

MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Outline site waste management plan F02

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Glossary

Term	Meaning
400 kV grid connection cable corridor.	The corridor within which the 400 kV400 kV grid connection cables will be located.
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Bituminous mixtures	Blends of aggregates with different grades and quantities of bitumen.
Code of Construction Practice	A document detailing the overarching principles of construction, contractor protocols, construction-related environmental management measures, pollution prevention measures, the selection of appropriate construction techniques and monitoring processes.
Landfall	The area in which the offshore export cables make landfall (come on shore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area at Lytham St. Annes between Mean Low Water Springs and the transition joint bays inclusive of all construction works, including the offshore and onshore cable routes, intertidal working area and landfall compound(s).
Mean High Water Springs	The height of mean high water during spring tides in a year.
Mean Low Water Springs	The height of mean low water during spring tides in a year.
Morecambe OWL	Morecambe Offshore Windfarm Limited is owned by Copenhagen Infrastructure Partners' (CIP) fifth flagship fund, Copenhagen Infrastructure V (CI V).
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Morgan OWL	Morgan Offshore Wind Limited is a joint venture between JERA Nex bp (JNbp) and Energie Baden-Württemberg AG (EnBW).
Onshore export cable corridor	The corridor within which the onshore export cables will be located.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substations.
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Site Waste Management Plan	A document used to plan, implement, monitor and review waste minimisation and management of construction sites.
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).

Term	Meaning
Transmission Assets Order Limits	The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning.

Acronyms

Acronym	Meaning
BAOL	Blackpool Airport Operations Limited
CoCP	Code of Construction Practice
CoP	Code of Practice
DCO	Development Consent Order
Defra	Department for Environment Food and Rural Affairs
SWMP	Site Waste Management Plan

Units

Unit	Description
%	Percentage
kV	Kilovolt
mm	Millimetre
m ³	Cubic metre
m ²	Square metre

1 Outline site waste management plan

1.1 Background

1.1.1 Introduction

1.1.1.1 This document forms the Outline Site Waste Management Plan prepared for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (referred to hereafter as ‘the Transmission Assets’).

1.1.1.2 This Outline Site Waste Management Plan has been updated for Deadline 4 in response to the following:

- Update to Requirement 8 wording in line with the draft Development Consent Order (document reference C1) to include Blackpool Airport Operations Limited (BAOL) as a consultee along with the relevant management plans upon which BAOL will be consulted by the relevant planning authority.
- Clarification of the roles and responsibilities for implementing this outline management plan
- Clarification that the measures within this outline management plan will be implemented during the onshore site preparation works.

1.1.2 Implementation

1.1.2.1 This Outline Site Waste Management Plan (SWMP) forms an appendix to the Outline Code of Construction Practice (CoCP) (document reference J1). Following the granting of consent for the Transmission Assets, detailed Waste Management Plans will be prepared as a part of the detailed Code of Construction Practice(s) on behalf of Morgan OWL and/or Morecambe OWL, prior to commencement of the relevant stage of works and will follow the principles established in this Outline Site Waste Management Plan. The detailed Site Waste Management Plans will require approval by the relevant planning authority following consultation with relevant stakeholders. The Applicants and all appointed contractors will be responsible for the implementation of the detailed Site Waste Management Plans.

1.1.2.2 The Applicants have committed to the implementation of detailed Site Waste Management Plans via the following commitment, CoT26 (see Volume 1, Annex 5.3: Commitments Register, document reference F1.5.3), and is secured by inclusion of Requirement 8 of the draft Development Consent Order (DCO) (document reference C1) Schedules 2A & 2B. Below sets out the requirement wording for Project A (Project B’s requirement mirror those of Project A for this requirement and are, therefore, not repeated):

8.—(1) No stage of the Project A onshore works or Project A intertidal works may commence until for that stage a code of construction practice has been submitted to and approved by the relevant planning authority following consultation as appropriate with –

(a) Lancashire County Council;

(b) Natural England;

(c) the Environment Agency;

(d) in relation to the Project A intertidal works or, if applicable to the Project A offshore works, the MMO; and

(e) in relation to the Project A Blackpool Airport works, BAOL, to the extent specified in the outline code of construction practice.

(2) Each code of construction practice must accord with the outline code of construction practice and include, as appropriate to the relevant stage...

(f) site waste management plan (in accordance with the outline site waste management plan);...

