be impacted by Dust or Emissions?
North	Sickle Croft Farm	190	Y
North	Ash Tree Farm	540	N
North	Winteringham Farm	635	N
North	Thorpe in Balne	880	N
East	Barnby Dun	950	N
South	Almholme Farm	830	N
West	Thorpe Marsh Nature Reserve	0	Y
South	Thorpe in Balne – 9 Bridle Way – transient human exposure	0	Y
South	Thorpe in Balne – 2 Public footpath – transient human exposure	0	Y

As shown in Table 1-1 there are sensitive receptors close to the site boundary that have the potential to be impacted by dust and emissions. Of the residential properties, only Sickle Croft Farm is within 250 m and therefore this is the only residential receptor with the potential to be impacted by dust emissions. At the time of preparation of this DEMP the bridleway and footpath to the south of the site are indicated on the local authority website as being temporarily closed due to damage to the barrier bank and the possibility of flooding¹.

1.4 Potential offsite sources

The site is situated in a predominantly agricultural area with no significant offsite sources likely to impact on local air quality.

¹ Closed PROW. City of Doncaster Council. 14/12/2023. <https://www.doncaster.gov.uk/services/culture-leisure-tourism/public-rights-of-way-temporary-closures>. Accessed 058/8/2024

2. Operations at Thorpe Marsh Landfill

The original Waste Management License was granted in 1977, however, anecdotal evidence and historical mapping indicates that ash deposition occurred within the north-east of landfill from the 1960s when the power station began operation. The foundation of the U-shaped bund was likely initiated in the late 1970s as a perimeter bund for the landfill using PFA, with further deposition of PFA and other domestic and commercial wastes within the bund occurring after the bund was formed. The 'U' shaped bund was then raised to ~20 m AOD in 1990, with this material proposed for relocation under the permit variation. The exact date on which waste deposition ceased and the date the landfill was put in to closure is unknown. However, it is likely that this occurred shortly after the power station closed in 1994.

Despite closure of the Power Station in 1994 the landfill's environmental permit was not surrendered.

The proposed development of a platform for the BESS would be created in a new landfill cell using the existing PFA. The new landfill cell layout is shown in Figure 2.1.

Following removal of topsoil and vegetation, the BESS platform would be formed using cut and fill methods from the existing 'U' shaped PFA bund on-site. Figure 2.2 shows PFA would primarily be cut from the eastern and western arms of the bund and Figure 2.3 shows this material would be placed across the entire development area and used to fill the proposed Transformer Compound and the BESS Unit area, in particular in the southern portion and along the northern site boundary.

The excavation works would be from north to south and therefore the plant would be expected to travel with the direction of excavation, away from the closest receptor at Sickle Croft Farm to the north.

There would be temporary stockpiles of PFA on-site prior to it being relocated to a permanent fill area. No PFA would be removed from the site boundary. The use of on-site PFA material would limit the transportation of material off-site, minimising the impact of dust on nearby receptors during the construction stage of the development.

Figure 2.1 indicates a Transformer Compound would be constructed on the east of the site, this would include the construction of a switchyard/substation and welfare area on top of the landfill. Given the likely loadings of the switchyard/substation, the foundations may need to be piled.

A surface drainage system consisting of rock-filled trenches, ditches, piping and attenuation basins will collect rainfall towards the discharge point. Primary drains with a length of approximately 2,200 m and secondary drains with a length of approximately 13,000 m in total will be installed to transport rainwater to the attenuation basins. The surface water drains would be located across the site, as shown in

Figure 2.4 as 'proposed surface water drainage'. The attenuation basins would be excavated and located in the southern portion of the site as shown in Figure 2.1.

The site would primarily rely on water damping down systems to suppress dust emissions during the construction of the BESS development.

The location of activities on site is dependent on the topography of the landfill, the need to create a level platform for the creation of the BESS and the drainage requirements. There are no waste processing buildings proposed as part of the construction activities.

