MANTON QUARRY RESTORATION

Environmental Permit Application

Environmental Setting and Site Design

Prepared for: Brianplant (Humberside) Limited

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CONTENTS

DOCUMENT REFERENCES

TABLES

FIGURES

DRAWINGS

Drawing 0726-1-8	Site Location Plan
Drawing 001	Environmental Permit Boundary
Drawing 002	Cross Sections
Drawing 003	Environmental Site Setting
Drawing 0726-1-13	Restoration Concept

1.0 Introduction

1.1 Report Context

SLR Consulting Limited (SLR) has been retained by Brianplant (Humberside) Limited (Brianplant) to prepare an Environmental Permit (EP) application. The application seeks approval for the use of suitable waste material in the restoration of Manton Quarry (the Site), located near Manton, North Lincolnshire DN21 4JT as a waste recovery operation under the Environmental Permitting (EP) (England and Wales) Regulations 2016.

The location of the site is illustrated on Drawing 0726-1-8.

This report sets out the environmental setting and site design, and it should be read in conjunction with the supporting risk assessments submitted with this EP application. Herein the facility will be referred to as 'the site'.

This ESSD has been prepared to support the addition of a waste recovery activity at the site only.

2.0 Site Details

2.1 Site Location and Access

Manton Quarry is located in North Lincolnshire, approximately 510m southeast of the village of Manton, within a predominately agricultural area. The site is accessed via Manton Lane which is located approximately 130m north of the site's boundary. The National Grid Reference (NGR) for the Site is SE 93976 02420.

The entire site is designated as a geological SSSI called Manton Stone Quarry SSSI. It is considered to be a key exposure of the more northerly development of the Lincolnshire Limestone. Four other SSSIs are located within close proximity. These include Cleatham Quarry which lies approximately 640m south, Cliff Farm Pit which is situated approximately 1170m south, Manton & Twigmoor which is located approximately 1290m north, and Messingham Sand Quarry which lies approximately 2490m northwest.

Most of the land surrounding the site is occupied by open/agricultural ground with a few quarries located within the surrounding area including Kirton Quarry and Landfill to the southeast, approximately 50m from the eastern EP boundary.

A summary of the potentially sensitive environmental receptors located within the vicinity of the EP boundary are presented in Table 2-1 and are illustrated on Drawing 003.

Table 2-1
Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (in metres)
Local receptors located within 500m of the Site boundary as shown on Drawing 003			
Principal Aquifer	Principal Aquifer	N/A	N/A
Open Ground	Open Ground	South	Adjacent
Manton Quarry	Commercial/Agricultural Premises	North	Adjacent
Manton Quarry	Commercial/Agricultural Premises	East	Adjacent
Manton Quarry	Commercial/Agricultural Premises	West	Adjacent
B1398	Local Transport Network	East	30
Traditional Orchard Priority Habitat	Woodland	South west	40
Kirton Quarry and Landfill	Industrial/Waste Facility	East	50
Drain	Surface water feature	North east	60
Drain	Surface water feature	North east	70
Manton Lane	Local Transport Network	North	130

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (in metres)
Pond at Kirton Quarry	Surface Water Feature (man-made)	South east	220
Manton Place	Residential	West	350
Deciduous Woodland Priority Habitat	Woodland	West	360
Drain	Surface Water Feature	North	420
Newlands Farm	Residential	East	470
Ecological and Cultural and Natural Heritage identified within 1km of the Site boundary as shown on Drawing 003			
Manton Stone Quarry SSSI	SSSI	N/A	Located within the boundary
Church of St. Hybald	Grade II Listed Building	West	480
Cleatham Quarry SSSI	SSSI	South	640
Cleatham Hall Barn Approximately 70 Metres North of Cleatham Hall	Grade II Listed Building	South west	640
Cleatham Hall Tack Room and Dog Kennel Approximately 40 Metres North of Cleatham Hall	Grade II Listed Building	South west	670
Cleatham Hall Coach House and Stables Approximately 50 Metres North of Cleatham Hall	Grade II Listed Building	South-West	670
Cleatham Hall	Grade II Listed Building	South west	690

2.2 Ecology

2.2.1 European/International Sites

The Multi-Agency Information for the Countryside (MAGIC)[1] website has been accessed to determine the presence of any European or Internationally designated sites within a 1km radius from the site's EP boundary. This search confirmed that there are none of the following within 1km of the site's boundary:

- RAMSAR sites;
- Special Area of Conservation (SAC); and
- Special Protection Areas (SPA).

