FOREWIND

DOGGER BANK
TEESSIDE A & B

March
2014

Environmental Statement
Chapter 26
Land Use and Agriculture

Application Reference: 6.26

Cover photograph: Indicative image showing installation of meteorological mast within the Dogger Bank Zone

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Drafted by		John Bevan	
Checked by		Alison Hallas	
Date / initials check			24 January 2014
Approved by		Amy Harrower	
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Forewind Approval		Mark Thomas	
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Prepared by: John Bevan	Checked by: Amy Harrower	
Approved by: Amy Harrower	Signature / Approval meeting 	Approval Date: 31 January 2014

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1.1 Background

1.1.1 This chapter of the Environmental Statement (ES) assesses the potential impact of Dogger Bank Teesside A & B on the existing onshore environment with regard to land use and agriculture. The purpose of this chapter is to provide a high level characterisation of the existing conditions within the study area, assess the potential impact of the onshore infrastructure, including buried cable systems and converter stations, and propose mitigation measures where necessary to avoid, reduce or minimise potential impacts. This chapter does not characterise soils, drainage and land use for individual fields.

1.1.2 It should be noted that the project also has the potential to impact land uses discussed in other chapters within the ES. These are covered as follows and referenced, within this chapter, where relevant:

- Tourism and recreational land uses (covered in **Chapter 23 Tourism and Recreation**);
- Land quality and water resources (covered in **Chapter 24 Geology, Water Resources and Land Quality**);
- Nature conservation sites and land with ecological interest (covered in **Chapter 25 Terrestrial Ecology**);
- Roads and access (covered in **Chapter 28 Traffic and Access**); and
- The socio-economic impact of the project (covered in **Chapter 22 Socio-economics**).

2 Guidance and Consultation

2.1 Policy

National Policy Statements

2.1.1 The assessment of potential impacts upon land use and agriculture has been made with specific reference to the relevant National Policy Statements (NPS). These are the principal decision making documents for Nationally Significant Infrastructure Projects (NSIP). Those relevant to Dogger Bank Teesside A & B are:

- Overarching NPS for Energy (EN-1) (DECC 2011a);
- NPS for Renewable Energy Infrastructure (EN-3) (DECC 2011b); and
- NPS for Electricity Networks Infrastructure (EN-5) (DECC 2011c).

2.1.2 The specific assessment requirements for land use and agriculture, as detailed in the NPSs, are summarised in **Table 2.1**, together with an indication of the paragraph numbers of the ES chapter where each is addressed. Where any part of the NPS has not been followed within the assessment, an explanation as to why the requirement was not deemed relevant, or has been met in another manner, is provided.

Table 2.1 NPS assessment requirements

NPS Requirement	NPS Reference	ES Reference
The ES should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan.	EN-1 Section 5.10.5	Section 4 and 7
During any pre-application discussions with the applicant the Local Planning Authority should identify any concerns it has about the impacts of the application on land use, having regard to the development plan and relevant applications and including, where relevant, whether it agrees with any independent assessment that the land is surplus to requirements.	EN-1 Section 5.10.7	Section 2.3
Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification (ALC) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed. For developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination.	EN-1 Section 5.10.8	Section 6.3, 6.5 and 6.6

NPS Requirement	NPS Reference	ES Reference
The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances. Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and if it is, whether their proposal may be inappropriate development within the meaning of Green Belt policy.	EN-1 Section 5.10.10	No areas of Green Belt have been identified within the study area
An applicant may be able to demonstrate that a particular type of energy infrastructure, such as an underground pipeline, which, in Green Belt policy terms, may be considered as an "engineering operation" rather than a building, is not in the circumstances of the application inappropriate development. It may also be possible for an applicant to show that the physical characteristics of a proposed overhead line development or wind farm are such that it has no adverse effects which conflict with the fundamental purposes of Green Belt designation.	EN-1 Section 5.10.12	No areas of Green Belt have been identified within the study area
Ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. It should give little weight to the loss of poorer quality agricultural land (in grades 3b, 4 and 5)	EN-1 Section 5.10.15	Section 6.3 and 7.3

Local planning policy

2.1.3 EN-1 states at paragraph 4.1.5 that:

"Other matters that the Infrastructure Planning Commission (IPC) may consider important and relevant to its decision-making may include Development Plan Documents or other documents in the Local Development Framework. In the event of a conflict between these or any other documents and an NPS, the NPS prevails for the purposes of IPC decision making given the national significance of the infrastructure."

2.1.4 **Table 2.2** provides details of the local planning policy documents and the policies contained within these relevant to land use and agriculture. Where these policies relate to a designated area they are also shown on **Figure 4.3**.

Table 2.2 Relevant local planning policies

Document	Policy / Guidance	Policy / Guidance Purpose
Redcar & Cleveland Local Development Framework – Core Strategy Development Plan Document (July 2007)	CS9	Protecting existing employment areas. Land and buildings within existing business parks and industrial estates will continue to be developed and safeguarded for business and general industry. The type of uses encouraged will depend on the Council's strategy for the area.
	CS10	The continued development and expansion of the chemical, steel and port industries will be supported. A total of 230 hectares of land will be safeguarded for chemical and steel manufacturing industries in line with the RSS: a) at Wilton International for chemical related activities; b) at Corus Steel Works in South Tees, Redcar and Skinningrove for steel related activities; and c) along the River Tees for port related development and where it is required for future improvements to the capacity of the freight rail line, road network and terminal associated with the port.
	CS11	Proposals will be supported that strengthen the development of the Borough as a centre for energy and recycling industries. Such development will be centred at Wilton International and the wider South Tees area.
	CS21	Renewable energy schemes will be supported and encouraged where they help to meet the Government's climate change objectives and the Tees Valley sub-regional target for electricity generation from renewable sources set out in the RSS.
	CS23	The following green areas will be protected and, where appropriate, enhanced to improve their quality, value, multi-functionality and accessibility: a) strategic gaps between Marske and New Marske; Marske and Saltburn; b) the green wedges in the conurbation: i. the open area between Marske and Redcar; ii. the open area between Wilton Works and Redcar, extending north to the coast; iii. west of the A1053, Greystones Road, between Grangetown and Wilton; iv. the Spencer Beck Valley between East Middlesbrough and Eston, and Ormesby and Normanby; v. the Hambleton Hill area between Nunthorpe and Ormesby;
	CS24	The Borough's biodiversity and geological resource will be protected and enhanced.
	CS25	Development proposals will be expected to contribute positively to the character of the built and historic environment of the Borough. The character of the built and historic environment will be protected, preserved or enhanced.
Redcar & Cleveland Local Development Framework – Development Policies DPD (July 2007)	DP1	Within development limits, development will generally be acceptable where it accords with site allocations and designations in the Local Development Framework. Development beyond development limits will be restricted to: a) housing essential for farming, forestry or the operation of a rural based enterprise; or b) housing meeting the rural exceptions policy; or c) an appropriate diversification of an existing agricultural or forestry activity; or d) a recreation or tourism proposal requiring a countryside location; or e) facilities essential to social and community needs; or

Document	Policy / Guidance	Policy / Guidance Purpose
		f) the replacement of an existing dwelling; or g) a suitably scaled extension to an existing building; or h) the conversion or reuse of a suitable existing building; or i) other development requiring a countryside location due to technical or operational reasons.
	DP13	A proposal that would involve the loss of public or private recreation or amenity open space will not be permitted unless: a) there is a proven excess of such provision and the proposed loss will not result in a current or likely shortfall in the plan period; b) the loss of amenity open space would not harm the character of the surrounding area; c) recreational facilities within the open space will be enhanced by the proposed development on an appropriate portion of the open space; or d) the community would gain greater benefit from the developer providing a suitable alternative recreational or amenity open space nearby.
	DP17	Proposals for new rural enterprises that form part of a comprehensive farm diversification scheme will be permitted if: a) it is secondary to the main agricultural use of the farm; b) existing buildings are reused where possible but where new buildings are necessary, these are well-related to existing buildings; c) the character, scale and design of the proposal is appropriate to its rural surroundings; and d) it is satisfactorily accessed from the road network.

2.2 Other legislation, standards and guidance

2.2.1 Whilst there are no specific pieces of legislation that cover land use and agriculture in a holistic manner, the following pieces of UK legislation are relevant to this chapter:

- The Environmental Stewardship (England) Regulations 2005;
- The Commons Act 2006;
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Marine and Coastal Access Act 2009;
- The Wildlife and Countryside Act 1981 (as amended); and
- Natural Environment White Paper 2011.

