AQUIND Limited

AQUIND INTERCONNECTOR

Onshore Outline Construction Environmental Management Plan

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(q)

Document Ref.: 6.9

PINS Ref.: EN020022

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DOCUMENT: 6.9

DATE: ~~14 NOVEMBER 2019~~6 OCTOBER 2020

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DOCUMENT

Document	6.9 Onshore Outline Construction Environmental Management Plan
Revision	~~001~~002
Document Owner	WSP UK Limited
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Date	~~23~~ 6 October ~~2019~~2020
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Date	~~23~~ 6 October ~~2019~~2020

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1. INTRODUCTION

1.1. PURPOSE OF THE ONSHORE OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

1.1.1.1. This Onshore Outline Construction Environmental Management Plan ('CEMP') has been prepared on behalf of AQUIND Limited ('The Applicant') to support the application for a Development Consent Order ('DCO'). The application for the DCO is made in respect of the UK elements of AQUIND Interconnector Project which will operate between France and the UK.

1.1.1.2. The DCO Application for the UK elements covers the parts of the Project located onshore in the UK ('Onshore Components'); and in the UK Marine area, defined as all of that part of the Project from the Mean High Water Spring ('MHWS') mark in the UK out to the limit of the UK/France Exclusive Economic Zone ('Marine Components'). Together the Onshore Components and the Marine Components comprise the 'Proposed Development', in respect of which the DCO Application is made. Refences to the Order Limits and the Site in this document, and within any of the appendices or plans enclosed within, are only in relation to the Order Limits and the Site, as applicable, to the Onshore Components of the Proposed Development.

1.1.1.3. This Onshore Outline CEMP covers the Onshore Components:

- Works at the existing National Grid Lovedean substation in Hampshire to facilitate the connection of the Project to the Great Britain electrical transmission network, the National Grid;
- Underground High Voltage Alternating Current ('HVAC') Cables each of which is paired with a smaller diameter fibre optic cables, connecting the National Grid Lovedean substation to the proposed Converter Station;
- The construction of a Converter Station comprising a mix of buildings, outdoor electrical equipment and telecommunications equipment and a Works Compound and Laydown Area; Access Road ~~and~~ , associated haul roads, attenuation features and landscaping;
- Up to two Telecommunications Buildings (one for each circuit) ~~are anticipated~~ to be located outside the main Converter Station security fence~~, so that they can be accessed by third parties~~;
- Two pairs of underground High Voltage Direct Current ('HVDC') Cables each of which is paired with a smaller diameter fibre optic cables ~~for data transmission,~~ to run from the Converter Station to the Landfall site in Eastney (near Portsmouth); and

- Infrastructure to join the Onshore and Marine HVDC Cables together at the Landfall, and two Optical Regeneration Stations ('ORS') (one for each ~~circuit) housed in separate buildings~~cable circuit).

1.1.1.4. The purpose of a CEMP is to establish good management practices to ensure that the construction work considers aspects of environmental protection within the context of compliance with local legislation and minimise impacts on both the general public and the environment. The CEMP will set out the overarching principles for environmental management of the onshore construction of the Proposed Development. The Environmental Constraints Plans in Appendix 1 illustrate the relevant environmental constraints for the Proposed Development.

1.1.1.5. Assuming the DCO is granted, the Applicant will appoint a Contractor (or lead contractor for each work package) who will have demonstrated that they are competent in managing the effects of construction on the environment. This is important as it will be the duty of the appointed contractor and its subcontractors to follow the environmental management and mitigation arrangements prescribed in the relevant CEMP, to minimise environmental risks and ensure compliance with ~~any~~ relevant requirements of the DCO.

1.1.1.6. This Onshore Outline CEMP reflects environmental requirements ~~identified to date~~, which have been identified for action as part of the DCO Application. ~~A CEMP~~ CEMPs would be produced in accordance with this Onshore Outline CEMP for each of the relevant parts of the Proposed Development. Each CEMP would explain how the activities of contractors and sub-contractors would comply with its requirements, including where necessary the production of subsidiary plans in relation to specific construction matters.

1.1.1.7. Once an ~~appointed~~ contractor is appointed and during construction for the relevant part of the Proposed Development, ~~this Onshore Outline CEMP~~ CEMPs will be ~~a~~ live document and ~~it~~ will be periodically reviewed and updated by the appointed contractor every six months, or as required, to satisfy all contractual and legislative requirements and ensure environmental risks are managed and mitigated throughout. In particular, it will be updated to take account of the following:

- Changes in detailed design;
- Changes in external factors such as regulations and standards;
- Any unforeseen circumstances as they arise such as new protected species or new archaeological finds and provide a mitigation framework for this;
- Good construction practices and ensure these are adopted and maintained throughout;
- The results of audits and inspections; and

- Learning points from environmental near misses and accidents.

1.1.1.8. This Onshore Outline CEMP is solely for the environmental management associated with the Onshore Components, with a separate Outline CEMP provided for the Marine Components in the Marine Outline CEMP (~~document reference 6.5~~APP-488).

1.1.1.9. The Onshore Outline CEMP outlines mitigation that will be applied in some cases 'where practicable'. The final routing of the Onshore Cable Route within the order limits, due to routing constraints associated with environmental constraints, including utilities. . For example, in some instances it may prove not possible to avoid certain tree root protection areas. However, measures which are "where practicable" must be applied where they reasonably can be applied.

1.2. LEGAL COMPLIANCE

1.2.1.1. ~~Considerable Environmental~~ Relevant legislation applies to the works to be undertaken. The expectation is that all relevant legislation, including requirements for licences, permits and/or consents shall be identified and ~~the appointed contractor will be required to provide details~~ information provided on how compliance is to be achieved, as part of the construction process, through the use of a Project Consents Register.

1.2.1.2. The relevant applicable ~~environmental~~ legislation and regulations will be identified from, but not limited to~~-~~, the list provided in Appendix 2. The list of relevant legislation and its applicability to the Site and the construction works will be reviewed and updated whenever necessary ~~by the appointed contractor~~.

1.3. STRUCTURE OF THE ONSHORE OUTLINE CEMP

1.3.1.1. This Onshore Outline CEMP is based on established good management practice through British Standards and Construction Industry Research and Information Association ('CIRIA~~-~~') guidance, and includes the following information:

- **Site Information and the Proposed Development**: including site and the surrounding area and a summary of the key environmental receptors associated with the construction of the Proposed Development.
- **Roles and Responsibilities**: An outline of the project roles and responsibilities required as part of ~~the~~ a CEMP.
- **General Environmental Requirements**: Requirements for audits and inspections, consents and health and safety, competence, training and awareness, internal and external communication including communication with the ~~client~~Client, statutory authorities and other stakeholders, public relations, complaints procedures, method statements and incident response.
- **General Environmental Control Measures**: General methods for managing environmental risks, including mitigation, relevant and current environmental legislation, good practice.
- **Location Specific Environmental Control Measures** – Location specific methods for managing environmental risks, including mitigation, and objectives, targets and commitments outlined in the 2019 Environmental Statement (~~document reference 6.1~~APP-116 to APP-145).
- **Monitoring**: Framework for monitoring receptors and environmental impacts.

2. SITE INFORMATION AND THE PROPOSED DEVELOPMENT

2.1. SITE AND THE SURROUNDING AREA

2.1.1.1. The Order Limits have been defined as the limits within which the Authorised Development may be carried out.

2.1.1.2. The Onshore Components are described in ~~Onshore Cable Corridor Sections~~sections. ~~Those~~ The sections are broken down further to provide a description of different options ~~under consideration~~, where relevant.

2.1.1.3. The current baseline of the sections of the Site includes:

- Section 1, the Converter Station Area, ~~is~~ located to the west of the existing National Grid Lovedean Substation, a rural area and surrounded by agricultural fields. The section is located within the administrative boundaries of Winchester City Council and East Hampshire District Council.
- Section 2 is a predominantly rural area comprising agricultural land. The section is located wholly within the administrative boundary of Winchester City Council.
- Section 3 is a predominantly rural area comprising open land, located to the east of the settlement of Denmead and west of the settlement of Anmore with a number of dispersed rural properties. The majority of the area forms part of the Denmead Gap (a planning policy designation to prevent the coalescence of Denmead and Waterlooville), with the area immediately south of Anmore Road comprising Kings Pond Meadow Site of Importance for Nature Conservation ('SINC'), with the land further south comprising open land known as Denmead Meadows. The section is located wholly within the administrative boundary of Winchester City Council.
- Section 4 is a predominantly urban area encompassing the B2150 Hambledon Road and A3 London Road running southwards. At the southern end, the section includes the junction of the A3 London Road and the B2177 Portsdown Hill Road as well as land between this junction and the northern part of Farlington Avenue, including the Portsdown Hill Road Car Park which also incorporates the northern area of the Meadow West of Farlington Avenue SINC. The section spans the administrative areas of Winchester City, Havant Borough and Portsmouth City Councils.

- Section 5 is located within the urban areas of Drayton and Farlington, suburbs of Portsmouth, and encompasses the highway of Farlington Road, Evelegh Road (south of Solent Infant School), Havant Road, the area of open land known as Scoutlands (between Evelegh Road and Havant Road), and the northernmost section of Eastern Road. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 6 is located within the urban ~~areas~~ area of Portsmouth, and includes the A2030 Eastern Road and the western half of Zetland Field, and western edge of the Sainsburys Car Park to the north of the railway line. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 7 is located within the urban ~~areas~~ area of Portsmouth, and includes a large area of Farlington Playing Fields on the mainland. The Onshore Cable Corridor then extends south-westerly across Langstone Harbour (a SSSI, SPA, SAC and Ramsar site) to the yard south of Kendalls Wharf before extending further south splitting around Baffins Rovers football ground re-joining at the northern edge of the southern football pitch. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 8 is within the urban area of Portsmouth and comprises the A2030 Eastern Road running south with Great Salterns Golf Course to the west and Langstone Harbour to the east towards the northern edge of Milton Common. The Corridor then takes multiple ~~routes~~ route options across Milton Common, a designated SINC and public open space~~-~~, to Moorings Way encompassing the southern edge of Milton Common to the junction with Furze Lane. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 9 continues south around the built edges of the University of Portsmouth Langstone Campus to Locksway Road and the Thatched House Public House (incorporating the western edge of the Milton Locks Conservation Area and the full extent of Milton Locks SINC). The Onshore Cable Corridor then continues southwest encompassing the south-eastern area of Milton Allotments to the Kingsley Road open space, and onwards to Bransbury Park routing south to Henderson Road in Eastney. The section is located wholly within the administrative boundary of Portsmouth City Council.

- Section 10 runs south-westerly along Fort Cumberland Road to the Fort Cumberland Road Car Park, adjacent to the Land West of Fort Cumberland SINC (further east lies Fort Cumberland SINC and Scheduled Ancient Monument). From the Car Park the route runs south to the Marine Section of the Cable Corridor and incorporates a section of Eastney Beach, a designated SINC. The section is located wholly within the administrative boundary of Portsmouth City Council.

2.1.1.4. The current environmental conditions are described in Chapter 3 (Description of the Proposed Development) of the Environmental Statement ('ES') Volume 1 (~~document reference 6.1.3~~APP-118). For further details of the baseline description, please see Chapters 6 to 28 of the ES Volume 1 (~~document reference• s 6.1.6 - 6.1.28~~APP-121 to APP-143).

2.2. SUMMARY OF KEY ENVIRONMENTAL RECEPTORS

2.2.1.1. A summary of the key environmental receptors for the ~~project~~ Site are contained within Table 2.1 below, and are shown in Appendix 1 Figure 2.

Table 2.1 – Key Environmental Receptors during Construction

Topic	Key Environmental Receptors
Landscape and Visual Amenity	**Converter Station** • Landscape character, associated landscape features and the setting of the South Downs National Park; and • Visual receptors: residents, recreational and transport within 8 km study area. **Onshore Cable Route** • Landscape character and associated features; and • Visual receptors): residents, recreational, transport, commercial/ retail/ industrial/ education/ church/ religious facilities and public house facilities within the 120 m buffer on either side of the Onshore Cable Route. **Landfall** • Landscape character and associated features of the Landfall; and • Visual amenity of surrounding visual receptors, including from residential properties and recreational users within 300 m study area of the Landfall.
Onshore Ecology	• Chichester and Langstone Harbour SPA; Wintering Intertidal Birds;

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Topic	Key Environmental Receptors

	• Solent Waders and Brent Goose Strategy Sites;
	• Crabdens Copse and Crabdens Row SINC;
	• Stoneacre Copse Ancient Woodland;
	• Denmead Meadows comprising:
	  • Kings Pond ~~Meadow~~ Meadows SINC;
	  • ~~Denmead~~ Soake Farm Meadows SINC;
	  • Unimproved grassland;
	• Milton Common SINC;
	• Broadleaved trees;
	• Species-rich hedgerows with/without trees;
	• Species-poor hedgerows with/without trees;
	• Semi-improved ~~negligible~~ neutral and calcareous grassland;
	• ~~Semi-improved negligible and calcareous~~ Unimproved grassland;
	• Badgers;
	• Bats; ~~and~~
	• Reptiles~~.~~;
	• Hedgehog; and
	• Wildlife and Countryside Act Schedule 9 plants.

Soils and Agricultural Land Use	• Agricultural land, including that classed as best and most versatile ('BMV') defined as land classified as Grades 1,2, and 3a of the Agricultural Land Classification ('ALC') system associated with the Converter Station Area and Onshore Cable Corridor Sections 1, 2, 3 and 4; • Farmable land area and farming businesses associated with the Converter Station Area and Onshore Cable Corridor Sections 1, 2, 3 and 4; and • Soil resources associated with non-agricultural land within Sections 6, 7 and 9.
Ground Conditions	• Geology (Mineral Safeguarding Area ('MSAs')); • Human Health (construction and maintenance workers and adjacent land users); • Controlled Waters (Principal, Secondary A and Secondary Undifferentiated Aquifers); and • Below Ground Services (potable water supply pipes and buried services).
Groundwater	• Head Aquifer; • Chalk Aquifer;

Topic	Key Environmental Receptors
	• Water Users; • Lambeth Group Aquifer; • Portsdown Chalk Formation; • Spetisbury Chalk Member; • Tarrant Chalk Member; • Newhaven Chalk Formation; • Bognor Sand Member; • Wittering Formation; • Lambeth Group; • Head Deposits; • Undifferentiated Chalk; • River Terrace Deposits; • Raised Marine Deposits; • Beach and Tidal Flats Deposits; • Portsmouth Sand Member; • Tidal Flat Deposits; ~~and~~ • Storm Beach Deposits~~.~~; • Groundwater Source Protection Zones; • Lovedean Source (Public Water Supply) and; • Havant and Bedhampton Source (Public Water Supply).
Surface Water Resources and Flood Risk	• Surface Water Drainage Patterns; • Public Foul Sewer Networks; • Public Water Supply Network; • Surface Waterbodies; • Surface water drainage patterns; • Public Surface Water and Combined Wastewater Networks; • Surface waterbodies flood plains; • Construction Workers; and • Residents, users and associated infrastructure of the surrounding area.
Heritage and Archaeology	• Prehistoric activity in the form of isolated pits and enclosure ditches with possibility for burials; • Roman settlement activity; • Early Medieval activity; • Cropmark evidence of a later medieval field systems visible as cropmarks or ridge and furrow cultivation; • Prehistoric activity; • Roman activity; • Roman settlement activity and remains of Roman road;

Topic	Key Environmental Receptors
	• Early medieval burials; • Palaeoenvironmental remains (Raised Marine Deposits); • Roman remains; • Prehistoric activity relating to exploitation of intertidal resources; and • Below ground remains associated with the early 19th century Portsmouth and Arundel Canal. • Above Ground Heritage Assets adjacent or close to the Order Limits, including curtilage of listed buildings (i.e. associated boundary walls)
Traffic and Transport	• Highway network impacted by the Converter Station Construction Traffic; • Highway network impacted by the Onshore Cable Corridor; • Highway Network impacted by Traffic Redistribution; • Local Highway Network (Hampshire County Council ('HCC')); • Local Highway Network (Portsmouth City County ('PCC')); • Public Transport Services; and • Pedestrians and Cyclists.
Air Quality	• Human Health receptors up to 250 m from the Onshore Cable Corridor; • ~~Emissions as a result of site construction activities and on-road construction vehicles and plant;~~ • ~~Emissions from on-road construction vehicles;~~ • ~~Emissions from diverted traffic;~~ • ~~Emissions from local power generation for Horizontal Directional Drilling ('HDD') and Fibre Optic Cable ('FOC') laying and pulling; and~~ • Ecological Receptors. • Human Receptors
Noise and Vibration	**Converter Station Area** • The Haven and Old Mill Cottage; • Hillcrest; • Millfield Farm; • Kimberley House; • Little Denmead Farm; • Holme and Highfield Cottages; • Lower Chapters; • The Arrows;

Topic	Key Environmental Receptors
	• Broadways; • Broadway Farm House; • Broadway Farm Cottages; • Hinton Daubnay; • Ludmore Cottages; • Old Mill House and The Shieling; and • The Ranch. **Onshore Cable Corridor Sections 2 - 10** • Residential properties and other sensitive receptors up to 280 m from the Onshore Cable Corridor (e.g. schools, hospitals etc).
Socio-economics	• Local residents and commercial businesses; • Community facilities; and • Recreation, leisure facilities and open space.
Human Health	• Population within Winchester, East Hampshire, Havant and Portsmouth; • Residents, users of community facilities and greenspace within the population of Winchester, East Hampshire, Havant and Portsmouth; and • Site users and adjacent site users within Winchester, East Hampshire, Havant and Portsmouth.
Waste and Material Resources	• Primary materials sources; and • Landfill capacity.
Carbon and Climate Change	~~• Materials;~~ ~~• Plant and equipment;~~ ~~• Workforce;~~ ~~• Site compound; and~~ ~~• Traffic.~~ • Atmospheric Greenhouse Gas • Components of the Proposed Development

2.3. TIMING OF ACTIVITIES

2.3.1. WORKING HOURS

2.3.1.1. The description of the assumed programme for the construction of the Proposed Development is based on the ~~anticipated~~ working hours in Table 2.2 ~~with construction being commenced in 2021 and the commissioning of the Proposed Development estimated in 2024~~.

Table 2.2 – Onshore ~~anticipated~~ working hours

Activity	~~Anticipated working~~ Working hours per day	~~Anticipated working~~ Working days per week
Converter Station Area Construction	~~10 hour shifts,~~ 08:00 ~~–~~ - 18:00 (Monday -Friday), 8:00-13:00 (Saturday)	6 days*
Marine Cable Installation	24 hour shifts	7 days
Onshore Cable Installation ~~*(including HDD-2, HDD-5 and HDD-6)*~~	~~10 hour shifts,~~ 07:00 ~~–~~ - 17:00 (Monday - Friday); 08:00 - 13:00 (Saturday)	6 days*
Landfall Installation ***(including HDD-1, TJB and ORS)***	12 hour shifts	7 days
HDD-2, HDD-5 and HDD-6 Installation	07:00 - 19:00	6 days*
HDD-3 and HDD-4 Installation	12 to 24 hour shifts	7 days

**Day 6 is Saturday working which is typically a 5-hour shift 08:00 to 13:00.*

2.3.1.2. No working hours within this table preclude:

(a) start-up and shut down activities up to an hour either side of the core working hours; and
(b) the receipt of oversize deliveries to the site, the arrival and departure of personnel to and from the site, on-site meetings or briefings, and the use of welfare facilities and non-intrusive activities.

2.3.1.3. The following Onshore Cable Installation operations may take place outside the working hours detailed above, subject to agreement with the Local Planning Authority ('LPA'):

Trenched Areas

- Section 4 – a 90 m section of the A3 London Road in Purbrook near Stakes Road:
  - ~~07:00 to 22:00~~ 08:00 to 18:00 hours, Saturday and Sunday, for 4 weekends (may not be continuous).
- Section 5 – Havant Road near Drayton between Farlington Avenue and Eastern Road:
  - ~~Up to 24 hour working~~Between Saturday sunrise until Sunday sunset., with the noisiest activities (road cutting/breaking and re-surfacing) avoided during hours of darkness for one weekend; or
  - 07:00 to 22:00 hours, for up to four weekends.
    - Section 6 ~~– Fitzherbert Road and Sainsbury's~~ –Sainsbury's Car Park:
  - Night Works, with the noisiest activities (road cutting/breaking and re-surfacing) will be avoided during hours of darkness (22.00 – 07.00).
- Section 8 – Eastern Road between Airport Service Road and north of Milton Common:
  - Up to 24 hour working, seven days per week for ~~approximately 33 days~~up to 7 weeks. Noisiest activities (road cutting/breaking and re-surfacing) will be avoided outside the Harbourside Caravan Park during the hours of darkness.

Trenchless Areas

2.3.1.4. It's anticipated that the following areas of the Onshore Cable Installation may be subject to 24 hour working as detailed in the table above:

- Section 7 Langstone Harbour (HDD):
  - Kendall's Wharf and Farlington Playing Fields (HDD-3).
- Section 6/7 Farlington Railway Crossing (Trenchless):

- Farlington Playing Fields and southern extent of Sainsbury's car park (HDD-4).

~~2.3.2. PROGRAMME~~

2.3.2. PUBLIC EVENTS

~~2.3.2.1. Table 2.3 below outlines the indicative programme for the construction works associated with the UK Onshore Components of the Proposed Development.~~

~~2.3.2.2. Environmental and wildlife constraints have also been taken in to consideration and will be built into the phasing of enabling and construction works for the Converter Station Area and Onshore Cable Route – see Sections 5 and 6 for further detail.~~

~~Table 2.3 – Indicative Onshore Construction Programme~~

~~Activity~~	~~Indicative Programme~~
~~Converter Station Construction~~	~~Q3 2021 – Q1 2024~~
~~Onshore HVDC Route Construction/ Cable Installation~~	~~Q3 2021 – Q4 2023~~
~~HDD and Landfall Construction (Onshore)~~	~~Q3 2021 – Q4 2023~~
~~Converter Station Commissioning~~	~~Q4 2023 – Q2 2024~~

2.3.2.1. ~~2.3.2.3.~~Public activities and events that are planned in proximity to the Converter Station site and Onshore Cable ~~Route~~Corridor, including but not limited to the following;

- School term time (as required);
- Football season;
- Coastal Waterside Marathon;
- Cowes Week;
- Great South Run; and
- ~~South Central Festival; and~~
- Victorious Festival.

2.3.2.2. ~~2.3.2.4.~~These will be taken into consideration by the appointed contractor during the phasing of the of construction works for the Proposed Development.

3. ROLES AND RESPONSIBILITIES

3.1.1.1. Personnel with defined environmental responsibilities are detailed in Table 3.1 below.

3.1.1.2. Each assigned responsible individual will sign to confirm that they understand and accept their designated duties and responsibilities. A signed copy of ~~the~~ each CEMP will be retained and made available on request. All personnel ~~on the Project~~ will sign a project induction which will confirm the acceptance of their environmental/sustainability responsibilities.

Table 3.1 – Roles and Responsibilities

Role	~~Individual~~	Responsibilities
Client		• Ensures that the construction project is set up so that it is carried out from start to finish in a way that adequately controls the risks to the health and safety of those who may be affected.
Principal Contractor		• Manages the Construction Stage of a Project. This involves liaising with the Client and Principal Designer throughout the project, including during the pre-Construction Stage.
Project Manager/ Director	~~TBC~~	• Overall environmental management of the Proposed Development, ensuring that all works are carried out in accordance with the CEMP.
Environmental Advisor/Manager	~~TBC~~	• Work with programme planners and project managers to ensure consents are embedded within the programme. • Monitor submission of consent applications and ensure their timely delivery. • Provide input to consultation with consent granting bodies, commitment holders and other third parties. • Co-ordinate and manage all required scheduled consents and property notifications. • Ensure environmental consents are obtained in line with the programme. • Maintain and update the consents register in line with requirements and ensure review of individual deliverables by project specialists. • Monitor and report progress on consents and commitments.

Role	~~Individual~~	Responsibilities
		• Monitoring construction works including the sub-contractors for compliance against Environmental Risk Assessment and method statement control measures. • Co-ordination of all environmental documentation. • Monitoring environmental training, consultation and implementation of sub-contractor procedures. • Attending site Health and Safety Executive ('HSE') committee meetings. • Monitoring of all site environmental incidents and ensuring they are reported and investigated. • Undertaking site inspections. • Accompanying HSE Managers and Environment Agency ('EA') inspections. • Compliance with duty of care, the Site Waste Management Plan ('SWMP') or any permits and/or exemptions. • Monitoring and measurement of waste. • Communicate sustainability good practice, innovation and targets to the project team and supply chain. • Keep a record of key performance indicators ('KPIs'). • Act as the main point of contact on environmental matters relating to the Proposed Development.
Environmental Clerk of Works[1]	~~TBC~~	• Support the Environmental Manager in delivering the environmental component of the Proposed Development. • Monitor construction activities and performance to ensure control measures are effective. • Maintain full records of the progress of the Environmental Works. • Implement an auditable environment record filing system. • Maintain regular contact and liaison with the Environmental Specialists.

[1] The Environmental Clerk of Works role may be covered by a suitably experienced and qualified Landscape Clerk of Works with an arboriculturalist called in to cover specific issues associated with trees and RPAs.

Role	~~Individual~~	Responsibilities
		• Carry out further monitoring as required by the CEMP.
Ecological Clerk of Works	~~TBC~~	• Monitoring and management of the ecological-related control measures. • Pre-construction ecological checks for habitats and species. • Implement and maintain exclusion zones. • Oversee provision of ecological mitigation measures. • Provide ecological information for site inductions, tool-box talks and meetings.
Public Relations Officer	~~TBC~~	• To track complaints from members of the public and respond within reasonable time frames. • To liaise with members of the public regarding issues such as any specific anticipated nuisance.
Engineering Manager	~~TBC~~	• Raise innovation at team meetings. • Capture good ideas/innovations/lessons learnt. • Track progress of improvements and support if needed. • Grow the culture of innovation by effective means of communication e.g. presentations, site visits, engagement with our supply chain. • Ensure environmental issues and constraints are included in individual designs, in accordance with environmental design procedures.
Planning Manager	~~TBC~~	• Plan works to avoid sensitive times of year. • Plan works to avoid working unsociable hours. • Plan into the project consents/surveys required and the time scales in which they take to obtain.
Construction Manager	~~TBC~~	• Advising appointed contractor representative on the implementation of the EMS. • Monitoring construction works including the sub-contractors for compliance against Environmental Risk Assessment and any method statement control measures. • Monitoring environmental training, consultation and implementation of sub-contractor procedures.

Role	~~Individual~~	Responsibilities
		• Accompanying site Environment Inspections where required and any environmental authority inspections. • Attending Environmental co-ordination meetings.
Works Supervisors/Site Manager	~~Various~~	• Ensuring that all site work is carried out in accordance with method statements, task briefings and activity briefings. • Ensure that staff under their supervision is aware of their environmental responsibilities. • Ensure key risks are identified and brief operatives on environmental topics. • Carry out site inspections to identify any environmental issues.
General Operatives	~~N/A~~	• Ensuring environmental mitigation measures are carried out during the course of their duties, in line with work package plans, task briefings and activity briefings. • Working considerately with a good working ethic in order to minimise adverse environmental impacts and follow all site rules communicated during briefings and project training sessions. • Informing their line management of any environmental issues they have on site, so that these can be communicated to the project management team for further investigation. • Attending the project induction prior to commencing work where details of the site environmental rules will be provided.
Waste Champion	~~TBC~~	• The effective communication of the Site Waste Management Plan ('SWMP') to their operatives and ensures enforcement of the SWMP at an operational level e.g. identifying areas for improvement where segregation is not being followed. • For the delivery of relevant toolbox talks where necessary.

4. GENERAL ENVIRONMENTAL REQUIREMENTS

4.1. REQUIREMENTS AND CONSENTS

4.1.1.1. The Proposed Development shall be carried out within the requirements (but not limited to) of the relevant legislation (see Appendix 2).

4.1.2. AUDITS AND INSPECTIONS

4.1.2.1. Regular inspections of the Site shall occur to ensure compliance with ~~the~~ each CEMP, check compliance with the legal and contractual requirements and to minimise the risk of damage to the environment. All environmental incidents shall be reported to the Environmental Manager.

4.1.2.2. The Environmental Manager shall carry out weekly inspections and complete an assessment of the works' environmental performance measured against KPIs, environmental standards, relevant legislation and the CEMP objectives.

4.1.2.3. Document control shall be in accordance with a Quality Management System and copies of all environmental audit reports, consents and licences shall be maintained by the appointed contractor's Environmental Advisor/Manager. They will be held on Site for review at any time.

4.1.2.4. The ~~appointed contractor~~ Project Manager shall be responsible for investigating and addressing any non-conformances raised by the inspection within an agreed time frame and ensuring that corrective and preventative actions have been fully implemented and closed out.

4.1.2.5. The ~~appointed contractor~~ Environmental Manager and the Client representative shall be responsible for updating and reviewing ~~the~~ each CEMP on a regular basis to ensure continual improvements.

4.1.3. CONSENTS AND HEALTH AND SAFETY

4.1.3.1. All staff employed must have regard to the Health and Safety at Work Act 1974 – that all persons employed will take reasonable care for the health and safety of themselves and other persons who may be affected by their acts or omissions.

Electricity safety

4.1.3.2. National Grid Electricity Safety Rules are mandatory. All staff who works on or near to the transmission system at the Lovedean Substation must understand and be familiar with the detail of the safety rules and appropriate supporting documents (National Grid UK Electricity Transmission Plc , 2018) (Fifth Edition).

4.1.3.3. Works at Section 1 Lovedean (Converter Station Area) will be undertaken in line with the overarching legal framework Electricity Safety, Quality and Continuity Regulations (Health and Safety Executive, 2002), and the *Third-party guidance for working near National Grid Electricity Transmission equipmen*t (National Grid, 2016).

