AQUIND Limited

AQUIND INTERCONNECTOR

The Planning Act 2008

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

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

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1. INTRODUCTION

1.1. PURPOSE OF THE ENVIRONMENTAL STATEMENT ADDENDUM

1.1.1.1. An Environmental Statement ('ES') (APP-116 – APP-487) was submitted to the Planning Inspectorate ('PINS') on 14 November 2019 as part of the application for Development Consent Order ('DCO') for the UK Onshore and Marine Components of the AQUIND Interconnector ('the Proposed Development') (the 'Application'). The ES sets out the findings of the Environmental Impact Assessment ('EIA') undertaken for the Proposed Development. The submitted ES is hereafter referred to as the '2019 ES'.

1.1.1.2. This addendum has been produced to update the 2019 ES in response to Relevant Representations, updates where further information or data has been made available since submission of the 'Application', in light of further assessment carried out, in or as a result of ongoing consultation.

1.1.1.3. This addendum, hereafter referred to as the 'ES Addendum', provides additional and updated information and should be read in conjunction with the 2019 ES. Together, the 2019 ES and this ES Addendum comprise the ES for the Application.

1.2. OVERVIEW OF THE PROPOSED DEVELOPMENT

1.2.1.1. The UK components of the Project, known as the Proposed Development, consist of Onshore and Marine Components. The Proposed Development comprises the following:

- Works at the existing Lovedean Substation in Hampshire to facilitate the connection of the Proposed Development to the National Electricity Transmission System ('NETS');
- Underground high voltage alternating current ('HVAC') Cables accompanied by a smaller diameter FOC, connecting Lovedean Substation to the proposed Converter Station;
- A newly constructed Converter Station Area comprising:
  - the Converter Station and associated equipment;
  - a Works Compound and Laydown Area;
  - an Access Road and associated haul roads;
  - surface water drainage and associated attenuation ponds;
  - landscape and ecology measures;
  - utilities such as potable water, electricity and telecoms; and

- the compound comprising the Telecommunications Building(s) and associated equipment;

- Two pairs of underground Onshore HVDC Cables, each pair accompanied by a smaller diameter Fibre-Optic Cable ('FOC'), to run from the Converter Station to the Landfall site in Eastney (near Portsmouth), approximately 20 km in length;
- 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; and
- Two pairs of Marine HVDC Cables, each pair accompanied by a smaller diameter FOC, to run from the Landfall site in Eastney to the boundary of the UK Exclusive Economic Zone ('EEZ').

1.2.1.2. Sections 3.5 – 3.6 of Chapter 3 (Description of the Proposed Development) of the 2019 ES (APP-118) describe the Proposed Development in full.

1.3. SCOPE OF THE ES ADDENDUM

1.3.1.1. This ES Addendum presents updated baseline information, supplementary information, and further assessment work undertaken since the submission of the 2019 ES. It consists of updated information within the main body of the ES Addendum, accompanied by appendices and updated drawings. An updated Non-Technical Summary ('NTS') is also provided. Where no changes have been made to chapters of the 2019 ES, the original conclusions remain valid. Where changes to the chapters of the 2019 ES have been required, any alterations to the original conclusions that may result are described.

1.3.2. RELEVANT REPRESENTATIONS AND WRITTEN QUESTIONS

1.3.2.1. The registration of Interested Parties ('IPs') began on 2 January 2020 and closed on 19 February 2020. During this period, a total of 199 Relevant Representations were received by PINS. Four additional submissions were accepted at the discretion of the Examining Authority ('ExA') after the close of this period. The Relevant Representations were published on PINS' website on 27 February 2020. The Applicant has prepared supplementary information that has either been submitted individually or within this ES Addendum to respond to points raised in the Relevant Representations.

1.3.2.2. In addition to documents or supplementary information prepared in response to Relevant Representations, the Applicant also received the ExA's first Written Questions ('ExQ1') on 3 July 2020. An ES Errata Sheet is included as part of this ES Addendum to address erroneous referencing and typographical errors within the 2019 ES, as identified in ExQ1 (see Appendix 1, document reference 7.8.1.1).

1.3.3. LEGISLATION, PLANNING POLICY AND GUIDANCE

1.3.3.1. Given the postponement of the Preliminary Meeting and subsequent delay to the examination process as a consequence of the 2019 global COVID-19 pandemic, a review has been undertaken to take account of any changes to legislation, and planning policy since submission of the Application. Changes include:

- Legislation:
  - The EU Thematic Strategy for Soil protection no longer applies to Chapter 17 (Soils and Agricultural Land Use) and at present there is no direct national replacement.
- Planning Policy:
  - A review of planning policy has been undertaken and there are no new adopted Local Plans for East Hampshire District Council ('EHDC'), Havant Borough Council ('HBC'), Winchester City Council ('WCC'), Portsmouth City Council ('PCC') or the South Downs National Park Authority ('SDNPA').
- Guidance:
  - PINS Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (Planning Inspectorate, 2017) – Updated in June 2020 in relation to the impact of COVID-19 on environmental information and data collection;
  - Environment Agency Flood Risk Assessments: Climate Change Allowances (Environment Agency, 2016) – Updated in December 2019 and March 2020 to bring guidance in line with the UK Climate Projections 2018; and
  - IEMA EIA Guide to Climate Change Resilience and Adaptation (IEMA, 2015) (IEMA, 2015) – Updated June 2020. One of the key additions to the guidance is the assessment of in-combination climate impacts, which addresses the impact of climate change on the project receptors.

1.3.3.2. None of the aforementioned changes to legislation, policy or guidance alter the approach to the EIA or are material to the assessment findings reported in the 2019 ES.

1.3.4. ASSESSMENT METHODOLOGY

1.3.4.1. The overarching EIA methodology applied in the EIA and this ES Addendum can be found in Chapter 4 (EIA Methodology) of the 2019 ES (APP-119), with individual chapters within the 2019 ES providing a specific methodology for each environmental discipline assessed. The significance criteria adopted in this ES Addendum are the same as those adopted in the 2019 ES.

1.3.5. BASELINE CONDITIONS

1.3.5.1. A review of the validity of the environmental surveys has been undertaken by the Applicant's EIA project team since submission of the Application and it is considered that all baseline survey data remains valid and up to date for the purposes of decision making. The survey dates are provided in the relevant environmental topic chapters within the 2019 ES and also in the ES Addendum Errata Sheet (see Appendix 1) in response to ExQ1.

1.3.5.2. Some further survey work has been undertaken since the submission of the Application to assist ongoing engagement with stakeholders and to verify previous survey findings. Where applicable, baseline conditions have been updated within this ES Addendum. Clarification on implications for the relevant assessment is provided within this ES Addendum as necessary.

1.3.6. ASSESSMENT OF EFFECTS / MITIGATION MEASURES

1.3.6.1. A number of the assessments outlined in the ES have been updated, as summarised in Table 1.1. Mitigation measures have been reviewed in light of the work undertaken for this ES Addendum. Where changes have been made, these have been outlined in the relevant topic chapters in this ES Addendum.

1.3.6.2. The changes to the mitigation are captured as additional detail or clarification in the mitigation documents, such as the Framework Traffic Management Strategy ('FTMS') (APP-449 Rev002) the updated Onshore Outline Construction Environmental Management Plan ('CEMP') (APP-505 Rev002), the updated Framework Construction Traffic Management Plan ('FCTMP') (APP-449 Rev002) and the updated Outline Landscape and Biodiversity Strategy ('OLBS') (APP-506 Rev002).

1.3.7. CUMULATIVE EFFECTS

1.3.7.1. There are two main types of cumulative effects which are considered as part of the ES:

- Intra-project effects: Also referred to as 'interrelationships between topics' (PINS, 2019). The interaction and combination of environmental effects, and indirect effects of the Proposed Development affecting the same receptor, either within the site or in the local area; and
- Inter-project effects: Also referred to as 'cumulative effects' (PINS, 2019). The interaction and combination of environmental effects of the Proposed Development with other development and activities affecting the same receptor.

Intra-project Effects

1.3.7.2. An assessment of intra-project cumulative effects is provided in Chapter 29 (Cumulative Effects) of the 2019 ES (APP-144).

1.3.7.3. The updated assessment has resulted in some changes to the original intra-project assessment, which have been summarised in Section 18 of this ES Addendum.

Inter-project Effects

1.3.7.4. The cumulative assessment of inter-project effects was based on publicly available information and a shortlist of development projects was finalised in October 2019 to allow for assessment within the 2019 ES. Planning applications that have been identified in the period up to 31 May 2020 have subsequently been considered in terms of the potential for cumulative environmental effects.

1.3.7.5. Licence applications relevant to marine developments that have been identified in the period up to the 31 May 2020 have also subsequently been given consideration in terms of their potential cumulative environmental effects.

1.3.7.6. This ES Addendum takes into consideration additional schemes appropriate for inclusion within the cumulative effects assessment. This updated assessment is contained within Section 20 of this ES Addendum and should be read in conjunction with Chapter 29 (Cumulative Effects) and the Cumulative Effects section of the relevant technical chapters of the 2019 ES.

1.3.8. COVID-19 CONSIDERATIONS

1.3.8.1. The assessments presented in the 2019 ES were carried out prior to the COVID-19 pandemic impacting the UK population. The COVID-19 pandemic has affected the everyday lives of the UK population in terms of travel, working arrangements and behaviour; particularly since the UK Government announcement on 24 March 2020 to stay at home.

1.3.8.2. A review has been undertaken of the implications of COVID-19 on the EIA and the assessments included in the 2019 ES. The COVID-19 pandemic has led to a major reduction in typical traffic flows during lockdown, and, at the time of writing, it is not known when traffic flows will return to pre-lockdown levels, or whether longer term changes in behaviour will permanently affect travel and traffic patterns. Traffic related assessments, carried out before the COVID-19 pandemic arose, are robust and accurate. The baseline data and information used to inform the assessments remains valid, as well as the conclusions arrived at in terms of significant effects in relation to traffic and transport, air quality and noise and vibration.

1.3.8.3. It is acknowledged that, in line with sections 2.1 and 2.2 of the updated PINS Advice Note Seven, the Inspectorate considers that Applicants should make efforts to agree their approach to the collection and presentation of information with relevant consultation bodies given the current circumstance. This approach has been adopted, where required, for work undertaken during the COVID-19 pandemic, for example for the purpose of preparing the additional visualisations in response to a request from Historic England with respect to Fort Cumberland and the ORS buildings.

1.4. STRUCTURE OF THE ES ADDENDUM

1.4.1.1. This ES Addendum is arranged by topic in the same order as presented within the 2019 ES.

1.4.1.2. The main text of this ES Addendum considers those documents that have either been updated or replaced since submission of the 2019 ES.

1.4.1.3. Where no change to the technical chapter and associated figures and appendices presented within the 2019 ES is necessary, no additional text regarding that topic has been included within this ES Addendum. Updates to figures and appendices and discussed in this ES Addendum are appended to this ES Addendum.

2. CONSIDERATION OF ALTERNATIVES

2.1. INTRODUCTION

2.1.1.1. Following submission of the Application, receipt of the Relevant Representations and ongoing discussions with various stakeholders, queries were raised regarding the reasonable alternatives that were considered by the Applicant and the main reasons for the final option chosen for the Proposed Development. In addition, the Applicant has considered where it may be helpful to provide additional information, so as to provide a fuller explanation of various options and their consideration for the benefit of the ExA.

2.1.1.2. The Supplementary Alternatives Chapter (located at Appendix 3 to this ES Addendum, document reference 7.8.1.3) has been produced to provide further clarity in respect of the description of the reasonable alternatives and the main reasons for the option chosen.

2.1.1.3. The information already provided in Chapter 2 (Consideration of Alternatives) to the 2019 ES (APP-117) is not repeated in the Supplementary Alternatives Chapter, rather it seeks to provide a clearer explanation of all of the options considered for the Proposed Development.

2.2. SUMMARY OF SUPPLEMENTARY ALTERNATIVES INFORMATION

2.2.1.1. Supplementary information is provided in the Supplementary Alternatives Chapter (located at Appendix 3 to this ES Addendum, document reference 7.8.1.3) which provides more detail in respect of the description of the reasonable alternatives studied in relation to the Proposed Development and the main reasons for the option chosen.

2.2.1.2. An overview of the information presented in the Supplementary Alternatives Chapter is as follows:

- Legislative and policy context (to be read in conjunction with section 2.2 of the 2019 ES (APP-117);
- Approach taken to considering alternatives (to be read in conjunction with section 2.3 of the 2019 ES (APP-117);
- Initial project feasibility assessment (to be read in conjunction with section 2.4 of the 2019 ES (APP-117);
- Information relating to the selection of the grid connection point (to be read in conjunction with section 2.4.2 of the 2019 ES (APP-117);

- Further information regarding the options studied to utilise Langstone Harbour/Hayling Island (to be read in conjunction with section 2.5 of the 2019 ES (APP-117);
- Further information regarding the selection of the Onshore Cable Corridor (to be read in conjunction with section 2.6.6 of the 2019 ES (APP-117); and
- Further information regarding consideration relevant to the 'Countryside Route' (to be read in conjunction with section 2.6.4 of the 2019 ES (APP-117).

2.2.1.3. Table 2.1 below provides a more detailed summary of the information contained within the Supplementary Alternatives Chapter (Appendix 3 (Supplementary Alternatives Chapter)) (document reference 7.8.1.3).

Table 2.1 - Summary of the information contained within Appendix 3 (Supplementary Alternatives Chapter) (document reference 7.8.1.3)

Section within Appendix 3 (Supplementary Alternatives Chapter)	Summary of supplementary information provided
2. Legislative and policy context	• Context provided regarding the requirements of the EIA Regulations and the NPS. • Information on the relevance of the National Parks and Access to the Countryside Act 1949 to the consideration of alternatives in relation to the Proposed Development.
3. Approach taken to considering alternatives	• Explanation of the multi-disciplinary approach taken to the assessment of reasonable alternatives. • Explanation of the mitigation hierarchy approach.
4. Initial project feasibility assessment	• Summary of the technical and economic feasibility study undertaken by WSP in 2014. • Further information regarding initial discussions with both National Grid Electricity Transmission ('NGET') in GB and Réseau de Transport d'Électricitié ('RTE') in France in relation to substation connection options.

Section within Appendix 3 (Supplementary Alternatives Chapter)	Summary of supplementary information provided
5. Grid Connection Point	• Information regarding the NGET Feasibility Study. • The Applicant's assessment of the suitability of Chickerell substation as the grid connection point for the Proposed Development, including the associated landfall options and submarine cable route. • The Applicant's assessment of Bramley and Lovedean substations as the grid connection point for the Proposed Development. • The outcomes of the Connection and Infrastructure Options Note ('CION') prepared in relation to the proposed interconnector by NGET in 2016. • Overall conclusions reached by the Applicant in relation to the grid connection point.

6. The Applicant's assessment of utilising Langstone Harbour / Hayling Island	• Explanation of the environmental designations relevant to Langstone Harbour / Hayling Island including international, national and local level designations.
	• Discussion of the options for the submarine cables to be located in Langstone Harbour comprising the following:
	  ○ Fixing the cables to an existing bridge (from Portsea Island or Hayling Island;
	  ○ Fixing cables to the former Hayling Billy Line (a former railway bridge structure);
	  ○ The use of an HDD adjacent to the existing Hayling Island bridge;
	  ○ The use of an HDD across the entrance channel to Langstone Harbour from Hayling Island to Portsea Island; and
	  ○ Laying the cables through the Langstone Harbour entrance channel.

Section within Appendix 3 (Supplementary Alternatives Chapter)	Summary of supplementary information provided

7. Selection of the Onshore Cable Corridor	• Further detailed explanation of the considerations relevant to Route 1D and Route 3D.
	• Comparison of the location and characteristics of Route 1D and Route 3D.
	• Comparison of the constraints and impacts in relation to the following aspects:
	  ○ Traffic and transport;
	  ○ Ecology and arboriculture;
	  ○ Landscape and visual amenity;
	  ○ Archaeology and heritage; and
	  ○ Watercourses crossings.
	• Considerations and constraints relevant to engineering and project feasibility in relation to Route 1D and Route 3D, including:
	  ○ Joint bays;
	  ○ Technical pinch points;
	  ○ Available highway corridor;
	  ○ HDD works;
	  ○ Cost and programme; and
	  ○ Land acquisition.
	• Conclusions in respect of Route 1D and Route 3D.

Section within Appendix 3 (Supplementary Alternatives Chapter)	Summary of supplementary information provided

8. Countryside Route	• Further information relating to the Countryside route in relation to the following:
	  ○ Ecological constraints and likely impacts on ecological receptors;
	  ○ Sterilisation of land;
	  ○ Impacts on land and the need to acquire it;
	  ○ Impacts on watercourses;
	  ○ Changes to the Proposed Development where the Countryside route is followed;
	  ○ Anticipated duration of the works to construct the Countryside Route; and
	• Comparison with the environmental impacts of the Proposed Development.

3. DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1. INTRODUCTION

3.1.1.1. The Description of the Proposed Development is contained within Chapter 3 of the 2019 ES (APP-118). This contains information regarding the construction, operation and decommissioning stages of the Proposed Development. In addition, further detail, particularly with regards to design, is contained within the DAS (APP-114). The DAS also outlines the Design Principles for the Converter Station, the Telecommunication buildings and the ORS.

3.1.1.2. Following consideration of the Relevant Representations submitted to PINS, the Applicant has reviewed and updated the DAS (APP-114 Rev002) with additional details to fully contextualise the Proposed Development.

3.2. UPDATED INFORMATION: PROPOSED DEVELOPMENT

3.2.1.1. Further detail on the design of the Proposed Development, specifically in relation to the Converter Station Area and FOC Infrastructure, has been included in the updated DAS (APP-114 Rev002). These changes include additional detail which has been included in relation to components within the Converter Station footprint as detailed below:

- The AC Switchyard - including electrical equipment and sizes;
- Converter Building - a breakdown of the AC Hall, Valve Hall and DC Hall including sizes, equipment and electrical clearances, this also includes a description of the valve equipment and cooling system;
- Control Building – equipment sizes and amenities;
- Spare parts building;
- Perimeter fence;
- Access Road;
- Ancillaries;
- Telecommunications Buildings – breakdown of the equipment included as well as the compound footprint;
- ORS – breakdown of the equipment included as well as the compound footprint;
- Attenuation Ponds – further details of the size and layout; and

- Noise mitigation – clarification of text provided previously.

3.2.1.2. Whilst adding finer detail, this update does not change the Description of the Proposed Development in the 2019 ES (APP-118).

3.2.1.3. There are minor corrections in relation to the Description of the Proposed Development in the 2019 ES (APP-118), outlined in Section 3.2.2 to 3.2.4 below.

3.2.2. MINOR CORRECTIONS TO THE DESCRIPTION OF THE PROPOSED DEVELOPMENT

Converter Station Area

3.2.2.1. An amendment is made to paragraph 3.6.3.11 of Chapter 3 (Description of the Proposed Development) in the 2019 ES (APP-118). Paragraph 3.6.3.11 stated the following:

"The spare parts building (item 9 in Plate 3.7) will comprise a maximum 15 m high single storey steel frame structure with cladding to match the adjacent buildings. Internal construction would comprise a reinforced concrete floor slab suitable for supporting uniform imposed loads and a 2.4 m high internal perimeter fence for robustness. Appropriate road and access ramp/s would be provided to the building to facilitate plant access to the storage area through appropriately sized roller shutter doors."

3.2.2.2. It should now be read as follows:

"The spare parts building (item in Plate 3.7) will comprise a maximum 15 m high single storey steel frame structure with cladding to match the adjacent buildings. Internal consideration would comprise a reinforced concrete floor slab suitable for supporting uniform imposed loads. The Converter Station will be enclosed by a perimeter security fence, likely an external steel palisade fence as well as an inner electrified fence of approximately 2.4 m and 3.4 m in height, respectively. These fences will be separated by a sterile zone. Appropriate road and access ramp/s would be provided to the building to facilitate plant access to the storage area through appropriately sized roller shutter doors. Access to the Converter Station will be strictly controlled and only permitted to those with the appropriate training and authorisation."

3.2.2.3. An amendment is made to paragraph 3.6.3.22 of Chapter 3 (Description of the Proposed Development) in the 2019 ES (APP-118). Paragraph 3.6.3.22 stated the following:

"The FOC will have sufficient fibres to accommodate levels of redundancy for failures, and it is also the intention that fibres within the cable may be used for commercial telecommunications purposes. The industry standard for the amount of fibres within a single cable continues to increase as technology develops."

3.2.2.4. It should now be read as follows:

3.2.2.5. *"To withstand the various physical impacts which the FOC are likely to be subject to associated with transportation, installation and operation in the marine and underground environment and protect the glass fibres located within it, the FOC are required to be of an adequate outer diameter. Within the required outer diameter for the FOC, 192 glass fibres may be installed. Each FOC is required to include a sufficient amount of glass fibres for its use in connection with the primary use of the interconnector and as redundancy for this purpose in the event of individual glass fibre failures. The number of glass fibres required in connection with the primary use of the interconnector and as redundancy for this purpose is less than 192, though this is a multiple of fibres that is commonly produced by manufacturers of such cables.*"

3.2.2.6. An amendment is made to paragraph 3.6.3.23 of Chapter 3 (Description of the Proposed Development) in the 2019 ES (APP-118). Paragraph 3.6.3.23 stated the following:

3.2.2.7. *"It is proposed that two Telecommunications Buildings (one for each HVDC Circuit) will be located in close proximity to the Converter Station to house required telecommunications equipment. The Telecommunications Buildings associated with the FOC are anticipated to be located outside the main Converter Station security fence. This is to enable the equipment to be more easily accessible for maintenance purposes and in connection with the proposed use of fibres for commercial telecommunications purposes."*

3.2.2.8. It should now be read as follows:

"The Proposed Development includes a compound containing two Telecommunications Buildings which house equipment associated with the Fibre Optic Cables (FOCs). One FOC will be installed alongside each circuit of HVDC cables (Marine and Onshore). As a standard industry practice and requirements, FOC cables are installed together with HVDC cables for the purposes of control, monitoring and protection of the HVDC cables as well as communication between the Converter Stations and thus are an essential part of the Proposed Development. The spare capacity within the FOC can be used to provide telecommunications services to third parties. The management of the third-party telecommunication data signal will require appropriate equipment to be installed in the Telecommunications Buildings. An indicative drawing of the compound with Telecommunications Buildings has been provided in Plate 5.31, extracted from the Indicative Telecommunications Buildings Elevations and Floor Plans [APP-015].

3.2.2.9. An amendment is made to paragraph 3.6.3.25 of Chapter 3 (Description of the Proposed Development) in the 2019 ES (APP-118). Paragraph 3.6.3.25 stated the following:

"It is anticipated that a Telecommunications Building would contain a shared internal space where equipment could be installed within separate sealed cubicles. It is also anticipated that the building will accommodate shared ancillary facilities including: an office; welfare facilities and storage areas."

3.2.2.10. It should now be read as follows:

"It is anticipated that each Telecommunications Building would contain a shared internal space where equipment could be installed within separate sealed cubicles. It is also anticipated that the building will accommodate shared ancillary facilities including: an office; welfare facilities and storage areas."

Onshore Cable Route

3.2.2.11. A number of clarifications have been identified for the Description of the Proposed Development Chapter 3 and these are outlined below. These clarifications do not affect the conclusions of the assessments undertaken in the 2019 ES.

3.2.2.12. To clarify the number of Link Box and Link Pillars, paragraph 3.6.4.7 should now read:

"Link Boxes are typically located alongside a Joint Bay and are accessed via a manhole cover, installed at the same level of the surrounding ground. The dimensions of a Link Box are approximately 0.8 m x 0.8 m x 0.6 m with 6 per circuit. Link Pillars are frequently used on arable land (instead of Link Boxes) and they are normally located adjacent to hedgerows. They are accessed via doors at the front of the Link Pillar and the dimensions are approximately 1.0 m x 1.0 m x 0.6 m with 6 per circuit. The Link Boxes (or Pillars) are connected to the metal casing of the joint via underground bonding leads."

3.2.2.13. In paragraph 3.6.4.67 the joint bay works compound areas have been corrected and should now read:

The jointing operation is performed in joint bays which are located underground in line, or off to one side of the Onshore Cable Route. Images of typical joint bays are included in Plate 3.27. Each excavation will be approximately 15 m x 3 m, with additional space required at ground level for construction, cable installation, jointing and reinstatement, including a 25 m x 5 m 'compound' during jointing (for approximately four weeks). The excavation would typically be up to 1.7 m deep in roads, footpaths and verges and 1.85 m deep in fields. The completed underground JB will be approximately 6 m by 3 m and be 1.85 m in depth.

3.2.3. LANDFALL AND OPTICAL REGENERATION STATION

Landfall and Optical Regeneration Station

3.2.3.1. To correct a typographical error on the length of the ORS buildings paragraph 3.6.5.6 of should now read:

"Each ORS will have dimensions of up to 11 m long x 4 m wide x 4 m high, which would house signal amplification and control equipment associated with the FOC, required to ensure the signal strength is adequate between the UK and French Converter Stations. For safety purposes is necessary for them to be located 10 m apart."

3.2.3.2. In Chapter 20 (Surface Water and Resources and Flood Risk) of the ES (APP-135) the ORS compound area is stated as being a maximum of 18 m x 34 m. This should be 18 m x 35 m and as such paragraph 20.7.2.22 should now read:

"At the location of the ORS(s) surface water runoff currently naturally flows across the permeable car park surfacing and infiltrates into the ground. It is currently anticipated that the compound for the ORS(s) would have a maximum size of 18 m x 35 m with the maximum building dimensions of approximately 11 m long x 4 m wide. Depending on the management of surface water (infiltration or, if not feasible, discharge into the surface water sewer, subject to detailed design) a small change in to the overland surface water drainage pattern could be expected however this would have a negligible impact on the catchment and local surface water drainage patterns and water environment."

3.2.3.3. For Chapter 25 (Socio-Economics) of the ES (APP-135) the paragraph 25.7.3.7 should state:

'The ORS is located within 500 m of a number of open spaces, however no effects have been identified in relation to access to these spaces. The ORS will, however, occupy a small area within the Fort Cumberland Road Car Park. This car park is utilised by users of the adjacent Open Space SINC. The car park can also be used to access Eastney Beach. The SINC is of ***high*** *sensitivity, the magnitude of change is considered* ***negligible*** *as the open space is indirectly affected by very small area lost to car parking as the maximum size of the compound which houses the ORS will be 18 m x 35 m. The effect is assessed as* ***negligible*** *(not significant), indirect, permanent and long-term.'*

3.2.3.4. Similarly in Chapter 26 (Human Health) of the ES (APP-135) paragraphs 26.6.3.55 and 26.6.3.61 should state:

26.6.3.55

'The ORS is located within the Fort Cumberland Road Car Park south of Fort Cumberland Road, which may provide parking for access to local communities and recreational facilities. During operation, this will slightly reduce the number of available public parking space where the ORS building will be located as the maximum size of the compound which houses the ORS will be 18 m x 35 m.'

26.6.3.61

'The maximum size of the compound which houses the ORS will be 18 m x 34 m. Therefore, the ORS will slightly reduce the number of available public parking spaces that are likely to support access to Fort Cumberland Open Space SINC and Eastney Beach. This is not anticipated to cause a significant effect on human health associated with reduced access to green space and the associated benefits from physical activity and social interaction.'

3.2.3.5. The Flood Risk Assessment, Appendix 20. 4 of the ES (APP-439) stated an assumed roof area of 80 m^2 for the ORS. however, the maximum parameter is 88 m^2. The parameter was used to demonstrate options for surface water management for the ORS and can be accommodated through a minor increase in size of the attenuation features. This is not considered to change the conclusions of the flood risk assessment.

Updates to the DAS

3.2.3.6. Additional detail has been included in the updated DAS (APP-114 Rev002) in relation to components and equipment at the Landfall and ORS. The changes provide greater visibility of the size of the ORS and how this is derived from its functional requirements, taking into account the equipment required to be located within the ORS buildings, including the equipment's size, shape and quantity. Specifically, additional information has been added regarding the building and area footprint, equipment required, flooding mitigation design considerations, noise considerations, and access.

3.2.3.7. It should also be noted that the Parameter Plan for the ORS buildings (APP-017) has been corrected following submission of the Application. This was due to a slight inaccuracy in siting of the ORS footprint, which in turn was used as the basis of the wireline visualisations for the Landscape and Visual Amenity Assessment. The Landscape and Visual Amenity Assessment has been updated, including the three viewpoint visualisations that have been affected, to reflect this correction.

The correction to the Parameter Plan has resulted in a review in relation to Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-130). Please refer to Section 7 of this ES Addendum for further information in this regard.

3.2.4. LANDSCAPE AND NOISE UPDATES TO THE DAS

Landscape

3.2.4.1. The updated DAS (APP-505 Rev002) summarises the landscape mitigation measures for both the Converter Station Area and Landfall. It refers to cut and fill and reprofiling for the Converter Station and planting to mitigate the landscape and visual amenity impacts by integrating the structures into their surroundings. Reference is made to existing environmental constraints, including the retention of existing vegetation, and the introduction of new planting. The updated OLBS (APP-506 Rev002) elaborates on information contained in Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-130) and does not amend the conclusions of the assessment.

Noise and Vibration

3.2.4.2. The updated DAS (APP-505 Rev002) adds further explanation to the noise mitigation measures that have been integrated into the design of the Converter Station, Telecommunications Buildings and ORS infrastructure. This includes the specific consideration relevant to the layout, orientation and height of the buildings, the positioning of the key noise producing equipment and the noise mitigation measures applied to the equipment at source. The DAS update also includes further detail on the operational noise criteria for the Converter Station, Telecommunications Buildings and ORS, which are contained in the broadband and octave band noise criteria document *(*Appendix 12, document reference 7.8.1.12*)*. The updates to the DAS elaborate on information contained in Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139) and do not amend the conclusions of the assessment.

3.2.5. INDICATIVE LANDSCAPE MITIGATION PLAN

3.2.5.1. Supplementary plans have been submitted with respect to landscaping at the Converter Station Area, which details the indicative landscape mitigation planting for (Option B(ii)) (document reference 7.7.8). The ES assessed and included the Indicative Landscape Mitigation Plans for Option B(i) (APP-281 and APP-232, now Rev02) which, in terms of landscape, provides a worst-case scenario. These supplementary plans, therefore, do not affect the conclusions of the assessment in the 2019 ES.

3.3. UPDATED INFORMATION: AMENDMENTS TO THE INSTALLATION RATE ASSUMPTIONS

3.3.1. AMENDMENTS TO THE INSTALLATION RATE ASSUMPTIONS

3.3.1.1. Paragraph 3.6.3.63 of Chapter 3 (Description of the Proposed Development) of the 2019 ES (APP-118) explained the assumptions relating to the onshore cable installation rates, stating as follows:

"*Due to the significant number of existing utility services within the Onshore Cable Corridor, 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. These typical installation rates are per gang per shift and are dependent upon the level of obstacles and utility services encountered within the road or constraints that need to be observed to minimise the impacts during construction.*"

3.3.1.2. A review of the installation rate assumptions has been undertaken since the submission of the 2019 ES to re-test their robustness and as a result amendments have been made to the assumptions. The amendments made to the assumptions are outlined below and illustrated in Figure 1 – Installation Rate Assumptions located at Appendix 2 to this ES Addendum (document reference 7.8.1.2). Whilst amendments have included a more detailed breakdown of the installation rates, overall the average installation rate outlined in Chapter 3 (Description of the Proposed Development) (APP-118) has not changed (approximately 18 m to 30 m per day in urban areas and approximately 50 m per day in rural areas). The overall time anticipated to be required to construct the Proposed Development has therefore not changed as a result of the review of the assumptions.

Duct Installation Rates

3.3.1.3. The duct installation rates have been further divided into four categories based on location and local conditions as shown in Table 3.1 below:

Table 3.1 - Duct Installation Rates

Category	Description	Anticipated duct installation rate per circuit
Open country/ agricultural land.	Wide construction corridor with little or no service congestion. Mechanical excavation for most of the route with hand digging at service crossings.	50 m per day
Grassed areas with light service congestion. Open ground e.g. grass verges, parks and recreational spaces.	Reasonable access to site with little or no service congestion. Mechanical excavation for most of the route with hand digging at service crossings.	30 m per day
Roads with light service congestion. Roads / footpaths with reasonable site access.	Reasonable access to site. Breaking of tarmac to take place using machines. Excavation will be mostly mechanical with hand digging taking place around existing services.	24 m per day
Roads with heavy service congestion. Roads / footpaths with limited / narrow site access.	Access may be limited as some roads are narrow, which may limit the use of construction plant. Breaking of tarmac to take place using machinery. Most excavation, particularly around heavy service congestion, will take place by hand (typically within 500 mm of an existing service).	12 m per day

Summary of installation rate and working restrictions by section

3.3.1.4. The updated FTMS (APP-449 Rev002) includes details of anticipated construction periods for all sections of the Onshore Cable Route that are within the highways using the duct installation rates included within Section 3.1. The FTMS also provide details of programme restrictions related to environmental constraints, public events, school terms, public holidays and constraints proposed to prevent the occurrence of multiple construction zones in the same vicinity. This document should therefore be reviewed for further information on these restrictions.

Section 1 Lovedean (Converter Station Area)

3.3.1.5. The section from the Converter Station to Broadway Lane has cable duct installation rates of 50 m per day as it passes through open country / agricultural land. The crossing of Broadway Lane (section 1.2 of the FTMS) will be completed at 24 m per day.

3.3.1.6. Section 2.1, at Broadway Lane has an installation rate of 30 m per day.

Section 2 Anmore

3.3.1.7. The cable route between Broadway Lane and Anmore Road will be installed at a rate of 50 m per day as it passes through open country / agricultural land.

Section 3 Denmead / Kings Pond Meadows

3.3.1.8. The installation rates for Section 3 are as follows:

- The crossing of Anmore Road (section 3.1 of the FTMS (APP-449 Rev002): 24 m per day;
- Between Anmore Road and B2150 Hambledon Road, excluding HDD-5: 50 m per day; and
- B2150 Hambledon Road to Soake Road (section 3.2 of the FTMS (APP-449 Rev002): 12 m per day.

Section 4 Hambledon Road to Burnham Road

3.3.1.9. The installation rates for section 4 are as follows:

- B2150 Hambledon Road between Soake Road and Milton Road (section 4.1 of the FTMS): 12 m per day;
- B2150 Hambledon Road and A3 Maurepas Way between Milton Road and A3 London Road (section 4.2 of the FTMS): 640 m at 24 m per day and 360 m at 12 m per day;
- A3 London Road between Forest End roundabout and Ladybridge Roundabout (sections 4.31, 4.32, 4.33, 4.34 and 4.35 of the FTMS): 12 m per day;
- A3 London Road between Ladybridge roundabout and Portsdown Hill Road (sections 4.41, 4.42, 4.43 and 4.44 of the FTMS): 24 m per day;
- Portsdown Hill Road between A3 London Road and Farlington Avenue (section 4.5 of the FTMS) 24 m per day; and
- Through Portsdown Hill Road car park (if utilised as part of the cable route): 30 m per day.

Section 5 Farlington Avenue

3.3.1.10. The installation rates for Section 5 are as follows:

- Farlington Avenue between Portsdown Hill Road and Sea View Road (section 5.1 of the FTMS): 50 m at 12 m per day and 500 m at 24 m per day;

- Farlington Avenue between Sea View Road and Havant Road (section 5.2 of the FTMS): 12 m per day;
- Evelegh Road (section 5.3 of the FTMS): 12 m per day;
- Between Evelegh Road and Havant Road through Portsmouth Water land: 30 m per day;
- Havant Road and A2030 Eastern Road between Farlington Avenue or Portsmouth Water land and Fitzherbert Road (section 5.4 and 5.5 of the FTMS): 115 m at 12 m per day and 585 m at 24 m per day; and
- Zetland Fields (if utilised as part of the cable route): 30 m per day.

Section 6 Zetland Field and Sainsbury's Car Park

3.3.1.11. The installation rates for Section 6 are as follows:

- Fitzherbert Road between A2030 Eastern Road and Sainsbury's car park (section 6 of the FTMS): 12 m per day; and
- Sub-section 6.a from the Sainsbury's car park to the HDD entry point has light service congestion and therefore the installation rate is assumed to be 24 m per day. Section 7 Farlington Junction to Airport Service Road.

3.3.1.12. The installation rates for Section 7 are as follows:

- Between Farlington Playing Field from the HDD-4 Exit to HDD-3 Exit is open country and therefore a 50 m per day installation rate is assumed; and
- At Kendall's Wharf where the cable exits the HDD has light service congestion and is therefore assumed to have a 24 m per day installation rate.

Section 8 Great Salterns Golf Course to Milton Common

3.3.1.13. The installation rates for Section 8 are as follows:

- The parts of this section across the Kendall stadium football ground and along the boundary of Eastern Road (sub-sections 8.2.1 and 8.a) are grassed open spaces with light service congestion, and therefore a 30 m per day installation rate is assumed;
- A2030 Eastern Road between Airport Service Road and Tangier Road (section 8.1 of the FTMS): 24 m per day with 10-hour construction working hours and 36 m per day with 24-hour construction working hours;
- A2030 Eastern Road between Tangier Road and Eastern Avenue (Section 8.2 of the FTMS): 1,040 m at 24 m per day and 260m at 12 m per day;
- Through the centre of Milton Common (if utilised as part of the cable route): 30 m per day; and
- Eastern Avenue (section 8.3 of the FTMS): 12 m per day.

Section 9 Milton Common to Bransbury Road

3.3.1.14. The installation rates for Section 9 are as follows:

- Moorings Way between Eastern Avenue and the Moorings Way to Furze Lane bus links (sections 9.11 and 9.12 of the FTMS): 24 m per day;
- Furze Lane bus link and Furze Lane : 12 m per day;
- South of Milton Common and University of Portsmouth eastern side playing fields (if utilised as part of the cable route): 30 m per day;
- Locksway Road and Longshore Way: 24 m per day;
- Kingsley Park from the HDD-2 Entry to Kingsley Road:30 m per day;
- Kingsley Road and Yeo Court (sections 9.41 and 9.42 of the FTMS): 24 m per day; and
- Bransbury Park: 30 m per day.

Section 10 Eastney (Landfall)

3.3.1.15. The installation rates for Section 10 are as follows:

- Henderson Road and Fort Cumberland Road between Bransbury Park and Fort Cumberland Car Park: 12 m per day; and
- The section within Fort Cumberland car park is grassed with light service congestion, therefore an installation rate of 30 m per day is assumed.

Summary of Revised Installation Rates

3.3.1.16. Table 3.2 below identifies what, if any, implications there are to the conclusion of the assessments in the 2019 ES as a consequence of the changes to the assumptions for the installation rates.

3.3.1.17. For the avoidance of doubt, the amendments to the installation rate assumptions affect the onshore elements of the Proposed Development only.

Table 3.2 - Implications of the amendments to the installation rate assumptions on the Onshore EIA

Discipline	2019 ES assessment impacted by amendments to the installation rate assumptions?
Landscape and Visual Amenity	Yes. Changes relating to the assumed duration of works in Section 4 and 10 of the Onshore Cable Corridor. Further assessment has therefore been undertaken on the updated information and outlined in Section 7 of this Addendum.
Onshore Ecology	No.
Soils and Agricultural Land Use	No.
Ground Conditions	No.
Groundwater	No.
Surface Water Resources and Flood Risk	No.
Heritage and Archaeology	No.

Discipline	2019 ES assessment impacted by amendments to the installation rate assumptions?
Traffic and Transport	Yes. Further assessment has been undertaken on the updated information outlined in section 13.5 of this ES Addendum. This is mainly in relation to reported magnitude of change on traffic delay.
Air Quality	No. The changes in the rate of ducting installation do not impact on the semi-qualitative Construction Stage dust risk assessment. Therefore, there is no impact on the assessment.
Noise and Vibration	Yes. Further assessment has been undertaken on the updated information and outlined in section 15.2 of this ES Addendum.
Socio-economics	No. Working durations for open spaces remains the same as assessed within the 2019 ES. In urban areas the change to installation rates does not change the nature and duration of impacts identified within the 2019 ES.

Discipline	2019 ES assessment impacted by amendments to the installation rate assumptions?
Human Health	Yes. Any changes to the Noise and Vibration, Landscape and Visual Amenity and Transport Assessments could result in changes to the Human Health Assessment.
Waste and Material Resources	No.
Carbon and Climate change	No.
Cumulative Effects	No.

3.4. UPDATED INFORMATION: AMENDED PLATES 3.23 AND 3.24

3.4.1.1. Plates 3.23 and 3.24 contained within Chapter 3 (Description of the Proposed Development) of the 2019 ES (APP-118) have been updated to clearly identify the FOC cable position within the duct, as shown in Plate 3.1 and 3.2 below respectively. Plate 3.1 also reflects a minor update to the depth to the bottom of the duct which has been updated to '1150 mm minimum' instead of 1250 mm as shown in the 2019 ES; this has no impact on the outcome of any of the assessments undertaken.

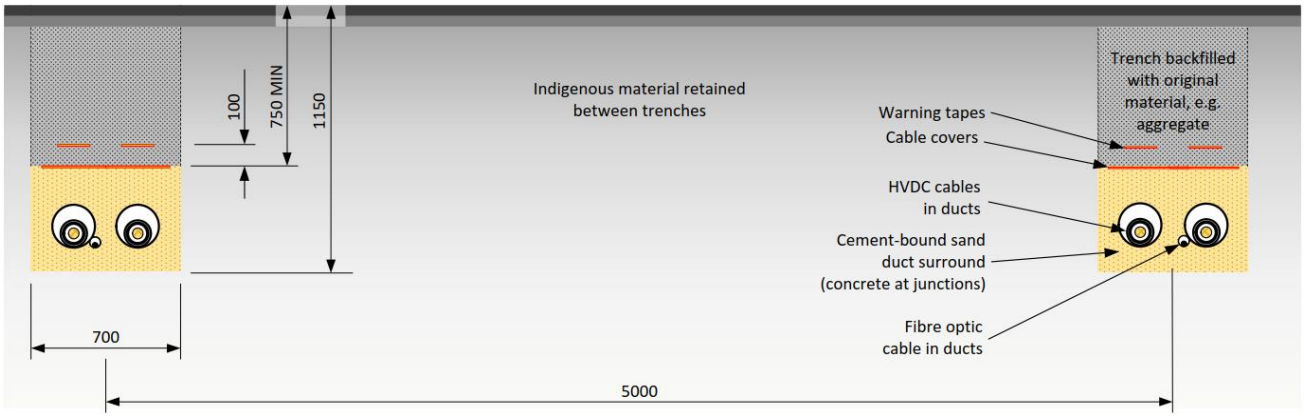

Plate 3.1 - Update of Plate 3.23 - Typical arrangement of HVDC and FOC cables in roads, verges and footpaths (all measurements in mm)

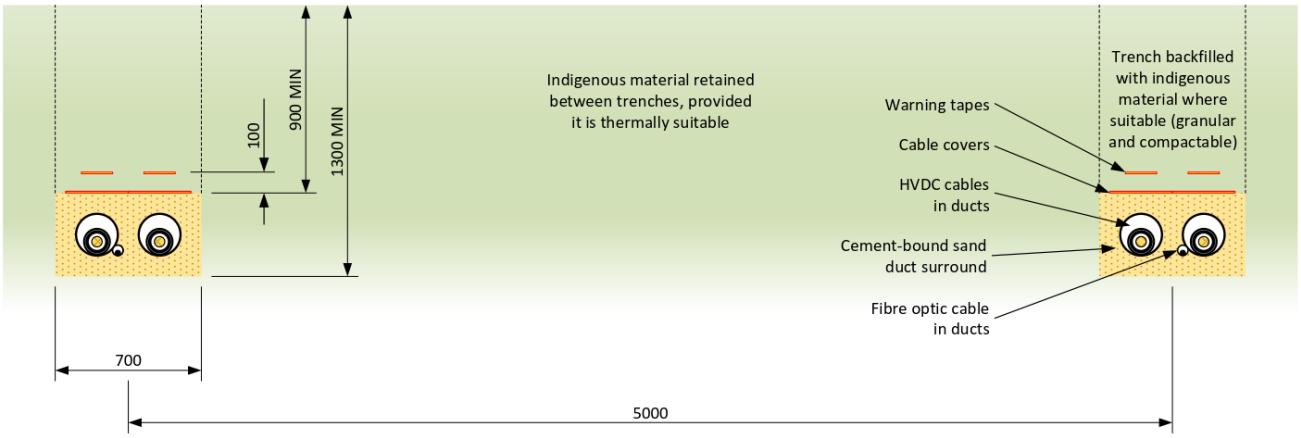

Plate 3.2 - Update of Plate 3.24 - Typical arrangement of HVDC and FOC cables in non-highway land (all measurements in mm)

3.5. UPDATED INFORMATION: TEMPORARY CAR PARK FOR CONSTRUCTION

3.5.1.1. Paragraph 3.6.3.41 of Chapter 3 (Description of the Proposed Development) of the 2019 ES (APP-118) stated the following:

"A construction compound will be located within the Converter Station Area for the duration of the construction which shall have facilities for mess, welfare and approximately 150 car parking spaces (Works No.3 on the Works Plans (Document Reference 2.4)".

3.5.1.2. The temporary car park previously stated capacity for 150 car parking spaces for the Converter Station workers. However, this mistakenly excluded a requirement for additional capacity for workers associated with the Onshore Cable Route.

This is an error in Chapter 3 (Description of the Proposed Development) (APP-118) of the 2019 ES and paragraph 3.6.3.41 should now read as follows:

"A construction compound will be located within the Converter Station Area for the duration of the construction which shall have facilities for mess, welfare and a maximum peak capacity for:

- *206 car park spaces;*
- *Space for 14 Light Goods Vehicles; and*
- *Space for 7 Heavy Good Vehicles.*

This is illustrated as the Works No.3 and Work No. 2 and 3 Overlap on the updated Works Plans (APP-010 Rev02).

3.5.1.3. The light goods vehicles and the heavy good vehicles will be parked in laydown areas and not in the formal marked area. Therefore, the requirement for the construction worker car park is for this to have 206 spaces (150 workers associated with the Converter Station and 56 associated with the Onshore Cable Route).

3.5.1.4. In addition, Sheet 1 of 12 of the Works Plans (APP-010 Rev02) shows two areas for Works No.3 along the eastern part of the proposed Converter Station access road. A discrepancy has been identified whereby the Works Plans should have also shown an additional area for Work No.3 south of the proposed Converter Station, as shown on the Indicative Converter Station Area Layout Plans (APP-013). Accordingly, the Works Plans (APP-010 Rev 02) have been updated to now show the correct areas where Work No.3 are to be located.

3.5.1.5. It is confirmed that the discrepancies identified above do not affect the assessments within the 2019 ES, which already assessed the area as a temporary car park and with the higher capacity as outlined in Table 3.3 below.

Table 3.3 - ES Assessment of the Temporary Car Park

Chapter	Confirmation of Assessment
Landscape and Visual Amenity	Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-130) assumed this area would be used for temporary car parking as part of the Construction Stage landscape and visual amenity assessment. At paragraph 15.3.6.2 the LVIA stated: "Construction: covering the short-term and temporary effects arising from construction activities including the presence of temporary site compounds, car parks and laydown areas as referred to in section 15.3.6.1 specific construction impacts."
Onshore Ecology (and Arboriculture)	**Ecology** Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131) assessed this area as being impacted by construction activity and laydown areas. The location of a temporary car park at this location was considered under the temporary land use change and construction activity and temporary habitat loss.
	Arboriculture Appendix 16.3 (Arboriculture Report) of the 2019 ES (APP-411) assessed this area as being impacted by construction activity and laydown area. The location of a temporary car park at this location was considered under the temporary land use change and construction activity. It is identified that there are trees and hedgerows in this area identified as at risk or removal.
Soils and Agricultural Land Use	Chapter 17 (Soils and Agricultural Land Use) of the 2019 ES (APP-132) assessed this area as being impacted by construction activity and laydown areas. The location of a temporary car park at this location was considered under the land use change in the Order Limits and construction activity.

Chapter	Confirmation of Assessment
Ground Conditions	Chapter 18 (Ground Conditions) of the 2019 ES (APP-133) assessed this area as being impacted by construction activity and laydown area. The location of a temporary car park at this location were considered under the temporary land use change in the Order Limits and construction activity. The potential impacts to ground conditions from the laydown area/temporary car park would be as a result of the use of heavy machinery, excavation, stockpiling, filling and spillages. Although the laydown area/temporary cark park was not mentioned specifically in Chapter 18 of the ES (APP-133), we consider that the assessment of these impacts of the temporary car park area has been carried out in Section 18.7.3, paragraphs 18.7.3.3. to 18.7.3.8. This section considers ground condition issues related to earthworks for the Construction Stage of the Converter Station. As the laydown area for the temporary car park is for the Converter Station, it is covered by this assessment. Mitigation measures are discussed in Section 5.5 and Section 6.3.5 of the Onshore Outline CEMP (APP-505 Rev002).

Chapter	Confirmation of Assessment
Groundwater	The potential impacts to groundwater from the laydown area/temporary car park would be as a result of the movement of plant and machinery causing an increase in suspended sediment in runoff which may infiltrate into the ground and thereby impacting on groundwater receptors. Although the laydown area/temporary cark park was not mentioned specifically in Chapter 19 (Groundwater) of the ES (APP-134), the assessment of the impacts of the temporary car park area has been carried out in Section 19.6.3, paragraphs 19.6.3.4. and 19.6.3.6. This section considers groundwater issues related to earthworks for the Construction Stage of the Converter Station. As the laydown area for the temporary car park is for the Converter Station, it is covered by this assessment. Runoff from the laydown area/temporary car park will be dealt with by the temporary surface water management system (described in the Appendix 7 (Surface Water Drainage and Aquifer Contamination Mitigation Strategy) of the updated Onshore Outline CEMP (APP-505 Rev002)), which details measures for the removal of suspended sediments from runoff water (see paragraphs 2.5.1.9 and 5.13.1.3).
Surface Water Resources and Flood	Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) has not specifically made reference to the assessment of the laydown areas and car park at the Converter Station Area during the construction stage, however it has considered these in the overall impacts from construction activities on surface water drainage patterns, surface water features water quality and flood risk to human receptors. Associated to this appropriate overarching environmental control principles and measures including localised control of waters and temporary surface water drainage strategy are proposed as detailed and secured within the updated Surface Water Drainage and Aquifer Contamination Mitigation Strategy (APP-360 Rev 002) which is submitted as Appendix 7 of the Onshore Outline CEMP (APP-505 Rev-002), and Requirement 15 of the dDCO (APP-019).

Chapter	Confirmation of Assessment
Heritage and Archaeology	All land within the Order Limits within Section 1 (Converter Station Area) was considered in Chapter 21 (Heritage and Archaeology) of the 2019 ES (APP-136) as being potentially impacted by temporary construction activities, derived from prior topsoil stripping in advance of establishment of compounds and other temporary works. Preliminary works and the potential impact from the removal of topsoil are outlined in paragraph 21.6.2.4 of Chapter 21 of the ES. The establishment of laydown areas/car parks will be undertaken as part of the preliminary works/enabling works/topsoil strip (see paragraphs 21.6.2.3 to 21.6.2.5). This is likely to have the greatest potential archaeological impact on any remains within proposed construction areas.
Traffic and Transport	Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137) assessed the impacts on the public highway network of this area being impacted by construction activity and laydown areas with the worst-case assumption that the Converter Station is used as the sole site compound for all construction workers. The assessment includes all construction worker vehicle trips, heavy good vehicles and light goods vehicles construction traffic associated with the Converter Station and Onshore Cable Route traveling to and from the site compound on a daily basis. These construction traffic assessments have also been included in data provided for acoustic and air quality assessments.
Air Quality	Chapter 23 (Air Quality) (APP-138) assessed the air quality impacts of construction traffic on the public highway using the data from Chapter 22 (Traffic and Transport) (APP-137). Negligible impacts were predicted on the assumption that the Converter Station compound would be used for all heavy good vehicles, light goods vehicles and private worker vehicles associated with construction in this Section. The temporary car park is located within the Order Limits for the construction dust risk assessment and so was scoped in and assessed within the dust risk assessment in Chapter 23 (Air Quality) (APP-138).

Chapter	Confirmation of Assessment
Noise and Vibration	Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139) included an assessment of the construction of a temporary car park and establishment of site welfare in this area as part of the enabling works. The results are contained in Table 24.21 of the ES (APP-139). An assessment of the return of this area to its original land use (i.e. post construction landscaping) was also included in the noise and vibration assessment. The results are contained in Table 24.24. The construction traffic noise assessment, the results of which are contained in section 24.6.13 of the ES (APP-139) was based on traffic data that assumed the car park would be used by approximately 200 vehicles per day.
Socio-economics	Chapter 25 (Socio-economics) of the 2019 ES (APP-140) assessed this area as being impacted by construction activity and laydown area. The location of a temporary car park at this location were considered under the temporary land use change in the Order Limits and construction activity in the Socio-economics chapter.
Human Health	The Human Health assessment of the Converter Station Area during construction incorporated the assessments of Air Quality, Noise, Landscape, Socio-economics, Ground Conditions, Groundwater and Surface Water. As outlined in this table these assessments considered the potential impacts associated with the temporary car park in the locations now shown on the corrected Works Plans (APP-010 Rev 002).

Chapter	Confirmation of Assessment
Waste and Material Resources	The material resources required, arisings and wastes generated for the Converter Station, including the car park area where applicable, are presented in Table 27.11, Table 27.14 and Table 27.17 of Chapter 27 (Waste and Material Resources) of the 2019 ES (APP-142). The material and waste types and volumes are assessed in line with the assumptions outlined in section 27.4.5 and Appendix 27.2 (Assumptions and Limitations) of the ES Volume 3 (APP-478).
Carbon and Climate Change	The greenhouse gas emissions resulting from the temporary car park materials are considered in the Construction assessment as concluded in Paragraph 28.6.2.9 of the Chapter 28 of the 2019 ES (APP-143).

4. MARINE WATER AND SEDIMENT QUALITY

4.1. INTRODUCTION

4.1.1.1. Following submission of the Application, discussions with the Marine Management Organisation ('MMO') and their advisors at the Centre for Environment, Fisheries and Aquaculture Services ('Cefas') resulted in a request to update any sentences in the 2019 ES relating to contaminated sediments. This update specifically relates to references to analysis for Poly-Chlorinated Biphenyls ('PCB') to ensure that it is clear that 'ICES seven PCBs' are being referred to in the 2019 ES and not 'total PCBs' (all 25 congeners).

4.2. UPDATED INFORMATION

4.2.1.1. The only amendment to Chapter 7 (Marine Water and Sediment Quality) of the 2019 ES (APP-122) is the first sentence of paragraph 7.5.3.11 which should now be read as follows:

"The majority of the Poly-Chlorinated Biphenyls ('PCB') were below the limit of detection and none of the stations exceeded Cefas AL 1 for ICES 7 PCBs."

4.2.1.2. The only amendment to Appendix 7.3 (Contaminated Sediment Survey Report) of Volume 3 of the 2019 ES (APP-374) is in paragraph 1.4.4 which should now be read as follows:

"As yet there are no thresholds or action levels set for individual PCBs. There are standards for total PCBs for the sum of 25 congeners and the sum of ICES 7 PCBs (Figure 5). The majority of the ICES 7 PCBs analysed were below the limit of detection (0.08 µg/kg). At no sampling station were any of the Cefas Action Levels exceeded for total (sum of ICES 7) PCBs."

4.2.1.3. No further updates or amendments have been made to any other figures or appendices relating to Chapter 7 (Marine Water and Sediment Quality) (APP-122) and the conclusions of the assessment remain valid.

5. INTERTIDAL AND BENTHIC HABITATS

5.1. INTRODUCTION

5.1.1.1. Following submission of the Application, the Applicant received the ExQ1 prior to Examination period commencing. In response to a request by the ExA [ME1.10.21], Figures 8.2 (APP-161 Rev02) and 8.5 (APP-164 Rev03) of the ES have been updated to include Kilometer Points to assist the ExA in understanding distances represented in these figures.

5.1.1.2. Furthermore, the ExQ1 [ME1.10.28] also requested further information in regard to the effects of heat emissions from the Marine Cables on the benthic receptors. In response, project engineers have provided supplemental information regarding potential heat emissions from the Marine Cables and the effect resulting from this impact on benthic receptors has been re-assessed.

