



AQUIND Limited

AQUIND INTERCONNECTOR

First Written Question Responses – Appendix 7– Dated Baseline Sources (EIA1.6.17)

The Infrastructure Planning (Examination Procedure) Rules 2010, Rule 8(1)(b)
The Planning Act 2008

Document Ref: 7.4.1.7

PINS Ref.: EN020022

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PINS REF.: EN020022

DOCUMENT: 7.4.1.7

DATE: 6 OCTOBER 2020

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DOCUMENT

Document	First Written Question Responses – Appendix 7 Dated Baseline Sources (EIA1.6.17)
Revision	001
Document Owner	WSP UK Limited and Natural Power Ltd.
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Date	2 October 2020
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Date	2 October 2020

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1. DATED BASELINE SOURCES

1.1. INTRODUCTION

- 1.1.1.1. Written Question EIA1.6.17 stated the following:
“Please could the Applicant ensure that all sources of baseline data used in the ES are dated and provide the relevant information for any that are not. These may include, inter alia, data sets in Chapters 8, 9, 13, 19, 20 and 26 of the ES (APP-124, APP-128, APP-134, APP-135 and APP-141).”
- 1.1.1.2. The Applicant has prepared this document to address the queries raised in relation to dating all sources of baseline data used in the Environmental Statement (‘ES’). The tables of baseline data sources and their dates follow the order of the ES Chapters (Chapters 6 to 29). Where citations have been used as baseline data sources, the full references can be found within the ES chapters, or if these were missed, can be found in the References List at the end of this document.
- 1.1.1.3. Where table text is coloured **red**, this indicates where the date of baseline data was not in the ES.

2. MARINE

2.1. CHAPTER 6 PHYSICAL PROCESSES (APP-121)

Table 1 - Chapter 6 Physical Processes Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use/Details
AQUIND commissioned surveys (geophysical, geotechnical and benthic ecology)	MMT 2017/2018 Natural Power 2017/2018	MMT Natural Power	Determination of baseline conditions
Bathymetric data	Public database continually being updated. Accessed 2018.	EMODnet	Hydrodynamic ('HD') model setup
Nearshore bathymetric data	Public database continually being updated. Accessed 2018.	Global Self-consistent, Hierarchical, High-resolution Geography ('GSHHG') Database	HD model setup
Atmospheric Data	Public database continually being updated. Accessed 2018.	Climate Forecast System Reanalysis ('CFSR')	HD model setup
Atmospheric Data	Public database continually being updated. Accessed 2018.	National Centres for Environmental Prediction ('NCEP')	HD model setup
Ocean tides	Public database continually being updated. Accessed 2018.	Oregon State University TPXO 7.2 Atlantic Ocean model	HD model setup
Meteorological forecasting	Public database continually being updated. Accessed 2018	European Centre for Medium-Range Weather Forecasts ('ECMWF')	Data provided boundary conditions for the SWAN model (third generation wave model)
Water Levels (Portsmouth harbour)	Public database continually being updated. Accessed 2018 (Time period: 01 Jan 2013 – 01 Jan 2014)	National Tidal Sea Level Facility ('NTSLF')	HD model validation/calibration Determination of baseline conditions

Data/Organisation	Date	Data Type/Source	Data Use/Details
Measured wave and tide data (Sandown Pier wave radar and wave buoys positioned at Hayling Island and Bracklesham)	Public database continually being updated Accessed 2018 Time Period Sandown Pier: 01 Jul 2003 – 30 Sept 2015. Time period Hayling Island: 01 Jul 2003 – 30 Sept 2015. Time period Bracklesham: 01 Aug 2008 - 30 Sept 2015)	Channel Coastal Observatory ('CCO')	HD model validation/calibration Determination of baseline conditions
Surface and sub-surface sedimentology and geology	Public database continually being updated. Accessed 2018.	British Geological Survey ('BGS')	Determination of baseline conditions
Metocean and sedimentological data/information	2016	IFA-2 Routeing and Siting Feasibility Desktop Study IFA-2 Marine Cable Route Desktop Study France – England Connection, Channel	Determination of baseline conditions
Various academic studies	Hamblin <i>et al.</i> , 1992; Tappin <i>et al.</i> , 2007; James <i>et al.</i> , 2007; James <i>et al.</i> , 2010; Paphitis <i>et al.</i> , 2010	Hamblin <i>et al.</i> , 1992; Tappin <i>et al.</i> , 2007; James <i>et al.</i> , 2007; James <i>et al.</i> , 2010; Paphitis <i>et al.</i> , 2010	Determination of baseline conditions

2.2. CHAPTER 7 MARINE WATER AND SEDIMENT QUALITY DATA SOURCES (APP-122)

Table 2 - Chapter 7 Marine Water and Sediment Quality Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Natural Power Consultants Ltd	2019	Benthic and intertidal survey reported in ES Appendix 8.1 Benthic Ecology Survey Report (APP-377)	Site specific benthic and intertidal surveys.
Natural Power Consultants Ltd	2019	Contaminated sediment survey results (ES Appendix 7.3	Site specific contaminated sediment sample collection and analysis.

Data/Organisation	Date	Data Type/Source	Data Use /Details
		(Contaminated Sediments Survey Report)) (APP-427)	
Partrac Ltd	2019	Coastal Processes Modelling (ES Appendix 6.2 (Modelling Technical Report)) (APP-475)	Detail of baseline environment and outline of approach to assessment including brief narrative of sediment plume modelling.
National Grid	2016	IFA2 ES (IFA2,2016)	Coastal Processes chapter including water quality of the ES for IFA2, a nearby interconnector project.
Rampion Offshore Wind Farm ('OWF')	2012	E.ON Rampion ES.	Coastal Processes appendix including water quality of the ES for Rampion OWF; an OWF located 13 km off the coast of Sussex, to the east of the Marine Cable Corridor.
Department for Environment, Food and Rural Affairs ('DEFRA')	Public database continually being updated. Accessed 2019	Natural England Multi-Agency Geographic Information for the Countryside ('MAGIC') website (Defra)	Online mapping resource providing layers of habitat types and features within the study area.
Environment Agency ('EA')	2019	EA Data Catchment Explorer	Information relating to water bodies monitored under the remit of the Water Framework Directive ('WFD').
Oslo and Paris Conventions ('OSPAR')	2017	OSPAR Intermediate Report	Multinational assessment and monitoring effort in the OSPAR Maritime Area. The Channel lies in the Greater North Sea OSPAR Geographic Region (Region II).

2.3. CHAPTER 8 INTERTIDAL AND BENTHIC HABITATS (APP-123)

Table 3 - Chapter 8 Intertidal and Benthic Habitats Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Project specific benthic surveys	2017-2018	Grab, Drop Down Video ('DDV'), fauna, Particle Size Analysis ('PSA'), Total Organic Carbon ('TOC') and biomass	Epifauna broad-scale habitats, infauna community and sediment composition. Results of these surveys are presented in ES Appendix 8.1 (Benthic Ecology Survey Report).
Project specific intertidal surveys	2017	Sediment samples (fauna, PSA and biomass) and intertidal walk over	Extent and distribution of intertidal habitats and sediment composition.
IFA2 ES (Benthic Ecology Chapter)	2016	Survey data	Benthic habitats for the south of the central Channel.
Rampion Offshore Wind Farm ES (Benthic Ecology Chapter)	2011	Survey data	Benthic habitats for the south of the central Channel.

