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CONTENTS

DOCUMENT REFERENCES

TABLES
Table 3.1

DRAWINGS
Drawing ESSD1 Site Location
Drawing ESSD2 Environmental Site Setting
Drawing ESSD3 Cultural and Natural Heritage
Drawing ESSD4 Site Layout
Drawing ESSD5 Phasing Plan
Drawing ESSD6 Restoration
Drawing ESSD7 Landfill Gas Management
Drawing ESSD8 Regional Geology Drawing
ESSD9 Regional Hydrogeology
Drawing ESSD10 Local Hydrogeology and Hydrology
Drawing ESSD11 Conceptual Model
Drawing ESSD12 Source, Pathway, Receptors
Drawing ESSD13 Inert Recycling Facility

Appendix A: Landfill Site and Treatment

1.0 Introduction

Enviroarm Limited has been instructed by NRS Woodcote Aggregates Ltd to prepare an Environmental Permit Application for the Woodcote Wood Quarry Landfill under the Environmental Permitting (EP) (England and Wales) Regulations 2016 for inert waste landfill and a recycling area (WTS).

1.1 Methodology

This Environmental Risk Assessment (ERA) is an assessment of the risks to the environment and to human health that may be associated with the proposed operations at the site.

The assessment has been completed in accordance with the Environment Agency (EA) Technical Guidance *'Risk Assessments for your Environment Permit'* (May 2023)[1]. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

This ERA uses the following approach for identifying and assessing the risks from the proposed operation:

Step 1 Identify risks and sources of risk from your activity.

Step 2 Where risks are identified from Step 1 then identify the receptors that could be affected

Step 3 Identify potential pathways between the sources of risk and receptors

Step 4 Assess the risks and check that they are acceptable. Justify appropriate measures to control your risks, if necessary.

Step 5 Submit your assessment.

The ERA for an EP application requires all receptors that are near the site and could reasonably be affected by the activities to be identified and considered as part of the assessment.

For the purposes of this ERA and given the nature of the landfill and associated WTS, a 2km radius from the site's EP boundary has been adopted in reviewing potentially sensitive receptors of ecological importance along with features such as sites of cultural and natural heritage. A radius of 1km from the site's EP boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

Section 2.0 of this document is a screening step to identify the risks requiring consideration as part of this assessment. Section 3.0 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. Section 4.0 of this document presents the assessment and demonstrates that any risks of pollution or harm will be mitigated to manage the risk.

This ERA should be read in conjunction with the following documents submitted with this EP application;

- Environmental Setting and Site Design Report (Ref:ESSD/WWQ/NRS/1.00/2023);
- Noise Assessment Report (Ref: NA/WWQ/NRS/1.00/2023);
- Dust Assessment Report (Ref; NA/WWQ/NRS/1.00/2023)
- Waste Acceptance Procedure (WAP) (WAP/WWQ/NRS/1.00/2023);

[1] https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit,

2.0 Identifying the Risks

Step 1 is a screening step to identify the potential risks to the environment from the development. The following are generally considered to require assessment for bespoke operations:

- Amenity and Accidents;
- Site Waste;
- Global Warming Potential;
- Noise,
- Fugitive Emissions to Air, Water and Land; and
- Accidents.

As a result of this EP application, the amenity and accidents, noise and fugitive emissions have been assessed based on the proposed activities included within Section 4 of this ERA.

3.0 Site Setting and Receptors

3.1 Site Setting

The site is off the A41 in Weston Heath, Sheriffhales, Shropshire, 5km south of Newport town centre and 4.2km north of the A5. The centre of the site is at National Grid reference SJ 77036 14780 and the site entrance is SJ 77388 14944 see Figure 1 and Drawing ESID 1.

The Site comprises 22.4 hectares of agricultural land, which includes a woodland area. The site is a quarry.

The remaining land use immediately surrounding the proposed site is predominately agricultural land, with scattered residential and commercial premises. Access to the site will be via A41. The site's location is illustrated on Drawing ESSD2, and the site layout on Drawing ESSD4.

All surrounding land uses and receptors within 1km are identified on Drawing ESSD2 and all cultural and natural heritage is illustrated on Drawing ESSD3.

The immediate surrounding land uses are described in further detail below.

Table 3.1: Receptor List identified on ESSD 2.