4.1.3.4. Before works are undertaken on site, all relevant site staff will be made aware of and made sure they understand the HSE Guidance Note "*Avoiding danger from underground services*" (HSE, 2014).

4.1.3.5. Works will be planned to avoid underground services. Where this is not possible, plans will be developed to minimise the risk of damage to those services in the work area.

4.1.3.6. When carrying out excavations in the vicinity of electricity assets, the safe system of work will be employed:

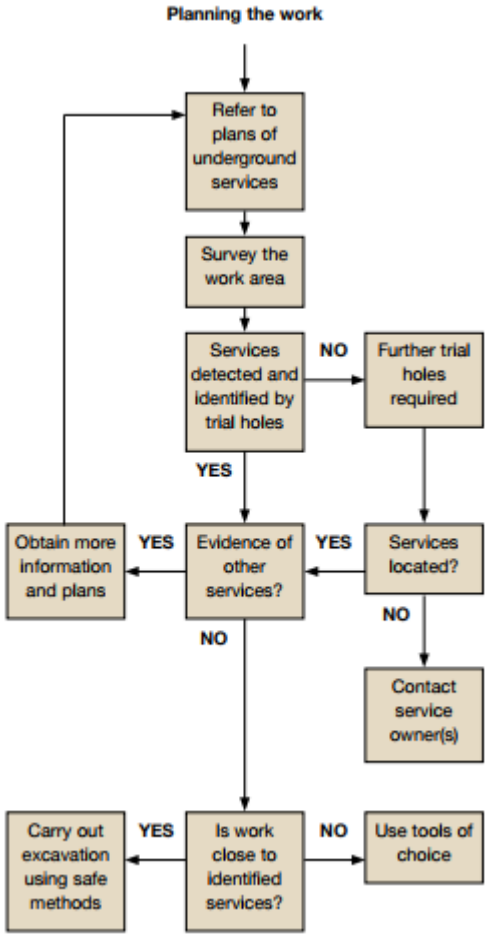


Plate 4.1 – A safe system of work (HSE, 2014)

4.1.3.7. Minimum clearances from the Overhead Line Clearance Technical Specification 43-8 will be adhered to onsite in relation to overhead lines (Energy Networks Association, 2004) (as amended). Plant, machinery, equipment, buildings or scaffolding will not encroach within the minimum clearance specified (dependent on-site conditions) of any high voltage conductors when those conductors are under their worse conditions of maximum "sag" and "swing" and overhead line profile (maximum "sag" and "swing") drawings should be obtained.

Electric and Magnetic Fields

4.1.3.8. The Onshore Cable Route alignment ~~and design~~ considered the advice provided by the National Radiological Protection Board on recommending the adoption in the UK of public exposure guidelines published in 1998 by the International Commission on Non-Ionizing Radiation Protection (International Commission on Non-Ionizing Radiation Protection, 1998) in terms of the 1999 EU Recommendation (The Council of the European Union, 1999) when the time of exposure is significant.

4.1.3.9. The relevant electrical infrastructure of the Proposed Development at Operational Stage will comply with the current public exposure guidelines, and in line with Appendix 3.7 (Onshore Electric and Magnetic Field Report) of the ES Volume 3 (~~document reference 6.3.3.7~~APP-361) will include:

- Earthed shielding of the HVAC Cables and HVDC Cables along the Onshore Cable Route;
- Earthed perimeter fencing at the Converter Station compound;
- The Converter Station electrical equipment must be designed to meet the guideline levels; and
- The electrical field within the Converter Station at 1 m above ground level will not exceed 10 kV/m.

4.1.3.10. The assessed components of the Proposed Development produce field strengths which are less than the public exposure limit.

4.1.3.11. The electric and magnetic fields generated by the HVAC and HVDC cables will comply with public exposure guidelines.

4.1.3.12. The ~~appointed contractor~~ Engineering Manager will ensure through design and verification that the Proposed Development complies with guidelines and the Code of Practice (Department of Energy & Climate Change , 2012).

Register of Consents

4.1.3.13. A register of consents covering: planning, highway and environmental has been prepared within Other Consents and Licences (~~document reference 5.2~~APP-106) which will be reviewed and the need for any further consents or licenses tracked by the appointed contractor to keep track of any progress. This will enable the project team to plan for consents to be applied for and obtained prior to the relevant works activity commencing.

4.1.3.14. The progress of the preparation, submission and internal approval of the consents identified as being required will be tracked using a consents register.

Health and Safety File

4.1.3.15. The Health and Safety File would be ~~submitted by the appointed contractor to a programme to be agreed with the Principal Designer.~~ prepared by the Client, with information supplied from the Principal Contractor. The Client and Principal Contractor will take responsibility for the Health and Safety File. .

4.1.3.16. The Health and Safety File would include information about all the following topics, where they may be relevant ~~of~~ to the health and safety of any future construction work. The level of detail to be provided would be proportional to the likely risks involved.

- Details of the project – Brief description of the work carried out;
- Residual hazards and how they have been dealt with including:
  - Details of all areas at risk of flooding, their form and detail of the associated danger;
  - If maintenance activities need to be undertaken in areas at risk of flooding staff should be signed up to flood warnings (rainfall, tidal, fluvial, reservoir) and check the weather forecast to be able to plan ahead and avoid attending site if there is a risk of flooding; or
  - If flooding is identified when out on site: – an appropriate level of training to staff should be in place to ensure staff are aware to stay away from flood water, abandon any work that needs to be undertaken in flooded areas and report the incident or request appropriately trained operatives to work if a maintenance activity needs to be undertaken.
- A detailed management plan for future maintenance and entry to below ground access chambers will be required (e.g., personal gas alarms, emergency recovery hoists, etc.) particularly in locations where there is a risk of the presence of ground gases such as at Milton Common.
- Key structural principles incorporated in the detailed design of the structures;

- Information regarding the removal or dismantling of installed plant and equipment;
- The nature, location and marking of significant services, including firefighting services; and
- Information and as built drawings of the structure, its plant and equipment.

4.2. COMPETENCE, TRAINING AND AWARENESS

4.2.1.1. The ~~appointed contractor~~ Project Manager shall identify the training needs of their employees and subcontractors so that they can implement the requirements of this Onshore Outline CEMP into the induction, start of shift briefings, ~~Tool box~~ Toolbox talks, Construction Phase Plan and construction method statements.

4.2.1.2. Specific training needs will be developed for individuals to reflect the work to be carried out on the Proposed Development and the significant risks and opportunities identified.

4.2.1.3. The requirement is for all personnel to be aware of their general environmental management responsibilities, and for those whose work may cause, or have the potential to cause, a significant impact on the environment, to receive specific environmental awareness briefings. Environmental awareness will be reinforced through information, such as poster campaigns, environmental/sustainability performance indicator reports and environmental alerts available onsite notice boards.

4.2.1.4. All contractors are responsible for ensuring the competency of their environmental staff. In the event that environmental training is needed for staff, a contractor is responsible for ensuring this requirement is fulfilled. Any training provided to members of the project team will be logged ~~by the project administrator~~ via a Project Training Matrix and any certification documents will be produced by the relevant members of staff as evidence that they hold the required competencies.

4.3. INTERNAL COMMUNICATION

4.3.1.1. Communication on environmental issues within the project team will take place through face-to-face conversations, e-mails and telephone calls. The project management team will be made aware of all environmental issues at the earliest possible opportunity. Communication on environmental matters will be maintained through construction meetings chaired by the Environmental Advisor/ Manager or a senior manager.

4.3.1.2. Environmental issues identified by any member of the project team will be communicated to the relevant personnel to ensure any required actions are carried out. Dissemination of information will take place in several forms, as appropriate, including meetings to discuss particular project issues, method statements, task/activity briefings, toolbox talks, inductions, environmental notices and environmental alerts. Records that these have been carried out and who received them will be documented via the use of attendance logs or distribution lists. The Environmental Advisor/Manager will notify Works Supervisors of any legislation changes which may affect working practices on Site.

4.3.1.3. Any unexpected finds/occurrences by site staff can be reported to their ~~supervisors~~Works Supervisors, which will then give notification to the relevant member of the Environmental team (described in Section 4) who will advise on the course of action to be taken.

4.4. EXTERNAL COMMUNICATION

4.4.1. COMMUNICATION WITH THE CLIENT

4.4.1.1. The ~~appointed contractor~~ Planning Manager will liaise regularly with the ~~client~~ Client and its representatives regarding the programme of works, nature of the operations and methods to be employed to minimise adverse environmental impacts. This will include progress meetings as well as the production and submission of progress reports which will cover environmental/sustainability issues. The ~~appointed contractor~~ Environmental Manger will also supply all relevant supporting information and documentation to the ~~client~~ Client for matters concerning consents and the environment in accordance with the appropriate timescales.

4.4.2. STATUTORY AUTHORITIES AND OTHER STAKEHOLDERS

4.4.2.1. In the event of stakeholder liaison being required with local authorities or other stakeholders, the ~~appointed contractor~~ Environmental Manager will identify the requirement and seek authorisation from the ~~client~~ Client to undertake the task. Where consultation is required, a representative from the ~~client~~ Client will be invited to attend alongside the relevant appointed contractor personnel.

4.4.2.2. Project staff will keep an archive of any e-mail correspondence between themselves and statutory authorities and other stakeholders concerning the activities taking place. In the event that any complaints are received a log of correspondence and complaints will be kept up to date by the ~~appointed contractor~~Environmental Manager.

4.4.3. PUBLIC RELATIONS

4.4.3.1. It is good practice to inform interested parties when works are due to commence. The ~~appointed contractor~~ Public Liaison Officer will not communicate with residents unless approval has been granted by the ~~client~~Client. A member of the appointed contractor 's team will be provided with the Public Relations Officer role (see Section 3).

4.4.3.2. Regular stakeholder and traffic management meetings will be held as part of project governance requirements.

4.4.3.3. Any letters issued to interested parties will be drafted and issued by the Client, with inputs from the Public Relations Officer.

Communications Strategy

4.4.3.4. A Communications Strategy will be developed for the Construction Stage of the Proposed Development. The Communications Strategy will provide the framework for engaging and communicating with stakeholders in relation to the associated construction works of the Proposed Development. The strategy would consider both onshore and marine stakeholders, taking into account preferred communication channels depending on the location and stakeholder. Stakeholder engagement will be comprehensively and regularly measured throughout the Construction Stage.

4.4.3.5. The Strategy would identify the key stakeholders and confirm agreed methods for engagement and communication. Key stakeholders include, but are not limited to Local Planning Authorities and Parish Councils, emergency services, residents, businesses, developers, community groups and recreational users where they are potentially affected by the works, and also consultees such as East Solent Coastal Partnership ('ESCP'), EA and Portsmouth Water ('PW'). A 'Register for Updates' service would also be made available for any individual to request that they be informed of works in certain geographical area(s).

4.4.3.6. The purpose of the Communications Strategy is to provide a framework to:

- Be clear, timely, meaningful, open, honest, consistent, and accountable;
- Promote and raise awareness of the construction period (including timings, disruptions and diversions) and the methods for contacting the Applicant;
- Ensure transparency by providing access to technical information related to construction, where required;
- Use plain language;
- Be equally accessible to all;
- Continue to review the strategy against any change in general situation e.g. Covid-19, etc;
- Use best practice engagement methods;
- Engage with the community; and

- Explain how the Applicant plans to respond to stakeholder queries and feedback.

4.4.3.7. In delivering the Communications Strategy, all communications will be accessible and in non-technical language. Where necessary, communications will provide a hotline and email address should anyone wish to provide feedback or raise a query regarding construction works. Communication will be targeted to the specific stakeholders identified, and the appropriate mode of communication would be adopted depending on the specific needs of the particular stakeholder. Wider communication would predominantly consist of:

- Media releases;
- Public notices in local papers;
- Targeted letters to residents (including regular Community Update Newsletter(s) containing relevant information split geographically into Section 1-10 of the Proposed Development, or similar;
- Signposting; and
- Updates on a dedicated 'Construction' section of the website.

4.4.3.8. The Communications Strategy would also include information on the following key matters:

- Concerns over health and wellbeing from electric and magnetic fields (see paragraphs 4.1.3.8 to 4.1.3.12);
- Access to properties (see Section 5.9 Traffic and Transport);
- Open space restoration timescales (see Section 6.2.8 Socio-economics);
- Public Rights of Way ('PRoW') diversions (see Section 6.2.8 Socio-economics); and
- Recreational impacts (see Section 6.2.8 Socio-economics).

4.4.3.9. In order to evaluate the Communications Strategy, the established objectives will be regularly reviewed by the Client against a number of metrics, including:

- Enquiries received via email / freephone / freepost;
- Visits to the 'Construction' section of the Proposed Development website;
- Enrolments through 'Register for updates' website form (and similar requests via email / freephone / freepost); and
- Readership of monthly/bi-monthly Community Update Newsletter(s).

4.4.4. COMPLAINTS PROCEDURE

4.4.4.1. As part of the Site set-up process, site notice boards will be erected, maintained and clearly visible to third parties. A telephone number for environmental complaints will be published local to the Site. The Public Relations Officer will be responsible for ~~dealing with~~ liaising with appropriate individuals forming part of the project team to address any complaints and will have the appropriate authority to resolve any issues that may occur. Should it be required, an 'out of hours' telephone number will be available.

4.4.4.2. The Environmental Manager/ Advisor will maintain a close liaison with the relevant LPA Environmental Health Officer ('EHO') at all times and should any complaints regarding environmental nuisance (e.g. dust or noise) be received by the Public Relations Officer the details will be passed to the EHO for verification purposes.

4.4.4.3. Should any unforeseen event occur within the construction site that has the potential to cause off-site pollution then the Environmental Advisor/ Manager will immediately notify the EHO by phone and e-mail. As timely as possible, notice will be issued to the EHO for dealing with any unforeseen activity which may give rise to a particular problem.

4.4.4.4. During any site work, if any complaints are received directly to the appointed contractor or its subcontractors, the ~~client~~ Client will be notified as soon as is practicable but within twelve hours of the complaint being received. It will be the responsibility of the ~~appointed contractor's~~ Site Manager to brief any staff responsible for unacceptable working conduct in relation to worksite neighbours whilst working on this project.

4.5. METHOD STATEMENTS

4.5.1.1. The implementation of Method Statements for the different activities of the Proposed Development works shall be completed by the ~~relevant contractor(s~~Site Manager and General Operatives) and/ or subcontractor by trained staff or other appropriate experienced personnel, in consultation with specialists. Their production shall include a review of the environmental/ health and safety risks and commitments, so that appropriate control measures are developed and included within the construction process.

4.5.1.2. Method Statements will be reviewed and approved by the appointed contractor's Project Manager and, where relevant, by an appropriate environmental ~~specialist~~specialists. Where appropriate, and if required or necessary, method statements will be submitted to the regulatory authorities (EA, Natural England, the relevant LPA EHOs and Emergency Planning Officer etc.), as required.

4.5.1.3. Method statements must contain as a minimum:

- Location and duration of the activity, and vehicular access/egress arrangements (if applicable);

- Work to be undertaken and methods of construction;
- Plant and materials to be used;
- Labour and supervision requirements;
- Health, safety and environmental considerations (including relevant control measures); and
- Permit or consent requirements.

4.5.1.4. Deviation from approved method statements (where this is a statutory requirement) will be permitted only with prior approval from the LPA, and other relevant parties. This will be facilitated by formal review before any deviation is undertaken.

4.6. ENVIRONMENTAL INCIDENTS

4.6.1.1. The ~~appointed contractor~~ Environmental Manager will respond to any reported incidents within 24 hours, or as soon as ~~reasonable~~ reasonably practicable. In the event of working practices being deemed dangerous either by the Council or the HSE, immediate remedial action will be taken.

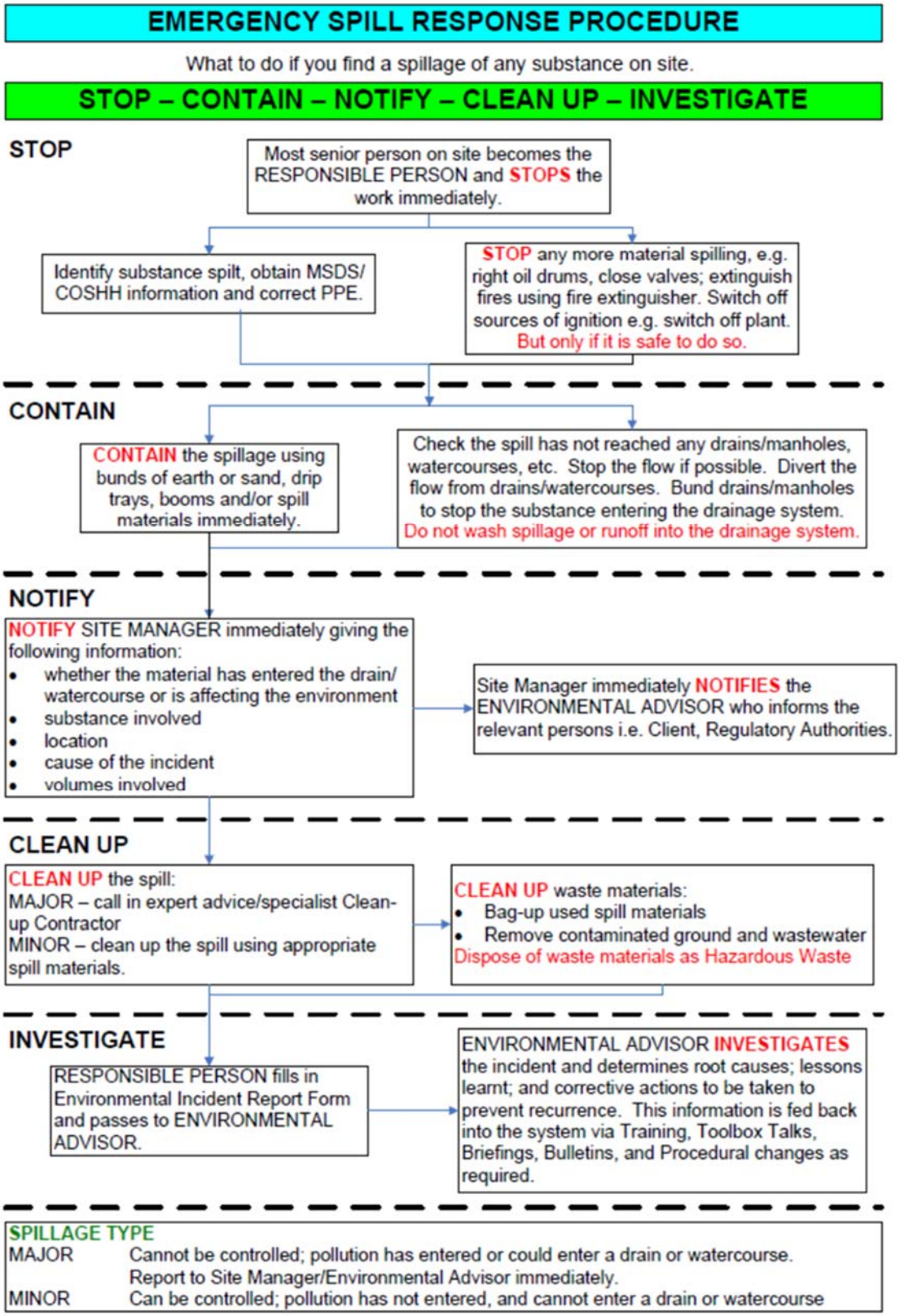
4.6.1.2. ~~The~~ A formal procedure for handling Environmental Incidents will be developed and agreed by the Project Manager, Environmental Advisor and appointed contractor/Construction Manager ~~but~~ , which may include a procedure similar to that detailed below:

- Environmental Incidents are to be reported to the Construction Manager;
- The Construction Manager (or nominated representative) will record full details of the Environmental Incident and ensure that they are responded to as soon as reasonably practicable (preferably within one hour but always within 24 hours; and
- The Construction Manager (or nominated representative) will undertake an investigation to assess what corrective and preventative action, or further investigation is necessary to avoid recurrence of the Environmental Incident.

4.6.2. EMERGENCY INCIDENT RESPONSE

4.6.2.1. In the event of a spill or leak, the following process shown in Plate ~~1~~ 4.2 will be followed. This will be briefed to the workforce and displayed on site notice boards.

AQUIND


EMERGENCY SPILL RESPONSE PROCEDURE
What to do if you find a spillage of any substance on site.
STOP – CONTAIN – NOTIFY – CLEAN UP – INVESTIGATE
STOP
Most senior person on site becomes the RESPONSIBLE PERSON and STOPS the work immediately.
Identify substance spilt, obtain MSDS/ COSHH information and correct PPE.
STOP any more material spilling, e.g. right oil drums, close valves; extinguish fires using fire extinguisher. Switch off sources of ignition e.g. switch off plant. But only if it is safe to do so.
CONTAIN
CONTAIN the spillage using bunds of earth or sand, drip trays, booms and/or spill materials immediately.
Check the spill has not reached any drains/manholes, watercourses, etc. Stop the flow if possible. Divert the flow from drains/watercourses. Bund drains/manholes to stop the substance entering the drainage system. Do not wash spillage or runoff into the drainage system.
NOTIFY
NOTIFY SITE MANAGER immediately giving the following information:
whether the material has entered the drain/ watercourse or is affecting the environment
substance involved
location
cause of the incident
volumes involved
Site Manager immediately NOTIFIES the ENVIRONMENTAL ADVISOR who informs the relevant persons i.e. Client, Regulatory Authorities.
CLEAN UP
CLEAN UP the spill:
MAJOR – call in expert advice/specialist Clean-up Contractor
MINOR – clean up the spill using appropriate spill materials.
CLEAN UP waste materials:
Bag-up used spill materials
Remove contaminated ground and wastewater
Dispose of waste materials as Hazardous Waste
INVESTIGATE
RESPONSIBLE PERSON fills in Environmental Incident Report Form and passes to ENVIRONMENTAL ADVISOR.
ENVIRONMENTAL ADVISOR INVESTIGATES the incident and determines root causes; lessons learnt; and corrective actions to be taken to prevent recurrence. This information is fed back into the system via Training, Toolbox Talks, Briefings, Bulletins, and Procedural changes as required.
SPILLAGE TYPE
MAJOR Cannot be controlled; pollution has entered or could enter a drain or watercourse. Report to Site Manager/Environmental Advisor immediately.
MINOR Can be controlled; pollution has not entered, and cannot enter a drain or watercourse

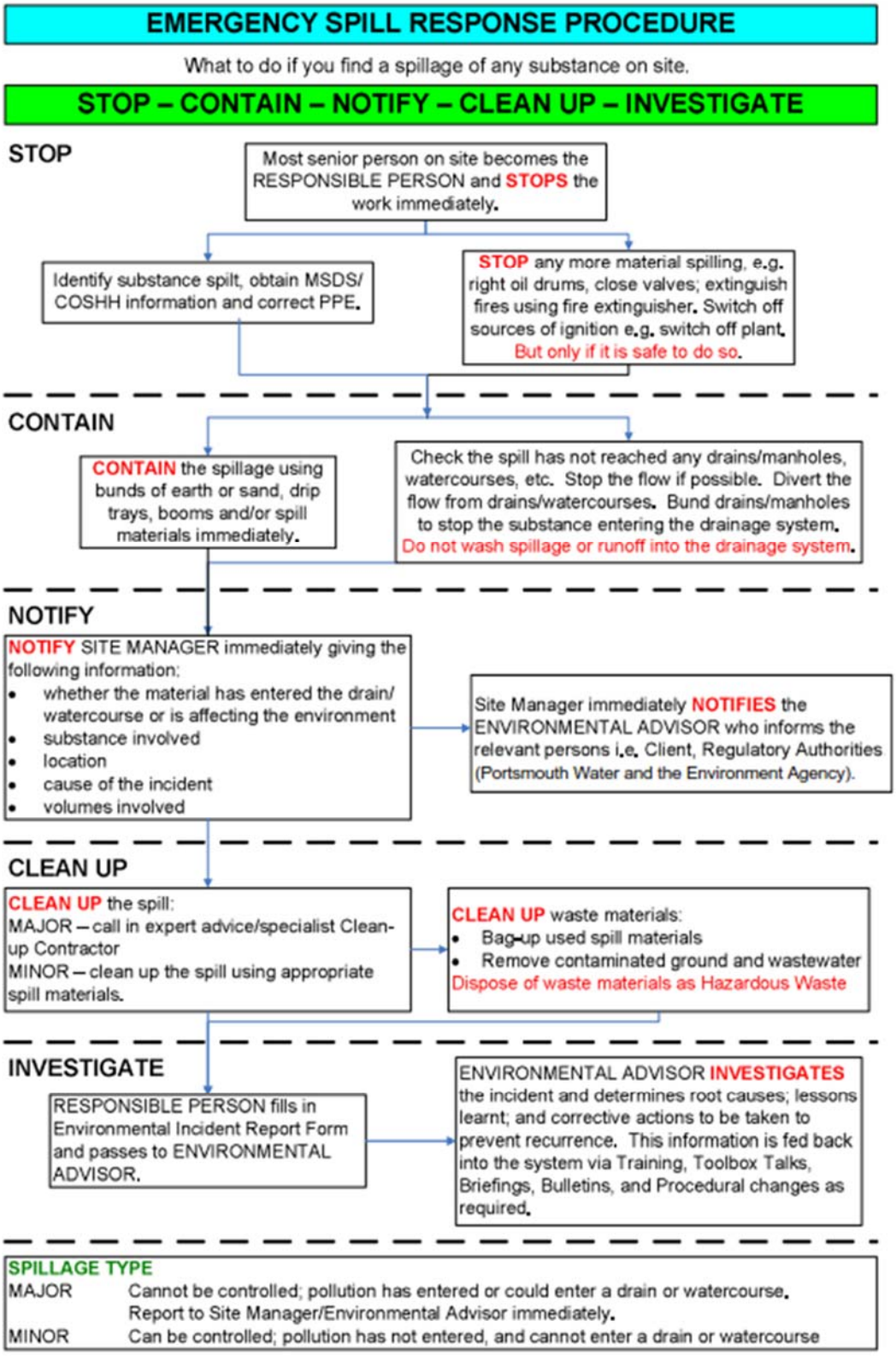


Plate 4.2 - Emergency Spill Response Procedure

5. GENERAL ENVIRONMENTAL CONTROL MEASURES

5.1. INTRODUCTION

5.1.1.1. This section sets out the environmental control measures to be adopted during construction. The appointed contractor will ensure that all sub-contractors adhere to the environmental good practice guidelines for implementation during all site activities.

5.2. LANDSCAPE AND VISUAL AMENITY

5.2.1.1. The following measures ~~may~~ will be considered during construction works to ensure protection of the existing landscape setting and views to the construction ~~Site~~site:

- Temporary screening for sensitive visual receptors through implementation of solid construction hoardings whilst using natural existing screens (topsoil and existing vegetation) ~~where practicable~~. Hoardings would be attractive (visually recessive and sensitive in design), used to screen low level "clutter" and reduce noise;
- Appropriate location, organisation and phasing of construction activities;
- Maintenance of a tidy and contained site compound to reduce visual clutter; ~~and~~
- Large plant /equipment would be located away from most sensitive receptors where there are viable alternatives; and
- Measures to control working hours in specific locations to avoid disturbance to residential receptors both in terms of light and noise.

5.2.1.2. The hoarding to be erected around the Converter Station will visually contain many of the construction activities from the surrounding character areas in terms of influencing their visual setting.

5.2.1.3. Hoardings would be well lit in poorly lit walkways and any gates should be positioned to minimise noise transmitted to nearby sensitive receptors.

5.2.2. LIGHTING SCHEME

5.2.2.1. The appointed contractor will develop a Lighting Scheme for the Construction and Operational Stages of the Converter Station Area. This will, after consultation with the South Downs National Park Authority, be submitted for approval to the relevant Local Planning Authority. The Lighting Scheme will be developed in reference to the SDNPA Technical Advice Note 2018, Dark Skies. The general principles will include, but not be limited to consideration of:

- Angle lights downwards – no unnecessary light above or near the horizontal;
- Lamps above 500 lumens should be installed in dark sky friendly fixtures that prevent unnecessary upward light;
- Point where the light is needed not in a direction that causes a nuisance to neighbours or wildlife;
- Switch off lighting when not needed. Consider the use proximity sensors and avoid dusk-till-dawn sensors;
- Light to the appropriate illuminance;
- Avoid bright white and cooler temperature LED's; and
- Install at the lowest possible height to achieve required lighting levels.

5.2.2.2. For the HDD compounds the Engineering Manager will undertake a lighting assessment to manage light impacts. Temporary site lighting will be restricted to meet on-site safety and security requirements.

