MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Environmental Statement

Technical Note: Landscape and Design Matters

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Contents

Glossary

Term	Meaning
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Development Consent Order	An order made under the Planning Act 2008, as amended, granting development consent.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to, and information to support, the EIA and Habitats Regulations Assessment processes for certain topics.
Generation Assets	The generation assets associated with the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm include the offshore wind turbines, inter-array cables, offshore substation platforms and platform link (interconnector) cables to connect offshore substations.
Intertidal area	The area between Mean High Water Springs and Mean Low Water Springs.
Intertidal Infrastructure Area	The temporary and permanent areas between MLWS and MHWS.
Landfall	The area in which the offshore export cables make landfall (come on shore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area at Lytham St. Annes between Mean Low Water Springs and the transition joint bay inclusive of all construction works, including the offshore and onshore cable routes, intertidal working area and landfall compound(s).
Local Authority	A body empowered by law to exercise various statutory functions for a particular area of the United Kingdom. This includes County Councils, District Councils and County Borough Councils.
Local Highway Authority	A body responsible for the public highways in a particular area of England and Wales, as defined in the Highways Act 1980.
Main rivers	The term used to describe a watercourse designated as a Main River under the Water Resources Act 1991 and shown on the Main River Map. These are usually larger rivers or streams and are managed by the Environment Agency.
Marine licence	The Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities. Section 149A of the Planning Act 2008 allows an applicant for to apply for 'deemed marine licences' in English waters as part of the development consent process
Maximum design scenario	The realistic worst case scenario, selected on a topic-specific and impact specific basis, from a range of potential parameters for the Transmission Assets.
Mean High Water Springs	The height of mean high water during spring tides in a year.
Mean Low Water Springs	The height of mean low water during spring tides in a year.
Micro-tunnel / micro-tunnelling	A tunnelling technique involving the use of a hydraulic (or other) jacking rig and a mini (or micro) tunnel boring machine to install a concrete tunnel between two points.

Term	Meaning
Mitigation measures	This term is used interchangeably with Commitments. The purpose of such measures is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects.
Morecambe Offshore Windfarm: Generation Assets	The offshore generation assets and associated activities for the Morecambe Offshore Windfarm.
Morecambe Offshore Windfarm: Transmission Assets	The offshore export cables, landfall, and onshore infrastructure required to connect the Morecambe Offshore Windfarm to the National Grid.
Morecambe OWL	Morecambe Offshore Windfarm Ltd is a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a Cobra group company) (Cobra) and Flotation Energy Ltd.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore export cables, landfall, and onshore infrastructure for the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Morgan Offshore Wind Project: Generation Assets	The offshore generation assets and associated activities for the Morgan Offshore Wind Project.
Morgan Offshore Wind Project: Transmission Assets	The offshore export cables, landfall and onshore infrastructure required to connect the Morgan Offshore Wind Project to the National Grid.
Morgan OWL	Morgan Offshore Wind Limited is a joint venture between bp Alternative Energy Investments Ltd. and Energie Baden-Württemberg AG (EnBW).
National Grid Penwortham substation	The existing National Grid substation at Penwortham, Lancashire.
National Policy Statement(s)	The current national policy statements published by the Department for Energy and Net Zero in 2023 and adopted in 2024.
Offshore booster station	A fixed structure located along the offshore export cable route, containing electrical equipment to ensure bulk wind farm capacity can be fully transmitted to the onshore substations.
Offshore substation platform(s)	A fixed structure located within the wind farm sites, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which would bring electricity from the Generation Assets to the landfall.
Offshore export cable corridor	The corridor within which the offshore export cables will be located.
Offshore Permanent Infrastructure Area	The area within the Transmission Assets Offshore Order Limits (up to MLWS) where the permanent offshore electrical infrastructure (i.e. offshore export cables) will be located.
Offshore Order Limits	See Transmission Assets Order Limits: Offshore (below).
Offshore substation platform(s)	A fixed structure located within the wind farm sites, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.

Term	Meaning
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substations.
Onshore export cable corridor	The corridor within which the onshore export cables will be located.
Onshore Infrastructure Area	The area within the Transmission Assets Order Limits landward of MHWS. Comprising the offshore export cable corridor from MHWS to the transition joint bay, onshore export cable corridor, onshore substations and 400 kV grid connection cable corridor, and associated temporary and permanent infrastructure including temporary and permanent compound areas and accesses. Those parts of the Transmission Assets Order Limits proposed only for ecological mitigation and/or biodiversity benefit are excluded from this area.
Onshore Order Limits	See Transmission Assets Order Limits: Onshore (below).
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Preliminary Environmental Information Report	A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of a project, and which helps to inform consultation responses.
Renewable energy	Energy from a source that is not depleted when used, such as wind or solar power.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations due to the flow of water.
Substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of electrical transformers.
The Secretary of State for Energy Security and Net Zero	The decision maker with regards to the application for development consent for the Transmission Assets.
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).
Transmission Assets Order Limits	The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).
Transmission Assets Order Limits: Offshore	The area within which all components of the Transmission Assets seaward of Mean Low Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning. Also referred to in this report as the Offshore Order Limits, for ease of reading.
Transmission Assets Order Limits: Onshore	The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas

Term	Meaning
	required on a temporary basis during construction and/or decommissioning (such as construction compounds). Also referred to in this report as the Onshore Order Limits, for ease of reading.