5.2. SUPPLEMENTARY INFORMATION

5.2.1.1. Table 8.6 of Chapter 8 (Intertidal and Benthic Habitats) of the 2019 ES (APP-123) previously identified the following as the worst-case parameters for potential effects of heat emissions resulting from the Proposed Development.

"*At a burial depth of 1.0 m, seabed surface temperature increases can be expected to remain below 2°C in most circumstances, with no discernible increase in water temperature anticipated*."

5.2.1.2. This parameter was based on information from studies undertaken for other interconnector projects such as Nemo, Viking Link and NorthConnect, although it was recognised that thermal emission and its effects will depend on the type of cables, transmission rate and the receiving environment (OSPAR, 2012). Accordingly, it was stated that information from other studies was not directly comparable although it is considered that the information is representative in terms of demonstrating an association between burial depth and heat, and the dissipation effect of distance from the cable.

5.2.1.3. In the ExQ1, the ExA has queried this worst-case parameter used for heat and in ME1.10.28, requests the following:

"*Can the Applicant provide the worst-case scenario for cable overheating, what temperatures might be reached in the surface sediments and seawater immediately above, and how the surrounding habitats, wildlife and environment would be affected.*"

5.2.1.4. Accordingly, the Applicant has provided supplementary information resulting from a thermal modelling assessment undertaken by AQUIND project engineers. The final design specifications of the Marine Cables are to be confirmed post grant of the DCO, however the assessment used the typical parameters expected for the Marine Cable specifications (i.e. 320kV DC XLPE-insulated cables with a copper conductor) and typical values for the thermal environment (ambient temperature of 15°C, thermal resistivity 0.9 K.m/W).

5.2.1.5. Plates 5.1 and 5.2 illustrate the thermal plot outputs from the modelling assessment of cables buried at 1.5 m (Plate 5.1) and 0.3 m (Plate 5.2). The plots reveal that at an ambient temperature of the surrounding environment of 15°C, the 17°C isotherm is below the surface of the seabed, so the ambient temperature rise at the level of the seabed due to the Marine Cables, is less than 2°C. This is the case for both cable burial depths of 1.5 m and 0.3 m. In the latter case, as 0.3 m depth has not met target burial depth for the cable, then it would also be expected that some form of additional cable protection (e.g. mattressing or rock) would be placed over the Marine Cables.

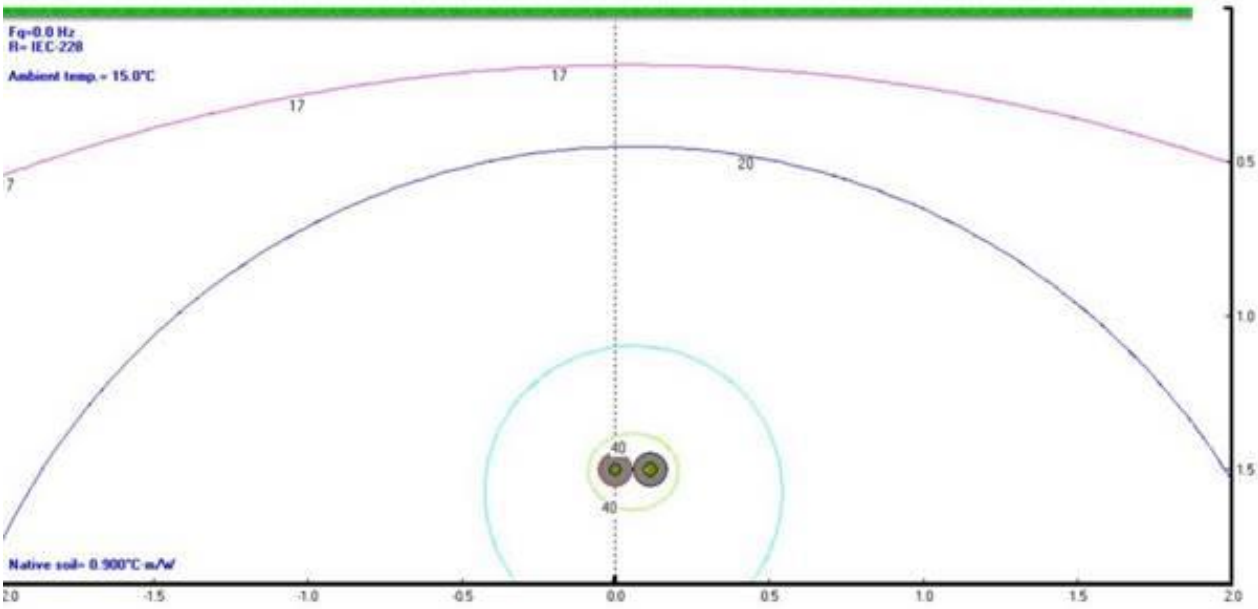

Plate 5.1 - Thermal plot of heat emissions from Marine Cables at 1.5 m burial depth (the green line denotes the surface of the seabed)

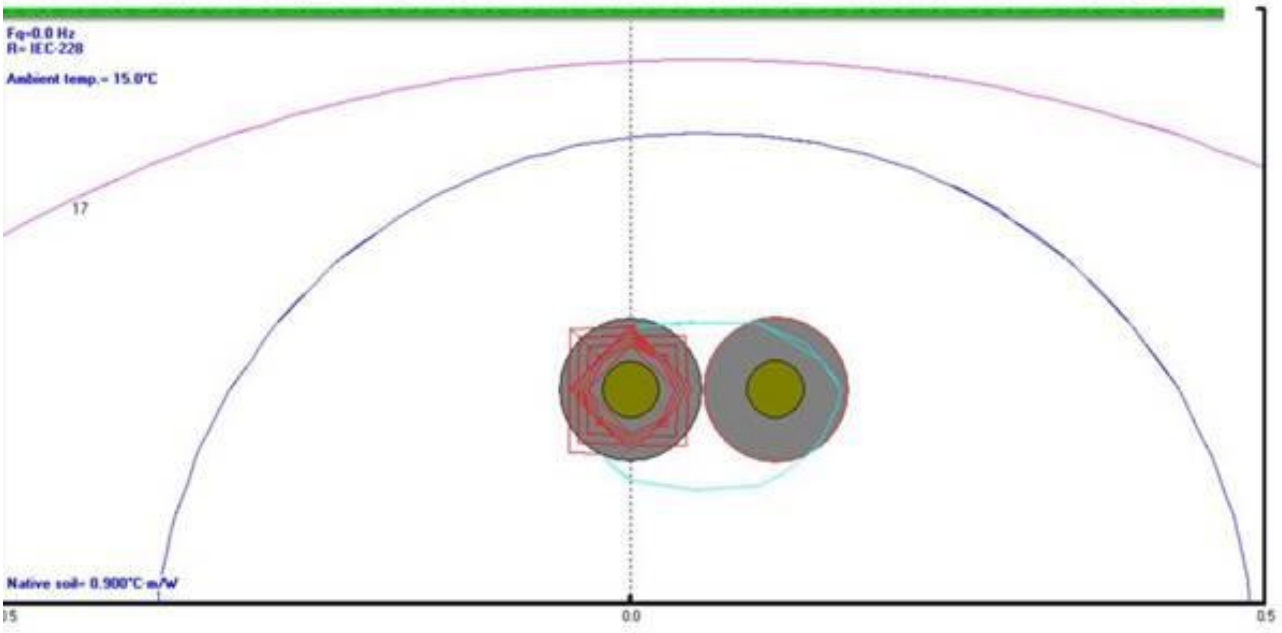

Plate 5.2 - Thermal plot of heat emissions from Marine Cables at 0.3 m burial depth (the green line denotes the surface of the seabed)

5.2.1.6. These thermal plots reveal that under normal operations, regardless of whether the cable is buried at 1.5 m or 0.3 m, the expected temperature rise at the seabed surface, will be 2°C or less. This illustrates that although an increased burial depth causes an increase in cable temperature immediately surrounding the cable, in deeper burials the increased distance to the seabed surface results in no greater warming at the seabed surface.

5.2.1.7. This can be further demonstrated in an even deeper burial scenario illustrated in Plate 5.3, where the model assumes that the cable is at 5 m burial depth. Although the cable conductor temperature would be 66°C, the temperature at the surface still increases by less than 2°C. Marine Cables can be buried at 5 m depth where HDD techniques will be used. Only a short expanse of the Marine Cables (i.e. up to 1.5 km) will be buried using HDD within the seabed in the nearshore region. However, when buried using HDD, the cable will also be contained within a duct which will limit heat emissions and, as shown in Plate 5.3, with the increase in distance to the surface sediments, means that temperature increases are unlikely to be detectable at the seabed surface.

5.2.1.8. In terms of overheating, Marine Cables would not be buried at such depths that would result in excessive heat build-up in the conductors as this would be contrary to the optimal operation of the interconnector. Gradual heat increases in the Marine Cables are more likely to result from a change in thermal environment than other factors, e.g. the depth of cover increasing due to sandwave build up over the cables. Any heat

changes will be monitored by a proportion of the fibres within the FOC that are buried alongside the HVDC cables and which comprise the Distributive Temperature Sensing ('DTS') system, whereby a light pulse sent down the fibre from monitoring equipment is partially reflected in a manner which is a function of the temperature of the fibre. In the unlikely scenario that the Marine Cables were to fail (e.g. if insulation were to break down significantly), then the control systems would sense any changes in temperature or resistance and the Marine Cables would be shut down within seconds and would remain shut down until a repair could be undertaken.

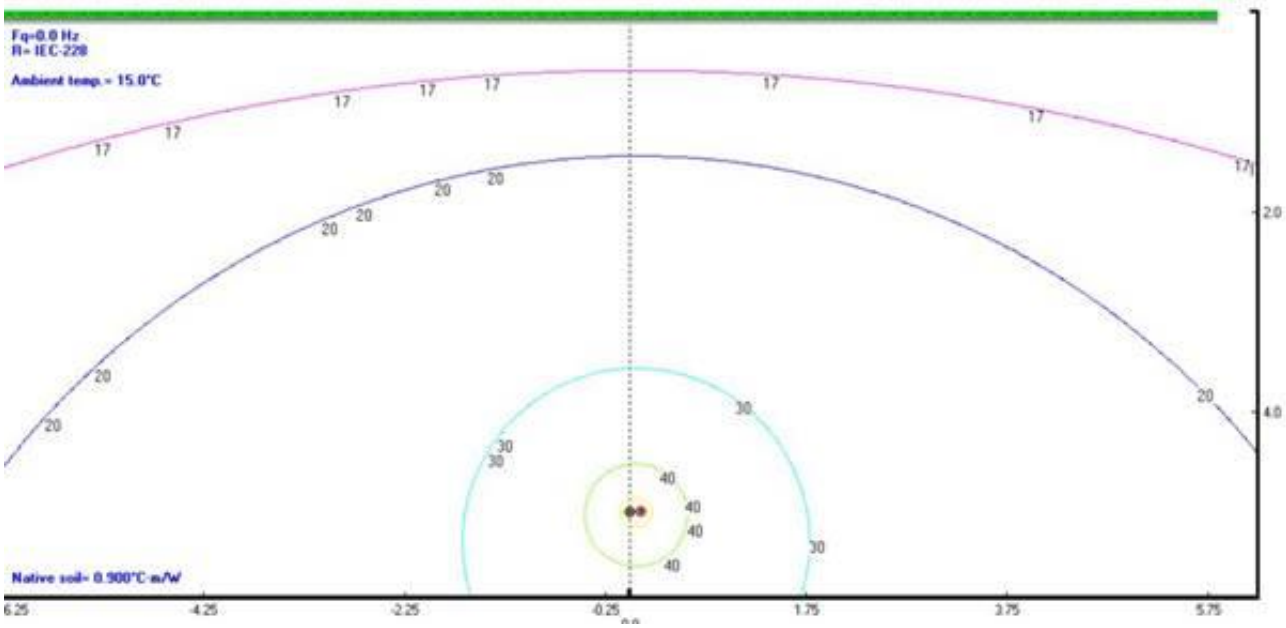

Plate 5.3 - Thermal plot of heat emissions from Marine Cables at 5 m burial depth (the green line denotes the surface of the seabed)

5.2.1.9. The preliminary target burial depth is between 1-3 m, but for the majority of the Proposed Development target burial depth is 1.0 m. As such, given the representative studies from other interconnectors and the project-specific thermal modelling assessment, these burial depths would result in an increase of seabed surface temperature of between 0°C and 2°C, with no discernible increase in water temperature anticipated.

5.2.1.10. Marine benthic fauna are considered sensitive to acute increases in temperature, and can tolerate an increase of 2°C, however, increases of 5°C can have lethal effects, particularly in summer conditions (Tillin H. , Dense foliose red seaweeds on silty moderately exposed infralittoral rock. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]., 2016b). Marine organisms are however capable of acclimating to long term, stable increased temperature (Menon, 1972), such as would be produced by a generating

cable (Tillin H. , 2016a); (Tilllin, 2016d); (Tillin H. a., 2001); (De-Bastos, 2016a)), and already experience natural seasonal variations in temperature from *c.*5° to 8°C in winter to *c.*16° to 19°C in summer in the Eastern Channel (Frost, 2010).

5.2.1.11. Temperature increases have the potential to cause an initial disturbance to infaunal assemblages, however the impact will become less significant as individuals acclimate, and the presence of the cables is not considered likely to affect marine benthic organism abundances or distribution in the long term. Infaunal organisms may potentially be exposed to increases in temperatures, however epifaunal organisms are unlikely to be affected. It should be noted that the majority of organisms in sediment do not exceed a burrowing depth of 0.2 m, with 95 to 99% remaining in the top 5 cm (Kingston, 2001), and as such are unlikely to be affected by temperature changes nearer the cable.

5.2.1.12. The anticipated heat emissions at a burial depth of 1.0 m are not expected to exceed the tolerances of benthic organisms and will be a chronic, stable increase to which organisms will be able to acclimatise. In addition, only habitats located directly above or in very close proximity to the operating cable will be affected, with similar habitats available in the vicinity and in the wider Channel.

5.2.1.13. Therefore, based upon the small extent of the area affected, lack of long-term impact or effect on habitat function, and recovery expected in the short term as species acclimate, the effect of heat emissions is **not significant**.

6. FISH AND SHELLFISH

6.1. INTRODUCTION

6.1.1.1. Following submission of the Application, discussions with the MMO and Cefas resulted in a request to present further detail on the datasets used to inform the assessment of potential impacts on herring spawning through provision of an additional figure.

6.2. SUPPLEMENTARY INFORMATION

6.2.1.1. A supplementary figure (see Appendix 4, Figure 2 (Additional Information on Herring Spawning) (document reference 7.8.1.4)) has been produced which illustrates more detail on the distribution of herring larvae during herring spawning periods in the Downs herring spawning grounds mid-Channel. The figure has been shared with the MMO and Cefas in order to provide further clarity around the assessment undertaken in the ES and the conclusions derived.

6.2.1.2. It is the Applicant's position that the provision of this supplementary figure was not necessary for the purpose of confirming the conclusions in the 2019 ES were valid and correct, and it is provided for information purposes and without prejudice to the assessment provided in Chapter 9 (Fish and Shellfish) of the 2019 ES (APP-124) which concludes that effects resulting from the Proposed Development are not significant and mitigation is not required.

7. MARINE ORNITHOLOGY

7.1. INTRODUCTION

7.1.1.1. Following acceptance of the Application, Natural England, in their Relevant Representation (RR-181) advised the Applicant that the proposed Solent and Dorset Coast Special Protection Area ('pSPA') had become fully designated as a SPA. The site was classified on 16 January 2020.

7.2. UPDATED INFORMATION

7.2.1.1. In Chapter 11 (Marine Ornithology) of the 2019 ES (APP-126), where the term proposed Special Protection Area ('pSPA) is used, this should be read as Special Protection Area ('SPA'). This amendment applies to:

- The first bullet point after paragraph 11.3.3.1;
- Table 11.7; and
- Paragraph 11.6.7.80.

7.2.1.2. The change in classification of the site from pSPA to SPA does not alter the findings of the assessments reported in Chapter 11 (Marine Ornithology), or the Habitat Regulations Assessment ('HRA') (APP-491 to APP-504).

7.2.1.3. In Figure 11.1 (Marine Ornithology – SPA and Ramsar Sites) of the 2019 ES (APP-177), where the term 'proposed Special Protection Area' ('pSPA') is used and shown, this should be read and viewed as Special Protection Area ('SPA').

7.2.1.4. No further updates or amendments have been made to any other figures or appendices relating to Chapter 11 (Marine Ornithology) (APP-126).

8. SHIPPING, NAVIGATION AND OTHER MARINE USERS

8.1. INTRODUCTION

8.1.1.1. Following submission of the Application, the Applicant received the ExQ1 prior to the Examination period commencing. In response to a request by the ExA [SN1.14.1], supplementary information in regard to potential impacts resulting from the Proposed Development on military vessels and urgent military need has been provided.

8.2. SUPPLEMENTARY INFORMATION

8.2.1.1. The paragraphs below provide further information on military vessels transiting close to the Marine Cable Corridor in order to identify the paths taken by these vessels in the vicinity.

8.2.1.2. The following figures present the military vessels recorded on Automatic Identification System ('AIS') during two three-month periods covering winter (December 2017 – February 2018) and summer (May – July 2018). It is noted that military vessels are not required to broadcast on AIS in certain situations.

8.2.1.3. Plate 8.1 presents a detailed view of military vessels entering and leaving Portsmouth, colour-coded by vessel length.

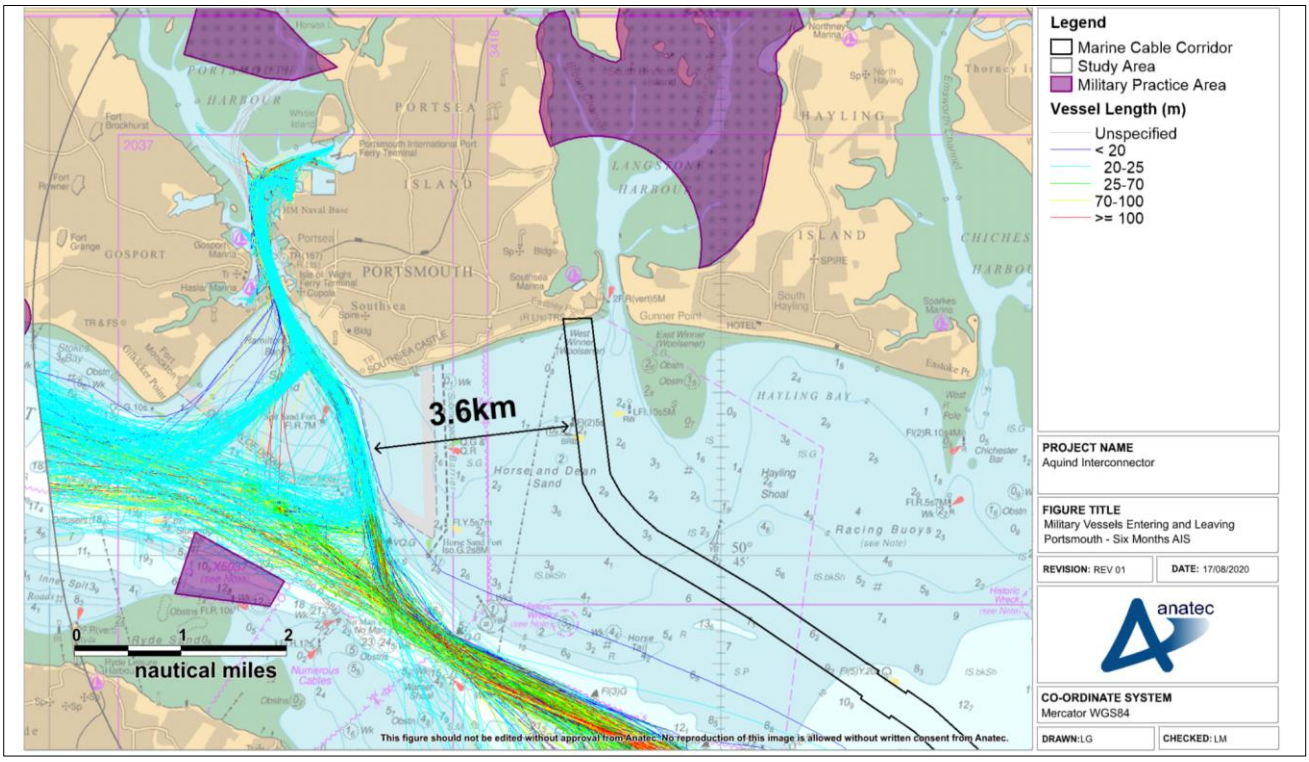

Plate 8.1 - Military vessels entering and leaving Portsmouth – six months AIS

8.2.1.4. It can be seen in Plate 8.1 that military vessels maintained a distance of approximately 3.6 km (2 nautical miles) from the Marine Cable Corridor on departure from Portsmouth. Vessels tend to follow the channels through the Solent and therefore this distance reduces as they travel further south. Plate 8.2 presents the military vessels transiting through the Solent, colour-coded by vessel length.

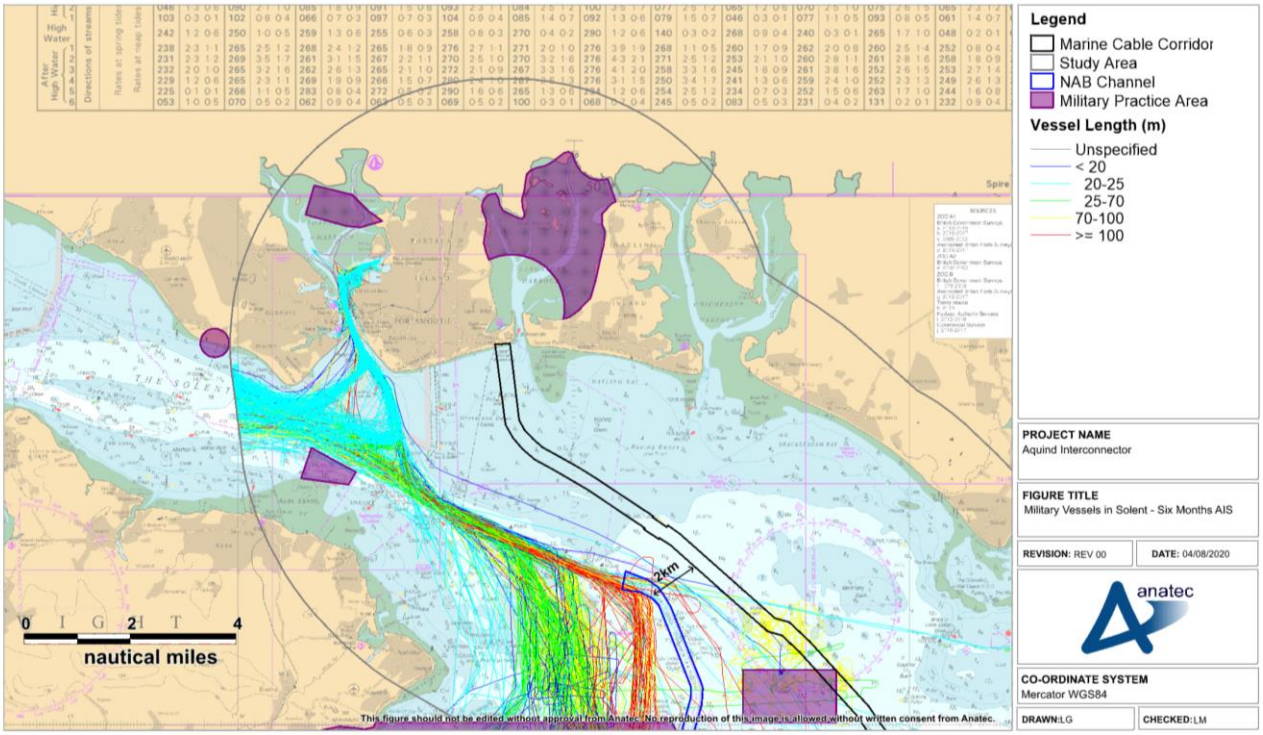

Plate 8.2 - Military vessels in Solent – six months AIS

8.2.1.5. Plate 8.2 illustrates that larger military vessels tended to stay close to the Nab Channel, which is located approximately 2 km (1 nautical mile) from the Marine Cable Corridor at its closest point. The Nab Channel is dredged to a depth of 14.4 m for vessels with deeper draughts however, large vessels are not required to use the Channel if there is a safe alternative route. In this case, the vessels are transiting even further from the Proposed Development to a military practice area at the south of the figure (just visible) and since the water depth is at least 10 m, it is safe for them to take the more direct route to the practice area.

8.2.1.6. A gate analysis was used to estimate the number of transits by military vessels entering or leaving the ports of Southampton and Portsmouth (Plates 8.3 and 8.4). There was an average of one transit per day to and from Southampton and two transits per day to and from Portsmouth during the six-month period.

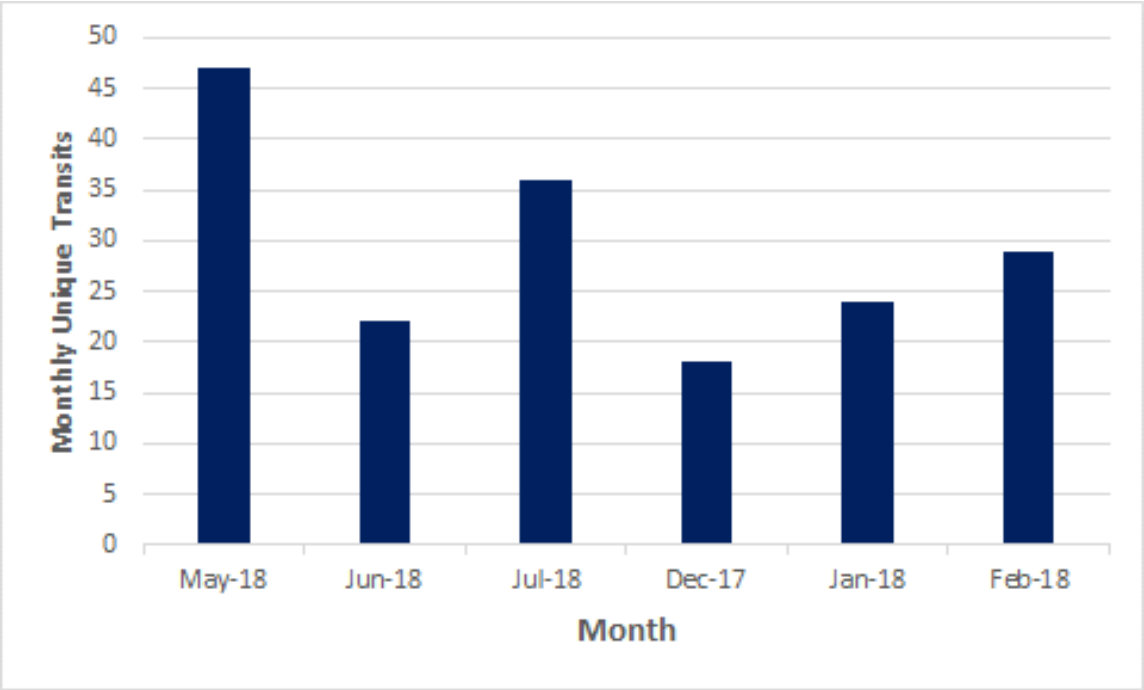

Plate 8.3 - Vessel count - military vessels (Southampton)

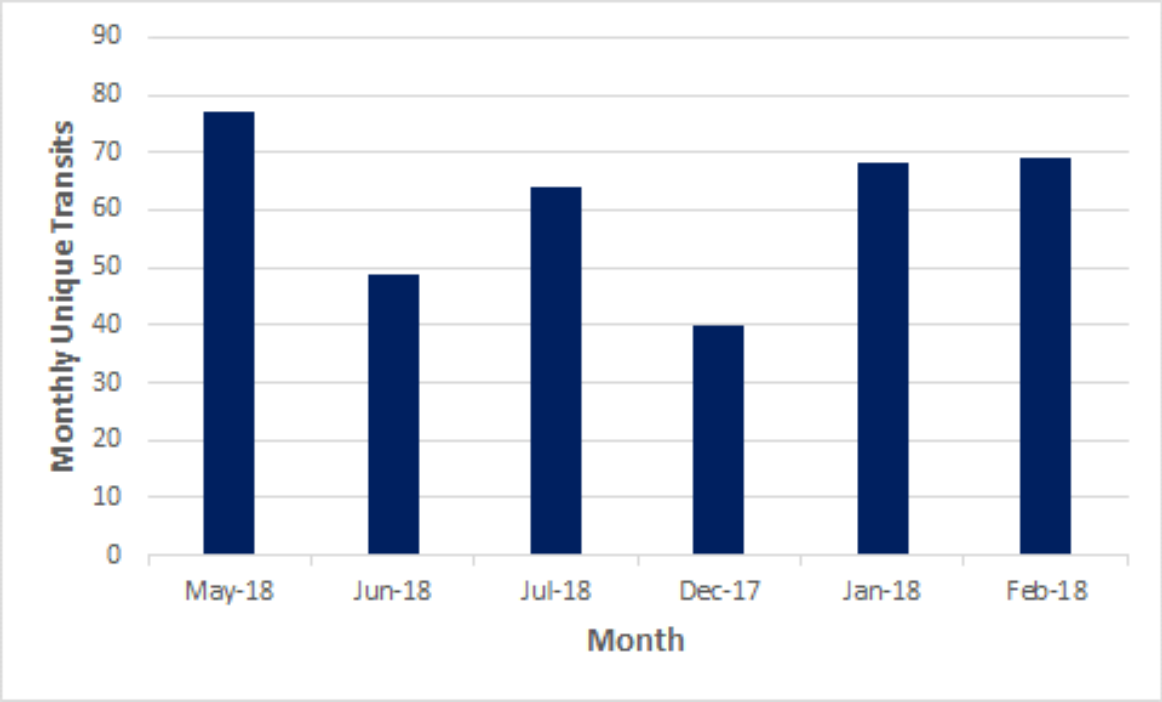

Plate 8.4 - Vessel count - military vessels (Portsmouth)

8.2.1.7. Accordingly, there is a reasonable separation and distance between the Proposed Development and any military vessel transits, and therefore there is no potential for the Proposed Development to interfere with normal military operations or what might be considered an urgent military need.

8.2.1.8. In addition, the Applicant has been engaging with the Ministry of Defence ('MoD') and the Queen's Harbour Master ('QHM') at Portsmouth since 2018 (Consultation Report (APP-025) section 9.3) directly and through the NAB VTS User Group meetings as evidenced in the Navigation Risk Assessment (APP-393, section 6.2.1). During construction of the Proposed Development there will be regular and ongoing communication with key stakeholders such as local ports including the MoD/QHM Portsmouth (see section 5.6.3 of the Marine Outline CEMP (APP-488)) as well as the relevant notifications that are a requirement of the dDCO (APP-019), Schedule 15, Part 2, Condition 2. Should it be necessary to do so, activities relating to the Proposed Development would be able to cease, or other arrangements be made so that there will not be a significant impact to military operations.

9. LANDSCAPE AND VISUAL AMENITY

9.1. INTRODUCTION

9.1.1.1. Following the amendments to the installation rate assumptions (see Section 3.3 and Appendix 2, Figure 1, document reference 7.8.1.2) , the impacts associated with the construction of the Onshore Cable Route have been reviewed to determine if any changes to Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-130) are required.

9.1.1.2. Section 9.2 below contains a summary of changes to the installation rate assumptions which are pertinent to the Landscape and Visual Impact Assessment ('LVIA') and any resulting amendments to Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-130). The assessment used the LVIA methodology referred to in Appendix 15.3 (Landscape and Visual Assessment Methodology) (APP-401).

9.1.1.3. Corrections are made to the ORS(s) Parameter Plan (APP-017 Rev002) which are a minor variation to the position of Option A and Option B. The wirelines presented in Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-130) are therefore revised to illustrate the corrected position of Option A and B for the ORS building(s) and these have been reviewed against the predicted effects in the 2019 ES to determine whether there are any variations in the visual assessment for Section 10 Eastney (Landfall). See Figures 15.52 to 15.56 (APP-285 to 289 Rev02) for the updated figures. The assessment undertaken in this regard is detailed in Section 9.3 below.

9.1.1.4. Further to Local Planning Authority meetings, updates have also been made to the text in relation to the relationship between the written detailed landscape scheme and the OLBS (APP-506 Rev002), and wording revised in the Onshore Outline CEMP (APP-505 Rev002).

9.1.1.5. It should be noted that due to the scale and nature of the Proposed Development, specific details on infrastructure such as gates, fencing and signage are not referred to in Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-139). Given the relative size of such elements they are not considered to affect the overall assessment.

9.2. UPDATED INFORMATION: INSTALLATION RATE ASSUMPTIONS

9.2.1. OVERVIEW

9.2.1.1. As detailed in Section 3.3 and Figure 1 Installation Rate Assumptions (Appendix 2) a review was undertaken of these assumptions referred to in the 2019 ES to retest their robustness and make any necessary amendments.

9.2.1.2. The review concluded that whilst the overall average installation rate has not changed, and therefore the time anticipated to complete the Proposed Development remains unchanged, there are variations in the installation rates and duration of works for specific sections. The implications of the rates and duration were considered against the predicted impacts for landscape and visual amenity.

9.2.2. IMPACT ASSESSMENT

9.2.2.1. In terms of the landscape and visual impacts, the key areas of change to the 2019 ES based on the amended installation rate assumptions relate to:

- Installation rates resulting in the extent of construction work that may be present in any section at any given time; and
- Overall duration of working within each section.

9.2.2.2. From a detailed review of the changes to the assumed installation rates it has been concluded that there is a change to the effects on receptors in two sections of the Onshore Cable Corridor from that reported in the 2019 ES. These are Section 4 (Hambledon Road to Farlington Avenue) and Section 10 (Landfall), and they are described and discussed in detail below.

9.2.2.3. In the other sections of the Onshore Cable Corridor (excluding HDD), whilst the installation rates for the Onshore Cable are now more conservative, the degree of difference between the construction activity as assessed and that now anticipated would be minimal. Whilst there would be some changes to the extent of construction works present in each section at a given time, and some changes to the overall duration of working, these changes are not sufficient to alter the conclusions drawn in Chapter 15 of the 2019 ES (APP-130).

Section 4: Hambledon Road to Farlington Avenue

9.2.2.4. The effect of the changed assumptions as set out in Section 3.3.1 (above) is that there is predicted to be more construction work going on at any one time in this section, and works may extend over a longer period, than was assumed at the time of writing the 2019 ES.

9.2.2.5. The more conservative installation rate now assumed (as set out in Section 3.3.1, above) would increase the frequency and extent to which views would be affected by construction activity. Similarly, there would be a slightly greater impact on tranquillity levels arising from the noise, movement and lighting of plant and vehicles.

Landscape Effects

Landscape Character and Features

9.2.2.6. **Chapter 15 (Landscape and Visual Amenity) of the 2019 ES as submitted and detailed in Appendix 15.8 (APP-406):**

9.2.2.7. *1.8.1.1 Construction activities would impact on the landscape character area referred to in Appendix 15.3 (Landscape and Visual Assessment Methodology) and covering a number of LCAs / LCTs / UCAs including WCC LCA18, HVDC B and C and PCC Urban Character Area (UCA) 7 and 9.*

1.8.1.2: The magnitude of change would be small given the scale of works relative to the character area would be concentrated within the road / verge / footway. The LVIA therefore considers that there would be a ***direct, short-term minor (not significant) effect*** *on landscape character on current and future baseline.*

9.2.2.8. *1.8.1.3: There would however be changes to some existing landscape features which contribute to character. These include a direct impact on The Wayfarers Walk which may be temporarily diverted during the works and open space particularly within Portsdown Hill Country Park; a few PRoWs (Footpaths 11 / 18 / 19 / 20 / 24 and bridleway 15/17) which intersect / meet Hambledon / London Roads and Farlington Avenue. The presence of machinery / cable installation equipment interrupting views and the sense of openness. In addition, a group of trees to the north of Hambledon Road and south of Milton Road may be affected by the Onshore Cable Route. There would also be indirect effects on tranquillity though levels of tranquillity along Hambledon / London Roads and Farlington Avenue are already low as evidenced in HBC LCA C which refers to "high volume of traffic" which "detracts from any sense of tranquillity.*

9.2.2.9. *1.8.1.4: Features outlined above range from medium (Wayfarers Way / PRoWs, TPO'd trees and groups of trees and locally designated open spaces) to low sensitivity (footpaths passing through the landscape and tranquillity levels). There would be a medium to low magnitude of change resulting in* ***direct and indirect, short to medium term localised moderate (significant) effects****.*

9.2.2.10. **Review of change to the LVIA:** Whilst the revised installation rates would affect tranquillity levels more than assessed in Chapter 15 (Landscape and Visual Amenity) (APP-130), this change does not alter the overall balance of effects. The construction period effects would remain as assessed in Chapter 15 (Landscape and Visual Amenity) (APP-130): **direct and indirect, short to medium term moderate adverse (significant) effects**. Tranquillity levels which contribute to overall landscape character are low due to the high of volume of traffic, and as referred to in HBC C Urban Lowland cover most of Section 4. The urban environment is described as having a high volume of traffic which "detracts from any sense of tranquillity", with "busy main traffic arteries."

Visual Effects

9.2.2.11. Construction activities would be noticeable in immediate views of the Onshore Cable Route installation along Hambledon / London Roads and Farlington Avenue. Full, partial to filtered views would be experienced depending on the relative proximity of

the receptor to the works and the screening function of intervening built form and adjacent vegetation.

Residential Users / Receptors

9.2.2.12. **Chapter 15 (Landscape and Visual Amenity) of the 2019 ES as submitted and detailed in Appendix 15.8 (APP-406):**

*1.8.1.6: The sensitivity of residential receptors would be high. The magnitude of change experienced by receptors would be small resulting in **direct short-term, minor-moderate adverse (not significant) effects**. Whilst construction works would form a large proportion of the overall view for immediate residential receptors these would be minor changes in a localised area over short duration which would be reversible.*

*1.8.1.7: Remaining residential receptors would experience **short-term negligible / no change (not significant) effects** based on their location / orientation / intervening vegetation / built form.*

9.2.2.13. **Review of changes to the LVIA:** The sensitivity of residential receptors would remain high. The magnitude of change for receptors with a direct view would increase from small to medium resulting in **direct short-term, moderate adverse (significant) effects**. This conclusion replaces that stated in paragraph 1.8.1.6 of Appendix 15.8 (Assessment of Landscape and Visual Effects) of the 2019 ES (APP-406). Construction works would form a large proportion of the overall view. This, when combined with the longer duration of installation works throughout this section, would result in moderate changes in a localised area and a deterioration in existing views, albeit temporary.

9.2.2.14. Residential receptors with indirect views would experience a small to negligible change or no change depending on their location and orientation, and intervening vegetation and / or built form, resulting in **short-term minor-moderate adverse to negligible (not significant) effects**. This conclusion replaces that stated in paragraph 1.8.1.7 of Appendix 15.8 (Assessment of Landscape and Visual Effects) of the 2019 ES (APP-130), albeit the conclusion on whether significant effects result remain the same.

Recreational, Church and Educational Users / Receptors

9.2.2.15. **Chapter 15 (Landscape and Visual Amenity) as submitted and detailed in Appendix 15.8 (APP-406):**

*1.8.1.8: The sensitivity of recreational / educational receptors and worshippers would be medium. The magnitude of change experienced by receptors would be small resulting in **direct short-term, minor adverse (not significant) effects**. Whilst construction works would form a large proportion of the overall view for immediate recreational and educational receptors there would be minor changes in a localised area and short duration of works which would be reversible.*

*1.8.1.9: Remaining receptors would experience **negligible / no change (not significant) effects** depending on their location/, orientation/ intervening vegetation / built form.*

9.2.2.16. **Review of changes to the LVIA:** The sensitivity of recreational (including worshippers) and educational receptors with a direct view would remain as medium. The magnitude of change would increase from small to medium resulting in **direct short-term, moderate adverse (significant) effects**. This conclusion replaces that stated in paragraph 1.8.1.8 of Appendix 15.8 (Assessment of Landscape and Visual Effects) of the 2019 ES (APP-406). The duration of installation work throughout this Section would generate temporary moderate changes in a localised area, resulting in a deterioration in the existing view which may be static or sequential.

9.2.2.17. Remaining recreational (including worshippers) and educational receptors with indirect views would experience a small to negligible / no change magnitude of change resulting in **short-term minor-moderate adverse to negligible (not significant) effects** depending on their location, orientation, intervening vegetation, and / or built form. This conclusion replaces that stated in paragraph 1.8.1.9 of Appendix 15.8 (Assessment of Landscape and Visual Effects) of the 2019 ES, albeit the conclusion on whether significant effects result remain the same.

Transport, Commercial, Industrial and Retail Users and Workers / Receptors

9.2.2.18. **Chapter 15 (Landscape and Visual Amenity) as submitted and detailed in Appendix 15.8 (APP-406):**

*1.8.1.10 The sensitivity of local transport, commercial, industrial and retail users and workers would be low (nature of the road and traffic levels). The magnitude of change would be small, generating a **direct short-term, negligible-minor adverse localised (not significant) effects**.*

*1.8.1.11: Remaining transport, commercial, industrial and retail users and workers would experience **short-term negligible / no change (not significant) effects** depending on their location / orientation / intervening vegetation / built form.*

9.2.2.19. **Review of changes to the LVIA:** The sensitivity of local transport, commercial, industrial and retail users and workers with a direct view would remain low. The magnitude of change would increase from small to medium for road users, resulting in **direct, short-term minor adverse (not significant) effects**. This conclusion replaces that stated in paragraph 1.8.1.10 of Appendix 15.8 (Assessment of Landscape and Visual Effects) of the 2019 ES (APP-406).

9.2.2.20. Remaining users (commercial, industrial and retail as well as users of smaller roads off Hambledon / London Roads and Farlington Avenues) would experience a small to negligible / no change magnitude of change resulting in **short term negligible-minor (not significant) effects** depending on their location, orientation, intervening vegetation, and / or built form. This conclusion replaces that stated in paragraph

1.8.1.11 of Appendix 15.8 (Assessment of Landscape and Visual Effects) of the 2019 ES (APP-406).

9.2.2.21. In both instances the conclusion on whether significant effects are predicted remains the same, being that they are not.

Section 10 Eastney (Landfall)

9.2.2.22. The effect of the changed assumptions as set out in Section 3.3.1 (above) is that there is predicted to be more construction work going on at any one time in this section, and works may extend over a longer period, than was assumed at the time of writing the 2019 ES.

9.2.2.23. The more conservative installation rate now assumed (as set out in Section 3.3.1 above) would slightly increase the frequency and extent to which views would be affected by construction activity. Similarly, there would be a slightly greater impact on tranquillity levels arising from the noise, movement and lighting of plant and vehicles.

9.2.2.24. The nature of the effects as detailed in Chapter 15 (Landscape and Visual Amenity) (APP-130) relating to Section 10 and the review of changes to the LVIA is summarised below.

Landscape Effects

Landscape Character and Features

9.2.2.25. **Chapter 15 (Landscape and Visual Amenity) of the 2019 ES as submitted and detailed in Appendix 15.8 (APP-406):**

1.14.1.2: The UCA and more local landscape character areas are of medium sensitivity. The magnitude of change would be small given the proportion of works relative to the character area. There would be changes to some existing landscape features which contribute to character, namely the car park and impacts on the relatively quiet, almost remote nature of the area through construction movement and noise as well as the sense of openness. The LVIA therefore considers that there would be a ***direct, temporary short-term localised minor (not significant) effect*** *on landscape character.*

1.14.1.3: Direct physical impacts on landscape features are limited to the road, car park and footpaths which would include NCR2 (Shipwrights Trail) and the intersection of PRoW101 with Fort Cumberland Road which are of a medium to low sensitivity. Intangible, indirect experiential and perceptual impacts (as defined in Appendix 15.3 of the 2019 ES) relate to changes in the relatively quiet, almost remote nature of the area and its sense of openness (medium sensitivity) which combined with direct physical impacts would result in a medium magnitude of change and ***direct and indirect short-term moderate (significant) effects****.*

9.2.2.26. **Review of changes to the LVIA:** There would be a slightly greater impact on tranquillity levels compared to the situation as assessed in Chapter 15 (Landscape and Visual Amenity) (APP-130). However. this would not increase the magnitude of

effect sufficiently to change the level of significance of the effects. The effects therefore remain as detailed in Appendix 15.8 (APP-406) and quoted above.

Visual Effects

9.2.2.27. Construction activities would be noticeable in immediate views around the Landfall, from surrounding open space and residential properties and associated with the Onshore Cable installation along Fort Cumberland Road / Bransbury Road. Full, partial to filtered views would be experienced depending on the relative proximity of the receptor to the works and the screening function of intervening built form and adjacent vegetation.

Residential and Recreational Users / Receptors

9.2.2.28. **Chapter 15 (Landscape and Visual Amenity) of the 2019 ES as submitted and detailed in Appendix 15.8 (APP-406):**

1.14.1.5: The sensitivity of residential and recreational receptors is high. The magnitude of change experienced by receptors would be medium resulting in ***direct temporary short-term moderate-major adverse localised (significant) effects****. Works would form a large proportion of the overall view for immediate visual receptors. Such effects would relate to residents and recreational users looking directly onto the cable route installations along Fort Cumberland Road / Henderson Road and the Landfall. These include residents of caravan homes which overlook the car park and have rear windows.*

1.14.1.16: Remaining residential and recreational receptors within the 300m study area would experience ***minor-moderate to negligible / no change (not significant) direct temporary short term localised effects*** *depending on their location / orientation / intervening vegetation / built form (thereby altering the magnitude of change).*

9.2.2.29. **Review of changes to the LVIA:** The construction period effect on Section 10 would remain as assessed in Chapter 15 (Landscape and Visual Amenity).

Transport users / Receptors

9.2.2.30. **Chapter 15 (Landscape and Visual Amenity) as submitted in the 2019 ES and detailed in Appendix 15.8 (APP-406):**

1.4.1.17: The sensitivity of local transport users would be medium and the magnitude of change medium generating a ***direct short-term, moderate adverse (significant) effect.***

*1.14.1.8: Remaining transport receptors within the study area would experience **negligible / no change short-term localised effects** depending on their location / orientation / intervening vegetation / built form (thereby altering the magnitude of change).*

9.2.2.31. **Review of changes to the LVIA:** The construction period effect on Section 10 would remain as assessed in Chapter 15 (Landscape and Visual Amenity) (APP-130).

9.2.3. CONCLUSION

9.2.3.1. Having taken into account the amended installation rate assumptions, it is considered that there would be a change in visual effects for both residential receptors and for recreational, church and educational receptors within or walking through Section 4.

9.2.3.2. For both types of receptors, the revised assessment increased the level of significance for receptors with a direct view of the Proposed Development from **minor-moderate adverse (not significant)** to **moderate adverse (significant)**. The revised assessment for both types of receptor is therefore:

- Receptor with a direct view of the Proposed Development would experience a **direct short-term moderate adverse (significant effect)**.

9.2.3.3. The effect on receptors with an indirect view would also be greater than previously assessed but would remain not significant.

9.2.3.4. Whilst the magnitude of change would increase slightly for receptors in Section 10, the increase would not be sufficient to alter the level of significance of effects identified in the 2019 ES.

9.2.3.5. All effects would be temporary, short-term or medium term and localised.

9.3. UPDATED INFORMATION: REVISED ORS WIRELINE IMAGES

9.3.1. OVERVIEW

9.3.1.1. As set out in Section 9.1, corrections were made to the ORS Parameter Plan (APP-017 Rev02).

9.3.1.2. Based on a request by PCC and to inform Chapter 15 (Landscape and Visual Amenity) (APP-130) of the 2019 ES, five verified views (viewpoint 18 to 22) were prepared and included in the 2019 ES (Figures 15.52 to 15.56) (APP-285 to APP-289), supported by Figure 15.51 Viewpoint Location Plan (Landfall) (APP-284). Three of the five verified views included wirelines of the ORS as follows:

- Viewpoint 18 View from the corner of Fort Cumberland Road looking across the Landfall in a south easterly direction (Figure 15.53 C and D) (APP-286);
- Viewpoint 20 View from the caravan park looking across the Landfall in an easterly direction (Figure 15.54 B) (APP-287); and

- Viewpoint 21 View from Fort Cumberland SINC looking across to the Landfall in a north westerly direction (Figure 15.55 B) (APP-288).

9.3.1.3. The wirelines included in the 2019 ES show the locational extent of the ORS building(s) within the existing car park at Eastney.. These were based on the ORS(s) Parameter Plan (APP-017).

9.3.1.4. The wirelines have been revised to reflect Option A and Option B for the ORS buildings (as referred to in ORS(s) Elevations and Floor Plans – Indicative Option A (sheet 3 of 4) and Option B (sheet 4 of 4). It should be noted that the actual extent of the ORS buildings is less than is presented in the 2019 ES wirelines and to the rear of both buildings are two smaller structures; a diesel generator and fuel storage.

9.3.1.5. As part of this revision, a more detailed digital terrain model ('DTM') was used to improve the accuracy of matching the wireline model to the photographs. The original wirelines were run using the Ordnance Survey Terrain 5 DTM which has a 5m resolution. The revised wirelines use the DEFRA LIDAR composite DTM, which has a 2 m resolution.[1]

9.3.1.6. At the same time, because the horizontal extent of the Options has increased slightly, a 90° horizontal field of view has been added to show the context for all viewpoints.

9.3.1.7. Viewpoints 18, 20 and 21 presented in Figure 15.52 (APP-285 Rev02), Figure 15.54 (APP-287 Rev02), and Figure 15.55 (APP-288 Rev02) are suffixed by:

- "A" which illustrates baseline panorama and a cylindrical panorama 90 degree horizontal field of view - summer verified view and wireline for both Option A and B;
- "B" which illustrates a baseline 40 degree horizontal field of view - summer verified view presented on two sheets - left and right; and
- "C" which illustrates a 40 degree horizontal field of view - summer verified view and wireline presented on two sheets - left and right for both Option A and B.

9.3.1.8. Viewpoints 19 and 22 presented in Figure 15.53 (APP-286 Rev02) and Figure 15.56 (APP-289 Rev02) include a baseline panorama at a 90 degree horizontal field of view suffixed by "A", and a baseline 40 degree horizontal field of view – summer verified view suffixed by "B".

[1] Note: The floor levels of buildings were adjusted manually to actual ground level rather than the theoretical DTM as there was a slight distortion in the images. The horizontal field of view for all visualisations were rounded to the nearest degree.

Review of Changes to the LVIA

9.3.1.9. The revised wirelines have been reviewed against the predicted effects to determine whether there were any changes in the visual assessment for Section 10 Eastney (Landfall).

Residential and Recreational Users (Year 0, 10 and 20)

9.3.1.10. **Chapter 15 (Landscape and Visual Amenity) of the 2019 ES as submitted and detailed in Appendix 15.8 (APP-406):**

1.14.2.6: The sensitivity of residential and recreational receptors is high. The magnitude of change experienced by receptors would be medium to negligible in year 0. There would be direct permanent medium-term localised effects which would be a ***moderate-major to minor-moderate adverse (significant) effect*** *for immediate visual receptors overlooking the Landfall and a* ***minor-moderate to negligible (not significant) effect*** *for all other visual receptors (residential, recreational and transport) in the study area.*

1.14.2.7: The sensitivity of residential and recreational receptors is high. The magnitude of change experienced by receptors would be small to negligible as planting matures to provide screening around the ORS buildings and compound resulting in ***a direct permanent medium-term localised minor-moderate and negligible (not significant) effect*** *by year 10.*

9.3.1.11. **Review of changes to the LVIA based on the Parameter Plan:** The review of the revised wirelines has not led to any changes in the conclusions reached in the 2019 ES as submitted.

9.3.1.12. In summary, significant effects would only be experienced by recreational and residential receptors in year 0, particularly residents of the two storey properties directly opposite. Effects would reduce over time as mitigation planting matures such that by year 10 it would be **minor-moderate and negligible adverse (not significant)** for both types of receptors.

9.4. UPDATED INFORMATION: MITIGATION MEASURES

9.4.1.1. During meetings with EHDC on the Statement of Common Ground ('SoCG'), it was suggested to update text in relation to the relationship between the written detailed landscape scheme and the OLBS in the Onshore Outline CEMP (APP-505) and OLBS (APP-506). Amendments are included in the update to the Onshore Outline CEMP (APP-505 Rev002). This amendment does not change the mitigation measures relied on in the 2019 ES or any of the residual effects identified, but rather clarifies the wording in the Onshore Outline CEMP.

9.5. UPDATED INFORMATION: LANDSCAPE ASSESSMENT CLARIFICATIONS

9.5.1.1. As part of the Examining Authority's Written Questions it was commented that paragraphs 15.4.7.2, 15.4.7.3 and 15.4.7.4 of the 2019 ES (Chapter 15 Landscape and Visual Amenity) (APP-130) were unclear. This section of the ES Addendum adds clarity and the Applicant's response focuses on amendments to three specific sections of Chapter 15:

- Section 15.4 Assessment Methodology (specifically subsection 15.4.7 only);
- Section 15.7 Proposed Mitigation; and
- Section 15.8 Assessment.

9.5.1.2. This section takes the points listed as 'assumptions and limitations,' in subsection 15.4.7, clarifies the terminology used, recategorizes them as appropriate, and redistributes them where necessary across the relevant parts of the 2019 ES (Section 15.7 and Section 15.8) as follows:

- Items previously listed as 'assumptions and limitations' which could more accurately be described as mitigation measures have been moved to Section 15.7 Mitigation Measures.
- Items previously listed as 'assumptions and limitations' which could more accurately be described as 'detailed design guidance assumed to be implemented' have been moved to Section 15.8 Assessment.
- Items retained in subsection 15.4.7 are now referred to as either "General points of reference" or "General overarching assumptions" depending on whether they are points for information or assumptions made for the purposes of the assessment.

9.5.1.3. These changes are outlined in Appendix 19 (Landscape Assessment Assumption Clarification) (document reference 7.8.1.19) of this Addendum, however it is concluded that these changes do not alter the findings of the 2019 ES.

10. ONSHORE ECOLOGY

10.1. INTRODUCTION

10.1.1.1. Since submission of the Application, further ecological survey work and update of desk study data has been undertaken within the Order Limits, alongside additional noise modelling work, necessitating revision of the assessment of impacts and effects. No modifications to the assessment methodology are necessary to account for this new information.

10.1.1.2. Botanical survey of two areas defined previously as semi-improved calcareous grassland using the Phase 1 habitat survey classification has been undertaken within the Converter Station Area, and at the car park at Portsdown Hill Road. The survey re-classified habitat at the Converter Station Area to species-poor semi-improved grassland, and at Portsdown Hill Road the habitat classification reported in the 2019 ES was unchanged.

10.1.1.3. Changes to the habitat classification at the Converter Station Area has necessitated revision of the description of baseline conditions that inform the assessment of impacts, and the impact assessment within Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131).

10.1.1.4. In addition to the above, further detail is provided on mitigation proposed for impacts on lowland meadow habitat at Denmead Meadows. Baseline conditions discussed in section 16.5.1.3 to 16.5.1.5 and impacts in section 16.6.2.23 to 16.6.2.25 of the 2019 ES (APP-131) are unchanged, but the further detail provided expands that within sections 16.8.2, 16.8.3 and 16.8.4.

10.1.1.5. The 2019 ES (APP-131) was supported by working principles to be adopted by the Proposed Development to avoid disturbance effects on wintering intertidal birds which are qualifying features of Chichester and Langstone Harbours Special Protection Area (SPA) (Appendix 16.14: Winter Working Restriction for Features of Chichester and Langstone Harbours SPA) (APP-422). As part of their Relevant Representations, Natural England were broadly supportive of these principles; however, they requested further consideration of noise impacts based on the following statement:

> *"Wherever possible, percussive piling or works with heavy machinery (i.e. plant resulting in a noise level in excess of 69dbAmax – measured at the sensitive receptor) should be avoided during the bird overwintering period (i.e. October to March inclusive)."*

10.1.1.6. Noise modelling has been undertaken to provide more detail regarding potential disturbance of wintering intertidal birds, and further inform the assessment of impacts within Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131). This additional modelling does not update information within the chapter's Baseline Environment Section. Specifically modelling identifies areas of Solent Waders and Brent Goose Strategy (SWBGS) sites which may be exposed to noise levels in excess of 69 dB LAFmax.