5.3. ONSHORE ECOLOGY

5.3.1.1. The following measures ~~may be considered~~ will be taken during construction works to ensure ecological disturbance is minimised:

- Where practicable, any mature trees and hedgerows which are within the site boundary will be retained;
- Tree root protection zones will be identified and clearly marked with fencing and signage;
- During the construction period, care should be taken to avoid creation of artificial habitats and temporary resting places within works areas, such as turf, spoil and rubble piles. Stored materials are best located away from areas of vegetation on hardstanding or bare ground. Stored materials can be raised off the ground by using storage bags on pallets;
- Water sprays will be used to manage dust and prevent it drifting from the construction site to surrounding areas where sensitive habitats are present;

- No waste or waste water should be discharged into the watercourses and management procedures to avoid contamination and pollution of waterways should be following and implemented at all times;
- Standard best practice methods that minimise the risk of pollution through accidental spillage of materials or surface runoff during construction works will be implemented. These measures will follow those within measures are described in the "Pollution Prevention for Businesses" guidance published by the UK Government. When working near water, pollution prevention methods will be incorporated into site-specific guidance notes provided to the site operatives as part of a method statement. All vehicles will carry spill kits and all staff be trained in how to use emergency response equipment. A contingency plan in the event of contamination of watercourses will be established and strictly adhered to in such an event. ~~Site compounds and materials storage areas will not be located adjacent to watercourses~~. Where appropriate, site compound, HDD compounds and any storage of soil stockpiling or plant must be in accordance with measures outlined in Section 5.7 below. Potentially contaminating materials will be stored appropriately in accordance with current guidelines to minimise pollution risk, including bunding fuel and chemical storage areas and generators. Site procedures will be carefully managed to avoid discharges to watercourses, in particular those involving cement and concrete;
- Restriction of night working – construction work will be restricted to daylight hours between dawn and dusk within areas without public street lighting (e.g. Denmead Meadows, Farlington Playing Fields and the Converter Station Area) during the bat active season (April to October) to avoid disturbance effects of noise and lighting on bats. Surveys have identified and assessed potential impacts and their effects on ecological features. However, the mobile nature of many protected and notable species is acknowledged. The Environmental Clerk of Works will monitor the site and be aware of the possibility of unexpected finds of protected and notable species. With support of appropriately experienced technical specialists, the Clerk of works will monitor the Proposed Development for species including badgers, water voles and otters that are known to be present in the wider area. In the event of an unexpected find of such a species, an ecologist will advise the Clerk of Works on a course of action to offset potential effects and maintain legislative compliance;

- Wildlife and Countryside Act Schedule 9 plants are present close to the Proposed Development, specifically Japanese knotweed that was recorded on the boundary of the Order Limits at allotments at Lock Lake (Section 9). It is an offence to cause Schedule 9 plants to grow in the wild. Prior to vegetation clearance within the Order Limits a survey for Schedule 9 plants will be undertaken to identify their locations, and appropriate control measures to either remove and eradicate them, or localise them (e.g. fencing), will be put in place. Regular checks of the works area by the Ecological Clerk of Works will be undertaken to ensure risks associated with Schedule 9 plants are controlled and works will not cause their spread in the wild. Appendix 16.2 (Preliminary Ecological Appraisal) of the ES Volume 3 (~~document reference 6.3.16.2~~APP-410) notes the location; and
- Any required scrub, hedgerow and/or tree clearance should be timed to avoid the main nesting season for birds between 1 March and 31 August. If scheduled within this period a suitably experienced ornithologist will be present to advise on any necessary protective measures, and confirm that the works are not likely to cause disturbance to nesting birds.

5.3.2. PRECAUTIONARY METHODS TO AVOID EFFECTS ON HEDGEHOGS

- To avoid killing or injury to hedgehogs that may be present hedgehogs, scrub and other dense vegetation within Sections 1-3 where suitable habitat is present will be hand search for hedgehogs prior to its clearance. Piles of cut vegetation such as brash piles will also be searched as the can harbour sheltering hedgehogs.
- Hedgehogs found will be moved to a suitable release site away from the development within scrub, hedgerow or other dense cover.
- In addition, open excavations will be fitted with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in, and prevent the trapping of animals including hedgehogs.

5.3.3. PRECAUTIONARY METHODS TO AVOID EFFECTS ON REPTILES **AND STAG BEETLES**

5.3.3.1. To avoid killing or injury to reptiles that may be present, a Precautionary Method of Works ('PMoW') will precede vegetation clearance and earthworks in habitats which could support these animals. created which will detail how working methods during the Construction Stage of the Proposed Development can minimise the risk of killing or injury to reptiles.

5.3.3.2. Such working methods likely to feature in a PMoW may include, but are not limited to, the following:

- Two stage vegetation clearance of fields, whereby areas of suitable habitat for reptiles are cut down to a height of 300 mm, left for a period to enable reptiles to disperse, and then cut to ground level under ecological supervision;
- Removal of natural refugia by hand where safe to do so, or otherwise undertaken methodically using plant under ecological supervision;
- Plant and machinery to be kept to defined access routes around the ~~Survey Area~~ survey area which are unsuitable for reptiles, until suitable habitat in the works area has been removed; and
- Open excavations will be fitted with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in, and prevent the trapping of animals including reptiles.

5.3.3.3. Stag beetles are primarily a woodland species associated with dead wood namely fallen trees. Whilst not identified within the Order Limits, on a precautionary basis to avoid mortality of this species should they incidentally be found within the Onshore Cable Corridor, the above methodology of removal of natural refugia will apply.

5.3.3.4. ~~5.3.3.3.~~The appointed contractor will comply with relevant legislation and should maintain habitats intact and undisturbed, where practicable. If protected species are unexpectedly discovered, work should cease and advice should be sought immediately from a suitably qualified ecologist.

5.3.3.5. ~~5.3.3.4.~~Implementation of the measures identified will be monitored by an Environmental Clerk of Works with the power to stop work and change site practices as required.

5.3.4. ARBORICULTURE

5.3.4.1. Adherence to British Standards 5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS 5837) when laying cables shall be adhered to. Root Protection Areas ('RPA's') shall be avoided.

5.3.4.2. Mitigation of impacts can be achieved by avoiding high value features through considering the use of alternative trenching or installation methods where practicable.

5.3.4.3. Where features are to be removed, consideration for replanting with like for like species in the locality is required. Hedgerow trees will require repositioning to at least 5 m away from the Onshore Cable Route within the Order Limits. Mitigation may also be achieved by appropriate compensatory tree planting within the locality.

5.3.4.4. Arboricultural Method Statements with associated RPA plans would be submitted as part of the detailed CEMPs and would accompany the detailed landscaping scheme. These would cover in detail the protection of root areas, protective barriers, precautions in respect of temporary works, sequence of activities, utilities, post construction and emergency remedial works. A Generic Arboricultural Method Statement ('AMS') is provided in Appendix 16.3 (Arboriculture Report, Appendix F) (APP-411).

5.3.4.5. ~~5.3.4.4.~~Ground protection shall be used where RPA's are encroached upon. For example, use of a no-dig construction for access routes shall be employed.

Converter Station Area

5.3.4.6. ~~5.3.4.5.~~Under no circumstances should any works or storage take place within 15 m of ancient woodland. When storing materials, particularly liquids, slopes and drainage channels must be considered to prevent spillages and flow into the buffer zone.

Onshore Cable Corridor

5.3.4.7. ~~5.3.4.6.~~The Onshore Cable Corridor, within the highway, is constrained by ~~land ownership,~~ buildings, under and over ground services, street furniture and traffic considerations. Therefore, options for avoiding trees will need to be carefully considered.

5.3.4.8. ~~5.3.4.7.~~The general design principles for working around trees are as follows:

- Onshore Cable Route will be diverted around or under RPAs, where practicable.
- Onshore Cable Route will avoid higher value trees as indicated in ~~this report~~the Arboriculture Report of the Environmental Statement Appendix 16.3 (APP-411). In particular, Category A trees will be avoided.
- Onshore Cable Route will avoid existing soft landscape areas containing RPA of arboricultural features, where practicable. In accordance with the required standoff for overhead and underground cables, the use of soft landscape resources such as grass verges, particularly in highway, will limit any future mitigatory tree planting opportunities and can permanently detrimentally affect the local landscape.
- Tree roots are likely to be infrequent within the carriageway construction due to lack of soil available for root growth. However, roots may persist at greater depths where conditions are favourable. Where practicable, cable routing in the carriageway to avoid tree roots will be ~~considered~~undertaken.
- Significant tree roots are likely to be frequent within footway, verge areas and other soft landscape where trees are present. ~~Works~~ Where present, works in these areas shall be avoided, where practicable.

5.4. SOILS AND AGRICULTURAL LAND USE

5.4.1.1. Development of a Soil Resources Plan ('SRP'). A SRP is prepared prior to the commencement of construction and confirms the different soil types and depths (based on the soil surveys already undertaken); the most appropriate re-use for the different types of soils within the detailed design; and the proposed methods for handling, storing and replacing soils on site. For the Onshore Cable Corridor, the SRP will confirm the different soil types and depths to be disturbed, the proposed methods for handling, storing and replacing soils, and provide specifications for the restored soil profiles to match the original profiles as closely as possible. An Outline SRP has been prepared (see Appendix 5 of this Onshore Outline CEMP).

5.4.1.2. Mitigation to ensure that the temporary requirement for land will not affect the ability to farm other land within the holding that is not affected by construction works~~,~~ will form part of ~~the~~ each relevant CEMP. This would include the continuation of farm access to temporarily severed land, as required for normal agricultural activities, the replacement of temporarily severed water supplies, and the installation of temporary stockproof fencing, as required.

5.5. GROUND CONDITIONS

5.5.1.1. The following methods should be implemented during construction to ensure the safety of construction workers, visitors and to avoid any potential pollution of surface and groundwater:

- The Proposed Development will adhere to Environment Agency ('EA') pollution prevention guidance and best practice during the construction works which will be incorporated into and managed through the CEMP.
- All construction personnel would be required to wear appropriate PPE and to only undertake work following a Health and Safety risk assessment and a Health and Safety Induction. Hygiene and welfare facilities would need to be provided for use by construction personnel during the works. A watching brief would be implemented during excavation to ensure that any unexpected contamination within the Made Ground (if present) is rapidly identified, risk assessed and dealt with appropriately.
- A watching brief would be implemented during excavation to ensure that any unexpected contamination within the Made Ground (if present) is rapidly identified, risk assessed and dealt with appropriately.
- Regular monitoring visual inspections during construction.

- If remediation is deemed necessary, requirements will be assessed on a site-specific basis and the works carried out, supervised, validated and verified in accordance with current best practice. All decisions to remediate and validate works will be made under the management of an Environmental Manager and appropriate specialists.
- A site-specific risk register shall be produced prior to works commencing, this shall include geotechnical and ground risks which shall be considered when agreeing methods of working and where necessary suitable control measures/mitigation incorporated.
- Good working practices and housekeeping during construction such as sealing or covering stockpiles of contaminated soils and treating water removed from excavations prior to discharge are considered likely to reduce identified impacts.
- Water/surfactant will be sprayed onto material being worked to damp down any potentially contaminated dust and prevent it from becoming airborne. Chemicals and surfactants will be Centre for Environment Fisheries and Aquaculture Science (CEFAS) rated products and included within the contractor's method statements. Temporary surface water drainage and vehicle wheel washes will further reduce the risk of dust generation. Precautions should also be taken while transporting excavated materials off-site to ensure that any risk of fugitive dust emissions are prevented. Construction Stage air monitoring may be used to check the effectiveness of damping down of the dust on site. Vehicle movements will be restricted to an agreed travel plan and construction activities on site will not exceed standard working hours~~, unless explicitly required to do so~~.
- Water removed from any excavations will be disposed of or discharged in accordance with EA requirements.
- The reuse of soil on Site ~~should~~ will be governed by the production of a Materials Management Plan ('MMP') in which chemical criteria are specified for the import of soils/fill material from off-site and for the reuse of site won material (see Appendix 4 for the Outline MMP). The stripping, storage and reuse of subsoil should be carried out in accordance with BS 8061:2013.

- Foundations for structures at the Converter Station (Section 1) will require piles that will extend down into the chalk groundwater aquifer. A Piling Works Risk Assessment ('PWRA') has been ~~Prepared by WSP~~prepared (Appendix 7 Surface Water Drainage and Aquifer Contamination Mitigation, Appendix 6 Preliminary Piling Risk Assessment), following accepted, best practice EA Guidance 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (Environment Agency, 2001)). This PWRA will ensure that piling operations do not form a pathway for the migration of contamination at the surface (either existing contaminants, those that form part of the pilling process or those that might be introduced during the operation of the Converter Station) to the aquifer. Pilling for the launch pit of the Kings Pond Horizontal Directional Drilling ('HDD') will not interact with the Chalk and therefore the aquifer is not at risk from these specific piling operations.
- Construction activities should also be undertaken in accordance with appropriate CIRIA guidance. Specifically, this should include:
  - CIRIA C741. Environmental Good Practice on site (4th Edition): (CIRIA C741, 2015); and
  - CIRIA C532. Control of Water Pollution from Construction Sites (CIRIA C532, 2001).

5.6. GROUNDWATER

5.6.1.1. ~~It is assumed that standard~~ Standard mitigation measures, including a variety of good environmental site practices, will be undertaken at the Proposed Development during the site preparation, earthworks and installation phases to minimise the risk of site runoff transmitting contaminants and sediment into surface ~~waterbodies~~ water and groundwater bodies water and groundwater bodies via the surface water drainage system.

5.6.1.2. A variety of good environmental site practices will be implemented to avoid or minimise impacts at the source. Such measures include, but are not limited to, the following:

- Working areas shall be clearly defined to ensure the disturbance of soils is minimised~~, where~~ as far as practicable;
- Haul routes and accesses shall be clearly defined to minimise the risk of accidents. Construction vehicles will be regularly inspected and maintained to reduce the risk of hydrocarbon contamination associated with leaks and spillage and will only be active when required;
- The cleaning of vehicle wheels prior to leaving site;

- Dust suppression (i.e. damping down);
- Installation of systems such as silt traps and swales designed to trap silty water including adequate maintenance and monitoring of these to ensure effectiveness, particularly after adverse weather conditions;
- Designated areas for the storage of hazardous materials, fuels and chemicals. All designated areas will be appropriately bunded to at least 110% capacity and all filler points/valves will be located within the extent of bund or appropriate drip trays provided;
- On-site availability of oil spill clean-up equipment including absorbent material and inflatable booms for use in the event of an oil spill or leak;
- Use of drip trays under mobile plant;
- Provision of environmental awareness training for site workers; ~~and~~
- Use of inert, uncontaminated material during construction~~.~~; and
- A watching brief would be implemented during construction within the SPZ 1 to ensure that any unanticipated karst dissolution features are rapidly identified, and that works are temporarily paused so that any risk to groundwater, is minimised as far as possible. Work will continue when the issue is deemed to be sufficiently mitigated. Portsmouth Water to be notified of any instances of karst dissolution features being identified;
- Specific training for drilling contractor/teams on the importance of the Source Protection Zones/Principal Aquifer and protecting them for the duration of the works.

5.6.1.3. The risk of pollution to surface and groundwater can be significantly reduced by the adoption of good working practices and strict adherence to guidance provided by the EA on Gov.uk. The current guidance on gov.uk explains how to:

- Report an environmental incident;
- Get permission to discharge to surface water and groundwater;
- Manage business and commercial waste;
- Store oil and any oil storage regulations;
- Discharge sewage with no mains drainage; and
- Work on or near water and manage water on land

5.6.1.4. Guidance is also available in the following CIRIA publications;

- C532 - Control of Water Pollution from Construction Sites;

- C698 Site handbook for the construction of Sustainable Drainage System ('SuDS'); and
- C648 - Control of Water Pollution from Linear Construction Projects.

5.6.1.5. Additional guidance regarding the protection of groundwater is provided by the EA in their publication 'Groundwater Protection Position Statements, February 2018, Version 1.2', and will be consulted.

5.6.1.6. ~~5.6.1.5.~~Best practice recommendations for the prevention of contamination will be outlined in the ~~detailed~~ relevant CEMP or equivalent, and agreed with relevant statutory consultees prior to commencement of construction works. This will include measures to comply with relevant legislation and guidance (including the EA's Guidance online) and best practice measures in line with the Considerate Contractors Scheme and 'Site handbook for the construction of SUDS' (CIRIA C698). It will include an erosion prevention and sediment control plan to reduce the quantity of sediment entrained in runoff.

5.6.1.7. ~~5.6.1.6.~~It is recommended that surface runoff from the various construction areas within the site is managed by the use of temporary bunding and settlement ponds to protect the receiving water environment. Settlement ponds are beneficial in that they allow for isolation and on-site treatment of sediment laden or chemically contaminated surface water runoff prior to discharge, following agreement with the appropriate authority, or use of other appropriate means of disposal.

5.6.1.8. ~~5.6.1.7.~~Movement of materials around the site will be managed under an appropriate MMP.

5.6.1.9. A Surface Water Drainage and Aquifer Contamination Mitigation Strategy, which forms Appendix 7 of this Outline CEMP (APP-360 Rev002), will be implemented. This strategy outlines the principles that must be complied with for the Convertor Station design and is secured under requirement 6 and 15 of the dDCO (APP-019).

5.6.1.10. During detailed design, if it is considered the earthwork cutting could expose the Structured Chalk, the platform level may require refinement, which may also require further construction methodologies and sequencing mitigation to manage the risk of exposing the Structured Chalk. Construction methodologies, mitigation and management will be to industry guidance (CIRIA Report C574), with consultation and approval from Portsmouth Water and Environment Agency.

5.7. SURFACE WATER RESOURCES AND FLOOD RISK

5.7.1. GENERAL PRINCIPLES

5.7.1.1. Consents or exemptions are expected to be required for the following consents/ permits, which should be further reviewed and confirmed during detailed design process ~~by the appointed contractor~~:

- Temporary dewatering consent;
- Ordinary watercourse consent;
- Flood risk activities permit – environmental permits; and
- Discharges to surface water and groundwater: environmental permits.

5.7.1.2. Activities expected to require the above noted additional permits and consents are summarised below:

- Works within 16m and 8m of tidal and fluvial flood defences;
- Works within the flood plain;
- Works through, under or above a watercourse;
- Works requiring diversions or alterations to Ordinary Watercourses or extreme event surface water overland flow routes; and
- Works requiring temporary dewatering of surface water or groundwater.

5.7.1.3. The overarching principles required to obtain these approvals are summarised below, however specific methodologies are not defined to allow flexibility for the appointed contractor to conduct works in accordance with their preferred practices.

~~5.7.1.4. As part of the Onshore Outline CEMP, it is proposed that:~~

5.7.1.4. Measures to be undertaken include:

- The appointed contractor (and any sub-contractors) must take precautions during the Construction Stage to protect all surface water bodies including watercourses and drainage patterns from erosion, siltation or pollution in accordance with industry best practice. To prevent fine sediment entering the watercourses, construction activities should take place away from the watercourses and extreme event overland flow routes, where practicable. Should vegetation clearance be required, the extent should be limited to the areas necessary to reduce the amount of sediment released during clearance and the potential release of sediment from bare ground following clearance. Further ~~recommended~~ pollution prevention mitigation measures for adoption ~~by the contractor~~ include:
  - All operatives ~~should~~ to be made aware of the need to protect the watercourse from contamination, including EA guidance and legal obligations.
  - When construction activities, including stock piling (not permitted within fluvial flood zone 2 or 3 unless otherwise agreed with EA) and plant and vehicle washing, occur in close proximity to a watercourse they should be separated from the watercourse with barriers (e.g. sediment fences) to prevent surface water runoff from these sites entering the watercourse.

- Geotextile-material silt fences should be installed to filter suspended solids from runoff.
- Timing of works should be carefully considered around areas at risk of flooding and adjacent to watercourses. Where practicable, construction should be carried out during periods of low flow and rainfall (typically during summer months) to reduce the risk of pollution and erosion.
- The works should be carried out in accordance with established best practice and environmental permitting requirements.
- Pollution spill kits should be kept on site. In the event of an incident these would be used.
- Any soils contaminated ~~would~~ will be removed immediately to a suitable landfill site or appropriately managed/ reinstated in accordance with ground contamination/ remediation requirements.
- Waste facilities ~~should~~ to be provided on site for debris away from areas at risk of flooding.
- Cleaning of tools and shuttering will be carried out in water not draining directly to the watercourse.
- In any event of expected heavy rain pouring concrete and other activities which increase the risk of contaminating runoff should not be undertaken.
- ~~Activities near watercourses should be avoided during fish migratory and spawning seasons (typically October to May), where practicable.~~

- The control on invasive non-native species should be managed through best practice guidance and by implementing the Wildlife Law: Control of Invasive Non-native Species HC1039 (Law Com No. 342).

- The appointed contractor (and any sub-contractors) must obtain ~~appropriate~~ approval through appropriate consents and permits to undertake any construction activity or appropriate exception prior to commencement of that activity and is responsible for agreeing the construction methodologies in association to these consents and permits based on the principles defined hereafter.
- The appointed contractor (and any sub-contractors) must ensure that existing Main River, Ordinary Watercourses, extreme event surface water overland flow routes are maintained within no increase to flood risk~~–~~, on or off site, through appropriate temporary works and subject to approval or exemption of relevant environmental permits (flood risk activities permit/ ordinary watercourse consent).
- The appointed contractor (and any sub-contractors) must ensure any works over, under or directly adjacent to watercourses/watercourse structures (culvert/ sewer) and flood defences are subject to approval or exemption of ~~environut~~ environmental permits (flood risk activities permit/ordinary watercourse consent), where the contractor will need to develop appropriate design and construction methodologies to ensure that flood risk is not increased, the integrity of these features (e.g. flood defence or structure) are not negatively impacted, flow conveyance is not impacted and there is suitable pollution prevention measures in place during construction and operation.
- The appointed contractor (and any sub-contractors) will manage any potential surface water ingress or groundwater emergence that is deemed of a quantity unsafe to work in or that may create a pollution pathway ~~which should be managed through~~ . Any temporary dewatering ~~with and~~ or discharge of water must be in accordance with an exemption or Environmental Permit and discharged at a controlled discharge rate to an agreed discharge location through an appropriate pollution treatment mechanism. Dewatering quantities for trench construction will be determined at detailed design. The designer must ensure the discharge quantities are accurate or conservative to ensure no flood risk is not increased due to surplus groundwater being encountered during construction.
- Best practice methodology, in accordance with EA, Lead Local Flood Authority ('LLFA') guidance and other recommendations, should be implemented during construction to minimise the potential impacts of the Proposed Development on flood risk and potential contamination of surface waters.

- All construction activities will be undertaken in accordance with legislation and the gov.uk/EA Environmental Permits, Regulatory Position Statements and Guidance and other relevant documentation.
- The appointed contractor (and any sub-contractors) must ensure that works within flood zone 2 or 3 do not introduce significant structures (i.e. temporary site compounds) or spoil storage in the fluvial flood plain.
- The appointed contractor (and any sub-contractors) for works within flood zone 2 or 3, or directly adjacent to, should ensure a flood warning/ evacuation plan will be in place to halt works and make safe if there is an immediate risk of flooding.
- ~~The appointed contractor (and any sub-contractors) should aim to identify locations for joint bays/~~The majority of the cable route throughout Portsea Island/ Farlington is within Flood Zone 2 and 3. The joint bays, link pillars and link boxes to be located along the Onshore Cable Route are watertight when constructed and therefore their position in areas which are identified as being in Flood Zones 2 and 3 is acceptable. Due to the limited scale and size the above ground infrastructure associated with link boxes/link pillars the positioning of these in Flood Zones 2 and 3 is not expected to have any significant impact on the flood risk environment. Nonetheless, where practicable locations for joint bays and link pillars/link boxes are to be located outside of flood zones 2 and 3 or areas at risk of surface water flooding ~~where practicable, however if~~ . Where this is not practicable ~~due to other constraints, during construction~~ any works in the ~~flood zone~~ Flood Zone 2 or 3 ~~would~~ will be subject to approval ~~or exemption~~ of a flood risk activities permit or an exemption~~,~~ , and works within areas at risk of surface water flooding ~~would~~ may be subject to approval ~~or exemption~~ of an ordinary watercourse consent or an exemption. No impediments are foreseen to any such approvals or exemptions being obtained, taking into account the nature of the works and infrastructure proposed.
- If the appointed contractor decides to use temporary bunds to protect the trench or construction works, these would be in small localised areas and any impacts on existing drainage regime will need to be managed to ensure the impact of flooding is not increased subject to approval or exemption of relevant environmental permits (flood risk activities permit/ordinary watercourse consent).

- The detailed design of the HDDs is proposed to be developed post application and any specific provisions to protect the HDD construction works from the tidal flood risk will be developed by the contractor prior to works, if required. Any pathways under a flood defence created through the HDD during construction and operation will require appropriate bunding to the same standard of protection (e.g. defence crest level) to ensure a pathway is not created around the flood defence subject to approval ~~from approval~~ or exemption of a flood risk activities permit. HDD alignments should pass below or avoid, with appropriate clearance, any below ground features (e.g. sheet piling, concrete structures) associated to flood defences.
- Any temporary or permanent works over, under or directly adjacent to watercourses/watercourse structures (culvert/sewer) and flood defences will be subject to approval or exemption of environmental permits (flood risk activities permit/ ordinary watercourse consent), where the contractor will need to develop appropriate temporary and permanent design to ensure that the integrity of these features are not negatively impacted, flow conveyance is not impacted and there is suitable pollution prevention measures in place during construction and operation, and any works adjacent to the coastal flood defences should be located off the toe of any flood bunds unless otherwise agreed through an environmental permit.

5.8. HERITAGE AND ARCHAEOLOGY

5.8.1.1. The archaeological and cultural heritage mitigation outlined here comprises high-level general measures to minimise or reduce adverse effects arising from disturbance from the works on the surrounding historical assets. Where impacts have been identified and subject to the nature of the asset and the potential impact, consideration has been given to a range of mitigation measures, these include but are not limited to:

- Archaeological monitoring during construction to ensure appropriate recording of any remains encountered; and
- Proximity to Designated Heritage Assets must be taken into consideration during construction.

5.8.1.2. When undertaking construction works the contractor should take into account nearby Designated Heritage Assets, such as listed buildings, including curtilage structures (i.e. associated assets with the property extent such as boundary walls, which may not be mentioned specifically in the listing description). The types of Designated Assets are identified in ~~Chapter 21 (Heritage and Archaeology)~~Table 2.1sbove. Where the Order Limits ~~is~~ are in close proximity to those assets, care should be taken

to prevent accidental strike damage from plant movement and construction activities. ~~As set out in Chapter 21 of the EIA, it is assumed that the~~ The Onshore Cable Route will be located in the existing highway and not in the pavement adjacent to nearby Designated Heritage Assets where vibration could cause damage.

5.8.1.3. The mitigation strategy proposed to mitigate predicted archaeological construction related impacts identified is set out below. Three strategies are presented:

- Strategy 1: Greenfield areas (i.e. open rural or undeveloped land) – archaeological evaluation and mitigation;
- Strategy 2: Brownfield areas (i.e. Joint Bays ('JB'), Transition Joint Bays ('TJB') and HDD entry/exit points) – archaeological evaluation (where practicable) and mitigation; and
- Strategy 3: Brownfield area (i.e. along existing roads, pavements and hardstanding) – mitigation.

Strategy 1: Greenfield area evaluation and mitigation

5.8.1.4. Within the greenfield areas of the Order Limits (Sections 1-3), proposed ground disturbance would be extensive due to the preliminary topsoil strip. This is assumed to be site-wide for the Converter Station Area and also within the Onshore Cable Corridor working width, along with temporary access routes and temporary compounds (up to 19 m wide).

5.8.1.5. Within these areas, the presence, nature, date, extent and significance of any archaeological remains present would need to be clarified by trial trench evaluation as the potential for such remains, as assessed by the desk-based and Stage 1 Geophysical Survey, is uncertain. These will be targeted to geophysical anomalies of potential archaeological interest, along with any remains identified by the desk-based research, but will also include sampling of 'blank areas'.

5.8.1.6. The results of the evaluation will enable the Applicant to formulate with the relevant statutory consultees an appropriate mitigation strategy for any significant archaeological remains that could be affected.

5.8.1.7. Mitigation could take the form of a targeted archaeological excavation (preservation by record) well in advance of the commencement of ground works and/or an archaeological watching brief (a programme of 'strip, map and sample) carried out alongside the preliminary topsoil removal. This would ensure that archaeological remains were not removed without record. This would need to be programmed with adequate time for the recording of archaeological remains.

5.8.1.8. ~~Although rare, in the unlikely event~~ There is a very small chance that archaeological remains of very high (national) significance will be encountered. In the unlikely event that they are identified, there may be a requirement, where practicable, for their

preservation *in situ*, i.e. through modifications to the design, e.g. modification in design of foundations and formation levels for the Converter Station, or avoidance in the adjustment of the position of the Converter Station and/or the line of the Onshore Cable Route.

5.8.1.9. Any archaeological work would need to be undertaken in consultation with the relevant Archaeological Advisor, in accordance with an approved archaeological Written Scheme of Investigation ('WSI') outlining the scope and method of investigation, along with the post-excavation reporting and dissemination strategy.

Strategy 2: Brownfield area evaluation and mitigation

5.8.1.10. JBs, TJBs and HDD compounds in brownfield areas would entail more than the localised disturbance of the proposed cable trench, with the excavation of larger and deeper trenches, approximately 15 m x 5 m, to a depth of 3 m (JBs) and up to 1.75 mbgl. For such areas, archaeological trial trench evaluation may be appropriate depending on the depth of modern made ground.

5.8.1.11. As with the greenfield evaluation, this would aim to clarify the presence, nature, date, extent and significance of any archaeological remains within the area of excavation and would enable the formulation of an appropriate mitigation strategy.

5.8.1.12. In areas where evaluation trial trenching is not considered feasible, the proposed strategy will revert to Strategy 3 (see below).

Strategy 3: Brownfield area mitigation of the cable trench

5.8.1.13. The majority of the Onshore Cable Corridor passes through urban areas along existing roads, pavement and hardstanding. For these areas, the proposed archaeological impact would be highly localised and restricted to the approximate 1.0 m wide by 1.3 m deep cable trench, with no impacts from a 'working width' (i.e. no topsoil strip). Modern made ground is anticipated to be present, possibly to a depth of 0.5 m or greater. Archaeological remains in such areas are also likely to have been partially or wholly truncated by modern infrastructure development.

5.8.1.14. For this reason, the preliminary surveys proposed for the greenfield parts of the Order Limits would be neither feasible nor appropriate. In order to mitigate the localised impact of the cable trench on any potential archaeological remains, an archaeological watching brief would be required *in areas with potential for significant surviving archaeological remains,* and where the cable corridor would divert away from existing highways (i.e. on adjacent roadside verges/hardstanding). This would ensure that any archaeological assets were not removed without record.

5.8.1.15. The archaeological watching brief would be carried out during the Construction Stage during the excavation of the cable trench, with work halted to allow sufficient time to excavate, sample, and record any archaeological remains exposed.