Acronyms

Acronym	Meaning
AIS	Air Insulated Switchgear
AOD	Above Ordnance Datum
BCA	Bilateral Grid Connection Agreement
CoCP	Code of Construction Practice
CoT	Project Commitment
CBRA	Cable Burial Risk Assessment
CfD	Contracts for Difference
CMS	Construction Method Statement
CSIP	Cable Specification and Installation Plan
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
Defra	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security & Net Zero
dML	Deemed Marine Licence
EnBW	Energie Baden-Württemberg AG
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPP	Evidence Plan Process
ES	Environmental Statement
EWG	Expert Working Group
GIS	Gas Insulated Switchgear
HDD	Horizontal Directional Drilling
HGV	Heavy goods vehicle
HNDR	Holistic Network Design Review
HVAC	High Voltage Alternating Current
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IAQM	Institute of Air Quality Management
LAT	Lowest Astronomical Tide
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MDS	Maximum Design Scenario

Acronym	Meaning
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MPS	Marine Policy Statement
MTBM	Mini (or micro) tunnel boring machine
NGESO	National Grid Electricity System Operator
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
O&M	Operation and Maintenance
OSP	Offshore Substation Platform
OTNR	Offshore Transmission Network Review
PDE	Project Design Envelope
PEIR	Preliminary Environmental Information Report
PPP	Pollution Prevention Plan
PRoW	Public rights of way
SAC	Special Areas of Conservation
SAR	Search and Rescue
SPA	Special Protection Area
SNCBs	Statutory Nature Conservation Bodies
SSSI	Sit of Special Scientific Interest
SWMP	Site Waste Management Plan
TEP	Technical Engagement Plan
TJB	Transition Joint Bay
UK	United Kingdom
UXO	Unexploded Ordnance
WSI	Written scheme of investigation

Units

Unit	Description
%	Percentage
dB	Decibels
Kg	Kilogram
kHz	Kilohertz

Unit	Description
KJ	Kilojoules
km	Kilometres
km^2	Kilometres squared
kV	Kilovolt
m	Metres
m^2	Metres squared
m^3	Metres cubed
nm	Nautical mile
µPa	micropascal

1 Technical Note: Response to Landscape Commentary by Stakeholders

1.1 Introduction

1.1.1 Purposes of this Technical Note

1.1.1.1 This Technical Note (TN) has been prepared by the Applicants in response to comments received from stakeholders submitting representations at Deadlines 1 and 2 concerning landscape and visual matters.

1.1.1.2 These stakeholder comments have been provided through the *Local Impact Reports* (LIR), *Relevant Representations* (RR), and *Statement of Common Ground* (SoCG) discussions. They address a range of issues relating to the potential impacts of the Transmission Assets on existing landscape features and how the Applicants have responded to these matters.

1.1.1.3 The Applicants acknowledge that stakeholders are seeking greater clarity on project details relating to design matters. This view has influenced the stakeholders' responses to the Landscape and Visual Impact Assessment (LVIA) findings, as set out in the submitted stakeholder documents.

1.1.1.4 Furthermore, the Applicants note that the Examining Authority (ExA) have also asked a series of questions, as part of the *Examining Authority's Written Questions 1* (ExQ1) (PD-008), regarding design process and the role of the design code post consent.

1.1.1.5 The Applicants consider that sufficient information regarding the Transmission Assets' design and landscape strategies has been provided in the application materials. This information complies with the parameters-based application approach and the Planning Inspectorate's guidance on the use of the Rochdale Envelope.

1.1.1.6 For example, the detail provided within *Volume 1, Chapter 3 Project Description of the Environmental Statement* (REP2-008) (ES) is adequate to properly inform the assessments presented in the Environmental Statement (ES). Additionally, project design information is included within the *Outline Landscape Management Plan* (oLMP) (AS-050) and the *Outline Ecological Management Plan* (oEMP) (APP-212), which incorporate Indicative Landscape Strategies for each substation. These strategies illustrate one potential interpretation of the design codes in the oDP (APP-209) to structure the landscape design response and will be subject to further development in support of the discharge of relevant Requirements.

1.1.1.7 For conciseness and clarity, this TN groups stakeholders' comments by theme and provides a targeted response to each. Cross-references are provided to the original application documents and any supplementary material used to clarify the Applicants' DCO submission. This TN also

provides further information in support of relevant Applicants' responses to Examining Authority's Written Questions 1 (ExQ1) (PD-008).

Structure of this Technical Note

1.1.1.8 The TN is structured thematically in line with the comments raised by all stakeholders. Each section includes:

- A summary of each comment or question (with reference to the original representation);
- Clarification of the relevant information already submitted in the ES or associated documentation and/or supporting information; and
- References to any updated or supplementary material.

1.2 The Applicants' Response to Comments

1.2.1 Impacts on Public Rights of Way

1.2.1.1 LCC LIR comment **REP1-085 7.49** raises concerns about the lack of detail in relation to the reinstatement of Public Rights of Way (PRoW) affected by the transmission works, particularly in relation to surfacing materials and demarcation, and requests clarity on how these will be restored, including features such as gates and signage.

Clarification and/or supplementary response

1.2.1.2 The Applicants refer to the Outline Public Rights of Way Management Plan (AS-048), secured through Requirement 8 of the draft DCO (REP2-004) (dDCO). This Requirement outlines the principles for managing PRoWs during construction, making clear that detailed PRoW Management Plans will be developed and approved by relevant planning authorities, in consultation with stakeholders, before works commence. These plans will include specific information on surfacing and design, as confirmed in Section 1.5.8 of the Outline Public Rights of Way Management Plan (AS-048).

Emerging SoCG discussions

1.2.1.3 The Applicants held a SoCG meeting with the LCC PRoW Officer on 11th June 2025 to discuss the outline PRoW Management Plan. Explanations of the content of the oPRoW were provided and an action was taken to provide clarity on the method of PRoW managed crossings. This clarification has been provided in an oPRoW update submitted to LCC via the SoCG process. LCC have confirmed that they will review the oPRoW and comment further following the next SoCG meeting, and will provide an update at further deadlines.

