

**ENVIROARM LIMITED**

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**H EVASON & CO**



**RESTORATION PLAN FOR DORRINGTON QUARRY  
LANDFILL SITE**

**REF: EL/DQL/RP/1.00/2021**

Carried out for: **H Evason & Co**

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# DORRINGTON QUARRY LANDFILL SITE

## RESTORATION PLAN

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ESSD 5 Restoration Plan

## DEFINITION OF TERMS

- Aftercare - The maintenance work needed to ensure that a restored landfill site does not produce environmental problems
- Afteruse - The use to which the landfill site is put following its restoration
- Restoration - Completion of the landfill site to allow planned afteruse
- Soil - The medium in which plants live and grow and from which through their roots they obtain water and nutrients
- Subsoil - The less well-structured and less biologically active layer below top soil which acts as a reserve of nutrients and water for plant growth
- Top Soil -The biologically active surface layer of soil which provides a medium for cultivation of plants
- the Agency - the Environment Agency
- Works - the permanent works as shown on the contract drawings

## **PARTIES AND RESPONSIBILITIES**

There parties involved in the development works outlined in this document, and these are:

### **The Employer (H Evason & Co)**

This is the person or company for whom the works are constructed. The Employer is the Permit Holder for the Site. The Employer will manage design of the works and to implement and administer the contractor its construction. He will be responsible for all contractual matters relating to the Works and may vary the design of the works during construction according to the conditions encountered

### **The Contractor (H Evason & Co)**

The Contractor is responsible for constructing the works in accordance with the specification.

### **The Designer (Enviroarm Limited)**

This is the person or Company appointed by the Employer to undertake the design of the Works.

### **The Testing Laboratory**

The laboratory appointed by the Employer to perform any on or off site testing required under the Specification and the CQA Plan are listed below and up to date UKAS Accreditation certificates will be presented as part of the Validation Report. The appointed laboratory will be UKAS approved for each individual test. The CQA Engineer/PM shall be responsible for liaison with the approved laboratory with regard to the timing of the testing.

### **Review Period and Additional Requirements**

This Restoration Plan is subject to periodic review and will be revised subject to any legislation changes or changes in Technical Guidance.