5.8.1.16. The level of archaeological watching brief attendance is likely to vary depending on the predicted sensitivity along the Onshore Cable Corridor. The future WSI would

present the approach, ranging from continuous attendance in sensitive areas to regular attended for areas with low to moderate potential. For areas where there would be no impact (i.e. landfill zones/modern highways), no attendance would be required.

5.8.1.17. The archaeological watching brief would need to be undertaken in accordance with an approved archaeological WSI outlining the scope and method of investigation, along with the post-excavation reporting and dissemination strategy.

Palaeoenvironmental sampling

5.8.1.18. The archaeological strategies proposed above would require an element of palaeoenvironmental sampling, where the potential for such has been identified. This might include proposed disturbance in coastal alluvial/fluvial zones adjacent to Langstone Harbour and in areas of raised marine deposits, where they would be affected.

5.8.1.19. This would typically entail sampling during the intrusive fieldwork discussed above (and set out in the WSI), and geoarchaeological analysis in order to develop an understanding of past environmental conditions of the local area.

5.8.1.20. In light of the shallow nature of the proposed impact along the Onshore Cable Corridor, deep sampling through the use of purposive geoarchaeological boreholes, along with the creation of a geoarchaeological deposit model, is not considered appropriate.

5.10. ~~5.9.~~TRAFFIC AND TRANSPORT

5.10.1.1. ~~5.9.1.1.~~The construction of the Proposed Development will be required to comply with ~~the~~ each Traffic Management Strategy ('TMS') and Construction Traffic Management Plan ('CTMP'). A Framework TMS and Framework CTMP are provided as appendices to the Environmental Statement (~~document references 6.3.22.1A and 6.3.22.2~~APP-449 and APP-450).

5.10.1.2. ~~5.9.1.2.~~The Framework TMS provides details of traffic management measures to be deployed to facilitate construction of the Onshore HVDC Cables. The Framework TMS includes details of temporary traffic signals, lane closure and road closure requirements and a programme that aims to minimise disruptions of the construction works through timing of works at key locations to avoid constraints such as school terms and major events. The Onshore Cable Route Construction Impacts on Access to Properties and Car Parking and Communication Strategy included in Appendix 1 of the FTMS also sets out principles for mitigation, including:

- Access to residences, businesses and community facilities - including access to driveways outside working hours and three-way signals for business premises with their own access onto affected highways; and maintenance of side road access; and
- A communication strategy to allow stakeholders such as residents, businesses, the emergency services and community facilities to keep up to date with construction works.

5.10.1.3. ~~5.9.1.3.~~The Framework CTMP provides an overarching plan of how construction traffic and site operations will be managed across the Onshore Components of the Proposed Development. The Framework CTMP sets out the parameters within which contractors will be required to work, including hours of operation, traffic routing, safe vehicular access and requirements to minimise traffic impacts. The Framework CTMP also includes a Framework Construction Worker Travel Plan, which sets out the strategy to be employed by the Contractor to reduce the number of single-occupancy vehicle trips made to the Converter Station Area by construction workers.

5.10.1.4. ~~5.9.1.4.~~Prior to commencement of works in the highway, ~~AQUIND~~ the Project Manager will submit detailed designs for the works and ~~the~~ associated traffic management measures and a Travel Plan for approval to the relevant Highway Authority.

5.10.1.5. The Contractor will seek to locate Joint Bays in locations off carriageway, where practicable, to mitigate disruption to traffic, taking into account other environmental constraints and considerations.

5.11. ~~5.10.~~AIR QUALITY

5.11.1.1. ~~5.10.1.1.~~The following general mitigation measures ~~should~~ are to be implemented on site in line with best practice, IAQM guidelines. Table 5.1 should be read in conjunction with Table 5.2 as the mitigation required is commensurate with the assessed level of dust risk for each section. The contractor will implement, where appropriate, those measure 'highly recommended' by the IAQM guidelines as outlined in Table 5.1.

Table 5.1 - IAQM Mitigation resulting from the Construction Dust Assessment

Mitigation Measure	High Risk Site	Medium Risk Site
Communications		
1. Develop and implement a stakeholder communications plan (including a specific plan for the emergency services) that includes community engagement before work commences on site.	Highly Recommended	Highly Recommended
2. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	Highly Recommended	Highly Recommended
3. Display the head or regional office contact information.	Highly Recommended	Highly Recommended
4. Develop and implement a Dust Management Plan ('DMP'), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in the IAQM Guidance. The desirable measures should be included as appropriate for the site. In London additional measures may be required to	Highly Recommended	Highly Recommended

Mitigation Measure	High Risk Site	Medium Risk Site
ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM_{10} continuous monitoring and/or visual inspections.		
Site Management		
5. Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.	Highly Recommended	Highly Recommended
6. Make the complaints log available to the local authority when asked.	Highly Recommended	Highly Recommended
7. Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.	Highly Recommended	Highly Recommended
8. Hold regular liaison meetings with other high-risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	Highly Recommended	Not required
Monitoring		

Mitigation Measure	High Risk Site	Medium Risk Site
9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.	Highly Recommended	Desirable
10. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.	Highly Recommended	Highly Recommended
11. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	Highly Recommended	Highly Recommended
12. Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where practicable, commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	Highly Recommended	Highly Recommended
Preparing and Maintaining the Site.		

Mitigation Measure	High Risk Site	Medium Risk Site
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is practicable.	Highly Recommended	Highly Recommended
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	Highly Recommended	Highly Recommended
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.	Highly Recommended	Highly Recommended
16. Avoid site runoff of water or mud.	Highly Recommended	Highly Recommended
17. Keep site fencing, barriers and scaffolding clean using wet methods.	Highly Recommended	Highly Recommended
18. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	Highly Recommended	Highly Recommended
19. Cover, seed or fence stockpiles to prevent wind whipping.	Highly Recommended	Highly Recommended
Operating vehicle/machinery and sustainable travel		
20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London Non-Road Mobile Machinery ('NRMM') standards, where applicable.	Highly Recommended	Highly Recommended

Mitigation Measure	High Risk Site	Medium Risk Site
21. Ensure all vehicles switch off engines when stationary – no idling vehicles.	Highly Recommended	Highly Recommended
22. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	Highly Recommended	Highly Recommended
23. Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	Highly Recommended	Desirable
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	Highly Recommended	Highly Recommended
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	Highly Recommended	Desirable
Operations		
26. Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.	Highly Recommended	Highly Recommended

AQUIND

Mitigation Measure	High Risk Site	Medium Risk Site
27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where practicable and appropriate.	Highly Recommended	Highly Recommended
28. Use enclosed chutes and conveyors and covered skips.	Highly Recommended	Highly Recommended
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	Highly Recommended	Highly Recommended
30. Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	Highly Recommended	Highly Recommended
Waste management		
31. Avoid bonfires and burning of waste materials.	Highly Recommended	Highly Recommended
Measures Specific to Hard Surface Removal (e.g. asphalt)		
33. Ensure effective water suppression is used during Hard Surface Removal operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine	Highly Recommended	Highly Recommended

Mitigation Measure	High Risk Site	Medium Risk Site
water droplets that effectively bring the dust particles to the ground.		
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	Highly Recommended	Highly Recommended
35. Bag and remove any biological debris or damp down such material before Hard Surface Removal.	Highly Recommended	Highly Recommended
Measures Specific to Earthworks		
36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable	Highly Recommended	Desirable
37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable.	Highly Recommended	Desirable
38. Only remove the cover in small areas during work and not all at once.	Highly Recommended	Desirable
Measures Specific to Construction		
39. Avoid scabbling (roughening of concrete surfaces) if possible.	Highly Recommended	Desirable

Mitigation Measure	High Risk Site	Medium Risk Site
40. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	Highly Recommended	Highly Recommended
41. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	Highly Recommended	Desirable
42. For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.	Desirable	Desirable
Measures Specific to Trackout		
43. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	Highly Recommended	Highly Recommended
44. Avoid dry sweeping of large areas.	Highly Recommended	Highly Recommended
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	Highly Recommended	Highly Recommended
46. Inspect on-site haul routes for integrity and instigate necessary repairs to the	Highly Recommended	Highly Recommended

Mitigation Measure	High Risk Site	Medium Risk Site
surface as soon as reasonably practicable.		
47. Record all inspections of haul routes and any subsequent action in a site log book.	Highly Recommended	Highly Recommended
48. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	Highly Recommended	Highly Recommended

Mitigation Measure	High Risk Site	Medium Risk Site
49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	Highly Recommended	Highly Recommended
50. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	Highly Recommended	Highly Recommended
51. Access gates to be located at least 10 m from receptors where practicable.	Highly Recommended	Highly Recommended

Table 5.2– Summary table of Dust risk results per Onshore Cable Corridor Section

Section	Overall Dust Risk
1 Lovedean (Converter Station Area)	High
2 Anmore	High
3 Denmead/Kings Pond Meadow	High
4 Hambledon Road to Farlington Avenue	High
5 Farlington	High
6 Zetland Field to Sainsbury's Car Park	High
7 Farlington Junction to Airport Service Road	High
8 Eastern Road (adjacent to Great Salterns Golf Course) to Moorings Way	High
9 Moorings Way to Bransbury Road	Medium
10 Eastney (Landfall)	Medium

5.12. ~~5.11.~~NOISE AND VIBRATION

5.12.1. ~~5.11.1.~~BEST PRACTICABLE MEANS

5.12.1.1. ~~5.11.1.1.~~At all stages of the construction ~~assessment~~, ~~it will be important to ensure that~~ Best Practicable Means ('BPM'), as defined in the Control of Pollution Action 1974 ~~is~~ must be followed. This will comprise employing reasonably practicable noise and vibration mitigation measures, with simultaneous regard to local conditions and circumstances (e.g. proximity of sensitive receptors) and current technical knowledge (e.g. utilising quietest equipment available) and to financial implications. Details of specific BPM to be employed during the construction works are included below and in Appendix 24.2 of Chapter 24 (Noise and Vibration):

5.12.1.2. ~~5.11.1.2.~~The following mitigation measures should be adopted at all times during construction activities. These measures will be most important to observe at the following times:

1. Where works are being undertaken close to the extremities of the Order Limits and, therefore, closest to sensitive receptors; and
2. When works are being undertaken during periods when surrounding sensitive receptors are highly sensitive to noise (e.g. at night-time for residential receptors).

5.12.2. ~~5.11.2.~~BPM MEASURES TO BE EMPLOYED DURING ALL CONSTRUCTION ACTIVITIES

General

- The contractor will comply with the requirements of the Control of Pollution Act 1974 (with particular reference to Part III), the Health and Safety at Work Act 1974, the Control of Noise at Work Regulations 2005 and the Control of Vibration at Work Regulations 2005.
- The appointed contractor(s) for construction should consider registering their site(s) under the Considerate Constructors Scheme, which is recognised by industry and the Government for encouraging construction firms to be sensitive to the environment.
- Site personnel should be instructed on Best Practice Mitigation Measures to reduce noise and vibration as part of their site induction training.
- Shouting and raised voices shall be kept to a minimum. Use of radios is to be limited to where two-way communication is required for safety reasons.
- Deviation from approved method statements will only be permitted with prior approval from the appointed contractor and other relevant parties. This will be facilitated by formal review before any deviation is undertaken.

Community Liaison

- Correspondence (e.g. letter drop) should be sent to occupiers of all sensitive receptors likely to be affected by construction activities well in advance of construction activities taking place. The correspondence should contain the following information:
  - A brief description of the proposed activities and reasons why the works are required.
  - The dates and times of proposed construction activities. This includes the specific timings of road cutting / breaking activities for out-of-hours works (see paragraph 6.2.7.6).

- Contact details (phone number and emails address) for the Client and contractor undertaking the works, which could be used by the public to ask questions or raise complaints.

- Should works be delayed or re-programmed, local residents should be informed of the revised programme of works as soon as possible.
- Any noise complaints will be reported to the appointed contractor and immediately investigated, including a review of mitigation measures for the activity that caused the complaint.

Equipment

- Modern, silenced and well-maintained plant will be used at all times, conforming to standards set out in EU Directives.
- Consideration will be given to avoiding the use of percussive plant where non-percussive methods are available for a given activity.
- Equipment and vehicles should be shut down or turned off when not in use.

Deliveries

- Where practicable, construction plant should access construction areas via arterial roads or main carriageways, in order to minimise noise and vibration at dwellings on the rural or local road network.
- Unless agreed in advance, all deliveries will be during the agreed construction working hours for each activity and on a "just-in-time" basis to minimise idling vehicles.
- Loading and unloading of vehicles, dismantling of equipment such as scaffolding or moving equipment or materials around the construction sites will be conducted in such a manner as to minimise noise.

Screening

- Where necessary, any noise screening around construction compounds would be constructed as early as possible in the construction programme.
- Semi-static equipment is to be sited and oriented as far away as is reasonably practicable from noise sensitive receptors and will utilise localised screening if feasible and required.

5.13. ~~5.12.~~SOCIO-ECONOMICS

5.13.1. ~~5.12.1.~~EMPLOYMENT GENERATION

5.13.1.1. ~~5.12.1.1.~~Measures would be put in place, where practicable, to maximise the potential for the workforce and Proposed Development's supply chain to be sourced locally. These measures ~~would~~ could include:

- Working with local people and local business to ensure that, ~~wherever practicable,~~ investment in the South East, stays in the South East.
- Engaging with Jobcentre Plus to ensure local job opportunities are advertised to local unemployed people and identifying opportunities to help people get back into employment through work placements, education and skills training.
- Upskill people working on the Proposed Development that , ~~where practicable~~ through experience, training and development programmes.

5.13.2. ~~5.12.2.~~DISRUPTION TO BUSINESSES AND RESIDENCES

5.13.2.1. ~~5.12.2.1.~~Measures will be put in place to reduce disruption to businesses during the construction period. These include:

- Businesses, residents and community facilities who are likely to be impacted during construction will be consulted about access requirements.
- Where construction activities impact on the ability for customers to determine whether or not a business is still open, signage will be erected such as 'Business as Usual signs' to publicise that the business is still open.

5.13.2.2. ~~5.12.2.2.~~A Framework CTMP has been produced to reduce effects from construction traffic outlining:

- Construction traffic routing and embargoed routes;
- Types of construction vehicles to be used for different purposes;
- Avoidance of peak commuting hours;
- Site access and designated parking; and
- Management of loading, waste management and abnormal loads.

5.13.2.3. ~~5.12.2.3.~~The ~~construction~~ appointed contractor would need to develop these measures so that communication methods are effective during construction.

5.13.2.4. ~~5.12.2.4.~~There will be occasions where vehicular access to residential or commercial properties would be needed at different times and in this situation, road plates can be used to bridge the longitudinal excavations to open the carriageway to provide access with full vehicular access being reinstated overnight. This will be determined by the appointed contractor on a case-by-case basis.

5.13.3. ~~5.12.3.~~DISRUPTION TO COMMUNITY FACILITIES

5.13.3.1. ~~5.12.3.1.~~Similar to the mitigation applied above, Community Facilities would be consulted prior to construction where access arrangements would be directly affected. Traffic management systems and diversion routes would be put in place to maintain accessed to identified community facilities.

5.13.3.2. ~~5.12.3.2.~~Vehicular access will be maintained at all times to community facilities which perform emergency service activities. Specific measures are outlined in the Framework Traffic Management Strategy and include road plates.

5.13.3.3. ~~5.12.3.3.~~Works adjacent to Solent Infant School on Evelegh Road and Mooring Way Infant School, Moorings Way will be programmed within school holidays~~. The construction programme should be reviewed by the Contractor to see whether it is possible to work within school holidays for other schools near the Order Limits~~, in accordance with the Framework Traffic Management Strategy.

5.13.4. ~~5.12.4.~~EFFECTS ON USERS OF RECREATIONAL AND OPEN SPACE, LEISURE FACILITIES AND PEDESTRIAN ROUTES

5.13.4.1. ~~5.12.4.1.~~To ensure that negative effects on amenity value and disruption are reduced as far as practicable during the Construction Stage of the Proposed Development, the following mitigation measures can be implemented:

- The community groups who utilise the areas of recreational and open space which will be impacted by the construction of the Proposed Development would be informed of the nature, timing and duration of particular articular activities during the Construction Stage; and
- If alternative routes or spaces are required to be utilised in and around areas of open and recreational space, directions would be clearly communicated at the appropriate place.

5.13.4.2. ~~5.12.4.2.~~The construction programme will be reviewed by the ~~construction~~ contractor(s) to see where there are opportunities to reduce effects on open space, for example by reducing construction programme though concurrent working on single or multiple spaces (including car parks) and avoiding key events. This would also apply to where there may be potential for cumulative effects with North Portsea Island Coastal Flood Defence Scheme at Kendall's Wharf if construction is concurrent. Site liaison ~~would be~~ is required to ensure construction site management minimises disturbance in this area.

5.13.4.3. ~~5.12.4.3.~~The areas required for longer- term construction works, such as Trenchless methods, within the Order Limits will also be reviewed by the construction contractors to determine whether there are any opportunities to reduce areas of open space required for long-term works. ~~The Applicant will discuss with local authorities and University of Portsmouth opportunities to provide temporary mitigation during periods of disruption, such as where sports pitches are affected, reconfiguring pitches to maximise use of unaffected areas.~~

5.13.4.4. ~~5.12.4.4.~~The Fort Cumberland Road Car Park is currently unsurfaced. As part of reinstatement works following construction, the ~~Applicant will leave the~~ car park ~~in~~ will be improved to be in a better condition in ~~discussion~~ liaison with PCC. ~~5.12.4.5.~~Areas of open space will be restored, as far as practicable, to the same condition as they were in prior to construction.

5.13.4.5. Where the Order Limits are crossed by off-road PRoW or cycle routes, there is the potential for the route to be closed temporarily during construction for safety purposes. To mitigate this disruption, an alternative route will be provided along with signage in advance of the temporary closure.

5.13.5. ~~5.12.5.~~DISRUPTION TO TOURISM

5.13.5.1. ~~5.12.5.1.~~Prior to construction, the Contractor will review the events programme to determine where it may be possible for construction on key transport routes and relevant areas of open space to avoid one-off events. Where this is not possible, the Contractor will liaise with event organisers to implement additional traffic management or other measures to minimise disruption and congestion, such as screening of compounds and provision of security. The Framework Traffic Management Strategy and the timings for works included within it has taken into account known annual events in the locality of the works.

5.13.6. ~~5.12.6.~~EFFECTS ON NON-MOTORISED USERS, RECREATION AND OPEN SPACE

5.13.6.1. ~~5.12.6.1.~~The Fort Cumberland Road car park is currently unsurfaced. As part of reinstatement works following construction, the Applicant will resurface the car park. This can encourage better parking and greater capacity use of the remaining car park area.

5.14. ~~5.13.~~WASTE AND MATERIAL RESOURCES

5.14.1.1. ~~5.13.1.1.~~All waste will be managed ~~by the Contractor~~ in accordance with the Waste Hierarchy (in order of preference):

- Prevention;

- Minimisation;
- Reuse;
- Recycle;
- Energy recovery; and
- Disposal.

5.14.1.2. ~~5.13.1.2.~~The ~~Contractor~~ appointed contractor will be responsible for the correct storage and management of the earthworks material excavated for the works. This material will be used ~~wherever practicable~~ where it meets re-use criteria within the Site (as part of the works) to mitigate the environmental effects of the works. The use of recycled materials will be maximised ~~where practicable~~.

5.14.1.3. ~~5.13.1.3.~~Monitoring measures to be adopted across the Proposed Development would include, as a minimum, the implementation of a CEMP, incorporating a Materials Management Plan ('MMP') and Site Waste Management Plan ('SWMP') by the contractor, once appointed. Associated data, information and reports will be used to evidence monitoring undertaken.

5.14.1.4. ~~5.13.1.4.~~The SWMP will be prepared in accordance with best practice guidance (Waste and Resource Action Programme ('WRAP')) and will be kept up to date and will be delivered ~~by the Contractor, once appointed~~. Associated data, information and reports will be used to evidence monitoring undertaken. An Outline SWMP is provided in Appendix 3.

5.14.1.5. ~~5.13.1.5.~~The key matters of the SWMP are to:

- Identify the volume of waste streams likely to be produced during the works to establish the potential for reuse and recycling;
- Identify possible options for waste to be 'designed out;
- Identify opportunities for waste minimisation and management;
- Identify the most significant opportunities to increase re-use and recycling rates;
- Identify suitable waste management contractors and record appropriate licences, permits, waste transfer notes and hazardous waste consignment notes;
- Consider appropriate site practices such as how materials will be segregated and the measures that will be used for raising awareness among site operative for waste reduction, reuse and recycling; and
- Set out the method for measuring and auditing Construction, Demolition and Excavation ('CD&E') waste to enable more effective waste management through the setting of performance targets for segregation, recycling and monitoring sub-contractors.

5.14.1.6. ~~5.13.1.6.~~The following waste related documentation will be held on-site:

- SWMP;
- Relevant Duty of Care documentation, including waste transfer notes and exemptions;
- A Control of Substances Hazardous to Health ('COSHH') Register; and
- Site compound plan showing potentially contaminative and COSHH substances.

5.14.1.7. ~~5.13.1.7.~~The following actions in relation to Material Resources are considered sufficient:

- Completion of ground and local environment inspections and surveys will be undertaken to determine the nature of the ground, to identify its potential to be diverted from landfill.
- Spoil and waste segregation and containment will be provided on temporary laydown areas within the Converter Station Area.
- Sufficient storage space will be allocated by the construction contractor to allow waste to be properly segregated.
- The detailed design and construction aspects will follow British Standard 8895 (Designing for material efficiency in building projects) and other published guidance such as BRE materials resource efficiency in construction.
- Off-site fabrication will be utilised, where practicable.
- The construction contractor will be encouraged~~, where practicable~~, to order material with less or returnable packaging.

5.14.1.8. ~~5.13.1.8.~~The following further actions are recommended to ensure good and best practice are achieved:

- Identification and specification of material resources that can be acquired responsibly, in accordance with BES 6001 Responsible Sourcing of Construction Products.
- Design for resource optimisation: simplifying layout and form, using standard sizes, balancing cut and fill, maximising the use of renewable materials, and materials with recycled or secondary content.
- Design for off-site construction: Maximising the use of pre-fabricated structures and components, encouraging a process of assembly rather than construction.
- Identify opportunities to minimise the export and import of material resources.
- Detailed design for recovery and reuse: identifying, securing and using material resources at their highest value, whether they already exist on site, or are sourced from other schemes.

- Ensure arisings are properly characterised before or during design, to maximise the potential for highest value reuse.
- Working to a proximity principle, ensuring arisings generated are handled, stored, managed and re-used or recycled as close as practicable to the point of origin.

5.15. ~~5.14.~~CARBON AND CLIMATE CHANGE

5.15.1.1. ~~5.14.1.1.~~General mitigation measures for carbon and climate change include:

5.15.2. ~~5.14.2.~~GREENHOUSE GAS EMISSIONS

5.15.2.1. ~~5.14.2.1.~~The Converter Station design will adopt a sustainable approach which will involve the following measures:

- Reducing, where practicable, material use in construction and minimising the use of high carbon materials.
- Buildings should be energy and resource efficient.

Other Construction Measures

- Minimise energy consumption including fuel usage by, for example, reducing the requirement for earth movements to/from and within the construction site;
- Maximise the local sourcing of materials and local waste management facilities, where practicable;
- Use efficient construction processes, such as design for manufacture and assembly; and
- As far as practicable, incorporating material resource efficiency and waste minimisation best practice into design, in particular improving the cut/fill balance of the Proposed Development.

5.15.3. ~~5.14.3.~~CLIMATE RESILIENCE

Materials:

- Ensuring site and compound temporary and permanent drainage infrastructure has sufficient capacity for extreme flood events and that silt traps are in use/regularly emptied and maintained.
- Ensure any materials on site are stored safely and covered with waterproof materials.
- Dust control measures would be in place, for example speed limits on site, water available for dampening down, excavated materials to be removed from site as soon as practicable, and backfilling materials installed immediately after delivery.
- Allowing extra time for materials to dry out in the programme of works.
- Using mould inhibiting paint.
- Safe storage of spoil heaps, storage of spoil is not permitted in the fluvial floodplain.

Plant and Equipment and working method:

- Using rainwater recycling to support other facilities (e.g. washing of machinery etc.).
- Reviewing wind speed before commencing work at height.
- Ceasing work at height during storms.
- Switching machinery off when not in use.
- Use of machinery which is likely to get hot during cooler periods.
- Completed sections of the cable ducts are to be sealed at each end against water ingress. Joint bay chambers are only to be excavated immediately before cable pulling and jointing, where practicable. It may be necessary, for programming reasons, to excavate a cable and pull one section of cable, then temporarily backfill. In this case, temporary water seals would be fitted around the pulled cables.

Workforce:

- PPE to be suitable for hot weather conditions, lightweight vests/jackets, two piece rather than coveralls.
- Regular breaks to be taken, additional supply of drinking water and sun cream to be made available.
- Areas of shade to be made available for workforce, where practicable.
- Ensuring welfare facilities are available and sufficiently cool. Ensure rest breaks are taken, particularly during the hottest part of the day (generally, 11am – 3pm) or when temperatures rise above 24oC (TUC-, 2019).
- An appropriate level of training to staff should be in place to ensure workforce are aware to stay away from flood water and working near watercourses. Workforce should be signed up to flood warnings (rainfall, tidal, fluvial, reservoir) and check the weather forecast to be able to plan ahead and avoid attending site if there is a risk of flooding.

Site Compound:

- Storing chemicals, hazardous materials and plant on high ground above ~~projected flood level (see Flood Risk Assessment (document reference 6.3.20.4))~~ predicted flood water levels or protecting with appropriate bunds/flood barriers ~~-~~above the predicted flood water level
- Where appropriate, site compound, and any storage of soil stockpiling or plant must be in accordance with measures outlined in Section 5.7 above.

- Using pumps to ensure water levels in excavations do not exceed critical levels, in accordance with an exemption or subject to agreement and approval of a de-watering environmental permit.
- Reducing the area of impermeable surface, where practicable e.g. permeable paving.
- Using vegetation to slow down the movement of surface water e.g. vegetating compound, where practicable, with grass and minimising impermeable area.
- Dust control measures e.g. water spraying, covering spoil heaps.
- Installing lightening protection for site buildings.

Traffic:

- Ensure the access road and roads used during construction are monitored during periods of heavy rainfall and appropriate traffic management put in place to avoid areas of potential flooding.

Operation:

5.15.3.1. The resilience of the Proposed Development during operation will be improved through the following measures:

- Regularly clearing and maintenance of drainage infrastructure to prevent blockage.
- Using vegetation to slow down the movement of surface water.
- Consideration of the projected change in soil moisture when specifying foundation depth – potentially need deeper foundations.
- Specifying appropriate materials (e.g. asphalt, concrete mix) to take account of higher average temperatures.
- Using mould inhibiting paints as part of regular maintenance and updating.
- Using slope stabilisation measures.

Design principles for Climate Resilience:

5.15.3.2. Climate Resilience will be a key consideration in the design of the Converter station and associated infrastructure. The design will be in accordance with the following requirements as outlined in Table 5.3.

Table 5.3– Resilience design principles within the design of the Converter Station

Receptor	Design Requirement	Potential impact addressed
Converter Station	Cooling systems will be required to remove heat generated within the Converter Station building. Power electronics equipment is to be housed indoors, within the two converter hall buildings. Auxiliary power supplies will be provided in the event of a power failure at the Converter Station to ensure continuity of operation. Back-up sources such as stand-by diesel generators will be only used if other sources of auxiliary supply are unavailable during construction and operational timescales. A Fire Prevention Procedure will be implemented and developed alongside the final design and implemented for operation.	Overheating of Converter Station buildings and equipment Risk of fire as a result of overheating Flooding of the converter station and supporting infrastructure, resulting in loss of supply
Access Road	Attenuation ponds are to be provided to capture surface water run-off from the Converter Station and Access Road. levels (See Appendix 20.1 (Flood Risk Assessment ('FRA')) of the ES Volume 3 (document reference 6.3.20.1).	Increased surface water runoff Flooding of access road
Drainage	Attenuation ponds are to be provided to capture surface water run-off from the Converter Station and Access Road.	Drainage infrastructure overwhelmed leading to surface water flooding Increased surface runoff leading to surface water flooding and siltation
Structures	Given the topography of the Converter Station Area, bulk	Flooding of the Converter Station site

Receptor	Design Requirement	Potential impact addressed
	earthworks will be required to create a level platform of 84.8 m AOD. The buildings will likely be constructed of steel frame and cladding.	Deterioration of material structure and fabric Damage from high winds and rain-infiltration into surfaces and materials

5.15.3.3. Climate Resilience will also be a key consideration in the design of the Onshore Cable. The design will be in accordance with the following requirements as outlined in Table 5.4.

Table 5.3– Resilience design principles within the design of the Onshore Cable Corridor

Receptor	Design features	Potential impact addressed
Onshore Cable Corridor	The Onshore Cables will be buried in cable ducts The AC cables may be installed alongside an Earth Continuity Conductor, an insulated metallic conductor to provide a path to earth for any fault currents.	Reduction in the ability of the ground to conduct heat away from underground cables during high temperatures UV degradation of exposed cabling equipment Lightning strike
	Link boxes / HVDC joints / Terminations will be fully sealed to water ingress damage.	Damage due to flooding
Drainage	Soil bunds are to be seeded to prevent surface runoff across the site, which otherwise might erode or impact on exposed soil and stockpiles, to carry suspended solids in the runoff. Silt fencing, dams, cut off ditches, settlement ponds or proprietary settlement equipment (e.g. Silt	Drainage infrastructure overwhelmed Increased surface water runoff

Receptor	Design features	Potential impact addressed
	buster) are to be used to prevent water pollution entering watercourses/ and surface water drains.	
Structures	ORS have been designed to a level above flood levels (See Appendix 20.1 (Flood Risk Assessment ('FRA')) of the ES Volume 3 (document reference 6.3.20.1). The shore landing ducts, installed by Horizontal Directional Drilling ('HDD') will run from 250 m inland to approximately 1000 m offshore, passing below the beach at a depth of 15-20 m, so costal erosion is not expected to affect the Onshore HVDC Cable Corridor.	Reduction of earthwork stability due to sea level rise and flooding Increased rate of deterioration of materials

6. LOCATION SPECIFIC CONSTRUCTION ENVIRONMENTAL CONTROL MEASURES

6.1.1.1. This section of the Onshore Outline CEMP outlines specific environmental management in relation to the construction of the Proposed Development. The structure of this section is broken down into individual route sections.