(3) The code of construction practice approved in relation to the relevant stage of the Project A onshore works and Project A intertidal works must be followed in relation to that stage of the Project A onshore works and Project A intertidal works.

- 1.1.2.3 Requirement 8(1)(e) identifies BAOL as a named consultee prior to the approval by the relevant planning authority of detailed codes of construction practice. BOAL will be consulted in relation to a stage of construction that includes either the Project A Blackpool Airport Works or the Project B Blackpool Airport Works. With regards to the management plans to be appended (as appropriate to the relevant stage) to the detailed codes of construction practice, BAOL will be consulted on the site waste management plan (in accordance with the outline site waste management plan) by the relevant planning authority.
- 1.1.2.4 The Transmission Assets may adopt a staged approach to the approval of DCO requirements. This will enable requirements to be approved in part or in whole, prior to the commencement of the relevant stage of works in accordance with whether staged approach is to be taken to the delivery of the each of the offshore wind farms.
- 1.1.2.5 For onshore and intertidal works (landward of Mean Low Water Springs (MLWS)), this approach will be governed by the inclusion of Requirement 3 within the draft DCO, which requires notification to be submitted to the relevant planning authority/authorities detailing whether Project A or Project B relevant works will be constructed in a single stage; or in two or more stages to be approved prior to the commencement of the authorised development.

1.1.3 Purpose and scope of this Outline Site Waste Management Plan

- 1.1.3.1 The purpose of this Outline Site Waste Management Plan is to set out measures for managing waste during the onshore site preparation works and construction of the Transmission Assets to ensure compliance with legal and policy requirements for managing waste (e.g. waste hierarchy and duty of care principles).
- 1.1.3.2 Onshore site preparation works are defined in article 2 of the draft DCO (document reference C1). This Outline Site Waste Management Plan applies

to the onshore site preparation works and construction activities for the Transmission Assets located landward of MLWS and does not consider construction impacts seaward of MLWS.

- 1.1.3.3 Onshore site preparation works will be undertaken prior to the commencement of construction. These works will be undertaken in accordance with this Outline Site Waste Management Plan as certified through the DCO.
- 1.1.3.4 The measures within this outline management plan are in accordance with best practice and are appropriate to manage the impacts associated with onshore site preparation works

1.2 Roles and responsibilities

1.2.1 Overview

- 1.2.1.1 The key roles and associated responsibilities with regard to this Outline Site Waste Management Plan are set out below. The Construction (Design and Management) Regulations 2015 also identify the legal duties, responsibilities and obligations of all the major roles within the construction team.
- 1.2.1.2 The responsibilities of each role will be refined as necessary in the detailed Site Waste Management Plans.

1.2.2 Applicants

- 1.2.2.1 The Applicants will be responsible for the following:
 - Ensuring that the outline Site Waste Management Plan is implemented effectively
 - Giving necessary direction to contractors (for example, setting contractual obligations)
 - Preparing the detailed Site Waste Management Plans and undertaking reviews and refining the Site Waste Management Plans (where necessary) in conjunction with the Principal Contractors.

1.2.3 Principal Contractors

- 1.2.3.1 Principal Contractors will be appointed by Morgan OWF and Morecambe OWF and have the overall responsibility for:
 - Delivering the outline and detailed Site Waste Management Plans on behalf of the Applicants
 - Working with the Applicants to identify opportunities to divert waste from landfill
 - Ensuring all procedures in the outline and detailed Site Waste Management Plans are followed
 - Ensuring all contractors are suitably qualified and experienced in implementing the measures within the outline and detailed Site Waste

Management Plans. These measures will be contained within the terms of contracts to ensure understanding and accountability

- Ensuring that all legal and contractual requirements relating to the outline and detailed Site Waste Management Plan are met by ensuring adequate plans/procedures, licences and certificates are in place, and that they can be achieved
- Ensuring that adequate waste collection systems are in place including frequent collections and that waste carriers are registered
- Establish procedures for the regular review and recording of the quality of the works as part of its Quality Management System
- Maintain records relevant to the outline and detailed Site Waste Management Plans
- Monitor compliance with the forecasts and measures in the detailed Site Waste Management Plans by regularly undertaking audits (at least once every three months) and preparing a report for management record. A review will be undertaken at least every six months or earlier where there has been a change to the works or relevant regulations.
- Within three months of construction completed, compare the actual waste quantities against the estimated quantities of each waste type and provide an explanation of any deviation from the detailed Site Waste Management Plans. This information will be provided within a Close Out report.

