

**Design and Access Statement for UK Onshore  
Elements of the UK-Norway (NSN Link)**

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for NSN Link Ltd**

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## 1.0 INTRODUCTION

- 1.1 This Design and Access Statement has been prepared to support an outline planning application (with all matters reserved) relating to the UK onshore elements (the Proposed Development) of the UK-Norway Electricity Interconnector (NSN Link).
- 1.2 An Environmental Statement (ES) accompanies the planning application which was submitted to Northumberland County Council on 15th November 2013 (application reference number 13/03524/OUT).
- 1.3 The NSN Link project is a High Voltage Direct Current (HVDC) electrical interconnector which will connect the electricity systems of the United Kingdom and Norway. The planning application relates to the development of a Converter Station on land adjacent to the former Blyth Power Station coal stacking area, north of East Sleekburn, Northumberland and the installation of underground electricity cables.
- 1.4 Section 62 of the Town and Country Planning Act 1990 (as amended) requires a Design and Access Statement to be submitted with most major developments for both outline and detailed planning applications. This Design and Access Statement has been prepared in accordance with the CABE guidance 'Design and Access Statements: How to write, read and use them' (2006).
- 1.5 The purpose of this Design and Access Statement is to explain how the principles of good design have been considered from the outset of the development process and to explain the concept and principles in relation to accessibility, character, visual appearance and environmental sustainability of the Proposed Development.
- 1.6 The remainder of this Design and Access Statement is structured as follows:
  - Development Proposals
  - Site Context and Appraisal
  - Legislation and Policy Context
  - Development Design, Concept and Layout
  - Access
  - Sustainability Principles

## 2.0 DEVELOPMENT PROPOSALS

### Introduction

- 2.1 The proposed interconnector will comprise a high voltage direct current submarine electricity cable link, designed to transmit electrical power in both directions across the North Sea between the high voltage grid systems in the UK and Norway.
- 2.2 The UK components for which planning consent is being sought under the Town and County Planning Act 1990 as amended (TCPA 90) comprise:
- Two HVDC onshore underground cables from the mean low water mark Converter Station;
  - A HVDC Converter Station, which would convert the HVDC power (used in the link) to high voltage alternating current (HVAC) for use in the national transmission system and vice-versa; and
  - The proposed converter station will connect to the National Electricity Transmission System (NETS) via six 400kV high voltage alternating current (HVAC) underground electricity cables which will run from the converter station to a new 400kV GIS substation adjacent the existing Blyth 275kV substation.

### Converter Station

- 2.3 The converter station will be contained within a secure fence compound. The majority of electrical equipment will be indoors to prevent exposure to saline pollution which can lead to damage and the need to replace equipment.
- 2.4 The converter station will comprise a series of interconnected buildings including the following:
- *Valve Halls:* These will comprise four 'wings' each containing the high voltage power electronics which convert electricity from AC to DC and vice-versa. Each hall is nominally 45x30m in plan with a height of up to 25m.
  - *Equipment Halls:* Located between two of the valve hall wings, containing high voltage equipment for smoothing the electrical waveforms. Each hall is nominally 50x35m with a height of up to 20m.
  - *Filter Halls:* Connected to the equipment Halls, containing high voltage filtering equipment and interconnections from the transformers. Each hall is nominally 60x35m with a height of up to 20m.
  - *Control and Protection Equipment Annexe:* Containing the control panels and associated operator stations, offices, welfare facilities etc. Each hall is nominally 40x20m with a height of up to 15m.
  - *DC Switchhall:* An area that contains the termination of the HVDC cables together with HVDC switchgear to connect these to the power electronics. Each hall is nominally 70x50m with a height of up to 25m.
  - *Transformer Pens:* These are external to the main building and contain the single phase power transformers which are located in bunds to contain any oil

leaks. The bunds will be connected to an oil containment/separation drainage system. These transformers convert the power from the Grid voltage of 400kV to the appropriate voltage to connect to the power electronic equipment. The transformers will be separated into pens by concrete fire protection walls. Noise enclosures will be fitted around the transformers if required. Each of the six pens is approximately 20x20m in size.

- 2.5 In addition further buildings are required as follows:
- *400kV Switchhouses:* Two buildings to contain the 400kV switchgear, together with filtering equipment. These are installed indoors to prevent failures from saline pollution due to the proximity to the sea. Each switch house is approximately 30x40m with a height of up to 15m.
  - *Services building:* A building to house electricity supplies to the converter site. The service building is approximately 26x20m.
  - *Diesel Generator:* A housing for an emergency standby diesel generator
  - *Spare Parts Building:* A building to house spare parts and components, this will be supplemented by hardstanding areas that will be provided for storage of a spare transformer and spare cable drums. The spare parts building is about 40x20m.
- 2.6 Drawing ARP-NSN-V5 (Figure 4.2 of the ES) shows a potential layout of the component parts of the converter station with proposed elevations shown on ARP-NSN-V4 (Figure 4.4 of the ES). The converter station building will be constructed from a steel frame and clad with insulated metal panels. Panels will be grey in colour and graduate from dark grey to light grey to the roofline.
- 2.7 The converter station will be designed for a 40 year lifespan, with only control equipment expected to require replacement during that time.
- 2.8 Lighting (when required) will be controlled to avoid the unnecessary illumination of areas beyond the development. Glare and the spread of upward light will be kept to a minimum to reduce sky glow and minimise visual intrusion within the open landscape. The need to illuminate the whole perimeter is not necessary.
- 2.9 The perimeter and internal roads will be used to provide access for regular and ad hoc maintenance activities and for the delivery of materials to site. The access into the converter station site off Brock Lane will be constructed so that it can accommodate the delivery of transformers by large vehicles which comprise Abnormal Indivisible Loads (AILs). The access road will feature deceleration and acceleration tapers on Brock Lane design in accordance with the traffic regulations for the 60mph speed and classification of the road.
- 2.10 Transformers for the converter station will be delivered during construction under a Transport Order. The route to each part of the site will retain the ability to accommodate these loads. Reliability data on transformers of this nature indicates that failures would not be anticipated at intervals of less than 10 years. In the event of transformer failure at the converter station, the spare transformer held on site