[1] Multi-Agency Information for the Countryside – Available at: http://www.magic.gov.uk, accessed January 2022.

The search did confirm that there are two SSSIs located within 1km of the site boundary. The entire site is designated as a geological SSSI called Manton Stone Quarry SSSI. A further SSSI called Cleatham Quarry lies approximately 640m to the south.

2.2.2 Nationally Designated Sites

The MAGIC map website has been assessed to determine the presence of any Nationally Designated sites within a 1km radius from the site's EP boundary. The search confirmed that there are none of the following within 1km of the site's boundary:

- Ancient Woodlands;
- National Nature Reserves (NNR);
- Local Nature Reserves (LNR);
- Areas of Outstanding Natural Beauty (AONB); and
- National Parks.

2.3 Cultural and Heritage

2.3.1 Listed Buildings

There are several listed buildings within a 1km radius of the site boundary. All of the listed buildings located within the 1km radius are Grade II listed. The closest to the site boundary is the Church of St. Hybald which is located approximately 480m to the west.

Searches on the MAGIC map website confirm that there are none of the following within 1km of the site's boundary:

- National Trust Properties;
- Scheduled Monuments;
- World Heritage Sites;
- Registered Battlefields; and
- Registered Historic Parks.

2.4 Site Classification

The specified waste management activities that will be carried out at the site as part of the waste recovery operations are as follows:

- R5: Recycling / reclamation of inorganic compounds – use of waste for the purpose of restoration of land.

The use of waste for the restoration of Manton Quarry is fully detailed within the Waste Recovery Plan (WRP).

Proposed activities at the site will be regulated under the Environmental Permitting (England and Wales) Regulations 2016.

2.5 Application Boundaries and Site Security

The EP Boundary is illustrated on Drawing 001. The Restoration Scheme Proposals are illustrated on Drawing 0726-1-13 Restoration Concept.

The site benefits from the following infrastructure to keep the site secure, and prevent unauthorised access:

- Visitor Sign in/Sign out book;
- Security lighting; and
- Perimeter fencing and lockable gates.

3.0 Source Term Characterisation

3.1 Site Development

3.1.1 Historical Development

Planning permission was originally granted by Glanford and Brigg Rural District Council for limestone quarrying at Manton in 1971 (Ref: GB/99/71) and covers an area which extends to 51 hectares. This permission required the site to be restored "to a condition suitable for agricultural use". This requirement has been carried through to the most recent planning permission (MIN/2016/556) from 2016. However, due to part of the wider site being designated as a geological SSSI, only the area illustrated on Drawing 001 must be restored to agricultural land in accordance with the approved restoration concept illustrated on Drawing 0726-1-13. Further details are explained in Section 2.1 below. The initial review of the original consent (Ref: GB/99/71) was undertaken in 1997 (Ref: 1997/1527).

In 2001 enquiries were made regarding the recycling of construction, demolition and excavation wastes on site to create soil products. North Lincolnshire Council confirmed that no planning application was required for the continuation of recycling activities.

The first periodic review of the permission was due in 2013 however North Lincolnshire Council failed to serve notice. Therefore, an extension was granted until April 2016 to prepare an application for the periodic review.

Across significant areas of the quarry all economic mineral has been worked out, with the partial restoration of the northern and north western area of the site aiming to provide a range of calcareous grassland, exposed quarry faces and other habitats. Much of the south eastern area of the quarry has also been backfilled using materials from the ongoing quarrying operations but its' final restoration to agriculture remains incomplete.

