

Southampton to London Pipeline Project

Construction Environmental Management Plan
(CEMP)

Appendix F: Soil Management Plan

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Surrey Heath Borough Council





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Acronyms and Abbreviations

Acronym	Definition
CEMP	Construction Environmental Management Plan
CoCP	Code of Construction Practice
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
LEMP	Landscape and Ecological Management Plan
RoFSW	Risk of Flooding from Surface Water
SEP	Suitably experienced person
SMP	Soil Management Plan



1 Introduction

1.1 Overview of the Project

- 1.1.1 Esso Petroleum Company, Limited (Esso) has been granted a Development Consent Order (DCO) by the Secretary of State to replace 90km (56 miles) of an existing pipeline to transport aviation fuel between Boorley Green in Hampshire and the Esso West London Terminal storage facility in Hounslow. The replacement pipeline is 97km long taking into account that it cannot follow the line of the existing pipeline along its whole length due to new developments and environmental constraints.
- 1.1.2 Esso has already replaced 10km of pipeline between Hamble and Boorley Green in Hampshire. The replacement pipeline starts near Boorley Green at the end point of the previously replaced pipeline. The route runs generally in a northeast direction via Esso's Pumping Station in Alton. It terminates at the Esso West London Terminal storage facility. The areas of land to be permanently or temporarily used for the project are known as the Order Limits.
- 1.1.3 The project within this local authority area is broken down into 10 stages. These are based on geographical areas. This Soil Management Plan (SMP) specifically applies to the section of works between (487 672E, 157 236N) and (498 999E, 164 608N), in the Borough of Surrey Heath. This is shown on Sheets 9, 10 and 11 in the Stages of the Authorised Development.
- 1.1.4 It is anticipated that works to install the pipeline will start in 2021 and be completed in 2023. The installation of the pipeline is planned to be completed within a two-year construction period. On completion of the installation works the contractor will hydrotest the pipeline and any post-construction monitoring required will be carried out.
- 1.1.5 The development authorised by the DCO must be undertaken in accordance with the Construction Environmental Management Plan (CEMP) pursuant to Requirement 6 of the DCO.

1.2 Purpose of the Soil Management Plan

- 1.2.1 This SMP has been produced as an appendix to the CEMP and will be submitted to, and approved by, Surrey Heath Borough Council as relevant planning authority in accordance with Requirement 6 in the DCO. Esso and its supply chain of contractors will adopt the control measures set out in this SMP when undertaking the construction of the pipeline and ancillary works.
- 1.2.2 The SMP should be read alongside the following plans:
- CEMP Appendix B: Water Management Plan (WMP) – which contains details about locations of stockpiles of soil in terms of reducing flood risk and silt runoff.
 - CEMP Appendix C: Site Waste Management Plan (SWMP) – which contains details about how waste, including contaminated soil will be managed during construction of the project and how it should be disposed of.



- Landscape and Ecological Management Plan (LEMP), which contains additional information relating to soils in ecologically important habitats, measures relating to the control of invasive species and other biosecurity risks and aftercare arrangements.

1.3 Aims and Objectives

- 1.3.1 The overarching aim of the SMP is to set out the principles and procedures for general good practice for soils including the handling, storage and reinstatement of soil to reduce adverse effects on the nature and quality of the soil resource.
- 1.3.2 The aim of the SMP is to define:
- existing good practice measures in relation to soil management; and
 - guidance documents that have been considered when producing the SMP.
- 1.3.3 The controls and management measures presented in the SMP apply to all soils potentially affected by the authorised development.

1.4 Applicable Guidance

- 1.4.1 Effective management of the soil resource through the construction process is required to maintain good soil quality. This is recognised in the following documents which have been considered when producing the SMP in accordance with Commitment G150:
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009); and
 - Good Practice Guide for Handling Soils (Ministry of Agriculture, Fisheries and Food, 2000).

1.5 Roles and Responsibilities

- 1.5.1 Overall roles and responsibilities for the project are presented in the CEMP. The main roles and responsibilities specific to the SMP are set out in Table 1.1 along with the specification for the roles where applicable.

