East Midlands Gateway
Phase 2 (EMG2)

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Appendix 15C

# Soil Resource Management Plan

October 2025

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The East Midlands Gateway Phase 2 and Highway Order 202X and The East Midlands Gateway Rail Freight and Highway (Amendment) Order 202X

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# SOIL RESOURCE MANAGEMENT PLAN

# EMG2 MAIN SITE

Report 2098/2

7th August, 2025

Land Research ASSOCIATES
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# SOIL RESOURCES MANAGEMENT PLAN

# EMG2 MAIN SITE

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Report 2098/2

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# 1.0 Introduction

1.1 This report provides information on soil management of land at Diseworth, Leicestershire. The land is proposed as the location of a logistics park. This report is based on a previous detailed soils and Agricultural Land Classification survey undertaken in December 2022 by Land Research Associates Limited (document reference 2098/1).

**SITE ENVIRONMENT**

1.2 The total site area comprises 100.3 ha of land, mainly in arable use with grassland in the west. The site is bordered to the north by the A453, to the east by a service station and the A42, to the west by the settlement of Diseworth, and to the south by adjoining agricultural land site is intersected by Hyam's Lane.

1.3 The land has been investigated to determine soil types, to inform a site-specific soil management plan for logistic park construction and associated soft landscaping.

1.4 This management plan details measures and working practices to prevent damage to soil resources which may cause adverse effects to soil functions for landscaping. The report covers:

- Soil resource types
- Machinery access timings (safe working conditions)
- Soil handling methods and work practices
- Landscaping

## 2.0 Soils

2.1 A detailed soils investigation was carried out in September 2023. It was based on observations at intersects of a 100 m grid, giving a survey density of one observation per hectare. During the survey, soils were examined by auger borings and hand-dug pits.

2.2 The survey found the soils to vary in drainage and composition, as described below. The distribution of soil types is shown by Map 4 in the Technical Baseline Report (2098/1).

**COARSE LOAMY SOILS**

2.1 These soils occur in a small area in the east of the site. They comprise sandy loam topsoil and upper subsoil that often overlies dense slowly permeable sandy clay or clay at depth. The subsoils are gleyed indicating the land experiences seasonal waterlogging. The soils are judged moderately-freely to imperfectly draining (Soil Wetness Class II/III).

**LOAMY OVER SLOWLY PERMEABLE SOILS**

2.2 These soils occur in the west of the site. They comprise mainly medium loamy topsoils over permeable upper subsoils. These overlie dense slowly permeable reddish clay. The subsoils are gleyed, indicating they suffer seasonal waterlogging. These soils are moderately freely to imperfectly draining (Soil Wetness Class II/III).

**HEAVY SLOWLY PERMEABLE SOILS**

2.3 These soils dominate across the site. They typically comprise a heavy clay loam or clay topsoil overlying dense slowly permeable reddish clay. In places mudstone is encountered within 1 m. The subsoils are gleyed, evidence the soils suffer seasonal waterlogging. These soils are mainly judged imperfectly to poorly-draining (Soil Wetness Class III to IV).

## 3.0 Timing of soil stripping

3.1. The local area has moderate annual rainfall (*c*. 650 mm average) and this means that the soils are at field capacity or above typically from late November to early April. The following soil-specific advice will ensure significant compaction does not occur:

**COARSE LOAMY SOILS**

3.2. These soils occur in a small area in the east of the site. They have a low clay content and are of relatively low susceptibility to damage by handling when wet. However, heavy machinery can still cause compaction when soils are very wet following rainfall. These soils can be safely handled at all times of year, as long as heavy machinery traffic is avoided during significant rainfall[1] and for the 24 hours following periods of heavy rainfall. Care should be taken to avoid erosion of these soils under stockpiling.

**LOAMY OVER AND HEAVY SLOWLY PERMEABLE SOILS**

3.3. These soils occupy most of the site. The soils have moderately high topsoil clay content and impeded drainage. This means there are likely to be periods in winter and early spring when they are waterlogged and at risk of compaction damage, as well as during wet periods at other times of year. Soil handling would be best undertaken between May and October and not within 24-48 hours following significant rainfall at other times of year as far as possible.

[1] For the purposes of this management plan, significant rainfall is defined as more than 10 mm within a 24 hour period. This figure should be treated as a guide rather than prescriptive

## 4.0 General soil management principles

4.1 Careful soil management is critical to ensure that:

- Soil resources of different potential are preserved separately
- soils are not damaged by inappropriate construction activities and timing

4.2 All operations are to be undertaken in accordance with the methodology described within this document and the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, DEFRA (2009).

4.3 Soil quality can be impaired by incorrect handling, separation, storage and replacement. Particular problems arise from:

- Handling soils at inappropriate moisture content
- Inappropriate use of machinery
- Incorrect topsoil stripping depth resulting in dilution with underlying subsoil
- Poor storage separation resulting in mixing
- Excess stockpile height leading to compaction damage, runoff and erosion

4.4 The ease of soil handling is affected by soil type. The majority of the site has coarse loamy soils that are relatively resistant to structural damage.

**SOIL STRIPPING**

4.5 All soil handling should be limited to dry conditions. Whether soils are at an appropriate moisture content for handling to be checked by a simple **'plasticity test'**: this involves testing whether a 3 mm thick thread can be rolled in the palm of the hand. If it **cannot**, the material is suitable for handling.