2.2.2 There is no specific guidance on assessing the impact of projects on land use and agriculture; however a methodology has been developed for this assessment based on the following sources:

- Highways Agency (2001) Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 6 (Land Use);
- Highways Agency (2009) Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 11 (Geology & Soils);

- Ministry of Agriculture, Fisheries and Food (MAFF) (1988) Agricultural Land Classification of England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land (Revised Guidelines);
- Morris and Therivel (2009) Methods of Environmental Impact Assessment, Chapter 9: Soils, Geology and Geomorphology; and
- Scottish National Heritage (2012) Environmental Assessment Handbook, Appendix 4: Assessment of Impacts on Soil.

2.2.3 In addition to the sources of guidance outlined above there are a number of documents that provide best practice guidance on soil handling and construction management. These offer guidance on methods to reduce the impact on soils and land use, particularly during construction. They are:

- Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites;
- Defra (1996) Waste Management Duty of Care – A Code of Practice;
- MAFF (2000) Good Practice Guide for Handling Soils;
- MAFF (1991) Practical Guide to Preventing the Spread of Plant and Animal Diseases;
- Environment Agency (2010) Managing Invasive Non-native Plants;
- Natural England (2012c) Agricultural Land Classification: Protecting the Best and Most Versatile Agricultural Land; and
- Defra (2003) Biosecurity Guidance to Prevent the Spread of Animal Diseases.

2.3 Consultation

2.3.1 To inform the ES, Forewind has undertaken a thorough pre-application consultation process, including the following key stages:

- Scoping Report submitted to the Planning Inspectorate (May 2012);
- Scoping Opinion received from the Planning Inspectorate (June 2012);
- First stage of statutory consultation (in accordance with sections 42 and 47 of the Planning Act 2008) on Preliminary Environmental Information (PEI) 1 (report published May 2012); and
- Second stage of statutory consultation (in accordance with sections 42, 47 and 48 of the Planning Act 2008) on the ES (published November 2013) designed to allow for comments before final application to the Planning Inspectorate).

2.3.2 In addition, consultation associated with the Dogger Bank Creyke Beck application (Forewind August 2013) has been taken into account for Dogger Bank Teesside A & B where appropriate.

2.3.3 In between the statutory consultation periods, Forewind consulted specific groups of stakeholders on a non-statutory basis to ensure that they had an opportunity to inform and influence the development proposals. Consultation

undertaken throughout the pre-application development phase has informed Forewind's design decision making and the information presented in this application. Further information on the consultation process is presented in **Chapter 7 Consultation**. A Consultation Report is also provided alongside this ES as part of the overall planning submission.

2.3.4 A summary of the consultation carried out at key stages throughout the project, of particular relevance to Land Use and Agriculture, is presented in **Table 2.3**. This table includes the key items of consultation that have defined the assessment. Parallel to the consultation with the main organisations, Forewind is also negotiating private treaty agreements with landowners and consulted with utilities during all those stages. A full explanation of how the consultation process has shaped the ES, as well as tables of all responses received during the statutory consultation periods, is provided in the Consultation Report.

Table 2.3 Summary of consultation and issues raised by consultees

Date	Consultee	Summary of issue	ES Reference
June 2012 (Scoping Opinion, Statutory)	Planning Inspectorate	Consideration should be given towards the gas and electricity pipelines buried onshore and the potential restrictions this may place on the location of the onshore cables. The relevant gas pipeline operatives, Northern Gas Networks and SABIC, and the National Grid should be consulted (see the HSE response, Appendix 2). The Secretary of State advises that this section considers the interrelationship with ecology, in particular the impacts from the removal of grassland, trees and hedgerows ecological habitats. Appropriate reference should also be made to the socio-economic assessment in the ES.	Section 9 and Section 4.2
June 2012 (Scoping Opinion, Statutory)	National Grid	National Grid would ask that the location of their transmission infrastructure and any potential impact of the proposed project on their infrastructure are taken into account in the Environmental Assessment and as part of any subsequent Development Consent Order application, including the Environmental Statement.	Section 4.2
January 2013 (Non statutory)	Redcar and Cleveland Borough Council (RCBC)	No adverse comments to make with regard to the content of the letter sent regarding methodology and scope for the assessment. Unfortunately the local authority does not have an expert in this field and this is something we are seeking to address prior to the formal consultation on the application. In light of no objection from Natural England they would advise that the Local authority has no objection to the proposed methodology as set out in the documentation.	N/A
January 2013 (Non statutory)	Natural England	Natural England supports the proposed assessment methodology and they are pleased to note the consideration of agricultural land classification (ALC). Information on ALC can be obtained from www.magic.gov.uk. Natural	Section 2.2

Date	Consultee	Summary of issue	ES Reference
		England Technical Information Note 049 - also contains useful background information.	
January 2013 (Non statutory)	Natural England	The Environmental Statement should provide details of how any adverse impacts on soils can be minimised. Further guidance is contained in the Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites.	Section 6.5
September 2013 (Non statutory)	Natural England	Natural England are pleased to note soil handling and storage will be carried out in accordance with correct code of Practice, and given the summary mitigation measures set out, onshore aspects of the project will not have an unacceptable impact on the soil and agricultural land resource.	N/A

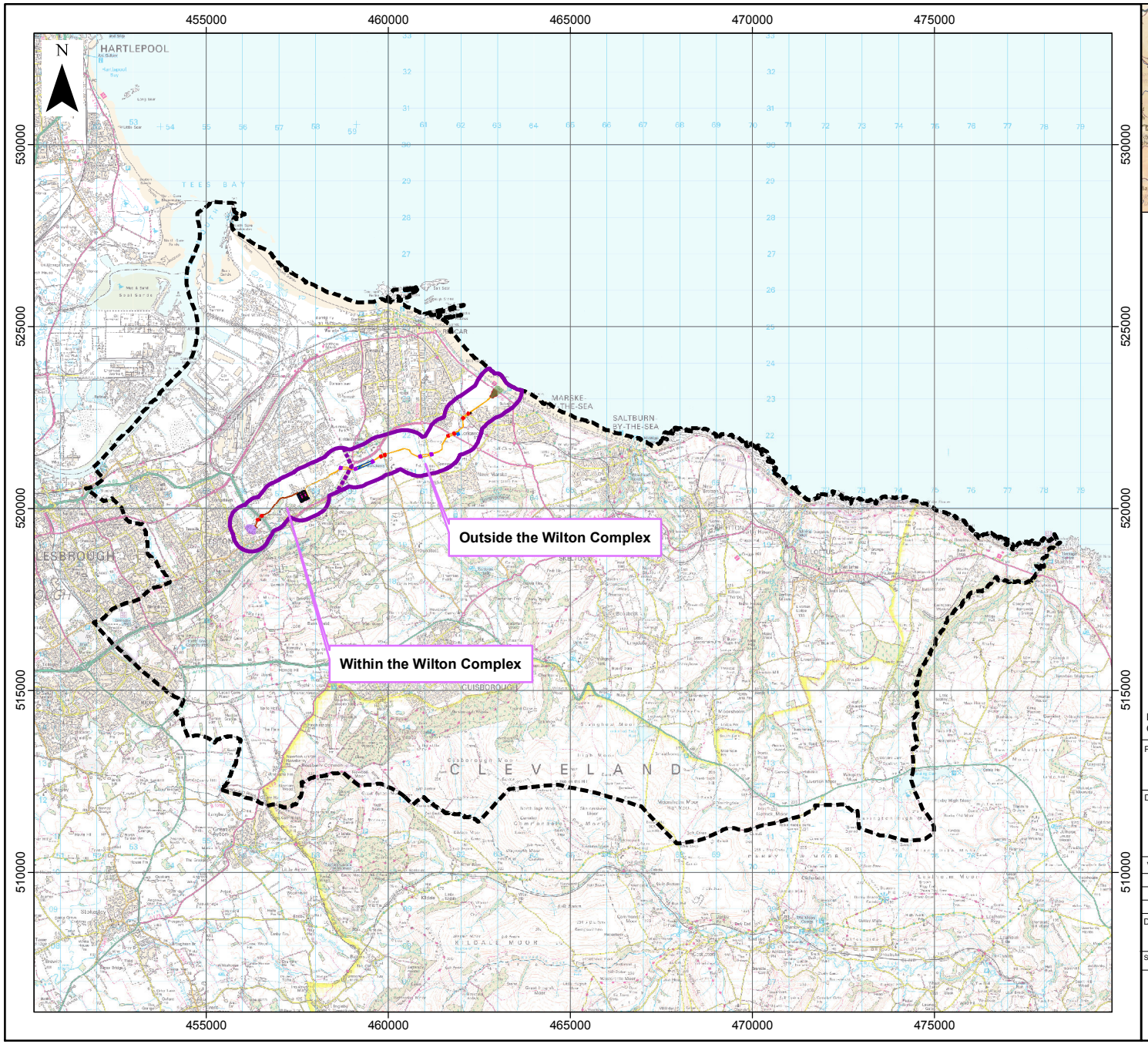
3 Methodology

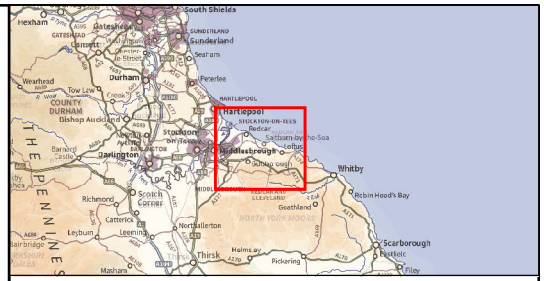
3.1 Study area

3.1.1 For the purpose of this assessment, and to aid the baseline descriptions, two study areas have been defined to assess the direct and indirect impacts associated with the project. These are shown in **Figure 3.1**, they are:

- Direct Impacts Study Area – This is an area encompassing the entire onshore Dogger Bank Teesside A & B development footprint (including High Voltage Direct Current (HVDC) and High Voltage Alternating Current (HVAC) cable routes, converter stations and temporary construction compounds) and an indicative 500m buffer around this. It has been selected as it is considered to be the largest area over which direct impacts (e.g. soil degradation) will be experienced based on professional judgement; and
- Redcar and Cleveland Borough Study Area – This is the study area for indirect impacts. This incorporates the entire Borough of Redcar and Cleveland. This has been selected as this is the spatial level at which local plan policy is made and development objectives applicable as the Local Planning Authority. It should be noted that South Teesside and the North East are also used to describe the baseline environment. This is due to the way that Defra reports on regional units in the June Survey of Agricultural and Horticultural Activity (Defra 2011). This data is not available for the Redcar and Cleveland Borough Study Area.

3.1.2 In order to facilitate the connection into the existing National Grid Electricity Transmission (NGET) substation at Lackenby, National Grid will need to undertake some enabling works. The works will not involve any other impacts outside the footprint of NGET's existing substation land ownership. Therefore no additional potential impacts arising from the enabling works will require consideration and the study area remains the same.





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- Indirect Impacts Study Area - Redcar and Cleveland
- Direct Impacts Study Area - 500m
- Teesside A&B cable landfall
- Teesside A&B landfall construction
- Teesside A&B HVDC, Open
- Teesside A&B HVDC, HDD
- Teesside A&B HVAC, Open
- Teesside A&B HVAC, HDD
- Teesside A&B major horizontal directional drill entry or exit locations (2,000m²)
- Teesside A&B minor horizontal directional drill entry or exit locations (1,200m²)
- HDD or open trench to be confirmed
- Teesside A&B cable route primary construction compound
- Teesside A&B intermediate construction compound
- Teesside A&B converter stations
- Teesside A&B converter stations construction compounds (10,000m² per project)
- Lackenby 400kV substation
- Direct Impacts Study Area - Wilton Complex

0 — 6

Kilometres

Data Source:
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PROJECT TITLE

DOGGER BANK TEESSIDE A & B

DRAWING TITLE

Figure 3.1: Study Areas

VER	DATE	REMARKS	Drawn	Checked
4	02/07/2013	Draft	SW	JB
5	30/08/2013	Submit for PEI3	SW	JB
6	27/01/2014	Pre-DCO submission review	SW	JB

DRAWING NUMBER: **F-ONL-MA-001**

SCALE	1:160,000	PLOT SIZE	A4	DATUM	OSGB36	PROJECTION	BNG

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3.2 Characterisation of existing environment – methodology

3.2.1 Characterisation of the existing environment has been informed through a desk based study of available data, and information obtained from the consultation process. The following sources of information have been used:

- Aerial photography;
- ALC Mapping from Natural England;
- British Geological Survey borehole logs;
- Cranfield University's Soilscapes Viewer;
- RCBC planning policy documents;
- Maps of Environmental Stewardship Schemes and other land management areas from Natural England;
- Current land use information collected from landowners and occupiers during the development process;
- Internet and RCBC searches for development proposals within the Direct Impacts Study Area;
- National Land Cover Mapping from the Centre for Ecology & Hydrology;
- National Soils Maps supplied by Cranfield University;
- Natural Environmental Research Council Soil Portal;
- Ordnance Survey (OS) 1:10,000 scale mapping; and
- Utilities data provided by Forewind.

3.2.2 A site walkover was also undertaken to verify the desk-based data collected and identify any other potential receptors or impacts on land use or agriculture. This was undertaken in January 2013. It included a walkover of the landfall location, DC cable route, converter stations site and AC cable route. It also included visits to locations within the Redcar and Cleveland Study Area more generally.

3.3 Assessment of impacts – methodology

Receptor sensitivity and impact magnitude

3.3.1 Following the characterisation of the existing environment, the impact of the cable systems and converter stations on land use and agriculture was assessed based on the following methodology, adapted from the DMRB (Highways Agency 2009). The generic assessment methodology employed throughout the ES is explained in detail in **Chapter 4 Environmental Impact Assessment Process**.

3.3.2 Two key groups of impacts have been identified for the purpose of defining receptor sensitivity and impact magnitude in this chapter:

- Land Use and Tenure: These are the potential impacts of the project on human beings, including landowners and occupiers, local communities and other land users; and

- Agricultural Productivity and Soil Resources: These are potential project impacts on the bio-physical elements of soils, the surrounding environment and the productivity of the land.

3.3.3 Whilst there are clear links between the two impact groups, the assessment of receptor sensitivity and magnitude of effect will differ. The potential impact on agricultural productivity and soil resources is a function of the sensitivity of the receptor, examples of which are shown in **Table 3.1** and the magnitude of effect, examples of which are shown in **Table 3.2**.

Table 3.1 Sensitivity of receptor

Sensitivity	Examples (land use)	Examples (agriculture and soils)
Very High	• Higher level environmental stewardship schemes, unique to the area and irreplaceable; • Land uses that are not possible elsewhere, cannot be adapted or replaced; and • Internationally designated planning policy areas.	• ALC Grade 1 land; • Farming practices with specific requirements; • Highly valued and unique soils for agriculture; • Highly vulnerable soils to structural damage and erosion; and • Unrecoverable or not adaptable to changes.
High	• Higher level environmental stewardship schemes, regionally scarce; • Land uses that are regionally scarce and cannot be adapted; and • Nationally designated planning policy areas.	• ALC Grade 2 land; • Non-irrigated annual cropping; • Highly valued soils for agriculture; and • Soil vulnerable to structural damage and erosion.
Medium	• Entry level environmental stewardship schemes; • Land uses that are regionally scarce; and • Local planning policy designated sites.	• ALC Grades 3a and 3b land; • Non-irrigated annual cropping; • Medium valued soils for agriculture; and • Seasonally susceptible to structural damage or erosion.
Low	• Areas of environmental management; • Land used for ordinary agriculture or horticulture; and • No designated planning policy areas.	• ALC Grade 4 land; • Arable or grassland; • Low valued soils for agriculture; and • Medium to course material, some resistance to structural damage the majority of the year.
Negligible	• No environmental stewardship schemes; and • No designated planning policy areas.	• ALC Grade 5 land; • Non-agricultural and urban, non-arable or grassland; • Low or no value soils for agriculture; and • Greater resistance to soil structural damage.

Table 3.2 Magnitude of effect

Magnitude	Examples (land use)	Examples (soils and agriculture)
Very High	• Existing land use would not be able to continue on more than 20ha of land (or the entire landowner/ occupier's available land where smaller) or would render it unviable for agricultural purposes.	• Permanent loss of over 20ha of the best and most versatile agricultural land or total regional resource. (Defra; DMRB).
High	• Existing land use would not be able to continue on between 5ha and 20ha of land; and • Permanent changes to land management would be required.	• Medium to long term loss of more than 20ha of the best and most versatile agricultural land or more than 60% of the regional resource; • Full recovery of land would take more than 10 years; and • 20ha or more than 60% of the regional resource is permanently unsuitable for agriculture.
Medium	• Noticeable changes to the existing land use although it may continue.	• Temporary loss of more than 20ha, or permanent loss of more than 10ha of ALC grade 3 (a or b) and better agricultural land or more than 10% of the regional resource; • Full recovery of land is expected within 5 years; and • 20ha of soil is temporarily unsuitable for agriculture.
Low	• No impact on the long term land use.	• Temporary loss of any agricultural land, and soil unsuitable for agriculture.
Negligible	• No material change to land use of any duration has been identified.	• No material change to the soil resource has been identified.