Table 1.1: Roles and Responsibilities

Roles and specification	Responsibilities
Environmental Manager	Responsible for producing the methodologies for handling soil on the project. Also responsible for obtaining the approval of the relevant planning authority.
Environmental Clerk of Works	Responsible for ensuring the mitigation set out in this SMP is implemented, for undertaking periodic checks on site, and for investigating issues or complaints.
Soil suitably experienced person	This person would be expected to have the relevant experience to supervise the relevant aspects of the SMP. They would be employed to oversee the management of soil during soil stripping, handling, storage and reinstatement.
Land contamination suitably experienced person	This person would be expected to have the relevant experience to identify contamination risks and to identify suitable working methods and mitigation as appropriate based on desk study and field observations.



Roles and specification	Responsibilities
Land Agent	The Land Agent would provide the main liaison role between the contractor and the relevant landowner. They will agree preconstruction conditions and sign off completion and handover.

1.6 Structure of the Soil Management Plan

1.6.1 The SMP includes:

- Section 2: This contains a summary of the baseline environment for soil, taken from Environmental Statement (ES) Chapter 11 (**Application Document [APP-051](#)**);
- Section 3: This includes the main body of the SMP, with the commitments and details about how soils will be protected, stored and reinstated as part of the works; and
- Section 4: This outlines the site checks and reporting that will be undertaken in respect of soils.



2 Geographical Context

- 2.1.1 ES Chapter 11 (**Application Document [APP-051](#)**) set out the assessment for soils in relation to the project. Details in relation to the different geographical sections can be found in Section 11.3 of ES Chapter 11. Details about published soils types can also be found at Soilscales (2020).
- 2.1.2 The soil associations from the western extent of the Borough at Frimley to the Bisley and Pirbright Ranges are mostly acidic sandy and loamy soils of variable soil-water regime. Between the Bisley and Pirbright Ranges and Chobham Common in the north of the Borough very acid sandy and loamy soils with variable soil-water regimes are present with a mix of other soils such as seasonally waterlogged loamy and clayey soils. This section also contains all of the mapped peat soils which are situated to the east of Lightwater and the south east of Windlesham.



3 Soil Management Plan

3.1 Good Practice Measures

3.1.1 Esso has made a number of commitments which relate to reducing the impact of the project on the environment. The commitments are indicated by a reference number, for example (G13). The ones relevant to the SMP are listed in Table 3.1. The following sections set out further details in addition to the commitments, about how the construction works will be undertaken.

Table 3.1: Project Commitments Relevant to the SMP

Commitment number	Commitment
G13	Protection of earthworks and soil would be managed by methods such as covering, seeding or using water suppression where appropriate.
G29	Topsoil would be returned to its final location at the earliest suitable time of year.
G71	<p>For all areas, the following strategic approach would be taken for the management of both known and unknown land contamination:</p> <ul style="list-style-type: none"> • a desk-based qualitative risk assessment would be undertaken on the basis of available information to ascertain areas of known and unknown contamination; • working methodologies would be produced based on the assessment; and • contingency plans would be developed for dealing with various forms of known or unknown contamination to allow work to progress with limited delay. These procedures would clearly define methods for dealing with any areas of unexpected contamination to manage immediate risks and prevent any contamination, ground gas, airborne contaminants or odour spreading from the affected area, and for appropriate disposal. Measures would contain protocols for dealing with areas of potential asbestos-containing materials, should they be encountered. <p>For areas where potential contamination is known or strongly suspected to be present as a result of past activities, the following would also be undertaken:</p> <ul style="list-style-type: none"> • ground investigation information would be shared and developed as appropriate; • risks to receptors would be assessed, and mitigation and working methods to control those risks would be developed. Risks would include encountering contaminated dust, soils and groundwater; and where the presence of ground gas and/or vapours may lead to confined space risks, such as in excavations; • a Suitably Experienced Person (SEP) would ensure that risk areas are identified, working methods followed and mitigation carried out appropriately; • made ground and materials known or strongly suspected of being contaminated would be segregated from natural and inert materials; and • ground arisings deemed unsuitable for re-use within the project would be disposed of appropriately for example to a soil treatment centre or landfill.
G72	A Land Contamination SEP would be appointed. They would have practical experience in brownfield earthworks and be able to use their professional judgement to take a proportionate approach to the assessment of potential for ground contamination based on the desk study information and field observations. Their work would be on a targeted basis.
G74	Excavation materials identified by the Watching Brief as being potentially contaminated and unsuitable for re-use within the project would be segregated from other material and transported off-site in suitable vehicles for off-site testing and subsequent disposal. Vehicles would contain and cover the materials to prevent loss of leachate, dust or other material during transport.
G75	Where the route passes through areas where there are active Environmental Permits (for example authorised landfill sites), the contractor(s) would work with the permit holder to comply with the permit requirements. This could include:



Commitment number	Commitment
	<ul style="list-style-type: none"> • seek agreement from permit holders and regulators to allow works to proceed; • reinstatement of surface restoration materials; • reinstatement of artificial geological barriers (where present); and • if applicable to the site, work in accordance with relevant quality assurance procedures.
G148	Where identified in the Soil Management Plan, a Suitably Experienced Person (SEP) would be employed to oversee the management of soil during soil stripping, handling, storage and reinstatement.
G151	<p>A methodology would be produced for stripping, handling, storage and replacement of all soils to reduce risks associated with soil degradation. This would include:</p> <ul style="list-style-type: none"> • identification of appropriate plant to strip, reinstate and otherwise handle soils; • methods for compaction and grading of stockpiles; • methods for working in naturally wet soils; and • specification of appropriate decompaction measures to be used during reinstatement.
G154	<p>Where topsoil stripping is required, the normal working practice (where not otherwise specified within a methodology document) would be to strip full depth of topsoil (where present) from:</p> <ul style="list-style-type: none"> • construction compounds and logistics hubs; • access roads; • across the working width; and • any other areas to be trafficked. <p>The topsoil would be reinstated above the subsoil.</p>
G155	Topsoils and subsoils intended for reinstatement would be temporarily stockpiled as close to where they were stripped from as practicable.
G157	Appropriate techniques would be used when necessary to provide protection for subsoils from compaction and smearing in areas subject to heavy trafficking. The specific protection measures and their required locations would be set out in the appointed contractor's methodology document and agreed between the contractor(s) and overseeing Suitably Experienced Person (SEP) prior to construction commencing.
G158	Stripping and reinstatement of topsoils would only be carried out when topsoils are in a reasonably dry state.
G159	Different soil types and made ground would be stripped and stored separately where applicable.
G184	Stockpiles would not be located within 10m of any main rivers or ordinary watercourse crossings

3.2 Construction Programme

- 3.2.1 It is anticipated that works to install the pipeline will start in 2021 and be completed in 2023.
- 3.2.2 Within the Borough of Surrey Heath, the programme is anticipated to follow the phasing shown in the Stages of the Authorised Development.
- 3.2.3 Works will continue throughout the year. However, during wet conditions and where soil is saturated, soil handling works will be put on hold until the conditions/materials are more appropriate to earth moving.
- 3.2.4 Specific areas will be carried out in line with project commitments, including:
- (1) Pine Ridge Golf Course; and



- (2) Windlemere Golf Centre - where possible works would be scheduled to take place as agreed with the landowner/tenant.

3.2.5 Some areas of the project are subject to Site Specific Plans (SSP) which set out how and when the works are to be carried out. The work must be undertaken in accordance with the SSP. An SSP is in place for the following areas:

- (1) St Catherines Suitable Alternative Natural Greenspace; and
- (2) Turf Hill.

3.3 Description of Works

3.3.1 The project description is set out within Code of Construction Practice (CoCP). This describes the main works that would be undertaken before, during and after installation.

3.3.2 In accordance with Commitment G151, this section contains details of the methodology for stripping, handling, storage and replacement of all soils to reduce risks associated with soil degradation. This includes:

- identification of appropriate plant to strip, reinstate and otherwise handle soils;
- methods for compaction, grading and protection of stockpiles;
- methods for working in naturally wet soils; and
- specification of appropriate decompaction measures to be used during reinstatement.

3.3.3 In accordance with Commitment G157, the final methodology will be agreed between the contractor and the SEP prior to construction commencing.