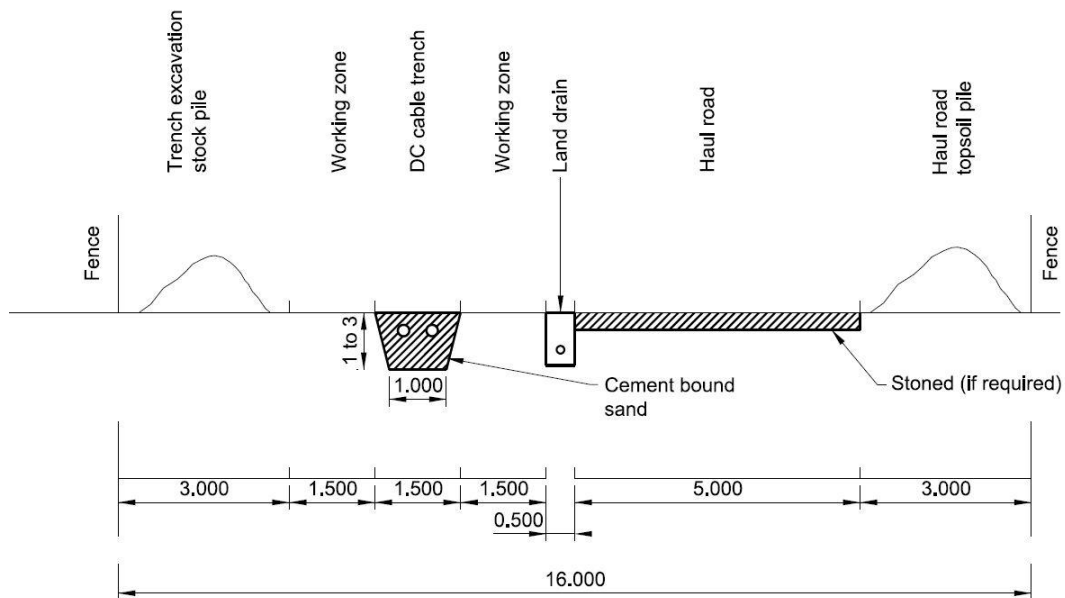
would be installed and the failed transformer removed to the 'spare' storage area. Transportation of the failed transformer to a contractor's factory for repair would then be arranged including the appropriate Transport Order from the Highways Agency for the abnormal movement.

- 2.11 The number of car parking spaces (including disabled spaces) will be provided in accordance with Northumberland County Council Car Parking Standards. These will be located to the south of the converter station building, and will be for operations staff that will be required to monitor and maintain electrical equipment and plant at the converter station.

### **HVDC Underground Cables**

- 2.12 HVDC onshore underground cables will connect the subsea cables to the converter station and will be of the same type as the HVDC subsea cables (Mass Impregnated MI).
- 2.13 The HVDC onshore underground cables will be delivered to a contractor's compound. Compounds are anticipated close to or on the existing car parking area at North Cambois Beach, adjacent to the waste water treatment works, and immediately south of the Fergusson Industrial Estate. It is anticipated that each drum would hold approximately 500-1000m of power cable. The compounds will form the base for the cable installation works from which the main items of plant and workers will travel, minimising the need for transport.
- 2.14 Prior to the commencement of works along the cable route, a photographic inventory will be taken and in particular records of the presence and condition of items such as fences and gates will be made and, where possible, agreed with the landowner prior to commencement
- 2.15 Secure temporary fencing will be erected around the working area (which will vary as the cables installation progresses). The fencing will define the working area, protect any sensitive areas and prevent third party access. Access gates will be installed that are suitable for both personnel and for movement of plant and equipment.
- 2.16 The onshore underground cables will be installed onshore primarily in excavated trenches; either direct placed or in pre placed ducts. Standard trenching techniques will be used for excavation. Where this is not possible and crossings of major obstructions, such as the railway, is required then a "trenchless technology", such as horizontal directional drilling (HDD), thrust boring or pipe jacking will be considered.
- 2.17 Where possible open trench installation techniques will be used. Prior to excavation, the surface will be cleared of vegetation. Trenches will be excavated by hydraulic excavators, except where any risk to existing services is identified where digging by hand will verify the position of existing services. The trench cross section will be approximately 1.5m at the surface and will taper to 1m at the bottom of the trench. Excavated topsoil and subsoil will be stored separately for reinstatement.

- 2.18 The construction area will consist of a working easement of about 16m as shown in Inset 1. This will allow provision of a haul route along the length of the cable, sufficient operating space around the works, areas for stockpiling top soil and excavated material, and space for security fencing.