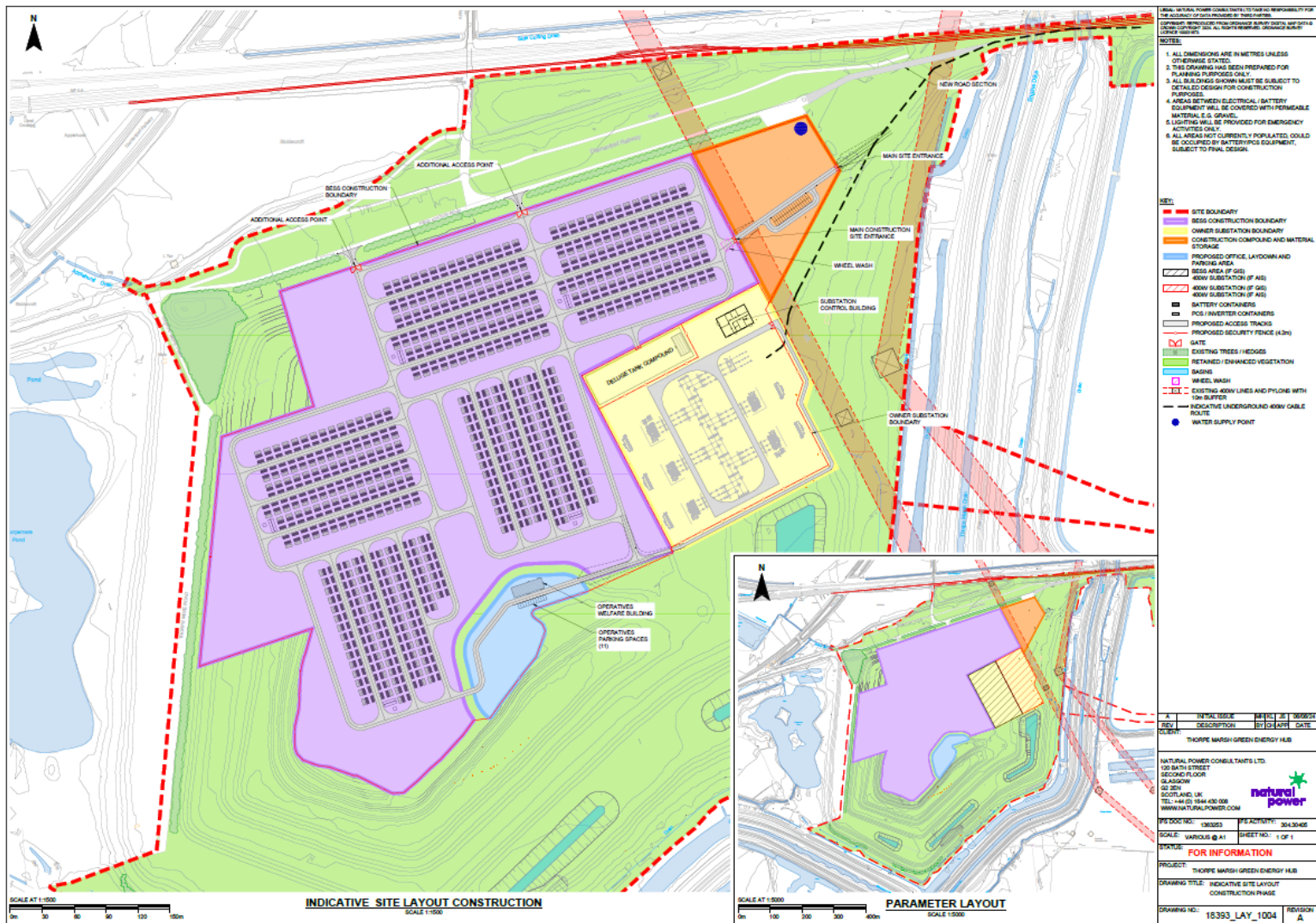


Figure 2.5: Proposed BESS Layout

2.1 Mobile Plant and Equipment

The exact details of the construction equipment to be used are not known at present as the contractor is yet to be appointed. However, equipment on site during earthworks is anticipated to include the following:

- One Cat 349 excavator;
- Two Volvo A40 ADTs;
- One John Deere Tractor with separate water and fuel bowsers;
- One Cat D6 dozer;
- Four lighting rigs;
- One dewatering pump;
- One generator supplying electricity to the site compound; and
- One Cat CS78B roller.

The following table will be completed once the contractor has been appointed and the type and emission ratings for the mobile plant and equipment is known:

Table 2-1: Mobile Plant and Equipment

Description	Make	Model	Emission Rating
TBC			

Details will also be provided of the ownership of the equipment, its age and replacement strategy. Equipment will not be left idling when not in use.

Material would be excavated from the eastern and western flanks in 2 to 3 metre benches by the Cat 349 excavator. Some of the PFA may come out in blocks and require screening and crushing at the point of removal before being loaded into a Volvo A40 ADT. Material would be re-deposited across the development area in layers by the Cat D6 and would be compacted using a Cat CS78B roller. During the earthworks the Cat 349 excavator and Cat D6 dozer would be dug into the PFA mounds.