Site Planning and Preparation

3.3.4 Site preparation will include the clear marking and signposting of access tracks and all areas that will remain undisturbed during construction activities. Areas of soil that are not to be stripped will be protected. This will either be by total exclusion with the use of fencing or other barriers or by the provision of ground protection, for example track matting, geomembrane etc. No trafficking of vehicles/plant or materials storage will occur outside demarcated working areas.

3.3.5 Soil storage areas for different types of topsoil and subsoil will be identified prior to construction activities to avoid the mixing of these resources. The locations identified will take into account the following project commitments:

- G155: '*Topsoils and subsoils intended for reinstatement would be temporarily stockpiled as close to where they were stripped from as practicable*'; and
- G159: '*Different soil types and made ground would be stripped and stored separately where applicable*'.

3.3.6 The stockpile locations will take into account other site constraints such as flood zones (see Flood Risk Assessment (**Application Document [APP-134](#)**)), archaeologically



sensitive features (see ES Chapter 9 (**Application Document [APP-049](#)**)) and habitat areas (see ES Chapter 7 (**Application Document [APP-047](#)**)).

3.3.7 Specific constraints in this location include the following:

- Flood Zones West of Frimley on Blackwater River, South of Windlesham Park on Windle Brook (2no locations);
- archaeologically sensitive features including WWII Aircraft Crash: Deepcut, WWII Aircraft Crash: Chobham, Steep Acre Farm, and Chobham Common;
- habitat areas along the route such as Heathland at West End Common, Turf Hill and Chobham Common;
- Sites of Special Scientific Interest (SSSI); and
- Thames Basin Heaths Special Protection Area.

3.3.8 Areas of vegetation will be stripped to reduce the presence of excessive amounts of plant material in the stockpile, which could affect the soil quality due to its putrefaction (rotting) in anaerobic conditions. Cuttings must not be added to or mixed with the stripped soil.

Soil Stripping

3.3.9 The soil stripping method will follow the guidance set out in Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009).

3.3.10 Machinery for undertaking the topsoil and subsoil stripping will include tracked excavators of varying sizes (mainly 13-21t) and bulldozers where practicable. Wherever the working area allows, the stripped material will be removed and stockpiled adjacent to the excavation, either by pushing it aside or lifting away from the trench. Where this is not possible due to constraints such as those in paragraph 3.3.7, the material will be placed into a dump truck and driven to the nearest possible location within the Order Limits and stockpiled there for reuse.

3.3.11 The size of the earthmoving plant shall be tailored to the size of the area to be stripped and the space available within the working area. The use of a long-reach excavator could reduce the need for movement across the soil surface, and the use of tracked vehicles will reduce soil compaction. All plant and machinery will be maintained in good working condition so that the soil is stripped correctly and to reduce the risk of contamination through spillages.

3.3.12 In accordance with Commitment G154, where topsoil stripping is required, the normal working practice (where not otherwise specified within a construction methodology within the CoCP), would be to strip full depth of topsoil (where present) from:

- construction compounds and logistics hubs;
- access roads;
- across the working width; and
- any other areas to be trafficked.



- 3.3.13 The soil handling methodology will be determined based upon soil moisture content. Where practicable, soil handling when soil moisture content is above the lower plastic limit (the moisture content at which soil begins to behave as a plastic material and the soil is deemed too wet to handle without causing damage to the soil structure), should be avoided. All handling will be as per Commitment G158. In the case of frozen ground, excavation works may proceed given effective excavation techniques and implementation of safety measures to prevent excavation collapse during thawing, however backfilling of frozen soils will not be possible as required compaction levels will be unachievable. Subsequently the soils shall be allowed to fully thaw before commencing backfilling activities.
- 3.3.14 In some cases, it may be necessary to handle soils when they are saturated, for example due to programme, engineering or due to the specific nature of the soil, for example in wetland areas. In these cases, location-specific methods will be agreed with the SEP prior to work commencing.
- 3.3.15 Topsoil will be recovered to the full width of the working area without contamination with the subsoil. The boundary between the topsoil and subsoil is usually very clearly visible through a change in colour (the topsoil being much darker due to greater organic matter content). Where it is not clear the SEP will advise on the appropriate depth.
- 3.3.16 Topsoil can be stored either on topsoil (of the same type) or on subsoil. Subsoil can only be stored on subsoil and therefore the topsoil must be stripped from subsoil storage areas. In most cases, the soil will be stored locally within the Order Limits. The exception will be in some reduced width working locations (see Annex A of the CoCP for more details). In these cases, due to the limited working space, any soil will generally be stored at the nearest available space within the Order Limits.
- 3.3.17 There are areas that will be subject to 'Strip, Map and Sample' archaeological investigation prior to the commencement of main construction activities as set out in the Archaeological Mitigation Strategy. The specific locations will be identified in Written Schemes of Investigation (WSIs). In these areas, the soils will be stripped under archaeological supervision following the methodology set out within the WSI.
- 3.3.18 If sustained heavy rainfall is experienced (>10mm in 24 hours), soil stripping activities will be put on hold until the ground has met the agreed moisture content criteria.