The site's most recent planning permission from 2016 (Ref: MIN/2016/556) supersedes previous planning permissions.

Table 2 – Recent Planning History

Application Reference No.	Description of Proposed Development	Date	Outcome
MIN/2016/556	Application for the determination of conditions to which a mining site is to be subject. First periodic review of mineral planning permission at Manton Quarry (original planning reference GB/99/71, previously subject to initial review under reference number 1997/1527).	9 August 2016	Granted with Conditions

3.1.2 Proposed Waste Recovery Activity

This EP application seeks to authorise the use of suitable imported waste materials, as a waste recovery operation, restoring the central, eastern, and southern areas of the site to create 7 hectares of agricultural land. This will re-integrate the site into the surrounding landscape which consists mostly of agricultural land. The south eastern section of the quarry has already been returned to close to original levels and this area only requires final profiling and re-soiling to complete restoration.

It is a requirement of the Planning Permission that the quarry is restored in line with the approved restoration concept and the Environmental Statement therefore re-soiling the area using 2m of soil products and returning the land to a condition suitable for agricultural use which will integrate into the surrounding landscape. The site will be infilled to between 66m and 68m AOD and profiled to drain to the east with a slope of less than 1 in 50.

This will achieve the planning requirement to restore the site in line with the approved restoration concept and in accordance with details in the Environmental Statement.

The restoration will be undertaken over five phases. The first phase shall commence at the southern corner of the site, with infilling in the southern and central areas. Subsequent phases will follow as the first phase is completed with phases 4 and 5 infilling the area where the weighbridge currently sits. Infilling will be carried out progressively, based upon the availability of suitable waste materials.

Condition 1 of the first periodic review of the planning permission (Ref: MIN/2016/556) states that all site works must be completed, and the site must be restored in accordance with the approved restoration concept by 24 February 2042.

The proposed restoration concept is illustrated on Drawing 0726-1-13.

3.2 Quantity of Permitted Wastes

To restore the site in keeping with the Environmental Statement and the restoration concept approximately 146,000m^3 of material will be required at a depth of 2m. This will consist of:

- 1.7m of waste material; and
- 0.3m of waste topsoil created from recycled soils and stones.

This equates to approximately 321,200 tonnes at an assumed density of 2.2t/m^3.

3.3 Permitted Waste Types

It is proposed that only suitable waste material that is suitable for its intended use will be used in the restoration of the site.

The waste categories which will be employed for restoration of the site are detailed in Tables 3 and 4 below. These waste types have historically been accepted by the EA as being potentially suitable for recovery (and are listed as acceptable in the Standard Rules SR2015 No39 Use of Waste in a Deposit for Recovery Operation and the Check if Your Waste is Suitable for Deposit for Recovery Guidance).

Strict waste acceptance procedures will be in place at the site to ensure that non-conforming waste is not accepted at the site, as described in the Waste Acceptance Criteria (WAC) and Waste Acceptance Procedures (WAP) included as Appendix 03 to the OT and EMS in Section 7 of this EP application. All waste accepted at the site will be suitable for deposit, and no contaminated materials will be accepted. Documentation will accompany all waste material accepted, which will be reviewed in accordance with the site's waste pre-acceptance and acceptance procedures to ensure any materials used are suitable for use in the restoration operations.

These procedures will ensure that only materials that are both chemically and physically suitable for use in the recovery activity will be accepted at the site.