10.1.1.7. In addition, Natural England recommended the inclusion of low use SWBGS sites into Winter Working Restriction Principle 1. This principle states:

"Construction works cannot take place in SWBGS (those categorised as either core, primary or secondary) sites that overlap with the Proposed Developments Order Limits during October to March, inclusive. 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 Harbours SPA."

10.1.1.8. Two low use sites, namely P19A and P19E are located immediately adjacent to the Order Limits, within a complex of SWBGS sites north of Milton Common. All other low use SWBGS sites are a notable distance from the Proposed Developments Order Limits. Based on known sensitivity of dark-bellied brent goose to noise and visual disturbance (i.e. known to be sensitive up to a maximum of 400m from sources of visual disturbance) these sites will not be impacted by the Proposed Development.

10.1.1.9. At SWBGS site P08A (Farlington Playing Fields) it is unlikely that works would be complete and habitat fully reinstated for the commencement of the non-breeding season on 1st October, as required by Winter Working Restriction Principle 1. Analysis of the potential effects of this are discussed in the updated impact assessment below, but there are no changes to the baseline environment of the 2019 ES (APP-131).

10.2. UPDATED INFORMATION

10.2.1. BASELINE ENVIRONMENT

10.2.1.1. Semi-improved calcareous grassland within the Order Limits at the Converter Station Area (Section 1) is evaluated in section 16.5.1.26 of Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131). Alongside semi-improved neutral grassland, semi-improved calcareous grassland is determined to be important at the District scale. This is because such grasslands are uncommon in the wider landscape, however, they are widespread and develop where human activities are relaxed allowing a more natural botanical community to develop.

10.2.1.2. The calcareous grassland classification included in the 2019 ES was based on habitat mapping using the Phase 1 habitat survey classification, undertaken in 2017 and 2018 over the significant area of the Order Limits. Following submission of the Application, further analysis noted that despite being on chalk geology, both areas were subject to significant levels of human influence which may have affected the calcareous character of the habitats. As Calcareous Grassland is listed as a UK BAP Priority Habitat, and consequently subject to provisions in Section 41 of the Natural Environment and Rural Communities Act as a Habitat of Principle Importance ('HPI'), it was deemed important to verify the existing survey data and calcareous classification of the grassland habitat.

10.2.1.3. A botanical survey was undertaken on 10 June 2020 by botanist L. Moody, who has over 12 years' experience of such survey work. The areas covered by the survey are within the Order Limits, being shown in Figure 3 Habitat Mapping (Appendix 5, document reference 7.8.1.5). The survey involved the identification of plants to species level from across both areas, determining whether they were associated with calcareous habitats and, therefore, whether the plant community conformed to that of a calcareous grassland by comparing against established criteria (i.e. JNCC, 2010; the Calcareous Grassland UK BAP Priority Habitat description statement).

10.2.1.4. The survey found that:

- Converter Station Area (Section 1) - The botanical community of grasslands at the Converter Station Area did not show calcareous characteristics and thus was reclassified as species-poor semi-improved grassland. This habitat type can therefore be scoped out of the assessment following the reasoning in Table 16.1 of the 2019 ES (APP-131); and
- Portsdown Hill Road car park (Section 4) – The botanical community of grassland on verges adjacent to the car park contained a large number of species associated with calcareous habitats. However, the area is subject to trampling from visitors and mowing to maintain the verge. The classification of this area, therefore, remains unchanged as semi-improved calcareous grassland.

10.2.1.5. The survey results do not alter the description of the likely future baseline presented in section 16.5.2 of the 2019 ES (APP-131).

10.2.2. EUROPEAN SITE DESIGNATION

10.2.2.1. It is acknowledged that the Solent and Dorset Coast pSPA (referenced in Table 16.1 of the 2019 ES (APP-131)) was upgraded to full SPA status on the 16 January 2020. Both Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131) and the Habitat Regulations Assessment ('HRA') (APP-491) has assessed Solent and Dorset Coast pSPA as having full SPA status, for the purposes of undertaking a robust assessment, and therefore this change does not alter the conclusions of these

assessments. No other designations have changed status since submission of the Application.

Portsmouth Harbour SPA

10.2.2.2. This Natura 2000 site was scoped out of Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131) as it is located approximately 2km to the west of the Proposed Development on the other side of Portsmouth City, this being a barrier to effects within the landscape. Together with the adjacent Chichester and Langstone Harbours SPA, Portsmouth Harbour SPA forms one of the most important sheltered intertidal areas on the south coast of England. It is composed of extensive intertidal mudflats and sandflats with seagrass beds, saltmarsh, shallow coastal waters, coastal lagoons and coastal grazing marsh. The estuarine sediments and areas of saltmarsh support rich populations of intertidal invertebrates, which provide an important food source for wintering birds, and also shelter roosting flocks, in particular dark-bellied brent goose *Branta bernicla bernicla*. Portsmouth Harbour SPA is important at the International scale.

10.2.2.3. Following consultation with Natural England, further consideration has been given to its Qualifying Features within a revised version of the Habitat Regulations Assessment ('HRA') (APP-491 Rev002), specifically movement of brent geese between SWBGS sites, Chichester and Langstone Harbour SPA and Portsmouth Harbour SPA (potentially significant effects on other Qualifying Features being excluded). It has therefore been brought within the scope of the ES.

10.2.3. SOAKE FARM MEADOWS SINC

10.2.3.1. Updated desk study information received from Hampshire Biodiversity Information Centre ('HBIC') since the submission of the 2019 ES has identified an additional non-statutory designated site, Soake Farm Meadows SINC, within Section 3. The Order Limits cover part of the SINC, which in itself includes part of Denmead Meadows, an area of ecologically important grassland habitat located between Hambledon Road and Anmore Road, described in the 2019 ES within sections 16.5.1.3 to 16.5.1.5.

10.2.3.2. Botanical survey work of the SINC was undertaken as the designation includes Denmead Meadows (2019 ES Appendix 16.4 (APP-412)). This showed habitats within Soake Farm Meadows SINC to be botanically diverse, supporting important plants such as green-winged orchid and adders-tongue fern. In addition, plants characteristics of wet meadows are present due to the watercourse that flows through this area from Kings Pond SINC which lies to the north. In addition, the survey showed the plant community within Soake Farm Meadows SINC conforms to the "Lowland Meadow" HPI designation under Section 41 of the NERC Act 2006.

10.2.3.3. Soake Farm SINC, as an area within Denmead Meadows, is considered on a precautionary basis to be important at the National scale. As further detailed in Section 10.2.8, the approach to Denmead Meadows has focussed on avoidance of impacts where possible, due to the ecologically important nature of the habitats.

Impacts on all of the Soake Farm Meadows SINC are avoided through the application of HDD.

10.2.4. IMPACT ASSESSMENT

Section 1 – Lovedean Converter Station

10.2.4.1. Due to the change in classification of semi-improved calcareous grassland to species-poor semi-improved grassland, Construction Stage impacts identified within Sections 16.6.1.19 and 16.6.1.20 related to this habitat within Section 1 (Converter Station Area) are no longer applicable and are removed from the assessment. Species-poor semi-improved grassland has now been scoped out of the assessment as a feature within the ES.

Sections 2-9 – Onshore Cable Corridor and Section 10 – Eastney (Landfall)

Habitats

10.2.4.2. No change in habitat classification has resulted from the survey at Portsdown Hill Road car park, therefore, the Construction Stage assessment within section 16.6.2.35 to 16.6.2.39 remains unchanged.

Soake Farm Meadows SINC

10.2.4.3. This lies partially within the Order Limits, covering part of unimproved neutral grassland at Denmead Meadows. Grassland within this SINC will be avoided through the use of HDD; no trenching, construction compounds or other works will occur in this SINC which will therefore not be impacted. The assessment of impacts on grasslands at Denmead Meadows within the 2019 ES (sections 16.6.2.23 to 16.6.2.25 for the Construction Stage, 16.6.2.51 for the Operational Stage and 16.6.2.52 for decommissioning) remains unchanged.

Chichester and Langstone Harbour SPA

10.2.4.4. The technical description of the method used by noise modelling undertaken to support the impact assessment are within the memorandum “Construction Noise Impacts on SWBGS Sites” (Appendix 18, document reference 7.8.1.18). In summary, modelling produced indicative 69 dB LAFMax noise buffers for trenching activities and HDD sites to establish the extent of any overlap with the nearby SWBGS sites.

10.2.4.5. It should be noted that HDD compounds will be surrounded by a perimeter screen that is at least 2 m high required for the purpose of noise mitigation. This is defined within the Onshore Outline Construction Environmental Management Plan (OOCEMP) (APP-505 Rev002). Taking this into account, the assessment of impacts of construction noise following modelling were:

- **Trenching** - noise effects exceeding Natural England’s proposed 69 dB threshold overlap with multiple SWBGS sites and Chichester and Langstone Harbours SPA. Therefore, without avoidance or mitigation there is potential for disturbance

impacts on brent geese using these sites. Additional mitigation above that included within the 2019 ES is required to offset potential significant effects.

- **HDD** – The overlap with construction noise from HDD operations as a result of sheet piling is limited and restricted to HDD-6 where a marginal overlap with SWBGS site P23A exists. This overlap with P23A is extremely limited, and as the compound for HDD-6 lies within the SWBGS it is already subject to winter working restriction through the application of Principle 1, which prevents such activities between October and March when wintering intertidal birds are present. Thus, no change to the impact assessment within the 2019 ES is required to account for construction noise associated with HDD.

10.2.4.6. At SWBGS site P08A, works will be complete prior to the onset of the wintering period where intertidal birds return from their breeding grounds. However, 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 to permit grazing by brent geese, a Qualifying Feature of Chichester and Langstone Harbour SPA and a wintering intertidal bird which feeds on grasses within SWBGS sites.

10.2.4.7. Brent geese are sensitive to disturbance and published information on their responses to visual disturbance have driven a component of the winter working principles for the Proposed Development, specifically that they are affected at distances of up to 400m. Brent geese are also sensitive to noise disturbance although this would be over a much smaller area than for visual disturbance. However, no construction activities will take place on SWBGS sites in the non-breeding winter season so that visual and noise disturbance associated with these will not impact Brent geese.

10.2.4.8. Restored areas would need to be nurtured during their growth phases, primarily through watering. Where such activities overlap with the season when SWBGS sites support populations of Brent Geese and other aquatic birds they are not expected to give rise to significant disturbance. The SWBGS sites within the Order Limits are actively used by people who create an inherent level of background disturbance, for example as playing fields or public open spaces, and nurturing activities would not add significantly to this. Therefore, impacts on SWBGS and Brent geese are limited to the temporary loss of a small area of grass on which to graze.

10.2.4.9. The non-breeding season is defined as being from October – March. While no data has been located that shows arrival dates at Farlington or the wider SPA it can be expected that smaller numbers will be present in October (and indeed March during their departure). National census data gathered by the British Trust for Ornithology (BTO) through their Wetland Bird Survey ('WeBS') Scheme shows that numbers present in England during October are approximately 30% of those during the peak month of January. This is represented in Plate 10.1 below sourced from the BTO.

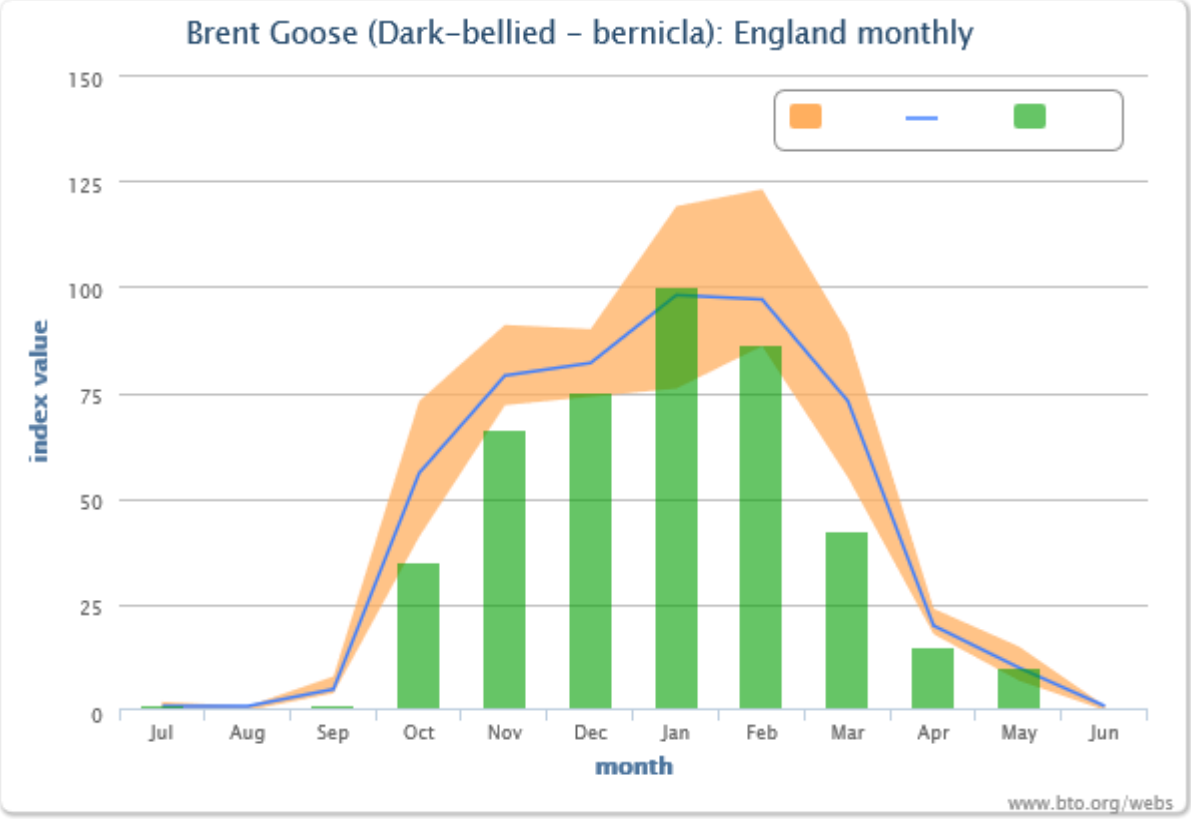

Plate 10.1 - Dark-bellied brent goose abundance in England 2014/15 – 2018/19 (sourced from the BTO[2] where amber refers to range, blue line refers to mean abundance and green histograms an index)

10.2.4.10. Additional important factors to consider include the amount of habitat that will require restoration in October and the proportion that it is of the SWBGS sites and the wider network. The October restoration area accounts for:

- 12 % of the Farlington SWBGS;
- 1.2 % of SWBGS core sites; and
- 0.2 % of the entire SWBGS network.

10.2.4.11. On this basis, it is determined that the restoration of 1.7 ha during the month of October would not impair the SWBGS network and specifically it would not lead to effects on the non-breeding brent goose population. Brent geese would not be disturbed by the temporary unavailability of 12% of the Farlington SWBGS and the functionality of the Farlington SWBGS would not be lost due to the extensive remaining habitat.

[2] https://app.bto.org/webs-reporting/?tab=alerts#numberer

10.2.4.12. The temporary habitat loss (just 17% of a single non-breeding season) accounts for just 1.2% of the SWBGS core sites and 0.2% of the SWBGS network over a period when the majority of the Solent brent goose population would not be present. The effect on the designated brent goose population is therefore concluded to have no perceptible change on baseline conditions. Brent geese will still be able to utilise the majority of Farlington SWBGS which in itself forms just a small component of the SWBGS network available.

10.2.4.13. It is concluded that there would be no effect on Qualifying Features of Chichester and Langstone Harbours SPA/Ramsar or intertidal wintering birds Restoration measures for SWBGS including P08A are captured in the updated Onshore Outline CEMP (APP-505 Rev002).

Portsmouth Harbour SPA

10.2.4.14. Effects on this site are only likely as a consequence of the interlinked nature of the brent goose population with Chichester and Langstone Harbour SPA and associated SWBGS sites. The impact assessment in the 2019 ES (APP-131), revised and expanded upon by the detail in Section 10.2.6.4 to 10.2.6.14, covers the brent goose population using habitats surrounding the Proposed Development and thus assessment outcomes for Chichester and Langstone Harbours SPA correspond entirely with those for Portsmouth Harbour SPA.

Cumulative Effects

10.2.4.15. Section 16.7.1.1 of the 2019 ES (APP-131) references cumulative effects of proposals for a battery storage plant by Pivot Power (ref 19/01071/FUL) adjacent to the Converter Station (Section 1) which could interact with the Proposed Development through removal of semi-improved calcareous grassland. Following reclassification of grassland in this area to species-poor semi-improved grassland and it being scoped out of the assessment within the ES, this potential cumulative effect no longer applies to the assessment. It is also noted that this application was subsequently withdrawn (24 January 2020) and no further application has been made.

10.2.4.16. The revised impact assessment resulting from the additional noise modelling does not lead to changes in the result of the assessment of cumulative effects as detailed in the 2019 ES (APP-131).

10.2.5. PROPOSED MITIGATION MEASURES

Grassland Restoration

10.2.5.1. Mitigation proposed to retain and restore semi-improved calcareous grassland is detailed in Sections 16.8.2 and 16.8.3 of Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131). Following revision to the assessment described above, this mitigation will no longer apply to grassland at the Converter Station Area (Section 1) due to the reclassification of habitat there and its removal from the assessment in the ES. However, it remains applicable to semi-improved calcareous grassland habitat at Portsdown Hill Road car park which has not been reclassified and is not being removed from the ES.

10.2.5.2. It should be noted that no changes to the OLBS (APP-506) are proposed as a result of the grassland survey work undertaken. The OLBS remains a commitment to creating new and enhanced habitat with nature conservation value post-construction.

Denmead Meadows Mitigation Strategy Details

10.2.5.3. Ecological surveys of Denmead Meadows were undertaken in July 2019 to determine and map habitats within the site. Surveys revealed the majority of the fields are hay meadows that are botanically diverse and can be categorised as being Habitat of Principal Importance (HPI) quality under Section 41 of the NERC Act, conforming to "Lowland Meadow" designation. Thus, the site and its habitats are considered to be of ecological importance. Results of these surveys, the boundaries of individual fields and their numbering (as referred to below) are shown in Figure 2 of 2019 ES Appendix 16.4 (APP-412).

10.2.5.4. However, three fields within Denmead Meadows are of lesser botanical quality, being grazed by horses or used for agriculture. These are Field 2 (south-east of Denmead Meadows), the eastern half of Field 8, and Field 13 (within Kings Pond Meadow SINC). Grassland in these fields is not of HPI quality.

10.2.5.5. Current proposals avoid effects on the majority of the lowland meadow habitat at Denmead Meadows through directional drilling underneath them, but this habitat will be affected by the HHD launch pit and compound in Field 3. Open trenching and a construction compound associated with the HDD reception pit and compound will be located in the eastern half of Field 8 and Field 13, localising the majority of effects in habitat of lower importance that is not HPI quality.

10.2.5.6. HDD work already avoids much of the impact of the cable route through Denmead Meadows (including all of Soake Farm Meadows SINC), and as the cable will be buried there will be no permanent habitat loss within the site. The details below expand on that provided by the 2019 ES (APP-131) as to how principles of mitigation will be put into practice and are secured in the updated Onshore Outline CEMP (APP-505 Rev002).

Avoidance and General Measures

- Size of working areas, including compounds, have been kept to a minimum to reduce the effects of grasslands, especially in Field 3 where 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).
- Works to be monitored by an Ecological Clerk of Works who will provide toolbox talks to contractors and staff working at the site.

Timing of Work

- Avoid growing season and winter wet season as both these are important for maintaining the conditions within the habitat; undertake work in late summer/autumn (August to November).

Seed Harvesting

- For Field 3 only, where HPI habitat is present, seed will be collected prior to commencement of works and used to re-seed it following works, rather than buying in a commercial seed mix.
- Using a specialist contractor, a seed harvester will be used to collect seed prior to the onset of works. Seed will be dried and stored until work is complete.
- Two seed collection sweeps will be undertaken, one in late June/Early July to catch early flowering plants and one in late August/early September for late flowering plants.

Stripping of Turves and their Preservation

- Subject to sod conditions remaining as previously identified before works commence, turves to be cut from Field 3 only as this is HPI Lowland Meadow. Other fields do not comprise HPI habitat or are above HDD so will not be affected.
- Turves will be removed from Field 3 and stored away from Denmead Meadows locally.
- Cutting to utilise a turf cutting machine attached to low ground pressure machinery (e.g. farm tractor) with an operator with appropriate experience.
- Turves 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.

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

Protection of Soil Structure and Avoidance of Soil Compaction

- 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.
- Soil piles will not be stored on HPI quality habitat.
- Replacement of soil structure will follow completion of work.
- Use ground protection (temporary membrane + type 1 aggregate or bog matting, decision to be informed by contractor) to prevent soil compaction.

Restoration of Lowland Meadow Habitat within Field 3

- Turves will be returned to Field 3 following completion of HDD work and demobilisation of the compound. Replacement to proceed from back of field towards the access point to avoid tracking over turves.
- Watering in of turves will follow their replacement.
- Re-seeding of Field 3 will be undertaken using collected seed in spring following the completion of works.
- Fields 8 and 13 will be reseeded with any seed remaining from that harvested from Field 3, augmented by a commercially available lowland meadow seed mix as necessary.
- Storage area to be reseeded with a seed mix appropriate for the land use.

Monitoring and Management

- Pre-construction survey currently scheduled for spring 2021 to establish green winged orchid population in Field 3, and 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.
- Three years of management e.g. cutting/weed pulling, to Field's 3, 8 and 13. Management kept to areas that are affected by the works within the Order Limits. Manage those areas as they are managed now to maintain diversity, including any grazing which may be present.

- No additional heavy interventions, only a once yearly hay cut.
- Botanical survey 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.

Revision to Winter Working Principles

10.2.5.7. In order to avoid an adverse effect on integrity to Chichester and Langstone Harbours SPA and Portsmouth Harbour SPA it is prescribed that construction works cannot take place in the non-breeding season (October to March inclusive) where potential adverse noise impacts overlap with SWBGS sites (Principle 6).

10.2.5.8. As an exception to this Principle 5 as outlined in Appendix 16.14 of the ES provides that 'Construction works of 55 – 72 dB immediately adjacent to a major road and/or adjacent to industrial sites with notable levels (>60dB) of background noise can be undertaken unrestricted'. This is because it is considered that noise levels from the Proposed Development would be indistinguishable from background noise levels and as a consequence masked in these instances.'

10.2.5.9. In locations which are not subject to Principle 5, Principle 6 applies. 'Notable' levels of background noise (defined as >60 dB by Cutts et al[3]) are considered likely to occur in the urban environment within which the cable route is situated. As such, it is considered that noise levels below 69 dB will not adversely impact on the integrity of SWBGS sites (as per Natural England's advice on threshold noise levels) in areas which are not immediately adjacent to a major road and/or adjacent to industrial sites with notable levels of background noise. Due to the overlap of 69 dB noise levels with SWBGS sites, on a precautionary basis Principle 6 is applied in order to avoid impacts by restricting works where noise levels may exceed this threshold during the non-breeding season.

10.2.5.10. SWBGS sites P54 and P29 are excluded from Principle 6. This is because whilst modelling identifies that noise associated with construction works above 69 dB may overlap with parts of P54 and P29, the extent of the overlap is minimal. Buildings that are situated between the construction works and P54 and P29 are not taken into account by the modelling, and will actively buffer the noise. Accordingly, in reality, there will be no overlap in noise effects with SWBGS sites P54 and P29 where construction works are adjacent to them.

10.2.5.11. The exclusion of P54 and P29 has been captured as part of Principle 6 in the updated Onshore Outline CEMP (APP-505 Rev002) and as outlined below:

[3] Cutts, N, Hemingway, K & Spencer, J (2013). Waterbird Disturbance Mitigation Toolkit. Institute of Estuarine & Coastal Studies (IECS), University of Hull.

- **Principle 1:** Construction works cannot take place in SWBGS (those categorised as either core, primary support, secondary support, low use or candidate) sites that overlap with the Proposed Developments Order Limits during October – March. An exception is the gravel car park 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.
- **Principle 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.
- **Principle 3:** Elements of the Onshore Cable Route that are over 400 m from the SPA are not subject to any restriction.
- **Principle 4:** Construction noise events of <55 dB can occur unrestricted.
- **Principle 5:** Construction works of 55 – 72 dB LAFmax immediately adjacent to a major road and/or adjacent to industrial sites with notable levels (>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 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.

10.2.6. CONCLUSIONS

10.2.6.1. The full designation of Solent and Dorset Coast SPA is demonstrated to result in no change to the findings of the ES.

10.2.6.2. The designation of Soake Farm Meadows SINC also results in no changes to the findings of the ES. The habitat present within the SINC had been concluded to be nationally important and is avoided through application of HDD. Additional details of mitigation measures in relation to the adjacent Denmead Meadows and Kings Pond SINC are provided. While these measures clarify the extent of mitigation, they do not change the conclusion of the ES in that there is no significant impact on these features as a result of the Proposed Development.

10.2.6.3. Section 16.9.1.2 of the 2019 ES (APP-131) identifies a residual impact related to loss of semi-improved calcareous grassland at the Converter Station Area (Section 1). This residual effect no longer applies due to the reclassification of the grassland to species-poor semi-improved grassland following survey; this habitat has been scoped out of the assessment.

10.2.6.4. Species-poor semi-improved grassland has been scoped out of the assessment as per the rationale in Table 16.1 of the 2019 ES (APP-131). Section 16.5.1.26 which describes the extent of semi-improved calcareous grassland no longer applies to grassland at the Converter Station Area (Section 1).

10.2.6.5. It is demonstrated that after consideration of mitigation measures and application of winter working principles construction operations from the Proposed Development will not have an adverse effect on Chichester and Langstone Harbours SPA, Portsmouth Harbour SPA or their supporting SWBGS sites through either HDD or trenching / road saw operations. Additionally, restoration proposals for SWBGS sites also ensure that temporary habitat loss will not impact the SWBGS network or Chichester and Langstone Harbours SPA or Portsmouth Harbour SPA.

11. GROUND CONDITIONS

11.1. INTRODUCTION

11.1.1.1. Chapter 18 (Ground Conditions) of the 2019 ES (APP-133) reports the assessment and likely significant effects arising from the Proposed Development upon human health, Controlled Waters (surface water and groundwater), geological and below ground services receptors due to ground contamination.

11.1.1.2. Since the submission of the Application, a Supplementary Karst Report has been produced (Appendix 7, document reference 7.8.1.7). This supplementary report has been produced as a response to several points and queries raised by Portsmouth Water in the Relevant Representations with regard to solution features. The Onshore Outline CEMP (APP-505 Rev002) has also been updated in response to several points and queries raised by Portsmouth Water and the Environment Agency ('EA').

11.1.1.3. The main points raised by Portsmouth Water and EA in relation to Ground Conditions were:

- Solution features must be considered [in the environmental impact assessment] as well as vertical migration of impacted groundwater;
- Cable ducts, utility trenches should also be included as potential pathways;
- A watching brief during excavation should be implemented to identify solution features;
- Chemicals and surfactants will be Centre for Environment Fisheries and Aquaculture Science (CEFAS) rated products and included within the contractor's method statements; and
- If any significant unexpected contamination is encountered during the development, then the EA should be informed on the extent and nature of any contamination.

11.1.1.4. These comments have been addressed in the form of the Supplementary Karst Report (Appendix 7, document reference 7.8.1.7) and by updating the Onshore Outline CEMP (APP-505 Rev002).

11.2. SUPPLEMENTARY INFORMATION

11.2.1. BASELINE

Introduction and Context

11.2.1.1. The Supplementary Karst Report (Appendix 7, document reference 7.8.1.7) addresses each of the points raised by Portsmouth Water listed in the Introduction.

11.2.1.2. The additional data does not lead to any changes to the baseline assessment undertaken in Chapter 18 (Ground Conditions) (APP-133). The only change in terms of assessment is a greater consideration of the karst landscape (and associated dissolution features) present in the wider areas of Sections 1, 2 and 3, and how these may impact the conceptual understanding. The Supplementary Karst Report (Appendix 7, document reference 7.8.1.7) confirms the presence of solution features within Section 1, 2 and 3. Details on solution features are covered in Chapter 19 (Groundwater) of the 2019 ES (APP-134).

11.2.1.3. The Supplementary Karst Report expands upon the baseline which has already been detailed out in Chapter 19 (Groundwater) of the 2019 ES (APP-134), rather than Chapter 18 (Ground Conditions) of the 2019 ES (APP-133). This is detailed in Section 10 Groundwater of this ES Addendum below.

11.2.2. IMPACT ASSESSMENT

Changes to Predicted Impacts

Sensitivity

11.2.2.1. The sensitivity for construction and maintenance workers for all sections of the route is **high** due to the potential for them to come into contact with contaminated ground / water. This is outlined in Table 18.2 of Chapter 18 of the 2019 ES (Ground Conditions) (APP-133). It is acknowledged that there are errors in Section 18.7 of Chapter 18 of the 2019 ES where the applied sensitivity for construction workers is stated to be **low** for Section 1 to 7 and Section 10 and **medium** for Sections 8 and 9. The assessment has since been reviewed and this correction results in a **Moderate Adverse significant** effect without mitigation for Section 1 to 7 and Section 10, whilst for Sections 8 and 9 there will be a **Major to Moderate Adverse significant effect** without mitigation (as the sensitivity of construction and maintenance workers has increased from medium to high and the magnitude of change has remained as medium due to contamination identified in previous ground investigations in 2018).

11.2.2.2. The paragraphs affected are 18.7.3.3, 18.7.3.13, 18.7.3.26, 18.7.4.2 and 18.7.4.10 of Chapter 18 of the 2019 ES (APP-133). These paragraphs should instead read as resulting in '*a Moderate Adverse significant effect without mitigation in Section 1 to 7 and 10*' compared to the previous assessment of a Minor Adverse significant effect and '*a Major to Moderate Adverse Significant Effect without mitigation in Section 8 and 9'* compared to the previous assessment of a Moderate Adverse significant effect.

11.2.2.3. With regard to adjacent land users, the sensitivity is **low** for the majority of the sections as the land use is commercial / industrial and public open space and predominately in highway land. However, the sensitivity for Section 8 and Section 9 is **medium** due to allotment land and landfill. This conclusion has been reached based on professional judgment and guidance within Roads and Bridges (DRMB) LA 109, Geology and Soils (2019).

11.2.2.4. With corrections to the sensitivity from **low** to **high** for construction and maintenance workers, there will be no change to the residual effects as these remain **negligible** with the application of the mitigation measures, as set out in Section 25.9 of APP-140.

Supplementary Karst Report

11.2.2.5. In terms of ground conditions, the key area of change to the 2019 ES based on the Supplementary Karst Report relates to the presence of solution features in Section 1, 2 and 3.

11.2.2.6. Due to the possibility of solution features in Section 1, 2 and 3 the assessment of predicted impacts (section 18.7 of Chapter 18) in relation to geology receptor has changed since the ES in 2019 (APP-133). The sensitivity of the geology receptor (solution features) for Sections 1, 2 and 3 has increased from medium to high, and the magnitude of change remains unchanged from the 2019 ES as medium resulting in a **Major Adverse (Significant) effect** compared to the previous assessment of Moderate Adverse (Significant) on the Geology Receptor (solution features) before mitigation is applied.

11.2.2.7. There are no other changes to the predicted impacts reported in Chapter 18 (Ground Conditions) of the 2019 ES (APP-133) and these remain valid.

Residual Effects

11.2.2.8. There are no changes to the residual effects as reported in Chapter 18 (Ground Conditions) of the 2019 ES (APP-133), which reported **Negligible (Not Significant) effects** with the application of mitigation measures, and these remain valid.

Mitigation Measures

11.2.2.9. Based on comments from Portsmouth Water and EA, mitigation measures have been updated in the Onshore Outline CEMP (APP-505 Rev002) for ground conditions. The updated Onshore Outline CEMP includes the following additions:

- A watching brief for solution features would be implemented during construction (section 5.6.1.2 of the Onshore Outline CEMP (APP-505 Rev002));
- Measures in relation to installation of cable ducts and trenching as detailed in Section 5.5.1.1 of the Onshore Outline CEMP (APP-505 Rev002);

- Chemicals and surfactants will be CEFAS rated products and included within the contractor's method statements. (section 5.5 of the Onshore Outline CEMP (APP-505 Rev002)); and
- Should significant unexpected contamination be encountered the EA will be informed of the extent and nature of any contamination (section 6.9.2.1 of the Onshore Outline CEMP (APP-505 Rev002)).

12. GROUNDWATER

12.1. INTRODUCTION

12.1.1.1. Chapter 19 (Groundwater) of the 2019 ES (APP-134) reports the assessment and likely significant effects arising from the Proposed Development upon groundwater receptors.

12.1.1.2. An addendum to Chapter 19 (Groundwater) (APP-134) has been produced to outline further detail and more detailed assessments on the groundwater elements developed in response to several points and queries raised by Portsmouth Water and EA in their Relevant Representation. The main points raised were:

- Insufficient weight/importance is assigned to the potential for solution features in this Chapter 19 (Groundwater) (APP-134) and their role in the risk assessment;
- The potential presence of solution features must be considered in the environmental impact assessment and related fast migration of potential pollution migrating towards the public water supplies;
- There is an absence of solution feature data in the report and a misinterpretation of “Karsts” as features. It is recommended the solution feature information is revisited to ensure that this key risk is appropriately understood and presented in the text;
- The interpretation of the groundwater levels on the Hydrogeological Map for Hampshire and Isle of Wight requires more detailed description;
- The Lovedean Public Supply Borehole may provide water quality data for Section 1 and is likely to be representative as the Converter Station is sited within an SPZ1. This information should be requested from Portsmouth Water and the details incorporated in the assessment; and
- The Conceptual Site Model (‘CSM’) does not discuss solution features and therefore does not represent the regional understanding as a whole. With the exclusion of these features, anticipated groundwater levels and water quality the CSM is not considered complete.

12.1.1.3. Based on the above points, further detail has been collated and is summarised in this ES Addendum. These sections represent additional text to corresponding sections within Chapter 19 (Groundwater) of the 2019 ES (APP-134). They should also be read in conjunction with the Supplementary Karst Report (Appendix 7, document reference 7.8.1.7), a summary of which has been outlined in section 12.2.

12.2. SUPPLEMENTARY INFORMATION

12.2.1. BASELINE

Introduction and Context

12.2.1.1. The additional data sources assessed have reinforced confidence that solution features can be avoided and therefore associated risks are considered manageable. The additional data sources were reviewed against geotechnical and project information contain in submitted Chapter 19 (Groundwater) paragraph 19.5.1.1 paragraph (APP-134).

12.2.1.2. Additional baseline sources of information were:

- Supplementary Karst Report (Appendix 7) and associated Figure 4 - Karst Dissolution Features and Other Key Information (Appendix 6) for consideration;
- Site walkover observations (Appendix A.2 of UK Converter Station Ground Investigation - Geotechnical Interpretative Design Development Report (WSP, 2019); and
- Peter Brett Associates ('PBA') Natural and Mining Cavities Dataset (Appendix B of UK Converter Station Ground Investigation - Geotechnical Interpretative Design Development Report) (WSP, 2019).

12.2.1.3. These sources represent the primary source of information on the karst dissolution features in the area within and surrounding the Order Limits. In its Relevant Representation, Portsmouth Water requested that further clarification on karst dissolution features be provided. These sources are considered the best sources of information on karst dissolution features for Sections 1, 2 and 3.

Changes to Baseline

12.2.1.4. This section provides additional text to section 19.5.6 of Chapter 19 (Groundwater) of the 2019 ES (APP-134).

12.2.1.5. The additional data does not lead to any changes to the baseline assessment undertaken in Chapter 19 (Groundwater) (APP-134). The only change in terms of assessment is a greater consideration of the karst landscape (and associated dissolution features) present in the wider areas of Sections 1, 2 and 3, and how these may impact the conceptual understanding.

12.2.1.6. The karstic dissolution features identified in the Geophysical Report (WSP, 2019) and also the PBA Natural and Mining Cavities Dataset (WSP, 2019) are considered confirmed features. Those recorded on the site walkover are observed features which may be karstic dissolution features. These have been identified as areas of depression or apparent infilling. All of the recorded, confirmed and potential karst dissolution features are shown on Appendix 6 - Figure 4 (Karst Dissolution Features and other Key Information) (document reference 7.8.1.6).

12.2.1.7. Figure 4 also includes the Order Limits, the Converter Station Area (Converter Station Options B(i) and B(ii)), and areas of Source Protection Zones and the distribution of Head deposits (British Geological Survey ('BGS') map data).

12.2.1.8. Figure 4 shows that there are at least two karstic dissolution features, identified using geophysical investigation techniques, within the Converter Station Area. These are identified as features S2 (at approximately SU 67173 13467) and S3 (at approximately SU 67216 13649) on Figure 4, and which are both located in Section 1 of the Onshore Cable Corridor. Ground investigation ('GI') works (undertaken in October 2018) which included cone penetration testing ('CPT') indicated that both of these features had been naturally infilled with Chalk. The tests indicated that this was Grade D (structureless) Chalk.

12.2.1.9. There is an additional feature, S1, further south (at approximately SU 67390 13049), which is outside of the Order Limits (Onshore Cable Corridor, Section 1), approximately 50 m south of it. The CPT test also indicated that it was filled with Grade D (structureless) Chalk.

12.2.1.10. There are also several potential karstic dissolution features, which are areas of depression or apparent filling, and are therefore potentially solution features (potentially they are historical man-made chalk pits). Only one of these is located within the Order Limits at the Converter Station Area, approximately 15 m south east of S3.

12.2.1.11. A further six of these features are located to the south, however none of these are within the Order Limits.

12.2.1.12. The PBA dataset information was also included on Figure 4. Most of these features identified in the PBA dataset were outside of the Order Limits, however one swallow hole, no. 3711, was found to be located within the existing Lovedean Substation (at approx. SU 67502 13498). The nearest features identified on the PBA dataset were two swallow holes to the east, 3710 (at approximately SU 67809 13599) and 3709 (at approximately SU 67904 13603). There was one other swallow hole, 3712, approximately 615 m south (at approximately SU 67802 12990).

12.2.1.13. Overall, it is concluded that the likelihood of encountering unknown dissolution features, which could act as fast flow paths towards the public water supplies, during construction is very low.

12.2.1.14. The related potential pre-mitigation effects/impacts and mitigation measures are discussed in section 12.2.2 and 12.2.3.

12.2.2. ADDITIONAL PREDICTED IMPACTS

12.2.2.1. This section provides additional text to Chapter 19 (Groundwater) of the 2019 ES (APP-134), section 19.6 (Predicted Impacts): Section 1 (Lovedean (Converter Station Area)), Section 2 (Anmore) and Section 3 (Denmead / Kings Pond Meadow).

12.2.2.2. Before the application of the proposed mitigation measures there are some additional potential effects/impacts which all relate to the potential presence of the karst landscape and associated dissolution features.

12.2.2.3. There is a potential for the proposed cable trench laying works to result in an increase in turbidity at the Lovedean and Havant and Bedhampton Springs sources. Without environmental management and mitigation measures the displacement of soil overburden could result in overland runoff carrying a significant amount of suspended sediments. Unchecked, this could then flow into one or some of the karst dissolution features which may have a very fast travel time to the Lovedean and Havant and Bedhampton Springs Sources.

12.2.2.4. It is considered that an increase in turbidity at either the Lovedean and Havant and Bedhampton Springs sources could lead to a temporary shutdown of the supplies. This would result in a **Major Adverse** magnitude of impact, and a **Major Significance** of effect**.**

12.2.2.5. Similarly, in the case of an untreated fuel spillage (from machinery being used on the works) entering karst dissolution features, this could cause hydrocarbon concentrations to rise above the permitted concentrations at the Lovedean and Havant and Bedhampton Springs sources. This could also cause a temporary shutdown of supply and would result in a **Major Adverse** magnitude of impact, and a **Major Significance** of effect.

12.2.2.6. The final impact considered is the possibility that the works have the potential to open karst dissolution features by the works resulting in an increased transportation of nitrates to the Lovedean and Havant and Bedhampton Springs sources, again potentially causing a temporary shutdown of supply. This would be a more gradual effect, however, it would still be considered a **Major Adverse** Magnitude of impact, and a **Major Significance** of effect**.**

12.2.3. MITIGATION MEASURES

12.2.3.1. The additional baseline sources of information referred to in this ES Addendum provide a detailed understanding of the locations of dissolution features which allows avoiding or mitigating impacts on groundwater. This leads to a substantial reduction of the potential magnitude of potential impacts. The residual risk of encountering currently unidentified features is dealt with by the implementation of general mitigation measures, which are listed below and are additional to those listed in section 19.6 (Predicted Impacts) and section 19.7 (Proposed Mitigation and Enhancement) of the 2019 ES (APP-134):

- The Onshore Cable Route trench excavation works will be undertaken in the superficial Head deposits in Sections 1, 2 and 3, and not the Chalk unless head deposits are of insufficient thickness (or not present);

- If the Head deposits are of insufficient thickness (or not present), making excavating in the Chalk unavoidable, 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;
- Any detection of karst dissolution features, (during cable trench excavation works) may result in a temporary pause in the works on site for the engineer on site to determine which of the 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 potential option where risk of the karst dissolution feature acting as a pathway for potential contaminants during construction is identified would be to alter the course of the Onshore Cable Route within the Order Limits to avoid the dissolution feature;
- In the alternative, the karst dissolution feature may be filled with impermeable grout before continuing the works;
- A drainage strategy will be put in place during the works, which will ensure that no untreated runoff is allowed to runoff freely and potentially enter karst dissolution features. All runoff from the site during works is to be treated;
- 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, more GI may be undertaken 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.

12.2.3.2. There are also mitigation actions for HDD works. These are summarised as follows (covered in greater detail in Chapter 19 (Groundwater) of the 2019 ES (APP-134), section titled “HDD Groundwater Level and Flow Embedded Mitigation Measures” (page 19-40), and also the Onshore Outline CEMP (APP-505), section titled “HDD Groundwater Level and Flow” within Section 6.2.5:

- HDD-5 (near Kings Pond) will be installed within the Lambeth Group geology to avoid the Chalk;
- Karst dissolution 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 drillers will receive specific training to detect karst dissolution features and will be constantly monitoring for a loss of drilling fluid, which may indicate that drilling fluid has been lost to a dissolution feature; and
- a watching brief will be employed to detect any unknown karst dissolution features.

12.2.3.3. A clarification has been made in relation to paragraph 19.6.1.7 of Chapter 19 (Groundwater) of the 2019 ES. This paragraph should now read as:

Trenching in Section 3 and parts of Section 2, in the vicinity of 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 Section 3 and the southerly 100 m of Section 2, adjacent to Kings Pond.

12.2.3.4. The mitigation measures listed above are included in more detail in the updated Onshore Outline CEMP (APP-505 Rev002), section 6.4.3 'Groundwater'.

12.2.4. RESIDUAL EFFECTS

12.2.4.1. The avoidance of dissolution features and proposed mitigation measures designed to deal with the impact of the karst dissolution features reduce the potential impact Magnitude to Negligible because the risk of pollution during construction is now Negligible. This results in a significance of **Negligible (Not Significant)**.

12.2.5. CONCLUSIONS

12.2.5.1. Overall, considering the more specific descriptions of the dissolution features and proposed mitigation, the final conclusions in Chapter 19 (Groundwater) of the 2019 ES (APP-134) with regards to impacts on groundwater receptors do not change. The assessment above provides additional detail to the conclusions in Chapter 19 (Groundwater) of the 2019 ES (APP-134) Sections 19.6.4.6 to 19.6.4.13 (APP-134).

13. SURFACE WATER RESOURCES AND FLOOD RISK

13.1. INTRODUCTION

13.1.1.1. Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) reports the assessment and likely significant effects arising from the Proposed Development upon surface water resources and flood risk.

13.1.1.2. From a flood risk perspective, Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) was informed by the Flood Risk Assessment ('FRA') (APP-439), prepared in November 2019.

13.1.1.3. An Addendum to the FRA ('FRA Addendum') has been prepared and is provided as Appendix 8 to this ES Addendum, in response to an update of the EA's Flood Map for Planning, as a consequence of the EA having new modelling data available.

13.1.1.4. As described within the FRA Addendum, the update to the Flood Map for Planning took effect in January 2020 based on results from the 2018 modelling study undertaken by JBA. The new data has resulted in the proposed location of the Landfall and ORS changing classification from Flood Zone 2 to Flood Zone 3.

13.1.1.5. The new EA data also include changes in the Flood Zone extents within the coastal environment - Section 5 to 10 of the Order Limits; the FRA Addendum reflects the changes to Flood Zones, flood risk profile and predicted extreme flood levels within the coastal environment within Section 5 to 10 of the Order Limits, including the ORS at the Landfall.

13.1.1.6. Updated Figures: Figure 20.4 (Flood Map for Planning) (APP-309 Rev02) ('Flood Zone Map'); and updated Figure 20.1 ('Flood Risk Constraints') (APP-306 Rev02), are submitted alongside this ES Addendum.

13.1.1.7. The FRA Addendum demonstrates that the Proposed Development still meets the requirements of the National Policy Statement for Energy (EN-1) and National Planning Policy Framework ('NPPF') (2019) in relation to flood risk when taking into consideration the proposed mitigation measures incorporated into the design parameters for the Proposed Development.

13.1.1.8. The findings of the FRA Addendum (Appendix 8, document reference 7.8.1.8) have not changed the overall principles and conclusions of the FRA (APP-439) used to inform Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) and Onshore Outline CEMP (APP-505).

13.1.1.9. The FRA Addendum (Appendix 8, document reference 7.8.1.8) is supported by, and should be read in conjunction with, the Sequential and Exception Test Addendum, provided at Appendix 9 of this ES Addendum (document reference 7.8.1.9). The Sequential and Exception Test Addendum documents that the Sequential and Exception Test is still passed for the Proposed Development when taking into account the changes in Flood Map for Planning.

13.1.1.10. This section of the ES Addendum quantifies the changes to the existing sources of flood risk considered within the baseline environment (section 20.5.8 of Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) and any resultant impacts to the assessment and likely significant effects arising from the Proposed Development upon surface water resources and flood risk.

13.1.1.11. Relevant to Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135), the only known policy or guidance chance since the ES submission in November 2019 is an update to the gov.uk and EA Guidance 'Flood risk assessments: climate change allowances' (Environment Agency, 2016) originally published on 19 February 2016. The 15 February 2019 update to the guidance was used inform the 2019 FRA (APP-439) and ES; however, this has since been superseded by a further update on 17 December 2019 and 16 March 2020 to reflect updates from the UK Climate Projections 2018. These updates to the guidance have been considered within the FRA Addendum.

13.1.1.12. It should be noted that the assessment methodology and receptor sensitivities have remained unchanged.

13.2. UPDATED INFORMATION

13.2.1. BASELINE

Introduction and Context

13.2.1.1. The FRA Addendum only considers the change to the Flood Map for Planning within the tidal and coastal environment of the Proposed Development (Section 5 to 10 of Order Limits). It has not re-assessed the flood risk profile and environment outside of Portsea Island or north of the tidal / coastal flood extent north of Farlington and Port Downs, as no changes have occurred to the Flood Map for Planning in those locations (Section 1 to 4 of Order Limits).

13.2.1.2. As such, no changes to the baseline environment relevant to Chapter 20 (Surface Water Resources and Flood Risk) (APP-135) have been considered other than those noted in paragraph 13.2.1.3.

Changes to Baseline

13.2.1.3. In the context of the ES baseline environment (section 20.5.8. of Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135)) and based on the FRA Addendum (Appendix 8, document reference 7.8.1.8), changes are summarised as follows:

- the current day probability of tidal flooding classification at the ORS has increased from low, considered within the 2019 FRA (APP-439), to medium (due to the JBA 2018 modelling results);
- the future probability of flooding from the sea at the ORS has increased, however it is still classified as medium and the overall future probability of flooding from the sea classification remains unchanged from the 2019 FRA (APP-439); and
- the current day and future probability of tidal flooding within Flood Zone 2 and 3 of the Onshore Cable Corridor between Section 5 – 10 of the Order Limits ranges from a low to medium classification, when taking into consideration the presence of the existing flood defences, high ground and history of overtopping. The specific locations at risk have changed however the overall assessment remains unchanged from the 2019 FRA (APP-439) and is valid.

13.2.2. UPDATED ASSESSMENT

Changes to Predicted Impacts

(Construction Workers) Human Receptors and Infrastructure as a Consequence of Flood Risk – Construction

13.2.2.1. The assessment of predicted impacts in relation to ‘Human Receptors and Infrastructure as a Consequence of Flood Risk’ upon ‘construction workers’ during the ‘construction stage’ (section 20.7.5 of Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES) (APP-135)) has been considered due to the change in flood risk profile during construction within Section 5 – 10 of the Order Limits, including the ORS.

13.2.2.2. The assessment in Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP (of the 2019 ESAPP-135) (paragraph 20.7.5.8 onwards) remains valid. As a consequence of the sensitivity of construction workers (**Medium**) and a worst-case magnitude of impact (**High**), a **Major** to **Moderate** adverse temporary effect on construction workers is predicted prior to the implementation of mitigation measures in ‘hot spot’ flood risk areas, assuming an extreme flood risk event occurred.

13.2.2.3. It should be noted that the occurrence of an extreme flood risk event coinciding with a construction activity within the associated 'hot spot' flood risk area is unlikely, however due to the potential duration that construction could stretch over the assessment has conservatively considered the worst case of such scenarios coinciding.

(Site Workers) Human Receptors and Infrastructure as a Consequence of Flood Risk – Operation

13.2.2.4. The assessment of predicted impacts in relation to 'Human Receptors and Infrastructure as a Consequence of Flood Risk' upon 'site workers' during the 'operation stage', (section 20.7.5 of Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135)) prior to mitigation remains valid despite the change in flood levels at the ORS as the overall probability and risk of flooding classification has not changed.

13.2.2.5. As detailed within Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) (paragraph 20.7.5.23 onwards), as a consequence of the inherent sensitivity of staff (**medium**) with a likely **low** predicted magnitude of impacts, when considering the frequency of site workers visiting site and the joint probability of a site visit occurring with an extreme flood event, a **Minor** to **Moderate** effect on site workers is predicted prior to the implementation of mitigation.

Changes to Predicted Mitigation

(Construction Workers) Human Receptors and Infrastructure as a Consequence of Flood Risk – Construction

13.2.2.6. The mitigation and enhancements included within the ES remain valid and unchanged, albeit they should now be applied to the areas at risk of flooding based on the updated flood map for planning presented within the FRA Addendum. The proposed mitigation measures are presented within the 2019 ES, 2019 FRA (APP-439) and the Onshore Outline CEMP (APP-505 Rev 002).

(Site Workers) Human Receptors and Infrastructure as a Consequence of Flood Risk – Operation

13.2.2.7. The mitigation and enhancements included within the ES remain valid and unchanged, albeit that they should now be applied to the areas at risk of flooding based on the change to the flood map for planning as presented within the FRA Addendum. The 2019 ES (APP-135), 2019 FRA (APP-439) and Onshore Outline CEMP (APP-505 Rev002) outlined these mitigation measures.

13.2.2.8. In addition to those measures noted above, updated mitigations to the ORS are presented within the FRA Addendum (Appendix 8, document reference 7.8.1.8) and include revised tidal flood resilience measures to the ORS building to reflect the changes in predicted flood events.

Changes to Predicted and Residual Effects

(Construction Workers) Human Receptors and Infrastructure as a Consequence of Flood Risk – Construction

13.2.2.9. When taking into account the proposed mitigation , which will be applied to existing areas identified at risk of flooding and to any additional areas identified at risk from the change to the flood map for planning summarised within the FRA Addendum, a **Minor** (not significant) predicted residual significance is expected and remains unchanged from the 2019 ES.

(Site Workers) Human Receptors and Infrastructure as a Consequence of Flood Risk – Operation

13.2.2.10. When taking into account the proposed mitigation and the additional measures to areas identified at risk of flooding a **Negligible** (not significant) predicted residual significance is expected and remains unchanged from the 2019 ES.

13.2.3. CONCLUSIONS

13.2.3.1. As a consequence of the changes to the Flood Map for Planning and flood risk within the Onshore Cable Corridor, the potential impacts identified within Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) have been further considered.

13.2.3.2. The updated baseline and proposed mitigation have been informed through the FRA Addendum (Appendix 8, document 7.8.1.8) and still relies on existing measures outlined within the 2019 FRA (APP-135). All measures presented within the 2019 FRA (APP-439) and FRA Addendum are (Appendix 8, document 7.8.1.8) secured either through the Onshore Outline CEMP (APP-505), the draft Order (APP-019) and via the design principles included in the DAS (APP-114).

13.2.3.3. The assessment and identification of all predicted impacts within Chapter 20 (Surface Water Resources and Flood Risk) of the 2019 ES (APP-135) remains unchanged and valid.

14. HERITAGE AND ARCHAEOLOGY

14.1. INTRODUCTION

14.1.1.1. Following the submission of the Application, Historic England made a relevant representation in February 2020 with regards to the Heritage and Archaeology assessment, specifically with respect to the potential impact of the construction of a proposed ORS (two buildings; of which two options are proposed) on the setting of Fort Cumberland Scheduled Monument and Grade II* listed building, located near the Landfall.

14.1.1.2. The key point raised regarded possible changes to a view looking out from the asset's Western Ravelin (triangular fort outwork) across open ground towards the proposed ORS, particularly in relation to the historic sightline along Fort Cumberland road (which extends north-west of the carpark). The proposed ORS buildings are considered by Historic England to potentially have an adverse impact on the asset in terms of changes to its setting and how the asset is understood and appreciated (affecting the asset's significance). There are two building option placements proposed; Option A lies in the south-eastern edge of the proposed compound whilst Option B would lie along the north-western edge of the proposed compound, closer to Fort Cumberland Road.

14.1.1.3. Following consultation with Historic England in April 2020, it was agreed that an additional visualisation reusing an existing viewpoint (Viewpoint no. 22 from the Landscape and Visual Amenity assessment; see Plate 14.1 below) would be produced, to inform design and positioning of the proposed ORS building within the Landfall car park.

14.1.1.4. It should be noted that only supplementary information has been provided, which has no impact on the heritage and archaeology assessment reported in the 2019 ES (APP-136). No changes have been made to Chapter 21 (Heritage and Archaeology) of the 2019 ES (APP-136) or any of the accompanying figures or appendices. This addendum provides supplementary evidence to paragraphs 21.5.11.4 to 21.5.11.10 (Fort Cumberland baseline) and paragraphs 21.6.4.27 to 21.6.4.31 (impact assessment of Chapter 21 (Heritage and Archaeology) of the 2019 ES only (APP-136).

14.1.1.5. The Historic Environment Desk Based Assessment ('HEDBA') (Appendix 21.2 of the 2019 ES) (APP-442) was issued without the accompanying figures or appendices. These have been appended to this ES Addendum (Appendix 17, document reference 7.8.1.17) and are provided for information purposes.

14.2. SUPPLEMENTARY INFORMATION

14.2.1. ORS BUILDING VISUALISATIONS

14.2.1.1. The use of an existing viewpoint was proposed as a result of the COVID-19 lockdown restrictions which were in place at the time when discussions were ongoing, which meant that additional photography from the Western Ravelin itself was not possible. Nevertheless, inclusion of the additional existing Viewpoint 22 is considered suitable to allow a robust view of the likely scale and massing of the structures and this approach was agreed by Historic England. These updated visualisations are located within Appendix 10 Figure 5 Historic England Visualisations (document reference 7.8.1.10).