Data/Organisation	Date	Data Type/Source	Data Use /Details
Channel Integrated Approach for Marine Resource Management ('CHARM') II project study (Martin <i>et al.</i>)	2007	Benthic habitat maps	Status of benthic invertebrate fauna in the Eastern Channel.
South Coast Dredging Association	2008	Abundance data	Distribution of benthic infauna across the South Coast Regional Environmental Characterisation ('REC') Region (EMU Ltd., 2012).
Joint Nature conservation committee ('JNCC')	2017	Literature review	Review of coasts and seas in southern England.
MALSF (James <i>et al.</i>)	2010	Grab, Fauna, PSA, Biotopes	Epibenthic and infauna biotopes in the south coast and central and eastern regions of the UK
Natural England ('NE')	2018	Designated sites information	Advice on the Conservation Objectives for European Sites
EMODnet	2016	Benthic habitat data	Broad-scale seabed habitat map for Europe
European University Information Systems ('EUNIS'), European Environment Agency	2018	Protected sites information	Information on protected sites and their features of conservation interest
Channel Coastal Observatory	2016	Intertidal data	Aerial imagery of the UK Landfall
Magic Map Application	Public database continually being updated. Accessed 2019	Designated sites information	Location of designated sites

2.4. CHAPTER 9 FISH AND SHELLFISH (APP-124)

Table 4 - Chapter 9 Fish and Shellfish Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Marine Management organisation ("MMO")	Data accessed in 2018. Commercial fisheries landings data by International Council for the Exploration of the Sea ('ICES') rectangles 2013 – 2017.	Commercial fisheries landings data by ICES rectangle	<p>UK landings data for UK ports for ICES rectangles 28F0, 29E9, 29F0, 30E8, 30E9 and 28F1. 2012 – 2016 Foreign landings data for UK ports for ICES rectangles 29E9, 29F0 and 30E9. 2014 – 2016 Foreign landings data for UK ports for ICES rectangle 28F0.</p> <p>There are limitations to this data namely, not all species are represented; ICES rectangles cover an area of 900 Nautical mile ('nmi')² so identifying exact areas within the rectangles where fish were caught is impossible; species of conservation importance such as shad cannot be internationally harmed or killed within coastal waters (12 nmi limit) therefore landings of these species in coastal rectangles (30E8 and 30E9) may not be representative of shad numbers.</p> <p>Data for 2018 was not available at the time of writing.</p>

Data/Organisation	Date	Data Type/Source	Data Use /Details
ICES	2018	Commercial fisheries landings data by ICES Area	2011 – 2015 ICES landings data for all ports from member countries (Belgium, Denmark, France, Germany, Ireland, Lithuania, Netherlands, Poland, Spain and UK) that fished in ICES Area VII.7.d. (ICES, 2018a) The limitations of these data include; not all species are represented; ICES areas cover a large area of the sea (Area VII.7.d. is 9717.98 nmi ²) so identifying where species were caught within the ICES area is impossible; landings data are recorded for each member state which may be subject to different landings regulations.
ICES	Public database continually being updated. Accessed 2018	Survey data	Long term monitoring of commercial demersal and pelagic fish for stock assessments, changes in distribution and abundance. The limitation is that it is only for fish species.
Coull <i>et al.</i>	1998	Report	Fisheries sensitivity maps in British waters (Coull <i>et al.</i> , 1998). The limitations of the data are the age (20 years old) and the limited species it covers. In addition, spawning distributions are under continual revision. The maps are not rigid, unchanging descriptions of presence and absence.
Ellis <i>et al.</i>	2012	Report	Spawning and nursery grounds of selected fish species in UK waters (Ellis <i>et al.</i> , 2012). The limitation of these data is the limited number of species it covers, with data not available for all fish species and many coastal, continental shelf and shelf edge waters.
AQUIND benthic surveys	July 2017 – March 2018	Project specific benthic surveys	Site specific benthic surveys were undertaken along the entire length of the Marine Cable Corridor. Consisting of 42 benthic grabs between the UK and France, drop down video surveys and 10 contaminated sediment samples within the UK (see ES Appendix 8.1 (Benthic Ecology Survey Report) and ES Appendix 7.3 (Contaminated Sediment Survey Report) of the ES Volume 3 (document reference 6.3.7.3)). This survey data is for benthos and doesn't specifically include fish and shellfish.
Rampion Offshore Wind Farm ('OWF')	2012 RSK Survey 2016 EMU	Project specific Fish surveys	Site specific fish survey for the EIA, were undertaken in 2011 – 2012 which included: demersal otter trawling scientific 2 m beam trawls; commercial beam trawls (RSK, 2012). In addition, assessment of the spawning condition of black seabream by assessing commercially landed fish caught in the Rampion offshore array area in 2012 and 2013 (RSK, 2016); as well as a desk-based study on black seabream in the English Channel off the Sussex Coast (EMU, 2012). These surveys centred on Rampion OWF which is approximately 20 km to the east of the Proposed Development.
Navitus Bay Wind Farm	2014	Project specific fish surveys	Site specific fish surveys were conducted, which included fixed large mesh trammel and finer mesh gill nets to target electro-sensitive elasmobranch and other demersal fish and shellfish species (Navitus Bay Development Ltd, 2014). These surveys centred on the Navitus Bay OWF which is approx. 30 km to the west of the Proposed Development.

Data/Organisation	Date	Data Type/Source	Data Use /Details
IFA2 High Voltage, Direct Current ('HVDC') Interconnector	2016	Project specific benthic surveys	Grab and drop-down video ('DDV') surveys conducted to characterise the benthic communities along the cable route (IFA2, 2016). This survey is for benthos and doesn't specifically include fish and shellfish.
Environmental Agency ('EA')	2018	Transitional and coastal waters ('TraC') Fish Monitoring Programme	2011 – 2016 Fish counts for all species for all areas and all years – considers migratory species that may occur near the Proposed Development at various times of the year (Environment Agency). The limitation of these data is that deeper water fish species are likely to be underrepresented.
Centre for Environment, Fisheries and Aquaculture Science ('Cefas')	1998	The Cefas Young Fish Survey	A 30-year demersal fisheries study (from 1981 to 1997) using fine mesh beam trawl gear covering the inshore ICES rectangles 30E8 and 30E9 (Rogers <i>et al.</i> , 1998). The limitations of the data are the age (21 years) with fish diversity and structure likely to have changed. In addition, some species may not be recorded (e.g. smelt) as survey methodology is not specific to individual species.
Cefas	2016	Solent Bass Pre-recruit Survey	Long term survey initiated in 1970's assessing the abundance of two – four-year-old bass species and density of other incidental catch in the inshore ICES rectangles 30E8 and 30E9 (Cefas). This data only covers the inshore areas with bass numbers outside these areas not represented.
Cefas	2015	The Fish Atlas of the Celtic Sea, North Sea and Baltic Sea	This atlas presents the current data of all Western European species in the period 1977 to 2013 with particular focus on commercially interesting species (Heessen <i>et al.</i> , 2015). The limitations of this data source are that it focuses on commercially interesting species, with other species having less of a focus.
Cefas/ICES	2018	International Herring Larvae Survey ('IHLS')	The IHLS (1967-2017) provide quantitative estimates of herring larval abundance. Data is available from 1972. It covers ICES rectangles 28F0, 29E9, 29F0, 30E8, 30E9 and 28F1. It is shown not to be an area of high density (ICES, 2018b).
MMO	2013	Report	East English Channel Herring Spawning Assessment (RPS, 2013) for the East Channel Association. This report focuses on the eastern Channel which is outside the Proposed Development, however there is focus on the herring spawning area through which the Proposed Development passes.
Southern Inshore Fisheries and Conservation Authority ('IFCA')	Solent Oyster Fishery stock survey report (Southern IFCA, 2018a), Native oyster stock assessment (Southern IFCA, 2017a), Solent bivalve stock assessment (Southern IFCA, 2017b), Black seabream status report (Southern IFCA, 2014), fish monitoring (Southern IFCA,	Fish and shellfish studies within this region	These are species specific studies undertaken throughout the Southern IFCA's area, however, only a small number of survey sites are in the vicinity of the Marine Cable Corridor. Black seabream sidescan sonar surveys were in the coastal zone on the south east coast of the Isle of Wight.

Data/Organisation	Date	Data Type/Source	Data Use /Details
	2017c), Solent Oyster Management Plan (Southern IFCA, 2017d), Solent Manila Clam Management Plan (Southern IFCA, 2018b) and black seabream sidescan sonar surveys (Cooper, P. pers. comms., 2018).		
Sussex IFCA	Fugro EMU, 2015 Sussex IFCA, 2017a Sussex IFCA, 2017b Williams <i>et al.</i> , 2018 Williams & Davis 2018	Fish and shellfish studies within this region	Side scan sonar surveys of seabream nests (2014) (Fugro EMU, 2015), Anglers activity - recording of recreational caught seabream within the Kingmere Marine Conservation Zone ('MCZ'), annual small fish surveys (Sussex IFCA, 2017a), native oyster stock assessment in Chichester Harbour (Sussex IFCA, 2017b), native oyster fishery valuation assessment in Chichester Harbour (Williams <i>et al.</i> , 2018; Williams & Davis, 2018). The limitations of this data are the distances from the Proposed Development, with the nearest study being undertaken in Chichester Harbour.
Hanson Aggregates Marine Ltd ('HAML')	2011	Black seabream nest area survey on in West Sussex	Multibeam and sidescan sonar and DDV surveys of six black seabream nest areas 12 km south of Littlehampton and Bognor Regis (EMU, 2011). The applicability of these surveys is limited due to their distance from the Marine Cable Corridor.
Natural Power	2017-2018	Particle Size Distribution (PSD) data	PSD data from benthic samples taken during the benthic surveys of the Marine Cable Corridor (Chapter 8 (Benthic and Intertidal Habitats) of the ES Volume 1 (document reference 6.1.8))
BGS data	Public database continually being updated. Accessed 2018	Geographical Information System ('GIS') data layer on the makeup of the seabed	Marine sediments 250 k digital map showing the distribution of seabed sediment types in the UK area. Seabed sediments were mapped further offshore, where the most recent deposits commonly form a veneer or superficial layer of unconsolidated material on the seabed. Their distribution and composition is determined using a range of remotely sensed and physical ground-truthing data.

