

Annex D

Outline Soil Management Plan

FOEL TRAWSNANT GRID CONNECTION Outline Soils Management Plan

DATE:	17 July 2025	CONFIDENTIALITY:	Confidential
SUBJECT:	Outline Soil Management Plan		
PROJECT:	Foel Trawsnant	AUTHOR:	Lynne Gemmell
CHECKED:	Taco Regensburg	APPROVED:	Stewart Browne

OUTLINE SOILS MANAGEMENT PLAN

Introduction

The purpose of this Outline Soils Management Plan (Outline SMP) is to support the protection and suitable restoration or reuse of soils that will be excavated or otherwise disturbed (e.g., by vehicle or plant movements) during construction of the Foel Trawsnant Grid Connection (the Project). The Outline SMP may be updated to an SMP or a stage specific SMP during pre-construction, to provide additional details on soil resource planning, and to incorporate any new information on soils if this becomes available.

This Outline SMP has been informed by a Peat and Soil Survey completed for the Project¹ which is included as Annex D to the CEMP (Appendix 4A). The purpose of the survey was to provide site-specific data to enable the Project's avoidance of peat through design wherever possible, and to inform mitigation measures for other soils. This Outline SMP should be used in conjunction with the Peat and Soil Survey report which includes figures, logs and photographs, and a summary of the soil conditions encountered at each survey point.

Peat in the context of this Outline SMP is defined by the Welsh Government² as either:

- >40cm thickness organic 'O' horizon material within the upper 80cm, or,
- >30cm organic 'O' horizon material resting directly on bedrock.

No peat meeting the above criteria has been encountered during the Peat and Soil Survey (see Annex C of Appendix 4A: CEMP).

PLANNED CONSTRUCTION ACTIVITIES WITH POTENTIAL TO IMPACT SOILS

The following construction activities have the potential to impact soils:

- Soils will require to be excavated, using an excavator, to enable OHL pole foundations (typically pre-cast kicking blocks) to be installed below ground. Soils would be temporarily stored and then reinstated above the pole foundations (this may result in some excess soil, however it is anticipated that all topsoil will be able to be reinstated).
- HGV vehicles will be required to transport the OHL poles to the construction compound for storage. However, HGVs are unlikely to be able to access agricultural land. In this instance, poles will be

¹ WSP (2025) Foel Trawsnant Grid Connection: Peat and Soil Survey Report, July 2025.(Ref. UK0037804_FOELTRAWSNANT_0110).

² Welsh Government (2022) Production of the Peatlands of Wales map: Soil Policy Evidence Programme, March 2022, Report code: SPEP2020-21/03. Available at: <https://www.gov.wales/production-peatlands-wales-map>.

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moved into position using low ground-pressure vehicles, vans and/or ATVs with towing trailers to carry equipment.

- To install the underground cables (UGC), typically, an excavator will be used to cut trenches within the existing highway to install the ducting. The trenches for installation of the underground cables (UGC) are expected to be ~1.5m deep, and between 0.6m to 1.5m wide. An open cut method will be used, where the duct is laid directly into a trench of up to 1.5m depth. The ducts will be placed at the bottom of the trench, and the excavation around the cables then filled with sand before the remaining excavation is backfilled with the excavated material. Cables will be jointed at approximately 250m intervals, requiring a joint box. The joint boxes will generally be 1 to 2m deep and 5m x 3m in area. Once the cable ducts are laid, the cable will then be pulled through. Any tracks or roads to be trenched for underground cabling will be returned to at least their previous condition; no track or road widening is anticipated.

This Outline SMP applies to the OHL elements of the Project since excavation of soils in undeveloped land will be needed and use of vehicles to transport materials to the pole locations. It is likely that trenches for the proposed UGC route will mainly encounter made ground below existing highway or access tracks, and potentially at roadside verges, associated with the historical construction of these features. A small portion of the UGC route outside urban areas may encounter naturally occurring soil horizons, and the Outline SMP will therefore also apply in these areas.