4.6 Stripping should take place using low impact machinery with wide tracks and the excavator and dumper method as described by Sheet 1 in the MAFF Good Practice Guide for Handling Soils[2].

4.7 Topsoil and subsoil resources should be stripped and stored separately in low bunds (no more than 3 m high for topsoil and 5 m for subsoil), avoiding over-compaction and anaerobic conditions.

[2] MAFF Good Practice Guide for Handling Soils, (www.defra.gov.uk/farm/environment/land-use/soilguid/)

Stockpiles covered with geotextile or vegetation to prevent erosion. Stockpile locations will be marked on a map and labelled. Proposed locations are provided in Appendix B of the Silt Management Plan which has further details on stockpile protection.

4.8 Topsoil should be stripped carefully to avoid dilution with subsoil, the average topsoil depth at the site is 300 mm. In most places there is a distinct colour difference between topsoil and subsoil that should aid accurate stripping. Topsoils resources should be stripped and stockpiled separately as detailed in the Technical Baseline Report (2098/1).

4.9 The following stages should be followed to ensure that suitable conditions exist and that damage to soils is minimised:

- **Machinery operation:** a tracked hydraulic excavator should be used to load topsoil and subsoil. The soils should be stripped, stockpiled, removed from storage (Sheet 3 in the MAFF Good Practice Guide) and replaced by tracked hydraulic excavator using the loose tipping technique (Sheet 4 in MAFF Good Practice Guide), with only gentle firming by tracked vehicles.
- **Rainfall during operations:** during rainfall and soon after it ceases there will be surplus of water in the surface layers of soil. If earthmoving continues the surface layer could become compacted, ruts could be formed and any further rain will lie on the surface and tend to drain away far more slowly than previously. Conditions will then tend to deteriorate further during earthmoving with consequential damage to soils. Consequently, soil stripping should be suspended during significant/heavy rainfall. After rainfall, the wetness of the soil should be checked using the plasticity test (by the earthworks contractor) before recommencing mechanised soil handling.

**SOIL EMPLACEMENT**

4.10 The soils will be removed from storage (Sheet 3 in the MAFF Good Practice Guide) and replaced by excavator using the loose tipping technique (Sheet 4 in MAFF Good Practice Guide), which avoids traffic on the restored surfaces.

4.11 The subsoils are susceptible to traffic compaction, which can limit rooting depth and affect drainage. Upper subsoils on stripped areas will be loosened before topsoil is replaced. De-compaction would be best performed with a tined ripper pulled by an earth-mover or excavator, undertaken when soils are sufficiently dry to be friable and not plastic (this can be judged by whether a 3 mm thick thread can be rolled under current site conditions).

4.12 The topsoils should then be removed from storage (Sheet 3 in the MAFF Good Practice Guide) and replaced by excavator using the loose tipping technique (Sheet 4 in MAFF Good Practice Guide), which avoids traffic on the restored surfaces.

4.13 Example soil profiles are provided in the technical baseline report for specific landscaping end uses.

**CONSTRUCTION TRAFFIC MANAGEMENT**

4.14 Temporary and permanent access roads/compounds will be created for. Topsoil will be stripped from access roads as necessary to prevent their damage during plant movement/work. Full details of construction traffic management are provided in the CEMP.

4.15 The movement of heavy equipment should be restricted to designated access routes to protect undisturbed soil. The timing of construction traffic/works carried out elsewhere within the site will only take place under dry conditions (assessed by the plasticity test).

**MONITORING**

4.16 A qualified soil scientist will meet with the groundworks team (and other relevant parties) to discuss the Soil Management Plan. A key contact will be identified whose role will be to provide updates to the soil scientist at key stages of the soil handling (i.e. during stripping, storage, handling, amelioration and replacement). The key contact will inform/consult with the soil scientist on any issues that may arise during soil handling.

4.17 The fitness for purpose of the soils for landscaping will be assessed/signed off by the soil scientist once the groundworks are complete and a brief monitoring report sent to the local planning authority.

## 5.0 Remediative measures

**INTRODUCTION**

5.1 Remediation should not be necessary if the management plan detail is adhered to. However, should surface water problems be identified, it is important that the causes are correctly identified.

**SOIL COMPACTION**

5.2 Compaction damage following soil reinstatement may be evidenced by standing water at the land surface, or by poor grass growth, resulting either from soil waterlogging or drought stress due to inhibited rooting depth.

5.3 Existence of over-compacted layers should be initially assessed by inspection of shallow pits. This is particularly important in establishing cause with reference to damage to drainage systems as described below.

5.4 Topsoil compaction can be removed relatively easily by cultivation and reseeding. This should be done under dry conditions in spring or early autumn.

5.5 Where compacted subsoil layers are observed, they should be loosened/ripped using commercial subsoiling equipment. Grassland subsoilers (which minimise vegetation disturbance) are also commercially available.

## 6.0 Landscaping

6.1 The suitability of the soils for different landscaping uses has been summarised in the Technical Baseline report (2098/1). This information has been used to inform the landscaping and potential for habitat creation. A soil balance using the estimated yields of each soil resource type has been prepared in the Landscape and Ecology Management Plan.