Impact determination

3.3.4 Following the identification of receptor sensitivity and impact magnitude, it is possible to derive the overall impact following the criteria in **Table 3.3**.

Table 3.3 Impact statement resulting from a combination of receptor sensitivity and the magnitude of the effect

Receptor Sensitivity	Magnitude of Effect				
	Very High	High	Medium	Low	Negligible
Very High	Major	Major	Moderate	Minor	Negligible
High	Major	Moderate	Minor	Minor	Negligible
Medium	Moderate	Minor	Minor	Negligible	Negligible
Low	Minor	Minor	Negligible	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible	Negligible

3.3.5 Potential impacts identified as Major or Moderate can be regarded as significant in terms of Environmental Impact Assessment (EIA) and have been avoided or reduced through mitigation, where possible.

4 Existing Environment

4.1 Introduction

4.1.1 This section describes the existing environment in relation to land use and agriculture. It is based on a desk-top study of existing sources incorporating a walkover to confirm and provides the basis for the impact assessment. For ease of description the existing land use and agricultural environment has been divided in to five elements, which are:

- **Land Use**: A description of the land uses found within the study areas other than those associated with agriculture, including utilities;
- **Land Use Policies and Designations**: Provides a description of the land use policies and designations located within the study areas;
- **Soil Type**: A description of the soils found within the study areas is given, including type, geology, texture, moisture and climate;
- **Agricultural Land Classification**: A description of the grades of land found within the study areas and puts this in the context of the regional and national soil resource;
- **Agricultural Activities**: A description of the land cover where it is agricultural and details of crops currently being grown, where available; and
- **Environmental Stewardship Schemes**: A description of the schemes present within the study areas and the level of any such schemes.

4.1.2 Due to contrasting land use characteristics and to aid description, the baseline sections are divided where relevant in to the following two areas covering:

- HVDC Cable Corridor from the landfall up to the point it enters the Wilton Complex hereafter referred to as “Outside the Wilton Complex”; and
- HVDC Cable Corridor from the point it enters the Wilton Complex, Converter Stations, HVAC Cable Corridor and National Grid Substation at Lackenby hereafter referred to as “Within the Wilton Complex”.

4.1.3 These areas are shown on **Figure 3.1**.

4.2 Land use

4.2.1 This section provides a description of the land uses found within the direct impacts study area (other than those associated with agriculture), which includes utilities and residential areas. The data has been collated from a variety of existing sources including Ordnance Survey mapping, internet searches, discussions with landowners, information provided by Sembcorp Utilities (UK) Limited and utilities searches (see Section 3.2).

4.2.2 **Figure 4.1** shows, in combination with the Ordnance Survey mapping, the key land uses within the study areas. There are a number of areas with public

access. Public Rights of Way (PRoW) and Open Access land is discussed in **Chapter 23** along with any other land uses associated with tourism and recreation.

Outside the Wilton Complex

4.2.3 As shown in **Figure 4.1** this area is predominantly characterised by arable agriculture which is further described in Section 4.6. The corridor crosses one railway line (Middlesbrough to Saltburn), the A174 trunk road twice, and three minor roads within this area. The large residential areas of Redcar, Marske by the Sea and New Marske also lie within this area. In addition there is the smaller settlement of Yearby and individual agricultural properties. The coastline is characterised by a sandy beach and shallow cliffs. In addition to the above there are also allotments, sewage treatment works and sports pitch. Small areas of woodland exist to the south of the study area mainly enclosing areas of grassland used for recreation and the hills to the south of the Wilton Complex and small areas of woodland.

4.2.4 There are a large number of utilities as shown in **Figure 4.2**, these include, water, electricity and communications, both proposed and existing. The number crossed by the cable route is approximately 14.

Within the Wilton Complex

4.2.5 The Wilton Complex (approximately 750ha in total) is an industrial area managed by Sembcorp Utilities (UK) Limited. It encompasses a large area of chemical industry related buildings and equipment. It is a privately owned site and has an internal network of roads and facilities with small areas of woodland. Within this area is the Wilton Centre which is a large office block with associated landscaped areas. Sembcorp Utilities (UK) Limited are currently marketing available brownfield and greenfield sites, earmarked for potential development, within the Wilton Complex.

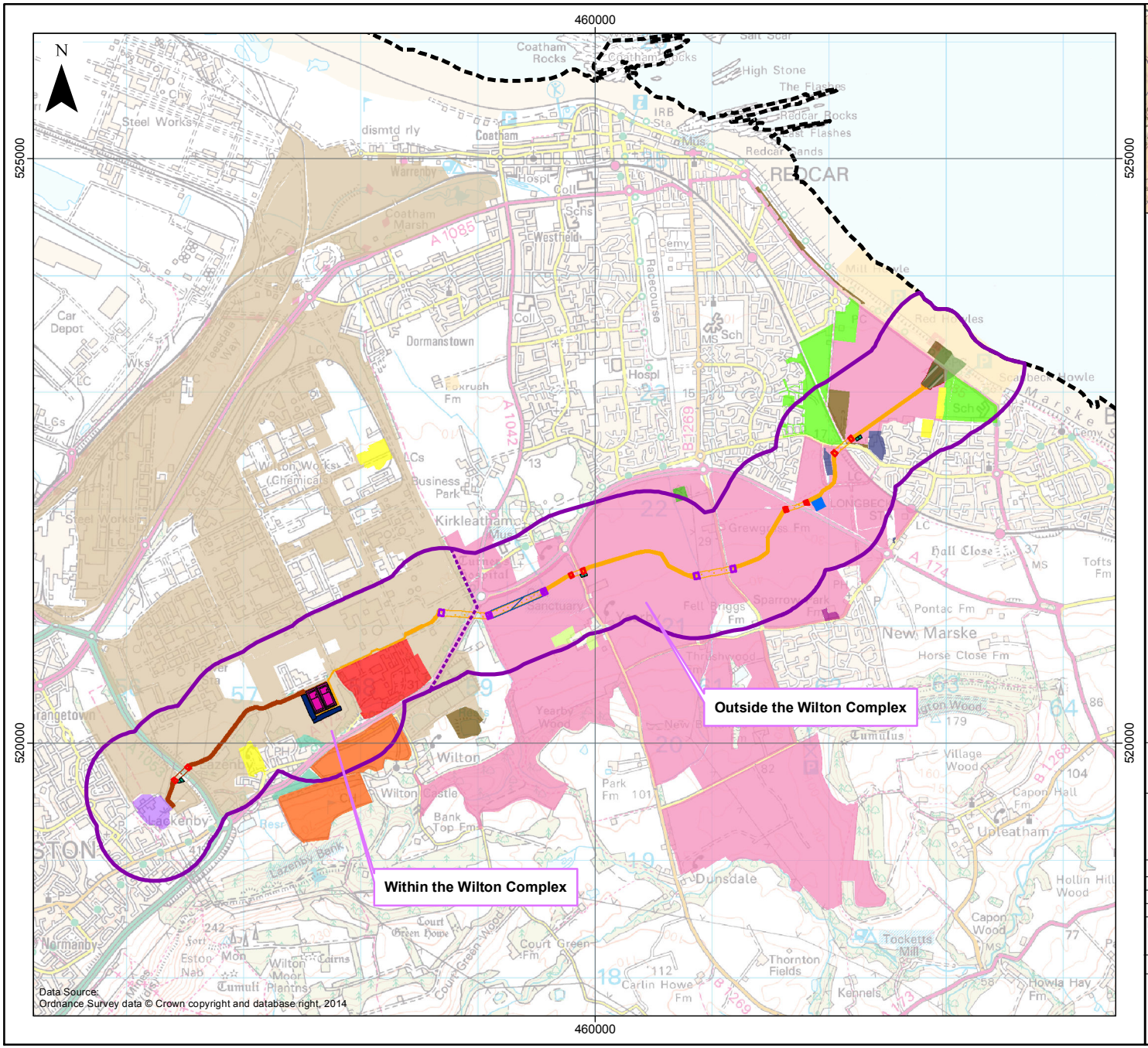
4.2.6 There are a large number of utilities of all types identified within the site that provide services to the various industrial units as shown in **Figure 4.2**. The number crossed by the cable route is approximately 52.

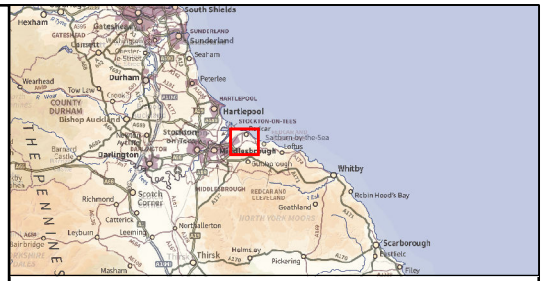
4.3 Land use policies and designations

4.3.1 A review of RCBC planning policy and national and local designated sites has been undertaken to identify any parcels of land that are allocated for, or restrict, future development or changes of use.