WHY SOIL MANAGEMENT IS NEEDED

Soil formation is very slow (taking 100s or even 1,000s of years) and soils should be treated as non-renewable or finite natural resources. The aim of the Outline SMP is to maintain the value and functions of the existing soil resources by avoiding impacts such as compaction, erosion or mixing/ cross-contamination – all of which will have a negative impact on soil functions.

The OHL route runs mainly through agricultural land and following the temporary disturbance during construction of the Project, agricultural land use will continue around the OHL poles. In addition, poor soil handling affects land drainage, which in turn increases the risk of flooding (which further damages soils), and reduces land availability for agriculture and other activities (measures to protect existing land drainage are included in the CEMP in Section 5.3). Protecting soil resources (from compaction, erosion, mixing or cross-contamination) will enable the current agricultural activities to be resumed once the Project has been constructed.

Excavated clean soils from greenfield land can fall under waste legislation, including the Environmental Protection Act 1990 and the Waste (England and Wales) Regulations 2011 (as amended). The classification of excavated soils as waste can be avoided through Waste Exemptions, or application of the Definition of Waste code of practice (DoW CoP). Waste exemptions allow operators to carry out certain low risk waste activities under a registration scheme, without needing an environmental permit. If followed, the

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DoWCoP enables soil arisings from construction to avoid being considered waste. The DoWCoP is a voluntary framework for determining whether or not excavated material arising from development works are waste. It applies to excavated materials that are: reused on the site of production; transferred between sites and reused directly without treatment; or transferred between sites and reused following treatment, as part of a Cluster project. In all instances there must be certainty of use, good record keeping, and the soils must be suitable for the intended use. Soils should only be used in quantities necessary for the intended use, as the use of an excessive amount would indicate that the material is being disposed of i.e., it would be waste and fall under waste legislation.

RELEVANT GUIDANCE

This Outline Soils Management Plan has been informed by published guidance for the sustainable use of soils including:

- *The code of practice for the sustainable use of soils on construction sites* (Defra, 2018).
- *C809 Sustainable management of surplus soil and aggregates from construction* (CIRIA, 2023).
- *Environmental Impact Assessment Handbook, Environmental Impact Assessment Handbook: A practical guide for planners, developers and communities, Third edition*. Chapter 7, Section 7.4 Soil. (Carroll, B., Fothergill, J., Murphy, J., and Turpin, T. , 2019).
- *Good Practice Guide for Handling Soils in Mineral Workings*. (Institute of Quarrying [IQ], 2021).
- *Guidance on the classification and assessment of waste (1st Edition v1.2.GB) Technical Guidance WM3* (Environment Agency, Natural Resources Wales, SEPA, 2021). Available at: https://assets.publishing.service.gov.uk/media/6152d0b78fa8f5610b9c222b/Waste_classification_technical_guidance_WM3.pdf.
- *The Definition of Waste: Development Industry Code of Practice*, Version 2, March 2011 (CL:AIRE, 2011).
- *Guidance: Land Contamination Risk Management (LCRM)*. Environment Agency (2025). Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>.

General principles for soil management

The following general principles should be applied to avoid or minimise impacts on soils:

- The footprint of the construction work should be limited to that necessary to complete the work safely (and in accordance with planning permission).