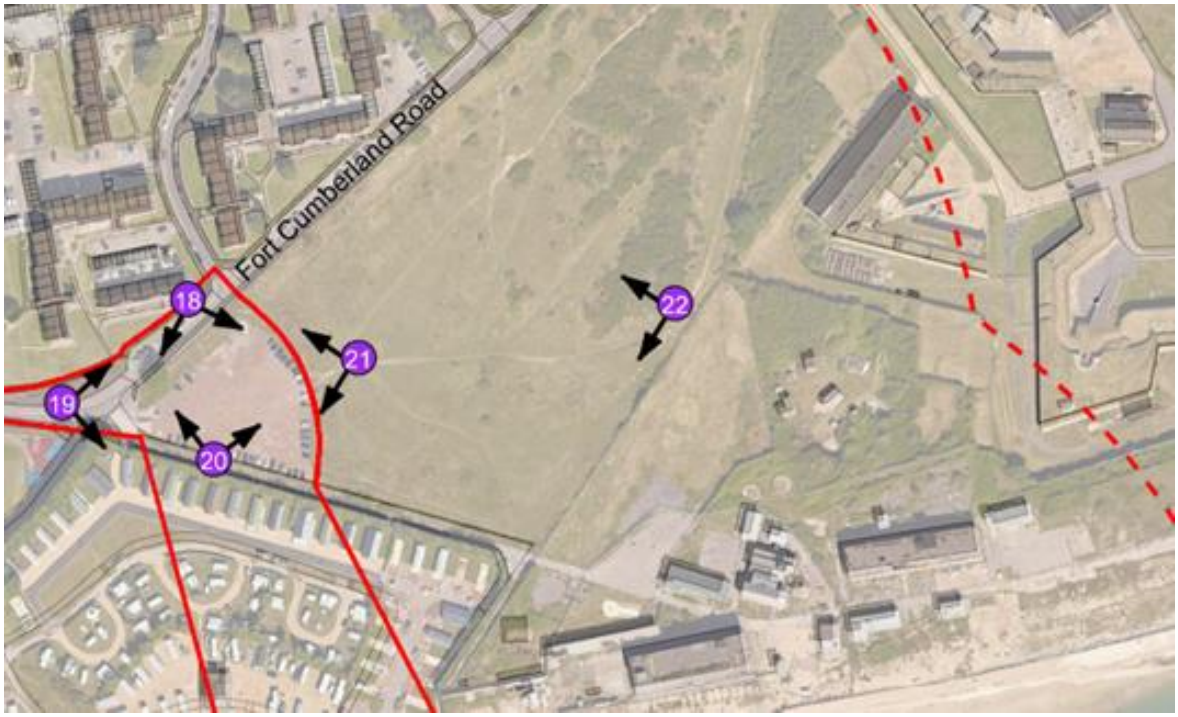

Plate 14.1 - Plan showing Viewpoints in relation to Fort Cumberland (Figure 15.51). Viewpoints 18–21 were carried out as part of the DCO Application submission

14.2.1.2. The aim of the supplementary visualisation work is to provide a representation of the proposed ORS from the area near the fort's Western Ravelin, represented as a single block for each building (with each of the siting options shown individually). This is to provide a visual representation of the scale and massing of the buildings). The wirelines illustrate a 40-degree horizontal field of view during summer (see Figure 15.56 (APP-289) for baseline view).

14.2.1.3. A verified view comprises an accurate photograph in which survey information is recorded. Using this image, an accurate model, typically a 'wireline', can be rendered on the image. Level 1 typically shows a single outline, whilst Level 2 provides some rendering of built form and massing. The visualisations should not be considered to represent the final building design.

14.2.1.4. The additional Heritage visualisations comprise:

- **Figure 5a - Option A Level 1 Wireline** (Appendix 10 (document reference 7.8.1.10))**,** showing extent of building and roofline based on indicative plan *EN020022-2.10-EL-Sheet3* (see Plate 14.2);
- **Figure 5b - Option B Level 1 Wireline** (Appendix 10 (document reference 7.8.1.10))**,** showing extent of building and roofline based on indicative plan *EN020022-2.10-EL-Sheet4* (see Plate 14.3);
- **Figure 5c - Option A Level 2 Block** (Appendix 10 (document reference 7.8.1.10))**,** rendered 'level 2 block', showing likely extent and massing of single option placement, based on *EN020022-2.10-EL-Sheet3* (see Plate 14.2); and
- **Figure 5d – Option B Level 2 Block** (Appendix 10 (document reference 7.8.1.10))**,** rendered 'level 2 block', showing likely extent and massing of single option placement, based on *EN020022-2.10-EL-Sheet3* (see Plate 14.3).

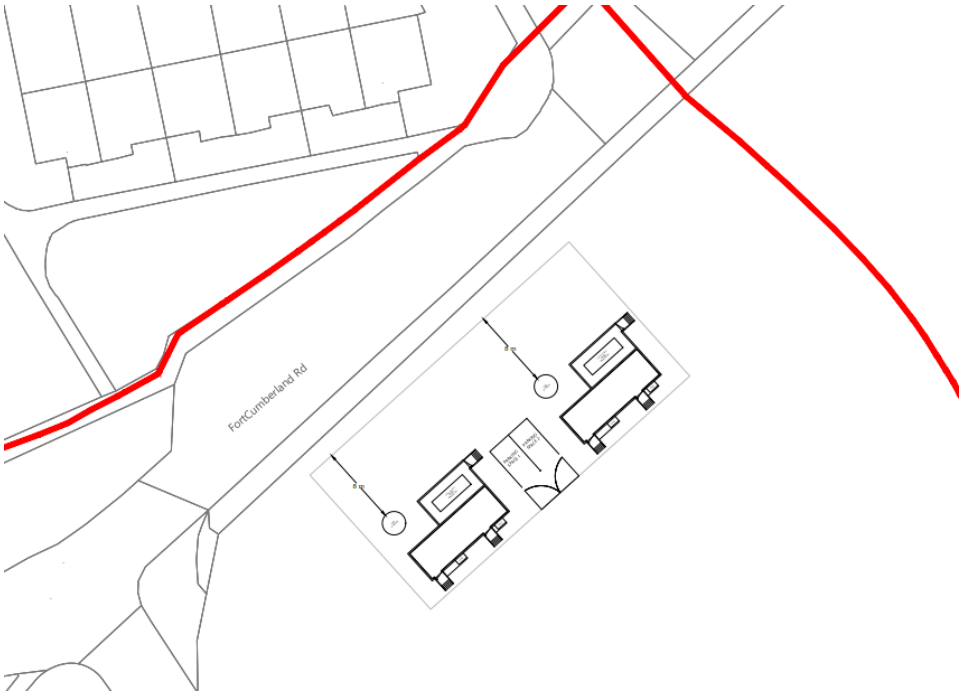

Plate 14.2 - Plan showing Option A footprint (*EN020022-2.10-EL-Sheet3*)

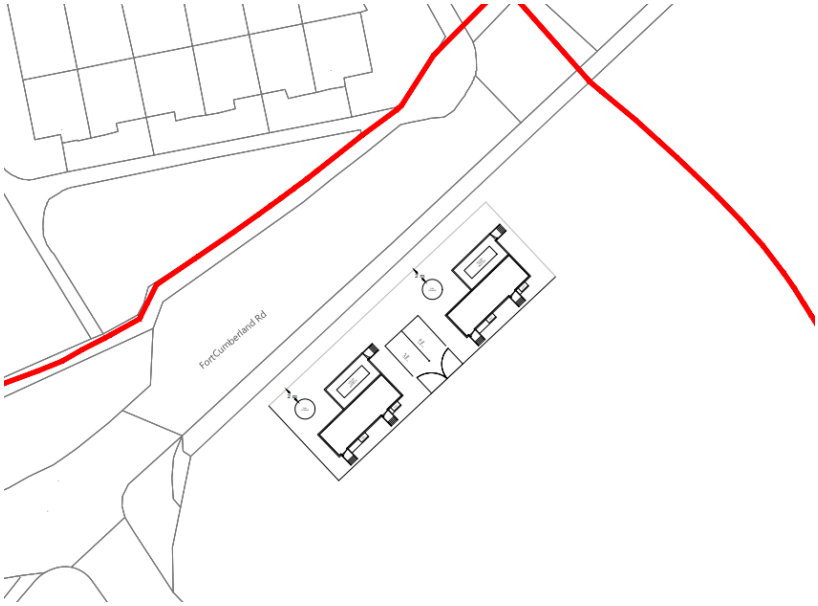

Plate 14.3 - Plan showing Option B footprint (*EN020022-2.10-EL-Sheet4*)

14.3. IMPACT ASSESSMENT

14.3.1.1. All of the visualisations produced provide an indication of the likely long views out from Fort Cumberland towards the ORS buildings (Figures 5a – 5d) (Appendix 10 (document reference 7.8.1.10)). Viewpoint 22 was taken within open ground 80m to the south west of the Fortification, within the 'fields of fire' rather than from the fort itself. As such, it should be noted that views of the ORS buildings from the Western Ravelin are likely to be obscured by the presence of an existing late 20th-century motor shed (lying within the boundary of the scheduled monument).

14.3.1.2. As the Western Ravelin is at an elevated position, it is likely that views beyond the ORS to Fort Cumberland Road would be retained to some extent for both Options A and B. Figure 5b (Appendix 10 (document reference 7.8.1.10)) indicates that Option B would preserve wider views of the Fort Cumberland Road junction, directly adjacent to the west of the Landfall. Option A, as viewed in Figure 5a (Appendix 10 (document reference 7.8.1.10)) from ground level would also allow some views of Fort Cumberland Road, seen through the existing car park's western entrance.

14.3.1.3. The visualisations for both placement options (Figures 5a to 5c (Appendix 10 (document reference 7.8.1.10))) show that the buildings would be lower than the nearby houses and the line of tall trees from the Caravan park, 10 m to the south west. The houses and trees have already impacted on the open coastal plain in views looking out from the Western Ravelin towards the Landfall. In terms of the fort's wider setting, Figures 5c and 5d (Appendix 10 (document reference 7.8.1.10)) have been produced to provide an indication of the scale and massing of the structures (viewpoint taken from ground level rather than elevated Western Ravelin). The

rendered block shows that, with a single-storey height of 4.0 m, the proposed ORS buildings would sit within the surrounding urban fabric, comprising a nearby 1960s housing estate (consisting of 3–4-storey buildings) 15 m to the north and a Caravan Park 10 m to the south west. The latter is bounded by a line of tall trees, which obscure longer views to the west.

14.4. CONCLUSION

14.4.1.1. Based on further assessment of the additional viewpoint as requested by Historic England, it is concluded that the environmental effect would remain **negligible** for both siting options (not significant), based on the negligible magnitude of change (see Table 21.5 of Chapter 21 (Heritage and Archaeology) of the 2019 ES (APP-136)) The conclusion of **negligible** effect as presented in the Cultural Heritage and Archaeology assessment submitted for the DCO Application is considered appropriate and therefore remains valid.

15. TRAFFIC AND TRANSPORT

15.1. INTRODUCTION

15.1.1.1. Since the 2019 ES, three new technical submissions (one supplementary document and two updated documents) related to traffic and transport have been produced; and these affect the content of Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137). These three submissions are:

- Supplementary Transport Assessment ('STA') (document to be submitted as Appendix 11 to this ES Addendum) (document reference 7.8.1.11);
- Updated Framework Construction Traffic Management Plan ('Framework CTMP') (APP-450 Rev002); and
- Updated FTMS (APP-449 Rev002).

15.1.1.2. This chapter of the ES Addendum summarises the changes to the 2019 ES as a result of these documents.

15.1.1.3. For each of the above submissions, this ES Addendum summarises the relevant content that affects Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137), including a summary of the changes (or new information in the case of the STA). For full details, please refer to the submissions themselves (full references are given in the sub-sections below).

15.2. SUPPLEMENTARY TRANSPORT ASSESSMENT

15.2.1.1. The Supplementary Transport Assessment ('STA') (Appendix 11, document reference 7.8.1.11) was undertaken in response to the Relevant Representations received and further discussions with PCC and Hampshire County Council ('HCC') following the submission of the Application.

15.2.1.2. References to "the TA" refer to: WSP, 14 *November 2019, Environmental Statement – Volume 3 – Appendix 22.1 Transport Assessment Rev 001* (APP-448).

15.2.1.3. The majority of analyses completed within the STA use the Solent Sub-Regional Transport Model ('SRTM') to assess the future year baseline and Construction Stage impacts of the Proposed Development. The SRTM Modelling has not changed since submission of the TA.

15.2.1.4. The SRTM is a multi-modal strategic transport model for South Hampshire, Southampton, the Isle of Wight and Portsmouth that includes public transport networks and the strategic and local highway network. The purpose of the model is to test the impact of transport interventions and changes to land-use. For the Proposed Development, it has been used to assess the temporary impacts associated with construction of the Onshore Cable Route and traffic management

required to facilitate these works. This assessment takes into consideration the primary impacts along the Onshore Cable Corridor itself, as well as secondary impacts resulting from traffic distribution during construction works.

15.2.1.5. The STA (Appendix 11, document reference 7.8.1.11) provides the following details:

- Further information relating to the construction traffic access for construction of the Onshore Cable Route and Converter Station including:
  - The design of the Converter Station highway access junction;
  - Additional details of how construction traffic movements will be controlled on Day Lane and Broadway Lane;
  - Additional details on the enforcement of Heavy Goods Vehicles ('HGV') routing throughout the Construction Stage;
  - An update to proposals for permitted construction traffic routing on the A3 London Road and Milton Road in Waterlooville;
  - An assessment of how cable drum delivery vehicles will access indicative Joint Bay ('JB') locations along the Onshore Cable Route; and
  - Additional information on Abnormal Indivisible Load ('AIL') routing between the Portsmouth Cargo Port and the exit of the A3(M) (with the remainder of the route assessed within the submitted Framework CTMP (APP-449)).
- An updated analysis of Personal Injury Collision ('PIC') data for the Onshore Cable Corridor and the wider area, specifically the areas that will serve as likely diversion routes as a result of the traffic management required to facilitate construction of the Onshore Cable Route. Not only does the analysis cover a wider area than the TA to provide analysis of the entire study area, but also an updated time period (1 October 2014 to 30 September 2019) to reflect the most recently available data.
- Additional junction capacity assessments, additional assessments of the A2030 Eastern Road and additional sensitivity testing of traffic management (i.e. temporary traffic signals) along the Onshore Cable Route.
- Junction capacity assessment of the following junctions which were missing signal timing data in the TA (the data was not received from HCC prior to submission of the Application):
  - Hambledon Road / Aston Road Traffic Signal Junction in Waterlooville;
  - Dell Piece West / A3 Portsmouth Road / Catherington Lane Traffic Signal Junction in Horndean;

- An assessment of the impact of construction workers associated with the Onshore Cable Route leaving the Converter Station during the PM peak period;
- An additional assessment of the impact of the traffic management required to facilitate construction of the Onshore Cable Route on A2030 Eastern Road;
- Further sensitivity testing of shuttle working traffic signal locations and junctions with temporary signals associated with the proposed traffic management which were assessed within the TA; and
- Analysis of the bus journey times for a selection of bus services across the study area which may be affected by the construction works for the Onshore Cable Route. The assessment has been undertaken for the AM, PM and Inter peak time periods and the scenarios match those assessed within the TA.

15.2.1.6. It should be noted that the Proposed Development has not changed; only certain parts of the assessment as detailed above.

15.3. UPDATED INFORMATION: FRAMEWORK CTMP

15.3.1.1. The Framework CTMP (APP-450) has been updated and replaced with the updated Framework CTMP (now Rev 002). The changes mainly relate to the following:

- Updated details of:
  - Highway Access requirements including locations (construction accesses and permanent access points);
  - Compound and laydown areas;
  - Local sensitive receptors;
  - Abnormal loads including abnormal indivisible loads;
  - Working hours and timing of vehicle movements;
  - Routeing and access of cable drum deliveries;
  - Onshore Cable Route section-specific issues and constraints;
  - Required highway interventions;
  - Highway condition data;
  - Enforcement of HGV movements; and
- Various minor text changes.

15.3.1.2. Relevant Framework CTMP updates (APP-450 Rev002) are also directly referenced in Chapter 2 of the STA (Appendix 11, document reference 7.8.1.11), as necessary.

15.4. UPDATED INFORMATION: FRAMEWORK TRAFFIC MANAGEMENT STRATEGY

15.4.1.1. The FTMS (APP-449 Rev002) has been updated with various details. While these are important for the details of the management of traffic, many of these are not relevant to the ES.

15.4.1.2. Those of relevance to the ES are as follows:

- Updated durations of construction works associated with the amended installation rates for the Onshore Cable Route as identified in Chapter 3 of this ES Addendum.

15.4.1.3. The FTMS (APP-449 Rev002) provides updated details of the durations of construction works resulting from the amended installation rates and associated traffic management for the Onshore Cable Route at a finer level of detail than the descriptions included in Chapter 3 of this ES Addendum and therefore should be used to find details of proposals for individual links.

15.5. UPDATED INFORMATION: ES CHAPTER

15.5.1. INTRODUCTION

15.5.1.1. The three submissions supplement the assessment contained in Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137), as demonstrated in the following sub-sections.

15.5.1.2. Furthermore, a full review of Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137) has been completed in relation to identified link sensitivities, magnitude of impact and resultant effects to ensure they are consistent with Appendix 22.4 (Baseline and Methodology Tables) (AS-017) and Appendix 22.5 (Impact Tables) (AS-018). Updates required to Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137) as a result of this review are listed in the following sections and new revisions of Appendix 22.4 and 22.5 (AS-017 and AS-018, Rev 003).

15.5.1.3. The following sections of Chapter 22 to the 2019 ES remain unchanged: scope of the assessment; legislation, policy and guidance; scoping opinion and consultation; cumulative effects; and proposed mitigation and enhancement.

15.5.2. ASSESSMENT METHODOLOGY

15.5.2.1. The following changes are made to section 22.4 of Chapter 22 to the 2019 ES (APP-137):

15.5.2.2. **Superseding 2019 ES, Paragraph 22.4.3.4**

- Other EIA topics are covered elsewhere in the ES as follows:
  - Visual impacts: Chapter 15 (Landscape and Visual Amenity) of the 2019 ES (APP-130);
  - Ecological impacts: Chapter 16 (Onshore Ecology) of the 2019 ES (APP-131);

- Dust and dirt and air pollution: Chapter 23 (Air Quality) of the 2019 ES (APP-138); and
- Noise and vibration: Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139).

15.5.2.3. **Superseding 2019 ES, Paragraph 22.4.2.5**

- Personal Injury Accident ('PIA') data has also been collected from Hampshire Constabulary for all links within the study area for the most recently available five-year period (1 October 2014 – 30 September 2019). This has been used to inform the accident analysis section of the assessment and identify if there are any cluster sites within the vicinity of the Converter Station or the Onshore Cable Corridor. It should be noted that these records supersede the collision information within the TA which were from a period between 1 January 2014 and 31 December 2018. Full details of the PIC and Personal Injury Accident ('PIA') data are given in the STA and are summarised in Section 15.5.9 of the ES Addendum.

15.5.2.4. **Superseding Chapter 22 of the ES, Paragraphs 22.4.5.10 to 22.4.5.14 in relation to the assessment of Traffic Delay:**

- GEART recommends that traffic delay is determined using software packages such as Junctions 9 (for roundabouts and priority junctions) or LinSig 3 (for traffic signal junctions). These packages model the operation of a junction, producing estimates of vehicles and delay, and allowing for a comparison between the future baseline (DM) and development (DS) scenarios.
- An assessment of driver delay is provided within the TA for key junctions, defined during scoping discussions with HCC and PCC, and where shuttle working temporary traffic signals will be used along the Onshore Cable Corridor. The junctions assessed include those along the Onshore Cable Corridor and those across the study area that were shown to be impacted by the construction works by the SRTM modelling.
- Along the Onshore Cable Corridor, traffic delay has also been assessed at locations where traffic management has been modelled within the SRTM, as described in section 22.4.7, using LinSig 3 and traffic data from the 2026 DS scenarios to model temporary traffic arrangements. These have then been compared with the predicted operation of the existing junction layout in the 2026 DM scenario to estimate the impact of the Proposed Development.

- In addition to the assessment of traffic delay using the DS1 and DS2 scenarios from the SRTM, a number of sensitivity tests have been completed within section 5.5 of Supplementary TA. These sensitivity tests assess the impact of the implementation of Traffic Management assuming a 50% reduction in traffic redistribution away from the Onshore Cable Corridor, identified by comparing the SRTM DM, DS1 and DS2 scenarios. This assessment, using a higher volume of traffic flow on the Onshore Cable Corridor than within the DS1 and DS2 scenarios, presents an extremely robust assessment of potential traffic delays resulting from construction of the Onshore Cable Route. The results of these sensitivity tests are included within the ES Addendum for comparative purposes.
- Moreover, as part of the Eastern Road Traffic Assessment Technical Note included within Appendix D of the Supplementary TA (Appendix 11, document reference 7.8.1.11) a sensitivity test has been completed for the implementation of Traffic Management at the Eastern Road / Tangier Road traffic signal junction. This was completed at the request of PCC to assess the impacts of Traffic Management required to facilitate construction of the Onshore Route on A2030 Eastern Road between Tangier Road and Eastern Avenue. The results of these sensitivity tests are included within the ES Addendum for comparative purposes.
- At other junctions along the Onshore Cable Corridor and across the wider study area the predicted impact has been calculated by comparing the operation of the junction in the 2026 DM and DS scenarios. In total, this assessment has been completed for 31 junctions across the study area.
- This assessment is summarised within this Chapter, with the magnitude of change determined using professional judgement based upon a number of factors. These include consideration of the baseline traffic conditions, the location and operation of the junction or traffic management location assessed, how long the junction or link will be affected by the Proposed Development and the difference in delay between the DM and DS scenarios. In doing so, GEART has been taken into account, which states that delays are only likely to be significant when the traffic on the network is already at, or close to, capacity.

15.5.2.5. **Superseding 2019 ES, Paragraph 22.4.5.15: Public Transport:**

- The STA includes analysis of the bus journey times for a number of bus routes that may be affected by the construction of the Onshore Cable Route. While the STA does not cover all bus routes within the Study Area, a cross-section of routes has been selected for analysis to provide an overall assessment of impacts along key corridors across Onshore Cable Corridor and the wider area impacted by the redistribution of traffic.

- The assessment has been undertaken for the AM, PM and Inter peak time periods using the SRTM 2026 DM, DS1 and DS2 scenarios.
- Bus journey times have been derived using a combination of SRTM vehicle journey time data and link speeds to calculate the length of time a bus would travel between the start and end of its route. As bus dwell times were not available from the SRTM, this assessment does not account for time spent at bus stops and therefore does not fully align with existing bus timetables. This is considered to be a robust assessment as the dwell times are not anticipated to change between the DM and DS scenarios. This assessment also excludes potential layover times (for example, when a bus stops at a bus station for five minutes part way along a route) which may occur along the assessed bus routes and which allows for mitigation of some journey time increases.
- This analysis has been used to assess the predicted impacts to public transport. With no formal guidance available on determining how magnitude of impact is defined, professional judgement has been used to derive the following criteria:
  - 0-10% increase in journey time: Low magnitude of impact;
  - 10-20% increase in journey time: Medium magnitude of impact; and
  - >20% increase in journey time: High magnitude of impact.
- In applying these criteria, consideration has also been given to the overall journey time of the service. This accounts for examples where a high percentage increase to a short overall journey would actually result in a relatively small increase in journey time. The significance of the impacts on bus journey times has been assessed using the "*Matrix for classifying the significance of effects*" (Table 22.6 of the 2019 ES (APP-137)).

15.5.2.6. **Superseding Paragraphs 22.4.5.30 to 22.4.5.35: Accidents and Safety**

- For areas within the study area which do not form part of the Onshore Cable Corridor, but which were identified as being impacted by traffic redistribution associated with the proposed TM works through the review of the SRTM data, further analysis of PIC data has been undertaken. The analysis of PIC data has identified any clusters of accidents within the wider study area which are likely to be vulnerable to implementation of traffic management or changes in traffic flow, speed or increased levels of HGV flow. The magnitude of impact has been derived using professional judgement based upon how the implementation of traffic management or resultant changes in traffic flow, speed or composition may impact upon these trends.

15.5.2.7. **Superseding 2019 ES, Paragraph 22.4.5.36 to 22.4.5.39: Hazardous and Dangerous / Abnormal Loads:**

- It is anticipated that the Proposed Development will not generate any hazardous or dangerous loads during construction or operation, and therefore this aspect has not been considered further. Accordingly, the assessment has focused on access by abnormal loads during the Construction Stage phases.
- The UK Government's definition of an Abnormal Load[4] is a vehicle that has either:
  - A weight of more than 44,000 kg;
  - An axle load of more than 10,000 kg for a single non-driving axle and 11,500 kg for a single driving axle;
  - A width of more than 2.9 m; and / or
  - A rigid length of more than 18.65 m.
- The assessment of abnormal loads has been completed in relation to the following vehicle movements:
  - The delivery of cable drums to indicative JB locations along the Onshore Cable Corridor, based upon the assessments completed within the STA; and
  - The delivery of Transformers to the Converter Station, which are categorised as Abnormal Indivisible Loads ('AILs'), which has been assessed using a Route Access Survey completed by Collett and Sons Ltd haulage company, which is included in Appendix 5 of the Framework CTMP (Appendix 22.2 of the 2019 ES (APP-450)).
- Given that the delivery port for transformers and cable drums is yet to be confirmed, this study has been completed assuming that Portsmouth Cargo Terminal is used as the nearest facility to the Onshore Cable Corridor and Converter Station.
- The STA (Appendix 11, document reference 7.8.1.11) provides an assessment of abnormal loads along the Onshore Cable Corridor. The assessment is based upon indicative locations of JBs, taking account that the exact locations of the JBs will be finalised as part of the detailed design.

[4] https://www.gov.uk/government/collections/abnormal-loads-forms-and-guidance

- A summary of the cable drum delivery route assessment is given below under “Abnormal Load Predicted Impact” in Section 15.5.10. The details relating to the delivery procedure are taken from sub-sections 3.8.2 and 3.8.3 of the STA (Appendix 11, document reference 7.8.1.11); while the assessment is taken from sub-sections 3.8.4 of the STA. In each case, the details in this Addendum are a summary of the content of the STA.
- JBs will be required at points along the Onshore Cable Route, and these will be used for pulling the cable through the cable ducts before joining one section of cable to another.
- The cable drums will be delivered to each JB via HGV before being offloaded and pulled through the cable ducts using winches. Two cable drum deliveries will be required for each JB (or four deliveries if cables are being pulled in both directions, removing the need for deliveries at the location that the cables are pulled to) with these vehicles travelling outside of the AM (08:00-09:00) and PM (17:00-18:00) peak periods. The cable drum delivery vehicles would be on site for approximately one hour, whilst the cable drum is off-loaded from the vehicle.
- Vehicle manoeuvres at JB locations will be supervised by banksmen at all times.
- In all cases abnormal loads and Abnormal Indivisible Loads will be accompanied by an escort vehicle, with radio contact maintained between the two vehicles at all times. The duties of the escort person are as follows:
    - to escort the abnormal load along the approved transport route, acting as a warning to other road users and pedestrians;
    - to ensure that any special instruction or restrictions either for the escort vehicle or abnormal load are followed (e.g. use of bridges);
    - to be the communications interface between the abnormal loads convoy and Police / highway authority control rooms, bridge authorities and emergency services if required;
    - to be responsible for traffic management around the abnormal loads when it is stationary for a period of time, for example during off-loading of the cable drum; and
    - to ensure the vehicle used is fit for purpose.

- The assessment of predicted impacts has been based upon swept path analysis to determine whether vehicles can safety access the Converter Station Area or Joint Bay location. The magnitude of impact has been based upon professional judgement, taking into account the ease with which vehicles can access each indicative location and the number and frequency of vehicle movements required.

15.5.2.8. **Superseding 2019 ES, Paragraph 22.4.6.2: Converter Station construction traffic assumptions:**

- The working hours for the Converter Station are assumed to be restricted to Monday to Friday 08:00-18:00 and Saturdays 08:00-13:00. Construction workers will arrive in the hour proceeding and depart in the hour following these working hours. As stated in Section 3.1 of the Supplementary TA, the assessment work included throughout this ES Addendum includes only weekday construction working and construction traffic movements on the basis that weekday baseline peak period traffic flows are higher than weekends. This therefore presents the most robust assessment of the likely impacts of the construction phases of the Proposed Development.

15.5.2.9. **Superseding 2019 ES, Paragraph 22.4.6.4: Converter Station construction traffic assumptions:**

- The estimate of HGV movements is based upon the following construction assumptions:
  - As details of the Converter Station are still to be confirmed, principal quantities of materials have been used from other Converter Station / Sub-Station projects and adjusted pro-rata to reflect the Proposed Development. This methodology has been used to calculate quantities of materials related to:
    - Steel tonnage/building;
    - Foundations and ground floor slab construction;
    - Road construction within the Converter Station;
    - Converter Station finishes; and
    - Transformer technical specification and associated transformer bund.

- To create a safe working platform for piling rigs to travel around the site and operate, a piling mat will be provided. The design and depth of piling mats will depend on the ground conditions and the piling requirement being used, as well as the piling rig loading. Typically, the top of piling mat will be around 600 mm above the pile cut-off level;
- Converter Station finishes will comprise of a minimum 75 mm layer of chipping (Converter Station surfacing) over a minimum thickness of 300 mm unbonded free draining sub-base complying with the specification for highway works;
- Any surplus cut and fill will be utilised in reprofiling the landform, pond fill and screening where possible. Outstanding surplus will be suitable for off-site general or landscaping fill but will be transported off-site outside of the peak construction period;
- All other surplus material generated during construction works (foundation excavations, drain trenches, etc) and topsoil will be re-used on-site;
- Construction of a temporary car park for all construction workers and construction vehicles serving construction of the Onshore Cable Route. This temporary car park is likely to comprise of approximately 150 mm of tarmac and approximately 200 mm of compacted imported stone on a geotextile membrane;
- Provision of an area for site cabins and welfare facilities will comprise approximately 150-200 mm imported stone on a geotextile membrane;
- Construction of the laydown area has been included and assumed to require a 400 mm base of imported stone on a geotextile membrane;
- A temporary haul road will be constructed around the perimeter of the Converter Station and towards the proposed landscaping area. The construction of the haul road is assumed to be 300 mm DfT Type 1 crushed stone. A geotextile later will also be provided;
- Calculation of the reinforced concrete element of construction is based upon the use of ready-mixed concrete;
- A full Heras fence will be erected around the perimeter of the site prior to commencement of the works; and
- HGV movements within the Converter Station Area have been excluded from the calculations.

15.5.2.10. Since submission of the 2019 ES the assumptions regarding the maximum number of construction gangs working simultaneously on the Onshore Cable Corridor has been revised. While the maximum number of construction gangs operating within the highway remains at six at any one time, construction may also take place at up to three HDD locations simultaneously. This increases the total number of

construction locations from seven (six on highway, plus Landfall) as assessed within the Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137) to nine (six on highway, plus landfall, plus two other HDD locations). The impact of these additional locations has been considered and the assessment methodology used within the ES Chapter 22 (Traffic and Transport) and the ES Addendum remains robust for the following reasons:

- Outside mobilisation and de-commissioning of HDD sites (a 2-3 day process), HGV construction traffic generation from construction is anticipated to be very low, with an average demand of 2-3 HGVs per day related to the provision of water and removal of waste material from site; and
- Construction workers would be transported to HDD locations via LGV where possible taking account of shift patterns, to reduce the number of construction worker vehicle trips made to each location. Generally, it can be expected that most will travel via shared LGV but there may be occasions when some construction workers may have to travel in their own cars if they are specialists with different shift patterns to the majority of the workforce.

15.5.2.11. On this basis the addition of two further HDD construction sites would not lead to a material change in the assessments completed within Chapter 22 (Traffic and Transport) of the 2019 ES (Traffic and Transport) and therefore no further assessments have been completed.

15.5.2.12. **Superseding 2019 ES, Paragraph 22.4.7.1 to 22.4.7.15: Onshore Cable Corridor construction traffic assumptions:**

- Construction traffic movements related to the Onshore Cable Route will occur during weekday and weekend periods in line with the construction working hours and vehicle movement management strategy outlined within the updated Framework CTMP (APP-450 Rev003). The construction traffic assumptions included within this ES Addendum however includes only weekday construction working and traffic movements on the basis that weekday baseline peak period traffic flows are higher than weekends. This therefore presents the most robust assessment of the likely impacts of the construction phases of the Proposed Development.
- The installation of the Onshore Cable Route will generate construction traffic movements which will impact upon the study area and may interact with construction traffic movements associated with the Converter Station Area. A site compound at the Converter Station will be established as a set-down area for materials and vehicles involved in the installation of the Onshore Cable Route.

- Construction of the cable ducts for the Onshore Cable Route will be completed in 100 m sections between the Landfall and the Converter Station Area.
- Due to the length of the route, it is possible that several sections will be constructed simultaneously. It has been assumed that as a worst-case a maximum of six 100 m sections will be under construction on highway at any one time along the Onshore Cable Route.
- In the SRTM modelling that has been undertaken to inform the TA (APP-448) (which has been used to carry out the assessment presented in this Chapter), the six sections of the Onshore Cable Route being constructed have been assumed to be located at the locations listed in the following section, to provide a robust assessment of the construction impacts (as agreed with HCC and PCC).
- For Cable Corridor Section 6, the single lane closure of the A2030 Eastern Road has been assessed within two separate DS scenarios (DS1 and DS2) to reflect that northbound and southbound closures will occur at different times in the construction programme. The DS1 scenario refers to the southbound lane closure and the DS2 scenario refers to the northbound closure. In the DS1 and DS2 scenarios all other Cable Corridor Section remain the same as below:
    - Temporary shuttle working traffic signals on B2150 Hambledon Road between Soake Road and Closewood Road (Section 4);
    - Temporary traffic signal operation of the B2150 Hambledon Road / A3 Maurepas Way / Houghton Avenue roundabout in Waterlooville (Section 4);
    - Temporary traffic signal operation of the A3 London Road / Ladybridge Road roundabout (Section 4);
    - Temporary single lane closures on Havant Road at the Farlington Avenue / Havant Road / A2030 Eastern Road traffic signal junction (Section 5);
    - Temporary single lane closures on the A2030 Eastern Road between Airport Service Road and Burrfields Road, modelled as a southbound lane closure in the DS1 scenario and northbound closure in the DS2 scenario (Section 8); and
    - Temporary shuttle working traffic signals on Henderson Road between Bransbury Park and Fort Cumberland Road (Section 10).

- Each 100m section will be assigned a cable gang which will consist of 6-8 construction workers. A ten-hour working day will apply between the hours of 07:00 and 17:00. HDD locations will be subject to similar working hours between 07:00 and 19:00, except HDD-3 and HDD-4 where works may be undertaken over 24-hours. However, to provide a robust assessment of the Impact of the construction traffic on the highway network, working hours have been assumed as 07:00-17:00.
- Each cable gang will generate the following construction traffic movements:
  - Four two-way HGV movements (eight in total) per day; and
  - Two two-way Light Goods Vehicles (LGV) movements carrying personnel / equipment to site (4 in total).
- For the Onshore Cable Route, the following controls / assumptions have been applied as outlined within the Framework CTMP (APP-450 Rev003):
  - At each Onshore Cable Route construction location, and taking account of travel time, all construction workers will arrive at the Converter Station before 07:00 and depart after 17:00 to reflect the 07:00 to 17:00 working day at each Onshore Cable Route construction location and taking account of travel time back to the Converter Station Area. Car parking will be provided for these construction workers at the Converter Station, with each cable gang (6-8 workers) then transported to the Onshore Cable Route construction location by LGV; and
  - HGV movements will generally take place between 07:00-08:00 and 09:00 to 17:00 to deliver equipment and material to each Onshore Cable Route construction location from the Converter Station Area.
- As a robust assessment, it is assumed that all construction vehicles associated with the Onshore Cable Route will travel from the site compound at the Lovedean Converter Station to the requisite Cable Corridor Section. This means that the six construction locations will generate the following construction vehicle movements:
  - 48 two-way car movements (96 car movements in total) based on eight employees for each of the six cable gangs, and a car occupancy rate of 1.0;
  - 24 two-way HGV movements (48 in total) based four HGV trips being generated by each of the six construction locations; and
  - 12 two-way LGV movements (24 in total) based on two LGV trips being generated by each of the six construction locations.

- HGV construction traffic movements will be timed to avoid the AM (08:00-09:00) and PM (17:00-18:00) peak hours with further consideration required to be provided to other sensitive receptors (such as schools) as part of detailed CTMP documents. However, it is noted that some non-HGV construction traffic movements may occur at the Converter Station Area between the hours of 17:00 to 18:00. These movements relate to the following:
    - 12 non-HGV construction vehicles returning to the Converter Station compound from the six construction locations along the Onshore Cable Route (two vehicles per site) between 16:00 and 17:00 may arrive at the Converter Station after 17:00. For assessment purposes it has been assumed that these vehicles arrive at the Converter Station between 17:00 and 18:00; and
    - 48 construction worker car trips exiting the Converter Station compound at the end of their working day.
- The arrival of construction workers to the Converter Station Area for 17:00 allows for the Onshore Cable Route construction locations to be shut down before 17:00 to provide time in some locations for road-plating and removal of fencing to allow access to residential properties outside of working hours. This will ensure that access will not be precluded during the PM peak when residents return home from work, thereby ensuring the impacts of the construction works on residential access are mitigated as far as is practicable.
- A series of construction traffic routes have been prescribed within the Framework CTMP (APP-450 Rev002) for travel between the site compound at the Converter Station Area and the Onshore Cable Corridor sections, based upon use of the most suitable routes. These routes are as follows:
    - **From site compound to Onshore Cable Corridor Section 1:** Internal Converter Station Site roads only;
    - **From site compound to Onshore Cable Corridor Section 2:** Internal Converter Station Site roads only;
    - **From site compound to Onshore Cable Corridor Section 3:** Broadway Lane – Day Lane – Lovedean Lane – A3 London Road – A3 Maurepas Way – B2150 Hambledon Road;
    - **From site compound to Onshore Cable Corridor Section 4:** Broadway Lane – Day Lane – Lovedean Lane – A3 London Road – A3 Maurepas Way – B2150 Hambledon Road or A3 London Road depending upon construction location;
    - **From site compound to Onshore Cable Corridor Section 5, 6, 7 and 8:** Broadway Lane – Day Lane – Lovedean Lane – A3 Portsmouth Road – B2149

Dell Piece West – A3(M) Junction 2 – A3(M) – A27 Havant Bypass – A2030 Eastern Road;

- **From site compound to Onshore Cable Corridor Section 9:** Broadway Lane – Day Lane – Lovedean Lane – A3 Portsmouth Road – B2149 Dell Piece West – A3(M) Junction 2 – A3(M) – A27 Havant Bypass – A2030 Eastern Road – Moorings Way; and
- **From site compound to Onshore Cable Corridor Section 10:** Broadway Lane – Day Lane – Lovedean Lane – A3 Portsmouth Road – B2149 Dell Piece West – A3(M) Junction 2 – A3(M) – A27 Havant Bypass – A2030 Eastern Road – A2030 Velder Avenue – A288 Milton Road – A288 Eastney Road – Bransbury Road – Henderson Road – Fort Cumberland Road.

- Within the Order Limits, a number of potential JB locations have been included, all of which would provide adequate space for construction works to take place without blocking the carriageway (including vehicle delivery / parking). The exact number and location of the JBs will, however, be determined as part of the detailed design. The assessment undertaken in the STA (Appendix 11, document reference 7.8.1.11), and summarised later within this Chapter, is based on indicative locations of joint bays. While these are indicative, it is considered that any changes will result in the same predicted impact and significance of effect as the indicative locations and their proposed traffic management requirements. These indicative locations are shown on Figure 24.2 (Illustrative Cable Route, HDD sites and Joint Bays for noise and vibration assessment) (APP-336).
- Given the classification of cable drum delivery vehicles as abnormal loads, an assessment has been completed of delivery routes to the indicative JBs along the Onshore Cable Route. This assessment has used the following assumptions:
  - All cable drums will be delivered by sea to, and stored at the Cargo Terminal of Portsmouth International Port and transported directly to each joint bay from this location;
  - All deliveries will take place outside of the AM and PM peak hours to minimise traffic disruption by the delivery vehicles moving along the route or stationary at individual joint bay locations;
  - The A2030 Eastern Road bridge south of the A27 Havant Bypass junction cannot be used by laden vehicles due to its existing 50 tonne weight limit;
  - Access to all joint bays on Portsea Island will be via A3 Commercial Road, A3 Marketway, A3 Anglesea Road, A2030 Winston Churchill Avenue, A2030 Victoria Road North and A2030 Goldsmith Avenue, Fratton Way and Rodney Road until the junction with A228 Milton Road;

- Cable drum deliveries to all joint bays off Portsea Island will be via A3 Mile End Road, M275 and A27, with other JBs within the PCC highway network using the A2030 Eastern Road (north of the A27) and JBs within the HCC highway network using the A3(M) to reach their destination;
- The strategy required for offloading the cable drum has been considered individually at each JB. For example, at some locations it may be possible for vehicles to be offloaded from the carriageway while at others a turning manoeuvre may be required to allow vehicles to access an off-carriageway location; and
- While the Hammar 155 vehicle has rear axle steering this has not been used on tracking assessments, thereby providing a more robust assessment of vehicle swept paths using the larger swept path arising from only front axle steering.

- In consideration of the delivery routes for cable drums, it should be noted that a preliminary assessment has been completed of the indicative JB locations to confirm if cable drum deliveries will be required to all JBs. This is on the basis that cables do not necessarily need to be pulled from each direction along the Onshore Cable Route. This preliminary assessment has confirmed that delivery of cable drums will be required to only 13 joint bay locations (out of 22) along the Onshore Cable Route, as follows:
  - Joint Bay 1 / 2: within fields south of the Converter Station;
  - Joint Bay 2 / 3: within fields at Kings Pond Meadows;
  - Joint Bay 4 / 5: adjacent to B2150 Hambledon Road in proximity to BP Petrol Filling Station;
  - Joint Bay 6 / 7: A3 London Road south of Mill Road (within bus lane);
  - Joint Bay 7 / 8: A3 London Road south of Ladybridge roundabout (within bus lane);
  - Joint Bay 9 / 10: Portsdown Hill Car Park, south of Portsdown Hill Road;
  - Joint Bay 11 / 12: within Zetland Fields adjacent to A2030 Eastern Road;
  - Joint Bay 12 /13: within Sainsbury's car park;
  - Joint Bay 13 / 14: within Farlington Playing Fields;
  - Joint Bay 14 / 15: within Kendalls Wharf;
  - Joint Bay 16 / 17: north of Milton Common, adjacent to A2030 Eastern Road;
  - Joint Bay 18 / 19: within the Thatched House public house car park, accessed via Locksway Road;

- Joint Bay 20 / 21: within Bransbury Park Car Park; and
- Landfall at Fort Cumberland open space car park (Transition Joint Bay).

- The assessment of cable drum delivery routes has therefore been based upon these indicative Joint Bay locations.

15.5.2.13. **Superseding 2019 ES, Paragraph 22.4.8.3: Landfall construction traffic assumptions:**

- To provide an assessment of the Construction Stage at Landfall, the same construction traffic numbers have been applied as one cable gang associated with construction of the Onshore Cable Route, as described below. This is considered to be a robust assessment that assumed that all construction vehicles will travel to and from the Converter Station Area as is assumed for construction traffic associated with installation of the Onshore Cable Route. Therefore, Landfall is assumed to generate the following construction traffic:
  - 8 two-way car movements to and from the Converter Station Area (16 car movements in total) based on eight employees working at the Landfall HDD site, and a car occupancy rate of 1.0;
  - 4 two-way HGV movements (8 in total) traveling between the Converter Station Area and Landfall; and
  - 2 two-way LGV movements (4 in total) traveling between the Converter Station Area and Landfall.

15.5.2.14. **Table 22.5 – Sensitivity of Receptors: edited text in top left cell:**

- Previous text: “Schools, colleges, playgrounds, retirement homes, hospitals and GP surgeries, junctions operating over capacity”;
- New text: “Junctions operating over capacity, schools, colleges, playgrounds, retirement homes, hospitals and GP surgeries”; and
- This was edited for the sake of clarity; the original text suggested that schools, colleges, playgrounds, retirement homes, hospitals and GP surgeries were also over-capacity, whereas the phrase ‘over-capacity’ was intended to refer only to junctions.

15.5.2.15. **Superseding 2019 ES, Paragraph 22.4.9.6**

- A breakdown of links by sensitivity is provided in Appendix 22.4 (Baseline and Methodology tables) (AS-016, Rev 003). For junctions included within the scope of the TA (APP-448), the following methodology has been used to categorise their sensitivity:
  - Junctions over capacity in either the AM or PM 2026 DM scenario have been categorised as having a High sensitivity rating as set-out in Table 22.5;

- Junctions approaching capacity in either the AM or PM 2026 DM scenario have been categorised as having a Medium sensitivity rating as set-out in Table 22.5; and
- All other junctions have been classified as having a Low sensitivity rating, on the basis that they are not predicted to experience congestion in the 2026 DM scenarios.

Superseding 2019 ES, Paragraph 22.4.9.11:

- A summary of junction performance in the 2026 DM scenarios is provided in section 22.5.4 Highway Network Capacity.

15.5.2.16. **Assumptions and Limitations of Assessment: Additional Text before Paragraph 22.4.9.14:**

- The SRTM contained a number of committed development sites within the Study Area and outside of it, which increase traffic flows and alter traffic patterns in the local area. The full list of relevant schemes has been included within Appendix 22.6 (Traffic and Transport CEA Matrix (Stage 1 & 2)) of the 2019 ES (AS-019), with a list of major schemes (those above 100 units) within the Study Area included below (these are consistent with the reviewed / updated CEA schemes):
  - Waterlooville MDA – 2114 dwellings (90% complete by 2026/27);
  - Grainger development, London Road, Waterlooville – 436 dwellings (30% complete by 2026/27);
  - Woodcroft Farm, Woodcroft Lane, Waterlooville – 288 dwellings (100% complete by 2026/27);
  - Tipner Firing Range, Portsmouth – 600 dwellings (27% complete by 2026/27);
  - Tipner Urban Priority Area – 1276 dwellings (46% complete by 2026/27);
  - Brunel House, The Hard, Portsmouth – 153 dwellings (100% complete by 2026/27);
  - Enterprise House, Isambard Brunel Road, Portsmouth – 124 dwellings (100% complete by 2026/27);
  - Former Kingston Prison, Milton Road, Portsmouth – 230 dwellings (100% complete by 2026/27);
  - Former Dairy Site, Station Road, Portsmouth – 108 dwellings (100% complete by 2026/27; and
  - Land East of Horndean (Planning Application Ref: 55562/005) located to the east of the A3(M) Junction 2 – 800 dwellings (complete by 2026). In relation to this junction, the SRTM does not however include the proposed traffic

signalisation of the A3(M) Junction 2 roundabout that acts as mitigation to this scheme. These results should therefore be viewed as a worst-case assessment, where a far greater level of traffic has been modelled to use the A3(M) Junction 2 than will be experienced in reality during construction of the Onshore Cable Route.

15.5.2.17. **Figure 22.7**: An updated revision of Figure 22.7 of the 2019 ES (APP-322 Rev02) has been prepared. The updated figure does not contain any changes to the content in respect to links included for assessment, only to the scale of the plan, and with the addition of labels for each of the links identified.

15.5.3. BASELINE ENVIRONMENT

15.5.3.1. The baseline junction modelling has been updated.

15.5.3.2. Table 22.8 of Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137) summarises Baseline Junction Modelling for Wider Study Area for 2026**.** This has been updated by the addition of results for the junction of Lovedean Lane / A3 London Road / Prochurch Road, for the PM peak only. These results are "Within Capacity"; and the Resultant Baseline Sensitivity is Low.

15.5.3.3. The updated Table 22.8, with the update made shown in italics, is below at Table 15.1.

Table 15.1 - Updated Table 22.8

Junction	Section	Future Baseline Junction Modelling Results		Resultant Baseline Sensitivity
		AM Peak	PM peak	
Lovedean Lane / A3 London Road / Prochurch Road	*1*	*N/A*	*Within Capacity*	*Low*
A3 (M), Junction 2	1	Approaching Capacity	Approaching Capacity	Medium
Dell Piece West / A3 Portsmouth Road / Catherington Lane	1	Over Capacity	Approaching Capacity	High
A3 (M), Junction 3	4	Approaching Capacity	Over Capacity	High
Hulbert Road Roundabout	4	Within Capacity	Within Capacity	Low

Junction	Section	Future Baseline Junction Modelling Results		Resultant Baseline Sensitivity
		AM Peak	PM peak	
Hulbert Road / Frendstaple Road / Tempest Avenue	4	Within Capacity	Approaching Capacity	Medium
Rockville Drive / Stakes Hill Road Traffic Signal Junction	4	Within Capacity	Within Capacity	Low
Stakes Hill Road / Frendstaple Road Roundabout	4	Within Capacity	Within Capacity	Low
Stakes Road / Stakes Hill Road / Purbrook Way / Crookhorn Lane Roundabout	4	Over Capacity	Within Capacity	High
Purbrook Way / College Road Priority Junction	4	Within Capacity	Within Capacity	Low
B2177 Portsdown Hill Road / Maylands Road / B2177 Bedhampton Road / B2177 Bedhampton Hill Roundabout	5	Within Capacity	Approaching Capacity	Medium
A3 Southampton Road / A3 London Road / Spur Road / Havant Road Roundabout	5	Within Capacity	Within Capacity	Low
Portsbridge Roundabout	6	Approaching Capacity	Approaching Capacity	Medium
Norway Road / Copnor Road Traffic Signal Junction	7	Within Capacity	Within Capacity	Low

Junction	Section	Future Baseline Junction Modelling Results		Resultant Baseline Sensitivity
		AM Peak	PM peak	
Stubbington Avenue / A2047 / Gladys Avenue / Angerstein Road Roundabout	7	Within Capacity	Within Capacity	Low
Copnor Road / Burrfields Road Traffic Signal Junction	7	Over Capacity	Within Capacity	High
Burrfields Road / Moneyfield Avenue / Dundas Lane Roundabout	7	Within Capacity	Within Capacity	Low
Milton Road / St. Mary's Road Roundabout	8	Over Capacity	Over Capacity	High
A2030 Velder Avenue / Milton Road Traffic Signal Junction	9	Over Capacity	Over Capacity	High
A3 Mile End Road / Church Street / Hope Street / Commercial Road Signalised Roundabout	8	Over Capacity	Over Capacity	High

15.5.4. PREDICTED IMPACTS

15.5.4.1. The changes made to this section as a consequence of updates to the Assessment Methodology outlined in section 15.5.2 of this ES Addendum and assessments completed within the STA are set out below. In addition, all link sensitives, magnitude of impact and resultant effects have been reviewed to ensure they remain correct and consistent in Appendix 22.4 and 22.5.

15.5.4.2. An updated assessment of Severance has been completed within section 15.5.5 of this ES Addendum where discrepancies have been identified with link sensitivities or magnitude of impact in comparison with Appendix 22.4 (Baseline and Methodology

Tables) (AS-017) and Appendix 22.5 (Impact Tables) (AS-018) within Section 3 and 4 of the Onshore Cable Corridor.

15.5.4.3. An updated assessment of Traffic Delay has been completed in 15.5.6 to reflect the following:

- Additional details of how construction traffic movements will be controlled on Day Lane and Broadway Lane within section 1 of the Onshore Cable Route;
- Junction capacity assessments included within the STA (Appendix 11, document reference 7.8.1.11) for Section 1 of the Onshore Cable Corridor that take account of construction traffic movements during the PM peak;
- Sensitivity tests included within the STA for shuttle working and temporary traffic signal locations, including Eastern Road / Tangier Road; and
- The review completed of link sensitivities or magnitude of impact in comparison with Appendix 22.4 (Baseline and Methodology Tables) (AS-017) and Appendix 22.5 (Impact Tables) (AS-018).

15.5.4.4. An updated assessment of Pedestrian and Cycle Amenity has been completed within Section 15.5.7 of this ES Addendum where discrepancies have been identified with link sensitivities or magnitude of impact in comparison with Appendix 22.4 and Appendix 22.5 (Impact Tables) (AS-018) within Section 1 and 5 of the Onshore Cable Corridor.

15.5.4.5. An updated assessment of Fear and Intimidation has been completed within Section 15.5.8 of this ES Addendum where discrepancies have been identified with link sensitivities or magnitude of impact in comparison with Appendix 22.4 (Baseline and Methodology Tables) (AS-017) and Appendix 22.5 (Impact Tables) (AS-018) within Section 1 and 5 of the Onshore Cable Corridor.

15.5.4.6. All accident (or collision) data and any assessments of significance are to be considered superseded by the updated accident data, shown below in Section 15.5.9 of this ES Addendum.

15.5.4.7. Additional assessments of Abnormal Loads have been completed in relation to the delivery of cable drums to indicative Joint Bay locations along the Onshore Cable Corridor as included in Section 15.5.10 of this ES Addendum.

15.5.4.8. A new assessment of public transport routes has been completed, using the bus journey time assessments included within the STA (Appendix 11, document reference 7.8.1.11), as included in Section 15.5.11 of this ES Addendum.

15.5.4.9. For clarity, the following sections of the STA (Appendix 11, document reference 7.8.1.11) did not alter the findings of the 2019 ES in relation to magnitude of impact or effect and have therefore not been included within the updated assessments included in Sections 15.5.5 to 15.5.11:

- Additional details on the enforcement of Heavy Goods Vehicles ('HGV') routing throughout the Construction Stage;
- An update to proposals for permitted construction traffic routing on the A3 London Road and Milton Road in Waterlooville; and
- An updated Junction capacity assessment of the Hambledon Road/ Aston Road Traffic Signal Junction in Waterlooville following receipt of signal timing data from HCC after submission of the Application.

15.5.4.10. Some of the time periods for traffic management associated with construction of the Onshore Cable Route have been updated to reflect the updates to the FTMS (APP-449 Rev003), which reflect amendments as a consequence of the review of the rate of installation along the Onshore Cable Route (see section 3.3 of this document). These timings have been updated as shown in Table 15.2,. These changes in timings have not altered the predicted impacts in comparison with 2019 ES. It should be noted that some of these timings are not in the FTMS if they are indirect effects on the wider study area; such effects were still captured in the 2019 ES and any updates to these 2019 ES effects are also noted in Table 15.2.

