

HIGH SPEED TWO PHASE 2a INFORMATION PAPER

E19: SOIL HANDLING FOR LAND RESTORATION

This paper outlines how HS2 Ltd intends to conserve soils displaced by the construction of Proposed Scheme and subsequently use them for the restoration of land for agriculture, forestry, landscape planting and ecological habitat creation and translocation.

It will be of particular interest to those potentially affected by the Government's proposals for high speed rail.

This paper was prepared in relation to the promotion of the High Speed Rail (West Midlands-Crewe) Bill which is now enacted. It was finalised at Royal Assent and no further changes will be made.

If you have any queries about this paper or about how it might apply to you, please contact the HS2 Helpdesk in the first instance.

The Helpdesk can be contacted:

by email: HS2enquiries@hs2.org.uk

by phone (24hrs): 08081 434 434
08081 456 472 (minicom)

or by post: High Speed Two (HS2) Limited
2 Snowhill, Queensway
Birmingham
B4 6GA

E19: SOIL HANDLING FOR LAND RESTORATION

1. Introduction

- 1.1. High Speed Two (HS2) is the Government's proposal for a new, high speed north-south railway. The proposal is being taken forward in phases: Phase One will connect London with Birmingham and the West Midlands. Phase 2a will extend the route to Crewe. Phase 2b will extend the route to Manchester, Leeds and beyond. The construction and operation of Phase One of HS2 is authorised by the High Speed Rail (London – West Midlands) Act 2017.
- 1.2. HS2 Ltd is the non-departmental public body responsible for developing and promoting these proposals. The company works to a Development Agreement made with the Secretary of State for Transport.
- 1.3. In July 2017, the Government introduced a hybrid Bill¹ to Parliament to seek powers for the construction and operation of Phase 2a of HS2 (the Proposed Scheme). The Proposed Scheme is a railway starting at Fradley at its southern end. At the northern end it connects with the West Coast Main Line (WCML) south of Crewe to allow HS2 services to join the WCML and call at Crewe Station. North of this junction with the WCML, the Proposed Scheme continues to a tunnel portal south of Crewe.
- 1.4. The work to produce the Bill includes an Environmental Impact Assessment (EIA), the results of which are reported in an Environmental Statement (ES) submitted alongside the Bill. The Secretary of State has also published draft Environmental Minimum Requirements (EMRs)², which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.
- 1.5. The Secretary of State for Transport is the Promoter of the Bill through Parliament. The Promoter will also appoint a body responsible for delivering the Proposed Scheme under the powers granted by the Bill. This body is known as the 'nominated undertaker'. The nominated undertaker will be bound by the obligations contained in the Bill and the policies established in the EMRs. There may be more than one nominated undertaker.
- 1.6. These information papers have been produced to explain the commitments made in the Bill and the EMRs and how they will be applied to the design and construction of the Proposed Scheme. They also provide information about the Proposed Scheme itself, the powers contained in the Bill and how particular decisions about the Proposed Scheme have been reached.

¹ The High Speed Rail (West Midlands – Crewe) Bill, hereafter 'the Bill'.

² For more information on the EMRs, please see Information Paper E1: Control of Environmental Impacts.

2. Overview

- 2.1. This Information Paper considers the handling of natural soils affected by the construction of the Proposed Scheme, which are identified to be conserved and reinstated for agriculture, landscape planting and ecology land uses. Excavated materials used for engineering earthworks that will not be used to sustain vegetation in the future are subject to different requirements.

3. Principles of Soil Handling

- 3.1. The sustainable reuse of soils displaced by the Proposed Scheme is a key mitigation measure. Conserved soils will be used for the restoration of land to agriculture, forestry, landscape planting and ecological habitat creation, as set out in the ES and the draft Code of Construction Practice (CoCP).
- 3.2. Where agricultural uses are to be resumed on land disturbed during the construction of the Proposed Scheme, the design objective is to restore land to its previous Agricultural Land Classification (ALC) grading. Restoration would seek to avoid any reduction in long term capability, which would downgrade the quality of the disturbed land, through the adoption of good practice techniques in handling, storing and reinstating soils on that land. This is subject to any alternative arrangements agreed with the owner of the land. The same general principles of soil handling will be applied to the reinstatement of land for forestry, landscape planting, ecological habitat creation and translocation.
- 3.3. Detailed Construction Area-wide Soil Resource Plans (SRPs) will be produced by the nominated undertaker for geographically defined construction zones along the route of the Proposed Scheme. These plans will allocate topsoils and subsoils to different land uses and set out the methods for soil handling and storage. Extracts of these Construction Area-wide SRPs will be included in Farm Pack SRPs which will be produced and shared with affected farm holdings through detailed design stages.
- 3.4. Guidance on handling is provided by the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites 2009 (CCoP) published by the Department of Environment, Food and Rural Affairs (Defra), which is generally accepted as the primary guidance on handling to minimise damage to soils. Further guidance can be found in the Good Practice Guide for Handling Soil 2000³; and the Design Manual for Roads and Bridges (DMRB)⁴. Weed control will conform to the Wildlife and Countryside Act 1981, as amended, or the Weeds Act 1959.