1.2.4 Contractors/Sub contractors

- 1.2.4.1 Contractors and sub contractors will be responsible for carrying out the waste management tasks in the outline and detailed Site Waste Management Plans. All contractors producing construction waste will be responsible for ensuring their waste is managed in accordance with the legislative requirements set out section 1.3.2 and the waste duty of care (set out in section 1.4.1). All waste carriers used to transport construction waste from the Transmission Assets will be registered carriers with the Environment Agency. Contractors will also have to demonstrate how they have minimised waste and that they have considered opportunities to reuse or recycle their waste.

1.2.5 Training

- 1.2.5.1 A training regime will be implemented to ensure that all relevant members of the onshore construction teams, including subcontractors' personnel receive focused Site Waste Management Plan training to ensure their competence in carrying out their duties on the project.
- 1.2.5.2 Any Site Waste Management Plan training will be additional to the mandatory training requirements on site health and safety.

Environmental induction

- 1.2.5.3 A general site induction will be given to all site personnel to introduce the environmental issues connected with the Site Waste Management Plan, important environmental controls associated with the day-to-day operation of the project and effective delivery of the Site Waste Management Plan (for example, waste storage arrangements, appropriate waste segregation).

Toolbox talks and method statement briefings

- 1.2.5.4 Toolbox talks and method statement briefings will be given to onshore construction teams as work proceeds and will cover the types of wastes produced at each key build stage, and the methods for managing wastes generated from specific construction activities (e.g., recycling of concrete).

Training records

- 1.2.5.5 All training records will be maintained and filed on-site. The records will include the content of the courses (induction and toolbox training), record of attendance and schedule of review.

1.3 Regulatory framework

1.3.1 Definition of waste

- 1.3.1.1 For the purpose of this document, the definition of 'waste' is taken from Article 3(1) of the revised European Waste Framework Directive (2008/98/EC), which states that waste is *'any substance or object which the holder discards, intends to discard or is required to discard'*.
- 1.3.1.2 *'Discard'* includes the recovery and recycling of a subject or object as well as its disposal. The decision on whether something is discarded must take account of all the circumstances (for example, the nature of the material, how it was produced and how it will be used) and have regard to the aims of the European Waste Framework Directive (2008/98/EC), which is *'the protection of human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste'*.
- 1.3.1.3 Guidance on the interpretation of the Waste Framework Directive definition of waste is taken from the Environment Agency's published guidance 'Check if your material is waste' (Environment Agency, 2021), which provides a practical guide to help organisations make decisions about whether a material is a waste or not.
- 1.3.1.4 The Outline Site Waste Management Plan also takes into account CL:AIRE's Definition of Waste: Development Industry Code of Practice (CoP) (CL:AIRE, 2011). The CoP sets out good practice for the development industry to use when:
- *'assessing on a site-specific basis whether excavated materials are classified as waste or not; and*

- *determining on a site-specific basis when treated excavated waste can cease to be waste for a particular use’.*

1.3.1.5 The CoP will be taken into account by the Environment Agency in deciding whether to regulate materials as waste. If materials are dealt with in accordance with the CoP, the Environment Agency considers that those materials are unlikely to be waste if they are used for the purpose of ‘land development’.

1.3.1.6 The scope of the CoP relates to ‘excavated materials’ which include:

- soil, both topsoil and subsoil, parent material and underlying geology;
- ground based infrastructure that is capable of reuse within earthworks projects (e.g., road base, concrete floors);
- made ground; and
- stockpiled excavated materials that include the above.

1.3.2 Legislation and guidance

1.3.2.1 The legislative framework for the management of construction wastes comprises the following:

- Environmental Protection Act 1990;
- Environment Act 1995;
- Environment Act 2021;
- Hazardous Waste (England and Wales) Regulations 2005;
- Revised Waste Framework Directive (2008/98/EC);
- Landfill Directive (1999/31/EC);
- Environmental Permitting (England and Wales) Regulations 2016;
- Waste Management (England and Wales) Regulations 2006;
- Waste (England and Wales) Regulations 2011;
- Technical guidance MW3: waste classification – Guidance on the classification and assessment of waste (EA, 2021); and
- Waste Duty of Care: Code of Practice (Defra, 2016).

