Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions

Preliminary Environmental Information Report

Volume 3

Appendix 19.2 - Waste Assessment

April 2021

China Resources
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Glossary of Acronyms

ABE	Approved Battery Exporter
ABTO	Approved Battery Treatment Operator
BEIS	Business, Energy and Industrial Strategy
BDC	Broadland District Council
BS	British Standard
BSI	British Standards Institution
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CEP	Circular Economy Package
CEMP	Construction Environmental Management Plan
CIA	Cumulative Impact Assessment
CoP	Code of Practice
DCO	Development Consent Order
DECC	Department for Energy and Climate Change
Defra	Department for the Environment and Rural Affairs
DEP	Dudgeon Extension Project
DMRB	Design Manual for Roads and Bridges
DPD	Development Plan Document
DOW	Dudgeon Offshore Wind Farm
EC	European Commission
EWC	European Waste Catalogue
EIA	Environmental Impact Assessment
EPP	Evidence Plan Process
EPS	European Protected Species
EPUK	Environmental Protection United Kingdom
EQS	Environmental Quality Standards
ES	Environmental Statement
ETG	Expert Topic Group
EU	European Union
EWC	European Waste Catalogue
FTE	Full-time equivalent
GIS	Geographical Information System
GQRA	Generic Quantitative Risk Assessment

HDD	Horizontal Directional Drilling
HDPE	High-density polyethylene
HWR	Hazardous Waste Regulations
HVAC	High-Voltage Alternating Current
HVDC	High-Voltage Direct Current
IPC	Infrastructure Planning Commission
IROPI	Imperative Reasons of Overriding Public Interest
ISO	International Standards Organisation
km	Kilometre
LDF	Local Development Framework
LFD	Landfill Directive
LPA	Local Planning Authority
MMP	Materials Management Plans
MRS	Metal Recycling Site
MW	Megawatts
MWDF	Minerals and Waste Development Framework
NCC	Norfolk County Council
NGET	National Grid Electricity Transmission
NNDC	North Norfolk District Council
NorCC	Norwich City Council
NP	National Park
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OS	Ordnance Survey
OWF	Offshore Wind Farm
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PEIR	Preliminary Environmental Information Report
PET	Polyethylene terephthalate
POPs	Persistent Organic Pollutants
PPG	Planning Practice Guidance
PPG	Pollution Prevention Guidance

PPV	Peak Particle Velocity
PRA	Preliminary Risk Assessment
rWFD	revised Waste Framework Directive
SEP	Sheringham Shoal Extension Project
SNC	South Norfolk Council
SNDC	South Norfolk District Council
SNS	Southern North Sea
SoS	Secretary of State
SVOCs	Semi-volatile Organic Contaminants
SWMP	Site Waste Management Plan
TEU	Treaty of the European Union
UK	United Kingdom
UN	United Nations
VOCs	Volatile Organic Contaminants
WAC	Waste Acceptance Criteria
WEEE	Waste Electrical and Electronic Equipment
WRAP	Waste & Resources Action Programme
WTG	Wind Turbine Generator

Glossary of Terms

The Applicant	Equinor New Energy Limited
Dudgeon Offshore Wind Farm Extension site	The Dudgeon Offshore Wind Farm Extension lease area.
The Dudgeon Offshore Wind Farm Extension Project (DEP)	The Dudgeon Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure.
DCO boundary	The area subject to the application for development consent, including all permanent and temporary works for DEP and SEP. The DCO boundary will be subject to updated impact assessment and further development of mitigation proposals to inform the ES.
Hazardous waste	Waste which contains substances or has properties that might make it harmful to human health or the environment.
Horizontal directional drilling (HDD) zones	The areas within the onshore cable route which would house HDD entry or exit points.
Inert waste	Inert waste is waste that does not undergo any significant physical, chemical or biological transformations (for example concrete, bricks, rubble).
Jointing bays	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The point on the coastline at which the offshore export cables are brought onshore and connected to the onshore export cables.
Non-hazardous waste	Waste which does not cause harm to human health or the environment.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substation. 220 – 230kV
Onshore substation sites	Parcels of land within onshore substation zones A and B, identified as the most suitable location for development of the onshore substation. Two sites have been identified for further assessment within the PEIR.
Onshore cable corridor	The area between the landfall and the onshore substation sites, within which the onshore cable circuits will be installed along with other temporary works for construction.

PEIR boundary	The area subject to survey and preliminary impact assessment to inform the PEIR, including all permanent and temporary works for DEP and SEP. The PEIR boundary will be refined down to the final DCO boundary ahead of the application for development consent.
Sheringham Shoal Offshore Wind Farm Extension site	Sheringham Shoal Offshore Wind Farm Extension lease area.
The Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Offshore Wind Farm Extension site as well as all onshore and offshore infrastructure.
Study area	Area where potential impacts from the project could occur, as defined for each individual EIA topic.
Joint transition bay	Connects offshore and onshore export cables at the landfall. The transition joint bay will be located above mean high water

19.2 Waste Assessment

19.2.1 Introduction

1. This Waste Assessment Report forms part of the Preliminary Environmental Information Report (PEIR) for the proposed Dudgeon Offshore Wind Farm Extension Project (DEP) and Sheringham Shoal Offshore Wind Farm Extension Project (SEP).
2. The DEP and SEP description is provided in **Chapter 5 Project Description.** An assessment of potential impacts of DEP and SEP on ground conditions and contamination is provided in **Chapter 19 Ground Conditions and Contamination.**
3. This report assesses the onshore impacts of the DEP and SEP in terms of waste generation during the construction, operation and decommissioning phases, taking into account the proposed options for recycling, recovery or disposal of waste, and the capability of the existing local or regional waste management facilities to manage the waste.

19.2.1.1 Sheringham Shoal Extension Project and Dudgeon Extension Project

19.2.1.1.1 Summary Description of SEP and DEP

4. DEP and SEP are proposed extensions of the existing Dudgeon Offshore Wind Farm and Sheringham Shoal Offshore Windfarm both located off the coast of Norfolk in the North Sea. The offshore wind farms will connect to onshore infrastructure comprising underground cables from landfall to an onshore substation. The worst-case scenarios presented in **Table 19.2-1** is based on the worst-case footprint for each of the three potential scenarios described above.
5. The onshore elements of DEP and SEP will include: A detailed description of DEP and SEP is presented in **Chapter 5 Project Description**.

Table 19.2-1: Realistic worst-case scenarios

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
Construction				
Impacts relating to the landfall	<u>Temporary HDD works</u> • HDD temporary works compound area = 5,750m^2 • Transition joint bay size = 10 x 15m. • Total construction space required = 30,000m^2	<u>Temporary HDD works</u> • HDD temporary works compound area = 5,750m^2 • Transition joint bay size = 15 x 15m. • Total construction space required = 30,000m^2	<u>Temporary HDD works</u> • HDD temporary works compound area = 5,750m^2 for each project (overlapping) • Transition joint bay size = 10 x 15m for each project • Total construction space required for each project = 30,000m^2 (overlapping)	The HDD works should not require any prolonged periods of restrictions or closures to the beach for public access, although it is possible that some work activities will be required to be performed on the beach that may require short periods of restricted access.
	<u>Temporary access</u> • Route from the existing road system	<u>Temporary access</u> • Route from the existing road system	<u>Temporary access</u> • Route from the existing road system	
Impacts relating to the onshore cable corridor	<u>Temporary access</u> • Various from public highway (6m wide) to single tracks (3m wide). • Access haul road dimensions = 60km long by 6m wide.	<u>Temporary access</u> • Various from public highway (6m wide) to single tracks (3m wide). • Access haul road dimensions = 60km long by 6m wide.	<u>Temporary access</u> • Various from public highway (6m wide) to single tracks (3m wide). • Access haul road dimensions = 60km long by 6m wide.	The onshore cable duct will be installed in sections of up to 1km at a time, with a typical construction presence of up to four weeks along each 1km section.

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
	Duration • 24 months in total	Duration • 24 months in total	Duration • 24 months in total	
	Material volumes • Width of top soil storage = 6m • Quantity of material excavated for cable trench = 180,000m^3 of which 36,000m^3 to be disposed of	Material volumes • Width of top soil storage = 6m • Quantity of material excavated for cable trench = 360,000m^3 of which 72,000m^3 to be disposed of	Material volumes • Width of top soil storage = 6m • Quantity of material excavated for cable trench = 360,000m^3 of which 72,000m^3 to be disposed of	
	Construction corridor • Total width = 45m • Jointing bays = 120 (approximately every 500m) buried below ground • Jointing bay dimensions = 12m long by 4m wide by 2m deep within the working corridor • One trench, 1m wide by 1.75m deep.	Construction corridor • Total width = 60m • Approximately 120 jointing bays (one every 500m) buried below ground • Jointing bay dimensions = 12m long by 4m wide by 2m deep within the working corridor. • Two trenches, each 1m wide by 1.75m deep. • Minimum cable burial depth at 1.2m	Construction corridor • Total width = 60m • Approximately 240 jointing bays (one every 500m) buried below ground along each cable trench • Jointing bay dimensions of 12m long by 4m wide by 2m deep within the working corridor. • Two trenches, each 1m wide by 1.75m deep.	

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
	• Minimum cable burial depth at 1.2m		• Minimum cable burial depth at 1.2m	
	Construction compounds • Up to 2 main compounds of 60,000m^2 each • 8 secondary compounds of 2,500m^2 each • HDD compounds = 1,500m^2 - 4,500m^2	Construction compounds • Up to 2 main compounds of 60,000m^2 each • 8 secondary compounds of 2,500m^2 each • HDD compounds = 1,500m^2 - 4,500m^2	Construction compounds • Up to 2 main compounds for each project of 60,000m^2 each • 8 secondary compounds for each project of 2,500m^2 each • HDD compounds = 1,500m^2 - 4,500m^2	
Impacts relating to the onshore substation	Substation footprint • Permanent area = 3.25ha. • Temporary construction area = 1ha • Total construction area = 4.25ha	Substation footprint • Permanent area = 6.0ha • Additional construction area = 1ha • Total construction area = 7.0ha.	Substation footprint • Permanent area = 6.25ha • Additional construction area = 1ha • Total construction area = 7.25ha.	
Operation				
Impacts relating to the onshore cable route	Link boxes • Below ground = 120 (up to 2m x 2m x 1.5m) plus an above ground marker post at each location	Link boxes • Below ground = 120 (up to 2m x 2m x 1.5m) plus an above ground marker post at each location	Link boxes • Below ground = 120 for each project (up to 2m x 2m x 1.5m) plus an above ground marker post at each location	Link boxes are expected to be below ground. Alternatively link boxes may be above ground in cabinets.

Impact	Parameter DEP or SEP in isolation	DEP and SEP concurrently	DEP and SEP sequentially	Notes and Rationale
	• Above ground = 120 (up to 1.5m x 1m x 1.5m)	• Above ground = 120 (up to 1.5m x 1m x 1.5m)	• Above ground = 120 for each project (up to 1.5m x 1m x 1.5m)	
Impacts relating to the onshore substation	<u>Substation footprint</u> • Operational area = 3.25ha	<u>Substation footprint</u> • Operational area = 6.0ha	<u>Substation footprint</u> • Operational area = 6.25ha	
	<u>Substation buildings</u> • Max building height = 15m • Oily water sump to provide secondary containment to oil from transformers in the event of a spillage.	<u>Substation buildings</u> • Max building height = 15m • Oily water sump to provide secondary containment to oil from transformers in the event of a spillage.	<u>Substation buildings</u> • Max building height = 15m • Oily water sump to provide secondary containment to oil from transformers in the event of a spillage.	
	<u>Duration</u> • 36 months in total	<u>Duration</u> • 36 months in total	<u>Duration</u> • 36 months in total for each project	
Decommissioning				
No final decision has yet been made regarding the final decommissioning policy for the onshore project infrastructure including landfall, onshore cable route and onshore substation. It is also recognised that legislation and industry best practice change over time. However, it is likely that the onshore project equipment, including the cable, will be removed, reused or recycled where possible and the transition bays and cable ducts being left in place. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and will be agreed with the regulator. It is anticipated that for the purposes of a worst case scenario, the impacts will be no greater than those identified for the construction phase.				

19.2.1.1.2 Construction Scenarios

6. The following principles set out the framework for how DEP and SEP may be constructed:

- DEP and SEP may be constructed at the same time, or at different times;
- If built at different times the first project would require a four-year period of construction including a two year offshore construction period, the second Project a three-year period of construction including a two year offshore construction period;
- If built at different times, either Project could be built first;
- If built at different times, the duration of the gap between start of construction of the first project, and the start of construction of the second project may vary from up to two years;
- Assuming maximum construction periods, and taking the above into account, the maximum period over which the construction of both projects could take place is 7 years; and
- The earliest construction start date is 2024 and the latest is 2028.

7. In order to determine which construction scenario presents the realistic worst case for each receptor and impact, the assessment considers both maximum duration effects and maximum peak effects, in addition to each Project being developed in isolation, drawing out any differences between each of DEP and SEP.

8. The three construction scenarios considered by the Waste Assessment are therefore:

- Build DEP or build SEP in isolation;
- Build DEP and SEP concurrently – reflecting the maximum peak effects; and
- Build one project followed by the other with a gap of up to 4 years (sequential) – reflecting the maximum duration of effects.

19.2.1.2 Objectives

9. The objectives of the Waste Assessment are:

- To provide information on the existing waste management facilities in the local area and the regional waste management capacity;
- To provide details of the predicted construction and operational waste composition and quantities; and
- The provide construction and operational waste management measures in accordance with the waste hierarchy.

19.2.1.3 Scope of Works

10. The scope of the report comprises:

- Review of the local waste management facilities identified from the Environment Agency Public Register (Environment Agency, 2020a);

- Review data on the potential regional waste management capacity in the East of England. The Environment Agency provides waste capacity data on its website (Environment Agency, 2019); and
- An assessment of suitable waste management measures in relation to the predicted composition and quantities of waste associated with the onshore elements of DEP and SEP.

19.2.2 Waste Legislation and Policy Context

11. UK legislation is underpinned by several international (e.g. European Union (EU)) agreements. In 2017, the UK government triggered article 50 of the Treaty of the European Union (TEU) with the UK formally withdrawing from the EU on 31st January 2020. This was followed by a transition period until the end of 2020 while the UK and the EU negotiated additional arrangements.

12. Most EU waste management law was implemented into UK legislation by way of statutory instrument. This means that the relevant legislation has not been automatically or immediately affected by the UK's exit from the EU as the legislation will remain in place in the UK.