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- Soil handling and construction operations potentially impacting soils should be carried out in general accordance with the methodology set out in the code of practice for sustainable use of soils (Defra, 2018).
- Soil handling, including excavation and reinstatement, should take place when soils are sufficiently dry and ideally during climatic conditions where vegetation cover can be readily established on reinstated soils. This means that the best period for soil handling typically occurs during the drier months from April to September.
- If ground conditions require it, bog mats or a temporary trackway of either metal, wood, or plastic, would be used for vehicles to access the working areas and avoid causing soil compaction. Temporary trackway or mats must be removed once construction is complete.
- Stripping of vegetation should not be undertaken unnecessarily as this increases the potential for soil erosion by wind or rainfall.
- Where excavated soils can be reinstated at their original location, reinstatement should be completed at the earliest suitable opportunity. This is to minimise the period that soils are temporarily stockpiled, as stockpiling can affect soil structure, soil biodiversity, and soil chemistry (e.g., an anaerobic core can form in the centre of the stockpile, soils in the centre and the base of the stockpile can be compacted by the weight of the soils above, stockpiling will affect soil fauna essential for soil health, such as earthworms, stockpiled soils are at risk of erosion). Measures for soil stockpiling to minimise damage to soil are outlined in the below.
- Stripping/ excavation of topsoils and subsoils should always be carried out as separate operations, the two should not be mixed during handling or storage. During excavation, the change in soil horizons from topsoil to subsoil will usually be visible due to topsoil being darker in colour (typically dark brown) than the subsoil. Note also that changes in soil types can occur within the same field and will not necessarily follow field boundaries. It is recommended that a qualified and experienced soil scientist/ soil specialist is consulted if needed, and is present during relevant stages of construction to advise and support the appropriate handling and storage of excavated soils.
- If a layer of overburden/ parent material is encountered below subsoil in the base of an excavation (e.g., weathered rock layer, little or no evidence of plant or animal life), this material should ideally be stored in a separate heap from the subsoil. If this is not possible due to working area constraints, the overburden should be placed on the top of the subsoil stockpile so that it can be reinstated in the base of the excavation.
- Consideration will be given by the Contractor during detailed design of the construction phase to assess whether excess spoil will be generated, and if this can be used within the Project or can be used offsite in accordance with waste legislation and/ or through design and implementation of a materials management plan (MMP) in accordance with the DoWCoP.

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- Where it is identified through soil resource/ materials management planning that topsoil or subsoil cannot be reinstated at its original location, sampling and testing of excavated topsoil and subsoil should be completed in accordance with BS:3882:2015 and BS:8601:2013, respectively, at the earliest opportunity, to inform the reuse of these soils elsewhere within the Project or at a suitable offsite receptor site.

Peat is not covered by this Outline Soil Management Plan. As explained above, the Project is being designed to avoid deep peat. The soil handling measures in this Outline SMP will apply for the identified peaty soils.

Soil resources within the Project and their sensitivity to handling

PEDOLOGY

Soil mapping presented in Figure 4 of the Peat and Soil Survey report (Annex C of the CEMP) shows the soils within the OHL sections of the Project as follows:

NORTH OHL SITE

- In west and central areas, the Gelligaer Association (0654c) is shown as: loamy permeable upland soils over sandstone with a wet peaty surface horizon and bleached subsurface horizon. Some soils have thin ironpan layers (cemented iron oxides, relatively impermeable).
- In the east the Withnell 1 Association (0611d) is shown: well drained loamy soils over sandstone usually on steep slopes. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging are possible, and also bare rock locally.

SOUTH OHL SITE

- In the north and at the southern tip of this area the Withnell 1 Association (0611d) is shown as: well drained loamy soils over sandstone usually on steep slopes. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging are possible, and also bare rock locally.
- The central area is shown with the Wilcocks 1 Association (0721c): slowly permeable seasonally waterlogged fine loamy and fine loamy over clayey upland soils with a peaty surface horizon. Coarse loamy soils are affected by groundwater in places. These soils are very acid where not limed.
- In the south is mainly the Gelligaer Association (0654c): loamy permeable upland soils over sandstone 2 with a wet peaty surface horizon and bleached subsurface horizon. Some soils have a thin ironpan. Rock and scree may be present locally.

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AGRICULTURAL LAND QUALITY

The Predictive Agricultural Land Classification (ALC) Map 2³ shows that the ALC grades of land within the Project boundary ranging from Grade 4 to Grade 5, indicating poor or very poor land with severe limitations to agriculture. Within the Project there are also areas classed as urban land, this is applicable to the UGC route as it runs through the town of Maesteg, and some non-agricultural land is also present (e.g., small areas of woodland).