1.3.2.2 The Environment Act 2021 provides a legal framework for environmental governance and makes specific provision for the improvement of the environment. With regards to waste and resources, the Act provides the legislative framework needed to deliver many of the commitments in ‘Our Waste, Our Resources: A Strategy for England (Defra, 2018) by introducing new powers and amending existing legislation such as the Environment Act 1995 and the Environmental Protection Act 1990.

1.3.2.3 The framework of waste management legislation in the UK is currently shaped by the European Waste Framework Directive (2008/98/EC). The Directive is partly transposed into UK law by the Waste (England and Wales) Regulations 2011. These regulations require all businesses and

organisations that produce waste to take all reasonable measures to prevent waste, to apply the waste hierarchy (see **section 1.6.1**) when transferring waste using the definitions in Article 3 of Directive 2008/98/EC and include a declaration on their waste transfer notes or consignment notes to that effect. Standard Industry Classification Codes 2007 (Office for National Statistics 2009) of the waste producer must also be provided in the waste transfer note. The Standard Industry Classification is a system for classifying industries by a four-digit code.

- 1.3.2.4 The Hazardous Waste (England and Wales) Regulations 2005 set out the requirements for controlling and tracking the movement of hazardous waste and bans the mixing of different types of waste. Under the Regulations 'mixing' includes mixing of different categories of hazardous waste, non-hazardous wastes or any other substance or material.
- 1.3.2.5 Section 34 of the Environmental Protection Act 1990 imposes a duty of care on individuals and businesses who import, produce, carry, keep, treat or dispose of controlled waste. The duty of care requires all reasonable measures to ensure the safe management of waste to protect human health and the environment.

1.4 Key obligations

1.4.1 Duty of care

- 1.4.1.1 The duty of care requirements are explained in the 'Waste Duty of Care: Code of Practice' (Defra, 2016), pursuant to section 34(7) of the Environmental Protection Act 1990. To meet these requirements, waste materials arising from construction will only be transported by waste carriers and hazardous waste carriers holding a valid registration with the Environment Agency. Each consignment of waste removed from the construction site will be accompanied by a waste transfer note (or hazardous waste consignment note as appropriate), which correctly describes the waste using the European Waste Catalogue code, identifies the waste carrier and where the waste will be transported to.
- 1.4.1.2 Requirements for transferring waste and registered waste carriers are set out in Part 8 and 9 of the Waste (England and Wales) Regulations 2011. The waste will only be transferred to facilities that have the benefit of a registered waste exemption, or an environmental permit. Periodic audits would be undertaken of these facilities. Prior to construction commencing, the Applicants and Principal Contractor(s) will sign the declaration in the form set out in **Table 1.1** to confirm that waste from construction will be managed in accordance with the duty of care requirements.

Table 1.1: Site Waste Management Plan declaration

Name of applicants	
Contact	
Principal contractor	
Site waste management plan prepared by	
Date	
Project details	
Estimated build cost of the project	
Declaration	
All waste from the site will be dealt with in accordance with the duty of care in section 34 of the Environmental Protection Act 1990 and the duty of care provisions in the Waste (England and Wales) Regulations 2011). Materials will be handled efficiently, and waste managed appropriately.	
Signature of the applicants	Signature of principal contractor

1.4.2 Pre-treatment of wastes

- 1.4.2.1 Wastes destined to be landfilled will be pre-treated prior to disposal in accordance with the EU Landfill Directive (1999/31/EC). Treatment can comprise physical, thermal, chemical or biological processes provided that they change the characteristics of the waste in order to reduce its volume or hazardous nature or to facilitate its handling or recovery.

1.5 Identification of waste arisings

1.5.1 Waste types

- 1.5.1.1 At a strategic level, the key waste streams generated from the construction of the onshore elements of the Transmission Assets can be classified as follows.
- Inert – wastes that will not cause adverse effects to the environment when disposed of, or do not decompose and they have no potentially hazardous content when placed in a landfill. Examples of inert wastes are rocks, concrete, mortar, glass, uncontaminated soils and aggregates.
 - Non- hazardous – wastes that will decompose when buried resulting in the production of methane and carbon dioxide. Examples of non-hazardous wastes include timber, paper and cardboard.
 - Hazardous – wastes that are harmful to human health or the environment (for example, pollution of watercourses) if they are incorrectly contained, treated or disposed of. Hazardous wastes may have one or more of the following properties: explosive, corrosive, flammable, highly flammable, infectious, oxidising or sensitising.