13. The government has decided that at the point at which the UK leaves the EU, all EU legislation which had not already been transposed into UK law will be transferred to UK statute. From then on all the EU environmental legislation will remain in force as part of UK law but (unless the UK has made specific commitments to apply such law as part of negotiating a new arrangement with the EU), it can then be repealed or amended according to the policy drivers of the UK Parliament (or the devolved parliaments where they have power to do so).

19.2.2.1 International Legislation and Policy

19.2.2.1.1 EU Waste Framework Directive (Directive 2008/98/EC)

14. The key European legislation is the revised Waste Framework Directive (2008/98/EC) ('rWFD'), which consolidates several separate waste Directives and amendments. It establishes the basis for the management of wastes across the EU. It defines certain terms such as "waste", "recovery" and "disposal", to ensure that a uniform approach is taken across the EU.

15. The rWFD explains when waste ceases to be waste and becomes a secondary raw material (by meeting "end-of-waste" criteria), and how to distinguish between waste and by-products.

16. The rWFD provides the following basic waste management principles:

- It requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.
- It introduces the concept of the waste hierarchy and provides a direction for the management of waste by applying a priority order to the management of waste.
- It incorporates provisions on hazardous waste.

- It provides recycling and recovery targets to be achieved by 2020: 50% preparing for re-use and recycling of certain waste materials from households and other origins similar to households, and 70% preparing for re-use, recycling and other recovery of construction and demolition waste.

17. Much of the requirements of the rWFD are implemented by UK or English legislation (for example the Environmental Permitting Regulations). The retention of functions from the Waste Framework Directive is made under the Waste (Miscellaneous Amendments) (EU Exit) Regulations 2009.

19.2.2.1.2 EU Landfill Directive (Directive 1999/31/EC on landfill of waste)

18. The objective of the Landfill Directive (LFD) (Council Directive, 1999) is to prevent or reduce as far as possible negative effects on the environment, in particular on surface water, groundwater, soil, air, and on human health from the landfilling of waste by introducing stringent technical requirements for waste and landfills.

19. According to the waste management hierarchy, landfilling is the least preferable option and should be limited to the necessary minimum. Where waste needs to be landfilled, it must be sent to landfills which comply with the requirements of Directive 1999/31/EC /on the landfill of waste.

20. The LFD defines the different categories of waste (municipal waste, hazardous waste, non-hazardous waste and inert waste) and applies to all landfills, defined as waste disposal sites for the deposit of waste onto or into land.

21. A standard procedure for the acceptance of waste in a landfill is laid down to avoid any risks associated with accepting waste that could cause long term harm.

19.2.2.1.3 EU Action Plan for the Circular Economy

22. The revised legislative framework on waste in the EU's Circular Economy Package (CEP) entered into force at the start of July 2018 through Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018, by amending Directive 2008/98/EC on waste (the Waste Framework Directive – see above).

23. Member states have 24 months to transpose it into national legislation. The implementation of CEP in the UK will be subject to the UK withdrawal agreement. The UK's own Circular Economy Package was published on 30 July 2020 by the UK, Welsh, Scottish and Northern Ireland governments and is predominantly the same as the European CEP. The date that the government is looking to transpose the relevant CEP regulations into UK law is to be confirmed, and was provisionally stated to be autumn 2020, however this has not been achieved and has not been updated since 30 July 2020 (at the time of writing).

24. The CEP extends targets for municipal waste recycling. A target of 55 per cent by 2025 will be introduced, with a 60 per cent goal for 2030, then a subsequent 65 per cent target being set for 2035. EU member states are currently working towards a 50 per cent target for 2020.

25. Additionally, the CEP proposes a binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2035.

26. The CEP will also provide concrete measures to promote re-use and stimulate industrial symbiosis where one industry's by-product is reused as another industry's raw material.

19.2.2.2 National Planning Policy

19.2.2.2.1 National Policy Statement (NPS)

27. The policy framework for examining and determining applications for Nationally Significant Infrastructure Projects (NSIPs) is provided by National Policy Statements (NPSs).

28. Those relevant to the DEP and SEP are:

- Overarching NPS for Energy (**EN-1**) (DECC 2011a); and
- NPS for Renewable Energy Infrastructure (**EN-3**) (DECC 2011b).

29. The specific assessment requirements for waste, as detailed in the NPSs are summarised in **Table 19.2-2.**

Table 19.2-2: Summary of NPS Requirements

NPS Requirement	NPS Reference
Sustainable waste management is implemented through the "waste hierarchy", which sets out the priorities that must be applied when managing waste. Disposal of waste should only be considered where other waste management options are not available or where it is the best overall environmental outcome.	EN-1, paragraph 5.14.2, 5.14.3
The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a Site Waste Management Plan. The arrangements described and Management Plan should include information on the proposed waste recovery and disposal system for all waste generated by the development, and an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation. The applicant should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome.	EN-1, paragraph 5.14.6
The IPC should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development. It should be satisfied that: • any such waste will be properly managed, both on-site and off-site;	EN-1, paragraph 5.14.7

NPS Requirement	NPS Reference
• the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area; and • adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome	

19.2.2.2.2 A Green Future Our 25 Year Plan to Improve the Environment

30. The Governments 25 Year Plan (Government, 2018) sets out the goal for improving the environment within a generation and leaving it in a better state. In terms of waste management, it seeks to minimise waste, reuse materials and manage materials at the end of their life to minimise the impact on the environment, by:

- Working towards the ambition of zero waste by 2050.
- Working to a target of eliminating avoidable plastic waste by end of 2042.
- Meeting all existing waste targets – including those on landfill, reuse and recycling – and development ambitious new targets and milestones.
- Seeking to eliminate waste crime and illegal waste sites over the lifetime of the Plan, prioritising those of highest risk.
- Delivering a substantial reduction in litter and litter behaviour.
- Significantly reducing and where possible preventing all kinds of marine plastic pollution – in particular material that came originally from land.

19.2.2.2.3 Our Waste, Our Resources (Defra, 2018)

31. Defra launched its strategy for waste and resources – Our Waste, Our Resources: A Strategy for England in December 2018. The Strategy provides a focus on solutions that will reduce the country's reliance on single-use plastics, provide clarity on household recycling, and provides measures to manage packaging and food waste. Its purpose is to provide policy direction in line with government's 25 Year Environment Plan (see above).

32. The Strategy's timeline of targets shows those on recycling household waste and disposal to landfill remain pegged to the EU's Circular Economy Package of legislation (see below).

33. An aim of the Strategy is to focus on resource recovery and waste management. Part of this involves the promotion of UK-based recycling. Furthermore, the Strategy aims to implement the waste hierarchy for hazardous wastes.

19.2.2.2.4 The Strategy for Hazardous Waste Management in England 2010

34. The Strategy (Defra, 2010) sets out the principles for the management of hazardous waste and helps waste producers and managers:

- Make the right decisions about their waste.
- Identify the available treatment facilities available.

19.2.2.2.5 National Planning Policy for Waste 2014

35. The Government has published the National Waste Planning Policy 2014 for England (DCLG, 2014) as a replacement of Planning Policy Statement 10: Planning for Sustainable Waste Management (PPS 10) 2011 (DCLG, 2011). The updated policy maintains the core principles of the 'plan led' approach, with a continued focus of moving waste up the Waste Hierarchy.

36. It requires local planning authorities to "have regard to its policies when discharging their responsibilities to the extent that they are appropriate to waste management". Increasingly local authorities are working together in partnerships to deliver full and efficient waste services; a requirement of the duty to cooperate in section 110 of the Localism Act 2011. The document sets out detailed waste planning policies to facilitate a "more sustainable and efficient approach to resource use and management", for example by ensuring the design and layout of new infrastructure complements sustainable waste management.

37. When determining planning applications for non-waste development, the Policy requires that local planning authorities should, to the extent appropriate to their responsibilities, ensure that:

- "The likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities;
- New, non-waste development makes sufficient provision for waste management and promotes good design to secure the integration of waste management facilities with the rest of the development; and
- The handling of waste arising from the construction and operation of development maximises reuse/recovery opportunities and minimises off-site disposal."

19.2.2.2.6 National Planning Policy Framework

38. The National Planning Policy Framework (NPPF), which was updated in February 2019 (DCLG, 2019), does not contain specific waste policies. In terms of achieving sustainable development, the NPPF identifies that minimising waste and pollution is a fundamental part of the environmental role of the planning system.

39. The NPPF encourages local planning authorities to prepare Local Plans that, so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously. The Facility should therefore have regard to the requirements of the relevant Local Plan in terms of waste management. This is discussed further below in the context of the Norfolk County Council Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2010-2026.

19.2.2.2.7 National Waste Management Plan for England 2013

40. Defra published a National Waste Management Plan for England in July 2013 (Defra, 2013a). The key aim of the Waste Management Plan for England was to set a direction towards a zero-waste economy as part of the transition to a sustainable economy. In particular, this means using the “waste hierarchy” (waste prevention, re-use, recycling, recovery and finally disposal as a last option) as a guide to sustainable waste management.

41. The Waste Management Plan for England was a high-level document which is non–site specific. It evaluated how it would support implementation of the objectives and provisions of the revised Waste Framework Directive (rWFD) (2008/98/EC; European Parliament, 2008).

42. The rWFD established the principle of ‘proximity’. This is within the context of the requirement on Member States to establish an integrated and adequate network of waste disposal facilities for recovery of mixed municipal waste collected from private households. The requirement included where such collection also covers waste from other producers.

43. The plan identified the measures to be taken to ensure that by 2020 at least 70% by weight of construction and demolition waste is subjected to material recovery, the plan notes that this target has been met and exceeded.

44. Note: The construction, demolition and excavation sector is the largest contributing sector to the total waste generation. The UK generated 222.9 million tonnes of total waste in 2016. 66.2 million tonnes of this was non-hazardous construction and demolition waste. The Government keeps progress towards the 2020 targets under review by monitoring actual recycling rates and by modelling future recycling. The recovery rate from non-hazardous construction and demolition waste in the UK in 2016 was 91.0%. This already exceeds the 2020 target of recovering at least 70% by weight, of non-hazardous construction and demolition waste (Defra & Government Statistical Service, 2020).

19.2.2.2.8 Waste Prevention Programme for England 2013

45. The Government developed Waste Prevention Programme for England in 2013 (Defra, 2013b) to set out the key roles and actions which should be taken to move towards a more resource efficient economy. As well as describing the actions the government is taking to support this move, it also highlights actions businesses, the wider public sector, the civil society and consumers can take to benefit from preventing waste. Using resources more efficiently, designing and manufacturing products for optimum life and repairing and reusing more items could save money and provide opportunities for economic growth at the same time as improving the environment.

46. The waste prevention programme is a requirement of the rWFD. It sets out detailed actions to:

- Encourage businesses to contribute to a more sustainable economy by building waste reduction into design, offering alternative business models and delivering new and improved products and services;
- Encourage a culture of valuing resources by making it easier for people and businesses to find out how to reduce their waste, to use products for longer, repair broken items, and enable reuse of items by others;
- Help businesses recognise and act upon potential savings through better resource efficiency and preventing waste, to realise opportunities for growth; and
- Support action by central and local government, businesses and civil society to capitalise on these opportunities.

47. To measure progress against the aim of the programme, the government measures changes in overall waste arising, assesses the environmental impacts of this waste and considers how these factors relate to changes in the resource efficiency of the economy.

19.2.2.3 Local and Regional Planning Policy

48. DEP and SEP fall under the jurisdiction of the following county council and local planning authorities:

- Norfolk County Council (NCC);
- North Norfolk District Council (NNDC);
- Broadland District Council (BDC); and
- South Norfolk Council (SNC).

49. The planning policies associated with each area are outlined below.

19.2.2.3.1 Norfolk County Council - Norfolk Minerals and Waste Development Framework (MWDF): Core Strategy and Minerals and Waste Development Management Policies Development Plan Document 2010-2026 (Adopted September 2011).

50. The Core Strategy, along with the Proposals Map, sets out the spatial vision for future mineral extraction and associated development and waste management facilities in Norfolk from 2011-2026. It also contains strategic objectives and policies that make clear where, in broad terms, mineral extraction and associated development and waste management facilities should be located in Norfolk, and conversely where they should not be located. The location of these waste management facilities must be considered in the context of managing waste from DEP and SEP.

51. The policies contained within the spatial strategy that are applicable to managing waste for DEP and SEP include:

- Policy CS6 – General waste management considerations;
- Policy CS16 – Safeguarding mineral and waste sites and mineral resources; and
- Policy CS17 – Use of secondary and recycled aggregates.

19.2.2.3.2 Norfolk County Council - Norfolk Minerals and Waste Development Framework: Waste Site Specific Allocations Development Plan Document (Adopted October 2013)

52. As part of its preparation of the MWDF, Norfolk County Council produced a Waste Site Specific Allocations Development Plan Document (DPD). Its purpose is to set out specific, allocated sites where waste management facilities are considered acceptable in principle so to provide sufficient waste management capacity to meet the expected arisings of municipal, commercial and industrial waste in Norfolk over the period 2011-2026. The location and capacity of these facilities should be considered for the management of waste during the construction phase.

19.2.2.3.3 North Norfolk District Council (NNDC) Local Development Framework Core Strategy (2008 - 2021)

53. The Core Strategy provides the overarching approach for development in North Norfolk. It sets out a long-term spatial vision, objectives and policies to guide public and private sector investment up to 2021. The policies that are applicable to DEP and SEP include:

- Policy EN6: Sustainable Construction and Energy Efficiency - To maximise the use of locally sourced / re-used / renewable / low embodied energy materials in the development, and minimise waste generated during construction.

54. North Norfolk District Council Emerging Local Plan (2016 – 2036) (also known as the Local Development Framework (LDF)) will soon replace Core Strategy (2008). It is a collection of planning documents which will guide the planning policy context for development across the whole of North Norfolk for the period 2016 – 2036. The 2019 first draft of the Local Plan includes Policy SD 5 which states "Developer contributions will be required to secure infrastructure which is necessary to ensure: …the delivery of environmental infrastructure including biodiversity management, landscaping, flood defences, SuDS, **waste management** and, where necessary their maintenance."

19.2.2.3.4 Broadland District Council Local Plan

55. Broadland's current Local Plan is made up of several documents (as outlined below). These documents set out the general and specific planning policies and detailed local policies. They aim to help planning officers and applicants to achieve high standard of development in the district, and are used as the main guide to determining planning applications.