2.5. CHAPTER 10 MARINE MAMMALS AND BASKING SHARKS (APP-125)

Table 5 - Chapter 10 Marine Mammals and Basking Sharks Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Inter-Agency Marine Mammal Working Group (IAMMWG)	2015	Cetacean abundance estimates	Abundance estimates (derived from the SCANS-II and Cetacean Offshore Distribution and Abundance in the European Atlantic ('CODA') surveys (which were conducted in 2005 and 2007 respectively) for the MUs for the seven most common cetacean species in UK waters – harbour porpoise, common dolphin, bottlenose dolphin, white-beaked dolphin, white-sided dolphin, Risso's dolphin, minke whale.

Data/Organisation	Date	Data Type/Source	Data Use /Details
Hammond <i>et al.</i>	2017	Cetacean density and abundance estimates	Density and abundance estimate from the SCANS-III surveys which were conducted in 2016 – data for Block C are relevant to the Proposed Development as the Marine Cable Corridor is located within it. Estimates are available for harbour porpoise and minke whale.
Pettex <i>et al.</i>	2014	Cetacean abundance estimates and distribution	Distribution of the pelagic megafauna in French Metropolitan waters (The Suivi Aérien de la Mégafaune Marine ('SAMM'), (Aerial Monitoring of Marine Megafauna)) gathered through aerial and ship-based surveys for all cetacean species encountered.
McClellan <i>et al.</i>	2014	Distribution of marine megafauna	Marine megafauna in the Channel region using geographically- and temporally-referenced marine megafauna datasets including data from the Channel Integrated Approach for Marine Resource Management ('CHARM') III project including turtles and basking sharks.
Evans	2006	Desktop study of cetacean distribution	Main species present in the Channel and information on their wider UK/European ranges.
Jones <i>et al.</i>	2004	Descriptive regional profile	Eastern Channel marine natural area profile.
Reid <i>et al.</i>	2003	Quantitative description of cetacean distribution in the region	JNCC Atlas of Cetacean distribution in north-west European waters giving a snapshot of the distribution of all 28 cetacean species compiled using visual sightings data.
Brereton <i>et al.</i>	2016	Photo-identification studies of white-beaked dolphins	Analysis of photos for identification of individuals and comparison against other white-beaked dolphin catalogues around the UK and other parts of Europe.
Rampion OWF	2010-2012	Baseline marine mammal presence data	Marine mammal presence across the Rampion Offshore Wind Farm site, an adjacent reference area and a buffer compiled using data from boat-based marine mammal line transect surveys.
Navitus Bay Development Limited	2014	Baseline marine mammal presence data	Navitus Bay OWF development area baseline marine mammal surveys using boat-based and aerial visual survey methods and Chelonia Porpoise Detector ('C-POD') acoustic surveys.
Vincent <i>et al.</i>	2017	Census of seal populations on land and telemetry data	Grey and harbour seal count data from sites along the French coast of the Channel carried out using visual observations from land, boat and aerial surveys overhaul-out sites as well as tracking using telemetry.
Chesworth <i>et al.</i>	2010	Solent Seal Tagging Project	Information on the Solent harbour seal population using visual counts of seals at haul-out sites, data from a public sightings scheme, photo-identification and telemetry data.
Russell <i>et al.</i>	2017	Grey and harbour seal density	Sea Mammal Research Unit ('SMRU') seal count and telemetry data combined to produce total and at-sea usage maps of the UK.

2.6. CHAPTER 11 MARINE ORNITHOLOGY (APP-126)

Table 6 - Chapter 11 Marine Ornithology Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
South Coast Regional Environmental Characterisation ('REC')	2010	James <i>et al.</i> (2010), drew on a range of published information to characterise the seabird community present in the South Coast REC. The South Coast REC encompasses the Proposed Development.	Data sources included at-sea aerial surveys in the central Channel carried out in winter (October–March) 2007/2008 and summer (May–August) 2008 (Wildfowl and Wetlands Trust ('WWT'), 2009).
Rampion Offshore Wind Farm ('OWF')	2012	ES Section 11 – Marine Ornithology (RSK, 2012). Rampion OWF is located 13 km off the coast of Sussex, to the east of the Proposed Development.	Baseline boat-based surveys were undertaken over an area of 1,076 km ² around the OWF, whilst aerial surveys were also undertaken over a similar geographic area, covering some 1,100 km ² . Boat-based surveys were undertaken on a monthly basis between March 2010–February 2012, with aerial surveys undertaken on a monthly basis between August 2010 and August 2011.
Navitus Bay Wind Park	Navitus Bay Wind Park, 2014 APEM, 2013	ES Chapter 12 – Offshore Ornithology (Navitus Bay Wind Park, 2014). Baseline Offshore Ornithological Assessment for the Navitus Bay Wind Park project (APEM, 2013). The proposed Navitus Bay Wind Park was located 14 km off the coast of Dorset (south-west of the Isle of Wight) west of the Proposed Development.	Baseline boat-based surveys were undertaken over 24 months (December 2009–November 2011) with additional boat-based surveys in spring and autumn of 2011 for migrants. Aerial surveys were undertaken between November 2009–February 2010, and January–March 2011.
L'Agence Française pour la Biodiversité ('AFB')	Pettex <i>et al.</i> , 2014, 2017	The SAMM (Aerial Monitoring of Marine Megafauna) Campaign (Pettex <i>et al.</i> , 2014; Pettex <i>et al.</i> , 2017).	All French Territorial Waters were surveyed using a visual aerial survey method during two survey campaigns: winter 2011/12 and summer 2012. The raw data were modelled to create density surface maps.
JNCC	2004	Seabird 2000 Census (Mitchell <i>et al.</i> , 2004).	Seabird 2000 was the third complete census of the entire breeding seabird population of Britain and Ireland. An update to this census is currently ongoing with the results not yet publicly available.
	1995	European Seabirds at Sea ('ESAS') Database (Stone <i>et al.</i> , 1995).	Major atlas presents a comprehensive assessment of seabirds in north-west European waters and comes from a collaboration between several countries. Data were collected from 1979 to 1994 and have been used to describe the seasonal distribution and abundance of over 50 species of seabird.

Data/Organisation	Date	Data Type/Source	Data Use /Details
	1996 and 1998	JNCC Coastal Directories Project: Region 8 Sussex: Rye Bay to Chichester Harbour (Barne <i>et al.</i> 1998) and Region 9: Southern England: Hayling Island to Lyme Regis (Barne <i>et al.</i> 1996).	The JNCC's Coastal Directories project, collated extensive baseline environmental and human use information, including fisheries, for the coastal and nearshore Marine zone of the whole of the UK.
	Kober <i>et al.</i> , 2010; Kober <i>et al.</i> , 2012; Wilson <i>et al.</i> , 2014; Parsons <i>et al.</i> , 2015	JNCC Reports No. 431, No. 461, No. 500 and No. 548.	JNCC species abundance and distributional analyses to inform the identification of possible marine Special Protection Areas in the UK.
NE	TIN 128 - 2012 TIN 135 - 2012 TIN 136 - 2012 TIN 138 - 2012 TIN 139 - 2012	Technical Information Notes ('TINs'): Species Information for Marine Special Protection Area Consultations (NE, TIN 128, 135, 136, 138 and 139).	Information and guidance notes on scientific and technical issues, including practical advice.
	Public database continually being updated. Accessed 2019	Designated Sites View website.	Site and species-based conservation advice and advice on operations.
	Wildfowl and wetlands Trust ("WWT"), 2013 Bradbury <i>et al.</i> , 2014	Data obtained from the SeaMaST and associated reports and publications	This dataset provides evidence on the use of sea areas by all seabirds and inshore water birds in English Territorial Waters, including their sensitivity to offshore wind development. The analysis of displacement risks is considered relevant to the Proposed Development.
British Trust for Ornithology ('BTO')	Frost <i>et al.</i> , 2019	Wetland Bird Survey ('WeBS') peak count data for the Portsmouth region.	WeBS is the principal scheme for monitoring wintering water bird populations in the UK.
Wakefield <i>et al.</i> (2013); Warwick-Evans <i>et al.</i> (2016)	Wakefield <i>et al</i> 2013 Evans <i>et al</i> 2016	Tracking data from gannets breeding on Les Etacs, Alderney	Tracking data has been gathered over a number of years at this colony (Les Etacs: 2011-2015) and are summarised in peer-reviewed papers.