- 1.5.1.2 The construction of the onshore elements of the Transmission Assets is anticipated to generate a number of different waste types. This will include (but is not limited to) wastes contained within the following list of waste categories (also known as waste classification codes, as identified in Technical guidance MW3 waste classification – Guidance on the classification and assessment of waste (EA, 2021)):
- 17 01 concrete, bricks, tiles and ceramics;
 - 17 02 wood, glass and plastic;
 - 17 03 bituminous mixtures, coal tar and tarred products;
 - 17 04 metals (including their alloys);
 - 17 05 soil (including excavated soil from contaminated sites), stones and dredging spoil;
 - 17 06 insulation materials and asbestos-containing construction materials;
 - 17 08 gypsum-based construction material; and
 - 17 09 01* construction and demolition wastes containing mercury.
- 1.5.1.3 It is noted that a number of sub-categories of wastes are included within the above. The waste codes for each specific waste type will be provided on each waste transfer note that will accompany every movement of waste from construction areas.

1.5.2 Estimated waste arisings

Waste types

- 1.5.2.1 The groupings of inert, non-hazardous and hazardous have been split into the key waste types based on the available design information. Where appropriate, the wastes are described according to the general list of waste categories for construction wastes. The list of wastes given in **Table 1.2** is not exhaustive and may be extended as the detailed design and construction philosophy develops after consent.

Table 1.2: Key indicative waste forecasts

Construction element	Material	Type of waste	European Waste Catalogue code	Estimated quantity*	Target for re-use/ recycle
Landfall	Topsoil	Non-hazardous	17 05 04		100%
	Subsoil				
	Cable		17 04 11		70%
	Bentonite - drilling muds		17 04 11		70%

Construction element	Material	Type of waste	European Waste Catalogue code	Estimated quantity*	Target for re-use/ recycle
Onshore export cable corridor	Topsoil	Non-hazardous	17 05 04		100%
	Subsoil				
	Green waste		20 02 01		100%
	Cable		17 04 11		70%
	Bentonite - drilling muds		01 05 99		70%
Joint bays	Subsoil	Non-hazardous	17 05 04		100%
	Packaging waste		15 01 01 15 01 02		70%
	Cable		17 04 11		100%
Haul road	Stone	Non-hazardous	17 05 04 or 03		70%
Temporary construction compounds	Stone	Non-hazardous	17 05 04 or 03		70%
Onshore substations access road	Topsoil Subsoil	Non-hazardous	17 05 04		100%
Onshore substations	Top soil	Non-hazardous	17 05 04		100%
	Subsoil				
	Green waste		20 02 01		100%
	Packaging waste		15 01 01 15 01 02		70%
	Concrete		17 01 01		70%
	Metal		17 04 07		70%
	Cable		17 04 11		70%
Staff welfare areas	Paper and cardboard	Non-hazardous	20 01 01		100%
	Glass		20 01 02		100%
	Plastic		20 01 39		70%
	Food waste		20 01 08		70%

Notes:

*: The estimated quantity of waste types will be confirmed prior to commencement of the relevant stage of the connection works.

1.5.3 Completing site waste management plan data sheets

- 1.5.3.1 The indicative types of waste to be generated from the construction of the onshore elements are identified in **Table 1.2**. The forecast is a useful planning tool to record the types of waste that will be generated. Targets can then be set for different waste types and entered into a waste estimates data sheet (to be produced as part of the detailed Site Waste Management Plans). This will identify how the waste types will be managed (i.e., re-used on site, recycled off site etc).
- 1.5.3.2 Once construction is underway, the principal contractor(s) will complete a waste management data sheet (a template of which is to be produced as part of the detailed Site Waste Management Plans). These sheets will be updated every time waste is removed from the construction site and will record:
- the types and quantities of waste produced;
 - the types and quantities of waste that have been re-used/recycled/recovered/landfilled or otherwise disposed of on or off site;
 - the identity of the person removing the waste;
 - the registration number of the waste carrier;
 - a copy of or reference to the written description of the waste; and
 - details of the site where the waste is taken to and whether it holds a permit or is exempt.
- 1.5.3.3 The detailed Site Waste Management Plans will be reviewed by the Principal Contractor(s) during the construction process to check progress in meeting the reuse/recycling targets and to identify if any changes are required to the waste management measures. Any changes will be provided to relevant authorities upon request.
- 1.5.3.4 On completion of construction of the relevant stage of the connection works, a comparison of the estimated waste arisings (waste estimates sheet) and the actual waste management data (waste management data sheet) will be undertaken by the Principal Contractor(s) (see **section** Error! Reference source not found.).