- Greater Norwich Development Partnership - Joint Core Strategy (JCS) for Broadland, Norwich and South Norfolk (adopted 2011, amendments adopted January 2014): The JCS sets out the long-term vision and objectives for the area, including strategic policies for steering and shaping development. The objectives and policies considered relevant to DEP and SEP include:
    - Spatial Planning Objective 9: To protect, manage and enhance the natural, built and historic environment, including key landscapes, natural resources and areas of natural habitat or nature conservation value - Efficient use will be made of minerals, energy and water resources, and the production of waste will be minimised.
    - Area Wide Policies - Policy 1: Addressing climate change and protecting environmental assets - In areas not protected through international or national designations, development will: protect mineral and other natural resources identified through the MWDF.
- Broadland District Council - Development Management DPD (adopted August 2015): The Development Management DPD is a Local Plan established in accordance with the Town and Country Planning (Local planning) (England) Regulations 2012. It sets out the generic policies that are to be applied throughout the Broadland planning authority area, and is in conformity with the objectives set out in the NPPF and the JCS (Broadland, Norwich and South Norfolk) (adopted 2011, amendments adopted January 2014). The policies set out within the Development Management DPD do not repeat but seek to further the aims and objectives set out within the NPPF and JCS. It therefore includes more detailed local policies for the management of development. For major development, proposals will be expected to include appropriate provision for waste collection and recycling facilities in accordance with Policy CSU4.

- Broadland District Council - Site Allocations DPD (adopted May 2016): Identifies or allocates areas of land in Broadland for specific types of development, such as housing, employment, community facilities, retail, recreation etc. An increase in development within the area could result in reduced capacity within local waste management facilities. This should be taken into consideration in the context of DEP and SEP.

19.2.2.3.5 South Norfolk Local Plan Development Management Policies Document (2015).

56. The Development Management Policies set out how the Council carries out its development management responsibilities to promote sustainable development. There are no specific policies in relation of waste for developments (other than residential) in this document.

19.2.2.4 Waste Legislation

19.2.2.4.1 Environmental Protection Act 1990 Part II – Controlled Waste and Duty of Care

57. The waste duty of care is a legal requirement, originally implemented by Section 34 of the Environmental Protection Act 1990, to ensure that producers and holders handle their waste safely and in compliance with the appropriate regulations. It sets the rules for the management of controlled wastes and identifies the waste Duty of Care, which places an obligation on person who imports, produces, carries, keeps, treats or disposes of controlled waste, including householders, commercial producers and industrial producers of waste.

58. One of the fundamental aspects of duty of care requires the holder of waste to make sure that anyone else dealing with their waste has the necessary authorisation to do so. If the holder does not do this and their waste is subsequently found to have been illegally disposed, the holder could be held responsible and may face prosecution.

59. The duty of care provisions are contained in the Waste (England & Wales) Regulations 2011 SI 2011 (No. 988).

19.2.2.4.2 The Waste (England and Wales) Regulations 2011

60. The 2011 Waste Regulations transposes the rWFD in England and Wales. In addition, it reduces the fragmentation of waste legislation to some extent and so it streamlines and replaces some waste regulation.

61. Key provisions in the rWFD were implemented by the Waste Regulations:

- Waste hierarchy: legal requirement the waste hierarchy for waste prevention and management in legislation and policy (see below).
- Separate collections (private companies): From 1 January 2015: (1) businesses which collect waste paper, metal, plastic or glass need to collect such waste separately; and (2) businesses which collect, transport or receive separately collected waste paper, metal, plastic or glass should ensure that such waste is not mixed with other waste.

19.2.2.4.3 The Waste Hierarchy

62. The waste hierarchy is set out at Article 4 of the rWFD and has been implemented by The Waste (England and Wales) Regulations 2011.

63. The waste hierarchy requires the producer/holder of a waste to demonstrate that the priorities identified in **Table 19.2-3** have been considered in the priority order, to determine the most suitable waste management option for all wastes prior to removal from site.

Table 19.2-3: The Waste Hierarchy

Waste Hierarchy	Relevant activity
Prevention	Using less material in design and manufacture, keeping products for longer, re-use, using less hazardous materials.
Preparing for re-use	Checking, cleaning, repairing, refurbishing, whole items or spare parts.
Recycling	Turning waste into a new substance or product, includes composting if it meets quality protocols
Other recovery	Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste, some backfilling.
Disposal	Landfill and incineration without energy recovery.

Table reproduced from Defra website: https://www.gov.uk/waste-legislation-and-regulations

64. It is a legal requirement for waste producers/holders to follow the waste hierarchy when making decisions about waste management options. Lower hierarchical options cannot be justified by cost alone. They require environmental justification over available higher options, for example the location of a site may justify sending waste to a lower hierarchical option (e.g. local landfill), rather than sending it hundreds of miles to the nearest facility that could provide a higher option.

19.2.2.4.4 The Environmental Permitting (England and Wales) Regulations 2016 (as amended)

65. The Environmental Permitting (England and Wales) Regulations 2016 (“the Environmental Permitting Regulations”) consolidate earlier amendments to the Environmental Permitting (England and Wales) Regulations 2010 (S.I. 2010/675). They set out an environmental permitting and compliance regime that applies to various activities and industries, including the management of waste.

66. The environmental permitting regime is a common framework for applying for, receiving, varying, transferring and surrendering permits, along with compliance, enforcement and appeals arrangements. It rationalises the previous permitting and compliance regimes into a common framework that is easier to understand and simpler to use.

67. The framework introduces different levels of control, based on risk: exclusions (very low risk activities which may be undertaken without any permit), exemptions (lower risk activities which may be undertaken after registering, which is free), standard rules permits (standard requirements and conditions for the relevant activities are set out so that applicants can determine in advance whether the permit is applicable to their proposals) and bespoke permits (permits written specifically for activities which are unique or of higher risk).

19.2.2.4.5 Hazardous Waste

68. Waste is generally considered hazardous if it (or the material or substances it contains) are harmful to humans or the environment. All producers and holders of hazardous waste are obliged to ensure that the hazardous waste does not cause harm or damage. All producers and holders of waste are obliged to know whether their waste is classified as hazardous or non-hazardous.

69. The hazardous waste regulations identify the administrative provisions for handling hazardous waste. The regulations also make it illegal to mix a hazardous waste with non-hazardous waste; or another type of hazardous waste; or material that is not waste.

70. The Hazardous Waste Regulations (HWR) (Hazardous Waste (England and Wales) Regulations 2005 SI 894 as amended) provide the rules for assessing if a waste is hazardous or not. The HWR refer to the List of Wastes (which is often referred to as the European Waste Catalogue (EWC)) for the relevant thresholds for some of the hazardous properties; and to assign the formal description and code for the waste.

71. Detailed technical guidance on the hazardous waste assessment process is provided by ‘Waste Classification and Assessment (Technical Guidance WM3)’ issued in July 2015 and updated in May 2018 (Environment Agency, 2018).

72. This document is jointly approved by all the UK environmental regulators. It provides thresholds and criteria for assessing each of the 15 hazardous properties and Persistent Organic Pollutants (POPs).

19.2.3 Description of Baseline Conditions

19.2.3.1 Site Context

73. The onshore elements of the DEP and SEP PEIR boundary are located within the County of Norfolk in East Anglia. This includes the landfall, onshore cable corridor and onshore substation sites.

74. The onshore cable corridor is predominantly within agricultural land and includes a number of road, railway and watercourse crossings. Nearby settlements include the towns and villages of Weybourne, Bodham, Attlebridge and Colton.

19.2.3.2 Potential Sources of Contamination

75. The Preliminary Risk Assessment (PRA) detailed in **Appendix 19.1** was undertaken to identify whether there are potentially unacceptable risks to human health or the environment from sources of contamination which may potentially arise as liabilities or constraints associated with the onshore elements of DEP and SEP which warrant further investigation.

76. Based on the information reviewed as part of the PRA, potential sources of contamination within the PEIR boundary (typically based on a 200m wide onshore cable corridor, two substation site options and landfall) are:

- Railway land (both current and historical) is a potential source of Made Ground. Contaminants associated with railway land include herbicides, metals, fuel hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and sulphates. Asbestos can also be associated with the materials used within the track bedding material and fill used in the formation of embankments.
- Potentially infilled land (former pits), brick works and landfill. Potential contaminants include ground gas, semi-volatile and volatile organic contaminants (SVOCs and VOCs), metals, asbestos, sulphates, fuel hydrocarbons, polycyclic aromatic hydrocarbons, phenols, cyanides, PCBs and dioxins, furans and asbestos.
- Sewage works. The processing of sewage could release contaminants into the environment depending on the site's full operational history and usage. Potential contaminants could include metals, cyanides, nitrates, sulphates, asbestos, fuel hydrocarbons, SVOCs, VOCs and PCBs.
- Airfields and Military Camps. Potential contaminants may include metals, asbestos, VOCs and SVOCs, glycols, fuel hydrocarbons, and polychlorinated biphenyls (PCBs). If aircraft dismantling occurred within the historical airfield there is the potential for radiological contamination (radium226) to be present.

77. Within 250m of the PEIR boundary the following potential sources of contamination were identified:

- Railway land;
- Brick works;
- Potentially infilled land/ refuse sites;
- Airfield and military camp;
- Electricity substation; and
- Filling station.

78. The following potential contaminants of concern were identified in association with the above sources: asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons, VOCs and SVOCs, inorganic and organic contaminants, herbicides, PCBs, and ground gas.

79. These contaminants may impact material that may be excavated along the cable route, which may affect how excavated is classified (i.e. as hazardous or non-hazardous waste) and dealt with.

80. The PRA concludes (with recommendations that may be relevant to waste generation and management) that:

- Targeted intrusive site investigation in potential source areas and generic quantitative risk assessment (GQRA) to help better determine the presence, magnitude and extent of contaminants within the survey area and the risks and constraints they may pose to DEP and SEP;
- Development of a Construction Environmental Management Plan (CEMP) for use during construction works to protect construction workers, neighbouring site users, groundwater and surface water. The report should be informed by the results of the targeted intrusive site investigation;
- Protocols for dealing with unexpected contamination should be set in place prior construction to ensure that procedures are known and agreed with the Regulators should unexpected contaminated materials be encountered;
- The movement and reuse of materials on site should be undertaken in accordance with the CL:AIRE Code of Practice (CL:AIRE 2011) 'The definition of waste: Development Industry Code of Practice', where applicable; or an environmental permit that authorises the deposit of excavated material for recovery; and
- The management of any waste material off-site must be at a site with an environmental permit and any waste activity must consider the waste hierarchy; hazardous waste must be managed in accordance with Hazardous Waste Regulations 2005; and any disposal of materials off-site to landfill should be undertaken in accordance with the Landfill Regulations 2002.

19.2.3.3 Waste Management Facilities in the Local Area

81. Local waste management facilities were identified from the Environment Agency Public Register (Environment Agency, 2020a). The search radius was set at every 10km along the 60km onshore cable corridor from landfall to the onshore substation sites. The location, grid reference and nearest postcode of each point is outlined in **Table 19.2-4**. Postcodes are required to search in the Environment Agency Public Register.

Table 19.2-4: Location, grid reference and nearest postcode of each search point

Location (approximate)	Grid reference		Nearest postcode
	Easting	Northing	
Landfall	610831	343672	NR25 7SR
Point 1 (10km from Landfall)	613814	334548	NR11 7LE
Point 2 (20km from Landfall)	614665	326013	NR10 4HU
Point 3 (30km from Landfall)	613299	317150	NR9 5SU
Point 4 (40km from Landfall)	612111	309036	NR9 5HS
Point 5 (50km from Landfall)	617011	303300	NR9 3AZ
Onshore substation search area	621409	302016	NR14 8DS

82. The list of facilities on the Public Register includes all waste management facilities that hold an existing permit within a 10km radius. This would include facilities that are not likely to receive waste from DEP and SEP, e.g. vehicle dismantling facilities, Household Waste Recycling Centres (HWRC), etc.

83. The waste management facilities that could receive waste from DEP and SEP are shown in **Table 19.2-5** to **Table 19.2-11**. Waste management facilities on the Public Register that are not likely to receive waste from the construction, operation or decommissioning phase were not included in the table.

Table 19.2-5: Local waste management facilities within 10km of the landfall (NR25 7SR)

Name	Address	Distance from site (km)	Facility type
Moore D P & M A	Land Behind, 65, Hempstead Road, Holt, Norfolk, NR25 6DQ	5.2	Metal Recycling Site (mixed MRS's)
Glandford Quarry	Glandford Quarry, Wall's Lane, Letheringsett, Holt, Norfolk, NR25 7DZ	6.0	Transfer Station taking Non-Biodegradable Wastes
Cemex U K Materials Ltd, Holt Quarry	Ducks Hole Farm, Hunworth Road, Holt, Norfolk, NR25 6SR	7.1	Deposit of waste to land as a recovery operation
Cemex U K Materials Ltd, Holt Quarry	Ducks Hole Farm, Hunworth Road, Holt, Norfolk, NR25 6SR	7.4	Treatment of waste to produce soil <75,000 tonnes per year.