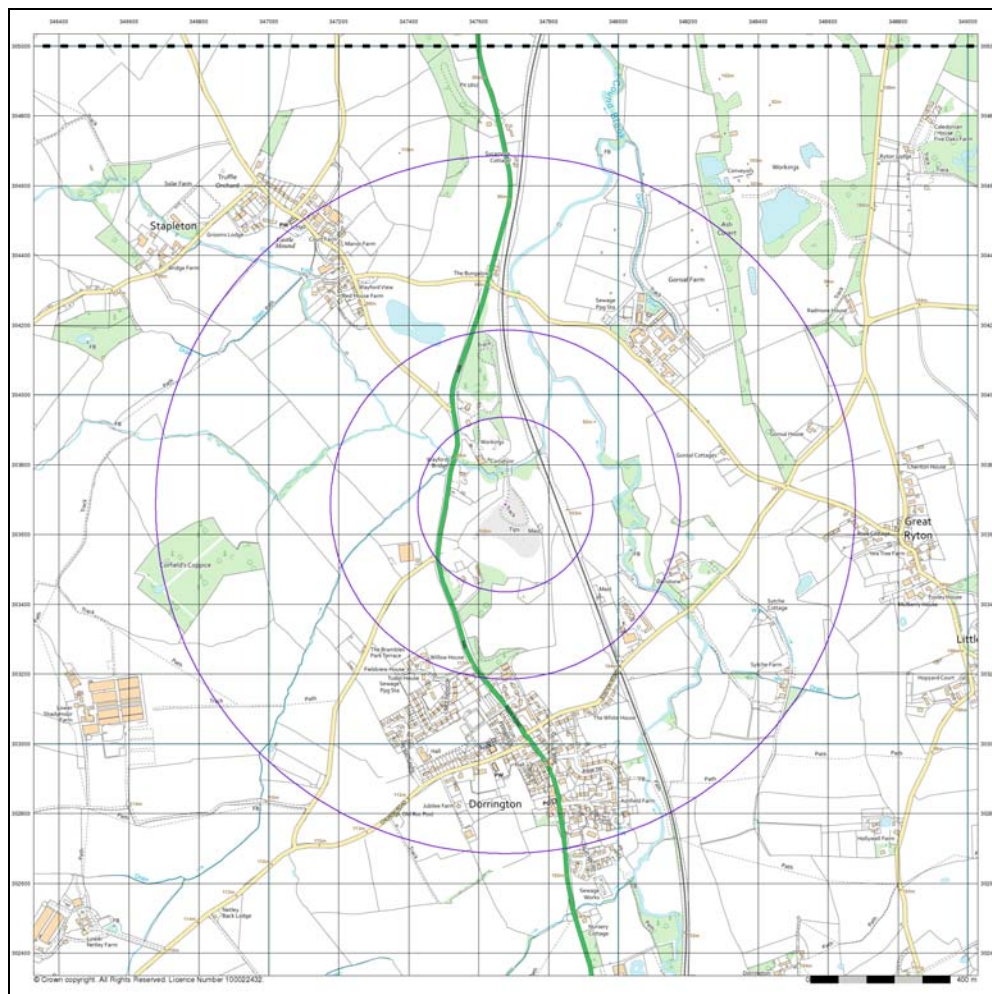
## 1.0 INTRODUCTION

### 1.1 Site Location and Works Description

#### Site Location

- 1.1.1 The site entrance is located at National Grid Reference (NGR) SJ 47554 03875, the centre of the recycling area is SJ 74635 03869 and the centre of the landfill is at SJ 47680 03568, which lies approximately 9km south of Shrewsbury on the northern edge of Dorrington. The site is off the A49.

**Figure 1: Location Plan**



#### Works Description

- 1.1.2 This Restoration Plan has been prepared by Enviroarm Limited on behalf of H Evason & Co. The plan addresses the requirements for the placement of the restoration soils, quantities, waste types and waste acceptance criteria for the Dorrington Quarry landfill site under the Environmental Permit Application for the site.

## **1.2 Supervision**

- 1.2.1 Waste acceptance will be dealt with by the Technically Competent Manager for the site who will ensure compliance with the conditions set out in the Restoration Plan, using the on-site stockpiled soils and soils remaining to be stripped that have been used on Phase 1 before.
- 1.2.2 The Contractor is required to have full-time supervision on site whilst any soiling activities are being undertaken above the engineered cap. Third party Construction Quality Assurance (CQA) personnel will also be present on-site full time to verify the Works are constructed in accordance with the Restoration Plan.
- 1.2.3 The CQA Engineer or other delegated CQA supervisor will compile a daily log sheet of site activities. These log sheets will be kept on site during the Contract and will be incorporated into the CQA Validation Report upon completion of the Works.

## **1.3 Surveying**

- 1.3.1 On-site station information will be provided to the Contractor prior to the commencement of work. The Contractor will be expected to liaise with the Employer's land surveyor in regard to all setting out and construction level control.
- 1.3.2 During the Works an independent surveyor will undertake several as-built detailed surveys, on a 10m x 10m grid, and an on-site survey of test location points will also be carried out by the appointed consultants as well as a check of the independent surveyors survey checking at least 10% of the points, and these results will be presented in an excel format to compare the eastings, northings and ordnance datum points. The as-built surveys to be undertaken are as follows:
- Pre and post placement of the soil restoration layers, including cross-sections;
  - Post placement of the restoration soils, including cross sections.
- 1.3.3 The results of all surveys shall be forwarded to the CQA Consultant not later than five working days after the respective survey was completed. The results shall be in digital DXF format together with a hard copy.
- 1.3.4 The level drawings and the as-built drawing will be issued with a copy of the CQA Validation Report.