Access to the site is restricted and limited by waterways on three sides (east, south and west) and a railway to the north. The main access to the site is through a planned gate on Ash Field Road. The material relocation haul route would use the existing former power station route along Ash Fields Road and internal routes within the current landfill area.

A traffic management plan will be agreed with the Local Planning Authority seeking to minimise the potential impact of construction traffic related to TMGEH.

A concrete batching plant would be sited to the north-east of the site and will be used to provide all concrete required during the works required to create the BESS infrastructure. This will be removed upon completion of the construction works.

The proposed operating hours for earthworks, construction and enabling works are indicated below:

Earthworks - PFA Relocation

- Monday – Friday 07:00-18:00 and Saturday 07:00-13:00: Normal site operations including excavation, relocation, compaction and re-profiling of PFA material.
- Saturday 13:00-17:00: Plant maintenance.
- No Sunday or bank holiday working.

Construction – BESS and Enabling Works

- Monday – Friday 07:00-18:00 and Saturday 09:00-16:00.
- No Sunday or bank holiday working.

The proposed operating hours for the operational BESS are indicated below (once construction activities in the landfill have been completed):

Operational – BESS

- Monday to Sunday including bank holidays – 24 hours a day.

All equipment will be maintained in good working order by the TMGEH site management team and their contractors in accordance with manufacturer's recommendations.

Spill kits would be located local to each storage area and drip trays would be implemented during refueling operations. The TMGEH site management team and their contractors would ensure suitably trained personnel undertake refueling and be adequately trained to act on any potential environmental occurrences.

3. Dust and Particulate (PM₁₀) Management

3.1 Responsibility for Implementation of the DEMP

The site Owners Project Director will be responsible for implementation of the DEMP, with day-to-day responsibility being the Owners Quality Manager and the Construction Manager. This will be reviewed every 12 weeks.

Owners staff will be experienced construction professionals and training and guidance for compliance/non-compliance will be given to the Owners team. Training will be given by appropriate parties from the Owners Team with refresher training undertaken as part of an annual audit process, undertaken by Third party.

3.2 Sources and Control of Fugitive Dust/Particulate Emissions

3.2.1 Sources

There is the potential for fugitive dust emissions to occur at existing sensitive receptors to the north and to the east as a result of the cut and fill operations taking place across the redevelopment. It is estimated that approximately 600,000 m³ of PFA will be excavated and used to form the new landfill cell. Ground models based on previous phases of intrusive investigation estimate that there is a total of approximately 4.44 million m³ of PFA on-site (both unlicensed and licensed). As such, the new landfill cell will include up to 13% of the total PFA volume. The new PFA landfill cell will be between 0 m and 9.9 m thick, across an area of approximately 22.1 Ha (representing approximately 50% of the current PFA landfill area). The remaining 3.8 million m³ of PFA represents the bulk of the old unlicensed PFA landfill that will remain untouched.

During the excavation, PFA would be stored in temporary stockpiles on-site prior to it being relocated to a permanent fill area which has the potential to generate dust.

The required BESS foundations (likely pre-cast concrete or composite strip foundations), cable ducts and surface water drainage systems will be constructed within the landfill cell, as part of the engineered landfill design. Surface water run-off will be collected and discharged via the existing discharge consent into the toe drain and then pumped to Thorpe Marsh Drain.

The construction of the switchyard/substation foundations may need to be piled due to the likely loadings of these facilities, potentially generating dust during their construction.

Mobile plant and equipment operating on site have the potential to generate dust during earthworks and construction activities as well as emissions of NO_x and PM from internal combustion engines. Vehicles may track dust off the site along the site access routes and if construction material is brought on site in uncovered trucks there is the potential for dust emissions to occur.

Landfill restoration is not included as part of this variation but is likely to include placement of gravel on the landfill surface (BESS development platform), with seeded topsoil on PFA slopes to allow for landfill restoration activities to occur in future (detail not included in this application, but that will form part of a wider scheme include meeting the Client's biodiversity net gain targets).

The proposed final layout of the BESS would include provision for access to complete long-term monitoring during the aftercare phase prior to permit surrender.

Handling of the PFA material can be suitably controlled using common dust control techniques and mitigation, such as:

- reduced drop heights;
- dampening of surfaces and material;
- covered lorries;
- avoidance of double handling; and
- and the number of plant and machinery required.