2.7. CHAPTER 12 COMMERCIAL FISHERIES (APP-127)

Table 7 - Chapter 12 Commercial Fisheries Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Country: UK MMO	2018	2013-2017 fisheries statistics (landings and effort data)	Fishing effort in days and landings, values in pounds by UK registered vessels by species, method, size and port. Includes vessels of all categories (under 10, 10-15 m and over 15 m). Low spatial resolution as data is compiled by ICES rectangle. Data for 2018 was not available at the time of writing.
		Surveillance sightings 2013 – 2017	Sightings of all fishing vessels (regardless of size or nationality) recorded by routine patrols within the UK Exclusive Economic Zone ('EEZ'). May underestimate total extent of fishing activity due to low patrol frequency and timing. Does not provide information on fishing patterns in areas relevant to the Proposed Development that fall within the French EEZ. Data for 2018 was not available at the time of writing.
		Vessel Monitoring System ('VMS') 2013 – 2017	VMS data combined with logbook data of all over 15 m UK vessels. Data provided in terms of effort and value. Data filtered by speed. VMS data provided as aggregated number of vessel positions within a grid of rectangles of approximately 5.3 nmi. Data for 2018 was not available at the time of writing.
France OBSMER report (IFREMER/DPMA)	2015	VMS 2014	Effort data derived from VMS in days by over 15 m French vessels by method. It is acknowledged that more recent data is available from the OBSMER programme. However, the use of 2014 data was justified by the availability year of other French data sets ('VALPENA') The data only covers 2014. Some French vessels targeting the study area and its vicinity are under 15 m in length and are therefore, not included in VMS datasets. VMS data is anonymised. Aggregated number of vessel positions are given within a grid of ICES rectangles of approximately 50 nmi ² .
SIH Publications by ICES rectangles (SIH publication archimer.ifremer.fr (2013))	2013	Fisheries statistics for ICES rectangle 28F0, 29F0, 29E9 for 2011	Fleet structure and specifications for vessels recording activity in a given ICES rectangle that year. ICES rectangles cover a sea area considerably larger than the footprint of the Proposed Development. The data only covers 2011.
	2018	VALPENA data for 2014	The VALPENA data derives from interviews with voluntary skippers who indicate for a given year the distribution of their fishing activity, gear used and target species. The seasonal variability is also recorded. Fishing density in number of vessels by 3x3 nmi cell (30 km ²) at the scale of study area. Fleet structure: distribution of vessels by gear type and average length. Seasonal variation of fishing activity by method. The data cover all vessels regardless of the size and therefore includes <15 m vessels. The data only covers 2014 and therefore represents a snapshot of the fishing activity and does not show annual variations. Fishing density maps are based on interviews with skippers which can involve inaccuracies or estimations. The dataset is based on the assumption that activity is even within each VALPENA cell. The dataset used by CRPMEM of Hauts-de-France is an extrapolation of a limited number of interviews (e.g. 36.9 % of the fleet based in Hauts-de-France). However, it is recognised that the error margin is lower than 10 % (GIS Valpena).
Comité Régional des Pêches Maritimes et des Elevages Marins (CRPMEM) of Normandie, CRPMEM of Hauts- de-France, Valpena report, Jalon 2, April 2018			

Data/Organisation	Date	Data Type/Source	Data Use /Details
UMR Amure – relevant research on French fisheries in the Channel Scientific, Technical and Economic Committee for Fisheries (‘STECF’) – 2018 annual economic report on the EU fishing fleet	2011 – 2012	Reports from the CHARM project – EU Interreg IVa.	<p>In comparison, the coverage of vessels based in Normandy was almost comprehensive (83.6 %) in 2014.</p> <p>Reports include description of French fleets targeting grounds in the Channel. The description is undertaken at the scale of the Channel and uses dated data. More relevant data were used to describe Commercial Fishing activities in the vicinity of the Proposed Development.</p>
	2018	2016 statistics on European fishing fleets economic performance	<p>Report includes description of French fleet (structure, economic performance, etc.) as a whole. The French fleet is described at a larger scale than other data sets made available to the Proposed Development. This data source was therefore not used in the description of the baseline.</p>
Belgium Belgian Institute for Agricultural and Fisheries Research (‘ILVO’), 2016	2016	2010-2014 fisheries statistics (landings and effort data)	<p>Fishing effort in days and landings values in euros for all over-10 m Belgian vessels. Low spatial resolution as data is compiled by ICES rectangle.</p>
		VMS 2010 - 2014	<p>VMS data combined with logbook data by over-15 m Belgian vessels to give values and effort for. Data filtered by speed.</p> <p>VMS data provided as the aggregated number of vessel positions within a grid of rectangles of approximately 56 nmi². Data does not include information on vessels of less than 15 m in length.</p>
Netherlands Netherlands, Institute for Marine Resources and Ecosystem Studies (‘IMARES’) and Landbouw Economisch Instituut (‘LEI’) VMS and integrated Landings data, 2018	2018	Fisheries statistics (landings and effort data) 2013 – 2017	<p>Fishing effort in days and landings values in euros for all over 10 m Dutch vessels. Low spatial resolution as data is compiled by ICES rectangle.</p>
		VMS 2013 – 2017	<p>VMS data combined with logbook data by Dutch vessels in the North Sea to give fishing effort and value. Data filtered by speed.</p> <p>VMS data are provided as the aggregated number of vessel positions within a grid of rectangles of approximately 56 nmi².</p> <p>Identity of vessels included in the VMS is anonymised. IMARES therefore provides the aggregated number of vessel positions within a grid of rectangles of approximately 56 nmi².</p>

2.8. CHAPTER 13 SHIPPING AND NAVIGATION (APP-128)

Table 8 - Chapter 13 Shipping and Navigation Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Anatec	1 December 2017 – 28 February 2018 (winter); and 1 May – 31 July 2018 (summer).	Automatic Identification System ('AIS') data	Six months of AIS data from the following periods to cover seasonal variation.
MMO	Public database continually being updated, years 2015-2016 data was used	Satellite VMS Fishing Activity data	Two years of VMS data provided in a density-based grid.
Royal National Lifeboat Institution ('RNLI')	2005 to 2014	Maritime Incident data	RNLI data logs details of incidents it responds to, including the cause of incident. Data were available from 2005 to 2014.
Marine Accident Investigation Branch ('MAIB')	2005 to 2014	Maritime Incident data	MAIB data were available from 2005 to 2014. All UK commercial vessels and non-UK vessels within a UK port or the UK 12 nmi Territorial Waters & carrying passengers to a UK port, are required to report accidents to the MAIB.
United Kingdom Hydrographic Office ('UKHO')	Public database continually being updated.	UK Admiralty Charts	Admiralty charts are nautical charts issued by the UKHO. Charts used for the assessment include: 1652: Selsey Hill to Beachy Head 2036: The Solent and Southampton Water 2037: Eastern Approaches to the Solent 2045: Outer Approaches to the Solent 2450: Anvil Point to Beachy Head 2451: Newhaven to Dover and Cap d'Antifer to Cap Gris-Nez 2625: Approaches to Portsmouth 3418: Langstone and Chichester Harbours
UKHO	2014	Admiralty Sailing Directions	Admiralty Sailing Directions – Channel Pilot, NP27, 10th Edition, 2014
The Crown Estate ('TCE')	2018	Aggregate Dredging Areas	The Crown Estate: Mineral and Aggregate Dredging Areas (dated 12 April 2018)
TCE	2018	Offshore Wind Farms	The Crown Estate: Offshore Wind (dated 21 August 2018)
Royal Yachting Association ('RYA')	2016	RYA Coastal Atlas UK	RYA UK Coastal Atlas of Recreational Boating 2.0 data including intensity grid, general boating areas and offshore routes, as well as locations of clubs, training centres and marinas.
Consultation with angling groups and IFCA	2019	Meeting minutes	Information from discussions on areas of importance for local recreational anglers and charter vessels.