## **1.4 Validation Report**

- 1.4.1 Upon completion of the works a CQA Restoration Validation Report will be prepared by the CQA Consultant and forwarded to the Agency. The report will form a permanent record on the actual construction of the Works in relation to the requirements of the Restoration Plan. The

report will summarise the works undertaken, the materials and construction methods employed, the physical sampling and testing and any other observations the CQA Consultant regards as pertinent to demonstrate that the Works have been undertaken in accordance with this Restoration Plan.



## **2.0 SOIL IMPORTATION**

### **2.1 General Description**

2.1.1 Soil will be imported to the site for the purpose of restoration above the engineered cap and protection layer.

2.1.2 The soils to be used for restoration will be fit for purpose, both chemically and physically. The minimum depth of the restoration soil will be 300mm of reworked sub soils or top-soils except in tree planting areas where the soil profile will be 1 metre thick in compliance with The Landfill Directive, annex 1 paragraph 3.3 and Forestry Commission Guidance on Planting Woodlands on Landfill Sites.

### **2.2 Inert Waste Importation and Volumes**

2.2.1 Soil will not import soils directly to the site for the purpose of restoration using the existing site infra structure. The site will use currently stockpiled soils and fields not currently stripped. In the event of a shortfall the soils will be sourced direct from the treatment area delivered as PAS100/BS Top Soil.

### **2.3 Waste Types**

2.3.1 The approved wastes for restoration are summarized in Table 1 below. Typically landfill permits state :

*Wastes shall only be accepted for restoration where:*

*(a) they are listed in AppendixA for the site in the waste types, and*

*(b) they are accepted in accordance with a restoration plan approved in writing by the Environment Agency.*



**Table 1: Permitted inert wastes for restoration**

<b>01</b>	<b>WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS</b>
<b>01 04</b>	<b>wastes from physical and chemical processing of non-metalliferous minerals</b>
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 05</b>	<b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>
17 05 04	soil and stones other than those mentioned in 17 05 03
<b>19</b>	<b>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</b>
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 09	minerals (for example sand, stones)
<b>20</b>	<b>MUNICIPAL WASTES, (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS</b>
<b>20 02</b>	<b>garden and park wastes (including cemetery waste)</b>
20 02 02	soil and stones

#### **2.4 Waste Acceptance Criteria for Inert Soils for use in Restoration**

The material to be imported to the landfill for restoration from the treatment facility will be inert for the sub soil horizon and top soils can be imported for the final 300mm layer which will have an organic matter greater than 3% and more typically 5-7% so as to comply with the BS 3882:2015. The site restoration permitted wastes are defined as;

- a. Inert Wastes and;
- b. In accordance with the Landfill Directive and Environmental Permitting (England and Wales) Regulations 2010;
- c. Tax Qualifying Exempt Materials.