Name	Address	Distance from site (km)	Facility type
Norfolk Environmental Waste Services Ltd	Edgefield Landfill, Holt Road, Edgefield, Holt, Norfolk, NR24 2RS	8.3	Household, Commercial & Industrial Waste Landfill

Table 19.2-6: Local waste management facilities within 10km of the Point 1 (NR11 7LE)

Name	Address	Distance from site (km)	Facility type
Norfolk Environmental Waste Services Ltd	Edgefield Landfill, Holt Road, Edgefield, Holt, Norfolk, NR24 2RS	5.8	Household, Commercial & Industrial Waste Landfill
Moore D P & M A	Land Behind, 65, Hempstead Road, Holt, Norfolk, NR25 6DQ	6.8	Mixed MRS
Cemex U K Materials Ltd, Holt Quarry	Ducks Hole Farm, Hunworth Road, Holt, Norfolk, NR25 6SR	7.2	Deposit of waste to land as a recovery operation
Cemex U K Materials Ltd, Holt Quarry	Ducks Hole Farm, Hunworth Road, Holt, Norfolk, NR25 6SR	7.4	Treatment of waste to produce soil <75,000 tonnes per year.
Aylsham Plant Hire Limited	Weighbridge & Yard, Industrial Estate, Aylsham, Norfolk, NR11 6SS	9.1	Treatment of waste to produce soil <75,000 tonnes per year.
Norse Environmental Waste Services Ltd	Unit 6, Dunkirk Industrial Estate, Aylsham, Norfolk, NR11 6SU	9.2	Special Waste Transfer Station
Wright Gordon	Land / Premises At, Marriott Way, Melton Constable, Norfolk, NR24 2BT	9.9	Mixed MRS

Table 19.2-7: Local waste management facilities within 10km of the Point 2 (NR10 4HU)

Name	Address	Distance from site (km)	Facility type
Norfolk Environmental Waste Services Ltd	Edgefield Landfill, Holt Road, Edgefield, Holt, Norfolk, NR24 2RS	4.9	Household, Commercial & Industrial Waste Landfill
Aylsham Plant Hire Limited	Weighbridge & Yard, Industrial Estate, Aylsham, Norfolk, NR11 6SS	6.0	Treatment of waste to produce soil <75,000 tonnes per year.
Norse Environmental Waste Services Ltd	Unit 6, Dunkirk Industrial Estate, Aylsham, Norfolk, NR11 6SU	6.1	Special Waste Transfer Station
Bailey's of Norfolk Limited	50, Brick Kiln Road, Hevingham, Norwich, Norfolk, NR10 5NL	6.8	Physical Treatment Facility
European Metal Recycling Limited	Atlas Works, Norwich Road, Lenwade, Norfolk, NR9 5SN	8.5	Mixed MRS
Biffa Waste Services Ltd	Land/premises At, Reepham Road, Attlebridge, Norfolk, NR9 5TD	9.8	Landfill taking other wastes

Table 19.2-8: Local waste management facilities within 10km of the Point 3 (NR9 5SU)

Name	Address	Distance from site (km)	Facility type
European Metal Recycling Limited	Atlas Works, Norwich Road, Lenwade, Norfolk, NR9 5SN	1.4	Mixed MRS
Biffa Waste Services Ltd	Land/premises At, Reepham Road, Attlebridge, Norfolk, NR9 5TD	1.5	Landfill taking other wastes

Name	Address	Distance from site (km)	Facility type
Hyde Philip Lee Pips Skips Waste Transfer Station	Frans Green Industrial Estate, Sandy Lane, East Tuddenham, Dereham, Norfolk, NR20 3JG	4.6	75kte Household, Commercial & Industrial Waste Transfer Station + treatment + asbestos
Norman Wenn Ltd	Unit 2 Frans Green Ind Est, Sandy Lane, East Tuddenham, Dereham, Norfolk, NR20 3JG	4.7	Household, Commercial & Industrial Waste Transfer Station
Norfolk Recycling Limited	Six Acres, Stone Road, Hockering, Norwich, Norfolk, NR20 3PZ	5.3	Physical Treatment Facility
Green Planet Environmental Recycling Ltd	Rossfield, Reepham Road, Horsford, Norwich, Norfolk, NR10 3AL	5.5	Physical Treatment Facility
Mr Noel Miles & Mr Darren Miles	Rossfield, Reepham Road, Horsford, Norwich, Norfolk, NR10 3AL	5.5	75kte Household, Commercial & Industrial Waste Transfer Station + treatment
Cemex U K Materials Ltd, Holt Quarry	Longwater Ind Est, Norwich Road, Costessey, Norfolk, NR5 0TL	5.8	Deposit of waste to land as a recovery operation
Cemex U K Materials Ltd, Holt Quarry	Costessey Quarry, Longwater Ind Est, New Costessey, Dereham, Norfolk, NR5 0TL	6.1	Treatment of waste to produce soil <75,000 tonnes per year.

Name	Address	Distance from site (km)	Facility type
N R Asphalt Limited	Land At Longwater Business Park, William Frost Way, Longwater Business Park, Costessey, Norfolk, NR5 0JS	6.1	Treatment of waste to produce soil <75,000 tonnes per year.
Longwater (Gravel) Company Ltd (The)	Longwater (Gravel) Co. Ltd (The), William Frost Way, Longwater Business Park, Costessey, Norfolk, NR5 0JS	6.2	Treatment of waste to produce soil <75,000 tonnes per year.
Carter Concrete Limited	R G Carter Ltd, Ernest Gage Avenue, Longwater Ind Est, Costessey, Norfolk, NR5 0TX	6.2	Treatment of waste to produce soil <75,000 tonnes per year.
Anti - Waste Ltd	Costessey M R F Transfer Station, Longwater Business Park, Costessey, Norwich, Norfolk, NR5 0TL	6.4	Household, Commercial & Industrial Waste Transfer Station
Mayer Parry Recycling Ltd	Longwater Trading Est., Dereham Road, New Costessey, Norwich, Norfolk, NR5 0TL	6.5	Mixed MRS
Norfolk County Council	Longwater Industrial Estate, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	6.6	Household, Commercial & Industrial Waste Landfill

Name	Address	Distance from site (km)	Facility type
Norse Environmental Waste Services Ltd	Land / Premises At, Dereham Road, Longwater Ind. Estate, Norwich, Norfolk, NR5 0TL	6.7	Material Recycling Treatment Facility
Carrara Frank	Edgewood, Hall Drive, Costessey, Norwich, Norfolk, NR5 0TG	6.9	Household, Commercial & Industrial Waste Transfer Station
Norfolk County Council	Land/premises At, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	6.9	Household, Commercial & Industrial Waste Landfill
Bailey's Of Norfolk Limited	50, Brick Kiln Road, Hevingham, Norwich, Norfolk, NR10 5NL	7.0	Physical Treatment Facility
Gresham Gravel Limited	Holt Road, Sheringham, Norfolk, NR26 8TN	8.6	Physical Treatment Facility
Martyn J Green Limited	Martyn J Green Recycling Facility, Land South Of B1110, North Tuddenham, Dereham, Norfolk, NR20 3DE	8.8	Treatment of waste to produce soil <75,000 tonnes per year.

Table 19.2-9: Local waste management facilities within 10km of the Point 4 (NR9 5HS)

Name	Address	Distance from site (km)	Facility type
Cemex U K Materials Ltd, Holt Quarry	Longwater Ind Est, Norwich Road, Costessey, Norfolk, NR5 0TL	2.7	Deposit of waste to land as a recovery operation
Gresham Gravel Limited	Holt Road, Sheringham, Norfolk, NR26 8TN	3.3	Physical Treatment Facility

Name	Address	Distance from site (km)	Facility type
Cemex U K Materials Ltd, Holt Quarry	Costessey Quarry, Longwater Ind Est, New Costessey, Dereham, Norfolk, NR5 0TL	3.4	Treatment of waste to produce soil <75,000 tonnes per year.
Carter Concrete Limited	R G Carter Ltd, Ernest Gage Avenue, Longwater Ind Est, Costessey, Norfolk, NR5 0TX	4.0	Treatment of waste to produce soil <75,000 tonnes per year.
Mayer Parry Recycling Ltd	Longwater Trading Est., Dereham Road, New Costessey, Norwich, Norfolk, NR5 0TL	4.0	Mixed MRS
N R Asphalt Limited	Land At Longwater Business Park, William Frost Way, Longwater Business Park, Costessey, Norfolk, NR5 0JS	4.1	Treatment of waste to produce soil <75,000 tonnes per year.
Norse Environmental Waste Services Ltd	Land / Premises At, Dereham Road, Longwater Ind. Estate, Norwich, Norfolk, NR5 0TL	4.1	Material Recycling Treatment Facility
Longwater (Gravel) Company Ltd (The)	Longwater (Gravel) Co. Ltd (The), William Frost Way, Longwater Business Park, Costessey, Norfolk, NR5 0JS	4.1	Treatment of waste to produce soil <75,000 tonnes per year.
Mayer Parry Recycling Ltd	Longwater Trading Est., Dereham Road, New Costessey, Norwich, Norfolk, NR5 0TL	4.2	Mixed MRS
Anti - Waste Ltd	Costessey M R F Transfer Station, Longwater Business Park, Costessey, Norwich, Norfolk, NR5 0TL	4.2	Household, Commercial & Industrial Waste Transfer Station

Name	Address	Distance from site (km)	Facility type
Norfolk County Council	Longwater Industrial Estate, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	4.3	Household, Commercial & Industrial Waste Landfill
Norfolk County Council	Land/premises At, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	4.3	Household, Commercial & Industrial Waste Landfill
Carrara Frank	Edgewood, Hall Drive, Costessey, Norwich, Norfolk, NR5 0TG	4.9	Household, Commercial & Industrial Waste Transfer Station
Hyde Philip Lee Pips Skips Waste Transfer Station	Frans Green Industrial Estate, Sandy Lane, East Tuddenham, Dereham, Norfolk, NR20 3JG	5.6	75kte Household, Commercial & Industrial Waste Transfer Station + treatment + asbestos
Norman Wenn Ltd	Unit 2 Frans Green Ind Est, Sandy Lane, East Tuddenham, Dereham, Norfolk, NR20 3JG	5.7	Household, Commercial & Industrial Waste Transfer Station
D A Culling Scrap Metals Ltd.	D A Culling Scrap Metal, Station Lane, Hethersett, Norwich, Norfolk, NR9 3AX	6.7	Mixed MRS
Biffa Waste Services Ltd	Land/premises At, Reepham Road, Attlebridge, Norfolk, NR9 5TD	7.3	Landfill taking other wastes
M W White Limited	M W White Limited, Station Road, Ketteringham, Norwich, Norfolk, NR9 3AZ	7.4	Household, Commercial & Industrial Waste Transfer Station
Middleton Aggregates Ltd	Ketteringham Quarry, Hetherset Road, Ketteringham, Norfolk, NR14 8JA	8.3	Treatment of waste to produce soil <75,000 tonnes per year.
Aggmax Transport Limited	Silfield Road, Wymondham, Norfolk, NR18 9AU	8.5	Inert & Excavation Waste Transfer Station

Name	Address	Distance from site (km)	Facility type
Green Planet Environmental Recycling Ltd	Rossfield, Reepham Road, Horsford, Norwich, Norfolk, NR10 3AL	8.5	Physical Treatment Facility
Mr Noel Miles & Mr Darren Miles	Rossfield, Reepham Road, Horsford, Norwich, Norfolk, NR10 3AL	8.6	75kte Household, Commercial & Industrial Waste Transfer Station + treatment
European Metal Recycling Limited	Atlas Works, Norwich Road, Lenwade, Norfolk, NR9 5SN	8.6	Mixed MRS
Martyn J Green Limited	Martyn J Green Recycling Facility, Land South Of B1110, North Tuddenham, Dereham, Norfolk, NR20 3DE	8.6	Treatment of waste to produce soil <75,000 tonnes per year.
Greencomp Limited	Former Hethel Airfield, Wymondham Road, Wymondham, Norfolk, NG18 9RL	8.9	Treatment of waste wood <75000 tonnes per site
Longwater (Gravel) Company Limited (The)	Wymondham Quarry, Stanfield Road, Wymondham, Norfolk, NR18 9RL	9.0	Deposit of waste to land as a recovery operation
European Metal Recycling Limited	E M R, Halfmoon Way, Norwich, Norfolk, NR2 4EB	9.4	Mixed MRS
Anti - Waste Ltd	1, Swanton Road, Norwich, Norfolk, NR2 4LH	9.4	Household, Commercial & Industrial Waste Transfer Station

Table 19.2-0-10: Local waste management facilities within 10km of the Point 5 (NR9 3AZ)

Name	Address	Distance from site (km)	Facility type
M W White Limited	M W White Limited, Station Road, Ketteringham, Norwich, Norfolk, NR9 3AZ	0.2	Household, Commercial & Industrial Waste Transfer Station
D A Culling Scrap Metals Ltd.	D A Culling Scrap Metal, Station Lane, Hethersett, Norwich, Norfolk, NR9 3AX	0.6	Mixed MRS
Middleton Aggregates Ltd	Ketteringham Quarry, Hetherset Road, Ketteringham, Norfolk, NR14 8JA	1.4	Treatment of waste to produce soil <75,000 tonnes per year.
Greencomp Limited	Former Hethel Airfield, Wymondham Road, Wymondham, Norfolk, NG18 9RL	4.3	Treatment of waste to produce soil <75,000 tonnes per year.
Tarmac Trading Limited	Mangreen Recycling, Ipswich Road, Swardeston, Norwich, Norfolk, NR14 8DD	4.9	Inert & Excavation Waste Transfer Station and Treatment
Longwater (Gravel) Company Limited (The)	Wymondham Quarry, Stanfield Road, Wymondham, Norfolk, NR18 9RL	5.0	Deposit of waste to land as a recovery operation
Gresham Gravel Limited	Holt Road, Sheringham, Norfolk, NR26 8TN	5.0	Physical Treatment Facility

Name	Address	Distance from site (km)	Facility type
A C Environmental Services Ltd	Cats Premises, 22, Ashwellthorpe Industrial Estat, Ashwellthorpe, Norfolk, NR16 1ER	6.2	Special Waste Transfer Station
Aggmax Transport Limited	Silfield Road, Wymondham, Norfolk, NR18 9AU	6.7	Inert & Excavation Waste Transfer Station
Novera Energy Generation No 2 Ltd	Costessey Landfill Site, Longwater Business Park, Costessey, Norwich, Norfolk, NR5 0TL	6.8	Landfill Gas Engine (<3 mW)
Norfolk County Council	Land/premises At, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	6.8	Household, Commercial & Industrial Waste Landfill
Carrara Frank	Edgewood, Hall Drive, Costessey, Norwich, Norfolk, NR5 0TG	7.1	Household, Commercial & Industrial Waste Transfer Station
Norfolk County Council	Longwater Industrial Estate, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	7.2	Household, Commercial & Industrial Waste Landfill
Mayer Parry Recycling Ltd	Longwater Trading Est., Dereham Road, New Costessey, Norwich, Norfolk, NR5 0TL	7.2	Mixed MRS

Name	Address	Distance from site (km)	Facility type
Mayer Parry Recycling Ltd	Longwater Trading Estate, Dereham Road, New Costessey, Norwich, Norfolk, NR5 0TL	7.2	Mixed MRS
European Metal Recycling Limited	E M R, Halfmoon Way, Norwich, Norfolk, NR2 4EB	7.2	Mixed MRS
Anti - Waste Ltd	Costessey M R F Transfer Station, Longwater Business Park, Costessey, Norwich, Norfolk, NR5 0TL	7.3	Household, Commercial & Industrial Waste Transfer Station
Carter Concrete Limited	R G Carter Ltd, Ernest Gage Avenue, Longwater Ind Est, Costessey, Norfolk, NR5 0TX	7.4	Treatment of waste to produce soil <75,000 tonnes per year.
Anti - Waste Ltd	1, Swanton Road, Norwich, Norfolk, NR2 4LH	7.5	Household, Commercial & Industrial Waste Transfer Station
Cemex U K Materials Ltd	Costessey Quarry, Longwater Ind Est, New Costessey, Dereham, Norfolk, NR5 0TL	7.5	Treatment of waste to produce soil <75,000 tonnes per year.
Longwater (Gravel) Company Ltd (The)	Longwater (Gravel) Co. Ltd (The), William Frost Way, Longwater Business Park, Costessey, Norfolk, NR5 0JS	7.5	Treatment of waste to produce soil <75,000 tonnes per year.