1.5.4 Setting targets to divert waste from landfill

- 1.5.4.1 A target has been set to reuse, recycle or recover 70% of overall construction waste generated. This target is in line with the target in Schedule 1 Part 2(11) the Waste (England and Wales) Regulations 2011 and Article 11 of the Waste Framework Directive. This target is also in line with the good practice target set in the Building Research Establishment Environmental Assessment Methodology BREEAM New Construction Manual (BRE Global Ltd, 2018).
- 1.5.4.2 Further targets will be set to reduce, reuse or recycle key waste materials (for example, topsoil and stone) on and/or off the construction areas where applicable. Preliminary material targets are included in **Table 1.2**. These targets will be re-visited, and further targets will be added as the project design and the construction philosophy progress, typically post consent.

Further information will be provided in the detailed Site Waste Management Plan, to be submitted as part of the detailed CoCP(s). The setting of targets allows the performance of the Site Waste Management Plan to be monitored and evaluated at the end of the construction period.

- 1.5.4.3 A target benchmark for resource efficiency will be set for the construction of the onshore substation. This would follow the construction resource efficiency benchmark set in the BREEAM New Construction Manual (BRE Global Ltd, 2018), which is 13.3 m³ (or 11.1 tonnes) of non-hazardous construction waste generated per 100 m² (gross internal floor area).

1.6 Management of waste arisings

1.6.1 Waste hierarchy

- 1.6.1.1 Construction waste generated from the Transmission Assets will be managed according to the principles of the waste hierarchy. The waste hierarchy ranks waste management options according to what is best for the environment. It gives top place to waste prevention. When waste has been generated, priority is given to preparing it for reuse, then recycling, then recovery, and last of all disposal (for example, landfill). The waste hierarchy is a key element of sustainable waste management and is a legal requirement of the revised EU Waste Framework Directive and the Waste (England and Wales) Regulations 2011.
- 1.6.1.2 Defra has published guidance on how the waste hierarchy should be applied to a range of common wastes (Defra, 2011). It summarises the findings of current scientific research on the environmental impacts of various waste management options for a range of materials and products. The guidance states that for most materials the waste hierarchy ranking applies.
- 1.6.1.3 However, the evidence suggests that for some materials, the preferred waste management option (i.e., with the lowest environmental impact) does not follow the waste hierarchy order. This is true for lower grades of wood, where energy recovery options are more suitable than recycling.

Prevention

- 1.6.1.4 Waste can be minimised during the design stage, including the following measures:
- using prefabricated materials for on-site assembly;
 - buildings/structures designed to standard dimensions of blocks or frames to avoid offcuts;
 - topsoil and subsoil generated from the site preparation works at the onshore substations will be retained on site where possible to be used in the site restoration and landscaping; and
 - internal materials and fittings will be pre-cut to reduce the need for site cutting.
- 1.6.1.5 Waste will also be minimised by improving wastage rates when ordering materials. Waste allowances are generally included within material orders to

take into account design waste and construction process waste. These waste allowances are often generic and not project specific and therefore, run the risk of being inaccurate. This can lead to a surplus of materials, which typically ends up being discarded (i.e., waste). A system will be put in place to enable the accurate estimates of material requirements (and waste allowances) at the detailed design stage.

- 1.6.1.6 On appointment of the Principal Contractor(s), the purchasing requirements will be discussed with the Site Manager(s) to identify priorities and review the quotations received. Materials will be checked against the material specifications as part of the quality control system.
- 1.6.1.7 Where possible, hazardous materials will be substituted for less hazardous alternatives.
- 1.6.1.8 Waste minimisation measures will be implemented by the Principal Contractor(s) and Site Manager(s) during construction in order to achieve the waste allowance targets. These measures include:
- subsoil and topsoil generated from the construction of the onshore export cable corridor will be used as backfill to reinstate the trenches;
 - a logistic system which allows 'just-in-time' deliveries to minimise the length of time materials are stored on-site and co-ordinate with other trades;
 - providing suitable and secure storage for materials where 'just-in-time' deliveries cannot be set up;
 - mechanical systems and machinery will be considered for moving materials to reduce the risk of damage; and
 - programming and monitoring construction activities to avoid overlap of incompatible trades working in the same area and to reduce the potential for waste to be generated from replacing damaged work.