### 3.0 SOIL RESTORATION PROFILE

#### 3.1 Soil Placement

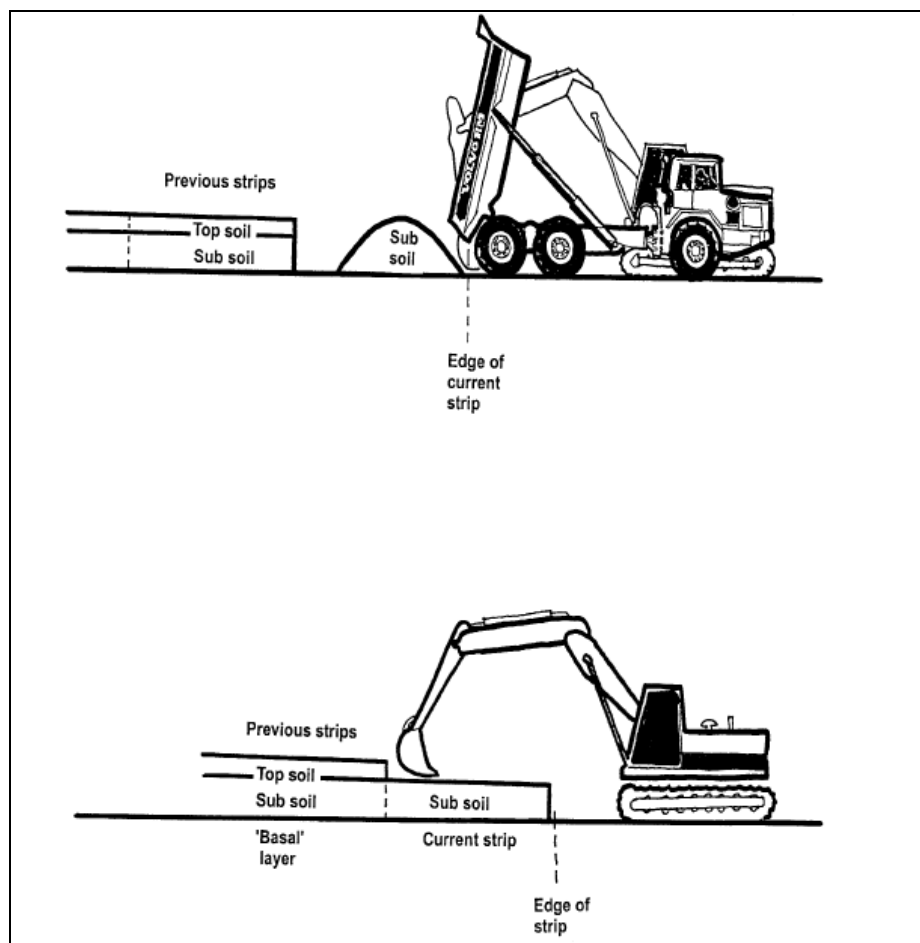
3.1.1 The soils are to be replaced in the correct sequence:-

- Sub-soil - 700mm thickness (upper section of landfill)
- Top soil - 300mm thickness (which will have an organic content greater than 3%)

3.1.2 The soils will be spread out using a hydraulic excavator with dump trucks delivering the soils and tipping them in front of the excavator therefore reducing compaction or delivered directly in HGV tippers and spread using a track type dozer.

3.1.3 Guidance on soil spreading using dump trucks, dozers and excavators is set out in Sheet 4, of the Good Practice Guide for Handling Soils prepared by MAFF. Any compaction caused will be alleviated by sub-soiling and guidance is to be found in Sheets 16 and 17, including removal of stones. The soils spreading will be carried out in accordance with the phasing of the site set out in the Environmental Setting and Installation design for the site. The soil spreading technique is presented at Figure 2 for reference.

**Figure 2: Replacement of soils from soil storage mounds**



- 3.1.4 Ripping will be undertaken at 45° to the contours to assist field drainage. Sub-soiling will be carried out when the soil is dry or moist to the full depth of working.
- 3.1.5 Any large stones (>100mm diameter in the top soil, or 200mm diameter in the sub-soil) brought up by the sub-soil ripping or present in the restored soil will be removed, as per Sheets 16 and 17.
- 3.1.6 Stones collected will be used for any field drains.
- 3.1.7 The soil will then be cultivated. Mole board ploughs are not to be used due to potential invert top soils. Discs may be used.
- 3.1.8 Feed bed preparation will be completed using chain harrows.
- 3.1.9 Soil testing (pH, N, P, K, conductivity) will be undertaken;
- Organic fertilizer - used to increase soil fertility;
- 3.1.10 The detailed application will be dependent upon soil analysis obtained from the approved soils testing laboratory.

## **3.2 Grass**

- 3.2.1 The site restoration is based upon grass fields with specific tree plant areas with hedgerows breaking up the grassland open space. The summary aftercare provisions are:
- Grazing of the grass after year two, allowing the timothy, fescue and clover to develop;
  - Damaged areas should be reseeded in late August/early September and grazing cattle removed for the winter period.