1.2.3 Impacts on Hedgerows

1.2.3.1 LCC LIR comment **REP1-085 7.50** suggests inconsistencies in the application material regarding hedgerow reinstatement, noting some references to “like-for-like replacement” and others to “species-rich hedgerows”. It raises concerns over vague language (e.g. "where practicable") and recommends that all hedgerows be replaced with species-rich mixes including trees, subject to appropriate setbacks from cables and use of root barriers. It also suggests minimum tree sizes, and the potential need for rabbit or deer protection measures.

1.2.3.2 Similarly, FBC LIR comment **REP1-078 12.4.2**, concerning *Trees and Hedgerows,* highlights that over 60 mature trees and 69 hedgerows are identified for full or partial removal, based on the submitted arboricultural assessments (APP-128, APP-129). FBC raises concerns about inconsistencies in the restoration proposals, noting conflicting references to either “like-for-like” or “species-rich hedgerow replacement”, and the use of uncertain language such as "wherever practicable" and "subject to landowner agreement".

Clarification and/or supplementary response

1.2.3.3 The Applicants confirm their intention to reinstate all trees and hedgerows removed as part of the Transmission Assets, using appropriate species and planting stock to ensure successful establishment. Trees will be replaced on a like-for-like basis using species of a suitable size, and hedgerows will similarly be reinstated with appropriate species, which in most instances will comprise a species-rich hedgerow, subject to site-specific conditions

1.2.3.4 This commitment is secured through mechanisms within the dDCO (REP2-004). In accordance with CoT13 and CoT15 of Volume 1, Annex 5.3: *Commitments Register* of the ES (AS-030), the reinstatement of trees and hedgerows will be delivered in line with the oLMP (AS-050) and secured through Requirement 6 (Provision of Landscaping), Requirement 8 (Code of Construction Practice), and Requirement 12 (Ecological Management Plan) of Schedules 2A and 2B of the dDCO . These measures are subject to approval by the relevant planning authority, in consultation with stakeholders, where appropriate.

1.2.3.5 Planting specifications and restoration designs will be defined through the discharge of Requirement 6 of the draft DCO which states:

> *6.—(1) No stage of the Project A/Project B onshore works may commence until a written landscaping scheme and associated work programme in accordance with the outline landscape management plan for the relevant stage has been submitted to and approved by the relevant planning authority.*
>
> *(2) The written landscaping scheme must include details of all proposed hard and soft landscaping works including—*
>
> *(a) location, number, species, size and planting density of any proposed planting including any trees; and*

(b) implementation timetables for all landscaping works.

1.2.3.6 Although final planting mixes will be determined at the detailed design stage, indicative species compositions are provided in Appendix B of the oLMP (AS-050). Furthermore, in accordance with CoT20, Construction Fencing Plans will be prepared and submitted for approval to the relevant planning authority under Requirement 8 to ensure the protection of retained and newly planted vegetation.

1.2.3.7 The Applicants will develop detailed Landscape Management Plans aligned with the approved oLMP (AS-050), continuing to engage with the relevant authorities proactively to secure appropriate landscape restoration where the Transmission Assets would affect existing vegetation.

Emerging SoCG discussions

1.2.3.8 The Applicants held SoCG meetings with the LCC landscape officer on 18th June and the FBC landscape officer on 30th June to discuss landscape matters. The Applicants have reiterated their position and committed to provision of additional information within submissions at Deadline 3 – including this technical note and updates to the photomontages (F3.12/F02).

1.2.4 Construction of Onshore Trenches

1.2.4.1 FBC LIR comments REP1-078 4.3.3, 9.1.4, 10.3.2; and 12.2.7, in combination with initial SoCG discussions, exemplifies FBC concerns about the potential damage and disturbance caused by the Transmission Assets underground constructions, especially beneath and around the Sand Dunes that are situated within the Lytham St Anne's Dunes Site of Scientific Interest (SSSI).

Clarification and/or supplementary response

1.2.4.2 The following documents provide further detail on the trenchless technique crossing of the sand dunes: Volume 1, Chapter 3 Project Description (REP2-008) and Annex 5.3 to the Applicants response to Hearing Action Points: ISH1 13, 14, 16, 17 (REP1-040).

1.2.4.3 Impacts on sand lizard were assessed in section 3.11.13 of Volume 3 Chapter 3: Onshore Ecology and Nature Conservation (APP-075), and the residual effects were assessed as not significant as the Applicants have made a commitment (CoT44 of Volume 1, Annex 5.3: Commitments Register of the ES (AS-030)) to locating the exit pits associated with the direct pipe installation will be at least 100 m seaward of the western boundary of the SSSI. This is secured by Requirement 8 within Schedules 2A & 2B of the draft Development Consent Order (REP2-004)

1.2.4.4 Notwithstanding this, the concerns of stakeholders, including the Local Planning Authorities, Wildlife Trust and Natural England, regarding the potential for hydrological impacts to the dune slacks have been noted throughout the consultation process, and the Applicants have provided

an Outline Hydrogeological Risk Assessment of Lytham St Annes Dunes SSSI at Deadline 3 (S_D3_6).

Emerging SoCG discussions

1.2.4.5 The Applicants held SoCG meetings with the LCC landscape officer on 18th June 2025 and the FBC landscape officer on 30th June 2025 to discuss landscape matters.

1.2.4.6 On 30th June 2025, FBC reiterated their concerns regarding the potential environmental damage and disturbance associated with the underground construction of Transmission Assets, particularly in the vicinity of the Sand Dunes located within the Lytham St Anne's SSSI. The Applicants reiterate that there will be no environmental damage or disturbance as part of the construction of the Transmission Assets.

1.2.5 Topographic Information

1.2.5.1 LCC LIR comments **REP1-085 7.61** and **7.86** notes a lack of detail regarding cut and fill operations associated with the substations, making it difficult to assess how the buildings will relate to the existing landscape levels. It specifically requests cross sections to show landform changes, which had not been provided as part of the DCO submission.