Name	Address	Distance from site (km)	Facility type
N R Asphalt Limited	Land At Longwater Business Park, William Frost Way, Longwater Business Park, Costessey, Norfolk, NR5 0JS	7.5	Treatment of waste to produce soil <75,000 tonnes per year.
Cemex U K Materials Ltd	Longwater Ind Est, Norwich Road, Costessey, Norfolk, NR5 0TL	7.8	Deposit of waste to land as a recovery operation
Rory J Holbrook Limited	Hall Farm, Tasburgh, Norwich, Norfolk, NR15 1NA	8.7	Treatment of waste to produce soil <75,000 tonnes per year.
Norfolk And Suffolk Construction Limited	Land Off Mousehold Lane, Mousehold Lane, Sprowston, Norfolk, NR7 8HE	9.9	Treatment of waste to produce soil <75,000 tonnes per year.

Table 19.2-11: Local waste management facilities within 10km of the onshore substation search area (NR14 8DS)

Name	Address	Distance from site (km)	Facility type
Tarmac Trading Limited	Mangreen Recycling, Ipswich Road, Swardeston, Norwich, Norfolk, NR14 8DD	1.7	Inert & Excavation Waste Transfer Station and Treatment
Middleton Aggregates Ltd	Ketteringham Quarry, Hetherset Road, Ketteringham, Norfolk, NR14 8JA	3.5	Treatment of waste to produce soil <75,000 tonnes per year.

Name	Address	Distance from site (km)	Facility type
M W White Limited	M W White Limited, Station Road, Ketteringham, Norwich, Norfolk, NR9 3AZ	3.7	Household, Commercial & Industrial Waste Transfer Station
D A Culling Scrap Metals Ltd.	D A Culling Scrap Metal, Station Lane, Hethersett, Norwich, Norfolk, NR9 3AX	4.4	Mixed MRS
Greencomp Limited	Former Hethel Airfield, Wymondham Road, Wymondham, Norfolk, NG18 9RL	6.5	Treatment of waste to produce soil <75,000 tonnes per year.
A C Environmental Services Ltd	Cats Premises, 22, Ashwellthorpe Industrial Estat, Ashwellthorpe, Norfolk, NR16 1ER	6.6	Special Waste Transfer Station
Rory J Holbrook Limited	Hall Farm, Tasburgh, Norwich, Norfolk, NR15 1NA	6.8	Treatment of waste to produce soil <75,000 tonnes per year.
Longwater (Gravel) Company Limited (The)	Wymondham Quarry, Stanfield Road, Wymondham, Norfolk, NR18 9RL	7.3	Deposit of waste to land as a recovery operation
European Metal Recycling Limited	E M R, Halfmoon Way, Norwich, Norfolk, NR2 4EB	7.5	Mixed MRS

Name	Address	Distance from site (km)	Facility type
Anti - Waste Ltd	Costessey M R F Transfer Station, Longwater Business Park, Costessey, Norwich, Norfolk, NR5 0TL	7.8	Household, Commercial & Industrial Waste Transfer Station
Paul Richardson Recycling Limited	Land To The South Of Longacre Plantation, Morningthorpe, Long Stratton, Norwich, Norfolk, NR15 2LJ	7.9	Deposit of waste to land as a recovery operation
Gresham Gravel Limited	Holt Road, Sheringham, Norfolk, NR26 8TN	8.3	Physical Treatment Facility
Norfolk And Suffolk Construction Limited	Land Off Mousehold Lane, Mousehold Lane, Sprowston, Norfolk, NR7 8HE	9.3	Treatment of waste to produce soil <75,000 tonnes per year.
Norfolk County Council	Land/premises At, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	9.6	Household, Commercial & Industrial Waste Landfill
Carrara Frank	Edgewood, Hall Drive, Costessey, Norwich, Norfolk, NR5 0TG	9.7	Household, Commercial & Industrial Waste Transfer Station
Aggmax Transport Limited	Silfield Road, Wymondham, Norfolk, NR18 9AU	9.7	Inert & Excavation Waste Transfer Station
Norse Environmental Waste Services Ltd	Land / Premises At, Dereham Road, Longwater Ind. Estate, Norwich, Norfolk, NR5 0TL	9.8	Material Recycling Treatment Facility

Name	Address	Distance from site (km)	Facility type
Norfolk County Council	Longwater Industrial Estate, Longwater Lane, Costessey, Norwich, Norfolk, NR5 0TL	10.0	Household, Commercial & Industrial Waste Landfill

19.2.3.4 Regional Waste Management Facilities

84. The potential regional waste management capacity was assessed. The Environment Agency provides waste capacity data on its website (Environment Agency, 2019). This data set was assessed to identify the remaining regional capacity according to waste management options in East of England (Norfolk is covered by East of England data). This provides an indication of whether the predicted waste types from DEP and SEP can be managed within the region in accordance with the proximity principle (i.e. managing wastes as close to the source of production as possible).

85. The rWFD (Article 16) establishes the principle of proximity for managing waste as close to the source of production. The proximity principle recognises that transporting waste has environmental, social and economic costs so, as a general rule, waste should be dealt with as near to the place of production as possible.

86. The data in **Table 19.2-12** to **Table 19.2-17** inclusive provides an indication of the widespread availability of a range of types of waste management facilities within East of England, based upon the most current published data set (2019). Note that the facilities identified in **Table 19.2-5** to **Table 19.2-11** would also be included within the summarised data below. The data presented below is reproduced in the format presented by the Environment Agency. There are too many regional sites to list individually.

Table 19.2-12: Number of waste management facilities in East of England (2019)

England: Permitted waste facilities in 2019

Site type		Former Planning Region									ENGLAND
		North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	East of England	London	South East	South West	
Landfill	Number of sites with an environmental permit at end 2019	26	49	71	64	52	101	11	102	57	533
	Number of sites that accepted waste in 2019	20	38	39	38	30	49	8	57	31	310
Land Disposal	Number of sites with an environmental permit at end 2019	15	47	49	36	30	62	12	82	84	417
	Number of sites that accepted waste in 2019	7	24	23	21	8	29	4	40	50	206
Incineration	Number of sites with an environmental permit at end 2019	15	17	25	19	24	17	12	27	18	174
	Number of sites that accepted waste in 2019	5	8	19	12	12	9	5	20	10	100
Transfer	Number of sites with an environmental permit at end 2019	163	380	373	251	314	345	194	388	339	2,747
	Number of sites that accepted waste in 2019	130	308	283	218	257	282	153	325	279	2,235
Treatment	Number of sites with an environmental permit at end 2019	153	426	363	297	364	388	164	394	347	2,896
	Number of sites that accepted waste in 2019	116	307	273	245	283	312	129	312	286	2,263
Metal Recovery	Number of sites with an environmental permit at end 2019	127	332	344	189	339	276	77	180	241	2,105
	Number of sites that accepted waste in 2019	65	167	181	117	185	154	48	107	139	1,163
Use of Waste	Number of sites with an environmental permit at end 2019	1	1			4	2		1	13	22
	Number of sites that accepted waste in 2019	1	-	-	-	4	-	-	-	3	8
Total	**Number of sites with an environmental permit at end 2019**	**500**	**1,252**	**1,225**	**856**	**1,127**	**1,191**	**470**	**1,174**	**1,099**	**8,894**
	Number of sites that accepted waste in 2019	**344**	**852**	**818**	**651**	**779**	**835**	**347**	**861**	**798**	**6,285**

** The number of sites that accepted waste in 2019 represents those who submitted waste returns in these categories.*

*** This table does not include other waste operations such as mobile plants, closed /closing landfills, pet crematorium/pet cemeteries, mining waste operations and gas engines.*

Table 19.2-13: Remaining landfill capacity in East of England (2019)

East of England: Landfill capacity 2019

All figures are provided in 000s cubic metres

Landfill Type	Sub-Region						EAST OF ENGLAND
	Bedfordshire	Cambridgeshire	Essex	Hertfordshire	Norfolk	Suffolk	
Hazardous Merchant	-	-	-	-	-	-	-
Hazardous Restricted	-	-	1,249	-	-	-	**1,249**
Non Hazardous with SNRHW cell*	-	1,921	-	-	-	3,066	**4,987**
Non Hazardous	-	7,373	9,657	133	5,125	-	**22,288**
Non Hazardous Restricted	-	-	-	-	-	-	-
Inert	779	5,210	1,462	9,652	850	2,558	**20,511**
Total	**779**	**14,504**	**12,368**	**9,785**	**5,975**	**5,624**	**49,035**

*Some non-hazardous sites can accept some Stable Non Reactive Hazardous Wastes (SNRHW) into a dedicated cell, but this is usually a small part of the overall capacity of the site.

Table Notes:

Data for 2019 is classified into Landfill Directive categories.

2019 landfill capacity data was obtained from environmental monitoring reports required by permits or directly from the operator.

Table 19.2-14: Incineration capacity in East of England (2019)

East of England: Incineration capacity 2019

All figures provided in 000s tonnes

Incineration Type	Sub-Region						EAST OF ENGLAND
	Bedfordshire	Cambridgeshire	Essex	Hertfordshire	Norfolk	Suffolk	
Animal By-Product	438				550	160	**1,148**
Animal Carcasses							-
Clinical		5				9	**14**
Co-Incineration of Hazardous Waste							-
Co-Incineration of Non Hazardous Waste							-
Hazardous							-
Municipal and/or Industrial & Commercial		85		113		269	**467**
Sewage Sludge							-
Biomass/Waste Wood			490				**490**
Total	**438**	**90**	**490**	**113**	**550**	**438**	**2,119**

Table Notes:

This datatable is for operational incineration facilities that accepted waste from off-site sources. It does not include facilities that burned waste from their own in-house processes or were non or pre-operational.

Table 19.2-15: Transfer, treatment and metal recycling volumes in East of England (2019)

England: Transfer, treatment and metal recycling site inputs 2019

All figures are provided in 000s tonnes

Site Type		Region									ENGLAND
		North East	North West	Yorks & Humber	East Midlands	West Midlands	East of England	London	South East	South West	
Transfer	Hazardous Waste	338	707	769	761	763	1,055	968	820	647	**6,828**
	HIC	1,934	4,645	3,643	2,930	2,625	3,175	5,546	4,524	2,275	**31,297**
	Clinical	113	20	6	11	29	167	11	39	49	**445**
	Civic amenity site	234	685	467	456	518	462	391	1,276	837	**5,326**
	Non-biodegradable	125	128	204	209	118	374	868	359	16	**2,401**
Total		**2,744**	**6,185**	**5,089**	**4,367**	**4,053**	**5,233**	**7,784**	**7,018**	**3,824**	**46,297**
Treatment	Material recovery	646	1,612	1,343	709	835	1,359	1,317	1,731	559	**10,111**
	Physical	1,724	5,474	6,023	3,423	3,223	4,553	3,976	6,358	3,314	**38,068**
	Physico-chemical	246	1,872	336	856	463	992	261	300	507	**5,833**
	Chemical	89	159	247	1	-	1,559		2	31	**2,088**
	Composting	234	713	475	649	576	906	199	797	548	**5,097**
	Biological	808	7,683	3,446	1,543	1,558	2,097	916	2,176	3,375	**23,602**
Total		**3,747**	**17,513**	**11,870**	**7,181**	**6,655**	**11,466**	**6,669**	**11,364**	**8,334**	**84,799**
Metal Recycling	Vehicle depollution	90	228	177	83	249	232	175	342	345	**1,921**
	Metal recycling site	610	2,532	1,615	862	1,960	2,042	986	782	1,206	**12,595**
Total		**700**	**2,760**	**1,792**	**945**	**2,209**	**2,274**	**1,161**	**1,124**	**1,551**	**14,516**

Table 19.2-16: East of England - deposit on land for recovery inputs (2019)

East of England: Deposit in landfill for recovery inputs 2019

All figures are provided in 000s tonnes

Site Type	Sub-Region						EAST OF ENGLAND
	Bedfordshire	Cambridgeshire	Essex	Hertfordshire	Norfolk	Suffolk	
Deposit in landfill for recovery	5	71	1,186	139	167	213	**1,781**
Total	**5**	**71**	**1,186**	**139**	**167**	**213**	**1,781**

Note: This activity is the deposit of waste in land for benefit and recovery purposes. Landfilling is the deposit in land for the purposes of final disposal. Both activities require an environmental permit under the Environmental Permitting Regulations.

Table 19.2-17: East of England – use of waste (2019)

East of England: Use of waste inputs 2019

All figures provided in 000s tonnes

Site Type	Sub Region						EAST OF ENGLAND
	Bedfordshire	Cambridgeshire	Essex	Hertfordshire	Norfolk	Suffolk	
Use of waste in construction	-	-	-	-	-	-	-
Use of waste in reclamation	-	-	-	-	-	-	-
Use of waste for timber manufacturing	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-

Note: These activities are for use of waste permitted under Standard Rules Permits for waste operations.

19.2.3.5 Availability and Capacity of Regional Facilities

87. The specific waste streams that are predicted to be generated as a result of DEP and SEP are identified in **Section 19.2.4.1** and **Section 19.2.5.1** below. These sections provide a discussion on the types of waste that are predicted to be generated and whether those wastes would be recovered on site; or would be recovered or disposed off-site. Off-site management would involve the use of facilities identified in **Table 19.2-5** to **Table 19.2-17**.

88. The information shows that there are numerous waste management facilities providing a wide variety of waste management options within the local area (**Table 19.2-5** to **Table 19.2-11**) and region (**Table 19.2-12** to **Table 19.2-17**).

89. The overall capacity data means that these facilities are likely to be capable of managing the majority of the wastes requiring off-site management that are predicted to be generated by DEP and SEP during construction, operation and decommissioning. There are hazardous Waste Transfer Station (WTS's) in the East of England region, however there are no merchant hazardous waste landfills and so if hazardous waste requires landfill disposal it would have to be exported out of the region.