6.2. GENERAL

6.2.1. ONSHORE ECOLOGY

Winter Restriction of Works Adjacent to Chichester and Langstone Harbour SPA

6.2.1.1. A winter working restriction applies to the following elements where appropriate:

- Chichester and Langstone Harbour SPA; and
- ~~Wintering Intertidal Birds.~~
- Solent Waders and Brent Goose Strategy (SWBGS) Sites.

6.2.1.2. ~~6.2.1.2.~~Effects of the Construction Stage on Chichester and Langstone Harbour SPA and ~~it's~~ SWBGS sites with their associated wintering intertidal bird community will be avoided by restricting works within the winter season, defined as October to March (the period when SPA birds such as ~~Brent~~ brent goose arrive from their breeding grounds; Snow and Perrins, 1998). Details of the working restriction are provided in ~~Appendix 16.14, and comprise 8 principles~~ the ES Addendum (document reference 7.8.1) and ES Addendum Appendix 18 Construction Noise Impacts on SWBGS Sites (document reference 7.8.1.18). The restrictions are informed by six principles (that updated those previously provided in Appendix 16.14) that will be incorporated into working methods:

- **Principle 1:** Construction works cannot take place in SWBGS (those categorised as either core, primary ~~or~~ support, secondary support, low use or candidate) sites that overlap with the Proposed ~~Development's~~ Developments Order Limits during October – March. An exception is the gravel car park~~, boat yard and linking roadway~~ within site P11 that is already disturbed by movements of cars, lorries and plant, and offers no functional habitat for brent geese or other waterbirds associated with Chichester and Langstone Harbour SPA.~~Work to establish and dismantle an HDD compound will be undertaken~~

here during this time, but will not involve piling where percussive sounds would disturb birds using the adjacent playing fields.

- **Principle 2**: No buffer zones are applied to SWBGS sites to limit works away from their boundaries, while those sites categorised as 'low use' are also not part of working restrictions.

- **Principle 3Principle 2**: Where HDD works are to take place underneath the SWBGS site (e.g. at Eastney Landfall) no direct impacts are considered to occur and the restriction does not apply.The following SWBGS sites overlap with the Proposed Developments Order Limits, running from South to North as follows:
  - P25 – University of Portsmouth, Langstone Campus;
  - P23B – University of Portsmouth;
  - P23A – Milton Common north 1;
  - P23R – Milton Common north 2;
  - P11 – Kendalls Wharf playing fields; and
  - P08A – Farlington playing fields.
- **Principle 43:** Elements of the Onshore Cable Route that are over 400 m from the SPA are not included in subject to any restriction.
- **Principle 54:** Construction noise events of <55 dB can occur unrestricted.
- **Principle 65:** Construction works of 55 – 72 dB LAFmax immediately adjacent to a major road and/or adjacent to industrial sites with notable levels of background (>60 dB) of existing noise can be undertaken unrestricted. It is considered that noise levels from the Proposed Development would be masked (i.e. indistinguishable from the baseline) in these instances.

- **Principle 7**: Regular/consistent construction noise (>70dB) and irregular/sudden construction noise 60-72 dB implies potential for impacts on the more sensitive species e.g. Brent geese and can only occur if effects do not overlap with areas of the SPA identified as supporting this species.

- **Principle 6:** Percussive piling or works with heavy machinery (i.e. plant resulting in a noise level in excess of 69 dB LAFmax – measured at the sensitive receptor) should be avoided during the bird overwintering period (i.e. October to March inclusive. The sensitive receptor is the nearest point of the SPA or any SPA supporting habitat (e.g. high tide roosting site). P54 and P29 are excluded from this principle. Buildings that are situated between them and the

construction works will buffer noise such that it will not be in excess of 69 dB LAFmax within either site.

- ~~**Principle 8**: Irregular construction noise (>70dB) that is exposed to the SPA should be restricted during October – March. Vibropiling at HDD 2 and 3 will not be undertaken during the wintering period, with sheet piles inserted prior to the arrival of wintering SPA birds.~~

6.2.1.3. ~~6.2.1.3.~~Adoption of these principles will offset direct effects on SWBGS sites (as these sites will not be subject to works in the winter period when they are used by SPA birds), and effects of noise ~~and vibration~~ on birds within the SPA itself. ~~Additionally, principles mandate that vibropiling associated with HDD sites 2 and 3 will not take place during the period where wintering birds are present, and therefore will not disturb them.~~

Restoration of SWBGS Sites

6.2.1.4. SWBGS sites affected by the Proposed Development will be restored to their original condition. The restoration of SWBGS sites is needed to be complete and grass established to provide a suitable food resource by October when birds such as dark-bellied brent Geese, which feed on the grasses, return to the Solent to winter.

6.2.1.5. The following two approaches are considered for restoration of SWBGS sites:

- **Re-seeding**. Reinstate areas within SWBGS with grass seed before the end of May where practicable. This is the easiest and most cost-effective option;
- **Re-turfing**. Where not practicable to re-seed, turf will be laid and established. This is a more costly option but allows re-establishment and good sward growth in a shorter timescale.

6.2.1.6. The choice of restoration approach is primarily dependent on the time available within the summer growing season for implementation. Re-seeding is not likely to be the optimal technique after May so that for any restoration works after this month, re-turfing would be implemented.

6.2.1.7. The restoration measures proposed will comprise the following:

- **Site preparation** - the seedbed will be prepared in accordance with best practice guidance and the detailed landscaping scheme. Depending on site conditions this may include ripping, rotovating, weed control and rolling.
- **Establishment** - Sowing; spread seed on a properly prepared seedbed at suppliers suggested rate. In the first year of establishment sown grassland areas will be cut repeatedly up until October to maintain at 35mm to promote vigorous sward development and reduce weed germination. Irrigation will be used as required to aid establishment.
- **Establishment** – Turfing; turves to be laid on a properly prepared seedbed to suppliers' specification. Top dressing with washed sand or other appropriate material will be considered. In the first year of establishment sown grassland areas will be cut repeatedly up until October to maintain at 35mm to maintain sward development and reduce weed germination. Irrigation will be used as required to aid establishment.
- **Aftercare** - The desired sward condition in October is that these areas have a close cropped 30-60mm tight sward of green grass, so the last cut of the season should be timed to ensure enough time to green up before the arrival of brent geese. Irrigation will be used as required to aid establishment and particularly in dry periods. The grassland is to be inspected every three months during the first two years. Where grass areas have become worn areas should be re-seeded with the prescribed seed mix or turf.

6.2.1.8. SWBGS sites P11, P23A, P23B and P23R will be restored before October applying the above measures.

6.2.1.9. In SWBGS P08A, Farlington Playing Fields, it is unlikely that the CCT1 & CCT2 HVDC trench route and cabling works (See Appendix 1) would be fully reinstated for the commencement of the non-breeding season on 1st October. It is anticipated that the remainder of the works will allow appropriate time for restoration of habitat. re-turfing will likely only be possible at the start of October and is estimated that a minimum of 2-3 weeks would be required for re-establishment of the grass sward required for geese grazing.

Avoidance and Mitigation for Habitats

6.2.1.10. ~~6.2.1.4.~~To avoid loss of important habitats within the Order Limits, HDD is proposed to avoid the need for open trenching and to preserve habitats. Key locations where HDD will be used are at ~~Kings Pond~~ Denmead Meadows (Soake Farm Meadows SINC) (HDD-5), between Farlington and Kendall's Wharf (Langstone Harbour) (HDD-3) and at Milton Common (HDD-6). HDD requires entrance and exit sites and

associated construction compounds but for the duration of the drill has no impact on habitats or species above ground.

6.2.1.11. ~~6.2.1.5.~~Following construction hedgerow planting will be undertaken to repair gaps where the corridor required their removal. Replanting will use native plant species of local provenance~~,~~ and will provide a diverse range of woody species to maintain the species-rich nature of hedgerows.

~~6.2.1.6. Trees, scrub, hedgerows and other nesting bird habitat will be cleared outside of the bird breeding season (March - August), when practicable, to avoid killing or injuring breeding birds or their young.~~

~~6.2.1.7.To avoid loss of important habitats within the Order Limits, Horizontal Directional Drilling ('HDD') is proposed to avoid the need for open trenching and to preserve habitats. The locations where HDD will be used are at Kings Pond (HDD-5), between Farlington and Kendall's Wharf (Langstone Harbour) (HDD-3) and at Milton Common (HDD-6). HDD requires entrance and exit sites and associated construction compounds but for the duration of the drill has no impact on habitats or species above ground.~~

Bats and Lighting

Lighting design for works at Farlington Playing Fields:

6.2.1.12. ~~6.2.1.8.~~Lighting of construction work will be designed with reference to recommendations issued by The Bat Conservation Trust (~~Bat Conservation Trust,~~ 2014) and Institute of Lighting Engineers (~~Institute of Lighting Engineers,~~ 2009), and be cowled/hooded to avoid extraneous light spill, and focussed onto works areas only to maintain dark corridors on the edge of the playing fields ~~(10 m dark corridor)~~ and avoid disturbance of commuting and foraging bats. Farlington Playing Fields is unlit and construction lighting could result in disturbance of bat commuting routes and foraging areas located around the site's edge where scrub and woodland are located. These habitats are used by bats to navigate and find food; open areas are avoided as no physical features are present to reflect echolocation calls. Thus, to avoid effects on bats trenching areas and compounds for HDD work will be set back from the edge of the playing field by at least 10 m to maintain habitats there and preserve bat flight lines

Soil Horizon Preservation

6.2.1.13. ~~6.2.1.9.~~Mitigation for temporary loss of grassland will be to maintain soil horizons and preserve grassland turf. Mitigation will be put in place at Kings Pond Meadow SINC, Denmead Meadows, Milton Common SINC and unimproved and semi-improved grasslands along the Onshore Cable Corridor.

6.2.1.14. ~~6.2.1.10.~~Although growing vegetation would be lost to trenching work and the installation of construction compounds/access points, removal and preservation of

turves so that they can be replaced when work is finished will retain the seed bank within them allowing regrowth. Maintaining soil conditions by maintaining soils structure (turf, top soil, subsoil) will maintain soil conditions for re-growth of meadow vegetation.

6.2.1.15. ~~6.2.1.11.~~The following measures will be put in place:

- Separate turves, top soil and sub soil. Each will be stored separately with no mixing during works;
- Replace soil structure following completion of work with turves on top;
- Use low ground pressure machinery also to avoid compaction;
- Works areas will be securely fenced and procedures put in place to prevent damage to grassland habitats adjacent to them (e.g. by the use of herras fencing); and
- Works to be monitored by an Ecological Clerk of Works who will provide toolbox talks to contractors and staff working at the site.

6.2.1.16. ~~6.2.1.12.~~At Kings Pond Meadow SINC and Denmead Meadows, where vegetation has a wet meadow character, work will avoid the plant growing season and winter wet season as both these are important for maintaining the conditions within the habitat. Work in this area will be undertaken in late summer/autumn to facilitate this.

Ground Protection

6.2.1.17. ~~6.2.1.13.~~Use of bog matting, temporary membranes with Type 1 aggregate or similar ground protection solutions will be used to prevent compaction of grassland soils at:

- Kings Pond Meadow SINC;
- Denmead Meadows;
- Milton Common SINC;
- Unimproved neutral grassland; and
- Semi-improved neutral and calcareous grassland.

6.2.1.18. ~~6.2.1.14.~~This mitigation measure will promote regrowth of vegetation to its original state.

6.2.1.19. ~~6.2.1.15.~~Ground protection measures apply to the Construction Stage of the Proposed Development. Maintenance will be infrequent~~,~~ and use light vehicles that would not lead to effects above those of regular use and management of the land as farmland.

6.2.2. ARBORICULTURE

6.2.2.1. The general design principles for working around trees are as follows:

- ~~Adherence to BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS 5837) when laying cables must be adhered to. RPA's must be avoided, where practicable.~~
- ~~Mitigation of impacts can be achieved by avoiding high value features through considering the use of alternative trenching methods, in accordance with BS 5837:2012, where practicable.~~
- ~~Where features are to be removed, consideration for replanting with like for like species in the locality may be required. Hedgerow trees may require positioning at least 5 m away from the Onshore Cable Route. Mitigation may also be achieved by appropriate compensatory tree planting within the locality.~~
- Where practicable the works shall be organised to avoid the root protection areas (RPA) of trees and hedges to be retained, including those along the Works Order boundaries.
- All excavations shall follow an arboricultural method statement included within the relevant CEMP to minimise risk to root protection areas[1].
- Works affecting high value trees shall be carried out under the direct supervision of a suitably experienced Clerk of Works.
- ~~Ground protection would be used where RPA's~~ Ground protection shall be used where RPAs are encroached upon and it is practicable to retain the relevant feature. For example, use of a no-dig construction for access routes must be employed.
- ~~Onshore Cable Micrositing to minimise impacts to retained arboricultural features approaches to be employed would avoid damage to tree roots when excavating within a RPA.~~
- ~~Under no circumstances must any works or storage take place within 15 m of ancient woodland. When storing materials, particularly liquids, slopes and drainage channels must be considered to prevent spillages and flow into the buffer zone.~~
- ~~The Onshore Cable Corridor within the highway is constrained by land ownership, buildings, under and over ground services, street furniture and traffic considerations. Therefore, options for avoiding trees would need to be carefully considered.~~

- ~~In accordance with the required standoff for overhead and underground cables as shown in the indicative landscape mitigation plans (Figures 15.48 and 15.49 of the ES Volume 2 (document reference 6.2.15.48 and 6.2.15.49)), the use of soft landscape resources such as grass verges, particularly in highway, may limit any future mitigatory tree planting opportunities and may permanently detrimentally affect the local landscape.~~

- ~~Tree roots are likely to be infrequent within the carriageway construction due to lack of soil available for root growth. However, roots may persist at greater depths where conditions are favourable. Where practical, cable routing in the carriageway would be considered favourable in comparison to areas where ground conditions are likely to result in more prolific root growth.~~

  - Where works need to be undertaken near retained trees, such works shall be in accordance with best practice:

    - British Standard ('BS') 5837:2012 trees in relation to design, demolition and construction – recommendations.

  - Arboricultural Method Statements with associated RPA plans shall be submitted as part of the relevant CEMP. These shall cover in detail the protection of root areas, protective barriers, precautions in respect of temporary works, sequence of activities, utilities, post construction and emergency remedial works.

  - Pruning outside of the Order Limits to allow abnormal loads shall be designed to comply with The Highways Act 1980 section 154 requirements. This is a statutory obligation for the person who owns / is responsible for the trees to prune trees to remove an obstruction to the safe use of the highway. Where the abnormal load requires additional clearance, this shall be targeted pruning at specific points to be agreed with the haulier, landowner, project team and where appropriate, the local planning authority prior to the works being carried out. All tree works are to be carried out in accordance with British Standard 3998:2010 "Tree Work - Recommendations".

- Within the Order limits lopping and felling of trees may only be carried out where absolutely necessary and will be prescribed in accordance with British Standard 3998: 2010 "Tree Works – Recommendations" and industry best practice. All pruning and felling works shall be specified by a suitably trained and experienced Arboriculture consultant and shall be carried out by a suitably trained and experienced arboriculture contractor

- ~~Significant tree roots are likely to be frequent within footway, verge areas and other soft landscape areas where trees are present. Works in these areas must be avoided, where practicable.~~

6.2.4. ~~6.2.3.~~ LANDSCAPE AND VISUAL AMENITY

6.2.4.1. ~~6.2.3.1.~~ Measures which form an important part of efforts to control Construction Stage impacts on landscape character and visual amenity (Section 1 to 10) ~~include:~~ are outlined below. These include general mitigation measures for all of the Proposed Development and more specific measures which apply to the Onshore Cable Corridor including those sections of the Onshore Cable Route that lie within Sections 1 and 10.

- Appropriate location, organisation and phasing of construction activities.
- Maintenance of a tidy and contained site compound to reduce visual clutter.
- Design and layout of site construction areas to reduce adverse impacts arising from temporary security fencing and lighting.
- Measures to control working hours in specific locations to avoid disturbance to residential receptors both in terms of light and noise.
- Agreed site access points to limit impacts on existing vegetation both above and below ground.
- Retention and protection of existing vegetation considering temporary fencing to demarcate the construction footprint ~~refer to~~ in accordance with Section 6.2 of BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, (BSI Standards Publication, 2012 British Standards Limited).

- ~~Onshore Cable Micrositing in addition to trenching to avoid specific features.~~

- Careful siting of temporary topsoil storage areas considering use as a physical buffer between the construction works and more sensitive receptors, where practicable.
- Careful management and storage of topsoil and subsoil in accordance with Construction Code of Practice for the Sustainable Use of Soil on Construction Sites (Department for Environment, Food and Rural Affairs, 2009).
- Where construction works obstruct a footway an absolute minimum unobstructed width of 1 m ~~would~~ shall be provided alongside the construction corridor and where this is not possible a safe alternative route shall be provided. This ~~would~~ shall include provision of suitable crossing facilities where required, including the temporary replacement of existing pedestrian crossings that may need to be closed to facilitate construction see the Transport Assessment.

- During construction of the Onshore Cable Route reasonable access shall be made for pedestrians going to or from premises abutting a street
- In some locations, a footway closure may be required without a suitable alternative route being available nearby or on the opposite side of the carriageway. In these instances, a pedestrian route shall be provided within the carriageway.
- Some temporary footway closures may be required to facilitate delivery and collection of materials. Where necessary this shall be mitigated through alternative footway links being available or other measures stipulated in the Traffic Management Strategy
- Temporary screening for sensitive visual receptors shall be provided through implementation of solid construction hoardings whilst using natural existing screens (topsoil and existing vegetation) where practicable. Hoardings ~~would~~ shall be attractive, used to screen low level "clutter" and reduce noise.
- Hoardings ~~would~~ shall be well lit in poorly lit walkways and any gates should be positioned to minimise noise transmitted to nearby sensitive receptors.
- Large plant /equipment ~~would~~ shall be located away from most sensitive receptors where there are viable alternatives. Temporary structures and stockpiles shall be removed when no longer required.

~~•Removal of temporary structures and stockpiles when no longer required.~~

- Prompt reinstatement of temporary construction areas (including trenches, laydown and construction (including haul road) corridor ~~on completion of the cable route~~ and all other land impacted through the installation of the Onshore Cable Route as soon as practicable after sections of work are complete. Reinstatement ~~would~~ shall involve the careful handling of soils and a return to the existing habitat type.
- Implementation of mitigation planting alongside the construction programme where works would not affect planting and during winter (November – February) as per Appendix 15.7 (Landscape Schedules, Planting Heights and Image Board) of the ES Volume 3 (APP-405).
- Mitigation planting to replace hedgerows and trees lost following completion of the construction works. All planting lost shall be replaced with like for like species of a similar size and in agreement with the relevant discharging authority.
- New tree planting shall be offset at least 5 m away from the Onshore Cable Route, and more specifically the cable trench, within the Order Limits.

- Where hedgerows are lost these shall be replanted with like for like species; on the basis that a concrete duct block will be provided underground to protect the cables from roots and the drying out of the duct surround.
- The micrositing of embedded landscape mitigation measures will be subject to the results of archaeological trial trenching.
- Cable routing shall be developed to avoid affecting hedgerows and hedgerow trees on the boundaries of the Order Limits.
- All PRoW / footpaths / car parks affected by the Proposed Development shall be reinstated to at least the condition and quality prior to works being carried out.
- Any street furniture removed or damaged during the installation of the Onshore Cable Route shall be replaced with street furniture of the same quality.
- Any landscaping associated with Portsmouth City Council's Coastal Defence Scheme (considered in cumulative effects) and referred to in paragraph 15.5.4.8 of Chapter 15 of the ES (APP-130) which is impacted by the works shall be reinstated to the same quality and finish as the future baseline.

6.2.5. ~~6.2.4.~~AGRICULTURAL SOILS AND LAND USE

6.2.5.1. ~~6.2.4.1.~~Within the current design for the Onshore Cable Route, trenches within agricultural land will be excavated to a typical depth of 1300 mm (depth dependent on the existing utilities). The contractor will ensure that topsoil and subsoil resources are kept separate and placed either side of the exposed trenches. The cables ducts will be laid within approximately 400 mm of cement-bound sand and the remainder of the void is to be backfilled with the excavated soil. Priority should be given to full use of the topsoil resource in the reinstatement of soils above the cable: the surplus material should all be subsoil.

6.2.5.2. ~~6.2.4.2.~~As stated in Waste and Material Resources above, the current design of the Converter Station seeks to balance cut and fill, and excess material (estimated at 45,325 tonnes) will be available for use in reprofiling the landform, pond fill and screening. Outstanding surplus will be suitable for off-site general or landscaping fill.

6.2.6. ~~6.2.5.~~GROUNDWATER

6.2.6.1. ~~6.2.5.1.It is expected that the installation rate for cable ducts for one circuit will be approximately 18 m – 30 m per day and typically in 100 m sections, within urban areas and approximately 50 m per day in open countryside.~~ Any groundwater or rainwater that collects in a trench will be pumped into locations agreed with the landowners, local authorities, EA or drain operators (~~Portsmouth Water and~~ Highways Authorities). The method of water discharge has yet to be determined.

6.2.6.2. ~~6.2.5.2.~~The water management permitting, licenses and agreements will be completed by the appointed contractor, with the quantities of groundwater management determined at the detailed design stage. This applies to all sections. The groundwater collected will either be discharged to surface water, sewer, disposed of off-site or a combination of these three methods. This applies to all sections.

6.2.6.3. ~~6.2.5.3.~~If the water is to be discharged to sewer or a surface waterbody then a discharge consent(s) may be required. The permitting process will be completed by the contractor, after detailed design, once a dewatering and discharge management methodology has been agreed upon. This applies to all sections.

6.2.6.4. ~~**6.2.5.4.**~~Should groundwater dewatering be substantial (greater than or equal to 20m^3/day) an abstraction licence and discharge consent will be required from the EA. At present the requirement for a groundwater abstraction for trench installation is ~~unknown~~not confirmed, the quantities of groundwater removal will be determined at detailed design stage. The appointed contractor will be responsible for acquiring the relevant consents and adhering to the conditions of said consents. All groundwater abstraction licensing and discharge permits will not be disapplied but obtained during the detailed ~~Design~~ design Stage, as agreed upon with the EA.

HDD Groundwater Level and Flow

6.2.6.5. ~~6.2.5.5.~~To ensure drilling fluids do not break out into the groundwater environment nor groundwater seeps into the bore, a mud engineer will be present at all times during the HDD drilling process to monitor drilling fluid viscosity, density, annual pressure, solids contents, filter cake quality and total mud volume and thereby ensuring the filter cake remains intact and that drilling fluid is not lost to the ground and that groundwater does not seep into the bore annulus. In addition, a review of the proposed drilling fluid and inert polymers will also be completed before ground is broken. All drilling fluids, including polymers, will be CEFAS rated products.

6.2.6.6. ~~6.2.5.6.~~Drilling fluid losses to groundwater can occur in high permeability ground materials~~. Where these conditions are to be encountered the drilling contractors will need to monitor the fluid pressures and observe for pressure drops. When a significant pressure drop occurs, losses maybe occurring. To stop drilling fluid loss a number of actions can be taken to seal the area of loss, for example increasing the drilling fluid viscosity or introducing a cement grout. Real time downhole annular pressure monitoring should be completed to allow for these observations.~~ , which are areas with intense fracturing/dissolution features. This is a particular concern in areas which are designated as groundwater Source Protection Zone 1 (SPZ1). These are assigned to the Portsmouth Water public water supply abstractions, the protection of which is of the utmost importance.

6.2.6.7. The scheme design in the first instance ensures that the trenchless construction avoids karst dissolution features (in the Chalk) as much as possible. At HDD-5 (Kings Pond), the drilling will be kept in the overlying Lambeth Group only. The contractor will ensure that when drilling HDD-5 there will be at least a 5m standoff between the proposed HDD alignment and the Chalk at all times. Karst dissolution features can also be present in ground materials overlying the Chalk, in the form of voided overburden.

6.2.6.8. The drilling team will also need to be briefed on the environmental sensitivity of the SPZ1 and the importance of identifying karst dissolution features prior to work commencing and during the works. They will need to monitor the fluid pressures and observe for significant pressure drops throughout the works. A significant pressure drop would indicate that loss of fluid, potentially to fractures/dissolution features, may be occurring. A watching brief will also need to be implemented to identify any elements of karst dissolution features at any time during the works.

6.2.6.9. Should such features be detected, drilling should be paused temporarily, until the Engineer on site can determine the most suitable course of action for mitigation, from a catalogue of actions already agreed with Portsmouth Water and the EA. A number of actions can be taken to seal the area of loss, for example increasing the drilling fluid viscosity or introducing a cement grout. Real time downhole annular pressure monitoring should be completed to allow for these observations. The exact pressure change parameters and procedures to evaluate mitigation would need to be agreed with Portsmouth Water and the EA at detailed Design Stage. Portsmouth Water and the EA will also be notified immediately of any loss of drilling fluid. Once the risk from the dissolution feature has been satisfactorily mitigated (i.e. to no risk of contamination), works will then resume.

~~6.2.5.7. If any fluid loss occurs works will halt immediately to allow drilling fluid reconfiguration.~~

~~6.2.5.8.HDD-5 (Kings Pond) will be installed within the Lambeth Group geology to avoid the Chalk. This will therefore ensure the HDD alignment avoids the Chalk karst features. Karst features can be present in ground materials overlying the Chalk and if any voided overburden is encountered, drilling fluid control measures will be implemented to prevent drilling fluid losses. The contractor will ensure that when drilling HDD-5 there will be at least a 5m standoff between the proposed HDD alignment and the Chalk at all times.~~

6.2.6.10. ~~6.2.5.9.~~The launch and receptor pits for the HDD-4 (Farlington Railway Crossing (Trenchless)) will include perimeter sheet piled walls toed into the Chalk to reduce groundwater ingress from the superficial River Terrace Deposits. Groundwater seepage at the base of the pits could occur and this will be sump pumped during operation. The potential consents and permits required to manage this water will be completed by the appointed contractor. The method of discharge has yet to be

determined. The groundwater collected will either be discharged to surface water, sewer, disposed of off-site or a combination of these three methods. If the water is to be discharged to sewer or a surface waterbody then a discharge consent(s) may be required. The permitting process will be completed by the contractor, after detailed design, once a dewatering and discharge management methodology has been agreed upon. The appointed contractor will be responsible for acquiring the relevant consents and adhering to the conditions of said consents. Any contaminated water would require off-site disposal.

6.2.6.11. ~~6.2.5.10.~~The required groundwater dewatering quantities for HDD-4 pits will be determined at detailed design. The designer must ensure the discharge quantities are accurate or conservative to ensure no flood risk should be increased due to surplus groundwater encountered during construction.

HDD Groundwater Quality

6.2.6.12. ~~6.2.5.11.~~All drilling equipment will be checked and cleaned before use. This will prevent cross contamination. A review of the drilling fluid and inert polymers will also be completed before ground is broken. All drilling fluids, including polymers, will be Cefas rated.

6.2.6.13. ~~6.2.5.12.~~Drilling through alternative geologies can transfer existing contamination from one source to another. Drilling can also generate fines which can increase sediment in the water column, creating turbidity contamination. The Filter Cake will prevent the mobilisation of contaminants from one groundwater body to another, as the cake 'self-seals' as the drilling progresses. Therefore, no cross contamination is anticipated. Following the embedded mitigation measures the drilling fines and fluids will be contained in the drilling cake, preventing contamination from spreading between sources and drilling fines entering the local groundwater receptors.

6.2.6.14. ~~6.2.5.13.~~To ensure surface breakout is not lost to the environment a flexible hose pump will be contained at the exit compound site so breakout fluid can be retained on site. A sufficiently sized Intermediate Bulk Container or similar will be stored on site to store such a breakout.

Onshore Cable Route Trench Excavation Works

AQUIND

6.2.6.15. A catalogue of potential mitigation measures is to be developed for the Onshore Cable Route Trench Excavation Works, to deal with potential areas of insufficient Head deposits in Sections 1, 2 and 3 (designated as a Groundwater Source Protection Zone 1). This is driven by the possible presence of unidentified karst dissolution features in the areas outside of the Converter Station Area but within the Order Limits. These have been raised as a topic of a concern by Portsmouth Water and the EA, due to their potential ability to act as rapid contamination pathways directly to Portsmouth Water's public water supplies (at Lovedean and H&B Springs). Based on the available information, it is considered likely that sufficient Head deposit cover is present throughout the proposed route in these sections.

6.2.6.16. The types of proposed mitigation measures are discussed in Section 6.4.3 below.

6.2.7. ~~6.2.6.~~ SURFACE WATER RESOURCES AND FLOOD RISK

Surface Water Drainage Patterns

6.2.7.1. ~~6.2.6.2.~~ A number of Main River and Ordinary Watercourse crossings are located within the Order Limits, as detailed within Table 6.1. To limit the impact to the surface water environment alongside other environmental and design constraints it is proposed to pass under a number of these open channel watercourses using HDD or Trenchless techniques to pass under the watercourses open channel. HDD / Trenchless techniques are proposed at:

- Kings Pond (HDD) (Soake Farm - Main River) – HDD-5;
- Farlington Railway Crossing (Trenchless) (Farlington Marshes Gutter - Ordinary Watercourse) – HDD-4; and
- Langstone Harbour (HDD) (Broom Channel - Transitional/ Tidal Watercourse) – HDD-3.