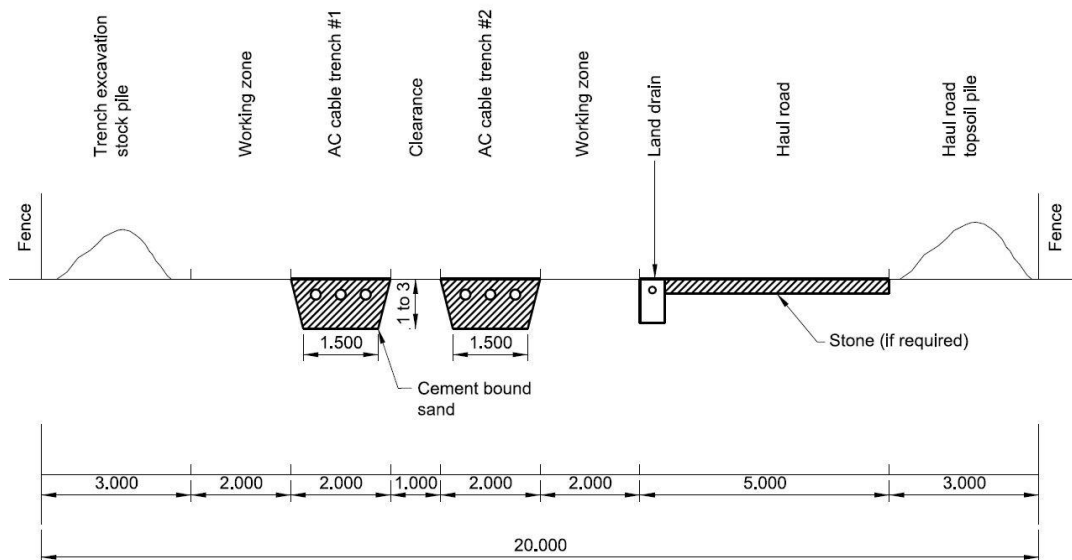


Inset 1 : Typical DC cable working easement

- 2.19 The trench integrity will be assessed in different soil types, and where required the sides will be battered, benched, or shuttered with timber or metal sheets secured by cross braces. This will prevent collapse and will protect personnel during the works.
- 2.20 Prior to the onshore underground cables being laid, a layer of cement bound sand (CBS) will be placed in the bottom of the trench (approximately 60cm deep) and surrounding the cables to help dissipate heat generated when the cables are in operation, and ensure the trench bottom is smooth and free from rocks and boulders.
- 2.21 Concrete slabs will be installed 60cm above the top of each cable and plastic warning tape will be laid directly over the slabs. The material excavated from the trench will be used to complete backfilling of the trench. The topsoil will be used to ensure that the upper profile of the backfilled trench is restored to the previous condition. Any excess subsoil will be removed from site.
- 2.22 A permanent easement of approximately 7m will be required.

### HVAC Underground Cables

- 2.23 Six 400kV HVAC cables will connect the converter station to the Blyth Substation. The HVAC cables will be the same type as the HVDC cables (mass impregnated – MI) and will be approximately 150mm in diameter. The total length of the HVAC cables route is approximately 1km. They will be laid in two banks of three, with a separation gap between them. A construction corridor of about 20m will be required as shown in Inset 2. This will accommodate a haul route along the length of the cable, sufficient operating space around the works, areas for stockpiling top soil and excavated material, and space for drainage and temporary security fencing.



Inset 2 : Construction Corridor

### General Operation and Maintenance

- 2.24 The converter station will have a small workforce on site (approximately 6 personnel per day divided between 3 shifts over a 24 hour period) and the site will be subject to infrequent inspections and maintenance visits whilst in operation. The frequency and duration of maintenance visits will be dependent on the manufacturer's recommendations for the equipment installed.



## 3.0 SITE CONTEXT AND APPRAISAL

### Site Location

- 3.1 The Converter Station is proposed on land immediately to the east of the A189 spine road; to the north of East Sleekburn. The site is located approximately 1.5km north east of Blyth, on the northern side of the Blyth Estuary, 1km inland from the Northumberland coast.
- 3.2 Access to the Converter Station is proposed off Brock Lane, which connects the Port of Blyth to the east with the A189 spine road to the west. Permanent roads around the perimeter of the Converter Station and internal roads will be constructed to provide access to the different building units for regular and ad hoc maintenance activities and for the delivery of materials to site.

### Site Appraisal

#### Converter Station Site

- 3.3 The area is characterised by large scale development which includes large scale industrial buildings, port related development, wind turbines, overhead electricity lines and the existing National Grid Electricity Transmission Plc (NGET) substation. There are also large areas of former industrial development. Within this predominantly industrial area there are also small areas of small scale residential development including Cambois and East Sleekburn, agricultural land and recreational activity at the coast.
- 3.4 The site of the proposed Converter Station is presently in agricultural use. It lies between the A189 and the former Blyth Power station coal stocking area. The site forms part of the wider area of land allocated as the Cambois Zone of Economic Opportunity, which provides a simplified planning process in the form of a Local Development Order (LDO) for certain types of development specified in the Order.
- 3.5 The site extends northwards from Brock Lane and is presently arable land. Fergusons Industrial Estate lies to the north of the site and a housing estate lies to the east (comprising Harbour View, Wilson Avenue, Sandfield, Waterfield Road and Northfield). The site is surrounded by hedgerows and a belt of native tree and shrub planting.
- 3.6 Access to the converter station is proposed off Brock Lane, which connects the Port of Blyth with the strategic road network via the A189 spine road.

#### Underground HVDC Cable Route from Cambois Slipway to Converter Station

- 3.7 The HVDC underground cables route falls to land at Cambois Slipway. From here the cables runs inland across agricultural land to the north of housing of Wembley Gardens. Approximately 1km inland close to the railway level crossing the cable route heads south through Ferguson's industrial estate toward the converter station.

3.8 Factors which have influenced the cable route selection and will continue to define the detailed cable routeing include:

- Avoidance of ecologically sensitive areas and effects on protected species,
- Avoidance of built development
- Minimising disturbance to residential areas including the road network;
- Avoidance of known archaeology;
- Avoidance of other known planning proposals;
- Minimising effects on water courses;
- Minimising risk of encountering contamination;
- Avoidance of existing utilities and services

#### Underground AC Cable Route

3.9 The proposed HVAC underground cables route runs from the converter station site south west beneath Brook Lane toward Blyth substation, This area comprises arable land and area, hedgerows and areas of more diverse habitat. There are several overhead lines crossing this area on the approach to Blyth substation, which is a large light grey metal clad indoor substation.

3.10 The area to the north of the substation is the former Blyth Power Station Site and comprises concrete hardstanding surrounded by security fencing.

## 4.0 PLANNING POLICY CONTEXT

- 4.1 Under Section 62 of the Town and Country Planning Act 1990 (as amended) there is a requirement for Design and Access Statements to be submitted with planning applications for major development both full and outline. Lower thresholds apply in Conservation Areas and World Heritage Sites and Listed Buildings consent applications must also be accompanied by a Design and Access Statement. This outline planning application for the UK onshore elements of NSN Link (the Proposed Development) falls within the requirements to submit a Design and Access Statement.
- 4.2 The purpose of this Design and Access Statement is to provide the details and demonstrate the thinking behind the design and access elements of the planning application, and has been prepared in accordance with the CABE guidance *'Design and Access Statements: How to write, read and use them'* (2006) and the Communities and Local Government (CLG) guidance *'Guide on Information Requirements and Validation'* (2010).
- 4.3 A number of planning policies from national to local level are relevant to the Proposed Development. These are discussed in detail and assessed in the accompanying Planning Statement, which also provides the planning context in relation to the Proposed Development. This Design and Access Statement therefore only summarises the policies relevant to the design and access aspects of the Proposed Development.
- 4.4 An assessment of the policy relevant to the design and access aspects of the Proposed Development is presented in Tables 4.1 and 4.2 respectively.