2.9. CHAPTER 14 MARINE ARCHAEOLOGY (APP-129)

Table 9 - Chapter 14 Marine Archaeology Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
The United Kingdom Hydrographic Office ('UKHO')	Public database continually being updated. May 2018	Charted wrecks and obstructions	To inform baseline.
Project specific Geophysical survey	2017/2018	Geophysical data	To inform baseline regarding potential anomalies.
Project specific Geotechnical survey	2018	Geotechnical data	To inform baseline regarding seabed prehistory assets
The National Record of the Historic Environment ('NRHE')	Public database continually being updated. May 2018	Data for terrestrial and marine archaeological sites, find spots and archaeological events	Maintained by Historic England.
The National Heritage List for England	Public database continually being updated. May 2018	Data of designated heritage assets including sites protected under the Protection of Military Remains Act 1986 and the Protection of Wrecks Act 1973	Maintained by Historic England.
The Portsmouth City Council ('PCC') and Hampshire County Council ('HCC') Historic Environment Records ('HER')	Public database continually being updated. May 2018	A database of all recorded terrestrial and marine archaeological sites, find spots and archaeological events within the county and offshore.	To inform baseline.
The Historic Seascape Characterisation ('HSC')	2007	Report for the Solent and waters off the Isle of Wight (Hampshire and Wight Trust for Maritime Archaeology ('HWTMA'), Bournemouth University and Southampton University, 2007)	To inform baseline.
Relevant mapping including Admiralty Charts, BGS	Public databases continually being updated. May 2018	Ordnance Survey ('OS') and historic maps	To inform baseline.
Wessex Archaeology	May 2018	Relevant documentary sources and grey literature	Available through the Archaeological Data Service and other websites.

3. ONSHORE

3.1. CHAPTER 15 LANDSCAPE AND VISUAL AMENITY (APP-130)

Table 10 - Chapter 15 Landscape and Visual Amenity Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
<p>Desk-based study incorporating reference to Local Plans, OS maps, Zones of Theoretical Visibility ('ZTV') mapping, and 3D models of the location for the Converter Station based on the Parameter Plans, websites and relevant literature published by the South Downs National Park Authority ('SDNPA'), Local Planning Authorities ('LPAs') and Parish Councils.</p>	<p>Date Accessed: 2019</p>	<p>Local Plans:</p> <p>Havant Borough Council Core Strategy, March 2011 Local Development Framework, (Havant Borough Council, March 2011).</p> <p>Havant Borough Local Plan (Allocations) Adopted Version, (Havant Borough Council, 2014).</p> <p>Havant Borough Design Guide SPD, (Havant Borough Council, December 2011).</p> <p>East Hampshire District Local Plan: Joint Core Strategy, (East Hampshire District Council and South Downs National Park Authority, adopted June 2014).</p> <p>East Hampshire Local Plan, Second Review, adopted version, (East Hampshire District Council, 2006).</p> <p>Winchester District Local Plan Part 1 Joint Core Strategy, adopted version (Winchester City Council and South Downs National Park, March 2013).</p> <p>Winchester District Local Plan Part 2 Development Management and Site Allocations, adopted version March 2017 (Winchester City Council and South Downs National Park, March 2017).</p> <p>Winchester District Local Plan Review, adopted version, (Winchester City Council, 2006).</p> <p>High Quality Places, SPD, adopted version, (Winchester City Council, March 2015).</p> <p>The Portsmouth Plan – Portsmouth Core Strategy, adopted version (Portsmouth City Council, January 2012).</p> <p>Portsmouth Local Plan 2001-2011, adopted July</p>	<p>Determination of baseline conditions, ZTV mapping and 3D models of the location for the Converter Station.</p>

Data/Organisation	Date	Data Type/Source	Data Use /Details
		<p>2006 and amended July 2007, July 2009 and January 2012, (Portsmouth City Council, 2012).</p> <p>Eastney Beach Habitat Restoration and Management Plan, SPD, (Portsmouth City Council, 2014).</p> <p>Seafront Masterplan, SPD, (Portsmouth City Council, 2013).</p> <p>South Downs National Park Local Plan 2014-2033., adopted 2019, (South Downs National Park Authority, 2019).</p>	
	2019	<p>ZTVs:</p> <p>WSP ES Figures 15.9 to 15.16 (APP-242 to APP-249)</p>	
	2019	<p>3D models:</p> <p>WSP Converter Station and Telecommunications Buildings Parameter Plans (APP-012)</p>	
	Date Accessed: 2019	<p>Websites and Relevant Literature:</p> <p>East Hampshire District Council. (2006). Catherington Conservation Area Character and Appraisal.</p> <p>East Hampshire District Council. (2006). East Hampshire Landscape Character Assessment.</p> <p>Hampshire County Council. (2012). Hampshire County Integrated Character Assessment.</p> <p>Portsmouth City Council. (2012). Landscape Character Assessment - Portsea Island</p> <p>Coastal Defence Flood Risk Areas.</p> <p>Portsmouth City Council. (November 2018). Eastern Road and Kendall's Wharf Coastal Defence Scheme – protecting the future of our community.</p> <p>South Downs National Park. (2013). Shaping the future of your South Downs National Park, South</p>	

Data/Organisation	Date	Data Type/Source	Data Use /Details
		<p>Downs National Park Partnership Management Plan, 2014-2019.</p> <p>South Downs National Park Authority. (2016). South Downs National Park Dark Sky Reserve Application.</p> <p>South Downs National Park Authority. (2017). Tranquillity Study.</p> <p>South Downs National Park Authority. (September 2017). South Downs Landscape Background Paper to the Local Plan.</p> <p>South Downs National Park Authority. (April 2018). South Downs Dark Night Sky Lighting Technical Advice Note.</p> <p>Winchester City Council. (2009). Hambledon Character Appraisal and Management Strategy.</p>	
	Date Accessed: 2019	Ordnance Survey – GOV.UK [Online]	Development of baseline maps to understand baseline conditions.
<p>AQUIND commissioned surveys (initial field survey and site visits)</p>	<p>An initial field survey in September 2017, followed by site visits in March 2018, May 2018, October 2018, June and July 2019.</p>	<p>WSP</p>	<p>Early site visit conducted to verify the extent of the study area, assess local landscape character and the nearest visual receptors to help inform early analysis, the site selection process and selection of representative viewpoints.</p> <p>Further site visits were conducted to capture baseline photography for the Landscape and Visual Impact Assessment ('LVIA') in winter and summer/autumn, and a site visit with the LPA officers to confirm the Local Views to be included within the LVIA in winter.</p>

3.2. CHAPTER 16 ONSHORE ECOLOGY (APP-131)

Table 11 - Chapter 16 Onshore Ecology Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
AQUIND commissioned surveys			
Preliminary Ecological Appraisal and Phase 1 Habitat Surveys	April 2017, updated April 2018 (desk study), October 2018 (field survey and desk study) and May 2019 (field survey)	WSP Hampshire Biodiversity Information Centre (October 2018) Natural England (MAGIC) website [Online] Ordnance Survey Maps [Online]	Ecological desk study and site specific/field surveys work undertaken to inform ecological baseline assessment.
Non-statutory Designated Sites	July 2019	WSP	Field surveys undertaken to inform ecological baseline assessment.
Aquatic Scoping	May 2019	WSP	
Aquatic Ecology Assessment	July 2019	WSP	
Badger Survey	March 2019	WSP	
Badger Bait Marking	April and May 2019	WSP	
Bat Transect and Static Detectors	Dusk bat transect survey: April-October 2017 August-September 2019	WSP	
Bat Ground Level Roost Assessment	21 September 2017, 19 October 2017, 31 May 2018 and 11 June 2019	WSP	
Bat Climbing/Emergence/Return	June - August 2018 Aerial Tree Inspection 11 June 2019 Tree Mounted Bat Boxes: 24 May 2018 and 12 June 2019	WSP	
Great Crested Newts	April - June 2019	WSP	
Reptiles	June - July 2019	WSP	

Data/Organisation	Date	Data Type/Source	Data Use /Details
Hazel Dormouse	Nest tubes installed May 2017 Nest tube surveys: June-November 2017 September-November 2018 Hazel nut search: February 2019	WSP	
Breeding Birds	April - June 2018	WSP	
Wintering Bird Survey	6 monthly visits between October 2017 - March 2018	WSP	

3.2.1. **APPENDIX 16.3 ARBORICULTURE REPORT (APP-411)**

Table 12 – Appendix 16.3 Arboriculture Report Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Desktop Review	2017, updated in 2019	DEFRA MAGIC mapping [Online] East Hampshire District Council Online Portal [Online] Portsmouth City Council Online Portal [Online] Havant Borough Council Interactive Map [Online] Winchester City Council (WCC Public View [Online] Woodland Trust, Ancient Tree Inventory [Online]	To identify any statutory or non-statutory constraints that may affect the arboricultural resources within the Study Area. In particular, identifying the presence of any Tree Protection Orders, conservation areas or Ancient Woodland or ancient and veteran trees that may be affected by the Proposed Development.
Site walkover surveys	October/November 2017 May 2018 and August 2019	WSP	Site walkovers undertaken to inform baseline and to take account of minor adjustments made to the Order Limits.