## **3.3 Hedgerows**

- 3.3.1 The fences and hedges are to mark the field boundary. The hedgerows will be protected with post and wire fence.
- 3.3.2 The hedgerows are now fully self-sustaining and no further maintenance is to be carried out so as not to disturb any wildlife that currently exists in this habitat as previously identified in the ecological survey.

## **3.4 Footpaths**

The current Public Footpath route allows for permanent diversions of footpaths and includes a new disabled footpath allowing access to the lower balancer pond used for fishing and shown on Drawing OA991-D8. The disabled footpaths are constructed using C32/40 concrete. The remaining footpaths will consist of recycled stone produced at the inert treatment facility on site.

## **4.0 AFTERCARE SCHEME**

### **4.1 General**

- 4.1.1 The outline strategy for Dorrington Quarry is set out below;
- 4.1.2 The proposed cropping pattern is to be grass for the five-year aftercare period. The grassland will merge with surrounding tree and hedgerow plant areas.
- 4.1.3. The intention is to sow a species rich wildflower grassland mix. Depending upon ground conditions, the land may be grazed with sheep after the grass has become well established, after year two.
- 4.1.4. The cultivations carried out for the initial grass establishment will be prepared in such a way so as not to cause over-cultivation.
- 4.1.5. Soil samples will be taken to ensure correct nutrient balance. Should any nutrient deficiency be recorded then an application of farmyard manure would be used.

### **4.2 Year One**

- 4.2.1 Spring sow grass, apply organic manure as top dressing of nitrogen if required.
- 4.2.2 Clearance of volunteer weeds, using an approved herbicide. The specific herbicide will be dependent upon weed type and half-life degradation values.

### **4.3 Year Two**

- 4.3.1 Clearance of volunteer weeds using herbicide with short half-life degradation values.
- 4.3.2 Grass mow and crop in August.

### **4.4 Year Three, Four and Five**

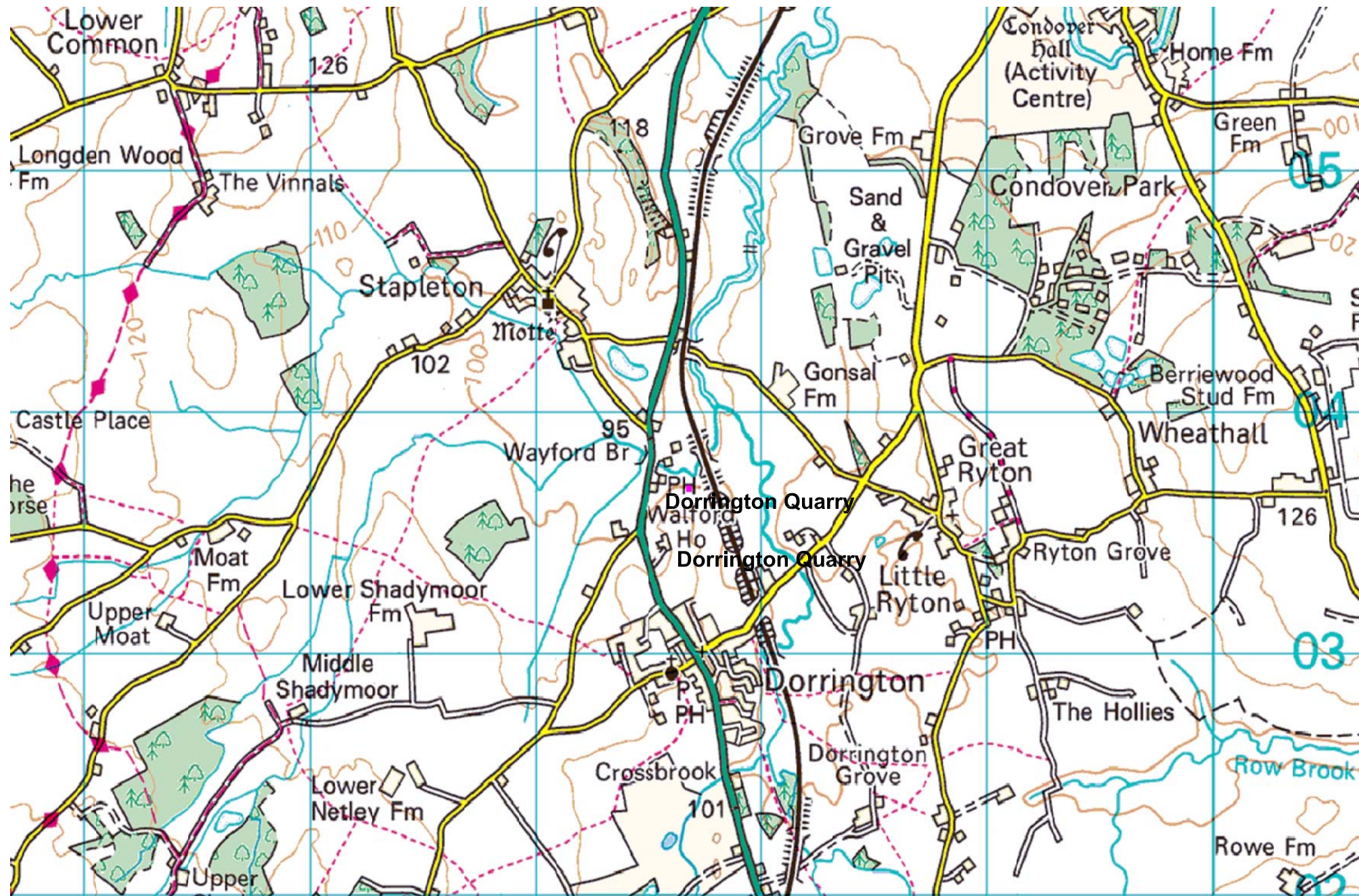
- 4.4.1 Continue with management of weeds as per 1 and 2 in Year Two.
- 4.4.2 Check for and repair any minor settlement.