Clarification and/or supplementary response

1.2.5.2 The Applicants confirm that, in line with all offshore wind projects and their associated onshore transmission infrastructure, final substation layouts and levels will be determined at detailed design stage, informed by technical requirements. Cut and fill will be necessary to create level platforms, particularly at the sloping Morgan OWL site, and will be designed to minimise spoil movement, as described in the Project Description (REP2-008) and oLMP (AS-050). Detailed design, including levels, will be subject to approval by the relevant planning authority under Requirement 4 of the draft DCO (REP2-004).

1.2.5.3 The Applicants refer to the photomontages presented in Volume 3, Figures - Part 6 of 7 (F3.12/F02), and the maximum design parameters documented in Volume 3, Chapter 10 Landscape and visual resources (APP-123), in support of the LVIA undertaken and the resultant findings presented. The submitted visualisations represent the assessed worst-case development scenario and are based on accurately modelled 3D representations and assumed site levels, prepared in accordance with industry best practice.

1.2.5.4 Further to D2 LIR submission and preliminary SoCG discussions with stakeholders, the Applicants have provided a series of new figures (see **Figures 1** to **4**) that provide topographic information to further support stakeholders' understanding the relationship between the proposed onshore substation site levels and the local existing landform. The supplementary figures appended to this TN comprise:

- ***Figure 1: Topographic Context -*** presents a topographic context plan showing existing contours between Kirkham and Newton-with-Scales, including indicative proposed spot heights for both substation platforms. These heights were used to inform the LVIA visualisations and showing the indicative levels that would possibly come forward (subject to further detailed design post consent);
- ***Figure 2: Cross Section of Morgan substation site***, and ***Figure 3: Cross Section of Morecambe substation site*** present long cross sections drawings through both the Morgan and Morecambe substation sites to supporting stakeholders understanding of the potential platform levels and development height parameters, and their relationship with the existing landform and nearest settlements.
- ***Figure 4: Elevation of Morgan substation*** provides an extract of the long cross-section in the vicinity of the Morgan substation, supporting the Applicant's clarification on the landscape mitigation strategy and species selection below in **Section 1.2.6**.

Emerging SoCG discussions

1.2.5.5 The Applicants held a SoCG meetings with the LCC landscape officer on 18th June and the FBC landscape officer on 30th June to discuss landscape matters. The Applicants have provided, as part of the Deadline 3, indicative topographic information for the local planning authorities' information.

1.2.6 Landscape Mitigation Strategy & Species Selection

1.2.6.1 LCC LIR comment **REP1-085 7.70** suggests that the composition proposed for the woodland mix lacks sufficiently tall species to screen the substations effectively, especially on a receding slope (to the east of the Morgan substation down the Dow Brook). LCC suggests supplementing oak with taller species such as pine and beech, which are larger growing and may help filter views more effectively. LCC also note that birch is use as a nurse species and therefore will mean that numbers are reduced as climax species mature. LCC LIR comment **REP1-085 7.67** repeats that the scale of the proposed landscape mitigation is considered negligible in comparison to the scale of the substation buildings and recommends that mitigation measures should respond more closely to the local landscape character.

1.2.6.2 LCC LIR comment **REP1-085 7.68** highlights the limited space available for screening the Morgan substation from the adjacent public bridleway, observing that current proposals rely solely on low scrub planting. The absence of tree planting is questioned, and the comment suggests that enhanced screening or a potential diversion of the route should be considered.

1.2.6.3 LCC LIR comments **REP1-085 7.73 to 7.76** recommend that trees be included within hedgerow restoration, where compatible with cable installation guidelines, and that off-site hedgerow tree planting be

employed to enhance landscape character and filter views of substations from nearby residential properties. The comments also suggest the use of larger planting stock - particularly around substations - with hedgerow and woodland trees planted at a minimum girth of 14 - 16 cm and height of 3-4 metres. Concerns are raised regarding the adequacy of the proposed five-year maintenance period, recommending a longer-term management plan, potentially extending up to 30 years, to support woodland and hedgerow maturation.

1.2.6.4 LCC LIR comment **REP1-085 7.78** outlines detailed planting recommendations, including best practice guidance (e.g. British Standards for subsoil and seasonal maintenance), species-specific advice (e.g. use of nurse species like *Betula* and *Corylus*, inclusion of larger Scots pine and beech near public areas, and container-grown holly and pine), and planting locations (e.g. gorse near coastal zones). It advises managing shrubs such as holly (*Illex*), hazel (*Corylus*), and goat willow (*Salix caprea*) appropriately, adding rose (*Rosa*) to hedgerows, and discourages scrub planting as it is uncharacteristic of the local landscape and provides limited screening compared to woodland.

Clarification and/or supplementary response

1.2.6.5 The Applicants confirm that, in response to LCC LIR comments at **REP1-085 7.67** and **7.70**, the siting of the proposed substations and the associated landscape mitigation measures have been designed to minimise landscape and visual impacts. This is detailed in Sections 4.4 to 4.9 of ES Volume 1, Chapter 4: Site Selection and Consideration of Alternatives (AS-026), and in ES Volume 1, Annex 4.3: Selection and Refinement of the Onshore Infrastructure (AS-029).

1.2.6.6 The appended figure — **Figure 4: Section through Morgan Substation** — provides an extract of the long cross-section in the vicinity of the Morgan substation, illustrating the indicative heights of the proposed woodland planting located to the east of the substation, on the receding slope down to Dow Brook, following 15 years of growth.