### **National Planning Policy**

#### National Policy Statement for Energy (EN-1)

- 4.5 The National Policy Statements (NPS), approved by Parliament in July 2011, sets out the most recent Government policy for the delivery of major energy infrastructure. These are a material consideration in England and Wales when determining applications for major energy infrastructure, including those which fall under the Town and Country Planning Act 1990 (as amended).
- 4.6 The overarching National Policy Statement for Energy (EN-1) notes that the visual appearance of a building is an important factor but functionality, including fitness for purpose and sustainability, is equally important. Applying good design to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetics as far as possible. It is acknowledged, however that the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.

### National Planning Policy Framework

- 4.7 The Government published the National Policy Framework (NPPF) in March 2012. The NPPF sets out the Government's planning policies for England and replaces all Planning Policy Guidance (PPG) and most Planning Policy Statements (PPS). Some PPSs remain in place such as PPS10 which was recently published.
- 4.8 The NPPF is a material consideration in planning decisions and guides the development of Local Plans, emphasising the importance of delivering and planning for sustainable development.
- 4.9 The NPPF establishes the importance of achieving high quality design that has a positive effect on the environment. It states that permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions. Local Planning Authorities should not refuse planning permission for building or infrastructure that promotes high levels of sustainability because of concerns about incompatibility with an existing townscape.

### **Regional Planning Policy**

- 4.10 The Localism Act contains provisions to alter the planning system and allow the Secretary of State to make orders revoking Regional Spatial Strategies (RSS). An order was laid before Parliament to formally revoke the North East RSS on 22<sup>nd</sup> March 2013. The Northumberland County and National Park Joint Structure Plan Alteration (February 2005) was also revoked as part of the Order, with the exception of Policy S5, concerning the Green Belt extension around Morpeth. The Council also resolved to have regard to the housing requirement figures contained in the revoked Regional Spatial Strategy on an interim basis until the adoption of the Northumberland Core Strategy.

### **Local Planning Policy**

- 4.11 The site of the proposed Converter Station and the UK onshore cable route falls within the planning control of Northumberland County Council (NCC).
- 4.12 Current Planning Policies for Northumberland are contained in a number of documents that were produced and approved by the following former Local Planning Authorities in Northumberland.
- Alnwick
  - Berwick-Upon-Tweed
  - Blyth Valley
  - Castle Morpeth
  - Tynedale
  - Wansbeck
  - Northumberland County

- 4.13 In April 2009, these seven Local Planning Authorities merged together to form one single Local Planning Authority – Northumberland County Council. The plans and policies produced individually by each of the seven Local Planning Authorities have been brought together to form the ‘Northumberland Consolidated Planning Policy Framework’.
- 4.14 The Consolidated Planning Policy Framework forms the statutory Development Plan for Northumberland, and comprises ‘saved’ policies from the seven former Local Planning Authorities, as well as Policy S5 from the former Northumberland Structure Plan and Local Development Framework documents as they are adopted.
- 4.15 The proposed Converter Station falls within the former District of Wansbeck. ‘Saved’ policies GP30, GP31, GP32, GP34 and GP35 from the Wansbeck District Local Plan all relate to design, while policies GP4, T3 and T4 relate to accessibility. Detailed guidance on the appearance of new development within the former district of Wansbeck can be found in the Wansbeck Design Guide Supplementary Planning Document (SPD), which is also a material consideration in determining planning applications.
- 4.16 Preparation is underway on the Northumberland Local Development Plan (the Local Plan). Stage 1 of the Core Strategy Preferred Options document was consulted upon during February and March 2013 and considered preferred policy options for most topic areas. Stage 2 sets out NCC’s preferred approach to housing, employment and Green Belt is currently underway until 2<sup>nd</sup> January 2014. While neither of the Preferred Options Consultation Documents have been adopted, they are still a material consideration in determining planning applications. Draft policies 1 and 38 provide the general policy principles for Design, while Policies 40, 41 and 43 provide specific policies on accessibility, all are taken from the preferred options stage 1 consultation document.

#### Local Planning Policy on Design and External Appearance

##### *Wansbeck District Local Plan (2009)*

- 4.17 There are a number of ‘saved’ policies from the Wansbeck District Local Plan which relate to design. Those with direct relevance include:
- Policy GP30 which sets out the requirement for developments to be assessed in terms of visual impact. Those which in visual terms would cause significant harm to the character or quality of the surrounding environment will be refused.
  - Policy GP31 requires high standards of urban design in development proposals to: Promote character in townscape and landscape and establish local identity; clearly define public and private spaces; and encourage accessibility; make places with a clear image; and promote diversity and choice through a mix of compatible uses.

- Policy GP32 requires developers to incorporate a high standard of landscape treatment into their developments
- Policy GP34 requires developers to address energy efficiency issues through design; and
- Policy GP35 sets out the need to demonstrate that developers have 'designed out' opportunities for crime.

*Northumberland Local Development Plan – Core Strategy Preferred Options (2013)*

4.18 Draft policy 1 from the Core Strategy Preferred Options Consultation document, which went out to public consultation during February and March 2013 sets out an overarching policy which reflects the presumption in favour of Sustainable Development, which includes:

- Building a strong economy;
- Providing access to housing;
- Supports and improves access, health, infrastructure, social and cultural wellbeing;
- Conserves and enhances the natural, historic and built environment;
- Makes the most efficient and effective use of available resources (e.g. land, water, minerals, buildings);
- Demonstrates high quality design which respects and enhances local distinctiveness;
- Is resilient to economic, social and climatic change;

4.19 Draft policy 38 is committed to sustainable design and construction which strives to achieve high energy efficiency and low or zero carbon energy generation where viable, and sets out a list of criteria which all new development proposals must satisfy.

Local Planning Policies on Access and Transport

*Wansbeck District Local Plan (2007)*

4.20 'Saved' policies T3-T7 of the Wansbeck District Local Plan relate specifically to access and transport and are considered relevant to the Proposed Development.