The site would primarily rely on water damping down systems to suppress dust emissions during the construction of the BESS development.

Temporary stockpiles of PFA on-site would be formed prior to being relocated to its permanent fill area on-site. Stockpiling PFA is likely to generate dust; to mitigate this, water bowsers fitted with a rain gun will be used to spray the active working area to prevent dust arising.

Where water is used to dampen down surfaces the rate of application will be controlled so as not to create run-off from the landfill cells.

Table 3-1 is the source-pathway-receptor model for the construction activities. Table 3-2 lists the control methods that will be employed.

Table 3-1: Source-Pathway-Receptor Routes

Source	Pathway	Receptor	Type of Impact	What relationship can be interrupted
Construction materials brought to site in uncovered HGVs.	Atmospheric dispersion from vehicle	Sickle Croft Farm	Visual soiling and airborne particulates	Materials arriving in HGVs will be covered preventing emission. Pathway too long - nearest point of access >300 m from receptor therefore unlikely to have impacts.
Dust and mud deposited on external road network.	Atmospheric dispersion from road	Sickle Croft Farm	Visual soiling and airborne particulates	Use of wheel wash for construction vehicles leaving site. Pathway too long - nearest point of access >300 m from receptor therefore unlikely to have impacts at point of exit. No receptors near road for 500m from exit point.
Dust from machinery used to cut and fill PFA	Atmospheric dispersion from vehicles tracking across PFA and site	Sickle Croft Farm Thorpe Marsh Nature Reserve Footpath/bridleway to south	Visual soiling and airborne particulates	Prevention of emission. Pathway relevant only when activities sufficiently close to receptor.
Handling and storage of PFA during reprofiling activities	Atmospheric dispersion from cut and fill, transport and storage of PFA.	Sickle Croft Farm Thorpe Marsh Nature Reserve Footpath/bridleway to south	Visual soiling and airborne particulates	Prevention of emission. Pathway relevant only when activities sufficiently close to receptor.
Vehicle exhaust emissions of vehicles accessing site	Atmospheric dispersion	Sickle Croft Farm	Elevated NO ₂ and PM concentrations	Source can be minimized by traffic management plan. Pathway too long - nearest point of access >300 m from receptor therefore unlikely to have any impacts.
NRMM exhaust emissions	Atmospheric dispersion	Sickle Croft Farm	Elevated concentrations. NO ₂ and PM for human	Source can be minimized via vehicle maintenance and anti-idling. Pathway

Source	Pathway	Receptor	Type of Impact	What relationship can be interrupted
Dust generated during construction activities	Atmospheric dispersion	Thorpe Marsh Nature Reserve	receptors. NO _x for Thorpe Marsh	relevant only when activities sufficiently close to receptor.
		Footpath/bridleway to south Sickle Croft Farm Thorpe Marsh Nature Reserve Footpath/bridleway to south	Visual soiling and airborne particulates	Prevention of emission. Pathway relevant only when activities sufficiently close to receptor.

Table 3-2: Measures that will be used on site to control dust/particulates (PM₁₀) and other emissions

Abatement Measure	Description/Effect	Overall consideration and implementation	Trigger for implementation
Preventative Measures			
Site speed limit, 'no idling' policy and minimisation of vehicle movements on site	Reducing vehicle movements and idling should reduce emissions from vehicles. Contracting policy to only purchase clean burn road vehicles and non-road going mobile machinery. Enforcement of a speed limit will reduce re-suspension of particulates by vehicle wheels.	Implemented as part of CEMP for the work.	Implemented during the construction works; work planning will involve optimizing cut and fill activities to minimize handling of material and on-site vehicle movements.
Minimising drop heights for PFA when redepositing material	Minimising the height at which waste is handled should reduce the distance over which debris, dust and particulates could be blown and dispersed by winds.	Implemented as part of CEMP for the work.	Implemented during the construction works
Good housekeeping	Having a consistent, regular housekeeping regime will ensure site is regularly checked and issues remedied to prevent and remove dust and particulate build up.	Implementation as part of CEMP for the work.	Implemented during the construction activities.
Sheeting of vehicles	Prevents the escape of debris, dust and particulates from vehicles as they travel.	Implementation as part of CEMP for the work.	Implemented during the construction activities.
Ceasing operation during high winds and/or prevailing wind direction	Mobilisation of dust and particulates is likely to be greater during periods of strong winds and hence ceasing operation at these times may reduce peak pollution events.	Implementation as part of CEMP with appropriate procedures as to when used.	Applicable only for easterly or northerly winds in dry conditions; Sickle Croft Farm too far from activities to be significantly impacted.
Installed wheel wash	Wheel wash to remove mud and debris from vehicles prior to them leaving the site.	Implementation as part of CEMP at site access with equipment details and procedures for its used described therein. Hosed water	Will be used during construction activities involving vehicles accessing earthworks areas.