Creation of Stockpiles

- 3.3.19 Soil stockpiling will be required during construction activities to enable the reuse of the soil resource, limit soil damage from weather and other construction activities and soil loss. Stockpiles will be designed and positioned to reduce the risks of causing pollution to surrounding watercourses; dust generation; and increasing flood risk to the surrounding area. Stockpiles should not be positioned where they are vulnerable to compaction or erosion (see CEMP Appendix C).
- 3.3.20 The following commitments will apply in relation to stockpiles with further details included in CEMP Appendix B Water Management Plan:
- G184: Stockpiles would not be located within 10m of any main rivers or ordinary watercourses.



- W5: Topsoil and subsoil would be stockpiled for as short a duration as practicable within Flood Zone 3 and areas of High and Medium Risk of Flooding from Surface Water (RoFSW).
- W6: Stockpiles in Flood Zone 3 or areas of High or Medium RoFSW would not exceed 10m between breaks. Breaks in between stockpiles would be at least 1m. Breaks would be located opposite each other on either side of the excavation where practicable.

- 3.3.21 Topsoil stockpiles shall not exceed 4m in height and subsoil stockpiles shall not exceed 5m in height. In accordance with Commitment G13, protection of earthworks and soil will be managed by methods such as covering, seeding or using water suppression where appropriate. For all soils, records will be made of the stripping locations to assist in the reinstatement.
- 3.3.22 Soil will be stored in an area of the site where it can be left undisturbed and will not interfere with site operations. Ground to be used for storing the topsoil shall be cleared of excessive vegetation. Topsoil can be stored either on topsoil (of the same type) or on subsoil. However, as subsoil should only be stored on subsoil, topsoil should first be stripped from any land to be used for subsoil storage.
- 3.3.23 Stockpiles will be formed by loose-tipping into heaps. During formation, the top and sides will be smoothed with the bottom of the excavator bucket along the stockpile surface so that they can shed water more easily down a uniform gradient. This will reduce the risk of water entering into the stockpile and ensure that the stored soil remains dry, helping to reduce erosion and ponding.
- 3.3.24 The natural angle of repose of a soil, and hence the maximum gradient of the stockpile sides, depends upon its texture and moisture content. This will vary along the pipeline route. Some typical examples are given in Table 3.2.

Table 3.2: Angle of Repose for Different Soil Types

Soil Type	Angle of Repose (degrees)
Topsoil; loose	Dry: 35-40 Wet: 40-45
Peat	Dry: c. 15 Wet: 40-45
Silt	Dry: 5-10 Wet: <5
Clay/silt; loose	20-25
Sandy clay	15-20
Sandy gravel	25-30
Gravel	40-45

- 3.3.25 The layout of stockpiles will vary throughout the works, however they will, wherever possible be laid out along the working area edge. Below are indicative layouts for a narrow working area and for a rural section:

Figure 3.1: Typical Layout in Narrow Working Area

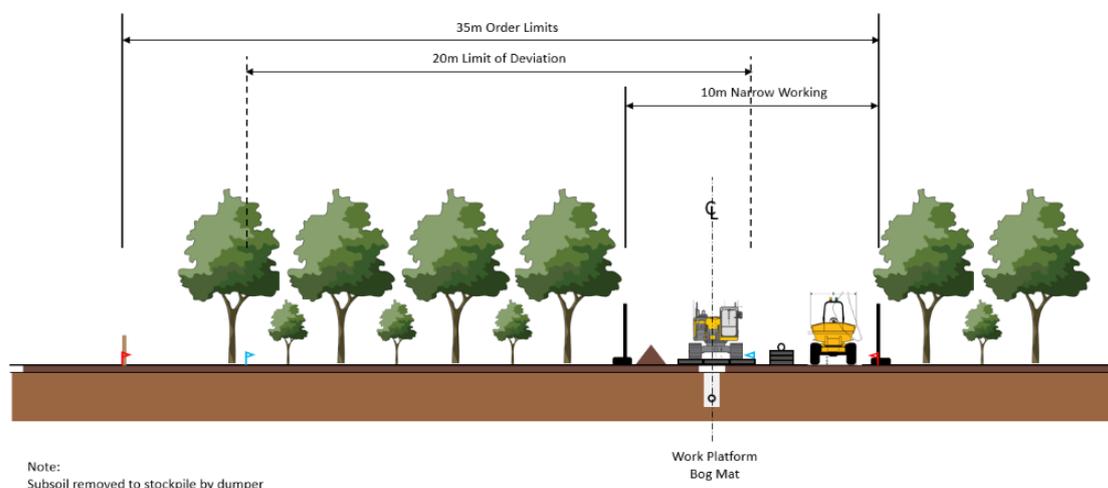
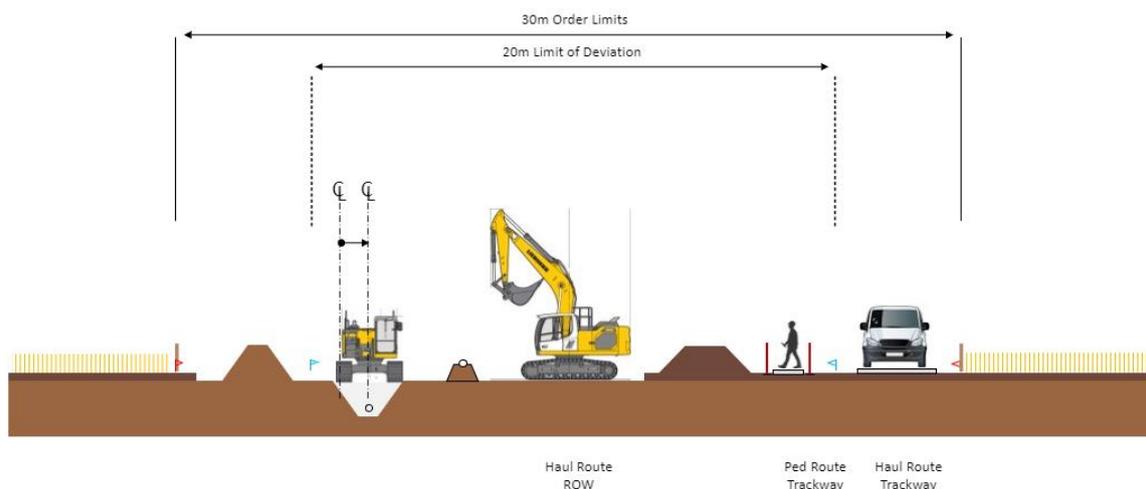


Figure 3.2: Typical Layout in Rural Section



Stockpile and Subsoil Maintenance

- 3.3.26 Seeding may be applied to stockpiles where they are likely to be in place for over six months. Other methods of stockpile protection may include covering with tarpaulin, to reduce the risk of runoff and colonisation of weeds. Where practicable, soils will not be stored for longer than 18 months. The areas affected by these longer time periods will be the compounds and logistics hubs. For the remaining areas of excavation and pipeline installation, the soil will be replaced and the area resoiled as soon as possible following the installation works.
- 3.3.27 Stockpiles will be maintained throughout the works to reduce the risk of dust, using a variety of methods. For example, implementing spraying with water during dry weather to prevent wind erosion (generation of dust) or methods mentioned in the paragraph above. Further details on mitigating dust spread are presented in the Dust Management Plan.