- Policy T3 requires improved facilities for cycling in the district including providing for cyclists as part of new developments through the provision of safe and convenient routes and cycle parking.
- Policy T4 seeks to assist and encourage walking and requires developers to provide safe, convenient and pleasant routes for pedestrians.
- Policy T5 requires developers to make appropriate provision for those with reduced mobility as part of their developments.
- Policy T6 considers the volume and character of the traffic likely to be generated by and attracted to the Proposed Development and only permits proposals if:

- a) the existing highway network is adequate to cope with any additional traffic resulting from the development or necessary improvement works will be carried out before the development goes ahead; and
  - b) the proposed arrangements for access and egress will allow the safe and efficient movement of vehicles; and
  - c) internal circulation arrangements will be able to absorb vehicular traffic entering the site without queues forming on existing roads and will include measures to achieve safe traffic speeds; and
  - d) adequate provision is made, in terms of safety and operating efficiency, for servicing and deliveries and for other heavy vehicles such as buses and emergency vehicles.
- Policy T7 requires developers to make appropriate provision for parking taking account of the following:
    - a) the scale and type of development; and
    - b) accessibility by public transport, on foot and by cycle; and
    - c) the potential for road safety and environmental problems as a result of increased parking demand in the area; and
    - d) the extent and nature of any parking restrictions in force on highways in the area; and
    - e) county-wide maximum parking standards

*Northumberland Local development Plan – Core Strategy Preferred Options (2013)*

- 4.21 Draft policies 40, 41 and 43 of the first stage Northumberland Core Strategy Preferred Options Consultation document relate to accessibility.
- 4.22 Policy 40 sets out the principles for accessibility which:
- a. Minimises the overall need for journeys whilst promoting, accommodating and facilitating investment in infrastructure for sustainable modes of travel such as walking, cycling and public transport;
  - b. Provides prioritised access for pedestrians and cyclists; and
  - c. Considers the transport and accessibility needs of the whole community when planning and assessing development.
- 4.23 Parking standards for residential and non-residential development is considered in policy 41, which sets out the continued requirement for developments to meet current car parking standards, with variations acceptable in Neighbourhood plans where this is shown to be feasible and locally acceptable through public consultation.
- 4.24 Policy 43 ensures that the effects of development on the road network are kept to a minimum through the appropriate use of mitigation.

Supplementary Planning Documents

*Wansbeck Design Guide SPD (2007)*

- 4.25 The Wansbeck Design Guide SPD provides an overarching and core design policy (Design Guide Policy CD1) which forms a core element of the Council's planning policy, to ensure that the quality of the urban and rural environments are of the highest possible standards.
- 4.26 Policy CD1 sets out the criteria which development proposals are expected to achieve in order to create a high quality, sustainable environment which enhances and complements the natural and built assets of Wansbeck. These include:
- Promoting sustainable development of the highest quality and encourage innovation and excellence in design to create places of distinction and a sense of place;
  - Maximising the use of previously developed land and promote good quality mixed use developments;
  - Promoting design solutions that maximise the use of renewable resources and resource conservation;
  - Maintaining and enhancing the amenities and character of residential areas, securing good relationships with existing development, and respecting the scale and nature of development;
  - Creating safe, permeable development and spaces that encourage walking and cycling;
  - Safeguarding and enhancing the historic environment;
  - Protecting and enhancing rural and urban open spaces and the biodiversity of the district; and
  - Safeguarding and enhancing nature and conservation sites of international, national and local importance.
- 4.27 The Design Guide also sets out the requirements for Design and Access Statements including the need to undertake analysis of the physical context of the proposals, and takes account of the options developed and their evaluation, and provide a conclusion as to why the proposals provide an optimum design response to the site and its setting.
- 4.28 Detailed design will be considered at the reserved matters stage and will incorporate criteria set in the Wansbeck Design Guide SPD as appropriate.

*Northumberland East Sleekburn Sites Local Development Order (February 2013)*

- 4.29 The Local Development Order (LDO) grants planning permission for certain development specified by the Order, removing the need to seek formal planning permission, subject to meeting the requirements and conditions contained in the Order.
- 4.30 Schedule 3 of the LDO sets out a requirement to demonstrate how the Proposed Development has had regard to achieve high quality and inclusive design. In particular, it should demonstrate how the development responds to local character



and to heritage assets; how the development optimises the potential of the site; and how the development is adaptable and can respond to changing social, technological and economic conditions.

4.31 In addition, Schedule 4 sets out a number of conditions which relate to design and access. These include:

- Development to be positioned in such a way as not to prejudice future development of the wider LDO area;
- The maximum heights of buildings must not exceed 35m AOD;
- All buildings should be designed to ensure energy consumption is minimised and all buildings over 500sqm will be required to achieve BREEAM 'very good' accreditation or achieve a minimum of 10% of its energy consumption from renewable sources;
- A high quality landscaping scheme shall be implemented for the site or area of the development phase during the first full planting season and be appropriate to the setting; and
- All new buildings and associated development will be required to be fully accessible, having regard to the needs of the disabled and less mobile people, servicing requirements, manoeuvring, loading/unloading and highway safety and must provide adequate parking for commercial vehicles, employees and visitors and cycle parking facilities.

4.32 Consideration will be given to the conditions and requirements set out in the LDO at the detailed design stage so as to ensure compatibility with the aspirations of the area and future land uses.

4.33 Tables 4.1 and 4.2 below set out the extent to which the Proposed Development is in accordance with relevant policies in relation to design (Table 4.1) and access (Table 4.2).