Table 15.2 - Updated Timings of Disruptions

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
Section 1				
No updates to durations listed in 2019 ES required				
Section 2				
No updates to durations listed in the 2019 ES required				
Section 3				
Anmore Road, road closure	Paragraph 22.6.7.3.	Between one day and two weeks per circuit	Section 5.2, Table 3	Between one day and two weeks per circuit
B2150 Hambledon Road north of Soake Road	Paragraph 22.6.7.4	Two weeks per circuit	Section 5.3, Table 4	Three weeks per circuit, shuttle working traffic signals
Section 4				

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
Closewood Road, Denmead; increase in traffic flows	Paragraph 22.6.8.34	Two to three weeks period per circuit.	Not in the FTMS	Four to five weeks period per circuit
B2150 Hambledon Road north of the junction with Closewood Road: Shuttle working traffic signals	Paragraph 22.6.8.6 Paragraph 22.6.8.11	Two to three weeks per circuit	Not in the FTMS	Four to five weeks per circuit
North of the A3 London Road / Ladybridge Road roundabout; shuttle working traffic signals	Paragraph 22.6.8.2 Paragraph 22.6.8.9	Five weeks per circuit	Section 6.6, Table 9 A3 London Road between southern end of bus lanes (in proximity to Poppy Fields) and Post Office Road Section 6.8, Table 11 A3 London Road between Rocking Horse Nursery and Ladybridge roundabout	Eight weeks per circuit

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
A3 London Road / Ladybridge Road roundabout; temporary traffic signals	Paragraph 22.6.8.2 Paragraph 22.6.8.9	One week per circuit	Section 6.8, Table 11; and Section 6.9, Table 12 (This junction forms part of Sub-section 4.35 and 4.41, and is not a Section / sub-section in its own right, and thus the timings for the junction are not stated in the FTMS.)	One to two weeks per circuit
A3 Maurepas Way / B2150 Hambledon Road roundabout temporary traffic signals	Paragraph 22.6.8.9 Paragraph 22.6.8.13	1-2 weeks per circuit	Paragraph 6.3.2.2	One week per circuit
B2150 Hambledon Road, Shuttle Working Traffic Signals	Paragraph 22.6.8.24	13 weeks per circuit, reduced to 8 weeks for one circuit if alternative options are used	Section 6.2, Table 5 B2150 Hambledon Road between Soake Road and Milton Road.	11 to 22 weeks per circuit

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
A3 London Road south of Forest End roundabout, Shuttle Working Traffic Signals	Paragraph 22.6.8.24	One to two weeks per circuit	Section 6.4, Table 7	Two weeks per circuit
A3 London Road north of Ladybridge roundabout, Shuttle Working Traffic Signals	Paragraph 22.6.8.24	Four to five weeks per circuit	Section 6.6, Table 9 A3 London Road between southern end of bus lanes (in proximity to Poppy Fields) and Post Office Road Section 6.8, Table 11 A3 London Road between Rocking Horse Nursery and Ladybridge roundabout	Eight weeks per circuit

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
A3 London Road south of Ladybridge roundabout, Shuttle Working Traffic Signals	Paragraph 22.6.8.24	Four weeks per circuit	Section 6.9, Table 12 A3 London Road between Ladybridge roundabout and start of bus lane Section 6.11, Table 14 A3 London Road between Lansdown Avenue and Bus Lane (South of the Brow)	Four weeks per circuit
Shaftesbury Avenue, Waterlooville; traffic flow increases	Paragraph 22.6.8.35	Up to six weeks per circuit.	Not in the FTMS	Nine weeks per circuit
Westbrook Grove, Waterlooville; increased traffic	Paragraph 22.6.8.36	Six weeks per circuit	Not in the FTMS	Nine weeks per circuit

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
Park Avenue, Waterlooville; increased traffic	Paragraph 22.6.8.37	Six weeks per circuit	Not in the FTMS	Nine weeks per circuit
Mill Road, Waterlooville; increased traffic	Paragraph 22.6.8.38 Paragraph 22.6.8.48	Six weeks per circuit	Not in the FTMS	Nine weeks per circuit
Elizabeth Road / Woodlands Grove / Westbrook Grove; increased traffic	Paragraph 22.6.8.46	Six weeks per circuit.	Not in the FTMS	Nine weeks per circuit
Redistributed traffic Purbrook Way (between Stakes Hill Road and College Road)	Paragraph 22.6.8.49	Six weeks per circuit	Not in the FTMS	Six weeks per circuit
Section 5				

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
Farlington Avenue construction period	Paragraph 22.6.9.4.	11 weeks per circuit, reduced to nine weeks if one circuit is installed within the Evelegh Road and the Portsmouth Water land	Section 7.2, Table 17 Farlington Avenue between Portsdown Hill Road and Sea View Road Section 7.3, Table 18. Farlington Avenue between Sea View Road and Havant Road	12 weeks per circuit
Construction Work on Farlington Avenue south of the junction with Evelegh Road	Paragraph 22.6.9.5	Two weeks per circuit	Not in the FTMS	Up to three weeks
Evelegh Road; construction works	Paragraph 22.6.9.6	Two weeks per circuit	Section 7.4, Table 19	Three weeks per circuit

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
Closure of Farlington Avenue, leading to traffic redistribution	Unnumbered Paragraph immediately after 22.6.9.6 Paragraph 22.6.9.14	Four weeks per circuit.	Section 7.3, Table 18 Farlington Avenue between Sea View Road and Havant Road	Six weeks per circuit.
Farlington Avenue Shuttle Working Traffic Signals	Paragraph 22.6.9.11	Four weeks per circuit	Section 7.2, Table 17 Farlington Avenue between B2177 Portsdown Hill Road and Sea View Road	Six weeks per circuit
Section 6				
Temporary Closure of Footpath 33	Paragraph 22.6.10.9	Closure for a few days	Not in the FTMS	Closure for one week
Section 7				

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
No updates to durations listed in 2019 ES required				
Section 8				
Redistributed traffic on Dundas Lane as a result of works on A2030 Eastern Road	Paragraph 22.6.12.19	5 weeks to 19 weeks per circuit	Section 10.2, Table 24	Five to eight weeks per circuit
Section 9				
Construction along Moorings Way	Paragraph 22.6.13.7	Eight weeks per circuit	Section 11.2, Table 27 Moorings Way between Eastern Avenue and Goodwit Road Section 11.3, Table 28 Moorings Way between Goodwit Road and Moorings Way to Furze Lane bus link.	Eight weeks per circuit

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
Construction within Locksway Road	Paragraph 22.6.13.10	One week per circuit	Section 11.4. Table 29 Locksway Road	One week per circuit
Construction within Longshore Way	Paragraph 22.6.13.10	Two weeks per circuit	Section 11.5, Table 30 Longshore Way	Two weeks per circuit
Construction within Kingsley Road	Paragraph 22.6.13.10	One day to two weeks per circuit	Section 11.6, Table 31	Two weeks per circuit
Construction on Furze Lane bus link	Paragraph 22.6.13.15	Three weeks per circuit	Removed from updated FTMS	N/A
Section 10				
Construction within Henderson Road	Paragraph 22.6.14.5	Three weeks per circuit	Section 12.2, Table 33 Henderson Road between Bransbury Road and Fort Cumberland Road	Five weeks per circuit

Location and type of disruption	Location in 2019 ES	2019 ES timing (approximate)	Location in updated FTMS (if not in the FTMS this is noted)	Updated Timing (approximate)
Construction within Fort Cumberland Road	Paragraph 22.6.14.5	Four weeks per circuit	Section 12.3, Table 34 Fort Cumberland Road between Henderson Road and Lumsden Road	Seven weeks per circuit

15.5.4.11. **Superseding Paragraph 22.6.5.1 to 22.6.5.2: Converter Station Area**

- The following two paragraphs are updates to improve clarity only:
  - This section sets out the predicted impacts on roads within Section 1. The proposed access junction for the Converter Station incorporates an upgrade of Broadway Lane and Day Lane junction including a construction of a haul road and temporary holding area. The proposed access to the Converter Station Area for construction and operation will be taken from Broadway Lane in the vicinity of the junction with Day Lane, with associated highway improvements in the vicinity of the junction of these two highways.
  - The proposed access junction introduces a gated highway link between Day Lane east of the existing bend and Broadway Lane south of the existing bend. This will provide a managed facility for vehicles entering the site during the construction period with vehicle movements across Broadway Lane completed on a marshalled basis. This link also provides for abnormal load movements and would be retained as a permanent feature (unadopted) to allow future access with such vehicles should it be required. General verge / vegetation clearance will be required on all sides of Broadway Lane to ensure visibility splay requirements are met, with all required land falling within the proposed Order Limit. The triangle of land remaining between the existing Broadway Lane / Day Lane junction and link road will be cleared of vegetation / hedgerow. Further information on the proposed access junction is included in section 3.3 of the STA (Appendix 11, document reference 7.8.1.11).
- The following paragraph is additional content regarding a managed access strategy:
  - In addition to provision of the new access junction and haul road, it is proposed that a managed access strategy will be employed during construction along Broadway Lane and Day Lane to reduce potential for conflicts between HGVs and other traffic. This strategy will use coordinated banksman and STOP / GO boards located on Broadway Lane and Day Lane to control vehicular access depending upon the location of construction HGV traffic. The use of STOP / GO boards is chosen as this provides a greater level of flexibility and control in comparison with shuttle working traffic signals and will ensure that delays to other traffic is minimised to only the periods when HGV construction traffic is on Day Lane or entering / exiting the Broadway Lane access junction. Further details of this proposed management strategy are provided in section 3.4 of the STA (Appendix 11, document reference 7.8.1.11) and secured in Section 6.2 of the Framework CTMP (APP-450 Rev 003).

15.5.4.12. **Superseding Paragraph 22.6.5.18: Abnormal Indivisible Loads (AIL) Assessment:** it is anticipated that the Construction Stage of the Proposed Development will generate some abnormal loads including AIL movements associated with delivery of transformers to the Converter Station delivery of cable drums to Joint Bay locations. These deliveries will be completed using specialist vehicles.

15.5.4.13. The changes compared to the 2019 ES (APP-137) are:

- Additional text saying “including Abnormal Indivisible Loads (AIL)” after “abnormal loads”.

15.5.5. SEVERANCE PREDICTED IMPACTS

15.5.5.1. **Superseding 2019 ES, paragraph 22.6.7.4: B2150 Hambledon Road north of Soake Road (Section 3)**

- While the Onshore Cable Corridor uses B2150 Hambledon Road within Section 3, the provision of a footway only on the northern side of the carriageway suggests that there is little demand for crossing of the carriageway. Additionally, a temporary diversion route will be provided adjacent to the construction zone if the existing shared-use path is used for installation of either Cable Circuit. As the level of Severance is categorised as **Low** with B2150 Hambledon Road has a **Medium** sensitivity rating. This leads to a **Minor to Moderate** adverse effect of a temporary and short-term nature, lasting for approximately three weeks per circuit. This is considered to be **Not Significant**.

15.5.5.2. The changes compared to the 2019 ES (APP-137) are:

- The link description changed from “B2150 Hambledon Road” to “B2150 Hambledon Road north of Soake Road (Section 3)”; and
- Duration changed from two to three weeks per circuit.

15.5.5.3. **Superseding 2019 ES, paragraph 22.6.8.8: Frendstaple Road (Section 4)**

- This is a **Medium** sensitivity link with the level of Severance predicted to increase from **Moderate** on the basis that pedestrian journeys may be longer or less attractive due to the temporary increase in traffic flow. This results in a **Moderate** adverse effect of a temporary and short-term nature. This effect is considered to be **Not Significant** due to there being several pedestrian underpasses and a pedestrian footbridge on Frendstaple Road, which will provide mitigation of the predicted increases in traffic flow.

15.5.5.4. The changes compared to the 2019 ES (APP-137) are:

- Sensitivity changed from **Low** to **Medium**;

- Adverse effect changed from **Minor to Moderate** adverse effect, to **Moderate** adverse effect; and
- Significance remained as **Not Significant**, so explanatory text was added.

15.5.6. TRAFFIC DELAY PREDICTED IMPACTS

15.5.6.1. This section contains necessary updates to the predicted impacts regarding the Traffic Delay sections of Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137). All other elements of the Traffic Delay assessment included in the submitted 2019 ES which are not explicitly referenced within this Addendum remain unchanged.

15.5.6.2. Following discrepancies noted regarding the definition of short, medium and long-term impacts, amendments are required in respect to the duration of impacts in Section 1 of the Onshore Cable Corridor and Wider Study Area. The full extent of these changes is set out in Table 15.3.

Table 15.3 - Discrepancies regarding the definition of short, medium and long-term impacts and required amendments

Paragraph Number	Submission Duration	Updated Duration	Impact on Level of Significance
22.6.5.8	Short term	Medium Term	No Change
22.6.5.10	Short term	Medium Term	No Change
22.6.5.11	Short term	Medium Term	No Change
22.6.5.13	Short term	Medium Term	No Change
22.6.5.14	Short term	Medium Term	No Change
22.6.5.16	Short term	Medium Term	No Change
22.6.5.22 (all links listed)	Short term	Medium Term	No Change

15.5.6.3. Furthermore, updates to assessments of Driver Delay within section 1 have been completed to reflect the following assessments contained within the STA (Appendix 11, document reference 7.8.1.11):

- Additional details of how construction traffic movements will be controlled on Day Lane and Broadway Lane within the vicinity of the Converter Station Area access junction; and

- Junction capacity assessments included within the STA (Appendix 11, document reference 7.8.1.11) for Section 1 of the Onshore Cable Corridor that take account of construction traffic movements during the PM peak.

Traffic Delay

15.5.6.4. The text below should be taken to supersede paragraphs 22.6.5.7 and 22.6.5.8 of the submitted 2019 ES (APP-137).

Converter Station / Onshore Cable Corridor

- No junctions within the scope of the assessment for Traffic Delay are included within Section 1.
- Construction of the Converter Station Area access junction may need to be facilitated by shuttle working traffic signals, which when required would operate in combination with the proposed managed access strategy along Day Lane and Broadway Lane to prevent conflicts between construction HGVs and other traffic. Taking the assessment of shuttle working traffic signals contained within the STA as a very robust estimate of the operation of the managed access strategy (using STOP / GO Boards), the average delay per vehicle is anticipated to be approximately 60 seconds in each direction along Broadway Lane or Day Lane. However, it is noted that the shorter traffic management length (150 m) will result in shorter Intergreen times and lower delays on Broadway Lane than shown in the Day Lane assessment completed in the STA This is therefore categorised as a **Low** magnitude of change. Broadway Lane has a **Medium** sensitivity, resulting in a **Minor to Moderate** adverse effect of a temporary and medium-term nature which is considered to be **Not Significant.** Day Lane has a **Low** sensitivity resulting in a **Minor to Moderate** adverse effect on a temporary and short-term basis. These effects are considered to be **Not Significant**.

15.5.6.5. The changes compared to the 2019 ES (APP-137) are:

- Quantification of delays; and
- Day Lane adverse effect changed from **Minor** adverse effect, to **Minor-to-Moderate** adverse effect.

Wider Study Area

15.5.6.6. The text below should be taken to supersede paragraphs 22.6.5.9 and 22.6.5.10 of the submitted 2019 ES (APP-137).

"*On the wider network the impact of the Proposed Development is summarised as follows:*

A3 (M) Junction 2

*The junction is of a Medium sensitivity and the increase in delay on the A3 (M) off-slips is considered to represent a **Medium** magnitude of impact leading to a **Moderate adverse effect** of a temporary and medium-term nature. This effect is considered **Significant**."*

15.5.6.7. The level of significance has not changed when compared to that reported in the submitted 2019 ES (APP-137).

15.5.6.8. The text below should be taken to supersede paragraphs 22.6.5.11 of the submitted 2019 ES (APP-137).

Dell Piece West / A3 Portsmouth Road / Catherington Lane traffic signal junction

*The junction is of a High sensitivity and the increase in delay is considered to represent a Low adverse magnitude of impact leading to a **Moderate adverse effect** of a temporary and medium-term nature. This effect is considered to be **Significant**."*

15.5.6.9. The level of significance of the impact has not changed when compared to that reported in the submitted 2019 ES (APP-137).

A3 Portsmouth Road / Prochurch Road / A3 London Road / Lovedean Lane priority junction

15.5.6.10. The junction is of a **Low** sensitivity and the increase in delay is considered to represent a **Low** magnitude of impact leading to a **Minor adverse effect** of a temporary and medium-term nature. This junction was not included in the submitted 2019 ES, however, following this revised assessment, this effect is considered **Not Significant**.

15.5.6.11. This is an additional junction assessment that was not originally included in the submitted 2019 ES (APP-137) and should be located immediately after paragraph 22.6.5.11.

15.5.6.12. **Updating 2019 ES, paragraph 22.6.7.6 (Section 3)**

- B2150 Hambledon Road is of a **Medium** sensitivity, and the increase in delay is considered to represent a **Medium adverse impact** leading to a **Moderate** effect of a temporary and short-term nature.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is considered to represent a **major adverse impact** leading to a **Major to Moderate adverse effect** on a temporary basis. This effect is also considered to be **Significant.**

15.5.6.13. **Updating 2019 ES, paragraph 22.6.8.20: B2150 Hambledon Road / A3 Maurepas Way / Houghton Avenue (Section 4)**

- This junction is considered to have a **Low** baseline sensitivity. This junction is modelled with temporary traffic signals in the DS scenario, leading to an increase in Traffic Delay on all approaches. This is considered a **High** magnitude of impact, leading to a **Moderate adverse effect** on a temporary basis. This effect is considered to be **Significant**.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is considered to represent a **High** magnitude of impact, leading to a **Moderate adverse effect** on a temporary basis. This effect is also considered to be **Significant**.

15.5.6.14. **Updating 2019 ES, paragraph 22.6.8.22: A3 London Road / Ladybridge Road (Section 4)**

- This junction is considered to have a **High** baseline sensitivity. This junction is modelled with temporary traffic signals in the DS scenario, leading to an increase in Traffic Delay on all approaches. This is considered a **High** magnitude of impact, leading to a **Major adverse effect** on a temporary basis. This effect is considered to be **Significant**.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is considered to represent a **major** adverse impact leading to a **Major adverse effect** on a temporary basis. This effect is also considered to be **Significant**.

15.5.6.15. **Superseding 2019 ES, paragraph 22.6.8.29: Purbrook Way / College Road (Section 4)**

- This junction has a **Low** baseline sensitivity. It is anticipated that traffic redistribution of traffic away from the Onshore Cable Corridor leads to an increase in delay of 30-40 seconds per vehicle on College Road, which is categorised as a **Medium** magnitude of impact. This is a **Minor-to-Moderate adverse effect** on a temporary and short-term basis. This effect is considered to be **Not Significant.**
- The changes compared to the 2019 ES (APP-137) are:
  - Adverse effect changed from **Moderate** to **Minor to Moderate**: and
  - Significance changed from **Significant** to **Not Significant**.

15.5.6.16. **Superseding 2019 ES, paragraph 22.6.8.23, 22.6.8.24 and 22.6.8.25, and update to include an additional paragraph after paragraph 22.6.8.25: Shuttle working traffic signals within Section 4**

- In addition to the above junctions a number of shuttle working traffic signal locations have been assessed along the Onshore Cable Corridor, based upon where they will be required as part of the TMS. Each of these traffic management locations has a **Medium** sensitivity and based upon the LinSIG modelling, each of these locations will experience a **Medium** magnitude of impact. This leads to a **Moderate adverse effect** on a temporary basis.
- For information, the estimated duration of impact per circuit is listed below:
  - B2150 Hambledon Road (up to 22 weeks per circuit). This effect is considered to be **Significant** given the period of time the signals will be in place;
  - A3 London Road south of Forest End roundabout (2 weeks per circuit). This effect is considered to be Significant;
  - A3 London Road north of Ladybridge roundabout (3 weeks per circuit). This effect is considered to be Significant; and
  - A3 London Road south of Ladybridge roundabout (1 week per circuit). This effect is considered to be Significant.
- When assessed as per the sensitivity tests set out in the STA (Appendix 11, document reference 7.8.1.11), each location experiences a **High** magnitude of impact and a **Major to Moderate adverse effect** on a temporary basis. The level of significance for each of these locations are as follows:
  - B2150 Hambledon Road: delay times of approximately 60 seconds in the AM peak and 180 seconds in the PM peak. This effect is considered to be **Significant**;
  - A3 London Road south of Forest Road roundabout: delay times of approximately 90 seconds in the AM peak and 100 seconds in the PM peak. This effect is considered to be **Significant**;
  - A3 London Road north of Ladybridge roundabout: delay times of approximately 200 seconds in the AM and PM peaks. This effect is considered to be **Significant**; and
  - A3 London Road south of Ladybridge roundabout; delay times of approximately 150 second in AM peak and 230 seconds in the PM peak. This effect is considered to be **Significant**.

15.5.6.17. The levels of significance have not changed when compared to those reported in the submitted 2019 ES (APP-137). However, the durations of impacts, and the delay times have changed.

15.5.6.18. **Updating 2019 ES, paragraph 22.6.9.10: A2030 / Farlington Avenue / A2030 Eastern Road / Havant Road (Section 5)**

- This junction has been modelled with restricted right turns from Havant Road as reflected in the FTMS (APP-449) proposals at this location. This leads to an increase in delay on Farlington Avenue, which is considered a **Low** magnitude of impact. As the junction has a **Medium** sensitivity this leads to a **Minor to Moderate adverse effect** on a temporary and short-term basis. This effect is considered to be **Not Significant** and the construction works at this junction will take approximately two week per circuit.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is considered to represent a **Low** magnitude of change leading to a **Minor to Moderate adverse effect** on a temporary basis. This effect is also considered to be **Not Significant**.

15.5.6.19. **Updating 2019 ES, paragraph 22.6.9.11: Farlington Avenue Shuttle Working Traffic Signals (Section 5)**

15.5.6.20. One location of shuttle working traffic signals has been assessed along the Onshore Cable Corridor, on Farlington Avenue (**High** sensitivity). Based upon the LinSig modelling, this link will experience a **Low** magnitude of impact based on average delays of 20-45 seconds per vehicle. This leads to a **Moderate adverse effect** on a temporary basis and short-term. This effect is considered to be **Significant** given that shuttle working traffic signals will be required for six weeks per circuit (increased from four weeks per circuit in the 2019 ES (APP-137)).

15.5.6.21. **Additional text:** This effect is considered to be **Significan**t. When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is considered to represent a **moderate** adverse impact leading to a **Major adverse effect** on a temporary basis. This effect is also considered to be **Significant**.

15.5.6.22. **Updating 2019 ES, paragraph 22.6.9.12: B2177 Portsdown Hill Shuttle Working Traffic Signals (Section 5)**

- Traffic redistribution away from the Onshore Cable Corridor leads to an increase in delay of 50-130 seconds per vehicle on B2177 Portsdown Hill Road, which is categorised as a **Medium** magnitude of impact. B2177 Portsdown Hill Road has a **Low** baseline sensitivity. This is a **Moderate adverse effect** on a temporary basis. This effect is considered to be **Significant**.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is considered to represent a **Major** adverse impact leading to a **Moderate adverse effect** on a temporary basis. This effect is also considered to be **Significant**.

15.5.6.23. It should be noted that 2019 ES paragraph 22.6.9.13 should be moved and instead should sit between paragraph 22.6.9.14 and paragraph 22.6.9.15.

15.5.6.24. **Superseding 2019 ES, paragraph 22.6.9.16: B2177 Portsdown Hill Road / Maylands Road / B2177 Bedhampton Hill Junction (Section 5)**

- The B2177 Portsdown Hill Road/Maylands Road / B2177 Bedhampton Road / B2177 Bedhampton Hill junction has a **Medium** baseline sensitivity and experiences a **Medium** magnitude of impact, resulting in a **Moderate** adverse effect on a temporary and short-term basis, this effect is considered to be **Significant.**

15.5.6.25. The changes compared to the 2019 ES (APP-137) are:

- Magnitude raised from **Negligible** to **Medium**;
- Adverse effect raised from **Negligible** to **Moderate**;
- Significance raised to **Significant**.

15.5.6.26. **Superseding 2019 ES, paragraph 22.6.10.4 and 22.6.10.5: A2030 Eastern Road (Section 6)**

- Traffic flows along the A2030 Eastern Road within Section 6 are constrained by the traffic signals junction to the north and south, at the junction with Havant Road and the junction with Fitzherbert Road, which will limit the impacts of lane closures associated with installation of the Onshore Cable Route. The Eastern Road in this location has been categorised as having a **Medium** sensitivity rating and as a result of the existing traffic flows the Proposed Development has been predicted to lead to a **Low** magnitude of impact on traffic delay. This leads to a **Minor to Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Not Significant**.
- If Zetland Field is used for both circuits the impact on A2030 Eastern Road will be **Negligible adverse effect** of a temporary and short-term nature on the basis that construction will take place entirely off-carriageway. This is also considered to be **Not Significant**.

15.5.6.27. The changes compared to the 2019 ES (APP-137) are:

- Sensitivity raised from **Low** to **Medium**;
- Magnitude of impact reduced from **Medium** to **Low**; and
- If Zetland Field is used for both circuits, adverse effect lowered from **Minor to Moderate**, to **Negligible**, and **Not Significant** (with explanatory text).

15.5.6.28. **Updating 2019 ES, paragraph 22.6.12.4: A2030 Eastern Road (Section 8)**

- A summary of impacts to junctions within the Onshore Cable Corridor within Section 8 is included below. The following three junctions experience an increase in delay on some approaches but a decrease on others due to the redistribution of traffic, which generally balances the operation of the junction between the DM and DS scenarios:
    - A2030 Eastern Road / Airport Service Road, which has a **Low** baseline sensitivity has a Medium magnitude of change resulting in a **Minor to Moderate adverse effect** of a temporary and short-term basis. This is considered to be **Not Significant**;
    - A2030 Eastern Road / Burrfields Road, which has a **Medium** baseline sensitivity has a **Medium** magnitude of change resulting in a **Moderate adverse effect** of a temporary and short-term basis. This is considered to be **Significant**;
    - A2030 Eastern Road / Tangier Road, which has a **Low** baseline sensitivity has a **Medium** magnitude of change resulting in a **Moderate adverse effect** of a temporary and short-term basis. This is considered to be **Significant**;
    - **Additional text:** The sensitivity tests completed at this junction (A2030 Eastern Road / Tangier Road) within the STA (Appendix 11, document reference 7.8.1.11) showed that the implementation of traffic management at this junction led to a **High** magnitude of change resulting in a **Moderate adverse effect**. This is also considered to be **Significant**; and
    - **Additional text:** A2030 Eastern Road / Hayling Avenue, which has a **Medium** baseline sensitivity has a **Negligible** magnitude of change resulting in a **Negligible adverse effect** of a temporary and short-term basis. This is considered to be **Not Significant**.

15.5.6.29. **Updating 2019 ES, paragraph 22.6.13.5: Moorings Way (Section 9)**

- On this link the average delay per vehicle is approximately 30 seconds. The link is of **High** sensitivity due to the location of Moorings Infant School, but the delay has been categorised as a **Low** magnitude of impact, leading to a **Moderate adverse effect** of a temporary and short-term basis. This is considered to be **Significant**, although it should be noted that the traffic delay per vehicle is low.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is continuing to represent a **Low** magnitude of impact leading to a **Moderate adverse effect** on a temporary basis. This effect is also considered to be **Significant**, but again it is noted the delay experienced by each vehicle is low.

15.5.6.30. **Updating 2019 ES, paragraph 22.6.13.9: Locksway Road / Longshore Way / Kingsley Road (Section 9)**

- On either link the average delay per vehicle is predicted to be approximately 30 seconds. Each link has a **Medium** sensitivity rating but the delay has been categorised as a **Low** magnitude of impact, leading to a **Minor to Moderate adverse effect** of a temporary basis. This effect is considered to be **Not Significant**.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is continuing to represent a **Low** magnitude of impact leading to a **Minor to Moderate adverse effect** on a temporary basis. This effect is also considered to be **Not Significant**.

15.5.6.31. **Updating 2019 ES, paragraph 22.6.14.4: Henderson Road (Section 10)**

- There are no junctions included within Section 10 of the Onshore Cable Corridor, but one shuttle working traffic signal location has been assessed on Henderson Road, which is categorised as having a **Medium** sensitivity. The average delay per vehicle of 20-40 seconds has been categorised as a **Low** impact and a **Minor to Moderate adverse effect** on a temporary and short term basis. This effect is considered to be **Not Significant**.
- **Additional text:** When assessed using the sensitivity test methodology set out in the STA (Appendix 11, document reference 7.8.1.11), the increased delay is continuing to represent a **Low** magnitude of impact leading to a **Minor to Moderate adverse effect** on a temporary basis. This effect is also considered to be **Not Significant**.

15.5.7. PEDESTRIAN AND CYCLE AMENITY PREDICTED IMPACTS

15.5.7.1. **Superseding 2019 ES, paragraph 22.6.5.13**: **Converter Station (Section 1)**

- Works related to construction of the Converter Station access junction will impact upon pedestrian and cycle amenity on Broadway Lane / Day Lane, although pedestrian and cycle access through the works will be maintained where practicable. However, given the potential for a temporary stopping up of the highway, this constitutes a **High** magnitude of impact. As Broadway Lane has a Medium sensitivity, resulting in **a Major to Moderate adverse effect** of a temporary and short-term nature. Day Lane has a Low sensitivity resulting in a **Moderate** adverse effect on a temporary and short-term basis. This effect is considered to be **Significant**.

15.5.7.2. The changes compared to the 2019 ES (APP-137) are:

- Clarification that this refers to pedestrian and cycle amenity *on Broadway Lane / Day Lane*.

15.5.7.3. **Superseding 2019 ES, paragraph 22.6.11.13: Airport Service Road (Section 8)**

- A **Negligible** sensitivity has been determined as the link is situated in an industrial estate with limited receptors. The significance of effect equates to a **Negligible adverse effect** of a temporary and short-term nature. This effect is considered to be **Not Significant**.

15.5.7.4. The changes compared to the 2019 ES (APP-137) are:

- Sensitivity changed from **Low** to **Negligible**;
- Adverse effect changed from **Minor** to **Negligible**.

15.5.8. FEAR AND INTIMIDATION PREDICTED IMPACTS

15.5.8.1. **Superseding 2019 ES, paragraph 22.6.8.41: B2150 Hambledon Road (Section 4)**

- On B2150 Hambledon Road the level of Fear and Intimidation reduced as a result of the reduction in traffic speed relating to the proposed Traffic Management. Given the **Low** magnitude and the **Medium** sensitivity, the significance of effect equates to a **Minor to Moderate beneficial effect** of a temporary and short-term nature. This effect is considered to be **Not Significant**.

15.5.8.2. The changes compared to the 2019 ES (APP-137) are:

- Sensitivity changed from **Low** to **Medium**;
- Beneficial effect changed from **Minor** to **Minor to Moderate**.

15.5.8.3. **Superseding 2019 ES, paragraph 22.6.14.13: Henderson Road (Section 10)**

- As a result, in the reduction in average speed on Henderson Road that is anticipated to occur due to implementation of traffic management, the magnitude of Fear and Intimidation decreased from large to **Negligible**. As Henderson Road has been classified as having **Medium** sensitivity, this effect is thought to represent a **Negligible** beneficial effect of a temporary and short-term nature. This effect is considered to be **Not Significant.**

15.5.8.4. The changes compared to the 2019 ES (APP-137) are:

- Sensitivity changed from **Low** to **Medium**.

15.5.9. ACCIDENTS AND SAFETY PREDICTED IMPACTS

15.5.9.1. To inform this assessment, updated Personal Injury Collision ('PIC') records were received from Hampshire Constabulary for the period between 1 October 2014 – 30 September 2019. These records supersede the collision information within section

1.7 and Appendix E of the TA (APP-448) which were from a period between 1 January 2014 and 31 December 2018.

Updated Accidents and Safety Analysis

15.5.9.2. This section provides an update to the Accidents and Safety component of Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137), using the PIC data received for the period 1 October 2014 – 30 September 2019. All of the predicted impacts identified are compared to those included within the 'Accidents and Safety' section of the 2019 ES.

15.5.9.3. The updated Accidents and Safety analysis presented below is supplemented by the further detailed analysis included within the STA (Appendix 11, document reference 7.8.1.11). It should be noted that the Section by Section analysis presented below has been broadly aligned from the more detailed analysis which is included in the STA (Appendix 11, document reference 7.8.1.11), and therefore the boundaries of each section may vary slightly from those included in Figure 3.9 (Order Limits Sections (Onshore)) (APP-154) of the 2019 ES.

Section 1 and Construction Traffic Routes to Converter Station Area

Converter Station Area and Onshore Cable Corridor

15.5.9.4. The majority of the Onshore Cable Corridor in Section 1 is off-carriageway and thus the impacts on Accidents and Safety from a traffic and transport perspective are considered to be **Negligible adverse** and of a temporary and medium-term nature. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Wider Study Area

15.5.9.5. The PIC data shows that seven serious collisions occurred in the area from Dell Piece West to Lovedean substation (and Converter Station Area) during the five-year period from 1 October 2014 to 30 September 2019. No fatal collisions were recorded. The number of serious and fatal collisions in the construction traffic zone has not changed between the datasets and no new patterns have emerged.

15.5.9.6. It should be noted that a pedestrian and cyclist were each involved in one collision within this zone. There was a total of 41 slight collisions with small clusters occurring at the Dell Piece West / Portsmouth Road and London Road / Lovedean Lane junctions.

15.5.9.7. The updated review of collision data results in a **Negligible adverse** effect of a temporary and medium-term nature. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Section 2 and 3

Onshore Cable Corridor

15.5.9.8. No serious or fatal collisions occurred along the Onshore Cable Corridor in these Sections between 1 October 2014 and 30 September 2019. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Wider Study Area

15.5.9.9. One fatal and two slight collisions occurred on the stretch of B2150 Hambledon Road from Martin Avenue to Soake Road between 1 October 2014 and 30 September 2019. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature. This effect is considered to be **Not significant** and the level of significance has not changed from the submitted 2019 ES.

Section 4

Onshore Cable Corridor

15.5.9.10. 36 slight and four serious collisions occurred on Hambledon Road in Section 4 / Maurepas Way. No fatal collisions were recorded.

15.5.9.11. A total of 25 slight collisions and 12 serious collisions were recorded on A3 London Road from 1 October 2014 to 30 September 2019. Four serious collisions and one fatal collision occurred along Portsdown Hill from Boundary Way to Farlington Avenue between 1 October 2014 and 30 September 2019.

15.5.9.12. The fatal collision involved a motorcyclist on the 2 May 2016 approaching the B2177 bridge over A3 London Road.

15.5.9.13. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Wider Study Area

15.5.9.14. Three collisions occurred along Newlands Lane, of which two were serious. Four slight collisions occurred on Belney Lane and one slight collision occurred at each of Pigeon House Lane and Purbrook Heath Road. A pedestrian was involved in a slight collision on Purbrook Heath Road.

15.5.9.15. A particular cluster outside of Milton Parade stores on Milton Road; 10 collisions occurred on the stretch of Milton Road between the Sunnymead Drive and Pyrford Close junction which is close to Hart Plain Infant School and Cowplain Community School.

15.5.9.16. A cluster of collisions occurred at Purbrook Way roundabout, of these three were classified as serious, cyclists were involved in two of the serious collisions and one slight collision at this roundabout.

15.5.9.17. A cluster of collisions can also be seen on the Hulbert Road Roundabout, 11 slight collisions and one serious collision occurred here. Along Frendstaple Road, a further three serious collisions were recorded close to the Lavender Road junction and the local centre at Stakes Hill.

15.5.9.18. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Section 5 and Section 6

Onshore Cable Corridor

15.5.9.19. Four serious and 9 slight collisions were on Farlington Avenue / A2030 Eastern Road between 1 October 2014 and 30 September 2019. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Wider Study Area

15.5.9.20. Collision clusters have been identified at Bedhampton Roundabout, through the local centre along Havant Road and at Spur Road Roundabout. Three pedestrians and seven cyclists were involved in serious collisions within this study area.

15.5.9.21. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Section 7

Onshore Cable Corridor and Wider Study Area

15.5.9.22. The majority of Section 7 of the Onshore Cable Corridor is accommodated off carriageway and thus the impacts of construction of the Onshore Cable Corridor in this Section on Accidents and Safety are considered to be **Negligible adverse** and **Not Significant** from a traffic and transport perspective. The reported levels of significance are temporary and short term in nature, and do not differ from those which were included in the submitted 2019 ES.

Section 8

15.5.9.23. Throughout Section 8 there were a total of 27 slight collisions, 5 serious collisions and 1 fatal collision. The fatal collision occurred at the signalised junction with Burrfields Road outside Harbourside car park.

15.5.9.24. Between 1 October 2014 and 30 September 2019 there were seven serious collisions and one fatal collision on A2030 Eastern Road between Burrfields Road and Eastern Avenue.

15.5.9.25. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Wider Study Area

15.5.9.26. Collision clusters were noted along Copnor Road at the Amberley Road, Kirby Road, Chichester Road junctions. There were also collision clusters along Milton Road at either end of the Baffins / Milton Road one-way system and at the junction with Velder Avenue. Burrfields Road had a higher incidence of serious collisions than other links with 9 serious collisions occurring between Burrfields Road roundabout and the junction with Copnor Road (inclusive). Winston Churchill Avenue and Elm Grove notably show no collisions. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Section 9 and Section 10

Onshore Cable Corridor

15.5.9.27. Updated collision analysis has highlighted that there was one serious collision in the area from Eastern Avenue to Locksway Road between 1 October 2014 and 30 September 2019. This occurred at the Furze Lane / Locksway Road junction on 3 August 2017 and involved a pedestrian being struck by a car.

15.5.9.28. From Locksway Road to Fort Cumberland Road there were three serious collisions which occurred between 1 October 2014 and 30 September 2019. Two of these collisions occurred close to the junction with Henderson Road and Fort Cumberland Road.

15.5.9.29. The updated review of collision data results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Wider Study Area

15.5.9.30. The updated review of collision data in the wider study area in Section 9 and Section 10 results in a **Negligible adverse** effect of a temporary and short-term nature in respect to Accidents and Safety. This effect is considered to be **Not Significant** and the level of significance has not changed from the submitted 2019 ES.

Summary and Conclusions

15.5.9.31. The assessment of the updated Accidents and Safety analysis does not result in any changes to the significance of effect which were reported in Chapter 22 (Traffic and Transport) of the submitted 2019 ES (APP-137).

15.5.10. ABNORMAL LOAD PREDICTED IMPACTS

15.5.10.1. It is anticipated that the construction stage of the Proposed Development will generate some Abnormal Indivisible Loads (AILs) movements to and from the Converter Station Area associated with the delivery of transformers. These deliveries will be completed using specialist vehicles.

15.5.10.2. The 2019 ES (APP-137) assesses the predicted impacts of these movements. Some of this assessment has been updated, as detailed below.

15.5.10.3. **Superseding 2019 ES, paragraph 22.6.5.22: AIL Movements to the Converter Station**

- Based on this assessment, the predicted impacts on the proposed route for AIL transformer deliveries is as follows:
  - A3(M): this link has a **Negligible** sensitivity and the magnitude of impact is also considered **Negligible**. This leads to a **Negligible** adverse effect on a temporary and short-term basis. This is considered to be **Not Significant**.
  - Dell Piece West / A3 Portsmouth Road / Catherington Lane traffic signal junction: this junction has a **High** sensitivity and the magnitude of impact is considered to be **Negligible**. This results in a **Negligible adverse effect** on a temporary and short-term basis. This is considered to be **Not Significant**.
  - A3 Portsmouth Road / Lovedean Lane priority junction: this junction is considered to have a **Low** sensitivity and the magnitude of impact is considered to be **Low**. This results in a **Minor adverse effect** on a temporary and short-term basis. This is considered to be **Not Significant**.
  - Lovedean Lane / Milton Road priority junction: Lovedean Lane has a **High** sensitivity but the magnitude of impact is categorised as **Negligible**. This results in a **Negligible** adverse effect on a temporary and short-term basis. This is considered to be **Not Significant**.
  - Lovedean Lane / Day Lane priority junction: Lovedean Lane has a high sensitivity but the magnitude of impact is categorised as **Negligible**. This results in a **Negligible** adverse effect on a temporary and short-term basis. This is considered to be **Not Significant**.
  - Day Lane: this link has a **Low** sensitivity and the magnitude of impact is categorised as negligible, which results in a **Negligible** adverse effect on a temporary and short-term basis. This is considered to be **Not Significant**.

15.5.10.4. The changes compared to the 2019 ES (APP-137) are:

- Dell Piece West / A3 Portsmouth Road / Catherington Lane traffic signal junction: sensitivity changed from **Medium** to **High**;
- A3 Portsmouth Road / Lovedean Lane priority junction: sensitivity changed from **Medium** to **Low**; and
- A3 Portsmouth Road / Lovedean Lane priority junction: adverse effect changed from **Minor to Moderate** to Minor.

15.5.10.5. The following text of 'Abnormal Load Predicted Impacts' is additional to the 2019 ES (APP-137) and should be located immediately after paragraph 22.6.5.22.

- An assessment of anticipated abnormal load movements related to the delivery of cable drums to the indicative Joint Bay locations is included in section 3.8 of the STA (Appendix 11, document reference 7.8.1.11). The routing considers both access and egress from each of the indicative Joint Bay locations, noting that in some instances the routes to and from a Joint Bay may be different to reflect achievable turning manoeuvres at each location. In all instances, a swept path analysis exercise has been undertaken, with findings summarised below.

Section 1

15.5.10.6. Joint Bay 1 / 2 has been assessed, located within fields south of the Converter Station. The cable drum delivery vehicles will use A3 Mile End Road, M275, A27 and A3(M), exiting at Junction 2 onto:

- B2149 Dell Piece West - A3 Portsmouth Rd / London Road - Lovedean Lane - Day Lane.

15.5.10.7. The assessment of this route has shown that all manoeuvres could be accommodated within the exiting highway layout, leading to a **Negligible adverse** effect on a temporary and short-term basis. This is **Not Significant**.

15.5.10.8. The assessment of AILs related to delivery of Transformers to the Converter Station contained within paragraphs 22.6.5.18 to 22.6.5.22 of the ES 2019 remain valid (or have been downgraded further in terms of degree of impact) and have therefore not been included within this Addendum.

Section 2

15.5.10.9. Joint Bay 2 /3 has been assessed, located within fields at King Pond Meadows. The cable drum delivery vehicles will use A3 Mile End Road, M275, A27 and A3(M), exiting at Junction 3 onto:

- B2150 Hulbert Road and A3 Maurepas Way - B2150 Hambledon Road - Mill Road - Anmore Road.

15.5.10.10. The assessment of this route has shown vehicle overrun of footways occurs on entry / exit to Mill Road from B2150 Hambledon Road, however, this would not impede access. A Temporary Traffic Regulation Order ('TTRO') would be required on Mill Road to temporarily restrict on-street car parking. This has therefore been considered has having a **Minor adverse effect** on a temporary and short-term basis. This is **Not Significant**.

Section 3

15.5.10.11. Access to Joint Bays located within Section 3 of the Onshore Cable Corridor is not required by cable drum delivery vehicles.

Section 4

15.5.10.12. Joint Bay 4 / 5 has been assessed, located adjacent to B2150 Hambledon Road in proximity to the BP Petrol Filling Station. The cable drum delivery vehicles will use A3 Mile End Road, M275, A27 and A3(M), exiting at Junction 3 onto:

- B2150 Hulbert Road and A3 Maurepas Way - A3 London Road.

15.5.10.13. Joint Bay 6 / 7 has been assessed, located on A3 London Road south of Mill Road. The cable drum delivery vehicles will use A3 Mile End Road, M275, A27 and A3(M), exiting at Junction 3 onto:

- B2150 Hulbert Road and A3 Maurepas Way - A3 London Road.
- Exit from the site would be via the southbound carriageway of the A3 London Road - Ladybridge Road - Stakes Road - Purbrook Way - A3(M) Junction 4.

15.5.10.14. The assessment of both of these routes has shown that all manoeuvres could be accommodated within the exiting highway layout, leading to a **Negligible adverse effect** on a temporary and short-term basis. This is **Not Significant**.

15.5.10.15. Joint Bay 7 / 8 has been assessed, located on A3 London Road south of Ladybridge Roundabout. The cable drum delivery vehicles will use A3 Mile End Road, M275, A27 and A3(M), exiting at Junction 4 onto:

- Purbrook Way - Ladybridge Road - Stakes Road - A3 London Road.
- Exit from the site would be via the southbound carriageway of the A3 London Road - A3 Southampton Road - M275 / M27.

15.5.10.16. The assessment of this route has shown that all manoeuvres could be accommodated within the exiting highway layout, leading to a **Negligible adverse effect** on a temporary and short-term basis. This is **Not Significant**.

15.5.10.17. Joint Bay 9 / 10 has been assessed, located at Portsdown Hill car park. The cable drum delivery vehicles will use the M275, A27 Havant Bypass and the A3 (M), upon exiting A3 (M) at Junction 4, the construction vehicle will travel westbound along:

- Purbrook Way - Stakes Road - Ladybridge Road - A3 London Road - B2177 Portsdown Hill Road.
- Exit will be via B2177 Portsdown Hill Road - A3 London Road - A3 Southampton Road – M275 / M27.

15.5.10.18. The assessment of this route has shown that all manoeuvres could be accommodated within the existing highway layout with the exception of the temporary removal of the traffic island and posts at the car park access junction, leading to a **Negligible adverse** effect on a temporary and short-term basis. This is **Not Significant**.

Section 5

15.5.10.19. Access to Joint Bays located within Section 5 of the Onshore Cable Corridor is not required by cable drum delivery vehicles.

Section 6

15.5.10.20. Joint Bay 11 / 12 has been assessed, located within Zetland Fields adjacent to the A2030 Eastern Road. The cable drum delivery vehicles will use A3 Mile End Road, M275 and A27 and existing at the junction with A2030 Eastern Road. Exit from the site would be achieved via the same route with delivery vehicles manoeuvring back onto the A2030 Eastern Road southbound carriageway under control of banksman.

15.5.10.21. The assessment of this route has shown that all manoeuvres could be accommodated within the existing highway layout with the exception of temporary removal of boundary fencing and creation of a vehicle crossover, leading to a Negligib**le adverse effect** on a temporary and short-term basis. This is **Not Significant**.

15.5.10.22. Joint Bay 12 /13 has been assessed, located within Sainsbury's Car Park. The cable drum delivery vehicles will use A3 Mile End Road, M275 and A27 and A2030 Eastern Road as with Joint Bay 11 / 12. Access into Sainsbury's car park would be via the A2030 Eastern Road / Fitzherbert Road traffic signal junction.

15.5.10.23. The assessment of this route has shown that all manoeuvres could be accommodated within the existing highway layout with the possible exception of temporary removal of traffic signal poles at the A2030 Eastern Road / Fitzherbert Road traffic signal junction, leading to a **Negligible adverse effect** on a temporary and short-term basis. This is **Not Significant**.

Section 7

15.5.10.24. Joint Bay 13 /14 located within Farlington Playing Fields has been assessed. The cable drum delivery vehicles will use A3 Mile End Road, M275 and A27 and A2030 Eastern Road as with Joint Bay 11 / 12. Access into Farlington Playing Fields will via the existing access to the public car park under the control of banksman.

15.5.10.25. The assessment of this route has shown that some overrun will be required of the inside corner and central island at the entrance to Farlington Playing Fields car park. The earth bank on the inside corner already appears to have been partly flattened through existing vehicle use. The central island is also in a poor state of repair and would be removed to facilitate access and reinstated on completion of construction.

15.5.10.26. Further into the Farlington Playing Fields site there are wooden bollards adjacent to the carriageway and a width / height restricting barrier which would need to be removed to facilitate access and then reinstated once works are complete.

15.5.10.27. This has therefore been considered as having a **Minor adverse effect** on a temporary and short-term basis. This is **Not Significant**.

15.5.10.28. Joint Bay 14/15 located within Kendalls Wharf, adjacent to the A2030 Eastern Road has been assessed. The cable drum deliveries would use A3 Commercial Way, A3 Marketway, A3 Anglesea Road, A2030 Winston Churchill Avenue, A2030 Victoria Road North and A2030 Goldsmith Avenue before turning onto:

- Fratton Way - Rodney Road - A2030 Velder Avenue - A2030 Eastern Road – Airport Service Road – Robinson Way -Anchorage Road.
- Exit would be southbound along the A2030 Eastern Road onto the A27.

15.5.10.29. This has therefore been considered as having a **Minor adverse effect** on a temporary and short-term basis. This is **Not Significant**.

Section 8

15.5.10.30. Joint Bay 16 / 17 has been assessed, located adjacent to the A2030 Eastern Road north of Milton Common. The cable drum delivery vehicle will use via A3 Commercial Way, A3 Marketway, A3 Anglesea Road, A2030 Winston Churchill Avenue, A2030 Victoria Road North and A2030 Goldsmith Avenue before turning onto:

- Fratton Way / Rodney Road - A2030 Velder Avenue - A2030 Eastern Road – Anchorage Road - Robinson Way – Airport Service Road.

- Exit would then be via A2030 Eastern Road - A2030 Velder Avenue - Fratton Way / Rodney Road - A2030 Goldsmith Avenue - A2030 Victoria Road North, A2030 Winston Churchill Avenue - A3 Anglesea Road - A3 Marketway - A3 Hope Street.

15.5.10.31. The assessment of this route has shown that all manoeuvres could be accommodated within the existing highway layout with the exception of some vehicle overhang at limited locations (where pedestrians will not be present) along the delivery route, leading to a **Negligible adverse effect** on a temporary and short-term basis. This is **Not Significant**.

Section 9

15.5.10.32. Joint Bay 18 / 19 has been assessed, located within the Thatched House public house car park and accessed via Locksway Road. The cable drum delivery vehicle will use via A3 Commercial Way, A3 Marketway, A3 Anglesea Road, A2030 Winston Churchill Avenue, A2030 Victoria Road North and A2030 Goldsmith Avenue before turning onto:

- Fratton Way – Rodney Road - A288 Milton Road - Locksway Road.
- On exit, the cable drum delivery vehicles would head north along Milton Road and A2030 Eastern Road to reach the A27.

15.5.10.33. The assessment of this route has shown a number of TTROs would be required along Locksway Road to prohibit on-street parking when the cable drum is being delivered. Some vehicle overrun also occurs on entry and exit at the Milton Road / Locksway Road mini-roundabout, which will require the temporary removal of existing bollards at this roundabout to facilitate access. This has therefore been considered as having a **Minor to moderate adverse effect** on a temporary and short-term basis. This is **Not Significant**.

15.5.10.34. Joint Bay 20 / 21 located within Bransbury Park has been assessed. The cable drum delivery vehicle would use via A3 Commercial Way, A3 Marketway, A3 Anglesea Road, A2030 Winston Churchill Avenue, A2030 Victoria Road North and A2030 Goldsmith Avenue before turning onto:

- Fratton Way – Rodney Road - A288 Milton Road – Bransbury Road.
- Exit would be via Bransbury Road, A288 Milton Road and A2030 Eastern Road to reach the A27.

15.5.10.35. The assessment of this route has shown that all manoeuvres could be accommodated within the existing highway layout, leading to a **Negligible adverse effect** on a temporary and short-term basis. This is **Not Significant**.

Section 10

15.5.10.36. The Transition Joint Bay at Fort Cumberland open space (Landfall) has been assessed. The cable drum delivery vehicle would use via A3 Commercial Way, A3 Marketway, A3 Anglesea Road, A2030 Winston Churchill Avenue, A2030 Victoria Road North and A2030 Goldsmith Avenue before turning onto:

- A288 Milton Road - Bransbury Road - Henderson Road - Fort Cumberland Road.
- On exit, the cable drum delivery vehicles would head north along Milton Road and A2030 Eastern Road to reach the A27.

15.5.10.37. The assessment of this route has shown that all manoeuvres could be accommodated within the existing highway layout with the exception of temporary removal of the gate and fence to Bransbury Park, leading to a **Negligible adverse effect** on a temporary and short-term basis. This is **Not Significant**.

Summary and Conclusions

15.5.10.38. This section has shown that access by cable drum delivery vehicles is achievable in all circumstances, albeit requiring use of either TTROs to restrict on-street parking or temporary removal and reinstatement of street furniture in some locations. Such measures are included for within the dDCO (APP-019), along with the reinstatement of any alterations after construction is complete to the satisfaction of the relevant highway authority in accordance with the requirements of the New Roads and Street Works Act 1991.

15.5.10.39. The assessment of cable drum deliveries to the indicative Joint Bay locations has therefore shown that it is not anticipated there would be any significant effects associated with the cable drum deliveries in connection with the construction of the Proposed Development.

15.5.11. PUBLIC TRANSPORT PREDICTED IMPACTS

DS1 Scenario

15.5.11.1. Assessing the findings of the STA (Appendix 11, document reference 7.8.1.11) with regard to bus journey times in the DS1 scenario, the following can be determined.

15.5.11.2. The largest impact on the No 7 service journey time is 10% on the northbound service in the Inter-peak period. As detailed in Table 22.5 of the 2019 ES (APP-137), public transport users are considered to be a receptor with **Medium** sensitivity to traffic impacts. The impact on the No 7 service is considered to be a **Low** magnitude of impact, leading to a **Minor to Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Not Significant**.

15.5.11.3. The No. 8 bus service journey time is forecast to increase by 16-17% in the Inter and PM peak in the northbound direction. The impact is considered to be a **Medium** magnitude of impact; given the **Medium** sensitivity, this leads to a **Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Significant,** although the impact is temporary and short-term in nature and applies to only one direction and part of the day.

15.5.11.4. The D2 bus service is forecast to experience an increase in journey time of 15-21% across all journeys and in each of the AM, PM and inter-peak periods, but this is due to the relatively short total journey time of this route (11-12 minutes). The impact is therefore considered to be a **Low** magnitude of impact; given the **Medium** sensitivity, this leads to a **Minor to Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Not Significant**.

15.5.11.5. The impact on the No 39 bus service is at least a 10% longer journey time. The impact is considered to be a **Low** magnitude of impact; given the **Medium** sensitivity, this leads to a **Minor to Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Not Significant**.

DS2 Scenario

15.5.11.6. Assessing the main findings of the STA (Appendix 11, document reference 7.8.1.11) with regard to bus journey times in the DS2 scenario, the following can be determined.

15.5.11.7. The No. 7 bus service is forecast to experience a maximum journey time increase of 5-6%. The impact is considered to be a **Low** magnitude of impact; given the **Medium** sensitivity, this leads to a **Minor to Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Not Significant**.

15.5.11.8. The No. 8 bus service journey time will experience an increase in journey time 16-17%. The impact is considered to be a **Medium** magnitude of impact; given the **Medium** sensitivity, this leads to a **Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Significant,** although the impact is temporary and short-term in nature and applies to only one direction and part of the day.

15.5.11.9. The D2 bus service is forecast to experience an increase in journey time of 15-20% across all journeys and in each of the AM, PM and interpeak periods, but again, this is due to the relatively short total journey time of this route (11-12 minutes). The impact is therefore considered to be a **Low** magnitude of impact; given the **Medium** sensitivity, this leads to a **Minor to Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Not Significant**.

15.5.11.10. The impact on the No. 39 bus service is at least a 10% longer journey time. The impact is considered to be a Low magnitude of impact; given the **Medium** sensitivity, this leads to a **Minor to Moderate adverse effect** of a temporary and short-term nature. This is considered to be **Not Significant**.

Impact on Bus Stops

15.5.11.11. As stated in the FTMS (APP-449), during construction of the Onshore Cable Route, some existing bus stops may need to be temporarily closed depending upon the exact location within the carriageway or footway. Where this is required, a temporary bus stop will be provided as close as practicable to the original location, taking into account highway safety of all road users.

Summary and Conclusions

15.5.11.12. In summary, the assessment – comparing Do Minimum and the two Do Something scenarios contained within the SRTM – concluded that the works will generally have a minor impact on bus routes across the study area and where this is more pronounced, the impact will be limited to short time periods. For example, the No. 39 bus service will be directly impacted by traffic management for 10 weeks per circuit while the D2 bus service will be impacted for six weeks per circuit.

15.5.11.13. **Superseded 2019 ES, paragraph 22.7.1.4**

15.5.11.14. The cumulative effects assessment has not identified any other developments for consideration in Stage 3 & 4 either during the Construction or Operational Stage. This reflects the use of the SRTM 2026 DM and DS scenarios. The 2026 scenario includes significant committed developments, as is discussed in Paragraph 22.4.9.14 (of the 2019 ES) and therefore all assessments within the 2019 ES Chapter 22 (and all assessments within this ES Addendum also) inherently include cumulative effects.

15.5.11.15. The changes compared to the 2019 ES (APP-137) are:

- Corrected typo to say “assessment has not identified”.
- Clarification of references to the 2019 ES and to this Addendum.

15.5.12. RESIDUAL EFFECTS

15.5.12.1. This section and Table 15.4 set out amendments to Table 22.10 ‘Residual Effects’ of the 2019 ES. The elements of Table 22.10 which are not specifically referenced within this Addendum should be considered to be unchanged from the 2019 ES.