Type of Receptor	Receptor Name	Location to site	Elevation m AOD
Domestic Dwelling Receptor	**DR1**	Coach House Cottages and Woodcote Hall, set in woodlands with trees from the site as well protecting it and fields used for agriculture	124m AOD
Domestic Dwelling Receptor	**DR2**	Brandon House, A41. There are trees and the landfill site and fields used for agriculture	104m AOD
Domestic Dwelling Receptor	**DR3**	Chadwell Lane. There are trees around the site and fields used for agriculture	108m AOD
Domestic **Dwelling Receptor**	**DR4**	Bloomsbury is lower down than the site and the site has trees towards this area and there are fields used for agriculture	114m AOD
Domestic Dwelling Receptor	**DR5**	Cherry Tree Farm and Broad Oak are at the Same height as the landfill has trees towards this area and there are fields used for agriculture	130m AOD
Domestic Dwelling	**DR6**	Ridge Hose is nearest the landfill to the south west	150m AOD

Receptor		at 145m and has trees between it and the landfill	
Domestic Dwelling Receptor	**DR7**	Heath Ridge has trees between it and the landfill and fields used for agriculture	150m AOD
Commercial Receptor	**IR1**	Bloomsbury Garage 464m away from site with tree line at edge of site	114m AOD
Surface Water Receptor	**SW1**	Small Pond by Coach House	112m AOD
Surface Water Receptor	**SW2**	Small ponds by Coach House	110m AOD
Surface Water Receptor	**SW3**	Bolams Brook which leads into Lynn Brook	104m AOD
Surface Water Receptor	**SW4**	Small pond at Bloomsbury	112m AOD
Surface Water Receptor	**SW5**	Pond near Cherry Tree Farm	114m AOD
Surface Water Receptor	**SW6**	Pond at Barbers Gorse	122m AOD
Roads and highways	**HA1**	A49 which runs north and south of the site	104m AOD to the north of the site 120m AOD to the south
Roads and highways	**HA2**	Lynn Road	110m AOD
Roads and highways	**HA3**	Chadwell Lane	110m AOD
Roads and highways	**HA4**	B4379	112m AOD
Roads and highways	**HA5**	Heath Hill Lane	100m AOD
Roads and highways	**HA6**	Nutty Hill Farm Lane	100m AOD

3.2 Geology

The Woodcote Wood Quarry is located in sands of the Chester Formation. The quarry consists of a uniform, brownish red sandstone. The sandstone is medium too coarse grained, micaceous and feldspathic.

The strata dips easterly. The local strata dips at approximately 7º.

The local bedrock geology is also presented at Figure 2. The bedrock geological map is presented at Drawing ESSD11.

3.3 Hydrogeology

3.3.1 Aquifer Characteristics

The site is located on a Primary A aquifer.
[4]
The site is not located within a Source Protection Zone (SPZ III). Aquifer summary data is presented at Appendix ESSD 5.

Aquifer Properties

The Woodcote Wood quarry and Aqualate Mere both lie within the Shropshire Middle Severn-Permo Triassic Sandstone East groundwater catchment. However, due to the high clay content in the Till and Glaciofluvial deposits underlying the Aqualate Mere and acting as an impermeable barrier to vertical groundwater movement from the underlying bedrock aquifer, if there is a groundwater input into Aqualate Mere it is likely to be locally derived from permeable layers of sand and gravel within the glaciofluvial and alluvium deposits. Groundwater flow and direction in the superficial deposits surrounding Aqualate Mere tends to reflect local topography and be towards Aqualate Mere lake.

Groundwater levels have been monitored around Woodcote Wood Quarry and the hydrograph and results are presented at Appendix HRA 5. The borehole logs are presented at Appendix HRA 4.

The groundwater flow is eastwards and is presented at Figure 7 and the groundwater flows are presented at Drawing HRA 2 and has a hydraulic gradient between 0.0235m/m.

The unsaturated zone permeability range for use in LANDSIM modelling has been set at as follows: Lower 2.46 x 10^{-5}m/s. Average 1.95 x 10^{-5}m/s Upper limit of 1.007 x 10^{-4}m/s.

Porosity is averaged at 28.3% for the Chester Formation.

Source Protection Zones

The site does lies within a Source Protection Zone (SPZIII), see ESSD9.

4.1 Hydrology

The site is not within a Flood Zone. The local indicative flood map is presented as on Drawing ESSD8.

4.2 Ecology

The following information has been assessed in order to determine the ecological site setting:

- MAGIC Mapping Website[6];

4.2.1 European/International Sites

An ecological screening was not requested from the Environment Agency. The site is not designated a Local Wildlife Site, devoid of trees and grass except for the boundary which is to remain unchanged and is not within a RAMSAR,SAC or SPA.