3.3. CHAPTER 17 SOILS AND AGRICULTURAL LAND USE (APP-132)

Table 13 - Chapter 17 Soils and Agricultural Land Use Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Agricultural Land Classification Surveys	October 2018 - April 2019	Reading Agricultural Consultants Ltd ES Appendix 17.2 Agricultural Land Classification and Soil Resources (APP-426)	To classify the quality of agricultural land in line with the well-established methodology contained in the 'Agricultural Land Classification of England and Wales, Revised guidelines and criteria for grading the quality of agricultural land' issued by the Ministry of Agriculture, Fisheries and Food ('MAFF') in 1988 (Ministry of Agriculture, Fisheries and Food, 1988) and summarised in Natural England's Technical Information Note ('TIN') 049 (Natural England, 2012).
Farm Surveys	September 2019	Reading Agricultural Consultants Ltd	To determine the magnitude of impact on farm businesses from the direct loss of farmable area and other key farm infrastructure to the holdings, as well as the severity of disturbance to the day to day management of the farming operation arising from the Proposed Development.
Geotechnical borehole logs	Phase 1: April - May 2018. Phase 2: April - May, and July – October 2018.	ES Appendix 18.1 (Preliminary Risk Assessment and Generic Quantitative Risk Assessment) ('PRA') and ('GQRA')(APP-429)	To inform the baseline where access was not permitted to land (and therefore detailed soil surveys have not been undertaken) the baseline data relied on the interpretation of geotechnical borehole logs.

3.4. CHAPTER 18 GROUND CONDITIONS (APP-133)

Table 14 - Chapter 18 Ground Conditions Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
BGS Geology of Britain Viewer	Accessed: July 2019	Solid and Drift BGS Map Sheet 316 – Fareham (1:50,000, 1998) and Map 331 – Portsmouth (1: 50,000, 1994) British Geological Survey [Online]	Provides information on both the Superficial and Bedrock geology underlying the Onshore Cable Route. Helps determine the likely ground conditions and contaminant pathways.

Data/Organisation	Date	Data Type/Source	Data Use /Details
MAGIC Map Website	Accessed: July 2019	Natural England MAGIC website [Online]	Provides information on EA Aquifer Designations, Statutory and Non-statutory sites, and EA Source Protection Zone ('SPZ'). Helps to determine likely receptors.
Contaminated Land Records including historical reports	2019	<p>Portsmouth City Council – in person review of PCC records on 12 June 2019, providing the following reports used in the Preliminary Risk Assessment and Generic Quantitative Risk Assessment (APP-429):</p> <p>Milton Lake Ground Investigation and Risk Assessment, Parkman Buck Ltd. May 1994 (Ref: 11314/OR1/1C);</p> <p>Milton Lake – Report on Additional Monitoring, Parkman Buck Ltd. May 1995 (Ref: 23052/OR/3E);</p> <p>Eastney Lake Ground Investigation and risk Assessment, Parkman Buck Ltd. May 1994 (Ref: 11314/OR2/1C); and</p> <p>Portsmouth College, Tangier Road, Portsmouth – Report on Ground Investigation, Contamination Survey and Risk Assessment, Parkman Environment. December 1995 (Ref: 16241/OR/1B).</p> <p>Email correspondence held with Winchester City Council ('WCC'), Havant Borough Council ('HBC'), East Hants District Council ('EHDC'), EA in 2019.</p>	Provides information relating to contaminated land including, landfills, previous industrial land uses, pollution incidents, remediation, ground conditions, potentially contaminated land uses and water quality records.
Environmental Data reports	13 March 2017	Landmark Information Group Envirocheck Reports (Ref: 121347347_1_1 and 121347331_1_1)	Primary repository of information relating to historical land uses, pollution incidents to controlled waters, landfills, ecology, mineral extraction sites, waste management facilities, discharge consents, geology, water abstractions, and local authority pollution prevention and controls etc. Information helps to identify potential sources of contamination, receptors and also pathways.
WSP Desk Study reports	<p>Ground Investigation – Stage 1 Converter Station Phase 1: April - May 2018.</p> <p>Ground Investigation – Stage 2 (OCR, Landfall and trenchless crossings) Phase 2: April - May, and July – October 2018</p>	ES Appendix 18.1 (Preliminary Risk Assessment and Generic Quantitative Risk Assessment) (APP-429)	Desk study reports PRA and GQRA prepared by WSP GRR team, provides information needed for the baseline of this assessment including ground conditions, landfills, previous land uses, contamination, and a conceptual site model (source, pathway, receptor model) needed for the assessment of this report.

Data/Organisation	Date	Data Type/Source	Data Use /Details
	PRA and GQRA: July 2019		
	June 2017	UK Cable Route Desk Study Route 3D	
	June 2017	Geotechnical Engineering Report – UK Cable Route Addendum Desk Study – Route 3D, Deviations	Desk Study report prepared by WSP Geotech team provides information needed for the baseline of this assessment including information on ground conditions and previous land uses.
	October 2018	Initial Ground Investigation Findings, Milton Common	Information useful in determining the ground conditions at the site e.g. thickness of Made Ground and Made Ground composition and information on groundwater levels. Helps determine potential sources of contamination, pathways and receptors.
WSP Ground Investigation Reports	May 2019	UK Converter Station Ground Investigation – Geotechnical Interpretive Design Development Report	Factual reports contain chemical results for soils and water.
	May 2019	UK Route, HDD [Horizontal Directional Drilling] and Landfall Ground Investigation - Geotechnical Interpretive Design Development Report	Also provides information on groundwater levels and ground gas (carbon dioxide and methane) concentrations. All of this information helps determine the likely risk of contamination along the route and helps with the assessment. These results have been summarised in the PRA and GQRA mentioned above.
	2018	Geotechnics Ltd, 2018, UK -France HVDC [High Voltage Direct Current] [Interconnector Onshore Work Package 1 (Option South), PE181480	
	2018	Geotechnics Ltd, 2018, UK -France HVDC Interconnector Onshore Work Package 1A (Option West and Access Track), PE181477	
	2019	Geotechnics Ltd, 2019, UK -France HVDC Interconnector Onshore Work Package 2, PE181481	
	2019	Geotechnics Ltd, 2019, UK -France HVDC Interconnector Onshore Work Package 3, PE18148	

3.5. CHAPTER 19 GROUNDWATER (APP-134)

Table 15 - Chapter 19 Groundwater Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Desk-based study incorporating reference to WFD Catchments, groundwater flood susceptibility, and Online mapping sources	Date Accessed: 2019	EA Catchment Data Explorer – Water Framework Directive Data [Online]	Desk study undertaken to inform groundwater baseline assessment.
		EA Groundwater Flood Susceptibility Map [Online]	
		Ordnance Survey – GOV.UK [Online]	
		MAGIC website [Online]	
		British Geological Survey GeoIndex Database, Geoviewer and Karst hydrogeology of the Bedhampton and Havant springs [Online]	
EA data on groundwater including aquifer type, aquifer vulnerability, SPZs, and groundwater level monitoring data (long term discrete manual spot dips)	The time series for groundwater level monitoring records span between 1967 and 2018	Environment Agency	Determination of the baseline groundwater levels and to inform the assessment of any groundwater interceptions within the Order Limits.
PCC continuous groundwater level monitoring	The groundwater level data reflects groundwater levels for summer and winter months between 2015 and 2018 within the superficial deposits predominantly.	Portsmouth City Council	
WSP continuous groundwater level monitoring and WSP groundwater quality sampling	Groundwater level monitoring: 27-28 November 2018 to 29 May 2019; Groundwater quality sampling during Phase 2 Ground Investigations: July – October 2018	AQUIND – UK Converter Station Ground Investigation – Geotechnical Interpretative Design Development Report, prepared by WSP dated May 2019; and AQUIND – UK Route, HDD and Landfall Ground Investigation – Geotechnical Interpretative Design Development Report, prepared by WSP dated May 2019.	