6.2.7.2. ~~6.2.6.3.~~ Thereafter the other Main Rivers and Ordinary Watercourses identified ~~at this stage~~, as detailed within Table 6.1, are proposed to be crossed within the public highway where the watercourses are confined to a culvert, and works within the cable corridor will not impact on the watercourses drainage patterns.

AQUIND

Water Supply and Surface Water Wastewater Infrastructure – Quantity

6.2.7.3. ~~6.2.6.4.~~During construction it is proposed that any temporary requirements for water supply and foul wastewater throughout the Order Limits are ~~likely~~ to be provided through temporary site compounds and construction set up that would not utilise the existing local networks.

6.2.7.4. ~~6.2.6.5.~~Notwithstanding the above, an in-principle connection agreement with Portsmouth Water has been obtained for the proposed permanent connection for the Converter Station Area with agreement for temporary use during construction, if required, subject to detailed design and to be determined by the appointed contractor. This in-principal agreement is for a connection point at Broadway Lane, and has been obtained from Portsmouth Water for an assumed demand requirement of 105 'loading units' based on Portsmouth Waters application for water supply calculations.

6.2.7.5. ~~6.2.6.6.~~Any changes to the assumed demand and construction demand shall be agreed with Portsmouth Water prior to connection, with the contractor responsible to account for any head loss when sizing the supply.

6.2.7.6. ~~6.2.6.7.~~If the contractor determines, during detailed design, that it would be appropriate to utilise a local water infrastructure network throughout the Onshore Cable Corridor, the anticipated quantities are likely to be variable depending on its specific use. Furthermore, a proposed temporary connection for either clean water supply, surface water and foul water discharge would be subject to approval from Portsmouth Water (clean water supply) and Southern Water (wastewater).

Surface Water Features Water Quality

6.2.7.7. ~~6.2.6.8.~~The Proposed Development and associated works are proposed to avoid disruption to the Main Rivers and Ordinary Watercourses (Table 6.1) located within the Order Limits by ensuring that all installed ducts and trenching across watercourses are undertaken within the highway carriageway. By remaining within the carriageway any existing watercourses are expected to pass under the carriageway within a watercourse structure (e.g. culvert or sewer).

6.2.7.8. ~~6.2.6.9.~~Where open channel watercourses are present within the Order Limits~~, it is proposed to use~~ HDD or Trenchless techniques are to be used to pass under the watercourses open channel.

Human Receptors and Infrastructure as a Consequence of Flood Risk

6.2.7.9. ~~6.2.6.10.~~The Converter Station Area is located on high ground and away from any watercourse and is located within Flood Zone 1.

6.2.7.10. ~~6.2.6.11.~~Proposed watercourse crossings detailed within Table 6.1 are proposed to be via HDD/ Trenchless techniques or within the carriageway around a watercourse structure (culvert or sewer). Other minor ditches and dry watercourses, also defined

as Ordinary Watercourses, have not been individually identified at this stage; however, it is anticipated that a number of additional Ordinary Watercourse crossings may be required within the Onshore Cable Corridor. Identification of any other Ordinary Watercourse crossings will be further investigated post-application as part of the detailed design undertaken by the appointed contractor once the specific Cable Route is confirmed within the Onshore Cable Corridor. It is anticipated that this would include ditches to the side of roads and extreme weather overland flow routes that are typically dry known as 'winterbourne or dry watercourse'. The overall principles of crossing these open watercourses would be subject to an Ordinary Watercourse Consent and in principle, any works going through these features would need to ensure that: watercourse flow is maintained, there is no increase to the local flood risk, and appropriate pollution prevention measures are in place.

6.2.7.11. ~~6.2.6.12.~~Works adjacent within the Onshore Cable Corridor adjacent to the coastal flood defences have been developed alongside consultation with~~East Solent Coastal Partnership (~~' ESCP'~~)~~ where it has been agreed in principle that the design will ~~void~~ avoid works to existing or proposed coastal flood defence alignments. Furthermore, the proposed HDD under Broom Channel (Langstone Harbour HDD-3) is proposed to pass below or avoid any sheet piling associated to the coastal flood defence.

6.2.7.12. ~~6.2.6.13.~~It should be noted that the implementation of above principles will be the responsibility of the appointed contractor to develop during detailed design and be subject to relevant environmental consents prior to construction.

Table 6.1 – Summary of Watercourses within the Order Limits

Code	Watercourse Name	Classification	Typical Form with Onshore Order Limit	Structures within Onshore Order Limit	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
WC.01	Soake Farm North	Main River	Open channel*	None	No	EA	No proposed crossing
WC.02	Soake Farm South	Main River	Open channel	None	Yes	EA	Proposed to horizontal directional drill under watercourse
WC.03	Unnamed	Ordinary Watercourse	Open channel/ culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.04	Old Park Farm	Main River	Culvert	Twin culvert	Yes	SW, LLFA, EA	Proposed crossing culvert within

Code	Watercourse Name	Classification	Typical Form with Onshore Order Limit	Structures within Onshore Order Limit	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
							carriageway build up
WC.05	Unnamed	Ordinary Watercourse	Culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.06	Unnamed	Ordinary Watercourse	Culvert	Box Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.07	Unnamed	Ordinary Watercourse	Swales*	None	No	LLFA	No proposed crossing

Code	Watercourse Name	Classification	Typical Form with Onshore Order Limit	Structures within Onshore Order Limit	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
WC.08	Unnamed	Ordinary Watercourse	Culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.09	North Purbrook Heath (North)	Main River	Culvert	Twin box culvert	Yes	EA	Proposed crossing culvert within carriageway build up
WC.10	North Purbrook Heath (South)	Main River	Open channel	None	No	EA	No proposed crossing
WC.11	Unnamed	Ordinary Watercourse	Open channel	None	Yes	LLFA	Proposed Trenchless techniques

Code	Watercourse Name	Classification	Typical Form with Onshore Order Limit	Structures within Onshore Order Limit	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
							under watercourse
WC.12	Farlington Marshes Gutter	Main River	Open channel	None	No	EA	No proposed crossing
WC.13	Broom Channel	Main River	Channel	None	Yes	EA, HE, ESCP	Proposed horizontal directional drill under watercourse and defences
WC.14	Great Salterns Drain	Main River	Culvert	Culvert	Yes	EA, HE, ESCP	Proposed crossing culvert within carriageway build up

Code	Watercourse Name	Classification	Typical Form with Onshore Order Limit	Structures within Onshore Order Limit	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
Other minor Ordinary Watercourses not identified in the list above may also be crossed, any such crossing will also require an Ordinary Watercourse Consent or exemption and shall follow the principles set out in Section 5.7							

6.2.7.13. ~~6.2.6.14.~~Land affected by open trenching will be reinstated with native soil and or surfacing, typically with no infrastructure left above ground.

6.2.7.14. ~~6.2.6.15.~~The only proposed infrastructure outside the Converter Station Area above ground includes boxes/ pillars associated with the intermediate and transition joint bays and the two ORS' ~~-~~ at Section 10 - Eastney (Landfall) ~~that will be positioned at some location within the Onshore Cable Corridor which is to be determined as part of the detailed design, post-DCO Application~~.

6.2.8. ~~6.2.7.~~NOISE AND VIBRATION

Environmental Control Measures to be employed for specific activities

Trenching

6.2.8.1. ~~6.2.7.2.~~The majority of duct laying activities via trenching are expected to take place during weekdays between the hours of 07:00 and 17:00 and Saturdays from 08:00 to 13:00 hours. Due to the transient nature of the duct laying works, and the substantial space constraints anticipated, noise mitigation in the form of screening is unlikely to be feasible.

6.2.8.2. ~~6.2.7.3.~~However, there are some locations where trenching is expected to take place outside of conventional working hours (i.e. during evenings, weekends and at night-time) to mitigate negative traffic effects on the surrounding road network. The out of hours working locations are as follows:

1. Section 4 – a c.90m section of the A3 London Road in Purbrook near Stakes Road;
2. Section 5 – Havant Road between Farlington Avenue and Eastern Road;
3. Section 6 – Fitzherbert Road and Sainsbury's Car Park; and
4. Section 8 – Eastern Road between Airport Service Road and north of Milton Common (c. 350m south of Tangier Road).

6.2.8.3. ~~6.2.7.4.~~For further information, see the Framework CTMP (~~document reference 6.3.22.2~~APP-450).

6.2.8.4. ~~6.2.7.5.~~The following mitigation measures should be employed during the out-of-hours trenching works:

All out-of-hour locations

6.2.8.5. ~~6.2.7.6.~~Mitigation for out-of-hours trenching works ~~includes the incorporation of~~ will incorporate screening ~~expected to achieve~~ achieving at least 5 dB attenuation. The exact form that this screening would take is unknown at this stage. It could, for example, comprise solid (e.g. timber) 2 m high site hoarding around the construction works. Alternatively, if this is not possible due to time or space constraints, Heras fencing around the compounds will be fitted with acoustic quilts, and combined with further localised screening of particularly noisy equipment items. Acoustic quilts must

be fitted to fencing with no gaps underneath or between the panels. Screening is considered an important mitigation measure at these locations because of receptors being more sensitive to noise during the night-time period when stricter criteria apply. ~~Completing works in these areas as quickly as possible to minimise the duration of residents' exposure to high noise levels, whilst minimising the duration of works during the most sensitive periods (i.e. night-time).~~

~~6.2.7.7. For night-time works, identifying if negatively affected dwellings have sleeping accommodation at the opposite façade to that affected by construction activity, as noise levels at these facades should be substantially lower than those predicted.~~

~~Section 4~~

6.2.8.6. In addition to the community liaison measures outlined in section 5.12.2, nearby residents will be informed of the specific timings when road cutting/breaking activities are expected to take place outside of their property so that they can make alternative arrangements, if their wish, whilst the noisiest works are taking place.

6.2.8.7. Works in these areas should be completed as quickly as possible to minimise the duration of residents' exposure to high noise levels, whilst minimising the duration of works during the most sensitive periods (i.e. night-time).

Section 4 - – a c.90m section of the A3 London Road in Purbrook near Stakes Road

6.2.8.8. ~~6.2.7.8.~~Aim to complete duct laying for each circuit over two weekends (4 weekends in total). It is most likely that each circuit would be completed in two c.45m sections, one per weekend. At this stage, it has not been confirmed if these would be consecutive weekends. However, completing the works across non-consecutive weekends would reduce negative noise impacts through respite periods.

6.2.8.9. ~~6.2.7.9.~~Work will be completed between 07:00 hours and 22:00 hours on Saturday and Sunday.

~~6.2.7.10. Whilst there would be two further weekends required for the installation of the second circuit, there will be a sufficient temporal gap between these two periods of work.~~

Section 5 - Havant Road between Farlington Avenue and Eastern Road

6.2.8.10. ~~6.2.7.11.~~There are three potential options for the out-of-hours works in section 5:

- Option 1 – Works for each circuit could be completed in a single weekend. Works would commence at sunrise on Saturday morning and continue until sunset on the Sunday evening. Whilst this would include night-time working on Saturday, the noisiest activities (road cutting/breaking and re-surfacing) will be avoided at night to minimise sleep disturbance in the immediate area.
- Option 2 – Works for each circuit could be completed in two consecutive weekends during the daytime and evening (from 07:00 to 22:00 hours).
- Option 3 – Works for each circuit could be completed in two non-consecutive weekends during the daytime and evening (from 07:00 to 22:00 hours).

6.2.8.11. ~~6.2.7.12.~~Two further weekends (or a single weekend with night-time working) would be required for the installation of the second cable circuit~~, but there will be a sufficient temporal gap between these two periods of work~~.

6.2.8.12. ~~6.2.7.13.~~Whilst it has not yet been confirmed which option would be chosen, avoiding night-time working, and/or completing the works across non-consecutive weekends would reduce negative noise impacts.

Section 6 - Fitzherbert Road and Sainsbury's Car Park

6.2.8.13. ~~6.2.7.14.~~The installation of the cable ducts along Fitzherbert Road, Sainsbury's car park and associated access road may need to take place at night to minimise disruption to the supermarket.

6.2.8.14. ~~6.2.7.15.~~The noisiest activities (road cutting/breaking and re-surfacing) will be avoided during hours of darkness to minimise sleep disturbance in the immediate area.

Section 8 - Eastern Road between Airport Service Road and north of Milton Common (c. 350m south of Tangier Road)

6.2.8.15. ~~6.2.7.16.~~In order to minimise traffic disruption, 24-hour working seven days per week may be undertaken.

6.2.8.16. ~~6.2.7.17.~~Noisiest activities (road cutting/breaking and re-surfacing) will be avoided outside the Harbourside Caravan Park during the hours of darkness to minimise sleep disturbance.

~~6.2.7.18. If it were possible to complete the approximately 300 m section of trenching on Eastern Road from the north of the Caravan Park to Burrfields Road during weekday daytimes (07:00 to 19:00 hours), noise impacts would be reduced.~~

6.2.8.17. ~~6.2.7.19.~~Until a contractor is appointed, and detailed work plans are produced, it is not feasible to identify further specific physical mitigation measures that could be employed. However, the contractor appointed will engage with local residents affected by the works and the environmental health department at the local planning authorities to agree additional mitigation to reduce the significant effects as far as reasonably practicable.

Joint Bays

6.2.8.18. ~~6.2.7.20.~~Mitigation for Joint Bays which are predicted to have any more than a negligible impact at surrounding receptors will be in the form of screening ~~expected to achieve~~ achieving at least 5 dB attenuation. Generally, Joint Bays located in rural areas distant from sensitive receptors would not require screening, whereas those in more urban areas in close proximity to sensitive receptors would require screening.

HDD sites

6.2.8.19. ~~6.2.7.21.~~Screening ~~expected to achieve~~ achieving at least 5 dB attenuation ~~has been assumed where HDD works are predicted to have more than a negligible impact at surrounding receptors~~will be required at all HDD compounds. As work associated with HDD compounds will be scheduled for longer relative to trenching and Joint Bay activities, it is assumed that this screening would take the form of solid (e.g. timber) hoarding around the HDD compounds. The screening is required to provide noise mitigation to surrounding residential receptors and/or Solent Wader Brent Goose Strategy (SWBGS) sites.

6.2.8.20. ~~6.2.7.22.~~At HDD-1 (Landfall) ~~and~~ , HDD-3 (Portsea Island), HDD-4 (Railway), HDD-5 (Kings Pond) and HDD-6 (Milton Common), hoarding around the HDD compound is required to be at least 2m high. At HDD-2 (Eastney and Milton Allotments), hoarding around the compound is required to be approximately 3.5m high, to provide sufficient mitigation to the Thatched House public house.

~~6.2.7.23.At HDD-3 (Portsea Island), HDD-4 (Railway), and HDD-6 (Milton Common), there are no high sensitivity receptors within 100 m of the HDD compounds, and therefore solid site hoarding is not considered necessary at these sites.~~

6.2.9. ~~6.2.8.~~SOCIO-ECONOMICS

6.2.9.1. ~~6.2.8.1.~~HDD will be used at Landfall, Eastney and Milton Allotments/ Milton Locks Nature Reserve and Milton Common. This avoids direct impacts on Eastney Beach, the Allotments and Milton Locks Nature Reserve respectively.

6.2.9.2. ~~6.2.8.2.~~Where the Onshore Cable Corridor crosses open space, the Onshore Cable Route would be designed to avoid key recreational facilities~~, wherever practicable~~. This includes avoiding:

- ~~Farlington Playing Fields~~ Two cricket squares at Farlington Playing Fields and the cricket square at Langstone Harbours Sports Ground ; and
- ~~Baffins Milton Rovers~~ A football pitch ~~(although training areas are affected); and~~and, skate park at Bransbury Park .
  - ~~Bransbury Park football pitch, skate park and footway.~~

~~6.2.8.3. Where the Order Limits are crossed by off-road PRoW or Cycle route, there is the potential for the route to be closed temporarily during construction for safety purposes. To mitigate this disruption, an alternative route will be provided along with signage in advance of the temporary closure.~~

6.2.9.3. ~~6.2.8.4.The Transport Assessment~~ The Framework Traffic Management Strategy, including Appendix 1, Onshore Cable Route Construction Impacts on Access to Properties and Car Parking and Communication Strategy also sets out principles for mitigation, including:

- Traffic Management to keep one lane open including temporary traffic signals on single carriageways and lane closures on wider roads including dual carriageways;
- Access to residences, businesses and community facilities - including access to driveways outside working hours and three-way signals for business premises with their own access onto affected highways; and maintenance of side road access;
- A communication strategy to allow stakeholders such as residents, businesses and community facilities to keep up to date with construction works;
- Access principles for pedestrians and cyclists; public transport; school access; and emergency services; and
- Programme constraints, taking into consideration major events.

Disruption to Residences and Local Businesses

6.2.9.4. ~~6.2.8.5.~~Overall, residential and business access will be maintained, wherever practicable, albeit with different traffic management approaches applied depending upon the circumstances as described in the ~~Transport~~ Framework Traffic Management Strategy, Appendix 1, Onshore Cable Route Construction Impacts on Access to Properties and Car Parking and Communication Strategy.

6.2.9.5. ~~6.2.8.6.~~Along the majority of the roads within the Order Limits, a single lane will remain open to traffic and access will be maintained for cyclists and pedestrians at all times. Pedestrian and cycle routes along the Onshore Cable Corridor will be maintained wherever practicable, with full closure considered as the last resort, such as where it would prevent full closure of a major road. In all cases the construction works will ensure that pedestrians and cyclists can pass the corridor in a safe manner, with suitable barriers between the construction works.

6.2.9.6. ~~6.2.8.7.~~Access to junctions with roads affected by the Order Limits, business premises and retail parks will be maintained using three-way traffic lights.

Disruption to Community Facilities

6.2.9.7. ~~6.2.8.8.~~As set out in the ~~Transport~~ Framework Traffic Management Strategy, to avoid disturbance to schools, construction of the Cable Corridor will not take place outside of the school holidays where they there are schools located directly adjacent to the Onshore Cable corridor. These include:

- Solent Junior School on Solent Road and Solent Infant School on Evelegh Road, adjacent to Farlington Avenue; and
- Mooring Way Infant School, Moorings Way.

6.2.9.8. ~~6.2.8.9.~~The Framework Traffic Management Strategy Transport Strategy also includes measures to continue to provide access to emergency services adjacent to the Order Limits.

Effects on Users of Recreation, Leisure Facilities and Open Space and Non-Motorised User Routes

6.2.9.9. A Framework Management Plan for Recreational Impacts (document reference 7.8.1.13) has been developed to demonstrate ways in which the general mitigation principles described in Section 5.12 above can be applied to construction to minimise effects with a particular focus on carefully timing the works and minimising the working areas in the open spaces affected. In addition, specific mitigation (for example relocation of pitches) has been explored and would be adopted where necessary and practicable.

6.2.9.10. ~~6.2.8.10.It is anticipated that seven~~ Seven PRoW are ~~severed~~ potentially affected by the Onshore Cable Corridor~~, which would need to be temporarily diverted for health and safety purposes.~~ The PRoW are listed below:

- PRoW 4 (and PRoW 16) – Section 1, farm track between Broadway Farm and Little Denmead Farm a temporary diversion would be required;
- PRoW 41 – Section 2, bridleway between Anmore Road and Edney Lane a temporary diversion would be required; ~~and~~
- PRoW 11– Section 4, starting ~~-~~/ending at Maurepas Way, no diversion required as route terminates at the public highway;
- PRoW 17 – Section 4, located along Milk Lane, no diversion required as route terminates at the public highway;
- PRoW 24 – a short length of footpath connecting Drayton Lane and the B2177 to the south west of the Order Limits for the Proposed Development, temporary diversion required;

- PRoW 31 – Section 5, a small section of footpath which provides a link between Eastern Road and Copsey Grove, no diversion required as route terminates at the public highway; and
- PRoW 33 – Section 6, Zetland Fields, temporary diversion required.

6.2.9.11. ~~6.2.8.11.~~Additionally, there are a number of permissive paths including four Long Distance Walking Routes (Monarchs Way in Section 1, Wayfarers Walk in Section 3-4, The Solent Way in Sections 7-10, and Shipwrights Way in Section 10) within ~~Order Limits. It is anticipated that the construction of the Onshore Cable Route is also likely to directly severe these routes which will require temporary diversions to be implemented~~the Order Limits.. Diversions will be provided at Milton Common and at Bransbury Park.

6.2.9.12. The Transport Assessment programmes work outside key periods, such as including December for Christmas Shopping and ~~Festivals season~~ the Victorious Festival on Farlington Playing Fields.

6.2.10. ~~6.2.9.~~HUMAN HEALTH

- Cable ducts allow short sections to be worked on at any one time. ~~The installation rate for cable ducts will be approximately 18 m - 30 m per day on average within urban areas and approximately 50 m per day for areas of open land.~~ This will minimise the duration of disruption;
- Joint Bays will be positioned in highway verges, fields or car parks, where practicable, to limit the need for road closures;
- Temporary fencing will be used to secure the areas under construction during the construction works;
- Apart from the entry and exit points of the HDD, there will be no impact on the areas in between, including Eastney Beach, the Eastney and Milton Allotments and Milton Locks Nature Reserve;
- Where the Onshore Cable Corridor crosses greenspace, the route has been designed to avoid key recreational facilities, wherever practicable;
- Public activities and events that are planned in proximity to the Proposed Development will be taken into consideration during the phasing of the of construction works along the Onshore Cable Route; and
- To minimise disruption, a single lane closure would be used, where practicable, rather than a full road closure. Road closures (70 m distance in total) are anticipated at:
  - Broadway Lane (one days per circuit, two days total);
  - Anmore Road (one day to two weeks);

- A3 London Road between Poppy Fields and Ladybridge Roundabout (one weekend for both circuits);
- Farlington Avenue between Sea View Road and Solent Road (one - two weeks for both circuits);
- Farlington Avenue between Solent Road and Havant Road (one - two weeks for one or both circuits, therefore up to two – four weeks for both circuits);
- Evelegh Road (one - two weeks for one circuit, therefore three - four weeks total);
- The entirety of Yeo Court within Section 9;
- Havant Road between Farlington Avenue and Waterworks Road (one - two days for one circuit, therefore up to four days total);
- Eastern Avenue (two - three weeks per circuit, therefore four - six weeks for both circuits);
- Furze Lane Bus Link (two weeks); and
- Yeo Court (one week per circuit therefore up to two weeks).

- Where construction works do obstruct a footway an absolute minimum unobstructed width of 1.0 m will be provided alongside the construction corridor and where this is not possible a safe alternative route will be provided. This will include provision of suitable crossing facilities where required, including the temporary replacement of existing pedestrian crossings that may need to be closed to facilitate construction.
- During construction of the Onshore Cable Route~~. Where~~ , where existing bus stops need to be closed, a temporary bus stop will be provided as close as practicable to the original location, taking into account highway safety of all road users.
- While residents will be informed of construction works and encouraged to make alternative arrangements where practicable, such as parking on-street, steel plating over the trench will be available during working hours in the case of emergencies. Outside of these times road plates will be installed and construction fences removed to allow access over the construction zone. Where the construction zone falls on the opposite side of the carriageway to driveways access will be maintained at all times, but drivers will be made aware of construction works/traffic signal control, as appropriate.
- Access to business premises will be maintained using either three-way traffic signals, with excavation of the trench taking place in two phases to allow a 3 m access to be maintained at all times, or through use of road plates.

6.2.10.1. ~~6.2.9.1.~~It is expected that there will be a programme of community liaison to ensure that the potentially effected receptors are provided with early warning of construction activities (including targeted leafleting at affected properties and community facilities). Signage and advanced warning will be provided in advance of the temporary closure. Any diversions will be suitable to accommodate all users.

6.2.12. HORIZONTAL DIRECTIONAL DRILLING POSITION STATEMENT

6.2.12.1. The Horizontal Directional Drilling Position Statement (Ref 7.7.3) outlines the requirements on the contractor for the HDD locations, setting out the constraints and specific requirements for construction at each HDD location. HDD/Trenchless installation will be used in the locations identified in the Horizontal Directional Drilling Position Statement and provides indicative information outlining the requirements for the compounds and work methodology for the HDD works at these locations.

6.3. SECTION 1 – LOVEDEAN (CONVERTER STATION AREA)

6.3.1. WASTE AND MATERIAL RESOURCES

6.3.1.1. The design of the ~~converter station~~ Converter Station will seek to balance cut and fill of excavated earthworks in order to minimise the quantity of imported earthwork material and to maximise re-use of arisings. Based on the preliminary design, there is a surplus of 45,325 tonnes of material generated.

6.3.2. LANDSCAPE AND VISUAL

6.3.2.1. The Proposed Development will be constructed in line with a suite of Design Principles (which include landscape design principles) and ~~an~~ a detailed landscaping scheme which will be submitted for approval to the relevant discharging authority prior to any phase of the works being carried out (and, where related to the Converter Station Area, for this approval to be in consultation with the South Downs National Park Authority). The detailed landscaping scheme will be prepared in accordance with the updated Outline Landscape and Biodiversity Strategy ~~which will be approved by the LPAs. The Outline Strategy will be prepared in accordance with the outline Strategy. The Outline Strategy~~ (APP-506 Rev002) which includes specific references to fixed offsets and constraints required due to a range of utilities and landscape and ecological constraints present. The detailed landscaping scheme will include detailed landscape mitigation plans reflecting the indicative landscape mitigation plans, together with management, maintenance and monitoring plans and confirmed management responsibilities. The monitoring plans will include periodic reviews to determine the success of planting in mitigating landscape and visual effects.

6.3.2.2. ~~The Outline Landscape and Biodiversity Strategy requires~~ The detailed landscaping scheme will require the implementation of mitigation planting alongside the construction programme where works would not affect planting and during winter (November – February) (~~document reference 6.3.15.7).~~APP-405). The programme will be refined further subject to DCO consent.

6.3.4. ~~6.3.3.~~ ONSHORE ECOLOGY

6.3.4.1. ~~6.3.3.1.~~ The Proposed Development has incorporated a 15m buffer between works and Stoneacre Copse, Crabden's Copse and Crabden's Row to avoid direct effects on this feature. No ancient woodland is present within the Order Limits.

6.3.4.2. ~~6.3.3.2.~~ Landscape planting around the Converter Station will incorporate ecologically important habitats to offset those lost due to construction work. Planting will include mixed woodland, scrub, hedgerow, scattered trees and marshy grassland associated with flood attenuation features. Sections of hedgerows removed to accommodate the installation of the Onshore Cable Route will be replanted. These planting measures are designed to enhance biodiversity within the Converter Station Area~~,~~ and will replace grassland which has developed on arable land that is no longer farmed.

Improvement of remaining ~~calcareous~~ grassland at Lovedean

6.3.4.3. ~~6.3.3.3.~~ At the Converter Station the botanical diversity of the ~~semi-improved calcareous~~ grassland will be improved by application of green hay. Green hay contains seed from a diversity of wildflower species and will inoculate retained grassland at Lovedean with new flora. The green hay will be sourced from a suitable donor site (e.g. Denmead Meadows~~)~~ to ensure native plants of local provenance are used to colonise and increase the value of the grassland.

6.3.4.4. ~~6.3.3.4.~~ Improvement using green hay will take place in late spring (June-July) in the year following completion of construction work.

Closure of ~~Badger~~ badger setts under licence

6.3.4.5. ~~6.3.3.5.~~ The two badger setts to be lost to the converter station footprint (option B(i)) will be closed using badger gates outside of the badger breeding season (June-November inclusive).

6.3.4.6. ~~6.3.3.6.~~ Setts will be closed using one-way gates so badgers can leave but cannot return to the sett. Following a period of monitoring to ensure badgers are not within them, the setts will be dug out.

6.3.4.7. ~~6.3.3.7.~~ This process will avoid potential death or injury to badgers as a result of development, and work will be undertaken under a Natural England licence to allow legal sett closure.

6.3.4.8. ~~6.3.3.8.~~ In addition, open excavations will be fitted with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in~~,~~ and prevent the trapping of animals including badgers.

6.3.5. ~~6.3.4.~~ARBORICULTURE

6.3.5.1. ~~6.3.4.1.Where practicable design would~~ Design shall avoid positioning cables in conflict with ~~RPAs~~ the above (stem and canopy) and below ground (RPA's) elements of existing trees. Where significant incursion is unavoidable, trees ~~would~~ shall be appropriately replaced~~.~~.

6.3.5.2. ~~6.3.4.2.Hedge removal in the Converter Station would be minimised by only removing what is required to lay the Access Road. For example, if the Access Road is 7.5 m wide only 8.5-9.5 m of each hedge is required for removal. Also, where the Access Road is laid as a 2-way road, hedges can provide pinch points and reducing traffic flow to a single lane. Mitigation for the loss of hedgerows and hedgerow trees will be replaced with like for like species, where practicable,~~ Mitigation for the loss of hedgerows and hedgerow trees will be replaced with like for like species of a similar size with hedgerow trees repositioned at least 5 m away from the Onshore Cable Route within the Order Limits.

6.3.5.3. ~~6.3.4.3.~~In line with the proposed Arboricultural Method Statement (see Appendix F of the Arboriculture Report (~~document reference 6.3.16.3)). The~~ APP-411)) the process of construction of the Converter Station shall minimise encroachment on the west side of the Converter Station ~~where practicable~~and impacts on the existing hedgerow and hedgerow trees.

6.3.5.4. ~~6.3.4.4.~~Works Compound and Laydown Area ~~would~~ shall be prohibited within 15 m of the ancient woodland and hedgerows. When storing materials, particularly liquids, slopes and drainage channels ~~would~~ shall be used to prevent spillages and flow into the buffer zone of the ancient woodland and hedgerows.