Abatement Measure	Description/Effect	Overall consideration and implementation	Trigger for implementation
<p>Minimisation of height of temporary PFA storage mounds prior to placing material, minimizing duration of temporary storage.</p>	<p>Minimising the height at which waste is handled and the time period that it is temporarily stored should reduce the distance over which debris, dust and particulates could be blown and dispersed by winds.</p>	<p>supply available in the event that wheel wash is unavailable.</p> <p>Implementation as part of CEMP for the work.</p>	<p>Consider throughout work. May be limitations at times in terms of available locations to store material consistent with efficient cut and fill operations.</p>
Remedial Measures			
<p>Water suppression with hoses</p>	<p>Damping down of site areas using hoses can reduce dust and particulate re-suspension and may assist in the cleaning of the site if combined with sweeping.</p>	<p>Implementation as part of CEMP for the work.</p>	<p>Potential to be used on areas used for storage of potentially dusty construction materials</p>
<p>Water suppression with bowser</p>	<p>Damping down of site areas can reduce dust and particulate generation and re-suspension.</p>	<p>Implementation as part of CEMP for the work.</p>	<p>Using bowzers to damp down surface of cut and fill areas and areas subject to construction activities (installation of infrastructure for BESS including piling residue) in dry weather. Exposed surfaces to be damped down so as to prevent drying out overnight or when no work is being undertaken. Water applied to avoid pooling and run-off generation.</p>

3.3 Other considerations

3.3.1 Water usage/availability

In the event of severe weather conditions i.e., dry weather with high winds, the Site Manager will decide whether to cease activities with the main emphasis of reducing any dust impacts. In the event of any unforeseen circumstances i.e., faulty equipment, lack of water supply, the technically competent operator will assess whether to cease activities with the main emphasis on site will be to reduce any dust impacts. Wheel washing will be available to minimise dust generation in all climatic conditions and used more frequently during dry weather conditions.

3.4 Visual Dust Monitoring

A site dust log will be established and kept on-site to inspect and monitor any dust episodes. The site dust log will be used to record:

- the time, date and result of the routine site dust inspections;
- the time and date of any exceptional dust incident on or off-site, and any steps taken to remedy the incident; and
- the details of any dust complaint and the action taken relating to the complaint.

The site dust log will be kept up to date and will be issued to CDC upon request. Supporting photographs taken will be appended to the report where relevant.

A daily visual inspection during working hours will be carried out by the Site Manager, or an appropriately trained operator for visible dust emissions and deposition in the vicinity of the site boundary (internal and external).

The results of this inspection shall be clearly recorded in the Daily Dust Monitoring Form (Appendix 2) and will include observation of dust deposition on surfaces on-site and off-site, such as on vehicles, signs and other discernible surfaces.

If significant dust is identified beyond the site boundary, a Dust Complaint Form (DCF) form will be completed (Appendix 3) as described in Section 5.2.

4. Particulate Matter Monitoring

The prevailing wind is such that only Sickle Croft Farm is downwind, and the pathway is sufficiently long so as not to give rise to significant impacts.

The Thorpe Marsh Nature Reserve is only at risk from dust soiling for cut and fill activities within 50 m of it which limits the activities that could impact upon the nature reserve. For visitors to the nature reserve and users of the footpath/bridleway running around the southern boundary (assuming that it is reopened) the potential exposure will be transitory in nature. As there are limited time periods when the winds will be blowing towards these receptors then a fixed monitoring location is not considered appropriate.

The management and monitoring of particulate matter will therefore be undertaken by visual assessment.

An action plan will be implemented on the basis that:

- there is an unacceptable visual emission of particulate matter from the site, or
- a complaint is received in relation to emissions to air.

An unacceptable visual emission of particulate matter from the site comprises a visual observation of dust or particulate matter crossing the site boundary. The initial observation will be made by the site personnel who has identified the emission and will be verified by the technically competent manager. If an unacceptable visual emission is observed by on-site personnel, the action plan will be implemented immediately.