Table 3 List of Waste Types to be Accepted for General Fill

EWC Code	Description
17	CONSTRUCTION AND DEMOLITION WASTE
17 05	Soil Stones and Dredging Soil
17 05 04	Soil and Stones

19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 12	Waste from the mechanical treatment of waste
19 12 12[2]	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	MUNICIPAL WASTE (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS.
20 02	Garden and Park Wastes
20 02 02	Soil and stones

Table 4 List of Waste Types to be accepted for Topsoil

EWC Code	Description
17	CONSTRUCTION AND DEMOLITION WASTE
17 05	Soil Stones and Dredging Soil
17 05 04	Soil and Stones
20	MUNICIPAL WASTE (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS.
20 02	Garden and Park Wastes
20 02 02	Soil and stones

3.4 Consideration of Schedule 22 of the EPR 2016

There are no direct or indirect discharges to groundwater proposed as part of the activities.

[2] This will exclude metal from reinforced concrete and fines from treating any non-hazardous waste or gypsum from recovered plasterboard and no hazardous waste or dangerous substances will be included in accordance with EA Guidance *Check if your waste is suitable for deposit for recovery, 21 April 2021*.

4.0 Pathway and Receptor

4.1 Geology

A review of the British Geological Survey (BGS) map[3], reveals that the majority of the site is underlain by a bedrock of Kirton Cementstone Beds - Mudtsone and Limestone interbedded, which is indicative of a local environment previously dominated by shallow carbonate seas. In a small portion of the south of the site the bedrock is comprised of Hilbaldstow Limestone - Limestone Ooidal which again is indicative of a local environment previously dominated by shallow carbonate seas.

There are no records regarding superficial deposits at the site.

4.1.1 Flooding

The gov.uk flood map for planning confirms that the site lies within a Flood Zone 1 and therefore has a low probability of flooding. This is defined as land having a less than 1 in 1000 year annual probability of flooding from rivers[4].

4.1.2 Surface Water

Four surface water features were identified within a 500m radius of the site boundary:

- A drain is located approximately 60m to the north east;
- A drain lies approximately 70m to the north east;
- A drain is located approximately 420m to the north; and
- Multiple bodies of water are located within Kirton Quarry to the east of the site. The closest of these is a pond which lies approximately 220m south east. These are likely to be man-made surface water management ponds linked to the operation of the quarry and the landfill.

4.1.3 Surface Water Quality

Surface water quality is not monitored at or around the site and there are no surface watercourses present within the immediate vicinity of the site.

4.2 Hydrogeology

4.2.1 Aquifer Characteristics

The bedrock underlying the site is classified as a Principal Aquifer on the MAGIC map[5]. Principal Aquifers are described by the EA as “layers of rock or drift deposits 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”.

The superficial deposits are classed as unproductive.

The Groundwater Vulnerability layer on the MAGIC map reveals that the site lies within an area known for groundwater vulnerability classified as high with soluble rock risk.

[3] British Geological Survey Map (BGS) – Available at: https://mapapps.bgs.ac.uk/geologyofbritain/home.html, accessed January 2022
[4] Flood Map for Planning https://flood-map-for-planning.service.gov.uk, accessed January 2022.
[5] Multi-Agency Information for the Countryside – Available at: http://www.magic.gov.uk, accessed January 2022

4.2.2 Water Resources and Abstractions

The site boundary does not fall within a Source Protection Zone (SPZ). However, the southernmost point of the site, is approximately 700m from a Zone II – Outer Protection Zone, at its closest point.

4.2.3 Groundwater Flow and Groundwater Quality

The restoration layer, that this EP applies to, is located above the backfilled quarry and above ground. There will be no impact to groundwater from the deposit of waste material. Therefore this information is not applicable.

4.3 Man-made Subsurface Pathways

The site is located within a predominantly agricultural area with the nearest residential receptor approximately 350m from the EP boundary. As such it is unlikely that there are any man-made subsurface pathways associated with buried services in close proximity to the site.

4.4 Receptors and Compliance Points

4.4.1 Groundwater

Not applicable.

4.4.2 Surface Water

Surface water features are identified in Section 4.1.2 above. Due to the nature of the proposed operations, no surface water monitoring is required.

4.4.3 Amenity (Nuisance and Health issues)

All sensitive receptors within 500m of the site have been outlined in Table 2-1 and on Drawing 003 Environmental Site Setting. Furthermore, statutory, and non-statutory designated sites within 1km have also been identified.