**Table 4.1: Assessment of Policy in Relation to Design**

Policy Summary	Assessment of Policy
<p><b>NPPF</b> <i>7 – Requiring Good Design</i></p> <p>The Government attaches great importance to the design of the built environment. It is important to plan positively for the achievement of high quality and inclusive design for all development</p>	<p>The Proposed Development demonstrates good design through the location of the Converter Station within an area identified for large scale industrial units surrounded by numerous energy related developments including the site of the former coal powered Power Station which is earmarked for future energy generation. As part of the detailed design process, assessments of the impact of the Proposed Development on the local</p>

Policy Summary	Assessment of Policy
<p><b>National Policy Statement</b> National Policy Statement for Energy EN-1</p> <p>The visual appearance of a building is an important factor but functionality, including fitness for purpose and sustainability is equally important. Applying good design to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetics as far as possible. It is acknowledged, however that the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.</p>	<p>environment will be undertaken. A number of photomontages (IN2336.003-008 or Figures 9.11-9.16 in the ES) accompany the planning application and show the development has a limited impact on the surrounding area. In addition, the siting of the Converter Station is in accordance with National Grid’s design guidelines and the Horlock Rules, used in locating sites for electricity substations.</p> <p>The scale of the Converter Station buildings will be broken up by treatment to the cladding so that there is a gradual fading of colour from the bottom to the top. A recessive grey colour is proposed, lightening gradually from dark grey to light grey on the upper elevations which will be seen against the sky. This will reduce the apparent bulk of each of the Converter Station buildings in general views.</p> <p>The Converter Station buildings will be similar to the range of industrial buildings already in the local area, including those located within Fergusons Industrial Estate, the Ashington Paint Factory and the proposed Biomass Power Station proposed at Blyth Harbour.</p> <p>Additional native landscaping is proposed to supplement the existing extensive landscaping surrounding the site where necessary.</p>
<p><b>Wansbeck District Local Plan</b> Policy GP30 - Visual Impact</p> <p>All proposed development will be assessed in terms of its visual impact. Developments which in visual terms would cause significant harm to the character or quality of the surrounding environment will be refused.</p>	<p>The photomontages (IN2336.003-008 or Figures 9.11-9.16 in the ES) demonstrate that there will be limited views of the converter station from a range of viewpoints and will not therefore cause significant harm to the character or quality of the surrounding environment.</p>
<p><b>Wansbeck District Local Plan</b> Policy GP31 – Urban Design</p> <p>The policy sets out the key principles that must be addressed to ensure good urban design. These include development which:</p> <ul style="list-style-type: none"> <li>a) Promotes character;</li> <li>b) Encourages accessibility;</li> <li>c) Encourages adaptability; and</li> <li>d) Promotes diversity</li> </ul>	<p>The proposed converter station will be similar in scale and nature to surrounding development (both existing and proposed).</p> <p>The scale of the converter station buildings will be broken up by cladding which will include a gradual fading of colour from the bottom to the top. A recessive grey colour is proposed, lightening gradually from dark grey to light grey on the upper elevations which will be seen against the sky. This will reduce the apparent bulk of each of the converter station buildings.</p>

Policy Summary	Assessment of Policy
<p><b>Wansbeck District Local Plan</b> Policy GP32 - Landscaping and Public Realm</p> <p>This policy requires developers to incorporate a high standard of landscape treatment in their developments. This should include:</p> <ul style="list-style-type: none"> <li>a) The retention of valuable landscape features;</li> <li>b) The inclusion of new landscape features which are appropriate to the development and its location;</li> <li>c) The inclusion of landscape features which enhance the visual quality of the development, reduce its impact and provide habitat for the district's wildlife; and</li> </ul> <p>Arrangements put in place for the future management and maintenance of all landscaped areas.</p>	<p>Retention of any identified valuable landscape features and the inclusion of new features (where deemed necessary) will be incorporated into the detailed design of the project. Any impact is likely to be confined to construction phases only, and is not expected to have any long term effects.</p>
<p><b>Wansbeck District Local Plan</b> Policy GP34 - Resource Conservation and Integrated Renewable Energy</p> <p>Developments are required to demonstrate that they have been designed to conserve energy and water. Major developments (10 or more residential units or non-residential units exceeding 1000sqm) are required to produce 10% of predicted energy use to be provided on site from renewable sources.</p>	<p>NSN Link will allow electricity exchange between the UK and Norway which will support energy efficiency and low carbon generation from renewable sources by helping to manage fluctuations in generation and demand.</p>
<p><b>Wansbeck District Local Plan</b> Policy GP35 – Crime Prevention</p> <p>Proposals should include measures which discourage criminal activity. This could include:</p> <ul style="list-style-type: none"> <li>• promotion of mixed use development and other schemes that increase the range of activities that maximize the opportunities for surveillance;</li> <li>• maximizing the amount of defensible space which is controlled, or perceived to be controlled, by occupiers; and</li> <li>• a high standard of street lighting.</li> </ul>	<p>Crime prevention measures will be incorporated in the detailed design proposals, which includes the installation of a security fence around the converter station site to prevent unauthorised access to the converter station, if deemed necessary.</p>

Policy Summary	Assessment of Policy
<p><b>Northumberland County Council Preferred Options Consultation Document</b> Draft Policy 1 – Sustainable Development</p> <p>This provides an overarching policy which reflects the presumption in favour of Sustainable Development, which includes:</p> <ul style="list-style-type: none"> <li>a. Building a strong economy;</li> <li>b. Providing access to housing;</li> <li>c. Supports and improves access, health, infrastructure, social and cultural wellbeing;</li> <li>d. Conserves and enhances the natural, historic and built environment;</li> <li>e. Makes the most efficient and effective use of available resources (e.g. land, water, minerals, buildings);</li> <li>f. Demonstrates high quality design which respects and enhances local distinctiveness;</li> <li>g. Is resilient to economic, social and climatic change;</li> <li>h. Is aligned with the objectives of the Core Strategy.</li> </ul>	<p>NSN Link will allow electricity exchange between the UK and Norway which will support energy efficiency and low carbon generation from renewable sources by helping to manage fluctuations in generation and demand.</p> <p>Any impacts on landscape and ecology are anticipated to be temporary and the project complements the aspirations of the area (as identified in the Cambois Zone of Economic Opportunity LDO), and may encourage further economic development in the area, such as those associated with the off shore energy industries or other power industries.</p>
<p><b>Northumberland County Council Preferred Options Consultation Document</b> Draft Policy 38 – Sustainable Design and Construction</p> <p>Draft Policy 38 is commitment to sustainable design and construction which strives to achieve high energy efficiency and low or zero carbon energy generation where viable, and sets out a list of criteria which all new development proposals must satisfy</p>	<p>Sustainable design and construction standards will be considered at the detailed design stage. Currently the proposals relate to outline planning consent with all matters reserved.</p> <p>Details with regards to sustainable design and construction will be considered further (should planning permission be granted) once a contractor has been appointed.</p>