6.3.6. ~~6.3.5.TEMPORARY~~ CONSTRUCTION SURFACE WATER MANAGEMENT

~~6.3.5.1. The appointed contractor is to take all steps necessary to avoid cross contamination and shall use appropriate water management techniques during the ground work.~~

~~6.3.5.2. The appointed contractor is required to clean all equipment used in the construction before repositioning the equipment. Waste-water must not be allowed to enter natural water bodies or intrusive locations. Waste-water should not enter drains or sewers without prior authorisation. The appointed contractor is to liaise with the employer and EA to obtain such authorisation. Waste material must not be carried out onto public land (e.g. on wheels of site vehicles). All equipment used in the construction shall be cleaned before leaving site.~~

6.3.6.1. In addition to the General Environmental Control Measures contained within Sections 5.5, 5.6 and 5.7, the following shall also be prepared and implemented and shall be discussed and agreed with the statutory authorities and other stakeholders to avoid potential pollution of the surface and ground water:

- Construction Surface Water Management Plan ('CSWMP'). Area with prevalent run-off shall be identified and drainage shall be actively managed, e.g. through bunding and/or temporary drainage. Temporary drainage works shall be designed and constructed to relevant statutory guidance in consultation with statutory authorities and other stakeholders.
- Emergency Pollution/Spill Response Plan. The Emergency Incident Response Plan shall be prepared in compliance with Section 4.6.
- Earthwork Management Plan ('EWMP'). EWMP shall be prepared in conjunction with CSWMP to ensure the risk of flooding and contamination of SPZ1 is not increased during bulk earthworks. These shall be formed part of the CEMP.
- To mitigate any potential impact of the known and unknown karst features to the ground water receptors, the Contractor shall prepare a project specific Method Statement and Communication Plan detailing mitigation for bulk earthworks in compliance with the procedures provided within the Supplementary Karst Report (ES Addendum Appendix 7, document reference 7.1.8.7).
- ~~6.3.5.3.For any further site Investigation Aquifer~~ SPZ1 protection measures shall be agreed by put in-place ~~throughout the works~~by the appointed contractor for any further site investigation. ~~Works~~ Any further site investigation shall be undertaken in accordance with ~~Environmental~~ Environment Agency guidance as outlined in "Technical Report P5-065/TR~~)"~~." (Environment Agency, 2000).
- ~~6.3.5.4.Construction of the Converter Station would require levelling the site and the excavation of the foundations for the building and equipment. A~~ The appointed contractor shall design and construct a temporary low permeable construction compound ~~will also be needed~~ to house the heavy vehicles and construction works~~.~~ and shall take all steps necessary to avoid cross contamination and shall use appropriate water management techniques during the ground work to control potential pollution of the surface water and ground water.

- The temporary car park layout shall be impermeable with surface water collected and conveyed by channel drains discharging to an underground network with oversized pipes to provide surface water storage. If necessary, an infiltration drain shall be constructed to intercept overland flow from the fields and direct it away from the carpark. A raised kerb shall surround the car park on all sides to prevent potentially polluted surface water from running off the site to surrounding fields. Water quality treatment shall be provided by a proprietary treatment (eg hydrocarbon interceptor) followed by a sealed filter drain. This shall connect to the infiltration swale adjacent the access road that can also convey water to the infiltration basin, both of which shall be designed for the operational phase. The interceptor volume and type shall be specified by the contractor. Design of the infiltration drain shall be in accordance with the Operational Stage SuDS and is illustrated on the Indicative Temporary Carpark and Compound Drainage Layout Drawing, within Appendix 6.
- All temporary diesel generator(s) shall be bunded with drainage design to be undertaken by the contractor and complying with the treatment and flow control principles of the Operational Stage and contractor's carpark.

~~6.3.5.5. The excavation of the foundations and levelling of the site is likely to change the natural hydrological characteristics of the site potentially increasing the surface water flood risk. The flood risk also has the potential to increase due to the low permeable construction area which is likely to temporarily increase runoff to the surrounding land and drainage networks.~~

~~6.3.5.6. Activities on site during construction could lead to an increase in turbid run off and spillage/leaks of fuel, oil, etc. That could affect aquifer through surface water runoff. However, the construction process would include mitigation measures to intercept run-off and ensure that discharge from the site are controlled in quality and volume. This may include the use of settling tanks or ponds to remove sediment, temporary interceptors and hydraulic brake.~~

~~6.3.5.7. The construction methodologies will ensure the risk of flooding and contamination is not increased during development through the use of surface water run-off management strategies.~~

~~6.3.5.8. In addition, construction phase pollution prevention measures will be required and will be designed and implemented by the appointed contractor with reference to the documents highlighted within reference section of this report (Note: List is not exhaustive).~~

~~6.3.5.9. Due to the above requirements it is proposed that a Temporary Site Water Management Plan is developed and submitted to the EA, Portsmouth Water and Hampshire Country Council for approval prior to commencement of construction work by appointed contractor.~~

~~6.3.5.10. This plan will be in addition to, or in support of other construction phase licences and permissions which may be contractor led.~~

~~To Summarise:~~

~~6.3.5.11. All construction work would be undertaken in accordance with guidance and the measures outlined in this Onshore Outline CEMP, which would in turn inform the detailed CEMP to be produced by the appointed contractor prior to construction. Current Guidance includes:~~

- ~~Environmental Agency, Pollution Prevention Guidance Note 6 (PPG6): Pollution Prevention Guidelines – Working at Construction and Demolition Sites;~~
- ~~Environmental Agency, Pollution Prevention Guidance Note 5 (PPG5): Working in, near or liable affect watercourses;~~
- ~~Control of Water Pollution in form Construction Sites – Guidance for Consultants and Contractors CIRIA (C650); CIRIA – SuDS Manual;~~
- ~~Prevent surface water being affected during earthwork operations. No discharge to surface watercourses will occur without permission from EA (SuDS Manual);~~
- ~~Wheel washers and dust depression measures to be used as appropriate to prevent the migration of pollutants (SuDS Manual);~~
- ~~Regular cleaning of roads of any construction waste and dirt to be carried out (SuDS Manual);~~
- ~~A construction method statement to be submitted for approval by the responsible authority (SuDS Manual); and~~
- ~~All other relevant good industry practice guides and all UK statutory legislation.~~

~~6.3.5.12. Although localised contamination of soil may occur during construction as a result of leaks or spills of fuels, oils and chemicals, the potential for contamination to occur will be reduced by implementing the following pollution mitigation measures:~~

- Refuelling of machinery ~~would~~ shall be undertaken within designated areas where spillages can be easily contained. Machinery ~~would~~ shall be routinely checked to ensure it is in good working condition~~;~~.
- Any tanks and associated pipe work containing hazardous substances ~~would~~ shall be double skinned and be provided with intermediate leak detection equipment~~;~~.

- ~~The following specific mitigation measures for the protection of surface water during construction activities would be implemented:~~

- ~~Management of construction works to comply with the necessary standards and consent conditions as identified by the EA, PW and HCC;~~
- ~~Provide appropriate spill kits on the construction site and laydown areas and provide training and briefing for all staff highlighting the importance of water quality, the location of watercourses and pollution prevention included within the site induction;~~
- ~~Area with prevalent run-off to be identified and drainage actively managed, e.g. through bunding and/or temporary drainage;~~

- ~~Area~~ Area at risk of spillage, such as vehicle maintenance areas and hazardous substances stores (including fuel, oils, and chemicals) ~~to~~ shall be bunded and carefully sited to minimise the risk of hazardous substances entering the drainage system to the local watercourses, additionally the bunded areas ~~will~~ shall have impermeable base to limit the potential for migration of contaminants into ground~~;~~.
- It is recommended that the excavation works in the proposed areas of "cut" (in approximately the northern third of the Converter Station area) be undertaken outside of the winter wet season and in the summer dry season if feasible. This will significantly help in reducing the likelihood of infiltration of surface runoff water containing suspended sediments (turbidity) into the exposed Chalk aquifer. If the works are undertaken in the wet season, the works should be undertaken using a staged approach, where any exposed Chalk is covered over as soon as possible to prevent the ingress of turbid runoff. This runoff should be collected by the temporary water management system. This approach should be undertaken regardless of time of year, however, is especially critical should the undertaking of the works in the winter wet season be unavoidable (due to programme constraints).

6.3.6.2. The updated version of the Surface Water Drainage and Aquifer Contamination Strategy (APP-360 Rev002) is submitted as Appendix 7 to the Onshore Outline CEMP (APP-505 Rev002) and secured under requirement 6 and 15 of the dDCO (APP-019)"

- ~~following any leakage/spillage. Bunds used to store fuel, oil etc. to have 110% capacity of the volume of fuel, oil, etc. to be stored;~~
- ~~Excavated material to be placed in such a way as to avoid any spillage with potential contamination of aquifer;~~
- ~~All plant machinery and vehicles to be maintained in a good condition to reduce the risk of fuel leaks;~~

- ~~Temporary drainage works to be constructed to relevant statutory guidance and approved via Lead Local Flood Authority prior to commencement of construction;~~
- ~~Consultation with the EA to be ongoing throughout the construction period to promote best practice and to implement proposed mitigation measures; and~~
- ~~Appropriate site operational protocols and procedures to be implemented at all times by the site operator over the full operational life of the Site.~~

6.3.7. ~~6.3.6.~~HUMAN HEALTH

6.3.7.1. ~~6.3.6.1.~~Landscaping (including reprofiling if/where appropriate and associated planting) is proposed around the perimeter of the Converter Station Area and other necessary/appropriate locations to mitigate against the Landscape and Visual Amenity impacts and integrate the Converter Station into its surroundings.

6.3.7.2. ~~6.3.6.2.~~Permanent fencing will be provided around the Converter Station, FOC Infrastructure, and anywhere else it is needed for the life of the Proposed Development.

6.4. SECTION 2 – ANMORE AND SECTION 3 – DENMEAD/KINGS POND MEADOW

6.4.1. ONSHORE ECOLOGY

6.4.1.1. HDD work already avoids much of the impacts of the Onshore Cable Route through Denmead Meadows, and as the cables will be buried there will be no permanent habitat loss within the site. However, as work is proposed within Denmead Meadows measures are proposed that first avoid potential effects through controlling working practices, secondly to preserve turves and the physical structure of soils within the site, and thirdly collect seed from the site itself to allow it to be restored using plants native to it.

Avoidance and General Measures

6.4.1.2. The size of working areas, including compounds, will be kept to a minimum to reduce the effects of grasslands, especially Habitats of Principal Importance ('HPI') lowland meadow habitat exists. Works areas will be securely fenced and procedures put in place to prevent damage to grassland habitats adjacent to them (e.g. by the use of Heras fencing).

6.4.1.3. Works will be monitored by an Ecological Clerk of Works that is experienced in management of priority habitats who will provide toolbox talks to contractors and staff working at the site.

Timing of Work

6.4.1.4. The growing season and winter wet season will be avoided as both these are important for maintaining the conditions within the habitat; work will therefore be undertaken in late summer/autumn (August to November).

Seed Harvesting and Reseeding

- ~~Denmead Meadows;~~
- ~~Kings Pond Meadow SINC; and~~
- ~~Unimproved Neutral Grassland.~~

6.4.1.5. ~~6.4.1.2.~~In addition to soil horizon preservation and ground protection, where particularly sensitive Habitats of Principal Importance ('HPI')-quality Lowland Meadow habitat is present in Field 3 (see Plate 4.3 below) at Denmead Meadows, regrowth will be promoted by collecting seed from plants already present and reseeding using this collected seed following work. This will preserve the local mixture if meadowland plants unique to Denmead Meadows. For Field 3 only, where HPI habitat is present, seed will be collected prior to commencement of work and used to re-seed it following work, rather than buying in a commercial seed mix.

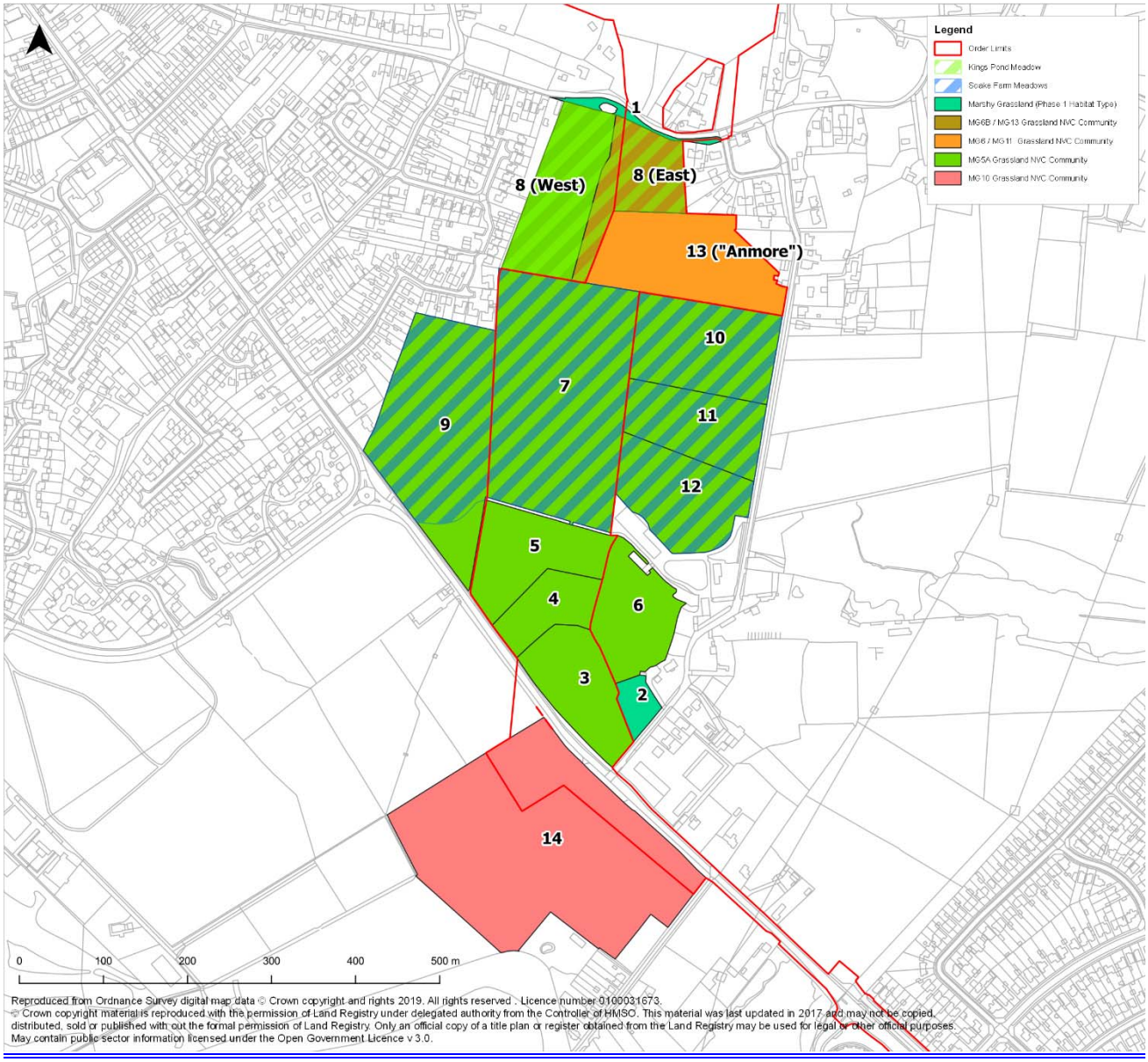


Plate 6.3 – Denmead Meadows Mitigation Strategy Map

6.4.1.6. ~~6.4.1.3.~~Using a specialist contractor, a seed harvester will be used to collect seed ~~in the year~~ prior to the onset of works. Seed will be dried and stored until work is complete.

6.4.1.7. ~~6.4.1.4.~~Two seed collection sweeps will be undertaken prior to the onset of works, one in late June/Early July to catch early flowering plants and one in late August/early September for late flowering plants.

6.4.1.8. ~~6.4.1.5.~~Re-seeding will take place using collected seed in spring following the completion of construction works.

Stripping of turves and their preservation

6.4.1.9. Turves will be removed from Field 3 and stored away from Denmead Meadows locally. This action will only take place at Field 3 as this is HPI Lowland Meadow. Other fields do not comprise HPI habitat or are under HDD route so will not be affected.

6.4.1.10. Cutting will utilise a turf cutting machine attached to low ground pressure machinery (e.g. farm tractor) with an operator with appropriate experience. Turves are to be cut to a thickness of 2-3 inches to maintain root systems, seed bank and soil to provide material to aid keeping turves moist whilst they are stored. Rolls of turf will be collected for movement by a telehandler, with pallets used to transport the rolls as necessary.

6.4.1.11. At the storage site, turves will be unrolled onto the ground and will not be stacked. Measures will be put in place to maintain the turves and keep them moist; daily monitoring and potentially twice daily watering would be a minimum but dependent on weather conditions.

6.4.1.12. Storage area vegetation will be cut tight to the ground prior to delivery of turves to create a relatively smooth surface for storage.

6.4.1.13. Turves will be kept moist with watering as required; daily monitoring and potentially twice daily watering required. Use of an automatic sprinkler system preferable.

Protection of Soil Structure and Avoidance of Soil Compaction

6.4.1.14. Top soil and sub soil removed from Field's 3, 8 and 13 as part of works will be stored during works with no mixing of soils from different locations. Resultant soil piles will not be stored on HPI quality habitat.

6.4.1.15. The replacement of soil structure will follow completion of work. Ground protection (temporary membrane + type 1 aggregate or bog matting, decision to be informed by contractor) will be implemented to prevent soil compaction.

Restoration of Lowland Meadow Habitat

6.4.1.16. At Field 3, turves will be returned following completion of HDD work and demobilisation of the compound. Replacement work will proceed from back of field towards the access point to avoid tracking over turves. Watering in of turves will follow their replacement while re-seeding of Field 3 will be undertaken using collected seed in spring following the completion of works.

6.4.1.17. Fields 8 and 13 will be reseeded with any seed remaining from that harvested from Field 3. The storage area will be reseeded with a seed mix appropriate for the land use.

Monitoring and Management

6.4.1.18. A pre-construction survey will be undertaken in spring 2021 to establish the green winged orchid population in Field 3 and the general character of the vegetation there. Suitably qualified botanists will carry out direct counts of green winged orchid plants present within Field 3. They will also use quadrats to carry out a National Vegetation Classification ('NVC') survey of the field, identifying plant species present and classifying the habitat type present.

6.4.1.19. Three years of management e.g. cutting/weed pulling will take place over 5 years (i.e. management will take place in year 1, 3 and 5) at Fields 3, 8 and 13. Management will be kept to areas that fall within Order Limits. Management will be consistent to how it is managed now to maintain diversity, including any grazing which may be present.

6.4.1.20. No additional heavy interventions will be made and cuts will be restricted to a once yearly hay cut.

6.4.1.21. A botanical survey will be undertaken in each year of management (years 1, 3 and 5 post-construction) to inform changes required to maintain habitats, comprising the same method as the pre-construction survey.

6.4.2. ARBORICULTURE AND LANDSCAPE

6.4.2.1. Mitigation of impacts ~~can~~ shall be achieved by avoiding higher value features ~~where practicable~~ including mature trees~~.~~, those subject to TPOs~~. Where features are to be removed, consideration for replanting in the locality is required.~~ and deciduous copse. For Section 2 no trees shall be lost. For section 3 where features are to be removed, replanting is required with like for like species of a similar size at least 5 m from the Onshore Cable Route within the Order Limits. Works running close to the edge of specific tree groups subject to TPOs shall be reviewed at detailed design to minimise impacts through Onshore Cable Micrositing, in accordance with BS 5837 and under the supervision of a suitably qualified clerk of works.

6.4.2.2. Sections of hedgerows bounding the edge of the Order Limits shall remain unaffected. Hedgerows and hedgerow trees where lost ~~will~~ shall be replaced with like for like species where practicable in agreement with the LPA, with hedgerow trees repositioned at least 5 m away from the Onshore Cable Route within the Order Limits.

6.4.3. GROUNDWATER

6.4.3.1. Trenching in Section ~~2~~ 3 and parts of Section ~~3~~2, in the vicinity of the Kings Pond and Denmead Meadows, will avoid the wet winter season. The trenches will be installed at end of the summer to ensure groundwater is at its lowest elevation. If the trenches were to be installed during the peak winter months, groundwater dewatering would likely be required, and this could potentially impact upon Kings Pond which is considered to have a proportion of groundwater dependency. This applies to ~~Sections 2 and 3~~Section 3 and the southerly 100 m of Section 2 adjacent to Kings Pond. .

6.4.3.2. The required groundwater dewatering quantities for trench construction will be determined at detailed design. The designer must ensure the discharge quantities are accurate or conservative to ensure no flood risk should be increased due to surplus groundwater encountered during construction. This applies to all sections.

6.4.3.3. Sections 1, 2 and 3 have been identified as areas which may contain dissolution features. Previous investigations suggest a very low likelihood of encountering such features. Such features would represent potential contaminant transport pathways (directly to public water abstractions) and have been raised as a particular concern by Portsmouth Water and the EA. Although no dissolution features have been identified within the Order Limits, there may be features present which are as yet unidentified.

6.4.3.4. A catalogue of detailed descriptions of mitigation measures will be agreed with Portsmouth Water and the EA prior to construction of Sections 1, 2 and 3. Typically, such measures could include:

- Wherever practical the Onshore Cable Route trench excavation works will only be undertaken in the superficial Head deposits and not in the Chalk;
- If the Head deposits are of insufficient thickness (or not present), making excavating in the Chalk unavoidable, then extra care will be taken to avoid fracture zones and karst features. The appearance of any sudden increase in thickness of Head deposits during trenching could indicate the presence of a karst dissolution feature.
- During the construction works a watching brief will be employed to detect any unknown karst dissolution features when works are taking place;

- Any detection of karst dissolution features may result in a temporary pause of the works for the engineer on site to determine which of the agreed actions in the catalogue of mitigations agreed with Portsmouth Water and the EA should be applied;
  - Portsmouth Water and the EA will be notified should such an instance occur;
  - The engineer on site may determine that the karst dissolution feature is sufficiently filled by low-permeability overburden that it presents little or no risk of acting as a pathway for potential contaminants during construction, and therefore works can continue;
  - A possible course of action could be the Onshore Cable Micrositing in order to alter the course of the Onshore Cable Route locally, just enough to avoid the dissolution feature (within the Order Limits and dependent of other constraints);
  - Another possible action could be to fill the karst dissolution feature with impermeable grout before continuing the works;
- A drainage strategy during the works will be put in place, which will ensure that no untreated runoff is allowed to flow freely and potentially entering karst dissolution features;
- Drip trays and spill kits will be utilised throughout the works to prevent fuel spillages, and;
- If required to support the discharge of Requirement 13, the appointed contractor may decide to undertake more GI (prior to the main works starting) to confirm ground conditions and identify the Onshore Cable Route (i.e. trenching strategy by the contractor as part of detailed design) in Sections 1, 2 and 3 to determine the thickness of the Head superficial deposits and check for the presence of karst dissolution features.

6.5. SECTION 4 – HAMBLEDON ROAD TO FARLINGTON AVENUE

6.5.1. ARBORICULTURE AND LANDSCAPE

6.5.1.1. Detailed design of the Onshore Cable Route and detailed analysis of impacts ~~would~~ shall be required as the route is refined through Onshore Cable Micrositing overseen by a ~~suitability~~ suitably qualified clerk of works. All works must be carried out ~~where practicable~~ within the carriageway, avoiding the use of footways or verges to minimise impacts on structural roots except where technical constraints make this unavoidable.

6.5.1.2. High and medium value features including trees subject to TPOs ~~should~~ shall be avoided where practicable, and design and construction ~~should~~ shall follow BS 5837 as a minimum.

6.5.1.3. Design ~~must seek to~~ shall avoid positioning cables in conflict with RPAs of existing trees. Where significant incursion is unavoidable, ~~consideration for~~ replanting in the locality is required with like for like species of a similar size positioned a minimum of 5 m away from the Onshore Cable Route in discussion with the relevant LPA. Where the siting of new trees cannot be accommodated, replanting in the locality is required.

6.6. SECTION 5 - FARLINGTON

6.6.1. ARBORICULTURE AND LANDSCAPE

~~6.6.1.1.Opportunities should be reviewed at detailed design to minimise impacts, where practicable. Final details of route alignment must be agreed under the supervision of the Environmental Clerk of Works.~~

6.6.1.1. Detailed design of the Onshore Cable Route and detailed analysis of impacts shall be required as the route is refined through Onshore Cable Micrositing overseen by a suitably qualified clerk of works.

6.6.1.2. High/medium value features including impacting on trees subject to TPOs ~~should~~ shall be avoided where practicable, and design and construction ~~should~~ shall follow BS 5837 as a minimum.

6.6.1.3. Hedgerows, hedgerow trees and ornamental trees lost ~~should~~ shall be replaced with like for like species subject to agreement with PCC with trees positioned a minimum of 5 m away from the Onshore Cable Route within the Order Limits.

6.6.1.4. ~~Where practicable design should~~ Design shall avoid positioning cables in conflict with RPA's of existing trees. Where significant incursion is unavoidable, ~~consideration for~~ replanting in the locality is required.

6.6.1.5. In agreement with PCC, in the event that TPO feature H896 (201/1997) requires replacement, other than the poplar (T925), these features ~~will~~ shall be replaced with like for like species of a similar size. For T925, alternative species such as beech, sweet chestnut or yew would be considered.

6.7. SECTION 6 – ZETLAND FIELD AND SAINSBURY'S CAR PARK

6.7.1. ARBORICULTURE AND LANDSCAPE

6.7.1.1. High value features ~~should~~ shall be avoided ~~where practicable,~~ and design and construction must follow BS 5837 as a minimum. Where medium value features are at risk of removal, impacts ~~should~~ shall be minimised to secure the retention of as many features as practical through detailed design measures considering Onshore Cable Micrositing and overseen by a suitably qualified clerk of works.

6.7.1.2. Design ~~must~~ shall avoid positioning cables in conflict with RPA's of existing trees. ~~Where significant incursion is unavoidable, consideration for replanting in the locality is required~~ Trees and shrubs shall be replaced with like for like species ~~subject to agreement with PCC positioned a minimum of~~ of a similar size and trees repositioned at least 5 m away from the Onshore Cable Route within the Order Limits. ~~—~~Where the siting of new trees cannot be accommodated within the Order Limits, replanting in the locality is required.

6.9. ~~6.8.~~SECTION 7 – FARLINGTON JUNCTION TO AIRPORT SERVICE ROAD

6.9.1. ~~6.8.1.~~ARBORICULTURE AND LANDSCAPE

6.9.1.1. ~~6.8.1.1.~~Through detailed construction works traffic ~~should~~ shall avoid impacting on medium value tree groups (~~S680~~G680, G783, G706, G671 and G582) which form strong landscape features, including individual trees within Farlington playing fields, mature avenue trees running to the pavilion, within the car park and around the northern and western edge of the hotel. ~~Trees~~ Should the access track to the cricket pavilion and hotel car park be insufficient to withstand heavy vehicular loading bog matting or similar techniques shall be used to avoid compaction to RPAs. If any trees are affected by construction work traffic ~~should be pruned back, monitored and replaced where practicable~~, they must be pruned back sufficient to avoid accidental damage and monitored. If it becomes necessary to remove trees they shall be replaced with like for like species of a similar size subject to agreement with PCC. Replacement trees ~~should~~ shall be repositioned at least 5 m away from the Onshore Cable Route within the Order Limits.

6.9.1.2. ~~6.8.1.2.Arboricultural features G663~~The Onshore Cable Corridor shall impact on Category C trees and shrubs (a mix of poplar, ~~W885~~willow, ~~and W886,~~ lime, pine and sycamore - G663, W885, W886, G908 and G909). All of these trees and shrubs serve a limited visual amenity function~~. Where practicable, design should avoid positioning cables in conflict with RPAs of existing trees~~ apart from G663 which visually connects with tree planting south of the access road to the Football Ground and Watersport Centre. Where significant incursion is unavoidable, trees must be replaced with like to like species subject to agreement with PCC and positioned at least 5 m away from the Onshore Cable Route within the Order Limits.. It is assumed a similar tree mix ~~would~~ shall be planted on either side of the access road into Kendalls Wharf and Andrew Simpson Watersports Centre allowing for easements associated with the Onshore Cable Route.

6.9.1.3. ~~6.8.1.3.For south of Eastern Road on Portsea Island, alternate routes down the eastern side of~~ Trees and shrub planting (Category B G695, G711 and T70) and associated root protection areas to the west of the Baffins Milton Rovers Football Ground (Kendall Stadium) shall experience partial loss by the cable routing since the cable routing would run through the football ground rather than to the west. Detailed design shall ~~Baffins Milton Rovers Football Ground (Kendall Stadium), would avoid impacting on medium value arboricultural resources (G695, G711 and T70), which are also an important landscape feature in terms of contributing to visual amenity and screening, and provide an opportunity to traverse this portion of the route between RPAs of lower quality arboricultural resource.~~avoid positioning cables in conflict with RPAs of existing trees.

6.9.1.4. ~~6.8.1.4.Considered design is needed within this section to~~ Detailed design shall avoid impacts to large groups of roadside trees, while balancing impacts on traffic congestion, for example, where cables may be positioned within the carriageway. Detailed design of the Onshore Cable Route and detailed analysis of impacts shall refine the impacts through Onshore Cable Micrositing, following BS 5837 and overseen by a suitably qualified clerk of works. Where significant incursion is unavoidable and the siting of new trees cannot be accommodated within the Order Limits, replanting in the locality is required.

6.9.3. SURFACE WATER RESOURCES AND FLOOD RISK

Artificial land drainage at Farlington Playing Fields

6.9.3.1. Farlington Playing Fields have a history of surface water and groundwater flooding due to artificial land. A Land Drainage survey at pre-Construction Stage, reinstatement plan and post-Construction Survey will be undertaken in order to monitor the impacts of the Proposed Development.