4.3.2 Nature conservation, landscape and heritage designations are discussed in detail in **Chapter 25**, **Chapter 21 Landscape and Visual Character** and **Chapter 27 Terrestrial Archaeology** of the ES respectively and are therefore not repeated in this chapter.

4.3.3 The relevant planning policies with regard to land use and agriculture are outlined in Section 2.1. Those with land use allocations are shown in **Figure 4.3**. Reference should be made to **Table 2.2** for a description of each of these.





LEGEND

- Indirect Impacts Study Area - Redcar and Cleveland Borough
- Direct Impacts Study Area - 500m Buffer
- Teesside A&B cable landfall envelope
- Teesside A&B landfall construction envelope
- Teesside A&B HVDC, Open trench
- Teesside A&B HVDC, HDD
- Teesside A&B HVAC, Open trench
- Teesside A&B HVAC, HDD
- Teesside A&B major horizontal directional drill entry or exit locations (2,000m²)
- Teesside A&B minor horizontal directional drill entry or exit locations (1,200m²)
- HDD or open trench to be confirmed
- Teesside A&B cable route primary construction compound (10,000m²)
- Teesside A&B intermediate construction compound (784m²)
- Teesside A&B converter stations
- Teesside A&B converter stations construction compounds (10,000m² per project)
- Lackenby 400kV substation
- Direct Impacts Study Area - Wilton Complex Boundary

Land Use

- Allotments
- Arable
- Beach and rough sand dunes
- Residential
- Farm buildings
- Football/Rugby/Public park/School playground/field
- Golf club house and fairways
- Grass paddocks
- Holiday lodges/large private garden managed for conservation
- Industrial area
- Mixture of arable, grass paddocks and woodland
- Office block and with large landscape area
- Sewage treatment works

0 — 2

Kilometres

PROJECT TITLE

DOGGER BANK TEESSIDE A & B

DRAWING TITLE

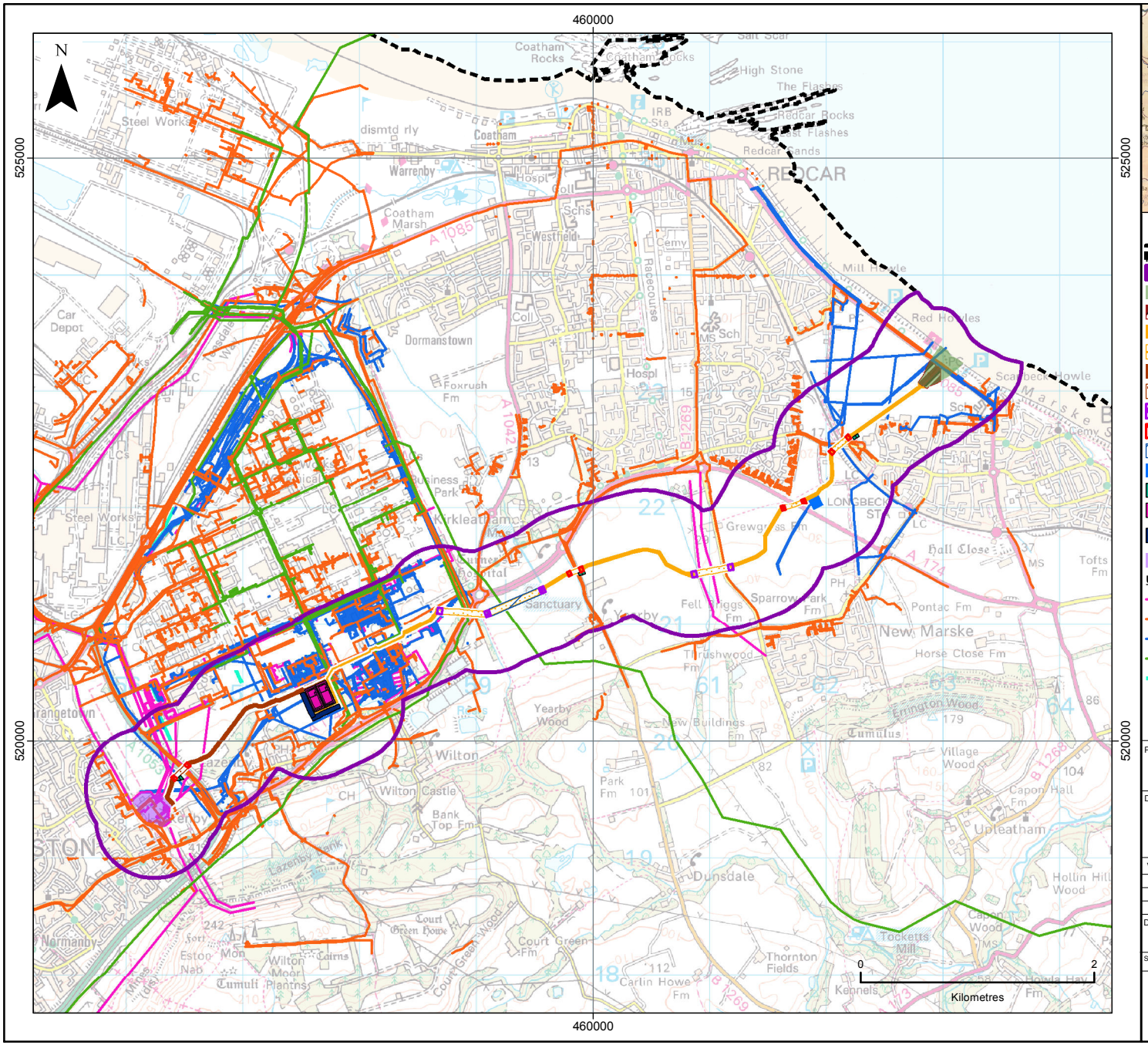
Figure 4.1: Land Use

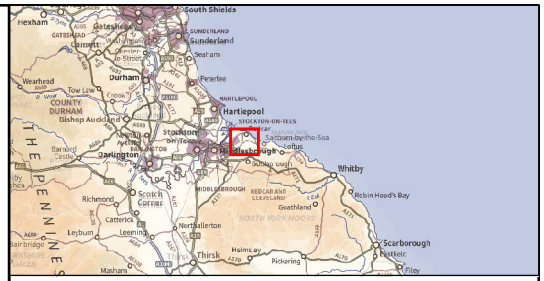
VER	DATE	REMARKS	Drawn	Checked
3	02/07/2013	Draft	SW	JB
4	08/05/2013	Submit for PEI3	SW	JB
5	27/01/2014	Pre-DCO submission review	SW	JB

DRAWING NUMBER: **F-ONL-MA-500**

SCALE	1:50,000	PLOT SIZE	A4	DATUM	OSGB36	PROJECTION	BNG

FOREWIND





LEGEND

- Indirect Impacts Study Area - Redcar and Cleveland Borough
- Direct Impacts Study Area - 500m Buffer
- Teesside A&B cable landfall envelope
- Teesside A&B landfall construction envelope
- Teesside A&B HVDC, Open trench
- Teesside A&B HVDC, HDD
- Teesside A&B HVAC, Open trench
- Teesside A&B HVAC, HDD
- Teesside A&B major horizontal directional drill entry or exit locations (2,000m²)
- Teesside A&B minor horizontal directional drill entry or exit locations (1,200m²)
- HDD or open trench to be confirmed
- Teesside A&B cable route primary construction compound (10,000m²)
- Teesside A&B intermediate construction compound (784m²)
- Teesside A&B converter stations
- Teesside A&B converter stations construction compounds (10,000m² per project)
- Lackenby 400kV substation