Data/Organisation	Date	Data Type/Source	Data Use /Details
EA data on licensed/unlicensed abstractions and consented discharges	13 March 2017	Landmark Information Group Envirocheck Reports (Ref: 121347347_1_1 and 121347331_1_1)	Determination of private water supply and licensed groundwater abstractions within the search area.
Initial Ground Investigation data, Milton Common	October 2018	WSP, Initial Ground Investigation Findings, Milton Common, October 2018	Determination of baseline conditions at Milton Common.
Site Walkover	WSP site walkover surveys completed December 2018 and July 2019	WSP	Site walkover undertaken to inform groundwater baseline assessment.

3.6. CHAPTER 20 SURFACE WATER RESOURCES AND FLOOD RISK (APP-135)

Table 16 - Chapter 20 Surface Water Resources and Flood Risk Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Desk-based study incorporating reference to Online Mapping sources	Date Accessed: October 2019	Ordnance Survey – GOV.UK [Online]	Determination of surface water and flood risk baseline conditions
		British Geological Survey [Online]	
		MAGIC website [Online]	
		Environment Agency and GOV.UK Flood Map for Planning [Online]	
		Environment Agency and GOV.UK Long term flood risk information [Online]	
	Environment Agency Catchment Data Explorer [Online]		
	December 2018	Environment Agency Water Abstractions (December 2018)	
Local Planning Authority and Lead Local Flood Authority flood strategic flood risk studies including:			
Strategic FRA;	October 2018 December 2007	East Hampshire District Council Strategic Flood Risk Assessment – October 2018	

Data/Organisation	Date	Data Type/Source	Data Use /Details
		Partnership for Urban South Hampshire Strategic Flood Risk Assessment – December 2007 (with 2016 updates)	Strategic Flood Risk studies provide key information to incorporate into the baseline assessment.
Surface Water Management Plan;	August 2012	Hampshire Surface Water Management Plans – August 2012	
Local Flood Risk Management Strategy; and	July 2013	Hampshire County Council’s Local Flood Risk Management Strategy July 2013	
Groundwater Management Plan.	March 2015	Portsmouth City Council’s Local Flood Risk Management Strategy March 2015	
Site Visits/Walkovers	March 2018 July 2019	WSP	Site walkovers undertaken to inform surface water resources and flood risk baseline assessment.

3.7. CHAPTER 21 HERITAGE AND ARCHAEOLOGY (APP-136)

Table 17 - Chapter 21 Heritage and Archaeology Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
National Heritage List for England (‘NHLE’) with information on statutorily Designated Heritage Assets	September 2019	Historic England, The National Heritage List for England [Online]	To identify Statutory designations (scheduled monuments; statutorily listed buildings; registered parks and gardens; historic battlefields).
Historic Environment Record (‘HER’)	Refreshed search carried out in July 2019	PCC, WCC and HCC	Primary repository of archaeological information. Includes information from past investigations, local knowledge, find spots, and documentary and cartographic sources.
National Record of the Historic Environment (‘NRHE’)	Accessed during baseline assessment, 2018, historic data set is not updated	Historic England, National Record of the Historic Environment [Online]	National database maintained by HE. Not as comprehensive as the HER but can occasionally contain additional information. Accessible via pastscape website. This was consulted for the Order Limits and its immediate vicinity only.
Archaeological Alert Areas	July 2019	Hampshire County Council Archaeological Alert Areas (‘AAA’s).	Areas marked out as having potential archaeological interest, managed by the LPA to flag potential sites. WCC do not hold an equivalent dataset.

Data/Organisation	Date	Data Type/Source	Data Use /Details
Local Heritage Assets	July 2019	LPA	Heritage asset identified by the authority which are of local importance due to their architectural and/or historic significance and make a positive contribution to the character of an area. Whilst not statutorily protected, a building's inclusion on the list means that it is a material consideration in the planning process.
Solid and drift geology digital map; online BGS geological borehole record data.	September 2019	British Geological Survey ('BGS')	Subsurface deposition, including buried geology and topography, can provide an indication of potential for early human settlement, and potential depth of archaeological remains.
Ordnance Survey maps from the 1st edition (1860–70s) to present day, and Goad fire insurance maps from the 19th century onwards	Refreshed mapping obtained September 2019	Landmark Information Group	Provides a good indication of past land use and impacts which may have compromised archaeological survival. Provides an indication of the possible date of any buildings within the Order Limits. Goad maps can indicate the presence of basements if these were surveyed.
Historic maps (e.g. Tithe, enclosure, estate), published journals and local history	Accessed during baseline assessment, April 2018	Hampshire Record Office	Baseline information on the Historic Environment
Web-published local history	Accessed 2018-19 (various sources)	Archaeological Data Service, British History Online	Many key documentary sources, such as the Victoria County History, and local and specialist studies are now published on the web and can be used to inform the archaeological and historical background. The Archaeological Data Service includes an archive of digital fieldwork reports.
Environmental Impact Assessment Lovedean Substation	2010 and 2013	AECOM	An Environmental Impact Assessment (2010) and Written Scheme of Investigation (2013) was carried out by AECOM in advance of works which took place at Lovedean substation.
Ecology (Historic Hedgerows and Ancient Woodland); Landscape and Visual ('ZTV') Ground Investigation Project acquired geotechnical data Topographical survey data	2018-2019	WSP ES Chapter 16 (Onshore Ecology) (APP-131); ES Chapter 15 (Landscape and Visual Amenity) (APP-130); and ES Appendix 18.1 PRA and GQRA.	The information can be very useful in enhancing understanding of the nature and depth of natural geology (see above) and any made ground, whether it is modern or of potential archaeological interest. Topographical survey data Survey data can provide an indication of the impact of past land use, e.g. ground raising or lowering, which is useful for understanding possible truncation and likely depth of archaeological remains.

Data/Organisation	Date	Data Type/Source	Data Use /Details
Geophysical Survey	April - May and August 2019	Wessex Archaeology, 2019 ES Appendix 21.3 Geophysical Survey Report (APP-443)	Geophysical Survey data is used to determine, as far as is reasonably possible, the nature of the detectable archaeological resource to inform suitable mitigation strategy for archaeological remains.
Marine Archaeology Technical Report	February 2019	Wessex Archaeology, 2019 ES Appendix 14.2 Marine Archaeological Technical Report (APP-396)	Information on the nature, extent and significance of potential archaeological features at the adjacent marine section of the route (i.e. seabed prehistory or maritime sites).
Site Visits/Walkovers	May 2018, April 2019 and August 2019	WSP	Site walkover undertaken to inform baseline assessment.
Archaeological Monitoring of Geotechnical Investigations	April - May 2018	WSP	Determination of baseline conditions.

3.8. CHAPTER 22 TRAFFIC AND TRANSPORT (APP-137)

Table 18 - Chapter 22 Traffic and Transport Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Traffic surveys (Automatic Traffic Count)	June 2018, and July and September 2019	WSP	Determination of traffic and transport baseline conditions
Traffic surveys (Manual Classified Count)	July and September 2019	WSP	
Site Visits/Walkovers	May 2018 - October 2019	WSP	
Solent Sub-Regional Transport Model	2015	The model is operated by the Systra consultancy under contract to Solent Transport.	Model for traffic impacts resulting from the Proposed Development.

3.9. CHAPTER 23 AIR QUALITY (APP-138)

Table 19 - Chapter 23 Air Quality Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Background air quality from the Defra Background air quality archive	2017	Department for Environment, Food and Rural Affairs, 2019. Background Mapping data for local authorities - 2017. [Online]	Determination of the air quality baseline conditions.
Air quality monitoring data collected by Portsmouth City Council and Havant Borough Council	2018	2019 Annual Status Report Portsmouth City Council (2019) 2018 Annual Status Report Havant Borough Council (2018)	
Local Air Quality Management (LAQM) reports from Portsmouth City Council, Havant Borough Council, East Hampshire District Council and Winchester City Council	2018	2019 Annual Status Report Portsmouth City Council (2019) 2018 Annual Status Report Havant Borough Council (2018) 2018 Annual Status Report East Hampshire District Council (2018) 2019 Annual Status Report Winchester City Council (2019)	
British Geological Society 1 km Soil Parent Material spatial dataset as part of the construction dust assessment	2019	British Geological Society, 2019. Soil Parent Material Model. [Online]	Determination of baseline conditions for the construction dust assessment.
Natural England ecologically designated area spatial datasets for Ramsar Sites, SPA, SAC, SSSI, LNR and National Parks	2019	Natural England, 2019. Natural England Open Data Geoportal. [Online]	Determination of ecological receptors within proximity of the Proposed Development.
OS AddressBase Plus	Date Accessed: 2019	Ordnance Survey – GOV.UK [Online]	Development of baseline maps to understand baseline conditions.
OS Mastermap Topography	Date Accessed: 2019	Ordnance Survey – GOV.UK [Online]	
Solent Sub-Regional Transport Model, which is a multi-modal strategic transport model for Hampshire, the Isle of Wight and Portsmouth	2015	The model is operated by the Systra consultancy under contract to Solent Transport.	Model for traffic impacts resulting from the Proposed Development.