Table 15.4 - Updated Table 22.10 - Summary of Effects Table for Traffic and Transport

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
Section 1							
Traffic Delay	Broadway Lane	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant	Moderate -/T/D/MT Not Significant	N/A	Moderate -/T/D/MT Not Significant
	Day Lane	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant	Minor to Moderate -/T/D/MT Not Significant	N/A	Minor to Moderate -/T/D/MT Not Significant
	A3 (M) Junction 2	Moderate -/T/D/ST Significant	Traffic delay on the wider network can be mitigated by scheduling of the works to avoid multiple construction locations in the same area. This will reduce cumulative effects of traffic redistribution across the wider study area. Additionally, ongoing dialogue with the highway authority during construction works will help to dynamically adjust programming according to the prevailing conditions on site.	Minor to Moderate -/T/D/ST Not Significant	Moderate -/T/D/MT Significant	Traffic delay on the wider network can be mitigated by scheduling of the works to avoid multiple construction locations in the same area. This will reduce cumulative effects of traffic redistribution across the wider study area. Additionally, ongoing dialogue with the highway authority during construction works will help to dynamically adjust programming according to the prevailing conditions on site.	Minor to Moderate -/T/D/MT Not Significant
	Dell Piece West / A3 Portsmouth Rd / Catherington Lane junction	Moderate -/T/D/ST Not Significant		Minor to Moderate -/T/D/ST Not Significant	Moderate -/T/D/MT Not Significant		Minor to Moderate -/T/D/MT Not Significant

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
	A3 Portsmouth Road / Prochurch Road / A3 London Road / Lovedean Lane priority junction	Not included in Residual Effects in the 2019 ES	Minor -/T/D/MT Not Significant		Minor -/T/D/MT Not Significant		
Accidents and Safety	All links in Section 1 of the Onshore Cable Corridor	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant	Negligible -/T/D/MT Not Significant	N/A	Negligible -/T/D/MT Not Significant
	All links in Section 1 of the Wider Study area	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant	Negligible -/T/I/MT Not Significant	N/A	Negligible -/T/I/MT Not Significant
Abnormal Loads	Construction Access Route to/ from Converter Station for delivery of transformers	Minor to Moderate -/T/D/ST Not Significant	Deliveries will take place under police escort, with each delivery likely to take place over separate weekends. Pruning of vegetation will be required, in addition to temporary relocation of street furniture and signage as identified by the Route Access Survey.	Minor to Moderate -/T/D/ST Not Significant	Minor to Moderate -/T/D/ST Not Significant	Deliveries will take place under police escort, with each delivery likely to take place over separate weekends. Pruning of vegetation will be required, in addition to temporary relocation of street furniture and signage as identified by the Route Access Survey.	Minor to Moderate -/T/D/ST Not Significant
	Construction access route to Joint Bay 1 /2 - B2149 Dell Piece West - A3 Portsmouth Rd / London Road - Lovedean Lane - Day Lane	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
Section 2							
Accidents and Safety	All links in Section 2 of the Onshore Cable Corridor	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant		
	All links in Section 2 of the Wider Study area	Not included in Residual Effects in the 2019 ES	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant		
Abnormal Loads	Construction access route to Joint Bay 2 /3	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		
Section 3							
Traffic Delay	B2150 Hambledon Road	Moderate -/T/D/ST Significant	Traffic management in the form of shuttle working traffic signals will be required on the B2150 Hambledon Road within this Section. These signals are estimated to operate within capacity, leading to an average delay per vehicle of approximately 60 seconds.	Moderate -/T/D/ST Significant	Moderate -/T/D/ST Significant	Management of traffic signals during peak hours to reflect traffic conditions	Moderate -/T/D/ST Significant
	B2150 Hambledon Road Sensitivity Test	Not included in Residual Effects in the 2019 ES	Major to Moderate -/T/D/ST Significant	Management of traffic signals during peak hours to reflect traffic conditions	Major to Moderate -/T/D/ST Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
Accidents and Safety	All links in Section 3 of the Onshore Cable Corridor	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant		
	All links in Section 3 of the Wider Study area	Not included in Residual Effects in the 2019 ES	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant		
Section 4 – Option 1 (Construction works during school holidays)							
Severance	Frendstaple Road, Waterlooville	Minor to Moderate -/T/I/ST Not Significant	N/A	Minor to Moderate -/T/I/ST Not Significant	Moderate -/T/I/ST Not Significant	N/A	Moderate -/T/I/ST Not Significant
Traffic Delay	B2150 Hambledon Road / Aston Road traffic signals B2150 Hambledon Road / A3 Maurepas Way / Houghton Avenue roundabout	Moderate -/T/D/ST Significant	Scheduling the works on A3 London Road at an appropriate time in accordance with the programme information provided in the FTMS. Avoiding multiple construction locations in the same area will reduce cumulative effects of traffic redistribution across the wider study area.	Minor to Moderate -/T/D/ST Not Significant	Moderate -/T/D/ST Significant	Scheduling the works on A3 London Road at an appropriate time in accordance with the programme information provided in the FTMS. Avoiding multiple construction locations in the same area will reduce cumulative effects of traffic redistribution across the wider study area.	Minor to Moderate -/T/D/ST Not Significant
	B2150 Hambledon Road / A3 Maurepas Way / Houghton Avenue roundabout Sensitivity Test	Not included in Residual Effects in the 2019 ES	Moderate -/T/D/ST Significant		Moderate -/T/D/ST Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
	A3 London Road / Ladybridge Road Sensitivity Test	Not included in Residual Effects in the 2019 ES	Major -/T/D/ST Significant	Scheduling the works on A3 London Road at an appropriate time in accordance with the programme information provided in the FTMS. Avoiding multiple construction locations in the same area will reduce cumulative effects of traffic redistribution across the wider study area.	Major to Moderate -/T/D/ST Significant		
	Purbrook Way / College Road	Moderate -/T/I/ST Significant	Scheduling the works on A3 London Road at an appropriate time in accordance with the programme information provided in the FTMS. Avoiding multiple construction locations in the same area will reduce cumulative effects of traffic redistribution across the wider study area.	Minor to Moderate -/T/I/ST Not Significant	Minor to Moderate -/T/I/ST Not Significant		Minor to Moderate -/T/I/ST Not Significant
Fear and Intimidation	B2150 Hambledon Road	Minor +/T/D/ST Not Significant	N/A	Minor +/T/D/ST Not Significant	Minor to Moderate -/T/I/ST Not Significant	N/A	Minor to Moderate -/T/I/ST Not Significant
Accidents and Safety	All links in Section 4 of the Onshore Cable Corridor	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
	All links in Section 4 of the Wider Study area	Not included in Residual Effects in the 2019 ES	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant		
Abnormal Loads	Construction access route to Joint Bay 4 / 5	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		
	Construction access route to Joint Bay 6 / 7	Not included in Residual Effects in the 2019 ES					
	Construction access route to Joint Bay 7 / 8	Not included in Residual Effects in the 2019 ES					
	Construction access route to Joint Bay 9 / 10	Not included in Residual Effects in the 2019 ES					
Section 4 - Option 2 (Construction works during school term-time)							
Severance	Frendstaple Road, Waterlooville	Minor to Moderate -/T/I/ST Not Significant	N/A	Minor to Moderate -/T/I/ST Not Significant	Moderate -/T/I/ST Not Significant	N/A	Moderate -/T/I/ST Not Significant
Traffic Delay	B2150 Hambledon Road / Aston Road traffic signals B2150 Hambledon Road / A3 Maurepas	Moderate -/T/D/ST Significant	Avoiding multiple construction locations in the same area may reduce cumulative effects of traffic redistribution across the wider study area.	Moderate -/T/D/ST Significant	Moderate -/T/D/ST Significant	Scheduling the works on A3 London Road at an appropriate time in accordance with the programme information provided in the FTMS.	Moderate -/T/D/ST Significant

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
	Way / Houghton Avenue roundabout		Ongoing dialogue with the highway authority during construction works will help to dynamically adjust programming according to the prevailing conditions on site.			Avoiding multiple construction locations in the same area will reduce cumulative effects of traffic redistribution across the wider study area.	
	A3 London Road / Ladybridge Road Sensitivity Test	Not included in Residual Effects in the 2019 ES	Major -/T/D/ST Significant	Avoiding multiple construction locations in the same area may reduce cumulative effects of traffic redistribution across the wider study area. Ongoing dialogue with the highway authority during construction works will help to dynamically adjust programming according to the prevailing conditions on site.	Major -/T/D/ST Significant		
	Stakes Road/Stake Hill Road / Purbrook Way/Crookhorn Lane	Major -/T/I/ST Significant	Ongoing dialogue with the highway authority during construction works will help to dynamically adjust programming according to the prevailing conditions on site.	Major -/T/I/ST Significant	Minor to Moderate -/T/I/ST Not Significant		Minor to Moderate -/T/I/ST Not Significant
Fear and Intimidation	B2150 Hambledon Road	Minor +/T/D/ST Not Significant	N/A	Minor +/T/D/ST Not Significant	Minor to Moderate -/T/I/ST Not Significant	N/A	Minor to Moderate -/T/I/ST Not Significant

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
Accidents and Safety	All links in Section 4 of the Onshore Cable Corridor	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant		
	All links in Section 4 of the Wider Study area	Not included in Residual Effects in the 2019 ES	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant		
Abnormal Loads	Construction access route to Joint Bay 4 / 5	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		
	Construction access route to Joint Bay 6 / 7	Not included in Residual Effects in the 2019 ES					
	Construction access route to Joint Bay 7 / 8	Not included in Residual Effects in the 2019 ES					
	Construction access route to Joint Bay 9 / 10	Not included in Residual Effects in the 2019 ES					
Section 5							
Traffic Delay	A2030 / Farlington Avenue / A2030 Eastern Road / Havant Road	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
	A2030 / Farlington Avenue / A2030 Eastern Road / Havant Road Sensitivity Test	Not included in Residual Effects in the 2019 ES	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant		
	B2177 Portsdown Hill Road / Maylands Road / B2177 Bedhampton Road / Bedhampton Hill Roundabout	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant	Moderate -/T/I/ST Significant	Avoiding multiple construction locations in the same area may reduce cumulative effects of traffic redistribution across the wider study area.	Minor to Moderate -/T/I/ST Not Significant
Accidents and Safety	All links in Section 5 of the Onshore Cable Corridor	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant
	All links in Section 5 of the Wider Study area	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant
Section 6							
Traffic Delay	A2030 Eastern Road between junctions with Havant Road and Fitzherbert Road	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant	Moderate -/T/D/ST Not Significant	N/A	Moderate -/T/D/ST Not Significant
	A2030 Eastern Road between junctions with Havant Road and Fitzherbert Road if Zetland Fields is used	Not included in Residual Effects in the 2019 ES	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
Accidents and Safety	All links in Section 6 of the Wider Study area	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant
Abnormal Loads	Construction access route to Joint Bay 11 / 12	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST		
	Construction access route to Joint Bay 12 / 13	Not included in Residual Effects in the 2019 ES					
Section 7							
Traffic Delay	A2030 Eastern Road / Anchorage Road traffic signal junction	Minor to Moderate -/T/D/ST Not Significant	Scheduling of works on A2030 Eastern Road at an appropriate time in accordance with the programme information provided in the FTMS.	Minor to Moderate -/T/D/ST Not Significant	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant
Accidents and Safety	All links in Section 7 of the Onshore Cable Corridor	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant
Abnormal Loads	Construction access route to Joint Bay 13 / 14	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
	Construction access route to Joint Bay 14 / 15	Not included in Residual Effects in the 2019 ES					
Section 8							
Traffic Delay	A2030 Eastern Road / Tangier Road Junction Sensitivity Test	Not included in Residual Effects in the 2019 ES	Moderate -/T/D/ST Significant	Programming of works in accordance with PCC work embargoes, at an appropriate time in accordance with the programme information provided in the FTMS for this road.	Moderate -/T/D/ST Significant		
	A2030 Eastern Road / Hayling Avenue	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant		
Pedestrian and Cycle Amenity	Airport Service Road	Minor -/T/I/ST Not Significant	N/A	Minor -/T/I/ST Not Significant	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant
Accidents and Safety	Section 8 of the onshore cable corridor	Negligible -/T/D/ST Not Significant	N/A	Negligible -/T/D/ST Not Significant	Negligible -/T/D/ST Not Significant .	N/A	Negligible -/T/D/ST Not Significant
	All links in Section 8 of the Wider Study area	Not included in Residual Effects in the 2019 ES	Negligible -/T/I/ST Not Significant	N/A	Negligible -/T/I/ST Not Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
Abnormal loads	Construction access route to Joint Bay 16 / 17	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		
Section 9							
Traffic Delay	Moorings Way Sensitivity Test	Not included in Residual Effects in the 2019 ES	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant		
Abnormal loads	Construction access route to Joint Bay 18 / 19	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		
	Construction access route to Joint Bay 20 / 12	Not included in Residual Effects in the 2019 ES					
Section 10							
Traffic Delay	Locksway Road Longshore Way Kingsley Road	Minor to Moderate -/T/D/ST Not Significant	N/A	Minor to Moderate -/T/D/ST Not Significant	Minor to Moderate -/T/I/ST Not Significant	N/A	Minor to Moderate -/T/I/ST Not Significant
	Henderson Road	Minor to Moderate	N/A	Minor to Moderate -/T/D/ST	Minor to Moderate	N/A	Minor to Moderate -/T/I/ST

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
		-/T/D/ST Not Significant		Not Significant	-/T/I/ST Not Significant		Not Significant
	Locksway Road Longshore Way Kingsley Road Henderson Road Sensitivity Tests	Not included in Residual Effects in the 2019 ES	Minor to Moderate -/T/I/ST Not Significant	N/A	Minor to Moderate -/T/I/ST Not Significant		
Fear and Intimidation	Henderson Road (between Bransbury Road and Halliday Crescent)	Negligible +/T/I/ST Not Significant	N/A	Negligible +/T/I/ST Not Significant	Negligible +/T/I/ST Not Significant	N/A	Negligible +/T/I/ST Not Significant
Abnormal loads	Construction access route to Landfall	Not included in Residual Effects in the 2019 ES	Negligible -/T/D/ST Not Significant	Provision of escort vehicles and banksman where required. Deliveries will take place outside of peak traffic hours	Negligible -/T/D/ST Not Significant		
All Sections							
Public Transport	Bus Service No.7	Not included in Residual Effects in the 2019 ES	Minor to Moderate -/T/D/ST Not Significant	Avoiding multiple construction locations in the same area may reduce cumulative effects of traffic redistribution across the wider study area.	Minor to Moderate -/T/D/ST Not Significant		
	Bus Service No.8	Not included in Residual Effects in the 2019 ES	Moderate -/T/D/ST Significant		Minor to Moderate -/T/D/ST Not Significant		

Effects	Receptor	Effects as detailed in 2019 ES			Updated Effects		
		Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement	Significance and Nature of Effects Prior to mitigation	Summary of Mitigation / Enhancement	Significance and Nature of Residual Effects following Mitigation / Enhancement
	Bus Service D2	Not included in Residual Effects in the 2019 ES	Minor to Moderate -/T/D/ST Not Significant		Minor to Moderate -/T/D/ST Not Significant		
	Bus Service 39	Not included in Residual Effects in the 2019 ES	Minor to Moderate -/T/D/ST Not Significant		Minor to Moderate -/T/D/ST Not Significant		

15.5.13. CONCLUSION

15.5.13.1. This Chapter has considered the impacts of the amendments to the installation rate assumptions for installation of the Onshore Cable Route and the corresponding increases in the periods that traffic management will be in place. It has also considered the additional assessments included within the STA (Appendix 11, document reference 7.8.1.11) in relation to construction traffic movements, abnormal loads and accident and safety and public transport. These assessments have identified the following new significant residual impacts (following mitigation if noted in Table 15.4) in relation to traffic and transport in comparison with Chapter 22 (Traffic and Transport) of the 2019 ES (APP-137):

- The B2150 Hambledon Road shuttle working traffic signals results in a significant adverse effect in relation to traffic delay.
- The B2150 Hambledon Road / A3 Maurepas Way / Houghton Avenue roundabout traffic management results in a significant adverse effect in relation to traffic delay.
- In Option 1 for Section 4 (Construction works during school holidays), the B2150 Hambledon Road / A3 Maurepas Way / Houghton Avenue roundabout traffic management (sensitivity test) results in a moderate adverse effect (significant) in relation to traffic delay.
- In Option 2 for Section 4 (Construction works during school term-time), the B2150 Hambledon Road / A3 Maurepas Way / Houghton Avenue roundabout traffic management results in a moderate adverse effect (significant) in relation to traffic delay.
- A3 London Road / Ladybridge Road Sensitivity Test showed a major to moderate adverse effect (significant) in relation to traffic delay.
- In Option 2 for Section 4 (Construction works during school term-time), A3 London Road / Ladybridge Road Sensitivity Test showed a major adverse effect (significant) in relation to traffic delay.
- A2030 Eastern Road / Tangier Road Junction Sensitivity Test showed a moderate adverse effect (significant) in relation to traffic delay.
- In Option 2 for Section 4 (Construction works during school term-time), B2150 Hambledon Road / Aston Road traffic signals showed a moderate adverse effect (significant) in relation to traffic delay.

16. AIR QUALITY

16.1. INTRODUCTION

16.1.1.1. An updated Air Quality ES Chapter, which supersedes Chapter 23 (Air Quality) of the 2019 ES, is submitted as part of the ES Addendum (APP-138 Rev002). Following submission of the 2019 ES, the air quality assessment has been amended to more accessibly report the potential environmental effects as a result of the construction of the Proposed Development whilst also being updated to respond to issues raised in Relevant Representations, Written Questions and where further information or data has been made available since submission of the Application, and in light of further assessment carried out as a result of ongoing consultation.

16.2. UPDATED INFORMATION

16.2.1. REVISED ES CHAPTER STRUCTURE

16.2.1.1. Presentation of the ES chapter was adjusted to aid general accessibility and the following additions / changes were also made:

- A new appendix (Appendix 23.7 Air Quality Ecological Impacts) (document reference 6.3.23.7) was added to explain the significance of the deposition impacts on the ancient woodland sites;
- A new appendix (Appendix 23.8 Air Quality Sensitivity Testing) (document reference 6.3.23.8) was added to show the results of modelling undertaken as a result of the Supplementary Transport Assessment (STA) (document reference 7.8.1.11);
- New figures have been added or existing figures updated to illustrate the position of the Converter Station backup generators and HDD Trenchless Technique locations:
  - Figure 23.5 (Backup Generator Positions) (APP-327 Rev02);
  - New Figure 23.13 (Converter Station Backup Generator Positions) (document reference 6.2.23.13);
  - New Figure 23.17 (Trenchless Technique Indicative Locations) (document reference 6.2.23.17);
  - New Figure 23.18 (Amalgamated Results Do-Minimum Scenario NO2 Concentrations Portsmouth AQMAs) (document reference 6.2.23.18);
  - New Figure 23.19 (Amalgamated Results DS1 Scenario NO2 Concentration Changes Portsmouth AQMAs) (document reference 6.2.23.19); and

- New Figure 23.20 (Amalgamated Results DS2 Scenario NO2 Concentration Changes Portsmouth AQMAs) (document reference 6.2.23.20).

- New figures have been added or existing figures relating to traffic impacts have been updated to reflect the change in background and emission factor data:
  - Figure 23.6 (Traffic Diversion Do-Minimum Scenario NO_2 Concentrations) (APP-328 Rev02);
  - Figure 23.7 (Traffic Diversion DS1 Scenario NO_2 Concentration Changes) (APP-329 Rev02);
  - Figure 23.8 (Traffic Diversion DS2 Scenario NO_2 Concentration Changes) (APP-330 Rev02);
  - Figure 23.9 (Traffic Diversion Do-Minimum Scenario NO_2 Concentrations Portsmouth AQMAs) (APP-331 Rev02);
  - Figure 23.10 (Traffic Diversion DS1 Scenario NO_2 Concentration Changes Portsmouth AQMAs) (APP-332 Rev02);
  - Figure 23.11 (Traffic Diversion DS2 Scenario NO_2 Concentration Changes Portsmouth AQMAs) (APP-333 Rev02);
  - Figure 23.12 (Verification Zones) (APP-334 Rev02);
  - New Figure 23.14 (Intra-Project Do-Minimum Scenario NO2 Concentrations Verification) (document reference 6.2.23.14);
  - New Figure 23.15 (Intra-Project DS1 Scenario Change in NO2 Concentrations Verification) (document reference 6.2.23.15); and
  - New Figure 23.16 (Intra-Project DS2 Scenario Change in NO2 Concentrations Verification) (document reference 6.2.23.16).

16.2.1.2. The Onshore Outline CEMP has been updated in relation to IAQM Mitigation and Dust Risk (APP-505, Rev 002) due to an inconsistency in the results presented within the 2019 Air Quality Assessment (APP-138).

16.2.1.3. The following section outlines the key changes to Chapter 23 (Air Quality) contained in the 2019 ES.

16.2.2. PEAK TRAFFIC FLOWS

16.2.2.1. In Chapter 23 (Air Quality) of the 2019 ES (APP-138), emission factors and pollutant backgrounds from 2026 had been chosen to represent the 2026 year of peak traffic flows used for the Transport Assessment (Appendix 22.1 of the 2019 ES (APP-448)). To better represent the conditions during the anticipated peak construction year, emission factors and backgrounds from 2022 were applied to the 2026 peak traffic flows, thus providing worst-case predictions for air quality concentrations. The results of the updated modelling generally resulted in higher predicted concentrations for NO_2 due to using the data from 2022 as opposed to 2026.

16.2.2.2. The increases in emissions as a result of using the 2022 emissions factors were applied to all traffic flows in the Do Minimum and both Do Something scenarios. The predicted changes between the Do Minimum and the two Do Something scenarios were of a similar magnitude to those previously calculated and presented in the 2019 ES.

16.2.3. ASSESSMENT OF IMPACTS

16.2.3.1. The assessment of impacts was revisited with additional statistical tests applied to the results to strengthen the eventual findings and the assessments of significance. This resulted in some minor changes to the assessment of impact for various components reported in the 2019 ES.

- Verification Zone 1 overall positive impact to overall negative impact; and
- Verification Zone 2 overall positive impact to overall no change.

16.2.3.2. These changes occurred as a result of very small changes in predicted concentrations, and so did not affect the overall significance of impacts identified in the air quality assessment.

16.2.3.3. Additional interpretation of the modelled predictions for amalgamated air quality effects on each of the affected Air Quality Management Area (‘AQMA’) within the City of Portsmouth has been added to the predicted impacts section in response to Written Question AQ1.2.5.

16.2.3.4. Minor adjustments were made to account for the operating hours for HDD drilling plant to account for 24-hour operation at Eastney (Landfall) and under Langstone Harbour, and an additional emissions source was added for drilling plant on Milton Common.

16.2.3.5. Backup generators at the Converter Station were also added to the modelling for the Operational Stage. Previously, these had been scoped out of assessment due to the highly transient nature of their operation. It was decided however that these should be included for consistency as the backup generators at Landfall had been included at the request of the PCC Environmental Health Officer. This addition also meant that it was possible to report pollutant deposition at the ancient woodland sites at the Converter Station Area.

16.2.3.6. Local Sites of Importance for Nature Conservation, though not statutory designated sites, were added to the Construction Dust Assessment where they were not already included by virtue of their overlap with statutory designated sites.

16.2.3.7. An assessment of the results of deposition modelling by the terrestrial ecologists found that the magnitude of air pollution as an impact would be negligible, with negligible effects that are not significant.

Sensitivity Test

16.2.3.8. A sensitivity test on AQMA N° 9 was completed following additional traffic modelling undertaken as part of the STA and is recorded in Appendix 23.8 (document reference 6.3.23.8). The modelling was undertaken to examine the effect of reduced traffic distribution within the City of Portsmouth during periods when traffic management is in place on Eastern Road north of the junction with Tangier Road as part of the construction works associated with the Proposed Development.

16.2.3.9. The air quality modelling included morning and afternoon peak queue lengths, diurnal profiles for each link and restrictions on working throughout the course of one year.

16.2.3.10. The findings from the modelling showed that reduced redistribution of traffic on the network led to slight adverse effects within AQMA N° 9 as opposed to the slight beneficial effects recorded in Chapter 23 Air Quality (APP-138 Rev002) when compared to the Do-Minimum scenario.

16.2.4. CONCLUSION

16.2.4.1. The air quality assessment was revisited to realign the emissions from the traffic emissions assessments with the anticipated peak construction year. This resulted in an overall increase in all predicted concentrations, however the overall differences in concentrations were minimal compared to the previous submission.

16.2.4.2. Some additions were made for aspects of the HDD operations and backup generator operation that were previously scoped out. This was updated to ensure a consistent approach over the whole area of the Proposed Development. As a result, a deposition assessment was possible on the ancient woodland sites adjacent to the Converter Station Area, and in coordination with the terrestrial ecologists no significant effects were found.

16.2.4.3. The overall significance findings of the air quality assessment are unaffected by the changes.

16.2.4.4. The sensitivity test showed that reduced traffic redistribution on the network and increased queueing at the traffic management locations would cause slight adverse effects as opposed to the slight beneficial effects from the predicted levels of traffic redistribution modelled in Chapter 23 Air Quality (APP-138 Rev002).

17. NOISE AND VIBRATION

17.1. INTRODUCTION

17.1.1.1. This section of the ES Addendum contains updated and supplementary information in relation to the noise and vibration assessment, which is required following consultation with the Local Planning Authorities and updated assumptions for the Onshore Cable Route construction installation rates.

17.2. SUPPLEMENTARY INFORMATION: SUPPLEMENTARY METEOROLOGICAL DATA

17.2.1.1. During SoCG consultations with WCC and EHDC, a query was raised regarding the consideration of wind speed as part of the noise survey data. The following supplementary information is submitted in response to this query.

17.2.2. SUPPLEMENTARY METEOROLOGICAL DATA

17.2.2.1. Section 2 of Appendix 24.6 (Noise Survey Equipment, Meteorological Conditions and Noise Survey Results) (APP-465) presents the meteorological conditions during the baseline noise survey in June and July 2017. These data are from a meteorological ('MET') station at Southampton Airport, and were obtained from an online source (The Weather Company, n.d.). Meteorological data are used to assist in identifying any atypical noise measurements due to poor and unrepresentative weather conditions.

17.2.2.2. The wind speed data in Section 2 of Appendix 24.6 (Noise Survey Equipment, Meteorological Conditions and Noise Survey Results) (APP-465) is presented in the units mph. To allow a direct comparison between the wind speed data and the advice provided in British Standard 4142:2014, these data are replicated using the unit metres per second (m/s) in Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12).

17.2.2.3. Meteorological data for the period 2 July to 5 July 2017 were not presented in Section 2 of Appendix 24.6 (Noise Survey Equipment, Meteorological Conditions and Noise Survey Results) (APP-465). At the time this supporting data was obtained from the online source, it was understood that data for this period were unavailable. Subsequent review of the online source has identified that these supporting data for this period are now available and are presented in Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12).

17.2.2.4. The MET station at Southampton Airport typically includes data from 0550 hours to 2250 hours (and occasionally 2320 hours). It has been confirmed by operational staff at Southampton Airport that data outside of these periods are not logged. Since the night-time baseline noise measurements are used to determine night-time operational noise criteria for the Converter Station Area, it is necessary to present 24-hour meteorological data for the duration of the noise survey period.

17.2.2.5. Data for the MET Office weather station at Thorney Island (approximately 13 km to the south-east of the site), are presented in Table 13 of Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12). These data span 24-hour periods throughout the duration of the baseline noise survey and have been obtained from the Centre for Environmental Data Analysis (Met Office, 2019).

17.2.3. SUPPLEMENTARY METEOROLOGICAL DATA ANALYSIS

17.2.3.1. Plate 1 in Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12) shows a comparison of the wind speed data at Southampton Airport and Thorney Island during the baseline noise survey period. The wind speed at both sites follow a similar pattern, albeit during periods of higher wind speed, the levels are more elevated at Thorney Island. This is to be expected because the Thorney Island MET station is located close to the south coast in a relatively exposed location. In comparison, the Southampton Airport MET station is located further inland and hence a more sheltered location.

17.2.3.2. The wind speeds recorded at the Southampton Airport MET station are considered to be more representative of the conditions at the Converter Station Area than the wind speeds recorded at the Thorney Island MET station given its inland location. However, as a robust and precautionary approach, the wind speed data at Thorney Island will be used as a worst-case wind speed at the Converter Station Area.

17.2.3.3. The wind speed data for Thorney Island show that for the majority of the baseline noise survey period, including almost all night-time hours, the wind speed was below 5m/s and, therefore, suitable for environmental noise measurements.

17.2.3.4. During the daytime (0700-2300 hours) of 3 July 2017, the measured wind speed at Thorney Island exceeded 5m/s for 14 of the 16 daytime hours. Plate 2 in Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12) shows that the measured background noise level at Measurement Position ('MP') 3 was slightly elevated for much of the daytime of 3 July 2017 compared with the equivalent daytime periods on 29 and 30 June, when the measured wind speed was consistently below 5m/s. MP3 was chosen to illustrate this because the background noise level at this position is considered to be least affected by daily variation in background noise level caused by factors other than wind speed (e.g. noise from surrounding sources).

17.2.3.5. Therefore, adopting a worst-case and precautionary approach, it is considered appropriate to exclude the baseline noise levels measured during the daytime period of 3 July 2017. Accordingly, survey data for 3 July 2017 have been excluded for the purpose of deriving the appropriate operational noise criteria for the Converter Station Area.

17.2.3.6. A further analysis was undertaken to determine whether it is appropriate to exclude baseline noise survey data during other time periods when the measured wind speed was above 5m/s (i.e. periods other than 3 July 2017).

17.2.3.7. As explained in paragraph 24.5.1.6 of Chapter 24 (Noise and Vibration) of the 2019 ES, the typical L_{A90} values are taken as the most frequently occurring (modal) integer of the measured background noise levels logged every 15 minutes over each daytime or night-time period. As a first step, the noise levels measured during periods where wind speeds were greater than 5m/s were excluded from this modal analysis to determine whether this changed the typical background noise levels for any day or night-time period. The only two instances where the typical background noise level could change were for the night-time period of 1 July 2017 at MP2 and MP4.

17.2.3.8. The $L_{A90,15minute}$ values for the night-time of 1 July 2017 at MP2 and MP4 are presented in Table 11 of Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12). The wind speed exceeded 5 m/s for the first 15 minutes and final 45 minutes of this night-time period. The data for MP4 show that the measured background noise levels during the periods of greater than 5 m/s wind speed are not anomalous compared with the noise levels measured during the remainder of that night-time period. This is also the case for MP2, with the possible exception of the 30dB $L_{A90,15minute}$ value measured between 06:45 and 07:00 hours on 2 July 2017. However, even if this value were excluded, it would not affect the typical background noise level selected for this night-time period (27dB $L_{A90,15minute}$ at MP2).

17.2.3.9. To conclude, it is considered unnecessary to exclude baseline noise survey data for periods other than the daytime of 3 July 2017.

17.2.4. REVISED BACKGROUND NOISE LEVELS

17.2.4.1. A summary of the revised background noise levels, excluding daytime survey data of 3 July 2017 are shown in Table 17.1.

Table 17.1 - Revised summary of measured background noise levels

Measurement Position	Daytime (07:00 – 23:00)	Night time (23:00 – 07:00)
	Typical Background Noise Level $L_{A90,15min}$ (dB)	Typical Background Noise Level $L_{A90,15min}$ (dB)
MP1	33	27
MP2	33	25
MP3	**29***	23
MP4	32	27
MP6	33	27

*The typical background noise level presented in Chapter 24 of the 2019 ES is 30dB. All other levels are the same as those presented in Chapter 24 of the 2019 ES.

17.2.4.2. Table 17.1 shows that the exclusion of the daytime period of 3 July 2017 reduces the typical daytime background noise level at MP3 by 1dB. The typical daytime background noise levels at the remaining measurement positions are unchanged, as well as the typical night-time background noise levels.

17.2.4.3. The revised target broadband noise criteria for the Converter Station Area are shown in Table 17.2. The revised octave band target noise criteria are presented in Table 12 of Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12). As shown in these tables, the exclusion of the daytime period of 3 July 2017 only results in the revision of the daytime target noise criteria at three sensitive receptor groups (R6, R7 and R8). The stricter night-time criteria at all receptors remain unchanged. This table replaces Table 24.9 of Chapter 24 (Noise and Vibration (APP-139) of the 2019 ES.

Table 17.2 - Revised broadband free-field noise criteria at receptors for operational Converter Station Area

Receptor Group Name	Receptor Group Number	Noise assessment criterion ($L_{Ar,T}$)	
		Daytime	Night-time
The Haven and Old Mill Cottage	R1	33	25
Hillcrest	R2	33	25
Millfield Farm	R3	33	25
Kimberley House	R4	33	27
Little Denmead Farm	R5	33	27
Holme and Highfield Cottages	R6	**29***	23
Lower Chapters	R7	**29***	23
The Arrows	R8	**29***	23
Broadways	R9	32	27
Broadway Farm House	R10	32	27
Broadway Farm Cottages	R11	32	27
Hinton Daubnay	R12	33	27
Ludmore Cottages	R13	33	27
Old Mill House and The Shieling	R14	33	25
The Ranch	R15	33	25

*The target daytime noise assessment criterion in the 2019 ES is 30dB at R6, R7 & R8.

17.2.5. REVISION OF OPERATIONAL PREDICTED IMPACTS

Converter Station Area – Broadband Noise

17.2.5.1. Converter Station Option B(ii) remains the worst-case option for the reasons explained in Paragraph 24.6.2.16 of Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139). The revised broadband operational Converter Station Area results for Option B (ii) are presented in Table 17.3, replacing Table 24.25 of Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139).

Table 17.3 - Revised broadband operational Converter Station Area results for Option B (ii)

Receptor number and group	Predicted noise level from Converter Station Area, dB $L_{Aeq,T}$	Noise criterion ($L_{Ar,T}$) and assessment outcome			
		Daytime		Night-time	
		Criterion	Difference	Criterion	Difference
R1 - The Haven and Old Mill Cottage	24.8	33	-8.2	25	-0.2
R2 - Hillcrest	24.8	33	-8.2	25	-0.2
R3 - Millfield Farm	20.9	33	-12.1	25	-4.1
R4 - Kimberley House	15.7	33	-17.3	27	-11.3
R5 - Little Denmead Farm	17.4	33	-15.6	27	-9.6
R6 - Holme and Highfield Cottages	16.7	**29***	**-12.3**	23	-6.3
R7 - Lower Chapters	16.0	**29***	**-13.0**	23	-7.0
R8 - The Arrows	15.0	**29***	**-14.0**	23	-8.0
R9 – Broadways	19.6	32	-12.4	27	-7.4
R10 – Broadway Farm House	23.1	32	-8.9	27	-3.9
R11 – Broadway Farm Cottages	23.5	32	-8.5	27	-3.5
R12 – Hinton Daubnay	27.4	33	-5.6	27	+0.4
R13 – Ludmore Cottages	19.6	33	-13.4	27	-7.4
R14 – Old Mill House and The Shieling	23.2	33	-9.8	25	-1.8
R15 – The Ranch	23.4	33	-9.6	25	-1.6

*Criterion presented in 2019 ES Chapter was 30dB

17.2.5.2. Table 17.3 shows that the predicted noise level from the Converter Station Area at R6, R7 and R8 remain below the revised daytime criterion by 12.3dB, 13.0dB and 14.0dB respectively. The operational noise effects at these receptors remains as set out in Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139).of the 2019 ES (APP-139), i.e. a **negligible** magnitude of level and impact and, therefore, a direct, permanent, long-term, **negligible** (not significant) effect. The predicted impacts at the other receptors during the daytime, and at all receptors during the night-time are unchanged from those presented in Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139).

Converter Station Area – octave band noise

17.2.5.3. The updated background noise levels (see Table 17.1 above) necessitate revisiting the octave band noise criteria presented in Section 4 of Appendix 24.6 (Noise Survey Equipment, Meteorological Conditions and Noise Survey Results) of the 2019 ES (APP-465).

17.2.5.4. The revised comparison of the octave band Converter Station Area noise levels against the daytime noise criteria for Option B (i) is presented in Table 13 of Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12). Similar to the broadband assessment, the revised results are limited to R6, R7 and R8. Table 13 of Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12) shows that the predicted noise levels meet the criteria with the exception of 63Hz at R6 (Holme and Highfield Cottages) and R7 (Lower Chapters), where the criterion is exceeded by 1.2dB and 0.6dB respectively. The assessment presented in Chapter 24 of the 2019 ES presents a 0.3dB exceedance of the 63 Hz criterion at R6.

17.2.5.5. The revised comparison of the octave band Converter Station Area noise levels against the daytime noise criteria for Option B (ii) is presented in Table 14 of Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12). Similar to the broadband assessment, the changes to the results are limited to R6, R7 and R8. Table 14 of Appendix 12 (Supplementary Meteorological Data and Analysis and Revised Operational Noise Results) (document reference 7.8.1.12) shows that the predicted noise levels meet the criteria (with the exception of 63Hz at R6 (Holme and Highfield Cottages) and R7 (Lower Chapters) where the criterion is exceeded by 0.8dB and 0.4dB respectively.

17.2.5.6. The small exceedance for Options B (i) and B (ii) should be considered in the context of a very low background noise level at 63 Hz (3.5dBA) at R6 and R7 and, therefore, these small adverse exceedances are not considered to be of concern.

17.2.5.7. Furthermore, the noise modelling methodology (ISO 9613) used to predict the Converter Station Area noise levels is based on downwind propagation conditions (i.e. wind blowing from source to receiver), which represents a worst case. R6 and

R7 are located south of the proposed Converter Station, and therefore under the prevailing south-westerly wind direction, R6 and R7 will be located upwind of the noise sources. Under the prevailing wind direction, the noise levels from the Converter Station at R6 and R7 should be lower than modelled and noise level at 63 Hz from the Converter Station is unlikely to be audible at R6 and R7.

17.2.5.8. To conclude, based on the revised daytime octave band assessment, there will be a direct, permanent, long-term **negligible** (not significant) effect for both options of the Converter Station.

17.2.5.9. The predicted impacts for the night-time octave band assessment remain as presented in Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139).

17.2.6. CONCLUSION

17.2.6.1. In summary, in response to a query raised during SoCG consultations, a review of the noise survey data and wind speeds recorded during the baseline noise survey has been completed. Additional wind speed data have been presented to ensure the query is addressed fully and robustly.

17.2.6.2. The review has concluded that, as a worst-case precautionary measure, it is appropriate to exclude baseline noise levels measured during the daytime period of 3 July 2017 when determining the daytime criterion for the Converter Station Area. This is due to elevated wind speeds for the majority of this day. The review has also demonstrated that it is not necessary to exclude any further data collected during the baseline noise survey due to adverse meteorological conditions.

17.2.6.3. The exclusion of 3 July 2017 noise data results in a 1dB reduction of the typical daytime background noise level at MP3. This results in a 1dB reduction of the daytime broadband assessment criterion at R6 (Holme and Highfield Cottages), R7 (Lower Chapters) and R8 (The Arrows) from 30dB $L_{Ar,T}$ to 29dB $L_{Ar,T}$. This also results in a reduction of the daytime octave band assessment criterion at R6, R7 and R8.

17.2.6.4. These minor revisions to the noise criteria do not have any effect on the operational daytime broadband Converter Station Area assessment, since the predicted noise levels from the Converter Station Area remain considerably below the revised criteria. Therefore, the daytime broadband Converter Station Area noise levels are a direct, permanent, long-term, **negligible** (not significant) effect.

17.2.6.5. The revision to the noise criteria results in a small change to the predicted impacts for the daytime octave band assessment, whereby the 63 Hz criterion is exceeded by up to 1.2dB and 0.6dB at R6 and R7 respectively. However, these small adverse exceedances should be considered in the context of very low background noise levels and that R6 and R7 will be upwind of the Converter Station under prevailing conditions. Therefore, based on the daytime octave band assessment, there will be a direct, permanent, long-term **negligible** (not significant) effect.

17.3. UPDATED INFORMATION: ONSHORE CABLE CORRIDOR CONSTRUCTION

17.3.1.1. Since the submission of the 2019 ES, some of the assumptions for the construction of the Onshore Cable Corridor have changed as the Proposed Development has been refined. These assumptions have been reviewed to determine if any changes to Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139) are required.

17.3.1.2. The key changes to the assumptions for the noise and vibration assessment are presented below. Where changes to assumptions have resulted in a change to the predicted impacts presented in Chapter 24 (Noise and Vibration) (APP-139) of the 2019 ES, these are presented below.

17.3.2. TRENCHING AND CABLE DUCT INSTALLATION

Key changes to assumptions for the noise and vibration assessment

17.3.2.1. The installation of the cable ducts by trenching in the Onshore Cable Corridor will occur over both agricultural / open ground and along roads and footpaths. The 2019 ES assumed a rate of trenching and duct installation of 18 - 30 m per day along roads / footpaths and 50 m per day over agricultural / open ground.

17.3.2.2. The installation rate assumptions have been amended such there are now four working rates as follows:

- Agricultural land – 50 m per day;
  - Wide construction corridor with little or no service congestion. Mechanical excavation for most of the route with hand digging at service crossings;
- Open ground (e.g. grass verges, parks, recreational space) – 30 m per day;
  - Reasonable access to site with little or no service congestion. Mechanical excavation for most of the route with hand digging at service crossings;
- Road / footpaths (reasonable site access) – 24 m per day;
  - Reasonable access to site. Breaking of tarmac to take place using machines. Excavation will be mostly mechanical with hand digging taking place around existing services;
- Roads / footpaths (limited / narrow site access) – 12 m per day;
  - Access may be limited as some roads are narrow, which may limit the use of construction plant. Breaking of tarmac to take place using machinery. Most excavation, particularly around heavy service congestion, will take place by hand (typically within 500 mm of an existing service).

17.3.2.3. The 2019 ES assumed that the two periods of work for cable and duct installation would be completed with sufficient time between each, such that the works for each

circuit would be completed non-successively and, therefore, were assessed independently. Whilst there is still the potential for non-successive installation of each cable circuit, trenching and cable duct installation for each circuit could also be completed successively (i.e. one after the other), such that the works in any given area would occur over a single period.

17.3.2.4. Therefore, this optionality has been accounted for in the assessment updates below, where applicable. However, in summary, as successive or non-successive cable circuit installation will not alter the total duration that any receptor is exposed to a given noise or vibration impact, the programme of works adopted (successive or non-successive installation of each circuit) will not alter the conclusions of the noise and vibration assessment, as presented in Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139) or below.

Section 8

17.3.2.5. There are also changes to the assumptions of cable duct installation specific to Section 8 around Milton Common as follows:

Eastern Road

- The 2019 ES assumed that, should this route be selected, the cable ducts would be installed within open ground adjacent to Eastern Road along the northern boundary of Milton Common (between the HDD-6 compound and East Shore Way). It is now understood that, whilst installing within the open ground would be the preferable option, the cable ducts could potentially be installed within the Eastern Road. Therefore, this option has been reflected in the predicted impacts presented below. With regard to the working hours for trenching and duct installation in this part of Eastern Road, there are two options (which are also reflected in the predicted impacts presented below):
    - Option 1 – Core working hours (Weekdays 0700 to 1700 hours and Saturdays 0800 to 1300 hours); or
    - Option 2 – Seven day working between 0700-1700 hours (as stated in Table 25 of the FTMS (APP-449 Rev002) and as proposed by PCC).

Moorings Way

- The 2019 ES assumed that, should this route be selected, the cable ducts would be installed within open ground adjacent to Moorings Way along the southern boundary of Milton Common (between Eastern Avenue and Furze Lane/ University of Portsmouth playing fields). It is now understood that, whilst installing within the open ground would be the preferable option, the cable ducts could potentially be installed within the Moorings Way. Therefore, this option has been reflected in the predicted impacts presented below.

Section 9

17.3.2.6. There are also changes to the assumptions of cable duct installation specific to Section 9 as follows:

- Cable and duct installation could occur along Kingsley Road to the west of Yeo Court should it not be possible to install both the cable ducts along Yeo Court. As installation along Kingsley Road was not assessed in the 2019 ES, an assessment is contained in the predicted impacts presented below.

Changes to the Predicted Noise Impacts – Trenching and Duct Installation during Core Working Hours

17.3.2.7. The changes to the predicted noise impacts from trenching and duct installation during core working hours are set out below for each section.

17.3.2.8. The amended installation rate assumptions do not change the construction noise level that any receptor is expected to experience, and therefore the number of properties affected by each magnitude of level within each section are unchanged from those presented in Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139). However, in some locations, the amended installation rate assumptions result in an expected change to the duration of noise exposure for each receptor. This, in some instances, amends the magnitude of impact, which consequently may amend the noise effect. This is explained in more detail for each section below.

Section 1

17.3.2.9. As the assumed installation rate across the agricultural land in Section 1 is unchanged (50m per day), there are no changes to the predicted impacts presented at Paragraphs 24.6.2.10 and 24.6.2.11 of the 2019 ES.

Section 2

17.3.2.10. As the assumed installation rate across the agricultural land in Section 2 is unchanged (50 m per day), there are no changes to the predicted impacts presented at Paragraph 24.6.3.2 of the 2019 ES.

Section 3

17.3.2.11. As the assumed installation rates in Section 3 are unchanged (50m per day over the agricultural land and 30m per day on Hambledon Road), there are no changes to the predicted impacts presented at Paragraphs 24.6.4.2 and 24.6.4.3 of the 2019 ES.

Section 4

17.3.2.12. The total number of sensitive receptors affected by large, medium and small adverse magnitudes of level during weekday daytime trenching and duct installation in section 4 is unchanged from those presented in Table 24.27 of the 2019 ES.

17.3.2.13. However, the duration over which each receptor will experience these magnitudes of level is dependent on the revised installation rates which are either 12m per day, 24m per day or 30m per day in section 4. The amended installation rate assumptions for Section 4 are shown in Appendix 2, Figure 1 (document reference 7.8.1.2).

17.3.2.14. For lengths of the cable route in section 4 with an estimated installation rate of 24 or 30 m per day (see Appendix 2, Figure 1 (document reference 7.8.1.2)), the expected duration of exposure, magnitude of impact and effect presented in Paragraphs 24.6.5.3 to 24.6.5.5 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 1 receptor for a period of 1-1.5 days per circuit. The same receptor is expected to experience a **medium** and **small adverse** magnitude of level for an additional 2-3 days per circuit. This impact would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 2-3 days in total at this receptor, and therefore, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **medium adverse** magnitude of level is predicted at 79 receptors for a period of 2-2.5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 1-2 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 4-5 day total exposure to a medium adverse magnitude of level, there will be a **low** impact which is a direct, temporary, short-term, **minor adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 113 receptors for a period of 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 6-8 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

17.3.2.15. For lengths of the cable route in section 4 with an estimated installation rate of 12 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)), the expected duration of exposure, magnitude of impact and effect presented in Paragraphs 24.6.5.3 to 24.6.5.5 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 16 receptors for a period of 2.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 5-6 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 5 days in total at any receptor. Furthermore, as explained in paragraph 17.3.2.2, the use of large mechanical plant will be limited for these sections of duct installation due to space constraints, and much of the excavation will be completed using hand tools due to existing service congestion. This should further reduce the duration of the loudest activities. Therefore, based on the anticipated 5 day total exposure to a large adverse magnitude of level, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **medium adverse** magnitude of level is predicted at 204 receptors for a period of 4-5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 8-10 day total exposure to a medium adverse magnitude of level, there will be a **medium** impact which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 208 receptors for a period of 7-8 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 14-16 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

Section 5

17.3.2.16. The total number of sensitive receptors affected by large, medium and small adverse magnitudes of level during weekday daytime trenching and duct installation in section 5 are unchanged from those presented in Table 24.33 of the 2019 ES (APP-139).

17.3.2.17. However, the duration over which each receptor will experience these magnitudes of level is dependent on the revised installation rates, which are either 12m per day or 24m per day in Section 5. The amended installation rate assumptions for Section 5 are shown in Figure 1 (Appendix 2, document reference 7.8.1.2).

17.3.2.18. For lengths of the cable route in Section 5 with an estimated installation rate of 24 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)), the expected duration of exposure, magnitude of impact and effect presented in Paragraphs 24.6.6.3 to 24.6.6.5 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 2 receptors for a period of 1-1.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 2-3 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 2-3 days in total at any receptor, and, therefore, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **medium adverse** magnitude of level is predicted at 28 receptors for a period of 2-2.5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 1-2 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 4-5 day total exposure to a medium adverse magnitude of level, there will be a **low** impact which is a direct, temporary, short-term, **minor adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 76 receptors for a period of 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 6-8 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

17.3.2.19. For lengths of the cable route in Section 5 with an estimated installation rate of 12 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)), the expected duration of exposure, magnitude of impact and effect presented in Paragraphs 24.6.6.3 to 24.6.6.5 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 13 receptors for a period of 2.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 5-6 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 5 days in total at any receptor. Furthermore, as explained in Paragraph 17.3.2.2, the use of large mechanical plant will be limited for these sections of duct installation due to space constraints, and much of the excavation will be completed using hand tools due to existing service congestion. This should further reduce the duration of the loudest activities. Therefore, based on the anticipated 5 day total exposure to a large adverse magnitude of level, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).

- A **medium adverse** magnitude of level is predicted at 34 receptors for a period of 4-5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 8-10 day total exposure to a medium adverse magnitude of level, there will be a **medium** impact which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 19 receptors for a period of 7-8 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 14-16 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

Section 6

17.3.2.20. Whilst the assumed installation rate for Zetland Field has reduced from 50m per day to 30 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)), as the magnitude of noise level is expected to be negligible at all receptors, there are no changes to the predicted impacts presented at Paragraph 24.6.7.2 of the 2019 ES (APP-139).

17.3.2.21. As the assumed installation rate across the Sainsbury's car park is unchanged, there are no changes to the predicted impacts presented at Paragraph 24.6.7.3 of the 2019 ES (APP-139).

17.3.2.22. Whilst the assumed installation rate for Fitzherbert Road has reduced from 18-30 m per day to 12m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)), as the magnitude of noise level is expected to be negligible at all receptors, there are no changes to the predicted impacts presented at Paragraph 24.6.7.3 of the 2019 ES (APP-139).

Section 7

17.3.2.23. As the assumed installation rate across Farlington Playing Fields in Section 7 is unchanged (50m per day), there are no changes to the predicted impacts presented at Paragraph 24.6.8.2 of the 2019 ES (APP-139).

17.3.2.24. As the assumed installation rate for the cable route between Kendall's Wharf and Airport Service Road has reduced from 50 m per day to 24-30 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)), the predicted impacts presented at Paragraph 24.6.8.3 of the 2019 ES (APP-139) are replaced as follows:

- A **small adverse** magnitude of level is predicted at Langstone Harbour sports ground and Baffins Milton Rovers Football Ground (Kendall Stadium) during the cable duct installation between the southern end of HDD-3 and Airport Service Road. The duration of exposure is expected to be 1.5-2 days per circuit (3-4 days in total), which is considered a **negligible** magnitude of impact. Given the low sensitivity of these receptors, there will be a direct, temporary, short-term **negligible** effect (not significant).

Section 8

17.3.2.25. If the cable ducts are installed within the open ground adjacent to Eastern Road and Moorings Way (along the northern and southern boundaries of Milton Common), there are no changes to the predicted impacts presented at Paragraph 24.6.9.2 of the 2019 ES (APP-139). This is because the magnitude of noise level is expected to be negligible at all receptors.

17.3.2.26. If the cable ducts are installed during core working hours (Option 1 as presented in paragraph 17.3.2.5 of this document) at an assumed rate of 24m per day within Eastern Road along the north of Milton Common (between HDD-6 and East Shore Way), the predicted impacts presented at Paragraph 24.6.9.2 of the 2019 ES (APP-139) are replaced as follows:

- A **medium adverse** magnitude of level is predicted at 20 receptors for a period of 2-2.5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 1-2 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 4-5 day total exposure to a medium adverse magnitude of level, there will be a **low** impact which is a direct, temporary, short-term, **minor adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 135 receptors for a period of 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 6-8 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

17.3.2.27. If the cable ducts are installed within Moorings Way (at an assumed rate of 24m per day) along the south of Milton Common (between Eastern Avenue and Furze Lane / University of Portsmouth playing fields), the predicted impacts presented at Paragraph 24.6.9.2 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 23 receptors for a period of 1-1.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 2-3 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 2-3 days in total at any receptor, and, therefore, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **medium adverse** magnitude of level is predicted at 59 receptors for a period of 2-2.5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 1-2 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 4-5 day total exposure to a medium adverse magnitude of level, there will be a **low** impact which is a direct, temporary, short-term, **minor adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 44 receptors for a period of 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 6-8 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

17.3.2.28. The amended assumptions state that the installation rate along Eastern Road (between East Shore Way and Eastern Avenue) is anticipated to be 12 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)). Therefore, if the cable ducts are installed here during core working hours (Option 1 as presented in 17.3.2.5 of this document), the expected duration of exposure, magnitude of impact and effect presented at Paragraphs 24.6.9.4 to 24.6.9.6 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 1 receptor for a period of 2.5 days per circuit. The same receptor is expected to experience a **medium** and **small adverse** magnitude of level for an additional 5-6 days per circuit. This impact would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 5 days in total at this receptor. Furthermore, as explained in Paragraph 17.3.2.2, the use of large mechanical plant will be limited for these sections of duct installation due to space constraints, and much of the excavation will be completed using hand tools due to existing service congestion. This should further reduce the duration of the loudest activities. Therefore, based on the anticipated 5 day total exposure to a

large adverse magnitude of level, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).

- A **medium adverse** magnitude of level is predicted at 47 receptors for a period of 4-5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 8-10 day total exposure to a medium adverse magnitude of level, there will be a **medium** impact which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 59 receptors for a period of 7-8 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 14-16 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

17.3.2.29. The amended assumptions state that the installation rate along Eastern Avenue is 12 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)). Therefore, the expected duration of exposure, magnitude of impact and effect presented at Paragraphs 24.6.9.4 to 24.6.9.6 of the 2019 ES are replaced as follows:

- A **large adverse** magnitude of level is predicted at 27 receptors for a period of 2.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 5-6 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 5 days in total at any receptor. Furthermore, as explained in Paragraph 17.3.2.2, the use of large mechanical plant will be limited for these sections of duct installation due to space constraints, and much of the excavation will be completed using hand tools due to existing service congestion. This should further reduce the duration of the loudest activities. Therefore, based on the anticipated 5 day total exposure to a large adverse magnitude of level, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).

- A **medium adverse** magnitude of level is predicted at 19 receptors for a period of 4-5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 8-10 day total exposure to a medium adverse magnitude of level, there will be a **medium** impact which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 40 receptors for a period of 7-8 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 14-16 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

Section 9

17.3.2.30. In the 2019 ES (APP-139), the anticipated installation rate along Furze Lane and along Locksway Road to the HDD-2 compound was 18-30 m per day. However, the amended installation rates assume 12 m per day along Furze Lane and 24 m per day per day along Locksway Road to the HDD-2 compound. Consequently, the installation along Furze Lane and along Locksway Road to the HDD-2 compound are considered separately, below.

17.3.2.31. The amended installation rate assumption along Furze Lane is 12 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)). Therefore, the predicted impacts for trenching and duct installation along Furze Lane presented at paragraphs 24.6.10.3 to 24.6.10.6 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 63 receptors for a period of 2.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 5-6 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a **large adverse** magnitude of level is expected to occur for no more than 5 days in total at any receptor. Furthermore, as explained in paragraph 17.3.2.2, the use of large mechanical plant will be limited for these sections of duct installation due to space constraints, and much of the excavation will be completed using hand tools due to existing service congestion. This should further reduce the duration of the loudest activities. Therefore, based on the anticipated 5 day total exposure to a large adverse magnitude of level, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).

- A **medium adverse** magnitude of level is predicted at 17 receptors for a period of 4-5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 8-10 day total exposure to a medium adverse magnitude of level, there will be a **medium** impact which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 128 receptors for a period of 7-8 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 14-16 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

17.3.2.32. During the trenching and duct installation (at an assumed installation rate of 24 m per day) between the junction of Furze Lane and Locksway Road and the HDD-2 compound, the predicted impacts presented at Paragraphs 24.6.10.3 to 24.6.10.6 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 2 receptors for a period of 1-1.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 2-3 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 2-3 days in total at any receptor, and, therefore there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** (not significant) effect.
- A **medium adverse** magnitude of level is predicted at 8 receptors for a period of 2-2.5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 1-2 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 4-5 day total exposure to a medium adverse magnitude of level, there will be a **low** impact, which is a direct, temporary, short-term, **minor adverse** (not significant) effect.

- A **small adverse** magnitude of level is predicted at 10 receptors for a period of 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 6-8 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, minor adverse effect (not significant).

17.3.2.33. Due to the amended installation rate assumption of 30 m per day alongside Kingsley Road and through Bransbury Park (see Figure 1 (Appendix 2, document reference 7.8.1.2)), the predicted impacts presented in Table 24.47 and Paragraph 24.6.10.8 of the 2019 ES (APP-139) are replaced as follows:

- A **small adverse** magnitude of level is predicted at 5 receptors for a period of 1.5 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 3 day total exposure to a small adverse magnitude of level represents a **negligible** impact, which is a direct, temporary, short-term, **negligible** effect (not significant).

17.3.2.34. The amended installation rate assumption along Yeo Court is 24 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)). Therefore, the predicted impacts for trenching and duct installation along Yeo Court presented at Paragraph 24.6.10.8 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 2 receptors for a period of 1-1.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 2-3 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 2-3 days in total at any receptor, and, therefore, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **medium adverse** magnitude of level is predicted at 9 receptors for a period of 2-2.5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 1-2 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 4-5 day total exposure to a medium adverse magnitude of level, there will be a **low** impact which is a direct, temporary, short-term, **minor adverse** effect (not significant).