The amenity and accident risks to these receptors are considered in depth in the Environmental Risk Assessment (ERA) (Ref: 416.01994.00002/ERA) included in Section 5 of this EP application. The compliance point for amenity issues is considered to be the EP boundary which is shown on Drawing 001.

The ERA concluded that, with the implementation of the risk management measures described above, potential hazards from the application are not likely to be significant and no further assessment is required.

5.0 Pollution Control Measures

5.1 Site Engineering

The site will be developed as detailed within the approved WRP and in accordance with the associated planning consent.

Operations at the site will be undertaken in accordance with Brianplant's Operating Techniques (OT) and Environmental Management System (EMS). The OT and EMS will ensure procedures are implemented to achieve appropriate standards for managing environmental impacts.

The recovery activities will be supervised by technically competent persons who hold the necessary Certificate of Technical Competence (CoTC) under the Waste Management Industry Training and Advisory Board (WAMITAB).

The activities to be carried out will be managed and operated in accordance with the OT and EMS document included in Section 7 of this EP application.

Consequently, operational procedures for the management of the site will ensure that all appropriate pollution prevention and control techniques are delivered reliably and on an integrated basis. The OT and EMS assists in maintaining compliance with regulatory requirements and managing environmental impacts.

Restoration operations will be conducted in accordance with an approved method statement and risk assessment, to ensure that the work is carried out to an appropriate standard and in accordance with the requirements set out in part VI of the 1999 Quarry Regulations for formation and compaction. An earthworks methodology will be set out in detail in an engineering specification that will be completed prior to undertaking any works. This will set out requirements for:

- Material acceptance testing and classification;
- Requirements for placement trials;
- Material placement and compaction requirements (method or end product placement);
- Requirements for in-situ testing during and following placement of materials;
- Procedures to be followed where materials or compaction are deemed not to have met the specification; and
- Requirements for any monitoring of the compaction / engineering works.

5.1.1 Basal and Side Slope Engineering

Basal and Sidewall Barrier

N/A as this proposal is for an above ground restoration layer.

Basal and Sidewall Barrier

N/A as this proposal is for an above ground restoration layer.

5.1.2 Capping

There is no formal engineered cap as the restoration layer sits above the restored quarry.

Therefore, no engineered cap is proposed for the site. The site will be finished using imported suitable waste materials to form top-soils as a waste recovery operation as part of this EP application.

5.2 Restoration

The associated planning consent places an obligation on Brianplant to restore the quarry to agricultural land and calcareous grassland in accordance with the approved restoration concept. This EP relates to the restoration of Manton Quarry and the deposit of the final layer of suitable waste material. The restoration concept which is illustrated on Drawing 0726-1-13.

5.3 Management

5.3.1 Surface Water Management

Due to the nature of the operations on site no surface water management is required during restoration activities.

5.4 Post Closure Controls (Aftercare)

Upon completion of the restoration, the site will be returned to agricultural usage and integrated back into the surrounding landscape.

Following completion, the site's condition will be monitored until such a time that it is considered the EP can be surrendered.

With regards to the conditions when permit completion will be attained, these will be satisfied when the site no longer has the potential to cause damage to, or deterioration of, the environment and risk to human health.

6.0 Monitoring

6.1 Weather

6.1.1 Rainfall

The annual rainfall recorded at the two closest Met Office[6] stations to the site for 2021 varies by 674.3mm, as detailed in Table 6-1 below. The average annual rainfall based on records from the two closest weather stations is 945.75mm.