Soil texture, along with soil wetness/ moisture, and soil structure influence how resilient a soil will be to damage caused by handling. **Table 1** (based on Table 2 in IQ, 2021, and Table 7.2 in Carroll, B., Fothergill, J., Murphy, J., and Turpin, T. 2019) provides an indication of the sensitivity of the soil resources within the Project in relation to structural damage. Based on **Table 1** and available soil information, the soil sensitivity in the OHL routes for soil handling during construction of the Project is likely to be generally high (i.e., high susceptibility to structural damage) for topsoils. This is because the most frequently occurring soils are peaty and organic mineral soils. The subsoils encountered were mainly sandy clays, which would fall in the medium to high sensitivity categories, depending on soil moisture/ wetness. As shown in **Table 1**, the risk of structural damage to topsoil or subsoil for each soil texture class increases when soil moisture/ wetness is high.

Table 1 Indicative soil sensitivity to handling with soils in a dry condition

Soil (topsoil and subsoil) sensitivity to handling	Soil texture classes	Note
High sensitivity (high susceptibility to structural damage)	Silt loam, heavy silty clay loam, heavy clay loam, sandy clay, silty clay, clay, organic mineral, peaty soils	Will increase to very high susceptibility to structural damage if handled when too wet
Medium sensitivity (medium susceptibility to structural damage)	Medium silty clay loam, medium clay loam, sandy clay loam	Will increase to high susceptibility to structural damage if handled when too wet
Low sensitivity (low susceptibility to structural damage)	Sand, loamy sand, sandy loam, sandy silt loam	Will increase to medium susceptibility to structural damage if handled when too wet

³ Welsh Government (2019) DataMap Wales: Predictive Agricultural Land Classification (ALC) Map 2. Available at: https://datamap.gov.wales/layers/inspire-wg:wg_predictive_alc2.

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ADVERSE WEATHER

In the event of sustained heavy rainfall (e.g. >10mm in 24 hours) during soil handling operations, work should be suspended and not restarted until the ground has had at least a full dry day or other agreed moisture criteria (such as 'drier than the plastic limit') can be met. As outlined in **Table 1**, lighter soils (e.g., sand soils) can generally be moved at a higher moisture content without structural damage than heavier soils (e.g., clays or silty clays).

Assessment of whether soils are in a suitable condition to be handled can be undertaken by determining soil wetness using the method set out in **Table 2**, which is as defined (based on Supplementary Note 4 in Institute of Quarrying, 2021).

Samples for soil wetness testing in the field should be taken at each soil horizon (meaning each soil layer, with distinct physical, chemical and biological characteristics) to the full depth of the profile to be recovered/replaced.

Generic guidance for responding to rainfall events during soil handling operations is provided by the Institute of Quarrying (Institute of Quarrying, 2021) as follows:

- in light drizzle soil handling may continue for up to four hours unless the soils are already at/near to their moisture limit;
- in light rain soil handling must cease after 15 minutes; and
- in heavy rain and intense showers, handling shall cease immediately.

The above Institute of Quarrying guidance is advisory, for reacting to rainfall events where soils were previously in a dry condition. However, the decision to proceed or stop can be made at a local level and should be based on the actual wetness state of the soils being handled, using the tests in Table 2, following rainfall.

Table 2 Field tests for suitably dry soils (Institute of Quarrying, 2021)

Field tests for suitably dry soils	
(i) Examination	• If the soil is wet, films of water are visible on the surface of soil particles or aggregates (e.g., clods or peds) and/or when a clod or ped is squeezed in the hand it readily deforms into a cohesive 'ball' means no soil handling to take place. • If the sample is moist (i.e., there is a slight dampness when squeezed in the hand) but it does not significantly change colour

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Field tests for suitably dry soils	
	(darken) on further wetting, and clods break up/crumble readily when squeezed in the hand rather than forming into a ball means soil handling can take place. If the sample is dry, it looks dry and changes colour (darkens) if water is added, and it is brittle means soil handling can take place.
(ii) Consistency	First test Attempt to mould soil sample into a ball by hand: - Impossible because soil is too dry and hard or too loose and dry means soil handling can take place. - Impossible because the soil is too loose and wet means no soil handling to take place. - Possible - go to second test.
	Second test Attempt to roll ball into a 3mm diameter thread by hand: - Impossible because soil crumbles or collapses means soil handling can take place. - Possible means no soil handling can take place.