90. The local and regional waste management capability sets the baseline condition of waste management infrastructure. It is not possible to predict whether all of the facilities identified in **Table 19.2-5** to **Table 19.2-17** will be available during the proposed construction period. However, DEP and SEP will have no influence upon the availability of these facilities, therefore, in the absence of DEP and SEP it is reasonable to predict that the level of waste management facilities within the local area and region would be maintained.

19.2.4 Construction Waste Composition and Quantities

19.2.4.1 Construction Waste Arisings

91. Waste material will be generated at all stages of the construction process, including site clearing, excavations, grading, foundation digging and waste material from structure development.

92. The most significant waste stream will be excavated material. The activities that are considered most pertinent to excavated material during the construction phase are as follows:

- Landfall;
- Construction compounds (main and secondary compounds);
- Onshore cable route;
- Cable jointing pits;
- Haul road(s);
- Trenchless techniques e.g. HDD;
- Site workers; and
- Onshore substation.

93. The approximate quantities of excavated waste associated with the above activities are outlined below, based upon data that is available at the time of writing this report. Construction waste management measures are outlined in **Section 19.2.4.2**.

19.2.4.1.1 Landfall

94. The volume of HDD materials, such as bentonite, required during the construction phase are outlined in **Table 19.2-18**.

Table 19.2-18: Estimated material to be produced for landfall HDD

	Material	Volume (m^3) per borehole	Number of boreholes	Volume (m^3) for all boreholes
DEP/SEP alone	HDD materials (bentonite)	6,700	Up to 2	13,400
DEP/SEP together - concurrent	HDD materials (bentonite)	6,700	Up to 3	20,100
DEP/SEP together - sequential	HDD materials (bentonite)	6,700	Up to 3	20,100

95. Bentonite is an inert clay based fluid that is used as a lubricant during the drilling process. This produces a non-hazardous drilling mud waste comprising sludge and displaced soil and stones etc. Currently, the exact quantity of drilling mud produced is unknown and is dependent on the final design. The bentonite itself will be recycled to be used at different locations via a drilling fluid recycling plant.

19.2.4.1.2 Onshore cable route

96. The onshore underground cable system will be installed in trenches as shown in **Table 19.2-19**. The approximate width at the base of each trench will be 1m or 1.5m, and the proposed = installation depth for each cable is 1.2m, however the trench will be required to be 1.75m deep. The onshore cable route will be 60km in length. It is anticipated that approximately two thirds of the excavated subsoil will be reinstated back into the trench, and where this is the case, the reinstated material is not considered waste. Approximately one third of the excavated soil will be surplus, which is anticipated to be waste. The estimated volume of excavated material is calculated in **Table 19.2-19**.

97. Any surface vegetation (i.e. hedgerows and trees) removed as part of excavation works will be separately stockpiled and sent for recovery at a local composting or an anaerobic digestion facility.

98. For trenchless crossings, it is assumed that all drill fluid would be disposed of via a licenced waste carrier as waste.

Table 19.2-19: Estimated material to be excavated from onshore cable route

	Material	Depth (m)	Volume (m^3) per trench	Number of trenches	Volume (m^3) for all trenches	Volume (m^3) of cable trench surplus soil
DEP/SEP alone	Soil	1.75	180,000	1	180,000	36,000m3
DEP/SEP together - concurrent	Soil	1.75	360,000	1 wide or 2 single trenches	360,000	61,250 or 81,667
DEP/SEP together - sequential	Soil	1.75	360,000	1+1	360,000	81,667

19.2.4.1.3 Jointing bays

99. There are anticipated to be up to 120 jointing bays for SEP and DEP alone or if built concurrently, and 240 if built sequentially. The dimensions of each cable jointing bay will be approximately 4m wide by 12m long by 2m deep (i.e. 96m^3). The estimated volume of excavated material is calculated in **Table 19.2-20**. It is anticipated as a worst case scenario that all excavated material will be waste.

Table 19.2-20: Estimated material to be excavated from jointing bays

	Material	No. of jointing bays	Depth (m)	Volume (m^3) per joint bay	Volume (m^3) for all joint bays	Volume (m^3) of surplus
DEP/SEP alone	Soil	120	2	96	11,520	11,520
DEP/SEP together - concurrent	Soil	120	2	96	11,520	11,520
DEP/SEP together - sequential	Soil	240	2	96	23,040	23,040

19.2.4.1.4 Haul road

100. There will be one or two (if DEP and SEP are built sequentially) haul roads for use in the duct installation process and for transport of plant and materials between the works compounds and work fronts. When the entire duct installation exercise is completed, the haul road would be taken up and the topsoil replaced. All recovered stone and other materials would be removed from site via construction compounds.

101. The haul road(s) will be 6m wide and extend the full length of the onshore cable corridor (60km). The surfacing of the haul road will be stone chip at 350mm depth. The topsoil will be excavated and stored and re-instated post construction. The stone chip is assumed to be a waste when it is removed from the track. The estimated volume of excavated material is calculated in **Table 19.2-21**.

102. Any surface vegetation removed as part of excavation works will be separately stockpiled and sent for recovery at a local composting or an anaerobic digestion facility.

Table 19.2-21: Estimated material to be excavated from haul road(s)

	Material	Depth (m)	Volume (m^3) per haul road	Volume (m^3) for 2 haul roads	Volume (m^3) of surplus
DEP/SEP alone	Soil	0.35	147,000	N/A	All to be re-instated
DEP/SEP together - concurrent	Soil	0.35	147,000	N/A	All to be re-instated
DEP/SEP together - sequential	Soil	0.35	147,000	294,000	All to be re-instated
DEP/SEP alone	Stone chip	0.35	147,000	N/A	147,000
DEP/SEP together - concurrent	Stone chip	0.35	147,000	N/A	147,000
DEP/SEP together - sequential	Stone chip	0.35	147,000	294,000	294,000

19.2.4.1.5 Construction compounds

103. There will be a total number of 7 temporary construction site compounds along the onshore cable corridor, with 3 primary site compounds and 4 intermediate site compounds, this will be the same for all DEP and SEP scenario options. The primary site compounds will have an estimated area of 10,000m^2 and the intermediated site compounds will have an estimated area of 1,500m^2. It is anticipated that any soil stripping would be re-instated. Existing hard standing would be used for the compounds where available. Where the hard surfacing is removed it is assumed this will be waste material. Assuming a depth of 0.35m the volume of waste hardstanding will be 3,500m^3 for primary site compounds and 525m^3 for intermediate site compounds with a total of 12,600m^3 of hard standing material for all 7 compounds.

104. The trenchless crossings compound will be 1,500 – 4,500m^2, however the number of trenchless crossings (HDD) required is still to be determined.

19.2.4.1.6 Onshore substation

105. An onshore substation will be constructed to accommodate the connection of both DEP and SEP to the transmission grid. If only one project comes forward the substation will be 3.25ha in size. If both DEP and SEP are taken forward a single substation will be constructed to accommodate both connections and will be 6.25ha in size.

106. To install the substation foundations a certain amount of 'cutting' and 'filling' of soil will be required (i.e. soil removed from the site may be used to fill in or landscape the site after foundation installation). Topsoil and subsoil generated from site preparation works at the onshore substation will be retained on site where possible to be used in the site restoration and landscaping.

107. A temporary working area will be instated adjacent to the substation prior to the start of the installation works and will be reinstated once all construction has been completed.

19.2.4.1.7 Site workers

108. It is estimated that there will be between 710 – 1,640 full-time equivalent (FTE) jobs per annum during the construction, installation and commissioning of the onshore infrastructure, dependant on construction scenario and maximum generation capacity (see **Chapter 29 Socio-Economics and Tourism**). These operatives will produce non-hazardous wastes during the construction programme, including general waste and toilet waste at the welfare facilities within the site temporary works areas or mobilisation areas. General waste is considered similar in composition to solid domestic waste i.e. dry recyclables, such as paper and cardboard, plastic, glass, and food waste. Currently, the quantity of general waste and toilet waste produced from site workers is unknown.

19.2.4.1.8 Other construction wastes

109. Almost all of the waste produced during the construction phase concerns excavated arisings. However other wastes will be produced during the construction process, particularly in the temporary works areas, including waste wood, waste metal packaging, waste oils, solvents, paints and other ad hoc hazardous wastes. Currently, the quantity of these wastes is unknown and would be dependent on the final design and chosen construction methodologies. It is anticipated that wastes produced along the construction corridor, would then be transferred back to the nearest works compound for temporary storage pending removal by a registered waste carrier in accordance with the waste duty of care.

19.2.4.2 Construction Waste Management Measures

110. This section describes the measures that can be implemented to eliminate or reduce the anticipated quantity of waste sent to landfill by implementing the waste hierarchy. These measures would increase reuse; recycling or recovery opportunities, thereby reducing the effect of significant environmental impacts. The waste management measures for the construction phase are split in the section below, into those that can generally be applied to one or more waste type; and those that are applied to specific waste streams.

111. A Site Waste Management Plan (SWMP) would be prepared before construction starts to record any decisions given to materials resource efficiency when designing and planning the works. Any assumptions on the nature of DEP and SEP; their design; the construction method or materials employed, to minimise the quantity of waste produced on site; or maximise the amount of waste reused, recycled or recovered, will be captured within the SWMP.

112. The SWMP would provide information on each waste type that is expected to be produced in DEP and SEP with the appropriate European Waste Catalogue (EWC) code and description for each waste type. It will provide an estimate of the quantity of each type of waste and the proposed waste management option for each waste produced (i.e. re-use, recycling, recovery or disposal; on or off-site).

19.2.4.2.1 General waste management measures

113. There are certain principles of waste management that can be applied to most wastes that would be created during the construction phase. These are:

- Adhere to waste legislation for storage and handling on-site; and ensure that the relevant regulatory controls have been applied to the reuse, recycling or recovery of waste on-site.
- No waste from DEP and SEP shall be deposited outside the DCO boundary, unless it is at a facility that holds a valid environmental permit or suitable authorised exemption. Off-site waste management facilities are legally obliged to operate under an environmental permit (or an authorised exemption), which is in place to ensure that the site is operated in a manner to prevent emissions causing harm to human health or the environment.
- Ensure that those who remove waste from site have the appropriate authorisation (i.e. are registered waste carriers); and those facilities that receive waste from the site hold a valid environmental permit or authorised exemption.
- Allocate space on site for the storage of waste materials and ensure that storage areas and containers are clearly labelled (appropriate signage) so site workers know which wastes should be put there. Paved areas/impermeable surfaces may be required, as deemed necessary, to prevent direct contact with the ground.
- Hazardous waste must be stored separately from non-hazardous wastes to avoid contamination. The Hazardous Waste Regulations make it illegal to mix hazardous waste with non-hazardous waste.
- Provide separate containers for dry recyclables, such as paper & cardboard, plastic, glass, wood and metal at welfare facilities within temporary works areas. This would encourage recycling and increase the potential value of the recyclable items by avoiding contamination.
- Monitor the actual quantities of wastes produced during construction and update the SWMP to allow comparison with waste arisings estimated prior to construction. Record the proposed waste management option (e.g. reuse on site, recycle off-site, or dispose off-site) for each waste produced.

- All wastes that are removed off site would be described on a waste transfer note or hazardous waste consignment note (as appropriate) that tracks the movement of the waste to the specified disposal or recovery facility.
- The appointed contractors should identify appropriate staff that are responsible for waste management; and ensure that all contractor staff are aware of the appropriate reuse, recovery or disposal routes for each waste.

114. These measures would promote sustainable waste management practices by maximising waste prevention, re-use, recycling and recovery opportunities for material destined for offsite waste management. This would actively discourage sending waste to landfill and would promote the waste hierarchy, which is a legal requirement. These measures will be incorporated into the CoCP for DEP and / or SEP.

19.2.4.2.2 Waste-specific management measures

Inert waste

115. Waste inert materials (for example concrete, bricks, rubble) generated could be crushed and processed in accordance with the Waste & Resources Action Programme (WRAP) Aggregates Quality Protocol. This would allow for on-site reuse as engineering fill material complying with an appropriate engineering standard for fill (for example the Manual of Contract Documents for Highway Works Volume 1 - Specification for Highway Works (Department for Transport, 2009).

116. Aggregate material that has been produced in accordance with the Aggregates Quality Protocol will not be waste at the point of production.

117. Control procedures must be in place to ensure that only the appropriate types of inert materials are accepted, which are listed in Appendix C of the Quality Protocol.

118. Every load must be inspected visually, both on initial receipt and after tipping, to ensure compliance with the acceptance control procedures. The facility that receives the inert waste for processing into the aggregate must have an environmental permit.

119. A rigorous sampling and testing regime is required to ensure that the processed material meets the required market specification according to the type of product produced.

120. To be able to demonstrate compliance with the Quality Protocol, producers must maintain delivery documentation for every load of recycled aggregate despatched.

121. For the purposes of the Quality Protocol the producer must keep and retain specified records for a minimum of two years; and make them available for inspection by the regulator (if requested).

122. It is important to note that even if the Quality Protocol is complied with, the material will become waste again and subject to waste management controls at any stage if it is discarded or there is an intention or requirement to discard.

123. These measures would reduce the amount of waste sent off-site; and promote on-site recycling into engineering-standard product, therefore, reducing the amount of material classed as waste on-site. The remaining surplus inert material would be sent off-site to a local recycling facility for processing into aggregate. This is a waste recycling measure in accordance with the waste hierarchy.

Non-hazardous wastes

Biodegradable waste from vegetation clearance

124. Biodegradable waste is anticipated to be generated from site clearance as part of the excavation works. This would be effectively managed by being sent for recovery at a local composting or an anaerobic digestion facility. None of this material is anticipated to require landfill disposal.

Excavated material – non-hazardous

125. Excavated material may comprise concrete hardstanding, bitumen, made ground and subsoil according to the specific parts of the site. The inert concrete hardstanding would be dealt with as inert waste (see above).

126. It is anticipated that some of the excavated soil would be retained on site for reuse as general fill as part of the cut and fill balance associated with the construction process. Any excavated soil that is surplus to requirements would be sent for recovery to a soil conditioning facility or local landfill for beneficial use as restoration material or daily cover, where possible as a preference over landfill depending upon availability.

127. Effective stockpile management would be essential within each location. It would maximise the amount of material that can be beneficially reused on site. Where excavated material is proposed to be used on-site, the appropriate regulatory mechanism must be followed prior to use to demonstrate that it will not cause unacceptable harm to the environment when used.

128. As the site is largely greenfield, there are two proposed approaches for the use of excavated material within the development:

- Use of the exclusion from the rWFD; or
- Use of the CL:AIRE Code of Practice (CoP).