1.2.6.7 The cross-section assumes, as a conservative case, an annual growth rate of approximately 450 mm, with planting implemented at a minimum height of 450 mm. This assumption is based on IEMA guidance[1], which assumes and species performance under moderate conditions. It reflects typical early growth rates for native broadleaved species such as oak, birch and field maple, which range from 300 mm to 600 mm per year. This precautionary figure accounts for site-specific factors like soil quality and exposure and aligns with Forestry Commission publications and best practice in GLVIA3, which states: *"Assumptions about plant growth or other changes over time should be realistic and not over optimistic. The design concept for the mitigation has to have a good*

[1] *Predicting tree and hedge growth*, IEMA. Accessed in June 2025 (online), see *www.iema.net/articles/predicting-tree-andhedge-growth*

chance of being achieved in practice to be taken seriously by the competent authority."

1.2.6.8 In this context, the Applicants reaffirm their position, as set out in Section 1.3.2 of the oLMP (APP-209), that the principal objective of the proposed landscape strategy is to integrate, filter and/or screen views of the onshore substations. It is clarified that the proposals do not seek to achieve complete screening of the substations, but rather to provide appropriate visual mitigation that reflects the receiving landscape context. The cross sections illustrate the performance of the planting and its scale in context.

1.2.6.9 In response to LCC LIR comment **REP1-085 7.68**, the Applicants note that the use of trenchless installation techniques will enable the retention of several high-quality trees within this area. The proposed mitigation has been developed with due regard to engineering constraints and the requirement to avoid planting within the permanent easement of the onshore export cable route. These measures are described in the oLMP (APP-209) and secured through the draft DCO. The oLMP and oEMP (AS-050) together provide the framework for the preparation of a detailed LEMP, post-consent. Section 1.1.5 of the oLMP sets out the proposed implementation process, which includes engagement with relevant stakeholders to ensure that planting schemes, management regimes and biodiversity enhancements are appropriately tailored to the local landscape character and ecological context and aligned with the objectives and principles of the LEMP.

Emerging SoCG discussions

1.2.6.10 The Applicants held SoCG meetings with the LCC landscape officer on 18th June and the FBC landscape officer on 30th June to discuss landscape matters. The Applicants have reiterated their position and have provided, as part of the Deadline 3, indicative topographic information, overlaid with landscape mitigation proposals, for the local planning authorities' information.

1.2.6.11 The Applicants have prepared an updated planting species schedule in readiness for discussion with relevant local planning authorities as part of forthcoming SoCG discussions.

1.2.7 Indicative layout of the proposed substations

1.2.7.0 Q13.1.4 of the ExQ1 (PD-008) requests indicative layout drawings for each proposed substation, notating the different structures, equipment and buildings that would generally be required for each. This reflects stakeholder comments that state that there is limited information available.

Clarification and/or supplementary response

1.2.7.1 As outlined in the Applicants' response to Q13.1.4, an indicative 3D illustration of each onshore substation site's layout has been prepared and is submitted for *Deadline 3*. This illustration annotates the typical

structures, equipment and buildings that would be required at each site, aligning with the EIA project description and the authorised development identified within the draft DCO. The layout mirrors the design used to prepare the photomontages.

1.2.7.2 This TN reaffirms that these layouts are indicative and intended for illustrative purposes only, and that the final design will be developed post consent and subject to the approval of the relevant planning authority in accordance with Requirement 4 in Schedules 2A and 2B of the draft DCO. Copies of the annotated indicative 3D layout of each onshore substation site are appended to this document in **A.1 Appendices as Figures 5 and 6**.

1.2.8 Design Process and Mechanisms pre- and post-consent

1.2.8.1 The ExQ1 (PD-008) sets out a series of questions concerning design matters, which the Applicants have responded to in the Applicants response to ExQ1 (S_D3_3). Those relevant to this TN and comments made in stakeholder submissions are summarised to inform this section:

- **Q13.1.5** seeks clarification on the extent of stakeholder engagement in shaping the oDP, particularly the 'Post-Consent Design Code' (Section 6.2). It asks how the design principles and code have been informed by local communities, users, and interest groups, and what further steps are planned to ensure continued engagement with affected parties during the design development of the substations.
- **Q13.1.11** asks what further detail could be added to the oDP or elsewhere to better demonstrate how good design will be achieved, particularly in terms of equipment selection, layout design, and contextual responsiveness at each substation site.

Clarification and/or supplementary response

1.2.8.2 To further support the Applicants' responses, a suite of supplementary information is supplied to the ExA concerning the Projects' design process, and what further information is intended to be fed into the DCO in support of ongoing engagement with stakeholders, prior to any consent award.

The Role of Design Principles and Coding

1.2.8.3 In addition to the direct responses provided Applicants response to ExQ1 (S_D3_3), the Applicants summarise below in Table 1, the design process and role of the design principles and coding reported in the oDP (APP-209), which is derived from best practice guidance published by the National Infrastructure Commission. The table shows the roles of the different controlling 'design mechanisms' (documents and people) typically responsible at each stage of the project.

Table 1: Design process and controlling mechanisms

Stage	Design Principles	Design Code	Design Champion
Pre-Application	Establish intent	X	X
Examination	Refine and fix commitments	Optional early draft	Nomination
Post-Consent	Referenced in Requirements	Prepared and approved	Appointed
Construction & Operation	Passive reference	Active guide for delivery	Optional monitoring role

Ongoing Design Evolution through Stakeholder Engagement

1.2.8.4 The Applicants are currently undertaking a review of the Design Principles/ Codes for each onshore substation site in discussion with FBC and LCC.

1.2.8.5 This exercise seeks to identify where there may be opportunities for localised evolution of the design to respond to concerns and demonstrate that these are deliverable within the proposed design codes and within the parameters set out in the Project Description and assessed in the ES.

1.2.8.6 This could include potential landscape-led adjustments to the arrangement of infrastructure (once particular parameters, such as onshore substation footprint and selected technology have been designed in detail), the treatment of landscape mitigation measures, and the integration of site-specific contextual features within the Order Limits.