**Table 4.2: Assessment of Policy in Relation to Access**

Policy Summary	Assessment of Policy
<p><b>Wansbeck District Local Plan</b> Policy GP4 - Accessibility</p> <p>The policy provides that new development should be located to reduce the need to travel and to minimise journey length. It should be accessible by a range of transport modes including buses, walking and cycling, making clear that developments which are only accessible by car will not be permitted.</p>	<p>This policy provides that all new development should be accessible by a range of transport modes. However, the converter station will only require a small workforce (maximum 8 full time equivalent) with occasional visits for maintenance etc. and is therefore not likely to have any impact on the local road network.</p> <p>The Port of Blyth, which is a deep water, rail, connected port, provides an opportunity to transport construction materials by water and/or rail, reducing the impact during construction.</p>
<p><b>Wansbeck District Local Plan</b> Policy T3 – Provision for Cyclists</p> <p>Developers will be required as a condition of planning permission to provide cycle parking as part of their developments.</p>	<p>The proposed converter station will only require a very small workforce (maximum 8 full time equivalent) with occasional visits for maintenance etc. Accessibility is therefore only a small consideration. As such, assessments have focused on the impacts associated with construction, and identified the opportunity to utilise the Port of Blyth, to transport construction materials by water and/or rail.</p> <p>In addition a number of PRow have been identified in the area including the footpath which runs through Fergusons Industrial Estate (Footpath No. 600/054). There is also Route 1 of the National Cycle Network which runs through the area.</p>
<p><b>Wansbeck District Local Plan</b> Policy T4 – Provision for Walking</p> <p>Developers will be required to provide safe, convenient and pleasant routes for pedestrians. Proposals to extinguish or divert public rights of way, or close other footpaths, will not normally be supported</p>	
<p><b>Northumberland County Council Preferred Options Consultation Document</b> Draft Policy 40 – Principles for Accessibility</p> <p>New developments should make adequate provision of pedestrian and cycle access and links to existing networks will be sought where appropriate. All development proposals should where appropriate and viable promote accessibility by:</p> <ul style="list-style-type: none"> <li>• Reducing the need to travel;</li> <li>• Supporting investment in infrastructure for sustainable modes of travel;</li> <li>• prioritising access for pedestrians and cyclists; and</li> </ul> <p>Considering the transport and accessibility needs of the whole community when planning and assessing development.</p>	<p>This policy provides that all new development should be accessible by a range of transport modes. However, this will only have a small workforce (2-3 people at a maximum at any one time with maximum 8 full time equivalent) with additional personnel required during occasional visits for maintenance etc.</p> <p>As the site is close to the Port of Blyth, which is a deep water, rail connected port, there is the opportunity to transport construction materials by water and/or rail thus reducing the impact on the road network.</p>
<p><b>Northumberland County Council Preferred Options Consultation Document</b> Draft Policy 41 – Parking Standards for Residential and Non-residential Development</p>	<p>Appropriate car parking provision in accordance with the Council’s current car parking standards will be provided.</p>

Policy Summary	Assessment of Policy
<p>This policy retains the Council’s current car parking standards with the need to consider:</p> <ul style="list-style-type: none"> <li>• The scale and type of development;</li> <li>• Accessibility by a range of transport modes;</li> <li>• The level of area wide parking standards and restrictions; and</li> </ul> <p>The potential for environmental problems and safety issues.</p>	
<p><b>Northumberland County Council Preferred Options Consultation Document</b> Draft Policy 43 - The Effects of Development on the Road Network</p> <p>Development which will impact on the road network will be required to: Include appropriate measures to mitigate the adverse effects;</p> <ul style="list-style-type: none"> <li>• Minimise conflict between different types of road user;</li> <li>• Facilitate the safe use of the public highway;</li> <li>• Provide appropriate access and egress to/from the development;</li> <li>• Minimise any adverse impact on communities, including noise and air quality;</li> <li>• Where necessary, contribute to the improvement of access to key services and facilities; and</li> </ul> <p>Provide access to sustainable transport provisions, where appropriate.</p>	<p>No additional impact on the existing road network is anticipated and the proposed internal road layout and the servicing and delivery provisions will be adequate.</p>

## 5.0 VISION AND URBAN DESIGN PRINCIPLES

- 5.1 The NSN Link will allow the exchange of electricity between the UK and Norway which will support energy efficiency and low carbon generation from renewable sources by helping to manage fluctuations in generation and demand.
- 5.2 The overriding principles behind the development of the converter station are to ensure appropriate efficiency and safety of operation, safety of authorised workers and visitors, and the safety of others.
- 5.3 These principles translate into a concept that seeks to provide appropriate operational space, including electrical clearances, and space for maintenance and anticipated repair operations within the converter station. The concept also envisages the ability to provide replacement equipment in a timely manner to ensure minimal disruption or interruption to operation; appropriate entry and exit provisions for workers; and security fencing to actively deter access to others to ensure their safety.
- 5.4 The proposed converter station layout has been designed to ensure safe and efficient operation but have also been designed to minimise the impact of the development on the surrounding environment. This is to be achieved through the proposed location of the convertor station in an area with a number of existing industrial buildings and energy related development.
- 5.5 The design of the convertor station is largely fixed by its function and it is proposed that the perceived scale of the buildings will be reduced by treatment to the cladding so that there is a gradual transition of colour from the base to the top. A recessive grey colour is proposed, lightening gradually from dark grey to light grey on the upper elevations which will appear to recede when seen against the sky. This will help reduce the apparent massing of each converter station building in general views.
- 5.6 A security fence is required to be installed surrounding the converter station to prevent unauthorised access.
- 5.7 The Proposed Development has been designed through the implementation of the following design principles:
- To integrate the development sensitively with the established surrounding environment, existing pattern of development and land use context; and
  - To ensure a safe and secure environment for both people and wildlife.
- 5.8 A draft drainage strategy for the converter station has been produced. The proposed converter station has been designed with consideration for Sustainable Drainage Systems (SuDS) and surface water run-off will be appropriately managed to ensure discharge levels are no greater than existing and will not result in flood risk.