Preparing for re-use

- 1.6.1.9 The installation of the onshore export cable corridor will require the construction of a temporary haul road and temporary construction compounds (including landfall and onshore substations). The haul road will be constructed of on average 400 mm depth of permeable crushed gravel aggregate with a geotextile membrane. For the compounds, an average depth of 300-500 mm permeable aggregate would be used.
- 1.6.1.10 On completion of the cable installation works, the haul road will be dismantled (i.e., the gravel and membrane would be removed). The use of the geotextile membrane underneath the gravel will allow a greater proportion of the aggregate to be recovered as it would be easy to segregate from the underlying soil. Where possible, opportunities to re-use the aggregate to construct other elements of the Transmission Assets will be investigated. Landowners may also be given the option of re-using the stone on their land for maintaining farm tracks.
- 1.6.1.11 Alternatively, the aggregate will be transported to a local waste management facility for re-use on construction projects elsewhere. Where possible,

durable geotextile underlay/protective matting will be selected to allow its reuse on other projects. Opportunities to reduce packaging or implement take-back schemes for packaging and unused materials will also be discussed with the suppliers.

Recycling

- 1.6.1.12 Waste generated during the construction process will be segregated into waste types to facilitate off-site recycling (for example, metals, wood, plastic). The layout of the temporary construction compounds will be designed to allow sufficient space for separate containers of key waste materials to be stored. These containers will be clearly labelled, and construction staff will be given training on waste segregation.
- 1.6.1.13 Green waste generated during site preparation works will be composted off-site. Opportunities will be investigated to retain woody material on site for ecological habitats, however this would be subject to agreement with landowners.
- 1.6.1.14 The Principal Contractor(s) will consider the use of recycled materials where possible, subject to client approval, cost and availability (for example, recycled aggregate and secondary aggregates for use in concrete, or granular fill).

Disposal

- 1.6.1.15 All waste that cannot be reused, recycled or recovered will be collected by the licensed waste management contractor and disposed of at a permitted site suitable for the type of waste. Burning of surplus material or material arising from construction will not be permitted.

1.6.2 Storage of waste

- 1.6.2.1 Waste storage areas will be provided at the type A compounds, the transition joint bay compounds and within the compound at the onshore substations. Smaller waste storage areas will be provided in the type B and type C compounds as required. Each skip/container will be clearly marked to indicate the intended contents and will be suitable for the storage of the specified contents. All skips/containers will be covered to prevent the escape of waste by windblow or vandalism. If liquid waste is being stored, an appropriate bund and drip pans will be in place. Storage areas will be located away from potential contaminant pathways such as soakaways and drains, trial pits, excavations and trenches.
- 1.6.2.2 Any hazardous waste will be stored safely in a designated area away from non-hazardous and inert wastes and labelled accordingly.

1.6.3 Registered carriers

- 1.6.3.1 Construction waste generated will only be transported by companies registered with the Environment Agency and with valid waste carrier licences as required by the 'Waste Duty of Care Code of Practice' and legislation (i.e.,

Environmental Protection Act section 34 and the Waste (England and Wales) Regulations, 2011).

1.7 Audit, monitor and review

1.7.1 Site inspection

- 1.7.1.1 Regular inspections of the onshore construction works will be undertaken by the Principal Contractor(s) (or appropriately trained member of the construction staff) to ensure the continued compliance of site operations with the provisions of the detailed Site Waste Management Plan(s) and control measures outlined in relevant method statements.

1.7.2 Monitoring of the detailed Site Waste Management Plans

- 1.7.2.1 Appropriate duty of care paperwork for the movements of waste (for example, waste transfer notes) will be retained on site. Volumes (m³ or tonnes) and waste types will be recorded for all wastes sent for reprocessing, recycling or disposal. Records will also be kept of waste re-used/recycled on site.
- 1.7.2.2 A separate Site Waste Management Plan close out report will be compiled by the Principal Contractor(s) at the end of the construction process that summarises performance of the project against the targets set in the Site Waste Management Plan. The report will identify any deviations from the Site Waste Management Plan and discuss lessons learned.

1.8 References

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