³ <https://webarchive.nationalarchives.gov.uk/20090317221756/http://www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm>

⁴ <http://www.standardsforhighways.co.uk/ha/standards/dmr/>

4. Route-wide soil handling

General Soil Handling

- 4.1. The principal objectives of HS2 Ltd's soil handling policy are:
 - the conservation of soil resources,
 - the avoidance of damage to soil structures;
 - the maintenance of soil drainage;
 - the reinstatement of the soil profile; and
 - the preservation of soil biodiversity.
- 4.2. During construction of the Proposed Scheme appropriate measures will be implemented where necessary for the purpose of meeting the soil restoration and reinstatement principles and objectives as detailed in section 3 and paragraph 4.1 above. For example, this may include the implementation of such measures as are necessary to protect soils on land required for the Proposed Scheme over which large construction vehicles may need to be driven or hauled.
- 4.3. Land which will not be disturbed by the Proposed Scheme during construction (e.g. around features like retained trees) will be fenced off, clearly marked and not traversed by machinery.
- 4.4. All soil materials will be handled under suitable weather and soil conditions using appropriate machinery. The stripping, storage and reinstatement of soils will be carried out in accordance with the Construction Area-wide and Farm Holding SRPs and will be accompanied by a soil audit report produced by the nominated undertaker or contractor.
- 4.5. The sources, contents and approximate volumes of soil stockpiles will be calculated from soil survey records compiled prior to the stripping and storage of soils. In defining target restored profiles the volumes of available soils in storage will be related to the areas of each parcel of land to be restored.
- 4.6. Soils will be handled when least susceptible to damage, and in accordance with Defra's CCoP. The Good Practice Guide for Handling Soil 2000 (Sheets 1 to 4) describes the typical machinery that will be used in most cases to strip and transport soil materials into and out of store, and to reinstate topsoils and subsoils. For example, alternative specialised machinery will be used for landscape planting on areas with steeper slopes see section 5 below).

Soil Storage

- 4.7. Defra's CCoP describes methods for the construction of soil stockpiles and the DMRB provides guidance on the storage of topsoils for engineering purposes. These documents set out a range of heights for topsoil and subsoil storage. For the translocation of soils from sensitive donor sites the soils will generally be removed, transported and reinstated at the receptor site without a period of storage.

- 4.8. Areas to be used for storing topsoil will first be cleared of vegetation. Areas to be used for storing subsoils will be stripped of topsoil (and this material will be temporarily stockpiled). Once the soil stockpile has been completed the area will be fenced-off to prevent any disturbance or contamination by other construction activities.
- 4.9. Topsoils that are going to be stored for more than six months will be seeded with a low-maintenance grass mix to minimise soil erosion and prevent infestation by weeds. Where soil storage mounds are not covered with grass then during dry periods they will be sprayed with water to minimise the generation of dust.

Placement of Excavated Materials

- 4.10. Following the placement of excavated materials, the surface will be graded to create the required contours and landform, minus the specified thickness of subsoil and topsoil cover. Excavated material may be overfilled to allow for a period of settlement to the design profile or required landform.
- 4.11. The subsoil and topsoil required to meet the specific requirements of the target Agricultural Land Classification (ALC) grade, landscape planting and habitat substrate will be replaced above the excavated materials. The geochemistry of imported soil materials (including its natural geochemistry) will be suitable for the environment in which it is being placed.

Reinstatement Method

- 4.12. Reinstatement will involve topsoil being placed above subsoil. Where upper subsoil is to be replaced, it will be placed above lower subsoil. The methodology used will be based on Defra's CCoP to minimise damage to soils. Approaches may be modified to suit particular soil types or local circumstances. The completed restoration will be cultivated to a seed bed appropriate to the first crop or vegetation, as agreed with landowners, farmers or tenants. Aftercare and subsequent monitoring will then be carried out.

5. Restoration for Landscape and Ecology

- 5.1. Similar soil reinstatement methods will be applied to land reinstated for landscape planting on land with shallow to moderate gradients, and where access permits. Alternative methods using specialised machinery will be applicable for landscape planting on areas with steeper slopes, particularly for cuttings and embankments. Soil placement on inward-facing railway slopes will be in accordance with the DMRB. Soil depths and fertility requirements will be specified for different planting or habitats. For the translocation of soils from sensitive donor sites efforts will be made to match the soils in donor and receptor sites.

6. Construction Sites and Haul Routes

- 6.1. Topsoils will be stripped from construction sites and haul routes and stockpiled. The stockpiles are likely to be used for screening the site and will be vegetated. Prior to removing the soils from the stockpiles this vegetation will be sprayed with herbicides and arisings will be removed as far as practicable.
- 6.2. Where construction sites and haul routes are returned to agriculture this will require loosening of the subsoil prior to topsoil placement. Following restoration, affected areas will enter into a period of aftercare of up to 5 years, and agricultural under-drainage may be required. Where land has been temporarily occupied, this will be undertaken by agreement with the landowner.

7. Monitoring

- 7.1. During construction on-site inspections of works will be carried out by the nominated undertaker (at a frequency that will be stated after Royal Assent to the Bill), to monitor progress and standards of restoration. Completed works will be inspected by a suitably qualified and experienced soil scientist or practitioner to certify that the land has been restored to the specifications as set out in the SRPs. Contractors will also provide an audit of soil resources following a soil survey within six months of completion of the restoration.
- 7.2. The nominated undertaker will put in place agricultural liaison officers who will be available by telephone 24 hours a day, 7 days per week, during the construction of the Proposed Scheme on agricultural land. More information will be available on this after Royal Assent to the Bill.

8. More information

- 8.1. More detail on the Bill and related documents can be found at: www.gov.uk/HS2