Utilities

- Electricity
- Telecommunications
- Water
- Gas
- Unknown

0 — 2 Kilometres

Data Source:
Ordnance Survey data © Crown copyright and database right, 2014

PROJECT TITLE

DOGGER BANK TEESSIDE A & B

DRAWING TITLE

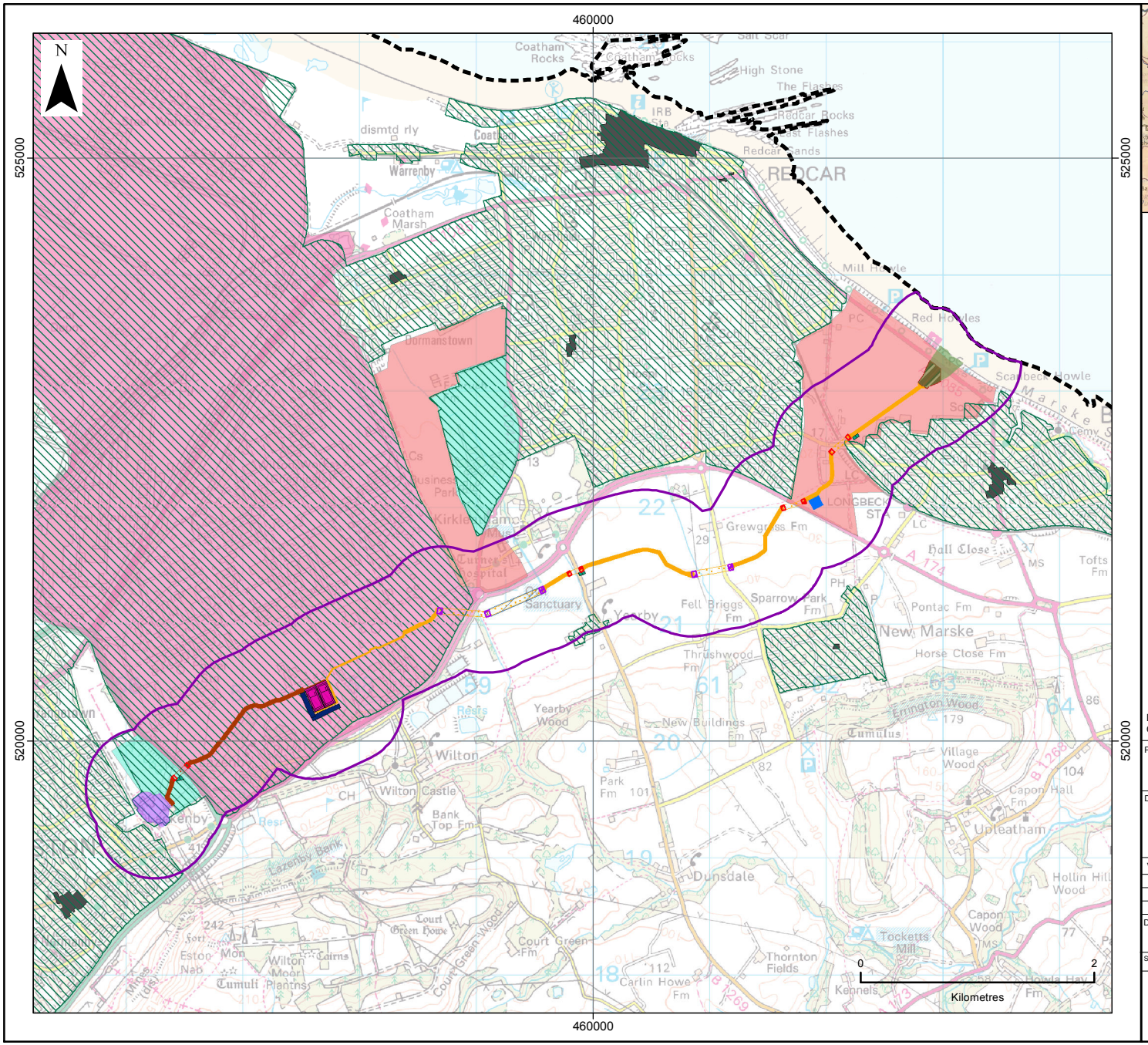
Figure 4.2: Utilities

VER	DATE	REMARKS	Drawn	Checked
4	02/07/2013	Draft	SW	JB
5	30/08/2013	Submit for PEI3	SW	JB
7	31/01/2014	Pre-DCO submission review	SW	JB

DRAWING NUMBER: **F-ONL-MA-300**

SCALE	1:50,000	PLOT SIZE	A4	DATUM	OSGB36	PROJECTION	BNG

FOREWIND



LEGEND

- Indirect Impacts Study Area - Redcar and Cleveland Borough
- Direct Impacts Study Area - 500m Buffer
- Teesside A&B cable landfall envelope
- Teesside A&B landfall construction envelope
- Teesside A&B HVDC, Open trench
- Teesside A&B HVDC, HDD
- Teesside A&B HVAC, Open trench
- Teesside A&B HVAC, HDD
- Teesside A&B major horizontal directional drill entry or exit locations (2,000m²)
- Teesside A&B minor horizontal directional drill entry or exit locations (1,200m²)
- HDD or open trench to be confirmed
- Teesside A&B cable route primary construction compound (10,000m²)
- Teesside A&B intermediate construction compound (784m²)
- Teesside A&B converter stations
- Teesside A&B converter stations construction compounds (10,000m² per project)
- Lackenby 400kV substation
- Development Limits (DP1)
- Green Infrastructure (Green Wedges) (CS23)
- Protecting Employment Areas (CS9)
- Steel, Chemical and Port Related Industries (CS10)
- Town, District and Local Centres (CS18)

Data Source:
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DRAWING TITLE

Figure 4.3: Planning Policies

VER	DATE	REMARKS	Drawn	Checked
3	02/07/2013	Draft	SW	JB
4	30/08/2013	Submit for PEI3	SW	JB
5	27/01/2014	Pre-DCO submission review	SW	JB

DRAWING NUMBER: **F-ONL-MA-501**

SCALE	1:50,000	PLOT SIZE	A4	DATUM	OSGB36	PROJECTION	BNG

FOREWIND

4.4 Soil type

4.4.1 This section provides a description of the soils found within the Direct Impacts Study Area. It describes the type, drainage, texture, fertility, moisture and expected land cover. It has been identified from 1:250,000 scale soil map of England and Wales taken from the National Soil Map and Soil Classification data as published by the National Soils Resources Institute (NSRI) at Cranfield University (2004). Cranfield University also publishes a simplified free online version of these (Cranfield 2013a) which has also been consulted. This SoilscapesTM version has the purpose of communicating effectively a general understanding of the variations which occur between soil types, and how soils affect the environment and landscape (Cranfield 2013b).

4.4.2 Reference should be made to **Chapter 24** for further details on soils in relation to flood risk and water, and potential land contamination. Any impact on the soil resource is not considered to extend beyond this study area. **Table 4.1** provides the regional context based on the Redcar and Cleveland Study Area. It should be noted that these are generic characteristics and are indicative of the soil type present within the mapped area. The precise soil type and characteristics will differ between and within individual fields.

4.4.3 The soils within the study areas are dominated by slowly permeable, seasonally wet, basic loams and clays. The soils are moderately fertile and are suited to arable agriculture. **Table 4.1** compares the percentage of soils found within the study areas, Redcar and Cleveland Borough and England for comparison.

Table 4.1 Approximate percentages of the soilscape types found with the Direct Impacts Study Area compared with Redcar and Cleveland and England

Soilscapes	Direct Impacts Study Area (%)	Redcar and Cleveland (%)	England (%)
Slowly permeable, seasonally wet, basic loams and clays	81	60	20
Slightly acid, loams and clays, impeded drainage	19	12	10