3.10. CHAPTER 24 NOISE AND VIBRATION (APP-139)

Table 20 - Chapter 24 Noise and Vibration Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Baseline Noise Survey (Converter Station)	June – July 2017	WSP	Determination of baseline conditions to inform noise criteria for the assessment.
Baseline Noise Survey (Landfall)	August 2019	WSP	

3.11. CHAPTER 25 SOCIO ECONOMICS (APP-140)

Table 21 - Chapter 25 Socio-economics Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Population and demographic data	2011	Office for National Statistics ('ONS') Population and demographic data from Census information (2011)	Determination of socio-economic baseline conditions
Recreation, Leisure, Open Space	2014, 2017	Open space, sports and recreation facilities, public rights of way and local green space (Gov.UK, March 2014) South Hampshire Green Infrastructure Strategy (2017 – 2034) (Partnership for Urban South Hampshire, 2017) East Hampshire District Council. (2018). Open Space Assessment for East Hampshire District Council. Havant Borough Council. (2018). Open Space Strategy. Portsmouth City Council. (2012-2022). Parks and Open Spaces Strategy. Portsmouth City Council. (2018). Draft Portsmouth City Council Playing Pitch Strategy 2018-2034. Winchester City Council. (2015). Open Space Strategy.	
	Date Accessed: 2018 - 2019	Data.Gov.UK Public Rights of Way ('PRoW') Portsmouth City Council – Public Rights of Way – last updated 21 April 2015 Hampshire Public Rights of Way – last updated 31 May 2012 Hampshire Long Distance Routes – last updated 8 August 2013 Local Authority PRoW mapping:	

Data/Organisation	Date	Data Type/Source	Data Use /Details
		<p>Portsmouth City Council Website – Public rights of way – downloadable maps [Online]</p> <p>Hampshire County Council – Map of Public Rights of Way [Online]</p>	
Community Facilities, and Residences and Local Businesses	2017, 2019	<p>Google Maps [Online] (2019)</p> <p>ONS Business Register and Employment Survey ('BRES') (2017)</p>	
Tourism	2019	<p>Official Visitor Guide 2019 [Online] (Portsmouth City Council, 2019)</p> <p>Portsmouth City Council. (2015). PCC Visitor Marketing Strategy.</p>	
LPA Strategies	2013 - 2019	<p>East Hampshire District Council. (2014). easthants.gov.uk. Retrieved from East Hampshire District Local Plan:</p> <p>Hampshire County Council. (2017). Hampshire County Council Strategic Plan.</p> <p>Havant Borough Council. (2011, March). Retrieved from Havant Borough Core Strategy</p> <p>Portsmouth City Council. (2012). The Portsmouth Plan.</p> <p>South Downs National Park Authority. (2019). South Downs Local Plan.</p> <p>Winchester City Council. (2013, March). Winchester District Local Plan.</p>	

3.12. CHAPTER 26 HUMAN HEALTH (APP-141)

Table 22 - Chapter 26 Human Health Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Public Health	2019	PHE Public Health Outcomes Framework (2019)	Determination of the human health profile: Baseline population health data.
Local Authority Health Profiles	2018	PHE Local Authority Health Profiles (2018)	Determination of the human health profile.

Data/Organisation	Date	Data Type/Source	Data Use /Details
National Statistics database	2011, 2018, 2019	Office for National Statistics ('ONS') database (accessed via Nomis): ONS. (2011). Nomis, KS501EW - Qualifications and students. ONS. (2011). Nomis, QS601EW - Economic activity. ONS. (2011). Nomis, QS601EW - Economic activity. ONS. (2011). KS102UK - Age Structure. ONS. (2011). QS102ES - Population density. ONS (2018, May 24) Subnational Population projections for England – 2016-based. ONS. (2019). Nomis, annual population survey ONS. (2019, June 26). Local Authority Profile: Labour Market Profile.	Determination of the human health profile: Population estimates
Statistics on relative deprivation in small areas in England	2019	Ministry of Housing, Communities and Local Government English indices of deprivation 2019	Determination of the human health profile: Indices of Multiple Deprivation
Local authority policies and reports, including Local Plans	2006, 2013 and 2014	East Hampshire District Council Local Plan: Second review (2006) East Hampshire District Local Plan: Joint Core Strategy (2014) Portsmouth City Local Plan 2001-2011 (2006) Winchester District Local Plan (2013)	Determination of the human health profile: Strategic Development
Joint Strategic Needs Assessment ('JSNA') prepared by Health and Wellbeing Boards, including PCC and HCC JSNA;	Date Accessed: 2017	Hampshire County Council, Joint Strategic Needs Assessment	Determination of the human health profile: assessment of the health and wellbeing needs of the local community
Publicly available GIS and mapping information	Date Accessed: 2019	Ordnance Survey – GOV.UK [Online]	Development of baseline maps to understand baseline conditions.

3.13. CHAPTER 27 WASTE AND MATERIAL RESOURCES (APP-142)

Table 23 - Chapter 27 Waste and Material Resources Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Monthly statistics of Building Materials and Components	2019	Department for Business, Energy & Industrial Strategy, 2019	Baseline data collected via desktop study to identify the current consumption of material resources, generation of arising and generation and disposal of waste to landfill.
South East England Aggregates	2018	South East England Aggregates Monitoring report 2017 (South East England Aggregate Working Party, 2018);	
Mineral Products, UK	2018	Profile of the UK Mineral Products Industry (Mineral Products Association, 2018);	
UK Steel	2018	UK Steel Industry: Statistics and Policy (House of Commons Library, 2018);	
London Aggregates	2017	London Aggregates Monitoring Report 2017 (London Aggregates Working Party, 2017);	
UK Plastics Industry	2017	The UK Plastics Industry at A Glance (British Plastics Federation, 2017);	
Unwrought Copper Consumption, UK	2016	Approximate unwrought copper consumption volume in the United Kingdom (UK) from 2009 to 2014 (Statista, 2016);	
Minerals and Waste, Hampshire	2013	The Hampshire Minerals and Waste Local Plan Policies Map (Hampshire Authorities, 2013); and	
National and Regional Guidelines for Aggregates Provision in England	2009	National and Regional Guidelines for Aggregates Provision in England 2005 – 2020 (Department for Communities and Local Government, 2009).	
Waste Statistics, UK	2019	ENV23 - UK Statistics on Waste (Defra, 2019);	

Data/Organisation	Date	Data Type/Source	Data Use /Details
Waste Management Data, England	2018	Waste Management data for England (Environment Agency, 2018);	
Waste Data Interrogator 2017	2017	Waste Data Interrogator 2017 (Environment Agency, 2018);	
Remaining Landfill Capacity	2018	Remaining Landfill Capacity (Environment Agency, 2018); and	
Minerals and Waste Local Plan Policies Map, Hampshire	2013	The Hampshire Minerals and Waste Local Plan Policies Map (Hampshire Authorities, 2013)	

3.14. CHAPTER 28 CARBON AND CLIMATE CHANGE (APP-143)

Table 24 - Chapter 28 Carbon and Climate Change Baseline Data Sources

Data/Organisation	Date	Data Type/Source	Data Use /Details
Activity data	2019	WSP ES Appendix 27.2 (Waste and Material Assumptions and Limitations) (APP-478)	Activity data was sourced from the design team as part of the exercise to quantify emissions in order to understand the likely magnitude of Greenhouse Gas ('GHG') emissions in comparison to the baseline scenario.
Emissions factor data	2019	The Department for Business Energy and Industrial Strategy ('BEIS') 2019 emission factors (BEIS 2019) and Inventory of Carbon and Energy v39.	Emissions factor data was collected from publicly available sources as part of the exercise to quantify emissions.
Climate Conditions	2017	Met Office regional climate profile for South East England	Determination of meteorological conditions as a baseline.

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 Accessed at: <https://data.gov.uk/dataset/11d9b2bb-32f2-4f86-8243-759b187dabde/hampshire-long-distance-routes>

GOV.UK (2015) Portsmouth City Council – Public Rights of Way – last updated 21 April 2015
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Hampshire County Council (2012) Hampshire Surface Water Management Plans – August 2012

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Hampshire County Council (2019) Hampshire County Council – Map of Public Rights of Way [Online] Accessed at:
<https://maps.hants.gov.uk/rightsofwaydefinitivemap/>

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