## 6.0 DEVELOPMENT DESIGN CONCEPT AND LAYOUT

- 6.1 This Design and Access Statement accompanies an outline planning application for the proposed UK onshore elements of the NSN Link including the development of a converter station.
- 6.2 Drawing ARP-NSN-V5 (Figure 4.2 of the ES) indicates a typical converter station building footprint which includes maximum height parameters for the buildings and electrical equipment. Proposed elevations are shown on ARP-NSN-V4 (ES figure 4.4). The layout and position of the converter station buildings and equipment will be subject to detailed design by the preferred contractor, however the indicative design sets out the parameters of the development and gives sufficient detail on the scale of the development to undertake assessment.
- 6.3 A series of photomontage views of the proposed converter station are presented in IN2336.003-008 (Figures 9.11-9.16 in the ES). The photomontages indicate the anticipated appearance, scale and massing of the converter station set in the local context.

### Layout

- 6.4 The layout of the proposed converter station is based on the most efficient use of space which allows safe operation, maintenance and repair or replacement of the equipment during the anticipated operational life.
- 6.5 The specific design of the converter station has been informed by the following criteria:
- The inherent requirement of the electrical infrastructure required;
  - The need to maintain a secure and safe site; and
  - The inaccessibility of the site to the general public.
- 6.6 The planning application site for the converter station also comprises an area to include temporary construction laydown areas and access routes associated with the development.
- 6.7 The overall space required cannot be reduced beyond that which allows technical performance in addition to safe operation and maintenance.
- 6.8 All outdoor areas where plant is installed will be surfaced in stone chippings. The converter station and substation will be securely enclosed by palisade fencing to current National Grid Standards and may include electrification on the internal side of the palisade fence. Internal surfaced roads will be required to access the buildings, for maintenance and car parking.



### **Visual Appearance and Scale**

- 6.9 The HVDC Converter installation will comprise a series of interconnected buildings as described in Chapter 2. It may also include some lower outdoor electrical plant, although the majority of equipment will be contained within metal clad buildings.
- 6.10 The converter station will be clad in galvanised steel around steel frames. A recessive grey colour lightening gradually from dark grey to light grey will be used on the converter station building which will enable it to appear recessive in the surrounding landscape and against the sky (see Outline Schedule of Materials). The colour of the selected materials have been illustrated by the series of photomontages IN2336.003-008 (Figures 9.11-9.16 in the ES).
- 6.11 The proposed converter station will be located northwest of the existing Blyth 400/275kV substation and there are several other large scale buildings of a similar appearance in the area.
- 6.12 There is a broad belt of screen planting surrounding the converter station site which is establishing and will provide increased filtering of views into the site. Additional landscape will be implemented around the perimeter of the converter station to aid the integration the proposed development into the wider site area. This will be considered in detail at the reserved matters stage.

## 7.0 ACCESS

- 7.1 Access to the site will be provided by a new access road from Brock Lane at the south of site.
- 7.2 A temporary construction laydown area at the western edge of the proposed convertor station and will be established to accommodate construction personnel, offices, toilets, mess facilities, car parking facilities and construction plant and machinery. These laydown areas will be in place for the duration of the construction period. Upon completion of construction activities, the laydown facilities will be removed and the ground restored to a cleared site.
- 7.3 The converter station will operate with a small number of technical staff of an approximate 8 no. full time equivalent. An area of vehicular parking comprising 10 spaces including one disabled space will be provided in the convertor station compound which will allow for increased numbers of workers at times of maintenance.
- 7.4 Exceptional maintenance may be required at some point in the equipment lifecycle. For example, this could be repair, maintenance or replacement of switchgear or a transformer. Such maintenance will be highly infrequent; any replacement plant required to be brought to site will be appropriately planned to ensure disturbance effects can be minimised as far as possible. It is likely that the delivery of any large plant (such as transformers) will use access routes proposed as part of this planning application.
- 7.5 Access to the converter station will be restricted and strictly controlled via secure metal electronic gates. Only construction personnel, maintenance staff and visitors will be able to access the site. No public access to the site will be permitted and there are appropriate measures in place to ensure public safety is not compromised. Physical prevention and surveillance measures such as the erection of a security fence will prevent unlawful access.
- 7.6 Access provisions are of sufficient width to enable emergency vehicles to access the site in the event of an emergency. Access and egress routes for emergency vehicles and staff (pedestrians and vehicles) will be via the separate access points.
- 7.7 The new access off Brock Lane also offers opportunity for access to the rest of the East Sleekburn development site.

## 8.0 SUSTAINABILITY PROPOSALS

- 8.1 The design of the proposed converter station development is influenced by the principles and objectives of sustainable development, as defined in the previous Government's Sustainable Development Strategy 'Securing the Future'. It is further supported by the coalition Government's 'Mainstreaming Sustainable Development'. The guiding principles of these strategies are:
- Living within environmental limits;
  - Ensuring a strong, healthy and just society;
  - Achieving a sustainable economy;
  - Promoting good governance; and
  - Using sound science responsibly.
- 8.2 European policy reflects the need for investment in energy infrastructure and was the main impetus for the formal adoption of the Trans-European Energy (TEN-E) Infrastructure Guidelines. They provide a strategic framework for the long-term energy infrastructure provision.
- 8.3 The NSN Link will help to deliver wider sustainability goals related to increased efficiency of connecting demand with generation of electricity and supporting renewable and low-carbon power generation.
- 8.4 NSN Link is a key energy infrastructure project in a European context and as such is identified as a Project of Common Interest. The scale of NSN Link will help to wider sustainability benefits bringing lower energy prices to consumers, enhanced energy security and a cleaner environment through opportunities for the integration of renewable, low carbon energy sources.
- 8.5 It will facilitate energy exchange between the UK and Norway supporting the use of renewable energy and contributing to a low carbon future.
- 8.6 The Proposed Development is based on and implements aspects of planning policy and guidance on good design and inclusive access relevant to its function and purpose.