6.9.4. SOCIO-ECONOMIC EFFECTS

6.9.4.1. Opportunities to minimise impacts on sports pitches will be required to be discussed with relevant stakeholders. This includes ongoing discussions with the Chairman of the Baffins Milton Rovers Football Club on timing of construction and reinstatement requirements within this section. It also includes discussion with Portsmouth City Council to minimise impacts to pitches at Farlington Fields and Langstone Harbour Sports Ground.

~~6.8.1.5. Design of works to cross Langstone Harbour would need additional arboricultural input to mitigate any impacts.~~

6.10. ~~6.9.~~SECTION 8 – EASTERN ROAD (ADJACENT TO GREAT SALTERNS GOLF COURSE) TO MOORINGS WAY

6.10.1. ~~6.9.1.~~ARBORICULTURE AND LANDSCAPE

~~6.9.1.1. Impacts to Milton Locks Conservation Area should be avoided.~~

~~6.9.1.2. Medium value features should be avoided, and design and construction must follow BS 5837 as a minimum.~~

~~6.9.1.3.Where practicable, design should~~ avoid positioning cables in conflict with RPA's of existing ~~trees including across Milton Common and the eastern edge of Portsmouth College/Eastern Road. Where significant incursion is unavoidable consideration for replanting in the locality is required with like for like species subject to agreement with PCC, and trees planted 5 m beyond the Onshore Cable Route.~~

6.10.1.1. Works will avoid the footway or verge where there are mature trees except where existing constraints make this unavoidable.

6.10.1.2. Detailed design measures shall be undertaken to minimise the impact on mature Category B trees, TPO'd tree T59, trees within Milton Common and the eastern edge of Portsmouth College/Eastern Road. Through design and construction, measures shall be taken to avoid positioning cables in conflict with RPA's of existing trees and follow BS 5837 as a minimum overseen by a suitably qualified clerk of works. Trees shall be replaced with like for like species of a similar size and trees repositioned at least 5 m away from the Onshore Cable Route within the Order Limits. Where the siting of new trees cannot be accommodated within the Order Limits, replanting in the locality is required

6.10.2. ~~6.9.2.~~ GROUND CONDITIONS

6.10.2.1. ~~6.9.2.1.~~ Mitigation measures required specifically where the route traverses Milton Common include:

- The works will be carefully and sensitively managed and executed to minimise impact on the local environment through the use of appropriate mitigation measures outlined below.
- There is a potential for noise, dust and odour impacts in the immediate vicinity of the proposed excavations within Milton Common. The appointed contractor will prepare a detailed specification of the proposed excavation and installation methodology in this location outlining the measures to be put in place to monitor and mitigate such impacts.
- the introduction of an exclusion zone in the immediate area of the excavation to keep members of the public at distance.
- excavation of the trench in short lengths to minimise odour and dust impacts.
- a programme of noise, dust and odour monitoring with agreed red/amber/green alerts and associated actions to reduce impacts.
- odour control such as the installation of a perimeter fog and misting system.
- agreed limits on hours of working.
- A programme of community engagement will be carried out before and during the works to inform the local community of the nature of the works and to provide comfort and reassurance that the works will be carried out in a way that minimises impacts as far as is reasonably practicable. This may include local notices, mail drops, liaison with the LPA.
- The excavated waste will be carefully segregated and handled so as not to contaminate areas away from the works themselves. Excavated materials will be removed from site and disposed of or treated for reuse at a suitably licensed waste receiving facility. Full details and records of the movement of excavated soils will be presented in a Verification Report upon completion of the works.
- Reinstatement of an engineered landfill cap to its existing condition or better.
- Clay stanks (or similar) will be installed at regular intervals along the trench to prevent migration of landfill gas along the route and beyond the existing gas vent trench around Milton Common.
- Appropriate gas protection measures will be applied to access chambers or jointing pits to prevent ingress of landfill gas.

- Should significant unexpected contamination be encountered this will be managed appropriately and reported to the EA. If required, the contamination risk assessment and remediation strategy will be updated.

6.11. ~~6.10.~~SECTION 9 – MOORINGS WAY TO BRANSBURY ROAD

6.11.1. ~~6.10.1.~~ARBORICULTURE AND LANDSCAPE

~~6.10.1.1.Significant constraints on tree group G900 within Milton Lock Nature Reserve must be minimised, trees are of medium value and serve an important screening function. Tree group G697 within Bransbury Park should also be avoided, trees are of medium value and important in terms of visual amenity.~~

6.11.1.1. Works shall avoid the footway or verge where there are mature trees except where existing constraints make this unavoidable.

6.11.1.2. Impacts on tree group G900 within Milton Locks Nature Reserve and tree group G697 within Bransbury Park shall be minimised through design and construction methodology. Measures shall be taken to avoid positioning cables in conflict with RPAs of existing trees, following BS 5837 as a minimum, and overseen by a suitably qualified clerk of works. Liaison shall take place with the site manager at Milton Locks Nature Reserve to agree the most appropriate form of mitigation.

6.11.1.3. ~~6.10.1.2.~~In general, high and medium value features ~~should~~ shall be avoided. ~~Where practicable,~~ Detailed design ~~should~~ measures shall be undertaken to avoid positioning cables in conflict with RPAs of existing trees. Where significant incursion is unavoidable, trees ~~should~~ shall be replaced with like for like species of a similar size subject to agreement with PCC and planted 5 m beyond the Onshore Cable Route within the Order Limits. Where the siting of new trees cannot be accommodated within the Order Limits, replanting in the locality is required. Opportunities ~~should~~ shall also be explored to remove trees in poor condition and, where appropriate, replace with other ornamental species in agreement with PCC.

~~6.10.1.3. In terms of Furze Lane, an alternative route from an arboricultural and landscape perspective would be to use the sports fields located within the Order Limits and to the east of the university building. For landscape the TPO'd trees along Furze Lane form an important visual screen, amenity and legibility function.~~

~~6.10.1.4. Through initial discussions with PCC, should the Proposed Development result in the loss of trees subject to TPOs along Furze Lane, these features would be replaced with evenly spaced planting with a fastigiate tree species in agreement with PCC. Opportunities would also be explored to remove trees in poor condition and, where appropriate, replace with other species in agreement with PCC.~~

6.11.1.4. ~~6.10.1.5.It would~~ It must be possible to minimise the long-term impact on retained trees within Bransbury Park must be minimised through Onshore Cable Micrositing within the Onshore Cable Corridor, under the supervision of ~~the Environmental Clerk of Works~~a suitably qualified clerk of works.

6.12. ~~6.11.~~SECTION 10 – EASTNEY (LANDFALL)

6.12.1. ~~6.11.1.~~ARBORICULTURE AND LANDSCAPE

~~6.11.1.1. In general, medium value features including TPO'd trees should be avoided, where practicable. Design and construction should follow BS 5837 as a minimum.~~

6.12.1.1. ~~6.11.1.2.Design must~~ Impacts on medium value trees including TPO'd trees shall be avoided. Measures shall be taken to avoid positioning cables in conflict with RPA's of existing trees and follow BS 5837 as a minimum overseen by a suitably qualified clerk of works. Where significant incursion is unavoidable, trees ~~should~~ shall be replaced with like for like of a similar size species subject to agreement with PCC and planted at least 5 m beyond the Onshore Cable Route within the Order Limits. Where the siting of new trees cannot be accommodated, replanting in the locality is required. The northern (east bound) side of Henderson Road and Fort Cumberland Road would be a preferred choice to avoid impact on existing street trees in this section.

7. MONITORING

7.1. MONITORING AND REVIEW

7.1.1.1. The Environment Manager will hold the responsibility for maintaining a register of all environmental monitoring, which will be made available for auditing and inspection.

7.1.1.2. Reporting procedures will be defined by the Environment Manager who will hold overall responsibility for providing feedback to the appointed contractor on the environmental performance of the construction works.

7.1.1.3. A ~~Framework~~ framework for environmental monitoring on site is set out in Table 7.1. Records of environmental inspections and audits will be kept and appended to the CEMP.

Table 7.1 - AQUIND Onshore Monitoring Plan

~~Receptor~~		~~Description of Impact~~		~~Description of Monitoring~~	~~Frequency and timing~~	~~Responsibility~~		
~~Landscape and Visual Amenity~~Discipline	Monitoring Requirement / Commitment	Responsibilities	Construction / Operation Stage	Location in Control Document	Trigger leading to Non-Compliance	Further Action / Remedial Measures		
~~Management of vegetation~~Landscape and Visual Amenity ~~Arboriculture~~ ~~Protection of trees~~	~~Management of vegetation through a long-term Outline Landscape and Biodiversity Strategy which would form part of the draft DCO's requirements and implemented prior to detailed design is approved by the host authority in the form of an Outline Landscape and Biodiversity Strategy.~~	~~Environmental Clerk of Works and toolbox talks based on relevant environmental commitments to oversee maintenance, monitoring and management works and monitor success of mitigation measures.~~**Management of Vegetation** Management of vegetation through a detailed landscaping scheme which would form part of the draft DCO's requirements and implemented following approval by the host authority.	~~Construction/Operation~~	The appointed contractor to appoint ~~Specialist Contractor~~a specialist contractor.	Construction / Operation	Onshore Outline Construction Environmental Management Plan ('OOCEMP') (APP-505) Section 7 - Table 7.1 AQUIND Onshore Monitoring Plan	Actions do not accord with the Outline Landscape and Biodiversity Strategy ('OLBS') (APP-506) and the approved detailed landscaping scheme.	Review of role and responsibilities of appointed farmer / contractor and reappointment if deemed necessary.
	Monitoring of Planting New planting	**Local farmer with agreed management plan** - existing planting	Construction / Operation	OLBS - Sections 1.7.1 Monitoring of	**New planting**: An unapproved contractor	Review of role and responsibilities of appointed farmer / contractor and reappointment if deemed necessary. Regular reviews will be undertaken by a Clerk of Works every five years to ensure works accord with the OLBS and the approved detailed landscaping scheme.		

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	would be subject to a five-year liability period to secure successful establishment, commencing on completion of landscaping works associated with each phase. All plants found dead or dying would be replaced in the first available planting season.	(hedgerows and hedgerow trees). **External landscape contractor** - all new planting. **Appointed Ecological Clerk of Works** - undertaking ecological monitoring surveys, advising Applicant. **Environmental Clerk of Works** - specialist site supervision for walkover assessments, analysis of impacts associated with RPAs, monitoring effectiveness of the first 5 years following completion of the development, ensures review of landscape features every 5 years, reviews against aims and objectives of Outline Landscape and Biodiversity Strategy and the approved detailed landscaping scheme. It is currently suggested that the local farmer (following		Planting: 1.7.2 Management Responsibilities:	proceeding with works. Implementation of works not in accordance with the approved detailed landscaping scheme considering agreed specification and programme covering implementation, planting and management including watering, planting schedule and planting plans, changes in stock, species and size. Changes taking place without written agreement, not in accordance with relevant Codes of Practice and British Standards, a lack of communication over activities which require	

		assurance of good horticultural experience, and awareness of invasive species, diseases and pests) undertakes existing management practices, with a specialist contractor overseeing the new planting to ensure compliance with OLBS objectives in terms of long term planting. An update to the OLBS and management responsibilities is submitted as APP-506 Rev002.			support / supervision and not enacting on recommendations made by the Clerks of Work, landscape architect and /or arboriculturalist. **Existing and replacement planting:** A change of appointed farmer without agreement, an absence of / or incorrect management practices, lack of compliance with the OLBS and detailed landscaping scheme and lack of communication over activities which require support / supervision and not enacting on recommendations made by the Clerks of	

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					Works, landscape architect and arboriculturalist and not keeping a record of measures taken to deliver actions.		
	~~To reduce the potentially effects relating to tree RPAs.~~	~~Detailed analysis of impacts on trees as the cable route alignment is finalised must be carried out under supervision. This must be by a suitably qualified clerk of works to oversee construction works within RPA of retained arboricultural features.~~Environmental Clerk of Works**Management Plan Reviews** - Site walkover following any extreme weather event to inspect health of landscape features and trees. Any trees that have suffered damage would be subject to an arboricultural survey by an arboriculturalist.		Operation	OLBS - Section 8.4 Management Plan Reviews	Health and Safety incidents resulting from inclement weather and a lack of action / notification to the Clerks of Works, arboriculturalist and landscape architect and need for support / supervision. Non adherence to detailed landscaping scheme including specification and management plans and recommendations made by Clerks of Works, arboriculturalist / landscape architect and	Review of role and responsibilities of appointed farmer / contractor and reappointment if deemed necessary. Regular reviews will be undertaken by Environmental Clerk of Works every five years to ensure works accord with the OLBS and the approved detailed landscaping scheme.

		- The OLBS and detailed landscaping scheme and its objectives will be reviewed against current environmental conditions to consider unforeseen circumstances. - The OLBS, detailed landscaping scheme and detailed management plans will be reviewed annually. Any significant changes must be agreed between the project landscape architect, arboriculturalist, ecologist and appointed contractor.				record of measures taken to deliver recommendations.	
~~Construction~~	Onshore Ecology~~Seed harvesting and reseeding at Denmead Meadows, Kings Pond Meadow SINC and Unimproved Neutral Grassland~~	**Closure of badger setts under licence** - Setts will be closed using one-way gates so badgers can leave but cannot return to the sett. Following a period of monitoring to ensure badgers are not within them, the setts will be dug out.	Named ecologist responsible for badger licence.	Construction	OOCEMP - Section 6.3.3.6	- One-way gates not installed for the 21 day monitoring period; and - 21 day period not completed.	Review of situation by Environmental Clerk of Works. Installation of gates and/or additional days of monitoring to be undertaken until 21 days is reached.

	~~Re-seeding will take place using collected seed in spring following the completion of construction works.~~	~~Subject to landowner permissions, monitoring~~ **Post-construction monitoring of vegetation re-establishment at Denmead Meadows** - Monitoring at years 1, 3 and 5 post-development will be undertaken to inform potential management interventions at the site. ~~The monitoring~~ - It will comprise botanical survey of the reseeded areas, and will allow interventions that may be necessary to maintain HPI-quality grassland remains in the long-term.	~~Operational Stage, years 1, 3 and 5 post development~~	Appointed contractor ~~to appoint Specialist Contractor~~ and Environmental Advisor/Manager	Operation	OOCEMP – Section 6.2.1.8	- Monitoring not undertaken during years 1, 3 and 5; and - Habitats start to change from their state prior to construction and no interventions are made to return them to the correct status.	Review of monitoring work by appointed contractor and monitoring surveys commissioned to replace those missed. Management of site habitats put in place to return them to their baseline condition.
	~~**Construction impacts to soil, waste and material resourcesSoils and Agricultural Land Use and Waste and Material Resources Construction impacts to the environment**~~**Arboriculture** ~~**Ground Conditions**~~	~~Impacts to the environment during the Construction Stage~~	~~Implementation of the measures identified will be monitored by an Ecological Clerk of Works with the power to stop work and change site practices as required.~~**Ancient Woodland** Works Compound and Laydown Area	~~Construction~~	E~~Ecological~~nvironmental Clerk of Works to lead, with specialist input from an arboriculture consultant where required, to be appointed by the	Construction	OOCEMP - Section 6.3.4.4	Protective measures not in place or tampered with / works within Root Protection Area ('RPA') not agreed with Project Arboriculture consultant	Remedial work may involve de-compaction of RPA, tree condition assessment to understand impact to long term retention

		would be prohibited within 15 m of the ancient woodland and hedgerows. When storing materials, particularly liquids, slopes and drainage channels would be used to prevent spillages and flow into the buffer zone of the ancient woodland and hedgerows.		appointed contractor. ~~Appointed contractor and Environmental Advisor/Manager~~				
	Protection of trees and RPA - Where practicable design would avoid positioning cables in conflict with RPAs of existing trees. Where significant incursion is unavoidable, trees would be appropriately replaced.		Construction	OOCEMP - Section 6.5.1.1 and 6.5.1.2	Protective measures not in place or tampered with / works within Root Protection Area not agreed with Project Arboriculture consultant	Remedial work may involve de-compaction of Root Protection Area, tree condition assessment to understand impact to long term retention		
	~~To reduce the potentially significant effects relating to the loss and~~	~~Monitoring measures to be adopted across the Proposed Development would include, as a minimum, the~~		Construction	OOCEMP - Section 6.5.1.3 and 6.10.1.2	Replanting and after care not completed or not completed in accordance with best	"Beating up" or snagging planting may be required.	

	~~degradation of the soil resources and disposal methods~~	~~implementation of a CEMP, incorporating a MMP and SWMP by the contractor, once appointed.~~ **Hedge removal** - Hedge removal in the Converter Station Area would be minimised by only removing what is required to lay the Access Road. - Mitigation for the loss of hedgerows and hedgerow trees will be replaced with like for like species, where practicable, with hedgerow trees repositioned at least 5 m away from the Onshore Cable Route.				practice / British Standard.	
	~~Constructio n~~	**Replanting of trees -** - Where significant incursion is unavoidable, consideration for replanting in the locality is required with like for like species positioned a minimum of 5 m away from the Onshore Cable Route in discussion with the relevant LPA.		Construction	OOCEMP - Section 6.5.1.3 and 6.10.1.2	Replacement trees not provided or not planted in accordance with best practice or British Standard. Alternatively, incorrect species may be selected if Portsmouth City Council not consulted correctly.	Incorrect trees or trees planted incorrectly to be made good.

		- Opportunities should also be explored to remove trees in poor condition and, where appropriate, replace with other ornamental species in agreement with PCC.					
Soils and Agricultural Land Use	**Construction Impacts to soil, waste and material resources** - Implementation of a Construction Environmental Management Plan ('CEMP'), incorporating a Materials Management Plan ('MMP'), Soil Resources Management Plan ('SRMP') and Site Waste Management Plan ('SWMP').	Appointed contractor and Environmental Advisor/Manager	Construction	OOCEMP Section 7 Table 7.1	The absence of a contractor prepared CEMP, SWMP and MMP prior to construction works commencing, and failure to update / record outputs from these documents during on site activity.	Review of contractor prepared CEMP, SWMP and MMP by suitably qualified and experienced personnel prior to and during construction works. This will ensure documents have been prepared and are suitable for the Proposed Development, and arisings are managed in accordance with legal and best practice requirements.	

~~Contaminated land at Milton Common~~Ground Conditions	~~Disturbance of contaminated land~~	~~A detailed~~ **Contaminated Land at Milton Common** - Detailed management plan for future maintenance and entry to below ground access chambers ~~will be required (e.g., personal gas alarms, emergency recovery hoists, etc.).~~ . ~~The detailed management plan will be prepared~~ - Prepared during ~~the~~ detailed design stage and will form part of the Health and Safety File ~~for the Proposed Development~~.	~~Construction and Operation~~	Appointed contractor ~~to appoint Specialist Contractor~~and Environmental Advisor/Manager	Construction / Operation	OOCEMP Section 7 Table 7.1	The absence of a contractor prepared Construction Phase Plan ('CPP') (needed for all intrusive works), and absence of a management plan for future maintenance works and entry to below ground access chambers. These documents must be included in the Health and Safety File. Also, failure to update / record outputs from these documents during on-site activity.	Review of contractor management plan including CPP and the Health and Safety File by suitably qualified personal prior to and during the works in the construction / operational and decommissioning stages. This will ensure documents have been prepared and are suitable for the proposed works to minimise risks to receptors particularly Human Health due to the exposure of contaminated soils / groundwater and potential landfill gases.
~~Heritage and Archaeology~~								
~~Archaeological remains~~Heritage and Archaeology	~~Disturbance of Archaeological remains~~	**Archaeological Monitoring** - Depending on the results of the Trial Trench evaluation, mitigation could take the form of	~~Construction Stage~~	Any archaeological work would need to be undertaken in	Construction	OOCEMP Section 7 Table 7.1	- The programme of archaeological and heritage mitigation	Supervision of works for compliance against the WSI by a suitably qualitied archaeologist

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		targeted archaeological excavation (preservation by record) in advance of construction and/or an archaeological watching brief. - Archaeological watching brief (a programme of 'strip, map and sample) carried out alongside the preliminary topsoil removal.		consultation with the local authority's archaeological advisor in accordance with an approved archaeological Written Scheme of Investigation ('WSI – ').			that is set out in the DCO submission is an Applicant's commitment that would need to be carried out to mitigate the adverse effects identified. If this is not the case it would be non-compliant. Irreplaceable heritage assets, which are a finite resource and which form part of our collective heritage, would be permanently removed without record. - All required historic environment site-based investigation should be carried out in accordance with a WSI for each element. The WSI sets out the scope of work, aims	

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							and objectives, methodology and reporting requirements. Each WSI will need to be approved by the Archaeological Advisor to the relevant local planning authority (LPA) prior to undertaking the work. The lack of an approved WSI would be non-compliant.	
							- The Construction programme will need to allow sufficient time to undertake the required historic environment investigations, whether it is preliminary work in advance of the main construction stage, or during construction. The lack of	

							sufficient time to meet the professional standards required by the Chartered Institute for Archaeologists and the LPA Archaeological Advisor would be non-compliant. - All work should be carried out by a suitably qualified historic environment organisation. The organisation and/or staff should be are recognised by the Chartered Institute for Archaeologists, to ensure appropriate professional standards. If this is not the case, it might be seen as non-compliant by the LPA	

						Archaeological Advisor.	
~~Air Quality~~**Traffic and Transport**	Travel Plan monitoring of construction worker journeys to the Converter Station Area. To be completed at 6-months, 1 -year and 2-years into site occupation.	Appointed Contractor Travel Plan Coordinator.	Construction	Framework Construction Worker Travel Plan ('FCTMP') (APP-450) / Requirement 21 of dDCO	The Travel Plan will set modal share targets for construction workers, which are to be agreed with Hampshire County Council as the relevant Highway Authority. These targets will need to be agreed between The Applicant and the Highway Authority and will be used as the basis to determine the performance of the Travel Plan. Failure to meet these targets will be the trigger leading to non-compliance.	The likely forms this remedial action are set out in the Construction Worker Travel Plan at Appendix 7 of the Updated Framework Construction Traffic Management Plan (APP-450 Rev002) - includes further promotion of sustainable transport alternatives / extension of shuttle bus service provision to nearby train / bus stations and hotels	
				~~Carry out regular site inspections to monitor compliance with the DMP, record~~			

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		~~inspection results, and make an inspection log available to the local authority when asked~~		
		~~Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.~~		

Air Quality ~~**Human and Ecological receptors**~~		**Risk of fugitive emissions of dust and air emissions** - Undertake daily on-site and off-site inspections where receptors are nearby to monitor dust. Should include regular dust soiling checks of surfaces within 100 m of the construction site		~~Risk of fugitive emissions of dust and air emissions on human health and ecology at the ten Onshore Cable Corridor Sections~~	~~Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to~~	~~Construction Stage~~	~~Appointed contractor to appoint Specialist Contractor~~ Appointed contractor and Environmental Advisor/Manager	Construction	OOCEMP Section 7 Table 7.1	All triggers are to be agreed following consultation with the local Environmental Health Officer. Sample triggers according to the Institute of	All site monitoring and recording should be implemented with the full cooperation and in consultation with the local Environmental Health

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		boundary, with cleaning to be provided if necessary. - Regular site inspections to monitor compliance with the Dust Management Plan; increasing the frequency of site inspections on site when activities have a high potential to produce dust and during prolonged dry or windy conditions. - Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where practicable, commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.			the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of Construction site boundary, with cleaning to be provided if necessary.					Air Quality Management (‘IAQM’) Guidance on Monitoring in the Vicinity of Demolition and Construction Sites include: - Dust complaint from a member of the public; - Dust complaint from the local authority Environmental Health Officer; - Dust complaint from a member of the public via the local authority; - Visible dust observed at the locations of nearby receptors and on surfaces within	Officer. Detailed monitoring requirements will be in place at each location of the Proposed Development in agreement with the EHO. Where a complaint is issued, this should be fully investigated, including records of activities undertaken on-site at the time the complaint relates to and accompanying meteorological conditions, and a judgement issued to the relevant party and the local authority.

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											100m of the construction site boundary during routine inspections; - Visible dust emission from an on-site process that, in the judgement of a trained individual, constitutes an excessive emission; - A recorded 1-hour average PM concentration of 190 µg/m³ where continuous monitoring is undertaken; or - A 4-week average of 200 mg/m²/day where deposition monitoring is	All complaints should be recorded in a complaints log, recorded in the site log book, and all records kept and made available on request to the local authority. Where dust is observed during routine inspections of the surrounding area, and investigation of the activities on site since the last inspection and the prevailing meteorological conditions during that period, and additional on-site measures undertaken or a review

											undertaken ; and - An Effective Area Coverage ('EAC') of 5% per day averaged over 1-week where dust flux is monitored. All triggers will require agreement from the local Environmental Health Officer on an site-by-site basis.	of working practises as appropriate , and the investigation and results recorded in the site log book. Where short-term (1-hour) monitoring exceeds 190 µg/m³ of PM, then the dust-causing activities being undertaken should be immediately stopped and on-site conditions and the effectiveness of mitigation reviewed before restarting works, and the results recorded in the site log book. Where excessive

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											dust emission is, in the judgement of a trained individual, observed on-site during a dust-causing process, then the related activity should be immediately stopped and the effectiveness of mitigation, on-site conditions and/or working methods reviewed prior to re-starting the activity. The event should be recorded in the site log book. Where a longer-term monitoring average is exceeded, a review of activities undertaken

											. meteorological conditions and the effectiveness of on-site mitigation should be undertaken, with the results recorded in the site log book.
Noise and Vibration	**Control of noise during operational period** A noise monitoring scheme for testing the attenuation and mitigation measures required to achieve the broadband and octave band noise criteria.	Appointed contractor responsible for installation of noise producing equipment at Converter Station Area and Optical Regeneration Station(s).	Operation	Requirement 20 of the dDCO.	Significant exceedance of the noise criteria specified in the broadband and octave band noise criteria document.	Investigation of the exceedance and identification of cause. If required, proportionate rectification of noise attenuation or mitigation measures.					
Socio-economics	N/A										
Human Health	N/A										
Waste and Material Resources	N/A										

Climate Resilience	- Reviewing wind speed before commencing work at height. - Ensuring welfare facilities are available and sufficiently cool. Ensure rest breaks are taken, particularly during the hottest part of the day.	Appointed contractor and Environmental Advisor/Manager	Construction	OOCEMP Section 5.14.3	Health risks to construction workers.	Review of contractor management plan including CPP and the Health and Safety file by suitably qualified personnel prior to and during the works in the construction / operational and decommissioning stages. This will ensure documents have been prepared and are suitable for the proposed works to minimise risks to construction workers.
	Regular clearing and maintenance of drainage infrastructure to prevent blockage.	Appointed contractor and Environmental Advisor/Manager	Operation	OOCEMP Section 5.14.3	Blockage of drainage infrastructure.	Investigation of source of blockage and emergency clearance of drains to be undertaken. Review of maintenance plans to identify cause and to prevent further blockages.

REFERENCES

Bat Conservation Trust. (2014). Artificial lighting and wildlife. Interim Guidance: Recommendation to help minimise the impact artificial lighting. Bat Conservation Trust, London.

British Standards Institution. (2013). *BS 8601:2013 Specification for subsoil and requirements for use.*

British Standards Institution. (2015). *BS 3882:2015 Specification for Topsoil.*

BSI Standards Publication. (2012 British Standards Limited). BS 5837:2012 Trees in relation to design, demolition and construction –Recommendations.

Department for Environment, Food and Rural Affairs. (2009). Construction Code of Practice for the Sustainable Use of Soil on Construction Sites. BSI Standard Publication.

Department of Energy & Climate Change . (2012, March). Power Lines: Demonstrating compliance with EMF public exposure guidelines. A Voluntary Code of Practice.

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

Energy Networks Association. (2004). Overhead line clearances. *Technical Specification 43-8*.

Environment Agency. (2000). Technical report P5-065/TR Technical aspects of site investigations.

Environment Agency. (2001). *Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention.*

Environment Agency. (2011). *Waste Acceptance at Landfills*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/296422/geho1110btew-e-e.pdf

European Parliamentary Research Service Blog. (2016). Waste Hierarchy.

Health and Safety Executive. (2002). The Electricity Safety, Quality and Continuity Regulations.

HSE. (2014). Avoiding danger from underground services.

Institute of Lighting Engineers. (2009). Bats and Lighting in the UK. Bats and the Built Environment Series. Institute of Lighting Engineers, Rugby.

MAFF. (2000). *Good practice guide for handling soils.* Retrieved from https://webarchive.nationalarchives.gov.uk/20090306103114/http:/www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm.

Munsell Color. (2009). *Munsell Soil Color Chartss.*

National Grid. (2016). Third-party guidance for working near National Grid Electricity Transmission equipment. *Technical Guidance Note 287*.

National Grid UK Electricity Transmission Plc . (2018). Safety Rules and Guidance (Fifth Edition).

TUC . (2019). Heat – The case for a maximum temperature at work .

UK Government. (n.d.). *Hazardous Waste*. Retrieved from https://www.gov.uk/dispose-hazardous-waste

World Health Organisation. (2002). Establishing a Dialogue on Risks from Electromagnetic Fields.

Comparison Details	
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Comparison Time	5.33 seconds
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Sources	
Original Document	6.9 Onshore Outline Construction Environmental Management Plan Rev001.docx
Modified Document	6.9 Onshore Outline Construction Environmental Management Plan Rev002.docx

Comparison Statistics	
Insertions	615
Deletions	262
Changes	444
Moves	76
Font Changes	0
Paragraph Style Changes	0
Character Style Changes	0
TOTAL CHANGES	1397

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Insertions	
~~Deletions~~	
Moves / ~~Moves~~	
Font Changes	
Paragraph Style Changes	
Character Style Changes	
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Deleted cells	
Merged cells	
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Include Field Codes	Word	True
Include Moves	Word	True
Show Track Changes Toolbar	Word	True
Show Reviewing Pane	Word	True
Update Automatic Links at Open	Word	[Yes / No]
Summary Report	Word	End
Include Change Detail Report	Word	Separate
Document View	Word	Print
Remove Personal Information	Word	False
Flatten Field Codes	Word	False