Note: It is possible to roll most coarse loamy and sandy soils into a thread even when they are wet. For these soils, the Examination Test alone is to be used.

SOIL STORAGE AND MANAGEMENT

This section sets out general principles for storage of excavated soils.

- It is expected that excavated soils can be stored/ stockpiled locally to the point of excavation, this is preferable so that restored soils can go back where they came from and to avoid mixing soils between fields/ other boundaries.
- Soil stockpiles should not be positioned within the root or crown spread of trees, or adjacent to ditches, watercourses or existing or future excavations.
- During topsoil stripping, machinery with low ground pressure will be used to minimise soil compaction, including during construction of the access tracks, the tracks will then be available for heavier vehicles to use to avoid impacts on other areas.
- If a topsoil or subsoil has to go to a stockpile for temporary storage away from its point of origin, the stockpile will be referenced and assigned a unique identifier corresponding to its site/ field of origin.
- Soils should be reinstated progressively where possible to minimise the time they are stockpiled. The programme for the Project means that soil should not be in stockpiles for longer than six months. If for any reason this is not the case and longer storage is needed, consideration should be topsoil stockpiles should be seeded to establish vegetation cover of grass and clover (or a suitable

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alternative) and kept weed free by cutting. Subsoil stockpiles which remain present for six months or longer should be managed to *prevent* seeding, such as may occur from adjacent land. Stockpiled subsoil should be placed on geotextile matting.

SOIL REINSTATEMENT

The following measures apply to the reinstatement of excavated soils:

- Soil removal from storage and reinstatement should be carried out in general accordance with Section 5.4 of the code of practice for the sustainable use of soils (Defra, 2018). This method uses a tracked hydraulic excavator to load topsoil and subsoil. Given the small-scale excavations needed for the Project, reinstatement can be completed by soils being loose tipped directly from the excavator (rather than loaded into a dump truck and then loose-tipped), with gentle firming once in place by the excavator.
- Soils should be reinstated in reverse order to excavation, i.e. (if present) placing overburden at base, then subsoil(s), then topsoil(s), with the aim of restoring the original soil horizons to their original thicknesses.
- Before replacement of any topsoil, the subsoil layer should be lightly graded to provide a suitable bed for topsoil replacement.
- Compaction of reinstated subsoil should be limited to that necessary to ensure the structural safety/stability of the cable ducts.
- Following completion of the resspreading of an area restored to topsoil, the surface should be lightly graded.
- Plant and machinery engaged in topsoil replacement operations should avoid travelling over any areas where topsoil has been restored – using physical markers to delineate this if necessary.
- Topsoil should be replaced as a single unit e.g., by the 'loose tipping' methods set out in Defra, 2018 (see Section 6.1) to achieve a uniform, uncompacted soil profile.
- Re-establishment of vegetation cover should be encouraged as soon as possible on reinstated soils.

LAND CONTAMINATION, GROUND STABILITY AND OTHER GEOHAZARDS

- A Phase 1 Geoenvironmental Desk Study (Annex B of the CEMP), also known as a Preliminary Risk Assessment (PRA), and a Coal Mining Risk Assessment (CMRA) (Appendix 4B) have been completed for the Project site, including the proposed OHL and UGC routes.

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- Prior to development commencing, a site investigation scheme, based on the recommendations in the PRA and CMRA, and any updated design information for the Project, will be submitted to and approved by the Local Planning Authority.
- The results of the site investigation, and if required, a remediation options appraisal and remediation strategy, giving full details of the remediation measures required and how they are to be undertaken, will also be submitted to the Local Planning Authority. If remediation is needed then a verification plan will be produced, providing details of data to be collected in order to demonstrate that the works set out in the remediation strategy have been completed.
- If unexpected contamination or suspected contamination is observed or detected during an excavation, additional testing and risk assessment, in accordance with LCRM, and with reference to the PRA, will be required to determine appropriate measures. Materials will be segregated, where possible, to prevent cross-contamination occurring and will only be reused if confirmed to be suitable for use.