129. The use of naturally occurring, uncontaminated material is excluded from the scope of the waste regulatory framework according to very specific circumstances. This is because of Article 2(1)(c) of the rWFD, which states that "*uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated*" is excluded from the scope of the rWFD. The use is not subject to any waste regulatory controls if it can be demonstrated that the use is recovery. Overarching principles of rWFD must be adhered to. These are:

- " … take the necessary measures to ensure that waste management is carried out without endangering human health, without harming the environment and, in particular:

(a) Without risk to water, air, soil, plants or animals;

(b) Without causing a nuisance through noise or odours; and

(c) Without adversely affecting the countryside or places of special interest."

130. The exclusion does not apply to material removed from the site.

131. The rWFD does not define 'uncontaminated'. However, the Environment Agency has a strict interpretation based on environmental risk: "*At its most basic or general, in this context, 'contamination' means the presence of substances in soil that produce a risk of harm or pollution. In the Environment Agency's opinion, the presence or absence of "contamination" has to be assessed on a site specific basis having regard to a risk assessment e.g. some soil may not be considered contaminated for one land use but may be for another. It is not just a matter of what levels of substances are present within a soil but where and how that soil is used*."

132. Therefore a risk assessment would be required, which is one of the fundamental requirements of the CL:AIRE CoP. In using the exclusion, it is recommended that the principles of the CoP are followed (including the use of Materials Management Plans (MMP)) but without the formal signoff.

133. The CoP is anticipated to provide the framework for the reuse of the remaining excavated material and provides principles that allow the excavated material to cease to be waste when used. The CoP can also apply to the use of contaminated material (including excavated material classified as hazardous waste – see below), where an appropriate risk assessment demonstrates that there would be no unacceptable level of risk to human health or the environment in the proposed context of use.

134. The CoP is supported by the Environment Agency and is subject to self-regulation, via the use of an independent assessment by a Qualified Person for sign-off. The Qualified Person is a person that fulfils the required experience, qualifications and professional membership criteria set by CL:AIRE. The CoP sets out the principles for achieving a non-waste status by setting a risk-based approach when excavated material is used within a development. The principles are:

- The proposed use of the material must not cause any harm to human health or the environment.
    - A risk assessment for the specific end use would be required following the principles defined in Environment Agency Land Contamination Risk Management (Environment Agency, 2020b) guidance (this is an update to the former Environment Agency Model Procedures for the Management of Land Contamination, Contaminated Land Report 11 (CLR11)). This would find out whether any contaminants from anthropogenic and/or natural sources present an unacceptable level of risk to human health, controlled waters, ecosystems and/or the built environment, based on the available pathways and receptors. If the level of risk is unacceptable after treatment, the CoP cannot apply to the material, therefore, it would be a waste and an environmental permit would be required to allow the reuse of the material.
- The excavated material is suitable for its proposed use.

- This would consider the chemical and geotechnical requirements of the material in relation to a specification defined for their end use.

- The excavated material must not require further treatment prior to use.
  - The material must be suitable for use in all respects without treatment. If it requires treatment, it is waste.
- The use of the excavated material is certain.
  - The holder must be able to demonstrate that all of the material would be used and that use is a certainty, not a probability. The use of the excavated material must form part of the final design, so it can be clearly identified where in DEP and SEP the material would be used; and how much would be used. This requires a MMP to be prepared to show how and where all materials on the ground are to be dealt with; and a tracking system to monitor any waste/material movements; and also contingency measures must be defined, i.e. who takes responsibility and what happens in the event that the material is not suitable for use.
- Only a sufficient quantity of material would be used.
  - The material must be destined for a defined purpose, which is defined in the DEP and SEP design. The quantity of material required for that purpose must be known prior to construction. If excess material is deposited to undertake that purpose this is an indication that it is being discarded and it would be waste.

135. The benefit of the CoP is that an environmental permit is not required where the principles can be met; and therefore, this promotes waste reduction, because the material ceases to be waste when it is used.

136. These measures would promote on-site recovery and reduce the amount of waste on-site.

137. A proportion of the excavated non-hazardous material may not be suitable for reuse due to the presence of large rocks/stones or fibrous material. This material would be stockpiled separately for off-site management in accordance with the waste hierarchy.

Surface planings - bitumen

138. It is anticipated that any bitumen based surface planings would be treated at an authorised mobile treatment unit by crushing, grinding and screening, and used again on site in the construction of paving structures similar to those from which the waste arose, in accordance with a ‘U1’ Waste Exemption (Use of Waste for Construction).

Dry recyclables from site workers

139. Site workers will create waste produced by themselves, by taking refreshment and from site welfare activities. The most effective waste management solution for waste generated by site workers taking refreshment on site is to introduce a policy to require them to take their own waste home. This is likely to reduce the amount of waste produced.

140. In terms of the waste that would be produced on site from site workers in the temporary office locations and in the site temporary works areas, this is similar in composition to mixed municipal waste and is therefore considered to be non-hazardous. Space should be made available to provide receptacles to collect different waste streams and allow the separate collection of dry recyclables from residual waste.

141. Segregation of the different streams of plastic waste (e.g. Polyethylene terephthalate (PET), High-density polyethylene (HDPE) and mixed plastics) would maximise opportunities for recycling. Some source segregated plastics, particularly PET and HDPE, can generate income. Card and paper should be separately collected as should aluminium and steel cans. Glass should be separated into different receptacles where possible. These measures would ensure that the maximum amount of waste is diverted for reuse, recycling and recovery. The food waste should also be separately collected and sent for anaerobic digestion.

142. All receptacles for contractor waste should be clearly labelled and have lids to prevent wind-blown litter.

143. Frequent collections of waste should be arranged to ensure that quantities on site are within the capacity of one skip and waste is not retained on site for long periods to reduce scavengers and vermin; and to reduce odour issues.

144. The remaining residual waste should be sent to an off-site materials recycling facility.

145. It should be noted that the level of recycling / separate collection will be dependent on the amount of space at the site temporary works and availability of different types of container; and waste management and recycling policies introduced by the Contractor.

Excess or off-spec materials

146. Timely procurement and buying only the required amount of material should ensure that the material is delivered at the time when it is needed and only in sufficient quantities. This would prevent waste from unused or spoiled items because of bulk purchasing.

147. Ensure that perishable materials are stored so that they are protected from the local climate.

148. All damaged or off-specification material should be immediately returned to the supplier where possible, which would reduce the amount of waste held on site.

149. These measures are anticipated to reduce the amount of this type of waste on site at any one time.

Metal wastes

150. Metal waste (i.e. from overhead line modifications, off-cuts and scrap metal that cannot be reused) should be collected in containers/skips or stored in an allocated area and removed off site for recycling. There is an active metal recycling market in the UK to deal with this waste.

Packaging

151. To minimise the effects of packaging, suppliers should be required to take back any packaging associated with their products. This would assist the suppliers in fulfilling their own producer responsibility obligations under Packaging Waste Regulations 2007 (as amended).

152. Packaging materials that cannot be returned should be kept for on-site use (e.g. use of pallets for storage).

153. Any residual packing that cannot be used on site should be segregated into distinct dry recyclable waste streams and sent for recycling off-site. No waste packaging would be landfilled.

Wood

154. The condition of any timber waste would determine whether they can be recycled at a wood processing facility; or whether they would have to be chipped or treated and prepared for recovery at a biological treatment facility, such as composting; or prepared for use as a fuel in a biomass energy from waste facility.

Imported materials

155. Local and sustainable products would be imported to minimise the effects on the environment by reducing carbon emissions from transport, promoting local businesses and saving natural resources.

Hazardous wastes

156. Empty fuel or oil drums should be retained for reuse on site for storing waste oil where possible. Those that cannot be retained should be sent to a drum reconditioning facility to enable the container to be prepared for re-use. Damaged drums should be sent for recycling.

157. These measures are anticipated to maximise waste managed at the highest waste hierarchical option and reduce the amount of waste sent off site.

158. The use of an active maintenance regime on plant and equipment should reduce the potential for machinery to cause leaks. Valves, stopcocks and pipes should be regularly checked for leakages. Fuelling activities should be carried out in bunded areas, or off-site.

159. The storage of fuels and liquids should be in accordance with the Oil Storage Regulations 2001 and the appropriate pollution prevention control guidelines to protect the environment from both storage and spillages of hazardous substances, which can be obtained from the government archive website (Note: Although these guidelines are no longer supported by the Environment Agency, they represent good practice)

- Pollution Prevention Guidance (PPG) 2 - Choosing and using oil storage tanks;
- PPG 7 – Operating refuelling facilities;
- PPG 8 - Safe storage and disposal of used oils;
- PPG 22 - Dealing with spills; and

- PPG 26 – Storage and handling drums and intermediate bulk containers.

160. Using these guidelines as good waste management practice against leaks would reduce the potential for leakages, therefore reducing the volume of absorbent required to clean up spillages.

161. Hazardous materials should be stored securely, away from non-hazardous or incompatible materials. Small items of hazardous waste should be prevented from being disposed of in general waste skips to avoid contamination. Hazardous material should be collected frequently to minimise the total volume on site at any one time.

Contaminated Excavated Material

162. **Appendix 19.1 – Land Quality Desk Study and PRA** Report states that the some of the area within the PRA onshore survey area has been subject to anthropogenic influence including railway land; potentially infilled land, brick works and landfill; and sewage works. As such, there could be areas of contamination within the PRA onshore survey area. There are also potentially contaminative areas within 250m of the onshore survey area including railway land; brick works; potentially infilled land/ refuse sites; airfield and military camp; electricity substation; and filling station. An intrusive site investigation has not been undertaken that would determine the current nature and extent of contamination within the onshore project area. So, specific locations of contamination hotspots have not been identified.

163. Therefore, a precautionary approach should be adopted, which assumes that some contaminated material will be encountered.

164. A watching brief should be maintained during construction, in accordance with the CoCP and any excavated material that is suspected of contamination (e.g. because of staining or odour) should be stockpiled separately from any other stockpiled material; and be sampled for analysis to determine the classification (i.e. hazardous or non-hazardous) and potential risk associated with the material.

165. Any excavated material that is found to be contaminated (including material classified as hazardous) should be assessed against the principles of the CoP and reused where there is a need for the material; and it is demonstrated to be suitable for use. This would reduce the amount of material on site that is waste.

166. Any material found to be hazardous and unsuitable for reuse on site should be sent off-site. Surplus hazardous material should be sent to a soil treatment facility holding a valid environmental permit that authorises treatment, where it can be treated to remove or reduce the levels of contamination to a level acceptable for recovery of the material. This would reduce the amount of hazardous waste from the facility going to landfill (which would have to be exported out of the region if going direct to hazardous waste landfill), and would promote the waste hierarchy and proximity principle, where such facilities are available within the region.

167. If any excavated material is classified as hazardous and is required to be landfilled because it cannot be treated for recovery, further testing would be carried out to ensure that it meets the Hazardous Waste Acceptance Criteria (WAC) prior to landfill disposal outside of the region.

19.2.5 Operational Waste Composition and Quantities

19.2.5.1 Operational Waste Arisings

19.2.5.1.1 Onshore Cable Route

168. The cables will be insulated and protected; however, occasional routine maintenance works will still be required during the operational phase. In the event of a cable failure, it may be necessary to excavate around the cables and replace / repair the faulty cable along limited stretches. Limited waste arisings are anticipated in accordance with this activity relating to excavated material and faulty cable.

169. Waste cable will be assessed and reused if possible; or will be recycled if not - there is an active metal recycling market in the UK and the cables contain high-value recyclable materials. Waste excavated material that cannot be returned to the trench will be sent for off-site waste management in accordance with the waste hierarchy.

19.2.5.1.2 Onshore Substation

170. The servicing of equipment in the onshore substation is likely to give rise to small quantities of liquid hazardous waste (used oil, solvents, paints etc.), solid hazardous waste (oil-contaminated wipes, absorbent, and some specialist electrical equipment and batteries etc.) and non-hazardous waste (packaging, cables, metal waste, plastic waste, waste electrical and electronic equipment (WEEE).

171. To reduce waste generation, electrical and electronic equipment should be used and services in accordance with manufacturers' instructions to extend their working life. WEEE, packaging and batteries should be recycled to fulfil Producer Responsibility requirements.

172. The quantity of oily wastes and rags generated can be reduced by preventing any possible leakage of oil, since the rags are mainly generated by cleaning tools or surfaces contaminated by small accidental spills or leakages. Oily rags can be treated using industrial washing facilities to remove oily residues, allowing the cleaned rags to be reused. The liquid can be collected and treated to recover the oil fraction. There is an active UK-wide market for the recycling of used oils into refined oil or fuel.

173. The reuse of organic paint solvents shall be considered for cleaning painting equipment or thinning paint. A way to re-use paint residuals could be achieved by making excess paints available for a further use by conserving them properly sealed. Solvent-based paint can be blended into a high calorific fuel for use in cement kilns.

174. The onshore substation will be unmanned, however due to the requirement for general ad hoc maintenance, personnel / maintenance engineers would visit the site. Small amounts of solid domestic waste may be generated; however, workers should take their waste home for it to be placed in applicable municipal waste bins for collection.

175. Currently, there is insufficient information regarding the specific operational activities that would generate waste to predict the quantities of waste that are likely to be produced. However, in addition to the principles identified for non-hazardous and hazardous construction wastes; there are general principles that would need to be followed to ensure effective management of operational waste arisings. These are provided below.

19.2.5.2 Operational Waste Management Measures

19.2.5.2.1 Duty of care

176. Personnel generating waste from the servicing and maintenance of the onshore cable route and onshore substation would be under a legal obligation to comply with the waste duty of care to ensure that they handle waste safely and in compliance with the appropriate regulations.

177. The duty of care involves making sure that the waste has been described properly and that all of the properties associated with the waste are known; and to ensure that persons involved in the transfer of waste hold the necessary authorisation to do so.

178. The basic responsibilities that the commercial occupiers would be expected to follow are:

- Know whether waste is hazardous or non-hazardous.
- Store waste in suitable containers at a secure location, in a manner that prevents releases of the waste.
- Label the waste containers so that it is clear what is in them.
- Check that the waste is subsequently handled by those who hold an appropriate environmental authorisation. This means checking that the waste carrier is registered (or is exempt from having to be a registered waste carrier). It is also good practice to check that the facility that will receive the waste holds a suitable environmental permit that allows the waste to be handled on their site.
- Provide documentation with any waste transfer that accurately describes the waste and contains the relevant code for the waste.
- Keep records of all waste transfers in a register.