- 3.3.28 The condition of the stockpiles will be regularly monitored. If rainwater gathers on the stockpile surface or in areas directly adjacent to them, drainage pathways to soakaway areas away from the stockpile will be provided.
- 3.3.29 In accordance with Commitment G157, appropriate techniques will be used when necessary to provide protection for subsoils from compaction and smearing in areas subject to heavy trafficking where ground conditions dictate. This will typically be in areas of wet soil. Use of tracked plant will be preferred to wheeled vehicles to reduce compaction of underlying soils.
- 3.3.30 Where soils have not been stripped, temporary access routes will be constructed using ground protection matting. Traffic will be confined to these routes.

Reinstatement

- 3.3.31 Soil replacement will follow the methodology set out by Defra (2009). In accordance with Commitment G158, reinstatement of topsoil will only be carried out when topsoil is in a reasonably dry state. Also, in accordance with Commitment G29, topsoil will be returned to its final location at the earliest suitable time of year.
- 3.3.32 In accordance with Commitment G94, land used temporarily will be reinstated to an appropriate condition relevant to its previous use, including any subsoil drainage. This will be achieved primarily by reinstating the full soil profile in the correct sequence of horizons, and in a state where good soil profile drainage and plant root development are achieved.
- 3.3.33 Soil reinstatement is the reverse of soil stripping with topsoil being replaced over subsoil (Commitment G154). Soil horizons will be replaced to the correct thickness. The topsoil will not be compacted. Once reinstated, the area will be left clear of traffic, except for the temporary access road. This will be removed as the last activity as the working area fencing is taken down.
- 3.3.34 Prior to topsoil placement, subsoil decompaction may be required. The top layer of subsoil (to extend below the depth of normal agricultural activity) will be loosened with an agricultural cultivator before the replacement of any topsoil removed. For the decompaction to be effective, conditions should be suitably dry such that the use of cultivation tools is effective to break up the soil.
- 3.3.35 Agricultural land will be reinstated to a condition as near as possible equivalent to that subsisting before the commencement of the works and free of introduced litter of any kind; and reasonably practicable steps will be taken so that topsoil will be left in a loose friable and workable condition to its original full depth over the working area.
- 3.3.36 The aftercare period will commence after soil characteristics required to achieve the reinstatement standard have been achieved. This means that the land is brought as close as practically possible to its physical state before construction. Further details about aftercare and handover are contained within the LEMP.



3.4 Soils within Statutory Designated Sites

3.4.1 There are Statutory Designated Sites within the Order Limits in the Borough of Surrey Heath such as at Thursley, Ash, Pirbright and Chobham Special Area of Conservation, Thames Basin Heaths Special Protection Area, National Nature Reserve at Chobham Common, Colony Bog and Bagshot Heath SSSI, and Chobham Common SSSI. The methods used for managing soils in these areas would be consistent with the specific HRA commitments and good practices commitments as detailed in Tables 1.4 and 1.5 of the Schedule of Habitats Regulations Assessment Commitments.

3.5 Potential Contaminated Land

3.5.1 ES Chapter 11 (**Application Document [APP-051](#)**) identified a number of sites where there are existing data sources identifying potential contamination risks. These include for example former landfill sites or former industrial uses. As part of the design evolution, potentially contaminated sites were avoided where practicable by diverting the route, or using trenchless crossing techniques. However, a residual risk remains that unidentified sites are present. Commitment G71 sets out the process that will be followed in relation to areas of both known and unknown contamination.

3.5.2 Sites potentially affected by contamination as identified in the ES in the Borough of Surrey Heath are:

- (1) Former landfill site south of Frimley Station.

3.5.3 Commitment G71 states *'for all areas, the following strategic approach would be taken for the management of both known and unknown land contamination:*

- *a desk based qualitative risk assessment would be undertaken on the basis of available information to ascertain areas of known and unknown contamination;*
- *working methodologies would be produced based on the assessment;*
- *contingency plans would be developed for dealing with various forms of known or unknown contamination to allow work to progress with limited delay. These procedures would clearly define methods for dealing with any areas of unexpected contamination to manage immediate risks and prevent any contamination, ground gas, airborne contaminants or odour spreading from the affected area, and for appropriate disposal. Measures would contain protocols for dealing with areas of potential asbestos-containing materials, should they be encountered.*

For areas where potential contamination is known or strongly suspected to be present as a result of past activities, the following would also be undertaken:

- *ground investigation information would be shared and developed as appropriate;*
- *risks to receptors would be assessed, and mitigation and working methods to control those risks would be developed. Risks would include: encountering contaminated dust, soils and groundwater; and where the presence of ground gas and/or vapours may lead to confined space risks, such as in excavations;*



- *a Suitably Experienced Person (SEP) would ensure that risk areas are identified, working methods followed and mitigation carried out appropriately;*
- *made ground and materials known or strongly suspected of being contaminated would be segregated from natural and inert materials; and*
- *ground arisings deemed unsuitable for re-use within the project would be disposed of appropriately for example to a soil treatment centre or landfill.'*

3.5.4 Once on site, potential contaminated ground will be identified through a number of factors, such as:

- discoloured soil (e.g. chemical or oil residues);
- fibrous material within soil (e.g. asbestos);
- presence of foreign objects (e.g. chemical containers, batteries, tanks, waste pits, drainage runs, domestic waste);
- evidence of previous soil workings and/or made ground;
- odour (e.g. petrol/diesel/oily smells, rotten egg smell); and
- oily sheen on water within excavations.

3.5.5 If unexpected contaminated ground is uncovered, it shall be tested to determine the levels of contamination. Where contamination is confirmed it will be reported to the local authority in writing. An investigation and risk assessment of the contamination will be undertaken (the scope of which will be agreed with the local authority) to assess the nature and extent of any contamination on the part of the Order Limits within which works are being carried out. The findings of the investigation will be reported to the local authority and where remediation is required to control or prevent the release or potential release of contamination as a result of the works, a detailed remediation scheme will be prepared and submitted for the approval of the relevant planning authority. The remediation scheme will be implemented as approved.

3.5.6 Mitigation measures will include the following:

- Any potential contaminated materials will be segregated and stored in an impervious bunded area of a suitable nature to prevent contamination of ground water or land. Known or suspected contamination stockpile areas will be tested (sample frequency, sample location) to correctly classify the material.
- Pre-classification of soils will be undertaken prior to reuse of site-won materials.
- The soil and soil leachate acceptance criteria will be established in the detailed design stage.
- Emergency preparedness and response plans will provide a full list of protocols and communication channels with the Environment Agency and any relevant water undertaker in the event of a pollution incident. This is outlined in the Emergency Action Plan (Appendix A of the CEMP).

3.5.7 The SWMP (Appendix C of the CEMP) contains details of how ground arisings deemed unsuitable for re-use within the project will be disposed of appropriately, for example to a soil treatment centre or landfill.



4 Site Checks and Reporting

4.1 Site Checks

4.1.1 The contractor(s) will be responsible for record keeping and site checks during the construction period. Site checks and inspections will be undertaken regularly throughout the construction period as set out below, to monitor compliance with the requirements of the SMP. This will be in addition to the regular environmental inspections undertaken as identified in Table 3.2 of the CEMP.

4.1.2 Table 4.1 sets out the site checks that would be undertaken during construction.

Table 4.1: Site Checks

Action	Responsibility	Frequency
Visual inspections to check soil stockpiles. For example checking for signs of erosion, water ponding, loss of protective vegetation and signs of invasive species	Works Supervisor	Once a month and after heavy rainfall
Visual inspection of excavations	Works Supervisor	Daily during works
Monitoring weather conditions for soil handling	Works Supervisor	Daily

4.1.3 As set out in Commitment G148, an SEP will be employed to oversee the management of soil during soil stripping, handling, storage and reinstatement. This will be based on the sensitivity of the site and the proposed working methodology.

4.2 Complaints

4.2.1 The name and contact details for the project will be displayed at the entrance to all compounds. This will include an emergency telephone number (G27). In addition, details of the works including contact details will be provided to each community ahead of the work commencing. This will be as set out in the Community Engagement Plan.

4.2.2 Any complaints regarding environmental issues will be discussed with the Construction Manager and the Environmental Manager, and appropriate action will be taken and the conclusion recorded. A record will be made of the incident for audit purposes.



References

Cranfield Soil and Agrifood Institute (2020) Soilscales. Accessed January 2020.

Department of Environment, Food and Rural Affairs (2009) *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites*

Ministry of Agriculture, Fisheries and Foods (2000) *Good Practice Guide for Handling Soils*