4.3 Cultural and Heritage

Information provided by EA indicates numerous Listed Buildings within 2km of the site. The closest of each to the site is shown below:

Lilleshall Abbey

Iron Age farmstead adjacent to The Croft, Pave Lane

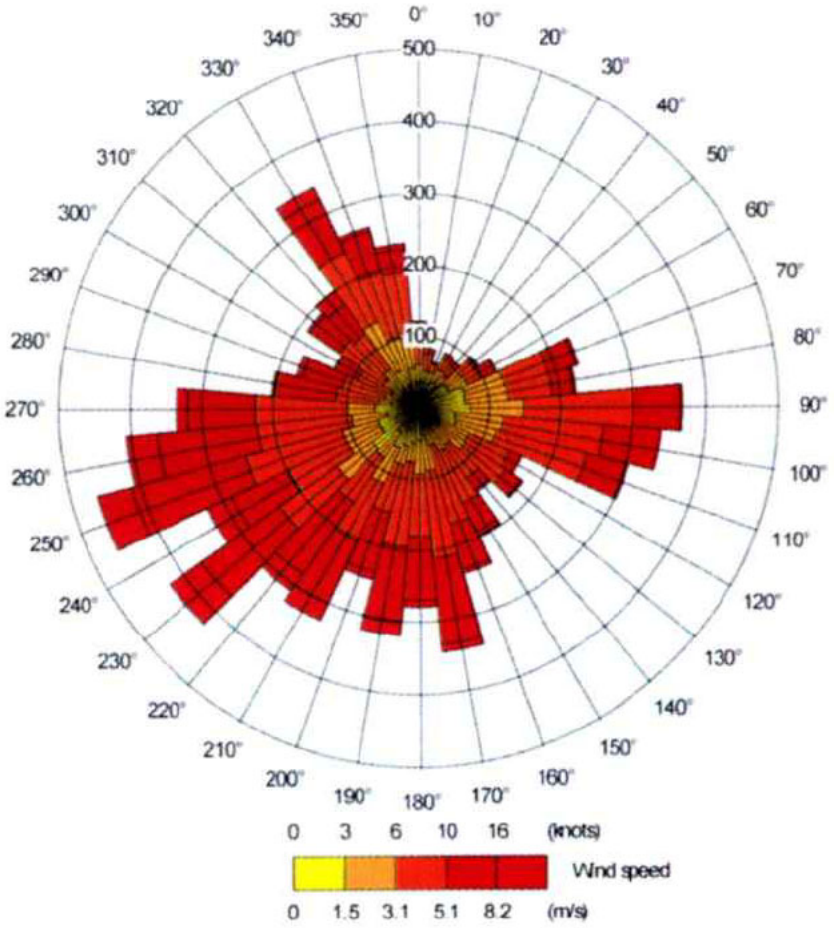
Lilleshall Hill Local Nature Reserve

Granville Country Park Local Nature Reserve

4.4 Windrose

The windrose shows that winds from the south west and west south western quarters are more frequent and winds.

Figure 4-1
Shawbury Meteorological Station



4.0 Environmental Risk Assessment

The following tables in this section assess the site in terms of potential hazards posed, receptors and pathways, along with management and assessment of the identified risks.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows;

- Low: exposure is unlikely, barriers in place to mitigate against exposure.
- Medium: exposure is fairly probable, barriers to exposure less controllable.
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outlined in Section 1.1 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of 'not significant' has been reached, it is proposed that the mitigation and management measures that will be in place at the site will be sufficient to ensure that there will be no impact at the surrounding environment.

Appendix A and Appendix B show the tables for the landfill and treatment.

Noise limits have been set for various areas around the site and are covered below

Location	Noise Limit LAeq (1hr)
Woodcote Hall	47
Brandon House	49
1 Chadwell Lane	50
88 Bloomsbury	46
Pine Ridge	49

Notwithstanding the planning permission and the noise risk assessment, noise levels shall not exceed 70dB(A) LAeq 1h (free field) at any sensitive properties during temporary operations such as soil stripping. The increase in noise levels allowable for temporary operations shall not apply for more than 8 weeks in total in any one year.

A noise monitoring scheme to demonstrate ongoing compliance with the noise limits specified in the panning permission and noise assessment above shall be submitted to the Local Planning Authority prior to the Commencement Date and the approved measures shall thereafter be implemented in full.

All plant and machinery used within the Site shall incorporate silencers in accordance with the manufacturers' specification and those silencers shall be maintained in good condition.

All quarry plant and machinery which is required to be fitted with reversing alarms shall be fitted with attenuated or non-audible reversing alarms rather than reversing bleepers.

5.0 Conclusion

This ERA has been undertaken as described by regulatory guidance issued by the EA[1]. The assessment is provided as part of the application for an environmental permit application for the Woodcote Wood Quarry Inert Landfill.

This qualitative risk assessment has considered odour, noise, fugitive emissions, dust, releases to water, litter, and potential for accidents and incidents. The assessment concludes that with the implementation of the risk management measures described above, potential hazards from the proposed development are not likely to be significant and no further assessment is required. An DMP and NMP have been prepared in support of this ERA.