- A **small adverse** magnitude of level is predicted at 15 receptors for a period of 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 6-8 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

17.3.2.35. If cable and duct installation occur along Kingsley Road at an assumed rate of 24 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)) instead of through Yeo Court, the predicted impacts for trenching and duct installation for this section would be as follows:

- A **large adverse** magnitude of level is predicted at 11 receptors for a period of 1-1.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 2-3 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 2-3 days in total at any receptor, and, therefore, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **medium adverse** magnitude of level is predicted at 24 receptors for a period of 2-2.5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 1-2 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 4-5 day total exposure to a medium adverse magnitude of level, there will be a **low** impact which is a direct, temporary, short-term, **minor adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 18 receptors for a period of 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 6-8 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

Section 10

17.3.2.36. The total number of sensitive receptors affected by large, medium and small adverse magnitudes of level during weekday daytime trenching and duct installation in section 10 are unchanged from those presented in Table 24.50 of the 2019 ES (APP-139).

17.3.2.37. However, as the amended installation rate assumption along Henderson Road and Fort Cumberland Road is 12 m per day (see Figure 1 (Appendix 2, document reference 7.8.1.2)), the expected duration of exposure, magnitude of impact and

effect presented in Paragraphs 24.6.11.3 to 24.6.11.5 of the 2019 ES (APP-139) are replaced as follows:

- A **large adverse** magnitude of level is predicted at 29 receptors for a period of 2.5 days per circuit. The same receptors are expected to experience **medium** and **small adverse** magnitudes of level for an additional 5-6 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). However, a large adverse magnitude of level is expected to occur for no more than 5 days in total at any receptor. Furthermore, as explained in Paragraph 17.3.2.2, the use of large mechanical plant will be limited for these sections of duct installation due to space constraints, and much of the excavation will be completed using hand tools due to existing service congestion. This should further reduce the duration of the loudest activities. Therefore, based on the anticipated 5 day total exposure to a large adverse magnitude of level, there will be a **medium** impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **medium adverse** magnitude of level is predicted at 80 receptors for a period of 4-5 days per circuit. **Small adverse** magnitudes of level may be experienced at the same receptors for an additional 3-4 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). Based on the anticipated 8-10 day total exposure to a medium adverse magnitude of level, there will be a **medium** impact which is a direct, temporary, short-term, **moderate adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 97 receptors for a period of 7-8 days per circuit. These impacts would be experienced for a second time (sequential or non-sequential depending on the respective timings of each circuit installation). This 14-16 day total exposure to a small adverse magnitude of level represents a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).

Changes to the Predicted Noise Impacts – Trenching and Duct Installation during Out-of-Hours Works

17.3.2.38. The areas where trenching and cable duct installation are required to take place outside of core working hours to mitigate adverse traffic impacts are unchanged from those presented in Paragraph 24.4.2.17 of the 2019 ES (APP-139), with the exception of an additional part of Eastern Road, as explained in Paragraph 17.3.2.5 of this document. Furthermore, the amended installation rate assumptions have been reviewed for these areas to establish if any changes to the duration of exposure for receptors are expected.

17.3.2.39. As stated in point 1 of Paragraph 24.4.2.17 of the 2019 ES (APP-139), a c.90 m section of the A3 London Road in Purbrook near Stakes Road may require works outside of core working hours to mitigate adverse traffic impacts. However, the amended installation rate assumptions have altered the anticipated duration of these works. Therefore, the assumptions listed in point 1 of Paragraph 24.4.2.17 of the 2019 ES (APP-139) are replaced as follows:

- The working hours for the trenching and duct installation in this section would be weekends (Saturday and Sunday) between 0800 and 1800 hours.
- Based on the amended installation rate assumptions, it is anticipated that the duration of the works would be 8 weekends (4 per circuit).
- It is most likely that the works for each circuit would be completed in four 22-23 m sections, one per weekend. It has not yet been confirmed if these would be consecutive weekends and, on that basis, working on consecutive and non-consecutive weekends has been assessed.

17.3.2.40. On the basis of these revised assumptions, the predicted impacts of the trenching and duct installation works outside of core hours in section 4 are as follows:

17.3.2.41. Paragraphs 24.6.5.10 to 24.6.5.13 and Tables 24.29 and 24.30 are unchanged from the 2019 ES (APP-139).

17.3.2.42. Paragraph 24.6.5.14 of the 2019 ES (APP-139) is replaced as follows:

- At all receptors, a **large adverse** magnitude of level is expected during the weekend daytime trenching works outside of core working hours in Section 4. It should be noted that these noise levels are worst-case at each receptor group from construction activities across the working day. This is because they assume concurrent operation of all construction plant associated with excavation, duct installation and re-surfacing along roads, including that associated with road breaking.
- Assuming that the works are completed in four 22-23 m sections, one per weekend, this large adverse magnitude of level would be expected to occur at any individual receptor for 2-3 weekends. This is due to the linear nature of the works, which means any individual receptor would be exposed to a large adverse magnitude of level for only 2-3 weekends of the entire 8 weekend duration as the works approach, pass and move on from any one receptor.
- If works near to any individual receptor occur over non-consecutive weekends, this represents a **medium** magnitude of impact, and there will be a direct, temporary, short-term, **moderate adverse** effect (not significant).
- If works near to any individual receptor occur over consecutive weekends, this represents a **high** magnitude of impact, and there will be a direct, temporary, short-term, **major adverse** effect (significant).

Section 5

17.3.2.43. As stated in Paragraph 24.4.2.17 of the 2019 ES (APP-139), Havant Road in Section 5 is expected to require weekend daytime and night-time working to facilitate a road closure at the point where the cable route crosses the carriageway. All of the assumptions contained in point 2 of Paragraph 24.4.2.17 of the 2019 ES (APP-139) remain valid, with the exception of the guarantee that there will be sufficient temporal gap between the installation of both circuits. Whilst there is still the potential for non-successive installation of each cable circuit, there is the potential that both circuits could be installed successively (i.e. one after the other).

17.3.2.44. Taking this into account, the predicted noise levels presented in Table 24.36 of Chapter 24 (Noise and Vibration) and the magnitude of level, impact and effect for the three options presented in Paragraph 24.6.6.15 of the 2019 ES (APP-139) are unchanged.

Section 6

17.3.2.45. As stated in point 3 of paragraph 24.4.2.17 of the 2019 ES (APP-139), Fitzherbert Road and the Sainsbury's access road and car park may require night-time working to minimise disruption to the supermarket. The noisiest activities (road cutting/breaking and resurfacing) will be avoided during the night-time period (2200-0700 hours). The amended assumptions indicate that the installation rate will be 12 m per day or night on Fitzherbert Road and 24 m per day or night in the Sainsbury's car park and access road. Therefore, the expected duration of exposure, magnitude of impact and effect presented in Paragraph 24.6.7.12 of the 2019 ES (APP-139) are replaced as follows:

- At all receptors listed in table 24.39 of the 2019 ES (APP-139), **medium adverse** magnitudes of level are expected if night-time trenching works take place on Fitzherbert Road and the Sainsbury's access road and car park within 70 m of the sensitive residential receptors (Marshfield House and dwellings on Lealand Road).
- Based on the amended installation rates, works on Fitzherbert Road will result in a **medium adverse** magnitude of level at the closest receptors (northern part of Marshfield House and dwellings on Lealand Road) for one night per circuit. This duration of exposure (two nights in total) is a **medium adverse** magnitude of impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).

- Based on the amended installation rates, works on the Sainsbury's access road and car park will result in a **medium adverse** magnitude at the closest receptors (southern part of Marshfield House) for 2-2.5 nights per circuit. This duration of exposure (up to 5 nights in total) is a **medium adverse** magnitude of impact, which is a direct, temporary, short-term, **moderate adverse** effect (not significant).

Section 8

17.3.2.46. As stated in point 4 of paragraph 24.4.2.17 of the 2019 ES (APP-139), the 1.5 km section of Eastern Road between Airport Service Road and the north of Milton Common (c.350 m south of Tangier Road) may require 24 hour working seven days per week to minimise traffic disruption during trenching and duct installation.

17.3.2.47. The 2019 ES (APP-139) assumed an installation rate of 45 m per 24 hours (based upon multiplying the 30 m per day rate by 1.5 to obtain a 24 hour rate). The amended assumptions result in an expected revised installation rate of 36 m per 24 hours. Therefore, the expected duration of these works stated in point 4 of paragraph 24.4.2.17 of the 2019 ES (APP-139) are replaced as follows:

- The trenching and duct installation works along this 1.5 km section of Eastern Road are expected to be completed in approximately 42 days per circuit. Works outside the Harbourside Caravan Park are expected to last for 8-9 days per circuit and works outside the flat above the Great Salterns Mansion Harvester are expected to last for approximately 2 days per circuit. The noisiest activities (road cutting/breaking and resurfacing) will be avoided at night outside the Caravan Park to minimise potential sleep disturbance.

17.3.2.48. Whilst the revised installation rates marginally increase the duration of exposure of the Harbourside Caravan Park and Great Salterns Mansion to adverse effects, the predicted impacts presented at Paragraphs 24.6.9.19 to 24.6.9.25 of the 2019 ES (APP-139) are unchanged.

Section 8 – Additional Assessment for Trenching and Duct Installation Outside of Core Working Hours – Eastern Road between HDD-6 and East Shore Way.

17.3.2.49. If the cable and duct installation along Eastern Road between HDD-6 and East Shore Way takes place outside of core hours (Option 2 as presented in paragraph 17.3.2.5 of this document), the following impacts would be expected.

17.3.2.50. The impact during core working hours would be as presented at Paragraph 17.3.2.26 of this document. However, with seven-day working, the magnitude of noise level from work on Saturday afternoons (13:00 to 17:00 hours) and Sundays (07:00 to 17:00 hours) would be as presented in Table 17.4.

Table 17.4 – Section 8 – Eastern Road (HDD-6 to East Shore Way) – predicted impacts of Saturday afternoon and Sunday trenching

Activity		Number of properties experiencing specified magnitude of level		
		Large adverse	Medium adverse	Small adverse
Trenching and duct installation – along roads	Saturday afternoons (13:00 to 17:00 hours) and Sundays (07:00 to 17:00 hours)	20	135	77

17.3.2.51. Large, medium and small adverse magnitudes of level are predicted at 20, 135 and 77 receptors respectively during the Saturday afternoon and Sunday trenching works.

17.3.2.52. Whilst these adverse impacts are likely to be realistic for the receptors located close to the illustrative cable route, those located further away may not experience the magnitude of impact predicted, due to the screening afforded by buildings positioned between the cable route and these receptors.

17.3.2.53. Given the sensitive time periods when this work could occur, a more detailed assessment is considered necessary prior to determining the significance of the effect. This detailed assessment is outlined below.

17.3.2.54. The receptors considered to be most affected by the works have been combined into six groups as shown in Table 17.5. The properties are grouped based on the distances between the receptors and the proposed works.

Table 17.5 - Section 8 – Eastern Road (HDD-6 to East Shore Way – receptors included in detailed out-of-hours trenching assessment

Group	Receptors
Group 1	151-167 (Odds), Eastern Road, PO3 6EH 181-215 (Odds), Eastern Road, PO3 6EH 229-245 (Odds), Eastern Road, PO3 6EH 247-263 (Odds), Eastern Road, PO3 6EQ 277-311 (Odds), Eastern Road, PO3 6EQ 325-341 (Odds), Eastern Road, PO3 6EQ 367-381 (Odds), Eastern Road, PO3 6EG 397-413 (Odds), Eastern Road, PO3 6EG
Group 2	169-179 (Odds), Eastern Road, PO3 6EH 217-227 (Odds), Eastern Road, PO3 6EH

Group	Receptors
	265-275 (Odds), Eastern Road, PO3 6EQ 313-323 (Odds), Eastern Road, PO3 6EQ 383-395 (Odds), Eastern Road, PO3 6EG 415-425 (Odds), Eastern Road, PO3 6EG
Group 3	343-353 (Odds), Eastern Road, PO3 6EQ 355-365 (Odds), Eastern Road, PO3 6EG
Group 4	139-149 (Odds), Eastern Road, PO3 6EJ
Group 5	121-137 (Odds), Eastern Road, PO3 6EJ
Group 6	115-119 (Odds), Eastern Road, PO3 6EJ

17.3.2.55. The detailed assessment has accounted for the following factors:

- The height of the sources (assumed to be 1.5 m) and height of the receptor. The receptor height is assumed to be a 1.5 m high for houses, which is representative of a ground floor window and 4 m high for flats, which is representative of a first-floor window. As the flats are typically two storeys high this represents an average height.
- The shortest distance between the receptors and illustrative cable route. Hence the predicted noise levels represent a worst case.
- The intervening ground between the sources and receptor (percentage hard and soft ground).
- The 5dB attenuation provided by screening (e.g. solid hoarding or Heras fencing with acoustic quilts) around the site compound and around specific noisy equipment/activities. For the works near to flats, screening around specific noisy equipment will be more effective than hoarding around the site compound (which is less effective with increasing receptor height).

17.3.2.56. Whilst all activities and equipment used for trenching have been included in the assessment as a worst case, the use of equipment for cutting and breaking the road surface, which is the loudest and most percussive equipment, will be concentrated for a couple of hours at the beginning of each day.

17.3.2.57. The predicted noise levels from the detailed assessment are presented in Table 17.6

Table 17.6 – Section 8 – Eastern Road (HDD-6 to East Shore Way – predicted noise levels from detailed out-of-hours trenching assessment

Receptor group	Worst case noise level from construction activities, dB $L_{Aeq,T}$*
1	69
2	64
3	67
4	63
5	72
6	70
* $L_{Aeq,T}$ is the average noise level across the working day	

17.3.2.58. A **large adverse** magnitude of level is predicted at receptor groups 1, 3, 5 and 6 if the trenching and duct installation works are completed on Saturday afternoons and Sundays. Based on the assumed installation rate of 24 m per day in this area (see Figure 1 (Appendix 2, document reference 7.8.1.2)), this magnitude of level would be experienced for approximately 2-2.5 days per circuit (i.e. 4 to 5 days in total). As the trenching and duct installation in this area is assumed to comprise 7 day working (i.e. weekdays and weekends), the magnitude of impact and effect for the out-of-hours work is dependent on the duration that any individual receptor will be subject to weekend works. Therefore, the following two options are possible:

- If the total duration of weekend works outside any receptor is no longer than two days (i.e. one weekend), this would represent a medium magnitude of impact and there will be a direct, temporary, short-term, **moderate adverse** effect (not significant).
- If the total duration of weekend works outside any receptor is longer than two days (i.e. more than one weekend), this would represent a high magnitude of impact and there will be a direct, temporary, short-term, **major adverse** effect (significant).

17.3.2.59. A **medium adverse** magnitude of level is predicted at receptor groups 2 and 4 if the trenching and duct installation works are completed on Saturday afternoons and Sundays. Based on the assumed installation rate of 24m per day in this area (see Figure 1 (Appendix 2, document reference 7.8.1.2)), this magnitude of level would be experienced for approximately 4 days per circuit (i.e. 8 days in total). As the trenching and duct installation in this area is assumed to comprise 7 day working (i.e. weekdays and weekends), the magnitude of impact and effect for the out-of-hours work is

dependent on the duration that any individual receptor will be subject to weekend works. Therefore, the following two options are possible:

- If the total duration of weekend works outside any receptor is no longer than two days (i.e. one weekend), this would represent a low magnitude of impact and there will be a direct, temporary, short-term, **minor adverse** effect (not significant).
- If the total duration of weekend works outside any receptor is longer than two days (i.e. more than one weekend), this would represent a medium magnitude of impact and there will be a direct, temporary, short-term, **moderate adverse** effect (not significant).

17.3.2.60. These adverse effects from Saturday afternoon and Sunday trenching and duct installation works along Eastern Road between HDD-6 and East Shore Way would be avoided if the following alternative options are completed:

- Installing the cable route along the other two options through Milton Common;
- Installing the cable route within the open ground adjacent to the south of Eastern Road; or
- Installing the cable route within Eastern Road during Core Working Hours only.

Section 8 – additional assessment for trenching and duct installation outside of core working hours – Eastern Road between East Shore Way and Eastern Avenue

17.3.2.61. If the cable and duct installation along Eastern Road between East Shore Way and Eastern Avenue takes place outside of core hours (Option 2 as presented in Paragraph 17.3.2.5 of this document), the following impacts would be expected.

17.3.2.62. The impact during core working hours would be as presented at Paragraph **Error! Reference source not found.** of this document. However, with seven-day working, the magnitude of noise level from work on Saturday afternoons (13:00 to 17:00 hours) and Sundays (07:00 to 17:00 hours) would be as presented in Table 17.7.

Table 17.7 – Section 8 – Eastern Road (East Shore Way to Eastern Avenue) – predicted impacts of out-of-hours trenching

Activity		Number of properties experiencing specified magnitude of level		
		Large adverse	Medium adverse	Small adverse
Trenching and duct installation – along roads	Saturday afternoons (13:00 to 17:00 hours) and Sundays (07:00 to 17:00 hours)	49	65	117

17.3.2.63. Large, medium and small adverse magnitudes of level are predicted at 49, 65 and 117 receptors respectively during the Saturday afternoon and Sunday trenching works.

17.3.2.64. Whilst these adverse impacts are likely to be realistic for the receptors located close to the illustrative cable route, those located further away may not experience the magnitude of impact predicted, due to the screening afforded by buildings positioned between the cable route and these receptors.

17.3.2.65. Given the sensitive time periods when this work could occur, a more detailed assessment is considered necessary prior to determining the significance of the effect. This detailed assessment is outlined below.

17.3.2.66. The receptors considered to be most affected by the works have been combined into seven groups as shown in Table 17.8. The properties are grouped based on the distances between the receptors and the proposed works.

Table 17.8 - Section 8 – Eastern Road (East Shore Way to Eastern Avenue) – receptors included in detailed out-of-hours trenching assessment

Group	Receptors
1	Flats 1-16, 2 East Shore Way, PO3 6GD Flats 1-16, 4 East Shore Way, PO3 6GD
2	6 to 30 (Evens) East Shore Way, PO3 6GD
3	71 to 85 (Odds) East Shore Way, PO3 6FY 1 to 6 Lacey Road, PO3 6FZ
4	94 Eastern Road, PO3 6EW
5	82-92 (Evens) Eastern Road, PO3 6EW
6	43-59 (Odds) Eastern Road, PO3 6EN 73-89 (Odds) Eastern Road, PO3 6EN

Group	Receptors
	91-107 (Odds) Eastern Road, PO3 6EJ
7	31-41 (Odds) Eastern Road, PO3 6EN 61-71 (Odds) Eastern Road, PO3 6EN 109 A-F Eastern Road, PO3 6EJ

17.3.2.67. The detailed assessment has accounted for the following factors:

- The height of the sources (assumed to be 1.5m) and height of the receptor. The receptor height is assumed to be 1.5m high for houses, which is representative of a ground floor window and 4m high for flats, which is representative of a first-floor window. As the flats are typically two storeys high this represents an average height.
- The shortest distance between the receptors and illustrative cable route. Hence the predicted noise levels represent a worst case.
- The intervening ground between the sources and receptor (percentage hard and soft ground).
- The 5dB attenuation provided by screening (e.g. solid hoarding or Heras fencing with acoustic quilts) around the site compound and around specific noisy equipment/activities. For the works near to flats, screening around specific noisy equipment will be more effective than hoarding around the site compound (which is less effective with increasing receptor height).

17.3.2.68. Whilst all activities and equipment used for trenching have been included in the assessment as a worst case, the use of equipment for cutting and breaking the road surface, which is the loudest and most percussive, will be concentrated for a couple of hours at the beginning of each day.

17.3.2.69. The predicted noise levels from the detailed assessment are presented in Table 17.9.

Table 17.9 – Section 8 – Eastern Road (East Shore Way to Eastern Avenue) – predicted noise levels from detailed out-of-hours trenching assessment

Receptor group	Worst case noise level from construction activities, dB $L_{Aeq,T*}$
1	72
2	71
3	72
4	69
5	66
6	73

Receptor group	Worst case noise level from construction activities, dB $L_{Aeq,T}$*
7	69
*** $L_{Aeq,T}$ is the average noise level across the working day**	

17.3.2.70. A **large adverse** magnitude of level is predicted at all receptor groups if the trenching and duct installation works are completed on Saturday afternoons and Sundays. Based on the assumed installation rate of 12m per day in this area (see Figure 1 (Appendix 2, document reference 7.8.1.2), this magnitude of level would be experienced for approximately 4-5 days per circuit (i.e. 8-10 days in total). As the trenching and duct installation in this area is assumed to comprise 7 day working (i.e. weekdays and weekends), the magnitude of impact and effect for the out-of-hours work is dependent on the duration that any individual receptor will be subject to weekend works. Therefore, the following two options are possible:

- If the total duration of weekend works outside any receptor is no longer than two days (i.e. one weekend), this would represent a medium magnitude of impact and there will be a direct, temporary, short-term, **moderate adverse** effect (not significant).
- If the total duration of weekend works outside any receptor is longer than two days (i.e. more than one weekend), this would represent a high magnitude of impact and there will be a direct, temporary, short-term, **major adverse** effect (significant).

17.3.2.71. These adverse effects from Saturday afternoon and Sunday trenching and duct installation works along Eastern Road between HDD-6 and East Shore Way would be avoided if the following alternative options are completed:

- Installing the cable route along the other two options through Milton Common; or
- Installing the cable route within Eastern Road during Core Working Hours only.

Changes to the Predicted Vibration Impacts – Trenching and Duct Installation

17.3.2.72. As explained in paragraph 24.4.3.1 of the 2019 ES (APP-139), the activities included in the vibration assessment for trenching and duct installation comprise:

- Breaking of the existing road surface; and
- Resurfacing using a vibratory roller.

17.3.2.73. The resurfacing activities are anticipated to occur over a single day per week after the completion of a section of cable duct installation, and the amended installation rates do not change this assumption. Therefore, with regard to road resurfacing, there

are no changes to the predicted vibration impacts for Sections 4, 5, 6 and 10 presented in Chapter 24 of the 2019 ES (APP-139).

17.3.2.74. With regard to breaking of the existing road surface, the number of properties affected by medium and small adverse magnitudes of level in Sections 4, 5, 6 and 10 are unchanged from those presented in Tables 24.31, 24.37 and 24.52 of the 2019 ES (APP-139).

17.3.2.75. The amended installation rate assumptions do not revise the magnitude of impact assigned to the magnitudes of level in Tables 24.31, 24.37 and 24.52 of the 2019 ES (APP-139). Therefore, there are no changes to the predicted impacts for road surface breaking during trenching and duct installation presented in Chapter 24 of the ES (APP-139).

Section 8

17.3.2.76. Amended predicted vibration impacts during trenching and duct installation, specific to Section 8 are as follows.

17.3.2.77. As explained in Paragraph 17.3.2.5 of this document, there is the potential for a greater length of cable duct to be installed within Eastern Road and Moorings Way than assumed in Chapter 24 of the 2019 ES (APP-139). Therefore, the vibration assessment for trenching and duct installation in Section 8 presented at paragraphs 24.6.9.30 to 24.6.9.32 and Table 24.45 of the 2019 ES (APP-139) is replaced as follows:

- The predicted impacts of trenching activities in Section 8 are presented in Table 17.10.

Table 17.10 - Section 8 - predicted vibration impacts of trenching

	Number of properties experiencing specified magnitude of level		
Activity	Large adverse	Medium adverse	Small adverse
Breaker (road surface removal)	0	104	532
Vibratory roller (re-surfacing)	0	22	203

- A **medium adverse** magnitude of level is predicted at 104 receptors during road surface removal and at 22 receptors during re-surfacing in Section 8. Breaking activities are expected to be intermittent and transient in nature, and re-surfacing is expected to occur on the last day of each week for the section of cable installed. The anticipated duration of exposure at any given receptor would be up to three consecutive days per circuit. This is a **low** magnitude of impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 532 receptors during road surface removal and at 203 receptors during re-surfacing in Section 8. Breaking activities are expected to be intermittent and transient in nature, and re-surfacing is expected to occur on the last day of each week for the section of cable installed. The anticipated duration of exposure at any given receptor would be up to five consecutive days per circuit. Therefore, these small adverse levels are considered a **negligible** magnitude of impact, which is a direct, temporary, short-term, **negligible effect** (not significant).

Section 9

17.3.2.78. As explained in Paragraph 17.3.2.6 of this document, it is understood that the cable and duct installation could occur along Kingsley Road should it not be possible to install both cable ducts along Yeo Court.

17.3.2.79. To reflect this possible cable route option, the vibration assessment for trenching and duct installation in Section 9 presented at Paragraphs 24.6.10.16 to 24.6.10.20 and Table 24.49 of the 2019 ES (APP-139) is replaced as follows:

- The predicted impacts of trenching activities in Section 9 are presented in Table 17.11.

Table 17.11 - Section 8 - predicted vibration impacts of trenching

	Number of properties experiencing specified magnitude of level		
Activity	Large adverse	Medium adverse	Small adverse
Breaker (road surface removal)	0	136	248
Vibratory roller (re-surfacing)	0	6	151

- A **medium adverse** magnitude of level is predicted at 136 receptors during road surface removal and at 6receptors during re-surfacing in Section 9. Breaking activities are expected to be intermittent and transient in nature, and re-surfacing is expected to occur on the last day of each week for the section of cable installed. The anticipated duration of exposure at any given receptor would be up to three consecutive days per circuit. This is a **low** magnitude of impact which is a direct, temporary, short-term, **minor adverse** effect (not significant).
- A **small adverse** magnitude of level is predicted at 248 receptors during road surface removal and at 151 receptors during re-surfacing in Section 9. Breaking activities are expected to be intermittent and transient in nature, and re-surfacing is expected to occur on the last day of each week for the section of cable installed. The anticipated duration of exposure at any given receptor would be up to five consecutive days per circuit. Therefore, these small adverse levels are considered a **negligible** magnitude of impact, which is a direct, temporary, short-term, **negligible effect** (not significant).

17.3.3. CABLE PULLING AND JOINT BAYS

Key Changes to Assumptions for the Noise and Vibration Assessment

17.3.3.1. As stated in paragraph 24.4.2.20 of the 2019 ES (APP-139), the noise and vibration assessment assumed that works at each Joint Bay would last approximately 4 weeks per circuit, and this assumption remains valid. The 2019 ES also assumed that the joint bay works would be completed with sufficient time between each circuit, such that the works for each circuit would be completed non-successively and, therefore, were assessed independently.

17.3.3.2. Whilst there is still the potential for non-successive joint bay works for each circuit, it is now understood that works for each circuit could also be completed successively (i.e. one after the other), such that the works in any given area would occur over a single period of approximately 8 weeks. Therefore, this optionality has been accounted for in the assessment updates below, where applicable.

Changes to the Predicted Noise Impacts - Cable Pulling and Joint Bays

17.3.3.3. Regardless of whether the works at each joint bay are completed successively or non-successively, the predicted impacts at the joint bays where negligible magnitudes of level are predicted at all work stages are unchanged from those presented in Chapter 24 of the 2019 ES (APP-139). This is the case at:

- JB1 / 2 (Paragraph 24.6.3.3);
- JB2 / 3 (Paragraph 24.6.4.4);
- JB3 / 4, 4 / 5, 5 / 6, 7 / 8, 9 / 10 (Paragraph 24.6.5.15);
- JB11 / 12, 12 / 13 (Paragraph 24.6.7.14);
- JB13 / 14, 14 / 15 (Paragraph 24.6.8.4);
- JB15 / 16, 16 / 17 (Paragraph 24.6.9.26);
- JB17 / 18, 18 / 19, 19 / 20, 20 / 21 (Paragraph 24.6.10.9); and the
- Transition Joint Bay ('TJB') (Paragraph 24.6.11.10).

Joint Bay 6 / 7

17.3.3.4. If the works at JB 6 / 7 are completed non-successively (i.e. over two separate periods of approximately 4 weeks), the predicted impacts are as presented at Paragraph 24.6.5.16 of the 2019 ES (APP-139).

17.3.3.5. If the works at JB 6 / 7 are completed successively (i.e. over a single period of approximately 8 weeks), the predicted impacts presented at paragraph 24.6.5.16 of the 2019 ES (APP-139) are replaced as follows:

- At JB 6 / 7, a **small adverse** magnitude of level is predicted at four residential receptors for a period of up to ten days whilst the Joint Bay is constructed. Therefore, this is considered a **low** magnitude of impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant). During the other activities at JB 6 / 7 (cable installation, cable jointing, Joint Bay infilling and re-surfacing) direct, temporary, short-term **negligible** (not significant) effects are predicted.

Joint Bay 8 / 9

17.3.3.6. If the works at JB 8 / 9 are completed non-successively (i.e. over two separate periods of approximately 4 weeks), the predicted impacts are as presented at Paragraph 24.6.5.17 of the 2019 ES (APP-139).

17.3.3.7. If the works at JB 8 / 9 are completed successively (i.e. over a single period of approximately 8 weeks), the predicted impacts presented at Paragraph 24.6.5.17 of the 2019 ES (APP-139) are replaced as follows:

- At JB 8 / 9, a **small adverse** magnitude of level is predicted at one residential receptor for a period of up to ten days whilst the Joint Bay is constructed. Therefore, this is considered a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant). During the other activities at JB 8 / 9 (cable installation, cable jointing, Joint Bay infilling and re-surfacing) direct, temporary, short-term **negligible** (not significant) effects are predicted.

Joint Bay 10 / 11

17.3.3.8. If the works at JB10 /11 are completed non-successively (i.e. over two separate periods of approximately 4 weeks), the predicted impacts are as presented at paragraph 24.6.6.16 of the 2019 ES (APP-139).

17.3.3.9. If the works at JB 10 /11 are completed successively (i.e. over a single period of approximately 8 weeks), the predicted impacts presented at paragraph 24.6.6.16 of the 2019 ES (APP-139) are replaced as follows:

- At JB 10 / 11, a **small adverse** magnitude of level is predicted at two residential receptors for a period of up to ten days whilst the Joint Bay is constructed. Therefore, this is considered a **low** impact, which is a direct, temporary, short-term, **minor adverse** effect (not significant). During the other activities at JB 10 / 11 (cable installation, cable jointing, Joint Bay infilling and re-surfacing) direct, temporary, short-term **negligible** (not significant) effects are predicted.

Changes to the Predicted Vibration Impacts - Cable Pulling and Joint Bays

17.3.3.10. As explained in paragraph 24.4.3.1 of the 2019 ES (APP-139), the activities included in the vibration assessment for joint bays comprise:

- Breaking of the existing road surface (where the joint bays are within roads);
- Resurfacing using a vibratory roller (where the joint bays are within roads); and
- Ground compaction using a vibratory plate compactor.

17.3.3.11. Regardless of whether the works at each joint bay are completed successively or non-successively, the predicted vibration impacts at the joint bays where negligible magnitudes of level are predicted at all work stages are unchanged from those presented in the following paragraphs of the 2019 ES (APP-139):

- JB1 / 2 (Paragraph 24.6.3.5);
- JB2 / 3 (Paragraph 24.6.4.9);
- JB5 / 6, 9 / 10 (Paragraph 24.6.5.25);
- JB11 / 12, 12 / 13 (Paragraph 24.6.7.19);
- JB13 / 14, 14 / 15 (Paragraph 24.6.8.16);
- JB15 / 16, 16 / 17 (Paragraph 24.6.9.33); and
- JB17 / 18, 19 / 20, 20 / 21 (Paragraph 24.6.10.21).

17.3.3.12. Regardless of whether the works at each joint bay are completed successively or non-successively, the same magnitude of impact and effect will be assigned to the small adverse magnitude of levels predicted at the joint bays. Therefore, there are no changes to the predicted vibration impacts presented in the 2019 ES (APP-139) at the following paragraphs:

- JB3 / 4, 4 / 5, 6 / 7, 7 / 8, 8 / 9 (Paragraphs 24.6.5.27 to 24.6.5.28);
- JB10 / 11 (Paragraph 24.6.6.23); and
- JB18 / 19 (Paragraph 24.6.10.22).

17.4. SUMMARY

17.4.1.1. The information above describes updated information to Chapter 24 (Noise and Vibration) of the 2019 ES (APP-139) in light of the following:

- Supplementary meteorological data submitted in response to a query raised during SoCG discussion with WCC and EHDC;
- Amended installation rate assumptions for the construction of the onshore cable corridor; and
- Clarification on some of the assumptions applied as part of the onshore cable corridor construction assessment.

18. SOCIO-ECONOMICS

18.1. INTRODUCTION

18.1.1.1. A Framework Management Plan ('FMP') for Recreational Impacts (Appendix 13, document reference 7.8.1.13) has been prepared to provide further information on predicted effects arising from the construction of the Proposed Development on key recreational assets and outlines the mitigation measures proposed to address those effects.

18.1.1.2. Furthermore, a Note on Public Rights of Way ('PRoW'), Long Distance Walking Paths and Cycle Route Diversions (Appendix 14, document reference 7.8.1.14) has been produced to provide additional information to support the conclusions of Chapter 25 (Socio-economics) of the 2019 ES (APP-140) regarding PRoW and to demonstrate feasibility.

18.1.1.3. Sections of Chapter 25 (Socio-economics) of the 2019 ES (APP-140), Appendix 25.2 (Socio-economic Receptors within 500 m) (APP-470) and Figure 25.1 (Socio-economic Receptors within 500 m of the Proposed Development) (APP-340 Rev02) have been updated in relation to disruption to local businesses, in response to Written Question SE1.15.5.

18.2. CLARIFICATION FOLLOWING RULE 6 LETTER

18.2.1.1. Impacts of the Proposed Development on offshore socio-economic receptors are covered in the marine chapters as was proposed and presented within the Scoping Report submitted to PINS in October 2018 and as subsequently consulted on in the Preliminary Environmental Information Report ('PEIR') as part of the consultation undertaken in February 2019.

18.2.1.2. Chapter 25 (Socio-economics) of the 2019 ES (APP-140) has assessed the potential employment generation resulting from the marine construction works. In addition, Appendix 25.2 (Socio-economic Receptors within 500 m) (APP-470) identifies community facilities, businesses and tourism attractions that are related to marine activities such as water sports and sailing clubs, Southsea Marina and Portsmouth Port and Harbour. These receptors are assessed in Chapter 25 (Socio-economics) (APP-140) in terms of impacts on access and disruption to their onshore activities, whereas disruption to these receptors in terms of their ability to operate at sea is assessed within the marine chapters of the 2019 ES. Therefore, there is no double counting in assessments.

18.2.1.3. Chapter 12 (Commercial Fisheries) of the 2019 ES (APP-127) is referenced in paragraph 25.1.1.4 of Chapter 25 (Socio-economics) of the 2019 ES (APP-140). Chapter 12 (Commercial Fisheries) evaluates the potential impacts on relevant local, regional and international commercial fishing industries including in terms of their value of fish landings and disruption of access to fishing grounds. Significant consultation was undertaken with operators within this sector to inform the assessment undertaken (see the Consultation Report, AS-006) and mitigation measures are identified and secured through the deemed Marine Licence ('dML') which forms part of the draft Order (APP-019). The Applicant will continue to undertake engagement with commercial fisheries interests.

18.2.1.4. Chapter 13 (Shipping, Navigation and Marine Users) of the 2019 ES (APP-128) assesses the potential impacts and navigation risks resulting from the Proposed Development that could disrupt operations of local maritime activities and considers the density of local, regional and international marine traffic in these assessments. Activities include:

- Port and harbour activities;
- Ferries;
- Aggregate dredging activities; and
- Fishing activities.

18.2.1.5. Chapter 13 (Shipping, Navigation and Marine Users) of the 2019 ES (APP-128) also assessed the potential impacts in terms of disruption and safety risk on recreational maritime activities such as recreational sailing and sailing clubs, personal watercraft users, diving and local sailing races such as Cowes Week and Round the Island. In addition, at the request of the MMO, the Applicant undertook further engagement with the recreational angling sector to assess any potential disruption to operations of this sector (e.g. charter vessels) and access to their fishing spots as this was identified as a key receptor sector within the local area. This is also presented within Chapter 13 (Shipping, Navigation and Marine Users) of the 2019 ES (APP-128).

18.3. SUPPLEMENTARY INFORMATION

18.3.1. NOTE ON PUBLIC RIGHT OF WAY DIVERSIONS

18.3.1.1. Chapter 25 (Socio-economics) of the 2019 ES (APP-140) states that temporary diversions to PRoW do not add substantial distance to the journey length and effects on PRoW and users of them are not significant. The Note on PRoW, Long Distance Walking Paths and Cycle Route Diversions (Appendix 14, document reference 7.8.1.14) provides further evidence to support these conclusions made previously regarding the route of diversions and also demonstrates that diversions can be accommodated within the Order Limits. The Note on PRoW, Long Distance Walking Paths and Cycle Route Diversions (Appendix 14, document reference 7.8.1.14) also

covers additional footpaths shown on the updated Access and Rights of Way ('ARoW') Plans (APP-011 Rev02), such as permissive paths and routes which follow the existing highway. The ARoW Plans have been updated to reflect the potential stopping up of additional permissive paths at Milton Common and an additional point to narrow the stopping up at Yeo Court and Bransbury Park.

18.3.1.2. Following the publication of the Note on PRoW, Long Distance Walking Paths and Cycle Route Diversions (Appendix 14, document reference 7.8.1.14) which shows indicative diversions, it was confirmed that of the seven PRoW where temporary diversions were identified to be required in the 2019 ES, three of these will no longer need diversion (PRoW 11, 17 and 31) as they terminate at a public highway. In addition, the PRoW note also clarifies requirements for Long Distance Walking Routes and cycle ways and, additionally to the 2019 ES, permissive paths on Milton Common. At some locations, diversions are needed, but where these are needed, indicative routes for those diversions are provided.

18.3.2. FRAMEWORK MANAGEMENT PLAN FOR RECREATIONAL IMPACTS

18.3.2.1. The FMP (Appendix 13, document reference 7.8.1.13) provides further information on predicted effects arising from the construction of the Proposed Development on key recreational assets. The recreational assets within the FMP are identified in Table 25.15 of Chapter 25 (Socio-economics) of the 2019 ES (APP-140). The FMP only considers sites where a significant effect (defined as moderate adverse and above in the ES) was identified prior to mitigation.

18.3.2.2. The FMP (Appendix 13, document reference 7.8.1.13) demonstrates how the principles of mitigation set out in the 2019 ES and the Onshore Outline CEMP (APP-505) can be applied during construction to reduce effects, with a particular focus on careful timing of works and minimising working areas. Additional consideration is given to measures such as types of restoration and relocation of pitches. The FMP also provides the basis for consultation with stakeholders.

18.4. UPDATED INFORMATION: DISRUPTION TO LOCAL BUSINESSES

18.4.1.1. The following text and updates have been prepared in response to ExA Written Question SE1.15.5:

For clarity, please could the Applicant provide annotated maps at an appropriate scale to show the locations of each of the businesses and other enterprises within 500m of the Order limits, as listed in ES Appendix 25.2 [APP-341]? Please provide a reasoned summary of the Proposed Development's likely effect on each business."

18.4.1.2. As part of the review the following amendments have been made:

- Review and update of paragraphs 25.7.2.23 – 25.7.2.26 of Chapter 25 (Socio-economics) of the 2019 ES (APP-140) to include impacts on businesses within 500 m of the Order Limits;
- Updated Figure 25.1 (Socio-Economic Receptors within 500 m of the Proposed Development) (APP-340 Rev02) at a scale of 1: 3,500;
- Review and update to Table 4 within Appendix 25.2 (Socio-economic Receptors within 500m) (APP-470), to identify any new businesses since the Business Receptor list was compiled in 2019; and
- Review and update to Table 25.15 of Chapter 25 (Socio-economics) of the 2019 ES (APP-140) to include the impacts on businesses within 500m of the Order Limits.

18.4.2. REVIEW AND UPDATE OF PARAGRAPHS 25.7.2.23 – 25.7.2.26 OF CHAPTER 25

18.4.2.1. Where businesses are situated adjacent to the Order Limits, there is potential for disruption from construction. This includes:

- Direct vehicular and pedestrian access;
- Noise, dust and visual annoyance; and
- Traffic congestion.

18.4.2.2. Business access comes in two forms along the Onshore Cable Corridor; as direct access, through access junctions or driveways directly onto business premises; and via side-road junctions that adjoin the Onshore Cable Corridor. Business access will be maintained wherever possible albeit with different traffic management approaches applied depending upon the circumstances as described in the FTMS (APP-449 Rev002).

18.4.2.3. 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 possible, with full closure considered as the last resort. 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.

18.4.2.4. In particular businesses adjacent to the Order Limits which rely on amenity value, provision of accommodation or outside space will be affected. These include Great Salterns Mansions Harvester, Thatched House Public House, and Southsea Leisure Centre. The effect is likely to be greater in the summer and other times of good weather when doors and windows are open and outside space is used more intensively.

18.4.2.5. A number of roads are identified as experiencing traffic delay, principally along highways within and adjacent to the Order Limits, but also key junctions and routes in the wider study area.

18.4.2.6. In terms of Air Quality, there is potential for short-term temporary impacts from dust soiling associated with site earthworks, construction activities, and from trackout of material to the road network. Effects are medium to high on many sections of the Onshore Cable Corridor but are reduced to negligible significance due to application of best practice construction mitigation measures. For the majority of the route, effects from noise from construction activities are not significant.

18.4.2.7. Traffic congestion is also likely to cause disruption to residences and businesses, particularly those which are accessed from roads within the Order Limits.

18.4.2.8. In total, there are approximately 100 businesses within 500 m of the Order Limits. Access to businesses and residences is of medium sensitivity. Any direct access restrictions would be limited to 1-2 weeks for each circuit, although the duration of disruption is likely to last up several weeks as the cable installation progresses, depending on the location of the property or business relative to where works are ongoing. The magnitude of the impact is therefore considered to be low. Effects on businesses are considered minor to moderate (not significant) adverse, direct, temporary, and short term.

18.4.2.9. Some businesses will be affected by temporary loss of car parking and outside access areas. The magnitude of change for these businesses is anticipated to be medium, with moderate (significant) adverse, direct, temporary and short-term impacts (see Table 18.2 below).

18.4.3. UPDATE OF FIGURE 25.1

18.4.3.1. Figure 25.1 (Socio-Economic Receptors within 500 m of the Proposed Development) (APP-340) has been updated (now Rev 02) as follows:

- Production of the map at a scale of 1:3,500 which provides a more detailed OS base map to identify the greater detail of business receptors within the Study Area; and
- Addition of individual and groups of businesses within or adjacent to the Order Limits and within the 500m buffer.

18.4.3.2. These amendments were made to identify the number of businesses within the study area, and to provide a clearer plan of those businesses directly impacted by the Proposed Development (within or adjacent to the Order Limits) to inform the summary impact assessment in Table 18.1 below (replacement Table 25.15 (APP-140)).

18.4.4. REVIEW AND UPDATE TO TABLE 4 WITHIN TECHNICAL APPENDIX 25.2 SOCIO-ECONOMIC RECEPTORS WITHIN 500M

18.4.4.1. Please read Table 18.1 in conjunction with Appendix 25.2 (Socio-economic Receptors within 500 m) (APP-470).

Table 18.1 - Businesses within 500m

Name of the Business	Map Reference	Location
Section 1		
Lower Chapters Bed and Breakfast	B1	Located approximately 400 m to the south of the Order Limits on an unnamed road to the west of Broadway Lane.
Lovedean Granary B&B	B2	Located 400 m west of Order Limits on Broadway Lane.
Bird in Hand Public House	B3	Located east within 500 m of the Order Limits Buffer.
The Forest of Bere	B4	Located just within the 500 m Order Limits.
Section 2		
There are no businesses within 500m of the Proposed Development in this section.		
Section 3		
Easterlea Rest Home	B5	Accessed to the north of Hambledon Road. PO7 6QG.
Lozpops Babycakes	B6	Accessed from Hambledon Road.
Jewson, Denmead	B7	Located 280 m east of Order Limits.
SIG Roofing	B8	Located 60 m east of Order Limits.
Denmead Tyre Services	B9	Located just within the 500 m Order Limits.
Section 4		
Businesses along Hambledon Parade - The Falcon - Swim Stop - Spice Box - Jenuine Styles - Mace - Coral - Tender Cut Butchers - Shalimar Indian Restaurant - Diamonds - Lotus House/ Dolphin Fisheries Fish and Chips - Launderette - Hart Plain Sub Post Office	B10	All businesses along Hambledon Parade located adjacent to the Order Limits.

Name of the Business	Map Reference	Location
- Moore's Traditional Funeral Directors - McColl's		
- Businesses set back from Hambledon Road on the corner of Hambledon Road and Sickle Way - Premier Stores - DRM Silver Coins	B11 & B12	Businesses impacted from Sickle Way there is a large car park on the corner of Sickle Way and Hambledon Road. Located 100m south from the Order Limits.
Businesses within Brambles Business Park - Elettra Avenue - Toyota Service - Snows Toyota Waterlooville - Yeomans Nissan Portsmouth - Waterlooville BP Service Station and Vapestore - McDonalds - Lidl - Classics by JSWL - Kim Stokes Workshops Ltd - Hampshire Flag Company - Archfact - Pro Parts - Jemma Tools - Fleet UK - PSI Technologies Ltd - Eurotech Fire Systems Limited - AFECO - Bigneat Ltd - Londis - BP	B13	Accessed from Elettra Avenue. Located adjacent to the Order Limits.
Businesses within Brambles Business Park- Silverthorne Way - In2Events Limited - GTMS - First Exhibition Services Ltd - Serco - Cougar Automation Ltd - Hi-Technology Group Ltd - Clockaudio - Solent Mould Tools	B14	Accessed from Elettra Avenue and Silverthorne Way.
Businesses within Brambles Business Park- Waterberry Drive - 2 Teck - Jade Oak - Reebrooks	B15	Accessed from Elettra Avenue, Waterberry Drive and Westside View. Located adjacent to the Order Limits.

Name of the Business	Map Reference	Location
- Clase CA - Southern Cross Packaging - Ensinger - Thomas Sanderson - Hableside Merchandise - Compass Wealth Management - Business Edge- Air conditioning and refrigeration training and tools centre - Leonard Cheshire Disability - The Martin Ralph Group - Brambles Kitchens - Richard and James - Pets and Pieces - Royal Mail Waterlooville Delivery Office - Mr Pets - Hampshire Cosmetics - Horizon World of Play - Horizon Waterlooville Leisure Centre - Little Acorns Nursery - BoxChillie Web Design - Contemplation Homes - Taylor Roberts - Compare My Life Insurance UK - Wessex Technology Oep - Biscoes - Westlake IT Ltd - Cyan Solutions - Givova Football - Tillison Consulting – the Digital Marketing Agency - Fischer Connectors UK - Somerset Care Hants and Surrey Community Services		
Hambledon Road Business Park - Sainsbury's / Sainsbury's Petrol Station - Halfords Waterlooville - Jollyes- The Pet Superstore - Home Bargains - TK Maxx - Argos Waterlooville - Carphone Warehouse - Costa Coffee - Harvey's Furniture / Bensons for Beds - Dreams Waterlooville	B16	Accessed via Aston Road- can be accessed Jubilee Road, leading to the opposite end of Aston Road (alternative access). Located adjacent to the Order Limits.

Name of the Business	Map Reference	Location
- M&S Waterlooville Simply Food - Carpet Right - Matalan - We Want Any Car - Splash Acrylic - Flowseal - Pets at Home - Dfs - ScS - Tapi Carpets - Sharps - JJB Sports		
- Asda Waterlooville Store and other shops within the Wellington Business Park - Larcomes Legal Limited - Every Cloud - Waterlooville Area Community Association CIO	B17	Accessed from Hambeldon Road and the A3. Located adjacent to the Order Limits.
Forest End Roundabout - Andrew Smith Salons - Domino's Pizza - Shell Select - Southern Monitoring Services - Christie Intruder Alarms (direct access from the A3) - MMO Ltd Chartered Accountants - Bernard's Estate Agent - Cubitt and West - Day Lewis Pharmacy - A.J.Eyre & Sons Estate Agent	B18	Direct access from the A3. Located adjacent to the Order Limits.
Owner operator businesses along London Road with direct access. In particular between Stakes Hill Road and Ladybridge Road. - Verisonalaw (Wellesley House) - Becvar Health - Goodwillies 'the timber people' - Bathroom Showroom - Portsmouth Plumbing Supplies - Roadracer International - The Cooperative Food - Gino's Traditional and Modern Gents Hairdressing - Time for Nutrition - Jacqueline's Hair and Nails	B19	Direct access from London Road. Located adjacent to the Order Limits.

Name of the Business	Map Reference	Location
- Radiance Beauty Salon - Motorvise - JmB- PC - Matheson Optometrists - The Woodman Pub - Purbrook Spice - Cut 'n' Day - Broadways Coffee Shop - One Stop - New Purbrook Garden Chinese Takeaway - Ray Dentith Motorcycles - Purbrook Pharmacy - Tax Assists Accountants - Milton Glass - The Village Bakery and café - 3D Beauty Salon - 1st Quay Fish and Chips - S&L Car washing - Car Sales - Purbrook Horticultural Society - The Physio Therapy Centre - Purbrook Veterinary Practice - Widley Cottage Chinese Takeaway - Manhattan Cakes - The Cooperative Funeral Care - L.A Barbers - London Road Hair Lounge - The Hampshire Rose - Widley Hand Car Wash		
Shops between Lansdowne Avenue and Lily Avenue - Charlies Nails - Mannings Fishing Tackle - Vape Taste - Milton Glass - Portsdown Health and Beauty Clinic - C&G Building Contractors UK Ltd - Gabriel Cycles - Regency News - Twisted Pair - Widley Hand Car Wash - Corner House B&B - The George Inn Public House	B20	Direct access from London Road. Located adjacent to the Order Limits.

Name of the Business	Map Reference	Location
Shell Petrol Garage	B21	Direct access from London Road. Located adjacent to the Order Limits.
Wildey Cottage	B22	Access from London Road. Located approximately 190 m east of the Order Limits.
Micks Monster Burgers	B23	Accessed from Portsdown Hill Road. Located approximately 400m west of the Order Limits.
Section 5		
Businesses within Farlington - M W Motors - Lisa Moffat Soprano - Farlington Dog Training Club - Setyres Portsmouth - Dynamic Tension	B24	Accessed from Farlington Avenue, Waterworks Road and Havant Road. Located adjacent to the Order Limits.
Tesco Express	B25	Direct access from London Road. Located adjacent to the Order Limits.
Hopelake Food PMT Portsmouth	B26 & B27	Accessed via Fitzherbert Road. Located approximately 250 m east of the Order Limits.
Section 6		
Sainsbury's Petrol Station and Store	B28	Accessed via Fitzherbert Road. Located adjacent to the Order Limits.
B&M Home Store with Garden Centre	B29	Accessed via Fitzherbert Road. Located adjacent to the Order Limits.
Businesses accessed via Fitzherbert Road - Magnet Kitchens - Richmond Hyundai Portsmouth - Harwin - Gibbs and Dandy Ltd - UK Van Supermarket - A&B Motors - Portsmouth School of Gymnastics - DTW Ceramics UK - Howdens- Portsmouth - Apollo Motor Company - Waters and Standon - Collinson Tiles - Francis Sheet Sales - PMT Portsmouth - Tri Pack Supplies	B30	Accessed via Waterworks Road and Fitzherbert Road. Located approximately 250 m east of the Order Limits.

Name of the Business	Map Reference	Location
- The Mailing People - Hopelake Food - Nightsearcher - BOC Gas & Gear - Portsmouth Fibreglass Centre - Eurocell Portsmouth - A3M Designs - Global Orthopaedics UK Ltd - Britannia Direct - Hyphose - Water Garden - Resmar - Scooter Speedshop - Window Warehouse - Ahmarra Door Solutions - The Rubbish Man (Skip Hire)		
Businesses accessed via Grove Road (Mountbatten Business Park) - Electric Centre - Part Worn Types 4 U - Phoenix Healthcare Distribution - Halfords Autocentre Portsmouth - DAH Windows - Euro Car Parts, Portsmouth - Scrap My Car, Portsmouth - Mountjoy Ltd	B31	Accessed from Grove Road, along A2030 Eastern Road. Located adjacent to the Order Limits.
Southdown Motorhome Centre	B32	Accessed via Anchorage Road. Located approximately 400 m west of the Order Limits.
Combat South	B33	Accessed via Eastern Road. Located approximately 450 m west of the Order Limits.
Section 7		
Holiday Inn Express Portsmouth – North Shell Garage	B34	Accessed via A2030. Located approximately 100 m west of the Order Limits.
Businesses located along Walton Road, off Eastern Road - Snows Peugeot Portsmouth - Snows Fiat Portsmouth - Farlington Bus Depot - APC Overnight - 2mv Logistics - City Technology	B35	Accessed via Eastern Road. Located approximately 470 m west of the Order Limits.

Name of the Business	Map Reference	Location
- SNG - Snows Mazda Portsmouth		
Businesses located between Anchorage Road and Airport Service Road (Bilton Business Park) - Kendall Bros (Portsmouth) Ltd - Baffins Milton Rovers FC - Peter Cooper Volkswagen - Portsmouth Audi - Marshall Mercedes – Benz of Portsmouth - Morrisons - Smeg UK - Furniture Go - Hendy Renault Portsmouth - Airspeed Autos - Affinion International - Snows Mini Portsmouth - Snows SEAT Portsmouth - Snows BMW Portsmouth	B36	Accessed via Airport Road and Anchorage Road. Located adjacent to the Order Limits.
Section 8		
Shell Garage	B37	Accessed via A2030.
Harbourside Park	B38	Accessed from Eastern Road. Located approximately 20 m east from Order Limits.
Great Salterns Golf Course	B39	Accessed from Dundas Lane. Located just within the 500 m Order Limits Buffer.
The Great Salterns Mansion Harvest	B40	Accessed directly from the A2030. Located adjacent to the Order Limits.
Golf Driving Range	B41	Accessed from Burrfields Road. Located approximately 100 m west of the Order Limits.
Farmhouse (pub)	B42	Accessed from Burrfields Road. Located approximately 200 m west of the Order Limits.
Farmhouse & Inn lodge	B43	Accessed from Burrfields Road. Located approximately 200 m west of the Order Limits.
Goals Portsmouth	B44	Accessed off Tangier Road. Located approximately 100 m west of the Order Limits.
- One Stops Stores - MR Electrical Services - The Good Companion Public House - GSF Car Parts (Portsmouth) - Peak Retreats - Small Stride Brewing	B45 – B49	Accessed from A2030 Eastern Road. Located adjacent to the Order Limits.

Name of the Business	Map Reference	Location
- National Mobile Windscreens - Eastern Road Car Sales Ltd - Premier (including BP petrol station)		
Section 9		
University of Portsmouth Langstone Campus	B50	Accessed from Moorings Way. Located adjacent to the Order Limits.
- Locks Sailing Club - Langstone Harbour Fisherman's Association	B51 B52	Accessed via Moorings Way and Furze Lane. Located adjacent to the Order Limits.
- Old Oyster House Public House Milton Locks - The Larder - Thatched House - Locksway Road Post Office - The Old House at Home pub	B53- B57	Accessed from Locksway Road. B53-B55 located adjacent to the Order Limits. B56-B57 located approximately 400 m west of the Order Limits.
The Corner of Bansbury Road and Milton Road - Poundwise Milton - Deep Sea South Sea - The Cooperative Funeral Care - Rowlands Pharmacy - San Kebab & Pizza House - Bransbury Park Butchers - Betfred - About Time - Rainbow - Furious Weasel tattoo - Milton Market - Ladbrokes - Green Rose - Grande Wines - The Cooperative Food - Best Food and Wine	B58	Accessed from Milton Road – direct access potentially affected.
Nationwide Mobile Windscreens	B59	Accessed via Warren Avenue. Located adjacent to the Order Limits.
Mototech	B60	Accessed via Warren Avenue. Located approximately 100 m south west of the Order Limits.
The Artillery Arms	B61	Accessed via Dunbar Road. Located approximately 400 m west of the Order Limits.
Cooperatives Shop	B62	Accessed Via Eastney Road. Located approximately 450 m west of the Order Limits.

Name of the Business	Map Reference	Location
Park Café	B63	Accessed Via Eastney Road. Located approximately 450 m west of the Order Limits.
Tesco	B64	Accessed Via Eastney Road.
Section 10		
Businesses along Ferry Road - Spar - Marine Fish and Chips Bar and Café - Eastney Beam Engine House - Dolphin Driving School - JWS Marine Services	B65	Access from Ferry Road and Henderson Road. Located approximately 100m north east of the Order Limits.
Businesses along Melville Road - Nelsons Bar and Restaurant - Southsea Leisure Park	B66	Accessed from Henderson Road. Located approximately 100 m south of the Order Limits.
Portsmouth Distillery	B67	Accessed via Fort Cumberland Road. Located approximately 400 m east of the Order Limits.
Spar	B68	Accessed via Fort Cumberland Road. Located adjacent to the Order Limits.