## References

1. Environment Agency Briefing Note The use of waste in restoration at landfills
2. Ministry of Fisheries and Food: Good Practice Guides for Soil.
3. Ministry of Fisheries and Food: The Soil Code Revised
4. Environment Agency How to comply with your Environmental Permit

# **DRAWINGS**





**Legend**

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Client: **H Evason & Co**

Project: **Dorrington Quarry  
Dorrington, Shropshire**

Title: **Site Location Plan**

CAD Ref: EL/DQP/1	Version: 1	Drawn by: ARM	Scale: Plan 1:1500@A3	Date: January 2021
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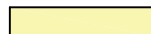

Drawing:

**ESSD 1**





**Legend**

-  Permit Boundary
-  H Evason Landfill and Inert Treatment Facility
-  Domestic Dwellings
-  Open Spaces, Parks and Farmland
-  Industrial and Commercial Development
-  Major Highways
-  Farm
-  Surface Water Bodies
-  Shrewsbury to Hereford Railway
-  500 Metres from Site


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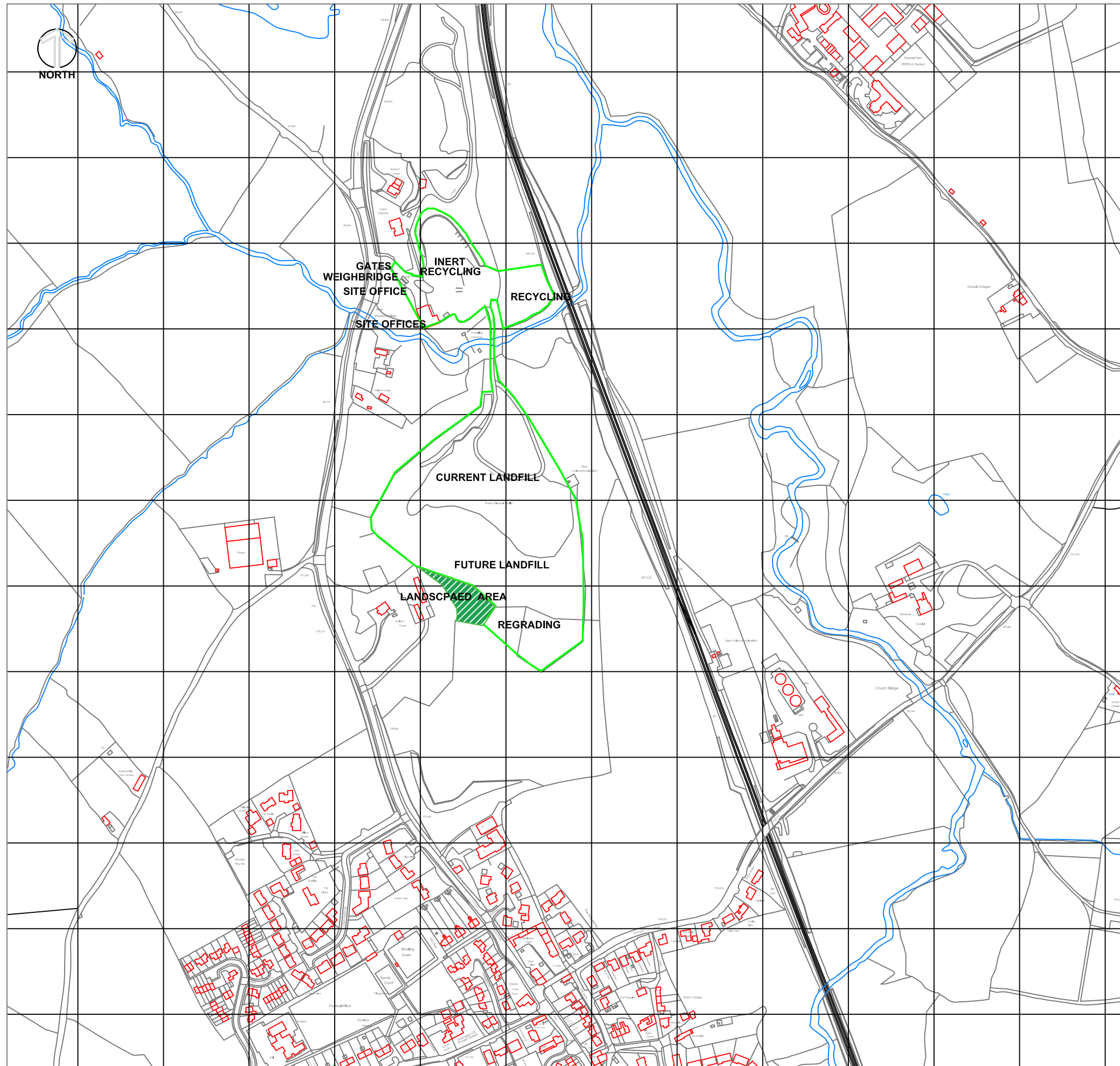
Client: **H Evason & Co**

Project: **Dorrington Quarry  
Dorrington, Shropshire**

Title: **Site Setting**

CAD Ref: EL/DQP/1	Version: 1	Drawn by: ARM	Scale: Plan 1:1500@A3	Date: January 2021
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Drawing:  
**ESSD 2**