1.2.8.7 Through this process, during the Examination period, the Applicants are seeking to engage proactively with the relevant local planning authorities to develop and agree refined Design Principles and Design Codes to address concerns relating to local character and sensitivities of the receiving local landscape for each substation site. Such engagement is expected to build upon the existing oDP (APP-209), which will be updated and resubmitted in due course within the Examination period.

Emerging SoCG discussions

1.2.8.8 The Applicants held SoCG meetings with the LCC landscape officer on 18th June and the FBC landscape officer on 30th June to discuss the Projects' design process. The Applicants will continue these discussion with the local planning authorities

1.2.9 Good Design Approaches to Onshore Substations

1.2.9.1 This section presents a series of precedent images that illustrate some best-practice design approaches for onshore substations associated with electrical infrastructure.

Substation technology

1.2.9.2 The images illustrate the general characteristics of Gas Insulated Switchgear (GIS) and Air Insulated Switchgear (AIS) to inform an understanding of the built component and open yard characteristics.

Good design

1.2.9.3 The images provide examples of the application of good design and the opportunity for and benefits of establishing design principles and coding to govern good design outcomes set out in National Policy Statements EN-1, EN-3 and EN-5.

Layout

1.2.9.4 A clear disciplined approach to layout should deliver an efficient layout that supports integration and demonstrates good design process.

Built form and materiality

1.2.9.5 The images present examples of approaches to various built form and material selection that support the proper consideration of landscape integration and securing good design outcomes expressed in detailed design and materials selection.

Planting and use of existing landscape features

1.2.9.6 The images illustrate the opportunity that retained existing vegetation and the provision of new planting, provide to support landscape integration and visual mitigation

Emerging SoCG discussions

1.2.9.7 The Applicants held SoCG meetings with the LCC landscape officer on 18th June and the FBC landscape officer on 30th June to discuss the Projects' design process. This provision of information will support those discussions going forwards.

Layout

Hornsea Two Offshore Wind Farm Converter Station

Norfolk

Gas Insulated Switchgear

Rayleigh Main Substation

Essex

Air Insulated Switchgear

Note: Example shows overhead export cables, which would not apply for the Transmission Assets.

Built form and materiality

East Anglia ONE Substation

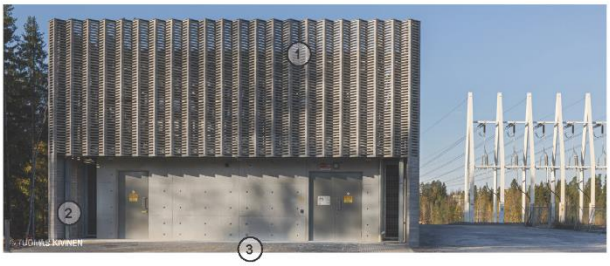
Burstall



Hornsea Two Offshore Wind Farm Converter Station

Norfolk





Imatra Substation

Finland



Planting and use of existing landscape features

Electrical Substation

Oregon

Note: Example shows overhead export cables, which would not apply for the Transmission Assets.

A.1 Appendices

A.1.1 Supporting Figures to this Technical Note

- Figure 1: Topographic Context
- Figure 2: Cross Section of Morgan Onshore Substation site
- Figure 3: Cross Section of Morecambe Onshore Substation site
- Figure 4: Elevation of Morgan Onshore Substation site
- Figure 5: Indicative Substation Layout (3D Annotated) – Morgan
- Figure 6: Indicative Substation Layout (3D Annotated) – Morecambe

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LEGEND

- Onshore substation sites
- Extent of indicative earthwork grading
- Existing minor contour (1m interval)
- Existing major contour (5m interval)
- Proposed minor contour (1m interval)
- Proposed major contour (5m interval)
- +10.5m Spot heights
- Indicative location of proposed attenuation feature

+15.221m
+13.019m
+9.650m
+10.465m
+8.740m
+9.555m

REV.	DESCRIPTION	APP.	DATE
A	Finalisation of plan following client comments	NA	04/07/25

LDĀDESIGN

PROJECT TITLE
Morgan and Morecombe Offshore Wind Farm:Transmission Assets

DRAWING TITLE
Figure 1: Topographic Context

ISSUED BY	Oxford	T: 01865 887 050	
DATE	04/07/25	DRAWN	DK
SCALE@A1	1:5,000	CHECKED	NA
STATUS	Final	APPROVED	AK

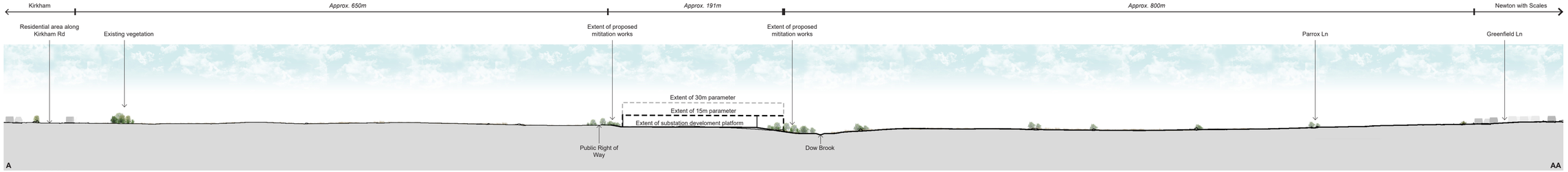
DWG. NO 9445_SK002

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources Ordnance Survey

0 200m

X:\JOBS\1427_Crawley_Solar_Farm\Graphics\Plans_Images\Sections\ 1427_XX_Illustrative_Sections_A-D.indd



Section A (1:1,000)

View 1 from Kirkham Road towards the Morgan onshore substation site

View 2 from Greenfield Lane towards the Morgan onshore substation site

View 3 from Greenfield Lane towards the Morgan onshore substation site

ISSUED BY	Oxford	t: 01865 887050	
DATE	3 July 2025	DRAWN	DKa
SCALE@A1	1:1,000	CHECKED	NA
STATUS	Final	APPROVED	AK