18.4.5. REVIEW AND UPDATE OF TABLE 25.15 OF CHAPTER 25 (SOCIO-ECONOMICS) OF THE 2019 ES TO INCLUDE THE INDIVIDUAL IMPACTS ON BUSINESSES WITHIN 500M OF THE ORDER LIMITS

18.4.5.1. The impacts during construction on the individual businesses identified within, adjacent to and within 500m of the Order Limits are outlined in Table 18.2 below:

AQUIND

Table 18.2 – Replacement Table 25.15 - Effects on Businesses within 500m of the Order Limits

Description of Effects	Receptor (map reference)	Impact / Duration	Magnitude of Impact following embedded mitigation	Assessment of Effect in 2019 ES	Updated Assessment of Effect
Construction Stage – Businesses affected within or adjacent to order Limits					
Disruption from changes to access; and **Disruption from changes to traffic, noise, air and visual amenity.**	- Lower Chapters Bed & Breakfast (B1) - Lovedean Granay B&B (B2) - Retail Parks adjacent to Hambleton Road (B10) - Hambledon Road Business Park (B16) - Businesses within Wellington Business Park (B17) - Business on Forest End Roundabout (B18) - Shops located on Landsdowne Avenue and Lily Avenue (B20) - - 37 Businesses on London Road (B19) - Shell Petrol Garage (B21) - Widley Cottage (B22) - Businesses within Farlington (B24) - B&M Home Store with Garden Centre (B29) - Industrial Estate on West side of Eastern Road (B30) - - Businesses within Mountbatten Business Park (B31) - Holiday Inn Express Portsmouth (B34) - Businesses located along Walton Road (B35) - Businesses located in Bilton Business Park (B36) - Harbourside Park (B38) - Great Salterns Mansion (B40) - Golf Driving Range (B41) - Farmhouse Pub (B42) - Mr Electrical Services (B46) - Peak Retreats (B47)	Moderate - / T / D / ST	Low, given the short duration of impacts within existing carriageway and mitigation measures in place to reduce impacts (Traffic Management Strategy, Construction Traffic Management Plan and consultation with affected users).	Minor to moderate (not significant) - / D / T / ST	Minor to moderate (not significant)

Description of Effects	Receptor (map reference)	Impact / Duration	Magnitude of Impact following embedded mitigation	Assessment of Effect in 2019 ES	Updated Assessment of Effect
	- Small Stride Brewing (B48) - National Mobile Windscreens (B49) - University of Portsmouth Langstone (B50) - Locks Sailing Club (B51) - Langstone Harbour (B52) - Old Oyster House Pub (B53) - Thatched House (B55) - Spar (B68)				
Temporary loss of access or outside space including car parking	- Hampshire Rose Pub (B19) - Sainsburys (B28) - Great Salterns Mansions Harvester (B40) - Thatched House Public House (B55) - Businesses located on Bansbury Road and Milton Road (B58)	Moderate - / T / D / ST	Medium, given the short duration of impacts within existing carriageway and mitigation measures in place to reduce impacts (Traffic Management Strategy, Construction Traffic Management Plan and consultation with affected users).	Minor to moderate (significant) - / D / T / ST	Minor to moderate (significant) - / D / T / ST
Construction Stage – Businesses within 500m of Order Limits					
Disruption from changes to access, traffic, noise, air and visual amenity.	- Bird in Hand (B3) - The Forest of Bere (B4) - Eastlea Rest Home (B5) - Lozpops Babycakes (B6) - Jewsons Denmead (B7) - Sig Roofing (B8) - Denmead Tyre Services (B9) - Businesses set back from Hambledon Road (B11 & B12) - Businesses within Brambles Business Park (B13, B14 & B15) - Monster Burgers (B23) - Tesco Express (B25) - Hopelake Food (B26) - PMT Portsmouth (B27) - Southdowns Motorhome Centre (B32) - Combat South (B33) - Great Salterns Golf Course (B39)	Minor - / T / I / ST	Low, given the distance of the businesses from the Order Limits, no impacts are anticipated. Providing mitigation measures in place, no significant direct or indirect impacts are anticipated (Traffic Management Strategy, Construction Traffic Management Plan and consultation with affected users).	Not assessed.	Minor (not significant) - / T / I / ST

Description of Effects	Receptor (map reference)	Impact / Duration	Magnitude of Impact following embedded mitigation	Assessment of Effect in 2019 ES	Updated Assessment of Effect
	- Farmhouse Public House (B42) - Farmhouse Lodge (B43) - Goals Portsmouth (B44) - One Stop Shop (B45) - The Larder (B54) - Thatched House (B55) - Locksway Road Post Office (B56) - The Old House and Home Pub (B57) - Nationwide Mobile Wind Screen (B59) - Moto Tech (B60) - The Artillery Arms (B61) - Cooperatives Shop (B62) - Park Café (B63) - Tesco (B64) - Businesses located on Ferry Road (B65) - Businesses located on Melville Road (B66) Melville Distillery (B67)				
Temporary loss of access or outside space including car parking	No businesses are anticipated to be impacted by temporary loss of access or outside space outside of the Order Limits.				

Key to table:

+ / - = Beneficial or Adverse P / T = Permanent or Temporary, D / I = Direct or Indirect, ST / MT / LT = Short Term, Medium

Term or Long Term, N/A = Not Applicable

19. HUMAN HEALTH

19.1. INTRODUCTION

19.1.1.1. The assessment of Human Health in the 2019 ES (APP-141) was informed by findings from relevant assessments undertaken as part of the EIA including ES Chapters 15 (Landscape and Visual Amenity) (APP-130), Chapter 18 (Ground Conditions) (APP-133), Chapter 19 (Groundwater) (APP-134), Chapter 20 (Surface Water Resources and Flood Risk) (APP-135), Chapter 22 (Traffic and Transport) (APP-137), Chapter 23 (Air Quality) (APP-138), Chapter 24 (Noise and Vibration) (APP-139), and Chapter 25 (Socio-economics) (APP-140)of the 2019 ES.

19.1.1.2. A review of the changes to the 2019 ES for these topics has been undertaken, and the resulting impact on the assessment of Human Health has been reported on.

19.2. SUPPLEMENTARY INFORMATION

19.2.1.1. The findings contained in the following Chapters relevant to Human Health have not changed since the 2019 ES: Chapter 18 (Ground Conditions) (APP-133), Chapter 19 (Groundwater) (APP-134) and Chapter 25 (Socio-economics) (APP-140).

19.2.1.2. Supplementary information has been provided within Section 13 of this ES Addendum for Chapter 20 (Surface Water Resources and Flood Risk) (APP-135), with the conclusion stating that the assessment within the 2019 ES for Surface Water Resources and Flood Risk remains valid.

19.2.1.3. As no changes are identified within the above topic assessments, the assessment of the health determinants “employment and business activity” and “soil/land contamination and water quality” within the 2019 ES remain valid and unchanged.

19.2.1.4. From a review of changes reported within this ES Addendum, particularly those related to the amendments the installation rate assumptions, it has been concluded that there is the potential for changes to the assessments of the “landscape and greenspace”, “transport and access”, “air quality” and “noise” determinants of health. These potential changes have been described, with reference to the relevant assessment within this ES Addendum and discussed below.

19.2.2. LANDSCAPE AND GREENSPACE

19.2.2.1. The amended installation rate assumptions (see Chapter 3 and Appendix 2 of this ES Addendum) provide more detail and amended information on the assumed duration of construction activities for the Onshore Cable Route. This information has informed a revised assessment for Chapter 15 (Landscape and Visual Amenity) (APP-130) for residential and recreational, church and education receptors within or walking through Section 4. Due to a longer duration of installation works in this

section, receptors with direct views of the construction works are anticipated to experience a direct short-term, moderate adverse (significant) effect on visual amenity.

19.2.2.2. Landscape and Visual Amenity receptors located in Section 10 are expected to experience a slight increase in the magnitude of change, however the increase is not sufficient to alter the level of significance of landscape or visual amenity effects reported in the 2019 ES (APP-130).

19.2.2.3. Visual amenity is one aspect considered within the assessment of the health determinant landscape and green space, and the overall effect on human health associated with the temporary effects to landscape and green space associated with the Onshore Cable Corridor and Landfall remains as stated in the 2019 ES (APP-141) as temporary, medium-term **minor adverse** (not significant).

19.2.3. TRANSPORT AND ACCESS

19.2.3.1. New technical submissions related to traffic and transport have been produced, and the outcome of their effects on Chapter 22 (Traffic and Transport) (APP-137) are reported within Chapter 13 of this ES Addendum. These include a STA (Appendix 11, document reference 7.8.1.11), which provides an updated assessment of PIC data, additional assessment of Abnormal Loads (Cable drum deliveries), a new assessment of impacts on public transport routes, and updates to timings for the works and the duration of traffic management in certain locations.

19.2.3.2. The assessment of Human Health (APP-141) was informed by outcomes from Chapter 22 (Traffic and Transport) (APP-137) to identify health effects associated with disruptions to local transport and access to community facilities. Aspects that could result in health effects associated with transport and access include disruptions to footpaths, cycle routes and the road network resulting in delays, diversions, and reduced access, reduced amenity, and changes to journey times (including public transport).

19.2.3.3. The outcomes from the STA (Appendix 11, document reference 7.8.1.11) have not identified any additional significant effects to those reported in the 2019 ES, and therefore the overall effect on human health associated with transport and access in Sections 2-10 remain as **temporary, short-term, minor adverse** (not significant) during construction, and **negligible** (not significant) during operation.

19.2.4. AIR QUALITY

19.2.4.1. An updated Air Quality ES Chapter has been produced which supersedes Chapter 23 (Air Quality) of the 2019 ES (APP-138 Rev002), which was used to inform the assessment of Human Health in the 2019 ES. The revised assessment has resulted in changes to the assessment of impacts reported in the 2019 ES.

19.2.4.2. The updated air quality assessment included re-aligned transport emissions for the Construction Stage, resulting in slightly higher concentrations of NO_2 included in the

updated modelling. Inclusion of backup generators at the Converter Station (Section 1) were included in the modelling for the Operational Stage, which had been scoped out of the 2019 ES assessment. The amended assessment did not result in any changes to the overall significance finding of the air quality assessment in the 2019 ES.

19.2.4.3. From a review of the outcomes of the updated Air Quality ES Chapter (APP-138 Rev002), the assessment of the air quality determinant of health within the human health assessment remains as stated in the 2019 ES (APP-130) for Section 1 as **negligible** (not significant) during construction, and for Sections 2-10 as **slight adverse** (not significant) during construction and **negligible to minor adverse** (not significant) during operation.

19.2.5. NOISE

19.2.5.1. The amendment of the installation rate assumptions includes revised information about construction works in the Onshore Cable Corridor, specifically for the installation rates for the Onshore Cable Route in particular locations. From a review of this information, it is anticipated that this will result in changes to the duration of noise impacts during the Construction Stage, resulting in changes to the magnitude of impact, however this revision does not change the overall significance of effects identified in the noise assessment in the 2019 ES (APP-139).

19.2.5.2. The conclusions made in the human health assessment (APP-130) for the noise determinant of health remain unchanged as temporary, short-term **moderate adverse** (significant) during the Construction Stage at Sections 2-10.

19.2.6. CONCLUSION

19.2.6.1. In conclusion, following a review of the 2019 ES Chapters which have informed the assessment of Human Health, it has been identified that there are no changes to the assessment of health determinants included in the 2019 ES (APP-130) and the overall conclusions made in the original assessment remain the same.

20. CUMULATIVE EFFECTS

20.1. INTRODUCTION

20.1.1.1. Since the submission of the Application in November 2019, applications for a number of developments have been submitted which are relevant and require consideration within the Cumulative Effects Assessment. An addendum has therefore been produced to capture and assess schemes submitted between submission of the Application and the end of May 2020. Further detail can be found in Section 20.2 below.

20.2. SUPPLEMENTARY INFORMATION

20.2.1.1. The assessment of cumulative effects within Chapter 29 (Cumulative Effects) of the Environmental Statement (APP-144) considers the likely significant cumulative effects that may arise from the construction, operation and decommissioning of the Proposed Development.

20.2.1.2. The following applications for relevant onshore developments[5] have come forward between October 2019 and 31 May 2020:

- 3a: Development Land East of Horndean, Rowlands Castle Road, Horndean, Waterlooville (55562/005);
- 3b: Development Land East of Horndean, Rowlands Castle Road, Horndean, Waterlooville (55562/006);
- 3c: Development Land East of Horndean, Rowlands Castle Road, Horndean, Waterlooville (55562/007);
- 3d: Development Land East of Horndean, Rowlands Castle Road, Horndean, Waterlooville (55562/008);
- 62b: North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall's Wharf Eastern Road (19/01368/FUL);
- 76: 3 London Road, Purbrook, Waterlooville (APP/20/00212);
- 77: Town Park at the MDA Berewood Development Site, London Road, Waterlooville (APP/20/00198);

[5] See paragraphs 29.4.4.4 and 29.4.4.5 in Chapter 29: Cumulative Effects for further details on relevant developments

- 78: St James Hospital, Locksway Road, Southsea, PO4 8LD (20/00204/LBC & 20/00205/FUL); and
- 79: Portsmouth College, Tangier Road, Portsmouth, PO3 6PZ (20/00241/FUL); and80: Waterlooville Swimming Pool, Waterberry Drive, Waterlooville, PO7 7UW (APP/20/00257).

20.2.1.3. The following licence applications for relevant marine developments have come forward between 14 October 2019 and 31 May 2020 that were not included in the 2019 assessment:

- Disposal of dredged material from Newport Harbour (Isle of Wight) at the Nab Tower disposal site (MLA/2020/00099); and
- Gosport sea wall repairs (MLA/2019/00509).

20.2.1.4. In addition, Rampion Offshore Wind Farm Extension (EN010117-000006 Rampion 2) has produced and submitted a scoping report which is considered in the sections below.

20.2.1.5. This addendum assesses the potential for likely significant cumulative (inter-project) effects to arise in connection with the Proposed Development and the additional developments outlined above (see also Figure 29.6 (APP-347 Rev03). This addendum should therefore be read in conjunction with Chapter 29 (Cumulative Effects) of the 2019 ES (APP-144) to understand the full extent of the cumulative effects of the Proposed Development.

20.2.1.6. The legislation, policy and guidance detailed in Chapter 29 (Cumulative Effects) of the 2019 ES (APP-144) remains applicable with no relevant updates since October 2019 and the production of this addendum.

20.2.1.7. This addendum uses the same methodology as Chapter 29 (Cumulative Effects) of the 2019 ES (APP-144), in accordance with PINS Advice Note Seventeen (PINS, 2019) to assess inter-project effects. Each topic assessed the additional developments at Stage 1 & 2 (Appendix 15 of this Addendum (document reference 7.8.1.15)) and then 3 & 4 (Appendix 16 of this Addendum (document reference 7.8.1.16)) if required. There have been no changes to intra-project effects reported in Chapter 29 (Cumulative Effects) of the ES (APP-144) which relate solely to the effects related to the Proposed Development, rather than new development, and as such there is no need for any further information to be submitted in relation to intra-project effects.

20.2.1.8. This addendum also seeks in part to address the relevant representation received from PCC that the East Solent Coastal Partnership ('ESCP') development had not been assessed in full. It is considered that the North Portsea Island Coastal Defence Scheme: Phase 4A - Kendall's Wharf Eastern Road Portsmouth project (19/00706/FUL), Fraser Range development (19/00420/FUL) was considered adequately in line with the outlined methodology and PINS guidance. However, the North Portsea Island Coastal Defence Scheme: Phase 4B - Coastline Between Milton Common and Kendall's Wharf Eastern Road (19/01368/FUL) was granted conditional planning permission in February 2020 (the application for the Proposed Development was submitted on 14 November 2019). As a result, the North Portsea Island Coastal Defence Scheme: Phase 4B - Coastline Between Milton Common and Kendall's Wharf Eastern Road (19/01368/FUL) did not form part of the cumulative assessment in the ES.

20.2.1.9. Intra-project effects for onshore chapters (Chapters 15-27) (APP-130 to APP-142) have also been updated in light of relevant representation, the additional assessment provided in this addendum and written questions. These have been summarised in section 20.2.3 below.

20.2.1.10. In the 2019 ES, inter-project effects were summarised in the individual chapters, with the Cumulative Effects Assessment Matrix appended to each chapter and summarised in the Cumulative Effects Chapter. It should be noted that whilst this addendum largely follows the same format at the ES, in this addendum, the additional developments are not assessed within the individual chapter sections but are assessed within the following sections.

20.2.2. ASSESSMENT OF LIKELY SIGNIFICANT INTER-PROJECT CUMULATIVE EFFECTS

Onshore Inter-Project Effects

20.2.2.1. Table 20.1 provides a summary of the additional developments which fall within each onshore environmental topic's ZOI for which significant cumulative effects were identified without mitigation.

20.2.2.2. Potential significant cumulative effects have been identified for landscape and visual amenity, noise and vibration, socio-economics and onshore ecology.

20.2.2.3. In addition to significant effects, a number of other effects in relation to the additional developments were identified in (Appendix 16 of this Addendum (document reference 7.8.1.16) Stage 3 & 4 of this addendum that were not assessed as significant. Those that were assessed as Minor or Minor to Moderate are:

- Socio-economics – developments 78, 79 and 80; and
- Human Health – developments 3a, 3b, 3c, 3d, 62b, 78, 79 and 80.

Table 20.1 – Summary of significant cumulative effect assessment matrix – Onshore

ID	Tier	Project Name and Reference	Topic	Assessment of cumulative effect with NSIP	Proposed mitigation applicable to NSIP including any apportionment	Residual cumulative effect
62b	Tier 1	North Portsea Island Coastal Flood Defence Scheme, Eastern Road and Kendall's Wharf (19/00706/FUL) – Phase 4a, Granted conditional permission 25/07/2019) (19/01368/FUL – Phase 4B. Coastline Between Milton Common and Kendall's Wharf Eastern Road - Granted Full 20/02/2020)	Landscape and Visual Amenity	Section 7 and 8 of the Onshore Cable Corridor: Works associated with the flood defence scheme would include the introduction of retaining walls / new sea walls to a height of 1.2m (altering the sense of openness and views), new planting, raised footpaths, improvements to the public realm including "social spots", seating areas, sculptures and fencing / handrails. Construction works associated with the flood defence scheme would require temporary access roads, facilities and six work compounds cutting across the Onshore Cable Corridor including around Kendall's Wharf, Andrew Simpson Watersports Centre and Pavilion as well as land to the north of Milton Common, south of the Harvester pub and west of the existing car park off Eastern Road. Some vegetation clearance will take place (primarily near Kendall's Wharf) and a Public Right of Way (PRoW) forming part of the Solent Way to the east of Kendalls' Wharf would be diverted and run along the eastern edge of Eastern Road from 2019 to 2021. Likely to be direct and indirect localised temporary construction effects on landscape and visual amenity resulting from an overlap in activities around Kendall's Wharf, Baffins Milton Rovers Football ground and Milton Common. Sensitive receptors include residents of Harbourside Park, Great Saltern Mansion, recreational users of Baffins Milton Rover Football Ground, Andrew Simpson Watersports Centre, Milton Common, Great Saltern Golf Club, University of Portsmouth Langstone Campus and users of PRoWs and footpaths including the Solent Way – the coastal path as well as local transport, industrial and retail workers. Landscape character – open space, vegetation, PRoW including the Solent Way and tranquillity.	Embedded mitigation: Implementation of the Onshore Outline CEMP (APP-505) taking due consideration to lighting and working hours and replacement planting with like for like species where practicable and reinstatement of grassland and hard surfaces. Proposed mitigation: If sites are constructed concurrently close site liaison and management would be required to reduce effects, in relation to impacts on landscape, visual amenity, construction traffic management and noisy activities. This will be implemented through the communication strategy outlined in the Onshore Outline CEMP (APP-505 Rev002), which is secured by Requirement 15 of the dDCO (APP-019).	Landscape character: **Minor to minor-negligible adverse (not significant)** cumulative effects on landscape character UCA 1, 2 and 17. Localised **moderate adverse (significant) effects** associated with open space, vegetation, PRoWs including Solent Way and minor -moderate adverse (significant) effects on tranquillity. Visual amenity: **Moderate adverse (significant)** on local resident's namely those at Harbourside Park and **minor – moderate and moderate (significant)** effects on recreational users. Site liaison and management of works would reduce effects on tranquillity.

ID	Tier	Project Name and Reference	Topic	Assessment of cumulative effect with NSIP	Proposed mitigation applicable to NSIP including any apportionment	Residual cumulative effect
62b	Tier 1	North Portsea Island Coastal Flood Defence Scheme, Eastern Road and Kendall's Wharf (19/00706/FUL) – Phase 4a, Granted conditional permission 25/07/2019) (19/01368/FUL – Phase 4B. Coastline Between Milton Common and Kendall's Wharf Eastern Road - Granted Full 20/02/2020)	Noise and Vibration	A **major adverse (significant)** noise effect has been identified at the Harbourside Caravan Park during the construction of the cable route where 24 hour working on Eastern Road is carried out in this location. Should the construction periods coincide, there is the potential for the magnitude of impact and duration of effect at the Harbourside Caravan Park to increase. The area where a cumulative effect could potentially occur comprises a c.300m section of the Onshore Cable Corridor and Flood Defence Scheme, which is a relatively small section of these schemes in their entirety. Both of these schemes are linear in the way they are constructed, which will limit the duration of exposure of any individual sensitive receptor to adverse construction impacts.	The effect outlined would be reduced if simultaneous work on the two developments could be avoided at the c. 300m section outside the Harbourside Caravan Park, providing respite to the occupiers of the caravan park. However, given the existing seasonal constraints, the window for undertaking construction works in this location is limited and therefore temporal separation between the works may not be practicable. Liaison with the ESCP and PCC regarding construction programmes in accordance with the commitment to undertake a communication strategy, as outlined in the Onshore Outline CEMP (APP-505 Rev002). This will be required to mitigate this effect as far as practicable. This will be secured by Requirement 15 of the dDCO) (APP-019).	A **major adverse (significant)** Temporary, Short term effect, has been identified (following the precautionary principle assuming that the implementation of the outlined mitigation is not practicable).
62b	Tier 1	North Portsea Island Coastal Flood Defence Scheme, Eastern Road and Kendall's Wharf (19/00706/FUL) – Phase 4a, Granted conditional permission 25/07/2019) (19/01368/FUL – Phase 4B. Coastline Between Milton Common and Kendall's Wharf Eastern Road - Granted Full 20/02/2020)	Socio-economics	Potential for socio-economic and recreational receptors (medium to high sensitivity) to have increased disturbance from construction of the new sea wall and rock armouring as well as the Onshore Cable Route. These include Baffins Milton Rovers Football ground (high), Tudor Sailing Club (medium), Andrew Simpson Watersports Centre (medium), Kendall's Wharf (medium), Milton Common (high), Great Saltern Golf Course (medium), University of Portsmouth Langstone Campus (medium) and users of PRoWs and footpaths including the Solent Way (High). Disruption could last up to several weeks, but the magnitude would be low and isolated to the sports facilities, PROW and industrial units located off Eastern Road. Further recreational losses on Milton Common could be realised where ecological mitigation areas come forward during construction of Phase 4B. However,	N/A for majority of receptors as effect not significant. If sites are constructed concurrently then site liaison and management would be required to reduce effects, for example in relation to construction traffic management and noisy activities. These are outlined in the communication strategy in the Onshore Outline CEMP (APP-505 Rev002). Consultation in accordance with the communication strategy outlined in the Onshore Outline CEMP (APP-505 Rev002) with user groups of sports facilities, PROW and local authority. This will be secured by Requirement 15 of the dDCO) (APP-019).	**Minor to moderate adverse (Not significant)**, indirect, temporary and short-term.

ID	Tier	Project Name and Reference	Topic	Assessment of cumulative effect with NSIP	Proposed mitigation applicable to NSIP including any apportionment	Residual cumulative effect
				those compensation measures do not form part of the proposed mitigations/compensations to be provided in connection with the planning permission with reference 19/01368/FUL as per the most recent documents submitted to discharge the relevant planning conditions. **Minor to moderate adverse** effect for businesses; **moderate adverse** effect for users of open space.		
62b	Tier 1	North Portsea Island Coastal Flood Defence Scheme, Eastern Road and Kendall's Wharf (19/00706/FUL) – Phase 4a, Granted conditional permission 25/07/2019) (19/01368/FUL – Phase 4B. Coastline Between Milton Common and Kendall's Wharf Eastern Road - Granted Full 20/02/2020)	Onshore Ecology	Potential overlap between the Proposed Development Order Limits and works areas proposed by North Portsea Island Coastal Flood Defence Scheme Phase 4b. In addition, construction work from the Proposed Development in the over-wintering season (October – March) has the potential to lead to disturbance (visual or noise) and this would also affect birds present within the compensation area for Phase 4b. **Moderate adverse** (significant) effect Potential overlap between the Proposed Development Order Limits and mitigation areas for the North Portsea Island Coastal Flood Defence Scheme Phase 4b would occur if the southern route option around Milton Common is taken. However, those compensation measures do not form part of the proposed mitigations/compensations to be provided in connection with the planning permission with reference 19/01368/FUL as per the most recent documents submitted to discharge the relevant planning conditions. **Moderate adverse** (significant) effect	Winter working restrictions have been put in place by the Proposed Development and North Portsea Island Coastal Defence Scheme Phase 4a and 4b to avoid effects on brent geese and other wintering birds using terrestrial and intertidal foraging habitat. As outlined in the Winter Working Principles for the Proposed Development (Appendix 16.14 of the ES (APP -422) and the Construction Noise Impacts on SWBGS sites (Appendix 18, document reference 7.8.1.18)) SWBGS sites will be avoided during the over-wintering season.	Negligible (not significant)

Marine Inter-Project effects

20.2.2.4. The location of the Nab Tower disposal site in relation to the Proposed Development is displayed in Figure 29.4 of the ES (APP-345). Cumulative effects in connection with the Proposed Development and the disposal of dredged material at the Nab Tower disposal site from several dredging projects have previously been assessed in Chapters 6–14 of the ES (APP-121 to 129). No significant cumulative effects on marine receptors were identified. The disposal of additional material from Newport Harbour does not significantly increase the permitted disposal volumes for the site and is not considered to alter the conclusions of the assessments undertaken previously. Therefore, no updates to the relevant cumulative matrices and chapters are considered to be required.

20.2.2.5. The Gosport Sea Wall repair works are located within 1 km of Gosport Marina which is greater than 6 km away from the Proposed Development. The location of Gosport Marina is displayed in Figure 29.5 as Project ID No. 104 (APP-346). The marine licence for the Gosport Sea Wall repair works expires in January 2021, therefore there will be no temporal overlap between these works and the construction of the Proposed Development. Therefore, no updates to the relevant cumulative matrices and chapters are considered to be required.

20.2.2.6. A scoping report for Rampion Offshore Wind Farm Extension (Rampion 2) was submitted to PINS in July 2020. The location of the Rampion 2 project is displayed on Figure 29.1 as Project ID No. 3 (APP-342). As far as was possible, cumulative effects in connection with the Proposed Development and Rampion 2 were considered within the assessments in Chapters 6-14 (APP-121 to 129). Rampion 2 was considered through Stage 1 assessment however, as the project had not submitted any information into the public domain and no timescales for development of Rampion 2 were available at the time, it was concluded that there was not sufficient information available to undertake further detailed assessment.

20.2.2.7. Since the scoping report has been submitted, the Applicant has undertaken a review of the information contained within the Rampion 2 Scoping Report and has also submitted a consultation response on the report to PINS as a Consultation Body under Regulation 11 of the Infrastructure Planning (EIA) Regulations 2017. In undertaking this review and in providing this response, it is evident that the design and timescales of Rampion 2 remain very much in the early stages and the information within the scoping report is not sufficient for a meaningful cumulative assessment to be undertaken.

20.2.2.8. In addition, it is likely that the Proposed Development Interconnector may well have started, or completed construction (if DCO award is achieved) by the time Rampion 2 is determined. The Applicant., in meeting their duty under Regulation 11 (3) of the Infrastructure Planning (EIA) Regulations 2017 is continuing engagement with Rampion 2 at their request to assist in their information gathering exercise relating to their design evolution and cumulative impact assessments relevant to the preparation of their ES.

20.2.2.9. In summary, no updates to the relevant cumulative matrices and chapters are considered to be required for the new marine developments:

- Disposal of dredged material from Newport Harbour (Isle of Wight) at the Nab Tower disposal site (MLA/2020/00099);
- Gosport sea wall repairs (MLA/2019/00509); and
- Rampion Offshore Wind Farm Extension (EN010117-000006 Rampion 2).

20.2.3. ASSESSMENT OF LIKELY SIGNIFICANT INTRA-PROJECT EFFECT

20.2.3.1. Table 18.2 below summarises the additional intra-project effects that have been identified since the 2019 ES for onshore chapters (Chapters 15-27) (APP-130 to APP-142) in light of relevant representation, the additional assessment provided in this addendum and written questions. No additional marine intra-project effects were identified.

20.2.3.2. One significant effect was identified in relation to the users and residents of Hambledon Road (located in Section 4) during the construction period. Negative effects were identified in the Landscape and Visual Amenity (Chapter 15) (APP-130), Traffic and Transport (Chapter 22) (APP-137) and Human Health (Chapter 26) (APP-130) chapters of the 2019 ES. The intra-project relationship of effects on the users and residents of Hambledon Road are likely to result in both additive and synergistic effects which are significant.

Table 18.2 – Assessment of Intra-Project Effects

Receptor	Chapter	Stage/Section	Intra-project Effects
Wayfarer's Walk	Socio-economics Landscape Human Health	Construction – Section 4	Users of Wayfarer's walk during construction are likely to experience significant visual effects. Pedestrians using these routes are likely to experience disruption to their journeys and an increase in journey length and time. However, the routes would remain open and only temporarily diverted (1-2 weeks per circuit). Despite this, given that the effect is temporary, the intra-relationship of effects on the health of residents would not result in additive or synergistic effects and are therefore **not significant**.
Users and residents of Hambledon Road	Traffic and Transport Landscape Health	Construction – Section 4	During construction the users and residents of Hambledon Road are likely to be negatively affected from traffic delays and severance. There is potential for some pedestrians, cyclists and other road users to experience fear and intimidation. Disruptions to local transport and access to community facilities and residence resulting in adverse mental health (annoyance, worry and anxiety) and reduced participation of leisure (associated health benefits) lowering of quality of life and wellbeing. The effects identified are of a moderate significance, when combined, the intra-relationship of effects on the users and residents of Hambledon Road a likely to result in both additive and synergistic effects which are **significant**.

20.2.4. MITIGATION AND ENHANCEMENT MEASURES

Inter-Project

20.2.4.1. With respect to potential significant effects on tranquillity; site liaison, management and phased timing of works would reduce effects in combination with development 62b. These will be detailed in the Onshore Outline CEMP (APP-505 Rev002), secured by Requirement 15 of the dDCO (APP-019) and implemented by the contractors through the Onshore Outline CEMP (APP-505 Rev002).

20.2.4.2. For socio-economic effects in combination with development 62b; site liaison and management would be required to reduce construction effects relating to traffic and noise, if construction takes place concurrently.

20.2.4.3. With regards to potential significant effects on landscape and socio-economics; where PRoW or off-road cycle routes (in particular the Solent Way) need to be closed, an alternative route and signage will be provided in advance of the temporary closure. These will be secured through the Onshore Outline CEMP (APP-505 Rev002). Further details on the diversion routes can be found within the Note on PRoW, Long Distance Walking Paths and Cycle Route Diversions (Appendix 14, document reference 7.8.1.14).

20.2.4.4. For noise and vibration effects in combination with development 62b; avoidance of concurrent construction activities outside the Harbourside Caravan Park, would prevent a significant cumulative effect. Providing a sufficient temporal gap between construction of the two schemes would provide respite to occupiers at the Caravan Park. However, given the existing seasonal constraints, the window for undertaking construction works in this location is limited and therefore temporal separation between the works may not be practicable. As a result, the residual effect outlined in Table 18.1 assumes as a worst case that the mitigation cannot be implemented. Proposed mitigation is detailed in the Onshore Outline CEMP (APP-505 Rev002), secured by Requirement 15 of the dDCO (APP-019) and implemented by the contractors through the Onshore Outline CEMP (APP-505 Rev002).

20.2.4.5. With regards to potential significant effects identified for onshore ecology, winter working restrictions have been put in place by the Proposed Development and North Portsea Island Coastal Defence Scheme Phase 4a and 4b to avoid effects on brent geese and other wintering birds using terrestrial foraging habitat.

20.2.4.6. No works that are likely to exceed the prescribed 69dB threshold within the compensation area will be permitted during the over-wintering season. These will be detailed further in the Onshore Outline CEMP (APP-505 Rev002) secured by Requirement 15 of the dDCO (APP-019) and implemented by the contractors through the Onshore Outline CEMP.

Intra-Project Effects

20.2.4.7. With respect to potential localised significant intra-project effects identified for those users and residents of Hambledon Road, traffic management plans secured through the FTMS (APP-449 Rev 002) and the proposed communication strategy are likely to reduce the negative effects identified in relation to local traffic disruption and access to community facilities, as well as limiting levels of fear and intimidation.

20.2.4.8. The application of mitigation will reduce the intra-project effects to **not significant.**

20.2.5. LIMITATIONS AND ASSUMPTIONS

20.2.5.1. The cumulative assessment is based on publicly available information.

20.2.5.2. The additional list of developments was finalised on the 31 May 2020. Any planning applications, status updates or additional information published since these dates has not been included within the assessment (excepting Rampion Extension which submitted a Scoping Report in July 2020).

20.2.5.3. Residual cumulative impacts remain unchanged from the assessed cumulative impact as a worst case, for the landscape and visual amenity, socio-economic and noise and vibration topics, assuming mitigation cannot be implemented. This follows the precautionary approach as the contractor is not yet in place and mitigation regarding construction programmes cannot be secured with other developers at this stage.

20.2.5.4. The outline communication strategy within the Onshore Outline CEMP (APP-505 Rev002) notes the requirement to liaise with relevant other developers including ESCP but as it cannot be assumed that the outcomes of these discussions and agreements to be put in place would provide the mitigation necessary, the outcomes of the assessment assume that mitigation cannot be put in place, as the worst case.

20.2.6. CONCLUSION

20.2.6.1. Significant residual cumulative effects were predicted to result from the cumulative contribution of impacts from the Proposed Development with other projects for landscape and visual amenity and noise and vibration. The significant cumulative effects were identified in relation to development 62b North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall's Wharf Eastern Road (19/01368/FUL).

21. SUMMARY

21.1. INTRODUCTION

21.1.1.1. A summary of the changes made to the 2019 ES and reflected within this Addendum is set out in Table 21.1 below; details are provided for each of the chapters of the 2019 ES, regardless of whether any updates have been made.

Table 21.1 - Summary of changes to the 2019 ES

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
6.1 ES Chapters (APP-116 - APP-145)				
Chapter 1: Introduction	No change.	N/A	N/A	N/A
Chapter 2: Consideration of Alternatives	Supplementary information on the consideration of alternatives has been provided within Appendix 3 (Supplementary Alternatives Chapter) (document reference 7.8.1.3).	To provide further clarity in respect of the description of the reasonable alternatives considered by the Applicant and the comparison of environmental effects.	N/A	N/A
Chapter 3: Description of the Proposed Development	There has been a review of the installation rates along specific Sections of the Onshore Cable Corridor, which is described in section 3.3. Supplementary detail has been included in the Design and Access statement ('DAS') (APP-114 Rev 002). Whilst this has not amended the Proposed Development, a change is made to paragraph 3.6.3.11 of Chapter 3 of the 2019 ES (APP-118) to ensure the documents are aligned. Appendix 3.6 (Surface Water Drainage and Aquifer Contamination Mitigation Strategy) (APP-360 Rev002) has been updated to include the following appendices that were not submitted as part of the Application in error as Appendix 7. List of Appendices to the Surface Water Drainage and Aquifer Contamination Mitigation Strategy: 1. Proposed Surface Water Drainage (Draft); 2. Typical Oil Containment Details; 3. Typical Cess Tank Details; 4. Typical Interceptor Details; 5. Typical Fuel Tank Details;	Following feedback and further engagement with stakeholders, further review has been undertaken to test the cable installation rate assumptions for the Onshore Cable Route. The DAS has been updated to include more detail on the components of the Proposed Development.	N/A	N/A

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
	6. Pile Risk Assessment (Draft). The updated Surface Water Drainage and Aquifer Contamination Mitigation Strategy is now appended to the Onshore Outline CEMP. Clarification of typographical errors in the Description of the Proposed Scheme Parameters.			
Chapter 4: EIA Methodology	No change.	N/A	N/A	N/A
Chapter 5: Consultation	No change. Whilst consultation on the Application has taken place, this is not required to be reported through the EIA process.	N/A	N/A	N/A
Chapter 6: Physical Processes	No change.	N/A	N/A	N/A
Chapter 7: Marine Water and Sediment Quality	Errors have been corrected in the following: • Section 7.5.3 of Chapter 7 of the 2019 ES, 'Marine Sediments – Contaminated Sediment Analysis'; • Appendix 7.3 Contaminated Sediments Analysis Report (APP-374).	Requested, through engagement with the MMO and Cefas, to update any sentences relating to contaminated sediments analysis for Poly-Chlorinated Biphenyls ('PCB') to ensure that it is clear that the Application is referring to 'ICES seven PCBs' and not 'total PCBs' (all 25 congeners).	No	No
Chapter 8: Intertidal and Benthic Habitats	Amendments are made to the following: • Figure 8.1 (APP-160 Rev02). • Figure 8.5 (APP-164 Rev03). Supplementary information has also been provided on heat emissions as project specific data is now available.	Both figures to include Kilometre Points ('KPs') in response to ExQ1. Additional information requested in ExQ1 regarding heat emissions from the Marine Cables.	No Yes, revised assessment on heat emissions undertaken using new data. No change to the results of the assessment.	No No

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
Chapter 9: Fish and Shellfish	No change required to Chapter 9 or accompanying figures and appendices. However, a supplementary interactive figure (Appendix 4, Figure 2 - Additional Information on Herring Spawning) (document reference 7.8.1.4) is provided.	In response to feedback from the MMO and Cefas a supplementary figure has been produced to illustrate in a greater detail the distribution of herring larvae during spawning periods in the Downs herring spawning grounds mid-Channel.	No	No
Chapter 10: Marine Mammals and Basking Sharks	No change.	N/A	N/A	N/A
Chapter 11: Marine Ornithology	Minor amendments are made to the following: • Section 11.3.3 of Chapter 11 of the 2019 ES, 'PEIR Consultation'. • Table 11.7. • Section 11.6.7 Evaluation of Ornithological Features. Figure 11.1 (Marine Ornithology, SPA and Ramsar Sites) (APP-177).	Since submission of the Application, the proposed Solent and Dorset Coast Special Protection Area ('pSPA'), as of 16 January 2020, has become fully designated as a SPA. References to this in Chapter 11 have been updated accordingly.	No	No
Chapter 12: Commercial Fisheries	No change.	N/A	N/A	N/A
Chapter 13: Shipping, Navigation and Other Marine Users	Supplementary information in regard to military vessel activity in the vicinity of the Proposed Development has been provided.	To support response to request from the ExA in ExQ1.	No	No
Chapter 14: Marine Archaeology	No change.	N/A	N/A	N/A

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Chapter 15: Landscape and Visual Amenity	Amendments are made to the following: • Section 15.4 Assessment Methodology. • Section 15.6 Predicted Impacts: ○ Review of the amendments to the installation rate assumptions and effects on the LVIA chapter conclusions; ○ Updates to the LVIA of the ORS; ○ HDD Siting. • Figures 15.52 to 15.56 (APP-285 to APP-289 Rev02). • Section 15.7 Proposed Mitigation. • Section 15.8 Assessment.	LVIA of construction related effects has been reviewed in light of amendments to the installation rate assumptions. LVIA discussion of the ORS has been reviewed and updated to reflect the minor corrections to the ORS Parameter Plan, which shows a minor variation in the position of Option A and B (APP-017 Rev02). Figures 15.52 – 15.56 are updated to reflect changes to the ORS Parameter Plan (APP-285 to APP-289 Rev02) Section 15.7 Proposed Mitigation section has been updated to reflect updates to the OLBS As part Examining Authority's Written Questions it was commented that the points on 'assumptions and limitations' were unclear. Appendix 19 (Landscape Assessment Assumption Clarification) (document reference 7.8.1.19) has been produced to provide clarification.	Yes – Revised assessment of visual impacts in Section 4 in relation to the amendments to the installation rate assumptions and in Section 10 in relation to residential occupiers and recreational users based on a more conservative rate of installation, number of gangs / crews and duration of working in any one section.	Yes – no material changes but a clarification to text in the Onshore Outline CEMP (APP-505 Rev002) and updates to the Outline Landscape and Biodiversity Strategy (APP-506 Rev002).

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
Chapter 16: Onshore Ecology	Amendments are made to the following: • Section 16.5 Baseline Environment. • Section 16.6 Predicted Impacts. • Section 16.8 Proposed Mitigation and Enhancement. • Section16.9 Residual Effects. • A new figure (Appendix 5, Figure 3 - Habitat Mapping) (document reference 7.8.1.5).	Baseline conditions have been updated following a botanical survey undertaken on 10 June 2020 at the Converter Station Area and at Portsdown Hill Road car park. Potential and residual impacts were therefore reviewed and updated following verification of grassland classification at the Converter Station Area. This did not, however, alter the conclusions of the assessment. These changes have been carried through to update the Cumulative Effects section of the ES . A new figure (Figure 2, document reference 7.8.1.5) has been prepared to detail the additional habitat mapping which took place at the Converter Station Area and Portsdown Hill Road car park. The 16 January 2020 upgrading of Solent and Dorset Coast pSPA to SPA status is acknowledged but does not alter the conclusions of the assessment. An additional SINC has been identified at Denmead Meadows, Soake Farm SINC, which in any event is avoided by the use of HDD and will not be affected. Noise modelling of trenching and HDD work and review of habitat restoration times has been undertaken to update the assessment of impacts in Chichester and Langstone Harbours SPA, its supporting SWBGS sites and wintering intertidal birds has been undertaken.	Yes – as follows: • Revised assessment of grassland habitat at the Converter Station Area (Section 1) as the assessment of calcareous grassland at the Converter Station no longer applies. Revised assessment of impacts and potential effects on Chichester and Langstone Harbours SPA, its supporting SWBGS sites and wintering intertidal birds to include trenching work and reinstatement. No residual impact has been identified.	Yes – as follows: • Mitigation relating to grassland at the Converter Station Area no longer applies following reclassification of the habitat. Update of Winter Working Principles has been undertaken to offset potential disturbance effects of trenching work discovered by additional noise modelling Details of lowland meadow restoration at Denmead Meadows has been provided to expand information on existing mitigation plans within the 2019 ES.

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
Chapter 17: Soils and Agricultural Land Use	No change.	N/A	N/A	N/A

Chapter 18: Ground Conditions	Changes are as follows: Section 18.7 – Predicted Impacts Human Health Receptors (Construction and Maintenance Workers): • Changes to construction and maintenance workers sensitivity from low to High for Sections 1 to 7 and Section 10 due to the potential for them to come into contact with contaminated ground / water. Resulting in a Moderate Adverse Significant effect before mitigation (previously minor adverse significant effect). • Changes to construction and maintenance workers sensitivity from Medium to High due to the potential for them to come into contact with contaminated ground / water. Resulting in a major to moderate adverse Significant effect before mitigation (previously moderate adverse significant effect). Geology Receptors: • Changes to geology receptors sensitivity in Section 1, 2, 3 from Medium to High due to the presence of solution features as detailed in the Supplementary Karst Report (Appendix 7). A major adverse likely significant impact is now identified in relation to those receptors before mitigation (previously moderate adverse likely significant impact). • With mitigation there is no change to the Residual Effects reported in the ES.	Human Health Receptors Sensitivity changes of Construction and Maintenance Workers: • Due to the potential for construction and maintenance workers to come into contact with contaminated soil / groundwater during the works the sensitivity was increased from Low to High for Sections 1-7 and Section 10 and from Medium to High for Sections 8 and 9. Geology Receptors (Supplementary Karst Report sensitivity changes): In response to feedback from Portsmouth Water and Environment Agency a Supplementary Karst Report (Appendix 7, document reference 7.8.1.7) was produced that provides additional information on solution features present in Sections 1, 2 and 3, and which increases the sensitivity of the geology receptors in all three sections.	Yes - Change to predicted impacts without mitigation for human health receptors (construction and maintenance workers) and geology receptors. Human Health Receptors: • Changes to the sensitivity of Human Health Receptors (construction and maintenance workers). • Section 1 – 7 and Section 10 sensitivity change from Low to High, with a now moderate adverse significant impact now identified compared to the previous assessment of minor adverse significant impact. • Section 8 and 9 sensitivity change from Medium to High with a now major to moderate adverse significant impact compared to the previous assessment of moderate adverse significant impact. Geology Receptors: • Changes to the sensitivity of geology receptors in Section 1, 2 and 3 from medium to high, with a now major adverse significant impact now identified compared to the previous assessment of moderate adverse significant impact. No change to residual effects once mitigation applied.	Yes – as follows: • Watching brief for solution features during construction; • Measures in relation to installation of cable ducts and trenching. • Chemicals and surfactants will be reviewed before being used on-site and included within the contractor's methods statements. Should significant unexpected contamination be encountered the EA would be informed.

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
	Section 18.9 - Proposed Mitigation and Enhancement: • Supplementary information on Mitigation Measures has been included to address points raised by Portsmouth Water and the Environment Agency.			
Chapter 19: Groundwater	No changes to Chapter 19: (Groundwater). However, supplementary information has been included in relation to extra detail relating to karst features and more refined mitigation to protect groundwater features. A new figure 'Karst dissolution features and other key information' (Appendix 6, Figure 5, document reference 7.8.1.6) and a Supplementary Karst Report (Appendix 7) provided in relation to Karst dissolution features.	Feedback received from HCC, the Environment Agency and Portsmouth Water requesting further clarification.	Yes - Additional impacts assessed in Section 1, 2 and 3 in relation to the potential presence of karst landscape and associated dissolution features. Major adverse effects are predicted prior to mitigation but reduced to negligible with application of mitigation measures.	Yes – additional mitigation measures to address the residual risk of encountering currently unidentified features.
Chapter 20: Surface Water Resources and Flood Risk	Changes are as follows: • Sections 20.5 and 20.7 of Chapter 20 have been updated to reflect the new flood zone classification at the Landfall (Eastney) following revised Environment Agency Flood Risk data published January 2020; • Flood Risk Assessment Addendum has been produced following revised Environment Agency Flood Risk data published January 2020 (Appendix 8, document reference 7.8.1.8); • Updates to ES Figures 20.1 and 20.4 (APP-306 and APP-, both Rev03); and • Sequential and Exception Test Addendum has been produced following revised Environment Agency Flood Risk data published	The Environment Agency's Flood Map for Planning (Environment Agency, 2020) was updated in January 2020. The new data has resulted in the proposed location of the ORS to change classification from Flood Zone 2 to Flood Zone 3. The new flood data also included changes in the Flood Zone extents within the coastal environment. The ES chapter sections have been updated to reflect the new flood information and is accompanied by an FRA Addendum (Appendix 8, document reference 7.8.1.8), Sequential and Exception Test Addendum (Appendix 8, document reference 7.8.1.8) and updated ES figures.	Yes - Revised assessment of impacts on construction workers and operational site workers in relation to flood risk, however, the assessment of significance remains unchanged.	Yes - The mitigation and enhancements included within the 2019 ES remain valid, albeit they should now be applied to the areas at risk of flooding based on the updated flood map for planning presented within the FRA Addendum (Appendix 8, document reference 7.8.1.8).

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
	January 2020 (Appendix 9, document reference 7.8.1.9).			
Chapter 21: Heritage and Archaeology	No changes to Chapter 21 (Heritage and Archaeology), however, supplementary visualisations information of the ORS have been provided, being the Historic England Visualisations (Appendix 10, document reference 7.8.1.10).	In response to points raised in Historic England's relevant representation.	No	No
Chapter 22: Traffic and Transport	Amendments are made to the following: • Supplementary Transport Assessment (Appendix 11, document reference 7.8.1.11); • Updated Framework CTMP (APP-450 Rev 002); • Updated FTMS (APP-449 Rev 002); and • Updates to Chapter 22 (Traffic and Transport).	Amendments to the installation rate assumptions constraints for the Onshore Cable Corridor and corrections to construction traffic routing / timings. Updated assessment of accidents and safety, abnormal loads and bus services included within the Supplementary Transport Assessment. Additional assessment and sensitivity testing on Eastern Road in response to points raised by Portsmouth City Council. Additional information relating to design of converter station access and control of construction vehicles on Day Lane and Broadway Lane in response to comments raised by Hampshire County Council.	Yes - Revised assessment of traffic delay in Section 1, accidents and safety, abnormal loads, public transport, junction design and vehicle control measures. No additional significant or residual impacts have been identified.	No

Chapter 23: Air Quality	An updated ES chapter has been prepared and is submitted as part of this ES Addendum, (APP-138 Rev003). Chapter 23 (Air Quality) of the 2019 ES is therefore superseded. Presentation of the chapter reorganised for ease of access to: • Incorporate additional modelling undertaken with reference to the modelling year, addition of results from each of the AQMAs affected, and improve result interpretation; • Incorporate results of air quality modelling undertaken as a result of additional sensitivity tests undertaken for the Transport Assessment; • Incorporate updated dust risk assessment with reference to the modelling year; • Incorporate additional modelling undertaken relevant to HDD drilling; and • Incorporate additional modelling undertaken relevant to backup generators at the converter station including at Sites of Importance for Nature Conservations ('SINC'). In addition, amendments to the methodology of the Air Quality assessment have been made and are outlined in section 14.2 of this ES Addendum, and relevant appendices and figures have been updated. New appendices have therefore been produced: • Appendix 23.7 Air Quality Ecological Impacts (document reference 6.3.23.7) in response to improved presentation of the results of deposition modelling;	Updates to reflect the additional assessment and modelling undertaken following updated traffic data in response to points raised by Portsmouth City Council. This replacement chapter also addresses the total combined road traffic emissions as a result of the Proposed Development.	Yes - Revised assessment in relation to peak traffic flows and changes in relation to predicted concentrations, construction operating hours and the assessment of backup generators at the Converter Station. No changes to significant effects were identified but in two zones, where previous overall positive impacts were reported, this changed to overall negative or no change to impact.	Yes - The Onshore Outline CEMP has been amended (in Table 5.1 and Table 5.2) in relation to IAQM Mitigation and Dust Risk (APP-505 Rev002)) due to an inconsistency in the information transferred from the 2019 Air Quality Assessment (APP-138) to the original Onshore Outline CEMP.

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
	• Appendix 23.8 Air Quality Sensitivity Testing (document reference 6.3.23.8) in response to additional transport modelling undertaken in the Supplementary Transport Assessment (Appendix 11, document reference 7.8.1.11).			
Chapter 24: Noise and Vibration	Amendments are made to the following: • Section 24.4.5 Assessment Methodology (operational noise criteria at Converter Station Area); • Section 24.5 Baseline Environment (summary of background noise levels at Converter Station Area); • Section 24.6.2 Predicted Impacts (operation at Converter Station Area); • Section 24.6 Predicted Impacts (construction of Onshore Cable Route); and • Section 24.10 Summary of Effects. A new Appendix (Appendix 12 - Supplementary Meteorological Data and Analysis and Revised Operational Noise Results, document reference 7.8.1.12) has been prepared as supplementary information.	Updates to account for the revised operational noise criteria and predicted impacts at the Converter Station Area as a result of supplementary meteorological data submission. Updates to take account of the amendments to the installation rate assumption constraints, specifically the revised cable installation rates, and flexibility to install cable circuits successively or separately.	Yes - Minor revision to the daytime operational noise criteria at three receptor groups south of the Converter Station and a small change to the predicted impacts for daytime octave band assessment. However, no changes to the magnitude of effect (negligible) or significance. Amendments to the expected duration of exposure of some receptors to cable route construction effects. Changes in magnitude of effect in some instances but no changes to significance.	No

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
Chapter 25: Socio-economics	Supplementary information to explain how socio-economic marine receptors have been assessed in the 2019 ES is provided. Further detail on impacts to recreational areas is described through the preparation of a Framework Management Plan ('FMP') for Recreational Impacts (Appendix 13, document reference 7.8.1.13). A Note on Public Right of Way Diversions ('PRoW') (Appendix 14, document reference 7.8.1.14) has been produced to support the conclusions of Chapter 25 of the 2019 ES and also covers additional footpaths shown on the updated ARoW Plans (APP-011 Rev02). Updated Information relating to Impacts on Local Businesses, Table 18.1 supersedes business information in Appendix 25.2 of the ES and Table 18.2 supersedes Table 25.15 of the ES in relation to local businesses. The preparation of an updated Figure 25.1 to accompany this (Socio-Economic Receptors within 500m of the Proposed Development) (APP-340 Rev002)) which now includes detailed mapping of businesses as well as other socio-economic receptors.	Additional text provided within Chapter 25 to signpost to the marine aspects covered within other chapters of the 2019 ES as requested following the Rule 6 Letter. The FMP for Recreational Impacts was developed to demonstrate how mitigation principles in the ES can be delivered on. It is being used as a basis for ongoing consultation with affected landowners. The Note on PRoW Diversions provides additional information to support the conclusions of Chapter 25 of the 2019 ES regarding PRoW in order to demonstrate feasibility of the diversions required. Updated Information relating to Impacts on Local Businesses in response to ExA WQ SE1.15.5.	Yes – The assessment of significance for businesses within or adjacent to the Order Limits remains the same, but has been updated to identify individual businesses. An additional assessment of businesses within 500 m of the Order Limits (but not adjacent to or within the Order Limits) has been made. Effects were assessed as minor (not significant).	No

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
Chapter 26: Human Health	Amendments are made to the following: Section 26.6 to reflect updates made in the Landscape and Visual Amenity, Traffic and Transport, Air Quality and Noise and Vibration chapters.	Updates to the chapter to reflect the revised assessment of Visual Amenity following consideration of the amendments to the installation rate assumptions, the updates to Traffic and Transport considering the amendments to the installation rate assumptions and additional assessments of construction traffic movements, abnormal loads, accident and safety and public transport, the updated Air Quality chapter and the updates to Noise and Vibration to reflect the amendments to the installation rate assumptions.	No	No
Chapter 27: Waste and Material Resources	No change.	N / A	N/A	N/A
Chapter 28: Carbon and Climate Change	No change.	N / A	N/A	N/A
Chapter 29: Cumulative Effects	Additional assessment is provided within Appendix 16 (document reference 7.8.16) on inter and intra-project cumulative impacts, following review of additional third-party developments and changes to the assessment outlined in this ES Addendum.	**Inter-project** – Assessment has been updated to reflect relevant additional developments which have come forward since submission of the Application (between October 2019 and May 2020 for onshore and between October 2019 and 2 August 2020 for marine). This ensures that the assessment is as up to date as reasonably practicable at the beginning of the examination. **Intra-project** – updated to reflect changes to the ES chapters reported in the ES Addendum.	Yes - Revised assessment of both inter-project and intra-project effects.. Significant residual cumulative effects were identified in relation to development 62b North Portsea Island Coastal Flood Defence Scheme, Phase 4B - Coastline Between Milton Common and Kendall's Wharf Eastern Road (19/01368/FUL) for both noise and vibration and landscape and visual amenity.	Yes, as follows: Updated Winter Working Principles have been used to mitigate significant effects on onshore ecology. Amendments to the Onshore Outline CEMP (APP-505 Rev002) have been used to mitigate significant negative effects on landscape and visual amenity and noise and vibration.
Chapter 30: Summary and Conclusions	Updates summarised within this table			

Document/ Chapter	Summary of changes to the 2019 ES	Reason(s) for Change/ Update	Change to Assessment	Change to Mitigation
Non-Technical Summary	Changes to reflect updated assessments, particularly where conclusions differ to those reported in the 2019 ES within updated Non-Technical Summary submitted alongside this ES Addendum (APP-487 Rev002).	To reflect the updates to individual assessments.	N/A	N/A

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