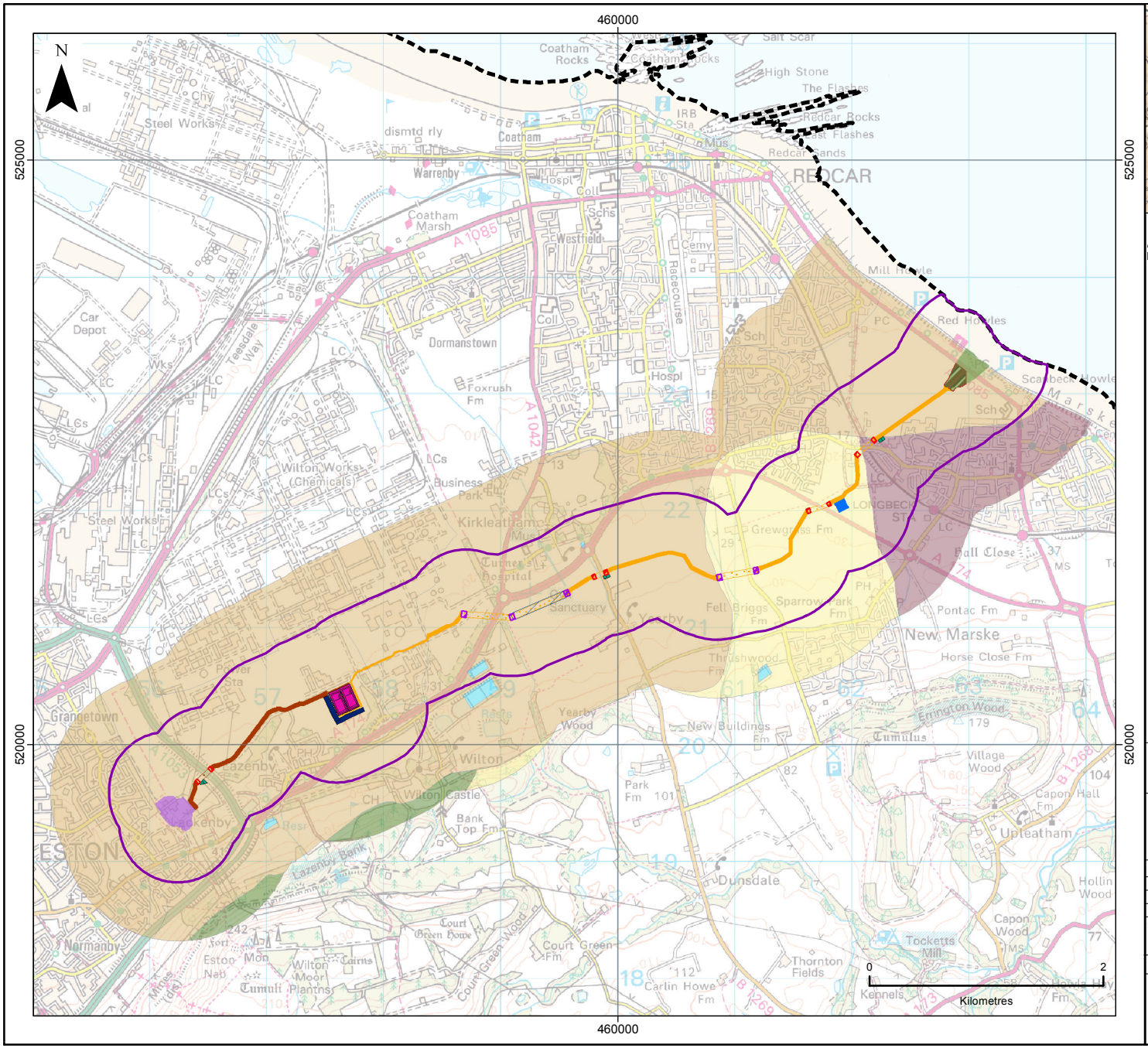
4.4.4 **Table 4.2** provides a more detailed description of the soil types identified. As shown on **Figure 4.4**, a large proportion (81%) of the Direct Impacts Study Area is comprised of Dunkeswick soil, with smaller areas of Crewe (14%) and Nercwys (5%) soils. These soils are generally slowly permeable, seasonally waterlogged, loamy soils. They are characterised by cereals, some short term grassland and some woodland cropping and land use practices.

Table 4.2 Soil types found within the Direct Impacts Study Area

Soil Association Name	Dunkeswick (0711p)
Description	Slowly permeable seasonally waterlogged fine loamy and fine loamy over clayey soils associated with similar clayey soils.
Superficial Geology	Till from Palaeozoic and Mesozoic sandstone and shale
Cropping and Land Use Practices	Grassland in moist lowlands, some arable cropping in drier lowlands. The slow permeability and seasonal surface wetness restrict the number of

Soil Association Name	Dunkeswick (0711p)
	machinery work days, especially in spring. The soil dries out slowly and cultivations must be carefully timed to avoid damage to the soil structure. Cropping is therefore mostly restricted to autumn-sown cereals but harvesting can cause damage in wet seasons. The soils are suitable for forestry, especially where the land is not too exposed, and good yields are obtained from most conifers.
Habitats (Semi-natural vegetation)	Seasonally wet pastures and woodlands
Fertility	Moderate
Texture	Loamy
Drainage	Slowly permeable, seasonally waterlogged soils over slowly permeable substrates with negligible storage capacity. Wetness Class IV, with artificial drainage Wetness Class III.
Soil Association Name	**Crewe (0712f)**
Description	Slowly permeable seasonally waterlogged reddish clayey and fine loamy over clayey soils, often stoneless.
Superficial Geology	Reddish glaciolacustrine drift and till
Cropping and Land Use Practices	The association is mainly under permanent pasture; some fields are cropped for cereals, though these tend to be autumn sown because, as with the Salop association, there are few good machinery work days in spring. Cultivations must be carefully timed to avoid severe damage to soil structure and these soils are generally very difficult to work. There is great risk of poaching by stock when the surface soil is wet, because of its large retained water capacity. There are some small wooded areas, including Wynyard Forest north of Stockton-on-Tees with hybrid larch and Corsican pine; the latter has been planted because of its resistance to air pollution from Teesside industry. Oak, ash and sycamore have also been planted, particularly for amenity purposes.
Habitats (Semi-natural vegetation)	Wide range of pasture and woodland types
Fertility	Moderate to high
Texture	Loamy
Drainage	In most years, Crewe soils are waterlogged to the surface throughout the winter and into the growing season; effective drainage measures can restrict this to winter (Wetness Class IV), but both topsoils and subsoils are slowly permeable and not easily improved.
Soil Association Name	**Nercwys (0542)**
Description	Deep fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Associated with similar slowly permeable seasonally waterlogged soils.
Superficial Geology	Till from Palaeozoic and Mesozoic sandstone and shale
Cropping and Land Use Practices	Dairying is the main source of income, the soils being mostly in grass on short and long term rotations. Poaching risk restricts winter use, particularly on the wettest soils. Cereal crops, mostly barley, are most common where either a coarse loamy topsoil affords better conditions for cultivation or the climate is drier. Autumn cultivations can be made over several weeks but the soils are mostly too wet in spring, when occasional days following dry spells will afford the only opportunities for landwork if compaction is to be avoided. There is some woodland, oak being the main species.
Habitats (Semi-natural vegetation)	Wide range of pasture and woodland types
Fertility	Moderate to high
Texture	Loamy

Soil Association Name	Dunkeswick (0711p)
Drainage	Waterlogging in winter months, above the slowly permeable subsoil places Nercwys soils in Wetness Class II or III, depending on the thickness of permeable upper horizons and the existence of artificial drainage.



LEGEND

- Indirect Impacts Study Area - Redcar and Cleveland Borough
- Direct Impacts Study Area - 500m Buffer
- Teesside A&B cable landfall envelope
- Teesside A&B landfall construction envelope
- Teesside A&B HVDC, Open trench
- Teesside A&B HVDC, HDD
- Teesside A&B HVAC, Open trench
- Teesside A&B HVAC, HDD
- Teesside A&B major horizontal directional drill entry or exit locations (2,000m²)
- Teesside A&B minor horizontal directional drill entry or exit locations (1,200m²)
- HDD or open trench to be confirmed
- Teesside A&B cable route primary construction compound (10,000m²)
- Teesside A&B intermediate construction compound (784m²)
- Teesside A&B converter stations
- Teesside A&B converter stations construction compounds (10,000m² per project)
- Lackenby 400kV substation

Soils

- Nercwys (0542)
- Dunkeswick (0711p)
- Dale (0712a)
- Crewe (0712f)
- Lake

Data Source:

PROJECT TITLE

DOGGER BANK TEESSIDE A & B

DRAWING TITLE

Figure 4.4: Soils

VER	DATE	REMARKS	Drawn	Checked
4	02/07/2013	Draft	SW	JB
5	30/08/2013	Submit for PEI3	SW	JB
6	27/01/2014	Pre-DCO submission review	SW	JB

DRAWING NUMBER: **F-ONL-MA-400**

SCALE	1:50,000	PLOT SIZE	A4	DATUM	OSGB36	PROJECTION	BNG

FOREWIND

4.5 Agricultural Land Classification

4.5.1 The UK Government has provided guidance on classifying agricultural land (MAFF 1988): the ALC system. Land is classified based on the characteristics of the soil, climate, drainage and site topography. The ALC System divides land into categories, these are described as:

- Grade 1: high quality land with no or little restriction to agricultural use;
- Grade 2: very good quality agricultural land;
- Grade 3: good to moderate quality agricultural land;
  - Grade 3a: good quality agricultural land;
  - Grade 3b: moderate quality agricultural land;
- Grade 4: poor quality agricultural land;
- Grade 5: very poor quality agricultural land;
- Non-agricultural; and
- Urban.

4.5.2 The National Planning Policy Framework (DCLG, 2012) defines Grades 1, 2 and 3a as the 'Best and Most Versatile Land' (BMVL), a national resource that must be protected. Natural England provides mapping at a 1:250,000 scale; however, Grade 3 is not divided between the two sub-grades as part of that mapping. The Direct Impacts Study Area lies mainly within Grade 2, non-agricultural/ urban areas and smaller areas of Grade 3 and 4 land. This is consistent with the Redcar and Cleveland Borough, however a far greater proportion than in England and Wales as a whole, as shown in **Table 4.3**.