Table 6-1
Rainfall Statistics

Month	Average Precipitation (mm)	
	Sheffield	**Waddington**
January 2021	42.2	89.6
February 2021	66.2	45.6
March 2021	94.5	14.8
April 2021	196.8	5.2
May 2021	125.9	91.4
June 2021	173.6	40.2
July 2021	171.0	82.6
August 2021	99.2	27.4
September 2021	129.6	56.4
October 2021	99.1	73.4
November 2021	53.3	21.2
December 2021	31.5	60.8
Annual Total	1282.9	608.6
Annual Average	**945.75**	

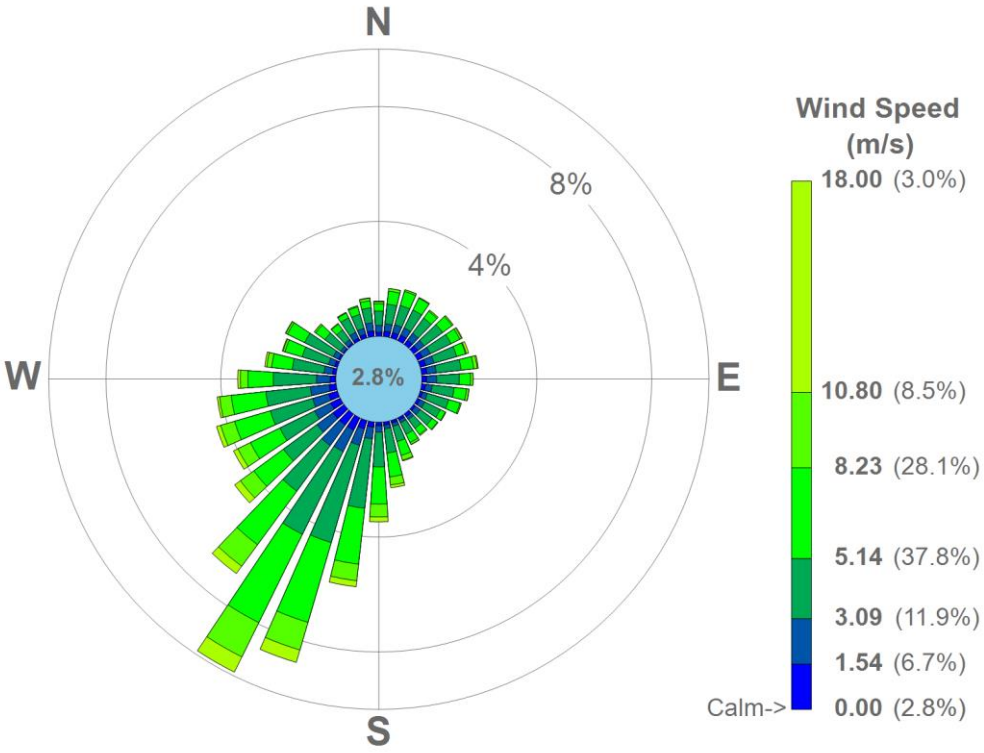
The ongoing monitoring of rainfall is not considered to be applicable to operations on site.

[6] https://www.metoffice.gov.uk/research/climate/maps-and-data/historic-station-data Accessed January 2022.

6.1.2 Wind

Figure 6-1 shows the wind patterns between 2015-2019 as identified by the Humberside meteorological station, which is the closest weather station lying 17.4km east of the site. The most prominent wind direction is from the south-west. Winds from the south-west are frequent with winds from other directions being more infrequent.

Figure 6-1
Humberside Meteorological Station, 2015-2019



Ongoing monitoring of wind speed and direction will be carried out in accordance with the Emissions (Dust) Management Plan (DMP) included in Section 8 of this EP application.

6.2 Gas Monitoring and Infrastructure

Gas monitoring will not be required as the restoration layer is only 2m in depth and above ground, as detailed in the EA's guidance[7].

7.0 Site Condition Report

A Site Condition Report (SCR) is only necessary for a site/area of a site where waste is not being permanently deposited. As all areas covered by the permit at the site are subject to a permanent deposit of waste, a SCR is not needed for this application.

[7] How to apply for an environmental permit to permanently deposit waste on land as a recovery activity (gas monitoring) - Waste recovery plans and deposit for recovery permits - GOV.UK (www.gov.uk)

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