DWG. NO. 9445_SK_001

Cross Section Location Plan

Google Street View Locations

PROJECT TITLE

MORGAN AND MORECOMBE OFFSHORE WIND FARM:TRANSMISSION ASSETS

DRAWING TITLE

Figure 2: Cross Section of Morgan Onshore Substation Site

LDĀ DESIGN

Section CC (1:2,500)

View 1 from Strike Lane towards the Morecambe onshore substation site

View 2 from Grange Lane towards the Morecambe onshore substation site

View 3 from Parrox Lane towards Morecambe onshore substation site

ISSUED BY	Oxford	t: 01865 887050		
DATE	04/07/25	DRAWN	DKa
SCALE@A1	1:2,500	CHECKED	NA
STATUS	Final	APPROVED	AK

DWG. NO. 9445_SK_002

Cross Section Location Plan

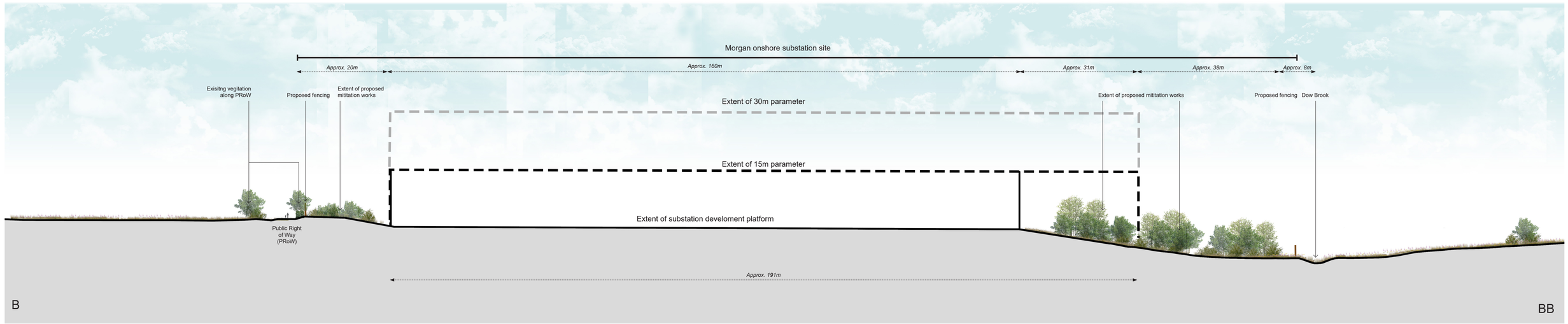
Google Street View Locations

PROJECT TITLE

MORGAN AND MORECOMBE OFFSHORE WIND FARM:TRANSMISSION ASSETS

DRAWING TITLE

Figure 3: Cross Section of Morecombe Onshore Substation Site



Section B (1:500)

Elevation Location Plan

ISSUED BY	Oxford	t: 01865 887050	
DATE	3 July 2025	DRAWN	DKa
SCALE@A3	1:500	CHECKED	NA
STATUS	Final	APPROVED	AK