Table 4.3 Approximate percentages of land of each ALC grade within the Direct Impacts Study Area compared with Redcar and Cleveland Borough and England as a whole

ALC Grade	Direct Impacts Study Area (%)	Redcar and Cleveland Borough (Natural England, 2012) (%)	England (Natural England, 2012) (%)
1	0	0	2
2	52	6	14
3 (Un-differentiated)	9	39	48
4	0	17	14
5	0	12	8
Non-agricultural / Urban	39	25	12

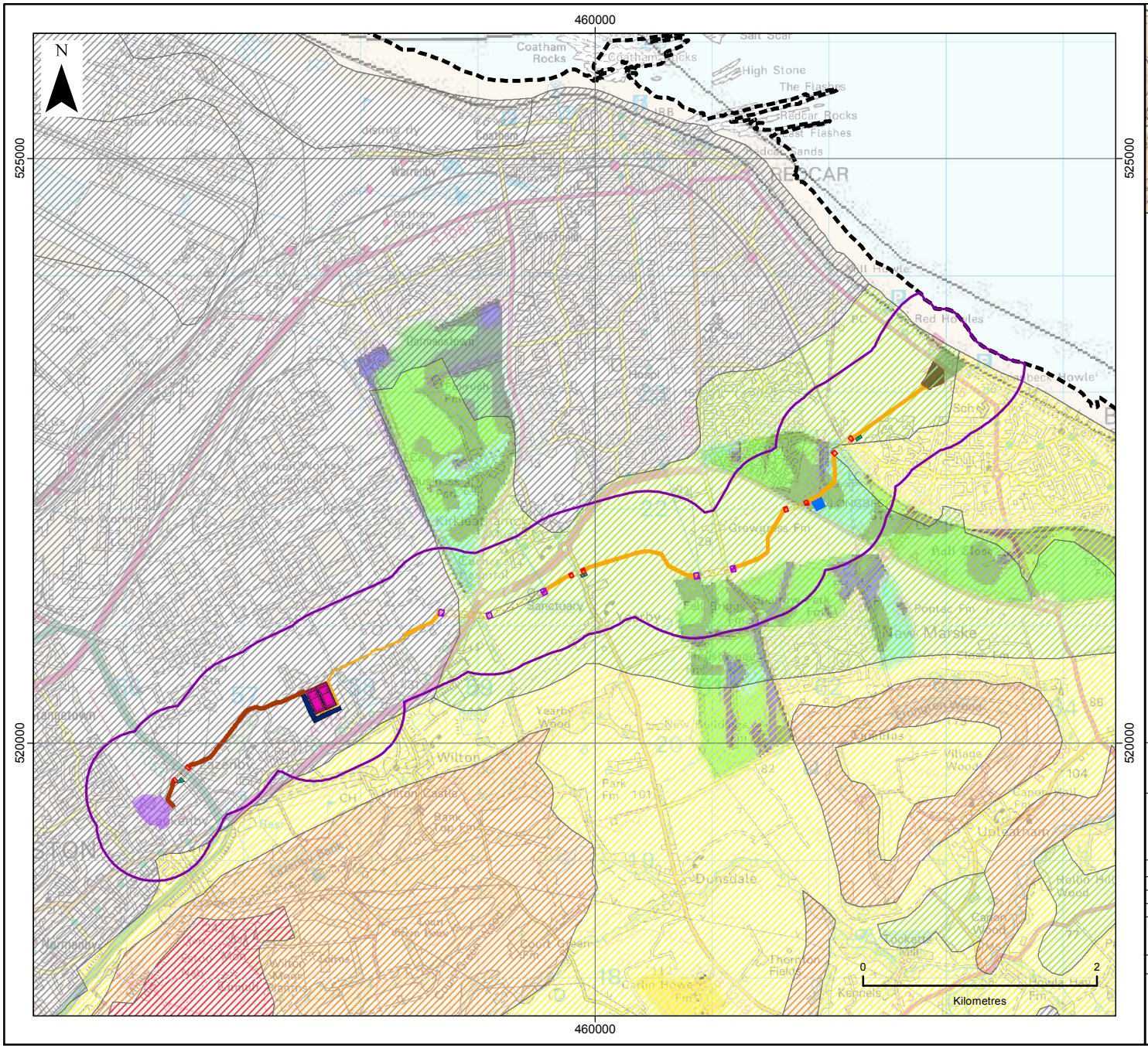
4.5.3 The dataset provided by Natural England "Post-1988 Agricultural Land Classification" includes data from individual sites surveyed in more detail by MAFF (including subdivisions of Grade 3 Land) between 1989 and 1999. Individual sites are mapped at varying scales and level of detail from 1:5,000 to 1:50,000 (typically 1:10,000). This is the most detailed, and up to date, dataset (MAGIC 2012).

4.5.4 The coverage of this dataset within the direct impact study area is approximately

10%; therefore whilst only a small proportion of the area this may be indicative of the study area as a whole. This is shown in **Figure 4.5**. The areas that have been surveyed indicate a spread of Grade 2, 3a and 3b land and other land which is consistent with the 1:250,000 scale mapping.

4.5.5 In considering a realistic worst case scenario for the purpose of this assessment, all land graded 3 is considered to be 3a. It is likely that this will actually be approximately evenly split between the two sub-grades 3a and 3b as the areas that have been subject to further survey and national trends indicate.

4.5.6 It should be noted that as with the soils data, mapping at this scale is only indicative and provides a general description of the quality of the agricultural land expected based on the land characteristics mentioned above. It does not constitute an ALC survey as outlined in the MAFF guidelines (1988).



LEGEND

- Indirect Impacts Study Area - Redcar and Cleveland
- Direct Impacts Study Area - 500m Buffer
- Teesside A&B cable landfall
- Teesside A&B landfall construction
- Teesside A&B HVDC, Open trench
- Teesside A&B HVDC, HDD
- Teesside A&B HVAC, Open trench
- Teesside A&B HVAC, HDD
- Teesside A&B major horizontal directional drill entry or exit locations (2,000m²)
- Teesside A&B minor horizontal directional drill entry or exit locations (1,200m²)
- HDD or open trench to be confirmed
- Teesside A&B cable route primary construction compound (10,000m²)
- Teesside A&B intermediate construction compound (784m²)
- Teesside A&B converter stations
- Teesside A&B converter stations construction compounds (10,000m² per project)
- Lackenby 400kV substation

Agricultural Land Classification

- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Non Agricultural/Urban

Post 1988 Agricultural Land Classification

- Grade 1
- Grade 2
- Grade 3A
- Grade 3B
- Grade 4
- Grade 5
- Not Surveyed
- Other

Data Source:
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PROJECT TITLE

DOGGER BANK TEESSIDE A & B

DRAWING TITLE

Figure 4.5: Agricultural Land Classification

VER	DATE	REMARKS	Drawn	Checked
3	02/07/2013	Draft	SW	JB
4	30/08/2013	Submit for PEI3	SW	JB
5	27/01/2014	Pre-DCO submission review	SW	JB

DRAWING NUMBER: **F-ONL-MA-401**

SCALE	1:50,000	PLOT SIZE	A4	DATUM	OSGB36	PROJECTION	BNG

FOREWIND

4.6 Agricultural activities

4.6.1 This section describes the baseline environment in terms of agricultural land cover across the two study areas. This section describes the crops grown and agricultural practices adopted where these are known. Where semi-natural vegetation persists this is also characterised. It should be noted that this assessment is based on high level datasets which are only accurate at the time of data collection. They should only be considered indicative of the land uses found within the study areas.

4.6.2 This section draws on the following sources of information, which were combined and cross checked:

- Land cover mapping provided by Centre for Ecology and Hydrology (CEH, 2007) at the Natural Environment Research Council. Land Cover Map 2007 is a parcel-based classification of UK land cover. It uses 23 classes to map the UK, which are based on the UK Biodiversity Action Plan (BAP) Broad Habitats. It is created by classifying summer-winter composite images captured by satellite sensors (shown in **Figure 4.6**);
- National Soil Mapping (Cranfield 2004) as described in Section 4.4;
- Initial feedback from landowners and occupiers on general cropping and rotation practices within the study areas;
- Aerial photography; and
- The June Survey of Agricultural and Horticultural Activity (Defra 2011). The survey is run by Defra to collect detailed information on arable and horticultural cropping activities, land usage, livestock populations and agricultural labour force figures.

4.6.3 The following sections describe the land cover and agricultural environment baseline at both a regional level, as this is the level at which data is collected by Defra (2011), and also within the Direct Impacts Study Area. It should be noted that South Teesside and the North East are also used to describe the regional baseline. This is due to the way that Defra reports on regional units in the June Survey of Agricultural and Horticultural Activity (Defra 2011). This data is not available for the Redcar and Cleveland Borough Study Area.