5. Reporting and Complaints Response

The following actions will be taken in the event of obvious visual impacts and / or complaints:

- on-site activities will be immediately inspected to identify likely sources;
- if on-site sources are identified as resulting in off-site dust deposition, the relevant activities will be halted until remedial mitigation activities can be implemented (e.g., wetting down, road sweeping, sheeting up);
- the activity will then be monitored to ensure that the mitigation measures are working and there is no repeat incident;
- should a complaint be received, the complainant will be contacted by the person on-site responsible for community liaison; and
- incidents and actions taken will be recorded in the Site Log.

5.1 Engagement with the Community

A Community Liaison Committee will be established prior to commencing the site's construction and meetings will be held regularly during the construction phase. Meetings will also be held at a frequency agreed by the committee, and during the operational phase.

The purpose of the committee will be to discuss relevant issues that arise out of the development which could have an effect on people living or working in nearby properties or enjoying nearby land. Representatives from the local Environmental Health Department, Councillors, the Environment Agency and local residents will be invited to join representatives of Thorpe March BESS and the contractor's representatives to form the committee.

The aim of the committee would be to act as a forum for the exchange of information on the progress of the site and company to listen to any views of local residents relating to the development and to respond accordingly.

Environment audit findings will be presented to the liaison committee.

5.2 Reporting of Complaints

If significant dust is identified beyond the site boundary, a Dust Complaint Form (DCF) form will be completed (Appendix 3), and immediate investigation (e.g., through cross checking of site activities and monitoring data) and remedial action should be undertaken. The Site Manager will review the DCF regularly to ensure that any necessary actions have been implemented, and to identify problem areas where additional mitigation against further dust emissions may be necessary. The Environment Agency will be issued the DCF form within 24 hours or the next working day if it occurs at a weekend or bank holiday.

5.3 Summary

The DEMP provides a review of the activities likely to give rise to dust and emissions during the creation of the development platform for the BESS. The construction activities will involve the reprofiling of PFA within the site and no waste materials will be brought on or exported from the site.

Whilst permitted as a landfill, the work essentially is construction in nature. When dry, PFA is a potentially dusty material and therefore there is the potential to generate fugitive dust emissions when the PFA is removed, temporarily stored and redeposited within the landfill cell. Other construction activities such as creating drainage, ducting, piling and foundations also have the potential to create dust within the site. Vehicles bringing equipment and staff to the site and equipment involved in the work will release NO_x and PM.

There are few sensitive receptors that have the potential to be impacted by dust and emissions from the construction activities. The nearest residential property, whilst downwind of the prevailing wind direction, is sufficiently remote from the majority of activities such that it is unlikely to be impacted. The Thorpe Marsh Nature Reserve, visitors to it and users of the footpath and bridleway around the southern boundary could be subject to transient exposure if the wind is in the right direction and conditions are dry and construction activities are occurring nearby.

The principal means of preventing impacts occurring is to ensure that surfaces are kept damp whilst also minimising the potential for site run-off. Visual inspections will be employed to ensure that effective control of dust emissions is maintained; inspections will be recorded and logged. Emissions from non-road mobile machinery will be minimised via maintaining the equipment in accordance with manufacturer's recommendations, efficient planning of the work and anti-idling.

The DEMP will be reviewed in line with the Environmental Management System.

Appendix 1 Location plans of dust and particulate suppression systems

No permanent dust suppression systems will be used; the systems will be mobile as the activities vary across the site.

Appendix 2 Daily Dust Monitoring Form

Date	Time	Monitoring location	Weather conditions	Investigative action taken (to include on- and off-site observations)	Dust mitigation in place	Additional remedial measures undertaken to ensure compliance with the AQDMP	Preventative measures implemented to prevent further dust exceedances	Name and position of assessor	Signed by

Appendix 3 Dust Complaint Form

Complaint Details	
Name	
Address and Postcode	
Contact details	
Telephone	
Email	
Date of incident	
Reference Number	
Complaint details	
Investigation Details	
Investigation carried out by	
Position	
Date and time	
Weather conditions	
Wind direction and speed	
Investigation findings	
Feedback given to the Environment Agency and/or local authority	
Date feedback given	
Review and Improve	
Improvements needed to prevent a reoccurrence	
Proposed date for completion	
Actual date of completion	
Reason for delay (if necessary)	
Does the dust management plan need to be updated?	

Date that the dust management plan was updated.	
Closure	
Site manager review date	
Site manager signature to confirm no further action required	