DWG. NO. 9445_SK_002

PROJECT TITLE

MORGAN AND MORECOMBE OFFSHORE WIND FARM:TRANSMISSION ASSETS

DRAWING TITLE

Figure 4: Elevation of Morgan Onshore Substation site

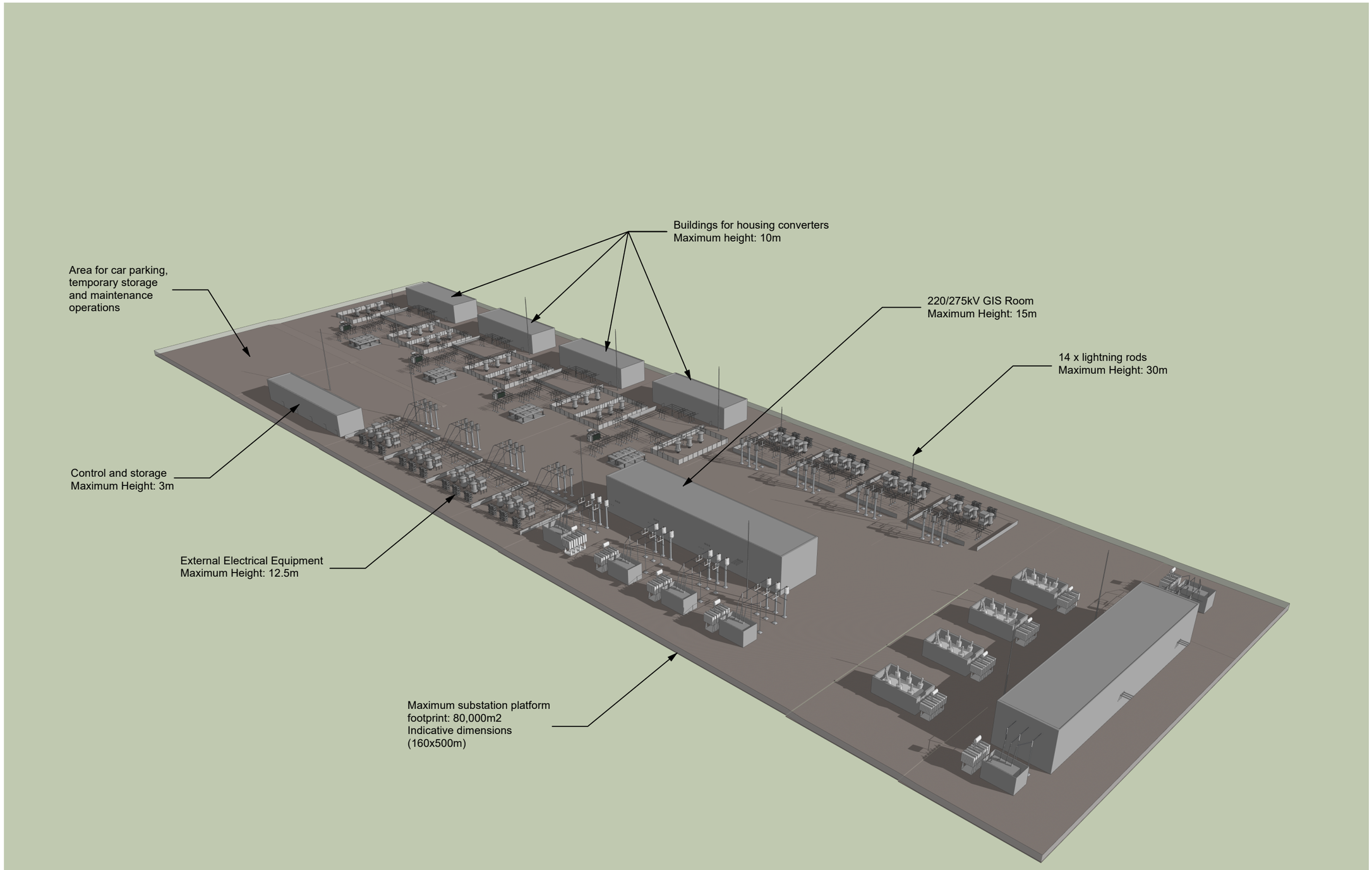


Figure 5

Drawing Number:

12693-0571-01

Project Name:	Drawing Title:								
MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS	Indicative Substation Layout Morgan					VER	DATE	DETAILS	BY	CHECK
						00	25/06/25	Final	PRW	HK

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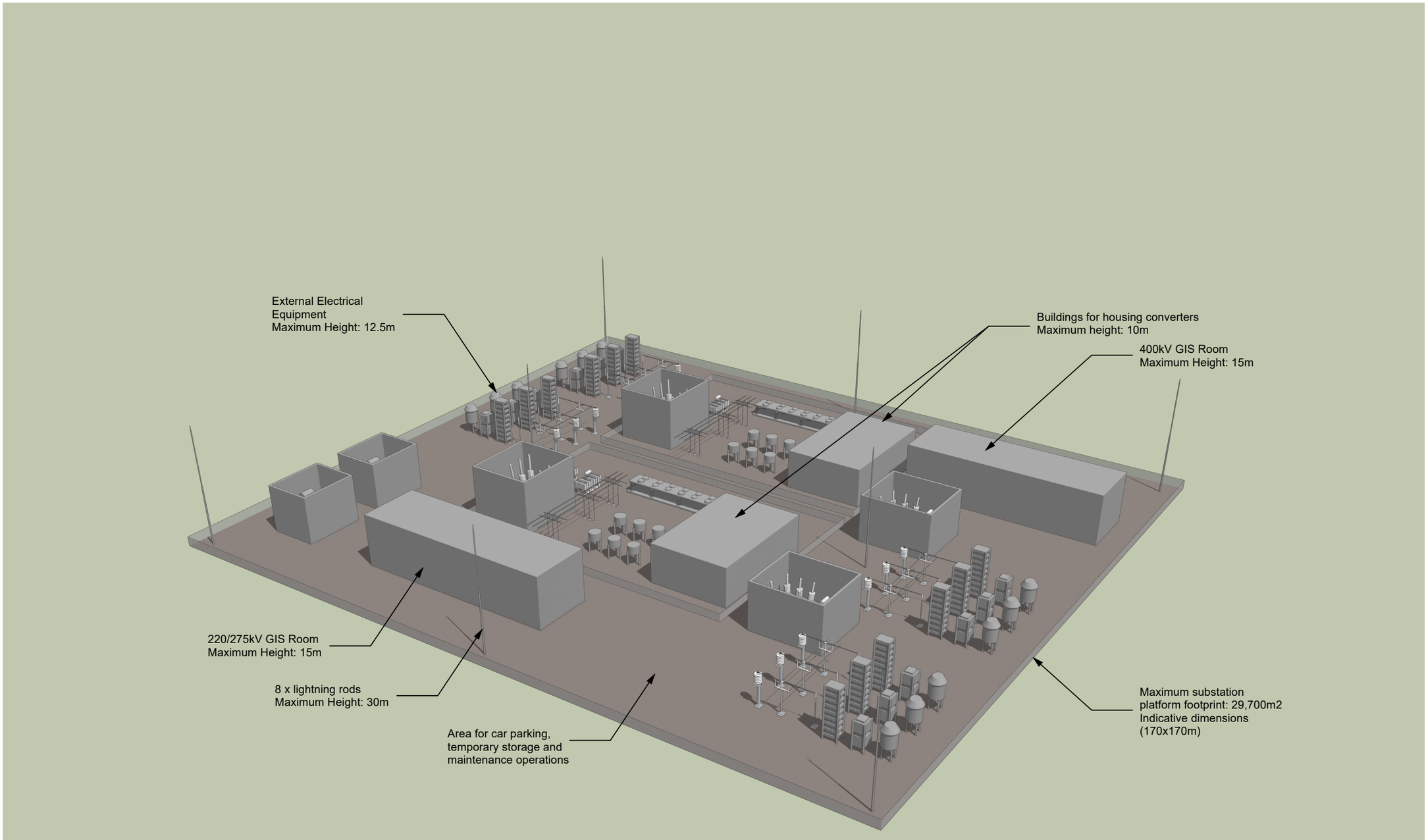

MORECAMBE
cobra | FLOTATION ENERGY
EnBW | bp | rps

Figure 6

Drawing Number:
12693-0572-01

Project Name:	Drawing Title:								
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						00	25/06/25	Final	PRW	HK

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