**Legend**

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Client: **H Evason**

Project: **Dorrington Quarry  
Dorrington, Shropshire**

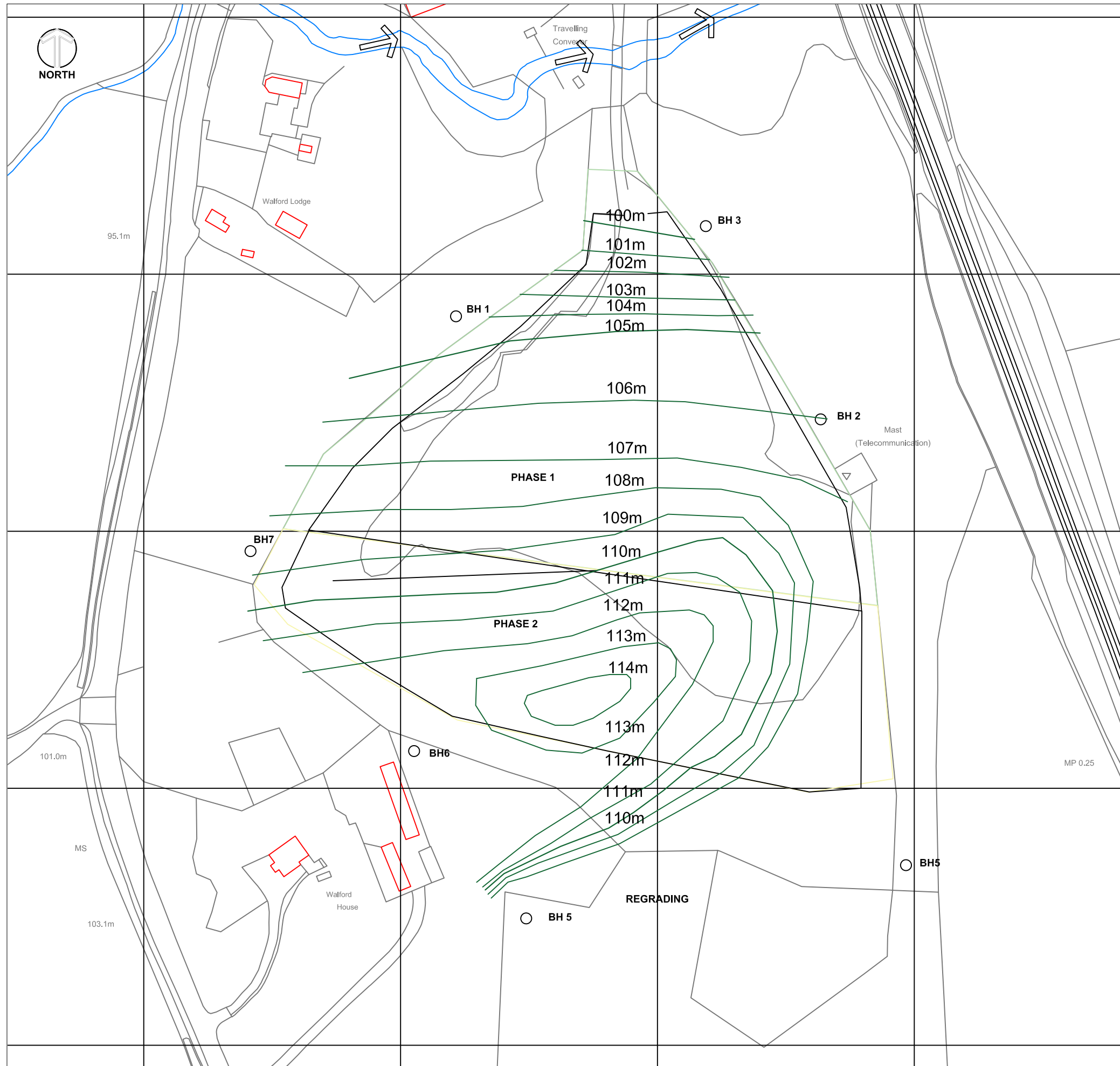
Title: **Site Layout and Waste Deposition**

CAD Ref: EL/DQP/1	Version: 1	Drawn by: ARM	Scale: Plan 1:1500@A3	Date: January 2021
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Drawing:  
**ESSD 4**

  
**ENVIROARM LIMITED**





**Legend**

— Restoration Contours

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Client: **H Evason**

Project: **Dorrington Quarry  
Dorrington, Shropshire**

Title: **Restoration**

CAD Ref: EL/DQP/1	Version: 1	Drawn by: ARM	Scale: Plan 1:1500@A3	Date: January 2021
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Drawing:  
**ESSD 7**

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