19.2.5.2.2 Hazardous waste

179. Servicing and maintenance personnel would be required to know the difference between hazardous waste and non-hazardous waste. The controls that are applied to hazardous waste are stricter. All hazardous waste must be segregated from non-hazardous wastes or other non-waste materials. All hazardous wastes must be accompanied by a hazardous waste consignment note when removed from site.

19.2.5.2.3 Producer responsibility

180. Producer responsibility requires businesses to:

- Minimise waste arising and promote their re-use.
- Ensure the waste products are treated and meet recovery and recycling targets for the waste materials.
- Design products by reducing material use and enhancing reusability and recyclability.

181. The key requirements of DEP and SEP in terms of producer responsibility would be to ensure batteries, WEEE and packaging wastes are managed appropriately.

19.2.5.2.4 WEEE

182. WEEE must be collected separately from other wastes and sent to the appropriate recycling facilities. If a business does have WEEE to recycle, it has a Duty of Care to act responsibly and ensure that the contractor it appoints to collect it is legitimate and has the appropriate licences and permits.

183. A business should ensure that the waste is taken to a suitable facility to be treated and recycled. The site must have a permit or licence that allows them to accept trade waste. For WEEE waste, it must obtain and keep proof that WEEE was given or sold to a waste management (or asset management) business, and was treated and recycled in an environmentally sound way.

184. All WEEE from a business should go through Approved/Authorised Treatment Facilities for treatment and recycling.

185. In June 2020 the Environment Agency produced a revised classification of waste electrical and electronic equipment (WEEE). This will apply to items of WEEE and other components removed from the Facility. WEEE often has components that contain hazardous substances or persistent organic pollutants (POPs). These could include:

- printed circuit boards;
- plastic casings, cables and other components;
- insulation foam;
- cooling agents;
- flame retardants;
- activated glass and screen phosphors;
- cathode ray tubes;
- capacitors; and,
- Ni-Cd batteries.

186. If the levels of hazardous substances or POPs are over a certain amount the item will be classified as hazardous or POPs waste. If the item contains any POPs above the relevant threshold then it will affect future waste management options for it. The POPs must be destroyed. This means that it cannot be recycled or turned into a product for reuse. It must remain waste and waste controls will apply until it is destroyed.

187. The advice from the Environment Agency is that electrical and electronic equipment (EEE) manufactured before 1 January 2009, is more likely to contain penta-bromodiphenyl ether (PBDE) POPs. Therefore, this should be viewed as a cut-off date and any WEEE removed from the substation that was manufactured before this should be assumed to contain at least POPs unless there is evidence to the contrary and should be dealt with as such, i.e. must be destroyed. Furthermore, they advise that if a producer has assessed their waste and is still not sure if an item is hazardous or POPs waste, then it should be treated as hazardous and POPs waste as a precaution.

19.2.5.2.5 Packaging

188. The Packaging Waste Regulations 2007 (as amended) require businesses or organisations to:

- Reduce packaging;
- Reduce how much waste packaging goes to landfill; and
- Increase the amount of packaging waste that is recycled and recovered.

189. Compliance is facilitated by the segregation of packaging from other waste; and the segregation of different types of packaging from each other (e.g. separating plastic packaging from paper and cardboard packaging).

190. The amount of packaging waste held by a business or organisation can be reduced by returning as much packaging back to the supplier as possible. This in turn will help suppliers achieve their obligations under the Packaging Waste regulations.

19.2.5.2.6 Batteries

191. The Waste Batteries and Accumulators Regulations 2009 (as amended) impose obligations on the producers and distributers of batteries to ensure that batteries are appropriately treated or recycled using compliance schemes that are financed by producers and distributers of batteries.

192. It is illegal to send waste industrial or vehicle and other automotive batteries for incineration or to landfill. Maintenance operatives must ensure that all batteries are sent to an Approved Battery Treatment Operator (ABTO) or an Approved Battery Exporter (ABE) for treatment and recycling.

19.2.5.2.7 Landfill disposal

193. Before any waste can be sent to landfill, the waste producer/holder must ensure that the option for landfill has been justified in accordance with the waste hierarchy.

194. It is a legal requirement that all wastes going for landfill must be pre-treated, unless treatment is not technically possible (note, this applies to inert wastes only); or if treatment would not reduce the quantity or the hazards that it poses to human health or the environment. The proposed pre-treatment option must comply with the definition of ‘treatment’. This involves a ‘three-point test’:

- It must be a physical, thermal, chemical or biological process including sorting.
- It must change the characteristics of the waste.
- It must do so to:
    - Reduce its volume; or
    - Reduce its hazardous nature; or
    - Facilitate its handling; or
    - Enhance its recovery.

195. If the waste is classified as hazardous waste and landfill has been determined as a suitable option in accordance with the waste hierarchy, it can only be disposed in a hazardous class of landfill and must pass the hazardous WAC. This must be confirmed through chemical WAC testing.

196. If the waste is inert, it can only be deposited in an inert class of landfill if it can be demonstrated that it meets the inert WAC.

19.2.6 Decommissioning Waste Composition and Quantities

19.2.6.1 Decommissioning Waste Arisings

19.2.6.1.1 Cable system

197. No decision has been made regarding the final decommissioning policy for the onshore cables, as it is recognised that industry best practice, rules and legislation change over time. It is likely that the onshore cables will be removed from the ducts and recycled, with the ducts capped and sealed then left in situ. The decommissioning methodology cannot be finalised until immediately prior to decommissioning, but would be in line with relevant policy at that time.

19.2.6.1.2 Onshore substation

198. In relation to the onshore substation, the programme for decommissioning is expected to be similar in duration to the construction phase. The detailed activities and methodology would be determined later within DEP and SEP lifetime, but are expected to include:

- Dismantling and removal of outside electrical equipment from site located outside of the onshore substation buildings;
- Removal of cabling from site;
- Dismantling and removal of electrical equipment from within the onshore substation buildings;
- Removal of main onshore substation building and minor services equipment;
- Demolition of the support buildings and removal of fencing;
- Landscaping and reinstatement of the site (including land drainage); and
- Removal of areas of hard standing.

199. Whilst details regarding the decommissioning of the onshore substation are currently unknown, it is anticipated that the impacts would be similar or less than to those during construction.

200. The decommissioning methodology would need to be finalised nearer to the end of the lifetime of DEP and SEP to be in line with current guidance, policy and legislation at that point. Any such methodology would be agreed with the relevant authorities and statutory consultees. The decommissioning works could be subject to a separate licencing and consenting approach.

201. Decommissioning of the onshore substation is likely to create significant quantities of non-hazardous and inert construction and demolition waste, mainly comprising excavated hardstanding, building waste and excavated soil. Furthermore, the dismantling of power equipment will give rise to electrical and electronic wastes stream, including cables. Options to reuse / refurbish or recycle these wastes will be explored in line with guidelines and recommendations in force at that time.

19.2.6.1.3 Decommissioning Waste Management Measures

202. The measures proposed for waste management during the construction phase of the works will be adhered to during decommissioning.

19.3 Conclusion

19.3.1 Construction Phase

203. The estimated waste arisings from the construction phase of DEP and SEP that can be quantified based upon information available at the time of writing this report are presented in **Table 19.2-22**.

Table 19.2-22: Summary of construction phase waste arisings

Description of activity	DEP/SEP alone Total volume (m^3)	DEP/SEP together – concurrent Total volume (m^3)	DEP/SEP together - sequential Total volume (m^3)	Waste management
Onshore cable route				
Excavated soil (topsoil and sub-soil) from onshore cable route that will be reinstated.	144,000	280,000	280,000	On-site reuse
Excavated soil from onshore cable route that will require offsite disposal.	36,000	72,000	72,000	Off-site recovery or disposal
Jointing bays				
Excavated soil (topsoil and sub-soil) from jointing bays that will be reinstated.	11,520	11,520	23,040	Off-site recovery or disposal
Haul Road				
Excavated topsoil stripped to construct haul road.	147,000	147,000	294,000	On-site reuse

Description of activity	DEP/SEP alone Total volume (m^3)	DEP/SEP together – concurrent Total volume (m^3)	DEP/SEP together - sequential Total volume (m^3)	Waste management
Stone chip to construct haul road.	147,000	147,000	294,000	Off-site recovery or disposal
Construction Compounds				
Excavated topsoil stripped to construct construction compounds	12,600	12,600	12,600	On-site reuse
Hard standing	12,600	12,600	12,600	Off-site recovery or disposal

19.3.1.1 Inert wastes

204. The proposed waste management measures would reduce the amount of inert wastes by recycling the maximum amount of this material into an engineering standard product in accordance with the Aggregates Quality Protocol for use.

205. Where this cannot be achieved, other on-site uses such as recovery in the construction of site access tracks or backfill would be prioritised over any off-site options. Therefore, the measures would reduce the amount of material requiring off-site management to a minimum; and there are sufficient facilities within the region to recycle this material. This promotes the waste hierarchy and the proximity principle.

19.3.1.2 Non-hazardous wastes

206. Excavated material forms the majority of all waste arisings. Most of this material is likely to be non-hazardous because the onshore project area is largely greenfield. The waste management measures proposed for excavated material would promote the reuse of this material in accordance with the rWFD exclusion or CoP, where possible. The proposed use on site would be considered a justifiable option under the waste hierarchy and the proximity principle, because the retention of the material on site would prevent emissions as a consequence of removal from the site. Therefore, the use of the CoP would reduce the quantity waste being managed, because if the principles of the CoP are followed, the excavated material ceases to be waste when used.

207. Any excavated material that is not suitable for use on site or is surplus to requirements for use for construction purposes would be sent off-site in accordance with the waste hierarchy. Options for reuse or recovery, for example to a soil conditioning facility; or beneficial use as restoration material at a local landfill, would be prioritised to ensure that the amount of waste excavated material being disposed to landfill is reduced to an absolute minimum.

208. Biodegradable waste generated from site clearance would be managed by being sent for recovery at a local composting or an anaerobic digestion facility.

209. Waste produced by site workers in site welfare facilities will be dealt with by introducing a policy to require workers to take their own waste home. Receptacles should also be provided to collect different waste streams and allow the separate collection of dry recyclables from residual waste. Segregation of the different waste streams would ensure that the maximum amount of waste is diverted for reuse, recycling and recovery. The food waste should also be separately collected and sent for anaerobic digestion.

210. Metal waste should be collected in containers/skips and removed off site for recycling.

211. Suppliers should be required to take back any packaging associated with their products. Packaging materials that cannot be returned should be kept for on-site use (e.g. use of pallets for storage). Any residual packing that cannot be used on site should be segregated into distinct dry recyclable waste streams and sent for recycling off-site. No waste packaging would be landfilled.

212. Wood should either be recycled at a wood processing facility; or be chipped or treated and prepared for recovery at a biological treatment facility, such as composting; or prepared for use as a fuel in a biomass energy from waste facility.

213. Any bitumen based surface planings would be treated at an authorised mobile treatment unit by crushing, grinding and screening, and used again on site in the construction of paving structures similar to those from which the waste arose, in accordance with a ‘U1’ Waste Exemption (Use of Waste for Construction).

19.3.1.3 Hazardous wastes

214. The waste management measures proposed would effectively reduce the amount of hazardous excavation waste on site as a consequence of the material ceasing to be waste when reused under the CoP. This would also reduce the amount that requires off-site disposal.

215. Off-site options for surplus material or material that would not be suitable for use would be prioritised towards soil treatment to reduce or remove contaminants to a level that would facilitate the reuse or recovery of the treated material; thereby promoting the waste hierarchy.

216. The region does not have any merchant hazardous waste landfill facilities, therefore any hazardous waste produced as a consequence of DEP and SEP that requires landfill disposal would have to be exported out of the region. The use of local or regional treatment facilities to treat the soil as an alternative to landfill would promote the proximity principle by avoiding the need to export the material out of the region.

217. There are sufficient facilities within the region to recycle or treat ad hoc hazardous wastes (such as waste oils etc.).

19.3.2 Operational Phase

218. Limited operational wastes are expected to be generated because of occasional routine maintenance and servicing works at the onshore cable route and onshore substation.

219. In the event of a cable failure, it may be necessary to excavate a new jointing bay and replace / repair the faulty cable along limited stretches. Excavated material and faulty cable are anticipated in accordance with this activity. Waste cable will be assessed and reused if possible; or will be recycled if not. Waste excavated material that cannot be returned to the trench will be sent for off-site waste management in accordance with the waste hierarchy.

220. The servicing of equipment in the onshore substation is likely to give rise to small quantities of liquid hazardous waste (used oil, solvents, paints etc.), solid hazardous waste (oil-contaminated wipes, absorbent, and some specialist electrical equipment and batteries etc.) and non-hazardous waste (packaging, cables, metal waste, plastic waste and WEEE).

221. In order to reduce waste generation, electrical and electronic equipment should be used and services in accordance with manufacturers' instructions in order to extend their lives. WEEE, packaging and batteries should be recycled to fulfil Producer Responsibility requirements.

222. The quantity of oily wastes and rags generated can be reduced by preventing any possible leakage of oil, since the rags are mainly generated by cleaning tools or surfaces contaminated by small accidental spills or leakages. Oily rags can be treated using industrial washing facilities to remove oily residues, allowing the cleaned rags to be reused. The liquid can be collected and treated to recover the oil fraction. There is an active UK-wide market for the recycling of used oils into refined oil or fuel.

223. The reuse of organic paint solvents shall be considered for cleaning painting equipment or thinning paint. A way to re-use paint residuals could be achieved by making excess paints available for a further use by conserving them properly sealed. Solvent-based paint can be blended into a high calorific fuel for use in cement kilns.

224. Although the onshore cable route and onshore substation will be unmanned, personnel / maintenance engineers will be required to visit the site. Small amounts of solid domestic waste may be generated; however, workers should take their waste home for it to be placed in applicable municipal waste bins for collection.

225. Wastes produced during operation would be managed in accordance with the general principles of the waste duty of care and producer responsibility to ensure effective waste management should they arise.

19.3.3 Decommissioning Phase

226. No decision has been made regarding the final decommissioning policy for the onshore cables, as it is recognised that industry best practice, rules and legislation change over time. It is likely that the onshore cables will be removed from the ducts and recycled, with the transition pits and ducts capped and sealed then left in situ.

227. Decommissioning of the onshore substation is likely to create significant quantities of non-hazardous and inert construction and demolition waste, mainly comprising excavated hardstanding, power equipment and cables, building waste and excavated soil.

228. The measures proposed for waste management during the construction phase of the works will be adhered to during decommissioning.

19.3.4 References

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